**IEEE 802.15**

**Wireless Specialty Networks**

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| Project | IEEE P802.15 Working Group for Wireless Specialty Networks (WSNs) |
| Title | Proposal of a liaison statement to ITU-R Working Parties 5A and 5C |
| Date Submitted | 10 January 2024 |
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| Re: |  |
| Abstract | This document proposes a liaison statement to ITU-R WPs 5A and 5C informing updates of IEEE Std 802.15.3dTM-2017 (IEEE Standard for High Data Rate Wireless Multi-Media Networks--Amendment 2: 100 Gb/s Wireless Switched Point-to-Point Physical Laye). |
| Purpose | To provide updated information on technical and operational characteristics in the frequency range 275-450 GHz based on IEEE 802.15.3TM-2023 (IEEE Standard for Wireless Multimedia Network). |
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**Proposal of a liaison statement to ITU-R Working Parties 5A and 5C**

ITU-R WPs 5A and 5C requested IEEE 802 to provide technical and operational characteristics for the preparation of WRC-19 agenda item 1.15 [1]-[6]. IEEE 802 provided ITU-R WPs 5A and 5C these characteristics based on IEEE Std 802.15.3dTM-2017 - IEEE Standard for High Data Rate Wireless Multi-Media Networks - Amendment 2: 100 Gb/s Wireless Switched Point-to-Point Physical Layer [7]-[10] and ITU-R WPs 5A and 5C published Reports ITU-R M.2417 [11] and F.2416 [12] in 2017, respectively. The frequency bands 275-296 GHz, 306-313 GHz, 318 333 GHz and 356-450 GHz were identified for use by administrations for the implementation of land mobile and fixed service applications at WRC-19. These Reports were revised according to the results of WRC-19 [13][14], but the technical and operational characteristics in those Reports are maintained as it was before.

IEEE Std 802.15.3dTM-2017 - IEEE Standard for High Data Rate Wireless Multi-Media Networks - Amendment 2: 100 Gb/s Wireless Switched Point-to-Point Physical Layer was amended to extend the upper limit of the frequency from 325 GHz to 450 GHz and published as a part of IEEE Std 802.15.3TM-2023 - IEEE Standard for Wireless Multimedia Networks. This information, specifically THz related matters, has not been informed ITU-R WPs 5A and 5C because no liaison between IEEE 802 and ITU-R WPs 5A and 5C has been exchanged since 2018.

NICT proposes to send a liaison statement to ITU-R WPs 5a and 5C to inform the most recent version of technical and operational characteristics in the frequency range 275-450 GHz standardized by IEEE 802 (see Attachment).

**Reference**

[1] <https://mentor.ieee.org/802.18/dcn/16/18-16-0047-00-0000-itu-r-wp-5a-tech-op-lms-275-450-ghz.docx>

[2] <https://mentor.ieee.org/802.18/dcn/16/18-16-0048-00-0000-itu-r-wp-5a-pdnr-m-300ghz-ms-char.docx>

[3] <https://mentor.ieee.org/802.18/dcn/16/18-16-0059-00-0000-liaison-fixed-service-applications-spectrum-needs-for-wrc-19-1-15.docx>

[4] <https://mentor.ieee.org/802.18/dcn/17/18-17-0008-00-0000-technical-and-operational-characteristics-of-digital-land-mobile-radios-for-specific-use.docx>

[5] <https://mentor.ieee.org/802.18/dcn/17/18-17-0012-02-0000-preliminary-information-on-land-mobile-service-applications-associated-with-work-on-wrc-19-agenda-item-1-15.docx>

[6] <https://mentor.ieee.org/802.18/dcn/17/18-17-0016-00-0000-preliminary-information-on-fixed-service-applications-associated.docx>

[7] <https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R15-WP5A-C-0225>

[8] <https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R15-WP5A-C-0375>

[9] <https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R15-WP5C-C-0140>

[10] <https://www.itu.int/md/meetingdoc.asp?lang=en&parent=R15-WP5C-C-0236>

[11] https://www.itu.int/pub/R-REP-M.2417-2017

[12] <https://www.itu.int/pub/R-REP-F.2416-2018>

[13] https://www.itu.int/pub/R-REP-M.2417-1-2022

[14] https://www.itu.int/dms\_ties/itu-r/md/23/sg05/c/R23-SG05-C-0033!R1!MSW-E.docx

**Attachment**

**Institute of Electrical and Electronics Engineers, Inc.**

DRAFT Liaison statement to itu-r working parties 5A and 5C

**Technical and operational characteristics in the frequency range 275-450 GHz**

# 1 Source information

This contribution was developed by IEEE Project 802®, the Local and Metropolitan Area Network Standards Committee (“IEEE 802”), an international standards development committee organized under the IEEE and the IEEE Standards Association (“IEEE-SA”).

The content herein was approved for submission by the IEEE 802.15™ Working Group for WPAN, the IEEE 802.18 Radio Regulatory Technical Advisory Group, and the IEEE 802 IEEE 802 LAN/MAN (LMSC)[[1]](#footnote-1), in accordance with the IEEE 802 policies and procedures, and represents the view of IEEE 802.

# 2 Discussion

In 2017, IEEE 802 provided ITU-R WPs 5A and 5C with the technical and operational characteristics based on IEEE Std 802.15.3dTM-2017 - IEEE Standard for High Data Rate Wireless Multi-Media Networks - Amendment 2: 100 Gb/s Wireless Switched Point-to-Point Physical Layer. WPs 5A and 5C published Reports ITU-R M.2417[[2]](#footnote-2) and F.2416[[3]](#footnote-3) in 2017, respectively. The frequency bands 275-296 GHz, 306-313 GHz, 318 333 GHz and 356-450 GHz were identified for use by administrations for the implementation of land mobile and fixed service applications at WRC-19. These Reports were revised according to the results of WRC-19[[4]](#footnote-4), [[5]](#footnote-5), but the technical and operational characteristics in those Reports are maintained as it was before.

In IEEE Std 802.15.3TM-2023 the frequency bands have been extended up to 450 GHz [[6]](#footnote-6). The additional characteristics for PHY specification for THz in IEEE Std 802.15.3TM-2023 are summarized in the following table. These characteristics could be added in Tables 2, 3 and 4 in Report ITU-R M.2417 and Table 2 in Report ITU-R F.2416.

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| --- | --- |
| Additional frequency range (GHz) | 325-450 |
| Additional bandwidth (GHz) | 34.56 |
| Additional modulation scheme | 16-APSK, 32-APSK |

IEEE 802 would appreciate if ITU-R WPs 5A and 5C keep it informed on the progress of the work.

# 3 Summary

We applaud the efforts of the participants in ITU-R WPs 5A and 5C for undertaking this work and giving IEEE 802 the opportunity to exchange information on the terahertz related matters.

Respectfully submitted

By: /ss/.

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1. This document solely represents the views of IEEE 802 LMSC and does not necessarily represent a position of either IEEE or the IEEE Standards Association or IEEE Technical Activities. [↑](#footnote-ref-1)
2. https://www.itu.int/pub/R-REP-M.2417-2017 [↑](#footnote-ref-2)
3. <https://www.itu.int/pub/R-REP-F.2416-2018> [↑](#footnote-ref-3)
4. https://www.itu.int/pub/R-REP-M.2417-1-2022 [↑](#footnote-ref-4)
5. https://www.itu.int/dms\_ties/itu-r/md/23/sg05/c/R23-SG05-C-0033!R1!MSW-E.docx [↑](#footnote-ref-5)
6. <https://ieeexplore.ieee.org/document/10443750> or <https://standards.ieee.org/ieee/802.15.3/10801/> [↑](#footnote-ref-6)