

IWG-3 Comments on the RCS Proposal Contained in IWG-3 Background Document 4

The RCS document in question proposes no change to the international Table of Frequency Allocations in the bands 410-430 MHz, 2 700-2 900 MHz, 3 400-3 650 MHz, and 4 400-4 940 MHz.

IWG-3 neither supports nor opposes this proposal. IWG-3, however, does note that commercial systems are licensed and have been deployed in a number of countries in the 3400-3650 MHz band, and that deployments in other countries are expected.

IWG-3 opposes extending the “no change” proposal from 3400-3650 MHz to 3400-4200 MHz as suggested by IWG-2, and also opposes adding sharing issues with fixed-satellite service (FSS) earth stations to the justification or background of the RCS proposal. IWG-3 notes that satellite use is prevalent above 3700 MHz in the United States. Therefore, IWG-3 is proposing “no change” for the band 3700-4200 MHz on a separate document. However, IWG-3 does not agree that sharing between IMT systems and FSS earth stations below 3700 MHz presents similar difficulties, as the density of FSS earth station deployment is much lower below 3700 MHz. In the United States, fixed and mobile terrestrial services are allocated in 3650-3700 MHz and FSS use is limited to certain grandfathered sites¹. Further, while there is an FSS allocation in 3600-3650 MHz, it is limited to international, inter-continental systems subject to a case-by-case electromagnetic compatibility analysis. The FCC’s rules state that it is expected that only one earth station on each coast could be successfully coordinated. With respect to the 3650-3700 MHz band, IWG-3 notes that this band is still under consideration in IWG-3 with respect to agenda item 1.4.

IWG-3 offers the following comments which it believes are necessary to avoid confusion regarding the proposal.

- Footnote 1 (“The United States has not identified any additional bands that might be suitable.”) on page 2 should be deleted. Otherwise, the reader could infer that the US is supporting identification of the listed candidate bands.
- With respect to the proposal USA//3 on page 4, the proposal’s intent is to specify “no change” to 3400-3650 MHz, as described above. However, the portion of the Table of Frequency Allocations displayed covers all the way up to 4200 MHz. Accordingly, IWG-3

¹ Although there are only 49 grandfathered sites, BWA transmitters must be coordinated within a 150 km radius around each of these sites. Many of the grandfathered sites are in close proximity, resulting in a significant overlap of the 150 km coordination zones (see Attachment 1)

requests that the proposal be modified so that only the portion of the Table leading up to 3650 MHz be displayed. This may entail splitting up the current frequency ranges in the Table.

- Similarly, with respect to the proposal USA//4 on page 5, the proposal's intent is to specify "no change" to the Table of Frequency allocations from 4400-4940 MHz, as described above. However, the portion of the Table of Frequency Allocations displayed covers frequencies all the way up to 5000 MHz. Accordingly, if the intent is just to specify no change up to 4940 MHz, then the proposal should be modified so that only the portion of the Table leading up to 4940 MHz be displayed.

Modifications to the RCS proposal to take into account the above comments are provided below.

United States of America

DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

Agenda Item 1.4: to consider frequency-related matters for the future development of IMT 2000 and systems beyond IMT 2000 taking into account the results of ITU-R studies in accordance with Resolution **228 (Rev.WRC 03)**;

Background Information: Resolution **228 (WRC-03)** calls for studies on frequency-related matters for the future development of IMT-2000 and systems beyond IMT-2000 (IMT-Advanced) as defined by ITU-R. Resolves 2 under Resolution **228 (WRC-03)** invites the ITU R to report, in time for WRC 07, on the results of studies on the spectrum requirements and potential frequency ranges suitable for the future development of IMT-2000 and systems beyond IMT 2000, taking into account:

- the evolving user needs, including the growth in demand for IMT 2000 services;
- the evolution of IMT-2000 and pre-IMT-2000 systems through advances in technology;
- the bands currently identified for IMT-2000;
- the time-frame in which spectrum would be needed;
- the period for migration from existing to future systems;
- the extensive use of frequencies below those identified for IMT-2000 in No. **5.317A**.

WARC-92 identified the bands 1 885-2 025 MHz / 2 110-2 200 MHz and WRC-2000 identified the bands 806-960 MHz (ITU-R Region 1: 862-960 MHz) / 1 710-1 885 MHz / 2 500-2 690 MHz for use on a worldwide basis by administrations wishing to implement IMT-2000 systems. Resolutions **212 (WARC 92)**, **223 (WRC-2000)** and **224 (WRC-2000)** invite administrations to make available the necessary portion of these identified bands for IMT-2000 development, while recognizing that administrations have the flexibility to use the bands for other applications of services to which the bands are allocated and to implement IMT-2000 in other mobile bands.

In order to identify additional spectrum to meet IMT-Advanced requirement, compatibility with existing services in the bands of interest must be demonstrated through ITU-R technical studies. However, at this time such studies have not been completed.

The prioritized candidate bands for IMT-2000 and IMT-Advanced systems are between 400 MHz and 5 GHz (ITU-R Report [IMT.CANDI]) and are:

1. 410-430 MHz
2. 450-470 MHz
3. 470-862 MHz (portions already identified for Region 2 and some administrations by Resolution **224**)
4. 2 300-2 400 MHz (already identified for some administrations (U.S.) by Resolution **223**)
5. 2 700-2 900 MHz
6. 3 400-3 650 MHz
7. 3 650-4 200 MHz
8. 4 400-4 940 MHz
9. 4 940-5 000 MHz

Four of the bands identified as candidates, 410-430 MHz, 2 700-2 900 MHz, 3 400-3 650 MHz, and 4 400-4 940 MHz are considered in this proposal. The remaining bands are 450-470 MHz, 470-698 MHz, 2 300-2 400 MHz, 3 650-4 200 and 4 940-5 000 MHz.

The band 410-430 MHz is used extensively by many administrations for fixed and mobile communications systems, long-range surveillance systems, as well as personnel location systems. Ground, shipborne, and airborne radars, which are used for national security, utilize this particular frequency band. Parts of the band are also used for extra vehicular activity (EVA) communications by both the Shuttle and International Space Station on a primary basis for the space research service; and for transmitting hydrological and meteorological data.

In all three ITU-R Regions, the 2 700-2 900 MHz band is allocated to aeronautical radionavigation. The radionavigation service is designated as a safety service under RR No. **4.10** and harmful interference to it cannot be accepted. By footnote No. **5.423**, ground-based meteorological radars are authorized to operate on an equal primary basis. Previous detailed analysis and sharing studies undertaken by various ITU administrations and ongoing within the working parties have shown that the utilization of the 2 700-2 900 MHz band by IMT systems is not feasible.

The 3 400-3 650 MHz band is allocated to the radiolocation service on a primary basis in ITU-R Regions 2 and 3. The band 3 400-3 600 MHz is allocated to the radiolocation service on a secondary basis in ITU-R Region 1 and the band 3 600-3 700 MHz band is allocated to the radiolocation service on a secondary basis in ITU-R Regions 2 and 3. In this frequency range, administrations have developed and deployed a variety of mobile and transportable high power radar systems that operate on land, on ships, and on aircraft. The shipborne radars are principally used in coastal areas, but can be used during open ocean transit also. The airborne radars are highly mobile and operate in many areas of the world. A number of ongoing sharing studies submitted to the ITU-R have indicated that sharing in the 3 400-3 700 MHz band between the

radiolocation service and IMT-Advanced systems operating in the mobile service is not feasible due to significant levels of interference into both the radar systems and IMT-Advanced devices.

The 4 400-4 940 MHz band is allocated on a primary basis to the fixed service. The 4 400-4 800 MHz band is allocated on a primary basis to the mobile service. The 4 500-4 800 MHz band is allocated on a primary basis to the fixed satellite service, subject to Appendix **30B**. The 4 800-5 000 MHz band is allocated on a primary basis to the mobile service, except aeronautical mobile. The 4 990-5 000 MHz band is allocated on a primary basis to the radio astronomy service. ITU-R Working Party 8B successfully concluded studies under agenda item 1.5 that show aeronautical telemetry systems for flight test can share with fixed and mobile systems in this band. Use of this band includes many datalinks and a number of unmanned air systems networks. Troposcatter radio terminals are deployed in this band to provide secure digital long-haul radio trunking. Systems in this band include deployable communications systems as well as fixed and mobile radio relay networks.

The band 4 400–5 000 MHz is designated by several administrations in Europe and North America as a harmonised band to be used for defense communications and thus is critical to these administrations’ ability to fulfill their peacekeeping obligations.

Proposal

ARTICLE 5

USA// 1 **NOC**

410-460 MHz

Allocation to services		
Region 1	Region 2	Region 3
410-420	FIXED MOBILE except aeronautical mobile SPACE RESEARCH (space-to-space) 5.268	
420-430	FIXED MOBILE except aeronautical mobile Radiolocation 5.269 5.270 5.271	
.....		

Reasons: ITU-R studies have not shown compatibility between IMT systems and the incumbent services in the 410-430 MHz band. Extensive use of this band for national security and public safety purposes preclude the use of this band for commercial wireless purposes.

ARTICLE 5

USA// 2 **NOC**

2 700-4 800 MHz

Allocation to services		
Region 1	Region 2	Region 3
2 700-2 900	AERONAUTICAL RADIONAVIGATION 5.337 Radiolocation 5.423 5.424	
.....		

Reasons: ITU-R detailed analysis and sharing studies undertaken by various ITU administrations and working parties have shown that the utilization of the 2 700 - 2 900 MHz band by IMT-2000 and IMT-Advanced systems is not feasible.

ARTICLE 5

USA/ / 3 NOC

2 700-4 800 MHz

Allocation to services		
Region 1	Region 2	Region 3
.....		
3 400-3 600 FIXED FIXED-SATELLITE (space-to-Earth) Mobile Radiolocation 5.431	3 400-3 500 FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile Radiolocation 5.433 5.282 5.432	
	3 500-3 650 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile Radiolocation 5.433 5.435	
3 600-36504 200 FIXED FIXED-SATELLITE (space-to-Earth) Mobile	3 700-4 200 — FIXED — FIXED SATELLITE (space to Earth) — MOBILE except aeronautical mobile	
	

Reasons: ITU-R studies have not shown compatibility between IMT systems and the radiolocation service, ~~nor between IMT systems and the fixed or fixed satellite service~~ in the 3 400-3 650 MHz band.

ARTICLE 5

USA/ / 4 NOC

2 700- 4 800 MHz

Allocation to services		
Region 1	Region 2	Region 3
.....		
4 400-4 500	FIXED MOBILE	
4 500-4 800	FIXED FIXED-SATELLITE (space-to-Earth) 5.441 MOBILE	

4 800-5 570 MHz

Allocation to services		
Region 1	Region 2	Region 3
4 800-4 990	FIXED MOBILE 5.442 Radio astronomy 5.149 5.339 5.443	
4 990-5 000	FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) 5.149	
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Reasons: Studies have not shown the compatibility of IMT with the radio relay and troposcatter networks operating within the fixed and mobile services in the 4400-4940 MHz band. This NOC proposal applies to Agenda Item 1.4 and the identification of spectrum for IMT. The 4 500-4 940 MHz band is being considered for aeronautical mobile telemetry for flight test (air-to-ground) under Agenda Item 1.5.

Attachment 1 (for information; not intended to be part of the proposal)

Coordination Zones: 3650 to 3700 MHz



Small dark gray circles = Federal Government stations
Large light gray circles = Grandfathered FSS stations
Not displayed, Guam FSS stations

Federal Communications Commis
Office of Engineering And Techno