TEST REPORT
FROM
RADIO FREQUENCY
INVESTIGATION LTD.

Test of: Intel Corporation.
Pro/Wireless GPRS 3110 PC Card

To: OET Bulletin 65 Supplement C: (2001-01)

Test Report Serial No:
RFI/SARB2/RP70438JD10A

Supersedes Test Report Serial No:
RFI/SARB1/RP70438JD01A

This Test Report Is Issued Under The Authority Of Richard Jacklin, Operations Director: 	**Checked By:** 
Tested By: 	**Release Version No:** **PDF01**
Issue Date: 22 January 2003	**Test Dates: 11 October 2002**

It should be noted that the standard, OET Bulletin 65 Supplement C: (2001-01) is not listed on RFIs current UKAS schedule and is therefore "not UKAS accredited".

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Note: Test Report Serial No: RFI/SARB2/RP70438JD10A supersedes Test Report Serial No: RFI/SARB1/RP70438JD01A.

1. Client Information

1.1. Client Details

Company Name:	Intel Corporation.
Address:	1357 Garden of the Gods Road Colorado Springs CO 80907 USA
Contact Name:	Mr K Rice

1.2. Test Laboratory

Company Name:	Radio Frequency Investigation Ltd.
Address:	Ewhurst Park Ramsdell Basingstoke Hampshire RG26 5RQ.
Contact Name:	Mr. J. Lomako

2. Equipment Under Test (EUT)

The following information (with the exception of the Date of Receipt) has been supplied by the client:

2.1. Identification Of Equipment Under Test (EUT)

Brand Name	Intel
Model Name or Number	Pro/Wireless GPRS 3110 PC Card
Unique Type Identification	1G 3110
Serial Number	299
FCC Identification	PUKIG3110
Country Of Manufacture	Malaysia
Date Of Receipt	07 October 2002

Brand Name	Plantronics
Model Name or Number	PHF (Personal Hands Free)
Unique Type Identification	None stated by client
Serial Number	None stated by client
Country Of Manufacture	None stated by client
Date Of Receipt	07 October 2002

2.2. Modifications Incorporated In EUT

The client has stated that the EUT has not been modified from what is described by the Model Name and Unique Type Identification stated above.

2.3. Additional Information Related to the EUT

Equipment Class:	PCMCIA Card
FCC Rule Part(s):	OET Bulletin 65 Supplement C
Application Type:	Certification
Transmitter Frequency Range 1900 MHz Band (MHz):	1850 MHz to 1910 MHz
Receiver Frequency Range 1900 MHz Band (MHz):	1930 MHz to 1990 MHz
Transmit Frequency Allocation Of EUT When Under Test (Channels):	Bottom Channel – 512 Centre Channel – 660 Top Channel – 810
Modulation(s):	GSM 1900
Modulation Scheme (Crest Factor)	GPRS (Crest Factor 4)
Equipment Type	Portable
Measured Output Power (Max Conducted):	28.62 dBm
Battery Type(s):	Not Applicable. The EUT is powered by the host support equipment.
Antenna Length and Type:	External
Number Of Antenna Positions	2 (Antenna up/down)
Intended Operating Environment:	Residential, Commercial, Light Industry
Weight:	Approx. 72 g
Dimensions (without Antenna) mm:	Approx. 115 x 54 x 10 mm
Power Supply Requirement:	
DC Supply (Volts/Amps)	3 V via supplied laptop
AC Supply (Volts/Amps)	Not applicable
Internal Battery (Volts/Amps)	Not applicable
Port(s):	Enclosure Card Slot to PC

2.4. Support Equipment

Description:	Laptop
Brand Name:	IBM
Model Name or Number:	Thinkpad T20
Serial Number:	1Z10D0360P4
Connected to Port:	PCMCIA

Description:	Laptop
Brand Name:	Toshiba
Model Name or Number:	Satellite S221
Serial Number:	72100202IP
Connected to Port:	PCMCIA

Description:	Laptop
Brand Name:	DELL
Model Name or Number:	Latitude C600/C500
Serial Number:	TW-09C748-12800-17Q-6510
Connected to Port:	PCMCIA

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 Radiofrequency Electromagnetic Fields.
Purpose of Test:	To determine whether the equipment complied with the requirements of the specification.

3.2. Methods And Procedures

The methods and procedures used were as detailed in:

EN 50361: 2001
Title: Basic standard for the measurement of specific absorption rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz).

ANSI/IEEE C95.1: 1999
IEEE standard for safety levels with respect to human exposure to radio frequency electromagnetic fields, 3 kHz to 300 GHz.

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.

3.3. Definition Of Measurement Equipment

The measurement equipment used complied with the requirements as detailed in OET Bulletin 65 Supplement C, Appendix D.

4. Deviations From The Test Specification

None

5. Operation Of The EUT During Testing

The equipment under test is a standard production model.

5.1. Operating Modes

The EUT was tested in the following operating configurations:

Transmitter GPRS transmitting on 2 timeslots.

6. Summary Of Test Results

6.1. Summary Of Tests

Test Name	Specification Reference	Compliancy Status
Specific Absorption Rate (SAR)	OET Bulletin 65 Supplement C	Complied (Not UKAS accredited)

6.2. Test Results For Specific Absorption Rate - 1900 MHz

6.2.1. Specific Absorption Rate - 1900 MHz Band – EUT connected to IBM Laptop

Environmental Conditions

Temperature Variation in Lab (°C):	21.5 to 22.0
Temperature Variation in Liquid (°C):	19.5 to 19.8

Conducted Power before Test:	Refer to Appendix 2
Conducted Power after Test:	Refer to Appendix 2

Position	Side of Head	Frequency Channel No	Distance from antenna to phantom (mm)	SAR Level (W/kg) 1g	SAR Limit (W/kg) 1g	Margin (W/kg) 1g	Result
0 degrees to phantom with antenna down	Flat	660	10	1.056	1.6	0.544	Complied
0 degrees to phantom with antenna up	Flat	660	10	0.837	1.6	0.763	Complied
90 degrees to phantom with antenna down	Flat	660	15	0.446	1.6	1.154	Complied
90 degrees to phantom with antenna up	Flat	660	15	0.371	1.6	1.229	Complied
0 degrees to phantom with antenna down	Flat	512	10	1.336	1.6	0.264	Complied
0 degrees to phantom with antenna down	Flat	810	10	0.968	1.6	0.632	Complied
0 degrees to phantom with antenna up with PHF	Flat	512	10	0.992	1.6	0.608	Complied
0 degrees to phantom with antenna up and PHF	Flat	660	10	0.726	1.6	0.874	Complied
0 degrees to phantom with antenna up and PHF	Flat	810	10	0.593	1.6	1.007	Complied

6.3. Test Results For Specific Absorption Rate - 1900 MHz

6.3.1. Specific Absorption Rate - 1900 MHz Band - EUT connected to Toshiba Laptop

Environmental Conditions

Temperature Variation in Lab (°C):	21.5 to 21.5
Temperature Variation in Liquid (°C):	19.8 to 19.7

Conducted Power before Test:	Refer to Appendix 2
Conducted Power after Test:	Refer to Appendix 2

Position	Side of Head	Frequency Channel No	Distance from antenna to phantom (mm)	SAR Level (W/kg) 1g	SAR Limit (W/kg) 1g	Margin (W/kg) 1g	Result
0 degrees to phantom with antenna down	Flat	660	13	0.765	1.6	0.835	Complied
0 degrees to phantom with antenna up	Flat	660	13	0.627	1.6	0.973	Complied
90 degrees to phantom with antenna down	Flat	660	15	0.375	1.6	1.225	Complied
90 degrees to phantom with antenna up	Flat	660	15	0.367	1.6	1.233	Complied
0 degrees to phantom with antenna down	Flat	512	13	0.892	1.6	0.708	Complied
0 degrees to phantom with antenna down	Flat	810	13	0.616	1.6	0.984	Complied

6.4. Test Results For Specific Absorption Rate - 1900 MHz

6.4.1. Specific Absorption Rate - 1900 MHz Band - EUT connected to Dell Laptop

Environmental Conditions

Temperature Variation in Lab (°C):	21.5 to 21.5
Temperature Variation in Liquid (°C):	19.6 to 19.8

Conducted Power before Test:	Refer to Appendix 2
Conducted Power after Test:	Refer to Appendix 2

Position	Side of Head	Frequency Channel No	Distance from antenna to phantom (mm)	SAR Level (W/kg) 1g	SAR Limit (W/kg) 1g	Margin (W/kg) 1g	Result
0 degrees to phantom with antenna down	Flat	660	15	0.862	1.6	0.738	Complied
0 degrees to phantom with antenna up	Flat	660	15	0.649	1.6	0.951	Complied
90 degrees to phantom with antenna down	Flat	660	15	0.556	1.6	1.044	Complied
90 degrees to phantom with antenna up	Flat	660	15	0.460	1.6	1.140	Complied
0 degrees to phantom with antenna down	Flat	512	15	1.016	1.6	0.584	Complied
0 degrees to phantom with antenna down	Flat	810	15	0.699	1.6	0.901	Complied

7. SAR Measurement System

7.1. Radio Frequency Investigation SAR measurement facility utilises the Dosimetric Assessment System (DASY™) manufactured by Schmid & Partner Engineering AG (SPEAG™) of Zurich, Switzerland. The DASY system is comprised of the robot controller, computer, near-field probe, probe alignment sensor, and the SAM phantom containing brain or muscle equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF). A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The Staubli robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card. The DAE3 utilises a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching mulitplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe-mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

8. SAR Safety Limits

Exposure Limits (General populations/Uncontrolled Exposure Environment)	**SAR** (W/Kg)
Spatial Peak (averaged over any 1 g of tissue)	1.60

Notes:

1. The FCC SAR safety limits specified in the table above apply to devices operated in the General Population / Uncontrolled Exposure Environment.

2. Uncontrolled environments are defined as locations where there is exposure of individuals who have no knowledge or control of their exposure.

9. Details of SAR Evaluation

9.1. The equipment under test was found to be compliant for localised specific absorption rate (SAR) based on the following provisions and conditions:

a) The Laptop was placed in a normal operating position with the test device reference point aligned with the centre of the flat section of the phantom.

b) The EUT was tested in the following configurations:

1) 0 degrees with antenna down
2) 0 degrees with antenna up
3) 90 degrees with antenna down
4) 90 degrees with antenna down

c) The EUT was then tested in the with the (PHF) personal handsfree kit in the laptop with the highest measured SAR value.

d) 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.

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

f) The location of the maximum spatial SAR distribution (Hot Spot) was determined relative to the handset and its antenna.

g) The EUT was tested with a fully charged battery.

10. Evaluation Procedures

10.1. The Specific Absorption Rate (SAR) evaluation was performed in the following manner:

a) (i) The evaluation was performed in an applicable area of the phantom depending on the type of device being tested. For devices worn about the ear during normal operation, both the left and right ear positions were evaluated at the centre frequency of the band at maximum power. The side, which produced the greatest SAR, determined which side of the phantom would be used for the entire evaluation. The positioning of the head worn device relative to the phantom was dictated by FCC OET bulletin 65 Supplement C.

(ii) For body worn devices or devices which can be operated within 20 cm of the body, the flat section of the phantom was used. The type of device being evaluated dictated the distance of the EUT to the outer surface of the phantom flat section.

b) The SAR was determined by a pre-defined procedure within the DASY3 software. The exposed region of the phantom was scanned near the inner surface with a grid spacing of 20mm x 20mm.

c) A 7x7x7 matrix was performed around the greatest spatial SAR distribution found during the area scan of the applicable exposed region. SAR values were then calculated using a 3-D spline interpolation algorithm and averaged over spatial volumes of 1 and 10 grams.

d) If the EUT had any appreciable drift over the course of the evaluation, then the EUT was re-evaluated. Any unusual anomalies over the course of the test also warranted a re-evaluation.

e) Testing was performed and evaluated according to Radiofrequency Radiation Exposure Limits, 2.1093.

11. System Validation

11.1. Prior to the assessment, the system was verified in the flat region of the phantom. A 1900 MHz dipole. A forward power of 250 mW was applied to the dipole and the system was verified to a tolerance of ±5%. The applicable verification (normalised to 1 Watt) is as follows:

Dipole Validation Kit	Target SAR 1g (w/kg)	Measured SAR 1g (w/kg)
D1900V2	42.4	41.6

12. Simulated Tissues

12.1. The brain and muscle mixtures consist of water and organic solvent. Visual inspection is made to ensure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the tissue.

Ingredient	Frequency	
	1900 MHz Brain	1900 MHz Muscle
Water	10.96 Litres	14.01 Litres
D.G.B.E. (Organic Solvent)	8.97 Litres	6.0 Litres
Salt	0.064 grams	42 grams

13. Tissue Parameters

13.1. The dielectric parameters of the fluids were verified prior to the SAR evaluation using a 58070C Dielectric Probe Kit and an 8753E Network Analyser. The measured dielectric parameters of the fluid are as follows:

Frequency (MHz)	Equivalent Tissue	Dielectric Constant ϵr	Conductivity σ (mho/m)
1850-1910	Brain	38.06 ±10%	1.46 ±10%
1850-1910	Muscle	54.15 ±10%	1.60 ±10%

14. DASY3 Systems Specifications

Robot System

Positioner:	Stäubli Unimation Corp. Robot Model: RX90L
Repeatability:	0.025 mm
No. of axis:	6
Serial Number:	F00/SD89A1/A/01
Reach:	1185 mm
Payload:	3.5 kg
Control Unit:	CS7
Programming Language:	V+

Data Acquisition Electronic (DAE) System

Cell Controller

PC:	Dell Optiplex GX110
Operating System:	Windows NT
Data Card:	DASY3 PC-Board
Serial Number:	220

Data Converter

Features:	Signal Amplifier, multiplexer, A/D converter and control logic.
Software:	DASY3 Software
Connecting Lines:	Optical downlink for data and status info. Optical uplink for commands and clock.

PC Interface Card

Function:	24 bit (64 MHz) DSP for real time processing Link to DAE3 16 nit A/D converter for surface detection system serial link to robot direct emergency stop output for robot.

E-Field Probe

Model:	ET3DV6
Serial No:	1529
Construction:	Triangular core fibre optic detection system
Frequency:	10 MHz to 3 GHz
Linearity:	±0.2 dB (30 MHz to 3 GHz)
Probe Length (mm):	337
Probe Diameter (mm):	12
Tip Length (mm):	10
Tip Diameter (mm):	6.8
Sensor X Offset (mm):	2.7
Sensor Y Offset (mm):	2.7
Sensor Z Offset (mm):	2.7

Phantom

Phantom:	SAM Phantom
Shell Material:	Fibreglass
Thickness:	2.0 ±0.1 mm

15. Validation results

15.1. System Validation

15.1.1. Validation of the system test configuration was carried out prior to testing.

Validation Dipole Type and Serial No.	Calibrated Value of SAR in 1g volume (W/kg) at 1900 MHz	Measured Value of SAR in 1g volume (W/kg) at 1900 MHz	Percentage Difference (<5%)
D1900V2 / 540	42.4	41.6	Yes

15.2. Liquid Properties - Body

15.2.1. Properties of the tissue simulating liquid were measured prior to testing.

Property	Target Value (1900 MHz)	Measured/Calculated Value (1900 MHz)	Percentage Difference (<10%)
Relative Permittivity	53.3	54.15	Yes
Conductivity	1.52	1.60	Yes

15.3. Temperature Variation

15.3.1. The temperature of the laboratory and within the tissue simulating liquid for this test shall not exceed the range +15ºC to +25ºC.

15.3.2. The actual temperature measured at the beginning and end of each test was recorded and the maximum range is shown below:

Measurement	Maximum Temperature	Minimum Temperature
Laboratory	22.0	21.5
Tissue Simulating Liquid	19.8	19.5

16. Measurement Uncertainty

16.1. 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.

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

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

16.4. 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”.

Measurement Type	**Range**	**Confidence Level**	**Calculated Uncertainty**
Specific Absorption Rate	1900 MHz	95%	± 18.02%

16.5. 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.

16.6. Measurement uncertainties in SAR measurements are difficult to quantify due to several variables including biological, physiological, and environment. However, the estimated measurement uncertainties in SAR are less than 30%.

16.7. According to ANSI/IEEE C95.3, the overall uncertainties are difficult to assess and will vary with the type of meter and usage situation. However, accuracy’s of ±1 to 3 dB can be expected in practice, with greater uncertainties in near-field situations and at higher frequencies (shorter wavelengths), or areas where large reflecting objects are present. Under optimum measurement conditions, SAR measurement uncertainties of at least ±2 dB can be expected.

16.8. According to CENELEC, typical worst-case uncertainty of field measurements is ±5 dB. For well-defined modulation characteristics the uncertainty can be reduced to ±3 dB.

Test Of: **Intel Corporation.**
Pro/Wireless GPRS 3110 PC Card
To: **OET Bulletin 65 Supplement C: (2001-01)**

Specific Absorption Rate Uncertainty at 1900 MHz, GSM Modulation Scheme calculated in accordance with IEEE 1528-200X

Type of Uncertainty	Source of uncertainty	Value ±%	Probability distribution	Divisor	C_i	$u_i(\ )$ ±	ν_i or ν_{eff}
B	Probe Calibration	9.5000	Normal	2.0000	1.0000	4.7500	∞
B	Axial Isotropy	2.3000	Rectangular	1.7321	0.7000	0.9295	∞
B	Hemisphrical Isotropy	4.7000	Rectangular	1.7321	0.7000	1.8995	∞
B	Spatial Resolution	0.5000	Rectangular	1.7321	1.0000	0.2887	∞
B	Boundary Effect	0.7390	Rectangular	1.7321	1.0000	0.4267	∞
B	Linearity	2.3300	Rectangular	1.7321	1.0000	1.3452	∞
B	Detecton Limits	0.2000	Rectangular	1.7321	1.0000	0.1155	∞
B	Readout Electronics	0.6500	Normal	2.0000	1.0000	0.3250	∞
B	Response time	0.0000	Rectangular	1.7321	1.0000	0.0000	∞
B	Integration Time	0.0040	Rectangular	1.7321	1.0000	0.0023	∞
B	RF Ambient Conditions	3.0000	Rectangular	1.7321	1.0000	1.7321	∞
B	Probe Positioner Mech. Restrictions	6.6700	Rectangular	1.7321	1.0000	3.8509	∞
B	Probe Positioning with regard to Phantom Shell	2.8500	Rectangular	1.7321	1.0000	1.6454	∞
B	Extrapolation and Integration/Max SAR Evaluation	5.0800	Rectangular	1.7321	1.0000	2.9329	∞
A	Test Sample Positioning	0.5840	Normal	1.0000	1.0000	0.5840	10
A	Device Holder Uncertainty	0.1540	Rectangular	1.7321	1.0000	0.0889	10
B	Drift of output power	5.0000	Rectangular	1.7321	1.0000	2.8868	∞
B	Phantom Uncertainty	4.0000	Rectangular	1.7321	1.0000	2.3094	∞
B	Liquid conductivity (target value)	5.0000	Rectangular	1.7321	0.7000	2.0207	∞
B	Liquid conductivity (measured value)	2.4400	Rectangular	1.7321	0.7000	0.9861	∞
B	Liquid Permittivity (target value)	5.0000	Rectangular	1.7321	0.6000	1.7321	∞
B	Liquid Permittivity (measured value)	2.4400	Rectangular	1.7321	0.6000	0.8452	∞
	Combined standard uncertainty		normal			9.01	>500
	Expanded uncertainty		normal k=2			18.02	>500

Statement of Confidence:-

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Appendix 1. Test Equipment Used

Instrument	Manufacturer	Model Number	RFI No.
Narda 20W Termination	Narda	374BNM	A034
Handset Positioner	Schmid & Partners	V3.0	A1182
Probe 1529	Schmid & Partners	ET3 DV6	A1186
Low noise Amplifier	Mini Circuits	ZHL-42	A1225
1900MHz Validation Dipole	Schmid & Partners	D1900V2	A1237
SAM Phantom	Schmid & Partners	001	A1238
20 dB Attenuator	Narda	766-20	A215
Rosenberger Cable	Rosenberger	FA210A-1-020m	C1024
Cable	Utiflex	FA210A0030M3030	C1052
Cable	Utiflex	FA210A0003M3030	C1053
Cable	Utiflex	FA210A0001M3050A	C1054
Signal Generator	Gigatronics	7100/.01-20	G046
Robot Power Supply	Schmid & Partner	Dasy3	G0528
PSU	Thurlby Thandar	CPX200	G088
RF Power Meter	Rohde & Schwarz	URY	M037
10V Insertion Unit	Rohde & Schwarz	URY-Z2	M096
HP 437B	Hewlett Packard	437B	M1009
Network Analyser	Agilent Technologies	8753ES	M1015
Robot Arm	Staubli	RX908 L	M1047
Power meter head	Rohde & Schwarz	URY Z2	M1049
Diode Power Sensor	Rohde & Schwarz	NRV-Z2	M1069
SAR Lab	RFI	N/A	S256

Appendix 2. Measurement Methods

Conducted Power Output.

Before and after each test case, the antenna was removed from the EUT and a direct coaxial cable was connected. The conducted output power was then measured. Once the measurements were complete, the coaxial cable was removed and the antenna replaced. The EUT was then re-assembled.

The conducted power output of the EUT are as follows:-

1900 MHz Body:

IBM Laptop

Position	Side of Head	ARFCN	Tx Power Before test	Tx Power After test
0 Degrees to Phantom with Antenna Down	Flat	660	28.43	29.27
0 Degrees to Phantom with Antenna Up	Flat	660	28.37	29.29
90 Degrees to Phantom with Antenna Down	Flat	660	28.39	29.30
90 Degrees to Phantom with Antenna Up	Flat	660	28.40	29.30
0 Degrees to Phantom with Antenna Down	Flat	512	28.17	29.06
0 Degrees to Phantom with Antenna Down	Flat	810	27.98	28.87
0 Degrees to Phantom with Antenna UP and PHF	Flat	660	28.40	29.20
0 Degrees to Phantom with Antenna UP and PHF	Flat	512	28.30	28.91
0 Degrees to Phantom with Antenna UP and PHF	Flat	810	28.01	28.97

Toshiba Laptop

Position	Side of Head	ARFCN	Tx Power Before test	Tx Power After test
0 Degrees to Phantom with Antenna Down	Flat	660	29.47	28.56
0 Degrees to Phantom with Antenna Up	Flat	660	29.46	28.52
90 Degrees to Phantom with Antenna Down	Flat	660	29.42	28.50
90 Degrees to Phantom with Antenna Up	Flat	660	29.12	28.16
0 Degrees to Phantom with Antenna Down	Flat	512	29.07	28.16
0 Degrees to Phantom with Antenna Down	Flat	810	28.04	28.08

DELL Laptop

Position	Side of Head	ARFCN	Tx Power Before test	Tx Power After test
0 Degrees to Phantom with Antenna Down	Flat	660	29.52	29.36
0 Degrees to Phantom with Antenna Up	Flat	660	29.36	29.38
90 Degrees to Phantom with Antenna Down	Flat	660	29.37	29.35
90 Degrees to Phantom with Antenna Up	Flat	660	29.35	29.35
0 Degrees to Phantom with Antenna Down	Flat	512	28.97	29.12
0 Degrees to Phantom with Antenna Down	Flat	810	28.97	28.84

Appendix 3. SAR Distribution Scans

Please refer to accompanying graph section.

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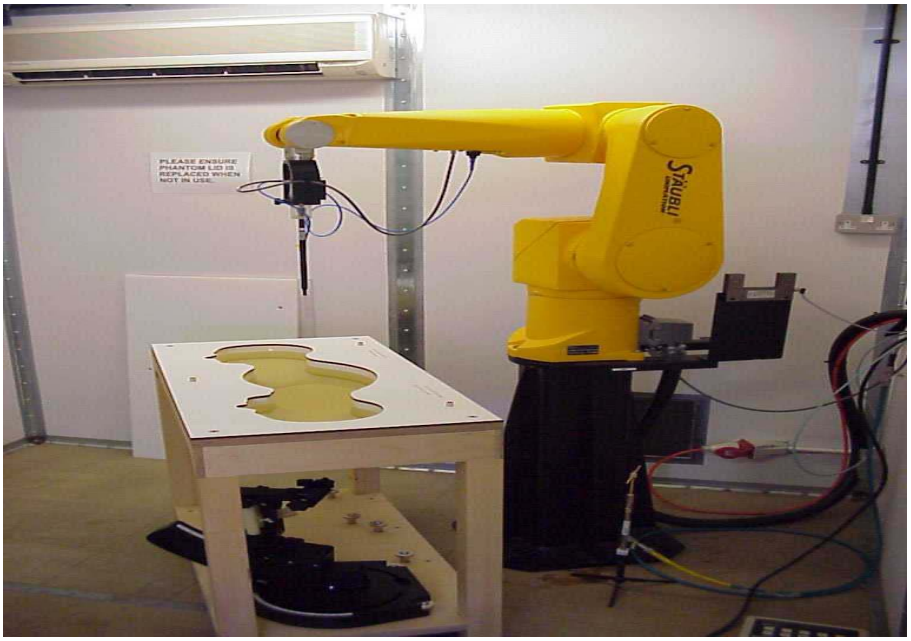
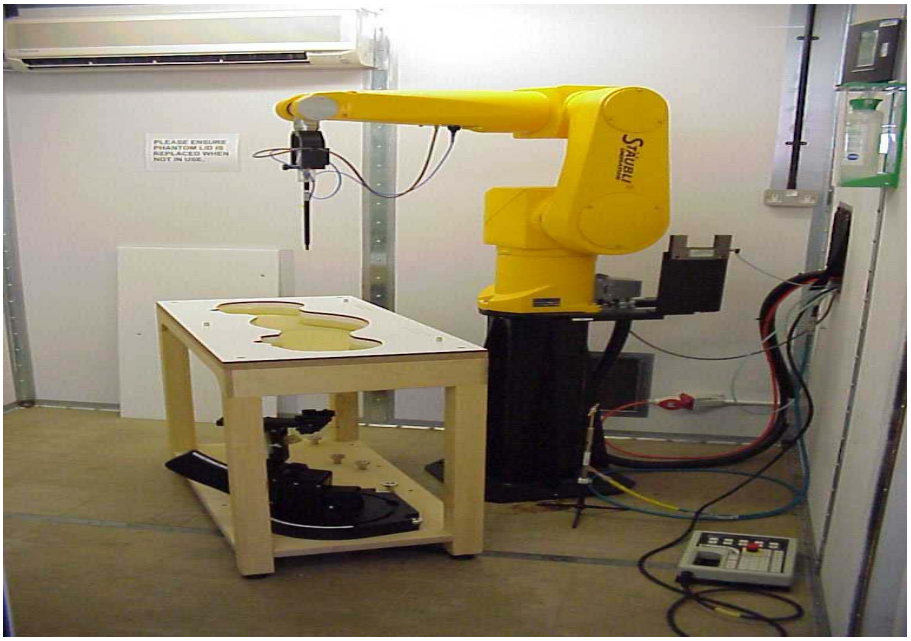
Appendix 4. Test Configuration Photograph

This appendix contains photographs showing the test configuration for the measurement of Specific Absorption Rate (SAR)





Appendix 5. Calibration Data

Please refer to accompanying Calibration Data section.

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Appendix 6. Photographs of EUT

Please refer to accompanying photograph section.

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