Engineering and Testing for EMC and Safety Compliance

CERTIFICATE OF COMPLIANCE
FCC PART 15.247 CERTIFICATION & INDUSTRY CANADA CERTIFICATION

Test Lab:	Applicant:
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FCC ID:	MFMSAMP24S	**GRANTEE FRN NUMBER:**	0007415805
PLAT FORM:	N/A	**RTL WORK ORDER NUMBER:**	2002124
MODEL:	Extended Amplified WLAN System (SMARTAMP 500mW)	**RTL QUOTE NUMBER:**	QRTL02-529
DATE OF TEST REPORT:	August 15, 2002		

American National Standard Institute:	ANSI/TIA/EIA603 and ANSI/TIA/EIA 603-1
FCC Classification:	DSS – Spread Spectrum Transmitter
FCC Rule Part(s):	Part 15.247: Operation within the bands 920-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz Direct Sequence System
Industry Canada Standard:	RSS-210: Low Power License-Exempt Radio Communication Devices (All Frequency Bands) RSS-139: Licensed Radio communications Devices (All Frequency Bands)
Digital Interface Information	Digital Interface was found to be compliant
Receiver Information	Receiver was found to be compliant

Frequency Range(MHz)	Output Power (W)	Frequency Tolerance	Emission Designator
2422-2452	0.501	N/A	N/A

We, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. No modifications were made to the equipment during testing in order to achieve compliance with these standards.

Furthermore, there was no deviation from, additions to, or exclusions from the FCC Part 2, FCC Part 15, Industry Canada RSS-210 and RSS-139, ANSI C63.4, ANSI/TIA/EIA603, and ANSI/TIA/EIA 603-1.

Signature: 

Date: August 15, 2002

Typed/Printed Name: Desmond A. Fraser

Position: President

TABLE OF CONTENTS

1 GENERAL INFORMATION 6
1.1 SCOPE 6
1.2 TEST FACILITY 6
1.3 RELATED SUBMITTAL(S)/GRANT(S) 6
2 TEST INFORMATION 7
2.1 TEST JUSTIFICATION 7
2.2 EXERCISING THE EUT 9
2.3 TEST RESULT SUMMARY 9
2.4 TEST SYSTEM DETAILS 10
2.5 CONFIGURATION OF TESTED SYSTEM 11
3 COMPLIANCE WITH THE RESTRICTED BAND EDGE - §15.205 12
3.1 TEST PROCEDURE 12
3.2 COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA 12
4 CONDUCTED LIMITS - §15.207 44
4.1 TEST METHODOLOGY FOR CONDUCTED EMISSIONS MEASUREMENTS 44
4.2 CONDUCTED EMISSION TEST 44
5 RADIATED EMISSION LIMITS RECEIVER/DIGITAL INTERFACE - §15.209 47
5.1 RADIATED EMISSION LIMITS TEST PROCEDURE 47
5.2 RADIATED EMISSION LIMITS TEST DATA RECEIVER/DIGITAL MODE CH6 47
5.3 RADIATED EMISSION LIMITS TEST DATA TX/DIGITAL MODE CH6 47
6 RADIATED EMISSION LIMITS RADIATED HARMONICS - §15.247 48
6.1 RADIATED EMISSION LIMITS TEST PROCEDURE 48
6.2 RADIATED EMISSION LIMITS TEST DATA 48
6.3 TEST EQUIPMENT USED FOR TESTING 69
7 MODULATED BANDWIDTH - §15.247(A)(2) 70
7.1 MODULATED BANDWIDTH TEST PROCEDURE 70
7.2 TEST EQUIPMENT USED FOR TESTING 70
7.3 MODULATED BANDWIDTH TEST DATA 70
7.4 MODULATED BANDWIDTH PLOTS 71
8 POWER OUTPUT - §15.247(B) 74
8.1 POWER OUTPUT TEST PROCEDURE 74
8.2 TEST EQUIPMENT USED FOR TESTING 74
8.3 POWER OUTPUT TEST DATA 74
9 ANTENNA CONDUCTED SPURIOUS EMISSIONS - §15.247(C) 75
9.1 ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST PROCEDURES 75
9.2 ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST DATA 75
10 POWER SPECTRAL DENSITY - §15.247(D) 78
10.1 POWER SPECTRAL DENSITY TEST PROCEDURE 78
10.2 TEST EQUIPMENT USED FOR TESTING 78
10.3 POWER SPECTRAL DENSITY TEST DATA 78
10.4 POWER SPECTRAL DENSITY DATA PLOTS 79
11 CONCLUSION 82

FIGURE INDEX

FIGURE 1: WORST CASE CONFIGURATION OF SYSTEM UNDER TEST 11

TABLE INDEX

TABLE 2-1: SYSTEM CONFIGURATIONS 8
TABLE 2-2: TEST RESULT SUMMARY WITH FCC RULES AND REGULATIONS 9
TABLE 2-3: EQUIPMENT UNDER TEST (EUT) 10
TABLE 2-4: EXTERNAL COMPONENTS IN TEST CONFIGURATION 10
TABLE 3-1: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA - ANT-OMNI-8 12
TABLE 3-2: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA - ANT-OMNI-12 12
TABLE 3-3: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA - ANT-PATCH-12 21
TABLE 3-4: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA - ANT-PATCH-19 21
TABLE 3-5: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA - ANT-RFLCTR-24 30
TABLE 3-6: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA - ANT-RFLCTR-18 30
TABLE 3-7: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA - ANT-D2421 39
TABLE 4-1: CONDUCTED SPURIOUS EMISSIONS TEST EQUIPMENT 44
TABLE 4-2: CONDUCTED EMISSIONS (NEUTRAL SIDE) TRANSMITTING CH 6 45
TABLE 4-3: CONDUCTED EMISSIONS (PHASE SIDE) TRANSMITTING CH 6 45
TABLE 4-4: CONDUCTED EMISSIONS (PHASE SIDE) RECEIVING CH 6 46
TABLE 4-5: CONDUCTED EMISSIONS (NEUTRAL SIDE) RECEIVING CH 6 46
TABLE 5-1: RADIATED EMISSION LIMITS RECEIVER/DIGITAL MODE CH 6 47
TABLE 5-2: RADIATED EMISSION LIMITS TX/DIGITAL MODE CH 6 47
TABLE 6-1: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 3) (ANT-OMNI-8) 48
TABLE 6-2: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) (ANT-OMNI-8) 49
TABLE 6-3: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 9) (ANT-OMNI-8) 50
TABLE 6-4: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 3) (ANT-OMNI-12) 51
TABLE 6-5: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) (ANT-OMNI-12) 52
TABLE 6-6: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 9) (ANT-OMNI-12) 53
TABLE 6-7: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 3) (ANT-PATCH-12) 54
TABLE 6-8: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) (ANT-PATCH-12) 55
TABLE 6-9: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 9) (ANT-PATCH-12) 56
TABLE 6-10: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 3) (ANT-PATCH-19) 57
TABLE 6-11: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) (ANT-PATCH-19) 58
TABLE 6-12: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 9) (ANT-PATCH-19) 59
TABLE 6-13: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 3) (ANT- RFLCTR-24) 60
TABLE 6-14: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) (ANT-RFLCTR-24) 61
TABLE 6-15: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 9) (ANT-RFLCTR-24) 62
TABLE 6-16: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 3) (ANT-RFLCTR-18) 63
TABLE 6-17: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) (ANT-RFLCTR-18) 64
TABLE 6-18: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 9) (ANT-RFLCTR-18) 65
TABLE 6-19: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 3) (ANT-D2421) 66
TABLE 6-20: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) (ANT-D2421) 67
TABLE 6-21: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 9) (ANT-D2421) 68
TABLE 6-22: RADIATED SPURIOUS EMISSIONS TEST EQUIPMENT 69
TABLE 7-1: TEST EQUIPMENT USED FOR TESTING MODULATED BANDWIDTH 70
TABLE 7-2: MINIMUM 6 DB MODULATED BANDWIDTHS 70
TABLE 8-1: TEST EQUIPMENT USED FOR TESTING RADIATED RF OUTPUT – EIRP 74
TABLE 8-2: POWER OUTPUT TEST DATA 74
TABLE 8-3: POWER OUTPUT TEST DATA WITH EIRP 74
TABLE 9-1: ANTENNA CONDUCTED SPURIOUS EMISSIONS CHANNEL 3 75
TABLE 9-2: ANTENNA CONDUCTED SPURIOUS EMISSIONS CHANNEL 6 76
TABLE 9-3: ANTENNA CONDUCTED SPURIOUS EMISSIONS CHANNEL 9 77
TABLE 10-1: TEST EQUIPMENT USED FOR TESTING (POWER SPECTRAL DENSITY) 78
TABLE 10-2: POWER SPECTRAL DENSITY 78
TABLE 11-1: RF EXPOSURE SEPARATION DISTANCE FROM DEFACTO EIRP 84

PLOT INDEX

PLOT 3-1: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 3 (ANT-OMNI-8) 13
PLOT 3-2: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 3 (ANT-OMNI-8) 14
PLOT 3-3: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 9 (ANT-OMNI-8) 15
PLOT 3-4: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 9 (ANT-OMNI-8) 16
PLOT 3-5: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 3 (ANT-OMNI-12) 17
PLOT 3-6: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 3 (ANT-OMNI-12) 18
PLOT 3-7: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 9 (ANT-OMNI-12) 19
PLOT 3-8: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 9 (ANT-OMNI-12) 20
PLOT 3-9: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 3 (ANT-PATCH-12) 22
PLOT 3-10: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 3 (ANT-PATCH-12) 23
PLOT 3-11: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 9 (ANT-PATCH-12) 24
PLOT 3-12: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 9 (ANT-PATCH-12) 25
PLOT 3-13: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 3 (ANT-PATCH 19) 26
PLOT 3-14: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 3 (ANT-PATCH-19) 27
PLOT 3-15: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 9 (ANT-PATCH-19) 28
PLOT 3-16: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 9 (ANT-PATCH-19) 29
PLOT 3-17: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 3 (ANT-RFLCTR-24) 31
PLOT 3-18: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 3 (ANT-RFLCTR-24) 32
PLOT 3-19: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 9 (ANT-RFLCTR-24) 33
PLOT 3-20: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 9 (ANT-RFLCTR-24) 34
PLOT 3-21: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 3 (ANT-RFLCTR-18) 35
PLOT 3-22: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 3 (ANT-RFLCTR-18) 36
PLOT 3-23: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 9 (ANT-RFLCTR-18) 37
PLOT 3-24: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 9 (ANT-RFLCTR-18) 38
PLOT 3-25: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 3 (ANT-D2421) 40
PLOT 3-26: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 3 (ANT-D2421) 41
PLOT 3-27: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 9 (ANT-D2421) 42
PLOT 3-28: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 9 (ANT-D2421) 43
PLOT 7-1: MODULATED BANDWIDTH CHANNEL 3 - 500 MW MODE 71
PLOT 7-2: MODULATED BANDWIDTH CHANNEL 6 - 500 MW MODE 72
PLOT 7-3: MODULATED BANDWIDTH CHANNEL 9 - 500 MW MODE 73
PLOT 10-1: POWER SPECTRAL DENSITY: CHANNEL 3 79
PLOT 10-2: POWER SPECTRAL DENSITY: CHANNEL 6 80
PLOT 10-3: POWER SPECTRAL DENSITY: CHANNEL 9 81

APPENDIX INDEX

APPENDIX A: RF EXPOSURE CALCULATIONS FOR HIGH GAIN ANTENNAS 83
APPENDIX B: ANTENNA SPECIFICATIONS 85
APPENDIX C: AGENCY AUTHORIZATION LETTER 86
APPENDIX D: CONFIDENTIALITY REQUEST LETTER (IF APPLICABLE) 87
APPENDIX E: ATTESTATION LETTERS (IF APPLICABLE) 88
APPENDIX F: PRODUCT DESCRIPTION 89
APPENDIX G: LABEL AND LABEL LOCATION 90
APPENDIX H: BILL OF MATERIAL (PARTS LIST) (IF APPLICABLE) 91
APPENDIX I: SCHEMATICS 92
APPENDIX J: BLOCK DIAGRAM (IF APPLICABLE) 93
APPENDIX K: MANUAL 94
APPENDIX L: TEST PHOTOGRAPHS 95
APPENDIX M: EXTERNAL PHOTOGRAPHS 109
APPENDIX N: INTERNAL PHOTOGRAPHS 115

PHOTOGRAPH INDEX

PHOTOGRAPH 1: IDENTIFICATION LABEL LOCATION ON DEVICE 90
PHOTOGRAPH 2: FCC IDENTIFICATION LABEL SAMPLE 90
PHOTOGRAPH 3: RADIATED EMISSION FRONT VIEW WORST CASE 95
PHOTOGRAPH 4: RADIATED EMISSION REAR VIEW WORST CASE 96
PHOTOGRAPH 5: RADIATED EMISSION FRONT VIEW WORST CASE 97
PHOTOGRAPH 6: RADIATED EMISSION REAR VIEW WORST CASE 98
PHOTOGRAPH 7: RADIATED EMISSION FRONT VIEW WORST CASE 99
PHOTOGRAPH 8: RADIATED EMISSION REAR VIEW WORST CASE 100
PHOTOGRAPH 9: RADIATED EMISSION FRONT VIEW WORST CASE 101
PHOTOGRAPH 10: RADIATED EMISSION REAR VIEW WORST CASE 102
PHOTOGRAPH 11: RADIATED EMISSION FRONT VIEW WORST CASE 103
PHOTOGRAPH 12: RADIATED EMISSION REAR VIEW WORST CASE 104
PHOTOGRAPH 13: RADIATED EMISSION FRONT VIEW WORST CASE 105
PHOTOGRAPH 14: RADIATED EMISSION REAR VIEW WORST CASE 106
PHOTOGRAPH 15: RADIATED EMISSION FRONT VIEW WORST CASE 107
PHOTOGRAPH 16: RADIATED EMISSION REAR VIEW WORST CASE 108
PHOTOGRAPH 17: FRONT VIEW OF ACCESS POINT 109
PHOTOGRAPH 18: BACK VIEW OF ACCESS POINT 110
PHOTOGRAPH 19: REAR VIEW OF ACCESS POINT 111
PHOTOGRAPH 20: DC INJECTOR 112
PHOTOGRAPH 21: 500MW AMPLIFIER 113
PHOTOGRAPH 22: TOP VIEW OF PCMCIA CARD 114
PHOTOGRAPH 23: INSIDE VIEW OF THE ACCESS POINT 115
PHOTOGRAPH 24: FRONT VIEW DIGITAL PART OF THE ACCESS POINT 116
PHOTOGRAPH 25: REAR VIEW DIGITAL PART OF THE ACCESS POINT 117
PHOTOGRAPH 26: FRONT VIEW OF PCB WITH SHIELD 118
PHOTOGRAPH 27: FRONT VIEW OF PCB WITHOUT SHIELD 119
PHOTOGRAPH 28: BACK VIEW OF PCB WITH SHIELD 120
PHOTOGRAPH 29: BACK VIEW OF PCB WITHOUT SHIELD 121
PHOTOGRAPH 30: FRONT VIEW PCB FROM DC INJECTOR 122
PHOTOGRAPH 31: FRONT VIEW PCB FROM 500MW AMPLIFIER 123
PHOTOGRAPH 32: REAR VIEW PCB FROM 500MW AMPLIFIER 124

1 GENERAL INFORMATION

1.1 SCOPE

FCC Rules Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz.

IC RSS-210 Section 6.2.2(o): Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz.

IC RSS-139 appendix (B): Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz.

A direct sequence (DS) system is a spread spectrum (SS) system in which the carrier has been modulated by a high speed spreading code and an information data stream. The high-speed code sequence dominates the "modulating function" and is the direct cause of the wide spreading of the transmitted signal.

1.2 TEST FACILITY

The open area test site and conducted measurement facility used to collect the radiated data is located at 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report and approved by the Federal Communications Commission to perform AC line conducted and radiated emissions testing (ANSI C63.4 1992).

1.3 RELATED SUBMITTAL(S)/GRANT(S)

This is an original application for Certification on the Teletronics International Inc. Model: Extended Amplified WLAN System (SMARTAMP 500mW), FCC ID: MFMSAMP24S. It consists of the Cisco WLAN card with Telectronics SmartAmp amplifier, Teletronics DC Power Injector, antenna(s), and cabling. The IF, LO and up to the 2nd LO were investigated and tested.

2 TEST INFORMATION

2.1 TEST JUSTIFICATION

The EUT was tested in all three orthogonal planes in order to determine worst-case emissions. Channel 3 at 2422 MHz, Channel 6 at 2437 MHz and channel 9 at 2452 MHz were tested and investigated from 9 kHz to 24 GHz. Data for all three channels is presented in this report.

In order to complete the configuration required for testing, a WLAN PCMCIA card, Cisco 352 series, inserted in an Access Point configured with a Cisco 352 WLAN card, was connected to a notebook computer through its Ethernet port. The PCMCIA WLAN radio output port was connected to a DC injector, in turn the DC injector was connected to a 500milliWatt amplifier; the output of the amplifier was connected to different families of external antennas (Omni, Patch, Grid, Dish). The lowest and the highest antenna gain of each family type has been tested.

The DC injector and the amplifier were connected with 3' LMR 600 cable. The cable length between the amplifier and the antenna used for the testing were minimized to provide a worst case configuration.

Because the LMR 600 (nominal cable loss 4.4 dB/100 ft) provides a lower cable loss than the LMR 400 (nominal cable loss 6.8 dB/100 ft), the LMR 600 was used for all testing, to produce the worst case configuration.

The antenna transmits, receives, and connects to the only antenna port available. The worst-case data taken in this report represents the highest data rate at 11 MBPS. Data rates of 5.5 MBPS, 2 MBPS and 1 MBPS were investigated and found to be in compliance. The change in envelope did not cause the EUT to be non-compliant in any of the aforementioned modes.

TABLE 2-1: SYSTEM CONFIGURATIONS

Antenna Part# (Antenna Type)	Specified Antenna Gain (dBi)	Maximum Cisco Aironet Radio Output Power (dBm)	Maximum Amplifier Output Power (dBm)	Minimum Cable Length (dB loss) Between Antenna & Power Amplifier for LMR 600/LMR 400	Maximum Extended Range WLAN System EIRP (dBm)	Maximum Permissible Exposure (MPE) Distance cm (inches)
ANT-O2412 (Omni directional)	12	100mW (+20dBm)	500 mW (+27dBm)	150'/98' (6.6 dB)	32.4	20cm (7.9 inches)
ANT-O2409 (Omni directional)	9	100mW (+20dBm)	500 mW (+27dBm)	75'/49' (3.3 dB)	32.7	20cm (7.9 inches)
ANT-O2408 (Omni directional)	8	100mW (+20dBm)	500 mW (+27dBm)	50' /33' (2.2 dB)	32.8	20cm (7.9 inches)
ANT-P2419 (Patch)	19	100mW (+20dBm)	500 mW (+27dBm)	300'/195' (13.2 dB)	32.8	20cm (7.9 inches)
ANT-P2418 (Patch)	18	100mW (+20dBm)	500 mW (+27dBm)	265'/172' (11.7 dB)	33.3	20cm (7.9 inches)
ANT-P2415 (Patch)	15	100mW (+20dBm)	500 mW (+27dBm)	157'/102' (6.9 dB)	35.1	20cm (7.9 inches)
ANT-P2413 (Patch)	13	100mW (+20dBm)	500 mW (+27dBm)	95'/62' (4.2 dB)	35.8	20cm (7.9 inches)
ANT-P2412 (Patch)	12	100mW (+20dBm)	500 mW (+27dBm)	73'/47' (3.2 dB)	35.8	20cm (7.9 inches)
ANT-G2418 (Grid)	18	100mW (+20dBm)	500 mW (+27dBm)	250'/162' (11.0 dB)	34	200cm (79 inches)
ANT-G2424 (Grid)	24	100mW (+20dBm)	500 mW (+27dBm)	300'/195' (13.2 dB)	37.8	200cm (79 inches)
ANT-D2421 (Dish)	20.5	100mW (+20dBm)	500 mW (+27dBm)	100'/65' (4.4 dB)	43.1	200cm (79 inches)

2.2 EXERCISING THE EUT

The EUT was provided with software to continuously transmit during testing. The carrier was also checked to verify that the information was being transmitted.

2.3 TEST RESULT SUMMARY

TABLE 2-2: TEST RESULT SUMMARY WITH FCC RULES AND REGULATIONS

STANDARD	TEST	PASS/FAIL OR N/A
FCC 15.205	Compliance with the restricted Band Edge	Pass
FCC 15.207	Conducted Emissions	Pass
FCC 15.209	Radiated Emissions	Pass
FCC 15.247(a)(2)	Modulated Bandwidth	Pass
FCC 15.247(b)	Power Output	Pass
FCC 15.247(c)	Antenna Conducted Spurious Emissions	Pass
FCC 15.247(d)	Power Spectral Density	Pass

2.4 TEST SYSTEM DETAILS

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

TABLE 2-3: EQUIPMENT UNDER TEST (EUT)

PART	MANUFACTURER	MODEL	SERIAL NUMBER	FCC ID	CABLE DESCRIPTION	RTL BAR CODE
AMPLIFIER	TELECTRONICS	SMARTAMP 500MW	NA	MFMSAMP24S	NA	14530
DC INJECTOR	TELECTRONICS	DC INJECTOR	NA	NA	NA	14529
ACCESS POINT	CISCO	AP 350 SERIES	VDF0536517K	LDK102040	NA	14315
CABLE	NA	LMR 600	NA	NA	250’	NA
CABLE	NA	LMR 600	NA	NA	100’	NA
CABLE	NA	LMR 600	NA	NA	50’	NA
CABLE	NA	LMR 600	NA	NA	3’	NA

TABLE 2-4: EXTERNAL COMPONENTS IN TEST CONFIGURATION

PART	MANUFACTURER	MODEL	SERIAL NUMBER	FCC ID	CABLE DESCRIPTION	RTL BAR CODE
NOTEBOOK PC	SAMSUNG ELECTRONICS	STORM	019492/B	A3LSQ10	NA	

2.5 CONFIGURATION OF TESTED SYSTEM

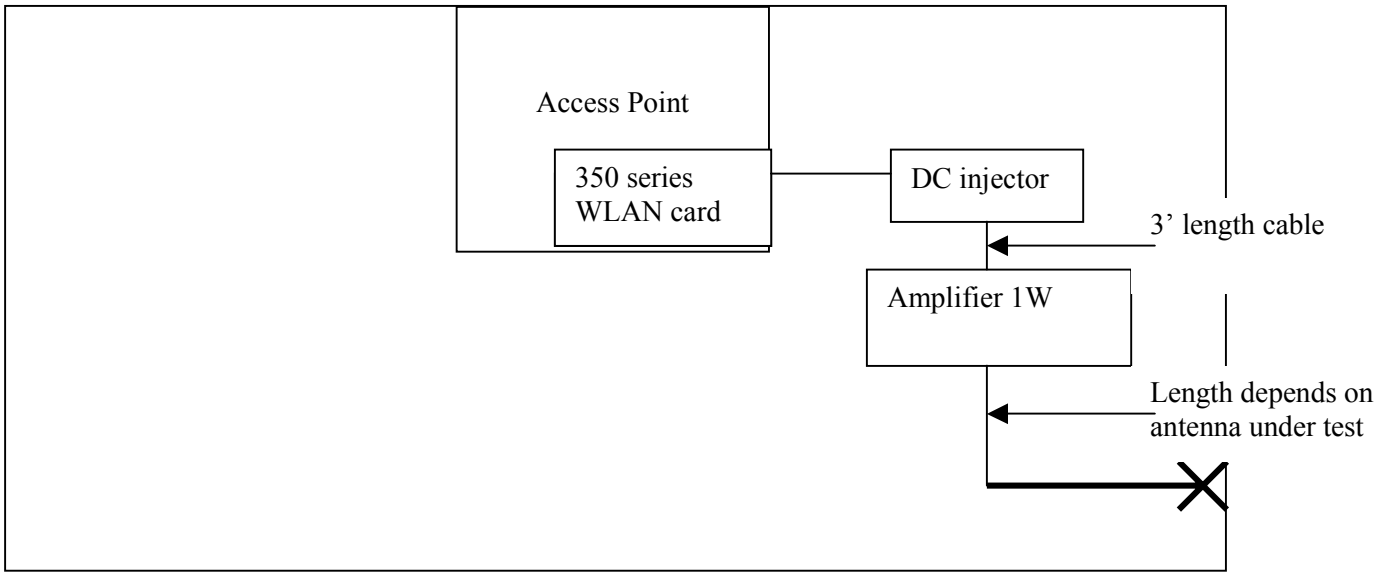


FIGURE 1: WORST CASE CONFIGURATION OF SYSTEM UNDER TEST

3 COMPLIANCE WITH THE RESTRICTED BAND EDGE - §15.205

3.1 TEST PROCEDURE

Compliance with the band edges was performed using the rules found in FCC parts 15.205 and 15.209 respectively. The final data derived below were from radiated measurements applying absolute detector values only. The data taken in this report represents the worst case at 11 MBPS. Data rates of 5.5MBPS, 2 MBPS and 1 MBPS were investigated and found to be in compliance.

3.2 COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA

Operating Frequency (MHz): 2422-2452
Channel: 3 & 9
Distance (m): 3
Limit (dBu/Vm): 54

TABLE 3-1: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA - ANT-OMNI-8

Channel Set to	Frequency tested MHz	Detector	Field Strength Level (dBµV/m)	Level Corrected (dBµV/m)	FCC Limit (dBµV/m)	FCC Margin (dB)
3	2390.0	Absolute measurement	23.6	50.0	54.0	-4.0
9	2483.5	Absolute measurement	23.5	49.9	54.0	-4.1

TABLE 3-2: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA - ANT-OMNI-12

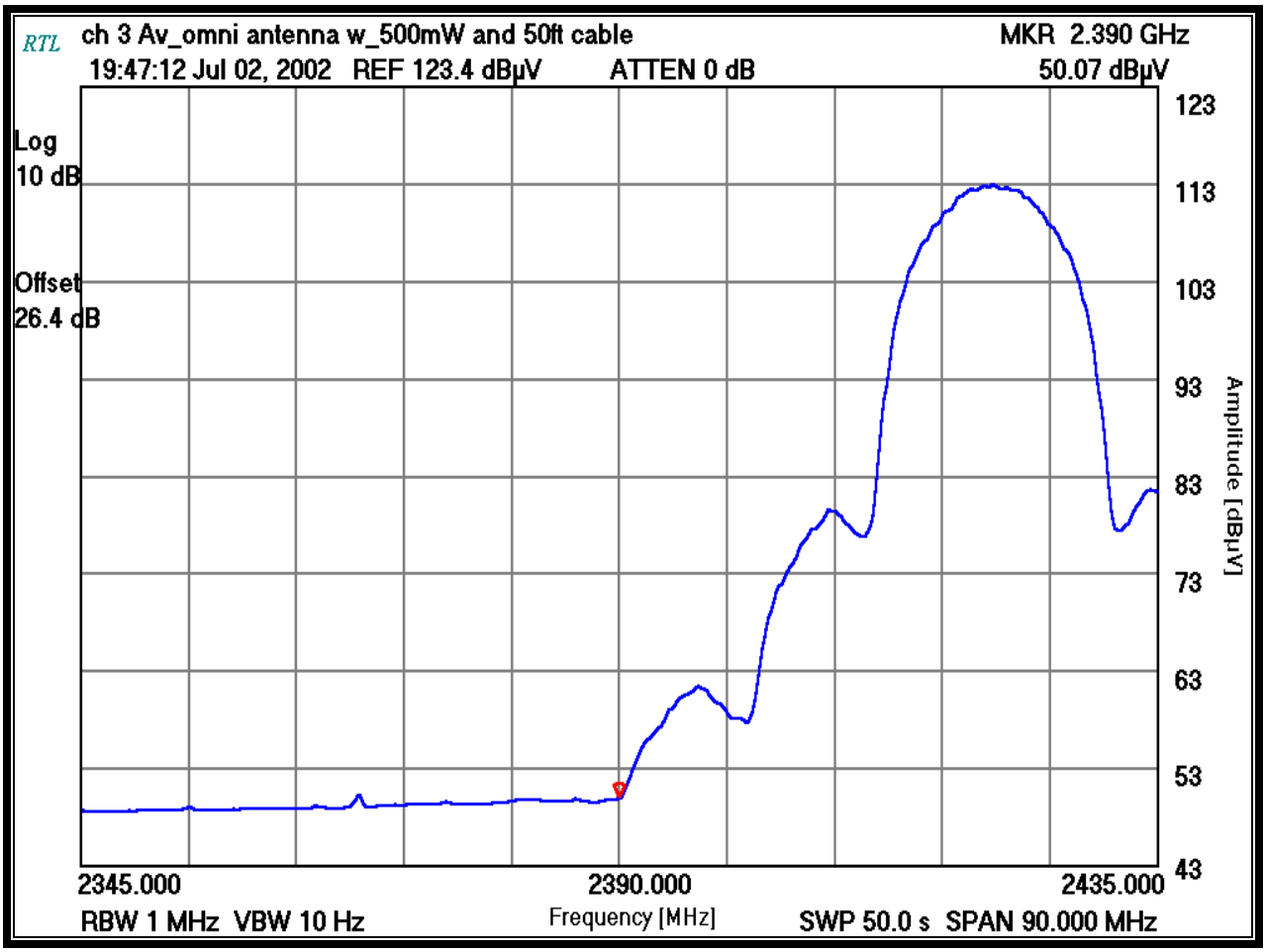
Channel Set to	Frequency tested MHz	Detector	Field Strength Level (dBµV/m)	Level Corrected (dBµV/m)	FCC Limit (dBµV/m)	FCC Margin (dB)
3	2390.0	Absolute measurement	24.1	50.5	54.0	-3.5
9	2483.5	Absolute measurement	22.7	49.1	54.0	-4.9

TEST PERSONNEL:

Franck Schuppius		5/19/2002
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (MHz):	1
Video Bandwidth (Hz):	10
Sweep Time(s):	50.0

PLOT 3-1: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 3 (ANT-OMNI-8)

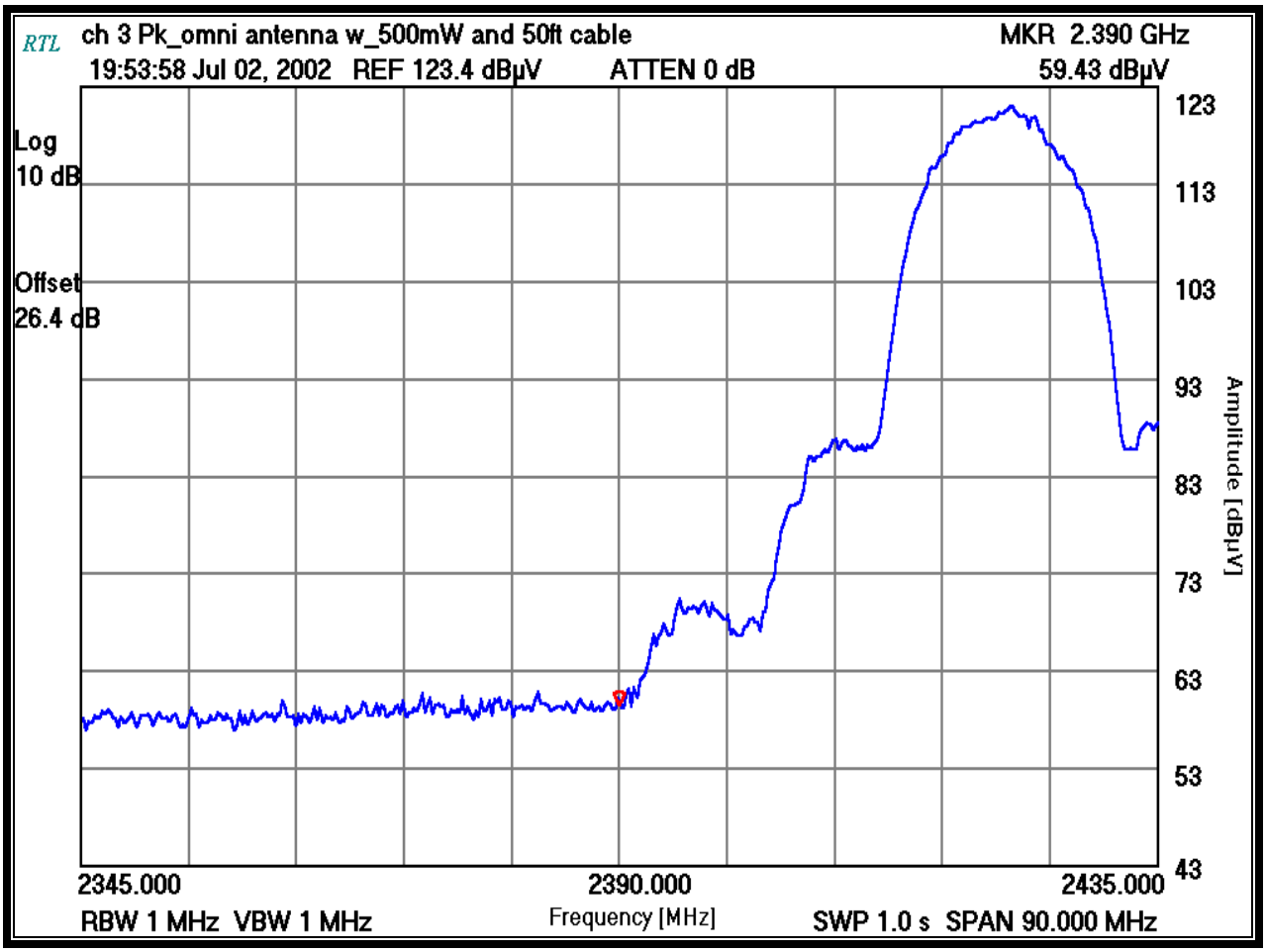


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (MHz):	1
Video Bandwidth (MHz:	1
Sweep Time(s):	1

PLOT 3-2: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 3 (ANT-OMNI-8)

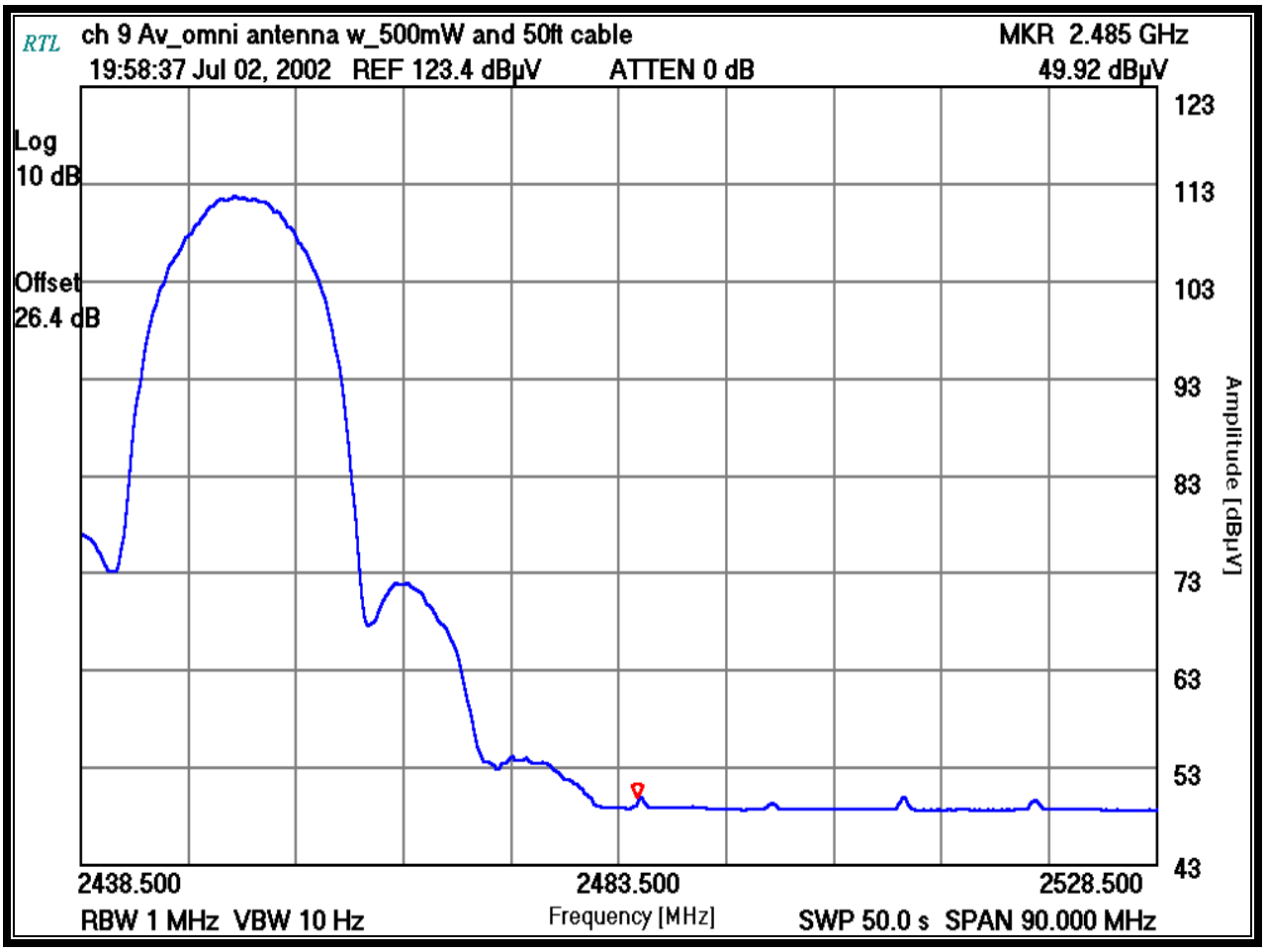


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (MHz):	1
Video Bandwidth (Hz):	10
Sweep Time(s):	50.0

PLOT 3-3: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 9 (ANT-OMNI-8)

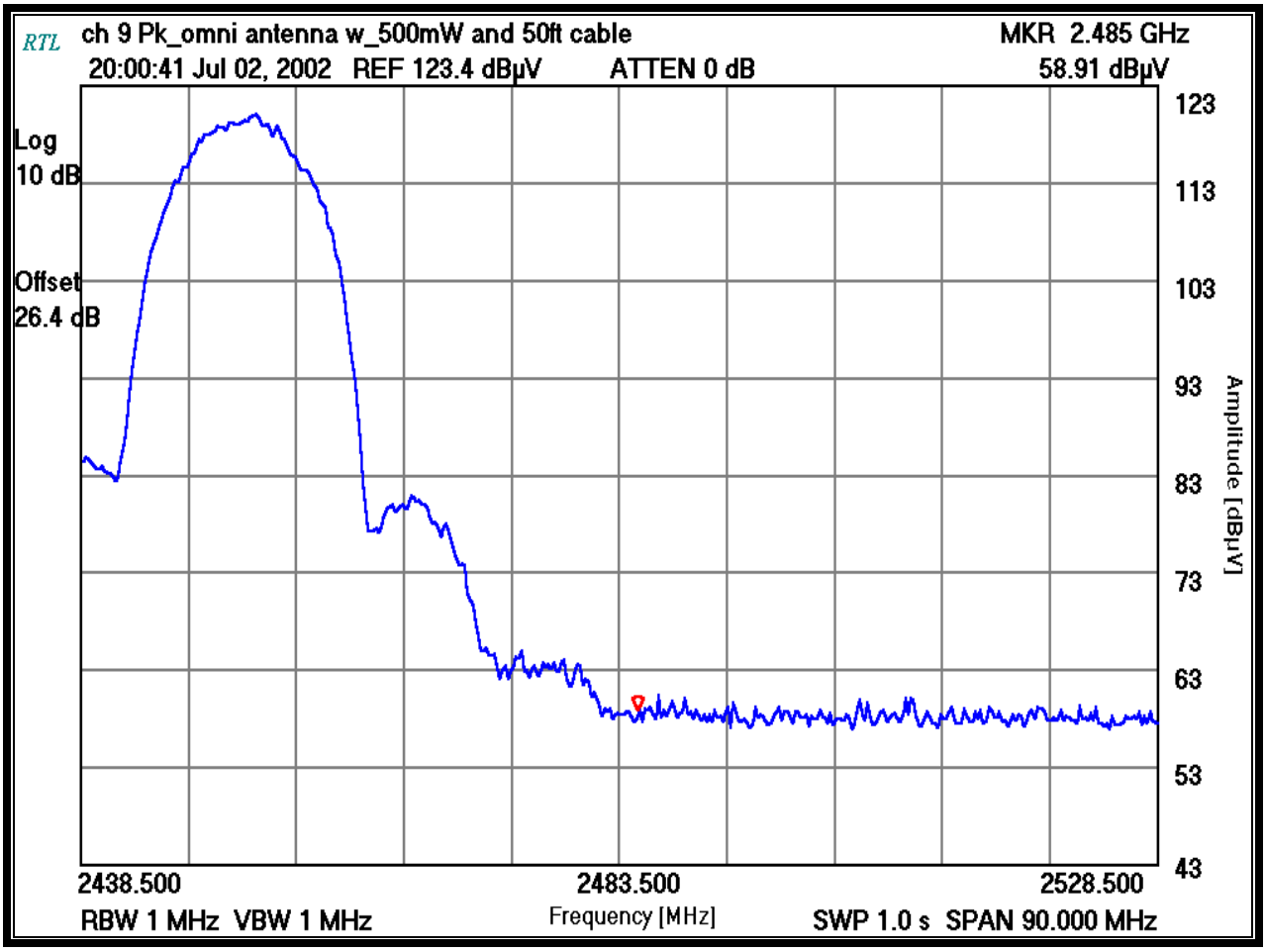


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (MHz):	1
Video Bandwidth (MHz):	1
Sweep Time(s):	1

PLOT 3-4: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 9 (ANT-OMNI-8)

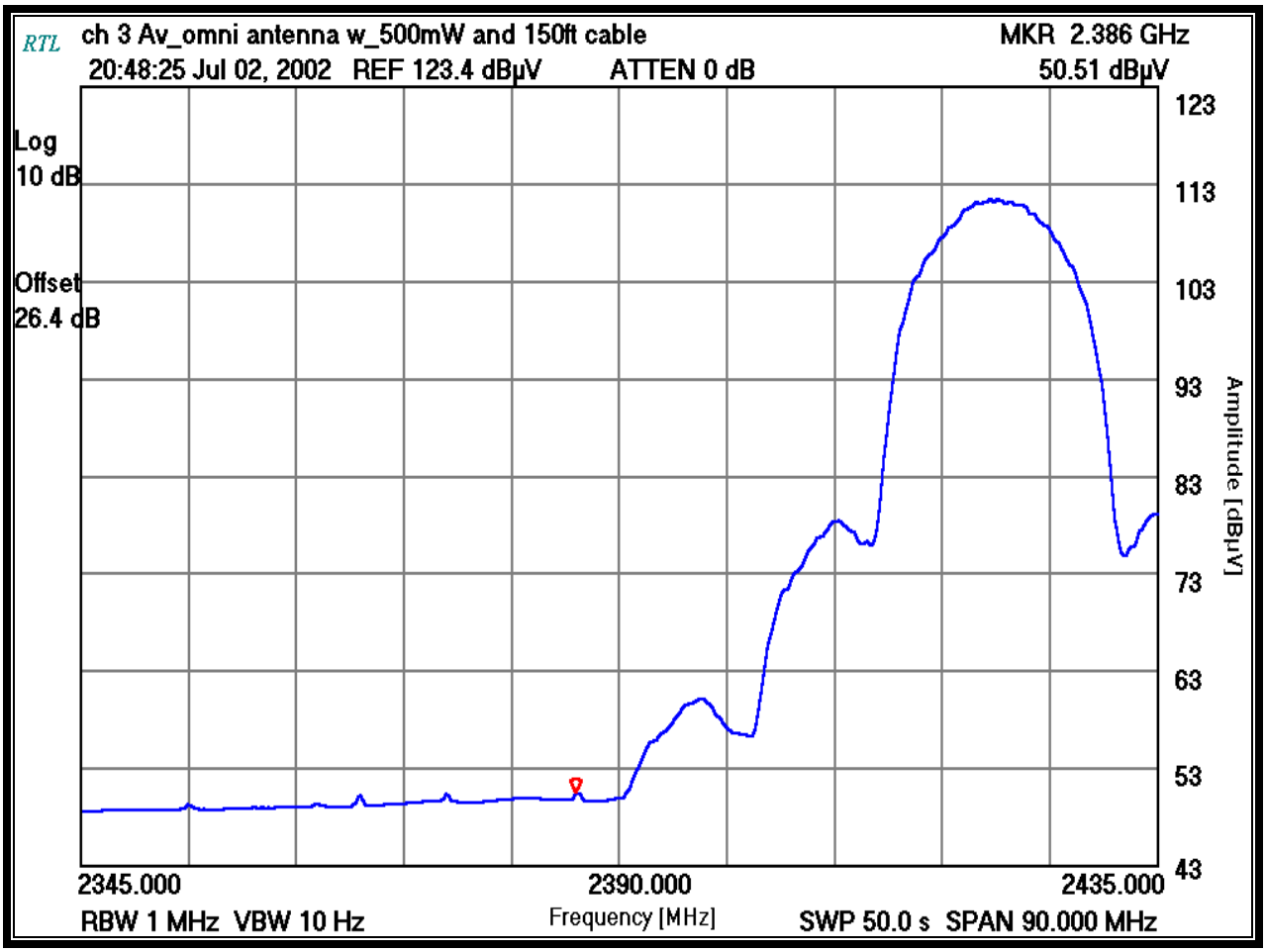


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (MHz):	1
Video Bandwidth (Hz):	10
Sweep Time(s):	50.0

PLOT 3-5: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 3 (ANT-OMNI-12)

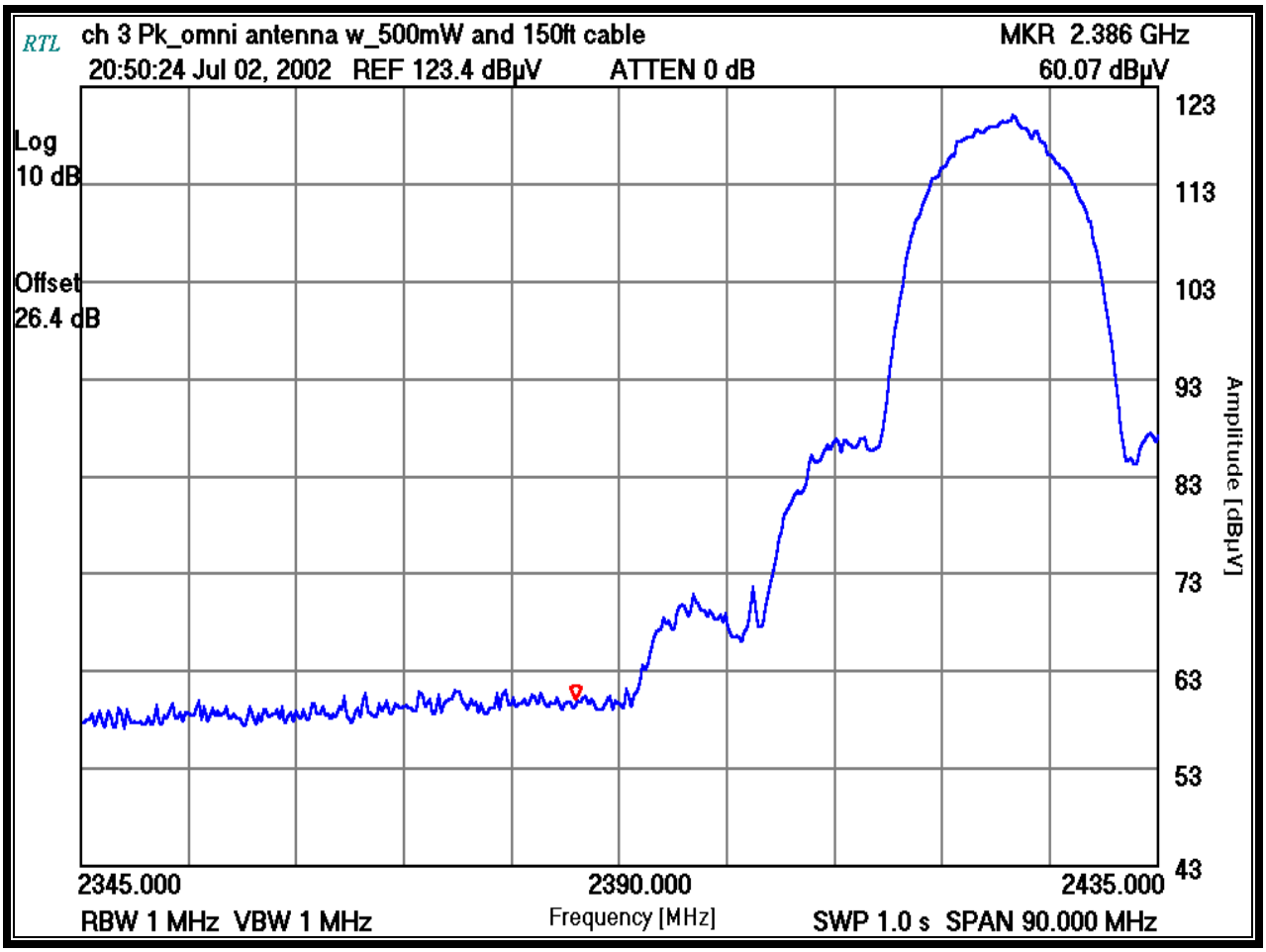


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (MHz):	1
Video Bandwidth (MHz):	1
Sweep Time(s):	1.0

PLOT 3-6: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 3 (ANT-OMNI-12)

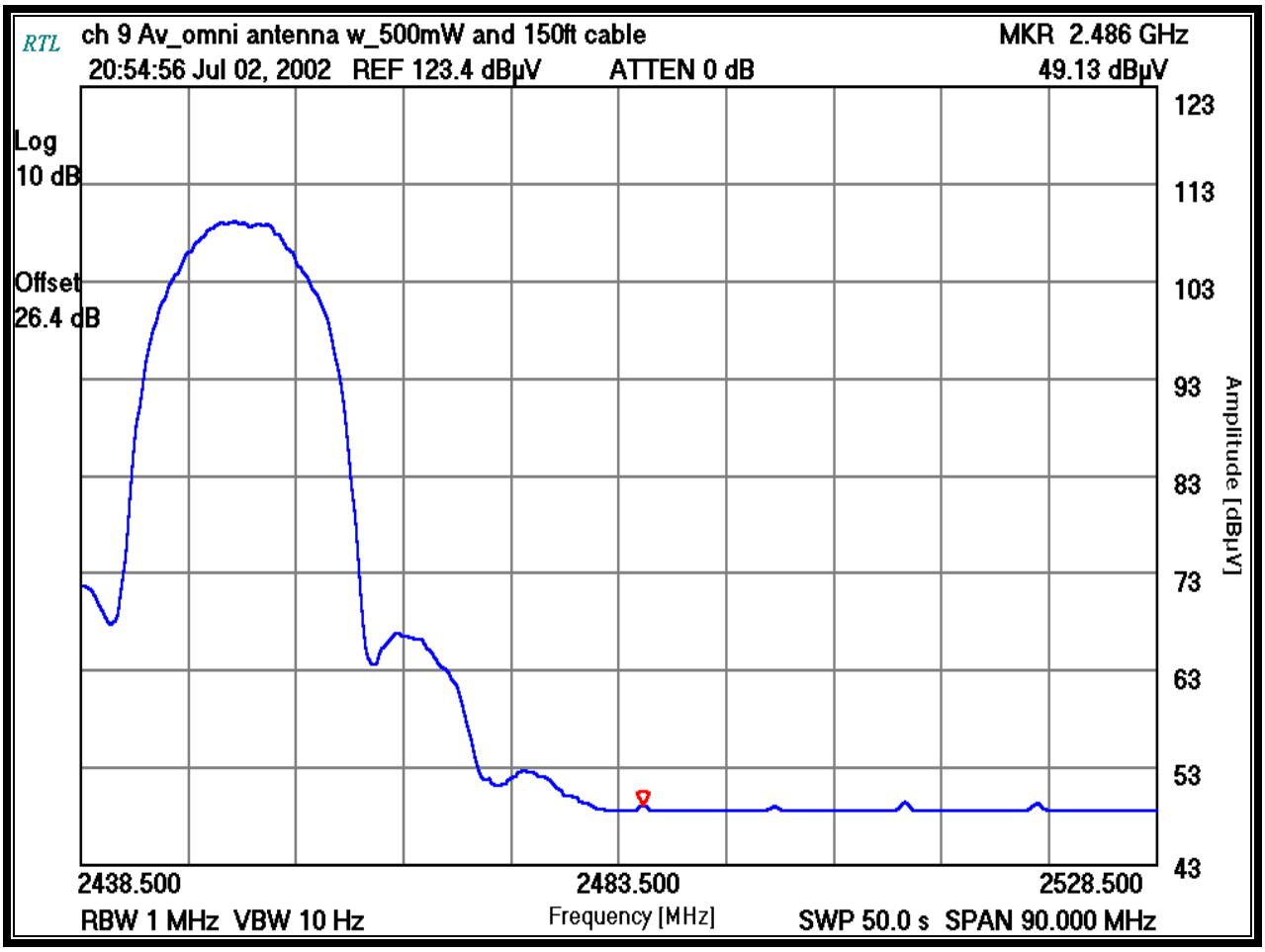


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (MHz):	1
Video Bandwidth (Hz):	10
Sweep Time(s):	50.0

PLOT 3-7: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 9 (ANT-OMNI-12)

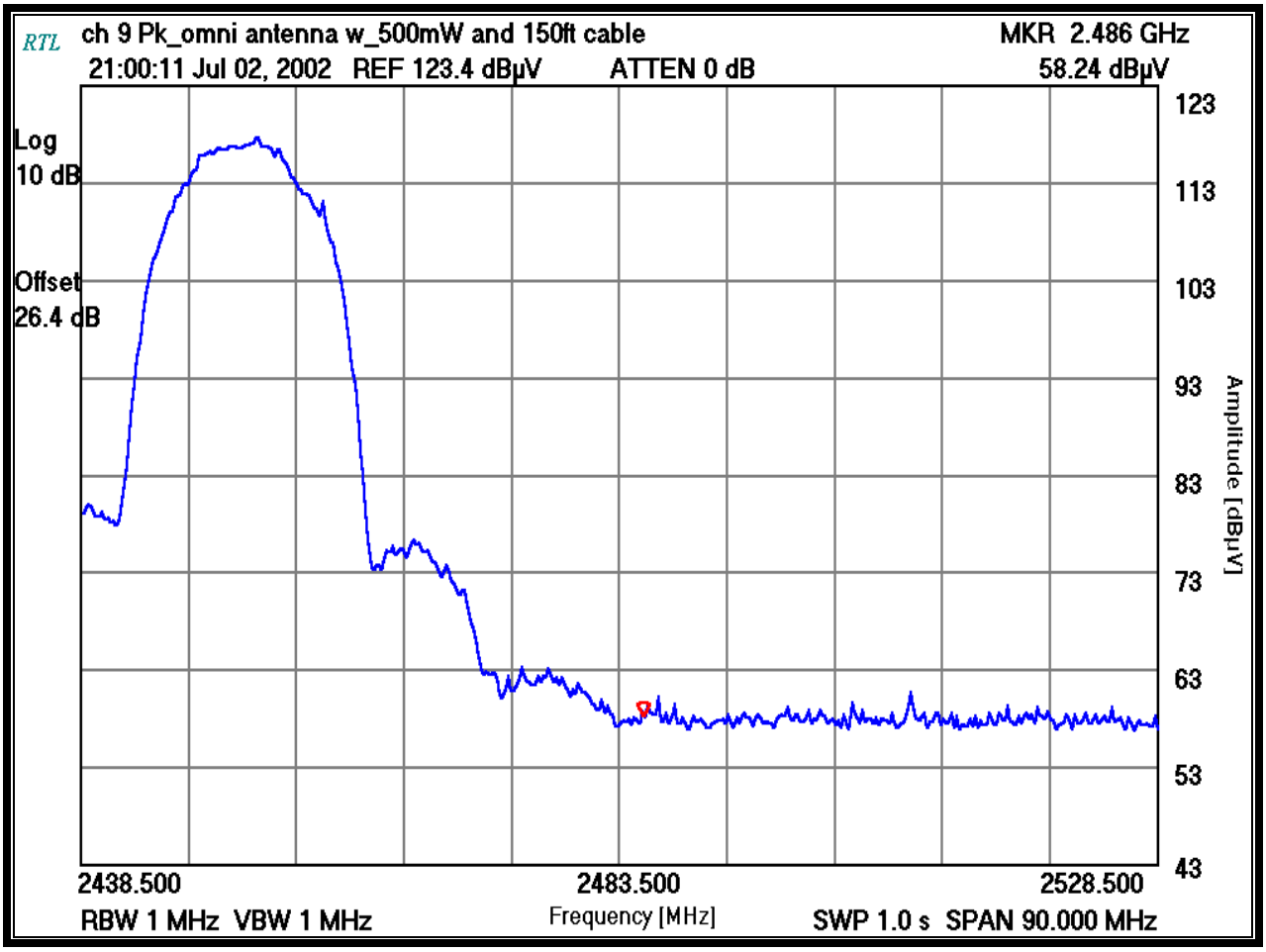


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (MHz):	1
Video Bandwidth (MHz):	1
Sweep Time(s):	1.0

PLOT 3-8: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 9 (ANT-OMNI-12)



TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

TABLE 3-3: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA - ANT-PATCH-12

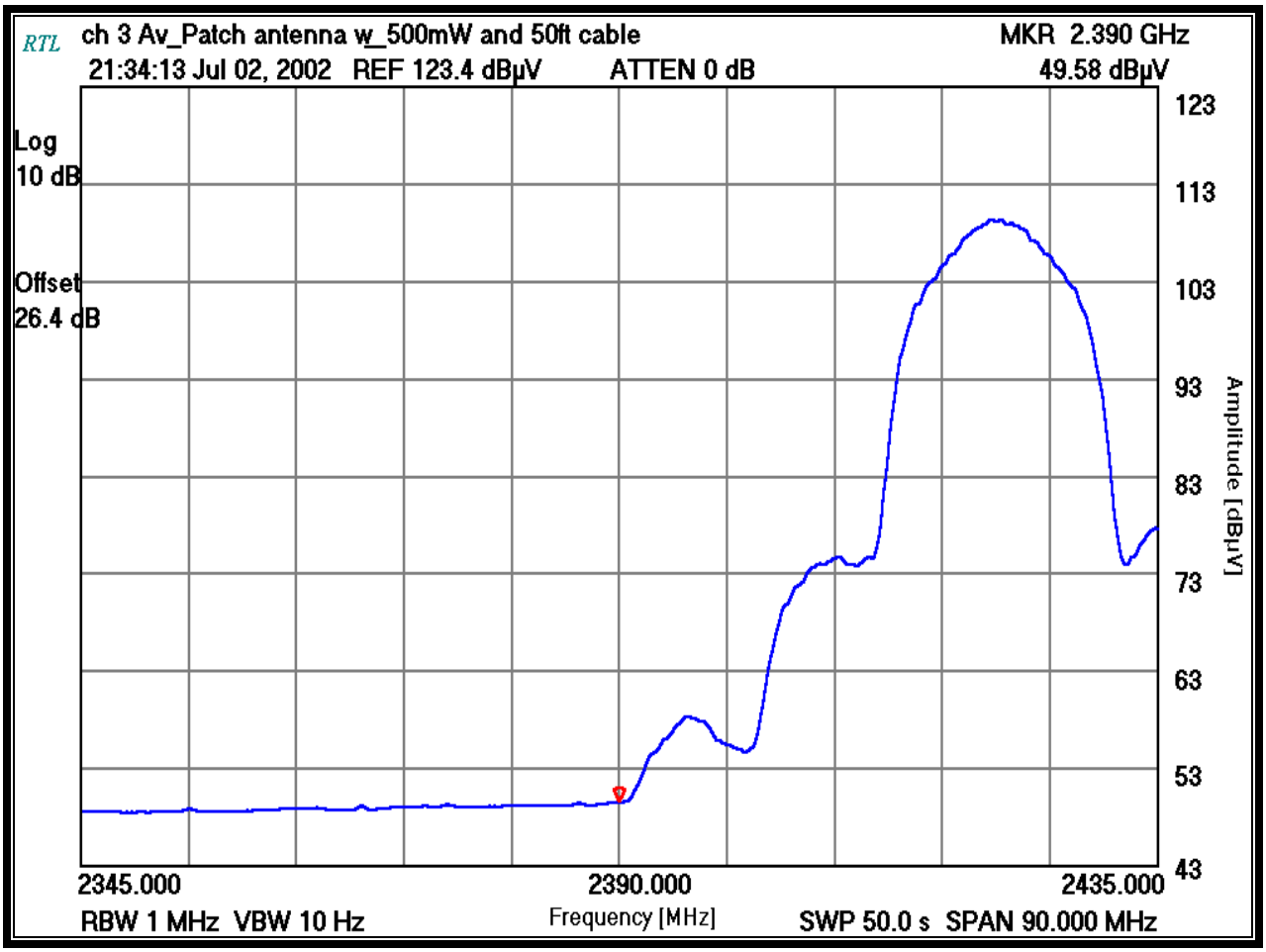
Channel Set to	Frequency tested MHz	Detector	Field Strength Level (dBµV/m)	Level Corrected (dBµV/m)	FCC Limit (dBµV/m)	FCC Margin (dB)
3	2390.0	Absolute measurement	23.2	49.6	54.0	-4.4
9	2483.5	Absolute measurement	22.6	49.0	54.0	-5.0

TABLE 3-4: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA - ANT-PATCH-19

Channel Set to	Frequency tested MHz	Detector	Field Strength Level (dBµV/m)	Level Corrected (dBµV/m)	FCC Limit (dBµV/m)	FCC Margin (dB)
3	2390.0	Absolute measurement	25.0	51.4	54.0	-2.6
9	2483.5	Absolute measurement	25.4	51.8	54.0	-2.2

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (MHz):	1
Video Bandwidth (Hz):	10
Sweep Time(s):	50.0

PLOT 3-9: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 3 (ANT-PATCH-12)

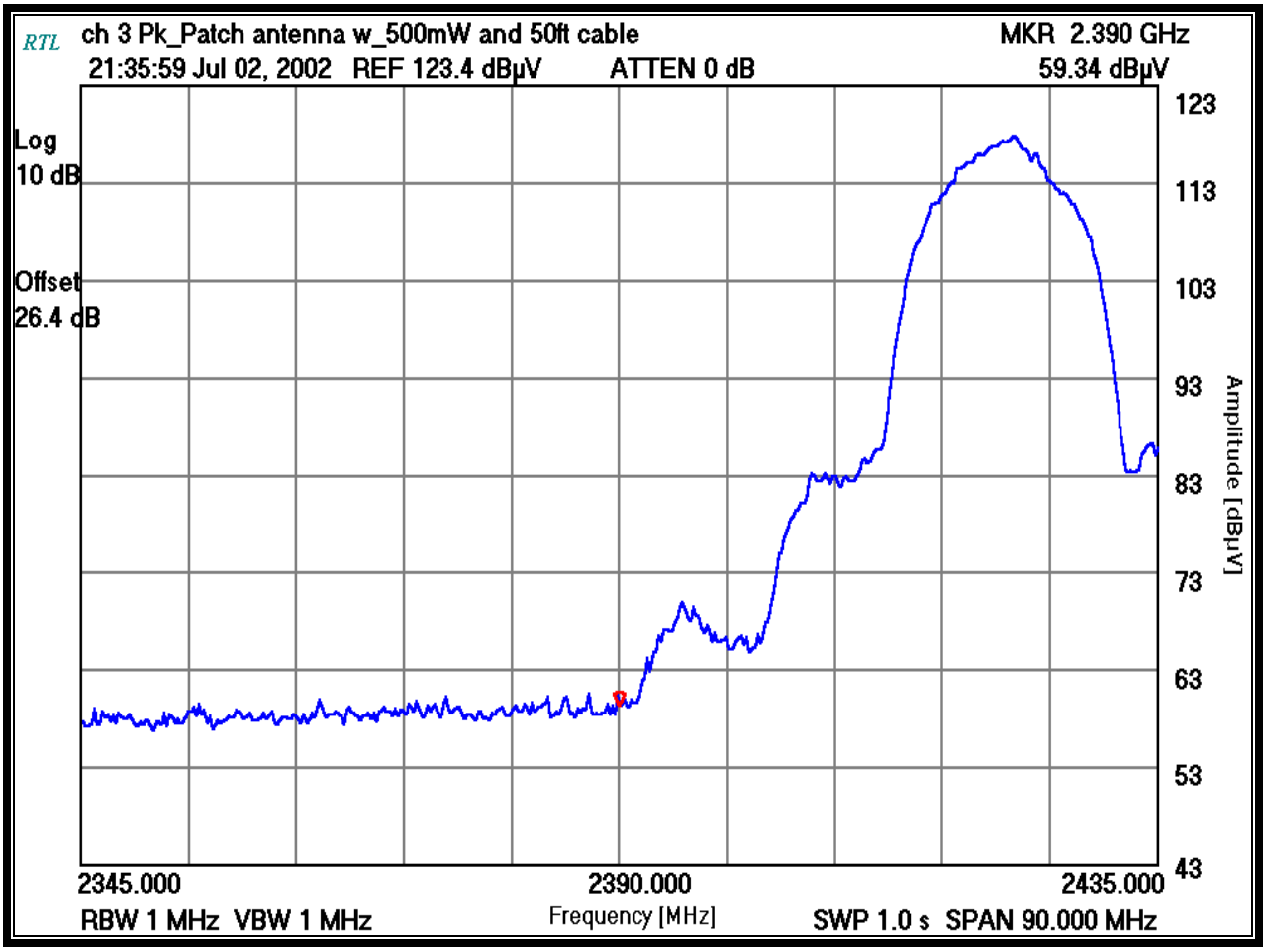


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (MHz):	1
Video Bandwidth (MHz):	1
Sweep Time(s):	1.0

PLOT 3-10: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 3 (ANT-PATCH-12)

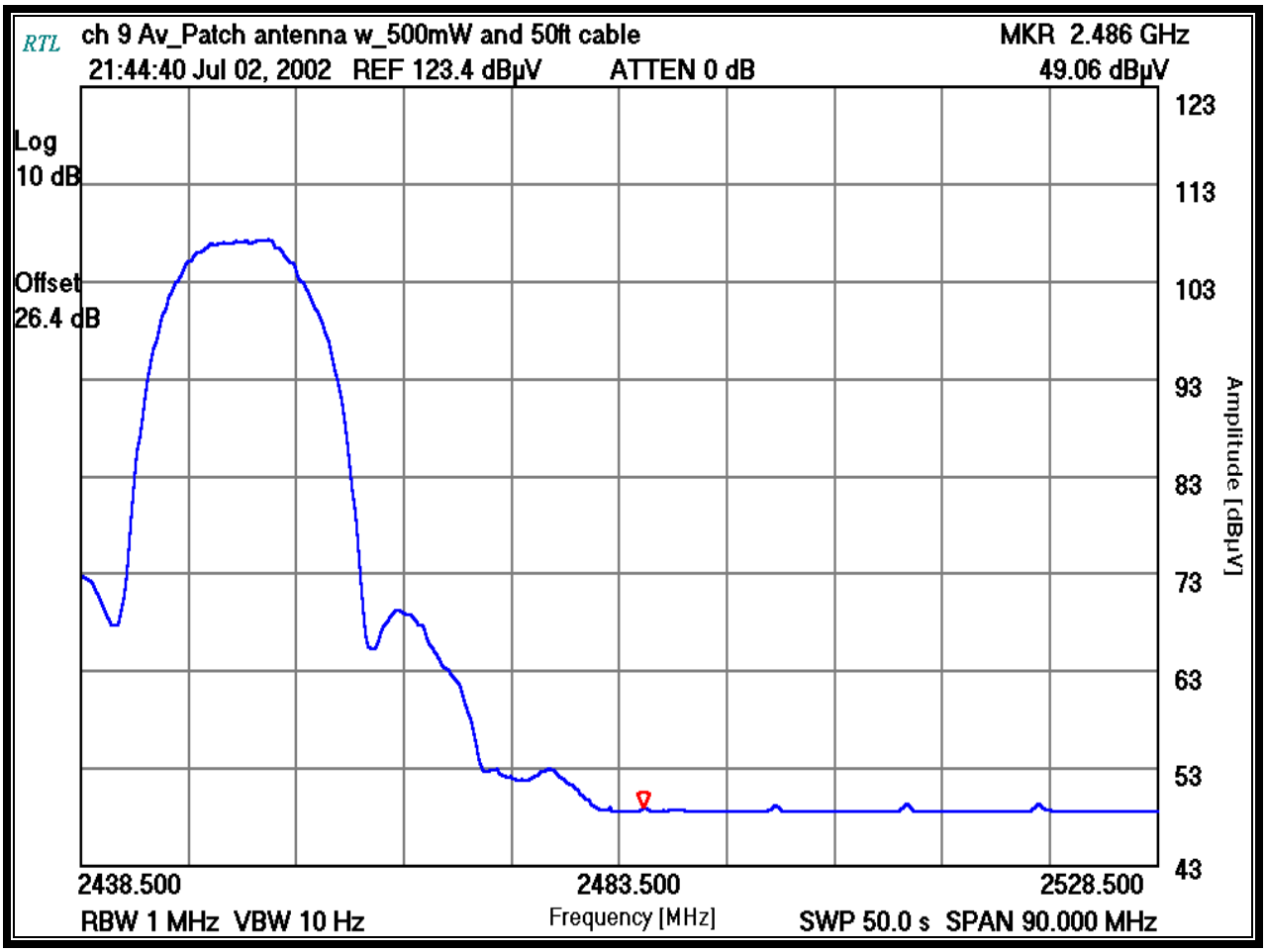


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (MHz):	1
Video Bandwidth (Hz):	10
Sweep Time(s):	50.0

PLOT 3-11: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 9 (ANT-PATCH-12)

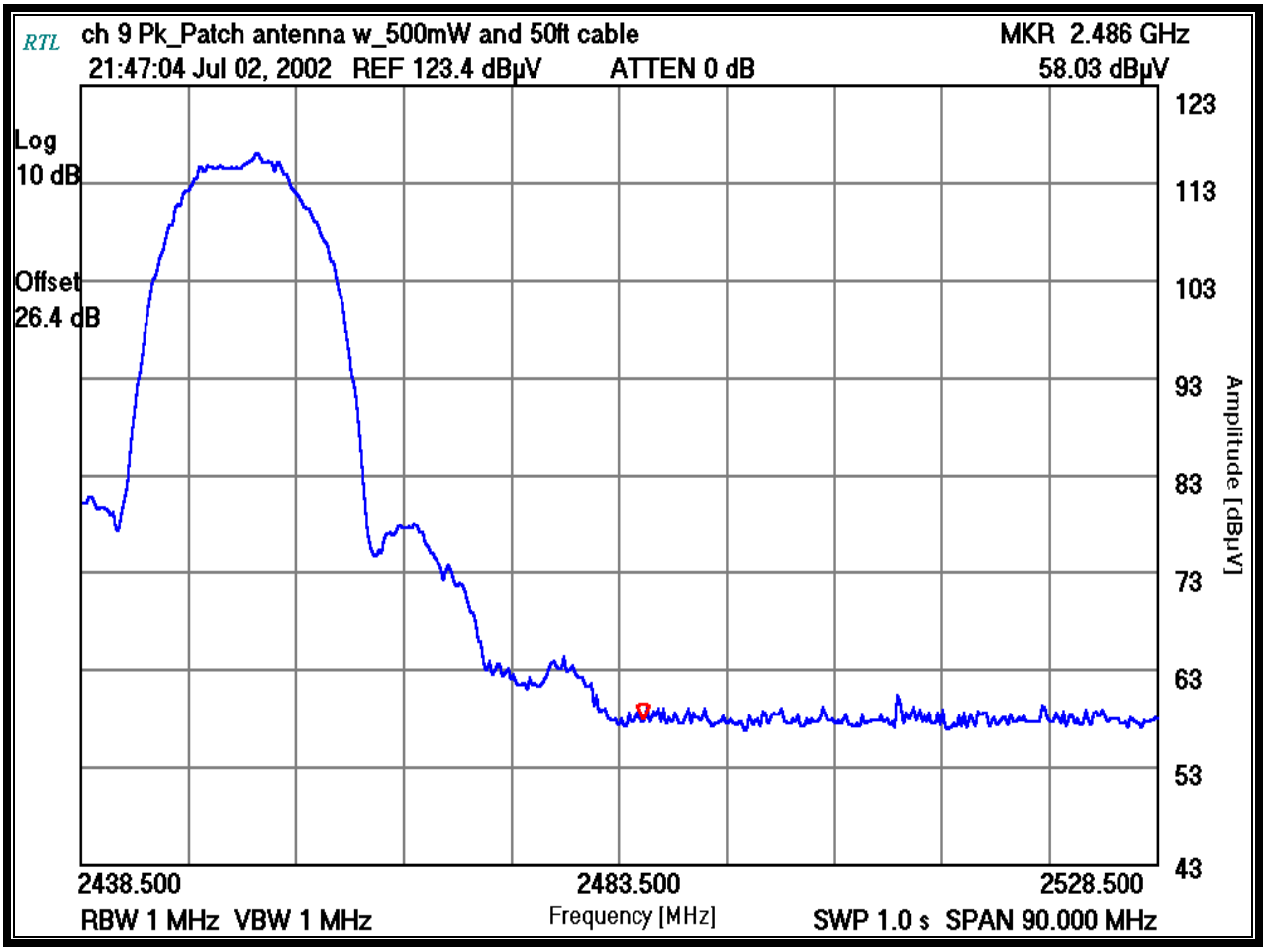


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (MHz):	1
Video Bandwidth (MHz):	1
Sweep Time(s):	1.0

PLOT 3-12: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 9 (ANT-PATCH-12)

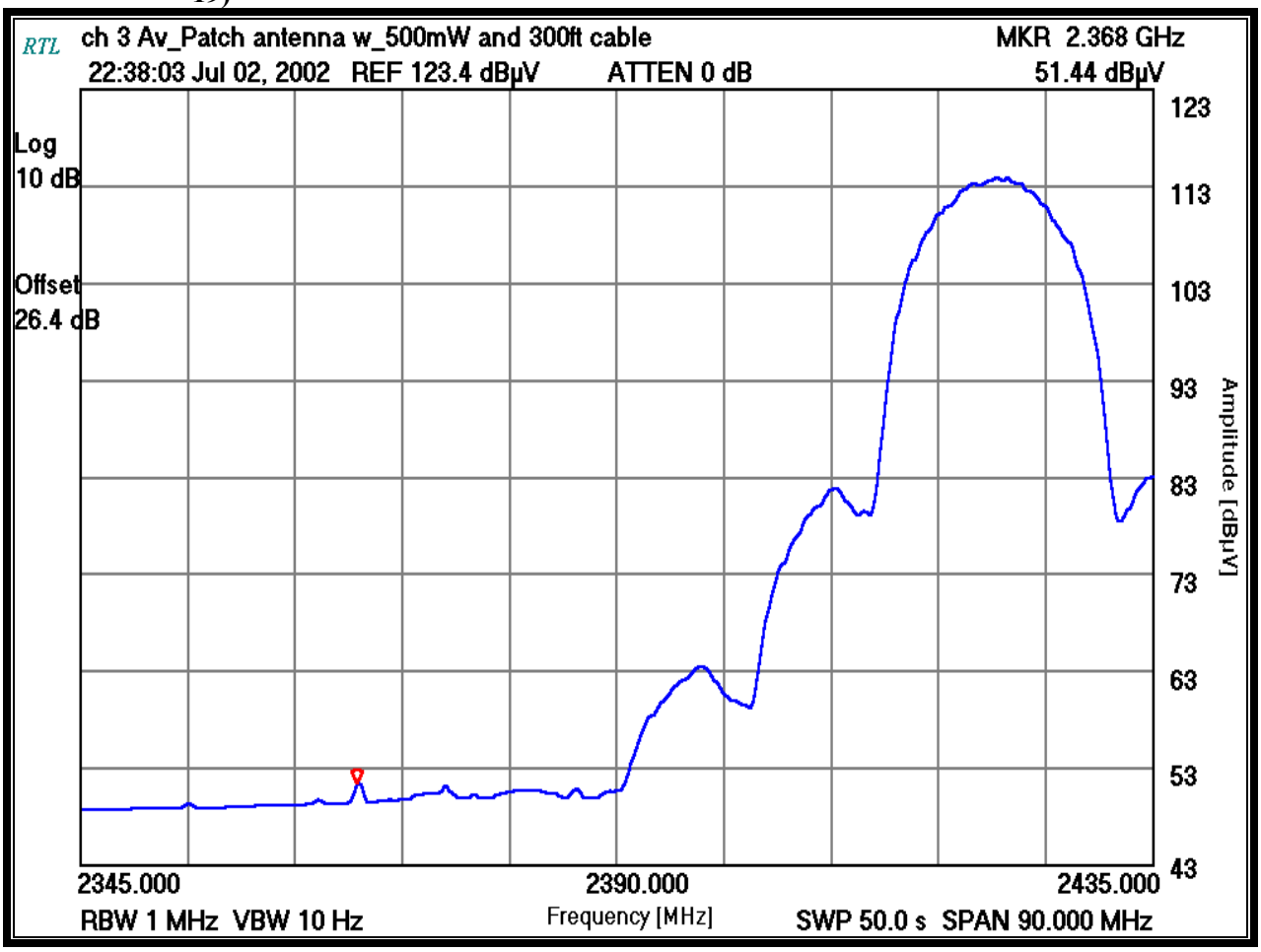


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (MHz):	1
Video Bandwidth (Hz):	10
Sweep Time(s):	50.0

PLOT 3-13: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 3 (ANT-PATCH 19)

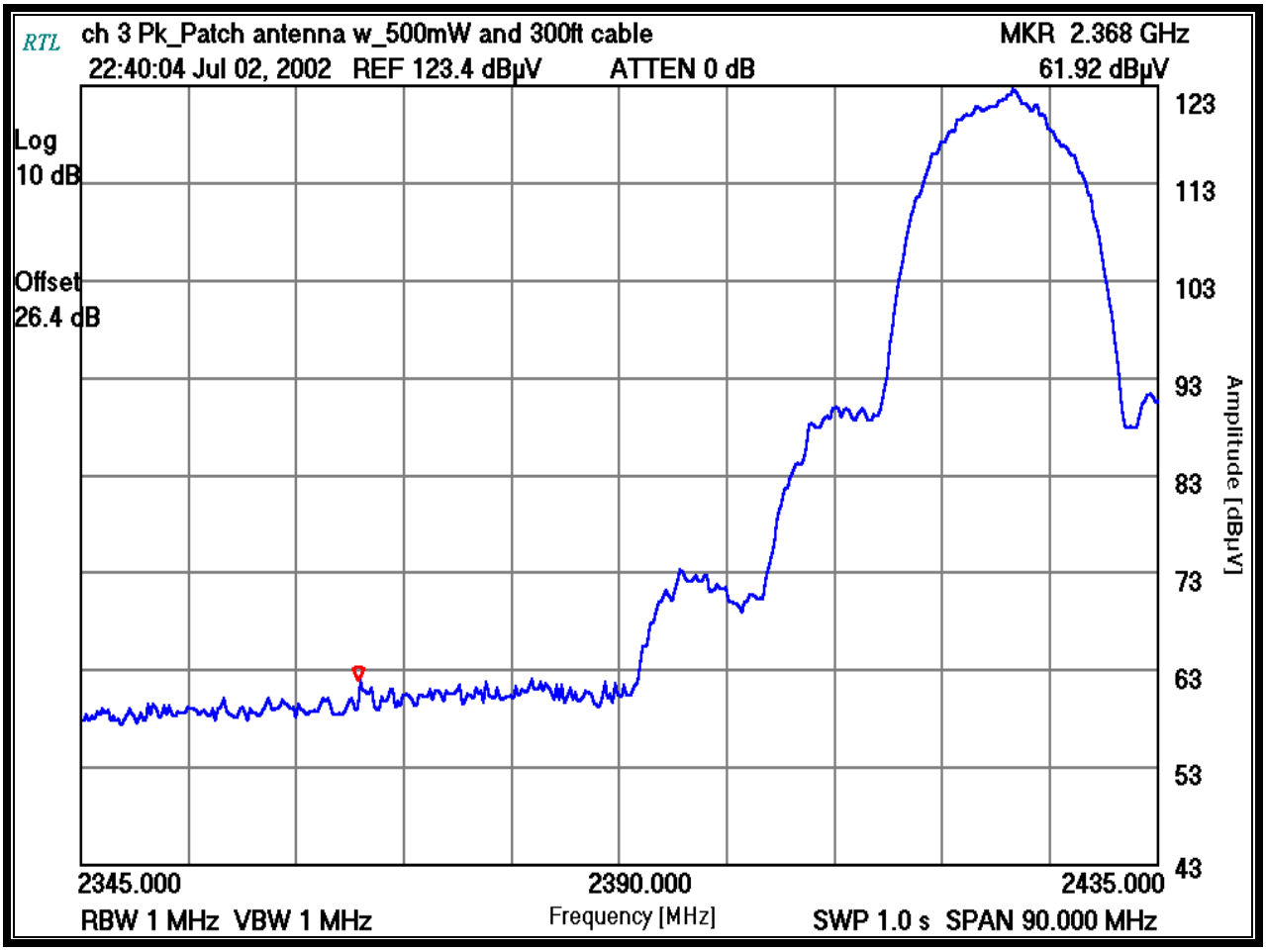


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (MHz):	1
Video Bandwidth (MHz):	1
Sweep Time(s):	1.0

PLOT 3-14: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 3 (ANT-PATCH-19)

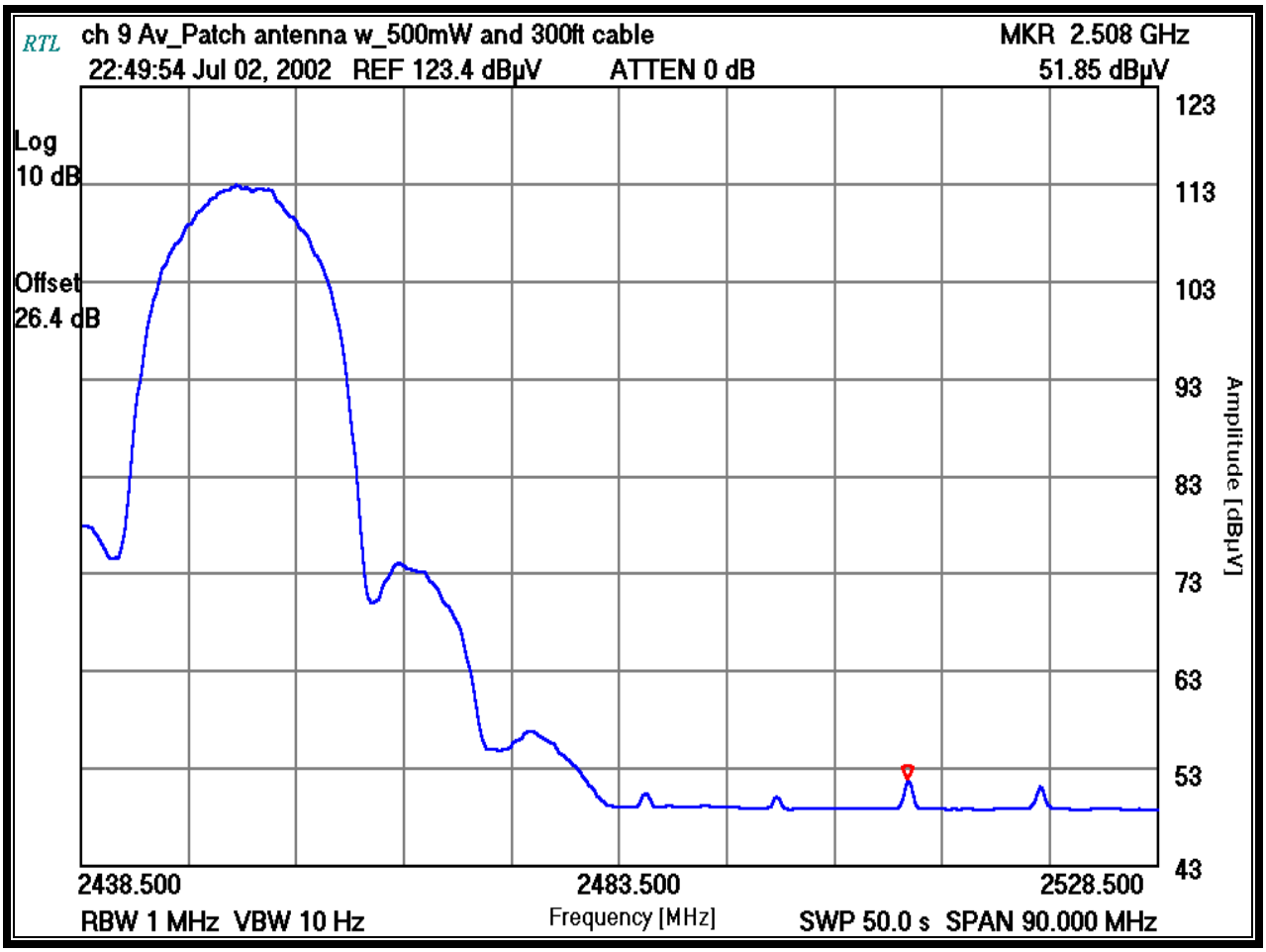


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (MHz):	1
Video Bandwidth (Hz):	10
Sweep Time(s):	50.0

PLOT 3-15: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 9 (ANT-PATCH-19)

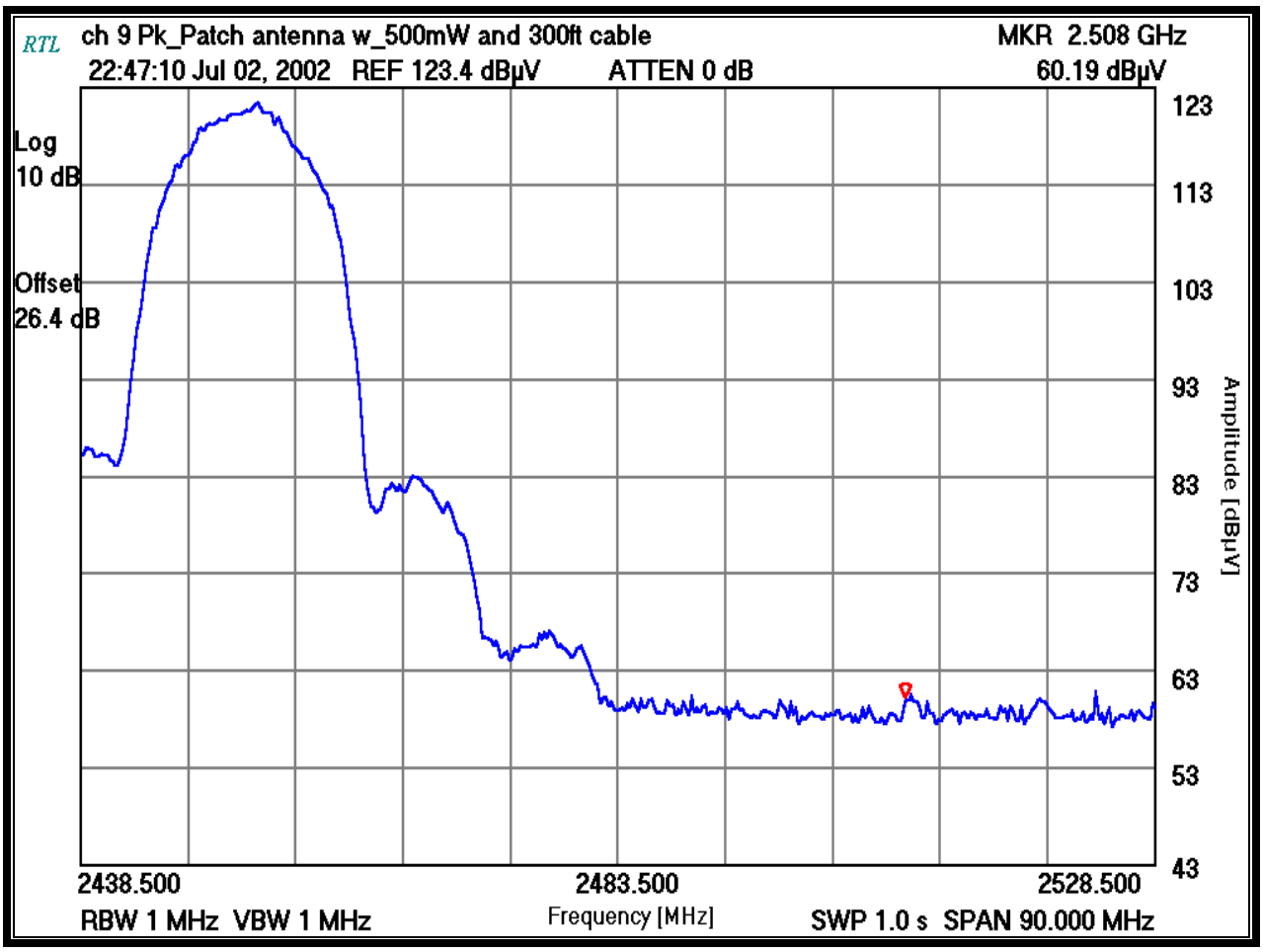


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (MHz):	1
Video Bandwidth (MHz):	1
Sweep Time(s):	1.0

PLOT 3-16: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 9 (ANT-PATCH-19)



TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

TABLE 3-5: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA - ANT-RFLCTR-24

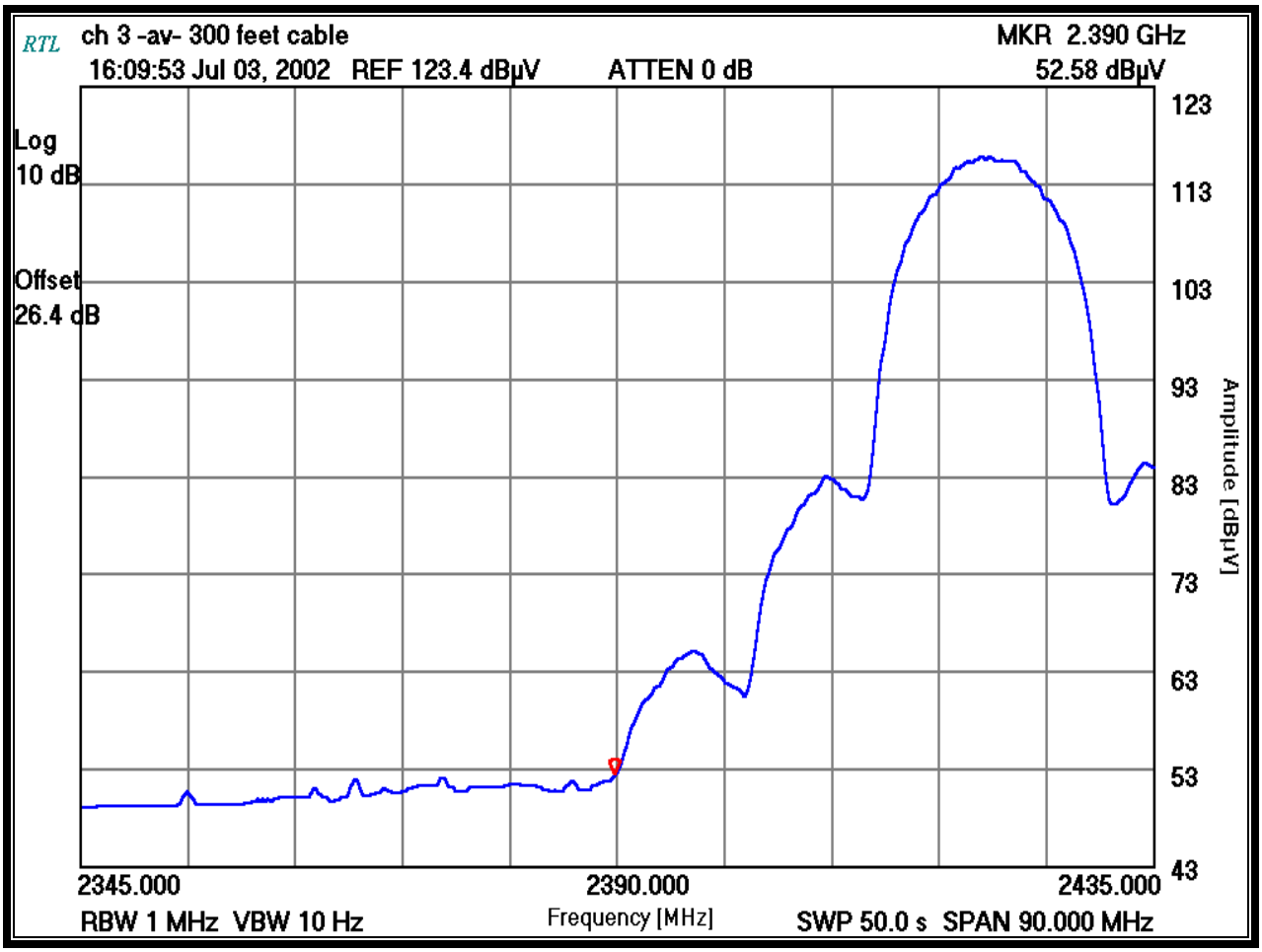
Channel Set to	Frequency tested MHz	Detector	Field Strength Level (dBµV/m)	Level Corrected (dBµV/m)	FCC Limit (dBµV/m)	FCC Margin (dB)
3	2390.0	Absolute measurement	26.1	52.5	54.0	-1.5
9	2483.5	Absolute measurement	27.4	53.8	54.0	-0.2

TABLE 3-6: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA - ANT-RFLCTR-18

Channel Set to	Frequency tested MHz	Detector	Field Strength Level (dBµV/m)	Level Corrected (dBµV/m)	FCC Limit (dBµV/m)	FCC Margin (dB)
3	2390.0	Absolute measurement	23.9	50.3	54.0	-3.7
9	2483.5	Absolute measurement	24.0	50.4	54.0	-3.6

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (MHz):	1
Video Bandwidth (Hz):	10
Sweep Time(s):	50.0

PLOT 3-17: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 3 (ANT-RFLCTR-24)

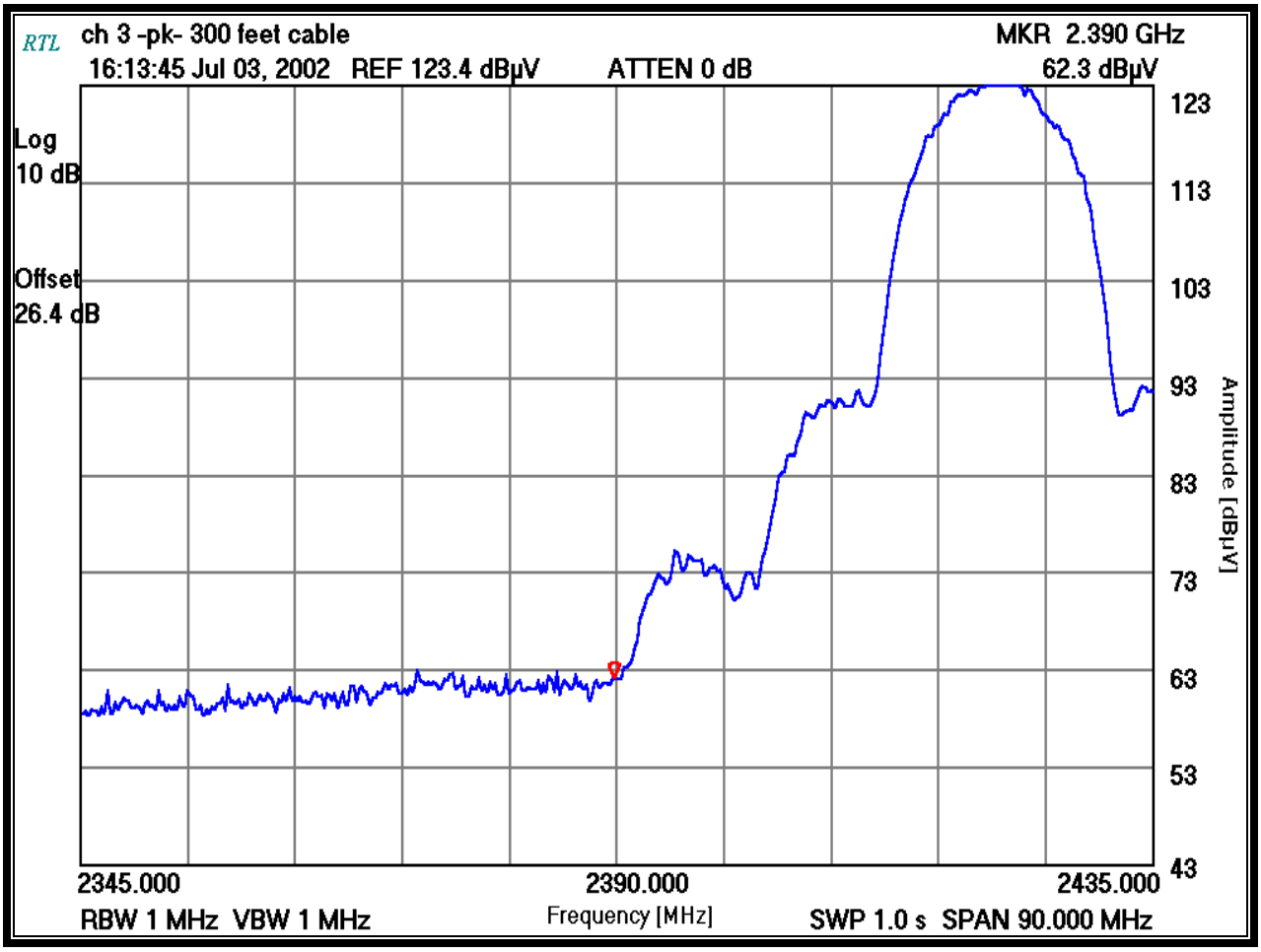


TEST PERSONNEL:

Franck Schuppius		07/03/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (MHz):	1
Video Bandwidth (MHz):	1
Sweep Time(s):	1.0

PLOT 3-18: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 3 (ANT-RFLCTR-24)

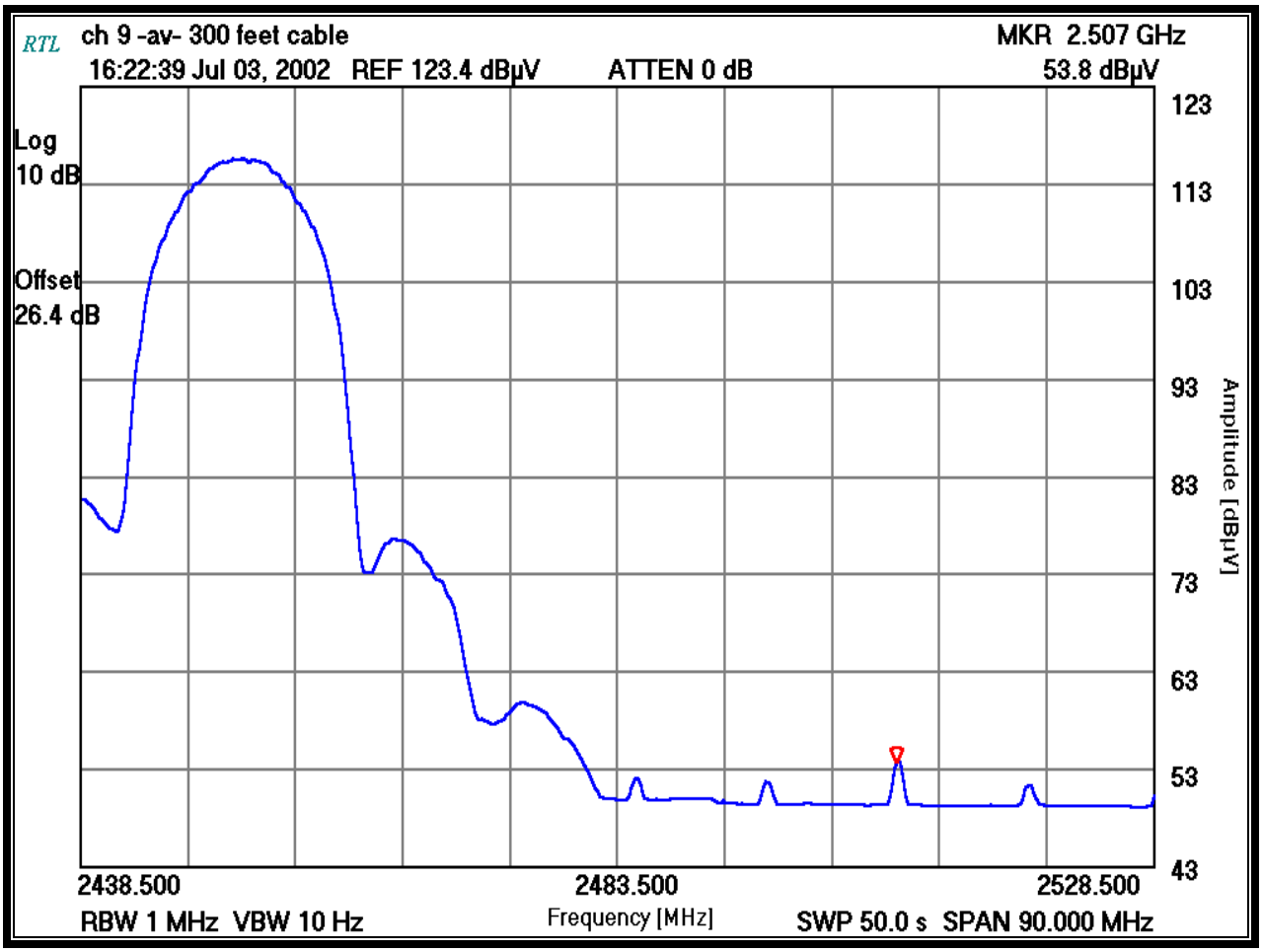


TEST PERSONNEL:

Franck Schuppius		07/03/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (MHz):	1
Video Bandwidth (Hz):	10
Sweep Time(s):	50.0

PLOT 3-19: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 9 (ANT-RFLCTR-24)

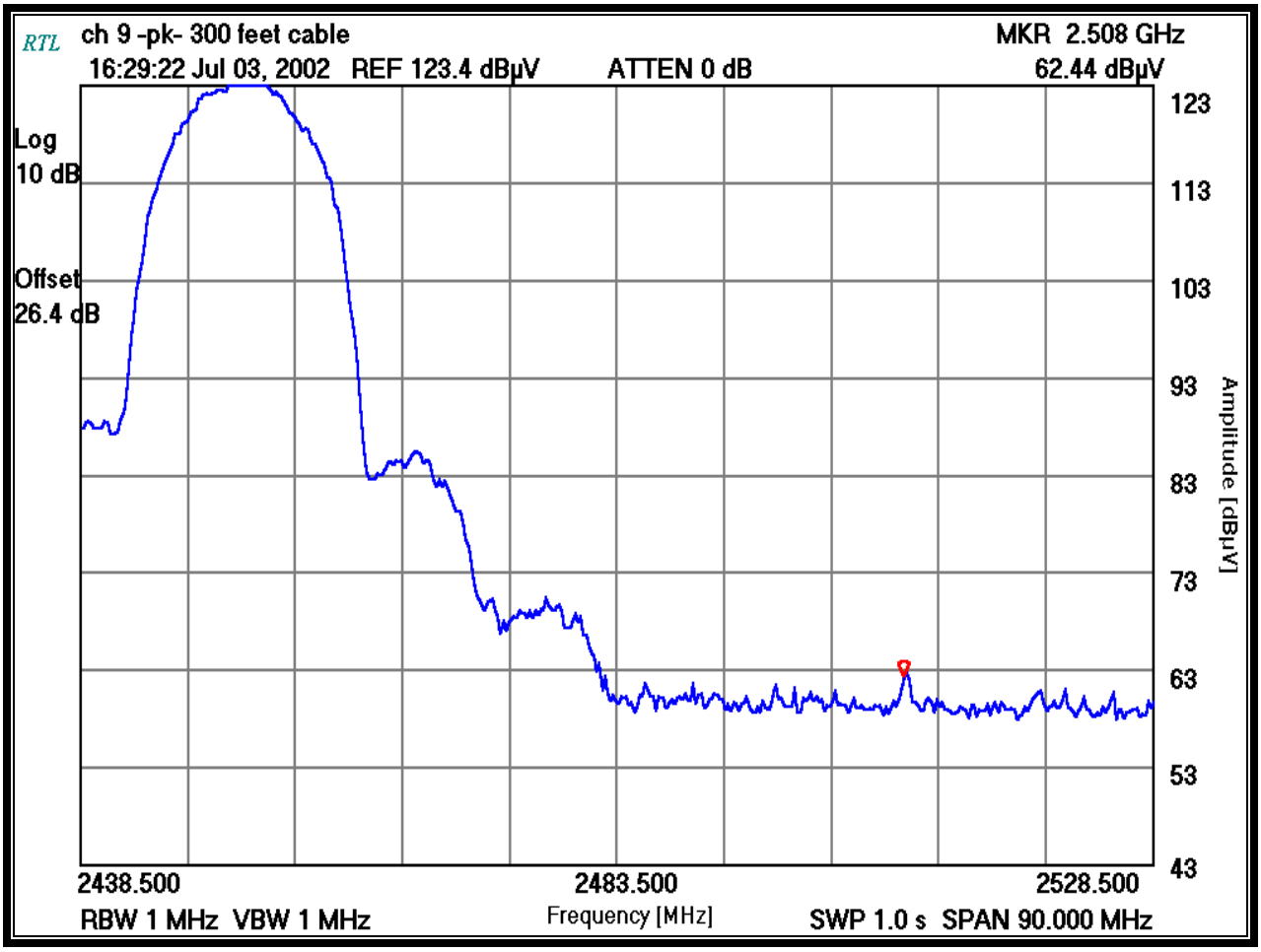


TEST PERSONNEL:

Franck Schuppius		07/03/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (MHz):	1
Video Bandwidth (MHz):	1
Sweep Time(s):	1.0

PLOT 3-20: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 9 (ANT-RFLCTR-24)

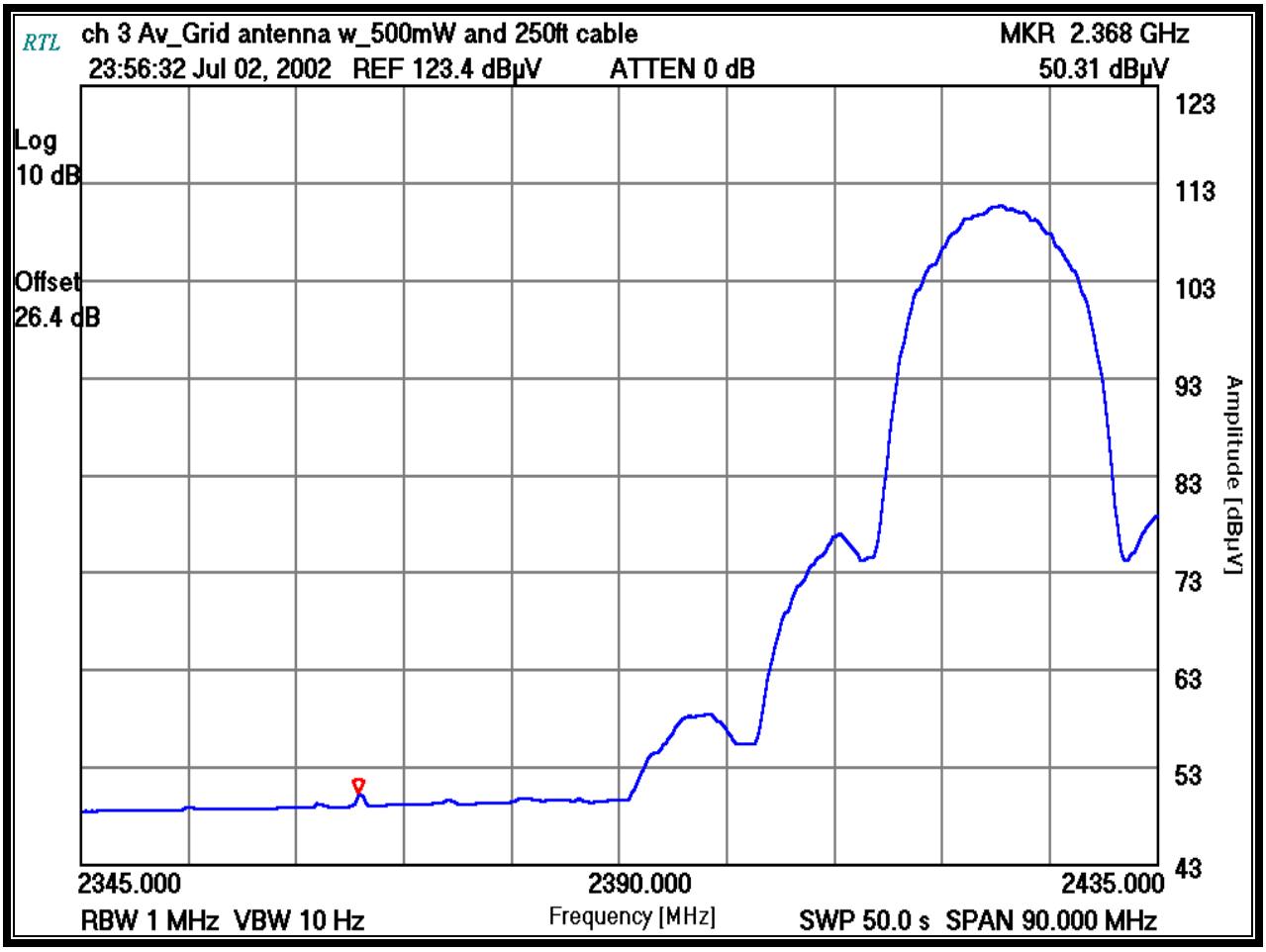


TEST PERSONNEL:

Franck Schuppius		07/03/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (MHz):	1
Video Bandwidth (Hz):	10
Sweep Time(s):	50.0

PLOT 3-21: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 3 (ANT-RFLCTR-18)

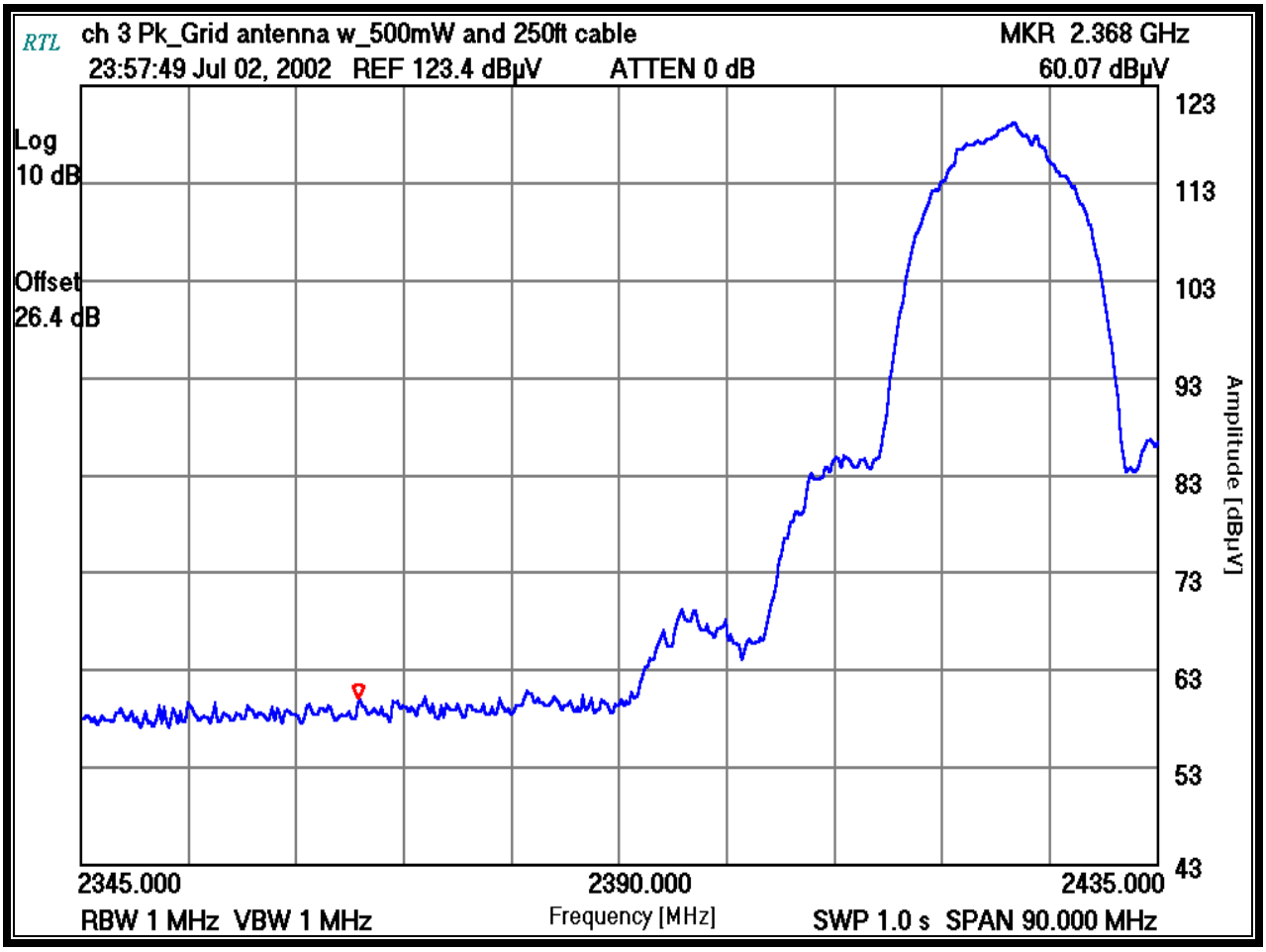


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (MHz):	1
Video Bandwidth (MHz):	1
Sweep Time(s):	1.0

PLOT 3-22: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 3 (ANT-RFLCTR-18)

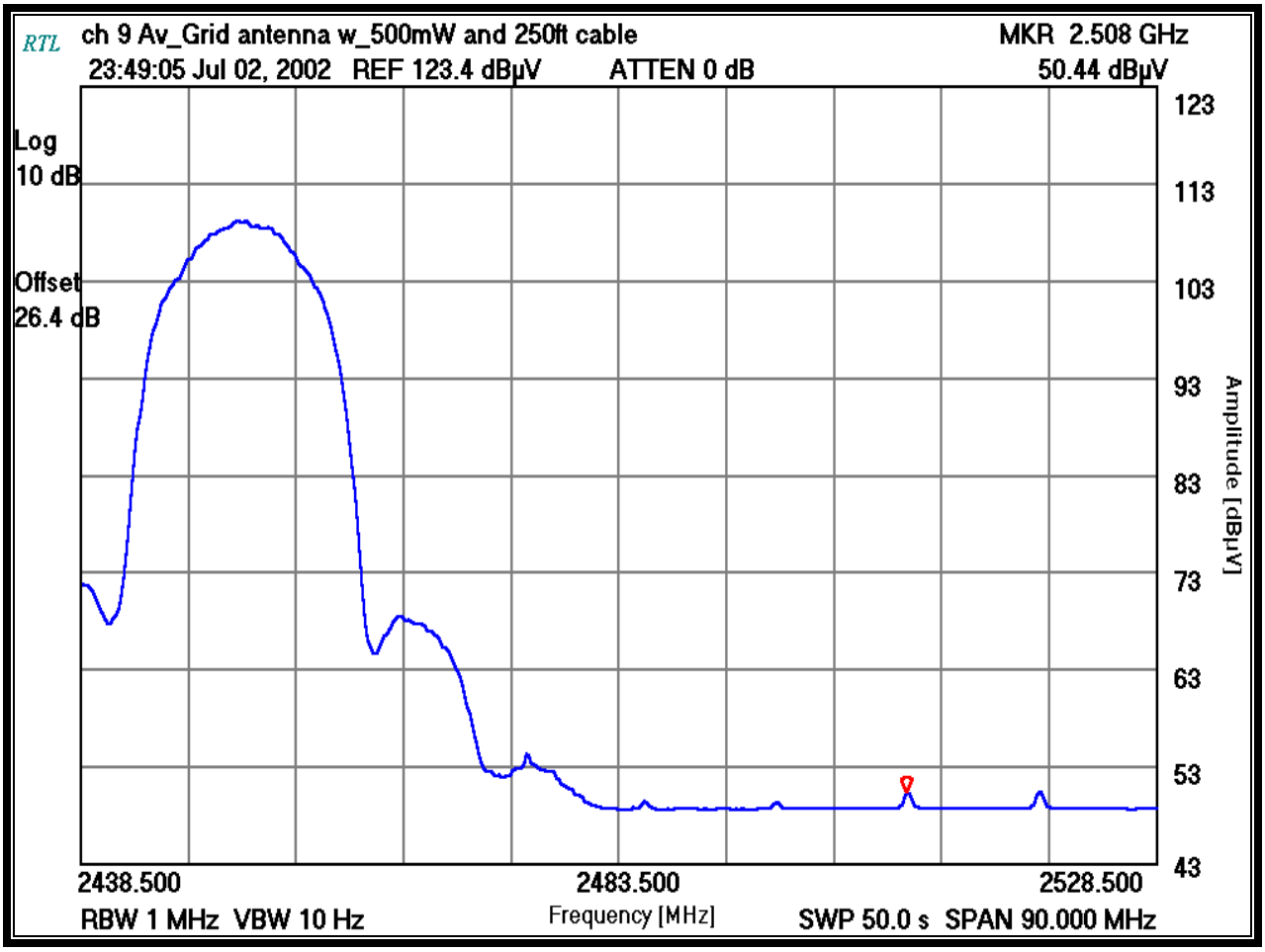


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (MHz):	1
Video Bandwidth (Hz):	10
Sweep Time(s):	50.0

PLOT 3-23: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 9 (ANT-RFLCTR-18)

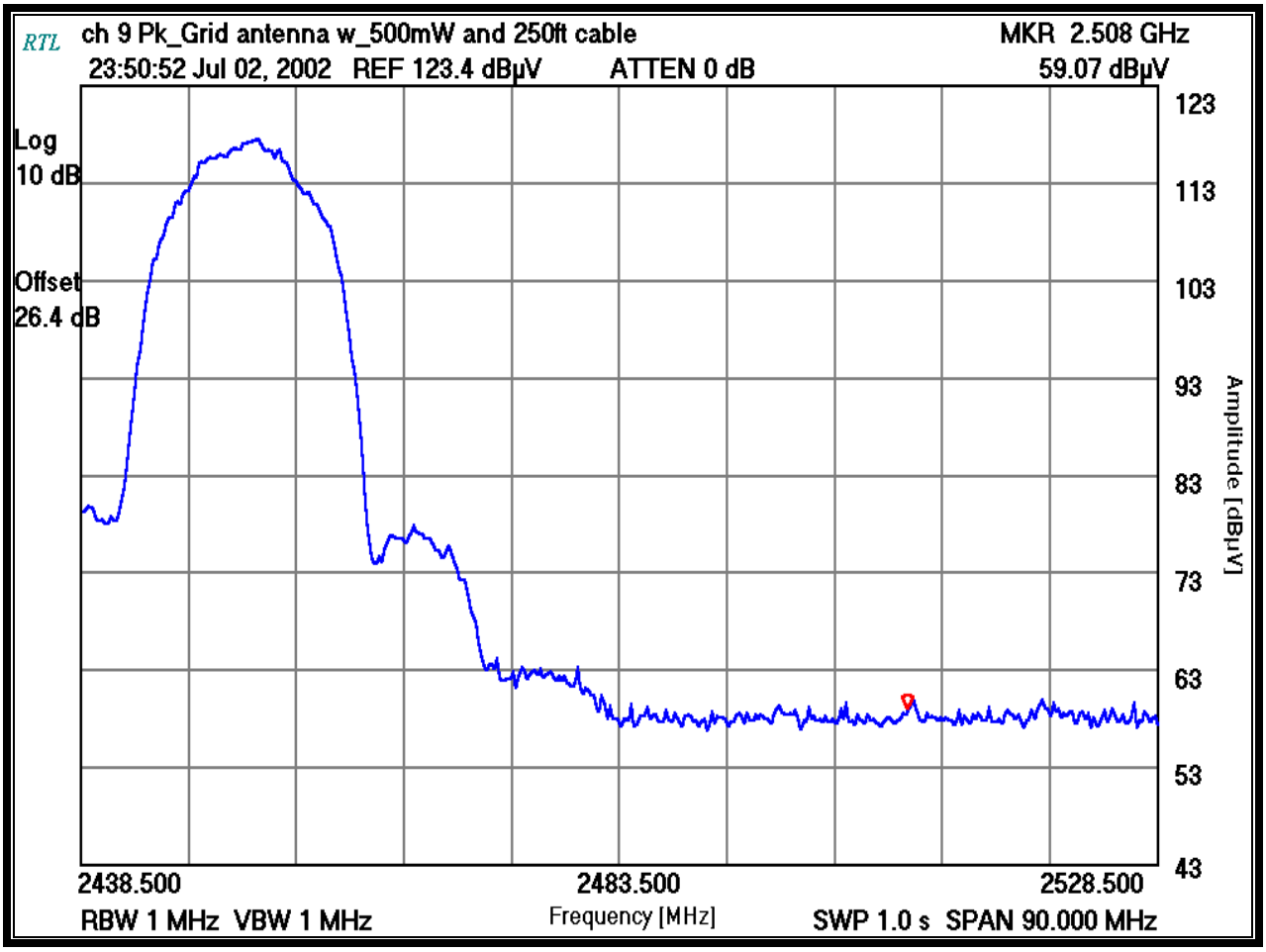


TEST PERSONNEL:

Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (MHz):	1
Video Bandwidth (MHz):	1
Sweep Time(s):	1.0

PLOT 3-24: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 9 (ANT-RFLCTR-18)



TEST PERSONNEL:

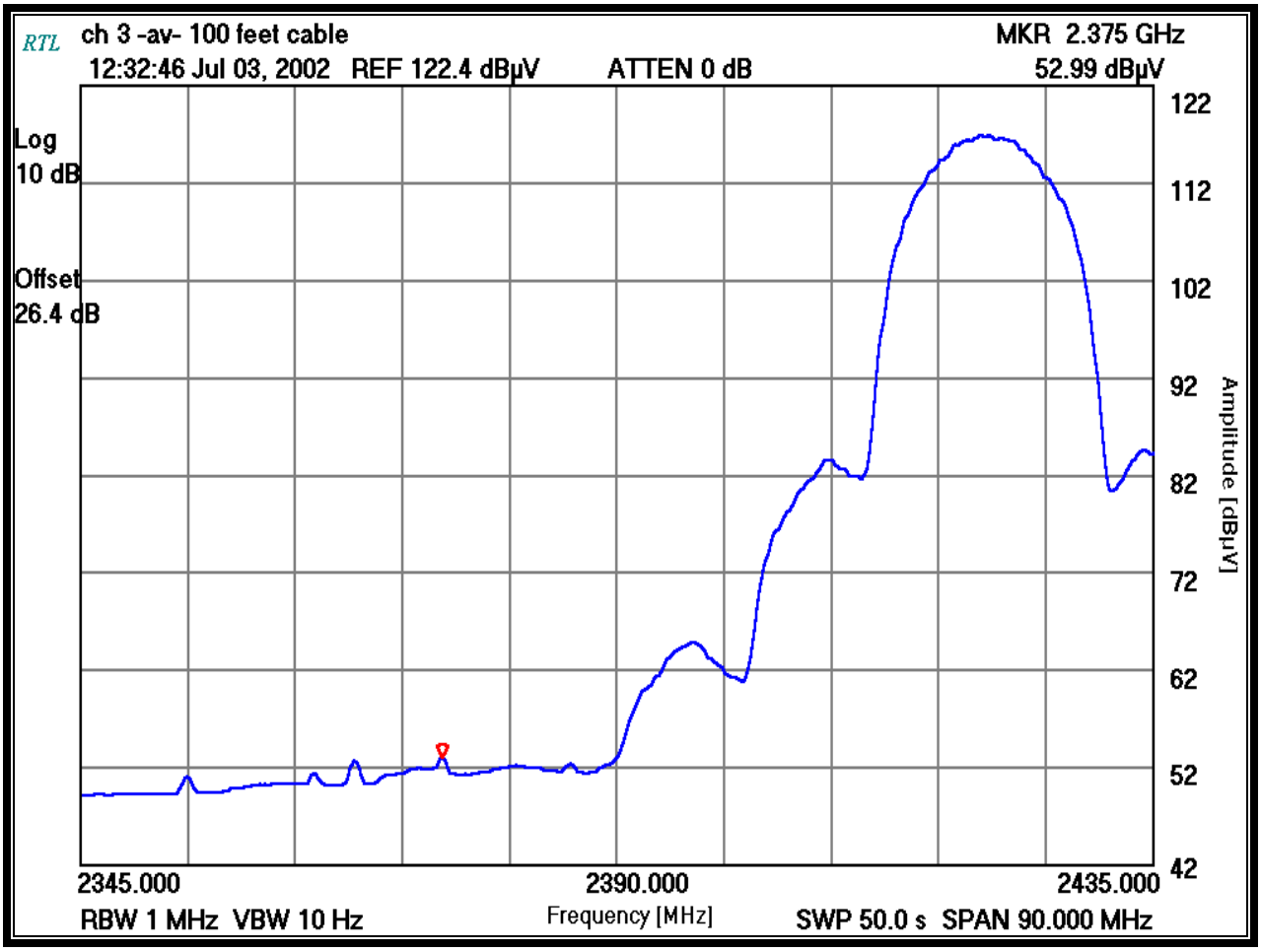
Franck Schuppius		07/02/02
Test Technician/Engineer	Signature	Date Of Test

TABLE 3-7: COMPLIANCE WITH THE RESTRICTED BAND EDGE TEST DATA - ANT-D2421

Channel Set to	Frequency tested MHz	Detector	Field Strength Level (dBµV/m)	Level Corrected (dBµV/m)	FCC Limit (dBµV/m)	FCC Margin (dB)
3	2390.0	Absolute measurement	26.5	52.9	54.0	-1.1
9	2483.5	Absolute measurement	25.6	52.0	54.0	-2.0

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (MHz):	1
Video Bandwidth (Hz):	10
Sweep Time(s):	50.0

PLOT 3-25: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 3 (ANT-D2421)

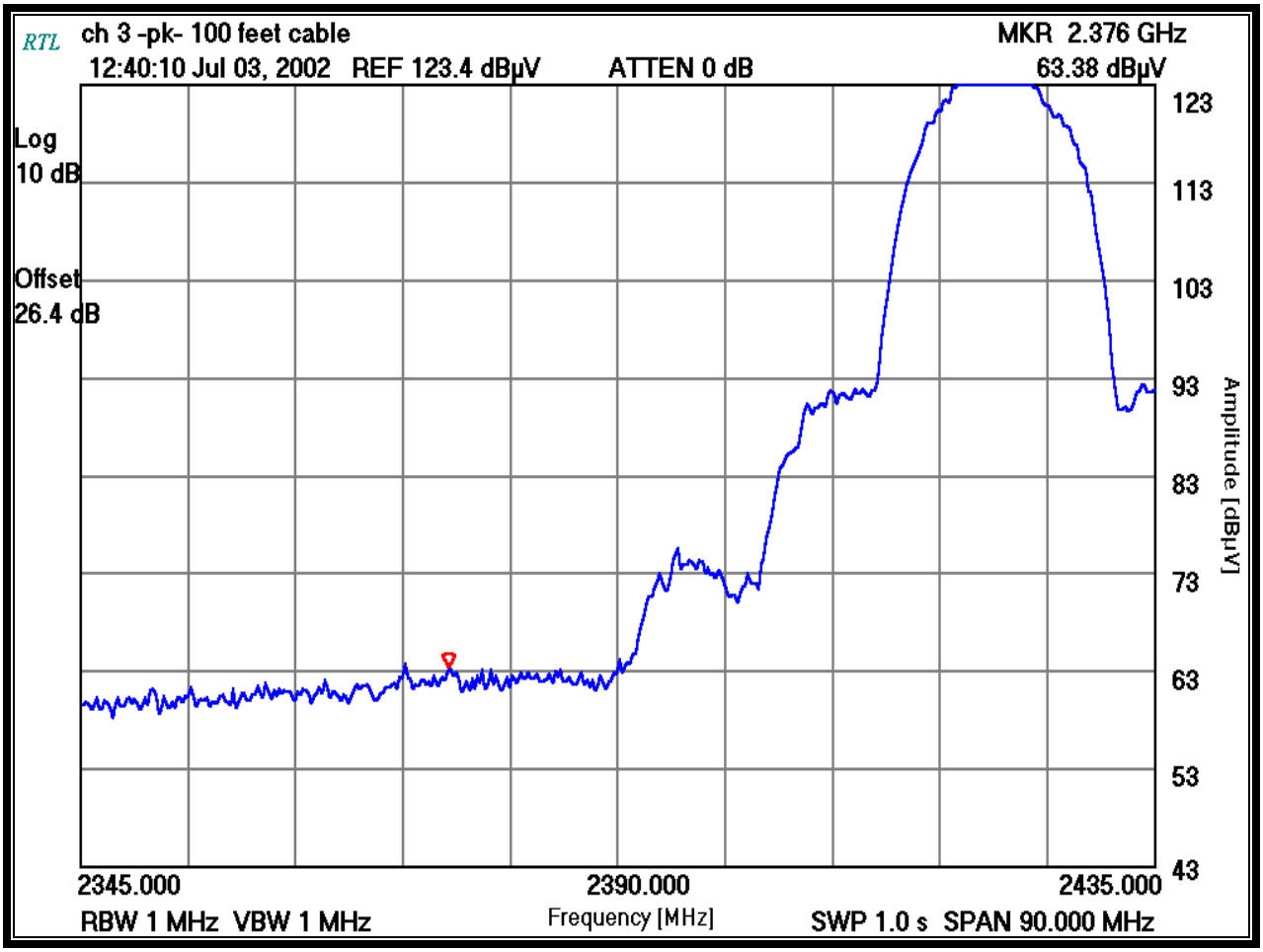


TEST PERSONNEL:

Franck Schuppius		07/03/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (MHz):	1
Video Bandwidth (MHz):	1
Sweep Time(s):	1.0

PLOT 3-26: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 3 (ANT-D2421)

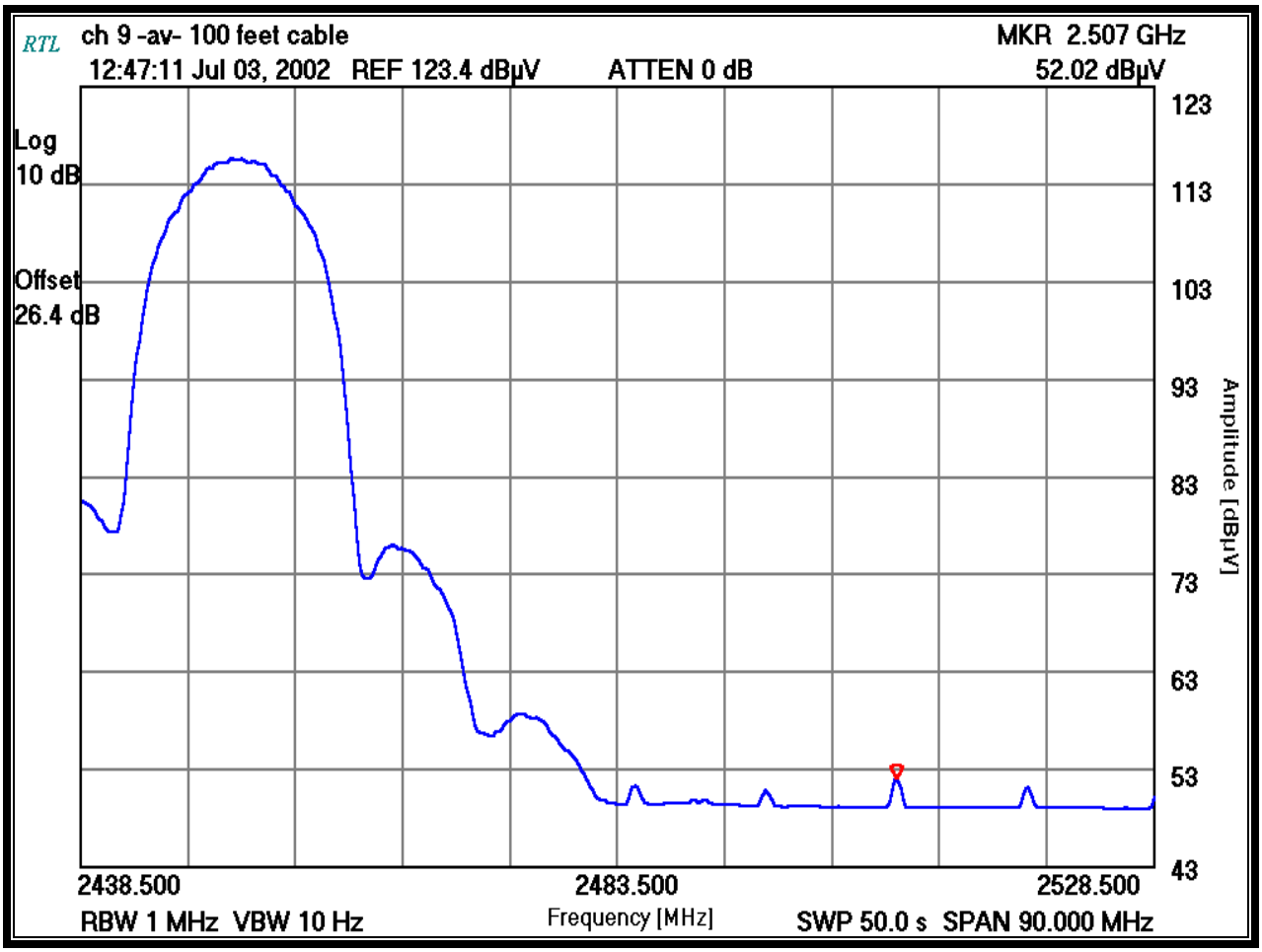


TEST PERSONNEL:

Franck Schuppius		07/03/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (MHz):	1
Video Bandwidth (Hz):	10
Sweep Time(s):	50.0

PLOT 3-27: BAND EDGE: AVERAGE MEASUREMENT FOR CHANNEL 9 (ANT-D2421)

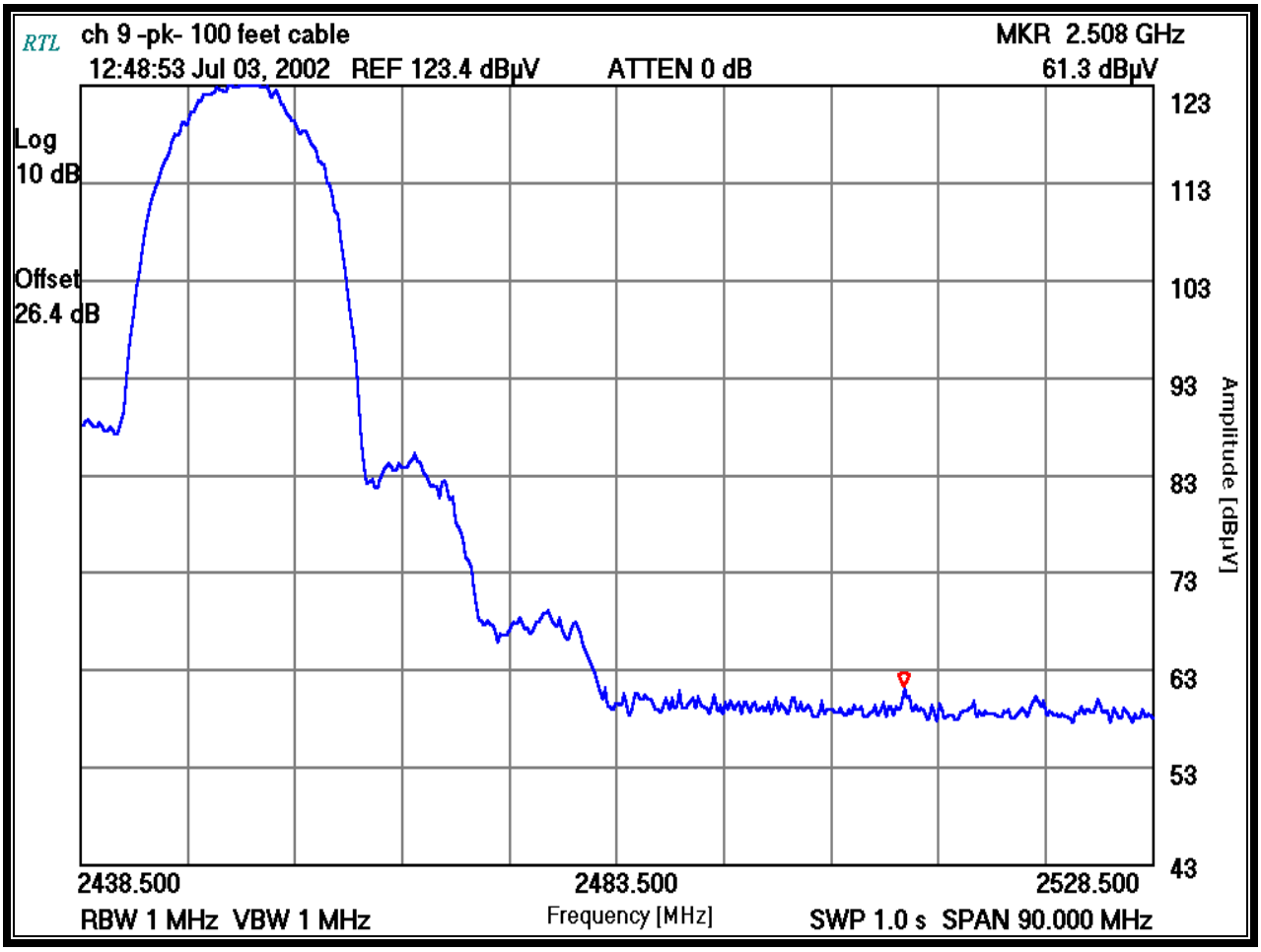


TEST PERSONNEL:

Franck Schuppius		07/03/02
Test Technician/Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (MHz):	1
Video Bandwidth (MHz):	1
Sweep Time(s):	1.0

PLOT 3-28: BAND EDGE: PEAK MEASUREMENT FOR CHANNEL 9 (ANT-D2421)



TEST PERSONNEL:

Franck Schuppius		07/03/02
Test Technician/Engineer	Signature	Date Of Test

4 CONDUCTED LIMITS - §15.207

4.1 TEST METHODOLOGY FOR CONDUCTED EMISSIONS MEASUREMENTS

The power line conducted emission measurements were performed in a Series 81 type shielded enclosure manufactured by Rayproof. The EUT was assembled on a wooden table 80 centimeters high. Power was fed to the EUT through a 50 ohm / 50 microhenry Line Impedance Stabilization Network (EUT LISN). The EUT LISN was fed power through an A.C. filter box on the outside of the shielded enclosure. The filter box and EUT LISN housing are bonded to the ground plane of the shielded enclosure. A second LISN, the peripheral LISN, provides isolation for the EUT test peripherals. This peripheral LISN was also fed A.C. power. A metal power outlet box, which is bonded to the ground plane and electrically connected to the peripheral LISN, powers the EUT host peripherals.

The spectrum analyzer was connected to the A.C. line through an isolation transformer. The 50-ohm output of the EUT LISN was connected to the spectrum analyzer input through a Solar 400 kHz high-pass filter. The filter is used to prevent overload of the spectrum analyzer from noise below 400 kHz. Conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable). The analyzer's 6 dB bandwidth was set to 9 kHz. No video filter less than 10 times the resolution bandwidth was used. Average measurements are performed in linear mode using a 10 kHz resolution bandwidth, a 1 Hz video bandwidth, and by increasing the sweep time in order to obtain a calibrated measurement. The emission spectrum was scanned from (150/450) kHz to 30 MHz. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in this report.

Note: Rhein Tech Laboratories, Inc. has implemented procedures to minimize errors that occur from test instruments, calibration, procedures, and test setups. Test instrument and calibration errors are documented from the manufacturer or calibration lab. Other errors have been defined and calculated within the Rhein Tech quality manual, section 6.1. Rhein Tech implements the following procedures to minimize errors that may occur: yearly as well as daily calibration methods, technician training, and emphasis to employees on avoiding error.

4.2 CONDUCTED EMISSION TEST

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. If the conducted emissions exceed the limit with the instrument set to the quasi-peak mode, then measurements are made in the average mode. If the quasi-peak measurement is at least 6dB higher than the amplitude in the average mode, the level measured in the quasi-peak mode may be reduced by 13dB before comparing it to the limit.

The conducted test was performed with the EUT exercise program loaded, and the emissions were scanned between 450 kHz to 30 MHz on the NEUTRAL SIDE and PHASE SIDE. The EUT is composed of the Access Point and the DC Injector, each part has been tested and investigated, and only the worst case for the DC Injector will be listed in the Tables 4-2 and 4-3 below. The EUT was investigated and tested in channels namely 3, 6, and 9; the worst case conducted data for both transmitting and receiving is for channel 6, and is provided in this report

TABLE 4-1: CONDUCTED SPURIOUS EMISSIONS TEST EQUIPMENT

RTL Asset #	Manufacturer	Model	Part Type	Serial Number
900931	HP	8566B	Spectrum Analyzer (100 Hz - 22 GHz)	3138A07771
900070	Solar		LISN	

TABLE 4-2: CONDUCTED EMISSIONS (NEUTRAL SIDE) TRANSMITTING CH 6

Temperature: 72°F Humidity: 45%								
Emission Frequency (MHz)	**Test Detector**	**Analyzer Reading (dBuV)**	**Site Correction Factor (dB)**	**Emission Level (dBuV)**	**FCC B QP Limit (dBuV)**	**FCC B QP Margin (dBuV)**	**FCC B AV Limit (dBuV)**	**FCC B AV Margin (dBuV)**
0.508	Pk	45.7	0.1	45.8	48.0	-2.2	48.0	-2.2
0.684	Pk	40.4	0.1	40.5	48.0	-7.5	48.0	-7.5
1.204	Pk	37.8	0.1	37.9	48.0	-10.1	48.0	-10.1
12.250	Pk	33.5	0.5	34.0	48.0	-14.0	48.0	-14.0
14.480	Pk	31.8	0.5	32.3	48.0	-15.7	48.0	-15.7
21.500	Pk	41.7	0.7	42.4	48.0	-5.6	48.0	-5.6

TABLE 4-3: CONDUCTED EMISSIONS (PHASE SIDE) TRANSMITTING CH 6

Temperature: 72°F Humidity: 40%								
Emission Frequency (MHz)	**Test Detector**	**Analyzer Reading (dBuV)**	**Site Correction Factor (dB)**	**Emission Level (dBuV)**	**FCC B QP Limit (dBuV)**	**FCC B QP Margin (dBuV)**	**FCC B AV Limit (dBuV)**	**FCC B AV Margin (dBuV)**
0.512	Pk	44.1	0.1	44.2	48.0	-3.8	48.0	-3.8
0.680	Pk	36.3	0.1	36.4	48.0	-11.6	48.0	-11.6
1.204	Pk	37.0	0.1	37.1	48.0	-10.9	48.0	-10.9
12.480	Pk	32.9	0.5	33.4	48.0	-14.6	48.0	-14.6
14.600	Pk	33.0	0.5	33.5	48.0	-14.5	48.0	-14.5
21.080	Pk	40.3	0.7	41.0	48.0	-7.0	48.0	-7.0

TEST PERSONNEL:

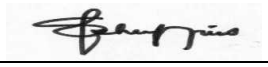
Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

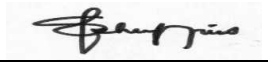
TABLE 4-4: CONDUCTED EMISSIONS (PHASE SIDE) RECEIVING CH 6

Temperature: 70°F Humidity: 45%								
Emission Frequency (MHz)	**Test Detector**	**Analyzer Reading (dBuV)**	**Site Correction Factor (dB)**	**Emission Level (dBuV)**	**FCC B QP Limit (dBuV)**	**FCC B QP Margin (dBuV)**	**FCC B AV Limit (dBuV)**	**FCC B AV Margin (dBuV)**
0.508	Pk	45.1	0.1	45.2	48.0	-2.8	48.0	-2.8
0.684	Pk	38.9	0.1	39.0	48.0	-9.0	48.0	-9.0
1.204	Pk	37.8	0.1	37.9	48.0	-10.1	48.0	-10.1
12.350	Pk	33.6	0.5	34.1	48.0	-13.9	48.0	-13.9
14.580	Pk	33.5	0.5	34.0	48.0	-14.0	48.0	-14.0
20.630	Pk	39.4	0.7	40.1	48.0	-7.9	48.0	-7.9

TABLE 4-5: CONDUCTED EMISSIONS (NEUTRAL SIDE) RECEIVING CH 6

Temperature: 70°F Humidity: 45%								
Emission Frequency (MHz)	**Test Detector**	**Analyzer Reading (dBuV)**	**Site Correction Factor (dB)**	**Emission Level (dBuV)**	**FCC B QP Limit (dBuV)**	**FCC B QP Margin (dBuV)**	**FCC B AV Limit (dBuV)**	**FCC B AV Margin (dBuV)**
0.507	Pk	44.4	0.1	44.5	48.0	-3.5	48.0	-3.5
0.682	Pk	36.8	0.1	36.9	48.0	-11.1	48.0	-11.1
1.204	Pk	36.9	0.1	37.0	48.0	-11.0	48.0	-11.0
12.300	Pk	36.0	0.5	36.5	48.0	-11.5	48.0	-11.5
14.550	Pk	32.4	0.5	32.9	48.0	-15.1	48.0	-15.1
21.130	Pk	41.1	0.7	41.8	48.0	-6.2	48.0	-6.2

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

5 RADIATED EMISSION LIMITS RECEIVER/DIGITAL INTERFACE - §15.209

5.1 RADIATED EMISSION LIMITS TEST PROCEDURE

Radiated Spurious Emissions applies to harmonics and spurious emissions that fall in the restricted and non-restricted bands. The restricted bands are listed in Part 15.205. The maximum permitted average field strength for the restricted band is listed in Part 15.209. The IF, LO and up to the 2nd LO were investigated and tested. Channels 3, 6, and 9 were tested and investigated in the transmitting and receiving mode were tested and investigated between 10kHz and 1GHz. The worst -case channel 6 in both modes and both setup is presented in the table below.

5.2 RADIATED EMISSION LIMITS TEST DATA RECEIVER/DIGITAL MODE CH6

TABLE 5-1: RADIATED EMISSION LIMITS RECEIVER/DIGITAL MODE CH 6

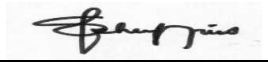
Temperature: 48°F Humidity: 80%									
Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
47.435	Qp	H	180	1.0	29.2	-15.0	14.2	40.0	-25.8
132.006	Qp	H	180	3.0	36.8	-10.5	26.3	43.5	-17.2
189.618	Qp	H	275	2.0	32.7	-12.1	20.6	43.5	-22.9
215.210	Qp	H	275	2.0	26.0	-11.0	15.0	43.5	-28.5
220.214	Qp	H	315	1.0	26.9	-10.9	16.0	46.0	-30.0
250.377	Qp	H	180	2.0	33.7	-7.9	25.8	46.0	-20.2

5.3 RADIATED EMISSION LIMITS TEST DATA TX/DIGITAL MODE CH6

TABLE 5-2: RADIATED EMISSION LIMITS TX/DIGITAL MODE CH 6

Temperature: 48°F Humidity: 80%									
Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
72.839	Qp	V	215	2.0	32.4	-18.1	14.3	40.0	-25.7
156.095	Qp	H	275	1.0	31.8	-11.5	20.3	43.5	-23.2
220.112	Qp	V	315	1.0	38.4	-11.0	27.4	46.0	-18.6
255.618	Qp	H	215	1.0	34.5	-7.5	27.0	46.0	-19.0
301.712	Qp	H	215	1.0	28.3	-6.3	22.0	46.0	-24.0
402.281	Qp	V	180	1.0	31.0	-2.9	28.1	46.0	-17.9

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

6 RADIATED EMISSION LIMITS RADIATED HARMONICS - §15.247

6.1 RADIATED EMISSION LIMITS TEST PROCEDURE

Radiated Spurious Emissions applies to harmonics and spurious emissions that fall in the restricted and non-restricted bands. The restricted bands are listed in Part 15.205. The maximum permitted average field strength for the restricted band is listed in Part 15.209. The EUT was tested in the X-Y, X-Z and Y-Z orthogonal plane.

6.2 RADIATED EMISSION LIMITS TEST DATA

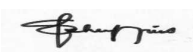
Operating Frequency (MHz): 2422
Channel: 3
Measured Cond. Pwr. (dBm): 27.0
Antenna: ANT-OMNI-8

TABLE 6-1: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 3) (ANT-OMNI-8)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2390.00	Av	V	10	1	24.3	26.4	50.7	54.0
2390.00	Pk	V	10	1	33.0	26.4	59.4	
2422.00	Av	V	10	1	86.7	26.4	113.1	Fundamental
2422.00	Pk	V	10	1	94.9	26.4	121.3	Fundamental
4844.00	Av	V	10	1	31.3	13.3	44.6	54.0
4844.00	Pk	V	10	1	41.3	13.3	54.6	
7266.00	Av	V	20	1	<20 dB			54.0
9688.00	Av	V	20	1	<20 dB			54.0
12110.00	Av	V	10	1	<20 dB			54.0
14532.00	Av	V	10	1	<20 dB			54.0
16954.00	Av	V	10	1	<20 dB			54.0
19376.00	Av	V	10	1	<20 dB			54.0
21798.00	Av	V	10	1	<20 dB			54.0
24220.00	Av	V	10	1	<20 dB			54.0

PEAK: RES. =1 MHZ, VID= 1MHZ; AVERAGE: RES. =1 MHZ, VID= 10HZ; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

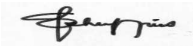
Operating Frequency (MHz): 2437
Channel: 6
Measured Cond. Pwr. (dBm): 26.7
Antenna: ANT-OMNI-8

TABLE 6-2: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) (ANT-OMNI-8)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2405.00	Av	V	20	1	26.1	26.4	52.5	54.0
2405.00	Pk	V	20	1	36.1	26.4	62.5	
2437.00	Av	V	20	1.2	88.2	26.4	114.6	Fundamental
2437.00	Pk	V	20	1.2	92.9	26.4	119.3	Fundamental
4874.00	Av	V	20	1	31.5	13.9	45.4	54.0
4874.00	Av	V	20	1	41.7	13.9	55.6	54.0
7311.00	Pk	V	20	1	<20 dB			54.0
9748.00	Av	V	10	1.2	<20 dB			54.0
12185.00	Av	V	10	1.2	<20 dB			54.0
14622.00	Av	V	10	1	<20 dB			54.0
17059.00	Av	V	10	1	<20 dB			54.0
19496.00	Av	V	10	1	<20 dB			54.0
21933.00	Av	V	10	1	<20 dB			54.0
24370.00	Av	V	10	1	<20 dB			54.0

AVERAGE: RES. =1 MHZ, VID= 10HZ; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

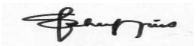
Operating Frequency (MHz): 2452
Channel: 9
Measured Cond. Pwr. (dBm): 26.4
Antenna: ANT-OMNI-8

TABLE 6-3: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 9) (ANT-OMNI-8)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2452.00	Av	V	20	1.3	86.2	26.4	112.6	Fundamental
2452.00	Pk	V	20	1.3	92.0	26.4	118.4	Fundamental
2486.00	Av	V	20	1.2	22.7	26.4	49.1	54.0
2486.00	Pk	V	20	1.2	33.0	26.4	59.4	
4904.00	Av	V	20	1.2	30.8	13.8	44.6	54.0
4904.00	Pk	V	20	1.2	40.0	13.8	53.8	
7356.00	Av	V	20	1.2	<20 dB			54.0
9808.00	Av	V	10	1.2	<20 dB			54.0
12260.00	Av	V	10	1	<20 dB			54.0
14712.00	Av	V	10	1	<20 dB			54.0
17164.00	Av	V	10	1.2	<20 dB			54.0
19616.00	Av	V	10	1	<20 dB			54.0
22068.00	Av	V	10	1	<20 dB			54.0
24520.00	Av	V	10	1	<20 dB			54.0

AVERAGE: RES. =1 MHZ, VID= 10HZ; NF = NOISE FLOOR; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

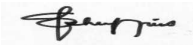
Operating Frequency (MHz): 2422
Channel: 3
Measured Cond. Pwr. (dBm): 27.0
Antenna: ANT-OMNI-12

TABLE 6-4: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 3) (ANT-OMNI-12)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2386.00	Av	V	10	1	23.7	26.4	50.1	54.0
2386.00	Pk	V	10	1	33.7	26.4	60.1	
2422.00	Av	V	10	1	86.2	26.4	112.6	Fundamental
2422.00	Pk	V	10	1	95.9	26.4	122.3	Fundamental
4844.00	Av	V	10	1	31.2	13.3	44.5	54.0
4844.00	Pk	V	10	1	41.3	13.3	54.6	
7266.00	Av	V	20	1	<20 dB			54.0
9688.00	Av	V	20	1	<20 dB			54.0
12110.00	Av	V	10	1	<20 dB			54.0
14532.00	Av	V	10	1	<20 dB			54.0
16954.00	Av	V	10	1	<20 dB			54.0
19376.00	Av	V	10	1	<20 dB			54.0
21798.00	Av	V	10	1	<20 dB			54.0
24220.00	Av	V	10	1	<20 dB			54.0

PEAK: RES. =1 MHZ, VID= 1MHZ; AVERAGE: RES. =1 MHZ, VID= 10HZ; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

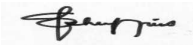
Operating Frequency (MHz): 2437
Channel: 6
Measured Cond. Pwr. (dBm): 26.7
Antenna: ANT-OMNI-12

TABLE 6-5: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) (ANT-OMNI-12)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2406.00	Av	V	20	1	24.8	26.4	51.2	54.0
2406.00	Pk	V	20	1	34.3	26.4	60.7	
2437.00	Av	V	20	1.2	86.5	26.4	112.9	Fundamental
2437.00	Pk	V	20	1.2	91.9	26.4	118.3	Fundamental
4874.00	Av	V	20	1	30.2	13.9	44.1	54.0
4874.00	Av	V	20	1	41.5	13.9	55.4	54.0
7311.00	Pk	V	20	1	<20 dB			54.0
9748.00	Av	V	10	1.2	<20 dB			54.0
12185.00	Av	V	10	1.2	<20 dB			54.0
14622.00	Av	V	10	1	<20 dB			54.0
17059.00	Av	V	10	1	<20 dB			54.0
19496.00	Av	V	10	1	<20 dB			54.0
21933.00	Av	V	10	1	<20 dB			54.0
24370.00	Av	V	10	1	<20 dB			54.0

AVERAGE: RES. =1 MHZ, VID= 10HZ; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

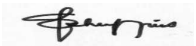
Operating Frequency (MHz): 2452
Channel: 9
Measured Cond. Pwr. (dBm): 26.4
Antenna: ANT-OMNI-12

TABLE 6-6: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 9) (ANT-OMNI-12)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2452.00	Av	V	20	1.3	86.2	26.4	112.6	Fundamental
2452.00	Pk	V	20	1.3	92.0	26.4	118.4	Fundamental
2486.00	Av	V	20	1.2	22.7	26.4	49.1	54.0
2486.00	Pk	V	20	1.2	33.0	26.4	59.4	
4904.00	Av	V	20	1.2	30.8	13.8	44.6	54.0
4904.00	Pk	V	20	1.2	40.0	13.8	53.8	
7356.00	Av	V	20	1.2	<20 dB			54.0
9808.00	Av	V	10	1.2	<20 dB			54.0
12260.00	Av	V	10	1	<20 dB			54.0
14712.00	Av	V	10	1	<20 dB			54.0
17164.00	Av	V	10	1.2	<20 dB			54.0
19616.00	Av	V	10	1	<20 dB			54.0
22068.00	Av	V	10	1	<20 dB			54.0
24520.00	Av	V	10	1	<20 dB			54.0

AVERAGE: RES. =1 MHZ, VID= 10HZ; NF = NOISE FLOOR; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

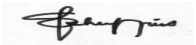
Operating Frequency (MHz): 2422
Channel: 3
Measured Cond. Pwr. (dBm): 27.0
Antenna: ANT-PATCH-12

TABLE 6-7: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 3) (ANT-PATCH-12)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2390.00	Av	V	10	1	24.3	26.4	50.7	54.0
2390.00	Pk	V	10	1	33.0	26.4	59.4	
2422.00	Av	V	10	1	86.7	26.4	113.1	Fundamental
2422.00	Pk	V	10	1	94.9	26.4	121.3	Fundamental
4844.00	Av	V	10	1	31.3	13.3	44.6	54.0
4844.00	Pk	V	10	1	41.3	13.3	54.6	
7266.00	Av	V	20	1	<20 dB			54.0
9688.00	Av	V	20	1	<20 dB			54.0
12110.00	Av	V	10	1	<20 dB			54.0
14532.00	Av	V	10	1	<20 dB			54.0
16954.00	Av	V	10	1	<20 dB			54.0
19376.00	Av	V	10	1	<20 dB			54.0
21798.00	Av	V	10	1	<20 dB			54.0
24220.00	Av	V	10	1	<20 dB			54.0

PEAK: RES. =1 MHZ, VID= 1MHZ; AVERAGE: RES. =1 MHZ, VID= 10HZ; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

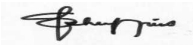
Operating Frequency (MHz): 2437
Channel: 6
Measured Cond. Pwr. (dBm): 26.7
Antenna: ANT-PATCH-12

TABLE 6-8: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) (ANT-PATCH-12)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2405.00	Av	V	20	1	26.1	26.4	52.5	54.0
2405.00	Pk	V	20	1	36.1	26.4	62.5	
2437.00	Av	V	20	1.2	88.2	26.4	114.6	Fundamental
2437.00	Pk	V	20	1.2	92.9	26.4	119.3	Fundamental
4874.00	Av	V	20	1	31.5	13.9	45.4	54.0
4874.00	Av	V	20	1	41.7	13.9	55.6	54.0
7311.00	Pk	V	20	1	<20 dB			54.0
9748.00	Av	V	10	1.2	<20 dB			54.0
12185.00	Av	V	10	1.2	<20 dB			54.0
14622.00	Av	V	10	1	<20 dB			54.0
17059.00	Av	V	10	1	<20 dB			54.0
19496.00	Av	V	10	1	<20 dB			54.0
21933.00	Av	V	10	1	<20 dB			54.0
24370.00	Av	V	10	1	<20 dB			54.0

AVERAGE: RES. =1 MHZ, VID= 10HZ; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

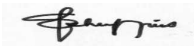
Operating Frequency (MHz): 2452
Channel: 9
Measured Cond. Pwr. (dBm): 26.4
Antenna: ANT-PATCH-12

TABLE 6-9: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 9) (ANT-PATCH-12)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2452.00	Av	V	20	1.3	86.2	26.4	112.6	Fundamental
2452.00	Pk	V	20	1.3	92.0	26.4	118.4	Fundamental
2486.00	Av	V	20	1.2	22.7	26.4	49.1	54.0
2486.00	Pk	V	20	1.2	33.0	26.4	59.4	
4904.00	Av	V	20	1.2	30.8	13.8	44.6	54.0
4904.00	Pk	V	20	1.2	40.0	13.8	53.8	
7356.00	Av	V	20	1.2	<20 dB			54.0
9808.00	Av	V	10	1.2	<20 dB			54.0
12260.00	Av	V	10	1	<20 dB			54.0
14712.00	Av	V	10	1	<20 dB			54.0
17164.00	Av	V	10	1.2	<20 dB			54.0
19616.00	Av	V	10	1	<20 dB			54.0
22068.00	Av	V	10	1	<20 dB			54.0
24520.00	Av	V	10	1	<20 dB			54.0

AVERAGE: RES. =1 MHZ, VID= 10HZ; NF = NOISE FLOOR; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

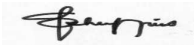
Operating Frequency (MHz): 2422
Channel: 3
Measured Cond. Pwr. (dBm): 27.0
Antenna: ANT-PATCH-19

TABLE 6-10: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 3) (ANT-PATCH-19)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2386.00	Av	V	10	1	25.0	26.4	51.4	54.0
2386.00	Pk	V	10	1	41.2	26.4	67.6	
2422.00	Av	V	10	1	88.6	26.4	115.0	Fundamental
2422.00	Pk	V	10	1	96.6	26.4	123.0	Fundamental
4844.00	Av	V	10	1	25.4	13.3	38.7	54.0
4844.00	Pk	V	10	1	41.6	13.3	54.9	
7266.00	Av	V	20	1	<20 dB			54.0
9688.00	Av	V	20	1	<20 dB			54.0
12110.00	Av	V	10	1	<20 dB			54.0
14532.00	Av	V	10	1	<20 dB			54.0
16954.00	Av	V	10	1	<20 dB			54.0
19376.00	Av	V	10	1	<20 dB			54.0
21798.00	Av	V	10	1	<20 dB			54.0
24220.00	Av	V	10	1	<20 dB			54.0

PEAK: RES. =1 MHZ, VID= 1MHZ; AVERAGE: RES. =1 MHZ, VID= 10HZ; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

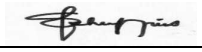
Operating Frequency (MHz): 2437
Channel: 6
Measured Cond. Pwr. (dBm): 26.7
Antenna: ANT-PATCH-19

TABLE 6-11: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) (ANT-PATCH-19)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2406.00	Av	V	20	1	22.1	26.4	48.5	54.0
2406.00	Pk	V	20	1	30.9	26.4	57.3	
2437.00	Av	V	20	1.2	88.9	26.4	115.3	Fundamental
2437.00	Pk	V	20	1.2	93.6	26.4	120.0	Fundamental
4874.00	Av	V	20	1	33.4	13.9	47.3	54.0
4874.00	Av	V	20	1	42.7	13.9	56.6	54.0
7311.00	Pk	V	20	1	<20 dB			54.0
9748.00	Av	V	10	1.2	<20 dB			54.0
12185.00	Av	V	10	1.2	<20 dB			54.0
14622.00	Av	V	10	1	<20 dB			54.0
17059.00	Av	V	10	1	<20 dB			54.0
19496.00	Av	V	10	1	<20 dB			54.0
21933.00	Av	V	10	1	<20 dB			54.0
24370.00	Av	V	10	1	<20 dB			54.0

AVERAGE: RES. =1 MHz, VID= 10Hz; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

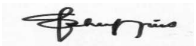
Operating Frequency (MHz): 2452
Channel: 9
Measured Cond. Pwr. (dBm): 26.4
Antenna: ANT-PATCH-19

TABLE 6-12: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 9) (ANT-PATCH-19)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2452.00	Av	V	20	1.3	86.6	26.4	113.0	Fundamental
2452.00	Pk	V	20	1.3	94.9	26.4	121.3	Fundamental
2508.00	Av	V	20	1.2	25.5	26.4	51.9	54.0
2516.00	Av	V	20	1.2	25.3	26.4	51.7	
4904.00	Av	V	20	1.2	26.5	13.8	40.3	54.0
4904.00	Pk	V	20	1.2	21.7	13.8	35.5	
7356.00	Av	V	20	1.2	<20 dB			54.0
9808.00	Av	V	10	1.2	<20 dB			54.0
12260.00	Av	V	10	1	<20 dB			54.0
14712.00	Av	V	10	1	<20 dB			54.0
17164.00	Av	V	10	1.2	<20 dB			54.0
19616.00	Av	V	10	1	<20 dB			54.0
22068.00	Av	V	10	1	<20 dB			54.0
24520.00	Av	V	10	1	<20 dB			54.0

AVERAGE: RES. =1 MHZ, VID= 10HZ; NF = NOISE FLOOR; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

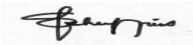
Operating Frequency (MHz): 2422
Channel: 3
Measured Cond. Pwr. (dBm): 27.0
Antenna: ANT-RFLCTR-24

TABLE 6-13: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 3) (ANT-RFLCTR-24)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2386.00	Av	V	10	1	25.3	26.4	51.7	54.0
2386.00	Pk	V	10	1	33.7	26.4	60.1	
2422.00	Av	V	10	1	89.0	26.4	115.4	Fundamental
2422.00	Pk	V	10	1	97.0	26.4	123.4	Fundamental
4844.00	Av	V	10	1	24.7	13.3	38.0	54.0
4844.00	Pk	V	10	1	33.5	13.3	46.8	
7266.00	Av	V	20	1	<20 dB			54.0
9688.00	Av	V	20	1	<20 dB			54.0
12110.00	Av	V	10	1	<20 dB			54.0
14532.00	Av	V	10	1	<20 dB			54.0
16954.00	Av	V	10	1	<20 dB			54.0
19376.00	Av	V	10	1	<20 dB			54.0
21798.00	Av	V	10	1	<20 dB			54.0
24220.00	Av	V	10	1	<20 dB			54.0

PEAK: RES. =1 MHZ, VID= 1MHZ; AVERAGE: RES. =1 MHZ, VID= 10HZ; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

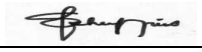
Operating Frequency (MHz): 2437
Channel: 6
Measured Cond. Pwr. (dBm): 26.7
Antenna: ANT-RFLCTR-24

TABLE 6-14: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) (ANT-RFLCTR-24)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2406.00	Av	V	20	1	24.0	26.4	50.4	54.0
2406.00	Pk	V	20	1	31.6	26.4	58.0	
2437.00	Av	V	20	1.2	88.1	26.4	114.5	Fundamental
2437.00	Pk	V	20	1.2	95.3	26.4	121.7	Fundamental
4874.00	Av	V	20	1	25.0	13.9	38.9	54.0
4874.00	Pk	V	20	1	35.7	13.9	49.6	54.0
7311.00	Pk	V	20	1	<20 dB			54.0
9748.00	Av	V	10	1.2	<20 dB			54.0
12185.00	Av	V	10	1.2	<20 dB			54.0
14622.00	Av	V	10	1	<20 dB			54.0
17059.00	Av	V	10	1	<20 dB			54.0
19496.00	Av	V	10	1	<20 dB			54.0
21933.00	Av	V	10	1	<20 dB			54.0
24370.00	Av	V	10	1	<20 dB			54.0

AVERAGE: RES. =1 MHZ, VID= 10HZ; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

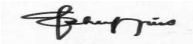
Operating Frequency (MHz): 2452
Channel: 9
Measured Cond. Pwr. (dBm): 26.4
Antenna: ANT-RFLCTR-24

TABLE 6-15: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 9) (ANT-RFLCTR-24)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2452.00	Av	V	20	1.3	86.8	26.4	113.2	Fundamental
2452.00	Pk	V	20	1.3	93.7	26.4	120.1	Fundamental
4904.00	Av	V	20	1.2	36.1	13.8	49.9	54.0
4904.00	Pk	V	20	1.2	25.8	13.8	39.6	
7356.00	Av	V	20	1.2	<20 dB			54.0
9808.00	Av	V	10	1.2	<20 dB			54.0
12260.00	Av	V	10	1	<20 dB			54.0
14712.00	Av	V	10	1	<20 dB			54.0
17164.00	Av	V	10	1.2	<20 dB			54.0
19616.00	Av	V	10	1	<20 dB			54.0
22068.00	Av	V	10	1	<20 dB			54.0
24520.00	Av	V	10	1	<20 dB			54.0

AVERAGE: RES. =1 MHZ, VID= 10HZ; NF = NOISE FLOOR; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

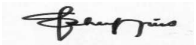
Operating Frequency (MHz): 2422
Channel: 3
Measured Cond. Pwr. (dBm): 27.0
Antenna: ANT-RFLCTR-18

TABLE 6-16: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 3) (ANT-RFLCTR-18)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2364.00	Av	V	10	1	23.1	26.4	49.5	54.0
2364.00	Pk	V	10	1	31.5	26.4	57.9	
2422.00	Av	V	10	1	84.0	26.4	110.4	Fundamental
2422.00	Pk	V	10	1	94.1	26.4	120.5	Fundamental
4844.00	Av	V	10	1	21.4	13.3	34.7	54.0
4844.00	Pk	V	10	1	32.4	13.3	45.7	
7266.00	Av	V	20	1	<20 dB			54.0
9688.00	Av	V	20	1	<20 dB			54.0
12110.00	Av	V	10	1	<20 dB			54.0
14532.00	Av	V	10	1	<20 dB			54.0
16954.00	Av	V	10	1	<20 dB			54.0
19376.00	Av	V	10	1	<20 dB			54.0
21798.00	Av	V	10	1	<20 dB			54.0
24220.00	Av	V	10	1	<20 dB			54.0

PEAK: RES. =1 MHZ, VID= 1MHZ; AVERAGE: RES. =1 MHZ, VID= 10HZ; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

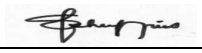
Operating Frequency (MHz): 2437
Channel: 6
Measured Cond. Pwr. (dBm): 26.7
Antenna: ANT-RFLCTR-18

TABLE 6-17: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) (ANT-RFLCTR-18)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2437.00	Av	V	20	1.2	72.3	26.4	98.7	Fundamental
2437.00	Pk	V	20	1.2	82.0	26.4	108.4	Fundamental
4874.00	Av	V	20	1	24.3	13.9	38.2	54.0
4874.00	Av	V	20	1	35.4	13.9	49.3	54.0
7311.00	Pk	V	20	1	<20 dB			54.0
9748.00	Av	V	10	1.2	<20 dB			54.0
12185.00	Av	V	10	1.2	<20 dB			54.0
14622.00	Av	V	10	1	<20 dB			54.0
17059.00	Av	V	10	1	<20 dB			54.0
19496.00	Av	V	10	1	<20 dB			54.0
21933.00	Av	V	10	1	<20 dB			54.0
24370.00	Av	V	10	1	<20 dB			54.0
2437.00	Av	V	20	1.2	72.3	26.4	98.7	Fundamental
2437.00	Pk	V	20	1.2	82.0	26.4	108.4	Fundamental

AVERAGE: RES. =1 MHZ, VID= 10HZ; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

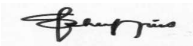
Operating Frequency (MHz): 2452
Channel: 9
Measured Cond. Pwr. (dBm): 26.4
Antenna: ANT-RFLCTR-18

TABLE 6-18: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 9) (ANT-RFLCTR-18)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2368.00	Av	V	20	1.3	24.3	26.4	50.7	54.0
2368.00	Pk	V	20	1.3	35.0	26.4	61.4	
2452.00	Av	V	20	1.3	83.9	26.4	110.3	Fundamental
2452.00	Pk	V	20	1.3	91.8	26.4	118.2	Fundamental
4904.00	Av	V	20	1.2	22.4	13.8	36.2	54.0
4904.00	Pk	V	20	1.2	33.6	13.8	47.4	
7356.00	Av	V	20	1.2	<20 dB			54.0
9808.00	Av	V	10	1.2	<20 dB			54.0
12260.00	Av	V	10	1	<20 dB			54.0
14712.00	Av	V	10	1	<20 dB			54.0
17164.00	Av	V	10	1.2	<20 dB			54.0
19616.00	Av	V	10	1	<20 dB			54.0
22068.00	Av	V	10	1	<20 dB			54.0
24520.00	Av	V	10	1	<20 dB			54.0

AVERAGE: RES. =1 MHZ, VID= 10HZ; NF = NOISE FLOOR; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

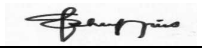
Operating Frequency (MHz): 2422
Channel: 3
Measured Cond. Pwr. (dBm): 27.0
Antenna: ANT-D2421

TABLE 6-19: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 3) (ANT-D2421)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2364.00	Av	V	10	1	23.1	26.4	49.5	54.0
2364.00	Pk	V	10	1	31.5	26.4	57.9	
2422.00	Av	V	10	1	84.0	26.4	110.4	Fundamental
2422.00	Pk	V	10	1	94.1	26.4	120.5	Fundamental
4844.00	Av	V	10	1	21.4	13.3	34.7	54.0
4844.00	Pk	V	10	1	32.4	13.3	45.7	
7266.00	Av	V	20	1	<20 dB			54.0
9688.00	Av	V	20	1	<20 dB			54.0
12110.00	Av	V	10	1	<20 dB			54.0
14532.00	Av	V	10	1	<20 dB			54.0
16954.00	Av	V	10	1	<20 dB			54.0
19376.00	Av	V	10	1	<20 dB			54.0
21798.00	Av	V	10	1	<20 dB			54.0
24220.00	Av	V	10	1	<20 dB			54.0

PEAK: RES. =1 MHz, VID= 1MHz; AVERAGE: RES. =1 MHz, VID= 10Hz; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

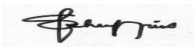
Operating Frequency (MHz): 2437
Channel: 6
Measured Cond. Pwr. (dBm): 26.7
Antenna: ANT-D2421

TABLE 6-20: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 6) (ANT-D2421)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2437.00	Av	V	20	1.2	72.3	26.4	98.7	Fundamental
2437.00	Pk	V	20	1.2	82.0	26.4	108.4	Fundamental
4874.00	Av	V	20	1	24.3	13.9	38.2	54.0
4874.00	Av	V	20	1	35.4	13.9	49.3	54.0
7311.00	Pk	V	20	1	<20 dB			54.0
9748.00	Av	V	10	1.2	<20 dB			54.0
12185.00	Av	V	10	1.2	<20 dB			54.0
14622.00	Av	V	10	1	<20 dB			54.0
17059.00	Av	V	10	1	<20 dB			54.0
19496.00	Av	V	10	1	<20 dB			54.0
21933.00	Av	V	10	1	<20 dB			54.0
24370.00	Av	V	10	1	<20 dB			54.0

AVERAGE: RES. =1 MHZ, VID= 10HZ; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

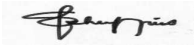
Operating Frequency (MHz): 2452
Channel: 9
Measured Cond. Pwr. (dBm): 26.4
Antenna: ANT-D2421

TABLE 6-21: RADIATED EMISSIONS HARMONICS/SPURIOUS (CHANNEL 9) (ANT-D2421)

Emission Frequency (MHz)	Test Detector	Antenna Polarity (H/V)	Turntable Azimuth (deg)	Antenna Height (m)	Analyzer Reading (dBuV)	Site Correction Factor (dB/m)	Emission Level (dBuV/m)	Limit (dBuV/m)
2368.00	Av	V	20	1.3	24.3	26.4	50.7	54.0
2368.00	Pk	V	20	1.3	35.0	26.4	61.4	
2452.00	Av	V	20	1.3	83.9	26.4	110.3	Fundamental
2452.00	Pk	V	20	1.3	91.8	26.4	118.2	Fundamental
4904.00	Av	V	20	1.2	22.4	13.8	36.2	54.0
4904.00	Pk	V	20	1.2	33.6	13.8	47.4	
7356.00	Av	V	20	1.2	<20 dB			54.0
9808.00	Av	V	10	1.2	<20 dB			54.0
12260.00	Av	V	10	1	<20 dB			54.0
14712.00	Av	V	10	1	<20 dB			54.0
17164.00	Av	V	10	1.2	<20 dB			54.0
19616.00	Av	V	10	1	<20 dB			54.0
22068.00	Av	V	10	1	<20 dB			54.0
24520.00	Av	V	10	1	<20 dB			54.0

AVERAGE: RES. =1 MHZ, VID= 10HZ; NF = NOISE FLOOR; <20dB= 20dB BELOW THE LIMIT

TEST PERSONNEL:

Franck Schuppius		05/19/02
Test Technician/Engineer	Signature	Date Of Test

6.3 TEST EQUIPMENT USED FOR TESTING

TABLE 6-22: RADIATED SPURIOUS EMISSIONS TEST EQUIPMENT

RTL ASSET #	MANUFACTURER	MODEL	PART TYPE	SERIAL NUMBER
900931	HP	8566B	Spectrum Analyzer (100Hz – 22 GHz)	3138A07771
900772	EMCO	3161-02	Horn ANTENNA (2-4 GHz)	900772
900321	EMCO	3161-03	Horn Antennas (4-8,2GHz)	9508-1020
900323	EMCO	3160-7	Horn Antennas (8,2-12,4 GHz)	9605-1054
900325	EMCO	3160-9	Horn Antennas (18 - 26.5 GHz)	9605-1051
900723	Miteq	NA	AMP 100MHz-26GHz	NA
900791	Schaffner - Chase	CBL6112	Antenna (25 MHz - 2 GHz)	2099

7 MODULATED BANDWIDTH - §15.247(A)(2)

7.1 MODULATED BANDWIDTH TEST PROCEDURE

The minimum 6 dB bandwidth per FCC 15.247(a)(2) was measured using a 50 ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 300 kHz. The minimum 6 dB modulated bandwidths for the 500mW configuration follow. The results for both configurations are listed in the table below. The worst case bandwidth plots for the 500mW configuration are included.

7.2 TEST EQUIPMENT USED FOR TESTING

TABLE 7-1: TEST EQUIPMENT USED FOR TESTING MODULATED BANDWIDTH

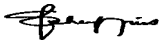
RTL ASSET #	MANUFACTURER	MODEL	PART TYPE	SERIAL NUMBER
900931	HP	8566B	Spectrum Analyzer (100Hz – 22 GHz)	3138A07771

7.3 MODULATED BANDWIDTH TEST DATA

TABLE 7-2: MINIMUM 6 DB MODULATED BANDWIDTHS

CHANNEL	500 mW 6 dB BANDWIDTH (MHz)
3	9.9
6	9.8
9	9.8

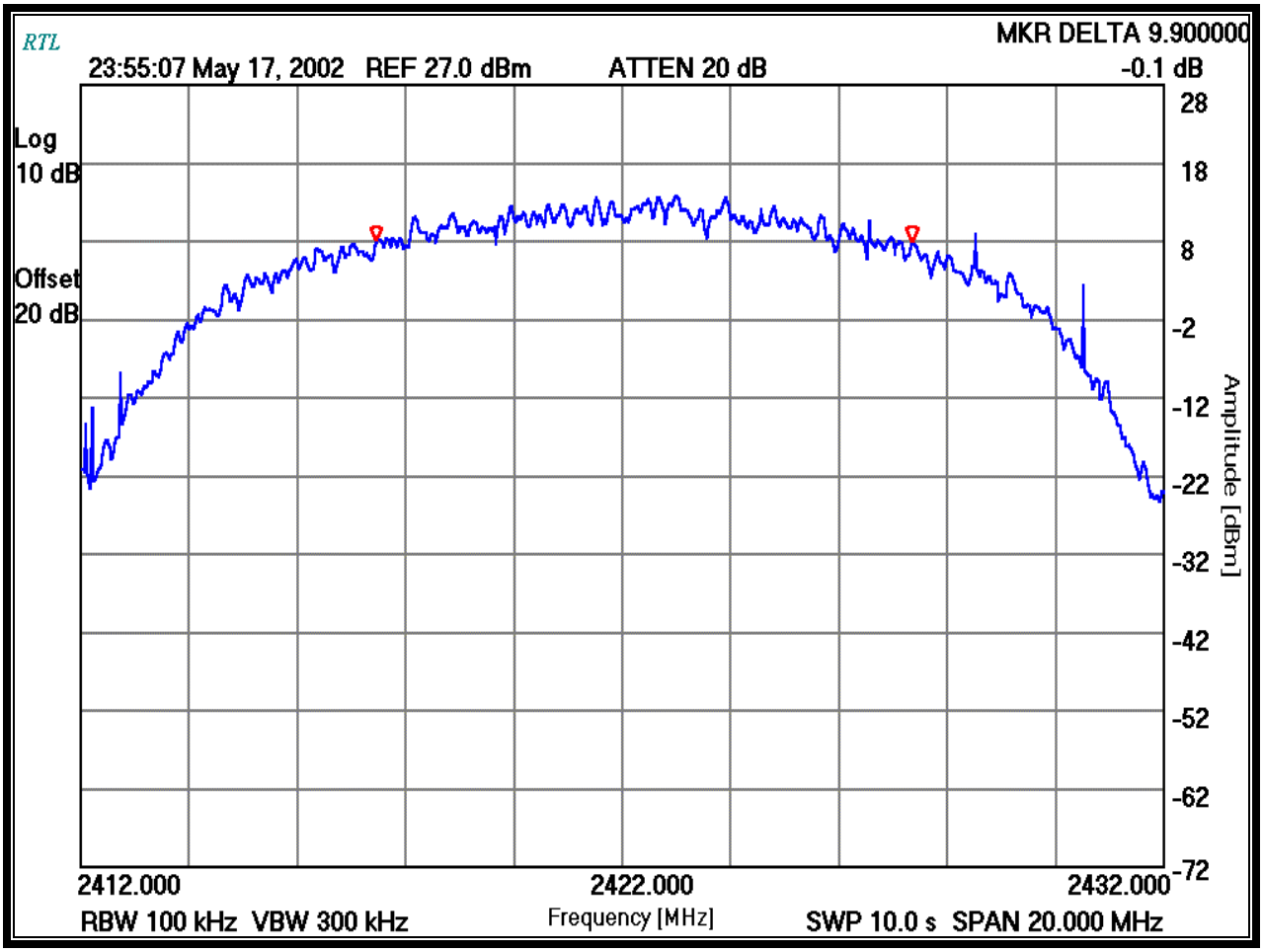
TEST PERSONNEL:

Franck Schuppius		05/17/02
Test Technician/Engineer	Signature	Date Of Test

7.4 MODULATED BANDWIDTH PLOTS

Channel Number:	3
Frequency (MHz):	2422
Resolution Bandwidth (kHz):	100
Video Bandwidth (kHz):	300
Sweep Time (s):	10.0

PLOT 7-1: MODULATED BANDWIDTH CHANNEL 3 - 500 mW MODE

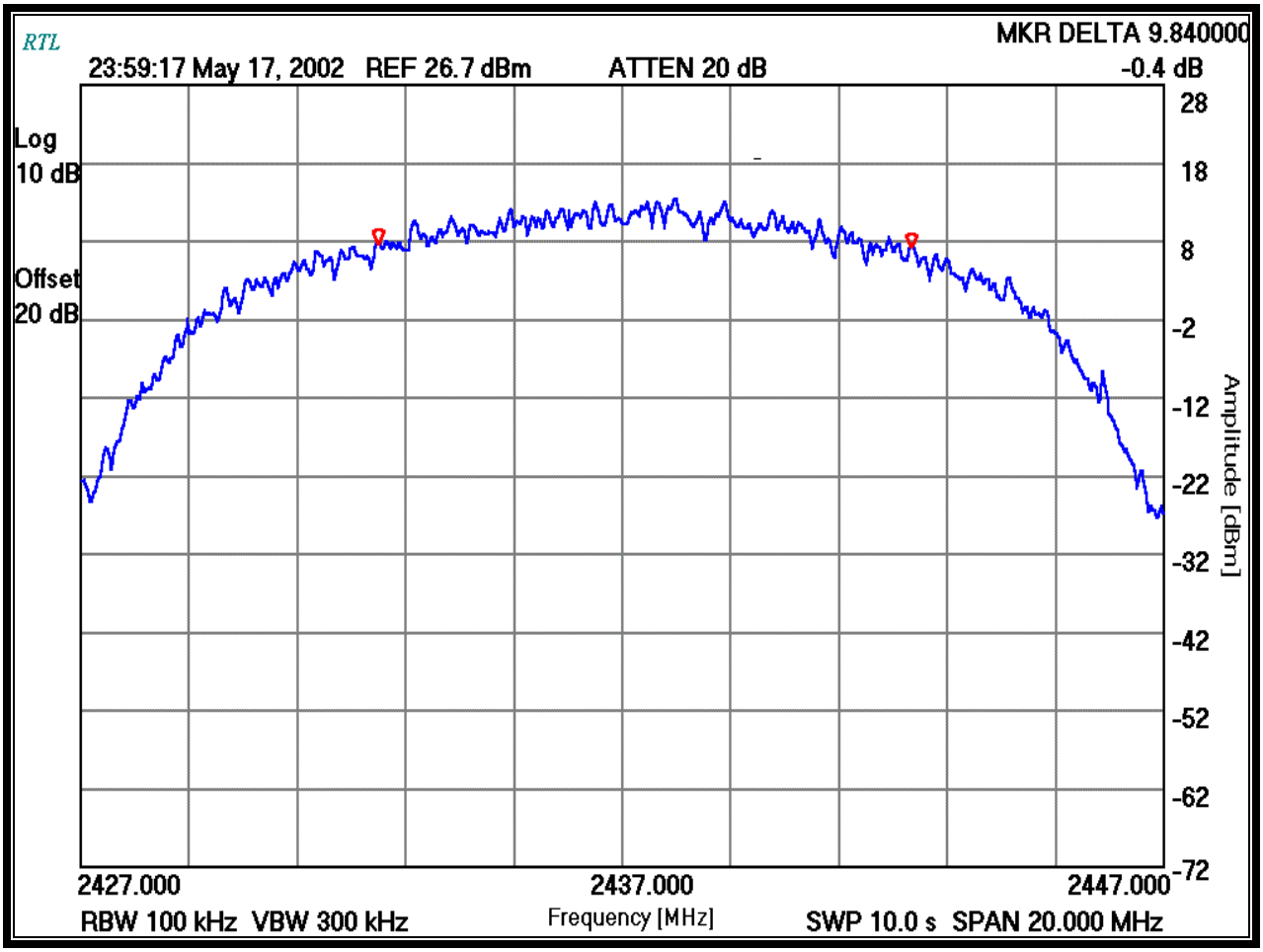


TEST PERSONNEL:

Kinh Ly	Kinh Ly	05/17/02
Test Engineer	Signature	Date Of Test

Channel Number:	6
Frequency (MHz):	2437
Resolution Bandwidth (kHz):	100
Video Bandwidth (kHz):	300
Sweep Time (s):	10.0

PLOT 7-2: MODULATED BANDWIDTH CHANNEL 6 - 500 mW MODE

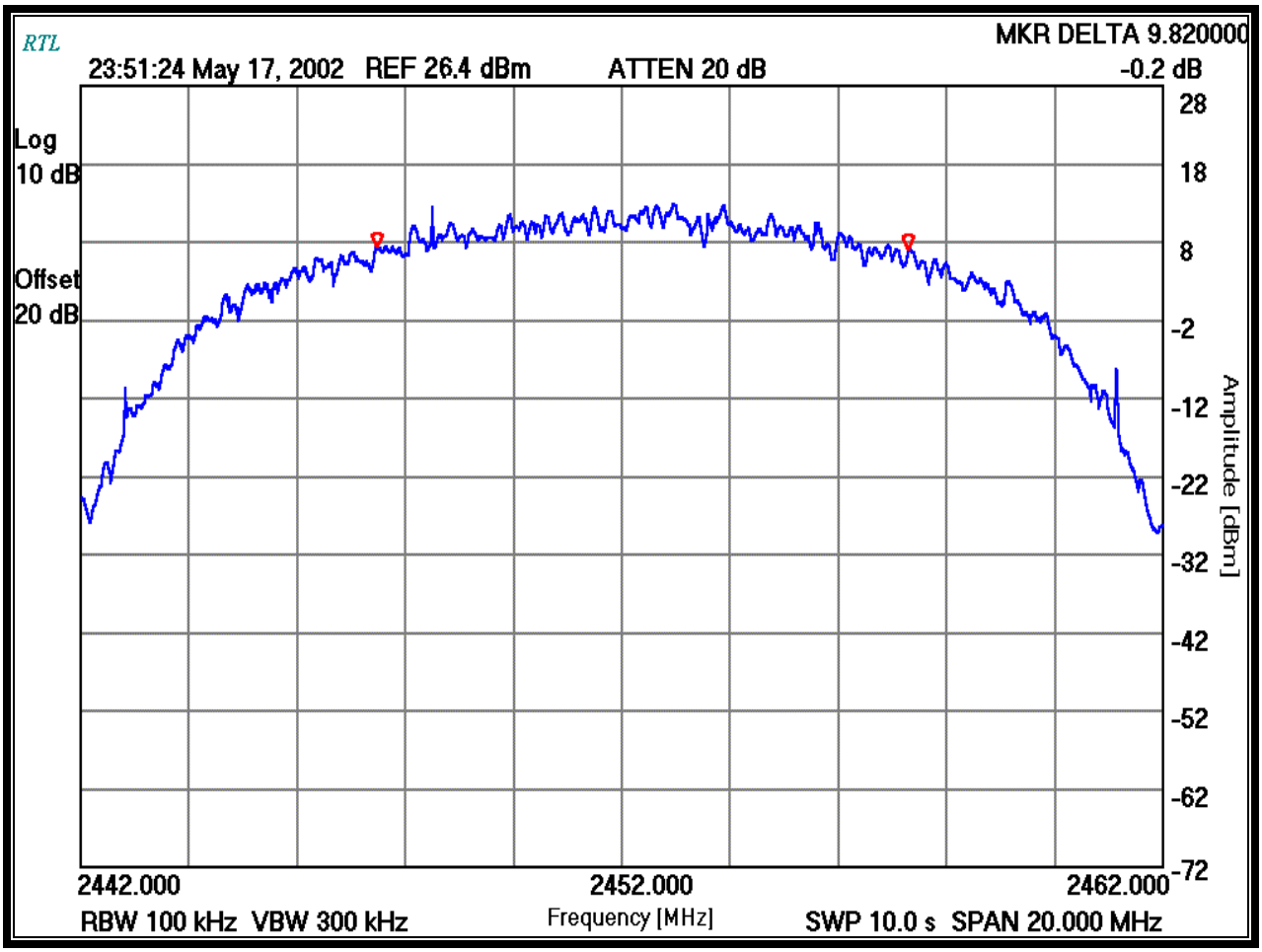


TEST PERSONNEL:

Kinh Ly	Kinh Ly	05/17/02
Test Engineer	Signature	Date Of Test

Channel Number:	9
Frequency (MHz):	2452
Resolution Bandwidth (kHz):	100
Video Bandwidth (kHz):	300
Sweep Time (s):	10.0

PLOT 7-3: MODULATED BANDWIDTH CHANNEL 9 - 500 mW MODE



TEST PERSONNEL:

Kinh Ly	Kinh Ly	05/17/02
Test Engineer	Signature	Date Of Test

8 POWER OUTPUT - §15.247(B)

8.1 POWER OUTPUT TEST PROCEDURE

The peak conducted output power of the EUT was measured using an Agilent 4416A EPM-P Series Power Meter with an E9323A Peak and Average Power Sensor. The EIRP measurement was performed as a radiated test using the substitution method.

8.2 TEST EQUIPMENT USED FOR TESTING

TABLE 8-1: TEST EQUIPMENT USED FOR TESTING RADIATED RF OUTPUT – EIRP

RTL ASSET #	MANUFACTURER	MODEL	PART TYPE	SERIAL NUMBER
901186	Agilent Technologies	E9323A (50MHz-6GHz)	Peak & Avg. Power Sensor	US40410380
901184	Agilent Technologies	E4416A	EPM-P Power Meter, single channel	GB41050573
900931	HP	8566B	Spectrum Analyzer (100Hz – 22 GHz)	3138A07771
900772	EMCO	3161-02	Horn ANTENNA (2-4 GHz)	900772
900723	Miteq	N/A	AMP 100MHz-26GHz	N/A
900814	Electro-Metrics	RGA-60	Double Ridges Guide Antenna (1-18 GHz)	2310

8.3 POWER OUTPUT TEST DATA

TABLE 8-2: POWER OUTPUT TEST DATA

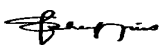
Operating Frequency (MHz): 2422, 2437 & 2452
Channel: 3, 6 & 9
Measured Cond. Pwr. (dBm): 27.0, 26.7& 26.4
Modulation Bandwidth (MHz): 9.9, 9.8 & 9.8

TABLE 8-3: POWER OUTPUT TEST DATA WITH EIRP

CHANNEL	POWER CONDUCTED OUTPUT (dBm)
3	27.0
6	26.7
9	26.4

*Measurement accuracy is +/- 1.5 dB

TEST PERSONNEL:

Franck Schuppius		05/18/02
Test Technician/Engineer	Signature	Date Of Test

9 ANTENNA CONDUCTED SPURIOUS EMISSIONS - §15.247(C)

9.1 ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST PROCEDURES

Antenna spurious emission per FCC 15.247(c) was measured from the EUT antenna port using a 50 ohm spectrum analyzer with the resolution bandwidth set at 100 kHz, and the video bandwidth set at 300 kHz. The modulated carrier was identified at 2.422GHz for Channel 3, 2.437GHz for Channel 6 and 2.452GHz for Channel 9. No other harmonics or spurs were found within 20 dB of the carrier level, and from 9kHz to the carriers 10^{th} harmonic. See antenna conducted spurious noise table below.
Channels 3, 6, and 9 were investigated and tested.

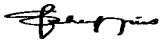
9.2 ANTENNA CONDUCTED SPURIOUS EMISSIONS TEST DATA

Operating Frequency (MHz): 2422
Channel: 3
Peak @100KHz(dBm): 13.8
Limit (dBm): -6.2

TABLE 9-1: ANTENNA CONDUCTED SPURIOUS EMISSIONS CHANNEL 3

Frequency (MHz)	Measured Level (dBm)	Notch Filter Insertion Loss (dB)	Corrected Measured Level (dBm)	Limit 20 dBc (dBm)	Margin (dB)
4844.00	-36.0	2.3	-33.7	-6.2	-27.5
7266.00	-24.0	2.4	-21.6	-6.2	-15.4
9688.00	-31.8	9.3	-22.5	-6.2	-16.3
12110.00	-32.1	6.7	-25.4	-6.2	-19.2
14532.00	-27.1	6.5	-20.6	-6.2	-14.4
16954.00	-28.1	8.8	-19.3	-6.2	-13.1
19376.00	-23.3	8.8	-14.5	-6.2	-8.3
21798.00	-21.8	8.4	-13.4	-6.2	-7.2
24220.00	-21.5	8.4	-13.1	-6.2	-6.9

TEST PERSONNEL:

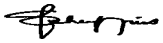
Franck Schuppius		05/17/02
Test Technician/Engineer	Signature	Date Of Test

Operating Frequency (MHz): 2437
Channel: 6
Peak @100KHz(dBm): 15.7
Limit (dBm): -4.3

TABLE 9-2: ANTENNA CONDUCTED SPURIOUS EMISSIONS CHANNEL 6

Frequency (MHz)	Measured Level (dBm)	Notch Filter Insertion Loss (dB)	Corrected Measured Level (dBm)	Limit 20 dBc (dBm)	Margin (dB)
4904.00	-34.9	2.3	-32.6	-4.3	-28.3
7356.00	-19.8	2.4	-17.4	-4.3	-13.1
9808.00	-31.6	9.3	-22.3	-4.3	-18.0
12260.00	-29.7	6.7	-23.0	-4.3	-18.0
14712.00	-26.8	6.5	-20.3	-4.3	-16.0
17164.00	-26.0	8.8	-17.2	-4.3	-12.9
19616.00	-23.0	8.8	-14.2	-4.3	-9.9
22068.00	-21.3	8.4	-12.9	-4.3	-8.6
24520.00	-21.0	8.4	-12.6	-4.3	-8.3

TEST PERSONNEL:

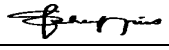
Franck Schuppius		05/17/02
Test Technician/Engineer	Signature	Date Of Test

Operating Frequency (MHz): 2452
Channel: 9
Peak @100KHz(dBm): 16.2
Limit (dBm): -3.7

TABLE 9-3: ANTENNA CONDUCTED SPURIOUS EMISSIONS CHANNEL 9

Frequency (MHz)	Measured Level (dBm)	Notch Filter Insertion Loss (dB)	Corrected Measured Level (dBm)	Limit 20 dBc (dBm)	Margin (dB)
4904	-32.8	2.3	-30.5	-3.7	-26.8
7356	-19.1	2.4	-16.7	-3.7	-13.0
9808	-30.3	9.3	-21.0	-3.7	-17.3
12260	-29.9	6.7	-23.2	-3.7	-19.5
14712	-26.4	6.5	-19.9	-3.7	-16.2
17164	-28.8	8.8	-20.0	-3.7	-16.3
19616	-21.3	8.8	-12.5	-3.7	-8.8
22068	-22.3	8.4	-13.9	-3.7	-10.2
24520	-21.5	8.4	-13.1	-3.7	-9.4

TEST PERSONNEL:

Franck Schuppius		05/17/02
Test Technician/Engineer	Signature	Date Of Test

10 POWER SPECTRAL DENSITY - §15.247(D)

10.1 POWER SPECTRAL DENSITY TEST PROCEDURE

The power spectral density per FCC 15.247(d) was measured using a 50 ohm spectrum analyzer with the resolution bandwidth set at 3kHz, the video bandwidth set at 30kHz, and the sweep time set at 1000 seconds. The spectral lines were resolved for the modulated carriers at 2.422GHz, 2.437GHz, and 2.452GHz respectively. These levels are well below the +8 dBm limit. See the power spectral density table and plots.

10.2 TEST EQUIPMENT USED FOR TESTING

TABLE 10-1: TEST EQUIPMENT USED FOR TESTING (POWER SPECTRAL DENSITY)

RTL ASSET #	MANUFACTURER	MODEL	PART TYPE	SERIAL NUMBER
900931	HP	8566B	Spectrum Analyzer (100Hz – 22 GHz)	3138A07771

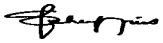
10.3 POWER SPECTRAL DENSITY TEST DATA

Operating Frequency (MHz): 2422, 2437 & 2452
Channel: 3, 6 & 9
Measured Cond. Pwr. (dBm): 27.0, 26.7& 26.4
Modulation Bandwidth (MHz): 9.9, 9.8 & 9.8
Limit (dBm): 8

TABLE 10-2: POWER SPECTRAL DENSITY

CHANNEL	1000mW-POWER SPECTRAL DENSITY LIMIT = +8dBm
3	0.2
6	-0.6
9	-1.1

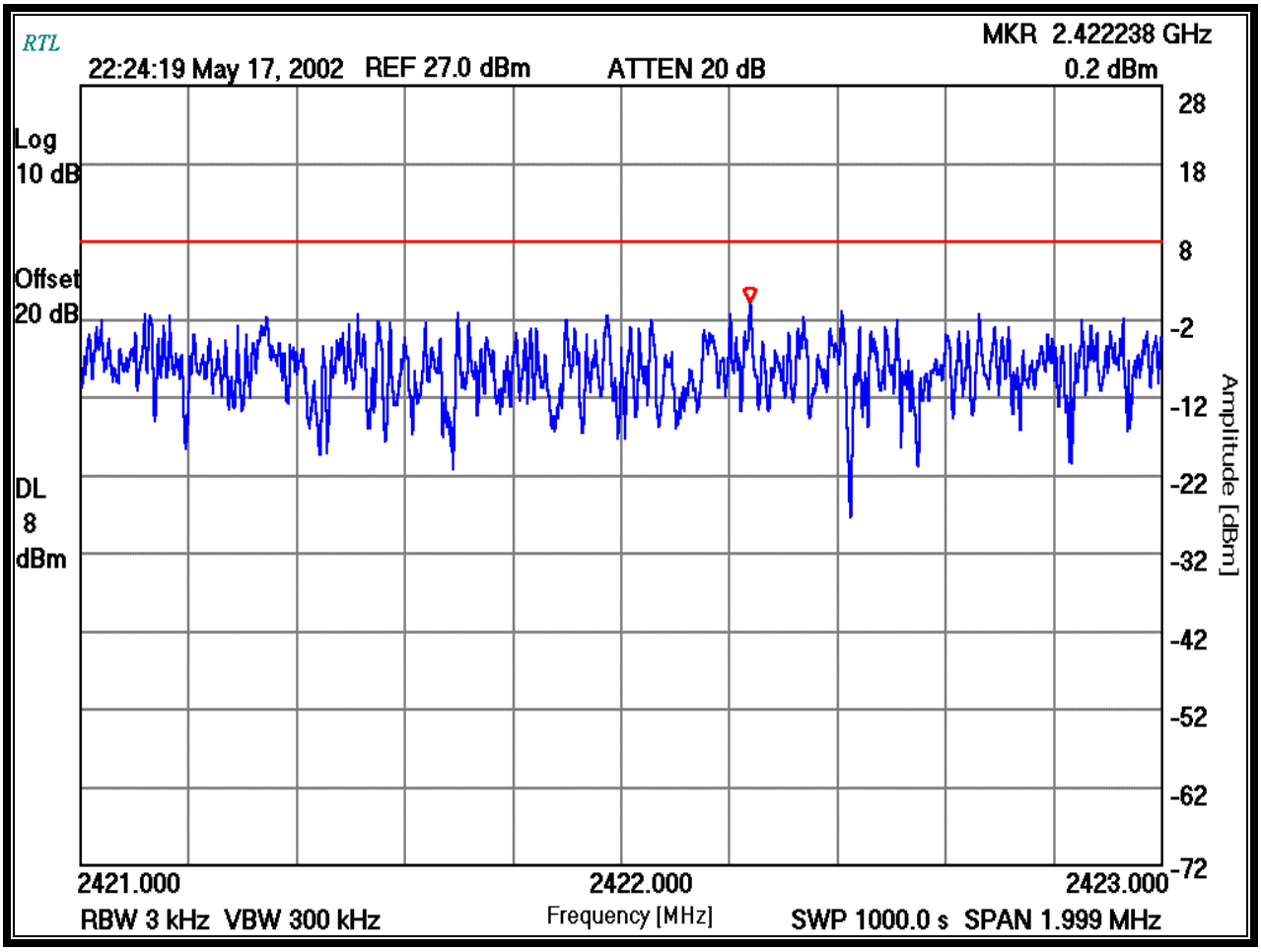
TEST PERSONNEL:

Franck Schuppius		05/17/02
Test Technician/Engineer	Signature	Date Of Test

10.4 POWER SPECTRAL DENSITY DATA PLOTS

Operating Frequency (MHz):	2422
Channel:	3
Measured Cond. Pwr. (dBm):	27.0
Bandwidth Resolution (kHz):	3
Bandwidth Video (kHz):	300
Sweep Time (s):	1000.0

PLOT 10-1: POWER SPECTRAL DENSITY: CHANNEL 3

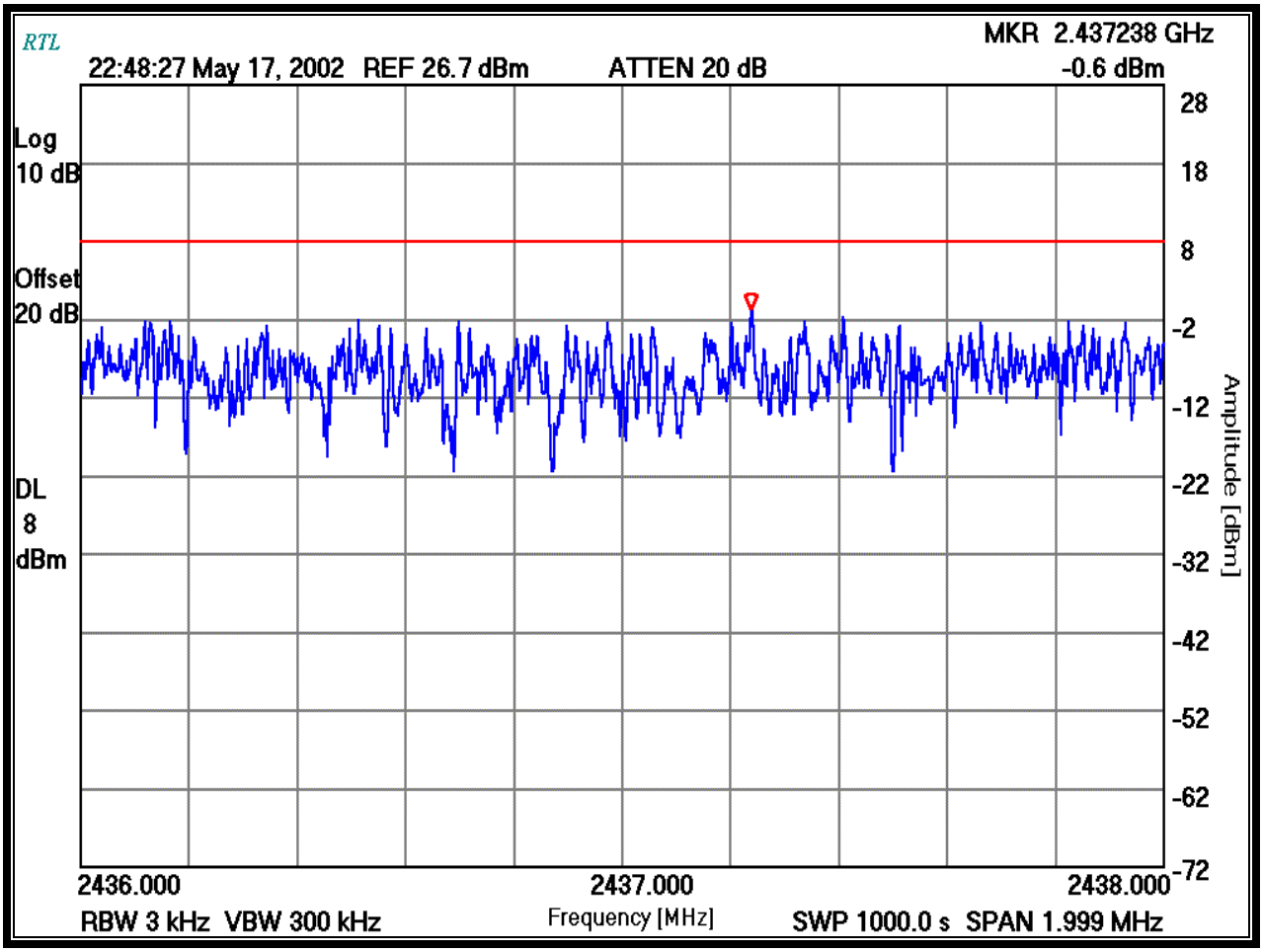


TEST PERSONNEL:

Franck Schuppius		05/17/02
Test Technician/Engineer	Signature	Date Of Test

Operating Frequency (MHz):	2437
Channel:	6
Measured Cond. Pwr. (dBm):	26.7
Bandwidth Resolution (kHz):	3
Bandwidth Video (kHz):	300
Sweep Time (s):	1000.0

PLOT 10-2: POWER SPECTRAL DENSITY: CHANNEL 6

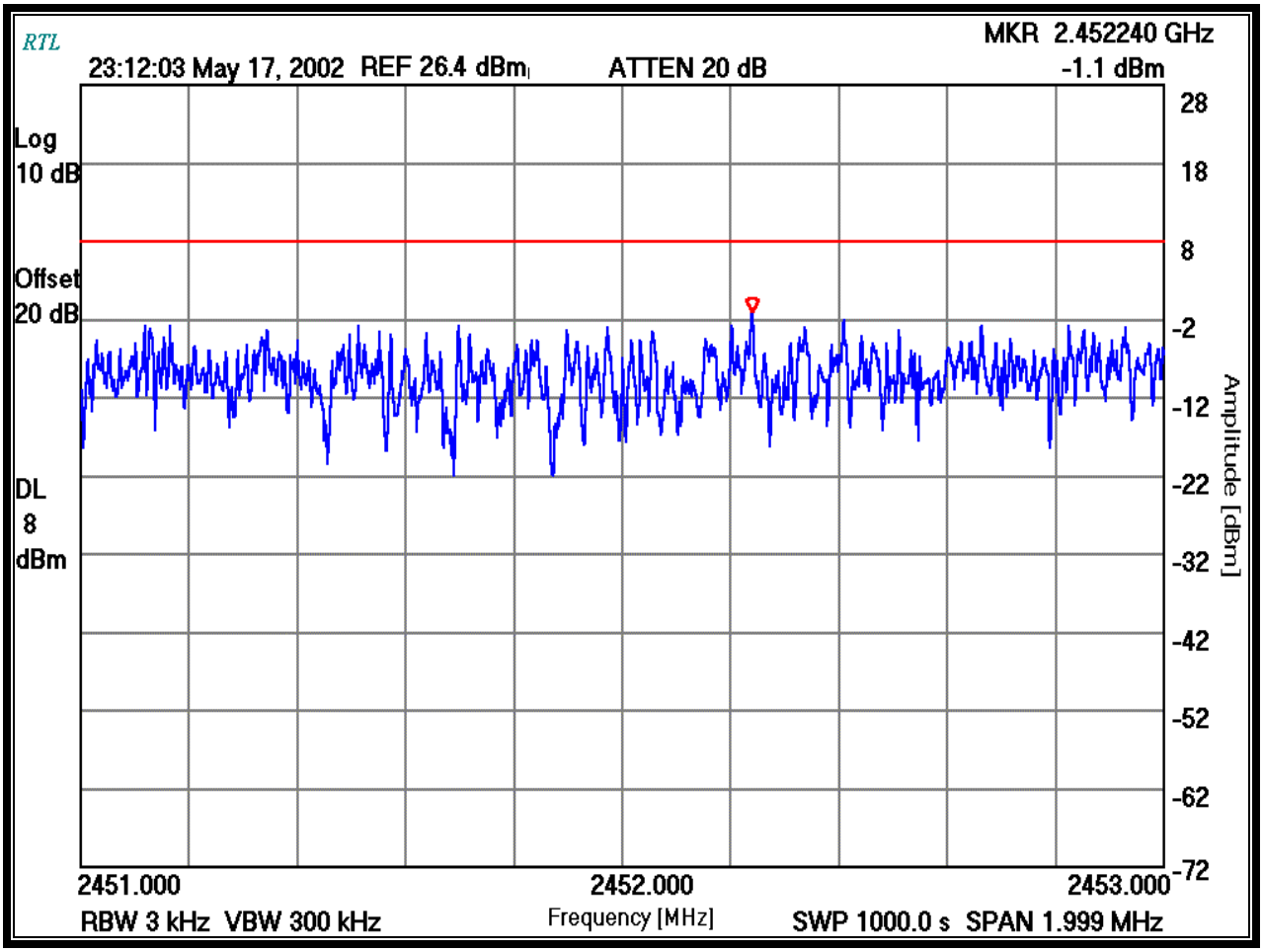


TEST PERSONNEL:

Franck Schuppius		05/17/02
Test Technician/Engineer	Signature	Date Of Test

Operating Frequency (MHz):	2452
Channel:	9
Measured Cond. Pwr. (dBm):	26.4
Bandwidth Resolution (kHz):	3
Bandwidth Video (kHz):	300
Sweep Time (s):	1000.0

PLOT 10-3: POWER SPECTRAL DENSITY: CHANNEL 9



TEST PERSONNEL:

Franck Schuppius		05/17/02
Test Technician/Engineer	Signature	Date Of Test

11 CONCLUSION

The data in this measurement report shows that the Teletronics International Inc., Model: Extended Amplified WLAN System (SMARTAMP 500mW), FCC ID: MFMSAMP24S, complies with all the requirements of Parts 2 and 15 of the FCC Rules and Industry Canada RSS-139 and RSS-210.