# MEASUREMENT AND TECHNICAL REPORT

HM ELECTRONICS INCORPORATED
6675 Mesa Ridge Road
San Diego, CA 92121

**DATE: 14 February 2003**

| | | |
|---|---|---|
| **This Report Concerns:** | Original Grant: X | Class II Change: |
| **Equipment Type:** | SYS500 Headset, Model HS500 | |
| **Deferred grant requested per 47 CFR 0.457(d)(1)(ii)?** | Yes: **Defer until:** | No: X |
| Company Name **agrees to notify the Commission by:** **of the intended date of announcement of the product so that the grant can be issued on that date.** | N/A | |
| **Transition Rules Request per 15.37?** | Yes: | No: X* |

(*) FCC Part 15, Paragraph(s) **15.249(a)**

**Report Prepared by:**

**TÜV AMERICA, INC**
**10040 Mesa Rim Road**
**San Diego, CA 92121-2912**
**Phone: 858 546 3999**
**Fax: 858 546 0364**

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**1.0 GENERAL INFORMATION**

**1.1 Product Description**

**General Equipment Description -- *NOTE: This information will be input into your test report as shown below.***

EUT Description: Wireless Headset Communicator

EUT Name: SYS500 Headset

Model No.: HS500 Serial No.: 5

Product Options: --

Configurations to be tested: (2) - Transmit, Receive

**Power Requirements**

**Regulations require testing to be performed at typical power ratings in the countries of intended use. (i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively)**

Voltage: 3.6V (If battery powered, make sure battery life is sufficient to complete testing.)

# of Phases: --

Current (Amps/phase(max)): 0.2A Current (Amps/phase(nominal)): 0.09A

Other: Battery Operated

**Other Special Requirements**

--

**Typical Installation and/or Operating Environment**

(ie. Hospital, Small Business, Industrial/Factory, etc.)

Industrial - Quick Service Restaurants

**EUT Power Cable**

☐ Permanent OR ☐ Removable Length (in meters): --
☐ Shielded OR ☐ Unshielded
■ Not Applicable



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| EUT Interface Ports and Cables | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Interface | | | | Shielding | | | | | | | |
| Type | Analog | Digital | Qty | Yes | No | Type | Termination | Connector Type | Port Termination | Length (In meters) | Removable / Permanent |
| ***EXAMPLE:*** | | | | | | | | | | | |
| *RS232* | ☐ | ☒ | *2* | ☒ | ☐ | *Foil over braid* | *Coaxial* | *Metallized 9-pin D-Sub* | *Characteristic Impedance* | *6* | ☒ / ☐ |
| -- | ☐ | ☐ | | ☐ | ☐ | | | | | | ☐ / ☐ |

**EUT Software**.

Revision Level: Ver 1.00

Description: Embedded Firmware for operation/control

**EUT Operating Modes to be Tested --** list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing.
Consult with your TÜV Product Service Representative if additional assistance is required.

1. Receive Enabled

2. Transmit and Receive Enabled

**EUT System Components --** List and describe all components which are part of the EUT. For FCC testing a minimum configuration is required. (ie. Mouse, Printer, Monitor, External Disk Drive, Motherboard, etc.)

| Description | Model # | Serial # | FCC # |
|---|---|---|---|
| Headset | HS500 | 5 | BYMHS500 |
| Battery | -- | -- | -- |



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**Support Equipment --** List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc)

| Description | Model # | Serial # | BSMI # |
|---|---|---|---|
| -- | | | |

**Oscillator Frequencies**

| Frequency | Derived Frequency | Component # / Location | Description of Use |
|---|---|---|---|
| 7.16 MHz | -- | Y3 | Clock for Micro 'U3' |
| -- | 3.58 MHz | Y3/2 | Clock for IC 'U11' |
| 4.00 MHz | -- | Y2 | Clock for IC 'U8' |
| 8.00 MHz | -- | Y1 | Ref oscillator for 'U4' |
| 926.064 - 927.864 MHz | -- | -- | RF transmit oscillator |
| 902.136 - 903.936 MHz | -- | -- | RF receive oscillator |

**Power Supply**

| Manufacturer | Model # | Serial # | Type | | |
|---|---|---|---|---|---|
| -- | | | ☐ Switched-mode | (Frequency) | |
| | | | ☐ Linear | ☐ Other | |

**Power Line Filters**

| Manufacturer | Model # | Location in EUT |
|---|---|---|
| -- | | |

**Critical EMI Components (Capacitors, ferrites, etc.)**

| Description | Manufacturer | Part # or Value | Qty | Component # / Location |
|---|---|---|---|---|
| -- | | | | |

**EMC Critical Detail --** Describe other EMC Design details used to reduce high frequency noise.

PCB layout and shielding



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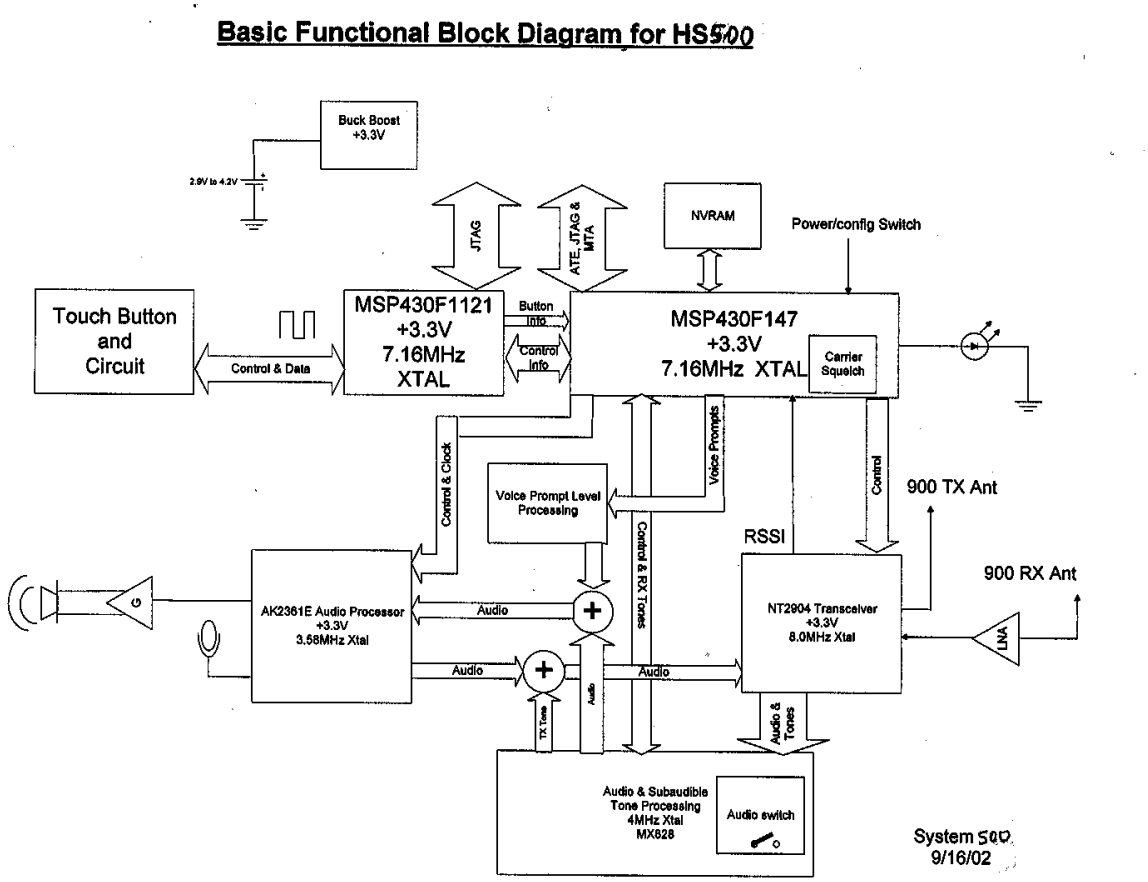
**System Configuration Block Diagram --** Provide a line drawing identifying the EUT, simulators, support equipment, I/O cables, power cables, and any other pertinent components to be used during testing. Use a dashed line to separate the equipment in the testing field versus equipment outside testing field.



### 1.2 Related Submittal Grant

None

### 1.3 Tested System Details

The FCC ID's for all equipment, plus descriptions of all cables used in the tested system are:

None

### 1.4 Test Methodology

Purpose of Test: To demonstrate compliance with the following tests.

| TEST | FCC CFR 47# | PASS/FAIL |
|---|---|---|
| Radiated Emissions | 15.249(a) | Pass |

Both Conducted and Radiated testing were performed according to the procedures in FCC/ANSI C63.4 and CSA 108.8-M1983. Radiated testing was performed at an antenna-to-EUT distance of 3 meters to the 10th harmonic.

### 1.5 Test Facility

The open area test site and conducted measurement data were tested by:

TÜV AMERICA, INC
10040 Mesa Rim Road
San Diego, CA 92121-2912
Phone: 858 546 3999
Fax: 858 546 0364

The Test Site Data and performance comply with ANSI C63.4 and are registered with the FCC, 7435 Oakland Mills Road, Columbia Maryland 21046. All Measurement Data is acquired according to the content of FCC Measurement Procedure and ANSI C63.4, unless supplemented with additional requirements as noted in the test report.

## 2.0 SYSTEM TEST CONFIGURATION

### 2.1 Justification

The EUT was initially tested for FCC emissions in the following configuration:

See Block Diagram

### 2.2 EUT Exercise Software

None

### 2.3 Special Accessories

None

### 2.4 Equipment Modifications

None

### 2.5 Configuration of Test System

See Block Diagram



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**3.0 RADIATED EMISSIONS EQUIPMENT/DATA**

See following page(s).



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**Test Conditions: RADIATED EMISSIONS: FCC Part 15.249(a)**

**The RADIATED EMISSIONS measurements were performed at the San Diego Testing Facility:**

☐ **- Test not applicable**

■ - SR-3, Shielded Room, 12' x 20' x 8', Metal Chamber
■ - Roof (Small Open Area Test Site)
(Date of listing July 27, 2001. Site Verification Valid for 3 years from listing.)
■ - Canyon #2 (3- and 10-Meter Open Area Test Site), Carroll Canyon, San Diego
(Date of listing July 15, 2002. Site Verification Valid for 3 years from listing.)

**Test Equipment Used:**

SR-3, Shielded Room, 12' x 20' x 8', Metal Chamber

| Model No. | Prop. No. | Description | Manufacturer | Serial No. | Cal Date |
|---|---|---|---|---|---|
| CBL6111 | 461 | Bilog Antenna | Chase Electronics | 1291 | NCR* |
| HP8566B | 721 | Spectrum Analyzer | Hewlett Packard | 2542A12099 | 07/02 |
| 3115 | 453 | Double Ridge Horn Antenna | EMCO | 3564 | 01/03 |

Roof (Small Open Area Test Site)

| Model No. | Prop. No. | Description | Manufacturer | Serial No. | Cal Date |
|---|---|---|---|---|---|
| HP8566B | 743 | Spectrum Analyzer | Hewlett Packard | 2618A02913 | 09/02 |
| Cable 1 | 731 | 30' cable | United Microwave Pro | -- | NCR* |
| Cable 2 | 756 | 10' Cable | United Microwave Pro | -- | NCR* |
| Cable 3 | 6788 | 3' Cable | United Microwave Pro | -- | NCR* |
| 3146 | 243 | Log Periodic Antenna | EMCO | 106X | 04/02 |
| 3115 | 251 | Double Ridge Horn Antenna | EMCO | 2495 | 12/02 |
| FF6548-2 | 777 | 900 MHz High Pass Filter | Sage | 006 | NCR* |
| AMF-5D-010180-35-10P | 719 | PreAmplifier | Miteq | 549460 | NCR* |
| 8445B | 6677 | Preselector | Hewlett Packard | 1442A01127 | NCR* |

Canyon #2 (3- and 10-Meter Open Area Test Site)

| Model No. | Prop. No. | Description | Manufacturer | Serial No. | Cal Date |
|---|---|---|---|---|---|
| ESVS30 | 427 | EMC Receiver | Rohde & Schwarz | 830350/006 | 12/02 |
| LBP25020/A | 739 | Bilog Antenna | Antenna Research | 1170 | 05/02 |

**Remarks:** One year calibration cycle for all test equipment and sites. (*) No Calibration Required.



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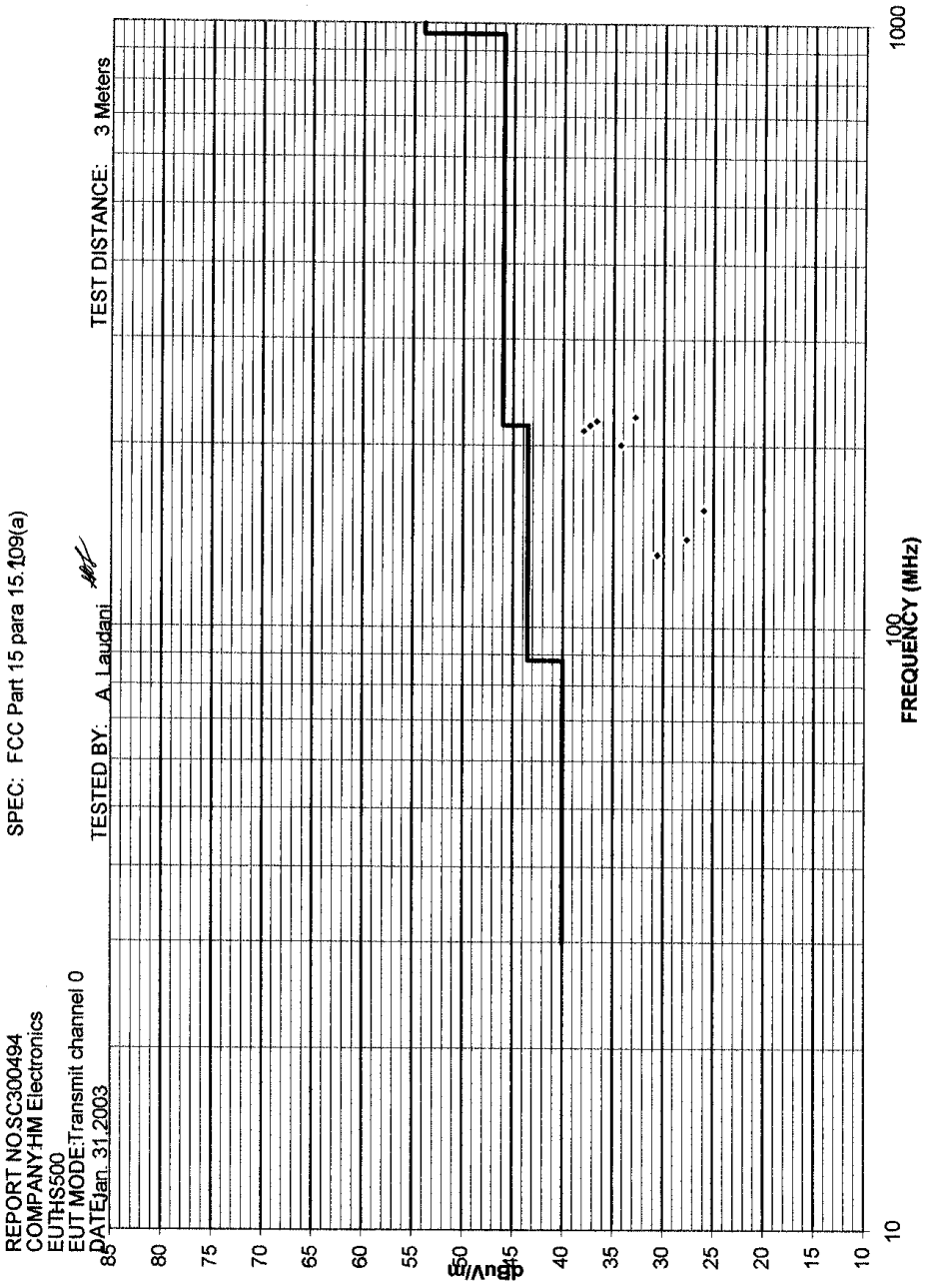

REPORT NO:SC300494
COMPANY:HM Electronics
EUT:HS500
EUT MODE:Transmit channel 0
DATE:Jan. 31,2003
SPEC: FCC Part 15 para 15.109(a)
TESTED BY: A. Laudani
TEST DISTANCE: 3 Meters
dBuV/m
FREQUENCY (MHz)
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
10
100
1000

REPORT No: SC300494 SPEC: FCC Part 15 para 15.109(a)

CUSTOMER: HM Electronics TEST DIST: 3 Meters

E U T: HS500 TEST SITE: 2

EUT MODE: Transmit channel 0 BICONICAL: 739

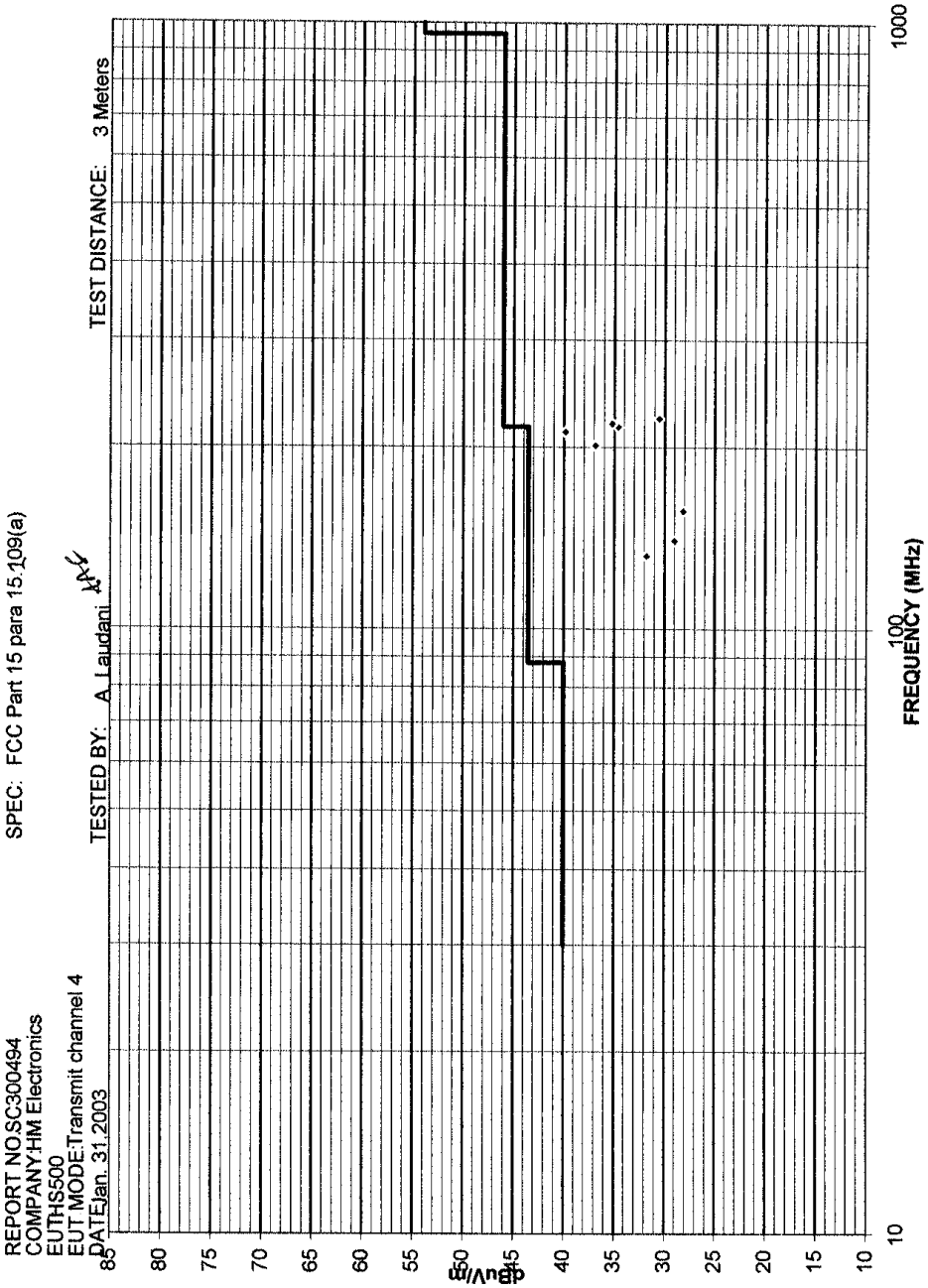
DATE: Jan. 31,2003 TESTED BY: A. Laudani LOG PERIODIC: 739

NOTES: Quasi-Peak with 120 KHz measurement bandwidth. RCVR: 427

Temperature: 30 Relative Humidity: 38%

**EUT MARGIN** -5.5 dB at 211.74 MHz ver 1.8b

| FREQUENCY (MHz) | VERTICAL measured (dBuv) | HORIZONTAL measured (dBuV) | CORRECTION FACTOR (dB/m) | MAXIMUM CORRECTED (dBuV/m) | SPECIFIED LIMIT (dBuV/m) | EUT MARGIN (dB) | EUT ROTATION (degrees) | ANTENNA HEIGHT (meters) |
|---|---|---|---|---|---|---|---|---|
| 132.03 | 17.2 | 16.2 | 13.4 | **30.6** | 43.5 | -12.9 | 248 | 1 |
| 140.00 | 15.4 | 13.4 | 12.3 | **27.7** | 43.5 | -15.8 | 88 | 2.5 |
| 156.84 | 14.6 | 9.6 | 11.4 | **26.0** | 43.5 | -17.5 | 320 | 1 |
| 200.69 | 20.4 | 13.8 | 13.9 | **34.3** | 43.5 | -9.2 | 112 | 1 |
| 211.74 | 23.3 | 17 | 14.7 | **38.0** | 43.5 | -5.5 | 280 | 1 |
| 216.16 | 22.3 | 13.4 | 15.0 | **37.3** | 46 | -8.7 | 285 | 1 |
| 219.70 | 21.4 | 18.2 | 15.3 | **36.7** | 46 | -9.3 | 278 | 1.1 |
| 223.24 | 17.4 | 12.5 | 15.5 | **32.9** | 46 | -13.1 | 295 | 1 |


REPORT NO.SC300494
COMPANY:HM Electronics
EUT:HS500
EUT MODE:Transmit channel 4
DATE:Jan. 31,2003
SPEC: FCC Part 15 para 15.109(a)
TESTED BY: A. Laudani
TEST DISTANCE: 3 Meters
dBuV/m
FREQUENCY (MHz)
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
10
100
1000

REPORT No: SC300494 SPEC: FCC Part 15 para 15.109(a)

CUSTOMER: HM Electronics TEST DIST: 3 Meters

E U T: HS500 TEST SITE: 2

EUT MODE: Transmit channel 4 BICONICAL: 739

DATE: Jan. 31,2003 TESTED BY: A. Laudani LOG PERIODIC: 739

NOTES: Quasi-Peak with 120 KHz measurement bandwidth. RCVR: 427

Temperature: 30 Relative Humidity: 38%

**EUT MARGIN** -3.6 dB at 211.7 MHz ver 1.8b

| FREQUENCY (MHz) | VERTICAL measured (dBuv) | HORIZONTAL measured (dBuV) | CORRECTION FACTOR (dB/m) | MAXIMUM CORRECTED (dBuV/m) | SPECIFIED LIMIT (dBuV/m) | EUT MARGIN (dB) | EUT ROTATION (degrees) | ANTENNA HEIGHT (meters) |
|---|---|---|---|---|---|---|---|---|
| 132.03 | 18.4 | 13.4 | 13.4 | **31.8** | 43.5 | -11.7 | 319 | 1 |
| 140.00 | 16.7 | 13 | 12.3 | **29.0** | 43.5 | -14.5 | 103 | 1 |
| 156.84 | 16.8 | 9 | 11.4 | **28.2** | 43.5 | -15.3 | 115 | 1 |
| 201.10 | 21.7 | 23 | 13.9 | **36.9** | 43.5 | -6.6 | 112 | 1 |
| 211.70 | 22.7 | 25.2 | 14.7 | **39.9** | 43.5 | -3.6 | 93 | 1.2 |
| 216.13 | 19.6 | 18 | 15.0 | **34.6** | 46 | -11.4 | 107 | 1 |
| 218.79 | 17.3 | 20 | 15.2 | **35.2** | 46 | -10.8 | 102 | 1 |
| 223.21 | 14.3 | 15.1 | 15.5 | **30.6** | 46 | -15.4 | 108 | 1 |



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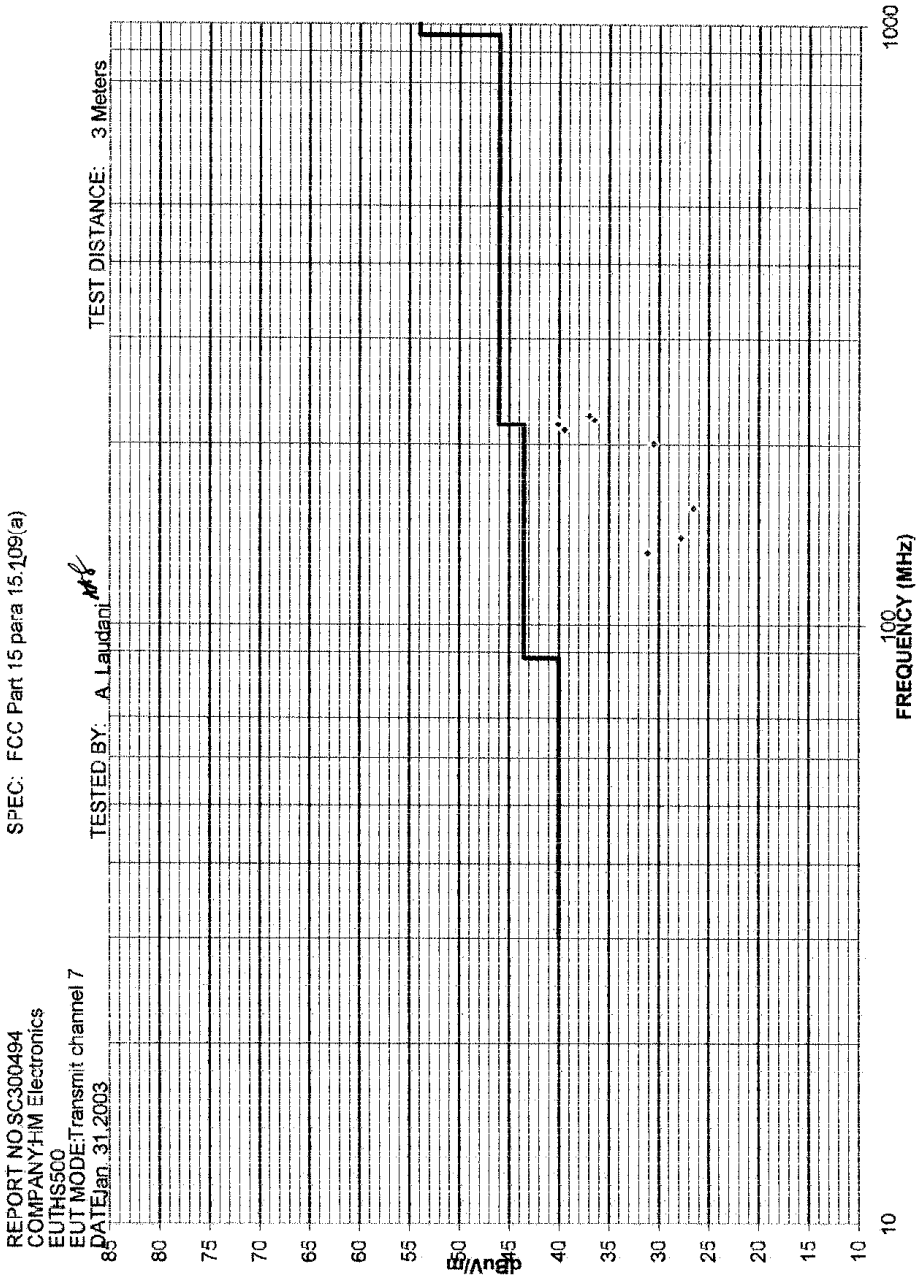
REPORT NO SC300494
COMPANY:HM Electronics
EUT:HS500
EUT MODE:Transmit channel 7
DATE:Jan. 31,2003
SPEC: FCC Part 15 para 15.109(a)
TESTED BY: A. Laudani
TEST DISTANCE: 3 Meters
dBuV/m
FREQUENCY (MHz)
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
10
100
1000

REPORT No: SC300494 SPEC: FCC Part 15 para 15.109(a)

CUSTOMER: HM Electronics TEST DIST: 3 Meters

E U T: HS500 TEST SITE: 2

EUT MODE: Transmit channel 7 BICONICAL: 739

DATE: Jan. 31,2003 TESTED BY: A. Laudani LOG PERIODIC: 739

NOTES: Quasi-Peak with 120 KHz measurement bandwidth. RCVR: 427

Temperature: 30 Relative Humidity: 38%

EUT MARGIN -4.0 dB at 211.83 MHz ver 1.8b

| FREQUENCY (MHz) | VERTICAL measured (dBuv) | HORIZONTAL measured (dBuV) | CORRECTION FACTOR (dB/m) | MAXIMUM CORRECTED (dBuV/m) | SPECIFIED LIMIT (dBuV/m) | EUT MARGIN (dB) | EUT ROTATION (degrees) | ANTENNA HEIGHT (meters) |
|---|---|---|---|---|---|---|---|---|
| 132.03 | 17.7 | 14.8 | 13.4 | **31.1** | 43.5 | -12.4 | 248 | 1 |
| 140.00 | 15.5 | 13.1 | 12.3 | **27.8** | 43.5 | -15.7 | 124 | 1 |
| 156.84 | 15.2 | 9.9 | 11.4 | **26.6** | 43.5 | -16.9 | 320 | 1 |
| 200.69 | 16.7 | 15 | 13.9 | **30.6** | 43.5 | -12.9 | 112 | 1 |
| 211.83 | 24.8 | 18.5 | 14.7 | **39.5** | 43.5 | -4.0 | 101 | 3.2 |
| 216.25 | 25.1 | 24.3 | 15.0 | **40.1** | 46 | -5.9 | 100 | 1 |
| 219.83 | 19 | 21.2 | 15.3 | **36.5** | 46 | -9.5 | 99 | 1.1 |
| 223.39 | 21.5 | 16.1 | 15.5 | **37.0** | 46 | -9.0 | 295 | 1 |



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REPORT No: SC300494 TESTER: Alan Laudani SPEC: FCC Part 15 para 15.249(a)
FCC Part 15 para 15.209(a)

CUSTOMER: HM Electronics TEST DIST: 3 Meters

E U T: HS500 TEST SITE: Roof

EUT MODE: Transmit Channel 0 BICONICAL: N/A

DATE: Jan. 31, 2003 LOG: 243

NOTES: 3.6 Vdc Lithium OTHER: 251
above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG
below 1GHz: RBW & VBW 100 kHz for Pk; RBW 100kHz and VBW 10Hz for AVG
CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss

v.beta1a

| FREQ (MHz) | VERTICAL (dBuv) pk | VERTICAL (dBuv) av | HORIZONTAL (dBuv) pk | HORIZONTAL (dBuv) av | CF (dB/m) | MAX LEVEL (dBuV/m) pk | MAX LEVEL (dBuV/m) av | SPEC LIMIT (dBuV/m) pk | SPEC LIMIT (dBuV/m) av | MARGIN (dB) pk | MARGIN (dB) av | EUT Rotation | Antenna Height | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 926 | 57.6 | 57.2 | 66.2 | 66.1 | 23.50 | **89.7** | **89.6** | 93.7 | 93.7 | -4.0 | -4.1 | 116 | 1.8 | |
| 1852 | 44.1 | 39.7 | 41.5 | 34.4 | -2.96 | **41.14** | **36.7** | 74 | 54 | -32.9 | -17.3 | 81 | 1.2 | |
| 1804.1 | 48.1 | 46.3 | 44.4 | 40.4 | -3.83 | **44.27** | **42.5** | 74 | 54 | -29.7 | -11.5 | 84 | 1.1 | |
| 2778 | 40.5 | 33.0 | 37.2 | 30.3 | 2.59 | **43.09** | **35.6** | 74 | 54 | -30.9 | -18.4 | 112 | 1.2 | |
| 3704 | 36.1 | | 36.5 | | 5.45 | **41.95** | **5.45** | 74 | 54 | -32.0 | | | | noise floor |
| 4630 | 33.1 | | 34.1 | | 5.15 | **39.25** | **5.15** | 74 | 54 | -34.8 | | | | noise floor |
| 5556 | 38.4 | | 39.4 | | 11.80 | **51.2** | **11.8** | 74 | 54 | -22.8 | | | | noise floor |
| 6482 | 38.9 | | 39.6 | | 13.15 | **52.75** | **13.1** | 74 | 54 | -21.3 | | | | noise floor |
| 7408 | 29.1 | | 28.9 | | 15.72 | **44.82** | **15.7** | 74 | 54 | -29.2 | | | | noise floor |
| 8334 | 33.3 | | 32.6 | | 17.47 | **50.77** | **17.5** | 74 | 54 | -23.2 | | | | noise floor |
| 9264 | 34.0 | | 33.9 | | 18.76 | **52.76** | **18.8** | 74 | 54 | -21.2 | | | | noise floor |

REPORT No: SC300494 TESTER: Alan Laudani SPEC: FCC Part 15 para 15.249(a)
FCC Part 15 para 15.209(a)

CUSTOMER: HM Electronics TEST DIST: 3 Meters

E U T: HS500 TEST SITE: Roof

EUT MODE: Transmit Channel 4 BICONICAL: N/A

DATE: Jan. 31, 2003 LOG: 243

NOTES: 3.6 Vdc Lithium OTHER: 251

above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG

below 1GHz: RBW & VBW 100 kHz for Pk; RBW 100kHz and VBW 10Hz for AVG

CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss

v.beta1a

| FREQ (MHz) | VERTICAL (dBuv) pk | VERTICAL (dBuv) av | HORIZONTAL (dBuv) pk | HORIZONTAL (dBuv) av | CF (dB/m) | MAX LEVEL (dBuV/m) pk | MAX LEVEL (dBuV/m) av | SPEC LIMIT (dBuV/m) pk | SPEC LIMIT (dBuV/m) av | MARGIN (dB) pk | MARGIN (dB) av | EUT Rotation | Antenna Height | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 926.5 | 56.1 | 53.5 | 64.3 | 63.6 | 23.50 | **87.8** | **87.1** | 93.7 | 93.7 | -5.9 | -6.6 | 91 | 2 | |
| 1805.2 | 51.4 | 47.0 | 51.3 | 46.1 | -3.82 | **47.6** | **43.2** | 74 | 54 | -26.4 | -11 | 217 | 1.1 | |
| 1853 | 44.0 | 41.9 | 45.8 | 43.9 | -2.95 | **42.9** | **41.0** | 74 | 54 | -31.1 | -13 | 178 | 1.1 | |
| 2779.5 | 45.1 | | 47.1 | 38.4 | 2.60 | **49.7** | **41.0** | 74 | 54 | -24.3 | -13 | | | noise floor |
| 3706 | 45.8 | | 47.0 | | 5.46 | **52.5** | **5.5** | 74 | 54 | -21.5 | | | | noise floor |
| 4632.5 | 43.0 | | 43.3 | | 5.16 | **48.5** | **5.2** | 74 | 54 | -25.5 | | | | noise floor |
| 5559 | 44.8 | | 44.4 | | 11.80 | **56.6** | **11.8** | 74 | 54 | -17.4 | | | | noise floor |
| 6485.5 | 33.9 | | 33.8 | | 13.16 | **47.1** | **13.2** | 74 | 54 | -26.9 | | | | noise floor |
| 7412 | 32.8 | | 34.0 | | 15.74 | **49.7** | **15.7** | 74 | 54 | -24.3 | | | | noise floor |
| 8338.5 | 33.4 | | 34.4 | | 17.47 | **51.9** | **17.5** | 74 | 54 | -22.1 | | | | noise floor |
| 9265 | 33.0 | | 33.3 | | 18.75 | **52.1** | **18.8** | 74 | 54 | -21.9 | | | | noise floor |

REPORT No: SC300494 TESTER: Alan Laudani SPEC: FCC Part 15 para 15.249(a)
FCC Part 15 para 15.209(a)

CUSTOMER: HM Electronics TEST DIST: 3 Meters

E U T: HS500 TEST SITE: Roof

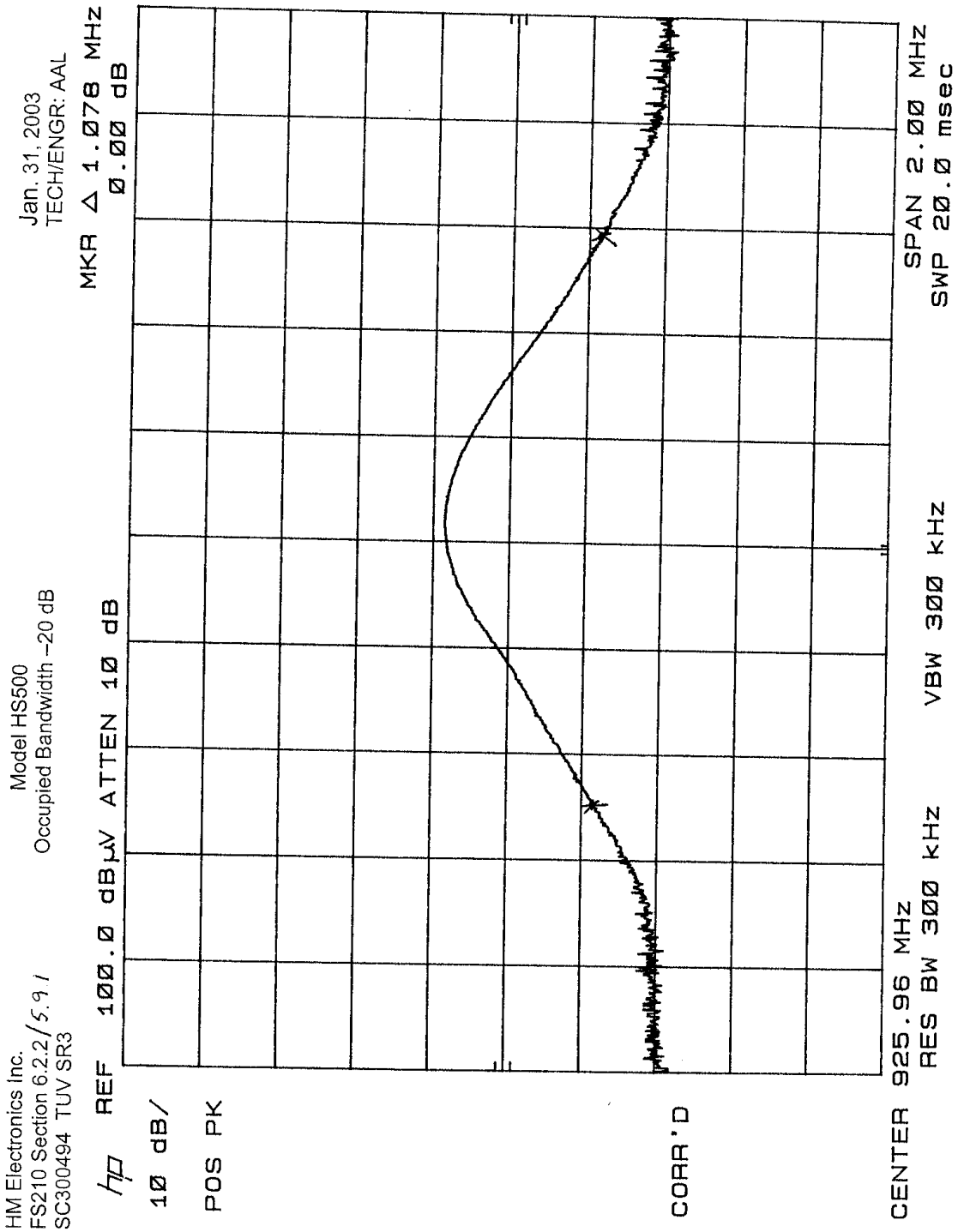
EUT MODE: Transmit Channel 7 BICONICAL: N/A

DATE: Jan. 31, 2003 LOG: 243

NOTES: 3.6 Vdc Lithium OTHER: 251
above 1GHz: RBW & VBW 1 MHz for Pk; RBW 1MHz and VBW 10Hz for AVG
below 1GHz: RBW & VBW 100 kHz for Pk; RBW 100kHz and VBW 10Hz for AVG
CF = Antenna Factor + Cable Loss - Preamplifier Gain + Preselector Loss

v.beta1a

| FREQ (MHz) | VERTICAL (dBuv) pk | av | HORIZONTAL (dBuv) pk | av | CF (dB/m) | MAX LEVEL (dBuV/m) pk | av | SPEC LIMIT (dBuV/m) pk | av | MARGIN (dB) pk | av | EUT Rotation | Antenna Height | Notes |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 927 | 56.8 | 55.1 | 61.9 | 61.6 | 23.50 | **85.4** | **85.1** | 93.7 | 93.7 | -8.3 | -8.6 | 136 | 1 | |
| 1805.8 | 50.1 | 43.1 | 49.9 | 44.3 | -3.82 | **46.28** | **40.5** | 74 | 54 | -27.7 | -13.5 | 145 | 1.2 | |
| 1854 | 49.4 | 36.3 | 51.8 | 46.7 | -2.93 | **48.87** | **43.8** | 74 | 54 | -25.1 | -10.2 | 141 | 1.1 | |
| 2781 | 47.0 | 36.5 | 47.2 | 36.2 | 2.61 | **49.81** | **39.1** | 74 | 54 | -24.2 | -14.9 | 147 | 1 | |
| 3708 | 39.6 | | 38.4 | | 5.47 | **45.07** | **5.47** | 74 | 54 | -28.9 | | | | noise floor |
| 4635 | 44.0 | | 44.0 | | 5.18 | **49.18** | **5.18** | 74 | 54 | -24.8 | | | | noise floor |
| 5562 | 43.7 | | 43.2 | | 11.80 | **55.5** | **11.8** | 74 | 54 | -18.5 | | | | noise floor |
| 6489 | 32.8 | | 34.4 | | 13.17 | **47.57** | **13.2** | 74 | 54 | -26.4 | | | | noise floor |
| 7416 | 32.3 | | 33.6 | | 15.75 | **49.35** | **15.7** | 74 | 54 | -24.7 | | | | noise floor |
| 8343 | 31.9 | | 32.0 | | 17.47 | **49.47** | **17.5** | 74 | 54 | -24.5 | | | | noise floor |
| 9270 | 33.3 | | 35.1 | | 18.74 | **53.84** | **18.7** | 74 | 54 | -20.2 | | | | noise floor |


HM Electronics Inc.
FS210 Section 6.2.2/5.9.1
SC300494 TUV SR3
Model HS500
Occupied Bandwidth –20 dB
Jan. 31, 2003
TECH/ENGR: AAL
MKR Δ 1.078 MHz
0.00 dB
REF 100.0 dBµV ATTEN 10 dB
10 dB/
POS PK
CORR'D
CENTER 925.96 MHz
RES BW 300 kHz
VBW 300 kHz
SPAN 2.00 MHz
SWP 20.0 msec

**4.0 ATTESTATION STATEMENT**

**GENERAL REMARKS:**

**SUMMARY:**

All tests were performed per CFR 47, Part(s) 15.249(a)

■ - Performed

The Equipment Under Test

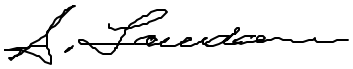
■ - **Fulfills** the requirements of CFR 47, Part(s) 15.249(a)

**- TÜV AMERICA, INC. -**

Responsible Engineer:

Jim Owen
(EMC Chief Engineer)

Responsible Engineer:



Alan Laudani
(EMC Engineer)



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