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| Subject:  | ECO Bulletin on on-going/new issues in other regions or organisations |
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| Summary:  |
| This ECO Bulletin provides a summary update on aspects of progress in spectrum management outside the CEPT. The items in this bulletin include:1. Update from APT (new revised APT Reports, ongoing work in APT AWG, AFIS etc.);
2. Information about standardisation activities in 3GPP TSG RAN for LTE MTC (Machine-Type Communications)/ NB IoT (Narrowband IoT), likely to have some impact on considerations for future mobile communications for railways or M2M/IoT solutions for utilities;
3. FCC on Hearing Aid Compatibility;
4. Update on FCC – White Space Use and Incentive Auctions – Modification of Part 15 rules;
5. Canada released new information on the Amateur Radio Service. The issue of mutual recognition of amateur licenses/ equivalence with Canada is considered to be solved on both sides (CEPT and Canada);
6. FCC promotes Higher Frequency Spectrum for Future Wireless Technology above 24 GHz;
7. FCC proposes a reform of radiofrequency equipment authorisation rules;
8. 60 GHz applications under general authorisation – worldwide overview;
9. USA: Qualcomm, Gogo, Inmarsat and others continue to push for FCC's 14 GHz ATG (Air-To-Ground) spectrum auction (‘DA2GC’)
10. CITEL: Work on frequencies for critical Infrastructure used by utilities
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| Proposal:  |
| This bulletin is to note by the ECC Plenary. More detailed input on some of the subjects covered is being input to the groups dealing with the respective subjects.Several of the issues covered in this bulletin should be noted or discussed at the respective WG/ PT level. This includes information related to SRDs, some activities in APT AWG, LTE Narrowband IoT, future wireless technology above 24 GHz, DA2GC and satellites, frequencies for mission-critical infrastructure for utilities.Some topics are proposed to be discussed during the forthcoming ECC-FCC-Canada information exchange/ liaison meeting (e.g. 60 GHz FCC actions, auspices of an auction for ATG/DA2GC in the USA at 14 GHz, CITEL actions with regard to harmonisation of frequencies for mission-critical infrastructure for utilities, as supported by Canada and the USA).  |
| Background:  |
| The Office brings to each ECC meeting a bulletin on activities in radio communications in other world regions, where a regulatory dimension is raised (e.g. by innovative services or technology). The primary objective is to identify whether the ECC needs to investigate further or consider possible new actions. A secondary but more frequently addressed objective is to enable comparison to be made with the regulatory approach in other regions to subjects already treated by the ECC (including, where relevant, to the work of the CPG). |

1. **19th Meeting of the APT Wireless Group (AWG-19)**

The Asia-Pacific Telecommunity (APT) organised the 19th Meeting of the APT Wireless Group (AWG-19) from 2 to 5 February 2016 in Chiang Mai, Thailand.

AWG-19 appreciated the work done by the ECO for the AFIS (APT Frequency Information System and encouraged the APT secretariat to continue the work. APT members proposed to include information from REP-15(Rev.1) (SRD) into AFIS (already available). Individual APT members have started to inert their data in AFIS.



The recent **APT e-Newsletters** are available under: <http://www.apt.int/Publications> (at the bottom of the page, the latest newsletter is from January 2016). This includes a calendar of events, inter-alia APT plans a workshop on Disaster Management/Communications in the second quarter 2016.

The following newly revised APT Reports have been approved:

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| [APT/AWG/REP-04(Rev.2)](http://www.apt.int/sites/default/files/Upload-files/AWG/APT-AWG-REP-04Rev.2_APT_Report_on_Coexistance_IMT2000.docx) | APT Report on "Studies on the Coexistence between IMT-2000 Technologies and between IMT-2000 Technologies and other wireless Access Technologies in Adjacent and Near-Adjacent Frequency Bands" | Revised 02/2016 |
| [APT/AWG/REP-07(Rev.4)](http://www.apt.int/sites/default/files/Upload-files/AWG/APT-AWG-REP-07Rev.4_APT_Report_on_SRD.docx) | APT Survey Report on Operation of Short-Range Devices (SRDs) | Revised 02/2016 |
| [APT/AWG/REP-15(Rev.3)](http://www.apt.int/sites/default/files/Upload-files/AWG/APT-AWG-REP-15Rev.3_APT_Report_on_Mobile_Band_Usage.docx) | APT Report on "Information of Mobile Operator's Frequencies, Technologies and License Durations in Asia Pacific Countries" | Revised 02/2016 |
| [APT/AWG/REP-38(Rev.1)](http://www.apt.int/sites/default/files/Upload-files/AWG/APT-AWG-REP-38Rev.1_APT_Report_Mission_Critical_PPDR.docx) | APT Report on "Technical Requirements for Mission Critical Broadband PPDR Communications" | Revised 02/2016 |

APT Report 07 is relevant for information for the SRD/MG, also with regard to the work in ITU-R WP1B on SRD classification (i.e. mapping of categories into a common set of SRD categories for an improved global harmonisation).

APT Report 04 includes a reference to Report ITU-R M.2110 (Sharing studies between radiocommunication services and IMT systems operating in the 450-470 MHz band). The Report could be of relevance for WGSE/ SE7.

APT Report 15 includes updates from a considerable number of APT member administrations and could be of interest in ECC PT1.

The revision of APT Report 38 should be noted in FM49.

The following work is in progress in APT AWG (amongst some other work, list is not exhaustive):

1. A working document towards a draft new APT Recommendation/Report on Authorised/Licensed Shared Access (ASA/LSA). The working document uses considerable references to ECC Deliverables;
2. A new questionnaire on the usage of the bands 108 – 117.975 MHz, 328.6 – 335.4 MHz and 960 – 1164 MHz for aeronautical radionavigation service systems in the Asia-Pacific region;
3. A new questionnaire on frequency use in 457.5125-457.5875 MHz and 467.5125-467.5875 MHz in the Asia-Pacific region;
4. A working document towards a new APT Report on services and applications for public use of unmanned aircraft (triggered by Japan); similar to the work carried out in WGFM CG Drones;
5. A working document towards a new APT Report on small cell cloud services (follows a questionnaire);
6. A new study on implementation of BB-PPDR (based on LTE) networks;
7. A working document towards a new APT Report on geo-location databases;
8. A new APT Report and Recommendation on frequency ranges for non-beam Wireless Power Transmission (WPT) for mobile devices; 6765 kHz – 6795 kHz is (see RR No. 5.138) the target frequency range as described in the APT Report on WPT and the latest WPT studies in ITU-R. In addition, development of an APT Report and Recommendation on frequency ranges for Non-Beam WPT for electric vehicles; 79 kHz – 90 kHz is a targeted frequency range as described in the APT Report on WPT and the latest WPT studies in ITU-R. Note that ETSI is also developing an ETSI system reference document for wireless power transmission using technologies other than radio frequency beam and this may arrive in the ECC/WGFM later on in 2016;
9. A new activity towards a revision of an APT Report for the purpose to describe architecture and performance of integrated MSS systems and hybrid satellite/terrestrial systems below 3 GHz; this includes aspects such as MSS/CGC networks used to connect directly to commercial airplanes (similar to 2GHz MSS/CGC in Europe);
10. A new questionnaire on the existing and future usage of 17.7-20.2 GHz, 27.5-30 GHz in the Asia-Pacific region; complemented by work on a new APT Report on modern satellite applications;
11. AWG has a new sub-group on railway radiocommunications. The task will be to create a new APT Report. This can be seen as an action to prepare for WRC-19 in support of the new AI 1.11 for railway radiocommunications;
12. APT develops a new APT Recommendation on guidance for migration of GSM to Mobile broadband IMT systems;
13. A new questionnaire on existing and future use of bands in relation to WRC-19 AI 1.13 (future IMT) in the Asia-Pacific region;
14. An updated work plan on SRDs (looking into potential bands above 275 GHz for SRD usage); development of an APT Report for this purpose;
15. Development of a new APT Report on fixed wireless systems;
16. Development of a new APT Recommendation for IMT in the band 698-806 MHz;
17. Work on APT frequency arrangements in 1427- 1518 MHz, 3300-3400 MHz, 3400-3600 MHz, and 4800-4990 MHz (APT Report(s) and Recommendations),
18. Revision of APT Report 08 on BB-PPDR in bands 406.1-430 MHz, 806-824/851-869 MHz, and 5 850-5 925 MHz following RESOLUTION 646 (REV. WRC-15);
19. **LTE MTC (Machine-Type Communications)**

At the FM54#7 meeting in December 2015, more information about LTE MTC was requested since this development could potentially be very interesting for Iot/M2M (e.g. utilities) as well as the migration from GSM-R to a follow-on system for European railways. It should be noted that LTE MTC seems to support also the adoption of hybrid approaches for LPWA (low power/ wide area) IoT networks including unlicensed IoT networks (supported by strong industry alliance) and licensed IoT. This could be of interest for use in the 400 MHz, 800/900 MHz ranges in particular.

The 3GPP agreed in November 2015 on specifications for Narrowband IoT (NB-IoT) (NB-IoT was finally decided as the terminology to be used in 3GPP).

3GPP has recently adopted a narrow band IoT (NB-IoT) feature to specify a new radio access for cellular IoT, based to a great extent on a non-backward-compatible variant of E-UTRA, that addresses improved indoor coverage, support for massive number of low throughput devices, low delay sensitivity, ultra-low device cost, low device power consumption and (optimised) network architecture. In essence, NB-IoT is expected to be the main steam for 3GPP LPWAN replacing NB-LTE and NB-CIoT (Cellular IOT) proposals.

See e.g.

* <http://www.gsma.com/connectedliving/wp-content/uploads/2015/07/002_Bob-Cai-Huawei_NB-CIoT-Ready-to-Go-V5.pdf>
* <http://www.3gpp.org/news-events/3gpp-news/1733-niot>

The LTE MTC (machine type communication) evolution is based on amending the LTE to support MTC. The first version was released with 3GPP Release 8 based on CAT 1 but it does not meet the IoT requirement (battery/cost/range) and a new release is with R12 with Cat 0 and currently enhanced version (eMTC) is under evaluation in Rel 13 to meet LPWAN requirement (CAT M).

NB-CIoT and NB-LTE (will be evolved into NB-IoT) is expected to be released with 3GPP Release 13.

GSM Evolution : upgrade of GSM by using one carrier for IoT and extending the coverage is expected with 3GPP Release 13.



**This is an interesting development for utilities and railways (once, mobility is going to be supported in future 3GPP releases for NB-IoT) and should be monitored.** The new proposal for release 13, to be frozen in 2Q2016, based on 200 kHz channels or part of broader LTE assignments. It can be used as stand-alone (200 KHz) or in combination with other LTE modes/ broader band services. Traffic prioritisation in relation to QoS/latency considerations is considered possible.

**Evolution:**



NB-IOT shall support 3 different modes of operation:

1. ‘Stand-alone operation’ utilising for example the spectrum currently being used by GERAN systems as a replacement of one or more GSM carriers;
2. ‘Guard band operation’ utilising the unused resource blocks within a LTE carrier’s guard-band;
3. ‘In-band operation’ utilising resource blocks within a normal LTE carrier.

NB-IoT will support following features:

* 180 kHz UE RF bandwidth for both downlink and uplink;
* a single synchronisation signal design for the different modes of operation, including techniques to handle overlap with legacy LTE signals.

This will allow to introduce NB-IoT, once standardised by 3GPP, and a complete eco-system is ready either in-band or in the guard band of LTE, or by re-farming one or more of GSM carriers. Adoption of hybrid approaches for LPWA IoT networks including unlicensed IoT network and licensed IoT (when finalised by 3GPP). This is almost similar to existing WiFi/LTE networks (unlicensed/licensed).



The approved Work Item description on NB-IOT is available in RP-151621 with a long list of supporting 3GPP members. 3GPP TSG RAN4 also conducted compatibility studies and has come to conclusions that NB-IoT can co-exist with GSM, UMTS and LTE for standalone (RAN4 in 02/2016).

It is expected that some contributions to the upcoming CEPT Workshop on M2M will also address LTE MTC / NB-IoT.

(should be considered by ECC PT1, FM54, SRD/MG)

1. **FCC on Hearing Aid Compatibility for all wireless voice technologies**

On November 19, 2015, the FCC released a Report and Order and Notice of Proposed Rulemaking expanding the FCC’s rules requiring wireless phones to be hearing aid compatible.  The item has two parts:

* The *Report and Order* expands the scope of the hearing aid compatibility rules to cover phones used with the wireless technologies of tomorrow, including IP-based communications services such as Wi-Fi Calling and Voice-over-LTE.
* The *Notice of Proposed Rulemaking* seeks comment on a consensus plan by industry and consumer stakeholders that would require a greater number of wireless handsets to be hearing aid compatible over time, with an ultimate goal of 100 percent compatibility in 8 years. This would replace the current hearing aid compatibility rules, which require service providers and handset manufacturers to ensure that a specified fraction of their offerings are hearing aid compliant.

Links:

<https://apps.fcc.gov/edocs_public/attachmatch/DOC-336415A1.docx>

<https://apps.fcc.gov/edocs_public/attachmatch/DOC-336415A1.pdf>

Chairman Wheeler statement:
Word: <https://apps.fcc.gov/edocs_public/attachmatch/DOC-336415A2.docx>

PDF: [https://apps.fcc.gov/edocs\_public/attachmatch/DOC-336415A2.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-336415A2.pdf%22%20%5Ct%20%22_blank)

Commissioners’ statements:
<https://apps.fcc.gov/edocs_public/attachmatch/DOC-336415A3.docx>
<https://apps.fcc.gov/edocs_public/attachmatch/DOC-336415A4.docx>
<https://apps.fcc.gov/edocs_public/attachmatch/DOC-336415A5.docx>
<https://apps.fcc.gov/edocs_public/attachmatch/DOC-336415A6.docx>

<https://apps.fcc.gov/edocs_public/attachmatch/DOC-336415A3.pdf>
<https://apps.fcc.gov/edocs_public/attachmatch/DOC-336415A4.pdf>
<https://apps.fcc.gov/edocs_public/attachmatch/DOC-336415A5.pdf>
<https://apps.fcc.gov/edocs_public/attachmatch/DOC-336415A6.pdf>

(should be considered by SRD/MG when discussing hearing aids/ALDs, also with regard to global harmonisation aspects)

1. **Update on FCC – White Space Use and Incentive Auctions – Modification of Part 15 rules**

The last ECO bulletin presented at the 40th ECC Meeting (30 June- 3 July 2015) in document [ECC(15)052R1](http://www.cept.org/Documents/ecc/26001/ECC%2815%29052-Rev1_ECO-Bulletin) included information on the FCC White Space Use rulings. Later on, the USA has updated with FCC 15-99 on 11 August 2015 in a Report and Order:

Amendment of Part 15 of the Commission’s Rules for **Unlicensed Operations** in the Television Bands, Repurposed 600 MHz Band, 600 MHz Guard Bands and Duplex Gap, and Channel 37, and Amendment of Part 74 of the Commission’s Rules for **Low Power Auxiliary Stations** in the Repurposed 600 MHz Band and 600 MHz Duplex Gap; Expanding the Economic and Innovation Opportunities of Spectrum through **Incentive Auctions**.

FCC 15-99: <https://www.fcc.gov/document/fcc-adopts-rules-unlicensed-services-tv-and-600-mhz-bands>

Proceedings FCC 15-99: <http://apps.fcc.gov/ecfs/proceeding/view?name=15-99>

In this Report and Order, the FCC tries to maximise unlicensed white space device’s access to spectrum in the television broadcasting band and the 600 MHz band **in a number of ways (see below)**, while at the same time protecting licensed users from harmful interference. This includes modifying of the Part 15 rules to permit fixed and personal/portable devices to use TV channels previously unavailable to them while continuing to protect TV services from harmful interference by, for example, adjusting power limits, specifying separation distances, and specifying antenna heights.

This includes:

* White space device operations in the 600 MHz band—including the duplex gap, guard bands, 600 MHz service band and channel 37—by limiting power and specifying frequency and distance separations as needed to protect authorised services in those bands from harmful interference. White space devices will continue to access the white space databases for channel assignments in the TV bands, as well as in the 600 MHz band and channel 37. These are the specific actions taken to ensure that white space devices have sufficient spectrum to provide broadband services in these bands;
* In the TV Bands, modify Part 15 rules to permit: Fixed white space devices to operate adjacent to occupied TV channels at 40 mW at antenna heights of 10 meters above ground level or less (within the TV station contour), at 100 mW at antenna heights of 10 meters above ground level or less if there are two contiguous vacant TV channels, closer to co- and adjacent-TV channels by using location technologies (now mandatory technical implementation) with a lower degree of accuracy than ±50 meters, by bonding contiguous or non-contiguous channels;

In this Report and Order, the FCC uses the term “600 MHz band” to refer to all of the frequency bands that, after the incentive auction, will no longer be allocated and assigned only for broadcasting services but instead will be used for new wireless services and guard bands. The 600 MHz spectrum that will be allocated and assigned for new wireless services is referred to either as the “repurposed 600 MHz band” or “600 MHz service band” since the spectrum will be used for the new 600 MHz service pursuant to Part 27 of the Commission’s rules. The term “600 MHz guard band” refers to frequency bands that prevent interference between licensed services in the 600 MHz service band, the TV bands or channel 37, and the term “600 MHz duplex gap” refers to the frequency band that separates the 600 MHz service uplink and downlink bands.

* Devices with up to 10 W in areas with fewer than 50 percent occupied TV channels on TV channels 3 and 4, where available, on two vacant channels above and below channel 37 now reserved for wireless microphone use, Personal/portable white space devices to operate § closer to co- and adjacent-TV station contours, by using location technologies (now mandatory technical implementation) with a lower degree of accuracy than ±50 meters, on channels 14-20, where available on two vacant channels above and below channel 37 now reserved for wireless microphone use;
* In the 600 MHz band, the FCC permits fixed and personal/portable white space devices to operate in the duplex gap (between wireless uplink/downlink bands) in six megahertz adjacent to the wireless uplink band at 40 mW, guard bands (between TV and wireless downlink bands), if the guard band is 9 MHz or 11 MHz, at 40 mW in six megahertz adjacent to the TV band, if the guard band is 7 MHz, at 40 mW in the four megahertz adjacent to the TV band, with at least three megahertz frequency separation from wireless downlink band regardless of guard band size;
* 600 MHz service band (allocated for new wireless services): fixed white space devices operate up to 10 W and personal/portable devices up to 100 mW, at specified distances outside the wireless licensee’s service areas;
* Permit white space devices to operate on channel 37: depending on whether TV or wireless downlinks are in adjacent channels, fixed devices operate from 40 mW to 4W and personal/portable devices operate from 40 mW to 100 mW, subject to frequency and distance separations from TV, wireless medical telemetry service (WMTS) and radio astronomy service (RAS);
* Continue to accommodate unlicensed wireless microphone use in the TV bands and the 600 MHz band, while at the same time protecting licensed users from harmful interference. By codifying Part 15 rules for unlicensed wireless microphone use, the FCC brings these devices under the traditional policy tenets for unlicensed devices, i.e., they are not entitled to interference protection and they must not cause harmful interference to authorised services. This is accomplished by limiting power and specifying frequency and distance separations as needed to protect authorised services. Unlicensed wireless microphones will access the white space databases to identify frequencies available for their use in the duplex gap, guard bands and 600 MHz service band, but they will not be permitted to reserve channels for their use (i.e., to be protected from interference from white space devices). The technical rules are similar to Part 74 rules for licensed wireless microphones, but unlicensed wireless microphones limited to lower power (50 mW EIRP), adopt tighter emission mask based on ETSI standard to improve spectrum sharing, no longer reserve two vacant channels above and below channel 37 for wireless microphone use, eliminate Part 15 rule that permits unlicensed microphone users to register with the white space databases to reserve vacant channels for their use. In the 600 MHz band, the FCC permits unlicensed wireless microphones to operate in the duplex gap (between wireless uplink/downlink bands)
* Devices may operate up to 20 mW in six megahertz shared with unlicensed white space devices, adjacent to the wireless uplink band, unlicensed wireless microphone users will need to access the white space databases to identify frequencies available for their use, guard bands (between TV and wireless downlink bands, adjacent to channel 37) may operate up to 20 mW with one megahertz separation from wireless downlink band;
* if the guard band is 9 MHz, unlicensed wireless microphones may use eight megahertz, only six of which is shared with white space devices;
* if the guard band is 11 MHz, unlicensed wireless microphones may use 10 megahertz, only six of which is shared with white space devices
* if the guard band is 7 MHz, unlicensed wireless microphones may use six megahertz, only four of which is shared with white space devices;
* may use two megahertz in 3 MHz guard bands above and below channel 37
* users will need to access the white space databases to identify frequencies available for their use o 600 MHz service band
* may operate at 50 mW during the post-auction transition period at specified separation distances beyond wireless licensee’s service areas; users will need to access the white space databases to identify frequencies available for their use.
* In addition to the rules accommodating unlicensed wireless microphones, this Report and Order reserves 4 megahertz of spectrum in the duplex gap for licensed wireless microphones. This action will provide licensed wireless microphones with spectrum where they can operate on an as-needed basis that is not shared with white space devices. Operation will be limited to the same technical requirements as unlicensed wireless microphones operating in the guard bands.
* The FCC also adopt rules to permit, for a limited time, operation of licensed wireless microphones in the new 600 MHz service band.
* In this Report and Order, the FCC also expand location and frequency information in the white space databases, and make certain changes to database procedures (note: to ensure and verify better location information, i.e. mandatory technical implementation feature). · 600 MHz service licensees will provide the white space database administrators with information on where they have commenced operation so that the databases can calculate the separation distances beyond the perimeter of those areas to permit operation of unlicensed white space devices and unlicensed wireless microphones.
* Health care facilities that operate wireless medical telemetry networks on channel 37 will provide the white space database administrators with their location information so that the databases can calculate the separation distances beyond the perimeter of those areas to permit operation of unlicensed white space devices.
* White space database administrators will update their systems to include the exclusion areas adopted to protect radio astronomy sites operating on channel 37 and to include the TV channel on which private land mobile base stations operate.
* Fixed white space device operators must register with the white space databases if they operate in the 600 MHz guard bands, duplex gap, 600 MHz service band, or channel 37.
* Unlicensed wireless microphone users must register with the white space databases if they operate in the 600 MHz guard bands, duplex gap, or 600 MHz service band.
* White space database administrators will “push” information about changes in channel availability to white space devices operating in the area where licensed wireless microphones reserve channels so that these channels can be reserved quickly.
* Finally, the FCC adopts transition periods for the certification, manufacturing and marketing of white space devices and unlicensed wireless microphones to comply with the requirements adopted in this Report and Order.
* White space devices: New certification applications filed six months after the effective date of the “push” notification rule shall comply with the rule. All white space devices imported and marketed within the United States must comply with the “push” notification requirement within nine months after the effective date of the rule, and devices that do not comply with the “push” requirement shall cease operating within one year of the effective date of the rule.
* Unlicensed wireless microphones: wireless microphone certified under Part 74 rules may continue to be used in the TV bands under the waivers already in place and in the 600 MHz service band until they must cease those operations no later than 39 months after release of the Channel Reassignment. Responsible parties may file applications to certify wireless microphones under new Part 15 rules as soon as those rules are effective, and new applications to certify wireless microphones are required to comply with the new Part 15 rules nine months after the release of the Channel Reassignment or no later than 24 months after the effective date of the new rules, whichever occurs first.
* Manufacturing and marketing of all wireless microphones that would not comply with the 600 MHz Band Plan and rules must cease 18 months after release of the Channel Reassignment.

**Canada (Innovation, Science and Economic Development, former Industry)** also completed their specifications and rulings in the course of 2015 finalising RSS-210, RSS-222, and DBS-01.

(relevant for SRD/MG, FM51)

1. **Canada released new information on the Amateur Radio Service**

Canada released new information on the Amateur Radio Service, the so-called RIC-3. It references the Recommendation T/R 61-01 in a way as proposed by the WGFM RAFG and not distinguishing anymore amongst CEPT members or including specific footnotes on technical details.



New draft amended T/R 61-01 (includes Canada solution), is in public consultation. Hence, the issue of mutual recognition of amateur licenses/ equivalence with Canada is considered to be solved on both sides.

(relevant for WGFM RAFG)

1. **FCC Promotes Higher Frequency Spectrum for Future Wireless Technology**

FCC proposes new rules to make spectrum bands above 24 GHz available for mobile and other services. Document Type: Notice of Proposed Rulemaking, 23 October 2015, FCC-15-138

<https://www.fcc.gov/document/fcc-promotes-higher-frequency-spectrum-future-wireless-technology-0>

In this Notice of Proposed Rulemaking, the FCC continues an examination of higher frequency bands for mobile and other uses. In that regard, the FCC identifies specific spectrum bands **above 24 GHz** that appear to be suitable for mobile service, and seeks comments on proposed service rules that would authorise mobile and other operations in those bands. This development of service rules for mobile use of the millimeter wave (mmW) bands occurs in the context of efforts to develop a regulatory framework that will help facilitate so-called Fifth Generation (5G) mobile services.

In developing service rules for the mmW bands, the FCC aims to facilitate access to spectrum, develop a flexible spectrum policy, and encourage wireless innovation. In order to ensure wide access to spectrum, the FCC proposes to use a variety of licensing mechanisms, including geographic area licenses, unlicensed operation under Part 15 rules, and authorising indoor operating rights to property owners. In developing technical rules, the goal is to develop flexible rules that will accommodate a wide variety of current and future technologies. Flexibility will also encourage innovation in the development of advanced wireless services using the mmW bands.

Bands Proposed for Mobile Use:

* 28 GHz and 39 GHz bands: proposal to authorise mobile operations in the 27.5-28.35 GHz band (28 GHz band) and the 38.6-40 GHz band (39 GHz band) with county-sized geographic **area licenses**. These bands could be suitable for deployment of high-capacity, high-throughput small cells as part of mobile broadband deployments. At the same time, the FCC proposes rules that would provide licensees with the flexibility to conduct fixed and/or mobile operations;
* 64-71 GHz band: proposal to authorise operations in the 64-71 GHz band (**extension above 64 GHz**) under Part 15 of our rules based on the rules recently adopted for the adjacent 57-64 GHz band. This action will provide more spectrum for unlicensed uses such as Wi-Fi-like “WiGig” operations;
* 37 GHz band: In the 37-38.6 GHz band (37 GHz band), proposal for a hybrid licensing scheme that would grant operating rights by rule to property owners, while establishing geographic area licenses based on counties for outdoor use. This licensing mechanism would facilitate the deployment of advanced enterprise and industrial applications not suited to unlicensed spectrum or public network services, while also providing additional spectrum for more traditional cellular deployments;
* Other Rules
* Proposal to grant mobile operating rights to existing fixed Local Multipoint Distribution Service (LMDS) and 39 GHz band licensees, and seek comment on utilising an overlay auction as an alternative;
* Proposal to consider market-based rules that could facilitate greater satellite use of the 28 GHz, 37 GHz, and 39 GHz bands without unduly limiting terrestrial use of those bands;
* The FCC seeks comments on potential licensing approaches for the 28 GHz, 37 GHz, and 39 GHz bands. In particular, comments on revising the performance requirements applicable to those bands;
* The FCC seeks comments on technical rules needed to facilitate licensed operation and mitigation methods to ensure protection of incumbent operations in the 28 GHz, 37 GHz, and 39 GHz bands;
* The FCC requires mobile licensees to protect incumbent Federal operations, consistent with the Federal allocations in these bands. A detailed analysis on ensuring compatibility between Federal uses and new mobile use of these bands will be conducted, including on any rules that would be necessary to facilitate coexistence with Federal systems;
* The FCC seeks comment on how to ensure that effective security features are built into key design principles for communications devices and networks that will use these bands.

More details under:[**Link**](http://www.regulations.gov/#!documentDetail;D=FCC-2016-0007-0001)

(to be noted by PT1, FM54, SRD/MG, SE19)

1. **FCC Proposes Reform of Radiofrequency Equipment Authorisation Rules**

On 1 September 2015, the FCC has proposed (NPRM) to upgrade its equipment authorisation program.

[**See explanations**](http://www.natlawreview.com/article/fcc-proposes-reform-radiofrequency-equipment-authorization-rules#sthash.baN8ypOs.dpuf)

[**Link FCC 15-92A1**](https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-92A1.pdf)

The NPRM includes several key proposals:

* Unify the **self-approval procedures**. The Declaration of Conformity (“DoC”) and verification procedures are currently independent requirements for authorisation. The NPRM proposes to combine them into one self-approval program for all equipment currently subject to one of those two procedures. The proposed new process, tentatively called a Suppliers Declaration of Conformity (“SDoC”), would eliminate the current obligation to use accredited laboratories but would clarify that all devices currently subject to the DoC or verification procedures must be tested. The proposed process would incorporate some but not all elements of the SDoC processes used for Telephone Network Terminal Equipment under Part 68.
* Update Certification Procedures. The Commission proposes updates to the certification requirements to respond to the trend of authorising components, including modular transmitters, that will be used as part of more complex designs or in third-party host devices. The proposals focus on the parties responsible for submitting applications. The Commission proposes to amend the basic certification rules to allows for the certification of a group of related devices under a single FCC ID. Additionally, the Commission proposes to relocate the rules for modular transmitters from Part 15 to Part 2 in light of the increasing use of modular transmitters in RF devices intended for operation within licensed radio services. The NPRM also **proposed changes to the software defined radio (“SDR”)** rules to increase flexibility in certifying devices where the RF elements are controlled by software.
* Updated Certification Modification Process. The NPRM proposes to eliminate the current “electrically identical” framework for determining whether a device requires a new certification. Instead, there would be **two categories of changes, those that require a new FCC ID and those that do not**. The proposed rule changes would require an evaluation of the modifications, and potentially testing, to determine the change category. Changes that do not substantially alter the overall function of the device will not require a new FCC ID, but in some cases may still require a new application for certification. Where a new FCC ID is required, due to substantial changes to design or layout, or replacement of components, a new certification would be a prerequisite.
* Clarification of Responsible Party. The NPRM proposes to clarify who the responsible party is for obtaining certification in a number of scenarios, including when end products incorporate modular transmitters, third parties modify equipment, parties intend to market repaired or refurbished devices, and importers bring products into the U.S.
* Streamlined Certification Application Requirements. The NPRM seeks comment on reducing the information that must be provided when applying for certification. The FCC proposes to reduce duplicative information requirements as well as only require applicants to submit specific information based on the type of device to be certified. The NPRM proposes to codify existing short-term confidentiality practices for certain types of information allowing for a standard 45 day period upon request and seeks comment on extending that period to 180 days. Further, long-term confidentiality would be provided automatically for certain information categories (such as exhibits of schematics or operational descriptions) in all certification applications.
* The **E-LABEL ACT**. The NPRM also seeks comment on a series of updates to the equipment labeling obligations to recognize and codify the requirements of the E-LABEL Act. For example, the proposed rules will generally allow an RF device with an integrated electronic display to electronically display the labels required by the FCC rules. However, even where devices have integrated displays, parties would still be required to place warning statements or other information on device packaging, within user manuals, or at the point of sale as otherwise required under FCC regulations.
* Importation Requirements. The NPRM questions the usefulness of the information provided on the current FCC Form 740 declaration for imported devices, particularly since much of the information is already collected by the U.S. Customs and Border Patrol and may also be available on the internet. The FCC seeks comment on the continued use of collecting Form 740 information. The NPRM also proposes changes, among other things, to the number of imported devices permitted for demonstrations at trade shows and in other instances prior to satisfaction of the relevant equipment authorization procedure.

The proposed new rules and procedures have the potential to impact how RF devices are designed and/or manufactured and could have an immediate impact on devices that are currently in testing or that will be coming to market in the near term. To alleviate these concerns, the NPRM seeks comment on a transition period. The Commission anticipates that the proposed rules, if adopted, would be effective immediately but that responsible parties would be permitted to elect to continue to use the existing procedures for up to one year after the effective date of the rules.

1. **60 GHz applications under general authorisation – worldwide overview**

As requested by the SRD/MG (may also be of interest for SE19). The following overview is provided for 60 GHz applications under general authorisations. Note also under 5) in this bulletin the considerations in the USA to extent spectrum for unlicensed applications above 64 GHz. Due to regulations for applications under general authorization in nearly all major trading nations, 60 GHz applications represent a major opportunity for worldwide harmonisation of such devices.

Note the request to ETSI (from WGFM/SRD/MG) to collect information regarding the request to relax the regulation for WideBand Data Systems in 57-66 GHz, based on a request received from Intel. Interested CEPT administrations (e.g. those not having Fixed Services in the band) and stakeholders have been invited to provide contributions to SRD/MG to further evaluate the interest in this request.

USA and Canada:

In 2001, the United States Federal Communication Commissions (FCC) allocated 7 GHz in the 54–66 GHz band for unlicensed use. In terms of the power limits, FCC rules allow emission with average power density of 9 μW/cm2 at 3 meters and maximum power density of 18 μW/cm2 at 3 meters, from the radiating source. These figures translate to average equivalent isotropic radiated power (EIRP) and maximum EIRP of 40 dBm and 43 dBm, respectively. FCC also specified the total maximum transmit power of 500mW for an emission bandwidth greater than 100 MHz. The devices must also comply with the radio frequency (RF) radiation exposure requirements. After taking the RF safety issues into account, the maximum transmit power is limited to 10 dBm. Furthermore, each transmitter must transmit at least one transmitter identification within one-second interval of the signal transmission. It is important to note that the

60 GHz regulation in Canada, is harmonised with the US. In August 2013 the US Federal Communications Commission announced a change in its rules governing the 60 GHz (57–64 GHz) band.

Japan:

In year 2000, the Ministry of Public Management, Home Affairs, Posts, and Telecommunications (MPHPT) of Japan issued 60 GHz radio regulations for unlicensed utilisation in the 59–66 GHz band. The 54.25–59 GHz band is however allocated for licensed use. The maximum transmit power for the unlicensed use is limited to 10 dBm with maximum allowable antenna gain of 47 dBi. Unlike in North America, Japanese regulations specified that the maximum transmission bandwidth must not exceed 2.5GHz. There is no specification for RF radiation exposure and transmitter identification requirements.

Australia:

Following the release of regulations in Japan and North America, the Australian Communications and Media Authority (ACMA) has taken a similar step to regulate 60GHz

band. However, only 3.5GHz bandwidth is allocated for unlicensed use, that is, from 59.4–62.9GHz. The maximum transmit power and maximum EIRP are limited to 10 dBm and 51.7 dBm, respectively. The data communication transmitters that operate in this frequency band are limited to land and maritime deployments.

South Korea:

In June 2005, mmWave Frequency Study Group (MFSG) was formed under the Korean Radio Promotion Association. The MFSG has recommended a 7 GHz unlicensed spectrum from 57–64 GHz without limitation on the types of application to be used. The maximum transmit power is the same as in Japan and Australia, that is, 10 dBm.

China: 59-64 GHz, with up to 10 mW conducted power and 44 dBm e.i.r.p.

Europe: ERC/REC 70-03 Annex 3 band b: 40 dBm e.i.r.p., Adequate spectrum sharing mechanism (e.g. Listen-before-Talk, Detect-And-Avoid) shall be implemented by the equipment, though still not specified in the ETSI EN EN 302 567. Fixed outdoor installations are not allowed. The maximum mean e.i.r.p density is limited to 13 dBm/MHz. Point-to-point links of the Fixed Service are regulated by ECC/REC/(05)02 and ECC/REC/(09)01.



1. **USA: Qualcomm, Gogo, Inmarsat and others continue to push for FCC's 14 GHz ATG spectrum auction (‘DA2GC’)**

This follows earlier reporting in past ECO bulletins and is a follow-up. The topic was addressed during the last ECC/FCC(USA)/IC(Canada) meeting (it is proposed to request an update from the FCC during the next multilateral informal meeting), and it was reported that further discussions are necessary before activities on 14 GHz could proceed in the USA, in particular to further investigate the potential interferences to the satellite uplink (it is understood that the ATG (Da2GC) network would need to avoid interference into the geostationary arc- satellite receiver front-ends).

In addition, such an auction could coincide with the licence expiry of the ‘Gogo’ licence ’ in 2016

As reported in the press in the second half of 2015, Qualcomm, Gogo, Inmarsat and others continue to push the **FCC to auction 500 MHz in the 14 GHz band for air-to-ground** (ATG) wireless services for airline passengers, despite their newfound interest in satellite-based technologies. Specifically, the companies are arguing that in-flight broadband services do not pose a danger to airline passengers and personnel (**note: this was used as argument to hold the process at the FCC**), and that a new ATG system would fortify existing terrestrial- and satellite-based systems for in-flight Internet access. The FCC's establishment of another in-flight service allocation would not introduce any new risks to national security or air safety.

The FCC has been deliberating for years over whether to authorise mobile broadband service on a secondary license basis in the 14.0-14.5 GHz band (colloquially referred to as “14G”, this is within the Ku band primarily used for satellite communications). Earlier this year, the commission came very close to issuing a Report and Order for the auction to take place, but the Association of Flight Attendants-CWA filed an objection citing cyber security concerns.

**Gogo** wrote in a recent filing with the FCC on the proposed spectrum auction. "Moreover, greater in-flight communications capabilities would enhance flight safety for passengers and crew members and, in the future, could enable additional aviation benefits, such as the provision of a real-time 'black box

**Inmarsat** noted that passengers are increasingly interested in in-flight broadband," the company wrote in its own filing. "The 14 GHz proceeding proposes a complementary air-to-ground, in-cabin broadband service across the United States. This proposed service would be an expansion of existing in-flight services that have operated in a manner that manages risks to national security and air safety."

Those comments are in response to the position of the Safety and Security in the Air Coalition, which has argued against the 14 GHz auction because in-flight communications for airline passengers "greatly enhance communications capabilities for terrorists and increase cyberwarfare vulnerabilities, leading to unacceptable risks of successful attacks on the United States aviation system with significant and foreseeable adverse human and economic consequences."

**Qualcomm** too remains in support of a 14 GHz auction, although the company hasn't issued a filing on the topic in months and has recently directed investments into satellite startup OneWeb. Qualcomm was the company that in 2011 initially kicked off the topic by proposing that the FCC auction two 250 MHz nationwide licenses in the 14 GHz to 14.5 GHz band for a satellite/terrestrial network that Qualcomm said would provide airline passengers with data speeds up to 300 Gbps (real-world speeds enjoyed by each user on the plane would probably be much slower though). Qualcomm's proposal, dubbed the Next-Gen AG system, includes around 150 earthbound towers scattered around the country powering a network using a Time Division Duplex communications mode with an OFDMA-based air interface.

The FCC opened up a proposed rulemaking on the spectrum auction in 2013, noting at the time the spectrum would be shared with incumbent users, including fixed satellite services and certain U.S. government agencies. However, the FCC has remained silent on the topic since.

We'd get a Report and Order," said Michael Small, **Gogo**'s chief executive, in response to a question about the possible auction. We continue to remain very interested in that it's rare in the wireless business that you see 500 MHz coming your way and you get very excited when those moments come. So we're looking forward to that, but have no special insight into when the Report and Order will actually appear."

While Qualcomm said it remains in support of an FCC auction in the 14 GHz band, the company is also moving forward in other areas. In addition to terrestrial-based air-ground technology that is the subject of the FCC proceeding for the U.S., ‘Qualcomm is also developing innovative, satellite-based technology for this and many other applications on a global basis in conjunction with OneWeb, as was announced,’ Qualcomm's Brenner said. (**note: this is already under investigations in FM44/SE40 and with an ETSI system reference document under preparations**).

Qualcomm was among a group of companies that just last month invested $500 million into OneWeb's plan to deploy hundreds of low-orbit satellites operating in the 12-18 GHz Ku spectrum band. OneWeb hopes to use the satellites to offer high-speed Internet services to a wide range of customers.

As bandwidth constraints with the existing Gogo system in the sky continue to bite **Delta Air Lines** is calling on the Federal Communications Commission (FCC) to permit the auction of new air-to-ground (ATG) licenses in the United States, saying the additional spectrum will support faster inflight connectivity for passengers, and enhance safety.

In a letter in 12/2015 to the FCC, **Delta** reiterated its eagerness to see the auction finally move forward. Noting that it operates the largest fleet of Gogo Internet-equipped aircraft – a total of 565 domestic mainline aircraft and 255 regional aircraft. Current bandwidth demands exceed Gogo’s terrestrial network capacity. Demand will continue to grow and network capacity issues will become more severe until more spectrum becomes available. Additional spectrum in the 14 GHz band will open up new options for customers who are increasingly demanding robust Internet access. Many would argue that current bandwidth demands already far exceed Gogo’s terrestrial network capacity.

With respect to the AFA-CWA’s suggestion that additional spectrum may present an undefined security risk, Delta notes that thousands of Internet-equipped aircraft currently operate each day worldwide, writing “Although this technology has been in use for the greater part of a decade, Delta is aware of no national security incidents caused even in part by the availability of Internet access..”.

Delta has already committed to partnering with Gogo in the launch of next generation ATG technologies for short-haul domestic aircraft flying within the US.

Qualcomm, which originally proposed the auction, as well as Inmarsat and **Panasonic** have all expressed various levels of interest in participating.

(of interest in WGFM)

1. **CITEL: Work on Frequencies for Critical Infrastructure used by Utilities**

The UTC (Utilities Telecom Council) provided to the XXVI Meeting of Permanent Consultative Committee II: Radiocommunications (PCC.II) on August 17 – 21, 2015; Ottawa, Canada, a joint submission from UTC USA, UTC Canada and UTC Latin America and was supported by Industry Canada, FCC, Brazil and Mexico. The document discusses the importance of the need of spectrum for the continual monitoring, control and protection of the critical infrastructure used by utilities. Utilities use these communication systems for applications to facilitate proactive system control, outage reductions and outage response.

The proposal was supported by USA, Canada, Brazil and Mexico and was passed by the meeting. The UTC is busy preparing documents for the next CITEL PCC.II meeting in June in Bogota, Columbia. The three UTC regions will have a first meeting late in March 2016 to bring together utilities and other interested parties into the working group. The focus seems to be on VHF spectrum – sub 300 MHz for resilient voice communications and distributed automation for rural and remote areas as well as UHF spectrum – sub 470 MHz for tele-protection, control, automation and metering. First indications are in the order of 2x1 MHz (2m-band/ in Europe 146-174 MHz) in VHF and 2x3 MHz in UHF (400 MHz PMR frequencies).

As a result of these discussions in the PCC.II, CITEL has established a group with the view to a) review the existing studies within the ITU-R on this topic and b) consider future action within the ITU process to harmonise spectrum ranges for these applications.

(of interest in FM54 for main aspects in VHF and UHF below 1 GHz, with regard to work in 400 MHz and also noting that ETSI is developing a system reference document on future spectrum requirements for utilities in ERM TG DMR with EUTC (European Utilities Telecom Council in the lead).

EUTC Proposal for Europe:

