TEST REPORT
FROM
RFI GLOBAL SERVICES LTD

Test of: Panasonic Mobile Comms Dev of Europe Ltd
VS8x

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

Test Report Serial No:
RFI/SARE1/RP72838JD03A

This Test Report Is Issued Under The Authority Of Steve Flooks, Radio Performance Service Leader:  **pp**	
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To: OET Bulletin 65 Supplement C: (2001-01)

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Test of: Panasonic Mobile Comms Dev of Europe Ltd
VS8x

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

1. Customer Information

Company Name:	Panasonic Mobile Comms Dev of Europe Ltd
Address:	2 Gables Way Colthrop Thatcham Berkshire RG19 4ZB UK
Contact Name:	Mr M Hargreaves

2. Equipment Under Test (EUT)

The following information (with the exception of the date of receipt) has been supplied by the customer:

2.1. Description of EUT

The equipment under test is a Dual mode (W-CDMA/GSM) mobile telephone handset with B*luetooth* capabilities.

2.2. Identification of Equipment Under Test (EUT)

Description:	Mobile Handset
Brand Name:	Panasonic
Model Name or Number:	VS8x
Serial Number:	PMCDE Sample C6
IMEI Number:	00 4401220294876
Hardware Version Number:	Rev 'B'
Software Version Number:	B-VS8X
FCC ID Number:	UCE207004A
Country of Manufacture:	Japan
Date of Receipt:	26 October 2007

2.3. Modifications Incorporated in the EUT

During the course of testing the EUT was not modified.

2.4. Accessories

The following accessories were supplied with the EUT during testing:

Description:	AC Charger
Brand Name:	JET KYUSHU MITSUMI
Model Name or Number:	ZTDAA1
Serial Number:	ZTDAA1
Cable Length and Type:	~1.5m dual core power cable
Connected to Port	Manufacturer unique pins

Description:	Battery
Brand Name:	Sanyo
Model Name or Number:	UF553436F
Serial Number:	None Stated
Connected to Port	Manufacturer unique pins

Description:	Battery
Brand Name:	Sanyo
Model Name or Number:	UF553436F
Serial Number:	None Stated
Connected to Port	Manufacturer unique pins

2.5. Support Equipment

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

Description:	Communication Test Set
Brand Name:	Anritsu
Model Name or Number:	MT8820A
Serial Number:	6K00000647
Cable Length and Type:	1m Rosenberger Cable
Connected to Port:	RF Input & Output Port

2.6. Additional Information Related to Testing

Equipment Category	PCS1900/GPRS1900/Bluetooth		
Type of Unit	Portable Transceiver		
Intended Operating Environment:	Within GSM and Bluetooth Coverage		
Transmitter Maximum Output Power Characteristics:	30 dBm		
Transmitter Frequency Range:	1850 to 1910 MHz		
Transmitter Frequency Allocation of EUT When Under Test:	**Channel Number**	**Channel Description**	**Frequency (MHz)**
	512	Low	1850.2
	660	Middle	1879.8
	810	High	1909.8
Modulation(s):	217 Hz		
Modulation Scheme (Crest Factor):	8.3		
Antenna Type:	Internal / External Extendable TV Antenna		
Antenna Length:	Internal Antenna Length Unknown; External Antenna Length 105mm		
Number of Antenna Positions:	2 Fixed		
Power Supply Requirement:	Internal Battery Supply 3.7 V (Nominal)		
Battery Type(s):	Lithium-Ion		

3. Test Specification, Methods and Procedures

3.1. Test Specification

Reference:	OET Bulletin 65 Supplement C: (2001-01)
Title:	Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.
Purpose of Test:	To determine whether the equipment met the basic restrictions as defined in OET Bulletin 65 Supplement C: (2001-01) using the SAR averaging method as described in the test specification above.

3.2. Methods and Procedures Reference Documentation

The methods and procedures used were as detailed in:

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

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

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

3.3. Definition of Measurement Equipment

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

4. Deviations from the Test Specification

There were no deviations from the test specification.

5. Operation and Configuration of the EUT during Testing

5.1. Operating Modes

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

- GPRS1900 data allocated with *Bluetooth* enabled
- PCS1900 call allocated with *Bluetooth* enabled

The reason for choosing this configuration was that it has been defined by the customer as being typical of normal use and likely to be worst case.

5.2. Configuration and Peripherals

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

- Standalone mobile station with the body-worn configurations and personal handsfree attached against the 'SAM' phantom.
- Standalone mobile station with the head and body-worn configurations against the 'SAM' phantom.

Head Configuration

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

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

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

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

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

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

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

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

Body Configuration

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

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

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

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

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

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

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

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

6. Summary of Test Results

Test Name	Specification Reference	Compliancy Status
Specific Absorption Rate-PCS1900 Head Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-PCS1900 Body Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied
Specific Absorption Rate-GPRS1900 Body Configuration 1g	OET Bulletin 65 Supplement C: (2001-01)	Complied

6.1. Location of Tests

All the measurements described in this report were performed at the premises of
RFI Global Services Ltd, Ewhurst Park, Ramsdell, Basingstoke, Hampshire, RG26 5RQ.

7. Measurements, Examinations and Derived Results

7.1. General Comments

This section contains test results only.

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

7.2. Test Results

7.2.1.Specific Absorption Rate - PCS1900 Head Configuration 1g

Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.514

Environmental Conditions:

Temperature Variation in Lab (°C):	23.0 to 23.0
Temperature Variation in Liquid (°C):	23.0 to 23.0

Results:

EUT Position	Phantom Configuration	Channel Number	Level (W/kg)	Limit (W/kg)	Margin (W/kg)	Note(s)	Result
Touch	Left	660	0.479	1.600	1.121	1	Complied
Touch	Left	660	0.514	1.600	1.086	2	Complied
Tilt	Left	660	0.150	1.600	1.450	1	Complied
Tilt	Left	660	0.232	1.600	1.368	2	Complied
Touch	Right	660	0.483	1.600	1.117	1	Complied
Touch	Right	660	0.490	1.600	1.110	2	Complied
Tilt	Right	660	0.169	1.600	1.431	1	Complied
Tilt	Right	660	0.239	1.600	1.361	2	Complied

Note(s):

1. *Antenna retracted*
2. *Antenna extended*

7.2.2.Specific Absorption Rate - PCS1900 Body Configuration 1g

Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.130

Environmental Conditions:

Temperature Variation in Lab (°C):	23.0 to 23.0
Temperature Variation in Liquid (°C):	23.0 to 23.0

Results:

EUT Position	Phantom Configuration	Channel Number	Level (W/kg)	Limit (W/kg)	Margin (W/kg)	Note(s)	Result
Front of EUT Open Facing Phantom	Flat (SAM)	660	0.130	1.600	1.470	1 and 2	Complied

Note(s):

1. *Antenna extended*
2. *SAR measurements were performed with the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.*

7.2.3.Specific Absorption Rate - GPRS1900 Body Configuration 1g

Test Summary:

Tissue Volume:	1g
Maximum Level (W/kg):	0.342

Environmental Conditions:

Temperature Variation in Lab (°C):	23.0 to 23.0
Temperature Variation in Liquid (°C):	23.0 to 23.0

Results:

EUT Position	Phantom Configuration	Channel Number	Level (W/kg)	Limit (W/kg)	Margin (W/kg)	Note(s)	Result
Front of EUT Open Facing Phantom	Flat (SAM)	660	0.156	1.600	1.444	1 and 3	Complied
Front of EUT Open Facing Phantom	Flat (SAM)	660	0.153	1.600	1.447	2 and 3	Complied
Rear of EUT Open Facing Phantom	Flat (SAM)	660	0.219	1.600	1.381	1 and 3	Complied
Rear of EUT Open Facing Phantom	Flat (SAM)	660	0.292	1.600	1.308	2 and 3	Complied
Rear of EUT Open Facing Phantom With PHF	Flat (SAM)	660	0.342	1.600	1.258	2 and 3	Complied

Note(s):

1. *Antenna Extended*
2. *Antenna Retracted*
3. *SAR measurements were performed with the EUT at a separation distance of 15mm from the 'SAM' phantom flat section.*

7.2.4. EIRP Measurement

Channel Number	Frequency (MHZ)	TX Power before Test (dBm)
512	1850.2	24.7
660	1879.8	26.1
810	1909.8	26.5

7.2.5. Measurement Uncertainty

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

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

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

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

Test Name	Confidence Level	Calculated Uncertainty
Specific Absorption Rate Uncertainty at 1900 MHz Head 1g, PCS Modulation Scheme	95%	18.44%
Specific Absorption Rate Uncertainty at 1900 MHz Body 1g, PCS Modulation Scheme	95%	18.30%
Specific Absorption Rate Uncertainty at 1900 MHz Body 1g, GPRS Modulation Scheme	95%	18.30%

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.

Measurement Uncertainty (Continued)

7.3. Specific Absorption Rate Uncertainty at 1900 MHz Head 1g, PCS Modulation Scheme calculated in accordance with IEC 62209-1 & IEEE 1528

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	$c_{i\ (1g)}$	Standard Uncertainty		υ_i or υ_{eff}
							+ u (%)	- u (%)	
B	Probe calibration	11.000	11.000	normal (k=2)	2.0000	1.0000	5.500	5.500	∞
B	Axial Isotropy	0.500	0.500	normal (k=2)	2.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	2.600	2.600	normal (k=2)	2.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.560	0.560	normal (k=2)	2.0000	1.0000	0.280	0.280	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration/ Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	0.584	0.584	normal (k=1)	1.0000	1.0000	0.584	0.584	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	4.370	4.370	normal (k=1)	1.0000	0.6400	2.797	2.797	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.450	4.450	normal (k=1)	1.0000	0.6000	2.670	2.670	5
	Combined standard uncertainty			t-distribution			9.41	9.41	>300
	Expanded uncertainty			k = 1.96			18.44	18.44	>300

Measurement Uncertainty (Continued)

7.4. Specific Absorption Rate Uncertainty at 1900 MHz Body 1g, PCS Modulation Scheme calculated in accordance with IEC 62209-1 & IEEE 1528

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	$c_{i\ (1g)}$	Standard Uncertainty		υ_i or υ_{eff}
							+ u (%)	- u (%)	
B	Probe calibration	11.000	11.000	normal (k=2)	2.0000	1.0000	5.500	5.500	∞
B	Axial Isotropy	0.500	0.500	normal (k=2)	2.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	2.600	2.600	normal (k=2)	2.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.560	0.560	normal (k=2)	2.0000	1.0000	0.280	0.280	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration/ Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	0.584	0.584	normal (k=1)	1.0000	1.0000	0.584	0.584	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	4.170	4.170	normal (k=1)	1.0000	0.6400	2.669	2.669	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.230	4.230	normal (k=1)	1.0000	0.6000	2.538	2.538	5
	Combined standard uncertainty			t-distribution			9.34	9.34	>400
	Expanded uncertainty			k = 1.96			18.30	18.30	>400

Measurement Uncertainty (Continued)

7.5. Specific Absorption Rate Uncertainty at 1900 MHz Body 1g, GPRS Modulation Scheme calculated in accordance with IEC 62209-1 & IEEE 1528

Type	Source of uncertainty	+ Value	- Value	Probability Distribution	Divisor	$c_{i\ (1g)}$	Standard Uncertainty		υ_i or υ_{eff}
							+ u (%)	- u (%)	
B	Probe calibration	11.000	11.000	normal (k=2)	2.0000	1.0000	5.500	5.500	∞
B	Axial Isotropy	0.500	0.500	normal (k=2)	2.0000	1.0000	0.250	0.250	∞
B	Hemispherical Isotropy	2.600	2.600	normal (k=2)	2.0000	1.0000	1.300	1.300	∞
B	Spatial Resolution	0.500	0.500	Rectangular	1.7321	1.0000	0.289	0.289	∞
B	Boundary Effect	0.769	0.769	Rectangular	1.7321	1.0000	0.444	0.444	∞
B	Linearity	0.600	0.600	Rectangular	1.7321	1.0000	0.346	0.346	∞
B	Detection Limits	0.200	0.200	Rectangular	1.7321	1.0000	0.115	0.115	∞
B	Readout Electronics	0.560	0.560	normal (k=2)	2.0000	1.0000	0.280	0.280	∞
B	Response Time	0.000	0.000	Rectangular	1.7321	1.0000	0.000	0.000	∞
B	Integration Time	1.730	1.730	Rectangular	1.7321	1.0000	0.999	0.999	∞
B	RF Ambient conditions	3.000	3.000	Rectangular	1.7321	1.0000	1.732	1.732	∞
B	Probe Positioner Mechanical Restrictions	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Probe Positioning with regard to Phantom Shell	2.850	2.850	Rectangular	1.7321	1.0000	1.645	1.645	∞
B	Extrapolation and integration/ Maximum SAR evaluation	5.080	5.080	Rectangular	1.7321	1.0000	2.933	2.933	∞
A	Test Sample Positioning	0.584	0.584	normal (k=1)	1.0000	1.0000	0.584	0.584	10
A	Device Holder uncertainty	0.154	0.154	normal (k=1)	1.0000	1.0000	0.154	0.154	10
B	Phantom Uncertainty	4.000	4.000	Rectangular	1.7321	1.0000	2.309	2.309	∞
B	Drift of output power	5.000	5.000	Rectangular	1.7321	1.0000	2.887	2.887	∞
B	Liquid Conductivity (target value)	5.000	5.000	Rectangular	1.7321	0.6400	1.848	1.848	∞
A	Liquid Conductivity (measured value)	4.170	4.170	normal (k=1)	1.0000	0.6400	2.669	2.669	5
B	Liquid Permittivity (target value)	5.000	5.000	Rectangular	1.7321	0.6000	1.732	1.732	∞
A	Liquid Permittivity (measured value)	4.230	4.230	normal (k=1)	1.0000	0.6000	2.538	2.538	5
	Combined standard uncertainty			t-distribution			9.34	9.34	>400
	Expanded uncertainty			k = 1.96			18.30	18.30	>400