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Special cases related to the notification of assignments for fixed and mobile services

BR/TSD/FMD
ITU

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Introduction

- Multiple provisions of the Radio Regulations are to be considered in the process of the notification and recording of frequency assignments in the Master International Frequency Register (MIFR)
- To record assignments in the MIFR, administrations must comply with different procedures which depend on the frequency band, geographical area, as well as other specific conditions.
- BR is checking whether those conditions as well as other applicable regulations are met.
- This presentation is considering specific cases of technical and regulatory nature, applicable to the notification of frequency assignments to the BR.

Applicable Regulations (1)

➢ Provisions of the Radio Regulations

- Article **11** “Notification and recording of frequency assignments” – main Article regulating the notification process;

➢ Other regulations to be considered:

- World or Regional Plans: governing frequency bands in specific areas – corresponding notification procedure is described in one of the Articles of the Plan.

Applicable Regulations (2)

- **Other provisions of the Radio Regulations to be considered**
  - **Articles of the RR, having an impact on notified data:**
    - ***Article 1 of the RR*** (definitions)
    - ***Article 4 of the RR*** (No. **4.5**)
    - ***Article 5 of the RR:***
      - allocations in the Table of Frequency allocation (sometimes with restrictions)
      - allocation by footnotes (either specify further conditions on the use of that frequency band or allocate it to a service other than to which it is allocated in the Table).
    - ***Article 9 of the RR*** (No. **9.21** to be considered in application of No. **11.31**)

Applicable Regulations (3)

- **Other provisions of the Radio Regulations to be considered (2):**
  - ***Article 21 of the RR*** (for shared bands)
  - ***Article 24 of the RR*** (for fixed service)
  - ***Articles 19, 51, 52 of the RR*** (for maritime services)
    - ***Appendix 1 to the RR:***
      - classification of emissions and necessary bandwidths
    - ***Appendix 4 to the RR:***
      - detailed specification of data items to be provided for the specific case of notified station;
    - ***Appendixes 17 and 25 of the RR*** (for maritime services);

  Etc..

Validation and regulatory examination of frequency assignments (1)

- For recording in the Master Register, the notified assignments must contain all the relevant data items listed in Appendix **4** to the RR with valid values (No. **11.15**).
- Each notice has to be examined

with respect to its conformity with the Table of Frequency Allocations and the other provisions of these Regulations (No.**11.31**)

with respect to its conformity with the procedures relating to coordination with other administrations **applicable** to the radiocommunication service and the frequency band concerned (No.**11.32**)

Please use BR software (e.g. TerRaNotices and eValidation) for validation of notices before their submission by WISFAT

Validation and regulatory examination of frequency assignments (2)

- Administrations

- Preparation of frequency assignment notices taking into account related regulatory provisions /TerRaNotices/
- Validation of the notices using the online validation tool /eValidation/
- Correction of the incomplete notices in accordance with recommendations of the BR

Submission of notices by WISFAT

➢ **BR**

- **Validation** of received notices taking into account the requirements of:
  - Resolution 1;
  - RR APP 4
  - RR Art. 1 – Definitions
  - Etc.

Result:

- Incomplete notices: returned via e-mail
- Complete notices: publication in BR IFIC (Part 1)

- **Examination** of notices (from Part 1) taking into account the requirements of:
  - RR Art. 5
  - RR Art. 4 (No. 4.5)
  - Etc. (e.g. category of service)

Result:

Final Publication in BR IFIC (Parts 2 or 3)

Practical considerations (validation stage)

Please be sure that in the notified assignment the parameters correspond to the definitions of Article **1** and Appendix **4** of the RR:

- ***1.161 equivalent isotropically radiated power (e.i.r.p.):*** The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna (absolute or isotropic gain).
- ***1.162 effective radiated power (e.r.p.)*** **(in a given direction):** The product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction.
- ***1.163 effective monopole radiated power (e.m.r.p.)*** (in a given direction): The product of the power supplied to the antenna and its gain relative to a short vertical antenna in a given direction.

Information in **t_pwr_eiv** of every frequency assignment correspond to the definitions of Nos. **1.161-1.163** which is explained in RR Appendix **4 - field 8B**

Practical considerations (validation stage)

Please be sure that the data, provided for assignments notified in Shared bands*, correspond to the related requirements

Example: For notification in frequency bands, shared by terrestrial and space services on equal basis, the type of antenna gain differs:

- **1.160** *gain of an antenna:* The ratio, usually expressed in decibels, of the power required at the input of a loss-free reference antenna to the power supplied to the input of the given antenna to produce, in a given direction, the same field strength or the same power flux-density at the same distance. When not specified otherwise, the gain refers to the direction of maximum radiation. The gain may be considered for a specified polarization.
- Depending on the choice of the reference antenna a distinction is made between:
  - a) absolute or isotropic gain (Gi), when the reference antenna is an isotropic antenna isolated in space;
  - b) gain relative to a half-wave dipole (Gd), when the reference antenna is a half-wave dipole isolated in space whose equatorial plane contains the given direction;
  - c) gain relative to a short vertical antenna (Gv), when the reference antenna is a linear conductor, much shorter than one quarter of the wavelength, normal to the surface of a perfectly conducting plane which contains the given direction.

Consequently, the type of antenna gain:

- **I** - Isotropic gain in shared bands;
- **V** - gain relative to a short vertical antenna (for Regional Agreements GE85M and GE85N) ;
- **D** – gain relative to a half-wave dipole (in other cases)

Information in **t_gain_type** of every frequency assignment correspond to the definitions of No. **1.160** which is explained in RR Appendix **4 - field 9G**

** Shared bands frequencies: Table 21-2 of Article **21** of the RR.*

Practical considerations (validation stage)

For assignment notices, submitted for notification in shared bands, please notify «I» as the type of gain

Example:
Submission of an assignment notice T11 for FX station in the frequency band 1980-2010 MHz, shared with a space service using validation tool ***eValidation*** *available at:*
https://www.itu.int/ITU-R/eTerrestrial/Account/Login

The error report if *t_pwr_eiv=E*

DeepVal Error - Operation 1: Type of Radiated Power (E) should be (I) for shared bands.

To correct the notice:
- the value of the type of radiated power in the corresponding field :
t_pwr_eiv=I

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Practical consideration (validation stage) – notification of IMT stations

If the IMT system is notified to the BR in view of its recording in the MIFR:

- In frequency bands, **identified for IMT** the IMT system could be identified as such using "IM" symbol as "nature of service";
- In frequency bands, **not identified for IMT,** the IMT system could not be identified with the use of "IM" symbol as "nature of service.

Notices with t_nat_srv=IM are not receivable outside bands, identified for IMT

Example:

5.384A The frequency bands 1 710-1 885 MHz, 2 300-2 400 MHz and 2 500-2 690 MHz, or portions thereof, are identified for use by administrations wishing to implement International Mobile Telecommunications (IMT) in accordance with Resolution **223 (Rev.WRC-15)***. This identification does not preclude the use of these frequency bands by any application of the services to which they are allocated and does not establish priority in the Radio Regulations. (WRC-15)

Frequency band: 1710 – 1885 MHz;
t_nat_srv=IM

For more details in that relation please note CR/467

Practical considerations – Article 4

Check if the notified frequency assignment is complying with RR Article **4, No. 4.5**:

> **4.5** The frequency assigned to a station of a given service shall be separated from the limits of the band allocated to this service in such a way that, taking account of the frequency band assigned to a station, no harmful interference is caused to services to which frequency bands immediately adjoining are allocated.

Example:
FB station with:
$F_{assigned}$ = 150.05 MHz;
bandwidth = 50 kHz
will spread to the adjacent band of MSS by 25 kHz (1/2 of notified bandwidth)

Allocation to services		
Region 1	**Region 2**	**Region 3**
148-149.9 FIXED MOBILE except aeronautical mobile (R) MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221	**148-149.9** FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) 5.209 5.218 5.219 5.221	
149.9-150.05	MOBILE-SATELLITE (Earth-to-space) 5.209 5.220	
150.05-153 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY 5.149	**150.05-154** FIXED MOBILE	
153-154 FIXED MOBILE except aeronautical mobile (R) Meteorological aids	5.225	

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Practical considerations – Article 5

Before notifying frequency assignments for recording in the MIFR in accordance with Article **11** of the RR

- Check if the corresponding frequency allocation has some particularities to be taken into account:

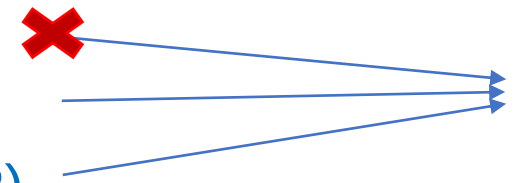
  Using the RR Article **5** ***Table of Frequency Allocations*****:**

  Example:

7 450-13 360 kHz

Allocation to services		
Region 1	**Region 2**	**Region 3**
7 450-8 100	FIXED MOBILE except aeronautical mobile (R) 5.144	
8 100-8 195	FIXED MARITIME MOBILE	
8 195-8 815	MARITIME MOBILE 5.109 5.110 5.132 5.145 5.111	
8 815-8 965	AERONAUTICAL MOBILE (R)	
8 965-9 040	AERONAUTICAL MOBILE (OR)	

  Classes of station (*in Preface to BRIFIC*) for Aeronautical mobile stations:



Practical considerations – Article 5 (2)

Check if the corresponding frequency allocation has some particularities to be taken into account:

Using the RR Article **5** ***footnotes:***

Example:

21.4-22	21.4-22	21.4-22
FIXED	FIXED	**FIXED**
MOBILE	MOBILE	MOBILE
BROADCASTING-SATELLITE 5.208B		BROADCASTING-SATELLITE 5.208B
5.530A 5.530B 5.530D	**5.530A**	**5.530A** 5.530B 5.530D 5.531

5.530A Unless otherwise agreed between the administrations concerned, any station in the fixed or mobile services of an administration shall not produce a power flux-density in excess of −120.4 dB(W/(m^2 · MHz)) at 3 m above the ground of any point of the territory of any other administration in Regions 1 and 3 for more than 20% of the time. In conducting the calculations, administrations should use the most recent version of Recommendation ITU-R P.452 (see also the most recent version of Recommendation ITU-R BO.1898). (WRC-15)

In Regions 1 and 3
Class of station: FX

Indicate in field 13C (notified remarks) of every frequency assignment notice the declaration about meeting the indicated limits:
complies with the pfd limit of No. 5.530A (WRC-15)

Practical considerations – Article 5 (3)

Check if the corresponding frequency allocation has some particularities to be taken into account:

Using the RR Article **5** ***footnotes, where No. 9.21 is applicable:***

Example:

5.430A The allocation of the frequency band 3 400-3 600 MHz to the mobile, except aeronautical mobile, service is subject to agreement obtained under No. **9.21**. This frequency band is identified for International Mobile Telecommunications (IMT). This identification does not preclude the use of this frequency band by any application of the services to which it is allocated and does not establish priority in the Radio Regulations. The provisions of Nos. **9.17** and **9.18** shall also apply in the coordination phase. Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed -154.5 dB(W/(m^2 · 4 kHz)) for more than 20% of time at the border of the territory of any other administration. This limit may be exceeded on the territory of any country whose administration has so agreed. In order to ensure that the pfd limit at the border of the territory of any other administration is met, the calculations and verification shall be made, taking into account all relevant information, with the mutual agreement of both administrations (the administration responsible for the terrestrial station and the administration responsible for the earth station) and with the assistance of the Bureau if so requested. In case of disagreement, calculation and verification of the pfd shall be made by the Bureau, taking into account the information referred to above. Stations of the mobile service in the frequency band 3 400-3 600 MHz shall not claim more protection from space stations than that provided in Table **21-4** of the Radio Regulations (Edition of 2004). (WRC-15)

Frequency band: 3400-3600 MHz
Class of station: FB, ML

Prior to notification under Article 11 of the RR, frequency assignment notices are to be submitted for application of No. **9.21**. Only after completion of that procedure notification under Article 11 is possible

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Practical considerations – Article 9

Application of No. 9.21 procedure stipulated in Article **9** of the RR

Sub-Section IIA – Requirement and request for coordination

9.6 Before an administration[15, 16, 17] notifies to the Bureau or brings into use a frequency assignment in any of the cases listed below, it shall effect coordination, as required, with other administrations identified under No. **9.27**: (WRC-03)

9.21 *p)* for any station of a service for which the requirement to seek the agreement of other administrations is included in a footnote to the Table of Frequency Allocations referring to this provision. (WRC-2000)

Frequency band: 3400-3600 MHz
Class of station: FB, ML

Step 1: submission of notices for publication of BRIFIC Special Sections RR9.21:

- Part C – the start of agreement-seeking process;
- Part D – results (4 months after Part C).

Step 2: notification under Article **11** of the RR, which would lead to an examination of whether all the applicable conditions are met

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Practical considerations – Article 21

*Shared bands frequencies: Table 21-2 of Article **21** of the RR*

Applicable examination: No. **11.32**

Coordination under No. **9.18**:

for any transmitting station of a terrestrial service in the bands above 100 MHz **allocated with equal rights** to space and terrestrial services **within the coordination area of an earth station**, in respect of this earth station

Notice forms: T11, T12

<COORD>

t_adm=KAZ

</COORD>

TABLE **21-2** (Rev.WRC-19)

Frequency band	Service	Limit as specified in Nos.
1 427-1 429 MHz 1 610-1 645.5 MHz (No. **5.359**) 1 646.5-1 660 MHz (No. **5.359**) 1 980-2 010 MHz 2 010-2 025 MHz (Region 2) 2 025-2 110 MHz 2 200-2 290 MHz 2 655-2 670 MHz [5] (Regions 2 and 3) 2 670-2 690 MHz [5] (Regions 2 and 3) 5 670-5 725 MHz (Nos. **5.453** and **5.455**) 5 725-5 755 MHz [5] (Region 1 countries listed in Nos. **5.453** and **5.455**) 5 755-5 850 MHz [5] (Region 1 countries listed in Nos. **5.453** and **5.455**) 5 850-7 075 MHz 7 145-7 235 MHz* 7 900-8 400 MHz	Fixed-satellite Meteorological-satellite Space research Space operation Earth exploration-satellite Mobile-satellite	**21.2**, **21.3**, **21.4** and **21.5**
10.7-11.7 GHz [5] (Region 1) 12.5-12.75 GHz [5] (Nos. **5.494** and **5.496**) 12.7-12.75 GHz [5] (Region 2) 12.75-13.25 GHz 13.75-14 GHz (Nos. **5.499** and **5.500**) 14.0-14.25 GHz (No. **5.505**) 14.25-14.3 GHz (Nos. **5.505** and **5.508**) 14.3-14.4 GHz [5] (Regions 1 and 3) 14.4-14.5 GHz 14.5-14.8 GHz 51.4-52.4 GHz	Fixed-satellite	**21.2**, **21.3** and **21.5**
17.7-18.4 GHz 18.6-18.8 GHz 19.3-19.7 GIIz 22.55-23.55 GHz 24.45-24.75 GHz (Regions 1 and 3) 24.75-25.25 GHz (Region 3) 25.25-29.5 GHz	Fixed-satellite Earth exploration-satellite Space research Inter-satellite	**21.2**, **21.3**, **21.5** and **21.5A**

Practical considerations – Article 24

ARTICLE 24

Fixed service

24.1 Administrations are urged to discontinue, in the fixed service, the use of double-sideband radiotelephone (class A3E) transmissions.

24.2 Class F3E or G3E emissions are prohibited in the fixed service in the bands below 30 MHz.

Frequency band: below 30 MHz

Class of station: FX

Notice form: T11
t_emi_cls=~~F3E~~
or
t_emi_cls=~~G3E~~

Appendix 1

First symbol:* *No 1.3.1- 1.3.2

F - Frequency modulation

G - Phase modulation

Second symbol:* *No 2.4

3 - A single channel containing analogue information

Third symbol:* *No 3.6

E - Telephony (including sound broadcasting)

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Practical considerations – maritime stations

- Take into account the special arrangements for maritime or aeronautical services

Example:

Maritime mobile stations (FC, MS) in the frequency bands, between 4 000 kHz and 27 500 kHz, allocated exclusively to maritime mobile service are subject to application of conditions of Articles **51, 52** and Appendix **17** of the RR, specifying:

– Frequencies and channeling arrangements in the high-frequency bands for the maritime mobile service;
– Sub-division of the exclusive frequency bands;
– Bandwidth;
– Basic characteristics of transmitting and receiving equipment (maximum allowed power levels e.g. RR **52.104**, etc.)

Exercises (1)

1. Open T12 notice in the Example 1_class_of_station.txt file using TerRaNotice:

Please note the information notified in the following fields:

- 1A (assigned frequency) - 6A (class of station)

Is the notified class of station appropriate for notification in the band 1675-1690 MHz?

For the list of classes of stations please see Section 6 of Preface to BR IFIC

1 675-1 690	METEOROLOGICAL AIDS FIXED METEOROLOGICAL-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.341

FL - transmitting station in the mobile service

FB - transmitting station in the land mobile service

6. **TABLE 'CLASS OF STATION'**

Symbol	Description
AL	Aeronautical radionavigation land station (transmitting station in the aeronautical radionavigation service)
AM	Aeronautical radionavigation mobile station (receiving station in the aeronautical radionavigation service)
AT	Amateur station
BC	Broadcasting station, sound
BT	Broadcasting station, television
FA	Aeronautical station (transmitting station in the aeronautical mobile service)
FB	Base station (transmitting station in the land mobile service)
FC	Coast station (transmitting station in the maritime mobile service)
FD	Aeronautical station in the aeronautical mobile (R) service
FG	Aeronautical station in the aeronautical mobile (OR) service
FL	Land station (transmitting station in the mobile service)
FP	Port station (transmitting station in the maritime mobile service, for port operation)
FX	Fixed station (transmitting station in the fixed service)

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Exercises (2)

2. Open T12 notice in the Example 2_RR_9.21.txt file using TerRaNotice:

Please note the information notified in the following fields:

- 1A (assigned frequency) - Provision

2.1 Is the notified provision (No.9.21) appropriate for a mobile station taking into account that No. 5.430A of the RR is applicable?

2.2 On what condition another provision (No.11.2) is appropriate?

3 400-3 600 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.430A Radiolocation 5.431	**3 400-3 500** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.431A 5.431B Amateur Radiolocation 5.433 5.282	**3 400-3 500** FIXED FIXED-SATELLITE (space-to-Earth) Amateur Mobile 5.432 5.432B Radiolocation 5.433 5.282 5.432A
	3 500-3 600 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.431B Radiolocation 5.433	**3 500-3 600** FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile 5.433A Radiolocation 5.433

Exercises (3)

3.1 Using TerRaQ in FXM-domain open recorded assignment notice 121126954 (from IRN):

- **Query settings: FXM**
- **Administrative data: BR assigned ID(s): 121126954**

In loaded assignment please note information, provided in “remarks”

The notified remarks are covering the conditions of RR5.530A, the corresponding assignment was published in Part 2 of BRIFIC with favorable finding and recorded in MIFR.

3.2 Open T11 notice in the Exercise 3_RR5.530A.txt file using TerRaNotice:

Please note information notified in the following fields:

- 1A (assigned frequency) - 13C (notified remarks)

The notified remarks are covering the conditions of RR5.530A,the corresponding assignment will be published in Part 2 of BRIFIC with favorable finding and will be recorded in MIFR.

Exercises (4)

4. Open T12 notice in the Example 3_RR4.5.txt file using TerRaNotice:

Please note information notified in the following fields:

- 1A (assigned frequency)
- 7AB (bandwidth)

The notified assigned frequency is not separated from the limits of the band, where it is not allocated, that does not satisfy the conditions of No. 4.5 of the RR, corresponding assignment will be published in Part 3 of BRIFIC with unfavorable finding, and will be returned to Administration.

4.1 What value of assigned frequency in 1A field would satisfy the conditions of No 4.5 of the RR?

→ 150.025 MHz
(as far as 150.025 MHz + 0.025 MHz = 150.05 MHz - the limit of the band)

Exercises (5)

5. Open T12 notice in the Example 5_IMT_5_1.txt file using TerRaNotice:

Please note information notified in the following fields:

- 1A (assigned frequency) - 6B (nature of service)

Validation of the notice shows that notice is not receivable if t_nat_srv=IM is outside band, identified for IMT

Other values of the nature of service, relevant to mobile system stations are to be notified instead. (Preface to BRIFIC, Chapter IV, Section 7).

5.1 Using TerRaQ in FXM-domain open recorded assignment notices of your Administration:

Frequency band: 1800-1820 MHz;

Class of station: FB

Check the notified nature of service

7.1 Table 'Nature of Service'

Symbol	Description
AX	Fixed station used for provision of services related to aircraft flight safety
AS	Stations using adaptive system
CO	Station open to official correspondence exclusively
CP	Station open to public correspondence
CR	Station open to limited public correspondence
CV	Station open exclusively to correspondence of a private agency
FS	Land station established solely for the safety of life
HP	Fixed station using high altitude platform
IM	IMT station in the mobile service
MX	Fixed station used for transmission of meteorological information
OT	Station open exclusively to operational traffic of the service concerned

Parts 2 and 3 of BR IFICs: information in findings

Information of **SECTION 12** of Preface to BRIFIC:
https://www.itu.int/en/ITU-R/terrestrial/brific/BRIFIC/Preface/PREFACE_EN.pdf

Finding reference (column 13B1):
Reference to a provision of the Radio Regulations or an Appendix thereto or a Resolution of a World Radio Conference or a Regional Agreement

Explanation of symbols:

Example:
X/----
This frequency assignment has been examined with respect to its conformity with a provision or Article of the Radio Regulations or an Appendix thereto or with a Resolution or a Regional Agreement and an unfavourable Finding was formulated. The provision, Article, Appendix, Resolution or Regional Agreement concerned is indicated following this symbol.

13A (REX)	13A (PEX/CEX)	13A (TEX)	13B1 (Finding reference)	13B2 Observation	13B3 (Action)	13C (Finding remarks)
UNFAVORABLE	-	-	X/RR4.5	-	-	X/RR11.31, SFF/X/RR11.36, Return to ADM

Parts 2 and 3 of BR IFICs: information in findings

Information of SECTION 12 of Preface to BRIFIC:
https://www.itu.int/en/ITU-R/terrestrial/brific/BRIFIC/Preface/PREFACE_EN.pdf

Findings observation (column 13B2):

Explanation of symbols:

Example:

R

In accordance with the provisions of the Table of Frequency Allocations, the Appendix or the Resolution indicated in “finding reference”, the present assignment is to be operated subject to not causing harmful interference or, in the case of No. 5.316B, subject to not causing unacceptable interference to stations of (a) particular service(s) in the Region(s) or countries to which the finding reference applies.

S

The service indicated in class of station being secondary (RR5.28), this assignment is not taken into account when examining, with respect to the provisions of Article 11, an assignment pertaining to a primary service.

13A (REX)	13A (PEX/CEX)	13A (TEX)	13B1 (Finding reference)	13B2 Observation	13B3 (Action)	13C (Finding remarks)
FAVORABLE	-	-	-	S	-	-
FAVORABLE	-	-	RR5.143	R	-	-

Parts 2 and 3 of BR IFICs: information in findings

Exercise:

1. Note formulation of favorable and unfavorable findings in the following Table
2. What is the reason of unfavorable finding in case 2?
3. Note the difference between findings in cases 4 and 5. What could be the difference in information, provided from the Administrations?

Case	13A1 (REX)	13A2 (PEX/CEX)	13A3 (TEX)	13B1 (Finding reference)	13B2 Observation	13B3 (Action)	13C (Finding remarks)
1	FAVORABLE	-	-	-	-	-	
2	UNFAVORABLE	-	-	X/RR4.5	-	-	X/RR11.31, SFF/X/RR11.36, Return to ADM
3	UNFAVORABLE	-	-	-	-	-	X/RR11.31, SFF/X/RR11.36, Return to ADM
4	FAVORABLE	-	-	RR5.530A	-	-	
5	UNFAVORABLE	-	-	X/RR5.530A	-	-	X/RR11.31, SFF/X/RR11.36, Return to ADM
6	FAVORABLE	-	-	-	S	-	

Review of findings of frequency assignments recorded in MIFR (1)

- No **11.50** The Bureau shall review periodically the Master Register with the aim of maintaining or improving its accuracy, with particular emphasis on the review of the findings so as to adjust them to the changing allocation situation after each WRC.
- Review of findings in accordance with RoP on No. **11.50**.

BR checks a need to revise and update the findings of the recorded assignments concerned with a view to reflecting their compliance with the new or modified regulatory provisions/allocations, e.g. when a change to Article 5 results in:

- abrogation of an allocation to a radiocommunication service,
- allocation to a new service or upgrade/downgrade of the category of an existing service,
- modification of the conditions of an existing allocation (e.g. additional regulatory/technical restrictions or new/modified coordination procedures).

Review of findings of frequency assignments recorded in MIFR (2)

- Timely and diligent update of the MIFR is important in the context of international frequency management framework.
- Administrations are encouraged to regularly compare the content of the MIFR with their frequency assignments in use and to notify the suppression of those assignments that are no longer in operation, if any.

Example:

In Europe, the mobile services based on GSM were first launched in 900 MHz frequency band more than 30 years ago. In primary GSM-900 band (890 - 915 MHz/935 - 960 MHz), however, there are above 600 frequency assignments to analogue base and mobile stations, recorded in MIFR on behalf of 6 administrations in Region 1 during 1984-2003.

Review of findings of frequency assignments recorded in MIFR (3)
Example of maritime stations related to RR AP17

- In 2021, the BR published a review of findings for the relevant frequency assignments to stations, recorded in the MIFR, following the modifications of the allocation situations* in Appendix **17** to the RR.
- Appendix **17** of the RR contains the frequencies and channelling arrangements to be used in the bands between 4 000 kHz and 27 500 kHz allocated exclusively to the maritime mobile service.

* MOD by WRC-12 – designating bands for data transmissions in digital format
MOD by WRC-19 – 6 channels between 4 221 kHz and 22 455.5 kHz for use by Navigational Data for broadcasting maritime safety and security related information (NAVDAT)

Outcome of review of findings in the bands governed by RR AP17

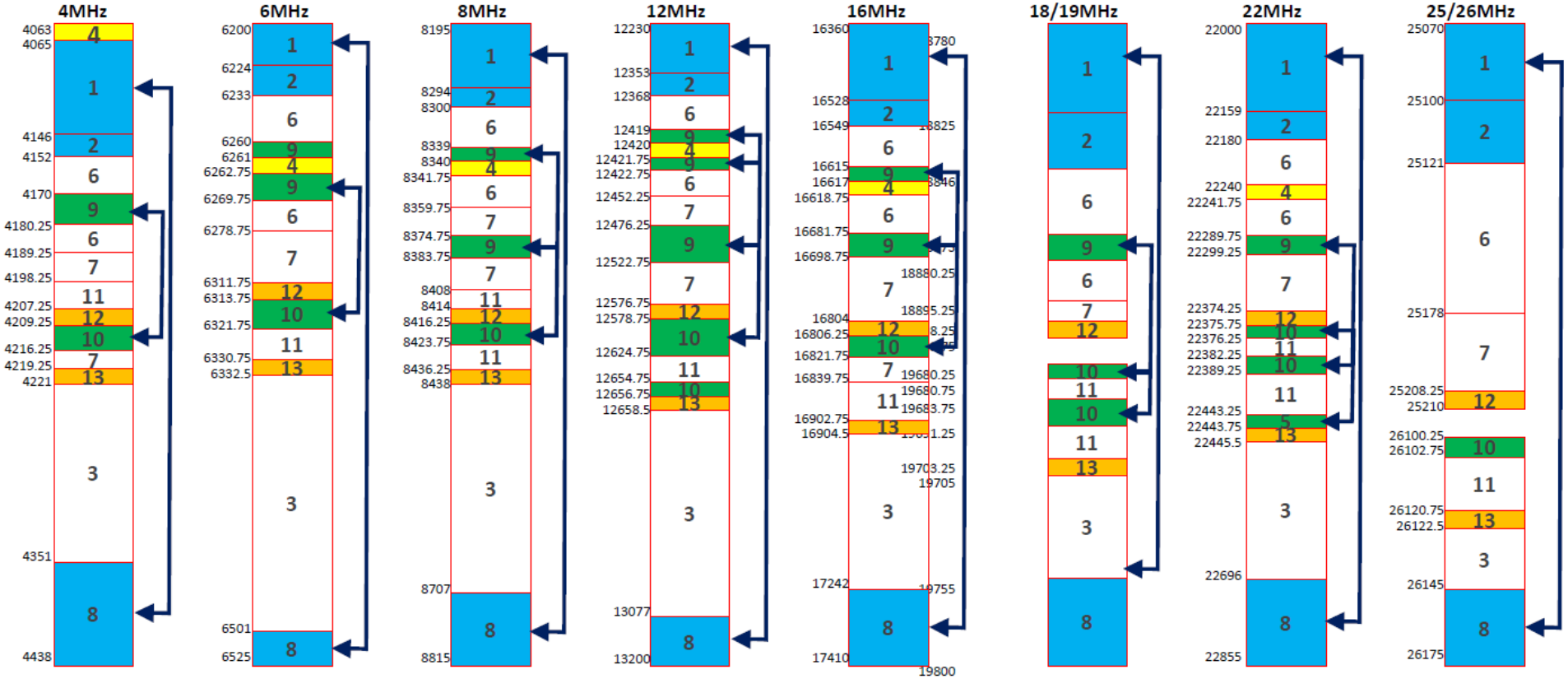
- Total number of records in MIFR for review: **51 381**
- Number of administrations concerned by review: **146**
- Number of assignment sent to administrations: **44 994**
- Administrations have reviewed about **82%** of assignments
- Based on decisions of administrations or BR's proposals in absence of reply, there was a need to modify **18 516** findings and suppress **2 594** assignments
- Frequency assignments with revised findings were published in Part 2B of **BR IFIC 2950** on **13.07.2021** (revised findings were indicated in Information Note to this BR IFIC).

RR requirements in the bands governed by AP17

Frequency bands between 4 000 and 27 500 kHz

Frequency bands (kHz)	Mode of communication	Permitted classes of emission	Power limitations		Remarks Provisions of RR
			Coast station	Ship station	
Exclusive 4 063-4 438 6 200-6 525 8 195-8 815 12 230-13 200 16 360-17 410 18 780-18 899.75 19 680.25-19 800 22 000-22 855 25 070-25 210 26 100.25-26 175	RTF, duplex	J3E, J2D	10 kW	1.5 kW	RR52.177, RR52.217, RR52.219, RR52.220
	RTF, simplex	J3E, J2D	1 kW	1.5 kW	RR52.177, RR52.217, RR52.227, RR52.220
	RTG wide-band, FC	All RTG except A2A, A2B	5/10/15 kW (2.5 kW per 500 Hz)		RR52.171, RR52.172
	RTG, NBDP, paired, FC + MS	F1B (J2B, J2D)	5/10/15 kW		RR52.104
	RTG, NBDP, non-paired	F1B (J2B, J2D) (A1A*)	5/10/15 kW		RR52.104
	RTG Morse, calling, MS	A1A (A1B, J2A, J2B, J2D)			
	RTG Morse, working MS	A1A (A1B, J2A, J2B, J2D)			
	DSC (FC, MS)	F1B, J2B, J2D	5/10/15 kW	1.5 kW	RR52.143, RR52.144
	Oceanographic data transmission	A1A, F1B, J2B, J2D, etc.			
	Data transmission	J2D or others in Rec. ITU-R M.1798	10 kW	1.5 kW	RR52.265, RR52.266
Non-exclusive	RTG	-	DSC: 5/10/15 kW	DSC: 1.5 kW	RR52.143, RR52.144
	RTF	J3E, J2D	10 kW	1.5 kW	RR52.177, RR52.217, RR52.219, RR52.220

Practical considerations – case of radiotelephony (1)



1 Radiotelephony (MS, duplex)

2 Radiotelephony (MS, FC, simplex)

3 wide-band data transmission

4 oceanographic data transmission (OGD)

5 narrowband direct-printing (NBDP) (FC, non-paired)

6 data transmission (MS)

7 data transmission (MS, FC)

8 Radiotelephony (FC, duplex)

9 narrowband direct-printing (NBDP) (MS, paired and non-paired)

10 narrowband direct-printing (NBDP) (FC, paired and non-paired)

11 data transmission (FC)

12 digital selective calling (DSC) (MS)

13 digital selective calling (DSC) (FC)

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Practical considerations – case of radiotelephony (2)

- Radiotelephony (MS, duplex) – meet the requirements 1-6 below:

AP17, PART A (Table of subdivided bands)

Band (MHz)	4	6	8	12	16	18/19	22	25/26
Limits (kHz)	4 065	6 200	8 195	12 230	16 360	18 780	22 000	25 070
Frequencies assignable to ship stations for telephony, duplex operation *a) i) t)*	**4 066.4** to **4 144.4** *27 f. 3 kHz*	**6 201.4** to **6 222.4** *8 f. 3 kHz*	**8 196.4** to **8 292.4** *33 f. 3 kHz*	**12 231.4** to **12 351.4** *41 f. 3 kHz*	**16 361.4** to **16 526.4** *56 f. 3 kHz*	**18 781.4** to **18 823.4** *15 f. 3 kHz*	**22 001.4** to **22 157.4** *53 f. 3 kHz*	**25 071.4** to **25 098.4** *10 f. 3 kHz*
Limits (kHz)	4 146	6 224	8 294	12 353	16 528	18 825	22 159	25 100

Part A Application	Part B Section	Requirements	Findings	Finding Observ.	Finding Reference
SSB telephony	Section I Sub-sec A	1. AP17/A (frequency is within the band group, SSB telephony channel space (3 kHz) and station class (MS)	N - -	-	X/AP17/A
		2. AP17B-I (SSB telephony frequency)			X/AP17/B-I
		3. RR52.217 (SSB telephony emission class = J2D or J3E)			X/RR52.217
		4. RR52.177 (SSB telephony carrier separation = 1400 Hz) for emission class J2D or J3E			X/RR52.177
		5. RR52.220 (SSB telephony power P(X) <= 31.8 dBW) for MS with emission class of J2D or J3E			X/RR52.220
		6. AP25/II (SSB telephony allotment plan),			
		if above requirements 1-5 are met	AN-	-	X/AP25/II
		if above requirement (1-5) is not met	N - -	-	X/AP25/II
		(If above requirement is met)	AA -	-	-
		7. AP17/A Note t)	AA -	R	AP17/A

Sub-Section A

Table of single-sideband transmitting frequencies (kHz) for duplex (two-frequency) operation

Channel No.	4 MHz band			
	Coast stations		Ship stations	
	Carrier frequency	Assigned frequency	Carrier frequency	Assigned frequency
	4 065	4 066.4		
	4 068	4 069.4		
	4 071	4 072.4		

25/2 Section II – Allotment Plan for coast radiotelephone stations operating in the exclusive maritime mobile bands between 4 000 kHz and 27 500 kHz[1]

Column 1	Column 2	Column 3
Assigned frequency (carrier frequency) (channel number)	Allotment area[2]	Observations[3]

1	2	3
4 358.4 **(4 357)** (401)	AFS AUS CHL CKH	ADD

1	2	3
	IRN J KAZ MDG	

1	2	3
(404)	B CHL SO CHN COG	

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Practical considerations – case of radiotelephony (3)

- Radiotelephony (FC, duplex) – meet the requirements 1-6 below:

Part A Application	Part B Section	Requirements	Findings	Finding Observ.	Finding Reference
SSB telephony	Section I Sub-sec A	1 - AP17/A (frequency is within the band group and within the assignable frequency range, telephony, channel space (3 kHz) and station class FC and FP	N - -	-	X/AP17/A
		2 – AP17B-I (SSB telephony frequency)			X/AP17B-I
		3 - RR52.217 (SSB telephony emission class = J2D or J3E)			X/RR52.217
		4 – RR52.177 (SSB telephony carrier separation RR52.177) for emission class of J2D or J3E			X/RR52.177
		5 - RR52.219 (SSB telephony power P(X) <= 40 dBW for FC for emission class of J2D or J3E			X/RR52.219
		6 - AP25/II (SSB telephony allotment plan), if above requirements 1-5 are met (check according to AP25 Plan)	AN –	-	X/AP25/II
		(If above requirement is met)	AA -	-	-
		7 - AP17/A Note t)	AA -	R	AP17/A

Practical considerations – case of radiotelephony (4)

- Radiotelephony (MS, FC, simplex) – meet the requirements 1-5 below:

Part A Application	Part B Section	Requirements	Findings	Finding Observ.	Finding Reference
SSB telephony	Section I Sub-sec B	1 - AP17/A (frequency is within the band group, SSB telephony channel space (3 kHz) and station class 2 – AP17B-I (SSB telephony frequency) 3 - RR52.217 (SSB telephony emission class = J2D or J3E) 4 - RR52.177 (SSB telephony carrier separation = 1 400 Hz) for emission class = J2D or J3E 5 - RR52.227 (SSB telephony power P(X) <= 30 dBW) for FC and MS with freq_carr 12.359 MHz and 16.537 MHz (See RR52.221A) and 31.8 dBW for MS with other frequencies (RR52.220).	**RoP on No. 11.14:** *"… the following categories are **not to be notified** to the Bureau:* *Worldwide frequencies for use by ship and coast SSB radiotelephone stations by simplex (single-frequency) operation and for intership cross-band (two-frequency) operation (frequencies indicated in Part B, Section I, Sub-Section B of Appendix **17**)"*		

Practical considerations – case of radiotelephony (5)

Exercise: What are the reasons of unfavorable findings in following Tables?

No.	Assigned Frequency, MHz	Class of Station	Class of Emission	Bandwidth Code	Carrier Frequency, MHz	Power Type	Power to Antenna, dBW	Finding	Finding Reference	Findings Remark
1.	4,3674	MS	J3E--	2K80	4,366	X	22	N - -	X/AP17/A	X/RR11.31, SFF/X/RR11.36, Return to ADM
2.	4,3588	FP	J3E--	2K80	4,3574	X	32	N - -	X/AP17B-I	X/RR11.31, SFF/X/RR11.36, Return to ADM
3.	12,3345	FC	J3E--	2K80		X	29	N - -	X/AP17/A, X/RR52.177	X/RR11.31, SFF/X/RR11.36, Return to ADM
4.	8,2634	MS	R3E--	2K80	8,262	X	30	N - -	X/AP17B-I, X/RR52.217	X/RR11.31, SFF/X/RR11.36, Return to ADM
5.	12,3154	MS	J3E--	2K80	12,314	X	32	N - -	X/RR52.220	X/RR11.31, SFF/X/RR11.36, Return to ADM

No.	Notifying Adm.	Assigned Frequency, MHz	Class of Station	Class of Emission	Bandwidth Code	Carrier Frequency, MHz	Power Type	Power to Antenna, dBW	Channel No.	AP25 allotment area	Finding	Finding reference	Findings Remark
6.	LTU	22,0314	MS	J3E--	2K80	22,03	X	31,8	2211	CHN, CUB, DNK, I, J, S, UKR	AN-	X/AP25/II	X/RR11.34, SFF/X/RR11.39, Return to ADM

Thank you!

ITU – Radiocommunication Bureau

Questions to brmail@itu.int or brfmd@itu.int