SAR Evaluation Report

IN ACCORDANCE WITH THE REQUIREMENTS OF
FCC OET BULLETIN 65 SUPPLEMENT C
IC RSS 102 ISSUE 1 : 1999

FOR

USB WIRELESS MODEM

MODEL: AirCard 875U

FCC ID: N7N-MC8775U
IC: 2417C-MC8775U

REPORT NUMBER: 07U10801-6B

ISSUE DATE: JANUARY 30, 2007

Prepared for

SIERRA WIRELESS
13811 WIRELESS WAY,
RICHMOND, BC CANADA V6V 3A4

Prepared by

COMPLIANCE CERTIFICATION SERVICES
47173 BENICIA STREET,
FREMONT, CA 94538 USA

NVLAP LAB CODE 200065-0

Revision History

Rev.	Issued date	Revisions	Revised By
--	January 29, 2007	Initial issue	HS
B	January 30, 2007	Corrected some typos	HS

CERTIFICATE OF COMPLIANCE (SAR EVALUATION)

DATES OF TEST: January 22, 23, 24 and 25, 2007

APPLICANT: ADDRESS:	Sierra Wireless 13811 Wireless Way, Richmond, BC Canada V6V 3A4
FCC ID: MODEL:	N7N-MC8775U AirCard 875U
DEVICE CATEGORY: EXPOSURE CATEGORY:	Portable Device General Population/Uncontrolled Exposure

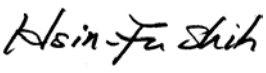
USB Wireless Modem is installed in three host laptops for SAR evaluation.

Test Sample is a:	Production unit		
Host Laptop(s):	1. Panasonic CF-29 2. Toshiba Satellite 3. Compaq Presario R3000		
Rule Parts	Frequency Range [MHz]	The Highest SAR Values [1g_mW/g]	
FCC 22H	824.20 - 848.80	1. Panasonic CF-29 2. Toshiba Satellite 3. Compaq Presario R3000	0.851 **1.375** 0.529
FCC 24E	1850.2 - 1909.8	1. Panasonic CF-29 2. Toshiba Satellite 3. Compaq Presario R3000	0.922 **1.202** 0.498

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for General Population/Uncontrolled Exposure limits specified in ANSI/IEEE Std. C95.1-1992 and had been tested in accordance with the measurement procedures specified in FCC OET 65 Supplement C (Edition 01-01) and RSS 102.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:



Hsin Fu Shih
Engineering Supervisor
Compliance Certification Services

Tested By:

Ninous Davoudi
EMC Engineer
Compliance Certification Services

TABLE OF CONTENTS

1 EQUIPMENT UNDER TEST (EUT) DESCRIPTION

USB Wireless Modem is installed in three host laptops for SAR evaluation.	
Normal operation:	Lap-held position
Duty cycle:	12.5% for GPRS & EGPRS, single slot 25% for GPRS & EGPRS, 2 slots 37.5% for GPRS & EGPRS, 3 slots 50% for GPRS & EGPRS, 4 slots 100% for WCDMA
Host Device(s):	1. Panasonic CF-29 2. Toshiba Satellite 3. Compaq Presario R3000
Power supply:	Supply from USB port, assisted by LI – Polymer Battery, Model # SM-125, 3.7V, 380mAh

2 FACILITIES AND ACCREDITATION

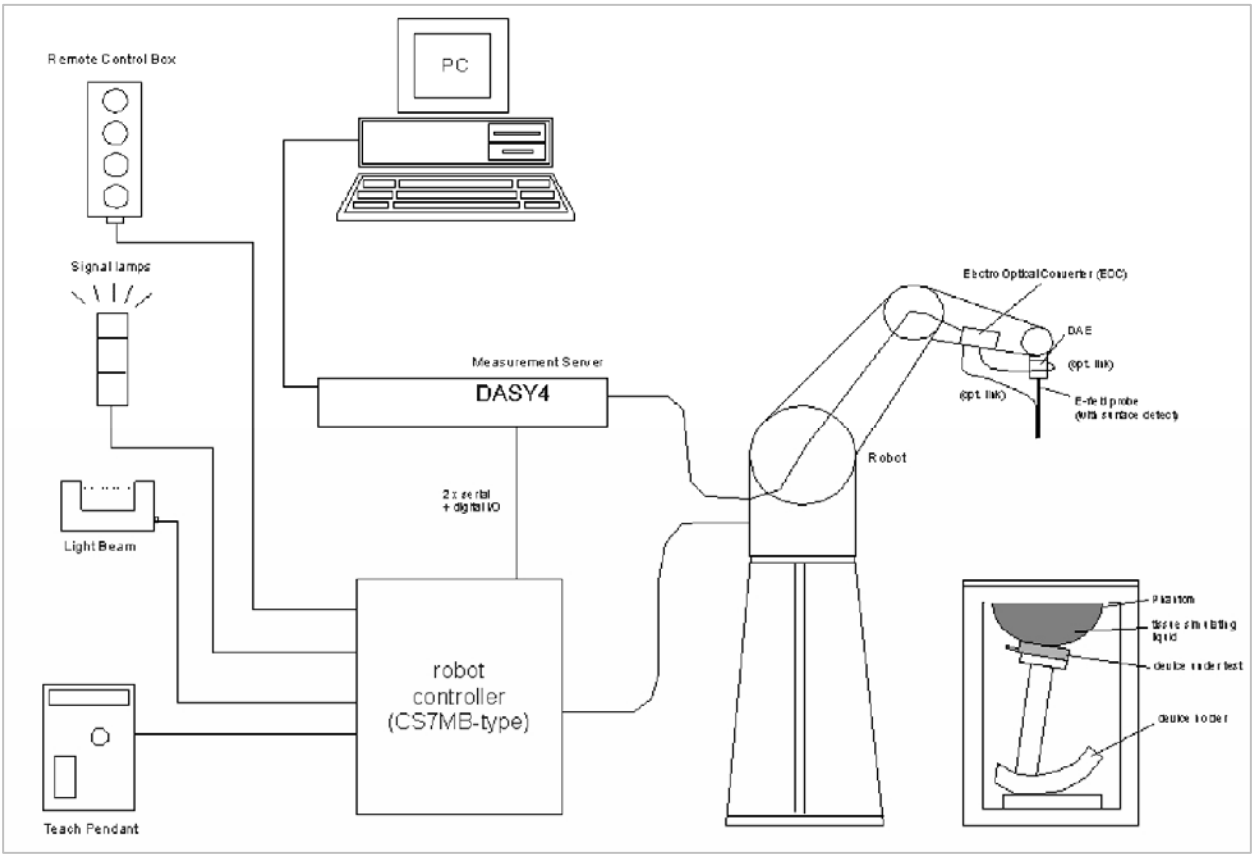
The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, CA 94538 USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

NVLAP LAB CODE 200065-0

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

3 SYSTEM DESCRIPTION



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

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

3.1 COMPOSITION OF INGREDIENTS FOR TISSUE SIMULATING LIQUIDS

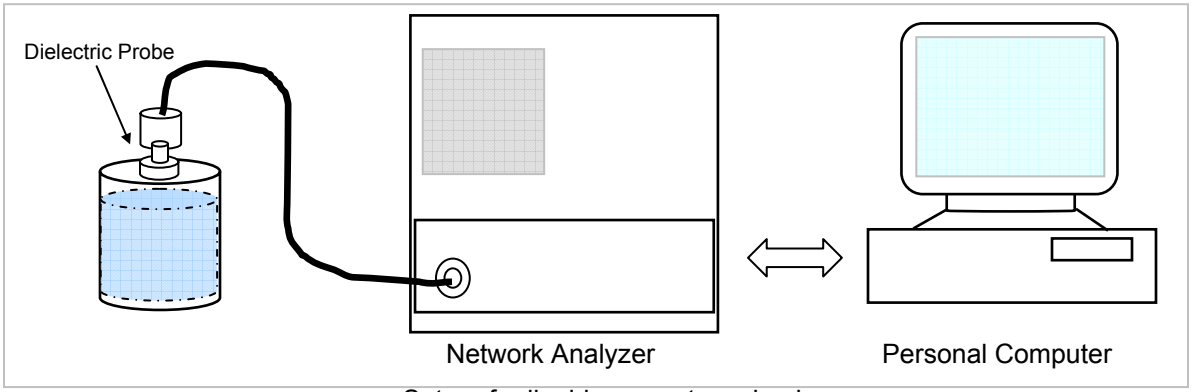
The following tissue formulations are provided for reference only as some of the parameters have not been thoroughly verified. The composition of ingredients may be modified accordingly to achieve the desired target tissue parameters required for routine SAR evaluation.

Ingredients (% by weight)	Frequency (MHz)									
	450		835		915		1900		2450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (NaCl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7
Dielectric Constant	43.42	58.0	42.54	56.1	42.0	56.8	39.9	54.0	39.8	52.5
Conductivity (S/m)	0.85	0.83	0.91	0.95	1.0	1.07	1.42	1.45	1.88	1.78

Salt: 99+% Pure Sodium Chloride Sugar: 98+% Pure Sucrose
Water: De-ionized, 16 MΩ+ resistivity HEC: Hydroxyethyl Cellulose
DGBE: 99+% Di(ethylene glycol) butyl ether, [2-(2-butoxyethoxy)ethanol]
Triton X-100 (ultra pure): Polyethylene glycol mono [4-(1,1, 3, 3-tetramethylbutyl)phenyl]ether

4 SIMULATING LIQUID PARAMETERS CHECK

The simulating liquids should be checked at the beginning of a series of SAR measurements to determine of the dielectric parameters are within the tolerances of the specified target values. The relative permittivity and conductivity of the tissue material should be within ± 5% of the values given in the table below.



Set-up for liquid parameters check

Reference Values of Tissue Dielectric Parameters for Head and Body Phantom (for 150 – 3000 MHz and 5800 MHz)

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in IEEE Standard 1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in a human head. Other head and body tissue parameters that have not been specified in P1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equations and extrapolated according to the head parameters specified in IEEE Standard 1528.

Target Frequency (MHz)	Head		Body	
	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	**55.2**	**0.97**
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 – 2000	40.0	1.40	**53.3**	**1.52**
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00

(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)

5 SIMULATING LIQUID PARAMETER CHECK RESULT

Simulating Liquid Dielectric Parameters Check Result @ Muscle 835 MHz

Room Ambient Temperature = 22°C; Relative humidity = 30% Measured by: Ninous Davoudi

Simulating Liquid			Parameters			Measured	Target	Deviation (%)	Limit (%)
f (MHz)	Temp. (°C)	Depth (cm)							
835	21	15	e'	52.6832	Relative Permittivity (ϵ_r):	52.6832	55.2	-4.56	± 5
			e"	20.6009	Conductivity (σ):	0.95696	0.97	-1.34	± 5

Liquid Check
Ambient temperature: 22.0 deg. C; Liquid temperature: 21.0 deg C
January 22, 2007 02:03 PM

Frequency	e'	e"
750000000.	53.6017	20.8413
755000000.	53.5470	20.8641
760000000.	53.4762	20.7978
765000000.	53.4066	20.7670
770000000.	53.3383	20.7712
775000000.	53.3026	20.7646
780000000.	53.2402	20.7440
785000000.	53.1687	20.7267
790000000.	53.1158	20.7263
795000000.	53.0672	20.7018
800000000.	53.0098	20.7145
805000000.	52.9734	20.6861
810000000.	52.9214	20.6746
815000000.	52.8816	20.6311
820000000.	52.8254	20.6493
825000000.	52.7759	20.6042
830000000.	52.7531	20.6162
835000000.	**52.6832**	**20.6009**
840000000.	52.6310	20.6014
845000000.	52.5688	20.5405
850000000.	52.5153	20.5312
855000000.	52.4663	20.5311
860000000.	52.4080	20.5024
865000000.	52.3788	20.4634
870000000.	52.2884	20.4579
875000000.	52.2341	20.4606
880000000.	52.1832	20.4410
885000000.	52.1402	20.4397
890000000.	52.0889	20.4416
895000000.	52.0521	20.3964
900000000.	52.0089	20.4007

The conductivity (σ) can be given as:

$$\sigma = \omega \varepsilon_0 e'' = 2 \pi f \varepsilon_0 e''$$

where $f = target\ f * 10^6$

$\varepsilon_0 = 8.854 * 10^{-12}$

Simulating Liquid Dielectric Parameters Check Result @ Muscle 835 MHz

Room Ambient Temperature = 22°C; Relative humidity = 30% Measured by: Mengistu Mekuria

Simulating Liquid			Parameters			Measured	Target	Deviation (%)	Limit (%)
f (MHz)	Temp. (°C)	Depth (cm)							
835	21	15	e'	53.3306	Relative Permittivity (ϵ_r):	53.3306	55.2	-3.39	± 5
			e"	20.7852	Conductivity (σ):	0.96552	0.97	-0.46	± 5

Liquid Check
Ambient temperature: 22.0 deg. C; Liquid temperature: 21.0 deg C
January 23, 2007 02:24 PM

Frequency	e'	e"
750000000.	54.2301	21.0876
755000000.	54.1724	21.0724
760000000.	54.1018	21.0499
765000000.	54.0607	21.0061
770000000.	54.0066	20.9904
775000000.	53.9433	20.9781
780000000.	53.8812	20.9656
785000000.	53.7963	20.9497
790000000.	53.7400	20.9129
795000000.	53.6887	20.9203
800000000.	53.6751	20.8693
805000000.	53.6092	20.8933
810000000.	53.5442	20.8832
815000000.	53.5298	20.8386
820000000.	53.4587	20.8367
825000000.	53.4150	20.8142
830000000.	53.3582	20.8297
835000000.	**53.3306**	**20.7852**
840000000.	53.2616	20.7451
845000000.	53.2182	20.7724
850000000.	53.1548	20.7418
855000000.	53.1081	20.6947
860000000.	53.0219	20.6842
865000000.	52.9758	20.6912
870000000.	52.9330	20.6758
875000000.	52.8470	20.6555
880000000.	52.8212	20.6235
885000000.	52.7444	20.6217
890000000.	52.6940	20.6309
895000000.	52.6854	20.5825
900000000.	52.6180	20.5829

The conductivity (σ) can be given as:

$$\sigma = \omega \varepsilon_0 e'' = 2 \pi f \varepsilon_0 e''$$

where $f = target\ f * 10^6$

$\varepsilon_0 = 8.854 * 10^{-12}$

Simulating Liquid Dielectric Parameters Check Result @ Muscle 1900 MHz

Room Ambient Temperature = 22°C; Relative humidity = 30% Measured by: Ninous Davoudi

Simulating Liquid			Parameters			Measured	Target	Deviation (%)	Limit (%)
f (MHz)	Temp. (°C)	Depth (cm)							
1900	21	15	e'	54.7323	Relative Permittivity (ϵ_r):	54.7323	53.3	2.69	± 5
			e"	14.8349	Conductivity (σ):	1.56804	1.52	3.16	± 5

Liquid Check
Ambient temperature: 22.0 deg. C; Liquid temperature: 21.0 deg C
January 24, 2007 09:55 AM

Frequency	e'	e"
1710000000.	55.4773	14.1102
1720000000.	55.4461	14.1527
1730000000.	55.4086	14.1895
1740000000.	55.3538	14.2340
1750000000.	55.3065	14.2800
1760000000.	55.2532	14.3164
1770000000.	55.2149	14.3627
1780000000.	55.1724	14.4017
1790000000.	55.1237	14.4354
1800000000.	55.0877	14.4806
1810000000.	55.0307	14.5001
1820000000.	54.9909	14.5608
1830000000.	54.9521	14.5872
1840000000.	54.8990	14.6120
1850000000.	54.8621	14.6601
1860000000.	54.8412	14.6746
1870000000.	54.8093	14.7112
1880000000.	54.7861	14.7548
1890000000.	54.7509	14.7913
1900000000.	**54.7323**	**14.8349**
1910000000.	54.6786	14.8750

The conductivity (σ) can be given as:

$$\sigma = \omega \varepsilon_0 e'' = 2 \pi f \varepsilon_0 e''$$

where $f = target\ f * 10^6$

$\varepsilon_0 = 8.854 * 10^{-12}$

Simulating Liquid Dielectric Parameters Check Result @ Muscle 1900 MHz

Room Ambient Temperature = 22°C; Relative humidity = 35% Measured by: Ninous Davoudi

Simulating Liquid			Parameters			Measured	Target	Deviation (%)	Limit (%)
f (MHz)	Temp. (°C)	Depth (cm)							
1900	21	15	e'	54.3405	Relative Permittivity (ϵ_r):	54.3405	53.3	1.95	± 5
			e"	14.9232	Conductivity (σ):	1.57737	1.52	3.77	± 5

Liquid Check
Ambient temperature: 22.0 deg. C; Liquid temperature: 21.0 deg C
January 25, 2007 09:33 AM

Frequency	e'	e"
1710000000.	55.1246	14.1843
1720000000.	55.0622	14.2292
1730000000.	55.0327	14.2612
1740000000.	54.9757	14.3285
1750000000.	54.9347	14.3634
1760000000.	54.8840	14.3847
1770000000.	54.8608	14.4347
1780000000.	54.8063	14.4638
1790000000.	54.7683	14.5087
1800000000.	54.7187	14.5381
1810000000.	54.6802	14.5691
1820000000.	54.6385	14.6148
1830000000.	54.5844	14.6608
1840000000.	54.5238	14.7095
1850000000.	54.4888	14.7428
1860000000.	54.4707	14.7757
1870000000.	54.4288	14.8011
1880000000.	54.4091	14.8398
1890000000.	54.3733	14.8752
1900000000.	**54.3405**	**14.9232**
1910000000.	54.2943	14.9431

The conductivity (σ) can be given as:

$$\sigma = \omega \varepsilon_0 e'' = 2 \pi f \varepsilon_0 e''$$

where $f = target\ f * 10^6$

$\varepsilon_0 = 8.854 * 10^{-12}$

6 SYSTEM PERFORMANCE CHECK

The system performance check is performed prior to any usage of the system in order to guarantee reproducible results. The system performance check verifies that the system operates within its specifications of ±10%.

System Performance Check Measurement Conditions

- The measurements were performed in the flat section of the SAM twin phantom filled with Body simulating liquid of the following parameters.
- The DASY4 system with an Isotropic E-Field Probe EX3DV3-SN: 3531 was used for the measurements.
- The dipole was mounted on the small tripod so that the dipole feed point was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10 mm (above 1 GHz) and 15 mm (below 1 GHz) from dipole center to the simulating liquid surface.
- The coarse grid with a grid spacing of 15 mm was aligned with the dipole.
  For 5 GHz band - The coarse grid with a grid spacing of 10 mm was aligned with the dipole.
- Special 5 x 5 x 7 fine cube was chosen for cube integration(dx=dy=7.5mm; dz=5mm).
  For 5 GHz band - Special 8x8x8 fine cube was chosen for cube integration(dx=dy=4.3mm; dz=3mm)
- Distance between probe sensors and phantom surface was set to 4 mm.
  For 5 GHz band - Distance between probe sensors and phantom surface was set to 2.0mm
- The dipole input power (forward power) was 250 mW±3%.
- The results are normalized to 1 W input power.

Reference SAR Values for body-tissue

In the table below, the numerical reference SAR values of a SPEAG validation dipoles placed below the flat phantom filled with body-tissue simulating liquid are given. The reference SAR values were calculated using the finite-difference time-domain method and the geometry parameters.

Dipole Type	Distance (mm)	Frequency (MHz)	SAR (1g) [W/kg]	SAR (10g) [W/kg]	SAR (peak) [W/kg]
D450V2	15	450	5.01	3.36	7.22
D835V2	15	835	**9.71**	**6.38**	14.1
D900V2	15	900	11.1	7.17	16.3
D1450V2	10	1450	29.6	16.6	49.8
D1800V2	10	1800	38.5	20.3	67.5
D1900V2	10	1900	**39.8**	**20.8**	69.6
D2000V2	10	2000	40.9	21.2	71.5
D2450V2	10	2450	51.2	23.7	97.6

Note: All SAR values normalized to 1 W forward power.

7 SYSTEM PERFORMANCE CHECK RESULTS

System Validation Dipole: D835V2 SN:4d002

Date: January 22, 2007

Room Ambient Temperature = 22°C; Relative humidity = 30% Measured by: Ninous Davoudi

Body Simulating Liquid			SAR (mW/g)		Normalized to 1 W	Target	Deviation (%)	Limit (%)
f (MHz)	Temp. (°C)	Depth (cm)						
835	21	15	1g	2.39	9.56	9.71	-1.54	± 10
			10g	1.58	6.32	6.38	-0.94	± 10

Date: January 23, 2007

Room Ambient Temperature = 22°C; Relative humidity = 30% Measured by: Ninous Davoudi

Body Simulating Liquid			SAR (mW/g)		Normalized to 1 W	Target	Deviation (%)	Limit (%)
f (MHz)	Temp. (°C)	Depth (cm)						
835	21	15	1g	2.44	9.76	9.71	0.51	± 10
			10g	1.62	6.48	6.38	1.57	± 10

System Validation Dipole: D1900V2 SN:5d043

Date: January 24, 2007

Room Ambient Temperature = 22°C; Relative humidity = 30% Measured by: Ninous Davoudi

Body Simulating Liquid			SAR (mW/g)		Normalized to 1 W	Target	Deviation (%)	Limit (%)
f (MHz)	Temp. (°C)	Depth (cm)						
1900	21	15	1g	9.71	38.84	39.8	-2.41	± 10
			10g	5.1	20.4	20.8	-1.92	± 10

Date: January 25, 2007

Room Ambient Temperature = 22°C; Relative humidity = 35% Measured by: Ninous Davoudi

Body Simulating Liquid			SAR (mW/g)		Normalized to 1 W	Target	Deviation (%)	Limit (%)
f (MHz)	Temp. (°C)	Depth (cm)						
1900	21	15	1g	9.77	39.08	39.8	-1.81	± 10
			10g	5.11	20.44	20.8	-1.73	± 10

8 SAR MEASURMENT PROCEDURE

A summary of the procedure follows:

a) A measurement of the SAR value at a fixed location is used as a reference value for assessing the power drop of the EUT. The SAR at this point is measured at the start of the test, and then again at the end of the test.

b) The SAR distribution at the exposed flat section of the flat phantom is measured at a distance of 4 mm from the inner surface of the shell. The area covers the entire dimension of the EUT and the horizontal grid spacing is 15 mm x 15 mm. Based on this data, the area of the maximum absorption is determined by Spline interpolation. The first Area Scan covers the entire dimension of the EUT to ensure that the hotspot was correctly identified.

For 5 GHz band - The SAR distribution at the exposed flat section of the flat phantom is measured at a distance of 2.0 mm from the inner surface of the shell. The area covers the entire dimension of the EUT and the horizontal grid spacing is 10 mm x 10 mm. Based on this data, the area of the maximum absorption is determined by Spline interpolation. The first Area Scan covers the entire dimension of the EUT to ensure that the hotspot was correctly identified.

c) Around this point, a volume of X=Y= 30 and Z=21 mm is assessed by measuring 5 x 5 x 7 mm points. On the basis of this data set, the spatial peak SAR value is evaluated with the following procedure:

For 5 GHz band - Around this point, a volume of X=Y=24 and Z=20 mm is assessed by measuring 7 x 7 x 9 mm points. On the basis of this data set, the spatial peak SAR value is evaluated with the following procedure:

(i) The data at the surface are extrapolated, since the centre of the dipoles is 1.2 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation is based on a least square algorithm. A polynomial of the fourth order is calculated through the points in z-axes. This polynomial is then used to evaluate the points between the surface and the probe tip.

(ii) The maximum interpolated value is searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g and 10 g) are computed using the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one-dimensional splines with the “Not a knot”- condition (in x, y and z-direction). The volume is integrated with the trapezoidal – algorithm. One thousand points (10 x 10 x 10) are interpolated to calculate the averages.

(iii) All neighbouring volumes are evaluated until no neighbouring volume with a higher average value is found.

(iv) The SAR value at the same location as in Step (a) is again measured to evaluate the actual power drift.

8.1 DASY4 SAR MEASURMENT PROCEDURE

Step 1: Power Reference Measurement

The Power Reference Measurement and Power Drift Measurements are for monitoring the power drift of the device under test in the batch process. The Minimum distance of probe sensors to surface determines the closest measurement point to phantom surface. The minimum distance of probe sensors to surface is 2.1 mm. This distance cannot be smaller than the Distance of sensor calibration points to probe tip as defined in the probe properties (for example, 1.2 mm for an EX3DV3 probe type).

Step 2: Area Scan

The Area Scan is used as a fast scan in two dimensions to find the area of high field values, before doing a fine measurement around the hot spot. The sophisticated interpolation routines implemented in DASY4 software can find the maximum locations even in relatively coarse grids. When an Area Scan has measured all reachable points, it computes the field maximal found in the scanned area, within a range of the global maximum. The range (in dB) is specified in the standards for compliance testing. For example, a 2 dB range is required in IEEE Standard 1528, EN 50361 and IEC 62209 standards, whereby 3 dB is a requirement when compliance is assessed in accordance with the ARIB standard (Japan). If only one Zoom Scan follows the Area Scan, then only the absolute maximum will be taken as reference. For cases where multiple maximums are detected, the number of Zoom Scans has to be increased accordingly.

Step 3: Zoom Scan

Zoom Scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The Zoom Scan measures 5 x 5 x 7 points within a cube whose base faces are centered on the maxima found in a preceding area scan job within the same procedure. When the measurement is done, the Zoom Scan evaluates the averaged SAR for 1 g and 10 g and displays these values next to the job's label.

For 5 GHz band – Same as above except the Zoom Scan measures 7 x 7 x 9 points.

Step 4: Power drift measurement

The Power Drift Measurement measures the field at the same location as the most recent power reference measurement within the same procedure, and with the same settings. The Power Drift Measurement gives the field difference in dB from the reading conducted within the last Power Reference Measurement. This allows a user to monitor the power drift of the device under test within a batch process. The measurement procedure is the same as Step 1.

Step 5: Z-Scan

The Z Scan measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. In order to get a reasonable extrapolation, the extrapolated distance should not be larger than the step size in Z-direction.

9 PROCEDURE USED TO ESTABLISH TEST SIGNAL

The following setting is used to configure the CMU200 to establish the link for SAR testing.

Service selection ➔ Test Mode A – Auto Slot Config. ➔ off
Main Service ➔ Packet Data
Network Support ➔ GSM+GPRS
Slot Config ➔ 33 dBm for GSM850/EGSM900 and 30 dBm for GSM1900

Conducted power:

GSM850

Channel	Frequency (MHz)	GPRS			
		1 slot Power (dBm)	2 slots Power (dBm)	3 slots Power (dBm)	4 slots Power (dBm)
128	824.2	32.2	32.1	29.0	26.1
192	837.0	32.1	32.0	29.0	26.0
251	848.8	32.1	32.0	29.0	26.0

Channel	Frequency (MHz)	EGPRS			
		1 slot Power (dBm)	2 slots Power (dBm)	3 slots Power (dBm)	4 slots Power (dBm)
128	824.2	27.2	27.2	27.1	26.1
192	837.0	27.1	27.0	26.9	26.9
251	848.8	27.1	27.0	27.1	26.0

GSM1900

Channel	Frequency (MHz)	GPRS			
		1 slot Power (dBm)	2 slots Power (dBm)	3 slots Power (dBm)	4 slots Power (dBm)
512	1850.2	29.6	29.6	29.5	29.4
661	1880.0	29.3	29.2	29.2	29.1
810	1909.8	29.2	29.1	28.8	28.8

Channel	Frequency (MHz)	EGPRS			
		1 slot Power (dBm)	2 slots Power (dBm)	3 slots Power (dBm)	4 slots Power (dBm)
512	1850.2	26.8	26.8	26.8	26.7
661	1880.0	26.4	26.4	26.5	26.3
810	1909.8	26.2	26.2	26.2	26.2

The following settings were used to configure the Wireless Communications Test Set, Agilent 8960 Series 10, E5515C.

Instrument information:

Application: WCDMA Lap App C
E6703C C.03.11
Format: WCDMA

Call Control:

Cell Parameters: PS Domain Information > Present
ATT (IMSI Attach) Flag State > Set
Security Info: Security Parameter - System Operations > None

Call Parms:
Channel Type: 12.2k RMC
Paging Service: RB Test Mode

HSDPA Parameters:
HSDPA RB Test Mode Setup
FRC Type > H-Set 5 QPSK
CN Domain > PS Domain
Uplink 64k DTCH for HSDPA Loopback State > On
HS-DSCH Data Pattern > CCITT PRBS15
RLC Header on HS-DSCH > Present

DL DTCH Data: All Ones
RLC Reestablish: Off
Call Limit State: Off
Call Drop Timer: Off
SRB Config.: 13.6k DCCH

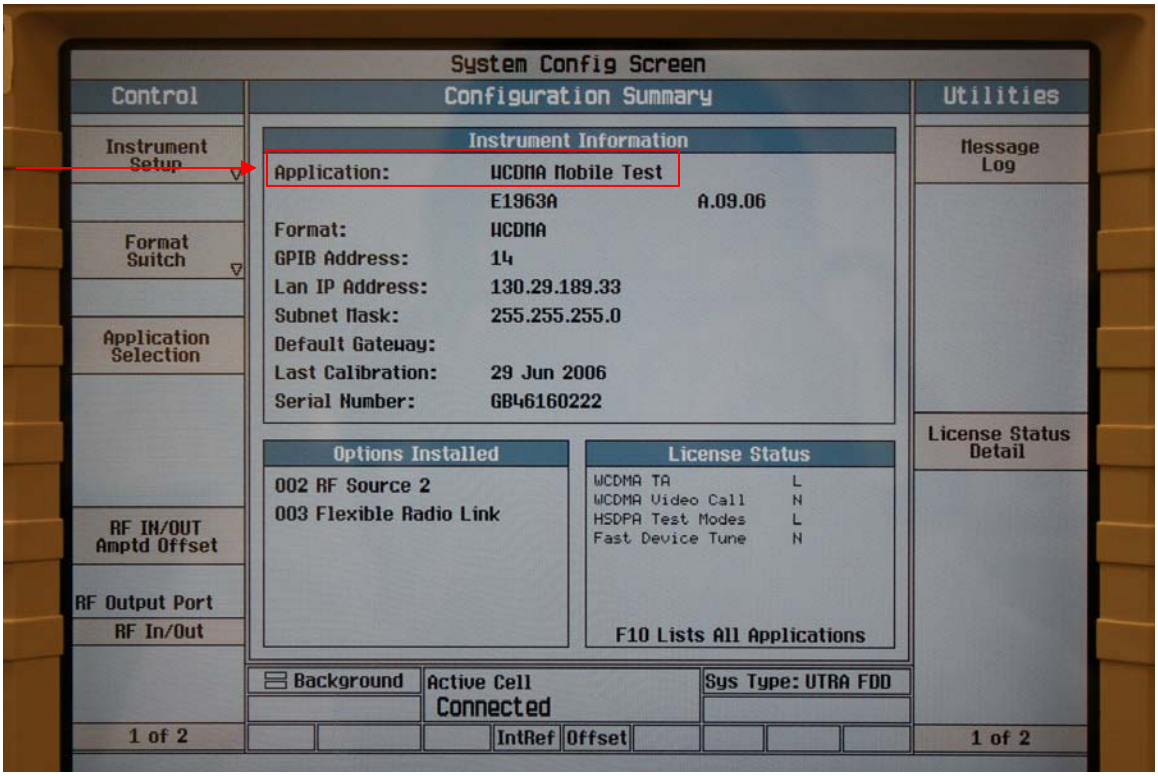
UE Target Power: -5 dBm
UL CL Pwr Ctrl Parms: Active bits (Select “All Up bits” after linked to get maximum power)
DL Channel: 9662 / 9800 / 9938 / 4357 / 4407 / 4458
UL Channel: 9262 / 9400 / 9538 / 4132 / 4182 / 4233

Conducted power:

Ch	f (MHz)	Power
4132	826.4	22.9
4182	836.4	23.2
4233	846.6	23.3
Ch	f (MHz)	Power
9262	1852.4	23.3
9400	1880	23.2
538	1907.6	22.8

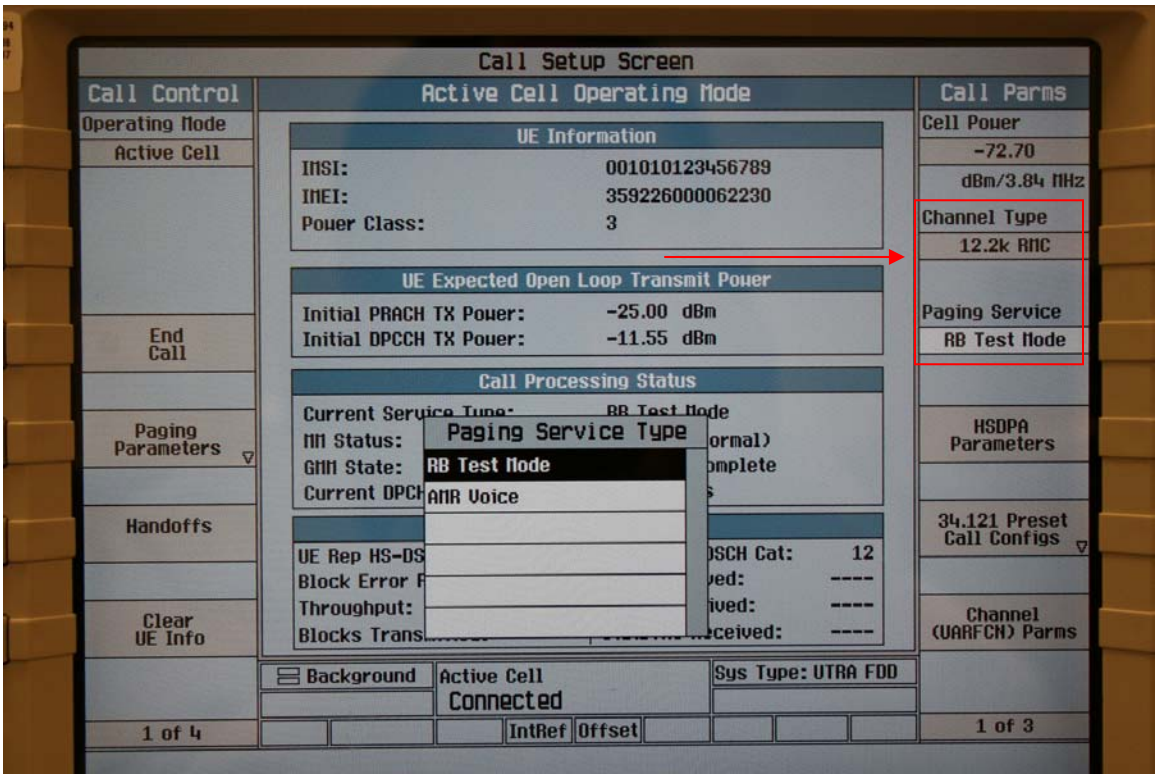
The following settings were used to configure the Wireless Communications Test Set, Agilent 8960 Series 10, E5515C.

Application: WCDMA Mobile Test

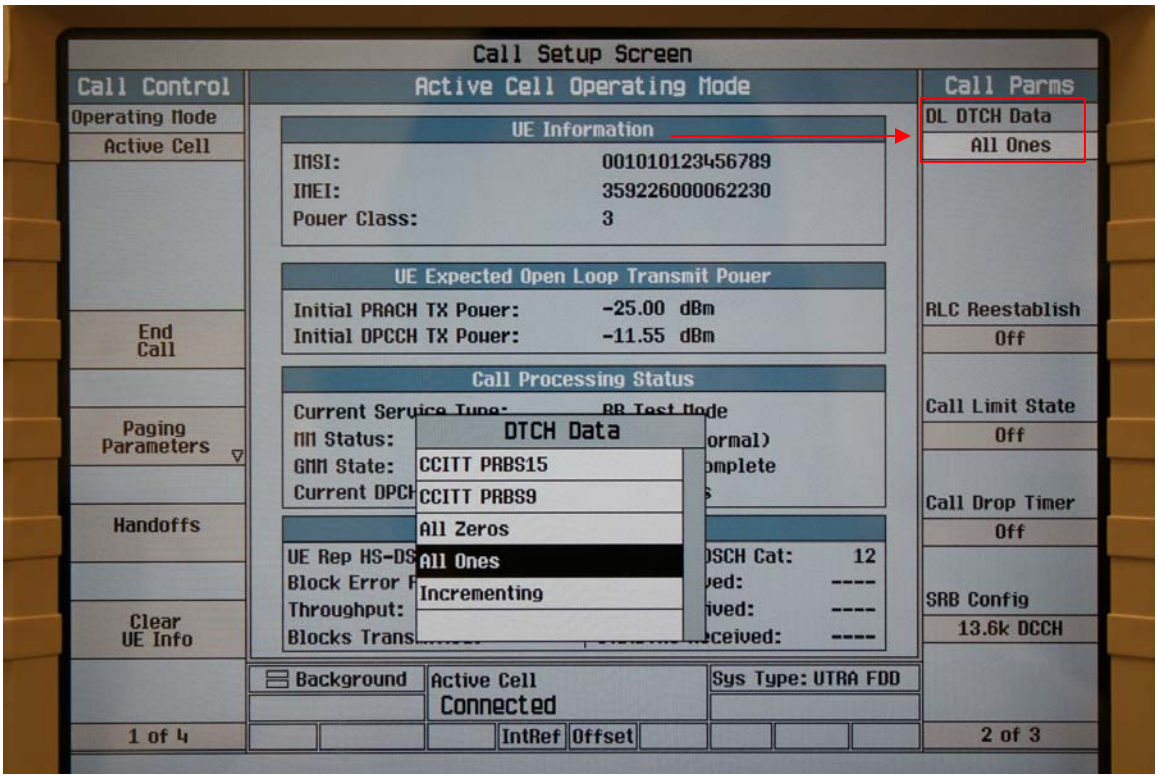


Channel Type: 12.2k RMC

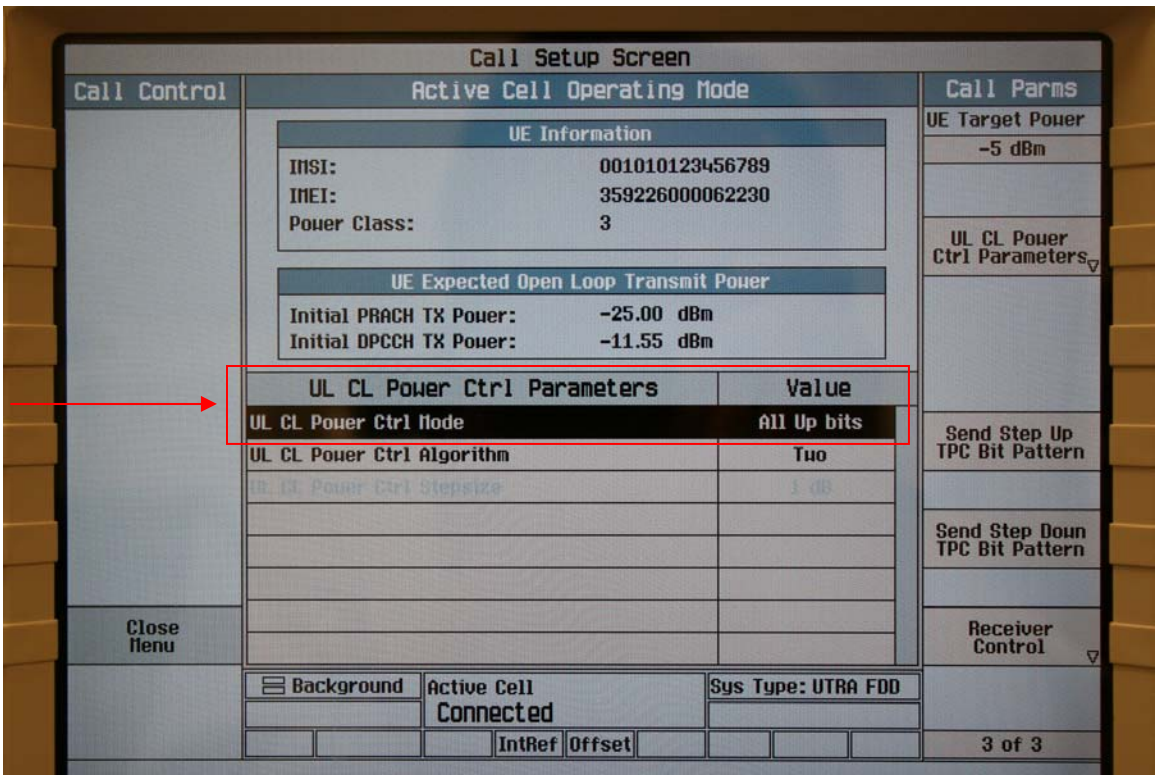
Paging Service: RB Test Mode



DL DTCH Data: All Ones



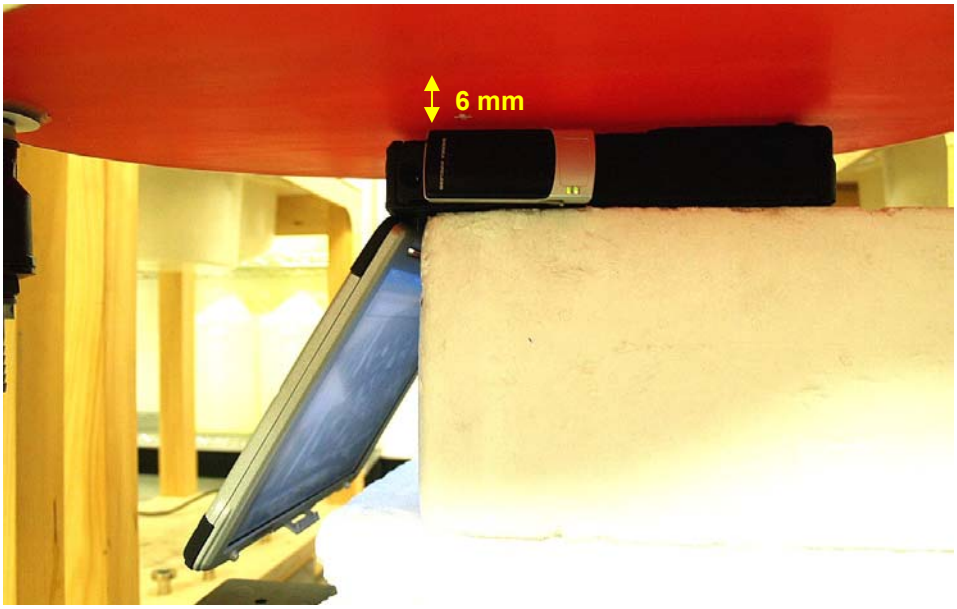
UL CL Power Ctrl Parameters: All Up bits



10 SAR MEASURMENT RESULTS

10.1 PCS BAND

10.1.1 PANASONIC CF-29

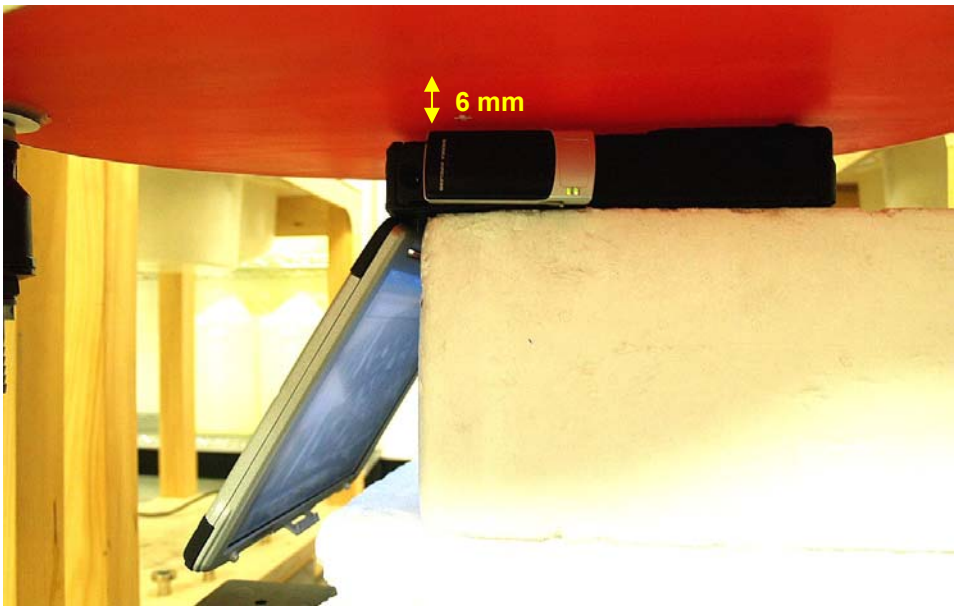


GPRS - 1 Slot				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
512 661 810	1850.20 1880.00 1909.80	0.224	0.000	0.224
GPRS - 2 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
512 661 810	1850.20 1880.00 1909.80	0.424	-0.118	0.436
GPRS - 3 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
512 661 810	1850.20 1880.00 1909.80	0.568	-0.175	0.591
GPRS - 4 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
512	**1850.20**	**0.883**	**-0.186**	**0.922**
661	1880.00	0.734	-0.144	0.759
810	1909.80	0.707	0.110	0.689

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.

10.1.2 PANASONIC CF-29

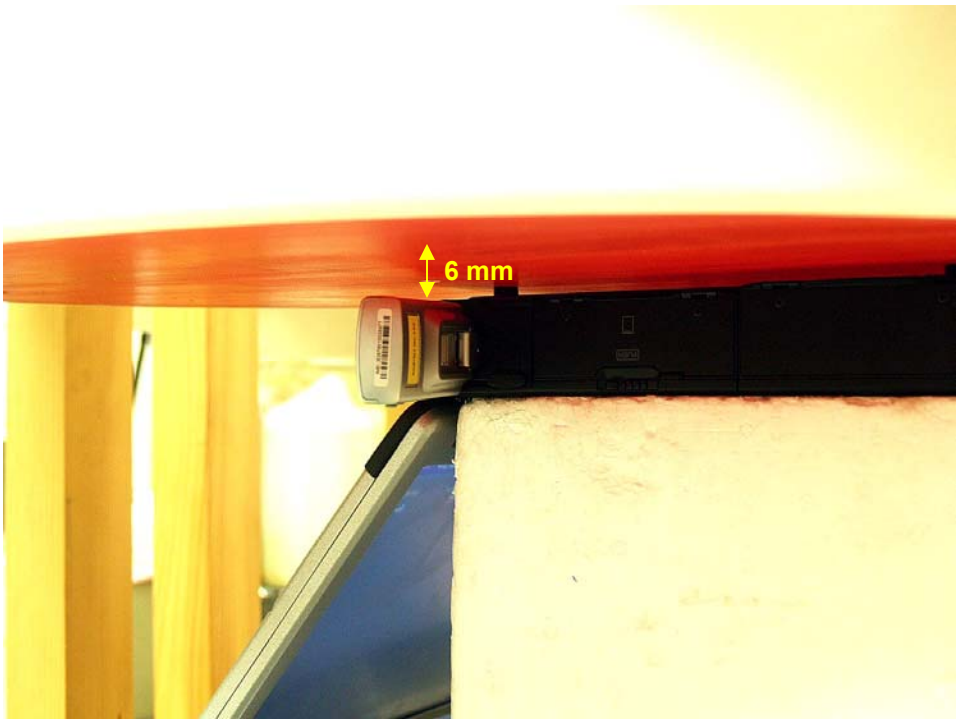


EGPRS - 4 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
512 661 810	1850.20 1880.00 1909.80	0.414	-0.095	0.423
WCDMA				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
9262 9400 9538	1852.40 1880.00 1907.60	0.501	-0.163	0.520

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.

10.1.3 PANASONIC CF-29

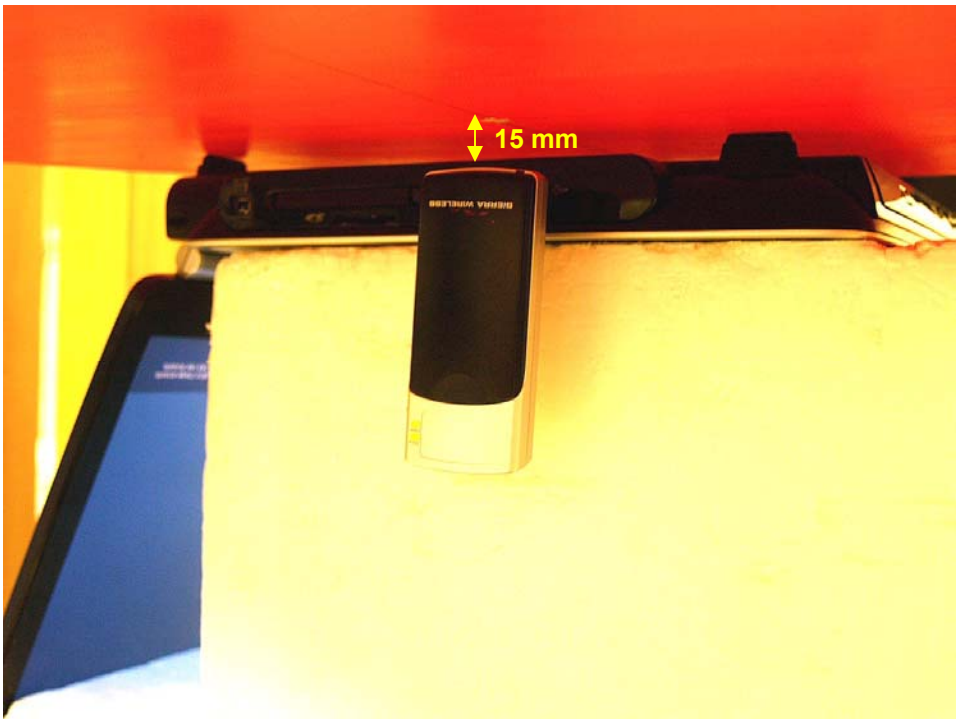


GPRS - 4 Slots - side opened				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1)] SAR 1g (mW/g)**
512 661 810	1850.20 1880.00 1909.80	0.634	-0.110	0.650
WCDMA - side opened				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1)] SAR 1g (mW/g)**
9262 9400 9538	1852.40 1880.00 1907.60	0.553	-0.139	0.571

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.

10.1.4 TOSHIBA SATELLITE – VERTICAL POSITION

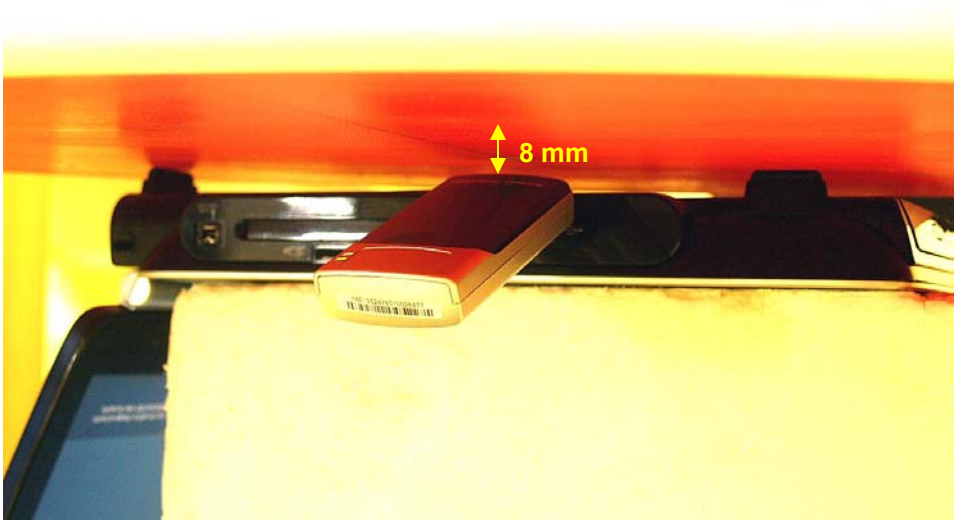


GPRS - 4 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
512 661 810	1850.20 1880.00 1909.80	0.191	0.000	0.191
EGPRS - 4 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
512 661 810	1850.20 1880.00 1909.80	0.152	-0.032	0.153
WCDMA				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
9262 9400 9538	1852.40 1880.00 1907.60	0.164	-0.069	0.167

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.

10.1.5 TOSHIBA SATELLITE – HORIZONTAL POSITION



GPRS - 1 Slot

Channel	f (MHz)	Measured SAR 1g (mW/g)	Power Drift (dB)	Extrapolated[1)] SAR 1g (mW/g)
512	1850.20			
661	1880.00	0.357	-0.069	0.363
810	1909.80			

GPRS - 2 Slots

Channel	f (MHz)	Measured SAR 1g (mW/g)	Power Drift (dB)	Extrapolated[1)] SAR 1g (mW/g)
512	1850.20			
661	1880.00	0.589	-0.088	0.601
810	1909.80			

GPRS - 3 Slots

Channel	f (MHz)	Measured SAR 1g (mW/g)	Power Drift (dB)	Extrapolated[1)] SAR 1g (mW/g)
512	1850.20	0.780	-0.044	0.788
661	1880.00	0.808	-0.056	0.819
810	1909.80	0.699	-0.005	0.700

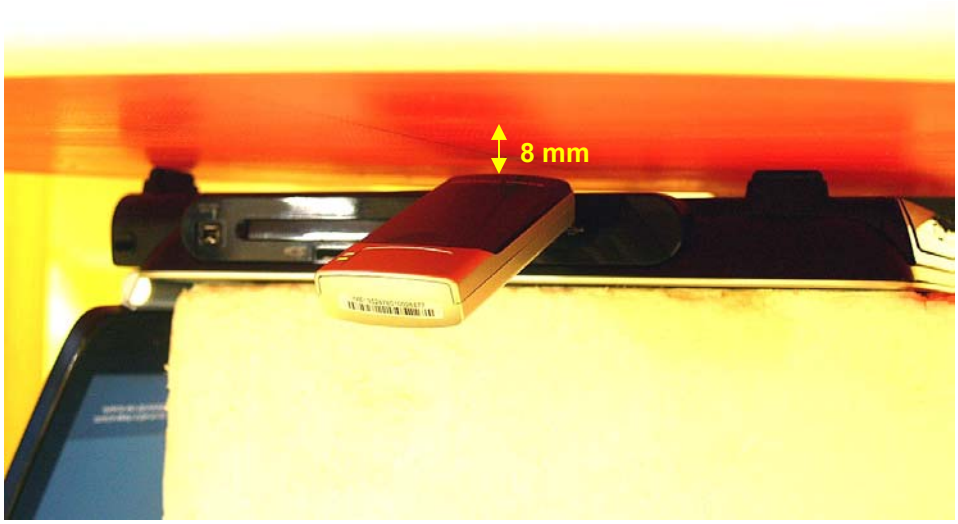
GPRS - 4 Slots

Channel	f (MHz)	Measured SAR 1g (mW/g)	Power Drift (dB)	Extrapolated[1)] SAR 1g (mW/g)
512	1850.20	1.090	-0.102	1.116
661	**1880.00**	**1.160**	**-0.156**	**1.202**
810	1909.80	0.897	-0.128	0.924

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.

10.1.6 TOSHIBA SATELLITE – HORIZONTAL POSITION



EGPRS - 4 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
512 661 810	1850.20 1880.00 1909.80	0.621	-0.228	0.654
WCDMA				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
9262 9400 9538	1852.40 1880.00 1907.60	0.655	-0.162	0.680

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.

10.1.7 COMPAQ PRESARIO R3000 - VERTICAL POSITION

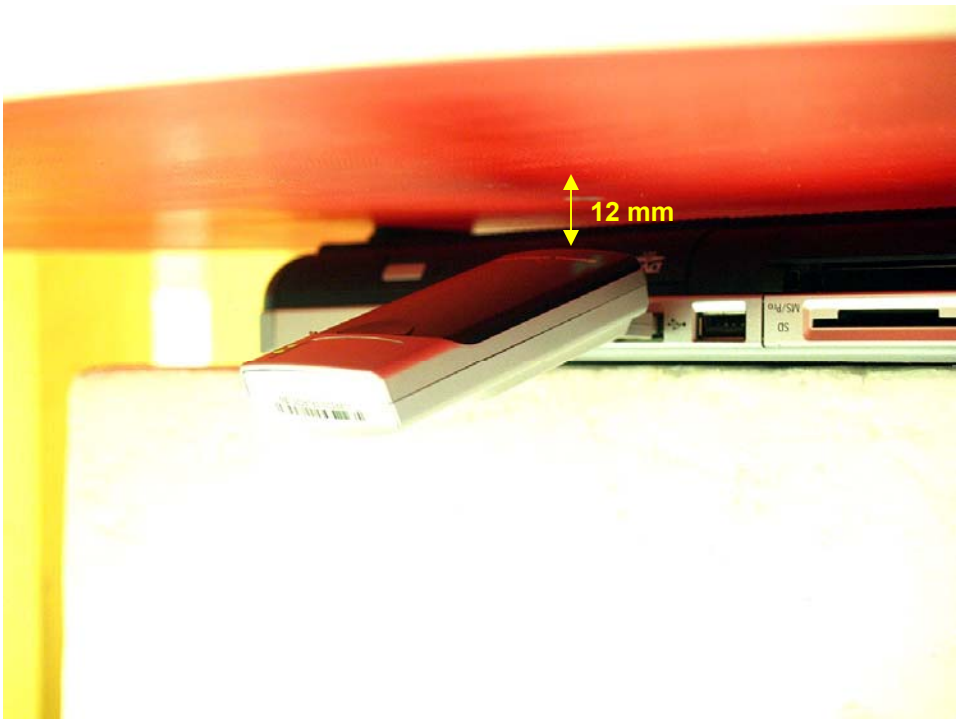
GPRS - 4 slots

Channel	f (MHz)	Measured SAR 1g (mW/g)	Power Drift (dB)	Extrapolated[1)] SAR 1g (mW/g)
512	1850.20			
661	1880.00	0.080	-0.130	0.082
810	1909.80			

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.
3) EGPRS & WCDMA is skipped since the SAR values are too low

10.1.8 COMPAQ PRESARIO R3000 – HORIZONTAL POSITION



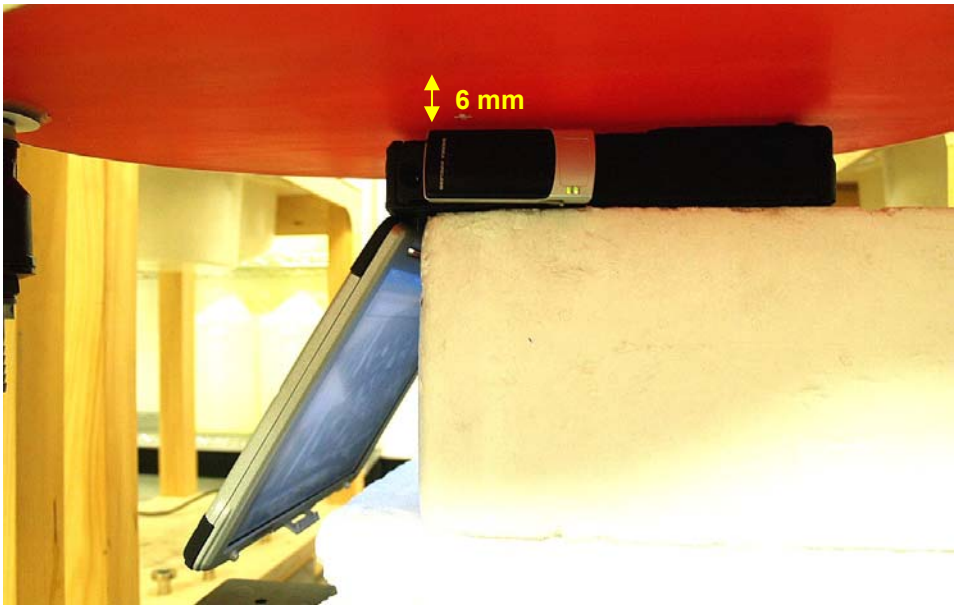
GPRS - 4 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
512 661 810	1850.20 1880.00 1909.80	0.480	-0.163	0.498
EGPRS - 4 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
512 661 810	1850.20 1880.00 1909.80	0.238	-0.130	0.245
WCDMA				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
9262 9400 9538	1852.40 1880.00 1907.60	0.045	-0.190	0.047

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.
3) EGPRS & WCDMA is skipped since the SAR values are too low

10.2 CELL BAND

10.2.1 PANASONIC CF-29

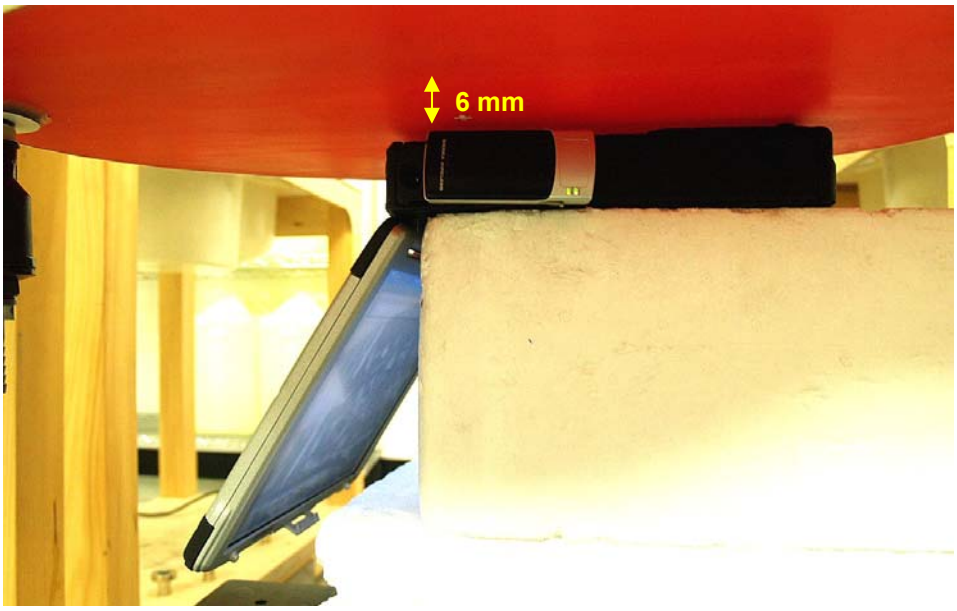


GPRS - 1 Slot				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
128 192 251	824.20 837.00 848.80	0.382	-0.077	0.389
GPRS - 2 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
128 192 251	**824.20** 837.00 848.80	**0.828** 0.722 0.677	**-0.120** -0.219 -0.045	**0.851** 0.759 0.684
GPRS - 3 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
128 192 251	824.20 837.00 848.80	0.534	-0.133	0.551
GPRS - 4 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
128 192 251	824.20 837.00 848.80	0.368	-0.085	0.375

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.

10.2.2 PANASONIC CF-29

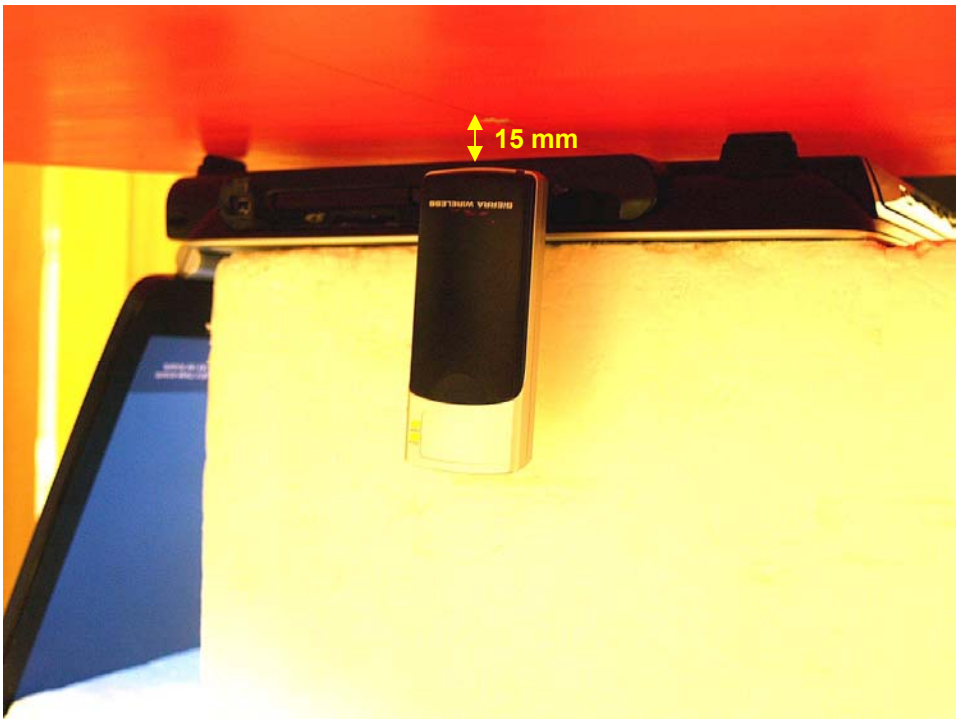


EGPRS - 4 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
128 192 251	824.20 837.00 848.80	0.388	-0.122	0.399
WCDMA				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
4132 4182 4233	826.40 836.40 846.60	0.374	-0.187	0.390

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.

10.2.3 TOSHIBA SATELLITE – VERTICAL POSITION

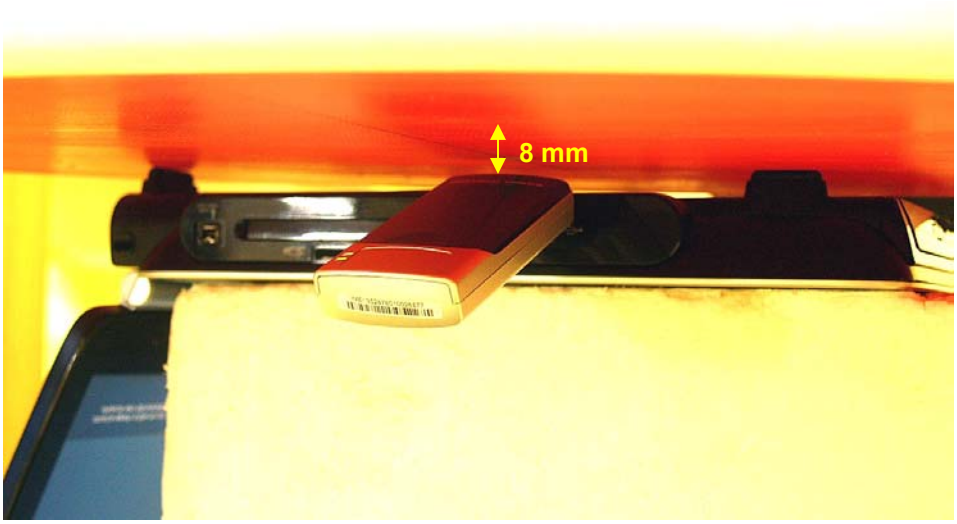


GPRS - 2 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
128 192 251	824.20 837.00 848.80	0.042	0.000	0.042
EGPRS - 4 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
128 192 251	824.20 837.00 848.80	0.019	-0.121	0.020
WCDMA				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
4132 4182 4233	826.40 836.40 846.60	0.017	0.000	0.017

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.

10.2.4 TOSHIBA SATELLITE – HORIZONTAL POSITION

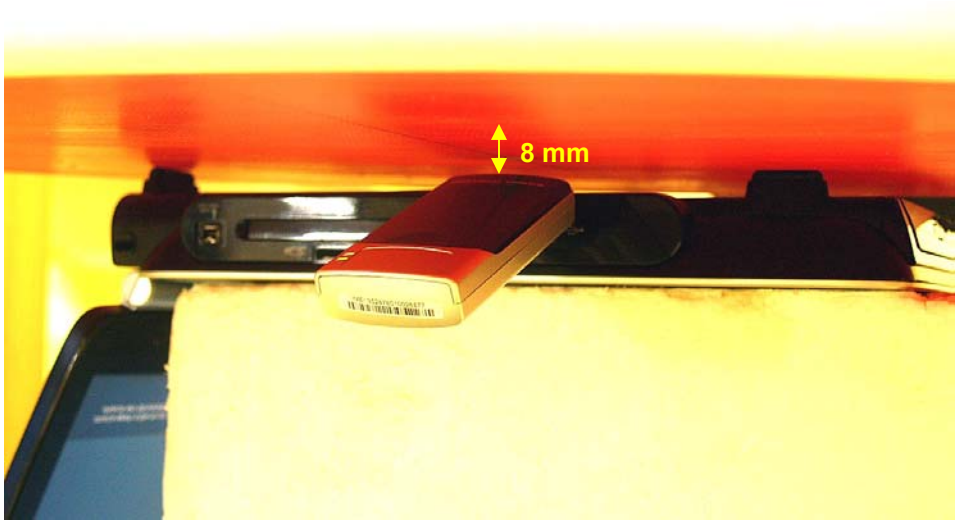


GPRS - 1 Slot				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
128 192 251	824.20 837.00 848.80	0.664	0.000	0.664
GPRS - 2 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
128 **192** 251	824.20 **837.00** 848.80	1.220 **1.330** 1.200	-0.132 **-0.144** -0.104	1.258 **1.375** 1.229
GPRS - 3 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
128 192 251	824.20 837.00 848.80	0.914 0.955 0.896	-0.129 -0.172 -0.110	0.942 0.994 0.919
GPRS - 4 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
128 192 251	824.20 837.00 848.80	0.616	-0.153	0.638

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.

10.2.5 TOSHIBA SATELLITE – HORIZONTAL POSITION



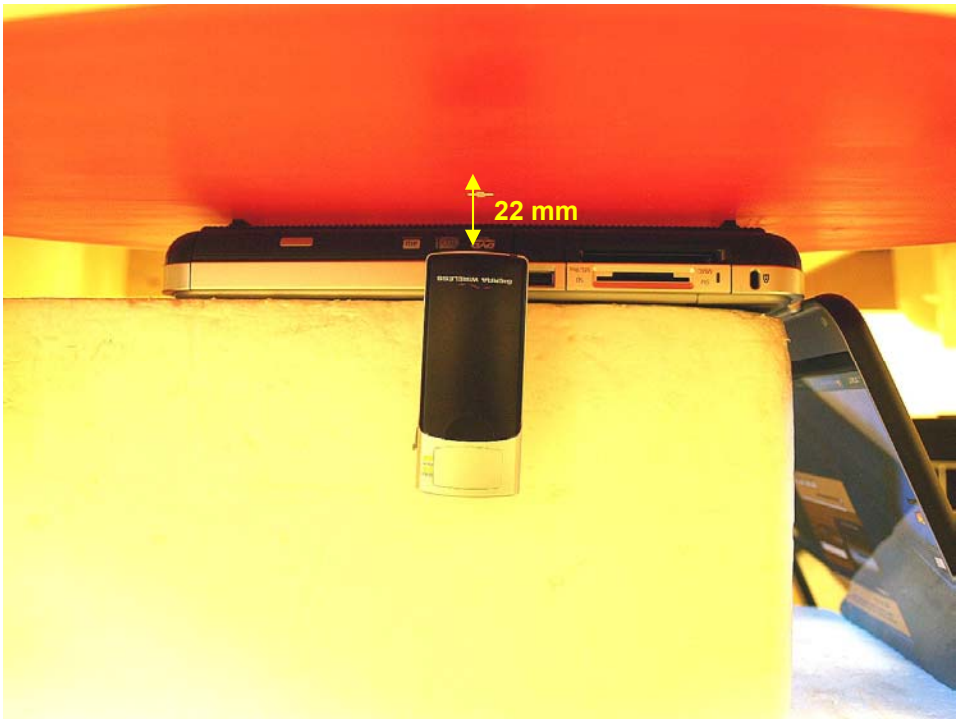
EGPRS - 4 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
128 192 251	824.20 837.00 848.80	0.661	-0.133	0.682
WCDMA				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1] SAR 1g (mW/g)**
4132 4182 4233	826.40 836.40 846.60	0.511	0.000	0.511

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.

10.2.6 COMPAQ PRESARIO R3000 – VERTICAL POSITION

EGPRS & WCDMA is skipped since the SAR values are too low.



GPRS - 2 slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1)] SAR 1g (mW/g)**
128 192 251	824.20 837.00 848.80	0.014	0.000	0.014

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.
3) EGPRS & WCDMA is skipped since the SAR values are too low.

10.2.7 COMPAQ PRESARIO R3000 – HORIZONTAL POSITION

GPRS - 2 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1)] SAR 1g (mW/g)**
128 192 251	824.20 837.00 848.80	0.520	0.000	0.520
EGPRS - 4 Slots				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1)] SAR 1g (mW/g)**
128 192 251	824.20 837.00 848.80	0.241	0.000	0.241
WCDMA				
Channel	**f (MHz)**	**Measured SAR 1g (mW/g)**	**Power Drift (dB)**	**Extrapolated[1)] SAR 1g (mW/g)**
4132 4182 4233	826.40 836.40 846.60	0.200	-0.037	0.202

Notes:

1) The exact method of extrapolation is Measured SAR x 10^(-drift/10). The SAR reported at the end of the measurement process by the DASY4 system can be scaled up by the Power drift to determine the SAR at the beginning of the measurement process.
2) Please see attachments for the detailed measurement data and plots showing the maximum SAR location of the EUT.
3) EGPRS & WCDMA is skipped since the SAR values are too low

11 MEASURMENT UNCERTAINTY

11.1 MEASURMENT UNCERTAINTY FOR 300 MHz – 3000 MHz

Uncertainty component	Tol. (±%)	Probe Dist.	Div.	Ci (1g)	Ci (10g)	Std. Unc.(±%)	
						Ui (1g)	Ui(10g)
Measurement System							
Probe Calibration	4.80	N	1	1	1	4.80	4.80
Axial Isotropy	4.70	R	1.732	0.707	0.707	1.92	1.92
Hemispherical Isotropy	9.60	R	1.732	0.707	0.707	3.92	3.92
Boundary Effects	1.00	R	1.732	1	1	0.58	0.58
Linearity	4.70	R	1.732	1	1	2.71	2.71
System Detection Limits	1.00	R	1.732	1	1	0.58	0.58
Readout Electronics	1.00	N	1	1	1	1.00	1.00
Response Time	0.80	R	1.732	1	1	0.46	0.46
Integration Time	2.60	R	1.732	1	1	1.50	1.50
RF Ambient Conditions - Noise	1.59	R	1.732	1	1	0.92	0.92
RF Ambient Conditions - Reflections	0.00	R	1.732	1	1	0.00	0.00
Probe Positioner Mechnical Tolerance	0.40	R	1.732	1	1	0.23	0.23
Probe Positioning With Respect to Phantom Shell	2.90	R	1.732	1	1	1.67	1.67
Extrapolation, interpolation, and integration algorithms for max. SAR evaluation	3.90	R	1.732	1	1	2.25	2.25
Test sample Related							
Test Sample Positioning	1.10	N	1	1	1	1.10	1.10
Device Holder Uncertainty	3.60	N	1	1	1	3.60	3.60
Power and SAR Drift Measurement	5.00	R	1.732	1	1	2.89	2.89
Phantom and Tissue Parameters							
Phantom Uncertainty	4.00	R	1.732	1	1	2.31	2.31
Liquid Conductivity - Target	5.00	R	1.732	0.64	0.43	1.85	1.24
Liquid Conductivity - Meas.	8.60	N	1	0.64	0.43	5.50	3.70
Liquid Permittivity - Target	5.00	R	1.732	0.6	0.49	1.73	1.41
Liquid Permittivity - Meas.	3.30	N	1	0.6	0.49	1.98	1.62
Combined Standard Uncertainty	RSS					11.44	10.49
Expanded Uncertainty (95% Confidence Interval)	K=2					22.87	20.98

Notesfor table
1. Tol. - tolerance in influence quaitity
2. N - Nomal
3. R - Rectangular
4. Div. - Divisor used to obtain standard uncertainty
5. Ci - is te sensitivity coefficient

12 EQUIPMENT LIST AND CALIBRATION

Name of Equipment	Manufacturer	Type/Model	Serial Number	Cal. Due date		
				MM	DD	Year
Robot - Six Axes	Stäubli	RX90BL	N/A		N/A	
Robot Remote Control	Stäubli	CS7MB	3403-91535		N/A	
DASY4 Measurement Server	SPEAG	SEUMS001BA	1041		N/A	
Probe Alignment Unit	SPEAG	LB (V2)	261		N/A	
SAM Phantom (SAM1)	SPEAG	TP-1185	QD000P40CA		N/A	
SAM Phantom (SAM2)	SPEAG	TP-1015	N/A		N/A	
Electronic Probe kit	HP	85070C	N/A		N/A	
S-Parameter Network Analyzer	Agilent	8753ES-6	US39173569	2	9	2007
E-Field Probe	SPEAG	EX3DV4	3552	5	30	2007
Data Acquisition Electronics	SPEAG	DAE3 V1	427	11	16	2007
System Validation Dipole	SPEAG	D835V2	4d002	1	23	2008
System Validation Dipole	SPEAG	D1900V2	5d043	1	29	2008
Power Meter	HP	438A	3513U04320	9	4	2007
Amplifier	Mini-Circuits	ZHL-42W	D072701-5		N/A	
Radio Communication Tester	R &S	CMU 200	838114/032	3	21	2007
Radio Communication Tester	Agilent	E5515C	GB46160222	1	29	2007
Simulating Liquid	CCS	M835	N/A	Within 24 hrs of first test		
Simulating Liquid	CCS	M1900	N/A	Within 24 hrs of first test		

13 PHOTOS

EUT

Panasonic CF-29 with Vertical USB Port

Toshiba Satellite with Horizontal USB Port

Compaq Presario R3000 with Horizontal USB Port

14 ATTACHMENTS

No.	Contents	No. Of Pages
1	System Performance Check Plots	8
2-1	SAR Test Plots – PCS Band	26
2-2	SAR Test Plots – Cell Band	26
3	Certificate of E-Field Probe - EXDV4SN3552	9
4	Certificate of System Validation Dipole - D835V2 SN:4d002	9
5	Certificate of System Validation Dipole - D1900V2 SN:5d043	9

END OF REPORT