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SAR TEST REPORT - FCC
FCC ID: R2V-MWW1
Report Number: M040313_2

Test Sample: Single Band GSM Phone
Model Number: TGP79AB
Tested For: Momentum

Date of Issue: 28th April 2004

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SAR EVALUATION
Single Band GSM Phone
Model: TGP79AB
Report Number: M040313_2
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1.0 GENERAL INFORMATION

Test Sample:	Single Band GSM Phone
Device Category:	Portable Transmitter
Test Device:	Production Unit
Model Name:	TGP79AB
FCC ID:	R2V-MWW1
RF exposure Category:	General Population/Uncontrolled
Manufacturer:	Momentum
Address:	140 William Street Woolloomooloo NSW 2011
Test Standard/s:	**1.** Evaluating Compliance with FCC Guidelines For Human Exposure to Radiofrequency Electromagnetic Fields Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01)
Statement Of Compliance:	The Momentum GSM Phone model TGP79AB Complied with the FCC General public/uncontrolled RF exposure limits of 1.6mW/g per requirements of 47CFR2.1093(d).
Test Dates:	17th March 2004
Tested for:	Momentum
Address:	140 William Street Woolloomooloo NSW 2011
Contact:	Gregory Legg Bagg
Phone:	+61 2 8333 0000
Fax:	+61 2 8333 0001
Email:	steve@tillerdesign.com

Test Officer:

Peter Jakubiec
Assoc Dip Elec Eng

Authorised Signature:

Aaron Sargent B.Eng
EMR Engineer

SAR EVALUATION
Single Band GSM Phone
Model: TGP79AB
Report Number: M040313_2
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2.0 DESCRIPTION OF DEVICE

2.1 Description of Test Sample

The device tested was a Single Band GSM Phone operating in the GSM band. It is a novelty phone having one integral, internal antenna. The test device was tested in the Touch and Tilted positions. No other user modes are supported.

Table 1: EUT Parameters

Operating Mode during Testing	: See table 2
Operating Mode production sample	: Standard GSM
Modulation:	: Standard TDMA
Antenna type	: Internal
Applicable Head Configurations	: Touch and Tilted
Applicable Body Worn-Configurations	: None
Battery Options	: Integrated Internal

2.2 Test sample Accessories

2.2.1 Battery Types

One type of Integrated Internal battery, not accessible to the user.

2.3 Test Signal, Frequency and Output Power

The SAR tests were performed on a Momentum Single Band GSM Cellular Phone for this evaluation. The GSM Phone was put into operation using a Rhode & Schwarz Radio Communication Tester CTS65. The channels utilised in the measurements were the traffic channels shown in the table below. The power level was set to Class 1 (1900 MHz band). The SAR level of the test sample was measured for 1900 MHz frequency band of operation. Communication between the tester and the GSM Phone was maintained by an air link.

Table 2: Test Frequencies

Band	Frequency Range	Traffic Channels	Band Power Class	Power (dBm)
1	1850 - 1910 MHz	512, 661 and 810	1	30

2.4 Conducted Power Measurements

Testing was performed in accordance with the requirements of FCC Part 24.232(b).
Measurements were performed while the transmitter continuously transmitted.
The transmitter output was connected to the spectrum analyser in peak hold mode.
Testing was performed while the transmitter continuously transmitted on a low (1850.2 MHz), middle (1880 MHz) and high (1909 MHz) frequency channel.
The resolution bandwidth of 1 MHz and the video bandwidth of 1 MHz were utilised.

Table 3: Conducted Power Results

Channel	Frequency MHz	Level dBm	Level W
Low	1850.2	29.6	0.912
Middle	1880	29.5	0.891
High	1909	29.3	0.851

The specification limit is 2W

2.5 Battery Status

The tracker can battery was fully charged prior to commencement of each measurement. Each SAR test was completed within 30 minutes. The battery condition was monitored by measuring the RF power at a defined position inside the phantom before the commencement of each test and again after the completion of the test.

2.6 Details of Test Laboratory

2.6.1 Location

EMC Technologies Pty Ltd
57 Assembly Drive
Tullamarine, (Melbourne) Victoria
Australia 3043

Telephone: +61 3 9335 3333
Facsimile: +61 3 9338 9260
email: melb@emctech.com.au
website: www.emctech.com.au

2.6.2 Accreditations

EMC Technologies Pty. Ltd. is accredited by the National Association of Testing Authorities, Australia (NATA).
NATA Accredited Laboratory Number: 5292

EMC Technologies Pty Ltd is NATA accredited for the following relevant standards:

AS/NZS 2772.1:	RF and microwave radiation hazard measurement
ACA:	Radio communications (Electromagnetic Radiation - Human Exposure) Standard 2003
FCC:	Guidelines for Human Exposure to RF Electromagnetic Fields Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01)
CENELEC:	ES59005: 1998
EN 50360: 2001	Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300 MHz – 3 GHz)
EN 50361: 2001	Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300MHz – 3GHz)
IEEE 1528: 2003	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head Due to Wireless Communications Devices: Experimental Techniques.

Refer to NATA website www.nata.asn.au for the full scope of accreditation.

2.6.3 Environmental Factors

The measurements were performed in a shielded room with no background RF signals. The temperature in the laboratory was controlled to within 21± 1 °C, the humidity was 52%. See section 3.5.1 for measured temperature and humidity. The liquid parameters were measured daily prior to the commencement of each test. Tests were performed to check that reflections within the environment did not influence the SAR measurements. The noise floor of the DASY4 SAR measurement system using the SN1377 probe is less than 5μV in both air and liquid mediums.

3.0 DESCRIPTION OF SAR MEASUREMENT SYSTEM

3.1 Probe Positioning System

The measurements were performed with the state of the art automated near-field scanning system **DASY4 V4.2 Build 37** from Schmid & Partner Engineering AG (SPEAG). The system is based on a high precision 6-axis robot (working range greater that 1.1m), which positions the SAR measurement probes with a positional repeatability of better than ±0.02 mm. The DASY4 fully complies with the OET65 C (01-01), IEEE 1528 and EN50361 SAR measurement requirements.

3.2 E-Field Probe Type and Performance

The SAR measurements were conducted with the dosimetric probe ET3DV6 Serial: 1377 (manufactured by SPEAG) designed in the classical triangular configuration and optimised for dosimetric evaluation. The probe has been calibrated and found to be accurate to better than ±0.25 dB. The probe is suitable for measurements close to material discontinuity at the surface of the phantom. The sensors of the probe are directly loaded with Schottky diodes and connected via highly resistive lines (length = 300 mm) to the data acquisition unit.

3.3 Data Acquisition Electronics

The data acquisition electronics (DAE3) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. The input impedance of the DAE3 box is 200 MΩ; the inputs are symmetrical and floating. Common mode rejection is above 80dB.Transmission to the PC-card is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The mechanical probe-mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

3.4 Calibration and Validation Procedures and Data

Prior to the SAR assessment, the system validation kit was used to verify that the DASY4 was operating within its specifications. The validation was performed at 1800 MHz with the SPEAG calibrated dipole.

The validation dipoles are highly symmetric and matched at the centre frequency for the specified liquid and distance to the phantom. The accurate distance between the liquid surface and the dipole centre is achieved with a distance holder that snaps onto the dipole.

System validation is performed by feeding a known power level into a reference dipole, set at a know distance from the phantom. The measured SAR is compared to the theoretically derived level.

3.4.1 Validation Results 1800 MHz)

The following table lists the dielectric properties of the tissue simulating liquid measured prior to SAR validation. The results of the validation listed in columns 5 and 6. The forward power into the reference dipole for each SAR validation was adjusted to 250 mW.

Table 4: Validation Results (SPEAG calibrated dipoles)

1 Validation Date	2 Frequency (MHz)	3 ϵ_r (measured)	4 σ (mho/m) (measured)	5 Measured SAR 1g	6 Measured SAR 10g
17-March-2004	1800	39.1	1.40	9.87	5.24

3.4.2 Deviation from reference validation values

The reference SAR values are derived using a reference dipole and flat phantom suitable for centre frequency of 1800 MHz. These reference SAR values are obtained from the IEEE Std 1528-2003 and are normalized to 1W.

The SPEAG calibration reference SAR value is the SAR validation result obtained in a specific dielectric liquid using the validation dipole during calibration. The measured one-gram SAR should be within 10% of the expected target reference values shown in table 5 below.

Table 5: Deviation from reference validation values

Validation Frequency & Date	Measured SAR 1g (input power = 250mW)	Measured SAR 1g (Normalized to 1W)	SPEAG Calibration reference SAR Value 1g (mW/g)	Deviation From SPEAG 1g (%)	IEEE Std 1528 reference SAR value 1g (mW/g)	Deviation From IEEE 1g (%)
1800MHz 17-March-2004	9.87	39.48	36.2	9.06	38.1	3.62

NOTE: All reference validation values are referenced to 1W input power.

3.4.3 Liquid Depth 15cm

During the SAR measurement process the liquid level was maintained to a level of a least 15cm with a tolerance of ± 0.5cm.

3.5 Phantom Properties (Size, Shape, Shell Thickness, Tissue Material Properties)

The phantom used during the SAR testing and validation was the "SAM" phantom from SPEAG.The phantom thickness is 2.0mm+/-0.2 mm and was filled with the required tissue simulating liquid.

The dielectric parameters of the brain simulating liquid were measured prior to SAR assessment using the HP85070A dielectric probe kit and HP8714B Network Analyser. The actual dielectric parameters are shown in the following table.

Table 6: Measured Brain Simulating Liquid Dielectric Values at 1900MHz

Frequency Band	∈r (measured range)	∈r (target)	σ (mho/m) (measured range)	σ (target)	ρ kg/m^3
1850 MHz Brain	38.9	40 ±5% (38 to 42)	1.42	1.38 ±5% (1.31 to 1.45)	1000
1880 MHz Brain	38.8	40 ±5% (38 to 42)	1.44	1.38 ±5% (1.31 to 1.45)	1000
1910 MHz Brain	38.7	40 ±5% (38 to 42)	1.45	1.38 ±5% (1.31 to 1.45)	1000

NOTE: The Brain liquid parameters were within the required tolerances of ±5%.

3.5.1 Temperature and Humidity

The humidity and dielectric/ambient temperatures are recorded during the assessment of the tissue material dielectric parameters. The difference between the ambient temperature of the liquid during the dielectric measurement and the temperature during tests was less than |2|°C.

Table 7: Temperature and Humidity recorded for each day

Date	Ambient Temperature (°C)	Liquid Temperature (°C)	Humidity (%)
17-March-2004	21.9	21.1	52

3.6 Simulated Tissue Composition Used for SAR Test

The tissue simulating liquids are created prior to the SAR evaluation and often require slight modification each day to obtain the correct dielectric parameters. Head liquid was used for the SAR validations.

Table 8: Tissue Type: Brain @ 1900MHz
Volume of Liquid: 30 Litres

Approximate Composition	% By Weight
Distilled Water	61.17
Salt	0.31
Bactericide	0.29
Triton X-100	38.23

3.7 Device Holder for DASY4

The DASY4 device holder supplied by SPEAG is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear openings). The rotation centres for both scales is the ear opening. Thus the device needs no repositioning when changing the angles.

The DASY4 device holder is made of low-loss material having the following dielectric parameters: relative permittivity ε=3 and loss tangent δ=0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, to reduce the influence on the clamp on the test results.

Refer to Appendix A2-A3 for photograph of device positioning.

4.0 SAR MEASUREMENT PROCEDURE USING DASY4

The SAR evaluation was performed with the SPEAG DASY4 System (Build 51, version 4.0). 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 side of the head or the flat section of the flat phantom is measured at a distance of 3.9 mm from the inner surface of the shell. The area covers the entire dimension of the head and the horizontal grid spacing is 15 mm x 15 mm. The actual Area Scan has dimensions of 131 mm x 81 mm surrounding the test device. Based on this data, the area of the maximum absorption is determined by Spline interpolation.

c) Around this point, a volume of 30 mm x 30 mm x 30 mm is assessed by measuring 7 x 7 x 7 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 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2 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

5.0 MEASUREMENT UNCERTAINTY

The uncertainty analysis is based on the template listed in the IEEE Std 1528-2003 for both Handset SAR tests and Validation uncertainty. The measurement uncertainty of a specific device is evaluated independently and the total uncertainty for both evaluations (95% confidence level) must be less than 30%.

Table 9: Uncertainty Budget for DASY4 Version V4.0 Build 51 – EUT SAR test

a	b	c	d	e= f(d,k)	f	g	h=cxf/e	i=cxg/e	k
Uncertainty Component	Sec.	Tol. (%)	Prob. Dist.	Div.	C_i (1g)	C_i (10g)	1g u_i (%)	10g u_i (%)	v_i
Measurement System									
Probe Calibration (k=1) (standard calibration)	E.2.1	4.8	N	1	1	1	4.8	4.8	∞
Axial Isotropy	E.2.2	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
Hemispherical Isotropy	E.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	∞
Boundary Effect	E.2.3	1	R	1.73	1	1	0.6	0.6	∞
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	1	N	1	1	1	1.0	1.0	∞
Response Time	E.2.7	0.8	R	1.73	1	1	0.5	0.5	∞
Integration Time	E.2.8	4.32	R	1.73	1	1	2.5	2.5	∞
RF Ambient Conditions	E.6.1	0.05	R	1.73	1	1	0.0	0.0	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	R	1.73	1	1	0.2	0.2	∞
Probe Positioning with respect to Phantom Shell	E.6.3	2.9	R	1.73	1	1	1.7	1.7	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	1	R	1.73	1	1	0.6	0.6	∞
Test Sample Related									
Test Sample Positioning	E.4.2	1.61	N	1	1	1	1.6	1.6	11
Device Holder Uncertainty	E.4.1	3.34	N	1	1	1	3.3	3.3	7
Output Power Variation – SAR Drift Measurement	6.6.2	2.33	R	1.73	1	1	1.3	1.3	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (shape and thickness tolerances)	E.3.1	4	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity – Deviation from target values	E.3.2	5	R	1.73	0.64	0.43	1.8	1.2	∞
Liquid Conductivity – Measurement uncertainty	E.3.3	10	N	1	0.64	0.43	6.4	4.3	5
Liquid Permittivity – Deviation from target values	E.3.2	5	R	1.73	0.6	0.49	1.7	1.4	∞
Liquid Permittivity – Measurement uncertainty	E.3.3	5	N	1	0.6	0.49	3.0	2.5	5
Combined standard Uncertainty			RSS				11.7	10.5	154
Expanded Uncertainty (95% CONFIDENCE LEVEL)			k=2				23.5	20.94	

Estimated total measurement uncertainty for the DASY4 measurement system was ± 11.7%. The extended uncertainty (K = 2) was assessed to be ± 23.5% based on 95% confidence level. The uncertainty is not added to the measurement result.

Table 10: Uncertainty Budget for DASY4 Version V4.0 Build 51 - Validation

a	b	c	d	e= f(d,k)	f	g	h=cxf/e	i=cxg/e	k
Uncertainty Component	Sec.	Tol. (%)	Prob. Dist.	Div.	C_i (1g)	C_i (10g)	1g u_i (%)	10g u_i (%)	v_i
Measurement System									
Probe Calibration (k=1) (standard calibration)	E.2.1	4.4	N	1	1	1	4.4	4.4	∞
Axial Isotropy	E.2.2	4.7	R	1.73	1	1	2.7	2.7	∞
Hemispherical Isotropy	E.2.2	0	R	1.73	1	1	0.0	0.0	∞
Boundary Effect	E.2.3	8.3	R	1.73	1	1	4.8	4.8	∞
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	1	N	1	1	1	1.0	1.0	∞
Response Time	E.2.7	0	R	1.73	1	1	0.0	0.0	∞
Integration Time	E.2.8	0	R	1.73	1	1	0.0	0.0	∞
RF Ambient Conditions	E.6.1	0.05	R	1.73	1	1	0.0	0.0	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	R	1.73	1	1	0.2	0.2	∞
Probe Positioning with respect to Phantom Shell	E.6.3	2.9	R	1.73	1	1	1.7	1.7	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	3.9	R	1.73	1	1	2.3	2.3	∞
Test Sample Related									
Test Sample Positioning		1	R	1.73	1	1	0.6	0.6	∞
Device Holder Uncertainty		4.7	R	1.73	1	1	2.7	2.7	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (shape and thickness tolerances)	E.3.1	4	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity – Deviation from target values	E.3.2	5	R	1.73	0.6	0.43	1.7	1.2	∞
Liquid Conductivity – Measurement uncertainty	E.3.3	10	N	1.73	0.6	0.43	3.5	2.5	5
Liquid Permittivity – Deviation from target values	E.3.2	5	R	1.73	0.6	0.49	1.7	1.4	∞
Liquid Permittivity – Measurement uncertainty	E.3.3	5	N	1.73	0.6	0.49	1.7	1.4	5
Combined standard Uncertainty			RSS				±10.0	±9.5	154
Expanded Uncertainty (95% CONFIDENCE LEVEL)			k=2				±20.0	±19.1	

Estimated total measurement uncertainty for the DASY4 measurement system was ±9.5%. The extended uncertainty (K = 2) was assessed to be ±20% based on 95% confidence level. The uncertainty is not added to the Validation measurement result.

6.0 EQUIPMENT LIST AND CALIBRATION DETAILS

Table 11: SPEAG DASY4 Version 4.0 Build 51

Equipment Type	Manufacturer	Model Number	Serial Number	Calibration Due	Used For this Test?
Robot - Six Axes	Staubli	RX90BL	N/A	Not applicable	Yes
Robot Remote Control	SPEAG	CS7MB	RX90B	Not applicable	Yes
SAM Phantom	SPEAG	N/A	1260	Not applicable	No
SAM Phantom	SPEAG	N/A	1060	Not applicable	Yes
Flat Phantom	AndreT	PL550	P10.1	Not Applicable	No
Flat Phantom	SPEAG	PO1A V4.4e 6mm	1003	Not Applicable	No
Data Acquisition Electronics	SPEAG	DAE3 V1	359	16-July-2004	No
Data Acquisition Electronics	SPEAG	DAE3 V1	442	9-Sept-2004	Yes
Probe E-Field - Dummy	SPEAG	DP1	N/A	Not applicable	No
Probe E-Field	SPEAG	ET3DV6	1380	18-July-2004	No
Probe E-Field	SPEAG	ET3DV6	1377	19-Sept-2004	Yes
Antenna Dipole 450 MHz	SPEAG	D450V2	1009	24-Jan-05	No
Antenna Dipole 900 MHz	SPEAG	D900V2	047	27-Aug-2004	No
Antenna Dipole 1800 MHz	SPEAG	D1800V2	242	28-Aug-2004	Yes
Antenna Dipole 2450 MHz	SPEAG	D2450V2	724	9-Nov-2004	No
RF Amplifier	Mini-Circuits	ZHL-42	N/A	Not applicable	Yes
Synthesized signal generator	Hewlett Packard	ESG-D3000A	GB37420238	In test	Yes
RF Power Meter Dual	Hewlett Packard	437B	3125012786	25-May-2004	Yes
RF Power Sensor 0.01 - 18 GHz	Hewlett Packard	8481H	1545A01634	25-May-2004	Yes
RF Power Meter Dual	Hewlett Packard	435A	1733A05847	*Not Required	Yes
RF Power Sensor	Hewlett Packard	8482A	2349A10114	*Not Required	Yes
Network Analyser	Hewlett Packard	8714B	GB3510035	13-June-2004	Yes
Dual Directional Coupler	NARDA	3022	75453	In test	Yes

*Reference meter only

7.0 SAR TEST METHOD

7.1 Description of the Test Positions (Head Sections)

The SAR measurements are performed on the left and right sides of the head in the Touch/Tilted positions using the centre frequency of each operating band. The configuration giving the maximum mass-averaged SAR is used to test the low-end and high-end frequencies of the transmitting band. All SAR measurements were performed in the SAM phantom.
See Appendix A for photos of test positions.

7.1.1 *"Touch Position"*

The devices was positioned with the vertical centre line of the body of the device and the horizontal line crossing the centre of the ear piece in a plane parallel to the sagittal plane of the phantom. While maintaining the device in this plane, the vertical centre line was aligned with the reference plane containing the three ear and mouth reference points. (Left Ear, Right Ear and Mouth). The centre of the earpiece was then aligned with the Right Ear and Left Ear.

The phone was then moved towards the phantom with the earpiece aligned with the line between the Left Ear and the Right Ear, until the phone just touched the ear. With the device maintained in the reference plane, and the phone in contact with the ear, the bottom of the phone was moved until the front side of the phone was in contact with the cheek of the phantom, or until contact with the ear was lost.

7.1.2 *"Tilted Position"*

The device was positioned in the "Touch" position described above. While maintaining the device in the reference plane describe above, and pivoting against the ear, the device was moved away from the mouth by an angle of 15 degrees or until contact with the ear was lost.

7.2 List of All Test Cases (Antenna In/Out, Test Frequencies, User Modes etc)

The SAR was measured at three test channels for the band of operation with the test sample operating as maximum power, as specified in section 2.2.

7.3 FCC RF Exposure Limits for Occupational/ Controlled Exposure

Spatial Peak SAR Limits For:	
Partial-Body:	8.0 mW/g (averaged over any 1g cube of tissue)
Hands, Wrists, Feet and Ankles:	20.0 mW/g (averaged over 10g cube of tissue)

7.4 FCC RF Exposure Limits for Un-controlled/Non–occupational

Spatial Peak SAR Limits For:	
Partial-Body:	1.6 mW/g (averaged over any 1g cube of tissue)
Hands, Wrists, Feet and Ankles:	4.0 mW/g (averaged over 10g cube of tissue)

8.0 SAR EVALUATION RESULTS

The SAR values averaged over 1g and 10g tissue masses were determined for the sample device for the Touch and Tilted configurations of the phantom. The results are given in Table 12.
The plots with the corresponding SAR distributions, which reveal information about the location of the maximum SAR with respect to the devices, are contained in Appendix B of this report.

8.1 SAR Measurement Results for 1900 MHz

Table 12: SAR Measurement Results – 1900 MHz

Test Position	Plot Number	Test Channel	Test Freq. (MHz)	SAR Level for (1g) mW/g	DASY4 Measured Drift (dB)
Touch Position Right	1	512	1850	0.362	0.00
	2	661	1880	0.342	0.00
	3	810	1910	0.312	0.10
Touch Position Left	4	661	1880	0.320	0.00
Tilted Position Right	5	661	1880	0.242	0.00
Tilted Position Left	6	661	1880	0.233	0.00

Note: The uncertainty of the system (±23.5%) has not been added to the result.

The maximum measured SAR level (in the 1900MHz band) was 0.362 mW/g for a 1-gram cube this value was measured in the Touch Position Right at a frequency of 1850 MHz (Channel 512).

The FCC SAR limit for RF devices used at the body or head is 1.6 mW/g measured in a 1g cube of tissue.

9.0 COMPLIANCE STATEMENT

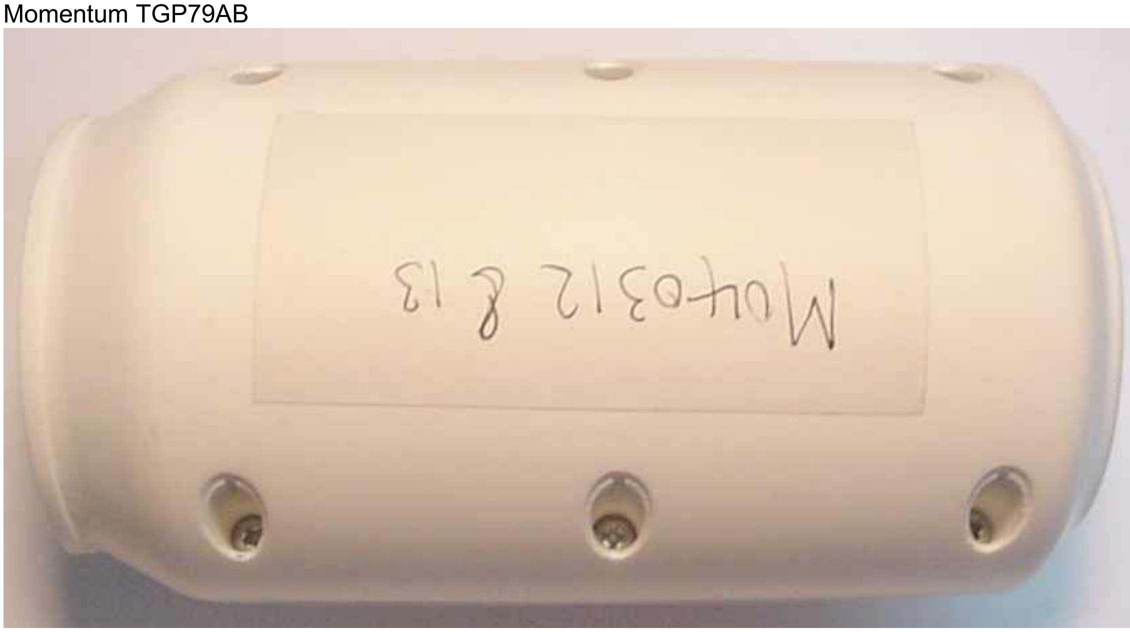
The Momentum, Single Band GSM Cellular Phone was tested on behalf of Momentum It complied with the FCC and RSS-102 SAR requirements.

The highest SAR level recorded for the 1900 MHz GSM band was 0.362 mW/g, which is below the limit of 1.6 mW/g into a 1g cube averaging mass, even taking into account the measurement uncertainty of 23.5%.

APPENDIX A1
TEST SAMPLE PHOTOGRAPHS

Momentum TGP79AB

Momentum TGP79AB



APPENDIX A2
TEST SETUP PHOTOGRAPHS

Touch Left

Tilted Left

APPENDIX A3
TEST SETUP PHOTOGRAPHS

Touch Right

Tilted Right