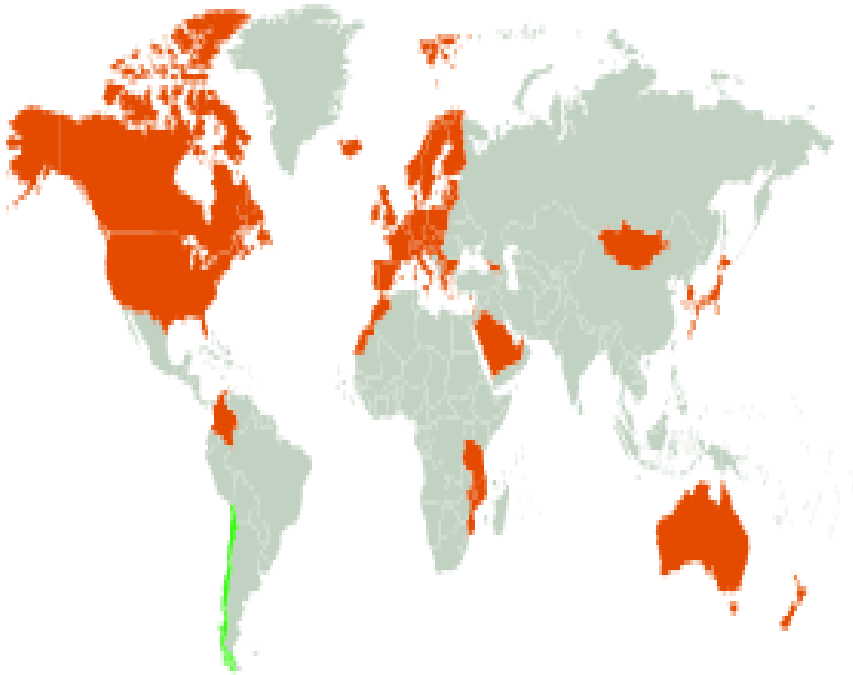
ITU Regional frequency coordination meeting for Central America and Caribbean area
On the use of VHF and UHF for DTT and DD

Radiocommunication Bureau

DSO Status

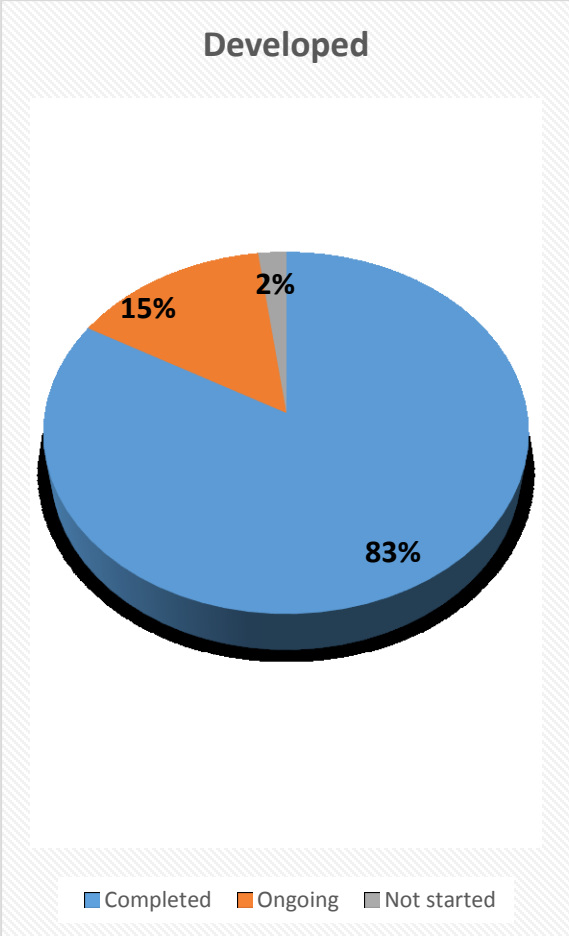
Ongoing

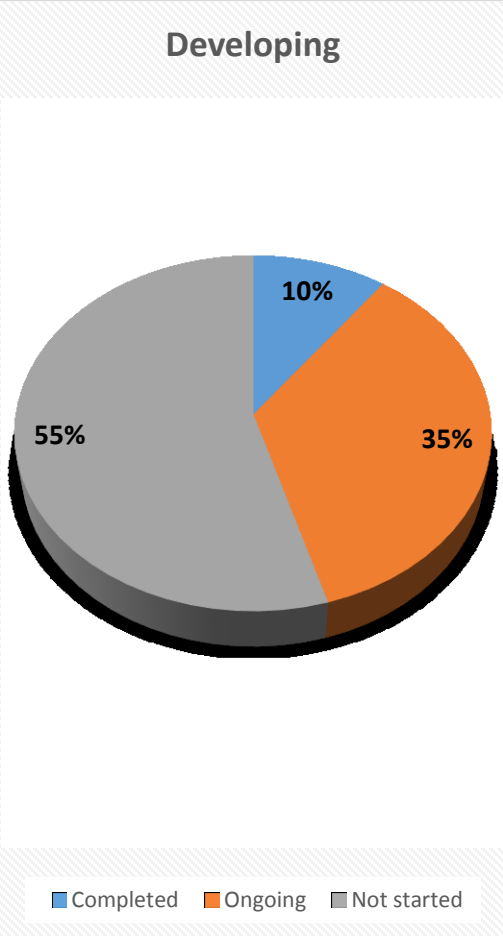
Completed

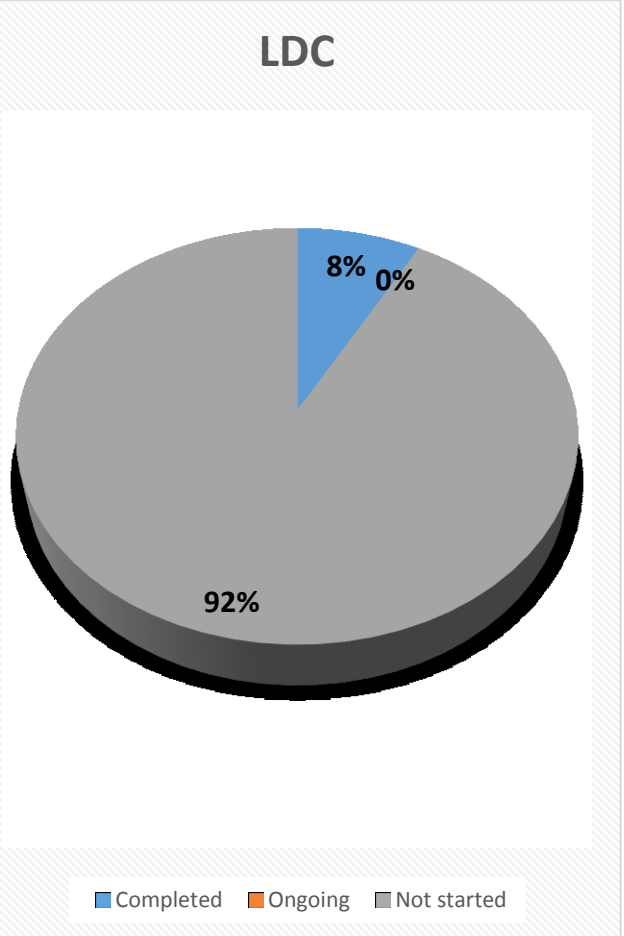


Source: http://www.itu.int/en/ITU-D/Spectrum-Broadcasting/Pages/DSO/dashboard.aspx

DSO Status by category







The classification of developed/developing/LDC was taken from http://www.itu.int/en/ITU-D/Statistics/Pages/definitions/regions.aspx and http://www.itu.int/net/itunews/ldc-list.aspx

The DSO information is taken from Source: http://www.itu.int/en/ITU-D/Spectrum-Broadcasting/Pages/DSO/dashboard.aspx


GE06 planning
Sub-Saharan Africa (ATU)
&
Arab Region (ASMG)

WRC decisions for Region 1

470-862 MHz: BC		
470-790 MHz: BC		790-862 MHz: MO/BC
470-694 MHz: BC	694-790 MHz: MO/BC	790-862 MHz: MO/BC

Need for more DTT channels in the band 470-694 MHz

Start of the frequency coordination meetings

Digital migration and spectrum Policy summits:

- **December 2011: Nairobi**
- **September 2012: Accra**

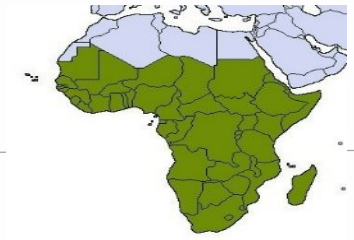
In accordance with the recommendation:

35th meeting of the Permanent Arab Committee for Communications and Information (Cairo : 4-5/3/2014) ,

and contributions of the Technical Secretariat of the Council of Arab Ministers for Communications and Information

need to establish minimum spectrum requirements for broadcasting and broadband at the national level

Charge ATU, with the assistance of the BR/ITU



Arab countries to ensure sufficient spectrum for broadcasting in the 470-694 MHz and be able to release the 700/800 MHz

Charge ASMG with the assistance of the BR

General Recommendations

To consider the adoption of **MPEG4 and DVB-T2** standards, and dual **HDTV/SD** format

Maximum acceptable interfering margin is 4dB

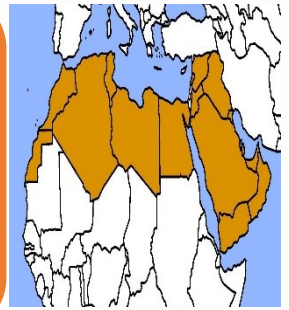
4 layers. Administrations having more were encouraged to make the **utmost effort** to release part of it to neighbouring countries to reach up to that level of resource.

Invite the countries to use modern techniques for such service: DVB-T2/MPEG-4 or later.

Maximum acceptable margin is **4dB (3 dB or 1.25 dB in special cases)**

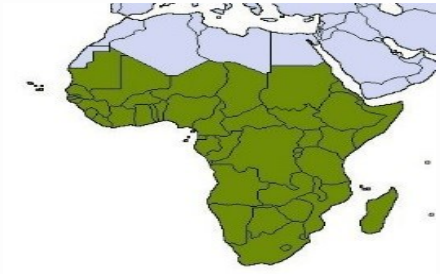
4 layers per Administration for this coordination period,

This number can be increased in the future, individually,, according to GE06 Article 4 Procedures.



Results of the GE06 coordination meeting

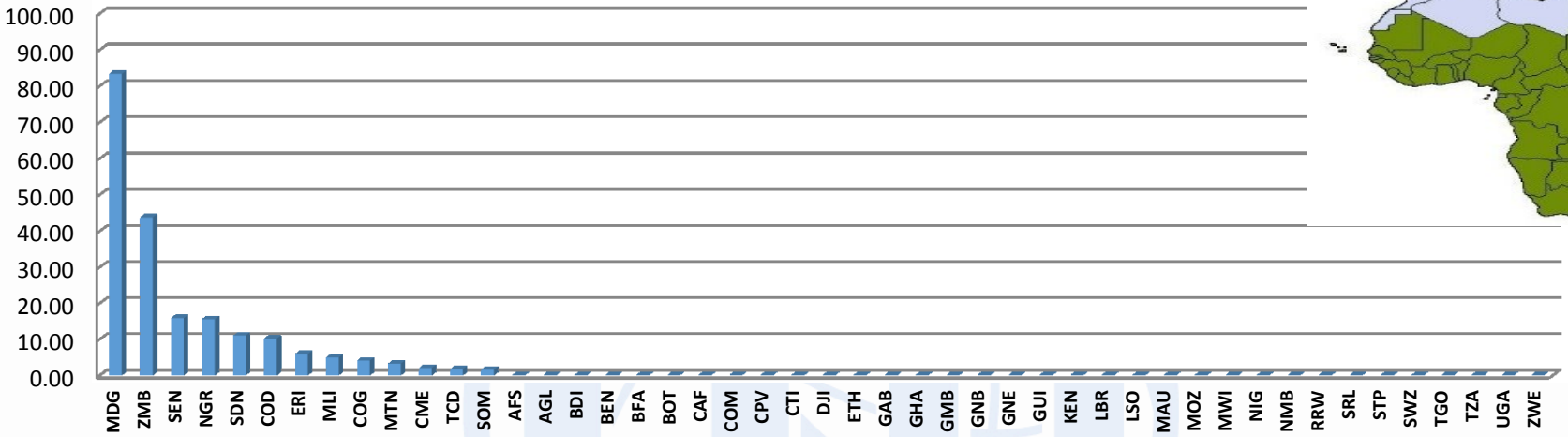
- Average of satisfied requirements: **97.37%**
- Duration: **18 months**.
- **47** countries participated (except Mauritius).
- 2 African summits: Nairobi 2011 and Accra 2012 to launch the process.
- **3 planning and coordination meetings**: Bamako, Kampala and Nairobi.
- **33 iterations** for the compatibility analysis, based on the requirements submitted by administrations.
- **7107** submitted frequency requirements in 470-694 MHz (**11406** at the RRC-06 for the band 470-862 MHz).



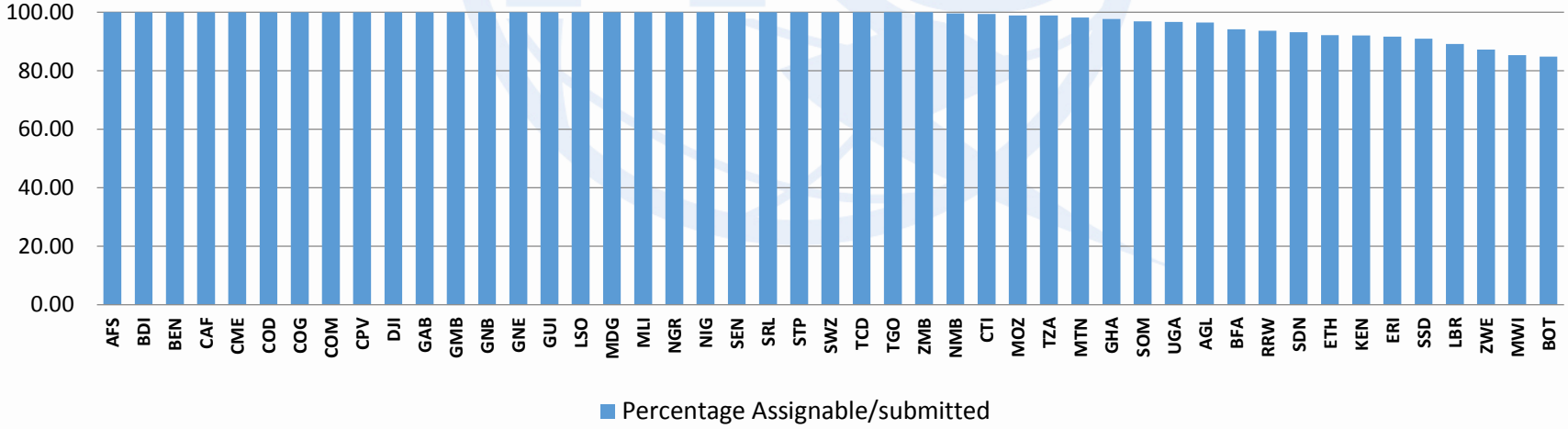
- Average of satisfied requirements: **76.87%:**
- Duration: **11 months**.
- **17** countries participated.
- **3 planning and coordination meetings**: Dubai, Hammamet and Marrakech.
- **27 iterations** for the compatibility analysis, based on the requirements submitted by administrations.
- **4346** submitted frequency requirements in 470-694 MHz (**9151** at the RRC-06 for the band 470-862 MHz).

Results: 1st and last iterations for SSA

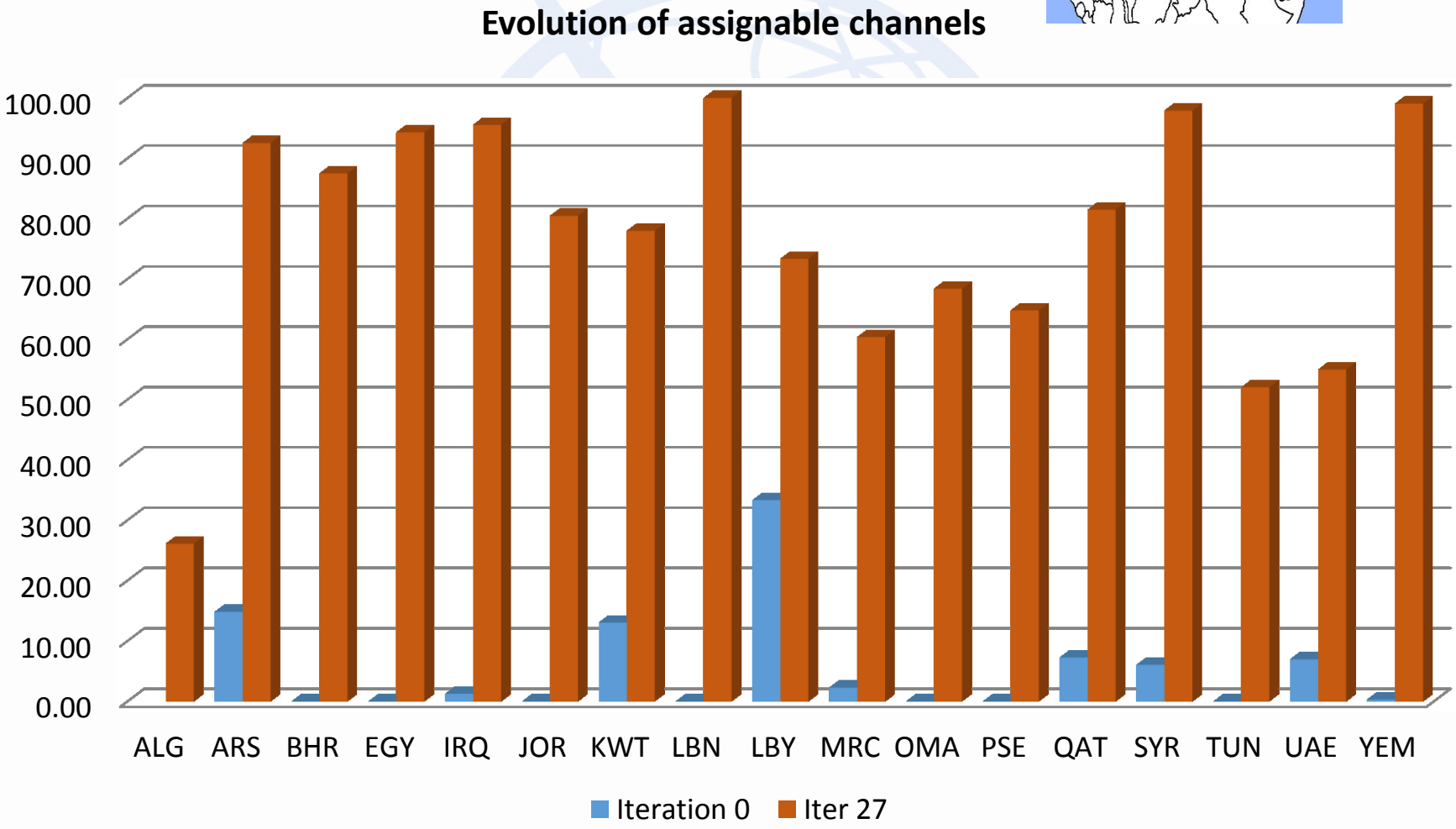
Iteration 1, percentage of assigned channels



Iteration 33- Nairobi-2



1st and last iterations for ASMG



Conclusion on BR actions

Provided and adapted the necessary software and tools;

Generated the initial requirements with flexible channels (to reach at least 4 layers);

Workshops and training on the GE06 tools and frequency planning:

- To generate the requirements;
- Assess technical compatibility;

Assistance in sub regional coordination meetings;

An Iteration each 2 weeks (from the beginning of the process until its end), and analysis of the results;

Generates the requirements for the 'absent' administrations (4 layers);

Assistance all along the process.

VHF and UHF frequency planning

Central America & Caribbean

Following the:	• Central American Summit on Digital Terrestrial Television and the Digital Dividend, El Salvador on 25 and 26 July 2016, and • the "San Salvador Declaration" adopted by COMTELCA Members on 26 July 2016
With the participation of:	• **CITEL** • **COMTELCA** • **CTU**

Regional Frequency Coordination for Central America and Caribbean

Considered area:

- Parallels : 122 to 50 W
- Meridians : 0 to 38 N

Numbers:

- Adm.: 30
- Geographical area: 41

Adm.: ATG, B, BAH, BLZ, BRB, CLM, CTR, CUB, DMA, DOM, F, G, GTM, GRD, GUY, HOL, HON, HTI, JMC, KNA, LCA, NCG, MEX, PNR, SLV, SUR, TRD, USA, VCT, VEN

Purpose of the frequency coordination meeting

The Regional Frequency Coordination Meeting on the use of the VHF band (174-216 MHz) and the UHF band (470-790 MHz)

is intended to :

- facilitate the processes of transition from analog to Digital Television (DTT) and allocation of the Digital Dividend, taking into account the large separation distances required to ensure mutual compatibility among broadcasting and mobile stations in the VHF and UHF bands.
- to prevent the occurrence of harmful interference situations,

is not intended to:

- conclude any formal agreement, but to build informal consensus in the Central American and Caribbean regions towards the conclusion of formal agreements between the administrations involved before formal notification of the relevant frequency assignments to the ITU.

Technical basis of the compatibility

The meeting will focus on ensuring the compatibility of the national frequency plans in support of terrestrial television broadcasting and mobile broadband, taking into account:

- Existing analog television broadcasting emissions and broadband mobile transmissions,
- Current and future plans, if any, for DTT and Mobile Broadband,
- The need, where applicable, for simulcast digital and analog transmissions,
- The standards adopted at national level for DTT and Mobile Broadband,
- The timelines and activities for frequency assignment and planning.

BR proposed actions

In order to provide support to the meeting, the ITU Radiocommunication Bureau intends to provide the compatibility analysis software based on the GE-06 Planning, and suitably modified to take into account:

channeling arrangements	• *Used in the participating countries,*
standards and sharing criteria	• *that each of the participating countries may wish to retain for this compatibility exercise,*
Training on the:	• compatibility analysis software and • preparation of the electronic notices for the spectrum requirements and existing assignments,
Assist in the submission of	• the spectrum requirements and existing assignments for the first compatibility iteration,
Assessment of the results	• of the first compatibility iteration and • identification of issues to be resolved in subsequent iterations.

Important!

In order to be able to assess the compatibility between the different assignments, the proposed software may base the calculations on the:

- Digital requirements to be submitted by the participating administrations;
- Existing analogue assignments,
- Existing digital assignments, and
- Existing assignments to the stations of primary services other than broadcasting
  - *Existing means recorded in the **MIFR**.*

CA&C MIFR status

GEO	Adm	DTV 470-698 MHZ	DTV VHF	ATV 470-698 MHZ	ATV VHF	OPS 470-698 MHZ	Bdw	ATV Sys	DTV Sys	TV 698-806	OPS 698-806
ATG	ATG	0	0	0	2	0	6M00	M	T7	0	0
B	B	6364	16	3148	1987	0	6M00	M	T9	0	0
BAH	BAH	0	0	0	0	0	#N/A	M	T9	0	0
BLZ	BLZ	0	0	0	0	0	#N/A	M	T9	0	0
BRB	BRB	0	0	0	1	0	6M00	M	T7	0	0
CLM	CLM	20	0	48	72	0	6M00	M	T7	0	0
CTR	CTR	0	0	0	0	0	#N/A	M	T9	0	0
CUB	CUB	59	2	284	88	4	6M00	M	U1	0	4
DMA	DMA	0	0	0	0	0	#N/A	M	T7	0	0
DOM	DOM	0	0	0	0	0	#N/A	M	T2	0	0
BLM	F	6	0	2	1	0	8M00	K1	T1	0	0
GLP	F	24	0	21	9	0	8M00	K1	T1	0	0
GUF	F	40	0	17	9	0	8M00	K1	T1	0	0
MAF	F	4	0	2	1	0	8M00	K1	T1	0	0
MRT	F	40	0	21	9	0	8M00	K1	T1	0	0
AIA	G	0	0	0	1	0	6M00	M	T7	0	0
CYM	G	0	0	0	0	0	#N/A	M	T7	0	0
MSR	G	0	0	1	2	0	6M00	M	T7	0	0
TCA	G	0	0	0	0	0	#N/A	M	T7	0	0
VRG	G	0	0	0	0	3	16K0	M	T7	0	0
GRD	GRD	0	0	0	0	0	#N/A	M	T7	0	0
GTM	GTM	0	0	0	1	0	6M00	M	T9	0	0
GUY	GUY	0	0	15	16	0	6M00	D/M	T7	0	0
HND	HND	0	0	0	20	0	6M00	M	T9	0	0
ABW	HOL	0	0	0	1	0	6M00	M	T7	0	0
CUW	HOL	0	0	0	1	0	6M00	M	T7	0	0
SXM	HOL	0	0	0	2	0	6M00	M	T7	0	0
HTI	HTI	0	0	17	0	0	6M00	M	T7	0	0
JMC	JMC	0	0	0	25	0	6M00	M	T2	0	0
KNA	KNA	0	0	0	3	0	6M00	M	T7	0	0
LCA	LCA	0	0	0	0	0	#N/A	M	T7	0	0
MEX	MEX	269	34	2	50	1132	6M00	M	T2	0	0
NCG	NCG	0	0	6	17	0	6M00	M	T9	0	0
PNR	PNR	0	0	0	7	1	6M00	M	U0	0	0
SLV	SLV	0	0	31	10	0	6M00	M	T9	0	0
SUR	SUR	0	0	19	14	0	6M00	M	T2	0	0
TRD	TRD	0	0	0	0	0	400K	M	T7	0	0
PTR	USA	0	0	16	5	0	6M00	M	T2	0	0
VIR	USA	5	0	3	5	0	6M00	M	T2	0	0
VCT	VCT	0	0	0	6	0	6M00	M	U0/T1	0	0
VEN	VEN	0	0	43	61	0	6M00	M	T9	0	0

GEO with no TV Assignment in the MIFR

GEO with no TV assignments in the UHF-MIFR

Total MIFR assign. 11667

Ref Table

Proposed process

A new iteration every other week,

Submission of the requirements by participants every other Friday, to BRBCD@itu.int

Compatibility analysis by the BR based on the submitted requirements and existing assignments

Distribution to the participants of the compatibility analysis results on the following Monday,

Assistance to participants throughout the process, in the analysis and proposals to reduce potential interference.

Agreed assignments

Notify under article 11 (WISFAT)

Proposed schedule for the CAC frequency coordination meeting

1st meeting Managua 2017:
Iterations to assign frequency to Digital requirements in the **UHF** Band: taking into account

- *Only digital broadcasting assignments (MIFR and requirements).*
- Bandwidth 6 and 8 MHz
- *Flexible channels, i.e., the ITU software to scan the frequency band and provide the CA results.*

2d meeting: Iterations to assign frequencies to Digital requirements in the **VHF and UHF**, taking into account

- *Analogue/Digital assignments in the MIFR, and*
- *FXM assignments in the MIFR.*
- *Flexible channels.*

3d meeting: Final iteration to assign frequency channels for DTT in the bands VHF and UHF (470-698 MHz)

- Only fixed channels for the requirements,

Notification to the MIFR

Technical criteria and assumptions for

Frequency bands

- 174-216 MHz
- 470-698 MHz

DTT Standards

- 8 MHz:
  - *DVB-T (T1),*
  - *DVB-T2 (T6)*
- 6 MHz:
  - *ATSC (T2),*
  - *DVB-T2 (T7)*
  - *ISDB-T (T9)*
  - *DVB-T (U0),*
  - *DTMB (U1).*

ATV Systems

- M (525 lines/6 MHz) with NTSC color encoding
- N (625 lines/6 MHz) with PAL color encoding (None in the considered area)

FXM

- FIXE Service
- MOBILE Service

Managua meeting 8-10 March 2017

Iteration(s) to assign frequency to Digital requirements in the UHF Band:

taking into account the MIFR digital assignments and digital requierments

ITU reference

ITU-R Recommendations *BT.417, BT.655-7, SM.851, BT.1306-7, BT.1877-1, BT.2033, BT.2036, BT.2383, P.1546*

ITU-R Reports: *BT.2254, BT.2383*

Compatibility (6 and 8 MHz) UHF Band

DTV from DTV

ATV from DTV

COMING SOON

DTV from ATV

DTV from FXM

COMING SOON

FXM from DTV

Technical criteria

MINIMUM FIELD STRENGTH (dB(µV/m))

To be protected

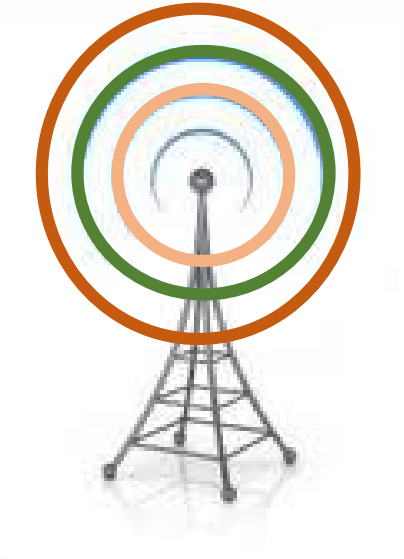
Protection Ratios for: co-Channel, Adjacent channels (N-1 and N+1) and overlapping channels

Missing criteria, worse case

Approval of the compatibility analysis assumptions

Documents on the web and provided USB keys)

Let’s get started



The BR created requirements to reach 4 layers, based on:

If BC assignment from MIFR

If no BC assignment in the MIFR

Analogue VHF

Analogue UHF

MIFR digital assignments;

Big cities

Capitals,

BAH

BLZ

CTR

CYM

DMA

DOM

GRD

LCA

TCA

VRG

Thank you