



MOTOROLA

Date: July 30, 2009

Subject: Request for additional information regarding FCC ID: IHDT56KL1

Reference:

Correspondence Reference Number: IHD90892
Confirmation Number: 907200892-3
Date of Original Email: July 28, 2009

Prepared by:

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Questions and responses follow:

1. Please verify that the EUT will only be marketed to OEM installers.

Response: This is a module to be targeted to OEM that integrates the module into their host/product. Even the User Manual is not called so, but named "Developer Guide".

2. What detector was used to perform conducted output power measurements (all modulation types)? If an average detector was used for any of the PCS band emissions, then please provide data demonstrating compliance with the 13 dB PAR limit for those emissions.

Response: Please refer to the EMC PAR report submitted online.

3. Please provide PCS WCDMA spurious conducted plots, beginning 1 MHz away from the bandededges, using RBW = 1 MHz, as required.

Response: Please refer to the 1MHz offset plots submitted online.

4. The Operational Description lists GPRS Class 12 capability, but the MPE report only refers to Class 11 mode. Please address.

Response: The module is capable of both Multislot GPRS class 12 (4 Tx slots per frame) and DTM/GPRS class 11 (3 Tx slots per frame) - the calculation was carried in both classes - see below calculation table done by our SAR engineer. Since the average power was highest in Class 11 (worst case is in 850 band for class 11 than class 12 Tx power decreased by 2dB.) So Class 11 was used for the MPE calculations.

GSM	Class 8	Class 10	Class 11	Class 12	Units
850	33.27	31.77	30.27	28.77	dBm
	2123.24	1503.14	1064.14	753.36	mW
	265.41	375.79	399.05	376.68	mW (time avg)
1900	30.44	28.94	27.44	26.94	dBm
	1106.62	783.43	554.63	494.31	mW
	138.33	195.86	207.98	247.16	mW (time avg)
WCDMA	dBm	mW			
850	24.35	272.27			
1900	24.38	274.16			
2100	25	316.23			

5. Please provide the calculations used to reach the results listed in the MPE report (including the calculations related to determinations of output power levels used in the power density calculations).

Response: The output power was calculated for GSM, GPRS and WCDMA modes. The device does provide a peak power cutback of 1.5 dB for each additional slot in GPRS mode. Therefore the calculated output power is:

GPRS	Class 8	Class 10	Class 11	Class 12	Units
850	33.27	31.77	30.27	28.77	dBm
	265.41	375.79	399.05	376.68	mW (time avg)
1900	30.44	28.94	27.44	26.94	dBm
	138.33	195.86	207.98	247.16	mW (time avg)

WCDMA	dBm	mW
850	24.35	272.27
1900	24.38	274.16

The calculations for the MPE were derived from:

$$S = \text{enhancement factor} * [(\text{maximum time averaged power output}) * (\text{net antenna gain})] / [4 * \text{Pi} * (\text{distance})^2]$$

Where:

"maximum time averaged power output" = peak power * duty cycle%

"net antenna gain" = (antenna gain - the line loss) expressed in linear format

"enhancement factor" = to account for ground reflections is 2.56

"distance" = distance from antenna (20 cm in our case)

So, for 835 MHz:

$$S = 2.56 * [399.05 \text{ mW} * 10^{(4.3/10)}] / [4 * 3.1415 * 20^2] = 0.547 \text{ mW} / \text{cm}^2$$

For 1900 MHz:

$$S = 2.56 * [274.16 \text{ mW} * 10^{(2.55/10)}] / [4 * 3.1415 * 20^2] = 0.251 \text{ mW} / \text{cm}^2$$