ITU TRAINING ON SPECTRUM MANAGEMENT FOR TERRESTRIAL SERVICES
VICTORIA, REPUBLIC OF SEYCHELLES, 5 - 9OCTOBER, 2015

Frequency Plans for Terrestrial Services

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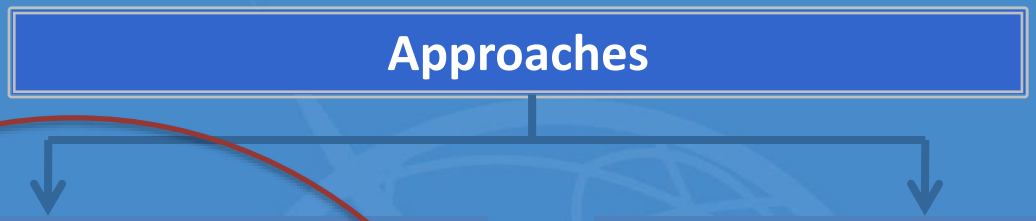
Outline of presentation

- Plans for terrestrial services other than broadcasting
  - Fixed service
  - Mobile services (land, aeronautical and maritime mobile)
  - Radionavigation services (aeronautical and maritime radionavigation services)
  - Radiolocation, meteorological aids, standard frequency and time signal

FXM

- Plans for terrestrial broadcasting services
  - Sound broadcasting
  - Television

Approaches to use of spectrum



Frequency Planning

- Distribution of frequencies between countries/stations
- Aims at equitable access to spectrum
- Satisfies long term needs of countries in frequencies
- Sometimes not ideal for efficient spectrum use
- Two types: allotment and assignment plans

Frequency Coordination

- Prior coordination of frequencies with neighboring countries
- Based on real and actual needs in frequencies
- Flexible and efficient spectrum use
- Mandatory and voluntary coordination
- RR Article 9 – international coordination procedures

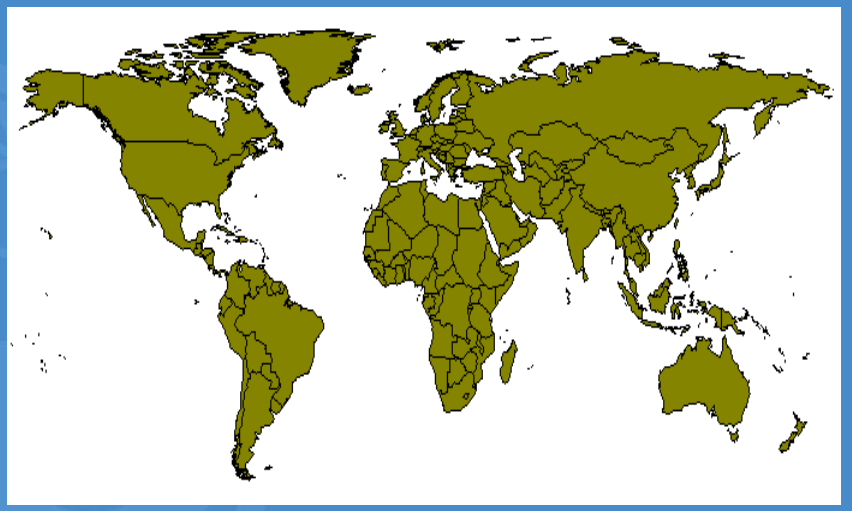
Frequency plans for FXM services

- **Worldwide frequency allotment plans**

AP25 - Plan for maritime mobile service, HF (4000 – 27 500 kHz)

AP26 - Plan for aeronautical mobile (off-route) service, HF (3025 – 18030 kHz)

AP27 - Plan for aeronautical mobile route service, HF (2850 – 22000 kHz)

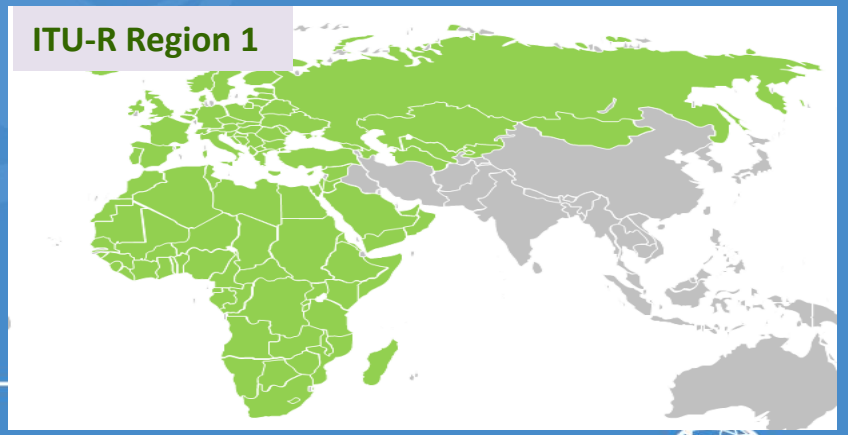


- **Regional frequency assignment plans (Region 1)**

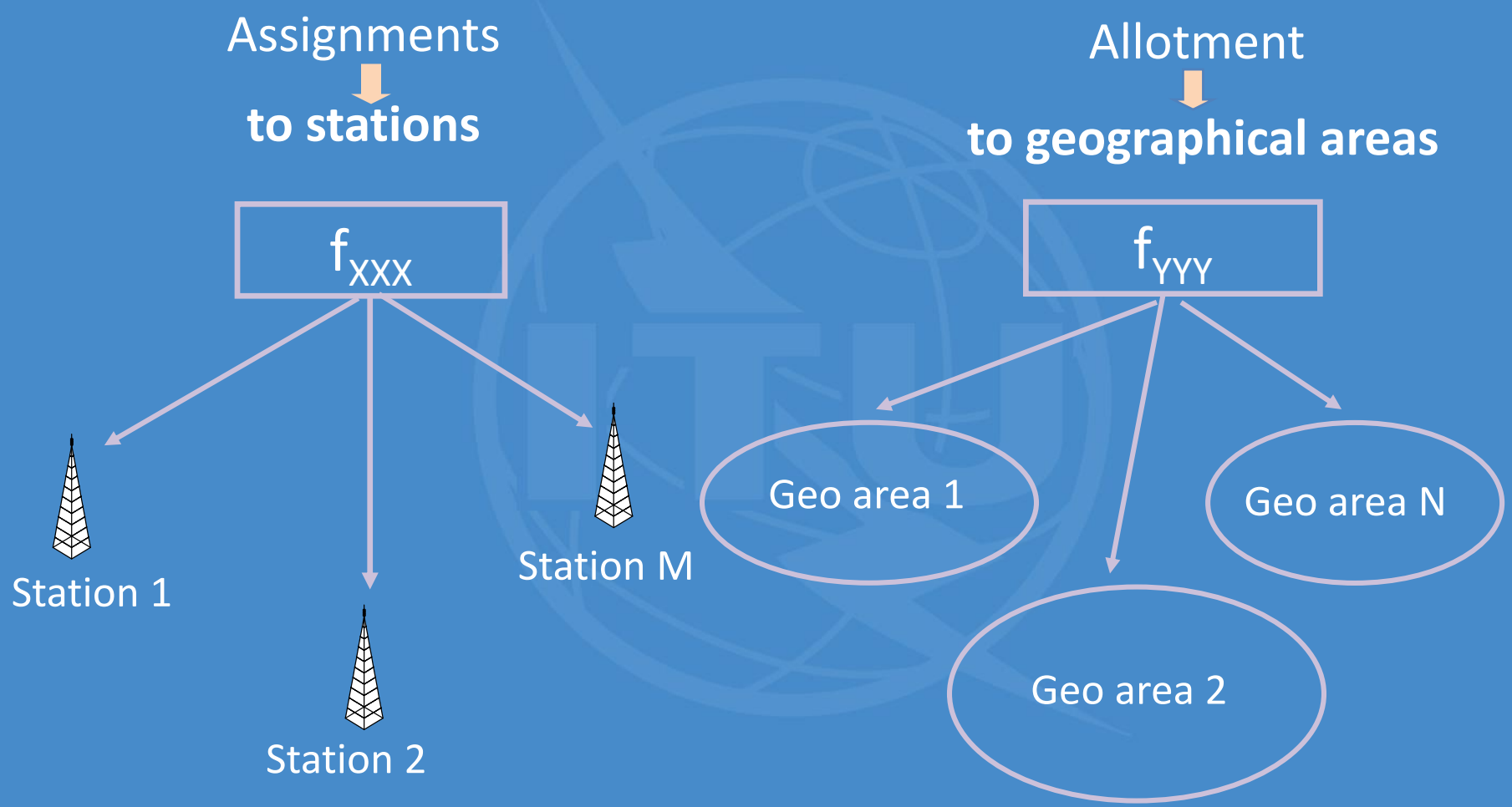
GE85-R1-MAR: Plan for maritime mobile service, MF bands

GE85-R1-AER: plan for aeronautical radionavigation service, MF bands

GE85-EMA: plan for maritime radiobeacons, European maritime area 283.5 - 315 kHz



Assignment Plans ⏪ ⏩ Allotment Plans



Allotment plan for maritime mobile service (AP25)

- **Scope**
  - Worldwide allotment plan, maritime mobile service (MMS)
  - Coast radiotelephone stations in 4 000 - 27 500 kHz
  - 240 channels; allotment areas
  - Number of “restricted” allotments: limitations on service area, power, hours of operation, etc.
- **Characteristics**
  - 3 kHz channels (separation between reference frequencies)
  - Bandwidth – 2.8 kHz
  - Class of emission - J3E
  - Maximum peak envelope power - 10 kW
- **SEY** has 3 allotments in the plan on frequencies 4385.4 MHz, 8771.4 MHz, 13120.4 MHz and 17243.4 MHz

AP25 frequency allotment plan (2)

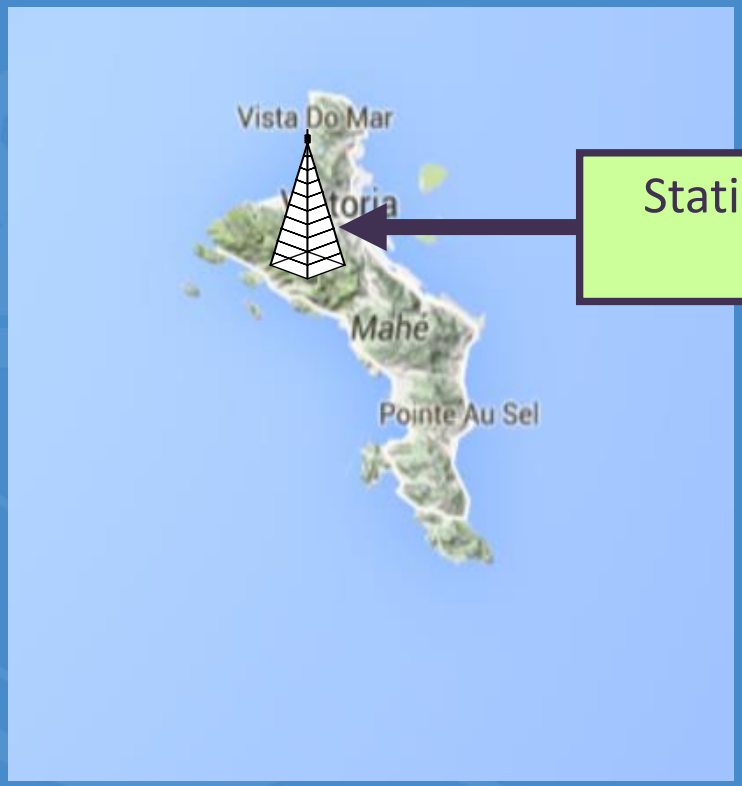
Example of use of channel 818 of the Plan

8 771.4	ALS
(8 770)	ARG
	BUL
(818)	CHN
	CME
	CYP
	DNK
	GUM
	HWA
	LBY
	MLA
	PNR
	PTR
	S
	SEY
	UKR
	USA E
	USA W

Channel 818 is allotted to Seychelles. Administration of SEY can assign this channel to any coast station located on its territory

AP25 frequency allotment plan (3)

8 771.4	ALS
(8 770)	ARG
	BUL
(818)	CHN
	CME
	CYP
	DNK
	GUM
	HWA
	LBY
	MLA
	PNR
	PTR
	SEY
	USA E
	USA W



Channel 818 was assigned to coast station “Seychelles Radio” with service area MAR10, ITU/BR ID 080087940

AP25 plan modification procedure

Plan modification procedure (AP25, Section I) applies when:

- Administration needs a new allotment (AP25/1.1.1)
- Administration needs an additional allotment (AP25/1.1.2)
- Administration intends to replace an allotment by another one in the same band (AP25/1.1.2)

- Submission of AP4 information to the BR (T15 form)
- BR publishes the information and apparent incompatibilities in Special Section of BRIFIC
- Coordination with affected administrations
- Possible assistance of the BR at different stages of coordination

Allotment plan of AP26

- Distinction aeronautical route (R) and off-route (OR) services
- **Scope**
  - Worldwide plan for aeronautical mobile off-route service (AM(OR)S)
  - Planned band: 3 025 - 18 030 kHz (10 sub-bands)
  - Carrier frequencies, allotment areas
- **Characteristics**
  - Maximum bandwidth - 2.8 kHz
  - Classes of emission - J3E; A1A; A1B; F1B(A,H)2(A,B); (R,J)2(A,B,D); J(7,9)(B,D,X)
  - Mean effective radiated power - 1 kW (aeronautical stations)
    50 W (aircraft stations)

Plan modification procedure of AP26 Plan

- Requests for a new allotment - BR selects an appropriate allotment and enters it in the Plan
- Requests for an additional allotment - the allotment is entered in the Plan only if it is compatible with the remaining allotments
- Requests for the suppression of an allotment - BR cancels the allotment from the allotment arrangement
- SEY has 11entries in the AP26 Plan

Allotment plan of AP27

- Scope
  - Worldwide plan for aeronautical mobile route service (AM(R)S)
  - Planned band: 2 850 - 22 000 kHz
  - Carrier frequencies, geographical areas (MWARA, RDARA, VOLMET areas)

- Characteristics
  - Classes of emission: J3E; H2B, J7B, J2D, J9X (A1A/A1B) and F1A/F1B
  - Frequency separation - 3 kHz, multiple to 1 kHz
- No plan modification procedure

Graphical presentation of AP27 areas

- SEY is located in MWARA areas AFI and INO

Assignment plans of GE85M Agreement

- Regional Agreement Geneva, 1985 contains two plans for: maritime mobile and aeronautical radionavigation service
- Scope of maritime Plan (**GE85-R1-MAR**):
  - Assignment plan for maritime mobile service in Region 1
  - Planned bands: 415 – 495 kHz, 505 - 526.5 kHz, 1606.5-1625 kHz, 1635-1800 kHz, 2045-2160 kHz
  - Takes into account other services in the planned bands
- Characteristics
  - Classes of emission - A1A, F1B, J3E
  - Chan. spacing: 0.5 kHz (A1A, F1B), 3kHz (J3E)
  - Paired frequencies for coast and ship stations
- SEY has 1 entry on 439.0 kHz in GE85-R1-MAR Plan

Aeronautical plan of GE85 Agreement

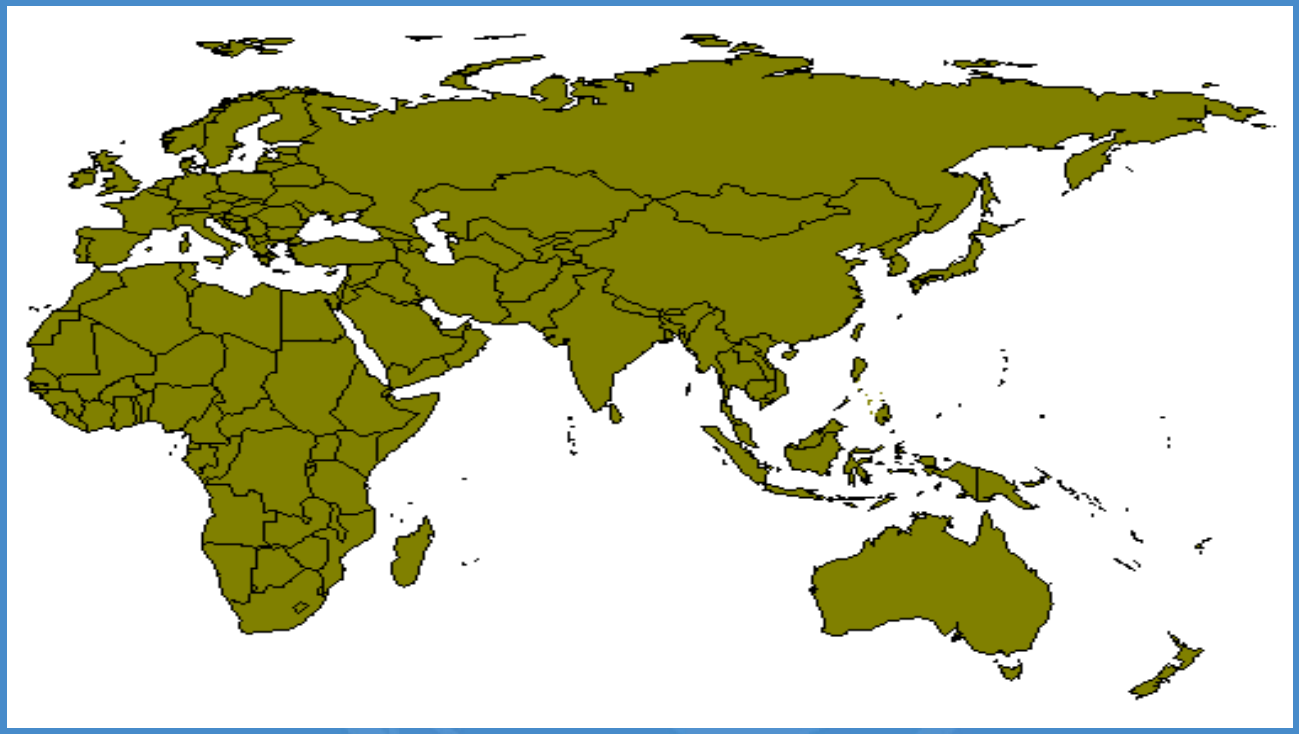
- Scope
  - Region 1 plan
  - Frequency bands: 415 – 435 kHz, 510 – 526.5 kHz
  - Takes into account also maritime mobile service stations
- Characteristics
  - 34 channels
  - Channel spacing - 1 kHz (0.5 kHz exceptionally)
  - Classes of emission – A1A, A2A
- This is the Plan for aeronautical radiobeacons
- SEY does not have entries in this Plan

Summary of FXM plans

Plan name	Radiocommunication service	Frequency Band	Geographical Area
Allotment plan of AP25	Maritime Mobile	4000 – 27500 kHz	Worldwide
Allotment plan of AP26	Aeronautical Mobile (OR)	3025 – 18030 kHz	Worldwide
Allotment plan of AP27	Aeronautical Mobile (R)	2850 – 22000 kHz	Worldwide
Allotment plan GE85-MM-R1	Maritime Mobile (DSC)	435 – 2160 kHz	Region 1
Assignment plan GE85-R1-MAR	Maritime Mobile	415 – 2160 kHz	Region 1
Assignment plan GE85-R1-AER	Aeronautical Radionavigation	415 – 526.5 kHz	Region 1

- plan applicable to SEY

Broadcasting assignment plan GE75

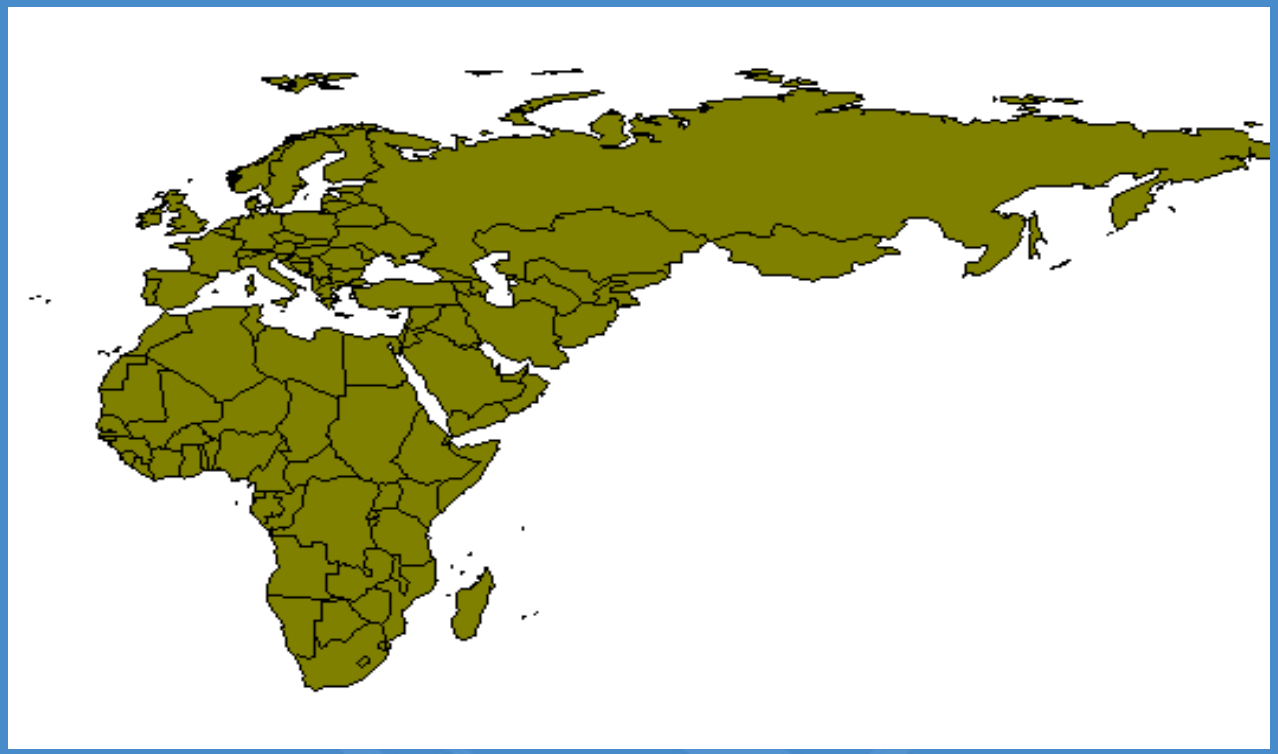


Scope: LF/MF broadcasting in 148.5 – 283.5 kHz Region 1

526.5 – 1606.5 kHz Region 1 & 3

SEY has 1 entry in the GE75 Plan "Victoria Mahe" on 1368 kHz

Broadcasting assignment plan GE84

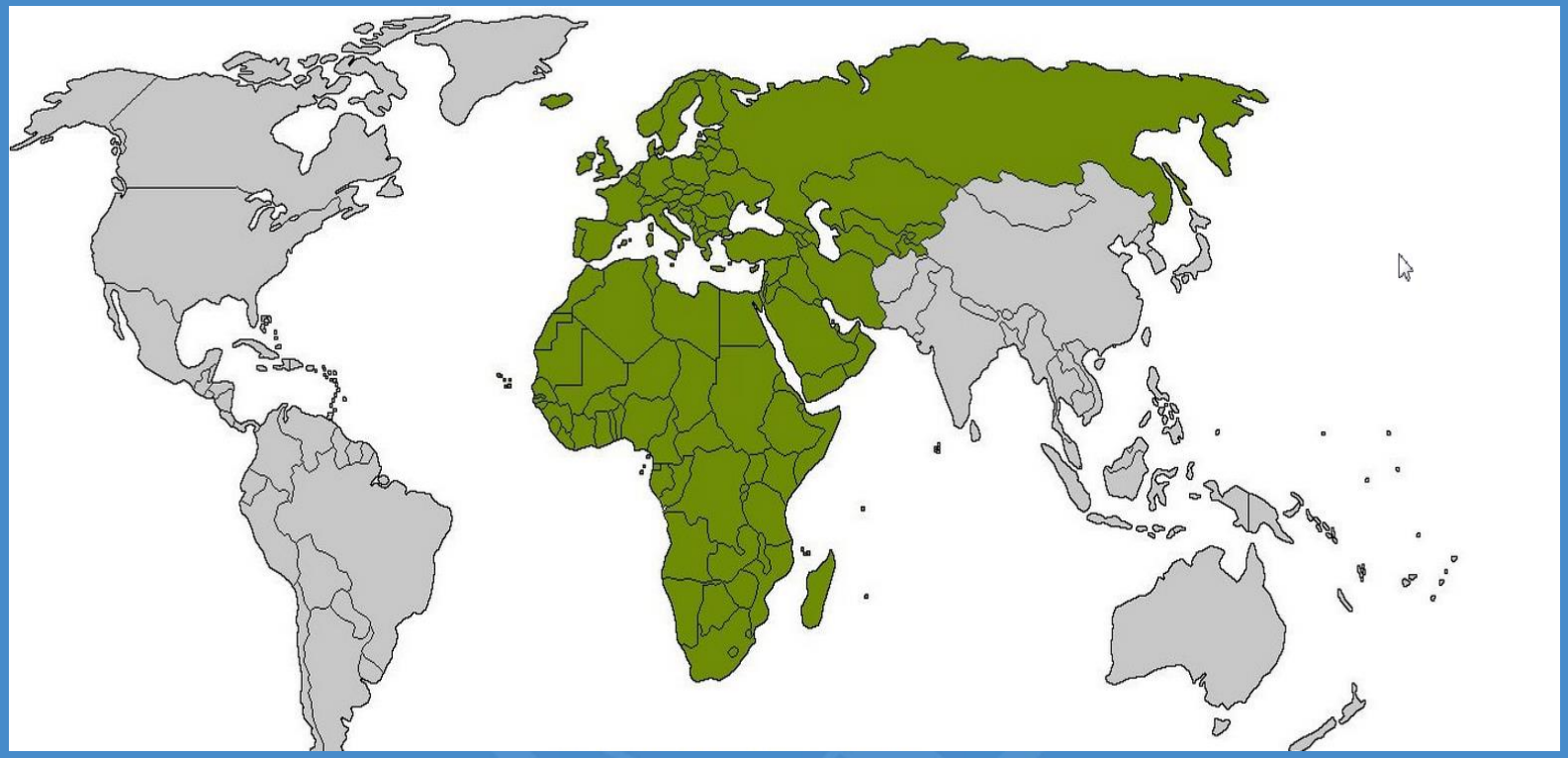


Scope: FM sound broadcasting, Regions 1 and part of Region 3

Planned band: 87.5 MHz – 108 MHz

SEY has 12 entries in 88.2 – 106.6 MHz for “Victoria”, “Anse Boileau”

Broadcasting plan GE06



- Planning area: Region 1 – MNG + IRN
- Planned bands: 174-230 MHz and 470-862 MHz
- Assignment and allotment Plan

Broadcasting plan GE06 (2)

- Planned bands: 174-230 MHz and 470-862 MHz
- Planning area: Region 1 +IRN -MNG
- GE06 Agreement contains:
  - Analogue broadcasting Plan (till 16.06.15, except some countries)
  - Digital broadcasting Plan
  - List of other primary services (fixed, mobile, aeronautical …)
- SEY had 11 TV stations in the GE06 Plan between 177.5 – 219.5 MHz (cancelled on 17 June 2015, which is the date of the end of the Transition period to digital broadcasting)

Plan modification procedure

- Notifying ADM submits notices to the BR
- BR identifies potential affected administrations, criteria:
  - Distance to nearest boundary or
  - Interfering field strength to other entries recorded in the Plan
- BR publishes in Part A of a Special Section
- Affected administrations send comments to BR and ADM
- Coordination completed, BR publishes in Part B of a Special Section and modifications recorded into the Plan
- After bringing the station in operation, the ADM should notify it to the Master Register

Thank you !