Terrestrial Workshop Presentation
FXM Exercises – WRS - 16

BR/TSD/TPR

International Telecommunication Union

Overview of the notification workshop: Fixed and Mobile Services

- General guidelines on the preparation of notices for the Fixed and Mobile Services
  - Multiple links
  - Additional data items for some radiocommunication services
  - Reference documents for notification
- Exercises

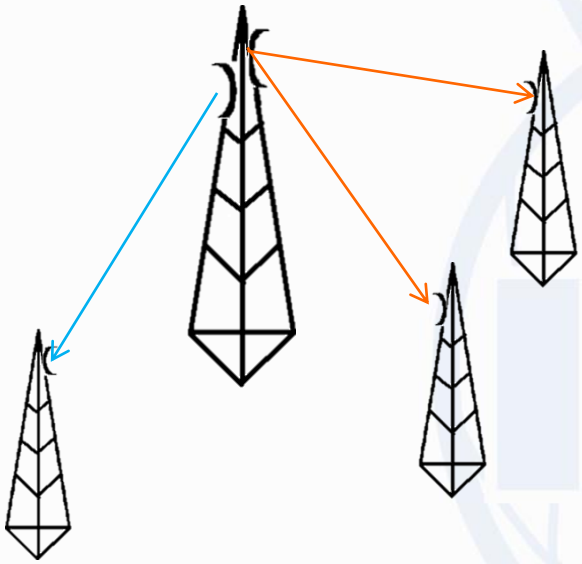
Guidelines on the preparation of notices: Fixed and Mobile Services

- Frequency assignment is uniquely identified by its:
  - Frequency, Geographical Coordinates, Class of station, Designation of emission (Class of emission and Bandwidth code) and Operating hours;
  - Unique identification code given by the administration.
- Each notices shall be complete and validated before submitting to the Bureau:
  - Online validation

http://www.itu.int/ITU-R/terrestrial/OnlineValidation/Login.aspx

  - Incomplete notices are returned to the notifying administration

Multiple links



One Antenna with two receiving stations

One Antenna with one receiving station

How to notify a transmitting station with several links?

All the transmitting links originating from the same transmitter (same identifying elements) shall be notified in **one** notice.

Additional data items for some radiocommunication services

- Call sign or station Identification is mandatory for:
  - fixed service in the bands below 28 MHz;
  - safety services (aeronautical, maritime, etc.);
- Call Sign if provided shall be in conformity with the Article 19, section III of RR and Appendix 42 to RR;

http://www.itu.int/en/ITU-R/terrestrial/fmd/Pages/identifications.aspx

- For frequency assignments that fall within bands shared on an equal basis with space services, the following data items are mandatory:
  - Elevation angle;
  - Antenna height;
  - Altitude of site above sea level;
  - Polarization;
  - The radiated power and maximum antenna gain shall be notified in isotropical values.

Reference documents for notification

- Guidelines and examples of different FXM notice types:

  http://www.itu.int/en/ITU-R/terrestrial/tpr/Pages/FXMNotices.aspx#FXMNotices

- Preface to the BR IFIC

  http://www.itu.int/en/ITU-R/terrestrial/brific/Pages/default.aspx

- For the workshop, the following documents are needed:
  - Fixed and Mobile notification exercises
  - Necessary bandwidth and class of emission
  - Class of stations

    http://www.itu.int/en/ITU-R/terrestrial/workshops/WRS-16/Pages/default.aspx

  - TerRaNotices

Exercises

➢ FXM 01: Fixed service (point-to-point)

Prepare an electronic notice of frequency **22.10250 GHz** used for the operation of **fixed** link based on the information below, for its recording in the **Master Register**.

To prepare this notice we will use the "Wizard" functionality of TerRaNotices and we will select the administration of **Belgium (BEL)** as the notifying administration and "**FX**" for class of station

A point to point **micro wave link** in the **fixed service**:

T11 Notice Type
Class of station: FX

Exercises

Class of Emission	**D7W--**
Bandwidth	3.5 MHz
Transmitting antenna site name	SAINT-HIBERT
Coordinates of the transmitting antenna site	5°22'50"E - 50°02'40"N
Nature of service	“Public correspondence” - Preface Chapter IV, Section 7
Date of bringing into use	Max. 3 months in advance
Address code	Preface Chapter IV, Section 3
Antenna	
Antenna directivity	Directional
Beamwidth	0.3°
Azimuth of maximum radiation	112°
Effective radiated power	31.2 dBW
Power delivered to the antenna	-11.5 dBW
Maximum Gain relative to a half wave dipole	26.3 dB
Name of the location of the receiving station	BOUILLON
Coordinates of the receiving station	5°05'28"E - 49°49'49"N

Exercises

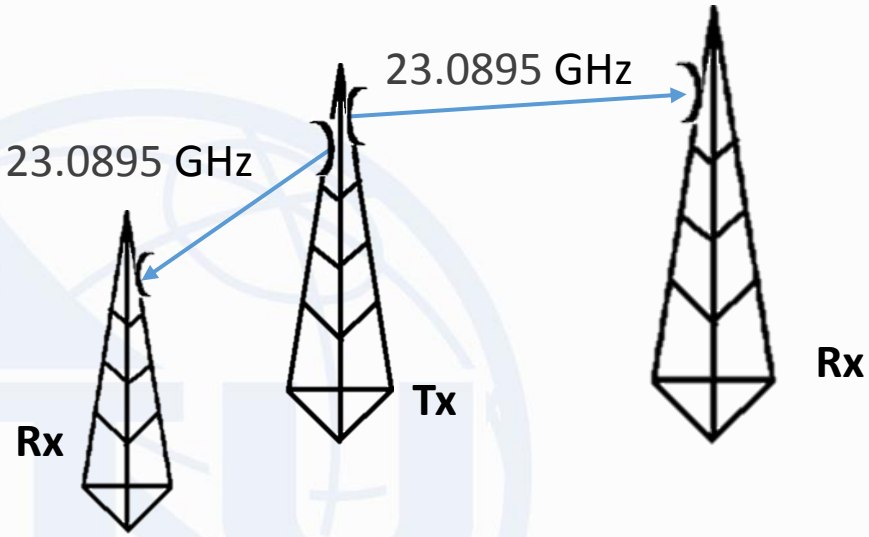
- **FXM 02: Fixed service (Point-to-Multipoint) in shared bands**

Prepare an electronic notice of frequency **23.0895 GHz**, which falls within the bands shared on equal basis with the space services, used for the operation of two **fixed** links based on the information below, for its recording in the **Master Register**.

The two links are originating from the same transmitting station associated with two antennas.

To prepare this notice we will use the "New File" functionality of TerRaNotices and the functionality to add many antennas to a single notice. We will select the administration of **Lithuania (LTU)** as the notifying administration.

As the assigned frequency falls within the bands shared on equal basis with space services, the following fields are mandatory: Altitude of site above sea level, Height of Antenna above ground level, Elevation angle and Polarization.



Article 5:

22.55 -23.15 FIXED
INTER-SATELLITE 5.338A
MOBILE
SPACE RESEARCH (Earth-to-space) 5.532A

A point to multipoint **micro wave link** in the **fixed service in shared bands**:

→ T11 Notice Type
Class of station: FX

Exercises

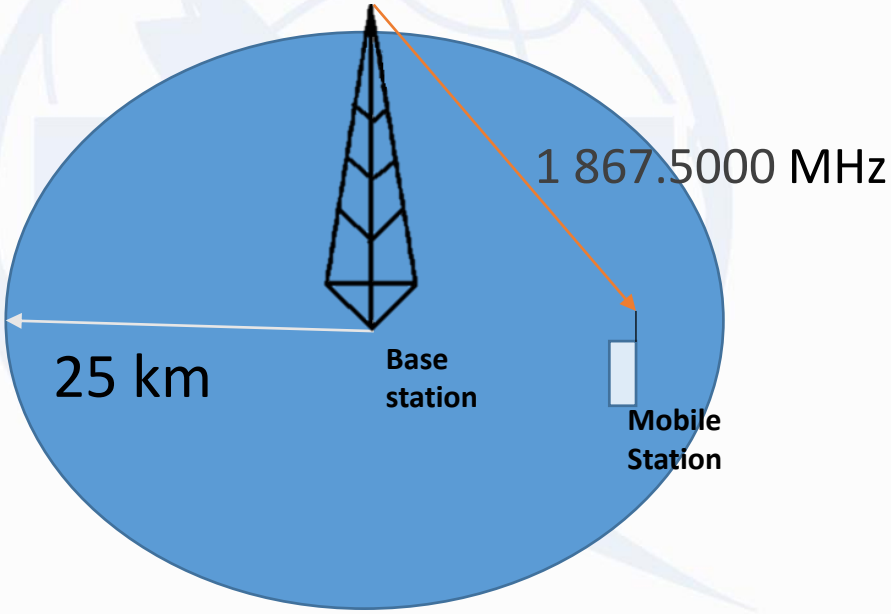
Class of Emission	**D7W**
Bandwidth	7 MHz
Transmitting antenna site name	SIAULIAI TILZES
Coordinates of the transmitting antenna site	23°18'33"E - 55°55'44"N
Altitude of site above sea level	129 m
Nature of service	“Public correspondence” - Preface Chapter IV, Section 7
Date of bringing into use	Max. 3 years in advance
Address code	Preface Chapter IV, Section 3
Antenna 1	
Height of the Antenna above ground level	27 m
Antenna directivity	Directional
Azimuth of maximum radiation	174°
Beamwidth	3°
Polarization	Vertical
Elevation angle	0.3°
Maximum antenna gain relative to isotropic antenna	35.4 dBi
Equivalent isotropically radiated power	25.4 dBW
Power delivered to the antenna	-10 dBW
Name of the location of the receiving station	SIAULIAI ENERGETIKU
Coordinates of the receiving station	23°19'25"E - 55°51'15"N
Antenna 2	
Height of the Antenna above ground level	27 m
Antenna directivity	Directional
Azimuth of maximum radiation	242°
Beamwidth	3°
Polarization	Horisontal
Elevation angle	-0.6°
Maximum antenna gain relative to isotropic antenna	34.8 dBi
Equivalent isotropically radiated power	24.8 dBW
Power delivered to the antenna	-10 dBW
Name of the location of the receiving station	SIAULIAI JABLOKNSKO
Coordinates of the receiving station	23°16'57"E - 55°55'16"N

Exercises

➢ FXM 03: Land mobile service (point-to-area/area-to-point)

1/ Prepare an electronic notice file of frequency **1 867.5000 MHz** assigned to a **base station** having a circular receiving area of a radius of 25 km for the Administration of **Egypt EGY**, for its recording in the **Master Register**.

1) Land station in the Land mobile service (Base station)



A point to area in the Land mobile service:

→ T12 Notice Type
Class of station: FB

Exercises

➢ FXM 03: Land mobile service (point-to-area/area-to-point)

Bandwidth	5 MHz
Class of emission	G7W--
Transmitting antenna site name	SHARM EL SHEIK
Location of transmitting station	34°23'37"E - 28°01'55"N
Nature of service	“Exclusively to operation traffic”- Preface Chapter IV, Section 7
Date of bringing into use	Max. 3 months in advance
Address code	Preface Chapter IV, Section 3
Effective radiated power	30 dBW
Maximum Gain relative to a half wave dipole	15 dB
Antenna directivity	Directional
Azimuth of maximum radiation	202°
Beamwidth	120°

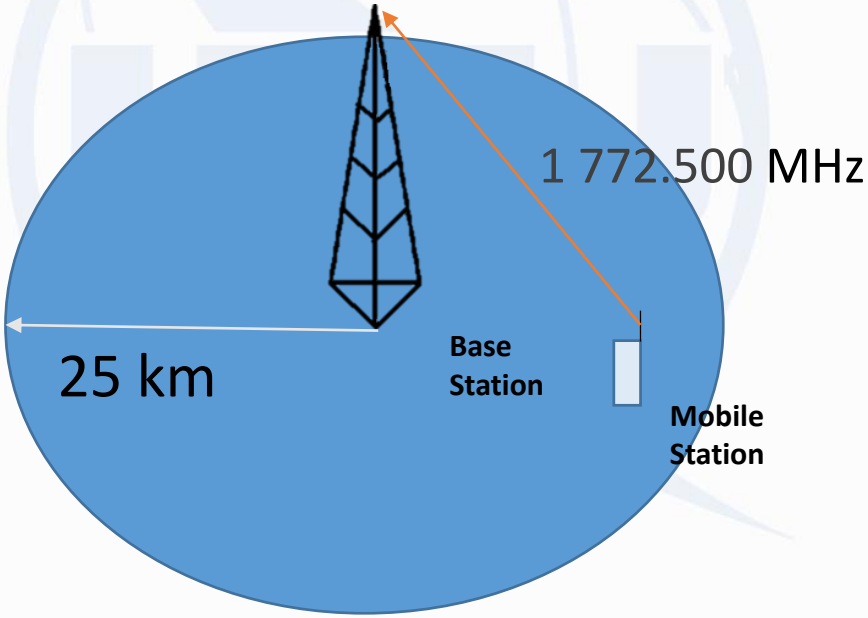
To prepare these notices we will first use “New File” functionality of TerRaNotices and then we will use “Insert new notice”. This functionality enables to have more than one notice in a file.

Exercises

➢ **FXM 03: Land mobile service (point-to-area/area-to-point)**

2/ Prepare an electronic notice file of frequency **1 772.500 MHz** assigned to the associated receiving **land mobile station** (handset) of the above base station, for its recording in the **Master Register**.

2) Mobile station in the land mobile service (Handset)



An area to point in the Land mobile service:

T13 Notice Type
Class of station: ML

Exercises

➢ FXM 03: Land mobile service (point-to-area/area-to-point)

Bandwidth	5 MHz
Class of emission	G7W--
Name of the location of the receiving station	SHARM EL SHEIK
Coordinates of the receiving station	34°23'37"E - 28°01'55"N
Nature of service	“Exclusively to operation traffic”- Preface Chapter IV, Section 7
Date of bringing into use	Max. 3 months in advance
Address code	Preface Chapter IV, Section 3
Radius	25 km
Effective radiated power	10 dBW
Antenna directivity	Omnidirectional

To prepare these notices we will first use “New File” functionality of TerRaNotices and then we will use “Insert new notice”. This functionality enables to have more than one notice in a file.

Exercises

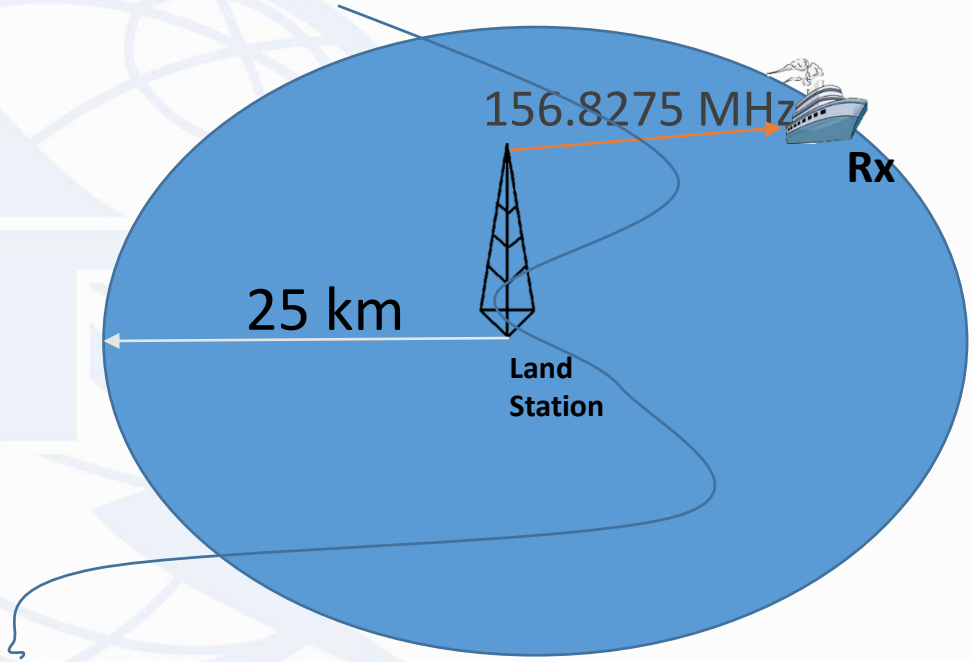
- **FXM 04: Maritime mobile Service (point-to-area)**

Prepare an electronic notice, for the recording in the Master Register of frequency **156.8275 MHz** assigned to a **coast station** open exclusively to correspondence of a private agency situated in **CHINA (CHN)** having a circular receiving area of a radius of 25 km.

For coast stations, “Call sign” or “Station identification” is mandatory. Station identification can be composed of any printable character (max. 20). However, if Call sign is notified then it shall be in conformity with the provisions of Article 19 and Appendix 42.

To prepare this notice we will use “New File” functionality of TerRaNotices.

Land station in the maritime mobile service



A point to area in the Maritime mobile service:

→ T12 Notice Type
Class of station: FC

Exercises

➢ **FXM 04: Maritime mobile Service (point-to-area)**

Bandwidth	**16 kHz**
Class of emission	F3E--
Transmitting antenna site name	DANDONG
Coordinates of the transmitting antenna site	124°22'26"E - 40°07'04"N
Call sign	XSB33
Nature of service	“Exclusively to correspondence of a private agency”- Preface Chapter IV, Section 7
Date of bringing into use	Max. 3 months in advance
Address code	Preface Chapter IV, Section 3
Power delivered to the antenna	12 dBW
Maximum Gain relative to a half wave dipole	7 dB
Effective radiated power	19 dBW
Antenna directivity	Omnidirectional

Exercises

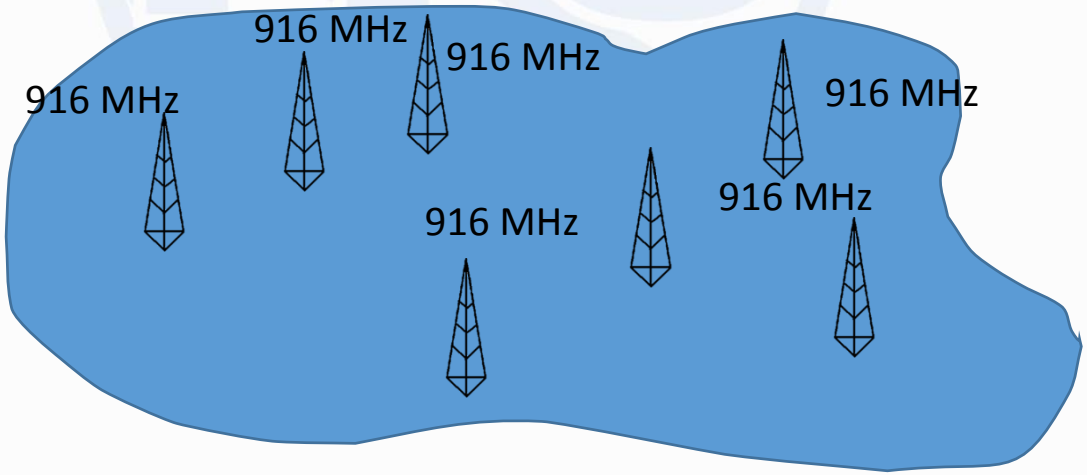
➢ FXM 05: Typical transmitting station

Prepare an electronic notice, for the recording in the Master Register of frequency **916 MHz** used by **several base stations** in your country using the information below.

Frequency assignments having the same technical characteristics operating within a given area can be notified in a single notice as a typical transmitting station under (RR.11.17). This provision does not apply to all service types (see RR 11.18-11.21B)

To prepare this notice we will use the “Wizard” functionality of TerRaNotices.

Several **base stations** using the same frequency and the same technical parameters in your country



T14 Notice Type
Class of station: FB

Exercises

➢ FXM 05: Typical transmitting station

Necessary Bandwidth	200 kHz
Class of emission	G7W--
Transmitting geographical area	Enter the country code to notify
Nature of service	“Official correspondence exclusively” - Preface Chapter IV, Section 7
Date of bringing into use	Max. 3 months in advance
Address code	Preface Chapter IV, Section 3
Power to the antenna	10 dBW
Radiated Power	25 dBW

Exercises

➢ FXM 06: Modify a frequency assignment

Prepare an electronic notice to modify a frequency assignment which is already recorded in the **Master register**.

For this exercise, we will select the Administration of **France (F)** as the notifying administration, and Unique identification code given by Administration **817801** to modify the assigned frequency **445.625 MHz** to **445.475 MHz**

To prepare this notice we will use “Open a Notice from the database ” functionality of TerRaNotices.

Exercises

- **FXM 07: Validating and identifying errors of a frequency assignment notice using TerRaNotices**

Validate and identify the errors of the electronic notice file “FXM07_with error.txt”.

To Validate and identify errors of a notice file, we will use “Open file” and “Validate Notice” functionalities of TerRaNotices.

Exercises

➢ FXM 08: Validating the file with frequency assignment notices

Validate the electronic notice file “FXM 08_OnlineVal.txt” using the web online validation tool. This validation tool is accessible to **all TIES users** from the ITU web site at **http://www.itu.int/ITU-R/terrestrial/OnlineValidation/Login.aspx**.

Thank you for your attention!

ITU – Radiocommunication Bureau

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