ANSI C63.19-2007

FCC HAC TEST REPORT

For

CDMA2000 EV-DO Mobile Phone

Model: V1

Trade Name: Saygus

Issued to

Saygus Global, Inc.
10421 South Jordan Gateway Suite 500, South Jordan, UT84095,U.S.A

Issued by

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Testing Laboratory 1309

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1. HEARING AID COMPATIBILITY CERTIFICATE

Applicant	Saygus Global, Inc. 10421 South Jordan Gateway Suite 500, South Jordan, UT84095,U.S.A
Equipment Under Test:	CDMA2000 EV-DO Mobile Phone
Trade Name:	Saygus
Model Number:	V1
Date of Test:	October 03, 2009

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
ANSI C63.19-2007 (8 June, 2007)	No non-compliance noted
HAC RATE CATEGORY	
M3 (RF EMISSION)	

The device was tested by Compliance Certification Services Inc. in accordance with the measurement methods and procedures specified in ANSI C63.19-2007. The test results in this report apply only to the tested sample of the stated device/equipment. Other similar device/equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Reviewed by:

Rex Lai
Section Manager
Compliance Certification Services Inc.

Tested by

Anson Lu
Test Engineer
Compliance Certification Services Inc.

2. EQUIPMENT UNDER TEST DESCRIPTION AND TEST SUMMARY

Product	CDMA2000 EV-DO Mobile Phone	
Trade Name	Saygus	
Model Number	V1	
Model Discrepancy	N/A	
Frequency Range	Cellular band: 824.7 MHz to 848.31 MHz PCS band: 1851.25 MHz to1908.75 MHz	
Transmit Power (Average/dBm)	Cellular band: 23.91 dBm PCS band: 22.77 dBm	
Max. E-field / H-field EMISSION:	**CDMA Cellular band:** E-Field: 44.1 V/m -M4 Phone H-Field: 0.079 A/m-M3 Phone **CDMA PCS band:** E-Field: 33.1 V/m-M4 Phone H-Field: 0.084A/m-M4 Phone	
Protocol Technique	CDMA2000 1xRTT CDMA2000 1xEVDO	
Antenna Specification	Antenna. Type: PIFA antenna	Antenna. Gain: CDMA 850 MHz: -4.25 dBi CDMA1900 MHz: -9.18 dBi
Battery	Li-polymer 3.7V, 1500mAh(5.6Wh), Voltage: 4.2V	

Remark: *The sample selected for test was production product and was provided by manufacturer.*

3. REQUIREMENTS FOR COMPLIANCE TESTING DEFINED BY THE FCC

In July 2003, the Federal Communications Commission (FCC) modified the exemption for wireless phones under the Hearing Aid Compatibility Act of 1988 to require that wireless phone manufacturers and wireless phone service providers make digital wireless phones accessible to individuals who use hearing aids.

Since 2003, more people have come to rely on wireless phones for safety, business, and personal uses. For these reasons, it is vital for individuals with a hearing impairment have access to digital wireless phones. The FCC has taken steps to increase access to wireless telephones by requiring wireless carriers and equipment manufacturers to make more digital wireless phones hearing aid-compatible.

In June 2005, the FCC reaffirmed the timetable for the development and sale of digital wireless phones that are compatible with hearing aids. Specifically, the rules are as follows:

The FCC also encourages digital wireless phone manufacturers and service providers to offer at least one compliant handset that is a lower-priced model and one that has higher-end features and encourages hearing-aid manufacturers to label their pre-customization products according to the ANSI standard.

4. SYSTEM DESCRIPTION

4.1 MEASUREMENT SYSTEM DIAGRAM

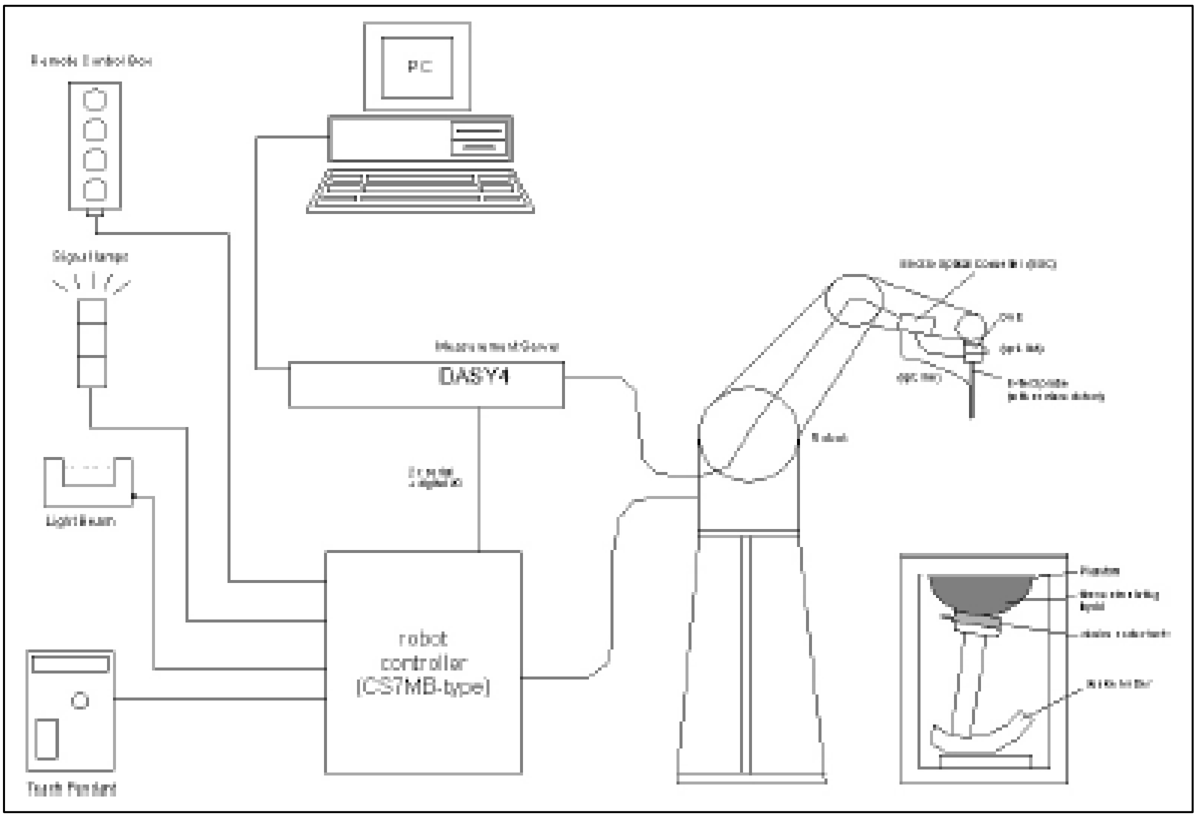


Figure 1: Measurement System diagram

The DASY4 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (St¨aubli RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 2000 or Windows XP.
- DASY4 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- Validation dipole kits allowing validating the proper functioning of the system.

5. SYSTEM COMPONENTS

5.1 DASY4 MEASUREMENT SERVER

Figure 2:DASY4 Server

The DASY4 measurement server is based on a PC/104 CPU board with a 166MHz low-power Pentium, 32MB chip disk and 64MB RAM. The necessary circuits for communication with either the DAE3 electronic box as well as the 16-bit AD-converter system for optical detection and digital I/O interface are contained on the DASY4 I/O-board, which is directly connected to the PC/104 bus of the CPU board.

The measurement server performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation. The PC-operating system cannot interfere with these time critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program-controlled robot movements. Furthermore, the measurement server is equipped with two expansion slots which are reserved for future applications. Please note that the expansion slots do not have a standardized pinout and therefore only the expansion cards provided by SPEAG can be inserted. Expansion cards from any other supplier could seriously damage the measurement server. Calibration: No calibration required.

5.2 DATA ACQUISITION ELECTRONICS (DAE)

Figure 3: DAE

The data acquisition electronics (DAE3) 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 measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock. The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection. The input impedance of the DAE3 box is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

5.3 ER3DV6 ISOTROPIC E-FIELD PROBE FOR GENERAL NEAR-FILED MEASUREMENTS

Construction: One dipole parallel, two dipoles normal to probe axis
Built-in shielding against static charges
PEEK enclosure material (resistant to organic solvents, e.g., glycolether)

Calibration: In air from 100 MHz to 3.0 GHz (absolute accuracy ±6.0%, k=2)

Frequency: 100 MHz to > 6 GHz; 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 1.1 mm closer to the tip

Application: General near-field measurements up to 6 GHz
Field component measurements
Fast automatic scanning in phantoms

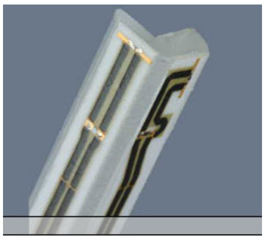


Figure 4 and 5: ER3DV6 E-Field Probe

5.4 H3DV6 ISOTROPIC E-FIELD PROBE FOR GENERAL NEAR-FILED MEASUREMENTS

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)

Frequency: 200 MHz to 3 GHz (absolute accuracy ± 6.0%, k=2); Output linearized

Directivity: ± 0.25 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
The closest part of the sensor element is 1.9 mm closer to the tip

Application: General magnetic near-field measurements up to 3 GHz
Field component measurements
Surface current measurements
Measurements in air or liquids
Low interaction with the measured field

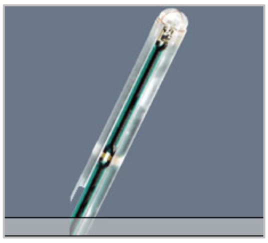


Figure 6 and 7: H3DV6 H-Field Probe

5.5 LIGHT BEAM UNIT

The light beam switch allows automatic ”tooling” of the probe. During the process, the actual position of the probe tip with respect to the robot arm is measured, as well as the probe length and the horizontal probe offset. The software then corrects all movements, so that the robot coordinates are valid for the probe tip. The repeatability of this process is better than 0.1 mm. If a position has been taught with an aligned probe, the same position will be reached with another aligned probe within 0.1 mm, even if the other probe has different dimensions. During probe rotations, the probe tip will keep its actual position.

Figure 8: Light Beam Unit

5.6 TEST ARCH

Construction: 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 370mm

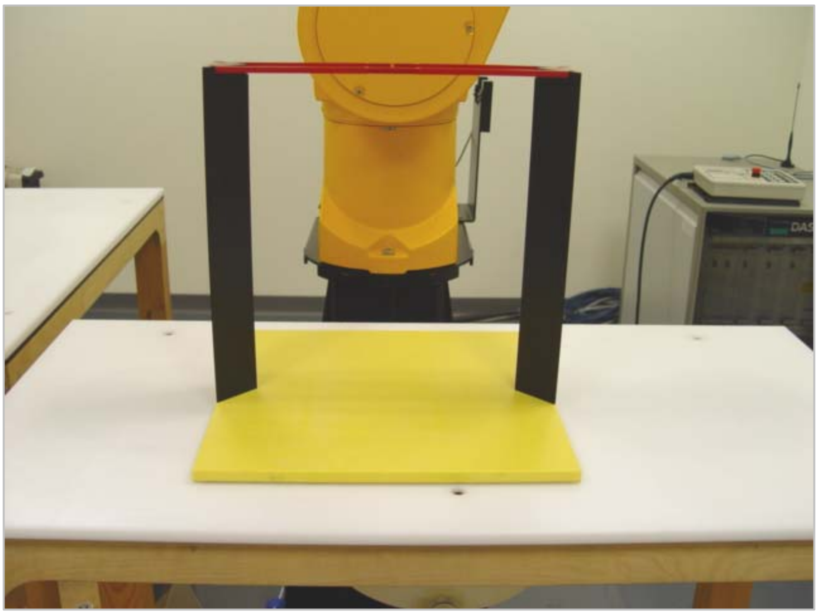


Figure 9: Test Arch

5.7 PHONE POSITIONER

Construction: Supports accurate and reliable positioning of any phone effect on near field <+/- 0.5dB

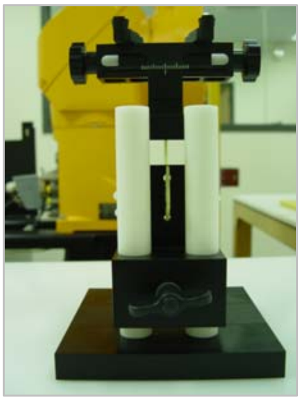


Figure 10: Phone positioner

5.8 SYSTEM VALIDATION KITS

Construction: Symmetrical dipole with built-in two step matching network and balun

CD835V3

Frequency Band: 800 - 960 MHz (free space)
Return Loss: > 15 dB
Calibrated at: 835MHz
Power Capability: 50W continuous
Length & Height: 166 x 330 mm

CD1880V3

Frequency Band: 1710 - 2000 MHz (free space)
Return Loss: > 18 dB
Calibrated at: 1880MHz
Power Capability: 50W continuous
Length & Height: 80.8 x 330 mm

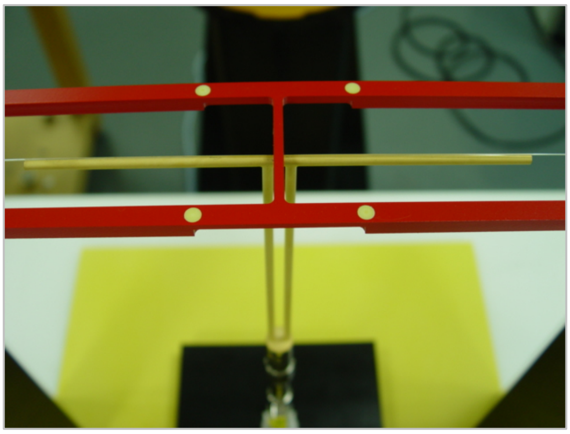


Figure 10: Dipole with Test Arch

CD2450V3

Frequency Band: 2250 - 2650 MHz (free space)
Return Loss: > 18 dB over frequency band in free space
Calibrated at: 2450MHz
Power Capability: 50W continuous
Length & Height: 59.9 x 330 mm
Dipole Holder: Tripod holder with adapter
Regular: Hight Range 205 - 300 mm
Shortened: Hight Range 160 - 210 mm

5.9 SOFTWARE HAC V4.5

Easy teaching of predefined ANSI C63.19 3.12(January 18, 2006) measurement area
Evaluation incorporates automatic exclusion of high-level areas
Documentation ready for inclusion into compliance report.

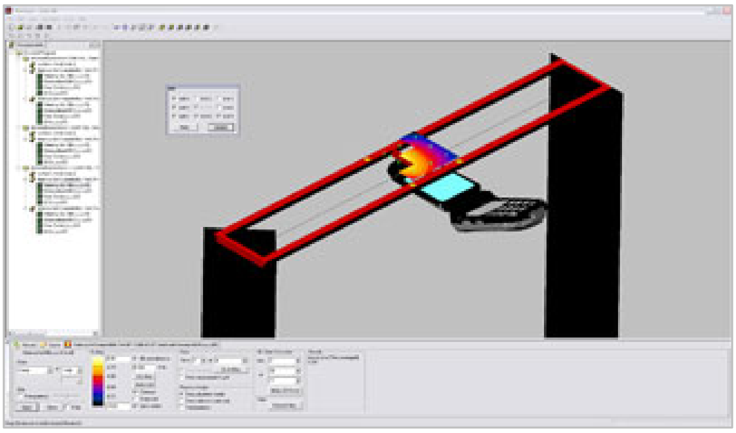


Figure 11: DASY4 software

6. EVALUATION PROCEDURES

The following are step-by-step test procedures.

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.
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.
4. The center sub-grid shall be centered on the center of the WD output (acoustic or T-coil output), as appropriate. Locate the field probe at the initial test position in the 5 x 5 cm grid, which is contained in the measurement plane, see illustrated in Figure 5.
5. Record the reading.
6. Scan the entire 5 x 5 cm 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 peak reading.
7. Identify the five contiguous sub-grids around the center sub-grid with the lowest maximum strength readings. Thus the 6 areas to be used to determine the WD's peak emissions are identified and outlined for the final manual scan. Please note that a maximum of five blocks can be excluded for both E- and H-field measurements for the WD output being measured. State another way, the center sub-grid and 3 other must be common to both the E- and H-field measurements.
8. Identify the highest field reading within the non-excluded sub-grids identified in step 7.
9. Convert the highest field reading within identified in step 8 to peak V/m or A/m, as appropriate.
10. Repeat steps 1-10 for both the E- and H-field measurements.
11. Compare this reading to the categories in ANSI-PC63.19 and record the resulting category. The lowest category number listed in ANSI-PC63.19 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.

7. MEASUREMENT UNCERTAINTY

HAC UNCERTAINTY BUDGET ACCORDING TO ANSI C63.19: 2007							
Error Description	**Uncertainty Value**	**Probability distribution**	**Divisor**	**(C_i) E**	**(C_i) H**	**Std. Unc. E**	**Std. Unc. 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%
Boundary Effects	±2.4%	Rectangular	√3	1	1	±1.4%	±1.4%
Linearity	±4.7%	Rectangular	√3	1	1	±2.7%	±2.7%
Scaling to Peak Envelope Power	±2.0%	Rectangular	√3	1	1	±1.2%	±1.2%
System Detection Limit	±1.0%	Rectangular	√3	1	1	±0.6%	±0.6%
Readout Electronics	±0.3%	Rectangular	√3	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 Condition	±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	√3	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 Setup Related							
Phantom Thickness	±2.4%	Rectangular	√3	1	0.67	±1.4%	±0.9%
Combined Std. Uncertainty						±14.7%	±10.9%
Expanded Std. Uncertainty on Power						±29.4%	±21.8%
Expanded Std. Uncertainty on Field						±14.7%	±10.9%

Table: Worst-case uncertainty budget for HAC free field assessment according to ANSI C63.19 D3.12(January 18, 2006) [1]. The budget is valid for the frequency range 800 MHz – 3GHz and represents a worst-case analysis. For specific tests and configurations, the uncertainty could be considerably smaller.

8. TEST PROCEDURES

The following are RF emission step-by-step test procedures:

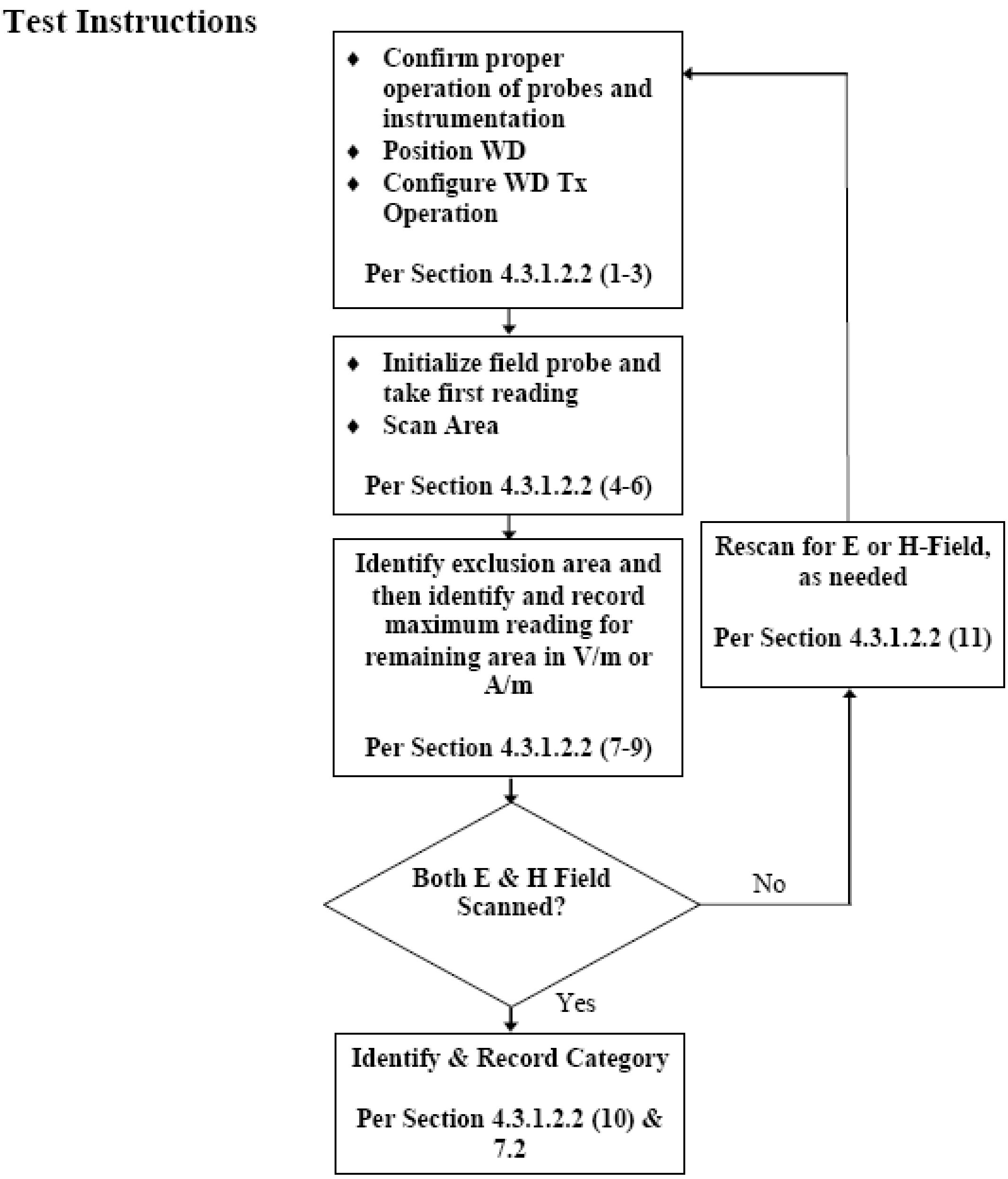


Figure 12: Near-field emission automated test flowchart

RF EMISSION TEST SETUP:

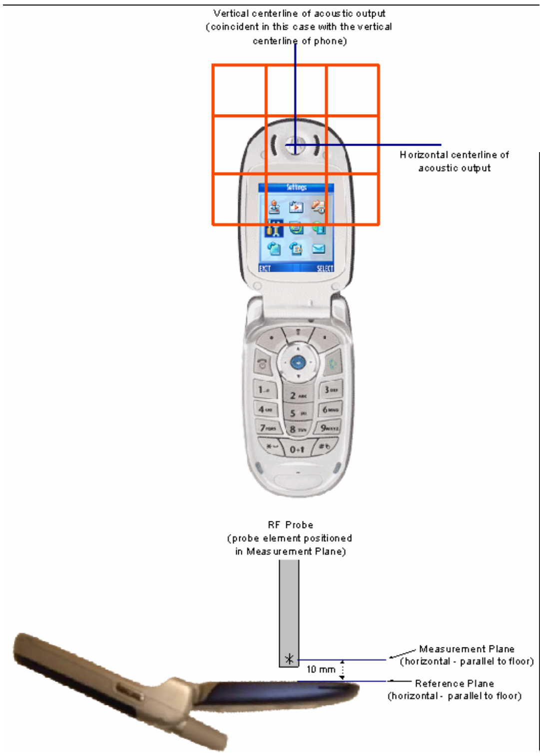


Figure 13: WD near-field emission test setup

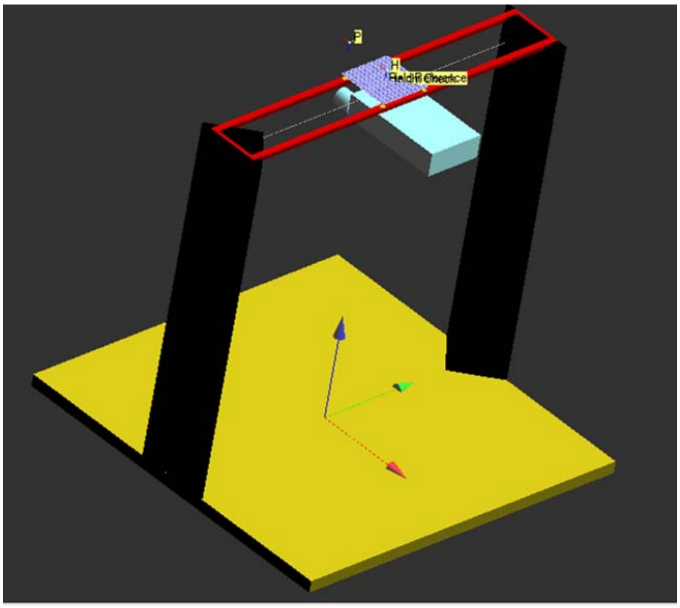


Figure 14: HAC test arch with WD setup

The following are measurement RF near field emission:

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 WD's acoustic output point perpendicular to the field probe with test arch (sees the figure 13 and figure 14).
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 fully charge battery was used for each test.
4. The center sub-grid was centered on the center of the WD output (acoustic or T-Coil output), as appropriate. The field probe at the initial test position in the 5 x 5 cm grid with a 5mm step size.
5. The field probe was aligned in the light beam. The phantom adjustment and verification procedure (1. surface check; 2. Verify Height 0.5mm above Center; 3. Verify Height 0.5mm above Center; 4 Verify Height for Scan) was performed before each setup change.
6. The measurement system was tested 5 x 5 cm grid with a 5mm step size. The probe was rotated 360° about the azimuth axis at the maximum interpolated position. The reading was recorded at each measurement procedure.
7. The power drift was measurement for each test. Power drift shall be below 5% or 0.25dB.If the power drift was higher than 5% or 0.25dB, the measurement was re-test.
8. Around the center sub-grid, five contiguous sub-grids around the center sub-grid with lowest maximum field strength reading. A maximum of five blocks can be excluded for both E- and H-field measurements for the WD output was measured.
9. The highest field strength reading was converted to peak V/m or A/m, as appropriate. This conversion was done using the appropriate probe modulation factor.
10. Repeat steps 1-9 for both the E- and H-field measurements.
11. The peak reading was according to the categories define in the C63.19 D3.12(January 18, 2006) using the appropriate AWF.
12. The DASY4 software will control the DASY4 system to carried out the follow procedure for each mode testing.

9. PERFORMANCE

9.1 ARTICULATION WEIGHTING FACTOR (AWF)

The following AWF factors shall be used for the standard transmission protocols:

Standard	Technology	AWF (dB)
TIA/EIA/IS-2000	CDMA	0
TIA/EIA-136	TDMA (50 Hz)	0
J-STD-007	GSM (217)	-5
T1/T1P1/3GPP	UMTS (WCDMA)	0
iDENTM	TDMA (22 and 11 Hz)	0

Table 8.1 Articulation Weighting Factor (AWF)

9.2 TELEPHONE N-FILED CATEGORY

The following was shows the M-rating for wireless telephone:

Category		Telephone RF parameters < 960 MHz			
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 > 960 MHz			
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 8.2 Telephone near-field categories in linear units

NOTE
The WD must be performed in the category M3

10. MEASUREMENT RESULTS

10.1 SYSTEM CHECK

The test setup should be validated when first configured and verified periodically thereafter to ensure proper function. The procedure consists of two parts: dipole validation and determination of probe modulation factor.

10.2 DIPOLE VALIDATION

The HAC validation dipole antenna serves as a known source for an electrical and magnetic RF output. Figure 2 shows the setup used for the dipole validation.

1. The dipole antenna was placed in the position normally occupied by the WD.
2. The dipole was energized with a 20 dBm un-modulated continuous-wave signal.
3. The length of the dipole was scanned with both E-field and H-field probes and the maximum value for each scan was recorded.
4. The readings were compared with the values provided by the probe manufacturer and were found to agree within the allowed tolerance of 10%.Figure 2: Dipole Validation Procedure

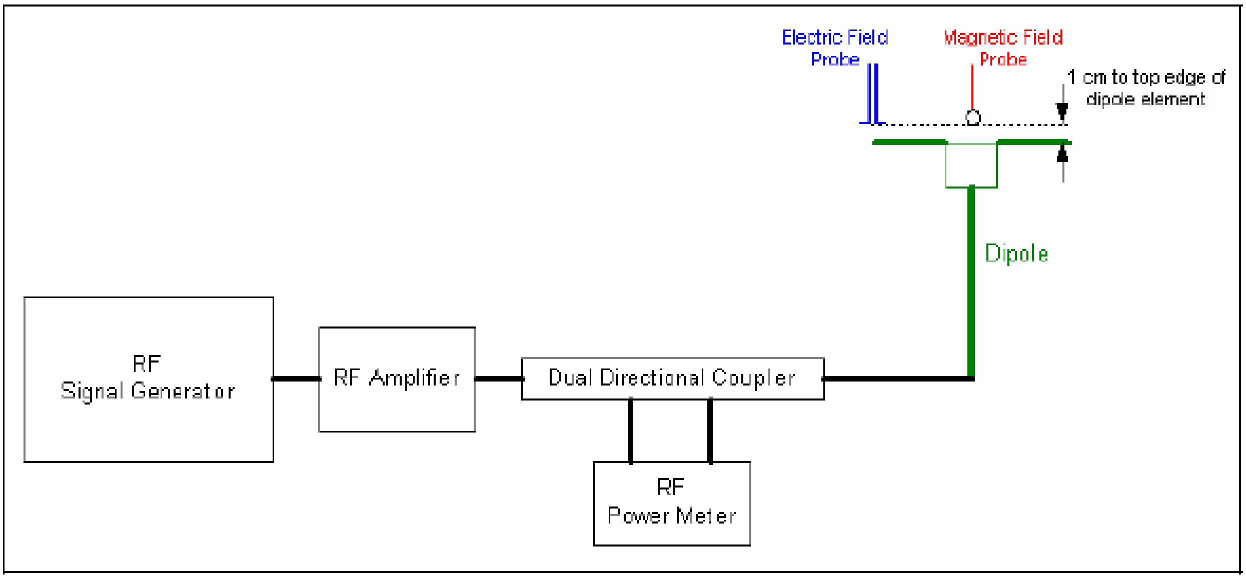
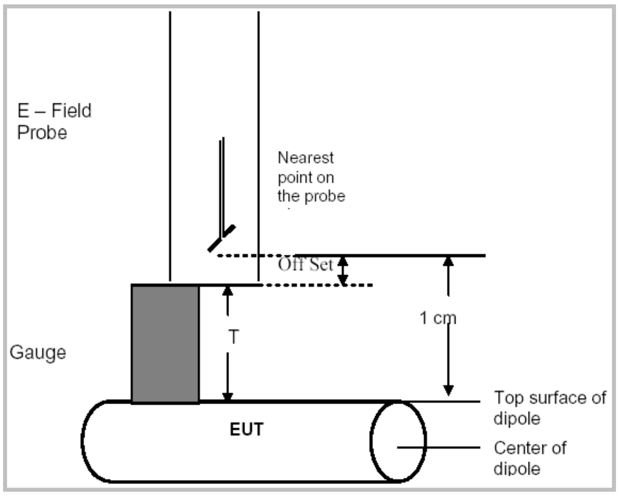


Figure 15: WD dipole calibration procedure



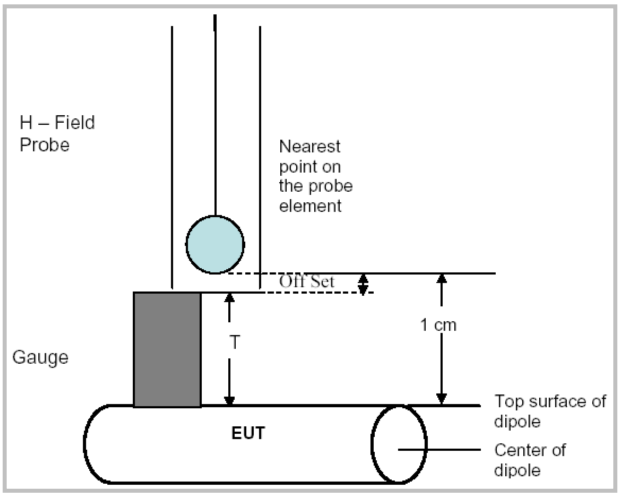


Figure 16 **Figure 17**

The probe is positioned over the illuminated dipole at 10 mm distance from the nearest point on the probe sensor element to the top surface (edge) of the dipole element.

9.1.1 Probe Modulation Factor

Purpose

The HAC Standard requires measurement of the peak envelope E- and H-fields of the wireless device (WD). Para. 4.1.2.1, and C.3.1 of the standard describes the Probe Modulation Response Factor that shall be applied to convert the probe reading to Peak Envelope Field.

Definitions

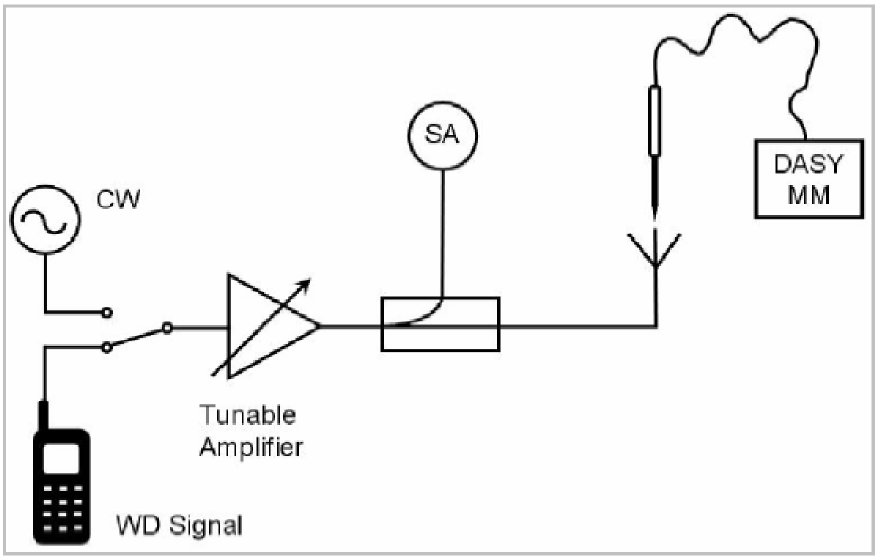
The Probe Modulation Factor (PMF) is defined as the ratio of the field readings for a CW and a modulated signal with the equivalent Field Envelope Peak as defined in the Standard (Chapter C.3.1).

Evaluation Procedure for Unknown PMF (DASY4 Application note, Section 28.8)

The proposed measurement setup corresponds to the procedure as required in the Standard, Chapter C.3.1.

1. Install a calibration dipole for the appropriate frequency band under the Test Arch Phantom and select the proper phantom section according to the probe type installed (E- or H-field). Move the probe to the field reference point. (Do not move the probe between the subsequent CW and modulated measurements.)
2. Install the field probe in the setup.
3. The modulated signal to the dipole must be monitored to record peak amplitude and compared to a CW signal with the same peak envelope level (e.g., with a directional coupler and a spectrum analyzer in zero span mode set to the operating frequency). To determine the peak envelope level of the modulated signal properly, the settings of a spectrum analyzer shall be as follows:
   - Resolution bandwidth >= emission bandwidth
   - Video bandwidth >= 20kHz
   - Center Frequency: nominal center frequency of channel
   - Detection: RMS detection with averaging turned on
   - Trigger: Video or IF trigger, adjusted to give a stable display of the transmission
   - Sweep rate: Sufficiently rapid to permit the transmit pulse to be resolved accurately. The sweep shall be long enough to show a complete transmission. The sweep time may be set to allow a full transmission cycle, displaying the on and off time.
4. Define a DASY4 document and set the procedure properties (frequency, modulation frequency and crest factor) according to the measured signal. Define a multimeter job for the field reading.
5. Define a second procedure for the evaluation of the CW signal (frequency set as above, modulation frequency = 0, crest factor = 1) and a multimeter job.

<u>**PMF Measurement Setup Diagram**</u>



9.1.2 Validation and Modulation Factor

f(MHz)	Signal Type	Pulse Average Power (dBm)	Measurement E-field (V/m)	Target E-Field (V/m)	Deviation %	Mod. Factor Ration
835.00	CW	20.00	158.60	161.80	-1.98	–
835.00	AM80%	20.00	98.10	–	–	1.62
835.00	CDMA	20.00	157.00	–	–	1.01
1880.00	CW	20.00	134.60	138.20	-2.60	–
1880.00	AM80%	20.00	84.20	–	–	1.60
1880.00	CDMA	20.00	130.50	–	–	1.03

f(MHz)	Signal Type	Pulse Average Power (dBm)	Measurement H-field (A/m)	Target H-Field (A/m)	Deviation %	Mod. Factor Ration
835.00	CW	20.00	0.443	0.452	-1.99	–
835.00	AM80%	20.00	0.279	–	–	1.59
835.00	CDMA	20.00	0.434	–	–	1.02
1880.00	CW	20.00	0.457	0.468	-2.35	–
1880.00	AM80%	20.00	0.292	–	–	1.57
1880.00	CDMA	20.00	0.448	–	–	1.02

Note:

1. Modulation Factor =Measured E/H Field (CW)/Measured E/H Field (Modulation)
2. The HAC measurement of peak V/m or A/m should be calculation by formula or insert crest factor in the day4 software.
3. Peak(dB V/m or dB A/m)=20 x log(Reading[time averaging V/m or A/m] x Probe Modulation Factor)

10.3 EUT TUNE-UP PROCEDURES

Maximum output power is verified on the Low, Middle, High channel according procedures in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E for 1xRTT, section 3.1.2.3.4 of 3GPP2 C.S0033-0/TIA-866 for Rel. 0 and section 4.3.4 of 3GPP2 C.S0033-A/TIA-866 for Rev. A

10.3.1 OUTPUT POWER FOR 1xRTT

This procedure assume the Agilent E5515C 8960 Test Set the following applications installed and with valid license.

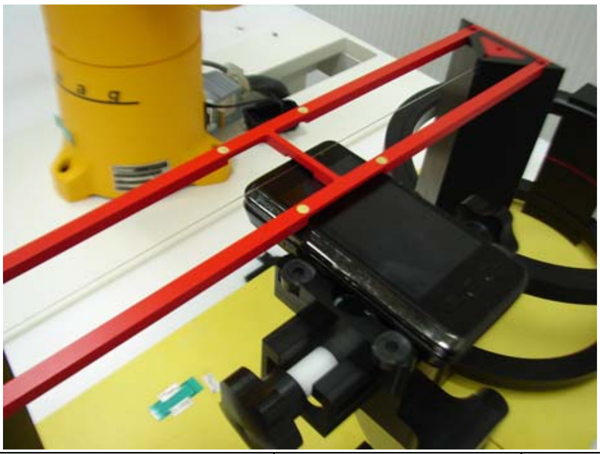
Application	Rev, License
CDMA2000 Mobile Test	B.13.08, L

- Call Setup > Shift & Preset
- Cell Info > Cell Parameters > System ID (SID) > 8
  > Network ID (NID) > 65535
- Protocol Rev > 6 (IS-2000-0)
- Radio Config (RC) > Please see following table or details
- FCH Service Option (SO) Setup > Please see following table or details
- Traffic Data Rate > Full
- TDSO SCH Info > F-SCH Parameters > F-SCH Data Rate > 153.6 kbps
  > R-SCH Parameters > R-SCH Data Rate > 153.6 kbps
- Rvs Power Ctrl > Active bits
  - Rvs Power Ctrl > All Up bits (Maximum TxPout)

Band	Channel	SO2	SO2	SO55	SO55	TDSO SO32	1xEvDO Rev.0	1xEvDO Rev.0
		RC1/1 (dBm)	RC3/3 (dBm)	RC1/1 (dBm)	RC3/3 (dBm)	RC3/3 (dBm)	(FTAP) (dBm)	(RTAP) (dBm)
Cellular	1013	23.62	23.62	23.68	23.81	23.71	**23.82**	23.72
	384	23.36	23.49	23.48	23.56	23.53	23.55	23.5
	777	23.62	23.77	23.58	**23.91**	**23.84**	23.78	23.62
PCS	25	22.02	22.08	22.13	22.28	22.25	22.25	22.08
	600	22.52	22.42	22.62	**22.77**	22.62	**22.39**	22.22
	1175	21.88	21.96	21.92	22.12	22.08	22.15	22.08

10.4 HAC MEASUREMENT RESULTS

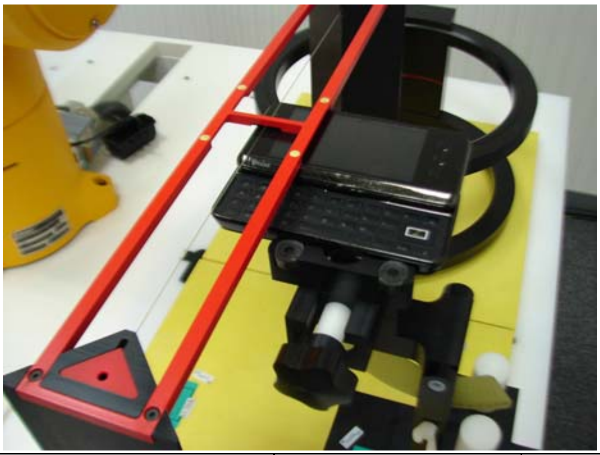
1. 1xRTT E-Field Emission (Close slide mode):

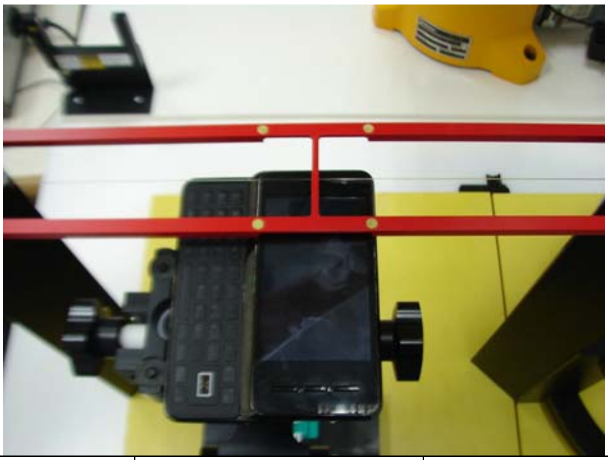


Operation mode	Channel	f(MHz)	Peak(E-field) V/m	M-Rating
RC3, SO55	1013	824.70	42.0	M4
	384	836.52	43.8	M4
	777	848.31	44.1	M4
Operation mode	**Channel**	**f(MHz)**	**Peak(E-field) V/m**	**M-Rating**
RC3, SO55	25	1851.25	30.9	M4
	600	1880.00	31.2	M4
	1175	1908.75	33.1	M4

Note1: BT/WLAN is not activated during test because it is not held-to-ear service.

2. 1xRTT E-Field Emission(Open slide mode):

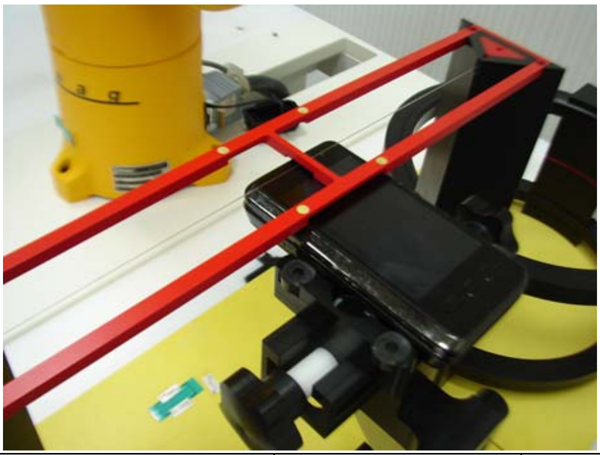




Operation mode	Channel	f(MHz)	Peak(E-field) V/m	M-Rating
RC3, SO55	1013	824.70	38.3	M4
	384	836.52	38.9	M4
	777	848.31	36.1	M4
Operation mode	**Channel**	**f(MHz)**	**Peak(E-field) V/m**	**M-Rating**
RC3, SO55	25	1851.25	16.4	M4
	600	1880.00	18.7	M4
	1175	1908.75	20.6	M4

Note1: BT/WLAN is not activated during test because it is not held-to-ear service.

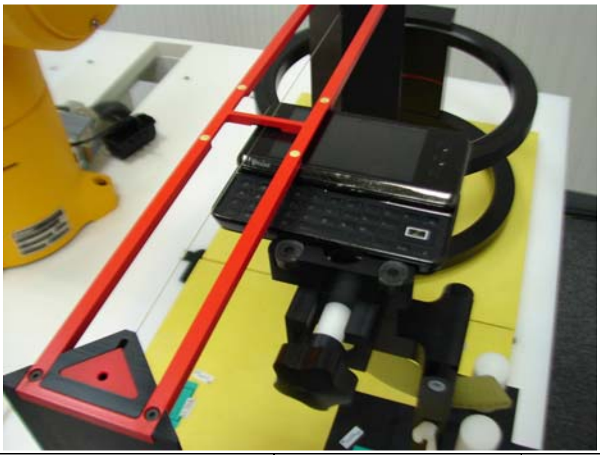
3. 1xRTT H-Field Emissions (Close slide mode):

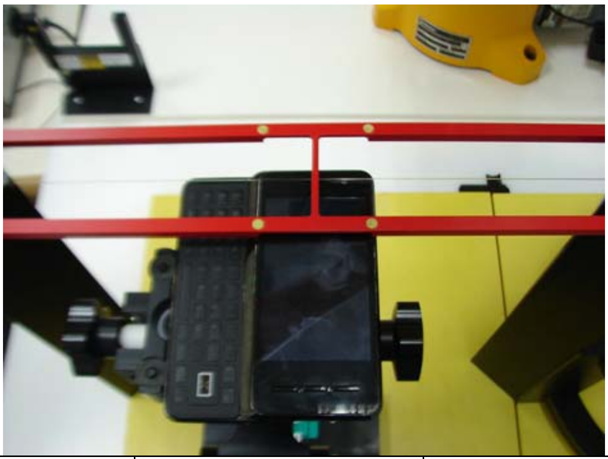


Operation mode	Channel	f(MHz)	Peak(E-field) A/m	M-Rating
RC3, SO55	1013	824.70	0.076	M3
	384	836.52	0.079	M3
	777	848.31	0.075	M3
Operation mode	**Channel**	**f(MHz)**	**Peak(E-field) A/m**	**M-Rating**
RC3, SO55	25	1851.25	0.054	M4
	600	1880.00	0.076	M4
	1175	1908.75	0.084	M4

Note1: BT/WLAN is not activated during test because it is not held-to-ear service.

4. 1xRTT H-Field Emissions (Open slide mode):

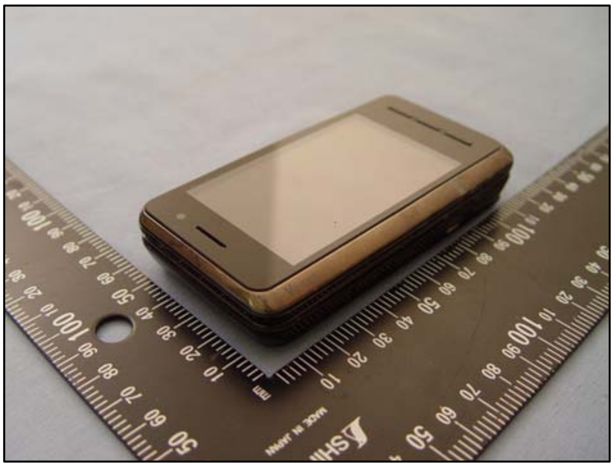


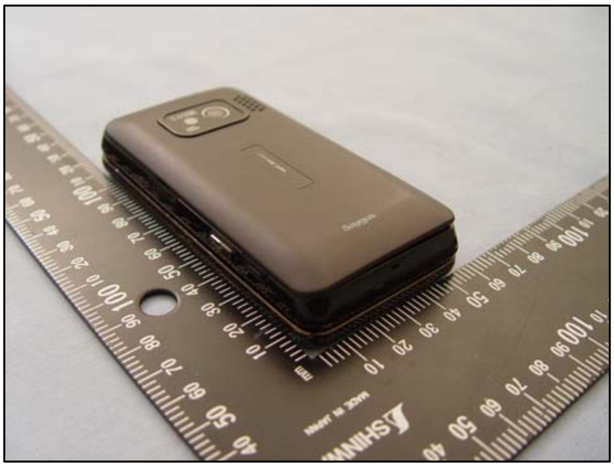


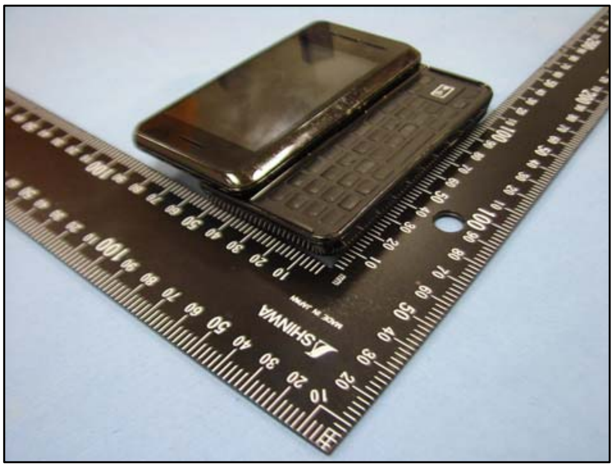
Operation mode	Channel	f(MHz)	Peak(E-field) A/m	M-Rating
RC3, SO55	1013	824.70	0.055	M4
	384	836.52	0.054	M4
	777	848.31	0.055	M4
Operation mode	**Channel**	**f(MHz)**	**Peak(E-field) A/m**	**M-Rating**
RC3, SO55	25	1851.25	0.084	M4
	600	1880.00	0.045	M4
	1175	1908.75	0.051	M4

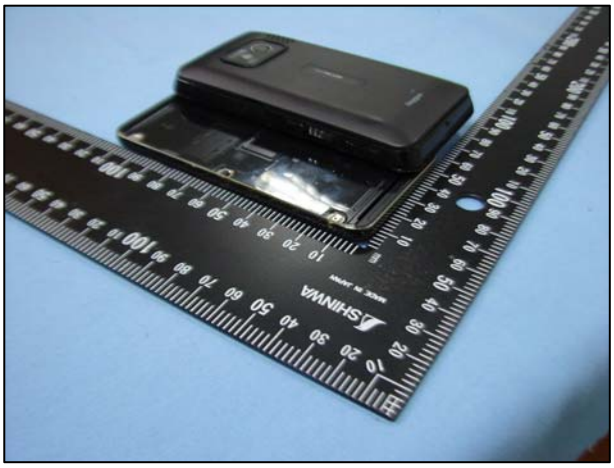
Note1: BT/WLAN is not activated during test because it is not held-to-ear service.

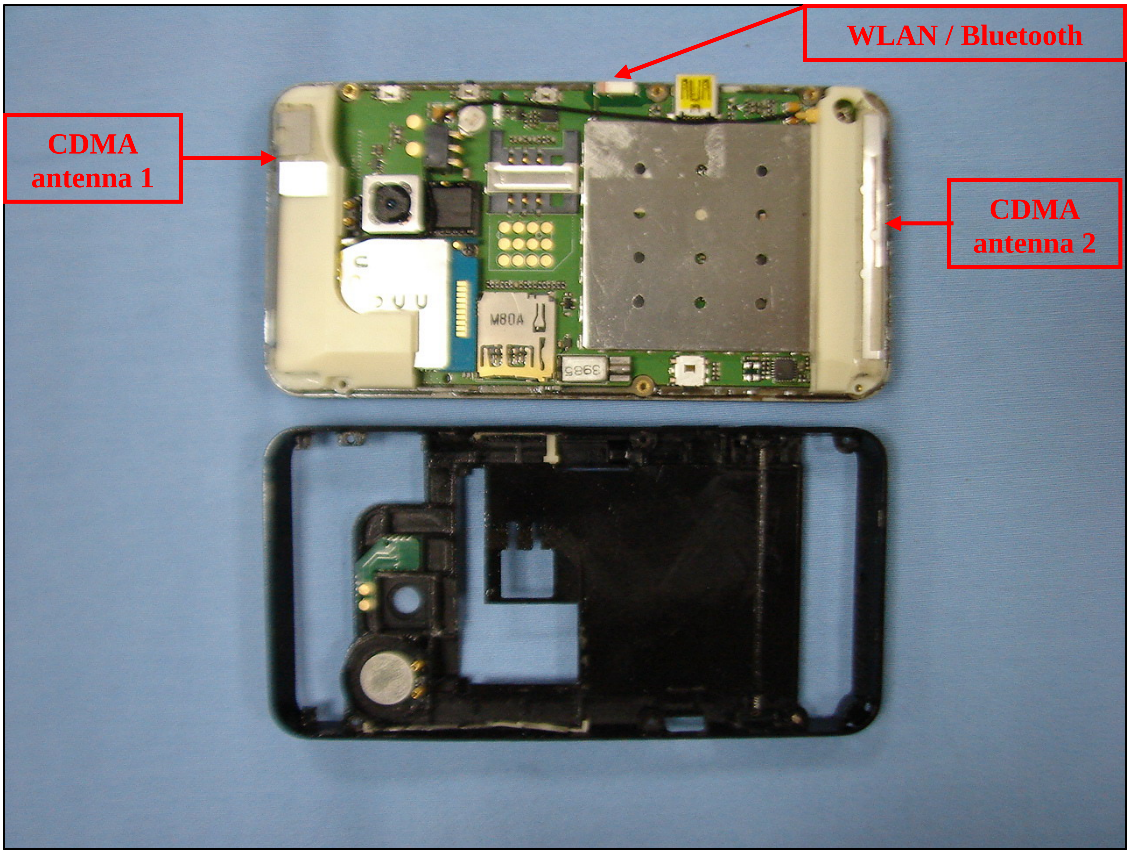
11. EUT PHOTO











12.EQUIPMENT LIST & CALIBRATION STATUS

Name of Equipment	Manufacturer	Type/Model	Serial Number	Calibration Cycle(days)	Calibration Due
S-Parameter Network Analyzer	Agilent	E8358A	US40260243	365	07/07/10
Electronic Probe kit	Hewlett Packard	85070D	N/A	N/A	N/A
Thermometer	Amarell	4046	25060	3650	10/02/14
Power Meter	Agilent	E4416A	GB41291611	365	04/02/10
Power Sensor	Agilent	E9327A	US40441097	365	06/28/10
Spectrum Analyzer	Agilent	E4446A	US42510268	365	10/26/09
Wireless Communication Test Set	Agilent	E5515C 8960	MY48363204	365	07/28/10
Wireless Communication Test Set	R&S	CMU200	101245	365	06/10/10
Signal Generator	Agilent	83630B	3844A01022	365	07/08/10
Data Acquisition Electronics (DAE)	SPEAG	DAE4	877	365	02/03/10
HAC Test Arch	SPEAG	SD HAC P01 BA	1027	N/A	N/A
Devices Holder	SPEAG	N/A	N/A	N/A	N/A
835 MHz System Validation Dipole	SPEAG	CD835V3	1031	730	04/22/11
1880 MHz System Validation Dipole	SPEAG	CD1880V3	1024	730	04/22/11
2450 MHz System Validation Dipole	SPEAG	CD2450V3	1026	730	04/22/11
Probe Alignment Unit	SPEAG	LB (V2)	348	N/A	N/A
Robot	Staubli	RX90B L	F02/5T69A1/A/01	N/A	N/A
Devices Holder	SPEAG	N/A	N/A	N/A	N/A
E-Field Probe	SPEAG	ER3DV6	2345	365	04/27/10
H-Field Probe	SPEAG	H3DV6	6163	365	04/27/10

13.LOCATION OF TEST SITE

All measurement facilities used to collect the measurement data are located at

☐ No. 81-1, Lane 210, Bade Rd. 2, Luchu Hsiang, Taoyuan Hsien, Taiwan, R.O.C.

☒ No. 11, Wu-Kung 6 Rd, Wu-Ku Hsiang, Wu-Ku Industrial District, Taipei Hsien, (248) Taiwan.

☐ No. 199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.

14.ATTACHMENTS

No.	Contents	No. of page (s)
1	System Check Plot	32
2	HAC Test Plot	96
3	Certificate of E-filed Probe ER3DV6 SN:2345	9
4	Certificate of H-filed Probe H3DV6 SN:6163	8
5	Certificate of System Validation Dipole CD835V3 SN:1031	6
6	Certificate of System Validation Dipole CD1880V3 SN:1024	6
7	Certificate of System Validation Dipole CD2450V3 SN:1026	6

END OF REPORT