

ITUEvents

# ITU Seminar on Radiocommunication Matters for Europe

24 - 26 June 2019  
Tirana, Albania

[www.itu.int/go/ITU-R/SRME-19](http://www.itu.int/go/ITU-R/SRME-19)



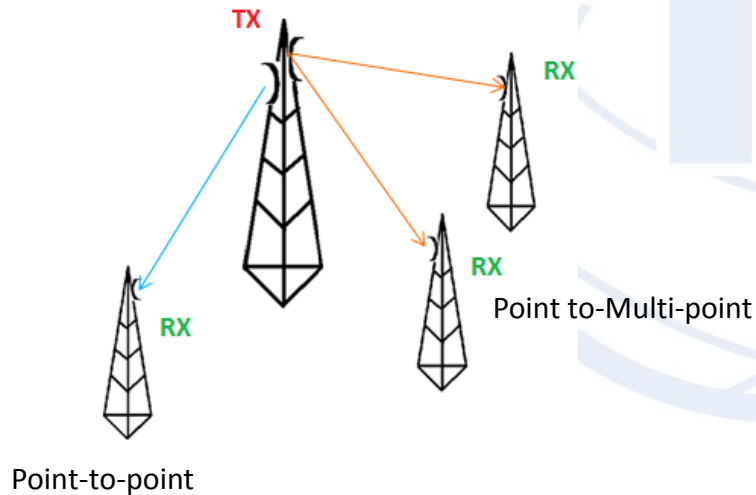
## Terrestrial Workshop SRME – 19 Albania Notification for Fixed and Mobile : Exercises



# Services (1/2)

## Fixed service:

*a radiocommunication service between specified fixed points RR1.20*



Examples of notification received:

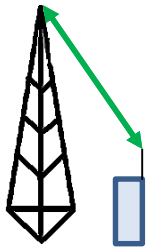
- Radio relay
- Fixed wireless

## Services (2/2)

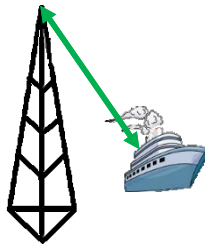
### Mobile service:

*a radiocommunication service between mobile and land stations, or between mobile stations RR1.24*

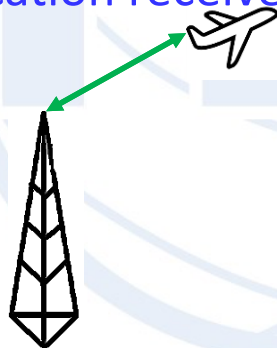
Examples of types of notification received:



Land mobile

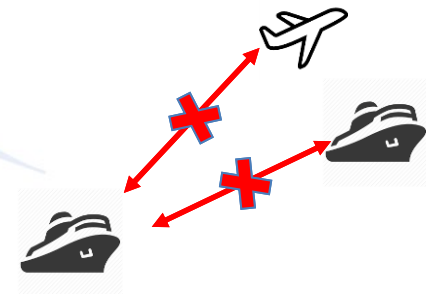


Maritime mobile



Aeronautical mobile

Shall not be notified in accordance with RR 11.13 and RR 11.14



# General guidelines on the notification process (1/2)

## Notice type depends on the Class of Station

Notice type		Class of station
<b>T11</b>	Terrestrial Transmitting Station (TX) in Fixed Service	FX
<b>T12</b>	Terrestrial Transmitting Station (TX)	<i>Mobile:</i> FA, FB, FC, FD, FG, FL, FP and OE <i>Radiodetermination:</i> LR, RN, NL and AL <i>Meteorological aids:</i> SM
<b>T13</b>	Terrestrial Receiving Land Station (RX)	<i>Mobile:</i> MA, ML, MO, MS and OD <i>Radiodetermination:</i> MR, NR, RM and AM <i>Meteorological aids:</i> SA
<b>T14</b>	Terrestrial Typical Transmitting Station (TX)	As for T11 and T12 notice type

**Note:** Description of Class of station can be found in the Preface to the BR IFIC, Chapter IV, Section 6

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# General guidelines on the notification process (2/2)

## Creation and Validation of notices

### ➤ TerRaNotices

BR provides it with BRIFIC DVD



### ➤ Online Validation

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

# Reference documents for notification

- Guidelines and examples of different notice types;

<http://www.itu.int/en/ITU-R/terrestrial/td/Pages/Notification.aspx>

- Preface to the BR IFIC;

<http://www.itu.int/en/ITU-R/terrestrial/td/Pages/BR-IFIC.aspx>



- Radio Regulations

<https://www.itu.int/060/R-REG-RR/en/>



- Rules of Procedures

<https://www.itu.int/060/R-REG-ROP/en/>



# Notice Structure (1/2)

## ➤ Transmitting Stations (T11, T12, T14)

The image displays two screenshots of the TerRaNotices 12 (PROD) software interface, illustrating the structure of notices for transmitting stations (T11, T12, T14).

**Left Screenshot (T11):** Shows the 'Operations' tab for a transmitting station. The interface includes fields for Emission characteristics (1A/Assigned frequency, 7A/Bandwidth, 7A/Class of emission, 120/Hours of operation (UTC), 6A/Class of station, 6B/Nature of service, 7E/Frequency deviation, 7F/Energy spectral, 2C/Date of bringing into use) and Station information (3A/Cell signs, 3A2/Station identification, 4A/Location of the transmitting station, 4B/Geographic area, 4C/Longitude, 4D/Latitude, 5A/Altitude of site above sea level). A large blue arrow points to the 'Administrative and technical information of the transmitting station' section.

**Right Screenshot (T12):** Shows the 'Antenna(s) characteristics' and 'Location of the receiving station(s)' sections for a transmitting station. The 'Antenna(s) characteristics' section includes fields for 8/Type of power, 8A/Power to the antenna, 8B/Radiated power, 8AB/Maximum power density, 5G/Maximum length of the circuit, 9/Max. gain, 9B/Elevation angle, 9C/Directivity of the antenna, 9D/Beamwidth, 9E/Polarization code, 9F/Height above ground level, and 9J/Reference antenna. The 'Location of the receiving station(s)' section includes a 'Coordinates' field. A large blue arrow points to the 'Antenna(s) characteristics of the transmitting station' section, and another large blue arrow points to the 'Location of the receiving station(s)' section.

# Notice structure (2/2)

## ➤ Receiving Station (T13)

**Administrative and technical information of the receiving station**

**Antenna(s) characteristics of the receiving station**

**Location of the transmitting station**

The screenshots show the TerRANotices 1.2 (PRO) software interface. The left window displays the 'Assignment characteristics' and 'Station information' sections. The right window displays the 'Antenna(s) characteristics of the receiving station' section, which is highlighted in red, and the 'Location of the transmitting station' section, also highlighted in red. The interface includes various fields for configuration, such as 'Assigned Frequency', 'Reference carrier', 'Designation of emission', 'Hours of operation', 'Class of station', 'Nature of service', 'Geographic area', 'Longitude', 'Latitude', 'Operating agency', 'Address code', and 'Available administrations'. The 'Antenna(s) characteristics' section includes fields for 'Power', 'Type of power', 'Power to the antenna', and 'Radiated power'. The 'Location of the transmitting station' section includes fields for 'Area(s) of the transmitting stations'.



# Identifying items for *Fixed and Mobile Stations*

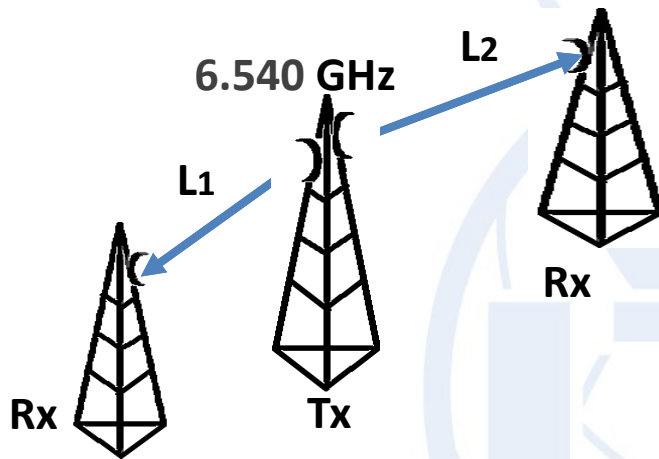
AP4	Description of a data item	Data item	Example
<b>1A</b>	<b>Assigned frequency</b>	<b>t_freq_assgn</b>	t_freq_assgn=4979.000000
<b>4C</b>	<b>Geographical Coordinates</b>	t_long t_lat	t_long=-0082524 t_lat=+425404
<b>6A</b>	<b>Class of station</b>	<b>t_stn_cls</b>	t_stn_cls=FX
<b>7AB</b>	<b>Bandwidth code</b>	<b>t_bdwidth_cde</b>	t_bdwidth_cde=4M00
<b>7A</b>	<b>Emission class</b>	<b>t_emi_cls</b>	t_emi_cls=D7W--
<b>10B</b>	<b>Hours of operation</b>	t_op_hh_fr t_op_hh_to	t_op_hh_fr=00:00 t_op_hh_to=24:00

and / or

AP4	Description of a data item	Data item	Example
<b>ID1</b>	<b>Unique Identification Code given by the administration</b>	<b>t_adm_ref_id</b>	t_adm_ref_id=FX_001

IMPORTANT: BR Assign ID and Site name are **NOT** identifying elements but they could be notified in the remarks field as additional information, in case of modification, suppression and/or withdrawal

# Example of Fixed station : point-to-multipoint



- L1 and L2 are originating from the same transmitter with identical technical characteristics (identifying elements are the same).
- This network configuration must be notified in ONE notice
- The assigned frequency **falls within the bands shared on equal basis with space services**

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## Example of Fixed station : Transmitting station details

- **Notice type (t\_notice\_type)** – depends on class of station ➤ T11
- **Notifying Administration (B, t\_adm)** – ITU symbol for adm ➤ BUL
- **Action (t\_action)** – The action to be taken for this notice: ADD, MODIFY, WITHDRAW or SUPPRESSION ➤ ADD
- **Provision (D, t\_prov)** determines the **Fragment (t\_fragment)** – For recording in Master Register (RR11.2) and for seeking agreement (RR9.21) ➤ RR11.2
- **Assigned Frequency (1A, t\_freq\_assgn)** – The transmitting frequency - Must be allocated to Fixed Service ➤ 6.540 GHz
- **Necessary bandwidth (7AB, t\_bdwidth\_cde)** – Width of the frequency band necessary to transmit the information. (Appendix 1, Section I of RR) ➤ 40M0
- **Class of emission (7A, t\_emi\_cls)** – The set of characteristics of an emission (Appendix 1, Section II A of RR) ➤ D7W—
- **Class of Station (6A, t\_stn\_cls)** – identify the type of service (Chapter IV, Section 6 of the Preface) ➤ FX

## Example of Fixed station : Transmitting station details

- **Nature of service (6B, t\_nat\_srv)** – indicate the type of service (Chapter IV, Section 7 of the Preface)
- **Date of bringing into use (2C, t\_d\_inuse)** – Exact date or foreseen date when the frequency assignment is brought into use. There are some limitation specified in RR11.24 – 11.26A
- **Name of the site where the transmitter is located (4A, t\_site\_name)** – name of locality or name under which the station is known to responsible organization
- **Geographical area (4B, t\_ctry)** – Must be within the jurisdiction of the notifying administration (Res.1)
- **Geo. coordinates of the transmitter (4C, t\_long, t\_lat)**
- **Altitude of the site above sea level (9EA, t\_site\_alt)** – Mandatory if the assignment is notified in the bands **shared** between terrestrial and space services with equal rights.
- **Address Code (12B, t\_addr\_code)** – Contact details of the responsible organ in case there are any issues with the assignment (Chapter IV, Section 3 of the preface).
- Public correspondence – CP
- In this case, Max. 3 year before
- PLOVDIV
- BUL
- 24°45'43"E - 42°8'27"N
- 156 m
- A

# Example of Fixed station : Antenna 1 details

- **Type of the power according RR 1.156 – 1.159 (8, t\_pwr\_xyz)** – depends on the *class of emission (Chapter IV, Section 8)* ➤ Y (mean power)
- **Power delivered to the antenna (8AA, t\_pwr\_ant)** – *Mandatory in the bands below 28 MHz and those that are shared between terrestrial and space services with equal rights.* ➤ -4 dBW
- **Equivalent isotropically radiated power and type (8B, t\_pwr\_dbw and t\_pwr\_eiv)** – *Mandatory in bands above 28 MHz. The type of radiated power in one of the forms described in Nos. 1.161 – 1.163 of the RR (e.i.r.p. - equivalent isotropically, e.r.p. - effective or e.m.r.p. - effective monopole).* ➤ 32.5 dBW, I
- **Maximum Antenna Gain relative to isotropic antenna and type (9G, t\_gain\_max and t\_gain\_type)** – *Mandatory, if the antenna is directional. For non-directional antenna, this data item is mandatory in the bands above 28 MHz if the radiated power is not notified.* ➤ 36.5 dBi, I
- **Polarization (9D, t\_polar)** – *Mandatory if the assignment is notified in the bands **shared** between terrestrial and space services with equal rights* ➤ Vertical

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## Example of Fixed station : Antenna 1 details

- **Elevation angle (9B, t\_elev)** – Mandatory if the assignment is notified in the bands **shared** between terrestrial and space services with equal rights ➤ 4°
- **Height of transmitting antenna above ground level (9E- t\_hgt\_agl)** – Mandatory if the assignment is notified in the bands **shared** between terrestrial and space services with equal rights terrestrial and space services with equal rights. ➤ 23m
- **Antenna direction (9, t\_ant\_dir)** ➤ D
- **Beamwidth (9C, t\_bmwidth)** – Mandatory for directional antennas ➤ 2.5°
- **Azimuth of maximum radiation (9A, t\_azm\_max\_e)** – The value is in degrees from True North for directional antennas ➤ 191°

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# Example of Fixed station : Receiving site details of the Antenna 1

- **Site name of receiving station (5A - t\_site\_name)** – *The name of the receiving station(s).* ➤ ZDRAVETS
- **Geographical Coordinates (5C - t\_long and t\_lat)** – *geographical area where the receiving site is situated* ➤ 24°43'19"E - 41°59'43"N
- **Geographical area where the receiving station is located (5B - t\_ctry)** - *ITU symbol designating the geographical area where the receiving station is located.* ➤ BUL

## Example of Fixed station : Antenna 2 and its Receiving site details

<b>9E</b>	Height of the Antenna above ground level	23 m
<b>9</b>	Antenna directivity	Directional
<b>9A</b>	Azimuth of maximum radiation	191°
<b>9C</b>	Beamwidth	2.5°
<b>9D</b>	Polarization	Horizontal
<b>9B</b>	Elevation angle	4°
<b>9G</b>	Maximum antenna gain relative to isotropic antenna	36.5 dBi
<b>8B</b>	Equivalent isotropically radiated power	32.5 dBW
<b>8AA</b>	Power delivered to the antenna	-4 dBW
<b>5A</b>	Name of the location of the receiving station	ZDRAVETS
<b>5B</b>	Coordinates of the receiving station	24°43'19"E - 41°59'43"N



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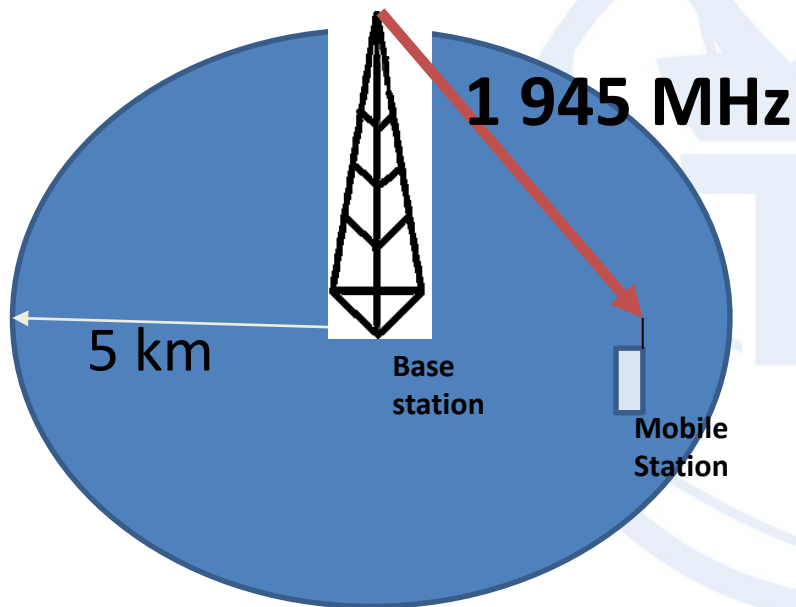
**Terrestrial Workshop SRME – 19**  
**Presentation FXM Exercises – Part 2**



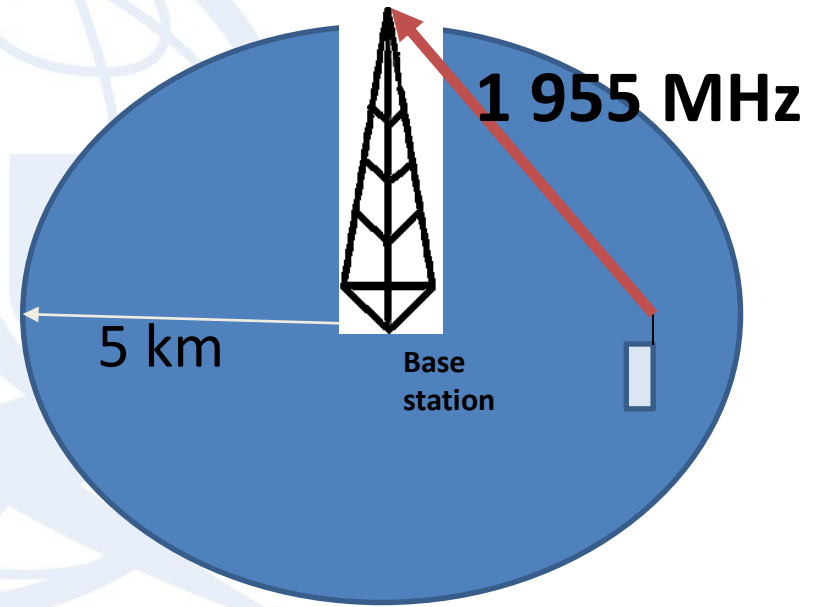
**EXERCISES**

## FXM 01: Land mobile service (point-to-area/area-to-point)

1. The link from **land** station to **mobile** station



2. The link from **mobile** station to **land** station



## FXM 01: Land mobile service (point-to-area/area-to-point)

1. Prepare an electronic notice file of frequency **1 945 MHz** assigned to a **base station** having a circular receiving area of a **radius of 5 km** for the Administration of **Albania, ALB**, for its recording in the **Master Register**.

<b>7AB</b>	<b>Bandwidth</b>	<b>5 MHz</b>
<b>7A</b>	<b>Class of emission</b>	<b>G9W--</b>
<b>4A</b>	<b>Transmitting antenna site name</b>	<b>TIRANA</b>
<b>4C</b>	<b>Coordinates of the transmitting station</b>	<b>19°49'07"E - 41°19'47"N</b>
<b>6B</b>	<b>Nature of service</b>	<b>"Exclusively to correspondence of a private agency"- Preface Chapter IV, Section 7</b>
<b>2C</b>	<b>Date of bringing into use</b>	<b>Max. 3 months in advance</b>
<b>12B</b>	<b>Address code</b>	<b>Preface Chapter IV, Section 3</b>
<b>8B</b>	<b>Effective radiated power</b>	<b>30 dBW</b>
<b>9G</b>	<b>Maximum Gain relative to a half wave dipole</b>	<b>15 dB</b>
<b>9</b>	<b>Antenna directivity</b>	<b>Omnidirectional</b>

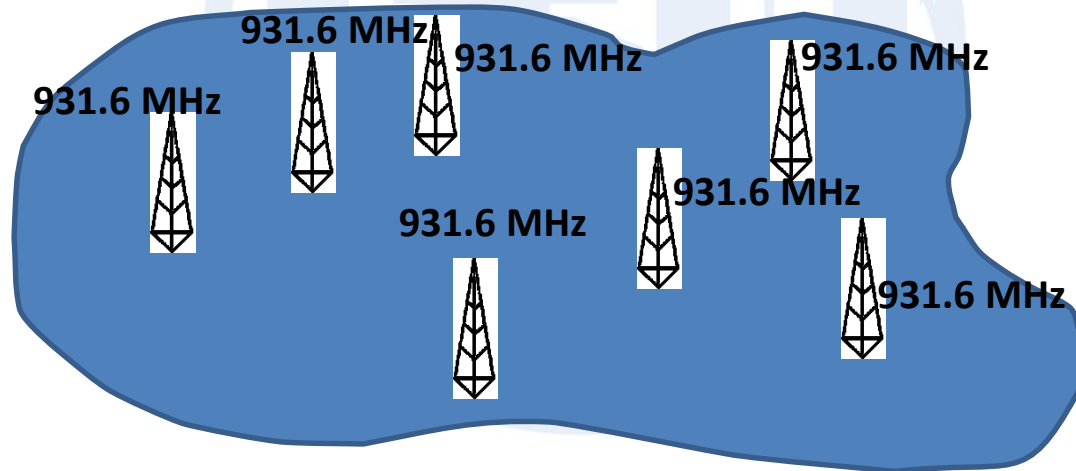
## FXM 01: Land mobile service (point-to-area/area-to-point)

2. Prepare an electronic notice file of frequency **1 955 MHz** assigned to the associated receiving **land mobile station** (handset) of the above base station, for its recording in the **Master Register**. Use the functionality “Insert new notice”

<b>7AB</b>	Bandwidth	5 MHz
<b>7A</b>	Class of emission	G9W--
<b>5A</b>	Name of the location of the receiving station	TIRANA
<b>5C</b>	Coordinates of the receiving station	19°49'07"E - 41°19'47"N
<b>6B</b>	Nature of service	“Exclusively to correspondence of a private agency”- Preface Chapter IV, Section 7
<b>2C</b>	Date of bringing into use	Max. 3 months in advance
<b>12B</b>	Address code	Preface Chapter IV, Section 3
<b>4D</b>	Radius	5 km
<b>8B</b>	Effective radiated power	12dBW

## FXM 02: Typical transmitting station (RR11.17)

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



## FXM 02: Typical transmitting station (RR11.17)

Prepare an electronic notice, for the recording in the Master Register of frequency **931.6 MHz** used by several base stations in your country using the information below.

*\*This provision does not apply to all service types (see RR 11.18-11.21B)*

<b>7AB</b>	Necessary Bandwidth	5 MHz
<b>7A</b>	Class of emission	G7W--
<b>4E</b>	Transmitting geographical area	Enter the country code to notify
<b>6B</b>	Nature of service	“Official correspondence exclusively” - Preface Chapter IV, Section 7
<b>2C</b>	Date of bringing into use	Max. 3 months in advance
<b>12B</b>	Address code	Preface Chapter IV, Section 3
<b>8A</b>	Power to the antenna	16 dBW
<b>8B</b>	Radiated Power	30 dBW
<b>9G</b>	Maximum Gain relative to a half wave dipole	14 dB

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## FXM03: Validating the file with frequency assignment notices

Validate the electronic notice file

“FXM 03\_OnlineVal.txt” using the web online validation tool.

*This file is available on terrestrial workshop.*

\*This validation tool is accessible with the **ITU login**

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

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## FXM 04: Modify a frequency assignment

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

- Notifying Administration – **Greece (GRC)**
- Unique identification code – **243/02**
- Modify the assigned frequency **446.7 MHz** to **453.7625 MHz**

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



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# FXM 05: Maritime mobile Service (point-to-area)

Prepare an electronic notice, for the recording in the Master Register of frequency **6.29225 MHz** assigned to a **coast station** open exclusively to correspondence of a private agency situated in **Croatia (HRV)** having a circular receiving area of a radius of 2300 km.

<b>7AB</b>	Bandwidth	8.8 kHz
<b>7A</b>	Class of emission	F7B--
<b>4A</b>	Transmitting antenna site name	SPLIT
<b>4C</b>	Coordinates of the transmitting antenna site	16°27'37"E - 43°30'04"N
<b>3A</b>	Call sign	9AR21
<b>6B</b>	Nature of service	"Official correspondence exclusively"- Preface Chapter IV, Section 7
<b>2C</b>	Date of bringing into use	Max. 3 months in advance
<b>12B</b>	Address code	Preface Chapter IV, Section 3
<b>8A</b>	Power delivered to the antenna	37 dBW
<b>9</b>	Antenna directivity	Omnidirectional

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**Thank you for your attention!**

ITU – Radiocommunication Bureau

Questions to [brmail@itu.int](mailto:brmail@itu.int) or [brtpr@itu.int](mailto:brtpr@itu.int)

