C&I Training for AFR Region
Tunis, 23-27 June 2014

Guidelines and Recommendations

List of technical Priority Areas subject to C&I

Interface radio RF
EMC
Wired Interface
SAR
Safety

ITU-T SG11 developed a **living list of key technologies** suitable for C&I
(http://itu.int/go/key-technologies)

Reference Recommendations and Standards (ITU, ETSI, etc...)

ITU-T SG11 maintains the **C&I reference table of ITU-T Recs.**
(http://itu.int/go/reference-table)

> **wimax/ IEEE802.16+ETSI(300 328- 301 489)**
> **wifi/ IEEE802.11a/b/g/n + ETSI**
> **Bluetooth/ IEEE802.15+ ETSI**
> **VoIP/G.729.1 UIT**
> **GSM 2G/ 3GPP 51.010 + ETSI**
> **GSM 3G/ 3GPP 34.121 + ETSI**

Non Exhaustive List of Priority Areas subject to C&I

Service defined in NFAP	Frequency Band	Applicable Sub section		Reference standards for conformity	
Public Mobile					
GSM DCS	880-915MHz 925-960 MHz 1705-1785 MHz 1805-1880 MHz	GSM Base Station and Ancillary equipment GSM Handsets, terminals and ancillary equipment	EN 301489-1	EN 301 489-8 EN 301 502 EN 301 489-7 EN 301 511	
DECT	1880-1900 MHz	DECT cordless telecoms Equipment		EN 301 489-6 EN301 406	
IMT	1900-1920 MHz 1920-1980 MHz 2110-2170 MHz	UMTS handsets and related equipment			EN 301 908-2 EN 301 908-6 EN 301 489-24
		UMTS base stations		EN 301 908-1	EN 301 908-3 EN 301 908-7 EN 301 908-11 EN 301 489-23
Private Mobile					
TETRA	380-399.9 MHz 410-430 MHz	TETRA radio equipment	EN 301489-1	EN 301 489-18 EN 303 035-1 EN 303 035-2	
Amateur Radio	3.5-3.8 MHz 7.0-7.2 MHz 14-14.35 MHz 21-21.45 MHz 24.89-24.99 MHz 144-146 MHz	Amateur radio and ancillary Equipment		EN 301 489-15 EN 301 783-2	
CB Radio	26.965-27.405 MHz	Citizen band radio and ancillary Equipment		EN 301 489-13	EN 300 135 EN 300 135-1 EN 300 135-2
Private Mobile Radio	430-470 MHz	Analogue and digital PMR Equipment Short range PMR and ancillary Equipment		EN 300 296-2 EN 301 166-2	EN 301 489-5 EN 300 793 EN 300 471-2 EN 300 086-2 EN 300 113-2 EN 300 390-2
Maritime Radio	156.025-174 MHz	Maritime Radio		EN 300 698 EN 301 025 EN 301 178	
Radar for Radio navigation	1.260-1.350 GHz 2.700-3.300 GHz 9.3 — 9.5 GHz 76-77.5 GHz	Radar for radio-navigation		TBC EN 302 248 EN 302 194	

Non Exhaustive List of Priority Areas subject to C&I

Fixed Wireless					
RLAN, Wi-Fi, WLAN	5.725-.5.85 GHz	5GHz high performance RLAN and ancillary equipment		EN 301 489-17 EN 301 893	
WiMax	2.495-2.690 GHz 3.40-3.60 GHz	WiMAX equipment			EN 301 753
FWA BWA	10.60-10.68 GHz 1.429-1.452 GHz 2.3-2.4 GHz 4.8-5.0 GHz	Fixed Wireless Access and ancillary equipment	EN 301489-1	EN 301 489-4 EN 302 217-2-2 EN 302 217-3	EN 301 753 EN 302 326-2 EN 302 326-3
Digital Microwave Radio	10.7-11.7 GHz 12.75-13.25 GHz 14.40-15.35 GHz 17.70-19.70 GHz 21.20-23.60 GHz 27.50-29.50 GHz 31.80-33-40 GHz 37.0-39.5 GHz	Point-to-point radio fixed link equipment and antenna			EN 302 217-4-2

Non Exhaustive List of Priority Areas subject to C&I

Satellite Terminals				
Fixed Terminals	C-Band/Ku-Band	VSAT		
Mobile Satellite Systems	C-Band/Ku-Band	Terminals/GMPCS		
Short Range Radio Devices (SRRD)				
	115kHz/433MHz/ISM bands	Remote Keyless Entry Systems		
		RFID systems		
		NFC		
		Bluetooth		
		Telematics		
		Vehicle Radar Systems		
Broadcasting				
	87-108 MHz	FM Receivers/Transmitters		
	Band I to Band IV	TV Transmitters		
		IDTV		
		Set-top boxes (STB)		
Terminals				
		Fixed Phones		
		PBX		
		Analogue Modems		
		Fax Machines		
		ISDN Systems		
		xDSL		
		Leased lines		
		VoIP		
		VoLTE		
		Routers		
		Switches		
Cables				
		Fibre		
		Copper		

Regional and Subregional approach (SADC, ECOWAS, EACO, etc.)

Assessment Study at Regional/Subregional level (SADC, ECOWAS, EACO, etc...): Terms of reference

Assess the situation at Subregional Levels taking into consideration the case study of SADC region of existing infrastructure and cost of building labs
One radio lab per country
One EMC lab per region

MRAs Mutual Agreement (SADC, ECOWAS, EACO, etc...):
Reference: ITU developed guidelines for implementation and management of MRA
Content and reference standards
3 to 5 years of validity

Building National Laboratory vs Regional/Subregional Approach. Role of the MRAs
Cost of labs and maintenance vs MRAs
One EMC lab: 10 millions dollar
One RF lab: 2 millions dollar
Maintenance, calibration and training: 1% of labs cost (RF and EMC)

Regional and Subregional approach (SADC, ECOWAS, EACO, etc.)

Accreditation/recognition procedure of the Test labs
Accreditation ISO 17025 for each laboratory

Forums of Experts at Regional/Subregional Levels (SADC, ECOWAS, EACO, etc...):
Creation of sub-regional forums (SADC, ECOWAS, EACO, UMA, CEMAC) organised by ITU

Term of reference and responsibility of the Forum (e.g. content of MRA procedures; labs
MRA procedure
Implementation of RF and EMC lab
Elaboration of an annual training plan for lab engineers
Technical assistance towards new labs

Actions, assistance expected from ITU
- Feasibility Study
- Technical Support
- Personnel training
- Facilitating collaboration between administrations for harmonization of procedures for homologation and mutual recognition of certificates
- Facilitating the participation of countries in the standardization activities

Recommendations for ITU
- The role of ITU C&I Programme in the Regional/Subregional level
  - Subregional C&I approach (MRA and Labs)
  - Strategies for partnership with private investors
  - Set up forum of C&I experts at regional/sub-regional level
  - Facilitate the participation of African groups in the ITU Groups (Provide Fellowship Support)
  - Facilitate the establishment of regional forums on C&I.
  - Provide implementation guide on ITU Recommendations/Standards
  - ITU to collaborate with other standard bodies (e.g. ETSI) in organizing Workshops on standards
  - Implementation of C&I database

Recommendations at national levels

- Establishment of National working group on Standards
- Capacity building exercise
- Bilateral/ MRA development among countries
- Strategies for partnership with private investors
- Support the participation of staff in the ITU Groups and activities on C&I
- Facilitate the establishment of national forums/workshops/ stakeholder discussions on C&I.
- Development of framework for implementing ITU Recommendations/Standards on C & I
- Review Type Approval regulations/procedures and guidelines in line with international best practice. E.g. timelines for issuing Type Approval Certificates (TACs)