UNITED STATES INTERNATIONAL TRADE COMMISSION

Washington, D.C.

In the Matter of

CERTAIN TWO-WAY RADIO EQUIPMENT AND SYSTEMS, RELATED SOFTWARE AND COMPONENTS THEREOF

Inv. No. 337-TA-1053

INITIAL DETERMINATION ON VIOLATION OF SECTION 337 AND RECOMMENDED DETERMINATION ON REMEDY AND BOND

Administrative Law Judge MaryJoan McNamara

(July 3, 2018)

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SELECTED SUMMARY FINDINGS


It is a finding of this ID that Complainant Motorola Solutions, Inc. (“Complainant” or “Motorola”) has proven by a preponderance of evidence that Respondents Hytera Communications Corp. Ltd., Hytera America, Inc., and Hytera Communications America (West), Inc. (collectively, “Respondents” or “Hytera”) have violated subsection (b) of Section 337 of the Tariff Act of 1930, in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain two-way radio equipment and systems, related software and components thereof.

It is a finding of this ID that Hytera has infringed asserted claims 9, 13, 14, and 15 of U.S. Patent No. 8,116,284 (“the ’284 patent”). It is also a finding of this ID that Hytera has infringed asserted claims 1, 6, 17, and 21 of U.S. Patent No. 7,369,869 (“the ’869 patent”). Additionally, it is a finding of this ID that Hytera has infringed asserted claims 1 and 11 of U.S. Patent No. 7,729,701 (“the ’701 patent”). Moreover, it is a finding of this ID that Hytera has infringed asserted claims 7 and 8 of U.S. Patent No. 8,279,991 (“the ’991 patent”).

It is finding of this ID that Hytera has not proven by clear and convincing evidence that any of the asserted claims are invalid under 35 U.S.C. § 102 as anticipated and/or under 35 U.S.C. § 103 as obvious.

It is a finding of this ID that one or more of Motorola’s domestic industry products have satisfied the technical industry prong of the domestic industry requirement for the ’869, ’701,
and ’991 patents. It is also a finding of this ID that Motorola has not satisfied the technical prong of the domestic requirement for the ’284 patent.

It is a finding of this ID that Motorola has satisfied the economic prong of the domestic industry requirement under Section 337(a)(3)(A), (B), and/or (C).
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Public Version

ii. “locking onto a channel of the plurality of channels by the subscriber unit wherein a subset of the plurality of channels is preprogrammed in a list in the subscriber unit” [1a]/“locking onto a channel preprogrammed in a list of a subscriber unit whereby the channel carries activity on one timeslot of the TDMA system” [17a]/“a receiver for locking onto a channel of the plurality of channels wherein a subset of the plurality of channels is preprogrammed” [21a] .... 108

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APPENDICES

Appendix A: Accused Products

Appendix B: DI Products
ABBREVIATIONS

The following shorthand references to the parties and related U.S. agencies are used in this Initial Determination:

Complainant or Motorola

Respondents or Hytera

CBP

PTO

PTAB

The following abbreviations for pleadings, exhibits, briefs, transcripts, and Orders are used in this Initial Determination:

Compl.

Resp.

CX

CDX

CPX

CPBr.

CBr.

CRBr.

CPSt.
The following abbreviations for technical terms are used in this Initial Determination:

ASIC  Application specific integrated circuit
BR    Base radio
BS    Base station, or “repeater”
CACH  Common Announcement Channel
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<td><strong>PT-DMO</strong></td>
<td>Pseudo Trunk Direct Mode</td>
</tr>
<tr>
<td><strong>PT-RMO</strong></td>
<td>Pseudo Trunk Repeater Mode</td>
</tr>
<tr>
<td><strong>RF</strong></td>
<td>Radio frequency</td>
</tr>
<tr>
<td><strong>SARQ</strong></td>
<td>Selective Automatic Repeat Request</td>
</tr>
<tr>
<td><strong>SU</strong></td>
<td>Subscriber unit</td>
</tr>
<tr>
<td><strong>SUID</strong></td>
<td>Subscriber unit identifier</td>
</tr>
<tr>
<td><strong>TC</strong></td>
<td>TDMA channel</td>
</tr>
<tr>
<td><strong>TDD</strong></td>
<td>Time division duplex</td>
</tr>
<tr>
<td><strong>TDMA</strong></td>
<td>Time division multiple access</td>
</tr>
<tr>
<td><strong>TGID</strong></td>
<td>Talkgroup identifier</td>
</tr>
<tr>
<td><strong>XTP</strong></td>
<td>eXtended Pseudo Trunking Mode</td>
</tr>
</tbody>
</table>
The following shorthand references to certain products and patents at issue in this are used in this Initial Determination:

'284 patent  U.S. Patent No. 8,116,284

'869 patent  U.S. Patent No. 7,369,869

'701 patent  U.S. Patent No. 7,729,701

'991 patent  U.S. Patent No. 8,279,991

Asserted Patents  '284, '869, '701 and '991 patents, collectively

'284 Legacy Products  RD622, RD622i, RD982, RD982i, RD982S, RD982Si, MD652, MD652i, MD782, MD782i, BD302, BD502, PD362, PD412, PD502, PD562, PD602, PD662, PD682, PD702, PD752, PD782, PD792, PD982, X1e, X1p

'284 Redesigned Products  PD502i, PD562i, PD602i, PD662i, PD682i, PD702i, PD752i, PD792i, PD982i

'284 Accused Products  '284 Legacy Products and '284 Redesigned Products, collectively

'869 Accused Products  MD652, MD782, PD502, PD562, PD602, PD662, PD682, PD702, PD752, PD782, PD792, PD982, X1e, X1p

'701 Accused Products  RD622, RD982, MD652, MD782, PD502, PD562, PD602, PD662, PD682, PD702, PD752, PD782, PD792, PD982, X1e, X1p

'991 Accused Products  MD652, MD782, BD302, BD502, BD362, PD412, PD502, PD562, PD602, PD662, PD682, PD702, PD752, PD782, PD792, PD982, X1e, X1p

Accused Products  '284 Accused Products, '869 Accused Products, '701 Accused Products, and '991 Accused Products, collectively

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1 In its list of Accused Products, Motorola included “all variants thereof.” (See, e.g., CPBr. at x-xi.). This ID does not address any such “variants,” since Motorola never specifically identified them by model name or number.
MOTOTRBO Base Stations (including XPR 8380; MTR3000; XPR 8400; SLR 5000 Series; SLR 8000)\(^2\) and MOTOTRBO Mobile Stations (including XPR 7000 Series; XPR 7000e Series; SL 7000 Series; XPR 5000 Series; XPR 3000e Series; XPR 3000 Series; XPR 2500 Series; XPR 4000 Series; XPR 6000 Series; SL8000 Series; SL500 Series)

MOTOTRBO Base Stations (including XPR 8380; MTR3000; XPR 8400; SLR 5000 Series) and MOTOTRBO Mobile Stations (including XPR 7000 Series; XPR 7000e Series; SL 7000 Series; XPR 5000 Series; XPR 3000 Series; XPR 3000 Series; XPR 2500 Series; SL 300 Series; CP200D; CM Series; XPR 4000 Series; XPR 6000 Series; SL8000 Series; SL500 Series)

MOTOTRBO Base Stations (including XPR 8380; MTR3000; XPR 8400; SLR 5000 Series) and MOTOTRBO Mobile Stations (including XPR 7000 Series; XPR 7000e Series; SL 7000 Series; XPR 5000 Series; XPR 3000 Series; XPR 3000 Series; XPR 2500 Series; SL 300 Series; CP200D; CM Series; XPR 4000 Series; XPR 6000 Series; SL8000 Series; SL500 Series)

MOTOTRBO Mobile Stations (including XPR 7000 Series; XPR 7000e Series; SL 7000 Series; XPR 5000 Series; XPR 3000 Series; XPR 3000 Series; XPR 2500 Series; SL 300 Series; CP200D; CM Series; XPR 4000 Series; XPR 6000 Series; SL8000 Series; SL500 Series)

\(^2\) With respect to the ‘701 patent, Motorola stated in its Initial Post-Hearing Brief that the SLR8000 series was “inadvertently omitted from Dr. Wicker’s slide identifying Motorola’s domestic industry products. Like the other repeaters identified, the SLR 8000 series is a MOTOTRBO repeater (see CX-0963C), and “Motorola’s Thomas Bohn . . . explained that all Motorola’s repeaters practiced the quick re-keying method described in the ’701 patent.” (CBr. at 49 n.10 (citing Tr. (Bohn) at 119:17-120:2).). In that same footnote, Motorola also noted that its technical requirements specification confirms that the repeater is programmed with the ’701 functionality. (Id. (citing CX-1011C.222-224)).

While Hytera may not have contested that the SLR 8000 series of repeaters are included in Motorola’s DI products (CBr. 49 n.10), to be consistent and even-handed with the Parties, this decision is treating Motorola’s omission of the SLR 8000 series information from Dr. Wicker’s testimony, as Motorola describes it, as deemed waived under Ground Rule 10.1.
DI Products

‘284 DI Products, ’869 DI Products, ’701 DI Products, and ’991 DI Products, collectively
I. INITIAL DETERMINATION ON VIOLATION OF SECTION 337, AND RECOMMENDED DETERMINATION ON REMEDY AND BOND

A. Summary of Findings

A summary of this decision’s finding is summarized below.

<table>
<thead>
<tr>
<th>Product</th>
<th>Patent</th>
<th>Claims</th>
<th>Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>'284 Accused Products</td>
<td>'284 patent</td>
<td>9, 13, 14, and 15</td>
<td>No violation (claims 9, 13, 14, and 15): Claims 9, 13, 14, and 15 are valid and infringed by the '284 Legacy and Redesigned Products. However, the '284 DI Products do not satisfy the technical prong of the DI requirement.</td>
</tr>
<tr>
<td>'869 Accused Products</td>
<td>'869 patent</td>
<td>1, 6, 17, and 21</td>
<td>Violation (claims 1, 6, 17, and 21): Claims 1, 6, 17, and 21 are infringed by the '869 Accused Products.</td>
</tr>
<tr>
<td>'701 Accused Products</td>
<td>'701 patent</td>
<td>1 and 11</td>
<td>Violation (claims 1 and 11): Claims 1 and 11 are infringed by the '701 Accused Products.</td>
</tr>
<tr>
<td>'991 Accused Products</td>
<td>'991 patent</td>
<td>7 and 8</td>
<td>Violation (7 and 8): Claims 7 and 8 are infringed by the '991 Accused Products.</td>
</tr>
<tr>
<td>DI Products</td>
<td>All Asserted Patents</td>
<td></td>
<td>Satisfied. Motorola’s domestic R&amp;D activities with respect</td>
</tr>
</tbody>
</table>
II. BACKGROUND

A. Institution and Selected Procedural History


The Commission instituted this Investigation pursuant to subsection (b) of Section 337 of the Tariff Act of 1930, as amended, to determine:

whether there is a violation of subsection (a)(1)(B) of section 337 in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain two-way radio equipment and systems, related software and components thereof by reason of infringement of one or more of claims 1, 2, 4-10, 12-16, 18, and 19 of the ’284 patent; claims 1-5, 7, 8, 10, 12-16, 18, 20-25, 27, 29, and 30 of the ’169 patent; claims 1-14, and 17-24 of the ’869 patent; claims 1-5, 8-15, 17, and 18 of the ’701 patent; claims 7 and 8 of the ’991 patent; claims 1, 3, 4, and 6-8 of the ’972 patent; and claims 1 and 3-16 of the ’111 patent, and whether an industry in the United States exists as required by subsection (a)(2) of section 337[.]
The Notice of Investigation ("NOI") names Motorola Solutions, Inc. of Chicago, Illinois as complainant ("Complainant" or "Motorola"). See id. The NOI names Hytera Communications Corp. Ltd. of Shenzhen, China; Hytera America, Inc. of Miramar, Florida; and Hytera Communications America (West), Inc. of Irvine, California as respondents ("Respondents" or "Hytera," and with Complainant or Motorola, the “Parties”). Id.

On May 26, 2017, Hytera filed a response to the Complaint and NOI ("Response"). (Doc. ID No. 612893 (May 26, 2017)). In the Response, Hytera identified five (5) affirmative defenses ("Respondents’ Affirmative Defenses"). (Resp. at 18-20.).

On August 25, 2017, an ID issued granting Motorola’s first partial termination of this Investigation against Hytera with respect to: (i) claims 2, 5, 10, and 16 of the ’284 patent; (ii) claims 2, 3, 8, 12, 14, 15, 20, 22-24, and 30 of the ’169 patent; (iii) claims 5, 8, 11-14, 18, and 22 of the ’869 patent; (iv) claims 3, 5, 8-10, 15, 17, and 18 of the ’701 patent; (v) claim 3 of the ’972; and (vi) claims 3, 4, 5, 8-10, and 14 of the ’111 patent. (Order No. 10 (Aug. 25, 2017)). The Commission determined not to review the ID. (Doc. ID No. 623266 (Sept. 18, 2017)). On October 2, 2017, an ID issued granting Motorola’s second partial termination of this Investigation against Hytera with respect to claim 10 of the ’869 patent. (Order No. 16 (Oct. 2, 2017)). The Commission determined not to review the ID. (Doc. ID No. 625862 (Oct. 17, 2017)).

On October 24, 2017, an ID was issued granting Motorola’s third partial termination of this Investigation against Hytera as to: (i) claims 1, 4, 12 and 18 of the ’284 patent; (ii) claims 4, 13, 16 and 25 of the ’169 patent; (iii) claims 3, 4, 9, 19, 20, 23 and 24 of the ’869 patent; (iv) claims 2, 4 and 14 of the ’701 patent; (v) claims 4 and 8 of the ’972 patent; and (vi) claims 6 and 12 of the ’111 patent. (Order No. 19 (Oct. 24, 2017)). On November 8, 2017, an ID issued
granting Motorola’s fourth partial termination of this Investigation against Hytera as to claims 5 and 18 of the ’169 patent. (Order No. 21 (Nov. 8, 2017).). On December 6, 2017 and December 7, 2017, ID issued granting Motorola’s fifth and sixth partial termination of this Investigation against Hytera, respectively, as to: (i) claims 2 and 7 of the ’869 patent; (ii) claims 7, 8, and 19 of the ’284 patent; and (iii) claim 12 of the ’701 patent. (Order Nos. 23 (Dec. 6, 2017), 24 (Dec. 7, 2017).). On January 12, 2018, an ID issued granting Motorola’s seventh partial termination of this Investigation against Hytera as to claim 13 of the ’701 patent, claim 6 of the ’284 patent, and claim 1 of the ’972 patent. (Order No. 31 (Jan. 12, 2018).) On January 31, 2018, an ID issued granting Motorola’s eighth and final partial termination of this Investigation against Hytera as to the ’972 patent. (Order No. 40 (Jan. 31, 2018).). The Commission determined not to review the IDs granting Motorola’s third, fourth, fifth, sixth, seventh, and eighth partial terminations. (Doc. ID Nos. 628803 (Nov. 14, 2017), 630515 (Dec. 4, 2017), 632900 (Jan. 3, 2018), 632915 (Jan. 3, 2018), 635661 (Feb. 6, 2018), 637507 (Feb. 26, 2018).).

Following the termination of the ’972 patent, the Asserted Patents and claims remaining that are the subject of this decision are: (i) claims 9, 13, 14, and 15 of the ’284 patent; (ii) claims 1, 6, 17, and 21 of the ’869 patent; (iii) claims 1 and 11 of the ’701 patent; and (iv) claims 7 and 8 of the ’991 patent.

On October 4, 2017, a Markman hearing and a technical tutorial were held. (Doc. ID No. 624992 (Oct. 6, 2017).).

On December 29, 2017, an Order construing the disputed claim terms and defining the level of ordinary skill in the art issued. (See Markman Order.).

On January 5, 2018, Motorola filed two (2) motions in limine (“MIL”) in one omnibus motion. (Motion Docket No. 1053-026 (Jan. 5, 2018).). Hytera filed two (2) MILs (Motion
Docket Nos. 1053-025 and 1053-027) and four (4) high-priority objections ("HPO") (Doc. ID No. 633104 (Jan. 5, 2018)).

On January 26, 2018, an Order setting forth the rulings on Motorola’s MILs was issued. (Order No. 38 (Jan. 26, 2018)). Motorola’s MILs, and the rulings on these motions, are summarized in Chart No. 2 below.

**Chart No. 2: Motorola’s MILs**

<table>
<thead>
<tr>
<th>MIL No.</th>
<th>Issue</th>
<th>Ruling</th>
</tr>
</thead>
</table>
| MIL No. 1³ | Complainant’s Motion to Preclude Arguments, Testimony, and Exhibits Relating to Respondents’ Assertions that U.S. Patent Nos. 9,099,972 and 8,116,284 Are Invalid For Obviousness over Combinations of Specific Prior Art References that Were Not Adequately Disclosed in Respondents’ Expert Reports | Denied without prejudice. (Order No. 38 at 2.). However, “Hytera will not be permitted to provide additional explanation, explication or reasoning on the alleged invalidity of any of the remaining asserted patents and claims in this Investigation, whether based on obviousness or anticipation, that is not contained in Hytera’s expert witness reports by Dr. Robert Akl and Dr. Mark Clements, and in Hytera’s its Pre-Hearing Brief. Specifically, Hytera is limited to the conclusory statements of its Pre-Hearing Brief. Dr. Akl and Dr. Clements will not be permitted to provide any reasoning or explanation that is not contained in their expert reports. . . . Hytera’s charts or tables that purport to show prior art obviousness combinations, some of which are replicated below, do not constitute evidence without more. Hytera’s prior art combination charts, without more, violate Ground Rule 5.” (Id. at 2-3 (emphasis in

³ On January 29, 2018, because of Motorola’s motion for partial termination of the Investigation with respect to the ’972 patent, Motorola withdrew as moot that portion of its MIL No. 1 that pertains to Hytera’s assertions of invalidity of the ’972 patent. (Doc. ID No. 634984 (Jan. 29, 2018)).
<table>
<thead>
<tr>
<th>MIL No.</th>
<th>Issue</th>
<th>Ruling</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIL No. 2</td>
<td>Complainant’s Motion to Preclude Arguments, Testimony, and Exhibits Relating to Respondents’ Defenses that U.S. Patent Nos. 8,279,991 and 7,369,869 Are Allegedly Essential to the ETSI Standard that Were Not Timely Disclosed in Accordance with the Schedule and Ground Rules</td>
<td>Granted in-part. <em>(Id. at 3-4.)</em>. “Hytera has withdrawn its defenses of implied license, unenforceability and estoppel directed at Motorola’s alleged violation of the rules of certain standards setting organizations. Those defenses are <em>moot</em>. With respect to its license defense, Hytera is preclude[ed] from putting in any evidence during the Hearing. Therefore, that part of Motorola’s MIL 2, Motion Docket No. 1053-026, is <em>granted.</em>” <em>(Id. at 3-4 (emphasis in original).)</em></td>
</tr>
</tbody>
</table>

On January 16, 2018, Orders setting forth the rulings on Hytera’s MILs and HPOs were issued. *(Order Nos. 33-35 (Jan. 16, 2018).)* Hytera’s MILs and HPOs, and the rulings on these motions/objections, are summarized in Chart No. 3 below.

**Chart No. 3: Hytera’s MILs and HPOs**

<table>
<thead>
<tr>
<th>MIL No./HPO No.</th>
<th>Issue</th>
<th>Ruling</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIL No. 1</td>
<td>Respondents’ Motion to Preclude Complainant’s Experts, Dr. Stephen Wicker,⁴ Dr. Sundeeep</td>
<td>Granted in-part, denied in-part. <em>(Order No. 33.)</em>. &lt;br&gt;• All of Motorola’s witnesses are</td>
</tr>
</tbody>
</table>

⁴ When he testified during the evidentiary hearing on January 29-30, 2018 and February 2, 2018, Dr. Stephen Wicker was a Professor of Electrical and Computer engineer at Cornell University. *(CPSt. at Ex. D; Tr. (Wicker) at 174:5-7.)* Motorola identified Dr. Wicker as an expert to provide testimony with regard to: claim construction, technical background, infringement, and technical domestic industry with respect to the validity of the ’701, ’991 and ’284 patents. He also provided expert opinion and testimony on the conception and reduction to practice of the ’284 patent. He was expected to provide testimony on Hytera’s Fourth Affirmative Defense, express or implied license, to the extent that Hytera actually provided any evidence on whether any of the Asserted Patents (and especially with respect to the ’991
<table>
<thead>
<tr>
<th>MIL No./HPO No.</th>
<th>Issue</th>
<th>Ruling</th>
</tr>
</thead>
</table>
|                 | Rangan,⁵ and Dr. David Anderson⁶ from Presenting Expert Testimony Beyond the Scope of Their Expertise | precluded from offering opinions with respect to any witness’ invocation of his Fifth Amendment privilege.  *(Id. at 3.)*  
- Motorola’s experts are precluded from offering opinions on any witness’ “intent” or “state of mind” for any purpose.  *(Id. at 3-4.)*  
- Motorola’s experts are qualified to testify to infringement and induced infringement.  *(Id. at 4.)*  
- Motorola’s experts may testify to product copying.  *(Id. at 5.)*  
- Motorola’s experts may testify to non-obviousness and secondary considerations.  *(Id. at 5.)* |
| MIL No. 2       | Respondents’ Motion to Preclude Complainant from Presenting Any Evidence, Opinions, or Arguments Regarding Contentions Withheld | Granted in-part, denied in-part.  *(Order No. 34.)*  
- Motorola is not precluded from presenting evidence, opinions, and arguments with respect to patent) were standard essential to the ETSI Digital Mobile Radio (DMR) standards.  *(CPSt. at 2.)* |

⁵ When he testified during the evidentiary hearing on January 31, 2018 and February 2, 2018, Dr. Sundeep Rangan was an Associate Professor of Electrical and Computer Engineering at New York University.  *(CPSt. at Ex. C; Tr. (Rangan) at 590:20-24.)*  Motorola identified Dr. Rangan as an expert to provide testimony with respect to: claim construction, technical background, infringement, technical domestic industry, and the validity of the ’869 patent. He was expected to provide rebuttal testimony and rebuttal to Hytera’s Fourth Affirmative Defense, express or implied license, to the extent that Hytera actually provided any evidence on whether the ’869 patent was standard essential to the ETSI Digital Mobile Radio (DMR) standards.  *(CPSt. at 2.)*

⁶ At the time of the evidentiary hearing, Dr. David Anderson was a Professor of Electrical and Computer Engineering at the Georgia Institute of Technology.  *(CPSt. at Ex. A.)*  Motorola identified Dr. Anderson as an expert to provide testimony with regard to claim construction, technical background, infringement, technical domestic industry, and validity of the ’972 patent.  *(Id. at 1.)*  However, Motorola did not call Dr. Anderson to testify during the evidentiary hearing.
<table>
<thead>
<tr>
<th>MIL No./HPO No.</th>
<th>Issue</th>
<th>Ruling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>During Fact Discovery</td>
<td>infringement under the doctrine of equivalents. <em>(Id. at 5.).</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Motorola is precluded from using a conception or reduction to practice</td>
</tr>
<tr>
<td></td>
<td></td>
<td>date for the ’284 patent before December 18, 2008, and from</td>
</tr>
<tr>
<td></td>
<td></td>
<td>presenting evidence during the evidentiary hearing. <em>(Id. at 6.).</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Motorola’s evidence on domestic DI is not precluded. *(Id. at 8.).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Motorola’s evidence on bond is not precluded. *(Id. at 9.).</td>
</tr>
<tr>
<td>HPO No. 1</td>
<td>Respondents’ Objections</td>
<td>Denied without prejudice. <em>(Order No. 35 at 2.).</em></td>
</tr>
<tr>
<td></td>
<td>to Deposition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Designations of Ms. Xiaohua</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Zheng7 (CX-0749C, CX-0750C,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CX-1632C) and Mr. Jue Liang8</td>
<td>(CX-0744C, CX-0804C)</td>
</tr>
<tr>
<td>HPO No. 2</td>
<td>Respondents’ Objections</td>
<td>Denied. <em>(Id. at 3.).</em></td>
</tr>
</tbody>
</table>

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7 At the time of her deposition on October 9-10, 2017, and when she testified during the evidentiary hearing on February 1, 2018, Ms. Xiaohua Zheng was the Vice General Manager of the DMR Division at Hytera. *(CX-0749C (Zheng Dep. Tr. (Oct. 9, 2017) at 6:5-10; Tr. (Zheng) at 866:7-10.).* She was responsible for managing a research and development department for Hytera’s DMR terminals, which included software and hardware development. *(CX-0749C (Zheng Dep. Tr. (Oct. 9, 2017) at 6:5-10; Tr. (Zheng) at 866:11-15.).* Hytera identified Ms. Zheng as a fact witness to provide general testimony with respect to: the accused Hytera products, including their function and operation, hardware, software, and documentation associated with each product. *(RPSt. at 2.).*

8 At the time of his deposition on October 12, 2017, Mr. Jue Liang was a Product Director at Hytera. *(CX-0744C (Liang Dep. Tr. (Oct. 12, 2017)) at 6:22-24.).* Mr. Liang’s responsibilities as Product Director included strategic planning, managing the products, and organizing the team. *(Id. at 8:3-9.).* Hytera identified Mr. Liang as a fact witness to provide general testimony with respect to the accused Hytera products, including their function and operation, hardware, software, and documentation associated with each product. *(RPSt. at 2.).*
<table>
<thead>
<tr>
<th>MIL No./HPO No.</th>
<th>Issue</th>
<th>Ruling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>to Deposition Designations of Mr. Sam Guan⁹ (CX-0745C) and Ms. Vivian Pan¹⁰ (CX-0748C)¹¹</td>
<td>“Hytera’s objections are moot because by Orders No. 27, 28, and 29, filed on January 12, 2018, subpoenas ad testificandum issued to each of the identified witnesses respectively, in this section of this Order, were quashed because the patents on which Messrs. Valnyer, Marcus and Guller were</td>
</tr>
<tr>
<td>HPO No. 3</td>
<td>Respondents’ Objections to Deposition Designations of Messrs. Felix Vayner¹² (CX-0742C), Bruce R. Marcus¹³ (CX-0740C), and Steven J. Guller¹⁴</td>
<td></td>
</tr>
</tbody>
</table>

⁹ At the time of his deposition on September 26, 2017, Mr. Sam Guan was Vice President (“VP”) of Engineering at Hytera America. (CX-0745C (Guan Dep. Tr. (Sept. 26, 2017)) at 8:14-21.). As VP of Engineering, Mr. Guan is responsible for taking care of all engineering-related activities in Hytera America. (Id. at 8:22–9:4.).

¹⁰ At the time of her deposition on October 13, 2017, Ms. Vivian Pan was the Marketing Director of Hytera America. (CX-0748C (Pan Dep. Tr. (Oct. 13, 2017)) at 45:22–46:3.). As Marketing Director, Ms. Pan was responsible for “develop[ing] the marketing program for the channels to enhance the Hytera brand awareness in the U.S., com[ing] up with the strategy for digital, and account marketing.” “[o]rchestra[ing] and overse[ing] all of the events, shows, conference,” and “[s]upport[ing] the sales team to grow business.” (Id. at 46:5-13.).

¹¹ CX-0748C has been withdrawn.

¹² At the time of his deposition on October 13, 2017, Mr. Felix Vayner was the owner of MicroMagic Incorporated. (CX-0742C (Vayner Dep. Tr. (Oct. 13, 2017)) at 6:2-8.). During his deposition, Mr. Vayner testified that (Id. at 6:15-22, 7:6-15.). Mr. Vayner stated that (Id. at 5:17.).

¹³ At the time of his deposition on September 22, 2017, Mr. Bruce R. Marcus was the Chief Technology Officer (“CTO”) of Marcus Communications. (CX-0740C (Marcus Dep Tr. (Sept. 22, 2017)) at 9:5-7.). As CTO, Mr. Marcus designed systems and evaluated products such as video and access control. (Id. at 9:8-24.).

¹⁴ At the time of his deposition on October 3, 2017, Mr. Steven J. Guller was President of Warner Communications Corporation. (CX-0747C (Guller Dep. Tr. (Oct. 3, 2017)) at 8:10-15.).
<table>
<thead>
<tr>
<th>MIL No./HPO No.</th>
<th>Issue</th>
<th>Ruling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(CX-0747C)</td>
<td>called to testify during the Hearing, and on which they testified during their depositions, have been terminated from this Investigation. Hytera’s objections are therefore moot. However, if there is any doubt, Hytera’s objection to the identified deposition transcript designations for Messrs. Va[y]n[er], Marcus and G[u]ller are sustained or granted.” <em>(Id.)</em></td>
</tr>
<tr>
<td>HPO No. 4</td>
<td>Respondents’ Objections to Deposition Designations of Messrs. Samuel Chia(^\text{15}) (CX-0746C), Y.T. Kok(^\text{16}) (CX-0751C), and G.S. Kok(^\text{17}) (CX-0743C)</td>
<td>Denied without prejudice. <em>(Id. at 4.)</em></td>
</tr>
</tbody>
</table>

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\(^{15}\) At the time of his deposition on September 26, 2017, Mr. Samuel Chia was the General Manager for the broadband product line at Hytera. *(CX-0746C (Chia Dep. Tr. (Sept. 26, 2017)) at 8:6-9.)* Prior to his employment by Hytera, from approximately 1999 to 2008, Mr. Chia worked for Motorola first as a software developer and then as a team leader for the digital signal processing team. *(Id. at 15:20–16:10.)*

\(^{16}\) At the time of his deposition on September 24, 2017, Mr. Yih Tzye Kok was a salesperson at Hytera. *(CX-0751C (Y.T. Kok Dep. Tr. (Sept. 24, 2017)) at 16:6-13, 26:15-20.)* Mr. Kok testified that his sales work for Hytera focused on DMR products. *(Id. at 30:18-23.)* Prior to working in sales, from approximately 2008 to 2012, Mr. Kok worked as a software manager at Hytera. *(Id. at 26:3-11.)* Before joining Hytera, Mr. Kok worked at Motorola from 1997 to 2000 as a software engineer. *(Id. at 13:4-8, 18:15-19.)* He rejoined Motorola in 2002 as a senior software engineer, left again in 2005, and rejoined Motorola for a third time in 2007 as a software manager, until he left to work for Hytera in 2008. *(Id. at 13:23-14:7, 15:4-10, 22:7-10, 24:12-15.)*

\(^{17}\) At the time of his deposition on September 22, 2017, Mr. Gee Siong Kok was a Product Manager at Sepura, a subsidiary of Hytera. *(CX-0743C (G.S. Kok Dep. Tr.). at 60:19-24, 61:6-8.)* Prior to his employment by Sepura, Mr. Kok worked for Motorola from 1987 to 1997 as an R&D engineer, and then from 2001 to 2007 as an engineering manager. *(Id. at 14:23-25, 15:11-14, 18:23-25, 19:4-6.)* In 2008, Mr. Kok jointed HYT, the entity that became Hytera, as Director. *(Id. at 52:9-15, 54:2-5, 56:13-18.)* Mr. Kok later became Assistant General Manager in charge of terminal development, and in 2013, was promoted to Senior Vice President of Hytera. *(Id. at 58:17–59:3.)*
The evidentiary hearing was held from January 29, 2018 through February 2, 2018. Motorola alleged that Hytera has infringed the Asserted Patents and claims identified in Chart No. 4, below, which were the focus of testimony during the evidentiary hearing.

**Chart No. 4: Patents and Claims at Issue**

<table>
<thead>
<tr>
<th>U.S. Patent No.</th>
<th>Claims Asserted(^{18})</th>
</tr>
</thead>
<tbody>
<tr>
<td>'284</td>
<td>9, 13, 14, 15</td>
</tr>
<tr>
<td>'869</td>
<td>1, 6, 17, 21</td>
</tr>
<tr>
<td>'701</td>
<td>1, 11</td>
</tr>
<tr>
<td>'991</td>
<td>7, 8</td>
</tr>
</tbody>
</table>

On February 5, 2018, a notice addressing post-hearing deadlines ("Post-Hearing Notice") issued. (Order No. 41 (Feb. 5, 2018)). The Post-Hearing Notice instructed the Parties to file, *inter alia*, any post-hearing motions by February 16, 2018. (*Id. at 4.*).

On February 16, 2018, Motorola and Hytera each filed one (1) motion to strike. (Motion Docket Nos. 1053-033 (Feb. 16, 2018), 1053-032 (Feb. 16, 2018)). The Parties’ motions to strike, and the rulings on these motions, are summarized in Chart No. 5 below.

**Chart No. 5: Motorola’s and Hytera’s Motions to Strike**

<table>
<thead>
<tr>
<th>Motion Docket No.</th>
<th>Issue</th>
<th>Ruling</th>
</tr>
</thead>
<tbody>
<tr>
<td>1053-032</td>
<td>Respondents’ Motion to Strike Portions of Hearing Testimony</td>
<td>Denied. (<em>See Order No. 45 (Apr. 26, 2018).</em>).</td>
</tr>
<tr>
<td>1053-033</td>
<td>Complainant’s Motion to</td>
<td>Granted in-part, denied in-part. (*Order</td>
</tr>
</tbody>
</table>

\(^{18}\) Bolded patent claim numbers indicate independent claims.
<table>
<thead>
<tr>
<th>Motion Docket No.</th>
<th>Issue</th>
<th>Ruling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strike Dr. Robert Akl’s\textsuperscript{19} Testimony</td>
<td>No. 47 at App’x A (May 18, 2018).</td>
</tr>
</tbody>
</table>

The following testimony has been stricken:\textsuperscript{20} Tr. at 934:25–935:12 (Order No. 47 at App’x A at 2); 938:22–939:15 (Order No. 47 at App’x A at 9); 951:13–19, 952:5–10 (Order No. 47 at App’x A at 27); 968:21–969:22 (Order No. 47 at App’x A at 72-73); 982:2–973:2 (Order No. 47 at App’x A at 85); 1067:13–1069:10 (Order No. 47 at App’x A at 103); 1081:14–1082, 1092:7-16 (Order No. 47 at App’x A at 124); 1099:11-16 (Order No. 47 at App’x A at 153); 1100:4-8 (Order No. 47 at App’x A at 160); 1102:23–1103:3 (Order No. 47 at App’x A at 170); 1117:11-17 (Order No. 47 at App’x A at 190); 1123:24–1124:2, 1124:5-6, 1124:11-18 (Order No. 47 at App’x A at 214); 1124:25–1125:3 (Order No. 47 at App’x A at 224); 1126:3-21 (Order No. 47 at App’x A at 234); 1128:1-14 (\textit{id.} at 245); 1129:4-8 (Order No. 47 at App’x A at 249); 1129:23–1130:3 (Order No. 47 at App’x A at 260); 1130:19-25 (Order No. 47 at App’x A at 269); 1131:5-9 (Order No. 47 at App’x A at 272); 1131:19–1132:5, 1132:13-19 (Order No. 47 at App’x A at 275); 1133:1-10 (Order No. 47 at App’x A at

\textsuperscript{19} When he testified during the evidentiary hearing on February 1-2, 2018, Dr. Robert Akl was an Associate Professor at the University of North Texas in the Department of Computer Science and Engineering and the Associate Chair of Graduate Studies in that department. (RPSt. at Ex. B; Tr. (Akl) at 926:3-7.). He was also a Senior Member of IEEE. (RPSt. at Ex. B.).

\textsuperscript{20} “In some instances, certain testimony that has been ‘stricken’ may be cited to in the Initial Determination on Violation (‘ID’) as testimony or argument that Hytera abandoned or waived under certain Ground Rules. In other instances, where Dr. Akl’s testimony and opinions are unavailing, or where the stricken testimony provides a more accurate representation of or context for Dr. Akl’s opinions, it may be discussed in the ID in that context. There are other passages for which no decision was made. That testimony may be considered or discussed in the ID in the context of whether Hytera has met its burden of proof on its invalidity or non-infringement arguments, as may be appropriate.” (Order No. 47 at 5.).
## B. The Parties

1. Complainant Motorola Solutions, Inc. ("Complainant" or "Motorola")

Motorola is a Delaware corporation with its headquarters and principal place of business...
at 500 W. Monroe Street, Chicago, IL 60661. (Compl. at ¶ 8.). Motorola has been a provider of two-way radio equipment and systems since its founding in Chicago almost 100 years ago. (Id. at ¶ 9.). Motorola offers a variety of communications products and systems, including MOTOTRBO Digital Mobile Radio (“DMR”) devices and infrastructure for commercial customers in the manufacturing, education, utility, transport and logistics, oil and gas, hospitality, and retail industries; TETRA devices and infrastructure for mission critical communications; and ASTRO and APX Project 25 (“P25”) radios, infrastructure, and dispatch systems for emergency responders and public safety organizations. (Id. at ¶ 10.).

2. **Respondent Hytera Communications Corp. Ltd.**

Hytera Communications Corp. Ltd. is a company organized under the laws of the People’s Republic of China, with its principal place of business at Hytera Tower, Shenzhen Hi-Tech Industrial Park North, #9108 Beihuan Road, Nanshan District, Shenzhen, People’s Republic of China. (Resp. at ¶ 12.). Hytera Communications Corp. Ltd. develops and manufactures two-way radio equipment and systems. (Id. at ¶ 15.).

3. **Respondent Hytera America, Inc.**

Hytera America, Inc. is a company organized under the laws of Florida with its principal place of business at 3315 Commerce Pkwy, Miramar, FL 33025. (Id. at ¶ 13.). Hytera America, Inc. is a subsidiary of Hytera Communications Corp. Ltd. and imports into the United States and sells in the United States two-way radio equipment and systems. (Id. at ¶ 15.).

4. **Respondent Hytera Communications America (West), Inc.**

Hytera Communications America (West), Inc. is a company organized under the laws of California with its principal place of business at 300 Spectrum Center Dr., Suite 1120, Irvine, CA 92618. (Id. at ¶ 14.). Hytera Communications America (West), Inc. is a subsidiary of
Hytera Communications Corp. Ltd. and imports into the United States and sells in the United States two-way radio equipment and systems.  (Id. at ¶ 15.).

III. JURISDICTION, IMPORTATION, AND STANDING

A. The Commission Has Jurisdiction

To have the authority to decide a case, a court or agency must have both subject matter jurisdiction and jurisdiction over either the parties or the property involved. See Certain Steel Rod Treating Apparatus and Components Thereof, Inv. No. 337-TA-97, Comm’n Op., 215 U.S.P.Q. 229, 231 (U.S.I.T.C. 1981). For the reasons discussed below, the facts support a finding that the Commission has jurisdiction over this Investigation.

1. Subject Matter Jurisdiction

The Commission has subject matter jurisdiction over this Investigation because Motorola alleged that Hytera has violated 19 U.S.C. §1337(a)(1)(B). See Amgen v. U. S. Int’l Trade Comm’n, 902 F.2d 1532, 1536 (Fed. Cir. 1990). Hytera has not contested that the Commission has subject matter jurisdiction.  (See RPBr. at 10; RBr. at 8.).

2. Personal Jurisdiction

Hytera has appeared and responded to the Complaint and NOI, and participated in discovery and the evidentiary hearing. Thus, the Commission has personal jurisdiction over Hytera. See, e.g., Certain Windshield Wiper Devices and Components Thereof (“Wiper Devices”), Inv. No. 337-TA-881, Initial Determination at 5 (May 8, 2014) (unreviewed in relevant-part) (Doc. ID No. 534255).

3. In Rem Jurisdiction

Section 337(a)(1)(B) applies to the “[t]he importation into the United States, the sale for importation, or the sale within the United States after importation” of articles that infringe a valid

Hytera has not contested that the Commission has in rem jurisdiction over the Accused Products identified in the Complaint. (See RPBr. at 10; RBr. at 8.).

Thus, evidence presented in this Investigation establishes that the Commission has in rem jurisdiction over the Accused Products. See, e.g., Wiper Devices, Inv. No. 337-TA-881, Inv. No. 337-TA-881, Initial Determination at 5 (in rem jurisdiction exists when importation requirement is satisfied).

With respect to the ’284 Redesigned Products that Motorola accused of infringing the asserted claims of the ’284 patent (CPBr. at 7-14) in its Pre-Hearing Brief, which Motorola did not identify in the Complaint, Motorola stated that, inter alia: (i) “Hytera has not provided any documentary evidence demonstrating that products with this firmware are or will be imported”; (ii) the “products with the new firmware have not been publicly released”; (iii) “Hytera . . . has not published any release notes for its new firmware”; and (iv) Hytera has not “provided documents about the new firmware to customers, or released public documentation about the new firmware.” (Id. at 3 (internal citation omitted)).

In its Initial Post-Hearing Brief, Motorola continued to assert that the ’284 Redesigned Products infringe the asserted claims of the ’284 patent. However, Motorola contended for the first time that Hytera “has not met its burden to show that these allegedly redesigned products are
sufficiently fixed to be adjudicated in the present Investigation.”  (Id. at 3, 13-17.).  

Additionally, Motorola argued that “Hytera introduced no documents about the allegedly redesigned products,” and that “Hytera also has not provided any evidence to substantiate its assertion that it has imported with the redesigned software into the U.S.” (Id.).

Hytera did not contest that the Commission had jurisdiction over its redesigned products in its Pre-Hearing or Initial Post-Hearing Briefs. (RPBr. at 10; RBr. at 8.). However, in its Initial Post-Hearing Brief, Hytera stated that:

Nothing limits an investigation to specifically imported products. On the contrary, remedial orders commonly exclude “all products that infringe,” without identifying specific products, and Complainant has not limited its requested remedy to particular products. It is tautological that the Commission has authority over any product it might exclude through a remedial order.”

(RBr. at 8.).

In its Post-Hearing Reply Brief, Hytera contended in more detail that:

In the parties’ Joint Outline of Issues (Doc. ID 638123), Complainant alleged Hytera must prove the Commission has jurisdiction over Hytera’s Accused New Products (id. at 3, 6, 8, 10), although Complainant did not raise this in its prehearing brief and never disputed Hytera’s products were “sufficiently fixed” to assess. On the contrary, Complainant alleged these products infringe the ‘284 patent. See CPReHgBr at 8-14. Although Complainant now does not want the Court to adjudicate Hytera’s new products, it wants “to be able to argue that they fall within the scope of any exclusion order that may issue,” which is improper. Certain Electronic Digital Media Devices and Components Thereof, Inv. No. 337-TA-796, Comm’n Op., 2013 WL 10734395, at *72 (Sept. 6, 2013). Complainant sought and received discovery on Hytera’s new products, including taking fact

21 By waiting until its Initial Post-Hearing Brief to change its position on jurisdiction, Hytera waived its right to do so under Ground Rule 10.1, and therefore, also waived its right to appeal the decision reached in this ID independently of Hytera’s position.

22 By waiting until Its Initial Post-Hearing Brief to change its position on jurisdiction, Motorola waived its right to do so under Ground Rule 10.1, and therefore, also waived its right to appeal the decision reached in this ID independently of Motorola’s position.
depositions, submitting an expert report, and having its expert testify at the hearing about these products. Id.; Tr. (Wicker) 226-37, 446-52 (alleging infringement of the ’284 patent); Complainant’s Notice Regarding Depositions (Doc ID. 628346) (“Motorola does, however, request a single deposition: namely, a corporate deposition of Hytera regarding its allegedly ‘redesigned’ products.”).

As Hytera noted, Motorola has no basis for this position. “[Q]uestions regarding the importation or developmental stage of [new designs] did not offer an appropriate basis for the ALJ to decline to make a determination of infringement.” Certain Flash Memory Circuits and Prods. Containing Same, Inv. No. 337-TA-382, Comm’n Op., 1997 WL 817778, at *3, *9, *11 (June 2, 1997) (reversing an ALJ’s decision to decline to determine infringement for new designs); Certain Elec. Digital Media Devices and Components Thereof, Inv. No. 337-TA-796, Comm’n Op., 2013 WL 10734395, at *72-73 (Sept. 6, 2013) (“[W]e agree with the ALJ that the design around products were put in issue in this investigation, and Apple had the opportunity to present evidence of infringement. As a result, the ALJ properly adjudicated that Samsung's design around products do not infringe the asserted utility patents.”); see also Certain Hardware Logic Emulation Sys. and Components Thereof, Inv. No. 337-TA-383, Order No. 57, 1996 WL 965689, at *3 n.12 (Nov. 6, 1996) (“[T]he mere assertion of no importation is insufficient to avoid Commission jurisdiction and to prevent discovery.”).

Motorola has been aware that Hytera imported containing the “new software” into the United States.23 (CX-1632C (Zheng Dep. Tr.) at 10:18-24 (“Q: . . . So

23 Certain Products Containing Interactive Program Guide and Parental Control Technology (“Interactive Program Guide”) reinforces the principle that, for purposes of satisfying the importation requirement, what matters is the state or composition of an accused product at importation. Inv. No. 337-TA-845, Initial Determination at 39 (July 2, 2013), aff’d in relevant part, Comm’n Op. at 12-15 (Dec. 11,
I’m going to ask you some questions generally about the new software. And so, when I say ‘new software,’ will you understand that I mean the

24 as well as SmartDispatch? A: Okay.”), 13:25-14:3

(“Q: So has Hytera confirmed that products running the new software actually work correctly? A: Yes.”), 14:11-21 (“Q: . . . [D]id you perform any internal testing anywhere other than Shenzhen? A: Our US subsidiary also performed testing on the prototype machine.” Q: . . . [Y]ou said it passed internal testing, you gave some to subsidiaries, and you gave some to certification agencies; is that correct? A: That’s correct.”), 16:7-11 (“Q: Okay. You also said that you gave some prototypes to certification agencies? A: That’s correct. Q: Which certification agencies? A: FCC certification.”), 16:23-17:3 (“Q: Other than the that you sent to Hytera America and to the FCC, is the new software on radios that are being shipped to the United States? A: No.”).)

Hytera also produced documents and source code relating to the ’284 Redesigned Products, which Motorola’s experts reviewed. (See, e.g., Tr. (Akl) at 936:16-20 (“Q: What kind of information did you review to form an opinion with respect to the Hytera new products? A: I

2013). In that case, the importation requirement was not satisfied for accused products designed to run Netflix software because the products did not contain that software upon importation. Id. at 15 (“[I]t is unclear what portions of the Netflix SDK are in fact imported into the United States on Netflix Ready Devices. Thus, we are unable to conclude that the imported portions of the SDK perform the actions that purportedly induce infringement of the asserted patents.”). Interactive Program Guide is distinguishable from the facts here because Hytera has presented evidence that the ’284 Redesigned Products, as imported, were loaded with the redesigned software. (See, e.g., CX-1632C (Zheng Dep.) at 16:23-17:3.). Moreover, neither party has provided evidence that Hytera imports only product hardware and combines that hardware with software after the hardware has been imported, as was the case in Interactive Program Guide.

24 The ’284 Redesigned Products consist of the PD5i Series ( ), and PD6i, PD7i, and PD9i Series ( ). (See, e.g., CBr. at 13 n.2.)
looked at the source code, I spent a lot of time on the source code, and there were a couple
documents, but mainly the source code.”); Tr. (Wicker) at 229:19-24 “Q: Before we took a
break, we were talking about Hytera’s redesigned software. And just to be clear, these images
you have shown on slide 71 are flowcharts. Did you review any documents or source code
related to Hytera’s redesigned feature? A: Yes, I did.”); see also id. at 229:25-230:9.).

For these reasons, the Commission has in rem jurisdiction over the ’284 Redesigned Products.

**B. Motorola Has Standing in the Commission**

Jurisdiction also requires standing. See *SiRF Technology, Inc. v. Int’l Trade Comm’n*,
601 F.3d 1319, 1326 (Fed. Cir. 2016) (standing to bring an infringement suit is the same under
Commission Rules as it would be in a Federal District Court case); *Certain Optical Disc Drives,
Components Thereof and Prods. Containing Same*, Inv. No. 337-TA897, Opinion Remanding the
based complaints filed by a private complainant “include a showing that at least one complainant
is the exclusive licensee of the subject intellectual property.” 19 C.F.R. § 210.12(a)(7).

Motorola has standing to bring suit for infringement under Section 337 because Motorola
Solutions, Inc. is the owner of the Asserted Patents. (See, e.g., CX-0602; CX-0604; CX-0605;
CX-1267.).

**IV. THE ASSERTED PATENTS**

**A. U.S. Patent No. 8,116,284 (“the ’284 Patent”)**

1. **Overview of the ’284 Patent**

The ’284 patent, titled “Method, Device, and System for Temporarily Selecting a
Timeslot,” was filed on December 18, 2008, as U.S. Patent Application Serial No. 12/338,303
The ’303 application”). (JX-0001 at (21), (22), (54)). The ’303 application issued as the ’284 patent on February 14, 2012, and names Kin Wei Wong, Hooi Hoon Ch’ng, Lip Hoon Lim, and Chun Yee Tan as the inventors. (Id. at (10), (45), (75)). Motorola Solutions, Inc. is the assignee of the ’284 patent. (CX-0602; see also JX-0001 at (73)).

The ’284 patent relates generally to talkgroup timeslot selection methods, communication devices, and wireless communication systems that employ a time division multiple access (“TDMA”) signaling protocol. (JX-0001 at 1:6-10). Specifically, the ’284 patent discloses methods, devices, and systems that allow individual radio communication devices to allocate timeslots to themselves, when their assigned timeslots are not available, without the use of a centralized controller. (See id. at 2:47-61, 5:40-44).

By way of background, wireless communication via radio frequencies (RF) can use a variety of ways to transmit information. In one scheme, known as Time Division Multiple Access (TDMA), RF resources can be divided into a series of recurring time frames which are further divided into timeslots. (See id. at 1:21-24). Radio communication devices are allocated timeslots during which they may transmit information. (See id. at 1:18-26).

Before a device can transmit information, however, it must be allocated the particular timeslots during which it is permitted to transmit. (CXM-0004 (Wicker Decl.) at ¶ 20). As the patent explains, one method that was known in the prior art for allocating RF resources such as timeslots in two-way radio systems is called “trunking.” (JX-0001 at 1:32-37). With trunking, each radio device needing to transmit requests an available traffic channel from a centralized

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25 A TDMA system is a wireless communications system that divides the radio spectrum into timeslots to synchronize communications. (Id. at 1:23-28).
management device called a controller, and the controller then assigns particular timeslots to the radio device. \textit{(Id.; CXM-0004 (Wicker Decl.) at ¶ 20.).} When a communication is completed, the controller re-assigns the timeslots to the next device in need of network resources. \textit{(JX-0001 at 1:27-48.).}

According to the ’284 patent, problems existed with the trunking approach. Specifically, the ’284 patent explains that the use of such centralized, system-level controllers can cause communication delays and may be an unnecessary or undesirable overhead for the communications system. \textit{(See id. at 1:54-58.).}

To overcome this problem, the ’284 patent provides an approach that allows individual radio communication devices to allocate timeslots to themselves, when their assigned timeslots are not available, without the use of a centralized controller. \textit{(See id. at 2:47-61, 5:40-44.).} According to the patent, before a radio communication device begins communication, it checks whether a particular timeslot that has been assigned to it by default is available for it to use. \textit{(See id. at 2:55-58.).} When the assigned default timeslot is not available, rather than wait for re-assignment by a central controller, the radio communication device searches for another, different timeslot that is available. \textit{(See id.).} Upon identifying an available timeslot, the radio communication device temporarily selects it for use. \textit{(See, e.g., id. at 2:55-61, 4:35-40.).}

\textbf{Figure No. 1: Timeslot Allocation Described in the ’284 Patent}
Later, when the default timeslot of the radio device becomes available, the radio device may re-select it. *(See id. at 2:58-61.)*
In certain embodiments, the ’284 patent teaches that the communication with the group of other radio communication devices 100, 230, 240, 250 takes places through at least one repeater 210. (See id. at 2:47-61; CXM-0004 (Wicker Decl.) at ¶ 23.).

26 In a wireless radio communication system, a “repeater” is a device that receives communications from a radio communication device, and repeats those communications to one or more other radio communication devices in order to increase the effective range of the transmitting radio communication device. (See Wicker Decl. at ¶ 19; see also CXM-0012 (McGraw-Hill Dictionary of Electrical & Computer Engineering (2004)) at 489 (defining “repeater” as “[a] device that receives weak signals and delivers corresponding stronger signals with or without reshaping of waveform . . . ”).
2. **Asserted Claims of the ’284 Patent**

Remaining asserted claims 9 and 13-15 of the ’284 patent are recited below. They are product claims directed to radio communication devices and wireless communication systems.

9. A radio communication device having an assigned default timeslot for communicating with a talkgroup of other radio communication devices, the radio communication device comprising: radio communication circuitry; and a processor coupled to the radio communication circuitry, wherein in operation the processor: determines, from a signal provided by the radio communication circuitry, if the default timeslot is available for the radio communication device to communicate with the talkgroup, when the default timeslot is unavailable the processor instructs the radio communication circuitry to search for an available timeslot and temporarily select the available timeslot as a temporary selected group timeslot for the talkgroup, and when the default timeslot becomes available the processor instructs the radio communication circuitry to re-select the default timeslot for communicating with the talkgroup.

13. The radio communication device, as claimed in claim 9, wherein the signal provided by the radio communication circuitry is generated from information sent from a repeater station.

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27 Bolded patent claim numbers indicate independent claims.
14. The radio communication device, as claimed in claim 13, wherein the information sent from the repeater station is provided in a common announcement channel.

15. A wireless communication system comprising: a plurality of radio communication devices forming a talkgroup; and at least one repeater station through which the radio communication devices communicate, wherein each of the radio communication devices have a common assigned default timeslot for communicating with the talkgroup, and wherein each one of the radio communication devices: determines if the default timeslot is available to communicate with the talkgroup, when the default timeslot is unavailable each of the radio communication devices searches for an available timeslot and temporarily selects the available timeslot as a temporary selected group timeslot for the talkgroup, and when the default timeslot becomes available each of the radio communication devices re-select the default timeslot for communicating with the talkgroup.


1. Overview of the ’869 Patent

The ’869 patent, titled “Method and System of Scanning a TDMA Channel,” was filed on July 26, 2004, as U.S. Patent Application Serial No. 10/899,479 (“the ’479 application”). (JX-0005 at (21), (22), (54).) The ’479 application issued as the ’869 patent on May 6, 2008, and names David G. Wiatrowski, Thomas B. Bohn, Satyanarayan R. Panpaliya, and Thomas J. Senese as the inventors. (Id. at (10), (45), (75).) Motorola Solutions, Inc. is the assignee of the ’869 patent. (CX-0604; see also JX-0005 at (73).)

The ’869 patent discloses a method and system for scanning a TDMA channel by a subscriber unit in a wireless communications landscape. (JX-0005 at Abstract; see also id. 1:6-8.). “Scan” is a feature used by two-way radio subscriber units (or “SUs”), including mobile and portable devices like in-car or handheld radios.” (See id. at 2:39-41.). Scan functionality specifically enables an SU to “lock” on to specific channels in a preprogrammed list in the SU and monitor those channels for information useful to the SU. (Id. at 1:26-28.). For example, an
SU used by a firefighter in Schaumburg, Illinois can scan channels associated with the Schaumburg fire department as well as channels associated with the nearby Rolling Meadows fire department to identify whether those channels have activity that are useful to and should be received by the SU. (*Id.* at 1:31-33.). Figure No. 4 (Figure 1 of the ’284 patent), below, is an exemplary diagram illustrating an SU in a scanning system

**Figure No. 4: Block Diagram of a Wireless Communication Landscape**

(Id. at Fig. 1 (annotated).).

The SU (element 36, in green) is a member of a system (element 120), such as the Schaumburg fire department, which includes several base repeaters (“BRs” or “repeaters,” in yellow). The SU’s preprogrammed scan list may include all the channels associated with the BRs in its system as well as channels associated with BRs in adjacent fire department systems (elements 110 and 130). (*See id.* at 2:14-35.).

Prior to the invention of the ’869 patent, there were problems with the process of
scanning all of the channels on the preprogrammed list, making the overall scan process relatively slow:

If the preprogrammed scan list is very long and has many RF frequencies, then the scan feature takes a long time. Further, in the usual case, when many of the RF communications are normally of no interest to the scanning SU, the scanning SU spends a lot of time listening to communications that are of no interest to it.

(Id. at 1:34-42.).

To minimize scanning time and to more efficiently identify relevant communications, the ’869 patent describes a process for quickly scanning channel activity and identifying transmissions of interest. Specifically, an SU decodes control messages (identified as “activity update messages” in one embodiment) that contain multiple pieces of information about the channel’s activity. (See, e.g., id. at 4:49-58.). For example, Figure No. 5 (Figure 3 of the ’869 patent) below provides a diagram of an exemplary control message:

**Figure No. 5: Example of a Common Announcement Channel Message**

(See id. at Fig. 3 (annotated)).

As illustrated, fields 304 and 306 (in blue) indicate “whether the channel is presently supporting a call or transmission,” i.e., whether there is activity on the channel. (See id. at 4:59-62.). Identification fields 308 and 310 (in yellow) include the targeted SU ID or talk group ID of
the active transmission. (Id. at 5:47-53.). Fields 312 and 316 (in magenta) indicate whether the activity is an emergency or non-emergency transmission (id. at 5:14-19), fields 314 and 318 (in green) indicate whether the activity is a voice or data transmission (id. at 5:10-14), and fields 320 and 322 (in grey) indicate whether the activity is a group or individual call (id. at 5:19-22).

The control message thus includes: (1) information about whether there is activity on the channel; and (2) if so, information about a characteristic of that activity that allows an SU to determine whether the activity is “of interest”—i.e., if it is directed to the scanning SU or one of the SU’s talkgroups, or if the activity has another characteristic, such as an indication it is an emergency call, a voice call, or a group call, that is useful to the SU. (See, e.g., id. at 5:33-65.). These control messages can be timed on the channel to ensure that they are received within a certain period by the SU. (See, e.g., id. at 7:36-51.). If the SU determines that the activity is of interest, the SU remains on the channel to receive the activity; otherwise, the SU moves to the next channel in the preprogrammed list. (Id. at 5:41-46.).
In this way, the SU can quickly determine whether or not the activity is of interest without having to actually wait and receive the activity. (Id.).

2. Asserted Claims of the ’869 Patent

Remaining asserted claims 1, 6, 17, and 21 of the ’869 patent are recited below. They are product and method claims directed to TDMA systems, systems and methods for scanning a TDMA channel.

1. A method for scanning a TDMA channel by a subscriber unit in a wireless communications landscape 100, wherein the subscriber unit is operationally connected to at least one base radio over a plurality of channels, the method comprising the steps of: locking onto a channel of the plurality of

28 Bolded patent claim numbers indicate independent claims.
channels by the subscriber unit wherein a subset of the plurality of channels is preprogrammed in a list in the subscriber unit; transmitting from at least one base radio a control message to the subscriber unit wherein the control message has a first information which informs the subscriber unit of activity present on the channel of the plurality of channels; receiving and decoding the control message for the first information by the subscriber unit; and if the first information indicates that activity is present on the channel of the plurality of channels, then determining whether the activity is of interest to the subscriber unit by comparing a second information in the control message with a third information preprogrammed in the subscriber unit and if the activity is of interest to the subscriber unit, then remaining on the channel of the plurality of channels to receive the activity present on the channel.

6. The method of claim 1 further comprising the step of tuning to the next channel in the list that is preprogrammed in the subscriber unit.

17. In a TDMA system whereby the TDMA system comprises a plurality of subscriber units and a plurality of base radios, a method for scanning, the method comprising the steps of: locking onto a channel preprogrammed in a list of a subscriber unit whereby the channel carries activity on one timeslot of the TDMA system; receiving an activity update message from a base radio of the plurality of base radios wherein the activity update message indicates in a first information the activity on the channel and indicates in a second information at least one characteristic of the activity on the channel; determining whether the activity is of interest to the subscriber unit by comparing the at least one characteristic with preprogrammed third information in the subscriber unit; and if the activity is of interest, then remaining on the channel to receive the activity; otherwise moving to the next channel in the list.

21. A system for scanning a TDMA channel by a subscriber unit in a wireless communications landscape 100, wherein the subscriber unit is operationally connected to at least one base radio over a plurality of channels, the system comprising: a receiver for locking onto a channel of the plurality of channels wherein a subset of the plurality of channels is preprogrammed and whereby the receiver obtains an activity update message from the channel wherein the activity update message indicates in a first information activity on the channel and indicates in a second information at least one characteristic of the activity on the channel; a decoder for obtaining the at least one characteristic from the activity update message; a comparator which compares the at least one characteristic with third preprogrammed information indicating at least one preprogrammed characteristic to determine whether the activity is of interest to the system; a selector to receive activity which the comparator determines to be of interest wherein the operation of the receiver, the decoder, the comparator, and the selector are controlled by a processor.

(JX-0005 at 8:9-33, 8:45-47, 9:30-48, 10:10-36.)
C. U.S. Patent No. 7,729,701 (“the ’701 Patent”)

1. Overview of the ’701 Patent

The ’701 patent, titled “Method and System of Accessing a De-Keyed Base Station,” was filed on July 28, 2005, as U.S. Patent Application Serial No. 11/191,563 (“the ’563 application”). (JX-0007 at (21), (22), (54).) The ’563 application issued as the ’701 patent on June 1, 2010, and names David G. Wiatrowski, Thomas B. Bohn, and Thomas J. Senese as the inventors. (Id. at (10), (45), (75).) Motorola Solutions, Inc. is the assignee of the ’701 patent. (CX-0605; see also JX-0007 at (73).)

The invention described in Motorola’s ’701 patent was intended to improve the efficiency and reliability of communications between a base station and mobile station in a wireless communications system. As the patent explains (and as explained in Section IX.B.1), in a TDMA wireless communications system, mobile stations communicate using base stations over a radio medium or spectrum. (JX-0007 at 1:29-36.) Figure 1 from the ’701 patent (Figure No. 7 below) illustrates such a system with base stations (elements 102, 104, and 106) shown in yellow and mobile stations (elements 108, 110, and 112) located in cars shown in blue:
As shown in the upper right-hand portion of Figure No. 7, the base stations (also called repeaters) include transceivers (element 116), processors (element 118), and timers (element 120), and provide synchronization for mobile stations. (See, e.g., id. at 80 1:29-36, 3:13-17.). The base stations, for example, provide control signaling that identifies the temporal position of each time slot within the spectrum. (Id. at 1:32-36.). Once a mobile station receives synchronization or timing information from the base station in a TDMA system, the mobile station can use that information to time its use of the spectrum, sending transmissions to the base station at the proper time on the base station’s “uplink” (the direction from mobile station to base station). (Id.; see also id. at 3:35-40.). The base station acts as an “intermediary” and repeats properly synchronized transmissions over its “downlink” (the direction from the base station to mobile stations) to be received by other mobile stations. (Id. at 3:1-6, 3:35-40.).

In a typical TDMA system, there were problems with this base station “wakeup” process that caused the loss of (often critical) information. (Id. at 2:8-10.). Because it takes time for a
mobile station to detect that a base station has de-keyed in these systems, there will be a period of time after the base station has de-keyed when the mobile station does not yet know the base station has done so. (Id. at 1:59-67.). During this period, a mobile station may send a transmission, such as voice or data destined for another mobile station, expecting that the transmission will be repeated by the base station for receipt by the other mobile station. However, because the base station is de-keyed, the mobile station’s transmission is “ignored.” (Id. at 1:67-2:6.). As the patent explains, “[i]gnoring communications is a problem because the user of the [mobile station] does not have knowledge that the communications have not been received by the intended recipient of the communications.” (Id. at 2:7-10.). For example, emergency personnel may “not [be] aware that [an] emergency communication has not reached its intended recipient [.]” (Id. at 2:10-15.)

The inventors of the ‘701 patent, Motorola engineers, addressed the problems of information loss and unreliability in prior art TDMA systems by inventing technology for “re-keying” a base station and repeating the mobile station transmissions without receiving a “wakeup” message from the mobile station. (Id. at 5:6-10.). By using a “temporary de-keyed state,” the base station, although de-keyed, will still recognize a properly synchronized transmission from a mobile station. It will re-key and then repeat the properly synchronized transmission. (See Id. at 4:63-5:6.). In a “conventional TDMA system,” a key claim term whose construction Motorola and Hytera agreed upon, there is a separate “controller” that manages or “controls” communications between the base station and a mobile station. (See Chart No. 10; see also JX-0007 at 1:19-36; Tr. (Wicker) at 369:22-370:3.).
2. Asserted Claims of the '701 Patent

Remaining asserted claims 1 and 11 of the '701 patent are recited below. They are method claims directed to accessing a base station in TDMA communication systems.

1. In a conventional TDMA communications system, wherein the conventional TDMA communications system comprises at least one base station and at least one mobile station, a method of accessing a de-keyed base station comprising: de-keying a base station in the conventional TDMA communications system; starting a timer in the base station when the base station de-keys; receiving a transmission from a mobile station; and re-keying and repeating the transmission, if the transmission is received with proper synchronization before expiration of the timer.

11. The method of claim 1 further comprising requiring a wakeup message from the mobile station before re-keying the base station at expiration of the timer.
D. U.S. Patent No. 8,279,991 (“the ’991 Patent”)

1. Overview of the ’991 Patent

The ’991 patent, titled “Method of Efficiently Synchronizing to a Desired Timeslot in a Time Division Multiple Access Communication System,” was filed on December 9, 2008, as U.S. Patent Application Serial No. 12/331,189 (“the ’189 application”). (JX-0009 at (21), (22), (54).) The ’189 application issued as the ’991 patent on October 2, 2012, and names David G. Wiatrowski, Dipendra M. Chowdhary, and Thomas B. Bohn as the inventors. (Id. at (10), (45), (75).) Motorola Solutions, Inc. is the assignee of the ’991 patent. (CX-1267; see also JX-0009 at (73).)

The ’991 patent discloses a method for transmitting communications in a TDMA system. (See, e.g., JX-0009 at 3:17-21, 3:58-62.) By way of background, a TDMA system is one that divides a frequency channel into successive timeslots for individual communication. For example, Figure No. 9 (Figure 7 of the ’991 patent (excerpted below)) depicts a system with two timeslots per frequency channel (timeslot 1, highlighted in yellow; timeslot 2, highlighted in blue). 30

30 This is referred to in the patent as a “2:1 slotting structure” because there are “2” timeslots for each “1” frequency channel. (See JX-0009 at 4:6-12, 5:6-17, 11:30-32.)
Each timeslot reflects a brief period of time during which network devices can transmit or receive communications. \textit{(Id.)}. In a TDMA system, in preparing to transmit on a desired timeslot, a transmitting device “synchronizes” with the timeslot, if possible—i.e., it attempts to determine where the timeslot begins and ends. \textit{(See id. at 1:38-41 (“Before a subscriber unit is allowed to receive or transmit on a TDMA channel, it must ensure that it is synchronized with the desired timeslot.”)).

As the ’991 patent recognizes, problems existed with prior art synchronization processes—including the synchronization process specified in the European Telecommunications Standard Institute-Digital Mobile Radio (“ETSI-DMR”) standard—that resulted in inefficient use of channel resources during transmission. \textit{(See, e.g., id. at 1:36-2:24.).}

For example, the ETSI-DMR standard did not include a message to identify timeslots on the channel when two devices are operating in “direct mode” (i.e., communicating directly, not through a repeater). \textit{(Id. at 2:11-24, 4:55-59.).} Thus the standard “only allow[ed] up to one subscriber unit to transmit in direct mode on a frequency at a time.” \textit{(See, e.g., id. at 2:14-17.).} This inefficiency “leaves a significant portion of the channel unoccupied.” \textit{(Id.).} The problems with the ETSI-DMR standard systems also “limit[ed] performance in systems that require the receiving device to change channels frequently.” \textit{(Id. at 2:1-2.).}

To overcome these problems and greatly increase the efficiency of channel resource
usage during transmission in a TDMA system, the ’991 patent discloses the use of synchronization patterns that, unlike prior art synchronization patterns in the ETSI-DMR standard, correspond to specific timeslots on a frequency. (See id. at 5:24-26.). For instance, the ’991 patent describes a “two slot TDMA communication system” in which the transmitting device knows a different set of synchronization patterns associated with each of the two timeslots on a frequency. (Id. at 5:8-9; see also id. at 5:56-61; 6:27-30.).

In one embodiment, the transmitting device can transmit on either timeslot 1 (see id. at 5:32-33) or timeslot 2 (id. at 6:11-13). When preparing to transmit on a timeslot, the transmitting device can detect the synchronization patterns on the frequency and, because the patterns are associated with specific timeslots, the device can easily determine which timeslots are “busy” (in use) or “idle” (not in use). (See, e.g., id. at 14:1-6.). In this way, the transmitting device, such as a repeater or a subscriber, can select a timeslot for transmission based on whether a timeslot is idle or busy—i.e., the timeslot for transmission can change “dynamically” “as frequencies in the system become usable or unusable based on the detected presence or absence of co-channel users or as timeslots on a frequency in the system become busy and/or idle[.]” (Id. at 10:28-32.). Once a timeslot is selected for transmission, the transmitting device selects the corresponding synchronization pattern for that timeslot, which notifies other devices in the system that the selected timeslot is now busy. (See, e.g., id. at 5:32-33, 6:11-13.).
2. **Asserted Claims of the ’991 Patent**

Remaining asserted claims 7 and 8 of the ’991 patent are recited below.31 They are method claims directed to timeslot synchronization on TDMA systems.

7. In a time division multiple access (TDMA) system having a plurality of timeslots, a method comprises the steps of: knowing a first set of synchronization patterns associated with a desired timeslot and a second set of synchronization patterns associated with each of the other timeslots in the TDMA system, wherein the first set of synchronization patterns is mutually exclusive from the second set of synchronization patterns, and each set comprising at least two different synchronization patterns as a function of at least one of a payload type and a source of the transmission; preparing to transmit a particular payload type in a timeslot; determining whether the timeslot is a current desired timeslot for the TDMA system; if the timeslot is the current desired timeslot, selecting a synchronization pattern selected from the first set of synchronization patterns based on the one of the particular payload type and a particular source of the transmission; otherwise selecting a synchronization pattern selected from the second set of synchronization patterns based on the one of the particular payload type and the particular source of the transmission; and transmitting a burst in the timeslot having embedded the synchronization pattern that was selected.

8. The method of claim 7 wherein the current desired timeslot at a first

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31 Bolded patent claim numbers indicate independent claims.
V. **THE PRODUCTS AT ISSUE**

A. **Hytera’s Accused Products**

Motorola accused the following Hytera products of infringing the Asserted Patents.

**Chart No. 6: Accused Products**

<table>
<thead>
<tr>
<th>Accused Products</th>
<th>Products</th>
</tr>
</thead>
<tbody>
<tr>
<td>'284 Accused Products</td>
<td>RD622, RD622i, RD982, RD982i, RD982S, RD982Si, MD652, MD652i, MD782, MD782i, BD302, BD502, PD362, PD412, PD502, PD502i, PD562, PD562i, PD602, PD602i, PD662, PD662i, PD682, PD682i, PD702, PD702i, PD752, PD752i, PD782, PD782i, PD792, PD792i, PD982, PD982i, X1e, X1p and all variants thereof, including those with DMR Radio &amp; Receiver firmware version 8.03 and PD5 firmware versions 7.06 and later (including code produced as “PD5 Set 21”)</td>
</tr>
<tr>
<td>'869 Accused Products</td>
<td>MD652, MD782, PD502, PD562, PD602, PD662, PD682, PD702, PD752, PD782, PD792, PD982, RD622, RD982, X1e, X1p and all variants thereof</td>
</tr>
<tr>
<td>'701 Accused Products</td>
<td>RD622, RD982, MD652, MD782, PD502, PD562, PD602, PD662, PD682, PD702, PD752, PD782, PD792, PD982, X1e, X1p and all variants thereof</td>
</tr>
<tr>
<td>'991 Accused Products</td>
<td>MD652, MD782, BD302, BD502, BD362, PD412, PD502, PD562, PD602, PD662, PD682, PD702, PD752, PD782, PD792, PD982, X1e, X1p and all variants thereof</td>
</tr>
</tbody>
</table>

(See, e.g., CPBr. at x.).

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32 The redesigned ’284 Accused Products consist of the PD5i Series (server) and PD6i, PD7i, and PD9i (server), which is referred hereinafter as “the ’284 Redesigned Products.” (See CBr. at 13 n.2.) The remaining ’284 Accused Products are referred hereinafter as “the ’284 Legacy Products.”
B. Motorola’s DI Products

Motorola alleged that the following DI products practice the Asserted Patents.

Chart No. 7: DI Products

| '284 DI Products | MOTOTRBO Base Stations (including XPR 8380; MTR3000; XPR 8400; SLR 5000 Series) and MOTOTRBO Mobile Stations (including XPR 7000 Series; XPR 7000e Series; SL 7000 Series; SL 7000 Series; XPR 5000 Series; XPR 5000 Series; XPR 3000 Series; XPR 3000 Series; XPR 2500 Series; XPR 4000 Series; XPR 6000 Series; SL8000 Series; SL500 Series) |
| '869 DI Products | MOTOTRBO Base Stations (including XPR 8380; MTR3000; XPR 8400; SLR 5000 Series) and MOTOTRBO Mobile Stations (including XPR 7000 Series; XPR 7000e Series; SL 7000 Series; XPR 5000 Series; XPR 5000 Series; XPR 3000 Series; XPR 3000 Series; XPR 2500 Series; SL 300 Series; CP200D; CM Series; XPR 4000 Series; XPR 6000 Series; SL8000 Series; SL500 Series) |
| '701 DI Products | MOTOTRBO Base Stations (including XPR 8380; MTR3000; XPR 8400; SLR 5000 Series) and MOTOTRBO Mobile Stations (including XPR 7000 Series; XPR 7000e Series; SL 7000 Series; XPR 5000 Series; XPR 5000 Series; XPR 3000 Series; XPR 3000 Series; XPR 2500 Series; SL 300 Series; CP200D; CM Series; XPR 4000 Series; XPR 6000 Series; SL8000 Series; SL500 Series) |
| '991 DI Products | MOTOTRBO Mobile Stations (including XPR 7000 Series; XPR 7000e Series; SL 7000 Series; XPR 5000 Series; XPR 5000 Series; XPR 3000 Series; XPR 3000 Series; XPR 2500 Series; SL 300 Series; CP200D; CM Series; XPR 4000 Series; XPR 6000 Series; SL8000 Series; SL500 Series) |

(Id. at xi.).

VI. THE ASSERTED PATENTS

A. Level of Ordinary Skill in the Art

1. Legal Standard

The relevant time for assessing the level of ordinary skill in the art is the effective filing
date of the patent. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc) (“We have made clear, moreover, that the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.”)

Factors to consider in determining the level of ordinary skill in the art include: (1) the educational level of the inventor; (2) the type of problems encountered in the art; (3) the prior art solutions to those problems; (4) the rapidity with which innovations are made; (5) the sophistication of the technology; and (6) the educational level of active workers in the field. *See Envtl. Designs, Ltd. v. Union Oil Co. of Cal.*, 713 F.2d 693, 696 (Fed. Cir. 1983). “These factors are not exhaustive but are merely a guide to determining the level of ordinary skill in the art.” *Daiichi Sankyo Co., Ltd. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007).

**2. Definition of Person of Ordinary Skill in the Art**

It was determined that a person of ordinary skill in the art for the ’284, ’869, ’701, and ’991 patents would have at least a Bachelor’s degree in electrical or computer engineering, or computer science, with at least two or three years of experience in telecommunications and networking, or an equivalent degree and/or experience. *(Markman Order at 20.). Superior education would compensate for a deficiency in experience, and vice versa. *(Id.)*

**B. Claim Construction**

**1. Legal Standard**

Claim construction begins with the plain language of the claims themselves. Claims should be given their ordinary and customary meaning as understood by a person of ordinary skill in the art.

33 The claim constructions for the agreed upon and disputed claim terms are listed in Sections VII.C and VIII.B, *infra.*
skill in the art, viewing the claim terms in the context of the entire patent. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005), *cert. denied*, 546 U.S. 1170 (2006). In some cases, the plain and ordinary meaning of the claim language is readily apparent and claim construction will involve little more that “the application of the widely accepted meaning of commonly understood words.” *Id.* at 1314. In other cases, claim terms have a specialized meaning and it is necessary to determine what a person of ordinary skill in the art would have understood the disputed claim language to mean by analyzing “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, as well as the meaning of technical terms, and the state of the art.” *Id.* (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)).

The claims themselves provide substantial guidance as to the meaning of disputed claim language. *Id.* “[T]he context in which a term is used in the asserted claim can be highly instructive.” *Id.* Likewise, other claims of the patent at issue, “both asserted and unasserted, can also be valuable sources of enlightenment as to the meaning of a claim term.” *Id.* (citation omitted).

With respect to claim preambles, a preamble may limit a claimed invention if it: (i) recites essential structure or steps; or (ii) is “necessary to give life, meaning, and vitality” to the claim. *Eaton Corp. v. Rockwell Int’l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003) (citations omitted). The Federal Circuit has explained that a “claim preamble has the import that the claim as a whole suggests for it. In other words, when the claim drafter chooses to use both the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects.” *Id.* (quoting *Bell Commc’ns*
Research, Inc. v. Vitalink Commc'ns Corp., 55 F.3d 615, 620 (Fed. Cir. 1995)). When used in a patent preamble, the term “comprising” is well understood to mean “including but not limited to,” and thus, the claim is open-ended. CIAS, Inc. v. Alliance Gaming Corp., 504 F.3d 1356, 1360 (Fed. Cir. 2007). The patent term “comprising” permits the inclusion of other unrecited steps, elements, or materials in addition to those elements or components specified in the claims.

In cases where the meaning of a disputed claim term in the context of the patent’s claims remains uncertain, the specification is the “single best guide to the meaning of a disputed term.” Phillips, 415 F.3d at 1321. Moreover, “[t]he construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” Id. at 1316. As a general rule, however, the particular examples or embodiments discussed in the specification are not to be read into the claims as limitations. Id. at 1323.

The prosecution history may also explain the meaning of claim language, although “it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” Id. at 1317. The prosecution history consists of the complete record of the patent examination proceedings before the U.S. Patent and Trademark Office (“PTO”), including cited prior art. Id. It may reveal “how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.” Id.

If the intrinsic evidence is insufficient to establish the clear meaning of a claim, a court
may resort to an examination of the extrinsic evidence.\footnote{Zodiac Pool Care, Inc. v. Hoffinger Indus., Inc., 206 F.3d 1408, 1414 (Fed. Cir. 2000).} Extrinsic evidence may shed light on the relevant art, and “consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.” Phillips, 415 F.3d at 1317. In evaluating expert testimony, a court should disregard any expert testimony that is conclusory or “clearly at odds with the claim construction mandated by the claims themselves, the written description, and the prosecution history, in other words, with the written record of the patent.” Id. at 1318. Expert testimony is only of assistance if, with respect to the disputed claim language, it identifies what the accepted meaning in the field would be to one skilled in the art. Symantec Corp. v. Comput. Assocs. Int’l, Inc., 522 F.3d 1279, 1289 n.3., 1290-91 (Fed. Cir. 2008). Testimony that recites how each expert would construe the term should be accorded little or no weight. Id. Extrinsic evidence is inherently “less reliable” than intrinsic evidence, and “is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence.” Phillips, 415 F.3d at 1318-19.

\section{U.S. PATENT NO. 8,116,284}

\subsection{Legal Standard: Direct Infringement}

“Determination of infringement is a two-step process which consists of determining the scope of the asserted claim (claim construction) and then comparing the accused product . . . to the claim as construed.” Certain Sucralose, Sweeteners Containing Sucralose, and Related Intermediate Compounds Thereof, Inv. No. 337-TA-604, Comm’n Op. at 36 (U.S.I.T.C., April

\footnote{In those cases where the public record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper.” Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed. Cir. 1996).}
28, 2009) (citing Litton Sys., Inc. v. Honeywell, Inc., 140 F.3d 1449, 1454 (Fed. Cir. 1998)).

1. **Literal Infringement**

   An accused device literally infringes a patent claim if it contains each limitation recited in the claim exactly. Litton, 140 F.3d at 1454. Each patent claim element or limitation is considered material and essential. London v. Carson Pirie Scott & Co., 946 F.2d 1534, 1538 (Fed. Cir. 1991). In a Section 337 investigation, the complainant bears the burden of proving infringement of the asserted patent claims by a preponderance of the evidence. Enercon GmbH v. Int’l Trade Comm’n, 151 F.3d 1376, 1384 (Fed. Cir. 1998). If any claim limitation is absent, there is no literal infringement of that claim as a matter of law. Bayer AG v. Elan Pharm. Research Corp., 212 F.3d 1241, 1247 (Fed. Cir. 2000).

2. **Infringement Under the Doctrine of Equivalents**

   Where literal infringement is not found, infringement can still be found under the doctrine of equivalents. “Infringement under the doctrine of equivalents may be found when the accused device contains an ‘insubstantial’ change from the claimed invention. Whether equivalency exists may be determined based on . . . the ‘triple identity’ test, namely, whether the element of the accused device “performs substantially the same function in substantially the same way to obtain the same result.” TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc., 529 F.3d 1364, 1376-77 (Fed. Cir. 2008) (citations omitted). The essential inquiry here is whether “the accused product or process contain elements identical or equivalent to each claimed element of the patented invention[.]” (Id.)

B. **Overview of Infringement and Motorola’s and Hytera’s Disputes in Brief**

   Motorola alleged that the accused ’284 Legacy Products and ’284 Redesigned Products infringe claims 9, 13, 14, and 15 of the ’284 patent. (CBr. at 4-17.). Motorola is correct. As set
forth in the claim-by-claim analysis that follows, the '284 Legacy Products always try to select or re-select default slot 1 first before establishing a new communication. The '284 Redesigned Products, as compared to '284 Legacy Products, retain a “default timeslot” but introduce a potential delay in re-selecting the “default timeslot” by persisting on a “temporary” timeslot until that timeslot becomes unavailable (potentially over multiple communications). In so doing, the '284 Redesigned Products still infringe, but less often. Thus, the '284 Legacy Products and the '284 Redesigned Products infringe claims 9, 13, 14, and 15 of the '284 patent.

C. Relevant Claim Terms

The following constructions of the claim terms recited in the asserted claims of the '284 patent have been agreed upon by the Parties or adopted by this Court.35

**Chart No. 8: Constructions of Claim Terms Relevant to the '284 Patent**36

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>“a talkgroup” (claims 9 and 15)</td>
<td>A plurality of radio communication devices. <em>(Markman Order, App’x A at Chart 1.)</em></td>
</tr>
<tr>
<td>“an assigned default timeslot”/“the default timeslot” (claims 9 and 15)</td>
<td>Plain and ordinary meaning. <em>(Id.)</em></td>
</tr>
<tr>
<td>“the radio communication device searching for an available timeslot when the default timeslot is unavailable”/“when the default timeslot is unavailable the processor instructs the radio communication circuitry to search for an available timeslot”/“when the default</td>
<td></td>
</tr>
</tbody>
</table>

35 The Parties disputed the meaning of additional claim terms recited in claims that have been terminated from this Investigation. Those terms are not included in Chart No. 8.

36 During the Markman proceedings, all of the claim terms in Chart No. 8 were disputed. *(See Joint CC Chart at 3-4.)*
<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>timeslot is unavailable each of the radio communication devices searches for an available timeslot” (claims 9 and 15)</td>
<td>Plain and ordinary meaning. (Id.).</td>
</tr>
<tr>
<td>“the radio communication device re-selecting the default timeslot for communicating with the talkgroup when the default timeslot becomes available”/ “when the default timeslot becomes available the processor instructs the radio communication circuitry to re-select the default timeslot for communicating with the talkgroup” (claims 9 and 15)</td>
<td>An assigned default timeslot that is shared by all radio communication devices in the talkgroup. (Id., App’x A at Chart 2.).</td>
</tr>
<tr>
<td>“a common assigned default timeslot” (claim 15)</td>
<td>The claimed steps must be performed in order. (Id.).</td>
</tr>
<tr>
<td>Whether the claimed steps must be performed to completion (claim 1)</td>
<td>The claimed steps must be performed in order. (Id.).</td>
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D. The ’284 Legacy Products Infringe Claims 9, 13, 14, and 15 of the ’284 Patent

1. Claim 9 of the ’284 Patent

   a) “A radio communication device having an assigned default timeslot for communicating with a talkgroup of other radio communication devices”

37 Although claim 1 of the ’284 patent has been terminated, claims that depend from it remain at issue. Thus, the claim remains at issue in connection with the dependent claims. (Joint Claim Chart (Doc. ID No. 628354) (Nov. 8, 2017)).
Motorola provided persuasive evidence that the ’284 Legacy Products satisfy the preamble of Claim 9 by operating in Pseudo Trunk Direct Mode (“PT-DMO”), Pseudo Trunk Repeater Mode (“PT-RMO”), and eXtended Pseudo Trunking Mode (“XPT”).

In PT-DMO, subscribers (Tr. (Wicker) at 191:24-192:13; CX-0146C.11); CX-0316C.29 (Zheng) at 897:24-898:16, 899:15-16; CX-0749C; CPX-0152C at ll. 4028-31; Tr. (Wicker) at 193:23-194:7.). This default timeslot is for “communicating with a talkgroup,” as it is used by two or more radios to communicate. (Tr. (Wicker) at 190:12-22; CX-0146C.12.).

In PT-RMO, subscribers (Tr. (Wicker) at 194:23-195:7; CX-0146C at 14); CX-0316C.30 (Zheng) at 82:4-10.; CX-0749C (Zheng Dep. Tr.) at 36:19-22.). The assigned default timeslot—timeslot 1—is for communicating with a talkgroup. (Tr. (Wicker) at 190:12-22; CX-0146.14 (showing subscribers communicating via a common timeslot)).

In XPT, each subscriber (Tr. (Wicker) at 195:19-197:9; CX-0067C.11); CX-1405C.24 (Zheng Dep. Tr.) at 82:4-10.). This assigned default timeslot is for communicating with a talkgroup. (Tr. (Wicker) at 190:23-194:6; CX-1287.4 (showing subscribers communicating via their home repeater in XPT)).
In its Initial Post-Hearing Brief, Hytera did not provide rebuttal evidence on this claim limitation. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the reasons discussed above, Motorola has proven by a preponderance of evidence that the ’284 Accused Products meet the preamble recited in claim 9.

b) “the radio communication device comprising: radio communication circuitry”

Motorola provided persuasive evidence that the ’284 Legacy Products satisfy the claim limitation. Any wireless radio has “radio communication circuitry” to allow wireless communication with other radios. (Tr. (Wicker) at 200:20-201:21 (testifying about product manuals showing processors coupled to the radio communication circuitry, including, e.g., CX-1357C.32-33)).

In its Initial Post-Hearing Brief, Hytera did not provide rebuttal evidence on this claim limitation. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet this limitation of claim 9.

c) “the radio communication device comprising: . . . a processor coupled to the radio communication circuitry”

Motorola provided persuasive evidence that the ’284 Legacy Products satisfy this limitation. Each of the ’284 Accused Products has a processor coupled to the radio communication circuitry. (Tr. (Wicker) at 201:22-202:12, 202:13-15, 202:23-203:5; CX-1357C.32-35).

Because Hytera did not provide rebuttal evidence on this claim limitation in its Initial
Post-Hearing Brief, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

Thus, for the reasons discussed above, Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet this limitation of claim 9.

d) “wherein in operation the processor determines, from a signal provided by the radio communication circuitry, if the default timeslot is available for the radio communication device to communicate with the talkgroup”

Motorola provided persuasive evidence that the ’284 Legacy Products satisfy this limitation when operating in PT-DMO, PT-RMO, and XPT Modes.

For PT-DMO, processors...

For PT-RMO, when starting a call, processors...

For XPT, processors...
In its Initial Post-Hearing Brief, Hytera did not provide rebuttal evidence on this claim limitation. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet this limitation of claim 9.

\[\text{e) “when the default timeslot is unavailable the processor}\
\text{instructs the radio communication circuitry to search for an}\
\text{available timeslot”}\]

Motorola provided persuasive evidence that the ’284 Legacy Products satisfy this limitation operating in PT-DMO, PT-RMO, and XPT.

For PT-DMO, the ’284 Legacy Products... (Tr. (Wicker) at 206:24-208:3; CX-0316C.29 and CX-0146C.11 (Hytera’s source code confirms that...); CPX-0152C at ll. 4028-4042); Tr. (Zheng) at 899:17-20.).

For PT-RMO, the ’284 Legacy Products... (Tr. (Wicker) at 208:4-209:14; CX-0316C.30...); CX-1325C.18...
For XPT, the ’284 Legacy Products

In its Initial Post-Hearing Brief, Hytera did not provide rebuttal evidence on this claim limitation. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

Therefore, for the reasons discussed above, Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet this limitation of claim 9.

f) “when the default timeslot is unavailable the processor instructs the radio communication circuitry to . . . temporarily select the available timeslot as a temporary selected group timeslot for the talkgroup”

Motorola provided persuasive evidence that the ’284 Legacy Products satisfy this limitation operating in PT-DMO, PT-RMO, and XPT.

For PT-DMO, the ’284 Legacy Products

For PT-RMO, the ’284 Legacy Products

(Tr. (Wicker) at 211:11-25; CX-1405C.66.).
For XPT, the ’284 Legacy Products satisfy this limitation in two ways. (CX-1322C.39; Tr. (Wicker) at 212:17-213:5.). First,

(Tr. (Wicker) at 212:1-9; CX-1405C.66.). Second,

(Tr. (Wicker) at 212:10-16; CX-1405C.66.).

(Tr. (Wicker) at 212:1-16.).

Because Hytera failed to provide any rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the reasons discussed above, Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet this limitation of claim 9.

g) “when the default timeslot becomes available the processor instructs the radio communication circuitry to re-select the default timeslot for communicating with the talkgroup”

Motorola provided persuasive evidence that the ’284 Legacy Products satisfy this limitation operating in PT-DMO, PT-RMO, and XPT.

For PT-DMO,

(Tr. (Wicker) at 216:5-9; CX-0316C.29 ( ); CX-0146C.11.).

For PT-RMO,
For XPT, the '284 Legacy Products. (CX-1322C.39; CX-0416C.7; Tr. (Wicker) at 217:15-25, 218:13-25, 220:4-11).

In rebuttal, Hytera resurrected a claim construction argument that it already lost. According to Hytera, it is “beyond dispute that the Legacy Hytera Products do not select a timeslot when it is available, but instead...” (RBr. at 16 (citing Tr. (Zheng) at 870:2-871:7; RDX 0001.2; RPX-0399C at lines 3380, 3411; Tr. (Akl) at 996:22-998:7; RDX 0003.3-3.4)). That argument was squarely rejected. (Markman Order, Appx. A at 11 (use of “when” in the claims does not mean “as soon as” because such a restriction is not supported by the claims or specification)). This decision agrees with Motorola that “[n]othing in the patent requires reselection to occur at the end of a communication, let alone excludes it from occurring at the start of a communication.” (CBr. at 11 (citing JX-0001 at cl. 9; Tr. (Wicker) at 562:21-563:17; JX-0001 at 4:51-55 (“[I]f the radio communication device determines that the default timeslot (slot 1) is available for the radio communication device to communicate with the talkgroup, the radio communication device selects or re-selects the default timeslot at step 315.”)). A patent need not disclose every embodiment of an invention. Comark Commc’ns, Inc. v. Harris Corp., 156 F.3d 1182, 1187 (Fed. Cir. 1998). In other words, this “reselection” limitation covers an embodiment (whether it was explicitly disclosed in the
specification or not) in which reselection occurs when “the mobile station must make a new call,” which, according to Hytera’s expert, . (Tr. (Akl) at 1182:2-8 ).

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet this claim limitation and infringe claim 9 of the ’284 patent.

2. Claim 13 of the ’284 Patent

a) “The radio communication device, as claimed in claim 9, wherein the signal provided by the radio communication circuitry is generated from information sent from a repeater station.”


In its Initial Post-Hearing Brief, Hytera did not provide rebuttal evidence on this claim limitation. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the reasons discussed, Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet this additional claim limitation and infringe claim 13 of the ’284 patent.
3. Claim 14 of the ’284 Patent
   a) “The radio communication device, as claimed in claim 13, wherein the information sent from the repeater station is provided in a common announcement channel.”

   As described with respect to how the ’284 Legacy Products satisfy the additional limitation of claim 13, Motorola provided persuasive evidence that the ’284 Accused Multipipe Products also satisfy the additional limitation set forth in claim 14, operating in PT-RMO and XPT. (Tr. (Wicker) at 223:19-224:18, 225:6-14, 225:20-24; CX-0749C (Zheng Dep. Tr.) at 92:13-94:20, 96:13-17, 96:23-97, 221:16-222:1, 222:10-223:18; CPX-0242C at ll. 1489-1613; CX-1322C.19 ( ).

   Hytera did not provide rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

   Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet this additional limitation and infringe claim 14 of the ’284 patent.

4. Claim 15 of the ’284 Patent
   a) “A wireless communication system comprising”

   Motorola provided persuasive evidence that the ’284 Legacy Products satisfy this preamble, operating in XPT and PT-RMO. XPT and PT-RMO each . (Tr. (Wicker) at 220:19-23.).

   In its Initial Post-Hearing Brief, Hytera did not provide rebuttal evidence on this claim limitation. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.
For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet the preamble of claim 15.

b) “a plurality of radio communication devices forming a talkgroup”

As described above with respect to how the ’284 Legacy Products satisfy claim limitation 9(a), Motorola offered persuasive evidence that the ’284 Legacy Products also satisfy this limitation of Claim 15. (Tr. (Wicker) at 188:17-189:8.).

Because Hytera did not provide rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

Therefore, for the reasons discussed above, Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet this limitation of claim 15.

c) “at least one repeater station through which the radio communication devices communicate”

Motorola provided persuasive evidence that the ’284 Legacy Products satisfy this claim limitation. XPT and PT-RMO . (CX-0146C.14 ( ); CX-1287.4 (showing same for XPT); CX-0315C.43 (same); Tr. (Wicker) at 203:11-204:1.).

In its Initial Post-Hearing Brief, Hytera did not provide rebuttal evidence on this claim limitation. Therefore, any argument that Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the reasons discussed above, Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet the preamble of claim 15.
d) “wherein each of the radio communication devices have a common assigned default timeslot for communicating with the talkgroup”

As described above with respect to how the ’284 Legacy Products satisfy claim limitation 9(a), Motorola provided persuasive evidence that the ’284 Legacy Products also satisfy this limitation of Claim 15. (Tr. (Wicker) at 188:17-189:8.).

Hytera did not provide rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the reasons discussed above, Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet this limitation of claim 15.

e) “wherein each one of the radio communication devices: determines if the default timeslot is available to communicate with the talkgroup”

As described above with respect to how the ’284 Legacy Products satisfy claim limitation 9(d), Motorola provided persuasive evidence that the ’284 Legacy Products also satisfy this limitation of Claim 15. (Tr. (Wicker) at 188:17-189:8.).

In its Initial Post-Hearing Brief, Hytera did not provide rebuttal evidence on this claim limitation. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the reasons discussed above, Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet this limitation of claim 15.
f) “when the default timeslot is unavailable each of the radio communication devices searches for an available timeslot and temporarily selects the available timeslot as a temporary selected group timeslot for the talkgroup”

As describe above with respect to how the ’284 Legacy Products satisfy claim limitation 9(e), Motorola provided persuasive evidence that the ’284 Legacy Products also satisfy this limitation of Claim 15. (Tr. (Wicker) at 188:17-189:8.).

In its Initial Post-Hearing Brief, Hytera failed to provide rebuttal evidence on this claim limitation. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the reasons discussed above, Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet this limitation of claim 15.

g) “when the default timeslot becomes available each of the radio communication devices re-select the default timeslot for communicating with the talkgroup”

As discussed above with respect to how the ’284 Legacy Products satisfy claim limitation 9(f), Motorola provided persuasive evidence that the ’284 Legacy Products also satisfy this limitation of Claim 15. (Tr. (Wicker) at 188:17-189:8.).

In its Initial Post-Hearing Brief, Hytera did not provide rebuttal evidence on this claim limitation. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the reasons discussed above, Motorola has proven by a preponderance of evidence that the ’284 Legacy Products meet this limitation of claim 15.

E. The ’284 Redesigned Products Do Not Literally Infringe Claims 9, 13, 14, and 15 of the ’284 Patent, But Do Infringe Under the Doctrine of Equivalents

As an initial matter, this ID rejects Motorola’s suggestion that the Commission does not
have jurisdiction over Hytera’s ’284 Redesigned Products. Motorola argued, belatedly, and contrary to evidence, that the ’284 Redesigned Products were not “sufficiently fixed to be adjudicated in the present Investigation.” Additionally, Motorola initially argued that Hytera introduced “no documents about the allegedly redesigned products,” “no documentary evidence of [its] alleged [FCC] submission,” and no “evidence to substantiate its assertion that it has imported with the redesigned software into the U.S.” (CBr. at 3.). For the reasons described, supra, in Section III.A (importation), Motorola’s argument is incorrect and unsupported. (RRBr. at 8-9.).

Hytera produced source code, made a corporate witness available for deposition, and provided evidence to Motorola and during the evidentiary hearing that Hytera submitted the ’284 Redesigned Products for FCC approval. (Tr. (Wicker) at 226-37, 229:19-24, 446-52; Tr. (Akl) at 936:16-20; CX-1632C (Zheng Dep.) at 13:25-14:3, 14:11-21, 16:7-11.). Ms. Zheng’s deposition confirmed that Hytera had imported ’284 Redesigned Products loaded with redesigned software into the United States. (CX-1632C (Zheng Dep.) at 16:23-17:3; see also CBr. at 3.). In the discussion that follows, it is abundantly clear that Motorola had sufficient discovery of the ’284 Redesigned Products to evaluate their operation and formulate infringement theories.

Additionally, Motorola offered both documentary and testimonial evidence that the ’284 Redesigned Products operate like much like the ’284 Legacy Products, with only one material difference in terms of assessing infringement of the ’284 patent. (Tr. (Wicker) at 226:21-227:3, 230:4- 9, 232:12-233:11; CPX-0351C; CPX-0353C ( ); CX-1632C (Zheng Dep. Tr.) at 44:13-22.). The operational difference goes directly to whether the ’284 Redesigned Products have a “default timeslot.” For the reasons set forth below, for purposes of literal infringement, the ’284 Redesigned Products do
not have such a timeslot and thus do not literally infringe. However, the ’284 Redesigned Products do have the equivalent of a “default timeslot,” and thus infringe under the doctrine of equivalents (“DOE”).

1. Motorola Failed to Prove Literal Infringement

Motorola provided evidence that 

By contrast, as discussed above,

Motorola acknowledged that Hytera’s “redesign” operated in a slightly different manner.
than the ’284 Legacy Products by .  (CBr. at 13 (citing Tr. (Wicker) at 227:3-7, 230:19-231:5)). According to Motorola, the ’284 Redesigned Products in operation satisfy the “default timeslot” limitation only some of the time. By way of example, under Motorola’s theory, literal infringement would occur when the ’284 Redesigned Products

According to Hytera, “the New Hytera Accused Products do not infringe because (RBr. at 17.). Hytera elaborated that (Id.). In so doing, Hytera failed to address the arguably somewhat preferential role, accorded by the ’284 Redesigned Products, to . Hytera did not dispute Motorola’s characterization of how the ’284 Redesigned Products operate, but instead argued that the definition of a “default timeslot” required that “the timeslot [is] chosen (i.e., at any time) unless another is specified.” (RBr. at 18; CBr. at 15 (citing Tr. (Wicker) at 231:17-25, 232:2-4; Tr. (Akl) at 1189:1-1190:11; Tr. (Zheng) at 16-23, 902:13-16, 900:24-901:2)). Stated another way, Hytera argued that a timeslot is not a “default timeslot” unless it plays that role all of the time, such that communications always occur on that timeslot if it is available. Hytera’s argument is correct.

The Markman Order explained the meaning of the term “default timeslot.” The Markman Order explains that the “claim language therefore sets forth precisely why it is the default timeslot—it is the timeslot that the radio communication device is assigned unless it is
unavailable and another ‘temporary’ timeslot is used.” (Id. at 7-8 (emphasis added.).) In other words, the “default timeslot” is preferred over (i.e., not a co-equal to) other timeslots for communications insofar as it is always selected if it is available.

That said, the ’284 patent does not limit the mechanics of how one default selects or prefers one timeslot over other timeslots, as long as the preferential treatment occurs between communications. That is why Hytera’s attempt to import a temporal restriction that the default timeslot must be selected as soon as a communication ends and not shortly before the next communication begins was denied. (Id. at 11-12 (Hytera and Motorola agreed that the asserted claims do “not require switching mid-communication from a temporary timeslot to the default timeslot if the default timeslot becomes available in the middle of the communication.”)).

Hytera’s argument that a “default timeslot” must be “predetermined,” because the claims “are silent as to when the default timeslot is ‘assigned,’ let alone that it must be ‘predetermined’” and adding that “[t]o the extent that Respondents are asserting that the default timeslot … is assigned before the radio communication device determines whether it is available, that is already set forth in the claim language” was also rejected.38 (Id. at 9-10.).

In determining whether changes Hytera made in the ’284 Redesigned Products absolve them of literal infringement, the key issue is whether “default timeslot” is broad enough to cover a fallback timeslot that is selected some, but not all, of the time when it is available for selection by a radio communication device seeking to initiate a communication.

38 It bears noting that Motorola has failed to prove that

VII.F.2.).

(See Section
Without addressing the *Markman* Order that a “default timeslot” is a timeslot that “is assigned unless it is unavailable,” Motorola made the accurate but incomplete argument that “nothing in the ’284 patent claims or specification requires that the ‘temporary’ timeslot be used for only one communication.” (CBr. at 15 (citing JX-0001 at 4:34-40)). Under the teachings of the ’284 patent, the hypothetical scenario presented by Motorola’s argument is conceivable (although by no means assured) only when a particular operational condition is satisfied, that is when the “default timeslot” is unavailable for consecutive communications. Moreover, Hytera’s argument is correct that Motorola’s incomplete “default timeslot” interpretation is so broad that it would cover “bizarre results,” such as a device that conducts thousands of communications on a “temporary” timeslot before returning to a “default timeslot. Motorola acknowledged that such a scenario is unlikely to occur in the field. (RBr. at 17; CRBr. at 8 (citing Tr. (Wicker) at 569:2-15, 569:23-570:8)).

While it is a close call, it is a finding of this ID that the ’284 Redesigned Products do not literally infringe the ’284 patent. The *sine qua non* of a “default timeslot” is its special treatment *vis-à-vis* other timeslots in terms of acting as an always-preferred timeslot hub or home base for radio communications. (*Markman* Order, App’x A at 7-8 (“default timeslot—it is the timeslot that the radio communication device is assigned unless it is unavailable and another ‘temporary’ timeslot is used.”) (emphasis added); JX-0001 at Abstract (“The radio communication device … searches for an available timeslot, when the default timeslot is unavailable.”)). “Always-preferred” does not cover co-equal timeslot arrangements that treat each timeslot the same in terms of likelihood of hosting a communication. An “always-preferred” timeslot does not cover a second-best timeslot that is selected some, but not all, of the time when it is available to host a communication.
In its Initial Post-Hearing and Post-Hearing Reply Briefs, Motorola placed undue emphasis on certain language of the Markman Order while ignoring other material language in the Markman Order that undermines Motorola’s position. Specifically, Motorola relied on the Markman Order’s guidance that: “the claim language expressly confirms that the assigned default timeslot is the timeslot that the radio communication device uses unless another timeslot is selected.” (CBr. at 15 (citing Markman Order at 7).). According to Motorola, (Id. (citing Wicker Tr. at 226:21-227:3, 230:4-9, 232:12-233:11)).

Here, Motorola plainly conflated selection and availability of a “temporary” timeslot. The Markman Order made clear both that a device’s selection of a “temporary” timeslot forecloses the simultaneous selection of “default timeslot” for a given communication and also that an infringing device seeking to initiate a communication would select the “default timeslot” “unless it is unavailable,” regardless of the availability of a “temporary” timeslot. (Markman Order at 7-12.). It is axiomatic that the selection of one timeslot for a communication forecloses the simultaneous selection of another timeslot for the same communication. For purposes of literal infringement by the ’284 Redesigned Products, however, what matters is how the Redesigned Products operate between communications and whether they base their next timeslot selection on the availability of a “default timeslot” or the availability of a last-used timeslot. Motorola’s argument unravels because the ’284 Redesigned Products do the latter.

Additionally, Motorola argued that the ’284 Redesigned Products literally infringe because they are capable of satisfying the asserted claims under specific operating conditions. (CRBr. at 8.). In other words, Motorola characterized, yet misconstrued,
According to Motorola’s argument, while the ’284 Redesigned Products may not satisfy claims 9, 13, 14, and 15 of the ’284 patent much of the time during operation because they _, the ’284 Redesigned Products are nevertheless programmed to satisfy the claims at least some of the time and that is enough for a finding of infringement. Motorola is incorrect.

The cases to which Motorola cited for its capability argument are distinguishable. They pertain to accused products that are capable, in certain modes, of satisfying all of the asserted claim limitations and thus infringing. See Ericsson, Inc. v. D-Link Sys., Inc., 773 F.3d 1201, 1215-17 (Fed. Cir. 2014) (in the context of device and system claims, “when the asserted claims recite capability, our case law supports finding infringement by a ‘reasonably capable’ accused device . . . particularly where . . . there is evidence that the accused device is actually used in an infringing manner and can be so used without significant alterations.”); Finjan, Inc. v. Secure Computing Corp., 626 F.3d 1197, 1204 (Fed. Cir. 2010) (holding “an accused device may be found to infringe if it is reasonably capable of satisfying the claim limitations, even though it may also be capable of non-infringing modes of operation.”).

As discussed above, the ’284 Redesigned Products do not have a “default timeslot,” and thus do not exhibit an infringing mode, because _. While the ’284 Redesigned Products can _, in certain circumstances, in terms of
Consequently, Redesigned Products are not “capable” of infringing. (Markman Order, App’x A at 7-8 ("default timeslot—it is the timeslot that the radio communication device is assigned unless it is unavailable.").)

For the reasons discussed above, Motorola has failed to prove by a preponderance of evidence that the ’284 Redesigned Products literally infringe claims 9, 13, 14, and 15 of the ’284 patent.

2. Motorola Proved Infringement Under the Doctrine of Equivalents

While Hytera’s Redesigned Products may not literally infringe, they do infringe under the doctrine of equivalents ("DOE"). (CDX-0005C-76.). The finding is not a close call. Once again, the analytical focus is on “default timeslot” limitation, the only limitation of claims 9, 13, 14, and 15 that Hytera disputed is absent in the ’284 Redesigned Products. (CBr. at 13-16; RBr. at 18-20.). With respect to having a “default timeslot,” those ’284 Redesigned Products perform substantially the same function as the claimed invention because they . (Tr. (Wicker) at 236:15-22.). The ’284 Redesigned Products perform a “default timeslot” function in substantially the same way as the claimed invention, such that they and the claimed invention

39 The Parties agreed that after , the ’284 Redesigned Products . (Tr. (Wicker) at 232:12-23; CX-1632C (Zheng Dep. Tr.) at 51:14-52:5, 52:7-9.). Moreover, CX-1632C (Zheng Dep. Tr.) at 52:10-19.).
Hytera’s ‘284 Redesigned Products also achieve substantially the same result as the claimed invention because they both [Id. at 236:23-237:6].

For the sake of the DOE analysis, it is useful to contrast timeslots in the [Id. at 237:7-15.] to timeslots in a co-equal timeslot arrangement. A device with co-equal timeslots would treat each timeslot exactly the same by, for example, cycling through timeslots in a random fashion or in lockstep such that Timeslot 4 is always checked after Timeslot 3 and so on. In the co-equal scenario, no “default timeslot” or its equivalent would exist because no timeslot would act as a veritable homebase for the device to organize communications.

What is abundantly clear is that it did not do so.

During the evidentiary hearing, Hytera’s technical expert, Dr. Akl, did not rebut Dr. Wicker’s DOE opinion. Instead, Hytera attacked the adequacy of Motorola’s proof and particularly, Dr. Wicker’s testimony. Hytera asserted that Dr. Wicker failed to identify which claim limitation was satisfied under the doctrine of equivalents, although “[t]here is some suggestion in the slide preamble and his testimony he was referring to the ‘default timeslot . . . .’” (RBr. at 19.). Hytera then argued that Dr. Wicker’s testimony was not sufficiently detailed. (Id. at 19-20.).

Hytera’s argument is wrong on both counts. Dr. Wicker’s testimony on the DOE argument focused on the “default timeslot” limitation and the “triple identity” test often applied in a DOE analysis. Dr. Wicker applied the “triple identity” test after testifying that the ‘284
Redesigned Products literally infringed the ’284 patent, including how the ’284 Redesigned Products (Tr. (Wicker) at 233:6-8; CX-1632C (Zheng Dep. Tr.) at 52:10-19.). However, contrary to Hytera’s depiction of his testimony, Dr. Wicker also suggested why radio communication devices use “default timeslots” (e.g., enhancing efficiency). (Tr. (Wicker) at 236:15-22.). While Dr. Wicker’s testimony on DOE was not robust, it was sufficient legally so as to satisfy the DOE argument and proof requirements. Hytera failed to rebut with persuasive evidence Motorola’s compelling DOE evidence.

For the reasons discussed above, Motorola has proven by a preponderance of evidence that the ’284 Redesigned Products infringe claims 9, 13, 14, and 15 of the ’284 patent.

F. Domestic Industry: Technical Prong

1. Legal Standard

A complainant in a patent-based Section 337 investigation must demonstrate that it is practicing or exploiting the patents at issue. See 19 U.S.C. § 1337(a)(2) and (3); Certain Microsphere Adhesives, Process for Making Same, and Prods. Containing Same, Including Self-Stick Repositionable Notes, Inv. No. 337-TA-366, Comm’n Op. at 8, Pub. No. 2949 (U.S.I.T.C. Jan. 16, 1996) (“Microsphere Adhesives”). The technical prong of the domestic industry requirement is satisfied when the complainant establishes that it is practicing or exploiting the patents at issue. See id.

The test for claim coverage for the purposes of the technical prong of the domestic industry requirement is the same as that for infringement. Certain Doxorubicin and Preparations Containing Same, Inv. No. 337-TA-300, Initial Determination at 109, 1990 WL 710463 (U.S.I.T.C. May 21, 1990), aff’d, Views of the Commission at 22 (October 31, 1990). “First, the claims of the patent are construed. Second, the complainant’s article or process is
examined to determine whether it falls within the scope of the claims.” *Id.* The technical prong of the domestic industry can be satisfied either literally or under the doctrine of equivalents.


2. **The ’284 DI Products Do Not Practice Claims 9, 13, 14, and 15 of the ’284 Patent**

Motorola has alleged that the following DI Products practice the asserted claims of the ’284 patent: MOTOTRBO Base Stations using Capacity Plus (including XPR 8380; MTR3000; XPR 8400; SLR 5000 Series) and MOTOTRBO Mobile Stations using Capacity Plus (including XPR 7000 Series; XPR 7000e Series; SL 7000e Series; SL 7000 Series; XPR 5000e Series; XPR 5000 Series; XPR 3000e Series; XPR 3000 Series; XPR 2500 Series; XPR 4000 Series; XPR 6000 Series; SL8000 Series; SL500 Series) (collectively, the ’284 DI Products”). *(See, e.g., CPBr. at xi.). Motorola’s Capacity Plus.*

As explained below, Motorola provided persuasive evidence that the ’284 DI Products satisfy each limitation of claims 9, 13, 14, and 15 of the ’284 patent. In its Initial Post-Hearing and Post-Hearing Reply Briefs, Hytera did not dispute that the ’284 DI Products practice these claims. *(RBr. at 13-32; RRBr. at 10-24.). Therefore, any arguments Hytera may try to make pertaining to the ’284 DI Products, including on appeal, under Ground Rule 10.1.
Nonetheless, Motorola has not proven by a preponderance of evidence that the ’284 DI Products practice claims 9, 13, 14, and 15 of the ’284 patent. Therefore, the ’284 DI Products do not satisfy the technical prong of the domestic industry requirement.

a) The ’284 DI Products Lack a “Default Timeslot”

The asserted claims of the ’284 patent require a first “assigned default timeslot” and a second “available timeslot” that is “temporarily” selected when the default timeslot is unavailable. (JX-0001 at 6:61-7:9, 8:3-16.). The ’284 DI Products do not use a “default timeslot” approach. Instead, closely resembling the prior art Wiatrowski reference discussed in Section VII.G.2(a) below, “all idle subscribers monitor a [dynamic] rest channel, where new calls begin,” instead of reverting back to a static “default timeslot” for new calls. (Tr. (Wicker) at 281:18-283:2, 283:24-284:25; 286:20-287:4; CX-0963C.34; CX-1231C.625-626, 668-669.).

In his technical domestic industry analysis, which was limited to a two-channel configuration, Dr. Wicker identified the as the “default timeslot,” and the as the temporary timeslot. (CBr. at 19; Tr. (Wicker) at 290:24-292:2 (discussing CDX-0005C.106 and how source code confirms this operation); 291:9-11 (Id. at 462:3-463:7).)

Dr. Wicker as “re-selecting” the default timeslot. (Id. at 462:2-463:7.).

Yet, the in Dr. Wicker’s analysis is not the “default timeslot” contemplated by the ’284 patent. In the process of , the ’284 DI Products . (Id.). In other words,
can claim to be uniquely or specially designated as a “default,” such that the channel displays the characteristics of a home base or hub and, thus, is explicitly not co-equal to the other channels in terms of how often it gets checked for availability and selected for communication. \((\text{See Markman Order, App’x A at 7-8.})\).

While Motorola’s position has superficial appeal in a two-channel configuration, where channel switching necessarily occurs between only two channels, that is a “default” timeslot and “temporary” timeslot, the argument unravels upon closer scrutiny. \(\text{[...]}\), applying Motorola’s reasoning, a “default” timeslot label. The only factor, which is not sufficient.

By contrast, the asserted claims require that the “default timeslot” be selected and re-selected for communications based on its availability. \((\text{See Markman Order, App’x A at 18-19 (citing ’284 patent at 4:51-55).})\). That occurs not when \(\text{[...]}\) but instead out-of-turn, as a prioritized option, to the exclusion of other timeslots, when the communication device lacks an available timeslot on which to conduct a communication. \((\text{Id.})\). This is not how the ’284 DI Products operate. \((\text{See Tr. (Wicker) at 282:23-283:2 (Public Version), 288:16-22 (Public Version)})\).
b) Claim 9 of the ’284 Patent

As discussed below, the ’284 DI Products satisfy every limitation of claim 9 except “default timeslot,” as indicated below with Motorola’s failure of proof in italics. In other words, if “default timeslot” in the ’284 patent and in the ’284 DI Products were interchangeable, which is not the case here, the ’284 DI Products would satisfy claim 9.

i. “A radio communication device having an assigned default timeslot for communicating with a talkgroup of other radio communication devices, the radio communication device comprising”

The ’284 DI Products are radio communication devices using Capacity Plus. Capacity Plus allows . (Tr. (Wicker) at 283:1-17; CX-0963C.311; CX-1231C.625-26.). The subscribers also have an “assigned default timeslot.” (Tr. (Wicker) at 283:18-284:7 (emphasis added).). A subscriber’s “assigned default timeslot is the .” (Tr. (Wicker) at 283:24-284:12 (emphasis added).).

ii. “radio communication circuitry” and “a processor coupled to the radio communication circuitry”

Each of the ’284 DI Products has radio communication circuitry and a processor coupled to the radio communication circuitry. (Id. at 285:7-12, 285:21-286:2.). Dr. Wicker explained that subscribers have radio communication circuitry. (Id. at 285:16-20 (citing examples of product manuals showing radio communication circuitry, including CX-983.3)). The
subscribers also have a processor in communication with the radio communication circuitry. (Id. at 285:21-286:2 (citing examples of product manuals showing processors, including CX-1020C.9, 92-95)).

iii. “wherein in operation the processor: determines, from a signal provided by the radio communication circuitry, if the default timeslot is available for the radio communication device to communicate with the talkgroup”

When a Motorola subscriber . (Id. at 287:9-13.). The subscriber

. (Id. at 287:14-288:6; CX-1231C.627.).

(CX-1231C.627 (emphasis added)).

. (Tr. (Wicker) at 288:11-25; CX-1231C.626.).

iv. “when the default timeslot is unavailable the processor instructs the radio communication circuitry to search for an available timeslot and temporarily select the available timeslot as a temporary selected group timeslot for the talkgroup”

. (Tr. (Wicker) at 289:12-19; CX-1231C.628, 650.).

“Searching” consists of
This is “temporarily,” since (as described below), the subscribers (assigned default timeslot). (Id. at 290:7-15.).

v. “when the default timeslot becomes available the processor instructs the radio communication circuitry to reselect the default timeslot for communicating with the talkgroup”

For a subscriber that

(CX-1231C.630; Tr. (Wicker) at 290:24-291:8.).

(Tr. (Wicker) at 291:9-11.). As another example,

(CX-1231C.630; Tr. (Wicker) at 291:11-19 (testifying re: same). Here the subscriber

. (Tr. (Wicker) at 291:11-19.).

c) Claim 13 of the ’284 Patent

Motorola’s ’284 DI Products satisfy every limitation of dependent claim 13 except “default timeslot,” as discussed below. In other words, if “default timeslot” in the ’284 patent and in the ’284 DI Products were interchangeable, which is not the case here, the ’284 DI Products would satisfy claim 13.
As explained for claim 9,

**d) Claim 14 of the ’284 Patent**

Motorola’s ’284 DI Products satisfy every limitation of dependent claim 14 except “default timeslot,” as indicated below. In other words, if “default timeslot” in the ’284 patent and in the ’284 DI Products were interchangeable, which is not the case here, the ’284 DI Products would satisfy claim 14.

In claim 14, the information sent from the repeater is from the “common announcement channel.” (JX-0001 at cl. 14; see also Tr. (Wicker) at 292:10-24, 293:22-294:6.).

As explained supra in Section VII.F.2(b), for the most part, a limitation-by-limitation analysis of claim 9, maps cleanly to the same analysis for claim 15.

Nevertheless, there are a few unique limitations found in claim 15. Specifically, the ’284
DI Products (consisting of multiple subscribers and a repeater) together form a wireless communication system (limitation 15[pre]). (Tr. (Wicker) at 286:3-19, 292:7-9.). The wireless communication system comprises one repeater used by the subscribers to communicate with each other (limitation 15[b]). (Id.). Finally, which, according to Motorola, serves as the “common assigned default timeslot” for all subscribers. (Id.).

G. Validity

1. Legal Standard

a) Generally


when a party alleges that a claim is invalid based on the very same references that were before the examiner when the claim was allowed, that party assumes the following additional burden:

When no prior art other than that which was considered by the PTO examiner is relied on by the attacker, he has the added burden of overcoming the deference that is due to a qualified government agency presumed to have properly done its job, which includes one or more examiners who are assumed to have some expertise in interpreting the references and to be familiar from their work with the level of skill in the art and whose duty it is to issue only valid patents.


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40 This is not an added burden of proof but instead goes to the weight of the evidence. Sciele Pharma v. Lupin Ltd., 684 F.3d 1253, 1260-61 (Fed. Cir. 2012). New evidence not considered by the PTO may carry more weight than evidence previously considered by the PTO. (Id.).
(emphasis added) (quoting *Am. Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1359 (Fed. Cir. 1984)).

b) **Legal Standard: Anticipation**

A determination that a patent is invalid as being anticipated under 35 U.S.C. § 102 requires a finding, based upon clear and convincing evidence, that each and every limitation is found either expressly or inherently in a single prior art reference. *See, e.g., Celeritas Techs. Inc. v. Rockwell Int'l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998). Anticipation is a question of fact, including whether a limitation, or element, is inherent in the prior art. *In re Gleave*, 560 F.3d 1331, 1334-35 (Fed. Cir. 2009). The limitations must be arranged or combined the same way as in the claimed invention, although an identity of terminology is not required. *Id.* at 1334 (noting that “the reference need not satisfy an *ipsissimis verbis* test”); MPEP § 2131.

In addition, the prior art reference’s disclosure must enable one of ordinary skill in the art to practice the claimed invention “without undue experimentation.” *Gleave*, 560 F.3d at 1334-35. A prior art reference that allegedly anticipates the claims of a patent is presumed enabled; however, a patentee may present evidence of nonenablement to overcome this presumption. *Impax Labs., Inc. v. Aventis Pharms. Inc.*, 468 F.3d 1366, 1382 (Fed. Cir. 2006). “[W]hether a prior art reference is enabling is a question of law based upon underlying factual findings.” *Gleave*, 560 F.3d at 1335.

2. **None of the Asserted Claims of the ’284 Patent Are Invalid**

a) **Claims 9, 13, 14, and 15 of the ’284 Patent Are Not Anticipated By Wiatrowski (JX-0009)**

Provisional Application No. 61/102,770, which was filed on October 3, 2008. The ’991 patent incorporates by reference the entirety of U.S. Patent Application Serial No. 12/331,180 (‘the ’180 application’), which was filed on December 9, 2008, published as U.S. Publication No. 2010/0087199 on April 8, 2010, and issued as U.S. Patent No. 8,139,597 on March 20, 2012. (JX-0009 at 7:16-21; RX-0303 (the as-filed application); CX-1908 (the publication of the application).) The ’180 application claims priority to U.S. Provisional Application No. 61/102,791, which was filed on October 3, 2008. The ’991 patent lists David Wiatrowski, Thomas B. Bohn, and Thomas J. Senese as the inventors, and the ’180 application lists Dipendra M. Chowdhary, David G. Wiatrowski, and Thomas B. Bohn as the inventors.

Hytera alleged that Wiatrowski anticipates claims 9, 13, 14, and 15 of the ’284 patent. (RBr. at 21-32.) Neither Wiatrowski nor the ’180 application were considered by the PTO during the prosecution of the ’284 patent, and Motorola did not contend that the PTO did consider them. (See JX-0001.) Motorola also did not dispute that Wiatrowski qualifies as prior art to the ’284 patent under the relevant provisions of pre-AIA 35 U.S.C. § 102.41

Wiatrowski discloses a method that radio communication devices can use to synchronize with each other, where each frequency comprises multiple timeslots and each timeslot has a unique synchronization pattern. (JX-0009 at Abstract, 1:29-32.) Figure 3 of Wiatrowski, reproduced below as Figure No. 11, illustrates how a receiving device can synchronize with a transmitting device to a desired timeslot. (Id. at 6:64-7:1.).

41 Before the America Invents Act (“AIA”), 35 U.S.C. § 102(a) read in relevant part: “A person shall be entitled to a patent unless—(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
At the first step 305, the receiving device selects a channel, which is associated with
a frequency (step 310) and a timeslot (step 315). (Id. at 7:1-3.). The selection of the channel can
occur in one of several ways, including “where the transmitting device informs the receiving
device which timeslot is currently a rest timeslot (or channel) or which timeslot (or channel) has
call activity that may be of interest (e.g., a system channel status message).” (Id. at 7:3-16.). For
the disclosure of a “rest timeslot (or rest channel),” Wiatrowski incorporates by reference the
totality of the ’180 application. (Id. at 7:16-21.).

Independent claim 9 of the ’284 patent requires, among other things, a radio
communication device with an assigned default timeslot that it uses to communicate with other
radio communication devices. (JX-0001 at 6:59-62.). When its default timeslot is not available
for communicating with the other devices, the device temporarily selects another available
timeslot for communicating, and then re-selects the default timeslot when it again becomes
available. (Id. at 7:5-13.). Motorola alleged that Hytera failed to establish that Wiatrowski
discloses a default timeslot that is temporarily unselected when it is unavailable, and then re-
selected when it again becomes available.

Hytera relied on the disclosure of the “rest channel” in the ’180 application as satisfying
the “default timeslot” limitation of claim 9. (RBr. at 22.). The ’180 application describes that a
“beacon” message will be periodically broadcast on a channel to identify that channel as the rest
channel, and that the channel is available. (RX-0303 at [0057]; Tr. (Akl) at 1009:4-23.). If the
receiving device seeks to use the rest channel but the rest channel is busy, the ’180 application
states that the device can wait until a new channel is selected to serve as the rest channel. (RX-
0303 at [0027].). Hytera pointed to the “wait until a new channel is selected” behavior to satisfy
the “search for an available timeslot and temporarily select the available timeslot” limitation.
(RBr. at 23; Tr. (Akl) at 1010:6-16; RDX-0003 at 18 (highlighting the relevant language from
RX-0303 at [0027])).

The ’180 application also describes that a channel will change its status from a rest
channel to a traffic channel when a receiving device uses it for communication. (RX-0303 at
[0029].). At this point, “a second channel in the system is selected to serve as the rest channel
for the system.” (Id.). Once the receiving device stops using the first channel for
communications, the receiving device will then “obtain[] the identity of the channel currently
serving as the rest channel,” which in the current example is the second channel. (Id. at [0030]).
Hytera asserted that selecting this second channel (the next rest channel) after the device finishes
using the first channel (the prior rest channel) satisfies the “re-select the default timeslot for
communicating with the talkgroup” “when the default timeslot becomes available” limitation.
(RBr. at 23; Tr. (Akl) at 1011:19-24.).

Hytera failed to establish by clear and convincing evidence that Wiatrowski and the ’180 application teach a person of ordinary skill in the art how to practice claim 9 of the ’284 patent. Claim 9 requires a first “assigned default timeslot” and a second “available timeslot” that is “temporarily” selected when the default timeslot is unavailable. (JX-0001 at 6:61-7:9.). The ’180 application does not disclose a “default timeslot.” Instead, the ’180 application discloses two co-equal timeslots that each serve as an alternating, so-called default timeslot, until it is used for communication. (RX-0303 at [0029]; cf. Markman Order, App’x A at 7-8 (stating that the “default timeslot” according to claim 9 is one that the radio communication device is assigned unless it is unavailable and another “temporary” timeslot is used).).

For example, suppose the first timeslot is the “rest channel.” The communication device will use the first timeslot if it is available, but, as a result, that timeslot will cease being the “rest channel” when it is used for communication. At that point, the second timeslot becomes the “rest channel” and ceases to hold that designation when it is used for communication, and so on. (Id.). In other words, the channels are co-equal insofar as any channel can serve as the “rest channel.” None of the channels, whether in a two-channel or more-than-two-channel configuration, can claim to be uniquely or specially designated a “default,” such that it displays the characteristics of a home base or hub channel. Therefore it is explicitly not co-equal to the other channels in terms of how often it gets checked for availability and selected for communication.

Claim 9 requires that the “default timeslot” be selected and re-selected for communications based on its availability, not when it is that timeslot’s turn to serve as a “rest
channel” or “default,” but instead out-of-turn (as a prioritized option, to the exclusion of other timeslots) when the communication device lacks an available timeslot on which to conduct a communication. (See Markman Order, App’x A at 18-19 (citing ’284 patent at 4:51-55.).) This is not taught by Wiatrowski.

Hytera provided the same evidence and arguments for the corresponding limitations of independent claim 15. (See RBr. at 22-24.). Hytera’s argument and reasoning that failed to with respect to claim 9 applies equally to claim 15.

For the foregoing reasons, Hytera has failed to prove by clear and convincing evidence that independent claims 9 and 15 of the ’284 patent are invalid as anticipated by Wiatrowski.

*Celeritas Techs.*, 150 F.3d at 1361.

Since claims 13 and 14 depend from claim 9, Wiatrowski does not anticipate claims 13 and 14. *SynQor, Inc. v. Artesyn Techs., Inc.*, 709 F.3d 1365, 1375 (Fed. Cir. 2013) (dependent claims cannot be anticipated “where the base claim has not been proven invalid”); *Certain Static Random Access Memories and Prods. Containing Same*, Inv. No. 337-TA-792, Remand Initial Determination on Validity and Unenforceability, 2013 WL 1154018, at *10 (U.S.I.T.C. Feb. 25, 2013) (holding that because the independent claim was not anticipated, claims depending from the independent claim were also not anticipated) (citing *Hartness Int’l, Inc. v. Simplimatic Eng’g Co.*, 819 F.2d 1100, 1108 (Fed. Cir. 1987)).

b) **Claims 9, 13, 14, and 15 of the ’284 Patent Are Not Anticipated By TETRA (RX-0063)**

The European Standard designated as ETSI EN 300 396-7 v1.2.1 (2000-12) appears to have been published at least by September 30, 2001, and is titled Terrestrial Trunked Radio (“TETRA”). (RX-0063 at 1, 7.). Hytera alleged that TETRA anticipates claims 9, 13, 14, and
15 of the ’284 patent. (RBr. at 21-32.). Motorola did not contend that TETRA was considered during the prosecution of the ’284 patent. (See JX-0001.). Motorola did not contend that TETRA was considered during patent prosecution. Motorola also did not dispute that TETRA qualifies as prior art to the ’284 patent under the relevant provisions of pre-AIA 35 U.S.C. § 102.

TETRA discloses a radio communication system where devices communicate using two channels with each having two timeslots. (RX-0063 at 13; Tr. (Wicker) at 1238:15-1239:5.). Channel A primarily uses timeslots 1 and 3, and channel B primarily uses timeslots 2 and 4. (RX-0063 at 13; RBr. at 29.). Hytera relied on the “type 2” call disclosure in TETRA, in which the system is capable of supporting two simultaneous calls, for teaching the invention claimed in the ’284 patent. (RBr. at 29, 30; Tr. (Akl) at 1047:21-1048:4 (citing RX-0063 at 25); see RX-0063 at 12.).

According to Hytera’s argument, when both channels A and B are free, the device that wants to place a call primarily will use timeslots 1 and 3 in channel A for the communication. (RX-0063 at 25 (“A call using DM channel A shall primarily be conducted in timeslots 1 and 3 in each frame.”).). Hytera argued that “either timeslot 1 or 3 in channel A” satisfy the “default timeslot” limitation of claim 9. (RBR. at 29, 30; Tr. (Akl) at 1046:18-20.). Hytera at times also argued that both “timeslots 1 and 3” are the “default timeslot.” (RBr. at 31.). However, Hytera’s expert, Dr. Akl, mostly identified “channel A” as satisfying the “default timeslot” limitation of the ’284 patent. (Tr. (Akl) at 1047:21-1048:4, 1048:9-18, 1049:4-12, 1052:20-1053:4, 1053:25-1054:10.).

In other words, Hytera and its expert were inconsistent in their contentions and arguments. At different points either in Hytera’s briefs and Dr. Akl’s testimony, one of the other
contended that the default timeslot is disclosed by (1) channel A itself, (2) timeslots 1 or 3 in channel A, or (3) timeslots 1 and 3 in channel A. Neither Dr. Akl nor Hytera explained in its briefs why their positions were inconsistent, or if not, how to reconcile them.

Hytera explained that if channel A is busy and channel B is free, the TETRA device will use primarily timeslots 2 and 4 in channel B for communication. (RX-0063 at 26.). According to Hytera, “the timeslots of channel B” will be temporarily used if channel A (timeslots 1 and 3) are “unavailable” and channel B (timeslots 2 and 4) are free, as required by claim 9. (RBr. at 31.). Hytera’s expert identified channel B as the “temporary timeslot.” (Tr. (Akl) at 1048:9-18; 1053:25-1054:10.).

Hytera also explained that, on the next type 2 call, if both channels are free, the device will again use timeslots 1 and 3 in channel A for communication. (RX-0063 at 25.). Hytera asserted in attorney argument that Dr. Akl’s testimony satisfied the requirement of claim 9 of the ’284 patent that the default timeslot is re-selected when it becomes available. (RBr. at 31; Tr. (Akl) at 10:49:4-12.).

Hytera’s argument that conflated timeslots with channels is confusing and lacks credibility. Hytera did not explain why it sometimes identified a channel as a “default timeslot” or “temporary timeslot.” Similarly, Hytera did not explain why it at times identified one or both of the timeslots within the channels as satisfying the imitation of the “default timeslot” in the ’284 patent.

Similarly, Hytera’s expert, Dr. Akl, identified a channel as a timeslot (see Tr. (Akl) at 1047:21-1048:4, 1048:9-18, 1049:4-12, 1052:20-1053:4, 1053:25-1054:10), which did not support Hytera’s argument that a timeslot within the channels satisfies the timeslot limitation of the ’284 patent. Hytera also confusingly identified “either timeslot 1 or 3 in channel A” as the
default timeslot in the same brief that Hytera identified the “default channel with default
timeslots 1 and 3.” (Compare RBr. at 29 (emphasis added) with id. at 30, 31 (emphasis added)).

The ’284 patent indicates that, to the relevant person of ordinary skill in the art, a channel
is synonymous with a timeslot. (See ’284 patent at 1:24–26.). As Motorola’s expert explained,
however, TETRA’s system is “not a timeslot-based system, it’s actually a channel-based system,
where a channel is two timeslots.” (Tr. (Wicker) at 1238:20-1239:5; see id. at 1239:17-1240:1
(“[E]ach channel makes use of two timeslots but [TETRA] doesn’t provide any further definition
as to how those timeslots are actually used. We don’t know.”)). How TETRA’s channel-based
system and timeslots-within-channels concept maps to the limitations of claim 9 is not readily
apparent. Hytera failed to provide an explanation, let alone one that might have made sense.

With respect to the specific limitations of claim 9, Hytera did not explain how channel A
or timeslots 1 and/or 3 satisfies the “default timeslot” limitation in the ’284 patent. Hytera
argued that “either timeslot 1 or 3 in channel A is the default timeslot,” but its citation to page 25
of TETRA does not explain how the timeslots within channel A are “assigned” or “used for
communicating with a talkgroup of other radio communication devices” as required by claim 9.
Instead, page 25 of TETRA states that “[a] call using DM channel A is primarily conducted in
timeslots 1 and 3 in each frame on each of the RF carriers.” (RX-0063 at 25 (emphasis
added)). Hytera did not explain how, if both timeslots 1 and 3 in channel A are used for
communication, either timeslot 1 or 3 in channel A can be the default timeslot. Hytera also did
not explain how both timeslots in TETRA could be used for a communication in a way that
might disclose the “default timeslot” limitation. On its face, Hytera’s argument did not match up
with the disclosure in TETRA. Moreover, Hytera did not provide evidence to support what were
no more than conclusory statements on how TETRA discloses the “default timeslot” limitation.
Hytera also failed explain how a device in the TETRA system “determines, from a signal provided by the radio communication circuitry, if the default timeslot is available for the radio communication device to communicate with the talkgroup,” as required by claim 9. Hytera only pointed to TETRA’s disclosure that the device will begin transmission on channel A if it “finds both channel A and channel B free.” (RBr. at 30 (citing RX-0063 at 25).) Hytera’s neither alleged nor attempted to explain how that a TETRA device determines both channels A and B are free, such that the determination process includes the required “signal provided by the radio communication circuitry.” (See Tr. (Akl) at 1047:21-1048:4.). Neither did Hytera’s expert, Dr. Akl, provide evidence or an explanation how a TETRA device determines that both channels A and B are free such that the determination process includes the required “signal provided by the radio communication circuitry.”

Hytera provided the same evidence and arguments for the corresponding limitations of independent claim 15 as it provided for claim 9 of the ’284 patent. (See RBr. at 29-31.). Hytera’s failure to provide supporting evidence, and its confusing and unsupported arguments, apply equally to claim 15 as they do to claim 9 of the ’284 patent.

For the foregoing reasons, Hytera has failed to prove by clear and convincing evidence that independent claims 9 and 15 of the ’284 patent are invalid as anticipated by TETRA.

Celeritas Techs., 150 F.3d at 1361. Since claims 13 and 14 depend from claim 9, TETRA does not anticipate claims 13 and 14 for the same reasons TETRA does not anticipate claim 9.

SynQor, 709 F.3d at 1375; Certain Static Random Access Memories, 2013 WL 1154018, at *10.

c) Claims 9, 13, 14, and 15 of the ’284 Patent Are Not Anticipated By Ito (RX-0016)

U.S. Patent No. 5,396,496 (“Ito”) issued on March 7, 1995, and listed Koichi Ito, Yuji
Umemoto, and Masayuki Tanaka as the inventors. (RX-0016.). Hytera alleged that Ito anticipates claims 9, 13, 14, and 15 of the ’284 patent. (RBr. at 21-32.). The PTO did not consider Ito during the prosecution of the ’284 patent and Motorola did not contend that it did. (See JX-0001.). Motorola also did not dispute that Ito qualifies as prior art to the ’284 patent under the relevant provisions of pre-AIA 35 U.S.C. § 102.

Ito discloses a radio communication system in which mobile devices communicate with base stations. (RX-0016 at Abstract.). Ito specifically discloses that it omits or simplifies a “control station” in the communication system it describes “so that no large apparatus is required and high flexibility can be ensured with respect to changes in the system . . . .” (Id. at 2:10-19.). It does this, in part, by using the base stations or mobile stations instead of a control station to determine which radio frequencies are used or not used, and which time slots are used for connecting the base station and mobile stations. (Id. at 2:30-50.). The portion of Ito that Hytera relied on is labeled the “third embodiment.” It describes signals transmitted on “control radio frequencies” to independently manage the “control channels constituted by time slots” in the base stations and mobile stations rather than the control station. (Id. at 12:22-38, 15:23-34; see RBr. at 25.).

Ito’s “third embodiment” teaches that “the time frame of a control radio frequency has six time slots,” which it labels TSC1 through TSC 6. (Id. at 12:44-45, Fig. 10(a)). The third embodiment also teaches that “time slots TSC1 to TSC3 . . . are assigned to reception, while the time slots TSC4 to TSC6 are assigned to transmission.” (Id. at 13:1-5.). In describing the transmission behavior of the mobile devices in the third embodiment, Ito explains that:

The corresponding mobile station checks whether the transmission time slot TSC4 of a control radio frequency is free or not. If it is confirmed that the time slot TSC4 is free, the mobile station transmits a transmission signal to a corresponding one of
the base stations BSS1 to BSSn by using the time slot TSC4. If the time slot TSC4 is currently used, it is checked whether the next time slot TSC5 is free. If it is free, the mobile station transmits the transmission signal by using the time slot TSC5. Similarly, if this time slot TSC5 is also currently used, it is checked whether the next time slot TSC6 is free. If it is free, this time slot TSC6 is used. Note that if all the time slots TSC4 to TSC6 are currently used, a busy state is notified to a user (caller). If, however, another control radio frequency can be used, the mobile station may be switched to this control radio frequency. Thereafter, if the presence of a free time slot of the transmission time slots TSC4 to TSC6 is confirmed, the corresponding time slot may be used.

(Id. at 14:62-15:15.).

According to Hytera, this Ito disclosure teaches that the mobile devices “sequentially check the availability of timeslots TSC4 to TSC6 for each communication.” (RBr. at 26 (citing RX-0016 at 14:62-15:15).) Hytera argued that TSC4 satisfies the “default timeslot” limitation of the ’284 patent because it will be used if it is available and another timeslot is not designated. (Id.; Tr. (Akl) at 1033:18-1034:2.). Hytera also argued that TSC5 satisfies the “temporary timeslot” limitation of the ’284 patent because it will be used if TSC4 is not available, and that the communication system that Ito describes will re-select TSC4 when it becomes available again due to the sequential algorithm. (RBr. at 27 (citing RX-0016 at 14:62-15:15).).

Motorola argued that TSC4 cannot satisfy the “default timeslot” limitation of the ’284 patent because TSC4 is on a “control radio frequency,” not on a speech radio frequency. (CBr. at 26.) Claim 9 of the ’284 patent requires that the mobile device have “an assigned default timeslot for communicating with a talkgroup” of other mobile devices. (JX-0001 at 6:59-62 (emphasis added).) Motorola’s expert, Dr. Wicker, explained that control signals are only transmitted between the mobile devices and the repeaters but not between mobile devices in a talkgroup. The control signals do just that, but they are not used for communicating in a talkgroup. (Tr. (Wicker) at 1246:6-1247:2.).
Hytera did not dispute that the signals on TSC4 are control signals sent on a control radio frequency, or that the signals are only transmitted between the mobile devices and repeaters. (RBr. at 26; RRBr. at 22.). However, Hytera argued that “control channels TSC4 to TSC6 are timeslots the system uses to manage speech communications among a talkgroup, so they are used for communicating with a talkgroup.” (RBr. at 26 (citing RX-0016 at 1:61-64 (“speech channels including the respective time slots are collectively and concentrically managed by the control channel”).) The dispute, as Hytera framed it is whether claim 9 requires the default timeslot to transmit speech information, or only to transmit information used to manage speech communication.

Hytera’s evidence in support of its contention that the control channels “manage speech communications within a talkgroup” was both lacking and insufficient to non-existent. The Ito disclosure that Ito relied upon, at 1:61-64, is part of the “Background of the Invention” section that describes “a conventional system.” The description of the speech and control channels in Ito that Hytera relied upon is framed by the Ito specification as “problems” with the conventional system that the invention presumably attempts to remedy. (RX-0016 at 1:56-2:8.). Ito teaches that its invention works differently than a “conventional system” which uses a control channel to manage speech channels.

The only other evidence Hytera cited is Dr. Wicker’s testimony, Motorola’s expert’s testimony, which Hytera mischaracterized. (RRBr. at 22-23 (citing Tr. (Wicker) at 1291:10-12).). Hytera described Dr. Wicker’s testimony as admitting that TSC4 is “used to set up a call.” (Id.). However, that is not what Dr. Wicker said. He testified: “So it’s using TSC4 for control signalling. It will then use – if a call is set up, it will use one of the voice channels to make that call.” (Tr. (Wicker) at 1291:10-12.). Hytera did not tie the “control signaling” in Ito to setting
up a call. Hytera’s characterization of Motorola’s expert’s testimony on this point is wrong. Regardless of whether claim 9 can be practiced if only information used to manage speech communication is transferred over the default timeslot, and not actual speech communication, Hytera has not met there burden of proof that Ito discloses this behavior.

Hytera did not present any argument or testimony during the evidentiary hearing that a timeslot that is only used to manage communications among a talkgroup satisfies the “default timeslot for communicating with a talkgroup” limitation of the ’284 patent. Hytera also did not include such an argument in its Pre-Hearing Brief. (See RPBr. at 18-22; Tr. (Akl) at 1033:17-1034:10, 1040:21-1041:13.). Hytera’s expert and Pre-Hearing Brief also did not cite the portion of Ito, at 1:61-64, that Hytera decided to rely upon, belatedly, in its Initial Post-Hearing Brief. Not only was Hytera’s belated argument incorrect, Hytera waived its right to rely upon Ito as it did belatedly under Ground Rule 10.1.

Motorola argued that Ito does not disclose that TSC4 is re-selected once it becomes available because Ito does not disclose the sequential algorithm that Hytera attempted to describe, wrongly. That is that the Ito system checks the availability of TSC4, then TSC5, then TSC6, and then sequentially restarts checking at TSC4. (CBr. at 26.). Motorola pointed out that the portion of Ito that Hytera relied upon, at 14:62-15:15, only describes an initial selection process in which TSC4 is selected if it is free. Otherwise, TSC5 is selected if it is free, TSC6 is selected if it is free, and if none of them is free, “a busy state is notified to the user.” (Id.). Motorola’s expert, Dr. Wicker, testified that the section of Ito that Hytera relied upon was “not talking about going back to a default[,] [i]t’s talking about using what becomes available.” (Tr. (Wicker) at 1247:6-20.).

Motorola is correct that Hytera has not met its burden to prove that the Ito system re-
selects TSC4 when it becomes available as required by claim 9 of the ’284 patent, even assuming TSC4 is the “default timeslot.” Hytera’s expert, Dr. Akl, simply read the Ito specification into the record and concluded, without explanation, that it satisfies the limitations of claim 9 of the ’284 patent. (Tr. (Akl) at 1036:19-1037:16, 1042:18-1043:14.). The portion of Ito that Dr. Akl read into the record does not support his conclusion that “it’s describing the re-selecting and going back to TSC4.” Ito does not disclose in that part of the specification, or elsewhere, that TSC4 is used again when it becomes available, or that the system sequentially re-checks TSC4 through TSC6. Ito simply says that “if the presence of a free time slot of the transmission time slots TSC4 to TSC6 is confirmed, the corresponding time slot may be used.” (RX-0016 at 15:12-15.). This implies that if TSC4 through TSC6 are all available, TSC5 or TSC6 could be used instead of TSC4. Hytera provided no contrary explanation or analysis to support its position.

In order to suggest that Dr. Wicker, Motorola’s expert agreed with Hytera’s argument, Hytera selectively cited only to part of Dr. Wicker’s testimony, and in doing so, not only omitted Dr. Wicker’s complete testimony, but also misrepresented Dr. Wicker’s testimony. Hytera cited to one word “yes” and omitted the remainder of Dr. Wicker’s explanation in which, contrary to Hytera’s blatant omission and equally blatant misrepresentation, did not support Hytera’s claim that “he [Dr. Wicker] conceded Ito describes sequentially checking TSC4 to TSC6 and returning to (i.e., re-selecting) TSC4.” (RBr. at 28 (citing Tr. (Wicker) at 1292:8-10); RRBr. at 23.). Dr. Wicker’s complete testimony on the point at issue is:

Q: Okay. But doesn’t it then go back through 4, 5, 6, checking that way?

A: Yes. It says “thereafter, if the presence of a free timeslot of the transmission timeslots is confirmed, the corresponding timeslot maybe used.” So if something frees up after that, it will use that for its control signalling.
Dr. Wicker’s testimony, read and explained in its proper context, indicates that the “yes” at the beginning of his answer is not an admission that Ito “go[es] back through 4, 5, 6, checking it that way.” Instead, the “yes” is a way to acknowledge that Dr. Wicker understood the question he was asked before he read the portion of Ito that Hytera’s attorney read. Dr. Wicker added to his answer, which Hytera also blatantly omitted, that “if something frees up after that, it will use that for its control signaling.”

Hytera provided the same inadequate evidence and unsupported (and at times confused and confusing) arguments for the corresponding limitations of independent claim 15 as it did for claim 9 of the ’284 patent. (See RBr. at 26-28.). Hytera’s incorrect reasoning and confused explanations of Ito in the context of claim 9 of the ’284 patent applies equally to claim 15 of the ’284 patent.

For the foregoing reasons, Hytera has failed to prove by clear and convincing evidence that independent claims 9 and 15 of the ’284 patent are invalid as anticipated by Ito. Celeritas Techs., 150 F.3d at 1361. Since claims 13 and 14 depend from claim 9, Ito does not anticipate claims 13 and 14 for the same reasons provided with respect to claim 9. SynQor, 709 F.3d at 1375; Certain Static Random Access Memories, 2013 WL 1154018, at *10.

VIII. U.S. PATENT NO. 7,369,869

A. Overview of Infringement\textsuperscript{42} and Motorola’s and Hytera’s Disputes in Brief

Motorola has alleged that the following Hytra Accused Products infringe claims 1, 6, 17,
and 21 of the ’869 patent: MD, PD5, PD6, PD7, PD9, RD6, RD9, Xle, and Xlp series (“the ’869 Accused Products”).\textsuperscript{43} (CBr. at 27.). In its Initial Post-Hearing Brief and Post-Hearing Reply Brief, Hytera only disputed that the “comparing a second information in the control message to third information preprogrammed in the subscriber unit” to determine if an activity is of interest to a subscriber unit limitation required by claims 1 and 6, and similar limitations recited in claims 17 and 21, are not met by the ’869 Accused Products. (RBr. at 33-34; RRBr. at 24-25.).

Any arguments with regard to any other claim limitations that Hytera failed to make and may try to make, including on appeal, are deemed waived under Ground Rule 10.1.

Motorola’s expert for the ’869 patent, Dr. Rangan, identified and provided persuasive evidence that the ’869 Accused Products meet each of the limitations recited in claims 1, 6, 17, and 21. For the reasons discussed below, the ’869 Accused Products infringe claims 1, 6, 17, and 21 of the ’869 patent.

\textsuperscript{43} Infringing code versions 5.06, 7.6, 8.0, and 8.1 can be installed on the ’869 Accused Products. (CBr. at 27.).
B. Relevant Claim Terms

The following constructions of the claim terms recited in the asserted claims of the ’869 patent have been agreed upon by the Parties or adopted by this Court.\footnote{The Parties disputed the meaning of additional claim terms recited in claims that have been terminated from this Investigation. Those terms are not included in Chart No. 9.}

\underline{Chart No. 9: Constructions of Claim Terms Relevant to the ’869 Patent}\footnote{During the \textit{Markman} hearing and in the Joint Claim Construction Chart, the Parties disputed both of these claim terms. (See Joint CC Chart at 7.).}

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>“a wireless communications landscape 100” (claims 1 and 21)</td>
<td>A network with communications resources of RF frequencies, one or more base radios, and one or more subscriber units. (\textit{Markman} Order, App’x A at Chart 1.).</td>
</tr>
<tr>
<td>“determining whether the activity is of interest to the subscriber unit”/“determine whether the activity is of interest to the system” (claims 1, 17, 21)</td>
<td>Determining whether the activity “has utility” to the SU. (\textit{See} Section VIII.E.2(b), \textit{infra}).\footnote{Hytera asserted that these claim terms are indefinite. (\textit{See}, \textit{e.g.}, Res’pts Claim Br. at 37.). For the reasons discussed in Section VIII.E.1(b), \textit{infra}, it is a finding of this ID that the terms are not indefinite and that the term “of interest” means “has utility.”}</td>
</tr>
</tbody>
</table>

C. The ’869 Accused Products Infringe Claims 1, 6, 17, and 21 of the ’869 Patent

1. Claims 1, 17, and 21 of the ’869 Patent

   a) “A method for scanning a TDMA channel by a subscriber unit in a wireless communications landscape 100, wherein the subscriber unit is operationally connected to at least one base radio over a plurality of channels, the method comprising the steps of” [1pre] “In a TDMA system whereby the TDMA
system comprises a plurality of subscriber units and a plurality of base radios, a method for scanning, the method comprising the steps of” [17pre]/“A system for scanning a TDMA channel by a subscriber unit in a wireless communications landscape 100, wherein the subscriber unit is operationally connected to at least one base radio over a plurality of channels, the system comprising” [21pre]

Motorola presented persuasive evidence that the ’869 Accused Products

Hytera did not dispute Motorola’s evidence. (Tr. (Rangan) at 608:10–609:24 (citing CX-1408C; CDX-0006C.0019).)

Because Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’869 Accused Products meet the preambles of claims 1, 17 and 21.

b) “locking onto a channel of the plurality of channels by the subscriber unit wherein a subset of the plurality of channels is preprogrammed in a list in the subscriber unit” [1a]/ “locking onto a channel preprogrammed in a list of a subscriber unit whereby the channel carries activity on one timeslot of the TDMA system” [17a]/“a receiver for locking onto a channel of

47 “Q: . . . What is a software requirement specification? A: Sure. The -- when you develop software, you usually start with a requirements document to indicate what the software should do. Q: And have you worked with those types of documents in your work in technology companies? A: Extensively. Q: Okay. In your experience, how do software requirement specifications relate to the ultimately finished products? A: They ultimately finished software has to match those requirements.” (Tr. (Rangan) at 608:17–609:4; see also id. at 656:3-8 (“Q: . . . What is a software requirement specification for a particular feature, how does that correspond to the final product, based on your experience in the industry? A: The final software should conform to that specification.”)).
the plurality of channels wherein a subset of the plurality of channels is preprogrammed” [21a]

Record evidence adduced in this Investigation demonstrates that the ’869 Accused Products circuitry locks onto a channel from a scan list. Hytera did not dispute this. (CX-0694C.0026; CX-1408C.0071; CX-0377C.0021 ( ).)

Hytera’s corporate representative, Mr. Jue Liang, confirmed that the ’869 Accused Products lock onto a channel at a particular frequency. (CX-0744C (Liang Dep. Tr. (Oct. 12, 2017)) at 64:5-12 ( ).)

In its Initial Post-Hearing Brief, Hytera did not offer rebuttal evidence with respect to this claim limitation. Therefore, any argument that Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For these reasons, Motorola has proven by a preponderance of evidence that the ’869 Accused Products meet these limitations of claims 1, 17 and 21.

c) “transmitting from at least one base radio a control message to the subscriber unit wherein the control message has a first information which informs the subscriber unit of activity present on the channel of the plurality of channels” [1b]

The record evidence establishes that the repeaters in the ’869 Accused products transmit
a control message, RPTShortLCPara, to the SU, which Hytera did not dispute. (CX-1407C.0024.). Dr. Rangan, Motorola’s expert, explained that... (Tr. (Rangan) at 615:18–618:25 (citing CPX-0132C at ll. 2177-94; CPX-0075C at ll. 2116-25; CPX-0122C at ll. 2389-99 (CDX-0006C.0026-28.). Hytera’s corporate witness, Ms. Xiaohua Zheng, confirmed that... (CX-0749C (Zheng Dep. Tr. (Oct. 9, 2017)) at 89:20-22, 114:23-25, 115:16-20; CX-0750C (Zheng Dep. Tr. (Oct. 10, 2017)) at 137:6-9.

Hytera failed to offer rebuttal evidence to Motorola’s evidence on this claim limitation in its Initial Post-Hearing Brief. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’869 Accused Products meet these limitations of claims 1, 17 and 21.

d) “receiving and decoding the control message for the first information by the subscriber unit” [1c]; “if the first information indicates that activity is present on the channel of the plurality of channels” [1d]/“receiving an activity update message from a base radio of the plurality of base radios wherein the activity update message indicates in a first information the activity on the channel and indicates in a second information at least one characteristic of the activity on the channel” [17b]/ “whereby the receiver obtains an activity update message from the channel wherein the activity update message indicates in a first information activity on the channel and indicates in a second information at least one characteristic of the activity on the channel” [21b]; “a decoder for obtaining the at least one characteristic from the activity update message” [21c]

Motorola presented persuasive evidence that reflected that the ’869 Accused Products
receive and decode the control message, (CX-1407C.0024; Rangan Tr. 619:1-621:12). Dr. Rangan explained how

(CPX-0155C at ll. 5549-64; CPX-0034C at ll. 5154-64; CPX-0099C at ll. 5640-64; CDX-0006C.0029-31.). Hytera’s corporate witness, Mr. Zheng, confirmed that the


Additionally, Motorola provided evidence confirming that the ’869 Accused Products check if the first information indicates activity present on the channel of the plurality of channels by processing. Dr. Rangan explained how

(CPX-0034C at ll. 5140-60; CPX-0155C at ll. 5547-71; CPX-0172C at ll. 5641-63; Tr. (Rangan) at 624:10–626:3; CDX-0006C.0036-38.). Mr. Zheng confirmed that

(CX-0750C (Zheng Dep. Tr. (Oct. 10, 2017)) at 137:6-9.).

Because Hytera failed to offer any rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For these reasons, Motorola has proven by a preponderance of evidence that the ’869 Accused Products meet these limitations of claims 1, 17 and 21.
a) “determining whether the activity is of interest to the subscriber unit by comparing a second information in the control message with a third information preprogrammed in the subscriber unit” [1e]/“determining whether the activity is of interest to the subscriber unit by comparing the at least one characteristic with preprogrammed third information in the subscriber unit” [17c]/“a comparator which compares the at least one characteristic with third preprogrammed information indicating at least one preprogrammed characteristic to determine whether the activity is of interest to the system” [21d]

Motorola argued that the ’869 Accued Products determine whether activity on a scanned channel is of interest to a SU by comparing a “second information” ( ) in the control message ( ) with a “third information” ( ) in the SU. (Tr. (Rangan) at 616:5-8, 633:8-24, 636:1-9.).

Dr. Rangan testified that the (CX-0076C.0020, 23; Tr. (Rangan) at 633:2-7 ( ); CDX-0006C.0043.). Based upon Hytera’s source code, Dr. Rangan explained that (Tr. (Rangan) at 636:1-9 (citing CPX-0034C at ll. 5062-73; CPX-0037C at ll. 7399-412; CPX-0099C at ll. 5564-67).). According to Dr. Rangan, supported opinion that the (Id. at 636:3-17, 739:3-10 ( )
During the evidentiary hearing, Dr. Akl corroborated and agreed with Dr. Rangan:

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48 Dr. Rangan described hashing as follows: “Q: What is a hashing function? A: So the preprogrammed ID might be long and about, say 24 bits, and the hashing is just simply a process to taking a shorter version of that.” (Tr. (Rangan) at 634:24–635:2.)
Hytera did not contest. Rather, Dr. Akl contended that. (Tr. (Akl) at 1067:12–1068:12.). Dr. Akl’s argument is not supported by record evidence.

There is no dispute that. (Id. at 1191:15–1192:10 (Dr. Akl confirming that); Tr. (Rangan) at 633:16-24.). As Motorola pointed out, the claims of the ’869 patent do not restrict the method of comparison, or exclude the use of hashing.

Q: Okay. Let’s go to column 5. This is the ’869 patent by the way, just for the record. It’s JX-5. I’ll show you the front cover, the ’869. And I’ll show you to column 5, and we’re going to zoom in to — let’s say about line 53. And it talks about how if “if the active transmission on timeslot 1 is directed to subscriber unit 16 and subscriber unit 16 is identified by a 24-bit subscriber unit ID, then the ID field is hashed to 8 bits.” Do you see that?

A: Yes.

Q: Okay. And then it goes on at about line 59 to say, “as is known in the art, there can be many algorithms that can be used to perform the function of hashing and
one such well known algorithm is a Crc8 checksum with a generating polynomial
of \( g(x)=x^8+x^2+x+1 \).” Do you see that?

A: Yes, I see those words.

(Tr. (Akl) at 1194:20–1195:15 (emphases added)).

Additionally, Dr. Rangan confirmed the operations as described, stating that

(Tr. (Rangan) at 739:3-10; 633:8–635:11

(CDX-0006C.0044 (citing CPX-0034 at ll. 5062-73; CPX-0037C at ll. 7399-412; CPX-0099C at ll. 5564-67)).

As Dr. Rangan explained,

(Tr. (Rangan) at 632:17–636:20; CPX-0034 at ll. 5062-73; CPX-0037C at ll. 7399-412; CPX-0099C at ll. 5564-67)).

Dr. Akl failed to rebut the evidence Dr. Rangan presented, or explain why the claims of
the ’869 patent exclude the use of hashing to perform the comparison. Thus, his non-infringement theory, improperly excluded claimed embodiments. Accent Packaging, Inc. v. Leggett & Platt, Inc., 707 F.3d 1318, 1326 (Fed. Cir. 2013) (“[A] claim interpretation that excludes a preferred embodiment . . . is rarely, if ever, correct.”).

Moreover, there is no dispute that . (Tr. (Akl) at 1191:15–1194:5; Tr. (Rangan) at 633:12–635:16). There is also no dispute that . (Tr. (Akl) at 1194:6-9 ( ); see also Tr. (Rangan) at 635:12-16 ( ).

For the reasons discussed above, Motorola has proven by a preponderance of evidence that the ’869 Accused Products meet these limitations of claims 1, 17 and 21.

b) “if the activity is of interest to the subscriber unit, then remaining on the channel of the plurality of channels to receive the activity present on the channel” [1f]/“if the activity is of interest, then remaining on the channel to receive the activity; otherwise moving to the next channel in the list” [17d]/“a selector to receive activity which the comparator determines to be of interest” [21e]

During the evidentiary hearing, Dr. Rangan testified that an activity is “of interest” (which he also referred to as “having utility” based on the plain and ordinary meaning of that term; see Section VIII.E.2(b), infra) because “the subscriber unit [is] preprogrammed to be interested in one of those groups, characteristics.” (Tr. (Rangan) at 628:8–631:17; 628:16-24 (discussing JX-0005 at 8:48-50 (cl. 7) (wherein an activity of interest is targeted to the SU))). If
Mr. Zheng, Hytera’s employee, confirmed that

Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief. Therefore, any argument that Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the reasons discussed above, Motorola has proven by a preponderance of evidence that the ’869 Accused Products meet these limitations of claims 1, 17 and 21.

2. **Claim 6 of the ’869 Patent**

   a) “The method of claim 1 further comprising the step of tuning to the next channel in the list that is preprogrammed in the subscriber unit.”

   Dr. Rangan explained that, which Hytera did not dispute. (Tr. (Rangan) at 644:1–645:7; 645:16–646:12; CPX-0041C at ll. 1766-88; CPX-0101C at ll. 2023-422; CDX-0006C.0056.).

   Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

   For the reasons discussed above, Motorola has proven by a preponderance of evidence
that the ’869 Accused Products meet this limitation of claim 6.

D. Domestic Industry: Technical Prong

1. The ’869 DI Products Practice Claims 1, 6, 17, and 21 of the ’869 Patent

Motorola has alleged that the following DI Products practice the asserted claims of the ’869 patent: MOTOTRBO Base Stations (including XPR 8380; MTR3000; XPR 8400; SLR 5000 Series) and MOTOTRBO Mobile Stations (including XPR 7000 Series; XPR 7000e Series; SL 7000 Series; XPR 5000 Series; XPR 5000 Series; XPR 3000 Series; XPR 2500 Series; SL 300 Series; CP200D; CM Series; XPR 4000 Series; XPR 6000 Series; SL8000 Series; SL500 Series) (collectively, the ’869 DI Products”). (See, e.g., CPBr. at xi.). In its Initial Post-Hearing and Post-Hearing Reply Briefs, Hytera did not dispute that the ’869 DI Products practice these claims. (RBr. at 32-46; RRBr. at 24-27.). Therefore, any arguments pertaining to the ’869 DI Products that Hytera may try to make, including on appeal, are deemed waived under Ground Rule 10.1.

Motorola’s expert, Dr. Rangan, identified evidence that the ’869 DI Products practice each of the limitations recited in claims 1, 6, 17, and 21. Accordingly, Motorola has proven by a preponderance of evidence that the ’869 DI Products practice claims 1, 6, 17 and 21 of the ’869 patent, and that the ’869 DI Products satisfy the technical prong of the domestic industry requirement for the ’869 patent.

a) Claims 1, 17, and 21 of the ’869 Patent

i. “A method for scanning a TDMA channel by a subscriber unit in a wireless communications landscape 100, wherein the subscriber unit is operationally connected to at least one base radio over a plurality of channels, the method comprising the steps of” [Ipre]/“In a TDMA system whereby the TDMA system comprises a plurality of subscriber units and a plurality
of base radios, a method for scanning, the method comprising the steps of” [17/pre]/ “A system for scanning a TDMA channel by a subscriber unit in a wireless communications landscape 100, wherein the subscriber unit is operationally connected to at least one base radio over a plurality of channels, the system comprising” [21/pre]

Record evidence reflects that the ’869 DI Products scan by , which Hytera did not dispute. (CX-0963C.0030

( ); CX-0830.0077 (MOTOTRBO XPR 7550/XPR 7580 User Guide).). Based on Motorola’s technical documents and source code, Motorola’s expert, Dr. Rangan, explained that

(see CPX-0296C at ll. 2485-86, 1970-71, 2437-38, 1908-09) discloses . (Tr. (Rangan) at 694:16–697:23; CDX-0006C.0079-80.).

Because Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

Thus, the ’869 DI Products practice the preambles of claims 1, 17, and 21 of the ’869 patent.

ii. “locking onto a channel of the plurality of channels by the subscriber unit wherein a subset of the plurality of channels is preprogrammed in a list in the subscriber unit” [1a]/
“locking onto a channel preprogrammed in a list of a subscriber unit whereby the channel carries activity on one timeslot of the TDMA system” [17a]/ “a receiver for locking onto a channel of the plurality of channels wherein a subset of the plurality of channels is preprogrammed” [21a]

Evidence adduced in this Investigation demonstrates that the ’869 DI Products inspect,
i.e., lock onto, channels preprogrammed in the [redacted], which Hytera did not dispute.
(CX-1001C.0097, 100, 102 [redacted]).

Dr. Rangan opined that the source code comment in CPX-0331C, [redacted] discloses this element. (Tr. (Rangan) at 697:24–702:17; CPX-0331C at ll. 953-61, 982, 1037, 1057; CDX-0006C.0082-83.).

Because Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the reasons discussed above, Motorola has proven that the ’869 DI Products practice these elements of claims 1, 17, and 21 of the ’869 patent.

iii. “transmitting from at least one base radio a control message to the subscriber unit wherein the control message has a first information which informs the subscriber unit of activity present on the channel of the plurality of channels” [1b]

Motorola offered persuasive evidence that established that the repeaters in the ’869 DI Products transmit a control message to the SU [redacted] with a first information [redacted] that indicates there is activity present on the channel. (CX-1001C at 98, 146, 245.). Dr. Rangan testified that [redacted] in CPX-0296C [redacted]. (Tr. (Rangan) at 702:18–704:14; CPX-0296C at ll. 173-84, 2299-300; CDX-0006C.0085-86.).

Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the foregoing reasons, the ’869 DI Products practice this element of claim 1 of the
‘869 patent.

iv. “receiving and decoding the control message for the first information by the subscriber unit” [1c]; “if the first information indicates that activity is present on the channel of the plurality of channels” [1d]/“receiving an activity update message from a base radio of the plurality of base radios wherein the activity update message indicates in a first information the activity on the channel and indicates in a second information at least one characteristic of the activity on the channel” [17b]/“whereby the receiver obtains an activity update message from the channel wherein the activity update message indicates in a first information activity on the channel and indicates in a second information at least one characteristic of the activity on the channel” [21b]; “a decoder for obtaining the at least one characteristic from the activity update message” [21c]

Motorola produced persuasive evidence that demonstrated that its ‘869 DI Products receive and decode the control message (in CX-1001C at 62) for the first information (in CX-1009C.0100, also called in CX-1001C). As Dr. Rangan explained, the source code functions and process a control message. (Tr. (Rangan) at 704:15–706:9; CPX-0311C at ll. 2886-91; CPX-0315C at ll. 861-75; CDX-0006C.0087-88.). Dr. Rangan explained and offered his opinion that the ‘869 DI Products involve in a second information (in CX-1009C; in CPX-0331C) at least one characteristic of the activity on that channel. (Tr. (Rangan) at 706:10–709:7, 710:17-24; CX-1009C.0100; CPX-0331C at ll. 11233-36, 10417-39, 10447-60, 13388-98, 3294-96; CDX-0006C.0091-92.).

Hytera failed to offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

Based upon record evidence and the reasons explained above, the ‘869 DI Products
practice these elements of claims 1, 17 and 21 of the ’869 patent.

v. “determining whether the activity is of interest to the subscriber unit by comparing a second information in the control message with a third information preprogrammed in the subscriber unit” [1e] / “determining whether the activity is of interest to the subscriber unit by comparing the at least one characteristic with preprogrammed third information in the subscriber unit” [17c] / “a comparator which compares the at least one characteristic with third preprogrammed information indicating at least one preprogrammed characteristic to determine whether the activity is of interest to the system” [21d]

Based upon Motorola’s technical documents and source code, Dr. Rangan testified that if the first information (in CX-1001C) indicates activity on the channel, the ’869 DI Products determine whether the activity is of interest (“has utility”) to the SU by comparing a second information in the control message (in CPX-0331C) with a third information preprogrammed in the SU (in CPX-0331C), which Hytera did not dispute. (Tr. (Rangan) at 709:8–710:16, 711:10–713:23; CPX-0331C at l. 10455; see also CX-1001C.0098, 151-52; CDX-0006C.0093-94, 98-99, 101.).

Hytera did not present rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief. Therefore, any argument that Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the foregoing reasons, the ’869 DI Products practice these elements of claims 1, 17 and 21 of the ’869 patent.
vi. “if the activity is of interest to the subscriber unit, then remaining on the channel of the plurality of channels to receive the activity present on the channel” [1f]/“if the activity is of interest, then remaining on the channel to receive the activity; otherwise moving to the next channel in the list” [17d]/“a selector to receive activity which the comparator determines to be of interest” [21f]

Motorola produced compelling evidence that reflects that if the activity on the channel is of interest to the SU (e.g., ), the SU remains on that channel to receive the activity on the channel, which Hytera did not dispute. (CX-1001C.0152; CX-1008C.0008.). Dr. Rangan explained that source code, , describes remaining on such a channel. (Tr. (Rangan) at 713:14–714:24, 716:2–717:10; CPX-0331C at ll. 11315-23; CDX-0006C.0102-03.).

Motorola’s ’869 DI Products also contain a selector, that is, a processor that executes the code to receive activity. (Tr. (Rangan) at 714:25–716:1; CDX-0006C.0105; CX-1008C.0008; CX-1001C.0152.).

Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the foregoing reasons, the ’869 DI Products practice this element of claims 1, 17 and 21 of the ’869 patent.

vii. “wherein the operation of the receiver, the decoder, the comparator, and the selector are controlled by a processor” [21f]

Using Motorola’s technical documents, Dr. Rangan testified that the processors in Motorola’s ’869 DI Products run software to control the operation of the receiver, decoder, comparator, and selector, which Hytera did not dispute. (Tr. (Rangan) at 717:11–719:4 (citing
Because Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

Based on the evidence presented, Motorola’s ’869 DI Products practice this element of claim 21 of the ’869 patent.

**b) Claim 6 of the ’869 Patent**

*i. “The method of claim 1 further comprising the step of tuning to the next channel in the list that is preprogrammed in the subscriber unit.”*

Motorola’s unrefuted evidence demonstrates that subscribers of the ’869 DI Products if the activity is of no interest. (CX-1008C at 8; CX-1009C at 100.). Dr. Rangan testified that in such instances, the source code function performs tuning to the next channel in CPX-0331C. (Tr. (Rangan) at 716:2–717:10; CPX-0331C at ll. 8927, 8967-83, 12243; CDX-0006C.0106-07.).

Hytera did not present any rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

The ’869 DI Products practice the additional claim element recited in claim 6 of the ’869 patent.
E. Validity

1. Legal Standard: Indefiniteness

A patent specification must “conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as [the] invention.” 35 U.S.C. § 112, ¶ 2. The Federal Circuit held that a patent claim is not indefinite “so long as the claim is amenable to construction, and the claim, as construed, is not insolubly ambiguous.”

*Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). More recently, the U.S. Supreme Court determined that this standard lacks precision. *Id.* at 2130. Instead, the Supreme Court held:

> we read § 112, ¶ 2 to require that a patent’s claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty. The definiteness requirement, so understood, mandates clarity, while recognizing that absolute precision is unattainable. The standard we adopt accords with opinions of this Court stating that “the certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter.”

*Id.* at 2129 (citations omitted). A party seeking to invalidate a patent claim must do so by clear and convincing evidence. *See, e.g., Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1327 (Fed. Cir. 2008) (citing *Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1375 (Fed. Cir. 1986)).

2. None of the Asserted Claims of the ’869 Patent Are Invalid

a) Claims 1, 6, 17, and 21 of the ’869 Patent Are Not Anticipated By Wan (RX-0077)

U.S. Patent No. 6,044,069 (“Wan”) issued on March 20, 2000, and lists Yongbin Wan as the sole inventor. (RX-0077.). Hytera alleged that Wan anticipates claims 1, 6, 17, and 21 of the ’869 patent. (RBr. at 35-44.). The PTO did not consider Wan during the prosecution of the ’869 patent. Motorola did not contest this. *(See JX-0005.)* Motorola also did not dispute that Wan
qualifies as prior art to the ’869 patent under the relevant provisions of pre-AIA 35 U.S.C. § 102.

Wan discloses a “power management system for a mobile station” that reduces “standby mode processing by receiving and processing single time slots of a short paging channel.” (RX-0077 at Abstract.). The power management system reduces power consumption by only processing “full paging channels comprising four time slots” if the short paging channel alerts the mobile station that a pending telephone call may be directed to it. (Id.). Wan’s power management system is a modification to a conventional radio communication system, such as the one shown in Figure No. 12 (Figure 1 of Wan) below. (See id. at 6:15-19, 7:39-44.).

Figure No. 12: Diagram Showing Components of a Wireless Communication System

(RX-0077 at Fig. 1.)

As depicted in Figure 1 of Wan, a mobile station 106, such as a cellular telephone, scans radio frequency channels for information broadcast by a base station 104, and then examines the information to determine if a call is directed to it. (Id. at 6:54-60.). One type of information broadcast by a base station is control information, the structure of which is illustrated in Figure No. 13 (Figure 2 of Wan) below. (Id. at 7:39-44.).
Figure No. 13: Wireless Communication Signal Data Transmitted by Base Station and Structure in Data Frames

As shown at the top of Figure 2 of Wan, the control data is first structured in TDMA frames 202, marked as F₁ through F₅₁, each with “eight time slots 204.” (Id. at 7:50-51.). A time slot from each of the 51 frames (e.g., the first time slot 206) is combined to form a multiframe 208. The multiframe can include four types of control information. (Id. at 7:60-66.). One type of control information is the “common control channel 216 (CCCH), which supports the establishment of a link between a mobile station 106 and a base station 104.” (Id. at 8:12-15.). A CCCH may be a “paging channel 218 (PCH), which provides information indicating whether a telephone call . . . is currently pending for a particular mobile station 106.” (Id. at 8:16-20.). In Figure 2 of Wan, for example, time slots 7 through 10 of multiframe 208 are labeled CCCH and (PCH) to indicate that those four time slots contain the information of a common control channel 216 that is a paging channel 218.

According to Wan, the receiving and processing of all of the “paging channel [PCH]
information to detect telephone calls ... consumes power” that the invention of Wan seeks to reduce by providing a new short call alert message containing one-fourth the data of conventional call detection messages. (*Id.* at 6:66-7:21). The invention of Wan will only look for the longer PCH message if the short message alerts the cellular telephone that there may be a call directed to it. (*Id.* at 7:22-28).

The short message described by Wan is labeled as “short page channel 504 (SPCH)” in Figure No. 14 (Figure 5 of Wan) below, within multiframe 502. (*Id.* at 9:36-42). Figure 5 of Wan is similar to Figure 2 of Wan, except that in Figure 2, time slots 7 through 10 contain the CCCH / PCH information and, in Figure 5, those same time slots contain the SPCH information. “Each time slot 506 of the short page channel (SPCH) contains information sufficient to alert at least one mobile station 106 that there may be a telephone call ... directed to the mobile station 106.” (*Id.* at 9:44-48).

**Figure No. 14: Diagram of a Multiframe**

![Diagram of a Multiframe](RX-0077 at Fig. 5)

Claims 1, 17, and 21 of the '869 patent require that the subscriber unit has a
preprogrammed list of channels, and that it locks into one of the channels. (JX-0005 at 8:14-17, 9:34-36, 10:16-18.). Hytera pointed to the mobile station 104 in Figure 1 of Wan as the claimed subscriber unit and “a frequency for transmitting TDMA frames” as the claimed channel that the mobile station locks into. (RBr. at 35-36.). The frequency referred to by Hytera is presumably a 200 kHz frequency as defined in a “common implementation of the GSM system.” (See RX-0077 at 7:29-34 (“Each 25-MHz range is divided into 125 radio frequency channels, each having a width of 200 kHz.”)).

Motorola asserted that Hytera did not explain which lines in Wan discloses the “preprogrammed list” of channels in the subscriber unit. (CBr. at 40.). Hytera’s Post-Hearing Brief is certainly lacking on this point. Hytera only indicated that the subscriber unit’s ability to synchronize with the base station discloses the requirement that the subscriber unit has a subset of the channels contained in a preprogrammed list. (RBr. at 36.). Hytera’s reliance on its expert, Dr. Akl’s testimony does not serve Hytera’s argument. Dr. Akl provided only a conclusion that the disclosure in Wan that “the cellular telephone scans certain frequencies (frequencies known to be used by GSM) to synchronize communication with the base station” discloses the “limitation in 1b [regarding the preprogrammed list], and the corresponding limitations in claims 17 and 21.” (Id. (citing Tr. (Akl) at 1072:26-33 (referring to RX-0077 at 6:49-56, see RDX-0003 at 149)); RRBr. at 25-26.). Dr. Akl did not provide any reasoning or explanation why his conclusion was correct. Despite his and Hytera’s lack of explanation of the evidence, the evidence itself is minimally sufficient to establish that a person of ordinary skill in the art would understand that the subscriber unit would have to have a preprogrammed list of channels (frequencies) known to be used by the GSM standard in order to “scan [those] frequencies . . . to synchronize communication with base station 104.” (RX-0077 at 6:49-51.).
Claim 1 of the ’869 patent also requires “a control message” that has “a first information” which informs the subscriber unit of activity present on the channel” and “a second information” that is used to determine “whether the activity is of interest to the subscriber unit.” (’869 patent at 8:18-30). Claims 17 and 21 similarly require “an activity update message” that contains “first information” and “second information.” (Id. at 9:37-45, 10:19-24).

Hytera seemingly proposed two alternate theories of how Wan teaches the control message / activity update message, first information, and second information limitations.

Hytera’s first theory is that the claimed “control message” / “activity update message” is the entire multiframe (208 in Figure 2 of Wan, and 502 in Figure 5 of Wan), and the claimed “first information” is a “6-bit short page identity” in the SPCH 504. (RBr. at 36 (citing RX-0077 at 10:41-54; Tr. (Akl) at 1078:3-8 1078:20-1079:8), 38.).

Hytera did not provide any context for the “6-bit short page identity” value that it asserted is the claimed “first information,” but context is required in order to analyze whether this SPCH value teaches the limitation. (See RBr. at 36-38.). As described above in relation to Figure 5 of Wan, the SPCH contains four time slots 506, each one containing 156.25 bits of “information sufficient to alert at least one mobile station 106 that there may be a telephone call” directed to it. (RX-0077 at 9:44-49.). Figure No. 15, (Figure 6 of Wan) below, illustrates the specific portions of the SPCH message that the mobile station uses to determine that there may be a call directed to it. (Id. at 9:57-58.).
The top bar in Figure 6 of Wan shows the structure of one SPCH time slot 506 that is received by the mobile device 106. When the mobile device receives this information, it decodes specific parts of the information to “detect the potential presence of a telephone call.” (Id. at 10:26-29.). Specifically, the second bar in Figure 6 of Wan shows that “the mobile station 106 combines the 39 coded bits 604 and the 39 coded bits 608 into a stream of 78 coded bits 614.” (Id. at 10:26-29.). The mobile station then decodes these 78 coded bits 614 into data that contains 25 bits of “identity information 622,” which is shown in the third and fourth bars of Figure 6 of Wan. (Id. at 10:29-38.). The identity information 622 is further divided into four 6-bit fields 624, MS1 through MS4 in the bottom bar of Figure 6 of Wan, each of which “may contain an identity value corresponding to one or more mobile stations 106.” (Id. at 10:38-42.).

In sum, Hytera pointed to a single 6-bit value 624 (e.g., MS1) of decoded identity information.
information 622 of coded bits 604/608/614 of a single time slot 506 of the short page channel (SPCH) 504 of multiframe 502 as the claimed “first information which informs the subscriber unit of activity present on the channel.”

Wan teaches that, since the identity values 624 in the SPCH can identify more than one mobile station 106, a mobile station 106 whose identity matches with a value 624 in the SPCH will then examine the “standard paging channel (PCH) information according to standard GSM specifications to determine whether the telephone call . . . is intended for the respective mobile station 106” or not. (Id. at 10:49-54, 11:7-10.). For the claimed “second information,”” Hytera pointed to the “64-bit mobile identify value . . . accessed from the paging information 412 in the PCH [218],” which can uniquely identify a single mobile station 106. (Id. at 40-41 (citing RX-0077 at 9:19-35; Tr. (Akl) at 1075:3-9, 1076:7-11, 1082:17-1083:5, 1088:9-10, 1088:23-24)).

Under the GSM standard, a mobile station receives the PCH data in four time slots as indicated in Figure 2 of Wan, above. Like a SPCH time slot 506, a PCH time slot 220 comprises 156.25 bits of information. (RX-0077 at 8:30-32.). Unlike a SPCH time slot 506, however, a PCH time slot 220 does not contain independently useful information. Instead, four PCH time slots 220 have to be combined and decoded together in order to extract information that is meaningful to the mobile station. (Id. at 8:55-58.). This is illustrated in Figure Nos. 12 and 13 (Figures 3 and 4 of Wan, respectively), below.
Figure 3 of Wan (Figure No. 17 below) illustrates that a single PCT time slot contains coded bits that are combined into coded bits, which is bits long. (Id. at 8:51-55.). The coded bits from each of the four time slots are combined to create a total of coded bits per PCH. (Id. at 8:55-60.).
The top bars of Figure 4 of Wan, above, shows that the 456 coded PCH bits arrive interleaved, are reordered into a single “bit stream comprising 456 coded bits,” and then decoded into paging information. The bottom bar of Figure 4 of Wan shows that the decoded paging information contains mobile identity 1 and mobile identity 2, each of which can contain a 64-bit identifier of a specific mobile station. If the mobile identity matches an internally stored identification code of the mobile station, the mobile station determines that the telephone call was directed to it.

In sum, Hytera pointed to a single 64-bit mobile identity value of decoded paging information of the deinterleaved 456 coded bits that was formed by combining the coded bits from all four time slots of the page channel (PCH) as the claimed “second information in the control message.”

Claims 1, 17, and 21 require that the first information and second information be on the same message. Motorola argued that Wan does not disclose a single message that contains both the required first information and second information, under Hytera’s theory, because the SPCH and PCH are separate messages. Motorola argued that the multiframe, which Hytera pointed to as satisfying the message limitations, is not itself a message, and that it has many distinct messages within it.

The Parties did not propose the claim term “message” for construction during the Markman proceedings, and each party now accuses the other of using a never-before-disclosed improper definition of the term. Motorola’s expert testified that a message can comprise multiple time slots, but it “has a precise beginning and end as
defined by the standard” and the time slots that comprise the message “would be decoded together.” (Tr. (Rangan) at 1330:3-15.). Hytera countered that the ’869 patent uses the term broadly to refer to “signaling messages,” “frame synchronization messages,” “CACH messages,” “activity update messages,” “LC messages,” and “data messages.” (RBr. at 37 (citing JX-0005 at 2:67, 4:39-40, 4:49-58, 6:12-37, 6:38-60).).

The term “message” does not need construction; it has a plain and ordinary meaning in that a message is what the devices in the system would recognize as a message. For example, in the ’869 patent, a base unit sends an “activity update message” to a subscriber unit. (JX-0005 at 4:59-5:5.). The subscriber unit recognized that this is a message that provides an update on the presence and type activity of the time slots on the channel, and on the subscriber unit or units to which the activity is directed. (Id. at 5:6-65.).

Wan relies on the GSM standard to define what the devices in the system would recognize as messages. The GSM standard states that the “frequency correction channel 210 (FCCH)” provides the “mobile station 106 with the frequency reference of the GSM system.” (RX-0077 at 7:65-8:15.). The mobile stations (subscriber units) therefore would recognize the FCCH as a message that contains the frequency reference. Similarly, the mobile stations recognize that “synchronization channel 212 (SCH)” is a message that contains a key for demodulating information from the base station, that “broadcast control channel 214 (BCCH)” is a message that contains information about the network, and that “common control channel 216 (CCCH)” is a message that contains information on how the mobile station can establish a link with the base station. (Id.).

Hytera confused a message with a vehicle for carrying a message. In Wan, a multiframe is simply a vehicle, as defined by the GSM standard, for carrying different types of control
Hytera’s argument that the SPCH is the first information and the PCH is the second information within the multiframe message is incorrect. The SPCH is a message sent by the base station with the purpose of alerting the mobile stations that there may be a call on the channel. (RX-0077 at 9:44-48; see id. at 7:11-28 (referring to the SPCH concept as a “short page message (or call alert message) containing one-fourth the data of existing paging (call detection) messages”) (emphasis added).). As described above, the mobile stations treat the SPCH as a message that is separate from the other messages in the multiframe vehicle. (See RX-0077 at 7:19-29 (“A mobile station thus receives and processes the short page message to detect telephone calls and page messages, rather than receiving and processing the existing, much longer paging messages.”) (emphasis added).). Similarly, the PCH is a message sent by the base station to inform the mobile stations the specific mobile station to which the call is directed. (Id. at 10:49-53.). As described above, even though the PCH information spans four time slots, the mobile stations treat the PCH as a message that is separate from the other messages in the multiframe vehicle. (See RBr. at 35 (“Wan discloses . . . receiving and processing a short paging channel [SPCH] . . . . Once alerted, the mobile station receives and processes full paging channels [PCH] . . . .”).).

In addition, claim 1 of the ’869 patent requires that the subscriber unit (mobile station) decode “the control message for the first information.” (’869 patent at 8:23-24.). The multiframe cannot be the control message, as Hytera has argued, because the multiframe as a whole is not decoded for the first information. Instead, only one timeslot within the multiframe
that corresponds to the SPCH is decoded for the first information. Other information in the multiframe, such as the PCH, remains encoded unless the subscriber unit decides to separately decode such information. (Tr. (Rangan) at 1316:17-1317:10 (“you want to decode the short paging message and then if there’s no activity, you can quickly go back to sleep . . . only if there’s activity on that short paging message do you need to decode the whole message”).).”)

Because the multiframe is not a “message,” Hytera has failed to establish that Wan discloses the control message of claim 1 or the activity update message of claims 17 and 21 under its first theory.

Hytera’s second theory is that the claimed “control message” / “activity update message” is the SPCH itself, with the claimed “first information [that] indicates that activity is present on the channel” being the reserve bit of the SPCH and the claimed “second information” being the 6-bit short page identity of the SPCH. (RBr. at 36-39.). For evidence of the reserve bit, Hytera only referred to the disclosure in Wan that “more than one bit maybe reserved for indicating that there is some reason to scan for and receive particular broadcast data.” (RBr. at 37 (citing RX-0077 at 13:49-52; Tr. (Akl) at 1078:12-1080:6)).

The embodiment referenced that Hytera referenced for the “reserve bit” is one where “battery power is further conserved by avoiding unnecessary processing of other logical channels such as the broadcast control channel BCCH.” (RX-0077 at 13:14-21.). The BCCH label refers back to Figure 2 of Wan, and is one of the “four types of control information” that the multiframe may include, according to the GSM standard. (Id. at 7:64-8:15 (“a broadcast control channel (BCCH) which informs the mobile station about specific system parameters it may need to identify the network or to gain access to the network (e.g., location area code, operator identification, information on which frequencies the neighboring cells may
be found, different cell options, and access other parameters”). Wan teaches that the SPCH reserve bit can include a value to indicate whether the BCCH information has changed since the last time the mobile station checked the BCCH. (Id. at 13:30-43.). If the value of the reserve bit has not changed, the mobile station does not need to check the content of the BCCH, which further reduces power consumption. (Id. at 13:43-49.).

Hytera did not establish, with either evidence or argument, that the other limitations of claims 1, 17, and 20 can be met if the reserve bit is the “first information.” The claims require that the first information indicate that activity is present on the channel. Hytera argued that the reserve bit indicates that there is activity on the channel because it tells the subscriber unit that it needs to “scan for and receive particular broadcast data.” (RBr. at 37, 39.). However, the ’869 claims also require that the subscriber unit use the second information to “determin[e] whether the activity is of interest.” However, Wan teaches that the possible activity is that the content of the BCCH has changed, which means the 6-bit short page identity of the SPCH cannot be the claimed “second information” because is not used to determine whether the content of the BCCH has changed. Instead, as described above in reference to Figure 4 of Wan, the 6-bit short page identity of the SPCH (mobile identity 414 or 416) is used to determine whether a telephone call might be directed to that mobile station, which has nothing to do with the BCCH. (Id. at 9:32-35.).

Hytera argued that Wan discloses “alternative embodiments” where the reserve bit can be used for other purposes. For support, Hytera cited the following sentence of Wan:

In alternative embodiments, more than one bit may be reserved for indicating to the mobile station 106 that there is some reason to scan for and receive particular broadcast data.

(RX-0077 at 13:49-52.). This sentence of Wan is also the only sentence referenced by
Hytera’s expert for the “first information” limitation. (Tr. (Akl) at 1078:14-1079:13.). Hytera concluded, without support from Wan or its expert, that “[a] person of skill would consider data on the SPCH or PCH to also be broadcast data because it goes to multiple subscriber units.” (RBr. at 38.).

Hytera’s conclusion does not follow from its cited portion of Wan, nor does Wan support the conclusion. As discussed above, the embodiment in Wan that discloses the reserve bit is focused on using the reserve bit to reduce how often the mobile station has to check the content of the broadcast control channel (BCCH). The sentence quoted by Hytera teaches that one bit, which can only indicate two values (a 0 or a 1), may not provide the necessary granularity, so “more than one bit maybe reserved.” (RX-0077 at 13:49-52.). The sentence does not teach that the reserve bit (or bits) could be used for any other purpose other than indicating that the content of the BCCH has changed, nor does it imply that “particular broadcast data” refers to data other than that contained in the BCCH.

Because the reserve bit of the SPCH is not a “first information” if the 6-bit short page identity of the SPCH is the “second information,” Hytera has failed to establish that Wan discloses the control message of claim 1 or the activity update message of claims 17 and 21 under its second theory.

For the foregoing reasons, Hytera has failed to prove by clear and convincing evidence that independent claims 1, 17, and 21 of the ’869 patent are invalid as anticipated by Wan. *Celeritas Techs.*, 150 F.3d at 1361. Since claim 6 depends from claim 1, Wan does not anticipate claim 6. *SynQor*, 709 F.3d at 1375; *Certain Static Random Access Memories*, 2013 WL 1154018, at *10.
b) Claims 1, 17, and 21 of the ’869 Patent Are Not Indefinite

Hytera argued that the terms “determining whether the activity is of interest to the subscriber unit” and “determine whether the activity is of interest to the system” in independent claims 1, 17, and 21 are indefinite, because a person of ordinary skill in the art reading the claims and the specification would not understand with reasonable certainty what it means for a subscriber unit to determine whether the activity is “of interest.” (RBr. at 44 (emphasis added)). According to Dr. Akl and Hytera’s argument “these claims do not indicate what comparing results will make the device to determine the activity is of interest.” (Id.; Tr. (Akl) at 1104:4-16 (emphasis added)). For the reasons discussed below, Hytera’s assertions are not supported by the intrinsic and extrinsic evidence.

Independent claims 1, 17, and 21 explicitly state that activity is “of interest” if it matches information preprogrammed in the SU: (i) claim 1 states that “whether the activity is of interest to the subscriber unit [is determined] by comparing a second information in the control message with a third information preprogrammed in the subscriber unit”; (ii) claim 17 states that “whether the activity is of interest to the subscriber unit [is determined] by comparing the at least one characteristic with preprogrammed third information in the subscriber unit”; and (iii) claim 21 states that “a comparator . . . compares the at least one characteristic with third preprogrammed information indicating at least one preprogrammed characteristic to determine whether the activity is of interest to the system.” (JX-0005 at 8:27-30, 9:42-45, 10:27-30; see also CDX-0006C.0041.).

These recitations would guide a person of ordinary skill to understand the meaning of the step of “determining” an activity is “of interest” with reasonable certainty based on whether its “second information” matches information preprogrammed in the subscriber unit (“third

Moreover, a number of the dependent claims provide specific examples of “interested activity.” For instance, claim 7 recites, “[t]he method of claim 1 wherein the activity is of interest if the control message indicates that the activity is **targeted for the subscriber unit**.” *(Id. at 8:48-50 (emphasis added); see also Tr. (Rangan) at 628:18-24; CDX-0006C.0041.).* Claim 22 also states that a characteristic of interest includes “identification, voice, data, group, individual, emergency, and non[-]emergency.” *(JX-0005 at 10:37-40; see also Tr. (Rangan) at 629:2-4; CDX-0006C.0041.).*

Additionally, the claims of the ’869 patent indicate what the SU does when such activity is found. For example, according to claim 1, if activity is deemed “of interest,” the SU “remain[s] on the channel.” *(Id. at 8:31-33; see also id. at 9:18-20 (Claim 13 states that “if the data message is of interest,” the SU is to “remain[] on the channel . . . [for] further process[ing].”).* Claim 2 dictates that “if the activity is of interest,” the SU “render[s] audio of the activity.” *(Id. at 8:34-36.).*

The specification of the ’869 patent identifies clearly described activities that are “of interest” to the SU. These activities (or transmissions) include “voice, data, group, individual, emergency, and non-emergency”. *(See, e.g., id. at 3:40-58, 5:38-41.).* The specification also confirms that if the activity is “of interest,” the SU will use it by receiving, processing, or rendering it. *(See, e.g., id. at Abstract (“remains on the channel to receive the activity”), 6:19-21 (“the data message is further processed”), 5:41-44 (“audio is rendered”); see also Tr. (Rangan) at
629:9–630:16, 630:19-21; CDX-0006C.0042.). Conversely, the specification is clear that if the activity is of no interest, the SU does not receive or process one of the specific activities. (See, e.g., id. at 6:21-22 (if the ID is of no interest, “the scanning SU tunes to the next channel”), 6:61-65 (“If the ID field 308, 310 of the activity update message 300 does not contain an ID that is of interest to the scanning SU (Block 212), then the scanning SU moves to the next channel in the preprogrammed scan list.”); Tr. (Rangan) at 631:14-17.).

Accordingly, a person of ordinary skill in the art would not find the term “of interest” indefinite but would understand the plain and ordinary meaning to be that the claimed SU determines activity is “of interest” if it “has utility” to the SU or system. (Tr. (Rangan) at 627:8–632:16.).

Hytera’s technical documents describe the accused scan functionality and “interested activity” in an analogous manner, and therefore confirm that an activity “of interest” is not indefinite:

(CX-0076C at 20 (emphases added); see also Tr. (Rangan) at 632:9-16 ([...]).

(CX-0076C at 20 (emphases added)).

Clearly, Hytera understands and implements the features “of interest” because one of Hytera’s corporate witnesses, Xiaohua Zheng, Vice General Manager of Hytera DMR Division,
testified that she understood the scope of the term “of interest” and that it is not indefinite. When Ms. Zheng testified about [redacted] the ’869 Accused Products, she stated:

(CX-0749C (Zheng Dep. Tr. (Oct. 9, 2017)) at 105:19-23 (emphasis added)).

Courts analyzing the “of interest” phrase have rejected the same argument that Hytera made that “of interest” is an indefinite term when there is a disclosure in a patent of examples of what the term “of interest” means or is understood to mean. For example, in Personalized User Model LLP v. Google Inc., the court held that the challenged term (“estimating a probability \( P(u/d) \) that an unseen document \( d \) is of interest to the user \( u \)”)) was definite because the specification gave examples of “documents of interest” and disclosed a method to determine whether a document is of interest. Personalized User Model LLP v. Google Inc. No. CIV. 09-525-LPS, 2012 WL 295048, at *23-24 (D. Del. Jan. 25, 2012). Similarly, in IMX, Inc. v. E-Loan, Inc., the court concluded that the disputed term (“using identifiers which might be of interest to lenders”) was definite because the patent’s specification provided examples of information, known to a person of ordinary skill, “which might be of interest to lenders,” such as “a loan amount, property location, property appraisal.” IMX, Inc. v. E-Loan, Inc., 710 F. Supp. 2d 1315, 1323-24 (S.D. Fla. 2010).

In Personalized User Model and IMX distinguished Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1350 (Fed. Cir. 2005), the sole case on which Hytera relied, the Court held that “[t]he patent provided no guidance as to what factors would be used to determine whether a screen was aesthetically pleasing.” Personalized User Model, 2012 WL 295048, at *23; IMX,
Hytera’s reliance on Personalized User Model LLP is blatantly misplaced. The claim language for claims 1, 17, and 21 explains how to determine whether activity is of interest—i.e., by comparing the “second information” with the “third information.” The claim language also describes precisely what happens if the claimed comparison yields a match, which is confirmed by the specification. (JX-0005 at 8:9-33, 9:30-48; see id. at Abstract (“If [the activity is of interest], then the subscriber unit remains on the channel to receive the activity present on the channel.”); id. 6:19-21 (“the data message is further processed”), 5:41-44 (“audio is rendered”).

For the foregoing reasons, Hytera has not proven by clear and convincing evidence that the terms “determining whether the activity is of interest to the subscriber unit” and “determine whether the activity is of interest to the system” in independent claims 1, 17, and 21 are indefinite. Nautilus, Inc., 134 S. Ct. at 2129; Tech. Licensing, 545 F.3d at 1327. Moreover, a person of ordinary skill in the art would understand the plain and ordinary meaning to be that the claimed SU determines activity is “of interest” if it “has utility” to the SU or system.

IX. U.S. PATENT NO. 7,729,701

A. Overview of Infringement and Motorola’s and Hytera’s Disputes in Brief

Complainant has alleged that the ’701 Accused Products infringe claims 1 and 11 of the ’701 patent. (CBr. at 43-49.). Of these (2) remaining disputed claims of the ’701 patent, claim 1 is an independent claim while claim 11 is a dependent claim. Both are method claims. A process or method claim is infringed only if each step of the claimed method is performed. Muniauction, Inc. v. Thomson Corp., 532 F.3d 1318, 1328 (Fed. Cir. 2008). The mere sale or importation of an apparatus capable of performing the patented method does not constitute infringement. Joy Techs., Inc. v. Flakt, Inc., 6 F.3d 770, 775 (Fed. Cir. 1993).
The essence of the disputes between Motorola and Hytera are whether: (1) Hytera’s “systems” require or use a separate “controller” to operate, in which case they would not infringe; (2) whether Hytera’s use of base and mobile stations constitute “systems,” and whether Motorola’s base and mobile stations when working together constitute “systems;” (3) whether Hytera’s “timer” and some of the other Hytera system components, although named differently, are actually “re-keying;” (4) whether the Hytera base stations or “repeaters” check for a message within certain timing boundaries of time slots (Hytera stated they do not); and (5) whether when the Hytera products are “de-keyed” the time timing boundaries for time slots continue to exist (rather than forming new time slots as Hytera argued) and continue to check for transmissions within the time boundaries of the time slots. Ultimately, Hytera’s arguments with respect to each of the disputes were often neither persuasive nor supported by the weight of the record evidence.49

B. Relevant Claim Terms

The following constructions of the claim terms recited in the asserted claims of the ’701 patent have been agreed upon by the Parties or adopted by this Court.50

49 Throughout this Investigation, including in its opening statement during the evidentiary hearing (Tr. at 44:1) through its Post-Hearing Reply Brief, Hytera often argued that Motorola “mischaracterized” or in some way distorted the functioning of Hytera’s products or its arguments. (See, e.g., RRBr. at 27.). For the most part, Motorola’s descriptions were on point and did not distort. Hytera often lacked the evidence to support its own positions.

50 The Parties disputed the meaning of additional claim terms recited in claims that have been terminated from this Investigation. Those terms are not included in Chart No. 10.
### Chart No. 10: Constructions of Claim Terms Relevant to the ’701 Patent

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>“de-keying” (claim 1)</td>
<td>Base station transmitter is turned off; i.e., the base station downlink is inactive while the base station uplink remains active and available to detect the mobile station transmissions. <em>(Markman Order, App’x A at Chart 1).</em></td>
</tr>
<tr>
<td>“re-keying” (claims 1 and 11)</td>
<td>Base station transmitter is turned on; i.e., the base station downlink is activated. <em>(Id.</em>.</td>
</tr>
<tr>
<td>“re-keying and repeating the transmission, if the transmission is received with proper synchronization before the expiration of the timer” (claim 1)</td>
<td>Plain and ordinary meaning. <em>(Id.</em>.</td>
</tr>
<tr>
<td>“wakeup message” (claim 11)</td>
<td>Message that causes the base station to re-key. <em>(Id.</em>.</td>
</tr>
<tr>
<td>“conventional TDMA communication system” (claim 1)</td>
<td>TDMA communication system without a central controller to manage communications between the mobile station and the base station. <em>(Id. at Chart 2.</em>.</td>
</tr>
<tr>
<td>“proper synchronization” (claim 1)</td>
<td>Received within timing boundaries. <em>(Id. at Chart 2.</em>.</td>
</tr>
</tbody>
</table>

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31 During the *Markman* proceedings, the Parties agreed upon the definitions of “conventional TDMA communication system” and “proper synchronization.” *(See Joint CC Chart at 8.*). The Parties disputed the remaining terms. *(Id. at 8-9.*).
C. The ’701 Accused Products Infringe Claims 1 and 11 of the ’701 Patent52

1. Claim 1 of the ’701 Patent

a) “In a conventional TDMA communications system, wherein the conventional TDMA communications system comprises at least one base station and at least one mobile station, a method of accessing a de-keyed base station comprising” [1pre]; “de-keying a base station in the conventional TDMA communications system” [1a]

Before the Markman hearing, Motorola and Hytera agreed to the definition of the preamble to claim 1 as “a conventional TDMA communication system.” (See Chart No.10.). Dr. Wicker, Motorola’s expert testified credibly and persuasively that Hytera’s accused ’701 products meet the preamble of claim 1. (Tr. (Wicker) at 370:4-7.). Dr. Wicker testified that Hytera’s accused ’701 products . (Id. at 370:8-17; CX-0063C.). He also testified that he analyzed the Hytera’s base stations, mobile stations, and software to determine if they infringe and if they constitute a “system.” (See Tr. (Wicker) at 369:8-10 (citing CDX-005C.196.). According to Dr. Wicker, he looked at five (5) elements contained in the Hytera Legacy Products to determine if they infringe: (i) whether they have “a TDMA system

52 Motorola noted that while Hytera distinguishes its legacy products from its new products as they would both pertain to infringement of the ’701 patent, Motorola observed that it did not receive any evidence from Hytera that it is selling “new” in the United States. (CPBr. at 23 n.12.). The only evidence that apparently discussed “new” Hytera products that might infringe the ’701 patent was that given by Andrew Yuan, a Hytera witness, who only identified . (Id. (citing Tr. (Yuan) at 841:7-11.).) Motorola added to this thin testimony that because Ms. Zheng testified that Hytera . (See CRBr. at 23 n.12.). Not enough evidence was produced to conclude with certainty that Hytera is importing any re-designed ’701 patent infringing products into the United States. This might be an issue that Motorola will need to develop if the Commission orders a Cease and Desist Order with a Certification provision.

While Motorola included Hytera’s “new” products that possibly infringe the ’701 products into its convoluted and contradictory argument on jurisdiction (see Section III.A.3., infra), there is still insufficient information about the Hytera redesigned or “new” products to make a conclusive determination whether they infringe even if the Commission has jurisdiction.
with a mobile and base station”; (ii) whether they “de-key”; (iii) whether they have a “start timer after de-keying”; (iv) whether they “receive mobile station transmission”; and (v) whether they “re-key.” (See Wicker Tr. at 369:13-18.).

Contrary to Hytera’s belated, post-hearing argument that Motorola did not identify a “communications system,” Motorola did so identify the Legacy Hytera communication “systems” and components that infringe claim 1. (CPBr.at 44.). Hytera tried to suggest that the repeaters, mobile stations and the firmware it sells in the United States to customers are nothing more than disaggregated components. The argument strained credulity.

In its Initial Post-Hearing Brief, Hytera did not provide rebuttal evidence on this claim limitation. Therefore, any argument Hytera made belatedly, or may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

Moreover, even if Hytera has not waived its argument, the record evidence does not support Hytera’s argument. Dr. Wicker found that Hytera’s Legacy Products consist of a communications system comprised of repeaters, mobile stations, and system diagnostics that

(Id. at 370:4-372:5; see also CX-0063C.91-131.). Additionally, Dr. Wicker was asked:

(Tr. (Wicker at 371:6-9.). Dr. Wicker referenced Hytera’s own documentation that refers

(Id. at 372:1:5 (citing CX-0063C at 11, 14).).

Hytera’s mobile

(CBr. at 44 (citing 370:18-371:15); see also Tr. (Wicker) at 370:20-371:2: (}
In other words, there is .53 Hytera repeated in its Post-Hearing Brief and in its Post-Hearing Reply Brief that Dr. Wicker gave a new meaning to the term “central controller,” not previously disclosed or construed and also narrowed its meaning in violation of the Court’s Markman construction. (RBr. at 49; RRBr. at 27.). Hytera also argued that Motorola “ignored” the claim construction. (RRBr. at 27.). I disagree with Hytera’s arguments and with its attempts to distort the meaning of “central controller” as contained in the language of the ’701 patent itself. As noted above in the text of the ’701 patent, and as repeated here for emphasis, the ’701 patent’s description of a “conventional wireless communication system” includes: “In such an environment and as is known in the art, the wireless communication system is termed ‘conventional’ to denote the lack of a central controller to manage the communications between the MSs [mobile stations] and the base stations.” (See JX-0007 at 1:13-28.). See, e.g., Accent Packaging, Inc. v. Leggett & Platt, Inc., 707 F.3d 1318, 1326 (Fed. Cir. 2013) (“[A] claim interpretation that excludes a preferred embodiment . . . is rarely, if ever, correct.”). Aside from Black letter patent law that to read out of the embodiment a “central controller” as a separate component distinct from the base and mobile stations is “rarely . . . correct,” Hytera did not identify a single piece of evidence to show how and where its accused products contained a separate, “central controller.” One of the purposes of the ’701 patent is to eliminate the need for a separate, central controller.

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Additionally, Motorola identified several of Hytera’s DMR TDM “systems” in equipment Hytera deploys in the United States. These included a Hytera case study showing its DMR systems with PD782 subscribers and RD982 repeaters at St. Vincent’s Hospital in Alabama, and another such system using PD682 and PD687 subscribers and RD982 repeaters in a system at the Appleton Center in Wisconsin. (CBr. at 43 (citing CX-1841 and CX-1843; Tr. (Wicker) at 370:8-371:15).) As Motorola noted, Dr. Akl also acknowledged that Hytera’s repeaters were used with subscribers. However, he provided no other explanation and did not describe or cite to any evidence that Hytera’s components working together did not comprise “systems” of communications. (See Tr.
Hytera argued belatedly, post-hearing, that because the Court’s construction of the preamble, and that where the “controller” was located was broad and not limited to any specific form of management, somehow, and therefore they are somehow non-infringing. (RBr. at 49 (citing Tr. (Akl) at 930:9-931:23)). This makes no sense because the ’701 patent’s description of a “conventional wireless communication system” includes the following language:

In such an environment and as is known in the art, the wireless communication system is termed “conventional” to denote the lack of a central controller to manage the communications between the MSs [mobile stations] and the base stations. (See JX-0007 at 1:13-28.).

The ’701 patent specification clearly calls for a separate central controller component in addition to a base station and mobile station; otherwise, the term “central controller” would be surplusage and would read out an embodiment. See, e.g., Accent Packaging, Inc. v. Leggett & Platt, Inc., 707 F.3d 1318, 1326 (Fed. Cir. 2013) (“[A] claim interpretation that excludes a preferred embodiment . . . is rarely, if ever, correct.”). Moreover, Hytera did not make the argument in its Pre-Hearing Brief, i.e., that let alone provide facts to support its argument. Indeed, Hytera did not cite to any evidence in its Pre-Hearing Brief either with respect to the limitations recited in claim 1 let alone to the patent specification and intrinsic evidence. At best, Hytera’s Pre-Hearing Brief contained nothing more than short, conclusory statements with no
explanations or explication. (RPBr. 48 and 49; see also CRBr.at 23 (citing Tr. (Zheng) at 883:24-884:12; Tr. (Akl) at 930:8-931:23).).

Therefore, because it lacked any support for its argument, which was raised late, Hytera waived its argument on this issue, including on appeal, pursuant to Ground Rule 10.1.

With respect to the “de-keying” step of claim 1, while Hytera claimed in its Pre-Hearing Brief that none of the ’701 Accused Products contained a “de-keying” step but offered no evidence pre-hearing, it dropped completely that argument by the time it filed its Post-Hearing Brief. (RPBr. at 49; RBr. at 46-49.). Therefore, Hytera waived or abandoned its argument with respect to the “de-keying” step, including for appellate purposes, under Ground Rule 10.1.

Moreover, even assuming arguendo and in the alternative that Hytera did not waive its argument, contrary to Hytera’s assertion, Dr. Wicker identified the “de-keying” step in Hytera’s Legacy Products through Hytera’s source code and other documents (i.e. where “de-keying” is construed as when a base station transmitter is turned off, or the downlink is inactive, while the base station uplink remains active and available to detect the mobile station transmissions). (See RPBr. at 49; see also CPBr 44.).

Dr. Wicker referenced . (Tr. (Wicker) at 373:5-24 (citing CX-0314 at 30, 33).).

(Tr. (Wicker) at 373:10-20.).

(Id. at 373:20-374:3.).
Hytera’s Legacy Products include additional details that describe how the repeater deals with “time slots,” and the location of timing boundaries. According to one of Hytera’s documents,

(See CPBr. at 44 (citing CPX-0040C; CPX-0075C; CPX-0122C; CPX-0132C; CPX-0171C; CPX-0172C; CPX-0231C; CPX-0232C; CX-0750C (Zheng Dep. Tr.) at 210:12-15, 211:12-18, 218:9-22, 214:4-19; CX-0746C (Chia Dep. Tr.) at 28:23-29:4; CX-0747C (Guller Dep. Tr.) at 150:22-23,244:22-245:4; CX-0745C (Guan Dep. Tr.) at 208:9-24, 213:16-214:9); see also CBr. at 45; Tr. (Wicker) at 373:5-374:3.).

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Additionally, Dr. Wicker relied upon testimony of one of Hytera’s engineers, Ms. Zheng, as well as additional Hytera documentation, CX-0063 at 120 and 131, and Hytera to support his conclusion that Hytera’s

(Tr. (Wicker) at 374:6-11).

(Id. at 374:12-16.).

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(Tr. (Wicker) at 374:19-375:25 (citing Ms. Zheng’s testimony:)

(as citing CPX-0172C, ll. 1800-04).).

As Dr. Wicker explained,
(Tr. (Wicker) at 375:3-376:6.). In other words, (See CBr. at 45 (citing Tr. (Wicker) at 377:18-379:4; CPX-0172C at ll. 730-843; CX-0750 (Zheng Dep. Tr.) at 214:4-9, 218:17-22, 220:2-9; see also CX-0746C (Chia Dep. Tr.) at 28:23-29:4.).

Hytera did not provide a scintilla a of evidence in its Pre-Hearing Brief to support its conclusory assertion that its Legacy Products do not “enter such a state,” referencing de-keying. (RPBr. at 49.). Hytera’s Post-Hearing Brief also did not specifically address the “de-keying” state other than to assert that Motorola never identified the products that actually “de-keyed” or “re-keyed” as being legacy products. While Hytera’s expert Dr. Akl did not agree the “de-keying” step occurs in Hytera’s legacy products, because he claimed that Motorola did not prove that the uplink remains active, Dr. Wicker disagreed. Dr. Wicker’s and Motorola’s position correctly noted that the term “uplink” or what it means for an uplink to be active was not part of the Markman Order construction. (See Tr. (Wicker) at 376:10-377:10.). As Dr. Wicker noted correctly, the Markman Order states: “All the intrinsic evidence confirms that the applicants provided two consistent alternative descriptions of de-keying: (1) ‘base station transmitter is turned off,’ and (2) ‘the base station downlink is inactive while the base station uplink remains active and available to detect the mobile station transmissions.’” (Id.; see also Markman Order, Appx. A at 28.).
So, Dr. Wicker’s explanation, upon which Motorola relied, with respect to why Hytera’s legacy products meet the Markman definition, is correct.

Hytera’s argument that Motorola relied almost exclusively upon a third-party (Hytera’s distributor) for information about how Hytera’s repeaters and mobile stations worked in the United States is clearly incorrect and mis-states the scope of the evidence that Motorola provided and to which Dr. Wicker testified and which Hytera’s own witnesses confirmed. (RPBr. at 50, 51; see also this Section, above.).

Hytera also made the late argument for the first time in its Post-Hearing Brief that Hytera did not know of the existence of the ’701 patent before March 2017. Because that argument was not made pre-hearing, it was waived under Ground Rule 10.1. Even without the waiver, Motorola demonstrated with sufficient evidence that Hytera’s products meet the preamble 1(a) and the limitation recited in claim 1(b). Moreover, Section XI, which discusses indirect infringement, describes evidence which demonstrates compellingly that Hytera employees were not only aware of the ’701 patent before 2017, but also copied some of the features in their DMR repeaters.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that Hytera’s Legacy Products meet and practice the preamble of claim 1 together with “de-keying a base station in the conventional TDMA communications system” as taught by the ’701 patent.

b) “starting a timer in the base station when the base station de-keys” [1b]

As described above in Section IX.B.3(a), in the Hytera DMR legacy systems, Hytera’s
As Dr. Wicker described credibly and compellingly, the evidence that Dr. Wicker cited and described compellingly supports a finding that Hytera’s Legacy Products meet claim 1(b) of the ’701 patent.

Until its Post-Hearing Brief, Hytera did not explicitly provide its own evidence to rebut Motorola’s arguments and evidence. Hytera’s Pre-Hearing Brief is devoid of evidentiary support, documentary or testimonial. (RPBr. at 48-50.). Therefore, Hytera’s failure to provide argument supported by evidence with respect to the “de-keying” step in its Pre-Hearing Brief constitutes a waiver, including on appeal, under Ground Rules 7.2 and 10.1.

Even assuming arguendo that Hytera’s waiver is set aside, in its Post-Hearing Brief, Hytera failed to counter evidence that Motorola offered of the “de-keying” and “re-keying” states, and of starting a timer in Hytera’s Legacy Products. (RBr. at 46-47.). Hytera simply criticized Motorola’s arguments. Hytera blatantly disregarded the and how that works in Hytera’s Legacy Products. (Id.). With minimal evidence, Hytera claimed
that its Legacy Products (RBr.at 47-48 (citing RPX-0408C; Tr. (Zheng) at 879:1-881:25)). However, given Dr. Wicker’s very clear testimony, this made little sense. It certainly was insufficient, and far too late to undermine Motorola’s evidence and explanations. Moreover, Hytera’s own witnesses, Ms. Zheng and Mr. Chia, appear undermined by Hytera’s belated arguments while confirming Dr. Wicker’s testimony and Motorola’s arguments. (See CBr. at 45 (citing Tr. (Wicker) at 377:18-379:4; CPX-0172C at 11, 730-843; CX-0750 (Zheng Dep. Tr.) at 214:4-9, 218:17-22, 220:2-9; CX-0746C (Chia Dep. Tr.) at 28:23-29:4; see also Tr. (Wicker) at 378:5-6 (“Mr. Chia testified to the same effect. ‘When you de-key, there’s a timer.’”), 378:1-381:25; CPX-0172C.).

Finally, contrary to Hytera’s claim that Motorola failed to identify “any component of the products that are a material part of the invention,” to the extent that claim applies to the ’701 patent, among all of the other aspects of the system which Dr. Wicker identified (almost without rebuttal) were “de-keying/re-keying.” Dr. Wicker confirmed that “de-keying” was a material part of Hytera’s base stations through Hytera’s repeater software.” (CRBr. at 41-42 (citing RBr. at 50; Tr. (Wicker) at 426:18-223; Cisco Sys., Inc. v. Int’l Trade Comm’n, 873 F.3d 1354 (Fed. Cir. 2017); i4i Ltd. P’ship v. Microsoft Corp., 670 F. Supp. 2d 568, 580 (E.D. Tex. 2009) (finding that software can constitute a “component”).)

For the reasons discussed above, Motorola has proven by a preponderance of evidence that Hytera’s Legacy Products meet claim limitations 1(a) and 1(b) of the ’701 patent.
c) “receiving a transmission from a mobile station” [1c]; “re-keying and repeating the transmission, if the transmission is received with proper synchronization before expiration of the timer” [1d]

Hytera’s Legacy Products meet claim elements 1(c) and 1(d) of the ’701 patent. Hytera did not dispute Dr. Wicker’s testimony that [Redacted]. (See RBr. at 47-49; CBr. at 46; Tr. (Wicker) at 379:5-380:16 (citing Hytera source code (CPX-0172C at ll. 730-843)).) As Dr. Wicker testified, and as supported by deposition testimony from Ms. Zheng, one of Hytera’s engineers, [Redacted]. (See Tr. (Wicker) at 381:12-383:24, 385:7-387:19; see also CX-0750C (Zheng Dep.) at 226:21-227:4, 228:19-22, 229:15-17, 230:14-20.). As Dr. Wicker described, again using Hytera source-code and other Hytera documents, [Redacted]. (Tr. (Wicker) at 382:7-11, 387:21-389:1; see also CX-0750C (Zheng Dep.) at 222:12-20, 222:24-223:3.). Figure No. 19, below, depicts some of the source code that Hytera’s repeaters use during the re-keying process.
Figure No. 19: Hytera DMR’s Re-Keying Process

(CDX-0005C-216).

In other words, \ldots (See Tr. (Wicker) at 380:1-5.).

\ldots (Id.; see also id. at 380:17-24.).

As part of the de-keying and re-keying process, \ldots

(CBr. at 46 (citing CPX-170C at ll. 1348-1537; CPX-100C at ll. 516-570, 1020-1048, 4478-

\ldots

A GPIO is a general input/output digital signal pin on an integrated circuit or electronic circuit board whose behavior is controllable (i.e. whether input or output), by the user at run time. “[I]t’s an undefined set of pins that you can use for whatever purpose you wish, or most whatever purpose you wish.” (See Tr. (Wicker) at 383:16-24.).
4681; CPX-359C at ll.207-338.

The key dispute between Hytera’s and Motorola’s experts is whether Hytera’s Legacy Products

argued that its Legacy Products

As with the other claim 1 elements of the ’701 patent, Hytera did not support its argument in its Pre-Hearing Brief with evidence. (RPBr. at 47, 49-50.). Therefore, any argument Hytera may try to make on these issues, including on appeal, are deemed waived under Ground Rules 7.2 and 10.1.

Nonetheless, Motorola demonstrated that Hytera’s belated, post-hearing explanation of “proper synchronization” was incorrect. (RBr. at 47.).
In its Post-Hearing Brief, Hytera argued that Dr. Wicker found (RBr. at 47). According to Hytera’s thesis, when its Legacy Products (Tr. (Wicker) at 376:8-378:6), (RBr. at 47 (citing Tr. (Zheng) at 879:20-881:13; RPX-0408C)). (Id. (citing Tr. (Zheng) at 879:1-881:25); see also Tr. (Akl) at 932:4-933:23).

Aside from having waived this argument by not raising it pre-hearing, and from admitting that its Legacy Products “de-key,” Hytera’s position and arguments are wrong for other reasons, as Motorola correctly argued. First, Ms. Zheng confirmed that . (Tr. (Zheng) at 879:2-10.). (See CBr. at 48). Moreover, as Dr. Wicker testified, (See Tr. (Akl) at 1181:1-8.). In this case, also, Dr. Wicker confirmed that
For the reasons discussed above, Motorola has proven by a preponderance of evidence that Hytera’s Legacy Products meet claim elements 1(c) and 1(d) of the ’701 patent.

2. Claim 11 of the ’701 Patent

a) “The method of claim 1 further comprising requiring a wakeup message from the mobile station before re-keying the base station at expiration of the timer.”

As described above, with the exception of the SLR 8000 series, Hytera’s Legacy Products practice the method described in claim 1. Dr. Wicker explained that the

Hytera’s sole claim in its Pre-Hearing Brief with respect to claim 11 of the ’701 patent is as follows: “Motorola has not shown (RPBr. at 50.). Hytera did not cite to any evidence from any source to explain its statement. Moreover, during the evidentiary hearing, the only testimony that Hytera’s expert Dr. Akl gave was that because claim 11 depends from claim 1,
and claim 1 is not infringed, claim 11 is not infringed. (See Tr. (Akl) at 936:3-8.).

Hytera’s belated argument that its Legacy Products do not infringe claims 11 and claim 1 of the ’701 patent because they do not employ “rekeying and repeating the transmission, if the transmission is received with proper synchronization” and before the expiration of the timer, was not made previously either in it Pre-Hearing Brief, or through evidence given during the evidentiary hearing. Therefore, Hytera waived that argument, including for purposes of appeal, under Ground Rules 7.2 and 10.1.

However, even assuming arguendo that the waiver is set aside, Hytera offered no evidence during the evidentiary hearing to support its argument that its Legacy Products do not infringe claim 11 of the ’701 patent. Instead, even in its Post-Hearing Brief, Hytera relied on attorney argument rather than on evidence.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that Hytera’s Legacy Products meet the limitation recited in claim 11.

D. Domestic Industry: Technical Prong

Motorola identified its domestic industry products as including: the MOTOTRBO Base Stations (including the XPR 8380; MTR3000; XPR 8400; SLR 5000 Series; SLR 8000) and the MOTOTRBO Mobile Stations (including the XPR 7000 Series; XPR 7000e Series; SL 7000 Series; XPR 5000e Series; XPR 5000 Series; XPR 3000e Series; XPR 3000 Series; XPR 2500 Series; SL 300 Series; CP200D; CM Series; XPR 4000 Series; XPR 6000 Series; SL8000 Series; SL500 Series (collectively, “the ’701 DI Products”). (See, e.g., CPBr. at xi.).

Motorola provided evidence that these products are loaded with MOTOTRBO version 2.7, which for repeaters contains  and practice the
patented methods during their normal operation. (CBr. at 49.). Moreover, one of Motorola’s witnesses, Mr. Tom Bohn, testified without rebuttal from Hytera that Motorola and its customers use the identified ’701 DI Products in the United States. (Id. (citing Tr. (Bohn) at 124:20-125:9.).) Both generations of Motorola’s hardware repeaters implement the ’701 patent. (Tr. (Bohn) at 118:17-20; CX-0021C.). Moreover, Mr. Bohn testified that he was involved in incorporating features and functionality of the ’701 patent into Motorola’s repeaters. He was also involved in testing the same products. (Tr. (Bohn) at 121:14-122:3, 125:3-9: CX-0003C.). Hytera did not dispute that these identified Motorola products practice the ’701 patent.

1. **The ’701 DI Products Practice Claims 1 and 11 of the ’701 Patent**

   a) **Claim 1 of the ’701 Patent**

   i. “In a conventional TDMA communications system, wherein the conventional TDMA communications system comprises at least one base station and at least one mobile station, a method of accessing a de-keyed base station comprising”

   Hytera asserted in its Pre-Hearing Brief that Motorola failed to show that Motorola’s related domestic industry products “de-key [] a base station in the conventional TDMA communications system (element 1[b] under either party’s construction.” (See RPBr. at 51.). Similarly, Hytera contended that the same was true with respect to all of the claim 1 elements that include the term “re-key” because Hytera claimed that Motorola “did not show (Id.). Necessarily, Hytera’s own argument included

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55 When he testified during the evidentiary hearing on January 29, 2018, Mr. Tom Bohn was employed by Motorola Solutions as a system design engineer for Motorola’s MOTOTRBO product line. He also worked with standardization groups for the protocol that MOTOTRBO uses, including ETSI, and the DMR Association for Interoperability. (See Tr. (Bohn) at 103:15-23.). He received an MS degree in engineering from Marquette University before he joined Motorola Solutions. He is an inventor on some 30 patents, including the ’701 patent. (Id. at 110:14-19, 116:15-18.).
elements 1(c) and 1(d) because those elements also involve “re-keying.” (Id.). However, since Motorola’s construction was adopted for claim 1 and Hytera’s constructions were rejected, Hytera’s construction did not match with the Court’s claim construction. (See Markman Order, App’x A at 28-29; see also Chart No. 10.).

In addition to not citing to any evidence (or case law) in its Pre-Hearing Brief to support its bare-bones assertion, Hytera’s Initial Post-Hearing Brief does not address Motorola’s technical domestic industry with respect to the ’701 patent. (RBr. at 46-51.). Therefore, under Ground Rules 7.2 and 10.1, Hytera abandoned or waived its right to contest any of Motorola’s technical domestic industry assertions and proof that the preamble of claim 1 and claim elements 1(a)-1(d) practice the ’701 patent, including for purposes of appeal.

Nonetheless, even without Hytera’s waiver, Motorola has met its burden of proof that its domestic industry products practice at least one or more claims of the ’701 patent, including the preamble of claim 1. Motorola produced enough record testimonial and documentary evidence to prove that its DI products use TDMA digital technology, and that the mobile stations with the base stations constitute a “system” which can operate without a central controller, consistent with the claim constructions. (See Chart No. 10; see also CPBr. at 49 (citing CX-1281.11; see also CBr. (citing Tr. (Wicker) at 427:22-429:24)). As Dr. Wicker testified virtually without rebuttal, Motorola’s identified DI products “necessarily” practice the ’701 patent because “[i]f you are operating the base station receiver, it will be doing the ’701 patent invention.” (See Tr. (Wicker) at 427:2-11.). Motorola comprehensively identified all of the receivers, mobile stations, that is the MOTOTRBO products, that it claimed practice the ’701 patent. (See id. at 427:8-429:25 (citing CX-1280 at 22, 216)).

For the foregoing reasons, Motorola has proven by a preponderance of evidence that
Motorola’s DI Products practice the preamble of claim 1 of the ’701 patent.

ii. “de-keying a base station in the conventional TDMA communications system” [1a]; “starting a timer in the base station when the base station de-keys” [1b]

As with the preamble of claim 1, Hytera’s assertion in its Pre-Hearing Brief that Motorola’s identified domestic industry products that Motorola alleged practice claim elements 1(a) and 1(b) of the ’701 patent was abandoned or waived under Ground Rules 7.2 and 10.1. In addition to Hytera’s failure to cite to any evidence in its Pre-Hearing Brief, Hytera also failed to rebut specifically Motorola’s evidence in Hytera’s Initial Post-Hearing Brief. (RBr. at 46-51.). Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rules 7.2 and 10.1.

Nonetheless, even without Hytera’s waiver, Motorola met its burden of proof that its DI products practice claim 1(a) and (b) limitations because Motorola’s DMR, MOTOTRBO repeaters “de-key” . However, . (CBr. at 50 (citing Tr. (Wicker) at 430:1-431:17; CX-1011C.41, 222; CPX-0324C at ll. 842, 2567-2752; CPX-0323C at 11.561-67, 84).). Dr. Wicker referenced the , CX-1011C at 41, 22, and Motorola source code to describe how the base station receiver , thus satisfying the claim element of “de-keying.” (Tr. (Wicker) at 430:1-12). According to (Tr. (Wicker) at 430:1-17.). According to Dr. Wicker’s review of Motorola source code, there is where the base station
(Id. at 431:2:9 (citing CPX-0324C at ll. 2567-2572; CPX-0323C at ll. 561-567, 842)).

With respect to claim element 1(b), “starting a timer,” Dr. Wicker pointed again to Motorola’s [insert citation], which he quoted as stating [insert quotation].

(Tr. (Wicker) at 431:18-432:8; CX-1011C. 221-225; CX-1001C.2015-210; see also CX-1009C.73-75; CPX-0324C). A

(Tr. (Wicker) at 432:5-8 (citing CPX-0324C at ll. 828; CPX-0323C at ll. 361, 1482-1495)).

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’701 DI Products practice claim limitations 1(a) and 1(b).

iii. “receiving a transmission from a mobile station” [1c]; “re-keying and repeating the transmission, if the transmission is received with proper synchronization before expiration of the timer” [1d]

As with the preamble of claim 1 and claim elements 1(a)-1(b), Hytera’s assertion in its Pre-Hearing Brief that Motorola’s domestic industry products do not practice claim elements 1(c) and 1(d) of the ’701 patent was abandoned or waived under Ground Rules 7.2 and 10.1, including for purposes of appeal. Just as Hytera failed to provide any evidence to support its assertion in its Pre-Hearing Brief, Hytera also failed to rebut the compelling evidence Motorola produced to support its position that its domestic industry products do practice the claim elements of the ’701 patent. (RBr. at 46-51.).

Nonetheless, even without Hytera’s waiver, Motorola met its burden of proof that its DI
products practice claim 1 limitations 1(c) and 1(d) of the ’701 patent.  

Based upon a combination of documents, Motorola source code, and Dr. Wicker’s testimony, it is evident that Motorola’s ’701 patent base stations can receive one or more transmissions from mobile stations even while they are de-keyed. (CPBr. at 52; CBr. at 50.). According to Dr. Wicker’s virtually unrebutted testimony, and relying upon the (See Tr. (Wicker) at 432:8:22 (quoting CX-1011C at 222-224); see also CBr. at 50 (when Motorola’s MOTOTRBO repeaters receive transmissions, they and (citing CX-1011C.222-224; Tr. (Wicker) at 432:9-22, 432:23-436:22; CPX-0324C at ll. 1165, 1263-1276, 1332, 3197-3245; CPX-0332C; CPX-0335C; CPX-0333C, CPX-0336C; CPX-0316C at ll. 492-918; CPX-0329C at ll. 2343-2479).).

As Dr. Wicker explained the quoted passages from source code or the , after the base station has de-keyed, and while the base station’s timer is running, the base station will awake and begin repeating SU-sourced transmissions when the syncing is occurring (which is synchronized), and then it will repeat, and the base station will re-key within the proper timing slot, that is before the expiration of the timer. (See Tr. (Wicker) at 433:5-435:25.). In part, what Dr. Wicker explained was that proper synchronization of a transmission can occur during a “window” of timing, and that transmission was depicted as occurring to show it was within the proper
timing and synchronization. (*Id.* at 435:8-436:22.).

For the “re-keying” step and claim element 1(d), Dr. Wicker described the depiction of a transmission coming into a base station, which shows that the Motorola products use a to indicate whether there is (or as Motorola described it in its Post-Hearing Brief, . (CBr. at 51 (citations omitted).). If the is still running, according to source code, . (Tr. (Wicker) at 436:3-22.). So, a transmission has been synchronized to slot 1 or 2, and “[i]f the reactivation timer is still running, , re-key the base station” and when the base station is re-keyed, (Tr. (Wicker) at 436:3-22 (citing Motorola source code at CPX-0324C at ll. 1165, 1263-1276, 1332, 3197-3245; CPX-0332C; CPX-0336; CPX-0335C; CPX-0336C; CPX-0316C at ll. 492-918; CPX-0329C at ll. 2343-2479).).

Accordingly, Motorola has proven by a preponderance of evidence that its DI Products practice claim elements 1(c) and 1(d) of the ’701 patent.

b) Claim 11 of the ’701 Patent

i. “The method of claim 1 further comprising requiring a wakeup message from the mobile station before re-keying the base station at expiration of the timer.”

As discussed in Section IX.C.1(a), above, Motorola’s MOTOTRBO repeaters and mobile stations practice the method of claim 1. As part of that operation, as also described under the de-keying process, the repeaters initiate a timer after re-keying. (Section IX.C.1(a), *supra*.). After that post-de-key timer has lapsed, claim 11 of the ’701 patent requires a wakeup message from the mobile station before re-keying the base station.
As Dr. Wicker described, Motorola’s MOTOTRBO repeaters practice claim 11 by requiring a wakeup message to re-key. As he described it:

(See Tr. (Wicker) at 437:2-8; see also CBr. at 51 (citing CX-1011C.225); see also CPX-0324C at ll. 829, 3206-3881).

Consistent with the *Markman* construction of a wakeup message as a “message that causes the base station to “re-key,”” Dr. Wicker again identified, CX-1011C at 225, which states: “while the base station receiver’s timer is not running, the base station receiver will only key in response to a valid (Tr. (Wicker) at 437:8:25; see also CBr. at 51 (citing CX-1011C.225)).

For the foregoing reasons, Motorola has proven by a preponderance of evidence that its DI MOTOTRBO products practice claim 11 of the ’701 patent.

E. Validity

1. Legal Standard: Obviousness

Pursuant to 35 U.S.C. § 103(a), a patent is valid unless “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made” to a person having ordinary skill in the art. 35 U.S.C. § 103(a). The ultimate question of obviousness is a question of law, but “it is well understood that there are factual issues underlying the ultimate obviousness decision.” *Richardson-Vicks*, 122 F.3d 1476, 1479 (Fed. Cir. 1997) (citing *Graham v. John Deere Co. of*
Kansas City, 383 U.S. 1, 17 (1966)).

After claim construction, “[t]he second step in an obviousness inquiry is to determine whether the claimed invention would have been obvious as a legal matter, based on underlying factual inquiries including: (1) the scope and content of the prior art, (2) the level of ordinary skill in the art, (3) the differences between the claimed invention and the prior art, and (4) secondary considerations of non-obviousness.” Smiths Indus. Med. Sys., Inc. v. Vital Signs, Inc., 183 F.3d 1347, 1354 (Fed. Cir. 1999) (citing Graham, 383 U.S. at 17). The existence of secondary considerations of non-obviousness does not control the obviousness determination; a court must consider “the totality of the evidence” before reaching a decision on obviousness.

Richardson-Vicks, 122 F.3d at 1483.

The Supreme Court clarified the obviousness inquiry in KSR Int’l Co. v. Teleflex Inc., 550 U.S. 389 (2007). The Supreme Court said:

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill. Sakraida and Anderson’s-Black Rock are illustrative—a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.

Following these principles may be more difficult in other cases than it is here because the claimed subject matter may involve more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement. Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit.

* * *
The obviousness analysis cannot be confined by a formalistic conception of the words teaching, suggestion, and motivation, or by overemphasis on the importance of published articles and the explicit content of issued patents. The diversity of inventive pursuits and of modern technology counsels against limiting the analysis in this way. In many fields it may be that there is little discussion of obvious techniques or combinations, and it often may be the case that market demand, rather than scientific literature, will drive design trends. Granting patent protection to advances that would occur in the ordinary course without real innovation retards progress and may, in the case of patents combining previously known elements, deprive prior inventions of their value or utility.

\textit{KSR}, 550 U.S. at 417-19.

The Federal Circuit has since held that when a patent challenger contends that a patent is invalid for obviousness based on a combination of several prior art references, “the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition or device, or carry out the claimed process, and would have had a reasonable expectation of success in doing so.”

\textit{PharmaStem Therapeutics, Inc. v. ViaCell, Inc.}, 491 F.3d 1342, 1360 (Fed. Cir. 2007) (citations omitted).

The TSM\textsuperscript{56} test, flexibly applied, merely assures that the obviousness test proceeds on the basis of evidence--teachings, suggestions (a tellingly broad term), or motivations (an equally broad term)--that arise before the time of invention as the statute requires. As \textit{KSR} requires, those teachings, suggestions, or motivations need not always be written references but may be found within the knowledge and creativity of ordinarily skilled artisans.

\textit{Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.}, 520 F.3d 1358, 1365 (Fed. Cir. 2008).

\textsuperscript{56} TSM is an acronym that stands for teaching, suggestion, motivation.
2. None of the Asserted Claims of the ’701 Patent Are Invalid

   a) Samsung (RX-0036) in Combination with Kansal (RX-0039) or Rosen (RX-0037) Does Not Render Obvious Claims 1 and 11 of the ’701 Patent


   Hytera alleged that: (1) Samsung in combination with Rosen or vice versa; and (2) Samsung in combination with Kansal or vice versa, renders obvious independent claim 1 and dependent claim 11 of the ’701 patent. (RBr. at 51.). There is no dispute that Samsung, Kansal, and Rosen qualify as prior art to the ’701 patent under the relevant provisions of pre-AIA 35 U.S.C. § 102. There is also no evidence that the PTO considered Samsung, Rosen, or Kansal during the prosecution of the ’701 patent. (See JX-0007.).

   None of these prior art references disclose a “time division multiple access” (“TDMA”) system, as required by claim 1 of the ’701 patent. (See JX-0007 at 7:32-33 (requires a “conventional TDMA communications system” with at least one base station and at least one mobile station).). Hytera acknowledged that Samsung does not disclose a TDMA system and, instead, discloses a “code division multiple access” (“CDMA”) system, which uses codes (not
timeslots) to synchronize communication. (CBr. at 51-52 (citing RX-0036 at 3); RBr. at 54.). Rosen and Kansal, on the other hand, disclose TDMA systems. (RBr. at 60-61.).

Hytera said it relied on Samsung only for its disclosure of a “the two-phase de-keying method,” which Hytera argued can be implemented in the TDMA system disclosed in Rosen or Kansal. (Id.; JX-0007 at 7:37 (“de-keying a base station” limitation of claim 1).). The term “de-keying” was construed as an action in which the “base station transmitter is turned off; i.e., the base station downlink is inactive while the base station uplink remains active and available to detect the mobile station transmissions.” (Markman Order, App’x A at 23.).

According to Hytera, the purpose of the two-phase de-keying method in Samsung is to increase channel efficiency and data communication. (RX-0036 at Abstract; Tr. (Akl) at 940:16-24.). As shown in Figure No. 20 (Figure 2 of Samsung), below, the base station in Samsung has an active state in which user data is transmitted through a dedicated traffic channel and a control message is transmitted through a dedicated control channel” as well as a control hold state in which the dedicated traffic channel is released and the dedicated control channel is maintained. (Tr. (Akl) at 948:14-949:7; see RDX-0002 at 28 (excerpting RX-0036 at 3:4-7).). Hytera’s expert testified that the base station downlink is “inactive” in the control hold state, such that the base station is de-keyed as required by the claims, because the base station releases the dedicated traffic channel in this state, while maintaining the control channel. (Tr. (Akl) at 948:14-949:7.). Yet, as discussed below, releasing only the traffic channel is not enough to satisfy the “de-keying a base station” limitation.
Motorola’s expert, Dr. Wicker, rebutted Hytera’s description of the evidence of “de-keying” that Hytera argued was contained in Samsung. Dr. Wicker testified that the base station in Samsung’s CDMA cellular system is not de-keyed when it enters the “control hold” state because, even though the traffic channel downlink of the base station may be inactive, the base station maintains a dedicated control channel with the mobile station (e.g., a cellular phone). (Tr. (Wicker) at 1259:7-1260:8; RX-0036 at 10:18-21 (“in the control hold state 115, the dedicated control channel and the pilot channel are maintained bi[...]directionally”).). Dr. Wicker explained that this control channel allows the cellular phone to ring on an incoming call, to synchronize with the base station, and to place calls. (Id. at 1258:5-1259:22.).

With respect to the Samsung reference, Motorola and Hytera disputed whether the “de-keying” limitation in claims 1 and 11 of the ’701 patent requires both the traffic and control downlinks of the base station to be inactive or, alternatively, is satisfied by the inactivity of just the traffic downlink.

According to the ’701 patent, an inactive base station downlink requires that the mobile station cannot use the base station for communications until: (1) the base station re-keys with the
mobile station; and (2) the mobile station synchronizes with the base station.\(^5\) (JX-0007 at 1:37-51.). However, in the control hold state of Samsung, the existence of the active control channel of Samsung’s base station indicates that the base station has not de-keyed. Indeed, as Dr. Wicker testified, in the control hold state, the active control channel keeps the mobile station synchronized with the base station. (Tr. (Wicker) at 1258:5-1259:22.) In other words, in the control hold state, the base station downlink remains active and has not become inactive.

The ‘701 patent discloses as much. It states that control signaling, of the variety that occurs over the control channel connecting Samsung’s base and mobile stations, can be achieved only after synchronization between the base station and mobile station, which occurs during or after the re-keying process. (JX-0007 at 1:32-36; RX-0036 at 3:4-7 (“a control message is transmitted through a dedicated control channel”).). There is no indication in Samsung that when a base station operates in the control hold state, the base station and a mobile station need to re-key and re-synchronize before the mobile and base stations can use the dedicated control channel. There is no indication in Samsung that when a base station operates in the control hold state, the mobile and base stations are unsynchronized. Therefore, on its face, Samsung discloses a base station that is not de-keyed when it enters the control hold state, as required by claim 1.

Hytera had the burden to prove that a person of ordinary skill in the art would understand

\(^5\) Hytera argued that in the ‘701 patent, “the ‘downlink’ refers to the channels with the timeslots that carry data,” i.e., the traffic channels and not the control channels. (RBr. at 55 (citing JX-0007 at 1:33-41.). The cited portion of the ‘701 patent appears to contradict Hytera’s argument. Hytera did not cite to any testimony in its Post-Hearing Brief that might explain its position on this issue. Therefore, the cursory statement is dismissed as attorney argument unsupported by evidence, and is waived, including for purposes of appeal, pursuant to Ground Rule 10.1.
the Samsung base station to be de-keyed when it enters the control hold state (i.e., when the traffic channel is released while the control channel remains active). However, none of Hytera’s witnesses presented any such testimony.\textsuperscript{58} Instead, Hytera asked its expert, Dr. Akl, whether a person of ordinary skill in the art would understand that “releasing the channels” means that the downlink is inactive, to which he responded in the affirmative. (Tr. (Akl) at 953:6-13.).

While Dr. Akl’s testimony might provide some value under a different set of facts, it is inapplicable here. Samsung does not disclose “releasing the channels,” which suggests that both the traffic and control channels are rendered inactive. Instead, Samsung discloses deactivating the traffic channel while retaining an active control channel. Thus, Dr. Akl’s testimony on “releasing the channels” is not persuasive. Samsung lacks disclosure of the “de-keying a base station” limitation.

Accordingly, Hytera has not met its burden by clear and convincing evidence that a person of ordinary skill in the art would understand that Samsung discloses the “de-keying a base station” limitation of claims 1 and 11.

In addition to “de-keying a base station,” claim 1 requires that the mobile station “repeat[s] the transmission” after the base station and mobile station re-key “if the transmission is received with proper synchronization before the expiration of the timer.” (JX-0001 at 7:42-44 (emphasis added).). The Parties agreed that “proper synchronization” means “received within timing boundaries.” (\textit{Markman} Order, Chart 2 at 1.). However, Hytera’s expert, Dr. Akl, did not provide testimony on whether Samsung disclosed timing boundaries. (\textit{See} Tr. (Akl) at 970:22-

\textsuperscript{58} Some of the relevant testimony of Hytera’s expert, Dr. Akl, was stricken and, therefore, was not considered. (\textit{See} Order No. 47, App’x A at 26-32; \textit{cf.} RBr. at 55 (citing Tr. (Akl) at 951:13-953:13).)

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971:16 (citing to RX-0036 at 11:21-12:12). Instead, he testified that, in Samsung, the data from the mobile station “needs to be generated within a set time T save.” (Id.). Yet, T_save “is a resource save substrate maintaining time,” and on its face has nothing to do with the synchronization of transmissions. (RX-0036 at 14:4-5.). Therefore, Hytera failed to provide expert testimony that the “proper synchronization” limitation is present in Samsung.

Moreover, absent expert testimony, it is not readily apparent that Samsung discloses the “proper synchronization” limitation.59 The section of Samsung to which Dr. Akl cited for the “proper synchronization” limitation discusses synchronizing the “dedicated control channel” with the “pilot channel” and generating the “data to be transmitted . . . within the set time T_save in the resource save substate,” in order for the base station to transition to “normal substate.” (RX-0036 at 11:21-12:12.). In other words, the cited section of Samsung discusses generating data before the expiration of a timer instead of receiving data before the expiration of the timer. The cited section of Samsung also discusses synchronization separately from generating or receiving data and fails to tie synchronization to timing boundaries. (Id.).

Consequently, Hytera has not met its burden of proof by clear and convincing evidence that a person of ordinary skill in the art would understand that Samsung discloses receiving a transmission “with proper synchronization” as required by claim 1.

With respect to the Rosen reference, Hytera failed to identify in Rosen the “de-keying of

59 Motorola asserted that receiving data “within timing boundaries” cannot occur in a CDMA system such as Samsung, which uses codes, as opposed to a TDMA system which uses timeslots. (CBr. at 52.). However, Motorola did not provide any evidence for its assertion that “within timing boundaries” refers to TDMA timeslots. Thus, its assertion is attorney argument that is given minimal weight.
a base station” limitation missing from Samsung. While Hytera asserted that Rosen “describes a two-stage de-keying method” in the mobile station and “suggests the method could take place in the base station,” Hytera acknowledged that it is not relying on Rosen for disclosing the “de-keying of a base station” limitation. Instead, Hytera relied on Samsung to “explain[] how to” implement the method described in Rosen in a base station. \(^{60}\) (Id. at 54, 61-62.). Yet, for the reasons set forth above, Samsung does not disclose “de-keying of a base station.” Consequently, Hytera did not meet its burden to prove by clear and convincing evidence that Rosen in combination with Samsung, or vice versa, renders obvious the asserted claims of the ’701 patent.

With respect to Kansal, Hytera acknowledged that Kansal does not teach the “re-keying and repeating the transmission if the transmission is received with proper synchronization before the expiration of the timer” limitation of claim 1. (Id. at 58-59.). Hytera relied on Samsung to disclose this limitation, asserting that it would have been obvious to combine the Kansal system with the teachings of Samsung that describe the types of transmissions that trigger the re-keying of the base station. (Id. at 61-62.). However, for the reasons described above, Samsung does not disclose the “with proper synchronization” limitation. Consequently, Hytera did not meet its burden to prove by clear and convincing evidence that Kansal in combination with Samsung, or vice versa, discloses all of the limitations of the asserted claims of the ’701 patent.

Hytera alleged that a person of ordinary skill in the art would have been motivated to

\(^{60}\) Hytera argued that “the language of Rosen itself” might obviate claims 1 and 11 of the ’701 patent. (RBr. at 61-62.). However, Hytera did not present Rosen as a single reference to support its obviousness argument. To the extent Hytera indicated as much for the first time in their Post-Hearing Brief, Hytera waived that argument under Ground Rule 10.1, including for purposes of appeal. (See RBr. at 51; Joint Outline of Issues, at 12-13 (Mar. 13, 2018) (EDIS Doc. ID 638832); RPBr. at 52 (Dec. 15, 2017.).)
combine the Samsung, Rosen and Kansal references because they all involve base station and mobile station communications; and some of them describe idle or sleep states. (RBr. at 62.). However, the underlying purpose of the ’701 patent is to prevent lost transmissions as a result of regulatory de-keying, which is a problem specific to TDMA base stations. (JX-0001 at 1:52-2:15; 4:20-34.). Therefore, a person of ordinary skill in the art would not consult CDMA\textsuperscript{61} references (like Samsung) or mobile station (not base station) references (like Rosen).

Moreover, while Hytera claimed that Samsung, Rosen and Kansal all are directed to power management, the references are each directed at entirely different power management problems. Samsung is focused on conserving mobile power (RX-0036.3), while Kansal is focused on unnecessarily wasted base station power (RX-0039 at ¶¶ 7-8), and Rosen focuses primarily on PTT (push to talk)\textsuperscript{62} latency (which can be affected by power saving techniques) (RX-0037 ¶¶ at 6, 8.). Moreover, even under Hytera’s characterization of the purposes of the three (3) references, Samsung, Rosen and Kansal, Hytera failed to explain why or how a person of ordinary skill would have combined these references together—or whether it is even possible to combine these disparate systems together—to render the ’701 patent claims obvious.

_PharmaStem Therapeutics_, 491 F.3d at 1360.

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\textsuperscript{61} The repeater in CDMA, or Code Division Multiple Access, mobile communication systems are never “de-keyed.” The repeater always maintains active channels on its forward link (or downlink). (RX-0036.8-9, 12, 14; Tr. (Wicker) at 1258:5-1260:8.).

\textsuperscript{62} A PTT function is a means of instantaneous communication commonly employed in wireless cellular phone services that uses a button to switch a device from reception mode to transmission mode. (RX-0037 at [0029].); Tr. (Wicker) at 323:1-18.). The operation of phones used in this way is similar to “walkie talkie” use.
For the foregoing reasons, Hytera has failed to prove by clear and convincing evidence that claims 1 and 11 of the ’701 patent are rendered obvious by Samsung in view of Rosen or vice versa, or by Samsung in view of Kansal or vice versa. Because Hytera’s evidence is insufficient to demonstrate that claims 1 and 11 of the ’701 patent are invalid under 35 U.S.C. § 103, an analysis of the secondary considerations of non-obviousness is unnecessary. See, e.g., Certain Video Game Sys. and Wireless Controllers and Components Thereof, Inv. No. 337-TA-770, Remand Initial Determination, 2013 WL 2413602, at *13 n.7 (U.S.I.T.C. May 7, 2013) (not addressing the complainant’s arguments with respect to secondary considerations of non-obviousness because the asserted patent was not found to be invalid as obvious); Alza Corp. v. Mylan Labs., Inc., 391 F.3d 1365, 1373 n.9 (Fed. Cir. 2004) (same).

X. U.S. PATENT NO. 8,279,991

A. Overview of Infringement\(^{\text{64}}\) and Motorola’s and Hytera’s Disputes in Brief

Motorola has alleged that the ’991 Accused Products infringe claims 7 and 8 of the ’991 patent. (CBr. at 55-60.). As set forth in the claim-by-claim analysis below, Motorola presented evidence that the ’991 Accused Products...

\(^{\text{63}}\) In addition to a finding of that Hytera failed to show a \textit{prima facie} case of obviousness of the ’701 patent, Motorola argued that only Hytera’s copying constitutes an indicium of non-obviousness.

\(^{\text{64}}\) Hytera alleged that the ’991 patent is licensed. (RBr. at 84.). Hytera was precluded from introducing evidence on its license defense during the evidentiary hearing. (See Order No. 38 at 9 (Jan. 26, 2018).). Hytera filed a proffer on its license defense, which was accepted during the evidentiary hearing on January 30, 2018. (RX-0446C; Tr. at 267:5-23.). Hytera’s Proffer is not discussed in this decision because the evidence and the issue were precluded by pre-hearing Order, and Hytera’s own waiver.
Hytera’s rebuttal arguments either are incomplete, as applied to the ’991 Accused Products operating only in Pseudo Trunk mode, or Hytera waived them, including for purposes of appeal, under Ground Rule 10.1, because they were untimely. (See G.R. 10.1.).

Notwithstanding Hytera’s waiver of its arguments, Motorola has proven by a preponderance of evidence that the ’991 Accused Products infringe claims 7 and 8 of the ’991 patent.

B. Relevant Claim Terms

The following constructions of the claim terms recited in the asserted claims of the ’991 patent have been agreed upon by the Parties or adopted by this Court.\(^{65}\)

**Chart No. 11: Constructions of Claim Terms Relevant to the ’991 Patent**\(^{66}\)

<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>“the other timeslots” (claim 7)</td>
<td>One or more timeslots other than a desired timeslot. (Markman Order, App’x A at Chart 1.).</td>
</tr>
<tr>
<td>“selecting a synchronization pattern selected from the second set of synchronization patterns” (claim 7)</td>
<td>At the time of the Markman Hearing, Hytera argued that this term was indefinite. (Id.). Consequently, I postponed construing the term until the evidentiary hearing. (Id. at 16 n.2.). Hytera has since waived this indefiniteness argument by not raising it in post-hearing briefing. (See RBr. at 63-83; Ground Rule 10.1.).</td>
</tr>
<tr>
<td>“knowing” (claim 7)</td>
<td>Plain and ordinary meaning. (Id. at Chart 2.).</td>
</tr>
</tbody>
</table>

\(^{65}\) The Parties disputed the meaning of additional claim terms recited in claims that have been terminated from this Investigation. Those terms are not included in Chart No. 11.

\(^{66}\) During the Markman proceedings, both of these claim terms were in dispute. (See Joint CC Chart at 10.).
<table>
<thead>
<tr>
<th>Claim Term</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>“a current desired timeslot” (claim 7)</td>
<td>A [current] assigned timeslot. <em>(Id.)</em></td>
</tr>
<tr>
<td>“the first set of synchronization patterns is mutually exclusive from the second set of synchronization patterns” (claim 7)</td>
<td>Each synchronization pattern in the first set is not in the second set. <em>(Id.)</em></td>
</tr>
<tr>
<td>“each set [of synchronization patterns] comprising at least two different synchronization patterns as a function of at least one of a payload type and a source of the transmission” (claim 7)</td>
<td>Each set of synchronization patterns has at least two different patterns that correspond to at least one of a payload type or transmission source. <em>(Id.)</em></td>
</tr>
</tbody>
</table>

C. The ’991 Accused Products Infringe Claims 7 and 8 of the ’991 Patent

As an initial matter, in the analysis that follows, Motorola presented evidence of infringement by the ’991 Accused Products operating specifically in Pseudo Trunk TDMA Direct Mode. According to Motorola, this mode uses [redacted]. *(CBr. at 87.)* Consequently, the claim limitation mapping that follows contains citations [redacted] when the ’991 Accused Products are configured to operate in Pseudo Trunk TDMA Direct Mode. Hytera’s documents describe how to configure the ’991 Accused Products to operate in Pseudo Trunk TDMA Direct Mode. *(See, e.g., CX-1404C.24 [redacted]). For example, Ms. Zheng
testified that 

(Tr. (Zheng) at 907:8-908:2.; CX-1662C; CX-2092C (screenshot of CX-1662C)). (Id. at 904:12-906:19 (discussing the email chain), 908:8-909:6 (testifying that __________); CX-1546C (__________); CX-1654C; CX-2093C (screenshot of CX-1654C); CX-1651C; Tr. (Yuan) at 858:2-4.).

1. **Claim 7 of the ’991 Patent**

   a) “In a time division multiple access (TDMA) system having a plurality of timeslots, a method comprises the steps of”

Motorola adduced evidence in this Investigation that the ’991 Accused Products satisfy the preamble of claim 7. In particular, 

(Tr. (Wicker) at 309:25-310:20; CX-1404C.19 (__________); CX-1316C.59 (__________)).

In its Initial Post-Hearing Brief and Post-Hearing Reply Brief, Hytera did not dispute that the ’991 Accused Products meet the preamble of claim 7. (RBr. at 46-63; RRBr. at 27-36.). Thus, any arguments pertaining to this issue are deemed waived under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’991 Accused Products meet the preamble of claim 7.
b) “knowing a first set of synchronization patterns associated with a desired timeslot and a second set of synchronization patterns associated with each of the other timeslots in the TDMA system, wherein the first set of synchronization patterns is mutually exclusive from the second set of synchronization patterns, and each set comprising at least two different synchronization patterns as a function of at least one of a payload type and a source of the transmission”

Motorola offered evidence that the '991 Accused Products satisfy this limitation. When

the '991 Accused Products (CX-1404C.19.).

Id. (listing synchronization patterns). (Tr. (Wicker) at 312:5-313:4; see also CX-0749C (Zheng Dep. Tr.) at 77:15-20 (.

Hytera’s source code and witnesses affirm this understanding. Hytera’s

. (See CPX-0032C at ll. 438-447; Tr. (Wicker) at 314:2-316:9.).

Hytera’s employee, Ms. Zheng, agreed that
In rebuttal, Hytera focused on how the '991 Accused Products operate in

In particular, Hytera asserted in conclusory fashion that (Tr. (Akl) at 1107:7-9. ). Yet, while this may or may not prove true, it is not the complete story. The critical information that Hytera failed to address is that, as Motorola has shown, the '991 Accused Products

Thus, for the reasons discussed above, Motorola has proven by a preponderance of evidence that the '991 Accused Products meet this limitation of claim 7.

c) “preparing to transmit a particular payload type in a timeslot”

Motorola presented evidence that the '991 Accused Products satisfy this limitation. The '991 Accused Products

This is confirmed by Hytera’s source code for the ’991 Accused Products. In particular,

Moreover, Motorola offered evidence that

As Dr. Wicker explained,

Hytera did not contest the “preparing” limitation at the evidentiary hearing (despite doing so in its Pre-Hearing Brief). Instead, Hytera raised new rebuttal arguments for the first time in its Post-Hearing Brief. These new arguments include that limitation 7(b) requires

Pursuant to Ground Rules 1.14 and 10.1,
these arguments are waived.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the '991 Accused Products meet this limitation of claim 7.

d) “determining whether the timeslot is a current desired timeslot for the TDMA system”

Motorola offered evidence that the '991 Accused Products satisfy this limitation. The '991 Accused Products. For example, . (Tr. (Wicker) at 324:5-23 (discussing ); CX-0002C.23, 24 ( ). Hytera employee Ms. Zheng confirmed this: (CX-0749C (Zheng Dep. Tr.) at 72:8-12.).

Hytera disputed that the Accused '991 Products perform the “determining” step. (RBr. at 66.). Yet, Hytera provided no evidence in its Pre-Hearing Brief in support of this argument.
(RPBr. at 63.). Additionally, Hytera’s expert witness, Dr. Akl, offered a conclusory opinion with respect to this limitation at the evidentiary hearing:

So looking at element 7b and 7d, you require -- first I have two positions, two opinions. One is the claim requires to have a desired timeslot, a current desired timeslot. This is, for example, in 7d, “determining whether the timeslot is the current desired timeslot.”

(Tr. (Akl) at 1106:19-1107:6.).

Consequently, pursuant to Ground Rule 7.2, Hytera’s rebuttal arguments with respect to this limitation are waived.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’991 Accused Products meet this limitation of claim 7.

e) “if the timeslot is the current desired timeslot, selecting a synchronization pattern selected from the first set of synchronization patterns based on the one of the particular payload type and a particular source of the transmission; otherwise selecting a synchronization pattern selected from the second set of synchronization patterns based on the one of the particular payload type and the particular source of the transmission”

Motorola adduced evidence that the ’991 Accused Products satisfy this limitation. For example, the ’991 Accused Products

(CX-1404C.19; Tr. (Wicker) at 328:7-13.).
In its Initial Post-Hearing Brief, Hytera did not offer rebuttal evidence on this claim limitation. Thus, any argument on this issue is deemed waived under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the '991 Accused Products meet this limitation of claim 7.

f) “transmitting a burst in the timeslot having embedded the synchronization pattern that was selected”

Motorola offered evidence that the '991 Accused Products satisfy this limitation. The '991 Accused Products. (CX-0381C.40-41; Tr. (Wicker) at 330:18-331:24.).

Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief. Thus, any argument on this issue is deemed waived under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the '991 Accused Products meet this limitation of claim 7 and that the '991 Accused Products infringe claim 7.

2. Claim 8 of the '991 Patent

a) “The method of claim 7 wherein the current desired timeslot at a first time is different than the current desired timeslot at a second time.”

Motorola presented evidence that the '991 Accused Products satisfy this claim. In
addition to the evidence offered above with respect to claim 7, (CX-0002C.23 (Tr. (Wicker) at 332:20-333:8.). Hytera’s source code confirms this. (CPX-0152C at ll. 4026-4043.). Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief. Thus, any argument on this issue is deemed waived under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’991 Accused Products meet the additional limitation recited in claim 8.

D. Domestic Industry: Technical Prong

1. The ’991 DI Products Practice Claims 12 and 16 of the ’991 Patent

Motorola has alleged and provided evidence that the following DI Products practice the asserted claims of the ’991 patent: MOTOTRBO Mobile Stations (including XPR 7000 Series; XPR 7000e Series; SL 7000e Series; SL 7000 Series; XPR 5000e Series; XPR 5000 Series; XPR 3000 Series; XPR 2500 Series; SL 300 Series; CP200D; CM Series; XPR 4000 Series; XPR 6000 Series; SL8000 Series; SL500 Series) (collectively, “the ’991 DI Products”). (See, e.g., CPBr. at xi.). In its Initial Post-Hearing and Post-Hearing Reply Briefs, Hytera did not dispute that the ’991 DI Products practice these claims. (RBr. at 63-83; RRBr. at 36-42.). Thus, any of Hytera’s arguments pertaining to the ’991 DI Products are deemed waived under Ground Rule 10.1.

Accordingly, Motorola has proven by a preponderance of evidence that the ’991 DI
Products practice claims 12 and 16 of the '991 patent, and that the '991 DI Products satisfy the technical prong of the domestic industry requirement.

a) Claim 12 of the '991 Patent

i. “In a time division multiple access (TDMA) system having a plurality of timeslots, a method comprises the steps of”

Motorola provided persuasive evidence that the '991 DI Products satisfy the preamble of claim 12 of the '991 patent. (Tr. (Wicker) at 348:13-349:8 (discussing ); CX-1011C.1898 ( ); CX-0969C.3 ( ).

Because Hytera did not offer rebuttal evidence in its Initial Post-Hearing Brief, any argument on this issue, including for appellate purposes, is deemed waived under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the '991 DI Products satisfy the preamble of claim 12 of the '991 patent.

ii. “selecting a channel having a desired frequency and a desired timeslot, wherein each timeslot has a set of synchronization patterns associated therewith, each set of synchronization patterns are mutually exclusive of each other, and each set of synchronization patterns comprises at least two different synchronization patterns as a function of at least one of a payload type and a source of the transmission”

Motorola provided persuasive evidence in this Investigation that proved that the '991 DI Products satisfy this limitation of claim 12 of the '991 patent. The '991 DI Products have a desired frequency and a desired timeslot , and two sets of mutually exclusive sync patterns (each with a sync pattern for a particular payload type)
associated with each of the two timeslots. (Tr. (Wicker) at 350:4-351:23 (discussing [ ]); CX-1011C.1901 [ ], 1907 [ ].

Because Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’991 DI Products satisfy this limitation of claim 12 of the ’991 patent.

iii. “tuning to the desired frequency”

Motorola presented persuasive evidence that its’ 991 DI Products satisfy this limitation of claim 12 of the ’991 patent. The ’991 DI Products tune to the desired frequency to transmit. (Tr. (Wicker) at 352:3-15.). Motorola’s documents provided confirmation. (CX-1011C.1929 [ ]).

Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’991 DI Products satisfy this limitation of claim 12 of the ’991 patent.
iv. “searching for synchronization patterns associated with each of the plurality of timeslots on the desired frequency”

Motorola provided persuasive evidence that the '991 DI Products satisfy this limitation of claim 12 of the '991 patent. Motorola’s technical documentation, CX-1011C, explicitly states that

(CX-1011C.1911; CX-1011C also notes that

). The '991 DI Products

. (Tr. (Wicker) at 352:24-354:12 (analyzing CX-1011C.1899, 1904, 1911 and

).).  

In its Initial Post-Hearing Brief, Hytera did not offer rebuttal evidence on this claim limitation. Therefore, Hytera has waived any argument on this issue, including on appeal, under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the '991 DI Products satisfy this limitation of claim 12 of the '991 patent.

v. “if one of the synchronization patterns is detected on the desired frequency, synchronizing to a timeslot that is associated with the synchronization pattern that was detected; and

Motorola provided persuasive evidence that the '991 DI Products satisfy this limitation of claim 12 of the '991 patent. The '991 DI Products practice this element by synchronizing to a timeslot associated with the detected sync pattern. (Tr. (Wicker) at 354:20-355:13; CX-1011C.1904, 1907 ( ).)

Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing
Brief. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’991 DI Products satisfy this limitation of claim 12 of the ’991 patent.

vi. “if the desired timeslot does not match the timeslot that is associated with the synchronization pattern that was detected, adjusting timing to decode the desired timeslot”

Motorola presented persuasive evidence that the ’991 DI Products satisfy this limitation of claim 12 of the ’991 patent. As Dr. Wicker explained, CX-1011C shows that the ’991 DI Products meet this element. (Tr. (Wicker) at 355:2-356:14 (CX-1011C.1905 showing ).

Because Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief, Hytera has waived any argument it may try to make on this issue, including on appeal, under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’991 DI Products satisfy this limitation of claim 12, and thus that the ’991 DI Products practice claim 12 of the ’991 patent.

b) Claim 16 of the ’991 Patent

i. “In a time division multiple access (TDMA) system having a plurality of timeslots, a method of attempting to initiate a transmission on a desired frequency and a desired timeslot, the method comprising the steps of”

Motorola presented persuasive evidence that the ’991 DI Products satisfy the preamble of claim 16 of the ’991 patent. The ’991 DI Products operate in a TDMA system with multiple
Because Hytera did not offer rebuttal evidence in its Initial Post-Hearing Brief, Hytera has waived any argument it may have on this issue, including on appeal, under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the '991 DI Products satisfy the preamble of claim 16 of the '991 patent.

ii. "detecting a carrier presence on the desired frequency"

Motorola provided persuasive evidence that the '991 DI Products satisfy this limitation of claim 16 of the '991 patent. The '991 DI Products detect a carrier presence on the desired frequency. (Tr. (Wicker) at 358:2-12; CX-1011C.1907).

Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the reasons discussed above, Motorola has proven by a preponderance of evidence that the '991 DI Products satisfy this limitation of claim 16 of the '991 patent.

iii. “searching for synchronization patterns associated with each of the plurality of timeslots on the desired frequency, wherein each of the plurality of timeslots on the desired frequency has a set of synchronization patterns associated therewith, and each set of synchronization patterns are mutually exclusive of each other”

Motorola provided persuasive evidence that the '991 DI Products satisfy this limitation of claim 16 of the '991 patent. The '991 DI Products...
In its Initial Post-Hearing Brief, Hytera did not offer rebuttal evidence on this claim limitation. Therefore, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For these reasons, Motorola has proven by a preponderance of evidence that the ’991 DI Products satisfy this limitation of claim 16 of the ’991 patent.

iv. “if one of the synchronization patterns associated with the desired timeslot is detected on the desired frequency, denying the transmission”

Motorola provided persuasive evidence that the ’991 DI Products satisfy this limitation of claim 16 of the ’991 patent. In the ’991 DI Products, . (CX-1011C.1905 ); Tr. (Wicker) at 360:16-361:2).

Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief. Therefore, any argument may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that the ’991 DI Products satisfy this limitation of claim 16 of the ’991 patent.

v. “if none of the synchronization patterns associated with any of the plurality of timeslots are detected on the desired frequency, denying the transmission; and”

Motorola provided persuasive evidence that the ’991 DI Products satisfy this limitation of claim 16 of the ’991 patent. In the ’991 DI Products,
Because Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.

For these reasons, Motorola has proven by a preponderance of evidence that the ’991 DI Products satisfy this limitation of claim 16 of the ’991 patent.

vi. “if none of the synchronization patterns associated with the desired timeslot are detected on the desired frequency, but at least one of the synchronization patterns associated with any of the other timeslots is detected on the desired frequency, synchronizing to a timeslot associated with one of the synchronization patterns that was detected, and adjusting timing in order to transmit the transmission in the desired timeslot using one of the synchronization patterns associated with the desired timeslot”

Motorola provided persuasive evidence that the ’991 DI Products satisfy this limitation of claim 16 of the ’991 patent. In the ’991 DI Products, (CX-1011C.1905 ( ); Tr. (Wicker) at 362:21- 363:4.).

Because Hytera did not offer rebuttal evidence on this claim limitation in its Initial Post-Hearing Brief, any argument Hytera may try to make on this issue, including on appeal, is deemed waived under Ground Rule 10.1.
For the foregoing reasons, Motorola has proven by a preponderance of evidence that the '991 DI Products satisfy this limitation of claim 16, and thus that the '991 DI Products practice claim 16 of the '991 patent.

E. Validity

1. None of the Asserted Claims of the '991 Patent Are Invalid

a) ETSI (RX-0059) Does Not Anticipate Claims 7 and 8 of the '991 Patent

ETSI TS 102 361-1 v1.1.1 (2005-04) ("ETSI") was published at least as early as 2005. (RX-0059.). Hytera alleged that ETSI anticipates claims 7 and 8 of the '991 patent. (RBr. at 70-74.). There is no evidence that ETSI was considered by the PTO during the prosecution of the '991 patent, although ETSI TS 102 361-1, V1.4.5 was considered. (See JX-0009.). There is also no dispute that ETSI is prior art to the '991 patent. (CPBr. at 66-68.).

ETSI is a standard that specifies technical requirements for Digital Mobile Radio (DMR) devices. (RX-0059 at 13.). ETSI discloses DMR devices with two mutually exclusive sets of synchronization ("SYNC") patterns, the base station ("BS") sourced set and the mobile station ("MS") sourced set. Each set contains patterns corresponding to payload type (voice or data). (Id. at 71-72; Tr. (Bohn) at 170:16-23; Tr. (Akl) at 1114:1-1115:23.). In ETSI, the BS sourced set is associated with a first timeslot, i.e., the outbound or forward timeslot, and the MS sourced set is associated with a second timeslot, i.e., the inbound or backward timeslot. The different SYNC patterns differentiate not only the different payload types but also the different timeslots (channels). (RX-0059 at 18-19, 29, Figure 5.16, 30, Figure 5.17; Tr. (Akl) at 1113:5-24, 1115:24-1116:24, 1117:7-23.). However, mobile stations can select a SYNC pattern only from the “MS sourced” set and base stations can select a SYNC pattern only from the “BS sourced”
set. (Tr. (Wicker) at 1251:17-1252:3). In other words, ETSI’s teachings are limited to a system in which “there’s only one set [of sync patterns] for the [MS]” and the MS is not able to use BS sourced patterns for transmission, and vice versa. (Tr. (Bohn) at 170:24-171:23.).

As Dr. Wicker explained:

If you’re a mobile station, mobile station sourced, there are only two patterns that you can pick. You can pick this one for voice and this one for data. . . . These patterns up here, these are base station sourced. That means these are two patterns that are available to the base station, but they’re not available to the mobile station. The mobile station may only pick from among these two patterns for its transmissions of voice or data. . . . The mobile station can only pick from amongst these two, the base station can only pick from amongst these two. No base station and no mobile station has the opportunity within the standard to select from among all four.

(Tr. (Wicker) at 1250:9-1252:3.).

In other words, ETSI teaches a “fixed” timeslot configuration whereby a mobile station is limited to performing a voice or data transmission sequence of steps on a single timeslot (corresponding to that mobile station), although the mobile station can receive voice or data transmissions from a base station by synchronizing to the other timeslot (corresponding to the base station) and receiving information corresponding to the indicated payload type. In this configuration, there is a one-to-one correspondence between transmitting devices and the timeslots on which they can transmit.

Against this backdrop, the Parties disagreed over how broadly to read claims 7 and 8 of the ’991 patent for the purposes of an anticipation analysis with respect to ETSI. In an attempt to read these claims on ETSI’s “fixed” timeslot configuration, Hytera argued that claims 7 and 8 do not require a single device with a TDMA system to perform the recited steps, only that the system as a whole performs them. (RBr. at 72 (“claims do not require a mobile station ‘select’ both the first and second sets of SYNC patterns, only that a TDMA system ‘know’ both sets,
which the ETSI systems do.”).  Motorola disagreed, arguing that the claims are narrower than that insofar as they require the performance of the steps by a single transmitting device.

Motorola is correct.  Claim 7 recites “[i]n a time division multiple access (TDMA) system . . . a method,” not “a TDMA system performing a method,” and treats the system as something distinct from whatever is performing the recited method. (JX-0009 at 17:36-37, 49-50 (e.g., “determining whether the timeslot is a current desired timeslot for the TDMA system”). The ’991 patent also discloses TDMA systems composed of subscriber and possibly repeater devices that transmit and receive information. (Id. at 4:64-5:5.). Moreover, it is clear that the disclosed invention is performed for the purpose of transmitting and receiving devices synchronizing with a particular timeslot at a given frequency with confidence that they are synchronizing to a “desired” timeslot. (Id. at 3:15-17.). The ’991 patent’s specification discloses transmitting and receiving devices performing distinct steps to achieve this synchronization. However, the ’991 patent assigns the performance of steps recited in claim 7 only to transmitting devices and not to receiving devices or the overall system as a whole. (Id. at Abstract, 3:21-31, 3:62-4:12.). Thus, the steps of claim 7 are performed only by a transmitting device.

Motorola is also correct that claims 7 and 8 require that transmitting devices have the capability to switch from one timeslot to another for the purpose of transmission. (CRBr. at 34 (“that a [transmitting] device must be capable of selecting from both sets [of timeslot synchronization patterns] for transmission”) (emphasis added).). Claim 7 recites: “determining whether the timeslot is a current desired timeslot for the TDMA system.” (JX-0009 at 17:49-50.).

Anticipation of claim 7 by a device that transmits by default in only one timeslot, as is the case in ETSI, would read out the “determining” limitation because the transmission timeslot
assignment would be set from the beginning and there would be no need for a desired timeslot. Similarly, in a fixed configuration like the one disclosed in ETSI, the “selecting” step would be limited to selecting only a payload type, not a timeslot, notwithstanding that claim 7 requires the capability to do both. In particular, claim 7 contemplates a transmitting device “if the timeslot is the current desired timeslot, selecting a synchronization pattern . . . from the first set of synchronization patterns [or] otherwise selecting a synchronization pattern . . . from the second set of synchronization patterns.” (JX-0009 at 17:51-60 (emphasis added)).

Because it fails to disclose the “determining” and “selecting” limitations, ETSI does not anticipate claims 7 and 8 of the ’991 patent. Celeritas Techs., 150 F.3d at 1361. This finding is consistent not only with the described evidence, above, but also with the decision to strike certain of Dr. Akl’s testimony that was only provided for the first time during the evidentiary hearing: “In this instance, neither Dr. Akl’s Opening Report nor Hytera’s PHBR clearly discuss the limitation that involves disclosure of a desired timeslot in relation to ETSI.” (Order No. 47, App’x A at 248-49 (May 18, 2018)).

Therefore, Hytera has failed to show by clear and convincing evidence that ETSI anticipates claims 7 and 8 of the ’991 patent. 67

67 During the evidentiary hearing, Hytera raised several new arguments for why ETSI anticipates claims 7 and 8 of the ’991 patent. For example, Hytera argued that “a timeslot 1, for example, can be assigned to . . . the base stations and timeslot 2 for the mobile stations.” Hytera also argued that a mobile station “must know the ‘BS sourced’ set to synchronize to the base station” to receive communications, and that ETSI discloses the “determining” step because it allegedly discloses “determin[ing] whether the timeslot is a forward/inbound timeslot, which is the desired timeslot.” (CBr. at 64-65; CRBr. at 34-35.). Because Hytera never raised these arguments in its Pre-Hearing Brief, Hytera waived any argument it may have had, including for appeal purposes, under Ground Rule 7.2.
b) ETSI (RX-0059) in View of Zak (RX-0023) Does Not Render Obvious Claims 7 and 8 of the ’991 Patent

Hytera alleged that ETSI in view of Zak renders obvious claims 7 and 8 of the ’991 patent. (RBr. at 74-75.). U.S. Patent No. 6,452,991 issued on September 17, 2002, to Robert A. Zak (“Zak”), from U.S. Patent Application Serial No. 09/220,405 filed on December 30, 1998. (RX-0023.). There is no evidence that Zak was considered by the PTO during the prosecution of the ’991 patent. (See JX-0009.). There is also no dispute that Zak is prior art to the ’991 patent. (CPBr. at 69-70.).

Zak discloses systems and methods for acquiring channel synchronization in TDMA systems using dual detection thresholds, within a cellular system, with centrally controlled decision making. (RX-0023 at Title; Tr. (Wicker) at 1252:20-1253:10; RBr. at 81.).

Specifically, Zak teaches verifying a time slot synchronization pattern known as a “syncword” using a two-step approach in order to “reduce the time required to obtain synchronization” and “increase the accuracy of the synchronization process.” (RX-0023 at 4:1-5:1.). The approach entails determining whether the “correlation energy exceeds the relatively low detection threshold,” in which case “one or more additional correlations are performed . . . using a higher sampling rate and a more stringent detection threshold.” (Id. at 4:9-12.). “In this manner it is possible to significantly reduce the total number of correlations that are used as most of the correlations may be performed using relatively few samples per symbol.” (Id. at 4:12-15.). Zak also discloses having only one sync pattern per timeslot. (Id. at 6:18-28 (“a unique syncword is typically provided for each separate time slot”); Tr. (Akl) at 1124:9-15.).

Hytera failed to provide evidence that ETSI in view of Zak render obvious claims 7 and 8 of the ’991 patent. In striking some of Dr. Akl’s testimony, which he provided for the first time
during the evidentiary hearing, an Order issued explaining that “Hytera’s PHBR stated in
conclusory fashion that ETSI and Zak could be combined (with other prior art) but does not
explain why or how, or which elements of each of these references would be combined.” (Order
No. 47, App’x A at 213 (May 18, 2018).). Order No. 47 also noted that: “[b]oth Dr. Akl’s
report, to which Hytera cites, as well as Hytera’s PHBR lump together ETSI and Zak with other
prior art” and that “neither Dr. Akl’s expert report nor Hytera’s PHBR disaggregate Zak and
ETSI from the other prior art to explain which elements of each are combined (or should be
combined by a POSA) or why.” (Id. at 234.).

After the evidentiary hearing, Hytera was left with little more than unsupported attorney
argument in place of evidence.68

For example, Hytera argued that ETSI shows the teaching of a set of two sync patterns
for each timeslot and Zak shows that different sync patterns can be associated with different
timeslots to differentiate them. (RBr. at 76; RRBr. at 39-40 (citing Zak, RX-0023 at 6:18-28).).
Hytera also asserted in cursory fashion without explanation or detailed citation that a person of
ordinary skill at the time of the alleged invention would have found it obvious to combine the
teachings of ETSI with those of Zak, because “both references relate to the use of timeslot
synchronization in a TDMA system.” (RBr. at 81; see also Order No. 47, App’x A at 214
(“Specifically, Hytera’s PHBR stated in conclusory fashion that ETSI and Zak could be
combined (with other prior art) but does not explain why or how, or which elements of each of

68 The decision to strike some of Dr. Akl’s testimony was designed to penalize Hytera for failing to abide
by Ground Rules. Order No. 47 was designed as well to remind the Parties that Pre-Hearing Briefs must
cite to evidence and case law that supports offered arguments. To a large extent, Hytera defeated itself by
casting its defenses so broadly, and so thinly that it did justice to few of its defenses.
these references would be combined.”), 223 (“Hytera’s PHBR does not specifically explain or
discuss which language and/or features of Zak in combination with ETSI disclose element
[7e].”). For Hytera to prevail on obviousness, more evidence and analysis was required to
support its contentions. Metalcraft of Mayville, Inc. v. The Toro Co., 848 F.3d 1358, 1367 (Fed.
Cir. 2017) (“We agree with the district court that [the defendant] provides no explanation or
reasoning for concluding that one of skill in the art would have combined these particular
references to produce the claimed invention.”); Intendis GMBH v. Glenmark Pharms. Inc., USA,
822 F.3d 1355, 1366 (Fed. Cir. 2016) (noting a “cursory statement was insufficient to meet
[defendant’s] burden of showing by clear and convincing evidence a motivation to combine [a
prior art reference] with other prior art to render the claims obvious”).

In response to Hytera’s arguments, Motorola offered persuasive evidence that ETSI in
view of Zak does not render obvious claims 7 and 8 of the ’991 patent. Specifically, Dr. Wicker
testified that these references do not teach the claimed sync patterns either alone or in
combination. (Tr. (Wicker) at 1252:4-1253:10.).

With respect to the lack of motivation to combine the two (2) references, Dr. Wicker
testified that these references are actually incompatible with each other because Zak is a cellular
system, with centrally controlled decision making, while ETSI is a two-way radio reference. (Id.
at 1252:20-1253:10.).

This high-level observation rings true technically. As discussed above, ETSI teaches
multiple synchronization patterns per timeslot. (Tr. (Wicker) at 1251:17-1252:3). Zak teaches a
two-step approach for verifying a given time slot synchronization pattern, in the context of one
pattern per timeslot. (RX-0023 at 4:1-5:1.). Moreover, ETSI discloses a fixed configuration in
which each timeslot has a defined role such that timeslots are not co-equal, whereas Zak teaches
a “terminal” dynamically tuning or synchronizing to one of a plurality of co-equal timeslots
“predefined” for communication. (Tr. (Bohn) at 170:24-171:23; RX-0023 at 6:36-40 (“Once the
user terminal identifies the location of a syncword it is possible for the terminal to thereby
synchronize its timing with the timing of the transmitting base station thereby allowing the
terminal to communicate in one of the predefined time slots.”).). In other words, ETSI and Zak
teach incompatible systems each of which was directed at distinct and not overlapping problems.

PharmaStem Therapeutics, 491 F.3d at 1360.

For the foregoing reasons, Hytera has failed to prove by clear and convincing evidence
that ETSI in view of Zak renders obvious claims 7 and 8 of the ’991 patent.

c) Yamaguchi (RX-0017) in View of ETSI (RX-0059) Does Not
Render Obvious Claims 7 and 8 of the ’991 Patent

Hytera alleged that ETSI in view of Yamaguchi renders obvious claims 7 and 8 of the
’991 patent. (RBr. at 74-75.). U.S. Patent No. 5,761,211 issued on June 2, 1998, to Norio
Yamaguchi, Haruhiro Shiino, and Ryoichi Miyamoto (“Yamaguchi”). (RX-0017.). There is no
dispute that Yamaguchi is prior art to the ’991 patent. (CPBr. at 69-70.). Unlike the other
references to the ’991 patent, Yamaguchi was considered by the PTO during the prosecution of
the ’991 patent. (See JX-0009.). According to Hytera, during prosecution of the application that
became the ’991 patent, the PTO found Yamaguchi disclosed all the elements of claims 7 and 8
except “each set comprising at least two different synchronization patterns as a function of at
least one of a payload type and a source of the transmission.” (JX-0010.0335-40; Tr. (Akl) at
1147:6-1150:9).).

Yamaguchi discloses a method of efficiently synchronizing to a desired timeslot in a time
division multiple access communication system. (RX-0017, Title.). Specifically, Yamaguchi
teaches “a timing recovery circuit has a sampling means that samples an input signal to generate a sample stream and a correlating means that correlates a reference pattern with the sample stream at different timings, thus generating a plurality of correlation values.”  (*Id.* at 1:32-36.).

“The estimated timing can be used in a receiving apparatus for various types of synchronization[.]”  (*Id.* at 1:45-46.). “[A]n object of the present invention is to improve the precision of timing recovery without requiring a higher sampling rate.”  (*Id.* at 1:30-31.).

Hytera provided cursory evidence that ETSI in view of Yamaguchi renders obvious claims 7 and 8 of the ’991 patent, even assuming that Yamaguchi discloses each of the claim elements except the one identified above.69 According to Hytera, a person of ordinary skill in the art would have found it obvious to have combined the teachings of Yamaguchi with those of ETSI because both references teach synchronizing a timeslot in a TDMA system and using synchronization patterns to identify a payload.  (RBr. at 82; Tr. (Akl) at 1150:18-25.).  In terms of a motivation to combine, Hytera argued that a person of ordinary skill in the art “would have recognized using synchronization to carry information to identify a timeslot and also a payload type to reduce the number of signaling bits in the burst structure and improve transmission efficiency.”  (*Id.*).  Yet, in the testimony Hytera cites for support of this attorney argument, Dr. Akl never testified to those purported advantages.  (Tr. (Akl) at 1151:1-23 (“Substituting a different set of synchronization patterns for voice and data control for each of the synchronization patterns of Yamaguchi as ETSI suggests.”))).  Attorney argument is not enough.

69 Although it is not determinative for the purpose of this analysis, Order No. 47 struck Dr. Akl’s testimony with respect to Yamaguchi satisfying limitation [7c] of the ’991 patent (“preparing to transmit a particular payload type in a timeslot”).  (Order No. 47, App’x A at 370 (May 18, 2018)).  That testimony is: “So this is the preparing to transmit limitation.  The Yamaguchi at column 2, lines 10 to 15 disclose ‘the signal is organized into frames of six timeslots each.’  And again, this was -- the examiner rejected that limitation over Yamaguchi.”  (*Id.*; Tr. (Akl) at 1148:14-19.).
For Hytera to prevail on obviousness, more evidence on motivation to combine is required. *Intendis*, 822 F.3d at 1366 (noting a “cursory statement was insufficient to meet [defendant’s] burden of showing by clear and convincing evidence a motivation to combine [a prior art reference] with other prior art to render the claims obvious”). While Dr. Akl found each limitation of claims 7 and 8 of the ’991 patent present in either ETSI or Yamaguchi, there is no evidence of motivation for a person of ordinary skill in the art to combine these particular references other than their existence in the same field. Even the two purported benefits of combining the references (reduce the number of signaling bits and improve transmission efficiency), provided by Hytera as attorney argument, flow not from combining the references themselves, but from combining general concepts disclosed by the references.

In response to Hytera’s arguments, Motorola provided compelling evidence that ETSI in view of Yamaguchi does not render obvious claims 7 and 8 of the ’991 patent. Like Zak discussed above, Yamaguchi teaches having only one synchronization pattern per timeslot. It fails to teach a set of synchronization patterns associated with each timeslot. (RX-17 2:10-20 (“six time slots” and “six different synchronization patterns” with one sync pattern per slot); Tr. (Wicker) at 1253:11-1254:5.) (emphasis added). Although ETSI teaches multiple synchronization patterns per timeslot, according to Dr. Wicker, the particular way in which Yamaguchi implements one synchronization per timeslot makes ETSI and Yamaguchi incompatible. (Tr. (Wicker) at 1253:11-1254:5.). This is because Yamaguchi uses synchronization correlators that match the peak of a correlation across a single timeslot. This approach cannot be used or combined with a system, such as ETSI, that partitions timeslots into payload types and differentiates among these types using multiple synchronization patterns per timeslot. *Id.* (“The system that’s described here [in Yamaguchi] can’t look for two patterns.
It’s looking for one.”). In other words, ETSI and Yamaguchi teach incompatible systems solving distinct problems. *PharmaStem Therapeutics*, 491 F.3d at 1360.

For the foregoing reasons, Hytera has failed to prove by clear and convincing evidence that ETSI in view of Yamaguchi renders obvious claims 7 and 8 of the ’991 patent.

d) ETSI (RX-0059) in View of Zak (RX-0023) and Zhang (RX-0031) Renders Does Not Render Obvious Claims 12 and 16 of the ’991 Patent

Hytera alleged that ETSI in view of Zak and Zhang renders obvious claims 12 and 16 of the ’991 patent. (RBr. at 74-75.). ETSI and Zak were introduced and discussed above in Sections X.E1(a) and (b). U.S. Patent No. 7,330,524 issued on February 12, 2008, to Ning Zhang, Athanasios A. Kasapi, and William J. McFarland (“Zhang”), from U.S. Patent Application Serial No. 11/027,280 filed on December 20, 2004. (RX-0031.). There is no evidence that Zhang was considered by the PTO during the prosecution of the ’991 patent. (See JX-0005.). There is also no dispute that Zhang is prior art to the ’991 patent. (CPBr. at 69-70.).

Zhang teaches performing “synchronization and impairment estimations” to save valuable time decoding a received packet in a TDMA system. (RX-0031 at Abstract.). Specifically, Zhang discloses that by using initial synchronization and frequency offset choices, timing offset choices can be bounded within constrained ranges. (Id. at 1:52-53.). “Using a known data pattern included in the packet and a known receiver spur frequency, an algorithm can then advantageously find a minimum of an error measure that can give the best frequency offset choice and timing offset choice combination over their respective constrained ranges, together

70 Motorola asserted claims 12 and 16 of the ’991 patent for purposes of technical DI only. (CBr. at 61-64.).
with the estimates of the signal magnitude and phase, the DC offset magnitude and phase, and the spur magnitude and phase.” (Id. at 1:54-62.).

Hytera has not satisfied its burden of proving that ETSI in view of Zak and Zhang renders obvious claims 12 and 16 of the ’991 patent.

To the extent that Hytera attempted to argue invalidity based on this three-reference combination, Hytera waived its argument, including for appeal purposes, under Ground Rule 10.1. During the evidentiary hearing, Dr. Akl did not testify about this three-reference combination. Instead, Dr. Akl testified only about combinations of “ETSI and Zak” and “ETSI and Zhang” separately. (Tr. (Akl) at 1114:13-24 (ETSI and Zak); 1145:8-13 (same); 1145:16-19 (ETSI and Zhang), 1145:20-25 (same).). The ETSI and Zak combination was addressed above in Section X.E.1(b). Moreover, Hytera provided no other testimony or evidence of the three-reference combination of ETSI, Zak and Zhang through any other witness.

To the extent that Hytera argued that claims 12 and 16 of the ’991 patent are obvious based on ETSI in view of Zhang, Hytera’s argument failed for lack of proof.

After the evidentiary hearing, Order No. 47 struck several passages of Dr. Akl’s testimony that pertained to opinions and argument that Hytera raised for the first time during the evidentiary hearing that described the purported invalidation of claims 12 and 16 as obvious in view of the prior art, including ETSI and Zhang. (Order. No. 47 at 245 (limitation 12[a] in ETSI), 259-60 (limitation 12[c] in ETSI), 269 (limitation 12[d] in ETSI), 272 (limitation 12[d] in ETSI), 275 (limitation 12[e] in ETSI), 284 (limitation 12[f] in ETSI), 289 (limitation 16[b] in ETSI), 293 (limitation 16[c] in ETSI), 300-01 (limitation 16[c] in ETSI), 301 (limitation 16[d] in ETSI), 302 (limitation 16[e] in ETSI), 310-11 (limitation 16[f] in ETSI and Zhang), 342 (limitation 12[f] in Zhang), 356 (limitation 16[f] in Zhang).). Hytera’s arguments were not mere
explication or explanation of previous contentions or arguments. It appeared to be a late attempt to salvage Hytera’s previous use of string cites in its Pre-Hearing Brief. Without evidence that ETSI and Zhang disclose all the limitations of claims 12 and 16 of the ’991 patent, Hytera was unable to prove that ETSI and Zhang in combination render these claims obvious.

Even if Hytera had provided proof that each element of claims 12 and 16 of the ’991 patent were found in ETSI or Zhang, Hytera’s argument would fail because Hytera did not provide evidence with respect to motivation to combine the three references, let alone any two (2) of the three (3) references. *PharmaStem Therapeutics*, 491 F.3d at 1360.

According to Hytera’s late explanation, ETSI and Zhang both relate to synchronization to a timeslot in a TDMA system. (RBr. at 83 (citing Tr. (Akl) at 1135:1-5.). Hytera made a cursory argument that a person of ordinary skill in the art would have been motivated to combine the teachings of ETSI with the teachings of Zhang “to build a DMR system with improved synchronization efficiency.” (Tr. (Akl) at 1135:6-12.). Hytera offered no other explanation or explain why, with evidence. Moreover, given the lack of an explanation, it is unclear whether the combined “DMR system” of the ETSI and Zhang references would have necessarily satisfied the limitations of claims 12 and 16. As was the case above in combination of ETSI with Zak and Yamaguchi, the law requires that Hytera needed to provide more evidence. *Intendis*, 822 F.3d at 1366.

In a rare exception in this Investigation, Hytera was not alone in providing an argument that was too late in the proceedings, or simply unsupported. In its Post-Hearing Brief, Motorola presented arguments, also for the first time, in which it contested the alleged invalidity of ’991 patent claims 12 and 16. (CBr. at 67-68 (arguing the cited references do not disclose the “searching” requirement).).
Because those arguments were not made in Motorola’s Pre-Hearing Brief, Motorola waived its arguments, including on appeal, under Ground Rules 7.2 and 10.1. However, because of Hytera’s deficient evidentiary proof on the alleged obviousness of claims 12 and 16 based on ETSI in view of Zak and Zhang, Motorola’s failure to present rebuttal evidence has no consequence for Motorola.

For the foregoing reasons, Hytera has failed to prove by clear and convincing evidence that ETSI in view of Zak and Zhang renders obvious claims 12 and 16 of the ’991 patent. Because the evidence is insufficient to demonstrate that the ’991 patent is invalid under 35 U.S.C. § 103, an analysis of the secondary considerations of non-obviousness is unnecessary.71

See, e.g., Video Game Sys., 2013 WL 2413602, at *13 n.7; Alza, 391 F.3d at 1373 n.9.

XI. INDIRECT INFRINGEMENT

A. Legal Standard: Indirect Infringement

1. Induced Infringement

“Whoever actively induces infringement of a patent shall be liable as an infringer.” 35 U.S.C. § 271(b). A patentee asserting a claim of inducement must show (i) that there has been direct infringement72 and (ii) that the alleged infringer “knowingly induced infringement and possessed specific intent to encourage another’s infringement.” Minnesota Mining & Mfg. Co. v. Chemque, Inc., 303 F.3d 1294, 1304-05 (Fed. Cir. 2002). With respect to the direct infringement requirement, the patentee “must either point to specific instances of direct infringement or show

71 In addition to the finding of this decision that Hytera failed to show a prima facie case of obviousness of the ’991 patent, Motorola argued that only copying by Hytera constitutes an indicium of non-obviousness.

that the accused device necessarily infringes the patent in suit.” ACCO Brands, Inc. v. ABA Locks Mfrs. Co., Ltd., 501 F.3d 1307, 1313 (Fed. Cir. 2007) (citation omitted). This requirement may be shown by circumstantial evidence. Vita-Mix Corp. v. Basic Holding, Inc., 581 F.3d 1317, 1326 (Fed. Cir. 2009). “[A] finding of infringement can rest on as little as one instance of the claimed method being performed during the pertinent time period.” Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1317 (Fed. Cir. 2009).

The specific intent requirement for inducement necessitates a showing that the alleged infringer was aware of the patent, induced direct infringement, and that he knew that his actions would induce actual direct infringement. Commil USA, LLC v. Cisco Systems, Inc., 720 F.3d 1361, 1367 (Fed. Cir. 2013), aff’d and vacated in part on other grounds, 135 S. Ct. 1920, 1926-28 (2015); Global-Tech Appliances, Inc. v. SEB S.A., 131 S. Ct. 2060, 2068-70 (2011). Specific intent can be shown by, for example: (1) changes in importation practices effectuated to shift infringement liability; (2) the infringer’s copying of patented technology; and (3) the infringer’s willful blindness of the underlying direct infringement. Certain Network Devices, Related Software and Components Thereof (I), Inv. No. 337-TA-944, Initial Determination at 82; see also Commil, 135 S. Ct. at 1924-25 (“It was not only knowledge of the existence of [the asserted] patent that led the Court to affirm the liability finding but also it was the fact that [the accused infringer] copied ‘all but the cosmetic features of the [patented product],’ demonstrating [the accused infringer] know it would be causing customers to infringe [the asserted] patent.”) (quoting Global-Tech, 131 S. Ct. at 2071).).

Willful blindness, which also constitutes “knowledge,” has two basic requirements: “(1) the defendant must subjectively believe that there is a high probability that a fact exists”; and “(2) the defendant must take deliberate actions to avoid learning of that fact.” Global-Tech, 131
S. Ct. at 2070. The intent to induce infringement may be proven with circumstantial or direct evidence and may be inferred from all the circumstances. *Commil*, 720 F.3d at 1366; *Global-Tech*, 131 S. Ct. 2071-72.

The Federal Circuit has upheld the Commission’s authority to cover “goods that were used by an importer to directly infringe post-importation as a result of the seller’s inducement.” *Suprema Inc. v. Int’l Trade Comm’n*, 796 F.3d 1338, 1352-53 (Fed. Cir. 2015).

2. **Contributory Infringement**

35 U.S.C. § 271(c) sets forth the rules for contributory infringement:

> Whoever offers to sell or sells within the United States or imports into the United States a component of a patented machine, manufacture, combination, or composition, or a material or apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement of such patent, and not a staple article or commodity of commerce suitable for substantial noninfringing use, shall be liable as a contributory infringer.

35 U.S.C. § 271(c). Specifically with respect to Section 337 investigations, the Federal Circuit has held that “to prevail on contributory infringement in a Section 337 case, the complainant must show inter alia: (1) there is an act of direct infringement in violation of Section 337; (2) the accused device has no substantial non-infringing uses; and (3) the accused infringer imported, sold for importation, or sold after importation within the United States, the accused components that contributed to another’s direct infringement.” *Spansion, Inc. v. Int’l Trade Comm’n*, 629 F.3d 1331, 1353 (Fed. Cir. 2010). “[N]on-infringing uses are substantial when they are not unusual, far-fetched, illusory, impractical, occasional, aberrant, or experimental.” *Vita-Mix*, 581 F.3d at 1327. To determine whether a use is substantial, an Administrative Law Judge may evaluate “the use’s frequency, . . . the use’s practicality, the invention’s intended purpose, and the intended market.” *i4i Ltd. Partnership v. Microsoft Corp.*, 598 F.3d 831, 851 (Fed. Cir.)
Section 271(c) also requires knowledge of the existence of the patent that is infringed. *Global-Tech*, 131 S. Ct. at 2068.

To satisfy contributory infringement’s knowledge requirement, it is necessary to establish that “the accused contributory infringer knows that its component is included in a combination that is patented and infringing.” This requires knowledge of the patent. *Global-Tech Appliances*, 131 S. Ct. at 2068. In addition, the Federal Circuit has held that it is not sufficient to know of the patent and the relevant acts, but must also know that “these acts constituted infringement.” *Fujitsu Ltd. v. LG Elecs.*, 620 F.3d 1321, 1320 (Fed. Cir. 2010). For purposes of contributory infringement, knowledge is inferred when the article at issue has no substantial non-infringing uses. *See Certain Semiconductor Chips with Minimized Chip Package Size and Prods. Containing Same*, Inv. No. 337-TA-605, Comm’n Op., 2009 WL 8144934, at *28 (June 3, 2009).

Where infringement allegations address a “separate and distinct” feature of a product, the contributory infringement analysis (for example, with respect to the existence of non-infringing uses) may address the particular feature in question rather than the product as a whole. *See i4i Partnership v. Microsoft Corp.*, 598 F.3d 831, 849 (Fed. Cir. 2010); *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1320-21 (Fed. Cir. 2009); *Ricoh Co. Ltd. v. Quanta Comput. Inc.*, 550 F.3d 1325, 1338 (Fed. Cir. 2008).

**B. Hytera Had Specific Intent to Infringe the Asserted Patents**

1. **The Former Motorola Employees Hytera Hired Assisted Hytera in Copying Motorola’s Patented Technologies**

Motorola presented persuasive circumstantial and direct evidence that certain former Motorola engineers whom Hytera hired away from Motorola wrongfully copied certain of
Motorola’s patented technologies. A timeline of the various acts in which the former Motorola engineers, Messrs. Gee Siong Kok ("G.S. Kok"),73 Yih Tzye Kok ("Y.T. Kok"),74 and Samuel Chia 75 (collectively, the “Hytera Employees”) engaged, both before they left Motorola and after they started working at Hytera, is compelling and telling. The evidence includes, first, the proximity in timing between when the Hytera Employees left Motorola and then started working at Hytera on the very DMR projects that infringed Motorola technology. Second, Messrs. Y.T. Kok, G.S. Kok, and Chia all knew one another, while Mr. G.S. Kok actively recruited either directly or indirectly, the other two, as well as other Motorola engineers, to work at Hytera.

(CX-0616C.2; CX-0746C (Chia Dep. Tr.) at 36:19-21, 37:22-38:2, 38:25-39:4, 39:15-21, 40:15-22.). Third, documentary evidence includes Motorola computer access logs which recorded the dates, types of documents and the volume of documents that Messrs. Y.T. Kok, G.S. Kok and Chia viewed and apparently downloaded from Motorola systems just before they left Motorola to

73 Mr. G.S. Kok tendered his resignation at Motorola on December 31, 2007. His last day at Motorola was February 11, 2008. (CX-0743C (G.S. Kok Dep. Tr.) at 53:13-20, 54:2-5, CX-616C.2.). He started working for Hytera approximately two (2) months after he left Motorola. (CX-0743C (G.S. Kok Dep. Tr.) at 55:9-12.). For additional information about Mr. G.S. Kok, see n.15, supra.

74 Mr. Y.T. Kok testified during his deposition on September 24, 2017 that his sales position for Hytera focused on DMR products. (See (Y.T. Kok. Dep. Tr.) at 30:18-23.). Prior to working in sales for Hytera, from approximately 2008 to 2012, Mr. Kok worked as a software manager for Hytera. (Id. at 26:3-11.). Before joining Hytera, Mr. Kok worked at Motorola from 1997 to 2000 as a software engineer. (Id. at 13:4-8, 18:15-19.). He rejoined Motorola in 2002 as a senior software engineer, left again in 2005, and rejoined Motorola for a third time in 2007 as a software manager. He left Motorola again to work for Hytera in 2008. (Id. at 13:23-14:7, 15:4-10, 22:7-10, 24:12-15.).

75 Mr. Chia tendered his resignation at Motorola on May 8, 2008. (CX-0746C at 104:5-105:4.). He left Motorola on June 7, 2008 and joined Hytera later that month. (Id. at 15:24-16:4, 49:20-25, 106:19-23.). Mr. Y.T. Kok tendered his resignation at Motorola on September 4, 2008; his last day at Motorola was October 3, 2008. (CX-0619C.5; CX-0751C (Y.T. Kok Dep. Tr.) at 184:3-5.).
work at Hytera. None of the Hytera Employees had a reason, or were working on projects that required them to access or use the documents they apparently downloaded, just before they left Motorola. Finally, and perhaps the most problematic for Hytera, the evidence includes the extent to which each of these Hytera Employees plead the Fifth Amendment\textsuperscript{76} and declined to answer questions during their depositions in this Investigation. The questions the Hytera Employees were asked clearly were designed to document whether they copied and took with them to Hytera any of Motorola’s proprietary and patented Motorola technology. Even if on appeal there is disagreement about the strength of the direct evidence, there can be little doubt that there is sufficient circumstantial evidence in combination with direct evidence to permit an inference that the former Motorola engineers wrongfully copied and took with them to Hytera patented Motorola technologies.

As an initial matter, Mr. G.S. Kok, Mr. Y.T. Kok and Mr. Chia each worked at Motorola during development of the technologies of the ’284, ’991, and ’869 patents. (CX-0615C; CX-0011; CX-0618C.). Hytera did not dispute this. (Id.).

After leaving Motorola in February 2008 and joining Hytera later in 2008, Mr. G.S. Kok actively recruited and hired several Motorola DMR engineers, including Messrs. Y.T. Kok and Chia. (CX-0616C.2; CX-0746C (Chia Dep. Tr.) at 36:19-21, 37:22-38:2, 38:25-39:4, 39:15-21, 40:15-22 (Y.T. Kok and Chia worked on DMR products while they were employed by

\textsuperscript{76} The text of the Fifth Amendment to the United States Constitution is: “No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases in the land or naval forces, or in the militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any criminal case to be a witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.”
Motorola); CX-0699.1C.4 (Y.T. Kok, G.S. Kok, and Chia worked on DMR products while they were initially employed at Hytera); CX-0751C (Y.T. Kok Dep. Tr.) at 86:13-22, 87:3-15, 87:22-88:11, 89:16-90:2, 90:9-91:12, 93:5-8 (Mr. Y.T. Kok explained that he was recruited to Hytera “definitely before 2008” by Mr. G.S. Kok through Mr. Chia, who was also recruited by Mr. G.S. Kok, and that all three discussed together the terms of their employment for Hytera.). Mr. Chia explained that Mr. G.S. Kok first “raised the idea” of joining Hytera in “very early” in 2008, while both were still Motorola employees. (See CX-0746C (Chia Dep. Tr.) at 51:20-52:13, 53:2-10.).  

77 Order No. 20 unequivocally ordered Hytera to search the emails of Messrs. G.S. Kok, Y.T. Kok, and Chia, and to produce any emails captured by the search terms “Motorola,” “Moto,” “Motortrbo,” and “any other reasonable search terms, limited to five (5)” relevant to Motorola’s claim that certain Hytera employees had copied certain of Motorola’s patented technology. (See Order No. 20 at 7 (Oct. 27, 2017).). The timeframe for the search was limited to three (3) years after each of the three (3) Hytera Employees and former Motorola engineers, Mr. Y.T. Kok, Mr. G.S. Kok, and Mr. Chia, left their employment for Motorola for employment with Hytera. (Id.). Among the emails produced pursuant to Order No. 20, Motorola’s counsel identified an email and an attachment (CX-2090C (email from Mr. Chia to Mr. Y.T. Kok with regard to an [redacted] allegedly related to the ’991 patent that Motorola did not have an opportunity to show Dr. Wicker before the evidentiary hearing because of Hytera’s failure to search for and provide Motorola with all the documents Hytera was ordered to produce. (Id. at 417:7-14.). During the evidentiary hearing, Motorola was permitted to bring Dr. Wicker back at the end of its case-in-chief for his knowledge of and testimony on this document. (Id. at 417:7-20.).

During the evidentiary hearing, Motorola’s counsel also alleged that Hytera withheld “a number of documents, that hit on the search terms” identified in Order No. 20, which Hytera’s counsel contested. (Tr. at 269:15-271:5, 277:21-279:8.). Hytera was again instructed to comply with Order No. 20 and to produce all documents captured by the relevant search parameters. (Id. at 412:9-417:6.). According to Motorola, that evening, Hytera produced “about 3500 pages, several hundred documents,” a third of which appeared to be corrupted. (Id. at 547:16-549:5.). Hytera agreed to produce, on a rolling basis, uncorrupted versions of documents identified by Motorola. (Id. at 552:17-20.). None of these appeared to have been addressed during the evidentiary hearing either because it was too late in the proceeding or too many documents were corrupted. There is no question that Hytera violated Order No. 20.
Motorola’s computer “access logs,” confirm that in the months before the Hytera Employees each left Motorola, they each logged on to Motorola’s internal “COMPASS” document management system and in combination accessed thousands of confidential Motorola documents.

Mr. Shepard, a Motorola employee responsible for Motorola’s information technology infrastructure and information security, testified that the Motorola access logs record an individual’s access to documents over the course of his career at Motorola. (RX-0447C (Shepard Dep. Tr.) at 75:6-16 (explaining the “DATAID” column), 76:18-25 (explaining the “COUNT” column).). One way of thinking about a document access log is as a “footprint” of the substance and timing of an employee’s work. (See RX-0447C (Shepard Dep. Tr.) at 72:2-73:8 (Motorola information technology officer, Scott Shepherd, explained how a COMPASS log was created), 96:17-97:1; see also RX-0447C (Shepard Dep. Tr.) at 75:6-16 (explaining the “DATAID” column), 76:18-25 (explaining the “COUNT” column). Mr. Shepard testified that in combination, Mr. Y.T. Kok, Mr. G.S. Kok and Mr. Chia, had accessed a combination of more than 7,000 confidential Motorola documents before the last of the three men left Motorola. (“So

78 Motorola’s IT expert, Mr. Shepard, explained that every accessed file was recorded in these individuals’ access logs, including the date the file was accessed, the file name, and how many times the individual accessed that file over the course of his career at Motorola. (RX-0447C (Shepard Dep. Tr.) at 75:6-16 (explaining the “DATAID” column), 76:18-25 (explaining the “COUNT” column).).

79 At the time of his deposition on October 6, 2017, Mr. Scott Shepard was a Motorola employee responsible for Motorola’s information technology infrastructure and information security. (RX-0447C (Shepard Dep. Tr.) at 9:2-11.). Mr. Shepard provided testimony about the access logs showing Mr. Chia’s and Mr. Y.T. Kok’s access to Motorola’s confidential information. (See id. at 87:24-88:18 (testifying about Mr. Chia’s access logs), 94:8-21, 95:8-15 (testifying about Mr. Y.T. Kok’s access logs). Although he did not testify during the evidentiary hearing, the Parties agreed to admit his deposition testimony into the record as designations, including his testimony explaining and authenticating the access logs. (CBr. at 72 n.15.).
these access reports show that [the Hytera Employees] downloaded over 7,000 documents. Correction. That’s accessed the 7,000 documents.”); CX-0024C (Chia access log); CX-0684C (Y.T. Kok access log).

That figure bears repeating simply to let sink in the sheer magnitude of the number of confidential Motorola documents that the Hytera Employees accessed, just before they left Motorola: more than 7,000 documents. This could not have been coincidental.

For example, Mr. Chia left Motorola on June 7, 2008 to work for Hytera. Mr. Chia’s access log reflects that in some 4.5 years, i.e., from August 2003 to February 2008, Mr. Chia accessed fewer than 300 Motorola documents. (CX-0024C.0291-97.). By contrast, from March 2008 to end of May 2008, that is within three (3) months before he left Motorola to join Hytera, Mr. Chia’s access log reflects that he accessed more than 10,000 Motorola documents. (Id. at 0001-291.). At the time he accessed more than 10,000 Motorola documents from Motorola’s COMPASS document management system unto his personal computer, Mr. Chia was no longer working on DMR-related projects. (Chia Dep. Tr.) at 16:25-17:6 (“Q: So six or eight months before you left Motorola, you were transferred to a different that focused on wi-fi mesh products? A: Yes.”), 17:12-16 (“Q: Okay. And -- okay. From the time you joined Motorola up until about six or eight months before you left Motorola, you were working on two-way radio products? A: Yes, that’s right.”).

It is inferentially sound that Mr. Chia did not access the DMR documents as part of his ordinary work responsibilities. (See, e.g. CX-0024C; see, e.g., id. at 0001-291.)
The timing and number of Motorola documents that Mr. Y.T. Kok accessed, as reflected in his access log, is equally compelling and warrants an inference of copying. Specifically, on June 23, 2008, Mr. Chia, who by that time was a Hytera employee, forwarded an email to Mr. Y.T. Kok, who was still employed at Motorola, to an [Hytera](#) email address assigned to Mr. Y.T. Kok based on his Chinese name (“guoyijie04708@sz.hyta”). (CX-1415C.4; CX-0751C (Y.T. Kok Dep. Tr.) at 206:3-6; CX-2090C; see also Tr. (Ye (Andrew) Yuan) at 831:24-832:7, 892:8-10 (confirming that Guoyijie is Mr. Y.T. Kok’s Chinese name); Tr. (Zheng) at 892:8-10 (confirming the same after being asked twice).)

Motorola presented unrebutted, strong evidence that, unbeknownst to Motorola, at the time he received the referenced June 23, 2008 e-mail, Mr. Y.T. Kok was either employed by both Motorola and Hytera, but certainly already had an e-mail address at Hytera which was receiving e-mails. (CX-0619C; CX-0751C (Y.T. Kok Dep. Tr.) at 15:21-16:13; CX-0684C.). It is unclear whether Hytera management knew that Mr. Y.T. Kok was still working at Motorola when he began working at Hytera. There is no evidence that Mr. Y.T. Kok advised his Motorola employer that he already was receiving e-mails at Hytera while he was still working at Motorola.

One of the ways in which Motorola discovered that Mr. Y.T. Kok was engaged in some

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80 When he testified during the evidentiary hearing on February 1, 2018, Mr. Ye (Andrew) Yuan was employed by Hytera Communications Corporation and held the position of President of Hytera Communications America (West), Inc. (Tr. (Yuan) at 831:24-832:7.). Motorola identified Mr. Yuan as a fact witness to provide general testimony about Hytera, including the corporate structure, organization, and background of Hytera and the Accused Products. (RPSt. at 1.).
fashion simultaneously for Hytera and Motorola, is through the June 23, 2008 e-mail that Mr. Chia sent to Mr. Y.T.Kok at his Hytera e-mail address, but using his Chinese name guoyijie04708@sz.hyt. The confirmation came through one of Hytra’s engineers, Ms. Zheng, who had worked with Samuel Chia for several years in the same work group. During the evidentiary hearing, Ms. Zheng was asked if she recognized Mr. Chia’s name and e-mail address on the “warmly welcome” e-mail he was sent when he began working at Hytera. (See Tr. (Zheng) 896:18-897:19; see also CX-1415C (“warmly welcome e-mail”); CX-2094C (organizational chart). Ms. Zheng initially denied that she even recognized Mr. Chia’s e-mail. (Tr. (Zheng) 896:18-897:19.). Her testimony was questionable.

However, Ms. Zheng was also asked if she could identify Mr. Y.K.’s Chinese name from an e-mail that was shown to her, and that verified that Mr. Y.T. Kok was receiving e-mail at Hytra while he was still working at Motorola. There was no question, despite the Chinese interpretation, that Ms. Zheng understood the import of the questions Motorola’s counsel was asking and why. After much hesitation, and after being asked twice, she finally confirmed that she was aware of Mr. Y.T. Kok’s English and Chinese names, and that the “sz.hyt” at the end of his Chinese name on the June 23, 2008 e-mail represented Mr. Y.T. Kok’s Chinese name. (See Tr. (Zheng) at 892:8-10 (confirming the same after being asked twice).) Ms. Zheng’s testimony helped confirm that Mr. Y.T. Kok was working simultaneously for Motorola and Hytra (or minimally had a Hytra e-mail and divided loyalties) at least part of the time when he accessed

81 During the timeframe from 2008-2010, Mr. Zhang Ying Zhe worked on Hytra’s DMR software team. (Tr. (Yuan) at 887:1-8; see also CX-2094C (showing “Zhangyingzhe” as part of the “Stack/DSP” portion of Hytra’s DMR software team).
confidential Motorola documents in June 2008.

The June 23, 2008 e-mail that was sent originally to Mr. Chia from a lead Hytera engineer had additional significance. In it, Mr. Zhang Ying Zhe included questions to Mr. Chia with regard, inter alia, to the operation of certain Motorola’s products related to the Asserted Patents.

[Question 8:] Would you please tell us the working process of [redacted]? Whether repeater need to analysis [sic] the content of physical layer frame or just repeat the frame transparently when receive it [sic]?

[Question 9:] How can [redacted] realize single frequency repeater at present? [O]r can’t realize it at all?

(CX-1415C.4-5.).

On the same day, that is June 23, 2008, that Mr. Chia forwarded Hytera’s Mr. Zhe’s e-mail to Mr. Y.T. Kok asking for details about Motorola’s DMR products, Mr. Kok accessed from Motorola’s internal COMPASS database more than 50 confidential Motorola documents, after having had accessed no documents in nearly four (4) weeks leading up to the June 23, 2008 date of Mr. Chia’s email. The timing of Mr. Kok’s download of additional confidential Motorola documents is suspect. Mr. Chia forwarded Mr. Zhe’s e-mail to Mr. Y.T. Kok at 12:14 a.m. the morning of June 23, 2008. Mr. Y.T. Kok’s access log reflects that he began accessing confidential Motorola documents at 7:17 a.m. the morning of June 23, 2008, or barely seven (7) hours after he received Mr. Zhe’s e-mail asking for details about Motorola’s DMR products.

(CX-1415C; CX-0684C.0006.).

Figure No. 15 graphically reflects Mr. Y.T. Kok’s Motorola access log entries for June 23, 2008 with the identification of the documents that he accessed. Mr. Y.T. Kok then accessed another 190 Motorola documents during the week following the June 23, 2008 e-mail. (Id. at
The other access logs that reflect the Motorola documents that Mr. G.S. Kok and Mr. Chia accessed would be similar.

**Figure No. 15: Mr. Y.T. Kok Access Log Entries on June 23, 2008**

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Hytera did not contest the veracity of Motorola’s access logs or the fact that the Hytera Employees accessed the documents listed in them on the specific dates and times. Instead, Hytera argued that “[Motorola] has no proof the employees copied or printed the documents or gave them to Hytera” and that Motorola was “relying on innuendo rather than facts.”\(^\text{82}\) (RR Br. at 5-6 (citing RX-0447C (Shepard Dep. Tr.) at 69:10-70:20, 72:2-25, 84:12-85:8, 88:1-10, 94:11-21, 109:8-14); \textit{id.} at 6 n.2.).

With respect to Mr. Y.T. Kok’s access log, Hytera contended that Motorola “assume[d] Y.T. Kok ‘collected’ documents in response to receiving those questions, but offer[ed] no proof or even trie[d] to explain the relationship of any documents allegedly collected to the questions asked,” and that Motorola “chose instead only to use innuendo.” (RR Br. at 6 (internal citation

\(^\text{82}\) See Tr. at 677:10-681:7.)
omitted). However, Hytera had no explanation why he accessed thousands of confidential Motorola documents just before he left Motorola when he was not working on DMR projects tied to the accessed Motorola documents.

While Hytera may be correct that there is no direct evidence that the three (3) Hytera employees copied the more than 7,000 documents they accessed, it is logical to infer that the Hytera Employees accessed these documents with the intent of acquiring information about Motorola’s DMR products for Hytera. The timing and circumstances of their actions are unequivocal and uncontested. Why Messrs. Y.T. Kok, G.S. Kok and Chia accessed so many confidential Motorola documents just before they left Motorola, and what they did with the documents may not be known, but the inference that can be drawn is clear.

Messrs. Y.T. Kok, G.S. Kok, and Chia each were questioned extensively during their depositions about whether certain aspects of the Accused Products were developed using Motorola’s confidential information. Messrs. Y.T. Kok, G.S. Kok and Chia each refused to answer any questions that in varying ways asked about their downloading, copying and transferring confidential Motorola documents to Hytera. In each case, the Hytera Employees refused to answer questions and instead invoked their Fifth Amendment right not to incriminate themselves. Mr. Y.T. Kok invoked his Fifth Amendment right to more than 70 questions. Mr. Chia also invoked his Fifth Amendment right to more than 70 questions. Mr. G.S. Kok invoked his Fifth Amendment right against self-incrimination to more than 60 questions. (See generally CX-0746C (Chia Dep Tr.); CX-0751 (Y.T. Kok Dep. Tr.); CX-0743 (G.S. Kok Dep. Tr.); see also (Y.T. Kok Dep. Tr.) at 299:8–19, 299:20–300:3, 302:8–13, 300:19–25, 301:2–8; (CX-0746C (Chia Dep. Tr.) at 187:9-16; see also id. at 155:3-156:20; CX-0743C (G.S. Kok Dep Tr.) at 74:24-84:24.).
Moreover, when Mr. Y.T. Kok, Mr. G.S. Kok and Mr. Chia were each asked during their respective depositions whether any of the accused features in the Hytera Accused Products were developed using Motorola confidential information, they each invoked their Fifth Amendment right against self-incrimination and refused to answer. (CX-0751C (Y.T. Kok Dep. Tr.) at 299:20-300:3; CX-0746C (Chia Dep. Tr.) at 155:13-19 ('284 and ’991 patents); CX-0751C (Y.T. Kok Dep. Tr.) at 302:8-13 ('701 patent); CX-0751C (Y.T. Kok Dep. Tr.) at 299:8-19, 300:19-25 ('701 patent); CX-0751C (Y.T. Kok Dep. Tr.) at 301:2-8.). Their refusals to answer questions involved the ’284, the ’991 and the ’701 patents.

The content of the questioning of Mr. Y.T. Kok, Mr. G.S. Kok and Mr. Chia during their depositions, and their answers, were a variation on the questions and answers quoted below:

Q: . . . Was any aspect of the scan feature in Hytera’s DMR products developed using Motorola’s confidential information?

[Hytera’s counsel:] Fifth Amendment.

Q: Are you going to refuse to answer my question?

A: Yes.

***

Q: Was any aspect of the Pseudo Trunking feature in Hytera’s DMR products developed using Motorola’s confidential information?

[Hytera’s counsel:] Fifth Amendment.

***

Q: Was any aspect of [REDACTED] in its DMR products developed using Motorola’s confidential information?

[Hytera’s counsel:] Fifth Amendment.

Q: Are you going to refuse to answer my question?

A: Yes.
* * *

Q: Was any aspect of the Subscriber Inactivity Timer in Hytra’s DMR products developed using Motorola?

[Hytra’s counsel:] Fifth Amendment.

Q: Are you going to refuse to answer my question?

A: Yes.


Q: Okay. Isn’t it correct that you learned about pseudo-trunking technology from confidential communications with Motorola engineers and then took that technology to Hytra and used it in Hytra’s products?

[Hytra’s counsel:] We will be exercising our 5th Amendment protection.

Q: Are you going to follow your counsel’s instruction?

A: Yes, I am.

Q: Okay. You copied pseudo-trunking from Motorola; correct?

[Hytra’s counsel:] We’ll be exercising our 5th Amendment protection.

Q: Are you going to follow your counsel’s instruction?

A: Yes, I am.

(CX-0746C (Chia Dep. Tr.) at 155:13-19.).

Mr. Chia and Mr. G.S. Kok similarly invoked their Fifth Amendment right to avoid self-incrimination and refused to answer when each was asked whether he had downloaded confidential Motorola documents before leaving Motorola to work for Hytra.

Q: . . . Isn’t correct that in the months leading up to your departure from Motorola, you downloaded documents having Motorola confidential information to take with you to Hytra?

[Hytra’s counsel:] Fifth Amendment.

Q: You going to follow that instruction?
A: Yes.

(CX-0746C (Chia Dep. Tr.) at 187:9-16; see also id. at 155:3-156:20.).

Q: When you left Motorola in 2007, were there any documents regarding Motorola’s products that you took with you?

[Hytera’s counsel:] The witness is going to avail himself of his Fifth Amendment protections, and I will instruct him not to answer.

Q: And are you going to follow your counsel’s advice to exercise the Fifth Amendment?

A: Yes.

A: Yes.

Q: . . . In preparing to leave Motorola in 2007, did you collect nip documents regarding Motorola’s products, including its two-way radio products, to take with you?

[Hytera’s counsel:] Two objections. One, compound question, but the second is we will avail ourselves of our Fifth Amendment protections.

Q: And will you follow your counsel’s advice?

A: You bet.

Q: Yes?

A: Yes.

(CX-0743C (G.S. Kok Dep Tr.) at 74:24-84:24.).

Motorola contended that Messrs. Y.T. Kok’s, G.S. Kok’s and Chia’s refusals to answer questions during their depositions gives rise to an adverse inference that Hytera copied the accused features from Motorola’s confidential information. (CBr. at 79-80.).

Hytera argued that Messrs. G.S. Kok, Y.T. Kok, and Chia invoked their Fifth Amendment right against self-incrimination to avoid waiving their rights in a parallel
secret case Motorola brought against Hytera in Federal District Court.\(^8\) (RRBr. at 8.).
According to Hytera, “Motorola did not sue Messrs. Kok, Kok, and Chia, but accused them of crimes in the trade secret case, so those individuals were represented by separate counsel, not under Hytera’s control, who took positions contrary to Hytera’s interests or the wishes of Hytera’s counsel.” (Id. (citing CX-0743C at 3; CX-0746C at 2; CX-0751C at 2).). Hytera asserted that for this reason, no adverse inference about the import or significance of the Hytera Employee’s refusal to answer questions about possible theft of Motorola confidential information should be drawn. (Id.).

Although Hytera’s stated explanation may have been one of a number of reasons or the only reason why the Hytera Employees invoked their Fifth Amendment right against self-incrimination, the totality of Motorola’s damaging evidence gives rise to an inference that Messrs. G.S. Kok, Y.T. Kok and Chia did indeed copy some or all of the documents they accessed from Motorola’s COMPASS document management system. See, e.g., Baxter v. Palmigiano, 425 U.S. 308, 318 (1976) (concluding that “the Fifth Amendment does not forbid inferences against parties to civil actions when they refuse to testify in response to probative evidence offered against them”) (emphasis added);\(^8\) Greviskes v. Universities Research Ass’n, Inc., 417 F.3d 752, 758 (7th Cir. 2005).

Because of the unwillingness of the Hytera Employees to deny under oath that they


\(^8\) The Supreme Court distinguished the facts in Baxter, where the respondent “remained silent at the hearing in the face of evidence that incriminated him” from cases where there is no such evidence. Baxter, 425 U.S. at 318 (noting that “silence in and of itself is insufficient to support an adverse decision”).
copied and gave Hytera confidential Motorola information, and Hytera’s apparent complicity in these acts, an adverse inference is drawn here that Hytera intentionally copied Motorola’s patented technologies into the Accused Products. See LiButti v. United States, 107 F.3d 110, 123-24 (2d Cir. 1997) (“Whether these or other circumstances unique to a particular case are considered by the trial court, the overarching concern is fundamentally whether the adverse inference is trustworthy under all of the circumstances and will advance the search for the truth.”).

Moreover, as other sections of this decision find, Motorola presented persuasive evidence that certain accused features of Hytera’s Accused Products were developed from and/or encompass aspects of Motorola’s technologies described in the ’284, ’869, and ’701 patents.

For example, in Hytera’s “Software Requirements Specification for XPT,” Hytera expressly relied on a Motorola technical document as Hytera’s single “Reference & Standard” for implementing the ’284 accused XTP functionality. (CX-0315C.41; Tr. (Wicker) at 294:12-295:4, 297:12-302:1 (testifying about the same).)85 This was one of the documents Motorola relied upon to show infringement of the ’284 patent. (See Section VII.D.4, supra.). As explained in Section VII.D.4 above, based, inter alia, on this document and other evidence, it is a finding of this ID that the ’284 Accused Products infringe the ’284 patent.

85 Hytera’s counsel objected to Dr. Wicker’s testimony with respect to one of the Motorola technical documents that was accused of copying Motorola confidential information. Hytera was concerned that Mr. Wicker lacked the ability to testify to the foundation and authenticity of the document. The objection was overruled. (Tr. at 295:5-301:4 (“JUDGE MCNAMARA: . . . Now it’s up to me to decide as a factfinder whether he has made all the linkages. He mentioned that he reviewed the document, it came to Motorola through Hytera production. Ms. Zheng testified about the document. He reviewed the document. He has the expertise to explain how he knows what the legend or the Web -- the Web source is. Now it’s up to me as factfinder to decide if he made the links and if his testimony is credible and matches up.”)).
With respect to the ’869 patent, Hytera relied on a research document” as reflected in its “Software Requirement Specification” for the scan feature claimed in the ’869 patent. (CX-1408C.46; Tr. (Rangan) at 655:7-657:9 (“Q: How does DMR scan function relate to the ’869 patent? A: The ’869 patent precisely is about scan in a DMR system or two-way radio system more generally.”); see also Section VIII.C.1, supra, regarding discussion of this document for infringement purposes.).

Additionally, as Mr. Bohn, one of the ’701 patent inventors testified, Hytera copied almost verbatim material from a presentation that Mr. Bohn made about the ’869 patent’s features into one or more of Hytera’s technical presentations. (CX-0022C; Tr. (Bohn) at 128:8-23.). The relevant portion of the Motorola presentation is contained in CX-0022C.17, from which Hytera copied verbatim nearly every bullet under the figure. (Compare CX-0022C.17 with CX-0020.35.). The one bullet point that Hytera did not copy verbatim was changed to emphasize that Mr. Bohn’s improvement of using a “Short LC burst” can lead to a “scan time improvement,” which is a component of the ’869 patent. (See Tr. (Bohn) at 129:22-130:7; Tr. (Rangan) at 650:14-653:10; compare also, e.g., CX-0022C.14 with CX-0020.33 (showing copying)). Mr. Chia, the author of the copied presentation, pled the Fifth when asked questions about whether he copied this presentation and whether he copied Motorola’s scan improvements into the ’869 accused features. (CX-0746C (Chia Dep. Tr.) at 178:11-180:17.).

With respect to the ’701 patent, on August 9, 2004, Messrs. Chia and Y.T. Kok received an email from Tom Senese, a co-inventor of the ’701 patent, summarizing the invention. (CX-0003C.1, 3-4; Tr. (Wicker) at 423:11-426:11 (explaining, sentence-by-sentence, the relevance of the email to the ’701 patent)). When Mr. Chia arrived at Hytera, Mr. Zhe’s question to Mr. Chia about the “working process of the MOTO repeater” is relevant to rapid repeater re-keying since
Hytera’s repeaters use that feature. (See CX-1415C; CX-1416C (question 8)). Hytera also copied the [Redacted] from Motorola. (CDX-0005C-250; Tr. (Wicker) at 440:7-441:25 (explaining that Hytera’s [Redacted] repeaters to toggle between timeslots). When Mr. Y.T. Kok was asked whether Hytera’s [Redacted] was developed using Motorola information, he pled the Fifth and refused to answer. (CX-0751C (Y.T. Kok Dep. Tr.) at 302:8-13.).

In contrast to the patent-specific evidence Motorola presented supporting its assertion that Hytera copied certain accused features described in the ’284, ’869, and ’701 patents, Motorola relied on evidence and testimony that fails to supports its claim that Hytera copied the accused features claimed in the ’991 patent. (CBr. at 79.). Pointing to Hytera’s technical specification entitled the “Software Requirement Specification for the [Redacted],” Motorola asserted that Hytera “specifically admit[ed]” that it was “written based on the research and analysis on the [Redacted].” (CX-1404C.18.). However, the document never mentions Motorola or makes any indication that Motorola is the “competitor.” Motorola simply relied on a guess made by Hytera’s corporate representative on this topic, Ms. Zheng, that the “competitor” may have been Motorola. (CX-0749C (Zheng Dep. Tr.) at 80:14-17 (“Q: Do you know what ‘competitor’s’ refers to here? A: . . . What I can guess is the competitor here may be Motorola. That’s my own guess.”); see also Tr. (Wicker) at 341:13-24 (discussing Zheng’s testimony)).

Motorola also relied on a document entitled [Redacted] containing Mr. Chia’s

86 GPIO is an acronym for general input/output pin. (See CX-0750C (Zheng Dep. Tr.) at 228:25-229:7.).
analysis of Hytera’s [redacted]. (CX-2091C.). Contrary to Motorola’s assertions, Mr. Chia did not suggest using “a lot of Moto[rola] code.” (CBr. at 75 (citing CX-2091C.6-7.).) He instead explained that the use of Motorola’s code was “a concern.” (CX-2091C.0006.). As Hytera noted, Mr. Chia’s recommendation was to use a cheaper [redacted] or “realize a lot of the critical measurable algorithm in the [redacted] on our own.” (RRBr. at 7 (citing CX-2091C.0007)). He indicated there was a “[n]eed to change performance of the reuse algorithms,” not to “reuse algorithms” created by Motorola, as Motorola contended (CBr. at 76).

The persuasiveness of the circumstantial evidence, the findings of infringement of the Asserted Patents discussed in Sections VII.D, VIII.C, IX.B, and X.C, and the Hytera Employees’ invocation of their Fifth Amendment right to avoid self-incrimination in combination support a finding that Hytera copied Motorola’s patented technologies described in the ’284, ’869, and ’701 patents.

2. **Hytera Was Willfully Blind to Motorola’s Patent Portfolio**

Motorola argued that Hytera knew of the ’284 and ’991 patents by at least February 26, 2013. (CBr. at 80-81.). Motorola also asserted that Hytera had pre-suit knowledge of the ’869 and ’701 patents. (Id. at 81.). While the specific assertions may not be supported by direct evidence, Motorola nonetheless presented indirect evidence that Hytera was willfully blind to Motorola’s patent portfolio for the reasons discussed below.

With respect to the ’284 and ’991 patents, Motorola relied on a set of search results from the European Patent Office, dated February 26, 2013, that Hytera produced during discovery in this Investigation. (CX-1413.). Although Motorola’s expert, Dr. Wicker, provided testimony confirming that, for example, the application that eventually issued as the ’991 patent, was included in the search results (Tr. (Wicker) at 336:5-337:7), Motorola failed to establish the
source of the document (i.e., where it came from) or provide any evidence showing that Hytera became aware of these search results on February 26, 2013. (Tr. at 338:17-340:9, 340:21-341:8 (JUDGE MCNAMARA: . . . There may have been a search. We don’t know who conducted that search. The document itself only says that it was -- when it was done, and there’s no question on the face of the document it deals with patent -- or the document number that became the U.S. ’991 patent. That’s all [Dr. Wicker] knows. He then read the document, he knows the contents of the document. But Mr. Yoches has a point. He doesn’t know the source, who conducted the search. So that part is out[.]); see also CX-0750C at 231:16-232:14 (‘Q: . . . [D]o you know who at Hytera performed this search? A: I don’t know. By ‘I don’t know,’ I mean I don’t know whether there is such a search or who performed such a search.’").).

With respect to the ’869 patent, Motorola based its assertion on an undated presentation about unidentified Motorola patents that it alleged is “relevant” to the ’869 patent. (See CBr. at 81 (citing CX-0711.1C).87). As Hytera noted, the presentation never mentions the ’869 patent. (RRBr. at 42.). Motorola’s own expert, Dr. Rangan, testified that the presentation concerns aspects of dPMR that is only related to the ’869 patent in the sense that it is “broadly in the same area of two-way radios.” (Tr. (Rangan) at 654:13-655:6 (emphasis added)). However, at the time, Motorola was the dominant company in the two-way radio market.

With respect to the ’701 patent, Motorola pointed to the production of a copy of the ’701 patent and its PCT application from Hytera’s “files in this Investigation” as evidence that Hytera had pre-suit knowledge of the ’701 patent. (CBr. at 81 (citing CX-1910; CX-0506; Tr. (Wicker) at 421:12-21).). Motorola was unable to provide evidence that proved when Hytera obtained the

87 CX-0711C has been withdrawn.
document in question and, when Hytera, therefore, had knowledge of the ’701 patent.

While record evidence may not establish conclusively from the aforementioned documents that Hytera had pre-suit knowledge of the Asserted Patents, Motorola presented sufficient evidence, including that which was based upon Messrs. Y.T. Kok’s, G.S. Kok’s and Chia’s downloading of confidential Motorola documents in 2008, that involved many of the features of several of the Asserted Patents, that Hytera was willfully blind to the Asserted Patents and its infringement of them. *Global-Tech*, 131 S. Ct. at 2068-71 (holding that willful blindness may be sufficient to meet specific intent requirement if the defendant “subjectively believe[s] that there is a high probability that a fact exists” and “take[s] deliberate actions to avoid learning of that fact,” and that intent may be inferred from all circumstances).

Moreover, Motorola was able to provide other evidence that Hytera knew of Motorola’s patent portfolio and that Hytera’s copying of Motorola proprietary information could lead to infringement. For example, Hytera employees, including Mr. Chia, monitored the filing and issuance of Motorola patents related to Motorola’s new two-way radio technology, and were aware of Motorola’s patents and its patent portfolio. (*See, e.g.*, CX-0020.30 (Chia presentation at Hytera noting, with regard to synchronization patterns, that “[t]his is one of the essential patents by Motorola.”)). 88 Additionally, Hytera prepared internal presentations, one of which was entitled “Patent Analysis,” which documented that Hytera conducted searches and analyzed Motorola patents, and summarized what it characterized as “[f]eatures,” “[a]dvantage,” and “[r]eferential points.” (CX-0804C (Liang Dep) at 197:8-22 (Mr. Liang

88 When asked about this statement during his deposition, Mr. Chia invoked his Fifth Amendment right and refused to provide an answer. (CX-0746C (Chia Dep. Tr.) at 173:16-174:8.).
characterizing these as “‘[t]hings to be learned’ . . . or ‘borrowed’”.

Hytera’s Director of Products, Mr. Liang, and Manager of Hytera’s Project Management Department, Ms. Zheng, both testified that they were aware of Motorola’s patent portfolio. (CX-0750C (Zheng Dep. Tr. (Oct. 10, 2017)) at 234:10-18, 236:3-13; CX-0804C (Liang Dep. Tr. (Oct. 13, 2017)) at 187:3-188:12.).

Despite knowing about Motorola’s patents, and while Hytera unquestionably copied certain of Motorola’s patented technologies, Hytera acknowledged that it did not take any steps to avoid infringing Motorola’s patents. (CX-0750C (Zheng Dep. Tr.) at 232:18-233:23 (claiming she never searched for Motorola patents, or knows anyone who has), 237:23-238:6 (claiming she never read third-party patents); CX-0804C (Liang Dep. Tr.) at 187:3-188:12; see also CX-0751C (Y.T. Kok Dep. Tr.) at 45:12-46:3 (refusing to answer questions about steps taken to avoid infringing Motorola patents for fear of self-incrimination); CX-0746C (Chia Dep. Tr.) at 246:21-247:20 (same).).

For the foregoing reasons, the record evidence demonstrates, and it is a finding of this decision, that Hytera intentionally chose not to take steps to avoid knowledge of Motorola’s patented technologies despite a finding that Hytera did, indeed, know about Motorola’s patented technologies.

C. Motorola Has Proven Other Elements of Induced and Contributory Infringement

1. ’284 Patent

a) Hytera and Its Customers/Dealers Directly Infringe the ’284 Patent

Hytera and its customers directly infringe the ’284 patent by operating or selling the ’284 Accused Products in the United States with XPT and Pseudo Trunk in Repeater Mode and Direct Public Version
Mode enabled. Mr. Guan, Hytera American’s VP of Engineering, confirmed that it operates in the U.S. (CX-0745C (Guan Dep. Tr.) at 185:6-20, 312:4-16.). Hytera’s dealers confirmed that they sold, used, and tested__________/__________. (See, e.g., CX-0740C (Marcus Dep. Tr.) at 14:12-17, 16:18-21, 130:25-131:13, 210:14-25; CX-0747C (Guller Dep. Tr.) at 102:14-103:2, 247:13-21, 248:9-250:3; CX-0742C (Vayner Dep. Tr.) at 16:8-18:20.). “Load files” produced by Hytera’s U.S. dealers also show that__________/__________/__________/__________/________/ are enabled. For example, the load files in CX-1720C and CX-1729C show that__________/__________/__________/__________/__________/, respectively, are enabled. (Tr. (Wicker) at 256:15-258:7.). Similarly, CX-0735 shows__________ is enabled. (Id. at 258:8-14.).

For these reasons, Motorola has proven by a preponderance of evidence that Hytera and its customers directly infringe the ’284 patent.

b) Hytera Induced Infringement and Contributed to the Infringement of the ’284 Patent

Record evidence establishes that Hytera actively encourages, advertises, directs, intends, and teaches third parties to infringe the claims of the ’284 patent. As Dr. Wicker explained, multiple training materials from Hytera explain how to configure XPT and Pseudo Trunking in an infringing manner. (Tr. (Wicker) at 244:6-247:4, 247:23-250:4; CX-1309 (Hytera YouTube video explaining XPT setup);89 CX-0067C.11, 22 (Hytera documentation explaining ______ setup); CX-1322C.43, 52 (overview of Hytera’s __________ training course); CX-1295.19, 222-23, 387 (CPS help file detailing XPT configuration); CX-1269.10 (Hytera documentation explaining Pseudo __________)

89 CX-1309 was posted by “Hytera” on March 16, 2015. (See https://www.youtube.com/watch?v=C2144v2KccE (last accessed Feb. 13, 2018).
Trunking setup). Hytera’s witnesses confirmed that Hytera teaches customers to use the accused features. (CX-0745C (Guan Dep.) at 54:7-13, 55:7-56:6, 289:9-19, 315:15-24.).

Additionally, Motorola provided a sufficient quantum of evidence that the software that implements is a material part of the ’284 patent because it embodies all of the limitations of the asserted claims as discussed in Section VII.D above. (Tr. (Wicker) at 250:5-251:8.). Moreover, Hytera specially makes and designs the infringing components of the ’284 Accused Products (the processor, radio communication circuitry, power supply, and housing) for assembly into Hytera devices. Additionally, Hytera loads its devices accused of infringing the ’284 patent with software that infringes the ’284 patent. This applies particularly to Hytera devices in the Pseudo Trunking, in Repeater Mode, Direct Mode, and/or XPT Mode. (Id.). Those components have no substantial non-infringing uses: they are designed to be used in a radio running XPT or Pseudo Trunk software that would necessarily meet the asserted claims of the ’284 patent. (Id.).

For the foregoing reasons, Motorola has proven by a preponderance of evidence that Hytera induced the infringement and contributed to the infringement of the ’284 patent.

2. ’869 Patent

a) Hytera and Its Customers/Dealers Directly Infringe the ’869 Patent

Hytera and its customers directly infringe the ’869 patent by operating or selling the ’869 Accused Products in the United States with the scan feature enabled. (CX-0741C (Carlos Public Version Public Version
Cordova\(^9\) Dep. Tr.) at 83:7-11 (confirming that scan is enabled on products); CX-0742C (Vayner Dep. Tr.) at 49:3-14 (confirming that the scan feature is sold by a Hytera U.S. dealer). “Load files” produced by Hytera’s U.S. dealers that are used to program the ’869 Accused Products also show that scan is enabled for customers. (See, e.g., CX-0742 (Vayner Dep. Tr.) at 223:12-224:7 (discussing CX-0735).). Moreover, Mr. Guan, Hytera’s VP of Engineering of Hytera America, described scan as a “widely used feature” in the United States. (CX-0745C (Guan Dep. Tr.) at 227:10-228:13; see also Tr. (Rangan) at 684:21-686:21.).

For these reasons, Motorola has proven by a preponderance of evidence that Hytera and its customers directly infringe the ’869 patent.

b) **Hytera Induced Infringement and Contributed to the Infringement of the ’869 Patent**

Record evidence provided in this Investigation demonstrates that Hytera actively encourages, advertises, directs, intends, and teaches third parties to infringe the claims of the ’869 patent, including by describing how to configure the scan feature in an infringing manner. (Tr. (Rangan) at 657:10-658:20, 682:10-683:20; CX-1379C.11; CX-1295.129, 223 (information manual explaining how to program scan).). Hytera’s witnesses confirmed that Hytera teaches customers to use the accused features. (CX-0745C (Guan Dep. Tr.) at 55:7-56:17, 296:5-18, 298:13-24, 352:18-22.).

Motorola also presented persuasive evidence that the software that implements is a material part of the ’869 patent because it embodies all the limitations of

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\(^9\) At the time of his deposition on September 28, 2017, Mr. Carlos E. Cordova was the VP of Operations for Hytera America. (CX-0741C (Cordova Dep. Tr.) at 7:11-15; Tr. (Rangan) at 684:21-685:2.). Mr. Cordova collected “import records, clearance, customs” and “[e]ntry summaries” from Hytera America’s customs broker. (*Id.* at 11:6-22.).
the asserted claims, as discussed in Section VIII.C above. (Tr. (Rangan) at 683:21-684:15.).
Additionally, the infringing components (the processor, radio communication circuitry, power
supply, and housing) are specially made and designed by Hytera to be assembled into a Hytera
device and loaded with software that infringes the ’869 asserted claims, in particular for use of
the scan feature. (Id.). Moreover, the firmware implementing has no substantial non-infringing use: a subscriber that implements scan and is capable of running it
would necessarily meet the asserted claims of the ’869 patent. (Id.).

For the foregoing reasons, Motorola has proven by a preponderance of evidence that
Hytera induced the infringement and contributed to the infringement of the ’869 patent.

3. ’701 Patent

a) Hytera and Its Customers/Dealers Directly Infringe the ’701 Patent

Hytera and its customers directly infringed the ’701 patent by operating or selling the
’701 Accused Products, including the de-key and re-key features, in the United States. Hytera’s
customers use Hytera’s repeaters and subscribers together in an infringing system. (CX-1841
(St. Vincent’s hospital in Alabama using PD782 subscribers and RD982 repeaters); CX-1843
(Appleton Center in Wisconsin using PD682 and PD782 subscribers and RD982 repeaters); CX-
0747C (Guller Dep. Tr.) at 244:22-245:4 (Hytera U.S. dealer’s customers use repeater de-key as
“standard” setup); CX-0745C (Guan Dep. Tr.) at 65:2-9 (U.S. customer complaints about
repeater de-key/re-key and time-out timer), 208:9-24 (Hytera performs repeater re-key/de-key),
213:23-214:9 (same), 398:12-399:11 (as part of trade show demonstrations in U.S., Hytera uses
repeater de-key/re-key); Tr. (Wicker) at 419:4-420:24.).

For these reasons, Motorola has proven by a preponderance of evidence that Hytera and
b) **Hytera Induced Infringement and Contributed to the Infringement of the ’701 Patent**

Motorola presented evidence that Hytera actively encourages, directs, intends, and teaches third parties to infringe the ’701 patent, including by providing instructions on de-keying and re-keying, receiving customer complaints about de-keying/re-keying, and expecting customers to re-key and de-key the ’701 Accused Products. (See, e.g., CX-0745C (Guan Dep. Tr.) at 55:13-25, 56:22-24 (documentation on using repeater re-key/de-key), 65:2-9 (customer complaints about feature), 124:15-125:11 (Hytera suggests the subscriber inactivity timer be set to expire).

The record evidence also proves that the ’701 Accused Products are a material part of the ’701 patent because they practice the infringing method while they are operated normally as they were designed to operate. (Tr. (Wicker) at 419:11-19, 426:13-427:7.). Moreover, Hytera specially makes and designs the infringing components (the processor, radio communication circuitry, power supply, and housing) to be assembled into a Hytera device that infringes the ’701 asserted claims. The infringing components are loaded with software that practices the asserted claims of the ’701 patent. (Id.). The accused rapid re-key feature in the ’701 Accused Products also has no substantial non-infringing uses. Hytera products with that feature necessarily infringe the ’701 patent. (Id.).

For the foregoing reasons, Motorola has proven by a preponderance of evidence that Hytera induced the infringement and contributed to the infringement of the ’701 patent.
4. ’991 Patent

a) Hytera and Its Customers/Dealers Directly Infringe the ’991 Patent

Record evidence demonstrates that Hytera actively encourages, directs, intends, and teaches third parties to infringe the ’991 patent, including by providing training materials on how to configure Pseudo Trunk and TDMA Direct Mode. (See, e.g., CX-1379C.32, 33; CX-0745C (Guan Dep. Tr.) at 55:13-56:6, 120:8-13, 184:19-185:2, 284:9-285:15, 289:9-19 (same).) As Dr. Wicker explained, Hytera’s CPS help file, CX-1295, teaches customers how to set up Pseudo Trunk TDMA Direct Mode (Tr. (Wicker) at 343:10-344:1) and shows the options for Pseudo Trunk Direct Mode (CX-1295.223) and how to enable TDMA Direct Mode. (CX-1295.231.) Hytera also markets its Pseudo Trunk functionality in TDMA Direct Mode. (CX-754C.11.)

Additionally, the ’991 Accused Products with their associated software are material parts of the ’991 patent because they embody all the limitations of the asserted claims. (Tr. (Wicker) at 344:20-345:11.) Moreover, the infringing components (the processor, radio communication circuitry, power supply, and housing) are specially made and designed by Hytera to be assembled into a Hytera device that infringes the asserted claims, in particular for use of the Pseudo Trunk software with TDMA Direct Mode. (Id.) The use of TDMA Direct Mode and Pseudo Trunk Direct Mode has no substantial non-infringing use: a subscriber that implements
these features would necessarily meet the claims. (Id.). Moreover, Hytera’s knowledge of the ’991 patent indicates that it knew that products implementing Pseudo Trunk and TDMA Direct Mode were designed for a combination which was both patented and infringing.

For the foregoing reasons, Motorola has proven by a preponderance of evidence that Hytera induced the infringement and contributed to the infringement of the ’991 patent.

**b) Hytera Induced Infringement and Contributed to the Infringement of the ’991 Patent**

The record evidence demonstrates that Hytera actively encourages, directs, intends, and teaches third parties to infringe the ’991 patent, including by providing training materials on how to configure Pseudo Trunk and TDMA Direct Mode. (See, e.g., CX-1379C.32, 33 ( ), CX-0745C (Guan Dep. Tr.) at 55:13-56:6 ( ) , 120:8-13 ( ), 184:19-185:2 ( ), 284:9-285:15 ( ), 289:9-19 (same).). As Dr. Wicker explained, Hytera’s CPS help file, CX-1295, teaches customers how to set up Pseudo Trunk TDMA Direct Mode (Tr. (Wicker) at 343:10-344:1) and shows the options for Pseudo Trunk Direct Mode (CX-1295.223) and how to enable TDMA Direct Mode. (CX-1295.231.). Hytera also markets its Pseudo Trunk functionality in TDMA Direct Mode. (CX-754C.11 (identifying Hytera’s demonstration of the Accused Products at IWCE and other conferences in the U.S.).

Additionally, the ’991 Accused Products with their associated software are material parts of the ’991 patent because they embody all the limitations of the asserted claims. (Tr. (Wicker) at 344:20-345:11.). Moreover, the infringing components (the processor, radio communication
circuitry, power supply, and housing) are specially made and designed by Hytera to be assembled into a Hytera device that infringes the asserted claims, in particular for use of the Pseudo Trunk software with TDMA Direct Mode. \textit{(Id.)}. The use of TDMA Direct Mode and Pseudo Trunk Direct Mode has no substantial non-infringing use: a subscriber that implements these features would necessarily meet the claims. \textit{(Id.)}. Moreover, Hytera’s knowledge of the ’991 patent indicates that it knew that products implementing Pseudo Trunk and TDMA Direct Mode were designed for a combination which was both patented and infringing.

For the foregoing reasons, Motorola has shown by a preponderance of evidence that Hytera induced the infringement and contributed to the infringement of the ’991 patent.

**XII. DOMESTIC INDUSTRY REQUIREMENT: ECONOMIC PRONG**

**A. Legal Standard**

The Commission may only find a violation of Section 337 “if an industry in the United States relating to the articles protected by the patent . . . exists or is in the process of being established.” 19 U.S.C. § 1337(a)(2). Typically, a complainant must show that a domestic industry existed at the time a complaint was filed. \textit{See Motiva LLC v. Int’l Trade Comm’n}, 716 F.3d 596, 601 n.6 (Fed. Cir. 2013).

Section 337(a)(3) sets forth the following economic criteria for determining the existence of a domestic industry in such investigations that a complainant must satisfy:

\begin{itemize}
  \item[(3)] For purposes of paragraph (2), and industry in the United States shall be considered to exist if there is in the United States, with respect to the articles protected by the patent, copyright, trademark, mask work, or design concerned –
  \begin{itemize}
    \item[(A)] significant investment in plant and equipment;
    \item[(B)] significant employment of labor, or capital; or
    \item[(C)] substantial investment in its exploitation, including engineering, research and development, or licensing.
  \end{itemize}
\end{itemize}
Given that these criteria are listed in the disjunctive, satisfaction of any one of them will be sufficient to meet the economic prong of the domestic industry requirement. *Certain Integrated Circuits, Chipsets and Prods. Containing Same*, Inv. No. 337-TA-428, Order No. 10, Initial Determination (unreviewed) (May 4, 2000) ("Certain Integrated Circuits"). However, under Section 337(a)(3) a complainant must substantiate the nature and the significance of its activities with respect to the articles protected by the patent at issue. *Certain Printing and Imaging Devices and Components Thereof*, Inv. No. 337-TA-690, Comm’n Op. at 30 (Feb. 17, 2011). In explaining this, the Commission has also interpreted sections 337(a)(3)(A) and (B) to concern investments in plant and equipment and labor and capital “with respect to the products presented by the patent.” *Certain Ground Faults Interrupters and Prods. Containing Same*, Inv. No. 337-TA-739, 2012 WL 2394435 at *50, Commission Op. at 78 (June 8, 2012) (quoting U.S.C. §§ 1337(a)(3)(7)). It is not sufficient for the “substantial investment” under paragraph (C) to merely relate to articles protected by the asserted patents. Rather, “the complainant must establish that there is a nexus between the claimed investment and asserted patent regardless of whether the domestic- industry showing is based on licensing, engineering, research and development.” *Certain Integrated Circuit Chips & Products Containing*, Inv. No. 337-TA-845, Final Initial Determination, 2013 WL 3463385 at *14 (June 7, 2013) ("Certain Integrated Circuit Chips").

In other words, the domestic industry requirement consists of both an economic prong (concerning “the activities of or investment in a domestic industry”) and a technical prong (“whether complainant (or its licensees) practices its own patents.”). *Certain Elec. Devices, Including Wireless Commc’n Devices, Portable Music & Data Processing Devices, & Tablet Computers*, Inv. No. 337-TA-794, Order No. 88, 2012 WL 2484219, at *3 (June 6, 2012).
There is no mathematical threshold test or a “rigid formula” for determining whether a domestic industry exists. *Certain Male Prophylactic Devices, Inc.* Inv. No. 337-TA-292, Comm’n Op. at 39, USITC Pub. 2390 (June 1991). However, to determine whether investments are “significant” or “substantial,” the actual amounts of a complainant’s investments or a quantitative analysis must be performed. *Lelo Inc. v. Int’l Trade Comm’n*, 786 F.3d 879, 883-84 (Fed. Cir. 2015). Even after *Lelo, supra*, which requires some quantification of a complainant’s investments, there is still no bright line as to a threshold amount that might satisfy an economic industry requirement. It is the Complainant’s burden to show by a preponderance of evidence that each prong of the domestic industry requirement is satisfied. *Certain Prods. Containing Interactive Program Guide and Parental Control Tech.*, Inv. No. 337-TA-845, Final Initial Determination, 2013 WL 3463385 at*14 (June 7, 2013.). Moreover, the Commission makes its determination by “an examination of the facts in each investigation, the article of commerce, and the realities of the marketplace.” *Certain Male Prophylactic Devices*, Inv. No. 337-TA-546, Comm’n Op. at 39, USITC Pub. 4005 (May 2008) (quoting *Certain Double Sided-Floppy Disk Drives and Components Thereof*, Inv. No. 337-TA-215, Comm’n Op. at 17, USITC Pub. 1859 (May 1986.).

B. Motorola Has Satisfied the Economic Prong of the Domestic Industry Requirement Under Section 337(a)(A), (B), and (C)

1. Overview: Motorola Has Satisfied All Three (3) Prongs of the Economic Domestic Industry Requirement

Motorola has satisfied each of the three (3) prongs of the economic domestic industry (“DI”) requirement under prongs 19 U.S.C. § 1337(a)(3)(A) and (B) and (C). *Accord see Tr.*
While Hytera has claimed that Motorola has not satisfied the economic DI requirements because its investments in the United States and in the Asserted Patents are neither significant nor substantial, Hytera’s arguments are largely unavailing and fly in the face of the evidence. Hytera did not provide its own expert analysis of Motorola’s domestic industry or challenge Motorola’s financial information. Instead, Hytera made arguments: that Motorola’s “alleged investments” are “overinflated,” and “unreliable;” and that Motorola has failed to fulfill the nexus requirement of Section 1337(a)(3)(C) because Motorola has not established that its investments are tied to any specific features of its patents. (See generally RBr. at 83-85; at 83 n.26; RRBr. at 46-47.) Hytera also argued that Motorola’s attempt to qualify its investments in plant and equipment and labor and capital in relation to research and development (“R&D”) under Section 1337(a)(3)(A) and (a)(3)(B), and then also use R&D expenditures to qualify under 1337(a)(3)(C), renders the latter section to be “surplusage.” (Id. at 83-84.) Each of Hytera’s arguments is discussed in context below.

By its own description, Motorola “is an U.S. company with a history of significant domestic investments in support of its market-leading radio products business.” (CBr. at 89.). According to Motorola, and as supported by documentary evidence and testimonial evidence from Mr. Robert O’Keef, and Dr. Jonathan Arnold, both of whom generally testified credibly,

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91 When he testified during the evidentiary hearing on January 31, 2018 as Motorola’s expert on economic domestic industry and on bond, Dr. Jonathan Arnold held a B.A. in economics, an MBA in finance and accounting, and a PhD. in business economics from the University of Chicago. (Tr. (Arnold) at 753:3-10, 754:1:10, 754:14-19.).

92 When he testified on January 29, 2018, Mr. Robert O’Keef was Motorola’s Corporate Vice President of Finance. In that capacity Mr. O’Keef manages business financial analytics, operating financial analytics, R & D, supply chain and product manufacturing. (Tr. (Robert O’Keef) at 59:11-18.). Prior to that
Motorola employs “thousands of engineers, technicians, and contractors in the U.S., and has expended hundreds of millions of dollars in the U.S.” devoted to research and to develop its MOTOTRBO products covered by the Asserted Patents. (Id.). (CBr. at 89.).

Motorola described its investments in its domestic industry as falling into four (4) categories. First, Motorola carries out most of its R&D activities in the United States, which include research, engineering, product development and testing, and product support which take place largely in Motorola’s Schaumburg, Illinois and Plantation, Florida facilities. (CPBr. at 95; CBr. at 89; Tr. (O’Keef) at 66:6-22, 71:7-12). A second area of Motorola’s investments is in its supply chain. Motorola’s MOTOTRBO products, the products Motorola used to establish its domestic industry and as covered by certain Asserted Patents, are manufactured in “phases.” (CPBr. at 95; CBr. at 89.). After are manufactured in Malaysia, they are sent to Motorola’s Elgin, Illinois facility where a contractor, , performs a final assembly, installs software, configures the radios, and customizes the radio products for Motorola’s customers, and then prepares the products for distribution. (CPBr. at 95; CBr. at 89; (Tr. (O’Keef) at 66:15-22; 81:2-82:23).) Third, Motorola offers hardware and software servicing, support and maintenance for the products it has sold in the United States tied to its position, Mr. O’Keef served as Motorola’s Corporate Vice President and Treasurer. (Tr. (O’Keef) at 60:15-16). Mr. O’Keef prepared the financial information contained in the Declaration attached to the Complaint and testified with respect to the financial information that Motorola maintains. (Id. at 60:19-25; 68:19-24; see also Compl. at Ex. 53.). The financial information that Motorola used in this Investigation is and complies with standards that must be maintained by a publicly traded company. (Tr. (O’Keef) at 69:12-70:12). Mr. O’Keef also testified generally about the history and development of Motorola’s two-way radio communications business. (See generally, Tr. (O’Keef) at 62:8-63:25). Mr. O’Keef noted that Motorola invented and provided the communication system that Astronaut John Glenn used when he orbited the earth in 1962. In 1969, Astronaut Neil Armstrong used one of Motorola’s transponders to broadcast his message from the moon to earth. (Tr. (O’Keef) at 63:12-17.). Mr. O’Keef has a BA in finance from the University of Wisconsin, and an MBA from Northwestern in finance and accounting. (Tr. (O’Keef) at 68:12-14.).
products as well as to other products to ensure they keep working for the customers. (CPBr. at 95; CBr. at 89; Tr. (O’Keef) at 84:17-85:12).

Finally, Motorola and its contractors provide domestic management and support services for its customers, which include technical support operations, network security and security monitoring in customer call centers, data centers and support for disaster recovery operations. (CPBr. at 95; CBr. at 89; Tr. (O’Keef) at 88:6-89:14.). Each of Motorola’s investment categories has been accepted as appropriate domestic industry investments under Commission precedent. See, e.g., Certain Pers. Data & Mobile Commc’ns Devices & Related Software, Inv. No. 337-TA-710, Order No. 102, 2011 WL 1576536 at *2 (Apr. 6, 2011) (domestic industry investments “include distribution, research and development and sales”); Certain Video Displays, Components Thereof, & Prods. Containing Same, Inv. No. 337-TA-687, Order No. 20 (May 20, 2010) (finding domestic industry based on customer support and assistance activities).

While Motorola tied its domestic, contractor-related expenditures to only certain services after the radios are assembled and did not rely exclusively on contractor expenditures, as Motorola noted correctly, the economic prong of domestic industry may be established even where the expenditures are based “exclusively on the activities of a contractor licensee.” (CBr. at 89 (citing Certain Male Prophylactic Devices, at *10; see also Certain Silicon-on-Insulator Wafers, Inv. No. 337-TA-1025, Initial Determination that Complainant Silicon Genesis Corporation Has Satisfied Contingently the Economic Prong of the Domestic Industry Requirement, at 14-17 (Feb. 8, 2017) (where a domestic industry was found to have been
established solely through a licensee).\textsuperscript{93}

Additionally, as Motorola also noted correctly, although it included in its domestic industry investments activities that include sales and distribution, there is Commission precedent that supports including sales and distribution operations in domestic industry investments. (See CBr. at 89 n.27 (citing Certain Pers. Data & Mobile Commc’ns Devices & Related Software, Inv. No 337-TA-710, Order No. 102, 2011 WL 1576536 at *2 (Apr. 6, 2011)).

2. Motorola’s Investments in Plant and Equipment Satisfy Section § 1337(a)(3)(A) and They Are Substantial

Between January 2014 through December 2016, or up to approximately three (3) months before it filed its Complaint, Motorola spent approximately [redacted] in building facilities, primarily in Schaumburg, Illinois and Plantation, Florida, that are related to Motorola’s [redacted] products. (CBr. at 90.). During the first two (2) quarters of 2017, Motorola spent an additional [redacted] on the same items. (CBr. at 90; see also Tr. (Arnold) at 761:6-765:5; CX-1129C; CX-1130C; CX-1210C; CX-1082C; CX-1208C; CX-1204C.).

Generally, Dr. Arnold, who testified with respect to the details of Motorola’s economic DI evidence, relied upon the financial data that was prepared at Mr. O’Keef’s direction. (See CX-1082C; CX-1100; CX-1124-1128C; CX-1129C; CXCX-1130C; CX-1136C; CX-1144C; CDX-0004.3.).

Dr. Arnold defined plant and equipment as various real estate-related structures such as office buildings, warehouses and production facilities, including investments in equipment. (Tr. 93 The Commission chose not to review the Initial Determination, “Notice of Commission Determination Not to Review an Initial Determination Finding That Complainant Has Satisfied Contingently the Economic Prong of the Domestic Industry Requirement, Doc. ID No. 605244 (Mar. 10, 2017.).
(Arnold) at 758:7:15.). Dr. Arnold tied Motorola’s 2014 through second quarter 2017 plant and equipment expenditures specifically to the “service investment category and also the R&D category.” (Id. at 785:14-16; see also CDC-0007C-6; CX-1136C; CX-1205C; CDX-0007C-7.).

Dr. Arnold used a sales-based allocation method to allocate Motorola’s investments, a methodology that the Commission accepts. (See e.g., Certain Beverage Brewing Capsules, Components Thereof, and Products Containing Same, Inv. No. 337-TA-929, Initial Determination at 111 (Sept. 16, 2015) (citing Certain Stringed Musical Instruments and Components Thereof, Inv. No. 337-TA-586, USITC Pub. No. 4120, Initial Determination, Comm’n Op. at 25-26 (Dec. 2009); see also Certain Table Saws Incorporation Active Injury Mitigation Tech & Components Thereof, Inv. No. 337-TA-965, Order No. 10, 2016 WL 2770229, at *9-10 (Mar. 22, 2016.). For Motorola’s plant and equipment-related expenditures, Dr. Arnold took that portion of the plant and equipment expenses attributable to MOTOTRBO products, based on MOTOTRBO sales as a percentage of all the Motorola’s radio product sales in the United States. (Tr. (Arnold) at 759:4-9, 759:20-760:25 (relying on CX-1136C; CX-1204C).). Using that same methodology, Dr. Arnold calculated the ratio of services-related R&D building costs to total domestic R&D costs, and then applied that ratio to Motorola’s domestic MOTOTRBO costs. (Tr. (Arnold) at 761:6-765:5 relying on CX-1129-C; CX-1130C; CX-1210C; CX-1082-C; CX-1208C and CX-1204C.). Figure No. 22, below, reflects Motorola’s Section 337(a)(3)(A) plant and equipment expenditures related to Motorola’s domestic services and R&D:

94 Motorola’s global sales, as testified to by Mr. O’Keef, were some in 2016 and in 2017. (Tr. (O’Keef) at 72:7-10, 101:5-8.).
Figure No. 22: Motorola’s Expenditures for Plant and Equipment

(CBr. at 90 (citing Tr. (Arnold) at 761-765:5; CX-1130C; CX-1210C; CX-1082C; CX-1208C; CX-1204C; CDX-0007C-9).).

Again, using a sales-base allocation method, Dr. Arnold allocated Motorola’s investments to each of the MOTOTRBO products that Motorola alleged practiced the four (4) patents: ’869, ’701, ’284 and ’991.

Figure No. 23: Motorola’s Allocation of its DI Investments to Articles Covered by Certain Asserted Patents

(CBr. at 90 (citing Tr. (Arnold) at 765:14-769:3; 812:1-813:20; CX-1204C).).

While Motorola’s raw numbers for plant and equipment are sufficient to establish Motorola’s significant investments under Section 1337(a)(3)(A), Hytera is correct that there appears to be something of a problem with the allocations to the DI MOTOTRBO products, but not to the extent that Hytera has represented.

Hytera argued that Dr. Arnold included one repeater product, the SLR 8000 series, as part of the allocation for the ’284 and ’701 patents in his calculations even though Dr. Wicker, another of Motorola’s experts, did not identify a domestic industry product for the ’284 and ’701 patents. (CBr. at 90 n.28.). That omission, which Motorola has identified as an “oversight,” led
Hytera to argue that Dr. Arnold’s patent-by-patent allocation was skewed because it included the SLR 8000 series and that made both Dr. Arnold’s and Dr. Wicker’s testimony “unreliable” and Motorola’s investments “inflated.” (CBR. at 90 n.28; RBR. at 84; RRBR. at 47-48.).

Notwithstanding its legitimate critique, Hytera’s argument is overly broad and not persuasive. The fact that there was an omission in one expert’s testimony and it did not align precisely with another expert’s testimony does not render the entirety of each person’s testimony to be “unreliable.” At worst, there is inconsistency in testimony; at best, an oversight. Moreover, since this decision has found that the ’284 patent does not satisfy the technical prong of the domestic industry requirement, the plant and equipment expenditures that Dr. Arnold allocated to the ’284 patent should be eliminated from the calculations, thereby eliminating (or rendering moot) Hytera’s argument. Nonetheless, as Motorola pointed out, Motorola’s plant and equipment expenditures would still be sufficient to meet § 1337(a)(3)(A). (CBR. at 90 n.28.).

Hytera also argued that if R&D expenditures from Figure No. 22, above, are eliminated, and only Motorola’s plant and equipment expenditures related to the “Services” category are considered, then Motorola has spent less than $ per year on plant and equipment since 2014, and the amount has declined. (RBR. at 85.). Given the stripped-down figures, Hytera stated that Motorola’s expenditures are “insignificant” in comparison with Motorola’s size and global expenditures. In other words, if only Motorola’s plant and equipment expenditures related to “Services” are credited as satisfying § 1337(a)(3)(A) then Motorola actually spent less

95 On cross-examination, Dr. Arnold acknowledged to Hytera’s counsel that if any of Hytera’s products did not infringe, or if it could be proven that Motorola’s products on which Dr. Arnold relied did not practice at least one claim of a patent, any such investments could not be used to support economic domestic industry. (Tr. (Arnold) at 800:1-25.). That is correct legally, and Dr. Arnold was consistent in his positions.
than ¼ of the total represented in Figure No. 22 on plant and equipment. (RBr. at 83-84.). If that argument were fundamentally accurate and based on accepted precedent, then Hytera would be correct. Given Motorola’s size and considering its global sales, expenditures of less than [redacted] per year on plant and equipment related to the domestic products at issue might be insignificant. However, Hytera’s premise is incorrect. Moreover, Hytera’s argument is inconsistent with its own argument that R&D expenditures related to Motorola’s services category should not be considered at all.

The gravamen of Hytera’s argument is that Motorola’s plant and equipment expenses related to § 1337(a)(3)(A) and (a)(3)(B) do not count if they are expenditures related to R&D. (RBr. at 83-84.). Hytera’s argument is not supported in law. Commission precedent upon which Hytera relied in which the exact same argument was made, i.e., Certain Electric Skin Care Devices, Brushes, & Chargers Therefor, & Kits Containing the Same, Inv. No. 337-TA-959, Comm’n Op. (Feb. 13, 2017), was expressly rejected by the Commission. (Id. at 8-10.). To the contrary, there is ample Commission precedent which specifically permits tying equipment and plant, or labor to R&D under § 1337(a)(3)(A) or (a)(3)(C). See, e.g., Certain Lithium Metal Oxide Cathode Materials, Lithium-Ion Batteries for Power Tool Prods. Containing Same, & Power Tool Prods. with Lithium-Ion Batteries Containing Same, Inv. No. 337-TA-951, Initial Determination at 16 (Feb. 29, 2016) (finding that investment in an R&D facility “may qualify under either subsection (A) or (C) of Section 337(a)(3)”); Certain Silicon Microphone Packages & Prods. Containing Same, Inv. No. 337-TA-888, Order No. 47, 2014 WL 2738540, *5-7 (May 8, 2014) (finding that complainant’s labor or capital investments for engineering and research development qualified as investments under subsection (B) and subsection (C)); Certain Table Saws Incorporating Active Injury Mitigation Tech. & Components Thereof, Inv. No. 337-TA-
965, Initial Determination, 2016 WL 2770229, at *4-5 (Mar. 22, 2016) (finding the economic prong satisfied after including R&D and engineering employees in labor investments under subsection (B)).

In any event, if Motorola’s expenditures under § 1337(a)(3)(A) alone are not enough to satisfy the economic DI requirement, the Motorola’s expenditures under § 1337(a)(3)(B) are sufficient. This decision finds that Motorola made significant investments in plant and equipment that continued even after the filing of the Complaint.

3. **Motorola’s Investments in Labor or Capital Satisfy Section § 1337(a)(3)(B).**

   Between 2014 and 2016, Motorola invested approximately and “at least” during the first half of 2017 on its domestic labor costs for R&D-related services, service delivery operations and supply chain operations for its MOTOTRBO products. (CBr. at 91.). Hytera did not challenged these figures.

   To calculate Motorola’s labor costs related to its MOTOTRBO products, Dr. Arnold used a raw labor headcount for employees in Schaumburg, Illinois and Plantation, Florida, and then multiplied the average salary per person by the R&D headcount for MOTOTRBO. (CBr. at 91 (citing Tr. (Arnold) at 771:21-773:5; CX-1122C; CX-1123C; CX-1124C; CX-1128C).). In a second step, Dr. Arnold multiplied the hardware maintenance costs by the ratio of MOTOTRBO product sales to total commercial and P25 sales. (CBr. at 92 (citing Tr. (Arnold) at 773:6-775:2; CX-1136C; CX-1205C; CX-1204C).). For labor and capital for the services delivery operations, Dr. Arnold took the relevant percentages of certain departments and line items (identified and provided by Motorola employees). (CBr. at 92 (citing Tr. (Arnold) at 775:3-776:16; CX-1100C; CX-1206C).). For the labor for supply chain operations, he applied the ratio of MOTOTRBO
direct materials costs (as a portion of total direct material costs in the Elgin facility) to the total outsourced labor costs (to Motorola’s contractors). (CBr. at 92 (citing Tr. (Arnold) at 776:17-778:13; CX-1144C; CX-1209C).). The expenditures that result from Dr. Arnold’s calculations are as follows:

**Figure No. 24: Capital or Labor**

(CBr. at 92.).

Dr. Arnold used a sales-based method described above to allocate the investments to the products covered by the Asserted Patents. (CBr. at 92 (citing Tr. (Arnold) at 778:19-779:17; CX-1204C).).

**Figure No. 25: Allocation of Capital or Labor Expenditures to Patents**

(CBr. at 92.).

Even if the expenditures for labor or capital allocated to the ’284 patent are eliminated from Figure No. 25 (because this decision finds that the ’284 patent does not satisfy the technical prong), there can be little doubt that Motorola’s expenditures on domestic labor for the MOTOTRBO products were significant at the time of the filing of the Complaint and continued
to be through the second quarter of 2017.

4. **Motorola’s Investments in R&D and Engineering Satisfy Section § 1337(a)(3)(C) and Are Substantial.**

   Between 2014 and 2016, Motorola spent [redacted] for MOTOTRBO related R&D and [redacted] during the first six months of 2017. To identify MOTOTRBO R&D investments, Dr. Arnold identified the ratio of domestic to global R&D costs, and then applied that ratio to calculate Motorola’s domestic R&D commercial costs. (See Tr. (Arnold) at 781:3-783:15; CX-1129C; CX-1130C; CX-1210C; CX-1082C; CX-1208C.). Dr. Arnold then allocated U.S. commercial R&D costs specifically to MOTOTRBO using MOTOTRBO’s sales as a percentage of its total commercial domestic sales. Motorola’s expenditures in domestic-related R&D are presented as follows:

   **Figure No. 26: Motorola’s Domestic Expenditures for R&D**

   (See CBr. at 92.).

   Using the same methodology (and the same ratios) as calculated for its domestic R&D expenditures, Dr. Arnold then allocated Motorola’s domestic R&D expenses related to the MOTOTRBO products to the Asserted Patents as follows:

   **Figure No. 27: Motorola’s Domestic Expenditures for R&D by Patent**

   (See CBr. at 90 (citing Tr. (Arnold) at 765:14-769:3; 812:1-813:20; CX-1204C).).
Throughout the Investigation, Hytera has argued that Motorola has not satisfied the economic prong of the domestic industry requirement because it cannot establish a nexus between its domestic R&D expenditures and the Asserted Patents. (RPBr. at 92; RBr. at 86; RRBr. at 47.). Hytera has argued that Motorola did not apply a “product by product” analysis or prove that it made investments in specific “articles” or “features” exploited by the Asserted Patents. (RBr. at 86; RRBr. at 49.). It appears that Hytera has argued this for each subsection of § 1337(a)(3).

As Motorola also has argued consistently, the MOTOTRBO products are the “articles” or “products” (Motorola has used these terms interchangeably) protected by the Asserted Patents. (CBr. at 91; CRBr. at 45-47.). Motorola has also consistently argued that the MOTOTRBO products are each covered by all of the Asserted Patents and that no product-by-product allocation is required. (CBr. at 91; CRBr. at 49.). Because there is an overlap in the fact that MOTOTRBO products are protected by or exploit multiple patents, a domestic industry has been established for each patent. (Id.). Motorola has relied on established Commission precedent that there is no requirement that investments allocated to one patent be distinct from investments allocated to another patent. (CBr. at 91 (citing Certain Table Saws Incorporating Active Injury Mitigation Tech. & Components Thereof, Inv. No. 337-TA-965, Order No. 10, 2016 WL 2770229, at *9-10 (Mar. 22, 2016) (finding investments covering multiple products which practiced multiple asserted patents satisfied the economic prong after explaining that “reasonable allocations” are sufficient).).

Motorola has argued effectively that the MOTOTRBO products are at the “epicenter” of each of the four categories of investments described above. (CBr. at 94 (citing Tr. (O’Keef) at 71:5-21).). Motorola also argued that because it could not sell its MOTOTRBO products without
the activities it undertakes in the United States, there is no question that its investments are significant and substantial. (CBr. at 94 (citing Certain Male Prophylactic Devices, Comm’n Op. at 40).). By any measure, relative or quantitative, it is a finding of this decision that Motorola has established that it has proven the existence of an economic domestic industry, and that its investments are significant and substantial.

XIII. RECOMMENDATION ON REMEDY AND BOND

A. A Limited Exclusion Order is Warranted

When a violation of Section 337 is found, the Commission has the discretion to decide upon the form, scope and extent of a remedy. Certain Flash Memory Circuits, Inv. No. 337-TA-382, Comm’n Op. at 27 (Jun. 26, 1997); Viscofan, S.A. v. Int’l Trade Comm’n, 787 F.2d 544, 548 (Fed. Cir. 1986). The remedy must be reasonably related to the finding of violation. Hyundai Elecs. Indus. Co. v. U.S. Int’l Trade Comm’n, 899 F.2d 1204, 1209 (Fed. Cir. 1990). The Commission may issue a limited exclusion order (“LEO”) directed against only the infringing products that are found to be in violation, or a general exclusion order (“GEO”) directed against all infringing products. 19 U.S. C. § 1337(d). Motorola has requested a LEO directed to all of Hytera’s Accused Products, including Hytera’s “new designs.” (CBr. at 98). However, while Motorola styles its request as a LEO, Motorola’s argument appears to be a request for a GEO. (CBr. at 98.). However, in this instance, a GEO is not appropriate because the Commission may issue a GEO under Section 337(d)(2) only when at least one of two conditions is met:

(A) a general exclusion from entry of articles is necessary to prevent circumvention of an exclusion order limited to products of named persons; or

(B) there is a pattern of violation of this section and it is difficult to identify the source of infringing products.

The record evidence does not support a finding that a GEO is appropriate because Motorola did not provide evidence either before or during the evidentiary hearing that would support either of the two requirements of 19 U.S.C. § 1337(d)(2). See Certain Cases for Portable Electronic Devices, Inv. Nos. 337-TA-861/867, Comm’n Op. at 9-10 (June 20, 2014) (Commission found evidence of pervasive internet auctions selling counterfeit products covered by the asserted patent, which demonstrated that respondents could circumvent a LEO); see also Certain Ground Fault Circuit Interrupters & Prods. Containing Same, Inv. No. 337-TA-739, Comm’n Op. at 87-92 (June 8, 2012) (“Certain GFCI”) (Commission rejected argument that a complainant must name all known respondents and refusing to carve a non-named party from the GEO). The type of evidence required to support a GEO is suggested by Certain GFCI. In that case, the Commission found that evidence showed that some respondents may have been attempting to circumvent a LEO issued in an earlier investigation, and that some respondents and other possible manufactures had “a propensity and ability to change names and corporate forms.” Certain GFCI, Comm’n Op. at 88-89.

With respect to the second requirement of 19 U.S.C. § 1337(d)(2), Motorola has not provided evidence that would support a finding that the source of the infringing products in this Investigation would be difficult to identify. At best, Motorola has offered unsupported attorney argument and speculative assumptions that Hytera would circumvent a LEO. Motorola did not address if or why the infringing products would be difficult to identify, especially if a CDO issues with a certification provision. There is no evidence of any type in this case to support a GEO.

While Hytera has argued from the outset of this Investigation that it has not infringed the patents at issue, Hytera’s fallback position is that a LEO should be limited to only those products
found to infringe. Hytera also argued that all of its “New Accused Products” or its “new
designs” should be exempt from an exclusion order. However, in Section VII.E, even Hytera’s
redesigned products related to the ‘284 patent have been found to infringe. Consequently, they
would be subject to a LEO. The infringing products can be found in Section V.A. and include
the ‘284 Redesigned Products, PD502i, PD562i, PD602i, PD662i, PD682i, PD702i, PD752i,
PD782i, PD792i, PD982i. (RBr. at 86.).

Additionally, while Hytera requested that it be allowed to continue to service and repair
any products previously sold to its customers before the effective date of a LEO, Hytera did not
provide factual support for its request beyond an average number of units per month Hytera has
in inventory. (See generally, RPBr. at 94-96; RBr. at 86.). Hytera provided no other information
about its customers or the services they might need. Even though virtually all of Hytera’s
Legacy Accused Products have infringed all of the Asserted Patents, and given Motorola’s
market dominance of approximately [redacted] of the DMR market, it would seem logical that
Motorola would be able to service Hytera’s customers in the United States. However, Motorola
did not offer any testimony on this issue during the evidentiary hearing, and did not provide any
information on this point in any of its Pre-Hearing or Post-Hearing Briefs. It appears that this
may be an issue on which the Commission may wish to seek additional information from the
Parties. However, given the state of the evidence, a decision could go either way whether Hytera
should be able to continue to provide services to its own customers in the United States so long
as there is a finely crafted certification provision. The Commission may need to gather facts
from the Parties that they did not provide during the evidentiary hearing or in other unequivocal
evidence.

In any event, a LEO is recommended for the Accused Products found to infringe,
including Hytera’s ’284 Redesigned Products.

B. A Cease and Desist Order Is Warranted


According to testimonial and documentary evidence provided during the evidentiary hearing, as of August 2017, Hytera had some _______ of its Accused Products worth some _______ in inventory in the United States. (See CRBr. at 50 (citing CX-0789C.73-85)).96 Hytera’s inventory in the United States appears to be relatively steady on a monthly basis.

Hytera argued against a CDO. However, Hytera has not disputed the commercial significance of its domestic inventory in any of its briefs. (See RPBr. at 95; RBr. at 87; RRBr. at 50.). Neither has Hytera explicitly argued for a CDO with a certification provision in any of its briefs. (Id.). Hytera’s briefs were virtually devoid of any discussion of this possible remedy

96 Motorola acknowledged in its Post-Hearing Reply Brief that it made an error in its Post-Hearing Brief in citing to a value of the Hytera’s inventory in the United States. (CRBr. at 50 n.18.).
because Hytera relied throughout on a steadfast argument that they have not violated Section 337. (Id.).

By contrast, Motorola’s position since the outset of this Investigation has been that a CDO is necessary to prevent Hytera from “stockpiling” infringing products prior to the issuance of a LEO and to prevent Hytera from “circumventing” a LEO. (See CPBr. at 100 (citing Certain Sys. for Detecting & Removing Viruses or Worms, Components Thereof, & Prods. Containing Same, 337-TA-510, Comm’n. Op. at 5 (Aug. 23, 2005); see also Compl. at 39; CBr. at 99; CRBr. at 50.).

Clearly, this decision agrees at least in part with Motorola’s position, in that a CDO is recommended. However, there is no evidence from any source that Hytera would be likely to circumvent a LEO. Moreover, although Hytera failed to provide support for its conclusory request for a certification provision in the event it was found to be in violation of Section 337, this decision recommends a certification provision even if simply to assist Customs and Border Protection (“CBP”) in enforcing the Commission’s remedial orders. In a relatively recent case, Certain Multiple Mode Outdoor Grills and Parts Thereof, Inv. No. 337-TA-895, Comm’n Op. at 61 (Feb. 20, 2015), the respondent argued that a certification provision was unnecessary because the asserted claims were neither product-by-process claims nor claims that covered products that would require complicated and costly reverse engineering to determine infringement. (Id. at 56.). Nonetheless, the Commission enunciated a preference for a certification provision as follows: “However, it has been Commission practice for the past several years to include certification provisions in all exclusion orders to aid Customs and Border Protection (“CBP”) in enforcing the Commission’s remedial orders.” (Id.). That Commission policy may apply here.

C. A Bond Is Warranted During the Presidential Review Period

Even if the Commission enters a LEO, a CDO or both, during an interim 60-day
Presidential Review Period (“PRP”), the affected articles may be sold under bond. However, the
amount of a bond must “be sufficient to protect complainant from injury.” 19 C.F. R.
§ 210.50(a)(3); see also 19 U.S.C. § 1337(j)(3). It is Motorola’s burden in this Investigation to
establish both the propriety and amount of any bond during the PRP. See, e.g., Certain
Coenzyme Q-10 Prods. and Methods of Making Same, Inv. No. 337-TA-790, Order No. 16, 2012
WL 14244633 at *175-177 (Mar. 20, 2012). Typically, a bond during the PRP is based either on
a reasonable royalty rate or on a price differential between complainant’s and respondent’s
products. See, e.g., Certain Plastic Encapsulated Integrated Circuits, Inv. No. 337-TA-315,
Comm’n Op. on Issues Under Rev. & on Remedy, Public Interest, & Bonding, at 45, USITC
Pub. No. 2574 (Nov. 1992) (setting the bond based on a reasonable royalty); Certain Mobile
3715788, at *19-20 (June 5, 2012.) (setting bond based on reasonable royalty rate); see also
Certain Microsphere Adhesives, the Process for Making Same, and Products Containing Same,
Including Self-Stick Repositionable Notes, Inv. No. 337-TA-366, Comm’n Op. at 24, USITC
Pub. NO. 2949 (Jan. 1996) (setting bond based on price differential between domestic products
and lower-priced imports).

Motorola contended that if necessary, a bond should be set during the 60-day Presidential
Review Period (“PRP”) at 44% of the value of the Accused Products which Motorola says would
be “appropriate” to offset the harm to Motorola’s competitive lost profits. (CBr. at 99 (citing Tr.
(Arnold) at 786:12-789:12.). To calculate an appropriate entered bond value, Motorola relied
upon its bond expert, Dr. Jonathan Arnold, to calculate the value of Motorola’s lost sales if
Hytera continued to import competing digital mobile radios during the PRP. (Tr. (Arnold) at
787:1-12.). According to Dr. Arnold’s review of Hytera’s sales figures, and based upon his
assumption that the Hytera’s sales stayed relatively constant year to year, Dr. Arnold testified that Hytera imported approximately [redacted] in competing digital mobile radios products between January 1, 2016 and May 4, 2017. (See Tr. (Arnold) at 788:1-4 (citing CX-1612C; see also CBr. at 99; CX-1612C.2-4).). Dr. Arnold testified that Motorola’s market share of sales is approximately 69% while Hytera’s share of the digital radio market is approximately 5%. (Tr. (Arnold) at 788:5-6 (citing CX-1202C).). Hytera did not dispute these market share figures. Dr. Arnold then calculated that for every [redacted] in sales that Hytera makes, and assuming absorption ratably of Hytera’s 5% share by Motorola and the other competitors, Dr. Arnold calculated that Motorola would lose some $1.94 million in sales. (Tr. (Arnold) at 788:1-21). Then, Dr. Arnold [redacted] for Motorola’s MOTOTRBO products for a conclusion that Motorola is losing some $1.18 million for every [redacted] in sales that Hytera makes. (Id. at 788:18-24 (citing CX-1204C; CX-1202C; see also CBr. at 99; CPBr. at 100 (citing CX-1200C; CX-1201C; CX-1202C; CX-1203C;[97] CX-1204C).). Based upon those figures, Dr. Arnold recommended a bond of $1.18 million (based on a loss of [redacted] for Motorola for every dollar of Hytera’s sales), or 44% of Hytera’s expected sales during the PRP, pro-rated (or $1.18 million divided by $2.67 million. (Id. at 788:24-789:1-5; CBr. at 99; CRBr. at 50; CPBr. at 100.).

As with Hytera’s other arguments on remedy, Hytera has contended throughout the Investigation that a bond is not warranted. (RPBr. at 95-96; RBr. at 88; RRBr. at 50.). Hytera did not challenge either its own sales figures that Motorola used, or Motorola’s and Hytera’s respective shares of the DMR market. (Id.). Instead, Hytera argued from the outset that a zero

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[97] CX-1203C has been withdrawn.
(0) bond is appropriate. One of Hytera’s arguments is that although Motorola has several licenses covering the asserted patents, it did not use its licenses to determine a reasonable royalty rate. (RBr. at 87.). Another of Hytera’s arguments is that because Dr. Arnold had not previously served as an expert on domestic industry or calculated a bond in an ITC investigation, and because Motorola (and Dr. Arnold) ignored “Commission precedent” by conducting a lost profits analysis, an approach Hytera said that the Commission has rejected, Motorola’s analysis also should be rejected (and impliedly Dr. Arnold’s credentials). (RRBr. at 49 (citing Certain Hardware Logic Emulation Systems and Components Thereof, Inv. No. 337-TA-383, Opinion on Remedy at 41 (Apr. 1, 1998); Certain Multiple Mode Outdoor Grills and Parts Thereof, Inv. No. 337-TA-895, Comm’n Op. at 61 (Feb. 20, 2015) (“Outdoor Grills”); see also RBr. at 87.).98 Not surprisingly, Motorola contested Hytera’s positon and noted that the statute does not limit the type of an appropriate injury analysis, and that administrative law judges “have expressly relied on lost profits analyses for bond forfeiture.” (See CRBr. at 50 (emphasis in original) (citing 19 U.S.C. § 1337(e)(1); Certain Semiconductor Chips with Minimized Chip Package Size & Prod. Containing Same, Inv. No. 337-TA-605, Order No. 68, 2012 WL 1376752 at *6 (Apr. 2, 2012); Certain Lens-Fitted Film Packages, Initial Determination, Inv. No. 337-TA-406, 2003 WL 21690959 at *23 (May 29, 2003)).)

In this instance, Hytera relied too heavily on Outdoor Grills for the proposition that a lost profits analysis is absolutely barred for bond calculations. That is not so. Instead, the

98 Hytera also claimed that Motorola kept changing its position during discovery by arguing for different bond rates at different times, including for a 100% bond rate. (RPBr. at 96). However, in its Pre-Hearing Brief, Motorola argued for a 44% bond rate based on a sales analysis. (CPBr. at 100.). Motorola’s formal position has been consistent throughout its briefs. (Id.; CBr. at 99; CRBr. at 50.). In this instance, Hytera’s argument is rejected. It is difficult to understand why Hytera continued to maintain positions throughout this Investigation that were disingenuous, and not supported either factually or legally.
Commission found in *Outdoor Grills* that the ALJ’s recommended determination for a bond based on a lost profits analysis was flawed because the ALJ’s recommendation did not account for non-infringing alternatives. Additionally, Motorola offered no evidence in this case to set a royalty rate. *See Outdoor Grills*, Comm’n Op. at 62.

**XIV. WAIVER OR WITHDRAWAL OF HYTERA’S DEFENSES**

Hytera’s Response to the Complaint identified Five Affirmative Defenses. Hytera’s First Affirmative Defense was Noninfringment. Hytera’s Second through Fifth Affirmative Defenses were, respectively: Invalidity, Relief Not in the Public Interest, Express or Implied License, and Unenforceability Based on Equitable Doctrines. (Hytera Respondents’ Response To The Complaint And Notice of Investigation (“Response”) at 18-20 (Doc. ID No. 612893 (May 26, 2017). Hytera did not address in its Pre-Hearing Brief or provide any evidence during the evidentiary hearing to support its Third and Fifth Affirmative Defenses. As noted in Order No. 38 in response to Motorola’s Motion In-Limine, Hytera withdrew its defenses of implied license, unenforceability and estoppel. (See Order No. 38 at 3.). Consequently, it is a finding of this decision that Hytera has waived, withdrawn or abandoned its Third, Fourth and Fifth Affirmative Defenses consistent with Ground Rules 7.2 and 10.1. *Kinik Co. v. Int’l Trade Comm’n*, 362 F.3d 1359, 1367 (Fed. Cir. 2004). While Hytera made a late Proffer on its Fourth Affirmative Defense, Express or Implied License, that Affirmative Defense was deemed moot in Order No. 38 by Hytera’s own waiver. A late Proffer on the issue of license does not vitiate Order No. 38 or Hytera’s own, previous waiver of this issue. Accordingly, Hytera’s license defense should be considered waived, abandoned or withdrawn under Ground Rule 10.1.
XV. CONCLUSIONS OF FACT OR LAW: THIS INITIAL DETERMINATION FINDS A SECTION 337 VIOLATION BASED UPON INFRINGEMENT OF U.S. PATENT NOS. 7,369,869; 7,729,701; AND 8,279,991

1. The Commission has subject matter, personal, and in rem jurisdiction in this Investigation.

2. The Legacy Accused Products have been imported into the United States.

3. Motorola has proven by a preponderance of evidence that the ’284 Accused Products infringe asserted claims 9, 13, 14, and 15 of U.S. Patent No. 8,116,284.

4. Motorola has proven by a preponderance of evidence that the ’869 Accused Products infringe asserted claims 1, 6, 17, and 21 of U.S. Patent No. 7,369,869.

5. Motorola has proven by a preponderance of evidence that the ’701 Accused Products infringe asserted claims 1 and 11 of U.S. Patent No. 7,729,701.

6. Motorola has proven by a preponderance of evidence that the ’991 Accused Products infringe asserted claims 7 and 8 of U.S. Patent No. 8,279,991.

7. Hytera has not proven by clear and convincing evidence that asserted claims 9, 13, 14, and 15 of U.S. Patent No. 8,116,284 are invalid.

8. Hytera has not proven by clear and convincing evidence that asserted claims 1, 6, 17, and 21 of U.S. Patent No. 7,369,869 are invalid.

9. Hytera has not proven by clear and convincing evidence that asserted claims 1 and 11 of U.S. Patent No. 7,729,701 are invalid.

10. Hytera has not proven by clear and convincing evidence that asserted claims 7 and 8 of U.S. Patent No. 8,279,991 are invalid.

11. Motorola has proven that it satisfies the technical prong of the domestic industry requirement for U.S. Patent Nos. 7,369,869; 7,729,701; and 8,279,991.

12. Motorola has failed to prove that it satisfies the technical prong of the domestic industry requirement for U.S. Patent No. 8,116,284.

13. Motorola has proven that it satisfies the economic prong of the domestic industry requirement.

14. Motorola has proven that Hytera has violated Section 337 of the Tariff Act of 1930, as amended.
The lack of discussion of any matter raised by the Parties, or any portion of the record, does not indicate that it has not been considered. Rather, any such matter(s) or portion(s) of the record has/have been determined to be irrelevant, immaterial or meritless. Arguments made on briefs, which were otherwise unsupported by record evidence or legal precedent, have been accorded no weight.

XVI. CONCLUSION AND ORDER

Based upon the foregoing, it is my Initial Determination on Violation of Section 337 that Hytera has violated Section 337 of the Tariff Act of 1930, as amended, by importing into the United States, selling for importation, or selling within the United States after importation of certain graphic systems, components thereof, and consumer products containing the same, by reason of infringement of claims 1, 6, 17 and 21 of U.S. Patent No. 7,369,869; claims 9, 13, 14, and 15 of U.S. Patent No. 8,116,284; claims 1 and 11 of U.S. Patent No. 7,729,701; and claims 7 and 8 of U.S. Patent No. 8,279,991.

This Initial Determination on Violation of Section 337 of the Tariff Act of 1930 is certified to the Commission. All orders and documents, filed with the Secretary, including the exhibit lists enumerating the exhibits received into evidence in this Investigation, that are part of the record, as defined in 19 C.F.R. § 210.38(a), are not certified, since they are already in the Commission’s possession in accordance with Commission Rules. See 19 C.F.R. § 210.38(a). In accordance with 19 C.F.R. § 210.39(c), all material found to be confidential under 19 C.F.R. § 210.5 is to be given in camera treatment.

After the Parties have provided proposed redactions of confidential business information (“CBI”) that have been evaluated and accepted, the Secretary shall serve a public version of this ID upon all parties of record. The Secretary shall serve a confidential version upon counsel who
Public Version

are signatories to the Protective Order (Order No. 1) issued in this Investigation.

Pursuant to 19 C.F.R. § 210.42(h), this Initial Determination shall become the
determination of the Commission unless a party files a petition for review pursuant to 19 C.F.R.
§ 210.43(a) or the Commission, pursuant to 19 C.F.R. § 210.44, orders on its own motion a
review of the Initial Determination or certain issues therein.

Within fourteen (14) days of the date of this document, the Parties shall submit to the
Office of Administrative Law Judges a joint statement regarding whether or not they seek to
have any portion of this document deleted from the public version. The Parties’ submission shall
be made by hard copy and must include a copy of this ID with red brackets indicating any
portion asserted to contain CBI to be deleted from the public version. The Parties’ submission
shall also include an index identifying the pages of this document where proposed redactions are
located. The Parties’ submission concerning the public version of this document need not be
filed with the Commission Secretary.

SO ORDERED.

MaryJoan McNamara
Administrative Law Judge
CERTAIN TWO-WAY RADIO EQUIPMENT AND SYSTEMS, RELATED SOFTWARE AND COMPONENTS THEREOF

PUBLIC CERTIFICATE OF SERVICE

I, Lisa R. Barton, hereby certify that the attached INITIAL DETERMINATION has been served upon the following parties as indicated, on August 2, 2018.

Lisa R. Barton, Secretary
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