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**INDUSTRY STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

YD/T 1592.1-2012

**Technical specification and testing methods of electromagnetic
compatibility for TD-SCDMA digital cellular mobile communication
system - Part 1: User equipment and ancillary equipment
(English Translation)**

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1 Scope

This part specifies the electromagnetic compatibility (EMC) requirements for user equipment and ancillary equipment for the 2GHz TD-SCDMA digital cellular mobile communication system, including limits, performance criteria, and measurement methods, etc.

This part is applicable to the user equipment and the ancillary equipment for the 2GHz TD-SCDMA digital cellular mobile communication system.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this Standard.

GB/T 6113.104 Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-4. Radio disturbance and immunity measuring apparatus - Ancillary equipment - Radiated disturbance

GB 9254 Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement

GB 17625.1 Electromagnetic compatibility - Limits - Limits for harmonic current emissions (equipment input current $\leq 16\text{A}$ per phase)

GB 17625.2 Electromagnetic compatibility (EMC) - Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current limits $\leq 16\text{A}$ per phase and not subject to conditional connection

3.1 Terms and definitions

The following terms and definitions apply to this document.

3.1.1

Block error rate

The block error rate, the calculation of which shall be based on the estimation of the cyclic redundancy verification for each transmission block.

3.1.4

Ancillary equipment

It refers to the equipment (device) connected to the receiver, transmitter or transceiver, AND the following conditions are met simultaneously.

3.1.5

Fixed station

It refers to the UE which is used at a fixed position AND is powered by AC power source.

3.1.6

Idle mode

It refers to a working mode of the UE receiver or transceiver. In this mode, the equipment under test (EUT) is powered up to provide service AND is able to respond to the requirements for establishing a call.

3.1.7

Traffic mode

It refers to a working mode of the UE receiver or transceiver. In this mode, the equipment under test (EUT) is powered up AND establishes a communication link with the radio resource controller.

3.1.8

Spurious emissions

It refers to the disturbance on the discrete frequency other than the carrier frequency and the normal modulation related side band. It can be divided into conduction and radiation.

3.1.9

Load dump

When alternator produces charging current normally, the charging battery is disconnected from the alternator, and there are still other loads connected to the alternator circuit.

3.2 Abbreviations

The following abbreviations apply to this document.

4.1 General conditions

The EUT shall be tested in a normal test environment. The test conditions shall be recorded in the report.

4.2.1 Transmitter input end test arrangement

Appropriate normal modulation signal is produced through the internal or external signal source AND is sent into the input port of the transmitter. The external signal source shall be located outside the test environment.

SS shall ensure continuous EUT emission.

4.2.3 Receiver input end test arrangement

SS shall be placed outside the test environment.

The frequency of the available RF input signal for providing the communication link is selected by setting the correct UTRA ARFCN. Unless the other clauses of this part have special requirements, the test shall select the UTRA ARFCN corresponding to the center frequency of the operating frequency band.

4.2.4 Receiver output end test arrangement

For audio equipment, the audio output of the receiver shall be connected to an audio distortion analyzer or other similar measurement instrument located outside the test environment via a nonconductive acoustic tube. For those which cannot use the nonconductive acoustic tubes, it may use other methods to connect the output of the receiver to an audio distortion analyzer or other similar measurement instrument, AND it shall be recorded in the test report.

4.3 Test-exempted frequency band

The test-exempted frequency band is the frequency band that does not subjected to the radiation immunity test.

The ancillary equipment does not have the test-exempted frequency band.

4.4 Narrowband response of receiver

The narrowband response generated by the receiver and the transceiver during the discrete frequency test is determined by the following method.

In the immunity test, it shall monitor the BLER and speech output signal level.

Both narrowband response and wideband phenomena may cause an increase in BLER or speech output signal levels. In this case, further judgment is required.

4.5 Continuous disturbance measurement conditions and arrangement

Measurements shall be made in the mode in which the EUT is working with maximum disturbance.

4.6 Immunity test conditions and arrangements

4.6.1

The immunity test shall be carried out in two operating modes.

- a) Traffic mode;
- b) Idle mode.

4.6.2

When the EUT is an analog speech or audio signal transmission mode, the test arrangement shall be carried out in accordance with the following conditions.

5.1 General

SEE 5.1 of YD/T 1312.1-2008.

The relevant contents of the intermediate frequency bandwidth before the receiver demodulator as mentioned in 5.1 of YD/T1312.1-2008 do not apply to the radio equipment as covered in this part.

5.3 EUT that cannot establish continuous communication connections

It is same as the clause 5.3 in YD/T1312.1-2008.

5.5 Classification of EUT

It is same as the clause 5.5 in YD/T1312.1-2008.