**Report of the Agenda Item Coordinator during WRC-19**

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18 November 2019

1. Agenda Item 1.6 *- to consider the development of a regulatory framework for non-GSO FSS satellite systems that may operate in the frequency bands 37.5-39.5 GHz (space-to-Earth), 39.5-42.5 GHz (space-to-Earth), 47.2-50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space), in accordance with Resolution* ***159 (WRC-15)***
2. APT Common Proposals and APT Views for WRC-19 (which has been submitted to WRC-19)

APT Members support the establishment of regulatory and procedural conditions for non-GSO FSS satellite systems in the frequency bands 37.5-39.5 GHz (space-to-Earth), 39.5 42.5 GHz (space-to-Earth), 47.2-50.2 GHz (Earth-to-space) and 50.4-51.4 GHz (Earth-to-space) while ensuring protection to GSO satellite networks in FSS, MSS and BSS, and other existing primary services in the same bands as well as protection of the EESS (passive) in the frequency bands 36 37 GHz and 50.2-50.4 GHz and the radio astronomy in the frequency bands 42.5-43.5 GHz, 48.94-49.04 GHz and 51.4-54.25 GHz.

APT Members support Method A of Issue 1 in the CPM Report.

In the absence of suitable ITU-R Recommendations to be incorporated by reference, APT Members support consideration of WRC Resolutions, addressing:

* generic GSO Reference Links and calculation procedures, that may be used to verify the compliance of non-GSO systems; and
* regulatory provisions to protect GSO satellite networks based on appropriate sharing methodology and reference characteristics of GSO satellite networks.

APT Members support ensuring the protection of EESS (passive) from unwanted emissions in adjacent bands. In relation to Issue 2 relating to possible modifications to Resolution **750 (Rev.WRC-15)**, preference towards Option A has been expressed, and Option B is still under consideration.

1. Topics proposed by other regional Groups or ITU Members which are not included in no. 2 above

The contributions on this agenda item are complex. Attached below for APT Member’s reference, is a matrix outlining the positions of the different regional groups and administrations.



1. Progress of discussion during WRC-19 on the Agenda Item

Presentation of the documents has been completed.

There has also been general discussion about grouping of subject matters and development of compilation material for consideration by the meeting.

The meeting on Friday, 1 November 2019 commenced discussion on Issue 1 relating to possible new regulatory and procedural conditions for non-GSO FSS satellite systems in the frequency bands of interest. Four informal groups were established to address the following issues:

* Reference Links
* Single entry limits for NGSO FSS systems
* Aggregate interference from multiple NGSO FSS systems
* Footnotes and Appendix 22

4 November

A meeting on issue 2 (Res 750) took place on 4 November. There was general discussion on issues including appropriate limits for GSO system to ensure protection of EESS. Further meetings of the informal group will be held to discuss the protection limits.

The fourth informal group commenced its work on 4 November and resolved issues relating to the footnotes quickly. Considerable discussion then took place in relation to potential modifications to Appendix 22. This discussion related primarily to the potential interference from the NGSO systems into the GSO systems and whether the aggregated interference from multiple NGSO systems could provide up to 10% total degradation. This discussion has not concluded and will be continued in later meetings.

5 & 6 November

Informal meeting on single entry limits (Zac Rosenbaum) – continued discussion on the calculation of potential interference. Drafting of the Resolution is progressing.

Informal meeting on possible changes to GSO limits in Res.750 (Brandon Mitchel) – No movement in views as some Administrations do not believe the issue should be discussed as it is out of scope of the agenda.

Informal meeting on Agg Res (Maxim Strelets) – Progressing work on the draft Resolution.

Informal meetings on Reference links (Alex Epshteyn) – Continued populating the table describing the technical characteristics of the reference links to be used in the coordination process. There is disagreement by ASMG on some formulas to be applied for the calculation of the reference links. This is yet to be resolved. The calculation methodology is largely agreed.

7 & 8 November

Reports from informal groups

* Issue 2 – Res 750 (Brandon Mitchell). One meeting held. Views on changes to GSO. Poss different dates. Views expressed. Need clear ToR for group as could not agree… didn’t discuss possible GSO limits. No further meetings scheduled and need clear ToR to move forward if to meet again.

Have not yet talked about possible NGSO limits.

Meeting to discuss Option B limits and then NGSO limits. Not ToR do not provide for discussion on whether GSO is part of the agenda item.

* Issue 1 - Reference Links (Alex Epshteyn) CEPT proposing a way forward. Work following the process proposed.
* Issue 1 - Footnotes – Work complete
* Single Entry Resolution (Zac Rosenbaum) – Been through once except supplemental links. Some issues to revisit in the resolution. Reference Links and Single Entry Resolution need to be brought together into one document.
* Issue 1 - Aggregate Resolution – Did not meet yesterday. One more session required.

Discussion among interested APT countries following the APT meeting on 7 November agreed that we should not support consideration of NGSO MSS as part of issue 1 of the agenda item as it is out of scope and studies have not been undertaken.

A small informal group discussed the possibility of including supplementary links with 3 test points in the RR. Consideration of updates to these links would need to be undertaken at each future WRC. There is some concern that this would over-protect GSO systems and inhibit establishment of NGSO systems. An APT view has been expressed that we want to ensure there is a balance approach, protecting the GSO systems, while also enabling NGSO systems.

9 November 2019

Issue 2 – Res 750 met today. For GSO, 3 options, 2 maintain positions and one compromise. For NGSO one option.

Ref Links – Complete

Footnotes – Complete

Single Entry Resolution – Have gone through all the work and no more sessions are proposed. Some discussions are underway off-line however. Still need to merge documents.

Aggregate Resolution – The document is complete although it still has some square brackets and issues. These will need to be addressed at SWG level.

The proposals for work going forward is simply to address the issues. In addition a small editorial group is to go through the documents to ensure all the issues are covered and nothing has been omitted. The meeting on Monday (11 November) is to review the documents and main issues:

* Resolution 750
* Supplemental links
* Application of Percentages
* How to determine when the aggregate values have been exceeded.
* Inclusion of MSS (currently under offline discussion)

12 November 2019

A late-notice meeting was called to address the main outstanding issues:

* Res 750 – GSO and NGSO limits. Discussion revolved around movement of one region from its NOC position on Res 750 for GSO. There was considerable movement on the limits finishing up with most regions considering -30 dB for GSO and -42 dB for NGSO; and one region moved to -25 for GSO and -42 for NGSO.  The gap is now 5dB for GSO and while ASMG will look to move, they may ask for further movement from the larger group of regions. There is still no agreement on whether GSO should be included in possible modifications to Res.750.

Discussion on inclusion of regulatory changes for MSS for consideration by the group. No agreement at this point.

14-16 November 2019

Work has been ongoing with a number of meetings undertaken by informal groups.

There is a large number of square brackets within the proposed texts that have been prepared, however these will mostly be resolved following agreement on the remaining issues. These are:

* Application of percentages – Agreement has been reached in relation to short-term interference, however long-term interference margins are still under discussion. A value of 10% has been presented by CITEL, whereas CEPT is seeking a 5% value. After some discussion, the value of 8% has been proposed by the RCC as part of a package to address supplementary links issues, although this has not yet been agreed.
* Supplemental Links – Discussion has considered the use of supplemental links for assessment of aggregate interference issues. A proposed resolution on aggregate interference requests further studies on methodology with a report back to a future WRC. Consideration of supplemental links is proposed to be limited to services that have been notified and brought into use.
* Inclusion of MSS. No decision or recommendation has been made in relation to the possible inclusion (or exclusion) of MSS at this time.
* Res 750 – A number of options have been identified for possible GSO and NGSO limits. Discussion suggests that GSO will be included in revision of Res.750 as part of resolving this agenda item. Protection levels have generally been identified for non-GSO systems, however the possible levels for GSO systems are still under discussion.

It is noted that APT involvement has been to understand the issues and to present or propose possible solutions that will address the agenda item in a manner that provides protection to GSO systems while also providing the opportunity for non-GSO systems to utilize the frequency bands.

18 November 2019

The work of the informal meeting was presented to the SWG5A3 meeting on 17 November.

Following the meeting two Temp Documents have been developed to be considered by WG5A today at 1045. These documents reflect the views of the meetings, including compromises which may need consideration by individual administrations.

It was noted in a reminder email yesterday that the APT position on AI 1.6 is quite broad and APT Members were advised to attend meeting relating to this agenda item to ensure their views, if any, are considered by the meeting. Copies of the output documents to be considered by Working Group 5A are attached:



1. Issues which require discussion at APT Coordination Meetings and seek guidance thereafter

As noted above, the APT position is quite broad, the work of the Sub-Working Group meets the position of the APT. Further, as the work of the SWG is largely complete, this will be the final report on AI 1.6

*Note: Coordinators are encouraged to conduct informal consultation with interested APT Members on the issues/topics under no. 3 and inform the outcomes of consultation to the Coordination Meeting*. *Coordinators can also organize coordination meetings on the respective agenda items whenever necessary.*