HUAWEI

ilac-MRA CNAS TESTING No. L0310

A2LA ACCREDITED TESTING CERT #2174.01

FCC HAC (RF) Compliance Test Report

Product Name:	GSM/GPRS/UMTS/EDGE/HSDPA Mobile Phone with Bluetooth
Model:	H215G
Report No.:	SYBH(Z-SAR)006072013-H1
FCC ID:	QISH215G

	APPROVED (Lab Manager)	PREPARED (Test Engineer)
BY	Alvinway	Sun Shaobin
DATE	2013-07-19	2013-07-19

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※ ※ Modified History ※ ※

REV.	DESCRIPTION	ISSUED DATE	REMARK
Rev. 1.0	Initial Test Report Release	2013-07-19	Sun Shaobin

1 General Information

1.1 Statement of Compliance

The M-rating of Hearing-Aid Compatibility (HAC) found during testing for H215G are as below Table 1. So the M-rating of H215G is **M3**.

Band	HAC RF Emission Test result		M-rating
GSM850	E-Field dB(V/m)	39.86	M4
GSM1900	E-Field dB(V/m)	30.91	M3
UMTS Band II	E-Field dB(V/m)	/	M4
UMTS Band V	E-Field dB(V/m)	/	M4

Table 1: Summary of test result

Note:

1) This portable wireless equipment has been shown to be hearing-aid compatible under the above rated category, specified in ANSI/IEEE Std.C63.19-2011 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.

2) UMTS band is exempted and HAC RF Emission rating is M4.

1.2 ANSI C63.19-2011 limits

Emission Categories	E-field emissions	
	< 960 MHz	< 960 MHz
Category M1	50 to 55 dB(V/m)	40 to 45 dB(V/m)
Category M2	45 to 50 dB(V/m)	35 to 40 dB(V/m)
Category M3	40 to 45 dB(V/m)	30 to 35 dB(V/m)
Category M4	<40 dB(V/m)	<30 dB(V/m)

Table 2: Telephone near-field categories in linear units

1.3 EUT Description

Device Information:			
DUT Name:	GSM/GPRS/UMTS/EDGE/HSDPA Mobile Phone with Bluetooth		
Type Identification:	H215G		
FCC ID :	QISH215G		
IMEI No:	860495020011350		
Device Type :	portable device		
Exposure Category:	uncontrolled environment / general population		
Device Phase:	Identical Prototype		
Hardware Version :	HD2H215GM VER.A		
Software Version :	H215GCDRB118		
Antenna Type :	Internal		
Others Accessories	Headset		
Device Operating Configurations:			
Supporting Mode(s)	GSM850/1900,UMTS Band II/V(Tested); Bluetooth		
Test Modulation	GSM(GMSK),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
	BT	2400-2483.5	
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 3: Device information and operating configuration

1.3.1 General Description

H215G is a stylish bar-type mobile phone with a 2.4-inch LCD display. Based on Qualcomm's QSC6270 platform, the H215G supports GSM and UMTS frequency bands. Besides the basic voice, SMS, and MMS functions, the H215G also incorporates a camera and a microSD card slot, and supports applications such as music player, Bluetooth, email, and browser.

Battery Information

Battery Model:	HB4A1H(24021064)
Rated capacity:	900 mAh
Nominal Voltage:	⎓ 3.7 V
Charging Voltage:	⎓ 4.2 V
Serials number:	1# YACCB12197135005 2# UBDD219X06400486

1.3.2 List of air interfaces/frequency bands

Air-Interface	Band(MHz)	Type	C63.19 HAC tested	Simultaneous Transmissions but not to be tested	Concurrent HAC Tested**	Reduced Power 20.19(c)(1)
GSM	850	Voice	Yes	Yes With BT	Not tested	N/A
	1900	Voice	Yes	Yes With BT	Not tested	N/A
	GPRS/EDGE	Data	No	Yes With BT	N/A	N/A
UMTS	Band II	Voice	Yes	Yes With BT	Not tested	N/A
	Band V	Voice	Yes	Yes With BT	Not tested	N/A
	HSDPA	Data	No	Yes With BT	N/A	N/A
BT	2450	Data(*)	No	Yes With GSM/UMTS	N/A	N/A

Note:
1) *-The voice function maybe be activated via 3rd party software application.
2) **-HAC Rating was not based on concurrent voice and data modes. Non concurent mode was found to be the Worst Case mode.

1.4 Test specification(s)

ANSI C63.19-2011	American National Standard for Methods of Measurement of Compatibility between Wireless Communication Devices
KDB 285076 D01	HAC Guidance v03r02

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. CNAS Registration number: L0310 A2LA TESTING CERT #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	2013-07-05
End Date of test	2012-07-05

1.8 Ambient Condition

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

2 HAC RF Measurement System

2.1 HAC 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.

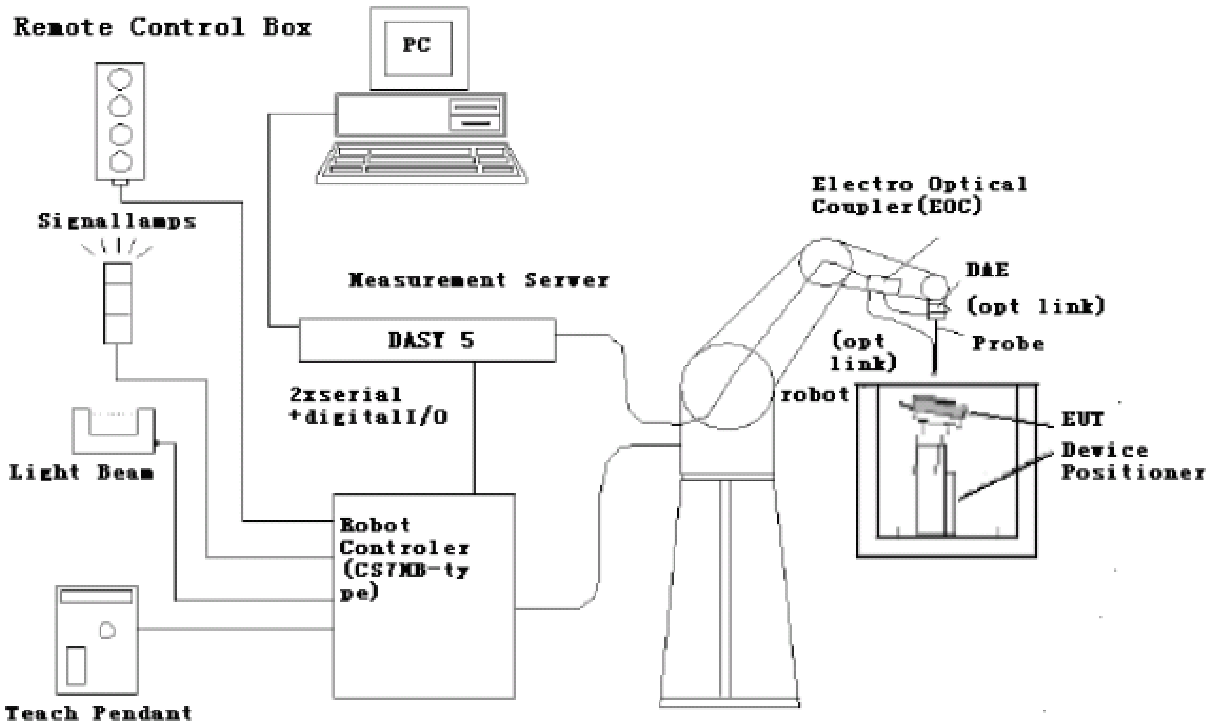
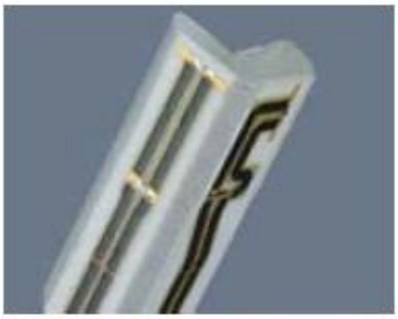


Fig. 1 HAC Test Measurement Set-up

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 ±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 The closest part of the sensor element is 1.1mm closer to the tip	
Application	General near-field measurements up to 6 GHz Field component measurements Fast automatic scanning in phantoms	

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 <±0.5 dB.

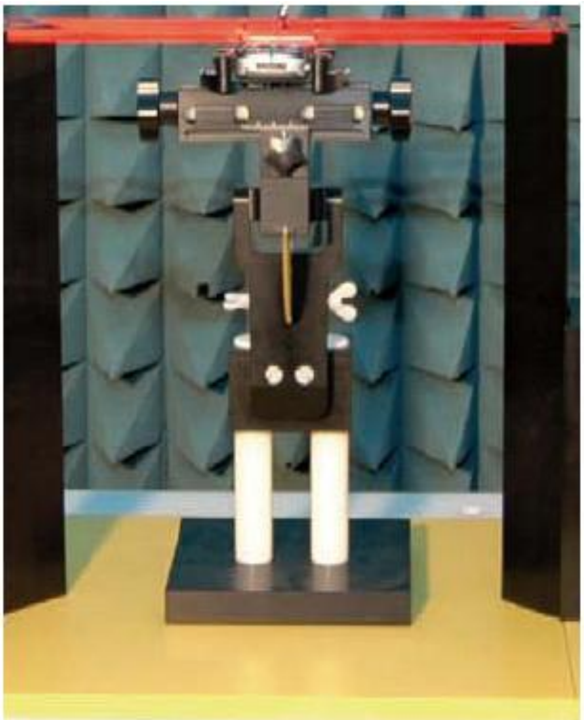


Fig. 2 HAC Phantom & Device Holder

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 15 mm from it, out from the phone. The grid is located in the measurement plane.

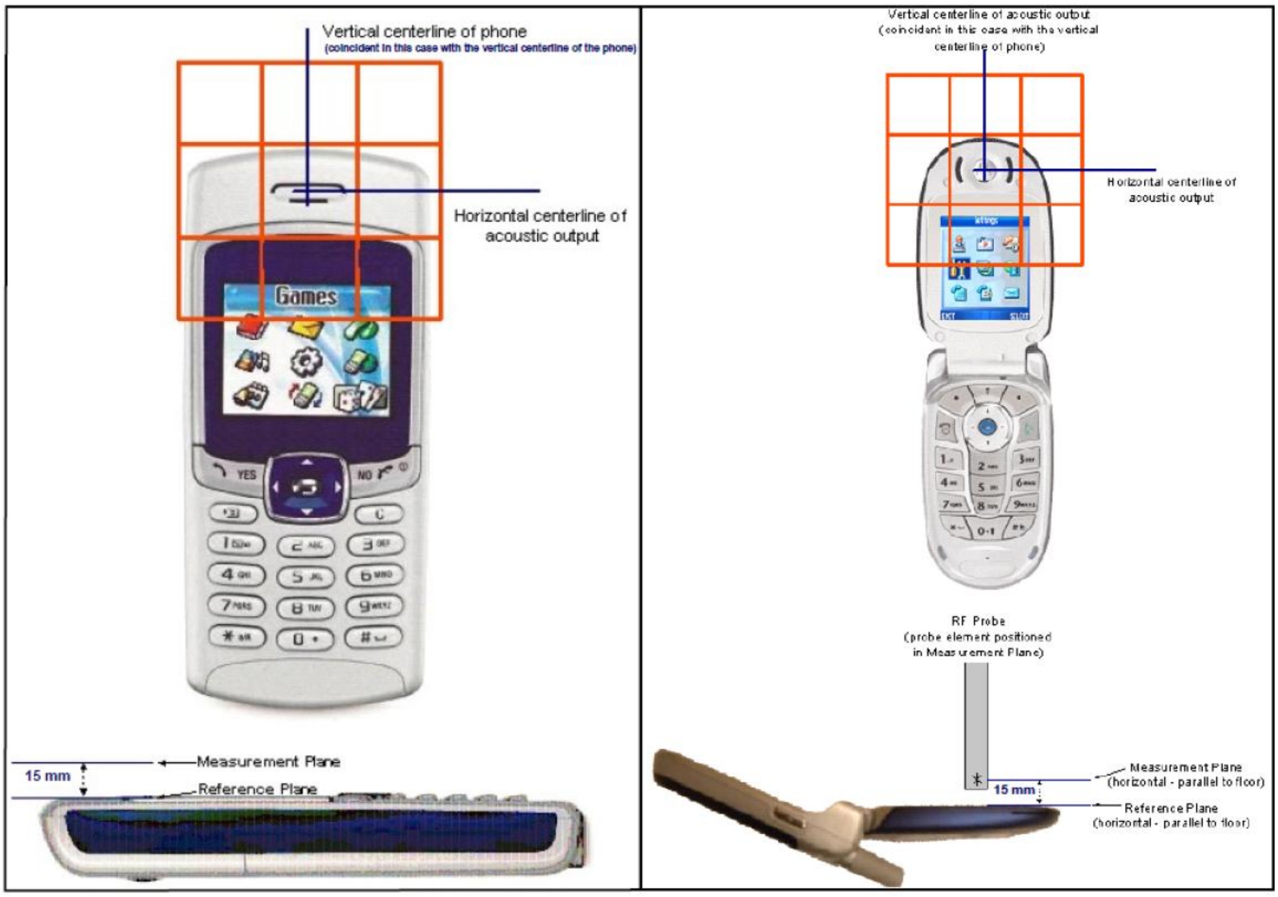


Fig. 3 WD reference and plane for RF emission measurements

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	835 MHz Dipole	CD835V3	1114	2012-11-26	Three years
☒	SPEAG	1880 MHz Dipole	CD1880V3	1100	2012-11-26	Three years
☒	SPEAG	Data acquisition electronics	DAE4	1305	2013-01-08	One year
☐	SPEAG	Data acquisition electronics	DAE4	852	2012-11-22	One year
☒	SPEAG	HAC Test Arch	N/A	1102	N/A	N/A
☒	SPEAG	Software	DASY 5	N/A	N/A	N/A
☒	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
☒	Agilent	Power Meter Sensor	E9321A	MY44420359	2013-02-26	One year
☒	R & S	Universal Radio Communication Tester	CMU200	111379	2012-08-13	One year

2.6 Measurement Uncertainty Evaluation

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

Table 4: 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 C63.19-2011 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 probe so that the following occurs:

• 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 15 mm from the closest surface of the dipole elements.

Scan the length of the dipole with the E-field probe and record the two maximum values found near the dipole ends. Average the two readings and compare the reading to the expected value in the calibration certificate or the expected value in this standard.

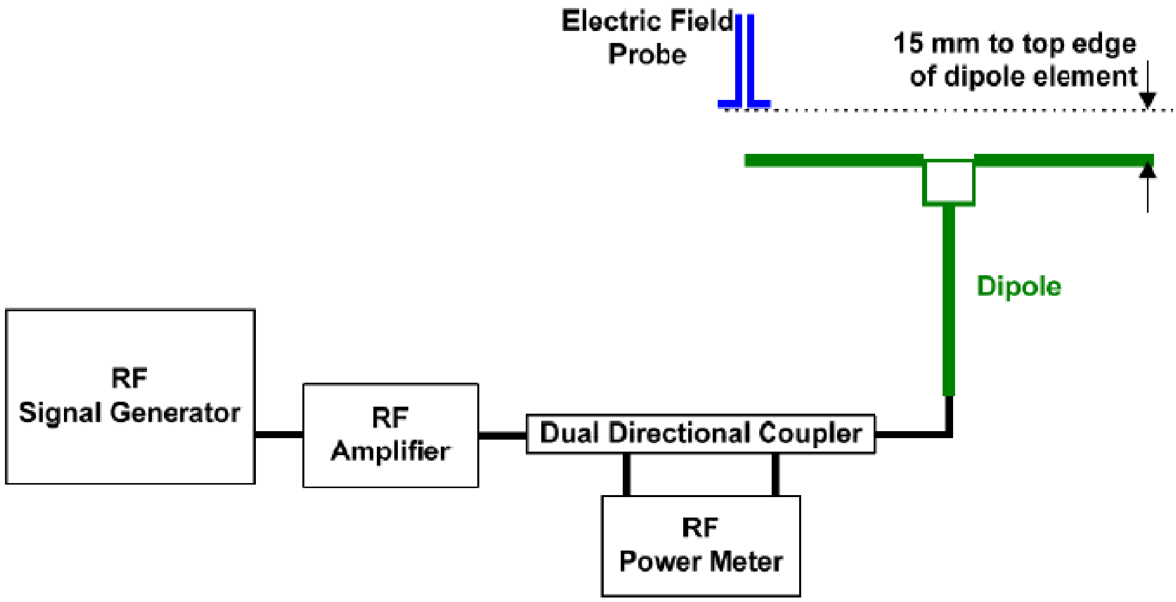


Fig. 4 Dipole Validation Setup

3.2 Validation Result

Frequency (MHz)	Input Power (mW)	E-Field Value 1 (V/m)	E-Field Value 2 (V/m)	Averaged Measured[1] Value(V/m)	Target[2] Value(V/m)	Deviation[3] (%)	Limit[4] (%)	Test Date
835	100	110.4	114.7	112.55	106.7	5.48%	±25%	20130705
1880	100	76.13	76.17	76.15	89.0	-14.44%	±25%	20130705

[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 Modulation Interference Factor

The HAC Standard ANSI C63.19-2011 defines a new scaling using the Modulation Inerference Factor(MIF) which replaces the need for the Articlulation Weighting Factor(AWF) during the evaluation and is applicable to any modulation scheme.
The Modulation Interference Factor(MIF, in dB) is added to the measured average E-field (in dB V/m) and converts it to the RF Audio Interference level(in dB V/m). This level considers the audible amplitude modulation components in the RF E-field. CW fields without amplitude modulation are assumed to not enerfere with the hearing aid electronics.Modulations without time slots and low fluctuations at low frequencies have low MIF values.TDMA modulations with narrow transmission and repetition rates of few 100 Hz have high MIF values and give similar classifications as ANSI C63.19-2007.
ER3D E-Fied probes have a bandwidth <10 kHz and can therefore not evaluate the RF envelope in the full audio band. DASY52 is therefore using the “indirect” measurement method according to ANSI C63.19-2011 which is the primary method. Thest near field probes read the averaged E-field measurement. Especially for the new high peak-to-average(PAR) signal types, the probes shall be linearized by probe modulation response(PMR) calibration in order to not overestimate the field reading.
The evaluation method or the MIF is defined in ANSI C63.19-2011 section D.7. An RMS demodulated RF signal is fed to a spectral filter(similar to an A weighting filter) and forwarded to a temporal filter acting as a quasi-peak detector. The averaged output of these filtering is called to a 1 kHz 80% AM signal as reference. MIF measurement requires additional instrumentation and is not well suited for evaluation by the end user with reasonable uncertainty.It may alternatively be determined through analysis and simulation, because it is constraint and characteristic for a communication signal. DASY52 uses well defined signals for PMR calibration. The MIF of these signals has been determined by simulation and is automatically applied.

MIF values appied in this test report were probided by the HAC equipment provider, SPEAG, and the values are listed below:

UID	UID Version	Communication System Name	MIF(dB)
10011	3.1.1(07.11.2012)	UMTS-FDD (WCDMA)	-27.23
10021	3.1.1(12.11.2012)	GSM-FDD (TDMA, GMSK)	3.63

The MIF measurement uncertainty is estimated as follows, declared by the HAC equipment provider, SPEAG, for modulation frequencies from slotted waveforms with fundamental frequency and at least 2 harmonics within 10 kHz:
i) 0.2 dB for MIF: -7 to +5 dB
ii) 0.5 dB for MIF: -13 to +11 dB
iii) 1 dB for MIF: > -20 dB

4 HAC Measurement Procedure

The evaluation was performed with the following procedure:

a) Confirm the proper operation of the field probe, probe measurement system, and other instrumentation and the positioning system.

b) Position the WD in its intended test position.

c) Set the WD to transmit a fixed and repeatable combination of signal power and modulation characteristic that is representative of the worst case (highest interference potential) encountered in normal use. Transiently occurring start-up, changeover, or termination conditions, or other operations likely to occur less than 1% of the time during normal operation, may be excluded from consideration.

d) The center subgrid shall be centered on the T-Coil mode perpendicular 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, refer to illustrated in Figure 3. If the field alignment method is used, align the probe for maximum field reception.

e) Record the reading at the output of the measurement system.

f) 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.

g) Identify the five contiguous subgrids around the center subgrid whose maximum reading is the lowest of all available choices. This eliminates the three subgrids with the maximum readings. Thus, the six areas to be used to determine the WD's highest emissions are identified.

h) Identify the maximum reading within the nonexcluded subgrids identified in step g).

i) Convert the maximum reading identified in step h) to RF audio interference level, in, V/m, by taking the square root of the reading and then dividing it by the measurement system transfer function, established in 5.5.1.1. Convert the result to dB(V/m) by taking the base-10 logarithmand multiplying it by 20.

Indirect measurement method

Replacing step i) of 5.5.1.2, the RF audio interference level in dB(V/m) is obtained by adding the MIF (in dB) to the maximum steady-state rms field-strength reading, in dB(V/m), from step h). Use this result to determine the category rating.

j) Compare this RF audio interference level with the categories in Clause 8 and record the resulting WD category rating.

k) For the T-Coil mode M-rating assessment, determine whether the chosen perpendicular measurement point is contained in an included subgrid of the first scan. If so, then a second scan is not necessary. The first scan and resultant category rating may be used for the T-Coil mode M rating.

Otherwise, repeat step a) through step i), with the grid shifted so that it is centered on the perpendicular measurement point. 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	Burst Average Power (dBm)		
		128CH	**190CH**	**251CH**
	GSM(CS)	32.00	**32.95**	32.10
GSM1900	**Test Mode**	**Burst Average Power (dBm)**		
		512CH	**661CH**	**810CH**
	GSM(CS)	**29.39**	29.31	29.14
UMTS Band II	**Test Mode**	**Average Power (dBm)**		
		9262CH	**9400CH**	**9538CH**
	12.2kbps RMC	22.58	22.55	**22.67**
	64kbps RMC	22.56	22.57	22.62
	144kbps RMC	22.52	22.56	22.58
	384kbps RMC	22.47	22.53	22.58
UMTS Band V	**Test Mode**	**Average Power (dBm)**		
		4132CH	4182CH	4233CH
	12.2kbps RMC	23.19	23.17	**23.32**
	64kbps RMC	23.18	23.13	23.28
	144kbps RMC	23.20	23.15	23.31
	384kbps RMC	23.17	23.24	23.30

Table 5: Test Result of Conducted power

6.2 Low-power Exemption Conclusions

According to ANSI C63.19-2011, an RF air interface technology of a device is exempt from testing when its average antenna input power plus its MIF is ≤17 dBm for any of its operation modes.

Air Interface	Maxium Average Power(dBm)	MIF(dB)	Total (Power + MIF,dB)	C63.19 HAC RF testing required
GSM850	32.95	3.63	36.58	Yes
GSM1900	29.39	3.63	33.02	Yes
UMTS Band II	22.67	-27.23	-4.56	No
UMTS Band V	23.32	-27.23	-3.91	No

Table 6: Low-power Exemption calculation

Per ANSI C63.19-2011, HAC RF Emission testing for this device is required only for GSM voice modes.All the other applicable air interfaces are exempt.

6.3 E-Field Emissions

Band	Test Mode	Test channel /Frequency	MIF (dB)	RF audio interference level [dB(V/m)]	Power Drift (dB)	FCC Limit [dB(V/m)]	Margin to the next lower rating(dB)	M-Rating
GSM850	GSM	**Test data with battery 1#**						
		251/848.8	3.63	**39.86**	-0.03	40	0.14	**M4**
		190/836.6	3.63	38.80	0.02	40	1.20	M4
		128/824.2	3.63	37.22	0.00	40	2.78	M4
		Test at the worst channel with battery 2#						
		251/848.8	3.63	39.72	-0.05	40	0.28	M4
GSM1900	GSM	**Test data with battery 1#**						
		810/1909.8	3.63	**30.91**	0.03	35	4.09	**M3**
		661/1880	3.63	30.65	0.04	35	4.35	M3
		512/1850.2	3.63	30.43	0.00	35	4.57	M3
		Test at the worst channel with battery 2#						
		810/1909.8	3.63	30.79	0.08	35	4.21	M3

Table 7: Test Result of E-Field Emissions

Note:

1) The HAC measurement system applies MIF value onto the measured RMS E-field, which is indirect method in ANSI C63.19-2011 version, and reports the RF audio interference level.

2) The uncertainty is 0.2dB for MIFfrom -7 to +5dB, 0.5dB for MIF from -13dB to +11 dB, and 1dB for MIF ranges > -20dB. From the test results above and considering the uncertainty of MIF value, the margin is large enough and the device **M3** rating will not be changed.

3) The Hearing Aid mode of the software on this DUT is turned on 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）

Appendix E. MIF Specification documentation

(Please See Appendix E)

END