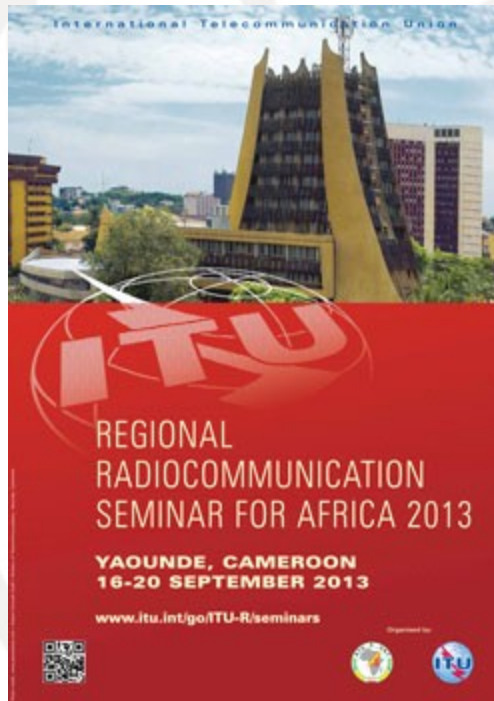


ITU-REGIONAL RADIOCOMMUNICATION SEMINAR for Africa 2013

Yaoundé 16 -20 September 2013



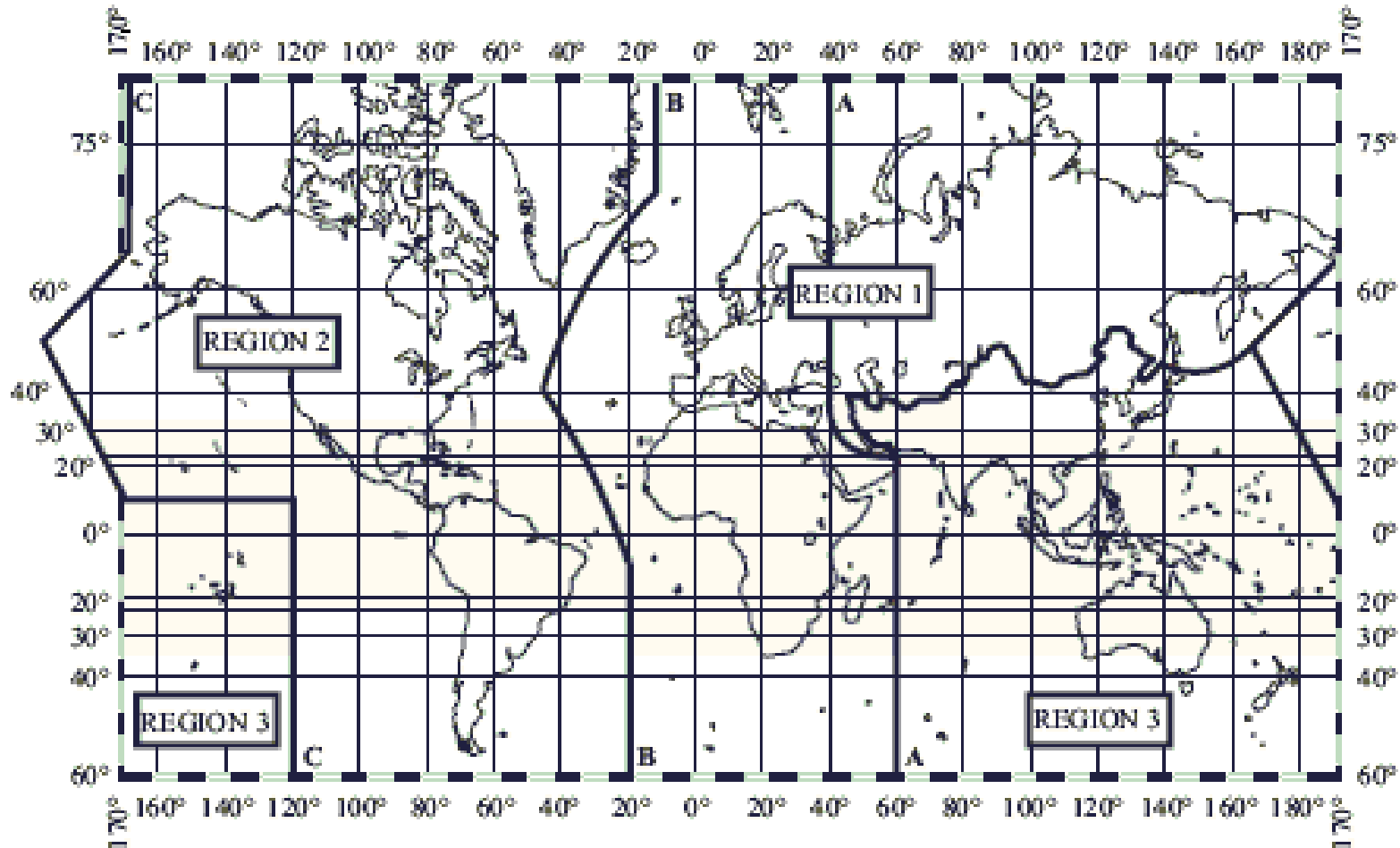
Terrestrial Broadcasting Plans

Bangaly Fodé TRAORE
BR/TSD/BCD

Agenda

- Broadcasting bands
- The need for frequency Plans
- Development of frequency Plans
- Operation of frequency Plans
 - GE75-MF-AM
 - GE84-VHF-FM
 - GE06-VHF-UHF

ITU Regions



LF and MF Bands

KHz	R1	R2	R3
148.5-283.5			
525-526.5			
526.5-1605			
1605-1606.5			
1606.5-1705			

VHF Bands

MHz	R1	R2	R3
47-50	Blue	White	Red
50-54	Blue	Red	White
54-68	Blue	Red	Red
76-87	White	Red	Red
87-87.5	White	Red	Red
87.5-108	Yellow	Red	Red
174-216	Green	Red	Red
216-230	Green	White	Red

UHF Bands

MHz	R1	R2	R3
470-862	Green	Red	Red
862-890	Blue	Red	Red
890-960	Blue	White	Red

HFBC Bands

- 5900-6200
- 7100-7350
- 9400-9900
- 11600-12100
- 13570-13870
- 15100-15800
- 17480-17900
- 18900-19020
- 21450-21850
- 25670-26100

The need for frequency Plans

- Efficiency
- Equity

Development of frequency Plans

- Regional Radiocommunication Conferences
 - First session – adopt technical planning criteria
 - Second session – adopt Agreements containing frequency Plans

Regional Agreements and corresponding Plans

		R1	R2	R3
ST61				
GE75	LF 148,5 - 283,5 kHz			
	MF 526,5 - 1 606,5 kHz			
RJ81				
GE84	VHF 87,5 - 108 MHz			
RJ88				
GE89				
GE06	VHF 174 - 230 MHz			
	UHF 470 - 862 MHz			

Plans modifications definitions

- ARTICLE 4 -

- Change characteristics of an assignment already in the Plans;
- Add an assignment to the Plans;
- Cancel (suppress) from the Plans an assignment ;
- Add an assignment stemming from an allotment to the digital Plan* (*GE06).

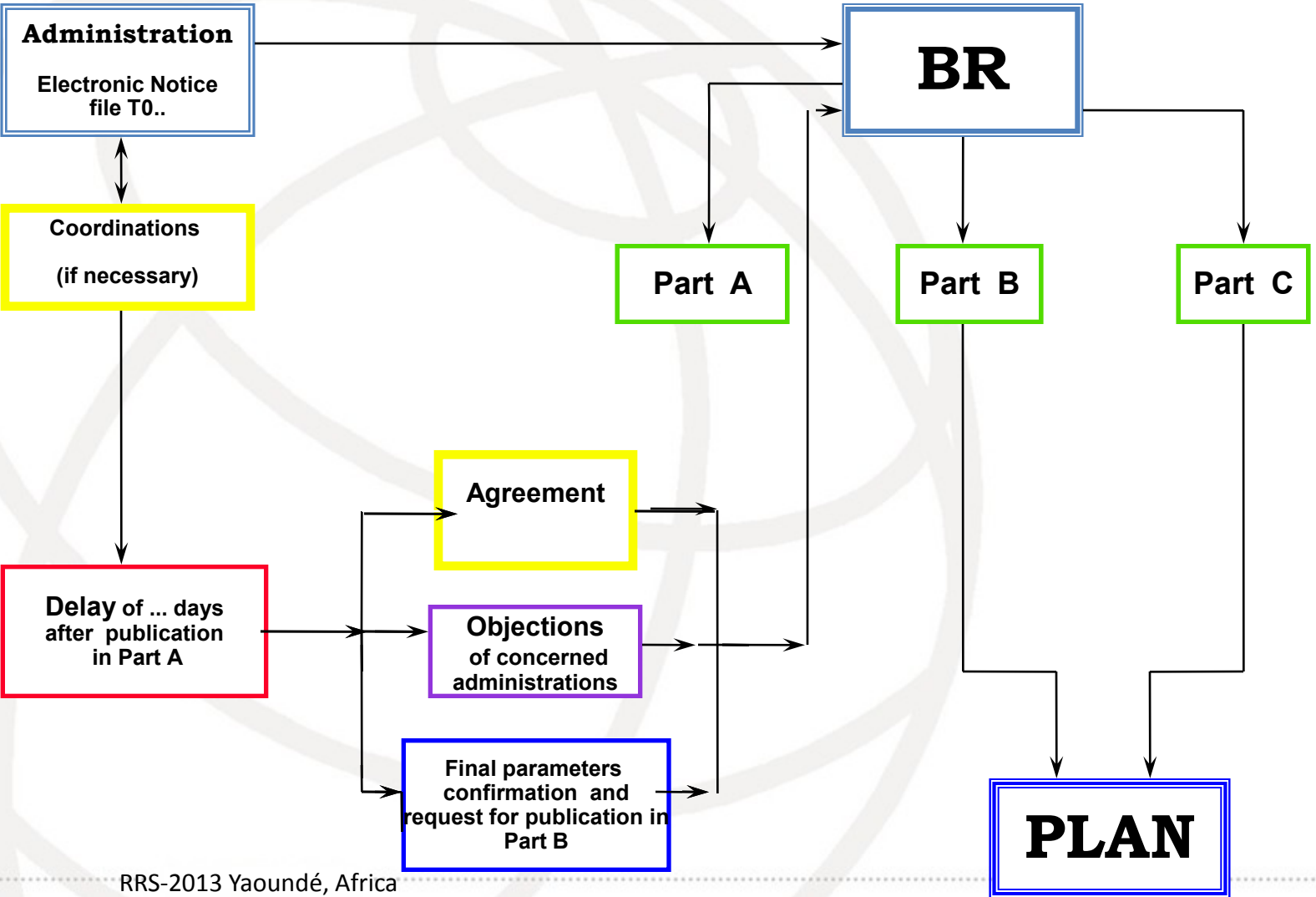
General procedure (1)

- Notifying ADM submits notices
- BR identifies potential affected administrations
- BR publishes in Part A of a Special Section

General procedure (2)

- Affected administrations send comment to BR and to notifying administration
- Coordination completed: BR publishes in Part B of a Special Section and modifications recorded in the Plan

Plans modification Procedure (according to Article 4 of each Agreement)



Identify affected administrations

- Distance to nearest boundary
- Potential for interference to assignments in the Plan

No reply from affected

- Deemed to AGREE to the modifications
 - Except for GE06

Comment period

- GE84: 100 days
- GE75: 16 weeks
- GE06:
 - 75 days No reply = Disagreement
 - 40 days (Reminder) No reply = agreement

“Quick” modification procedure

- No agreement required if modifications involve
 - Less interference – lower ERP/site
 - Distance to border < coordination limits
 - Field strengths at border less than coordination limits

Part B Publication

- Not automatic
- Notifying administration **must request** for publication in Part B

GE75 Plan



Regions 1 and 3

Frequency Bands – GE75

- LF: 148.5-283.5 kHz in Region 1
 - 15 channels , 9kHz spacing

- MF: 526.5-1606.5 kHz Region 1&3
 - 120 channels, 9kHz spacing
 - 3 LPC- low power channels (< 1kW)
 - 1485, 1584 and 1602 kHz

Protection criteria – GE75

- Co-channel
 - 30 dB - stable
 - 27 dB - fluctuating
 - 8 dB – synchronized

- Adjacent channel
 - 0, 5, 7 and 9 dB – depending on degree of compression and bandwidth

Affected assignments – GE75

- Usable (E_u) field strength increased by 0.5 dB or more above E_{u-ref}
- (- E_{u-ref} : E_u when assignment entered the Plan;
- Calculation points: on the boundary of the service area).

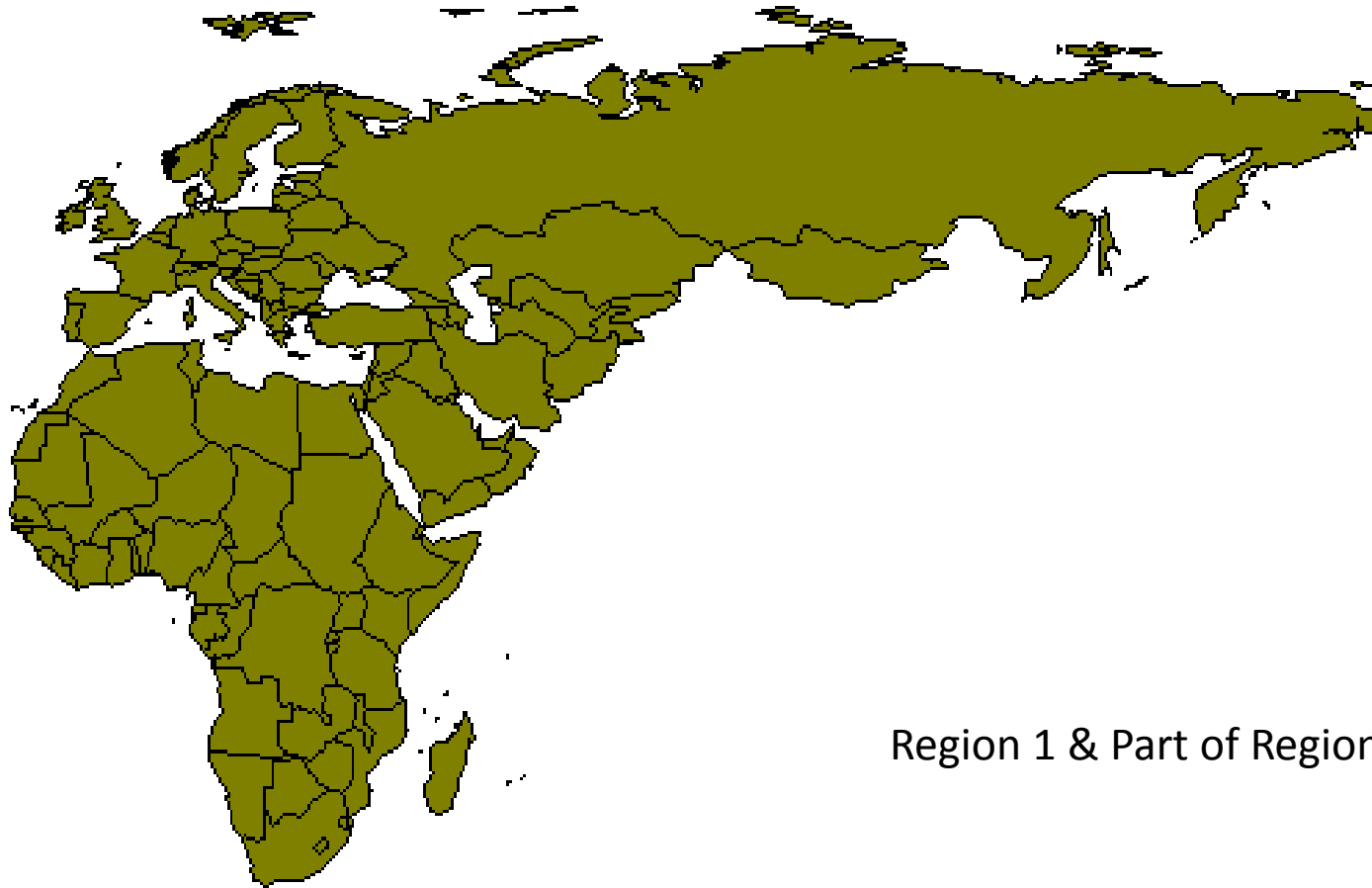
LPC Procedure – GE75

- Notifying ADM identifies potential affected – distance to the nearest boundary
- Notifying ADM seeks agreements
- Notifying ADM submits notice to BR
- BR publishes in Part B => Plan

Digital transmission

- Possible thanks to Rule of Procedure (RRB)
 - Transmission systems DRM A2 and B2
 - Radiation reduced by at least 7 dB in all directions

GE84 planning area



Region 1 & Part of Region 3

Frequency bands – GE84

- 87.5 – 108 MHz
 - 204 channels, 100 kHz spacing

GE84 in summary

- In force 1 July 1987 (Art. 13)
- 51 168 frequency assignments
- Today - 75 943 assignments
- 12 047 pending (Part A)

Coordination requirements

- Other VHF-FM sound broadcasting service (4.2.2 a)
- ST61 television assignments in the band 87.5 – 100 MHz (4.2.2 b)
- Fixed and mobile services (4.2.2 c, d, e)
- Aeronautical radio-navigation service above 108 MHz (4.2.2 f)

COORD with other sound broadcasting services VHF-FM

- Distance to nearest border < required coordination distances
 - ERP
 - Effective antenna height
 - Propagation Path (land, warm and cold seas and areas of super refractivity)
 - Tables 4.1- 4.4 of Chapter 1 of Annex 4 of the Agreement

Coordination distances

- Extract from table 4.1

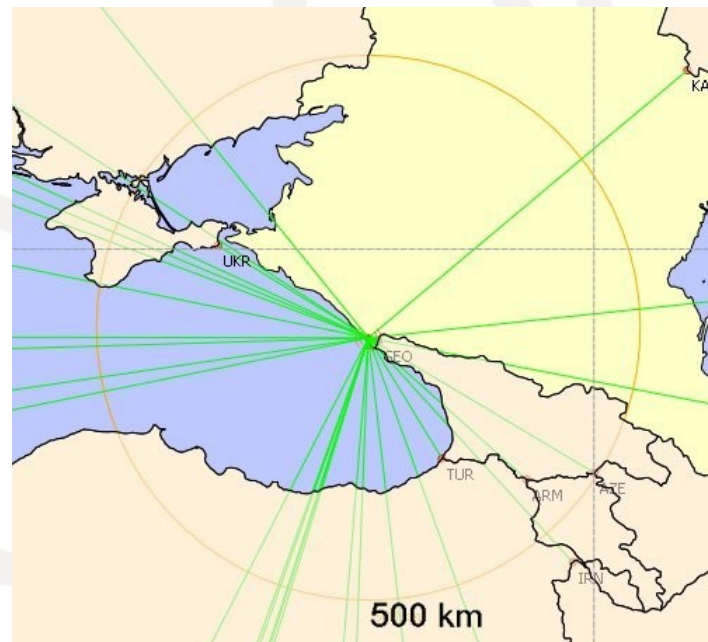
Effective radiated power		Effective antenna height (m)							
		10	37.5	75	150	300	600	1200	1800
dBW	W	Coordination distances (km)							
55	300k	520	520	530	540	560	600	630	670
50	100k	460	460	470	490	510	540	580	610
45	30k	410	410	420	430	450	480	520	560
40	10k	350	350	370	380	400	430	470	500

COORD with other television services (87.5 – 100 MHz)

- Required coordination distances
 - Corrected ERP (Different PR depending on frequency separation between FM and television frequency carriers)
 - Propagation path
 - Tables 4.5 - 4.8 of Chapter 2 of Annex 4 of the Agreement

COORD with aeronautical radionavigation services

- Distance to the nearest point on the boundary < 500 km



COORD with land mobile and fixed services

- Field strength calculated at the nearest point on the boundary
- Limits of field strengths depend on
 - polarisation of the FM service (4.3.7.3 – 4.3.7.6)

FM station – Agreement

- Coordination between administrations on the basis of a table of distances (Annex 4)
- Agreement on Plan modification should be accepted if based on the following technical criteria :
 - Resulting $E_u \leq 54$ dBu/m
 - Increased ≤ 0.5 dB relative to the reference E_u (E_{u-ref}).



Mobile station – Agreement

- 87.5-100 MHz in Region 3
- 104-108 MHz, in Region 1
- Except aeronautical mobile (OR)
- Interfering field strength
 - 18 dBu/m if FM is horizontal
 - 0 dBu/m if FM is vertical or mixed

Fixed station – Agreement

- Interfering FS ≤ 0 dBu/m.

Land mobile – Agreement

- 87.5-88 MHz, in Region 1
- FM horizontal
 - 14 dBu/m for AM land mobile
 - 24 dBu/m for FM land mobile
- FM vertical
 - 6 dBu/m for AM land mobile
 - 16 dBu/m for FM land mobile

Features of the procedure for the Plan GE84 modification

- No comment = AGREEMENT
- Must request the publication in Part B
- The frequencies pending in coordination stage are never deleted (12 047)

Assistance from BR (4.3.13)

- Administration may request assistance in
 - Seeking agreement from another ADM
 - Applying any stage of the Article 4 procedure
 - Carrying out technical studies in relation to this procedure

Questions?

