



International Telecommunication Union



**REGIONAL
RADIOCOMMUNICATION
SEMINAR FOR AFRICA 2013**

**YAOUNDE, CAMEROON
16-20 SEPTEMBER 2013**

www.itu.int/go/ITU-R/seminars

Organised by:




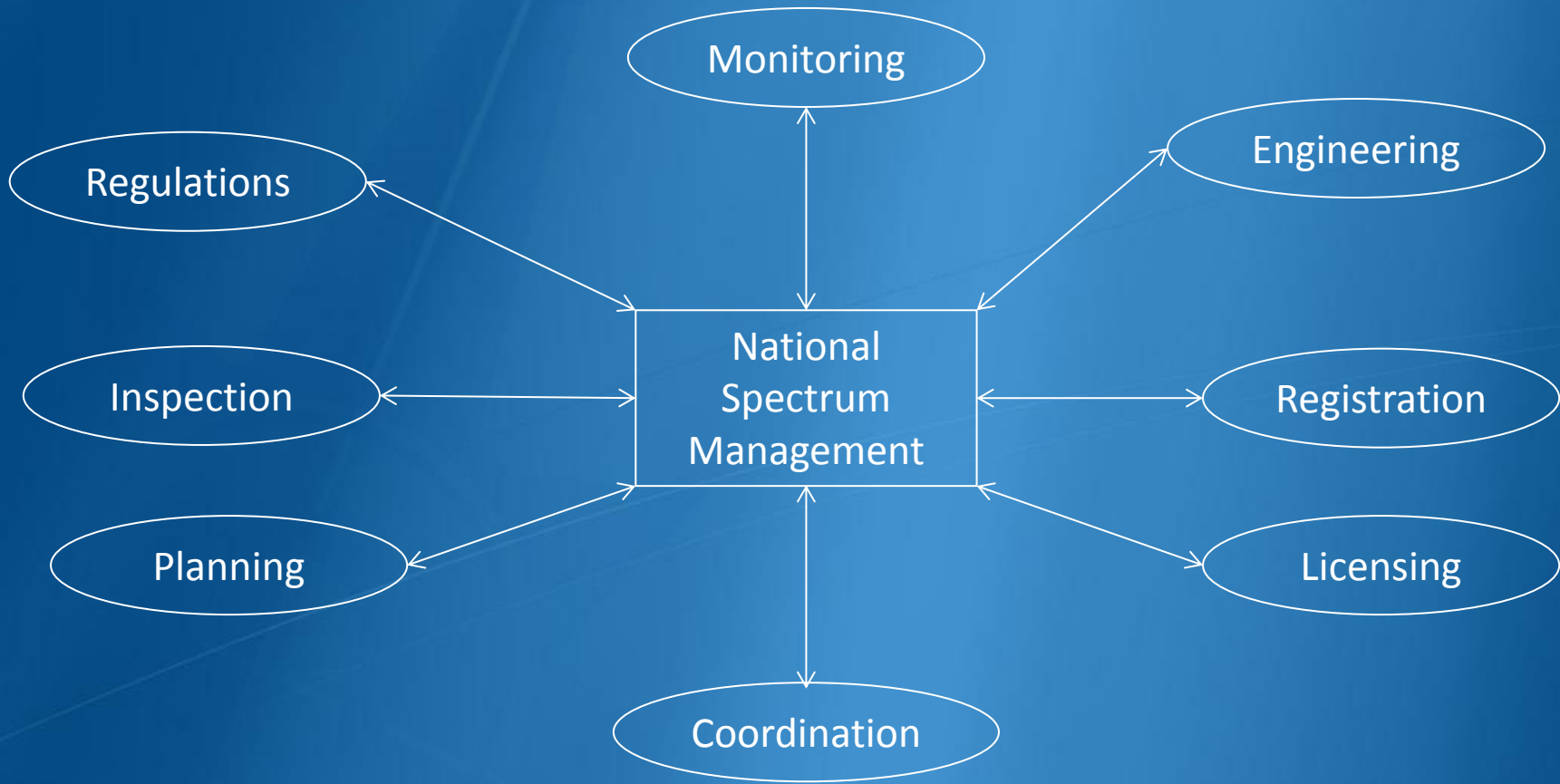


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International Monitoring

National Spectrum Management



Importance of the Monitoring

Spectrum monitoring is part of the National Spectrum Management System and is supporting all the other activities such as assignment frequency to stations, frequency planning, etc.

Spectrum monitoring allows to:

- know the exact use of the spectrum
- detect unauthorised emissions or potential interferers
- solve cases of harmful interference or infringement
- ensure the quality of radiocommunication services
- verify the frequency records
- verify the characteristics of authorised emissions
- participate in the international monitoring system (IMS)

SG 1 - Spectrum management

- WP 1A - Spectrum engineering techniques
- WP 1B - Spectrum management methodologies and economic strategies
- WP 1C - Spectrum monitoring

- Next WP 1C
 - Last meeting in June 2013
 - Next meeting in June 2014 in Geneva
 - <http://www.itu.int/ITU-R/go/rwp1c>

- Handbook on Spectrum Monitoring
 - Last edition 2011
 - Available at <http://www.itu.int/pub/R-HDB-23>
 - Online access free of charge for TIES users



International monitoring

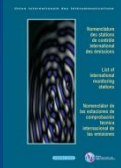
- Article 16 of the RR contains the provisions related to the IMS. The IMS comprises monitoring stations and centralizing offices voluntarily designated by administrations.
- Historically, the IMS was developed for supporting the intensive use of the HF bands. Now days, there is a constant increase of the demand for the use of VHF, UHF and SHF bands.
- Provision No. 3.14 of the RR stipulates that: “to ensure compliance with these Regulations, administrations shall arrange for frequent checks to be made of the emissions of stations under their jurisdiction. For this purpose, they shall use the means indicated in Article 16, if required...”
- ITU Members shall cooperate in order to continue the development of the IMS.

International monitoring

- List of International Monitoring Stations (List VIII)
 - Monitoring station details are notified to the ITU and in accordance with Article 20 of the RR published by the ITU in List VIII.
 - List VIII contains particulars of monitoring stations participating in international monitoring, together with the addresses of the centralizing offices. It includes information about the measurements that each monitoring station is able to perform.
 - Issued every 4/5 years and information for updating this List is published in the ITU Operational Bulletin.
 - Online access is free of charge:
http://www.itu.int/online/mms/mars/monitoring/l8_station_search.sh

International monitoring

- New edition of the List VIII (Circular Letter CR/348 of 10 May 2013)
- Review of information included in 11th edition, published in March 2009 and notification of all amendments to the BR (see <http://www.itu.int/en/ITU-R/terrestrial/monitoring/listVIII/Pages/data-for-review.aspx>)
- Monitoring stations that meet the ITU-R technical standards and currently not included in the list VIII may be notified to the BR using relevant forms available on the ITU website: <http://www.itu.int/en/ITU-R/terrestrial/monitoring/listVIII/Pages/notification-forms.aspx>



International monitoring

- New format of List VIII
 - Preface: Contains explanations concerning the contents of the publication in Arabic, Chinese, English, French, Russian and Spanish
 - Summary Listings
 - List of administrations and their terrestrial monitoring stations
 - List of administrations and their space monitoring stations
 - Information concerning monitoring stations carrying out measurements related to stations of Terrestrial services
 - Centralizing offices
 - Particulars and contact information of monitoring stations

International monitoring

- New format of List VIII
 - Information concerning monitoring stations carrying out measurements related to stations of Space Radiocommunication services
 - Centralizing offices
 - Particulars and the contact information of monitoring stations
 - Map of monitoring stations
 - References
 - Table 3 – ITU-R Recommendations relating to spectrum monitoring (SM Series)
 - Table 4 – ITU-R Reports relating to spectrum monitoring (SM Series)
 - Table 5 – List of ITU Member States (in alphabetical order of symbol)
 - ITU-R Resolution 23 – Extension of the IMS to a worldwide scale.

List of administrations and their terrestrial monitoring stations

TABLE 1A

Symbol	Name of the Station	Symbol	Name of the Station	
CLM	El Caribe (Barranquilla-Atlántico)	FIN	Helsinki	
	El Cerrito (Funza-Cundinamarca)		Jokioinen	
	El Mirador (Cúcuta-N. Santander)	G	Baldock (IMS)	
	La Sultana (Candelaria-Valle)		GRC	Athens, Airport (IMS)
	Llano Grande (Rionegro-Antioquia)	Athens, Aspra Chomata (IMS)		
	Los Comuneros (Bucaramanga-Santander)	Athens, Marousi (IMS)		
CLN	Kadirana	Athens, Penteli (IMS)		
	Douala-Deido	Heraklion, Airport (IMS)		
COD	Kinshasa	Mobile station		
	Lubumbashi	Rhodes, Paradisi (IMS)		
CTI	Abidjan	Thessaloniki, Psili Korifi (IMS)		
CUB	Cuatro Caminos (IMS)	Thessaloniki, Water Tower (IMS)		
CZE	Brno	HND		Miraflores (IMS)
	Ceske Budejovice		HNG	Tárnok (IMS)
	Hradec Kralove	HOL		Amersfoort (AT_EZ-Nera) (IMS)
	Jihlava		I	Monza (IMS)
	Karlovice	Roma (IMS)		
	Plzen	Sorrento (IMS)		
	Praha	IND		Chennai (IMS)
	Tehov			Kolkata (IMS)
	Usti nad Labem			Mumbai (IMS)
D	Berlin (IMS)			Nagpur (IMS)
	Darmstadt (IMS)	New Delhi (IMS)		
	Itzehoe (IMS)	INS	Cangkudu	
	Konstanz (IMS)		Kupang	
	Krefeld (IMS)		Medan	
	Leipzig (IMS)		Merauke	
	München (IMS)		Samarinda	
E	El Casar		Surabaya	
	La Esperanza	IRN	Ali Abad	
	Rozas		Mashhad	
EGY	Giza		Tehran	
	EQA	Calderón	ISR	Tel Aviv
Quito		J		Ishigaki
Riobamba			Kumamoto	
Taura			Osaka	
Turi			Sapporo	
EST	Kohtla-Järva		Suzu	
	Kuressaare	Tokyo (IMS)		
	Pärnu	KEN	Garissa	
	Suurpalu		Kabete	
	Tallinn		Kahawa	
	Tallinn DF1		Kitale	
	Tallinn DF2		Mazeras	
	Tartu		Mobile station	
F	Favières (IMS)		Mombasa City	
	Rambouillet (IMS)		Railways	

List of administrations and their space monitoring stations

TABLE 1B
ADMINISTRATIONS AND THEIR MONITORING STATIONS
IN THE SPACE RADIOCOMMUNICATION SERVICES
(IN ALPHABETICAL ORDER OF SYMBOLS)

Symbol	Name of the Station
ARG	Benavidez ARSAT earth station
	Buenos Aires (IMS)
CHN	Beijing (IMS)
D	Leeheim
J	Tokyo (IMS)
KAZ	GCC Akkol
KOR	Icheon
PAK	Wani-II
RUS	Belgorod (IMS)
	Khabarovsk
	Smolensk (IMS)
UKR	Kyiv
USA	Columbia, Maryland
VTN	Viet Tri

Information concerning monitoring stations carrying out measurements related to stations of Terrestrial services

CME - Cameroon			
Centralizing office	Postal address	Telephone, Telefax, Electronic-mail	Remarks
Centre de contrôle international de Douala	Circonscription des télécommunications Douala	TF : +237 3 421140	

Name of the station		Postal address		Telephone, Telefax, Electronic-mail	
Douala-Deido		Cameroun			
Geographical coordinates	Types of measurements	Ranges of frequencies for each measurement	Hours of service	Remarks	
04°03'45"N 009°43'36"E	Frequency measurements	2 MHz - 30 MHz	H24		

CME - Cameroon

List of International Monitoring Stations (Edition of 2013)

TERRESTRIAL STATIONS

131

International monitoring

- Monitoring stations contained in List VIII may help in the detection and elimination of harmful interference or infringements.
- Monitoring stations that meet the ITU-R technical standards shall be notified to the BR for inclusion in List VIII to improve worldwide coverage of the IMS.

International monitoring

- Resolution ITU-R 23-2 (2012):
 - Urging participating administrations to continue their participation in IMS
 - Urging non-participating administrations to establish monitoring stations and/or take part in IMS
 - Encouraging cooperation and data exchange
 - Supplying data to the BR for preparation of summaries of useful monitoring data
 - Urging administrations to provide training to officials of other administrations

International monitoring

Example of use of the IMS:

- Request of assistance for resolving a case of harmful interference (RR 15.42)
- If needed the BR may request the cooperation of appropriate administrations or specially designated stations of the international monitoring system that may be able to help in identifying the source of harmful interference.
- After having analysed the results of the monitoring, the Bureau will recommend actions to be taken to the concerned administrations.

International monitoring

- Regular monitoring programme
 - HF bands 2 850 kHz and 28 000 kHz.
 - Data format and report submission procedure are described in CR/159 (2001).
 - Objectives: Indication of spectrum occupancy, Identification of stations whose emissions are not in conformity with RR and share data with administrations not having HF monitoring facilities.
 - Summaries and full data available on ITU website <http://www.itu.int/ITU-R/go/terrestrial-monitoring>

International monitoring

- Resolution 205 related to the protection of the satellite emergency position-indicating radio beacons (EPRIB)
 - Since 1987
 - Frequency band 406-406.1 MHz
 - Statistics about interfering emissions that have been detected and subsequently suppressed are published on the ITU web site: <http://www.itu.int/ITU-R/go/resolution-205>

International monitoring

- Online database query facility for the consolidated data relative to Resolution 205 at:
<http://www.itu.int/net4/ITU-R/terrestrial/res205/default.aspx>

Monitoring Programme band 406-406.1 MHz (Resolution 205, COSPAS-SARSAT)

This page provides consolidated information extracted from the reports received from Administrations participating in the monitoring programme in the band 406-406.1 MHz in application of Resolution 205(Rev. WRC-12). The objective of this programme is to identify and locate unauthorized emissions in the band 406-406.1 MHz that cause harmful interference to the reception of satellite EPIRB signals of the COSPAS-SARSAT system.

Upon receipt of the reports, the Radiocommunication Bureau immediately contacts the Administrations responsible for the area where the unauthorized transmitters are located, requesting them to take immediate action with a view to stopping the emissions.

For further information on the use of this system, click [here](#).

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

Please define the criteria for data retrieval:

Observer Administration: Geographical area of unauthorized emissions:

Frequency range: from MHz to MHz Site ID:

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

Date of observation: From: To: Paged Results

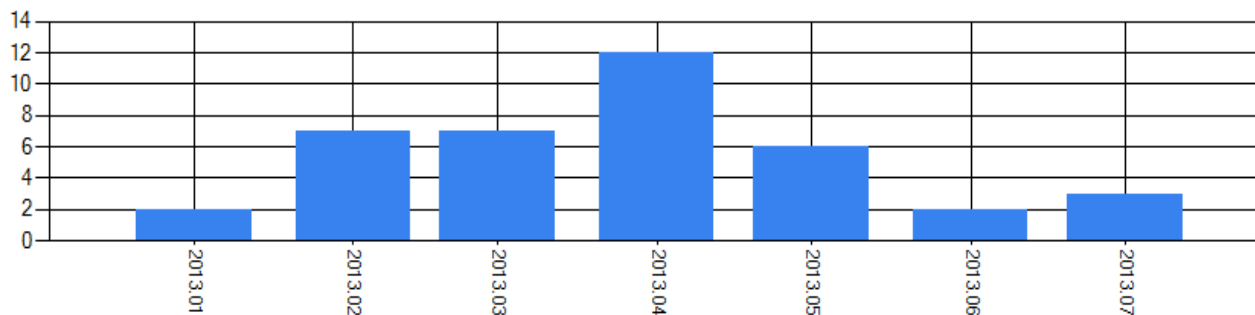
Total Number of observations retrieved:

Search

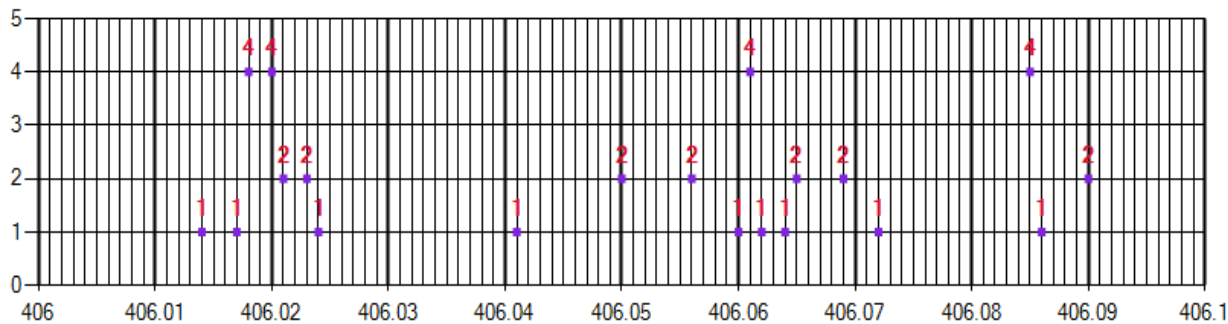
Total Number of observations retrieved: 39

	Observer	SiteID	Country	City	Direction	Distance	Latitude	Longitude	Frequency (MHz)	Observations	Monthly Ratio	First Date	Last Date
1	I	247000033	ALG	PALESTRO	E	16	36.55	3.77	406.056	11		20130102	20130126
2	I	247000034	RUS	KURSK	E	10	51.74	36.33	406.02	25		20130124	20130131
3	CAN	316018806	CAN	Medicine Hat, Alberta	SSE	58.7	50.26	-111.42	406.09016	25	0.03	20130218	20130228
4	I	247000035	RUS	TEYKOVO	SW	18	56.71	40.45	406.02	18		20130214	20130215
5	I	247000036	E	MADRID	E	22	40.39	-3.39	406.085	33		20130204	20130226
6	I	247000037	E	MORON	NW	9	37.19	-5.51	406.05	32		20130213	20130227
7	I	247000038	RUS	KALINOVSKAYA	NE	7	43.62	45.57	406.085	22		20130218	20130223
8	TUR	271009109	LBN	Bayrut	WSW	42.0	33.16	35.22	406.04065	14	0.01	20130102	20130301
9	TUR	271009508	RUS	Buzuluk	N	36.2	52.54	52.64	406.02306	41	0.04	20130204	20130206
10	TUR	271009680	RUS	Ivanovo	SSW	56.1	56.78	40.23	406.01403	18	0.03	20130214	20130215

1 2 3 4



Number of emissions reported per month



Number of emissions reported per frequency (MHz)

Conclusion

- As demands on spectrum increase through the introduction of new services, so increases the importance spectrum monitoring.
- The BR continue to organize the regular HF band monitoring programme as well as the special 406-406.1 MHz band programme.
- Administrations not yet participating in these monitoring programmes are encouraged to take part in these programmes in accordance with No. 16.5 of the RR.
- Join ITU-R WP1C for participating in the technical studies related to spectrum monitoring.

Thank you for your attention!

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