

Harmful interference (Terrestrial services)

ITU World Radiocommunication Seminar
2-6 December 2024, Geneva, Switzerland

Overview

- Introduction
- Measures against harmful interference
- Examples of cases of harmful interference
- BR assistance
- International monitoring
- Final remarks

Introduction

- Radio frequency spectrum, limited natural resource to which all countries have equal rights
- Some 40 services in the table of frequency allocations to be operated free of interference
- Various measures in ITU Constitution (CS), Radio Regulations (RR) against harmful interference

Measures against harmful interference (CS)



All stations must be established and operated in such a manner as not to cause harmful interference to the radio services or communications of other Member States which operate in accordance with RR (CS Art. 45, No 197)

Measures against harmful interference (RR)



Preamble

0.4 All stations must be established and operated in such a manner as not to cause harmful interference to the radio services or communications of other Members... (CS197)

Measures against harmful interference (RR)

Technical characteristics of stations (Art. 3)

- Choice and performance of equipment to be used in a station and any emissions therefrom shall satisfy RR provisions
- Transmitting stations shall conform to frequency tolerances in Appendix 2
- Transmitting stations shall conform to the maximum permitted power levels for unwanted emissions in Appendix 3
- To ensure compliance with RR, administrations shall arrange for frequent checks to be made of emissions of stations under their jurisdiction

Measures against harmful interference (RR)

General rules for assignments (Art. 4)

Assignments shall be made:

- in accordance with Table of Frequency Allocations (TFA) and other RR provisions
- to avoid causing harmful interference to stations using frequencies assigned in accordance with TFA and other RR provisions, recorded in Master Register
- no derogation of TFA or other RR provisions, except on condition that such a station shall not cause harmful interference or claim protection
- separated from the limits of the band allocated, no harmful interference to adjacent bands
- considering that safety aspects of radionavigation and other safety services require special measures to ensure their freedom from harmful interference

Measures against harmful interference (RR)

Frequency allocations Table (Art. 5)

- Common frequency allocations to mutually compatible services
- Regulatory/technical conditions (in footnotes)
- Primary and secondary services
 - Secondary service shall not cause harmful interference to primary services
 - Secondary service shall not claim protection from primary services
 - But can claim protection from the same or other secondary services
- Allocations subject to a plan or a coordination procedure

Measures against harmful interference (RR)

Status of frequency assignments (Art. 8)

- International rights and obligations of administrations in respect of their own and other administrations' frequency assignments shall be derived from the recording of those assignments in the Master Register
- Any frequency assignment recorded with a favourable finding shall have right to international recognition, other administrations shall take it into account when making their own assignments to avoid harmful interference
- A non-conforming assignment shall be recorded for information purposes

Measures against harmful interference (RR)

Coordination of frequency assignments (Art. 9)

- Coordination agreement with administrations before operating

Notification of frequency assignments (Art. 11)

Frequencies shall be notified

- if the assignment can cause harmful interference to services of another administration
- if used for international radiocommunication
- if subject to a frequency plan which does not have its own notification procedure
- if subject to the coordination procedure of Art. 9 or is involved in such a case
- if desired to obtain international recognition
- if a non-conforming assignment to be recorded for information

Measures against harmful interference (RR)

Interference from Radio Stations (Section I of Art. 15)

- All stations are forbidden to carry out unnecessary transmissions, or the transmission of superfluous signals...
- Transmitting stations shall radiate only as much power as is necessary to ensure a satisfactory service
- Special consideration shall be given to avoiding interference on distress and safety frequencies...

Measures against harmful interference (RR)

Reports of Infringements (Section V of Art. 15)

- Infringements shall be reported to the administration of the country having jurisdiction over the station using Appendix 9
- If an administration has information of an infringement (CS Art. 45, RR15.1) committed by a station under its jurisdiction, the administration shall ascertain the facts and take the necessary actions

Measures against harmful interference (RR)

Procedure in a case of harmful interference (Section VI of Art. 15)

- Goodwill and mutual assistance to resolve harmful interference
- Cooperation in the detection and elimination of harmful interference, employing where appropriate the international monitoring
- Case of harmful interference may be dealt with directly by monitoring stations or by direct coordination between operators
- Full particulars relating to harmful interference shall be given in Appendix 10

Measures against harmful interference (RR)

Procedure in a case of harmful interference (Section VI of Art. 15)

- On being informed that one of its stations cause of harmful interference, an administration shall, as soon as possible, acknowledge receipt of that information
- Such acknowledgement shall not constitute an acceptance of responsibility
- An administration informed that one of its stations is causing harmful interference to a safety service shall promptly investigate the matter and take remedial action
- If the steps taken have not produced satisfactory results, the administration shall forward details of the case to BR for its information
- In such a case, the administration concerned may also request assistance of BR

Examples of cases of harmful interference

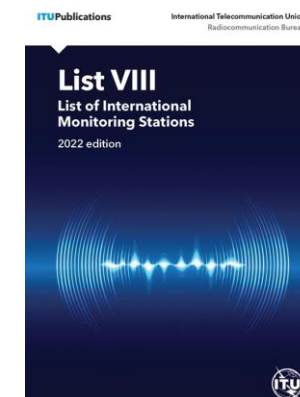
- No coordination: operation of non-coordinated frequency assignments
- Technical: spurious emissions, excessive transmitting power, etc.
- Regulatory: operations in bands not allocated, operations with different technical parameters, etc.
- Unauthorised emissions
- Unnecessary transmission, as described in RR15.1

BR assistance

- BR examines the Appendix 10 Report, status of the assignments, causes of the interference, etc.
- BR may also request cooperation of administrations participating in the International Monitoring System (IMS)
- BR will forward to the administrations its findings and recommendations
- If the interference persists, BR prepares a report to RRB
- If not resolved despite the RRB's action, the case may be reported to WRC

International monitoring (Art. 16)

- Article 16 contains provisions governing establishment and operation of the international monitoring system (IMS)
- Monitoring stations and centralizing offices are designated by administrations
- Characteristics of stations are published by BR in List VIII (List of International Monitoring Stations), Download free of charge at: <https://www.itu.int/pub/R-SP-LN/en>, Free online search from: <https://www.itu.int/mmsapp/MonitoringStation/list>
- BR prepares and publishes summaries of monitoring data, supplied by stations participating in IMS



Regular monitoring programme in HF bands

- Objectives:
 - Indicate spectrum occupancy
 - Identify stations whose emissions are not in conformity with RR
 - Share information with administrations not having HF monitoring facilities
- Submission
 - Data format and report submission procedure in CR/159 (2001)
- Summaries and full data at: <http://www.itu.int/en/ITU-R/terrestrial/monitoring/Pages/Regular.aspx>

Regular Monitoring Program in frequency bands between 2 850 kHz and 28 000 kHz



YOU ARE HERE [ITU](#) > [HOME](#) > [ITU-R](#) > [TERRESTRIAL SERVICES](#) > [MONITORING](#) > REGULAR MONITORING PROGRAM IN FREQUENCY BANDS BETWEEN 2 850 KHZ AND 28 000 KHZ

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The objective of the regular monitoring program in frequency bands between 2 850 kHz and 28 000 kHz is to:

- identify whose emissions are not in compliance with the Radio Regulations (RR);
- provide administrations that do not have monitoring facilities with information for frequency management purposes and to comply with No.3.14 of the RR;
- assemble information on spectrum utilization at the location of the monitoring stations and to derive thereafter how the spectrum is used;
- collect information, when required by Radiocommunication conference, on the use of the bands exclusively allocated to specific services (i.e. broadcasting, maritime, aeronautical) for consideration by the appropriate Radiocommunication Conferences

Monitoring stations participating in the International Monitoring System (IMS) send their reports to the Bureau via their designated centralizing office and in accordance with Article 16 of the RR, the Bureau records and publish periodically the summaries of monitoring information.

The monitoring reports should follow a specific [electronic data format](#), as defined in [BR Circular Letter CR/159](#) (dated 9 May 2001) and they should be sent to the Bureau by email to brmail@itu.int.


Latest SUMMARY REPORTS

Monitoring Period

Summary

Date of last update

01/07/24 - 30/09/24

383 


11/10/2024

01/04/24 - 30/06/24

382 

14/08/2024

01/01/24 - 31/03/24

381 

02/05/2024

... or view all Summary reports

DATABASE QUERY

Define basic search criteria:

Measured frequency* from: 2850 (kHz) to: 28000 (kHz)


Observation date (yyyy-mm-dd)* from: to:

*Mandatory fields


Reset

Search

...or Advanced Search



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RADIOCOMMUNICATIONS



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CONTRÔLE
INTERNATIONAL DES
ÉMISSIONS

Cette publication contient les résultats de contrôle des émissions soumis par les administrations conformément à la lettre circulaire du BR CR/159 du 9 mai 2001

RESUME N°:
SUMMARY N°: 383
RESUMEN N°:

INTERNATIONAL MONITORING

This publication contains spectrum monitoring information submitted by administrations in accordance with BR circular letter CR/159 of 9 May 2001

Periods:
Monitoring Period: 01.07.24 - 30.09.24
Date of last update:
Ultima fecha de actualización de datos:

COMPROBACIÓN TÉCNICA
INTERNACIONAL DE LAS EMISIONES

Esta publicación contiene la información sobre comprobación técnica de emisiones (CTE) presentada por las administraciones de acuerdo con la carta circular CR/159 de la BR del 9 de mayo 2001

Dernière mise à jour des données: 11.10.24

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
J	TOKYO	7637.010	18	09	0607			RUS			BC	139	E	27	43	N	30	324	B			
J	TOKYO	7644.980	03	09	1022			SOUND OF HOPE			BC	ASE	121	E	48	24	N	45	242	B	11	
J	TOKYO	7645.080	17	07	1001			SOUND OF HOPE			BC	ASE							242	C	11	
G	BALDOCK	7648.000	02	07				DDH7		D	FC	600HE	F1B						71	A		450KHZ SHIFT 50
I	ROMA	7648.000	01	08	2110		39.0	DDH7		D	SM	800HE	F1B						340	A		BAUDOT 50 BD
I	ROMA	7648.000	20	08	0823		12.0	DDH7		D	SM	800HE	F1B						351	A		BAUDOT 50 BD
ROU	BELGIJGATELE	7648.000	03	09	0835	0006	35.9	DDH7		D	FC	600HE	F1B						316	A		Metro Fax
ROU	BELGIJGATELE	7648.000	05	09	0721	0756	36.9	DDH7		D	FC	600HE	F1B						318	A		Weather Data
G	BALDOCK	7648.000	10	09				DDH7		D	FL	600HE	F1B						72	A		GERMAN WEATHER
I	ROMA	7648.000	13	09	0803		4.0	DDH7		D	SM	800HE	F1B						350	A		BAUDOT 50 BD
G	BALDOCK	7651.000	15	07						RUS	FX	3K3OE	J7D						49	B		
G	BALDOCK	7657.000	10	09				MURMANSK NAVAL		RUS	FC	200HE	F1B						32	A		200KHZ SHIFT 50
G	BALDOCK	7667.000	31	07						RUS	FX	3K3OE	J7D						68	B		1200
I	ROMA	7667.000	01	08	2110		41.0			RUS	FX	3K0OE	J2D						42	A		MFSK CIS
G	BALDOCK	7667.000	10	09						RUS	FL	3K0OE	J7D						65	B		1200
G	BALDOCK	7702.000	31	07						RUS	FX	3K3OE	J2D						66	B		1200
I	ROMA	7707.000	01	08	2125		18.0				FX	3K0OE	J2D						102	B		
J	TOKYO	7719.990	20	08	0139			V.O. HOPE		BC		ASE										11
J	TOKYO	7720.000	02	07	0132			ECHO OF HOPE		BC	ASE	126	E	56	37	N	25	284	B	11		
J	TOKYO	7720.000	08	07	2346			ECHO OF HOPE		BC	ASE								285	D	11	
J	TOKYO	7720.000	17	07	1003					BC	ASE								285	D		
J	TOKYO	7720.000	24	07	0748			V.O. HOPE		BC	ASE	127	E	07	37	N	52	286	B	11		
I	ROMA	7720.000	01	08	2120		36.0	ECHO OF HOPE VOH		KOR	BC	9K0OE	ASE						44	A		
RUS	SLAVYANKA	7720.000	02	08	0005	0035	49.0			KOR	BC	1K9B	ASE	127	E	33	37	N	24	209	A	11
J	TOKYO	7720.000	06	08	0615					BC	ASE								277	C		
J	TOKYO	7720.000	14	08	0416					BC	ASE								280	D		
J	TOKYO	7720.000	26	08	2346			V.O. HOPE		BC	ASE	126	E	56	37	N	39	285	B	11		
J	TOKYO	7720.000	03	09	1023			ECHO OF HOPE		BC	ASE											11
J	TOKYO	7729.930	03	09	1029			CHINA N.R.		BC	ASE											11
J	TOKYO	7730.000	17	07	1005					CHN	BC	ASE	119	E	47	28	N	18	263	A		
J	TOKYO	7730.000	26	08	2348					CHN	BC	ASE	116	E	28	39	N	29	288	B		
G	BALDOCK	7730.000	10	09				WRMI OVERCOMER		USA	BC	9K0OE	ASE						276	B		QKEECHOBEE TX
I	ROMA	7758.000	01	08	0842	2110	48.0	OTH RADAR		RUS	FX	15KOE	P0N						48	A		
G	BALDOCK	7780.000	15	07				THE OVERCOMER MIN		USA	BC	9K0OE	ASE						287	B		QKEECHOBEE TX
G	BALDOCK	7780.000	10	09				RAE ARGENTINA WORLD		USA	BC	9K0OE	ASE						277	B		QKEECHOBEE TX
I	ROMA	7841.000	09	08	0648		4.0				2K7OE	J3E							97	A		
I	ROMA	7841.000	09	08	0659		2.0				2K7OE	J3E							238	A		
I	ROMA	7841.000	09	08	0700	0702	13.0				3K0OE	J2D							208	A		
G	BALDOCK	7850.000	13	07				CHU (CANADA)		CAN	SS								297	B		TIME

No. 383 (updated 11.10.24)

01.07.24 - 30.09.24

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Special monitoring programme in band 406-406.1 MHz

- Pursuant to Resolution 205, a special monitoring campaign since 1987 in 406-406.1 MHz band allocated exclusively to satellite emergency position-indicating radio beacons (EPRIBs) used by COSPAS/SARSAT
- Statistics on the number of interfering emissions detected at:
<http://www.itu.int/en/ITU-R/terrestrial/monitoring/Pages/Res205.aspx>



Date of receipt	Administration	Report	Emissions observed	Location of transmitters
16/10/2024	QAT	RES205-QAT-2024-09	12	RUS,SOM,UKR
11/10/2024	F	RES205-F-2024-09	14	RUS,UKR
10/10/2024	GRC	RES205-GRC-2024-09	9	RUS,SYR
07/10/2024	E	RES205-E-2024-09	13	NGR,RUS,SOM,SYR,UKR
07/10/2024	USA	RES205-USA-2024-08	1	MEX
04/10/2024	CHN	RES205-CHN-2024-09	3	PHL,RUS
03/10/2024	I	RES205-I-2024-09	7	RUS,UKR
03/10/2024	ARS	RES205-ARS-2024-09	13	RUS,SOM,UKR
02/10/2024	ALG	RES205-ALG-2024-09	15	NGR
01/10/2024	THA	RES205-THA-2024-09	6	THA
19/09/2024	E	RES205-E-2024-08	15	F,NGR,RUS,SOM,SYR,UKR
17/09/2024	QAT	RES205-QAT-2024-07	12	RUS,SOM,UKR
17/09/2024	QAT	RES205-QAT-2024-08	17	RUS,SOM,UKR
13/09/2024	B	RES205-B-2024-08	1	B
13/09/2024	GRC	RES205-GRC-2024-08	8	F,RUS,SYR
08/09/2024	I	RES205-I-2024-08	8	F,RUS
05/09/2024	ARS	RES205-ARS-2024-08	19	IRQ,RUS,SOM,SYR,UKR
05/09/2024	F	RES205-F-2023-10-2024-08	147	BLR,RUS,SYR,TUR,UKR
02/09/2024	THA	RES205-THA-2024-08	1	THA
02/09/2024	ALG	RES205-ALG-2024-08	15	NGR
21/08/2024	E	RES205-E-2024-07	11	NGR,RUS,SOM,UKR
06/08/2024	THA	RES205-THA-2024-07	4	THA
05/08/2024	B	RES205-B-2024-07	2	B
04/08/2024	ARS	RES205-ARS-2024-07	12	IRN,IRQ,RUS,SOM,SYR,UKR
02/08/2024	I	RES205-I-2024-07	8	JOR,RUS,UKR
01/08/2024	CHN	RES205-CHN-2024-07	2	CHN
01/08/2024	ALG	RES205-ALG-2024-07	13	ALG,NGR,NIG
10/07/2024	ARS	RES205-ARS-2024-06	21	IRN,IRQ,RUS,SOM,SYR,TUR,UKR
10/07/2024	TUR	RES205-TUR-2024-06	14	GEO,RUS,UKR
09/07/2024	E	RES205-E-2024-06	12	IRN,NGR,RUS,SYR,UKR

DATABASE CONTAINING ALL REPORTS RECEIVED BY THE BR (SINCE 2008/01/01)

Please define the criteria for data retrieval:

Observer Administration:

All

Geographical area of unauthorized emissions:

All

Frequency range: from

406

 MHz to

406.1

 MHzSite ID:

Geographical location: Latitude(DD.DDD): Longitude(DDD.DDD): Radius(km):

Date of observation: From:

2024

January

 To:

2024

October

☒ Paged Results

Search

Total Number of observations retrieved:

Final remarks

- Objective of all these measures is to prevent harmful interference
- Bilateral cooperation to resolve harmful interference
- Notify frequency assignments for recording in Master Register
- Special attention to avoiding interference on distress and safety frequencies
- International Monitoring System may help in case of a harmful interference
- ITU-R Recommendations and Reports
- Goodwill and mutual assistance to resolve harmful interference

Thank you!

Ben BA, Head Terrestrial Publication and Registration Division

ITU – Radiocommunication Bureau

Questions to WRS_terrestrial@itu.int

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APPENDIX 9

Report of an irregularity or infringement

(See Article 15, Section V)

Particulars concerning the station infringing the Radio Regulations:

- 1 Name¹ if known (in BLOCK letters)
- 2 Call sign or other identification (in BLOCK letters)
- 3 Nationality, if known
- 4 Frequency used (kHz, MHz, GHz or THz)
- 5 Class of emission²
- 6 Class of station and nature of service, if known
- 7 Location^{3, 4, 5}

Particulars concerning the station, the centralizing office or inspection service reporting the irregularity or infringement:

- 8 Name (in BLOCK letters)
- 9 Call sign or other identification (in BLOCK letters)
- 10 Nationality
- 11 Location^{3, 4}

Particulars of the irregularity or infringement:

- 12 Name⁶ of the station (in BLOCK letters) in communication with the station committing the irregularity or infringement
- 13 Call sign or other identification (in BLOCK letters) of the station in communication with the station committing the irregularity or infringement
- 14 Date and time⁷
- 15 Nature of the irregularity or infringement⁸
- 16 Extracts from ship log or other information supporting the report

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Particulars concerning the transmitting station interfered with⁹:

- 17 Name of the station (in BLOCK letters)
- 18 Call sign or other identification (in BLOCK letters)
- 19 Frequency assigned (kHz, MHz, GHz or THz)
- 20 Frequency measured at the time of the interference
- 21 Class of emission² and bandwidth (indicate whether measured or estimated, or indicate the necessary bandwidth notified to the Radiocommunication Bureau)
- 22 Receiving location^{3, 4} (in BLOCK letters) where the interference was experienced
- 23 Certificate:

I certify that the foregoing report represents, to the best of my knowledge, a complete and accurate account of what took place.

Signatures¹⁰ Date:

APPENDIX 10 (REV.WRC-07)

Report of harmful interference

(See Article 15, Section VI)

Particulars concerning the station causing the interference:

<i>a</i>	Name, call sign or other means of identification	.....
<i>b</i>	Frequency measured	.....
	Date:	.....
	Time (UTC):	.....
<i>c</i>	Class of emission ¹	.....
<i>d</i>	Bandwidth (indicate whether measured or estimated)	.....
<i>e</i>	Measured field strength or power flux-density ²	.....
	Date:	.....
	Time (UTC):	.....
<i>f</i>	Observed polarization	.....
<i>g</i>	Class of station and nature of service	.....
<i>h</i>	Location/position/area/bearing (QTE ³) (WRC-07)	.....
<i>i</i>	Location of the facility which made the above measurements	.....

Particulars concerning the transmitting station interfered with:

<i>j</i>	Name, call sign or other means of identification	.....
<i>k</i>	Frequency assigned	.....

¹ The class of emission shall contain the basic characteristics listed in Appendix 1. If any characteristic cannot be determined, indicate the unknown symbol with a dash. However, if a station is not able to identify unambiguously whether the modulation is frequency or phase modulation, indicate frequency modulation (F).

² When measurements are not available, signal strengths according to the QSA scale should be provided.

³ See the most recent version of Recommendation ITU-R M.1172. (WRC-07)

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<i>l</i>	Frequency measured
	Date:
	Time (UTC):
<i>m</i>	Class of emission ⁴
<i>n</i>	Bandwidth (indicate whether measured or estimated, or indicate the necessary bandwidth notified to the Radiocommunication Bureau)
<i>o</i>	Location/position/area	.....
<i>p</i>	Location of the facility which made the above measurements	.....
	<i>Particulars furnished by the receiving station experiencing the interference:</i>	
<i>q</i>	Name of station	.....
<i>r</i>	Location/position/area	.....
<i>s</i>	Dates and times (UTC) of occurrence of harmful interference	.....
<i>t</i>	Bearings (QTE ⁵) or other particulars (WRC-07)	.....
<i>u</i>	Nature of interference	.....
<i>v</i>	Field strength or power flux-density of the wanted emission at the receiving station experiencing the interference ⁶	.....
	Date:	.....
	Time (UTC):	.....
<i>w</i>	Polarization of the receiving antenna or observed polarization	.....
<i>x</i>	Action requested	.....

NOTE – For convenience and brevity, telegraphic reports shall be in the format above, using the letters in the order listed in lieu of the explanatory titles, but only those letters for which information is provided should be used. However, sufficient information shall be provided to the administration receiving the report, so that an appropriate investigation can be conducted.

⁴ See footnote 1.

⁵ See footnote 3.