MPE Estimation

On

Dual-Band CDMA/AMPS Module

FCC Part 22 & 24 Certification	
FCC ID:	**OVFKWC-M200**
Model:	**M200**
Original Grant Date:	**July 22, 2003**

STATEMENT OF COMPLIANCE

Kyocera Wireless Corp declares under its sole responsibility that the product M200 (FCC ID: OVFKWC-M200) to which this declaration relates, is in conformity with the appropriate General Population/Uncontrolled RF exposure standards, recommendations and guidelines. It also declares that the product was tested in accordance with the appropriate measurement standards, guidelines and recommended practices.

Any deviations from these standards, guidelines and recommended practices are noted: NONE.

Test performed by:	Jeff F. Test Technician	Date of Test:	12/28/07
Report Prepared by:	Jeff F. Test Technician	Date of Report:	12/28/07
Report Reviewed by:	C. K. Li Engineer, Principal	Date of Review:	12/28/07

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1 INTRODUCTION

This test report describes Maximum Permissible Exposure (MPE) generated from a wireless portable device manufactured by Kyocera Wireless Corp. (KWC). These measurements were performed for compliance with the rules and regulations of the U.S. Federal Communications Commission (FCC). The limit is specified in FCC 1.1210.

2 EQUIPMENT UNDER TEST (EUT)

The wireless device is described as follows:

FCC ID:	OVFKWC-M200		
Product:	Dual-Band CDMA/AMPS Module		
Trade Name:	Kyocera Wireless Corp.		
Model Number:	M200		
Device Category:	Mobile (w/ external antenna)		
RF Exposure Environment:	General Population / Uncontrolled		
External Input/Output:	External antenna ports		
Quantity:	Quantity production is planned		
Antenna Type:	External		
FCC Rule Parts:	§22H	§24H	§22
Multiple Access Scheme:	CDMA	CDMA	AMPS
TX Frequency (MHz):	824 – 849	1850 - 1910	824 - 849
Emission Designators:	1M25F9W	1M25F9W	40KDF8W
Rated Conducted Output Power (dBm):	24.5	23.8	27

3 MPE LIMITS

Limits for General Population/Uncontrolled Exposure:

Frequency Range (MHz)	**Electric Field Strength, E** (V/m)	**Magnetic Field Strength, H** (A/m)	**Power Density, S** (mW/cm^2)	**Averaging Time $|E|^2$, $|H|^2$ or S** (minutes)
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
1500-100,000	--	--	1.0	30

*f = frequency in MHz, *Plane-wave equivalent power density*

4 MPE ESTIMATION FORMULA

MPE power density level can be calculated by the following equation (1):

$$S = \frac{P_t G_t}{4\pi R^2} \qquad \text{..... (1)}$$

Where S = Power Density in mW/cm^2
P_t = Power in mW
G_t = Numeric Antenna Gain
R = distance from antenna to body in cm (= 20 for mobile application)

5 MPE CALCULATIONS

The FCC requires that the calculated MPE be equal to or less than a given limit dependent on frequency at a distance of 20 cm from a device to the body of a user.

Band	Freq (MHz)	P_t* (dBm)	G_t (dBi)	R (cm)	S (mW/cm^2)	MPE Limit (mW/cm^2)	Result
CDMA 800	824.70	24.53	7	20	**0.283**	0.550	Passes
	836.52	24.57	7	20	**0.286**	0.558	Passes
	848.31	24.49	7	20	**0.280**	0.566	Passes
CDMA 1900	1851.25	23.8	13	20	**0.952**	1.000	Passes
	1880.00	23.85	13	20	**0.963**	1.000	Passes
	1908.75	23.81	13	20	**0.954**	1.000	Passes
AMPS 800	824.04	27	7	20	**0.500**	0.549	Passes
	836.49	27.06	7	20	**0.507**	0.558	Passes
	848.97	27.02	7	20	**0.502**	0.566	Passes

*Note: * Data obtained from worst case configuration at each channel in emission report*

Based on the FCC OET Bulletin 65 Supplement C and 47 CFR §2.1091, it has been calculated that the device will comply with the FCC rules on RF exposure for mobile devices when used with an external antenna system with total gain (antenna gain + connecting cable loss) not to exceed 7.0 dBi and 13 dBi in the cellular and PCS band respectively.