

#### 30<sup>TH</sup> WORLD RADIOCOMMUNICATION SEMINAR

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## eTerrestrial – eFXM(Fixed/Mobile) online tools for terrestrial (except broadcasting) services

Fixed and Mobile Services Division Radiocommunication Bureau (BR/TSD/FMD)

www.itu.int/go/wrs-22 #ITUWRS



## Agenda

### • background

- "eTerrestrial" an online portal for terrestrial services
- "eFXM" as a part of eTerrestrial platform

### eFXM tool presentations

- structure of eFXM portal site
- eQueryFXM functions
- eQueryFXM tool demonstrations
- future eFXM development plan
  - ePubFXM, eToolsFXM and MyAdminFXM
- exercise session





### eTerrestrial an online portal for terrestrial services

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

#### **Background**

- **eTerrestrial** is a platform to provide online services for terrestrial services. BR started its development in 2006.
- eFXM (Fixed/Mobile) is a part of eTerrestrial platform, which provides online web services for terrestrial (except broadcasting) services. BR started its development in January 2022.





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## Structure of eFXM platform

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

#### **Objective**

- **eFXM** platform is being developed to provide useful and secure web-based tools of terrestrial (except broadcasting) services (further referred to as "FXM") for TIES authenticated users to facilitate the application of the regulatory procedures by providing online access to BR databases and services.
- eQueryFXM, which provides online query to BR databases, has been developed.

#### **New functions (eQueryFXM)**

- Query function of **Plan allotments** and **common frequencies** in FXM part in addition to MIFR.
- Function to provide lists of more detailed technical elements which may be used in sharing and compatibility studies under WRC-23 agenda items.





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

ec	QueryFXM: Queries	on FXM Plans and MIFR	for specific purpose	es
Menu Selection All (FXM) (*) All MIFR (FXM) (*) All PLAN (FXM) (*) Com Freq (*) To provide specific queries of	Menu Selection         06L       GE85M       GE85N       AP25         statistics of stations and technical characterist	AP26 AP27	on (default) <b>Type Selection</b>	eQueryFXM F
Search Criteria				
Administration AFG  AFS  AGL  ALB  ALG  V  K	Geographic Area	Frequency Unit Fro MHz Date of Receipt (From) dd/MM/yyyy Search Criteria	m Freq To Freq Date of Receipt dd/MM/yyy	Frequency bandwidth over (To)
Notice Type	AL AM BC FA	BR Assign Id (From)	BR Assign Id (To Site Name	) Region
T15 • «	▼ FB <b>▼ ≪</b>	Status Recorded	Pending Ap	ply Clear ply/Clear buttons

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## eQueryFXM – Menu Selection

#### **Menu Selection (fragment)** • All (FXM) All FXM assignments/notices (MIFR + PLAN + Common Frequencies) • All MIFR (FXM) All FXM MIFR assignments/notices (MIFR only) • All PLAN (FXM) All FXM PLAN allotments/assignments/notices (PLAN only) • GE06L GE06L Plan assignments/notices • AP25 AP25 allotment Plan GE85M Plan assignments/notices • AP26 AP26 allotment Plan • GE85M • GE85N GE85N Plan assignments/notices • AP27 AP27 allotment Plan All FXM common frequencies (Common Frequencies only) Com Freq

Men	ielection
0	JI (FXM) (*)
$\bigcirc$	JI MIFR (FXM) (*)
$\bigcirc$	II PLAN (FXM) 🔘 GE06L 🔘 GE85M 🔘 GE85N 🔘 AP25 🔵 AP26 🔵 AP27
$\bigcirc$	om Freq





## eQueryFXM – Query Type Selection



## eQueryFXM – Search Criteria

#### **Search Criteria**

- Available search criteria are different by fragments (not applicable search criteria are greyed out)
- At least one of search criteria should be filled to perform Query.
- "Frequency bandwidth overlap"

If selected, includes records whose bandwidths are within indicated frequency range even though assigned frequencies are outside frequency range.

Search criteria are maintained when you change "Query Type Selection" and/or "Menu Selection"
Search results are cleared if you modify/edit any search criteria.

Administr	ration			Geograph	ic Area			Frequency Unit From Freq	To Freq	Frequency bandwidth
AFG		»	*	ABW		»	*	MHz 🗸		
AFS		>		AFG		>		Date of Receipt (From)	Date of Receipt (To)	
ALB		<		AGL		< -		dd/MM/yyyy	dd/MM/yyyy	
ALG	-	«	-	AIA	-	<b>«</b>	-			
Notice Ty	pe			Station Cl	ass			BR Assign Id (From)	BR Assign Id (To)	
T11 T12 T13	<b>^</b>	» >	*	AL AM BC	<b>^</b>	» >	*	Unique Id. code given by Administration	Site Name	Region
T14 T15	-	< «	-	FA FB	-	< «	-			



## eQueryFXM – Apply/Clear buttons

#### **Apply/Clear buttons**

- Query can be performed by clicking "Apply" button after filling in necessary search criteria.
   "Apply" button is enabled when at least one of search criteria is filled.
- Click "Clear" button to reset all search criteria

Warning message is displayed if you are about to perform heavy query (too many search results) in order to avoid excessive server load.

Administration			Geograph	nic Area			Frequency Unit From Freq	To Freq	¬	
AFG 🔶	»	-	ABW	<b>^</b>	»	-	MHz ~			Frequency bandwidth of
AFS			AFG		>		Date of Receipt (From)		Date of Receipt (To)	
AGE	<		AFS		<		dd/MM/yyyy		dd/MM/yyyy	
ALG 👻	«	-	AIA	-	«	-				
Notice Type			Station C	lass			BR Assign Id (From)		BR Assign Id (To)	
r11 <b>^</b>	»	*	AL	1	»	*	Unique Id. code given by Administration		Site Name	Region
12	>		BC		>					
[14	<u> </u>		FA	2	<u> </u>					
r15 🔹 👻	<b>«</b>	-	FB	-	«	-	Status Recorded	Pending	Apply	Clear



### eQueryFXM – Search Results (1)

#### **Query Type Selection: "General Query (default)"**

	Menu Selection All (FXM) (*) All MIFR (FXM) (*) All MIFR (FXM) GE06L GE Com Freq (*) To provide specific queries of statistics of st	35M GE85N AP25 AP26 (	Query Type Selection         General Query (default)         AP27         IM PLANs and MIFR.	×	
	Search Criteria				
	Administration AFG  AFS AGL ALB ALG  V K	Geographic Area ABW AFG AFS AGL AIA	Frequency Unit     From Freq       MHz     100       Date of Receipt (From)     100       dd/MM/yyyy     Image: Comparison of the second secon	To Freq       102     Frequency bandwidth overlap       Date of Receipt (To)     Image: Comparison of Com	
Export/Print	Notice Type           T11         *         >           T12         >         >           T13             T14              T15	AL AM BC C C C C C C C C C C C C C C C C C C	Unique Id. code given by Administration Status Recorded Pending	Site Name Region  Apply Clear	_
	eFXM Result Excel Export PDF Export Print (cu	rent page) Num dis	ber of records to be played in one page	Search	Text sea
Click <b>BRID</b> to display	Showing 1 to 63 of 63 entries			Page size 200 🗸 age: 1 / 1 🛛 🖉 🕞 🕅	
detail assignment	ADM Geo BRID Unique ADM Area ID Area	- Assiç egion Site Geo. Coord Free Name (MH	n. Class Class I Bw. Intent Notice Class Class I Code Intent Type Of Of Sign 2) Sta. Emis.	Std/ Hours Receipt Channel Allot. Fragment Of Ops. Date Area	
	080214311 AFS AFS 1	JOHANNESB 28°03'00''E - 100 26°11'00''S	16K0 RECORDED 1A1 SS F3E ZUO	00:00- 24:00 NTFD_RR	
	<u>080214316</u> BRM BRM 3	YANGON 96*05'00''E - 100 16*55'00''N 100	10K0 RECORDED 1A1 FX A3E XZK33	00:00- 24:00 NTFD_RR	
	080214332 NZL NZL 3	AUCKLAND 174°47'00"E - 36°54'00"S 100.0	25 6K00 RECORDED 1A1 FB A3E	00:00- 24:00 NTFD_RR	
	080214333 NZL NZL 3	AUCKLAND 174°47'00°E - 36°54'00°S 100.0	25 6K00 RECORDED 181 ML A3E	00:00- 24:00 NTFD_RR	

## eQueryFXM – Search Results (2)

#### detail assignment information in "General Query (default)" view

- Detail information of selected assignment/notice is displayed in separate tab (up to 5 assignments/notices) by clicking BRID in eFXM Result table.
- Available only in "General Query (default)" view.

eFXM Result 080214311 080214316	080214333		
Print			
FXM - Recorded Assignment - AFS - NTFD_RR - 080214	311 (!FMS)		
Administrative Data			
Source notice type	1A1	Date of entry into the MIFR	09/03/1976
Date of notice		Fragment	NTFD_RR
Date notice received		Provision	RR11.2
Notifying Administration	AFS	Operating agency	001
Identifier assigned by the BR	080214311	Address code	Α
Unique identification code given by the administration	on	Date of bringing into use	30/09/1975
Amendment type	RECORDED	Regular hours of operation	00:00-24:00
Modification type		Examination category	!FMS
Emission Characteristics			
Assigned Frequency (MHz)	100	Energy dispersal (kHz)	
Reference (carrier) Frequency (MHz)		Channel number	
Class of emission	F3E	Preferred band (MHz)	
Nature of service		Preferred channel	



## eQueryFXM – Search Results (3)

#### **Query Type Selection: "Statistics Query" > "Class of Stations Statistics"**

#### Provide statistics of class of stations by fragments and radiocommunication regions

* AP25, AP26, AP2	7 Allotment Plans and (	common frequencies are not included.			
Excel Export	PDF Export Print	(current page)		S	earch
Showing 1 to 4 o	of 4 entries			Page size 200 🗸	Page: 1 / 1 □ □ □ □ □
Frequency Rang	e Fragment	Region 1	Region 2	Region 3	Antarctic (Y)
0.1-200 MHz	GE06L	FB (785), ML (2783)	none	FB (186), FX (1)	none
0.1-200 MHz	GE85M	AL (813), FC (2022)	none	none	none
0.1-200 MHz	GE85N	NL (515)	none	none	none
0.1-200 MHz	NTFD_RR	AL (6477), AM (437), BC (634), FA (6085), FB (77441), FC (23640), FD (5431), FG (17886), FL (17), FP (265), FX (115680), LR (62), MA (2106), ML (45400), MO (2), MR (7), MS (13263), NL (1108), RN (26), SA (20), SM (19), SS (55)	AL (6629), BC (300), FA (13193), FB (90832), FC (26981), FD (4355), FG (17362), FL (865), FP (87), FX (171653), LR (32), MA (3555), ML (26705), MO (7), MS (8458), NL (617), OE (114), RM (1), SS (24)	AL (3732), AM (96), BC (1101), FA (10104), FB (118235), FC (13889), FD (5217), FG (8581), FL (105), FP (124), FX (84970), LR (38), MA (377), ML (82581), MO (3579), MR (8), MS (2778), NL (384), OD (3), SA (4), SM (1), SS (35)	AL (11), FA (43), FB (78), FC (131), FG (144), FP (1), FX (649), MA (5), ML (4), SM (1)
© Copyright - ITU	U 2022			For a	ny assistance, contact: <a href="https://www.unit.com">brfmd@itu.int</a>





(Example) Menu Selection: All (FXM), Frequency Range: 0.1 – 200 MHz, Query Type Selection: **Statistics Query > Class of Stations Statistics** 

## eQueryFXM – Search Results (4)

**Query Type Selection: "Statistics Query" > "Technical Statistics"** 

## Provide minimum, maximum and average of technical characteristics, calculated by radiocommunication regions and class of stations.

Excel Ex	port PE	F Export	Print (c	urrent pag	je)												Search			
Showing 1	to 25 of 2	5 entries													Page	e size 200	🗸 🗸 🗸	:1/1		
Numb	er of assig	nment	Bar	ndwidth (N	(Hz)	Radia	ted power	(dBW)	Radiate (dBW/N	d power de /Hz)	ensity	Power o antenna	lelivered to a (dBW)		Maximu (dBi)	ım antenni	a gain	Antenn ground	a height al (m)	bove
Region	Station	Number	Min	Max	Avr	Min	Max	Avr	Min	Max	Avr	Min	Max	Avr	Min	Max	Avr	Min	Max	Ауг
1	AL	2037	1E-06	3	0.0234	2.6	42	18.4364	18.2	94	40.1238	1.8	29	15.5954	0	40	9.0545	2	300	20.1071
1	AM	435	0.016	0.025	0.0209	3	20	6.9009	21	36	23.7948	3	20	4.1883	n/a	n/a	n/a	n/a	n/a	n/a
1	FA	1120	0.001	0.036	0.0061	-1.2	50.2	15.441	21	72.4	37.7186	-1.2	50.2	15.3823	0	6	0.9787	10	236	71.7632
1	FB	552	0.006	0.18	0.0155	0	20	10.2729	14.4	36.2	32.3154	0	20	13.8207	n/a	n/a	n/a	n/a	n/a	n/a
1	FD	218	0.005	0.025	0.0061	5.8	23	15.2847	28	46	37.4744	4.8	20	13.8221	0	4.2	2.8213	2	225	29.9316
1	FX	6	0.0001	0.18	0.039	3	25	15,4333	25.2	47.2	36.8566	3	17	11.6	1	8	5.75	n/a	n/a	n/a
1	LR	1	14	14	14	n/a	n/a	n/a	n/a	n/a	n/a	37	37	37	12	12	12	n/a	n/a	n/a
1	MA	267	0.005	0.025	0.0086	0.9	24	12.2481	23.1	46.2	33.6266	7	24	12.4028	n/a	n/a	n/a	n/a	n/a	n/a
1	ML	4	0.036	0.18	0.144	0	20	15	14.4	27.4	24.1947	0	20	15	n/a	n/a	n/a	n/a	n/a	n/a
1	SS	1	0.016	0.016	0.016	19	19	19	37	37	36.9588	19	19	19	n/a	n/a	n/a	n/a	n/a	n/a
2	AL	1411	0.0003	0.05	0.0152	-10	50	23.8368	21	66	42.9486	-10	50	21.1744	0	12	3.7076	4	6	4.4





(Example) Menu Selection: All (FXM), Frequency Range: 0.1 – 200 MHz, Query Type Selection: **Statistics Query > Technical Statistics** 

### eQueryFXM – Search Results (5)

**Query Type Selection: "Statistics Query" > "Technical Characteristics"** 

#### Provide technical characteristics of each antenna operation of all assignments/notices

* AP25, A	AP26, AP2	7 Allotment Pl	ans and	d common fre	quencies are	e not inclu	ded.															
Excel	Export	PDF Export	Prir	nt (current pa	age)													5	Search			
Showin	g 1 to 20(	0 of 9813 entri	ies													P	age size	200 🗸	Page: 1 /	50		
	G	eneral Inform	ation									Tecl	nnical Ch	aracterist	ics							
adm	region	assgn id	ant	fragment	freq assgn	bw MHz	stn cls	lat dec	lon dec	gain max	gain type	polar	ant dir	hgt agl	azm max e	elev	pwr ant	pwr dbw	noise temp	RX geo pt	RX lat dec	RX Ion dec
AFS	1	080214311	1	NTFD_RR	100	0.016	SS	-26.18	28.05	n/a	n/a	n/a	ND	n/a	n/a	n/a	19	19	n/a	1	-26.18	28.05
AUS	1	093002435	1	NTFD_RR	100	14	LR	-66.28	110.51	12	D	n/a	D	n/a	0	n/a	37	n/a	n/a	1	-66.27	110.5
BRM	3	080214316	1	NTFD_RR	100	0.01	FX	16.92	96.08	2	D	n/a	ND	n/a	n/a	n/a	24	26	n/a	1	16.92	96.08
NZL	3	080214332	1	NTFD_RR	100.025	0.006	FB	-36.9	174.78	n/a	n/a	n/a	ND	n/a	n/a	n/a	14.8	14.8	n/a	1	-36.9	174.78
NZL	3	080214333	1	NTFD_RR	100.025	0.006	ML	-36.9	174.78	n/a	n/a	n/a	n/a	n/a	n/a	n/a	14.8	14.8	n/a	n/a	n/a	n/a
NZL	3	080214364	1	NTFD_RR	100.1	0.006	FB	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	14.8	n/a	n/a	n/a	n/a	n/a
USA	2	080214511	1	NTFD_RR	100.42	0.92	FX	21.15	-157.03	n/a	n/a	n/a	ND	n/a	n/a	n/a	n/a	23	n/a	1	20.25	-155.88
USA	2	080214511	1	NTFD_RR	100.42	0.92	FX	21.15	-157.03	n/a	n/a	n/a	ND	n/a	n/a	n/a	n/a	23	n/a	1	20.25	-155.88
NZL	3	080214559	1	NTFD_RR	100.525	0.006	FB	-36.9	174.78	n/a	n/a	n/a	ND	n/a	n/a	n/a	14.8	14.8	n/a	1	-36.9	174.78
NZL	3	080214560	1	NTFD_RR	100.525	0.006	ML	-36.9	174.78	n/a	n/a	n/a	n/a	n/a	n/a	n/a	14.8	14.8	n/a	n/a	n/a	n/a



(Example) Menu Selection: All (FXM), Frequency Range: 0.1 – 200 MHz, Query Type Selection: **Statistics Query > Technical Characteristics** 



## eQueryFXM – Export/Print

- Export functions (MS Excel format, PDF format) and Print function are available to for Search Results of all Query Type Selections.
- Search Results are exported together with Query Parameters.
  - Excel Export
    - Possible to export up to 100,000 records
  - PDF Export
    - Possible to export up to 10,000 records
    - If it exceeds 10,000 records, only displayed page is exported,
  - Print
    - Print only currently displayed page
- Print function is also available for detail assignment page in "General Query (default)" view.





# Tool demonstrations - eQueryFXM -





## future eFXM development plan

#### eQueryFXM [implemented]

Consideration of further improvement to enrich functions

#### ePubFXM [under consideration]

To be developed in order to provide means to consult Special Sections related to FXM (RR9.21, GE06L, AP25, GE85M and GE85N) as well as BR IFIC publications.

### eToolsFXM [under consideration]

To be developed in order to provide means to perform calculation on-demand in the scope of selected RR provisions and Regional agreements for compatibility analysis purposes, as well as propagation prediction calculations, coordination contours and distance calculation.

### MyAdminFXM [under consideration]

To be developed in order to allow administration focal points to visualize relevant notices and recorded assignments for an easy follow-up of FXM coordination and FXM plan modification procedures and related deadlines.





# Thank you!

ITU – Radiocommunication Bureau

Questions to <a href="mailto:brfmd@itu.int">brfmd@itu.int</a>





## **Exercise (preparation)**

 Login to <u>eTerrestrial</u> (TIES account) if you do not have a TIES account, use the following temporary guest account:

#### password:

- Go to eFXM
- Go to eQueryFXM

username:

• Explore search criteria in the eQueryFXM page. (please refer to "eQueryFXM Readme" on top right for details)

QueryFXM: Queries on FXM Plans and MIFR for specific purposes

enu Selec	tion				Query Type Selection			Constraint Press
All (F	XM) (*)				General Query (def	ault) ~	]	
) All N	1IFR (FXM) (*)						_	
All P	LAN (FXM) 🔵 GE06	L 🔵 GE8	85M 🔘 GE85N 🔘 AP25 🔘	AP26 🔵 AP2	27			
Com	Freq							
) provide	e specific queries of statistic	s of stations a	nd technical characteristics related to FXM P	LANs and MIFR.				
Searc	ch Criteria							
ninistra	tion		Geographic Area	E	requency Unit From Freq	To F	req	
	▲ ≫		ABW 🔺 🔉	*	MHz v			Frequency bandwidth overlap
	>		AFG >		Date of Receipt (From)	Date	of Receipt (To)	
	< C		AFS AGL (	Γ	dd/MM/yyyy	🖻 da	/ММ/уууу	
	* «	-		- L				
ice Typ			Station Class		R Assign Id (From)	BRA	ssign Id (To)	
	A 20		4 X	L				
			AL AM		Inique Id. code given by Administration	Site	Name	Region
			BC S					
i.	<b>* «</b>	-	FB 🗶 🕊	-	-			
			FC		Status Pacardad	Panding		Clear





# **Exercise (1) General Query**

- Set Query Type Selection to "General Query (default)"
- Retrieve the record of the following criteria
  - Administration: Your administration (or administration of your preference)
  - Fragment: ALL MIFR (FXM)
  - Notice Type: T11
  - Frequency Range: 1 GHz 3 GHz
  - Date of Receipt: 01 March 2015 30 November 2020
  - Status: both Recorded assignments and Pending notices
- Browse notice/assignment details by clicking BR ID numbers
- Print notice/assignment detail of your choice (print to PDF)
- Export the information by both Excel and PDF formats.





## **Exercise (2) General Query**

- Press "Clear" to reset all search criteria
- Set Query Type Selection to "General Query (default)"
- Retrieve the record of the following criteria
  - Fragment: ALL PLAN (FXM)
  - Frequency Range: 0.1 MHz 200 MHz
  - Status: Recorded assignments
- Change Fragment to "GE06L", "GE85M", "GE85N", "AP25", "AP26", "AP27" and "Com Freq" in Menu Selection and retrieve the records
- Verify the following:
  - Result records are cleared when search criteria are modified
  - Input search criteria is kept
  - Not applicable search criteria are greyed out





## **Exercise (3) Statistics Query**

- Keep Press "Clear" to reset all search criteria
- Set Query Type Selection to "Statistics Query" and "Class of Station Statistics"
- Retrieve the record of the following criteria
  - Fragment: ALL (FXM)
  - Frequency Range: 600 MHz 800 MHz
- Change sub-menu of Query Type Selection from "Class of Station Statistics" to "Technical Characteristics"
- Retrieve the record with the same criteria
- Change sub-menu of Query Type Selection from "Technical Characteristics" to "Technical Statistics"
- Retrieve the record with the same criteria





## **Exercise (4) WRC-23 frequency bands**

- Press "Clear" to reset all search criteria
- Set Query Type Selection as follows:
  - 1<sup>st</sup> menu "- WRC-23 frequency bands"
  - 2<sup>nd</sup> menu "Class of Station Statistics"
  - 3<sup>rd</sup> menu: Al 1.8
- Retrieve the record and verify
  - "none" if no assignment/notice in the frequency band and region
  - "n/a" if not applicable with regard to selected agenda item
- Set Query Type Selection as follows:
  - 1<sup>st</sup> menu "- WRC-23 frequency bands"
  - 2<sup>nd</sup> menu "Class of Station Statistics"
  - 3<sup>rd</sup> menu: Al 1.5
- Retrieve the record and verify
  - Shows only GE06L assignment/notice if change fragment (Menu Selection) to "GE06L"
- Do the same for 2<sup>nd</sup> menu "Technical Characteristics" and "Technical Statistics"
  - Menus of WRC-23 agenda items are separated by each in-band frequency band.



