



FCC HAC (RF) Compliance Test Report

Project Name: HSDPA/UMTS/GSM/GPRS/EDGE Mobile
Phone with Bluetooth

Model : HUAWEI U3900/U3900

FCC ID : QISU3900

Report No. : SYBH(Z-SAR)005032013-H1

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DATE	2013-03-30	2013-03-30	2013-03-30

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※ ※ Modified History ※ ※

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev. 1.0	Initial Test Report Release	2013-03-30	Xu Ruiqing

1 General Information

1.1 Statement of Compliance

The M-rating of Hearing-Aid Compatibility (HAC) found during testing for HUAWEI U3900/U3900 are as below Table 1. So the M-rating of HUAWEI U3900/U3900 is M3.

Band	M-rating
GSM850	M4
GSM1900	M3
UMTS Band II	M4
UMTS Band V	M4

Table 1: Summary of test result

Note: This portable wireless equipment has been shown to be hearing-aid compatible under the above rated category, specified in ANSI/IEEE Std.C63.19-2007 and had been tested in accordance with the specified measurement procedures, Hear-Aid Compatibility is based on the assumption that all production units will be designed electrically identical to the device tested in this report. Test results reported herein relate only to the item(s) tested and are for North American Bands only.

1.2 ANSI C 63.19-2007 limits

Category		Telephone RF parameters<960MHz			
Near field	AWF	E-field emissions		H-field emissions	
Category M1/T1	0	631.0 to 1122.0	V/m	1.91 to 3.39	A/m
	-5	473.2 to 841.4	V/m	1.43 to 2.54	A/m
Category M2/T2	0	354.8 to 631.0	V/m	1.07 to 1.91	A/m
	-5	266.1 to 473.2	V/m	0.80 to 1.43	A/m
Category M3/T3	0	199.5 to 354.8	V/m	0.60 to 1.07	A/m
	-5	149.6 to 266.1	V/m	0.45 to 0.80	A/m
Category M4/T4	0	< 199.5	V/m	< 0.60	A/m
	-5	< 149.6	V/m	< 0.45	A/m
Category		Telephone RF parameters>960MHz			
Near field	AWF	E-field emissions		H-field emissions	
Category M1/T1	0	199.5 to 354.8	V/m	0.60 to 1.07	A/m
	-5	149.6 to 266.1	V/m	0.45 to 0.80	A/m
Category M2/T2	0	112.2 to 199.5	V/m	0.34 to 0.60	A/m
	-5	84.1 to 149.6	V/m	0.25 to 0.45	A/m
Category M3/T3	0	63.1 to 112.2	V/m	0.19 to 0.34	A/m
	-5	47.3 to 84.1	V/m	0.14 to 0.25	A/m
Category M4/T4	0	< 63.1	V/m	< 0.19	A/m
	-5	< 47.3	V/m	< 0.14	A/m

Table 2: Telephone near-field categories in linear units

Technology	Articulation Weighing Factor (AWF)
UMTS(WCDMA)	0
CDMA	0
TDMA(22 and 11 Hz)	0
GSM (217 Hz)	-5

Table 3: Articulation Weighing Factors (AWF)

1.3 EUT Description

Device Information:			
DUT Name:	HSDPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth		
Type Identification:	HUAWEI U3900/U3900		
FCC ID :	QISU3900		
SN No:	A3E01A9330400086		
Device Type :	portable device		
Exposure Category:	uncontrolled environment / general population		
Hardware Version :	HD1U3900M vc		
Software Version :	U3900CEGB106		
Antenna Type :	Internal		
Battery Options :	Huawei Technologies Co., Ltd. Rechargeable Li-ion Battery Model: HB4A1H(24021064) Rated capacity: 900 mAh Nominal Voltage:  +3.7V Charging Voltage:  +4.2V 1#:SN- YAC8C02HI4501516 2#:SN- UNHB519X12000201		
Others Accessories	Headset		
Device Operating Configurations:			
Supporting Mode(s)	GSM850/1900,UMTS Band II/V(Tested); Bluetooth		
Test Modulation	GSM(GMSK/8PSK),UMTS(QPSK)		
Device Class	B		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM850	824-849	869 - 894
	GSM1900	1850-1910	1930-1990
	UMTS Band II	1850-1910	1930-1990
	UMTS Band V	824-849	869 - 894
Power Class :	4,tested with power level 5(GSM850)		
	1,tested with power level 0(GSM1900)		
	3, tested with power control “all 1”(UMTS Band II)		
	3, tested with power control “all 1”(UMTS Band V)		
Test Channels (low-mid-high) :	128-190-251 (GSM850)		
	512-661-810 (GSM1900)		
	9262-9400-9538 (UMTS Band II)		
	4132-4182-4233(UMTS Band V)		

Table 4: Device information and operating configuration

1.3.1 General Description

HSDPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth HUAWEI U3900/U3900 is subscriber equipment in the WCDMA/GSM system. HUAWEI U3900/U3900 supports GSM/GPRS/EDGE 850/00/1800/1900 and WCDMA/ HSDPA 850/1900, But only GSM/GPRS/EDGE 850/1900 can be used in this report. The Mobile Phone implements such functions as RF signal receiving/transmitting, HSDPA/MTS and GSM/GPRS protocol processing, voice, video, MMS service, GPS etc. Externally it provides micro SD card interface, earphone port(to provide voice service) and USIM card interface. It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices.

1.3.2 List of air interfaces/frequency bands

Air Interface	Band(MHz)	Voice/Data	HAC tested	Concurrent HAC Tested	Reduced Power
GSM	850	Voice	Yes	Not tested**	No
GSM	1900	Voice	Yes	Not tested**	No
UMTS	Band II	Voice	Yes	Not tested**	No
UMTS	Band V	Voice	Yes	Not tested**	No
BT	2450	Data(*)	No	NA	No

Note:

1)*-The voice function maybe be activated via 3rd party software application.

2)**- Non concurrent mode was found to be the Worst Case mode.

1.4 Test specification(s)

ANSI C63.19-2007	American National Standard for Methods of Measurement of Compatibility between Wireless Communication Devices
KDB 285076 D01	HAC Guidance v03

1.5 Testing laboratory

Test Site	Reliability Laboratory of Huawei Technologies Co., Ltd.
Test Location	Zone K3, Huawei Industrial Base, Bantian Industry Area, Longgang District, Shenzhen, Guangdong, China
Telephone	+86-755-28785513
Fax	+86-755-36834474
State of accreditation	The Test laboratory (area of testing) is accredited according to ISO/IEC 17025. A2LA Registration number: 2174.01

1.6 Applicant and Manufacturer

Company Name	HUAWEI TECHNOLOGIES CO., LTD
Address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

1.7 Application details

Start Date of test	2013-03-18
End Date of test	2013-03-19

1.8 Ambient Condition

Ambient temperature	20°C – 24°C
Relative Humidity	30% – 70%

2 HAC (RF) Measurement System

2.1 RF Measurement Set-up

These measurements are performed using the DASY5 NEO automated dosimetric assessment system. It is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland. It consists of high precision robotics system (Stäubli), robot controller, Intel Core2 computer, near-field probe, probe alignment sensor. The robot is a six-axis industrial robot performing precise movements. A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The PC consists of the HP Intel Core2 1.86 GHz computer with Windows XP system and HAC Measurement Software DASY5 NEO, A/D interface card, monitor, mouse, and keyboard. The Stäubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

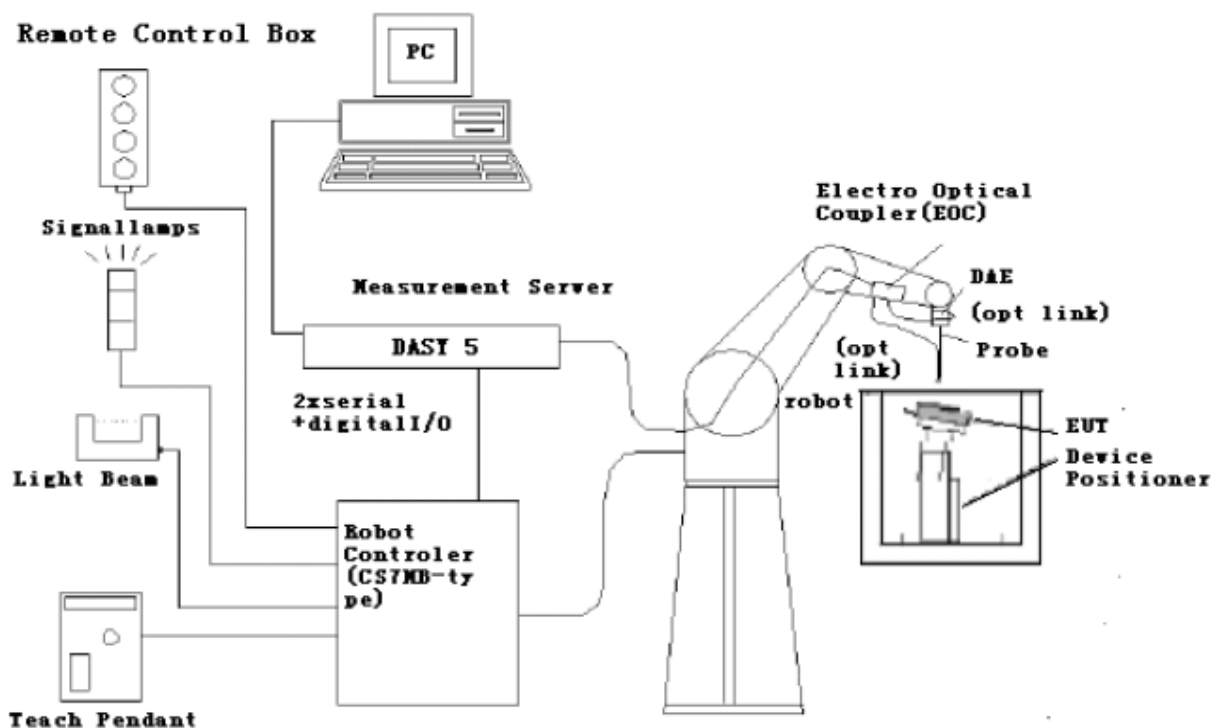


Fig. 1 HAC Test Measurement Set-up

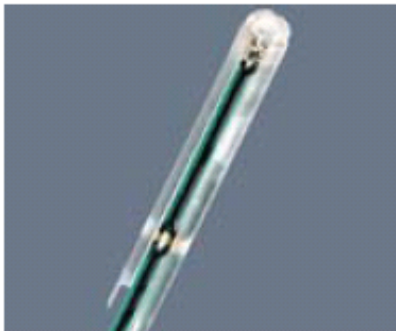
The DAE4 consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

2.2 Probe description

E-Field Probe Description

Construction	One dipole parallel, two dipoles normal to probe axis Built-in shielding against static charges PEEK enclosure material	 [ER3DV6]
Calibration	In air from 100 MHz to 3.0 GHz (absolute accuracy $\pm 6.0\%$, $k=2$)	
Frequency	40 MHz to > 6 GHz (can be extended to < 20 MHz) Linearity: ± 0.2 dB (100 MHz to 3 GHz)	
Directivity	± 0.2 dB in air (rotation around probe axis) ± 0.4 dB in air (rotation normal to probe axis)	
Dynamic range	2 V/m to > 1000 V/m; Linearity: ± 0.2 dB	
Dimensions	Overall length: 330 mm (Tip: 16 mm) Tip diameter: 8 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.5 mm	
Application	General near-field measurements up to 6 GHz Field component measurements Fast automatic scanning in phantoms	

H-Field Probe Description

Construction	Three concentric loop sensors with 3.8 mm loop diameters Resistively loaded detector diodes for linear response Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., glycolether)	 [H3DV6]
Frequency	200 MHz to 3 GHz (absolute accuracy $\pm 6.0\%$, $k=2$); Output linearized	
Directivity	± 0.2 dB (spherical isotropy error)	
Dynamic range	10 mA/m to 2 A/m at 1 GHz	
E-Field Interference	< 10% at 3 GHz (for plane wave)	
Dimensions	Overall length: 330 mm (Tip: 40 mm) Tip diameter: 6 mm (Body: 12 mm) Distance from probe tip to dipole centers: 3 mm	
Application	General magnetic near-field measurements up to 3 GHz (in air or liquids) Field component measurements Surface current measurements Low interaction with the measured field	

2.3 Test Arch Phantom & Phone Positioner

The Test Arch phantom should be positioned horizontally on a stable surface. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot. It enables easy and well defined positioning of the phone and validation dipoles as well as simple teaching of the robot (Dimensions: 370 x 370 x 370 mm).

The Phone Positioner supports accurate and reliable positioning of any phone with effect on near field $< \pm 0.5$ dB.

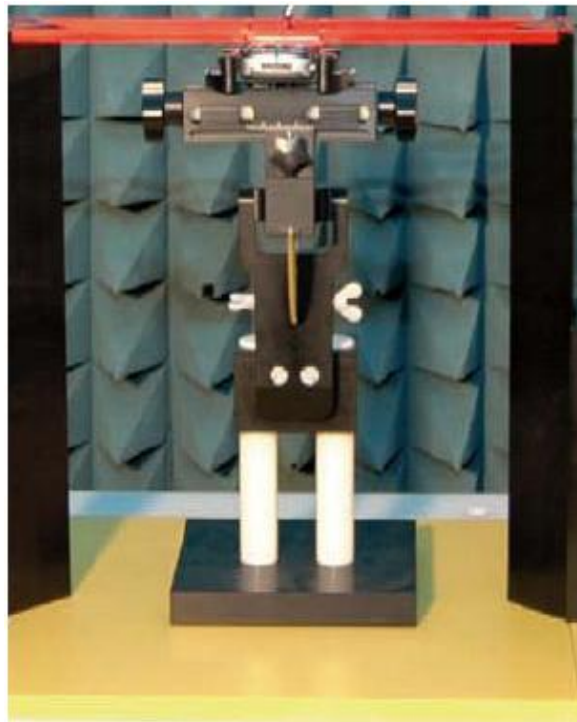


Fig. 2 HAC Phantom & Device Holder

2.4 WD RF Emission Measurements Reference and Plane

Figure 3 illustrates the references and reference plane that shall be used in the WD emissions measurement.

- The grid is 5 cm by 5 cm area that is divided into 9 evenly sized blocks or sub-grids.
 - The grid is centered on the audio frequency output transducer of the WD (speaker or T-coil).
 - The grid is located by reference to a reference plane. This reference plane is the planar area that contains the highest point in the area of the WD that normally rests against the user's ear
 - The measurement plane is located parallel to the reference plane and 10 mm from it, out from the phone.
- The grid is located in the measurement plane.

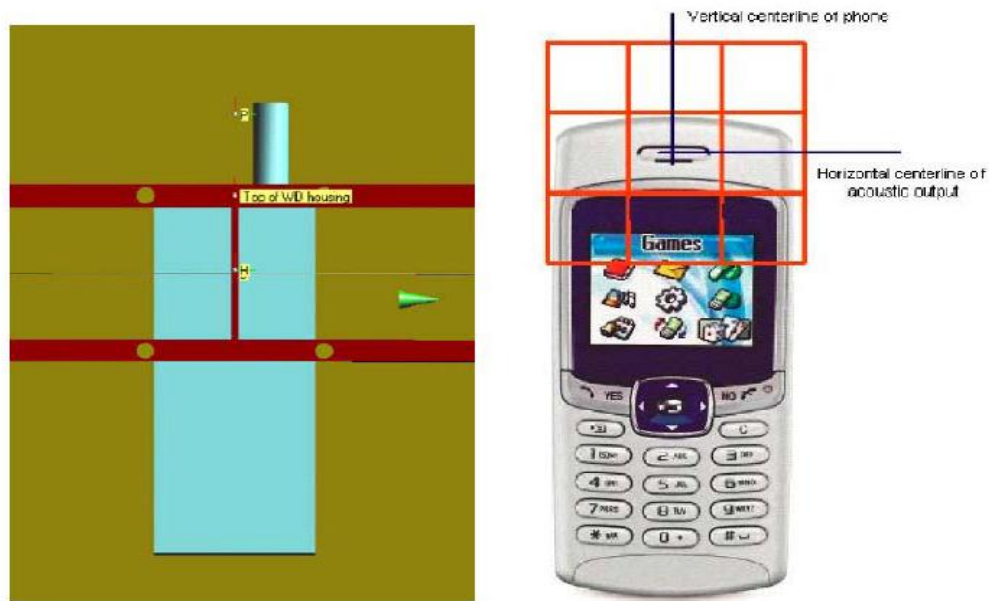


Fig. 3 WD reference and plane for RF emission measurements

2.5 Test Equipment List

This table gives a complete overview of the HAC measurement equipment
Devices used during the test described are marked ☒

	Manufacturer	Device	Type	Serial number	Date of last calibration	Valid period
☒	SPEAG	Dosimetric E-Field Probe	ER3DV6	2441	2012-11-26	One year
☒	SPEAG	Dosimetric H-Field Probe	H3DV6	6270	2012-11-26	One year
☒	SPEAG	835 MHz Dipole	CD835V3	1114	2012-11-26	Three years
☒	SPEAG	1880 MHz Dipole	CD1880V3	1110	2012-11-26	Three years
☒	SPEAG	Data acquisition electronics	DAE4	852	2012-11-22	One year
☒	SPEAG	HAC Test Arch	N/A	1102	NCR	NCR
☒	SPEAG	Software	DASY 5	N/A	N/A	N/A
☒	Agilent	Power Meter Sensor	E9321A	MY44420359	2013-02-26	One year
☒	Agilent	Signal Generator	N5181A	MY47420989	2013-02-27	One year
☒	MINI-CIRCUITS	Amplifier	ZHL-42W	QA0746001	N/A	N/A
☒	Agilent	Power Meter	E4417A	MY45101339	2013-02-26	One year
☒	R & S	Universal Radio Communication Tester	CMU200	113989	2012-06-07	One year

2.6 Measurement Uncertainty Evaluation

Error Description	Uncertainty Value	Probability Distribution	Divisor	ci E	ci H	Standard Uncertainty E	Standard Uncertainty H
Measurement System							
Probe calibration	± 5.1%	Normal	1	1	1	± 5.1%	± 5.1%
Axial isotropy	± 4.7%	Rectangular	√3	1	1	± 2.7%	± 2.7%
Sensor Displacement	± 16.5%	Rectangular	√3	1	0.145	± 9.5%	± 1.4%
Test Arch	± 7.2%	Rectangular	√3	1	0	± 4.1%	± 0.0%
Linearity	± 4.7%	Rectangular	√3	1	1	± 2.7%	± 2.7%
Scaling to Peak Envelope Power	± 0.0%	Rectangular	√3	1	1	± 0.0%	± 0.0%
System Detection Limit	± 1.0%	Rectangular	√3	1	1	± 0.6%	± 0.6%
Readout Electronics	± 0.3%	Normal	1	1	1	± 0.3%	± 0.3%
Response Time	± 0.8%	Rectangular	√3	1	1	± 0.5%	± 0.5%
Integration Time	± 2.6%	Rectangular	√3	1	1	± 1.5%	± 1.5%
RF Ambient Conditions	± 3.0%	Rectangular	√3	1	1	± 1.7%	± 1.7%
RF Reflections	± 12.0%	Rectangular	√3	1	1	± 6.9%	± 6.9%
Probe positioner	± 1.2%	Rectangular	√3	1	0.67	± 0.7%	± 0.5%
Probe positioning	± 4.7%	Rectangular	√3	1	0.67	± 2.7%	± 1.8%
Extrap. and Interpolation	± 1.0%	Rectangular	√3	1	1	± 0.6%	± 0.6%
Test Sample Related							
Device Positioning Vertical	± 4.7%	Rectangular	√3	1	0.67	± 2.7%	± 1.8%
Device Positioning Lateral	± 1.0%	Rectangular	1	1	1	± 0.6%	± 0.6%
Device Holder and Phantom	± 2.4%	Rectangular	√3	1	1	± 1.4%	± 1.4%
Power Drift	± 5.0%	Rectangular	√3	1	1	± 2.9%	± 2.9%
Phantom and Set-up							
Phantom Thickness	± 2.4%	Rectangular	√3	1	0.67	± 1.4%	± 0.9%
Combined Std. Uncertainty						± 15.2%	± 10.8%
Expanded Std. Uncertainty on Power						± 30.4%	± 21.6%
Expanded Std. Uncertainty on Field						± 15.2%	± 10.8%

Table 5: Measurement uncertainties

NOTE: Worst-Case uncertainty budget for HAC free field assessment according to ANSI C63.19 [1], [2]. The budget is valid for the frequency range 800 MHz - 3 GHz and represents a worstcase analysis. For specific tests and configurations, the uncertainty could be considerably smaller.

3 System Verification Procedure

3.1 System Check

Place a dipole antenna meeting the requirements given in ANSI C63.19 D.5 in the position normally occupied by the WD. The dipole antenna serves as a known source for an electrical and magnetic output. Position the E-field and H-field probes so that:

- The probes and their cables are parallel to the coaxial feed of the dipole antenna
- The probe cables and the coaxial feed of the dipole antenna approach the measurement area from opposite directions
- The center point of the probe element(s) are 10 mm from the closest surface of the dipole elements.

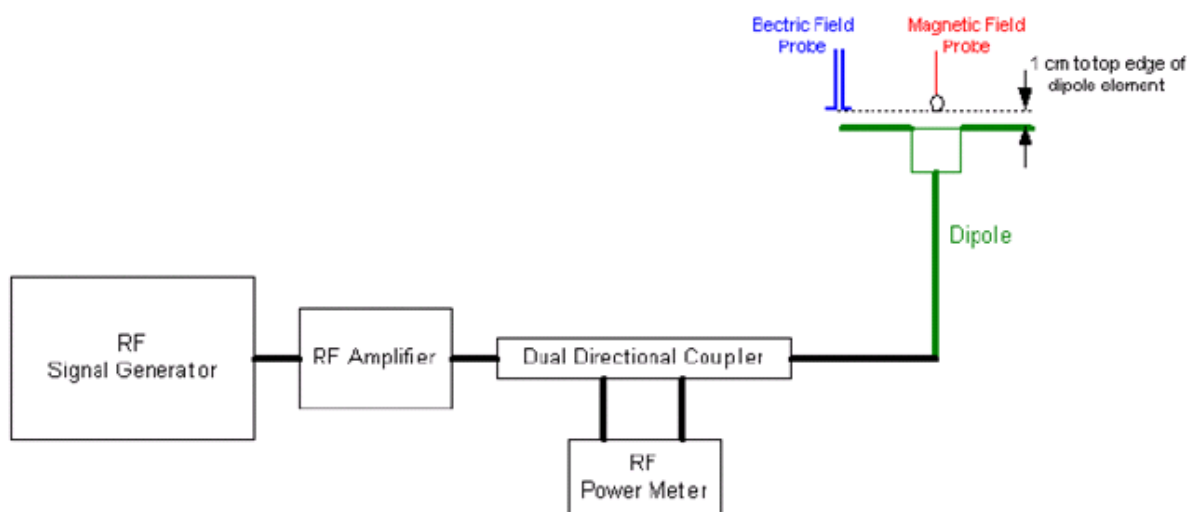


Fig. 4 Dipole Validation Setup

3.2 Validation Result

E-Field Scan							
Mode	Frequency (MHz)	Input Power (mW)	Measured Value ¹ (V/m)	Target Value ² (V/m)	Deviation ³ (%)	Limit ⁴ (%)	Test Date
CW	835	100	172.9	166.9	3.59%	±25%	03/19/13
CW	1880	100	138	137.1	0.66%	±25%	03/19/13
H-Field Scan							
Mode	Frequency (MHz)	Input Power (mW)	Measured Value (V/m)	Target Value (V/m)	Deviation (%)	Limit (%)	Test Date
CW	835	100	0.459	0.456	0.64%	±25%	03/18/13
CW	1880	100	0.425	0.465	-8.69%	±25%	03/18/13

¹ Please refer to the attachment for detailed measurement data and plot.

² Target value is provided by SPEAD in the calibration certificate of specific dipoles.

³ Deviation (%) = 100 * (Measured value minus Target value) divided by Target value.

⁴ ANSI C63.19 requires values within ± 25% are acceptable, of which 12% is deviation and 13% is measurement uncertainty. Values independently validated for the dipole actually used in the measurements should be used, when available.

3.3 Probe Modulation Factor

The Probe Modulation Factor (PMF) is defined as the ratio of the field readings for a CW and a modulated signal with the equivalent Field Envelope Peak as defined in ANSI C63.19 (Chapter C.3.1). Calibration shall be made of the modulation response of the probe and its instrumentation chain. This Calibration shall be performed with the field probe, attached to the instrumentation that is to be used with it during the measurement. The response of the probe system to a CW field at the frequency(s) of interest is compared to its response to a modulated signal with equal peak amplitude. The field level of the test signals shall be more than 10dB above the ambient level and the noise floor of the instrumentation being used. The ratio of the CW reading to that taken with a modulated field shall be applied to the readings taken of modulated fields of the specified type.

3.4 Modulation Factor Test Procedure

This may be done using the following procedure:

1. Fix the field probe in a set location relative to a field generating device, such as the reference dipole antenna, as illustrated in the following figure.
2. Illuminate the probe using the wireless device (EUT) connected to the reference dipole with a test signal at the intended measurement frequency, Ensure there is sufficient field coupling between the probe and the antenna so the resulting reading is greater than 10 dB above the probe system noise floor but within the systems operating range.
3. Record the amplitude applied to the antenna during transmission and the field strength measured by the E-field probe located near the tip of the dipole antenna.
4. Replace the wireless device with an RF signal generator producing an unmodulated CW signal and set to the wireless device operating frequency.
5. Set the amplitude of the unmodulated signal to equal that recorded from the wireless device.
6. Record the reading of the probe measurement system of the unmodulated signal.
7. The ratio, in linear units, of the probe reading in Step 6) to the reading in Step 3) is the E-field modulation factor. $PMFE = ECW / Emod$ ($PMFH = HCW / Hmod$)
8. Repeat the previous steps using the H-field probe, except locate the probe at the center of the dipole.

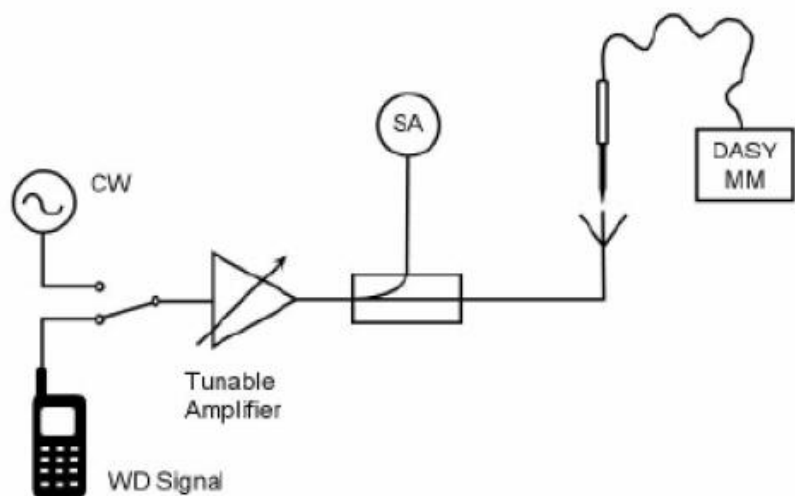


Fig. 6 Probe Modulation Factor Test Setup

3.5 Modulation Factor

Band	E-Field Probe Modulation Factor	H-Field Probe Modulation Factor
GSM850	2.83	2.82
GSM1900	2.86	2.83
UMTS Band V	1.04	1.02
UMTS Band II	1.02	1.01

4 HAC Measurement Procedure

The evaluation was performed with the following procedure:

- 1) Confirm proper operation of the field probe, probe measurement system and other instrumentation and the positioning system.
- 2) Position the WD in its intended test position. The gauge block can simplify this positioning. Note that a separate E-field and H-field gauge block will be needed if the center of the probe sensor elements are at different distances from the tip of the probe.
- 3) Configure the WD normal operation for maximum rated RF output power, at the desired channel and other operating parameters (e.g., test mode), as intended for the test. The battery was ensured to be fully charged before each test.
- 4) The center sub-grid shall be centered on the center of the T-Coil mode axial measurement point or the acoustic output, as appropriate. Locate the field probe at the initial test position in the 50 mm by 50 mm grid, which is contained in the measurement plane. If the field alignment method is used, align the probe for maximum field reception.
- 5) Record the reading.
- 6) Scan the entire 50 mm by 50 mm region in equally spaced increments and record the reading at each measurement point. The distance between measurement points shall be sufficient to assure the identification of the maximum reading.
- 7) Identify the five contiguous sub-grids around the center sub-grid with the lowest maximum field strength readings. Thus the six areas to be used to determine the WD's highest emissions are identified and outlined for the final manual scan. Please note that a maximum of five blocks can be excluded for both E-field and H-field measurements for the WD output being measured. Stated another way, the center sub-grid and three others must be common to both the E-field and H-field measurements.
- 8) Identify the maximum field reading within the non-excluded sub-grids identified in Step 7)
- 9) Convert the maximum field strength reading identified in Step 8) to V/m or A/m, as appropriate. For probes which require a probe modulation factor, this conversion shall be done using the appropriate probe modulation factor and the calibration.
- 10) Repeat Step 1) through Step 10) for both the E-field and H-field measurements.
- 11) Compare this reading to the categories in ANSI C63.19 Clause 7 and record the resulting category. The lowest category number listed in Table 6.2 and Table 6.3 obtained in Step 10) for either E- or H-field determines the M category for the audio coupling mode assessment. Record the WD category rating.

5 HAC Test Configuration

5.1 General Description

The phone was tested in all normal configurations for the ear use. The EUT is mounted in the device holder equivalent as for classic dosimeter measurements. The acoustic output of the EUT shall coincide with the center point of the area formed by the dielectric wire and the middle bar of the arch's top frame. The EUT shall be moved vertically upwards until it touches the frame. The fine adjustment is possible by sliding the complete. The EUT holder is on the yellow base plate of the Test Arch phantom. These test configurations are tested at the high, middle and low frequency channels of each applicable operating mode; for example, GSM, WCDMA(UMTS), CDMA and TDMA.

5.2 GSM/UMTS Test Configuration

A communication link is set up with a System Simulator (SS) by air link, and a call is established. The Absolute Radiofrequency Channel Number (ARFCN) is allocated to 128, 190 and 251 in the case of GSM850, to 512, 661 and 810 in the case of GSM1900, to 9262, 9400 and 9538 in the case of UMTS Band II, to 4132, 4182 and 4233 in the case of UMTS Band V. The EUT is commanded to operate at maximum transmitting power. Using CMU200 the power level is set to "5" in HAC of GSM850, set to "0" in HAC of GSM1900. Set to all up bits for UMTS.

6 HAC RF Measurement Results

6.1 Conducted power measurements

GSM850	Test Mode	Conducted Power (dBm)		
		128CH	190CH	251CH
	GSM(CS)	23.28	23.39	23.41
GSM1900	Test Mode	Conducted Power (dBm)		
		512CH	661CH	810CH
	GSM(CS)	20.68	20.72	20.72
UMTS Band II	Test Mode	Conducted Power (dBm)		
		9262CH	9400CH	9538CH
	12.2kbps RMC	23.12	23.26	22.89
	64kbps RMC	23.11	23.16	22.90
	144kbps RMC	23.06	23.21	22.88
	384kbps RMC	23.13	23.25	22.87
UMTS Band V	Test Mode	Conducted Power (dBm)		
		4132CH	4182CH	4233CH
	12.2kbps RMC	22.65	22.52	22.79
	64kbps RMC	22.61	22.44	22.81
	144kbps RMC	22.63	22.48	22.81
	384kbps RMC	22.63	22.52	22.76

Table 6: Test Result of Conducted power

6.2 Test results of GSM850

Band	Test Mode	Test channel /Frequency	Measured Value (V/m)	Power Drift (dB)	M Rating
GSM850	E-Field Emissions				
	Test data with battery 1#				
	GSM	251/848.8	138.30	-0.05	M4
		190/836.6	135.80	-0.14	M4
		128/824.2	112.80	-0.05	M4
	Test data at the worst channel with battery 2#				
	GSM	251/848.8	134.30	0.04	M4
	H-Field Emissions				
	Test data with battery 1#				
	GSM	251/848.8	0.233	0.020	M4
		190/836.6	0.228	-0.080	M4
		128/824.2	0.202	-0.040	M4
	Test data at the worst channel with battery 2#				
	GSM	251/848.8	0.231	-0.030	M4

Table 7: Test Result of GSM850

Note:1) There is no special HAC mode software on this DUT

2) The volume was adjusted to the maximum level and the backlight turned off during the test.

6.3 Test results of GSM1900

Band	Test Mode	Test channel /Frequency	Measured Value (V/m)	Power Drift (dB)	M Rating
GSM1900	E-Field Emissions				
	Test data with battery 1#				
	GSM	810/1909.8	48.13	0.020	M3
		661/1880	51.16	0.140	M3
		512/1850.2	55.59	-0.030	M3
	Test data at the worst channel with battery 2#				
	GSM	512/1850.2	64.52	-0.01	M3
	H-Field Emissions				
	Test data with battery 1#				
	GSM	810/1909.8	0.158	-0.06	M3
		661/1880	0.167	0.01	M3
		512/1850.2	0.164	-0.02	M3
	Test data at the worst channel with battery 2#				
	GSM	661/1880	0.183	0.06	M3

Table 8: Test Result of GSM1900

1) There is no special HAC mode software on this DUT

2) The volume was adjusted to the maximum level and the backlight turned off during the test.

6.4 Test results of UMTS Band II

Band	Test Mode	Test channel /Frequency	Measured Value (V/m)	Power Drift (dB)	M Rating
UMTS Band II	E-Field Emissions				
	Test data with battery 1#				
	RMC	9538/1907.6	19.97	0.07	M4
		9400/1880	23.46	0.06	M4
		9262/1852.4	29.95	0.03	M4
	Test data at the worst channel with battery 2#				
	RMC	9262/1852.4	29.82	0.01	M4
	H-Field Emissions				
	Test data with battery 1#				
	RMC	9538/1907.6	0.067	0.01	M4
		9400/1880	0.073	0.02	M4
		9262/1852.4	0.087	-0.03	M4
	Test data at the worst channel with battery 2#				
	RMC	9262/1852.4	0.092	-0.04	M4

Table 9: Test Result of UMTS Band II

- 1) There is no special HAC mode software on this DUT
- 2) The volume was adjusted to the maximum level and the backlight turned off during the test.

6.5 Test results of UMTS Band V

Band	Test Mode	Test channel /Frequency	Measured Value (V/m)	Power Drift (dB)	M Rating
UMTS Band V	E-Field Emissions				
	Test data with battery 1#				
	RMC	4233/846.6	45.50	0.03	M4
		4182/836.4	37.04	-0.04	M4
		4132/426.4	39.08	0.02	M4
	Test data at the worst channel with battery 2#				
	RMC	4233/846.6	45.32	0.00	M4
	H-Field Emissions				
	Test data with battery 1#				
	RMC	4233/846.6	0.076	-0.11	M4
		4182/836.4	0.063	0.13	M4
		4132/426.4	0.069	0.01	M4
	Test data at the worst channel with battery 2#				
	RMC	4233/846.6	0.078	-0.14	M4

Table 10: Test Result of UMTS Band V

- 1) There is no special HAC mode software on this DUT
- 2) The volume was adjusted to the maximum level and the backlight turned off during the test.

Appendix A. System Check Plots

(Please See Appendix A)

Appendix B. HAC Measurement Plots

(Please See Appendix B)

Appendix C. Calibration Certificate

(Please See Appendix C)

Appendix D. Photo documentation

(Please See Appendix D)

END