CHAPTER 6

Other Matters

(WRC-03 agenda items 1.8, 2, 4, 7.1)

CONTENTS

6.1 Agenda item 1.8

to consider issues related to unwanted emissions:

6.1.1 Agenda item 1.8.1

"consideration of the results of studies regarding the boundary between spurious and out-of-band emissions, with a view to including the boundary in Appendix **3**"

6.1.1.1 Summary of technical and operational studies

The general principle of the determination of the boundary between out-of-band and spurious emissions is given in RR Appendix **3** and Recommendation ITU-R SM.329-9. The variation of the boundary (from this general principle) is provided in detail by Recommendation ITU-R SM.1539.

Recommendation ITU-R SM.1539 has been developed to recommend the frequencies at which spurious emission limits should be applied to unwanted emissions from a transmitter. Recognizing that out-of-band and spurious emissions can occur in overlapping frequency ranges, Recommendations ITU-R SM.329 and SM.1541 include new definitions of the out-of-band and spurious "domains", disjoint frequency ranges in which either out-of-band or spurious emissions predominate (see section 6.1.1.4.2 below).

Using these new definitions, Recommendation ITU-R SM.1539 specifies exceptions from the general boundary of 250% of the necessary bandwidth of the emission ($2.5B_n$). To account for very narrow-band modulation types, the Recommendation specifies a minimum separation between the centre frequency and the boundary for different ranges of transmitter frequency. For wideband emissions exceeding a specified bandwidth threshold, the separation between the centre frequency and the boundary continues to increase with increasing bandwidth, but at a reduced rate. The Recommendation also includes additional guidance for certain specified service types, including a section devoted to primary radars.

It should also be noted that, in case of radar systems, the reference bandwidth to specify the spurious emission limit needs to be clearly defined and included in Appendix **3**.

Relevant Recommendations ITU-R SM.329, SM.1539 and SM.1541.

6.1.1.2 Analysis of the results of studies

The guidance provided in the three Recommendations described above is the result of ITU-R studies undertaken since July 1997. The studies concluded that these boundaries were generally appropriate for the application of the emission limits in RR Appendix **3**. However, they may be impractical for certain services.

In considering the boundary of the spurious domain for magnetron-driven pulsed primary radars, it is important to recognize that further study regarding calculation of the –40 dB bandwidth may be necessary. In practice, the value of the –40 dB bandwidth calculated using the pulse width and the pulse rise time may underestimate the actual bandwidth.

The reference bandwidth to define the spurious emission limit in the special case of radar systems was reviewed by ITU-R.

6.1.1.3 Methods to satisfy the agenda item and their advantages and disadvantages

6.1.1.3.1 Terminology related to the application of emission limits

Method

Adopt the new "domain" terminology described in the studies, adding the definitions of the out-of-band and spurious domains to RR Article **1**, since no "boundary" exists between out-of-band and spurious emissions.

Advantages:

- This new terminology will allow the application of RR Appendix **3** limits to emissions in the spurious domain, consistent with the definition of spurious emissions in RR Article **1**.
- The new terminology identifies unwanted emissions based solely on their separation from the centre frequency of the emission, consistent with usual emission measurement practice.
- The new definitions, which may have other application where reference is made to unwanted emissions based on their separation from the centre frequency, would be readily accessible for these uses.

Disadvantages:

- This method requires the inclusion of new terminology in the RR.

6.1.1.3.2 Addition to RR Appendix 3 of the boundary between the out-of-band and spurious domains

With regard to the specification of the boundary in RR Appendix **3**, as directed by the agenda item:

Method A

Provide specific exceptions from the general $2.5B_n$ boundary for narrow-band systems, wideband systems, and other specific cases in various frequency ranges based on the studies described above.

Advantages:

- This approach provides definite guidance for determining to what emissions RR Appendix **3** limits apply.
- Those concerned about interference from unwanted emissions have assurance of what attenuation of unwanted emissions is required as a function of frequency.

Disadvantages:

Additional exceptions from the general $2.5B_n$ boundary may be required in the future, since a $2.5B_n$ boundary may not be appropriate for all emissions and may impose impractical limits on certain types of services.

Method B

Provide all or part of the boundary exceptions by reference to Recommendation ITU-R SM.1539 and Recommendation ITU-R SM.1541.

Advantages:

- This approach requires minimal revision of RR Appendix **3**.
- Modifications to the boundary exceptions could be accomplished by revising a Recommendation, rather than by the more difficult and time-consuming process of modifying the Radio Regulations.

Disadvantages:

- Guidance for applying the limits of RR Appendix **3** would not be fully available without consulting an additional document.
- Boundary guidance provided in Recommendation ITU-R SM.1541 may eventually be moved to Recommendation ITU-R SM.1539.

Method C

Provide only the current exceptions from the general $2.5B_n$ boundary between the out-of-band and spurious domains, being guided by Recommendations ITU-R SM.1539 and ITU-R SM.1541.

Advantages:

- This approach requires minimal editorial changes to the existing text in RR Appendix **3**.
- This approach provides full flexibility to address, in a timely manner, new technologies, without any regulatory modifications.

Disadvantages:

- The definitions related to the boundary between the out-of-band and spurious domains would have no regulatory status.

6.1.1.4 Regulatory and procedural considerations

If the Radio Regulations are to be modified in accordance with the above-mentioned studies, the following changes will be required:

6.1.1.4.1 Terms related to the application of unwanted emission limits

Add the following definitions to RR Article **1**:

ADD

1.146*bis* *out-of-band domain* (of an emission): The frequency range, immediately outside the necessary bandwidth but excluding the *spurious domain*, in which *out-of-band emissions* generally predominate.

Out-of-band emissions, defined based on their source, occur in the out-of-band domain and, to a lesser extent, in the spurious domain. Spurious emissions likewise may occur in the out-of-band domain as well as in the spurious domain.

1.146*ter* *spurious domain* (of an emission): The frequency range beyond the *out-of-band domain* in which *spurious emissions* generally predominate.

*****

6.1.1.4.2 Provisions related to out-of-band and spurious emissions

In RR Article **3**, modify Nos. **3.6** and **3.7** to accommodate emissions specified using both the existing definitions of *out-of-band emission* and *spurious emission* (which constitute "unwanted emissions"), and the definitions proposed above. Other provisions, including Nos. **15.10**, **15.11**, **25.8** and **29.11** do not require revisions under this agenda item;

MOD

3.6 Transmitting stations shall conform to the maximum permitted ~~spurious emission~~ power levels for spurious emissions or for emissions in the spurious domain specified in Appendix **3**.

3.7 Transmitting stations shall conform to the maximum permitted power levels for out-of-band emissions, or unwanted emissions in the out-of-band domain, specified for certain services and classes of emission in the present Regulations. In the absence of such specified maximum permitted power levels transmitting stations should, to the maximum extent possible, satisfy the requirements relating to the limitation of the out-of-band emissions, or unwanted emissions in the out-of-band domain, specified in the most recent ITU-R Recommendations (see Resolution **27 (Rev.WRC-97)**).

*****

6.1.1.4.3 Title of RR Appendix 3

Change the title of RR Appendix **3** to reflect the fact that Section I and Section II refer to different types of unwanted emissions.

MOD

APPENDIX 3

Tables of maximum permitted ~~spurious emission~~ power levels for spurious or spurious domain emissions*

(See Article **3**)

6.1.1.4.4 Introductory paragraphs of RR Appendix 3

Modify the introductory paragraphs of Appendix **3** to reflect the distinction between the types of emissions to which the limits of Sections I and II apply.

MOD

1 The following sections indicate the maximum permitted levels of ~~spurious~~ certain unwanted emissions, in terms of power as indicated in the tables, of ~~any spurious~~ components supplied by a transmitter to the antenna transmission line. Section I, which provides spurious emission limits, is applicable until 1 January 2012 to transmitters installed on or before 1 January 2003; Section II, which limits emissions in the spurious domain, is applicable to transmitters installed after 1 January 2003 and to all transmitters after 1 January 2012. ~~This Appendix does not cover out-of-band emissions. Out-of-band emissions are dealt with in~~ The provisions of No. **4.5** apply to unwanted emissions not covered in Sections I and II.

2 Spurious emissions and spurious domain emissions (covered by Sections I and II) from any part of the installation, other than the antenna and its transmission line, shall not have an effect greater than would occur if this antenna system were supplied with the maximum permitted power at ~~that spurious emission~~the frequency of that emission.

3 These levels shall not, however, apply to emergency position-indicating radiobeacon (EPIRB) stations, emergency locator transmitters, ships' emergency transmitters, lifeboat transmitters, survival craft stations or maritime transmitters when used in emergency situations.

* Spurious domain emissions are unwanted emissions at frequencies within the spurious domain.

4 For technical or operational reasons, more stringent levels than those specified may be applied to protect specific services in certain frequency bands. The levels applied to protect these services, such as safety and passive services, shall be those agreed upon by the appropriate world radiocommunication conference. More stringent levels may also be fixed by specific agreement between the administrations concerned. Additionally, special consideration of transmitter spurious emissions or spurious domain emissions may be required for the protection of safety services, radio astronomy and space services using passive sensors. Information on the levels of interference detrimental to radio astronomy, Earth exploration satellites and meteorological passive sensing is given in the most recent version of Recommendation ITU-R SM.329.

5 Spurious emissions or spurious domain emission limits (covered by Sections I and II) for combined radiocommunication and information technology equipment are those for the radiocommunication transmitters.

6.1.1.4.5 First paragraphs of Section II of RR Appendix 3

Modify these paragraphs to reflect the domain terminology. Refer to Recommendation ITU-R M.1177 for guidance on measurement of radar emissions.

MOD

Section II – Spurious domain emission limits for transmitters installed after 1 January 2003 and for all transmitters after 1 January 2012

Application of these limits

7 The frequency range of the measurement of spurious domain emissions is from 9 kHz to 110 GHz or the second harmonic if higher.

~~8 Guidance regarding the methods of measuring spurious domain emissions is given in the most recent version of Recommendation ITU-R SM.329. The e.i.r.p. method specified in that Recommendation should be used when it is not possible to accurately measure the power supplied to the antenna transmission line (for example, radars), or for specific applications where the antenna is designed to provide significant attenuation at the spurious frequenciesdomain. Additionally, the e.i.r.p. method may need some modification for special cases, e.g. beam forming radars.~~

~~9 Guidance regarding the methods of measuring spurious emissions from radar systems is given in the most recent version of Recommendation ITU-R M.1177. The reference bandwidths required for proper measurement of radar spurious emissions should be calculated for each particular radar system. Thus, for the three general types of radar pulse modulation utilized for radionavigation, radiolocation, acquisition, tracking and other radiodetermination functions, the reference bandwidth values should be:~~

- ~~for fixed-frequency, non-pulse-coded radar, one divided by the radar pulse length, in seconds (e.g. if the radar pulse length is 1 µs, then the reference bandwidth is 1/1 µs = 1 MHz);~~
- ~~for fixed-frequency, phase coded pulsed radar, one divided by the phase chip length, in seconds (e.g. if the phase coded chip is 2 µs long, then the reference bandwidth is 1/2 µs = 500 kHz);~~
- ~~for frequency modulated (FM) or chirped radar, the square root of the quantity obtained by dividing the radar bandwidth in MHz by the pulse length, in seconds (e.g. if the FM is from 1.250 MHz to 1.280 MHz or 30 MHz during the pulse of 10 µs, then the reference bandwidth is $(30 \text{ MHz}/10 \text{ µs})^{1/2} = 1.73$ MHz).~~

~~For those radar systems for which acceptable methods of measurement do not exist, the lowest practicable power of spurious emission should be achieved.~~

~~10~~8 Except as provided in § 9 and 10 of this Appendix, ~~T~~the spurious domain emission levels are specified in the following reference bandwidths:

– 1 kHz between 9 kHz and 150 kHz
– 10 kHz between 150 kHz and 30 MHz
– 100 kHz between 30 MHz and 1 GHz
– 1 MHz above 1 GHz.

9 ~~As a special case, t~~The reference bandwidth of all space service spurious domain emissions should be 4 kHz.

10 For radar systems, the reference bandwidths for defining spurious domain emission levels should be calculated for each particular system. Thus, for the four general types of radar pulse modulation utilized for radionavigation, radiolocation, acquisition, tracking and other radiodetermination functions, the reference bandwidth values are determined using the following:

– for fixed-frequency, non-pulse-coded radar, one divided by the radar pulse length, in seconds (e.g. if the radar pulse length is 1 μs, then the reference bandwidth is 1/(1 μs) = 1 MHz);
– for fixed-frequency, phase coded pulsed radar, one divided by the phase chip length, in seconds (e.g. if the phase coded chip is 2 μs long, then the reference bandwidth is 1/(2 μs) = 500 kHz);
– for frequency modulated (FM) or chirped radar, the square root of the quantity obtained by dividing the chirp bandwidth in MHz by the pulse length, in μs (e.g. if the FM is from 1 250 MHz to 1 280 MHz, or 30 MHz, during the pulse length of 10 μs, then the reference bandwidth is $(30 \text{ MHz}/10 \text{ μs})^{½} = 1.73$ MHz);
– for radars operating with multiple waveforms the reference bandwidth is determined empirically from observations of the radar emission and are obtained following the guidance given in Recommendation ITU-R M.1177.

In the case of radars, for which the bandwidth, as determined using the method above, is greater than 1 MHz, a reference bandwidth of 1 MHz should be used.

10*bis* Guidance regarding the methods of measuring spurious domain emissions is given in the most recent version of Recommendation ITU-R SM.329. The e.i.r.p. method specified in this Recommendation should be used when it is not possible to accurately measure the power supplied to the antenna transmission line, or for specific applications where the antenna is designed to provide significant attenuation in the spurious domain. Additionally, the e.i.r.p. method may need some modification for special cases. Specific guidance regarding the methods of measuring spurious domain emissions from radar systems is given in the most recent version of Recommendation ITU-R M.1177.

6.1.1.4.6 Paragraphs of Section II pertaining to the boundary between the out-of-band and spurious domains

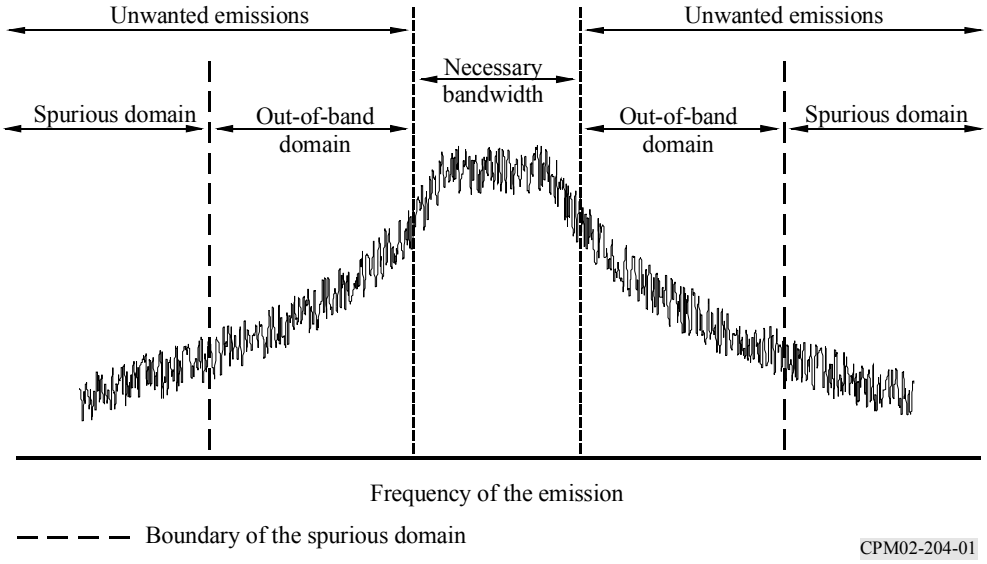
Modify § 11, add a figure and suppress § 11*bis* to describe the boundary between the domains and to make reference to the Annex.

MOD

11 ~~For the purpose of setting limits,~~ The emission limits of this section apply to all emissions, including harmonic emissions, intermodulation products, frequency conversion products and parasitic emissions, at frequencies in the spurious domain (see Figure 1). The upper and lower parts of the spurious domain extend outward from a boundary determined using Annex 1.~~which fall at frequencies separated from the centre frequency of the emission by ±250%, or more, of the necessary bandwidth of the emission will generally be considered as spurious emissions. However, this frequency separation may be dependent on the type of modulation used, the maximum bit rate in the case of digital modulation, the type of transmitter and frequency coordination factors. For example, in the case of digital (including digital broadcasting) modulation systems, broadband systems, pulsed modulation systems and narrow-band high power transmitters, the frequency separation may need to differ from the ±250% factor. For multichannel or multicarrier transmitters/transponders, where several carriers may be transmitted simultaneously from a final output amplifier or an active antenna, the centre frequency of the emission is taken to be the centre of the –3 dB bandwidth of the transmitter or transponder and the necessary bandwidth is taken to be the transmitter or transponder bandwidth.~~

ADD

FIGURE 1



SUP

11*bis*

6.1.1.4.7 Remaining paragraphs of Section II

Modify these remaining paragraphs to reflect the domain terminology.

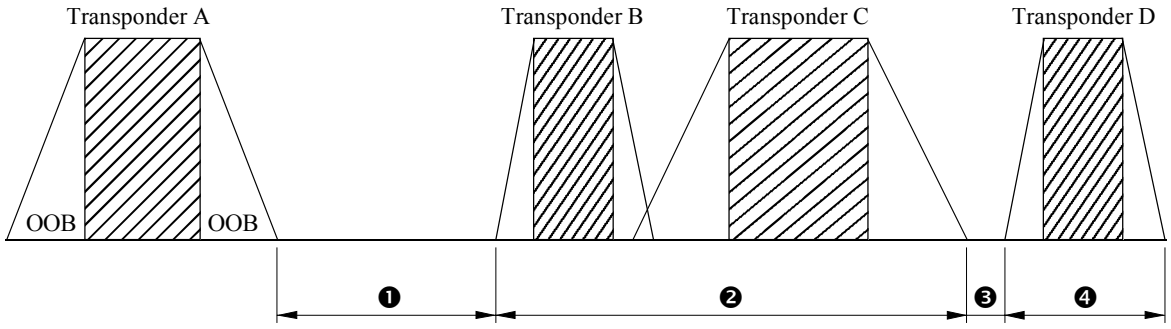
MOD

11*ter* For the case of a single satellite operating with more than one transponder in the same service area, and when considering the limits for spurious domain emissions as indicated in § 11 of this Appendix, spurious domain emissions from one transponder may fall on a frequency at which a

second, companion transponder is transmitting. In these situations, the level of spurious domain emissions from the first transponder is well exceeded by the fundamental or out-of-band domain emissions of the second transponder. Therefore, the limits of this Appendix should not apply to those ~~spurious~~ emissions of a satellite that fall within either the necessary bandwidth or the out-of-band ~~region~~ domain of another transponder on the same satellite, in the same service area (see Fig. ~~1~~2).

FIGURE ~~1~~2

Example of the applicability of spurious domain emission limits to a satellite transponder



AP3-01

Transponders A, B, C and D are operating on the same satellite in the same service area. Transponder A is not required to meet spurious domain emission limits in frequency ranges ❷ and ❹, but is required to meet them in frequency ranges ❶ and ❸.

12 Examples of applying 43 + 10 log (*P*) to calculate attenuation requirements

Where specified in relation to mean power, spurious domain emissions are to be at least *x* dB below the total mean power *P*, i.e. –*x* dBc. The power *P* (W) is to be measured in a bandwidth wide enough to include the total mean power. The spurious domain emissions are to be measured in the reference bandwidths given in the Recommendation. The measurement of the spurious domain emission power is independent of the value of necessary bandwidth. Because the absolute emission power limit, derived from 43 + 10 log (*P*), can become too stringent for high-power transmitters, alternative relative powers are also provided in Table II.

Example 1

A land mobile transmitter, with any value of necessary bandwidth, must meet a spurious domain emission attenuation of 43 + 10 log (*P*), or 70 dBc, whichever is less stringent. ~~To measure spurious emissions in the frequency range between 30 MHz and 1 GHz, Recommendation ITU-R SM.329-7 *recommends* 4.1 indicates the use of a reference bandwidth of 100 kHz. For other frequency ranges, the measurement must use the appropriate reference bandwidths given in *recommends* 4.1.~~ The reference bandwidths used to define the limits for spurious domain emissions are defined in § 8 to 10 of this Appendix. Applying this in the frequency range between 30 MHz and 1 GHz gives a reference bandwidth of 100 kHz.

With a measured total mean power of 10 W:

– Attenuation relative to total mean power = 43 + 10 log (10) = 53 dBc.

– The 53 dBc value is less stringent than the 70 dBc, so the 53 dBc value is used.

– Therefore: Spurious domain emissions must not exceed 53 dBc in a 100 kHz bandwidth, or converting to an absolute level, ~~spurious emissions~~they must not exceed 10 dBW – 53 dBc = –43 dBW in a 100 kHz reference bandwidth.

With a measured total mean power of 1 000 W:

– Attenuation relative to total mean power = 43 + 10 log (1 000) = 73 dBc.

– The 73 dBc value is more stringent than the 70 dBc limit, so the 70 dBc value is used.

– Therefore: Spurious domain emissions must not exceed 70 dBc in a 100 kHz bandwidth, or converting to an absolute level, ~~spurious emissions~~they must not exceed 30 dBW – 70 dBc = –40 dBW in a 100 kHz reference bandwidth.

Example 2

A space service transmitter with any value of necessary bandwidth must meet a spurious domain emission attenuation of 43 + 10 log (*P*), or 60 dBc, whichever is less stringent. To measure spurious domain emissions at any frequency, Note 10 to Table II indicates using a reference bandwidth of 4 kHz.

With a measured total mean power of 20 W:

– Attenuation relative to total mean power = 43 + 10 log (20) = 56 dBc.

– The 56 dBc value is less stringent than the 60 dBc limit, so the 56 dBc value is used.

– Therefore: Spurious domain emissions must not exceed 56 dBc in a 4 kHz reference bandwidth, or converting to an absolute level, ~~spurious emissions~~they must not exceed 13 dBW – 56 dBc = –43 dBW in a 4 kHz reference bandwidth.

MOD

TABLE II

Attenuation values used to calculate maximum permitted spurious domain emission power levels for use with radio equipment

MOD

[17] Space stations in the space research service intended for operation in deep space as defined by No. **1.177** are exempt from spurious domain emission limits.

6.1.1.4.8 Variations in the boundary between the out-of-band and spurious domains

Include Annex 1 of Recommendation ITU-R SM.1539 as an Annex of RR Appendix **3**. Include a reference to Annex 8 of Recommendation ITU-R SM.1541, describing boundary variations for primary radars. Move related text from § 11 and 11*bis* of RR Appendix 3 into the Annex. Add text to RR Appendix **3** as appropriate to refer to the Annex.

ADD

ANNEX 1

Determination of the boundary between the out-of-band (OOB) and spurious domains

1 Except as provided in § 2 and 3 of this Annex, the boundary between the OOB and spurious domains occurs at frequencies that are separated from the centre frequency of the emission by the values shown in Table 1. For most systems, the centre frequency of the emission is the centre of the necessary bandwidth. For multichannel or multicarrier transmitters/transponders, where several carriers may be transmitted simultaneously from a final output amplifier or an active antenna, the centre frequency of the emission is taken to be the centre of the 3 dB bandwidth of the transmitter or transponder and the transmitter or transponder bandwidth is used in place of the necessary bandwidth for determining the boundary. For multicarrier satellite systems, guidance on the boundary between the out-of-band and spurious domains is provided in Recommendation ITU-R SM.1541.

Some systems specify unwanted emissions relative to channel bandwidth, or channel spacing. These may be used as a substitute for the necessary bandwidth in Table 1, provided they are found in ITU–R Recommendations.

TABLE 1

Values for frequency separation between the centre frequency and the boundary of the spurious domain

Frequency range	Narrow-band case		Normal separation	Wideband case	
	for B_n <	Separation		for B_n >	Separation
9 kHz < f_c < 150 kHz	250 Hz	625 Hz	2.5 B_n	10 kHz	1.5 B_n + 10 kHz
150 kHz < f_c < 30 MHz	4 kHz	10 kHz	2.5 B_n	100 kHz	1.5 B_n + 100 kHz
30 MHz < f_c < 1 GHz	25 kHz	62.5 kHz	2.5 B_n	10 MHz	1.5 B_n + 10 MHz
1 GHz < f_c < 3 GHz	100 kHz	250 kHz	2.5 B_n	50 MHz	1.5 B_n + 50 MHz
3 GHz < f_c < 10 GHz	100 kHz	250 kHz	2.5 B_n	100 MHz	1.5 B_n + 100 MHz
10 GHz < f_c < 15 GHz	300 kHz	750 kHz	2.5 B_n	250 MHz	1.5 B_n + 250 MHz
15 GHz < f_c < 26 GHz	500 kHz	1.25 MHz	2.5 B_n	500 MHz	1.5 B_n + 500 MHz
f_c > 26 GHz	1 MHz	2.5 MHz	2.5 B_n	500 MHz	1.5 B_n + 500 MHz

NOTE – In Table 1, f_c is the centre frequency of the emission and B_n is the necessary bandwidth. If the assigned frequency band of the emissions extends across two frequency ranges, then the values corresponding to the higher frequency range shall be used for determining the boundary.

Example 1: The necessary bandwidth of an emission at 26 MHz is 1.8 kHz. Since $2.5B_n$ is only 4.5 kHz, the minimum separation applies. The spurious domain begins 10 kHz each side of the centre of the necessary bandwidth.

Example 2: The necessary bandwidth of an emission at 8 GHz is 200 MHz. Since the wideband case applies for B_n > 100 MHz at that frequency, the spurious domain begins 400 MHz each side of the centre of the necessary bandwidth. Using the general separation formula, the OOB domain would have extended to 2.5 × 200 MHz = 500 MHz either side of the centre frequency.

2 Tables 2 and 3 show exceptions to Table 1 for narrow-band and wideband cases, respectively, applicable to particular systems or services and frequency bands.

TABLE 2

Variations for narrow-band systems or services and frequency bands

System or service	Frequency range	Narrow-band case	
		for B_n <	Separation
Fixed service	14 kHz-1.5 MHz	20 kHz[1]	50 kHz
Fixed service	1.5-30 MHz	80 kHz[2]	200 kHz

[1] This is based on an assumption that the maximum value of the necessary bandwidth is about 3 kHz for the frequency range 14 kHz - 1.5 MHz. The value of 50 kHz separation is extremely large as compared with the necessary bandwidth. It is because unwanted emissions of high power transmitters under modulated conditions have to be below the spurious limit (70 dBc) at the boundary between the OOB and spurious domains.

[2] This is based on an assumption that the maximum value of the necessary bandwidth is about 12 kHz for the frequency range 1.5-30 MHz. The value of 200 kHz separation is extremely large as compared with the necessary bandwidth. It is because unwanted emissions of high power transmitters under modulated conditions have to be below the spurious limit (70 dBc) at the boundary between the OOB and spurious domains. Also, if future systems in the fixed service operating in this frequency range require a necessary bandwidth larger than 12 kHz, it may become necessary to review the 200 kHz separation. It should be noted that for medium or low power transmitters (e.g. below 1 kW), a smaller value may be appropriate as the minimum separation. This matter requires further study.

TABLE 3

Variations for wideband systems or services and frequency bands

System or service	Frequency range	Wideband case	
		for B_n >	Separation
Fixed service	14-150 kHz	20 kHz	1.5 B_n + 20 kHz
FSS	3.4-4.2 GHz	250 MHz	1.5 B_n + 250 MHz
FSS	5.725-6.725 GHz	500 MHz	1.5 B_n + 500 MHz
FSS	7.25-7.75 GHz and 7.9-8.4 GHz	250 MHz	1.5 B_n + 250 MHz
FSS	10.7-12.75 GHz	500 MHz	1.5 B_n + 500 MHz
BSS	11.7-12.75 GHz	500 MHz	1.5 B_n + 500 MHz
FSS	12.75-13.25 GHz	500 MHz	1.5 B_n + 500 MHz
FSS	13.75-14.8 GHz	500 MHz	1.5 B_n + 500 MHz

BSS: broadcasting satellite service

FSS: fixed-satellite service

3 For primary radar stations, the boundary between the OOB and spurious domains is the frequency at which the out-of-band limits specified in applicable ITU–R Recommendations are equal to the spurious limit defined in Table II of RR Appendix **3**. Guidance on the boundary between OOB and spurious domains for primary radar systems is provided in Recommendation ITU-R SM.1541.

6.1.2 Agenda item 1.8.2

"consideration of the results of studies, and proposal of any regulatory measures regarding the protection of passive services from unwanted emissions, in particular from space service transmissions, in response to *recommends* 5 and 6 of Recommendation **66 (Rev.WRC-2000)**"

Recommendation 66 (Rev.WRC-2000)

Studies of the maximum permitted levels of unwanted emissions

5 study those frequency bands and instances where, for technical or operational reasons, more stringent spurious emission limits than the general limits in Appendix **3** may be required to protect safety services and passive services such as radio astronomy, and the impact on all concerned services of implementing or not implementing such limits;

6 study those frequency bands and instances where, for technical or operational reasons, out-of-band limits may be required to protect safety services and passive services such as radio astronomy, and the impact on all concerned services of implementing or not implementing such limits;

6.1.2.1 Summary of technical and operational studies including a list of relevant ITU-R Recommendations

A methodology for analysing compatibility between a passive service and an active service allocated in adjacent or nearby bands and providing guidance on possible solutions has been developed and is reflected in draft new Recommendation ITU-R SM.[BbB]. This DNR identifies specific passive service bands where it could be technically or economically difficult for active services to meet the passive protection criteria. In such cases, band-by-band studies have been carried out, documented in this DNR, where studies are complete, and the actual impact on all concerned services of implementing or not implementing such limits are taken into account.

Relevant Recommendations ITU-R: RA.769, SA.1029, RA.1513, DNR SM.[BbB], S.[1586, M.1583 and DNR RA.[PATTERN NGSO].

6.1.2.2 Analysis of the results of studies

Studies have been conducted in over 20 band pairs from 1 350 MHz to 52.8 GHz where compatibility concerns have been raised. The methodology and rationale for these studies are given in draft new Recommendation ITU-R SM.[BbB]. In a certain number of these band pairs incompatibilities between existing or planned active and passive systems were identified under the given operational conditions. Other band pairs were found to be compatible under conditions specific to each band pair; in this case no further study is necessary within the ITU-R. Within the bands considered, not all studies have been completed. The present status of the ITU-R study is presented in DNR ITU-R SM.[BbB].

6.1.2.3 Methods to satisfy agenda item and their advantages and disadvantages

6.1.2.3.1 Method A

Under this method, provisions to protect the RAS and EESS (passive), allocated on a primary basis, in specific frequency bands, from unwanted emissions of active services would be included in the Radio Regulations. Compliance with those provisions would be excluded from examination performed by the Bureau under RR Articles 9 and 11.

For the EESS (passive), incorporation in the RR of limits would be based on the result of band-by-band studies (draft new Recommendation ITU-R SM[BbB]) in some frequency bands allocated to that service. The limits derived from interference criteria given in Recommendation

ITU-R SA.1029 would provide protection to the levels specified as necessary by the EESS (passive).

For the radio astronomy service, provisions would apply at notified RAS stations.

For either RAS or EESS (passive), provisions would not apply to satellite networks for which complete advanced publication information has been received by the Bureau before [the end of WRC-03].

Advantage:

- Administrations, operators and manufacturers would know in advance which protection criteria need to be taken into account when developing new systems. The radio astronomy service would be protected from unwanted emissions through regulatory provisions to be applied consistently worldwide. Lengthy negotiations, which often constitute a significant burden for the parties involved, may be reduced. There is no additional burden on the Bureau.

Disadvantages:

- Some administrations believe that solutions under Method A that are based solely on protection levels from Recommendation ITU-R RA.769 do not satisfy the agenda item, because they are not based on studies that consider the impact on all concerned services, as required by Recommendation **66 (Rev.WRC-2000**). Some administrations believe that Method A does satisfy the agenda item and that the ITU-R conclusions on the impact to active services of applying limits based on Recommendation ITU-R RA.769 are clearly reflected in the disadvantages.
- The stringent protection requirements of the radio astronomy service may, in some cases, make systems in the adjacent or nearby active service bands impractical and/or prevent the development of some new applications or systems.
- It is not possible to determine the presence or magnitude of all cases of spurious emissions by pre-launch measurements and analysis alone. Post launch verification would be contrary to normal satellite notification practice and could only be done with extensive testing by extremely sensitive receive stations. Any corrective actions in orbit that may involve taking some, or all, of the satellite network out of service would be prohibitively costly. Therefore, even with the most stringent pre-launch testing procedures, the passive services may not be afforded the expected level of protection. Technical difficulties related to these measurements have not been resolved.

Implementation of Method A

For the radio astronomy service, three options are described below, that would be inserted in the Radio Regulations. For the Earth exploration-satellite service (passive), only Option A3 applies.

6.1.2.3.1.1 Option A1

Incorporation in the Radio Regulations of limits based on Recommendation ITU-R RA.769 within frequency bands allocated to the radio astronomy service.

Additional advantage:

Radio astronomy sites would be assured protection to Recommendation ITU-R RA.769 level, in all bands allocated to radio astronomy on a primary basis, from subsequent active service deployment.

Additional disadvantages:

- There will be a burden on administrations to confirm that the satellites are compliant with the regulations. There will be additional cost, project delays and burden on operators and manufacturers to demonstrate compliance with the regulations.
- Mandatory measures are less responsive to technological advances and mitigation methods, and may preclude consultation between active and passive services. The results of the band-by-band studies (DNR ITU-R SM.[BbB]) would be ignored, possibly rejecting beneficial solutions for both active and passive services.

6.1.2.3.1.2 Option A2

Incorporation in the Radio Regulations of the results of band-by-band studies in some frequency bands of the radio astronomy service, and of limits based on Recommendation ITU-R RA.769 in other radio astronomy service frequency bands.

Additional advantage:

For bands where Recommendation ITU-R RA.769 limits would be applied, the advantages are the same as Option A1, in other bands the results of the band-by-band studies provide satisfactory solutions to protect radio astronomy and may overcome some of the disadvantages of Option A1.

Additional disadvantage:

This option has the same disadvantages as Option A1 in bands where the band by band studies are not completed.

6.1.2.3.1.3 Option A3

Incorporation in the Radio Regulations of the results of band-by-band studies in frequency bands allocated to the EESS (passive) and the radio astronomy service, as appropriate.

Additional advantage:

The results of the band-by-band studies provide adequate protection to the passive services without unduly inhibiting the development of new applications or systems.

Additional disadvantage:

In bands where the band-by-band studies do not provide a solution, the passive services may suffer from interference due to unwanted emissions. In such bands, passive and active services may not have the stable regulatory environment required to develop new applications.

6.1.2.3.2 Method B

Adopt WRC-03 Resolution that encourages consultation between affected administrations. This method is not practical for EESS (passive) missions, since they typically cover most or all of the Earth's surface.

This method would:

a) establish procedures for consultation between administrations operating active services and passive services, including use of trigger levels based on protection criteria of the RAS;

b) invite the ITU-R to continue work on Recommendation ITU-R SM.[BbB] so as to complete those studies where additional work is necessary and to consider new band-pairs that may be identified.

Advantages:

- Consultation between administrations may lead to solutions offering the potential for rapid implementation that would not be considered when mandatory limits are applied.
- This would not unduly constrain the development of new active applications and operators of the same service would be subject to the same consultation procedure. Specific active systems and RAS characteristics and operational requirements can be taken into account in the exchange of information during the consultation process.
- This method accommodates the situation where elements of the band-by-band studies have not been completed.

Disadvantage:

- When necessary, the consultation procedure may be time-consuming and will constitute an additional burden on administrations. Depending on the outcome of the consultation procedure, it may, in some cases, result in the passive services not being adequately protected, while in others it may impose significant constraints on the active services.
- There is a level of uncertainty in the pre-launch assessment of the unwanted emissions.

6.1.2.3.3 Method C

This method would not require a change to any part of the Radio Regulations and would rely on the application of ITU-R Recommendations, relevant to the protection of the passive services, such as RA.769, SA.1029, DNR SM[BbB].

Advantage:

- Administrations have full flexibility to implement which ITU-R Recommendations they consider appropriate for both active and passive services. Revision of such Recommendations in order to adapt to changing technology, can be achieved more easily than mandatory measures. This method may allow the implementation of solutions meeting the protection criteria of the passive services without requiring a commitment to mandatory limits.

Disadvantages:

- Adequate protection might not be given to the passive services in cases where administrations did not apply the relevant ITU-R protection criteria. ITU-R Recommendations may be applied inconsistently, leading to competitive disadvantage between operators of the same service.
- This method may allow disruption of the passive service operations and discourage the radio astronomy and EESS (passive) communities from investing in the development of future systems. Active service operators and manufacturers may not have the stable regulatory environment required to develop new applications or systems.

6.1.2.3.4 Method D

Adopt WRC-03 Resolution(s) on the protection of the passive services from unwanted emission of active services, including consultation between affected administrations in cases where mandatory limits can not be applied (radio astronomy only). For the EESS, only the portion of the method (same as Method A3) applying to mandatory limits would apply since consultation is impractical for the EESS. Examination of compliance with the limits would be excluded from examination performed by the Bureau under RR Articles 9 and 11.

This method would:

a) provide, in some bands, limits based on the results of the band-by-band studies as contained in DNR ITU-R SM.[BbB] to protect the RAS and EESS from unwanted emissions of the active service falling into the passive service band with a primary allocation;

b) specify the bands, for cases referred to in a) above, where the band-by-band studies as contained in DNR ITU-R SM.[BbB] have concluded that such limits would not unduly constrain the development of active services;

c) provide, in some other bands, pfd trigger levels to initiate consultation based on the results of the band-by-band studies (DNR ITU-R SM.[BbB]) or protection criteria of the RAS as defined in Recommendation ITU-R RA.769;

d) establish, for cases refered to in (c) above, the procedures for consultation between administrations operating active services and RAS;

e) invite the ITU-R to continue work on Recommendation ITU-R SM.[BbB] so as to complete those studies where additional work is necessary and to consider new band-pairs pertaining to both the EESS(passive) and RAS that may be identified.

Advantages:

- In cases where mandatory limits can be applied, this will provide straightforward protection to the passive services. An appropriate selection of the bands where these limits apply may avoid unduly constraining the development of the active service.
- In cases where mandatory limits can not be applied, consultation between administrations may lead to solutions offering the potential for rapid implementation that would not be considered when mandatory limits are applied.
- This would not unduly constrain the development of new active applications and operators of the same service would be subject to the same consultation procedure. Specific active systems and RAS characteristics and operational requirements can be taken into account in the exchange of information during the consultation process.
- This method accommodates the situation where elements of the band-by-band studies have not been completed.

Disadvantages:

- When necessary, the consultation procedure may be time-consuming and will constitute an additional burden on administrations. Depending on the outcome of the consultation procedure, it may, in some cases, result in the passive services not being adequately protected, while in others it may impose significant constraints on the active services.
- There is a level of uncertainty in the pre-launch assessment of the unwanted emissions.
- Depending on the trigger level applied, a large number of consultations may be required.
- Some administrations believe that consultations trigger levels solely based on Recommendation ITU-R RA.769 do not satisfy the agenda item, because they are not based on studies that involve all concerned services, as required by Recommendation **66 (Rev.WRC-2000**).

6.1.2.4 Regulatory and procedural considerations

This section provides regulatory and procedural considerations regarding agenda item 1.8.2 for each Method described above. Satellite networks for which complete advanced publication information has been received by the Bureau before the end of WRC-03 will not be subject to these provisions.

Method A

Option A1

The following text addresses the protection of the radio astronomy service in bands allocated on a primary basis. This option is not applicable to the EESS (passive) service.

The following example provides a regulatory solution for implementing pfd limits for GSO systems and epfd limits for non-GSO systems, based on the epfd concept as defined in RR Article **22**. Another regulatory solution could be based on the definition of limits together with provisions similar to those that were adopted at WRC-2000 in Nos. **5.551G**, **5.511A** and **5.443B**.

Add a new section in RR Article 29: "pfd and epfd limits for unwanted emissions from space stations".

For the case of GSO, the power flux-density at a radio astronomy station in a frequency band allocated on a primary basis and resulting from unwanted emissions from a space station, for all conditions and for all methods of modulation, shall not exceed the limits given in the tables in Recommendation ITU-R RA.769.

For the case of non-GSO, the equivalent power flux-density (epfd) at a radio astronomy station resulting from unwanted emissions from all the space stations of a non-geostationary-satellite system in a frequency band allocated on a primary basis and for all conditions and for all methods of modulation, shall not exceed the specified limits for more than 2% of time at any radio astronomy station. The epfd calculation is performed in accordance with Recommendations ITU-R S.1586, M.1583 and RA.1513 using the reference antenna diagram and antenna gains given in ITU-R Recommendation RA.[PATTERN NGSO]. The epfd limit is derived from Recommendation ITU-R RA.769 and the antenna gains given in Recommendation ITU-R RA.[PATTERN NGSO].

The pfd/epfd limits:

- are applicable to any radio astronomy station for which complete notification information has been received by the Bureau prior to the reception of the complete advance publication information of the satellite network;
- shall be defined depending on the type of observation supported at the considered radio astronomy station (continuum, spectral line or VLBI observation) and shall be specified in the reference bandwidth defined in Recommendation ITU-R RA.769;
- may be exceeded on the territory of any country whose administration has so agreed; and
- shall be excluded from any examination performed by the Bureau, including its regulatory examination under RR Articles **9** and **11**.

This method would necessitate a modification of RR Appendix **4** to insert additional characteristics of the radio astronomy station, specifically the type of observation and the minimum operating elevation angle of the antenna. Appendix **4** should also be modified so that administrations may declare the compliance for their space stations with limits or trigger levels as defined in the RR (see A.17).

Option A2

The regulatory and procedural considerations will be a combination of those for Options A1 and A3.

Option A3

The band-by-band studies may result in a mixture of the application of mandatory limits such as in Option A1, operational constraints, or subjects for consultations.

Provisions involving emission limits or operational constraints could be added to the relevant RR Articles.

Method B

WRC-03 would adopt a Resolution:

a) identifying procedures, including the use of trigger levels and other means, for initiating and carrying out consultations between administrations operating active and passive services to address compatibility issues;

b) inviting the ITU-R to continue work on DNR ITU-R SM.[BbB] so as to complete those studies where additional work is necessary and to consider new band-pairs that may be identified;

c) urging administrations responsible for active services to take suitable steps to ensure that these services are designed to respect the trigger levels identified in a);

d) specifying that in the event that the trigger level defined in a) is exceeded, the administration responsible for such active service shall consult the administrations responsible for the affected passive services stations to arrive at a mutually acceptable solution;

e) specifying that the Resolution would only apply to systems submitting advance publication information after the end of WRC-03;

f) including a provision to address the fact that there may be spurious emissions that can only be detected after the launch of the space station and corrective action cannot be taken in most cases.

The Resolution would be referenced in a footnote associated with relevant allocations (RR Article **5**).

An example Resolution is contained in Annex 6.1-1. Related to this example Resolution, proposed example modifications to Annex 2A to Appendix 4 are shown in Annex 6.1-2. This method would necessitate a modification of RR Appendix **4** to insert additional characteristics of the radio astronomy station, specifically the type of observation and the minimum operating elevation angle of the antenna.

Method C

This Method involves no changes to the Radio Regulations.

Method D

WRC-03 would adopt a Resolution:

a) providing trigger levels for unwanted emissions of active services falling into some bands allocated to passive service on a primary basis. Limits may apply to protect adjacent or nearby passive service bands where band-by-band studies (DNR ITU-R SM.[BbB]) have concluded that this would not unduly constrain the development of active services, while consultation trigger levels may apply to other cases;

b) identifying procedures for initiating and carrying out consultations in relevant cases where trigger levels are exceeded between the concerned administrations to address compatibility issues;

c) inviting the ITU-R to continue work on Recommendation ITU-R SM.[BbB] so as to complete those studies where additional work is necessary and to consider new band-pairs pertaining to both the EESS(passive) and RAS that may be identified;

d) specifying that the Resolution would only apply to systems submitting advance publication information after the end of WRC-03;

e) urging administrations responsible for active services to take suitable steps to ensure that these services are designed to respect the trigger levels identified in a);

f) specifying that in the event that the trigger levels defined in a) is exceeded, the administration responsible for such active service should consult the administrations responsible for the affected passive services stations to arrive at a mutually acceptable solution;

g) including a provision to address the fact that there may be spurious emissions that can only be detected after the launch of the space station and corrective action cannot be taken in most cases.

The Resolution would be referenced in a footnote associated with relevant allocations (RR Article **5**). This method would necessitate a modification of RR Appendix **4** to insert additional characteristics of the radio astronomy station, specifically the type of observation and the minimum operating elevation angle of the antenna. Appendix 4 should be modified so that administrations may declare the compliance for their space stations with limits or trigger levels as defined in the Resolution (see A.17).

Calculation of the levels of power received by a RAS station would take into account the considerations given under Option A1. The applicability of limits or trigger levels would be subject to the same considerations as those given under Option A1.

The example Resolution given for Method B may also provide a suitable basis for the part of the Resolution under Method D which deals with trigger levels and consultation.

EXAMPLE OF PROPOSED RESOLUTION XXX (WRC-03)

Consultation procedure for achieving compatibility for the protection of the radio astronomy service from unwanted emissions of space stations

The World Radiocommunication Conference (Geneva, 2003),

considering

a) that unwanted emissions from active services may cause unacceptable interference to the radio astronomy service;

b) that Recommendation ITU-R SM.[BbB] provides compatibility analysis between a passive service and an active service in adjacent and nearby bands;

c) that out-of-band emission can be controlled to a certain extent in the design process of satellite through careful design methods but that some narrow-band spurious emissions can be generated through some uncontrollable physical mechanisms;

d) that different coupling mechanisms apply to interfering emissions from transmitters on board geostationary (GSO) or non-GSO satellites;

e) that consultation between administrations may lead to innovative solutions offering the potential for rapid implementation,

noting

a) that ITU-R has developed Recommendations ITU-R S.1586 and ITU-R M.1583, both providing a methodology based on the epfd concept for calculations of interference into radio astronomy stations from non-GSO systems of mobile satellite or radionavigation-satellite services in the first case, and, from the fixed-satellite services in the other case, and containing a model of a radiotelescope antenna pattern;

b) that ITU-R has developed Recommendation ITU-R RA.1513 providing acceptable levels of data loss to radio astronomy observations, stating in particular that the percentage of data loss caused by any system should be lower than 2%;

c) that the Bureau is not involved in the consultation procedure defined in this Resolution,

recognizing

that it is necessary to ensure an equitable burden sharing for achieving compatibility between the active and the passive services,

resolves

1 that, if an administration considers that the design of their space station cannot meet the unwanted emission trigger levels as given in the annex(es)[2] at a radio astronomy station, this administration shall consult with the administration operating this radio astronomy station in order to arrive at a mutually acceptable solution;

2 that space stations to be considered in the application of *resolves* 1 are those for which advance publication information has been received as of the [following day after the end of WRC-03] and which are operating in the space radiocommunication services[3] for which the annex(es) apply(ies);

3 that the radio astronomy stations to be taken into account in applying *resolves* 1 are those which are operating in the frequency bands where the space station cannot meet the unwanted emission levels referred to in *resolve*s 1, which are visible from this space station and which are notified before the date of reception of the advance publication information of the space station referred to in *resolves* 2;

4 that, in the event that the unwanted emission levels from a space station to which *resolves* 2 applies and which has been put into service exceed the trigger levels specified in *resolves* 1 at a radio astronomy station as defined in *resolves* 3, and where the consultation procedure in *resolves* 1 did not need to be applied, the notifying administration of such space station shall consult with the administration operating this radio astronomy station leading to measures to achieve compatibility, in order to arrive at a mutually acceptable solution, taking into account relevant ITU-R Recommendations agreed by administrations concerned to be used in this consultation process,

urges administrations

1 that, whenever practicable, space stations be designed to allow them to meet the unwanted emission levels as given in the annex(es)[1] at any radio astronomy station;

2 to actively participate in the consultation referred to in *resolves* 1 and 4,

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2 Such annex(es) is (are) to be developed and may include the space radiocommunication service to which the levels would apply.

invites ITU-R

to continue its studies on the development of a trigger level beyond those contained in the annex(es)[3].

Example of proposed modification to Appendix 4

MOD

APPENDIX 4 (WRC-03)

Consolidated list and tables of characteristics for use in the application of the procedures of Chapter III

MOD

ANNEX 2A

Characteristics of satellite networks' earth stations or radio astronomy stations[2] (WRC-03)

C Characteristics to be provided for each group of frequency assignments for a satellite antenna beam or an earth station or radio astronomy station antenna

ADD

C.13*bis* Type of observations

The type of observations to be taken on the frequency band shown in § C.3 *b*). The different types of observations are: continuum, spectral line, VLBI.

C.13*ter* Radio astronomy station minimum observation elevation angle

The minimum elevation angle at which the radio astronomy station conducts observations in the frequency band of the group.

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6.2 Agenda item 2

"to examine the revised ITU-R Recommendations incorporated by reference in the Radio Regulations communicated by the Radiocommunication Assembly, in accordance with Resolution **28 (Rev.WRC-2000)**, and to decide whether or not to update the corresponding references in the Radio Regulations, in accordance with principles contained in the Annex to Resolution **27 (Rev.WRC-2000)**"

In accordance with the *instructs the Director of the Radiocommunication Bureau* of Resolution **28 (Rev.WRC-2000)**, the following is the list of those ITU-R Recommendations incorporated by reference in the Radio Regulations (see Resolution **27 (Rev.WRC-2000)**), which have been revised and approved during the elapsed study period since WRC-2000:

Recommendation ITU-R S.1428 "Reference FSS earth-station radiation patterns for use in interference assessment involving non-GSO satellites in frequency bands between 10.7 GHz and 30 GHz";

Recommendation ITU-R TF.460 "Standard-frequency and time-signal emissions";

Recommendation ITU-R BO.1293 "Protection masks and associated calculation methods for interference into broadcast-satellite system involving digital emissions;

Recommendation ITU-R BO.1443 "Reference BSS earth station antenna patterns for use in interference assessment involving non-GSO satellites in frequency bands covered by RR Appendix 30".

The most recent versions of the above ITU-R Recommendations are ITU-R S.1428-1, ITU-R TF.460-6, ITU-R BO.1293-2 and ITU-R BO.1443-1.

The conference may wish to consider the above revised versions with a view to updating the references. In addition, the conference may wish to consider the editorial consequential changes to the relevant provisions of the Radio Regulations that make reference to these ITU-R Recommendations as well as the other provisions referring to other ITU-R Recommendations incorporated by reference in Volume 4 of the Radio Regulations in accordance with agenda item 3 of the WRC-03 agenda.

The conference may also consider amending Resolution **27 (Rev.WRC-2000)** to allow administrations to submit proposals to future conferences to amend editorially those references to ITU-R Recommendations of a non-mandatory character with a view to referring to "the most recent version" of the Recommendations with necessary justification.

Several provisions of the Radio Regulations have been identified that include references to ITU-R Recommendations that are relevant to WRC-03 agenda items 1.9 and 1.14 where it may be necessary to clarify the status of the reference. These provisions are shown in Attachment 1 along with example text that the conference may wish to use to amend these provisions.

ATTACHMENT 1

Example modifications

Action	Provision No.	Provision	Reason
MOD	52.25 4)	Before transmitting on 500 kHz, stations ~~must~~shall (in accordance with Recommendation ITU-R M.1170) listen on this frequency for a reasonable period to make sure that no distress traffic is being sent ~~(see Recommendation ITU-R M.1170)~~.	More clearly indicates that reference to the Recommendation (which is in Volume 4 of the Radio Regulations) is mandatory. The reference was moved in the sentence to make it clearly relate to the act of listening and not the distress traffic.
MOD	52.31 § 13 1)	The frequency for replying to a call sent on the general calling frequency (see No. **52.27**) shall be as follows: – either 500 kHz, – or the frequency specified by the calling station in accordance with Recommendation ITU-R M.1170 (see No. **52.29** ~~and Recommendation ITU-R M.1170)~~.	More clearly indicates that compliance with the Recommendation (which is in Volume 4 of the Radio Regulations) is mandatory.
MOD	52.32 2)	In regions of heavy traffic, coast stations may answer calls made by ship stations of their own nationality in accordance with special arrangements made by the administration concerned ~~(see Recommendation ITU-R M.1170)~~.	To delete reference to Recommendation **ITU-R M.1170** (which is in Volume 4 of the Radio Regulations) and does not refer to this matter.
MOD	52.69 § 28	In order to reduce interference on Morse radiotelegraphy calling frequencies, a coast station shall (in accordance with Recommendation ITU-R M.1170) take adequate steps to ensure, under normal conditions, the prompt receipt of Morse radiotelegraphy calls ~~(see Recommendation ITU-R M.1170)~~.	More clearly indicates that reference to the Recommendation (which is in Volume 4 of the Radio Regulations) relates to the coast stations' steps rather than the Morse calls themselves.
MOD	57.1 § 1	The procedure detailed in Recommendation ITU-R M.1171 ~~is~~shall be applicable to radiotelephone stations, except in cases of distress, urgency or safety, to which the provisions of Appendix **13** are applicable.	To standardize the language and clearly indicate that reference to the Recommendation (which is listed in Volume 4 of the Radio Regulations) is mandatory.

Agenda item 1.14 (Resolution 350 (WRC-2000)

Action	Provision No.	Provision	Reason
MOD	52.224 § 99 1)	Before transmitting on the carrier frequencies 4 125 kHz, 6 215 kHz, 8 291 kHz, 12 290 kHz or 16 420 kHz a station shall listen (in accordance with Recommendation ITU-R M.1171) on the frequency for a reasonable period to make sure that no distress traffic is being sent (see No. **52.221A** ~~and Recommendation ITU-R M.1171~~).	To clearly indicate that reference to the Recommendation (which is listed in Volume 4 of the Radio Regulations) relates to the listening rather than the distress traffic.

NOTE - These examples are not intended to suggest that any particular ITU-R Recommendation should be retained.

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6.3 Agenda item 4

"in accordance with Resolution 95 (Rev.WRC-2000), to review the resolutions and recommendations of previous conferences with a view to their possible revision, replacement or abrogation"

In response to Resolution 95 (Rev.WRC-2000), the Bureau performed an initial study in this respect and it submitted the results of this study to the Radiocommunication Advisory Group.

In a parallel activity, and in accordance with "*instructs 1*" of Resolution 95(Rev.WRC-2000), comments were invited from Chairmen and Vice-Chairmen of Study Groups. As some Resolutions and Recommendations might have regulatory impact, the results of the initial study of the Bureau were also presented to the July, 2002 meeting of the Special Committee on Regulatory/Procedural Matters. After incorporating advices obtained through this process, the Bureau submitted a report to the CPM. The CPM received additional contributions from regional organizations and administrations, commenting on the report from the Bureau. Attachment 1 was prepared on the basis of these contributions.

The CPM wishes to emphasize that the indications in the columns "Remark" and "Possible follow-up" should not be considered as proposals for the work of the Conference, but they are merely suggestions by some members and/or the Director, BR, as to the possible course of action to be taken in respect of the concerned Resolution/Recommendation which may assist administrations for preparing their proposals for the work of the Conference.

The Bureau was unable to indicate the possible responsible committees within the conference for each text, as required by "*instructs* 2" of Resolution 95 (Rev.WRC-2000), as the possible structure of the conference was still in a very early stage of consideration.

To facilitate the introduction of consequential changes and amendments to the Radio Regulations due to possible action with respect to the current Resolutions and Recommendations, as envisaged by agenda item 4 of the WRC-03, the Bureau also established an initial list of the texts contained in Volumes 1-4 of the Radio Regulations that are referencing various Resolutions and Recommendations contained in Volume 3 (Attachment 2). The references to obsolete versions are indicated with shaded text (the historical references are indicated with the symbol "/H" after the reference number. These references are valid.). The references appearing in RR Volume 4 are given for information purposes.

Attachment 2 raises the following issue which may be considered by WRC-03:

– numerous texts of RR Volumes 1-3 make references to Resolutions/Recommendations. Even after they have been revised, in many cases (i.e., the shaded texts in Attachment 2), references are made to previous versions of Resolutions/Recommendations. In some cases, these references (those indicated with symbol "H" after the reference) may be appropriate. However, in other cases it may be necessary to update the references to the latest versions of the Resolutions/Recommendations. This is because, in principle, the necessary updating should be carried out by the WRC itself in the framework of the relevant agenda item, but as a matter of fact it is difficult to complete the work within a limited time available for the same WRC. At the present there is no additional procedure to carry out the remaining updating. Some kind of a new procedure may be considered;

– in certain cases, even after Resolutions/Recommendations have been abrogated, texts of RR Volumes 1-3 make references to the abrogated texts (i.e., the shaded texts in Attachment 2). In some cases, these references (those indicated with symbol "H" after the reference) may be appropriate. However, in other cases it may be necessary to make editorial amendments to the texts making references to the abrogated Resolutions/Recommendations. This is

because, in principle, the necessary editorial amendments should be carried out by the WRC itself in the framework of the relevant agenda item, but as a matter of fact it is difficult to complete the work within a limited time available for the same WRC. At the present there is no authorized procedure to carry out the remaining editorial amendments. As for the 2001 version of the Radio Regulations, the Secretariat has added "Note by the Secretariat" to each relevant part. WRC-03 is invited to consider whether this practice is acceptable or some kind of a new procedure is necessary.

The CPM refrained under this agenda item from indicating any possible course of action in respect to those Resolutions/Recommendations that are explicitly on the agenda of WRC-03.

ATTACHMENT 1

Review of WARC/WRC Resolutions and Recommendations in response to Resolution 95 (Rev.WRC-2000)

Res. No.	Subject	Remark	Possible follow-up
1	Notification of frequency assignments	Still relevant.	NOC
2	Equitable use of GSO and frequency bands for space services	Still relevant. This Resolution may need to be amended so as to cover all satellite systems including non-GSO and the new HEO types.	NOC/MOD
4	Period of validity of GSO space systems	Still relevant; for consideration by a future WRC. This resolution may need to be amended for the same reason given under Resolution 2. (NB: This subject may be considered in the context of agenda item 1.30).	NOC/MOD
5	Technical cooperation – Propagation in tropical areas	The substance of this Resolution is still relevant. One option is to extend this Resolution to areas where propagation has a similar nature to that in tropical areas.	NOC/MOD/ SUP
7	National radio-frequency management	Some actions completed; new elements became relevant in the context of the structural changes within Member States. BR annual budget for this purpose was suggested.	MOD
10	Wireless communications by the International Red Cross and Red Crescent Movement	Still relevant, text recently updated (at WRC-2000)	NOC
13	Formation of call signs	Still relevant, without real problems (**Separate BR report to WRC-03**).	NOC
15	Cooperation in space radiocommunications	Many aspects are obsolete in view of the current BDT activities. On the other hand, MOD may be considered to provide for extending adequate assistance to developing countries.	MOD/SUP
18	Identification/non-parties in an armed conflict	Still relevant; may need to be modified if WRC-03 decides to suppress Appendix 13 under agenda item 1.9.	NOC/MOD
20	Technical cooperation – Aeronautical service	Still relevant, text recently updated (at WRC-2000). Some editorial amendment may be considered.	NOC/(MOD)
21	Transfer of HF-FX in 2007	Still relevant (some elements are obsolete).	MOD
25	Operation of Global Satellite Systems	Still relevant, text recently updated (at WRC-2000). Some amendment may be considered in "*considering* d)".	NOC/MOD

Res. No.	Subject	Remark	Possible follow-up
26	Review of footnotes	Still relevant (permanent agenda item at each WRC). The *further resolves* 1 c) may need to be modified to confine the scope of addition or modification of RR footnotes under Res. 26 to some extent. A proposal received that under *further resolves* 1, "considered" may be replaced by "adopted".	NOC/MOD
27	Incorporation by reference/principles	Still relevant (permanent agenda item at each WRC). This Resolution may still require some improvements in order to facilitate the identification of mandatory ITU-R Recommendations incorporated by reference. In addition, new paragraph 5 under "*resolves*" may be added which reads "5 that such use of incorporation by reference shall be limited in its application". The last remark under Res. 28 also applies.	MOD/NOC
28	Revision of references to ITU-R Recommendations	Still relevant. **Report by RA-03 to WRC-03 agenda item 2**. Possible change of the concept of "incorporation by reference" was suggested (from "a specific version" to "the most recent version of ITU-R Recommendation").	NOC/MOD
29	Occupancy by FX/MO of the HF bands allocated to the BC in 1992	This subject is implicitly on the WRC-03 agenda items 1.2 and 1.36. Interim report submitted to WRC-2000. **Additional report to WRC-03**.	-
33	Procedure for BSS prior to the entry into force of agreements and plans for the BSS	See Section 6.4.1 dealing with agenda item 7.1.	MOD
34	BSS in the band 12.5-12.75 GHz in R3	See Section 3.4.6 dealing with agenda item 1.30.	-
42	Interim systems in R2 (BSS and FSS) in AP30/30A bands	Still relevant, however needs to be reviewed in order to update the references to provisions revised by WRC-2000, as well as with other decisions from WRC-2000.	MOD
44	Compatibility of equipment in MSS	**No longer necessary** in view of current situation.	SUP
46	Coordination/notification procedures in non-GSO bands	WRC-2000 reviewed this Resolution and decided to maintain it with no change, as it is applicable to satellite networks whose frequency assignments were received by the Bureau prior to 1 January 1999. This Resolution shall apply to the frequency bands for which specific reference is made to this Resolution in the footnotes to the Table of Frequency allocations. The SC concluded that it would be premature to suppress Resolution 46 or references to it.	NOC/SUP
49	Administrative due diligence	Still relevant (implicitly on the WRC-03 agenda item 1.30). **BR Report to WRC-03**.	-

Res. No.	Subject	Remark	Possible follow-up
51	Transitional arrangements concerning coordination and notification	Still relevant.	NOC
53	Updating of the remarks of Appendices 30 and 30A	For consideration by WRC-03 agenda item 1.35. **BR report to WRC-03.**	-
55	Temporary procedures for improving satellite network coordination and notification procedure.	Still relevant. **BR report to WRC-03.** Implicitly on the WRC-03 agenda item 1.30	-
56	Early application of No. 9.2, as revised by WRC-2000	**No longer necessary** as from 1 January 2002.	SUP
57	Special arrangements for the networks above 71 GHz	Still relevant. Some elements are unclear – Additional details in the BR report of activities. In addition, No. 11.44 in "*considering* h)" needs to be replaced by No. 11.44.1 and *resolves* 3 may be deleted or modified.	MOD
58	Transitional measures for coordination in the bands 10.7-12.75 GHz, 17.8-18.6 GHz and 19.7-20.2 GHz	Some actions still to be completed. May be suppressed after the completion of all consequential actions. BR is expected to report to WRC-03 on the status of the above actions.	MOD/SUP
59	Early application of some provisions, as revised by WRC-2000	Some actions still to be completed. May be suppressed after the completion of all consequential actions. BR is expected to report to WRC-03 on the status of the above actions.	MOD/SUP
63	Protection from ISM equipment	**No longer necessary**, action completed. On the other hand, MOD may be considered. An example text submitted is given in Attachment 3. Some administrations consider that the proposed modification may go beyond the scope of Resolution 95.	MOD/SUP
72	Regional preparations	Still relevant. **BR reports to PP-02 and WRC-03.** May need to be reviewed in the light of the actions taken by PP-02 with respect to Resolution 80 (PP-98), bearing in mind the contents of Resolution 25 (PP-98).	MOD/SUP
73	Compatibility BSS-R1/FSS-R3 in 12 GHz	Still relevant.	NOC
74	Continuing updating of Appendix **7**	Still relevant. Permanent agenda item for each WRC (e.g. agenda item 5 of WRC-03)	NOC
75	Possible update of Appendix 7 for the bands 31.8-32.3 GHz	Still relevant (ongoing studies). Closely related to Resolution 74.	NOC
76	Development of calculation methodologies concerning aggregate epfd produced by non-GSO in the bands 10.7-30 GHz	Still relevant (ongoing studies, with some actions completed). **BR report to WRC-03**. Implicitly on the WRC-03 agenda item 1.29.	-

Res. No.	Subject	Remark	Possible follow-up
77	Criteria for protecting terrestrial services from FSS GSO networks in the band 11.7-12.2 GHz	See Section 6.4.3 dealing with agenda item 7.1.	-
78	Criteria for sharing between GSO and non-GSO systems (compliance with single-entry operational and additional operational limits)	For consideration by WRC-03 agenda item 1.29	-
79	Criteria for determining coordination distances to protect RA stations in 42.5-43.5 GHz	Still relevant (ongoing studies).	NOC
80	Principles of the Constitution, to be taken into consideration	For consideration by WRC-03 agenda item 7.1. Ongoing studies within RAG and RRB. **BR report to WRC-03.**	-
81	Evaluation of administrative due diligence	Ongoing consideration of the subject matter within SAT-BAG. **BR report to PP-02.** Implicitly on the WRC-03 agenda item 1.30.	-
82	Operation of earth stations on board vessels, in some of the allocations to the FSS	For consideration by WRC-03 agenda item 1.26.	-
83	Administrative procedures for cost recovery	See PP Res. 88 (Rev. Marrakesh 2002). Implicitly on the WRC-03 agenda item 1.30.	-
84	Pfd limits in 37.5-42.5 GHz for the FSS, BSS and MSS	For consideration by WRC-03 agenda item 1.32.	-
95	Review of Resolution/Recommendation	Still relevant (permanent agenda item at each WRC). Further improvement of this Resolution may be considered. An example text is given in Attachment 4.	MOD/NOC
105	Improvements in AP30B	Still relevant.	NOC
111	Planning of the FSS in 18/20/30 GHz	Still relevant. For consideration by a future WRC. Given the fact that no contributions were submitted to the ITU-R in response to this Resolution, since its approval by WARC-Orb-88, consideration could be given to its suppression. Another option may be to modify this Resolution in light of discussions under agenda item 1.27 and in case proposals are made for a new BSS plan affecting any frequency band covered by this Resolution.	SUP/MOD/ NOC
114	FSS (feeder links for MSS) in 5 GHz	For consideration by WRC-03 agenda item 1.4.	-
122	HAPS in 47/48 GHz	For consideration by WRC-03 agenda 1.13. NOTE – The former version of this Resolution is referred to in No. S5.552A.	-

Res. No.	Subject	Remark	Possible follow-up
124	Sharing FX/EESS in 8 GHz	ITU-R studies completed. Rec. ITU-R F.1502 contains pfd limits different from those referred to in No. 5.462A. WRC-03 may consider placing No. 5.462A on a future WRC agenda. Another option is to modify this Resolution, because some administrations are not aware of Rec. ITU-R F.1502.	NOC /MOD
125	Sharing MSS/RA in 1.6 GHz	Ongoing studies, future WRC to review.	NOC
127	New allocations for feeder links to GSO MSS in 1.4 GHz	For consideration by WRC-03 agenda item 1.16.	-
128	Protection of RA in 42 GHz	For consideration by WRC-03 agenda 1.32.	-
132	FSS in 18/28 GHz	Some elements are still relevant (e.g. *resolves* 2, which contains instructions to the Bureau as to the treatments of some submissions). MOD may not be essential.	NOC/MOD
135	Criteria concerning application of single-entry limits for non-GSO FSS in Article 22	For consideration of WRC-03 agenda item 1.19.	-
136	Criteria for sharing between GSO FSS and non-GSO FSS in 37.5-50.2 GHz	For consideration of WRC-03 agenda item 1.29.	-
137	Criteria for sharing (GSO/non-GSO and non-GSO/non-GSO)	Still relevant (ongoing studies). Could be modified to reflect the results from the studies already completed. New ITU-R Recommendations (e.g. Docs. 4/BL/19, 4/BL/23 and 4/BL/35) are available, satisfying *invites ITU-R* 1, 3 and 4.	MOD/NOC
138	Additional spectrum for non-GSO FSS (Earth-to-space)	No contributions to ITU-R study since 2000. SUP may be considered.	SUP/NOC
139	Use of FSS for provision of DTH television broadcasting	Ongoing studies. **BR report to WRC-03** for consideration, as appropriate in the development of future conference agendas.	NOC/MOD
205	Protection of MSS in 406-406.1 MHz	Still relevant (additional details in the **BR Report of activities**).	NOC
207	Monitor MMS/AM(R)S	For consideration by WRC-03 agenda item 1.14. Monitoring reports regularly posted on the ITU website. Additional details in the **BR Report of activities**.	-
209	Enlarging the scope of GMDSS	For consideration by a future WRC; **may not be relevant any longer**. This text has been maintained since 1987 and may be abrogated.	SUP
212	Implementation of IMT-2000	Still relevant. See Note 3.	NOC

Note 1 – Some administrations proposed that amendments may be considered (in *resolves*, to replace "should" by "be invited to").

Res. No.	Subject	Remark	Possible follow-up
214	Use of bands below 1 GHz by MSS	For consideration by WRC-03 agenda item 1.20.	-
215	Coordination among non-GSO MSS	Some elements are still relevant, ongoing studies. See also the Note in the comments related to Resolution 46.	NOC/MOD
216	Broadening the allocation to the MSS in 14-14.5 GHz	For consideration by WRC-03 agenda item 1.11.	-
217	Wind profiler radars	Still relevant.	NOC
221	HAPS for IMT-2000 in the bands around 2 GHz	For consideration by WRC-03 agenda item 1.33.	-
222	Use of the bands 1 525-1 559 MHz and 1 626.5-1 660.5 MHz by the MSS	Still relevant.	NOC
223	Additional bands identified for IMT-2000	Still relevant. **BR report to WRC-03.** (The subject matter is under consideration by WRC-03, agenda item 1.22).	NOC
224	Frequency bands for the terrestrial component of IMT-2000 below 1 GHz.	Still relevant (ongoing studies). See Note 1.	NOC/(MOD)
225	Use of additional bands for the satellite component of IMT-2000	Still relevant. Results of the studies to be reported to a future WRC. See Note 4	NOC
226	Sharing studies and possible allocation to the MSS (space-to-Earth) in the 1-3 GHz, including 1 518-1 525 MHz	For consideration by WRC-03 agenda item 1.31.	-
227	Sharing studies and possible allocation to the MSS (Earth-to-space) in the 1-3 GHz, including 1 683-1 690 MHz	For consideration by WRC-03 agenda item 1.31.	-
228	Further development of IMT-2000 and systems beyond IMT-2000	For consideration by WRC-03 agenda item 1.22. The subject is also on the preliminary agenda for WRC-07 agenda item 2.16.	-
300	Paired frequencies for NBDPT in HF/MMS	**No longer necessary** as from 1 January 2002.	SUP
310	Ship movement telemetry	Question ITU-R 55/8 referred to in *noting* a) was deleted by RA-2000. SUP of this Resolution may be considered.	SUP/NOC
312	Group channels for Morse telegraphy	**No longer necessary**, in view of the abolishing of the calling using Morse telegraphy.	SUP
331	Transition arrangements for the GMDSS	For consideration by WRC-03 agenda item 1.9.	-

Note 2 – Some administrations proposed amendments concerning the status of the bands 2 500-2 520 MHz and 2 670-2 690 MHz in order to alleviate ambiguities in this Resolution.

Res. No.	Subject	Remark	Possible follow-up
339	Coordination of NAVTEX	Still relevant.	NOC
340	Additional SAR information	Largely implemented by ITU, although some elements (e.g. in the "invites" part) are still relevant.	SUP/MOD
341	On-board communications in UHF	**No longer necessary** (action completed and modified Rec. ITU-R M.1174-1 approved in 1998).	SUP
342	Revision of AP18	Ongoing studies, for consideration by a future WRC (preliminary agenda item 2.14 for WRC-07 as per Resolution 801).	NOC
343	Certificates (vessels using GMDSS equipment on a non-compulsory basis)	Still relevant.	NOC/MOD
344	Exhaustion of MMSI	For consideration by WRC-03 agenda item 1.10.1. **BR Report to each WRC.**	-
345	Operation of GMDSS equipment on non-compulsory fitted vessels	Still relevant, ongoing activities.	NOC/MOD
346	Protection of distress and safety frequencies in 12/16 MHz	Still relevant, but may need updating. This subject is also related to agenda item 1.14 of WRC-03.	MOD
347	Digital modulation in the MMS at MF/HF	For consideration by WRC-03 agenda item 1.14.	-
348	Priority of distress and safety communications	For consideration by WRC-03 agenda item 1.10.2.	-
349	False alerts in GMDSS	Still relevant, ongoing activities.	NOC/MOD
350	Study of interference to distress and safety frequencies in 12 and 16 MHz by routine calling	For consideration by WRC-03 agenda item 1.14.	-
405	Frequencies for AM(R)	Still relevant, ongoing activities in ICAO.	NOC
506	GSO only, in BSS bands (12 GHz)	Still relevant, however needs to be revised in order to include the reference to the adoption by WRC-2000 of new Regions 1 and 3 Plans and Lists.	MOD
507	Agreements/Plans for BSS	Still relevant, but clarification is needed.	NOC/MOD
517	Transition from DSB to SSB in HFBC	For consideration by WRC-03 agenda item 1.2. **BR Report to WRC-03** (statistics on transmitters and receivers).	-
525	Introduction of HDTV in 22 GHz	Still relevant. See Section 6.4.1 dealing with agenda item 7.1.	-
526	Additional provisions for HDTV	Still relevant. For consideration by a future WRC.	NOC
527	Terrestrial VHF digital sound broadcasting	**No longer necessary** (in view of the action taken by C-01 (Resolution 1185)).	SUP

Res. No.	Subject	Remark	Possible follow-up
528	BSS (sound) in 1.5 GHz	Still relevant although some elements need updating. For consideration by a future WRC. Possible amendment calling for further study.	MOD/NOC
532	Review of AP30/30A	May no longer be necessary depending on decisions by WRC-03 under agenda item 1.35.	SUP/NOC
533	Implementation of certain provisions relating to AP30/30A	Some elements still relevant (e.g. *resolves* 4.2).	NOC
535	Application of Article 12	The major part implemented. May need to be modified as a result of the considerations under agenda item 1.2. Also may be amended in view of the importance in relation to Article 12 and to ensure the required financing through grants to developing countries. NOTE – Resolutions 508 and 523 (WARC-92) referred to in "*considering* b)" have been deleted.	MOD
536	BSS satellites serving other countries	Could be deleted. (in view of the decision of WRC-2000). Another option is to maintain this Resolution after appropriate modifications.	MOD/SUP
537	Statistics on HFBC equipment	For consideration by WRC-03 agenda item 1.2. **BR report to WRC-03** (statistics on transmitters and receivers).	-
539	Use of the band 2 630-2 655 MHz for non-GSO BSS	For consideration by WRC-03 agenda item 1.34.	
540	Regulatory procedures and sharing criteria in AP30/30A and in Articles 9 and 11	For consideration by WRC-03 agenda item 1.27.	-
541	Early application of some provisions of Appendices 30/30A	**Not applicable** as from 1 January 2002. (Instructs to the Bureau are covered by Article 5 of AP30/30A (WRC-2000)).	SUP
542	WRC-2000 Regions 1 and 3 Plans to be included in Appendices 30/30A, and Lists of additional uses to be annexed to the MIFR.	**No longer necessary** (Implemented).	SUP
602	Differential data correction on maritime radiobeacons	Implemented (Recommendation ITU-R M.823-2 approved in 1997, RRB Rules of procedure approved, no need for a conference).	SUP
603	Compatibility between RNSS (Earth-to-space) in 5 000-5 010 MHz and the MLS in 5 030-5 150 MHz	Still relevant (ongoing studies).	NOC
604	Compatibility between RNSS (space-to-Earth) in 5 010-5 030 MHz and the RA in 4 990-5 000 MHz	For consideration by WRC-03 agenda item 1.15; action to be taken in the light of the decisions of WRC-03.	-

Res. No.	Subject	Remark	Possible follow-up
605	Use of the band 1 164-1 215 MHz by systems in the RNSS (space-to-Earth)	For consideration by WRC-03 agenda item 1.15; action to be taken in the light of the decisions of WRC-03.	-
606	Use of the band 1 215-1 300 MHz by systems in the RNSS (space-to-Earth)	For consideration by WRC-03 agenda item 1.15.	-
607	Compatibility between RNSS (Earth-to-space) and the radio-location in 1 300-1 350 MHz	Still relevant (ongoing studies).	NOC
641	Use of the band 7 000-7 100 kHz	Still relevant. (NB. The subject matter is under consideration by WRC-03, agenda item 1.23).	NOC
642	Earth stations in the amateur satellite service	Still relevant.	NOC
644	Disaster communications	Still relevant (ongoing studies).	NOC
645	Global harmonization of spectrum for public protection and disaster relief	For consideration by WRC-03 agenda item 1.3.	-
703	Interference criteria for the shared bands	May need to be modified, bearing in mind the application of the concept of incorporation by reference of the relevant ITU-R Recommendations. An example text for a draft revision is given in Attachment 5.	MOD
705	Protection of services in 70-130 kHz	Some elements still relevant; for consideration by a future WRC.	NOC/MOD
706	Operation of the fixed service in 90-110 kHz	Still relevant; for consideration by a future WRC.	NOC
715	Sharing between RNSS and MSS in 149.9-150.5 MHz and 399.9-400.5 MHz	Implemented (Recommendation ITU-R M.1470 approved in 2000).	SUP
716	Use of bands around 2 GHz	Still relevant. **Progress report to WRC-03**. Some administrations consider that urgent studies not yet completed by ITU-R and ITU-D. NOTE – The former version of this Resolution is referred to in Nos. 5.389A, 5.389C and 5.390.	NOC
723	Allocations to space services	For consideration by WRC-03 agenda 1.12.	-
724	Use of the band 5 250-5 350 MHz by spaceborne active sensors	Rec. ITU-R SA.1280 referred to in this Resolution has been maintained unchanged since 1997.	SUP/NOC
725	Use of the band 5 350-5 460 MHz by spaceborne active sensors	Rec. ITU-R SA.1280 referred to in this Resolution has been maintained unchanged since 1997.	SUP/NOC
727	Use of 420-470 MHz by EESS (active)	For consideration by WRC-03 agenda item 1.38.	-

Res. No.	Subject	Remark	Possible follow-up
728	Non-GSO MSS in 470-862 MHz	Still relevant; for consideration by a future WRC (preliminary agenda item 2.8 for WRC-07, as per Resolution 801). Another option is that Resolution should be abrogated.	NOC/SUP
729	Adaptive systems at MF/HF	Some elements are implemented (e.g. under "instructs" part); other elements are still relevant: ongoing studies with a view to presenting results to a future WRC (preliminary agenda item 2.9 for WRC-70, as per Resolution 801).	MOD/NOC
730	Spaceborne precipitation radars in 35.5-35.6 GHz	For consideration by WRC-03 agenda item 1.12.	-
731	Sharing and adjacent-band compatibility between active and passive services above 71 GHz	Still relevant, ongoing studies (for consideration by a future WRC).	NOC
732	Sharing between active services above 71 GHz	Still relevant, ongoing studies (for consideration by a future WRC).	NOC
733	Review of sharing conditions between services in 13.75-14 GHz	For consideration by WRC-03 agenda item 1.24.	-
734	Use of HAPS in the FX/MO in the bands above 3 GHz allocated exclusively to terrestrial services	For consideration by WRC-03 agenda item 1.13.	-
735	Sharing between receiving earth stations in the BSS and transmitting earth stations or terrestrial stations	For consideration by WRC-03 agenda item 1.27.	-
736	Allocations to FX, MO, radiolocations, EESS (active) and space research (active) in 5 150-5 725 MHz	For consideration by WRC-03 agenda item 1.5.	-
737	Spectrum and regulatory requirements to facilitate terrestrial wireless interactive multimedia applications	For consideration by WRC-03 agenda item 1.21. The subject is also on the preliminary agenda item 2.15 for WRC-07	-
800	Agenda for WRC-03	**No longer necessary** in view of the actions taken by the Council (Resolution 1156).	SUP
801	Preliminary agenda for WRC-05/06	For consideration by WRC-03 agenda item 7.2.	-
7	Standard forms for licenses	Still relevant.	NOC
8	Automatic identification	Still relevant (in the new context), ongoing studies.	MOD/NOC
9	Operation of BC stations on board ships/aircraft	Still relevant.	NOC
14	Identification of special vessels	Some elements are obsolete, ongoing studies with a view to present results to a future WRC.	MOD

Res. No.	Subject	Remark	Possible follow-up
34	Principles for allocation of frequency bands	Still relevant, ongoing studies.	NOC
35	Procedure for modification of a Plan	Many aspects are obsolete, taking into account the approach used by recent WRCs (no need for a generalized procedure).	SUP
36	International monitoring of emissions from space stations	Still relevant; ongoing studies.	NOC
63	Calculation of necessary bandwidth	Still relevant (in the new context).	MOD
64	Protection ratios and E_{min}	**No longer necessary** (in view of the current work programmes in the ITU-R).	SUP/NOC
66	Max. level of unwanted emissions	For consideration by WRC-03 agenda item 1.8.2.	-
71	Type approval	Still relevant.	NOC
100	Bands for troposcatter	Partly obsolete. The text has served its purpose. If maintained, at least *instructs* and *invites* may be deleted.	SUP/MOD
104	pfd and e.i.r.p. limits	Still relevant, ongoing studies.	(MOD)
316	Use of SES within harbours	**No longer necessary** (in view of the implemented arrangements, e.g. Inmarsat MoU). Another option is NOC because not all states have joined INMARSAT or signed MoU.	SUP/MOD/ NOC
318	Improved AP18	Still relevant; ongoing studies with a view to present results to a future WRC (preliminary agenda item 2.14 for WRC-07 as per Resolution 801).	NOC
319	Adjacent channel interference in HF-MMS	Intended for consideration by a future WRC but may not be relevant any longer in view of the changes to the regulatory arrangement, e.g., abolishing of the examination of the probability of harmful interference and the possible suppression of Resolution 300.	SUP
401	Use of worldwide frequencies in AP27	Although this Recommendation contains useful suggestions to administrations, it is observed only by a few administrations.	NOC/MOD
402	Coordinated use of WW frequencies in AP27	Although this Recommendation contains useful suggestions to administrations, it is observed only by a few administrations.	SUP/MOD/ NOC
503	HFBC	Still relevant. (NB: the subject matter is on the WRC-03 agenda item 1.2).	NOC
506	Harmonics in BSS	Still relevant.	NOC
515	Other modulation in HFBC	For consideration by WRC-03 agenda item 1.2.	-
517	SSB PR in HFBC	For consideration by WRC-03 agenda item 1.2.	-
519	Introduction of SSB, cessation of DSB	For consideration by WRC-03 agenda item 1.2.	-

Res. No.	Subject	Remark	Possible follow-up
520	Elimination of out-of-band HFBC emissions	Still relevant.	NOC
521	Technical parameters for revision of AP30/30A	**No longer necessary** (in view of the decisions taken by WRC-97 and WRC-2000).	SUP
522	Coordination of HFBC schedules	Still relevant.	NOC
604	Characteristics of EPIRBs	Some elements are not relevant any longer (e.g. phasing out of some types of EPIRBs).	MOD/SUP
605	Shipborne transponders	Still relevant; ongoing studies with a view to present results to a future WRC.	NOC
606	Radionav. in 4 200-4 400 MHz	Still relevant, further studies with a view to present results to a future WRC. Another view is that Rec. 606 (Mob-87) was to provide additional bands for mobile services, but a preliminary agenda 2.7 of Res. 801 is different. After 15 years, this Rec. did not produce definitive results. Thus SUP may be considered.	SUP/NOC
622	Sharing of bands 2 025-2 110 MHz and 2 200-2 290 MHz	Still relevant.	NOC
700	Sharing of bands allocated to space services	Many elements are obsolete in view of current practices. To be updated or abrogated.	MOD/SUP
701	Use of 1.3 GHz by radio astronomy	After 23 years since the adoption, no progress has been made.	SUP/MOD
702	Intentional emissions of extraterrestrial origin	After 23 years since the adoption, no progress has been made.	MOD/SUP
705	Sharing BC/BSS in 700 MHz	Still relevant, ongoing studies (some elements are obsolete).	MOD
707	Sharing in 32-33 GHz	Still relevant, ongoing studies with a view to present results to a future WRC.	NOC
709	Sharing AMS and inter-satellite above 54 GHz	Some elements are obsolete (in view of the actions taken by WRC-97 and WRC-2000).	SUP/MOD
710	Use of airborne radars in shared bands	Some elements are obsolete (in view of the actions taken by WRC-97 and WRC-2000).	SUP/MOD
715	Multiservice satellites in GSO	Many elements are obsolete (in view of arrange-ments introduced in the regulatory procedures).	SUP/MOD
718	Alignment of allocations in 7 MHz	For consideration by a WRC-03 agenda item 1.23.	-
719	Multiservice satellites in GSO	Still relevant (ongoing studies)	NOC

ATTACHMENT 2

List of cross-references of Resolutions and Recommendations in other texts of Volumes 1-4 of the Radio Regulations

Res. No.	Version	Referred to in	Version	No
1	Rev.WRC-97	**AP26**		/5.2
2	WARC-79	**Res. 4**	Rev.Orb-88	*considering* a)
4	Rev.Orb-88	**AP4**		A.2 - b)
13	Rev.WRC-97	**Art. 19**		19.32
21	Rev.WRC-95	**Art. 5**		5.136
21	Rev.WRC-95	**Art. 5**		5.143
21	Rev.WRC-95	**Art. 5**		5.146
21	Rev.WRC-95	**Art. 5**		5.151
21	Rev.WRC-95	**Res. 29**	WRC-97	*considering* c)
22	WARC-92 (abrogated by WRC-97)	**Res. 21**	Rev.WRC-95	*considering* d)
23/H	WRC-95 (abrogated by WRC-2000)	**Res. 339**	Rev.WRC-97	*considering* e)
23/H	WRC-95 (abrogated by WRC-2000)	**Res. 729**	WRC-97	considering d)
26	Rev.WRC-97	**Res. 800**	WRC-2000	*resolves* 1.1
26	Rev.WRC-97	**Res. 801**	WRC-2000	*resolves* 2.1
27		**Art. 3**		3.7
27	Rev.WRC-2000	**Res. 28**	Rev.WRC-2000	*considering* c)
27	Rev.WRC-2000	**Res. 800**	WRC-2000	*resolves* 2
27	Rev.WRC-2000	**Res. 801**	WRC-2000	*resolves* 4
27	Rev.WRC-97	**Art. 21**		21.2.2
27	Rev.WRC-97	**Art. 21**		21.4.1
27	Rev.WRC-97	**Art. 32**		32.21
27	Rev.WRC-97	**Art. 32**		32.64
27	Rev.WRC-97	**Art. 32**		32.9.3
27	Rev.WRC-97	**Art. 34**		34.1
27	Rev.WRC-97	**Art. 34**		34.2
27	Rev.WRC-97	**Art. 51**		51.25
27	Rev.WRC-97	**Art. 52**		52.112
28	Rev.WRC-2000	**Res. 27**	Rev.WRC-2000	Annex 1-5
28	Rev.WRC-2000	**Res. 800**	WRC-2000	*resolves* 2
28	Rev.WRC-2000	**Res. 801**	WRC-2000	*resolves* 4
33/H		**Res. 33**	Rev.WRC-97	*considering* e)
33	Rev.WRC-97	**Art. 5**		5.311

33	Rev.WRC-97	**Art. 5**		5.396
33	Rev.WRC-97	**Res. 34**	WARC-79	*resolves* 1
33	Rev.WRC-97	**Res. 42**	Rev.Orb-88	Annex 5 f)
33	Rev.WRC-97	**Res. 49**	Rev.WRC-2000	Annex 1-1
33	Rev.WRC-97	**Res. 525**	WARC-92	Annex - Section II 2
33	Rev.WRC-97	**Res. 525**	WARC-92	Annex - Section III 3
33	Rev.WRC-97	**Res. 525**	WARC-92	Annex - Section III 4
33	Rev.WRC-97	**Res. 525**	WARC-92	Annex - Section IV 5
33	Rev.WRC-97	**Res. 528**	WARC-92	*resolves* 3
33	Rev.WRC-97	**Res. 507**	WARC-79	*resolves* 2
42	Rev.Orb-88	**AP30**		Art. 10-9/GR
42	Rev.Orb-88	**AP30**		Art. 5 - 5.2.1 e)
42	Rev.Orb-88	**AP30**		Art. 5 - 5.2.2.2
42	Rev.Orb-88	**AP30**		Art. 5 - 5.2.2.2
42	Rev.Orb-88	**AP30**		Art. 5 - 5.2.2.2
42	Rev.Orb-88	**AP30A**		Art. 11 - Annex 1-3
42	Rev.Orb-88	**AP30A**		Art. 11 - Annex 1-3
42	Rev.Orb-88	**AP30A**		Art. 11 - Annex 1-5
42	Rev.Orb-88	**AP30A**		Art. 3 - 3.3
42	Rev.Orb-88	**AP30A**		Art. 4 - 4.2.1 c)
42	Rev.Orb-88	**AP30A**		Art. 5 - 5.2.1 e)
42	Rev.Orb-88	**AP30A**		Art. 5 - 5.2.2.2
42	Rev.Orb-88	**AP30A**		Art. 5 - 5.2.2.2
42	Rev.Orb-88	**AP30A**		Art. 5 - 5.2.2.2
42	Rev.Orb-88	**AP30A**		Art. 9 - 9/GR a)
42	Rev.Orb-88	**Art. 11**		A.11.1
42	Rev.Orb-88	**Art. 9**		A.9.3
46		**Rec. M.1187**		Annex 1-1
46		**Rec. M.1187**		Annex 1-1 - Para. 4
46		**Rec. M.1187**		*considering* b)
46		**Rec. M.1187**		*considering* d)
46		**Rec. M.1187**		*considering* e)
46		**Rec. M.1187**		*considering* f)
46		**Rec. M.1187**		*recognizing* 1
46	WARC-92	**Rec. M.1187**		*considering* a)
46	WARC-92	**Res. 46**	Rev.WRC-97	Annex 2 - A2.1.2.2.1
46	Rev.WRC-95	**Rec. S.1256**		*considering* e)
46	Rev.WRC-95	**Rec. S.1256**		Figure 4
46	Rev.WRC-95	**Rec. S.1256**		page 6

46	Rev.WRC-95	**Res. 132**	WRC-97	*resolves* 1
46	Rev.WRC-97	**Rec. 104**	WRC-95	*recognizing* ITU-R 1
46	Rev.WRC-97	**Res. 127**	Rev.WRC-2000	*considering* b)
46	Rev.WRC-97	**Res. 132**	WRC-97	*considering* d)
46	Rev.WRC-97	**Res. 132**	WRC-97	*resolves* 1
46	Rev.WRC-97	**Res. 215**	Rev.WRC-97	*considering* b)
46	Rev.WRC-97	**Res. 46**	Rev.WRC-97	Annex 2 - A2.3.1
46	Rev.WRC-97	**Res. 46**	Rev.WRC-97	Annex 2 - A2.3.1
46	Rev.WRC-97	**Res. 49**	Rev.WRC-2000	Annex 1 - 1
46	Rev.WRC-97	**Res. 716**	Rev.WRC-2000	Note 1
46	Rev.WRC-97	**Res. 716**	Rev.WRC-2000	*resolves* 3
46	Rev.WRC-97	**Res. 728**	Rev.WRC-2000	*considering* b)
48	WRC-95 (abrogated by WRC-97)	**Res. 46**	Rev.WRC-97	Annex 1 - Section I - 1.2
49	Rev.WRC-2000	**AP30**		Art. 4 - 4.1.25 b)
49	Rev.WRC-2000	**AP30A**		Art. 4 - 4.1.25 b)
49	Rev.WRC-2000	**Art. 11**		11.44.1
49	Rev.WRC-2000	**Art. 11**		A.11.2
49	Rev.WRC-2000	**Art. 59**		59.6
49	Rev.WRC-2000	**Art. 9**		A.9.4
49	Rev.WRC-2000	**Res. 539**	WRC-2000	*resolves* 3
49	Rev.WRC-2000	**Res. 57**	WRC-2000	*considering* i)
49	WRC-97	**AP30**		Art. 11 - 11.2 - 7 b)
49	WRC-97	**Art. 11**		11.44B
49/H	WRC-97	**Art. 59**		59.4
49	WRC-97	**Res. 51**	Rev.WRC-2000	*resolves*
49	WRC-97	**Res. 55**	WRC-2000	*resolves* 5
49	WRC-97	**Res. 57**	WRC-2000	*resolves* 5
49/H	WRC-97	**Res. 81**	WRC-2000	*considering* a)
49/H	WRC-97	**Res. 81**	WRC-2000	*considering* c)
49/H	WRC-97	**Res. 81**	WRC-2000	*noting* b)
51	Rev.WRC-2000	**Art. 11**		A.11.3
51	Rev.WRC-2000	**Art. 59**		59.6
51	Rev.WRC-2000	**Art. 9**		A.9.5
51/H	WRC-97	**Art. 59**		59.4
51/H	WRC-97	**Res. 81**	WRC-2000	*noting* c)
52/H	WRC-97 (abrogated by WRC-2000)	**Art. 59**		59.4
53	Rev.WRC-2000	**Art. 59**		59.6

53	Rev.WRC-2000	**Res. 533**	Rev.WRC-2000	*resolves* 5
53	Rev.WRC-2000	**Res. 540**	WRC-2000	*noting*
53	Rev.WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.35
54/H	WRC-97 (abrogated by WRC-2000)	**Art. 59**		59.4
55	WRC-2000	**Art. 59**		59.6
56	WRC-2000	**Art. 59**		59.6
58	WRC-2000	**Art. 59**		59.6
59	WRC-2000	**Art. 59**		59.6
72	WRC-97	**Res. 72**	Rev.WRC-2000	*recognizing* a)
73	WRC-97	**Res. 73**	Rev.WRC-2000	*considering* f)
73	WRC-97	**Res. 73**	Rev.WRC-2000	*noting*
73	WRC-97	**Res. 73**	Rev.WRC-2000	*resolves* 1
74	WRC-2000	**Res. 75**	WRC-2000	*noting*
75	WRC-2000	**Art. 5**		5.547
76	WRC-2000	**Art. 22**		22.5K
76	WRC-2000	**Art. 22**		22.5K
76	WRC-2000	**Art. 22**		22.5K
76	WRC-2000	**Art. 22**		22.5K
77	WRC-2000	**Art. 5**		5.488
77	WRC-2000	**Art. 59**		59.6
78	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.29
79	WRC-2000	**Art. 5**		5.547
80	Rev.WRC-2000	**Res. 800**	WRC-2000	*resolves* 7.1
80	WRC-97	**Res. 80**	Rev.WRC-2000	*considering* f)
82	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.26
84	WRC-2000	**Art. 21**		21.16.11
84	WRC-2000	**Art. 5**		5.547
84	WRC-2000	**Art. 5**		5.551AA
84	WRC-2000	**Art. 59**		59.6
84	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.32
95	Rev.WRC-2000	**Res. 800**	WRC-2000	*resolves* 4
95	Rev.WRC-2000	**Res. 801**	WRC-2000	*resolves* 6
114	WRC-95	**Art. 5**		5.444
114	WRC-95	**Art. 5**		5.444A
114	WRC-95	**Res. 800**	WRC-2000	*resolves* 1.4
115	WRC-95 (abrogated by WRC-97)	**Rec. S.1256**		*considering* d)
116	WRC-95 (abrogated by WRC-97)	**Rec. S.1341**		*considering* a)

117	WRC-95 (abrogated by WRC-97)	**Rec. S.1340**		*considering* a)
118/H	WRC-95 (abrogated by WRC-97)	**Res. 132**	WRC-97	*considering* a)
118/H	WRC-95 (abrogated by WRC-97)	**Res. 132**	WRC-97	*considering* d)
118/H	WRC-95 (abrogated by WRC-97)	**Res. 132**	WRC-97	*considering* e)
118/H	WRC-95 (abrogated by WRC-97)	**Res. 132**	WRC-97	*considering* h)
122	Rev.WRC-2000	**Art. 59**		59.6
122	Rev.WRC-2000	**Res. 734**	WRC-2000	*considering* c)
122	Rev.WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.13
122	WRC-97	**Art. 5**		5.552A
124	WRC-97	**Art. 5**		5.462A
124/H	WRC-97	**Res. 124**	Rev.WRC-2000	*considering further* b)
127	Rev.WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.16
128	Rev.WRC-2000	**Art. 5**		5.551G
128	Rev.WRC-2000	**Art. 59**		59.6
128	Rev.WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.32
130/H	WRC-97 (abrogated by WRC-2000)	**Art. 59**		59.4
131	WRC-97 (abrogated by WRC-2000)	**Res. 46**	Rev.WRC-97	Annex 2 - A2.2.3
135	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.19
136	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.29
207	Rev.WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.14
211	WARC-92 (abrogated by WRC-97)	**Rec. SA.1154**		*considering* b)
211	WARC-92 (abrogated by WRC-97)	**Rec. SA.1154**		*recognizing* 3
212	Rev.WRC-97	**Art. 5**		5.351A
212	Rev.WRC-97	**Art. 5**		5.388
212	Rev.WRC-97	**Res. 221**	WRC-2000	*considering* e)
212	Rev.WRC-97	**Res. 223**	WRC-2000	*considering* g)
212	Rev.WRC-97	**Res. 225**	WRC-2000	*considering* a)
212	Rev.WRC-97	**Res. 225**	WRC-2000	*considering* b)
213	Rev.WRC-95 (abrogated by WRC-2000)	**Art. 5**		5.377
214	Rev.WRC-2000	**Res. 127**	Rev.WRC-2000	*noting* a)
214	Rev.WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.20

216	Rev.WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.11
217	WRC-97	**Art. 5**		5.162A
217	WRC-97	**Art. 5**		5.291A
220/H	WRC-97 (abrogated by WRC-2000)	**Res. 226**	WRC-2000	*considering* k)
221	WRC-2000	**Art. 5**		5.388A
221	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.33
222	WRC-2000	**Art. 5**		5.353A
222	WRC-2000	**Art. 5**		5.357A
222	WRC-2000	**Res. 801**	WRC-2000	*resolves* 3.2
223	WRC-2000	**Art. 5**		5.384A
223	WRC-2000	**Art. 5**		5.388
223	WRC-2000	**Res. 223**	WRC-2000	Annex 1
223	WRC-2000	**Res. 225**	WRC-2000	*considering* b)
224	WRC-2000	**Art. 5**		5.317A
224	WRC-2000	**Res. 223**	WRC-2000	*noting* a)
224	WRC-2000	**Res. 225**	WRC-2000	*considering* b)
225	WRC-2000	**Art. 5**		5.351A
225	WRC-2000	**Res. 223**	WRC-2000	*noting* a)
226	WRC-2000	**Res. 227**	WRC-2000	*noting* b)
226	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.31
227	WRC-2000	**Res. 226**	WRC-2000	*noting*
227	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.31
228	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.22
228	WRC-2000	**Res. 801**	WRC-2000	*resolves* 2.16
300	Rev.Mob-87	**Rec. 319**	Mob-87	*considering* b)
300	Rev.Mob-87	**Rec. 319**	Mob-87	Title
300	Rev.WRC-2000	**Art. 52**		52.106
308	WARC-79 (abrogated by WARC-Mob-87)	**Rec. M.489**	2	*considering* a)
311	WARC-79 (abrogated by WARC-Mob-87)	**Rec. M.541**	8	*considering* a)
312	Rev.WRC-97	**Art. 52**		52.80
325	Mob-87 (abrogated by WRC-95)	**AP17**		Part B - 8
325/H	Mob-87 (abrogated by WRC-95)	**AP25**		Note 10
325/H	Mob-87 (abrogated by WRC-95)	**AP25**		Section II - Note 4
325/H	Mob-87 (abrogated by WRC-95)	**AP25**		Table - Plan

325/H	Mob-87 (abrogated by WRC-95)	**AP25**		Table Update
331	Rev.WRC-97	**AP13**		Part A1 - 1
331	Rev.WRC-97	**AP13**		Part A1 - 10
331	Rev.WRC-97	**AP13**		Part A1 - 9 a)
331	Rev.WRC-97	**AP13**		Part A2 - 1
331	Rev.WRC-97	**AP13**		Part A2 - 10
331	Rev.WRC-97	**AP13**		Part A2 - 19
331	Rev.WRC-97	**AP13**		Part A2 - 19 b)
331	Rev.WRC-97	**AP13**		Part A2 - 2
331	Rev.WRC-97	**AP13**		Part A2 - 20
331	Rev.WRC-97	**AP13**		Part A2 - 21
331	Rev.WRC-97	**AP13**		Part A2 - 21 3)
331	Rev.WRC-97	**AP13**		Part A2 - 22
331	Rev.WRC-97	**AP13**		Part A2 - 23
331	Rev.WRC-97	**AP13**		Part A2 - 25
331	Rev.WRC-97	**AP13**		Part A2 - 25 2)
331	Rev.WRC-97	**AP13**		Part A2 - 25 3)
331	Rev.WRC-97	**AP13**		Part A2 - 25 4)
331	Rev.WRC-97	**AP13**		Part A2 - 4
331	Rev.WRC-97	**AP13**		Part A2 - 6
331	Rev.WRC-97	**AP13**		Part A2 - 7
331	Rev.WRC-97	**AP2**		Note - 2
331	Rev.WRC-97	**AP2**		Note - 4
331	Rev.WRC-97	**Art 30**		30.4
331	Rev.WRC-97	**Art 31**		31.17
331	Rev.WRC-97	**Art 5**		5.82
331	Rev.WRC-97	**Res. 800**	WRC-2000	*resolves* 1.9
339	Rev.WRC-97	**AP15**		Table 15-1 - MSI
339	Rev.WRC-97	**Art. 5**		5.79A
340	WRC-97	**Art. 32**		32.5A
341	WRC-97	**Art. 5**		5.287
341	WRC-97	**Rec. M.1174**	1	*considering* c)
342	Rev.WRC-2000	**Res. 801**	WRC-2000	*resolves* 2.14
343	WRC-97	**Art. 48**		48.7
344	WRC-97	**Res. 800**	WRC-2000	*resolves* 1.10.1
347	WRC-97	**Res. 800**	WRC-2000	*resolves* 1.14
348	WRC-97	**Res. 800**	WRC-2000	*resolves* 1.10.2
349	WRC-97	**Art. 32**		32.10A

350	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.14
507		**AP30**		Art. 12
507		**AP30**		Art. 12 - 12.1
507		**AP30**		TM - Art. 12
507		**Art. 11**		11.37.2
507		**Art. 5**		5.311
507		**Res. 33**	Rev.WRC-97	*considering* a)
507		**Res. 33**	Rev.WRC-97	Section C - 6.4
507		**Res. 34**	WARC-79	*recognizing*
507		**Res. 525**	WARC-92	*considering* e)
508/H	WARC-79 (abrogated by WRC-97)	**Res. 535**	WRC-97	*considering* b)
514/H	HFBC-87 (abrogated by WRC-97)	**Rec. 517**	HFBC-87	*considering* h)
514/H	HFBC-87 (abrogated by WRC-97)	**Rec. 517**	HFBC-87	*recommends*
517/H		**Rec. 517**	HFBC-87	*considering* d)
517/H		**Rec. 519**	WARC-92	*considering* a)
517	Rev.WRC-97	**AP11**		Part B - 1.1
517	Rev.WRC-97	**Rec. 503**	Rev.WRC-2000	*considering* f)
517	Rev.WRC-97	**Rec. 515**	Rev.WRC-97	*considering* a)
517	Rev.WRC-97	**Rec. 519**	WARC-92	*considering* e)
517	Rev.WRC-97	**Rec. 519**	WARC-92	*considering* f)
517	Rev.WRC-97	**Res. 537**	WRC-97	*considering* a)
517	Rev.WRC-97	**Res. 537**	WRC-97	*considering* b)
517	Rev.WRC-97	**Res. 537**	WRC-97	*resolves*
517	Rev.WRC-97	**Res. 537**	WRC-97	Title
517	Rev.WRC-97	**Res. 800**	WRC-2000	*resolves* 1.2
523/H	WARC-92 (abrogated by WRC-97)	**Res. 535**	WRC-97	*considering* b)
524/H	WARC-92 (abrogated by WRC-2000)	**Rec. 521**	WRC-95	*considering*
524/H	WARC-92 (abrogated by WRC-2000)	**Rec. 521**	WRC-95	*noting* a)
524/H	WARC-92 (abrogated by WRC-2000)	**Rec. 521**	WRC-95	*recognizing*
524/H	WARC-92 (abrogated by WRC-2000)	**Rec. 521**	WRC-95	Title
524/H	WARC-92 (abrogated by WRC-2000)	**Res. 532**	WRC-97	*considering* a)
525	WARC-92	**Art. 5**		5.530

525	WARC-92	**Res. 526**	WARC-92	*considering* c)
528	WARC-92	**Art. 5**		5.345
528	WARC-92	**Art. 5**		5.393
528	WARC-92	**Art. 5**		5.418
528	WARC-92	**Art. 5**		5.418A
528	WARC-92	**Res. 539**	WRC-2000	*considering* b)
529/H	WRC-95 (abrogated by WRC-97)	**Res. 29**	WRC-97	*considering* a)
531	WRC-95 (abrogated by WRC-2000)	**Rec. BO.1295**		*considering* a)
531	WRC-95 (abrogated by WRC-2000)	**Rec. BO.1296**		*considering* a)
531	WRC-95 (abrogated by WRC-2000)	**Rec. BO.1297**		*considering* a)
531/H	WRC-95 (abrogated by WRC-2000)	**Res. 532**	WRC-97	Annex 1
531/H	WRC-95 (abrogated by WRC-2000)	**Res. 532**	WRC-97	*considering* a)
533	Rev.WRC-2000	**Art. 59**		59.6
533/H	WRC-97	**Art. 59**		59.4
534/H	WRC-97 (abrogated by WRC-2000)	**Art. 59**		59.4
537	WRC-97	**Res. 517**	Rev.WRC-97	*resolves* 2
537	WRC-97	**Res. 800**	WRC-2000	*resolves* 1.2
538/H	WRC-97 (abrogated by WRC-2000)	**Art. 59**		59.4
539	WRC-2000	**AP5**		Table 5.1 - 9.11
539	WRC-2000	**Art. 5**		5.418
539	WRC-2000	**Art. 5**		5.418A
539	WRC-2000	**Art. 5**		5.418B
539	WRC-2000	**Art. 5**		5.418C
539	WRC-2000	**Art. 59**		59.6
539	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.34
540	WRC-2000	**AP30**		Art. 4 - 4.1.18
540	WRC-2000	**AP30A**		Art. 4 - 4.1.18
540	WRC-2000	**Art. 59**		59.6
540	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.27
541	WRC-2000	**Art. 59**		59.6
542	WRC-2000	**Art. 59**		59.6
603	WRC-2000	**Art. 5**		5.443A
604	WRC-2000	**Art. 5**		5.443B

604	WRC-2000	**Art. 59**		59.6
604	WRC-2000	**Res. 59**	WRC-2000	*considering further* b)
604	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.15
605	WRC-2000	**Art. 5**		5.328A
605	WRC-2000	**Art. 59**		59.6
605	WRC-2000	**Res. 59**	WRC-2000	*considering further* b)
605	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.15
606	WRC-2000	**Art. 5**		5.329
606	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.15
645	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.3
703	Rev.WARC-92	**Res. 33**	Rev.WRC-97	Note 1
703	Rev.WARC-92	**Res. 34**	WARC-79	*resolves* 3
703	Rev.WARC-92	**Res. 46**	Rev.WRC-97	Annex 1 - A.2
703	Rev.WARC-92	**Res. 528**	WARC-92	*resolves* 4
716	WRC-95	**Art. 5**		5.389A
716	WRC-95	**Art. 5**		5.389C
716	WRC-95	**Art. 5**		5.390
720/H	WRC-95 (abrogated by WRC-97)	**Res. 347**	WRC-97	*noting* a)
721/H	WRC-97 (abrogated by WRC-2000)	**Res. 57**	WRC-2000	*considering* a)
722/H	WRC-97 (abrogated by WRC-2000)	**Rec. 66**	Rev.WRC-2000	*noting* c)
723	Rev.WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.12
723/H	WRC-97	**Res. 57**	WRC-2000	*considering* b)
727	Rev.WRC-2000	**Res. 800**	WRC-2000	*further resolves* 8.3
728	Rev.WRC-2000	**Res. 801**	WRC-2000	*resolves* 2.8
729	WRC-97	**Res. 801**	WRC-2000	*resolves* 2.9
730	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.12
733	WRC-2000	**Art. 5**		5.502
733	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.24
734	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.13
735	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.27
736	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.5
737	WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.21
737	WRC-2000	**Res. 801**	WRC-2000	*resolves* 2.15
801	WRC-2000	**Res. 800**	WRC-2000	*resolves* 7.2

Rec. No.	Version	Referred to in	Version	No
14	Mob-87	**AP13**		Part A4 - 11A
14	Mob-87	**Art. 33**		33.28
34	WRC-95	**Res. 216**	Rev.WRC-2000	*considering* h)
34	WRC-95	**Res. 737**	WRC-2000	*noting* b)
66		**Res. 604**	WRC-2000	*noting* b)
66	Rev.WRC-2000	**Res. 800**	WRC-2000	*resolves* 1.8.2
66	Rev.WRC-2000	**AP3**		Table 1
66	Rev.WRC-2000	**AP3**		Table 1 - Note 8
66	Rev.WRC-2000	**AP3**		Table 1 - Note 9
66/H	Rev.WRC-97	**Res. 604**	WRC-2000	*considering* g)
312	WARC-79 (abrogated by WRC-97)	**Rec. M.541**	8	*considering* a)
318	Mob-87	**Res. 342**	Rev.WRC-2000	*considering* b)
515		**Rec. 517**	HFBC-87	*considering* d)
515	Rev. WRC-97	**Res. 517**	Rev.WRC-97	*considering* d)
515	Rev.WRC-97	**Rec. 519**	WARC-92	*considering* c)
515	Rev.WRC-97	**Res. 537**	WRC-97	*noting* a)
515	Rev.WRC-97	**Res. 537**	WRC-97	*noting* b)
515	Rev.WRC-97	**Res. 800**	WRC-2000	*resolves* 1.2
517	HFBC-87	**Res. 535**	WRC-97	Annex - desc 4
517	HFBC-87	**Res. 800**	WRC-2000	*resolves* 1.2
519	WARC-92	**Res. 800**	WRC-2000	*resolves* 1.2
521	WRC-95	**AP30**		Annex 5 - 3.4
521	WRC-95	**AP30**		Annex 5 - 3.4
521	WRC-95	**AP30A**		Annex 3 - 3.3
521	WRC-95	**AP30A**		Annex 3 - 3.3
521	WRC-95	**Rec. BO.1297**		*considering* b)
604	Rev.Mob-83	**Res. 205**	Rev.Mob-87	*considering* f)
705		**Art. 5**		5.311
707		**Art. 5**		5.548
715	Orb-88	**Rec. 719**	WARC-92	*considering* d)
718	WARC-92	**Res. 800**	WRC-2000	*resolves* 1.23

ATTACHMENT 3

EXAMPLE TEXT FOR DRAFT REVISION OF RESOLUTION 63

Relating to the protection of radiocommunication services against interference caused by radiation from industrial, scientific and medical (ISM) equipment and from wired telecommunication systems[1]

The World ~~Administrative~~ Radiocommunication Conference (Geneva, ~~1979~~2003),

considering

a) that ISM equipment generates and uses locally radio frequency energy, whereby outward radiation cannot always be avoided;

b) that there is an increasing amount of ISM equipment working on various frequencies throughout the spectrum;

c) that in some cases a considerable part of the energy may be radiated by ISM equipment outside its working frequency;

d) that Recommendation ITU-R SM.1056 recommends the use of CISPR Publication 11 as a guide for ISM equipment regulation to protect radiocommunication, but that CISPR 11 has not yet fully specified radiation limits for all frequency bands and, particularly, below 30 MHz;

e) that there are new wired telecommunication systems such as SDL and power line transmission (PLT) which utilize existing telephone lines and electricity power lines and transmit high data rate broadband signals using frequency bands of LF, MF, HF, and VHF which are already used by radiocommunications;

f) that those wirings are not designed or installed for the broadband signal transmission, and radiation from the wires will inevitably occur;

~~*d*~~*g)* that ~~some~~ radio services, especially those using low field strengths, may suffer interference caused by radiation from ISM equipment and the wired telecommunication systems, a risk which is unacceptable particularly in the case of radionavigation or other safety services;

~~*e*~~*h)* that, in order to limit the risks of interference to specified parts of the spectrum:

i) the preceding Radio Conferences of Atlantic City, 1947, and Geneva, 1959, have designated some frequency bands within which the radiocommunication services must accept harmful interference produced by ISM equipment;

ii) ~~this Conference has~~WARC-79 accepted an increase in the number of bands to be designated for ISM equipment, but only on the condition that limits of radiation from such equipment be specified within the bands newly designated for worldwide use and outside all the bands designated for ISM equipment,

resolves

that, to ensure that radiocommunication services are adequately protected, studies are urgently required on the limits to be imposed on the radiation from ISM equipment and from wired

~~[1] WRC-97 made editorial amendments to this Resolution.~~

telecommunication systems in the entire radio spectrum, particularly in the ~~newly designated~~frequency bands below 30 MHz,

invites the ITU-R

1 to continue, in collaboration with the International Special Committee on Radio Interference (CISPR), ~~and~~ the International Electrotechnical Committee (IEC) and ITU-T, its studies relating to radiation from ISM equipment and wired telecommunication systems in the entire radio spectrum in order to ensure adequate protection of radiocommunication services;

2 to specify as soon as possible, in the form of Recommendations, the limits to be imposed on radiation from ISM equipment inside and outside the bands designated for their use in the Radio Regulations and from wired telecommunication systems.

Priority should be given to the studies ~~which would permit the formulation of a Recommendation~~ relating to the frequency bands below 30 MHz and those which are not covered by Recommendation ITU-R SM.1056.~~, newly designated for use by ISM equipment by this Conference, which are listed below:~~

~~6.765-6.795 kHz~~

~~433.05-434.79 MHz~~

~~61-61.5 GHz~~

~~122-123 GHz~~

~~244-246 GHz~~

~~*invites the next competent world radiocommunication conference*~~

~~to resolve the problem of interference from ISM equipment to radiocommunication services taking into account the ITU-R Recommendations.~~

ATTACHMENT 4

EXAMPLE TEXT FOR DRAFT REVISION OF RESOLUTION 95 (Rev.WRC-2000)

General review of the Resolutions and Recommendations of world administrative radio conferences and world radiocommunication conferences

The World Radiocommunication Conference (~~Istanbul~~Geneva, 200~~0~~3),

considering

a) that it is important to keep the Resolutions and Recommendations of past world administrative radio conferences and world radiocommunication conferences under constant review, in order to keep them up to date;

b) that the reports of the Director of the Radiocommunication Bureau submitted to previous conferences provided a useful basis for a general review of the Resolutions and Recommendations of past conferences;

c) that some principles and guidelines are necessary for future conferences to treat the Resolutions and Recommendations of previous conferences which are not related to the agenda of the conference~~,~~;

d) that it is necessary for the conference to review the progress of ITU-R studies which are not placed on the agenda of the conferences in an immediate future in order to take appropriate action on the relevant Resolutions and Recommendations,

resolves to invite future competent world radiocommunication conferences

1 to review the Resolutions and Recommendations of previous conferences that are related to the agenda of the conference with a view to their possible revision, replacement or abrogation and to take appropriate action;

2 to review the Resolutions and Recommendations of previous conferences that are not related to any agenda item of the conference with a view to:

– abrogating those Resolutions and Recommendations that have served their purpose or have become no longer necessary;

– abrogating those Resolutions and Recommendations, or parts thereof, requesting ITU-R studies for which no progress has been made during the last two conference periods;

– updating and modifying Resolutions and Recommendations, or parts thereof that have become out of date, and to correct obvious omissions, inconsistencies, ambiguities or editorial errors and effect any necessary alignment;

3 at the beginning of the conference, to determine which committee within the conference has the primary responsibility to review each of the Resolutions and Recommendations referred to in *resolves* 1 and 2 above,

instructs the Director of the Radiocommunication Bureau

1 to conduct a general review of the Resolutions and Recommendations of previous conferences and, after consultation with the Radiocommunication Advisory Group and the Chairmen and Vice-Chairmen of the Radiocommunication Study Groups, submit a report to the second session of the Conference Preparatory Meeting in respect of *resolves* 1 and *resolves* 2;

2 if practicable, to include in the above report an indication of the agenda item, if appropriate, and possible responsible committees within the conference for each text, based on the available information as to the possible structure of the conference~~,~~;

3 to include in the above report, with the cooperation of the Chairmen of the Radiocommunication Study Groups, the progress reports of ITU-R studies on the issues which have been requested by the Resolutions and Recommendations of previous conferences, but which are not placed on the agenda of the conferences in an immediate future,

invites the Conference Preparatory Meeting

to include, in its Report, the results of a general review of the Resolutions and Recommendations of previous conferences.

ATTACHMENT 5

EXAMPLE TEXT FOR REVISION OF RESOLUTION 703 (Rev.WARC-9203)*

Calculation methods and interference criteria recommended by the ITU-R for sharing frequency bands between space radiocommunication and terrestrial radiocommunication services or between space radiocommunication services1

The World Administrative Radiocommunication Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum (Malaga-TorremolinosGeneva, 19922003),

considering

a) that, in frequency bands shared with equal rights by space radiocommunication and terrestrial radiocommunication services, it is necessary to impose certain technical limitations and coordination procedures on each of the sharing services for the purpose of limiting mutual interference;

b) that, in frequency bands shared by space stations located on geostationary satellites, it is necessary to impose coordination procedures for the purpose of limiting mutual interference;

c) that the calculation methods and interference criteria relating to coordination procedures referred to in *considering a)* and *b)* are based upon ITU-R Recommendations;

d) that, in recognition of the successful sharing of the frequency bands by space radiocommunication and terrestrial radiocommunication services, and the continuing improvements in space technology and that of the Earth segment, each Radiocommunication Assembly has improved upon some of the technical criteria recommended by the preceding Assembly;

e) that the ITU Radiocommunication Assembly has approved a procedure for approving Recommendations between Radiocommunication Assemblies;

f) that the Constitution recognizes the right of Member States to make special arrangements on telecommunication matters; however, such arrangements shall not be in conflict with the terms of the Constitution, Convention or of the Regulations annexed thereto as far as harmful interference to the radio services of other countries is concerned,

is of the opinion

a) that future decisions of the ITU-R are likely to make further changes in the recommended calculation methods and interference criteria;

~~*b)* that administrations should receive advance information of the drafts of the relevant ITU-R Recommendations;~~

~~*c*~~*b)* that the administrations should whenever possible apply the current ITU-R Recommendations on sharing criteria when planning systems for use in frequency bands shared

~~* WRC-2000 reviewed this Resolution and decided to recommend that WRC-03 review the need for this Resolution and, until that time, the implementation of the Resolution should be suspended, except that once a year the Director will send a list of ITU-R Recommendations as identified according to *resolves* 1 to all administrations for information.~~

~~1 WRC-97 made editorial amendments to this Resolution.~~

with equal rights between space radiocommunication and terrestrial radiocommunication services, or between space radiocommunication services,

invites Administrations

to submit contributions to the Radiocommunication Study Groups, providing information on practical results and experience of sharing between terrestrial and space radiocommunication services or between space services, which help to bring about significant improvements in coordination procedures, calculation methods and harmful interference thresholds, and thereby to optimize the available orbit/spectrum resources,

resolves

1 that the Director of the Radiocommunication Bureau, in consultation with Study Group Chairmen, shall prepare a list identifying the relevant parts of new or revised Recommendations approved by the ITU-R affecting the calculation methods and the interference criteria and also those specific sections of the Radio Regulations to which they are applicable, relating to sharing between space radiocommunication and terrestrial radiocommunication services, or between space radiocommunication services. This list shall be prepared without delay~~within thirty days~~ following the approval of these Recommendations;

2 that the Director of the Radiocommunication Bureau shall forward this list ~~and the appropriate texts~~ to all administrations for information once every year.~~within thirty days, asking them to indicate within four months those ITU-R Recommendations or specific technical criteria defined in the Recommendations referred to in *resolves* 1 to which they agree for use in the application of the pertinent provisions of the Radio Regulations;~~

~~3 that, should an administration, in its reply to the consultation conducted by the Director of the Radiocommunication Bureau under *resolves* 2, indicate that certain ITU-R Recommendations or technical criteria defined in those Recommendations are unacceptable, the relevant calculation methods and the interference criteria defined in the Radio Regulations shall continue to apply with respect to cases involving that administration;~~

~~4 that the Bureau shall publish, for the information of all administrations, a list based on the replies to the enquiry, of the ITU-R Recommendations or of the relevant calculation methods and the interference criteria defined in those Recommendations, indicating the administrations to which each of those Recommendations or relevant technical criteria are acceptable or are not and the administrations which did not reply;~~

~~5 that the administrations which do not reply within four months to the consultation conducted by the Director of the Radiocommunication Bureau under *resolves* 2 should, however, inform the Director of their decision on the application of these Recommendations under the relevant provisions of the Radio Regulations at a later stage;~~

~~6 that the Bureau shall take into account:~~

~~*a)* the applicability of the ITU-R calculation methods and interference criteria when making technical examinations with respect to cases involving only administrations to which such methods and criteria are acceptable;~~

~~*b)* the applicability of the calculation methods and interference criteria defined in the Radio Regulations in accordance with the list referred to in *resolves* 4, when making technical examinations with respect to cases involving the administrations which did not accept or did not reply to the consultation conducted by the Bureau under *resolves* 2.~~

#########

6.4 Agenda item 7.1

"to consider and approve the Report of the Director of the Radiocommunication Bureau on the activities of the Radiocommunication Sector since WRC-2000, including on any difficulties or inconsistencies encountered in the application of the Radio Regulations, and action in response to Resolution **80** (**Rev.WRC-2000**)"

6.4.1 Resolution 33 (Rev.WRC-97)

In Section 3.6.1 of his Preliminary Report to the Conference, the Director of the Radiocommunication Bureau indicated that the current text of Resolution 33 (Rev.WRC-97) contains ambiguities that have led to confusion when applying the procedures forming part of the Resolution. Modifications to Resolution 33 which resolve these ambiguities can be found in the example text included in Annex 6.4.1-1.

The Conference may wish to consider the following actions in respect to the provisions and Resolutions that are making reference to Resolution 33 (Rev.WRC-97). These actions flow from the proposed modifications to Resolution 33 explained above and included in Annex 6.4.1-1. The proposed course of action is indicated below:

MOD

resolves 1 of Resolution **34**

1 that, until such time as a Plan may be established for the broadcasting-satellite service in the band 12.5-12.75 GHz in Region 3, the relevant provisions of Sections A to B of Resolution **33 (Rev.WRC-~~97~~03)** ~~together with~~or of Article **9**, as appropriate (see Resolution **33** (Rev.WRC-03)), shall continue to apply to the coordination between stations in the broadcasting-satellite service in Region 3 and:

1) space stations in the broadcasting-satellite and fixed-satellite services in Regions 1, 2 and 3;

2) terrestrial stations in Regions 1, 2 and 3;

MOD

5.1.*f)* of Annex to Resolution **42** (Rev.ORB-88)

f) an administration of Region 3 is considered to be affected if it has a frequency assignment to a space station in the broadcasting-satellite service in the band 12.5-12.7 GHz with a necessary bandwidth any portion of which falls within the necessary bandwidth of the proposed assignment, and which:

- is recorded in the Master Register; *or*
- has been coordinated or is being coordinated under the provisions of Sections A to B of Resolution **33 (Rev.WRC-~~97~~03)** or under the provisions of Articles **9** to **14**, as appropriate (see Resolution **33** (Rev.WRC-03)); *or*
- appears in a Region 3 Plan to be adopted at a future radiocommunication conference, taking account of modifications which may be introduced subsequently in accordance with the Final Acts of that conference,

and the limits of § 3, Annex 1 to Appendix **30** are exceeded.

MOD

resolves 2 of Resolution **507**

2 that during the period before the entry into force of such agreements and associated Plans the administrations and the Radiocommunication Bureau shall apply the procedure contained in Sections A to C of Resolution **33 (Rev.WRC-~~97~~03)** or contained in Articles **9** to **14**, as appropriate (see Resolution **33** (Rev.WRC-03)),

MOD

§ 2 of Section II of Annex to Resolution **525** (WARC-92)

2 For the purpose of introducing experimental BSS (HDTV) systems in the band 21.4-22.0 GHz in Regions 1 and 3 before 1 April 2007 under the provisions of Article **27**, the procedures contained in Sections A to C of Resolution **33 (Rev.WRC-~~97~~03)** or in Articles **9** to **14**, as appropriate (see Resolution **33** (Rev.WRC-03)), shall be applied.

MOD

§ 4 of Section III of Annex to Resolution **525** (WARC-92)

4 If the power flux-density at the Earth's surface produced by emissions from a space station does not exceed these limits, the procedure in Section~~s B and C~~A of Resolution **33 (Rev.WRC-~~97~~03)** or No. **9.11**, as appropriate (see Resolution **33** (Rev.WRC-03)) ~~only~~ shall not be applied.

MOD

§ 5 of Section IV of Annex to Resolution **525** (WARC-92)

5 For the purpose of introducing and operating BSS (HDTV) systems in the band 21.4-22.0 GHz in Regions 1 and 3 after 1 April 2007, and before a future conference has taken decisions on definitive procedures, ~~the procedure in Sections B and C of Resolution **33 (Rev.WRC-97)**~~ all relevant provisions of Articles **9** to **14** except No. **9.11** shall be applied.

MOD

resolves 3 of Resolution **528** (WARC-92)

3 that in the interim period, broadcasting-satellite systems may only be introduced within the upper 25 MHz of the appropriate band in accordance with the procedures contained in Sections A to C of Resolution **33 (Rev.WRC-03~~97~~)**, or in Articles **9** to **14**, as appropriate (see Resolution **33 (Rev.WRC-03)**). The complementary terrestrial service may be introduced during this interim period subject to coordination with administrations whose services may be affected;

MOD

Title, Article **9** (ADD new footnote)

Procedure for effecting coordination with or obtaining agreement of other administrations[6A]

ADD

[6A] **A.9.7** See also Resolution **33 (Rev.WRC-03)**.

MOD

Title, Article **11** (ADD new footnote)

Notification and recording of frequency assignments[5A]

ADD

[5A] **A.11.5** See also Resolution **33 (Rev.WRC-03)**.

ANNEX 6.4.1-1

Example text of modifications resolving ambiguities in Resolution 33 (Rev.WRC-97)

RESOLUTION 33 (REV.WRC-~~97~~03)

Bringing into use of space stations in the broadcasting-satellite service, prior to the entry into force of agreements and associated plans for the broadcasting-satellite service

The World Radiocommunication Conference (Geneva, ~~1997~~2003),

considering

a) that while Resolution **507** envisages plans for the broadcasting-satellite service (BSS), some administrations might nevertheless feel the need to bring stations in that service into use prior to such plans being established;

b) that administrations should, as far as possible, avoid proliferation of space stations in the BSS before such plans have been established;

c) that a space station in the BSS may cause harmful interference to terrestrial stations operating in the same frequency band, even if the latter are outside the service area of the space station;

d) that the procedures specified in Articles ~~**S9**~~ to ~~**S14**~~ and Appendix ~~**S5**~~ contain provisions for coordination between stations in the BSS and terrestrial stations, between space systems in that service and space systems of other administrations;

e) that there are many existing and planned stations in the BSS not subject to agreements and associated plans that have submitted advance publication information (API) or a request for coordination under the existing Resolution **33** procedures and that some administrations are currently in coordination under these procedures;

resolves

1 that, except in those cases where agreements and associated plans for the BSS have been established and have entered into force, for satellite networks for which the API ~~or the request for coordination~~ has been received following 1 January 1999, only the procedures of Articles ~~**S9**~~ to ~~**S14**~~ shall be applied for the coordination and notification of stations in the BSS and coordination and notification of other services in respect of that service;

2 that, except in those cases where agreements and associated plans for the BSS have been established and have entered into force, for satellite networks for which the API ~~or the request for coordination~~ has been received by the Radiocommunication Bureau prior to 1 January 1999, only the procedure in Sections A to C in this Resolution shall be applied;

3 that a future conference review the requirement for the procedures in this Resolution.

Section A – Coordination procedure between space stations in the broadcasting-satellite service and terrestrial stations

2.1 Before an administration notifies to the Bureau or brings into use any frequency assignment to a space station in the broadcasting-satellite service in a frequency band where this frequency band is allocated, with equal rights, to the broadcasting-satellite service and to a terrestrial radiocommunication service, either in the same Region or sub-Region or in different Regions or sub-Regions, it shall coordinate the use of this assignment with any other administration whose terrestrial radiocommunication services may be affected. For this purpose, it shall inform the Bureau of all the technical characteristics of the station, as listed in the relevant sections of Appendix ~~S4~~ **4** to the Radio Regulations, which are necessary to assess the risk of interference to a terrestrial radiocommunication service[1].

2.2 The Bureau shall publish this information in a Special section of its Weekly Circular and shall also, when the Weekly Circular contains such information, so advise all administrations by circular telegram.

2.3 Any administration which considers that its terrestrial radiocommunication services may be affected shall forward its comments to the administration seeking coordination and, in any case, to the Bureau. These comments must be forwarded within four months from the date of the relevant BR IFIC. It shall be deemed that any administration which has not forwarded comments within that period considers that its terrestrial radiocommunication services are unlikely to be affected.

2.4 Any administration which has forwarded comments on the projected station shall either give its agreement, with a copy to the Bureau, or, if this is not possible, send to the administration seeking coordination all the data on which its comments are based as well as any suggestions it may be able to offer with a view to a satisfactory solution of the problem.

2.5 The administration which plans to bring into use a space station in the broadcasting-satellite service as well as any other administration which believes that its terrestrial radiocommunication services are likely to be affected by the station in question may request the assistance of the Bureau at any time during the coordination procedure.

2.6 In the event of continuing disagreement between an administration seeking to effect coordination and one with which coordination has been sought, the administration seeking coordination shall, except in the cases where the assistance of the Bureau has been requested, defer the submission of its notice concerning the proposed assignment by six months from the date of publication of the information according to § 2.2.

---

[1] The calculation methods and the interference criteria to be employed in evaluating the interference should be based upon relevant ITU-R Recommendations agreed by the administrations concerned either as a result of Resolution **703 (Rev.WARC-92)** or otherwise. In the event of disagreement on an ITU-R Recommendation or in the absence of such Recommendations, the methods and criteria shall be agreed between the administrations concerned. Such agreements shall be concluded without prejudice to other administrations.

Section B – Coordination procedure between space stations in the broadcasting-satellite service and space systems of other administrations

3 An administration intending to bring into use a space station in the broadcasting-satellite service shall, for the purpose of coordination with space systems of other administrations, apply the following provisions of Article **11** of the Radio Regulations (edition of 1990, revised in 1994):

3.1 Nos. **1041** to **1058** inclusive.

3.2.1 Nos. **1060** to **1065**[2].

3.2.2 No coordination under § 3.2.1 is required when an administration proposes to change the characteristics of an existing assignment in such a way as not to increase the probability of harmful interference to stations in the space radiocommunication service of other administrations.

3.2.3 Nos. **1074** to **1105** inclusive.

Section C – Notification, examination and recording in the Master Register of assignments to space stations in the broadcasting-satellite service dealt with under this resolution

4.1 Any frequency assignment[3] to a space station in the broadcasting-satellite service shall be notified to the Bureau. The notifying administration shall apply for this purpose the provisions of Nos. **1495** to **1497** of the Radio Regulations (edition of 1990, revised in 1994).

4.2 Notices made under § 4.1 shall initially be treated in accordance with No. **1498** of the Radio Regulations (edition of 1990, revised in 1994).

5.1 The Bureau shall examine each notice with respect to:

5.2 *a)* its conformity with the Convention, the Table of Frequency Allocations and the other provisions of the Radio Regulations, with the exception of those relating to the coordination procedures and to the probability of harmful interference, which are the subject of §§ 5.3, 5.4, and 5.5;

5.3 *b)* its conformity, where applicable, with the provisions of § 2.1 of Section A above, relating to coordination of the use of the frequency assignment with the other administrations concerned;

5.4 *c)* its conformity, where applicable, with the provisions of § 3.2.1 of Section B above, relating to coordination of the use of the frequency assignment with the other administrations concerned;

5.5 *d)* where appropriate, the probability of harmful interference to the service rendered by a station in a space or terrestrial radiocommunication service for which a frequency assignment has already been recorded in the Master Register in conformity with the provisions of Nos. **1240** or **1503** of the Radio Regulations (edition of 1990, revised in 1994), or No. **11.31**, as appropriate, if that assignment has not, in fact, caused harmful interference to the service rendered by a station for which an assignment has been previously recorded in the Master Register and which itself is in

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2 See footnote 1.

3 The expression *frequency assignment*, wherever it appears in this Resolution, shall be understood to refer either to a new frequency assignment or to a change in an assignment already recorded in the Master International Frequency Register (hereinafter called the *Master Register*).

conformity with Nos. **1240** or **1503** of the Radio Regulations (edition of 1990, revised in 1994), or No. **11.31** as appropriate.

6.1 Depending upon the findings of the Bureau subsequent to the examination prescribed in §§ 5.2, 5.3, 5.4 and 5.5, further action shall be as follows:

6.2 Where the Bureau reaches an unfavourable finding with respect to § 5.2, the notice shall be returned immediately by airmail to the notifying administration with the reasons of the Bureau for this finding together with such suggestions as the Bureau is able to offer with a view to a satisfactory solution of the problem.

6.3 Where the Bureau reaches a favourable finding with respect to § 5.2, or where it reaches the same finding after resubmission of the notice, it shall examine the notice with respect to the provisions of §§ 5.3 and 5.4.

6.4 Where the Bureau finds that the coordination procedures mentioned in §§ 5.3 and 5.4 have been successfully completed with all administrations whose services may be affected, the assignment shall be recorded in the Master Register. The date of receipt by the Bureau of the notice shall be entered in Column 2d of the Master Register with an entry in the Remarks Column indicating that such recording does not prejudge in any way the decisions to be included in the agreements and associated plans referred to in Resolution **507**.

6.5 Where the Bureau finds that the coordination procedures mentioned in §§ 5.3 or 5.4 have not, as appropriate, been applied or have been unsuccessfully applied, the notice shall be returned immediately by airmail to the notifying administration with the reason for its return together with such suggestions as the Bureau is able to offer with a view to a satisfactory solution of the problem.

6.6 Where the notifying administration resubmits the notice and states that it has been unsuccessful in endeavouring to effect the coordination, the notice shall be examined by the Bureau with respect to § 5.5.

6.7 Where the notifying administration resubmits the notice and the Bureau finds that the coordination procedures have been successfully completed with all administrations whose services may be affected, the assignment shall be treated as indicated in § 6.4.

6.8 Where the Bureau reaches a favourable finding with respect to § 5.5, the assignment shall be recorded in the Master Register. The appropriate symbol indicating the finding by the Bureau shall indicate that the coordination procedures, as appropriate, referred to in §§ 2.1 or 3.2.1 were not successfully completed. The date of receipt by the Bureau of the notice shall be entered in Column 2d of the Master Register, with the remark mentioned in § 6.4.

6.9 Where the Bureau reaches an unfavourable finding with respect to § 5.5, the notice shall be returned immediately by airmail to the notifying administration with the reasons for the Bureau's finding together with such suggestions as the Bureau is able to offer with a view to a satisfactory solution of the problem.

6.10 If the administration resubmits the notice unchanged with the insistence that it be reconsidered, but should the Bureau's unfavourable finding under § 5.5 remain unchanged, the assignment shall be recorded in the Master Register. However, this entry shall be made only if the notifying administration informs the Bureau that the assignment has been in use for at least four months without any complaint of harmful interference having been received. The date of receipt by the Bureau of the original notice shall be entered in Column 2d of the Master Register, with the remark mentioned in § 6.4. An appropriate remark shall be placed in Column 13 to indicate that the assignment is not in conformity with the provisions of §§ 5.3, 5.4 or 5.5, as appropriate. In the event that the administration concerned receives no complaint of harmful interference concerning the

operation of the station in question for a period of one year from the commencement of operation, the Bureau shall review its finding.

6.11 If harmful interference is actually caused to the reception of any space station in the broadcasting-satellite service whose frequency assignment has been recorded in the Master Register as a result of a favourable finding with respect to §§ 5.2, 5.3, 5.4 and 5.5 of this Resolution, as appropriate, by the use of a frequency assignment to a space station which has been subsequently recorded in the Master Register in accordance with the provisions of § 6.10 of this Resolution or of No. **1544** of the Radio Regulations (edition of 1990, revised in 1994), or No. **11.41**, as appropriate, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference.

6.12 If harmful interference is actually caused to the reception of any space radiocommunication station using an assignment recorded in the Master Register as a result of a favourable finding with respect to Nos. **1503** to **1512** of the Radio Regulations (edition of 1990, revised in 1994), or Nos. **11.31** to **11.34**, as appropriate, by the use of an assignment to a space station in the broadcasting-satellite service which has been subsequently recorded in the Master Register in accordance with the provisions of § 6.10 of this Resolution, the station using the latter assignment must, on receipt of advice thereof, immediately eliminate this harmful interference.

6.13 If harmful interference is actually caused to the reception of any terrestrial station using an assignment recorded in the Master Register as a result of a favourable finding with respect to No. **1240** of the Radio Regulations (edition of 1990, revised in 1994), or No **11.31**, as appropriate, by the use of an assignment to a space station in the broadcasting-satellite service which has been subsequently recorded in the Master Register in accordance with the provisions of § 6.10 of this Resolution, the station, using the latter assignment must, on receipt of advice thereof, immediately eliminate this harmful interference.

6.14 If harmful interference to the reception of any station whose assignment is in accordance with § 5.2 of this Resolution is actually caused by the use of a frequency assignment which is not in conformity with Nos. **1240**, **1352** or **1503** of the Radio Regulations (edition of 1990, revised in 1994), or No. **11.31**, as appropriate, the station using the latter frequency assignment must, upon receipt of advice thereof, immediately eliminate this harmful interference.

*****

6.4.2 Resolution 77 (WRC-2000)

Section 3.1.2 of the Preliminary Report of the BR to WRC-03, addressing the application of No. **5.488** in relation to Resolution **77 (WRC-2000)**, states that "The conference may wish to consider the wording of Resolution **77** and to introduce appropriate clarification so as to indicate the coordination mechanism to be applied in an unambiguous manner".

Resolution **77** contains pfd threshold levels and associated regulatory provisions which are intended to protect terrestrial services of all Regions from GSO FSS space station transmissions serving Region 2 in the 11.7-12.2 GHz band. This Resolution instructs that the notifying administration "seeks the agreement" of any administration of Regions 1, 2 and 3 having primary allocation to terrestrial services in the same frequency band if the power flux-density (pfd) produced on its territory exceeds the identified "thresholds".

This Resolution was intended to provide a process through which the notifying administration of the FSS network may exceed these thresholds.

It was agreed that the threshold pfd levels in Resolution **77 (WRC-2000)** are to be used by the Bureau to identify the administrations whose terrestrial services may be affected and this is clear in Resolution **77**.

In order to clarify the regulatory mechanism required by Resolution **77 (WRC-2000)**, these pfd threshold levels may be applied in conjunction with two possible regulatory approaches:

- As thresholds in the application of the provisions of No. **9.21** and associated Rules of Procedure[5], which involves implicit agreement in case of no response within four months of the publication of the FSS network, and the possibility to object to the FSS system only on the basis of terrestrial stations in service within three years of that publication. The agreements are examined by the Bureau under No. **11.31** but not under No. **9.35**, which enables the FSS network to continue to be protected by subsequent networks regardless of its pfd levels.
- As thresholds in the application the coordination procedure of No. **9.14**, which involves implicit agreement in case of no response within four months of the publication of the FSS network, and the possibility to protect only terrestrial stations in service within three years of that publication. The agreements would be examined by the Bureau under No. **11.32**. As a result, in case of disagreement, the FSS space station assignment may be recorded and brought into service, provided it does not cause harmful interference into the terrestrial stations which were the basis of the disagreement and have been recorded in the MIFR.

In addition to the above methods, the following was proposed by some administrations:

- Inclusion of hard limits in Article **21**.
- Providing different regulatory treatment for the protection of terrestrial services in Region 2 and the protection of terrestrial services in Region 1 and 3 from FSS in Region 2.

Other administrations believed that these additional proposals were not consistent with Resolution **77 (WRC-2000)** and would not answer the difficulties identified by the Bureau.

[5] There would be a need to reflect the current Rules of Procedure of No. **9.21** in the body of the Radio Regulations.