

UNITED REPUBLIC OF TANZANIA  
TANZANIA COMMUNICATIONS REGULATORY AUTHORITY

**ISO 9001:2015 CERTIFIED**



**MINIMUM TECHNICAL SPECIFICATIONS**

**FOR**

**BASE STATIONS AND REPEATER**

**APRIL 2018**

## 1.0 General Requirements

### 1.1 Scope of Specification

This specification defines the minimum technical requirements for base stations and repeater equipment to be used in the Public Mobile Radio Communication.

System and services which employ:

- a) The Global System for Mobile Communications (GSM) technology;
- b) The ITU IMT-2000 (UTRA FDD and E-UTRA FDD) technologies; and
- c) The ITU IMT-Advanced radio interface technologies

### 1.2 Safety and Health

Use of base station or repeater equipment shall comply with International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz).

Compliance with the above radiation safety standards does not by itself confer immunity from legal obligations and requirements imposed by national health or safety authorities. TCRA may invalidate the equipment registration if so requested by the relevant authority for reasons of safety or hazards that would likely be caused to users.

## 2.0 Technical Requirements

The cellular base station and repeater equipment shall operate within the following frequency bands:-

Transmit Frequency	Receive Frequency
925 MHz - 960 MHz	880 MHz - 915 MHz
791 MHz – 821 MHz	832 MHz – 862 MHz
1 805 MHz - 1 880 MHz	1710 MHz - 1785 MHz
2110 MHz - 2170 MHz	1920 MHz - 1980 MHz
2300 MHz – 2400 MHz	2300 MHz – 2400 MHz
2570 MHz – 2620 MHz	2570 MHz – 2620 MHz
2620 MHz – 2690 MHz	2500 MHz – 2570 MHz
3400 MHz – 3600 MHz	3400 MHz – 3600 MHz

Table: 1: Base Station operating frequency bands

The present document contains requirements to demonstrate that that radio equipment both effectively uses and supports the efficient use of radio spectrum in order to avoid harmful interference.

The precise operating frequency range of a base station and repeater shall follow that of the Network Operator from whom the service is obtained.

**Note:** Frequency allocations can change and this information should be checked with TCRA.

## 2.1 Radio Interfaces Requirements

Vendors shall demonstrate that the cellular base stations and repeater equipment have been tested and certified for operating in the frequency bands stated in table 1 and conformity to any or a combination the following standards and all applicable standards referenced within. Please note that the latest version of the referenced document (including any amendments) applies.

- a) **ETSI EN 301 502:** Global System for Mobile communications (GSM); Harmonized EN for Base Station Equipment covering the essential requirements of article 3.2 of the R&TTE Directive.
- b) **ETSI EN 300 609-4:** Global System for Mobile communications (GSM); Part 4: Harmonized EN for GSM Repeaters covering the essential requirements of article 3.2 of the R&TTE Directive
- c) **ETSI EN 301 908-01:** IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 1: Introduction and common requirements.
- d) **ETSI EN 301 908-03:** IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 3: CDMA Direct Spread (UTRA FDD) Base Station (BS).
- e) **ETSI EN 301 908-11:** IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 11: CDMA Direct Spread (UTRA FDD) (Repeaters).
- f) **ETSI EN 301 908-14:** IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 14: Evolved Universal Terrestrial Radio Access (E-UTRA) Base Stations (BS).
- g) **ETSI EN 301 908-15:** IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 15: Evolved Universal Terrestrial Radio Access (E-UTRA FDD) (Repeaters).
- h) **ETSI EN 301 908-18:** IMT cellular networks; Harmonized EN covering the essential requirements of article 3.2 of the R&TTE Directive; Part 18: E-UTRA, UTRA and GSM/EDGE Multi-Standard Radio (MSR) Base Station (BS).
- i) **ITU-R M.1457-13:** Detailed specifications of the terrestrial radio interfaces of International Mobile Telecommunications-2000 (IMT-2000)
- j) **ITU-R M.2012-3:** Detailed specifications of the terrestrial radio interfaces of International Mobile Telecommunications-Advanced (IMT-Advanced)

## 2.2 Electromagnetic Compatibility Requirements

Vendors shall demonstrate that the base stations and repeater equipment have been tested and certified to meet the EMC limits and methods of measurement as specified in the following IMT-2000 Third-Generation Cellular System specifications published by the ETSI:-

- a) **ETSI EN 301 489-1:** Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements.
- b) **ETSI EN 301 489-23:** Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 23: Specific conditions for IMT-2000 CDMA, Direct Spread (UTRA and E-UTRA) Base Station (BS) radio, repeater and ancillary equipment.

### **2.3 Electrical Safety Requirements**

Suppliers shall demonstrate that the base stations and repeater equipment have been tested and certified to meet the following safety standards:

- a) **IEC 60950/EN 60950:** Safety of Information Technology equipment including Electrical business equipment
- b) **IEC 60215/ EN 60215:** Safety requirements for radio transmitting equipment

