# HAC

# TEST REPORT

of

**3G QWERTY HAC Compatible Bar wireless phone**

Model Name: S810
Trade Name: Verykool
Report No.: SZ10070019H02
FCC ID: WA6S810

prepared for

**Verykool USA Inc**
4350 Executive Dr. #100, San Diego, CA 92121

*pidrepared by*


**Shenzhen Electronic Product Quality Testing Center**
**Morlab Laboratory**
3/F, Electronic Testing Building, Shahe Road, Xili,
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**PC63.19 HAC Rated Category: T3 (T-coil)**

# Contents

# General Information

## 1.1. Notes

The test results of this test report relate exclusively to the information specified in section. Shenzhen Electronic Product Quality Testing Center Morlab Laboratory does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the identification. The test report may only be reproduced or published in full. Reproduction or publications of extracts from the test report requires the prior written approval of Shenzhen Electronic Product Quality Testing Center Morlab Laboratory. The test report shall be invalid without all the signatures of testing the Project Manager, the Deputy Project Manager and the Test Lab Manager. Any objections must be raised to Morlab within 30 days since the date when the report is received. It will not be taken into consideration beyond this limit.

## 1.2. Organization item

| | |
|---|---|
| Report No.: | SZ10070019H02 |
| Date of Issue: | Aug. 31, 2010 |
| Date of Tests: | Aug. 23, 2010 –Aug. 27, 2010 |
| Responsible for Accreditation: | Zeng Dexin |
| Project Manager: | Li Lei |
| Deputy Project Manager: | Samuel Peng |

## 1.3. Conclusion

Shenzhen Electronic Product Quality Testing Center Morlab Laboratory has verified that all tests as listed in the section of this report haven been performed successfully with the tested equipment.

Samuel Peng
***Tested by***
(Responsible for the Test Report)

Li Lei
***Reviewed by***
(Verification of the Test Report)

Zeng Dexin
***Approved by***
(Responsible Test Lab Manager)

# 2. Test Site Description

## 2.1. Identification of the Responsible Testing Laboratory

| | |
|---|---|
| Company Name: | Shenzhen Electronic Product Quality Testing Center |
| Address: | 3/F, Electronic Testing Building, Shahe Road, Nanshan District, Shenzhen, 518055 P. R. China |
| Responsible Test Lab Manager: | Mr. Shu Luan |
| Telephone: | +86 755 86130268 |
| Facsimile: | +86 755 86130218 |

## 2.2. Identification of the Responsible Testing Location

| | |
|---|---|
| Name: | Shenzhen Electronic Product Quality Testing Center Morlab Laboratory |
| Address: | 3/F, Electronic Testing Building, Shahe Road, Nanshan District, Shenzhen, 518055 P. R. China |

All measurement facilities used to collect the measurement data are located at Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen 518055 CHINA. The test site is constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22; the FCC registration number is 741109.

## 2.3. Accreditation Certificate

Accredited Testing Laboratory: No. CNAS L1659

## 2.4. List of Test Equipments

| No. | Instrument | Type |
|---|---|---|
| 1 | PC | Dell (Pentium IV 2.4GHz, SN:X10-23533) |
| 2 | Network Emulator | Rohde&Schwarz (CMU200, SN:105894) |
| 3 | Voltmeter | Keithley (2000, SN:1000572) |
| 4 | Synthetizer | Rohde&Schwarz (SML_03, SN:101868) |
| 5 | Amplifier | Nucl udes (ALB216, SN:10800) |
| 6 | Power Meter | Rohde&Schwarz (NRVD, SN:101066) |
| 7 | Audio DAQ | NI (MonDAQ, SN:MonNumero) |
| 8 | Probe | Antennessa (SN:SN_4108_EPH17) |
| 9 | HAC holder | SN02_EPH02 (SN:SN_3608_SUPH16) |

# 3. Technical Information

Note: the following data is based on the information by the applicant.

## 3.1. Identification of Applicant

| | |
|---|---|
| Company Name: | Verykool USA Inc |
| Address: | 4350 Executive Dr. #100, San Diego, CA 92121 |

## 3.2. Identification of Manufacturer

| | |
|---|---|
| Company Name: | Verykool Wireless Technology Ltd. |
| Address: | Room 1701, Reward Building C, No.203, 2nd Section of WangJing, Li Ze Zhong Yuan, ChaoYang District, Beijing, P.R. of China 100102 |

## 3.3. Description of EUT

| | |
|---|---|
| Brand Name: | Verykool |
| Type Name: | S810 |
| Marking Name: | S810 |
| Hardware Version: | P1.2 |
| Software Version: | S810_0031 |
| Frequency Bands: | GSM850MHz PCS 1900MHz<br>WCDMA 850MHz WCDMA 1900MHz |
| Antenna type: | Build inside |
| Accessories: | Charger; Battery |
| Battery Model: | H12M20902-7260 |
| Battery specification: | 1000mAh/3.7V |
| Development Stage | Identical prototype |
| Classification: | Licensed Transmitter Held to Ear |

### 3.3.1. Photographs of the EUT

Please see for photographs of the EUT.

### 3.3.2. Identification of all used EUTs

The EUT Identity consists of numerical and letter characters (see the table below), the first five numerical characters indicates the Type of the EUT defined by Morlab, the next letter character indicates the test sample, and the following two numerical characters indicates the software version of the test sample.

| EUT Identity | Hardware Version | Software Version |
|---|---|---|
| 1# | P1.2 | S810_0031 |

# 4. Test Results

## 4.1. Applied Reference Documents

Leading reference documents for testing:

| No. | Identity | Document Title |
|---|---|---|
| 1 | ANSI C 63.19: 2007 | American National Standard Methods of Measurement of Compatibility between Wireless Communications Devices and Hearing Aids |

**Note：** Test report, reference KDB 285076 documents.

## 4.2. Test Environment/Conditions

| | | | |
|---|---|---|---|
| Normal Temperature (NT): | 20 ... 25 °C | | |
| Relative Humidity: | 30 ... 75 % | | |
| Air Pressure: | 980 ... 1020 hPa | | |
| Details of Power Supply: | 220V/50Hz AC | | |
| Extreme Temperature: | Low Temperature (LT) | = | -10°C |
| | High Temperature (HT) | = | 55°C |
| Extreme Voltage of the EUT: | Normal Voltage (NV) | = | 3.70V |
| | Low Voltage (LV) | = | 3.60V |
| | High Voltage (HV) | = | 4.20V |
| | | | |
| Test frequency: | GSM 850MHz PCS 1900MHz | | |
| | WCDMA 850MHz,WCDMA 1900MHz | | |
| Operation mode: | Call established | | |
| Power Level: | GSM 850 MHz Maximum output power(level 5) | | |
| | PCS 1900 MHz Maximum output power(level 0) | | |
| | WCDMA Maximum output power | | |

During SAR test, EUT is in Traffic Mode (Channel Allocated) at Normal Voltage Condition. A communication link is set up with a System Simulator (SS) by air link, and a call is established.
The Absolute Radio Frequency Channel Number (ARFCN) is allocated to 128, 189 and 250 respectively in the case of GSM 900 MHz, or to 512, 661 and 885 respectively in the case of DCS 1800 MHz or is allocated to 4132, 4182 and 4233 respectively in the case of WCDMA 850MHz and is allocated to 9262, 9400 and 95189 respectively in the case of GSM 1900MHz, The EUT is commanded to operate at maximum transmitting power.

## 4.3.Operational Conditions During Test

### 4.3.1. INTRODUCTION

On July 10.2003.the Federal Communications Commission (FCC) adopted new rules requiring wireless manufacturers and service providers to provide digital wireless phones that are compatible with hearing aids. The FCC has modified the exemption for wireless phones under the Hearing Aid Compatibility Act of 1998 (HAC Act) in WT Docket 01-309 RM-8658 to extend the benefits of wireless telecommunications to individuals with hearing disabilities. These benefits encompass business, social and emergency communications, which increase the value of the wireless network for everyone. An estimated more than 10% of the population in the United States show signs of hearing impairment and of that fraction, almost 80% use hearing aids. Approximately 500 million people worldwide suffer from hearing loss.

Compatibility Tests involved:

The standard calls for wireless communications devices to be measured for:

- RF Electric-field emissions.
- RF Magnetic- field emissions.
- T-coil mode, magnetic-signal strength in the audio band.
- T-coil mode, magnetic-signal frequency response through the audio band.
- T-coil mode, magnetic-signal and noise articulation index.

The hearing aid must be measured for:

- RF immunity in microphone mode
- RF immunity in T-coil mode

In the following tests and results, this report includes the evaluation for a wireless communications device

## 4.3.2. ANSI/IEEE PC 63.19 PERFORMANCE CATEGORIES

### 4.3.2.1. RF EMISSIONS

The ANSI Standard presents performance requirements for acceptable interoperability of hearing with wireless communications devices. When these parameters are met, a hearing aid operates acceptably in close proximity to a wireless communications device.

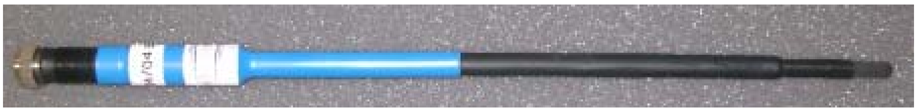
| Category | AWF (dB) | Limits for E-Field Emission (V/m) | Limits for H-Field Emission (A/m) |
|---|---|---|---|
| M1 | 0 | 631.0 - 1122.0 | 1.91 - 3.39 |
| | -5 | 473.2 - 841.4 | 1.43 - 2.54 |
| M2 | 0 | 354.8 - 631.0 | 1.07 - 1.91 |
| | -5 | 266.1 - 473.2 | 0.80 - 1.43 |
| M3 | 0 | 199.5 - 354.8 | 0.6 - 1.07 |
| | -5 | 149.6 - 266.1 | 0.45 - 0.80 |
| M4 | 0 | <199.5 | <0.60 |
| | -5 | <149.6 | <0.45 |
| Hearing aid and WD near-field categories as defined in ANSI PC 63.19. During testing, the hearing aid must maintain an input-referenced interference level of less than 55dB a gain compression of less than 6dB. | | | |

### 4.3.2.2. Articulation Weighing Factor (AWF)

| Standard | Technology | AWF |
|---|---|---|
| T1/T1P1/3GPP | UMTS(WCDMA) | 0 |
| IS-95 | CDMA | 0 |
| iden | GSM(22and 11Hz) | 0 |
| J-STD-007 | GSM(217Hz) | -5 |
| AWF has been developed from information presented to the committee regarding the interference potential of the various modulation types according to ANSI PC 63.19 | | |

## 4.3.3. Description of Test System

### 4.3.3.1. COMOHAC E-FIELD PROBE



| | |
|---|---|
| Serial Number: | SN 41/08 EPH17 |
| Frequency: | 100MHz – 3GHz |
| Probe length: | 330mm |
| Length of one dipole: | 3.3mm |
| Maximum external diameter: | 8mm |
| Probe extremity diameter: | 6mm |
| Distance between dipoles/probe extremity: | 3mm |
| Resistance of the three dipole (at the connector ): | Dipole 1:R1=2.1807 MΩ<br>Dipole 2:R1=2.0612 MΩ<br>Dipole 3:R3=2.1892 MΩ |
| Connector (HIROSE series SR30) | 6 wire male (Hirose SR30series) |

**CALIBRATION TEST EQUIPMENT**

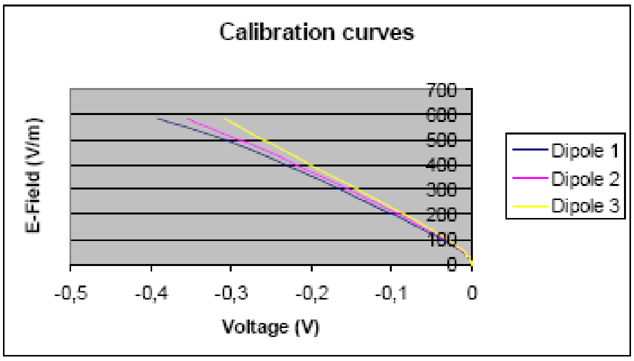
| TYPE | IDENTIFICATION |
|---|---|
| Calibration bench | SATIMO AIR CALIBRATION SOFTWARE |
| Multimeter | Keithley 2000 |

**MEASUREMENT PROCEDURE**

Probe calibration is realized by using the waveguide method. The probe was inserted in a waveguide loading by a 50 load. By controlling the input power in the waveguide, we are able to create a know EField value in the waveguide. ,

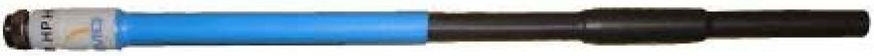
Keithley configuration:

Rate = Medium; Filter =ON; RDGS=10; FILTER TYPE =MOVING AVERAGE; RANGE AUTO




The following tables represent the calibration curves linearization by curve segment in CW signal.

### 4.3.3.2. COMOHAC H-FIELD PROBE



| | |
|---|---|
| Serial Number: | SN 41/08 HPH18 |
| Frequency: | 100MHz – 3GHz |
| Probe length: | 330mm |
| Length of one dipole: | 3.3mm |
| Maximum external diameter: | 8mm |
| Probe extremity diameter: | 6mm |
| Distance between dipoles/probe extremity: | 3mm |
| Resistance of the three dipole (at the connector ): | Dipole 1:R1=2.1650 MΩ<br>Dipole 2:R1=2.2176 MΩ<br>Dipole 3:R3=2.4084 MΩ |
| Connector (HIROSE series SR30) | 6 wire male (Hirose SR30series) |

**CALIBRATION TEST EQUIPMENT**

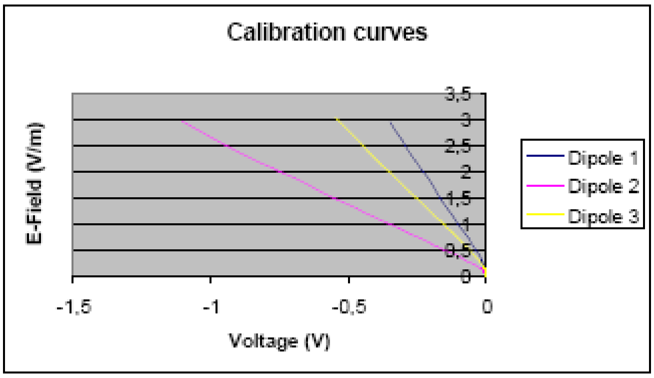
| TYPE | IDENTIFICATION |
|---|---|
| Calibration bench | SATIMO AIR CALIBRATION SOFTWARE |
| Multimeter | Keithley 2000 |

**MEASUREMENT PROCEDURE**

Probe calibration is realized by using the waveguide method. The probe was inserted in a waveguide loading by a 50 load. By controlling the input power in the waveguide, we are able to create a know HField value in the waveguide.

Keithley configuration:

Rate = Medium; Filter =ON; RDGS=10; FILTER TYPE =MOVING AVERAGE; RANGE AUTO

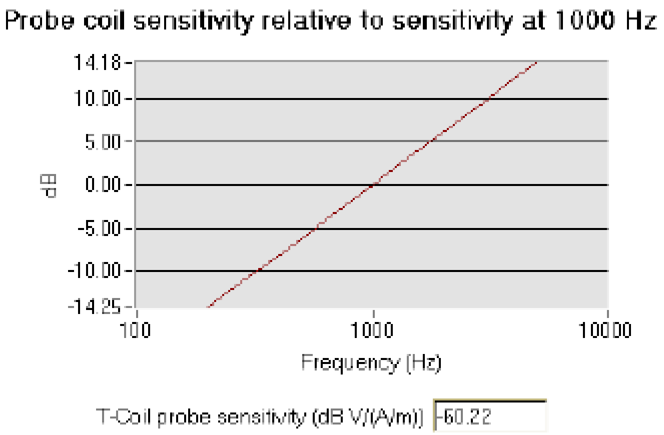



The following tables represent the calibration curves linearization by curve segment in CW signal.

## 4.3.3.3. COMOHAC T-COIL PROBE

| | |
|---|---|
| Serial Number: | SN 39/08 TCP11 |
| Dimensions: | 6.55mm length*2.29mm diameter |
| DC resistance: | 860.6Ω |
| Wire size: | 51 AWG |
| Inductance: | 132.1 mH at 1kHz |
| Sensitivity: | -60.22 dB (V/A/m) at 1kHz |

### SENSITIVITY




| Frequency (Hz) | H (dB (V/(A/m))) |
|---|---|
| 200 | -73,92940009 |
| 250 | -72,01119983 |
| 315 | -70,06378892 |
| 400 | -67,88880017 |
| 500 | -66,00059991 |
| 630 | -64,07318901 |
| 800 | -62,00820026 |
| 1000 | -60,22 |
| 1250 | -58,29179974 |
| 1600 | -56,20760035 |
| 2000 | -54,31940009 |
| 2500 | -52,36119983 |
| 3150 | -50,38378892 |
| 4000 | -48,50880017 |
| 5000 | -46,44059991 |

### LINEARITY

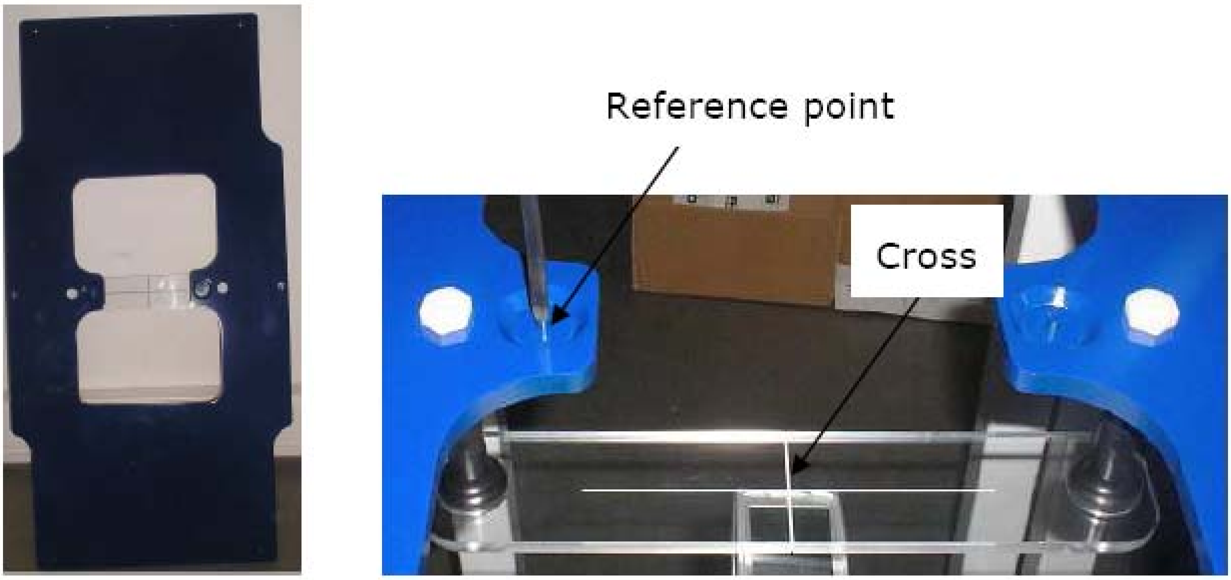
Linearity = 0.27 dB

| Power (dB) relative to 1 A/m | 0 | -10 | -20 | -30 | -40 | -50 |
|---|---|---|---|---|---|---|
| H (dB (V/(A/m))) | 0 | -9,95 | -19,95 | -30 | -39,9 | -49,73 |

#### 4.3.3.4. System Hardware

The HAC positioning ruler is used to position the phone properly with the regard to the position of the probe during a measurement. The positioning system is made of a dedicated frame that can be fixed on the table. The tip of the probe is positioned on a reference point located on the top of the positioning ruler. The distance between this reference point and the cross located on the ruler being known, the speaker of the phone is positioned on this cross in order to make sure both probe and phone are positioned properly.

During the measurement, the HAC ruler has to be removed so that it does not interfere with the measurement.

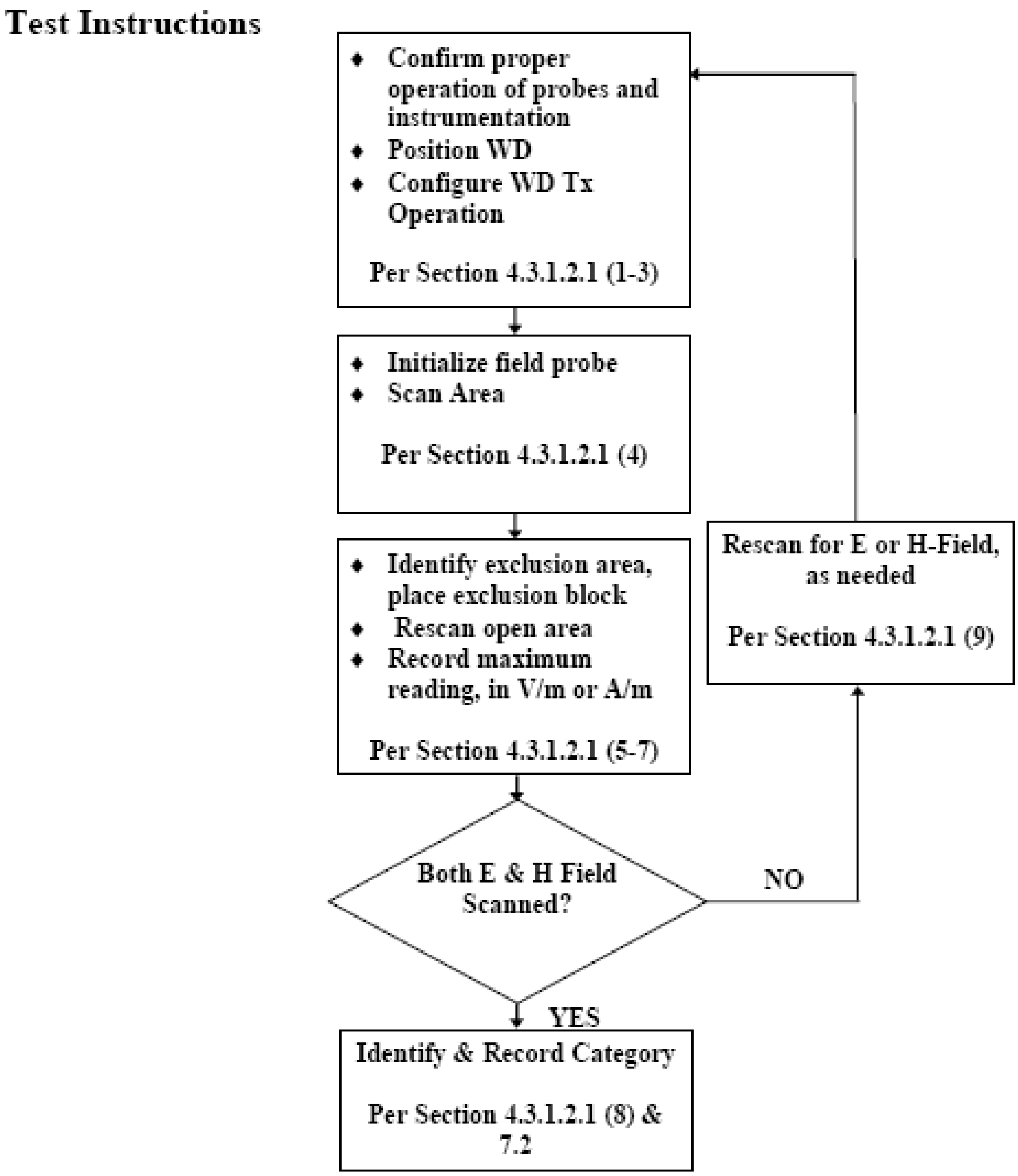



HAC positioning ruler

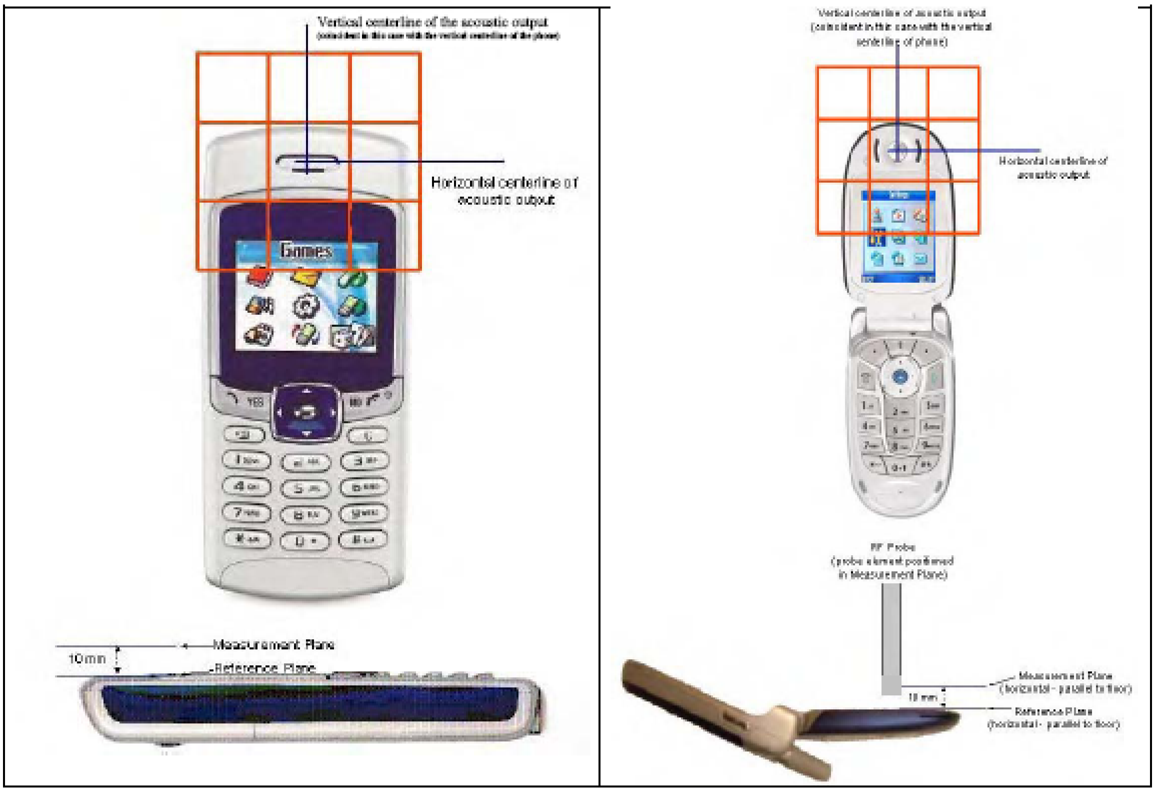
## 4.3.4. TEST PROCEDURE

### 4.3.4.1. RF EMISSIONS

Per ANSI C 63.19 2007:



### 4.3.4.2.TEST Setup




WD reference and plane for RF emission measurements

### 4.3.4.3.RF Emission Test Procedure

The following illustrate a typical RF emissions test scan over a wireless communications device:

1. Proper operation of the field probe, probe measurement system, other instrumentation, and the positioning system was confirmed.
2. WD is positioned in its intended test position, acoustic output point of the device perpendicular to the field probe.
3. The WD operation for maximum rated RF output power was configured and confirmed with the base station simulator, at the test channel and other normal operating parameters as intended for the test. The battery was ensured to be fully charged before each test.
4. The center sub-grid was centered over the center of the acoustic output (also audio band magnetic output, if applicable). The WD audio output was positioned tangent (as physically possible) to the measurement plane.
5. A surface calibration was performed before each setup change to ensure repeatable spacing and proper maintenance of the measurement plane using the HAC Phantom.
6. The measurement system measured the field strength at the reference location.

## 4.3.5. SYSTEM CHECK

### 4.3.5.1. System Check Parameters

The input signal was an unmodulated continuous wave. The following points were taken into consideration in performing this check:

- Average Input Power P = 100mW RMS (20dBm RMS) after adjustment for return loss
- The test fixture must meet the 2 wavelength separation criterion
- The proper measurement of the 1 cm probe to dipole separation, which is measured from top surface of the dipole to the calibration reference point of the sensor, defined by the probe manufacturer is shown in the following diagram:

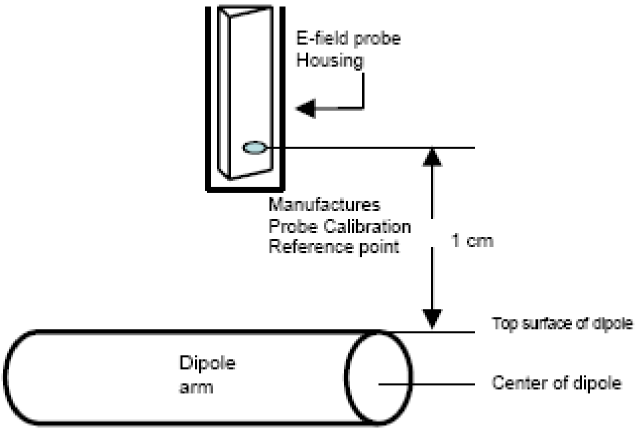



**Figure 15**
Separation Distance from Dipole to Field Probe

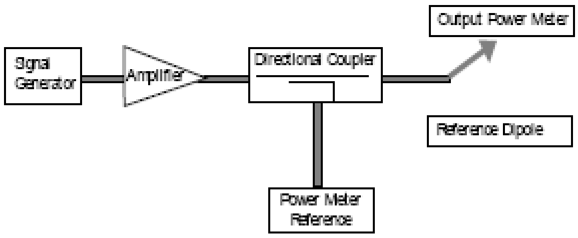
RF power was recorded using both an average reading meter and a peak reading meter. Readings of the probe are provided by the measurement system.
To assure proper operation of the near-field measurement probe the input power to the dipole shall be commensurate with the full rated output power of the wireless device (e.g. - for a cellular phone wireless device the average peak antenna input power will be on the order of 100mW (i.e. - 20dBm) RMS after adjustment for any mismatch.

### 4.3.5.2 Validation Procedure

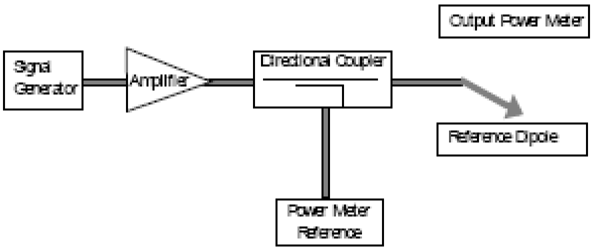
A dipole antenna meeting the requirements given in PC63.19 was placed in the position normally occupied by the WD.
The length of the dipole was scanned with both E-field and H-field probes and the maximum values for each were recorde

Using the near-field measurement system, scan the antenna over the radiating dipole and record the greatest field reading observed. Due to the nature of E-fields about free-space dipoles, the two E-field peaks measured over the dipole are averaged to compensate for non-paralellity of the setup see manufacturer method on dipole calibration certificates, Field strength measurements shall be made only when the probe is stationary.

RF power was recorded using both an average and a peak power reading meter.




Setup for Desired Output Power to Dipole



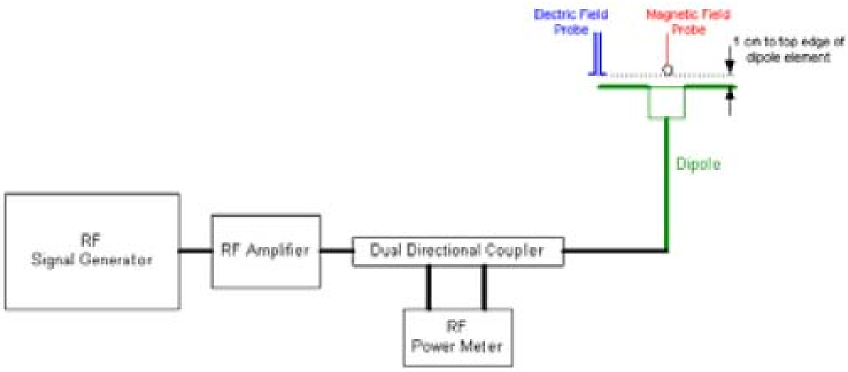

Setup to Dipole

Using this setup configuration, the signal generator was adjusted for the desired output power (100mW) at a specified frequency. The reference power from the coupled port of the directional coupler is recorded. Next, the output cable is connected to the reference dipole,

### 4.3.5.3. Test System Validation

**Validation Results (1W forward input power) Validation Results (1W forward input power),** System checks the specific test data please see page 30-37

| Frequency | Input Power (dBm) | E-field Result (V/m) | Target Field (V/m) |
|---|---|---|---|
| 900 MHz | 20.0 | 205 | 207 |
| 1880MHz | 20.0 | 145.3 | 141.2 |
| **Frequency** | **Input Power (dBm)** | **H-field Result (A/m)** | **Target Field (A/m)** |
| 900 MHz | 20.0 | 0.448 | 0.442 |
| 1880MHz | 20.0 | 0.433 | 0.429 |




System Check Setup

## 4.3.6. Uncertainty Estimation Table

| a | b | c | d | e= f(d,k) | f | g | h= c*f/e | i= c*g/e | k |
|---|---|---|---|---|---|---|---|---|---|
| Uncertainty Component | Sec. | Tol (+-%) | Prob. Dist. | Div. | Ci (1g) | Ci (10g) | 1g Ui (+-%) | 10g Ui (+-%) | Vi |
| **Measurement System** | | | | | | | | | |
| Probe calibration | E.2.1 | 7.0 | N | 1 | 1 | 1 | 7.00 | 7.00 | |
| Axial Isotropy | E.2.2 | 2.5 | R | | | | 1.02 | 1.02 | |
| Hemispherical Isotropy | E.2.2 | 4.0 | R | | | | 1.63 | 1.63 | |
| Boundary effect | E.2.3 | 1.0 | R | | 1 | 1 | 0.58 | 0.58 | |
| Linearity | E.2.4 | 5.0 | R | | 1 | 1 | 2.89 | 2.89 | |
| System detection limits | E.2.5 | 1.0 | R | | 1 | 1 | 0.58 | 0.58 | |
| Readout Electronics | E.2.6 | 0.02 | N | 1 | 1 | 1 | 0.02 | 0.02 | |
| Reponse Time | E.2.7 | 3.0 | R | | 1 | 1 | 1.73 | 1.73 | |
| Integration Time | E.2.8 | 2.0 | R | | 1 | 1 | 1.15 | 1.15 | |
| RF ambient Conditions | E.6.1 | 3.0 | R | | 1 | 1 | 1.73 | 1.73 | |
| Probe positioner Mechanical Tolerance | E.6.2 | 2.0 | R | | 1 | 1 | 1.15 | 1.15 | |
| Probe positioning with respect to Phantom Shell | E.6.3 | 0.05 | R | | 1 | 1 | 0.03 | 0.03 | |
| Extrapolation, interpolation and integration Algoritms for Max. SAR Evaluation | E.5.2 | 5.0 | R | | 1 | 1 | 2.89 | 2.89 | |
| **Test sample Related** | | | | | | | | | |
| Test sample positioning | E.4.2.1 | 0.03 | N | 1 | 1 | 1 | 0.03 | 0.03 | N-1 |
| Device Holder Uncertainty | E.4.1.1 | 5.00 | N | 1 | 1 | 1 | 5.00 | 5.00 | |
| Output power Variation - SAR drift measurement | 6.6.2 | 5.78 | R | | 1 | 1 | 3.34 | 3.34 | |

## 4.3.7. OVERALL MEASUREMENT SUMMARY

### 4.3.7.1 T-coil

| Mode | Channel | Antenna | RESULT |
|---|---|---|---|
| T-coil | | | |
| GSM850 | 189 | Fixed | T4 |
| GSM1900 | 661 | Fixed | T3 |

| Mode | Channel | Antenna | RESULT |
|---|---|---|---|
| T-coil | | | |
| WCDMA850 | 4182 | Fixed | T4 |
| WCDMA 1900 | 9400 | Fixed | T3 |

### 4.3.8. TEST DATA

| FREQUENCY | PARAMETERS |
|---|---|
| GSM850 | Measurement 1: T-coil on Middle Channel |
| WCDMA850 | Measurement 2: T-coil on Middle Channel |
| GSM1900 | Measurement 3: T-coil on Middle Channel |
| WCDMA1900 | Measurement 4: T-coil on Middle Channel |

# MEASUREMENT 1

## A. Experimental conditions.

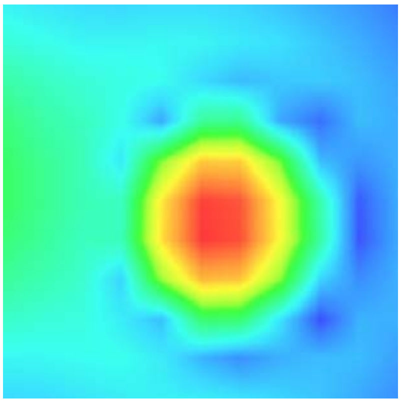
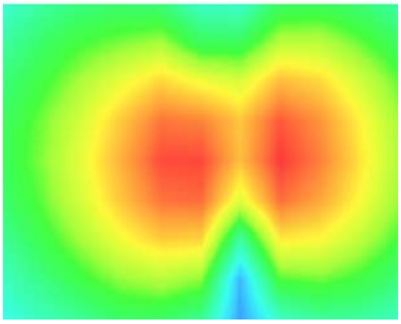
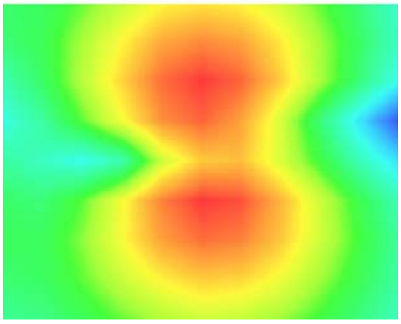
| | |
|---|---|
| **Grid size (mm x mm)** | 50.0, 50.0 |
| **Step (mm)** | 5 |
| **Scanning Height (mm)** | 10.0 |
| **Band** | GSM850 |
| **Date of measurement** | 27/8/2010 |

## B. HAC Measurement Results

Frequency (MHz):

| C63.19 | Mode | Band | Test Description | Minimum Limit | Location | Measured | Category | Verdict |
|---|---|---|---|---|---|---|---|---|
| | | | | dBA/m | - | dBA/m | - | Pass/Fail |
| 7.3.1.1 | GSM | GSM850 | Intensity, Axial | -18 | Max | 13.16 | - | PASS |
| 7.3.1.2 | | | Intensity, RadialH | -18 | Max | 7.25 | - | PASS |
| | | | | - | - | - | - | - |
| 7.3.1.2 | | | Intensity, RadialV | -18 | Max | 5.87 | - | PASS |
| | | | | - | - | - | - | - |
| 7.3.3 | | | Signal to noise/noise, Axial | 5 | Max | 29.94 | T4 | PASS |
| 7.3.3 | | | Signal to noise/noise, RadialH | 5 | Max | 25.59 | T4 | PASS |
| | | | | - | - | - | - | - |
| 7.3.3 | | | Signal to noise/noise, RadialV | 5 | Max | 43.64 | T4 | PASS |
| | | | | - | - | - | - | - |
| 7.3.2 | | | Frequency reponse, Axial | - | - | - | - | - |

## T.Coil Scan Overlay Magnetic Field Distributions

| AXIAL | RADIAL H | RADIAL V |
|---|---|---|
|  |  |  |

# MEASUREMENT 2

## A. Experimental conditions.

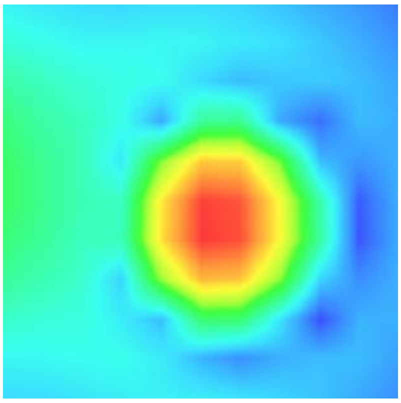
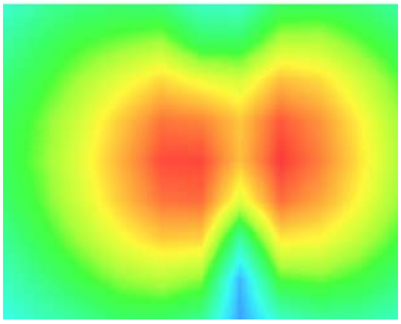
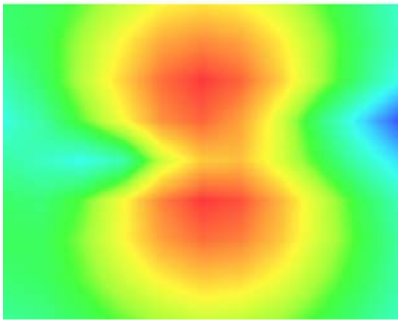
| | |
|---|---|
| **Grid size (mm x mm)** | 50.0, 50.0 |
| **Step (mm)** | 5 |
| **Scanning Height (mm)** | 10.0 |
| **Band** | WCDMA850 |
| **Date of measurement** | 27/8/2010 |

## B. HAC Measurement Results

Frequency (MHz):

| C63.19 | Mode | Band | Test Description | Minimum Limit | Location | Measured | Category | Verdict |
|---|---|---|---|---|---|---|---|---|
| | | | | dBA/m | - | dBA/m | - | Pass/Fail |
| 7.3.1.1 | CDMA | WCDMA 850 | Intensity, Axial | -18 | Max | 13.16 | - | PASS |
| 7.3.1.2 | | | Intensity, RadialH | -18 | Max | 7.25 | - | PASS |
| | | | | - | - | - | - | - |
| 7.3.1.2 | | | Intensity, RadialV | -18 | Max | 5.87 | - | PASS |
| | | | | - | - | - | - | - |
| 7.3.3 | | | Signal to noise/noise, Axial | 5 | Max | 29.94 | T4 | PASS |
| 7.3.3 | | | Signal to noise/noise, RadialH | 5 | Max | 25.59 | T4 | PASS |
| | | | | - | - | - | - | - |
| 7.3.3 | | | Signal to noise/noise, RadialV | 5 | Max | 43.64 | T4 | PASS |
| | | | | - | - | - | - | - |
| 7.3.2 | | | Frequency reponse, Axial | - | - | - | - | - |

## T.Coil Scan Overlay Magnetic Field Distributions

| AXIAL | RADIAL H | RADIAL V |
|---|---|---|
|  |  |  |

# MEASUREMENT 3

## A. Experimental conditions.

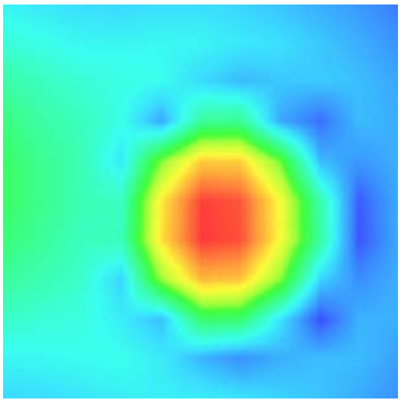
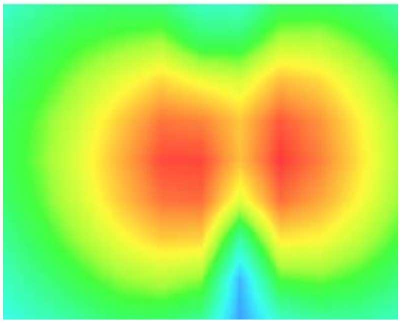
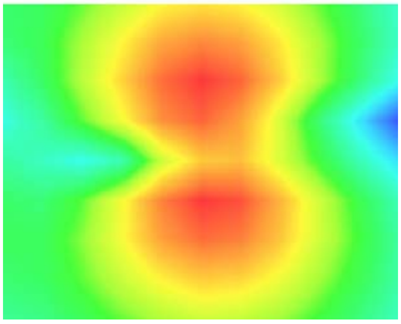
| | |
|---|---|
| **Grid size (mm x mm)** | 50.0, 50.0 |
| **Step (mm)** | 5 |
| **Scanning Height (mm)** | 10.0 |
| **Band** | GSM1900 |
| **Date of measurement** | 27/8/2010 |

## B. HAC Measurement Results

Frequency (MHz): 1880.000000

| C63.19 | Mode | Band | Test Description | Minimum Limit | Location | Measured | Category | Verdict |
|---|---|---|---|---|---|---|---|---|
| | | | | dBA/m | - | dBA/m | - | Pass/Fail |
| 7.3.1.1 | GSM | GSM1900 | Intensity, Axial | -18 | Max | 13.18 | - | PASS |
| 7.3.1.2 | | | Intensity, RadialH | -18 | Max | 7.26 | - | PASS |
| | | | | - | - | - | - | - |
| 7.3.1.2 | | | Intensity, RadialV | -18 | Max | 5.90 | - | PASS |
| | | | | - | - | - | - | - |
| 7.3.3 | | | Signal to noise/noise, Axial | 5 | Max | 19.40 | T4 | PASS |
| 7.3.3 | | | Signal to noise/noise, RadialH | 5 | Max | 17.69 | T4 | PASS |
| | | | | - | - | - | - | - |
| 7.3.3 | | | Signal to noise/noise, RadialV | 5 | Max | 11.69 | T3 | PASS |
| | | | | - | - | - | - | - |
| 7.3.2 | | | Frequency reponse, Axial | - | - | - | - | - |

## T.Coil Scan Overlay Magnetic Field Distributions

| AXIAL | RADIAL H | RADIAL V |
|---|---|---|
|  |  |  |

# MEASUREMENT 4

## A. Experimental conditions.

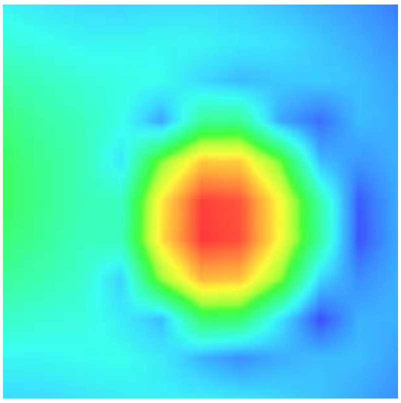
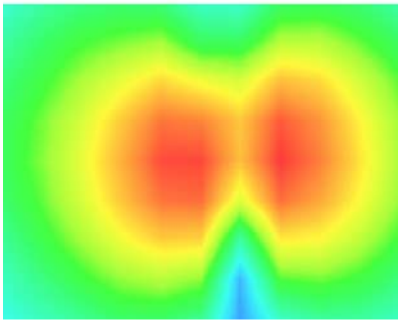
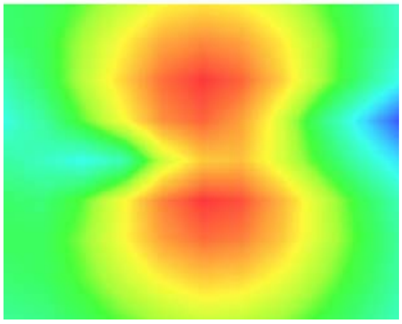
| | |
|---|---|
| **Grid size (mm x mm)** | 50.0, 50.0 |
| **Step (mm)** | 5 |
| **Scanning Height (mm)** | 10.0 |
| **Band** | WCDMA1900 |
| **Date of measurement** | 27/8/2010 |

## B. HAC Measurement Results

Frequency (MHz): 1747.400024

| C63.19 | Mode | Band | Test Description | Minimum Limit | Location | Measured | Category | Verdict |
|---|---|---|---|---|---|---|---|---|
| | | | | dBA/m | - | dBA/m | - | Pass/Fail |
| 7.3.1.1 | CDMA | WCDMA 1900 | Intensity, Axial | -18 | Max | 13.18 | - | PASS |
| 7.3.1.2 | | | Intensity, RadialH | -18 | Max | 7.26 | - | PASS |
| | | | | - | - | - | - | - |
| 7.3.1.2 | | | Intensity, RadialV | -18 | Max | 5.90 | - | PASS |
| | | | | - | - | - | - | - |
| 7.3.3 | | | Signal to noise/noise, Axial | 5 | Max | 19.40 | T4 | PASS |
| 7.3.3 | | | Signal to noise/noise, RadialH | 5 | Max | 17.69 | T4 | PASS |
| | | | | - | - | - | - | - |
| 7.3.3 | | | Signal to noise/noise, RadialV | 5 | Max | 11.69 | T3 | PASS |
| | | | | - | - | - | - | - |
| 7.3.2 | | | Frequency reponse, Axial | - | - | - | - | - |

# T.Coil Scan Overlay Magnetic Field Distributions

| AXIAL | RADIAL H | RADIAL V |
|---|---|---|
|  |  |  |

# Annex A  Accreditation Certificate

China National Accreditation Service for Conformity Assessment

## LABORATORY ACCREDITATION CERTIFICATE

(No. CNAS L1659 )

*China National Accreditation Service for Conformity Assessment has accredited*

**Shenzhen Electronic Product Quality Testing Center**

Electronic Testing Building, Shahe Road, Xili, Nanshan District,
Shenzhen, Guangdong, China

*to* ***ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories(CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories)*** *for the competence in the field of testing and calibration.*

*The scope of accreditation is detailed in the attached schedule bearing the same accreditation number as above. The schedule forms an integral part of this certificate.*

Date of Issue：2009-09-29
Date of Expiry：2012-09-28
Date of Initial Accreditation：1999-08-03

Signed on behalf of China National Accreditation Service for Conformity Assessment

China National Accreditation Service for Conformity Assessment(CNAS) is authorized by Certification and Accreditation Administration of the People's Republic of China (CNCA) to operate the national accreditation systems for conformity assessment. CNAS is the signatory to International Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (ILAC MRA), and the signatory to Asia Pacific Laboratory Accreditation Cooperation Multilateral Recognition Arrangement (APLAC MRA).

# System Performance Check (E-field)

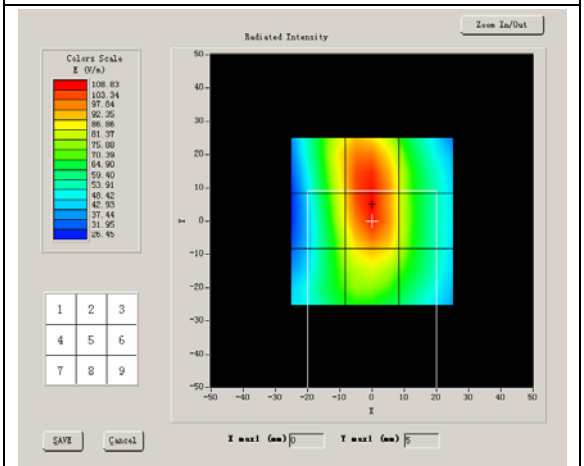
## A. Experimental conditions.

| | |
|---|---|
| **Grid size (mm x mm)** | 50.0, 50.0 |
| **Step (mm)** | 5 |
| **Band** | 850 MHz |
| **Channel** | |
| **Signal** | CW |
| **Date of measurement** | 27/8/2010 |

## B. HAC Measurement Results

Frequency (MHz): 850.000000

SURFACE HAC



Probe Modulation Factor = 2.820000

Maximum value of total field = 205 V/m

E in V/m

| | | |
|---|---|---|
| Grid 1: 194.51 | Grid 2: 198.12 | Grid 3: 177.56 |
| Grid 4: 192.69 | Grid 5: 205.00 | Grid 6: 178.98 |
| Grid 7: 181.13 | Grid 8: 194.18 | Grid 9: 176.51 |

# System Performance Check (H-field)

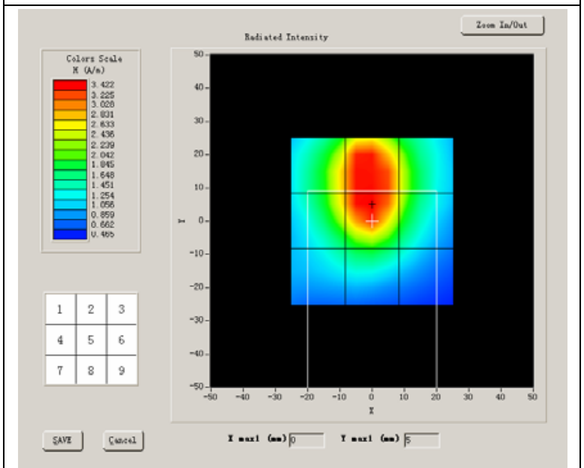
## A. Experimental conditions.

| | |
|---|---|
| **Grid size (mm x mm)** | 50.0, 50.0 |
| **Step (mm)** | 5 |
| **Band** | 850 MHz |
| **Channel** | |
| **Signal** | CW |
| **Date of measurement** | 27/8/2010 |

## B. HAC Measurement Results

Frequency (MHz): 850.000000

SURFACE HAC



Probe Modulation Factor = 2.800000

Maximum value of total field = 0.448 A/m

H in A/m

| | | |
|---|---|---|
| Grid 1: 0.302 | Grid 2: 0.421 | Grid 3: 0.336 |
| Grid 4: 0.381 | Grid 5: 0.449 | Grid 6: 0.332 |
| Grid 7: 0.370 | Grid 8: 0.400 | Grid 9: 0.239 |

# System Performance Check (E-field)

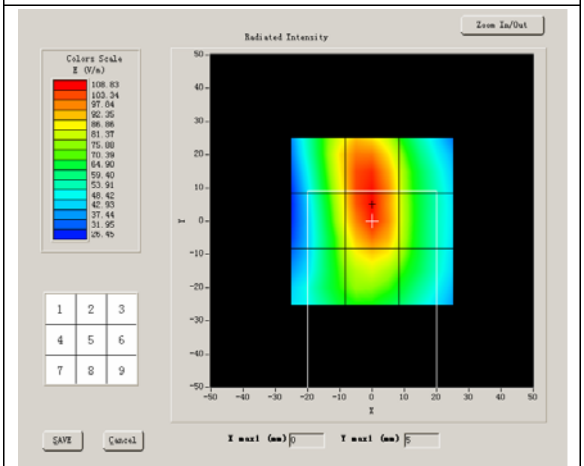
## A. Experimental conditions.

| | |
|---|---|
| **Grid size (mm x mm)** | 50.0, 50.0 |
| **Step (mm)** | 5 |
| **Band** | 1900 MHz |
| **Channel** | |
| **Signal** | CW |
| **Date of measurement** | 27/8/2010 |

## B. HAC Measurement Results

Frequency (MHz): 1900.000000

SURFACE HAC



Probe Modulation Factor = 2.820000

Maximum value of total field = 145.3 V/m

E in V/m

| | | |
|---|---|---|
| Grid 1: 134.51 | Grid 2: 138.12 | Grid 3: 127.56 |
| Grid 4: 132.69 | Grid 5: 145.28 | Grid 6: 118.98 |
| Grid 7: 121.13 | Grid 8: 124.18 | Grid 9: 116.51 |

# System Performance Check (H-field)

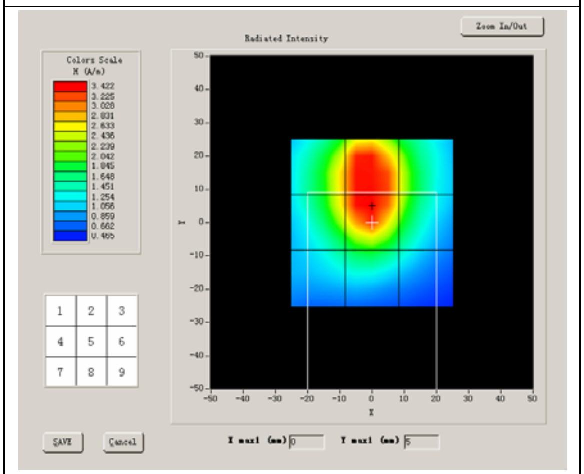
## A. Experimental conditions.

| | |
|---|---|
| **Grid size (mm x mm)** | 50.0, 50.0 |
| **Step (mm)** | 5 |
| **Band** | 1900 MHz |
| **Channel** | |
| **Signal** | CW |
| **Date of measurement** | 27/8/2010 |

## B. HAC Measurement Results

Frequency (MHz): 1900.000000

SURFACE HAC



Probe Modulation Factor = 2.800000

Maximum value of total field = 0.433 A/m

H in A/m

| | | |
|---|---|---|
| Grid 1: 0.402 | Grid 2: 0.428 | Grid 3: 0.346 |
| Grid 4: 0.419 | Grid 5: 0.433 | Grid 6: 0.344 |
| Grid 7: 0.409 | Grid 8:0.400 | Grid 9: 0.320 |