
 MOTOROLA	 Certificate Number: 1449-01
FCC ID: LO6-DVRS700 DECLARATION OF COMPLIANCE MPE ASSESSMENT	
Government & Enterprise Mobility Solutions EME Test Laboratory 8000 West Sunrise Blvd Fort Lauderdale, FL. 33322	Date of Report: October 19, 2005 Report Revision: Rev. C Report ID: FCC MPE rpt_DVRS 700/VHF_Rev C_051019 SR2494
<div style="display: flex; justify-content: space-between;"> <div style="width: 65%;"> <p>Responsible Engineer: Stephen Whalen (SR Staff EME Eng.)</p> <p>Date/s Tested: 6/2/05 – 6/3/05; 8/12/05 & 8/15/05</p> <p>Manufacturer/Location: Futurecom Systems Group Inc., Concord, Ontario, Canada</p> <p>Date submitted for test: 8/1/05 (DVR)</p> <p>DUT Description: 700MHz 20W DVRS</p> <p>Test TX mode(s): CW</p> <p>Max. Power output: 20 W, 100% Duty Cycle</p> <p>TX Frequency Bands: 764-776MHz and 794-806MHz</p> <p>Signaling type: FM; APCO 25</p> <p>Model(s) Tested: DQPMMDVR7000P</p> <p>Model(s) Certified: DQPMMDVR7000P</p> <p>Serial Number(s): 05060955</p> <p>Classification: Occupational Controlled (Operator); General Population/Uncontrolled (Passengers/Bystanders)</p> <p>Rule Part(s): 2.1091</p> </div> <div style="width: 30%; text-align: center;">  </div> </div> <p>Approved Accessories:</p> <p>Antenna(s): HAF4016A (764-870MHz ¼ wave trunk mount antenna; unity gain)</p> <p>Companion Mobile and Antenna</p> <p>Motorola XTL5000 Model M20KTS9PW1AN, VHF 136-174MHz Mobile, FCC ID AZ492FT3808, Transmit conducted power up to 120W, 50% transmit duty cycle; RAD4010A ½λ, 136-174MHz, 3dBd roof mount antenna</p> <p style="text-align: center; margin-top: 20px;"> Final RF Exposure Results: Combined DVR and VHF Mobile max calculated power density % of limit = 92.7 % </p>	
<p>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 national and international reference standards and guidelines listed in section 3.0 of this report. This report shall not be reproduced without written approval from an officially designated representative of the Motorola EME Laboratory.</p>	
<p style="text-align: center;">Ken Enger's signature on file</p> <p style="text-align: center;">Ken Enger GEMS EME Lab Senior Resource Manager, Laboratory Director,</p> <p style="text-align: center;">Approval Date: 10/19/05</p>	<p style="text-align: center;">Certification Date: 8/19/05</p> <p style="text-align: center;">Certification No.: L1050831P</p>

TABLE OF CONTENTS

1.0	Product and System Description
2.0	Options and Accessories
3.0	Measurement and Limit Standards
4.0	Data Collection Consideration
5.0	Measurement System Uncertainty Levels
6.0	Method of Measurement
6.1	DVR 700MHz EME measurements made with trunk mounted antenna
6.1.1	External vehicle EME measurement
6.1.2	Internal vehicle EME measurement
6.2	Mobile VHF EME measurements made with roof mounted antenna
6.2.1	External vehicle EME measurements
6.2.2	Internal vehicle EME measurement
7.0	Test Site
8.0	Measurement System/Equipment
9.0	Test Unit Description
10.0	Test Set-Up Description
11.0	Test Results Summary
APPENDIX A: Illustration of antenna location and test distances	
APPENDIX B: Meter/Probe Calibration Certificates	
APPENDIX C: Photos of Assessed Antennas	
APPENDIX D: Tables of raw measurement grid test results	

REVISION HISTORY

Date	Revision	Comments
8/18/05	O	Original release
8/19/05	A	Incorrect model number revised
8/26/05	B	Incorrect serial number revised
10/19/05	C	Specified companion mobile to be Motorola XTL5000 VHF model M20KTS9PW1AN, FCC ID: AZ492FT3808

1.0 Product and System Description

FCC ID: L06-DVRS700 is a MOBEXCOM Digital Vehicular Repeater (DVR) manufactured by FUTURECOM Systems Group. The DVR, in addition to standalone operation, is capable of interfacing with Motorola XTL5000 VHF model M20KTS9PW1AN, FCC ID: AZ492FT3808, mobile radio using serial data protocol for audio and control. The full duplex DVR provides local area coverage for portable to portable communication in the 700MHz band while the VHF mobile radio provides wide-area coverage extension.

The system can operate in the following modes: Mobile mode - where the vehicular repeat function is off but receives emergency and mode change commands from portable devices; Local mode - with portable to portable repeat and network monitoring capabilities; and System mode - with portable to portable repeat functions with full network interconnect. Furthermore, the DVRS offers a busy lockout feature where a simulcast prevention algorithm is used for seamless multi-vehicle operation on the same channel. Moreover, the system supports emergency calls in the MDC1200 signaling format. Other system features include field programmability, seamless interface to a mobile radio through the control head bus, controllability via a mobile radio control head, as well as remotely by a dispatcher or portable user. The DVR supports up to 64 channels and 255 talk groups, MDC1200, DTMF, EIA, CCIR signaling as well as PL and DPL. The DVR supports programmability of leading and/or trailing tones, and audio and TX priorities per mode as well as talk group steering.

This test report covers the RF Exposure performance of the 700MHz 20 watt DVR interfaced with, and transmitting simultaneously with, Motorola XTL5000 VHF model M20KTS9PW1AN mobile radio with transmit power up to 120 watts and with both units installed in a typical vehicle.

The DVR transmit frequency ranges are 764-776MHz (talk around) and 794-806MHz (repeater) at transmit duty cycle up to 100%. The VHF mobile transmit frequency range is 136-174MHz at transmit duty cycle up to 50%. The DVR antenna is limited to $\frac{1}{4} \lambda$ 0dBd mounted at the center of the trunk and the VHF mobile antenna is limited to $\frac{1}{2} \lambda$, 3dBd gain, mounted at the center of the roof. The DVR system incorporates a duplexer with 2.0dB insertion loss inserted between the output of the DVR and the trunk mounted antenna; therefore the maximum conducted power delivered to the antenna is 12.6 watts.

This device will be marketed to and used by employees solely for work-related operations, such as public safety agencies, e.g. police, fire and emergency medical. User training is the responsibility of these agencies which can be expected to employ the usage instructions, safety information and operational cautions set forth in the user's manual, instructional sessions or other means.

Accordingly this product is classified as Occupational/Controlled Exposure. However, In accordance with FCC requirements, the passengers inside the vehicle and the bystanders external to the vehicle are evaluated to the General Population/Uncontrolled Exposure Limits.

(Note that “By-standers” as used herein mean people other than operator)

2.0 Options and Accessories

Antenna

HAF4016A Trunk mount; 764-870MHz ¼ wave 0dBd antenna; 9.0cm

3.0 Measurement and Limit Standards

Measurements were performed according to FCC Limits Per 47 CFR 2.1091 (d) for General Population/Uncontrolled RF Exposure as well as with the recommended guidelines in IEEE/ANSI C95.1-1999.

For test frequencies ranging from 136-174 MHz the MPE (Maximum Permissible Exposure) limit to electromagnetic energy in equivalent plane wave free-space power density is $0.20\text{mW}/\text{cm}^2$. For test frequencies ranging from 764-806MHz the MPE limit is calculated using the formula $f/1500$.

4.0 Data Collection Consideration

Power density testing was performed with DUT installed in a 1991 Ford Taurus (4-door). Measurement data was taken with the vehicle running at idle and the vehicle battery measuring 14.0 volts.

5.0 Measurement System Uncertainty Levels

The information below presents an estimate of the possible errors that are associated with the measurement system.

<u>Description</u>	<u>Error</u>
NARDA Survey Meter	± 3%
Repeatability Accuracy	± 7%

6.0 Method of Measurement

MPE measurements were conducted for each transmitter individually per the procedures described in the following sections. Percent of Limit was calculated for each transmitter individually for each position. Final results representing the maximum combined exposure were obtained by summing the highest percent of limit results from each transmitter.

6.1 DVR 700MHz EME measurements made with trunk mounted antenna(s)

(For reference, see Illustration of antenna location and test distances in APPENDIX A)

6.1.1 External vehicle EME measurement

(Antenna mounted at trunk center)

MPE measurements for by-stander conditions are determined by taking the average of (10) measurements in a 2m vertical line for each of the (5) test positions indicated in APPENDIX A with 20cm increments at the test distance of 90cm from the test vehicle's body. The measurement probe sensor is rotated 180° at each of the ten incremental measurements to ensure the highest result is captured. These measurements are representative of persons other than the operator standing next to the vehicle. The DVR antenna mounted at the center of the trunk was assessed across the TX band for the (5) by-stander conditions presented in APPENDIX A.

6.1.2 Internal vehicle EME measurement

(Antenna mounted at trunk center)

While rotating survey meter probe through 180 degrees to ensure that the highest level is found, scans were performed inside of the vehicle, at both front and back seating areas, across the TX band to ascertain the highest level at the head. After the highest level is found, scans were performed vertically making two (2) additional measurements within an area approximately 40cm wide (representing the width of a person) so as to have a total of three (3) measured points, indicated below, that are averaged.

- a) Head area
- b) Chest area
- c) Lower Trunk area

6.2 Mobile VHF EME measurements made with roof mounted antenna(s)

(For reference, see Illustration of antenna location and test distances in APPENDIX A)

6.2.1 External vehicle EME measurement

(Antenna mounted at roof center)

MPE measurements for by-stander conditions are determined by taking the average of (10) measurements in a 2m vertical line for each of the (5) test positions indicated in APPENDIX A with 20cm increments at the test distance of 90cm from the test vehicle's body. The measurement probe sensor is rotated 180° at each of the ten incremental measurements to ensure the highest result is captured. These measurements are representative of persons other than the operator standing next to the vehicle. The Mobile VHF antenna mounted at the center of the roof was assessed across the TX band for the (5) by-stander conditions presented in APPENDIX A.

6.2.2 Internal vehicle EME measurement

(Antenna mounted at roof center)

While rotating survey meter probe through 180 degrees to ensure that the highest level is found, scans were performed inside of the vehicle, both at the front and back seating areas, across the TX band to ascertain the highest level in each location. After the highest level is found, two (2) additional measurements were performed vertically within an area approximately 40cm wide (representing the width of a person) so as to have a total of three (3) measured points as indicated below that are averaged.

- a) Head area
- b) Chest area
- c) Lower Trunk area

7.0 Test Site

The test site is the Motorola open area test site located at 8000 W. Sunrise Blvd., Plantation, FL. 33322.

8.0 Measurement System/Equipment

- a) Automobile: 1991 Ford Taurus, 4-Door
- b) Survey Meter - NARDA Model 8718 (01108); Cal. due date: 5/17/06
- c) E-Field (Electric Field) Probe - NARDA Model 8722B (12023); Cal. due date: 2/25/06
- d) H-Field (Magnetic Field) Probe – NARDA Model 8731 (03006); Cal due date: 5/12/06

9.0 Test Unit Description

Power density measurements were performed on a representative sample of the DVR with serial number 05060955. The test frequencies were 764, 770, 776, 794, 800, and 806 MHz.

Power density measurements were performed on a representative sample of the Motorola XTL5000 VHF 120 watt mobile radio, model number M20KTS9PW1AN, serial number VHF P1 EME#46. The test frequencies were 136.0125, 155.0000, and 173.9875 MHz.

Presented below is a summary of the tested frequencies and associated power outputs.

VHF Mobile and DVR test frequencies and measured Po (W):

DVR		VHF Mobile	
Frequency	Po (W)	Frequency	Po (W)
764	12.6	136.0125	121
770	12.6	155	120
776	12.6	173.9875	120
794	12.6		
800	12.6		
806	12.6		

10.0 Test Set-Up Description

The following are the mobile antenna test configurations used for this product.
(for reference, see Illustration of antenna location and test distances in the APPENDIX A)

- a) The ½ wave 3dBd gain antenna model RAD4010A was assessed while mounted at the center of the roof of the test vehicle.
- b) The ¼ wave 0dBd gain antenna model HAF4016A was assessed while mounted at the trunk. Assessments were made internal and external to the test vehicle at the specified distances and test locations indicated in sections 6.0, 11.0, and the APPENDIX A.

11.0 Test Results Summary

APPENDIX D presents detailed raw MPE measurement grid information for each test configuration; person external or internal to the vehicle, TX frequency, antenna (location, model and gain), distance from antenna to probe sensor, E/H field measurements, calibration factor, MPE average over body, initial power, power density calc, power density max calc, IEEE/FCC controlled and uncontrolled limits, and maximum output power.

The Average over Body test methodology is consistent with IEEE/ANSI C95.1-1999 guidelines

MPE results are based on a DVR 100% duty cycle and VHF mobile 50% duty cycle which is in accordance with the User Manual instructions.

Below is an explanation of how the MPE results are calculated.

External to vehicle - 10 measurements are averaged over the body (*Body_Avg*).

Internal to vehicle - 3 measurements are averaged over the body (*Body_Avg*).

Narda Survey Meter measures in percent of the controlled limit. Therefore the averages over the body used in the calculations below reflect percentages.

Therefore;

$$Average_over_Body = Body_Avg * Controlled_Limit$$

$$Pwr_Density_Calc = Average_over_Body * Duty_Cycle$$

$$Pwr_Density_Max_Calc = Pwr_Density_Calc * \frac{Max_Output_Power}{Initial_Output_Power}$$

Note; For $Initial\ Output\ Power > Max_Output_Power$, $Max_Output_Power / Initial\ Output\ Power = 1$

The tables below summarize the worst case of the E and H test configurations for the VHF mobile, DVR, and combined assessments. See APPENDICES A and D respectively for the indicated test positions and associated raw measurement grid tables.

Table 1 (Worst Case per test position of VHF Mobile assessments)

Tables	Antenna Model	Antenna Location	Test Frequency (MHz)	E/H Field	Passenger/ By-Stander Pos.	Max Calc Pwr Density	% of Uncontrolled limit
Table 20	RAD4010A	Roof	136.0125	H	Passenger	0.12	60.00
Table 23	RAD4010A	Roof	173.9875	H	By-Stander Pos. #1	0.09	45.00
Table 27	RAD4010A	Roof	173.9875	H	By-Stander Pos. #2	0.11	55.00
Table 30	RAD4010A	Roof	173.9875	H	By-Stander Pos. #3	0.12	60.00
Table 33	RAD4010A	Roof	173.9875	H	By-Stander Pos. #4	0.09	45.00
Table 35	RAD4010A	Roof	155	H	By-Stander Pos. #5	0.08	40.00

Table 2 (Worst Case per test position of DVR 700MHz assessments)

Tables	Antenna Model	Antenna Location	Test Frequency (MHz)	E/H Field	Passenger/ By-Stander Pos.	Max Calc Pwr Density	% of Uncontrolled limit
Table 6	HAF4016A	Trunk	776	E	Passenger	0.17	32.7
Table 7	HAF4016A	Trunk	794	E	By-Stander Pos. #1	0.02	3.8
Table 17	HAF4016A	Trunk	800	E	By-Stander Pos. #2	0.03	5.7
Table 21	HAF4016A	Trunk	776	E	By-Stander Pos. #3	0.03	5.8
Table 28	HAF4016A	Trunk	794	E	By-Stander Pos. #4	0.05	9.4
Table 32	HAF4016A	Trunk	770	E	By-Stander Pos. #5	0.07	13.7

Table 3 (Combined VHF Mobile and DVR calculated % of limit performance)

Test Position	Percentage of Limit		
	Mobile (136-174MHz)	DVR (700MHz)	Combined Percentages
Passenger	60.0%	32.7%	92.7%
By-Stander #1	45.0%	3.8%	48.8%
By-Stander #2	55.0%	5.7%	60.7%
By-Stander #3	60.0%	5.8%	65.8%
By-Stander #4	45.0%	9.4%	54.4%
By-Stander #5	40.0%	13.7%	53.7%

12.0 Conclusion

Depending on the test frequency, the VHF mobile assessments were performed with an output power range of 120.0W - 121.0W. The DVR output power across the TX band (with 2dB duplexer loss) is 12.6W. The highest power density results for the XTL5000 VHF model M20KTS9PW1AN mobile device scaled to the maximum allowable power output is 0.12mW/cm² internal to the vehicle and 0.12mW/cm² external to the vehicle. The highest power density results for the DVR device scaled to the maximum allowable power output is 0.17mW/cm² internal to the vehicle and 0.07mW/cm² external to the vehicle. The highest combined power density performance is 92.7% of the applicable FCC/IEEE MPE limits using the following methodology and formula:

Because the signals emitted by each individual transmitter are statistically uncorrelated, the collective compliance of the transmitters is determined by summing the individual ratios between actual (S) and maximum allowed (MPE) exposure. Compliance is achieved if the total exposure level (T) is less than one:

$$T = \frac{S_1}{MPE_1} + \frac{S_2}{MPE_2} + \dots < 1$$

Therefore:

$$T = \frac{0.17}{0.52} + \frac{0.12}{0.20} = 0.9269 < 1$$

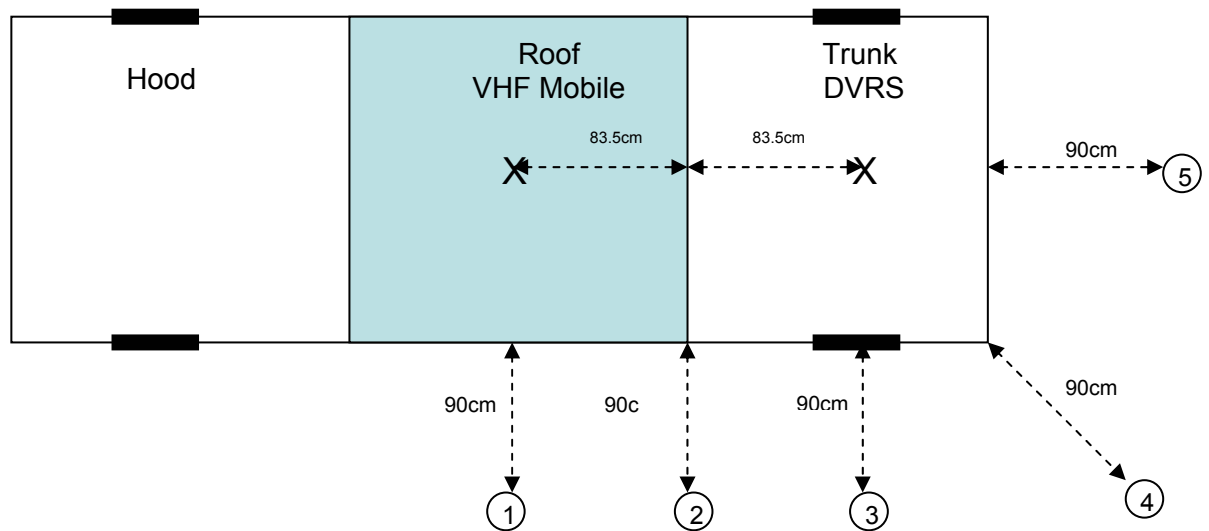
The MPE results presented herein demonstrate compliance to the applicable FCC/IEEE Occupational/Controlled exposure limit of 1.0mW/cm² for the frequency range of 30-300MHz and f/300 for the frequency range of 300-1500MHz.

Compliance to the FCC/IEEE General population/Uncontrolled exposure limits of 0.2mW/cm² for the frequency range of 30-300MHz and f/1500 for the frequency range of 300-1500MHz is also demonstrated herein for both passengers and by-standers.

APPENDIX A

Illustration of antenna locations and test distances

MPE By-stander Test Positions



X Antenna position
(centered on roof & trunk)

○ By-stander positions for DVRS and VHF Mobile (90cm from vehicle body)
Note:

- 1) Assessments were performed at each test position for each offered antenna.
- 2) Position 2 is located at the mid point between the two antennas which is by 83.5cm.

APPENDIX B

Meter/Probe Calibration Certificates



Certificate of Calibration

L-3 Communications, Narda Microwave-East, hereby certifies that the referenced RF Radiation Hazard monitoring equipment has been calibrated in accordance with MIL-STD-45662A, ANSI Z540, ISO 10012 and ISO 9001: 2000.

The measured values were determined by comparison with our standards, which are traceable to the National Institute of Standards and Technology to the extent allowed by NIST's calibration facilities.

Customer: MOTOROLA
SCHAUMBURG, IL 60168-0429

Certificate #: 56219 1

Model #: 8718-10
Description: METER W/CABLE
Date Calibrated: 05/17/2005

Serial #: 01108
PO #: NP1819669
R.O. #: 56219


Vince Donovan
Manager of Instruments Assembly and Test


John C. Stine
Director of Quality Assurance

This certificate shall not be reproduced, except in full, without written approval from L-3 Communications, Narda Microwave-East



Certificate of Calibration

L-3 Communications, Narda Microwave-East, hereby certifies that the referenced RF Radiation Hazard monitoring equipment has been calibrated in accordance with MIL-STD-45662A, ANSI Z540, ISO 10012 and ISO 9001: 2000.

The measured values were determined by comparison with our standards, which are traceable to the National Institute of Standards and Technology to the extent allowed by NIST's calibration facilities.

Customer: MOTOROLA
SCHAUMBURG, IL 60168-0429

Certificate #: 53821 2

Model #: 8722B
Description: RAD MONITOR 8722B
Date Calibrated: 02-25-2005

Serial #: 12023
PO #: NP1675705
R.O. #: 53821

Vince Donovan
Manager of Instruments Assembly and Test



John C. Stine
Director of Quality Assurance

This certificate shall not be reproduced, except in full, without written approval from L-3 Communications, Narda Microwave-East



Certificate of Calibration

L-3 Communications, Narda Microwave-East, hereby certifies that the referenced RF Radiation Hazard monitoring equipment has been calibrated in accordance with MIL-STD-45662A, ANSI Z540, ISO 10012 and ISO 9001: 2000.

The measured values were determined by comparison with our standards, which are traceable to the National Institute of Standards and Technology to the extent allowed by NIST's calibration facilities.

Customer: MOTOROLA
SCHAUMBURG, IL 60168-0429

Certificate #: 56219 2

Model #: 8731
Description: RAD MONITOR
Date Calibrated: 05/12/2005

Serial #: 03006
PO #: NP1819669
R.O. #: 56219

Vince Donovan
Manager of Instruments Assembly and Test

John C. Stine
Director of Quality Assurance

This certificate shall not be reproduced, except in full, without written approval from L-3 Communications, Narda Microwave-East



DATE 25-Feb-2005
REL HUMIDITY 45%

RELEASE # R53821
TEMP 20 DEG. C

NARDA MICROWAVE - EAST

MODEL # 8722B
SERIAL # 12023

Recal Probe - Date of Previous Probe Data = 11/05/2003

FREQ MHZ	PRE-CAL DATA	FINAL CAL DATA	ELLIPSE RATIO, dB	FINAL CORR. FACTOR	DEVIATION DELTA DB	PREVIOUS FINAL CORR.
.30	1.03	0.98	+/- 0.32	1.02	+0.19	1.02
3.00	1.14	1.09	+/- 0.33	0.92	-0.18	0.85
10.00	0.87	0.84	+/- 0.25	1.20	-0.05	1.14
30.00	0.75	0.72	+/- 0.12	1.39	-0.01	1.33
100.00	1.34	1.29	+/- 0.20	0.78	+0.03	0.75
300.00	1.05	1.00	+/- 0.27	1.00	-0.06	0.94
750.00	1.38	1.32	+/- 0.24	0.76	+0.55	0.83
1000.00	1.45	1.39	+/- 0.20	0.72	+0.48	0.77
1700.00	1.20	1.15	+/- 0.46	0.87	+0.38	0.91
2450.00	1.52	1.42	+/- 0.46	0.70	+0.76	0.78
4000.00	1.08	1.00	+/- 0.34	1.00	+0.03	0.94
8200.00	1.14	1.06	+/- 0.50	0.94	-0.10	0.86
10000.00	1.10	1.02	+/- 0.50	0.98	-0.33	0.85
18000.00	1.13	1.05	+/- 0.68	0.95	-0.36	0.82
26500.00	1.02	0.95	+/- 0.86	1.05	-0.31	0.91
40000.00	0.76	0.70	+/- 0.79	1.42	-0.16	1.28

LOW FREQUENCY MULTIPLIER = 0.961 HIGH FREQUENCY MULTIPLIER = 0.933

FREQ. DEV. (3-40000 MHZ) = 3.039 DB

FREQ. DEV. (0.3-40000 MHZ) = 3.04 DB

MAX. ELLIPSE RATIO (0.3-40000 MHZ) = +/- 0.86 DB

PRE-CAL DATA REFLECTS THE MEAN ELLIPSE RATIO OF PROBE AS RECEIVED BY NARDA CALIBRATION DEPARTMENT, OR IS THE INITIAL, UN-ADJUSTED RATIO.

(PRE-CAL x OLD CORR. FACTOR) - 1 = DEVIATION FROM PREVIOUS (OLD)

CALIBRATION DATA. NOTE: NOT APPLICABLE FOR NEW PROBES.

FINAL CAL DATA IS THE RATIO OF THE DISPLAYED TO THE APPLIED FIELD STRENGTH.

FINAL CORR. FACTOR IS THE RECIPROCAL OF FINAL CAL DATA.

FINAL CORR. FACTOR MULTIPLIED BY THE DISPLAYED FIELD STRENGTH READING GIVES THE ACTUAL ("CORRECTED") FIELD STRENGTH.

ELLIPSE RATIO IS EXPRESSED IN dB DEVIATION FROM THE MEAN DATA

RMS Uncertainty = +/- 0.5db. ATP # = 502120 REV J

TESTER V. W.

Q.A. APPROVAL _____



DATE 12-May-2005
REL HUMIDITY 44%

RELEASE # R56219
TEMP 20 DEG. C

NARDA MICROWAVE - EAST

MODEL # 8731
SERIAL # 03006

Recal Probe - Date of Previous Probe Data = 04/07/2004

FREQ MHZ	PRE-CAL DATA	FINAL CAL DATA	ELLIPSE RATIO, dB	FINAL CORR. FACTOR	DEVIATION DELTA DB	PREVIOUS FINAL CORR.
10.00	0.86	0.90	+/- 0.08	1.11	-0.27	1.10
13.56	0.93	0.97	+/- 0.07	1.03	-0.26	1.02
27.12	0.94	0.98	+/- 0.07	1.02	-0.08	1.05
40.68	0.92	0.97	+/- 0.05	1.03	-0.20	1.04
50.00	0.93	0.98	+/- 0.05	1.02	-0.19	1.03
75.00	0.95	0.99	+/- 0.07	1.01	-0.10	1.03
100.00	0.94	0.98	+/- 0.07	1.02	-0.17	1.03
150.00	0.97	1.01	+/- 0.07	0.99	-0.14	1.00
200.00	0.99	1.03	+/- 0.07	0.97	-0.27	0.95
250.00	1.00	1.05	+/- 0.07	0.96	-0.19	0.96
300.00	0.98	1.03	+/- 0.09	0.97	-0.20	0.98

MULTIPLIER = 1.05

FREQ. DEV. (13-200 MHZ) = 0.296 DB

FREQ. DEV. (10-300 MHZ) = 0.66 DB

MAX. ELLIPSE RATIO (10-300 MHZ) = +/- 0.09 DB

ORIGINAL RESISTANCE = 619 OHMS

FINAL RESISTANCE = 650 OHMS

THERMOCOUPLE OUTPUT AT FULL SCALE POWER DENSITY = V = 95.23 mV

PRE-CAL DATA REFLECTS THE MEAN ELLIPSE RATIO OF PROBE AS RECEIVED BY NARDA CALIBRATION DEPARTMENT, OR IS THE INITIAL, UN-ADJUSTED RATIO.
(PRE-CAL x OLD CORR. FACTOR) - 1 = DEVIATION FROM PREVIOUS (OLD)
CALIBRATION DATA. NOTE: NOT APPLICABLE FOR NEW PROBES.

FINAL CAL DATA IS THE RATIO OF THE DISPLAYED TO THE APPLIED FIELD STRENGTH.
FINAL CORR. FACTOR IS THE RECIPROCAL OF FINAL CAL DATA.
FINAL CORR. FACTOR MULTIPLIED BY THE DISPLAYED FIELD STRENGTH READING
GIVES THE ACTUAL ("CORRECTED") FIELD STRENGTH.

ELLIPSE RATIO IS EXPRESSED IN dB DEVIATION FROM THE MEAN DATA

RMS Uncertainty = +/- 0.5db. ATP # = 503195 REV D

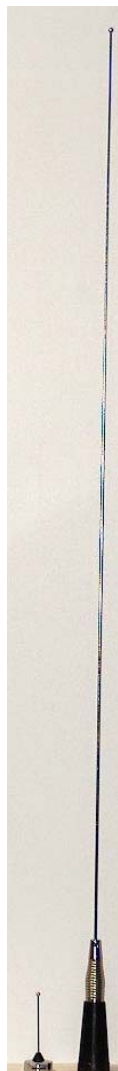
TESTER V. M.

Q.A. APPROVAL



APPENDIX C

Photos of Assessed Antennas



**Antenna kit numbers, from left to right; HAF4016A, RAD4010A
(Antenna RAD4010A was trimmed per the frequency being assessed)**

APPENDIX D

Tables of raw measurement grid test results