

RADIO FREQUENCY RADIATION EXPOSURE REPORT

Mobiles /Fixed Base Station Maximum Permissible Exposure (MPE)

OF

Product Name: 3.5G module

Brand Name: Flex

Marketing Name: N/A

Model Name: MC8775

FCC ID: ID48775

Report No.: ER/2008/50016

Issue Date: May. 28, 2008

Prepared for: Flextronics International (Taiwan) Ltd.
6F., No.758, Sec.4, Bade Rd., Songshan District,
Taipei City 10567, Taiwan, R.O.C.

Prepared by: SGS Taiwan Ltd.
Electronics & Communication Laboratory
No. 134, Wu Kung Rd., Wuku Industrial Zone,
Taipei County, Taiwan.

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VERIFICATION OF COMPLIANCE

Applicant: Flextronics International (Taiwan) Ltd.
6F., No.758, Sec.4, Bade Rd., Songshan District, Taipei City 10567,
Taiwan, R.O.C.

Product Name: 3.5G module

FCC ID Number: ID48775

Brand Name: Flex

Model No.: MC8775

Model Difference: N/A

File Number: ER/2008/50016

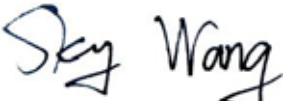


Date of test: May. 09, 2008 ~ May 20, 2008

Date of EUT Received: May. 08, 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	May. 28, 2008
	<hr/>		<hr/>
	<i>Sky Wang / Asst. Supervisor</i>		
Prepared By:		Date	May. 28, 2008
	<hr/>		<hr/>
	<i>Alex Hsieh / Sr. Engineer</i>		
Approved By:		Date	May. 28, 2008
	<hr/>		<hr/>
	<i>Vincent Su/Manager</i>		

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Report Version

Version No.	Date
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Table of Contents

1.	GENERAL INFORMATION	5
1.2	RELATED SUBMITTAL(S) / GRANT (S)	5
1.3	SPECIAL ACCESSORIES	6
1.4	EQUIPMENT MODIFICATIONS	6
1.5	LIMITATION	6
1.6	MAXIMUM PERMISSIBLE EXPOSURE (MPE) EVALUATION	7
	PHOTOGRPHS OF EUT.....	10

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1. GENERAL INFORMATION

Product Name:	3.5G module		
Model Name:	MC8775		
Market name:	N/A		
Model Difference:	N/A		
Brand Name:	Flex		
Power Supply:	3.7 Vdc		
	Battery Model:	N/A	
	Adapter Model:	N/A	

GSM and WCDMA:

Cellular Phone Standards Frequency Range and Power	GSM/GPRS 850, class 10	824 MHz– 849MHz	33 dBm
	EDGE 850	824 MHz– 849MHz	27 dBm
	GSM/GPRS 1900, class 10	1850MHz – 1910MHz	30 dBm
	EDGE 1900	1850MHz – 1910MHz	26 dBm
	WCDMA/HSDPA Band II	1852MHz – 1908MHz	24 dBm
	WCDMA/HSDPA Band V	826 MHz– 847MHz	24 dBm
Type of Emission	GSM: 300KGXW EDGE: 300KG7W WCDMA: 4M20F9W		
IMEI	352678013333643		

Antenna Specification

Item no.	Model/Type	
Antenna	Antenna Type	PIFA Antenna
	Manufacture:	YAGEO
	Frequency Range:	850 / 900 / 1800 / 1900 / 2100
	Antenna Gain:	850MHz: -1.4dBi ; 1900MHz: 1.35dBi

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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 MC8775 GSM/GPRS class10 / WCDMA module. Based on the FCC OET Bulletin 65 Supplement C and 47 CFR §2.1091, we have concluded that the MC8775 module will comply with the FCC rules on RF exposure for mobile devices if the antenna gain does not exceed -1.4dBi (The max. gain) in 850MHz band and 1.35 dBi in 1900MHz 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 peak conducted output power of module MC8775 in cellular band is 32.08 dBm at GSM/GPRS mode. Take the worst case as an example, in which an antenna with -1.4dBi (The max gain) gain is used. The resulted power density at a distance of 20 cm can be deducted as follows:

$$\text{EIRP} = 32.08 + (-1.4) = 30.68 \text{ dBm} = 1169.50 \text{ mW}$$

$$\begin{aligned} \text{Power Density} &= \text{EIRP} \cdot \text{Duty Cycle} / (4 \pi R^2) \\ &= 1169.50 \cdot 0.25 / (4 \pi \cdot 20^2) = 0.058 \text{ mW/cm}^2 \end{aligned}$$

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:

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

As we can see the resulted power density is below the MPE limit, therefore MC8775 module in cellular band is compliant with the FCC rules on RF exposure.

Operation in PCS band (1850.2MHz – 1909.8MHz)

The peak conducted output power of module MC8775 module in PCS band is 29.70 dBm. Take the worst case as an example, in which an antenna with 1.35 dBi gain is used. The resulted ERP can be expressed as follows:

$$\text{ERP} = 29.70 + (1.35) - 2.14 = 28.91 \text{ dBm} (0.7780 \text{ W}) < 3 \text{ W}$$

The FCC OET Bulletin 65 Supplement C states that mobile devices identified in 47 CFR §2.1091 that operate at frequencies above 1.5 GHz with an ERP of 3.0 watts or more are required to perform routine environmental evaluation for RF exposure prior to equipment authorization or use; otherwise, they are categorically excluded.

As we can see this resulted ERP is below 3 W, therefore routine environmental evaluation for RF exposure prior to equipment authorization or use for MC8775 module in PCS band is categorically excluded.

Operation in WCDMA band V (826.4MHz – 846.6 MHz)

The peak conducted output power of module MC8775 in WCDMA band V is 22.75 dBm. Take the worst case as an example, in which an antenna with -1.4 dBi (The max gain) gain is used. The resulted power density at a distance of 20 cm can be deducted as follows:

$$\text{EIRP} = 22.75 + (-1.4) = 21.35 \text{ dBm} = 136.46 \text{ mW}$$

$$\text{Power Density} = \text{EIRP} * \text{Duty Cycle} / (4 * R^2)$$

$$= 136.46 * 1 / (4 * 20^2) = 0.027 \text{ mW/cm}^2$$

where Duty Cycle is 1 for WCDMA operation 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:

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

As we can see the resulted power density is below the MPE limit, therefore MC8775 module in cellular band is compliant with the FCC rules on RF exposure.

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Operation in WCDMA band II (1852.4MHz – 1907.6MHz)

The peak conducted output power of module MC8775 module in WCDMA band II is 22.86 dBm. Take the worst case as an example, in which an antenna with 1.35 dBi gain is used. The resulted ERP can be expressed as follows:

$$\text{ERP} = 22.86 + (1.35) - 2.14 = 22.07 \text{ dBm} (0.1610 \text{ W}) < 3 \text{ W}$$

The FCC OET Bulletin 65 Supplement C states that mobile devices identified in 47 CFR §2.1091 that operate at frequencies above 1.5 GHz with an ERP of 3.0 watts or more are required to perform routine environmental evaluation for RF exposure prior to equipment authorization or use; otherwise, they are categorically excluded.

As we can see this resulted ERP is below 3 W, therefore routine environmental evaluation for RF exposure prior to equipment authorization or use for MC8775 module in PCS band is categorically excluded.

APPENDIX 1

PHOTOGRAPHS OF EUT

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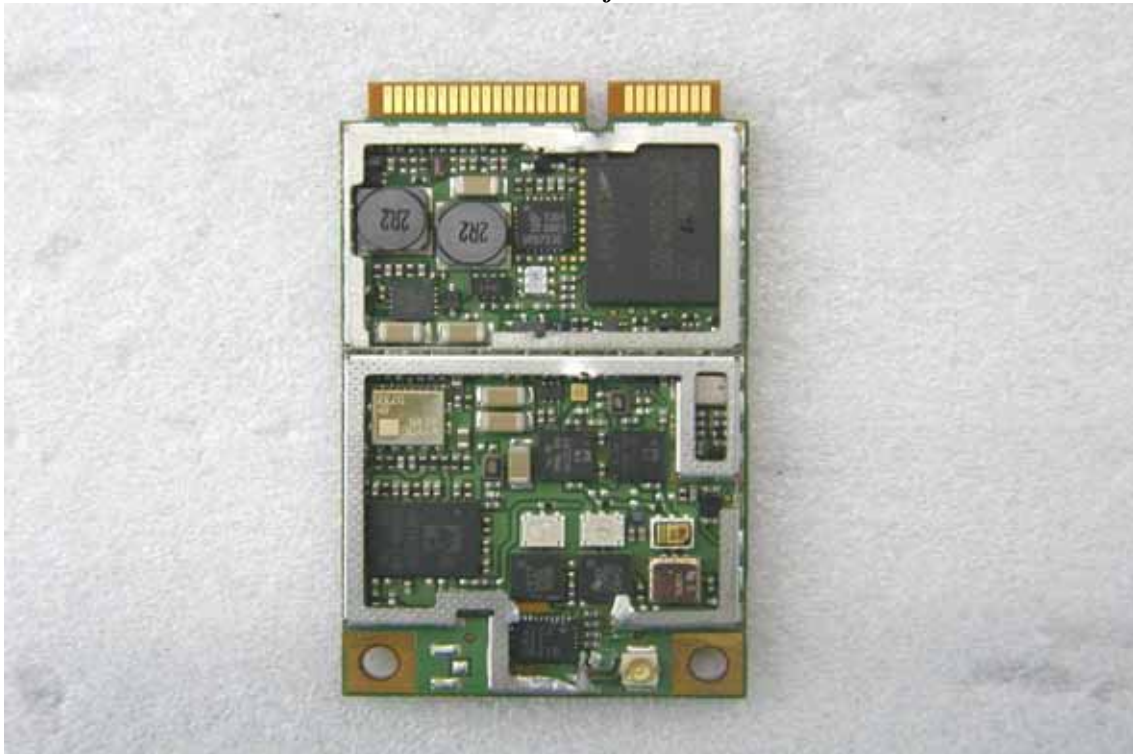
All View of EUT

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Internal View of EUT – 1



Internal View of EUT – 2



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Internal View of EUT - 3



Internal View of EUT - 4



- End of Report -

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