

In the Matter of the  
Appeal of Ericsson, Graham Smith, and InterDigital  
Concerning the Action taken by the IEEE-SA Standards Board at the close of the Investigation  
into the 802.11ax Dominance Complaint

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APPELLANTS' APPEAL BRIEF

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January 5, 2017

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## I. APPELLANTS' IDENTIFICATION

The appellants are Telefonaktiebolaget LM Ericsson (“Ericsson”), Graham Smith, affiliated and employed by SR Technologies (“Graham Smith”), and InterDigital, Inc. (“InterDigital”) (collectively, “Appellants”). Appellants’ contact information is as follows:

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## II. INTRODUCTION AND EXECUTIVE SUMMARY

Appellants submit this appeal, pursuant to § 5.4 of the IEEE-SA Standards Board Bylaws (“SASB Bylaws”) and § 5.8 of the IEEE-SA Standards Board Operations Manual (“SASB Ops. Man.”), of the action taken, and specifically, the fundamentally ineffective remedies supported by the IEEE 802 Executive Committee and the SASB in response to the IEEE-SA’s finding that a special interest group (“SIG”) engaged in dominance, within the meaning of Section 5.2.1.3 of the SASB Bylaws, during the development of the IEEE-SA 802.11ax standard (“Standard”).<sup>1</sup> In

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<sup>1</sup> The pertinent 802.11ax Working Group Chair responsibilities are defined in §4.13(x) of the Policies and Procedures for IEEE LMSC 802 Working Groups and Technical Advisory Groups and are available at [http://ieee802.org/PNP/approved/IEEE\\_802\\_WG\\_PandP\\_v19.pdf](http://ieee802.org/PNP/approved/IEEE_802_WG_PandP_v19.pdf). Appellants note that the responsibilities of the SASB whose decision is being appealed here are far broader than those of the WG Chair. Specifically, §5.2.1.3 of the SASB Bylaws explicitly state that:

In the absence of *effective corrective action*(s) by the Sponsor, the IEEE-SA Standards Board shall implement either the corrective action specified in 5.2.1.3.1 *or, at its discretion, an alternative corrective action* [e.g., withdrawal of the PAR, limiting the number of voting members, one vote

particular, this appeal challenges the ineffective remedies supported by the IEEE 802 Executive Committee and the SASB to redress that violation.

This appeal should be granted on the grounds that: (i) the remedies adopted “prove[d] to be insufficient” as implemented and thus do not constitute or provide for any meaningful “corrective action,” as required by the SASB Bylaws § 5.2.1.3,<sup>2</sup> and (ii) the Standard, as reflected in the current draft (“Draft 1.0”)<sup>3</sup> and subject to a technical letter ballot closing on 8 January, 2017, is the result of a corrupted development process. As outlined in more detail below, to address these concerns in line with §5.2.1.3, Appellants propose that:

1. All TGax standards activity be suspended immediately until an “effective corrective action” is imposed and for a period of sixty (60) days thereafter;
2. The members/former members of DensiFi be reduced to one collective vote for the greater of either (i) 6 months or (ii) until the conclusion of the Draft 1.0 resolution process, including any consideration thereof; and
3. All motions brought related to the Standard since the time DensiFi SIG has been active be submitted for a re-vote.

In the alternative, failing any other effective corrective action, Appellants propose that the TGax Project Authorization Request (“PAR”) be withdrawn.

### **III. BACKGROUND**

In June 2016, appellant Graham Smith submitted a complaint related to a claim of dominance in the development of the Standard. The complainant alleged that during the development of the Standard, several companies operating as the SIG “DensiFi,” were working together during the Task Group (“TGax”) meetings and exercising dominance in that setting to

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per organization, etc.]. The IEEE-SA Standards Board may impose further corrective action(s) if previous corrective action(s) prove to be insufficient. (emphasis added)

<sup>2</sup> Available at [https://standards.ieee.org/develop/policies/bylaws/sb\\_bylaws.pdf](https://standards.ieee.org/develop/policies/bylaws/sb_bylaws.pdf).

<sup>3</sup> The current draft of the Standard, TGax Draft 1.0, is the subject of a technical letter ballot, which opened on 1 December 2016 and will close on 8 January 2017. See [http://www.ieee802.org/11/LetterBallots/LB225ax/LB225\\_instructions.html](http://www.ieee802.org/11/LetterBallots/LB225ax/LB225_instructions.html).

exclude fair consideration of proposals from non-members of the SIG.<sup>4</sup> In response, the Working Group (“WG”) Chair launched an investigation (“Investigation”).<sup>5</sup>

On November 9, 2016, the Investigation’s findings were published. That report established that DensiFi exercised dominance<sup>6</sup> within the TGax, which was entrusted with the development of the Standard. Based on the findings of the Investigation, it has become clear that, for a period of more than two years, the members of DensiFi engaged in anticompetitive collusion, with the aim, and effect, of “*excluding viewpoints of non-[DensiFi] participants from ‘fair and equitable consideration’ within TGax.*”<sup>7</sup> The Investigation identified 18 companies as members of DensiFi at one point during the development of the Standard.<sup>8</sup>

As a result of the Investigation’s findings, the IEEE 802 Executive Committee approved the following remedies during a meeting held in executive session on November 8, 2016 (the “Remedies”):

- a. The 802.11 WG Chair would treat the vote of all individuals affiliated with DensiFi members as a single vote in WG and TG motions related to the Standard until such time as DensiFi follows “best practice”<sup>9</sup> or is no longer active.
- b. Additional guidance information regarding the expectation and requirements of individual participation in standards development be developed and provided to 802.11 participants.<sup>10</sup>

It is Appellants’ understanding that the SASB approved the Remedies during its December 7, 2016 meeting,<sup>11</sup> the minutes for which have not yet been released. However, it has

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<sup>4</sup> See page 3 of the Complaint, available at <https://mentor.ieee.org/802.11/dcn/16/11-16-0784-00-0000-dominance-allegation-in-tgax.doc>.

<sup>5</sup> The report issued following the Investigation (the “Report”) is available at <https://mentor.ieee.org/802.11/dcn/16/11-16-1519>.

<sup>6</sup> As described in Section 5.2.1.3 of the IEEE Standards Board Bylaws.

<sup>7</sup> See page 27 of the Report, *supra* note 5.

<sup>8</sup> “In March 2015 the SIG members appear to be Intel, LGE, Broadcom, Marvell, Mediatek, Qualcomm, Huawei, Orange, NTT, NTT Docomo, Samsung, ZTE, Apple and Cisco (14 companies). By March 2016, additional members appear to be Sony, Toshiba, Newracom and Quantenna.” See pages 11-12 of the Report, *supra* note 5.

<sup>9</sup> As set out in Executive Committee document ec-16-0190-00.

<sup>10</sup> The Remedies are set out in the recommendation document, available at <https://mentor.ieee.org/802-ec/dcn/16/ec-16-0186-03>.

now become clear that the Remedies, *i.e.*, the purported “corrective actions” adopted by the IEEE-SA in an effort to mitigate the consequences of the collusive practices it has found in relation to DensiFi’s activities, have proven completely ineffectual as explained below.

The Remedies are ineffective because, as regards implementation of the Remedies, DensiFi participants were invited by the WG Chair – after significant work towards development of the Standard but before the vote on Draft 1.0 of the Standard – to submit declarations that they either were no longer, or had never been, a member of DensiFi. By submitting a declaration to this effect, DensiFi’s past transgressions would bear no negative consequences and its former members would escape any remedy whatsoever. Thus, their voting rights would be restored in full with immediate effect – prior to any vote taking place on the Standard. Not surprisingly, by December 16, 2016, all of the companies identified as DensiFi members during the Investigation have submitted such letters withdrawing from further participation in DensiFi, and thus, will enjoy full voting rights in advance of final votes to adopt Draft 1.0 of the Standard. As a result, non-DensiFi members, like Appellants, that followed the IEEE’s rules would have no redress for their technological contributions that may have been excluded from fair consideration for the Standard.

The ability of the former DensiFi members to avoid consequences for their collusive conduct demonstrates that the Remedies adopted are wholly inadequate to (1) remedy the past violation and (2) to discourage future collusive conduct. Appellants (along with other similarly situated parties that were not DensiFi members), along with IEEE and IEEE-SA, will, or can reasonably be expected to, suffer adverse effects as a result. These adverse effects are described more fully below, as well as in the attached Appendix. Most significantly, however, a failure by the SASB to rectify the ineffectual remedy adopted will undermine the quality of the technology

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<sup>11</sup> See IEEE-SA Standards Board Resolutions, available at <http://standards.ieee.org/about/sasb/resolutions.html>.

contributed to IEEE-SA standards, thereby reducing both the value and success of IEEE standards. Failure to impose additional corrective measures, and thus allowing DensiFi members to capitalize on their longtime illegal anticompetitive conduct, will signal to technology contributors that the IEEE-SA tolerates private commercial groups effectively controlling standard development to the exclusion of other key stakeholders. To ensure that the standard process in general, and with respect to 802.11ax in particular, is not irreparably undermined, Appellants respectfully request that the SASB hear this appeal and grant the relief requested.

#### **IV. CONCERNS OF THE APPELLANTS**

##### ***A. Nature of Objections***

Based on the IEEE-SA's own findings of dominance, the DensiFi SIG prevented a fair and open, and thus legal and pro-competitive, standard-setting process by "stuffing the ballot" in its favor during the Standard development process. Yet, unless this appeal is heard and additional effective corrective actions, are adopted, the entirety of DensiFi may successfully avoid *any form* of consequence for their long-term collusive behavior.

As of December 16, 2016, in advance of the final votes to adopt Draft 1.0, all DensiFi member companies have now submitted declarations renouncing future involvement in DensiFi and communicating that DensiFi has been effectively disbanded.<sup>12</sup> This outcome does not mean that the IEEE-SA Investigation and Remedies have worked. To the contrary, it demonstrates that those Remedies have failed completely.

As a result of the conditional, prospective-only relief adopted, by the simple expedient of disclaiming future membership or participation in DensiFi, those former DensiFi members have removed any practical significance from the IEEE's "dominance" determination or the Remedies. In fact, the Remedies were structured to permit those former DensiFi members to

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<sup>12</sup> <http://www.ieee802.org/11/email/stds-802-11/msg02477.html>.

regain their votes in advance of the deadline to vote in the letter ballot concerning the corrupted Draft 1.0 of the Standard, thereby cementing the fruits of their anticompetitive behavior.

In light of the foregoing, Appellants respectfully submit that:

1. The Remedies are inconsistent with the IEEE's own policies, which specifically require "corrective action" when there has been a finding of dominance, as established by SASB Bylaws § 5.2.1.3.<sup>13</sup> Here, the Remedies have only limited and ineffective prospective effect. They make no attempt to restore the *status quo ex ante*, i.e., they do not make it possible for technological proposals that may have been unlawfully excluded to be considered for inclusion in the Standard;
2. Unless the Remedies are amended, non-members of DensiFi, which have been unlawfully prevented from participating in the development of the Standard to date, are confronted with a *fait accompli*, as a result of voting to adopt that corrupted standard. The same "former" members of DensiFi will now have sufficient votes to effectively pass Draft 1.0, which is the fruit of their own unlawful collusive behavior; and
3. The Remedies do not discourage or prevent unlawful collusion going forward in TGax, or any other IEEE-SA Task Group. As noted above, all former members of DensiFi have already regained their voting rights in full in time for the letter ballot discussed above and the next TGax meeting, which will be held in January 2017. In fact, the Remedies provide the DensiFi members and future would-be conspirators with assurance that the IEEE-SA will turn a blind eye to findings of collusion and dominance in the standard development process; and
4. In light of all of the above, if allowed to remain in their current ineffective format, the Remedies expose IEEE-SA to antitrust liability.

In particular, Appellants believe that the Remedies demonstrate a failure to fully appreciate that Draft 1.0 is the result of illegal practices found by the IEEE's Investigation, and inconsistent with the IEEE-SA's own policies taken during all critical phases of the development process for the Standard. And, in light of that corrupted process, the resulting Standard is intrinsically tainted and flawed. As such, the limited, prospective-only Remedies do not constitute or provide for any remedy to those non-DensiFi members who proposed technical contributions and no negative consequences or deterrent for those found to engage in the

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<sup>13</sup> See IEEE Standards Board Bylaws § 5.2.1.3, available at [https://standards.ieee.org/develop/policies/bylaws/sb\\_bylaws.pdf](https://standards.ieee.org/develop/policies/bylaws/sb_bylaws.pdf).

wrongful conduct. The Remedies, therefore, fall short of meaningful “corrective action,” as required by the SASB Bylaws § 5.2.1.3.

***B. Adverse Effects***

The SASB Bylaws § 5.2.1.3 state that “dominance is contrary to open and fair participation by all interested parties and is unacceptable.” As a consequence of DensiFi’s exclusionary acts and improper influence during TGax meetings, non-DensiFi participants have been effectively excluded from fair participation in the development of the Standard. The result is that superior technology and cross-pollination may have been excluded to the detriment of the most innovative and/or efficient technological outcome. It is impossible to know how many valuable or superior technologies, or contributions, were prevented from fair consideration, or discouraged, due to DensiFi’s unlawful activities.

Moreover, the Remedies do nothing to discourage, or prevent, unlawful collusion from recurring in the TGax or in any other setting within the IEEE-SA. In fact, the precedent set by these empty remedies will only serve to reward and encourage such unlawful, collusive activities within future IEEE-SA standard development efforts.

***C. Remedial Actions That Would Satisfy Appellants’ Concerns***

To provide for an “effective corrective action” as required by the SASB Bylaws, Appellants respectfully request, in connection with the ongoing TGax standards development, that all TGax standards activity be suspended immediately until an “effective corrective action” is imposed and for a period of sixty (60) days thereafter to allow TGax participants to effectively work with the new remedy. Appellants note the precedent of a similar suspension period that was put in place during irregularities related to the 802.20 standard.

In addition to the suspension of the TGax standard activity, Appellants respectfully request that should the IEEE-SA allow voting to go forward on the current, corrupted Draft 1.0

of the Standard, the former members of DensiFi be collectively again reduced to one (1) vote as the original remedy imposed envisioned. This remedy needs to be valid for a fixed period of time to allow non-members of DensiFi sufficient time to improve the corrupted draft of the Standard. Appellants suggest that the one-vote remedy be in place until the conclusion of the Draft 1.0 resolution process, including any consideration thereof. Alternatively, a minimum fixed period of six (6) months, for example, would allow for the adoption of a legal, more technologically efficient standard for 802.11ax.

Appellants also respectfully request that all motions brought related to the Standard since the time DensiFi SIG has been active, be submitted for a re-vote. Indeed, Appellants understand that precedent for this remedy exists within the IEEE in connection with the 802.20 standard development in 2006. The remedy requested by Appellants here is indeed the same reopening of the process that the IEEE-SA previously implemented in 2006.<sup>14</sup>

As an alternative to the remedies proposed above, and as noted in the SASB Bylaws § 5.2.1.3, Appellants suggest that the TGax PAR be withdrawn.

## **V. EVIDENCE SUPPORTING THE APPEAL**

The evidence supporting this Appeal, as well as a more detailed recitation of the relevant facts and legal support as highlighted above, are set forth in the attached Appendix.

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<sup>14</sup> See Draft Meeting Minutes, 802.20 Plenary Meeting - Session #21, Dallas, Texas, USA, Nov 12-17, 2006, at 64 available at [http://www.ieee802.org/20/WG\\_Docs/802.20-06-07-R2\\_Nov\\_Draft\\_Minutes.pdf](http://www.ieee802.org/20/WG_Docs/802.20-06-07-R2_Nov_Draft_Minutes.pdf) (“we must look at the directives of the standards board which include: 1. Termination of the WG ballots in process. 2. *Reopen the technology selection process.* 3. Understanding that an oversite [sic] committee of the standards association standards board has been formed to review what we do and how we do it.”) (emphasis added). See also page 58 of the Draft Meeting Minutes (“It is the intention of the IEEE and myself to do everything possible to *iden[t]ify, root out and expell* [sic] all persons found to be mindless hand puppets of others rather than mature thinking and intelligent engineering colleagues [sic] engaged in the process of producing the best technical output result.”) (emphasis added). See also page 65 of the Draft Meeting Minutes (“The reopening of the technology selection process does not mean abandoning what has been accomplished. *It does mean making certain that we invite and review inputs for alternative approaches, changes and/or modifications to the current documentation,* and be prepared at the next meeting to discuss these inputs, reach a level of consensus concerning them, make changes as necessary and appropriate and as supported by the 802.20 membership to arrive *at a selection of technology that is supportable, defensible and optimal.*”) (emphasis added).

**VI. CONFLICT OF INTEREST**

Appellants respectfully request that SASB members employed by or affiliated with entities that were DensiFi members at any period of time, be recused from considering this appeal.

Dated: January 5, 2017

Respectfully Submitted,

Ericsson

Graham Smith

InterDigital

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APPENDIX TO APPELLANTS' APPEAL BRIEF

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January 5, 2017

Appellants Telefonaktiebolaget LM Ericsson (“Ericsson”), Graham Smith, affiliated and employed by SR Technologies (“Graham Smith”), and InterDigital, Inc. (“InterDigital”) (collectively, “Appellants”), submit this Appendix comprising a more detailed recitation of the relevant facts and legal basis for the remedies requested in support of this appeal.

## **I. STATEMENT OF FACTS AND EVIDENCE**

### ***A. Background Leading to 802.11ax Dominance Investigation***

Special interest group (“SIG”) memberships allow for IEEE members and others to join, coordinate, and support unique activities and goals of particular groups of members.<sup>1</sup> SIGs can work on proposals for inclusion of technology in standards and typically consist of firms with technology interests applicable to a particular standard under development.

The SIG DensiFi is a “closed group” of 18 voting/non-voting members,<sup>2</sup> with participation contingent on a favorable vote of the then-current membership.<sup>3</sup> It is non-public, unlike the previous SIGs in 802.11n. DensiFi participation has practically come to supplant actual IEEE-SA technical working groups as the forum for 802.11ax technology development. It has effectively replaced “open” public standards working groups with a “closed” private group, so much so for example that the Report finds public references such as “IEEE 802.11ac standard or the IEEE 802.11ax SIG (named Densi[F]i)”<sup>4</sup> that use the SIG name instead of the TGax name.

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<sup>1</sup> See <https://www.ieee.org/membership-catalog/specialInterestsGroups.html>.

<sup>2</sup> The report on the investigation launched by the Working Group Chair (the “Report”) found that DensiFi had “two levels of membership in the SIG: Voting (principal) and non-voting. 7-8 companies are principal/voting members. Non-voting members can indicate opinions on straw polls, but apparently are not allowed to vote on motions within the SIG. SIG motions determine which presentations or submissions are taken to IEEE 802.11ax with SIG members listed as authors.” See page 13 of the Report, *available at* <https://mentor.ieee.org/802.11/dcn/16/11-16-1519>.

<sup>3</sup> According to the Investigation Report, as of “March 2015 the SIG members appear[ed] to be Intel, LGE, Broadcom, Marvell, Mediatek, Qualcomm, Huawei, Orange, NTT, NTT Docomo, Samsung, ZTE, Apple and Cisco (14 companies). By March 2016, additional members appear[ed] to be Sony, Toshiba, Newracom and Quantenna.” See pages 11-12 of the Report, *supra* note 2.

<sup>4</sup> See page 12 of the Report, *supra* note 2.

Only member companies, not DensiFi participation or sponsorship, are disclosed on technology proposals.

Given DensiFi's makeup and its members' IEEE-SA voting rights, DensiFi is extraordinarily powerful in the development and adoption of technical proposals for the 802.11ax. Specifically, DensiFi participants constitute a majority of voting interests in the 802.11ax working group and cover a wide spectrum of technology applicable to the Standard. Based on ABI Research, five of DensiFi's identified members, Broadcom, Qualcomm, MediaTek, Marvell, and Intel, have a combined market share over 93 percent in the integrated circuit market.<sup>5</sup>

***B. 802.11ax Dominance Investigation and Findings That Collusive Practices Corrupted the Standard***

In June 2016, appellant Graham Smith filed a written complaint (the "Complaint")<sup>6</sup> to the 802.11 Working Group ("WG") Chair, which alleged that several companies operating as DensiFi were working together during the Task Group ("TGax") meetings and exercising dominance in that setting to exclude fair consideration of technical proposals from non-members of the SIG.<sup>7</sup> In response, the WG Chair launched an investigation (the "Investigation") and appointed Dorothy Stanley as Investigating Officer regarding the complaint.

The Investigation, a report on which was released on November 9, 2016 (the "Report"), confirmed that a SIG, known as DensiFi, was operating in TGax. Per the Report, DensiFi likely comprised 18 member companies<sup>8</sup> and effectively controlled the development of the 802.11ax

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<sup>5</sup> ABI Research, "Wireless Connectivity ICs," Report, November 2016.

<sup>6</sup> The Complaint is available at <https://mentor.ieee.org/802.11/dcn/16/11-16-0784-00-0000-dominance-allegation-in-tgax.doc>.

<sup>7</sup> See page 3 of the Complaint, *supra* note 6.

<sup>8</sup> See Section 4.1 at pages 11-12 of the Report, *supra* note 2.

standard (“Standard”) as reflected in the current draft (“Draft 1.0”). The key findings of the Investigation include the following:

- DensiFi was a closed group/quasi-closed group, *i.e.*, not open to all interested parties.
- DensiFi’s activities were not public (in fact, “*no information about the DensiFi SIG is available publicly*”).<sup>9</sup>
- DensiFi meetings replaced many potential 802.11ax ad hoc meetings, which would have been open to everybody, and DensiFi met in advance of TGax meetings to discuss and review presentations and decide on which documents would be submitted during TGax meetings.
- DensiFi was always ahead of the work of the TGax (sometimes by months, days or hours).
- There was an implicit expectation that once a document was agreed amongst the DensiFi members, those members would support it during the TGax meetings.<sup>10</sup>
- DensiFi did not entertain proposals from 802.11 members that were not also members of DensiFi.
- DensiFi had the ability to block and prevent the adoption of proposals.<sup>11</sup>
- There were a high number of DensiFi participants as a percentage of 802.11ax participants.

Based on these findings, the Investigation concluded that DensiFi was exercising “dominance” as defined by Section 5.2.1.3 of the IEEE-SA Standards Board (“SASB”) Bylaws, in the TGax through a “*mechanism of ‘superior leverage, strength or representation’ with the*

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<sup>9</sup> See page 12 of the Report. DensiFi activities were also opaque in that DensiFi submissions listed co-authors under wrong affiliations, potentially giving the impression that many would support DensiFi’s documents although few might have actually know the submissions. See page 13 of the Report.

<sup>10</sup> See pages 12-13 and 26-27 of the Report, *supra* note 2. For example, page 13 of the Report reflects the finding that: “Several individuals commented that there was an implicit expectation that once a document was agreed in the SIG, that members would act in accordance with the interest of the group and not argue anymore about it, and support it in IEEE 802.11. It was also noted that once members had been part of the discussion around a document, they would naturally be more likely to support the included proposal.”

<sup>11</sup> For example, the Report concludes that “non-SIG members had 11 failed motions out of a total of 52 (21%). 3 motions proposed by SIG members failed out of a total of 287 motions (1%).” See page 15 of the Report, *supra* note 2.

*effect of excluding viewpoints of non-SIG participants from ‘fair and equitable consideration[.]’*<sup>12</sup>

**C. Remedies Adopted Intended to Cure 802.11ax Dominance Finding Prove to be Wholly Ineffectual**

After the findings of the Investigation were published, the 802.11 Executive Committee approved the following remedies (the “Remedies”):

- a. The 802.11 WG Chair would treat the vote of all individuals affiliated with DensiFi members as a single vote in WG and TG motions related to the Standard until such time as DensiFi follows “best practice”<sup>13</sup> or is no longer active.
- b. Additional guidance information regarding the expectation and requirements of individual participation in standards development be developed and provided to 802.11 participants.

On November 29, 2016, the WG Chair published his interpretations of the Remedies supported by the IEEE Executive Committee as follows: “The remedies allow for an entity to indicate [it is] not a member of DensiFi, and thereby its affiliates will no longer be subject to special measures described above.”<sup>14</sup> Thus, upon submitting such a declaration of non-participation, the voting rights of former DensiFi members would be restored in full with immediate effect, including for purposes of the vote on Draft 1.0 of the Standard.

Given this interpretation, the original complainant expressed, in an email to the WG Chair, dissatisfaction and frustration with the toothless Remedies. Specifically, the original complainant noted that he was:

uncomfortable in that the DensiF[i] members will effectively face zero consequences as a result of their 3 years(?) of activity that has been investigated and reported as acting against the rules and interests of 802.11. It is quite obvious that what will happen is that we will see all the DensiF[i] companies send in their

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<sup>12</sup> See page 27 of the Report, *supra* note 2.

<sup>13</sup> As set out in Executive Committee document ec-16-0190-00.

<sup>14</sup> Clarifications and questions regarding the recommended mitigation measures in response to the 802.11ax dominance complaint, available at <https://mentor.ieee.org/802.11/dcn/16/11-16-1568>. Entity submissions related to TGax special measures (the “Entity Submissions”) at page 2, available at <https://mentor.ieee.org/802.11/dcn/16/11-16-1575>.

letters so that by the next meeting it will be business as usual. As such there will be zero consequences for these companies.<sup>15</sup>

These objections have not been meaningfully addressed or considered and there have been no concerted efforts taken toward their resolution.

The original complainant was entirely correct. Over the next few weeks, all companies identified as DensiFi members during the Investigation submitted letters declaring they were no longer or had never been a member of DensiFi:<sup>16</sup>

- On November 30, 2016, Mediatek stated it had left DensiFi.<sup>17</sup>
- On December 2, 2016, Toshiba Corporation and Quantenna Communications ceased participation in DensiFi.<sup>18</sup> LG Electronics, Calypso Systems, and Newracom declared their independence from DensiFi as of this date.<sup>19</sup>
- Cisco and Marvell notified the IEEE that DensiFi activities had been halted as of December 2, 2016, and they were thus no longer members.<sup>20</sup>
- On December 3, 2016, Huawei withdrew from DensiFi.<sup>21</sup> Samsung informed the IEEE that due to its understanding that DensiFi activities ended on December 3,

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<sup>15</sup> See <http://www.ieee802.org/11/email/stds-802-11/msg02430.html>.

<sup>16</sup> See <https://mentor.ieee.org/802.11/dcn/16/11-16-1575>.

<sup>17</sup> Mediatek declared in its letter that it “will not participate as a member of the DensiFi SIG as of the date November 30, 2016.” See Entity Submissions, *supra* note 14.

<sup>18</sup> Toshiba Corporation’s letter explained that it “will no longer participate as a member of the DensiFi SIG as of the date December 2nd, 2016.” Dated December 13, Quantenna declared that “Quantenna Communications no longer participates as a member of the DensiFi SIG, as of December 2nd, 2016.” See Entity Submissions, *supra* note 14.

<sup>19</sup> LG Electronics submitted a letter stating that it “either has never been a member of the DensiFi Sig or will no longer participate as of the date December 2, 2016.” Calypso similarly wrote that “Calypso Ventures has never been a member of the DensiFi SIG. Additionally, we will no longer participate in the DensiFi SIG via any of our client affiliations as of December 2<sup>nd</sup>, 2016.” On December 6, 2016, Newracom wrote: “Newracom, Inc. either has never been a member of the DensiFi SIG or will no longer participate as a member of the DensiFi SIG as of the date December 2<sup>nd</sup>, 2016.” See Entity Submissions, *supra* note 14.

<sup>20</sup> Cisco’s letter, received on December 5, 2016, stated that “Cisco were informed that all operations of the Densifi SIG were halted as of December 2, 2016, at 5pm PST. Cisco is therefore not a member of the Densifi SIG at this time.” Marvell’s letter, received on December 15, 2016, similarly declared: “All operations of the DensiFi SIG were halted as of Friday 2 December 2016, at 5pm PST. Marvell International Ltd. and its Affiliates . . . is therefore no longer a member of the DensiFi SIG as of that date.” See Entity Submissions, *supra* note 14.

<sup>21</sup> Huawei’s letter was received on December 4, 2016, noting that it “will no longer participate as a member of the DensiFi SIG as of the date December 3rd, 2016.” See Entity Submissions, *supra* note 14.

2016, it was no longer a member as of this date.<sup>22</sup> ZTE declared its independence from DensiFi.<sup>23</sup>

- Effective December 5, 2016, Qualcomm as well as NTT and NTT DoCoMo withdrew as participants of DensiFi.<sup>24</sup>
- On December 6, 2016, Apple renounced future DensiFi activities and Broadcom withdrew from DensiFi.<sup>25</sup>
- On December 7, 2016, Sony stated it was not a participant of DensiFi.<sup>26</sup>
- On December 12, 2016, Orange renounced future DensiFi activities.<sup>27</sup>
- In a letter dated December 14, 2016, Intel declared it left DensiFi effective immediately.<sup>28</sup>

Thus, by Friday, December 16, 2016, in advance of the final votes to adopt Draft 1.0 of the Standard, the 802.11 WG Chair announced that “[a]bsent any objection from the EC, all companies identified in the TGax dominance remedy have declared that they are not members of Densi[F]i and their affiliates will no longer be subject to special measures.”<sup>29</sup> As a result of these simple declarations, all former DensiFi members’ votes were reinstated. This does not mean that the IEEE-SA Investigation and Remedies have worked. To the contrary, it demonstrates that the

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<sup>22</sup> Samsung’s letter is dated December 9, 2016: “Samsung Electronics was informed that all operations of the DensiFi SIG ended on 2016-12-03 at 1:00 UTC. Samsung Electronics is therefore not a member of the DensiFi SIG at the time of this writing.” *See* Entity Submissions, *supra* note 14.

<sup>23</sup> ZTE’s letter reads: “ZTE Corporation either has never been a member of the DensiFi SIG or will no longer participate as a member of the DensiFi SIG as of the date Dec 3, 2016 PST.” *See* Entity Submissions, *supra* note 14.

<sup>24</sup> In a letter dated December 5, 2016, Qualcomm informed the IEEE that “neither Qualcomm nor any individuals associated or affiliated with Qualcomm are participants of DensiFi.” NTT submitted a letter declaring that “NTT and NTT DoCoMo will not participate as a member of the DensiFi SIG as of the date December 5, 2016.” *See* Entity Submissions, *supra* note 14.

<sup>25</sup> Apple’s December 6, 2016 letter stated that “Apple will not participate in any activities of DensiFi SIG.” Broadcom wrote the very same day that “Broadcom no longer participates as a member of the DensiFi SIG.” *See* Entity Submissions, *supra* note 14.

<sup>26</sup> A letter dated December 7, 2017, notified the IEEE that “neither Sony nor any individuals associated or affiliated with the Sony family of companies are participants of DensiFi.” *See* Entity Submissions, *supra* note 14.

<sup>27</sup> Orange’s letter read: “Orange will not participate in any activities of DensiFi SIG.” *See* Entity Submissions, *supra* note 14.

<sup>28</sup> Intel’s letter advised that “effective immediately, . . . Intel Corporation is no longer a member of the DensiFi SIG.” *See* Entity Submissions, *supra* note 14.

<sup>29</sup> *See* <http://www.ieee802.org/11/email/stds-802-11/msg02477.html>.

Remedies have failed completely. They are, as described in the SASB Bylaws § 5.2.1.3, an “insufficient” corrective action.

## II. PRECEDENT SUPPORTING THE REQUESTED REMEDIES

### A. *The IEEE-SA Reopened the Standard Selection Process in Similar Circumstances with Respect to the 802.20 Standard*

The IEEE faced a similar situation in 2006 to 2007 with the development of the 802.20 mobile broadband standard. After complaints of lack of transparency and improper favoritism, standard development activity was halted in June 2006.<sup>30</sup> On July 17, 2007, the IEEE 802 Executive Committee along with its 802.20 Oversight Committee approved a change to voting in the 802.20 working group. Instead of a vote per attending individual, each entity would have a single vote.<sup>31</sup>

While the single vote remedy in the present case may appear identical to that imposed in relation to 802.20, this is not the case. In the case of the 802.20 remedies, the IEEE and working group chair made it clear that they would not tolerate dominance or its results and reopened the selection process.<sup>32</sup> At the time, the IEEE explained:

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<sup>30</sup> Loring Wirbel, *IEEE 802.20 working group declares 'cooling off' period*, EE Times (June 15, 2006), available at <http://www.eetimes.com/news/latest/showArticle.jhtml?articleID=189401737>.

<sup>31</sup> See Loring Wirbel, *IEEE adopts 'one entity, one vote' for 802.20 mobile broadband*, EE Times (July 18, 2007), available at <http://www.eetimes.com/electronics-news/4073075/IEEE-adopts-one-entity-one-vote-for-802-20-mobile-broadband/>; Stephen Lawson, *"Wireless Standards Group Changes Rules for Parity"*, PC World (July 22, 2007), available at [http://www.peworld.com/article/134828/wireless\\_standards\\_group\\_changes\\_rules\\_for\\_parity.html](http://www.peworld.com/article/134828/wireless_standards_group_changes_rules_for_parity.html).

<sup>32</sup> See Draft Meeting Minutes, 802.20 Plenary Meeting - Session #21, Dallas, Texas, USA, at 64 (Nov 12-17, 2006), available at [http://www.ieee802.org/20/WG\\_Docs/802.20-06-07-R2\\_Nov\\_Draft\\_Minutes.pdf](http://www.ieee802.org/20/WG_Docs/802.20-06-07-R2_Nov_Draft_Minutes.pdf) (“[W]e must look at the directives of the standards board which include: 1. Termination of the WG ballots in process. 2. Reopen the technology selection process. 3. Understanding that an oversight [sic] committee of the standards association standards board has been formed to review what we do and how we do it.”) (emphasis added). See also pages 57-58 of the Draft Meeting Minutes (“while we seek consensus [sic] we will not tolerate dominance. This includes positive dominance whereby one group stacks the deck to ensure that an issue, technical document or procedural question is decided in their favor by having persons attending a meeting and voting the desires or interests of a manipulating entity rather than their own technical opinion or view. . . . It is the intention of the IEEE and myself to do everything possible to iden[t]ify, root out and expell [sic] all persons found to be mindless hand puppets of others rather than mature thinking and intelligent engineering colleagues [sic] engaged in the process of producing the best technical output result.”).

The reopening of the technology selection process does not mean abandoning what has been accomplished. It does mean making certain that we invite and review inputs for alternative approaches, changes and/or modifications to the current documentation, and be prepared at the next meeting to discuss these inputs, reach a level of consensus concerning them, make changes as necessary and appropriate and as supported by the 802.20 membership to arrive at a selection of technology that is supportable, defensible [sic] and optimal.<sup>33</sup>

The remedy requested by Appellant here is indeed the same reopening of the process that the IEEE previously implemented in 2006 with respect to the 802.20 standard. There is no reason to deviate from the 2006 solution.

***B. The IEEE's Action Contradicts IEEE Policies and WTO and ANSI Requirements***

The American National Standards Institute (ANSI) has accepted the WTO TBT Code of Good Practice<sup>34</sup> and has since, repeatedly, highlighted the importance of compliance with the WTO TBT criteria. For example, it has called upon the U.S. government to “continue to seek full implementation of the World Trade Organization (WTO) Technical Barriers to Trade (TBT) Agreement and annexes, as well as decisions taken by the WTO TBT Committee.”<sup>35</sup> ANSI has also emphasized that: “standards [must be] developed according to the principles of the WTO TBT Agreement, which are also consistent with ANSI’s Essential Requirements for standards development. The process must be consensus-based, *open, with balanced participation* – and include all other elements that are the hallmarks of our standards system in this country.”<sup>36</sup> (emphasis added)

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<sup>33</sup> Page 65 of the Draft Meeting Minutes.

<sup>34</sup> See [http://www.inmetro.gov.br/barreirastecnicas/pdf/atas\\_comercio/TBT9\\_05jan98.pdf](http://www.inmetro.gov.br/barreirastecnicas/pdf/atas_comercio/TBT9_05jan98.pdf) at page 2, Section I.4.

<sup>35</sup> See undated ANSI Submission to NIST at 4, available at <http://www.nist.gov/standardsgov/upload/ANSI-Response-to-Request-for-Information-on-Federal-Agencies-030411.pdf>; see also [http://www.ansi.org/news\\_publications/news\\_story.aspx?menuid=7&articleid=b6fd213d-4193-443a-8de1-63970fb37327](http://www.ansi.org/news_publications/news_story.aspx?menuid=7&articleid=b6fd213d-4193-443a-8de1-63970fb37327).

<sup>36</sup> See pages 6-7 of the ANSI Submission, *supra* note 35.

The IEEE-SA is accredited by ANSI and it voluntarily adopted a 2011 resolution to adhere to the WTO principles of openness, transparency, impartiality and consensus, effectiveness and relevance. In so doing, it noted that:

Openness ... would include openness...with respect to the participation at the policy development level and *at every stage of standards development.*” ... The IEEE Standards Association ensures that all members have *meaningful opportunities* to participate in the IEEE standards development process as well as in the governance of that process.<sup>37</sup> (emphasis added)

The long term activity of the closed DensiFi group deprived non-DensiFi members such as Appellant from having “meaningful opportunities to participate in the IEEE standards development process” with respect to the development of the Standard. And, adhering to the proposed ineffective Remedies, which effectively allow the DensiFi members to bless a standard they developed behind closed doors over more than two years, would be a mockery of the ANSI Essential Requirements as well as the WTO TBT requirements.

***C. The IEEE’s Action Amounts to a Failure of the SDO’s Duty to Ensure a Pro-Competitive Standards Development Process under EU and U.S. Antitrust Law***

The IEEE Bylaws’ insistence on “effective corrective actions” for a finding of dominance is also consistent with the guidance offered by EU and U.S. competition law. Appellants raise this point given that the IEEE’s own Antitrust Policy Guidelines acknowledge that:

A violation (or claims of violation) of competition laws will jeopardize what all participants are working so hard to build; will impede the IEEE mission; and may expose participants and their employers to the risk of imprisonment and other criminal penalties, civil remedies, and significant litigation costs.<sup>38</sup>

Under EU law, DensiFi’s anti-competitive practices constitute an “infringement by object” within the meaning of Article 101(1) of the Treaty on the Functioning of the European

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<sup>37</sup> IEEE Press Release, *AN INTERNATIONAL STANDARDS DEVELOPER: IEEE Adheres to the WTO Principles for International Standardization* (12 December, 2011) available at <http://standards.ieee.org/develop/intl/ieeewto.pdf>.

<sup>38</sup> IEEE Antitrust Policy Guidelines at 1 (Aug. 24, 2010), available at <http://standards.ieee.org/develop/policies/antitrust.pdf>.

Union (TFEU) with no possibility for those practices to benefit from the exemption provided in Article 101(3) TFEU. DensiFi practices are also in violation of the EU Guidelines on Horizontal Agreements, Section 7.<sup>39</sup> And, under U.S. law, the collusion among DensiFi’s members may well qualify as a violation of Section 1 of the Sherman Act. As the Supreme Court made clear in another case where a group of participants subverted the standard development process to force through their proposals, the “rounding up [of] supporters” that comprise “economically interested persons to set private standards” may violate Section 1 of the Sherman Act. *Allied Tube v. Indian Head, Inc.*, 486 U.S. 492, 509 (1988).

In fact, as the U.S. Supreme Court has long recognized, “a standard-setting organization [like IEEE] can be rife with opportunities for anticompetitive activity,” and the economically interested corporate members of such associations “have an opportunity to harm their employers’ competitors through manipulation of [the standards].” *See American Society of Mechanical Engineers, Inc. v. Hydrolevel Corp.*, 456 U. S. 556, 571 (1982); *Allied Tube v. Indian Head, Inc.*, 486 U.S. 492, 509 (1988) (“There is no doubt that the members of such [SDO] associations often have economic incentives to restrain competition and that the product standards set by such associations have a serious potential for anticompetitive harm,” and for that reason, “private standard-setting associations have traditionally been objects of antitrust scrutiny.”) These inherent antitrust risks are tolerated because of the *potential* for pro-competitive benefits from standardization where the best technologies are evaluated and considered on their merits in an open forum of technical experts.

The law is equally clear that the IEEE itself may not turn a blind eye to the conduct of certain members. The “hope of pro[-]competitive benefits [from standards development

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<sup>39</sup> *See* EU Guidelines on Horizontal Agreements, Section 7, ¶¶ 280-82, 295, available at [http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011XC0114\(04\)&from=EN](http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52011XC0114(04)&from=EN). *See also* Commission Decision in X-Open Group, referenced in ¶ 295.

activities] depends upon the existence of safeguards sufficient to prevent the standard-setting process from being biased by members with economic interests in restraining competition. *An association cannot validate the anticompetitive activities of its members simply by adopting rules that fail to provide such safeguards.*” *Allied Tube*, 486 U.S. at 509 (emphasis added). Indeed, in another case, the Supreme Court reasoned that only by holding the SDO itself “liable for the antitrust violations of its agents” does it make it “much more likely that similar antitrust violations will not occur in the future.” The Court further emphasized the critical role played by the SDO to ensure that its members follow the law:

*Only [the SDO] can take systematic steps to make improper conduct on the part of all its agents unlikely, and the possibility of civil liability will inevitably be a powerful incentive for [the SDO] to take those steps. Thus, a rule that imposes liability on the standard-setting organization -- which is best situated to prevent antitrust violations through the abuse of its reputation -- is most faithful to the congressional intent that the private right of action deter antitrust violations. (Emphasis added).*

Under the current state of affairs, Appellants respectfully submit that the action (or, inaction) taken by the IEEE-SA, in the form of an ineffectual Remedies adopted as an intended cure for dominant conduct corrupting the Standard, amounts to a failure of an SDO’s duties to ensure a fair and procompetitive standards development process in this case. Put simply, the IEEE-SA’s imposed Remedies for a demonstrated finding of “dominance” constitutes a failure to adopt adequate safeguards.

For these reasons, Appellants also urge the IEEE to update its Antitrust Policy Guidelines to include guidance on the proper operation of and role of SIGs in standard development, and, specifically, to clarify at what point SIGs engage in the impermissible “execution” of a standard rather than the permissible setting of the “specifications.” Appellants respectfully request the

IEEE-SA exercise its appropriate leadership before the corrupted Draft 1.0 becomes the next official Wi-Fi standard.