MOTOROLA

Date: October 10, 2003

Subject: Request for additional information regarding FCC ID: IHDT56DR1 (Portable Cellular/PCS GSM transceiver GSM 1900 phone with embedded Bluetooth transceiver)

Reference:

Application Received:	10/01/2003
Correspondence Reference Number:	231010A.IHD
Confirmation Number:	TC3250
Date of Original Email:	10/10/2003

Prepared by:
Andrew Bachler, Principal Staff Engineer
Motorola Personal Communications Sector
Libertyville, Illinois

Questions and responses follow:

Part 22/24 application:

1. The right head tilt SAR data is described as "Cheek" in the plot text. Please address.

Response: Please refer to the supplemental SAR report submitted on October 10, 2003.

2. Please submit the GSM850 left head tilt data plot.

Response: Please refer to the supplemental SAR report submitted on October 10, 2003.

3. The body SAR plots indicate that the Army Twin Phantom was used, and not the SAM. Please address.

Response: Please refer to the supplemental SAR report submitted on October 10, 2003.

4. Page 4 of the SAR report indicates that the network analyzer is past its cal due date. Please correct.

Response: Please refer to the supplemental SAR report submitted on October 10, 2003.

5. The E-field probe Table (p.9 of the SAR report) lists conversion factors for probe S/N 1506 for muscle tissue, instead of brain tissue. Please correct.

Response: Please refer to the supplemental SAR report submitted on October 10, 2003

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6. What instrument settings (i.e., RBW, VBW, detector function) were used
to make both spurious radiated and conducted emission measurements?

Response: Please refer to the following table.

Test	Technology	Band	FCC Part	RBW (MHz)	VBW (MHz)	Detector	Trace	Sweep Time
Spurious Conducted Emissions	GSM	850	22	0.1	Auto, ≥ RBW	Peak	Max Hold	Auto - Cal
Spurious Conducted Emissions	GSM	1900	24	1	Auto, ≥ RBW	Peak	Max Hold	Auto - Cal
Spurious Radiated Emissions	GSM	850	24	0.1	Auto, ≥ RBW	Peak	Max Hold	Auto - Cal
Spurious Radiated Emissions	GSM	1900	24	1	Auto, ≥ RBW	Peak	Max Hold	Auto - Cal
Spurious Radiated Emissions	GSM	850	15.109	0.12, 1 *	Auto, ≥ RBW	Peak, QP, Ave **	Max Hold	Auto - Cal
Spurious Radiated Emissions	GSM	1900	15.109	0.12, 1 *	Auto, ≥ RBW	Peak, QP, Ave **	Max Hold	Auto - Cal
Spurious Radiated Emissions	Bluetooth	2400	15.247	0.12, 1 *	Auto, ≥ RBW	Peak, QP, Ave **	Max Hold	Auto - Cal

* Resolution BW adjusted based on emission frequency:

    -120 kHz RBW used for emissions from 30 MHz - 1 GHz

    -1 MHz RBW used for emission greater than 1GHz.

** The detector used was adjusted based on emission frequency (Prelim sweeps made with peak detector):

    -QP used for emissions from 30 MHz - 1 GHz

    -Average used for emission greater than 1GHz.

7. The highest reported measured conducted output power in the SAR report
for PCS operation is 30.0 dBm (pp.8-9). This is slightly less than the
highest level listed on p.7 of the EMC report, which is 30.77 dBm. Please
address.

RESPONSE: All of the conducted powers reported on page 7 of the EMC report are in error. The
correct values follow:

GSM 850

Frequency (MHz)	Power (dBm)
824.20	32.30
836.60	32.32
848.80	32.29

GSM 1900

Frequency (MHz)	Power (dBm)
1850.20	29.66
1880.00	29.74
1909.80	29.68

Part 15.247 application:

8. Please address the receiver requirements of Section 15.247(a)(1): does
the rx have the ability to hop in sync with the tx? Does the rx input BW
approximately equal the transmitted signal BW?

Response: Bluetooth implementation is accomplished with the Broadcom Blutonium BCM2035 implemented on a module. This device is a standalone baseband processor with an integrated 2.4 GHz transceiver. It is completely compliant with the Bluetooth 1.1 specification and Part 15.247. Yes, the rx has the ability to hop in sync with the tx. Yes, the rx BW is approximately equal to the tx BW.

9. Please address the remaining transmitter requirements of Section 15.247(a)(1): is the hopping frequency sequence pseudorandom? Is each channel used equally, on average?

Response: Yes, the frequency hopping is pseudorandom and average channel usage is equal.

10. What instrument settings (i.e., RBW, VBW, detector function) were used to make spurious radiated emission measurements?

Response: Please refer to the response 6 table.

11. Please address Section 15.247(g): does the EUT comply with all of the requirements of this Section when it is presented with a continuous data stream?

Response: Yes, the BCM2035 single chip solution complies with all part 15.247 requirements when presented with a continuous data stream.

12. Please address Section 15.247(h): verify that the EUT does not coordinate its hopping sequence with that of other frequency hopping systems for the express purpose of avoiding the simultaneous occupancy of a single channel by multiple transmitters.

Response: Bluetooth implementation is accomplished with the Broadcom Blutonium BCM2035 single chip solution. This device is a standalone baseband processor with an integrated 2.4 GHz transceiver. It is completely compliant with the Bluetooth 1.1 specification and Part 15.247(h).

13. What is the gain of the antenna used with the Bluetooth transmitter?

Response: The Bluetooth module uses a separate antenna internal to the housing of the phone. The antenna gain is approximately 0 dBi.

14. Please verify that the statement required by Section 15.21 will be included in the user's manual.

Response: Yes, the following statement is added to the final manual.

> Caution: Changes or modifications made in the radio phone, not expressly approved by Motorola, will void the user's authority to operate the equipment.

15. FYI: in the future, please provide spurious conducted emission data demonstrating compliance with Section 15.247(c) for 3 channels (low, mid and hi)- the data for only a single channel was included in this report.

Response: Agreed.