



HERMON LABORATORIES



Hermon Laboratories Ltd.  
P.O.Box 23  
Binyamina 30550, Israel  
Tel. +972 46288001  
Fax. +972 46288277  
e-mail: [mail@hermonlabs.com](mailto:mail@hermonlabs.com)

**ATTACHMENT**  
**TO WAVRAD\_FCC.15365 TEST REPORT**  
according to 47CFR Part 15, §15.247 and subpart B  
for  
**WaveIP Ltd.**  
EQUIPMENT UNDER TEST:  
**Wireless Radio for Internet Broadband Access**  
**Model: GigAccess 2.4**

This report is in conformity with and ISO/IEC 17025. The A2LA logo endorsement applies only to the test methods and the standards that are listed in the scope of Hermon Laboratories accreditation.  
The test results relate only to the items tested. **This test report must not be reproduced in any form except in full with the approval of Hermon Laboratories Ltd.**



## Contents

|          |                                                                                                              |            |
|----------|--------------------------------------------------------------------------------------------------------------|------------|
| <b>1</b> | <b>SUMMARY OF TESTS.....</b>                                                                                 | <b>3</b>   |
| <b>2</b> | <b>TESTS RESULTS .....</b>                                                                                   | <b>4</b>   |
| 2.1      | CONDUCTED EMISSIONS TEST ACCORDING TO §15.207, 15.107 .....                                                  | 4          |
| 2.2      | RADIATED EMISSIONS WHICH FALL IN RESTRICTED BANDS TEST ACCORDING TO §15.247(c) AND § 15.205, §15.209(A)..... | 6          |
|          | <b>APPENDIX B PLOTS.....</b>                                                                                 | <b>12</b>  |
|          | <b>APPENDIX C TEST EQUIPMENT USED FOR TESTS .....</b>                                                        | <b>161</b> |
|          | <b>APPENDIX D GENERAL INFORMATION .....</b>                                                                  | <b>162</b> |
|          | TEST FACILITY DESCRIPTION .....                                                                              | 162        |
|          | ABBREVIATIONS AND ACRONYMS .....                                                                             | 162        |
|          | SPECIFICATION REFERENCES .....                                                                               | 162        |
|          | <b>APPENDIX E TEST EQUIPMENT CORRECTION FACTORS .....</b>                                                    | <b>163</b> |



## 1 Summary of tests

The GigAccess was found complying with the limits of 47CFR Part 15, §§15.209, 15.205 (a, c), 15.207 and CFR 47 part 15:2002 §15.107 class B.

| Parameter                                                                                                                                                                                                        | Subclause                | C | NC | NT | NA | Tested by                                                                                            | Date tested                                             | Remarks |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---|----|----|----|------------------------------------------------------------------------------------------------------|---------------------------------------------------------|---------|
| Conducted emissions                                                                                                                                                                                              | 15.107, 15.207           | C |    |    |    | Mrs. E. Pitt,<br>test engineer                                                                       | February 9,<br>2003                                     |         |
| Spurious emissions (radiated) in restricted bands                                                                                                                                                                | 15.209,<br>15.205 (a, c) | C |    |    |    | Mrs. E. Pitt,<br>test engineer<br>Mr. M. Feldman,<br>test engineer<br>Mr. Y. Neuman<br>test engineer | February 9,<br>2003,<br>February 10-12,<br>16, 17, 2003 |         |
| NOTE: C: The parameter is compliant with the requirements.<br>NC: The parameter is not compliant with the requirements.<br>NT: The parameter is not tested.<br>NA: The test of this parameter is not applicable. |                          |   |    |    |    |                                                                                                      |                                                         |         |

**Test report prepared by:** Mrs. M. Cherniavsky, certification engineer

**Test report approved by:** Mr. A. Usoskin, QA manager



## 2 Tests results

### 2.1 Conducted emissions test according to §15.207, 15.107

|                             |                   |
|-----------------------------|-------------------|
| METHOD OF MEASUREMENTS      | ANSI 63.4 §13.1.3 |
| DATE:                       | February 9, 2003  |
| RELATIVE HUMIDITY:          | 47 %              |
| AMBIENT TEMPERATURE:        | 22 °C             |
| THE EUT WAS TESTED AS:      | TABLE-TOP         |
| DETECTOR USED:              | QUASI-PEAK        |
| FREQUENCY RANGE:            | 150 kHz – 30 MHz  |
| RESOLUTION BANDWIDTH:       | 9 kHz             |
| MEASUREMENT UNCERTAINTY, dB | +2.43 / -2.22     |

#### Quasi-peak detector

| Frequency,<br>MHz | Line<br>identification | Measured<br>emissions,<br>dB (µV) | Specification<br>QP limit,<br>dB (µV) | Margin,<br>dB | Pass/<br>Fail | Reference to<br>Plots in<br>Appendix A |
|-------------------|------------------------|-----------------------------------|---------------------------------------|---------------|---------------|----------------------------------------|
| 0.177405          | Ph                     | 52.45                             | 64.66                                 | 12.21         | Pass          | B1                                     |
| 0.187910          | N                      | 52.13                             | 64.15                                 | 12.02         | Pass          | B2                                     |
| 0.274638          | Ph                     | 44.70                             | 61.04                                 | 16.34         | Pass          | B1                                     |
| 0.275720          | N                      | 45.40                             | 61.01                                 | 15.61         | Pass          | B2                                     |
| 0.537640          | N                      | 40.44                             | 56.00                                 | 15.56         | Pass          | B2                                     |
| 0.557460          | Ph                     | 44.20                             | 56.00                                 | 11.80         | Pass          | B1                                     |
| 0.621208          | N                      | 44.85                             | 56.00                                 | 11.15         | Pass          | B2                                     |
| 0.647705          | Ph                     | 44.99                             | 56.00                                 | 11.01         | Pass          | B1                                     |
| 0.648800          | N                      | 45.39                             | 56.00                                 | 10.61         | Pass          | B2                                     |
| 2.327920          | Ph                     | 39.77                             | 56.00                                 | 16.23         | Pass          | B1                                     |

**Average detector**

| Frequency, MHz | Line identification | Measured emissions, dB (μV) | Specification AVRG limit, dB (μV) | Margin, dB | Pass/Fail | Reference to Plots in Appendix A |
|----------------|---------------------|-----------------------------|-----------------------------------|------------|-----------|----------------------------------|
| 0.177405       | Ph                  | 40.58                       | 54.66                             | 14.08      | Pass      | B1                               |
| 0.187910       | N                   | 40.64                       | 54.15                             | 13.51      | Pass      | B2                               |
| 0.274638       | Ph                  | 34.16                       | 51.04                             | 16.88      | Pass      | B1                               |
| 0.275720       | N                   | 35.44                       | 51.01                             | 15.57      | Pass      | B2                               |
| 0.557460       | Ph                  | 33.80                       | 46.00                             | 12.20      | Pass      | B1                               |
| 0.621208       | N                   | 33.54                       | 46.00                             | 12.46      | Pass      | B2                               |
| 0.647705       | Ph                  | 32.85                       | 46.00                             | 13.15      | Pass      | B1                               |
| 0.648800       | N                   | 33.68                       | 46.00                             | 12.32      | Pass      | B2                               |

**LIMIT**

| Frequency, MHz | Class B equipment, dB(μV) |          |
|----------------|---------------------------|----------|
|                | QP                        | AVRG     |
| 0.15 - 0.5     | 66 - 56*                  | 56 - 46* |
| 0.5 - 5        | 56                        | 46       |
| 5 - 30         | 60                        | 50       |

\*The limit decreases linearly with the logarithm of frequency.

**TEST PROCEDURE**

The measurements were performed at mains terminals by means of LISN, connected to spectrum analyzer in the frequency range as referred to in the table above. The unused coaxial connector of the LISN was terminated with 50 Ω. The measurements were made with quasi-peak and average detectors as referred to in the tables. The position of the EUT cables was varied to determine maximum emission level.

**TEST EQUIPMENT USED:**

|         |         |         |         |  |  |  |
|---------|---------|---------|---------|--|--|--|
| HL 0163 | HL 0521 | HL 0787 | HL 1003 |  |  |  |
|---------|---------|---------|---------|--|--|--|



## 2.2 Radiated emissions which fall in restricted bands test according to §15.247(c) and § 15.205, §15.209(a)

|                           |                              |
|---------------------------|------------------------------|
| METHOD OF MEASUREMENTS    | ANSI 63.4 §13.1.4            |
| DATE:                     | February 10-12, 16, 17, 2003 |
| RELATIVE HUMIDITY:        | 45 %                         |
| AMBIENT TEMPERATURE:      | 17°C                         |
| AIR PRESSURE:             | 1014 hPa                     |
| OPERATING FREQUENCY RANGE | 2400-2483.5 MHz              |
| MODULATION TECHNIQUE      | DSSS                         |
| BIT RATE:                 | 11 Mbps                      |
| FREQUENCY RANGE*          | 9 kHz - 25 GHz               |
| MEASUREMENT UNCERTAINTY:  | +5.42 dB/-5.26 dB            |

\* The frequency spectrum was investigated from the lowest radio frequency signal generated in the equipment, without going below 9 kHz, up to the tenth harmonic of the highest fundamental frequency. All emissions were found below the specified limit. For test results refer to Plots B3 – B149.

### LIMIT

Radiated emissions, which fall in the restricted bands, must comply with §15.209(a) limits.

### TEST PROCEDURE

The test was performed with transmitter operating 3 carrier frequencies  $F_{\min} = 2412$  MHz,  $F_{\text{cent}} = 2442$  MHz,  $F_{\max} = 2472$  MHz from 9 kHz to 25 GHz.

**9 kHz – 30 MHz frequency range.** The loop antenna was positioned with its plane horizontal. The loop center was 1 meter above the ground plane. To find maximum radiation the turntable was rotated 360°. Then the loop position was changed to vertical. To find maximum radiation the turntable was rotated 360° and the measuring antenna was rotated about its vertical axis. Plots B3, B4, B33, B34, B61, B62, B88, B89, B117, B118 in Appendix B refer to vertical antenna polarization as the worst case.

**30 MHz – 24 GHz frequency range.** The EUT was placed on a wooden 80 cm height turntable. To find maximum radiation the turntable was rotated 360°, measuring antenna height was changed from 1 to 4 m, and the antennas polarization was changed from vertical to horizontal.

### TEST EQUIPMENT USED AT OATS:

|         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|
| HL 0038 | HL 0041 | HL 0091 | HL 0275 | HL 0287 | HL 1424 | HL 1940 |
| HL 2260 |         |         |         |         |         |         |

### TEST EQUIPMENT USED IN ANECHOIC CHAMBER:

|         |         |         |         |         |         |         |
|---------|---------|---------|---------|---------|---------|---------|
| HL 0025 | HL 0041 | HL 0446 | HL 0465 | HL 0521 | HL 0554 | HL 0589 |
| HL 0592 | HL 0593 | HL 0594 | HL 0604 | HL 0750 | HL 0768 | HL 0787 |
| HL 1003 | HL 1004 | HL 1200 | HL 1424 | HL 1425 | HL 1566 | HL 1826 |
| HL 1849 | HL 1850 | HL 1940 | HL 1942 | HL 1984 | HL 2009 | HL 2109 |
| HL 2258 | HL 2260 |         |         |         |         |         |



**The unit with Base Station Directional Antenna, 17 dBi**  
**Power output level 18.5 dBm**

**Quasi-peak detector**

| Frequency,<br>MHz | Antenna<br>type  | Ant.<br>polariz. | Ant.<br>hgt.,<br>m | TT<br>pos.<br>(°) | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference<br>to Plots in<br>Appendix B |
|-------------------|------------------|------------------|--------------------|-------------------|-------------------------------------|---------------------|---------------|----------------------------------------|
| 120.0             | Biconical        | Vert             | 1                  | 354               | 28.5                                | 43.50               | 13.80         | B24                                    |
| 264.0             | Log-<br>periodic | Horiz            | 1.4                | 321               | 38.3                                | 46.00               | 7.7           | B5, B15,<br>B24                        |

**Peak detector**

| Frequency,<br>MHz | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference to Plots in<br>Appendix B |
|-------------------|-------------------------------------|---------------------|---------------|-------------------------------------|
| 1660              | 58.17                               | 74                  | 15.83         | B6, B7                              |
| 2383.15           | 53.13                               | 74                  | 20.87         | B17                                 |
| 2385.66           | 57.91                               | 74                  | 16.09         | B8                                  |
| 2487.67           | 58.49                               | 74                  | 15.51         | B18                                 |
| 2488.59           | 59.04                               | 74                  | 14.96         | B27                                 |
| 4824              | 54.60                               | 74                  | 19.40         | B11                                 |
| 4884              | 55.08                               | 74                  | 18.92         | B20                                 |
| 4944              | 54.77                               | 74                  | 19.23         | B29                                 |

The recorded test results were obtained through measurements with double ridged guide antenna in vertical polarization.

**Average detector**

| Frequency,<br>MHz | Antenna<br>height,<br>m | TT<br>pos.<br>(°) | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference to Plots in<br>Appendix A |
|-------------------|-------------------------|-------------------|-------------------------------------|---------------------|---------------|-------------------------------------|
| 1660              | 1.56                    | 335               | 44.82                               | 54                  | 9.18          | B6, B7                              |
| 1703              | 1.57                    | 339               | 41.4                                | 54                  | 12.6          | B16                                 |
| 2383.15           | 1.0                     | 0                 | 45.41                               | 54                  | 8.59          | B17                                 |
| 2385.66           | 1.0                     | 0                 | 49.74                               | 54                  | 4.26          | B8                                  |
| 2388.70           | 1.0                     | 0                 | 40.33                               | 54                  | 13.67         | B26                                 |
| 2487.67           | 1.0                     | 0                 | 44.44                               | 54                  | 9.56          | B18                                 |
| 2488.59           | 1.0                     | 0                 | 44.97                               | 54                  | 9.03          | B27                                 |
| 2579.94           | 1.0                     | 0                 | 41.37                               | 54                  | 12.63         | B9                                  |
| 4824              | 1.0                     | 0                 | 37.15                               | 54                  | 16.85         | B11                                 |
| 4884              | 1.0                     | 0                 | 36.43                               | 54                  | 17.57         | B20                                 |
| 4944              | 1.0                     | 0                 | 39.22                               | 54                  | 14.78         | B29                                 |

The recorded test results were obtained through measurements with double ridged guide antenna in vertical polarization.

**Table abbreviations:**

Margin = dB below (negative if above) specification limit.

Ant. hgt. = antenna height.

TT pos. = turntable position in degrees, (EUT front panel = 0°).



**The unit with Flat Panel Subscriber Integrated Antenna, 13.5 dBi**  
**Power output level 18.5 dBm**

**Quasi-peak detector**

| Frequency,<br>MHz | Antenna<br>type  | Ant.<br>polariz. | Antenna<br>height,<br>m | TT<br>pos.<br>(°) | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference<br>to Plots in<br>Appendix B |
|-------------------|------------------|------------------|-------------------------|-------------------|-------------------------------------|---------------------|---------------|----------------------------------------|
| 264.0             | Log-<br>periodic | Horiz.           | 1.0                     | 200               | 36.90                               | 46.00               | 9.10          | B35                                    |

**Peak detector**

| Frequency,<br>MHz | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference to Plots in<br>Appendix B |
|-------------------|-------------------------------------|---------------------|---------------|-------------------------------------|
| 2383.76           | 51.32                               | 74                  | 22.68         | B37                                 |
| 2490.79           | 55.13                               | 74                  | 18.87         | B55                                 |
| 4824              | 45.3                                | 74                  | 28.70         | B40                                 |
| 4884              | 52.92                               | 74                  | 21.08         | B49                                 |
| 4944              | 56.40                               | 74                  | 17.60         | B57                                 |

The recorded test results were obtained through measurements with double ridged guide antenna in vertical polarization.

**Average detector**

| Frequency,<br>MHz | Antenna<br>polarization | TT<br>pos.<br>(°) | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference to Plots<br>in Appendix A |
|-------------------|-------------------------|-------------------|-------------------------------------|---------------------|---------------|-------------------------------------|
| 1660.40           | V                       | 335               | 42.50                               | 54                  | 11.50         | B36                                 |
| 1722              | V                       | 5                 | 35.30                               | 54                  | 18.70         | B53                                 |
| 2381.20           | H                       | 186               | 38.66                               | 54                  | 15.34         | B46                                 |
| 2383.76           | V                       | 0                 | 37.21                               | 54                  | 16.79         | B37                                 |
| 2489.56           | H                       | 173               | 37.32                               | 54                  | 16.68         | B47                                 |
| 2490.79           | V                       | 0                 | 47.96                               | 54                  | 6.04          | B55                                 |
| 4824              | V                       | 0                 | 33.9                                | 54                  | 20.1          | B40                                 |
| 4884              | V                       | 0                 | 34.50                               | 54                  | 19.50         | B49                                 |
| 4944              | V                       | 0                 | 35.60                               | 54                  | 18.50         | B57                                 |

The recorded test results were obtained through measurements with double ridged guide antenna at 1 m height

**Table abbreviations:**

Margin = dB below (negative if above) specification limit.

Ant. pol. = antenna polarization (V-vertical, H-horizontal).

Ant. hgt. = antenna height.

TT pos. = turntable position in degrees, (EUT front panel = 0°).



**The unit with Flat Panel Subscriber Integrated Antenna, 18 dBi**  
**Power output level 17 dBm**

**Quasi-peak detector**

| Frequency,<br>MHz | Antenna<br>type  | Antenna<br>polariz. | Antenna<br>height,<br>m | TT<br>pos.<br>(°) | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference<br>to Plots in<br>Appendix B |
|-------------------|------------------|---------------------|-------------------------|-------------------|-------------------------------------|---------------------|---------------|----------------------------------------|
| 264.0             | Log-<br>periodic | Horiz.              | 1.0                     | 32                | 39.67                               | 46.00               | 6.33          | B63                                    |

**Peak detector**

| Frequency,<br>MHz | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference to Plots in<br>Appendix B |
|-------------------|-------------------------------------|---------------------|---------------|-------------------------------------|
| 2381.23           | 51.09                               | 74                  | 22.91         | B65                                 |
| 2487.00           | 52.34                               | 74                  | 21.66         | B82                                 |

The recorded test results were obtained through measurements with double ridged guide antenna in vertical polarization.

**Average detector**

| Frequency,<br>MHz | Antenna<br>polarization | TT<br>pos.<br>(°) | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference to Plots in<br>Appendix A |
|-------------------|-------------------------|-------------------|-------------------------------------|---------------------|---------------|-------------------------------------|
| 2381.23           | V                       | 0                 | 38.02                               | 54                  | 15.98         | B65                                 |
| 2383.14           | V                       | 0                 | 32.26                               | 54                  | 17.74         | B73                                 |
| 2487.00           | V                       | 0                 | 38.70                               | 54                  | 15.30         | B82                                 |
| 2493.91           | H                       | 273               | 35.96                               | 54                  | 18.04         | B74                                 |

The recorded test results were obtained through measurements with double ridged guide antenna at 1 m height

**Table abbreviations:**

Margin = dB below (negative if above) specification limit.  
Ant. pol. = antenna polarization (V-vertical, H-horizontal).  
Ant. hgt. = antenna height.  
TT pos. = turntable position in degrees, (EUT front panel = 0°).



**The unit with Omni Directional Base Station Antenna, 12 dBi**  
**Power output level 18.5 dBm**

**Quasi-peak detector**

| Frequency,<br>MHz | Antenna<br>type  | Ant.<br>polariz. | Ant.<br>hgt.,<br>m | TT<br>pos.<br>(°) | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference<br>to Plots in<br>Appendix B |
|-------------------|------------------|------------------|--------------------|-------------------|-------------------------------------|---------------------|---------------|----------------------------------------|
| 120.0             | Biconical        | Vert             | 1                  | 342               | 29.70                               | 43.50               | 13.80         | B90                                    |
| 264.0             | Log-<br>periodic | Horiz            | 1.5                | 305               | 34.19                               | 46.00               | 11.81         | B90, B99                               |

**Peak detector**

| Frequency,<br>MHz | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference to Plots in<br>Appendix B |
|-------------------|-------------------------------------|---------------------|---------------|-------------------------------------|
| 2388.70           | 60.67                               | 74                  | 13.33         | B92                                 |
| 4824              | 50.94                               | 74                  | 23.06         | B95                                 |
| 4884              | 55.33                               | 74                  | 18.67         | B104                                |
| 4944              | 50.48                               | 74                  | 23.52         | B113                                |

The recorded test results were obtained through measurements with double ridged guide antenna in vertical polarization.

**Average detector**

| Frequency,<br>MHz | Ant.<br>hgt.,<br>m | TT<br>pos.<br>(°) | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference to Plots in<br>Appendix A |
|-------------------|--------------------|-------------------|-------------------------------------|---------------------|---------------|-------------------------------------|
| 1693.50           | 1.36               | 345               | 32.4                                | 54                  | 21.6          | B100                                |
| 2381.23           | 1.0                | 0                 | 40.83                               | 54                  | 13.17         | B101                                |
| 2483.64           | 1.0                | 0                 | 40.82                               | 54                  | 13.18         | B102                                |
| 2388.70           | 1.0                | 0                 | 43.82                               | 54                  | 10.18         | B92                                 |
| 2490.79           | 1.0                | 0                 | 40.63                               | 54                  | 13.37         | B111                                |
| 4824              | 1.0                | 0                 | 37.32                               | 54                  | 16.68         | B95                                 |
| 4884              | 1.0                | 0                 | 37.43                               | 54                  | 16.57         | B104                                |
| 4944              | 1.0                | 0                 | 37.63                               | 54                  | 16.47         | B113                                |

The recorded test results were obtained through measurements with double ridged guide antenna in vertical polarization.

**Table abbreviations:**

Margin = dB below (negative if above) specification limit.

Ant. pol. = antenna polarization (V-vertical, H-horizontal).

Ant. hgt. = antenna height.

TT pos. = turntable position in degrees, (EUT front panel = 0°).



**The unit with Parabolic Dish Antenna, 24 dBi**  
**Power output level 11 dBm**

**Quasi-peak detector**

| Frequency,<br>MHz | Antenna<br>type  | Ant.<br>polariz. | Ant.<br>hgt.,<br>m | TT<br>pos.<br>(°) | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference<br>to Plots in<br>Appendix B |
|-------------------|------------------|------------------|--------------------|-------------------|-------------------------------------|---------------------|---------------|----------------------------------------|
| 38.21             | Biconical        | Vert             | 1.1                | 5                 | 21.71                               | 40.00               | 18.29         | B119                                   |
| 125.0             | Biconical        | Vert             | 1.0                | 0                 | 27.31                               | 43.50               | 16.19         | B119                                   |
| 264.0             | Log-<br>periodic | Horiz            | 1.0                | 305               | 28.93                               | 46.00               | 17.07         | B119                                   |

**Peak detector**

| Frequency,<br>MHz | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference to Plots in<br>Appendix B |
|-------------------|-------------------------------------|---------------------|---------------|-------------------------------------|
| 3854              | 43.70                               | 74                  | 30.03         | B123                                |
| 7336              | 46.40                               | 74                  | 27.60         | B134                                |
| 7556              | 49.30                               | 74                  | 24.70         | B144                                |
| 8252              | 45.80                               | 74                  | 28.20         | B145                                |
| 13660             | 50.00                               | 74                  | 24.00         | B135                                |
| 14482             | 48.60                               | 74                  | 25.40         | B125                                |
| 14910             | 50.50                               | 74                  | 23.50         | B146                                |

The recorded test results were obtained through measurements with double ridged guide antenna in vertical polarization.

**Average detector**

| Frequency,<br>MHz | Ant. polariz. | Ant.<br>hgt.,<br>m | TT<br>pos.<br>(°) | Radiated<br>emissions,<br>dB (μV/m) | Limit,<br>dB (μV/m) | Margin,<br>dB | Reference to<br>Plots in<br>Appendix A |
|-------------------|---------------|--------------------|-------------------|-------------------------------------|---------------------|---------------|----------------------------------------|
| 2387.08           | V             | 1.0                | 0                 | 41.62                               | 54                  | 12.38         | B121                                   |
| 2487.67           | V             | 1.0                | 0                 | 40.04                               | 54                  | 13.95         | B141                                   |

**Table abbreviations:**

Margin = dB below (negative if above) specification limit.  
Ant. pol. = antenna polarization (V-vertical, H-horizontal).  
Ant. hgt. = antenna height.  
TT pos. = turntable position in degrees, (EUT front panel = 0°).



## Appendix B Plots

Plot B 1

### Conducted emissions on power line

LINE: PHASE

10:20:49 FEB 09, 2003

START  
150 kHz

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 100 kHz  
46.65 dB $\mu$ V

MEASURE  
AT MKR

ADD TO  
LIST

MARKER  
↓ CF

MARKER  
△

NEXT  
PEAK

NEXT PK  
RIGHT

NEXT PK  
LEFT

More  
1 of 2

LOG REF 70.0 dB $\mu$ V

10  
dB/  
ATN  
10 dB

PASS LIMIT

VA SB  
SC FC  
ACORR

START 150 kHz

RL #1F BW 9.0 kHz

AVG BW 30 kHz

STOP 30.00 MHz

SWP 2.49 sec



Plot B 2

Conducted emissions on power line

LINE: NEUTRAL

10:45:07 FEB 09, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 100 kHz  
49.51 dBμV

MEASURE  
AT MKR

ADD TO  
LIST

MARKER  
↓ CF

MARKER  
▲

NEXT  
PEAK

NEXT PK  
RIGHT

NEXT PK  
LEFT

More  
1 of 2

LOG REF 70.0 dBμV

10  
dB/  
ATTN  
10 dB

PASS LIMIT

VA SB  
SC FC  
ACORR

START 150 kHz STOP 30.00 MHz  
RL #1F BW 9.0 kHz AVG BW 30 kHz SWP 2.49 sec



Plot B 3

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequencies 2412/2442/2472 MHz, 17 dBi antenna

13:16:30 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 9.7 kHz  
61.65 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 110.0 dB $\mu$ V/m

10  
dB/  
ATN  
30 dB

VA SB  
SC FC  
ACORR

START 9.0 kHz STOP 150.0 kHz  
RL #1F BW 200 Hz AVG BW 300 Hz SWP 10.3 sec



Plot B 4

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequencies 2412/2442/2472 MHz, 17 dBi antenna

13:19:27 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 500 kHz  
47.18 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 100.0 dB $\mu$ V/m

10  
dB/  
ATN  
20 dB

VA SB  
SC FC  
ACORR

START 150 kHz STOP 30.00 MHz  
RL #1F BW 9.0 kHz AVG BW 30 kHz SWP 2.49 sec



Plot B 5

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 17 dBi antenna

14:48:15 FEB 09, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 261.5 MHz  
36.88 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE B

MAX  
HOLD B

VIEW B

BLANK B

Trace  
A B C

More  
1 of 3

LOG REF 60.0 dB $\mu$ V/m

10  
dB/  
#ATN  
0 dB

VA SB  
SC FC  
ACORR

START 30.0 MHz

RL #1F BW 1.0 MHz

#AVG BW 10 kHz

STOP 1.0000 GHz

SWP 700 msec



Plot B 6

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 17 dBi antenna

14:34:40 FEB 09, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 1.660 GHz  
58.17 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

MARKER  
↓ CF

MARKER  
△

NEXT  
PEAK

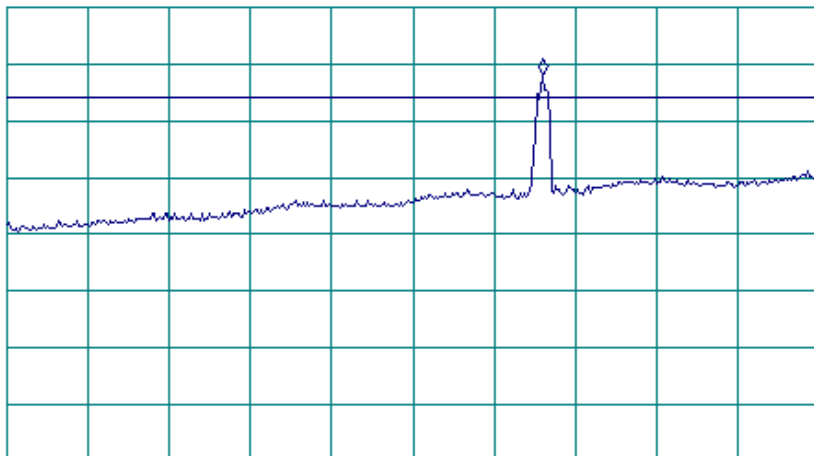
NEXT PK  
RIGHT

NEXT PK  
LEFT

LOG REF 70.0 dB $\mu$ V/m

10  
dB/  
#ATN  
0 dB

VA SB  
SC FC  
ACORR



START 1.000 GHz

STOP 2.000 GHz

RL #1F BW 1.0 MHz

#AVG BW 10 kHz

SWP 300 msec

More  
1 of 2



Plot B 7

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 17 dBi antenna

14:33:11 FEB 09, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 1.66005 GHz  
44.82 dB $\mu$ V/m

MEASURE  
AT MKR

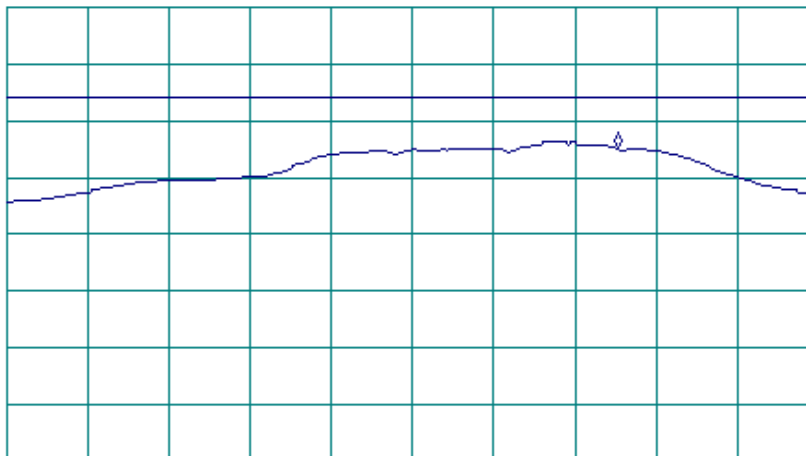
ADD TO  
LIST

HOLD

LOG REF 70.0 dB $\mu$ V/m

10  
dB/  
#ATN  
0 dB

VA SB  
SC FC  
ACORR



DSP LINE  
ON OFF

Change  
Title

Display  
Config

INTENSITY

CENTER 1.65500 GHz

RL #1F BW 1.0 MHz

#AVG BW 10 Hz

SPAN 20.00 MHz

SWP 6.00 sec

More

1 of 2



Plot B 8

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 17 dBi antenna

09:14:10 FEB 11, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.3871 GHz  
57.89 dBμV/m

MEASURE  
A1 MKR  
ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 70.0 dBμV/m

10  
dB/  
A1N  
10 dB

MA SB  
SC FC  
ACORR

START 2.0000 GHz STOP 2.3900 GHz  
RL 11F BW 1.0 MHz 1AUG BW 10 kHz SWP 117 nsec



Plot B 9

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 17 dBi antenna

09:23:27 FEB 11, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.5814 GHz  
47.79 dBμV/m

MEASURE  
A1 MKR  
ADD TO  
LIST

LOG REF 70.0 dBμV/m

PREAMP ON

CLEAR  
WRITE A

10  
dB/  
A1N  
10 dB

MAX  
HOLD A

VIEW A

VA SB  
SC FC  
ACORR

BLANK A

Trace  
A B C

START 2.4835 GHz

STOP 2.9000 GHz

RL 11F BW 1.0 MHz

AVG BW 10 kHz

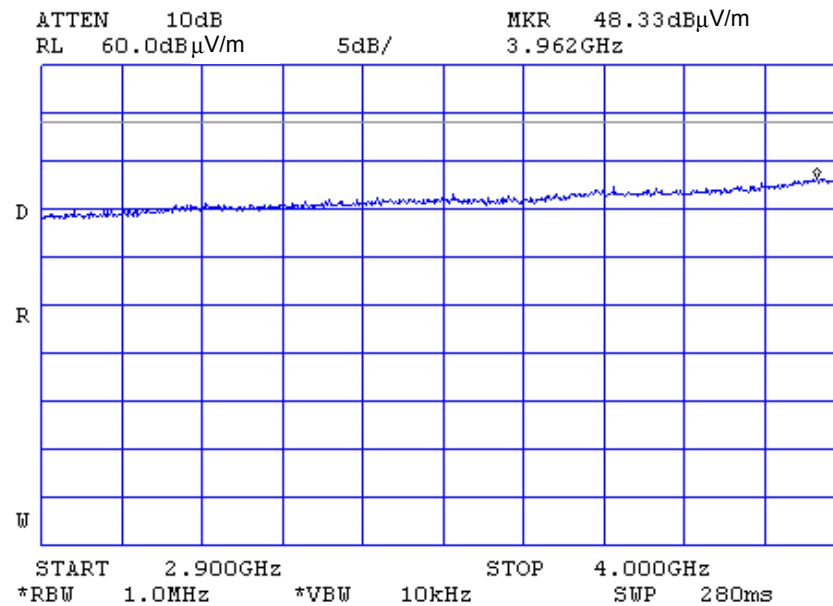
SWP 125 nsec

More  
1 of 3



Plot B 10

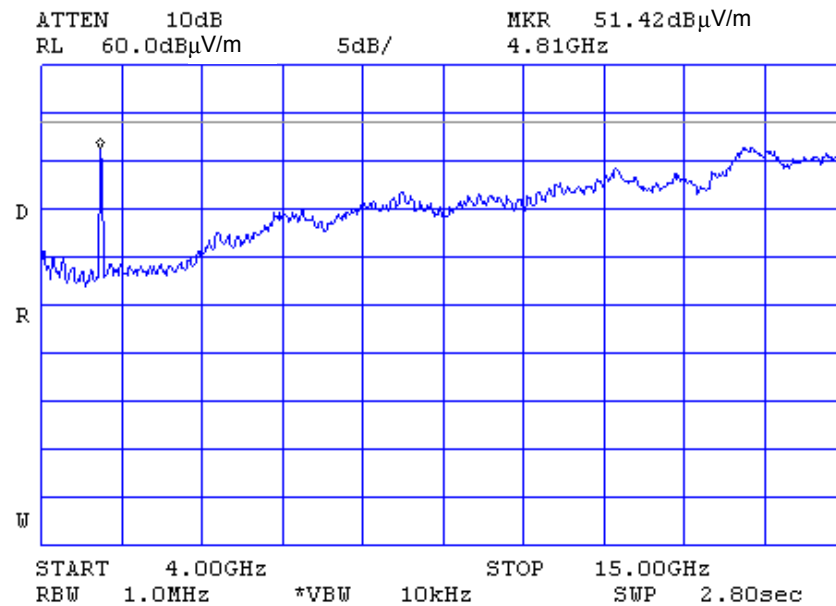
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 17 dBi antenna





Plot B 11

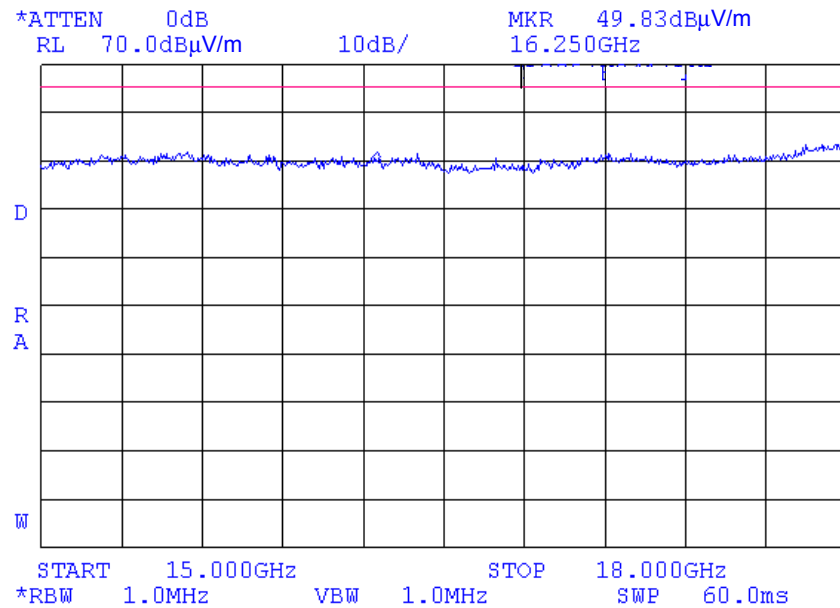
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 17 dBi antenna





Plot B 12

Radiated spurious emission measurements at the OATS @ 3 m distance,  
carrier frequency 2412 MHz, 17 dBi antenna

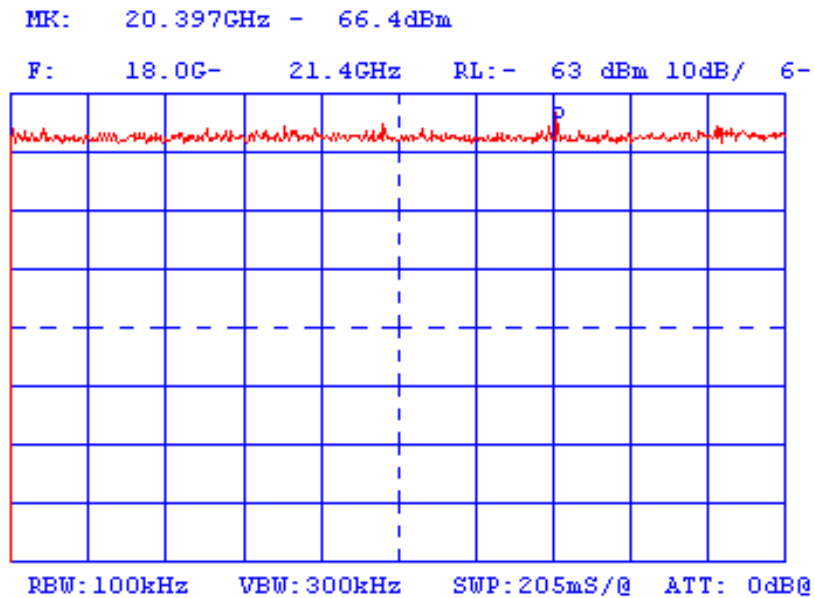


16.250 GHz – ambient noise



Plot B 13

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2412 MHz, 17 dBi antenna



No spurious were found

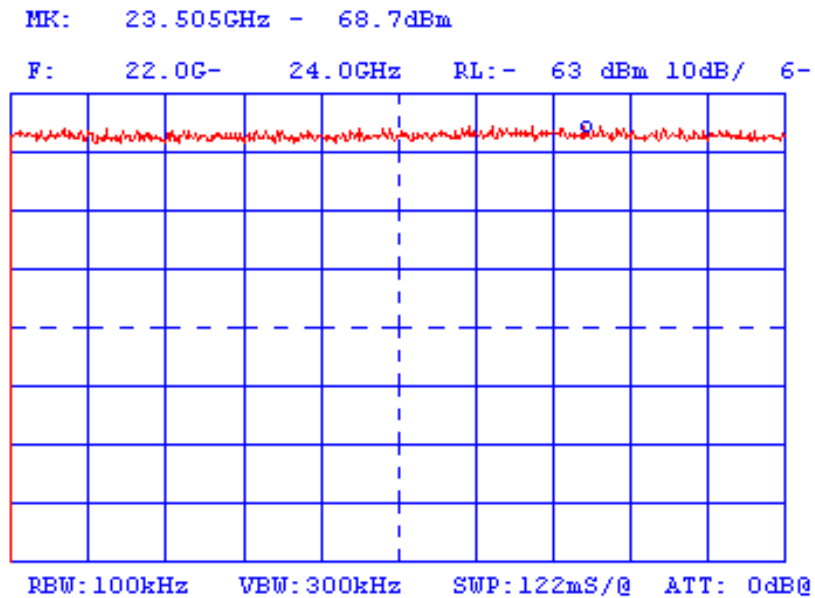
$U_{SA}$ : -66.4 dBm = 40.6 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 40.6 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 30 \text{ dB}(\mu\text{V/m})$



Plot B 14

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2412 MHz, 17 dBi antenna



No spurious were found

$U_{SA}$ : -68.7 dBm = 38.3 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = < 30 \text{ dB}(\mu\text{V/m})$



Plot B 15

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 17 dBi antenna

15:11:44 FEB 09, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 264.1 MHz  
36.89 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE B

MAX  
HOLD B

VIEW B

BLANK B

Trace  
A B C

More  
1 of 3

LOG REF 60.0 dB $\mu$ V/m

10  
dB/  
#ATN  
0 dB

VA SB  
SC FC  
ACORR

START 30.0 MHz STOP 1.0000 GHz  
RL #1F BW 120 kHz AVG BW 300 kHz SWP 909 msec



Plot B 16

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 17 dBi antenna

15:16:33 FEB 09, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 1.705 GHz  
50.21 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

MARKER  
↓ CF

MARKER  
△

NEXT  
PEAK

NEXT PK  
RIGHT

NEXT PK  
LEFT

More  
1 of 2

LOG REF 60.0 dB $\mu$ V/m

10  
dB/  
#ATN  
0 dB

VA SB  
SC FC  
ACORR

START 1.000 GHz

RL #1F BW 1.0 MHz

#AVG BW 30 kHz

STOP 2.000 GHz

SWP 100 msec



Plot B 17

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 17 dBi antenna

09:58:56 FEB 11, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.3812 GHz  
60.90 dBμV/m

MEASURE  
A1 MKR  
ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 70.0 dBμV/m

10  
dB/  
A1N  
10 dB

VA SB  
SC FC  
ACORR

START 2.0000 GHz STOP 2.3900 GHz  
RL 11F BW 1.0 MHz 1AUG BW 10 kHz SWP 117 nsec



Plot B 18

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 17 dBi antenna

10:07:13 FEB 11, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.4835 GHz  
59.94 dBμV/m

MEASURE  
A1 MKR  
ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 70.0 dBμV/m

10

dB/

A1N

10 dB

VA SB

SC FC

ACORR

START 2.4835 GHz

RL 1F BW 1.0 MHz

AVG BW 10 kHz

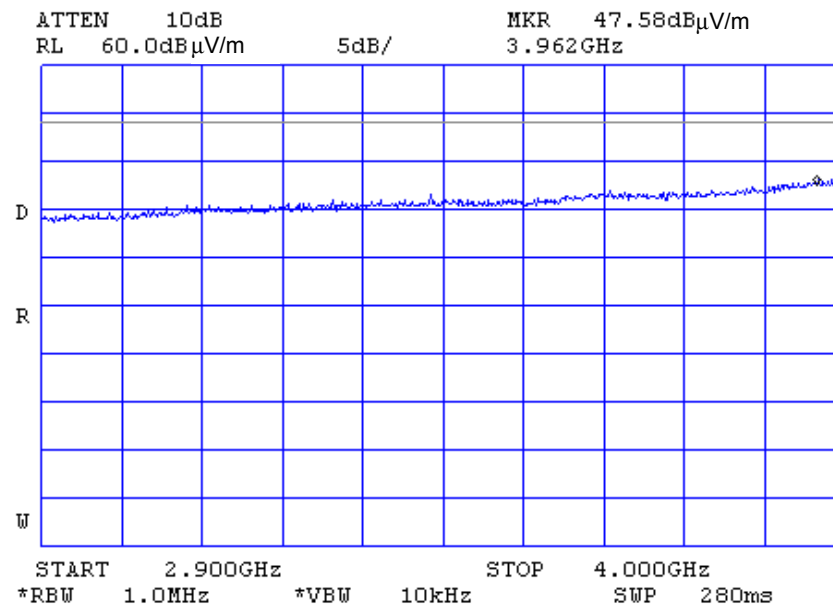
STOP 2.9000 GHz

SWP 125 nsec



Plot B 19

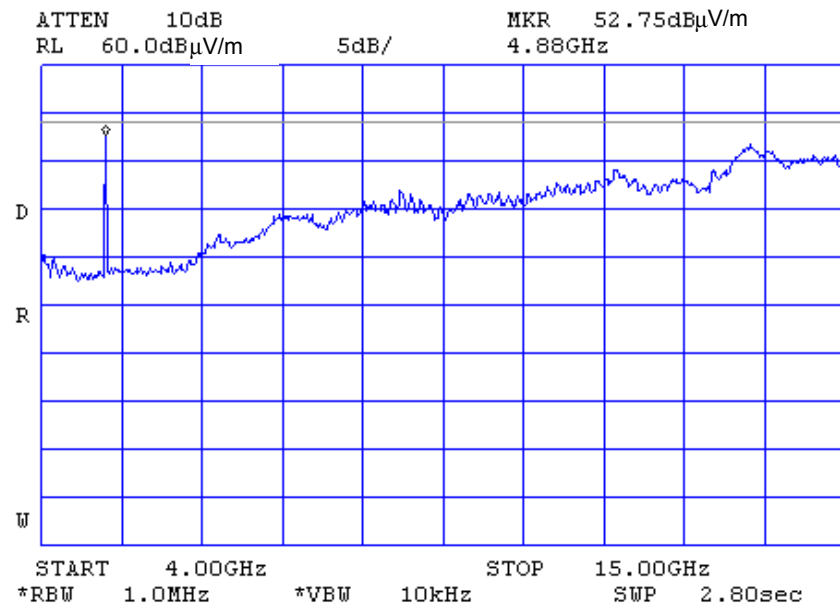
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 17 dBi antenna





Plot B 20

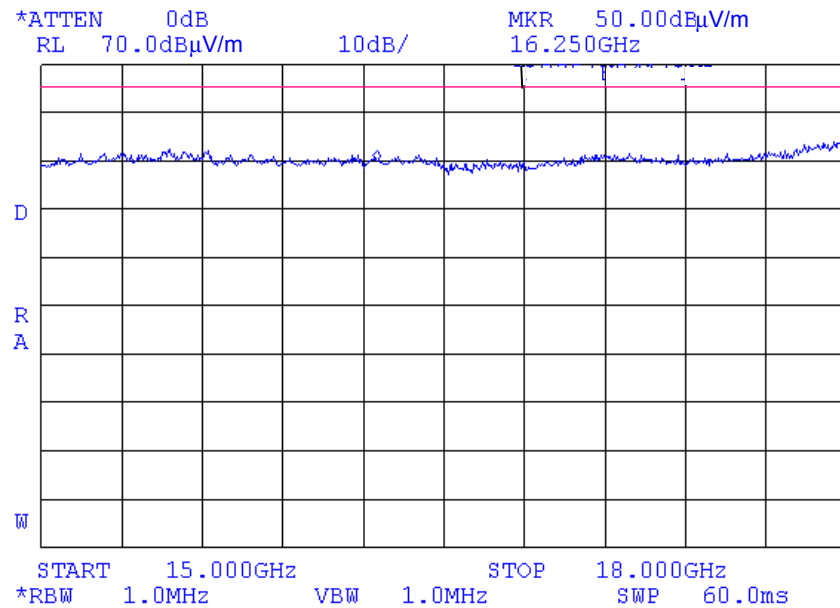
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 17 dBi antenna





Plot B 21

Radiated spurious emission measurements at the OATS @ 3 m distance,  
carrier frequency 2442 MHz, 17 dBi antenna

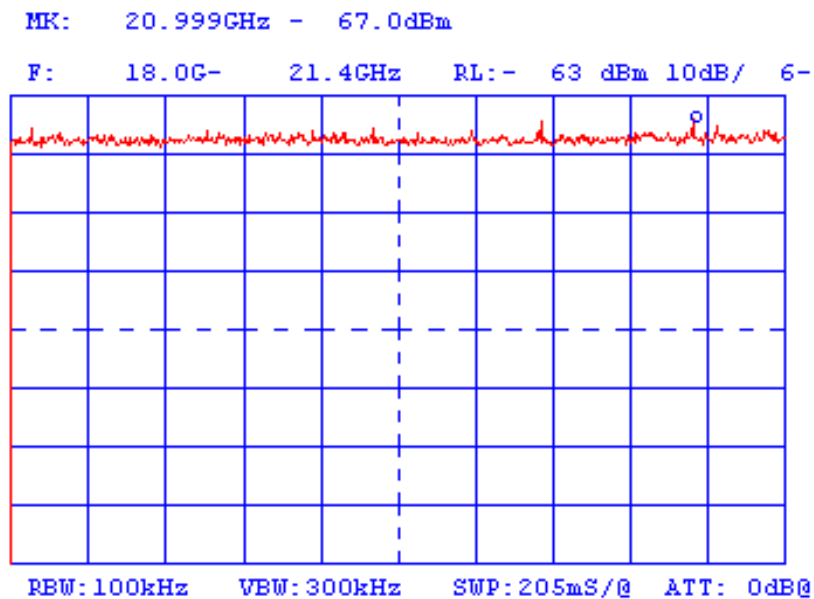


16.250 GHz – ambient noise



Plot B 22

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2442 MHz, 17 dBi antenna



No spurious were found

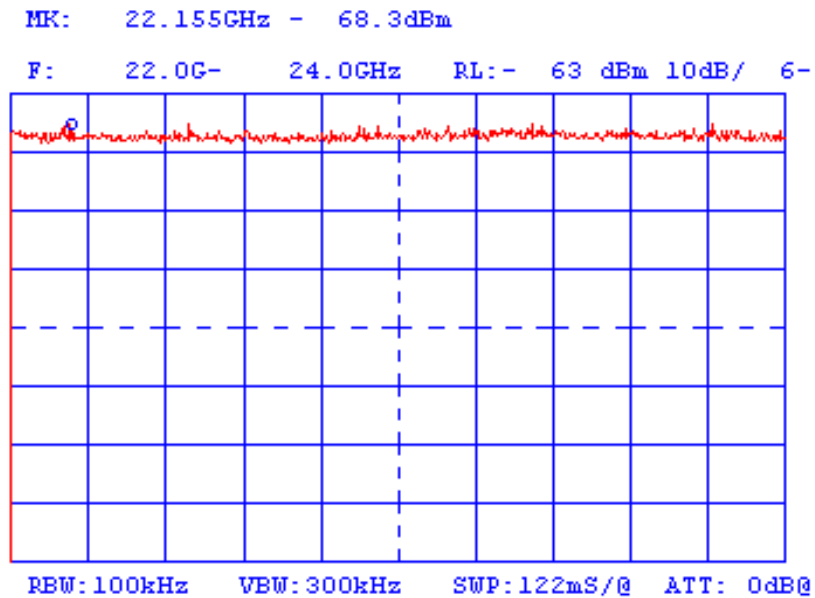
$U_{SA}$ : -67.0 dBm = 40.0 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 40.0 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43.5 \text{ dB} = 28.5 \text{ dB}(\mu\text{V/m})$



Plot B 23

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2442 MHz, 17 dBi antenna



No spurious were found

$U_{SA}$ : -68.3 dBm = 38.7 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 38.7 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 27.7 \text{ dB}(\mu\text{V/m})$



Plot B 24

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 17 dBi antenna

13:57:40 FEB 09, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 261.5 MHz  
36.82 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE B

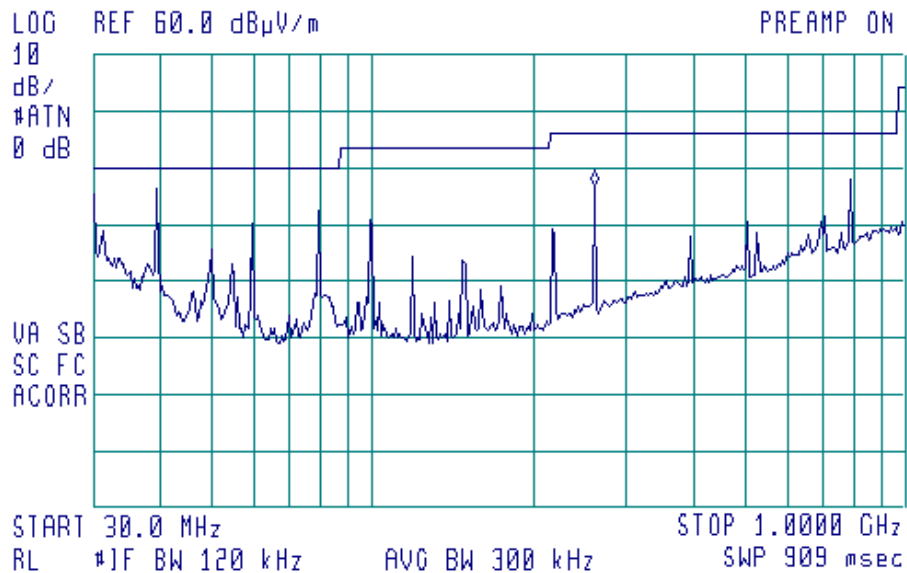
MAX  
HOLD B

VIEW B

BLANK B

Trace  
A B C

More  
1 of 3





Plot B 25

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 17 dBi antenna

14:00:22 FEB 09, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 1.980 GHz  
48.34 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

MARKER  
↓ CF

MARKER  
△

NEXT  
PEAK

NEXT PK  
RIGHT

NEXT PK  
LEFT

More  
1 of 2

LOG REF 70.0 dB $\mu$ V/m

10  
dB/  
#ATN  
0 dB

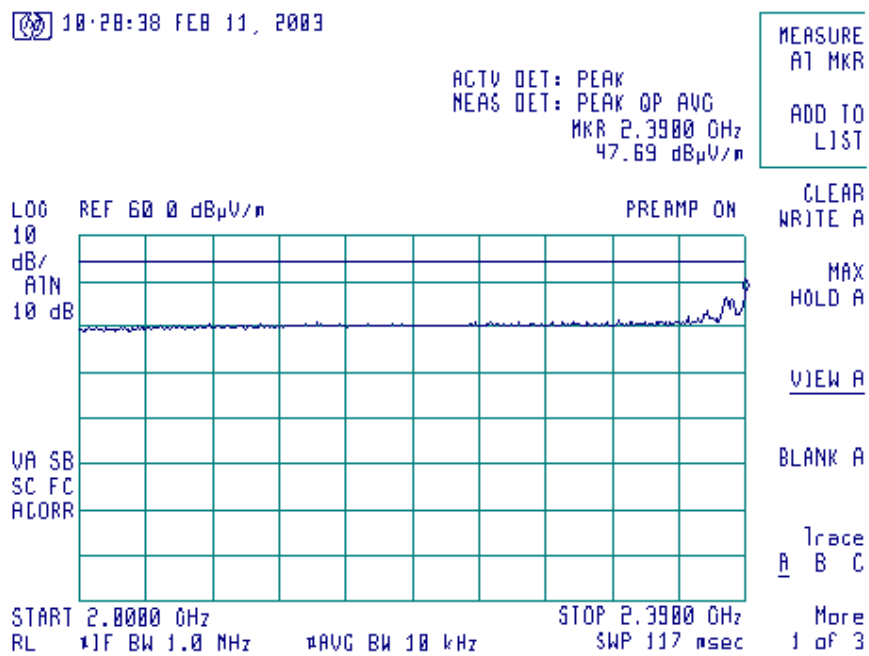
VA SB  
SC FC  
ACORR

START 1.000 GHz STOP 2.000 GHz  
RL #1F BW 1.0 MHz #AVG BW 300 kHz SWP 20.0 msec



Plot B 26

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 17 dBi antenna





Plot B 27

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 17 dBi antenna

10:24:38 FEB 11, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.4866 GHz  
59.84 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 70.0 dBμV/m

10

dB/

ATTN

10 dB

VA SB

SC FC

ACORR

START 2.4835 GHz

R 11F BW 1.0 MHz

1AVG BW 10 kHz

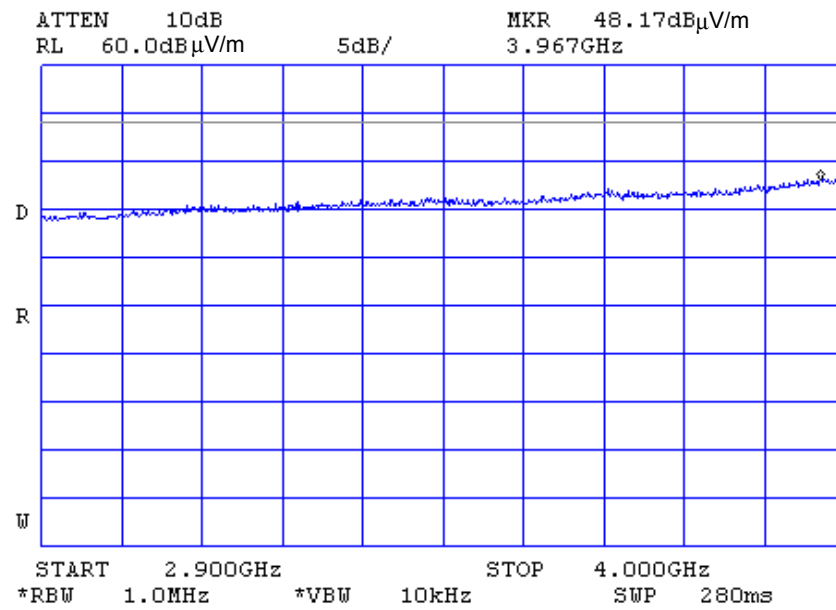
STOP 2.9000 GHz

SWP 125 msec



Plot B 28

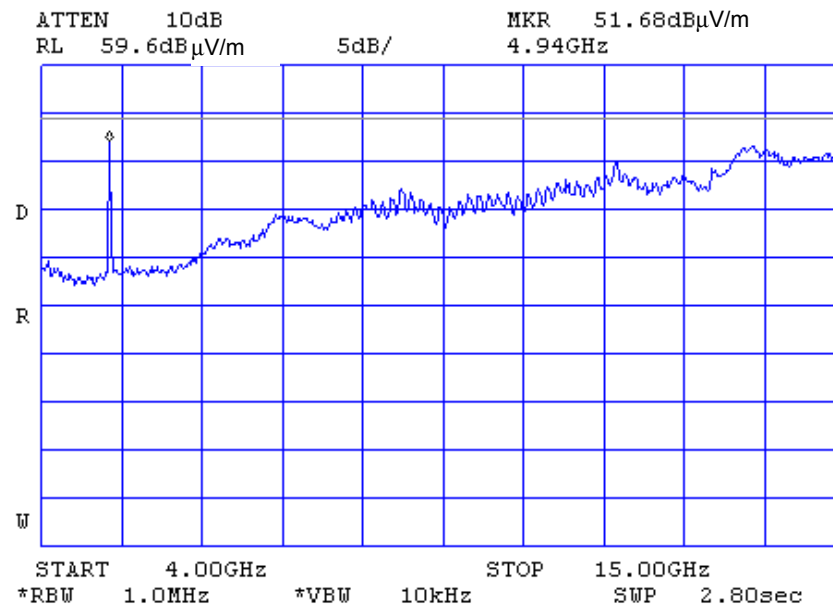
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 17 dBi antenna





Plot B 29

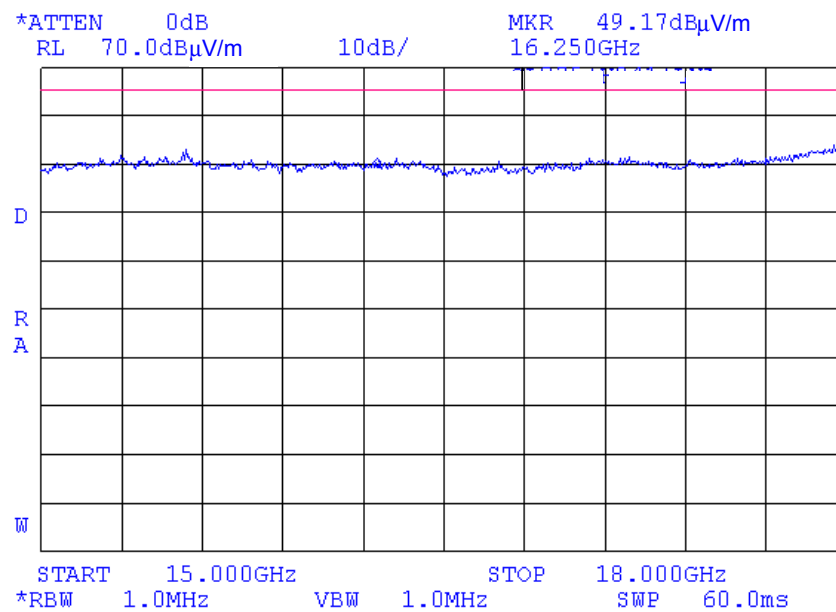
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 17 dBi antenna





Plot B 30

Radiated spurious emission measurements at the OATS @ 3 m distance,  
carrier frequency 2472 MHz, 17 dBi antenna

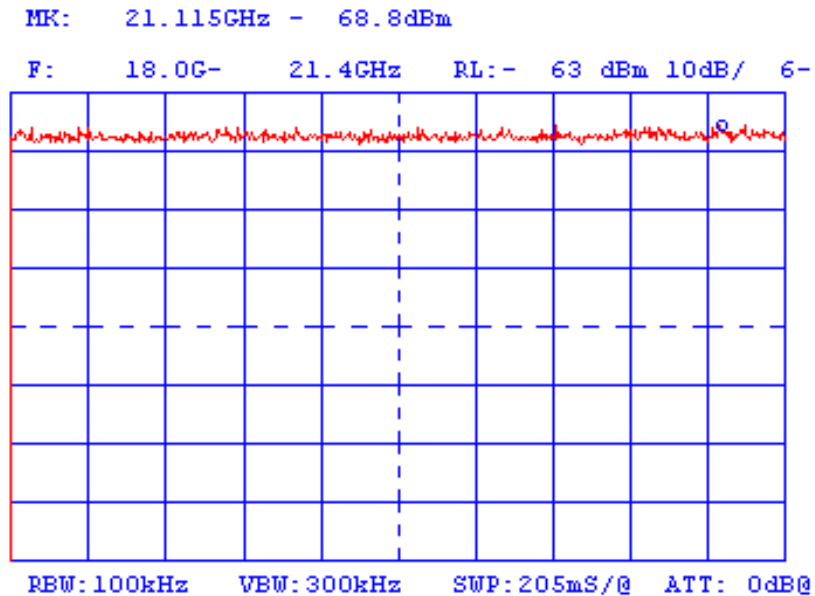


16.250 GHz – ambient noise



Plot B 31

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2472 MHz, 17 dBi antenna



No spurious were found

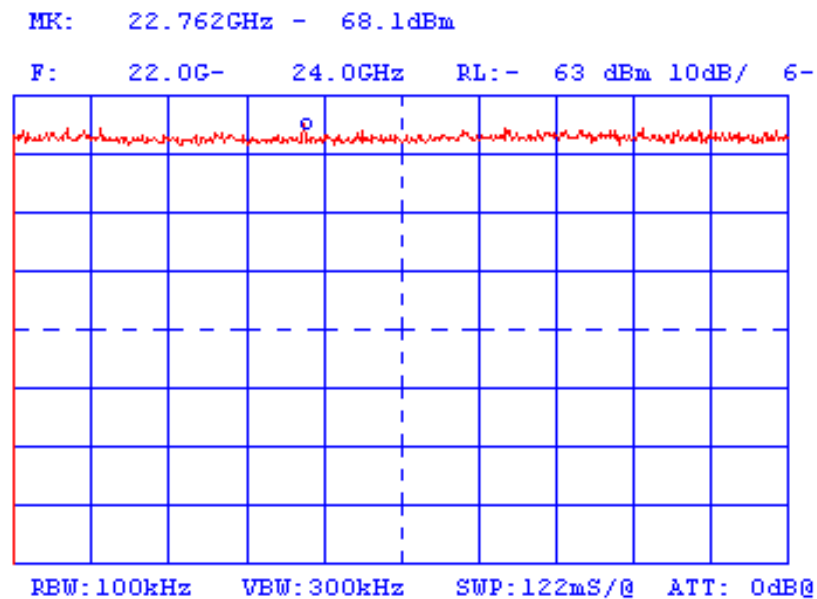
$U_{SA}$ : -68.8 dBm = 38.2 dB $\mu$ V/m

Noise level:  $U_{SA}$  + AF - Ampl. gain = 38.2 dB( $\mu$ V/m) + 32 dB(1/m) - 43 dB = 27.2 dB( $\mu$ V/m)



Plot B 32

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2472 MHz, 17 dBi antenna



No spurious were found

$U_{SA}$ : -68.1 dBm = 38.9 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 38.9 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 27.9 \text{ dB}(\mu\text{V/m})$



Plot B 33

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequencies 2412/2442/2472 MHz, 13.5 dBi antenna

11:00:43 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 70.7 kHz  
42.79 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 115.0 dB $\mu$ V/m

15  
dB/  
ATN  
40 dB

VA SB  
SC FC  
ACORR

START 9.0 kHz

RL #1F BW 200 Hz

AVG BW 300 Hz

STOP 150.0 kHz

SWP 10.3 sec



Plot B 34

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequencies 2412/2442/2472 MHz, 13.5 dBi antenna

11:04:25 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 19.98 MHz  
36.88 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 100.0 dB $\mu$ V/m

10  
dB/  
ATN  
20 dB

VA SB  
SC FC  
ACORR

START 150 kHz STOP 30.00 MHz  
RL #1F BW 9.0 kHz AVG BW 30 kHz SWP 2.49 sec



Plot B 35

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequencies 2412/2442/2472 MHz, 13.5 dBi antenna

09:11:48 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
Mkr 261.5 MHz  
34.09 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

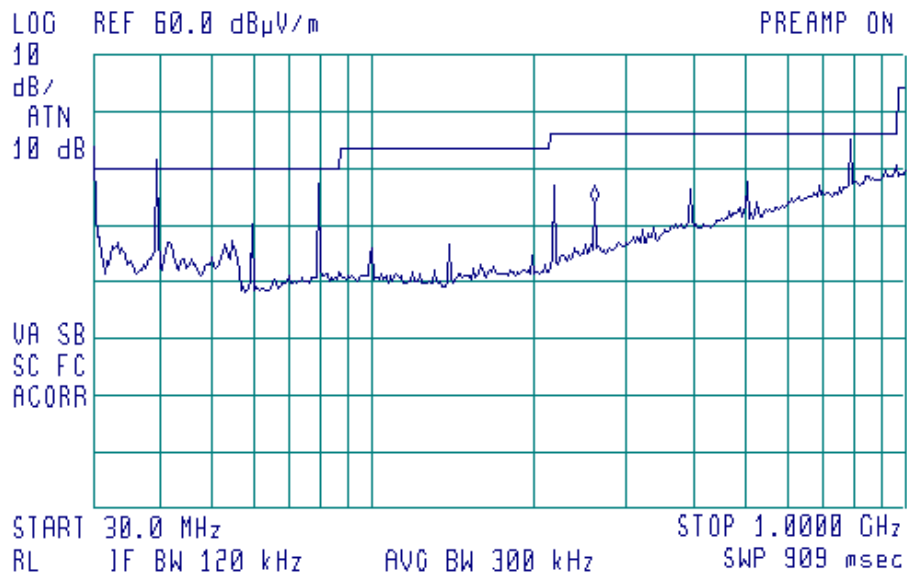
MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3





Plot B 36

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 13.5 dBi antenna

11:32:36 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 1.660 GHz  
46.62 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

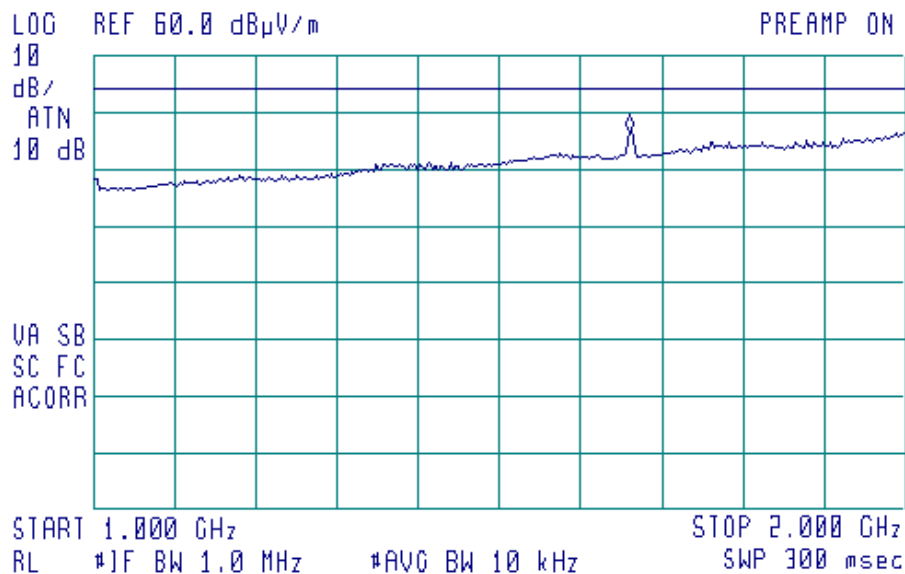
MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3





Plot B 37

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 13.5 dBi antenna

16:51:17 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 2.3861 GHz  
51.32 dBμV/m

MEASURE  
AT MKR  
ADD TO  
LIST

LOG REF 70 0 dBμV/m

PREAMP ON

10  
dB/  
#AIN  
0 dB

PASS LIMIT

CLEAR  
WRITE A  
MAX  
HOLD A

VA SB  
SC FC  
ACORR

VIEW A

BLANK A

Trace  
A B C

START 2.0000 GHz

STOP 2.3900 GHz

RL 11F BW 1.0 MHz

1AVG BW 10 kHz

SWP 117 nsec

More  
1 of 3



Plot B 38

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 13.5 dBi antenna

16:57:21 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.8927 GHz  
42.28 dBμV/m

MEASURE  
A1 MKR  
ADD TO  
LIST

LOG REF 70.0 dBμV/m

PREAMP ON

CLEAR  
WRITE A

10  
dB/  
#ATTN  
0 dB

PASS LIMIT

MAX  
HOLD A

VIEW A

VA SB  
SC FC  
ACORR

BLANK A

Trace  
A B C

START 2.4835 GHz

STOP 2.9000 GHz

RL 11F BW 1.0 MHz

AVG BW 10 kHz

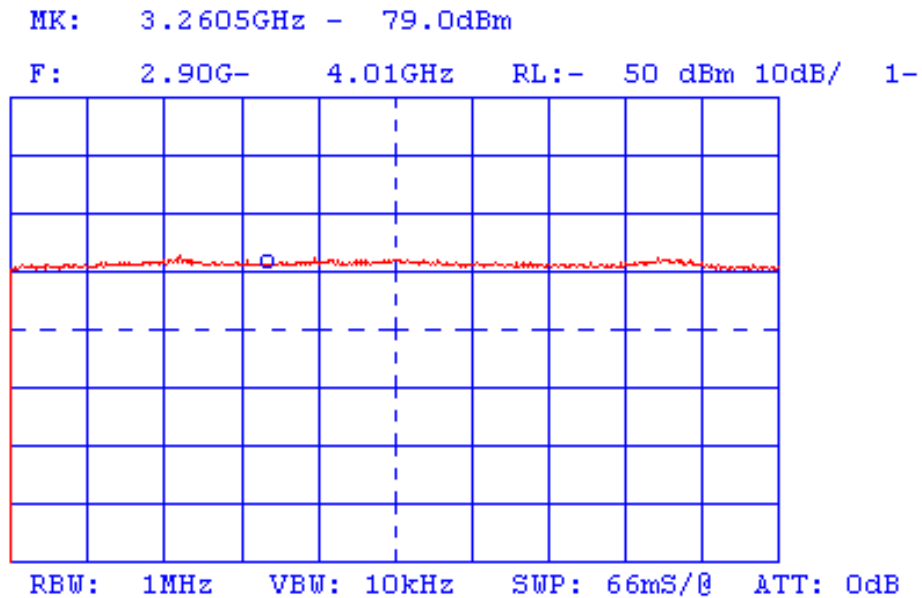
SWP 125 nsec

More  
1 of 3



Plot B 39

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 13.5 dBi antenna

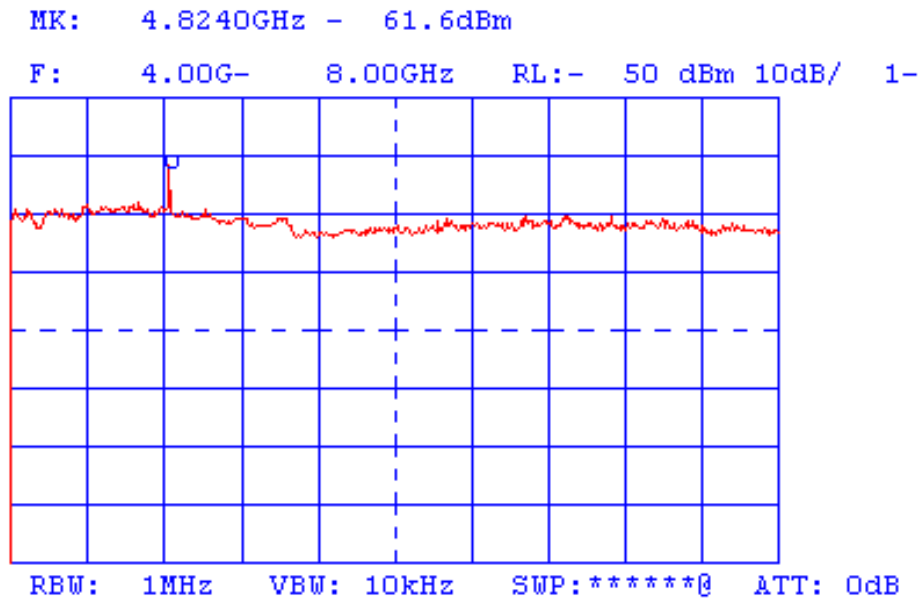


Average Limit = 54 dBuV/m  
Usa+AF+Closs-Amplif.gain  
 $28+32.5+1.8-20=42.3$  dBuV/m



Plot B 40

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 13.5 dBi antenna

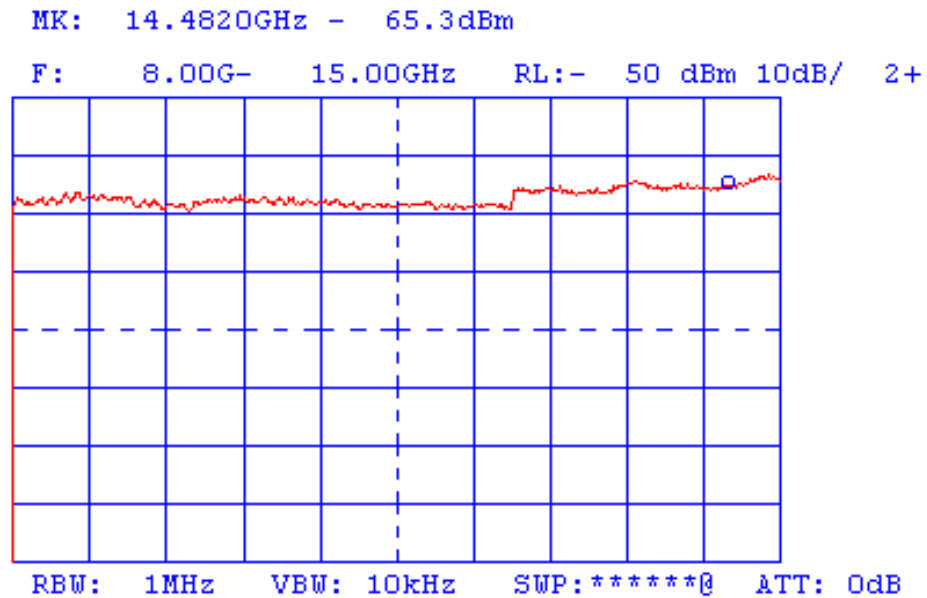


Average Limit = 54 dBuV/m  
Usa+AF+Closs-Amplif.gain  
Peak 49.6+35+1.9-37 =49.3 dBuV/m  
Average-34+35+1.9-37 = 33.9 dBuV/m



Plot B 41

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 13.5 dBi antenna

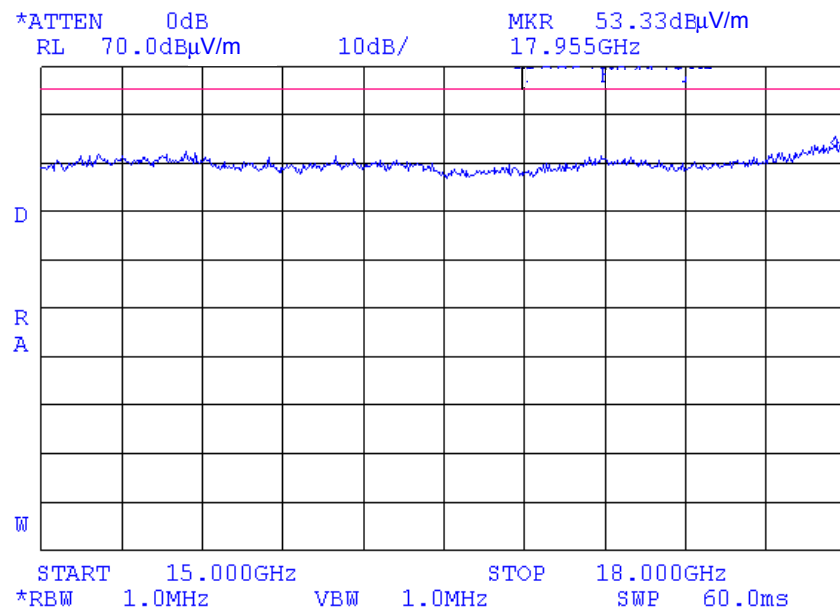


Limit = 54 dBuV/m  
Usa+AF+Closs-Amplif.gain  
 $41.7+38+4.2-35 = 48.9$  dBuV/m



Plot B 42

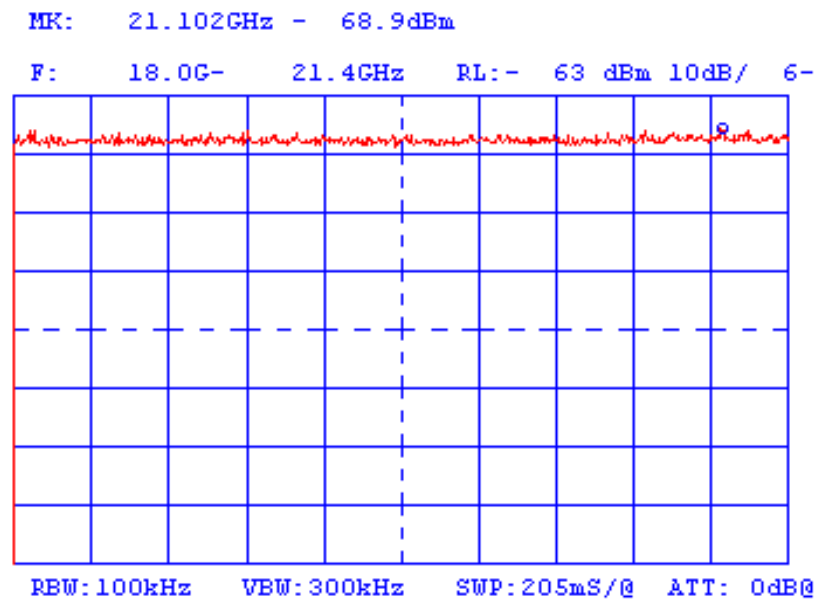
Radiated spurious emission measurements at the OATS @ 3 m distance,  
carrier frequency 2412 MHz, 13.5 dBi antenna





Plot B 43

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2412 MHz, 13.5 dBi antenna



No spurious were found

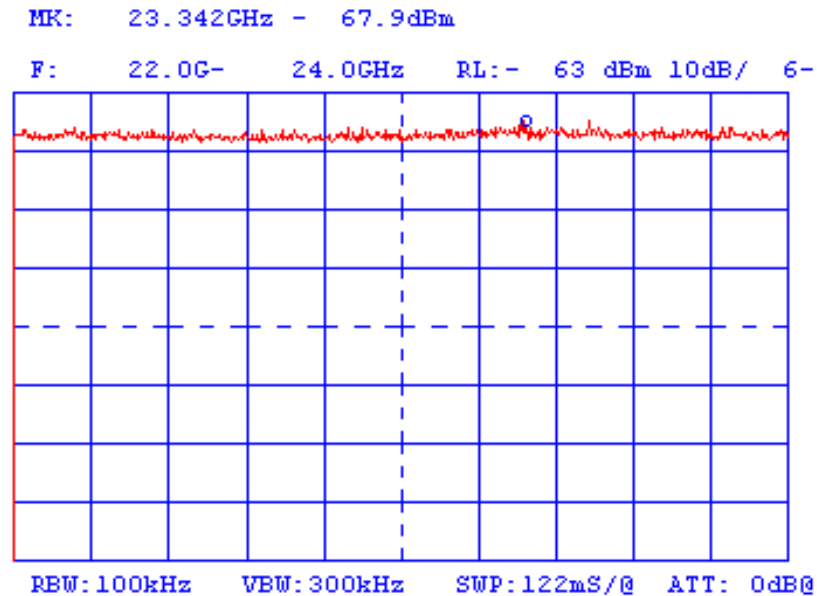
$U_{SA}$ : -68.9 dBm = 38.1 dB $\mu$ V/m

Noise level:  $U_{SA}$  + AF - Ampl. gain = 38.1 dB( $\mu$ V/m) + 32 dB(1/m) - 43 dB = 27.1 dB( $\mu$ V/m)



Plot B 44

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2412 MHz, 13.5 dBi antenna



No spurious were found

$U_{SA}$ : -67.9 dBm = 39.1 dB $\mu$ V/m

Noise level:  $U_{SA}$  + AF - Ampl. gain = 39.1 dB( $\mu$ V/m) + 32 dB(1/m) - 43 dB = 28.1 dB( $\mu$ V/m)



Plot B 45

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 13.5 dBi antenna

09:30:30 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
Mkr 1.905 GHz  
34.17 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 60.0 dB $\mu$ V/m

PREAMP ON

10  
dB/  
#ATN  
0 dB

VA SB  
SC FC  
ACORR

START 1.000 GHz

STOP 2.000 GHz

RL #1F BW 1.0 MHz

#AVG BW 10 kHz

SWP 300 msec



Plot B 46

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 13.5 dBi antenna

14:52:54 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.3812 GHz  
42.52 dBμV/m

MEASURE  
A1 MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 60 0 dBμV/m

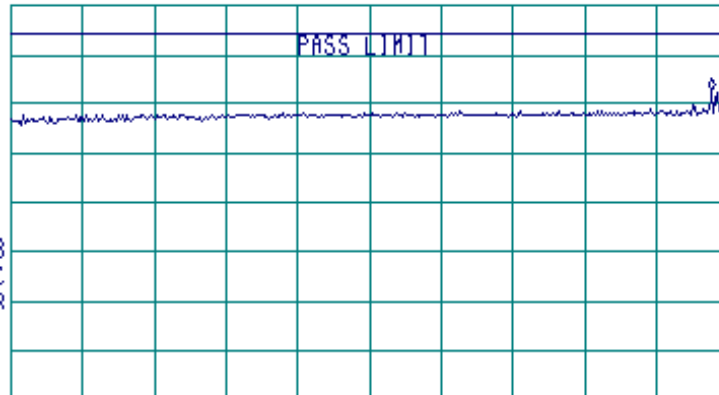
PREAMP ON

10  
dB/  
#AIN  
0 dB

VA SB  
SC FC  
ACORR

START 2.0000 GHz STOP 2.3900 GHz  
RL 1F BW 1.0 MHz AVG BW 10 kHz SWP 117 nsec

PASS LIMIT





Plot B 47

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 13.5 dBi antenna

15:04:25 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.4900 GHz  
42.73 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 60 0 dBμV/m

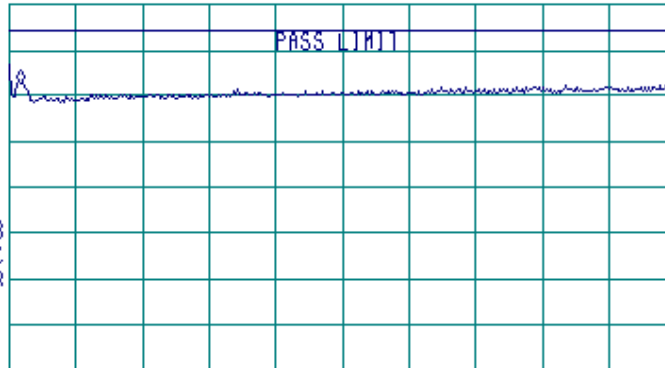
PREAMP ON

10  
dB/  
#ATTN  
0 dB

VA SB  
SC FC  
ACORR

START 2.4835 GHz STOP 2.9000 GHz  
RL 1F BW 1.0 MHz #AVG BW 10 kHz SWP 125 msec

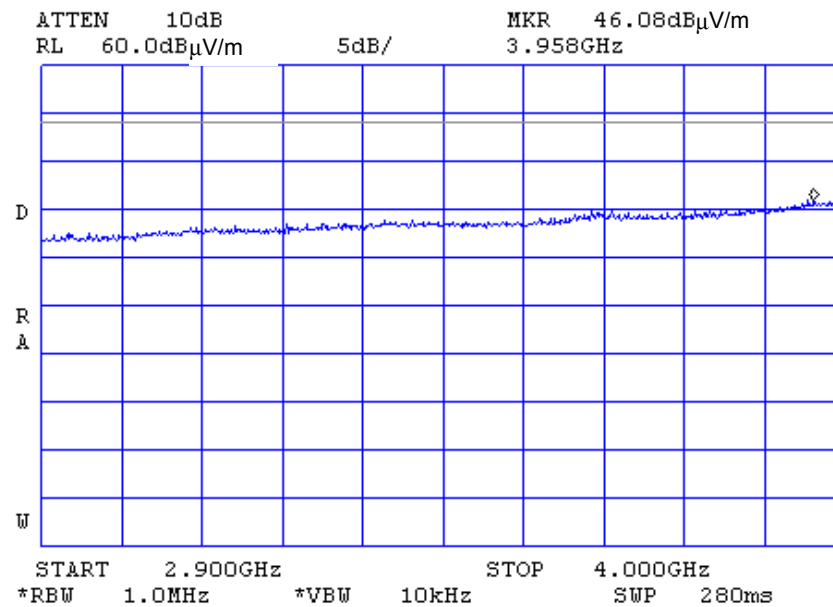
PASS LIMIT





Plot B 48

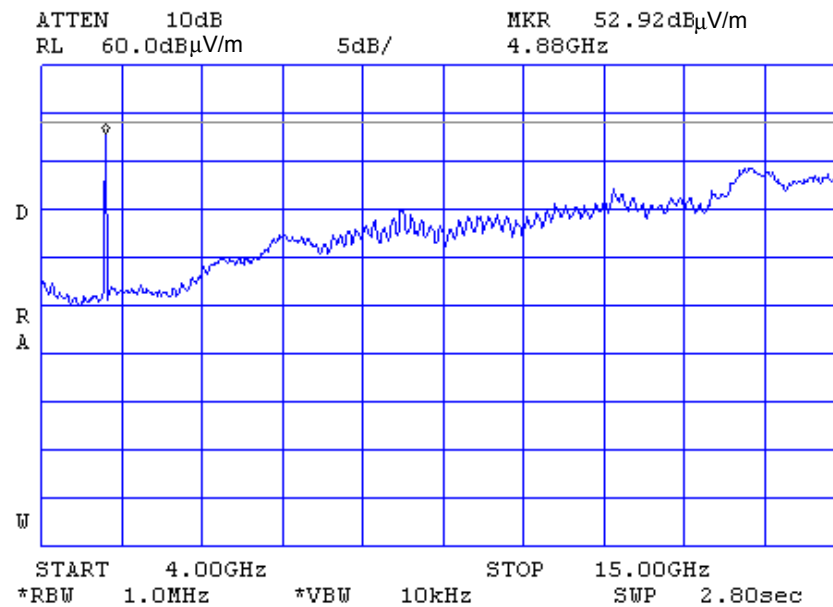
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 13.5 dBi antenna





Plot B 49

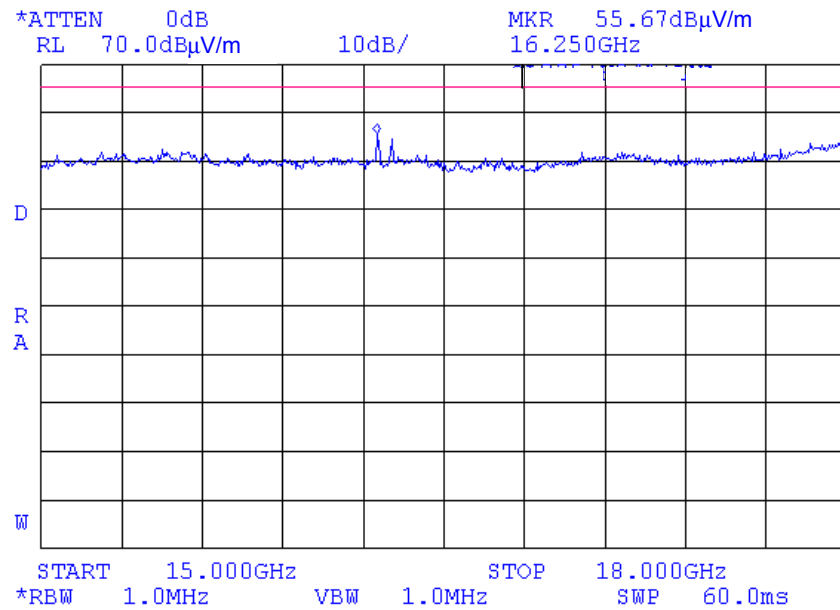
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 13.5 dBi antenna





Plot B 50

Radiated spurious emission measurements at the OATS @ 3 m distance,  
carrier frequency 2442 MHz, 13.5 dBi antenna

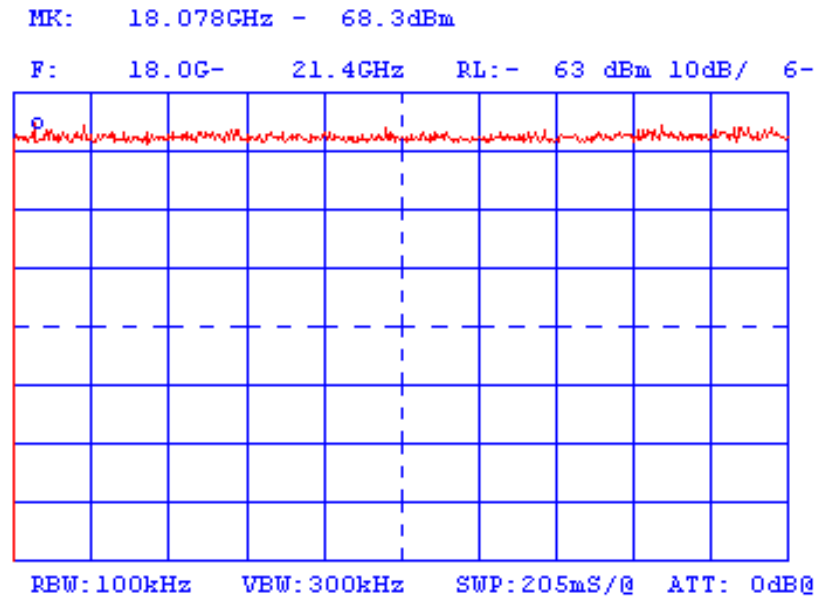


16.250 GHz-ambient noise



Plot B 51

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2442 MHz, 13.5 dBi antenna



No spurious were found

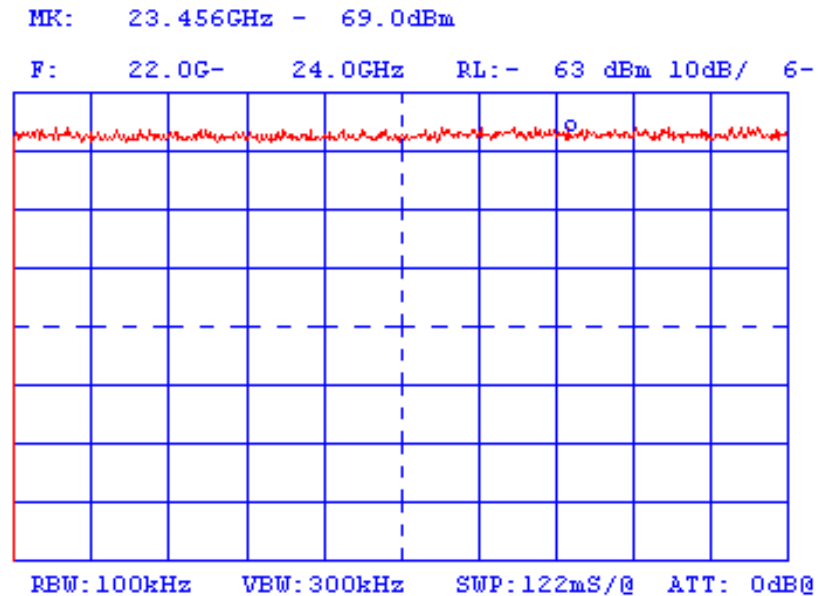
$U_{SA}$ : -68.3 dBm = 38.7 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 38.7 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 27.7 \text{ dB}(\mu\text{V/m})$



Plot B 52

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2442 MHz, 13.5 dBi antenna



No spurious were found

$U_{SA}$ : -69.0 dBm = 38.0 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 38.0 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 27.0 \text{ dB}(\mu\text{V/m})$



Plot B 53

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 13.5 dBi antenna

10:01:45 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 1.723 GHz  
37.85 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 60.0 dB $\mu$ V/m

PREAMP ON

10  
dB/  
#ATN  
0 dB

VA SB  
SC FC  
ACORR

START 1.000 GHz

STOP 2.000 GHz

RL #1F BW 1.0 MHz

#AVG BW 10 kHz

SWP 300 msec



Plot B 54

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 13.5 dBi antenna

17:02:46 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.2525 GHz  
39.46 dBμV/m

MEASURE  
A1 MKR  
ADD TO  
LIST

LOG REF 70.0 dBμV/m

PREAMP ON

CLEAR  
WRITE A

10  
dB/  
#AIN  
0 dB

PASS LIMIT

MAX  
HOLD A

VIEW A

MA SB  
SC FC  
ACORR

BLANK A

Trace  
A B C

START 2.0000 GHz

STOP 2.3900 GHz

RL 11F BW 1.0 MHz

AVG BW 10 kHz

SWP 117 nsec

More  
1 of 3



Plot B 55

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 13.5 dBi antenna

17:26:08 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.4877 GHz  
55.13 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 70 0 dBμV/m  
10  
dB/  
#ATTN  
0 dB

PREAMP ON

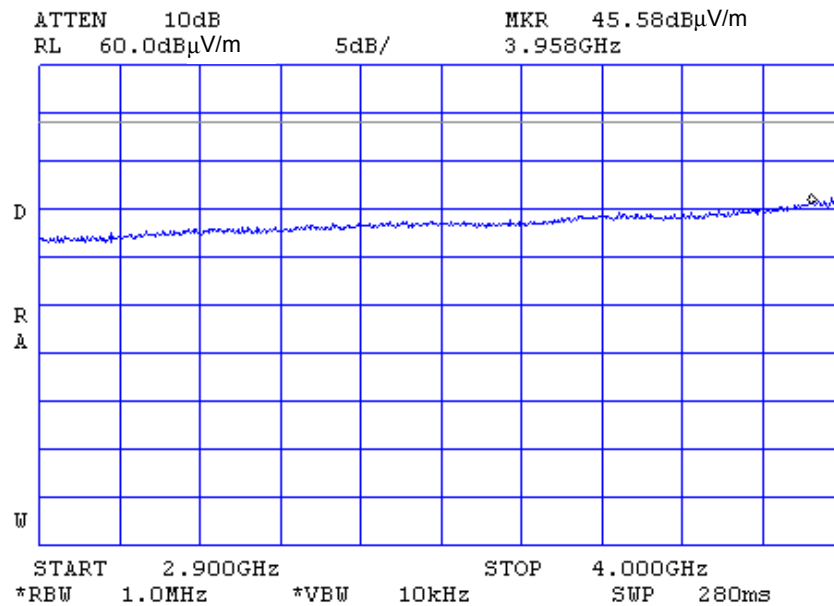
VA SB  
SC FC  
ACORR

START 2.4835 GHz STOP 2.9000 GHz  
RL 11F BW 1.0 MHz 1AVG BW 10 kHz SWP 125 msec



Plot B 56

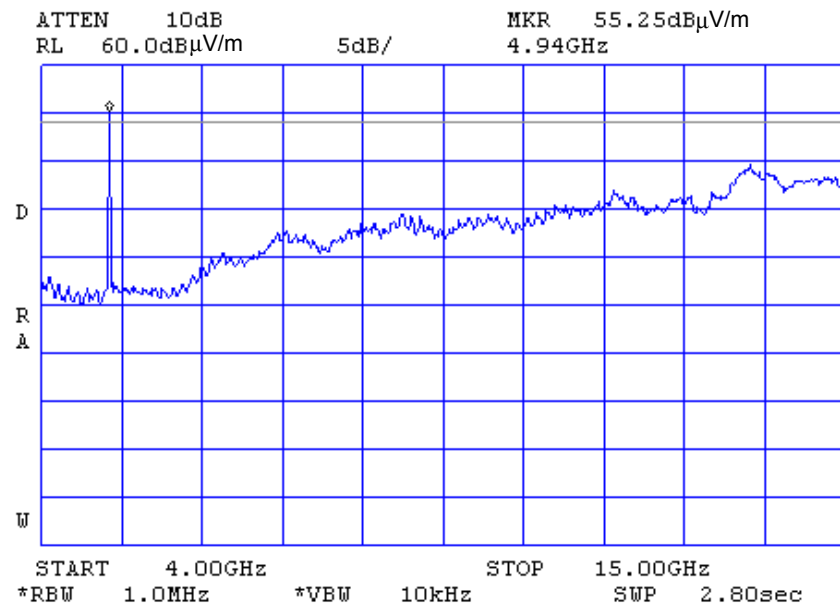
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 13.5 dBi antenna





Plot B 57

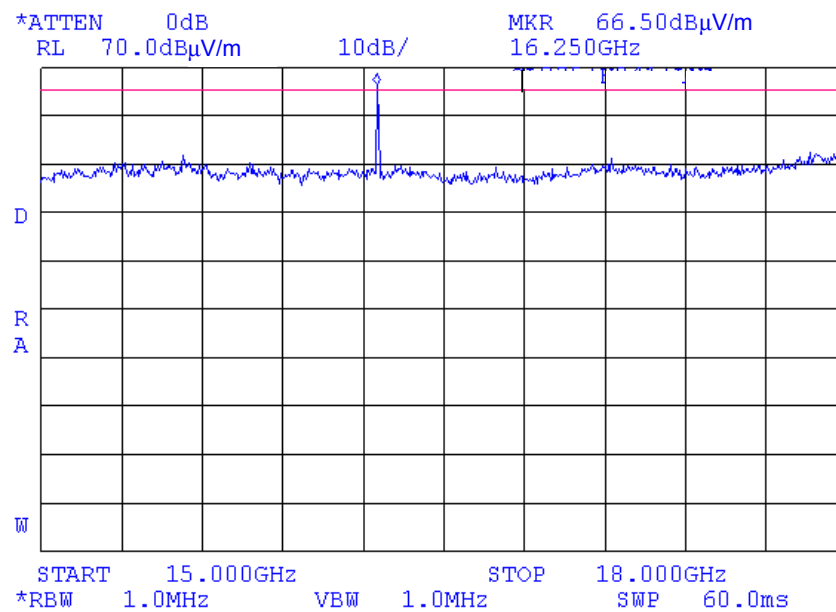
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 13.5 dBi antenna





Plot B 58

Radiated spurious emission measurements at the OATS @ 3 m distance,  
carrier frequency 2472 MHz, 13.5 dBi antenna

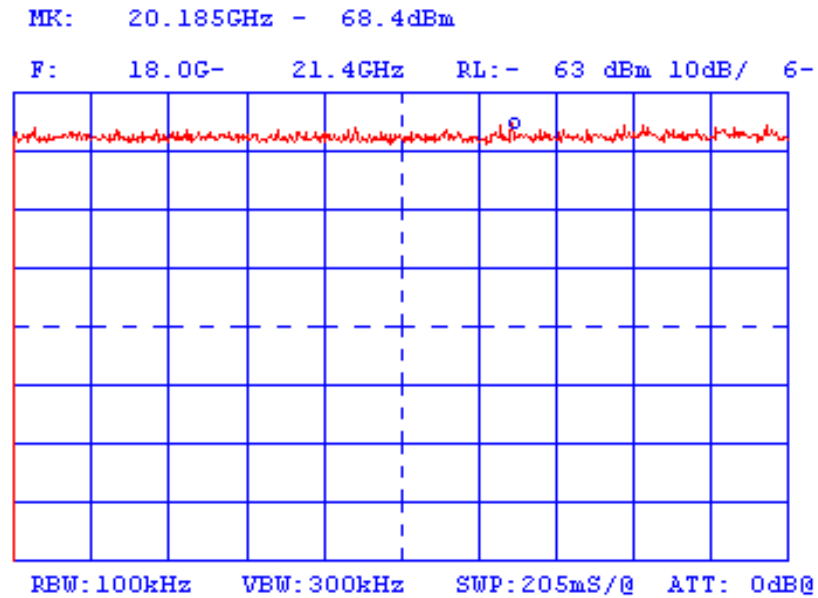


16.250 GHz-ambient noise



Plot B 59

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2472 MHz, 13.5 dBi antenna



No spurious were found

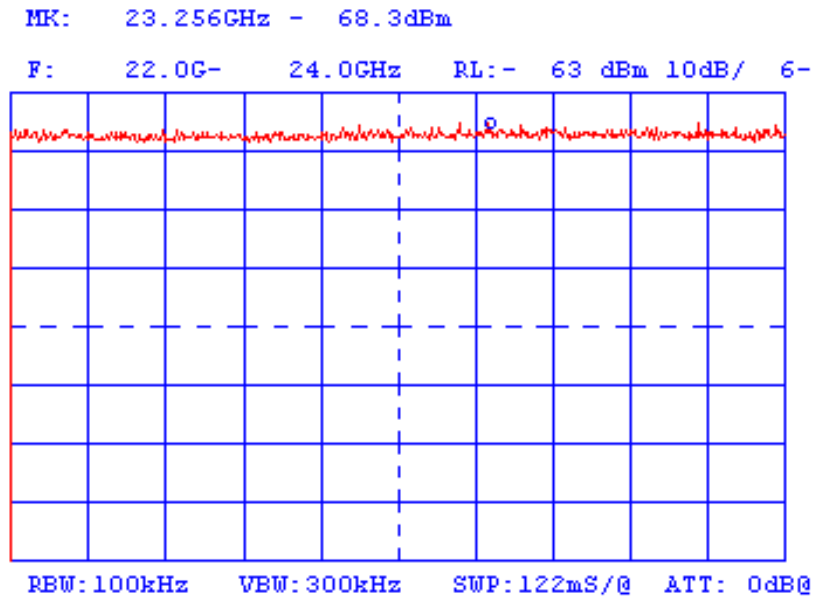
$U_{SA}$ : -68.4 dBm = 38.6 dB $\mu$ V/m

Noise level:  $U_{SA}$  + AF - Ampl. gain = 38.6 dB( $\mu$ V/m) + 32 dB(1/m) - 43 dB = 27.6 dB( $\mu$ V/m)



Plot B 60

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2472 MHz, 13.5 dBi antenna



No spurious were found

$U_{SA}$ : -68.3 dBm = 38.7 dB $\mu$ V/m

Noise level:  $U_{SA}$  + AF - Ampl. gain = 38.7 dB( $\mu$ V/m) + 32 dB(1/m) - 43 dB = 27.7 dB( $\mu$ V/m)



Plot B 61

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequencies 2412/2442/2472 MHz, 18 dBi antenna

12:25:40 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 11.1 kHz  
55.34 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

MARKER  
↓ CF

MARKER  
△

NEXT  
PEAK

NEXT PK  
RIGHT

NEXT PK  
LEFT

More  
1 of 2

LOG REF 110.0 dB $\mu$ V/m  
10  
dB/  
ATN  
30 dB

VA SB  
SC FC  
ACORR

START 9.0 kHz STOP 150.0 kHz  
RL #1F BW 200 Hz AVG BW 300 Hz SWP 10.3 sec



Plot B 62

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequencies 2412/2442/2472 MHz, 18 dBi antenna

12:28:51 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
Mkr 19.98 MHz  
48.64 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 100.0 dB $\mu$ V/m  
10  
dB/  
ATN  
20 dB

VA SB  
SC FC  
ACORR

START 150 kHz STOP 30.00 MHz  
RL #1F BW 9.0 kHz AVG BW 30 kHz SWP 2.49 sec



Plot B 63

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequencies 2412/2442/2472 MHz, 18 dBi antenna

11:56:24 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 261.5 MHz  
34.60 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

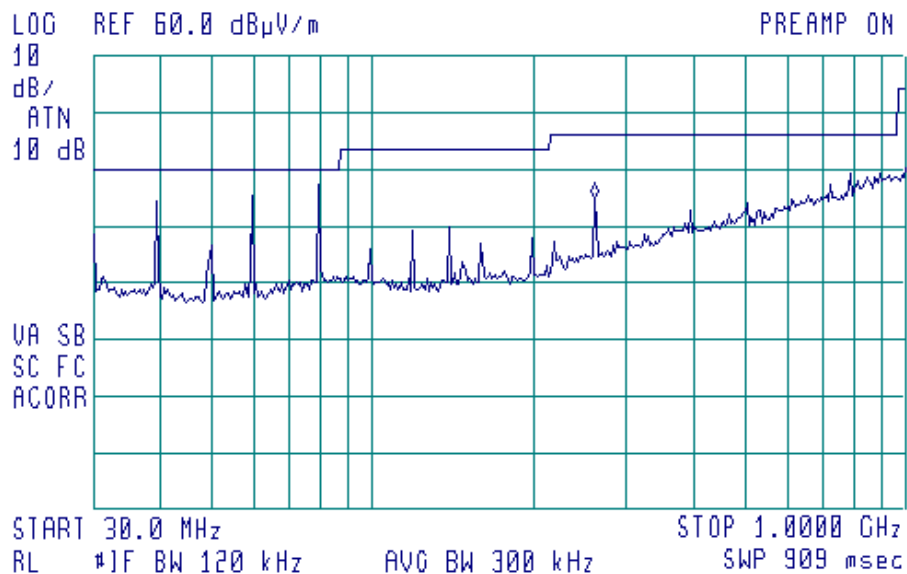
MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3





## Plot B 64

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 18 dBi antenna

11:45:41 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 1.660 GHz  
44.59 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 60.0 dB $\mu$ V/m

PREAMP ON

10  
dB/  
ATN  
10 dB

VA SB  
SC FC  
ACORR

START 1.000 GHz

STOP 2.000 GHz

RL #1F BW 1.0 MHz

#AVG BW 10 kHz

SWP 300 msec



Plot B 65

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 18 dBi antenna

16:34:24 FEB 10, 2003

ACTV DET: PEAK  
NEAS DET: PEAK OP AVG  
MKR 2.3871 GHz  
51.89 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 70 0 dBμV/m

PREAMP ON

10  
dB/  
#ATTN  
0 dB

PASS LIMIT

VA SB  
SC FC  
ACORR

START 2.0000 GHz

R 11F BW 1.0 MHz

1AVG BW 10 kHz

STOP 2.3900 GHz

SWP 117 μsec



Plot B 66

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 18 dBi antenna

16:27:47 FEB 10, 2003

ACTV DET: PEAK  
NEAS DET: PEAK OP AVG  
MKR 2.9000 GHz  
41.97 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 70.0 dBμV/m

PREAMP ON

10  
dB/  
#ATTN  
0 dB

MA SB  
SC FC  
ACORR

START 2.4835 GHz

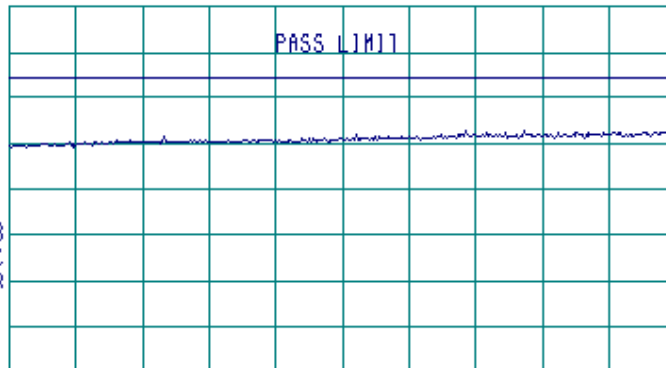
RL 11F BW 1.0 MHz

1AVG BW 10 kHz

STOP 2.9000 GHz

SWP 125 msec

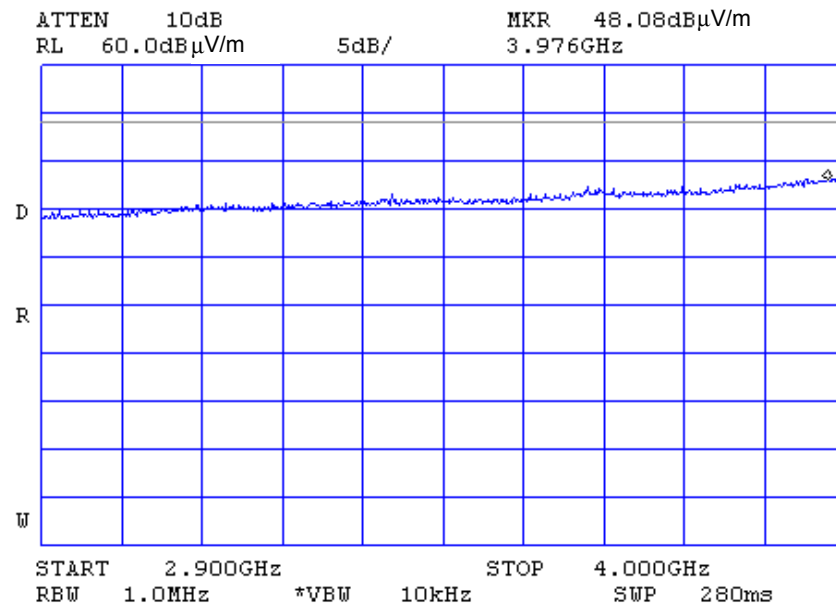
PASS 11111





Plot B 67

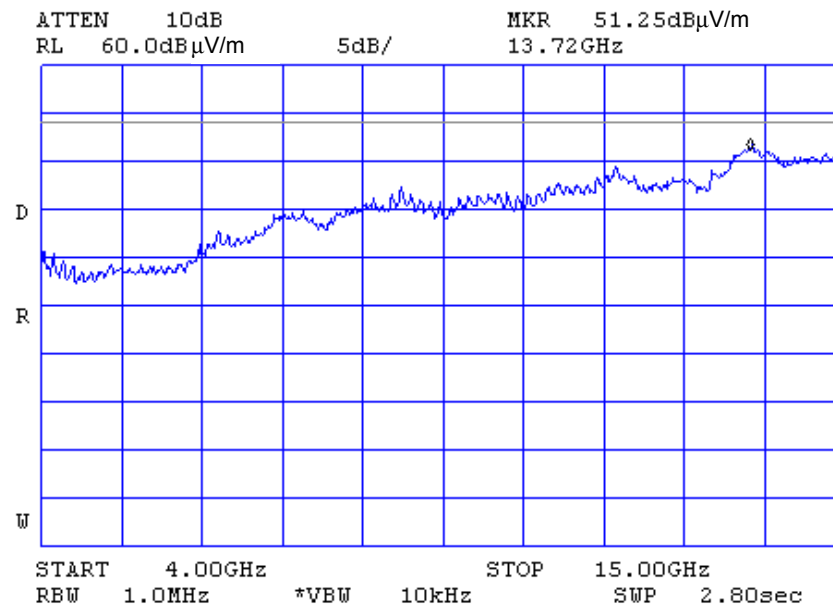
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 18 dBi antenna





Plot B 68

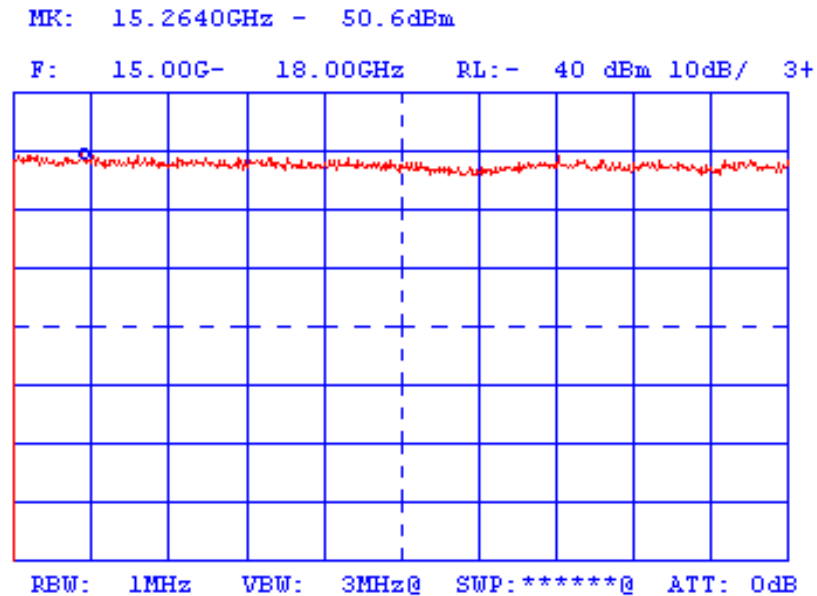
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 18 dBi antenna





Plot B 69

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2412 MHz, 18 dBi antenna



No spurious were found

$U_{SA}$ : -50.6 dBm = 56.4 dB $\mu$ V/m

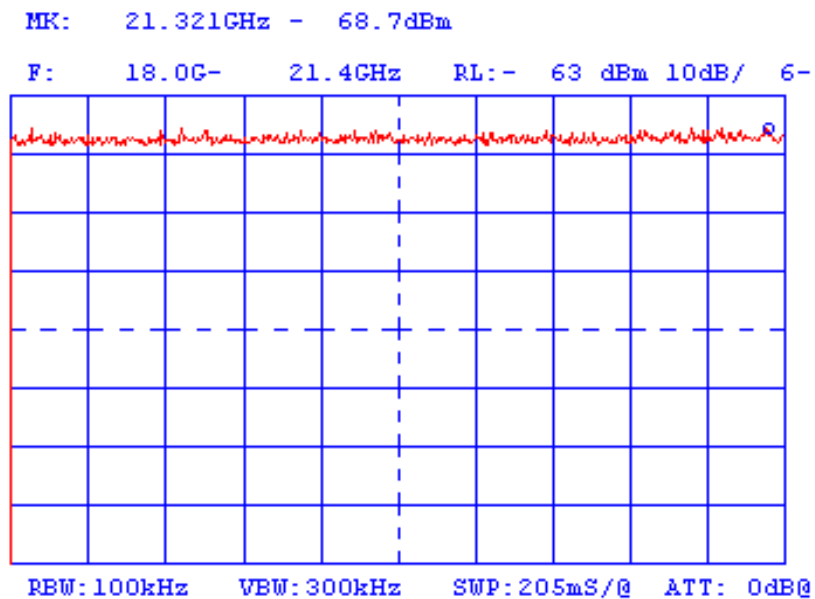
Noise level:  $U_{SA}$  + AF + CL - Ampl. gain = 56.4 dB( $\mu$ V/m) + 38 dB(1/m) + 4.6 dB - 45 dB = 54 dB( $\mu$ V/m)

Limit @ 1 meter: 63.5 dB( $\mu$ V/m)



Plot B 70

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2412 MHz, 18 dBi antenna



No spurious were found

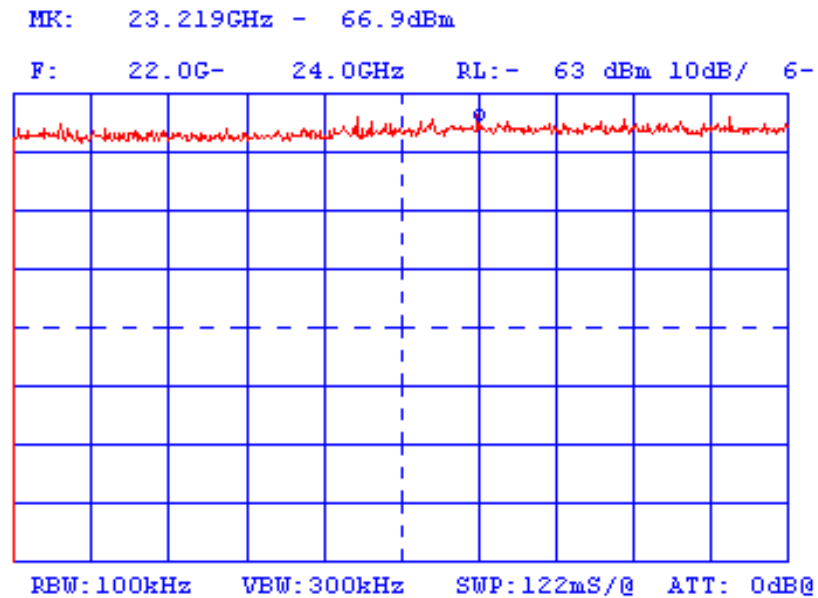
$U_{SA}$ : -68.7 dBm = 38.3 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 38.3 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 27.3 \text{ dB}(\mu\text{V/m})$



Plot B 71

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2412 MHz, 18 dBi antenna



No spurious were found

$U_{SA}$ : -66.9 dBm = 40.1 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 40.1 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 29.1 \text{ dB}(\mu\text{V/m})$



Plot B 72

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 18 dBi antenna

12:19:46 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
Mkr 1.773 GHz  
44.45 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 60.0 dB $\mu$ V/m

PREAMP ON

10  
dB/  
ATN  
10 dB

VA SB  
SC FC  
ACORR

START 1.000 GHz

STOP 2.000 GHz

RL #1F BW 1.0 MHz

#AVG BW 10 kHz

SWP 300 msec



Plot B 73

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 18 dBi antenna

15:48:41 FEB 10, 2003

ACTV DET: PEAK  
NEAS DET: PEAK OP AVG  
MKR 2.3812 GHz  
45.10 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 70.0 dBμV/m  
10  
dB/  
#ATTN  
0 dB

PREAMP ON

PASS LIMIT

VA SB  
SC FC  
ACORR

START 2.0000 GHz  
R 11F BW 1.0 MHz 1AVG BW 10 kHz

STOP 2.3900 GHz  
SWP 117 μsec



Plot B 74

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 18 dBi antenna

15:41:04 FEB 10, 2003

ACTV DET: PEAK  
NEAS DET: PEAK OP AVG  
MKR 2.4900 MHz  
44.86 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LO0 REF 70.0 dBμV/m

PREAMP ON

10  
dB/  
#AIN  
0 dB

VA SB  
SC FC  
ACORR

START 2.4835 MHz

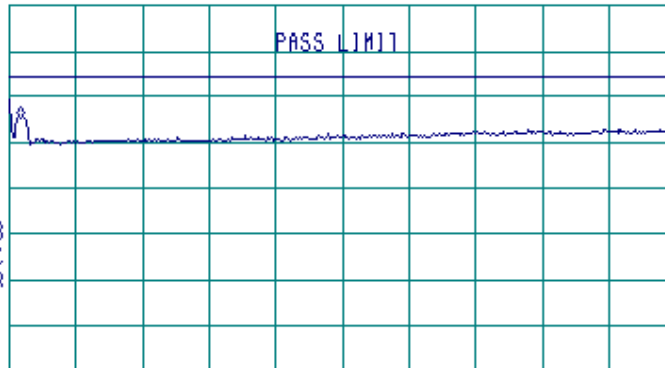
RL 11F BW 1.0 MHz

1AVG BW 10 kHz

STOP 2.9000 MHz

SWP 125 msec

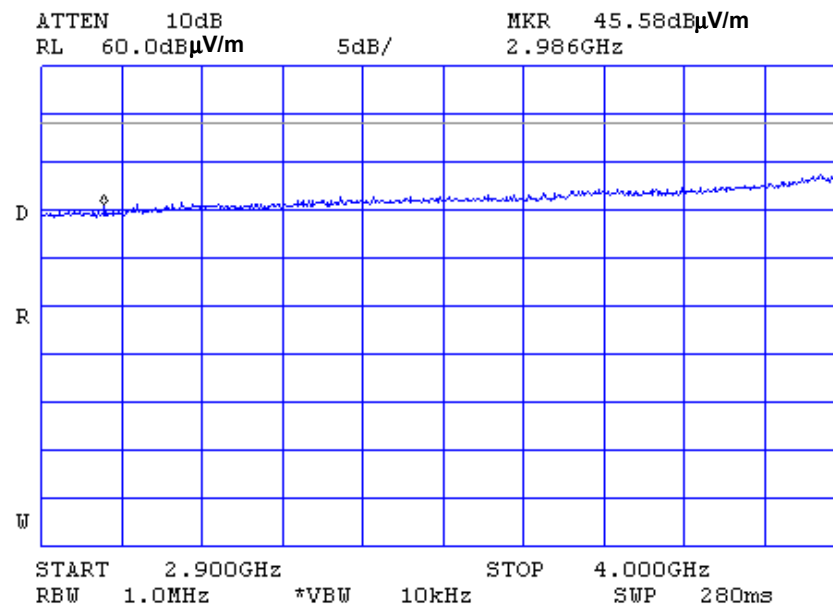
PASS LIMIT





Plot B 75

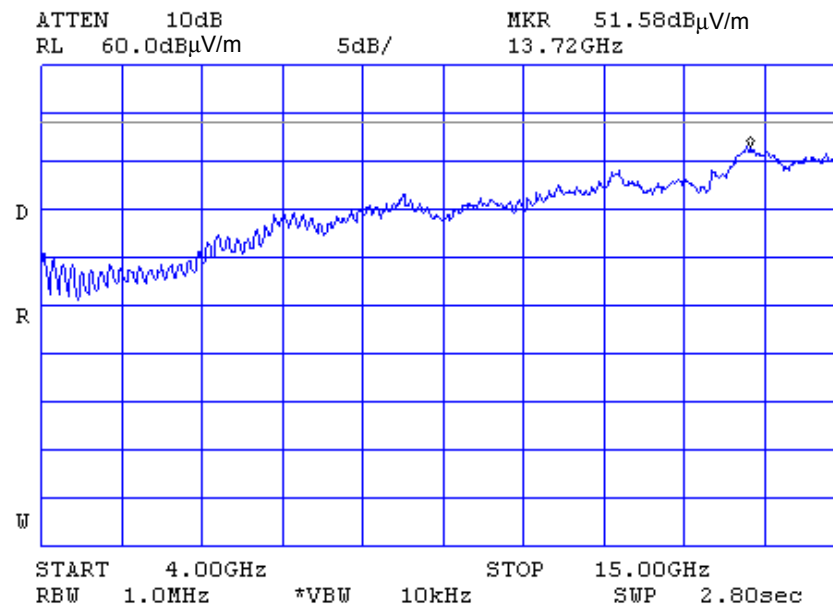
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 18 dBi antenna





Plot B 76

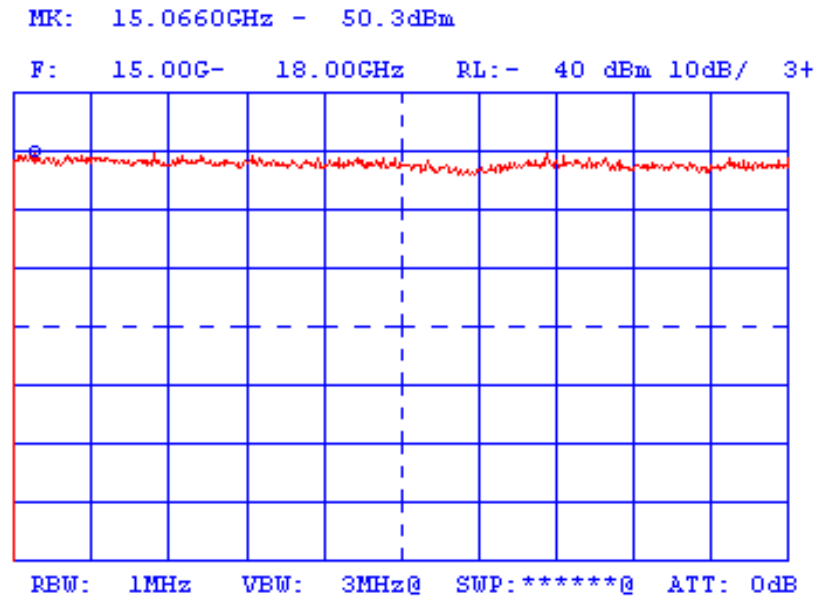
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 18 dBi antenna





Plot B 77

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2442 MHz, 18 dBi antenna



No spurious were found

$U_{SA}$ : -50.3 dBm = 56.7 dB $\mu$ V/m

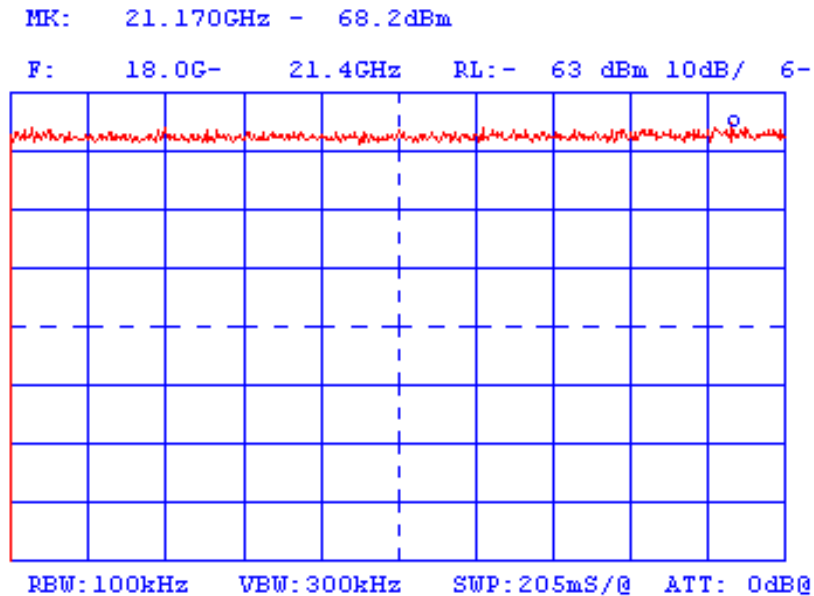
Noise level:  $U_{SA} + AF + CL - \text{Ampl. gain} = 56.7 \text{ dB}(\mu\text{V/m}) + 38 \text{ dB}(1/\text{m}) + 4.6 \text{ dB} - 45 \text{ dB} = 54.3 \text{ dB}(\mu\text{V/m})$

Limit @ 1 meter: 63.5 dB( $\mu$ V/m)



Plot B 78

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2442 MHz, 18 dBi antenna



No spurious were found

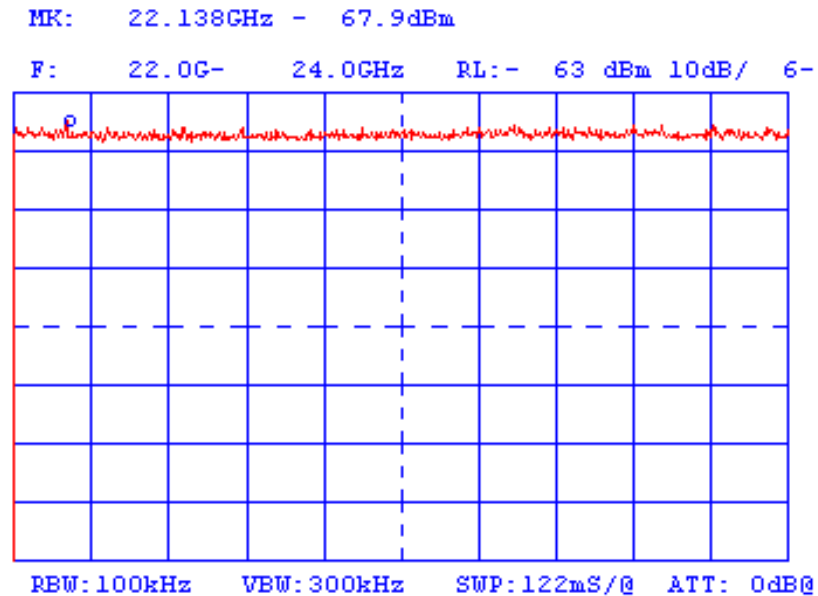
$U_{SA}$ : -68.2 dBm = 38.8 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 38.8 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 27.8 \text{ dB}(\mu\text{V/m})$



Plot B 79

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2442 MHz, 18 dBi antenna



No spurious were found

$U_{SA}$ : -67.9 dBm = 39.1 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 39.1 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 28.1 \text{ dB}(\mu\text{V/m})$



Plot B 80

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 18 dBi antenna

12:00:41 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
Mkr 1.750 GHz  
44.86 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 60.0 dB $\mu$ V/m

PREAMP ON

10  
dB/  
ATN  
10 dB

VA SB  
SC FC  
ACORR

START 1.000 GHz

STOP 2.000 GHz

RL #1F BW 1.0 MHz

#AVG BW 10 kHz

SWP 300 msec



Plot B 81

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 18 dBi antenna

16:08:27 FEB 10, 2003

ACTV DET: PEAK  
NEAS DET: PEAK OP AVG  
MKR 2.3793 GHz  
39.57 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 70.0 dBμV/m

PREAMP ON

10  
dB/  
#ATTN  
0 dB

PASS LIMIT

VA SB  
SC FC  
ACORR

START 2.0000 GHz

RL 11F BW 1.0 MHz

1AVG BW 10 kHz

STOP 2.3900 GHz

SWP 117 μsec



Plot B 82

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 18 dBi antenna

16:12:58 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.4866 GHz  
52.34 dBμV/m

MEASURE  
A1 MKR  
ADD TO  
LIST

LOG REF 70.0 dBμV/m

PREAMP ON

CLEAR  
WRITE A

10  
dB/  
#A1N  
0 dB

PASS LIMIT

MAX  
HOLD A

VIEW A

VA SB  
SC FC  
ACORR

BLANK A

Trace  
A B C

START 2.4835 GHz

STOP 2.9000 GHz

RL 11F BW 1.0 MHz

1AUG BW 10 kHz

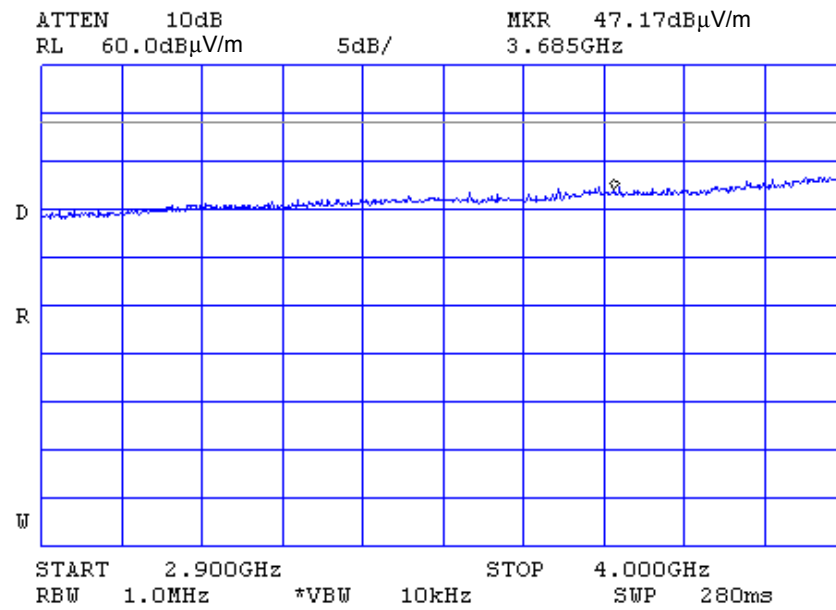
SWP 125 nsec

More  
1 of 3



Plot B 83

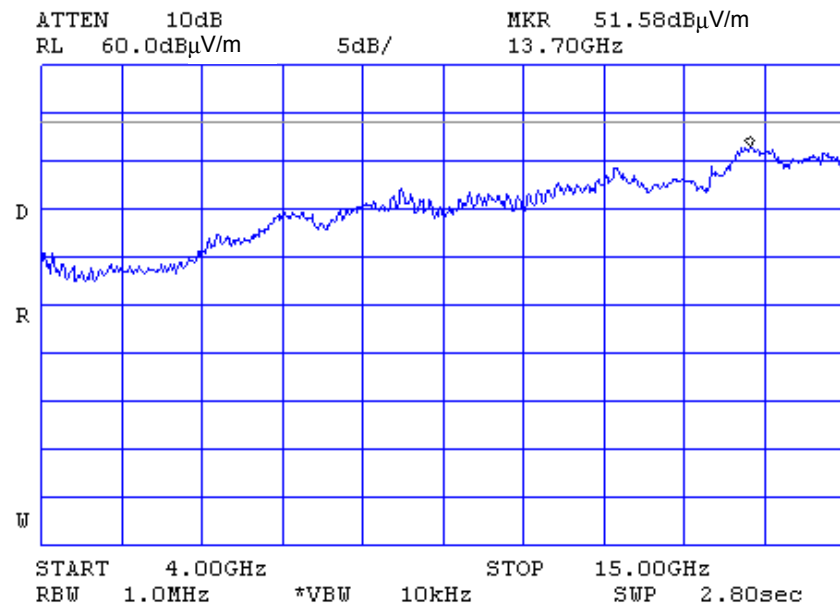
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 18 dBi antenna





Plot B 84

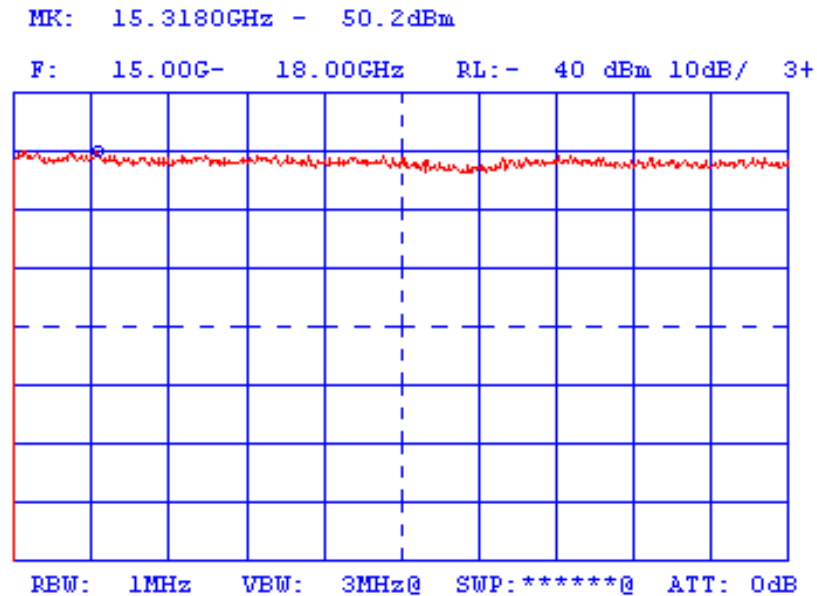
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 18 dBi antenna





Plot B 85

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2472 MHz, 18 dBi antenna



No spurious were found

$U_{SA}$ : -50.2 dBm = 56.8 dB $\mu$ V/m

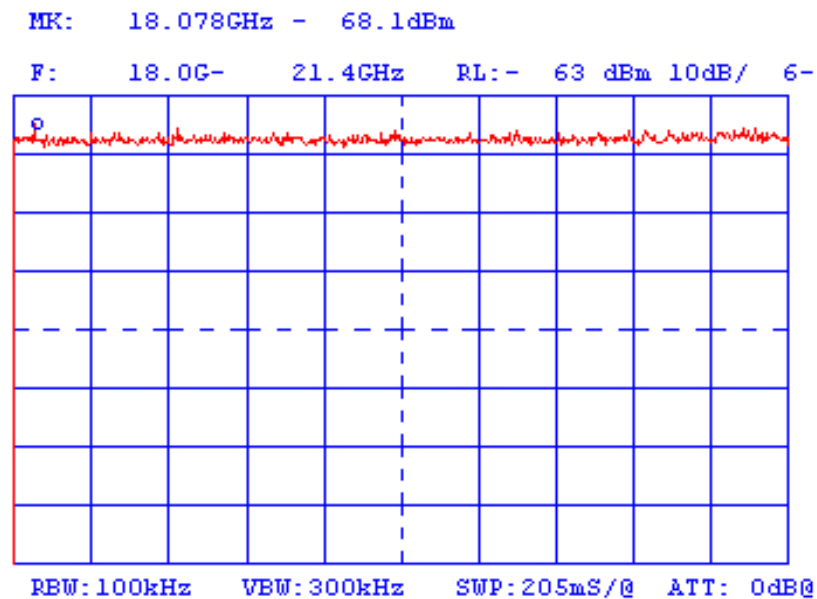
Noise level:  $U_{SA} + AF + CL - \text{Ampl. gain} = 56.8 \text{ dB}(\mu\text{V/m}) + 38 \text{ dB}(1/\text{m}) + 4.6 \text{ dB} - 45 \text{ dB} = 54.4 \text{ dB}(\mu\text{V/m})$

Limit @ 1 meter: 63.5 dB( $\mu$ V/m)



Plot B 86

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2472 MHz, 18 dBi antenna



No spurious were found

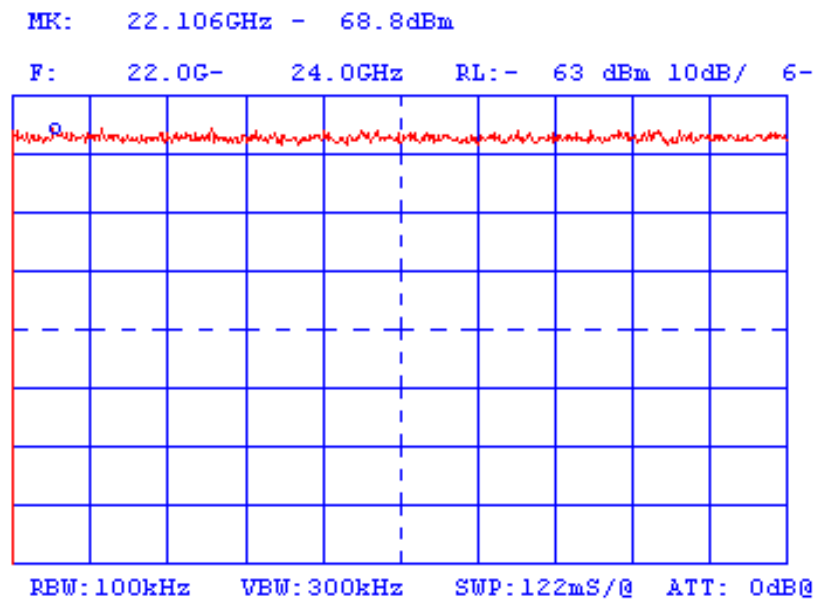
$U_{SA}$ : -68.1 dBm = 38.9 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 38.9 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 27.9 \text{ dB}(\mu\text{V/m})$



Plot B 87

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2472 MHz, 18 dBi antenna



No spurious were found

$U_{SA}$ : -68.8 dBm = 38.2 dB $\mu$ V/m

Noise level:  $U_{SA}$  + AF - Ampl. gain = 38.2 dB( $\mu$ V/m) + 32 dB(1/m) - 43 dB = 27.2 dB( $\mu$ V/m)



Plot B 88

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequencies 2412/2442/2472 MHz, 12 dBi antenna

12:44:01 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 9.2 kHz  
59.08 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 110.0 dB $\mu$ V/m

10  
dB/  
ATN  
30 dB

VA SB  
SC FC  
ACORR

START 9.0 kHz

RL #1F BW 200 Hz

AVG BW 300 Hz

STOP 150.0 kHz

SWP 10.3 sec



Plot B 89

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequencies 2412/2442/2472 MHz, 12 dBi antenna

12:41:59 FEB 10, 2003

ACTV DET: PEAK  
MEAS DET: PEAK QP AVG  
MKR 19.98 MHz  
49.03 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 100.0 dB $\mu$ V/m

10  
dB/  
ATN  
20 dB

VA SB  
SC FC  
ACORR

START 150 kHz

RL #1F BW 9.0 kHz

AVG BW 30 kHz

STOP 30.00 MHz

SWP 2.49 sec



Plot B 90

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 12 dBi antenna

12:17:57 FEB 09, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 395.3 MHz  
42.18 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

LOG REF 60.0 dB $\mu$ V/m

PREAMP ON

MARKER  
CF

10  
dB/  
#ATN  
0 dB

MARKER  
A

VA SB  
SC FC  
ACORR

NEXT  
PEAK

NEXT PK  
RIGHT

NEXT PK  
LEFT

START 30.0 MHz STOP 1.0000 GHz  
RL IF BW 120 kHz AVG BW 300 kHz SWP 909 msec

More  
1 of 2



## Plot B 91

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 12 dBi antenna

13:13:25 FEB 09, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.000 GHz  
43.76 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

MARKER  
↓ CF

MARKER  
△

NEXT  
PEAK

NEXT PK  
RIGHT

NEXT PK  
LEFT

LOG REF 60.0 dB $\mu$ V/m

PREAMP ON

10  
dB/  
#ATN  
0 dB

VA SB  
SC FC  
ACORR

START 1.000 GHz

STOP 2.000 GHz

RL #1F BW 1.0 MHz

#AVG BW 300 kHz

SWP 700 msec

More  
1 of 2



Plot B 92

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 12 dBi antenna

10:49:20 FEB 11, 2003

ACTV DET: PEAK  
NEAS DET: PEAK OP AVG  
MKR 2.3871 GHz  
60.67 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LO0 REF 70 0 dBμV/m

10  
dB/  
ATTN  
10 dB

VA SB  
SC FC  
ACORR

START 2.0000 GHz

RL 11F BW 1.0 MHz

1AVG BW 10 kHz

STOP 2.3900 GHz

SWP 117 msec



Plot B 93

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 12 dBi antenna

10:55:10 FEB 11, 2003

ACTV DET: PEAK  
NEAS DET: PEAK OP AVG  
MKR 2.4910 GHz  
41.66 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

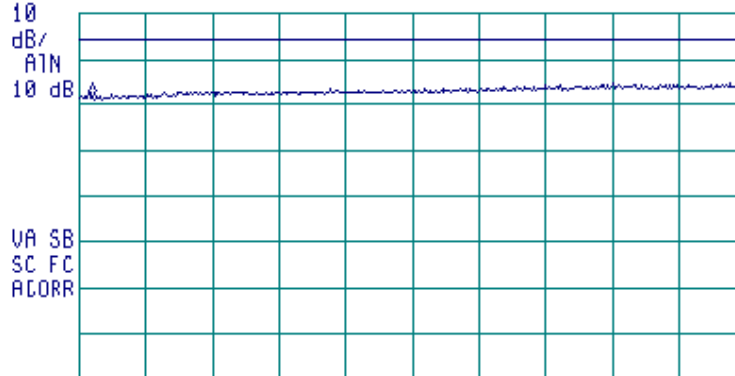
BLANK A

Trace  
A B C

More  
1 of 3

LO0 REF 60 0 dBμV/m

PREAMP ON

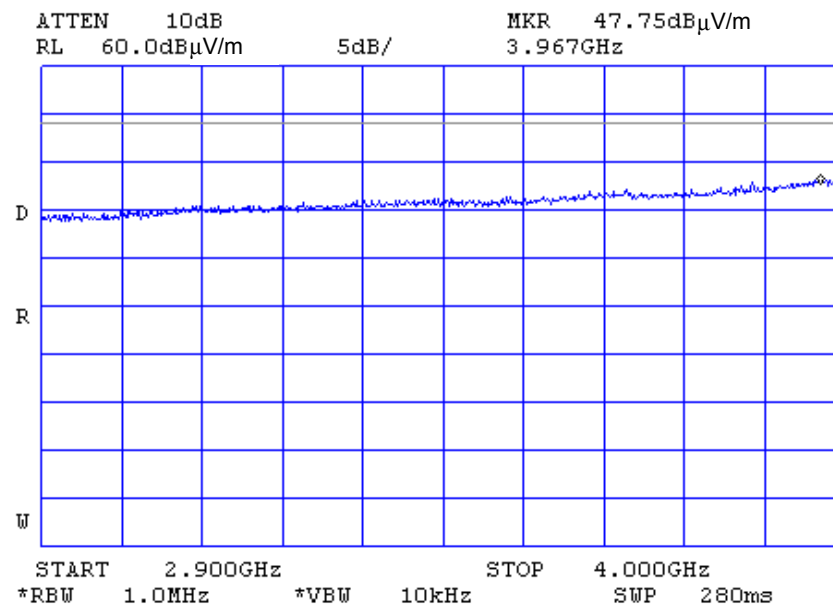


START 2.4835 GHz STOP 2.9000 GHz  
RL 11F BW 1.0 MHz 1AVG BW 10 kHz SWP 125 msec



Plot B 94

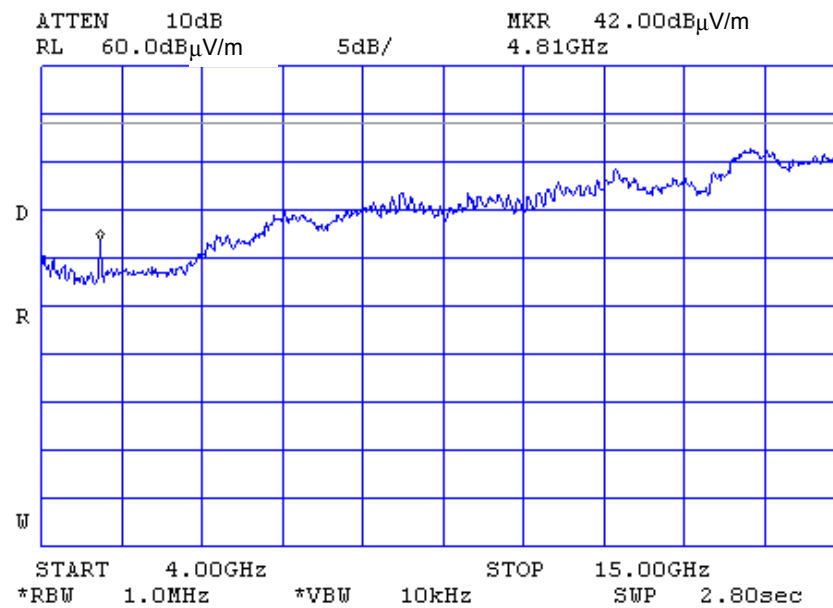
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 12 dBi antenna





Plot B 95

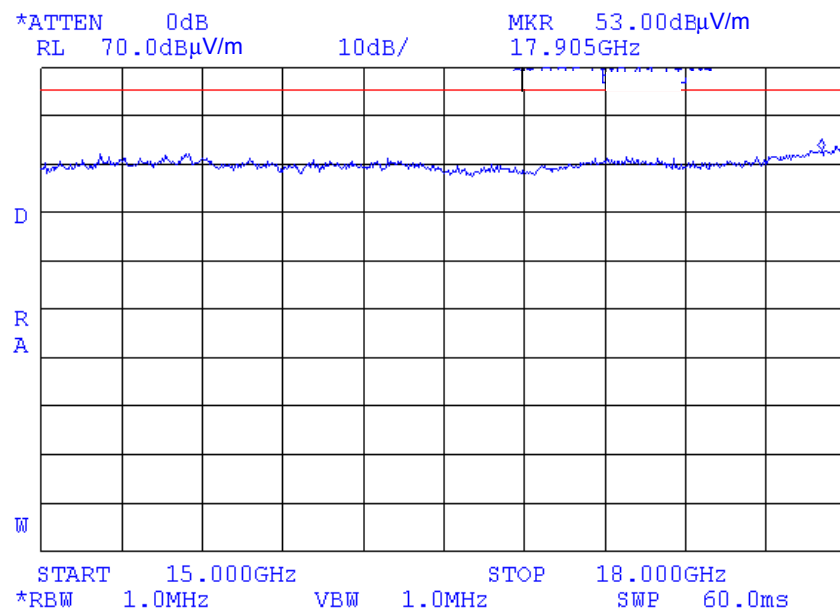
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 12 dBi antenna





Plot B 96

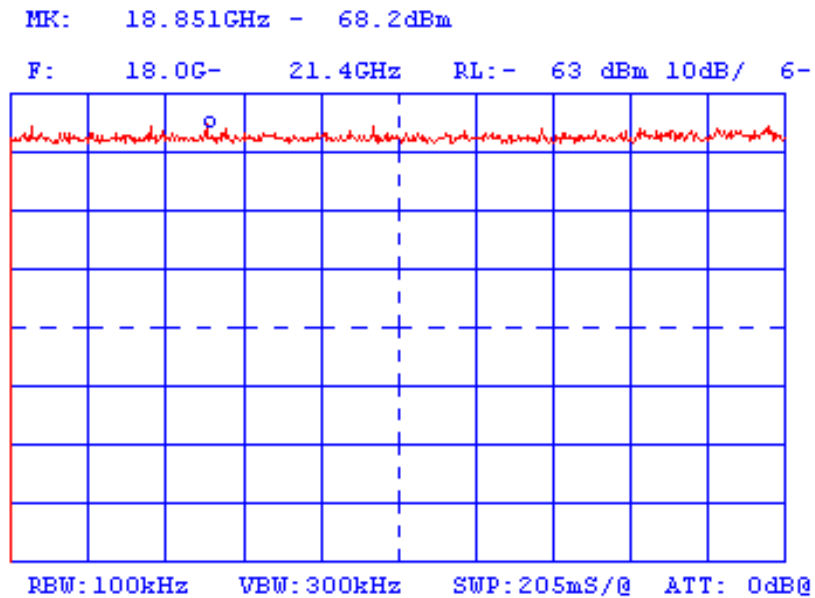
Radiated spurious emission measurements at the OATS @ 3 m distance,  
carrier frequency 2412 MHz, 12 dBi antenna





Plot B 97

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2412 MHz, 12 dBi antenna



No spurious were found

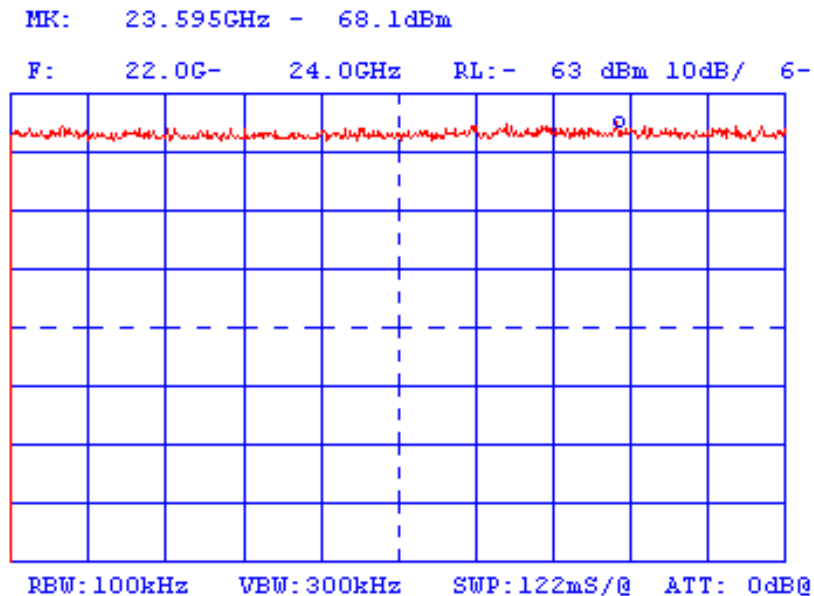
$U_{SA}$ : -68.2 dBm = 38.8 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 38.8 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 27.8 \text{ dB}(\mu\text{V/m})$



Plot B 98

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2412 MHz, 12 dBi antenna



No spurious were found

$U_{SA}$ : -68.1 dBm = 38.9 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 38.9 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 27.9 \text{ dB}(\mu\text{V/m})$



Plot B 99

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 12 dBi antenna

15:31:30 FEB 09, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 264.1 MHz  
34.44 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE B

MAX  
HOLD B

VIEW B

BLANK B

Trace  
A B C

More  
1 of 3

LOG REF 60.0 dB $\mu$ V/m

10  
dB/  
#ATN  
0 dB

VA SB  
SC FC  
ACORR

START 30.0 MHz  
RL #1F BW 120 kHz  
AVG BW 300 kHz  
STOP 1.0000 GHz  
SWP 909 msec



Plot B 100

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 12 dBi antenna

15:43:22 FEB 09, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 1.693 GHz  
42.46 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

LOG REF 60.0 dB $\mu$ V/m

PREAMP ON

MARKER  
NORMAL

10  
dB/  
#ATN  
0 dB

MARKER  
 $\Delta$

MARKER  
AMPTD

VA SB  
SC FC  
ACORR

SELECT  
1 2 3 4

MARKER 1  
ON OFF

START 1.000 GHz

STOP 2.000 GHz

More

RL #1F BW 1.0 MHz

#AVG BW 300 kHz

SWP 20.0 msec

1 of 2



Plot B 101

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 12 dBi antenna

11:14:30 FEB 11, 2003

ACTV DET: PEAK  
NEAS DET: PEAK OP AVG  
MKR 2.3812 GHz  
45.38 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

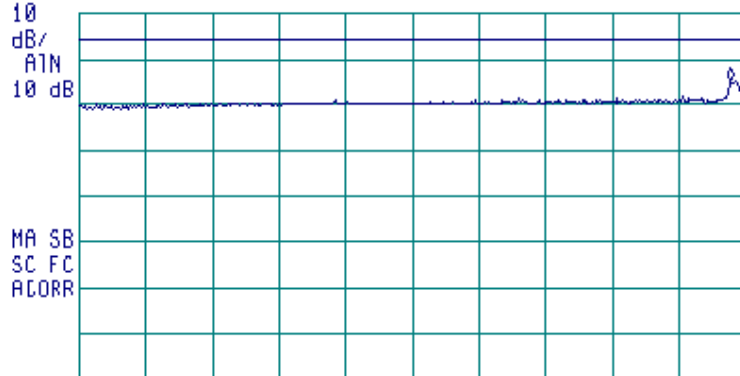
BLANK A

Trace  
A B C

More  
1 of 3

LO0 REF 60 0 dBμV/m

PREAMP ON



RL 11F BW 1.0 MHz 1AVG BW 10 kHz SWP 117 nsec



Plot B 102

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 12 dBi antenna

11:09:18 FEB 11, 2003

ACTV DET: PEAK  
NEAS DET: PEAK OP AVG  
MKR 2.4897 GHz  
45.69 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LO0 REF 60 0 dBμV/m

PREAMP ON

10

dB/

ATTN

10 dB

VA SB

SC FC

ACORR

START 2.4835 GHz

R 11F BW 1.0 MHz

1AVG BW 10 kHz

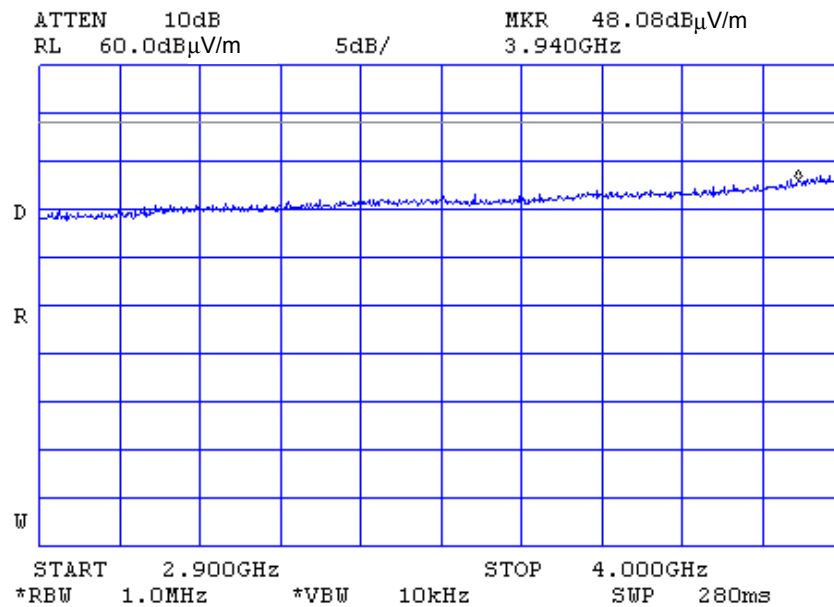
STOP 2.9000 GHz

SWP 125 nsec



Plot B 103

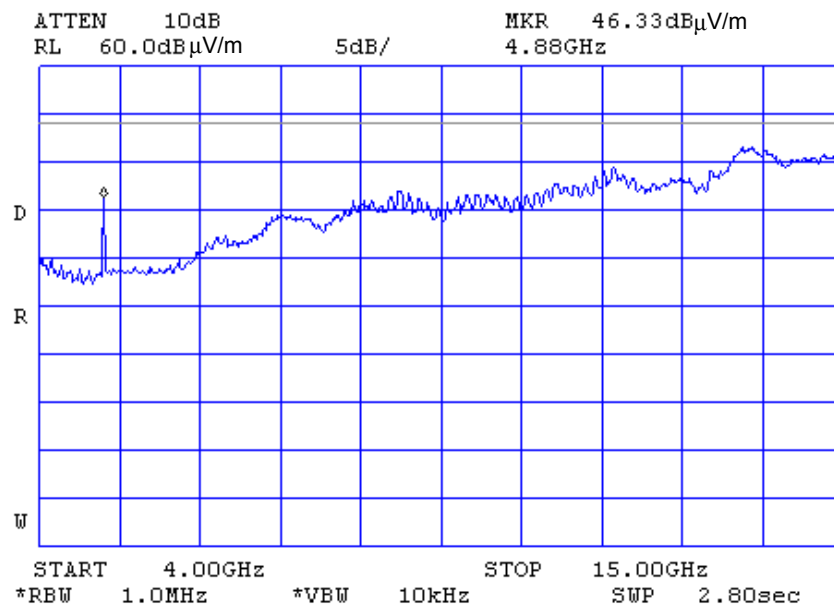
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 12 dBi antenna





Plot B 104

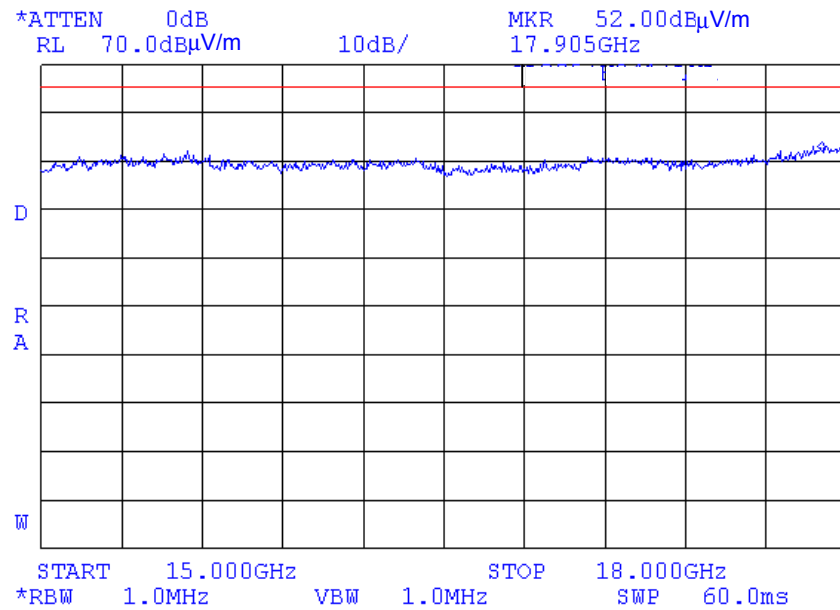
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 12 dBi antenna





Plot B 105

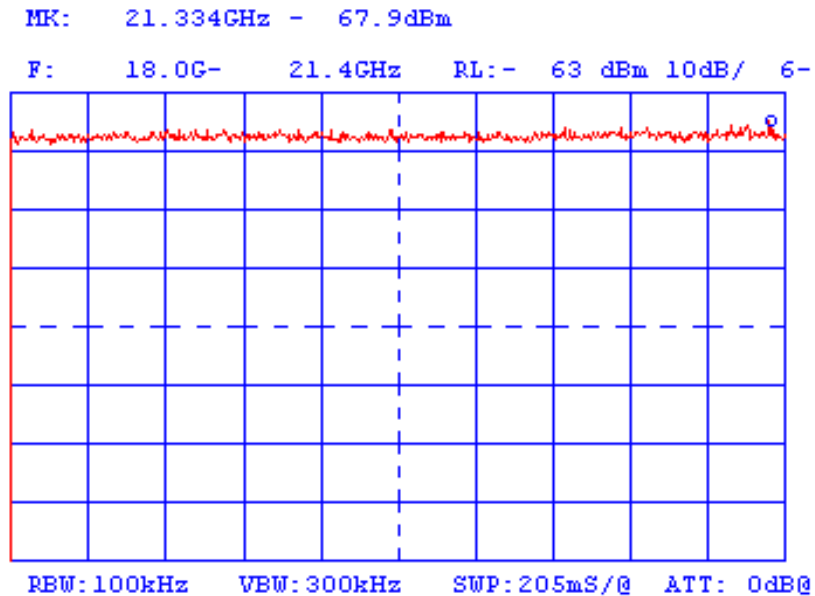
Radiated spurious emission measurements at the OATS @ 3 m distance,  
carrier frequency 2442 MHz, 12 dBi antenna





Plot B 106

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2442 MHz, 12 dBi antenna



No spurious were found

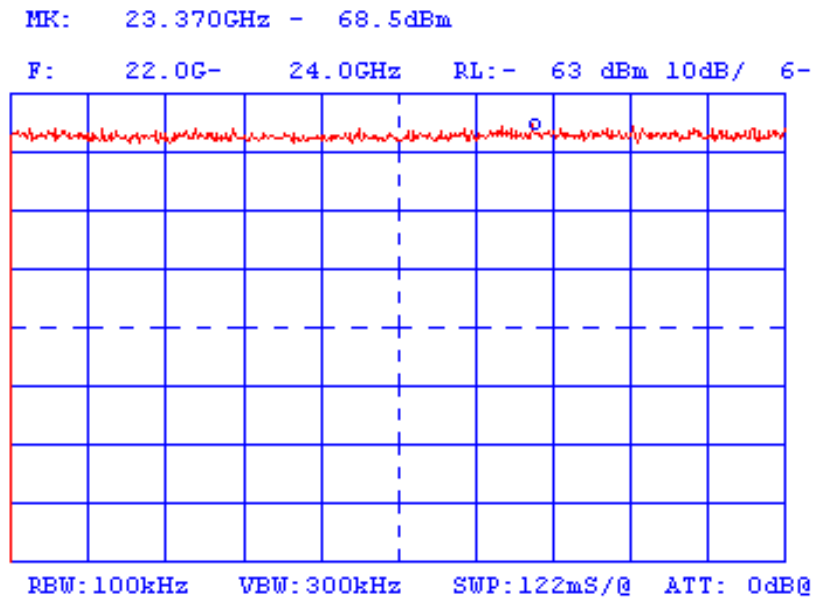
$U_{SA}$ : -67.9 dBm = 39.1 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 39.1 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 28.1 \text{ dB}(\mu\text{V/m})$



Plot B 107

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2442 MHz, 12 dBi antenna



No spurious were found

$U_{SA}$ : -68.5 dBm = 38.5 dB $\mu$ V/m

Noise level:  $U_{SA}$  + AF - Ampl. gain = 38.5 dB( $\mu$ V/m) + 32 dB(1/m) - 43 dB = 27.5 dB( $\mu$ V/m)



Plot B 108

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 12 dBi antenna

13:38:53 FEB 09, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 501.2 MHz  
38.55 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

MARKER  
CF

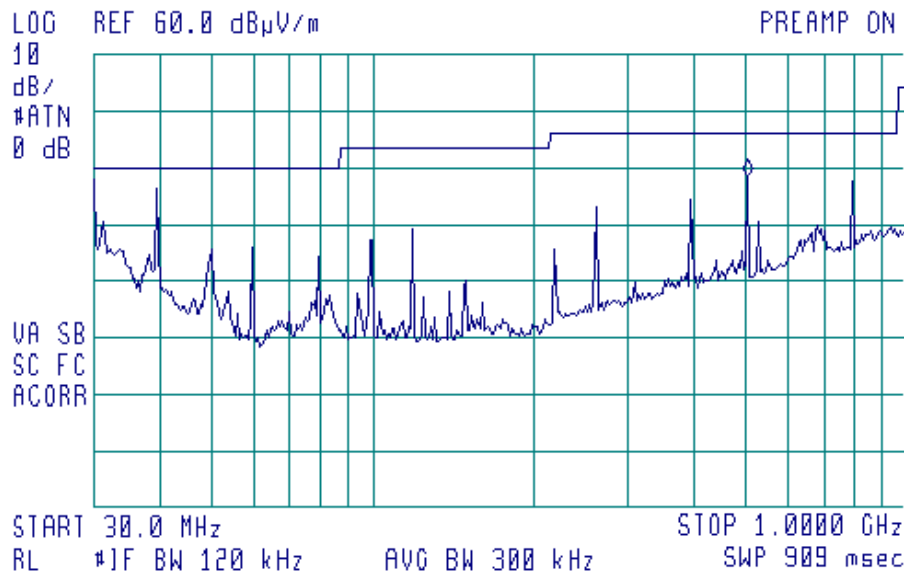
MARKER  
 $\Delta$

NEXT  
PEAK

NEXT PK  
RIGHT

NEXT PK  
LEFT

More  
1 of 2





## Plot B 109

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 12 dBi antenna

13:26:30 FEB 09, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 1.722 GHz  
44.19 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE B

MAX  
HOLD B

VIEW B

BLANK B

Trace  
A B C

More  
1 of 3

LOG REF 60.0 dB $\mu$ V/m

PREAMP ON

10  
dB/  
#ATN  
0 dB

VA SB  
SC FC  
ACORR

START 1.000 GHz

STOP 2.000 GHz

RL #1F BW 1.0 MHz

#AVG BW 300 kHz

SWP 700 msec

| Frequency,<br>MHz | Peak measurement,<br>dB $\mu$ V/m | Average measurement,<br>dB $\mu$ V/m | Limit,<br>dB $\mu$ V/m | Comments            |
|-------------------|-----------------------------------|--------------------------------------|------------------------|---------------------|
| 1723.35           | 44.3                              | 33.14                                | 54                     | Not restricted band |



Plot B 110

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 12 dBi antenna

11:23:43 FEB 11, 2003

ACTV DET: PEAK  
NEAS DET: PEAK OP AVG  
MKR 2.3890 GHz  
41.07 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 60 0 dBμV/m

PREAMP ON

10  
dB/  
ATTN  
10 dB

VA SB  
SC FC  
ACORR

START 2.0000 GHz

RL 11F BW 1.0 MHz

1AVG BW 10 kHz

STOP 2.3900 GHz

SWP 117 msec



Plot B 111

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 12 dBi antenna

11:38:46 FEB 11, 2003

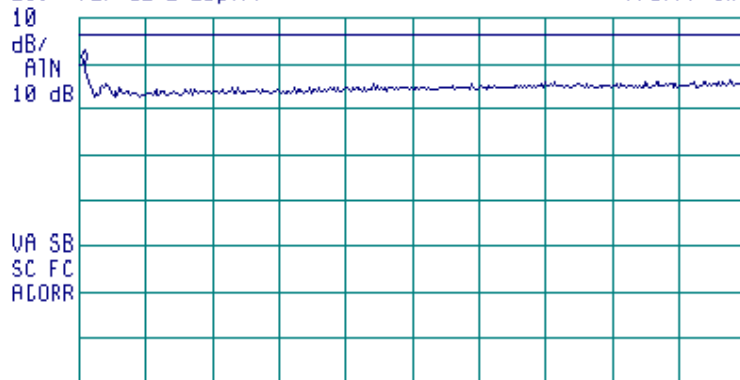
ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.4866 GHz  
48.31 dBμV/m

MEASURE  
A1 MKR  
ADD TO  
LIST

LOG REF 5B 0 dBμV/m

PREAMP ON

CLEAR  
WRITE A



MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

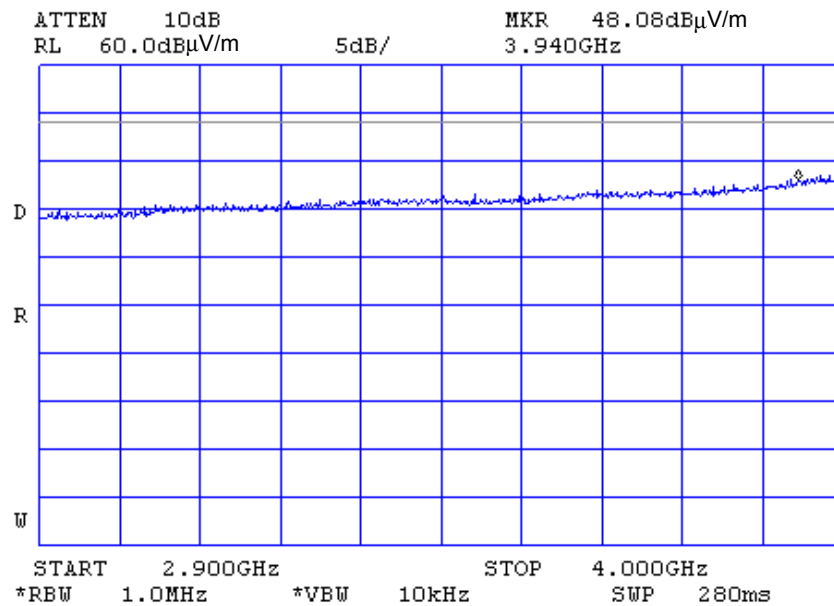
START 2.4835 GHz  
RL 11F BW 1.0 MHz  
AUG BW 10 kHz  
STOP 2.9000 GHz  
SWP 125 nsec

More  
1 of 3



Plot B 112

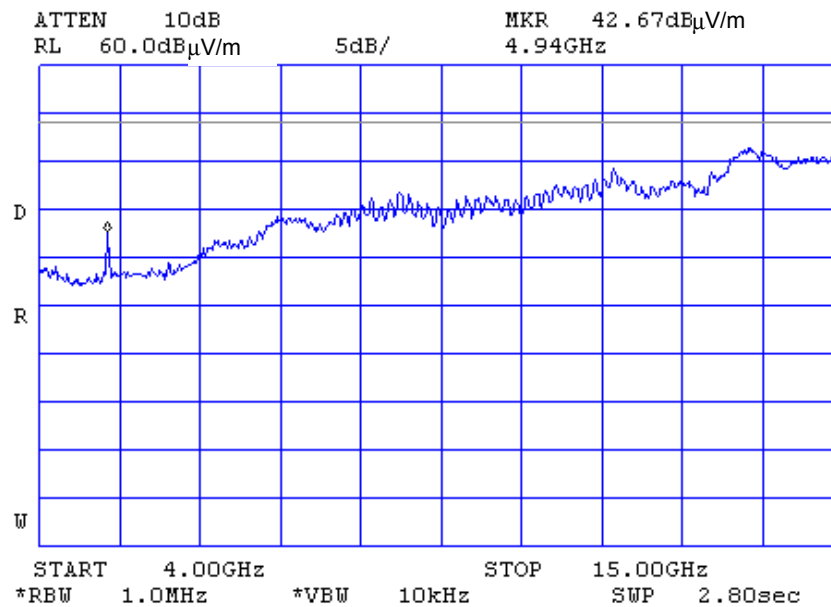
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 12 dBi antenna





Plot B 113

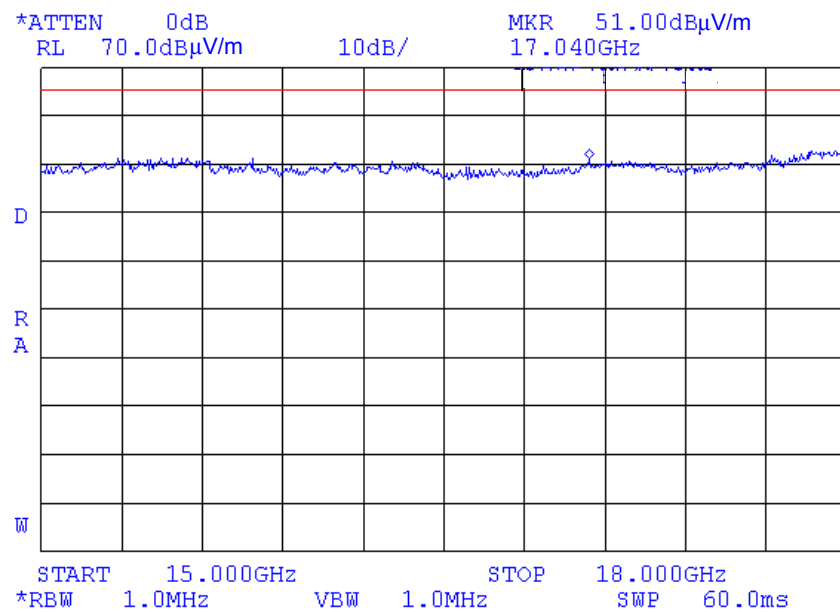
Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 12 dBi antenna





Plot B 114

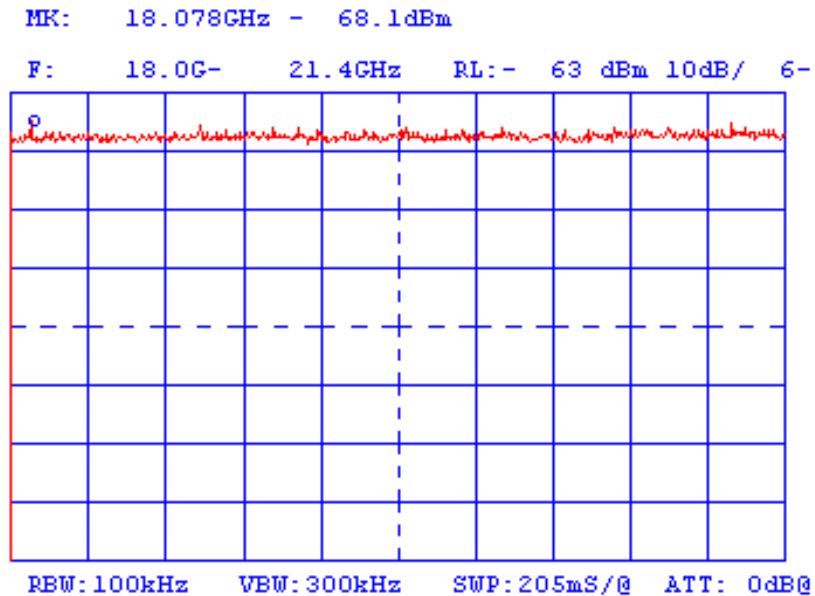
Radiated spurious emission measurements at the OATS @ 3 m distance,  
carrier frequency 2472 MHz, 12 dBi antenna





Plot B 115

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2472 MHz, 12 dBi antenna



No spurious were found

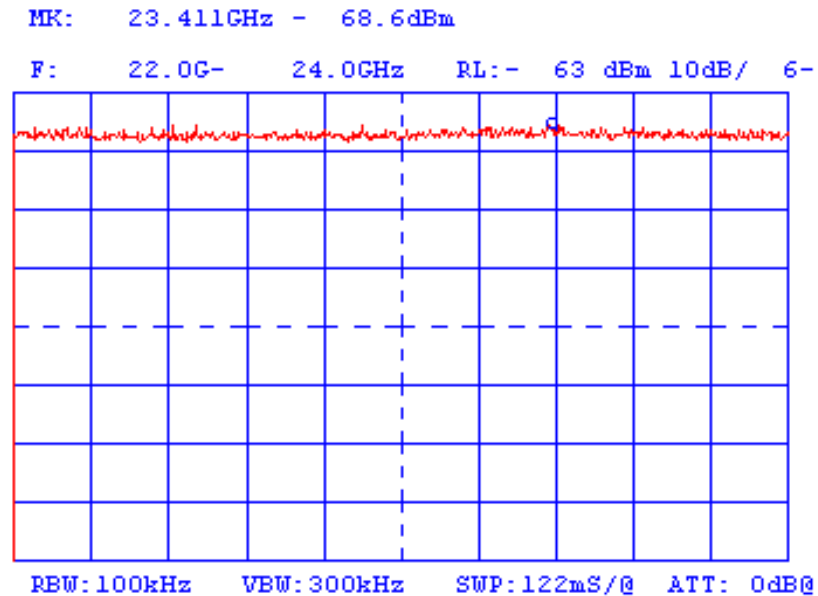
$U_{SA}$ : -68.1 dBm = 38.9 dB $\mu$ V/m

Noise level:  $U_{SA}$  + AF - Ampl. gain = 38.9 dB( $\mu$ V/m) + 32 dB(1/m) - 43 dB = 27.9 dB( $\mu$ V/m)



Plot B 116

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2472 MHz, 12 dBi antenna



No spurious were found

$U_{SA}$ : -68.6 dBm = 38.4 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 38.4 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 27.4 \text{ dB}(\mu\text{V/m})$



Plot B 117

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequencies 2412/2442/2472 MHz, 24 dBi antenna

14:58:04 FEB 16, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 10.6 kHz  
60.76 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 110.0 dB $\mu$ V/m

10  
dB/  
ATN  
30 dB

VA SB  
SC FC  
ACORR

START 9.0 kHz

RL #1F BW 200 Hz

AVG BW 300 Hz

STOP 150.0 kHz

SWP 10.3 sec



Plot B 118

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequencies 2412/2442/2472 MHz, 24 dBi antenna

14:55:28 FEB 16, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 740 kHz  
43.52 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 100.0 dB $\mu$ V/m

10  
dB/  
ATN  
20 dB

VA SB  
SC FC  
ACORR

START 150 kHz STOP 30.00 MHz  
RL #1F BW 9.0 kHz AVG BW 30 kHz SWP 2.49 sec



Plot B 119

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequencies 2412/2442/2472 MHz, 24 dBi antenna

14:25:47 FEB 16, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
Mkr 261.5 MHz  
27.48 dB $\mu$ V/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

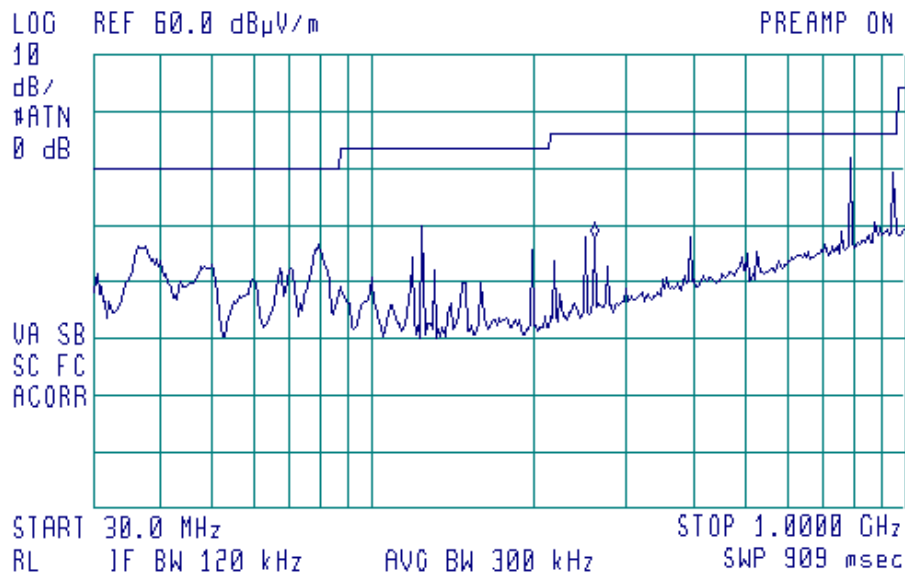
MAX  
HOLD A

VIEW A

BLANK A

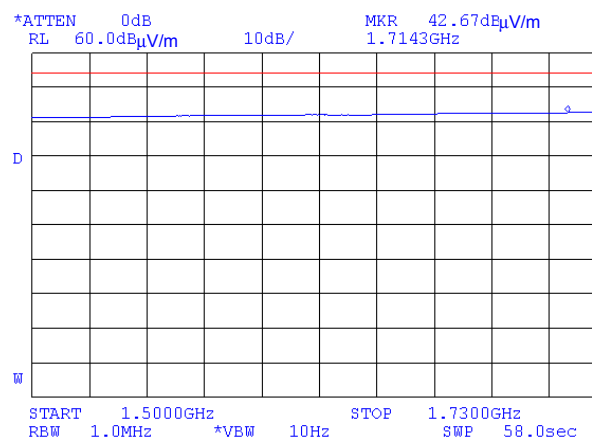
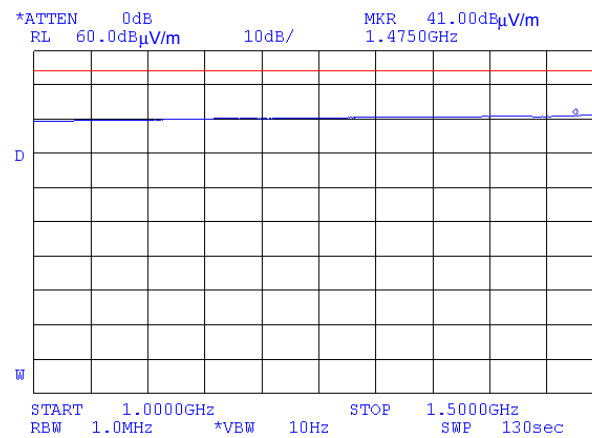
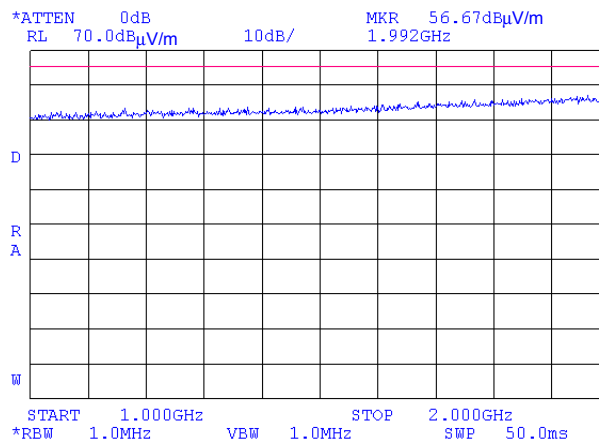
Trace  
A B C

More  
1 of 3





**Plot B 120**  
**Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,**  
**carrier frequency 2412 MHz, 24 dBi antenna**





Plot B 121

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 24 dBi antenna

12:12:45 FEB 11, 2003

ACTV DET: PEAK  
NEAS DET: PEAK OP AVG  
MKR 2.3871 GHz  
48.39 dBμV/m

MEASURE  
AT MKR  
ADD TO  
LIST

LOG REF 60 0 dBμV/m

PREAMP ON

CLEAR  
WRITE A

10  
dB/  
ATTN  
10 dB

MAX  
HOLD A

VIEW A

VA SB  
SC FC  
ACORR

BLANK A

Trace  
A B C

START 2.0000 GHz

STOP 2.3900 GHz

RL 11F BW 1.0 MHz

1AVG BW 10 kHz

SWP 117 nsec

More  
1 of 3



Plot B 122

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 24 dBi antenna

12:20:12 FEB 11, 2003

ACTV DET: PEAK  
NEAS DET: PEAK OP AVG  
MKR 2.4856 GHz  
41.78 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LO0 REF 60 0 dBμV/m

PREAMP ON

10

dB/

ATTN

10 dB

MA SB

SC FC

ACORR

START 2.4835 GHz

STOP 2.9880 GHz

RL 11F BW 1.0 MHz

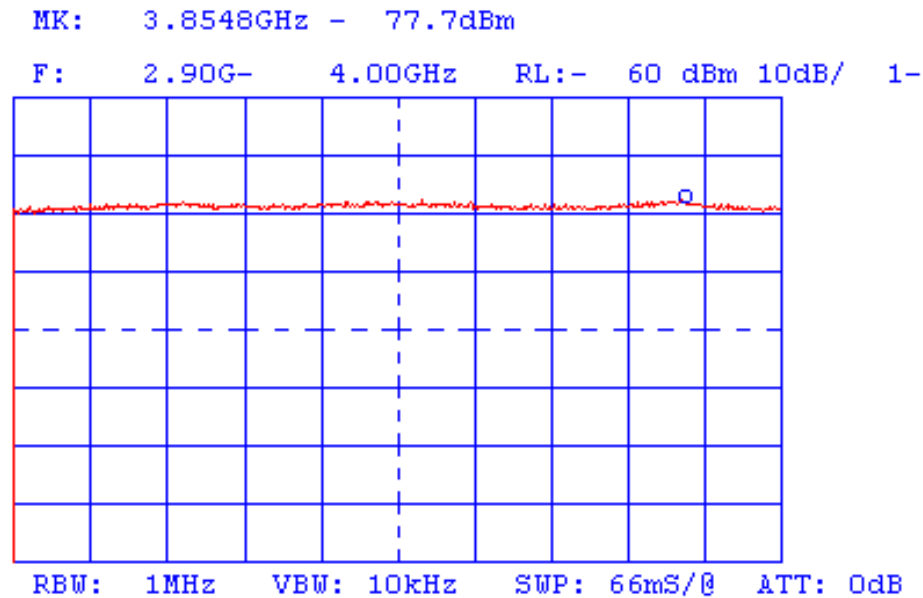
1AVG BW 10 kHz

SWP 125 μsec



Plot B 123

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 24 dBi antenna



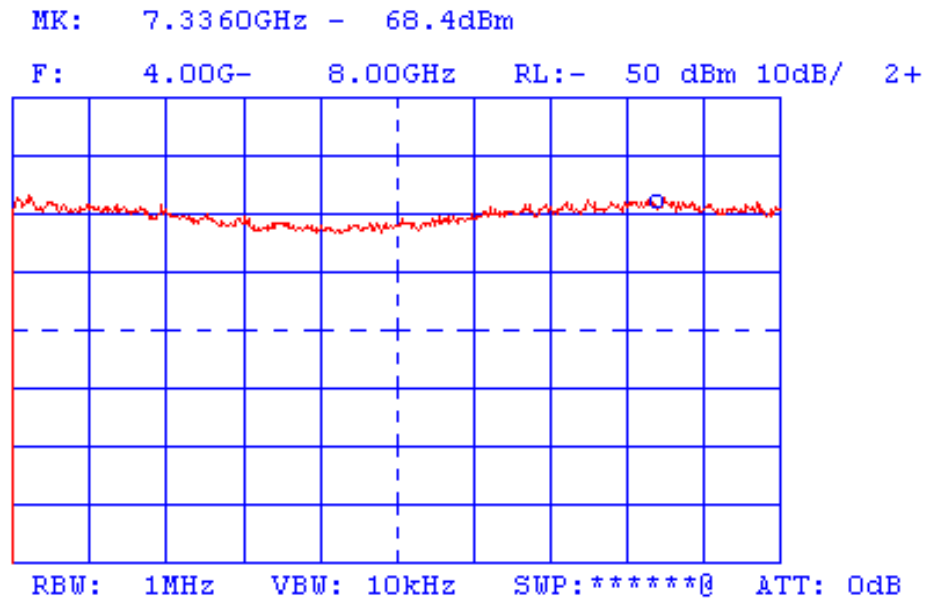
Limit = 54 dBuV/m

Usa peak+AF+Closs-Amplif.gain = 29.3+32.5+1.9-20 = 43.7 dBuV/m (peak)



Plot B 124

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 24 dBi antenna



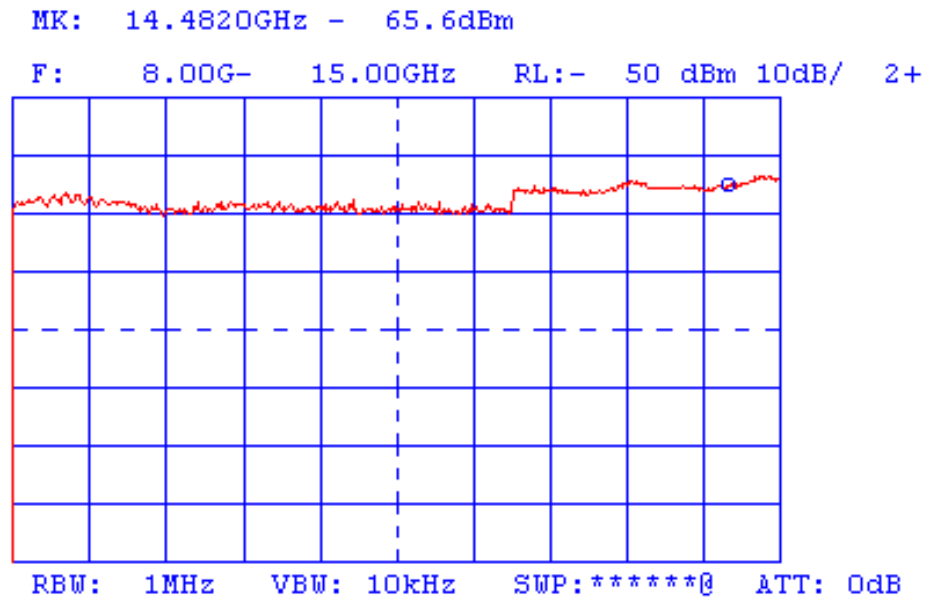
Limit = 54 dBuV/m

Usa+AF+Closs-Amplif.gain = 38.6+38+3-39=40.6 dBuV/m (peak)



Plot B 125

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2412 MHz, 24 dBi antenna



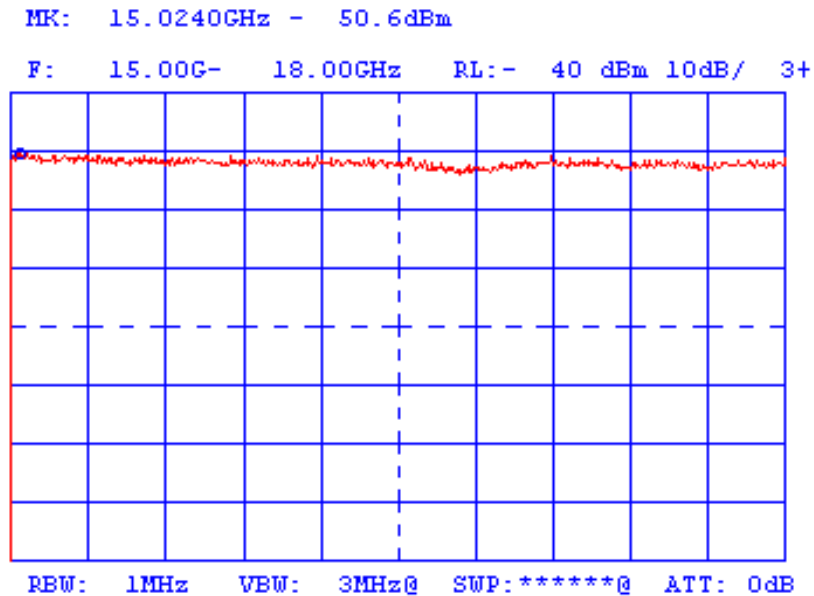
Limit = 54 dBuV/m

Usa+AF+Closs-Amplif.gain = 41.4+38+4.2-35 = 48.6 dBuV/m (peak)



Plot B 126

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2412 MHz, 24 dBi antenna



No spurious were found

$U_{SA}$ : -50.6 dBm = 56.4 dB $\mu$ V/m

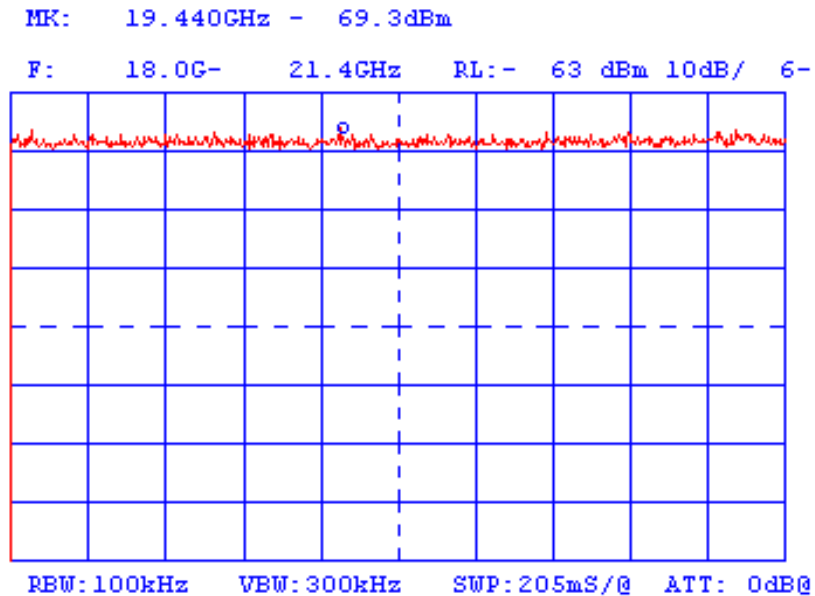
Noise level:  $U_{SA} + AF + CL - \text{Ampl. gain} = 56.4 \text{ dB}(\mu\text{V/m}) + 38 \text{ dB}(1/\text{m}) + 4.6 \text{ dB} - 45 \text{ dB} = 54 \text{ dB}(\mu\text{V/m})$

Limit @ 1 meter: 63.5 dB( $\mu$ V/m)



Plot B 127

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2412 MHz, 24 dBi antenna



No spurious were found

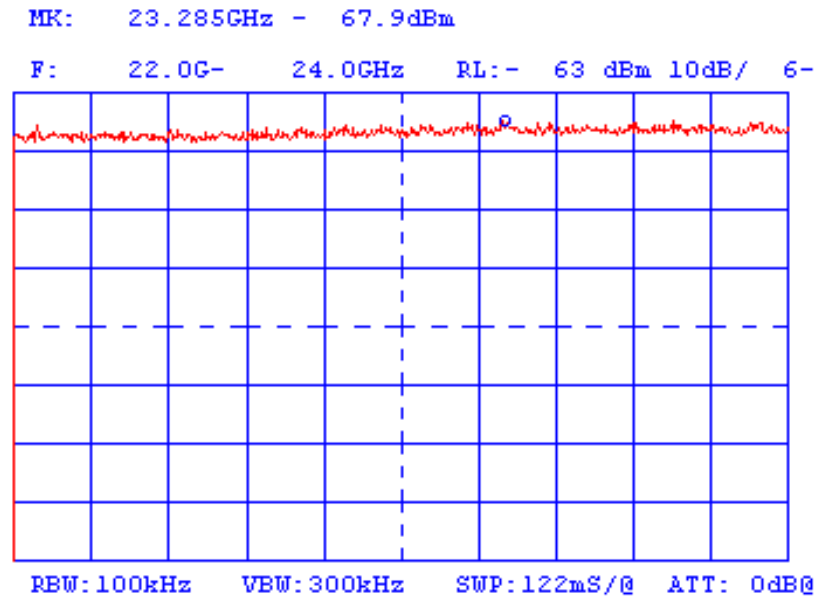
$U_{SA}$ : -69.3 dBm = 37.7 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 37.7 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 26.7 \text{ dB}(\mu\text{V/m})$



Plot B 128

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2412 MHz, 24 dBi antenna



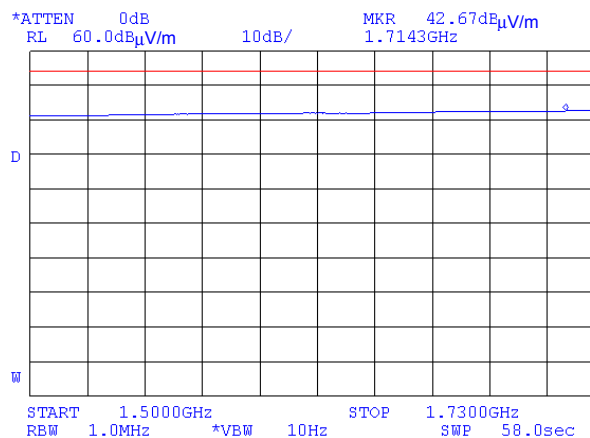
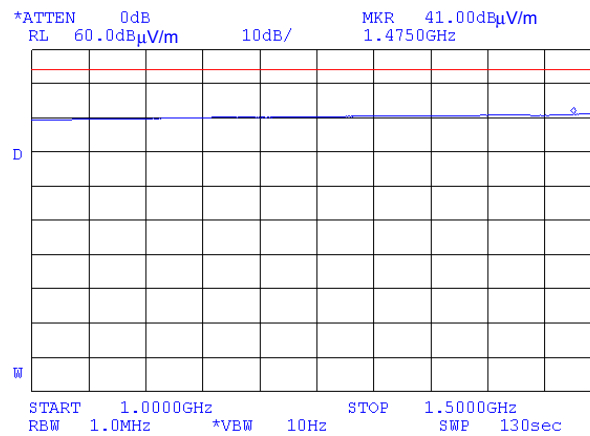
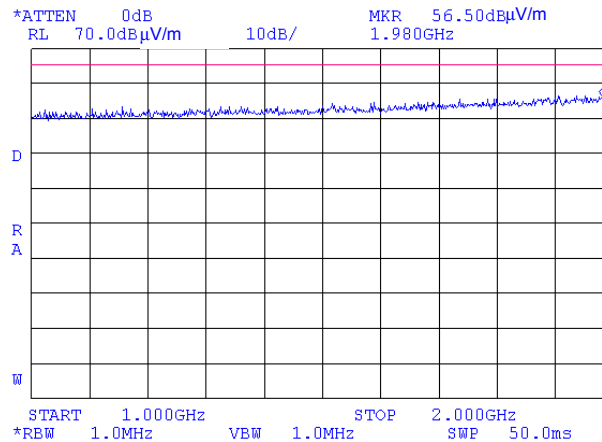
No spurious were found

$U_{SA}$ : -67.9 dBm = 39.1 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 39.1 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 28.1 \text{ dB}(\mu\text{V/m})$



**Plot B 129**  
**Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,**  
**carrier frequency 2442 MHz, 24 dBi antenna**





Plot B 130

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 24 dBi antenna

12:31:37 FEB 11, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.0351 GHz  
39.55 dBμV/m

MEASURE  
A1 MKR  
ADD TO  
LIST

LOG REF 60 0 dBμV/m

PREAMP ON

CLEAR  
WRITE A

10  
dB/  
A1N  
10 dB

MAX  
HOLD A

VIEW A

VA SB  
SC FC  
ACORR

BLANK A

Trace  
A B C

START 2.0000 GHz

STOP 2.3900 GHz

R 11F BW 1.0 MHz

1AVG BW 10 kHz

SWP 117 msec

More  
1 of 3



Plot B 131

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 24 dBi antenna

12:26:41 FEB 11, 2003

ACTV DET: PEAK  
NEAS DET: PEAK OP AVG  
MKR 2.5210 GHz  
41.91 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 60 0 dBμV/m

PREAMP ON

10

dB/

ATTN

10 dB

VA SB

SC FC

ACORR

START 2.4835 GHz

RL 11F BW 1.0 MHz

1AVG BW 10 kHz

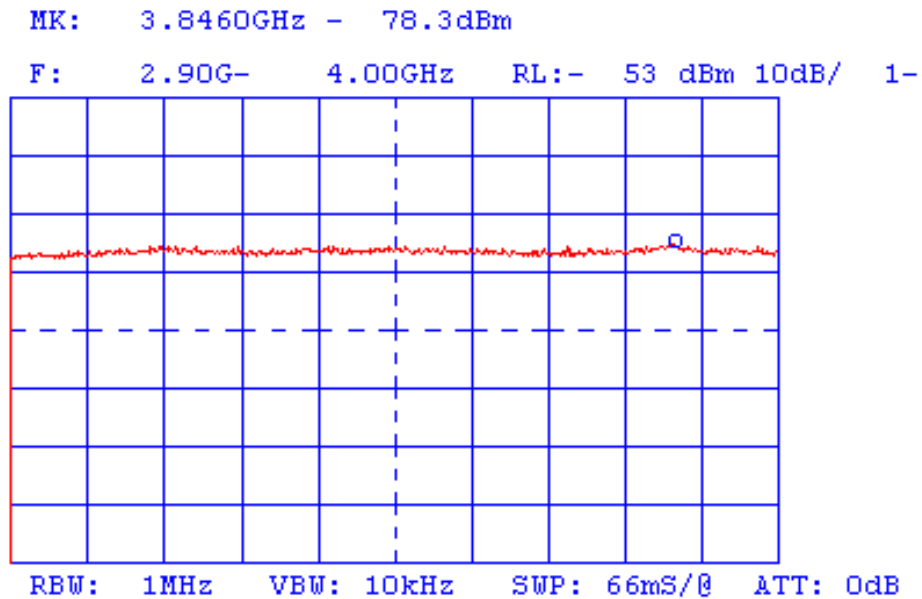
STOP 2.9000 GHz

SWP 125 msec



Plot B 132

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 24 dBi antenna



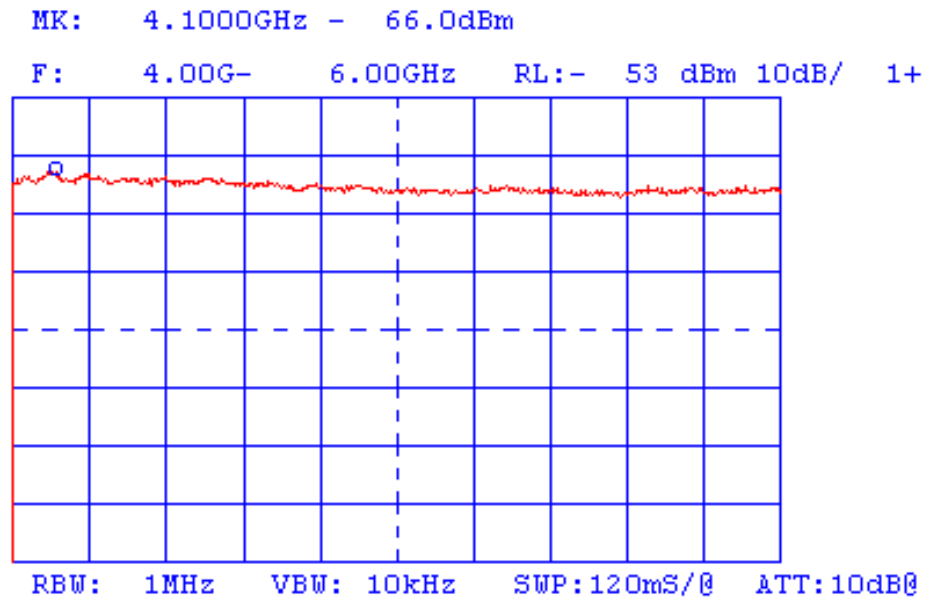
Limit = 54 dBuV/m

Usa+AF+Closs-Amplif.gain = 28.7+32.5+1.8-20 = 42.5 dBuV/m (peak)



Plot B 133

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 24 dBi antenna



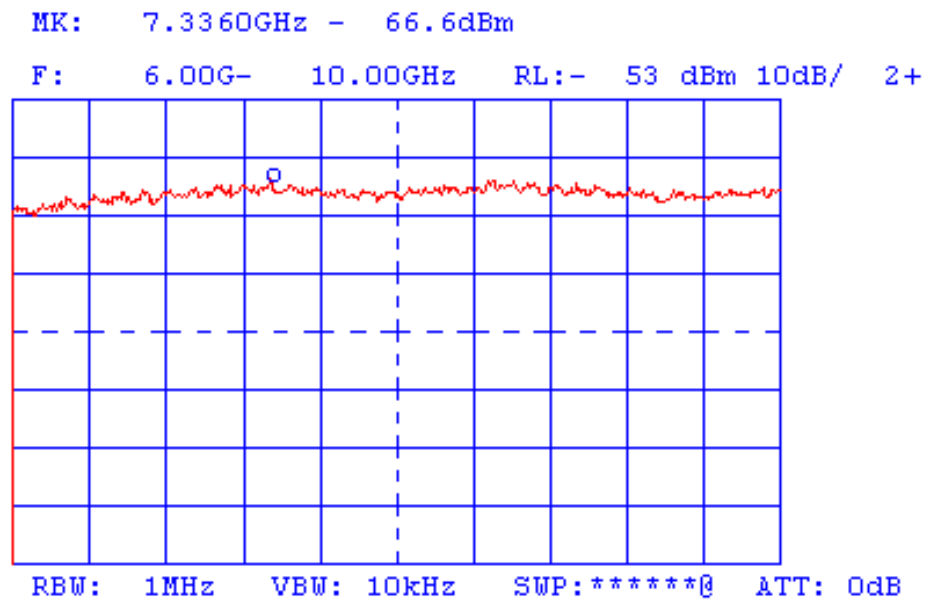
Limit = 54 dBuV/m

Usa+AF+Closs-Amplif.gain = 41+35+2.0 -35= 43 dBuV/m (peak)



Plot B 134

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 24 dBi antenna



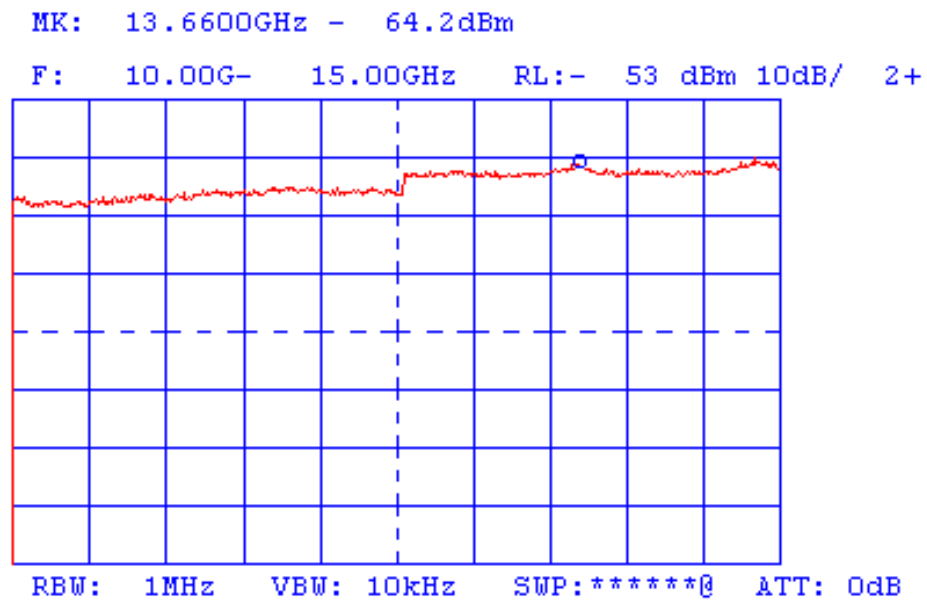
Limit = 54 dBuV/m

Usa+AF+Closs-Amplif.gain = 40.4+38+3.0-35 = 46.4 dBuV/m (peak)



Plot B 135

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2442 MHz, 24 dBi antenna

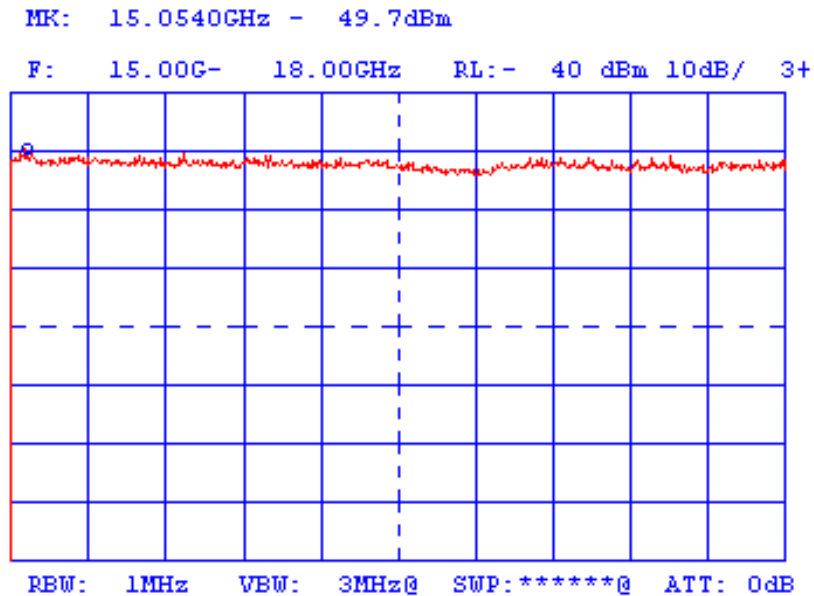


Limit = 54 dBuV/m  
Usa+AF+Closs-Amplif.gain = 42.8+38+4.2-35=50 dBuV/m (peak)



Plot B 136

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2442 MHz, 24 dBi antenna



No spurious were found

$U_{SA}$ : -49.7 dBm = 57.3 dB $\mu$ V/m

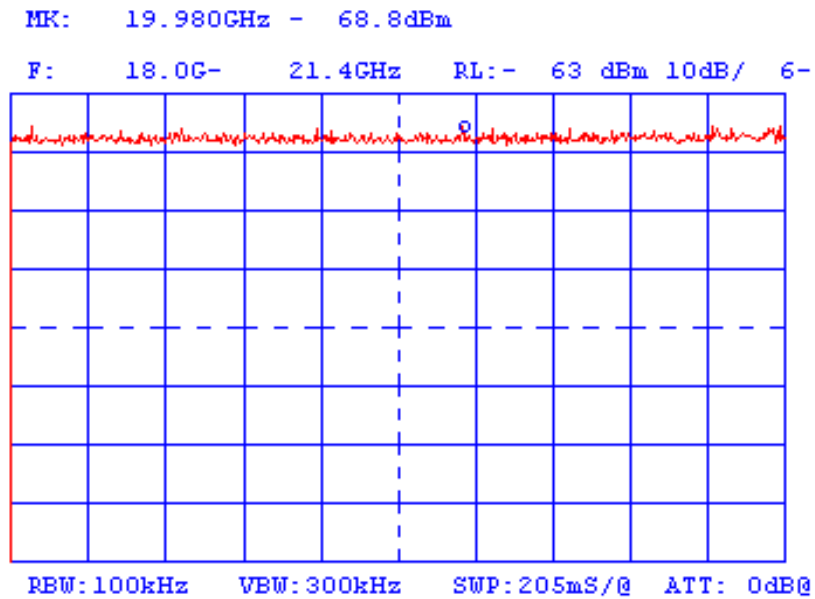
Noise level:  $U_{SA} + AF + CL - \text{Ampl. gain} = 57.3 \text{ dB}(\mu\text{V/m}) + 38 \text{ dB}(1/\text{m}) + 4.6 \text{ dB} - 45 \text{ dB} = 54.9 \text{ dB}(\mu\text{V/m})$

Limit @ 1 meter: 63.5 dB( $\mu$ V/m)



Plot B 137

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2442 MHz, 24 dBi antenna



No spurious were found

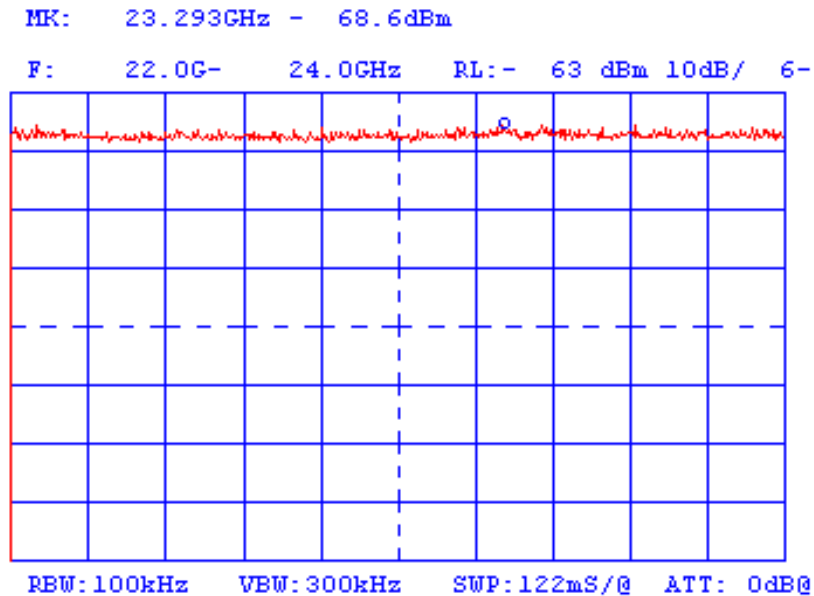
$U_{SA}$ : -68.8 dBm = 38.2 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 38.2 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 27.2 \text{ dB}(\mu\text{V/m})$



Plot B 138

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2442 MHz, 24 dBi antenna



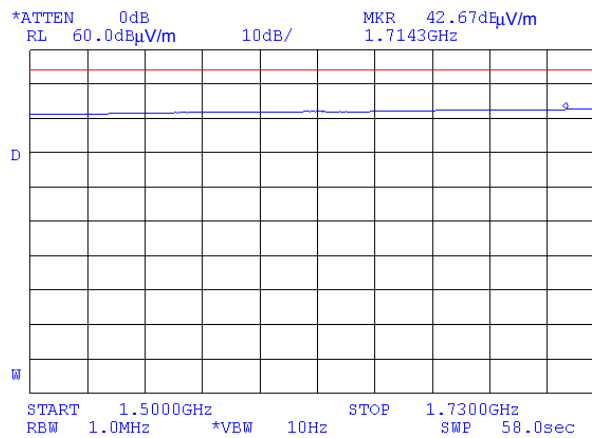
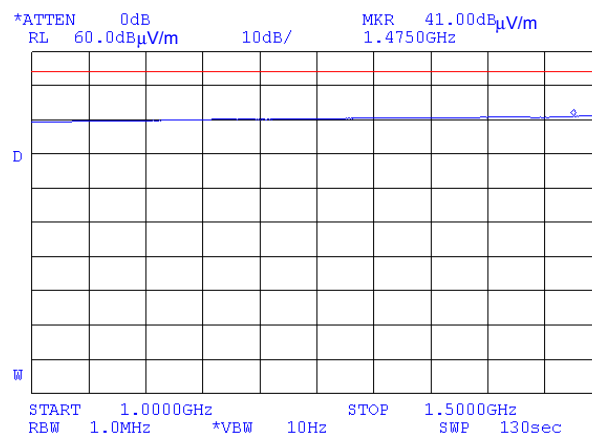
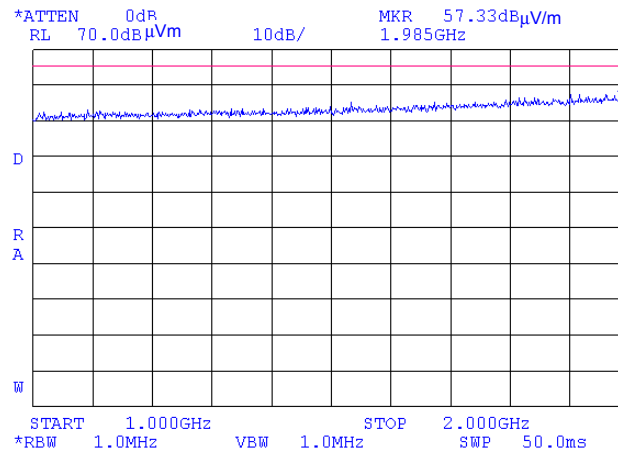
No spurious were found

$U_{SA}$ : -68.6 dBm = 38.4 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 38.4 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 27.4 \text{ dB}(\mu\text{V/m})$



**Plot B 139**  
**Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,**  
**carrier frequency 2472 MHz, 24 dBi antenna**





Plot B 140

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 24 dBi antenna

13:34:54 FEB 11, 2003

ACTV DET: PEAK  
NEAS DET: PEAK OP AVG  
MKR 2.3832 GHz  
41.29 dB $\mu$ V/m

MEASURE  
AT MKR  
ADD TO  
LIST

LOG REF 60 0 dB $\mu$ V/m

PREAMP ON

CLEAR  
WRITE A

10  
dB/  
AIN  
10 dB

MAX  
HOLD A

VIEW A

MA SB  
SC FC  
ACORR

BLANK A

Trace  
A B C

START 2.0000 GHz

STOP 2.3900 GHz

RL 11F BW 1.0 MHz

1AVG BW 10 kHz

SWP 117  $\mu$ sec

More  
1 of 3



Plot B 141

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 24 dBi antenna

13:42:18 FEB 11, 2003

ACTV DET: PEAK  
MEAS DET: PEAK OP AVG  
MKR 2.4866 GHz  
46.12 dBμV/m

MEASURE  
AT MKR

ADD TO  
LIST

CLEAR  
WRITE A

MAX  
HOLD A

VIEW A

BLANK A

Trace  
A B C

More  
1 of 3

LOG REF 60 0 dBμV/m

PREAMP ON

10

dB/

ATTN

10 dB

VA SB

SC FC

ACORR

START 2.4835 GHz

RL 11F BW 1.0 MHz

1AVG BW 10 kHz

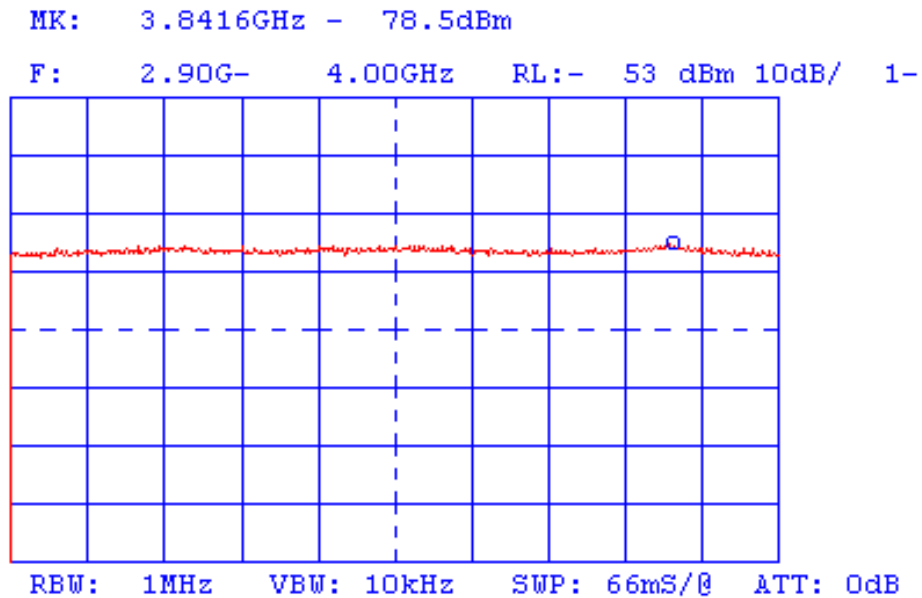
STOP 2.9000 GHz

SWP 125 nsec



Plot B 142

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 24 dBi antenna

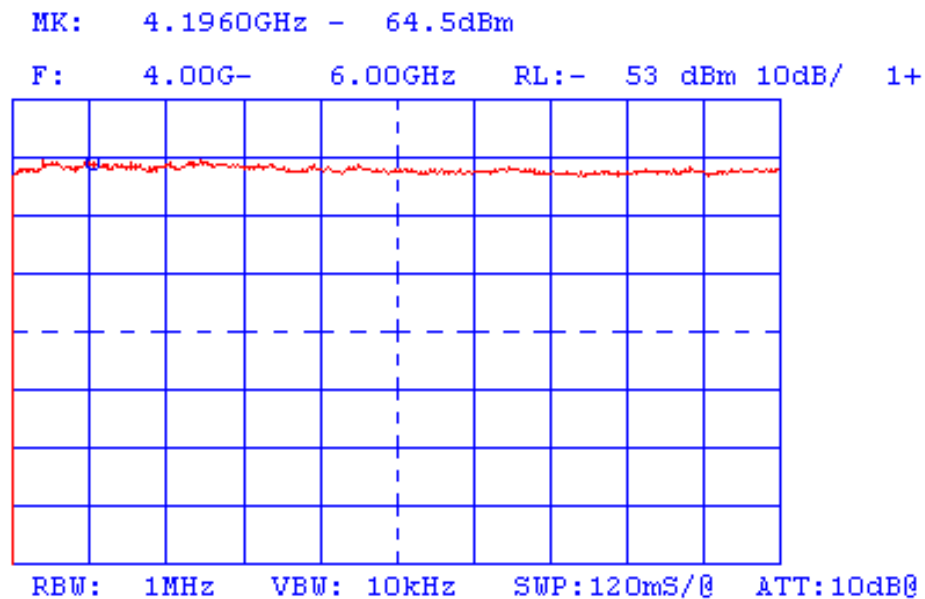


Limit line = 54 dBuV/m  
Usa+AF+Closs-Amplif.gain = 28.5+32.5+1.9-20 = 42.9 dBuV/m (peak)



Plot B 143

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 24 dBi antenna

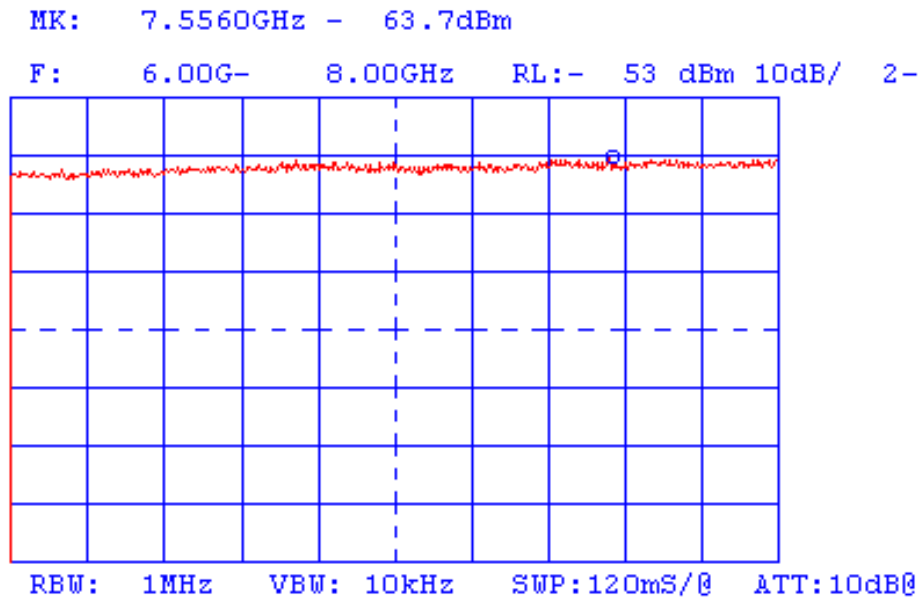


Limit line = 54 dBuV/m  
Usa+AF+Closs-Amplif.gain = 42.5+35+2.6-35 = 45.1 dBuV/m  
Margin = -8.9 dB



Plot B 144

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 24 dBi antenna



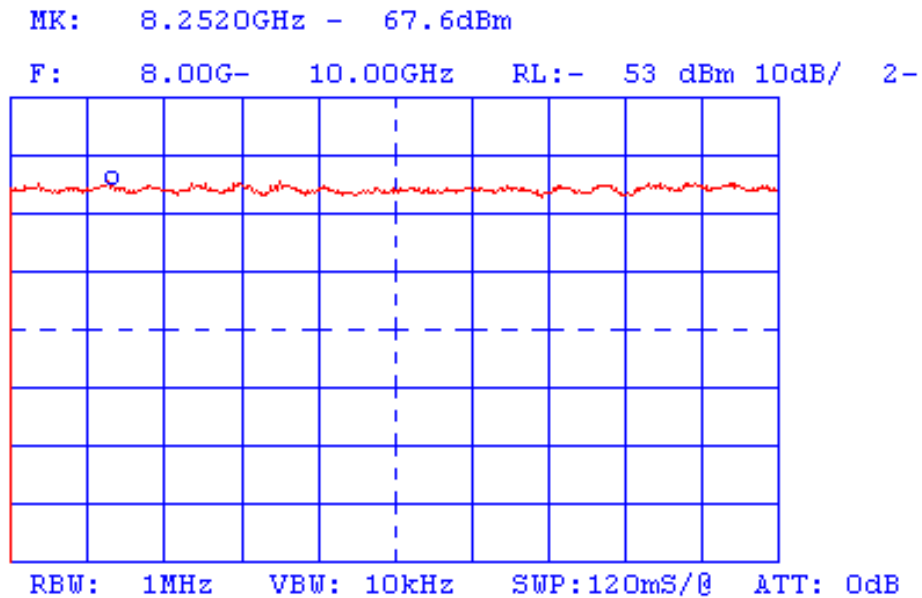
Limit = 54 dBuV/m

Usa+AF+Closs-Amplif.gain = 43.3 + 38+3.0-35 = 49.3 dBuV/m (peak)



Plot B 145

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 24 dBi antenna

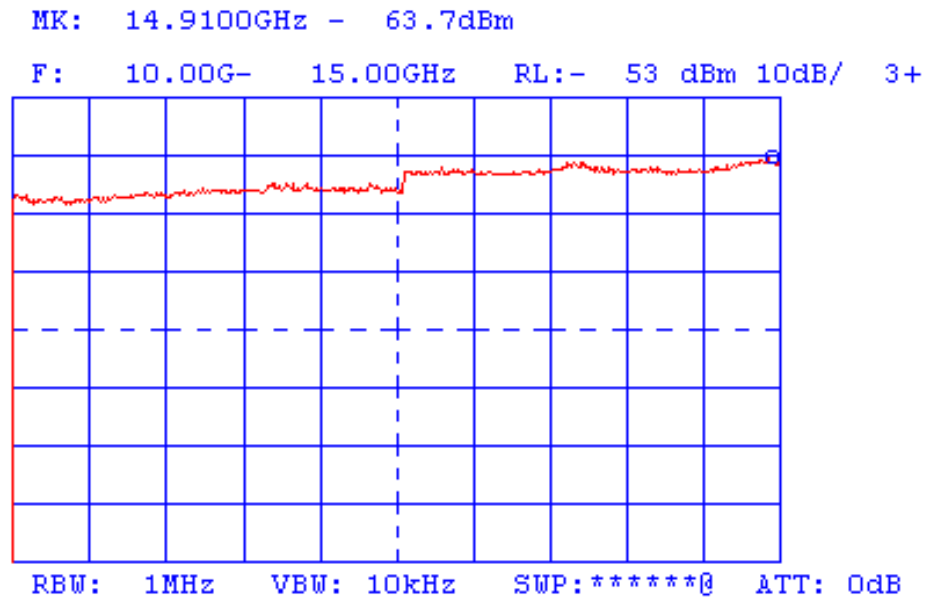


Limit = 54 dBuV/m  
Usa+AF+Closs-Amplif.gain = 39.4+38+3.4-35=45.8 dBuV/m (peak)



Plot B 146

Radiated spurious emission measurements in the anechoic chamber @ 3 m distance,  
carrier frequency 2472 MHz, 24 dBi antenna



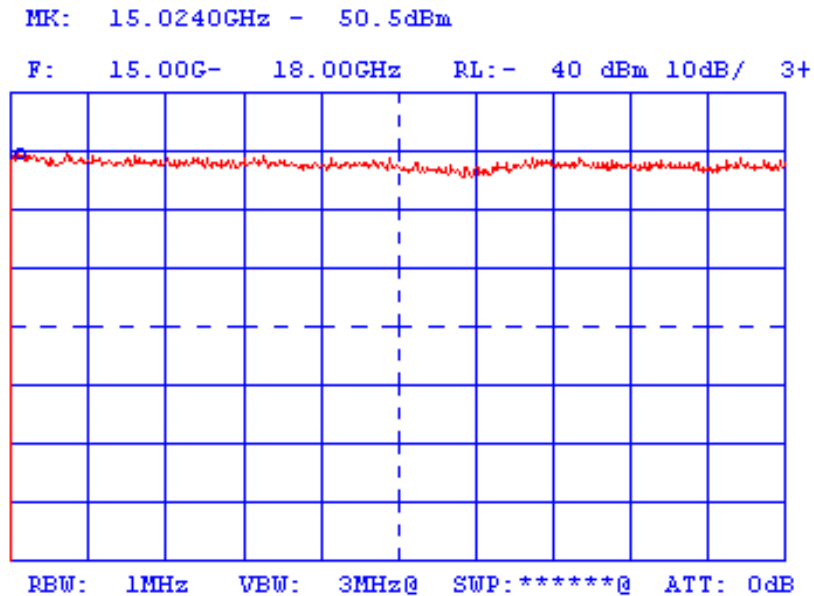
Limit = 54 dBuV/m

Usa+AF+Closs-Amplif.gain = 43.3+38+4.2-35=50.5 dBuV/m



Plot B 147

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2472 MHz, 24 dBi antenna



No spurious were found

$U_{SA}$ : -50.5 dBm = 56.5 dB $\mu$ V/m

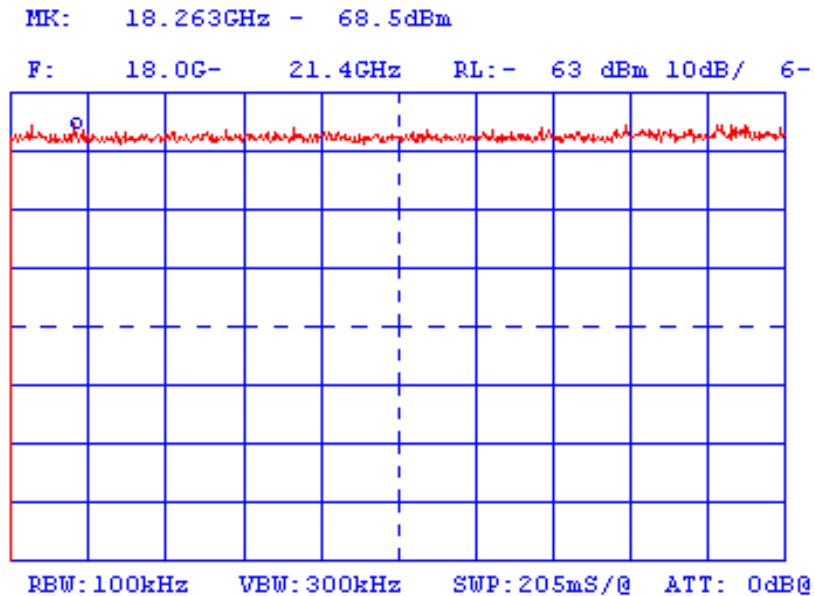
Noise level:  $U_{SA} + AF + CL - \text{Ampl. gain} = 56.5 \text{ dB}(\mu\text{V/m}) + 38 \text{ dB}(1/\text{m}) + 4.6 \text{ dB} - 45 \text{ dB} = 54.1 \text{ dB}(\mu\text{V/m})$

Limit @ 1 meter: 63.5 dB( $\mu$ V/m)



Plot B 148

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2472 MHz, 24 dBi antenna



No spurious were found

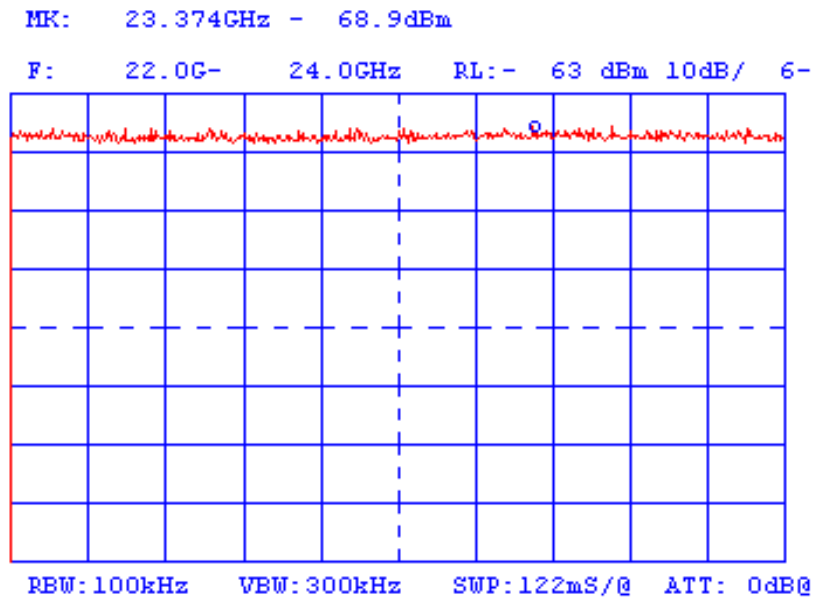
$U_{SA}$ : -68.5 dBm = 38.5 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 38.5 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 27.5 \text{ dB}(\mu\text{V/m})$



Plot B 149

Radiated spurious emission measurements in the anechoic chamber @ 1 m distance,  
carrier frequency 2472 MHz, 24 dBi antenna



No spurious were found

$U_{SA}$ : -68.9 dBm = 38.1 dB $\mu$ V/m

Noise level:  $U_{SA} + AF - \text{Ampl. gain} = 38.1 \text{ dB}(\mu\text{V/m}) + 32 \text{ dB}(1/\text{m}) - 43 \text{ dB} = 27.1 \text{ dB}(\mu\text{V/m})$



## Appendix C Test equipment used for tests

| HL<br>Serial<br>No. | Description                                                             | Manufacturer information  |                    |                          | Due<br>Calibr.<br>Month/<br>year |
|---------------------|-------------------------------------------------------------------------|---------------------------|--------------------|--------------------------|----------------------------------|
|                     |                                                                         | Name                      | Model No.          | Serial No.               |                                  |
| 0025                | Spectrum analyzer, 10 kHz-23 GHz                                        | Anritsu                   | MS-710C            | 5837                     | 10/03                            |
| 0041                | Double ridged guide antenna, 1-18 GHz                                   | Electro-Metrics           | RGA 50/60          | 2811                     | 3/03                             |
| 0091                | Position controller for antenna mast + turntable, OFTS                  | Hermon Labs               | CRL-2              | NA                       | 4/03<br>check                    |
| 0163                | LISN FCC/VDE/MIL -STD                                                   | Electro-Metrics           | ANS-25/2           | 1314                     | 10/03                            |
| 0275                | Table non-metallic, 1.5 x 1.0 x 0.8 m                                   | Hermon Labs               | TNM                | 040                      | 3/03<br>check                    |
| 0287                | Turntable, motorized diameter, 2 m                                      | Hermon Labs               | TMD-2              | 042                      | 11/03<br>check                   |
| 0446                | Active Loop Antenna, 10 kHz-30 MHz                                      | Electro-Mechanics         | 6502               | 2857                     | 10/03                            |
| 0465                | Anechoic chamber 9 (L) x 6.5 (W) x 5.5 (H) m                            | Hermon Labs               | AC-1               | 023                      | 10/05<br>check                   |
| 0521                | Spectrum analyzer with RF filter section (EMI receiver 9 kHz - 6.5 GHz) | Hewlett Packard           | 8546A              | 0319                     | 9/03                             |
| 0554                | Amplifier, 2 – 18 GHz RF                                                | Miteq                     | AFD-4              | 4300                     | 12/03                            |
| 0589                | Cable coaxial, GORE A2POL118.2, 3 m                                     | Hermon Labs               | GORE-3             | 589                      | 11/03                            |
| 0592                | Position controller                                                     | Hermon Labs               | L2-SR3000          | 100                      | 5/03<br>check                    |
| 0593                | Antenna mast, 1-4 m/<br>1-6 m Pneumatic                                 | Hermon Labs               | AM-F1              | 101                      | 2/04<br>check                    |
| 0594                | Turntable for anechoic chamber, flush mounted, d=1.2 m, pneumatic       | Hermon Labs               | WDC1               | 102                      | 1/04<br>check                    |
| 0604                | Antenna biconilog log-periodic/T Bow-Tie, 26 - 2000 MHz                 | EMCO                      | 3141               | 9611-1011                | 1/04                             |
| 0750                | Mixer, general purpose, waveguide, 18.0-26.5 GHz                        | Tektronix                 | 119-0098-00        | NA                       | 6/03<br>check                    |
| 0768                | Antenna standard gain horn 18-26.5 GHz, WR-42, K-band, gain – 25 dB     | Quinstar Technology       | QWH-4200-BA        | 110                      | 07/04<br>check                   |
| 0787                | Transient limiter                                                       | Hewlett Packard           | 11947A-8ZE         | 3107A01877               | 11/03                            |
| 1003                | Cable coaxial, M17/164, 10 m                                            | Hermon Labs               | C17164-10          | 161                      | 11/03                            |
| 1004                | Cable, coaxial ANDREW PSWJ4, 6 m                                        | Hermon Labs               | ANDREW-6           | 163                      | 12/03                            |
| 1200                | Quadruplexer, 1-12 GHz                                                  | Elettronica S.p.A. - Roma | UE 84              | 0240                     | 4/03<br>check                    |
| 1424                | Spectrum analyzer, 30 Hz - 40 GHz                                       | Agilent Technologies      | 8564EC             | 3946A00219               | 8/03                             |
| 1425                | EMI receiver, 9 kHz – 2.9 GHz                                           | Agilent Technologies      | 8542E              | 3710A002223<br>705A00204 | 9/03                             |
| 1566                | Cable RF, 2 m                                                           | Huber-Suhner              | Sucoflex 104PE     | 13094/4PE                | 12/03                            |
| 1826                | Antenna mast and turntable position controller                          | Sh. I. Machines           | CRL-4              | 1                        | 5/03<br>check                    |
| 1849                | Antenna mast with polarity control                                      | Sh. I. Mashines           | AM-F4              | NA                       | 1/03<br>check                    |
| 1850                | Turntable                                                               | Sh. I. Mashines           | TT-M-3             | NA                       | 1/03<br>check                    |
| 1940                | Cable 40 GHz, 1.5 m, blue                                               | Rhophase Microwave Ltd.   | KPS-1503A-1500-KPS | T4663                    | 10/03                            |
| 1942                | Cable 18 GHz, 4 m, blue                                                 | Rhophase Microwave Ltd.   | SPS-1803A-4000-NPS | T4658                    | 10/03                            |
| 1984                | Antenna, double ridged waveguide horn, 1-18 GHz, 300W, N-type           | EMC Test Systems          | 3115               | 9911-5964                | 3/04                             |
| 2009                | Cable RF, 8 m                                                           | Alpha Wire                | RG-214             | C-56                     | 12/03                            |
| 2109                | Anechoic chamber 6 (L) x 5.5 (W) x 2.95 (H) m                           | Hermon Labs               | AC-2               | NA                       | 12/03<br>check                   |
| 2254                | Cable 40 GHz, 0.8 m, blue                                               | Rhophase Microwave        | KPS-1503A-800-KPS  | W4907                    | 11/03                            |
| 2258                | Amplifier Low Noise 2-20 GHz                                            | Sophia Wireless           | LNA0220-C          | 0222                     | 11/03                            |
| 2260                | Amplifier Low Noise 14-33 GHz                                           | Sophia Wireless           | LNA28-B            | 0233                     | 11/03                            |



## Appendix D General information

### Test facility description

Tests were performed at Hermon Laboratories Ltd., which is a fully independent, private EMC, Safety and Telecommunication testing facility. Hermon Laboratories is listed by the Federal Communications Commission (USA) for all parts of Code of Federal Regulations 47 (CFR 47) and by Industry Canada for electromagnetic emissions (file numbers IC 2186-1 for OATS and IC 2186-2 for anechoic chamber), certified by VCCI, Japan (the registration numbers are R-808 for OATS, R-1082 for anechoic chamber, C-845 for conducted emissions site), assessed by TNO Certification EP&S (Netherlands) for a number of EMC, Telecommunications, Safety standards, and by AMTAC (UK) for safety of Medical Devices. The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO/IEC 17025 for Electromagnetic Compatibility, Product Safety, Telecommunications Testing and Environmental Simulation (for exact scope please refer to Certificate No. 839.01).

Address: PO Box 23, Binyamina 30550, Israel.  
Telephone: +972 4628 8001  
Fax: +972 4628 8277  
e-mail: [mail@hermonlabs.com](mailto:mail@hermonlabs.com)

Person for contact: Mr. Alex Usoskin, QA manager.

### Abbreviations and acronyms

The following abbreviations and acronyms are applicable to this test report:

|                |                                             |
|----------------|---------------------------------------------|
| cm             | centimeter                                  |
| dB             | decibel                                     |
| dBm            | decibel referred to one milliwatt           |
| dB( $\mu$ V)   | decibel referred to one microvolt           |
| dB( $\mu$ V/m) | decibel referred to one microvolt per meter |
| EMC            | electromagnetic compatibility               |
| EUT            | equipment under test                        |
| GHz            | gigahertz                                   |
| H              | height                                      |
| Hz             | hertz                                       |
| kHz            | kilohertz                                   |
| kV             | kilovolt                                    |
| L              | length                                      |
| LISN           | line impedance stabilization network        |
| m              | meter                                       |
| MHz            | megahertz                                   |
| NA             | not applicable                              |
| QP             | quasi-peak                                  |
| RF             | radio frequency                             |
| RE             | radiated emission                           |
| rms            | root mean square                            |
| s              | second                                      |
| V              | volt                                        |
| W              | width                                       |

### Specification references

|                     |                                                                                                                                                                      |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 47CFR part 15: 2001 | Radio Frequency Devices                                                                                                                                              |
| ANSI C63.2: 1996    | American National Standard for Instrumentation-Electromagnetic Noise and Field Strength, 10 kHz to 40 GHz-Specifications.                                            |
| ANSI C63.4: 1992    | American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz. |



## Appendix E Test equipment correction factors

**Antenna factor  
Active Loop Antenna  
Model 6502, S/N 2857, HL 0446**

| Frequency,<br>MHz | Magnetic antenna factor,<br>dB | Electric antenna factor,<br>dB |
|-------------------|--------------------------------|--------------------------------|
| 0.009             | -32.8                          | 18.7                           |
| 0.010             | -33.8                          | 17.7                           |
| 0.020             | -38.3                          | 13.2                           |
| 0.050             | -41.1                          | 10.4                           |
| 0.075             | -41.3                          | 10.2                           |
| 0.100             | -41.6                          | 9.9                            |
| 0.150             | -41.7                          | 9.8                            |
| 0.250             | -41.6                          | 9.9                            |
| 0.500             | -41.8                          | 9.8                            |
| 0.750             | -41.9                          | 9.7                            |
| 1.000             | -41.4                          | 10.1                           |
| 2.000             | -41.5                          | 10.0                           |
| 3.000             | -41.4                          | 10.2                           |
| 4.000             | -41.4                          | 10.1                           |
| 5.000             | -41.5                          | 10.1                           |
| 10.000            | -41.9                          | 9.6                            |
| 15.000            | -41.9                          | 9.6                            |
| 20.000            | -42.2                          | 9.3                            |
| 25.000            | -42.8                          | 8.7                            |
| 30.000            | -44.0                          | 7.5                            |

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB( $\mu$ V) to convert it into field intensity in dB( $\mu$ V/m).



**Antenna Factor**  
**Biconilog Antenna EMCO Model 3141**  
**Ser.No.1011**

| Frequency,<br>MHz | Antenna Factor,<br>dB(1/m) | Frequency,<br>MHz | Antenna Factor,<br>dB(1/m) |
|-------------------|----------------------------|-------------------|----------------------------|
| 26                | 7.8                        | 940               | 24.0                       |
| 28                | 7.8                        | 960               | 24.1                       |
| 30                | 7.8                        | 980               | 24.5                       |
| 40                | 7.2                        | 1000              | 24.9                       |
| 60                | 7.1                        | 1020              | 25.0                       |
| 70                | 8.5                        | 1040              | 25.2                       |
| 80                | 9.4                        | 1060              | 25.4                       |
| 90                | 9.8                        | 1080              | 25.6                       |
| 100               | 9.7                        | 1100              | 25.7                       |
| 110               | 9.3                        | 1120              | 26.0                       |
| 120               | 8.8                        | 1140              | 26.4                       |
| 130               | 8.7                        | 1160              | 27.0                       |
| 140               | 9.2                        | 1180              | 27.0                       |
| 150               | 9.8                        | 1200              | 26.7                       |
| 160               | 10.2                       | 1220              | 26.5                       |
| 170               | 10.4                       | 1240              | 26.5                       |
| 180               | 10.4                       | 1260              | 26.5                       |
| 190               | 10.3                       | 1280              | 26.6                       |
| 200               | 10.6                       | 1300              | 27.0                       |
| 220               | 11.6                       | 1320              | 27.8                       |
| 240               | 12.4                       | 1340              | 28.3                       |
| 260               | 12.8                       | 1360              | 28.2                       |
| 280               | 13.7                       | 1380              | 27.9                       |
| 300               | 14.7                       | 1400              | 27.9                       |
| 320               | 15.2                       | 1420              | 27.9                       |
| 340               | 15.4                       | 1440              | 27.8                       |
| 360               | 16.1                       | 1460              | 27.8                       |
| 380               | 16.4                       | 1480              | 28.0                       |
| 400               | 16.6                       | 1500              | 28.5                       |
| 420               | 16.7                       | 1520              | 28.9                       |
| 440               | 17.0                       | 1540              | 29.6                       |
| 460               | 17.7                       | 1560              | 29.8                       |
| 480               | 18.1                       | 1580              | 29.6                       |
| 500               | 18.5                       | 1600              | 29.5                       |
| 520               | 19.1                       | 1620              | 29.3                       |
| 540               | 19.5                       | 1640              | 29.2                       |
| 560               | 19.8                       | 1660              | 29.4                       |
| 580               | 20.6                       | 1680              | 29.6                       |
| 600               | 21.3                       | 1700              | 29.8                       |
| 620               | 21.5                       | 1720              | 30.3                       |
| 640               | 21.2                       | 1740              | 30.8                       |
| 660               | 21.4                       | 1760              | 31.1                       |
| 680               | 21.9                       | 1780              | 31.0                       |
| 700               | 22.2                       | 1800              | 30.9                       |
| 720               | 22.2                       | 1820              | 30.7                       |
| 740               | 22.1                       | 1840              | 30.6                       |
| 760               | 22.3                       | 1860              | 30.6                       |
| 780               | 22.6                       | 1880              | 30.6                       |
| 800               | 22.7                       | 1900              | 30.6                       |
| 820               | 22.9                       | 1920              | 30.7                       |
| 840               | 23.1                       | 1940              | 30.9                       |
| 860               | 23.4                       | 1960              | 31.2                       |
| 880               | 23.8                       | 1980              | 31.6                       |
| 900               | 24.1                       | 2000              | 32.0                       |
| 920               | 24.1                       |                   |                            |

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB( $\mu$ V) to convert it into field intensity in dB( $\mu$ V/m).



**Antenna factor**  
**Double ridged guide antenna**  
**Model RGA-50/60, S/N 2811, HL 0041**

| Frequency,<br>MHz | Antenna factor,<br>dB(1/m) |
|-------------------|----------------------------|
| 1000              | 24.3                       |
| 1500              | 25.4                       |
| 2000              | 28.4                       |
| 2500              | 29.2                       |
| 3000              | 30.5                       |
| 3500              | 31.6                       |
| 4000              | 33.7                       |
| 4500              | 32.2                       |
| 5000              | 34.5                       |
| 5500              | 34.5                       |
| 6000              | 34.6                       |
| 6500              | 35.3                       |
| 7000              | 35.5                       |
| 7500              | 35.9                       |
| 8000              | 36.6                       |
| 8500              | 37.3                       |
| 9000              | 37.7                       |
| 9500              | 37.7                       |
| 10000             | 38.2                       |
| 10500             | 38.5                       |
| 11000             | 39.0                       |
| 11500             | 40.1                       |
| 12000             | 40.2                       |
| 12500             | 39.3                       |
| 13000             | 39.9                       |
| 13500             | 40.6                       |
| 14000             | 41.1                       |
| 14500             | 40.5                       |
| 15000             | 39.9                       |
| 15500             | 37.8                       |
| 16000             | 39.1                       |
| 16500             | 41.1                       |
| 17000             | 41.7                       |
| 17500             | 45.1                       |
| 18000             | 44.3                       |

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB( $\mu$ V) to convert it into field intensity in dB( $\mu$ V/m).



**Antenna factor**  
**Double-ridged wave guide horn antenna**  
**Model 3115, S/N 9911-5964, HL1984**

| Frequency,<br>MHz | Antenna factor,<br>dB(1/m) |
|-------------------|----------------------------|
| 1000.0            | 24.7                       |
| 1500.0            | 25.7                       |
| 2000.0            | 27.6                       |
| 2500.0            | 28.9                       |
| 3000.0            | 31.2                       |
| 3500.0            | 32.0                       |
| 4000.0            | 32.5                       |
| 4500.0            | 32.7                       |
| 5000.0            | 33.6                       |
| 5500.0            | 35.1                       |
| 6000.0            | 35.4                       |
| 6500.0            | 34.9                       |
| 7000.0            | 36.1                       |
| 7500.0            | 37.8                       |
| 8000.0            | 38.0                       |
| 8500.0            | 38.1                       |
| 9000.0            | 39.1                       |
| 9500.0            | 38.3                       |
| 10000.0           | 38.6                       |
| 10500.0           | 38.2                       |
| 11000.0           | 38.7                       |
| 11500.0           | 39.5                       |
| 12000.0           | 40.0                       |
| 12500.0           | 40.4                       |
| 13000.0           | 40.5                       |
| 13500.0           | 41.1                       |
| 14000.0           | 41.6                       |
| 14500.0           | 41.7                       |
| 15000.0           | 38.7                       |
| 15500.0           | 38.2                       |
| 16000.0           | 38.8                       |
| 16500.0           | 40.5                       |
| 17000.0           | 42.5                       |
| 17500.0           | 45.9                       |
| 18000.0           | 49.4                       |

Antenna factor in dB(1/m) is to be added to receiver meter reading in dB( $\mu$ V) to convert it into field intensity in dB( $\mu$ V/m).



### Antenna factor

#### for standard gain horn antennas

Antenna factor was derived from the following equation:  $AF = 20 \log F - \text{Gain} - 29.8$

where  $F$  - frequency in MHz;  
Gain - antenna gain in dBi; 25 dBi

| f, MHz | Antenna factor, dB(1/m) | f, MHz | Antenna factor, dB(1/m) | f, MHz  | Antenna factor, dB(1/m) | f, MHz  | Antenna factor, dB(1/m) |
|--------|-------------------------|--------|-------------------------|---------|-------------------------|---------|-------------------------|
| 18,000 | 30.31                   | 48,500 | 38.91                   | 79,000  | 43.15                   | 109,500 | 45.99                   |
| 18,500 | 30.54                   | 49,000 | 39.00                   | 79,500  | 43.21                   | 110,000 | 46.03                   |
| 19,000 | 30.78                   | 49,500 | 39.09                   | 80,000  | 43.26                   | 110,500 | 46.07                   |
| 19,500 | 31.00                   | 50,000 | 39.18                   | 80,500  | 43.32                   | 111,000 | 46.11                   |
| 20,000 | 31.22                   | 50,500 | 39.27                   | 81,000  | 43.37                   | 111,500 | 46.15                   |
| 20,500 | 31.44                   | 51,000 | 39.35                   | 81,500  | 43.42                   | 112,000 | 46.18                   |
| 21,000 | 31.64                   | 51,500 | 39.44                   | 82,000  | 43.48                   | 112,500 | 46.22                   |
| 21,500 | 31.85                   | 52,000 | 39.52                   | 82,500  | 43.53                   | 113,000 | 46.26                   |
| 22,000 | 32.05                   | 52,500 | 39.60                   | 83,000  | 43.58                   | 113,500 | 46.30                   |
| 22,500 | 32.24                   | 53,000 | 39.69                   | 83,500  | 43.63                   | 114,000 | 46.34                   |
| 23,000 | 32.43                   | 53,500 | 39.77                   | 84,000  | 43.69                   | 114,500 | 46.38                   |
| 23,500 | 32.62                   | 54,000 | 39.85                   | 84,500  | 43.74                   | 115,000 | 46.41                   |
| 24,000 | 32.80                   | 54,500 | 39.93                   | 85,000  | 43.79                   | 115,500 | 46.45                   |
| 24,500 | 32.98                   | 55,000 | 40.01                   | 85,500  | 43.84                   | 116,000 | 46.49                   |
| 25,000 | 33.16                   | 55,500 | 40.09                   | 86,000  | 43.89                   | 116,500 | 46.53                   |
| 25,500 | 33.33                   | 56,000 | 40.16                   | 86,500  | 43.94                   | 117,000 | 46.56                   |
| 26,000 | 33.50                   | 56,500 | 40.24                   | 87,000  | 43.99                   | 117,500 | 46.60                   |
| 26,500 | 33.66                   | 57,000 | 40.32                   | 87,500  | 44.04                   | 118,000 | 46.64                   |
| 27,000 | 33.83                   | 57,500 | 40.39                   | 88,000  | 44.09                   | 118,500 | 46.67                   |
| 27,500 | 33.99                   | 58,000 | 40.47                   | 88,500  | 44.14                   | 119,000 | 46.71                   |
| 28,000 | 34.14                   | 58,500 | 40.54                   | 89,000  | 44.19                   | 119,500 | 46.75                   |
| 28,500 | 34.30                   | 59,000 | 40.62                   | 89,500  | 44.24                   | 120,000 | 46.78                   |
| 29,000 | 34.45                   | 59,500 | 40.69                   | 90,000  | 44.28                   | 120,500 | 46.82                   |
| 29,500 | 34.60                   | 60,000 | 40.76                   | 90,500  | 44.33                   | 121,000 | 46.86                   |
| 30,000 | 34.74                   | 60,500 | 40.84                   | 91,000  | 44.38                   | 121,500 | 46.89                   |
| 30,500 | 34.89                   | 61,000 | 40.91                   | 91,500  | 44.43                   | 122,000 | 46.93                   |
| 31,000 | 35.03                   | 61,500 | 40.98                   | 92,000  | 44.48                   | 122,500 | 46.96                   |
| 31,500 | 35.17                   | 62,000 | 41.05                   | 92,500  | 44.52                   | 123,000 | 47.00                   |
| 32,000 | 35.30                   | 62,500 | 41.12                   | 93,000  | 44.57                   | 123,500 | 47.03                   |
| 32,500 | 35.44                   | 63,000 | 41.19                   | 93,500  | 44.62                   | 124,000 | 47.07                   |
| 33,000 | 35.57                   | 63,500 | 41.26                   | 94,000  | 44.66                   | 124,500 | 47.10                   |
| 33,500 | 35.70                   | 64,000 | 41.32                   | 94,500  | 44.71                   | 125,000 | 47.14                   |
| 34,000 | 35.83                   | 64,500 | 41.39                   | 95,000  | 44.75                   | 125,500 | 47.17                   |
| 34,500 | 35.96                   | 65,000 | 41.46                   | 95,500  | 44.80                   | 126,000 | 47.21                   |
| 35,000 | 36.08                   | 65,500 | 41.52                   | 96,000  | 44.85                   | 126,500 | 47.24                   |
| 35,500 | 36.20                   | 66,000 | 41.59                   | 96,500  | 44.89                   | 127,000 | 47.28                   |
| 36,000 | 36.33                   | 66,500 | 41.66                   | 97,000  | 44.94                   | 127,500 | 47.31                   |
| 36,500 | 36.45                   | 67,000 | 41.72                   | 97,500  | 44.98                   | 128,000 | 47.34                   |
| 37,000 | 36.56                   | 67,500 | 41.79                   | 98,000  | 45.02                   | 128,500 | 47.38                   |
| 37,500 | 36.68                   | 68,000 | 41.85                   | 98,500  | 45.07                   | 129,000 | 47.41                   |
| 38,000 | 36.80                   | 68,500 | 41.91                   | 99,000  | 45.11                   | 129,500 | 47.45                   |
| 38,500 | 36.91                   | 69,000 | 41.98                   | 99,500  | 45.16                   | 130,000 | 47.48                   |
| 39,000 | 37.02                   | 69,500 | 42.04                   | 100,000 | 45.20                   | 130,500 | 47.51                   |
| 39,500 | 37.13                   | 70,000 | 42.10                   | 100,500 | 45.24                   | 131,000 | 47.55                   |
| 40,000 | 37.24                   | 70,500 | 42.16                   | 101,000 | 45.29                   | 131,500 | 47.58                   |
| 40,500 | 37.35                   | 71,000 | 42.23                   | 101,500 | 45.33                   | 132,000 | 47.61                   |
| 41,000 | 37.46                   | 71,500 | 42.29                   | 102,000 | 45.37                   | 132,500 | 47.64                   |
| 41,500 | 37.56                   | 72,000 | 42.35                   | 102,500 | 45.41                   | 133,000 | 47.68                   |
| 42,000 | 37.66                   | 72,500 | 42.41                   | 103,000 | 45.46                   | 133,500 | 47.71                   |
| 42,500 | 37.77                   | 73,000 | 42.47                   | 103,500 | 45.50                   | 134,000 | 47.74                   |
| 43,000 | 37.87                   | 73,500 | 42.53                   | 104,000 | 45.54                   | 134,500 | 47.77                   |
| 43,500 | 37.97                   | 74,000 | 42.58                   | 104,500 | 45.58                   | 135,000 | 47.81                   |
| 44,000 | 38.07                   | 74,500 | 42.64                   | 105,000 | 45.62                   | 135,500 | 47.84                   |
| 44,500 | 38.17                   | 75,000 | 42.70                   | 105,500 | 45.67                   | 136,000 | 47.87                   |
| 45,000 | 38.26                   | 75,500 | 42.76                   | 106,000 | 45.71                   | 136,500 | 47.90                   |
| 45,500 | 38.36                   | 76,000 | 42.82                   | 106,500 | 45.75                   | 137,000 | 47.93                   |
| 46,000 | 38.46                   | 76,500 | 42.87                   | 107,000 | 45.79                   | 137,500 | 47.97                   |
| 46,500 | 38.55                   | 77,000 | 42.93                   | 107,500 | 45.83                   | 138,000 | 48.00                   |
| 47,000 | 38.64                   | 77,500 | 42.99                   | 108,000 | 45.87                   | 138,500 | 48.03                   |
| 47,500 | 38.73                   | 78,000 | 43.04                   | 108,500 | 45.91                   | 139,000 | 48.06                   |
| 48,000 | 38.82                   | 78,500 | 43.10                   | 109,000 | 45.95                   | 139,500 | 48.09                   |
|        |                         |        |                         |         |                         | 140,000 | 48.12                   |



**Cable loss**  
**Cable coaxial, M17/164, model: C17164-10, s/n 161, HL 1003**

| No. | Frequency,<br>MHz | Cable loss,<br>dB | Tolerance,<br>dB | Measurement uncertainty,<br>dB |
|-----|-------------------|-------------------|------------------|--------------------------------|
| 1   | 30                | 0.41              | $\leq 12.5$      | $\pm 0.12$                     |
| 2   | 50                | 0.52              |                  |                                |
| 3   | 100               | 0.75              |                  |                                |
| 4   | 300               | 1.45              |                  |                                |
| 5   | 500               | 2.01              |                  |                                |
| 6   | 800               | 2.71              |                  |                                |
| 7   | 1000              | 3.14              |                  |                                |
| 8   | 1200              | 3.56              |                  |                                |
| 9   | 1400              | 3.93              |                  |                                |
| 10  | 1600              | 4.31              |                  |                                |
| 11  | 1800              | 4.63              |                  |                                |
| 12  | 2000              | 4.97              |                  |                                |
| 13  | 2200              | 5.32              |                  |                                |
| 14  | 2400              | 5.65              |                  |                                |
| 15  | 2600              | 6.01              | $\leq 12.5$      | $\pm 0.12$                     |
| 16  | 2800              | 6.42              |                  |                                |
| 17  | 3000              | 6.76              |                  |                                |
| 18  | 3300              | 7.12              |                  |                                |
| 19  | 3600              | 7.53              |                  |                                |
| 20  | 3900              | 7.95              |                  | $\pm 0.17$                     |
| 21  | 4200              | 8.32              |                  |                                |
| 22  | 4500              | 8.72              |                  |                                |
| 23  | 4800              | 9.14              |                  |                                |
| 24  | 5100              | 9.59              |                  |                                |
| 25  | 5400              | 10.00             |                  |                                |
| 26  | 5700              | 10.49             |                  |                                |
| 27  | 6000              | 11.07             |                  |                                |
| 28  | 6500              | 11.80             |                  |                                |



**Cable loss**  
**Cable Coaxial, GORE A2P01POL118, 2.3 m, model:GORE-3, HL 0589**  
**+ Cable Coaxial, ANDREW PSWJ4, 6m, model: ANDREW-6, HL 1004**

| No. | Frequency,<br>MHz | Cable loss,<br>dB | Tolerance,<br>dB | Measurement uncertainty,<br>dB |
|-----|-------------------|-------------------|------------------|--------------------------------|
| 1   | 30                | 0.33              | $\leq 6.5$       | $\pm 0.12$                     |
| 2   | 50                | 0.40              |                  |                                |
| 3   | 100               | 0.57              |                  |                                |
| 4   | 300               | 0.97              |                  |                                |
| 5   | 500               | 1.25              |                  |                                |
| 6   | 800               | 1.59              |                  |                                |
| 7   | 1000              | 1.81              |                  |                                |
| 8   | 1200              | 1.97              |                  |                                |
| 9   | 1400              | 2.15              |                  |                                |
| 10  | 1600              | 2.28              |                  |                                |
| 11  | 1800              | 2.43              |                  |                                |
| 12  | 2000              | 2.61              |                  |                                |
| 13  | 2200              | 2.75              |                  |                                |
| 14  | 2400              | 2.89              |                  |                                |
| 15  | 2600              | 2.97              |                  |                                |
| 16  | 2800              | 3.21              | $\leq 6.5$       | $\pm 0.12$                     |
| 17  | 3000              | 3.32              |                  | $\pm 0.17$                     |
| 18  | 3300              | 3.47              |                  |                                |
| 19  | 3600              | 3.62              |                  |                                |
| 20  | 3900              | 3.84              |                  |                                |
| 21  | 4200              | 3.92              |                  |                                |
| 22  | 4500              | 4.07              |                  |                                |
| 23  | 4800              | 4.36              |                  |                                |
| 24  | 5100              | 4.62              |                  |                                |
| 25  | 5400              | 4.78              |                  |                                |
| 26  | 5700              | 5.16              |                  |                                |
| 27  | 6000              | 5.67              |                  |                                |
| 28  | 6500              | 5.99              |                  |                                |



**Cable loss**  
**RF cable 8 m, model RG-214, HL 2009**

| No. | Frequency,<br>MHz | Cable loss,<br>dB | Tolerance (Specification),<br>dB | Measurement uncertainty,<br>dB |
|-----|-------------------|-------------------|----------------------------------|--------------------------------|
| 1   | 1                 | 0.10              | NA                               | ±0.12                          |
| 2   | 10                | 0.14              |                                  |                                |
| 3   | 30                | 0.25              |                                  |                                |
| 4   | 50                | 0.34              |                                  |                                |
| 5   | 100               | 0.53              |                                  |                                |
| 6   | 300               | 0.99              |                                  |                                |
| 7   | 500               | 1.31              |                                  |                                |
| 8   | 800               | 1.73              |                                  |                                |
| 9   | 1000              | 1.98              |                                  |                                |
| 10  | 1100              | 2.11              |                                  |                                |
| 11  | 1200              | 2.21              |                                  |                                |
| 12  | 1300              | 2.35              |                                  |                                |
| 13  | 1400              | 2.46              |                                  |                                |
| 14  | 1500              | 2.55              |                                  |                                |
| 15  | 1600              | 2.68              |                                  |                                |
| 16  | 1700              | 2.78              |                                  |                                |
| 17  | 1800              | 2.88              |                                  |                                |
| 18  | 1900              | 2.98              |                                  |                                |
| 19  | 2000              | 3.09              |                                  |                                |



**Cable loss**  
**Cable RF, 2m, model: Sucoflex 104PE, S/N 13094/4PE, HL 1566**

| No. | Frequency,<br>MHz | Cable loss,<br>dB | Tolerance,<br>dB | Measurement uncertainty,<br>dB |
|-----|-------------------|-------------------|------------------|--------------------------------|
| 1   | 30                | 0.10              | ≤ 5.0            | ±0.12                          |
| 2   | 50                | 0.13              |                  |                                |
| 3   | 100               | 0.20              |                  |                                |
| 4   | 300               | 0.33              |                  |                                |
| 5   | 500               | 0.45              |                  |                                |
| 6   | 800               | 0.60              |                  |                                |
| 7   | 1000              | 0.65              |                  |                                |
| 8   | 1500              | 0.91              |                  |                                |
| 9   | 2000              | 1.08              |                  |                                |
| 10  | 2500              | 1.19              |                  |                                |
| 11  | 3000              | 1.28              |                  |                                |
| 12  | 3500              | 1.49              |                  |                                |
| 13  | 4000              | 1.63              |                  |                                |
| 14  | 4500              | 1.63              |                  |                                |
| 15  | 5000              | 1.66              | ≤ 5.0            | ±0.17                          |
| 16  | 5500              | 1.88              |                  |                                |
| 17  | 6000              | 1.96              |                  |                                |
| 18  | 6500              | 1.93              |                  |                                |
| 19  | 7000              | 2.07              |                  |                                |
| 20  | 7500              | 2.37              |                  |                                |
| 21  | 8000              | 2.34              |                  |                                |
| 22  | 8500              | 2.64              |                  |                                |
| 23  | 9000              | 2.68              |                  |                                |
| 24  | 9500              | 2.64              |                  |                                |
| 25  | 10000             | 2.70              |                  |                                |
| 26  | 10500             | 2.84              |                  |                                |
| 27  | 11000             | 2.88              |                  |                                |
| 28  | 11500             | 3.19              |                  |                                |
| 29  | 12000             | 3.15              |                  |                                |
| 30  | 12500             | 3.20              | ≤ 5.0            | ±0.26                          |
| 31  | 13000             | 3.22              |                  |                                |
| 32  | 13500             | 3.47              |                  |                                |
| 33  | 14000             | 3.41              |                  |                                |
| 34  | 14500             | 3.59              |                  |                                |
| 35  | 15000             | 3.79              |                  |                                |
| 36  | 15500             | 4.24              |                  |                                |
| 37  | 16000             | 4.12              |                  |                                |
| 38  | 16500             | 4.46              |                  |                                |
| 39  | 17000             | 4.50              |                  |                                |
| 40  | 17500             | 4.49              |                  |                                |
| 41  | 18000             | 4.45              |                  |                                |



**Cable loss**  
**Cable 40 GHz, 1.5 m, blue, model: KPS-1503A-1500-KPS, S/N T4663, HL 1940**

| Frequency,<br>GHz | Cable loss,<br>dB | Frequency,<br>GHz | Cable loss,<br>dB | Frequency,<br>GHz | Cable loss,<br>dB |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 0.03              | 0.13              | 5.10              | 1.33              | 15.00             | 2.27              |
| 0.05              | 0.14              | 5.30              | 1.33              | 15.50             | 2.32              |
| 0.10              | 0.19              | 5.50              | 1.38              | 16.00             | 2.39              |
| 0.20              | 0.25              | 5.70              | 1.41              | 16.50             | 2.41              |
| 0.30              | 0.31              | 5.90              | 1.43              | 17.00             | 2.36              |
| 0.40              | 0.37              | 6.10              | 1.50              | 17.50             | 2.42              |
| 0.50              | 0.41              | 6.30              | 1.47              | 18.00             | 2.50              |
| 0.60              | 0.46              | 6.50              | 1.56              | 18.50             | 2.89              |
| 0.70              | 0.49              | 6.70              | 1.50              | 19.00             | 2.86              |
| 0.80              | 0.53              | 6.90              | 1.53              | 19.50             | 2.84              |
| 0.90              | 0.56              | 7.10              | 1.53              | 20.00             | 2.77              |
| 1.00              | 0.59              | 7.30              | 1.56              | 20.50             | 2.73              |
| 1.10              | 0.62              | 7.50              | 1.59              | 21.00             | 3.05              |
| 1.20              | 0.65              | 7.70              | 1.62              | 21.50             | 3.07              |
| 1.30              | 0.68              | 7.90              | 1.68              | 22.00             | 2.97              |
| 1.40              | 0.70              | 8.10              | 1.67              | 22.50             | 2.91              |
| 1.50              | 0.73              | 8.30              | 1.70              | 23.00             | 3.02              |
| 1.60              | 0.76              | 8.50              | 1.69              | 23.50             | 3.29              |
| 1.70              | 0.77              | 8.70              | 1.70              | 24.00             | 3.31              |
| 1.80              | 0.80              | 8.90              | 1.68              | 24.50             | 3.49              |
| 1.90              | 0.82              | 9.10              | 1.70              | 25.00             | 3.37              |
| 2.00              | 0.84              | 9.30              | 1.70              | 25.50             | 3.56              |
| 2.10              | 0.85              | 9.50              | 1.77              | 26.00             | 3.56              |
| 2.20              | 0.87              | 9.70              | 1.80              | 26.50             | 3.33              |
| 2.30              | 0.88              | 9.90              | 1.88              | 27.00             | 3.52              |
| 2.40              | 0.90              | 10.10             | 1.93              | 28.00             | 3.38              |
| 2.50              | 0.91              | 10.30             | 1.94              | 29.00             | 3.34              |
| 2.60              | 0.93              | 10.50             | 1.99              | 30.00             | 3.33              |
| 2.70              | 0.95              | 10.70             | 1.91              | 31.00             | 3.48              |
| 2.80              | 0.97              | 10.90             | 2.00              | 32.00             | 3.63              |
| 2.90              | 0.98              | 11.10             | 1.92              | 33.00             | 3.69              |
| 3.10              | 1.02              | 11.30             | 1.97              | 34.00             | 3.79              |
| 3.30              | 1.05              | 11.50             | 1.98              | 35.00             | 3.77              |
| 3.50              | 1.09              | 11.70             | 1.99              | 36.00             | 3.92              |
| 3.70              | 1.12              | 11.90             | 2.06              | 37.00             | 3.94              |
| 3.90              | 1.15              | 12.10             | 2.01              | 38.00             | 3.80              |
| 4.10              | 1.18              | 12.40             | 2.08              | 39.00             | 4.15              |
| 4.30              | 1.21              | 13.00             | 2.05              | 40.00             | 4.03              |
| 4.50              | 1.24              | 13.50             | 2.15              |                   |                   |
| 4.70              | 1.29              | 14.00             | 2.25              |                   |                   |
| 4.90              | 1.27              | 14.50             | 2.26              |                   |                   |



**Cable loss**  
**Cable 18 GHz, 4 m, blue, model: SPS-1803A-4000-NPS, S/N T4658, HL 1942**

| Frequency,<br>GHz | Cable loss,<br>dB |
|-------------------|-------------------|
| 0.03              | 0.21              |
| 0.05              | 0.26              |
| 0.10              | 0.36              |
| 0.20              | 0.50              |
| 0.30              | 0.61              |
| 0.40              | 0.70              |
| 0.50              | 0.78              |
| 0.60              | 0.85              |
| 0.70              | 0.93              |
| 0.80              | 0.99              |
| 0.90              | 1.04              |
| 1.00              | 1.10              |
| 1.10              | 1.16              |
| 1.20              | 1.22              |
| 1.30              | 1.26              |
| 1.40              | 1.31              |
| 1.50              | 1.35              |
| 1.60              | 1.41              |
| 1.70              | 1.45              |
| 1.80              | 1.49              |
| 1.90              | 1.53              |
| 2.00              | 1.57              |
| 2.10              | 1.61              |
| 2.20              | 1.65              |
| 2.30              | 1.69              |
| 2.40              | 1.72              |
| 2.50              | 1.76              |
| 2.60              | 1.79              |
| 2.70              | 1.83              |
| 2.80              | 1.87              |
| 2.90              | 1.90              |
| 3.10              | 1.97              |
| 3.30              | 2.04              |
| 3.50              | 2.11              |
| 3.70              | 2.18              |
| 3.90              | 2.24              |
| 4.10              | 2.31              |
| 4.30              | 2.38              |
| 4.50              | 2.43              |
| 4.70              | 2.53              |
| 4.90              | 2.53              |
| 5.10              | 2.63              |
| 5.30              | 2.65              |
| 5.50              | 2.72              |
| 5.70              | 2.76              |
| 5.90              | 2.79              |

| Frequency,<br>GHz | Cable loss,<br>dB |
|-------------------|-------------------|
| 6.10              | 2.88              |
| 6.30              | 2.90              |
| 6.50              | 2.97              |
| 6.70              | 3.02              |
| 6.90              | 3.04              |
| 7.10              | 3.07              |
| 7.30              | 3.12              |
| 7.50              | 3.13              |
| 7.70              | 3.19              |
| 7.90              | 3.24              |
| 8.10              | 3.30              |
| 8.30              | 3.36              |
| 8.50              | 3.45              |
| 8.70              | 3.41              |
| 8.90              | 3.45              |
| 9.10              | 3.42              |
| 9.30              | 3.55              |
| 9.50              | 3.48              |
| 9.70              | 3.58              |
| 9.90              | 3.61              |
| 10.10             | 3.66              |
| 10.30             | 3.68              |
| 10.50             | 3.70              |
| 10.70             | 3.70              |
| 10.90             | 3.75              |
| 11.10             | 3.78              |
| 11.30             | 3.86              |
| 11.50             | 3.98              |
| 11.70             | 4.10              |
| 11.90             | 4.12              |
| 12.10             | 4.09              |
| 12.40             | 4.13              |
| 13.00             | 4.23              |
| 13.50             | 4.35              |
| 14.00             | 4.40              |
| 14.50             | 4.44              |
| 15.00             | 4.57              |
| 15.50             | 4.66              |
| 16.00             | 4.64              |
| 16.50             | 4.66              |
| 17.00             | 4.75              |
| 17.50             | 4.85              |
| 18.00             | 4.93              |



**Cable loss**  
**Cable 40 GHz, 0.8 m, blue, model: KPS-1503A-800-KPS, S/N W4907, HL 2254**

| Frequency,<br>GHz | Cable loss,<br>dB | Frequency,<br>GHz | Cable loss,<br>dB | Frequency,<br>GHz | Cable loss,<br>dB |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| 0.03              | 0.04              | 5.10              | 0.80              | 15.00             | 1.49              |
| 0.05              | 0.07              | 5.30              | 0.83              | 15.50             | 1.49              |
| 0.10              | 0.09              | 5.50              | 0.83              | 16.00             | 1.46              |
| 0.20              | 0.15              | 5.70              | 0.84              | 16.50             | 1.47              |
| 0.30              | 0.19              | 5.90              | 0.87              | 17.00             | 1.50              |
| 0.40              | 0.25              | 6.10              | 0.86              | 17.50             | 1.57              |
| 0.50              | 0.29              | 6.30              | 0.89              | 18.00             | 1.63              |
| 0.60              | 0.33              | 6.50              | 0.90              | 18.50             | 1.57              |
| 0.70              | 0.37              | 6.70              | 0.89              | 19.00             | 1.63              |
| 0.80              | 0.41              | 6.90              | 0.93              | 19.50             | 1.65              |
| 0.90              | 0.44              | 7.10              | 0.92              | 20.00             | 1.64              |
| 1.00              | 0.45              | 7.30              | 0.95              | 20.50             | 1.75              |
| 1.10              | 0.48              | 7.50              | 0.96              | 21.00             | 1.72              |
| 1.20              | 0.51              | 7.70              | 0.97              | 21.50             | 1.78              |
| 1.30              | 0.53              | 7.90              | 1.01              | 22.00             | 1.76              |
| 1.40              | 0.54              | 8.10              | 1.00              | 22.50             | 1.72              |
| 1.50              | 0.57              | 8.30              | 1.05              | 23.00             | 1.83              |
| 1.60              | 0.59              | 8.50              | 1.04              | 23.50             | 1.80              |
| 1.70              | 0.04              | 8.70              | 1.07              | 24.00             | 1.90              |
| 1.80              | 0.07              | 8.90              | 1.11              | 24.50             | 1.81              |
| 1.90              | 0.09              | 9.10              | 1.09              | 25.00             | 1.98              |
| 2.00              | 0.15              | 9.30              | 1.14              | 25.50             | 1.91              |
| 2.10              | 0.19              | 9.50              | 1.12              | 26.00             | 2.02              |
| 2.20              | 0.25              | 9.70              | 1.15              | 26.50             | 1.92              |
| 2.30              | 0.29              | 9.90              | 1.16              | 27.00             | 1.97              |
| 2.40              | 0.33              | 10.10             | 1.16              | 28.00             | 2.02              |
| 2.50              | 0.37              | 10.30             | 1.19              | 29.00             | 1.95              |
| 2.60              | 0.41              | 10.50             | 1.14              | 30.00             | 1.94              |
| 2.70              | 0.44              | 10.70             | 1.19              | 31.00             | 2.11              |
| 2.80              | 0.45              | 10.90             | 1.17              | 32.00             | 2.17              |
| 2.90              | 0.48              | 11.10             | 1.13              | 33.00             | 2.27              |
| 3.10              | 0.61              | 11.30             | 1.20              | 34.00             | 2.27              |
| 3.30              | 0.64              | 11.50             | 1.13              | 35.00             | 2.29              |
| 3.50              | 0.65              | 11.70             | 1.20              | 36.00             | 2.35              |
| 3.70              | 0.68              | 11.90             | 1.18              | 37.00             | 2.37              |
| 3.90              | 0.69              | 12.10             | 1.14              | 38.00             | 2.40              |
| 4.10              | 0.71              | 12.40             | 1.19              | 39.00             | 2.57              |
| 4.30              | 0.73              | 13.00             | 1.34              | 40.00             | 2.36              |
| 4.50              | 0.75              | 13.50             | 1.33              |                   |                   |
| 4.70              | 0.77              | 14.00             | 1.48              |                   |                   |
| 4.90              | 0.79              | 14.50             | 1.45              |                   |                   |



**Correction factor  
Line impedance stabilization network  
Model ANS-25/2  
Electro-Metrics**

| Frequency, kHz | Correction factor, dB |
|----------------|-----------------------|
| 10             | 4.9                   |
| 15             | 2.86                  |
| 20             | 1.83                  |
| 25             | 1.25                  |
| 30             | 0.91                  |
| 35             | 0.69                  |
| 40             | 0.53                  |
| 50             | 0.35                  |
| 60             | 0.25                  |
| 70             | 0.18                  |
| 80             | 0.14                  |
| 90             | 0.11                  |
| 100            | 0.09                  |
| 125            | 0.06                  |
| 150            | 0.04                  |

The correction factor in dB is to be added to meter readings of an interference analyzer or a spectrum analyzer.