

YD

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

YD/T 1465-2006

**Technical Conditions for 10Gbit/s Small Form Factor Pluggable
Transceiver Module
(English Translation)**

Issued on: July 20, 2007

Implemented on: December 1, 2007

**Issued by: Ministry of Industry Information Technology, the People's
Republic of China 3.No action is required - Full-cop**

Table of Contents

Foreword...	3
1 Scope...	4
2 Normative references...	4
3 Terms and definitions...	4
4 Symbols and abbreviated terms...	15
5 Measurement system specifications...	16
6 Protocol for SAR assessment...	22
7 Uncertainty estimation...	32
8 Measurement report...	50
Annex A (normative) Phantom specifications...	52

Foreword

This Standard is one of Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices Part Standard, and its name and it is consist of the following parts.

1 Human exposure to radio frequency fields from hand-held and body-mounted wireless

communication devices - Human models, instrumentation, and procedures - Part 1.

Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)

2 Human exposure to radio frequency fields from hand-held and body-mounted wireless

communication devices - Human models, instrumentation, and procedures - Part 1.

Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 6 GHz)

This Standard is equivalent to IEC 62209-1 (2005). Human exposure to radio frequency

fields from hand-held and body-mounted wireless communication devices - Human models, instrumentation, and procedures - Part 1. Procedure to determine the specific absorption rate

(SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz

to 3 GHz).

This Standard is Part 1.

Appendix A, B, C and D are normative appendixes, Appendix E, F, G, H, I and J are informative appendixes.

This Standard is proposed and managed by China Communication Standardization Association.

This Standard is prepared by MIIT Telecommunication Institute.

This Standard is written by. Wang Hongbo, Wang Nana, Qi Dianyuan, Wu Tongning, and Wun Qian.

HUMAN EXPOSURE TO RADIO FREQUENCY FIELDS FROM HAND-HELD AND BODY-MOUNTED WIRELESS COMMUNICATION DEVICES - HUMAN MODELS, INSTRUMENTATION, AND PROCEDURES

Part 1. Procedure to determine the specific absorption rate (SAR) for
hand-held devices used in close proximity to the ear (frequency range
of 300 MHz to 3 GHz)

1 Scope

This Standard defines the procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear.

It applies to any electromagnetic field (EMF) transmitting device intended to be used with the radiating part of the device in close proximity to the human head and held against the

ear, including mobile phones, cordless phones, etc. The frequency range is 300 MHz to 3 GHz.

The objective of this Standard is to specify the measurement method for demonstration

of compliance with the specific absorption rate (SAR) limits for such devices. The standard is about the measurement method, rather than the safety thresholds.

2 Normative references

The following standards contribute to the stipulation of this specification after being quoted. All the revision versions (excluding correction version) of the quoted standards specified with date are not applicable for this Standard. However, parties that have come to agreements based on this Standard are encouraged to explore the possibility to use the latest

versions of the following standards. The latest version of the quoted documents without date

specified is applicable for this specification.

ISO/IEC Guide. 1995, Guide to the Expression of Uncertainty in Measurement

ISO/IEC 17025.1999, General requirements for the competence of testing and calibration laboratories

3 Terms and definitions

For the purposes of this Standard, the following terms and definitions apply.

3.1

attenuation coefficient

numerical factor intended to account for attenuation due to the human head or body tissue between the source and a specified point.

3.2

average (temporal) absorbed power

value of the time-averaged rate of energy transfer given by.

Where

- is the average power in watts.

t1 - is the start time of the exposure in seconds;

t2 - is the stop time of the exposure in seconds;

t2 - t1 - is the exposure duration in seconds;

$P(t)$ - is the instantaneous absorbed power in watts;

3.3

axial isotropy

the maximum deviation of the SAR when rotating around the major axis of the probe cover/case while the probe is exposed to a reference wave impinging from a direction along the probe major axis.

3.4

basic restriction

restrictions on human exposure to time-varying electric, magnetic, and electromagnetic fields that are based directly on established health effects.

NOTE: Within the frequency range of this Standard, the physical quantity used as a basic restriction is the specific absorption rate (SAR).

3.5

boundary effect (probe)

A change in the sensitivity of an electric-field probe when the probe is located close to (less than one probe-tip diameter) media boundaries.

3.6

wireless device shall be set to transmit at its highest power level for the conditions of use next to

the ear. The exposure tests shall be based on the functional and exposure characteristics of the test

devices, e.g., operating modes, antenna configurations, etc.

Whenever possible, final commercial product versions shall be tested using all normal operational configurations, e.g., without any cables attached. Cables attached to a product are very

likely to alter the transmitter RF current distribution on metallic and conducting portions of the

product. Additionally, if tests are performed using prototypes, it shall be verified that the commercial version has exactly the same mechanical and electrical characteristics as the tested