# FCC Test Report

## FCC Part 15.247 for DSSS systems

**For the**

Internet Location Manager

MODEL #: *i*LM3170-W, *i*LM3175-W, *i*LM3177-WG

@Road, a Trimble Company
47071 Bayside Pkwy.
Fremont, CA 94538

FCC ID: PDC-ILM317XU
IC ID: 5079A-ILM317XU

TEST REPORT #: EMC_ATROA_006_07002_FCC15_247WLAN_rev2
DATE: 2007-8-22

ilac-MRA ACCREDITED Certificate # 2135.01

Bluetooth Qualification Test Facility (BQTF)

CTIA Authorized Test Lab LAB CODE 20020328-00

**FCC listed: A2LA accredited**

**IC recognized # 3462B**


***CETECOM* Inc.**
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Phone: + 1 (408) 586 6200 ◆ Fax: + 1 (408) 586 6299 ◆ E-mail: info@cetecomusa.com ◆ http://www.cetecom.com
*CETECOM* Inc. is a Delaware Corporation with Corporation number: 2113686
Board of Directors: Dr. Harald Ansorge, Dr. Klaus Matkey, Hans Peter May

# TABLE OF CONTENTS

# 1 Assessment

**The following is in compliance with the applicable criteria specified in FCC rules Part 15.247 of the Code of Federal Regulations.**

| Company | Description | Model # |
|---|---|---|
| **@Road, A Trimble Company** | **Internet Location Manager** | ***i*LM3170-W, *i*LM3175-W, *i*LM3177-WG** |

This report is reviewed by:

| Date | Section | Name | Signature |
|---|---|---|---|
| **2007-08-22** | **EMC & Radio** | **Lothar Schmidt (Director Regulatory and Antenna Services)** | Lothar Schmidt<br>I am approving this document |

This report is prepared by:

| Date | Section | Name | Signature |
|---|---|---|---|
| **2007-08-22** | **EMC & Radio** | **Peter Mu (EMC Project Engineer)** |  I am the author of this document |

# 2 Administrative Data

## 2.1 Identification of the Testing Laboratory

| | |
|---|---|
| Company Name: | CETECOM Inc. |
| Department: | EMC |
| Address: | 411 Dixon Landing Road<br>Milpitas, CA 95035<br>U.S.A. |
| Telephone: | +1 (408) 586 6200 |
| Fax: | +1 (408) 586 6299 |
| Responsible Test Lab Manager: | Lothar Schmidt |

## 2.2 Identification of the Client

| APPLICANT | |
|---|---|
| Applicant (Company Name) | @Road, A Trimble Company |
| Street Address | 47071 Bayside Pkwy. |
| City/Zip Code | Fremont, CA 94538 |
| Country | USA |
| Contact Person | Hung Phan |
| Telephone | (510)870-1252 |
| Fax | (510)870-1281 |
| e-mail | hphan@road-inc.com |

## 2.3 Identification of the Manufacturer

| MANUFACTURER (If different from Applicant) | |
|---|---|
| Applicant (Firm Name): | Everex Communications, Inc. |
| Contact Person: | Vincent Chan |
| Telephone: | 408-410-4561 |
| Fax: | 510-687-0076 |
| Address Line 1: | 5020-A Brandin Court Fremont, CA 94538 |
| Address Line 2: | |
| City: | Fremont |
| State: | CA |
| Postal Code: | 94538 |
| Country: | USA |
| e-mail: | vincentc@everexcomm.net |

# 3 Equipment under Test (EUT)

## 3.1 Specification of the Equipment under Test

| | |
|---|---|
| Product Type | GeoMagager |
| Marketing Name: | Internet Location Manager |
| Model No: | *i*LM3170-W, *i*LM3175-W, *i*LM3177-WG |
| HW Version: | ECT-ATR-10PU Rev2.5; Rev1.0 (MC8775) |
| SW Version : | 5.7x(iLM3170-W)<br>7.2x (iLM3175-W and iLM3177-WG)<br>H1_1_8_3 (MC8775); |
| Min/Nominal/Max Voltage: | 18.5 V/19 V/ 19 V |
| Type(s) of Modulation: | DSSS |
| Output Power[1]: | 12.49 dBm(0.018W) EIRP WLAN 802.11b 2412MHz |

## 4 Subject Of Investigation

All testing was performed on the product referred to in Section 3 as EUT. EUT contains an FCC certified WLAN module, FCC ID: XI-325 that supports the following mode and frequency bands:

2400-2483.4MHz: 802.11b

The objective of the measurements done by Cetecom Inc. was to measure the performance of the EUT operating under 802.11b 2400-2483.4MHz range as specified by requirements listed in FCC rules Part 15.247 of Title 47 of the Code of Federal Regulations. The maximization of portable equipment is conducted in accordance with ANSI C63.4.

# 5 Measurements

## 5.1 MAXIMUM PEAK OUTPUT POWER (RADIATED) § 15.247 (b) (1)

**EIRP:**

**802.11b**

| TEST CONDITIONS | | | MAXIMUM PEAK OUTPUT POWER (dBm) | | |
|---|---|---|---|---|---|
| Frequency (MHz) | | | 2412 | 2437 | 2462 |
| Chain A | $T_{nom}$(23)° C | $V_{nom}$ | 12.49 | 12.34 | 11.83 |
| Measurement uncertainty | | | ±0.5dBm | | |

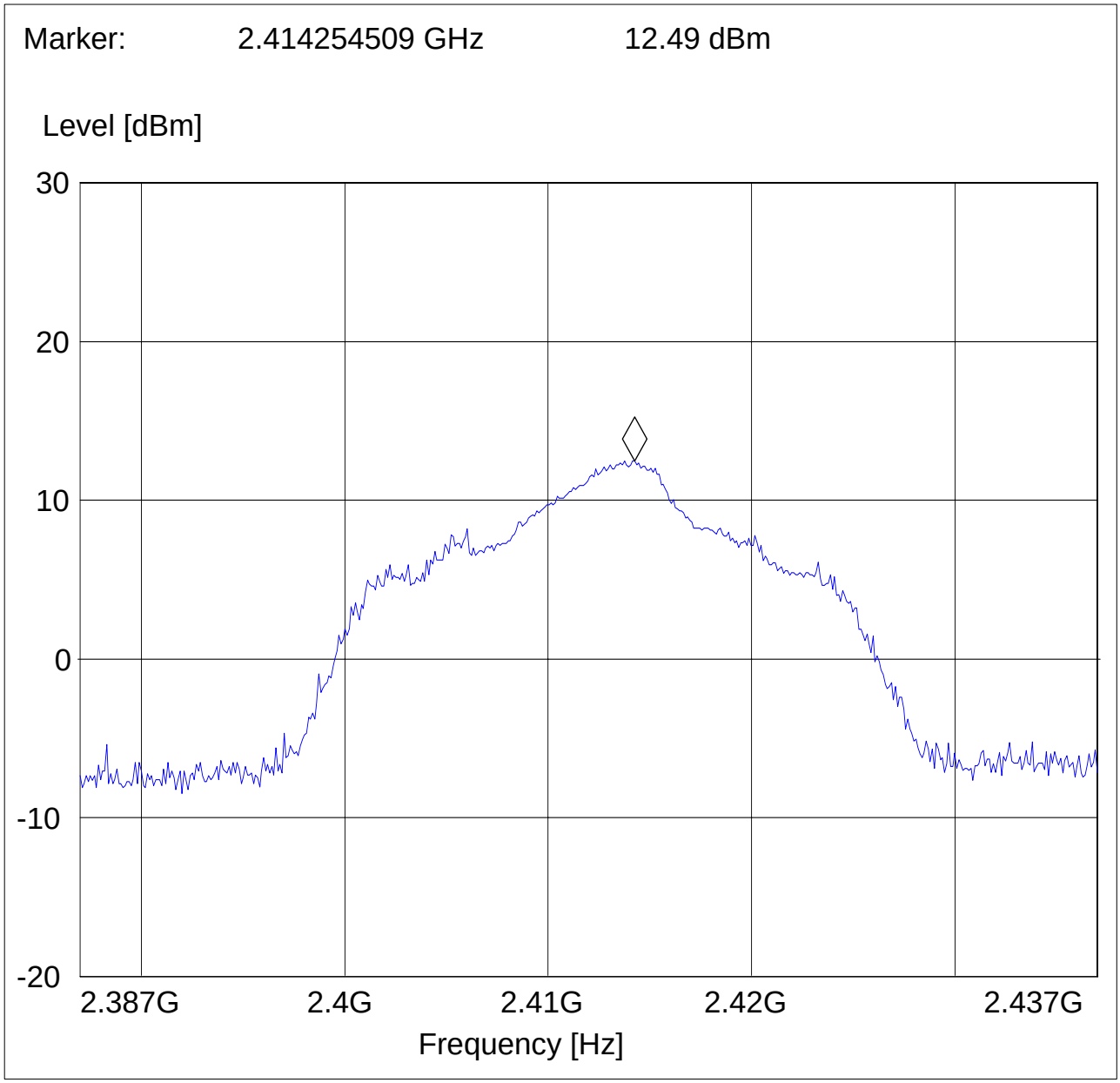
**EIRP: 2412MHz (802.11b)**

EUT: iLM-3175
Customer: atRoad
Test Mode: WLAN 802.11b
ANT Orientation: V
EUT Orientation: H
Test Engineer: Peter Mu
Power Supply: 12V Battery
Comments:

***SWEEP TABLE: "EIRP RLAN CH1"***

Short Description: EIRP RLAN channel-2412 MHz

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 2.4 GHz | 2.4 GHz | MaxPeak<br>MaxPeak | Coupled | 10 MHz | DUMMY-DBM |



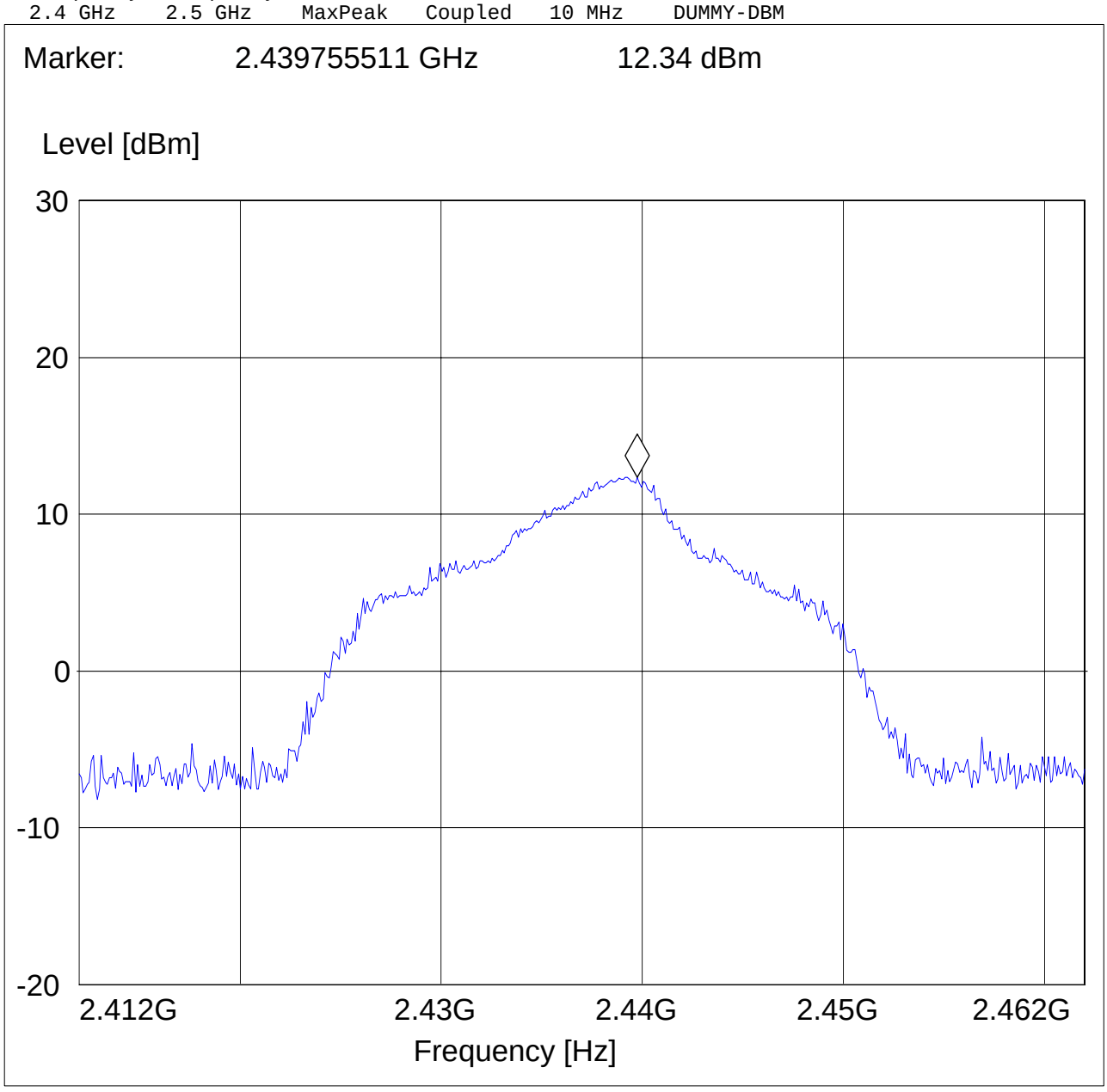
**EIRP: 2437MHz (802.11b)**

EUT: iLM-3175
Customer: atRoad
Test Mode: WLAN 802.11b
ANT Orientation: V
EUT Orientation: H
Test Engineer: Peter Mu
Power Supply: 12V Battery
Comments:

***SWEEP TABLE: "EIRP RLAN CH6"***

Short Description: EIRP RLAN channel-2437 MHz

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 2.4 GHz | 2.5 GHz | MaxPeak | Coupled | 10 MHz | DUMMY-DBM |



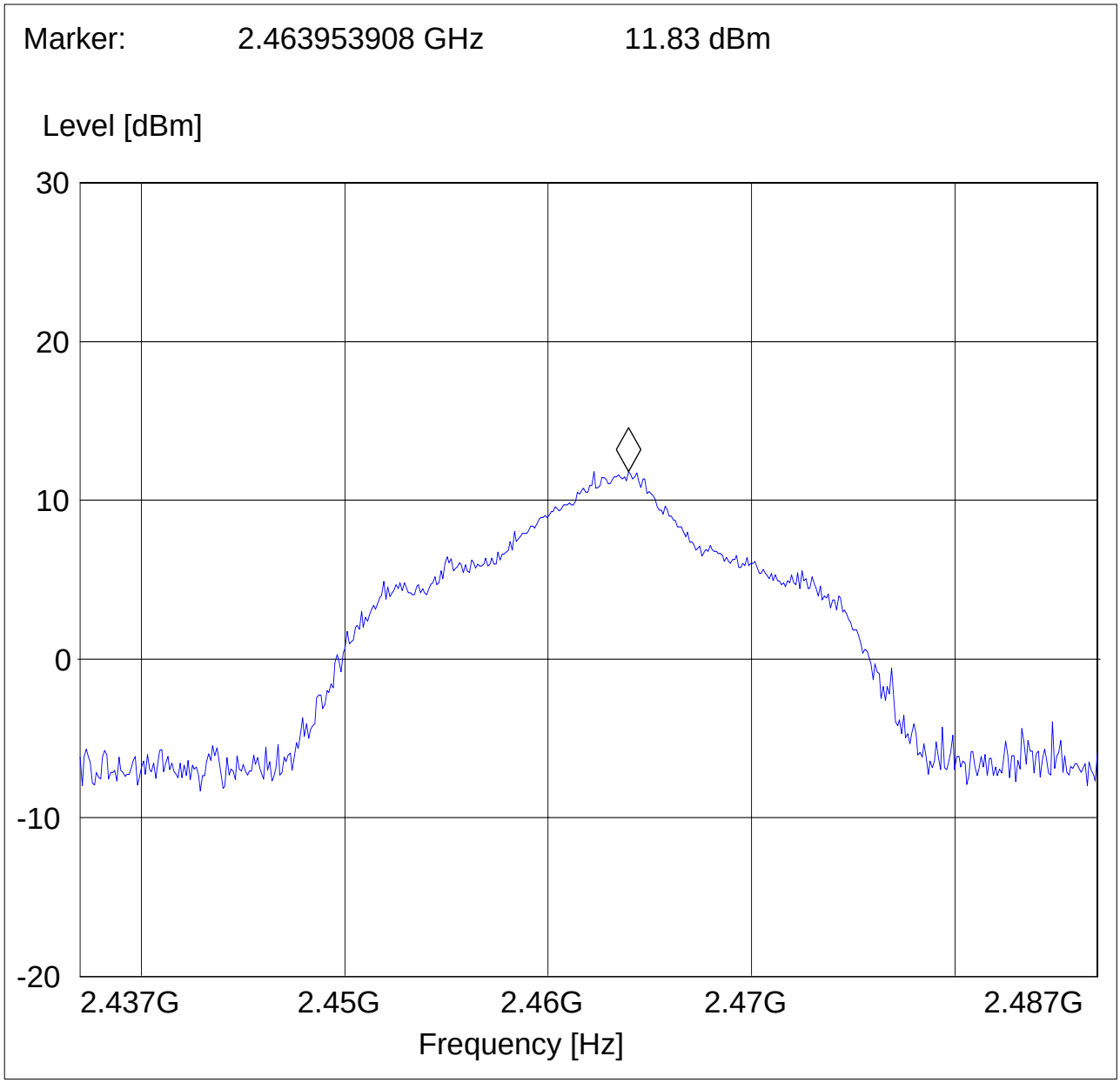
**EIRP: 2462MHz (802.11b)**

EUT: iLM-3175
Customer: atRoad
Test Mode: WLAN 802.11b
ANT Orientation: V
EUT Orientation: H
Test Engineer: Peter Mu
Power Supply: 12V Battery
Comments:

***SWEEP TABLE: "EIRP RLAN CH11"***

Short Description: EIRP RLAN channel-2462 MHz

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 2.4 GHz | 2.5 GHz | MaxPeak<br>MaxPeak | Coupled | 10 MHz | DUMMY-DBM |



## 5.2 RESTRICTED BAND EDGE COMPLIANCE RADIATED §15.247/15.205

### 5.2.1 LIMITS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz | MHz | MHz | GHz |
|---|---|---|---|
| 0.090 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| [1]0.495 - 0.505 | 16.69475 - 16.69525 | 608 - 614 | 5.35 - 5.46 |
| 2.1735 - 2.1905 | 16.80425 - 16.80475 | 960 - 1240 | 7.25 - 7.75 |
| 4.125 - 4.128 | 25.5 - 25.67 | 1300 - 1427 | 8.025 - 8.5 |
| 4.17725 - 4.17775 | 37.5 - 38.25 | 1435 - 1626.5 | 9.0 - 9.2 |
| 4.20725 - 4.20775 | 73 - 74.6 | 1645.5 - 1646.5 | 9.3 - 9.5 |
| 6.215 - 6.218 | 74.8 - 75.2 | 1660 - 1710 | 10.6 - 12.7 |
| 6.26775 - 6.26825 | 108 - 121.94 | 1718.8 - 1722.2 | 13.25 - 13.4 |
| 6.31175 - 6.31225 | 123 - 138 | 2200 - 2300 | 14.47 - 14.5 |
| 8.291 - 8.294 | 149.9 - 150.05 | 2310 - 2390 | 15.35 - 16.2 |
| 8.362 - 8.366 | 156.52475 - 156.52525 | 2483.5 - 2500 | 17.7 - 21.4 |
| 8.37625 - 8.38675 | 156.7 - 156.9 | 2690 - 2900 | 22.01 - 23.12 |
| 8.41425 - 8.41475 | 162.0125 - 167.17 | 3260 - 3267 | 23.6 - 24.0 |
| 12.29 - 12.293 | 167.72 - 173.2 | 3332 - 3339 | 31.2 - 31.8 |
| 12.51975 - 12.52025 | 240 - 285 | 3345.8 - 3358 | 36.43 - 36.5 |
| 12.57675 - 12.57725 | 322 - 335.4 | 3600 - 4400 | ([2]) |
| 13.36 - 13.41 | | | |

***PEAK LIMIT= 74dBuV/m**
***AVG. LIMIT= 54dBuV/m**

**Notes:**

1. Radiated emissions are maximized by rotating the EUT 360° at 0.5 meter height increments between 1 and 4 meters.
2. Measurements were performed with the EUT in X, Y and Z orientations with the measurement antenna in both horizontal and vertical polarity. The plots below show the results of the worst case orientation and polarity.

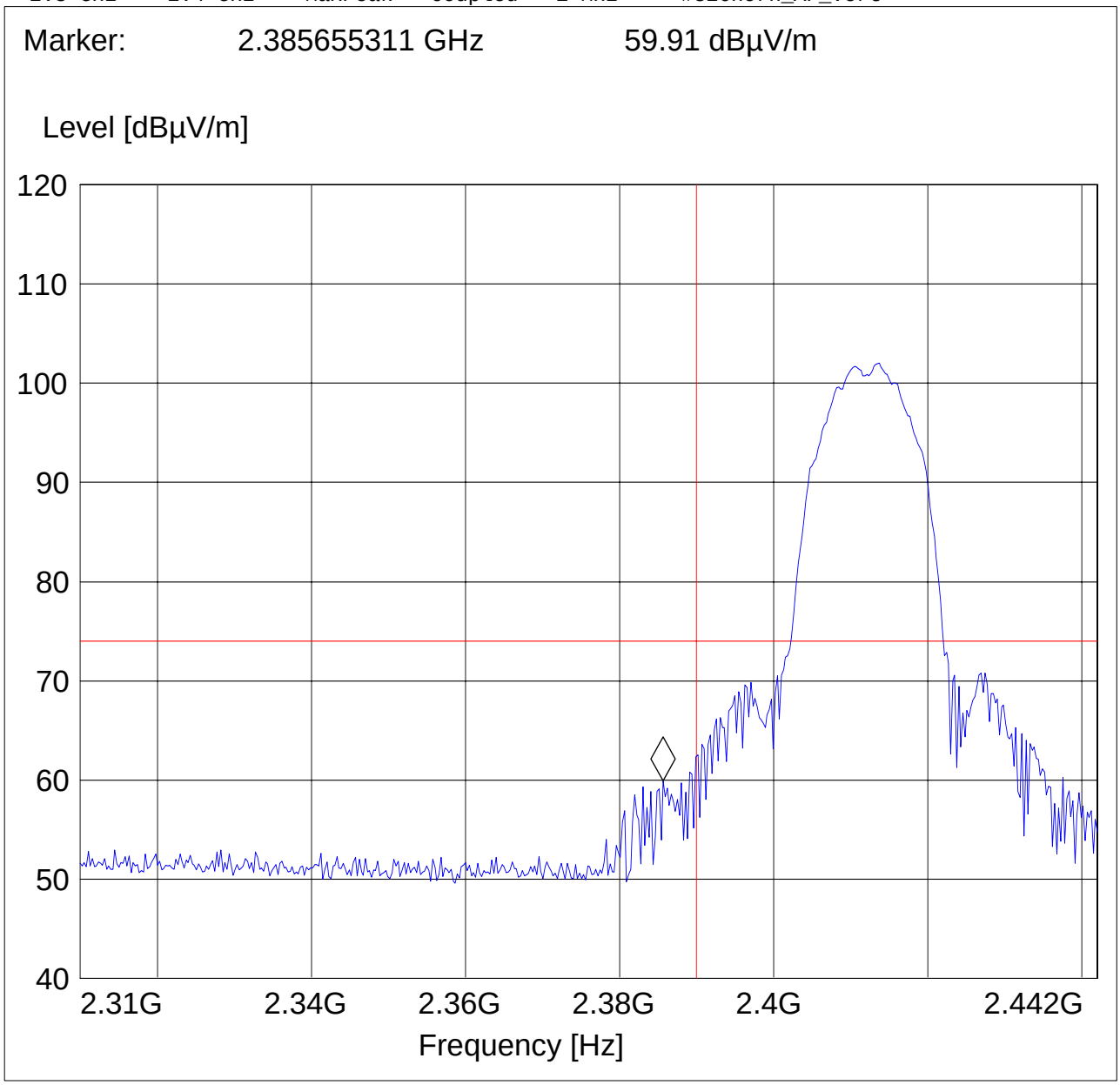
### 5.2.2 Results Lower Restricted Band 2310 MHz to 2390 MHz

**802.11b (2412MHz) PEAK**

```
EUT:             iLM-3175
Customer:        atRoad
Test Mode:       WLAN 802.11b
ANT Orientation: V
EUT Orientation: H
Test Engineer:   Peter Mu
Power Supply:    12V Battery
Comments:
```

***SWEEP TABLE: "FCC15.247 LBE_PK"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 2.3 GHz | 2.4 GHz | MaxPeak | Coupled | 1 MHz | #326horn_AF_vert |

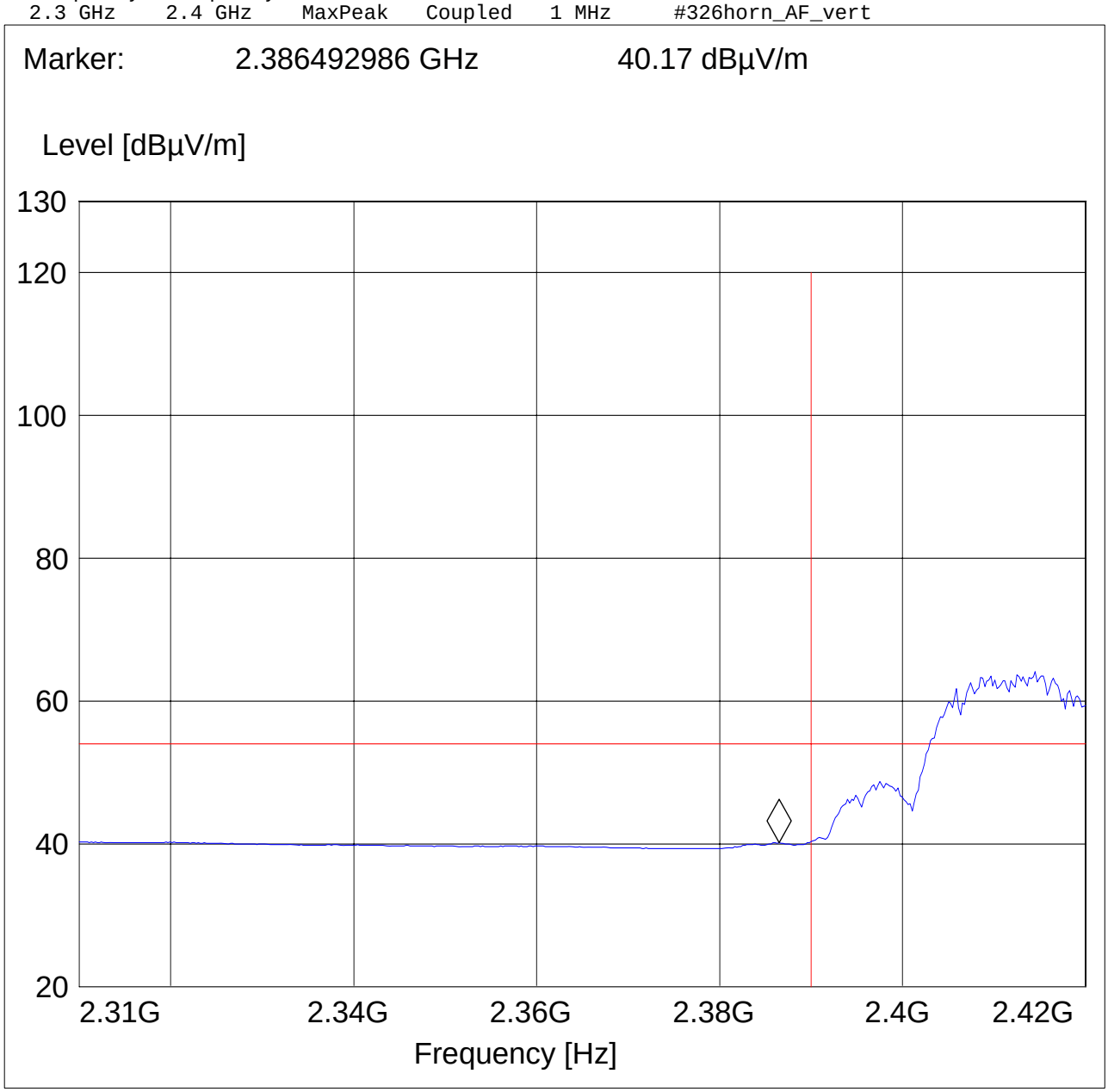


**802.11b (2412MHz) AVG**

EUT: iLM-3175
Customer: atRoad
Test Mode: WLAN 802.11b
ANT Orientation: V
EUT Orientation: H
Test Engineer: Peter Mu
Power Supply: 12V Battery
Comments:

***SWEEP TABLE: "FCC15.247 LBE_AVG"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 2.3 GHz | 2.4 GHz | MaxPeak | Coupled | 1 MHz | #326horn_AF_vert |

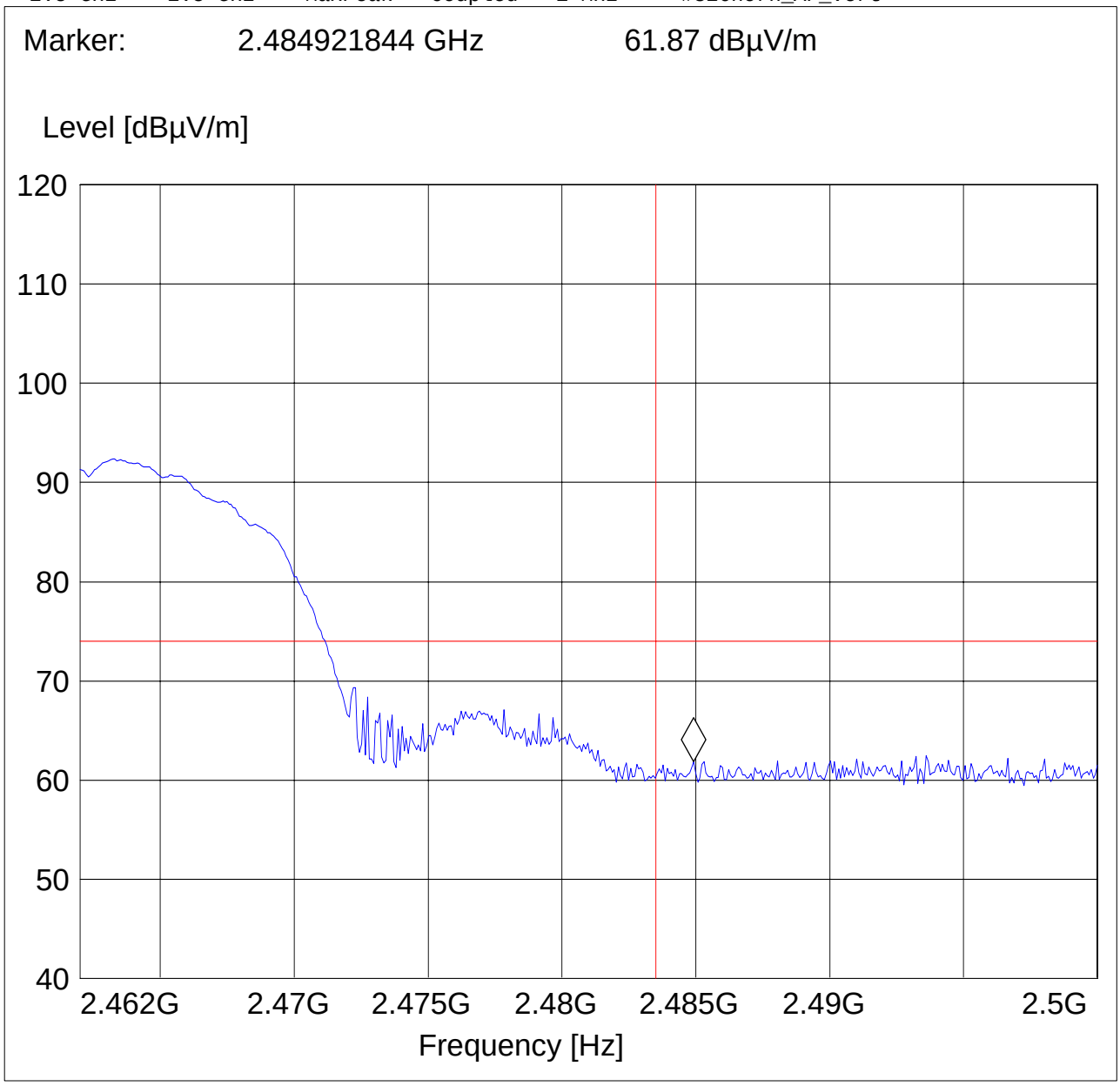


### 5.2.3 Results Upper Restricted Band 2483.5 MHz to 2500 MHz

**802.11b (2462MHz) PEAK**

```
EUT:              iLM-3175
Customer:         atRoad
Test Mode:        WLAN 802.11b
ANT Orientation:  V
EUT Orientation:  H
Test Engineer:    Peter Mu
Power Supply:     12V Battery
Comments:
SWEEP TABLE: "FCC15.247 HBE_PK"

  Start      Stop       Detector  Meas.      IF         Transducer
  Frequency  Frequency             Time       Bandw.
  2.5 GHz    2.5 GHz    MaxPeak   Coupled    1 MHz      #326horn_AF_vert
```

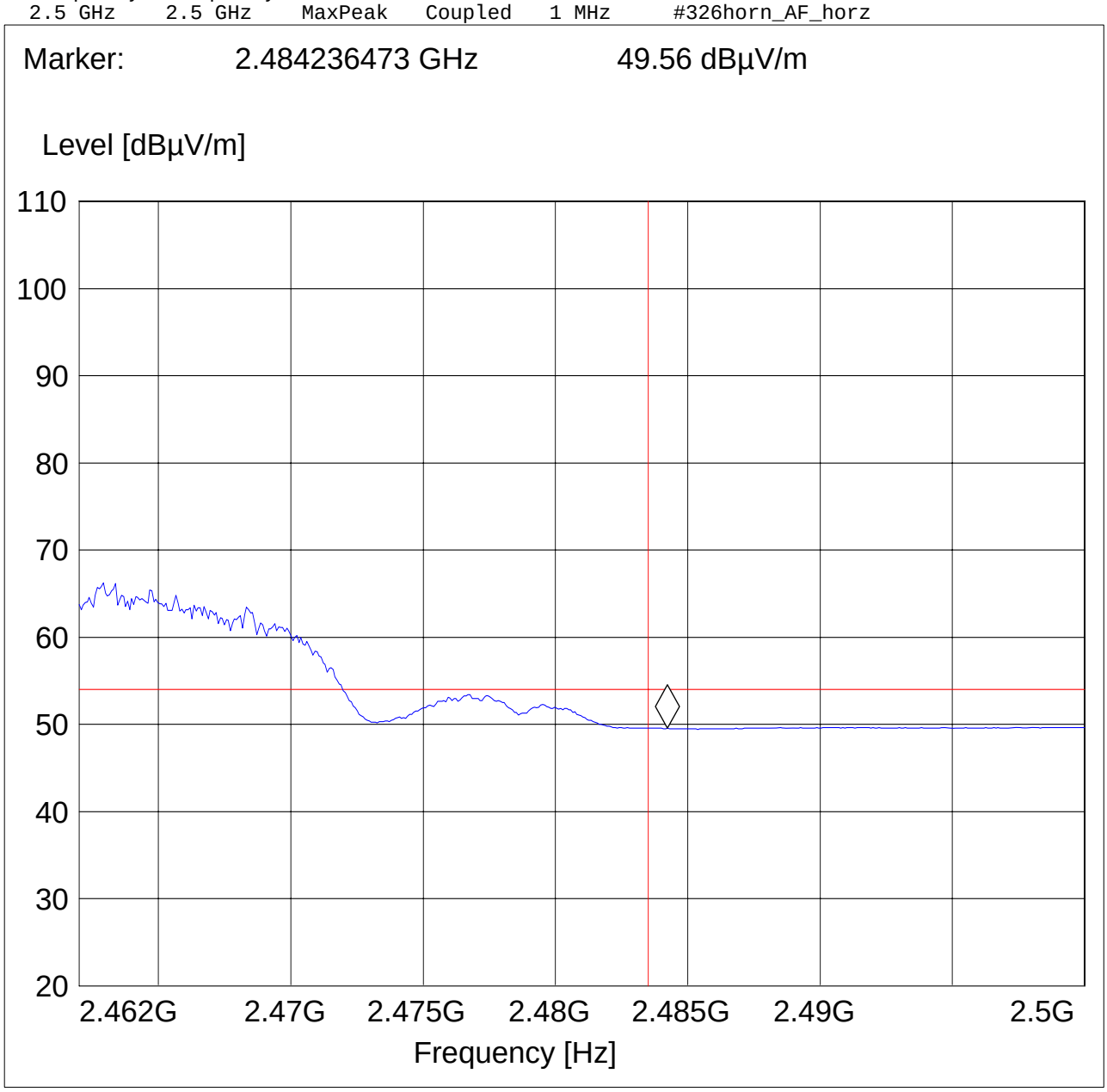


**802.11b (2462MHz) AVG**

EUT: iLM-3175
Customer: atRoad
Test Mode: WLAN 802.11b
ANT Orientation: V
EUT Orientation: H
Test Engineer: Peter Mu
Power Supply: 12V Battery
Comments:

***SWEEP TABLE: "FCC15.247 HBE_AVG"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 2.5 GHz | 2.5 GHz | MaxPeak | Coupled | 1 MHz | #326horn_AF_horz |



## 5.3 TRANSMITTER SPURIOUS EMISSIONS RADIATED § 15.247/15.205/15.209

### 5.3.1 LIMITS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz | MHz | MHz | GHz |
|---|---|---|---|
| 0.090 - 0.110 | 16.42 - 16.423 | 399.9 - 410 | 4.5 - 5.15 |
| [1]0.495 - 0.505 | 16.69475 - 16.69525 | 608 - 614 | 5.35 - 5.46 |
| 2.1735 - 2.1905 | 16.80425 - 16.80475 | 960 - 1240 | 7.25 - 7.75 |
| 4.125 - 4.128 | 25.5 - 25.67 | 1300 - 1427 | 8.025 - 8.5 |
| 4.17725 - 4.17775 | 37.5 - 38.25 | 1435 - 1626.5 | 9.0 - 9.2 |
| 4.20725 - 4.20775 | 73 - 74.6 | 1645.5 - 1646.5 | 9.3 - 9.5 |
| 6.215 - 6.218 | 74.8 - 75.2 | 1660 - 1710 | 10.6 - 12.7 |
| 6.26775 - 6.26825 | 108 - 121.94 | 1718.8 - 1722.2 | 13.25 - 13.4 |
| 6.31175 - 6.31225 | 123 - 138 | 2200 - 2300 | 14.47 - 14.5 |
| 8.291 - 8.294 | 149.9 - 150.05 | 2310 - 2390 | 15.35 - 16.2 |
| 8.362 - 8.366 | 156.52475 - 156.52525 | 2483.5 - 2500 | 17.7 - 21.4 |
| 8.37625 - 8.38675 | 156.7 - 156.9 | 2690 - 2900 | 22.01 - 23.12 |
| 8.41425 - 8.41475 | 162.0125 - 167.17 | 3260 - 3267 | 23.6 - 24.0 |
| 12.29 - 12.293 | 167.72 - 173.2 | 3332 - 3339 | 31.2 - 31.8 |
| 12.51975 - 12.52025 | 240 - 285 | 3345.8 - 3358 | 36.43 - 36.5 |
| 12.57675 - 12.57725 | 322 - 335.4 | 3600 - 4400 | ([2]) |
| 13.36 - 13.41 | | | |

***PEAK LIMIT= 74dBuV/m**
***AVG. LIMIT= 54dBuV/m**

**Notes:**

1. The radiated emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges. This is the reason that the graphs show different noise levels. In the range between 3 and 25 GHz very short cable connections to the antenna was used to minimize the noise level.
2. All measurements are done in peak mode using an average limit , unless specified with the plots.
3. Radiated emissions are maximized by rotating the EUT 360° at 0.5 meter height increments between 1 and 4 meters.
4. Measurements were performed with the EUT in X, Y and Z orientations with the measurement antenna in both horizontal and vertical polarity. The plots below show the results of the worst case orientation and polarity

**Results for the radiated measurements below 30MHz according § 15.33**

| Frequency | Measured values | Remarks |
|---|---|---|
| 9KHz – 30MHz | No emissions found, caused by the EUT | This is valid for all the tested channels |

### 5.3.2 RESULTS

**30MHz – 1GHz**

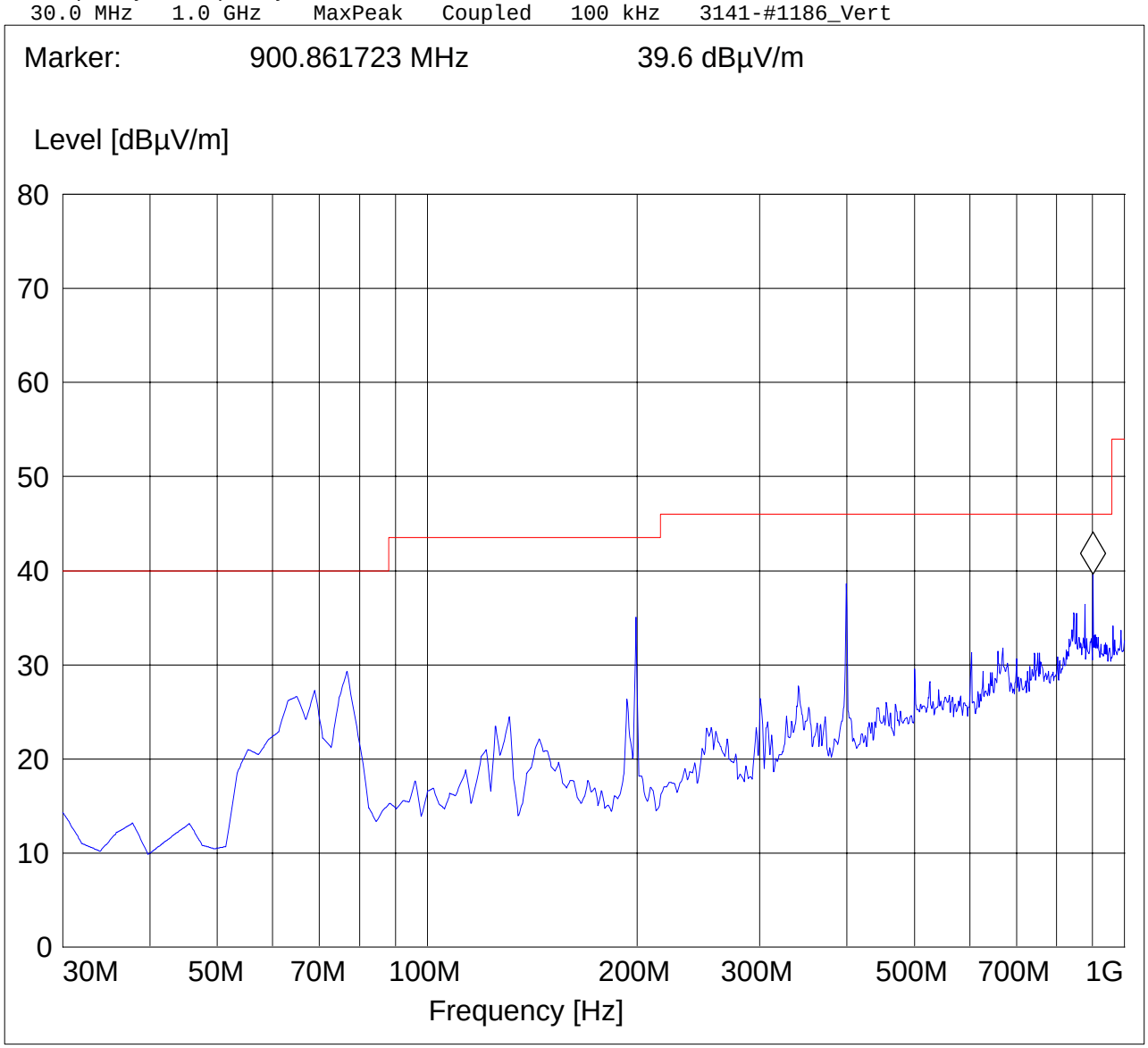
**Antenna: vertical**

**Note: This plot is valid for low, mid, high channels (worst-case plot)**

```
EUT:              iLM317X
Customer:         Atroad Inc.
Test Mode:        GSM 850, idle mode
ANT Orientation:  V
EUT Orientation:  H
Test Engineer:    Ed
Power Supply:     12Vdc battery
Comments:         unit with fix on july 7th, 2007
```

***SWEEP TABLE: "FCC15.247_30M-1G_Ver"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | 3141-#1186_Vert |



**30MHz – 1GHz**

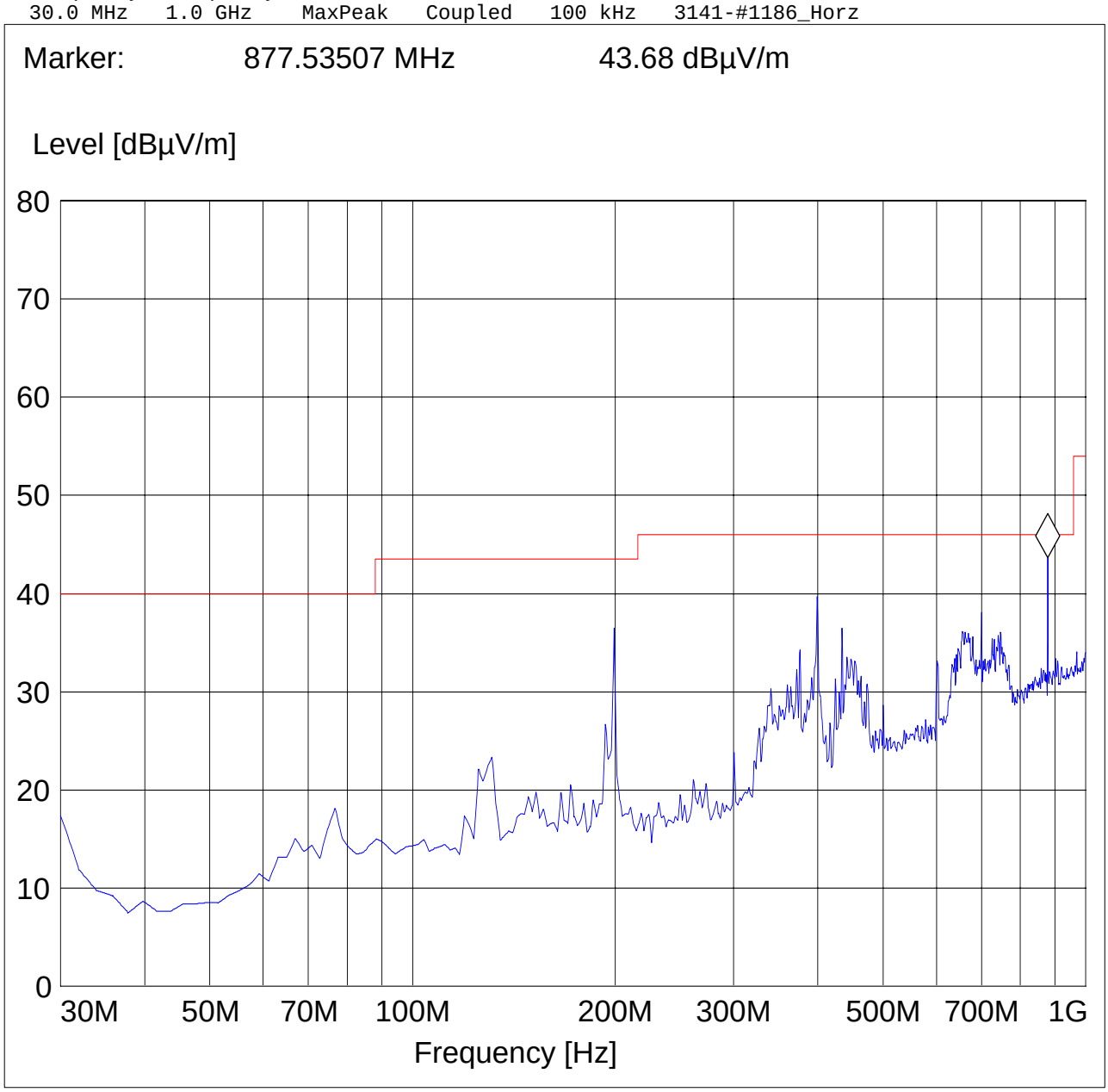
**Antenna: horizontal**

**Note: This plot is valid for low, mid, high channels (worst-case plot)**

```
EUT:              iLM317X
Customer:         Atroad Inc.
Test Mode:        GSM 850, idle mode
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    Ed
Power Supply:     12Vdc battery
Comments:         unit with fix on july 7th, 2007
```

***SWEEP TABLE: "FCC15.247_30M-1G_Hor"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | 3141-#1186_Horz |



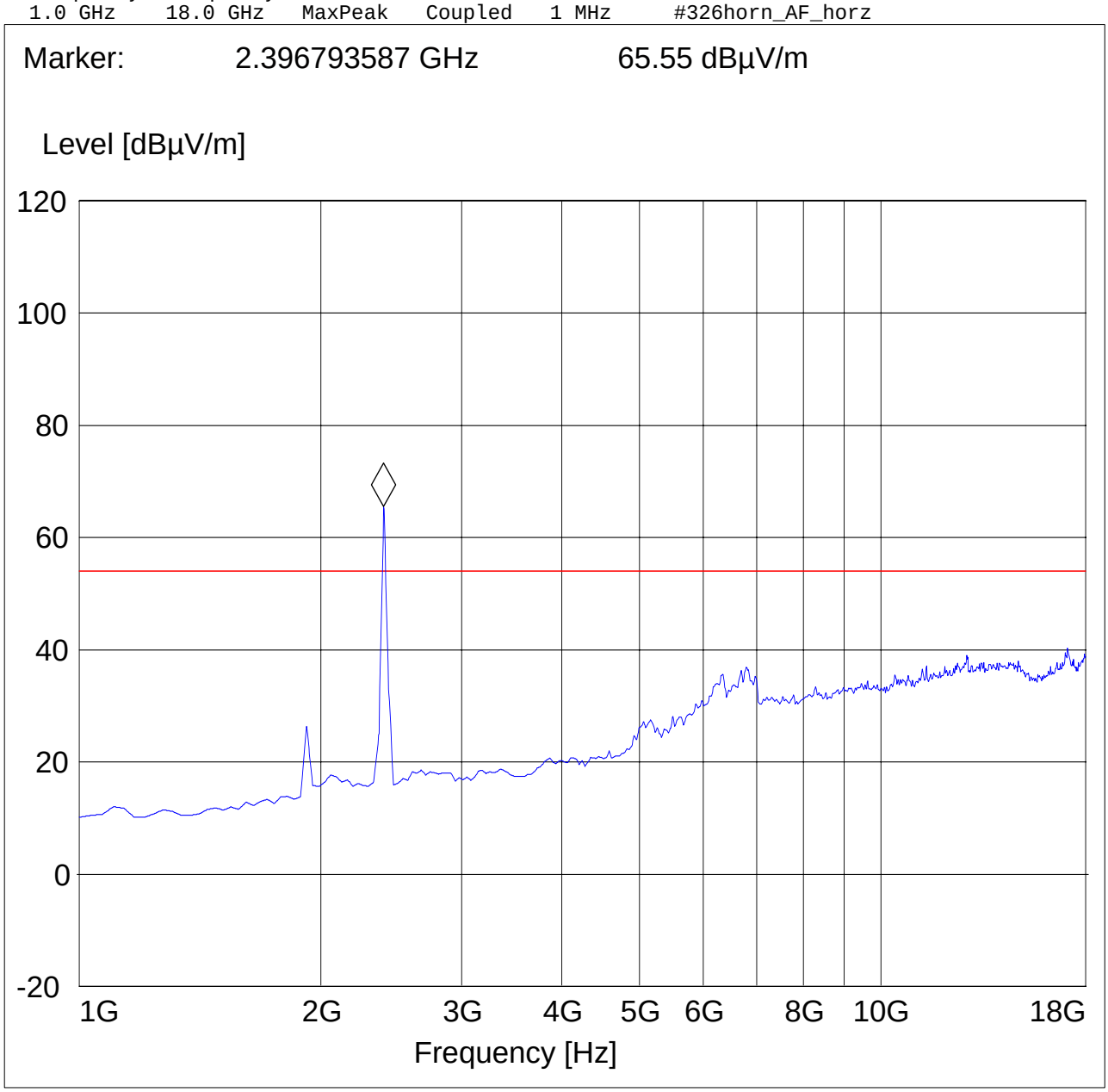
**1-18GHz (2412MHz)**

**Note: The peak above the limit line is the carrier freq.**
**Note: Peak Reading vs. Average limit**

EUT / Description: iLM3175-W
Manufacturer: Atroad
Test mode: WLAN 802.11b
ANT Orientation: : V
EUT Orientation:: H
Test Engineer: Peter Mu
Voltage: 12V Battery
Comments::

***SWEEP TABLE: "FCC15.247_1-18G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.0 GHz | 18.0 GHz | MaxPeak | Coupled | 1 MHz | #326horn_AF_horz |



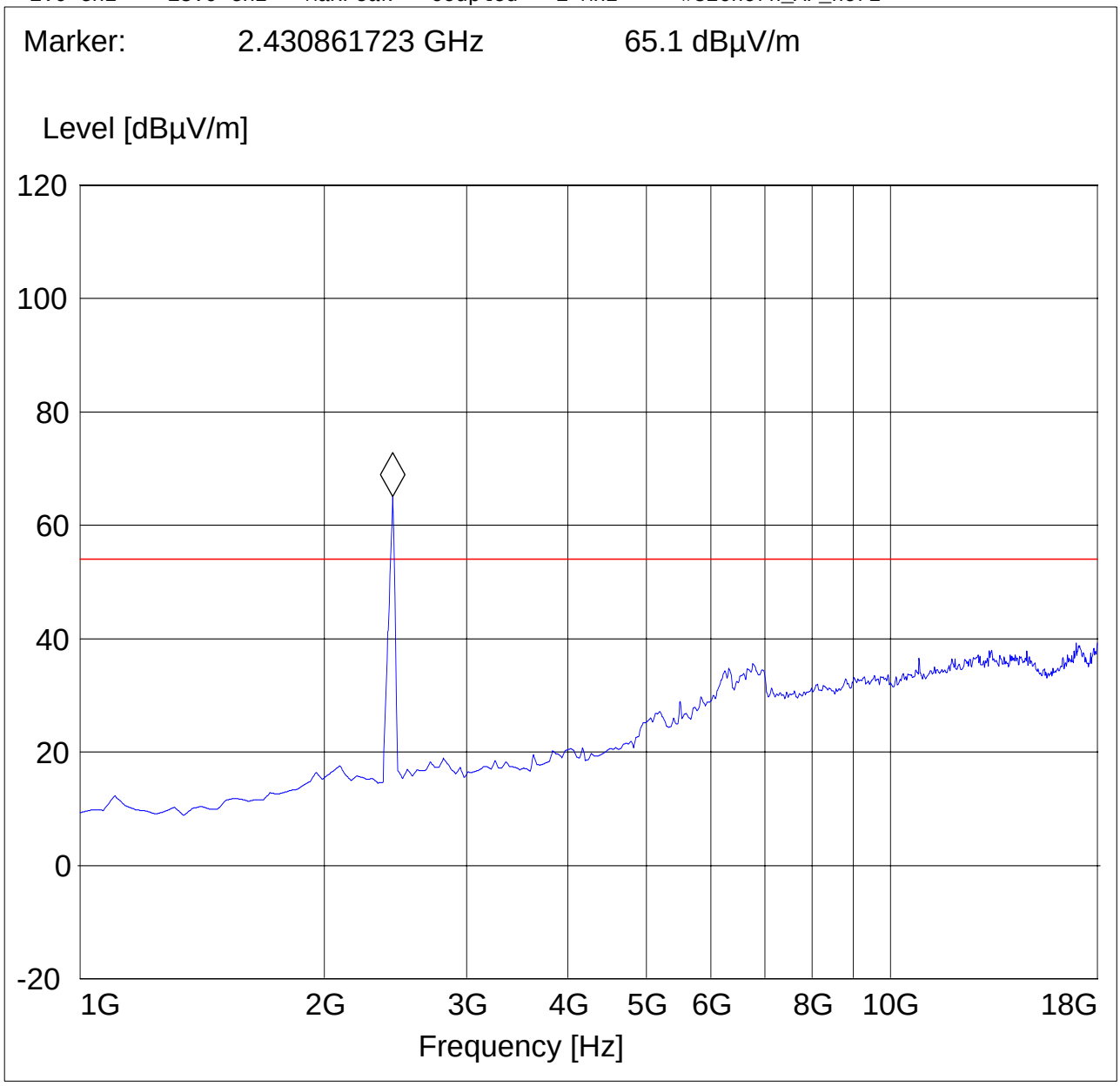
## 1-18GHz (2437MHz)

**Note: The peak above the limit line is the carrier freq.**
**Note: Peak Reading vs. Average limit**

EUT / Description: iLM3175-W
Manufacturer: Atroad
Test mode: WLAN 802.11b
ANT Orientation: : V
EUT Orientation:: H
Test Engineer: Peter Mu
Voltage: 12V Battery
Comments::

***SWEEP TABLE: "FCC15.247_1-18G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.0 GHz | 18.0 GHz | MaxPeak | Coupled | 1 MHz | #326horn_AF_horz |



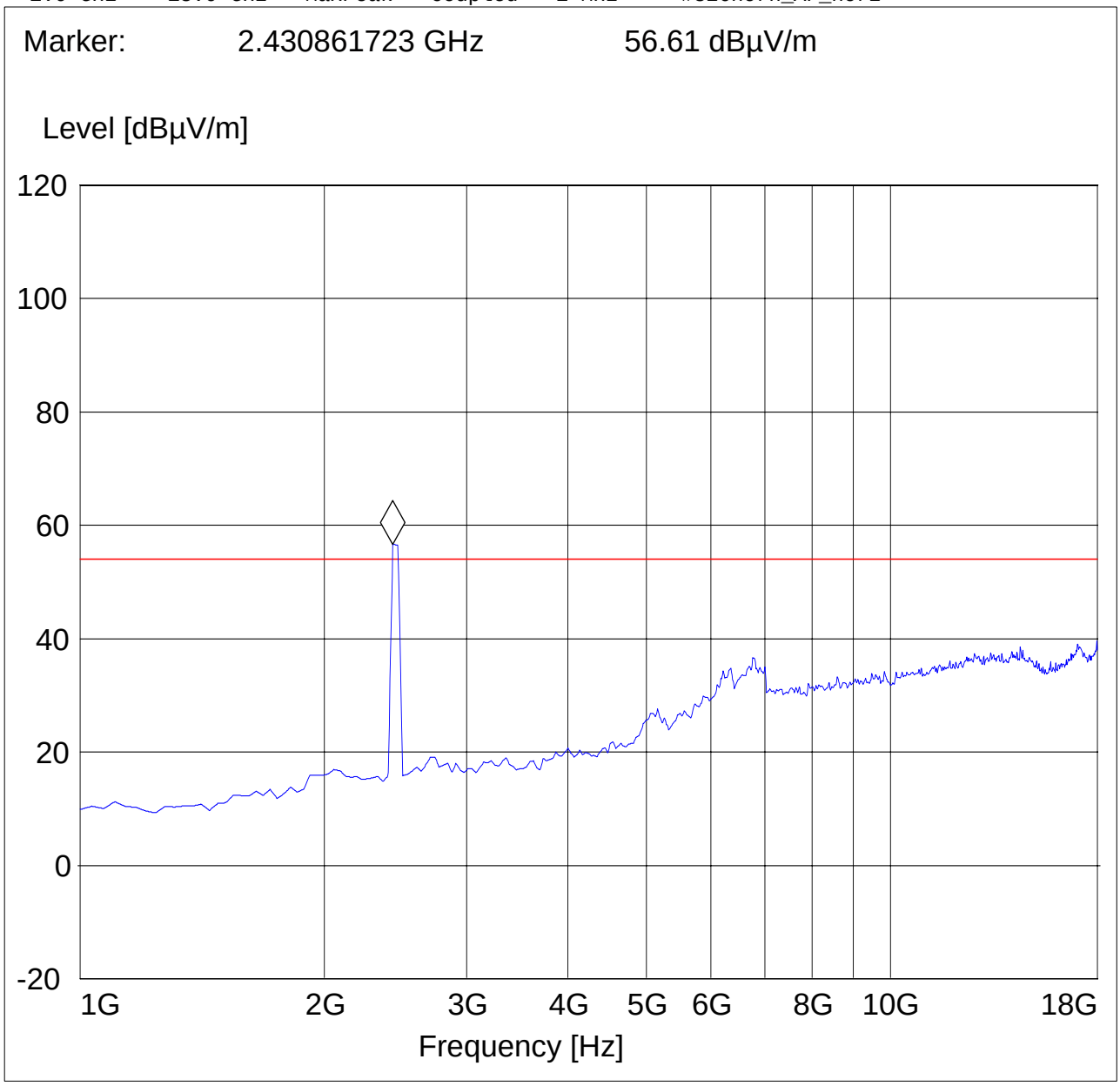
**1-18GHz (2462MHz)**

**Note: The peak above the limit line is the carrier freq.**
**Note: Peak Reading vs. Average limit**

EUT / Description: iLM3175-W
Manufacturer: Atroad
Test mode: WLAN 802.11b
ANT Orientation: : V
EUT Orientation:: H
Test Engineer: Peter Mu
Voltage: 12V Battery
Comments::

***SWEEP TABLE: "FCC15.247_1-18G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.0 GHz | 18.0 GHz | MaxPeak | Coupled | 1 MHz | #326horn_AF_horz |



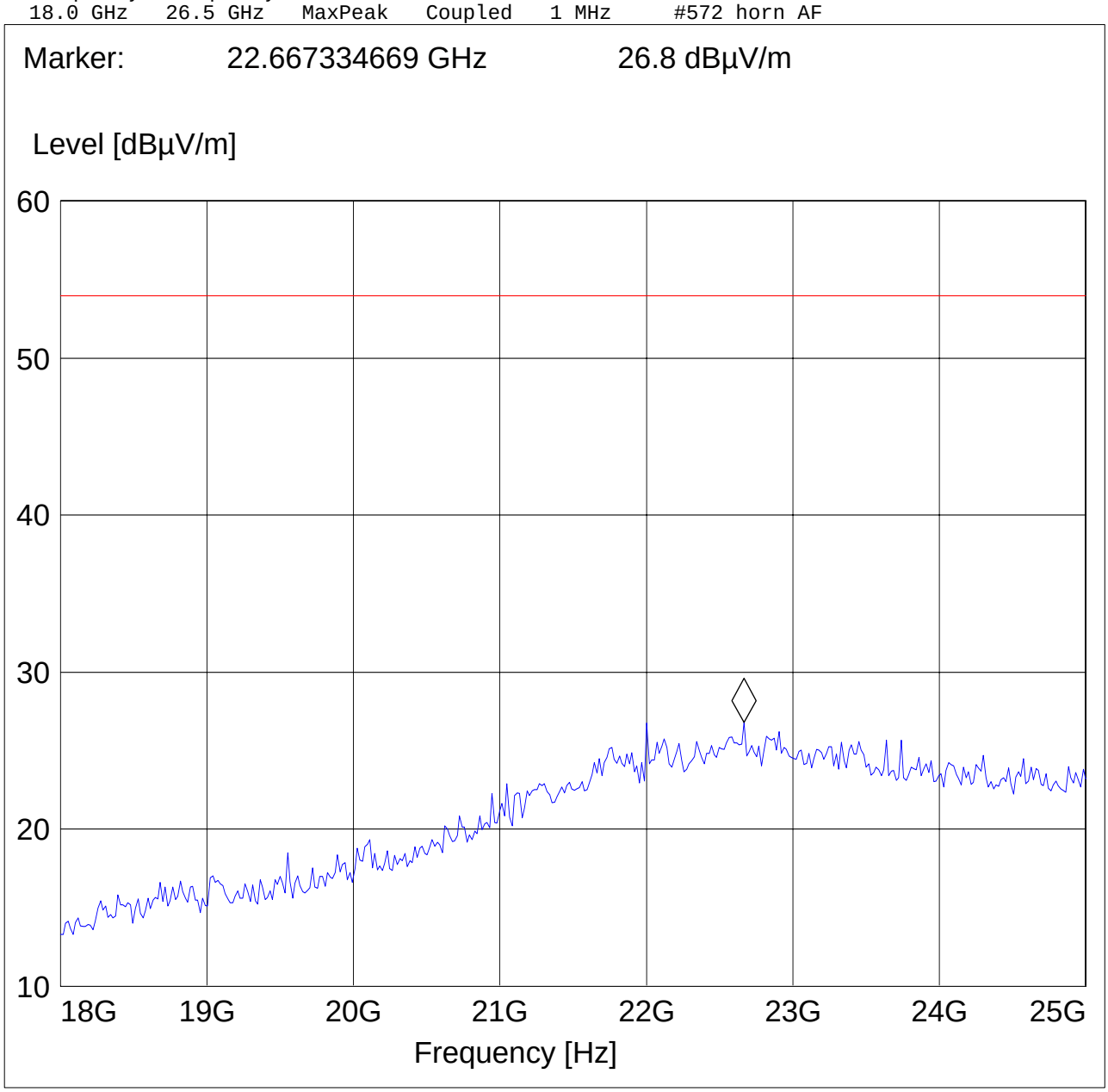
**18-25GHz**

**Note: This plot is valid for low, mid, high channels (worst-case plot)**
**Note: Peak Reading vs. Average limit**

EUT: iLM-3175
Customer: atRoad
Test Mode: WLAN 802.11b
ANT Orientation: V
EUT Orientation: H
Test Engineer: Peter Mu
Power Supply: 12V Battery
Comments:

***SWEEP TABLE: "FCC15.247_18-26.5G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 18.0 GHz | 26.5 GHz | MaxPeak | Coupled | 1 MHz | #572 horn AF |



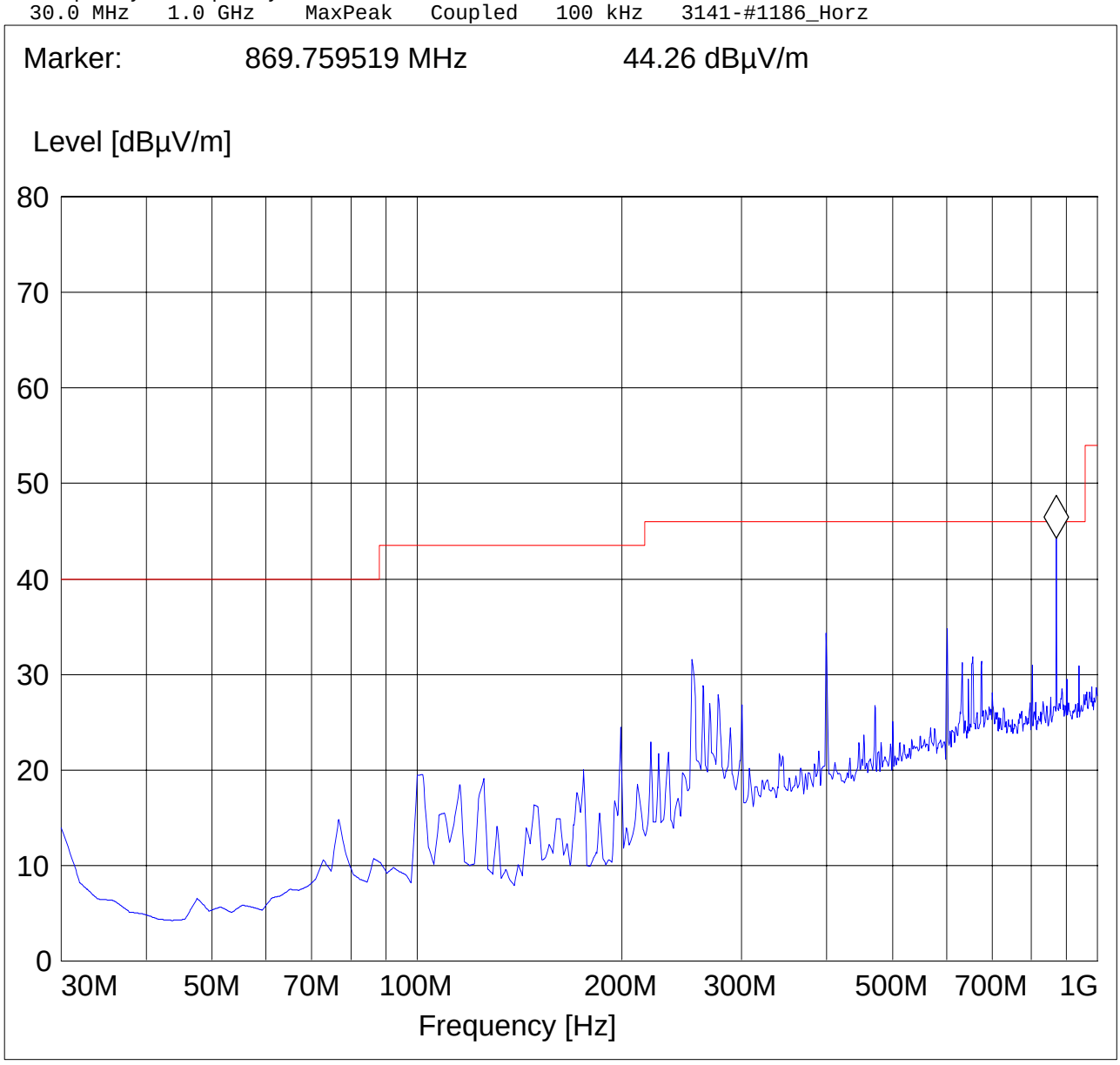
**5.4** *Receiver Spurious Emission*

**30MHz – 1GHz**

**Antenna: horizontal**

Note: This plot is valid for low, mid, high channels (worst-case plot)

```
EUT:              iLM3177-WG
Customer:         AtRoad
Test Mode:        IDLE
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    Peter Mu
Power Supply:     12V DC batt
Comments:
SWEEP TABLE: "FCC15.247_30M-1G_Hor"
  Start      Stop       Detector  Meas.      IF         Transducer
  Frequency  Frequency             Time       Bandw.
  30.0 MHz   1.0 GHz    MaxPeak   Coupled    100 kHz    3141-#1186_Horz
```

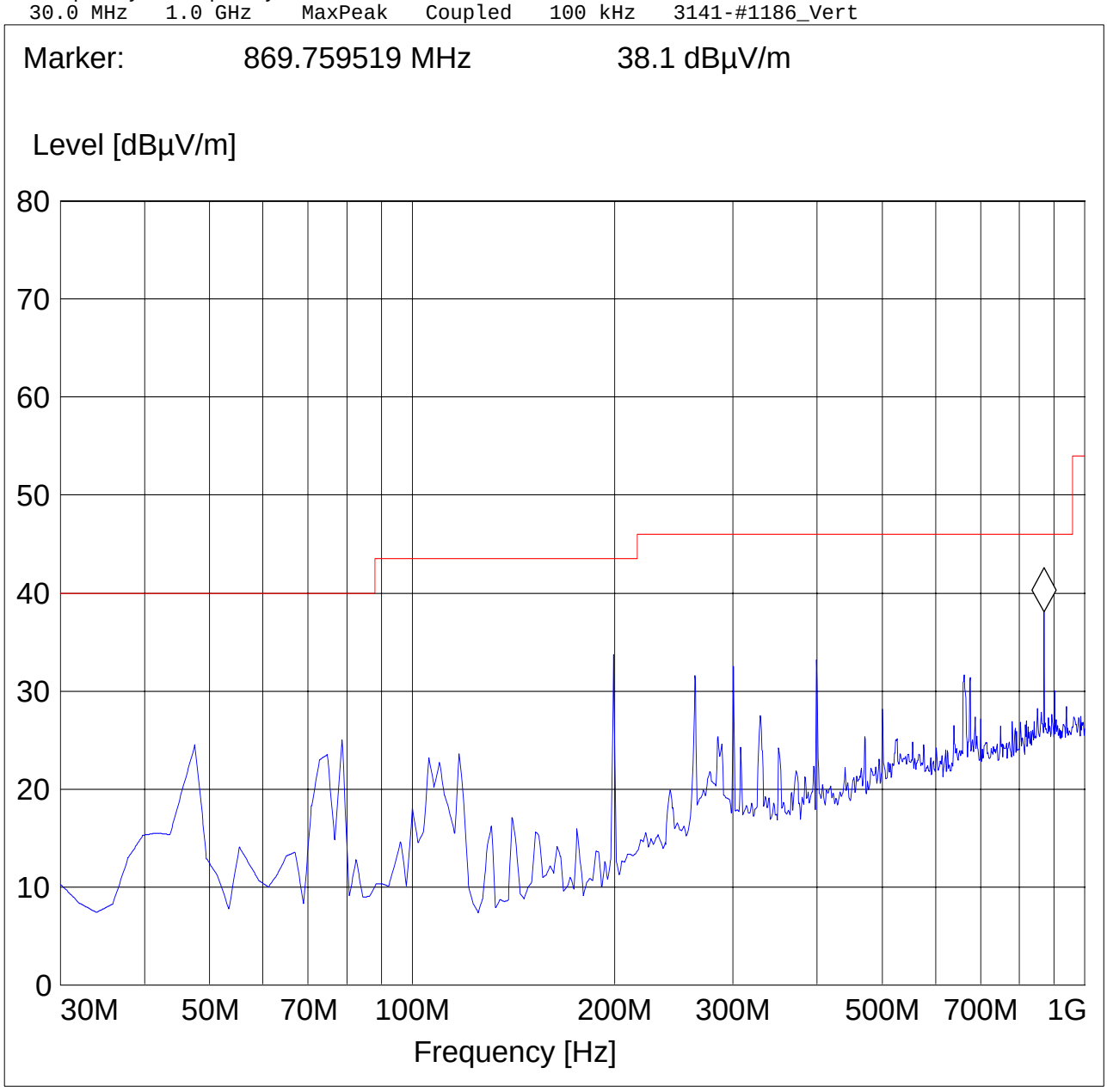


**30MHz – 1GHz**
**Antenna: vertical**
Note: This plot is valid for low, mid, high channels (worst-case plot)

```
EUT:              iLM3177-WG
Customer:         AtRoad
Test Mode:        IDLE
ANT Orientation:  V
EUT Orientation:  H
Test Engineer:    Peter Mu
Power Supply:     12V DC batt
Comments:
```

***SWEEP TABLE: "FCC15.247_30M-1G_Ver"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | 3141-#1186_Vert |

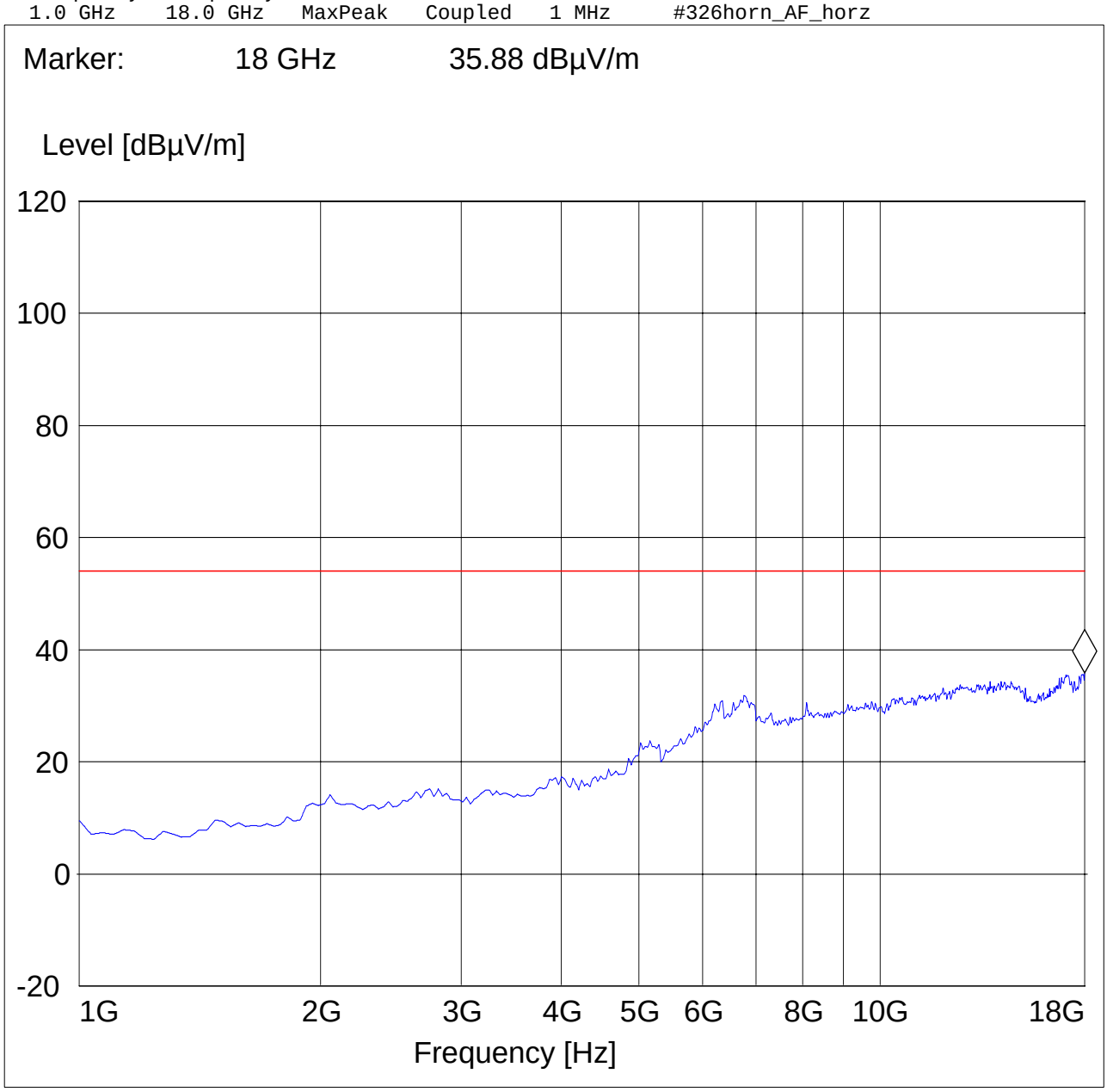


**30MHz – 1GHz, 1-18GHz**

EUT / Description: iLM3177-WG
Manufacturer: atRoad
Test mode: idel
ANT Orientation: : V
EUT Orientation:: H
Test Engineer: Peter Mu
Voltage: 12V DC batt
Comments::

***SWEEP TABLE: "FCC15.247_1-18G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.0 GHz | 18.0 GHz | MaxPeak | Coupled | 1 MHz | #326horn_AF_horz |

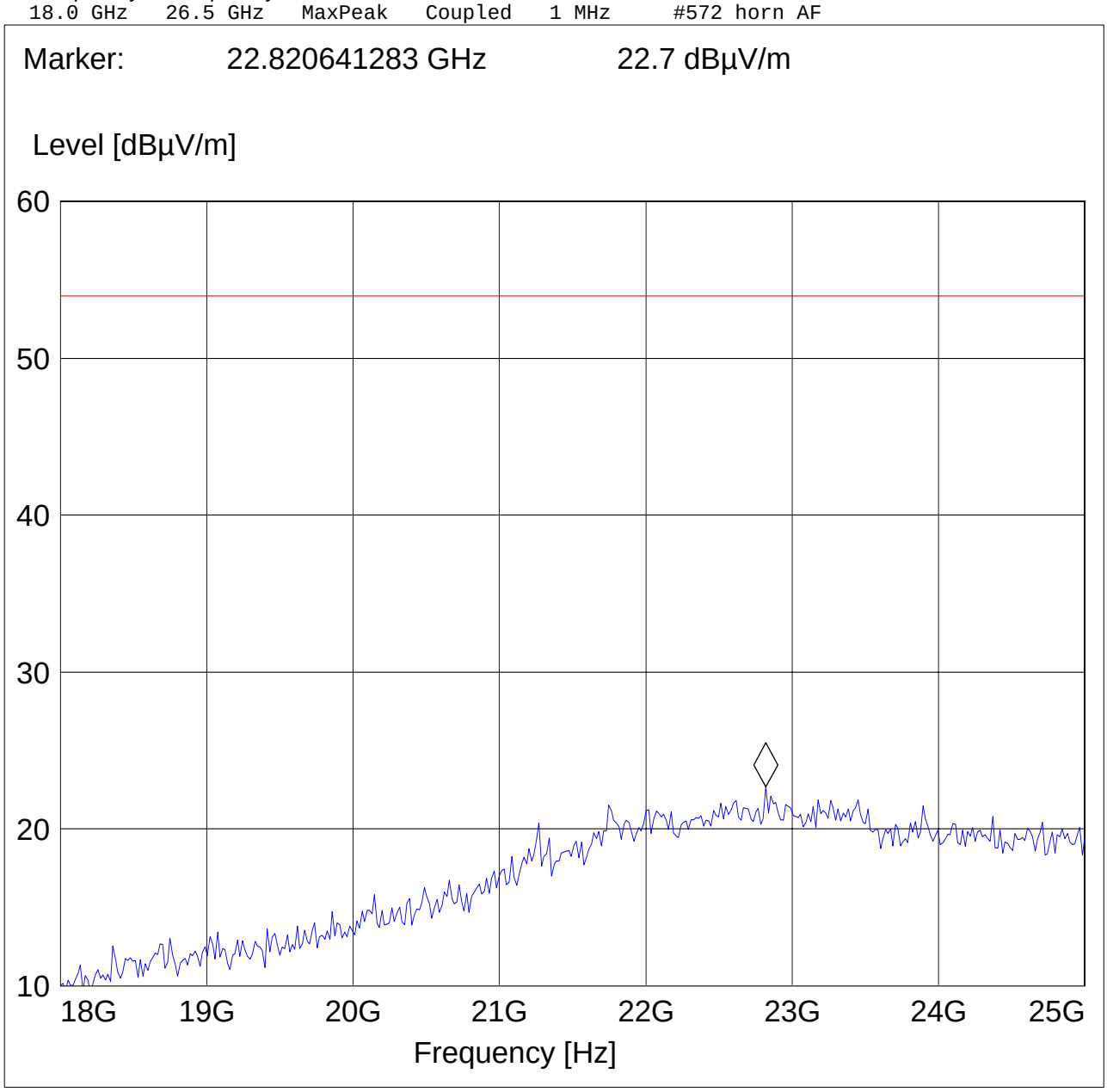


**18-26GHz**

EUT: iLM3177-WG
Customer: AtRoad
Test Mode: IDLE
ANT Orientation: V
EUT Orientation: H
Test Engineer: Peter Mu
Power Supply: 12V DC batt
Comments:

***SWEEP TABLE: "FCC15.247_18-26.5G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 18.0 GHz | 26.5 GHz | MaxPeak | Coupled | 1 MHz | #572 horn AF |



## 5.5 AC POWER LINE CONDUCTED EMISSIONS § 15.107/207

### 5.5.1 Limits

**Technical specification: 15.107 / 15.207 (Revised as of August 20, 2002)**

§15.107 (a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

**Limit**

| Frequency of Emission (MHz) | Conducted Limit (dBµV) | |
|---|---|---|
| | Quasi-Peak | Average |
| 0.15 – 0.5 | 66 to 56* | 56 to 46* |
| 0.5 – 5 | 56 | 46 |
| 5 – 30 | 60 | 50 |
| * Decreases with logarithm of the frequency | | |

**ANALYZER SETTINGS: RBW = 10KHz VBW = 10KHz**

### 5.5.2 Results

Test not required per FCC15.207 (c ): "Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines."

## 6 TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

| No | Instrument/Ancillary | Type | Manufacturer | Serial No. | Cal Due | Interval |
|---|---|---|---|---|---|---|
| **01** | Spectrum Analyzer | ESIB 40 | Rohde & Schwarz | 100107 | May 2008 | 1 year |
| **02** | Spectrum Analyzer | FSEM 30 | Rohde & Schwarz | 100017 | August 2008 | 1 year |
| **03** | Signal Generator | SMY02 | Rohde & Schwarz | 836878/011 | May 2008 | 1 year |
| **04** | Power-Meter | NRVD | Rohde & Schwarz | 0857.8008.02 | May 2008 | 1 year |
| **05** | Biconilog Antenna | 3141 | EMCO | 0005-1186 | June 2008 | 1 year |
| **06** | Horn Antenna (1-18GHz) | SAS-200/571 | AH Systems | 325 | June 2008 | 1 year |
| **07** | Horn Antenna (18-26.5GHz) | 3160-09 | EMCO | 1240 | June 2008 | 1 year |
| **08** | Power Splitter | 11667B | Hewlett Packard | 645348 | n/a | n/a |
| **09** | Climatic Chamber | VT4004 | Voltsch | G1115 | May 2008 | 1 year |
| **10** | High Pass Filter | 5HC2700 | Trilithic Inc. | 9926013 | n/a | n/a |
| **11** | High Pass Filter | 4HC1600 | Trilithic Inc. | 9922307 | n/a | n/a |
| **12** | Pre-Amplifier | JS4-00102600 | Miteq | 00616 | May 2008 | 1 year |
| **13** | Power Sensor | URV5-Z2 | Rohde & Schwarz | DE30807 | May 2008 | 1 year |
| **14** | Digital Radio Comm. Tester | CMD-55 | Rohde & Schwarz | 847958/008 | May 2008 | 1 year |
| **15** | Universal Radio Comm. Tester | CMU 200 | Rohde & Schwarz | 832221/06 | May 2008 | 1 year |
| **16** | LISN | ESH3-Z5 | Rohde & Schwarz | 836679/003 | May 2008 | 1 year |
| **17** | Loop Antenna | 6512 | EMCO | 00049838 | July 2008 | 2 years |

# 7 BLOCK DIAGRAMS

## Radiated Testing