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| **Radiocommunication Study Groups** |  |
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| Received: 13 August 2018 | **Document 5-1/445-E** |
| **14 August 2018** |
| **English only** |
| Austria, Czech Republic, Croatia (Republic of), Denmark, Finland, France, Germany (Federal Republic of), Hungary, Liechtenstein (Principality of), Lithuania (Republic of), Netherlands (Kingdom of the), Norway, Poland (Republic of) , Slovak Republic, Romania, Slovenia (Republic of), Sweden, Switzerland (Confederation of), Ukraine, United Kingdom  of Great Britain and Northern Ireland | |
| CPM TEXT FOR WRC-19 A.I 1.13 | |
|  | |

# 1 Introduction

This contribution proposes changes to the draft CPM text (Sections 4 and 5 to Annex 2 to Task Group 5/1 Chairman’s Report (Document [5-1/406](https://www.itu.int/md/R15-TG5.1-C-0406/en)). It focuses on the band 24.25-27.5 GHz and 37‑43.5 GHz. It is noted that CEPT supports “No change” for the 31.8-33.4 GHz band and hence would support only Method B1.

The changes are to:

- Align the text with the agreed conditions in Europe contained in ECC Decision for 26 GHz (ECC Decision (18)06).

- Provide limits to be included in the update to Resolution 750 as mandatory limits from active service stations (both BS and UE) in the band 24.25-27.50 GHz.

- Provide text for separate Resolutions on 26 GHz and 40 GHz. It was thought useful to provide them as separate Resolutions initially to aid the discussions on the different frequency ranges, however they could be considered for combination at a later stage.

For editorial reasons, all Methods, Conditions, Options, sub-options and Alternatives are maintained in the main body of the text and within the two Resolutions provided on 26 GHz and 40 GHz.

A separate CEPT contribution to TG5/1 provides information on the CEPT 5G Roadmap.

# 2 Changes to the draft CPM text

The following text shows the proposed changes to the draft CPM text for Sections 4 and 5:

# 2/1.13/4 Methods to satisfy the agenda item

*[This section should contain the brief description of the Method or Methods to satisfy the agenda item as per section 4 of Annex 2 to [Resolution ITU-R 2-7](http://www.itu.int/pub/R-RES-R.2-7-2015)]*

The methods below are grouped by frequency band under consideration as Item “X”:

* Method “X1” for each frequency band / item is NOC
* Methods “X2”, “X3” and “X4”:
  + identify the frequency band for IMT, for those frequency bands that already have a primary MS allocation;
  + upgrade a secondary MS allocation to a primary MS allocation where a frequency band already has a secondary MS allocation and identify this frequency band for IMT;
  + allocate the frequency band to the MS on a primary basis where a frequency band has no MS allocation yet and identify this frequency band for IMT.
* Method “X2” contains a number of conditions to address the protection of other services, all of which should be applied by WRC-19. ITU-R considers that revisions to Resolution **750 (Rev.WRC-15)** (where applicable) are consequential to the IMT identification.
* Method “X3” contains a number of conditions to address the protection of other services as options for consideration of administrations for their proposals to WRC-19. ITU-R considers that revisions to Resolution **750 (Rev.WRC-15)** (where applicable) are consequential to the IMT identification.
* Method “X4” contains a revision of Resolution **750 (Rev.WRC-15)** if required.

These conditions could be addressed in a WRC Resolution, WRC recommendation or ITU-R Recommendation and may or may not be incorporated by reference in the RR.

*Views were expressed that in some Methods for the protection of a given incumbent service it is suggested that the matter be dealt with by inviting ITU-R to adopt a recommendation in assisting administrations to ensure such protection. It should be emphasised that:*

1. *The protection of a given incumbent service should not be addressed by a recommendation as such a case was always addressed by a solid and well-founded provision in a resolution.*
2. *Preparation and approval of the suggested recommendation would take a long time as it should be dealt with by more than one study group.*
3. *During the preparatory process of such a recommendation one single Member State could block its approval. Moreover, until such time that the subject recommendation is adopted the protection of the incumbent service is pending which is inconsistent with the very principle on how the incumbent service should be protected.*
4. *Recommendations of ITU, unless incorporated by reference in the RR, have an optional nature and may not be followed / implemented.*
5. *Moreover, it was proposed that administrations adopt a provision to protect the incumbent service which seems that one administration start-up. Unilaterally decides on how to protect the incumbent services of other administration which is incorrect sustenter with basic principle of the Radio Regulations due to the fact the protection of radiocommunications by administrations should be dealt with on mutually agreed provisions to avoid harmful interference in future.*

## 2/1.13/4.1 Item A: Frequency band 24.25-27.5 GHz

### 2/1.13/4.1.1 Method A1: NOC

No change to the Radio Regulations.

### 2/1.13/4.1.2 Method A2: Allocate the 24.25-25.25 GHz frequency band, to the MS on a primary basis in Regions 1 and 2 and identify the 24.25-27.5 GHz frequency band for IMT in Regions 1, 2 and 3, subject to mandatory conditions

*[Editor’s Note: Assess the frequency range to be allocated to the MS based on the result of studies]*

All conditions below apply to this Method.

Condition A2a: EESS(passive) protection measures for the 23.6-24 GHz frequency band

Introduce in Table 1 of Resolution **750 (Rev.WRC-15)** limits on unwanted emissions in the frequency band 23.6-24 GHz from IMT base stations and IMT mobile stations in the frequency band 24.25 – 27.5 GHz and add a mandatory cross-reference to Resolution **750 (Rev.WRC-15)** in the Radio Regulations in the footnote that identifies the frequency band for IMT and/or add the 24.25 – 27.5 GHz frequency band to No. **5.338A**.

Condition A2b: EESS(passive) protection measures for the 50.2-50.4 GHz and 52.6‑54.25 GHz frequency bands

Recognise in a Resolution that spurious emission limits of Recommendation ITU-R SM.329 category B are sufficient to protect the EESS (passive) from the second harmonic of IMT base station emissions in the 26 GHz band.

Condition A2c: Compatibility with SRS/EESS and FSS earth stations

Alternative 1:

WRC Resolution containing regulatory measures to address this compatibility case.

Alternative 2:

WRC Resolution:

*a)* to invite ITU-R to develop an ITU-R Recommendation to assist administrations in ensuring protection of existing and future SRS/EESS earth stations operating in the frequency band 25.5‑27 GHz;

*b)* in addition, administrations should be invited to adopt provisions to protect other services from IMT networks and to ensure the possibility of deploying future earth stations.

For cross-border protection of earth stations, coordination procedures in Article **9** would apply. The ITU-R Recommendation would therefore help administrations during the coordination process and for national considerations.

*[Editor’s Note: Further discussion at the next meeting to clarify items a) and b) above and also how such provisions would be adopted unilaterally by a given administration to ensure possibility of deploying future earth stations]*

*[Editor’s Note: Discuss whether a revision/deletion of Nos.* ***5.536A*** *and* ***5.536B*** *is within the scope of the agenda item and thus needs to be addressed in the CPM text, taking into account Note 2 of Resolution* ***238 (WRC-15)*** *and the possible overlap of Nos.* ***5.536B*** *and* ***5.536A****]*

Condition A2d: ISS and FSS(E-s) protection measures

IMT technical and deployment characteristics may evolve in the future and result in excessive interference into FSS/ISS satellites. Should this occur, interference reduction at satellite receivers after the deployment of IMT systems would be complicated due to aggregate interference from a large number of IMT stations as well as the fact that satellite footprints can cover territories of multiple administrations.

Some regulatory measures have been proposed to address long term protection of FSS/ISS satellites taking into account the compatibility studies, including interference margin results:

Sub-option 1 (exclusive from sub-option 2 and 3)

* Requiring that when deploying outdoor base stations, it shall be ensured that each antenna is normally transmitting only with the main beam pointing below the horizon and in addition the antenna shall have mechanical pointing below the horizon except when the base station is only receiving.

Sub-option 2 (exclusive from sub-option 1 and 3)

* Mandatory angular e.i.r.p. mask for the emissions of IMT base stations in the skyward direction.

Sub-option 3 (exclusive from sub-option 1 and 2)

*[Editor’s Note: Consider at the next meeting the possibility of a pfd/epdf limit applying at the satellite orbit applicable to aggregate interference to provide flexibility in IMT deployments]*

Sub-option 4 (possibly combined with sub-option 1, 2 or 3)

* To invite ITU-R to regularly update characteristics of IMT (including base station density) and to study/assess the impact on sharing and compatibility with other services. This would enable ITU-R to recommend corrective measures to address situations whereby the interference threshold to FSS/ISS space stations would be at a risk to become exceeded. It is noted that such process would also be relevant to the continued protection of EESS passive band in the 23.6‑24 GHz.

Condition A2e: Protection of RAS

The band 23.6-24 GHz is covered by No. **5.340**. ITU-R should be invited to update existing ITU-R Recommendations or develop new ITU-R Recommendations, as appropriate, to assist the administrations in this matter.

### 2/1.13/4.1.3 Method A3: Allocate the 24.25-25.25 GHz frequency band to the MS on a primary basis in Regions 1 and 2 and identify the 24.25-27.5 GHz frequency band for IMT in Regions 1, 2 and 3, subject to certain conditions of mandatory and/or non-mandatory nature

The same conditions as in Method A2 apply to this Method but they are suggested as options as required.

### 2/1.13/4.1.4 Method A4: Allocate the 24.25-25.25 GHz frequency band to the MS on a primary basis in Regions 1 and 2 and identify the 24.25-27.5 GHz frequency band for IMT in Regions 1, 2 and 3

Make an allocation to the mobile service on a primary basis in the Table of Frequency allocations in the frequency band 24.25-25.25 GHz in Regions 1 and 2. Identify the frequency band 24.25‑27.5 GHz for IMT by a new footnote. Revise Resolution **750 (WRC-15)** to include unwanted emission limits for the 23.6‑24.0 GHz frequency band.

## 2/1.13/4.2 Item B: Frequency band 31.8-33.4 GHz

### 2/1.13/4.2.1 Method B1: NOC

No change to the Radio Regulations due to sharing and compatibility study results between IMT systems and radionavigation systems showing their incompatibility.

### 2/1.13/4.2.2 Method B2: Allocation to the MS on a primary basis and identification for IMT in the frequency band 31.8-33.4 GHz with certain regulatory conditions

NOTE: Contributions received at the 4th and 5th meeting of TG 5/1 have proposed NOC for this frequency band. Based on the output from WG 2, sharing between IMT and RNS is not feasible.

Condition B2a: RAS protection

This case is covered by No. **5.340** (31.3-31.5 GHz globally and 31.5-31.8 GHz in Region 2). ITU-R should be invited to update existing ITU-R Recommendations or develop new ITU-R Recommendations, as appropriate, to assist the administrations in this matter.

Condition B2b: Coexistence with SRS (s-E) in the frequency band 31.8-32.3 GHz

Alternative 1:

WRC-Resolution containing regulatory measures to address this compatibility case.

Alternative 2:

WRC Resolution:

*a)* to invite ITU-R to develop an ITU-R Recommendation to assist administrations in ensuring protection of existing and future SRS earth stations operating in the frequency band 31.8‑32.3 GHz;

*b)* in addition, administrations should be invited to adopt provisions to protect SRS from IMT networks and to ensure the possibility of deploying future earth stations.

*[Editor’s Note: Further discussion at the next meeting to clarify items a) and b) above and also how such provisions would be adopted unilaterally by a given administration to ensure possibility of deploying future earth stations]*

## 2/1.13/4.3 Item C: Frequency band 37-40.5 GHz

### 2/1.13/4.3.1 Method C1: NOC

No change to the Radio Regulations.

### 2/1.13/4.3.2 Method C2: Identify the 37-40.5 GHz frequency band for IMT subject to mandatory conditions

All conditions below apply to this Method.

Condition C2a: EESS(passive) protection measures

Alternative 1:

Compatibility with EESS(passive) systems operating in the frequency band 36-37 GHz may require that IMT systems comply with some unwanted emission levels. However, the frequency band 36‑37 GHz is also allocated to mobile and fixed services and coexistence conditions with EESS (passive) is currently addressed in Resolution **752 (WRC-07)**. Thus, EESS (passive) observations in this frequency band have already to accept a certain level of interference and it does not seem appropriate to include this band in Table 1 (mandatory limits) of Resolution **750 (Rev.WRC-15).**

*[Editor’s Note: Further work is required to bring this text more in line with a regulatory measure for WRC-19 to consider.]*

Alternative 2:

Compatibility with EESS(passive) systems operating in the frequency band 36 - 37 GHz requires that IMT‑2020 systems comply with the unwanted emission levels given in Resolution **750 (Rev.WRC‑19)**.

Condition C2b: Protection measures and procedures for the FSS(s-E)

[ITU-R studies show that geographic separation between IMT systems and receive earth stations is required to protect FSS and MSS earth stations. For the protection of FSS earth stations operating in the frequency band 37.5-40.5 GHz, the following actions are required:

1. administrations should be invited to ensure the necessary balance in the frequency band 37.5‑42.5 GHz (downlink), 42.5-43.5 GHz (uplink), 47.2-50.2 GHz (uplink) and 50.4‑51.4 GHz (uplink), allocated to the fixed satellite service, between spectrum available for IMT, spectrum available for ubiquitous earth stations (e.g. HDFSS) and spectrum available for gateway earth stations;
2. to invite ITU-R to develop an ITU-R Recommendation to assist administrations in ensuring the protection of existing and future FSS earth stations;
3. in addition, administrations should be invited to apply this Recommendation when they decide to protect FSS earth stations from IMT networks and to ensure the possibility of deploying future gateway earth stations.]

For cross-border protection of earth stations, coordination procedures in Article **9** would apply. The ITU-R Recommendation would therefore help administrations during the coordination process and for national considerations

Condition C2c: Coexistence with SRS (s-E) in the frequency band 37-38 GHz

Alternative 1:

WRC Resolution containing regulatory measures to address this compatibility case.

Alternative 2:

WRC Resolution:

*a)* to invite ITU-R to develop an ITU-R Recommendation to assist administrations in ensuring protection of existing and future SRS earth stations operating in the frequency band 37‑38 GHz;

*b)* in addition, administrations should be invited to adopt provisions to protect SRS from IMT networks and to ensure the possibility of deploying future earth stations.

For cross-border protection of earth stations, coordination procedures in Article **9** would apply. The ITU-R Recommendation would therefore help administrations during the coordination process and for national considerations

Condition C2d: Coexistence with SRS (E-s) and EESS (E-s) in the frequency band 40‑40.5 GHz

IMT‑2020 systems operating in the frequency band 37-40.5 shall not claim protection from emissions of SRS (E-s) and EESS (E-s) earth stations operating in the frequency band 40-40.5 GHz.

*[Editor’s Note: Further discussion at the next meeting to clarify the basis for this condition]*

### 2/1.13/4.3.3 Method C3: Identify the 37-40.5 GHz frequency band for IMT subject to certain conditions of mandatory and/or non-mandatory nature

The same conditions as in Method C2 apply to this Method but they are suggested as options as required.

### 2/1.13/4.3.4 Method C4: Identify the 37-40.5 GHz frequency band for IMT

Identify the frequency band 37-40.5 GHz for IMT by a new footnote. Revise Resolution **750 (WRC-15)** to include unwanted emission limits for the 36-37 GHz frequency band.

## 2/1.13/4.4 Item D: Frequency band 40.5-42.5 GHz

### 2/1.13/4.4.1 Method D1: NOC

No change to the Radio Regulations

### 2/1.13/4.4.2 Method D2: Allocate the 40.5-42.5 GHz frequency band to the MS on a primary basis and identify the frequency band for IMT subject to mandatory conditions

Upgrade the existing secondary allocation to the MS in the frequency band 40.5-42.5 GHz to a primary allocation in the Table of Frequency allocations and identify the frequency band for IMT by a new footnote with certain regulatory conditions. All conditions below apply to this Method.

Condition D2a: Protection measures and procedures for the FSS(s-E)

[ITU-R studies show that geographic separation between IMT systems and receive earth stations is required to protect FSS and MSS earth stations. For the protection of FSS earth stations operating in the frequency band 37.5-40.5 GHz, the following actions are required:

1. administrations should be invited to ensure the necessary balance in the frequency bands 37.5‑42.5 GHz (downlink), 42.5-43.5 GHz (uplink), 47.2-50.2 GHz (uplink) and 50.4‑51.4 GHz (uplink), allocated to fixed satellite service, between spectrum available for IMT, spectrum available for ubiquitous earth stations (e.g. HDFSS) and spectrum available for gateway earth stations;
2. to invite ITU-R to develop an ITU-R Recommendation to assist administrations in ensuring the protection of existing and future FSS earth stations;
3. in addition, administrations should be invited to apply this Recommendation when they decide to protect FSS earth stations from IMT networks and to ensure the possibility of deploying future gateway earth stations.]

For cross-border protection of earth stations, coordination procedures in Article **9** would apply. The ITU-R Recommendation would therefore help administrations during the coordination process and for national considerations.

### 2/1.13/4.4.3 Method D3 Allocate the 40.5-42.5 GHz frequency band to the MS on a primary basis and identify the frequency band for IMT subject to certain conditions of mandatory and/or non-mandatory nature

Allocate the frequency band 40.5-42.5 GHz to the MS by the upgrade of the existing secondary allocation in the Table of Frequency Allocations and identify the frequency band 40.5-42.5 GHz for IMT in a new footnote and associated resolution. The same conditions as in Method D2 apply to this Method, but they are suggested as options, as required.

### 2/1.13/4.4.4 Method D4: Identify the 40.5-42.5 GHz frequency band for IMT

Upgrade an allocation to the MS to a primary allocation in the Table of Frequency Allocations and identify the frequency band for IMT by a new footnote in the frequency band 40.5-42.5 GHz.

## 2/1.13/4.5 Item E: Frequency band 42.5-43.5 GHz

### 2/1.13/4.5.1 Method E1: NOC

No change to the Radio Regulations

### 2/1.13/4.5.2 Method E2: Identify the 42.5-43.5 GHz frequency band for IMT subject to mandatory conditions

Identify the frequency band 42.5-43.5 GHz for IMT by a new footnote with certain regulatory conditions. All conditions below apply to this Method.

Condition E2a: Protection measures and procedures for the FSS(E-s)

*[Editor’s Note: It might be useful to make the text below more generic and then reflect it at the beginning of section 4 instead of reproducing it for every band where this scenario exists.]*

The compatibility studies are showing, based on assumed IMT-2020 parameters in conjunction with Recommendation ITU-R M.2101, a protection of FSS (E-s) with a margin on the order of [10/12] dB. IMT technical and deployment characteristics may evolve in the future and result in excessive interference into FSS satellites. Should this occur, interference reduction at satellite receivers after the deployment of IMT systems would be complicated due to aggregate interference from a large number of IMT stations as well as the fact that satellite footprints can cover territories of multiple administrations.

Some regulatory measures have been proposed to address long term protection of FSS satellites taking into account the compatibility studies, including interference margin results:

Sub-option 1 (exclusive from sub-option 2 and 3)

* Requiring that when deploying outdoor base stations, it shall be ensured that each antenna is normally transmitting only with the main beam pointing below the horizon and in addition the antenna shall have mechanical pointing below the horizon except when the base station is only receiving.

Sub-option 2 (exclusive from sub-option 1 and 3)

* Mandatory angular e.i.r.p. mask for the emissions of IMT base stations in the skyward direction.

Sub-option 3 (exclusive from sub-option 1 and 2)

*[Editor’s Note: Consider at the next meeting the possibility of a pfd/epdf limit applying at the satellite orbit applicable to aggregate interference to provide flexibility in IMT deployments]*

Sub-option 4 (possibly combined with sub-option 1, 2 or 3)

* To invite ITU-R to regularly update characteristics of IMT (including base station density) and to study/assess the impact on sharing and compatibility with other services. This would enable ITU-R to recommend corrective measures to address situations whereby the interference threshold to FSS space stations would be at a risk to become exceeded.

Condition E2b: RAS protection

Radio astronomy has a primary allocation in the band 42.5-43.5 GHz. ITU-R should be invited to update existing ITU-R Recommendations or develop new ITU-R Recommendations, as appropriate, to assist the administrations in this matter.

### 2/1.13/4.5.3 Method E3: Identify the frequency band 42.5-43.5 GHz for IMT subject to certain conditions of mandatory and/or non-mandatory nature

Identify the frequency band 42.5-43.5 GHz for IMT by a new footnote with certain regulatory conditions. The same conditions as in Method E2 apply to this Method but they are suggested as options, as required.

### 2/1.13/4.5.4 Method E4: Identify the frequency band 42.5-43.5 GHz for IMT

Identify the frequency band for IMT by a new footnote in the frequency band 42.5-43.5 GHz.

# 2/1.13/5 Regulatory and procedural considerations

## 2/1.13/5.1 For Item A: Frequency band 24.25-27.5 GHz

### 2/1.13/5.1.1 For Methods A2, A3 and A4:

*[Note to the BR: Changes highlighted should be kept as tracked changes when producing the Annex to the Chairman’s Report]*

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations  
(See No. 2.1)

MOD

22-24.75 GHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 24.25-24.45  FIXED  MOBILE ADD 5.A113 MOD 5.338A | 24.25-24.45  MOBILE ADD 5.A113 MOD 5.338A  RADIONAVIGATION | 24.25-24.45  FIXED  MOBILE ADD 5.A113 MOD 5.338A  RADIONAVIGATION |
| 24.45-24.65  FIXED  INTER-SATELLITE  MOBILE ADD 5.A113 MOD 5.338A | 24.45-24.65  INTER-SATELLITE  MOBILE ADD 5.A113 MOD 5.338A  RADIONAVIGATION | 24.45-24.65  FIXED  INTER-SATELLITE  MOBILE ADD 5.A113 MOD 5.338A  RADIONAVIGATION |
|  | 5.533 | 5.533 |
| 24.65-24.75  FIXED  FIXED-SATELLITE (Earth-to-space) 5.532B  INTER-SATELLITE  MOBILE ADD 5.A113 MOD 5.338A | 24.65-24.75  INTER-SATELLITE  MOBILE ADD 5.A113 MOD 5.338A  RADIOLOCATION- SATELLITE (Earth-to-space) | 24.65-24.75  FIXED  FIXED-SATELLITE (Earth-to-space) 5.532B  INTER-SATELLITE  MOBILE ADD 5.A113 MOD 5.338A |
|  |  | 5.533 |

MOD

24.75-29.9 GHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 24.75-25.25  FIXED  FIXED-SATELLITE  (Earth-to-space) 5.532B  MOBILEADD 5.A113 MOD 5.338A | 24.75-25.25  FIXED-SATELLITE (Earth-to-space) 5.535  MOBILEADD 5.A113 MOD 5.338A | 24.75-25.25  FIXED  FIXED-SATELLITE (Earth-to-space) 5.535  MOBILEADD 5.A113 MOD 5.338A |
| 25.25-25.5 FIXED  INTER-SATELLITE 5.536  MOBILEADD 5.A113 MOD 5.338A  Standard frequency and time signal-satellite (Earth-to-space) | | |
| 25.5-27EARTH EXPLORATION-SATELLITE (space-to Earth) 5.536B  FIXED  INTER-SATELLITE 5.536  MOBILEADD 5.A113 MOD 5.338A  SPACE RESEARCH (space-to-Earth) 5.536C  Standard frequency and time signal-satellite (Earth-to-space)  5.536A | | |
| 27-27.5  FIXED  INTER-SATELLITE 5.536  MOBILE ADD 5.A113 MOD 5.338A | 27-27.5  FIXED  FIXED-SATELLITE (Earth-to-space)  INTER-SATELLITE 5.536 5.537  MOBILE ADD 5.A113 MOD 5.338A | |

ADD

5.A113 The frequency band 24.25-27.5 GHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Resolutions **[A113-IMT 26 GHZ] (WRC-19)** and **750 (Rev.WRC-19)** apply.     (WRC‑19)

MOD

5.338A In the frequency bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 24.2527.5 GHz, 30-31.3 GHz, 49.7‑50.2 GHz, 50.4-50.9 GHz, 51.4-52.6 GHz, 81-86 GHz and 92-94 GHz, Resolution **750 (Rev.WRC‑**19**)** applies.     (WRC‑19)

## 2/1.13/5.2 For Item B: Frequency band 31.8-33.4 GHz

### 2/1.13/5.2.1 For Methods B2:

[Example(s) of regulatory text]

*[Editor’s Note: Add text based on Document 5-1/230 once the structure of section 4.2 is stable.]*

## 2/1.13/5.3 For Item C: Frequency band 37-40.5 GHz

### 2/1.13/5.3.1 For Methods C2, C3 and C4:

*[Note to the BR: Changes highlighted should be kept as tracked changes when producing the Annex to the Chairman’s Report]*

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations  
(See No. 2.1)

MOD

34.2-40 GHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 37-37.5 FIXED  MOBILE except aeronautical mobile ADD 5.B113 MOD 5.338A  SPACE RESEARCH (space-to-Earth)  5.547 | | |
| 37.5-38 FIXED  FIXED-SATELLITE (space-to-Earth)  MOBILE except aeronautical mobile ADD 5.B113 MOD 5.338A  SPACE RESEARCH (space-to-Earth)  Earth exploration-satellite (space-to-Earth)  5.547 | | |
| 38-39.5 FIXED  FIXED-SATELLITE (space-to-Earth)  MOBILE ADD 5.B113 MOD 5.338A  Earth exploration-satellite (space-to-Earth)  5.547 | | |
| 39.5-40 FIXED  FIXED-SATELLITE (space-to-Earth) 5.516B  MOBILE ADD 5.B113 MOD 5.338A  MOBILE-SATELLITE (space-to-Earth)  Earth exploration-satellite (space-to-Earth)  5.547 | | |

MOD

40-47.5 GHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 40-40.5 EARTH EXPLORATION-SATELLITE (Earth-to-space)  FIXED  FIXED-SATELLITE (space-to-Earth) 5.516B  MOBILE ADD 5.B113 MOD 5.338A  MOBILE-SATELLITE (space-to-Earth)  SPACE RESEARCH (Earth-to-space)  Earth exploration-satellite (space-to-Earth) | | |

ADD

5.B113 The frequency band 37-40.5 GHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Resolutions **[A113-IMT 40 GHZ] (WRC-19)** and **750 (Rev.WRC-19)** apply.     (WRC‑19)

MOD

5.338A In the frequency bands 1 350-1 400 MHz, 1 427-1 452 MHz, 22.55-23.55 GHz, 30‑31.3 GHz, 31.8-33.4 GHz, 49.7‑50.2 GHz, 50.4-50.9 GHz, 51.4-52.6 GHz, 81-86 GHz and 92‑94 GHz, Resolution **750 (Rev.WRC‑**19**)** applies.     (WRC‑19)

## 2/1.13/5.4 For Item D: Frequency band 40.5-42.5 GHz

### 2/1.13/5.4.1 For Methods D2, D3 and D4:

*[Note to the BR: Changes highlighted should be kept as tracked changes when producing the Annex to the Chairman’s Report]*

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations  
(See No. 2.1)

MOD

40-47.5 GHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 40.5-41  FIXED  FIXED-SATELLITE  (space-to-Earth)  BROADCASTING  BROADCASTING-SATELLITE  MOBILE ADD 5.C113  5.547 | 40.5-41  FIXED  FIXED-SATELLITE  (space-to-Earth) 5.516B  BROADCASTING  BROADCASTING-SATELLITE  MOBILE ADD 5.C113  Mobile-satellite (space-to-Earth)  5.547 | 40.5-41  FIXED  FIXED-SATELLITE  (space-to-Earth)  BROADCASTING  BROADCASTING-SATELLITE  MOBILE ADD 5.C113  5.547 |
| 41-42.5 FIXED  FIXED-SATELLITE (space-to-Earth) 5.516B  BROADCASTING  BROADCASTING-SATELLITE  MOBILE ADD 5.C113  5.547 5.551F 5.551H 5.551I | | |

ADD

5.C113 The frequency band 40.5-42.5 GHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Resolution **[A113-IMT 40 GHZ] (WRC-19)** applies.     (WRC‑19)

## 2/1.13/5.5 For Item E: Frequency band 42.5-43.5 GHz

### 2/1.13/5.5.1 For Methods E2, E3 and E4:

*[Note to the BR: Changes highlighted should be kept as tracked changes when producing the Annex to the Chairman’s Report]*

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations  
(See No. 2.1)

MOD

40-47.5 GHz

|  |  |  |
| --- | --- | --- |
| Allocation to services | | |
| Region 1 | Region 2 | Region 3 |
| 42.5-43.5 FIXED  FIXED-SATELLITE (Earth-to-space) 5.552  MOBILE except aeronautical mobile ADD 5.D113  RADIO ASTRONOMY  5.149 5.547 | | |

ADD

5.D113 The frequency band 42.5-43.5 GHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. Resolution **[A113-IMT 40 GHZ] (WRC-19)** applies.     (WRC‑19)

## 2/1.13/5.13 For some items

2/1.13/5.13.1 For Methods A2, A3, A4, C2, C3, C4, D2, D3, D4, E2, E3, E4, J2

*[Editor’s Note: Add further methods for which this sub-section applies depending on the further development of the example regulatory text in the sub-sections above.]*

*[Editor’s Note: It was indicated that this Resolution is a compilation of input contributions from membership few elements of which were briefly presented but not examined and analysed from various aspects including its scope of application. It was also indicated that the protection of the incumbent services from any new allocation of the mobile service and its identification for IMT is a matter to be dealt with under necessary mandatory regulatory provisions to be undertaken by administrations and not by invitation which is a voluntary action .Any invitation to that effect is merely a supplementary action encouraging administrations to collaborate with each other in facilitating the implementation of those mandatory actions and thus the above course of actions are not mutually exclusive.]*

ADD

DRAFT NEW RESOLUTION [A113-IMT 26 GHZ] (WRC-19)

International Mobile Telecommunications   
in the frequency band 24.25-27.5 GHz

The World Radiocommunication Conference (Sharm el-Sheikh, 2019),

considering

*a)* that International Mobile Telecommunications (IMT) is intended to provide telecommunication services on a worldwide scale, regardless of location and type of network or terminal;

*b)* that IMT systems have contributed to global economic and social development;

*c)* that IMT systems are now being evolved to provide diverse usage scenarios and applications such as enhanced mobile broadband, massive machine-type communications and ultra-reliable and low-latency communications;

*d)* that ultra-low latency and very high bit rate applications of IMT will require larger contiguous blocks of spectrum than those available in frequency bands that are currently identified for use by administrations wishing to implement IMT;

*e)* that there is a need to continually take advantage of technological developments in order to increase the efficient use of spectrum and facilitate spectrum access;

*f)* that the properties of higher frequency bands, such as shorter wavelength, would better enable the use of advanced antenna systems including MIMO and beam-forming techniques in supporting enhanced broadband;

*g)* that adequate and timely availability of spectrum and supporting regulatory provisions is essential to realize the objectives in Recommendation ITU‑R M.2083;

*h)* that harmonized worldwide bands and harmonized frequency arrangements for IMT are highly desirable in order to achieve global roaming and the benefits of economies of scale;

*i)* that identification of frequency bands allocated to mobile service for IMT may change the sharing situation regarding applications of services to which the frequency band is already allocated, and may require additional regulatory actions;

j) that ITU-R has studied, in preparation of WRC-19, sharing and compatibility with services allocated in bands identified for IMT in the frequency band 24.25-27.5 GHz and in adjacent bands;

*k)* the need to protect existing services and to allow for their continued development when considering frequency bands for possible additional allocations to any service,

noting

*a)* that Resolution ITU‑R 65 addresses the principles for the process of development of IMT for 2020 and beyond, and that Question ITU‑R 77‑7/5 considers the needs of developing countries in the development and implementation of IMT;

*b)* that Question ITU‑R 229/5 seeks to address the further development of IMT;

*c)* that IMT encompasses IMT-2000, IMT-Advanced, and IMT-2020 collectively, as described in Resolution ITU‑R 56‑2;

*d)* Recommendation ITU‑R M.2083, on the framework and objectives of the future development of IMT for 2020 and beyond;

*e)* that Report ITU‑R M.2320 addresses future technology trends of terrestrial IMT systems;

*f)* Report ITU‑R M.2376, on technical feasibility of IMT in the frequency bands above 6 GHz;

*g)* that Report ITU‑R M.2370 analyses trends impacting future IMT traffic growth beyond the year 2020 and estimates global traffic demands for the period 2020 to 2030;

*h)* that there are ongoing studies within ITU‑R on the propagation characteristics for mobile systems in higher frequency bands;

*i)* that the FSS allocation in the frequency band 24.65-25.25 GHz was made by WRC‑12,

recognizing

*a)* that there is a lead time between the allocation of frequency bands by world radiocommunication conferences and the deployment of systems in those bands, and that timely availability of wide and contiguous blocks of spectrum is therefore important to support the development of IMT;

*b)* that identification of frequency bands for IMT should take into account the use of the bands by other services and the evolving needs of these services;

*c)* that there should be no additional regulatory or technical constraints imposed to services to which the band is currently allocated on a primary basis;

*d)* that spurious emission limits of Recommendation ITU-R SM.329 category B (‑30 dB(m/MHz)) are sufficient to protect the EESS (passive) from the second harmonic of IMT base station emissions in the 24.25-27.5 GHz band,

resolves

1 that administrations planning to implement IMT to make available, based on user demand and other national considerations the frequency band 24.25-27.5 GHz identified in No. **5.A113**for the terrestrial component of IMT; due consideration should be given to the benefits of harmonized utilization of the spectrum for the terrestrial component of IMT, taking into account the services to which the frequency band is currently allocated;

A2C sub Option 1

2 to urge administrations to ensure that the following conditions apply to the elevation of the main beam from IMT outdoor base stations operating in the frequency band 24.25-27.5 GHz: each antenna is normally transmitting only with the main beam pointing below the horizon and in addition the antenna shall have mechanical pointing below the horizon except when the base station is only receiving;



[A2C sub Option 2]

3 that, in order to protect satellite reception in the frequency band24.45-27.5 GHz, IMT base stations shall comply with the following e.i.r.p. masks for the emissions:

3.1 that for the protection of space stations in the inter-satellite service, IMT stations should comply the following e.i.r.p. limitations for the base stations depending on the elevation angle:

|  |  |
| --- | --- |
| Elevation angle | Maximum e.i.r.p. |
| 5≤Θ≤15 | 47+[N1]-1.3(Θ-5) dB(m/200 MHz) |
| 15<Θ≤25 | 34+[N2] dB(m/200 MHz) |
| 25<Θ≤55 | 34+[N3]-0.43(Θ-25) dB(m/200 MHz) |
| 55<Θ≤90 | 21.1+[N4] dB(m/200 MHz) |

*[Editor’s Note: The proposed above e.i.r.p. mask is based on the envelope of the IMT-2020 8x8 element BS antenna gain pattern sidelobes, described in Recommendation ITU-R M.2101. To account for real performance of the IMT-2020 BS antenna patterns, including different antenna configurations, N-factors are introduced in the formula above. The values for N-factors could be defined by additional simulations. In case the lack of additional simulations the values for N-factors can be set to zero]*

3.2a that for the protection of space stations in the fixed-satellite service (Earth-to-space), IMT stations should comply the following e.i.r.p. limitations for the base stations depending on the elevation angle:

|  |  |
| --- | --- |
| Elevation angle | Maximum e.i.r.p. |
| 5≤Θ≤15 | 47+[K1]-1.3(Θ-5) dB(m/200 MHz) |
| 15<Θ≤25 | 34+[K2] dB(m/200 MHz) |
| 25<Θ≤55 | 34+[K3]-0.43(Θ-25) dB(m/200 MHz) |
| 55<Θ≤90 | 21.1+[K4] dB(m/200 MHz) |

*[Editor’s Note: The proposed above e.i.r.p. mask is based on the envelope of the IMT-2020 8x8 element BS antenna gain pattern sidelobes, described in Recommendation ITU-R M.2101. To account for real performance of the IMT-2020 BS antenna patterns, including different antenna configurations, K-factors are introduced in the formula above. The values for K-factors could be defined by additional simulations. In case the lack of additional simulations the values for K-factors can be set to zero]*;

3.2b that for the protection of space stations in the fixed-satellite service (Earth-to-space), IMT stations should comply the following e.i.r.p. limitations for the base stations depending on the elevation angle:

For 0 < Θ < 5 degrees: 60 dBm /200 MHz

For 5 ≤ Θ < 90 degrees: 51-13\*log(Θ/5) dBm/200 MHz;

*[Editor’s Note: The proposed above e.i.r.p. mask is based on the envelope of the IMT-2020 16x16 element BS antenna gain pattern sidelobes, described in Recommendation ITU-R M.2101.]*

[A2C sub Option 3 ]

4 that, in order to protect satellite reception in the frequency band24.45-27.5 GHz, administrations shall ensure that [pfd/epfd] resulting from the cumulative interference of all base stations in any satellite coverage area is below the limits given in Annex [TBD],

invites administrations

[Option xxx]

1 to take into account relevant ITU-R Recommendations and Reports, when implementing or planning to implement IMT, in particular in cases where it is recommended to adopt certain provisions to alleviate the risk of interference to other services, such as geographical separations for the protection of receiving earth stations of EESS, SRS, FSS as well as radio astronomy stations;

[Option EESS/SRS 26 GHz ]

2 to take into account, when authorizing IMT, the possible need for future EESS and SRS earth stations to be deployed in the frequency band 25.5-27 GHz, ,

invites ITU‑R

1 to develop harmonized frequency arrangements to facilitate IMT deployment in the frequency band24.25-27.5 GHz taking into account the results of sharing and compatibility studies;

2 to continue providing guidance to ensure that IMT can meet the telecommunication needs of the developing countries and rural areas in the context of the studies referred to above;

*[Editor’s Note: This may be considered as a general “invites administrations” or be related to certain options – TBD – which option?]*

3 to develop ITU-R Recommendations and Reports that will assist administrations in ensuring the coexistence with other services, in particular for determining geographical separations between IMT stations and EESS, SRS, FSS earth stations as well as radio astronomy stations;

[A2C sub Option 4 ]

4 to develop ITU-R Recommendations and Reports, regularly updated, on IMT technical and operational, including deployment, characteristics;

5 to study the impact of evolved IMT characteristics on sharing and compatibility with other services.

2/1.13/5.13.2 For Methods C2, C3, C4, D2, D3, D4, E2, E3 and E4

ADD

*Editorial note: For facilitating the reading, the text of the initial resolution covering all bands has been reproduced and revision marks are from the initial text.*

DRAFT NEW RESOLUTION [A113-IMT 40 GHZ] (WRC-19)

International Mobile Telecommunications   
in frequency bands 37-43.5 GHz

The World Radiocommunication Conference (Sharm el-Sheikh, 2019),

considering

*a)* that International Mobile Telecommunications (IMT) is intended to provide telecommunication services on a worldwide scale, regardless of location and type of network or terminal;

*b)* that IMT systems have contributed to global economic and social development;

*c)* that IMT systems are now being evolved to provide diverse usage scenarios and applications such as enhanced mobile broadband, massive machine-type communications and ultra‑reliable and low-latency communications;

*d)* that ultra-low latency and very high bit rate applications of IMT will require larger contiguous blocks of spectrum than those available in frequency bands that are currently identified for use by administrations wishing to implement IMT;

*e)* that there is a need to continually take advantage of technological developments in order to increase the efficient use of spectrum and facilitate spectrum access;

*f)* that the properties of higher frequency bands, such as shorter wavelength, would better enable the use of advanced antenna systems including MIMO and beam-forming techniques in supporting enhanced broadband;

*g)* that adequate and timely availability of spectrum and supporting regulatory provisions is essential to realize the objectives in Recommendation ITU‑R M.2083;

*h)* that harmonized worldwide bands and harmonized frequency arrangements for IMT are highly desirable in order to achieve global roaming and the benefits of economies of scale;

*i)* that identification of frequency bands allocated to mobile service for IMT may change the sharing situation regarding applications of services to which the frequency band is already allocated, and may require additional regulatory actions;

*j)* the need to protect existing services and to allow for their continued development when considering frequency bands for possible additional allocations to any service,

noting

*a)* that Resolution ITU‑R 65 addresses the principles for the process of development of IMT for 2020 and beyond, and that Question ITU‑R 77‑7/5 considers the needs of developing countries in the development and implementation of IMT;

*b)* that Question ITU‑R 229/5 seeks to address the further development of IMT;

*c)* that IMT encompasses IMT-2000, IMT-Advanced, and IMT-2020 collectively, as described in Resolution ITU‑R 56‑2;

*d)* Recommendation ITU‑R M.2083, on the framework and objectives of the future development of IMT for 2020 and beyond;

*e)* that Report ITU‑R M.2320 addresses future technology trends of terrestrial IMT systems;

*f)* Report ITU‑R M.2376, on technical feasibility of IMT in the frequency bands above 6 GHz;

*g)* that Report ITU‑R M.2370 analyses trends impacting future IMT traffic growth beyond the year 2020 and estimates global traffic demands for the period 2020 to 2030;

*h)* that there are ongoing studies within ITU‑R on the propagation characteristics for mobile systems in higher frequency bands,

recognizing

*a)* that there is a lead time between the allocation of frequency bands by world radiocommunication conferences and the deployment of systems in those bands, and that timely availability of wide and contiguous blocks of spectrum is therefore important to support the development of IMT;

*b)* that identification of frequency bands for IMT should take into account the use of the bands by other services and the evolving needs of these services;

*c)* that there should be no additional regulatory or technical constraints imposed to services to which the band is currently allocated on a primary basis;

*d)* the relevance of provisions Nos. **5.516B** and **5.547**, and Resolution **143 (WRC-07)**,

resolves

1 to invite administrations planning to implement IMT to make available, based on user demand and other national considerations, additional frequency bands or portions of the frequency band 37-43.5 GHz, identified in Nos. [ **5.B113**, **5.C113**, **5.D113**,] for the terrestrial component of IMT; due consideration should be given to the benefits of harmonized utilization of the spectrum for the terrestrial component of IMT, taking into account the services to which the frequency band is currently allocated;

*[Editor’s Note: the footnotes should be selected depending on the proposals for specific bands.]*

[E2C sub Option 1 ]

2 to urge administrations to ensure that the following conditions apply to the elevation of the main beam from IMT outdoor base stations operating in the frequency band 42.5-43.5 GHz: each antenna is normally transmitting only with the main beam pointing below the horizon and in addition the antenna shall have mechanical pointing below the horizon except when the base station is only receiving;



[E2C sub Option 2 ]

3 that, in order to protect satellite reception in the frequency band 42.5‑43.5 GHz, IMT base stations shall comply with the following e.i.r.p. masks for the emissions:

3.1 that for the protection of space stations in the inter-satellite service, IMT stations should comply the following e.i.r.p. limitations for the base stations depending on the elevation angle:

|  |  |
| --- | --- |
| Elevation angle | Maximum e.i.r.p. |
| 5≤Θ≤15 | 47+[N1]-1.3(Θ-5) dB(m/200 MHz) |
| 15<Θ≤25 | 34+[N2] dB(m/200 MHz) |
| 25<Θ≤55 | 34+[N3]-0.43(Θ-25) dB(m/200 MHz) |
| 55<Θ≤90 | 21.1+[N4] dB(m/200 MHz) |

*[Editor’s Note: The proposed above e.i.r.p. mask is based on the envelope of the IMT-2020 8x8 element BS antenna gain pattern sidelobes, described in Recommendation ITU-R M.2101. To account for real performance of the IMT-2020 BS antenna patterns, including different antenna configurations, N-factors are introduced in the formula above. The values for N-factors could be defined by additional simulations. In case the lack of additional simulations the values for N-factors can be set to zero]*

3.2a that for the protection of space stations in the fixed-satellite service (Earth-to-space), IMT stations should comply the following e.i.r.p. limitations for the base stations depending on the elevation angle:

|  |  |
| --- | --- |
| Elevation angle | Maximum e.i.r.p. |
| 5≤Θ≤15 | 47+[K1]-1.3(Θ-5) dB(m/200 MHz) |
| 15<Θ≤25 | 34+[K2] dB(m/200 MHz) |
| 25<Θ≤55 | 34+[K3]-0.43(Θ-25) dB(m/200 MHz) |
| 55<Θ≤90 | 21.1+[K4] dB(m/200 MHz) |

*[Editor’s Note: The proposed above e.i.r.p. mask is based on the envelope of the IMT-2020 8x8 element BS antenna gain pattern sidelobes, described in Recommendation ITU-R M.2101. To account for real performance of the IMT-2020 BS antenna patterns, including different antenna configurations, K-factors are introduced in the formula above. The values for K-factors could be defined by additional simulations. In case the lack of additional simulations the values for K-factors can be set to zero]*;

3.2b that for the protection of space stations in the fixed-satellite service (Earth-to-space), IMT stations should comply the following e.i.r.p. limitations for the base stations depending on the elevation angle:

For 0 < Θ < 5 degrees: 60 dBm /200 MHz

For 5 ≤ Θ < 90 degrees: 51-13\*log(Θ/5) dBm/200 MHz;

*[Editor’s Note: The proposed above e.i.r.p. mask is based on the envelope of the IMT-2020 16x16 element BS antenna gain pattern sidelobes, described in Recommendation ITU-R M.2101.]*

[E2C sub Option 3 ]

4 that, in order to protect satellite reception in the frequency bands 42.5-43.5 GHz, administrations shall ensure that [pfd/epfd] resulting from the cumulative interference of all base stations in any satellite coverage area is below the limits given in Annex [TBD],

invites administrations

[Option xxx]

1 to take into account relevant ITU-R Recommendations and Reports, when implementing or planning to implement IMT, in particular in cases where it is recommended to adopt certain provisions to alleviate the risk of interference to other services, such as geographical separations for the protection of receiving earth stations of EESS, SRS, FSS as well as radio astronomy stations;

[Option 40 GHz balance between FSS and 5G needs]

2 to ensure that, when considering, nationally or regionally, the spectrum to be used for IMT, due attention is paid to the need for spectrum for earth stations that could be deployed in a ubiquitous manner (i.e. small user earth stations) and for earth stations that could be coordinated (i.e. gateways) in both downlink (37.5-42.5 GHz) and uplink (42.5‑43.5 GHz and 50.4-51.4 GHz) directions, taking into account spectrum identified for HDFSS as per No. **5.516B**;

[Option EESS/SRS 37 GHz]

3 to take into account, when authorizing IMT, the possible need for future EESS and SRS earth stations to be deployed in the frequency band 37-38 GHz,

invites ITU‑R

1 to develop harmonized frequency arrangements to facilitate IMT deployment in the frequency band 37-43.5 GHz taking into account the results of sharing and compatibility studies;

2 to continue providing guidance to ensure that IMT can meet the telecommunication needs of the developing countries and rural areas in the context of the studies referred to above;

*[Editor’s Note: This may be considered as a general “invites administrations” or be related to certain options – TBD – which option?]*

3 to develop ITU-R Recommendations and Reports that will assist administrations in ensuring the coexistence with other services, in particular for determining geographical separations between IMT stations and EESS, SRS, FSS earth stations as well as radio astronomy stations;

[A2C sub Option 4 + option other bands]

4 to develop ITU-R Recommendations and Reports, regularly updated, on IMT technical and operational, including deployment, characteristics;

5 to study the impact of evolved characteristics on sharing and compatibility with other services.

2/1.13/5.13.3 For Methods A2, A3, A4, C2, C3, C4, H2, H3, H4, L2, L3 and L4

*[Editor’s Note: The example of the modified Resolution 750 only applies at this stage to the protection of 23.6-24 GHz but this example will need to be modified to include all relevant bands where the proposal is not only a NOC and there is an EESS adjacent band]*

MOD

RESOLUTION 750 (Rev.WRC‑19)

Compatibility between the Earth exploration-satellite service (passive) and relevant active services

The World Radiocommunication Conference (Sharm el-Sheikh, 2019),

…

resolves

1 that unwanted emissions of stations brought into use in the frequency bands and services listed in Table 1‑1 below shall not exceed the corresponding limits in that table, subject to the specified conditions;

…

TABLE 1-1

|  |  |  |  |
| --- | --- | --- | --- |
| EESS (passive) band | Active service band | Active service | Limits of unwanted emission power from active service stations in a specified bandwidth within the EESS (passive) band1 |
| … | … | … | … |
| 23.6-24.0 GHz | 22.55-23.55 GHz | Inter-satellite | −36 dBW in any 200 MHz of the EESS (passive) band for non-geostationary (non-GSO) inter-satellite service (ISS) systems for which complete advance publication information is received by the Bureau before 1 January 2020, and −46 dBW in any 200 MHz of the EESS (passive) band for non-GSO ISS systems for which complete advance publication information is received by the Bureau on or after 1 January 2020 |
| 24.25- 27.5 GHz | Mobile | −42 dBW total radiated power of any 200 MHz in the EESS (passive) band for IMT base stations  −38 dBW total radiated power of any 200 MHz in the EESS (passive) band for IMT mobile stations |
| … | … | … | … |

1 The unwanted emission power level is to be understood here as the level measured at the antenna port, unless specified as total radiated power.

## 2/1.13/5.14 For all items, for Methods A1, B1, C1, D1, E1, F1, G1, H1, I1, J1, K1 and L1 (NOC)

ARTICLE 5

Frequency allocations

Section IV – Table of Frequency Allocations  
(See No. 2.1)

2/1.13/5.14.1 For Method A1 (NOC)

NOC

22-24.75 GHz

NOC

24.75-29.9 GHz

2/1.13/5.14.2 For Method B1 (NOC)

NOC

29.9-34.2 GHz

2/1.13/5.14.3 For Method C1 (NOC)

NOC

34.2-40 GHz

NOC

40-47.5 GHz

2/1.13/5.14.4 For Method D1 (NOC)

NOC

40-47.5 GHz

2/1.13/5.14.5 For Method E1 (NOC)

NOC

40-47.5 GHz

2/1.13/5.14.6 For Method F1 (NOC)

NOC

40-47.5 GHz

2/1.13/5.14.7 For Method G1 (NOC)

NOC

40-47.5 GHz

2/1.13/5.14.8 For Method H1 (NOC)

NOC

40-47.5 GHz

NOC

47.5-51.4 GHz

2/1.13/5.14.9 For Method I1 (NOC)

NOC

47.5-51.4 GHz

NOC

51.4-55.78 GHz

2/1.13/5.14.10 For Method J1 (NOC)

NOC

66-81 GHz

2/1.13/5.14.11 For Method K1 (NOC)

NOC

66-81 GHz

2/1.13/5.14.12 For Method L1 (NOC)

NOC

81-86 GHz

2/1.13/5.15 For all items, for all Methods

SUP

RESOLUTION 238 (WRC‑15)

Studies on frequency-related matters for International Mobile Telecommunications identification including possible additional allocations to the mobile services on a primary basis in portion(s) of the frequency range between 24.25 and 86 GHz for the future development of International Mobile Telecommunications for 2020 and beyond

\_\_\_\_\_\_\_\_\_\_\_\_\_\_