TEST REPORT

# TEST REPORT
# FROM
# RFI GLOBAL SERVICES LTD

**Test of: LT28h**

**To: OET Bulletin 65 Supplement C: (2001-01)**
**RSS-102 Issue 4 March 2010**

**FCC ID: PY7PM-0200**

**IC ID: 4170B-PM-0200**

**Test Report Serial No:**
**RFI-SAR-RP88248JD02A V4.0**

**Version 4.0 Supersedes All Previous Versions**

| | |
|---|---|
| **This Test Report Is Issued Under The Authority Of Chris Guy, Head of Global Approvals:** | (APPROVED SIGNATORY) |
| **Checked By: Richelieu Quoi** | (APPROVED SIGNATORY) |
| **Issue Date:** | **31 July 2012** |
| **Test Dates:** | **18 May 2012 to 25 June 2012** |



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## 1. Customer Information

| | |
|---|---|
| **Company Name:** | Sony Mobile Communications AB |
| **Address:** | Nya Vattentornet<br>22188 Lund<br>Sweden |

# 2. Equipment Under Test (EUT)

## 2.1. Identification of Equipment Under Test (EUT)

| | |
|---|---|
| **Description:** | Mobile Handset |
| **Brand Name:** | Sony |
| **Model Name or Number:** | LT28h |
| **Type Number:** | PM-0200-BV |
| **Serial Number:** | CB5A1K23WH |
| **IMEI Number:** | 00440214-574177-7 |
| **Hardware Version Number:** | AP1 |
| **Software Version Number:** | 6.1.E.0.51 |
| **Hardware Revision of GSM Module:** | Not Specified |
| **Software Revision of GSM Module:** | Not Specified |
| **FCC ID Number:** | PY7PM-0200 |
| **Industry Canada Number:** | 4170B-PM-0200 |
| **Country of Manufacture:** | China |
| **Date of Receipt:** | 16 May 2012 |

**Note(s):**

This sample was used to perform WWAN Head SAR evaluation measurements on all bands. The sample supports simultaneous transmission with the WWAN and WLAN antenna > 5 cm apart. Wireless Personal Hotspot is also supported and was evaluated as per KDB 941225 D06 "Hot Spot SAR v01"

| | |
|---|---|
| **Description:** | Mobile Handset |
| **Brand Name:** | Sony |
| **Model Name or Number:** | LT28h |
| **Type Number:** | PM-0200-BV |
| **Serial Number:** | CB5A1K2482 |
| **IMEI Number:** | 00440214-574152-0 |
| **Hardware Version Number:** | AP1 |
| **Software Version Number:** | 6.1.E.0.51 |
| **Hardware Revision of GSM Module:** | Not Specified |
| **Software Revision of GSM Module:** | Not Specified |
| **FCC ID Number:** | PY7PM-0200 |
| **Industry Canada Number:** | 4170B-PM-0200 |
| **Country of Manufacture:** | China |
| **Date of Receipt:** | 16 May 2012 |

**Note(s):**

This sample was used to perform WWAN Body SAR evaluation measurements on all bands. The sample supports simultaneous transmission with the WWAN and WLAN antenna > 5 cm apart. Wireless Personal Hotspot is also supported and was evaluated as per KDB 941225 D06 "Hot Spot SAR v01"

| Identification of Equipment Under Test (EUT) (Continued); | |
|---|---|
| **Description:** | Mobile Handset |
| **Brand Name:** | Sony |
| **Model Name or Number:** | LT28h |
| **Type Number:** | PM-0200-BV |
| **Serial Number:** | CB5A1K241S |
| **IMEI Number:** | 00440214-574546-3 |
| **Hardware Version Number:** | AP1 |
| **Software Version Number:** | ETS |
| **Hardware Revision of GSM Module:** | Not Specified |
| **Software Revision of GSM Module:** | Not Specified |
| **FCC ID Number:** | PY7PM-0200 |
| **Industry Canada Number:** | 4170B-PM-0200 |
| **Country of Manufacture:** | China |
| **Date of Receipt:** | 16 May 2012 |

**Note(s):**

This sample was used to perform WLAN SAR Head evaluation measurements only. The sample supports simultaneous transmission with the WWAN and WLAN antenna > 5 cm apart. Wireless Personal Hotspot is also supported and was evaluated as per KDB 941225 D06 "Hot Spot SAR v01"

| | |
|---|---|
| **Description:** | Mobile Handset |
| **Brand Name:** | Sony |
| **Model Name or Number:** | LT28h |
| **Type Number:** | PM-0200-BV |
| **Serial Number:** | CB5A1K23SB |
| **IMEI Number:** | 00440214-574541-4 |
| **Hardware Version Number:** | AP1 |
| **Software Version Number:** | ETS |
| **Hardware Revision of GSM Module:** | Not Specified |
| **Software Revision of GSM Module:** | Not Specified |
| **FCC ID Number:** | PY7PM-0200 |
| **Industry Canada Number:** | 4170B-PM-0200 |
| **Country of Manufacture:** | China |
| **Date of Receipt:** | 16 May 2012 |

**Note(s):**

This sample was used to perform WLAN SAR Body evaluation measurements only. The sample supports simultaneous transmission with the WWAN and WLAN antenna > 5 cm apart. Wireless Personal Hotspot is also supported and was evaluated as per KDB 941225 D06 "Hot Spot SAR v01"

| Identification of Equipment Under Test (EUT) (Continued): | |
|---|---|
| **Description:** | Mobile Handset |
| **Brand Name:** | Sony |
| **Model Name or Number:** | LT28h |
| **Type Number:** | PM-0200-BV |
| **Serial Number:** | CB5A1K247Z |
| **IMEI Number:** | 00440214-574168-6 |
| **Hardware Version Number:** | AP1 |
| **Software Version Number:** | 6.1.E.0.51 |
| **Hardware Revision of GSM Module:** | Not Specified |
| **Software Revision of GSM Module:** | Not Specified |
| **FCC ID Number:** | PY7PM-0200 |
| **Industry Canada Number:** | 4170B-PM-0200 |
| **Country of Manufacture:** | China |
| **Date of Receipt:** | 16 May 2012 |

**Note(s):**

This sample was used to perform WWAN conducted power measurements only. The sample supports simultaneous transmission with the WWAN and WLAN antenna > 5 cm apart. Wireless Personal Hotspot is also supported and was evaluated as per KDB 941225 D06 "Hot Spot SAR v01"

| | |
|---|---|
| **Description:** | Mobile Handset |
| **Brand Name:** | Sony |
| **Model Name or Number:** | LT28h |
| **Type Number:** | PM-0200-BV |
| **Serial Number:** | CB5A1K23WE |
| **IMEI Number:** | 00440214-574701-4 |
| **Hardware Version Number:** | AP1 |
| **Software Version Number:** | ETS |
| **Hardware Revision of GSM Module:** | Not Specified |
| **Software Revision of GSM Module:** | Not Specified |
| **FCC ID Number:** | PY7PM-0200 |
| **Industry Canada Number:** | 4170B-PM-0200 |
| **Country of Manufacture:** | China |
| **Date of Receipt:** | 16 May 2012 |

**Note(s):**

This sample was used to perform WLAN conducted power measurements only. The sample supports simultaneous transmission with the WWAN and WLAN antenna > 5 cm apart. Wireless Personal Hotspot is also supported and was evaluated as per KDB 941225 D06 "Hot Spot SAR v01"

## 2.2. Description of EUT

The Equipment Under Test is a Smart Mobile Phone with GSM 2G Quad Band, 3G Penta band and Wi-Fi bands. The EUT has GPRS Class 10 / EDGE Class 10, UMTS FDD I, II, IV, V, VIII With HSPA, WLAN 802.11 b/g/n, *Bluetooth Class 1*, 'Wi-Fi Hotspot' and 'Wi-Fi Hotspot Auto RF Power Reduction' mode capabilities.

## 2.3. Modifications Incorporated in the EUT

EUT (IMEI: 00440214-574177-7) is used for WWAN Head SAR measurements.
EUT (IMEI: 00440214-574152-0) is used for WWAN Body SAR measurements.
EUT (IMEI: 00440214-574546-3) is used for WLAN Head SAR measurements only.
EUT (IMEI: 00440214-574541-4) is used for WLAN Body SAR measurements only.
EUT (IMEI: 00440214-574168-6) is used for WWAN Conducted Power measurements only.
EUT (IMEI: 00440214-574701-4) is used for WLAN Conducted Power measurements only.

## 2.4. Accessories

| | |
|---|---|
| **Description:** | Personal Hands-Free Kit (PHF) |
| **Brand Name:** | Sony |
| **Model Name or Number:** | MH750 |
| **Serial Number:** | 12060C160061850 |
| **Cable Length and Type:** | ~1.2 m |
| **Country of Manufacture:** | None Stated |
| **Connected to Port** | 3.5mm Audio jack and custom type |

| | |
|---|---|
| **Description:** | Memory Card |
| **Brand Name:** | None Stated (Generic) |
| **Model Name or Number:** | None Stated |
| **Serial Number:** | None Stated |
| **Cable Length and Type:** | Not Applicable |
| **Country of Manufacture:** | China |
| **Connected to Port** | Dedicated Micro SD Slot |

## 2.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

| | |
|---|---|
| **Description:** | Wireless Communication Test Set |
| **Brand Name:** | Agilent |
| **Model Name or Number:** | 8960 Series 10 |
| **Serial Number:** | GB46311280 |
| **Cable Length and Type:** | ~4.0m Utiflex Cable |
| **Connected to Port:** | RF (Input / Output) Air Link |

| | |
|---|---|
| **Description:** | Wireless Communication Test Set |
| **Brand Name:** | Agilent |
| **Model Name or Number:** | 8960 Series 10 |
| **Serial Number:** | GB462000666 |
| **Cable Length and Type:** | ~4.0m Utiflex Cable |
| **Connected to Port:** | RF (Input / Output) Air Link |

## 2.6. Additional Information Related to Testing

| | | |
|---|---|---|
| **Equipment Category** | GSM/GPRS/EDGE850, EGSM/GPRS/EDGE900, DCS/GPRS1800, PCS/GPRS/EDGE1900, UMTS FDD I, II, IV, V, VIII, WiFi802.11b/g/n, *Bluetooth*. | |
| **Type of Unit** | Portable Transceiver | |
| **Intended Operating Environment:** | Within GSM, UMTS, Wi-Fi and *Bluetooth* Coverage | |
| **Transmitter Maximum Output Power Characteristics:** | GSM850 | Communication Test Set was configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 5. |
| | PCS1900 | Communication Test Set was configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 0. |
| | UMTS Band II | Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01. |
| | UMTS Band IV | Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01. |
| | UMTS Band V | Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01. |
| | Wi-Fi802.11b/g/n | Communication Test Set was configured to allow the EUT to transmit at a maximum power of up to 17.1 dBm. |
| | Bluetooth | <4 mW |

## Additional Information Related to Testing (Continued):

| | | | |
|---|---|---|---|
| **Transmitter Frequency Range:** | GSM850 | 824 to 849 MHz | |
| | PCS1900 | 1850 to 1910 MHz | |
| | UMTS Band II | 1852 to 1908 MHz | |
| | UMTS Band IV | 1712 to 1753 MHz | |
| | UMTS Band V | 826 to 847 MHz | |
| | Wi-Fi802.11b/g/n | 2412 to 2462 MHz | |
| **Transmitter Frequency Allocation of EUT When Under Test:** | **Channel Number** | **Channel Description** | **Frequency (MHz)** |
| | 128 | Low | 824.2 |
| | 190 | Middle | 836.6 |
| | 251 | High | 848.8 |
| | 512 | Low | 1850.2 |
| | 661 | Middle | 1880.0 |
| | 810 | High | 1909.8 |
| | 9262 | Low | 1852.4 |
| | 9400 | Middle | 1880.0 |
| | 9538 | High | 1907.6 |
| | 1312 | Low | 1712.4 |
| | 1412 | Middle | 1732.4 |
| | 1513 | High | 1752.6 |
| | 4132 | Low | 826.4 |
| | 4183 | Middle | 836.6 |
| | 4233 | High | 846.6 |
| | 1 | Low | 2412.0 |
| | 6 | Middle | 2437.0 |
| | 11 | High | 2462.0 |
| **Modulation(s):** | GMSK (GSM/ GPRS): 217 Hz<br>QPSK(UMTS / HSDPA/HSPA):0Hz<br>DBPSK, CCK (Wi-Fi): 0 Hz | | |
| **Modulation Scheme (Crest Factor):** | GSMK (GSM): 8.3<br>GMSK (GPRS): 4<br>DBPSK, CCK (Wi-Fi): 1<br>QPSK(UMTS FDD / HSDPA): 1 | | |
| **Antenna Type:** | Internal integral | | |
| **Antenna Length:** | Unknown | | |
| **Number of Antenna Positions:** | 2 fixed (WWAN and WLAN/*Bluetooth*) | | |
| **Power Supply Requirement:** | 3.7V | | |
| **Battery Type(s):** | Li-ion | | |

# 3. Test Specification, Methods and Procedures

## 3.1. Test Specification

| | |
|---|---|
| **Reference:** | OET Bulletin 65 Supplement C: (2001-01) |
| **Title:** | Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields. |
| **Purpose of Test:** | To determine whether the equipment met the basic restrictions as defined in OET Bulletin 65 Supplement C: (2001-01) using the SAR averaging method as described in the test specification above. |
| | |
| **Reference:** | RSS-102 Issue 4 March 2010 |
| **Title:** | Radio Frequency (RF) Exposure Compliance of Radio communication Apparatus (All Frequency Bands) |
| **Purpose of Test:** | To determine whether the equipment met the basic restrictions as defined in RSS-102 Issue 4 March 2010 using the SAR averaging method as described in the test specification above. |

## 3.2. Methods and Procedures Reference Documentation

The methods and procedures used were as detailed in:

Federal Communications Commission, “Evaluating compliance with FCC Guidelines for human exposure to radio frequency electromagnetic fields”, OET Bulletin 65 Supplement C, FCC, Washington, D.C, 20554, 2001.

Thomas Schmid, Oliver Egger and Neils Kuster, “Automated E-field scanning system for dosimetric assessments”, IEEE Transaction on microwave theory and techniques,
Vol. 44, pp. 105-113, January 1996.

Neils Kuster, Ralph Kastle and Thomas Schmid, “Dosimetric evaluation of mobile communications equipment with know precision”, IEICE Transactions of communications, Vol. E80-B, No.5, pp. 645-652, May 1997.

EN 62209-1: 2006
Title: Basic standard for the measurement of specific absorption rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz).

EN 62209-2:2010
Human exposure to radio frequency fields from handheld and body mounted wireless communication devices — Human models, instrumentation, and procedures - Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz) (IEC 62209-2:2010)

KDB 248227 D01 "SAR measurements for 802.11a/b/g v01r02”

KDB 447498 D01 “Mobile Portable RF Exposure v04”

KDB 450824 D01 ‘’SAR Prob Cal and Ver Meas v01r01’’

KDB 648474 D01 “SAR Handsets Multi Xmiter and Ant v01r05”

KDB 941225 D01 "SAR test for 3G v02"

KDB 941225 D03 “SAR Test Reduction GSM/GPRS/EDGE v01”

KDB 941225 D06 “Hot Spot SAR v01”

## Methods and Procedures Reference Documentation (Continued)

The version of DASY system used by RFI for SAR measurements is v4.7.

The SAR probe for the DASY v4.4 and higher has a validity of +/- 100 MHz from the spot frequency at which the system is calibrated.

The system validation performed at 900 MHz is valid for 800 MHz to 1000 MHz which covers the 850 MHz band. The probe calibration for SN3814 was performed at the spot frequencies of 750 MHz and 900 MHz. The SAR software selects the conversion factor based on the following attributes; 1. The operating frequency 2. The measured permittivity imported to the software and 3. The measured conductivity imported to the software.

The 900 MHz system check is applicable for the 850 band as this is within 100 MHz of the of the 850 MHz spot frequency.

As per FCC KDB pub 450824 for SAR probe calibration; The following procedures are recommended for DUT measurements at 150 MHz to 3 GHz to minimize probe calibration and tissue dielectric parameter discrepancies. Measurements exceeding 50 % of these intervals, in this case +/- 50 MHz, EUT frequency greater than or equal to 300 MHz, shall apply method 1 of the steps.
1) When the actual tissue dielectric parameters used for probe calibration are available the differences for relative permittivity and conductivity between probe calibration and routine measurements should each be less than or equal to 5 % while also satisfying the required +/- 5 % tolerances in target dielectric parameters.

The simulation liquid used satisfies both 835 MHz and 900 MHz target values for all channels in the GSM850 band. The SAR probe coverage and conversion factor has been calibrated to ensure this condition is met and the appropriate conversion factor is used in the frequency range for up to +/- 100 MHz.

## 3.3. Definition of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the methods & procedures section above. Appendix 1 contains a list of the test equipment used.

## 4. Deviations from the Test Specification

Test was performed as per KDB 248227 D01 "SAR measurements for 802.11a/b/g v01r02", KDB 447498 D01 "Mobile Portable RF Exposure v04", KDB 450824 D01 ''SAR Prob Cal and Ver Meas v01r01'', KDB 648474 D01 "SAR Handsets Multi Xmiter and Ant v01r05", KDB 941225 D01 "SAR test for 3G v02", KDB 941225 D03 "SAR Test Reduction GSM/GPRS/EDGE v01", KDB 941225 D06 "Hot Spot SAR v01", according to the handset procedures in IEEE Std 1528-2003 and OET Bulletin 65 Supplement C 01-01. The assessment for Personal Wireless Hotspot was also evaluated as per the FCC KDB 941225 D06 "Hot Spot SAR v01".

For technologies bands supporting personal hotspot mode, SAR was evaluated on all the sides and surfaces within 25mm of the transmitting antenna (WWAN or WLAN) as per FCC KDB 941225 D06 "Hot Spot SAR v01".

SAR test was performed in the middle channels for WWAN and WLAN. The worst case configuration for both Head and Body test was evaluated in the low and high channels.

Simultaneous transmission was not evaluated as the sum of the individual SAR for WWAN and WLAN was < 1.6 W/kg.

To activate the 'Portable Wi-Fi hotspot' mode, go to the home screen of the EUT.

- Press the '*Applications'* icon on the screen of the device and then tap "*Settings*".
- On the Settings screen, tap the "*Wireless & networks*" option, followed by "*Portable Wi-Fi hotspot*".
- Click the check mark beside it to turn on the hotspot and the EUT starts acting like a wireless access point. (It should also see a message in the notification bar when it's activated.).
- Once '*Portable Wi-Fi Hotspot'* mode is activated, it is active until it is deactivated by the user.

'*Auto RF Power Reduction'* mode facility is available on '*Hotspot Mode Configuration* of UMTS FDD Band IV' only.

Once the 'Portable Wi-Fi hotspot' mode is activated, the 'Auto RF Power Reduction' mode is active. This enables 'Power Back-Off' and the RF power gets reduced on the specific band on which it is supported. This option is available in the device to 'Reduce the RF Power' and to comply with the *Standard* for the measured SAR and conducted power level. Once 'Auto RF Power Reduction' mode is activated, power reduction applies until it is deactivated by the user.

GPRS class10 / uplink setup of 1-uplink and 2-uplink were all evaluated to find the setting with the highest power reference point (unit V/m) as per the DASY4 system. 2-uplink was found to give the highest power reference point measurement on the DASY4 system (unit V/m). All settings were performed with the device in a fixed position Back facing phantom at 0mm separation to ensure there were no positioning errors. The following values were measured relative to the uplink settings:

| GPRS Mode | GPRS850 Power (V/m) | GPRS1900 Power (V/m) |
|---|---|---|
| 1 uplink | 20.35 | 12.63 |
| 2 uplink | 21.69 | 13.11 |

Note: Power reference point measurements are from the DASY4 system and used to check the device power drift although the units are v/m. For informational purpose to ensure the worst case uplink time slot is also verified by the DASY4 SAR system, this was use as per above comment at a fixed point.

# 5. Operation and Configuration of the EUT during Testing

## 5.1. Operating Modes

The EUT was tested in the following operating mode(s) unless otherwise stated:

- GSM850 – Voice allocated mode with Communication Test Set configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 5.
- GPRS850 – Data allocated mode with Communication Test Set configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 5. Tested using 2 Uplink time slots with CS1 for GPRS.
- PCS1900 – Voice allocated mode with Communication Test Set configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 0.
- GPRS1900 – Data allocated mode with Communication Test Set configured to allow the EUT to transmit at a maximum power using Power Control Level (PCL) setting of 0. Tested using 2 Uplink time slots with CS1 for GPRS.

| **GSM850 – Power Table Settings used for Test Set** | |
|---|---|
| Power Control Level PCL | Nominal Power (dBm) |
| 0 … 2 | 39 |
| 3 | 37 |
| 4 | 35 |
| **5** | **33** |
| 6 | 31 |
| 7 | 29 |
| 8 | 27 |
| 9 | 25 |
| 10 | 23 |
| 11 | 21 |
| 12 | 19 |
| 13 | 17 |
| 14 | 15 |
| 15 | 13 |
| 16 | 11 |
| 17 | 9 |
| 18 | 7 |
| 19 ... 31 | 5 |

| **PCS1900 – Power Table Settings used for Test Set** | |
|---|---|
| Power Control Level PCL | Nominal Power (dBm) |
| 22 … 29 | Reserved |
| 30 | 33 |
| 31 | 32 |
| **0** | **30** |
| 1 | 28 |
| 2 | 26 |
| 3 | 24 |
| 4 | 22 |
| 5 | 20 |
| 6 | 18 |
| 7 | 16 |
| 8 | 14 |
| 9 | 12 |
| 10 | 10 |
| 11 | 8 |
| 12 | 6 |
| 13 | 4 |
| 14 | 2 |
| 15 | 0 |
| 16 … 21 | Reserved |

- UMTS FDD II, IV, V Call allocated mode with Communication Test Set configured to allow the EUT to transmit at a maximum as per KDB 941225 D01.
- UMTS FDD II, IV, V - RMC 12.2kbps + HSUPA With Test loop mode 1 and TPC bits configured to all "1's", Sub-test 5, AG Index set to 21 and E-TFCI set to 81 with Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01.
- UMTS FDD II, IV, V - RMC 12.2kbps + HSDPA With Test loop mode 1 and TPC bits configured to all "1's", Sub-test 1 with Communication Test Set configured to allow to EUT to transmit at a maximum power as per KDB 941225 D01.
- 2.4 GHz Wi-Fi802.11b/g/n Data allocated mode using 'HyperTerminal' software to excise mode ‘a’ ‘b’, ‘g’ and ‘n’, with maximum power of up to 17.1 dBm for ‘b’ mode and 14.3 dBm for ‘g’ and 12.9 dBm for ‘n’ modes

## 5.2. Configuration and Peripherals

The EUT was tested in the following configuration(s) unless otherwise stated:

- Standalone fully charged battery powered.
- Head, Hotspot-Mode and Body-worn configurations were evaluated.
- The applied FCC body-worn Personal Hotspot orientations where the corresponding edge(s) closest to the user with the most conservative exposure condition were all evaluated at 10 mm from the body. For configuration that did not overlap with Personal hotspot, SAR evaluation was performed at 15mm separation.
- GPRS class 10-uplink setup of 1-uplink and 2-uplink were evaluated to find the setting with the highest power reference measurements. 2-uplink was found to give the highest power reference measurement on the DASY4 system. All settings were performed with the device in a fixed position 'Back facing phantom' at 0mm separation to ensure there were no positioning errors.
- GSM, GPRS and EDGE power measurement were all measured as per FCC pubs. 941225 D03 and 941225 D04. Although power reduction was allowed SAR test was performed on GPRS using GMSK. Test reduction was applied to EDGE using GMSK and 8PSK modulation scheme.

**Head Configuration**

a) The EUT was placed in a normal operating position with the centre of the ear-piece aligned with the ear canal on the phantom.

b) With the ear-piece touching the phantom the centre line of the EUT was aligned with an imaginary plane (X and Y axis) consisting of three lines connecting both ears and the mouth.

c) For the cheek position the EUT was gradually moved towards the cheek until any point of the mouth-piece or keypad touched the cheek.

d) For the tilted position the EUT was positioned as for the cheek position, and then the horizontal angle was increased by fifteen degrees (the phone keypad was moved away from the cheek by fifteen degrees).

e) SAR measurements were evaluated at maximum power and the unit was operated for an appropriate period prior to the evaluation in order to minimise the drift.

f) The device was keyed to operate continuously in the transmit mode for the duration of the test.

g) The location of the maximum spatial SAR distribution (hot spot) was determined relative to the EUT and its antenna.

h) The EUT was transmitting at full power throughout the duration of the test powered by a fully charged battery.

**Body Configuration**

a) The EUT was placed in a normal operating position where the centre of EUT was aligned with the centre reference point on the flat section of the 'SAM' phantom.

b) With the EUT touching the phantom at an imaginary centre line. The EUT was aligned with a marked plane (X and Y axis) consisting of two lines.

c) For the touch-safe position the EUT was gradually moved towards the flat section of the 'SAM' phantom until any point of the EUT touched the phantom.

d) For position(s) greater then 0mm separation the EUT was positioned as per the touch-safe position, and then the vertical height was decreased/adjusted as required.

e) SAR measurements were evaluated at maximum power and the unit was operated for an appropriate period prior to the evaluation in order to minimise the drift.

f) The device was keyed to operate continuously in the transmit mode for the duration of the test.

g) The location of the maximum spatial SAR distribution (hot spot) was determined relative to the EUT and its antenna.

h) The EUT was transmitting at full power throughout the duration of the test powered by a fully charged battery.

## 6. Summary of Test Results

| Test Name | Specification Reference | Result |
|---|---|---|
| Specific Absorption Rate-GSM 850 Head Configuration 1g Power Back-Off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-GPRS 850 Hotspot Mode Configuration 1g Power Back-Off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-GSM 850 Body-Worn Configuration 1g Power Back-Off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-PCS 1900 Head Configuration 1g Power Back-Off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-GPRS 1900 Hotspot Mode Configuration 1g Power Back-Off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-PCS 1900 Body-Worn Configuration 1g Power Back-Off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-UMTS-FDD II Head Configuration 1g Power Back-Off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-UMTS-FDD II Hotspot Mode Configuration 1g Power Back-off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-UMTS-FDD II Body-worn Configuration 1gPower Back-off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-UMTS-FDD IV Head Configuration 1g Power Back-Off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-UMTS-FDD IV Hotspot Mode Configuration 1g Power Back-off Enabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-UMTS-FDD IV Body-Worn Configuration 1g Power Back-off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-UMTS-FDD V Head Configuration 1g Power Back-Off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-UMTS-FDD V Hotspot Mode Configuration 1g Power Back-Off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-UMTS-FDD V Body-Worn Configuration 1g Power Back-Off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-Wi-Fi 2450 Head Configuration 1g Power Back-Off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |
| Specific Absorption Rate-Wi-Fi 2450 Hotspot Mode Configuration 1g Power Back-Off Disabled | OET Bulletin 65 Supplement C: (2001-01) RSS-102 Issue 4 March 2010 | Complied |

## Summary of Test Results (Continued)

**SAR Individual Transmitter Evaluation**

| device, mode | Frequency, (MHz) | Phantom Configuration | $P_x$ (mW) | $P_{REF}$ (mW) | single SAR, W/kg | Remarks |
|---|---|---|---|---|---|---|
| WWAN, GSM | 850 | Back | 363 | 60/f | 0.908 | Routine Evaluation |
| WWAN, GSM | 1900 | Back | 191 | 60/f | 0.733 | Routine Evaluation |
| WWAN, UMTS | 850 | Right edge | 295 | 60/f | 1.420 | Routine Evaluation |
| WWAN, UMTS | 1800 | Back | 182 | 60/f | 1.360 | Routine Evaluation |
| WWAN, UMTS | 1900 | Back | 214 | 60/f | 1.220 | Routine Evaluation |
| WLAN, WiFi802.11b | 2450 | Touch Right | 52 | 60/f | 0.632 | Routine Evaluation |
| BT, *Bluetooth* | 2400 | N/A | ~ 4 | 12 | :=0 | {PBT ≤ 2PREF} {dWWAN, BT > 5cm} |

## Note(s):

1. Simultaneous transmission was not evaluated as the sum of the individual SAR for WWAN and WLAN was < 1.6 W/kg.
2. *Bluetooth* transmitter thresholds output power "$P_{Ref}$ = 12 mW as listed in KDB 648474.
3. $P_x$: power level measured by RFI.
4. Single SAR value measured by RFI.
5. The "Antenna-to-Antenna distance and Antenna-to-User distance were provided by the customer.

**SAR Simultaneous Transmitter Evaluation**

| (x,y) | D(x,y) cm | L(x,y) cm | $SPLSR_{xy}$ | Sim-Tx SAR | Remarks |
|---|---|---|---|---|---|
| ($WWAN_{WWAN}$, BT) | >5 | N/A | N/A | N/A | {no stand-alone SAR for BT} |
| ($WWAN_{WWAN}$, Wi-Fi) | >5 | N/A | N/A | N/A | {D(x,y) > 5 } & {$\Sigma_{WWAN, WLAN}$ < 1.6 W/kg} |

## Simultaneous Transmission SAR Analysis

### Head Configuration 1g

| | Measured SAR 1g (W/Kg) | | | | | | |
|---|---|---|---|---|---|---|---|
| | WWAN | | | | | WLAN | Sum of WWAN & WLAN |
| EUT Position | GSM850 | PCS1900 | UMTS FDD II | UMTS FDD IV | UMTS FDD V | Wi-Fi 2.4 GHz | |
| Touch Left | 0.425 | | | | | 0.290 | 0.715 |
| Touch Right | 0.561 | | | | | 0.632 | 1.193 |
| Touch Left | | 0.673 | | | | 0.290 | 0.963 |
| Touch Right | | 0.373 | | | | 0.632 | 1.005 |
| Touch Left | | | 1.050 | | | 0.290 | 1.340 |
| Touch Right | | | 0.527 | | | 0.632 | 1.159 |
| Touch Left | | | | 1.080 | | 0.290 | **1.370** |
| Touch Right | | | | 0.563 | | 0.632 | 1.195 |
| Touch Left | | | | | 0.530 | 0.290 | 0.820 |
| Touch Right | | | | | 0.580 | 0.632 | 1.212 |

### Note(s):

1. Simultaneous transmission was not evaluated as the sum of the individual SAR for WWAN and WLAN was < 1.6 W/kg.

## Simultaneous Transmission SAR Analysis (Continued)

### Hotspot Mode Configuration 1g

| | Measured SAR 1g (W/Kg) | | | | | | |
|---|---|---|---|---|---|---|---|
| | WWAN | | | | | WLAN | Sum of WWAN & WLAN |
| EUT Position | GSM850 | PCS1900 | UMTS FDD II | UMTS FDD IV | UMTS FDD V | Wi-Fi 2.4 GHz | |
| Front | 0.668 | | | | | 0.100 | 0.768 |
| Back | 0.908 | | | | | 0.099 | 1.007 |
| Left Hand Side | 0.281 | | | | | 0.066 | 0.347 |
| Right Hand Side | 0.340 | | | | | 0.015 | 0.355 |
| Bottom | 0.114 | | | | | | 0.114 |
| Top | | | | | | 0.232 | 0.232 |
| Front | | 0.490 | | | | 0.100 | 0.590 |
| Back | | 0.733 | | | | 0.099 | 0.832 |
| Left Hand Side | | 0.642 | | | | 0.066 | 0.708 |
| Right Hand Side | | 0.152 | | | | 0.015 | 0.167 |
| Bottom | | 0.214 | | | | | 0.214 |
| Top | | | | | | 0.232 | 0.232 |
| Front | | | 0.740 | | | 0.100 | 0.840 |
| Back | | | 1.220 | | | 0.099 | 1.319 |
| Left Hand Side | | | 0.986 | | | 0.066 | 1.052 |
| Right Hand Side | | | 0.195 | | | 0.015 | 0.210 |
| Bottom | | | 0.301 | | | | 0.301 |
| Top | | | | | | 0.232 | 0.232 |
| Front | | | | 0.826 | | 0.100 | 0.926 |
| Back | | | | 1.360 | | 0.099 | **1.459** |
| Left Hand Side | | | | 0.846 | | 0.066 | 0.912 |
| Right Hand Side | | | | 0.086 | | 0.015 | 0.101 |
| Bottom | | | | 0.411 | | | 0.411 |
| Top | | | | | | 0.232 | 0.232 |
| Front | | | | | 0.732 | 0.100 | 0.832 |
| Back | | | | | 0.882 | 0.099 | 0.981 |
| Left Hand Side | | | | | 1.360 | 0.066 | 1.426 |
| Right Hand Side | | | | | 1.420 | 0.015 | 1.435 |
| Bottom | | | | | 0.169 | | 0.169 |
| Top | | | | | | 0.232 | 0.232 |

**Note(s):**

1. Simultaneous transmission was not evaluated as the sum of the individual SAR for WWAN and WLAN was < 1.6 W/kg.

## 6.1. Location of Tests

All the measurements described in this report were performed at the premises of
RFI Global Services Ltd, Pavilion A, Ashwood Park, Ashwood Way, Basingstoke, Hampshire, RG23 8BG United Kingdom

# 7. Measurements, Examinations and Derived Results

## 7.1. General Comments

This section contains test results only.

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to section 8 for details of measurement uncertainties.

## 7.2. Test Results

**For All SAR measurement in this report the SAR limit tested to is 1.6 W/kg**

### 7.2.1.Specific Absorption Rate - GSM 850 Head Configuration 1g Power Back-off Disabled Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 0.561 |
| **Environmental Conditions:** | |
| **Temperature Variation in Lab (°C):** | 23.0 to 23.0 |
| **Temperature Variation in Liquid (°C):** | 22.2 to 22.2 |

**Results:**

| EUT Position | Phantom Configuration | Channel Number | Uplink Meas. Burst Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Touch | Left | 190 | 25.2 | N/A | 0.425 | 1 | GMSK |
| Tilt | Left | 190 | 25.2 | N/A | 0.276 | 1 | GMSK |
| Touch | Right | 190 | 25.2 | N/A | 0.459 | 1 | GMSK |
| Tilt | Right | 190 | 25.2 | N/A | 0.274 | 1 | GMSK |
| Touch | Right | 128 | 25.1 | N/A | 0.372 | 1 | GMSK |
| Touch | Right | 251 | 25.1 | N/A | 0.561 | 1 | GMSK |

**Note(s):**

1. Voice

| Specific Absorption Rate - GPRS 850 Hotspot Mode Configuration 1g<br>Power Back-off Disabled<br>Test Summary: | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 0.908 |
| **Environmental Conditions:** | |
| **Temperature Variation in Lab (°C):** | 24.0 to 24.0 |
| **Temperature Variation in Liquid (°C):** | 23.1 to 23.1 |

**Results:**

| EUT Position | Phantom Configuration | Channel Number | Uplink Meas. Burst Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Front of EUT Facing Phantom | Flat (SAM) | 190 | 25.8 | N/A | 0.668 | 1, 2 | GMSK |
| Back of EUT Facing Phantom | Flat (SAM) | 190 | 25.8 | N/A | 0.791 | 1, 2 | GMSK |
| Left Hand Side of EUT Facing Phantom | Flat (SAM) | 190 | 25.8 | N/A | 0.281 | 1, 2 | GMSK |
| Right Hand Side of EUT Facing Phantom | Flat (SAM) | 190 | 25.8 | N/A | 0.340 | 1, 2 | GMSK |
| Bottom of EUT Facing Phantom | Flat (SAM) | 190 | 25.8 | N/A | 0.114 | 1, 2 | GMSK |
| Back of EUT Facing Phantom | Flat (SAM) | 128 | 25.6 | N/A | 0.908 | 1, 2 | GMSK |
| Back of EUT Facing Phantom | Flat (SAM) | 251 | 25.8 | N/A | 0.833 | 1, 2 | GMSK |

**Note(s):**

1. Data- SAR measurements were performed using 2 uplink timeslots.
2. EUT supports Hotspot: As per FCC KDB procedure SAR measurements were performed with the EUT at a separation distance of 10mm from the 'SAM' phantom flat section.

*KDB 941225 - SAR is not required for EDGE technology when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding GPRS channels.

### 7.2.2.Specific Absorption Rate - GSM 850 Body-Worn Configuration 1g Power Back-off Disabled Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 0.642 |

### Environmental Conditions:

| | |
|---|---|
| **Temperature Variation in Lab (°C):** | 24.0 to 24.0 |
| **Temperature Variation in Liquid (°C):** | 23.1 to 23.1 |

### Results:

| EUT Position | Phantom Configuration | Channel Number | Uplink Meas. Burst Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Back of EUT Facing Phantom | Flat (SAM) | 190 | 25.2 | N/A | 0.615 | 1, 2 | GMSK |
| Back of EUT Facing Phantom With PHF | Flat (SAM) | 190 | 25.2 | N/A | 0.642 | 1, 2, 3 | GMSK |

### Note(s):

1. Voice- Back of EUT is worst case configuration of GPRS hotspot mode and is applied to GSM Body-worn.
2. SAR measurements were performed with the closest edge of the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.
3. Personal Hands-Free Kit attached, using the worst-case configuration acquired.

### 7.2.3.Specific Absorption Rate - PCS 1900 Head Configuration 1g Power Back-off Disabled Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 0.673 |

### Environmental Conditions:

| | |
|---|---|
| **Temperature Variation in Lab (°C):** | 23.0 to 23.0 |
| **Temperature Variation in Liquid (°C):** | 22.5 to 22.5 |

### Results:

| EUT Position | Phantom Configuration | Channel Number | Uplink Meas. Burst Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Touch | Left | 661 | 22.6 | N/A | 0.673 | 1 | GMSK |
| Tilt | Left | 661 | 22.6 | N/A | 0.261 | 1 | GMSK |
| Touch | Right | 661 | 22.6 | N/A | 0.373 | 1 | GMSK |
| Tilt | Right | 661 | 22.6 | N/A | 0.213 | 1 | GMSK |
| Touch | Left | 512 | 22.6 | N/A | 0.657 | 1 | GMSK |
| Touch | Left | 810 | 22.5 | N/A | 0.617 | 1 | GMSK |

### Note(s):

1. Voice

### 7.2.4.Specific Absorption Rate - GPRS 1900 Hotspot Mode Configuration 1g Power Back-off Disabled
### Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 0.733 |
| **Environmental Conditions:** | |
| **Temperature Variation in Lab (°C):** | 23.0 to 23.0 |
| **Temperature Variation in Liquid (°C):** | 20.9 to 20.9 |

**Results:**

| EUT Position | Phantom Configuration | Channel Number | Uplink Meas. Burst Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Front of EUT Facing Phantom | Flat (SAM) | 661 | 22.8 | N/A | 0.490 | 1, 2 | GMSK |
| Back of EUT Facing Phantom | Flat (SAM) | 661 | 22.8 | N/A | 0.733 | 1, 2 | GMSK |
| Left Hand Side of EUT Facing Phantom | Flat (SAM) | 661 | 22.8 | N/A | 0.642 | 1, 2 | GMSK |
| Right Hand Side of EUT Facing Phantom | Flat (SAM) | 661 | 22.8 | N/A | 0.152 | 1, 2 | GMSK |
| Bottom of EUT Facing Phantom | Flat (SAM) | 661 | 22.8 | N/A | 0.214 | 1, 2 | GMSK |
| Back of EUT Facing Phantom | Flat (SAM) | 512 | 22.7 | N/A | 0.585 | 1, 2 | GMSK |
| Back of EUT Facing Phantom | Flat (SAM) | 810 | 22.8 | N/A | 0.619 | 1, 2 | GMSK |

**Note(s):**

1. Data- SAR measurements were performed using 2 uplink timeslots.
2. EUT supports Hotspot: As per FCC KDB procedure SAR measurements were performed with the EUT at a separation distance of 10mm from the 'SAM' phantom flat section.

*KDB 941225 - SAR is not required for EDGE technology when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding GPRS channels.

### 7.2.5.Specific Absorption Rate - PCS 1900 Body-Worn Configuration 1g Power Back-off Disabled Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 0.442 |

### Environmental Conditions:

| | |
|---|---|
| **Temperature Variation in Lab (°C):** | 23.0 to 23.0 |
| **Temperature Variation in Liquid (°C):** | 20.9 to 20.9 |

### Results:

| EUT Position | Phantom Configuration | Channel Number | Uplink Meas. Burst Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Back of EUT Facing Phantom | Flat (SAM) | 661 | 22.6 | N/A | 0.433 | 1, 2 | GMSK |
| Back of EUT Facing Phantom With PHF | Flat (SAM) | 661 | 22.6 | N/A | 0.442 | 1, 2, 3 | GMSK |

### Note(s):

1. Voice- Back of EUT is worst case configuration of GPRS hotspot mode and is applied to GSM Body-worn.
2. SAR measurements were performed with the closest edge of the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.
3. Personal Hands-Free Kit attached, using the worst-case configuration acquired.

## 7.2.6.Specific Absorption Rate - UMTS-FDD II Head Configuration 1g Power Back-off Disabled Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 1.050 |
| **Environmental Conditions:** | |
| **Temperature Variation in Lab (°C):** | 23.0 to 23.0 |
| **Temperature Variation in Liquid (°C):** | 21.7 to 21.7 |

**Results:**

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Touch | Left | 9400 | 23.2 | N/A | 1.020 | 1 | QPSK |
| Touch | Left | 9262 | 23.2 | N/A | 1.050 | 1 | QPSK |
| Touch | Left | 9538 | 23.3 | N/A | 1.020 | 1 | QPSK |
| Tilt | Left | 9400 | 23.2 | N/A | 0.399 | 1 | QPSK |
| Touch | Right | 9400 | 23.2 | N/A | 0.527 | 1 | QPSK |
| Tilt | Right | 9400 | 23.2 | N/A | 0.338 | 1 | QPSK |

**Note(s):**

1. Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"

### 7.2.7.Specific Absorption Rate - UMTS-FDD II Hotspot Mode Configuration 1g Power Back-off Disabled
### Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 1.220 |

### Environmental Conditions:

| | |
|---|---|
| **Temperature Variation in Lab (°C):** | 23.0 to 23.0 |
| **Temperature Variation in Liquid (°C):** | 21.9 to 21.9 |

### Results:

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Front of EUT Facing Phantom | Flat (SAM) | 9400 | 23.2 | N/A | 0.740 | 1, 2 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 9400 | 23.2 | N/A | 1.170 | 1, 2 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 9262 | 23.2 | N/A | 1.210 | 1, 2 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 9538 | 23.3 | N/A | 1.220 | 1, 2 | QPSK |
| Left Hand Side of EUT Facing Phantom | Flat (SAM) | 9400 | 23.2 | N/A | 0.809 | 1, 2 | QPSK |
| Left Hand Side of EUT Facing Phantom | Flat (SAM) | 9262 | 23.2 | N/A | 0.894 | 1, 2 | QPSK |
| Left Hand Side of EUT Facing Phantom | Flat (SAM) | 9538 | 23.2 | N/A | 0.986 | 1, 2 | QPSK |
| Right Hand Side of EUT Facing Phantom | Flat (SAM) | 9400 | 23.2 | N/A | 0.195 | 1, 2 | QPSK |

**Specific Absorption Rate - UMTS-FDD II Hotspot Mode Configuration 1g (Continued): Power Back-off Disabled**
**Results:**

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Bottom of EUT Facing Phantom | Flat (SAM) | 9400 | 23.2 | N/A | 0.301 | 1, 2 | QPSK |

**Note(s):**

1. Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
2. SAR measurements were performed with the closest edge of the EUT at a separation distance of 10mm from the 'SAM' phantom flat section.

*KDB 941225 - SAR is not required for RMC+HSPA (HSDPA/HSUPA) channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding RMC channels.

### 7.2.8.Specific Absorption Rate - UMTS-FDD II Body-Worn Configuration 1g Power Back-off Disabled Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 0.711 |

### Environmental Conditions:

| | |
|---|---|
| **Temperature Variation in Lab (°C):** | 23.0 to 23.0 |
| **Temperature Variation in Liquid (°C):** | 21.9 to 21.9 |

### Results:

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Back of EUT Facing Phantom | Flat (SAM) | 9400 | 23.2 | N/A | 0.682 | 1, 2, 3 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 9262 | 23.2 | N/A | 0.680 | 1, 2, 3 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 9538 | 23.3 | N/A | 0.704 | 1, 2, 3 | QPSK |
| Back of EUT Facing Phantom With PHF | Flat (SAM) | 9538 | 23.2 | N/A | 0.711 | 1, 2, 3, 4 | QPSK |

### Note(s):

1. Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
2. Back of EUT, is worst case configuration from Hotspot mode and used for Body-worn Configuration.
3. SAR measurements were performed with the closest edge of the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.
4. Personal Hands-Free Kit attached, using the worst-case configuration acquired.

*KDB 941225 - SAR is not required for RMC+HSPA (HSDPA/HSUPA) channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding RMC channels.

### 7.2.9.Specific Absorption Rate - UMTS-FDD IV Head Configuration 1g Power Back-off Disabled Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 1.080 |

### Environmental Conditions:

| | |
|---|---|
| **Temperature Variation in Lab (°C):** | 23.0 to 23.0 |
| **Temperature Variation in Liquid (°C):** | 22.5 to 22.5 |

### Results:

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Touch | Left | 1412 | 24.1 | N/A | 1.060 | 1 | QPSK |
| Touch | Left | 1312 | 24.0 | N/A | 0.811 | 1 | QPSK |
| Touch | Left | 1513 | 24.2 | N/A | 1.080 | 1 | QPSK |
| Tilt | Left | 1412 | 24.1 | N/A | 0.382 | 1 | QPSK |
| Touch | Right | 1412 | 24.1 | N/A | 0.563 | 1 | QPSK |
| Tilt | Right | 1412 | 24.1 | N/A | 0.345 | 1 | QPSK |

### Note(s):

1. Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"

## 7.2.10.Specific Absorption Rate - UMTS-FDD IV Hotspot Mode Configuration 1g Power Back-off Enabled
## Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 1.360 |

### Environmental Conditions:

| | |
|---|---|
| **Temperature Variation in Lab (°C):** | 24.0 to 24.0 |
| **Temperature Variation in Liquid (°C):** | 23.0 to 23.0 |

### Results:

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Front of EUT Facing Phantom | Flat (SAM) | 1412 | 24.1 | 1.4 | 0.826 | 1, 2 | QPSK |
| Front of EUT Facing Phantom | Flat (SAM) | 1312 | 24.0 | 1.5 | 0.751 | 1, 2 | QPSK |
| Front of EUT Facing Phantom | Flat (SAM) | 1513 | 24.2 | 1.6 | 0.774 | 1, 2 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 1412 | 24.1 | 1.4 | 1.270 | 1, 2 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 1312 | 24.0 | 1.5 | 1.060 | 1, 2 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 1513 | 24.2 | 1.6 | 1.360 | 1, 2 | QPSK |
| Left Hand Side of EUT Facing Phantom | Flat (SAM) | 1412 | 24.1 | 1.4 | 0.807 | 1, 2 | QPSK |
| Left Hand Side of EUT Facing Phantom | Flat (SAM) | 1312 | 24.0 | 1.5 | 0.622 | 1, 2 | QPSK |
| Left Hand Side of EUT Facing Phantom | Flat (SAM) | 1513 | 24.2 | 1.6 | 0.846 | 1, 2 | QPSK |
| Right Hand Side of EUT Facing Phantom | Flat (SAM) | 1412 | 24.1 | 1.4 | 0.086 | 1, 2 | QPSK |

**Specific Absorption Rate - UMTS-FDD IV Hotspot Mode Configuration 1g (Continued): Power Back-off Enabled**
**Results:**

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Bottom of EUT Facing Phantom | Flat (SAM) | 1412 | 24.1 | 1.4 | 0.411 | 1, 2 | QPSK |

**Note(s):**

1. Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
2. SAR measurements were performed with the closest edge of the EUT at a separation distance of 10mm from the 'SAM' phantom flat section.

*KDB 941225 - SAR is not required for RMC+HSPA (HSDPA/HSUPA) channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding RMC channels.

## 7.2.11.Specific Absorption Rate - UMTS-FDD IV Body-Worn Configuration 1g Power Back-off Disabled Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 0.941 |

### Environmental Conditions:

| | |
|---|---|
| **Temperature Variation in Lab (°C):** | 24.0 to 24.0 |
| **Temperature Variation in Liquid (°C):** | 22.0 to 22.0 |

### Results:

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Back of EUT Facing Phantom | Flat (SAM) | 1412 | 24.1 | N/A | 0.926 | 1, 2, 3 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 1312 | 24.0 | N/A | 0.786 | 1, 2, 3 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 1513 | 24.2 | N/A | 0.941 | 1, 2, 3 | QPSK |
| Back of EUT Facing Phantom With PHF | Flat(SAM) | 1513 | 24.2 | N/A | 0.967 | 1, 2, 3, 4 | QPSK |

### Note(s):

1. Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
2. Back of EUT, is worst case configuration from Hotspot mode and used for Body-worn Configuration.
3. SAR measurements were performed with the closest edge of the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.
4. Personal Hands-Free Kit attached, using the worst-case configuration acquired.

*KDB 941225 - SAR is not required for RMC+HSPA (HSDPA/HSUPA) channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding RMC channels.

### 7.2.12.Specific Absorption Rate - UMTS-FDD V Head Configuration 1g Power Back-off Disabled Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 0.580 |

### Environmental Conditions:

| | |
|---|---|
| **Temperature Variation in Lab (°C):** | 24.0 to 24.0 |
| **Temperature Variation in Liquid (°C):** | 23.0 to 23.0 |

### Results:

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Touch | Left | 4183 | 24.7 | N/A | 0.530 | 1 | QPSK |
| Tilt | Left | 4183 | 24.7 | N/A | 0.380 | 1 | QPSK |
| Touch | Right | 4183 | 24.7 | N/A | 0.558 | 1 | QPSK |
| Tilt | Right | 4183 | 24.7 | N/A | 0.293 | 1 | QPSK |
| Touch | Right | 4132 | 24.5 | N/A | 0.524 | 1 | QPSK |
| Touch | Right | 4233 | 24.6 | N/A | 0.580 | 1 | QPSK |

### Note(s):

1. Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"

### 7.2.13.Specific Absorption Rate - UMTS-FDD V Hotspot Mode Configuration 1g Power Back-off Disabled
### Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 1.420 |

### Environmental Conditions:

| | |
|---|---|
| **Temperature Variation in Lab (°C):** | 24.0 to 24.0 |
| **Temperature Variation in Liquid (°C):** | 22.5 to 22.5 |

### Results:

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Front of EUT Facing Phantom | Flat (SAM) | 4183 | 24.7 | N/A | 0.732 | 1, 2 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 4183 | 24.7 | N/A | 0.882 | 1, 2 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 4132 | 24.5 | N/A | 0.808 | 1, 2 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 4233 | 24.6 | N/A | 0.870 | 1, 2 | QPSK |
| Left Hand Side of EUT Facing Phantom | Flat (SAM) | 4183 | 24.7 | N/A | 1.280 | 1, 2 | QPSK |
| Left Hand Side of EUT Facing Phantom | Flat (SAM) | 4132 | 24.5 | N/A | 1.360 | 1, 2 | QPSK |
| Left Hand Side of EUT Facing Phantom | Flat (SAM) | 4233 | 24.6 | N/A | 1.250 | 1, 2 | QPSK |
| Right Hand Side of EUT Facing Phantom | Flat (SAM) | 4183 | 24.7 | N/A | 1.420 | 1, 2 | QPSK |
| Right Hand Side of EUT Facing Phantom | Flat (SAM) | 4132 | 24.7 | N/A | 1.380 | 1, 2 | QPSK |
| Right Hand Side of EUT Facing Phantom | Flat (SAM) | 4233 | 24.6 | N/A | 1.270 | 1, 2 | QPSK |

**Specific Absorption Rate - UMTS-FDD V Hotspot Mode Configuration 1g (Continued): Power Back-off Disabled**
**Results:**

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm)) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Bottom of EUT Facing Phantom | Flat (SAM) | 4183 | 24.7 | N/A | 0.169 | 1, 2 | QPSK |

**Note(s):**

1. Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
2. SAR measurements were performed with the closest edge of the EUT at a separation distance of 10mm from the 'SAM' phantom flat section.

*KDB 941225 - SAR is not required for RMC+HSPA (HSDPA/HSUPA) channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding RMC channels..

## 7.2.14.Specific Absorption Rate - UMTS-FDD V Body-Worn Configuration 1g Power Back-off Disabled

### Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 0.732 |

### Environmental Conditions:

| | |
|---|---|
| **Temperature Variation in Lab (°C):** | 24.0 to 24.0 |
| **Temperature Variation in Liquid (°C):** | 22.5 to 22.5 |

### Results:

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Back of EUT Facing Phantom | Flat (SAM) | 4183 | 24.7 | N/A | 0.678 | 1, 2, 3 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 4132 | 24.5 | N/A | 0.655 | 1, 2, 3 | QPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 4233 | 24.6 | N/A | 0.652 | 1, 2, 3 | QPSK |
| Back of EUT Facing Phantom With PHF | Flat (SAM) | 4183 | 24.7 | N/A | 0.732 | 1, 2, 3, 4 | QPSK |

### Note(s):

1. Circuit Switch (CS) - RMC 12.2kbps with Test loop mode 1 and TPC bits configured to All "1's"
2. Back of EUT, is worst case configuration from Hotspot mode and used for Body-worn Configuration.
3. SAR measurements were performed with the closest edge of the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.
4. Personal Hands-Free Kit attached, using the worst-case configuration acquired.

*KDB 941225 - SAR is not required for RMC+HSPA (HSDPA/HSUPA) channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding RMC channels.

## 7.2.15.Specific Absorption Rate - Wi-Fi 2450 Head Configuration 1g Power Back-off Disabled Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 0.632 |
| **Environmental Conditions:** | |
| **Temperature Variation in Lab (°C):** | 24.0 to 24.0 |
| **Temperature Variation in Liquid (°C):** | 23.0 to 23.0 |

**Results:**

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Touch | Left | 6 | 17.1 | N/A | 0.290 | 1 | DBPSK |
| Tilt | Left | 6 | 17.1 | N/A | 0.266 | 1 | DBPSK |
| Touch | Right | 6 | 17.1 | N/A | 0.632 | 1 | DBPSK |
| Tilt | Right | 6 | 17.1 | N/A | 0.405 | 1 | DBPSK |
| Touch | Right | 1 | 16.6 | N/A | 0.420 | 1 | DBPSK |
| Touch | Right | 11 | 17.0 | N/A | 0.422 | 1 | DBPSK |

**Note(s):**

1. WLAN 802.11b 1Mbps

*KDB 248227 - SAR is not required for 802.11g/n channels when the maximum average output power is equal to that measured on the corresponding 802.11b channels.

### 7.2.16.Specific Absorption Rate - Wi-Fi 2450 Hotspot Mode Configuration 1g Power Back-off Disabled Test Summary:

| | |
|---|---|
| **Tissue Volume:** | 1g |
| **Maximum Level (W/kg):** | 0.232 |

### Environmental Conditions:

| | |
|---|---|
| **Temperature Variation in Lab (°C):** | 24.0 to 24.0 |
| **Temperature Variation in Liquid (°C):** | 22.9 to 22.9 |

### Results:

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Front of EUT Facing Phantom | Flat (SAM) | 6 | 17.1 | N/A | 0.100 | 1 | DBPSK |
| Back of EUT Facing Phantom | Flat (SAM) | 6 | 17.1 | N/A | 0.099 | 1 | DBPSK |
| Left Hand Side of EUT Facing Phantom | Flat (SAM) | 6 | 17.1 | N/A | 0.066 | 1 | DBPSK |
| Right Hand Side of EUT Facing Phantom | Flat (SAM) | 6 | 17.1 | N/A | 0.015 | 1 | DBPSK |
| Top of EUT Facing Phantom | Flat (SAM) | 6 | 17.1 | N/A | 0.123 | 1 | DBPSK |
| Top of EUT Facing Phantom | Flat (SAM) | 1 | 16.6 | N/A | 0.094 | 1 | DBPSK |

**Specific Absorption Rate - Wi-Fi 2450 Hotspot Mode Configuration 1g Power Back-off Disabled (Continued)**

| EUT Position | Phantom Configuration | Channel Number | Meas. Avg. Power (dBm) | Power Back-Off (dB) | Meas. Level (W/Kg) | Note(s) | Mod. |
|---|---|---|---|---|---|---|---|
| Top of EUT Facing Phantom | Flat (SAM) | 11 | 17.0 | N/A | 0.098 | 1 | DBPSK |
| Top of EUT Facing Phantom with PHF | Flat (SAM) | 6 | 17.1 | N/A | 0.232 | 1 | DBPSK |

**Note(s):**

1. WLAN 802.11b 1Mbps
2. EUT Supports Hotspot; SAR measurements were performed with the closest edge of the EUT at a separation distance of 10mm from the 'SAM' phantom flat section.
3. Personal Hands-Free Kit attached, using the worst-case configuration acquired.

*KDB 248227 - SAR is not required for 802.11g/n channels when the maximum average output power is equal to that measured on the corresponding 802.11b channels.

‘’As per FCC KDB 941225 D06 Hot Spot SAR v01 , as the Wi-Fi band for EUT supports ‘Hotspot Mode’, the testing was performed at 10mm and worst case configuration with PHF. As the Wi-Fi supports only ‘Data Mode’, but not ‘Voice’, the testing at ‘Body Worn at 15mm’ overlaps with the Hotspot Mode at 10mm and the most conservative configuration is ‘10mm Hotspot Mode’. Hence testing for Wi-Fi at 15mm is not required’’.

## 7.2.17.Conducted Average Power Measurement 2G: GSM850 Power Back-off Disabled

| Channel Number | Frequency (MHZ) | GSM TX Power (dBm) | Avg. Burst Power with consideration for uplink time slot (dBm) | Note |
|---|---|---|---|---|
| 128 | 824.2 | 34.1 | 25.1 | Conducted, GMSK |
| 190 | 836.6 | 34.2 | 25.2 | Conducted, GMSK |
| 251 | 848.8 | 34.1 | 25.1 | Conducted, GMSK |

### GPRS850 - Measured Average Power without consideration for Uplink time slots:

| Channel Number | Frequency (MHZ) | Power (dBm) 1Uplink | Power (dBm) 2Uplink | Note |
|---|---|---|---|---|
| 128 | 824.2 | 34.1 | 31.6 | Conducted, GMSK |
| 190 | 836.6 | 34.2 | 31.8 | Conducted, GMSK |
| 251 | 848.8 | 34.1 | 31.8 | Conducted, GMSK |

### GPRS850 - Calculated Value with consideration for Uplink time slots:

| Channel Number | Frequency (MHZ) | Power (dBm) 1Uplink | Power (dBm) 2Uplink | Note |
|---|---|---|---|---|
| 128 | 824.2 | 25.1 | 25.6 | Conducted, GMSK |
| 190 | 836.6 | 25.2 | 25.8 | Conducted, GMSK |
| 251 | 848.8 | 25.1 | 25.8 | Conducted, GMSK |

### EDGE850 - Measured Average Power without consideration for Uplink time slots:

| Channel Number | Frequency (MHZ) | Power (dBm) 1Uplink | Power (dBm) 2Uplink | Note |
|---|---|---|---|---|
| 128 | 824.2 | 33.9 | 31.6 | Conducted, GMSK |
| 190 | 836.6 | 34.0 | 31.7 | Conducted, GMSK |
| 251 | 848.8 | 33.9 | 31.8 | Conducted, GMSK |

### EDGE850 - Calculated Value with consideration for Uplink time slots:

| Channel Number | Frequency (MHZ) | Power (dBm) 1Uplink | Power (dBm) 2Uplink | Note |
|---|---|---|---|---|
| 128 | 824.2 | 24.9 | 25.6 | Conducted, GMSK |
| 190 | 836.6 | 25.0 | 25.7 | Conducted, GMSK |
| 251 | 848.8 | 24.9 | 25.8 | Conducted, GMSK |

### Note:

**Scale factor for uplink time slot:**

1. 1 Uplink: time slot ratio = 8:1 => 10*log(8/1) = **9.03 dB**
2. 2 Uplink: time slot ratio = 8:2 => 10*log(8/2) = **6.02 dB**

**EDGE (MCS9 ~ 8PSK) Power Back-off Disabled**
**EDGE850 - Measured Average Power without consideration for Uplink time slots:**

| Channel Number | Frequency (MHZ) | Power (dBm) 1Uplink | Power (dBm) 2Uplink | Note |
|---|---|---|---|---|
| 128 | 824.2 | 26.3 | 26.1 | Conducted, 8PSK |
| 190 | 836.6 | 26.3 | 26.1 | Conducted, 8PSK |
| 251 | 848.8 | 26.4 | 26.2 | Conducted, 8PSK |

**EDGE850 - Calculated Value with consideration for Uplink time slots:**

| Channel Number | Frequency (MHZ) | Power (dBm) 1Uplink | Power (dBm) 2Uplink | Note |
|---|---|---|---|---|
| 128 | 824.2 | 17.3 | 20.1 | Conducted, 8PSK |
| 190 | 836.6 | 17.3 | 20.1 | Conducted, 8PSK |
| 251 | 848.8 | 17.4 | 20.2 | Conducted, 8PSK |

**Note:**

**Scale factor for uplink time slot:**

1. 1 Uplink: time slot ratio = 8:1 => 10*log(8/1) = **9.03 dB**
2. 2 Uplink: time slot ratio = 8:2 => 10*log(8/2) = **6.02 dB**

## 7.2.18.Conducted Average Power Measurement 2G: PCS1900 Power Back-off Disabled

| Channel Number | Frequency (MHZ) | GSM TX Power (dBm) | Avg. Burst Power with consideration for uplink time slot (dBm) | Note |
|---|---|---|---|---|
| 512 | 1850.2 | 31.6 | 22.6 | Conducted, GMSK |
| 661 | 1880.0 | 31.6 | 22.6 | Conducted, GMSK |
| 810 | 1909.8 | 31.5 | 22.5 | Conducted, GMSK |

**GPRS1900 - Measured Average Power without consideration for Uplink time slots:**

| Channel Number | Frequency (MHZ) | Power (dBm) 1Uplink | Power (dBm) 2Uplink | Note |
|---|---|---|---|---|
| 512 | 1850.2 | 31.6 | 28.7 | Conducted, GMSK |
| 661 | 1880.0 | 31.6 | 28.8 | Conducted, GMSK |
| 810 | 1909.8 | 31.5 | 28.8 | Conducted, GMSK |

**GPRS1900 - Calculated Value with consideration for Uplink time slots:**

| Channel Number | Frequency (MHZ) | Power (dBm) 1Uplink | Power (dBm) 2Uplink | Note |
|---|---|---|---|---|
| 512 | 1850.2 | 22.6 | 22.7 | Conducted, GMSK |
| 661 | 1880.0 | 22.6 | 22.8 | Conducted, GMSK |
| 810 | 1909.8 | 22.5 | 22.8 | Conducted, GMSK |

**EDGE1900 - Measured Average Power without consideration for Uplink time slots:**

| Channel Number | Frequency (MHZ) | Power (dBm) 1Uplink | Power (dBm) 2Uplink | Note |
|---|---|---|---|---|
| 512 | 1850.2 | 31.5 | 28.7 | Conducted, GMSK |
| 661 | 1880.0 | 31.6 | 28.8 | Conducted, GMSK |
| 810 | 1909.8 | 31.5 | 28.8 | Conducted, GMSK |

**EDGE1900 - Calculated Value with consideration for Uplink time slots:**

| Channel Number | Frequency (MHZ) | Power (dBm) 1Uplink | Power (dBm) 2Uplink | Note |
|---|---|---|---|---|
| 512 | 1850.2 | 22.5 | 22.7 | Conducted, GMSK |
| 661 | 1880.0 | 22.6 | 22.8 | Conducted, GMSK |
| 810 | 1909.8 | 22.5 | 22.8 | Conducted, GMSK |

**Note:**

**Scale factor for uplink time slot:**

1. 1 Uplink: time slot ratio = 8:1 => 10*log(8/1) = **9.03 dB**
2. 2 Uplink: time slot ratio = 8:2 => 10*log(8/2) = **6.02 dB**

**EDGE (MCS9 ~ 8PSK): Power Back-off Disabled**
**EDGE1900 - Measured Average Power Without consideration for Uplink time slots:**

| Channel Number | Frequency (MHZ) | Power (dBm) 1Uplink | Power (dBm) 2Uplink | Note |
|---|---|---|---|---|
| 512 | 1850.2 | 25.2 | 25.0 | Conducted, 8PSK |
| 661 | 1880.0 | 25.2 | 25.0 | Conducted, 8PSK |
| 810 | 1909.8 | 25.2 | 25.0 | Conducted, 8PSK |

**EDGE1900 - Calculated Value with consideration for Uplink time slots:**

| Channel Number | Frequency (MHZ) | Power (dBm) 1Uplink | Power (dBm) 2Uplink | Note |
|---|---|---|---|---|
| 512 | 1850.2 | 16.2 | 19.0 | Conducted, 8PSK |
| 661 | 1880.0 | 16.2 | 19.0 | Conducted, 8PSK |
| 810 | 1909.8 | 16.2 | 19.0 | Conducted, 8PSK |

**Note:**

**Scale factor for uplink time slot:**

1. 1 Uplink: time slot ratio = 8:1 => 10*log(8/1) = **9.03 dB**
2. 2 Uplink: time slot ratio = 8:2 => 10*log(8/2) = **6.02 dB**

## Conducted Average Power Measurement 3G: Power Back-off Disabled

| Modes | | HSDPA | | | | HSPA | | | | | WCDMA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sets | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 5 | Voice / RMC 12.2kbps |
| Band | Channel | Power [dBm] | Power [dBm] | Power [dBm] | Power [dBm] | Power [dBm] | Power [dBm] | Power [dBm] | Power [dBm] | Power [dBm] | Power [dBm] |
| 1900 (Band II) | 9262 9662 | 22.5 | 22.2 | 21.8 | 21.6 | 22.3 | 22.3 | 21.7 | 22.7 | 21.6 | 23.2 |
| | 9400 9800 | 22.4 | 22.2 | 21.7 | 21.6 | 22.2 | 22.3 | 21.7 | 22.5 | 21.6 | 23.2 |
| | 9538 9938 | 22.5 | 22.3 | 21.8 | 21.7 | 22.2 | 22.4 | 21.9 | 22.6 | 21.7 | 23.3 |
| 1700 (Band IV) | 1312 1537 | 23.5 | 23.3 | 22.9 | 23.0 | 23.4 | 23.4 | 22.9 | 23.6 | 23.0 | 24.0 |
| | 1412 1637 | 23.7 | 23.3 | 22.7 | 22.7 | 23.3 | 23.4 | 22.7 | 23.7 | 22.9 | 24.1 |
| | 1513 1738 | 23.6 | 23.2 | 22.9 | 22.9 | 23.3 | 23.4 | 22.9 | 23.7 | 22.9 | 24.2 |
| 850 (Band V) | 4132 4357 | 24.0 | 23.5 | 23.0 | 23.0 | 23.6 | 23.7 | 23.0 | 23.9 | 23.1 | 24.5 |
| | 4183 4408 | 24.0 | 23.8 | 23.3 | 23.3 | 23.8 | 23.9 | 23.3 | 24.1 | 23.4 | 24.7 |
| | 4233 4458 | 24.0 | 23.7 | 23.2 | 23.2 | 23.7 | 23.8 | 23.2 | 24.0 | 23.2 | 24.6 |

## 7.2.19.Conducted Average Power Measurement 3G: Power Back-off Enabled

| Modes | | HSDPA | | | | HSPA | | | | | WCDMA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Sets | | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 5 | Voice / RMC 12.2kbps |
| Band | Channel | Power [dBm] | Power [dBm] | Power [dBm] | Power [dBm] | Power [dBm] | Power [dBm] | Power [dBm] | Power [dBm] | Power [dBm] | Power [dBm] |
| 1700 (Band IV) | 1312 1537 | 22.1 | 21.8 | 21.1 | 21.0 | 21.8 | 21.8 | 21.4 | 22.2 | 21.3 | 22.5 |
| | 1412 1637 | 22.1 | 21.7 | 21.1 | 21.2 | 21.7 | 21.8 | 21.1 | 22.1 | 21.2 | 22.7 |
| | 1513 1738 | 22.1 | 21.7 | 21.1 | 21.1 | 21.8 | 21.8 | 21.3 | 22.1 | 21.3 | 22.6 |
| ßc | | 2 | 12 | 15 | 15 | 11 | 6 | 15 | 2 | 15 | |
| ßd | | 15 | 15 | 8 | 4 | 15 | 15 | 9 | 15 | 15 | |
| ΔACK, ΔNACK, ΔCQI | | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | 8 | |
| AGV | | - | - | - | - | 20 | 12 | 15 | 17 | 21 | |

The module power levels were measured in both HSPA and 3G RMC 12.2kbps modes and compared to ensure the correct mode of operation had been established.

The following tables taken from FCC 3G SAR procedures (KDB 941225 D01 SAR test for 3G devices v02) below were applied using an Agilent 8960 series 10 wireless communications test set which supports 3G / HSDPA release 5 / HSPA release 6.

## Sub-test Setup for Release 5 HSDPA

| Sub-test | $\beta_c$ | $\beta_d$ | $B_d$ *(SF)* | $\beta_c/\beta_d$ | $\beta_{hs}$ (1) | SM (dB) (2) |
|---|---|---|---|---|---|---|
| 1 | 2/15 | 15/15 | 64 | 2/15 | 4/15 | 0.0 |
| 2 | 12/15 (3) | 15/15 (3) | 64 | 12/15 (3) | 24/15 | 1.0 |
| 3 | 15/15 | 8/15 | 64 | 15/8 | 30/15 | 1.5 |
| 4 | 15/15 | 4/15 | 64 | 15/4 | 30/15 | 1.5 |

Note 1: $\Delta_{ACK}$, $\Delta_{NACK}$ and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $B_{hs}/\beta_c = 24/15$

Note 3: For subtest 2 the $\beta_c/\beta_d$ ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$

## Sub-test Setup for Release 6 HSPA

| Sub-test | $\beta_c$ | $\beta_d$ | $B_d$ *(SF)* | $\beta_c/\beta_d$ | $\beta_{hs}$ (1) | $B_{oc}$ | $B_{od}$ | $B_{od}$ *(SF)* | $B_{od}$ *(codes)* | CM (2) (dB) | POWER BACK OFF (dB) | AG (4) Index | E-TFCI |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11/15 (3) | 15/15 (3) | 64 | 11/15 (3) | 22/15 | 209/225 | 1039/225 | 4 | 1 | 1.0 | 0.0 | 20 | 75 |
| 2 | 6/15 | 15/15 | 64 | 6/15 | 12/15 | 12/15 | 94/75 | 4 | 1 | 3.0 | 2.0 | 12 | 67 |
| 3 | 15/15 | 9/15 | 64 | 15/9 | 30/15 | 31/15 | $B_{al1}$: 47/15 $B_{al2}$: 47/15 | 4 | 1 | 2.0 | 1.0 | 15 | 92 |
| 4 | 2/15 | 15/15 | 64 | 2/15 | 2/15 | 2/15 | 56/75 | 4 | 1 | 3.0 | 2.0 | 17 | 71 |
| 5 | 15/15 (4) | 15/15 (4) | 64 | 15/15 (4) | 24/15 | 24/15 | 134/15 | 4 | 1 | 1.0 | 0.0 | 21 | 81 |

Note 1: $\Delta_{ACK}$, $\Delta_{NACK}$ and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $B_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH AND E-DPCCH for the POWER BACK OFF is based on the relative CM difference.

Note 3: For subtest 1 the $\beta_c/\beta_d$ ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.

Note 4: For subtest 5 the $\beta_c/\beta_d$ ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$.

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Tavle 5.1g.

Note 6: $B_{od}$ can not be set directly; it is set by Absolute Grant Value.

## 7.2.20.Conducted Power Measurements Wi-Fi802.11b/g/n
## Power Back-off Disabled
## 802.11b/g

| Channel Number | Frequency (MHZ) | TX Power (dBm) | Note |
|---|---|---|---|
| 1 | 2412.0 | 16.6 | **2.4GHz 802.11b** (1Mbps) |
| 6 | 2437.0 | 17.1 | |
| 11 | 2462.0 | 17.0 | |
| 1 | 2412.0 | 15.3 | **2.4GHz 802.11b** (11Mbps) |
| 6 | 2437.0 | 15.7 | |
| 11 | 2462.0 | 15.6 | |
| 1 | 2412.0 | 13.8 | **2.4GHz 802.11g** (6Mbps) |
| 6 | 2437.0 | 14.3 | |
| 11 | 2462.0 | 14.2 | |
| 1 | 2412.0 | 10.2 | **2.4GHz 802.11g** (54Mbps) |
| 6 | 2437.0 | 10.7 | |
| 11 | 2462.0 | 10.6 | |

## 802.11n

| Channel Number | Frequency (MHZ) | TX Power (dBm) | Note |
|---|---|---|---|
| 1 | 2412.0 | 12.5 | **2.4GHz 802.11n** (MCS0 6.5Mbps) |
| 6 | 2437.0 | 12.9 | |
| 11 | 2462.0 | 12.9 | |
| 1 | 2412.0 | 8.2 | **2.4GHz 802.11n** (MCS7 65Mbps) |
| 6 | 2437.0 | 8.6 | |
| 11 | 2462.0 | 8.5 | |

## 8. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently, the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor, such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

| Test Name | Confidence Level | Calculated Uncertainty |
|---|---|---|
| Specific Absorption Rate-GSM 850/ UMTS FDD V Head Configuration 1g | 95% | 19.94 |
| Specific Absorption Rate-GSM / GPRS / EDGE 850 / UMTS FDD V Body Configurations 1g | 95% | 20.07 |
| Specific Absorption Rate-PCS 1900 / UMTS FDD II Head Configuration 1g | 95% | 20.72 |
| Specific Absorption Rate-GSM / GPRS / EDGE 1900 / UMTS FDD II Body Configuration 1g | 95% | 20.00 |
| Specific Absorption Rate-UMTS FDD IV Head Configuration 1g | 95% | 18.49 |
| Specific Absorption Rate- UMTS FDD IV Body Configuration 1g | 95% | 18.27 |
| Specific Absorption Rate-Wi-Fi 2450 Head Configuration 1g | 95% | 19.47 |
| Specific Absorption Rate-Wi-Fi 2450 Body Configuration 1g | 95% | 19.90 |

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty, the published guidance of the appropriate accreditation body is followed.

## 8.1. Specific Absorption Rate Uncertainty -GSM 850 / UMTS FDD V Head Configuration 1g

| Type | Source of uncertainty | + Value | - Value | Probability Distribution | Divisor | $c_{i\ (10g)}$ | Standard Uncertainty | | $\upsilon_i$ or $\upsilon_{eff}$ |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | + u (%) | - u (%) | |
| B | Probe calibration | 6.000 | 6.000 | normal (k=1) | 1.0000 | 1.0000 | 6.000 | 6.000 | ∞ |
| B | Axial Isotropy | 0.250 | 0.250 | normal (k=1) | 1.0000 | 1.0000 | 0.250 | 0.250 | ∞ |
| B | Hemispherical Isotropy | 1.300 | 1.300 | normal (k=1) | 1.0000 | 1.0000 | 1.300 | 1.300 | ∞ |
| B | Spatial Resolution | 0.500 | 0.500 | Rectangular | 1.7321 | 1.0000 | 0.289 | 0.289 | ∞ |
| B | Boundary Effect | 0.769 | 0.769 | Rectangular | 1.7321 | 1.0000 | 0.444 | 0.444 | ∞ |
| B | Linearity | 0.600 | 0.600 | Rectangular | 1.7321 | 1.0000 | 0.346 | 0.346 | ∞ |
| B | Detection Limits | 0.200 | 0.200 | Rectangular | 1.7321 | 1.0000 | 0.115 | 0.115 | ∞ |
| B | Readout Electronics | 0.160 | 0.160 | normal (k=1) | 1.0000 | 1.0000 | 0.160 | 0.160 | ∞ |
| B | Response Time | 0.000 | 0.000 | Rectangular | 1.7321 | 1.0000 | 0.000 | 0.000 | ∞ |
| B | Integration Time | 1.730 | 1.730 | Rectangular | 1.7321 | 1.0000 | 0.999 | 0.999 | ∞ |
| B | RF Ambient conditions | 3.000 | 3.000 | Rectangular | 1.7321 | 1.0000 | 1.732 | 1.732 | ∞ |
| B | Probe Positioner Mechanical Restrictions | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Probe Positioning with regard to Phantom Shell | 2.850 | 2.850 | Rectangular | 1.7321 | 1.0000 | 1.645 | 1.645 | ∞ |
| B | Extrapolation and integration / Maximum SAR evaluation | 5.080 | 5.080 | Rectangular | 1.7321 | 1.0000 | 2.933 | 2.933 | ∞ |
| A | Test Sample Positioning | 2.400 | 2.400 | normal (k=1) | 1.0000 | 1.0000 | 2.400 | 2.400 | 10 |
| A | Device Holder uncertainty | 0.154 | 0.154 | normal (k=1) | 1.0000 | 1.0000 | 0.154 | 0.154 | 10 |
| B | Phantom Uncertainty | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Drift of output power | 5.000 | 5.000 | Rectangular | 1.7321 | 1.0000 | 2.887 | 2.887 | ∞ |
| B | Liquid Conductivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.6400 | 1.848 | 1.848 | ∞ |
| A | Liquid Conductivity (measured value) | 4.920 | 4.920 | normal (k=1) | 1.0000 | 0.6400 | 3.149 | 3.149 | 5 |
| B | Liquid Permittivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.6000 | 1.732 | 1.732 | ∞ |
| A | Liquid Permittivity (measured value) | 4.970 | 4.970 | normal (k=1) | 1.0000 | 0.6000 | 2.982 | 2.982 | 5 |
| | Combined standard uncertainty | | | t-distribution | | | 10.17 | 10.17 | >250 |
| | Expanded uncertainty | | | k = 1.96 | | | 19.94 | 19.94 | >250 |

## 8.2. Specific Absorption Rate-GSM / GPRS / EDGE 850 / UMTS FDD V Body Configuration 1g

| Type | Source of uncertainty | + Value | - Value | Probability Distribution | Divisor | $c_{i\ (10g)}$ | Standard Uncertainty | | $\upsilon_i$ or $\upsilon_{eff}$ |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | + u (%) | - u (%) | |
| B | Probe calibration | 6.000 | 6.000 | normal (k=1) | 1.0000 | 1.0000 | 6.000 | 6.000 | ∞ |
| B | Axial Isotropy | 0.250 | 0.250 | normal (k=1) | 1.0000 | 1.0000 | 0.250 | 0.250 | ∞ |
| B | Hemispherical Isotropy | 1.300 | 1.300 | normal (k=1) | 1.0000 | 1.0000 | 1.300 | 1.300 | ∞ |
| B | Spatial Resolution | 0.500 | 0.500 | Rectangular | 1.7321 | 1.0000 | 0.289 | 0.289 | ∞ |
| B | Boundary Effect | 0.769 | 0.769 | Rectangular | 1.7321 | 1.0000 | 0.444 | 0.444 | ∞ |
| B | Linearity | 0.600 | 0.600 | Rectangular | 1.7321 | 1.0000 | 0.346 | 0.346 | ∞ |
| B | Detection Limits | 0.200 | 0.200 | Rectangular | 1.7321 | 1.0000 | 0.115 | 0.115 | ∞ |
| B | Readout Electronics | 0.160 | 0.160 | normal (k=1) | 1.0000 | 1.0000 | 0.160 | 0.160 | ∞ |
| B | Response Time | 0.000 | 0.000 | Rectangular | 1.7321 | 1.0000 | 0.000 | 0.000 | ∞ |
| B | Integration Time | 1.730 | 1.730 | Rectangular | 1.7321 | 1.0000 | 0.999 | 0.999 | ∞ |
| B | RF Ambient conditions | 3.000 | 3.000 | Rectangular | 1.7321 | 1.0000 | 1.732 | 1.732 | ∞ |
| B | Probe Positioner Mechanical Restrictions | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Probe Positioning with regard to Phantom Shell | 2.850 | 2.850 | Rectangular | 1.7321 | 1.0000 | 1.645 | 1.645 | ∞ |
| B | Extrapolation and integration /Maximum SAR evaluation | 5.080 | 5.080 | Rectangular | 1.7321 | 1.0000 | 2.933 | 2.933 | ∞ |
| A | Test Sample Positioning | 2.900 | 2.900 | normal (k=1) | 1.0000 | 1.0000 | 2.900 | 2.900 | 10 |
| A | Device Holder uncertainty | 0.154 | 0.154 | normal (k=1) | 1.0000 | 1.0000 | 0.154 | 0.154 | 10 |
| B | Phantom Uncertainty | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Drift of output power | 5.000 | 5.000 | Rectangular | 1.7321 | 1.0000 | 2.887 | 2.887 | ∞ |
| B | Liquid Conductivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.6400 | 1.848 | 1.848 | ∞ |
| A | Liquid Conductivity (measured value) | 4.690 | 4.690 | normal (k=1) | 1.0000 | 0.6400 | 3.002 | 3.002 | 5 |
| B | Liquid Permittivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.6000 | 1.732 | 1.732 | ∞ |
| A | Liquid Permittivity (measured value) | 4.860 | 4.860 | normal (k=1) | 1.0000 | 0.6000 | 2.916 | 2.916 | 5 |
| | Combined standard uncertainty | | | t-distribution | | | 10.24 | 10.24 | >250 |
| | Expanded uncertainty | | | k = 1.96 | | | 20.07 | 20.07 | >250 |

## 8.3. Specific Absorption Rate-PCS 1900 / UMTS FDD II Head Configuration 1g

| Type | Source of uncertainty | + Value | - Value | Probability Distribution | Divisor | $c_{i\ (10g)}$ | Standard Uncertainty | | $\upsilon_i$ or $\upsilon_{eff}$ |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | + u (%) | - u (%) | |
| B | Probe calibration | 6.000 | 6.000 | normal (k=1) | 1.0000 | 1.0000 | 6.000 | 6.000 | ∞ |
| B | Axial Isotropy | 0.250 | 0.250 | normal (k=1) | 1.0000 | 1.0000 | 0.250 | 0.250 | ∞ |
| B | Hemispherical Isotropy | 1.300 | 1.300 | normal (k=1) | 1.0000 | 1.0000 | 1.300 | 1.300 | ∞ |
| B | Spatial Resolution | 0.500 | 0.500 | Rectangular | 1.7321 | 1.0000 | 0.289 | 0.289 | ∞ |
| B | Boundary Effect | 0.769 | 0.769 | Rectangular | 1.7321 | 1.0000 | 0.444 | 0.444 | ∞ |
| B | Linearity | 0.600 | 0.600 | Rectangular | 1.7321 | 1.0000 | 0.346 | 0.346 | ∞ |
| B | Detection Limits | 0.200 | 0.200 | Rectangular | 1.7321 | 1.0000 | 0.115 | 0.115 | ∞ |
| B | Readout Electronics | 0.160 | 0.160 | normal (k=1) | 1.0000 | 1.0000 | 0.160 | 0.160 | ∞ |
| B | Response Time | 0.000 | 0.000 | Rectangular | 1.7321 | 1.0000 | 0.000 | 0.000 | ∞ |
| B | Integration Time | 1.730 | 1.730 | Rectangular | 1.7321 | 1.0000 | 0.999 | 0.999 | ∞ |
| B | RF Ambient conditions | 3.000 | 3.000 | Rectangular | 1.7321 | 1.0000 | 1.732 | 1.732 | ∞ |
| B | Probe Positioner Mechanical Restrictions | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Probe Positioning with Regard to Phantom Shell | 2.850 | 2.850 | Rectangular | 1.7321 | 1.0000 | 1.645 | 1.645 | ∞ |
| B | Extrapolation and integration / Maximum SAR evaluation | 5.080 | 5.080 | Rectangular | 1.7321 | 1.0000 | 2.933 | 2.933 | ∞ |
| A | Test Sample Positioning | 3.800 | 3.800 | normal (k=1) | 1.0000 | 1.0000 | 3.800 | 3.800 | 10 |
| A | Device Holder uncertainty | 0.154 | 0.154 | normal (k=1) | 1.0000 | 1.0000 | 0.154 | 0.154 | 10 |
| B | Phantom Uncertainty | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Drift of output power | 5.000 | 5.000 | Rectangular | 1.7321 | 1.0000 | 2.887 | 2.887 | ∞ |
| B | Liquid Conductivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.6400 | 1.848 | 1.848 | ∞ |
| A | Liquid Conductivity (measured value) | 4.900 | 4.900 | normal (k=1) | 1.0000 | 0.6400 | 3.136 | 3.136 | 5 |
| B | Liquid Permittivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.6000 | 1.732 | 1.732 | ∞ |
| A | Liquid Permittivity (measured value) | 4.880 | 4.880 | normal (k=1) | 1.0000 | 0.6000 | 2.928 | 2.928 | 5 |
| | Combined standard uncertainty | | | t-distribution | | | 10.57 | 10.57 | >200 |
| | Expanded uncertainty | | | k = 1.96 | | | 20.72 | 20.72 | >200 |

## 8.4. Specific Absorption Rate-PCS / GPRS / EDGE 1900 / UMTS FDD II Body Configuration 1g

| Type | Source of uncertainty | + Value | - Value | Probability Distribution | Divisor | $c_{i\ (10g)}$ | Standard Uncertainty | | $\upsilon_i$ or |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | + u (%) | - u (%) | $\upsilon_{eff}$ |
| B | Probe calibration | 6.000 | 6.000 | normal (k=1) | 1.0000 | 1.0000 | 6.000 | 6.000 | ∞ |
| B | Axial Isotropy | 0.250 | 0.250 | normal (k=1) | 1.0000 | 1.0000 | 0.250 | 0.250 | ∞ |
| B | Hemispherical Isotropy | 1.300 | 1.300 | normal (k=1) | 1.0000 | 1.0000 | 1.300 | 1.300 | ∞ |
| B | Spatial Resolution | 0.500 | 0.500 | Rectangular | 1.7321 | 1.0000 | 0.289 | 0.289 | ∞ |
| B | Boundary Effect | 0.769 | 0.769 | Rectangular | 1.7321 | 1.0000 | 0.444 | 0.444 | ∞ |
| B | Linearity | 0.600 | 0.600 | Rectangular | 1.7321 | 1.0000 | 0.346 | 0.346 | ∞ |
| B | Detection Limits | 0.200 | 0.200 | Rectangular | 1.7321 | 1.0000 | 0.115 | 0.115 | ∞ |
| B | Readout Electronics | 0.160 | 0.160 | normal (k=1) | 1.0000 | 1.0000 | 0.160 | 0.160 | ∞ |
| B | Response Time | 0.000 | 0.000 | Rectangular | 1.7321 | 1.0000 | 0.000 | 0.000 | ∞ |
| B | Integration Time | 1.730 | 1.730 | Rectangular | 1.7321 | 1.0000 | 0.999 | 0.999 | ∞ |
| B | RF Ambient conditions | 3.000 | 3.000 | Rectangular | 1.7321 | 1.0000 | 1.732 | 1.732 | ∞ |
| B | Probe Positioner Mechanical Restrictions | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Probe Positioning with regard to Phantom Shell | 2.850 | 2.850 | Rectangular | 1.7321 | 1.0000 | 1.645 | 1.645 | ∞ |
| B | Extrapolation and integration / Maximum SAR evaluation | 5.080 | 5.080 | Rectangular | 1.7321 | 1.0000 | 2.933 | 2.933 | ∞ |
| A | Test Sample Positioning | 2.500 | 2.500 | normal (k=1) | 1.0000 | 1.0000 | 2.500 | 2.500 | 10 |
| A | Device Holder uncertainty | 0.154 | 0.154 | normal (k=1) | 1.0000 | 1.0000 | 0.154 | 0.154 | 10 |
| B | Phantom Uncertainty | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Drift of output power | 5.000 | 5.000 | Rectangular | 1.7321 | 1.0000 | 2.887 | 2.887 | ∞ |
| B | Liquid Conductivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.6400 | 1.848 | 1.848 | ∞ |
| A | Liquid Conductivity (measured value) | 4.940 | 4.940 | normal (k=1) | 1.0000 | 0.6400 | 3.162 | 3.162 | 5 |
| B | Liquid Permittivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.6000 | 1.732 | 1.732 | ∞ |
| A | Liquid Permittivity (measured value) | 4.980 | 4.980 | normal (k=1) | 1.0000 | 0.6000 | 2.988 | 2.988 | 5 |
| | Combined standard uncertainty | | | t-distribution | | | 10.20 | 10.20 | >250 |
| | Expanded uncertainty | | | k = 1.96 | | | 20.00 | 20.00 | >250 |

## 8.5. Specific Absorption Rate-UMTS FDD IV Head Configuration 1g

| Type | Source of uncertainty | + Value | - Value | Probability Distribution | Divisor | $c_{i\ (10g)}$ | Standard Uncertainty | | $\upsilon_i$ or $\upsilon_{eff}$ |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | + u (%) | - u (%) | |
| B | Probe calibration | 6.000 | 6.000 | normal (k=1) | 1.0000 | 1.0000 | 6.000 | 6.000 | ∞ |
| B | Axial Isotropy | 0.250 | 0.250 | normal (k=1) | 1.0000 | 1.0000 | 0.250 | 0.250 | ∞ |
| B | Hemispherical Isotropy | 1.300 | 1.300 | normal (k=1) | 1.0000 | 1.0000 | 1.300 | 1.300 | ∞ |
| B | Spatial Resolution | 0.500 | 0.500 | Rectangular | 1.7321 | 1.0000 | 0.289 | 0.289 | ∞ |
| B | Boundary Effect | 0.769 | 0.769 | Rectangular | 1.7321 | 1.0000 | 0.444 | 0.444 | ∞ |
| B | Linearity | 0.600 | 0.600 | Rectangular | 1.7321 | 1.0000 | 0.346 | 0.346 | ∞ |
| B | Detection Limits | 0.200 | 0.200 | Rectangular | 1.7321 | 1.0000 | 0.115 | 0.115 | ∞ |
| B | Readout Electronics | 0.160 | 0.160 | normal (k=1) | 1.0000 | 1.0000 | 0.160 | 0.160 | ∞ |
| B | Response Time | 0.000 | 0.000 | Rectangular | 1.7321 | 1.0000 | 0.000 | 0.000 | ∞ |
| B | Integration Time | 1.730 | 1.730 | Rectangular | 1.7321 | 1.0000 | 0.999 | 0.999 | ∞ |
| B | RF Ambient conditions | 3.000 | 3.000 | Rectangular | 1.7321 | 1.0000 | 1.732 | 1.732 | ∞ |
| B | Probe Positioner Mechanical Restrictions | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Probe Positioning with regard to Phantom Shell | 2.850 | 2.850 | Rectangular | 1.7321 | 1.0000 | 1.645 | 1.645 | ∞ |
| B | Extrapolation and integration/ Maximum SAR evaluation | 5.080 | 5.080 | Rectangular | 1.7321 | 1.0000 | 2.933 | 2.933 | ∞ |
| A | Test Sample Positioning | 1.700 | 1.700 | normal (k=1) | 1.0000 | 1.0000 | 1.700 | 1.700 | 10 |
| A | Device Holder uncertainty | 0.154 | 0.154 | normal (k=1) | 1.0000 | 1.0000 | 0.154 | 0.154 | 10 |
| B | Phantom Uncertainty | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Drift of output power | 5.000 | 5.000 | Rectangular | 1.7321 | 1.0000 | 2.887 | 2.887 | ∞ |
| B | Liquid Conductivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.4300 | 1.241 | 1.241 | ∞ |
| A | Liquid Conductivity (measured value) | 4.980 | 4.980 | normal (k=1) | 1.0000 | 0.4300 | 2.141 | 2.141 | 5 |
| B | Liquid Permittivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.4900 | 1.415 | 1.415 | ∞ |
| A | Liquid Permittivity (measured value) | 4.770 | 4.770 | normal (k=1) | 1.0000 | 0.4900 | 2.337 | 2.337 | 5 |
| | Combined standard uncertainty | | | t-distribution | | | 9.43 | 9.43 | >500 |
| | Expanded uncertainty | | | k = 1.96 | | | 18.49 | 18.49 | >500 |

## 8.6. Specific Absorption Rate-UMTS FDD IV Body Configuration 10g

| Type | Source of uncertainty | + Value | - Value | Probability Distribution | Divisor | $c_{i\ (10g)}$ | Standard Uncertainty | | $\upsilon_i$ or $\upsilon_{eff}$ |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | + u (%) | - u (%) | |
| B | Probe calibration | 6.000 | 6.000 | normal (k=1) | 1.0000 | 1.0000 | 6.000 | 6.000 | ∞ |
| B | Axial Isotropy | 0.250 | 0.250 | normal (k=1) | 1.0000 | 1.0000 | 0.250 | 0.250 | ∞ |
| B | Hemispherical Isotropy | 1.300 | 1.300 | normal (k=1) | 1.0000 | 1.0000 | 1.300 | 1.300 | ∞ |
| B | Spatial Resolution | 0.500 | 0.500 | Rectangular | 1.7321 | 1.0000 | 0.289 | 0.289 | ∞ |
| B | Boundary Effect | 0.769 | 0.769 | Rectangular | 1.7321 | 1.0000 | 0.444 | 0.444 | ∞ |
| B | Linearity | 0.600 | 0.600 | Rectangular | 1.7321 | 1.0000 | 0.346 | 0.346 | ∞ |
| B | Detection Limits | 0.200 | 0.200 | Rectangular | 1.7321 | 1.0000 | 0.115 | 0.115 | ∞ |
| B | Readout Electronics | 0.160 | 0.160 | normal (k=1) | 1.0000 | 1.0000 | 0.160 | 0.160 | ∞ |
| B | Response Time | 0.000 | 0.000 | Rectangular | 1.7321 | 1.0000 | 0.000 | 0.000 | ∞ |
| B | Integration Time | 1.730 | 1.730 | Rectangular | 1.7321 | 1.0000 | 0.999 | 0.999 | ∞ |
| B | RF Ambient conditions | 3.000 | 3.000 | Rectangular | 1.7321 | 1.0000 | 1.732 | 1.732 | ∞ |
| B | Probe Positioner Mechanical Restrictions | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Probe Positioning with regard to Phantom Shell | 2.850 | 2.850 | Rectangular | 1.7321 | 1.0000 | 1.645 | 1.645 | ∞ |
| B | Extrapolation and integration/ Maximum SAR evaluation | 5.080 | 5.080 | Rectangular | 1.7321 | 1.0000 | 2.933 | 2.933 | ∞ |
| A | Test Sample Positioning | 1.000 | 1.000 | normal (k=1) | 1.0000 | 1.0000 | 1.000 | 1.000 | 10 |
| A | Device Holder uncertainty | 0.154 | 0.154 | normal (k=1) | 1.0000 | 1.0000 | 0.154 | 0.154 | 10 |
| B | Phantom Uncertainty | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Drift of output power | 5.000 | 5.000 | Rectangular | 1.7321 | 1.0000 | 2.887 | 2.887 | ∞ |
| B | Liquid Conductivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.4300 | 1.241 | 1.241 | ∞ |
| A | Liquid Conductivity (measured value) | 4.990 | 4.990 | normal (k=1) | 1.0000 | 0.4300 | 2.146 | 2.146 | 5 |
| B | Liquid Permittivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.4900 | 1.415 | 1.415 | ∞ |
| A | Liquid Permittivity (measured value) | 4.660 | 4.660 | normal (k=1) | 1.0000 | 0.4900 | 2.283 | 2.283 | 5 |
| | Combined standard uncertainty | | | t-distribution | | | 9.32 | 9.32 | >500 |
| | Expanded uncertainty | | | k = 1.96 | | | 18.27 | 18.27 | >500 |

## 8.7. Specific Absorption Rate-Wi-Fi 2450 Head Configuration 1g

| Type | Source of uncertainty | + Value | - Value | Probability Distribution | Divisor | $c_{i\ (10g)}$ | Standard Uncertainty | | $\upsilon_i$ or $\upsilon_{eff}$ |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | + u (%) | - u (%) | |
| B | Probe calibration | 6.000 | 6.000 | normal (k=1) | 1.0000 | 1.0000 | 6.000 | 6.000 | ∞ |
| B | Axial Isotropy | 0.250 | 0.250 | normal (k=1) | 1.0000 | 1.0000 | 0.250 | 0.250 | ∞ |
| B | Hemispherical Isotropy | 1.300 | 1.300 | normal (k=1) | 1.0000 | 1.0000 | 1.300 | 1.300 | ∞ |
| B | Spatial Resolution | 0.500 | 0.500 | Rectangular | 1.7321 | 1.0000 | 0.289 | 0.289 | ∞ |
| B | Boundary Effect | 0.769 | 0.769 | Rectangular | 1.7321 | 1.0000 | 0.444 | 0.444 | ∞ |
| B | Linearity | 0.600 | 0.600 | Rectangular | 1.7321 | 1.0000 | 0.346 | 0.346 | ∞ |
| B | Detection Limits | 0.200 | 0.200 | Rectangular | 1.7321 | 1.0000 | 0.115 | 0.115 | ∞ |
| B | Readout Electronics | 0.160 | 0.160 | normal (k=1) | 1.0000 | 1.0000 | 0.160 | 0.160 | ∞ |
| B | Response Time | 0.000 | 0.000 | Rectangular | 1.7321 | 1.0000 | 0.000 | 0.000 | ∞ |
| B | Integration Time | 0.000 | 0.000 | Rectangular | 1.7321 | 1.0000 | 0.000 | 0.000 | ∞ |
| B | RF Ambient conditions | 3.000 | 3.000 | Rectangular | 1.7321 | 1.0000 | 1.732 | 1.732 | ∞ |
| B | Probe Positioner Mechanical Restrictions | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Probe Positioning with regard to Phantom Shell | 2.850 | 2.850 | Rectangular | 1.7321 | 1.0000 | 1.645 | 1.645 | ∞ |
| B | Extrapolation and integration / Maximum SAR evaluation | 5.080 | 5.080 | Rectangular | 1.7321 | 1.0000 | 2.933 | 2.933 | ∞ |
| A | Test Sample Positioning | 2.000 | 2.000 | normal (k=1) | 1.0000 | 1.0000 | 2.000 | 2.000 | 10 |
| A | Device Holder uncertainty | 0.154 | 0.154 | normal (k=1) | 1.0000 | 1.0000 | 0.154 | 0.154 | 10 |
| B | Phantom Uncertainty | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Drift of output power | 5.000 | 5.000 | Rectangular | 1.7321 | 1.0000 | 2.887 | 2.887 | ∞ |
| B | Liquid Conductivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.6400 | 1.848 | 1.848 | ∞ |
| A | Liquid Conductivity (measured value) | 4.410 | 4.410 | normal (k=1) | 1.0000 | 0.6400 | 2.822 | 2.822 | 5 |
| B | Liquid Permittivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.6000 | 1.732 | 1.732 | ∞ |
| A | Liquid Permittivity (measured value) | 4.930 | 4.930 | normal (k=1) | 1.0000 | 0.6000 | 2.958 | 2.958 | 5 |
| | Combined standard uncertainty | | | t-distribution | | | 9.93 | 9.93 | >300 |
| | Expanded uncertainty | | | k = 1.96 | | | 19.47 | 19.47 | >300 |

## 8.8. Specific Absorption Rate-Wi-Fi 2450 Body Configuration 1g

| Type | Source of uncertainty | + Value | - Value | Probability Distribution | Divisor | $c_{i\ (10g)}$ | Standard Uncertainty | | $\upsilon_i$ or $\upsilon_{eff}$ |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | + u (%) | - u (%) | |
| B | Probe calibration | 6.000 | 6.000 | normal (k=1) | 1.0000 | 1.0000 | 6.000 | 6.000 | ∞ |
| B | Axial Isotropy | 0.250 | 0.250 | normal (k=1) | 1.0000 | 1.0000 | 0.250 | 0.250 | ∞ |
| B | Hemispherical Isotropy | 1.300 | 1.300 | normal (k=1) | 1.0000 | 1.0000 | 1.300 | 1.300 | ∞ |
| B | Spatial Resolution | 0.500 | 0.500 | Rectangular | 1.7321 | 1.0000 | 0.289 | 0.289 | ∞ |
| B | Boundary Effect | 0.769 | 0.769 | Rectangular | 1.7321 | 1.0000 | 0.444 | 0.444 | ∞ |
| B | Linearity | 0.600 | 0.600 | Rectangular | 1.7321 | 1.0000 | 0.346 | 0.346 | ∞ |
| B | Detection Limits | 0.200 | 0.200 | Rectangular | 1.7321 | 1.0000 | 0.115 | 0.115 | ∞ |
| B | Readout Electronics | 0.160 | 0.160 | normal (k=1) | 1.0000 | 1.0000 | 0.160 | 0.160 | ∞ |
| B | Response Time | 0.000 | 0.000 | Rectangular | 1.7321 | 1.0000 | 0.000 | 0.000 | ∞ |
| B | Integration Time | 0.000 | 0.000 | Rectangular | 1.7321 | 1.0000 | 0.000 | 0.000 | ∞ |
| B | RF Ambient conditions | 3.000 | 3.000 | Rectangular | 1.7321 | 1.0000 | 1.732 | 1.732 | ∞ |
| B | Probe Positioner Mechanical Restrictions | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Probe Positioning with regard to Phantom Shell | 2.850 | 2.850 | Rectangular | 1.7321 | 1.0000 | 1.645 | 1.645 | ∞ |
| B | Extrapolation and integration / Maximum SAR evaluation | 5.080 | 5.080 | Rectangular | 1.7321 | 1.0000 | 2.933 | 2.933 | ∞ |
| A | Test Sample Positioning | 2.570 | 2.570 | normal (k=1) | 1.0000 | 1.0000 | 2.570 | 2.570 | 10 |
| A | Device Holder uncertainty | 0.154 | 0.154 | normal (k=1) | 1.0000 | 1.0000 | 0.154 | 0.154 | 10 |
| B | Phantom Uncertainty | 4.000 | 4.000 | Rectangular | 1.7321 | 1.0000 | 2.309 | 2.309 | ∞ |
| B | Drift of output power | 5.000 | 5.000 | Rectangular | 1.7321 | 1.0000 | 2.887 | 2.887 | ∞ |
| B | Liquid Conductivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.6400 | 1.848 | 1.848 | ∞ |
| A | Liquid Conductivity (measured value) | 4.900 | 4.900 | normal (k=1) | 1.0000 | 0.6400 | 3.136 | 3.136 | 5 |
| B | Liquid Permittivity (target value) | 5.000 | 5.000 | Rectangular | 1.7321 | 0.6000 | 1.732 | 1.732 | ∞ |
| A | Liquid Permittivity (measured value) | 4.920 | 4.920 | normal (k=1) | 1.0000 | 0.6000 | 2.952 | 2.952 | 5 |
| | Combined standard uncertainty | | | t-distribution | | | 10.15 | 10.15 | >250 |
| | Expanded uncertainty | | | k = 1.96 | | | 19.90 | 19.90 | >250 |