FCC and IC Test Report

FCC Part 15.247 and RSS-210, Issue 7 for DTS systems

for the

Q4U RF

Model Number: Q4URF

FCC ID: SJB-Q4URF

IC-ID: 5378A-Q4URF

TEST REPORT #:EMC_QWIZD_001_07002_15.247
DATE: March 3, 2008

Certificate # 2135.01

Bluetooth Qualification Test Facility (BQTF)

LAB CODE 20020328-00

FCC listed# A2LA Certified

IC recognized # 3462B

***CETECOM* Inc.**
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CETECOM Inc. is a Delaware Corporation with Corporation number: 2113686
Board of Directors: Dr. Harald Ansorge, Dr. Klaus Matkey, Hans Peter May

Test Report Cover Sheet/Performance Test Data

TEST REPORT NUMBER: EMC_QWIZD_001_07002_15.247

EQUIPMENT MODEL NUMBER: Q4URF

CERTIFICATION NO: 5378A-Q4URF

MANUFACTURER: 5378A

RADIO STANDARD SPECIFICATION NO. : RSS 210, Issue 7

OPEN AREA TEST SITE INDUSTRY CANADA NUMBER: 3462B-1

FREQUENCY RANGE (or fixed frequency): 2405MHz to 2480MHz

R.F. POWER IN WATTS: 0.001531 (Radiated)

OCCUPIED BANDWIDTH (99% BW): 2.516 MHz

TYPE OF MODULATION: DSSS (O-QPSK)

EMISSION DESIGNATOR (TRC-43): **2M51G7D**

ANTENNA INFORMATION: Internal

TRANSMITTER SPURIOUS (worst case): 263.93uV/m @ 17.5791 GHz

RECEIVER SPURIOUS (worst case): 252.92uV/m @ 17.863 GHz

ATTESTATION:
DECLARATION OF COMPLIANCE: I declare that the testing was performed or supervised by me; that the test measurements were made in accordance with the above-mentioned Industry Canada standard(s); and that the equipment identified in this application has been subjected to all the applicable test conditions specified in the Industry Canada standards and all of the requirements of the standard have been met.

Signature:
Juan Martinez
Project Engineer
CETECOM Inc.
411 Dixon Landing Road
Milpitas, CA 95035

Date: 2008-03-03

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 and IC RSS-210, Issue 7 Standards.

Company	Description	Model #
Qwizdom, Inc.	**Wireless Remote**	**Q4URF**

Technical responsibility for area of testing:

Date	Section	Name	Signature
March 3, 2008	**EMC & Radio**	Val Tankov **(Project Engineer)**	Ivaylo Tankov I am approving this document

Responsible for test report and project leader:

Date	Section	Name	Signature
March 3, 2008	**EMC & Radio**	Juan Martinez **(Project Engineer)**	Juan Martinez I am the author of this document

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the Radio Assessment Report

Company Name:	CETECOM Inc.
Department:	EMC
Address:	411 Dixon Landing Road Milpitas, CA 95035 U.S.A.
Telephone:	+1 (408) 586 6200
Fax:	+1 (408) 586 6299
Project Leader:	Juan Martinez
Responsible Test Lab Manager:	Ivaylo Tankov

2.2 Identification of the Client

Applicant's Name:	Qwizdom, Inc.
Address:	12617 Meridian East Puyallup, WA 98379-3427, USA
Contact Person:	Darin Beamish
Phone No.	253-845-7738 x 225
Fax:	253-845-1909
e-mail:	dardinbeamish@qwizdom.com

2.3 Identification of the Manufacturer

Manufacturer's Name:	Qwizdom, Inc.
Manufacturer's Address:	12617 Meridian East, Puyallup, USA

3 Equipment under Test (EUT)

3.1 Specification of the Equipment under Test

Product Type	Wireless Remote
Marketing Name:	Q4U RF Remote
Model No:	Q4URF
FCC-ID:	SJB-Q4URF
IC-ID :	5378A-Q4URF
Frequency Range:	2405MHz – 2480MHz
Number of Channels	16
Type(s) of Modulation:	DSSS (O-QPSK)
Antenna Type:	Internal
Output Power (Radiated):	0.001531 Watts @ 2440 MHz

3.2 Identification of Accessory and Remote (Host) equipment

AE #	TYPE	MANF.	MODEL	SERIAL #
1	RF Host	Qwizdom, Inc.	RF Host	N/A

Subject Of Investigation

All testing was performed on the product referred to in Section 3.

The objective of the measurements done by Cetecom Inc. was to measure the performance of the EUT as specified by requirements listed in FCC rules Part 15.247 of Title 47 of the Code of Federal Regulations and to Industry Canada RSS-210, Issue 7. The maximization of portable equipment is conducted in accordance with ANSI C63.4.

4 Measurements

5 ANTENNA PORT EMISSIONS

5.1 MAXIMUM PEAK OUTPUT POWER § 15.247 (b) (3) & RSS-210 (A8.4)(4) (RADIATED)

TEST CONDITIONS		MAXIMUM PEAK OUTPUT POWER (dBm)		
Frequency (MHz)		2405	2440	2480
T_{nom}(23)°C	V_{nom}	1.13	1.85	-1.22
Measurement uncertainty		±0.5dBm		

LIMIT **SUBCLAUSE § 15.247 (b) (3) & RSS-210 (A8.4)(4)**

Frequency range	RF power output
2400-2483.5 MHz	30dBm on Conducted
2400-2483.5 MHz	36dBm EIRP Radiated

Notes:

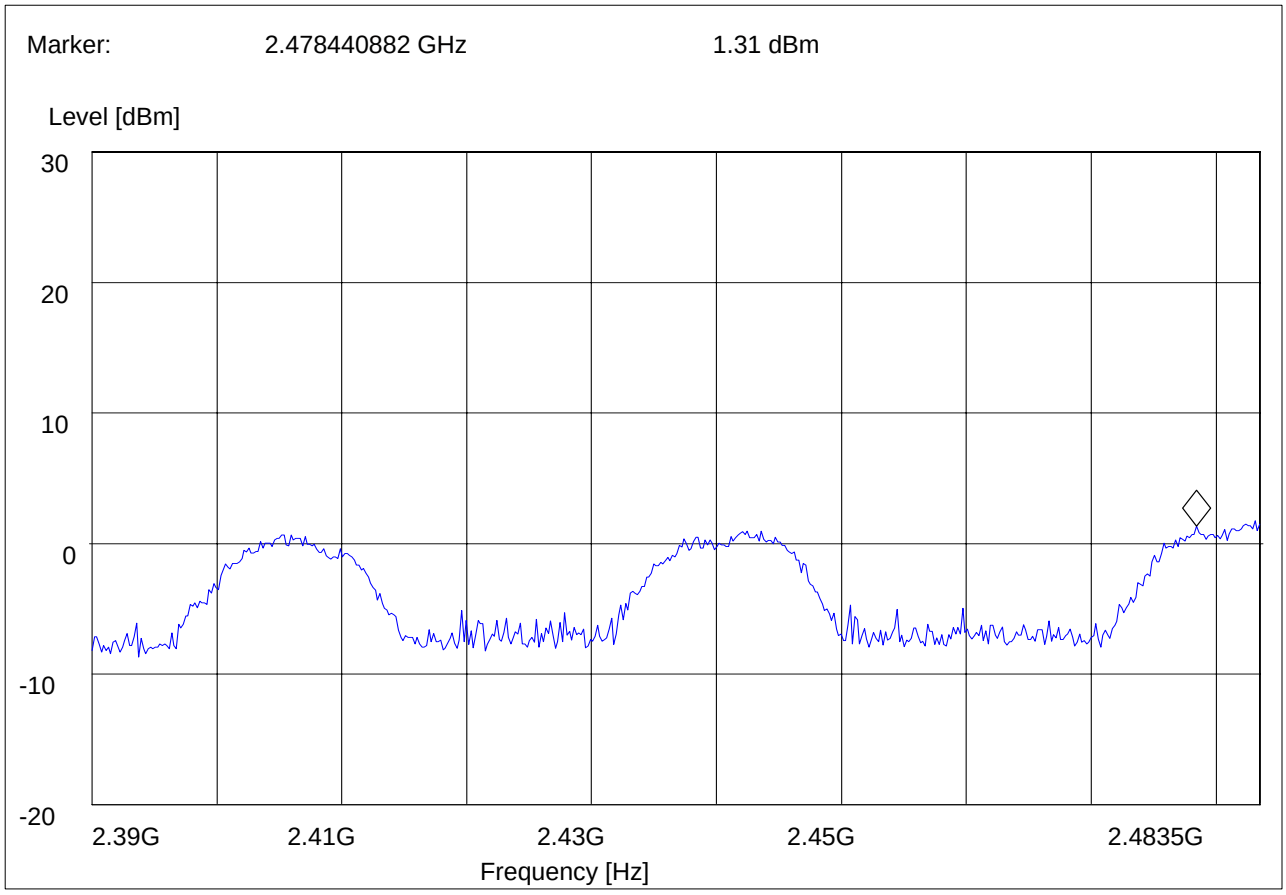
2405, 2445, and 2480 MHz

Three devices were set to transmit on the low, middle, and high channel at the same time. 3 orthogonal positions were tested and data present on this report for all 3 positions.
Marker is always on highest channel

```
EUT:             Q4URF
Customer::       Qwizdom
Test Mode:       Ch.0,7,15 - Tx Mode
ANT Orientation: V
EUT Orientation: V
Test Engineer:   Chris
Voltage:         Battery
Comments:        Standing
```

SWEEP TABLE: "EIRP_15.247_All"

```
Short Description:            EIRP RLAN channel-2412 MHz
Start      Stop       Detector  Meas.     IF        Transducer
Frequency  Frequency            Time      Bandw.
2.4 GHz    2.5 GHz    MaxPeak   Coupled   10 MHz    DUMMY-DBM
```

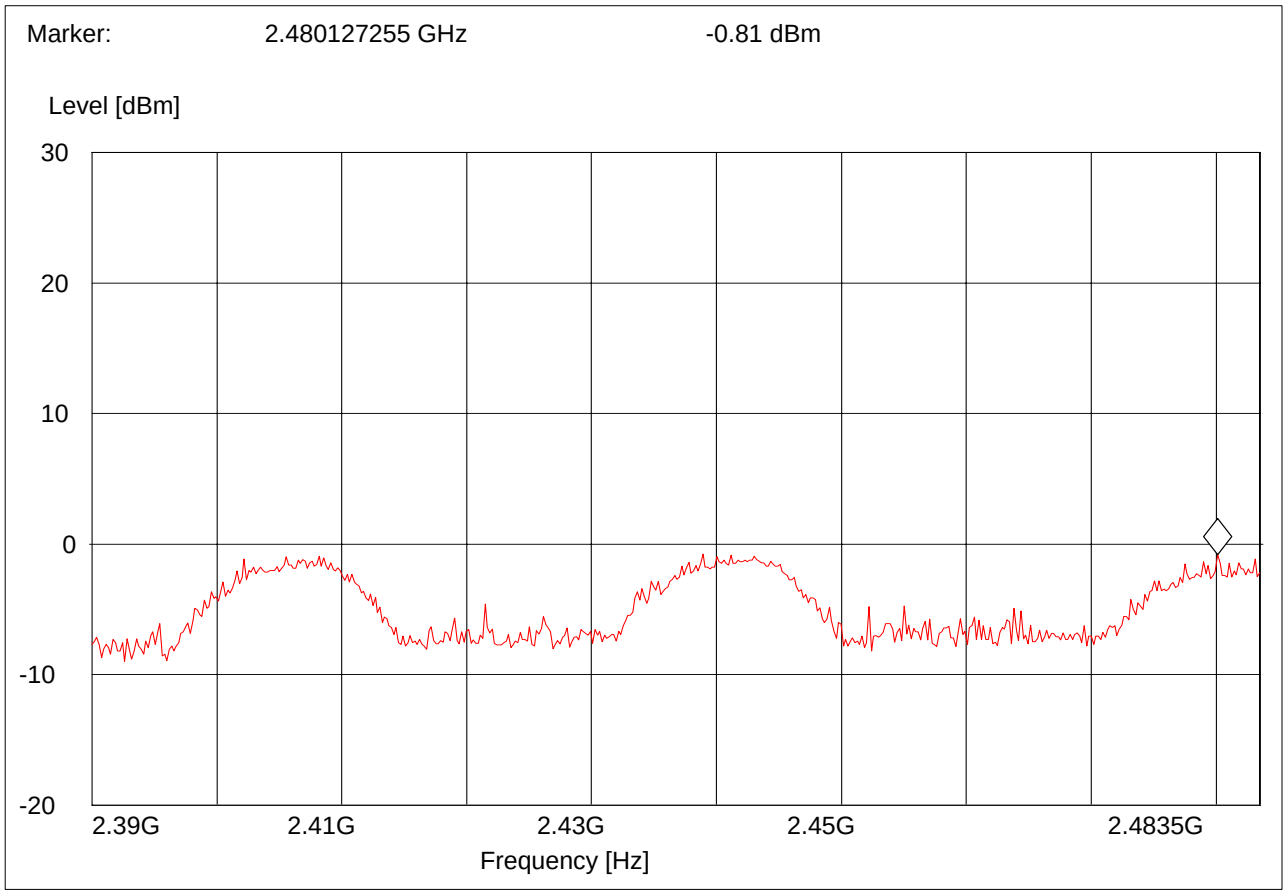


EUT: Q4URF
Customer:: Qwizdom
Test Mode: Ch.0,7,15 - Tx Mode
ANT Orientation: H
EUT Orientation: V
Test Engineer: Chris
Voltage: Battery
Comments: Standing

SWEEP TABLE: "EIRP_15.247_All"

Short Description: EIRP RLAN channel-All MHz

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

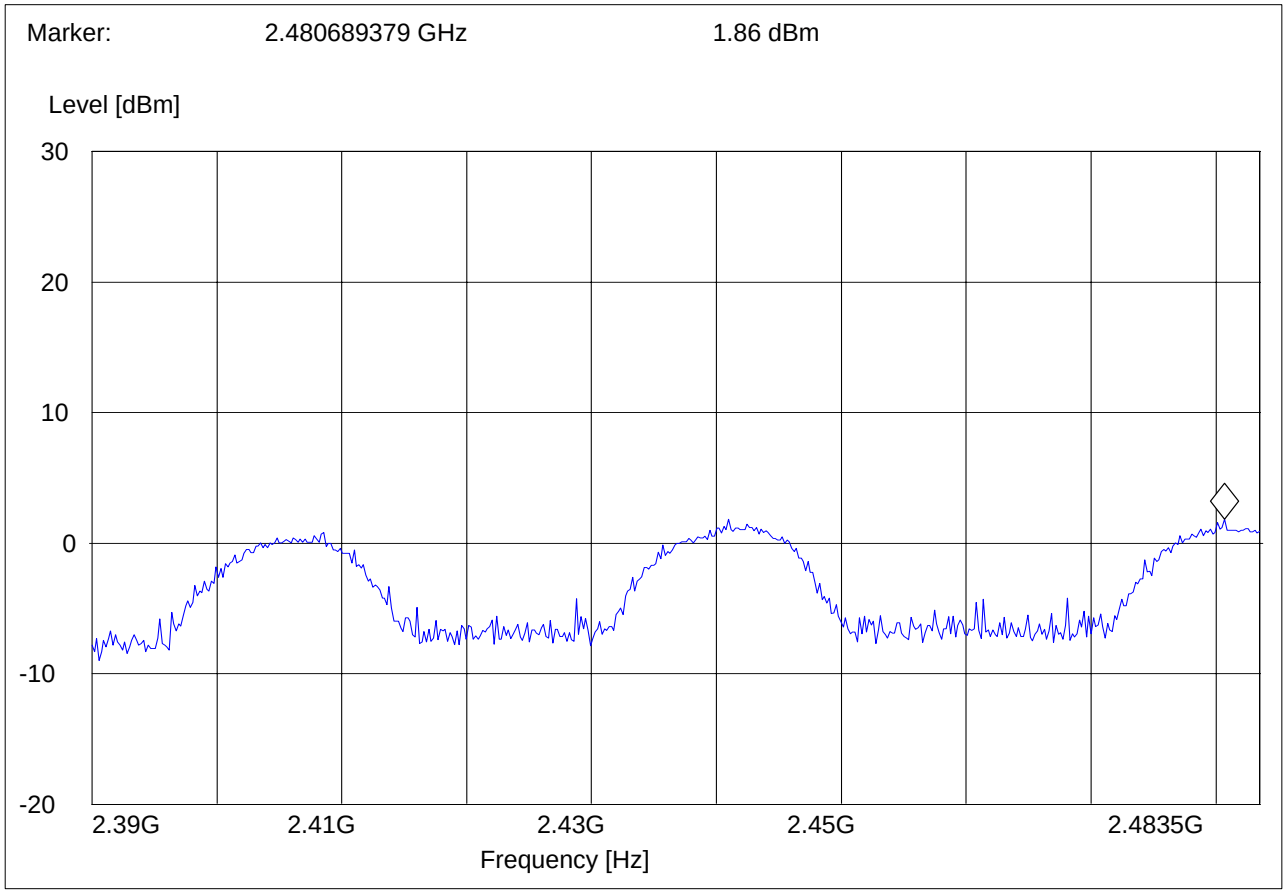


EUT: Q4URF
Customer:: Qwizdom
Test Mode: Ch.0,7,15 - Tx Mode
ANT Orientation: V
EUT Orientation: Side
Test Engineer: Chris
Voltage: Battery
Comments: On side

SWEEP TABLE: "EIRP_15.247_All"

Short Description: EIRP RLAN channel-2412 MHz

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

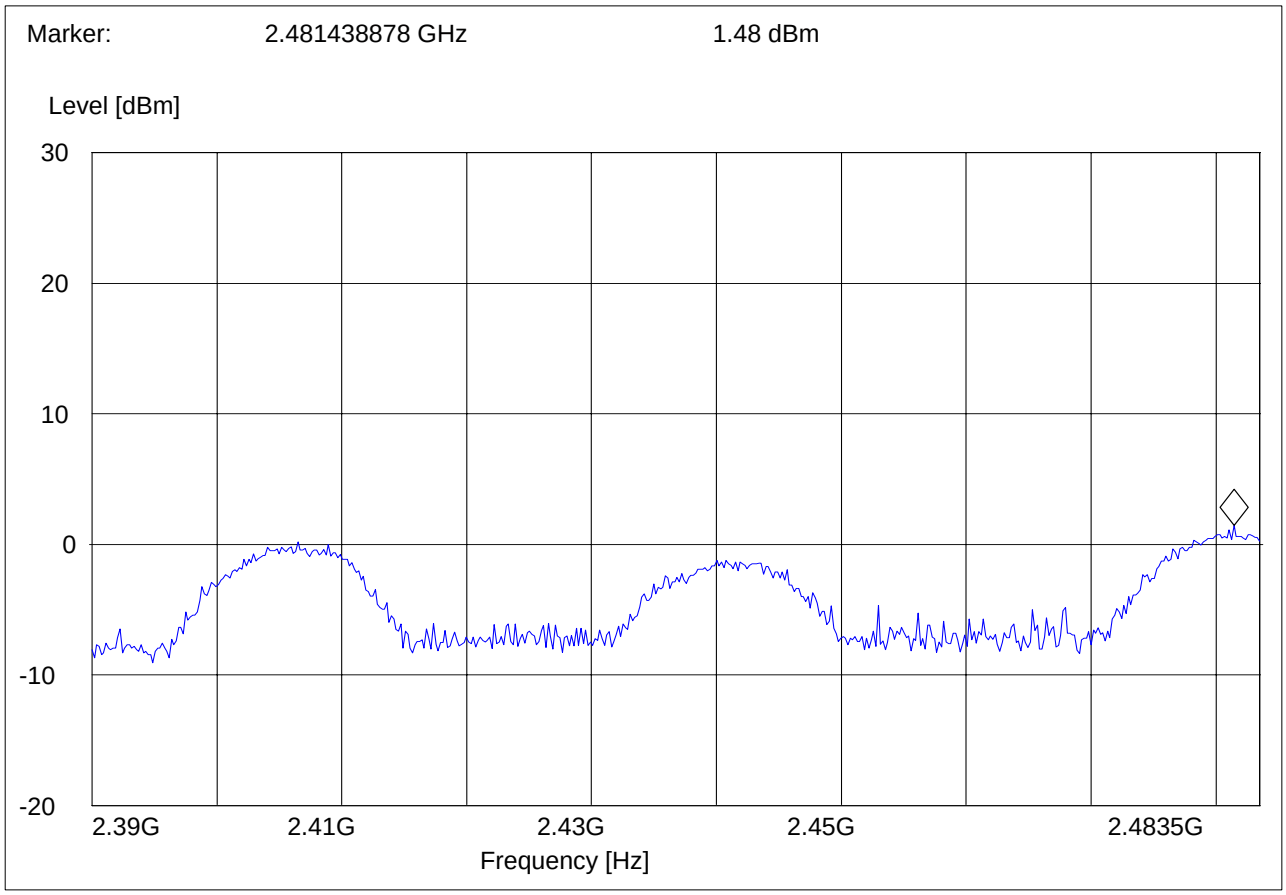


EUT: Q4URF
Customer:: Qwizdom
Test Mode: Ch.0,7,15 - Tx Mode
ANT Orientation: H
EUT Orientation: Side
Test Engineer: Chris
Voltage: Battery
Comments: On side

SWEEP TABLE: "EIRP_15.247_All"

Short Description: EIRP RLAN channel-2412 MHz

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

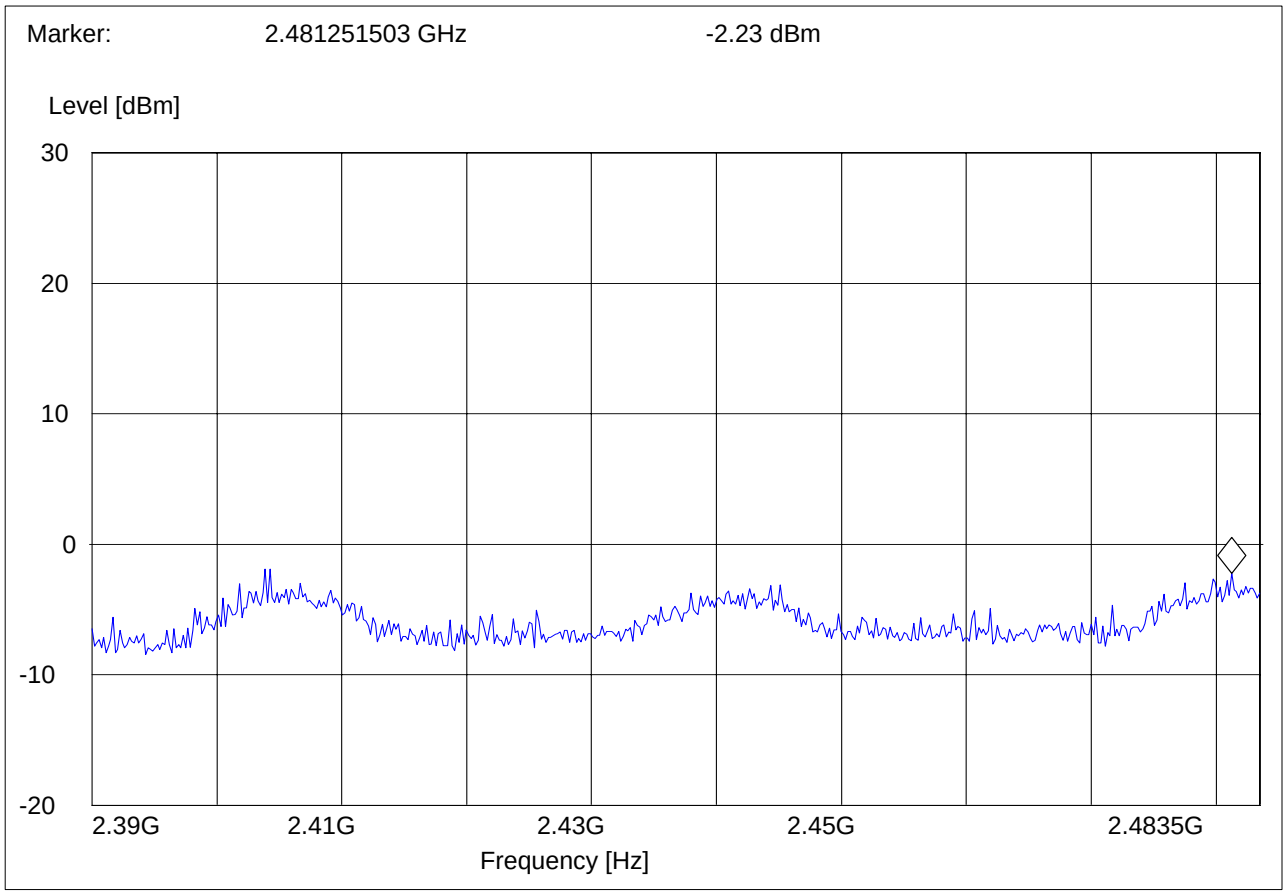


EUT: Q4URF
Customer:: Qwizdom
Test Mode: Ch.0,7,15 - Tx Mode
ANT Orientation: V
EUT Orientation: H
Test Engineer: Chris
Voltage: Battery
Comments: Laying flat

SWEEP TABLE: "EIRP_15.247_All"

Short Description: EIRP RLAN channel-2412 MHz

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

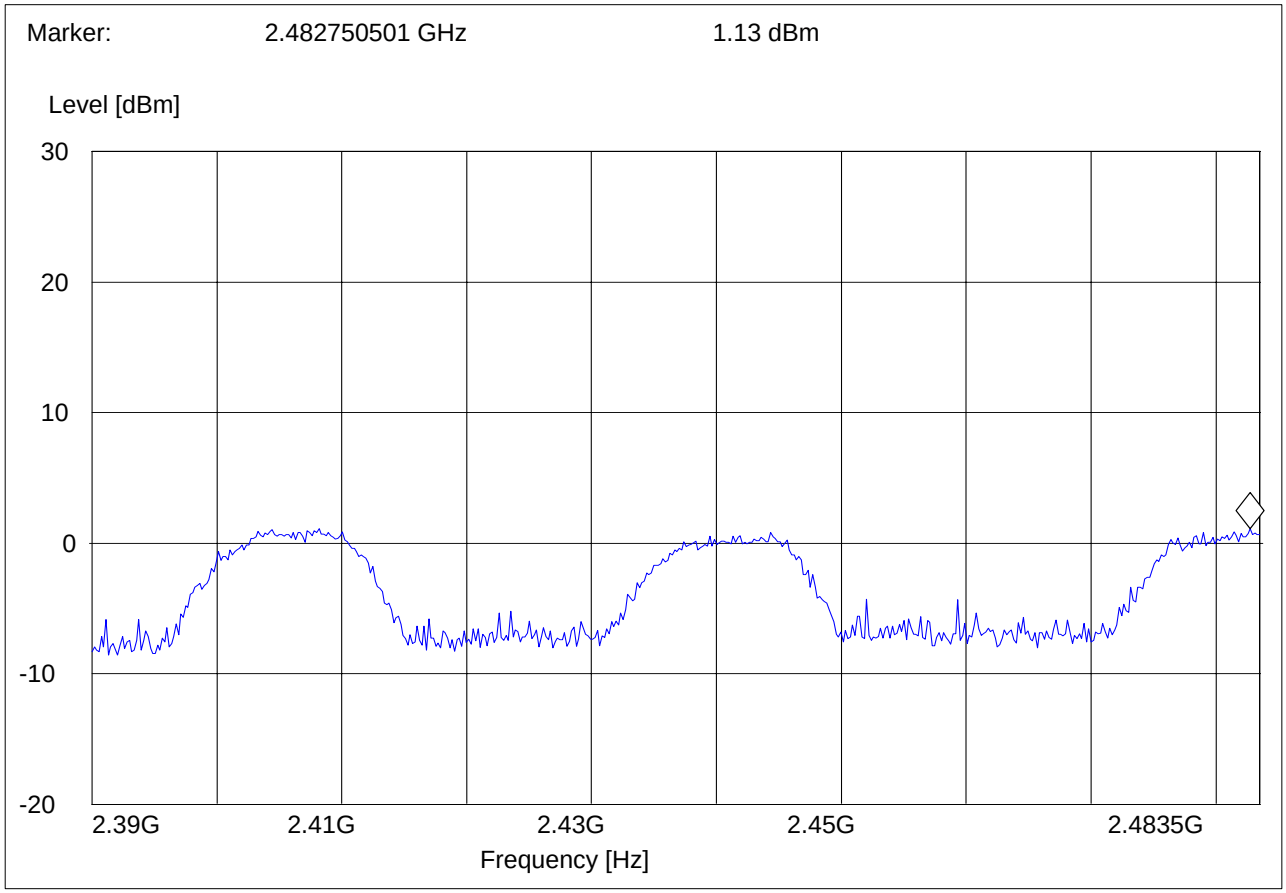


EUT: Q4URF
Customer:: Qwizdom
Test Mode: Ch.0,7,15 - Tx Mode
ANT Orientation: H
EUT Orientation: H
Test Engineer: Chris
Voltage: Battery
Comments: Laying flat

SWEEP TABLE: "EIRP_15.247_All"

Short Description: EIRP RLAN channel-2412 MHz

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

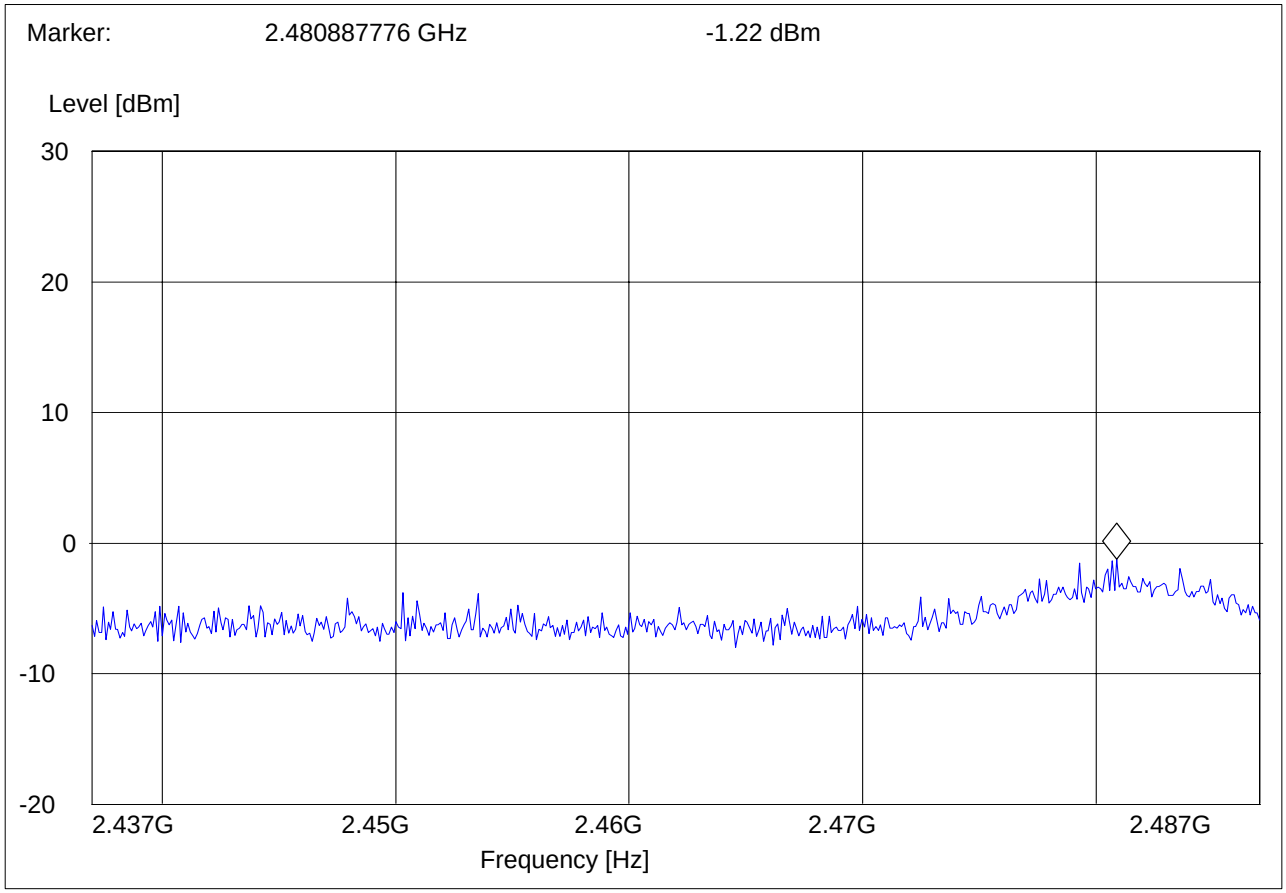


This plot replaces all the other EIRP measurements only for the high channel (15) due to the fact that it failed banded edges at maximum power. Bandedges were complaint with a lower power setting (7). Being this the case the EIRP for channel 15 at setting of 7 was re-measured as final configuration of the EUT.

```
EUT:              Q4URF
Customer::        Qwizdom
Test Mode:        Ch.15, Tx mode
ANT Orientation:  V
EUT Orientation:  S
Test Engineer:    Sam
Voltage:          Battery
Comments:         On its side; worst case power; power setting at 7
```

SWEEP TABLE: "EIRP RLAN CH11"

```
Short Description:              EIRP RLAN channel-2462 MHz
Start      Stop       Detector  Meas.     IF        Transducer
Frequency  Frequency             Time      Bandw.
2.4 GHz    2.5 GHz    MaxPeak   Coupled   10 MHz    DUMMY-DBM
                      MaxPeak
```



5.2 6-dB and 99% BANDWIDTH §15.247(a)(2) & § RSS-210 (A8.2)(a) (CONDUCTED)

Limit: min. 6dB BW shall be at least 500kHz §15.247(a)(2)

ANALYZER SETTINGS: RBW: 100kHz, VBW: 100kHz SPAN: 5 MHz

Channel No.	Frequency (MHz)	6dB BW (MHz)
0	2405	1.586
7	2440	1.679
15	2480	1.682

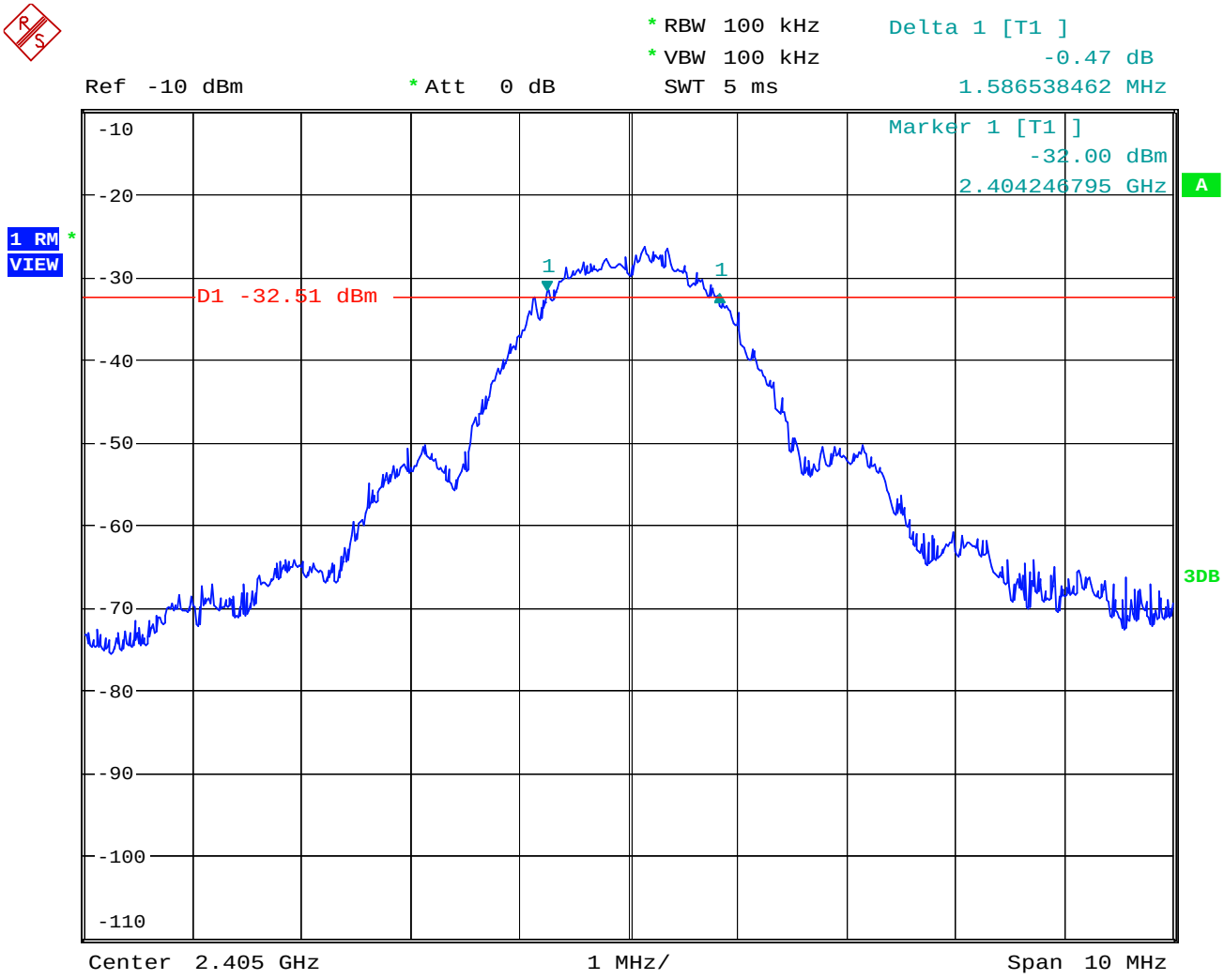
Conducted Measurement

Limit: min. 99% BW shall be at least 500kHz § RSS-210 (A8.2)(a)

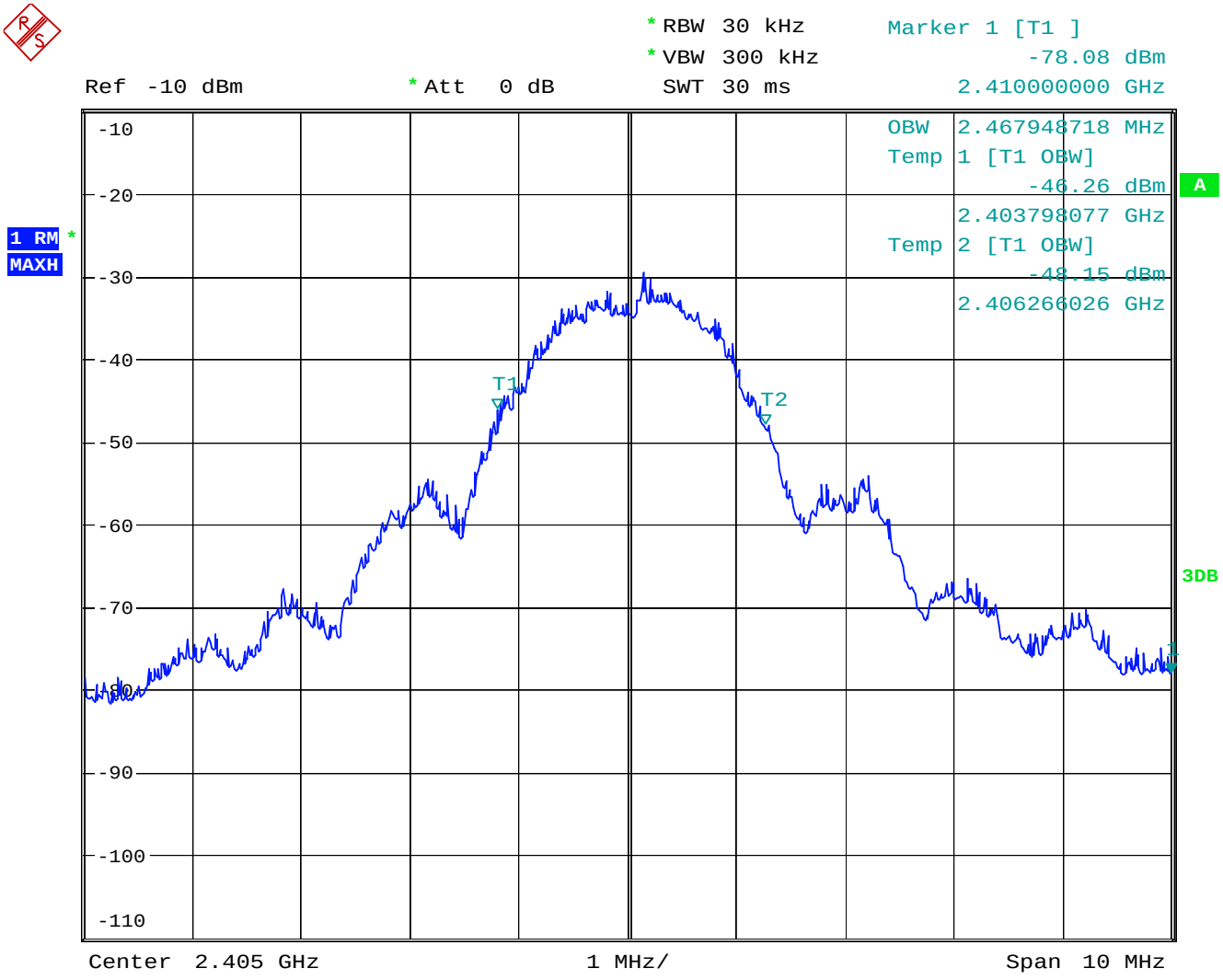
RSS GEN (4.6) = 99% analyzer settings: Resolution Bandwidth: 1% of the emission bandwidth, Video Bandwidth: 3 times RBW. Trace set to max hold then view.

Channel No.	Frequency (MHz)	99dB BW (MHz)
0	2405	2.467
7	2440	2.516
15	2480	2.467

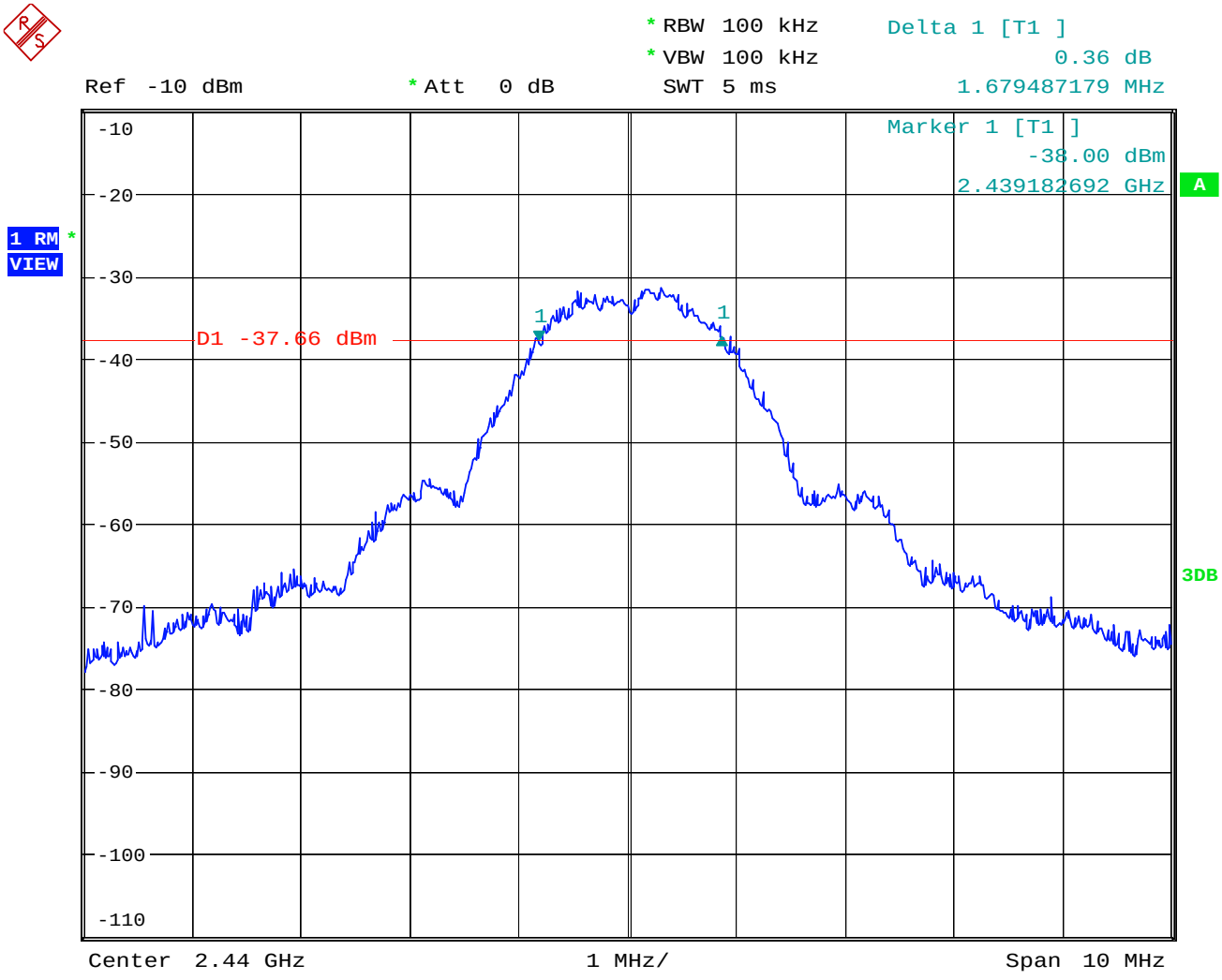
2405 MHz – 6dB BW



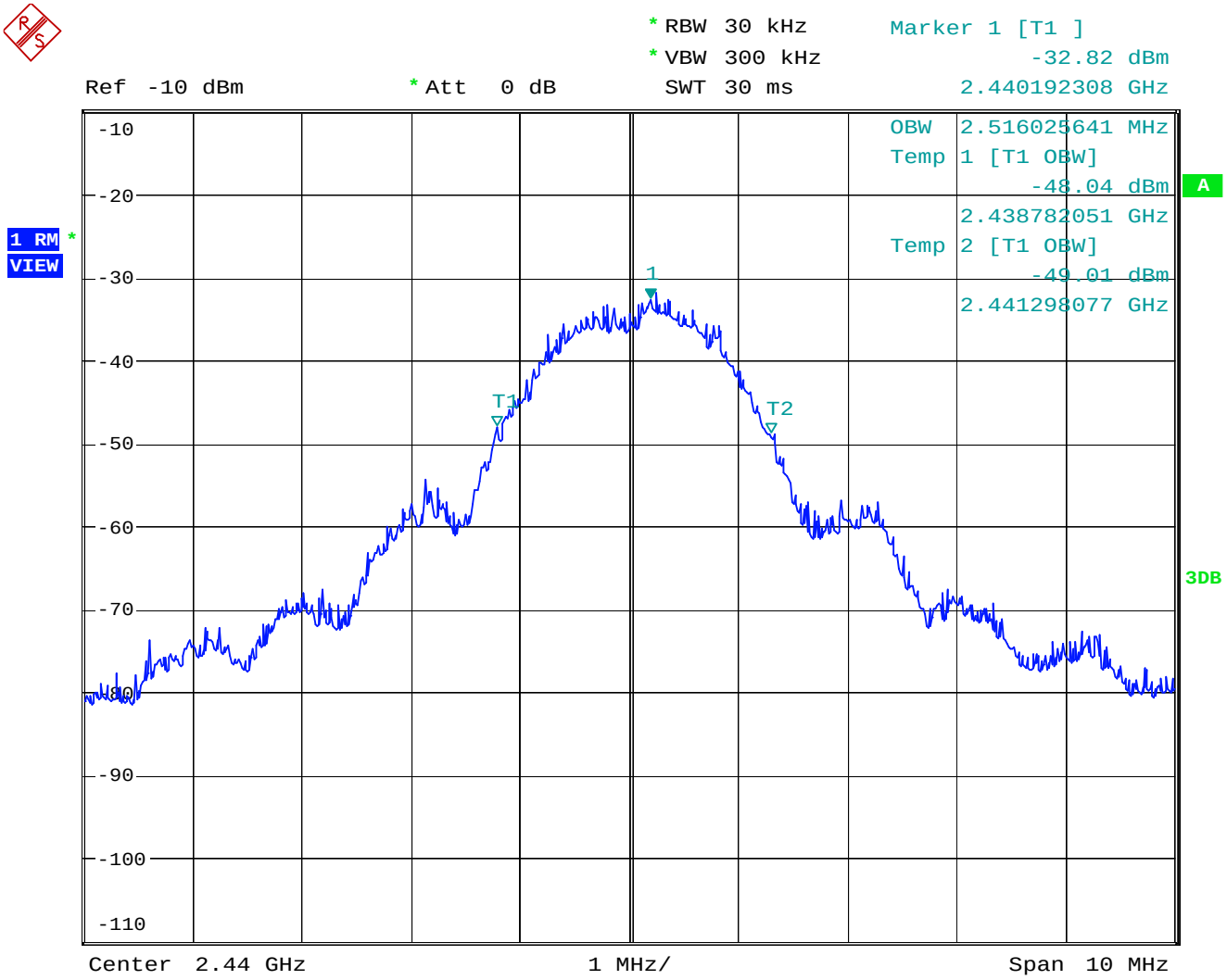
2405 MHz – 99% BW



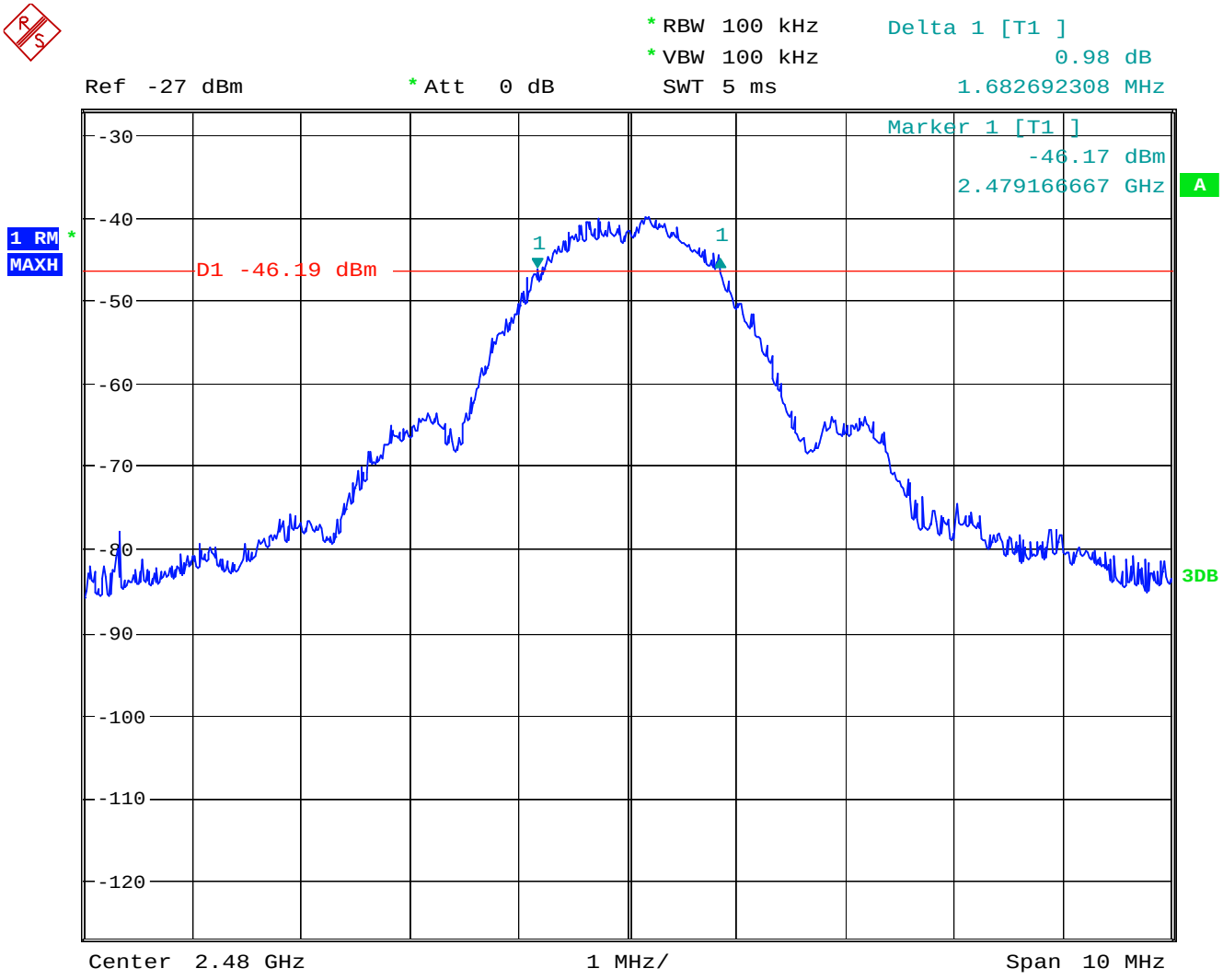
2440 MHz – 6dB BW



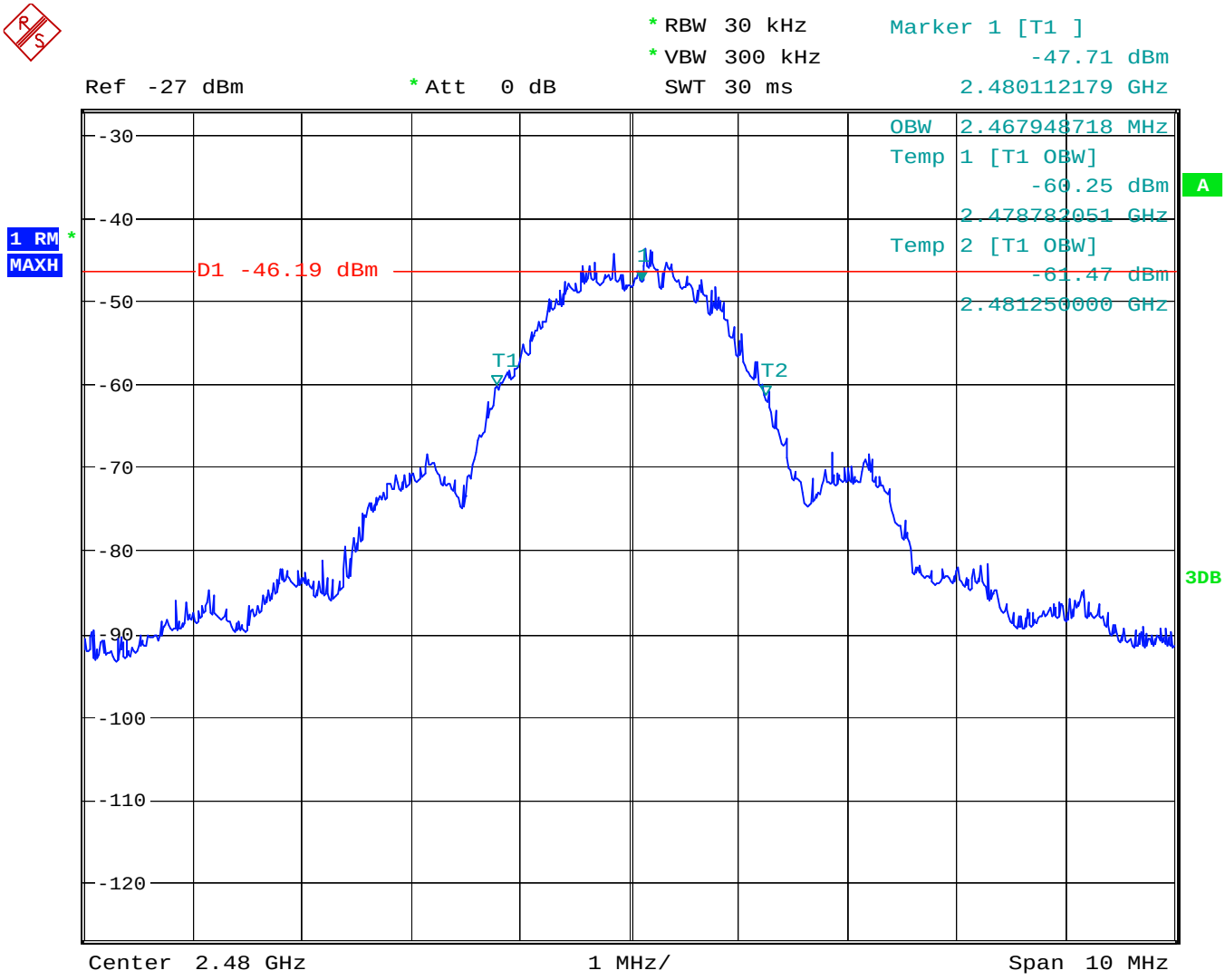
2440 MHz – 99% BW



2480 MHz – 6dB BW



2480 MHz – 99% BW



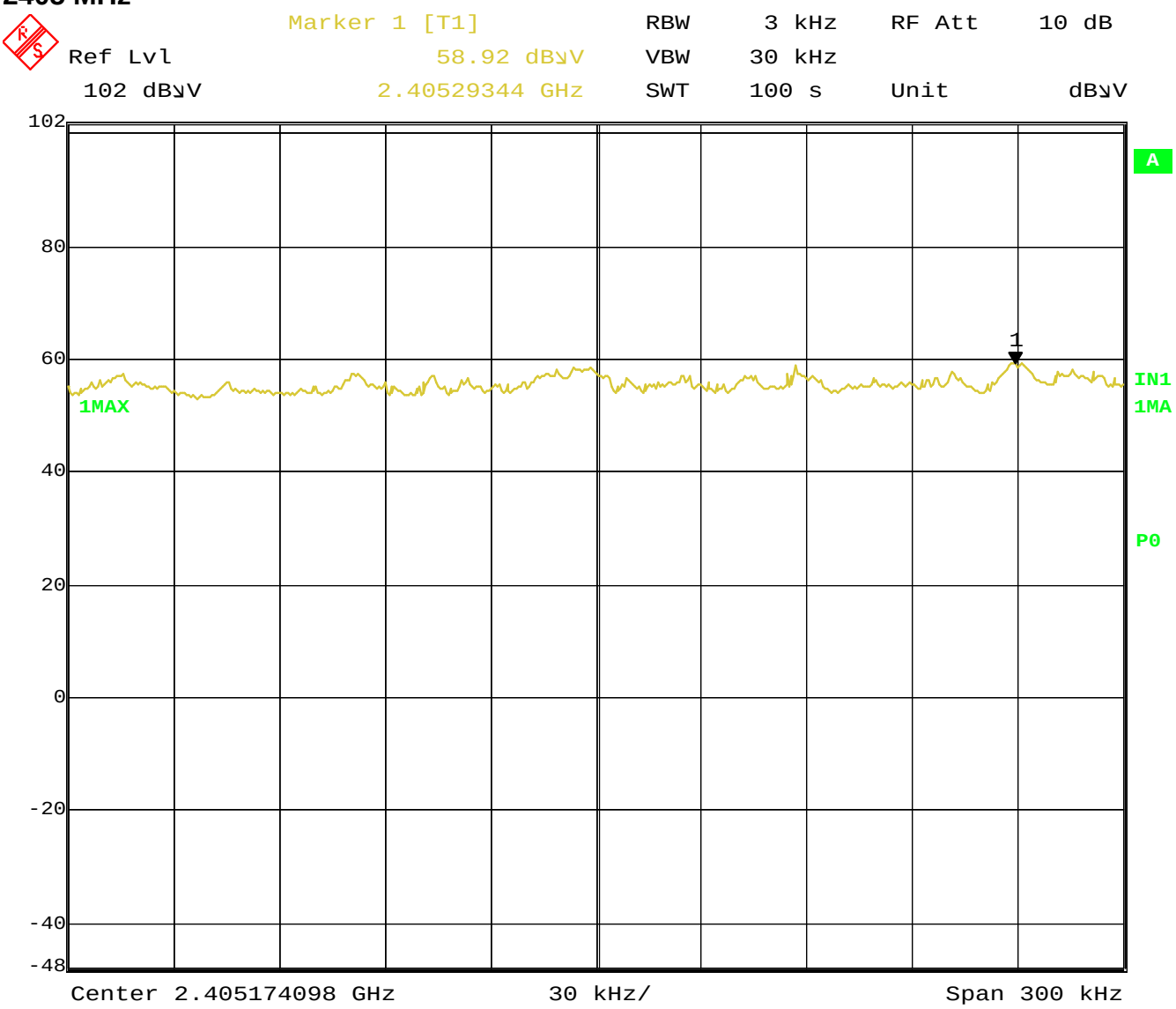
5.3 POWER SPECTRAL DENSITY §15.247(e) & RSS-210 (A8.2)(b) (CONDUCTED)

Limit: ≤ 8dBm (in 3kHz BW) **§15.247(e) & RSS-210 (A8.2)(b)**

ANALYZER SETTINGS: **RBW= 3kHz, VBW: 10kHz** **SPAN: 300kHz**

Channel No.	Frequency (MHz)	PSD (dBm)
0	**2405**	**-17.28**
7	**2440**	**-23.53**
15	**2480**	**-27.3**

2405 MHz

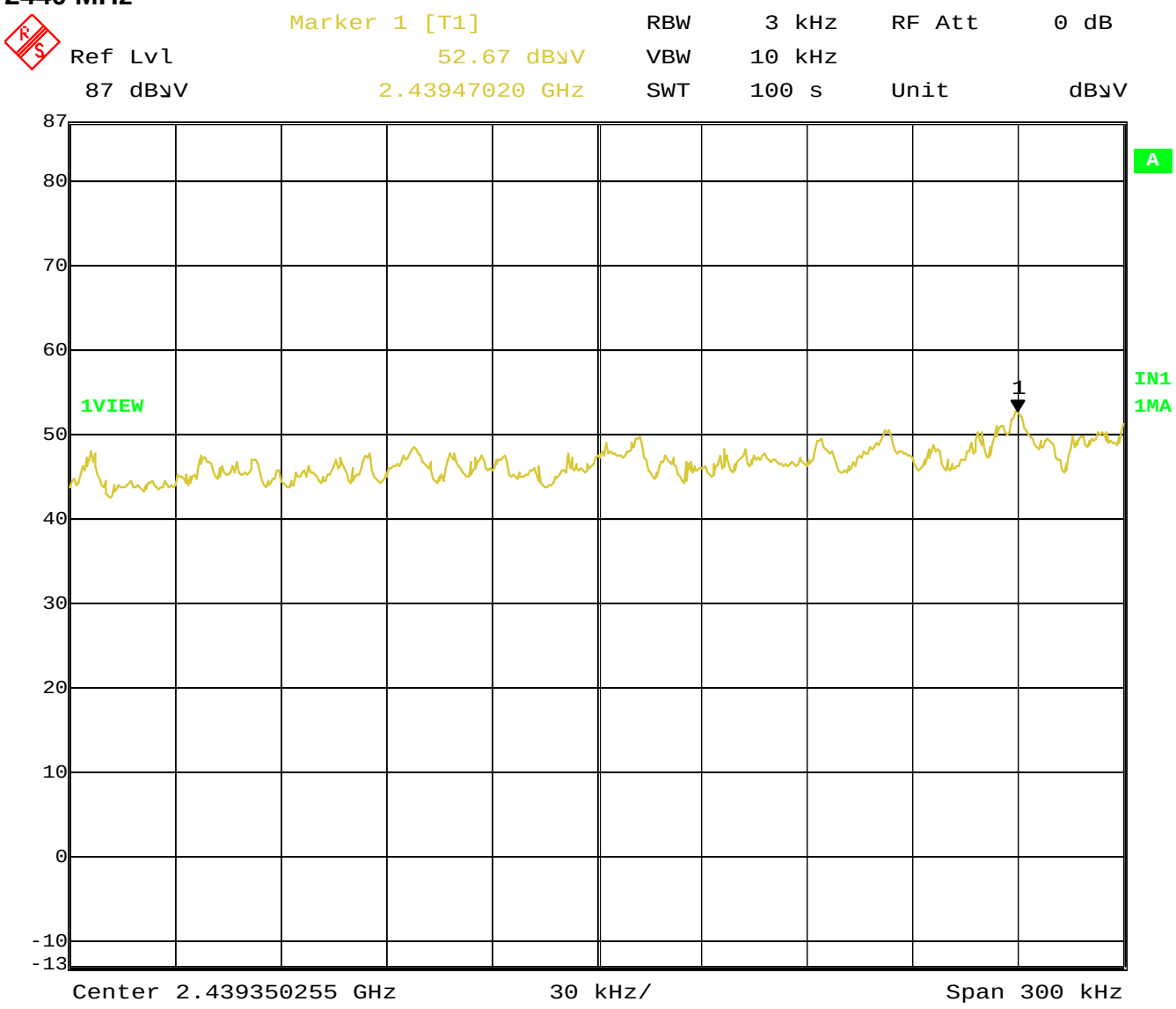


PSD = 58.92dBuV – 9.5dB = 49.42dBuV (converts 1 meter to 3 meter distance measurement)

49.42dBuV + 28.5 dB/m = 77.92dBuV/m

77.92dBuV/m - 95.2dB = -17.28dBm (converts dBuV/m to dBm)

2440 MHz

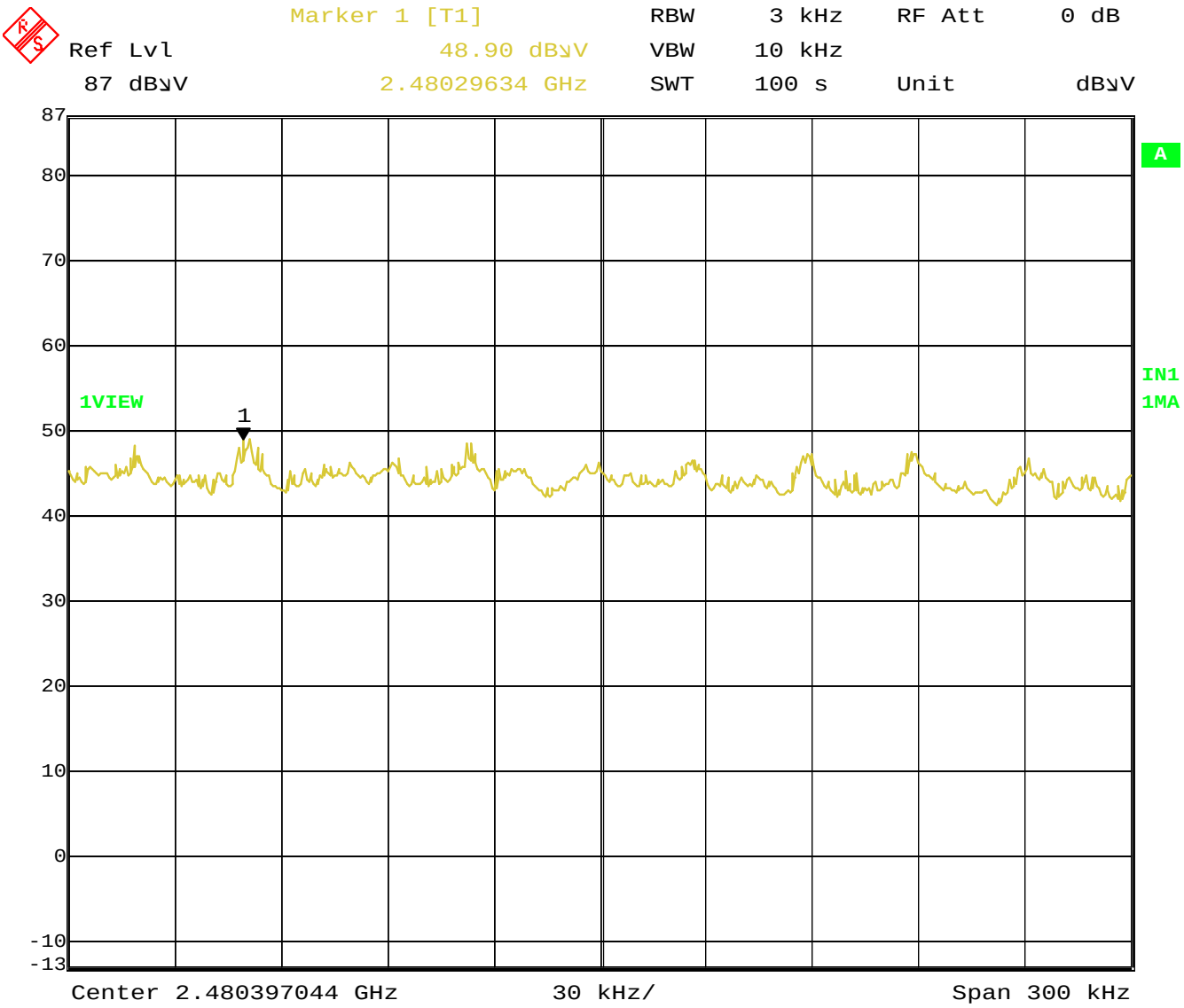


PSD = 52.67dBuV – 9.5dB = 43.17dBuV (converts 1 meter to 3 meter distance measurement)

43.17dBuV + 28.5 dB/m = 71.67dBuV/m

71.67dBuV/m - 95.2dB = -23.53dBm (converts dBuV/m to dBm)

2480 MHz



PSD = 48.9dBuV – 9.5dB = 39.4dBuV (converts 1 meter to 3 meter distance measurement)

39.4dBuV + 28.5 dB/m = 67.9dBuV/m

67.9dBuV/m - 95.2dB = -27.3dBm (converts dBuV/m to dBm)

5.4 ANTENNA PORT EMISSIONS §15.247(d) & RSS-210 (A8.5) (CONDUCTED)

Limit: -20dBc used, §15.247(d) & RSS-210 (A8.5):
NOTE: ANALYZER SETTINGS: RBW=VBW: 100 kHz
Measurements were performed on the low, middle, and high channel.

Transmit at Lowest channel Frequency 2405MHz	
Frequency (MHz)	**Level (dBm)**
	Peak
Transmit at Middle channel Frequency 2445MHz	
Frequency (MHz)	**Level (dBm)**
	Peak
Transmit at Highest channel Frequency 2480MHz	
Frequency (MHz)	**Level (dBm)**
	Peak

Note: The EUT antenna is permanently attached. This test was performed all radiated.

RADIATED EMISSIONS MEASUREMENTS

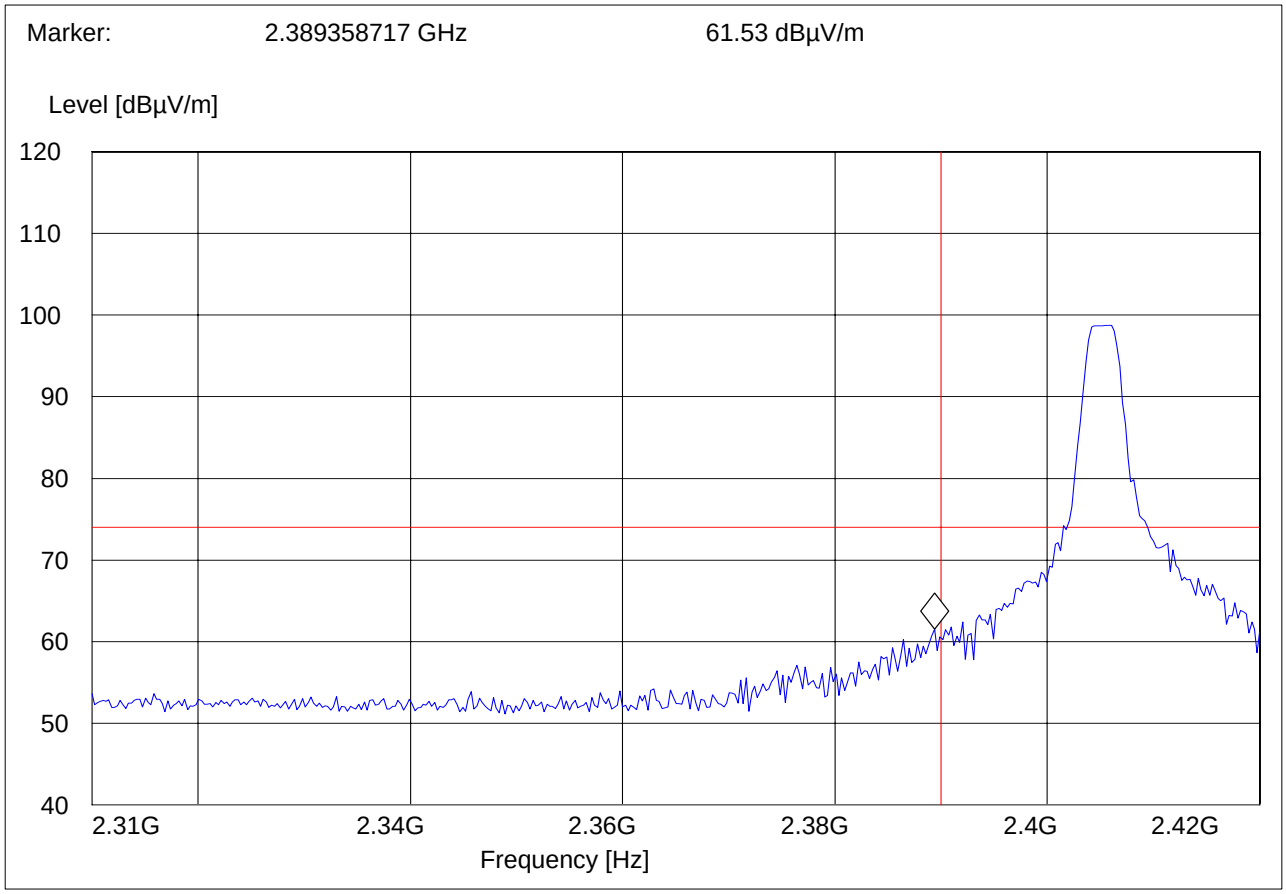
5.5 BAND EDGE COMPLIANCE §15.247 (d) & RSS-210(A8.5)

Low frequency section (spurious in the restricted band 2310 – 2390 MHz)

```
EUT:              Q4URF
Customer::        Qwizdom
Test Mode:        Ch.0, Tx mode
ANT Orientation:  H
EUT Orientation:  V
Test Engineer:    Chris
Voltage:          Battery
Comments:         Laying down; worst case power
```

SWEEP TABLE: "FCC15.247 LBE_PK"

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



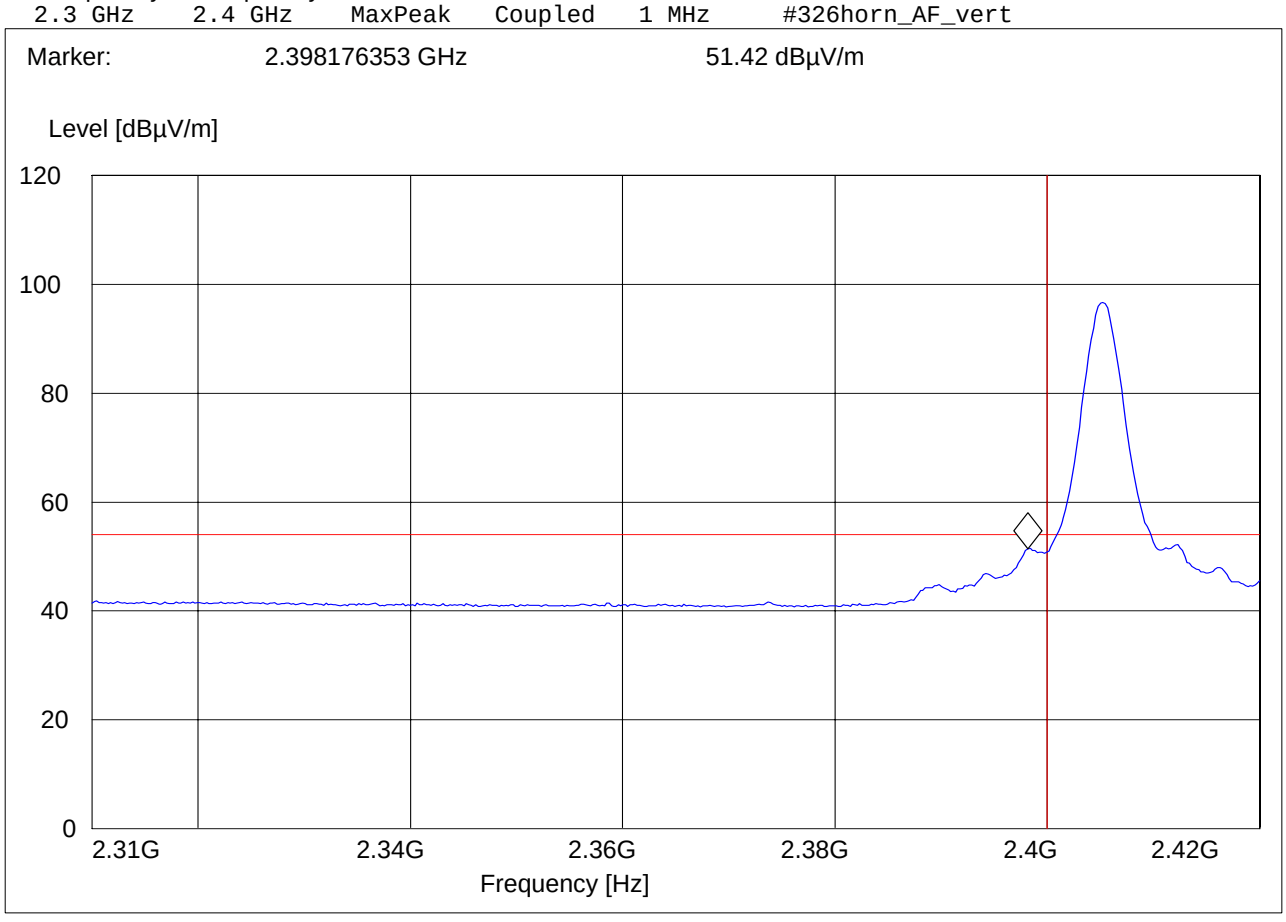
BAND EDGE COMPLIANCE §15.247 (d) & RSS-210(A8.5)

Low frequency section (spurious in the restricted band 2310 – 2390 MHz)

```
EUT:              Q4URF
Customer::        Qwizdom
Test Mode:        Ch.0, Tx mode
ANT Orientation:  H
EUT Orientation:  V
Test Engineer:    Chris
Voltage:          Battery
Comments:         Laying down; worst case power
```

SWEEP TABLE: "FCC15.247 LBE_AVG_PS"

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



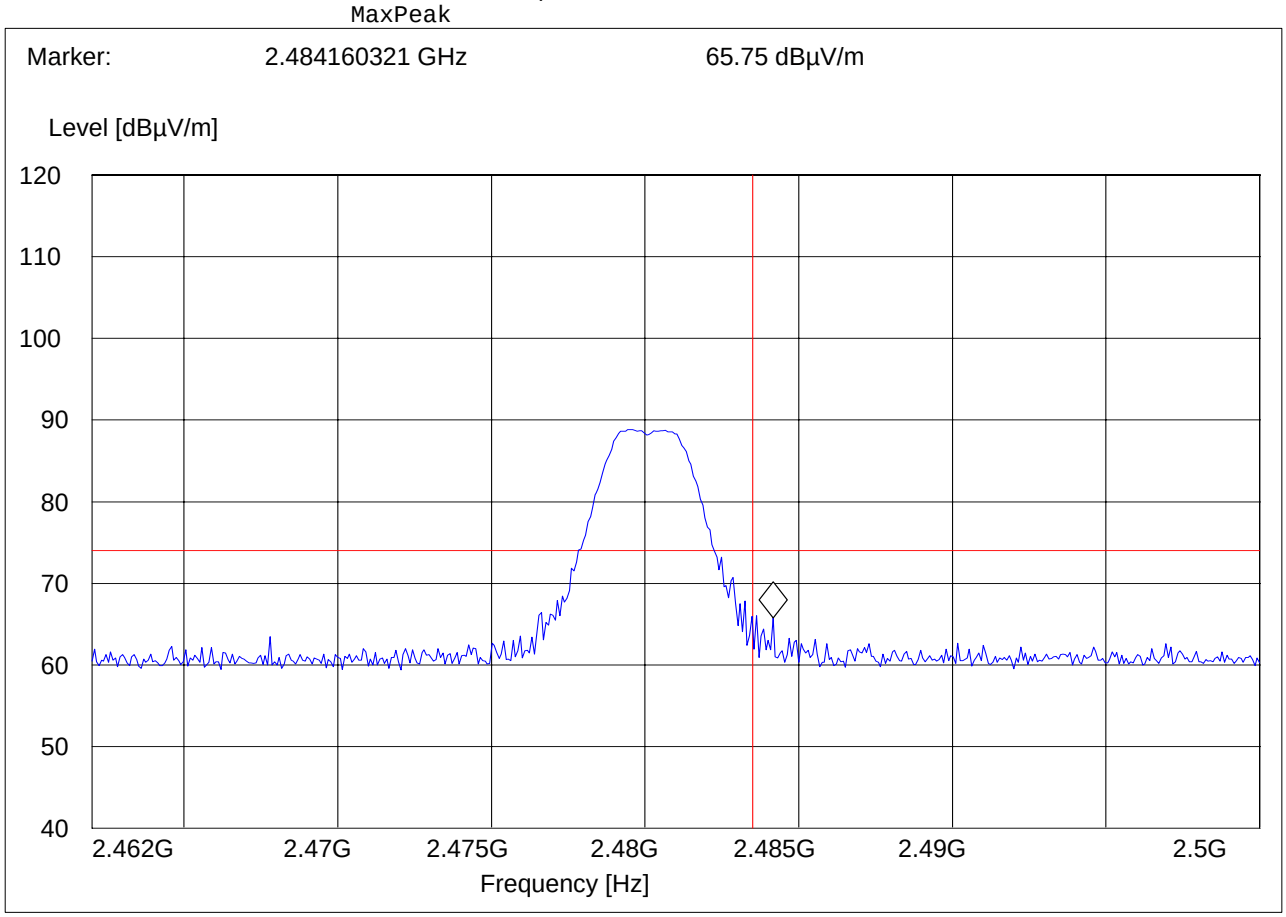
BAND EDGE COMPLIANCE §15.247 (d) & RSS-210(A8.5)

High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)

```
EUT:             Q4URF
Customer::       Qwizdom
Test Mode:       Ch.15, Tx mode
ANT Orientation: H
EUT Orientation: V
Test Engineer:   Chris
Voltage:         Battery
Comments:        On its side; worst case power; power setting at 7
```

SWEEP TABLE: "FCC15.247 HBE_PK"

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



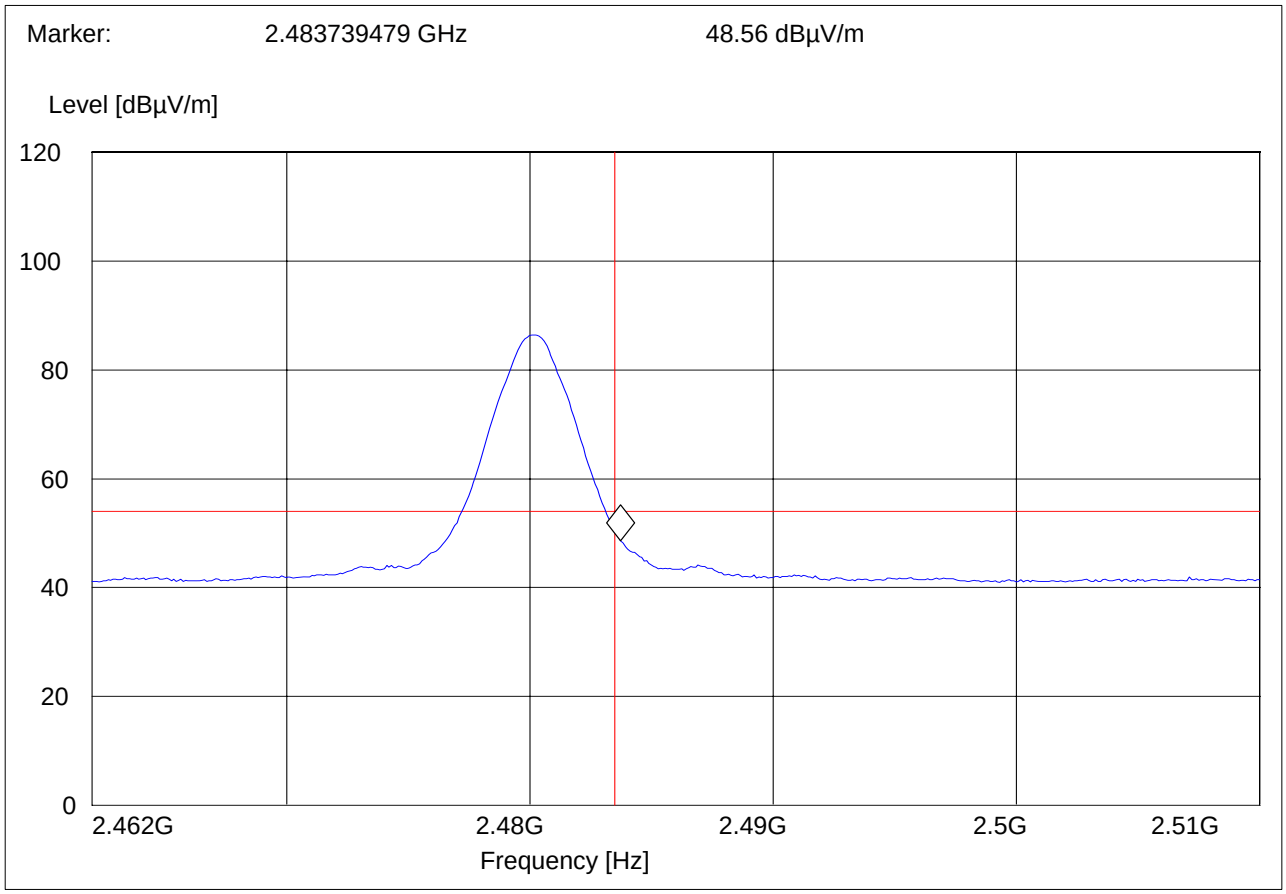
BAND EDGE COMPLIANCE §15.247 (d) & RSS-210(A8.5)

High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)

```
EUT:             Q4URF
Customer::       Qwizdom
Test Mode:       Ch.15, Tx mode
ANT Orientation: H
EUT Orientation: V
Test Engineer:   Chris
Voltage:         Battery
Comments:        On its side; worst case power; power setting at 7
```

SWEEP TABLE: "FCC15.247 HBE_AVG_PS"

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



5.6 EMISSION LIMITATIONS – Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)

LIMITS

In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions, which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

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 26.5 GHz very short cable connections to the antenna was used to minimize the noise level.

2. All measurements are done in peak mode unless specified with the plots.

3. Three devices were all place in the chamber. One device was transmitting on the low, the seond on the middle, and the third on the high channel.

Results for the radiated measurements below 30MHz according § 15.33

Frequency	Measured values	Remarks
9KHz – 30MHz	No emissions found 20-dB of the limit	This is valid for all the tested channels

EMISSION LIMITATIONS - Radiated (Transmitter)

§15.247 (d) & RSS-210(A8.5):

Transmit at Lowest channel Frequency 2405MHz			
Frequency (MHz)	**Level (dBµV/m)**		
	Peak	**Quasi-Peak**	**Average**
SEE PLOTS			
Transmit at Middle channel Frequency 2441MHz			
Frequency (MHz)	**Level (dBµV/m)**		
	Peak	**Quasi-Peak**	**Average**
SEE PLOTS			
Transmit at Highest channel Frequency 2480MHz			
Frequency (MHz)	**Level (dBµV/m)**		
	Peak	**Quasi-Peak**	**Average**
SEE PLOTS			

EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)

30MHz – 1GHz

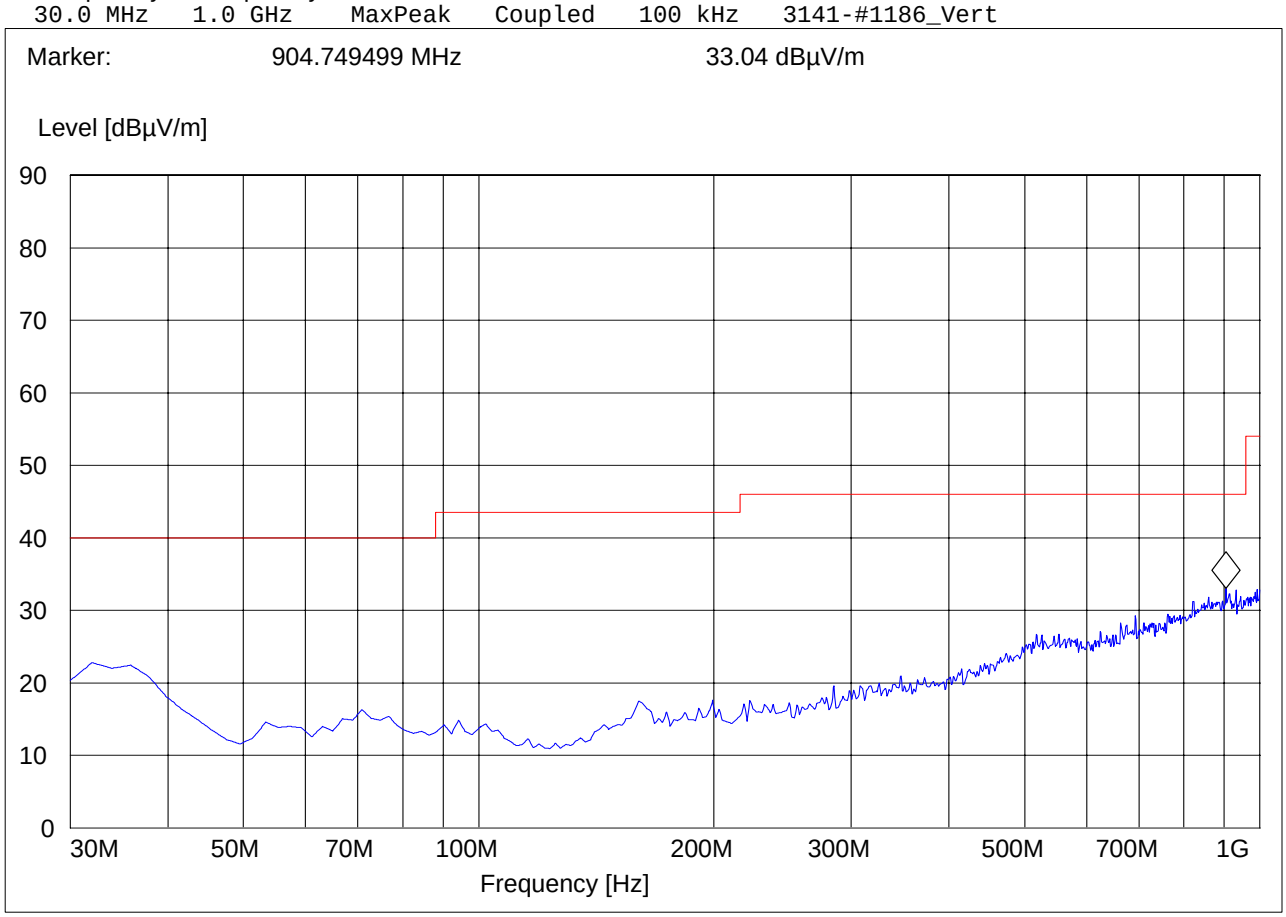
Antenna: Vertical

Note: This plot is valid for low, mid, high channels for all 3 orientations which did produce the same results.

```
EUT:              Q4URF
Customer::        Qwizdom
Test Mode:        Ch.1
ANT Orientation:  V
EUT Orientation:  V
Test Engineer:    Chris
Voltage:          Battery
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



EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)

30MHz – 1GHz

Antenna: Horizontal

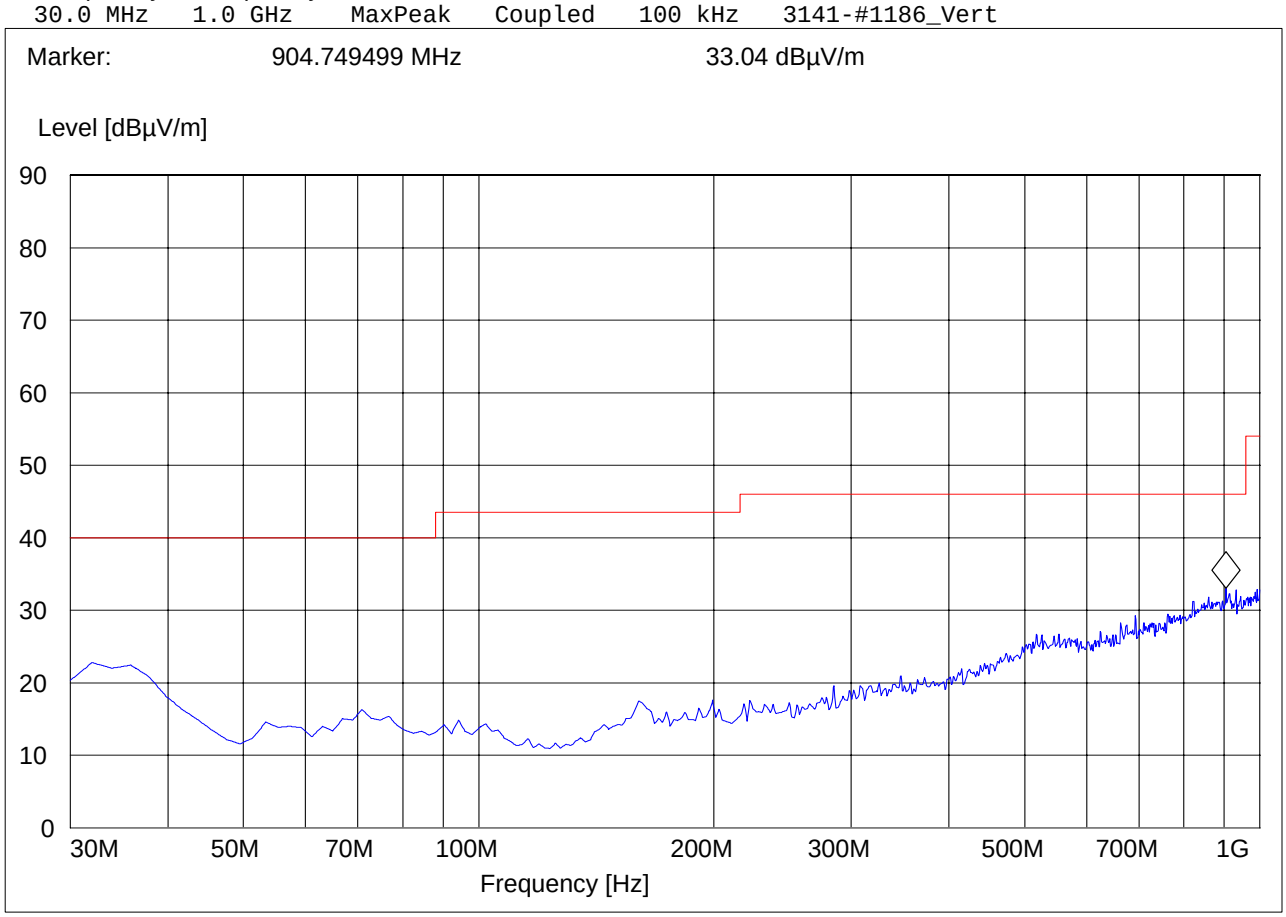
30MHz – 1GHz

Note: This plot is valid for low, mid, high channels for all 3 orientations which did produce the same results.

```
EUT:              Q4URF
Customer::        Qwizdom
Test Mode:        Ch.1
ANT Orientation:  H
EUT Orientation:  V
Test Engineer:    Chris
Voltage:          Battery
```

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

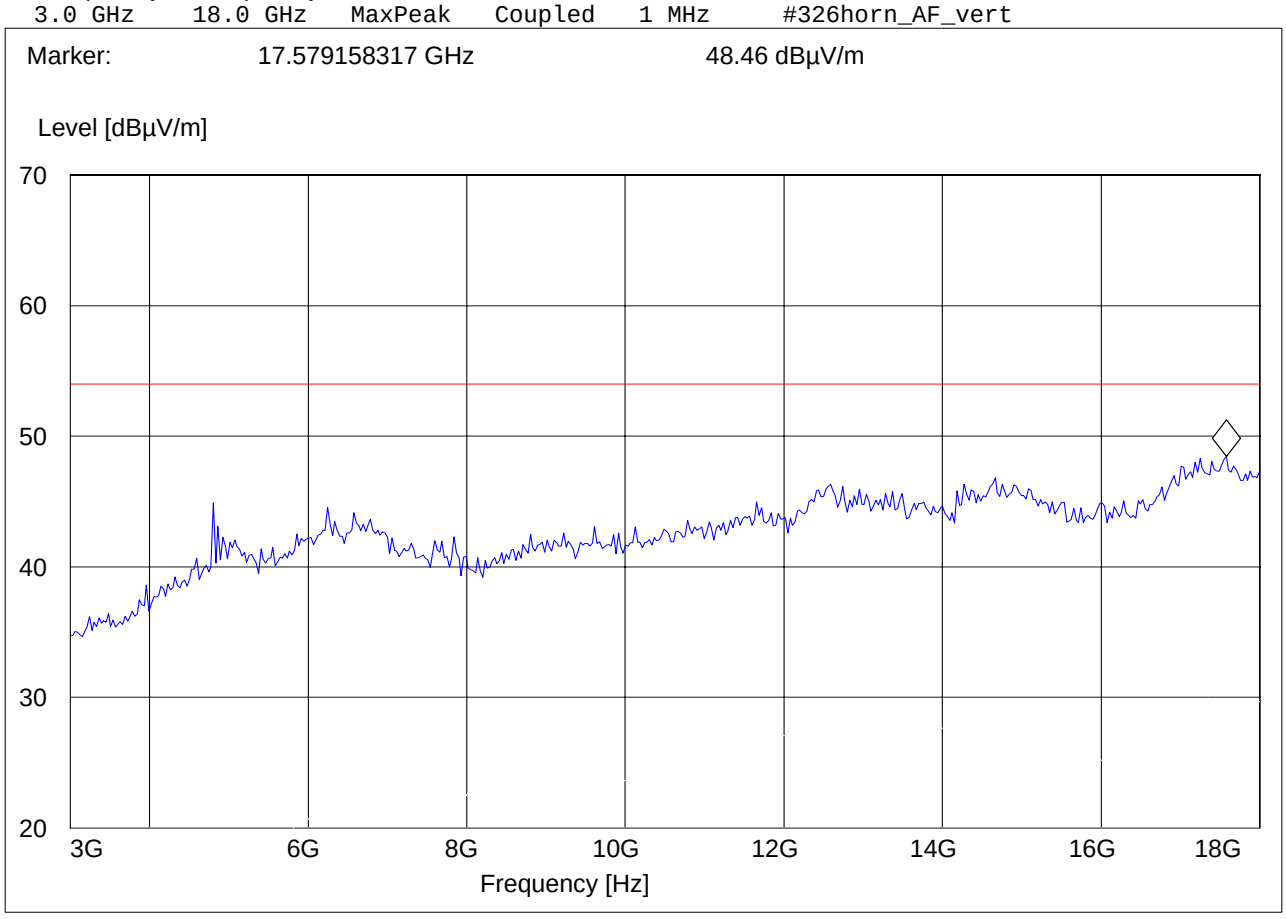


EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)
Radios transmitting on 2405, 2440, and 2480 MHz at the same time: 3GHz – 18GHz
Note: 3 orientations were tested since the device is handheld.

```
EUT:              Q4URF
Customer::        Qwizdom
Test Mode:        Ch.0,7,15 - Tx Mode
ANT Orientation:  V
EUT Orientation:  V
Test Engineer:    Chris
Voltage:          Battery
Comments:         Standing
```

SWEEP TABLE: "FCC15.247_3-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert

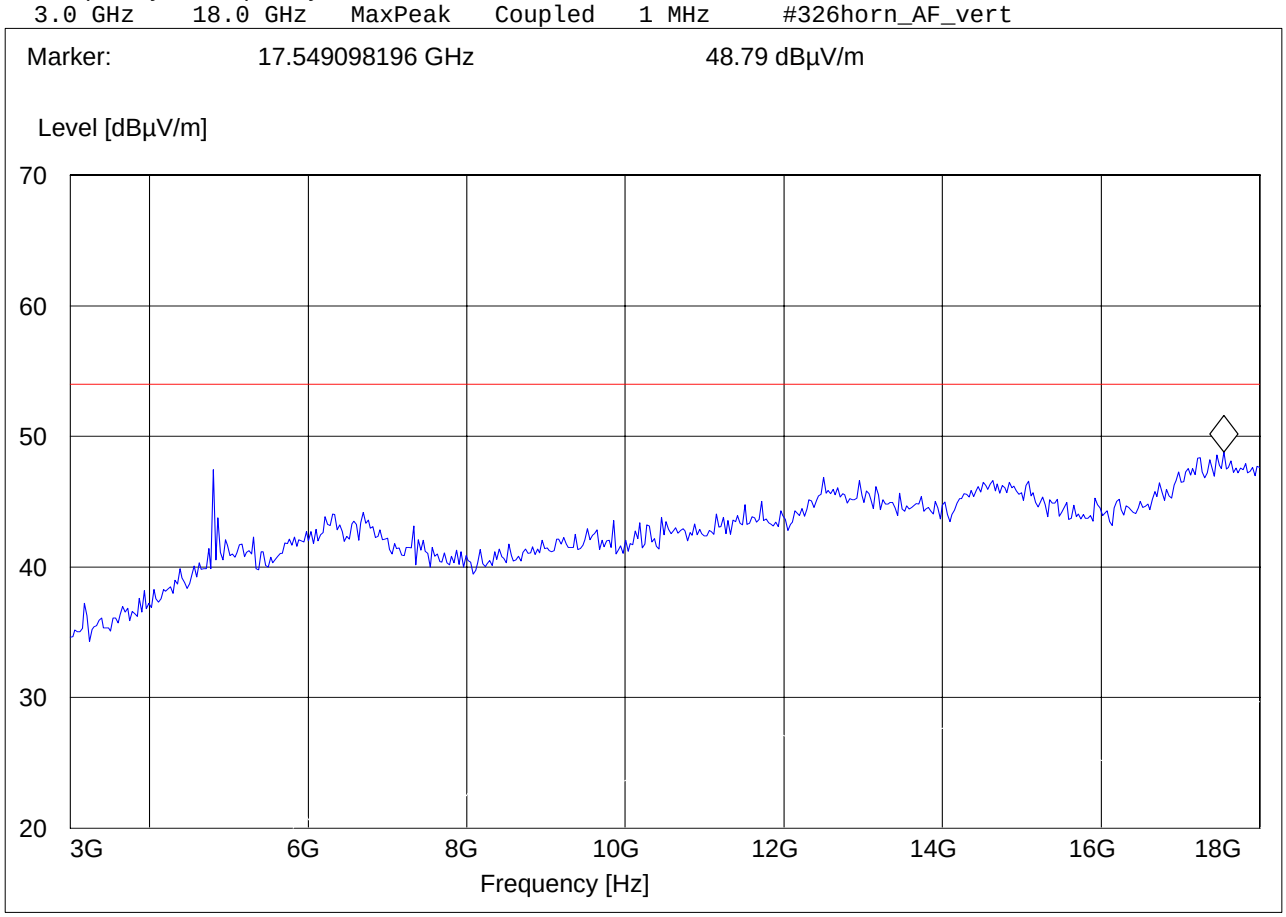


EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)

```
EUT:              Q4URF
Customer::        Qwizdom
Test Mode:        Ch.0,7,15 - Tx Mode
ANT Orientation:  H
EUT Orientation:  V
Test Engineer:    Chris
Voltage:          Battery
Comments:         Standing
```

SWEEP TABLE: "FCC15.247_3-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert

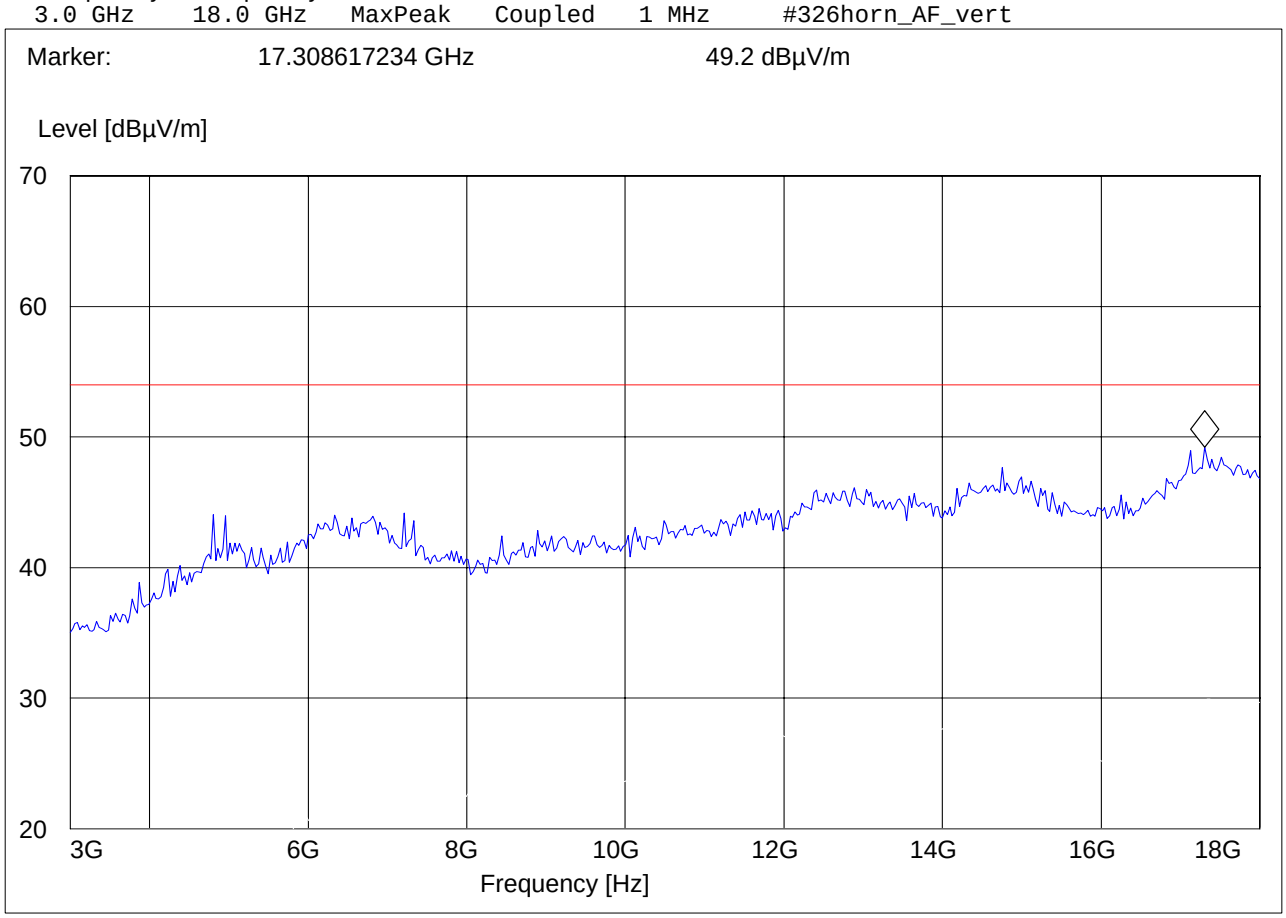


EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)

```
EUT:              Q4URF
Customer::        Qwizdom
Test Mode:        Ch.0,7,15 - Tx Mode
ANT Orientation:  V
EUT Orientation:  H
Test Engineer:    Chris
Voltage:          Battery
Comments:         On side
```

SWEEP TABLE: "FCC15.247_3-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert

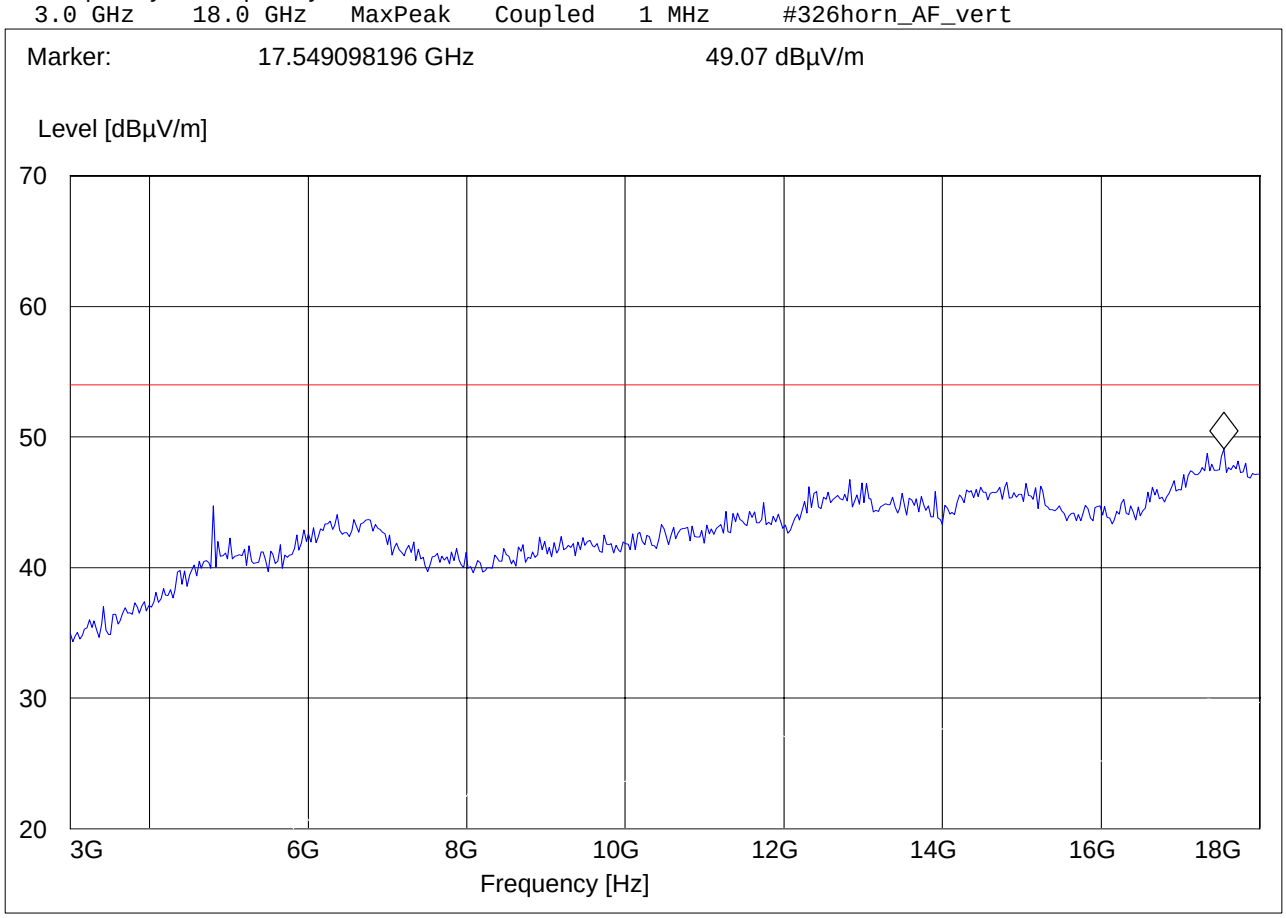


EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)

```
EUT:              Q4URF
Customer::        Qwizdom
Test Mode:        Ch.0,7,15 - Tx Mode
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    Chris
Voltage:          Battery
Comments:         On side
```

SWEEP TABLE: "FCC15.247_3-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert

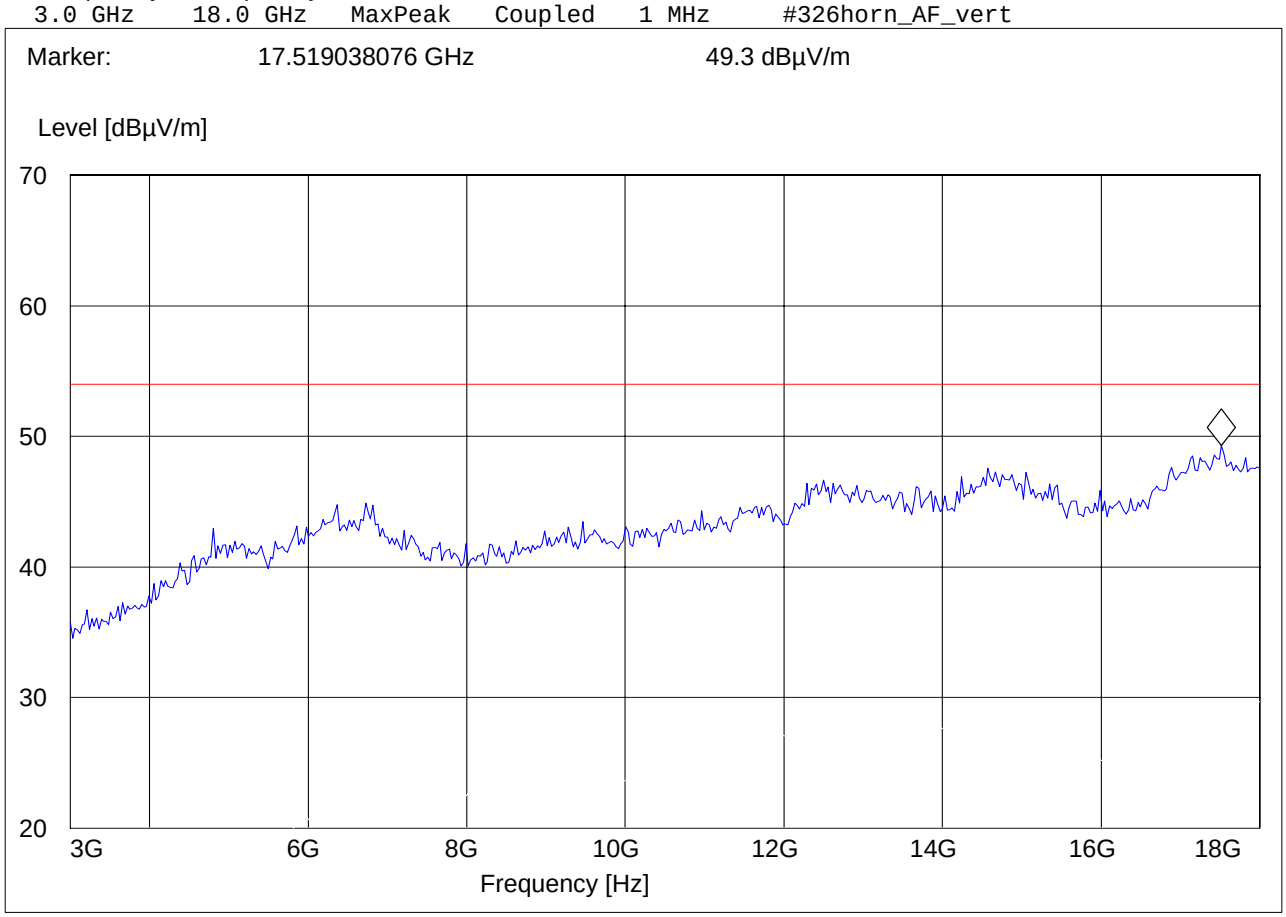


EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)

```
EUT:              Q4URF
Customer::        Qwizdom
Test Mode:        Ch.0,7,15 - Tx Mode
ANT Orientation:  V
EUT Orientation:  H
Test Engineer:    Chris
Voltage:          Battery
Comments:         Laying flat
```

SWEEP TABLE: "FCC15.247_3-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert

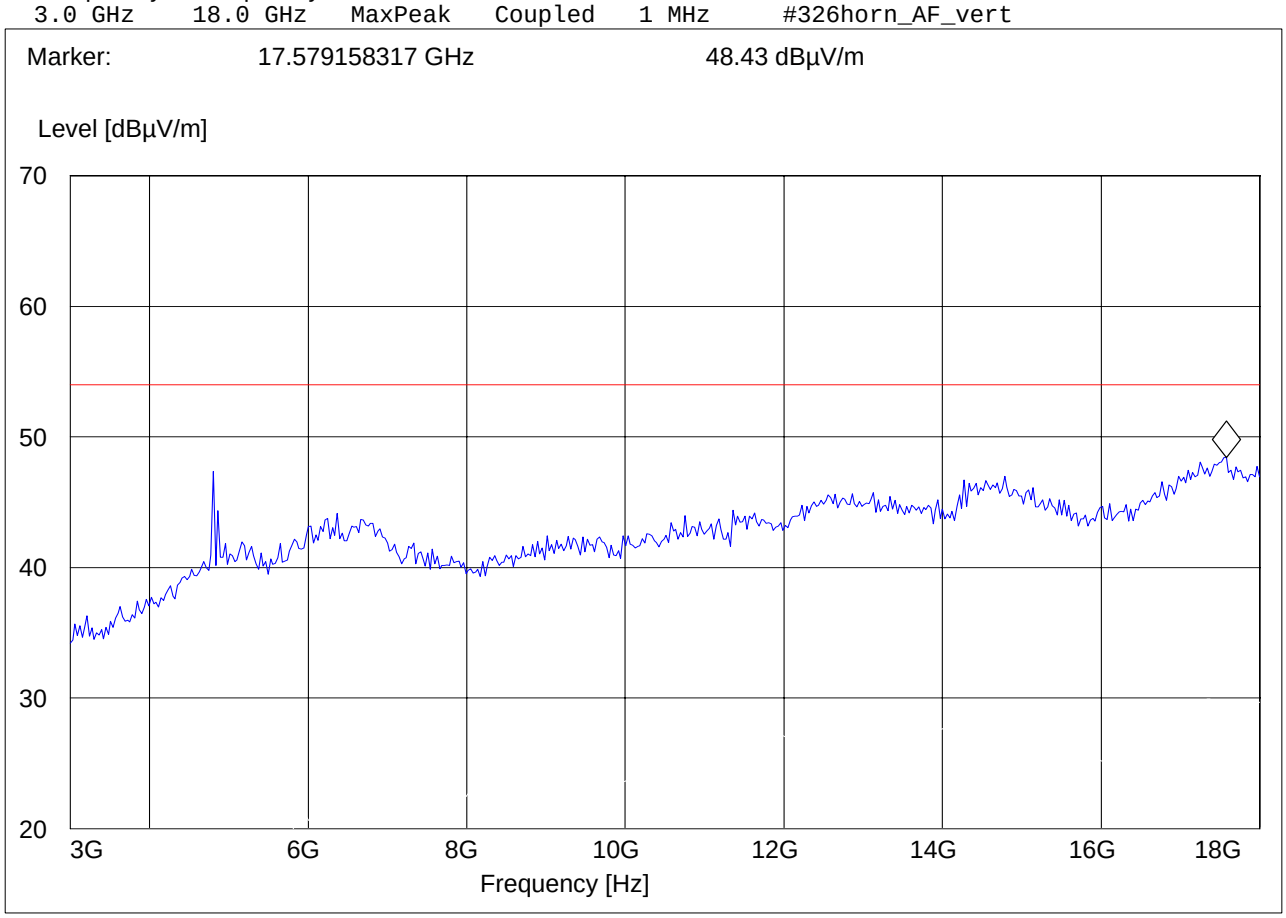


EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5)

```
EUT:              Q4URF
Customer::        Qwizdom
Test Mode:        Ch.0,7,15 - Tx Mode
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    Chris
Voltage:          Battery
Comments:         Laying flat
```

SWEEP TABLE: "FCC15.247_3-18G"

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_vert



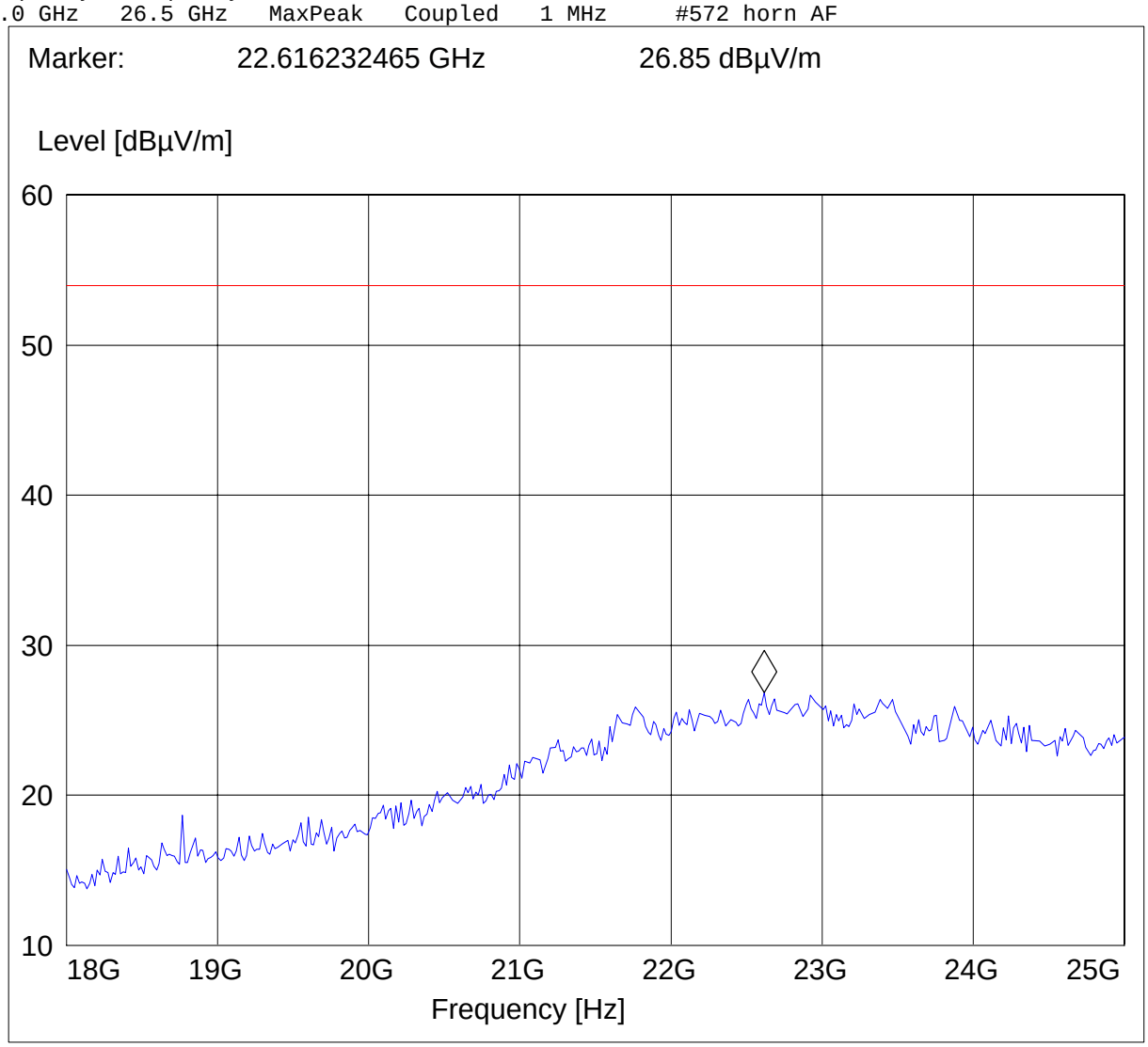
EMISSION LIMITATIONS - Radiated (Transmitter) §15.247 (d) & RSS-210(A8.5) 18GHz – 26.5GHz for low, middle, and high channels

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

```
EUT:              Q4URF
Customer::        Qwizdom
Test Mode:        Ch.0,7,15 - Tx Mode Worst case orientation.
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    Chris
Voltage:          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



5.7 EMISSION LIMITATIONS – Radiated (Receiver) RSS-GEN (4.10) & (6):

Limits RSS-GEN (4.10) & (6):

Frequency (MHz)	Field strength (µV/m)	Field strength (dBµV/m)
0.009 - 0.490	2400/F(kHz)	
0.490 - 1.705	24000/F(kHz)	
1.705 - 30.0	**30**	**29.54**
30 - 88	**100**	**40.00**
88 - 216	**150**	**43.52**
216 - 960	**200**	**46.02**
above 960	**500**	**53.97**

Table 1. Limits are based on a 3 meter distance

RSS-GEN (4.10) peak measurements above 1GHz are taken with a RBW=VBW= 1MHz and average measurements above 1GHz with a RBW=1MHz, VBW=10Hz or an average detector. Set the radio to receive at the middle of the operating band.

EUT in Rx/Standby mode, test setup as per ANSI C63.4 (page 32)

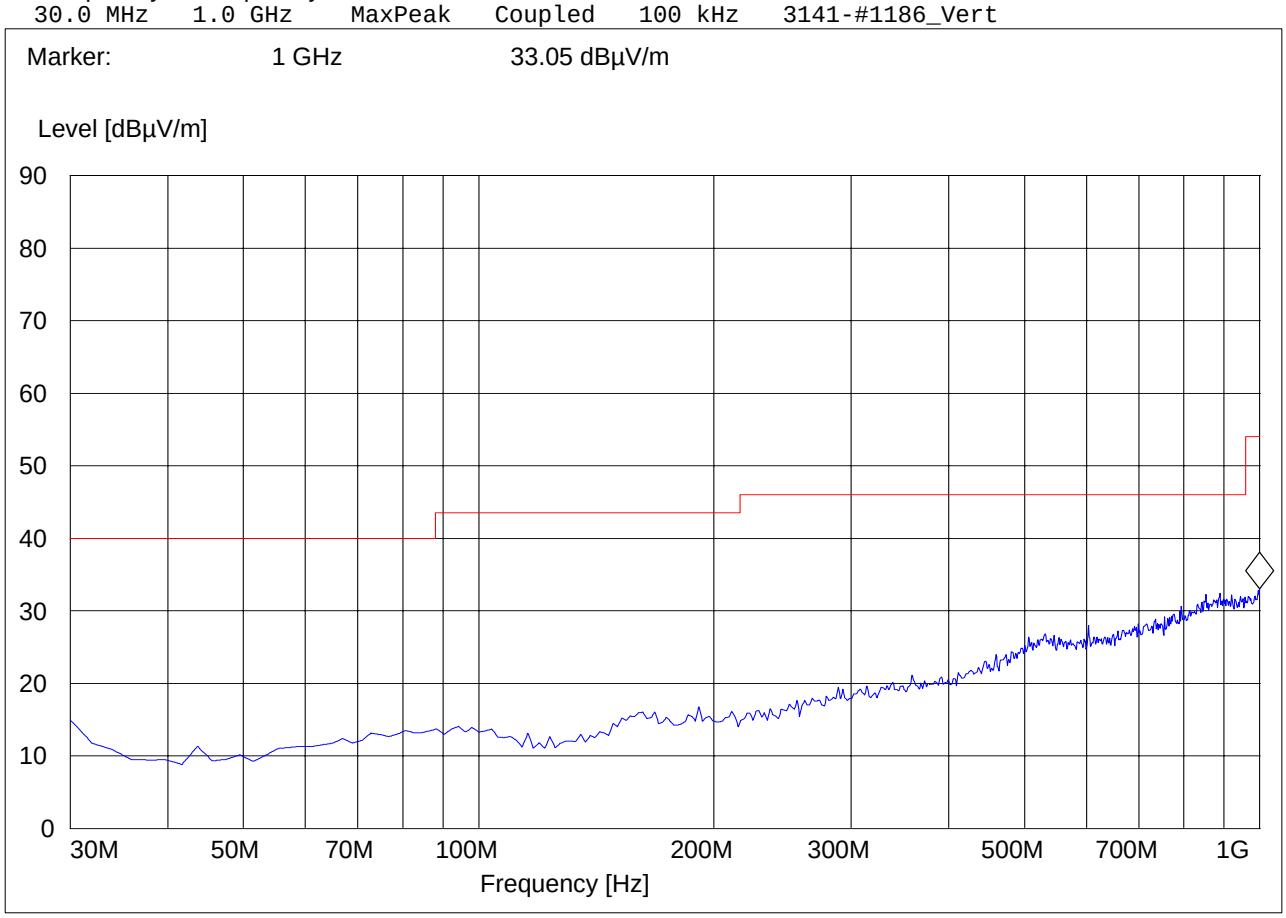
Frequency Range	Sweep used	Result
30MHz – 18GHz	***FCC15.247_30 – 18GHz***	PASS

2440 MHz Receive

EUT: Q4URF
Customer:: Qwizdom
Test Mode: idle
ANT Orientation: V
EUT Orientation: V
Test Engineer: Sam
Voltage: battery
Comments:

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

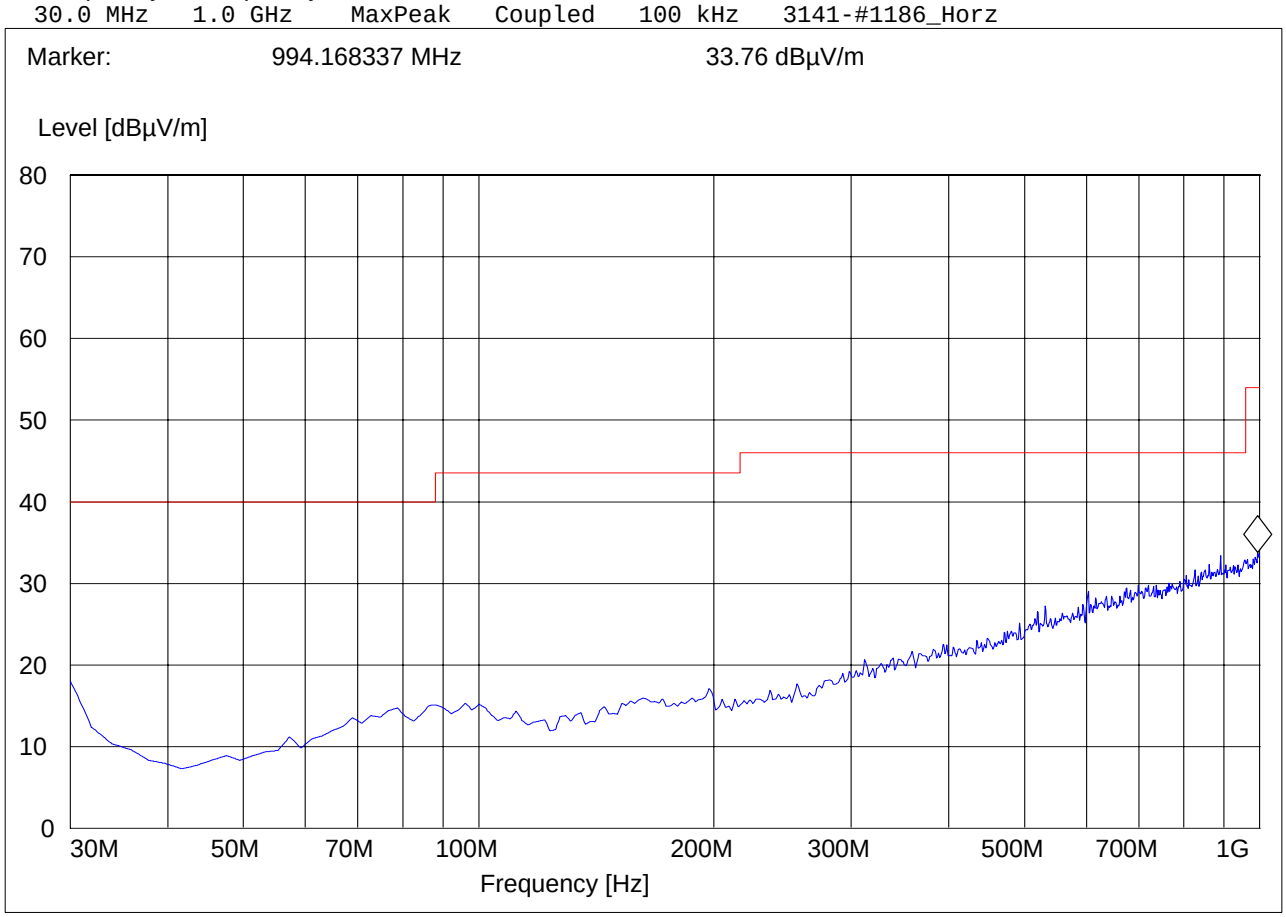
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186_Vert



```
 EUT:             Q4URF
Customer::       Qwizdom
Test Mode:       idle
ANT Orientation: H
EUT Orientation: V
Test Engineer:   Sam
Voltage:         battery
Comments:
```

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

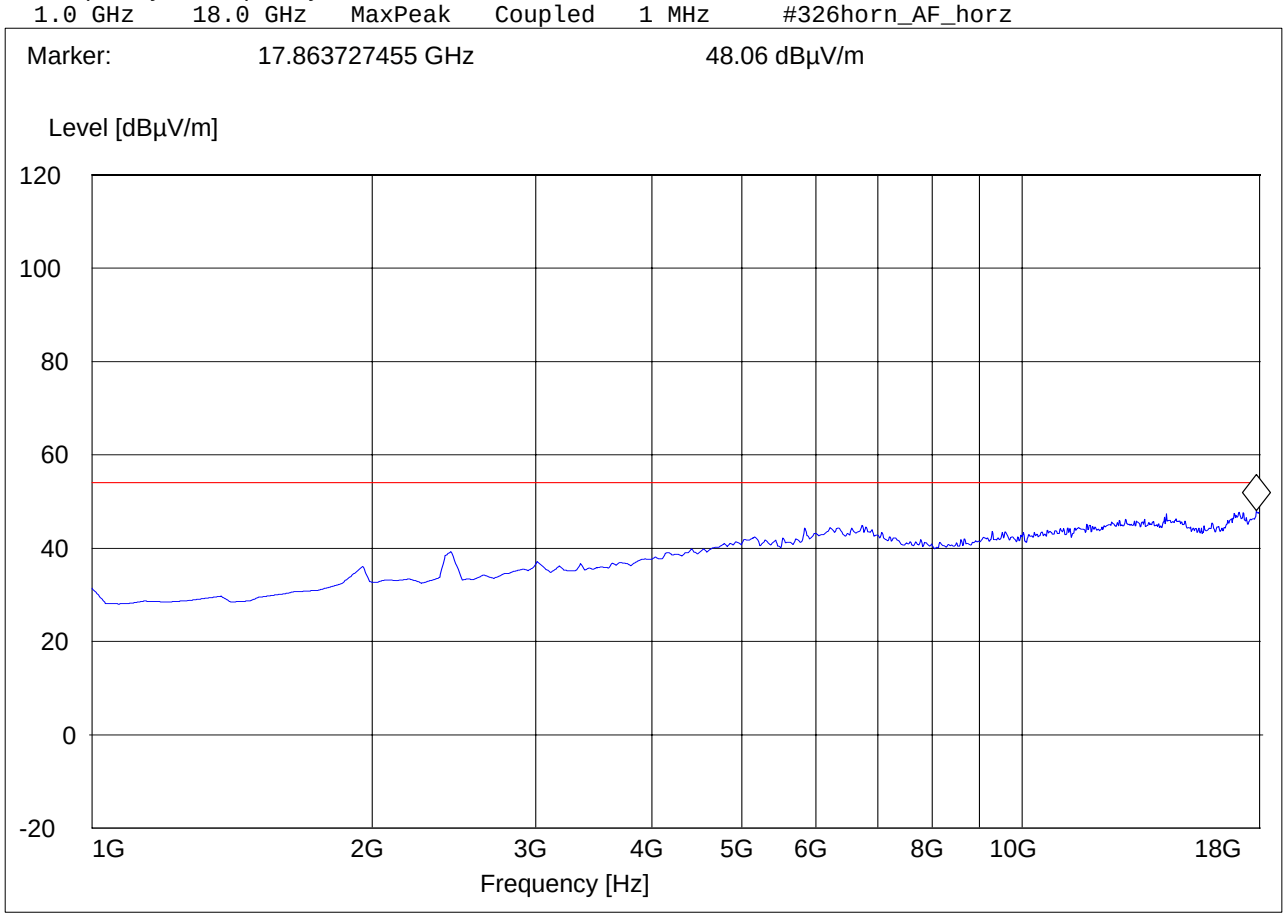


2440 MHz Receive

```
EUT / Description: Q4URF
Manufacturer:      Qwizdom
Operation Mode:    IDLE
ANT Orientation: : V
EUT Orientation::  V
Test Engineer:     SAM
Voltage:           battery
Comments::
```

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

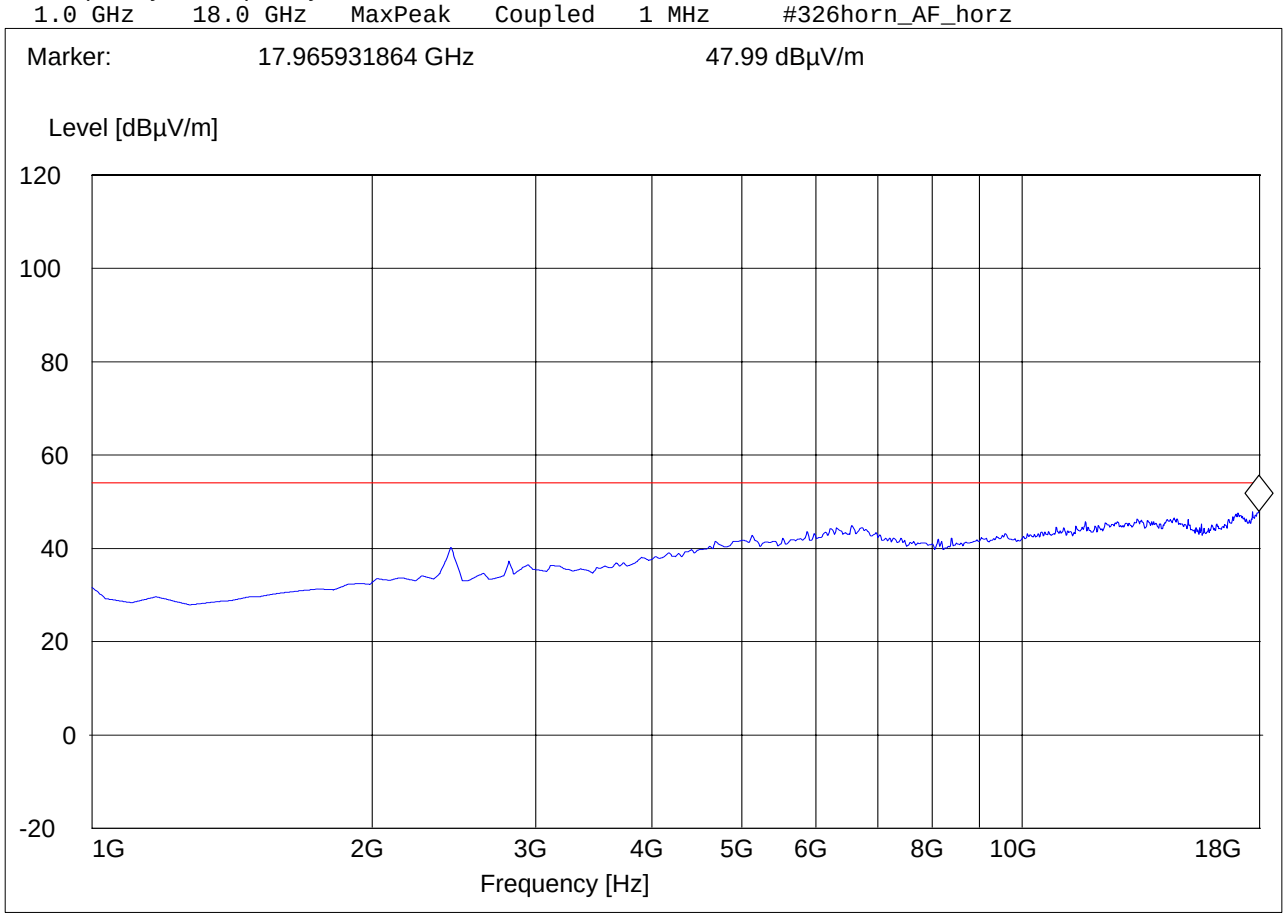
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326horn_AF_horz



EUT / Description: Q4URF
Manufacturer: Qwizdom
Operation Mode: IDLE
ANT Orientation: : H
EUT Orientation:: V
Test Engineer: SAM
Voltage: 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



6 AC POWER LINE CONDUCTED EMISSIONS § 15.207 & RSS-GEN (7.2.2)

LIMITS
Technical specification: 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.

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 = 9KHz VBW = 10KHz

OPERATING MODE:

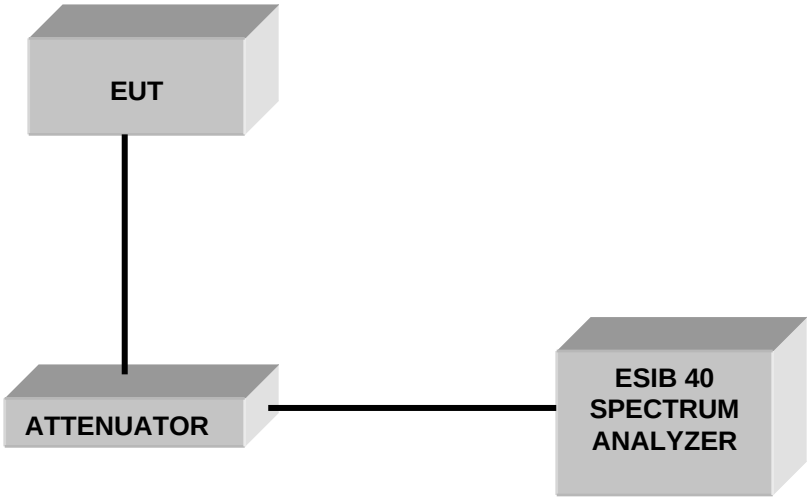
NOTE EUT IS BATTERY OPERATED AND WILL NOT CONNECT TO THE AC MAINS DIRECTLY OR INDIRECTLY. CONDUCTED EMISSION ON POWER LINES WAS NOT PERFORMED.

7 TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

No	Instrument/Ancillary	Type	Manufacturer	Serial No.	Cal Due	Interval
E4	Spectrum Analyzer	ESIB 40	Rohde & Schwarz	100107	May 2008	1 year
E46	Biconilog Antenna	3141	EMCO	0005-1186	June 2008	1 year
E134	Horn Antenna (1-18GHz)	3115	ETS Lindgren	35114	April 2008	1 year
E169	Horn Antenna (18-40GHz)	3116	ETS-Lindgren	00070497	Nov 2008	1 year
E28	High Pass Filter	5HC2700	Trilithic Inc.	9926013	n/a	n/a
E30	High Pass Filter	4HC1600	Trilithic Inc.	9922307	n/a	n/a
E170	LISN	FCC-LISN-50-25-2-08	Fisher Custom Communication	08014	Feb 2009	1 year

8 BLOCK DIAGRAMS

8.1 Conducted Testing



9 BLOCK DIAGRAMS

9.1 Radiated Testing