

RADIO FREQUENCY RADIATION EXPOSURE REPORT

Mobiles /Fixed Base Station Maximum Permissible Exposure (MPE)

OF

Product Name: 4/8 Ports Mobile VOIP

Brand Name: PORTech (for model: MV-374, MV-378),
SunComm (for model: SC-495, SC-895)

Model Name: MV-374, MV-378, SC-495, SC-895

Model Different: MV-374/SC-495 includes 4 GSM modules
and 1 external antenna ports while
MV-378/SC-895 includes 8 modules and 2
external antenna ports.

FCC ID: WDBMV374MV378

Report No.: ER/2008/60007-01

Issue Date: Jul. 15, 2008

Prepared for: PORTech Communications Inc.

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Taiwan 403

Prepared by: SGS Taiwan Ltd.
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VERIFICATION OF COMPLIANCE

Applicant: PORTech Communications Inc.
150 Shiang Shung North Road Tai Chung Taiwan 403

Product Name: 4/8 Ports Mobile VOIP

FCC ID Number: WDBMV374MV378

Brand Name: PORTech (for model: MV-374, MV-378), SunComm (for model: SC-495, SC-895)

Model No.: MV-374, MV-378, SC-495, SC-895

Model Difference: MV-374/SC-495 includes 4 GSM modules and 1 external antenna ports while MV-378/SC-895 includes 8 modules and 2 external antenna ports.

File Number: ER/2008/60007-01

Date of test: Jun. 09, 2008 ~ Jun. 18, 2008

Date of EUT Received: Jun. 09, 2008

We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd., Electronics & Communication Laboratory. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in FCC OET Bulletin 65 Supplement C and 47 CFR §2.1091.

The test results of this report relate only to the tested sample identified in this report.

Test By:		Date	Jul. 15, 2008
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	<i>Jazz Huang / Engineer</i>		
Prepared By:		Date	Jul. 15, 2008
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	<i>Elisa Chen / Asst. Supervisor</i>		
Approved By:		Date	Jul. 15, 2008
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	<i>Vincent Su/Manager</i>		

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Report Version

Version No.	Date
00	Jul. 15, 2008

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1. GENERAL INFORMATION

Product Name:	4/8 Ports Mobile VOIP
Brand Name:	PORTech (for model: MV-374, MV-378), SunComm (for model: SC-495, SC-895)
Model Name:	MV-374, MV-378, SC-495, SC-895
Model Difference:	MV-374/SC-495 has 4 GSM modules and 4 GSM ports while MV-378/SC-895 with 8 modules and ports
Data Cable (USB):	N/A
Power Supply	12 Vdc from AC/DC Adapter, model: SW60-120B, STD-12090

GSM:

Cellular Phone Standards Frequency Range and Power	GSM/GPRS 850 Class 10	824 MHz– 849MHz	33 dBm
	GSM/GPRS 900 Class 10	880 MHz– 915MHz	33 dBm
	GSM/GPRS 1800 Class 10	1710MHz-1785MHz	30 dBm
	GSM/GPRS 1900 Class 10	1850MHz – 1910MHz	30 dBm
Type of Emission	GSM: 248KGXW		
IMEI	352024020151830		

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1.2 Related Submittal(s) / Grant (s)

This submittal(test report) is intended to comply with section part22 subpart H and part 24 subpart E of the FCC CFR 47 Rules.

1.3 Special Accessories

Not available for this EUT intended for grant.

1.4 Equipment Modifications

Not available for this EUT intended for grant.

1.5 Limitation

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-15000	/	/	1.0	30

F = frequency in MHz

* = Plane-wave equipment power density

1.6 Maximum Permissible Exposure (MPE) Evaluation

In this application we seek modular approval to the MV-374, MV-378 GSM/GPRS class10 VOIP gateway station. Based on the FCC OET Bulletin 65 Supplement C and 47 CFR §2.1091, we have concluded that the MV-374, MV-378 module will comply with the FCC rules on RF exposure for mobile devices in cellular band and PCS band. The following analysis will demonstrate such compliance. The analysis will be done in two US bands.

Operation in cellular band (824.2MHz – 848.8 MHz)

The worst case Antenna 1 + Antenna 2:

The ERP of MV-374/MV-378/SC-495/SC-895 in cellular band is 19.16dBm at Antenna 1 + Antenna 2 at GPRS class 10 mode. The resulted power density at a distance of 20 cm can be deducted as follows:

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
GPRS 850	824.20	128	H	V	113.35	26.03	-7.87	3.64	14.51	38.45
				H	113.48	25.82	-7.87	3.64	14.31	38.45
	836.60	190	H	V	112.19	25.16	-7.88	3.70	13.59	38.45
				H	112.34	25.00	-7.88	3.70	13.43	38.45
	848.80	251	H	V	117.53	30.79	-7.88	3.75	19.16	38.45
				H	117.34	30.32	-7.88	3.75	18.69	38.45

The worst case Antenna 1 + Antenna 2:

$$\text{EIRP} = 19.16 + 2.14 = 21.30 \text{ dBm} = 134.89 \text{ mW}$$

$$\begin{aligned} \text{Power Density} &= \text{EIRP} \times \text{Duty Cycle} / (4 \pi R^2) \\ &= 134.89 \times 0.25 / (4 \times \pi \times 20^2) = \mathbf{0.007 \text{ mW/cm}^2} \end{aligned}$$

where Duty Cycle is 0.25 for GSM operation (class 10) and R is 20 cm.

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The MPE limit for General Population/Uncontrolled Exposure is shown in the FCC OET Bulletin 65 Supplement C and can be calculated as follows:

$$\text{MPE limit} = 824/1500 = 0.55 \text{ mW/cm}^2$$

As we can see the resulted power density is below the MPE limit, therefore

MV-374/MV-378/SC-495/SC-895 in cellular band is compliant with the FCC rules on RF exposure.

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Operation in PCS band (1850.2MHz – 1909.8MHz)

The worst case Antenna 1 + Antenna 2:

The EIRP of MV-374/MV-378/SC-495/SC-895 module in PCS band is 14.93dBm max. EIRP. The resulted power density at a distance of 20 cm can be deducted as follows:

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
PCS 1900	1850.20	512	H	V	116.77	9.81	9.90	5.41	14.30	33.00
				H	117.16	10.27	9.90	5.41	14.76	33.00
	1880.00	661	H	V	117.35	10.40	9.99	5.46	14.93	33.00
				H	115.31	8.44	9.99	5.46	12.97	33.00
	1909.80	810	H	V	116.99	10.05	10.08	5.51	14.62	33.00
				H	116.28	9.43	10.08	5.51	13.99	33.00

$$\text{EIRP} = 14.93 \text{ dBm} = 31.11 \text{ mW}$$

$$\begin{aligned} \text{Power Density} &= \text{EIRP} \times \text{Duty Cycle} / (4 \pi R^2) \\ &= 31.11 \times 0.25 / (4 \times \pi \times 20^2) = \mathbf{0.002 \text{ mW/cm}^2} \end{aligned}$$

where Duty Cycle is 0.25 for GPRS operation (class 10) and R is 20 cm.

The MPE limit for General Population/Uncontrolled Exposure is shown in the FCC OET Bulletin 65 Supplement C and can be calculated as follows:

$$\text{MPE limit} = 1.0 \text{ mW/cm}^2$$

As we can see the resulted power density is below the MPE limit, therefore

MV-374/MV-378/SC-495/SC-895 in PCS band is compliant with the FCC rules on RF exposure.

APPENDIX 1

PHOTOGRAPHS OF EUT

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EUT (MV-374)



EUT (MV-378)



~ End of Report ~

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