



جهاز تنظيم الاتصالات والبريد

TPRA – Sudan

Human exposure to Electromagnetic Fields (EMF) and Specific Absorption Rate (SAR) in the Arab Region

EMF Management in Sudan

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ITU-T Study Group 5: Environment, climate change and circular economy

Lead Study Group for

SG5 is responsible for:

Studying ICT environmental aspects of electromagnetic phenomena and climate change.

Studies on how to use ICTs to help countries and the ICT sector to adapt to the effects of environmental challenges, including climate change, in line with the Sustainable Development Goals (SDGs).

electromagnetic compatibility, lightning protection and electromagnetic effects

ICTs related to the environment, climate change, energy efficiency and clean energy

circular economy, including e-waste

WP1/5 - EMC, lightning protection, EMF

WP2/5 - Environment, Energy Efficiency and the Circular Economy



WP1/5 – EMC, lightning protection, EMF



Q1/5 - Protection of information and communication technology (ICT) infrastructure from electromagnetic surges

Q2/5 - Equipment resistibility and protective components

Q3/5 - Human exposure to electromagnetic fields (EMFs) from information and communication technologies (ICTs)

Q4/5 - Electromagnetic compatibility (EMC) issues arising in the telecommunication environment

Q5/5 - Security and reliability of information and communication technology (ICT) systems from electromagnetic and particle radiations



ITU-T Activities on Human Exposure to Electromagnetic Fields (EMF)

Development and implementation of Standards

Monitoring of EMF Levels

EMF estimator Software

EMF mobile application

EMF Publications

Q3/5 - Human exposure to electromagnetic fields (EMFs) from information and communication technologies (ICTs)

Recommendation ITU-T K.83

Recommendation ITU-T K.70



ITU-T activities on human exposure to electromagnetic fields (EMFs) due to radio systems and mobile equipment

YOU ARE HERE HOME > ITU-T > ITU-T ACTIVITIES ON HUMAN EXPOSURE TO ELECTROMAGNETIC FIELDS (EMFs) SHARE

NEW REPORT

Monitoring of electromagnetic field levels in Latin America
Implementation of Recommendation ITU-T K.83

ITU-T STUDY GROUP 5

ITU-T Study Group 5 (SG5) is the lead study group for studies on assessing and mitigating the effects of environmental challenges, including climate change, in line with the Sustainable Development Goals (SDGs). This Study Group also includes within its remit opportunities for ICTs arising from a circular economy. SG5 is also the lead study group on ICT environmental aspects of electromagnetic phenomena.

ITU-T RECOMMENDATIONS ON EMF

This webpage provides references to the latest ITU-T Recommendations on EMF issues.

EMF ESTIMATOR SOFTWARE

EMF Estimator is a software application that implements the methodology described in ITU-T K.70 to calculate the cumulative radio frequency exposure levels in the vicinity of transmitting antennas.

EMF GUIDE & MOBILE APP

EMF Guide & Mobile App in 6 languages provides information and education resources on Electromagnetic Fields suitable for all communities, stakeholders and governments and is available online at <http://www.itu.int/itu-t/ict/ict-environmental> or via de iOS, BlackBerry World and Google Play app stores. The Mobile app is designed for smart phones, tablets or desktops.

EMF FLYER

This flyer provides information on ITU-T activities on human exposure to electromagnetic fields due to radio systems and mobile equipment.

MONITORING OF EMF LEVELS

Find out more about the Implementation of Recommendation ITU-T K.83 "Monitoring of electromagnetic field levels" in Argentina, Brazil, Colombia, Ecuador, El Salvador and Uruguay.

FOR MORE INFORMATION, PLEASE SEE OUR:

- Info Sheet
- EMF Guide Information Video
- EMF Guide summary presentation
- EMF Guide Blog

FOCUS GROUPS

- Focus Group on Smart Sustainable Cities (FG-SSC)
- Focus Group on Smart Water Management (FG-BWM)

ITU-T GOVERNANCE

- ITU-T Resolution 72 - "Measurement concerns related to human exposure to electromagnetic fields" (Rev. Hammar, 2016)
- ITU Resolution 175 - "Human exposure to and measurement of electromagnetic fields" (Busan, 2014)

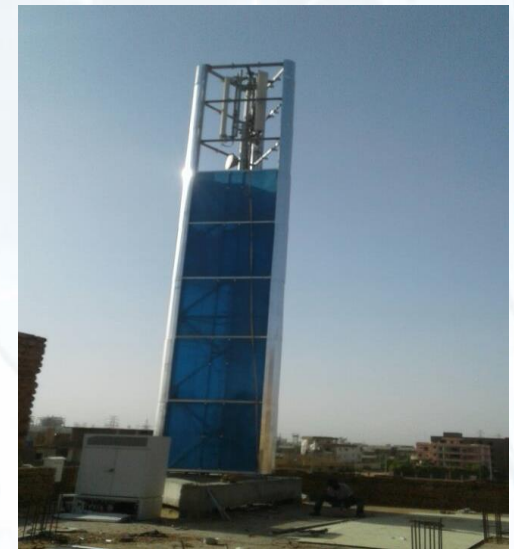
The growing demand for mobile services have necessitated the increase in communications infrastructure such as radio base stations, which are needed to ensure that there are adequate network coverage and access that guarantee minimum Quality of Service (QoS). wireless technology has become an indispensable part of modern society. radio base stations are an essential component of telecommunications infrastructure and are the backbone of wireless networks.



- ❑ **Granting approval for the installation of base stations after conforming the specifications to the approved standards globally, regionally and locally.**
- ❑ **Setting specifications, requirements and regulations for the construction of base stations.**
- ❑ **Checking and matching the base stations specifications with the approved specifications.**
- ❑ **Analysis of electromagnetic radiation from base stations.**
- ❑ **Immediate response to complaints and scientific reports, and coordination with the relevant authorities.**

Field Survey:

Assessment of antenna site is necessary to ensure compliance with the standards and local regulations limit for the above ground facilities (AGF) “radio base stations” installations and the maximum permissible exposure (MPE)





The Role of TPRA

The field survey assessment shall provide review on legal developments regarding the regulation of the placement, aesthetics and safety of cell towers and the cellular antennas mounted on a building and the related telecommunication equipment (jointly referred to as "radio base stations") for the current licensees.

The field survey and compliance verification will help to address the concerns of the public and also take appropriate action to harmonize growth and development on one hand and public safety on the other hand.



- ❑ To evaluate suitability of each site for the located radio base stations, antennas and the DF equipment and identify any special design considerations to be evaluated.
- ❑ To inspect radio base stations site for all parameters as recommended by ITU and TPRA.
- ❑ To measure and evaluate radio base stations Effective Radiated Power and evaluate the compliance with the standard bodies and the local regulation guidelines for human exposure to radiofrequency electromagnetic fields.



- To evaluate civil aviation concern for the subject radio base stations.
- To evaluate all documents, permits, approval, and insurance for all radio base stations under consideration.
- To identify the sites that's rice non-compliancy with the standard bodies and the local regulation guidelines.

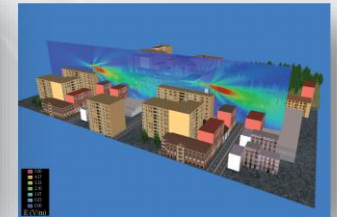
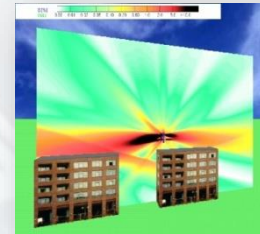


Both methods (calculation and measurement) for exposure assessment:

□ For calculation:

EFC-400 Telecommunication

RF Calculation EMF visual software



□ For measurement:

Narda SRM-3006, NBM550.

MVG Satimo

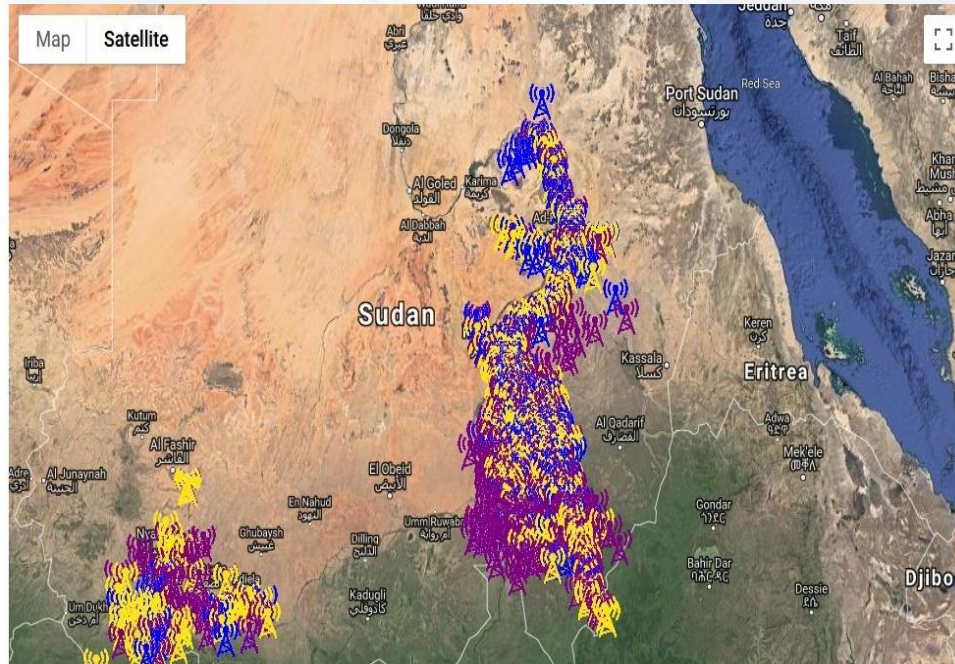
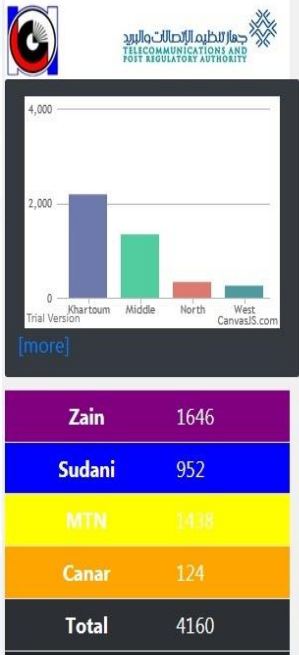


Exposure limits based on [b-ICNIRP] guidelines has been adopted in TPRA, where two kinds of guidance exist:

- Basic restrictions based directly on established adverse health effects.
- Reference levels provided for practical exposure assessment purposes, to determine whether basic restrictions are likely to be exceeded.



The project started in 2017 by stakeholder company to conformity all base stations in Sudan according to WHO, ICNIRP, ITU recommendations



Dashboard

Towers Survey System
Confirmative Report

Date Range : 11/20/2019 12:00:00 AM : 11/20/2019 12:00:00 AM
Number of Towers : 7

NO	Owner	Site Code	Site address	Install type	Station Type	Violation
1	Zain	KTM1718	الخرطوم-44	Roof Top	Macro	Tower Height 12 (m)
2	Zain	CM21540	الخرطوم-10	Roof Top	Macro	Tower Height 14 (m)
3	Zain	KTM427	الخرطوم-10	Roof Top	Macro	Tower Height 10 (m)
4	Zain	CM21624	الخرطوم-10	Roof Top	Macro	Tower Height 12 (m)
5	Zain	CM21621	الخرطوم-10	Roof Top	Macro	Tower Height 14 (m)
7	Zain	CM21681	الخرطوم-10	Roof Top	Macro	Tower Height 13 (m)

Confirmative Report

Towers Survey System
Tower Information

Scan Date: 4/12/2019 12:00:00 AM

Tower Information

Owner Company: Zain
Site Name: KAS5
Site Code: KAS7511
Longitude: 24.28667
Latitude: 12.50769
Address: من الشبرا
Station Type: Macro
Install Type: Green Flat
Distance between Tower and Tower: m
Power Solution: Generator
Tower Height: 60 m
Noise Level: 0 db
Number of Antennas: 9
Number of Links: 4

Comment:

Sectors Information

NO	Sector	Azimuth (°)	Antenna Height (m)	Antenna Technology	Antenna Model	Frequency (MHz)
1	A	40	38	GSM	Directional	900
2	A	30	38	WCDMA	Directional	2100
3	A	30	38	WCDMA	Directional	1800
4	B	120	40	GSM	Directional	900
5	B	120	40	GSM	Directional	1800
6	B	130	38	WCDMA	Directional	2100
7	C	290	40	GSM	Directional	900
8	C	290	40	GSM	Directional	1800
9	C	300	38	WCDMA	Directional	2100

Tower Report

- ❑ Started in 2016, to raise awareness and remove people's concerns about the concept of base stations.

[Telecom Tower.mp4](#)

[Telecom Tower](#)

[Apps.mp4](#)



- ❑ Foster discussions and studies on the challenges related to the EMC, EMF, EMF effects on health.
- ❑ Contribute to the development of new or revised ITU-T Recommendations, Supplements and Technical Reports on the issues covered under SG5 mandate



- ❑ Raise awareness of the importance of base stations for telecommunications equipment.
- ❑ Check technical and civil specification of all radio base stations and published approval certificate any of it conformity with world specifications insurance.
- ❑ Monitoring the violations and removing them by telecommunication operators.
- ❑ Preservation of human health and environment.



Striving to achieve



جهاز تنظيم الاتصالات والبث
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POST REGULATORY AUTHORITY



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