MOTOROLA

FCC ID: AZ489FT5848
DECLARATION OF COMPLIANCE HAC ASSESSMENT - TELECOIL

iDEN Mobile Devices
Audio Test Laboratory
8000 West Sunrise Blvd
Fort Lauderdale, FL. 33322

Date of Report:	**13 July 2006**
Report Revision:	**Rev. C**
Report ID:	**FCC_HAC_Telecoil_Rpt_i580_Rev-C_060713**

Responsible Engineer:	Chad Jackman
Date/s Tested:	2/16/2006 to 2/22/2006
Manufacturer/Location:	Motorola – Plantation, Florida
Sector/Group/Div.:	iDEN Mobile Devices
Date submitted for test:	16 Feb. 2006
DUT Description:	Clamshell style with extendable antenna
Signaling type:	TDMA: iDEN
Test TX mode(s):	2:6 (a.k.a. 1:3), 1:6
Max. Power output:	0.640W; Pulse Average; Factory tuning
Nominal Power:	0.600W; Pulse Average; Factory tuning
TX Frequency Bands:	iDEN - 806-821 MHz, 896-901 MHz (in the U.S.)
Model(s) Tested:	i580 (H83XAH6RR4AN)
Model(s) Certified:	i580 (H83XAH6RR4AN)
Serial Number(s):	364AFW00HP
Rule Part(s):	20.19(b)(2)

Approved Applicable Accessories:

Antenna(s):

8575868A01 - 806-928MHz extendable ¼ wave antenna
Gain - 806-825MHz extended 2.15dBd, retracted -1.16 dBd; 896-902MHz extended 2.15 dBd, retracted -1.22 dBd

Battery(ies):

SNN5765A High Performance Li Ion, Battery Cover NNTN2332A
SNN5744A Slim Li Ion, Battery Cover NNTN2331A

Min. Axial field strength:	**8.16 dB A/m**
Min. Radial field strength:	**-0.68 dB A/m**
Min. ABM Desired-to-Undesired signal ratio:	**28.84 dB**
HAC Category rating:	**M3 T3**

Based on the information and the testing results provided herein, the undersigned certifies that when used as stated in the operating instructions supplied, said product complies with the C63.19-2005 reference standard. This report shall not be reproduced without written approval from an officially designated representative of the Motorola EME Laboratory.

The results and statements contained in this report pertain only to the device(s) evaluated.

Alfred Wieczorek, P. E
Motorola iDEN Mobile Devices Business

/S/ Alfred Wieczorek **Approval Date:** 13 July 2006

Certification Date: 24 Feb. 2006

Table of Contents

REVISION HISTORY

Date	Revision	Comments
2/24/06	O	Initial release
5/11/06	A	Modification to address issues raised by FCC examiner.
6/2/2006	B	Additional modifications, based on feedback from FCC.
7/13/2006	C	Additional modifications based on feedback from the FCC, Correspondence Numbers 31105 and 31106.

1.0 Introduction and Overview

This report details the utilization, test setup, test equipment, and test results of Hearing Aid Compatibility (HAC) telecoil measurements required per 47 CFR 20.19(b)(2). These measurements were performed during a controlled on-network telephone call, at full rated RF power with the antenna extended, to assess compliance with the PC63.19-2001 rd 3.6 standard. The data in this report is for assessing T-coil compliance only, as a separate report was previously filed with near-field performance data for assessing RF Interference potential, establishing an M3 rating. Some relevant data extracted from that report are included in Appendix A.

Per the Table 7-1 of the standard the iDEN air interface protocol articulation weighting factor (AWF) has been assigned a value of zero.

2.0 Telecoil Compliance Criteria (Per PC63.19-2001 rd 3.6 section 7.3)

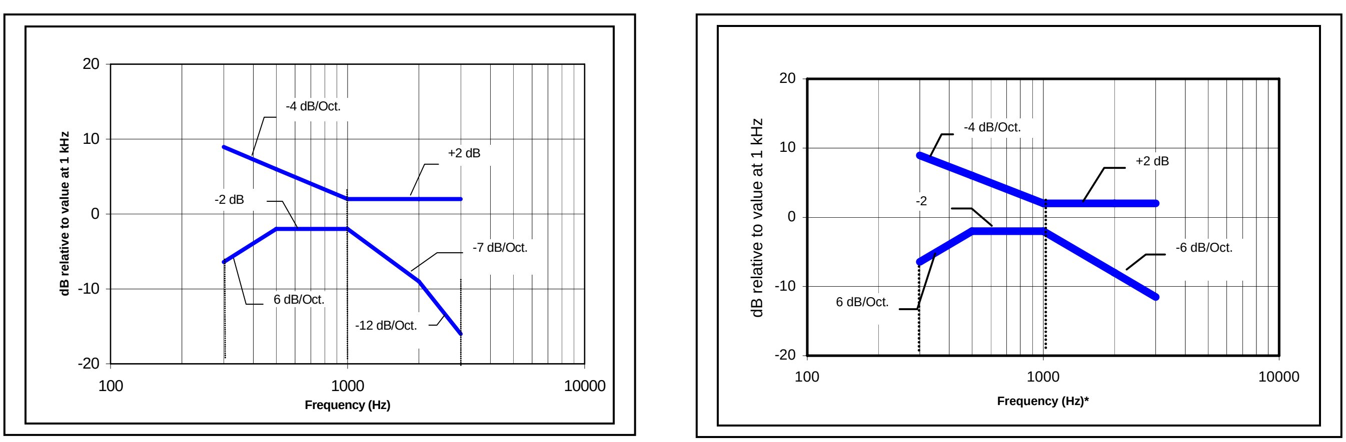
The signal quality rating shall be T3 or better per 47 CFR 20.19. Per C63.19 this rating is dependent upon the articulation weighting factor (AWF) for specific air interface protocols as listed in the following table:

Table 1 – Signal Quality rating limits

Rating	**AWF = 0**	**AWF = 5**
T4	> 10 dB	> 15 dB
T3	0 to 10 dB	5 to 15 dB

To merit this rating the axial component of the audio band magnetic (ABM) field shall be ≥ -13 dB A/m at 1 kHz, and the radial components of the audio band magnetic field shall be ≥ -18 dB A/m at 1 kHz.

In addition the frequency response shall lie with the limit lines evident in the following graph:



A – Mask for WDs with a field that exceeds -10 dB(A/m) at 1 kHz

B - Mask for WDs with a field t between -10 to -13 dB at 1kHz

Figure 1 –Frequency Response (Axial only)

The current C63.19 methodology used to determine a wireless device (WD) T-category rating is illustrated in the attached flow chart in Figure 1. This process presumes that the interference heard by a hearing aid used is dominated by the RF interference component rather than the inductively coupled noise interference component due to pulsing currents flowing in a handset. As a result a WD T-category rating value is precluded from exceeding the RF interference rating by virtue of the highlighted steps within the diagram.

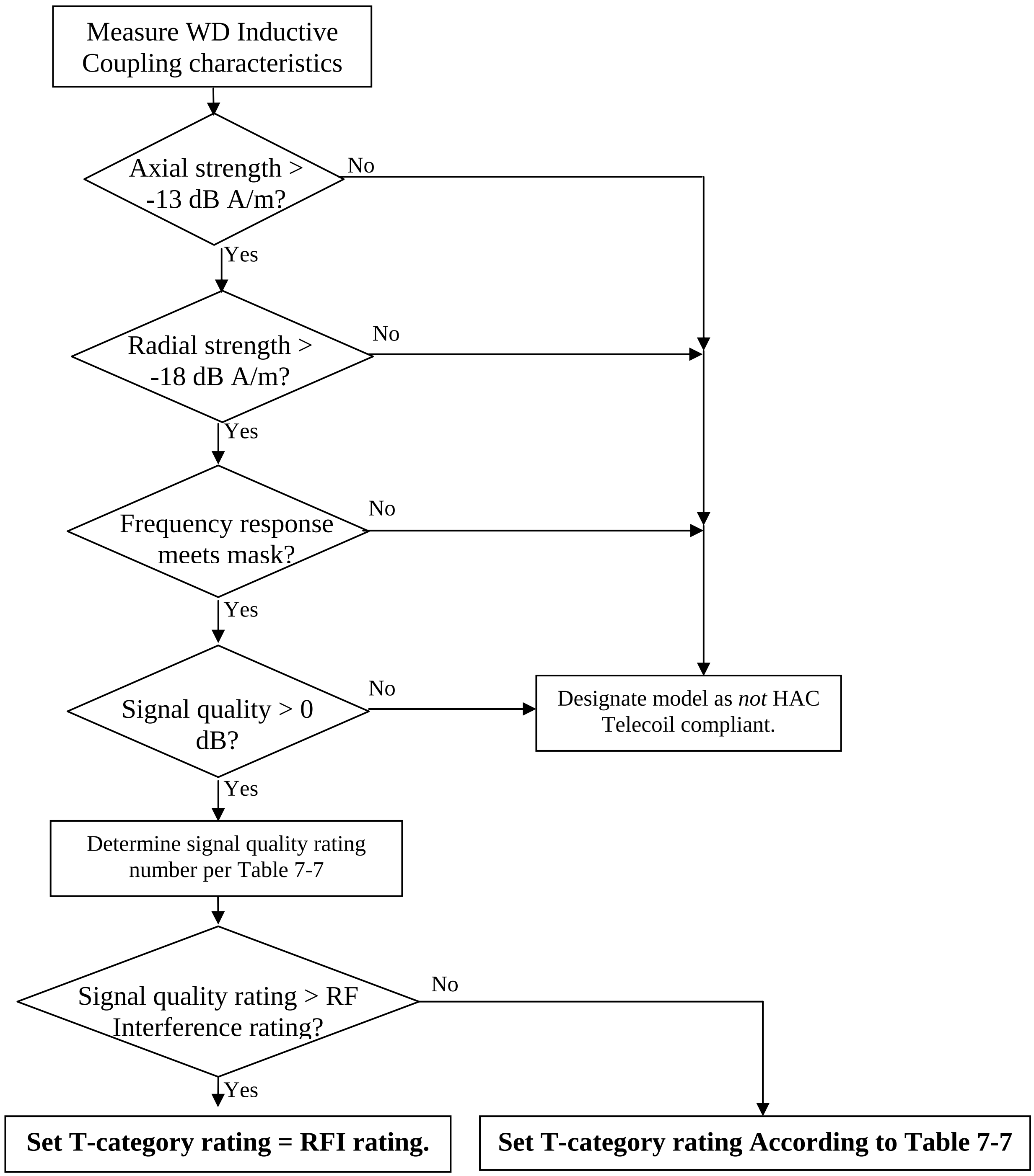


Figure 2 - WD Telecoil Category Rating Process
(Note: RFI rating assumed to be M3 or M4)

3.0 Description of Device Under Test (DUT)

FCC ID: AZ489FT5848 is used for telephone service subject to 47 CFR 20.19 for hearing aid compatibility. The maximum output power is 0.640 watts pulse average as determined by the upper limit of the production line final test station. The DUT was tuned to be within 5% of the maximum rated power. It is capable of transmitting on any network commanded frequency in the bands of 806 to 821 MHz (within the United States) and 896 to 901 MHz. It employs a time division multiplexing (TDM) transmission technology with a duty cycle of 16.67% (1:6 multiplexing) or 33.33% (2:6 multiplexing) using 16-QAM modulation on each of four OFDM-like sub-carriers. Since the TDM period is fixed at 90 ms. this duty cycle difference results in a difference in the RF carrier modulation envelope fundamental frequency being either 11Hz or 22Hz respectively. To evaluate the effect of the difference in envelope fundamental frequency measurements were made with both duty cycles in each band of operation (see section 9).

A different Vocoder is used for each multiplexing factor as commanded by the cellular network because a more efficient Vocoder is needed to achieve the greater spectral efficiency provided by the low-rate 1:6 multiplexing. Each Vocoder operates for the full duration of a transmission burst and both produce a random digital stream during the burst so between them there is essentially no difference in the modulation envelope during the burst. Accordingly measurements were made for the 2 duty cycles using the Vocoder normally used with the particular duty cycle.

User controls include selecting the duration of the backlight duration and the audio frequency response characteristic. Instructions for setting the backlight duration and the frequency response are provided in the User Guide respectively in the sections entitled *Customizing Your Phone, User Settings,* and *Advanced Calling Features, Features for the Hearing Impaired*.

4.0 Test Equipment List

Table 2 – List of test equipment used

Equipment Type	Model Number	Serial Number	Calibration Due
Axial Probe	HAC – A100	0484	6-1-06
Radial Probe	HAC – R100	0484	6-1-06
Audio Analyzer software	SoundCheck 6.1	SC-421	6-1-06
Input amplifier	SoundConnect	PS-418	6-1-06
Telephone Magnetic Field Simulator	TMFS-1	300-01151	APREL TMFS v.1.6, Release 23 March 2005
Helmholtz Coil	AMCC SD HAC P02 AB	1005	5-22-07

5.0 Descriptions of Measurement System (a variation of PC63.19-2001 rd 3.5 Figure 6-1)

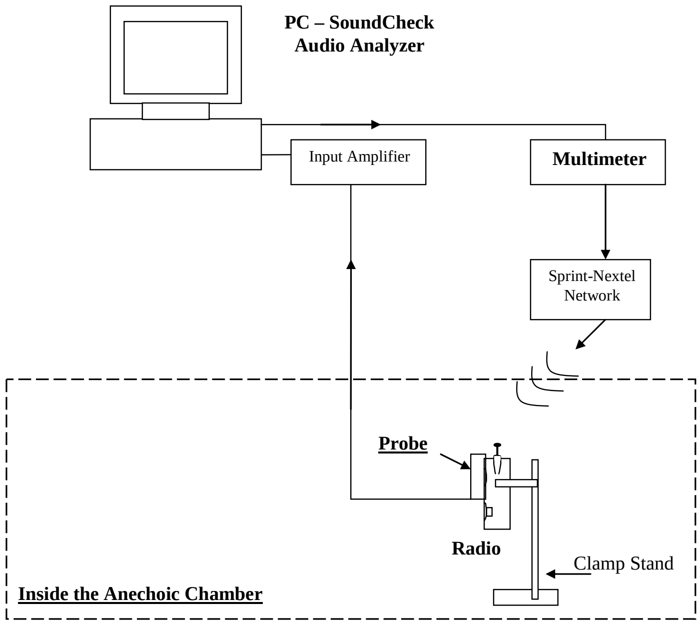


Figure 3 – Test setup

The laboratory utilizes the Listen *SoundCheck* system, which is a software package that both generates and measures audio signals via a D/A card installed in a personal computer. This software provides the filtering and integration functions necessary to complete the measurements in C63.19, section 6.3.4.2 and 6.3.4.3. The 11-second P50 male audio signal so generated is applied to the DUT which is engaged in an on-network telephone call as the antenna is not removable and the antenna port connector lies between the battery and the housing. Transmission power was monitored via embedded diagnostic software that displays output power to ensure no power cutback occurred. The measurement system consists of a CCL A-100 Axial telecoil probe and an R-100 Radial telecoil probe. Section 4.0 presents relevant test equipment information. All measurement equipment used to assess Telecoil HAC compliance was calibrated.

6.0 Measurement System Verification

The HAC measurements were conducted with Axial and Radial telecoil probes model/serial numbers A-100/0484 and R-100/0484. A Telephone Magnetic Field Simulator (TMFS) was used (rather than a Helmholtz coil) for system verification following the guidelines stated in the TMFS procedures document. For calibration, telecoil probe output signal levels were compared with target valued provided by the manufacturer, and the results provided in Table 3. The photos below depict the validation setup using the TMFS.

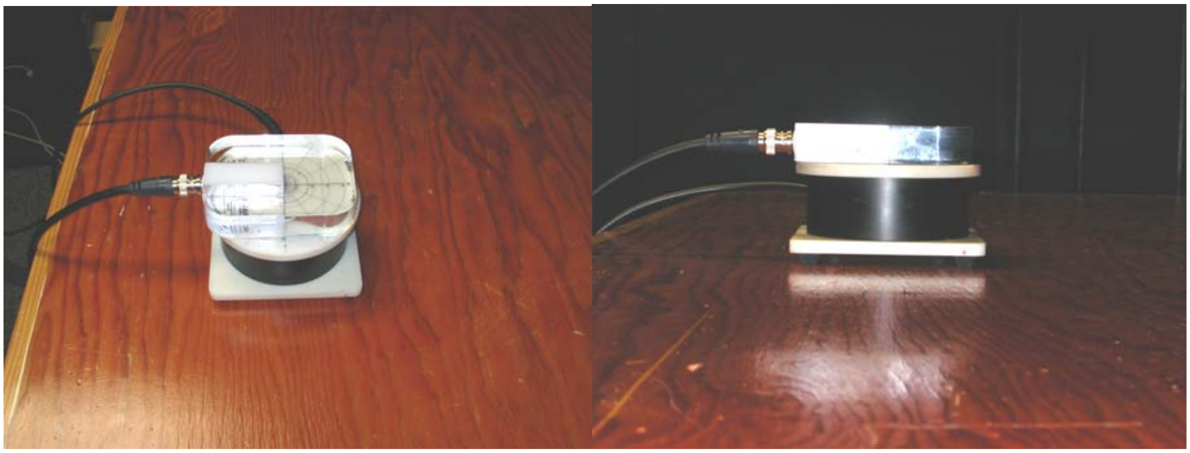


Figure 4 – Probe coil being calibrated with TMFS

6.1 System Verification Test Results

In accordance with C63.19-2005 clause 6.2.4 the probes were calibrated and sensitivity levels at 1 kHz verified and listed below on 10 February 2006. System verification measurement results for Axial and Radial probes are listed and compared with expected values from the TMFS in Table 3. The amplitude linearity data shown below meets the ± 0.5 dB tolerance, with the output varying in corresponding 10 dB steps.

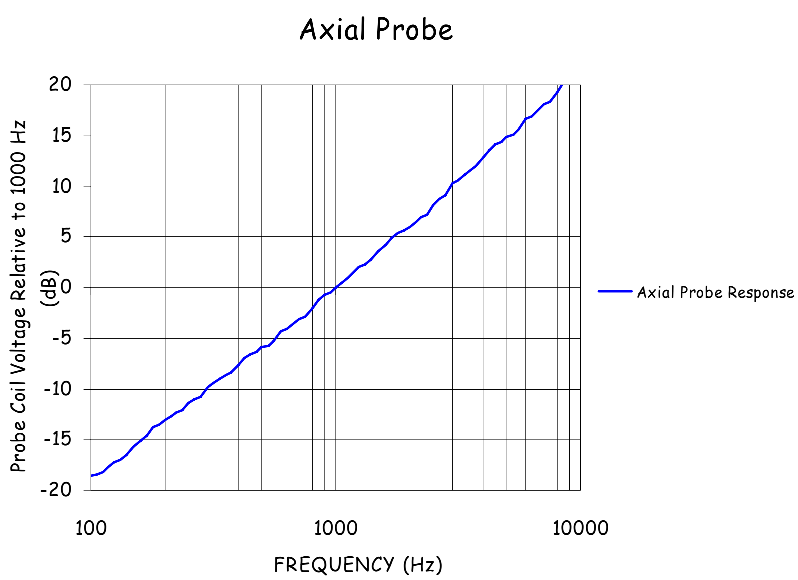


Figure 5 - Axial Probe sensitivity at 1000 Hz: -58.5 dB V/(A/m)

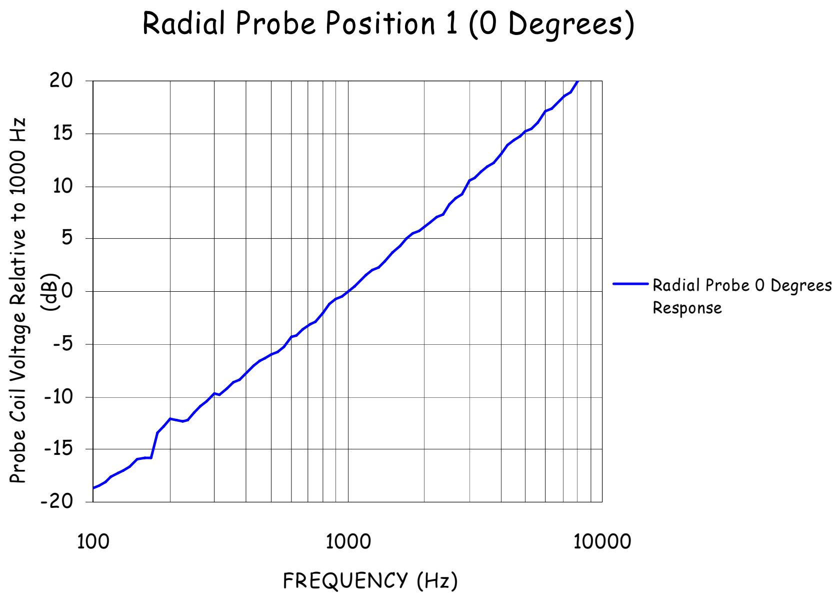


Figure 6 - Radial Probe sensitivity at 1000 Hz: -59.9 dB V/(A/m)

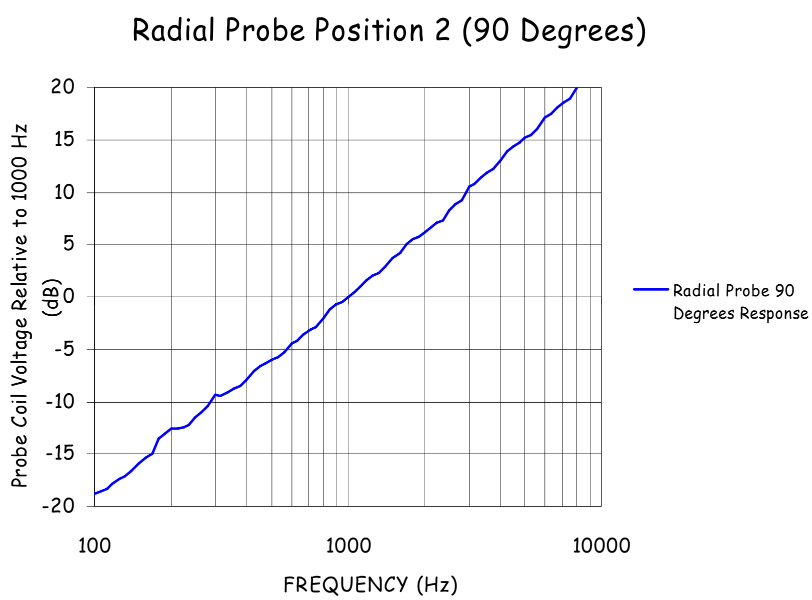


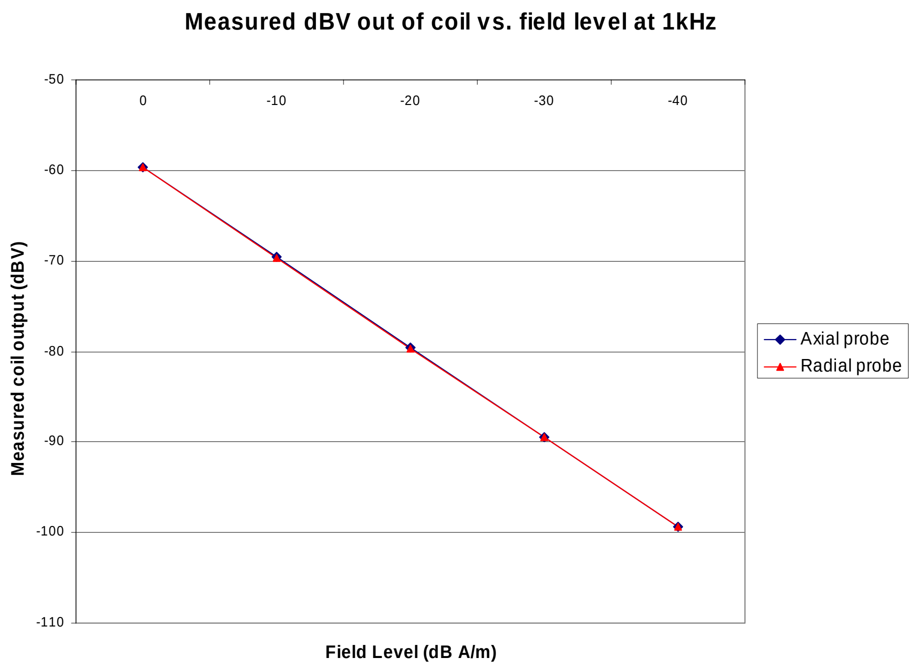
Figure 7 - Radial Probe sensitivity at 1000 Hz: -59.9 dB V/(A/m)

Table 3 - Probe Sensitivity

Orientation	Input Signal	Target Magnetic Field	Measured Magnetic field	Deviation
Axial	1kHz, 0.5V	-20.0 dB A/m	-20.66 dB A/m	0.66 dB
Radial 1	1kHz, 0.5V	-27.5 dB A/m	-28.08 dB A/m	0.58 dB
Radial 2	1kHz, 0.5V	-27.5 dB A/m	-27.90 dB A/m	0.40 dB

Table 4 - Probe Linearity

Level	Delta of Axial Probe (at 1 kHz)	Delta of Radial Probe (at 1 kHz)	Acceptance Criteria	Result
0 - 10	0.0	0.0	± 0.5 dB	Pass
10 - 20	0.0	0.0	± 0.5 dB	Pass
20 - 30	-0.2	-0.2	± 0.5 dB	Pass
30 – 40	-0.1	-0.2	± 0.5 dB	Pass



The input signal used for verification was set by calculating the average RMS power of the P50 male wave file averaged over the length of the file (11-seconds). A 1 kHz tone was then created at that calculated level. The 1 kHz tone is then measured at the input point of the network and adjusted to achieve the desired -18 dBm0 level. The P50 signal is validated by comparing a sinusoidal tone sweep from 100 Hz to 5 kHz with the P50 frequency response after correction. The 1 kHz value used in all measurements is the absolute value received with the P50 response, no additional adjustment was made. As an example to show that all math is being calculated correctly, the sinusoidal tone sweep and P50 frequency responses of a TMFS are plotted in the graph below (Figure 4A & 4B). The results show that both are equivalent in level and shape.

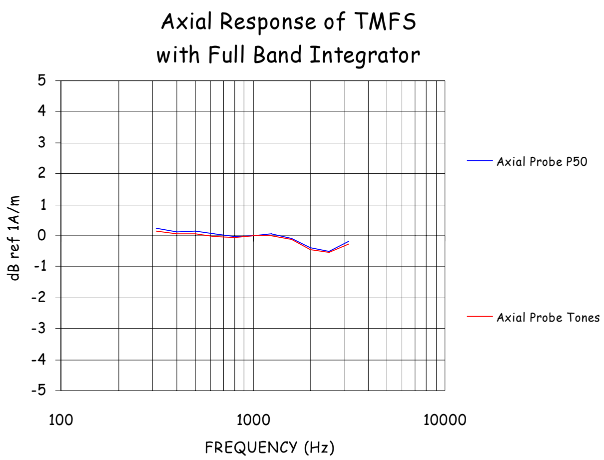


Figure 8A – TMFS Measured Frequency response

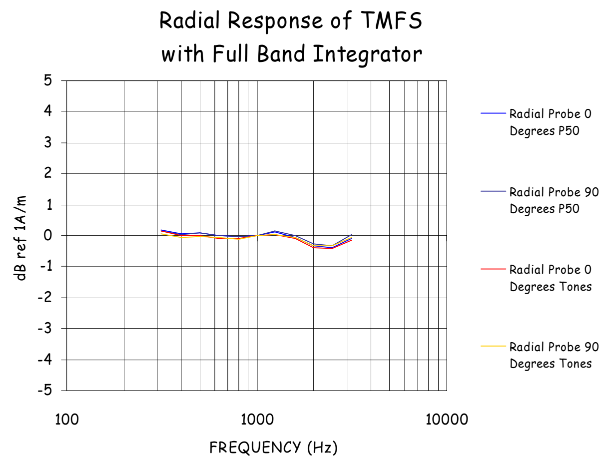


Figure 8B – TMFS Measured Frequency response

6.2 RF Immunity Verification

To alleviate any concern that RF radiation from the handset would influence ABM readings by the measurement system the ambient noise floor was measured when a dipole was positioned where the handset antenna was located during ABM measurements. The Plots below show the Axial probe ambient noise floor measured with and without RF. The RF signal was produced with a signal generator at 900 and 1900 MHz transmitting at a power level of 1 Watt. The data shows only a small affect to the frequency response below 300 Hz, the amount of which would be negligible in the determination of the signal quality.

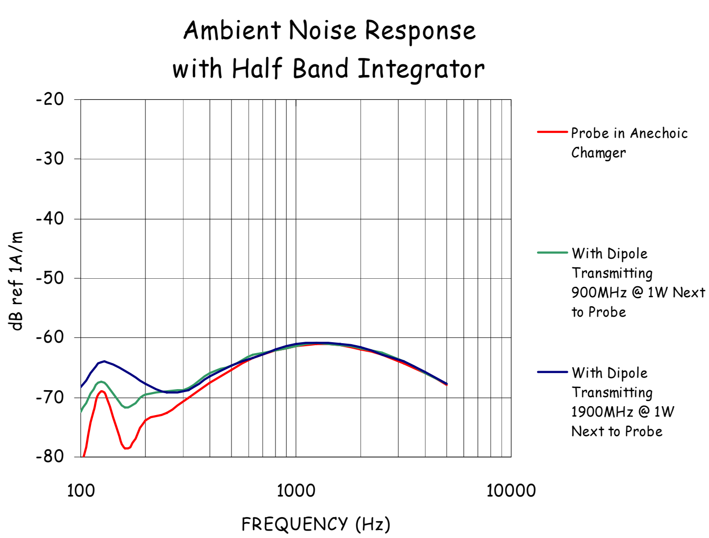


Figure 9 – Noise with RF Measured Response

6.3 800 MHz Band RF Frequency Dependence

The following graphs illustrate the RF frequency dependence of 800 MHz band ABM2 noise measurements. The ABM2 measurements reported in Section 9 of this report have been adjusted for differences with worst-case RF frequency relative to orientation using the compensations indicated on the graphs.

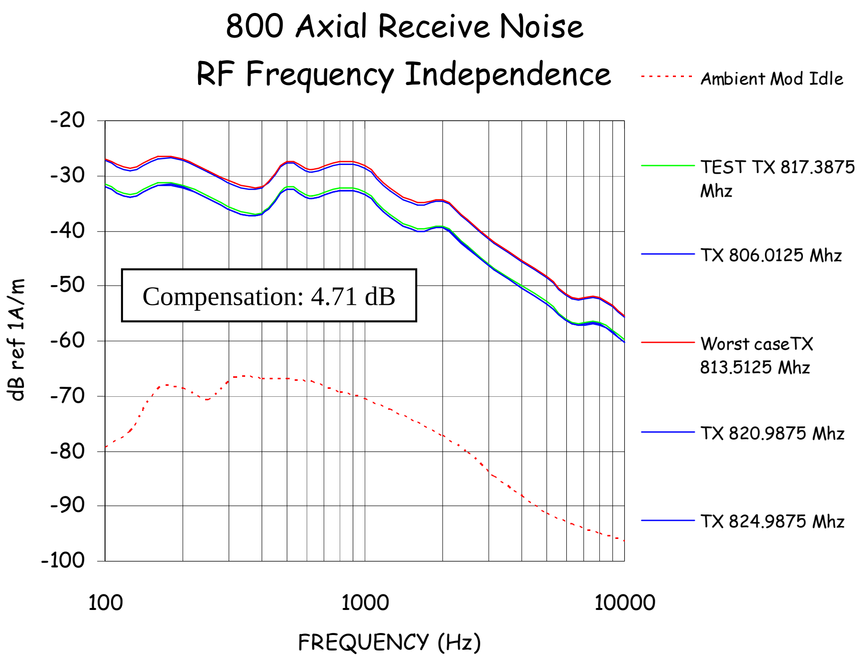


Figure 10A – 800 MHz Axial Receive Noise Compensation

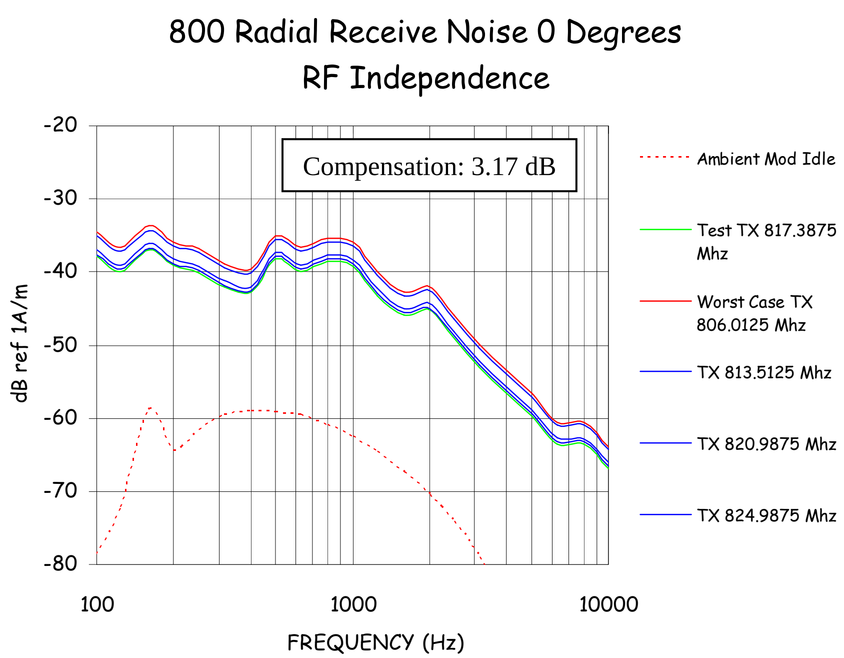


Figure 10B – 800 MHz Radial (0-degrees) Receive Noise Compensation

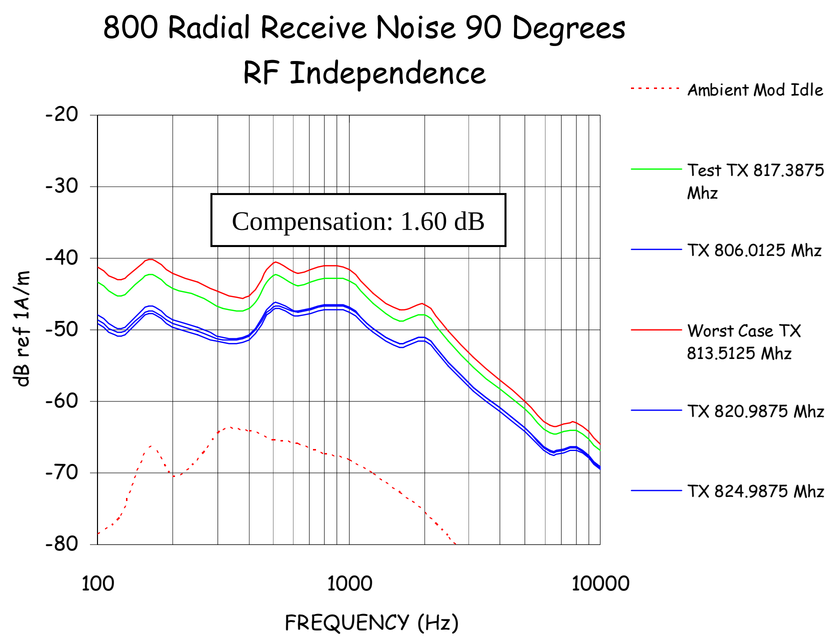


Figure 10C – 800 MHz Radial (90-degrees) Receive Noise Compensation

6.4 900 MHz Band RF Frequency Dependence

The following graphs illustrate the RF frequency dependence of 900 MHz band ABM2 noise measurements. The ABM2 measurements reported in Section 9 of this report have been adjusted for differences with worst-case RF frequency relative to orientation using the compensations indicated on the graphs.

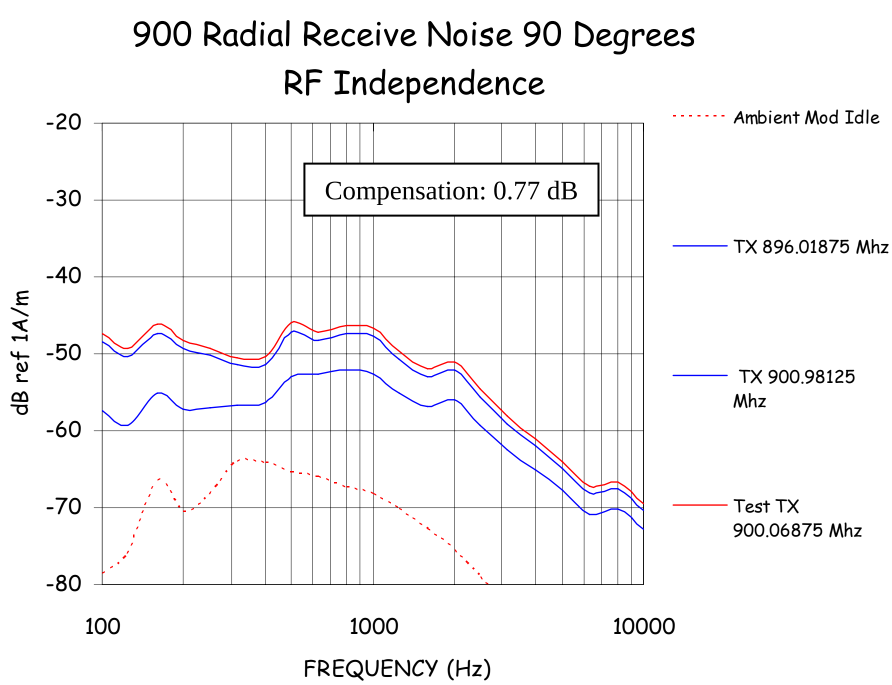


Figure 10D – 900 MHz Axial Receive Noise Compensation

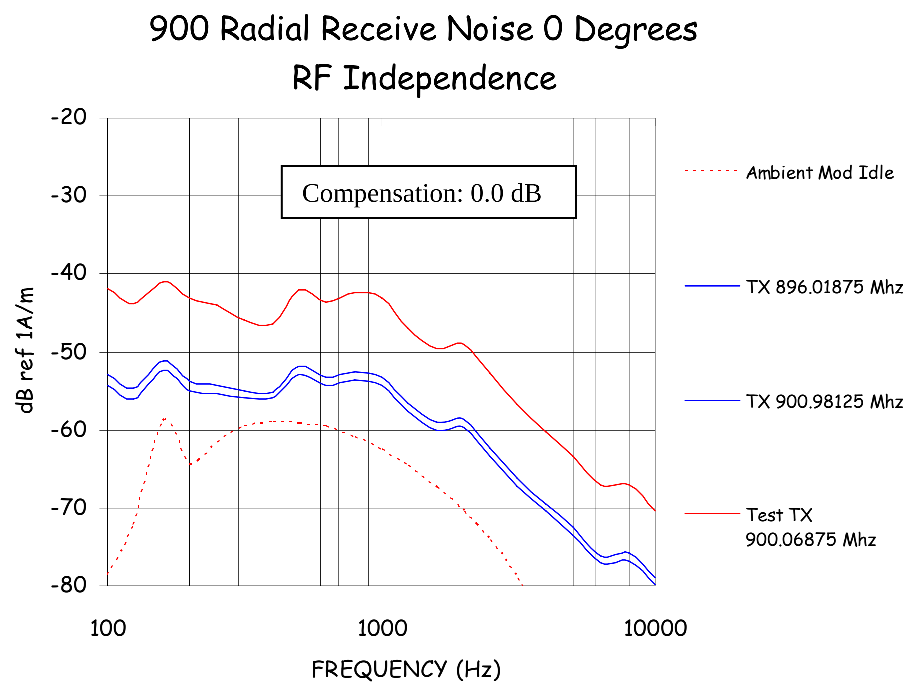


Figure 10D – 900 MHz Radial (0-degrees) Receive Noise Compensation

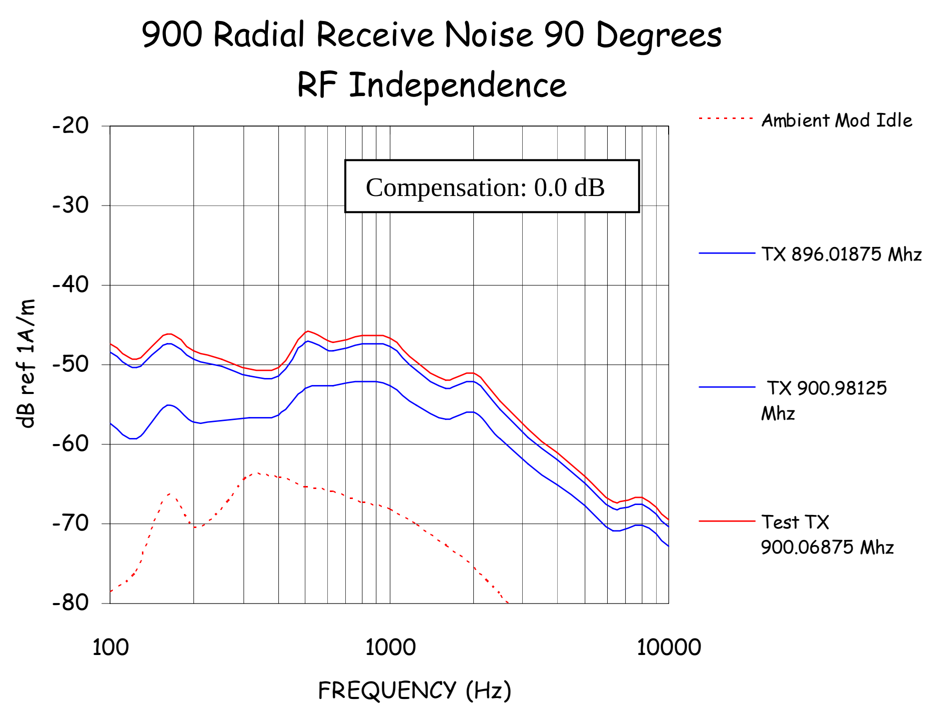


Figure 10E – 900 MHz Radial (90-degrees) Receive Noise Compensation

7.0 DUT Setup and Test Procedure

The test setup was done as specified in C63.19-2005 section 6.3.2 and Figure 6-1. Axial and radial measurements were performed at locations in accordance with C63.19 Annex A.3, and are illustrated in the test setup photograph. The coordinates for these locations, relative to the acoustic output center, are given in Table 2. The test flow and procedure was per C63.19 Figure 6-3, and section 6.3.1 was followed in order to demonstrate compliance. The test procedure consisted of placing the DUT in an interconnect phone call from the Sprint-Nextel system to a phone on the Motorola test site. Transmission power was monitored via embedded diagnostic software that displays output power to ensure no power cutback occurred. Then from the Motorola audio lab connection to the Mobile Switch Center (MSC) on the Motorola test site an 11 second P50 male signal was sent to the DUT. The signal was then measured with the telecoils and analyzed for frequency response and level. The test results were obtained with:

- The antenna extended,
- The DUT user interface configured for telecoil operation,
- The display and keypad lighting off as would normally be the case when used for a call.
- The probe manually positioned for maximum coupling, then secured (See coordinates in Table 2):
    - Axial - center of acoustic output.
    - Radial 1 - probe at 0 degrees just left of the acoustic output center.
    - Radial 2 - probe at 90 degrees just above the acoustic output center.

Figure 11 – Test holder

Axial –
Radial 1 –
Radial 2 –

Figure 12 – Measurement Locations

Table 5 – Measurement location coordinates

Location	X coordinate (mm)	Y coordinate (mm)	Subgrid Number (See Appendix A)
Axial	0	0	5
Radial 1	-7.25	0	5
Radial 2	0	6.2	5

Note: X is offset to the right from the center of the acoustic output and Y is the vertical offset (see Figure A-5 in C63.19-2001 rd 3,6).

8.0 Environmental Test Conditions

The table below presents the range and average environmental conditions during the HAC tests reported herein:

Table 6 – Environmental Conditions

	Target	Measured
Ambient Temperature	23 ˚C +/- 5 ˚C	Within Guidelines
Relative Humidity	0 - 80 %	Within Guidelines

The Audio Laboratory's ambient and test system noise levels were determined and found satisfactory as specified in PC63.19-2001-rd3.6 section 6.2.1. The following graph shows the results obtained using a 1/3rd octave resolution bandwidth filter.

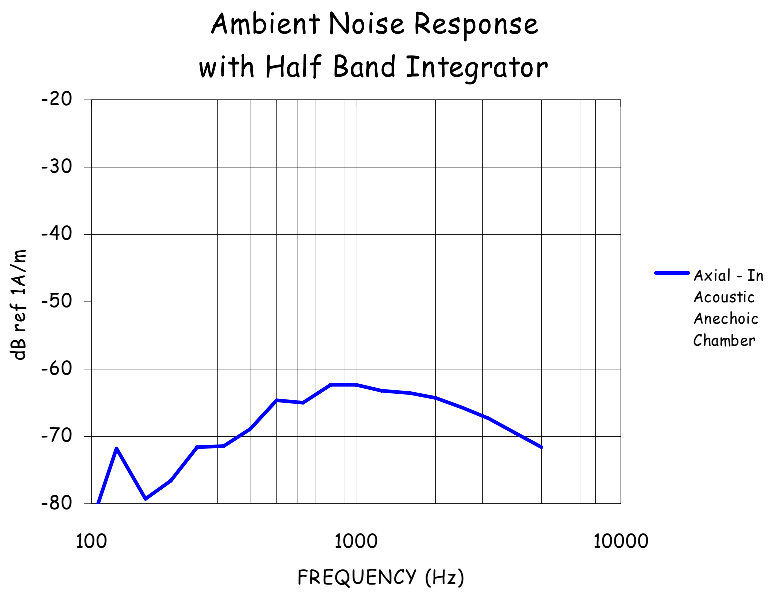


Figure 13A– Axial Ambient Magnetic frequency distribution

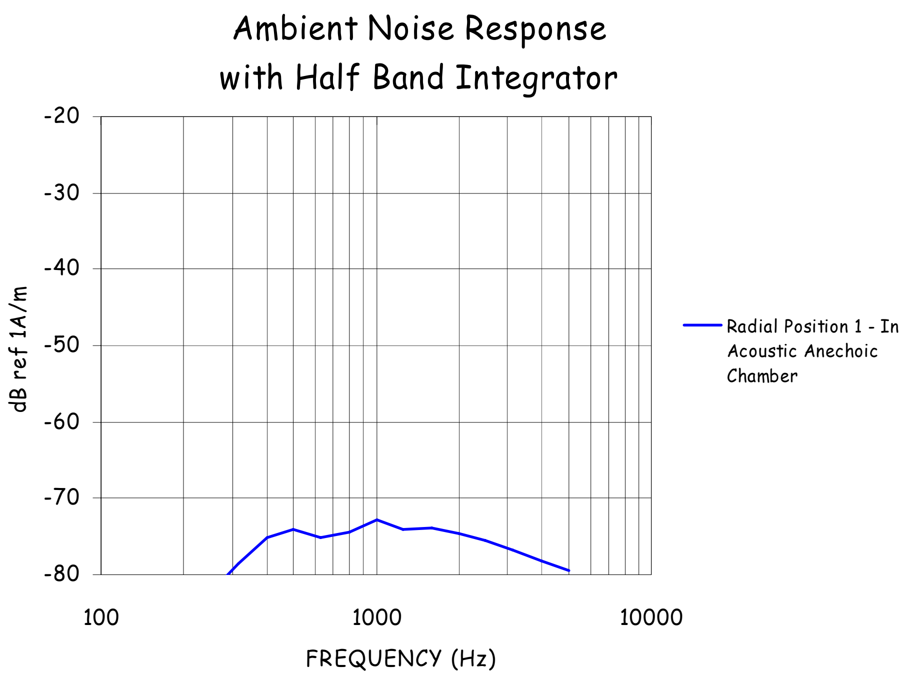


Figure 13B – Radial Position 1 Ambient Magnetic frequency distribution

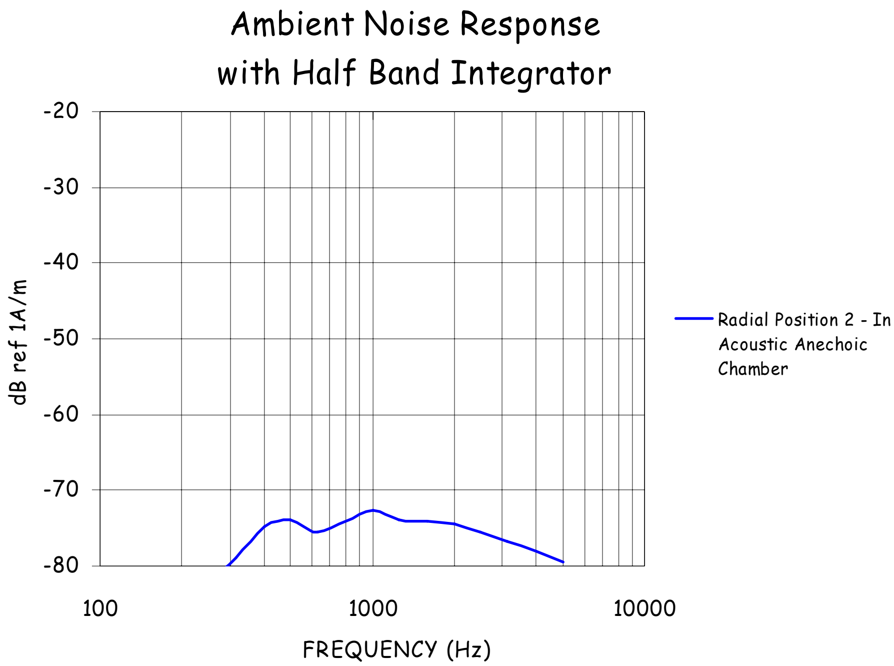


Figure 13C – Radial Position 2 Ambient Magnetic frequency distribution

9.0 Test Results Summary

The telecoil desired signal strength (ABM1) results per C63.19-2001 rd 3.6 section 6.3.4.2 are independent of the frequency used for transmission. However, the power amplifier current and consequent induced interference noise signals are expected to vary between the frequency bands due to antenna matching and amplifier efficiency variations affecting battery currents. As a result the desired signal results are reported herein at the center of the 800 MHz band only, as measured in a 1/3 octave bandwidth filter. However, signal quality results depend on the undesired signal strengths (ABM2) measured per C63.19-2001 rd 3.6 Section 6.3.4.3 (in an A-weighted filter), so undesired signal results follow for both bands. The Desired-to-Undesired ABM signal strength ratio is taken to be the difference between the lowest signal strength measured and the greatest band-dependent interference level measured. All measurements were made with backlighting off.

9.1 Axial frequency response plot data comparison:

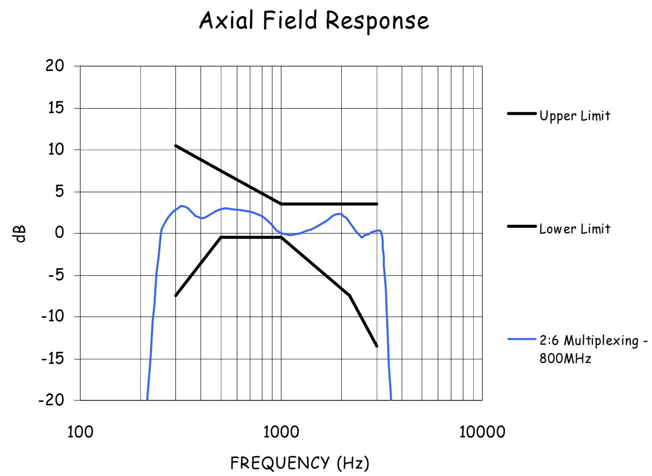


Figure 14A – 800MHz Measured Frequency response

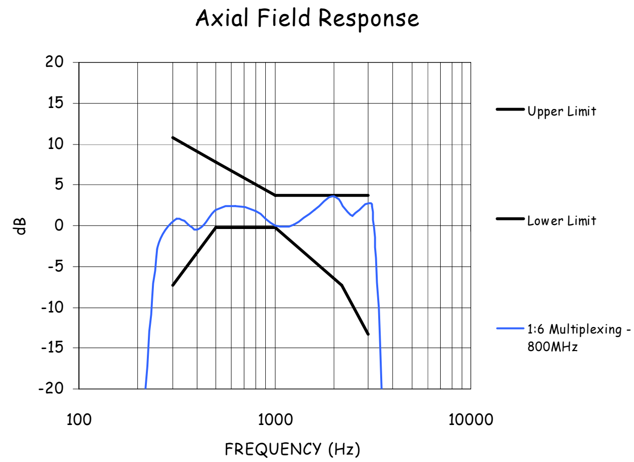


Figure 14B – 800MHz Measured Frequency response

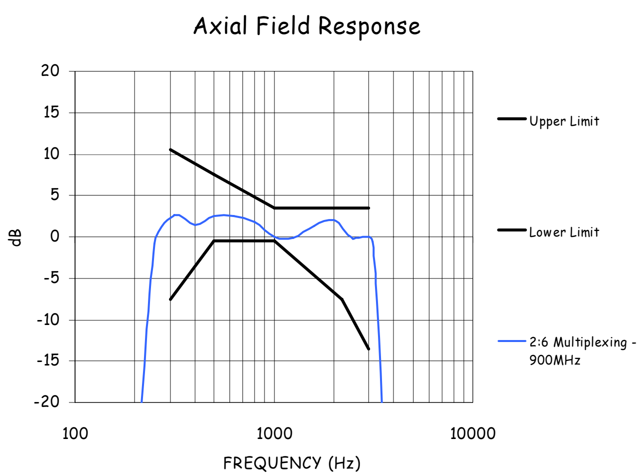


Figure 14C – 900MHz Measured Frequency response

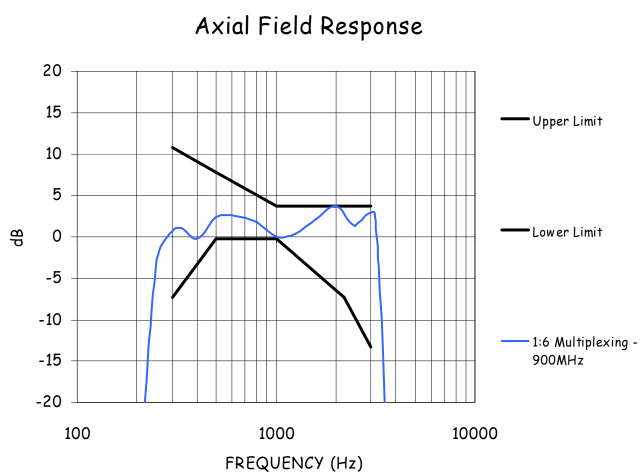


Figure 14D – 900MHz Measured Frequency response

The frequency responses above were measured with the DUT configured to optimize hearing aid inductive coupling frequency response, a setting selected by the user via the keypad.

These plots demonstrate that this model complies with the C63.19 limits given in Section 2 and thus met the requirements of 47 CFR 20.19.

9.2 800 MHz Band Audio band magnetic (ABM) signal strength measured at 817.3875 MHz

Measurement Orientation with 2:6 multiplexing	Desired signal ABM1 (dB A/m)	Undesired Signal ABM2 (dB A/m)
Axial	11.51	-22.56
Radial 1	3.30	-26.02
Radial 2	1.41	-44.83

Measurement Orientation with 1:6 multiplexing	Desired signal ABM1 (dB A/m)	Undesired Signal ABM2 (dB A/m)
Axial	12.38	-25.58
Radial 1	**3.98**	-24.86
Radial 2	1.90	-37.18

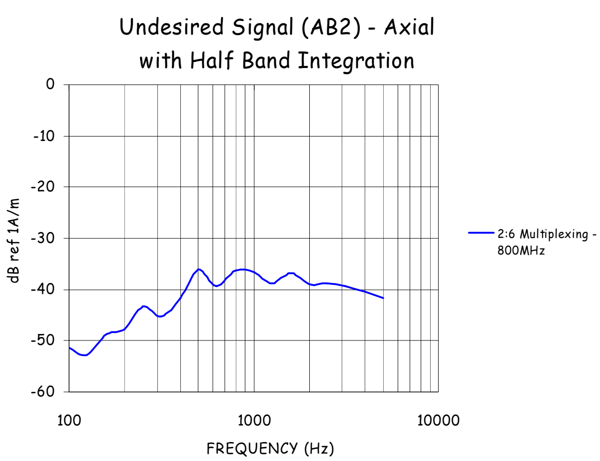


Figure 15A – 800MHz Undesired Signal (2:6)

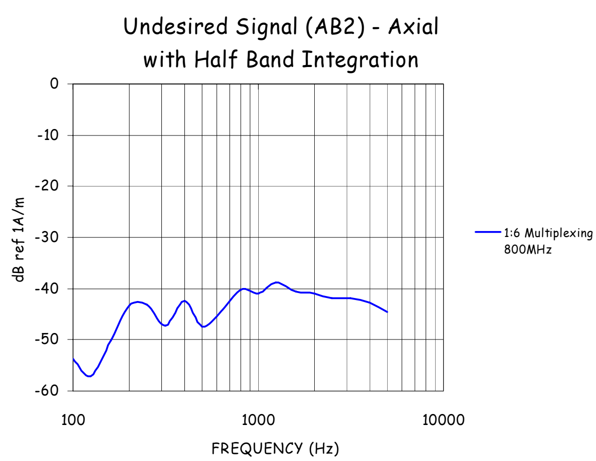


Figure 15B – 800MHz Undesired Signal (1:6)

Considering that the user has no choice of multiplexing ratio (i.e. it is determined by the infrastructure) the highlighted ABM1 axial and radial values are the minimum values that all users might experience. The ABM2 values reported are the greatest values measured for the two battery types listed on page 1 of this report.

9.3 800 MHz Band Desired to Undesired ABM Signal Ratio

Measurement Orientation	ABM Ratio (dB) 2:6 Multiplexing	ABM Ratio (dB) 1:6 Multiplexing
Axial	34.07	37.95
Radial 1	29.31	**28.84**
Radial 2	46.24	39.08

9.4 900 MHz Band Audio band magnetic (ABM) signal strength measured at 900.06875 MHz

Measurement Orientation with 2:6 multiplexing	Desired signal ABM1 (dB A/m)	Undesired Signal ABM2 (dB A/m)
Axial	**8.16**	-33.17
Radial 1	**-0.68**	-33.08
Radial 2	-0.21	-49.28

Measurement Orientation with 1:6 multiplexing	Desired signal ABM1 (dB A/m)	Undesired Signal ABM2 (dB A/m)
Axial	8.63	-37.77
Radial 1	0.28	-41.13
Radial 2	0.66	-49.12

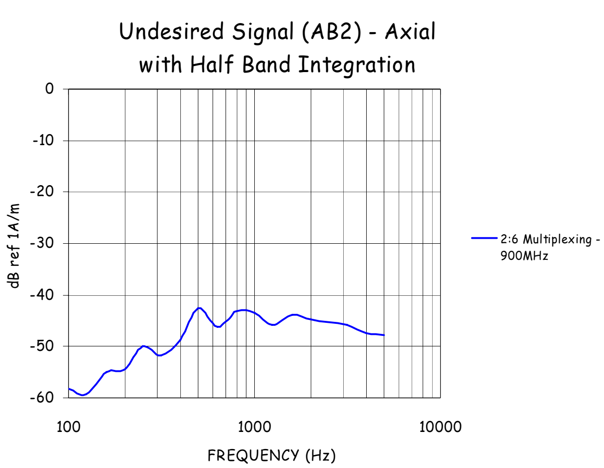


Figure 16A – 900MHz Undesired Signal (2:6)

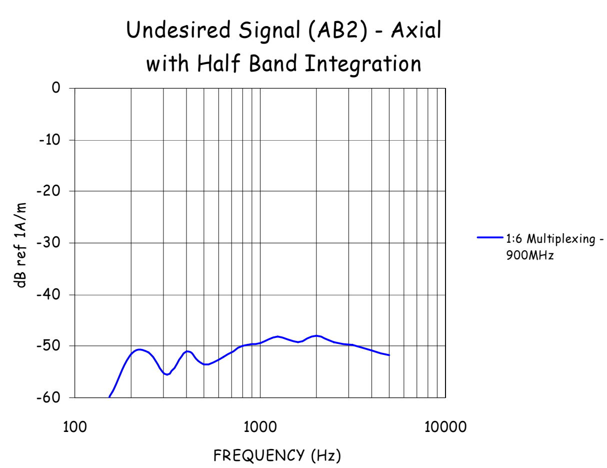


Figure 16B – 900MHz Undesired Signal (1:6)

The ABM2 value reported was the highest value measured for the two battery types listed.

9.5 900 MHz Band Desired to Undesired ABM Signal Ratio

Measurement Orientation	ABM Ratio (dB) 2:6 Multiplexing	ABM Ratio (dB) 1:6 Multiplexing
Axial	41.32	46.39
Radial 1	32.40	41.41
Radial 2	49.06	49.77

9.6 Minimum ABM1 Signal Strength Summary

Given that users cannot select either the frequency band or the multiplexing ratio then the minimum signal strength all users will experience is evident by comparing the highlighted values in sections 9.2 and 9.4. Those values are:

Minimum axial: 8.16 dB A/m
Minimum radial: -0.68 dB A/m (at location radial 1)

Comparing the summaries in sections 9.6 and 9.7 with the C63.19 limits in Section 2 then per the flow chart in Figure 2 it is evident that this model complies with the signal strength requirements mandated by FCC 47 CFR section 20.19.

9.7 Minimum Desired to Undesired Signal Ratio Summary

Given that users cannot select either the frequency band or the multiplexing ratio then the minimum signal strength all users will experience is evident by comparing the highlighted values in sections 9.3 and 9.5. The result is:

Minimum Desired to Undesired Signal: 28.84 dB (in the 800 MHz band)

Comparing the measured desired to undesired signal ratio values listed in the tables of sections 9.3 and 9.5 with Table 1 in section 2 a rating of M3 T3 may be justified based solely on audio band magnetic (ABM) measurements. Considering the RF interference potential this rating can be justified as long as the RF field strength warrants a rating of M3 at the specific locations where the telecoil measurements were made.

10.0 Category Rating Determination

Table 4 in section 7 lists the coordinates of the telecoil measurement locations and the RF interference measurement subgrids where the telecoil measurements were made. For both the axial and the radial desired to undesired signal ratios these lie in sub-grid 5 of the 50-mm grids shown in Annex A which are shown in Section 7, Figure 9 of this report. In each of these 16.67-mm square sub-grids a numerical value is listed respectively corresponding to the maximum 800 MHz band RF E-field and H-field strength values measured in those subgrids, not all of which were included in determining the M-category rating. The RF signal strength measurements were taken for this model (*FCC_HAC_rpt_i580_Rev O_060301SR3525*, dated March 1, 2006) and previously filed with the FCC, establishing HAC compliance with an M3 rating.

The maximum values from the six included subgrids were then listed in Table 3, which was extracted from that report, and placed into Annex A.1 of this report. Specifically the values listed in that table were those associated with subgrids 5. These were then compared with the criteria in section 2 therein to determine the M3 rating for this wireless device when measured with the grid centered at the center of the acoustic output (which is coincident with the axial location). The RF signal strengths at the telecoil measurement locations did not exceed those in the grids used to determine the M-category rating.

Since per Figure 2 the numerical value of the M rating is equal to the numerical value of the T rating (T3), as determined in this report, M3 T3 becomes the correct HAC rating for this model.

11.0 Uncertainty budget

Table 7 - List of Uncertainties

Contributor	Data (dB)	Data type	Probability distribution	Divisor	Std. uncertainty (dB)
RF reflections	+/- 0.8	Specification	rectangular	1.73	+/- 1.39
Acoustic noise	+/- 0.8	Specification	rectangular	1.73	+/- 1.39
Probe coil sensitivity	+/- 0.5	Specification	rectangular	1.73	+/- 0.87
Reference signal level	+/- 0.25	Specification	rectangular	1.73	+/- 0.43
Positioning accuracy	+/- 0.5	Standard deviation	Normal	1.00	+/- 0.50
Cable loss	+/- 1	Uncertainty	Normal	2.00	+/- 2.00
Frequency analyzer	+/- 0.3	Specification	rectangular	1.73	+/- 0.52
System repeatability	+/- 0.4	Standard deviation	Normal	1.00	+/- 0.40
Repeatability of the WD	+/- 0.3	Standard deviation	Normal	1.00	+/- 0.30
Combined standard uncertainty			Normal	1	0.83
Expanded uncertainty (coverage factor = 2) U			Normal (K=2)	2	1.65

12.0 Declaration of Compliance

Motorola, Inc. hereby declares that based on the data herein this model complies with the requirements of 47 CFR 20.19(b)(2) with a rating of M3 T3 based on PC63.19-2001 rd 3.6

ANNEX A (Previously Filed RF Data)

RF Signal Strength Data were previously submitted to the FCC for this model (Report *FCC_HAC_rpt_i580_Rev O_060301SR3525,* dated 3/1/2006), which resulted in an updated grant with an M4 rating, per 47 CFR 20.19(b)(1). The summary data and scans are excerpted here from Section 9 of that report.

A.1 RF Test Results Summary (from Section 9).

iDEN 800MHz Band

Freq. (MHz)	Battery	Conducted Po (W)	E/H Field	Measured Field (V/m or A/m)	Appendix B Data (pg)	Excluded Cells	M-Rating
813.5125	SNN5744A	0.640	E	72.4	21	1, 2, 4	M-3
813.5125	SNN5765A	0.640	E	71.4	23	1, 2, 4	M-3
806.0125	SNN5744A	0.640	E	70.7	24	1, 2, 4	M-3
824.9875	SNN5744A	0.640	E	67.3	25	1, 2, 4	M-3
813.5125	SNN5744A	0.640	H	0.136	26	1, 4, 7	M-4
813.5125	SNN5765A	0.640	H	0.136	27	1, 4, 7	M-4
806.0125	SNN5765A	0.640	H	0.148	28	1, 4, 7	M-4
824.9875	SNN5765A	0.640	H	0.140	30	1, 4, 7	M-4

iDEN 900MHz Band

Freq. (MHz)	Battery	Conducted Po (W)	E/H Field	Measured Field (V/m or A/m)	Appendix B Data (pg)	Excluded Cells	M-Rating
898.5187	SNN5744A	0.640	E	45.8	31	1, 4, 7	M-4
898.5187	SNN5765A	0.640	E	47.2	32	1, 4, 7	M-4
896.0187	SNN5765A	0.640	E	46.3	33	1, 4, 7	M-4
900.9812	SNN5765A	0.640	E	47.8	34	1, 4, 7	M-4
898.5187	SNN5744A	0.640	H	0.108	35	1, 4, 7	M-4
898.5187	SNN5765A	0.640	H	0.108	36	1, 4, 7	M-4
896.0187	SNN5765A	0.640	H	0.112	37	1, 4, 7	M-4
900.9812	SNN5765A	0.640	H	0.111	38	1, 4, 7	M-4

A.2 RF Test Probe E-Field Scan Data (from Appendix A).

Motorola GEMS EME Laboratory

GEMS-3; DUT: i580 H83XAH6RR4AN-Date/Time: 2/25/2006 1:59:07 PM

Run#: MeC-i580 Radio 813 E-field 060225-09
Model# / Serial#: H83XAH6RR4AN / 364AGA0361
TX Freq.: 813.5125 (MHz)
Antenna: 8575868A01
Battery# / Battery Cover#: SNN5744A / NNTN2344A

Comments:

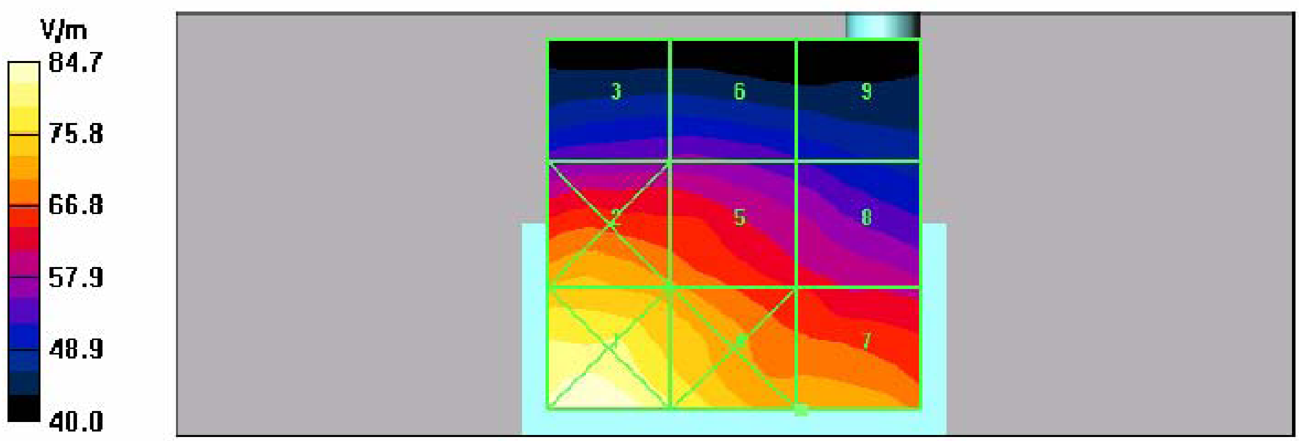
Probe: ER3DV6 - SN2350, Calibrated: 7/7/2005, ConvF(1, 1, 1)
Duty Cycle: 1:3, Medium: Air, Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1000$ kg/m^3
Electronics: DAE3 Sn363, Calibrated: 5/24/2005

813.5125 w/SNN5744A Battery/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of peak Total field = 72.4 V/m
Probe Modulation Factor = 1.82
Reference Value = 34.5 V/m; Power Drift = 0.0352 dB
Hearing Aid Near-Field Category: M3 (AWF 0 dB)

E-Field V/m (Time averaged)

Grid 3 **56.0**	Grid 6 **56.2**	Grid 9 **52.4**
Grid 2 **73.6**	Grid 5 **70.8**	Grid 8 **63.8**
Grid 1 **84.7**	Grid 4 **79.9**	Grid 7 **72.4**

Excluded sub grids
Max remaining grid



A.3 RF Test Probe H-Field Scan Data (from Appendix A).

Motorola GEMS EME Laboratory

GEMS-3; DUT: i580 H83XAH6RR4AN-Date/Time: 2/25/2006 5:06:38 PM

Run#: MeC-i580 Radio 806 H-field 060225-19
Model# / Serial#: H83XAH6RR4AN / 364AGA0361
TX Freq.: 806.0125 (MHz)
Antenna: 8575868A01
Battery# / Battery Cover#: SNN5765A / NNTN2345A

Comments:

Probe: H3DV6 - SN6166, Calibrated: 7/7/2005,
Duty Cycle: 1:3, Medium: Air, Medium parameters used: $\sigma = 0$ mho/m, $\varepsilon_r = 1$; $\rho = 1$ kg/m^3
Electronics: DAE3 Sn363, Calibrated: 5/24/2005

806.0125 w/SNN5765A Battery/Hearing Aid Compatibility Test (101x101x1): Measurement grid: dx=5mm, dy=5mm
Maximum value of peak Total field = 0.148 A/m
Probe Modulation Factor = 1.81
Reference Value = 0.073 A/m; Power Drift = -0.062 dB
Hearing Aid Near-Field Category: M4 (AWF 0 dB)

H-Field A/m
(Time averaged)

Grid 3 **0.118**	Grid 6 **0.120**	Grid 9 **0.121**
Grid 2 **0.147**	Grid 5 **0.144**	Grid 8 **0.148**
Grid 1 **0.181**	Grid 4 **0.173**	Grid 7 **0.182**

Excluded sub grids
Max remaining grid