Bi-Level Technologies

From the SelectedWorks of Ron D. Katznelson

Fall October 29, 2016

The IEEE controversial policy on Standard Essential Patents – the empirical record since adoption

Available at: https://works.bepress.com/rkatznelson/80/
The IEEE controversial policy on Standard Essential Patents – the empirical record since adoption


Ron D. Katznelson, Ph.D.*

*The Author is a member of the IEEE-USA Intellectual Property Committee. The views expressed herein are his own and are neither the official positions of IEEE-USA nor IEEE. No other party supported or contributed to this presentation.

Content

- The new IEEE patent policy
- The empirical record of material decline in licensing assurances for IEEE standards
- Reaction of Working Groups and the IEEE-SA Standards Board
The 2015 IEEE Patent Policy materially changed the meaning of FRAND

- Standard-Essential Patent (SEP) holder must waive seeking injunction until it has successfully litigated claims against the unlicensed implementer to conclusion in a court of appeals.
- Singly recommends royalties based on “smallest salable” implementation of any portion of the standard.
- Only licenses for which the SEP holder had relinquished the right to seek, enforce, or even threaten, an injunction can qualify as “comparable licenses” for determining FRAND:
  - Admission that the royalty should be lower than before.
- Agree not to require reciprocal cross-licensing except of the same standard.
LOAs under the new IEEE Patent Policy require substantive SEP holder concessions beyond those in legacy LOAs.

**Letter of Assurance**

- Agree to timely disclose known SEPs
- Agree to unlimited number of licensees
- Agree to FRAND terms
- Agree to royalties based on “smallest salable” implementation; and
- Agree not to enjoin infringers
- Agree not to require reciprocal cross-licensing even for related standards
- Agree to other constraints

**Standard**

IEEE Standard for Information technology—Telecommunications and information exchange between systems—Local and metropolitan area networks—Specific requirements

Part 17: Resilient packet ring (RPR) access method and physical layer specifications

IEEE Computer Society
Sponsored by the LAN/MAN Standards Committee

IEEE Std 802.17 ™-2004
IEEE Standards

802.17
TM
IEEE Standard for Information technology—Telecommunications and...
Key patented technology developers who strongly opposed the new IEEE Patent Policy

- Qualcomm
- Nokia
- Ericsson
- Nokia Siemens Networks (NSN)
- Alcatel-Lucent
- Blackberry (RIM)
- Siemens
- IBM
- InterDigital
- Panasonic
- Orange (France Telecom)
- SanDisk
- Fraunhofer
- General Electric

Contributed an aggregate of 45% of all IEEE declared SEPs in 2007-2013...

Source: IPlytics, GmbH (2014)
... and contributed an aggregate of 36% of all IEEE licensing Letters of Assurance (LOA) in 2007-2013

Fraction of IEEE LOAs contributed

N = 550

Source: IPlytics, GmbH (2014)
What is the empirical record since the new IEEE patent policy came into effect on March 15, 2015?
**Explanation of terms in the chart**

- **Duplicate LOAs** not counted are LOA restatements filed for standards, amendments, or revisions for which a specific or blanket LOA on a patent or a pending patent application was previously accepted from the same patent holder.

- **Negative LOA**, shown as a negative number, means Accepted LOA in which the patent holder declines to license under the IEEE patent policy.

- **Missing LOA**, shown as a negative number, means a disclosed essential patent claim holder from whom IEEE sought but did not receive an Accepted LOA as of March 15, 2018.
Decline in non-duplicate licensing Letters of Assurance for IEEE standards by entity type

Sources: LOA lists, IEEE-SA PatCom; Missing LOAs in: 802.15 minutes, 17-Sep-2015; 802.11 LOA Requests Register, March 5, 2018.

Decline in non-duplicate licensing Letters of Assurance for IEEE standards
(Netting out negative and missing LOAs)

Sources: LOA lists, IEEE-SA PatCom; Missing LOAs in: 802.15 minutes, 17-Sep-2015; 802.11 LOA Requests Register, March 5, 2018.
Decline in LOA contributions to IEEE since the new patent policy came into effect is statistically significant in both entity types.

<table>
<thead>
<tr>
<th>Entity Category</th>
<th>All LOAs</th>
<th>Semicond./Chip Co. LOAs</th>
<th>Product/System Co. LOAs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mann-Whitney Test for Two Independent Samples</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>count</td>
<td>12</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>sample mean</td>
<td>29.3</td>
<td>3.4</td>
<td>8.58</td>
</tr>
<tr>
<td>change in sample mean</td>
<td><strong>-88%</strong></td>
<td></td>
<td><strong>-72%</strong></td>
</tr>
<tr>
<td>median</td>
<td>28.5</td>
<td>4.5</td>
<td>6</td>
</tr>
<tr>
<td>rank sum</td>
<td>150</td>
<td>21</td>
<td>136</td>
</tr>
<tr>
<td>U</td>
<td>0</td>
<td>72</td>
<td>14</td>
</tr>
<tr>
<td><strong>Rank Test Results</strong></td>
<td>one tail</td>
<td>two tail</td>
<td>one tail</td>
</tr>
<tr>
<td>alpha</td>
<td>0.05</td>
<td></td>
<td>0.05</td>
</tr>
<tr>
<td>U</td>
<td>0</td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>mean</td>
<td>36</td>
<td></td>
<td>36</td>
</tr>
<tr>
<td>std dev</td>
<td>10.67</td>
<td></td>
<td>10.66</td>
</tr>
<tr>
<td>z-score</td>
<td>-3.37519</td>
<td></td>
<td>-2.06369</td>
</tr>
<tr>
<td>U-crit</td>
<td>17.96</td>
<td>14.59</td>
<td>17.96</td>
</tr>
<tr>
<td>p-value</td>
<td><strong>0.0004</strong></td>
<td>0.0007</td>
<td><strong>0.0195</strong></td>
</tr>
<tr>
<td>Statistically significant</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
</tbody>
</table>
## New or draft standards currently subject to negative or missing LOAs

<table>
<thead>
<tr>
<th>IEEE Standard</th>
<th>Technology</th>
<th>LOA</th>
<th>Patent Holder</th>
</tr>
</thead>
<tbody>
<tr>
<td>802.11n</td>
<td>WiFi, Antenna Diversity Enhancements for Higher Throughput</td>
<td>Negative</td>
<td>Nokia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Negative</td>
<td>Orange</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Missing</td>
<td>Texas A&amp;M Univ.</td>
</tr>
<tr>
<td>802.11ac</td>
<td>WiFi, Enhancements for Very High Throughput for Operation in Bands below 6 GHz</td>
<td>Missing</td>
<td>Texas A&amp;M Univ.</td>
</tr>
<tr>
<td>802.11ad</td>
<td>WiFi, Enhancements for Very High Throughput in the 60 GHz Band</td>
<td>Missing</td>
<td>Texas A&amp;M Univ.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Negative</td>
<td>Nokia</td>
</tr>
<tr>
<td>802.11af</td>
<td>WiFi, Television White Spaces (TVWS) Operation</td>
<td>Negative</td>
<td>Nokia</td>
</tr>
<tr>
<td>802.11ah</td>
<td>WiFi, Sub 1 GHz License Exempt Operation</td>
<td>Negative</td>
<td>Nokia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Negative</td>
<td>Ericsson</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Submitted</td>
<td>Qualcomm*</td>
</tr>
</tbody>
</table>

* The 802.11 Chair is unwilling and/or unable to determine whether a positive LOA has been received. Register of IEEE 802.11 LOA requests, March 5, 2018.
New or draft standards currently subject to negative or missing LOAs (contd.)

<table>
<thead>
<tr>
<th>IEEE Standard</th>
<th>Technology</th>
<th>LOA</th>
<th>Patent Holder</th>
</tr>
</thead>
<tbody>
<tr>
<td>802.11ai</td>
<td>WiFi, Fast Initial Link Setup (for mobility handoff)</td>
<td>Negative</td>
<td>Nokia</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Missing</td>
<td>Blackberry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Missing</td>
<td>IBM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Missing</td>
<td>HP</td>
</tr>
<tr>
<td>802.11ax</td>
<td>Enhancements for High Efficiency WLAN (dense deployment scenarios)</td>
<td>Negative</td>
<td>Ericsson</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Negative</td>
<td>InterDigital</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Negative</td>
<td>Panasonic</td>
</tr>
<tr>
<td>802.11ay</td>
<td>WiFi, 3650-3700 MHz Operation in USA</td>
<td>Negative</td>
<td>Panasonic</td>
</tr>
<tr>
<td>802.11ba</td>
<td>WiFi, Wake-up radio operation</td>
<td>Missing</td>
<td>Endiio</td>
</tr>
<tr>
<td>802.11z</td>
<td>WiFi, Extensions to Direct-Link Setup (DLS)</td>
<td>Negative</td>
<td>Nokia</td>
</tr>
</tbody>
</table>

**Sources:** [LOA lists, IEEE-SA PatCom](#); 802.11 LOA Requests Register, March 5, 2018.
<table>
<thead>
<tr>
<th>IEEE Standard</th>
<th>Technology</th>
<th>LOA</th>
<th>Patent Holder</th>
</tr>
</thead>
<tbody>
<tr>
<td>802.15.4q</td>
<td>Ultra-Low Power Physical Layer</td>
<td>Missing</td>
<td>Freescale</td>
</tr>
<tr>
<td>802.16</td>
<td>Wireless Metropolitan Area Networks</td>
<td>Negative</td>
<td>Nokia</td>
</tr>
<tr>
<td>802.16.1</td>
<td>Wireless MAN-Advanced Air Interface for Broadband Wireless Access Systems</td>
<td>Negative</td>
<td>Nokia</td>
</tr>
<tr>
<td>802.19.1</td>
<td>TV White Space Coexistence Methods for LAN and MAN</td>
<td>Negative</td>
<td>Nokia</td>
</tr>
<tr>
<td>1588</td>
<td>Precision Clock Synchronization Protocol for Networked Measurement &amp; Control Systems</td>
<td>Negative</td>
<td>Alcatel Lucent</td>
</tr>
<tr>
<td>1901</td>
<td>Broadband over Power Line Networks, MAC and PHY Layer Specifications</td>
<td>Negative</td>
<td>Orange</td>
</tr>
</tbody>
</table>

**Sources:** LOA lists, IEEE-SA PatCom; Missing LOAs in: 802.15 minutes, 17-Sep-2015; 802.11 LOA Requests Register, March 5, 2018.
What can a WG do when declared SEPs are not pledged under IEEE’s LOA form?

- WG has three theoretical options:
  - Stop work and abandon the draft standard
  - Recommend ratification of the draft standard notwithstanding the lack of Accepted LOAs
  - Adopt “alternative technologies” – design-around the claims of patents declared essential that are not subject to an Accepted LOA

- But is the design-around option really available?
IEEE Standards WGs are not authorized, nor have expertise, to design-around declared SEPs’ claims

- IEEE-SASB Bylaws § 6.1 states that the IEEE cannot be responsible for
  - “Identifying Essential Patent Claims for which a license may be required”; “Determining the validity, essentiality, or interpretation of Patent Claims”; or “Determining whether an implementation is a Compliant Implementation”

- IEEE-SASB Operations Manual § 5.3.10.2
  - forbids WG discussing “the essentiality, interpretation, or validity of patent claims.”

- These proscribed activities are essential for determining that an “alternative technology” is non-infringing, and must therefore be done outside IEEE; parties can then propose to the WG a particular change or technical alternatives
How SDOs deal with known but unpledged SEPs

- **IEEE**: No definitive response; FAQ 13 states that the PatCom “will review the circumstances and make a recommendation to the IEEE-SA Standards Board.”

- **JEDEC**: Manual of Organization and Procedure § 8.2.7 states that Board has discretion to approve a standard without LOA “subject to special legal disclaimers.”

- **ATIS**: Operating Procedures § 10.4.1 states that ANSI patent policy applies. “Any deviation from the foregoing procedures shall occur only after prior consultation with and approval of the ATIS General Counsel.”

- **ITU/ISO/IEC**: Common Patent Policy § 2.3 states: if the “patent holder is not willing to comply with the provisions [of specified FRAND], the [standard] shall not include provisions depending on the patent.”

- **ETSI**: IPR Policy: if feasible, § 8.1.1 calls for design-around; if infeasible to design around, § 8.1.2 requires a halt in development; and consideration under § 8.1.3 in consultation with the ETSI Secretariat “whether or not” to “pursue development of the concerned parts of the standard .. based on the non-available technology.”
The participants in the development of the standards project at issue should be cognizant of the fact that there is not such an Accepted LoA on file, and that the SASB will take that fact into account when determining whether or not to approve a standard. Accordingly, such participants may wish to consider alternative technologies.

In addition, the SASB reserves the right to withdraw an approved standard should it be determined that market implementation is being hindered by the assertion of essential patent claims in the absence of an Accepted LoA.

Any requests to PatCom for consideration of whether the IEEE-SA Standards Board should approve P802.11ah notwithstanding the fact that there is an asserted potential essential patent claim for which an Accepted LoA (on the IEEE-SA Standards Board approved patent letter of assurance form) is not on file shall be referred to the IEEE-SA Standards Board without discussion at PatCom.
IEEE-SASB shuts down disclosure of alternative FRAND licensing

LETTER OF ASSURANCE FOR ESSENTIAL PATENT CLAIMS

Please return via mail, e-mail (as a PDF), or fax:
PatCom Administrator, IEEE-SA Standards Board Patent Committee
Institute of Electrical and Electronics Engineers, Inc.
445 Hoes Lane
Piscataway, NJ 08854 USA
FAX (+1 732-875-0524) e-mail: patcom@ieee.org

No license is implied by submission of this Letter of Assurance

A. SUBMITTER:

Legal Name: [Redacted] (“Submitter”)

B. SUBMITTER’S CONTACT INFORMATION (for the purpose of licensing information):

Contact Name/Title: [Redacted]
Department: [Redacted]
Address: [Redacted]
Telephone: [Redacted] Fax: [Redacted] E-mail: [Redacted]
URL: [Redacted]

Note: The IEEE does not endorse the content, or confirm the accuracy or consistency of any contact information or web site listed above.
IEEE-SASB shuts down disclosure of alternative FRAND licensing (contd.)

SASB Resolution December 5, 2015

“The SASB directed staff to remove the words ‘(for the purposes of licensing information)’ from Section B of the LOA form.

“RESOLVED, that the IEEE-SA Standards Board hereby confirms that the sole LOA form that the Standards Board has approved does not permit an LOA with the D.1.d box selected to indicate the existence of alternative licensing assurances through contact information or otherwise, or to include attachments other than the extension page for identification of specific patents under Item E.1.
Purported purpose of changing the IEEE patent policy

“IEEE recently updated its own patent policy introducing more clarity and predictability for patent holders, implementers and users around technologies that will be included in our standards going forward, such as the IEEE 802.11 family of Wi-Fi standards.” — Konstantinos Karachalios, Managing Director, IEEE-Standards Association

“This update is designed to provide greater clarity and predictability for patent-holders and implementers.” — IEEE press release, Feb. 8, 2015.

The record thus far suggests otherwise:
a) Participants have requested clarifying feedback on the policy from PatCom, yet they have not received any response, leaving participants unsure of how to proceed with their standards development activity.

b) Similar to (a), requests for clarifying feedback directed to SASB have not been responded to.

c) The non-responsiveness in (a) and (b) have resulted in considerable debate and confusion among 802.11ah participants resulting in the delay of its completion.

d) Number of negative LOAs have increased.

e) There is uncertainty in IEEE 802 on whether the SASB will ratify a standard when there are missing LOAs. As a result it is unclear if many years of work will lead to a ratified standard.

f) WG chairs are spending much more time managing IP related discussions/items than in the past.

g) The number of IP related SASB executive sessions has dramatically increased; there is legal review of everything which consumes time and money. As a result, the responsiveness of SASB to the standards developers is reduced.
h) There has been an evolution of the patent policy since 1993 (that some consider unfavorable/undesirable)

i) The dynamics of collaboration have changed

j) There has been a loss of market momentum for 802.11ah

k) Negative LOAs that were not accepted by the PatCom administrator are not included in the SA LOA database

l) Need to improve the education of project leadership on the updated patent policy because they are approached for advice from participants, but they are unable to provide it

m) The updated patent policy has resulted in additional activity among project developers, but it is to be expected.

n) Participants are confused as to how to conduct meetings; they are asking for guidance from project leadership

o) Lack of certainty causes concerns at working group meetings
Classification of LOAs received by IEEE as “other:”

“These are requests for an LOA where it has been determined that the request has been received, and where the 802.11 chair is unwilling and/or unable to assert whether a positive LOA has been received.”

— Register of IEEE 802.11 LOA requests, March 5, 2018.
ANSI accreditation of IEEE standards requires that they not have negative or missing LOAs


- The ANSI’s Board of Standards Review ("BSR") independently determines whether this requirement is met. “Such a decision is the exclusive province of the [BSR].” — Id. (Emphasis added).

- For standards having express negative LOAs for a known SEP, IEEE would have difficulty to explain under the ANSI’s Guidelines that it “reasonably believes the [standard] meets the criteria of the ANSI [Patent Policy].” — Id. p8.
Conclusion

- Substantial and significant decline in licensing assurances to IEEE since the new patent policy: average net submission rate of LOAs declined by 88%, counting known negative and missing LOAs as negative numbers. The result is statistically highly significant ($p = 0.0004$).

- Work at some standards Working Groups has been disrupted and delayed.

- Uncertainty undermines draft standards’ credibility.

- The IEEE-SA Standards Board has yet to unconditionally ratify a standard with recent negative or missing LOAs; ANSI approval of such standards are at risk; untenable decisions are inevitable.

- Predict ultimate reversal, where IEEE reverts to the traditional FRAND definition to restore the flow of positive LOAs.

THANK YOU

Presenter: Ron Katznelson,
ron@bileveltech.com
“When [box] checked, this Letter of Assurance is a Blanket Letter of Assurance. As such, all Essential Patent Claims that the Submitter may currently or in the future have the ability to license shall be available under terms as indicated in part D.1.”

“An Accepted Letter of Assurance referencing an existing standard, amendment, corrigendum, edition, or revision will remain in force for the application of the Essential Patent Claim(s) to the technology specified in another amendment, corrigendum, edition, or revision of the same IEEE Standard but only if (a) the application of the technology required by the amendment, corrigendum, edition, or revision of the same IEEE Standard has not changed from its previous usage and (b) the same Essential Patent Claims covered by the prior Accepted Letter of Assurance remain Essential Patent Claims in the same IEEE Standard or revision thereof.” Section 6.3.5, IEEE-SA Standards Board Operations Manual