

2-6 December 2024 Geneva, Switzerland





ITU World Radiocommunication Seminar

e-Terrestrial platform

Online tools and electronic communication means for terrestrial services

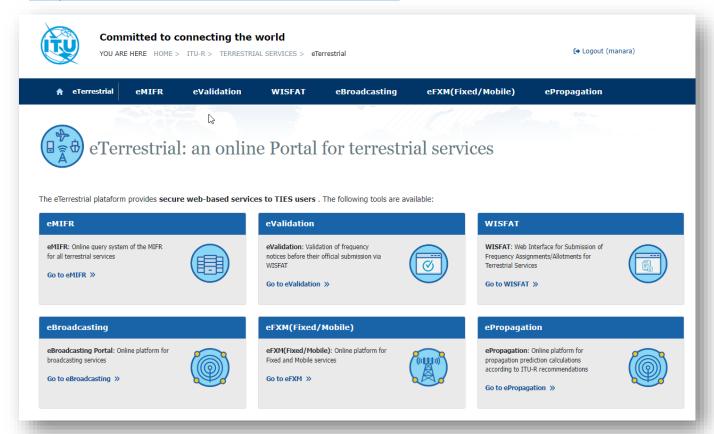




- Integrated eTerrestrial platform
- eBroadcasting platform for broadcasting services
 - eQuery, ePub, eTools, myAdmin
- eMIFR, ePropagation for all terrestrial services
- Future directions
- Exercise session



https://www.itu.int/ITU-R/eTerrestrial





History

- 2006: eBCD2.0 released for RRC06 eQuery/ePub Ge06
- 2007: eTools GE06 Art.4 **Coordination/Conformity**
- 2008: myAdmin. Extension of the tools to all broadcasting plans
- 2014: Online Validation
- 2015: eMIFR
- 2016: Outgoing Correspondence in myAdmin (Focal Points). eMIFR. **GE84** compatibility.
- **2017: CA Compat**
- 2018: P1812 P2A coverages
- 2020: GE84 Optimization
- 2022: eTerrestrial
- 2022: CAC List display



eTerrestrial: an online Portal for terrestrial services

New release for WRS-24!



- **Tools Addition eFXM**
 - myAdminFXM
- **eBroadcasting**
 - eHFBC integration
- **ePropagation**
 - > P1546 Multipoint2Point
- myAdmin
 - Integration of incoming correspondence for GE84 comments
- New map template library, being integrated

- Latest technologies
- More modern design and better user experience
- Responsive on all devices

eBroadcasting



eBroadcasting: Online Platform for Broadcasting Services

https://www.itu.int/ITU-R/eTerrestrial/eBroadcasting

Objectives

Bring the BR closer to Administrations with added-value services

- Up-to-date broadcasting data
- Special Section at publication date
- Calculation-on-demand
- Easily follow-up on plan modification procedures and related deadlines

Outcome

- Reduce workload on both BR and administrations
- Reduce the need for printed documents



Output

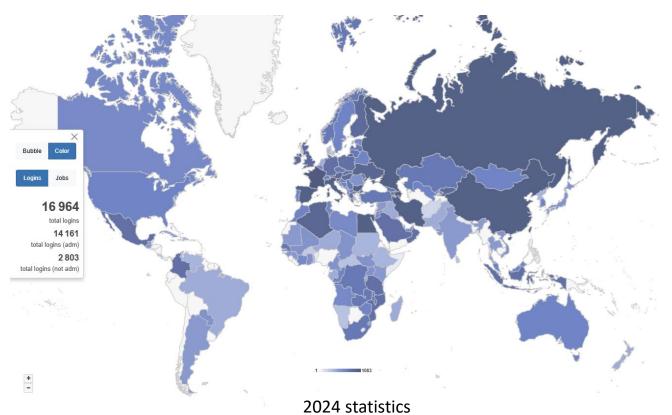






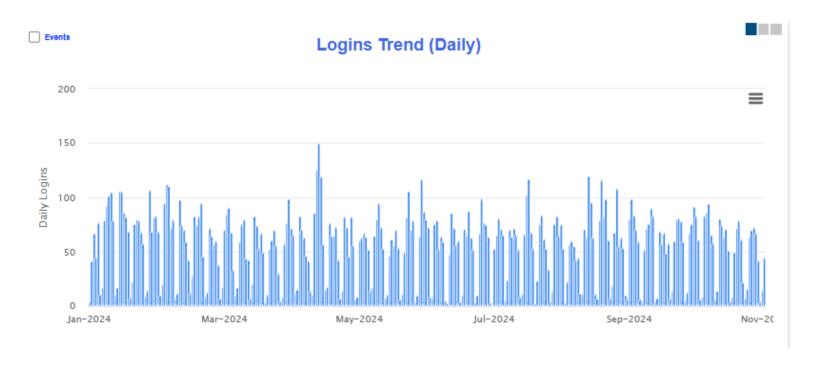








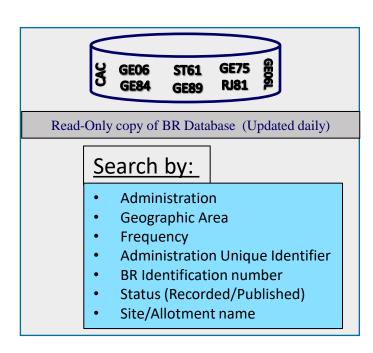
eBroadcasting: Online Platform for Broadcasting Services

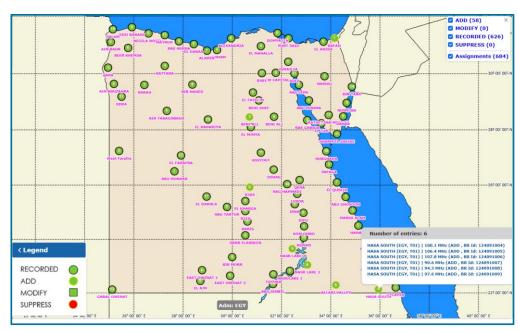


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https://www.itu.int/ITU-R/eTerrestrial/eBroadcasting/eQuery







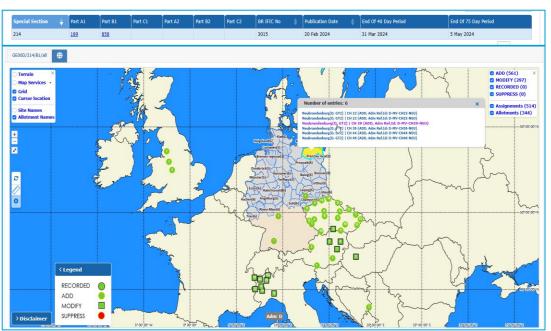
https://www.itu.int/ITU-R/eTerrestrial/eBroadcasting/ePub



Database Snapshots (at publication date)

Search by:

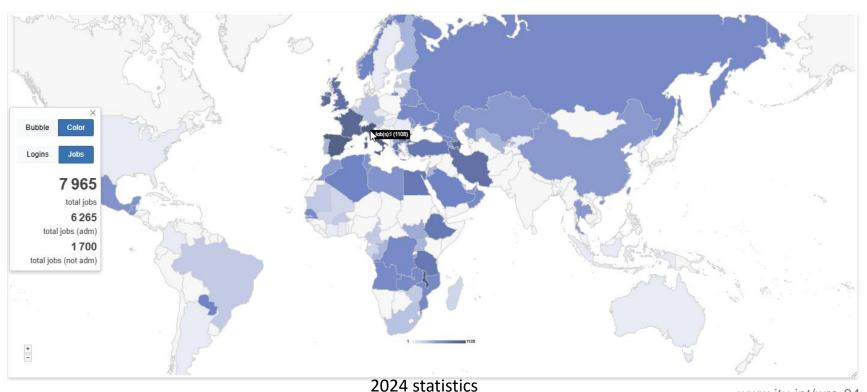
- BR IFIC number
- Administration
 - My notifications
 - Notifications which affects me



All Special Section for broadcasting plans since 2007



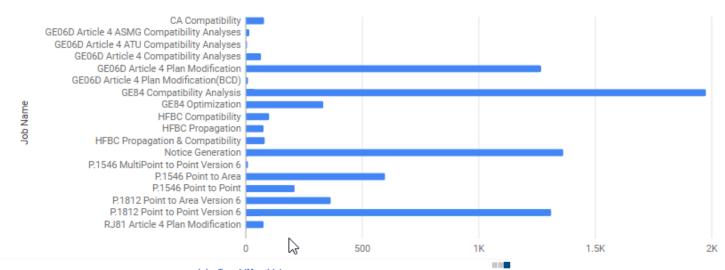
https://www.itu.int/ITU-R/eTerrestrial/eBroadcasting/eCalculations



"On-demand test calculations"









Calculation farm Back ITU i distr mini 30 processes

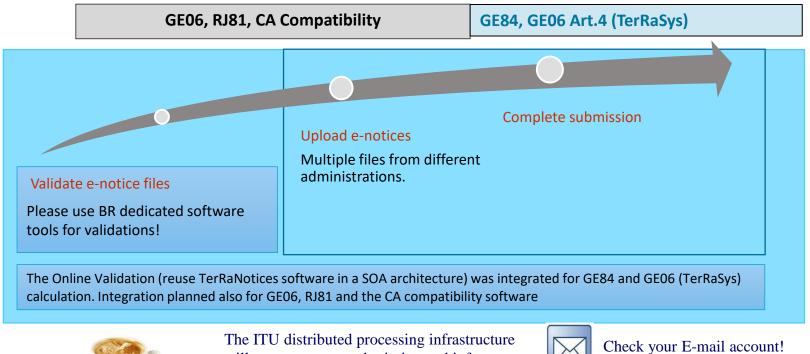
Back-end infrastructure

ITU internal farm: 30 processes distributed in such a way to minimize waiting time.

"On-demand test calculations"



e-notice submission





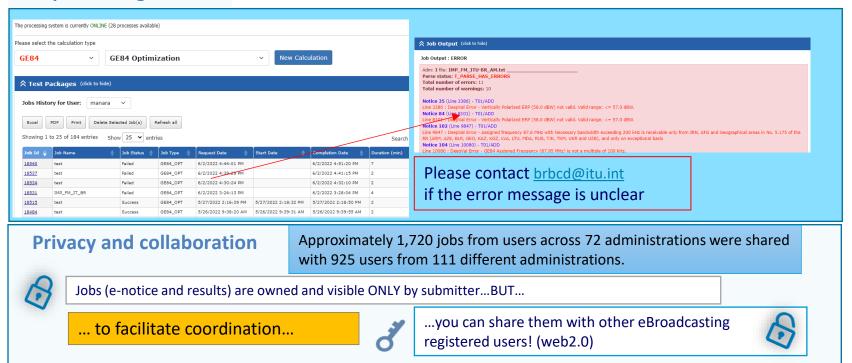
will treat your test submission and inform you at completion!





Job processing

Job processing, privacy and collaboration



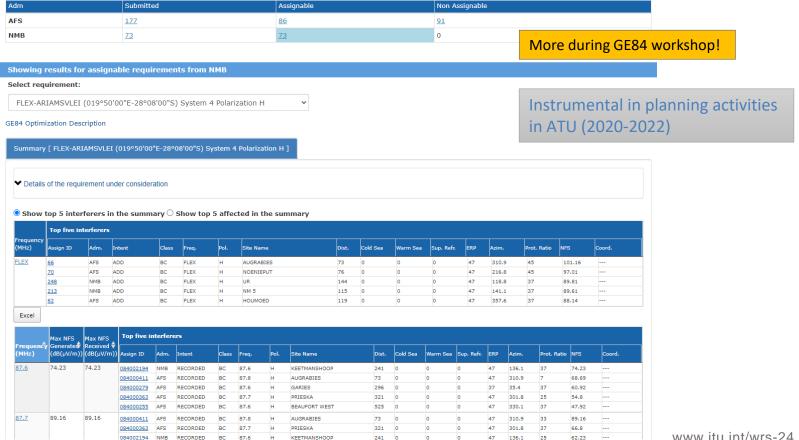
eBroadcasting >> eTools >> GE84 Compatibility Analyses



Please select the calculation type **GE84 Compatibility Analyses New Calculation GE84** V Select the proposed modification More during GE84 workshop! 87.7MHz_RTS Andijan_072°23'30"E-40°42'57"N-Id:1 ∨ Result Affected Interferers Export to Excel Showing 1 to 18 of 18 entries Show 50 ✓ entries Search: Cold Sea Stn Total Distance Warm Sea Super refractivity Azimuth Eu increase Adm Intent 4 Polar Site Name NFS. Frequency (MHz) (km) Path (km) Path (km) Path (km) (dBW) (deg) (dB) Eu (dB) 113066089 KGZ RECORDED BC 87.6 PPC18 43 38.6 121 33 82.23 88.59 87.62 81.93 5.69 113066084 RECORDED BC 87.6 Mailysai PPC 69 38.6 12 33 78.39 84.44 89.43 86.93 2.5 87.6 108 315 113066092 RECORDED BC Alabuka 38.6 33 77.79 94.47 96.62 95.95 0.67 113066077 RECORDED BC 87.6 Batken PPC 162 235 33 74.83 72.26 85.85 83.67 2.18 87 115125428 KGZ RECORDED BC 87.9 RRSGULCHA 38.6 115 73.84 81.1 79.64 1.46 RRS-6 2 118018296 RECORDED BC 88.1 72 38.6 45 -20 108.23 121.72 121.72 Yuzhnaya 2 118018297 RECORDED BC 87.9 Djalal-Abad 58 _ 38.6 65 7 61.66 133.12 104.75 104.75 0 115125429 KGZ RECORDED BC 87.7 ISFANA 262 38.6 249 37 60.23 100.39 104.08 104.08 RRS-50 Tash-118077926 KGZ RECORDED BC 87.9 38.6 349 111.06 108.06 108.06 Kumyr KOKSARAI 120145091 KAZ RECORDED BC 87.7 414 303 37 51.7 55.14 59.8 56.33 3.47 UKO 61 64 113066081 RECORDED BC 88 PPC62 38.6 48.2 96.97 111.3 0 113066075 RECORDED BC 87.9 Karakul PPC 115 38.6 18 41.84 96.22 96.22 0 113066070 KGZ RECORDED BC 88.1 PPC30 24 38.6 158 -20 76,94 76.93 0.01 41.61 94.31

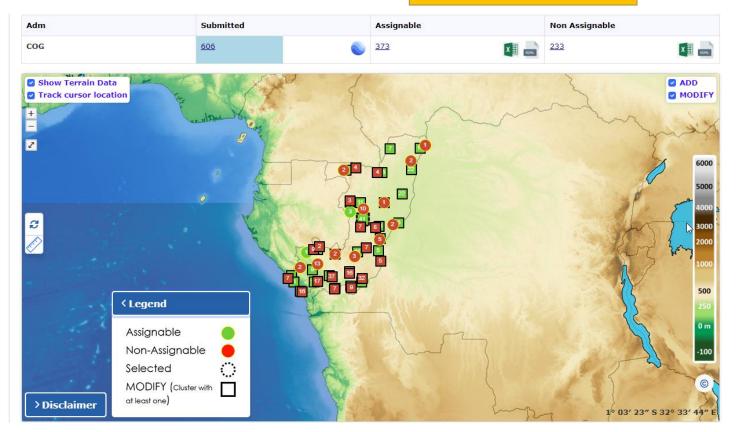
eBroadcasting >> eTools >> GE84 Opt





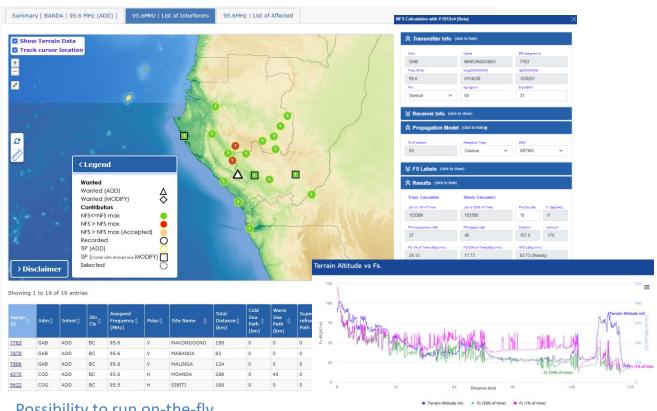


More during GE84 workshop!



eBroadcasting >> eTools >> GE84 Opt





Possibility to run on-the-fly

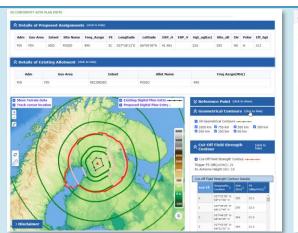
P.1812 calculations to assess the effect of the terrain

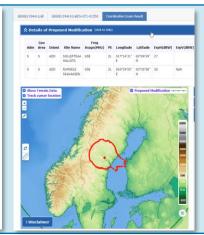
eBroadcasting >> eTools >> GE06D-related calculations



Plan modification (coordination/conformity exam)

eTools Simulation integrating TerRaSys software since 2023





Compatibility analyses

Interference calculations between new notices (from electronic notification files) and existing plan notices and recorded assignments/allotments

Instrumental in planning activities in regional organizations

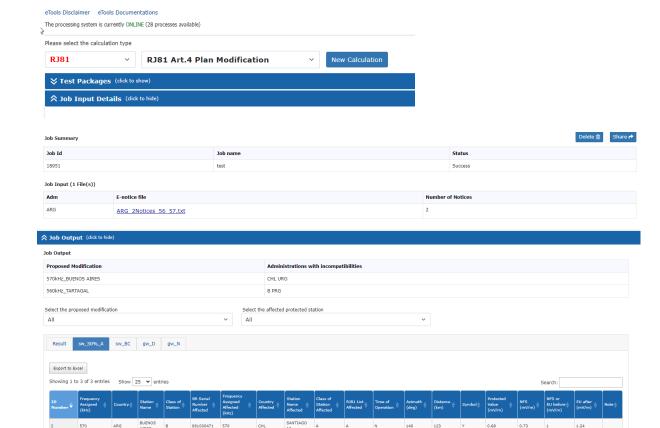


ATU (2012-2013)

ASMG (2014-2015)

eBroadcasting >> eTools >> RJ81 plan modification and what-if studies





SANTIAGO

SANTIAGO

AIRES

BUENOS

081000471 570

ATRES BUENOS

AIRES

Following CITEL requests (2014-2015)

- Plan Modification
- What-if studies

1.18

What-if studies configurable Enom

eBroadcasting >> eTools >> CA Compatibility calculations



Interference calculations between **new**requirements (from electronic notification
files) and existing MIFR notices and
recorded assignments



Central America and Caribbean Multilateral Agreement

- ➤ Based on the EBU software developed for the RRC06 planning
- Main changes
 - Propagation model ITU-R P.1546-5 (refractive index correction) vs ITU-R
 P.1546-2 (propagation zones)
 - ➤ Protection ratios for all digital standards (vs. DVB-T only)

CA Display manual

CA compat manual

"My own office for broadcasting services @ ITU: opening ~24/7"



Focal point only

CR 408: Restricted access to focal point only since November 2016 for myAdmin and e-mail notification services.

AFG	0	AFS	3	AGL	1	ALB	0	ALG	4	AND	0	ARG	0	ARM	1	ARS	7	ATG	0	AUS	1	AUT	7
AZE	2	В	0	BAH	0	BDI	2	BEL	4	BEN	2	BFA	2	BGD	0	BHR	5	BIH	3	BLR	2	BLZ	0
BOL	2	BOT	0	BRB	0	BRM	0	BRU	0	BTN	0	BUL	3	CAF	0	CAN	0	CBG	0	CHL	0	CHN	3
CLM	0	CLN	0	CME	6	COD	0	COG	5	COM	4	CPV	1	CTI	3	CTR	0	CUB	0	CVA	1	CYP	3
CZE	2	D	2	DJI	1	DMA	0	DNK	1	DOM	0	Е	4	EGY	3	EQA	0	ERI	0	EST	3	ETH	0
F	13	FIN	2	FJI	0	FSM	0	G	3	GAB	2	GEO	2	GHA	1	GMB	1	GNB	0	GNE	1	GRC	0
GRD	0	GTM	0	GUI	2	GUY	0	HND	0	HNG	6	HOL	0	HRV	5	HTI	0	I	6	IND	2	INS	2
IRL	4	IRN	4	IRQ	0	ISL	0	ISR	0	J	1	JMC	0	JOR	4	KAZ	3	KEN	3	KGZ	1	KIR	1
KNA	0	KOR	1	KRE	0	KWT	0	LAO	0	LBN	0	LBR	3	LBY	4	LCA	0	LIE	1	LS0	2	LTU	4
LUX	1	LVA	2	MAU	1	MCO	2	MDA	2	MDG	3	MEX	0	MHL	0	MKD	2	MLA	3	MLD	0	MLI	2
MLT	2	MNE	1	MNG	0	MOZ	4	MRC	5	MTN	6	MWI	0	NCG	0	NGR	1	NIG	3	NMB	2	NOR	5
NPL	0	NRU	0	NZL	2	OMA	6	PAK	1	PHL	1	PNG	0	PNR	0	POL	1	POR	3	PRG	0	PRU	0
PSE	2	QAT	2	ROU	1	RRW	4	RUS	2	S	1	SDN	4	SEN	2	SEY	6	SLM	0	SLV	0	SMO	0
SMR	0	SNG	1	SOM	0	SRB	2	SRL	0	SSD	1	STP	0	SUI	2	SUR	0	SVK	5	SVN	2	SWZ	1
SYR	2	TCD	2	TGO	5	THA	0	TJK	0	TKM	0	TLS	0	TON	0	TRD	0	TUN	3	TUR	1	TUV	0
TZA	5	UAE	5	UGA	1	UKR	3	URG	0	USA	0	UZB	1	VCT	0	VEN	0	VTN	3	VUT	0	YEM	0
ZMB	3	ZWE	3]																			

If focal point not notified → BR will use official email addresses for notification services (BUT no myAdmin access then ⊗)

brbcd@itu.int

340 focal points TIES account from 116 administration

MailBox

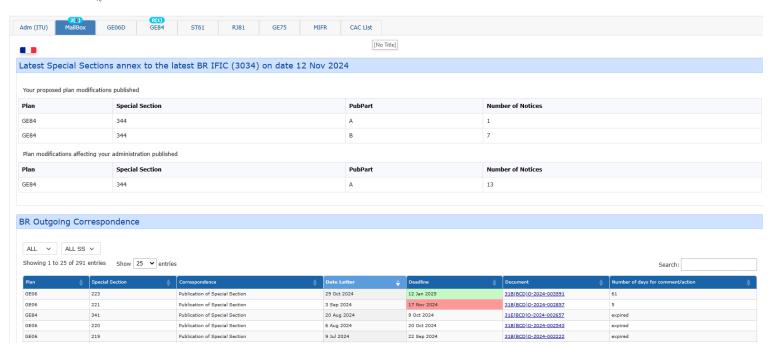


Latest Special Sections and Output correspondence



myAdmin: Virtual ITU broadcasting office (open 24/7)

2



MailBox



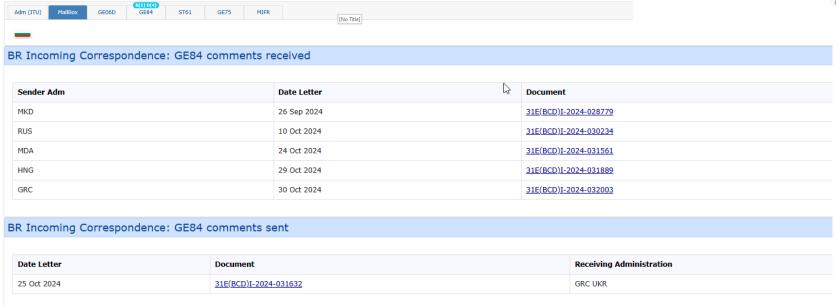
BR Incoming Correspondence: GE84 comments received/sent

Replacing manual forwarding to GE84 comments correspondence (during the coordination period) with an automated system!



myAdmin: Virtual ITU broadcasting office (open 24/7)





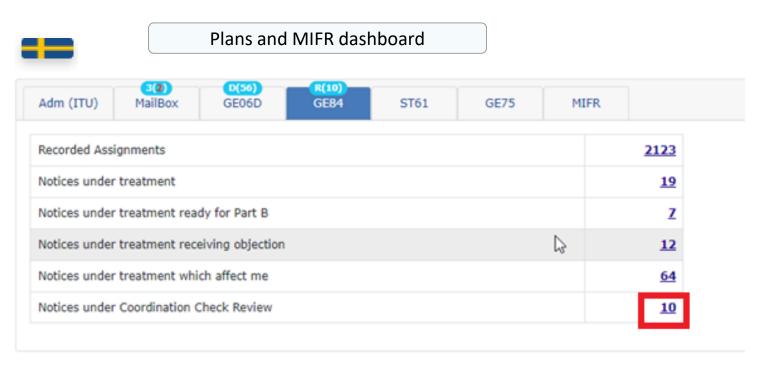




Recorded Assignments	2985
Notices under treatment	124
Notices under treatment ready for Part B	32
Notices under treatment receiving objection	<u>16</u>
Notices under treatment which affect me	<u>36</u>
Comments given in the last period (30 days)	5
Comments received in the last period (30 days)	<u>6</u>
Notices to be deleted after 2 years and 75 days (90 days early warning)	<u>56</u>

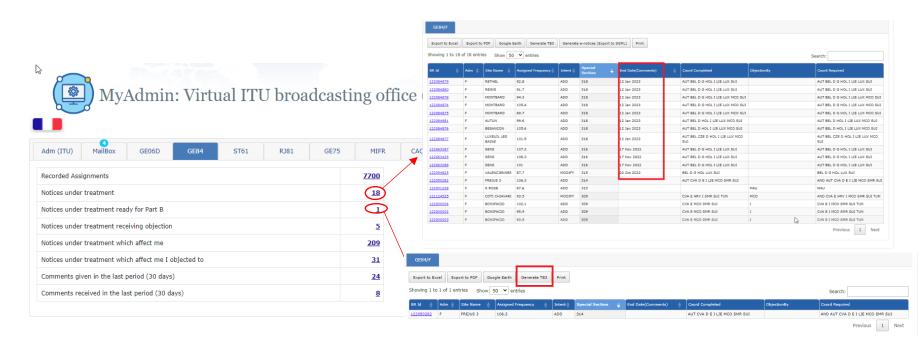
MIFR







Plans and MIFR dashboard

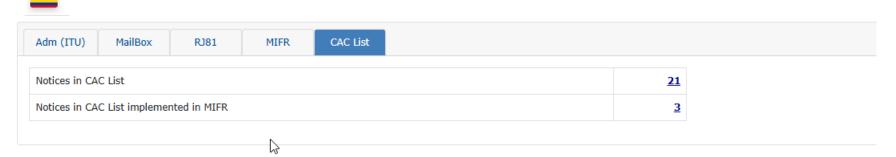




Plans and MIFR dashboard



myAdmin: Virtual ITU broadcasting office (open 24/7)



eBroadcasting >> E-mail notification services





D kari.hautala@ficora.fi; kari.kangas@ficora.fi; ari.lahtinen@ficora.fi; markus.mettala@ficora.fi; teemu.ovaska@ficora.fi

Dear Madam/Sir

The Radiocommunication Bureau in have just been entered in the databa





□ dowlandt@ties.itu.int; □ freemanp@ties.itu.int; □ ngreen@ties.itu.int; □ hillsala@ties.itu.int; □ jamesmar@ties.itu.int; □ pollitt@ties.itu.int

Latest Coordination for GE06

assgn_id	pub_no	adm	siteOrA
116113557	119	FIN	ESPOO
116113558	119	FIN	ESPOO
116150059	122	FIN	MIKKE

Dear Madam/Sir

The Radiocommunication Bureau informs you that your proposed plan modifications have just been published in the relevant Special Sections annex to BR IFIC 2833, on date 22/11/2016

Plan	Special Section	Pub Part	NoNotices
GE84	246	A	3

For all detailed information please visit ePub

eBroadcasting >> E-mail notification services

Important: Please do not reply to this email

For any further clarification or additional informa



Special Section GE84/315 of BRIFIC No 2975 dated Tuesday, July 12, 2022 (I) 31E(BCD)O-2022-003596 ≪ Reply All ← Reply → Forward eBCD, ITU To Oeva.spina@mise.gov.it; maurizio.danzo@mise.gov.it; nataledaniele.russo@mise.gov.it; umberto.mascia@mise.gov.it; anna.lassainato@mise.gov.it; Mon 10/10/2022 4:25 AM O tommaso.magliocca@mise.gov.it Cc Traore, Bangaly-Fodé MailBox Adm (ITU) GE06D ST61 GE75 MIFR Dear Madam/Sir Latest Special Sections annex to the latest BR IFIC (2982) on date 18 Oct 2022 On date Thursday, September 22, 2022 the Bure Your proposed plan modifications to be published (Internal site ONLY) The Bureau has also later informed you via e-mai Special Section Plan PubPart **Number of Notices** The Bureau wishes to inform you that the limit 197 B1 143

204

204

RP Outgoing Correspondence

bk outgoing c	orrespondence					
ALL V Showing 1 to 25 of 3	308 entries Show 25	• entries				Search:
Plan 👙	Special Section	Correspondence \$	Date Letter	Deadline \$	Document	Number of days for comment/action
GE84	318	Publication of Special Section	4 Oct 2022	23 Nov 2022	31E(BCD)O-2022-003767	43
GE84	316	50 days reminder	29 Sep 2022	9 Oct 2022	31E(BCD)O-2022-003692	expired
GE84	315	70 days reminder	22 Sep 2022	20 Oct 2022	31E(BCD)O-2022-003596	9
GE06	196	Publication of Special Section	20 Sep 2022	4 Dec 2022	31B(BCD)O-2022-003563	54
GE84	317	Publication of Special Section	6 Sep 2022	26 Oct 2022	31E(BCD)O-2022-003419	15
GE84	315	50 days reminder	1 Sep 2022	11 Sep 2022	31E(BCD)O-2022-003383	expired
GE84	314	70 days reminder	24 Aug 2022	22 Sep 2022	31E(BCD)O-2022-003244	expired
GE06	193	50 days reminder	18 Aug 2022	11 Sep 2022	31B(BCD)O-2022-003210	expired

4

https://www.itu.int/ITU-R/eTerrestrial/ePropagation



ITU-R P series calculations for terrestrial services

- > Moved to eTerrestrial level
- > New functionalities
 - Integrated map display
 - Improved graphics
 - ► Included additional DEMs (ASTER GDEM v3 in addition to SRTM valid only in the latitudes range [-56,60])
 - > Possibility to read notice file and reuse other jobs input parameters
 - > P.1812 offered as option in GE84 calculations
 - > P.1546 MultiPoint to Point

More during Propagation session!

Rec. ITU-R P.1812 vs P.1546



Recommendation ITU-R P.1812-6 (09/2021)

A path-specific propagation prediction method for point-to-area terrestrial services in the frequency range 30 MHz to 6 000 MHz

Deterministic model

model all the physical phenomena which plays a role in VHF-UHF band

Path specific

Uses terrain profile (elevation above mean sea level).

- > 30 MHz 6 GHz
- > 0.25 km 3000 km
- > 1% < time < 50%
- > 1% < locations < 99%
- Rx and Tx hgt agl <= 3km</p>

Recommendation ITU-R P.1546-6

Method for point-to-area predictions for terrestrial services in the frequency range 30 MHz to 4 000 MHz

Empirical model

based on extensive field measurements and statistical analysis

Path general

The effect of terrain only via:

- Effective antenna height
- Clearance Angle correction
- Tropospheric scattering correction
 - > 30 MHz 4 GHz
 - > 1 km 1000 km
 - > 1% < time < 50%
 - ➤ 1% < locations < 99%</p>
 - > Rx and Tx hgt agl <= 3km

More during Propagation session!

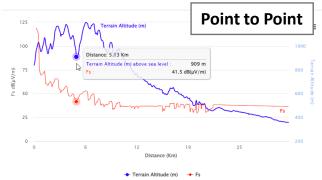
Interference/coverage analyses!



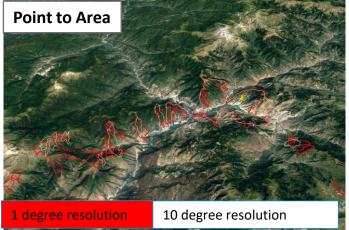
P.1812-6(09-21)

Propagation prediction using terrain profile (deterministic model)

- > 30 MHz 6 GHz
- > 0.25 km 3000 km
- > 1% < time < 50%
- 1% < locations < 99%</p>
- Rx and Tx hgt agl <= 3km</p>







Point to Area

Input Parameters

Display Input Parameters

Job Input

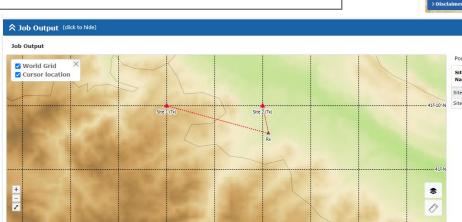


P.1546-6(08-19)

- > 30 MHz 4 GHz
- > 1 km 1000 km
- > 1% < time < 50%
- > 1% < locations < 99%
- > TX eff hgt <= 3km

Propagation prediction (empirical model)

Point to Point and MultiPoint to Point

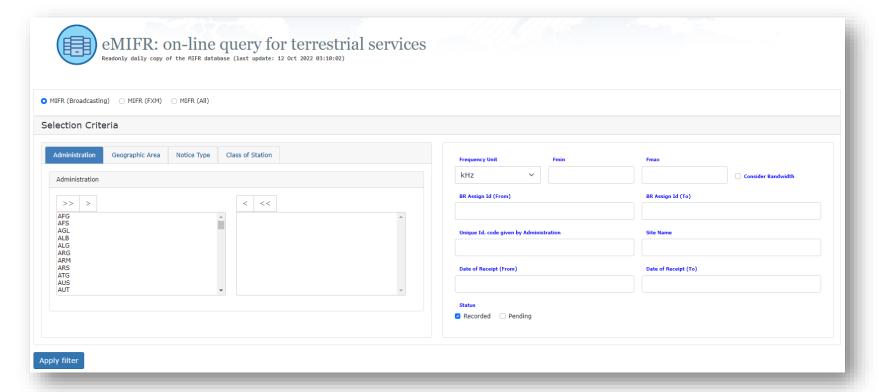


Site	Freq.	Dist.		FS (dB
Name \$	(MHz) ♥	(km) =	Bearing(°)	μV/m) 🕏



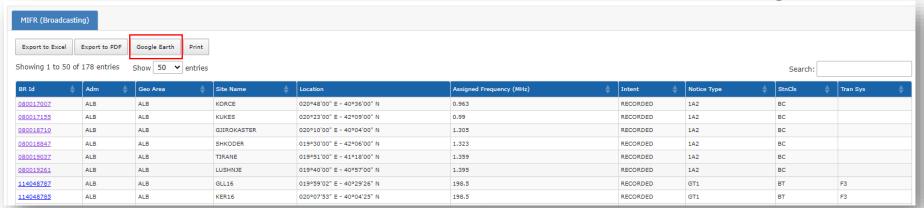


https://www.itu.int/ITU-R/eTerrestrial/EMIFR

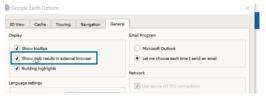








Please modify settings for appropriate navigation from Google Earth











- Development of GE75 what-if studies and display detailed coordination results
- > Development of more map-centric tools



Login to the <u>eTerrestrial</u> platform.

If you do not have a TIES account use the generic account

<u>username</u>: user1 <u>password</u>: user1

Explore the available tools (myAdmin restricted access to focal point only) by navigating amongst them



Exercise n. 1: eQry

- 1. Set selection criteria for plans published notices or recorded assignments for your administration
- 2. Retrieve the data
- 3. Browse through summary information via the table and via the map
- 4. Visualize notice/assignment details
- 5. Export the information to Excel



Exercise n. 2: ePub

- 1. Consult data concerning Special Sections of a plan of your choice
 - Browse affected/notifying administrations
 - Browse through summary information via the table and via the map
 - Visualize notice/assignment details
- 2. Select your Administration
 - For the Plan of your choice, find the Special Sections which included your modifications or notifications affecting your administrations
- 3. In case you are a Focal Point, verify that you received the email notification informing of new publications



Exercise n. 3: ePropagations

- 1.Read the Disclaimer to make sure you understand scope and limitations of the tool
- 2.Look at the Documentation link pointing to documents concerning the various calculations provided and browse through few documents of interest to you
- 3. Submit a Propagation P1812 P2P or P1546 P2P, MP2P or P2A calculation
- 4.Display the results when the calculation completes (an e-mail will be sent to your ties e-mail account)
- 5. Share the job with one or more of your neighbors. Verify that your neighbors can access your test data.
- 6.Delete a job if you are not more interested in it.



Exercise n. 4: myAdmin

Focal point only

- a.Are you a focal point? If you are involved with plan modification procedure you should definitely be a focal point!
- b. Verify that you have access to myAdmin
- c.Look at your MailBox
 - a.Is there any BR outgoing correspondence?
 - i. Get familiar with the information provided. Click on the Document link and open the pdf file.
 - ii. Do you have any item in red? What does it mean?
- d. Verify if you received email notifications concerning coordination data, new Special Sections and new documents concerning your latest publications (since 15 September 2016).



Thank you!

ITU – Radiocommunication Bureau

Questions to brbcd@itu.int