Report From the Meeting of
CEPT CPG PT-2
21-23, October 2002
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The 3rd meeting of Project Team 2 (PT-2) of the Conference Preparatory Group for WRC-03 (CPG03) of European Conference of Post and Telecommunications (CEPT) Administrations was held in The Hague, Netherlands during 21-23, October 2002. In accordance with its Terms of Reference, PT-2 addressed the following WRC-03 agenda items: 1.3, 1.4, 1.5, 1.6, 1.12, 1.15, 1.16, 1.17, 1.20, 1.24, 1.31 and 1.38. The highlights/decisions of the meeting, for each agenda item, are provided below.

Agenda Item 1.3 - *to consider identification of globally/regionally harmonized bands, to the extent practicable, for the implementation of future advanced solutions to meet the needs of public protection agencies, including those dealing with emergency situations and disaster relief, and to make regulatory provisions, as necessary, taking into account Resolution 645 (WRC-2000)*

With regard to this agenda item, the PT-2 considered inputs from FM38 on the issue of the candidate bands and the outcome of ITU WP8A meeting. Netherlands proposed to further investigate the possibility of splitting the PP and DR. The input from Sweden advocated that Public Protection (PP) is a national matter while Disaster Relief (DR) is an international issue. Sweden noted that it is important to divide the problem for interoperability issues as DR should use common resources in different countries.

PT-2 was unable to conclude its deliberations with regard to this issue so as to update the Draft Brief or Draft ECP. It was decided, therefore, to have an interim meeting prior to the next PT2 meeting in January 2003 in order to develop/complete CPG Brief and ECP. The meeting was scheduled for 10-11 December (Milan- Italy).

Agenda Item 1.4 - *to consider the results of studies related to Resolution 114 (WRC-95), dealing with the use of the band 5 091-5 150 MHz by the fixed-satellite service (Earth-to-space) (limited to non-GSO MSS feeder links), and review the allocations to the aeronautical radionavigation service and the fixed-satellite service in the band 5 091-5 150 MHz*

PT-2 supported the proposed "method C" of the CPM text, and proposal to postpone to 2018 the changing status of MSS feeder link into "secondary". As a consequence to this position, PT-2 supported the postponement to 2016 the date to which no new assignments shall be made to stations providing feeder links of non-geostationary mobile-satellite systems.

Agenda item 1.5: *To consider, in accordance with Resolution 736 (WRC-2000), regulatory provisions and spectrum requirements for new and additional allocations to the mobile, fixed, Earth exploration-satellite and space research services, and to review the status of the radiolocation service in the frequency range 5 150–5 725 MHz, with a view to upgrading it, taking into account the results of ITU-R studies.*
The following points summarize the preliminary CEPT position as updated by PT-2 meeting:

1. Proposal for new primary allocations to the mobile service in the bands 5 150-5 350 and 5 470-5 725 MHz for RLANs ensuring the implementation of mitigation techniques to protect the existing primary services, based on ERC Decision (ERC/DEC/(99)23). PT-2 considered ensuring non-interference with other services by reference to allocation footnotes 5.XXX [and 5.YYY] (incorporation of footnote 5.YYY is still under debate in CEPT). The text of these footnotes is provided below:

   "5.XXX Use of the 5150 – 5350 and 5470 – 5725 MHz bands by the mobile service is for the implementation of wireless access systems, including RLANs. Stations in the mobile service shall be operated in accordance with the conditions below:

   - In the 5 150-5 350 MHz band, the use of stations shall be restricted to indoor use with a maximum mean e.i.r.p. of 200 mW (averaged over the transmission burst at the highest power setting), with a mean e.i.r.p. density not exceeding 0.04 mW/4 kHz in any 4 kHz bandwidth.
   - In the band 5 470-5 725 MHz, the use of stations shall be restricted to a maximum mean e.i.r.p. of 1 W (averaged over the transmission burst at the highest power setting), with a mean e.i.r.p. density not exceeding 50 mW/1 MHz in any 1 MHz bandwidth.
   - Equipment operating in the bands 5 250-5 350 and/or 5470 – 5725 MHz, shall employ transmitter Power Control to provide a mitigation factor of at least 3 dB on the maximum mean output power. If Transmitter Power Control is not in use, the maximum mean e.i.r.p. shall be reduced by 3 dB.
   - Equipment operating in the bands 5 250-5 350 and/or 5 470-5 725 MHz shall use Dynamic Frequency Selection (see PDNR M.[8A-9B.RLAN.DFS]) to provide protection to co-primary terrestrial services. The stations shall also be designed to provide, on aggregate, a uniform spread of the loading of the stations across the available spectrum to improve sharing with satellite services.

   5.YYY [Placeholder for possible text to be developed related to the issue of RLANs not being able to claim protection from existing services] "

   It is important to note that because PT-2 was unable to formulate an appropriate regulatory definition for "wireless access systems including RLANS" the new CEPT position calls for an allocation to mobile service "for the implementation of" instead of "limited to" wireless access systems, including RLANs.

2. Ensure protection of the Earth exploration-satellite (active) and space research services in the band 5 250-5 350 MHz. The allocation to the fixed service in Region 3 should not prevent the worldwide primary allocation to the mobile service as proposed under point 1.
3. Support of additional primary allocations to EESS (active) and SRS (active) in the frequency range 5 460-5 570 MHz subject to no additional constraints to the worldwide primary allocation to the mobile service as proposed under point 1;
4. Upgrade of the status of frequency allocations to the radiolocation service in the frequency range 5 350-5 650 MHz. In the band 5 470-5 650 MHz the upgrade is also

seen as a consequence to a worldwide primary allocation to the mobile service as proposed under point 1.

With regard to this agenda item, PT-2 also agreed on an input to the CPM text. That input contains a number of modifications to the current text, including a modification to paragraph 2.2.4.1, footnote 5.WAS2 to delete the second set of limits (Canadian) for protection of EESS.

Agenda Item 1.6: *To consider regulatory measures to protect feeder links (Earth-to-space) for the mobile-satellite service which operate in the band 5 150-5 250 MHz, taking into account the latest ITU-R Recommendations.* (For example, Recommendations ITU-R S.1426, ITU-R S.1427 and ITU-R M.1454).

PT-2 did not modify the following previously adopted CEPT preliminary position to:

1. The transmission limits and indoor usage restrictions for RLANs contained in Recommendation ITU-R M.1454 should be inserted in the Radio Regulations;
2. A Resolution inviting the ITU-R to continue work on regulatory mechanisms and further mitigation techniques to avoid incompatibility which may result from aggregate interference from a possible prolific growth in the number of RLAN devices.

Agenda item 1.12: *To consider allocations and regulatory issues related to the space science services in accordance with Resolution 723 (Rev. WRC-2000) and to review all Earth exploration-satellite service and space research service allocations between 35 and 38 GHz, taking into account 730 (WRC-2000).*

The following points summarize the preliminary CEPT position as updated by PT-2 meeting:

1. Support a primary allocation on the basis of a national footnote up to 3 MHz of spectrum for telecommand uplinks in the space research and space operation services in the band 257-262 MHz, which are allocated mainly to the fixed and mobile services on a primary basis.
2. Support the removal of the double coordination procedure for the space research service by adding the space research service (Earth-to-space) to the Table of Frequency allocations on a primary basis in the band 7145-7235 MHz and correspondingly modify footnote 5.460. Additionally the operation of ENG/OB systems in use by some administrations should be recognized
3. Support the suppression of the inter-satellite service (ISS) allocation in the range 32 – 32.3 GHz, as sharing between the ISS and the SRS (deep space) in the band under consideration is not feasible, and ISS systems can still use the upper band 32.3-33 GHz.
4. Based on full protection of existing services, support the addition of the space research service (space-to-Earth) with primary status in the band 25.5 – 27 GHz. In order to protect existing services, the space research service shall comply with the same power flux density limits identified for the Earth exploration satellite service and should therefore be added to table 21-4. Any primary allocation of the space research service near 15 GHz is of secondary interest to Europe and may be

supported, although it might induce constraints on the development of the fixed service in the band.

5. Regarding footnote 5.551A, the proposal to replace the current restrictions for active spaceborne sensors by a limit of –73.3 dBW/m2 in any 2 GHz band for angles greater than 0.8° from the sensor beam centre should be supported, since ITU-R studies have shown no compatibility problems with other allocated services in the band 35.5-36 GHz if such a limit is respected. In Europe it is planned to operate rain radar in this band with characteristics compatible with the ones used in the sharing studies, which all respect the aforementioned limit.
6. Appropriate protection of passive services (EESS and SRS) in the band 36-37 GHz could be supported. In spite of the lack of information of FS and MS military systems, preliminary studies performed by WG SE have shown that identification of the maximum e.i.r.p of fixed and mobile links could provide a means for suitable protection, but ITU-R sharing studies need to be completed before a more definitive position can be taken. The CEPT should support the completion of these sharing studies; in case this will not be possible in time for the WRC-03, CEPT should support the adoption of a Resolution inviting ITU-R to develop a Recommendation for adequate sharing conditions between all affected services in the band 36-37 GHz. In Europe, plans exist for the near future to operate several passive instruments in this band.
7. Regarding compatibility aspects between the fixed satellite service and the space research service in the band 37.5 – 38 GHz, the results of ongoing ITU-R studies should be awaited before determining appropriate measures to adequately protect specific long distance space research applications. The preliminary conclusion is that the current RR 21 pfd limits could be maintained for the time being. In addition, selection of suitable space research missions in this part of the band would improve sharing with the FSS.

Agenda Item 1.15 - *to review the results of studies concerning the radionavigation-satellite service in accordance with Resolutions 604 (WRC-2000), 605 (WRC-2000) and 606 (WRC-2000)*

With regard to Resolution 604: "*Studies on compatibility between the radionavigation-satellite service (space-to-Earth) operating in the frequency band 5 010-5 030 MHz and the radio astronomy service operating in the band 4 990-5 000 MHz*," the meeting adopted the following proposals:

(1) Suppress 5.443A in the 5000-5150 MHz band

(2) Modify 5.443b only for the band 5010-5030 MHz to read, “In order not to cause harmful interference to the microwave landing system operating above 5 030 MHz, the aggregate power flux-density produced at the Earth’s surface in the band 5 030-5 150 MHz by all the space stations within any radionavigation-satellite service system (space-to-Earth) operating in the band 5 010-5 030 MHz shall not exceed –124.5 dB(W/m^2) in a 150 kHz band. In order not to cause detrimental interference to the radio astronomy service in the band 4 990-5 000 MHz, RNSS systems operating in the band 5010-5030 MHz shall comply with the

limits in the band 4990-5000 MHz defined in Resolution [EUR/1.15/XXX] (WRC-03)."

(3) Suppression of Resolution 603 and 604

(4) Add Resolution [EUR/1.15/XXX] (WRC-03). This Resolution is intended to make reference to Recommendation ITU-R RA.1513 and Recommendation ITU-R M. 1583 and to define the antenna gain reference to be used in the epfd calculation (74 dBi).

With regard to Resolution 605: "*Use of the frequency band 1 164-1 215 MHz by systems of the radionavigation-satellite service (space-to-Earth)*," the meeting adopted the following proposals:

(1) Add RNSS allocation in 1164-1215 on worldwide basis to the Table of Frequency Allocations;

(2) Modify footnote 5.328A to:

a. incorporate a reference to 9.12, 9.12A, 9.13 for the coordination between RNSS systems (GSO/NGSO and NGSO/NGSO);

b. incorporate a reference to Resolution [EUR/1.15/RNSS 1] and Resolution [EUR/1.15/RNSS 2] to address the protection of ARNS, and to ensure the application of 9.7 (a bandwidth overlap criterion only), 9.12, 9.12A and 9.13 for all systems for which complete coordination or notification information was received by BR after 2 June 2000. Note: *Resolution [EUR/1.15/RNSS 1] addresses the protection of ARNS and Resolution [EUR/1.15/RNSS 2] provides for the application of 9.7 (a bandwidth overlap criterion only), 9.12, 9.12A and 9.13 for all RNSS systems for which complete coordination or notification information was received by ITU BR after 2 June 2000*.

c. specify that stations in the radionavigation-satellite service shall not claim protection from stations of the aeronautical radionavigation service in the band 960 - 1 215 MHz and that No. 5.43A does not apply.

(3) Add a new Table 21-5 in section V of Article 21 for pfd limits on RNSS systems in the 1 164-1 215 MHz.;

(4) Modify Appendix 5 to specify that *bandwidth overlap is the coordination criterion for RNSS systems in the* 1164-1215 MHz band.

(5) Add Resolution [EUR/1.15/RNSS 1] and Resolution [EUR/1.15/RNSS 2] (see 2.b above). Suppress Resolution 605.

Based on the input from France, the meeting agreed on the following input to the CPM regarding the following topics:

-"Milestones"

- List of RNSS system characteristics to be used in the calculation of the aggregate epfd.

- Consultation process.

With regard to Resolution 606: "*Use of the frequency band 1 215-1 300 MHz by systems of the radionavigation-satellite service (space-to-Earth)*", the meeting considered draft CPM text produced that outlines four methods:

- Method A1 - no pfd limit in 1215-1300 MHz (no change in the Radio Regulations);
- Method A2 - no pfd limit in 1215-1300 MHz but protection of the radiolocation and the aeronautical radionavigation service via footnote;
- Method B - pfd limit in all the band 1215-1300 MHz with consideration of the value of -133 dBW/m²/MHz;
- Method C - pfd limit in 1215-1300 MHz in the upper portion of the band (with consideration of the value of –161 dBW/m²/MHz) and no pfd limit in the lower portion of the band (1215-1260 MHz).

Discussion: ESA, on behalf of the Galileo partners, expressed that a single pfd limit of -133 dB(W/m²)/MHz across the entire band would be convenient for Galileo, but the Galileo partners are concerned that a strategy of strong support for Method B in the face of the strong opposition expressed by the United States and Russia gives too high a risk that the WRC may choose Method C, associated with a pfd limit which could be reduced, to please the most conservative radar operators, to a level which would render Galileo inoperable (while Method C would leave GPS and GLONASS able to increase the power or their emissions without limit). The Galileo partners therefore suggested that CEPT give careful consideration to the possibility to support Method A2. ICAO proposed that Method B of the draft CPM report (paragraph 1.2.2.3.3) should be considered as "the nearest method to those of the agreed ICAO policy" and recommended that method for adoption by WRC-2003. Russia expressed strongly objected to the acceptance of Method B. In Russia's view, the Method B does not satisfy the principles of Resolution 606, as it does not provide adequate protection to ARNS while constraining existing RNSS systems in the band. UK presented a study analyzing the impact of RNSS operations on the radars in the 1215-1300 MHz band. The results of the study indicate that the -133 dBW/m²/MHz limit may not be sufficient to protect all radars in the band. Germany presented a document in support of no-pfd sharing method (Method A2). France restated its position in support of method B, but noted that there may be concerns with regard to -133 dBW/m²/MHz limit value.

The meeting adopted the following proposals:

(1) Modify footnote **5.329 to read, "**Use of the radionavigation-satellite service in the band 1 215-1 300 MHz shall be subject to the condition that no protection is claimed from the radiolocation service or from the radionavigation service authorized under No. 5.331. No. 5.43A does not apply." The removal in 5.329 of the provision that "RNSS shall not cause harmful interference…" was based on the assumption that an agreement can be reached on the pfd level.

(2) In spite of considerable opposition to method B, the meeting decided to maintain its position in support of specific PFD level in the band. To that effect, there was a proposal to modify TABLE 21-4 to provide specific limit on RNSS in the band 1215-1300 MHz, this limit however remained in square brackets [-133 dBW/m²/MHz].

(3) Suppress the Resolution 606 and the Resolution 607.

Agenda Item 1.16 - *to consider allocations on a worldwide basis for feeder links in bands around 1.4 GHz to the non-GSO MSS with service links operating below 1 GHz, taking into account the results of ITU-R studies conducted in response to Resolution 127 (Rev.WRC-2000), provided that due recognition is given to the passive services, taking into account No. 5.340*

Agenda Item 1.17 - *to consider upgrading the allocation to the radiolocation service in the frequency range 2 900-3 100 MHz to primary*

No input was received on this agenda item. The meeting did not consider issues related to Agenda item 1.17.

Agenda Item 1.20 - *to consider additional allocations on a worldwide basis for the non-GSO MSS with service links operating below 1 GHz, in accordance with Resolution 214 (Rev.WRC-2000)*
PT-2 did not consider AI 1.20 at this meeting.

Agenda Item 1.24 - *to review the usage of the band 13.75-14 GHz, in accordance with Resolution 733 (WRC-2000), with a view to addressing sharing conditions*

With regard to this agenda item, the meeting considered the two methods contained in the draft CPM text produced by ITU-R JTG 4-7-8:

- Method A: no change to the current regulations and associated sharing criteria in Nos. 5.502 and 5.503;
- Method B: relaxation of the current limit on the FSS antenna size, with additional regulatory provisions and increase in the protected bandwidth of SRS.

After some discussions, the meeting decided to follow the proposal made by UK concerning equation f(D) and to include this equation in the draft ECP with square brackets in order to leave some more time to administrations to review it. The equations f(D) in the draft revision of No. 5.503 is expressed as follow:

$4.7\ D + 42.0$ dBW/MHz	for $1.2 \leq D < 4.5$ m
$63.2 + 20\text{Log}(D/4.5)$ dBW/MHz	for $4.5 \leq D < 31.9$ m

The meeting was not in a position to endorse any values for X and Y, but expressed that the values around those proposed by UK (i.e. –111.5 dBW/m^2 in 10 MHz not exceeded for more than 0.5% of the time at the coastline), but in any case lower than –90 dBW/m^2 in 10 MHz, may provide the basis for future compromise.

UK indicated that it plans to input this study into CPM. Other administrations will consider support for the UK's study at CPM.

Agenda Item 1.31 - *to consider the additional allocations to the mobile-satellite service in the 1-3 GHz band, in accordance with Resolutions 226 (WRC-2000) and 227 (WRC-2000)*
With regard to Resolution 226, PT-2 noted that the meeting of WP8D in September 2002, a possible compromise solution was identified by the proponents of MSS systems and the proponents of AMT systems. The solution consists of the following:

1) Protection of Continental United States aeronautical mobile telemetry sites as per Recommendation ITU-R M.1459.
2) Protection of AMT sites in Alaska, Hawaii and Puerto Rico with a power flux-density level as per Recommendation M.1459 but with a lower bound of –155 dBW/m^2 per 4 kHz.

This solution would allow MSS operation from about 42% of the geostationary arc, including locations from which it would be possible to serve South America.
With regard to Resolution 227, PT-2 noted that the World Meteorological Organization (WMO) has recommended that future MetAids operations be concentrated in the sub-band 1 675-1 683 MHz. Some national Meteorological Services may not be able to meet this target for some time and wish to make national arrangements to utilise the sub-band 1 670-1 683 MHz for the foreseeable future. WMO expects that most of the operations will be concentrated in the sub-band 1 675-1 683 MHz by the year 2010. Thus there are sharing possibilities between MSS and MetAids in the sub-band 1 670-1 675 MHz, taking into account national requirements.

In view of the above, PT-2 developed the following proposal:
1. To make allocations to MSS (space-to-Earth) in Regions 1 and 3 in the band 1 518-1 525 MHz. The proposals are consistent with Method A of the CPM Report relating to Resolution 226 (§ 2.8.1.3.1);
2. To make a global allocation to MSS (Earth-to-space) in the band [1 668/1670]-1 675 MHz The proposals are consistent with Method [B/A] of the CPM Report relating to Resolution 227 (§ 2.8.2.3.2);
3. As a consequence of making the new MSS allocations, to remove the existing allocations to MSS in Region 2 in the bands 1 492–1 518 MHz and 1 675-1 710 MHz.

Agenda item 1.38: *to consider provision of up to 6 MHz of frequency spectrum to the Earth exploration-satellite service (active) in the frequency band 420–470 MHz, in accordance with Resolution 727 (Rev. WRC-2000)*
PT-2 maintained the preliminary CEPT position in support of a secondary allocation to the EESS (active) in the band 432 – 438 MHz subject to the operational constraints and provisions set out in [draft revision of] Recommendation ITU-R SA.1260.

Documents
The input documents to this meeting are available at:
http://people.itu.int/~meens/Pt2/id24.htm

Next meeting
Next PT-2 meeting is scheduled for the period 22-24 January 2002, in Geneva.