



International Telecommunication Union



**ITU REGIONAL FREQUENCY
COORDINATION MEETING
ON THE USE OF THE
VHF/UHF BANDS**

**MANAGUA, NICARAGUA
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Co-Organizers



Organized by:



Finding new channels for DTT and compatibility analysis for new frequency requirements

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Overview

- Tools to be used
- Frequency bands and TV channels
- Procedure diagram
- CA Display tool



Tools to be used



eBCD 2.0
Broadcasting Online

eQry

ePub

eTools

myAdmin

TerRaQ

TerRaNotices

CA Display

WISFAT



Frequency bands and TV channels

- ✓ Frequency bands: 174 – 216 MHz
470 – 698 MHz
- ✓ TV channels: 7 – 13
14– 51, **excluding channel 37**
- ✓ TV channel 83 – special case (flexible channel)
- ✓ List of TV channels – see Doc. INFO-1



Find a channel process diagram





Creation/Modification of a T02 notice

TerRaNotices 1.2 (BR, IFC 2838) - [NCG_ISDB-T_6MHz.txt* - T02*]

File Tools View Language Options Window Help

Notice browser: NCG_ISDB-T_6MHz.txt*
Head section
T02/ADD*

Date of notification: 2 8 2016
ID I/ Assignment's unique identifier: ISDB-T 6MHz-1

Fragment: Article 11
Notification intended for: Addition

12A/ Operating agency: 1
2C/ Date of bringing into use: 8 2015

12B/ Address code: A
10B/ Regular hours of operation (UTC): From 00:00 To 24:00

Assignment characteristics: Antenna characteristics

Station information:
4A/ Antenna site name: Managua
4B/ Geographic area: NCG
4C/ Longitude: 86° 15' 21" W
Latitude: 12° 10' 23" N
9EA/ Altitude of site above sea level: 41 m
3A1/ Call sign:
3A2/ Station identification:

Emission characteristics:
1A/ Assigned Frequency: 647 MHz
7A1/ Frequency stability:
7C1/ Television system: TV
7C2/ Color system:
8D/ Vision/Sound Power Ratio:
9D/ Polarization: H
8BH/ Horizontal e.r.p.: 30 dBW
8BV/ Vertical e.r.p.: dBW
1E/ Vision offset:
1EA/ Sound offset:

Antenna characteristics:
9/ Antenna directivity: ND
9EB/ Maximum Effective Antenna Height: 50 m
9E/ Height of Antenna Above Ground Level: 50 m

Coordination successfully completed with the following administrations:
Available administrations: AFG, AFS, AGL, ALB, ALG
Selected administrations:
13C/ Notified remarks:

T02

08:24 13/02/2017



Validation and Submission of the notice file to eBCD

- ✓ **Validate and save the notice file**
- ✓ **Browse and upload it together with the notice files of neighboring countries to eBCD web-portal - eTools: <https://www.itu.int/ITU-R/eBCD/MemberPages/eCalculations.aspx>**
- ✓ **Complete Submission**



Getting Compatibility Analysis results

- ✓ **Click on Back to calculation history**
- ✓ **Wait for results**
- ✓ **Launch CA Display and open saved .mdb file to view the results**



CA Display (example)

- ✓ File -> Open compatibility results file **GTM_ISDB-T_6MHz_EI Rodeo_flex.mdb**
- ✓ View -> Channel distribution statistics
- ✓ Check appropriate boxes and set a default margin
- ✓ Select Administration and click Refresh
- ✓ Select item of interest and click on the blue number
- ✓ List of requirements will appear
- ✓ Select the requirement of interest and click on it

The screenshot shows the CA Display software interface. The main window is titled "Channel Distribution Statistics" and displays a table with the following data:

	Submitted	No available channel or frequency block	No assignable channel or frequency block	Having an assignable channel or a frequency block
Assignments	4	0	0	4
Allotments	0	0	0	0
Total	4	0	0	4

The "Administration" dropdown is set to "GTM" and the "Refresh" button is visible. The "Show assignable channels or freq. blocks if the maximum acceptable margin (dB) is:" checkbox is checked, and the value "4" is entered in the adjacent text box. The "Having an assignable channel or a frequency block" column header and the value "4" in the Assignments row are circled in red.

The "Channel Distribution Details - Digital assignments with an assignable channel or frequency block" window is open, showing a table with the following data:

No.	Adm	Geo Area	Adm Ref Id	Not.Type	Site/Allot Name	SFN Id	Ch/block	Avail. Ch/block	Assignable Ch/block	Coord Completed
1	GTM	GTM	ISDB-T 6MHZ-3	T02	EI Rodeo		14-51	14-51	18-19,31,38,40,45,47,49-51	
2	GTM	GTM	ISDB-T 6MHZ-4	T02	EI Rodeo		14-51	14-51	18-19,31,38,40,45,47,49-51	
3	GTM	GTM	ISDB-T 6MHZ-2	T02	EI Rodeo		14-51	14-51	18-19,31,38,40,45,47,49-51	
4	GTM	GTM	ISDB-T 6MHZ-1	T02	EI Rodeo		14-51	14-51	18-19,31,38,40,45,47,49-51	

The row for "4 GTM" is circled in red, and a red arrow points to the "4" in the "No." column.



CA Display Setting defaults (cont.)

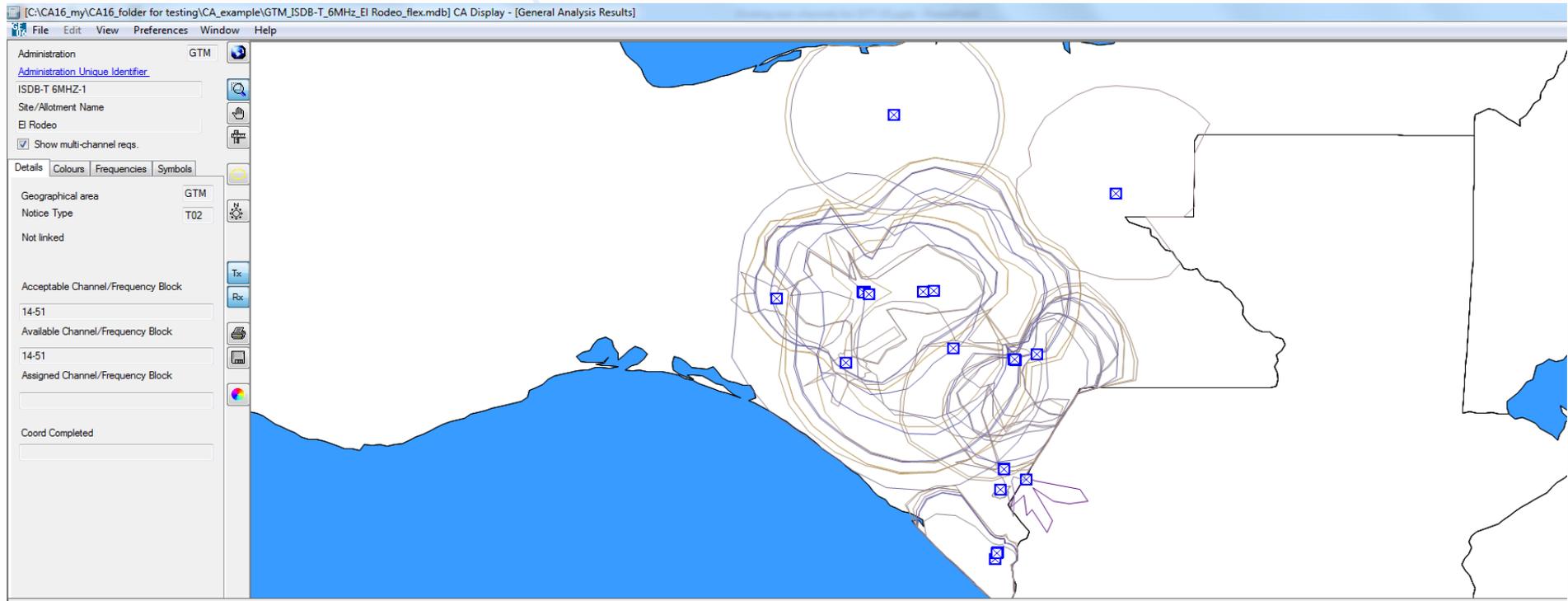
- ✓ Click on Digital Interferers tag
 - ✓ Click on Headings toolbar
 - ✓ In the pop-up window set the desired Column Preferences
 - ✓ Set them as default and click OK
- Repeat the same procedure for Digital Affected*

The screenshot shows the CA Display software interface. A 'Column Preferences' dialog box is open, allowing users to set sort order and displayed columns for various data fields. The 'Set as default' button is highlighted with a red circle. Below the dialog, the 'Digital Interferers' tab is selected in the main window, and a table of data is visible. The table has columns for No., Adm, Geo Area, Not.Type, Adm Ref Id, Site/Allot Name, SFN Id, Ch/block, and Avail. Ch/block. The 'Digital Interferers' tab label is also circled in red.

No.	Adm	Geo Area	Not.Type	Adm Ref Id	Site/Allot Name	SFN Id	Ch/block	Avail. Ch/block
1	MEX	MEX	T02	TVXHAC000P00CHP0014	SAN CRISTOBAL DE LA		14	14
2	MEX	MEX	T02	TVXHAC000C08CHP0014	Tuxtla Gutierrez CHIS		14	14
3	MEX	MEX	T02	TVXHPBFV0P00TAB0014	LA VENTA CARDENAS H		14	14
4	GTM	GTM	T02	ISDB-T 6MHZ-4	El Rodeo		14-51	14-51
5	GTM	GTM	T02	ISDB-T 6MHZ-3	El Rodeo		14-51	14-51
6	GTM	GTM	T02	ISDB-T 6MHZ-2	El Rodeo		14-51	14-51



Analysis of the results (example): List of interferers on ch. 31



Digital Interferers		Digital Affected															
No	Adm	Geo Area	Not Type	Adm Ref Id	Site/Allot Name	SFN Id	Ch/block	Avail. Ch/block	Assigned ch/bl	8BH (dBW)	8BV (dBW)	Wanted chann	Interf. channel	Distance (km)	CNFS (dB/uV)	Margin (dB)	Relation
25	MEX	MEX	T02	TVXHC TTH0P00CHP0029	TAPACHULA HUEHUET		29	29	29	48.1	29	29	29	64.8	58.5	6.63	Interference
26	MEX	MEX	T02	TVXHTUA00P00CHP0029	TUXTLA GUTIERREZ CH		29	29	29	46.5	29	29	29	191.3	51.8	2.46	Interference
27	MEX	MEX	T02	TVXHC0M00P00CHP0030	COMITAN DE DOMINGU		30	30	30	36.5	30	30	30	102.8	64.2	11.55	Interference
28	MEX	MEX	T02	TVXHC0M00C01CHP0030	Las Margaritas CHIS		30	30	30	36.1	30	30	30	108	54.2	3.67	Interference
29	MEX	MEX	T02	TVXHTAP00P00CHP0030	TAPACHULA CHIS		30	30	30	47.1	30	30	30	69.1	52.3	2.7	Interference
30	MEX	MEX	T02	TVXHTAP00C02CHP0030	Motozintla CHIS		30	30	30	37.8	30	30	30	23.2	51.1	2.21	Interference
31	MEX	MEX	T02	TVXHPBFU0P00TAB0031	VILLAHERMOSA CARDE		31	31	31	50	31	31	31	301.7	49.4	1.61	Interference
32	MEX	MEX	T02	TVXHITC00C02CHP0034	Las Rosas CHIS		34	34	34	27.7	34	34	34				Overlap
33	MEX	MEX	T02	TVXHITC00P00CHP0034	COMITAN DE DOMINGU		34	34	34	29.7	34	34	34	103.6	60	7.83	Interference
34	MEX	MEX	T02	TVXHTAH00P00CHP0034	TAPACHULA CHIS		34	34	34	47.9	34	34	34	65.2	51.3	2.28	Interference
35	MEX	MEX	T02	TVXHCIC00P00CHP0034	CINTALAPA DE FIGUER		34	34	34	41.8	34	34	34	230.7	50.1	1.81	Interference
36	MEX	MEX	T02	TVXHDZ000P00CHP0035	COMITAN DE DOMINGU		35	35	35	36.5	35	35	35	102.8	64	11.42	Interference



Analysis of the results (example): List of affected on ch. 31

[CA:CA16_my\CA16_folder for testing\CA_example\GTM_ISDB-T_6MHz_EI Rodeo_flex.mdb] CA Display - [General Analysis Results]

File Edit View Preferences Window Help

Administration GTM
 Administration Unique Identifier
 ISDB-T 6MHz-1
 Site/Allotment Name
 EI Rodeo
 Show multi-channel reqs.

Details Colours Frequencies Symbols

Geographical area GTM
 Notice Type T02
 Not linked

Acceptable Channel/Frequency Block
 14-51
 Available Channel/Frequency Block
 14-51
 Assigned Channel/Frequency Block

Coord Completed

Digital Interferers Digital Affected

No	Adm	Geo Area	Not Type	Adm Ref Id	Site/Allot Name	SFN Id	Ch/block	Avail. Ch/block	Assigned Ch/bl	8BW (dBW)	8BW (dBW) Wanted Chann	Interf. Channel	Distance (km)	CNFS (dB(uV))	Margin (dB)	Relation
44	MEX	MEX	T02	TVXHTUA00P00CHP0029	TUXTLA GUTIERREZ CH		29	29	29	46.5	29	29	138.8	37.4	1.98	Interference
45	MEX	MEX	T02	TVXHTUA00C04CHP0029	San Fernando CHIS		29	29	29	25.8	29	29	205.8	35.7	1.43	Interference
46	MEX	MEX	T02	TVXHTUA00C05CHP0029	San Francisco Ixhuatan C		29	29	29	25.6	29	29	233.1	35	1.25	Interference
47	MEX	MEX	T02	TVXHTAP00C02CHP0030	Motozintla CHIS		30	30	30	37.8	30	30	23	94.5	54.67	Interference
48	MEX	MEX	T02	TVXHC0M00P00CHP0030	COMITAN DE DOMINGU		30	30	30	36.5	30	30	38.3	70.8	31	Interference
49	MEX	MEX	T02	TVXHTAP00C01CHP0030	Huehuetan CHIS		30	30	30	19.5	30	30	74	59.5	19.7	Interference
50	MEX	MEX	T02	TVXHTAP00P00CHP0030	TAPACHULA CHIS		30	30	30	47.1	30	30	56.8	57.9	18.12	Interference
51	MEX	MEX	T02	TVXHC0M00C01CHP0030	Las Margaritas CHIS		30	30	30	36.1	30	30	106.1	51.4	11.88	Interference
52	MEX	MEX	T02	TVXHOPTC0P00CHP0031	TUXTLA GUTIERREZ CH		31	31	31	39.5	31	31	140.9	37.5	1.96	Interference
53	MEX	MEX	T02	TVXHHUC00P00CHP0032	HUIXTLA CHIS		32	32	32	46	32	32	44.2	56.3	16.37	Interference
54	MEX	MEX	T02	TVXHOCC00P00CHP0032	OCOSINGO CHIS		32	32	32	45.9	32	32	173	40	3	Interference
55	MEX	MEX	T02	TVXHTAA00P00CHP0033	TAPACHULA CHIS		33	33	33	44.3	33	33	46	63.5	23.45	Interference



Outcome of the analysis of the compatibility results on ch. 31

Conclusions:

- 1) Calculated margins in both directions (for incoming and outgoing interference) do not exceed the established default margin, therefore channel **31** can be assigned to this site.
- 2) To fix this, it is necessary to modify the initial notice containing flexible channel **83** (assigned frequency 887 MHz) by assigning channel **31** (assigned frequency 575 MHz).



What is next?

Repeat the same analysis for the other possible channels.

For this example, it can be noticed that channels:

18, 19, 38, 40, 45, 47, 49, 50 and 51

can also be assigned to that site.



Thank you for your attention!

Questions?

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