FCC/IC Test Report

FOR:

Model Name: A1219
iPad
FCC ID: BCG-E2381A
IC ID: 579C-E2381A

47 CFR Part 15.247 for DSSS Systems

IC RSS-210 Issue 7

TEST REPORT #: EMC_APPLE_055_15.247_DSSS_81A_Rev3
DATE: 2010-03-11

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

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1 Assessment

The following is in compliance with the applicable criteria specified in FCC rules Parts 15.247 of Title 47 of the Code of Federal Regulations and Industry Canada Standards RSS 210 Issue 7.

Company	Description	Model #
Apple Inc.	**Tablet Computer**	**A1219**

Responsible for Testing Laboratory:

Date	Section	Name	Signature
2010-03-11	Compliance	Heiko Strehlow (Director)	Digitally signed by Heiko Strehlow Date: 2010.03.11 17:59:20 -08'00'

Responsible for the Report:

Date	Section	Name	Signature
2010-03-11	Compliance	Marc Douat (Test Lab Manager)	

2 Administrative Data

2.1 Identification of the Testing Laboratory Issuing the EMC Test Report

Company Name:	CETECOM Inc.
Department:	Compliance
Address:	411 Dixon Landing Road Milpitas, CA 95035 U.S.A.
Telephone:	+1 (408) 586 6200
Fax:	+1 (408) 586 6299
Responsible Test Lab Manager:	Heiko Strehlow
Responsible Project Leader:	Marc Douat

2.2 Identification of the Client

Applicant's Name:	Apple Inc.
Street Address:	1 Infinite Loop Mail Stop26A
City/Zip Code	Cupertino, California 95014
Country	USA
Contact Person:	Mike Kriege
Phone No.	408-974-0560
Fax:	408-862-5061
e-mail:	kriege@apple.com

2.3 Identification of the Manufacturer

Same as above applicant.

3 Equipment under Test (EUT)

3.1 Specification of the Equipment under Test

Marketing Name:	iPad
Model No:	A1219
Product Type:	Tablet Computer
Hardware Revision :	A
Software Revision :	06.12.50 (7B293)
FCC-ID:	BCG-E2381A
IC-ID :	579C-E2381A
Frequency:	2400 – 2483.5 MHz, 5725 – 5850 MHz
Type(s) of Modulation:	BPSK, QPSK, CCK OFDM with BPSK, QPSK, 16QAM, 64QAM
Number of channels:	11, 5
Antenna Tx0:	Type: PIFA 2.45 GHz band: 1.9dBi 5.8 GHz band: 2.3dBi
Antenna Tx1:	Type: Patch 2.45 GHz band: 1.7dBi 5.8 GHz band: 4.2dBi
Equipment Classification:	☐Fixed ☐Vehicular ■Portable ☐Module
Power Supply:	4.2 VDC battery, 110VAC Adapter
Temperature Range:	0ºC to 35ºC

3.1 Identification of the Equipment Under Test (EUT)

EUT #	Serial Number	HW Version	SW Version
1	YM950003DYW	A	06.12.50 (7B293)

3.2 Identification of Accessory equipment

AE #	Type	Manufacturer	Model
1	10W USB Power Adapter	Foxlink Technology, Ltd.	A1357 W010A051

3.3 Subject Of Investigation

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 Industry Canada rules RSS-210 Issue 7.

This test report is to support a request for new equipment authorization under the FCC ID BCG-E2381A and IC ID 579C-E2381A.
Radiated measurements were performed on the product referred to in Section 3 as EUT, conducted measurements were performed on the radio installed on a test fixture. This test report contains full radiated and conducted testing results as per FCC15.247.

Low, mid and high channels and all modes were tested. All data in this report shows the worst case between horizontal and vertical polarization measurements.

The device has transmit diversity but does not transmit simultaneously on both antennas.

4 Measurements

4.1 Radiated Measurement Procedure

ANSI C63.4 Section 8.3.1.1: Exploratory radiated emission measurements

Exploratory radiated measurements shall be performed at the measurement distance or at a closer distance than that specified for compliance to determine the emission characteristics of the EUT. At near distances, for EUTs of comparably small size, it is relatively easy to determine the spectrum signature of the EUT and, if applicable, the EUT configuration that produces the maximum level of emissions. A shielded room may be used for exploratory testing, but may have anomalies that can lead to significant errors in amplitude measurements.

Broadband antennas and a spectrum analyzer or a radio-noise meter with a panoramic display are often useful in this type of testing. It is recommended that either a headset or loudspeaker be connected as an aid in detecting ambient signals and finding frequencies of significant emission from the EUT when the exploratory and final testing is performed in an OATS with strong ambient signals. Caution should be taken if either antenna height between 1 and 4 meters or EUT azimuth is not fully explored. Not fully exploring these parameters during exploratory testing may require complete testing at the OATS or semi-anechoic chamber when the final full spectrum testing is conducted.

The EUT should be set up in its typical configuration and arrangement, and operated in its various modes. For tabletop systems, cables or wires should be manipulated within the range of likely arrangements. For floor-standing equipment, the cables or wires should be located in the same manner as the user would install them and no further manipulation is made. For combination EUTs, the tabletop and floor-standing portions of the EUT shall follow the procedures for their respective setups and cable manipulation. If the manner of cable installation is not known, or if it changes with each installation, cables or wires for floor-standing equipment shall be manipulated to the extent possible to produce the maximum level of emissions.

For each mode of operation required to be tested, the frequency spectrum shall be monitored. Variations in antenna height between 1 and 4 m, antenna polarization, EUT azimuth, and cable or wire placement (each variable within bounds specified elsewhere) shall be explored to produce the emission that has the highest amplitude relative to the limit. A step-by-step technique for determining this emission can be found in Annex C.

When measuring emissions above 1 GHz, the frequencies of maximum emission shall be determined by manually positioning the antenna close to the EUT and by moving the antenna over all sides of the EUT while observing a spectral display. It will be advantageous to have prior knowledge of the frequencies of emissions above 1 GHz. If the EUT is a device with dimensions approximately equal to that of the measurement antenna beamwidth, the measurement antenna shall be aligned with the EUT.

ANSI C63.4 Section 8.3.1.2: Final radiated emission measurements

Based on the measurement results in 8.3.1.1, the one EUT, cable and wire arrangement, and mode of operation that produces the emission that has the highest amplitude relative to the limit is selected for the final measurement. The final measurement is then performed on a site meeting the requirements of 5.3, 5.4, or 5.5 as appropriate without variation of the EUT arrangement or EUT mode of operation. If the EUT is relocated from an exploratory test site to a final test site, the highest emission shall be remaximized at the final test location before final radiated emissions measurements are performed. However, antenna height and polarity and EUT azimuth are to be varied. In addition, the full frequency spectrum (for the range to be checked for meeting compliance) shall be investigated.

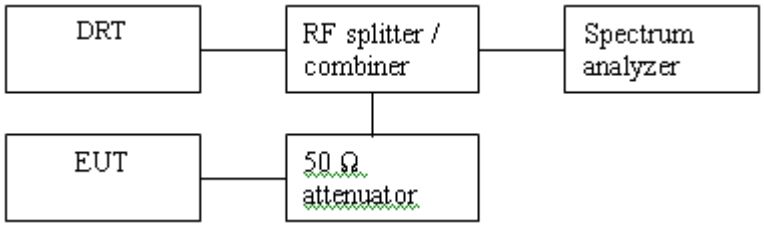
This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations. During the full frequency spectrum investigation, particular focus should be made on those frequencies found in exploratory testing that were used to find the final test configuration, mode of operation, and arrangement (associated with achieving the least margin with respect to the limit). This full spectrum test constitutes the compliance measurement.

For measurements above 1 GHz, use the cable, EUT arrangement, and mode of operation determined in the exploratory testing to produce the emission that has the highest amplitude relative to the limit. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the antenna in the “cone of radiation” from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response. The antenna may have to be higher or lower than the EUT, depending on the EUT’s size and mounting height, but the antenna should be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. If the transmission line for the measurement antenna restricts its range of height and polarization, the steps needed to ensure the correct measurement of the maximum emissions, shall be described in detail in the report of measurements. Data collected shall satisfy the report requirements of Clause 10.

NOTES

1— Where limits are specified by agencies for both average and peak (or quasi-peak) detection, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.
2—Use of waveguide and flexible waveguide may be necessary at frequencies above 10 GHz to achieve usable signal-to noise ratios at required measurement distances. If so, it may be necessary to restrict the height search of the antenna, and special care should be taken to ensure that maximum emissions are correctly measured.
3—All presently known devices causing emissions above 10 GHz are physically small compared with the beam-widths of typical horn antennas used for EMC measurements. For such EUTs and frequencies, it may be preferable to vary the height and polarization of the EUT instead of the receiving antenna to maximize the measured emissions.

4.2 Conducted Measurement Procedure



1. Connect the equipment as shown in the above diagram.
2. Adjust the settings of the Digital RadioCommunication Tester (DRT) to set the EUT to its maximum power at the required channel.
3. Measurements are to be performed with the EUT set to the low, middle and high channels.

4.3 Maximum Peak Output Power

4.3.1 Limits: §15.247 (b)(1)

Nominal Peak Output Power < 30 dBm (1W)
EIRP < 36 dBm

4.3.2 Test Conditions:

Tnom: 21°C; Vnom

4.3.3 Test Result:

EIRP = conducted output power + antenna gain

Max Peak Output Power - EIRP (dBm)							
Frequency (MHz)	Channel	Tx0			Tx1		
		b	g / a	HT20	b	g / a	HT20
2412	1	23.8	28.2	27.4	23.8	27.3	27
2437	6	23.5	29.4	29.1	23.3	29	28.8
2462	11	23.8	28	26.7	23.6	27.5	26.4
5745	149	-	27	26.2	-	26.2	25.9
5785	157	-	27.1	26.6	-	26.5	26.5
5825	165	-	26.9	26.7	-	26.4	26.3
Measurement Uncertainty: ±0.5dB							

Max Peak Output Power - Conducted (dBm)							
Frequency (MHz)	Channel	Tx0			Tx1		
		b	g / a	HT20	b	g / a	HT20
2412	1	21.9	26.3	25.5	22.1	25.6	25.3
2437	6	21.6	27.5	27.2	21.6	27.3	27.1
2462	11	21.9	26.1	24.8	21.9	25.8	24.7
5745	149	-	24.7	23.9	-	22	21.7
5785	157	-	24.8	24.3	-	22.3	22.3
5825	165	-	24.6	24.4	-	22.2	22.1
Measurement Uncertainty: ±0.5dB							

Channel integration measurement method was used.

4.4 Restricted Band Edge Compliance

4.4.1 Limits: §15.247/15.205

(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			

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. 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)).

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

4.4.2 Test Data/plots:

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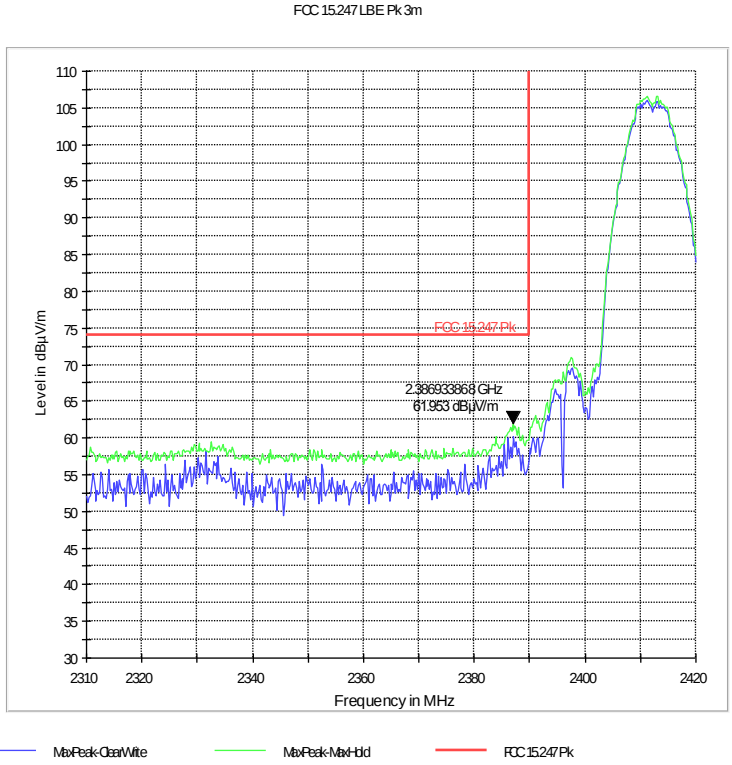

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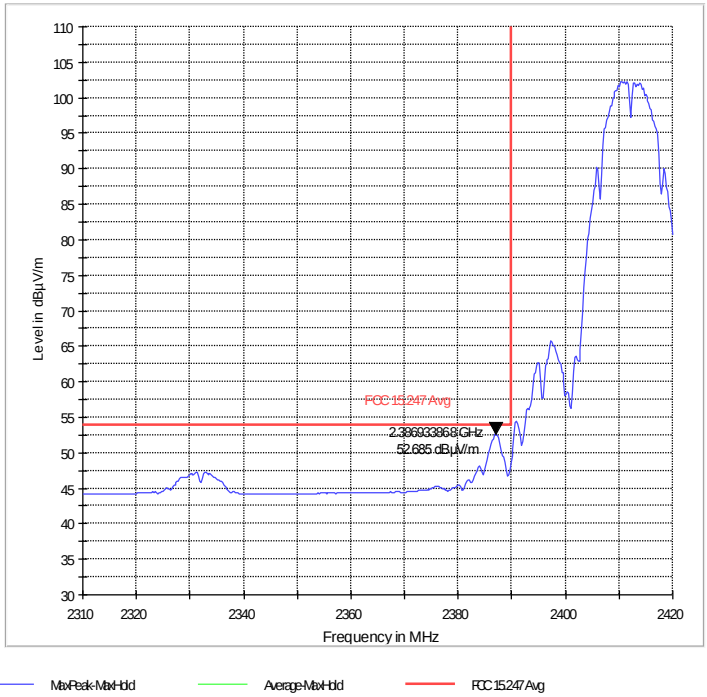

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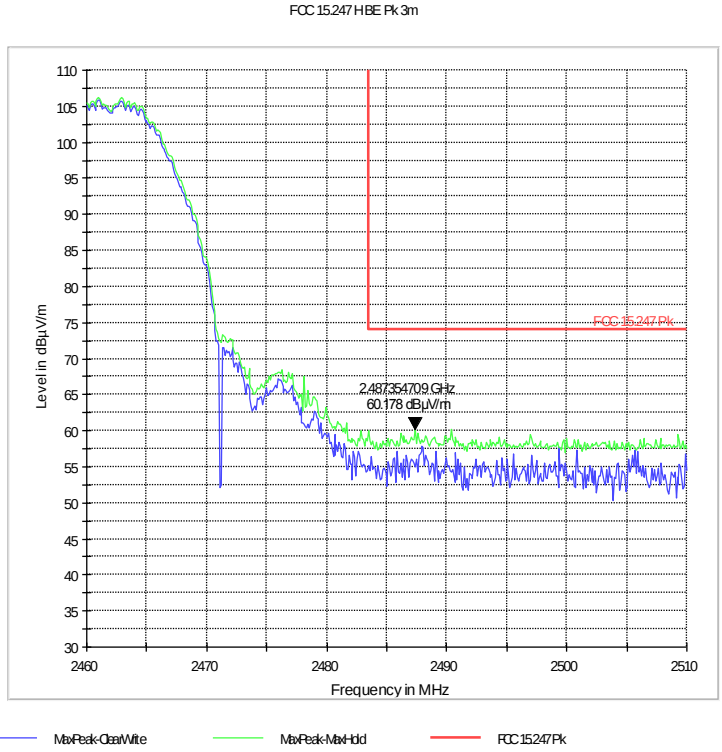

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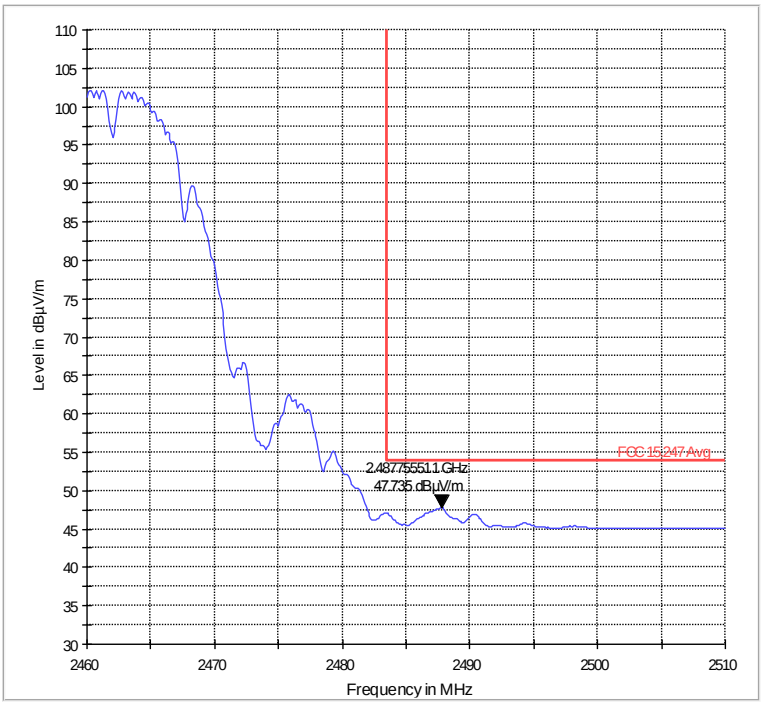

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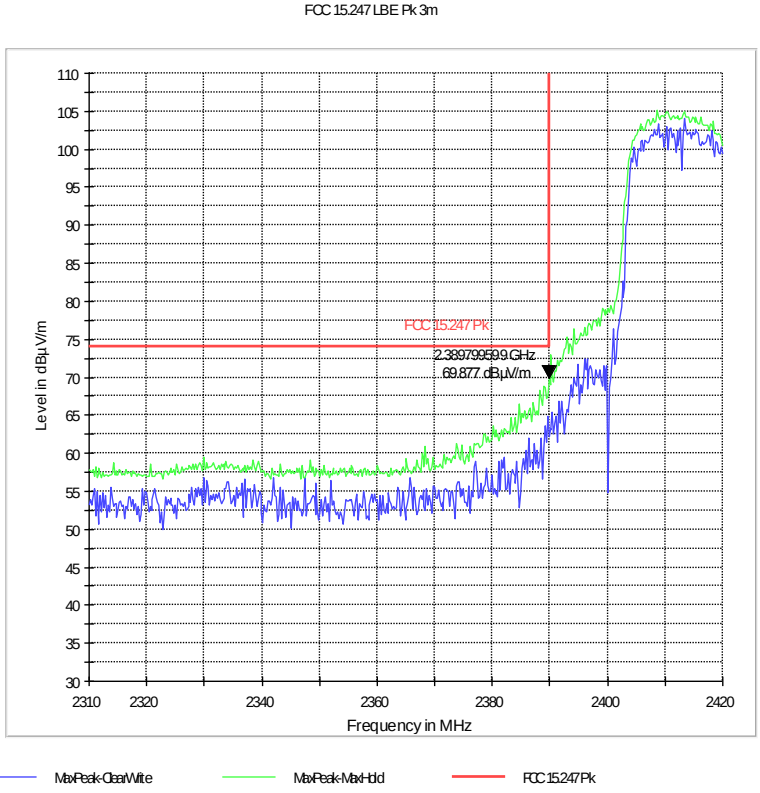

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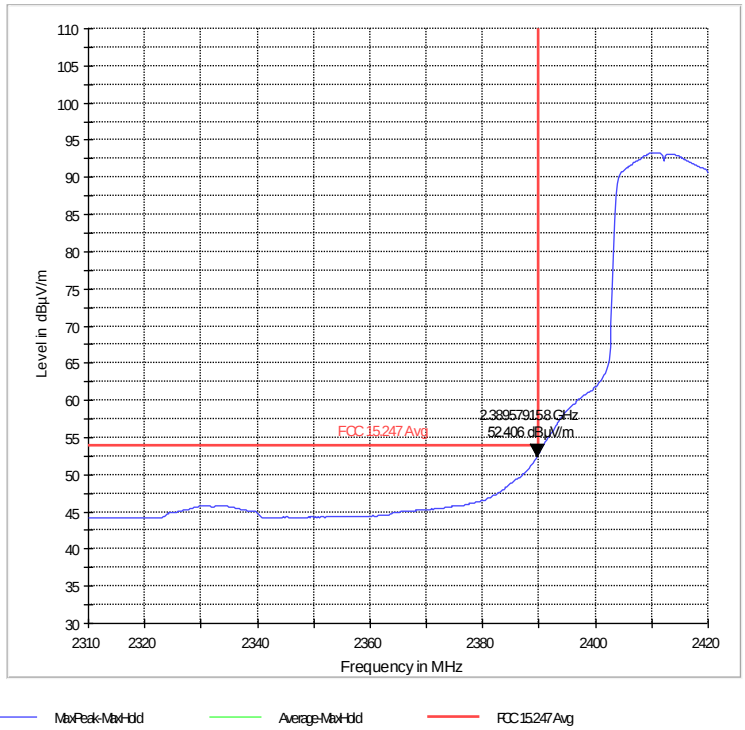

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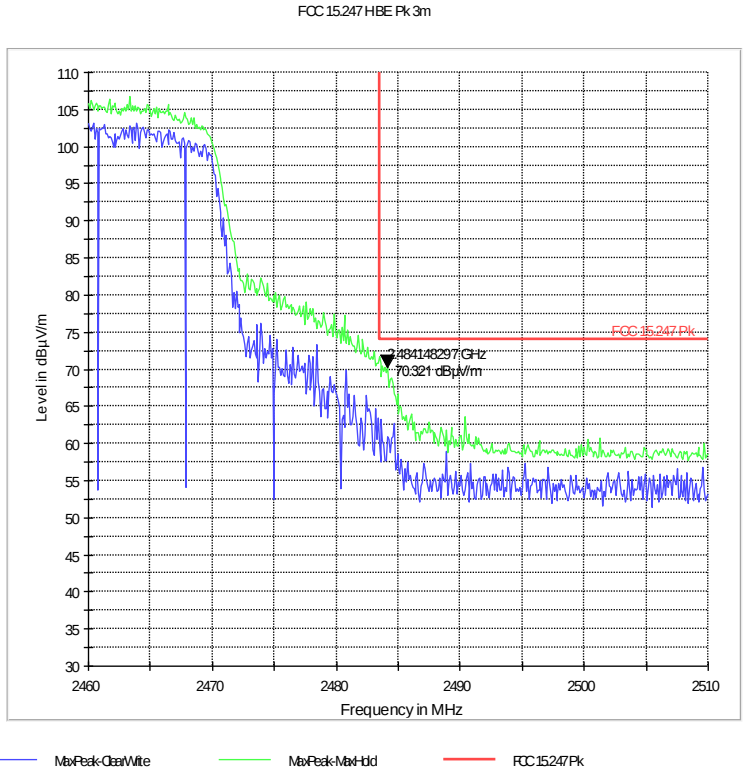

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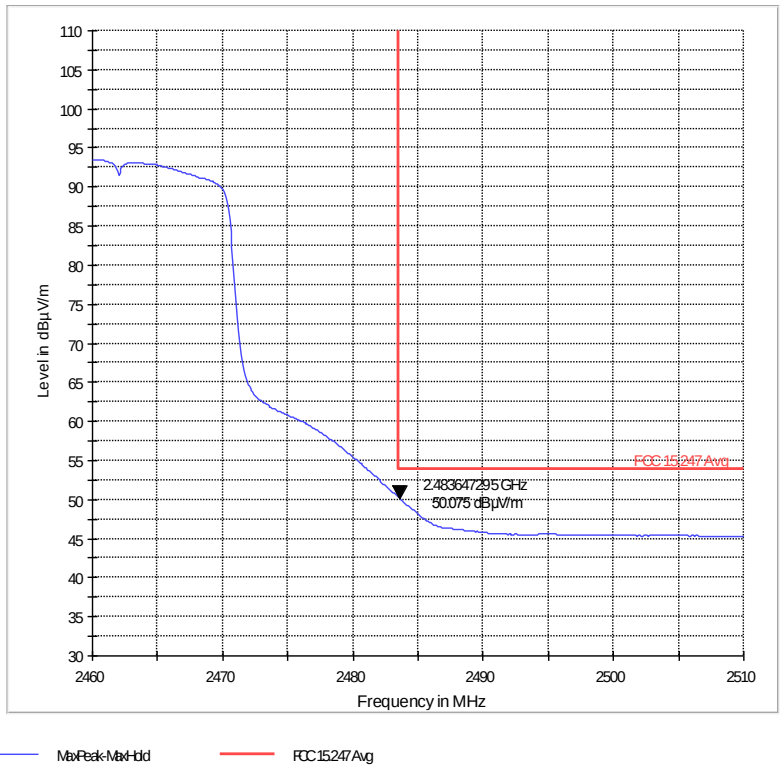

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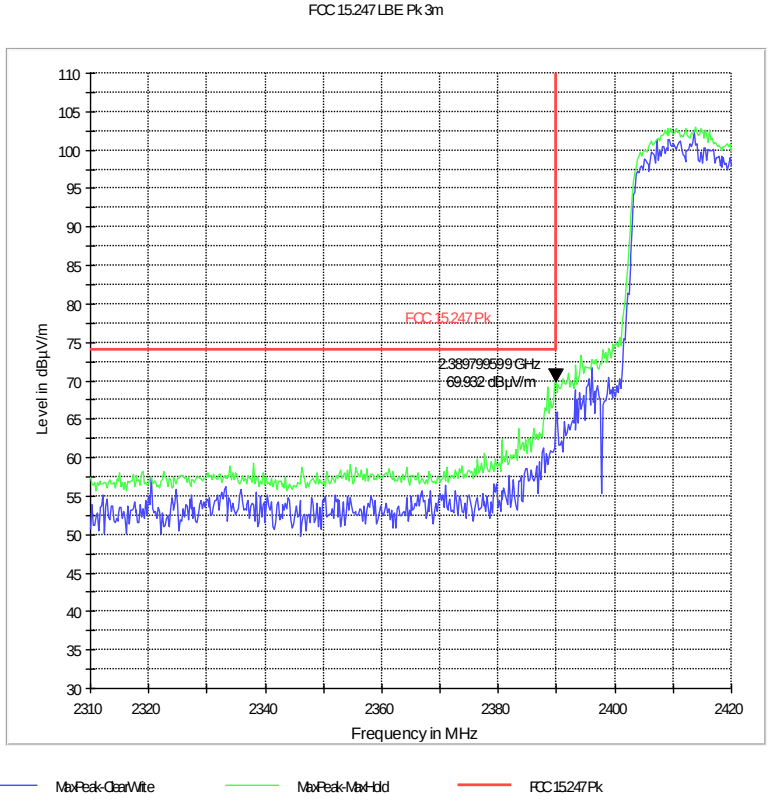

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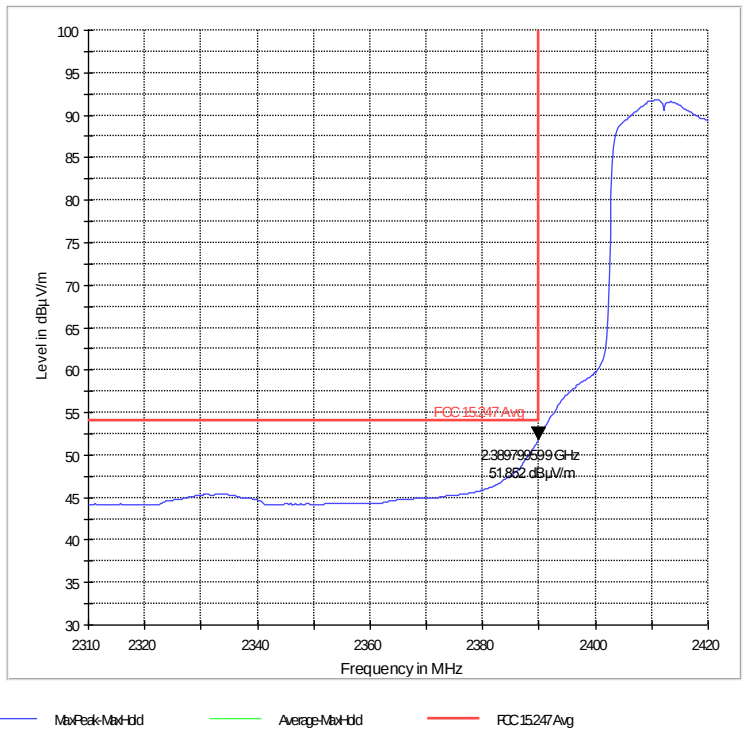

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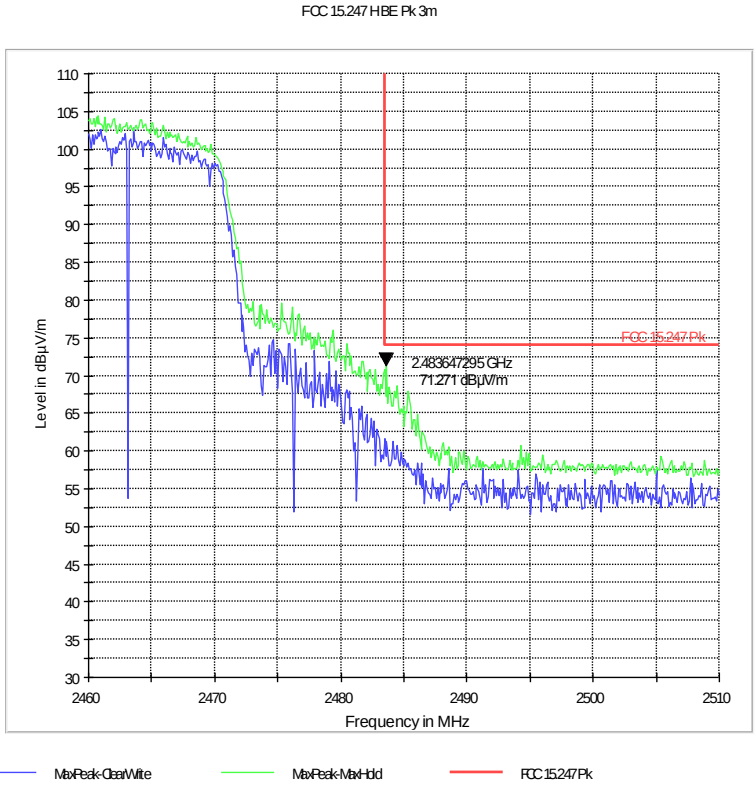

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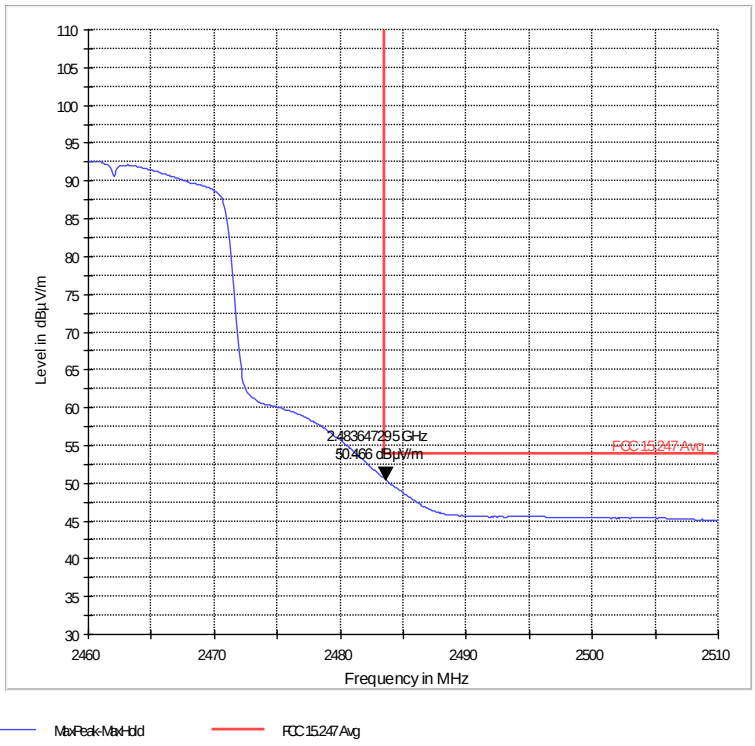

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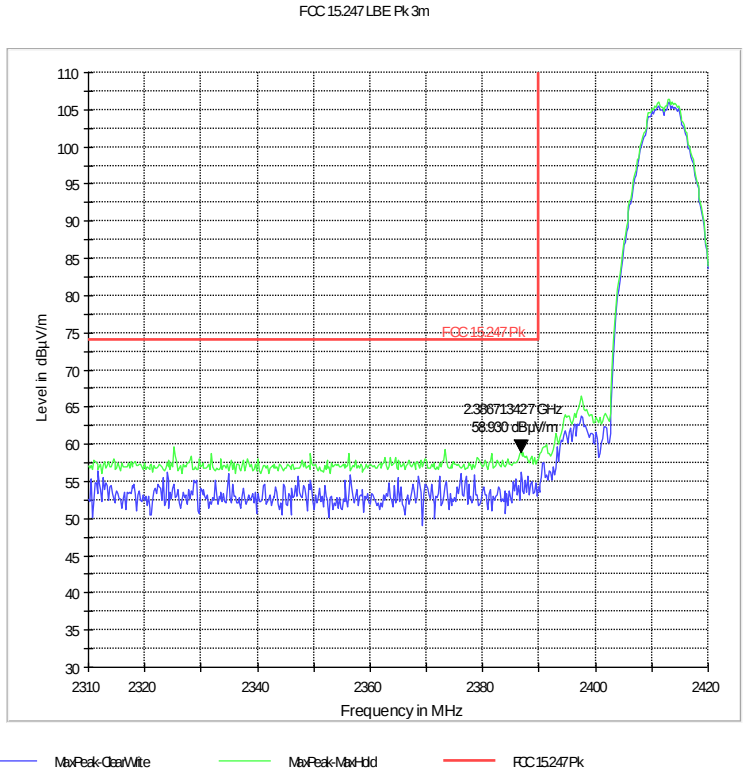

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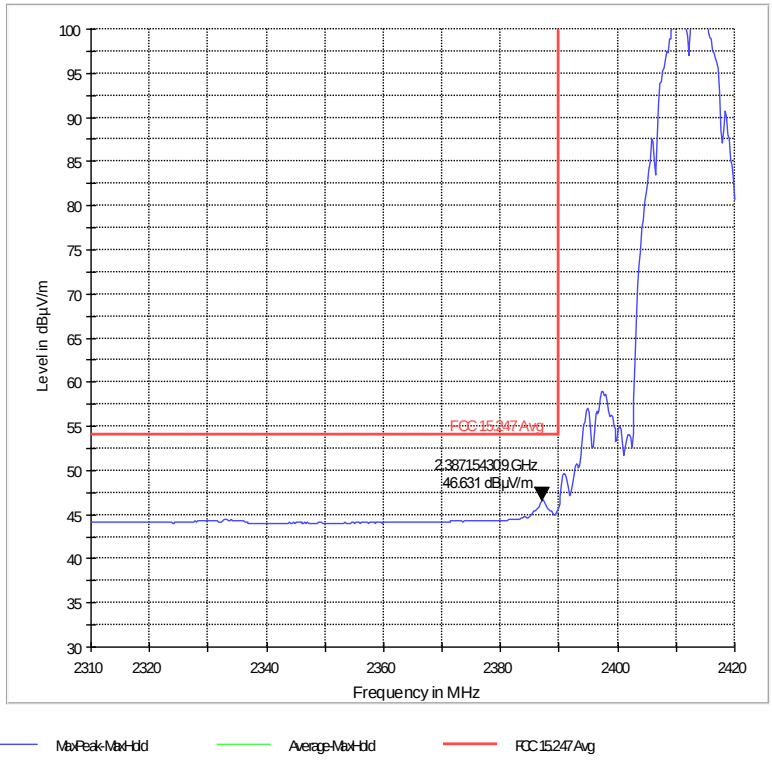

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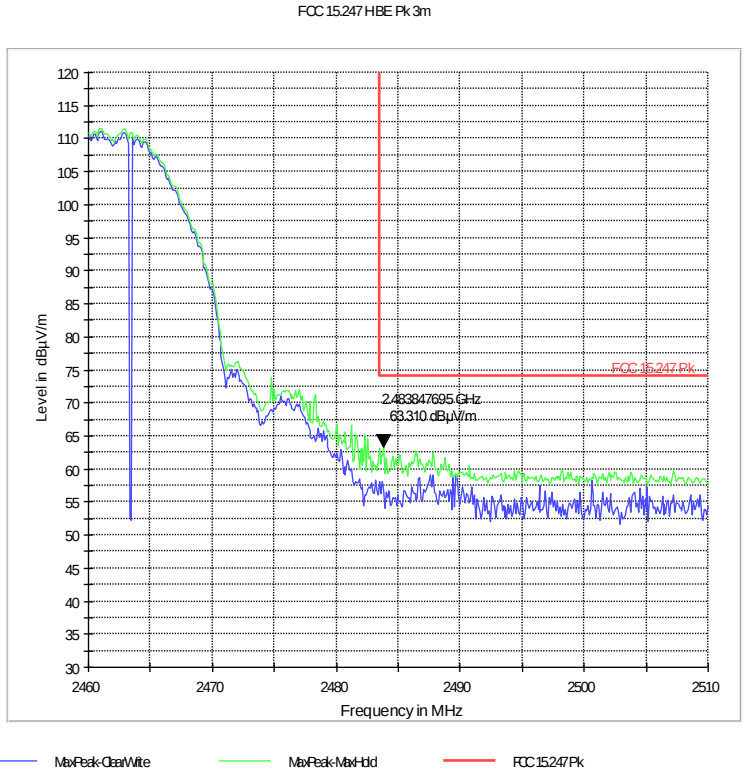

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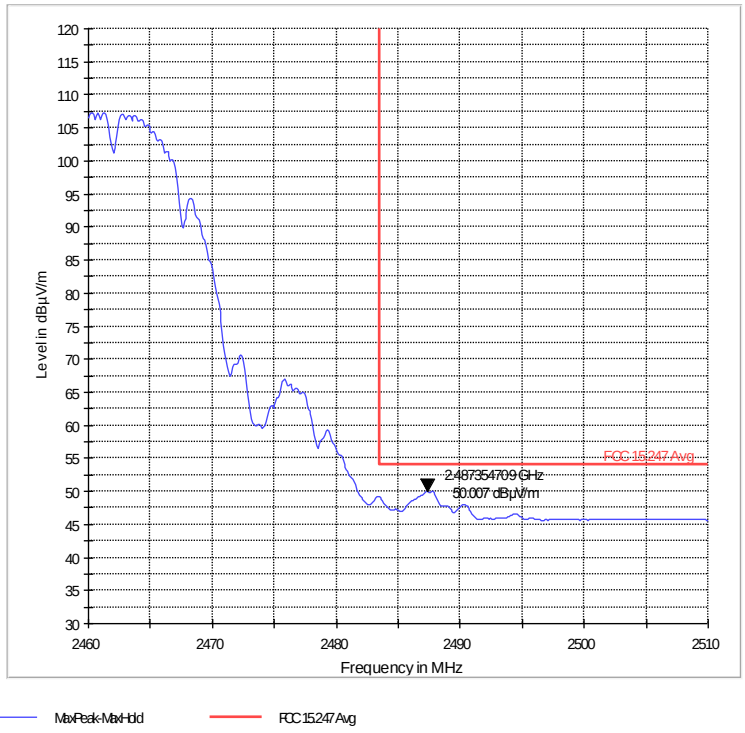

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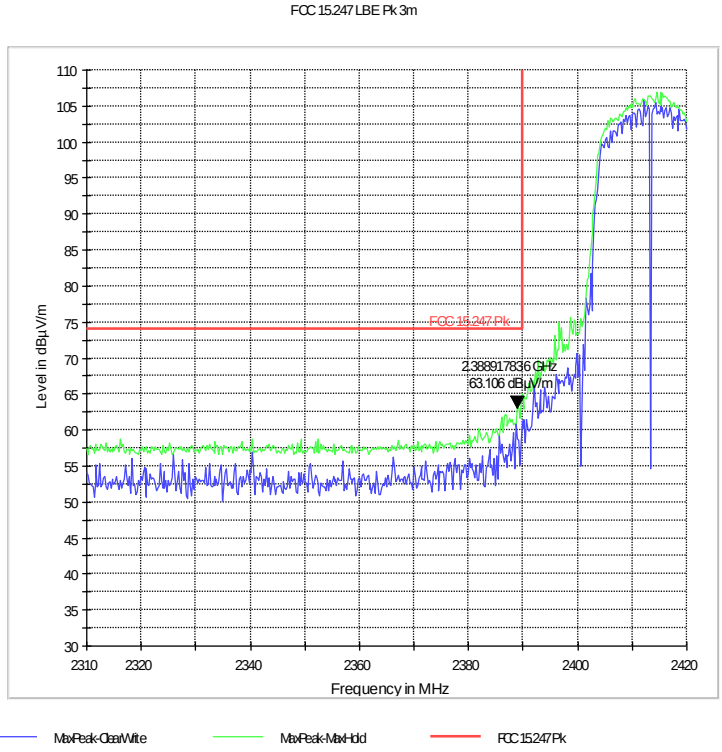

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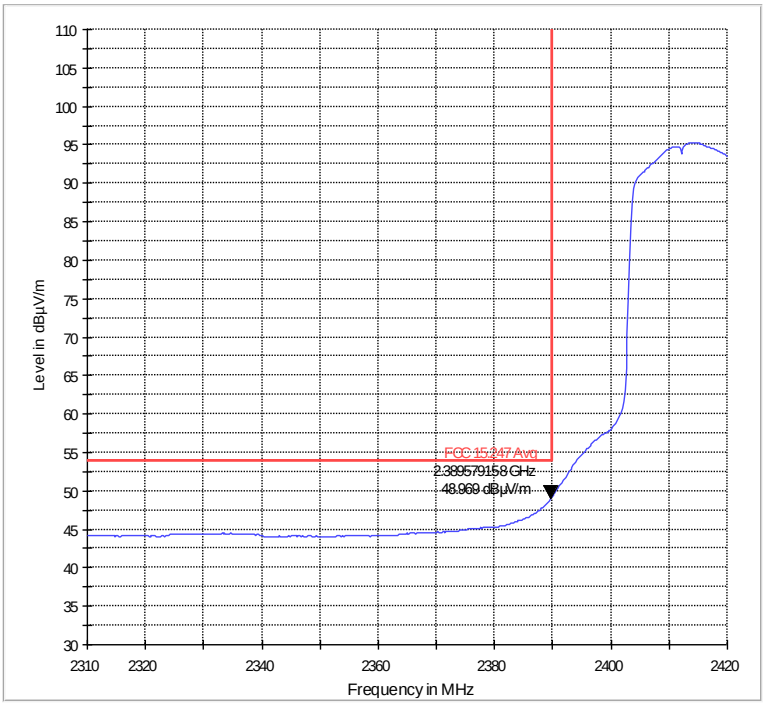

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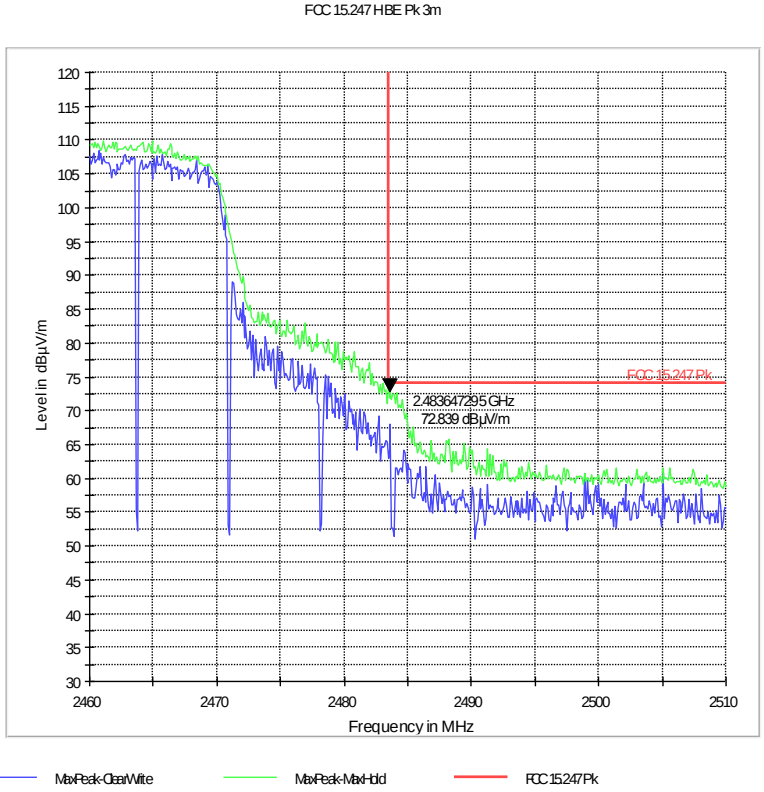

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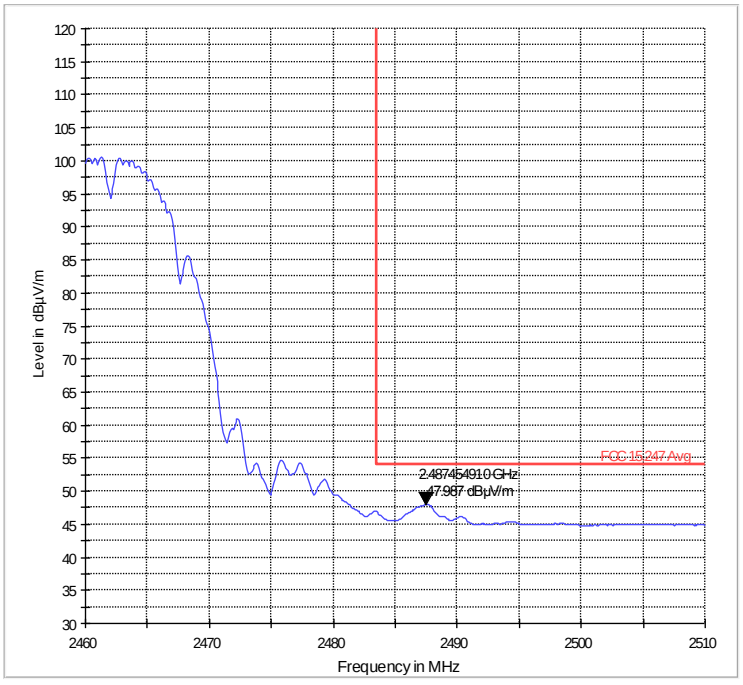

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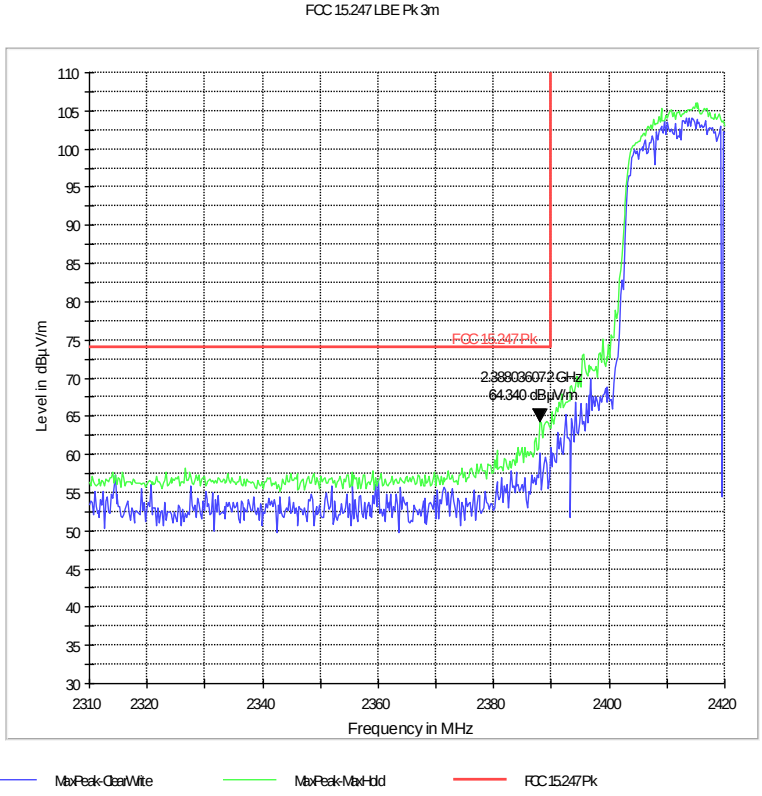

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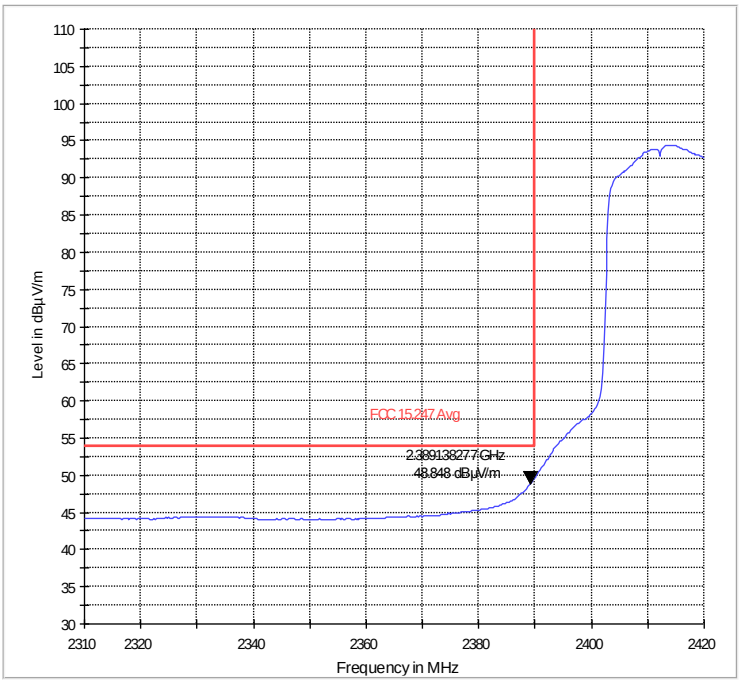

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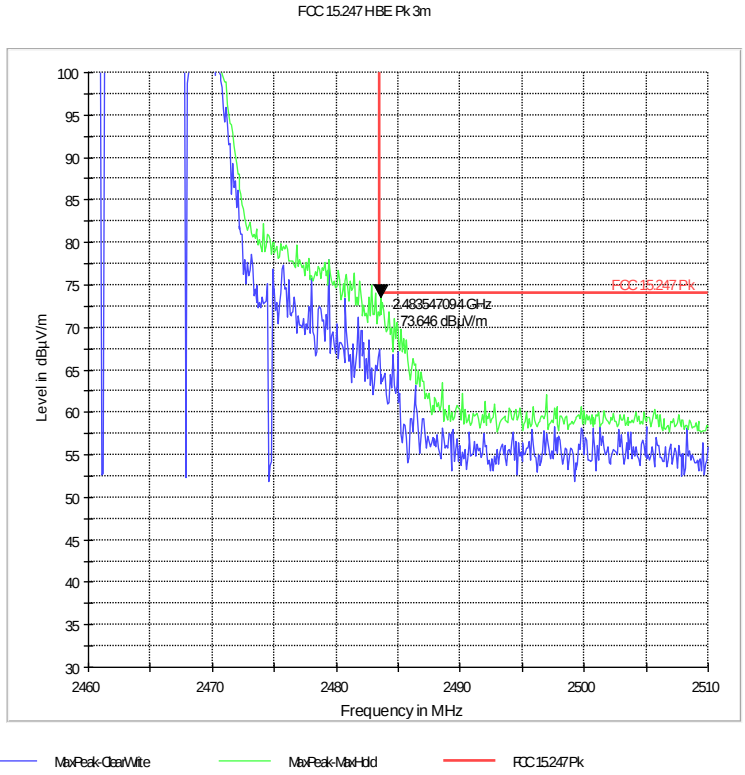

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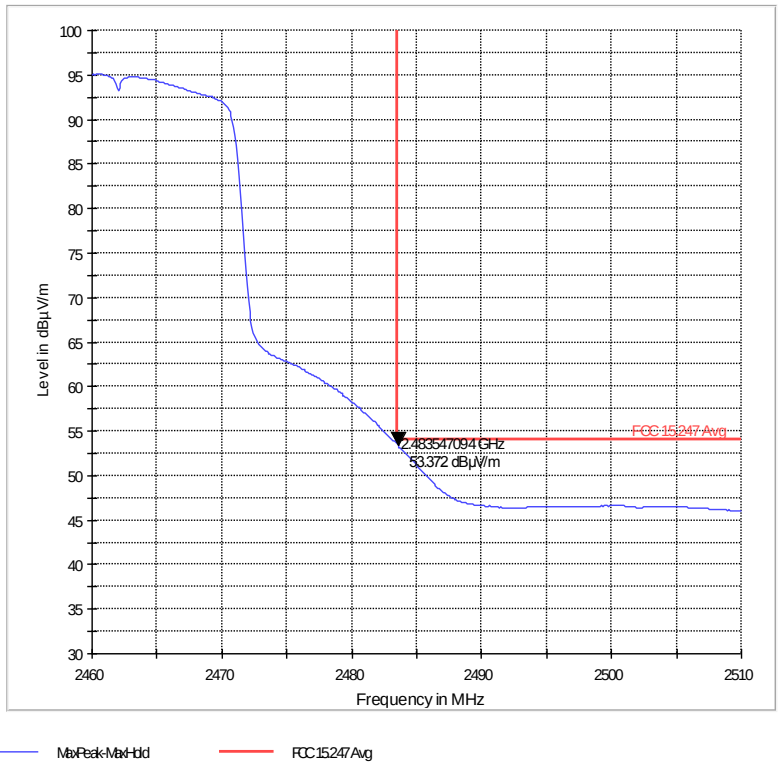


4.5 Occupied Bandwidth

4.5.1 Limits: § 15.247 (a)(1)

The minimum 6 dB bandwidth shall be at least 500 kHz.

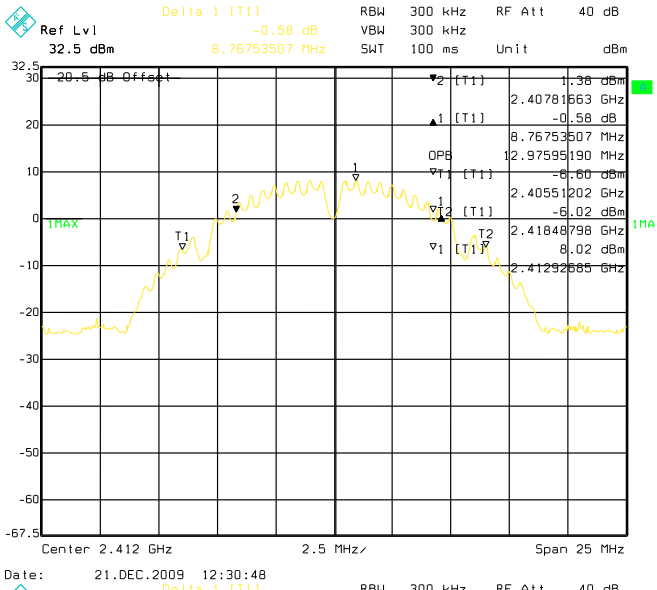
4.5.2 Test Result:

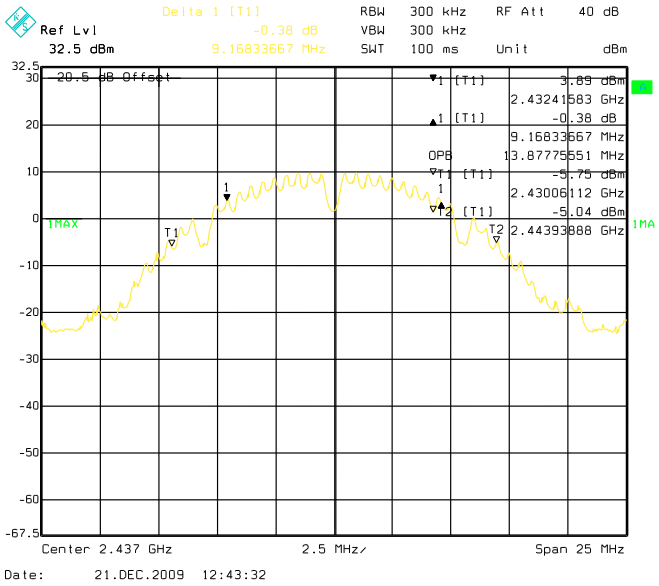
Occupied Bandwidth (MHz)							
Frequency (MHz)	Channel	Tx0					
		b		g / a		HT20	
		6 dB	99%	6 dB	99%	6 dB	99%
2412	1	8.77	12.98	16.28	16.63	17.38	17.64
2437	6	9.17	13.88	16.08	16.78	17.33	17.89
2462	11	8.22	12.93	16.26	16.63	17.43	17.69
5745	149	-	-	16.03	16.53	17.33	17.79
5785	157	-	-	15.98	16.53	17.38	17.79
5825	165	-	-	15.98	16.48	17.28	17.79
Measurement Uncertainty: ±0.01 MHz							

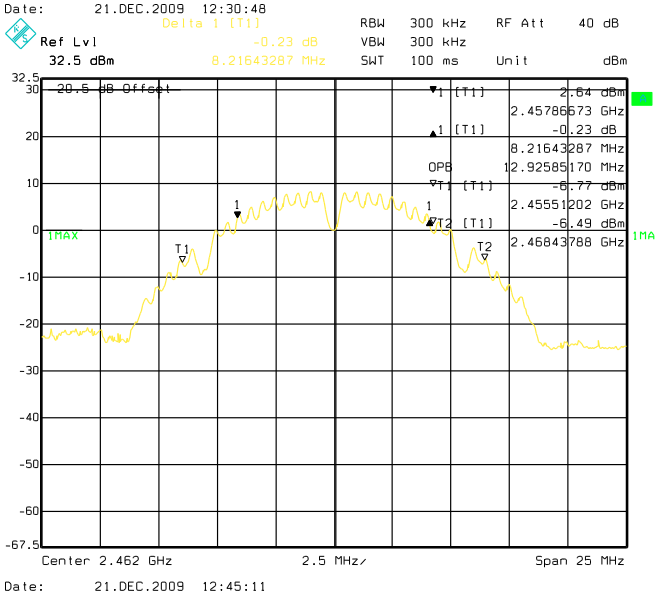
Occupied Bandwidth (MHz)							
Frequency (MHz)	Channel	Tx1					
		b		g / a		HT20	
		6 dB	99%	6 dB	99%	6 dB	99%
2412	1	9.07	13.08	16.23	16.63	17.43	17.69
2437	6	9.22	13.78	15.93	16.73	17.28	17.99
2462	11	8.22	12.93	16.28	16.63	17.38	17.69
5745	149	-	-	15.98	16.53	17.28	17.79
5785	157	-	-	15.98	16.53	17.38	17.79
5825	165	-	-	15.98	16.53	17.33	17.79
Measurement Uncertainty: ±0.01 MHz							

4.5.3 Test Data/plots:

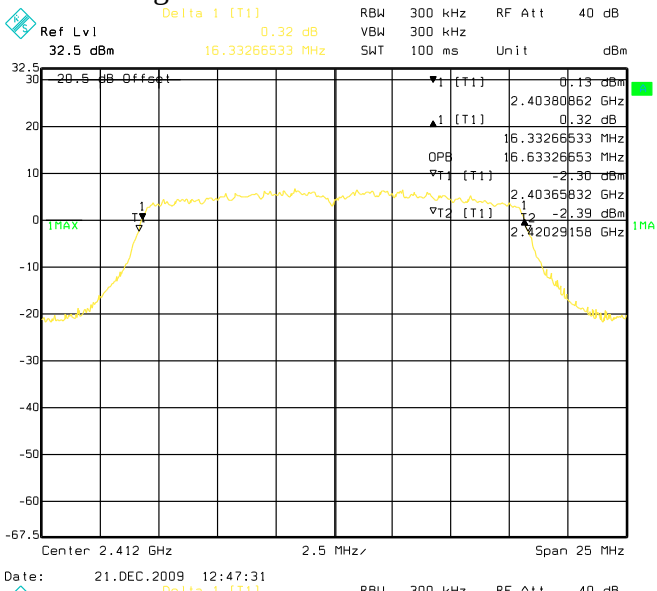
Tx0 802.11b

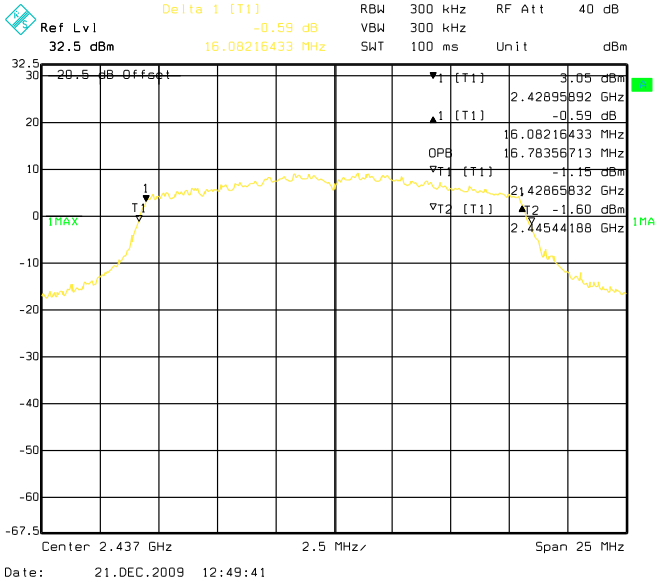


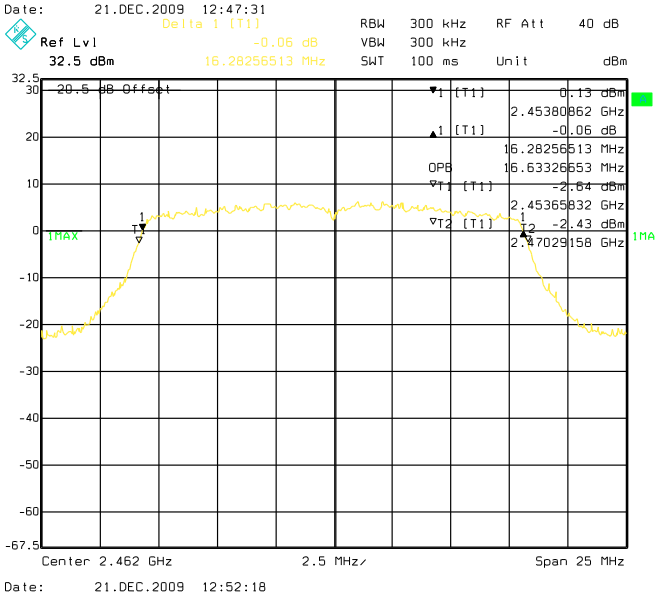




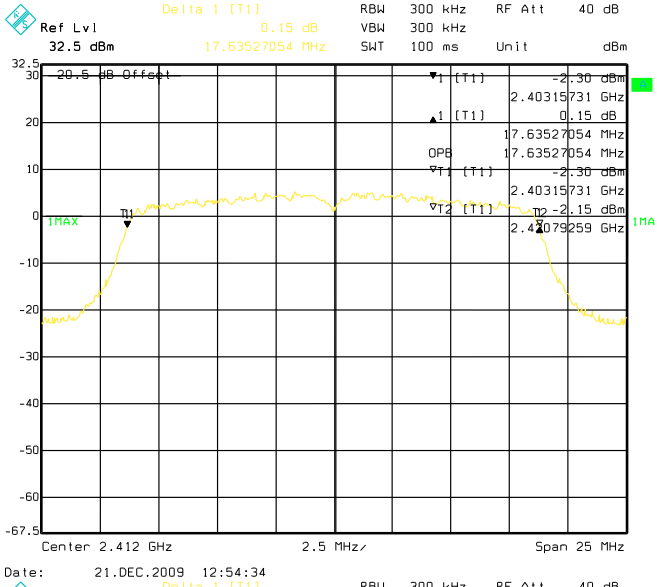
Tx0 802.11g

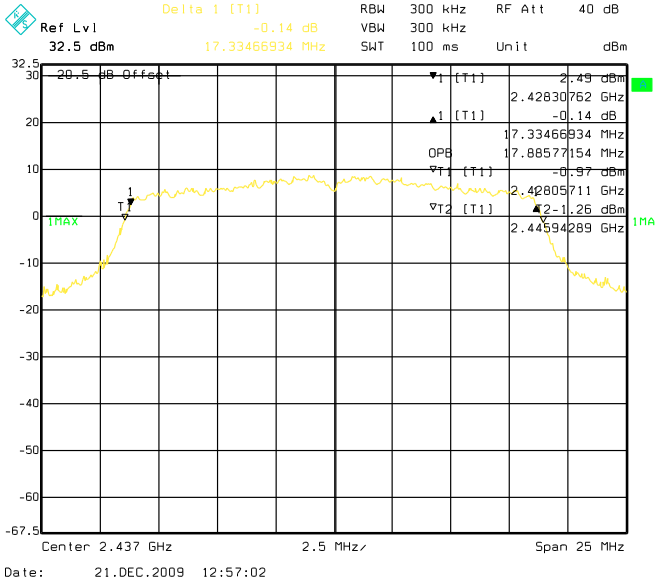

Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
0.32 dB
VBW 300 kHz
32.5 dBm
16.33266533 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
T1 [T1] 0.13 dBm
2.40380862 GHz
Δ1 [T1] 0.32 dB
16.33266533 MHz
OPB 16.63326653 MHz
ΔT1 [T1] -2.30 dBm
2.40365832 GHz
ΔT2 [T1] -2.39 dBm
2.42029158 GHz
1MAX
1MA
Center 2.412 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 12:47:31

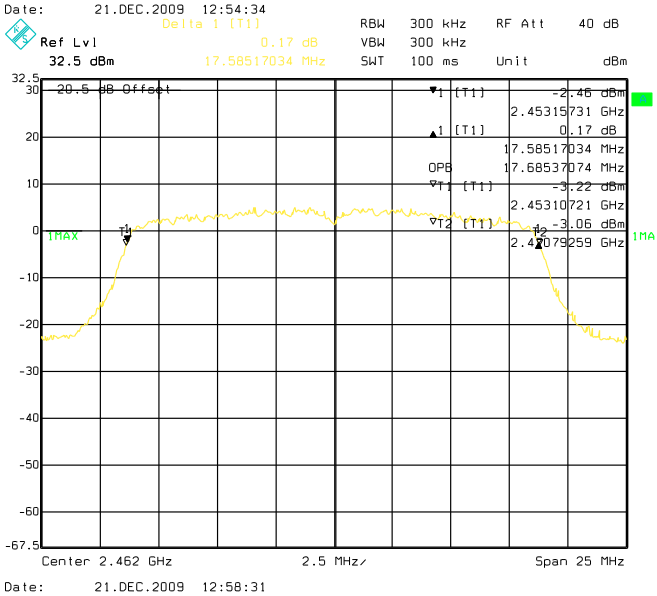

Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
-0.59 dB
VBW 300 kHz
32.5 dBm
16.08216433 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
T1 [T1] 3.05 dBm
2.42895892 GHz
Δ1 [T1] -0.59 dB
16.08216433 MHz
OPB 16.78356713 MHz
ΔT1 [T1] -1.15 dBm
2.42865832 GHz
ΔT2 [T1] -1.60 dBm
2.44544188 GHz
1MAX
1MA
Center 2.437 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 12:49:41


Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
-0.06 dB
VBW 300 kHz
32.5 dBm
16.28256513 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
T1 [T1] 0.13 dBm
2.45380862 GHz
Δ1 [T1] -0.06 dB
16.28256513 MHz
OPB 16.63326653 MHz
ΔT1 [T1] -2.64 dBm
2.45365832 GHz
ΔT2 [T1] -2.43 dBm
2.47029158 GHz
1MAX
1MA
Center 2.462 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 12:52:18

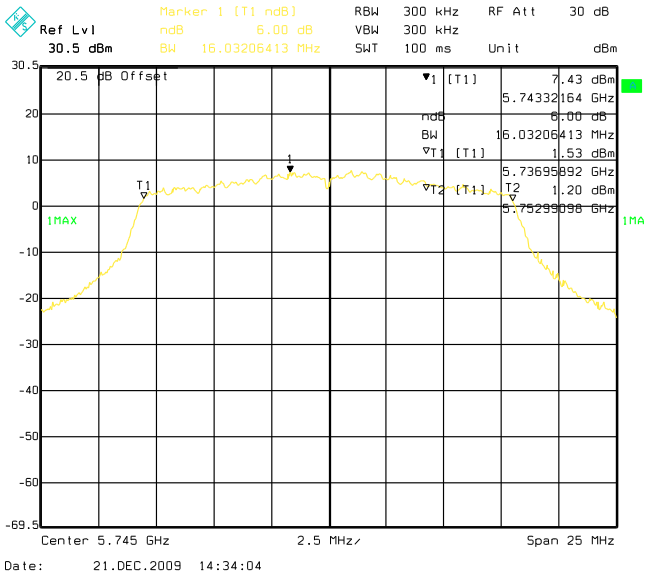
Tx0 802.11n

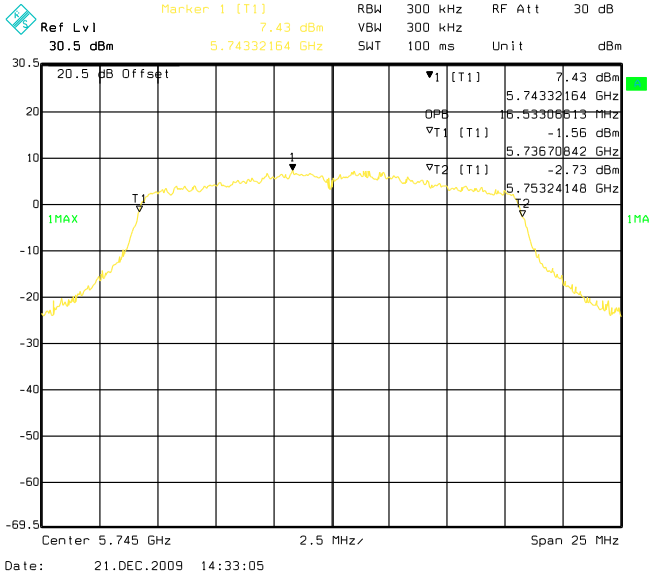

Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
0.15 dB
VBW 300 kHz
32.5 dBm
17.63527054 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
T1 [T1] -2.30 dBm
2.40315731 GHz
Δ1 [T1] 0.15 dB
17.63527054 MHz
OPB 17.63527054 MHz
ΔT1 [T1] -2.30 dBm
2.40315731 GHz
ΔT2 [T1] -2.15 dBm
2.42079259 GHz
1MAX
1MA
Center 2.412 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 12:54:34


Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
-0.14 dB
VBW 300 kHz
32.5 dBm
17.33466934 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
T1 [T1] 2.49 dBm
2.42830762 GHz
Δ1 [T1] -0.14 dB
17.33466934 MHz
OPB 17.88577154 MHz
ΔT1 [T1] -0.97 dBm
2.42805711 GHz
ΔT2 [T1] -1.26 dBm
2.44594289 GHz
1MAX
1MA
Center 2.437 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 12:57:02

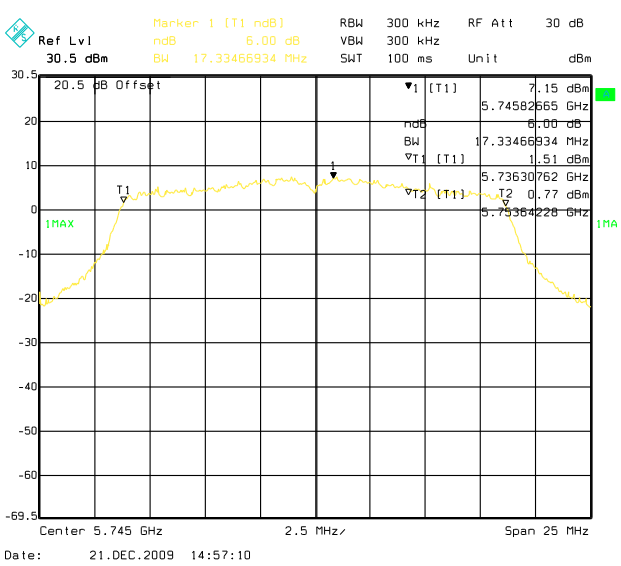

Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
0.17 dB
VBW 300 kHz
32.5 dBm
17.58517034 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
T1 [T1] -2.46 dBm
2.45315731 GHz
Δ1 [T1] 0.17 dB
17.58517034 MHz
OPB 17.68537074 MHz
ΔT1 [T1] -3.22 dBm
2.45310721 GHz
ΔT2 [T1] -3.06 dBm
2.42079259 GHz
1MAX
1MA
Center 2.462 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 12:58:31

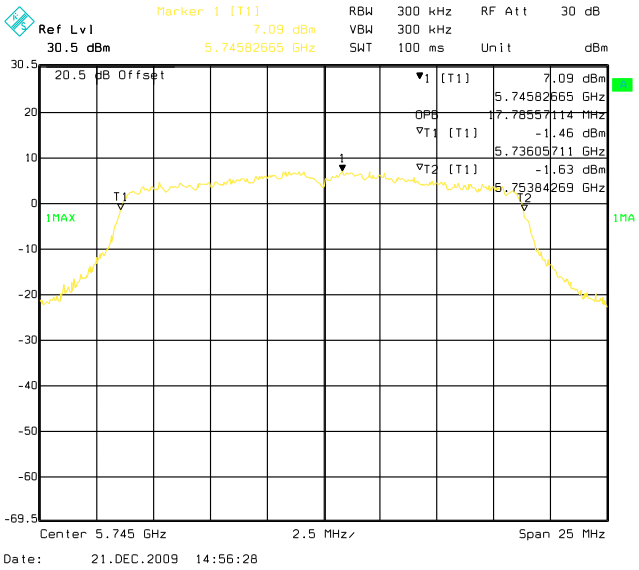
Tx0 802.11a ch149



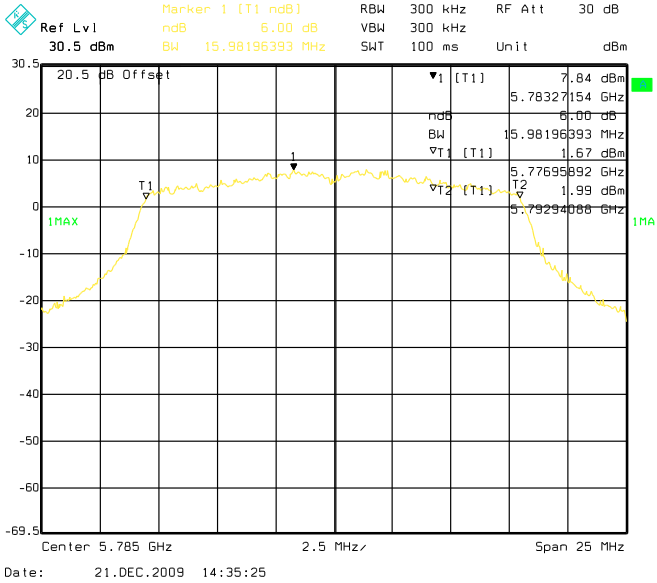


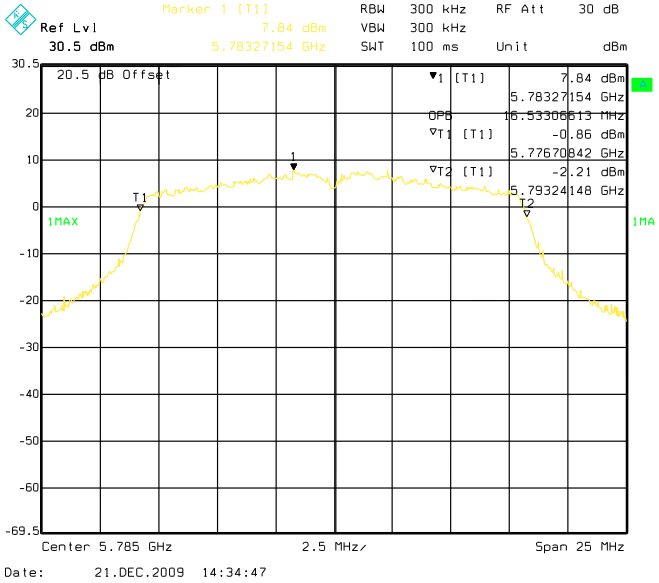
Tx0 802.11n ch149



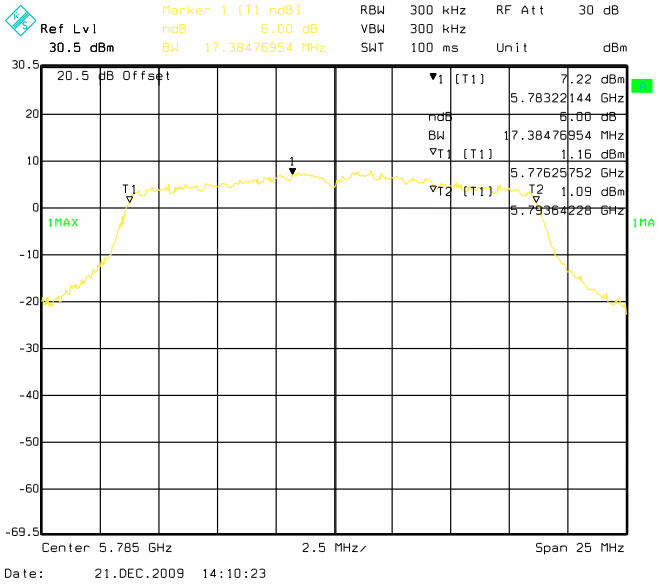


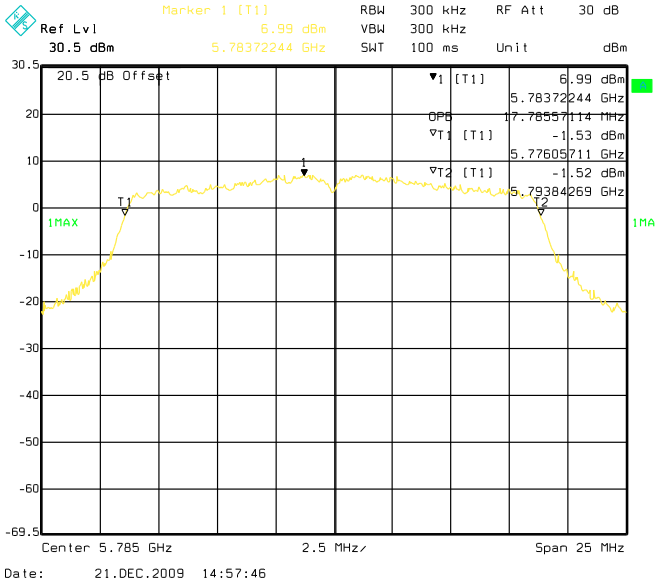
Tx0 802.11a ch157



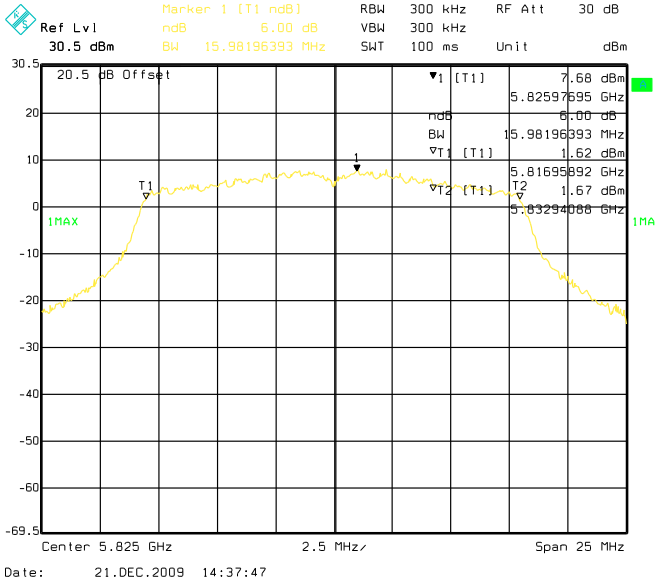


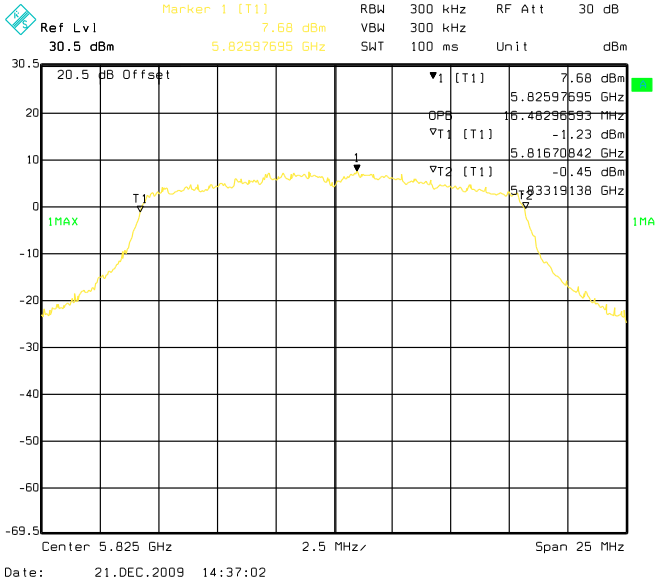
Tx0 802.11n ch157



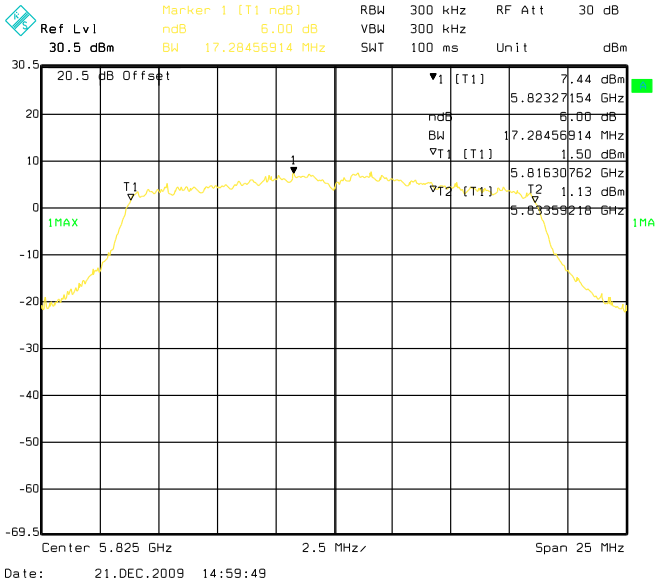


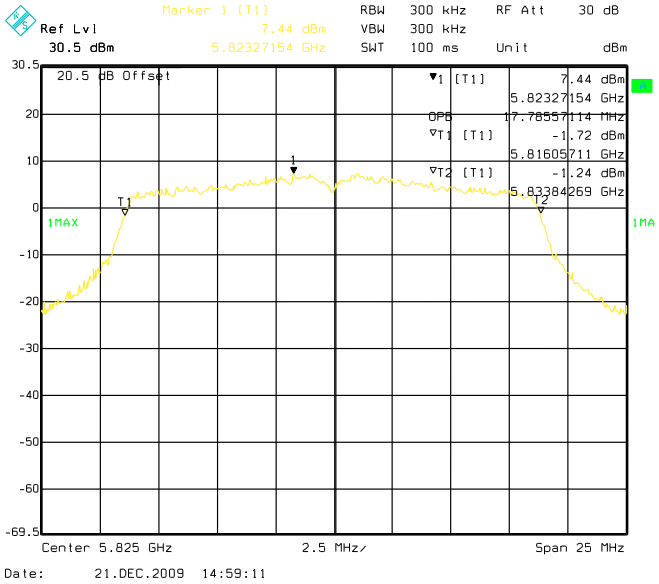
Tx0 802.11a ch165



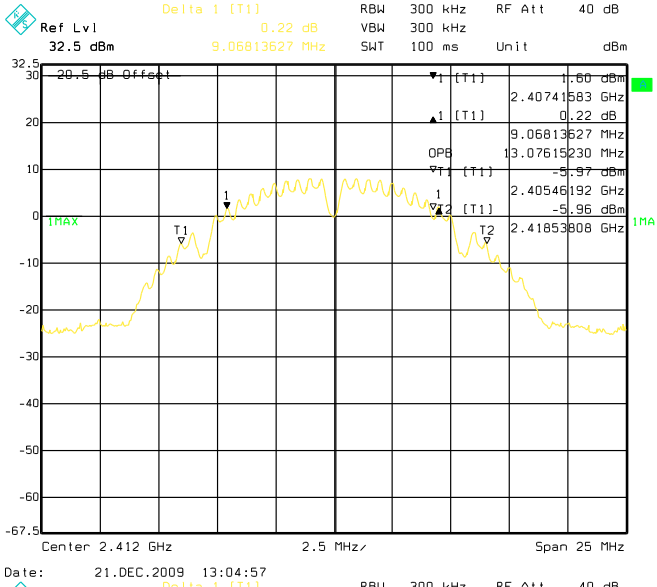


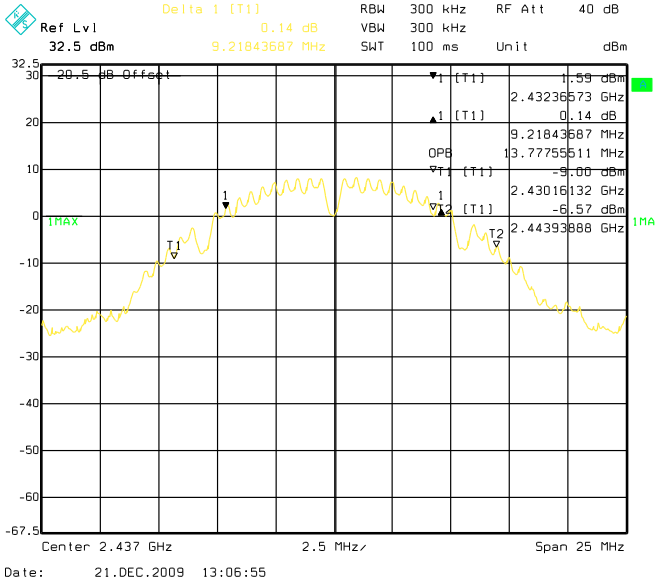
Tx0 802.11n ch165

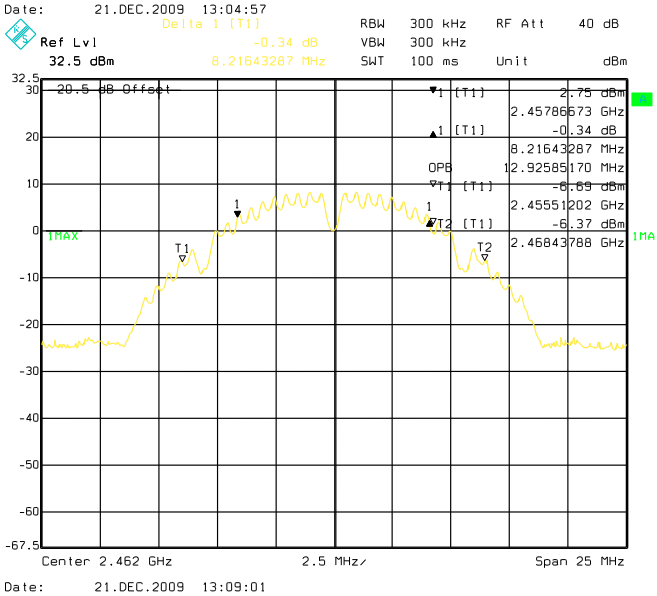




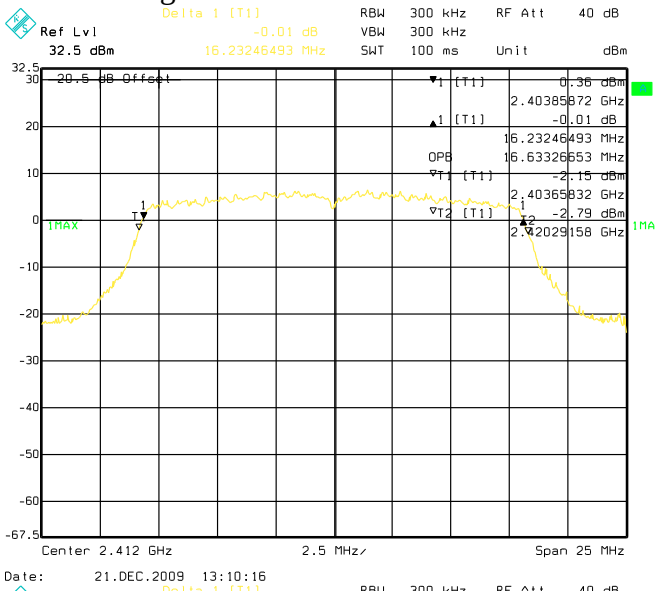
TX1 802.11b

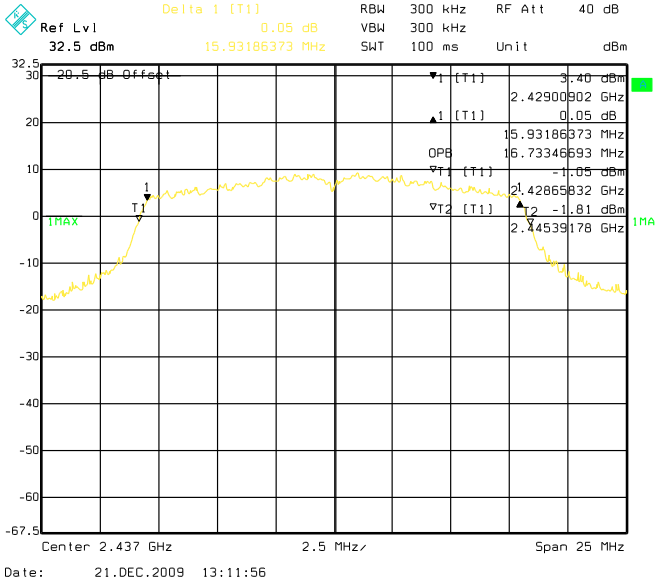

Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
0.22 dB
VBW 300 kHz
32.5 dBm
9.06813627 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
1 [T1] 1.60 dBm
2.40741583 GHz
Δ1 [T1] 0.22 dB
9.06813627 MHz
OPB 13.07615230 MHz
T1 [T1] -5.97 dBm
2.40546192 GHz
T2 [T1] -5.96 dBm
2.41853808 GHz
1MAX
1MA
Center 2.412 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 13:04:57

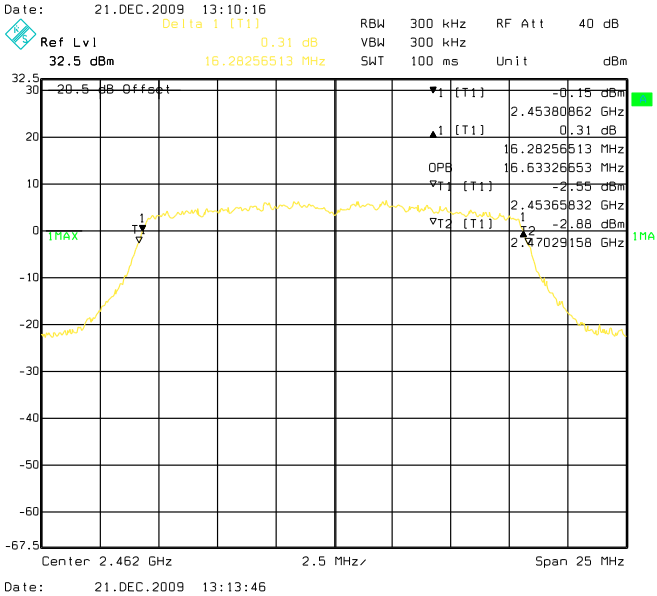

Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
0.14 dB
VBW 300 kHz
32.5 dBm
9.21843687 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
1 [T1] 1.59 dBm
2.43236573 GHz
Δ1 [T1] 0.14 dB
9.21843687 MHz
OPB 13.77755511 MHz
T1 [T1] -9.00 dBm
2.43016132 GHz
T2 [T1] -6.57 dBm
2.44393888 GHz
1MAX
1MA
Center 2.437 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 13:06:55


Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
-0.34 dB
VBW 300 kHz
32.5 dBm
8.21643287 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
1 [T1] 2.75 dBm
2.45786673 GHz
Δ1 [T1] -0.34 dB
8.21643287 MHz
OPB 12.92585170 MHz
T1 [T1] -6.69 dBm
2.45551202 GHz
T2 [T1] -6.37 dBm
2.46843788 GHz
1MAX
1MA
Center 2.462 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 13:09:01

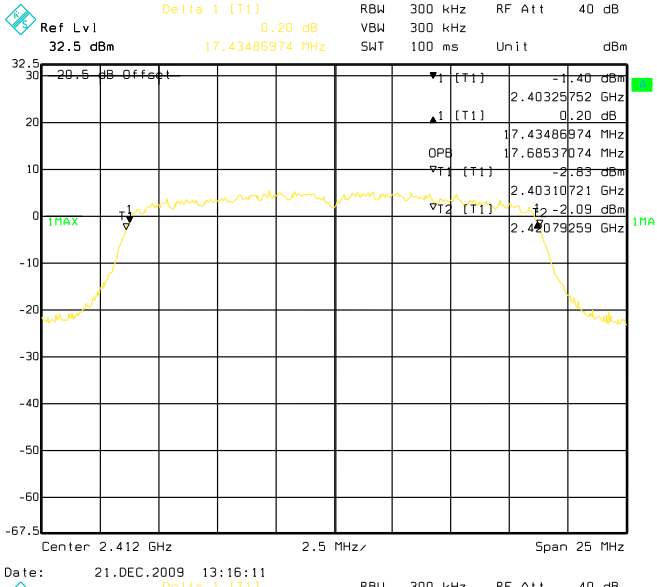
TX1 802.11g

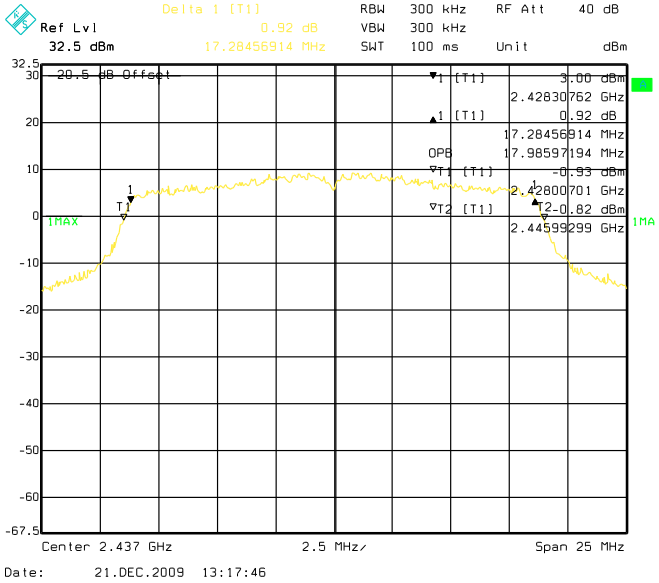

Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
-0.01 dB
VBW 300 kHz
32.5 dBm
16.23246493 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
T1 [T1] 0.36 dBm
2.40385872 GHz
Δ1 [T1] -0.01 dB
16.23246493 MHz
OPB 16.63326653 MHz
T1 [T1] -2.15 dBm
2.40365832 GHz
T2 [T1] -2.79 dBm
2.42029158 GHz
1MAX
1MA
Center 2.412 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 13:10:16

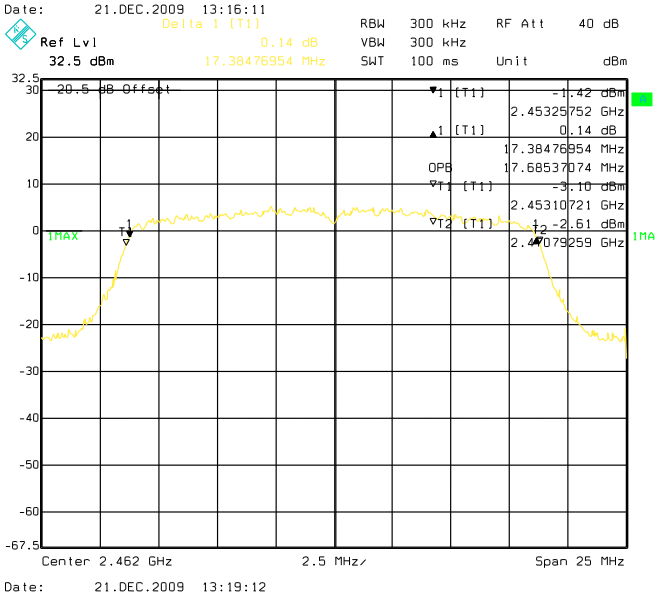

Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
0.05 dB
VBW 300 kHz
32.5 dBm
15.93186373 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
T1 [T1] 3.40 dBm
2.42900902 GHz
Δ1 [T1] 0.05 dB
15.93186373 MHz
OPB 16.73346693 MHz
T1 [T1] -1.05 dBm
2.42865832 GHz
T2 [T1] -1.81 dBm
2.44539178 GHz
1MAX
1MA
Center 2.437 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 13:11:56


Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
0.31 dB
VBW 300 kHz
32.5 dBm
16.28256513 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
T1 [T1] -0.15 dBm
2.45380862 GHz
Δ1 [T1] 0.31 dB
16.28256513 MHz
OPB 16.63326653 MHz
T1 [T1] -2.55 dBm
2.45365832 GHz
T2 [T1] -2.88 dBm
2.47029158 GHz
1MAX
1MA
Center 2.462 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 13:13:46

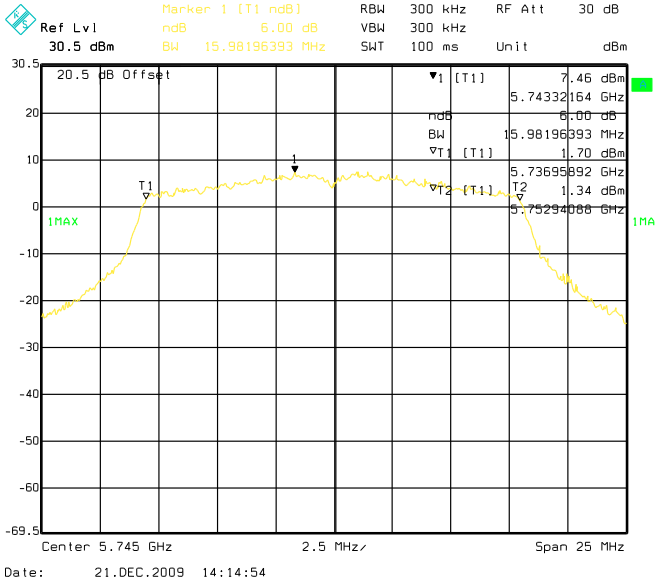
TX1 802.11n

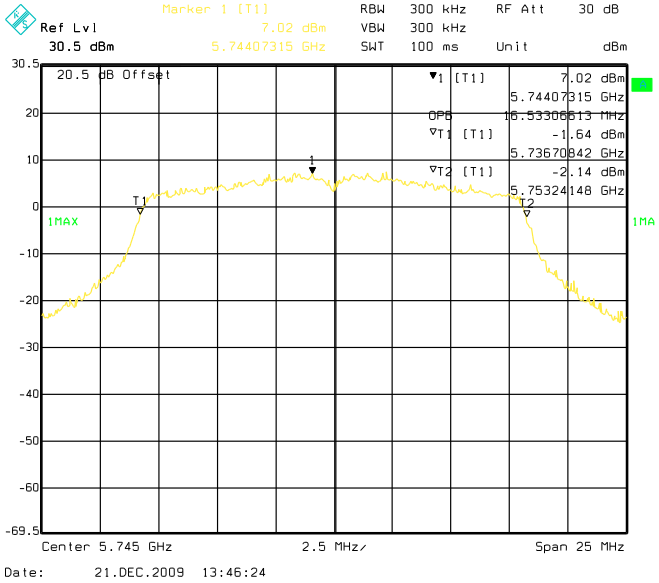

Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
0.20 dB
VBW 300 kHz
32.5 dBm
17.43486974 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
T1 [T1] -1.40 dBm
2.40325752 GHz
Δ1 [T1] 0.20 dB
17.43486974 MHz
OPB 17.68537074 MHz
ΔT1 [T1] -2.83 dBm
2.40310721 GHz
ΔT2 [T1] T2 -2.09 dBm
2.47079259 GHz
1MAX
1MA
Center 2.412 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 13:16:11


Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
0.92 dB
VBW 300 kHz
32.5 dBm
17.28456914 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
T1 [T1] 3.00 dBm
2.42830762 GHz
Δ1 [T1] 0.92 dB
17.28456914 MHz
OPB 17.98597194 MHz
ΔT1 [T1] -0.93 dBm
2.42800701 GHz
ΔT2 [T1] T2 -0.82 dBm
2.44599299 GHz
1MAX
1MA
Center 2.437 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 13:17:46

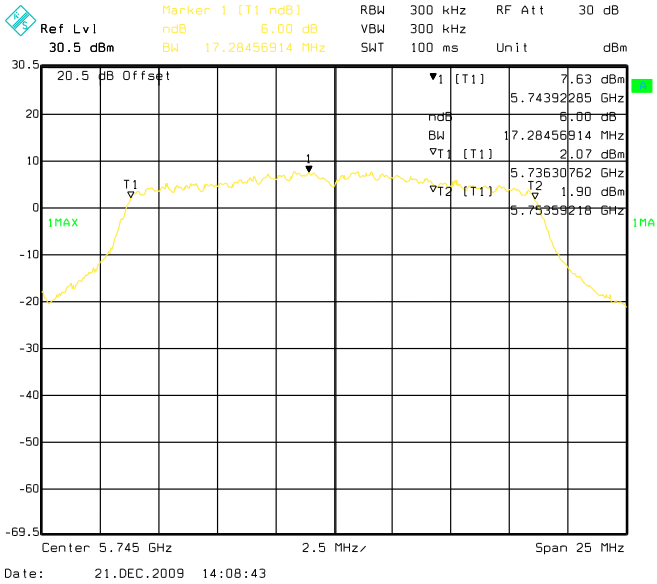

Delta 1 [T1]
RBW 300 kHz
RF Att 40 dB
Ref Lvl
0.14 dB
VBW 300 kHz
32.5 dBm
17.38476954 MHz
SWT 100 ms
Unit dBm
20.5 dB Offset
T1 [T1] -1.42 dBm
2.45325752 GHz
Δ1 [T1] 0.14 dB
17.38476954 MHz
OPB 17.68537074 MHz
ΔT1 [T1] -3.10 dBm
2.45310721 GHz
ΔT2 [T1] T2 -2.61 dBm
2.47079259 GHz
1MAX
1MA
Center 2.462 GHz
2.5 MHz/
Span 25 MHz
Date: 21.DEC.2009 13:19:12

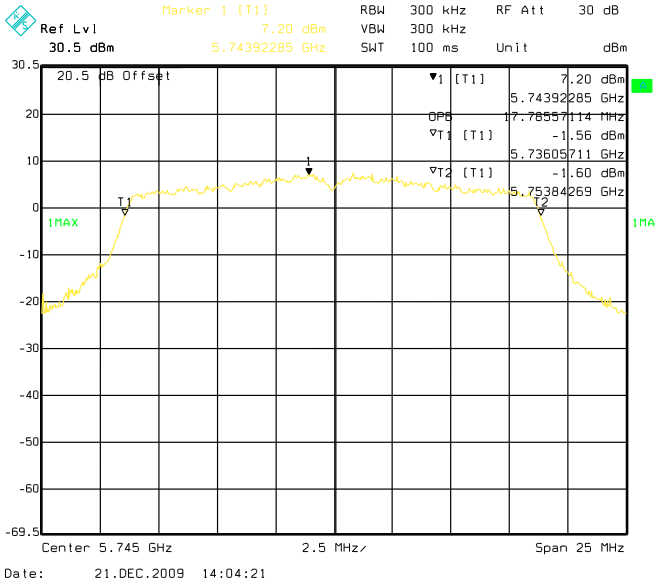
Tx1 802.11a ch149



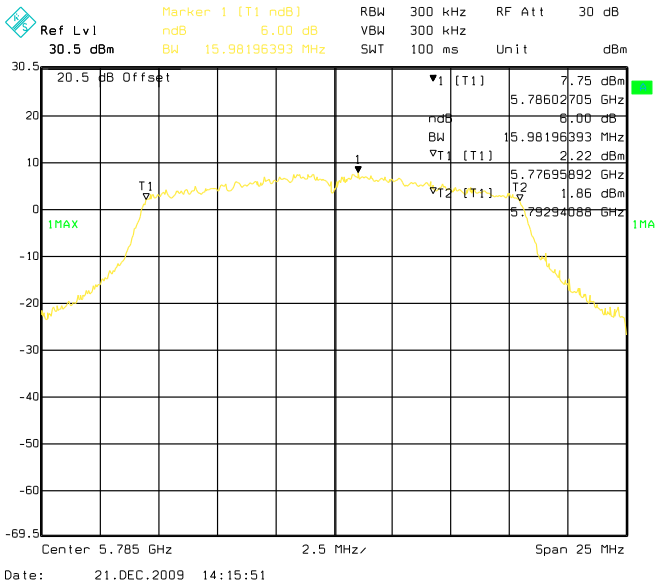


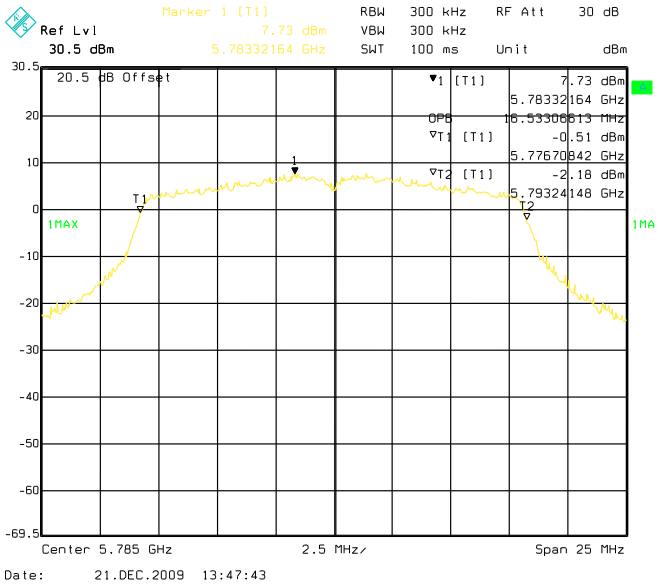
Tx1 802.11n ch149



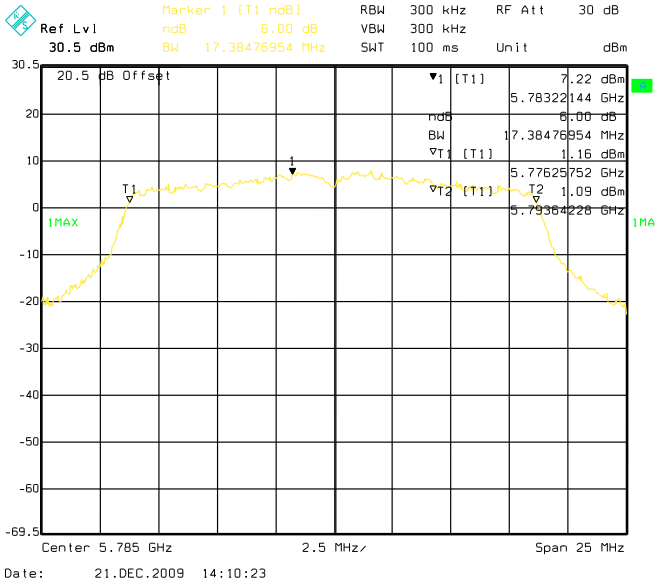


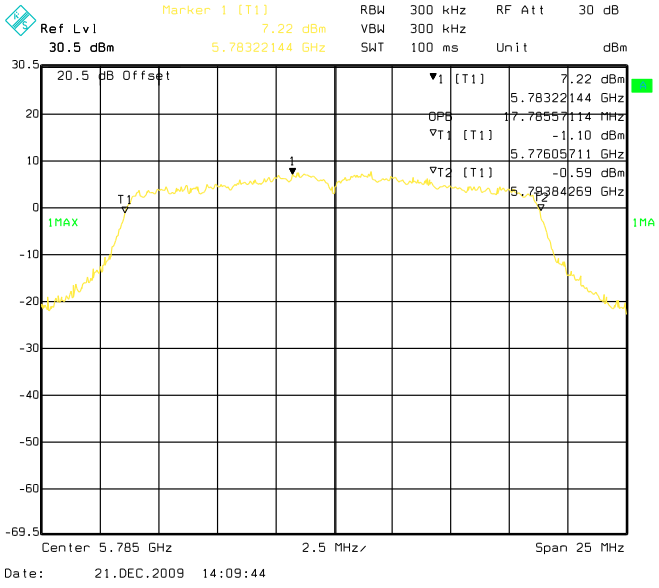
Tx1 802.11a ch157



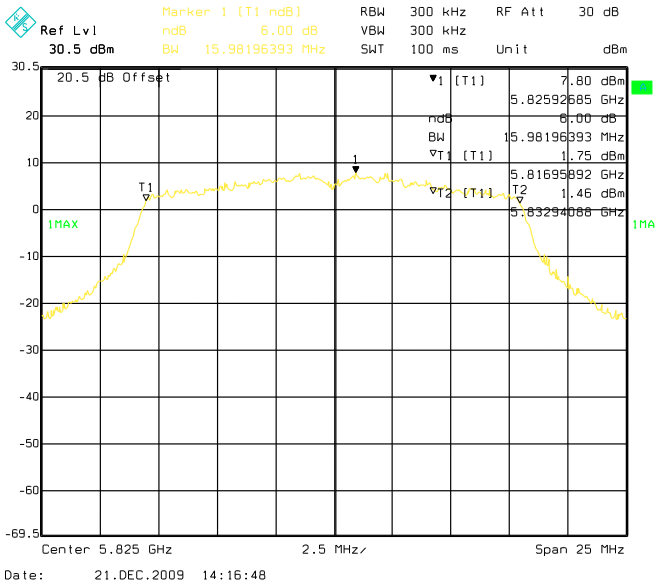


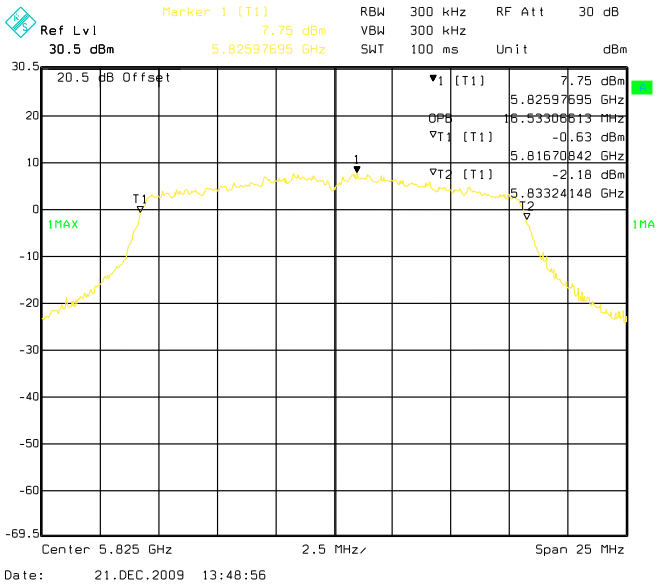
Tx1 802.11n ch157



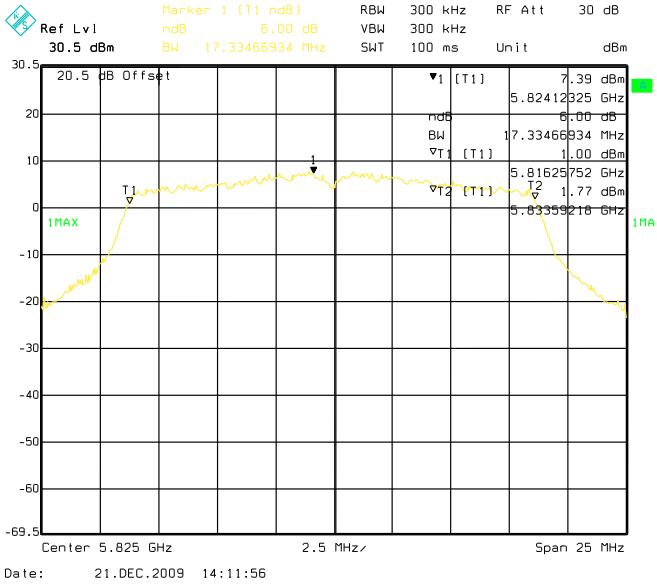


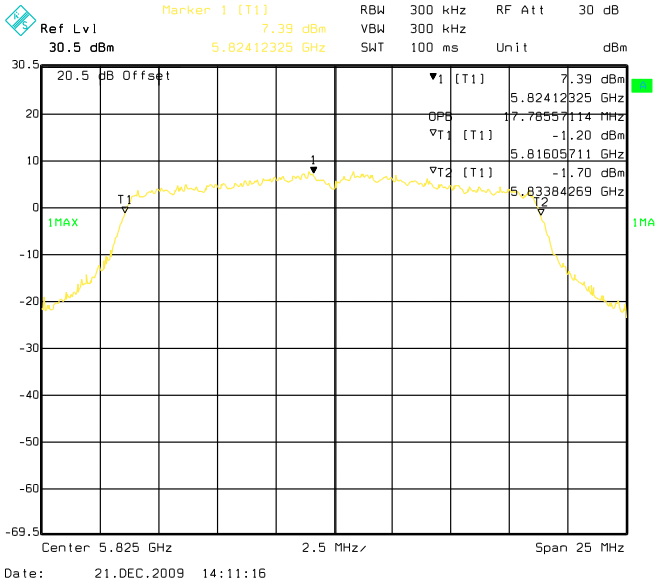
Tx1 802.11a ch165





Tx1 802.11n ch165





4.6 Power Spectral Density

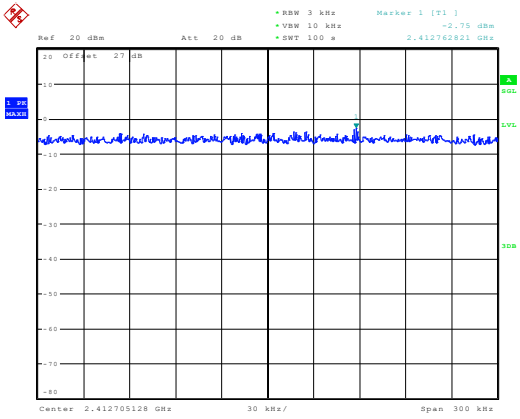
4.6.1 Limits: § 15.247 (e)

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

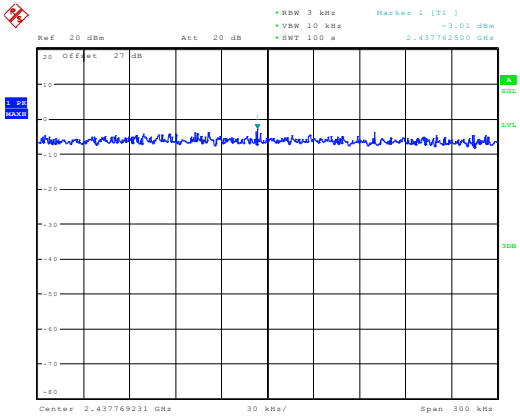
4.6.2 Results

Power Spectral Density (dBm)							
Frequency (MHz)	Channel	Tx0			Tx1		
		b	g / a	HT20	b	g / a	HT20
2412	1	-2.75	-9.37	-10.18	-4.74	-10.97	-10.45
2437	6	-3.01	-6.38	-5.5	-3.19	-7.09	-7.43
2462	11	-3.34	-9.69	-10.35	-4.96	-11.11	-11.35
5745	149	-	-6.67	-7.65	-	-10.46	-10.6
5785	157	-	-5.6	-6.62	-	-10.02	-9.77
5825	165	-	-5.33	-7.83	-	-9.83	-10.04

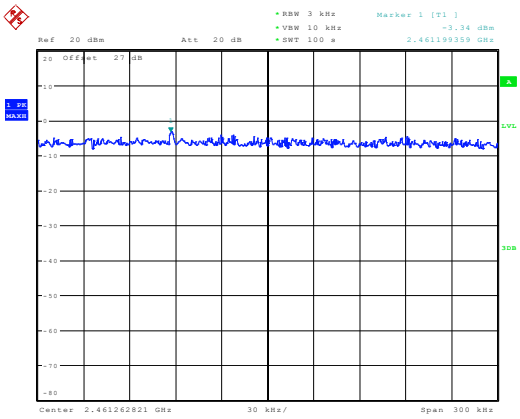
Tx0 802.11b



Date: 6.JAN.2010 13:15:24

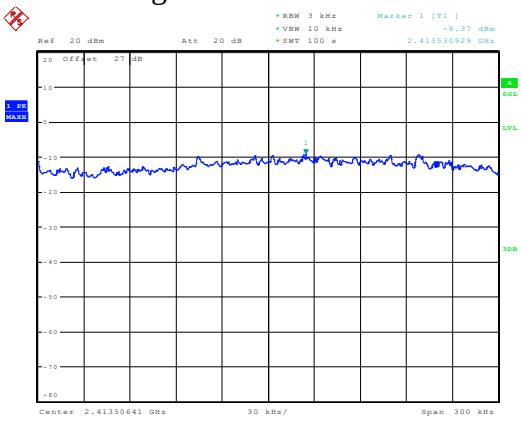


Date: 6.JAN.2010 13:25:30

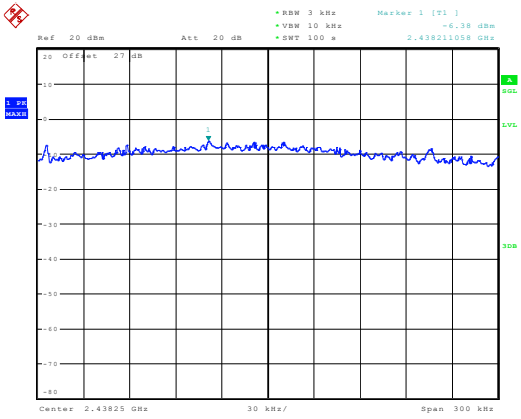


Date: 6.JAN.2010 13:34:04

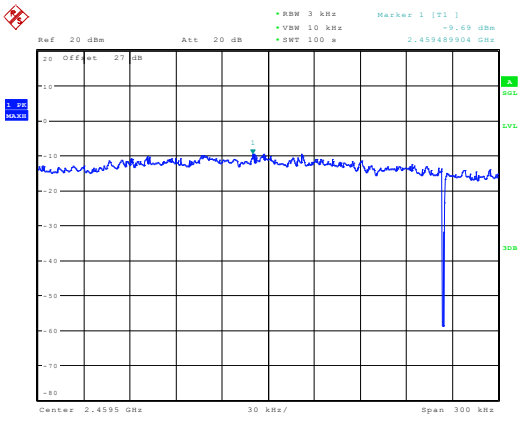
Tx0 802.11g



Date: 6.JAN.2010 13:18:18

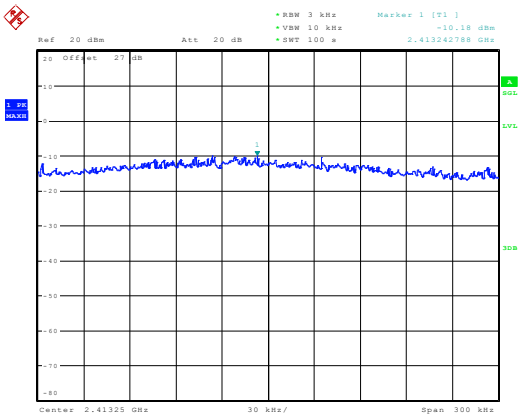


Date: 6.JAN.2010 13:28:18

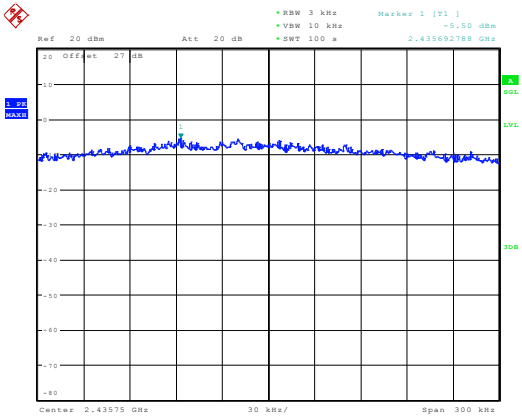


Date: 6.JAN.2010 13:38:06

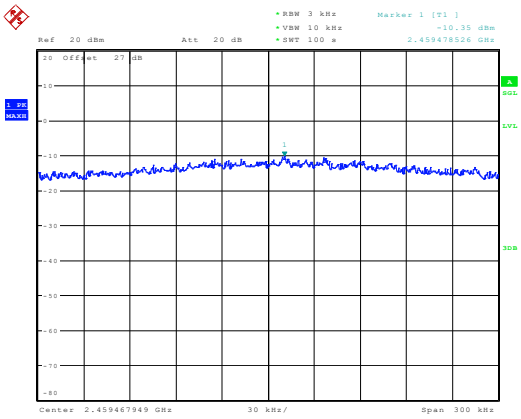
Tx0 802.11n



Date: 6.JAN.2010 13:22:36

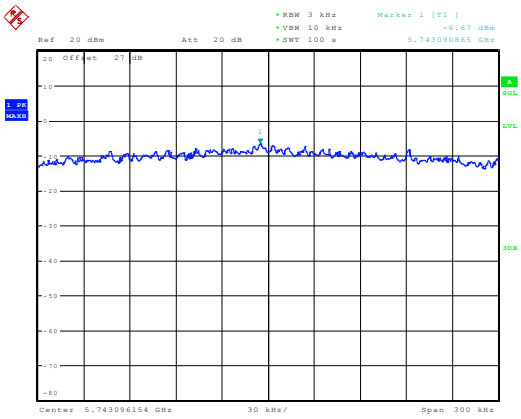


Date: 6.JAN.2010 13:30:56

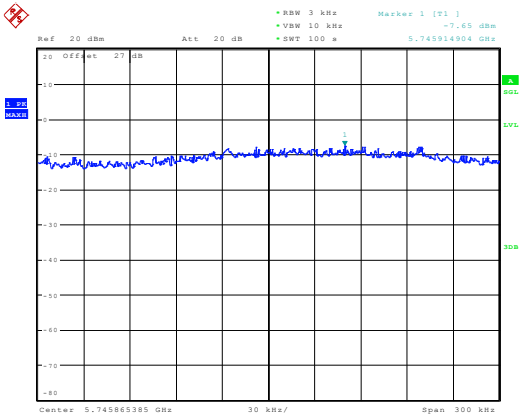


Date: 6.JAN.2010 13:40:54

Tx0 Ch149

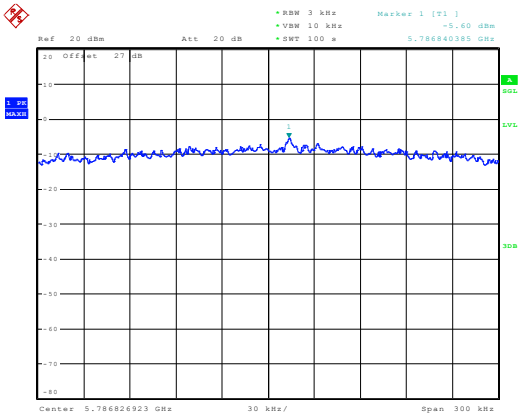


Date: 6.JAN.2010 12:51:39

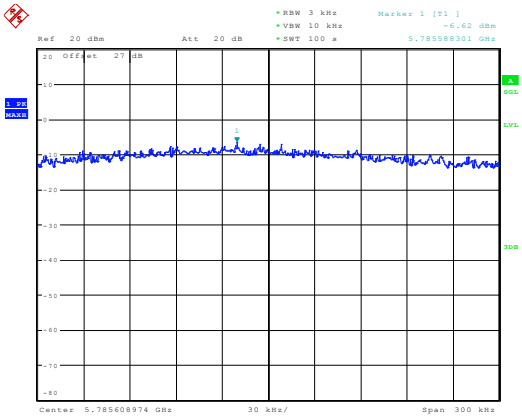


Date: 6.JAN.2010 12:55:55

Tx0 Ch157

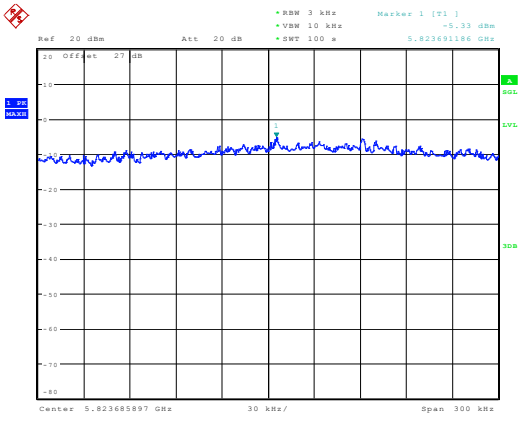


Date: 6.JAN.2010 12:59:06

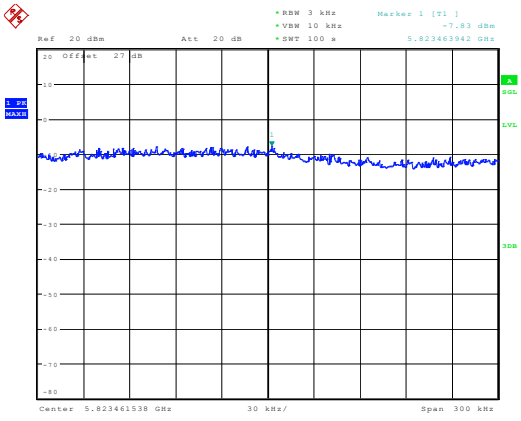


Date: 6.JAN.2010 13:01:53

Tx0 Ch165

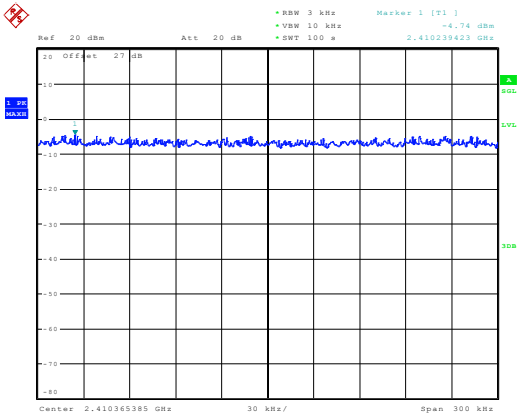


Date: 6.JAN.2010 13:05:25

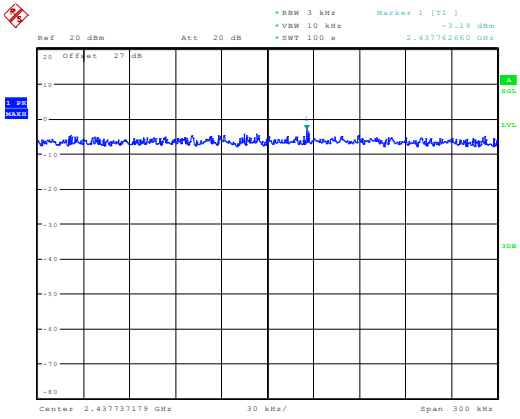


Date: 6.JAN.2010 13:08:08

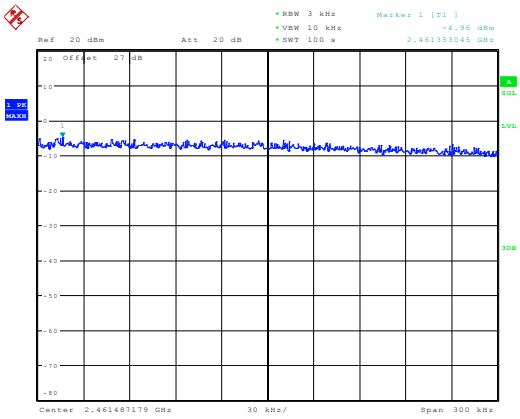
Tx1 802.11b



Date: 6.JAN.2010 13:45:42

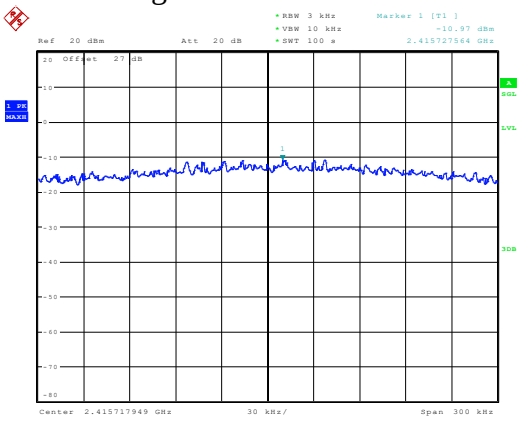


Date: 6.JAN.2010 13:55:13

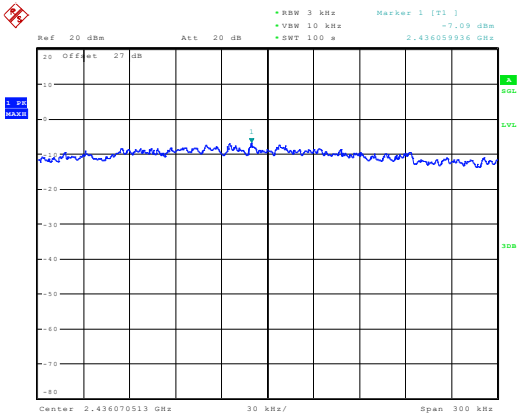


Date: 6.JAN.2010 14:03:43

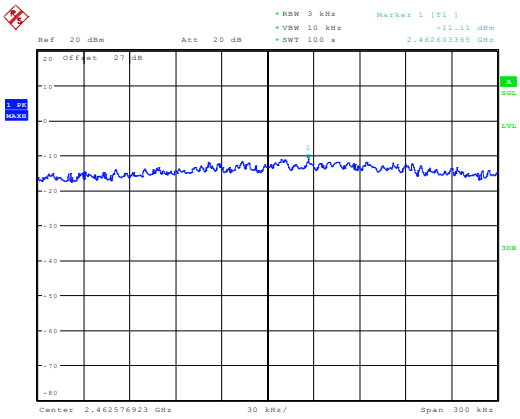
Tx1 802.11g



Date: 6.JAN.2010 13:49:18

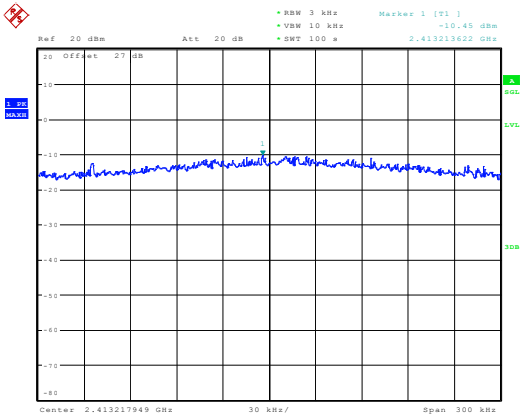


Date: 6.JAN.2010 13:57:55

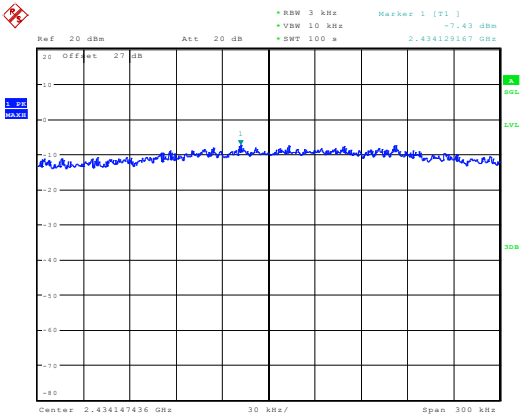


Date: 6.JAN.2010 14:13:09

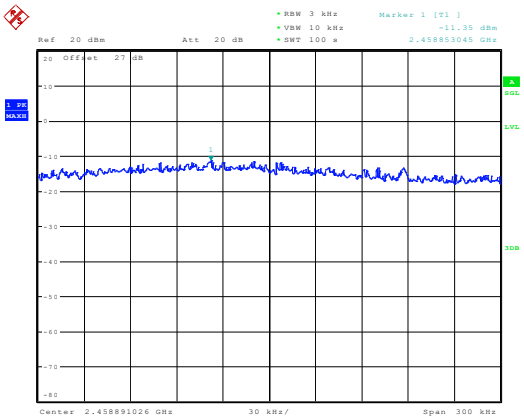
Tx1 802.11n



Date: 6.JAN.2010 13:51:48

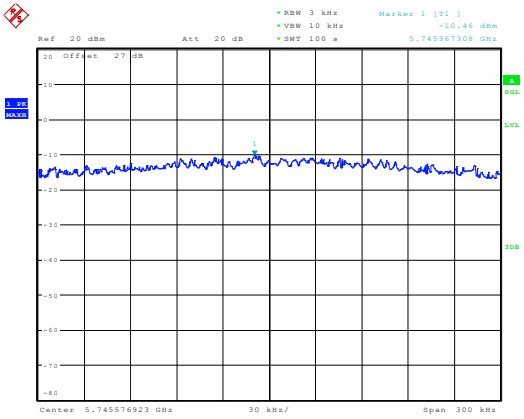


Date: 6.JAN.2010 14:00:39

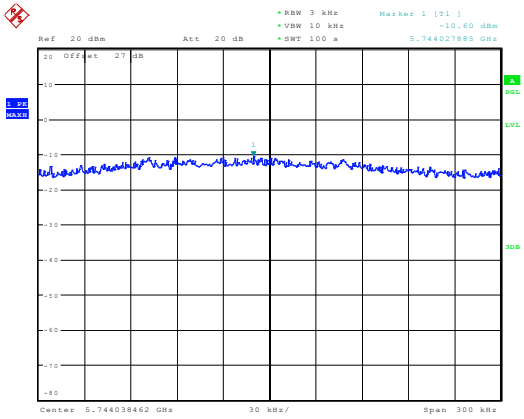


Date: 6.JAN.2010 14:16:23

Tx1 ch149

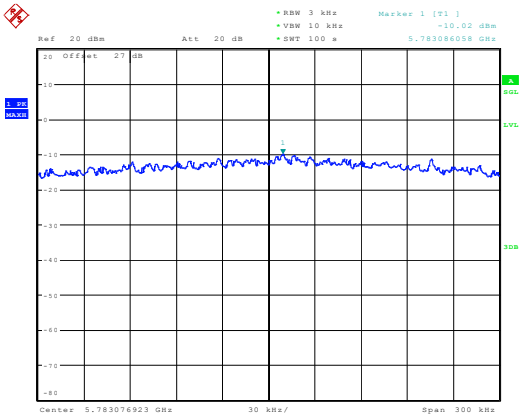


Date: 6.JAN.2010 14:19:39

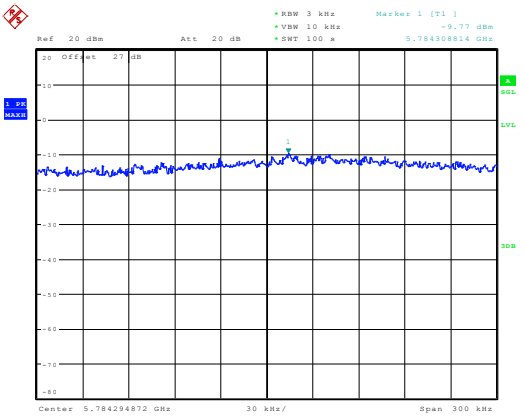


Date: 6.JAN.2010 14:22:53

Tx1 ch157

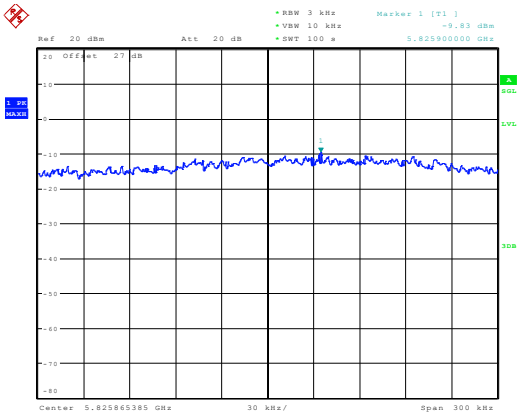


Date: 6.JAN.2010 14:25:49

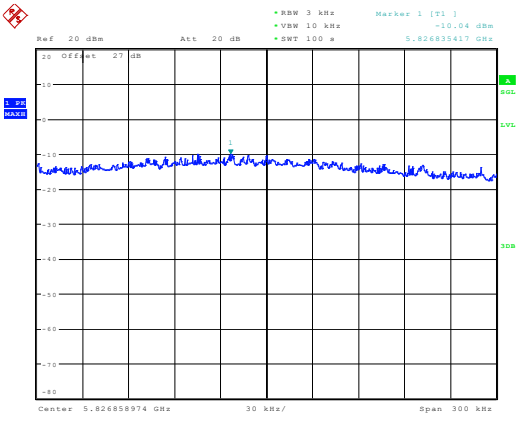


Date: 6.JAN.2010 14:28:52

Tx1 ch165



Date: 6.JAN.2010 14:31:26



Date: 6.JAN.2010 14:34:12

4.7 Transmitter Spurious Emissions- Conducted

4.7.1 Limits: § 15.247 (d)

30dBm for the transmitter.
-20dBc in the frequency range 30MHz- 25GHz.

4.7.2 Test Conditions:

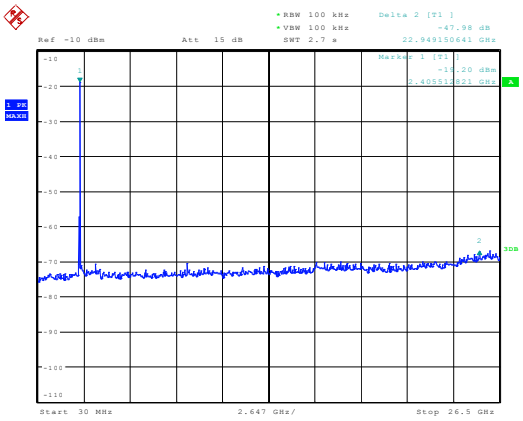
Analyzer settings: F<1G: RBW=VBW=100 kHz
F>1G: RBW=VBW=1 MHz.

4.7.3 Test data/ plots:

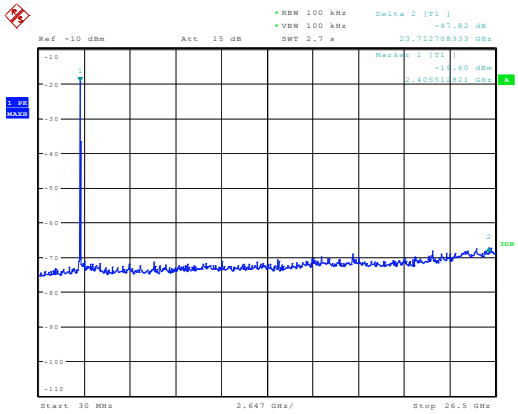
Conducted Spurious Emissions							
Frequnecy (MHz)	Channel	Tx0			Tx1		
		b	g / a	HT20	b	g / a	HT20
2412	1	Pass	Pass	Pass	Pass	Pass	Pass
2437	6	Pass	Pass	Pass	Pass	Pass	Pass
2462	11	Pass	Pass	Pass	Pass	Pass	Pass
5745	149	-	Pass	Pass	-	Pass	Pass
5785	157	-	Pass	Pass	-	Pass	Pass
5825	165	-	Pass	Pass	-	Pass	Pass

4.7.4 Test data/ plots:

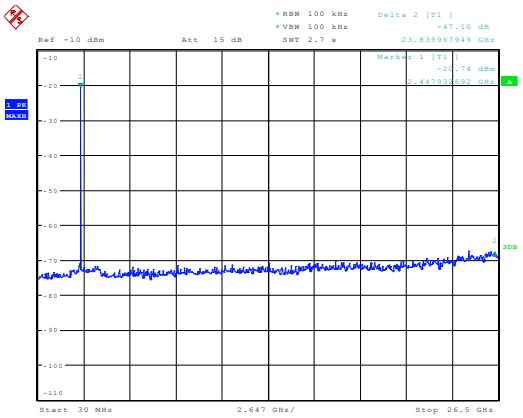
Tx0 802.11b



Date: 7.JAN.2010 08:32:20

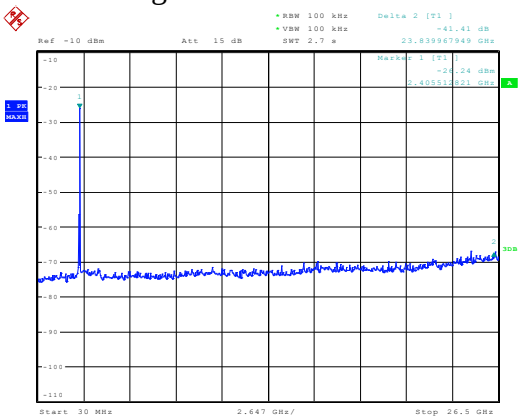


Date: 7.JAN.2010 08:36:52

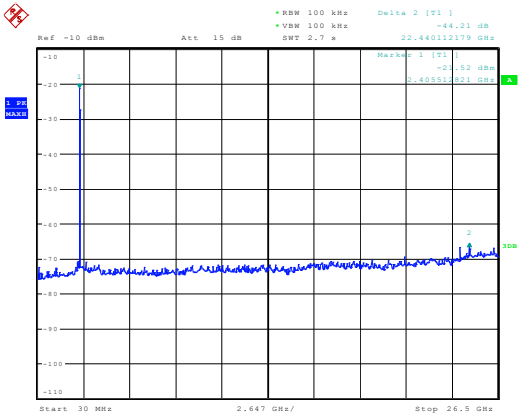


Date: 7.JAN.2010 08:37:35

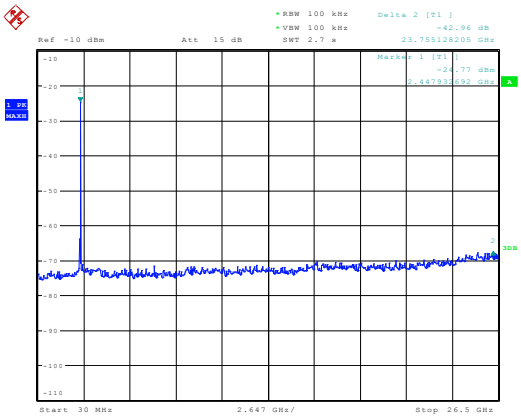
Tx0 802.11g



Date: 7.JAN.2010 08:38:22

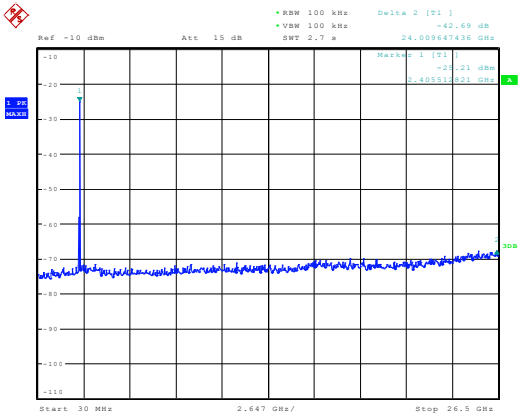


Date: 7.JAN.2010 08:39:49

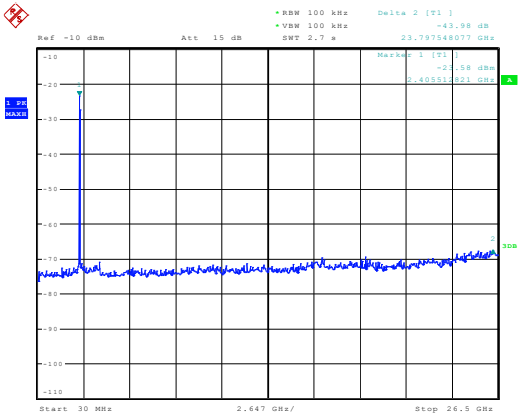


Date: 7.JAN.2010 08:40:50

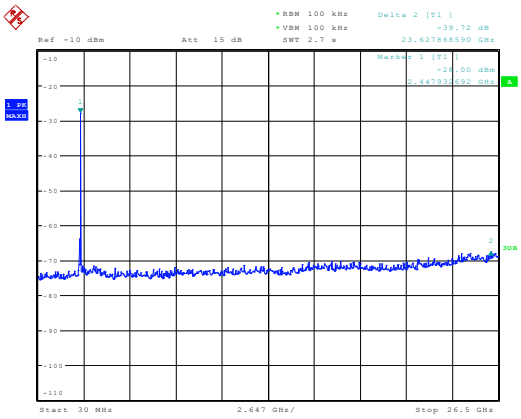
Tx0 802.11n



Date: 7.JAN.2010 08:42:10

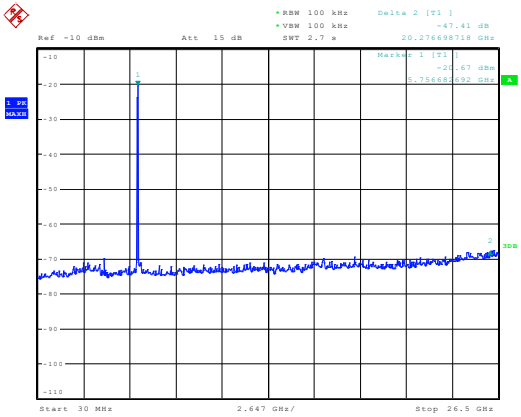


Date: 7.JAN.2010 08:43:00

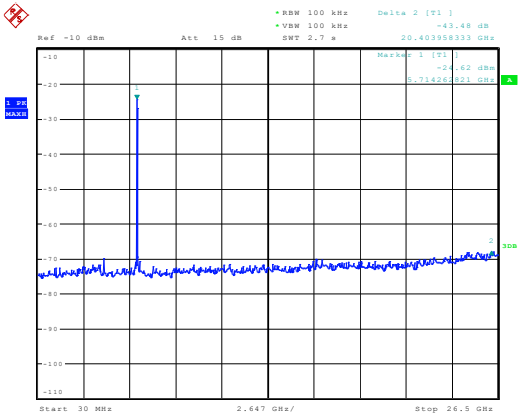


Date: 7.JAN.2010 08:44:26

Tx0 ch149

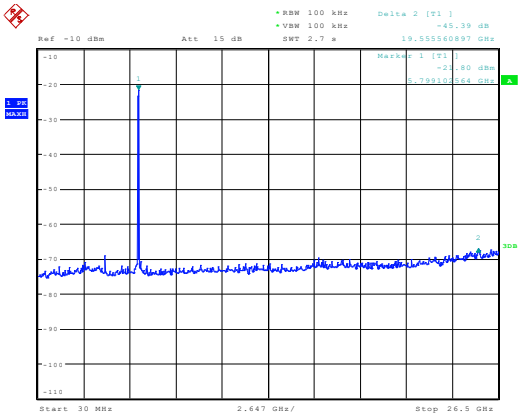


Date: 7.JAN.2010 08:49:19

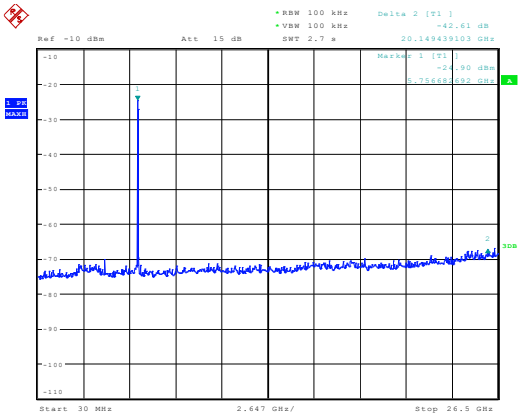


Date: 7.JAN.2010 08:50:11

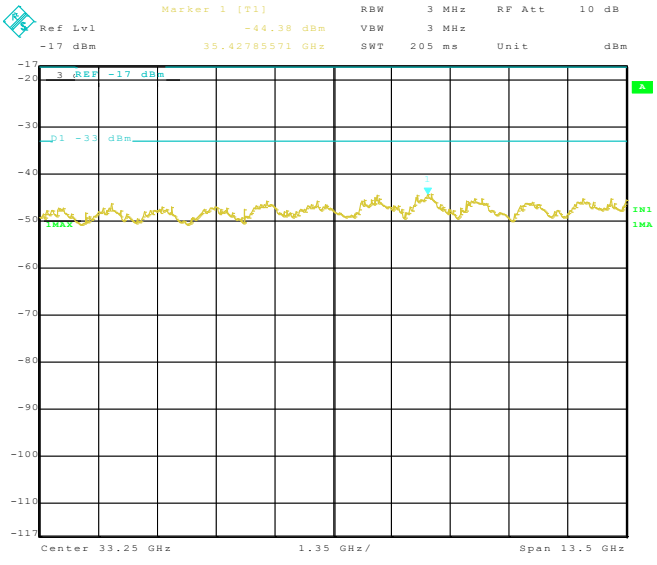
Tx0 ch157



Date: 7.JAN.2010 08:51:10

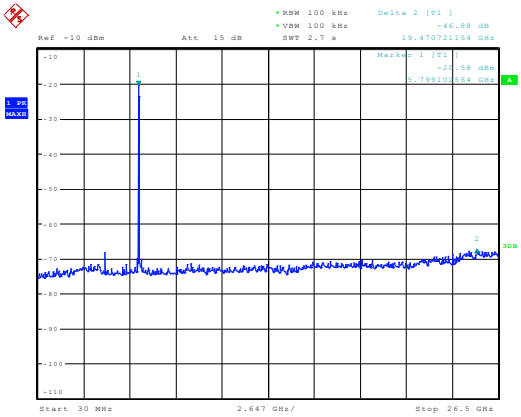


Date: 7.JAN.2010 08:51:56

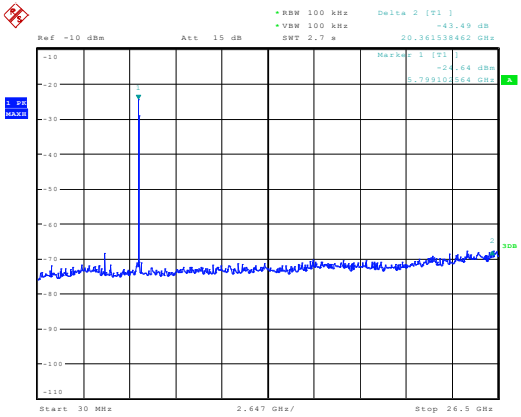


Date: 7.JAN.2010 14:01:35

Tx0 ch165

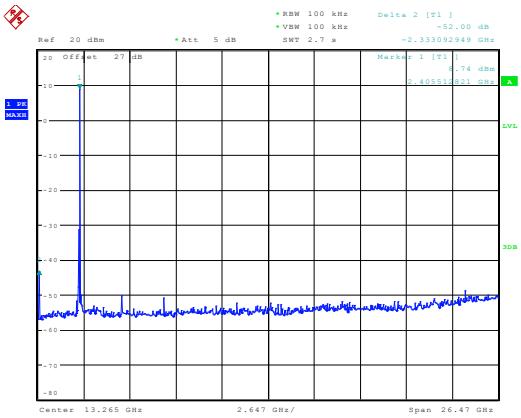


Date: 7.JAN.2010 08:52:43

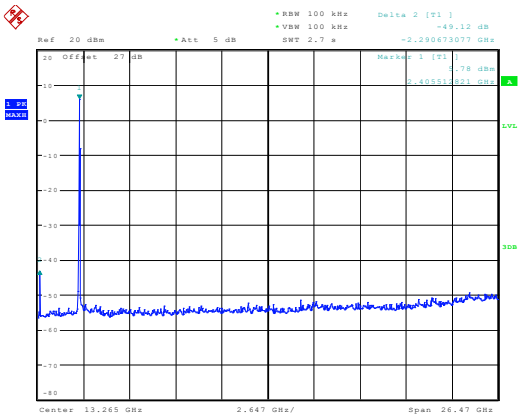


Date: 7.JAN.2010 08:53:28

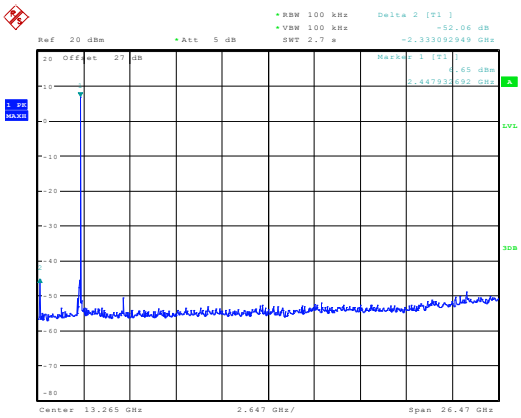
Tx1 802.11b



Date: 7.JAN.2010 11:02:50

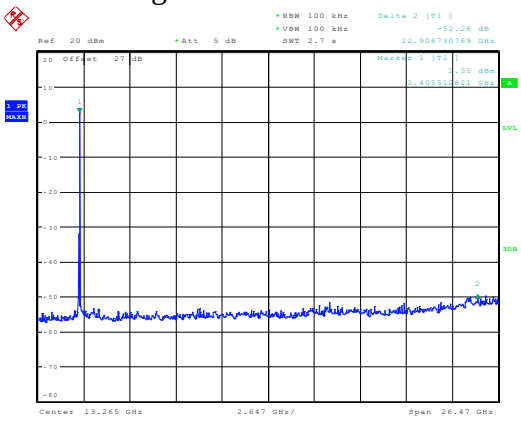


Date: 7.JAN.2010 11:04:51

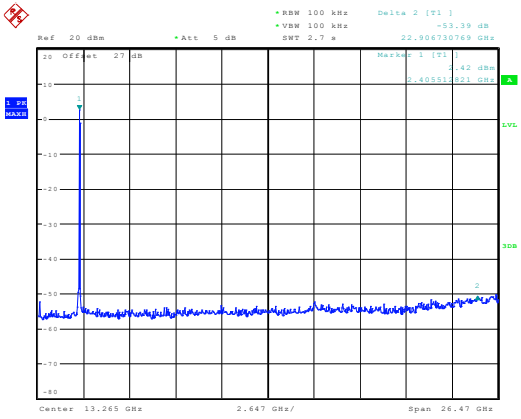


Date: 7.JAN.2010 11:07:10

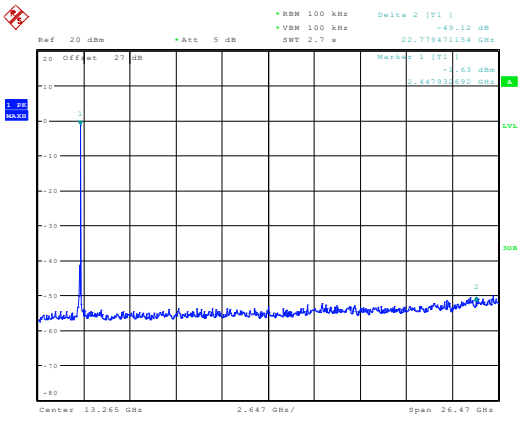
Tx1 802.11g



Date: 7.JAN.2010 11:03:25

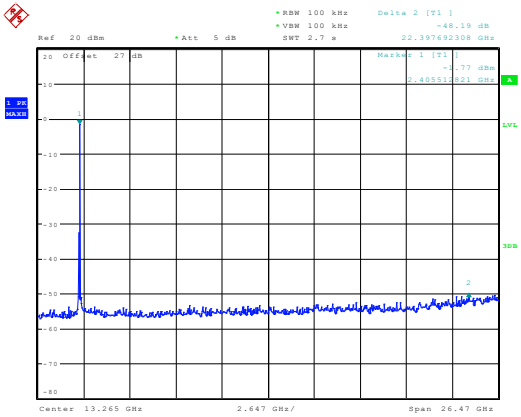


Date: 7.JAN.2010 11:05:49

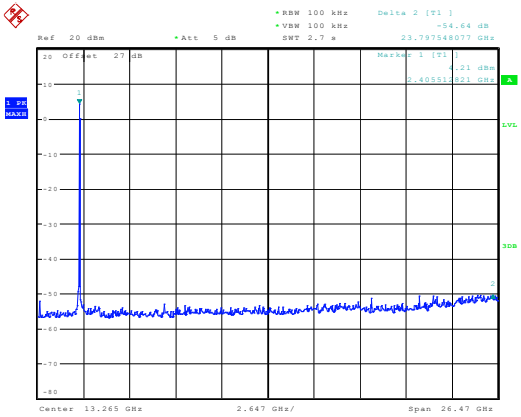


Date: 7.JAN.2010 11:07:40

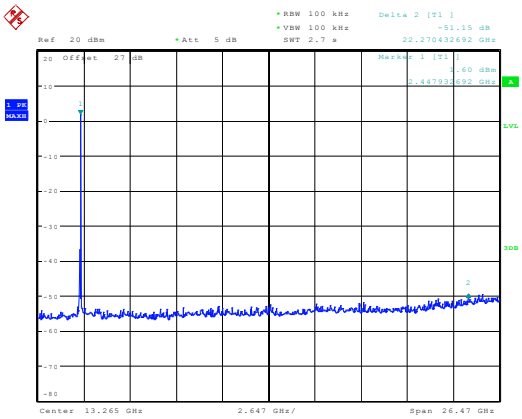
Tx1 802.11n



Date: 7.JAN.2010 11:04:03

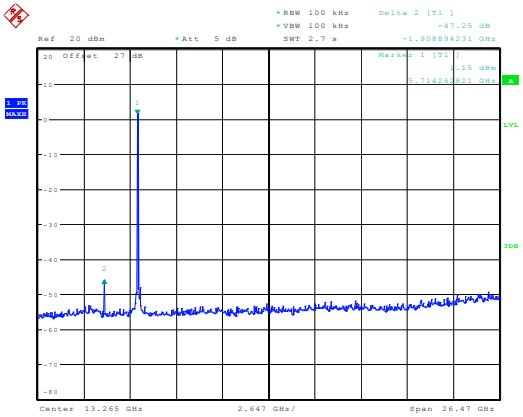


Date: 7.JAN.2010 11:06:23

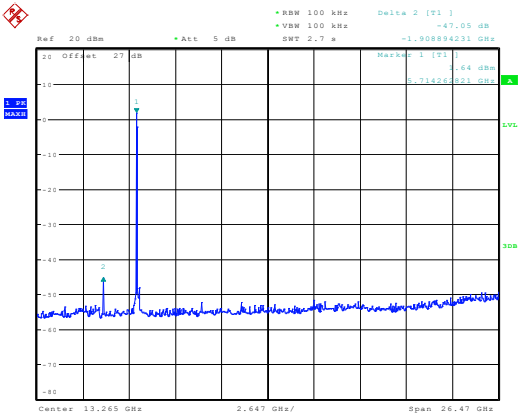


Date: 7.JAN.2010 11:08:20

Tx1 ch149

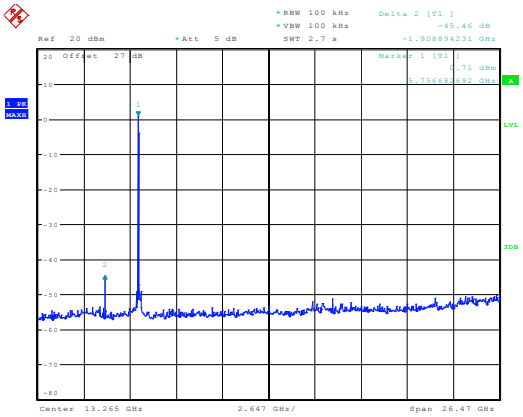


Date: 7.JAN.2010 10:54:48

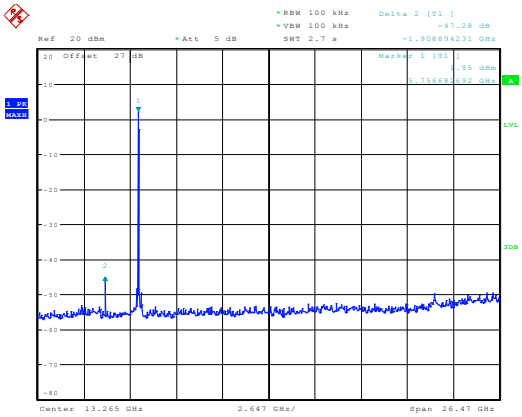


Date: 7.JAN.2010 10:56:16

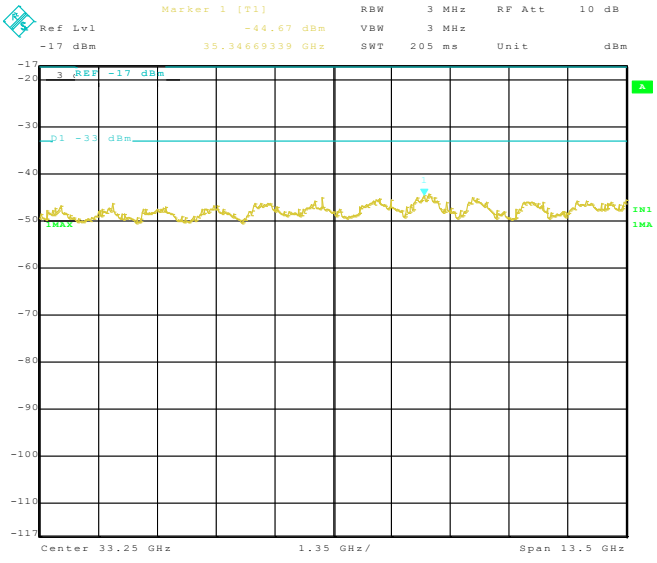
Tx1 ch157



Date: 7.JAN.2010 10:57:04

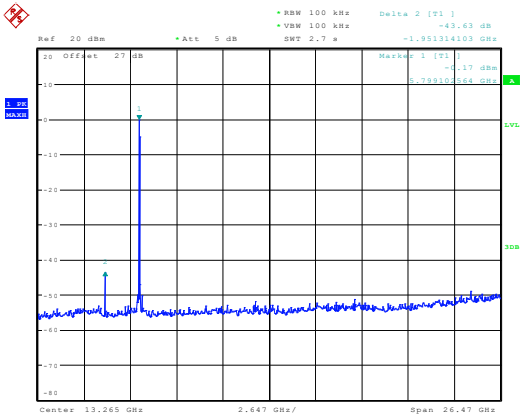


Date: 7.JAN.2010 11:00:16

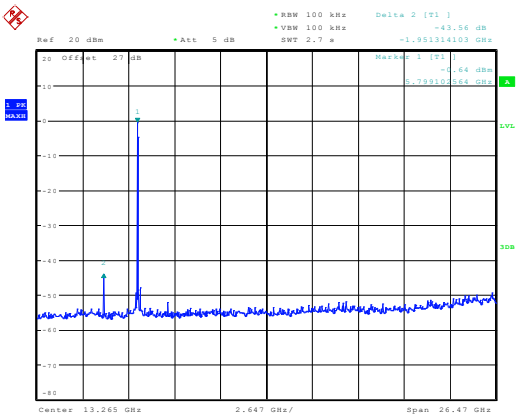


Date: 7.JAN.2010 13:59:03

Tx1 ch165

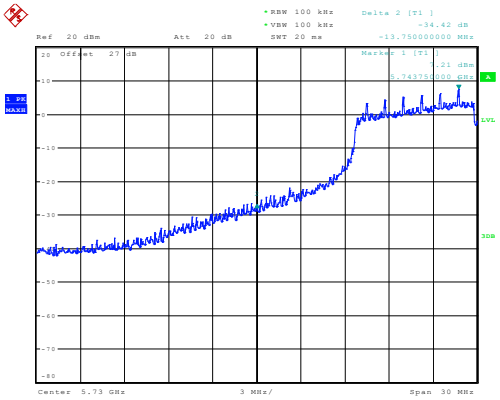


Date: 7.JAN.2010 10:59:12

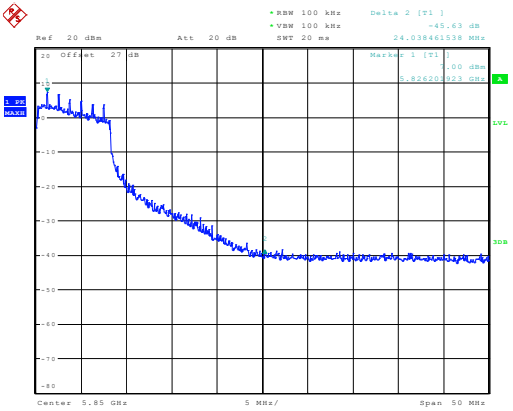


Date: 7.JAN.2010 11:00:59

Conducted bandedge 20dBc Tx0 a

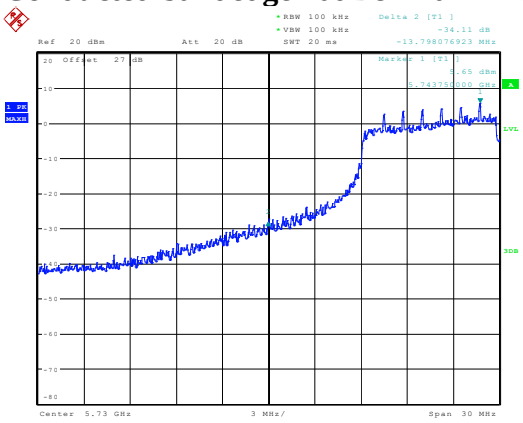


Date: 6.JAN.2010 16:05:38

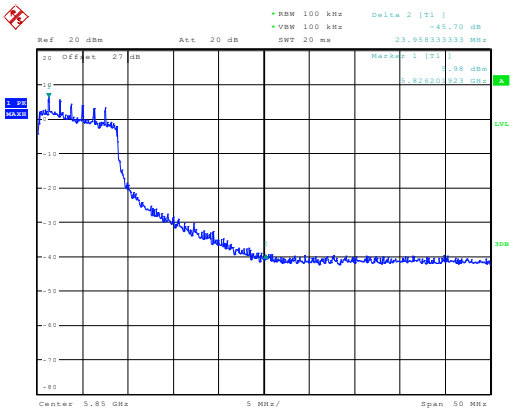


Date: 6.JAN.2010 16:13:19

Conducted bandedge 20dBc Tx0 HT20

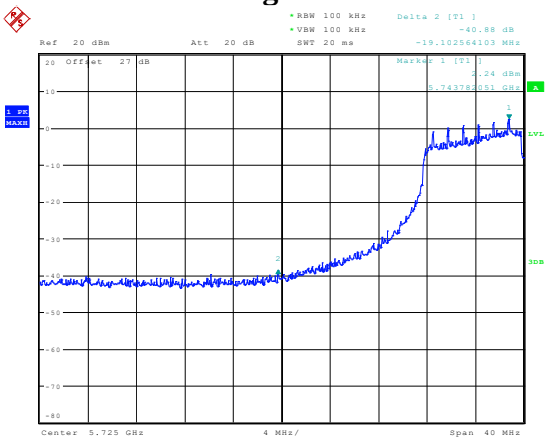


Date: 6.JAN.2010 16:08:52

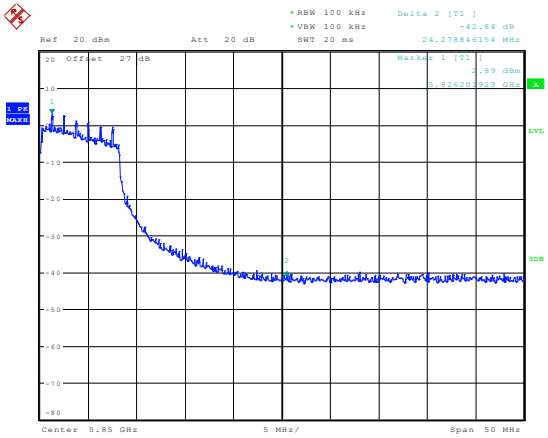


Date: 6.JAN.2010 16:15:02

Conducted bandedge 20dBc Tx1 a

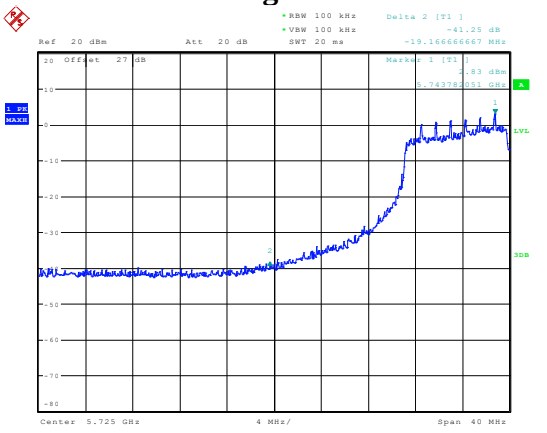


Date: 6.JAN.2010 16:22:11

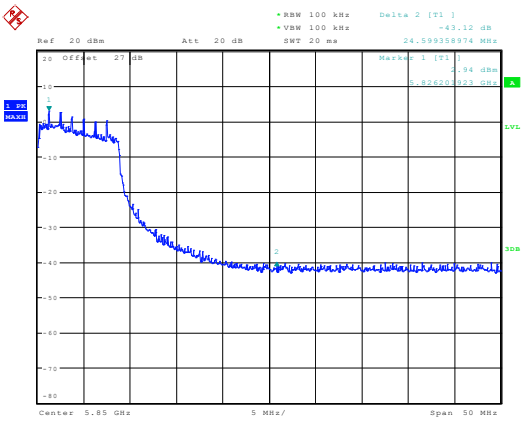


Date: 6.JAN.2010 16:19:20

Conducted bandedge 20dBc Tx1 HT20



Date: 6.JAN.2010 16:23:24



Date: 6.JAN.2010 16:20:44

4.8 Transmitter Spurious Emissions- Radiated

4.8.1 Limits: §15.247/15.205

(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			

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. 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)).
*PEAK LIMIT= 74dBµV/m
*AVG. LIMIT= 54dBµV/m

4.8.2 Limits: §15.209

(For measurement distance of 3m)

Frequency of emission (MHz)	Field strength (µV/m)
30–88	100 (40dBµV/m)
88–216	150 (43.5 dBµV/m)
216–960	200 (46 dBµV/m)
Above 960	500 (54 dBµV/m)

NOTE:
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 within the plots.

4.8.3 Limits: §15.209

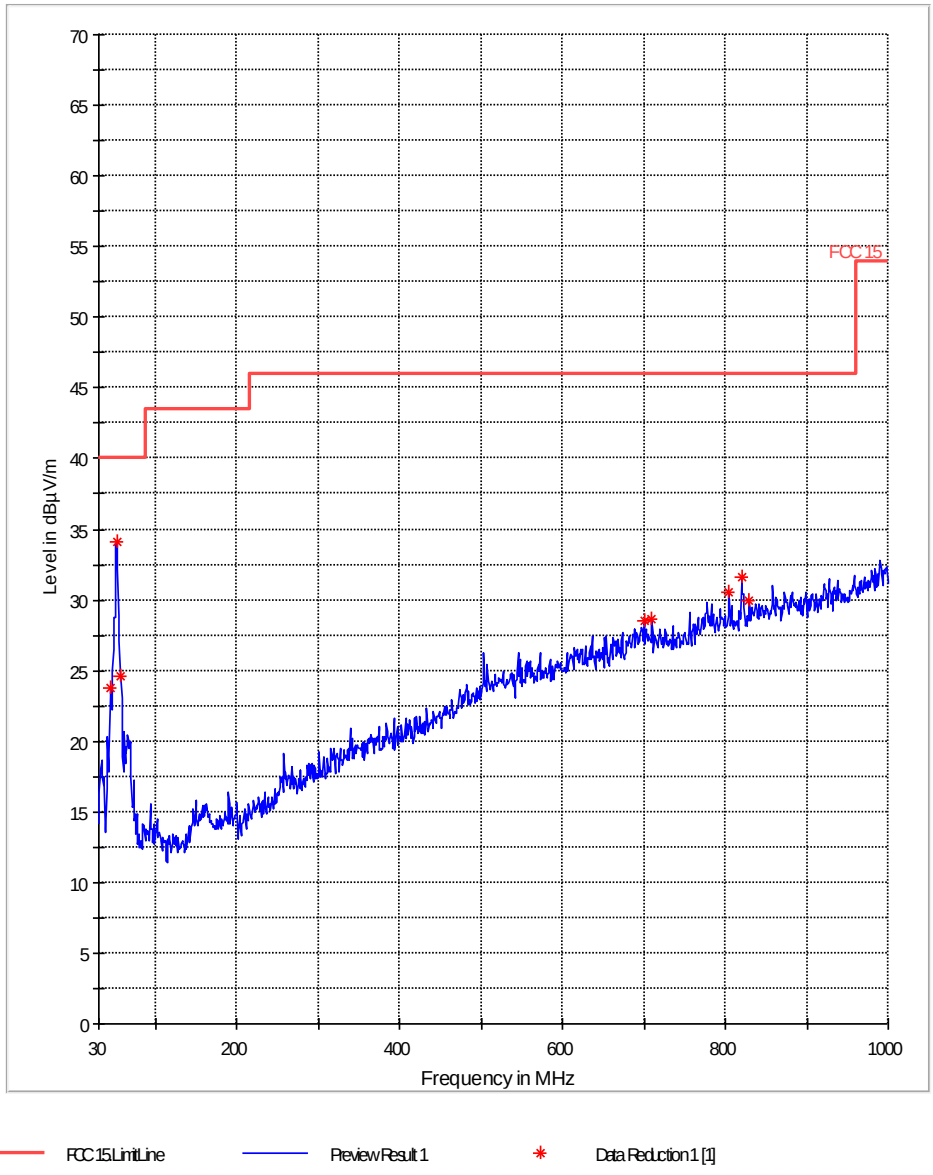
Frequency of emission (MHz)	Field strength (µV/m)	Measurement Distance (m)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30

4.8.4 Test Result:
No significant emissions measurable. Plots reported here represent the worse case emissions, and both Horizontal and Vertical polarizations.

4.8.5 Test data/ plots:

NOTE – Worst case plot for all channels and modes.

b mode_ch 6_tx 1_30-1



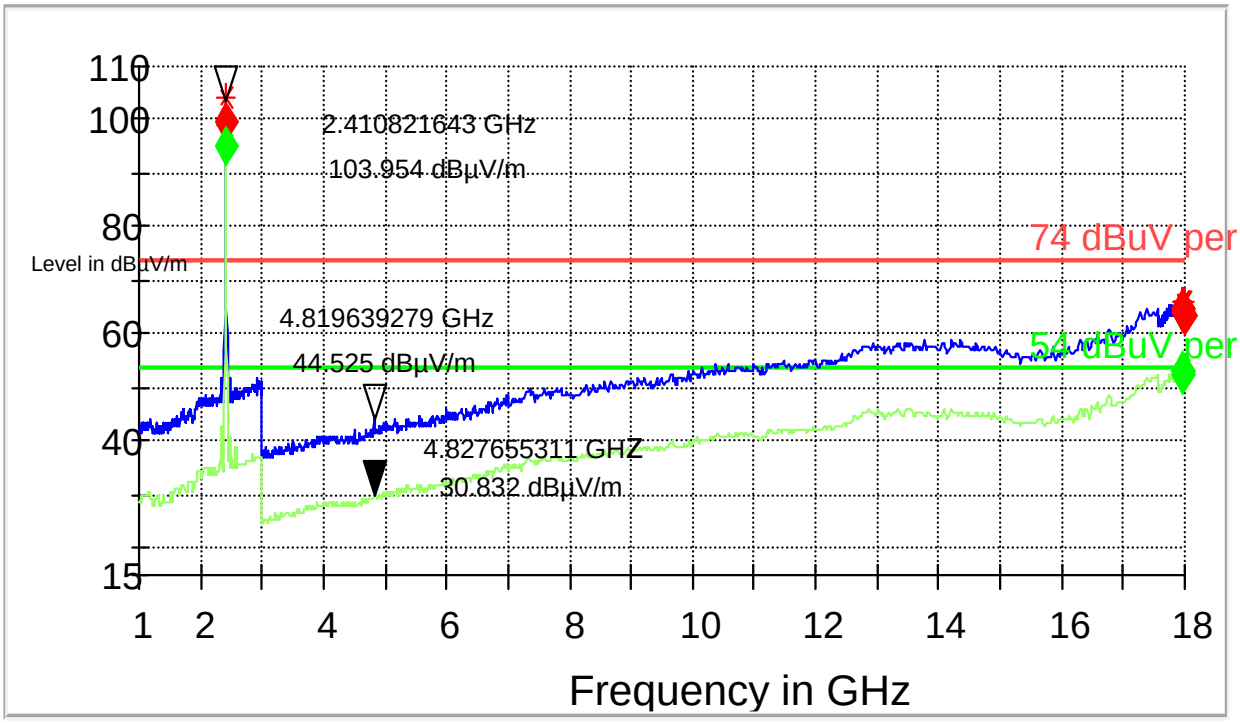
EUT Information

Comment: 802.11b ch1 power level 16.8dBm avg. Tx0

Final Result 1

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Elevation (deg)	Corr. (dB)	Margin (dB)
2412.918144	99.5	20.000	1000.000	120.0	V	98.0	90.0	24.6	-25.5
17949.834455	64.5	20.000	1000.000	145.0	V	8.0	90.0	30.1	9.5
17953.642688	64.1	20.000	1000.000	145.0	H	292.0	90.0	30.0	9.9
17954.412321	64.9	20.000	1000.000	145.0	V	112.0	90.0	30.1	9.1
17969.786416	64.2	20.000	1000.000	120.0	V	188.0	90.0	29.9	9.8
17989.453491	63.8	20.000	1000.000	145.0	V	22.0	90.0	29.8	10.2

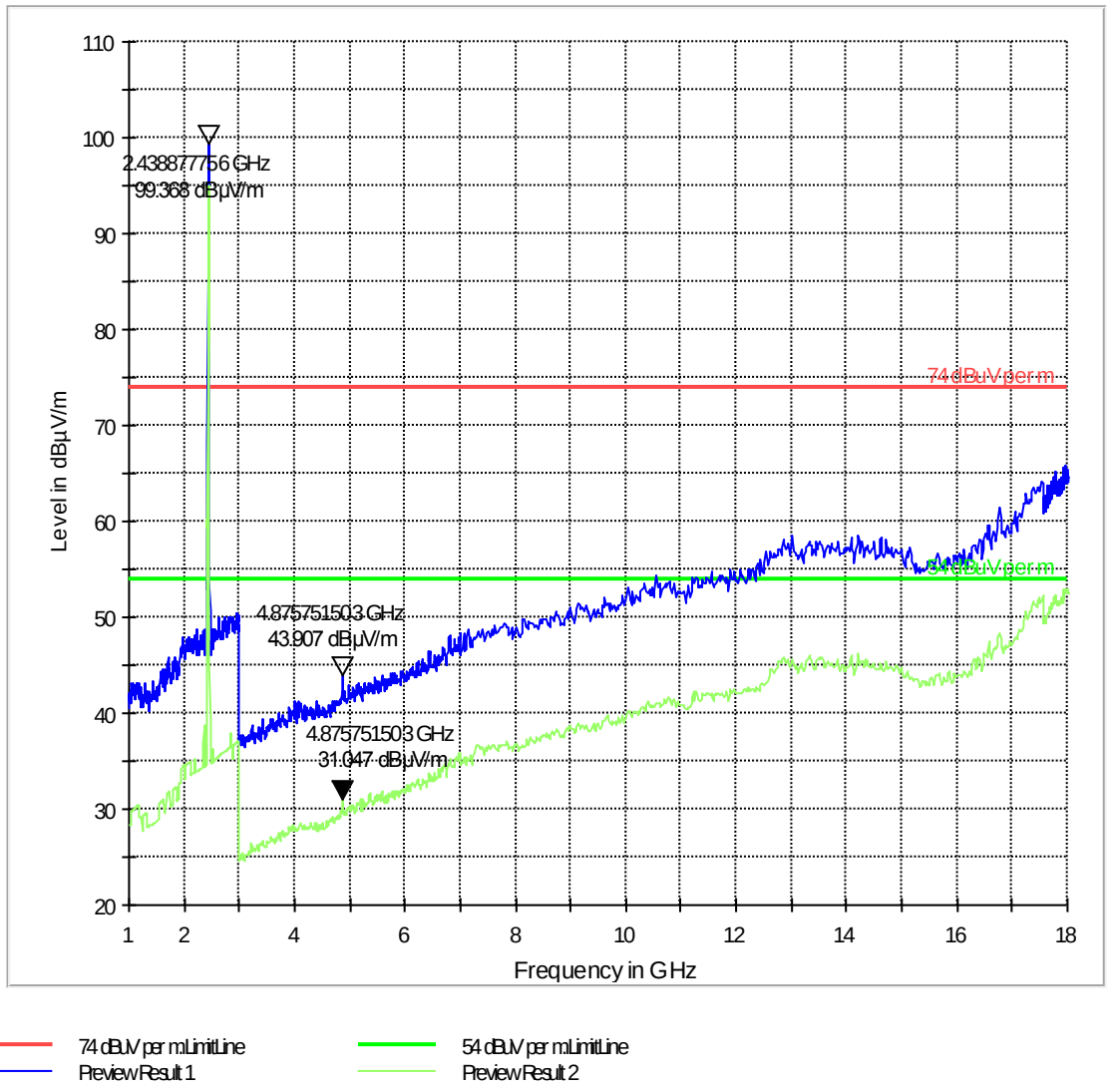
FCC 15 1-18GHz



74 dBuV per m.LimitLine
54 dBuV per m.LimitLine
Preview Result 1
Preview Result 2
Data Reduction 1 [2]
Data Reduction 2 [2]
Final Result 1
Final Result 2

EUT Information

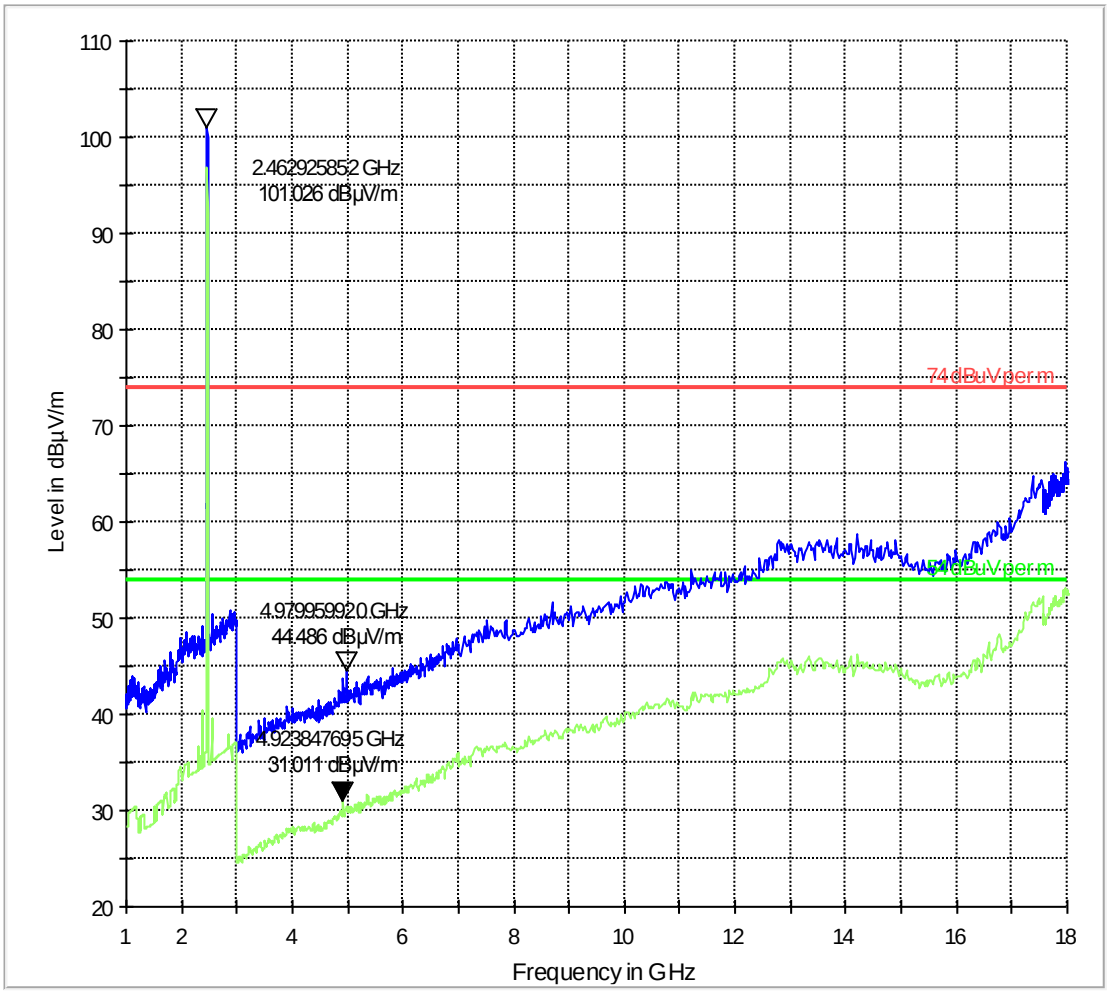
Comment: 802.11b ch6 power level 16.7dBm avg. Tx0



EUT Information

Comment: 802.11b ch11 power level 16.5dBm avg. Tx0

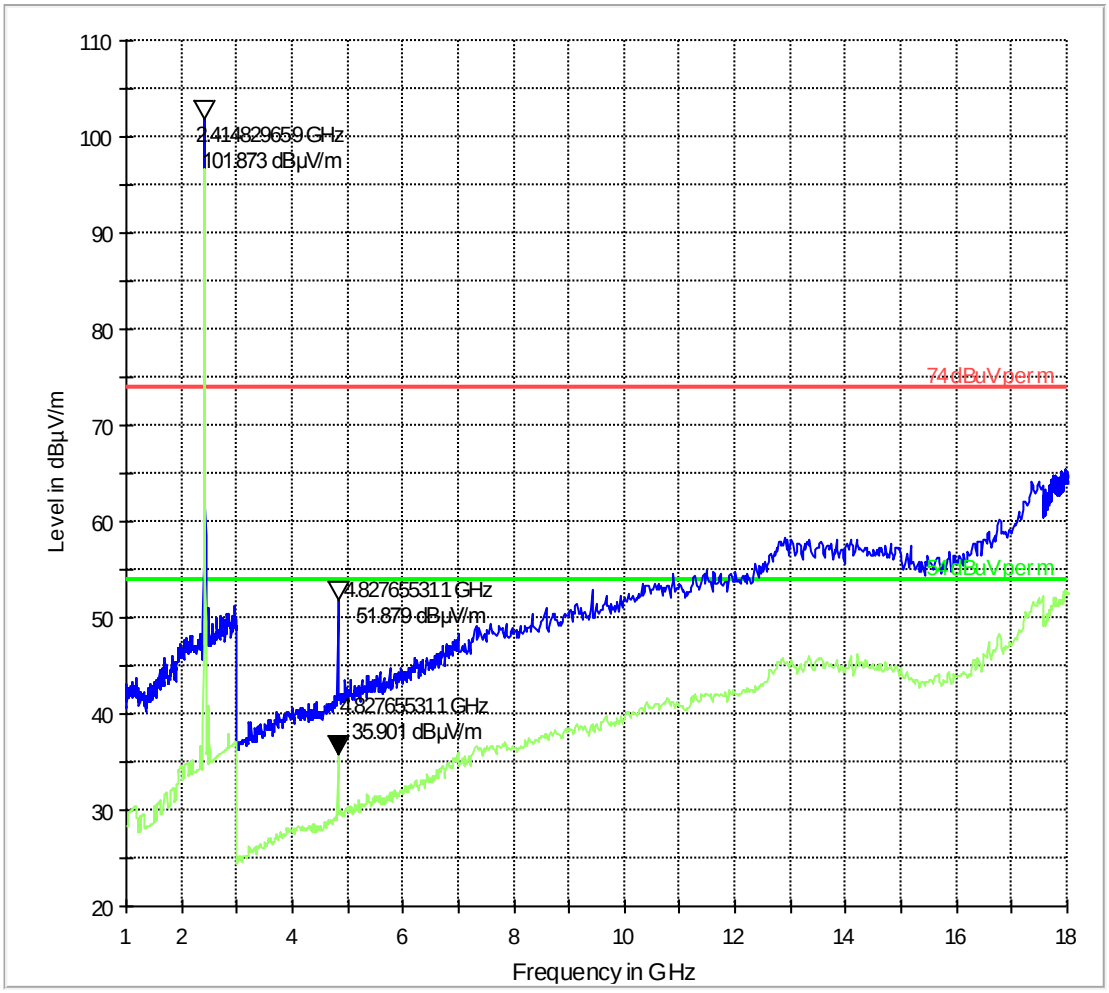
FCC 15 1-18GHz



EUT Information

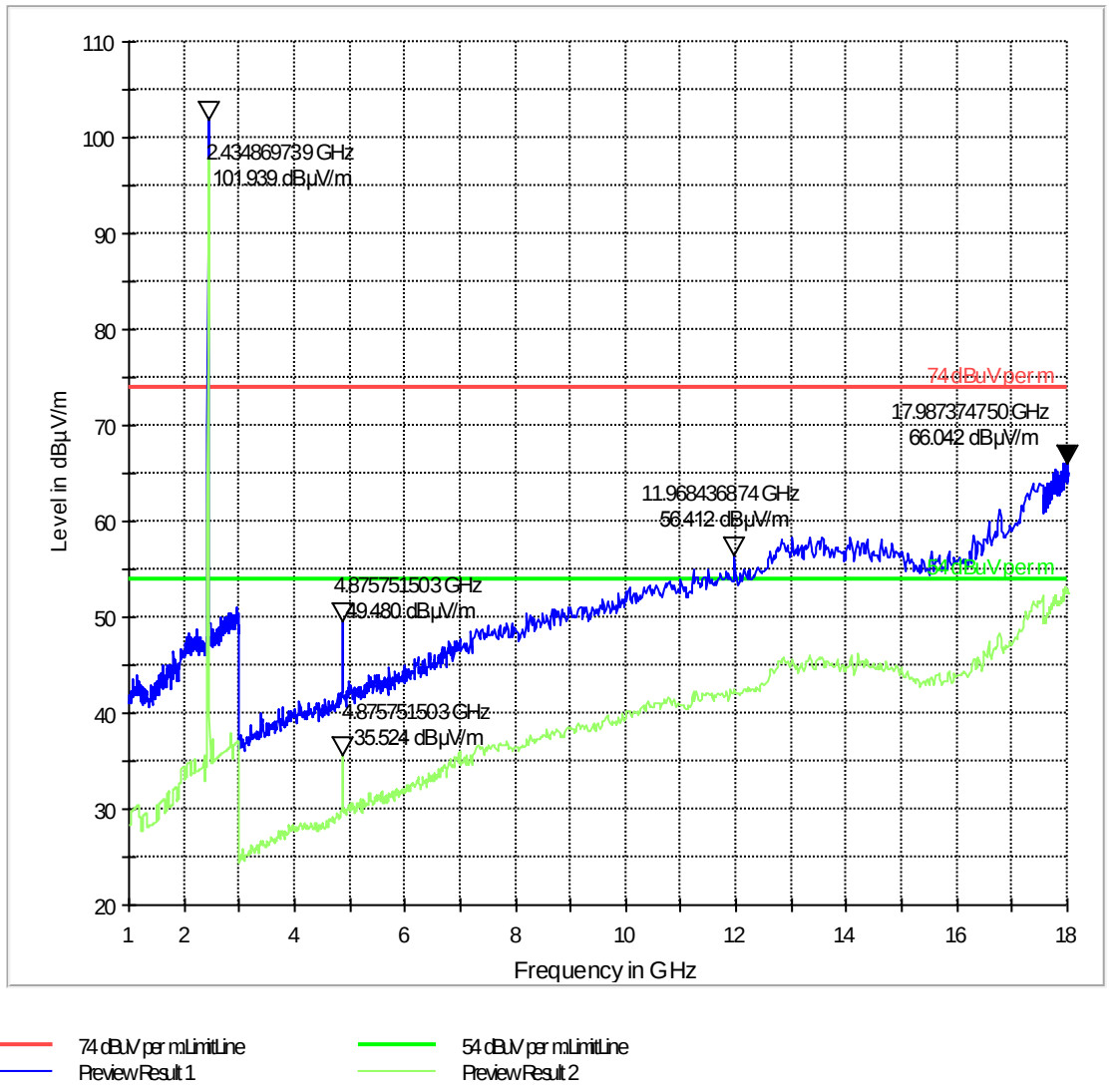
Comment: 802.11b ch1 power level 16.7dBm avg./ tx1

FCC 15 1-18GHz



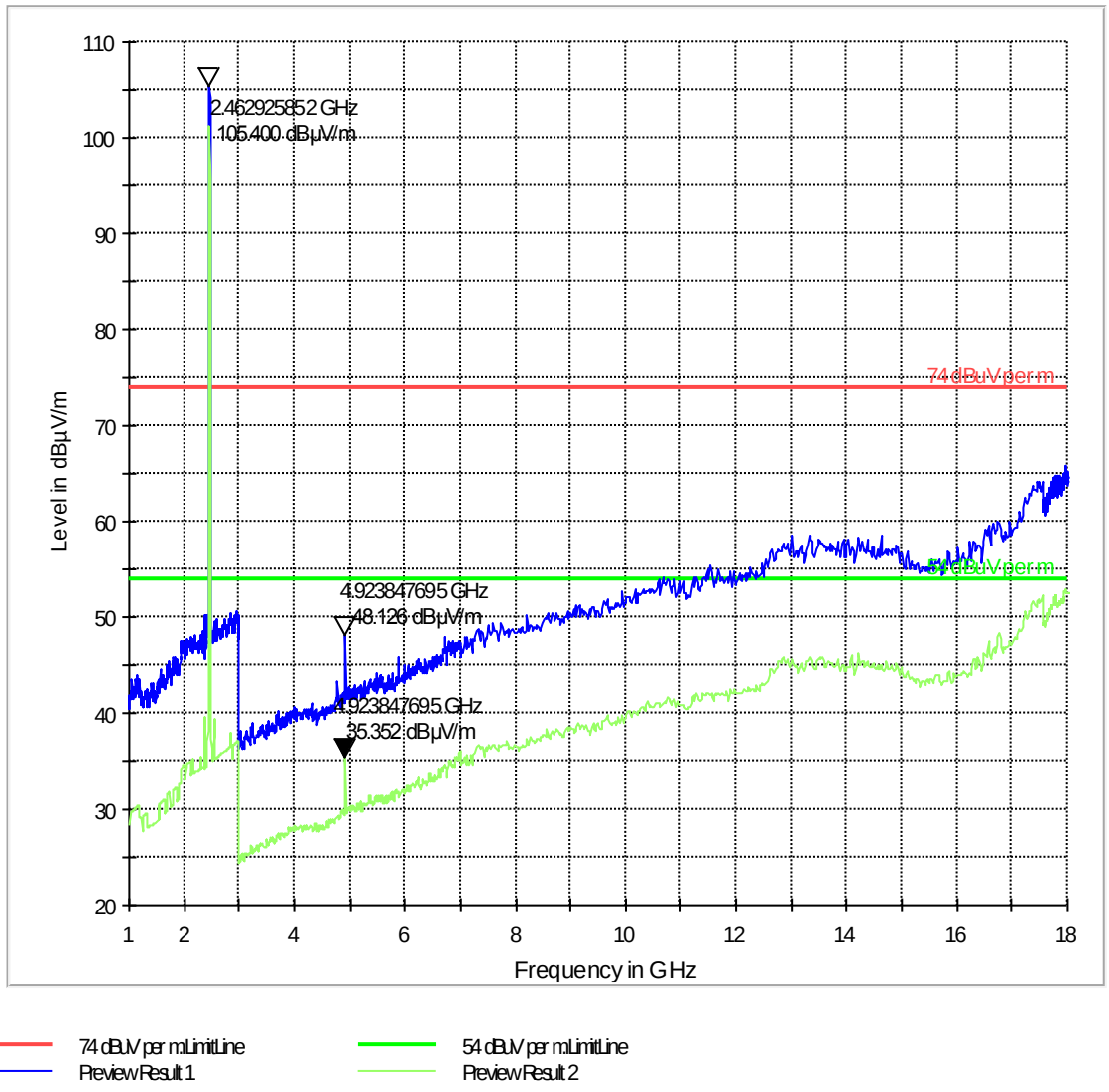
EUT Information

Comment: 802.11b ch6 power level 16.8dBm avg./ tx1



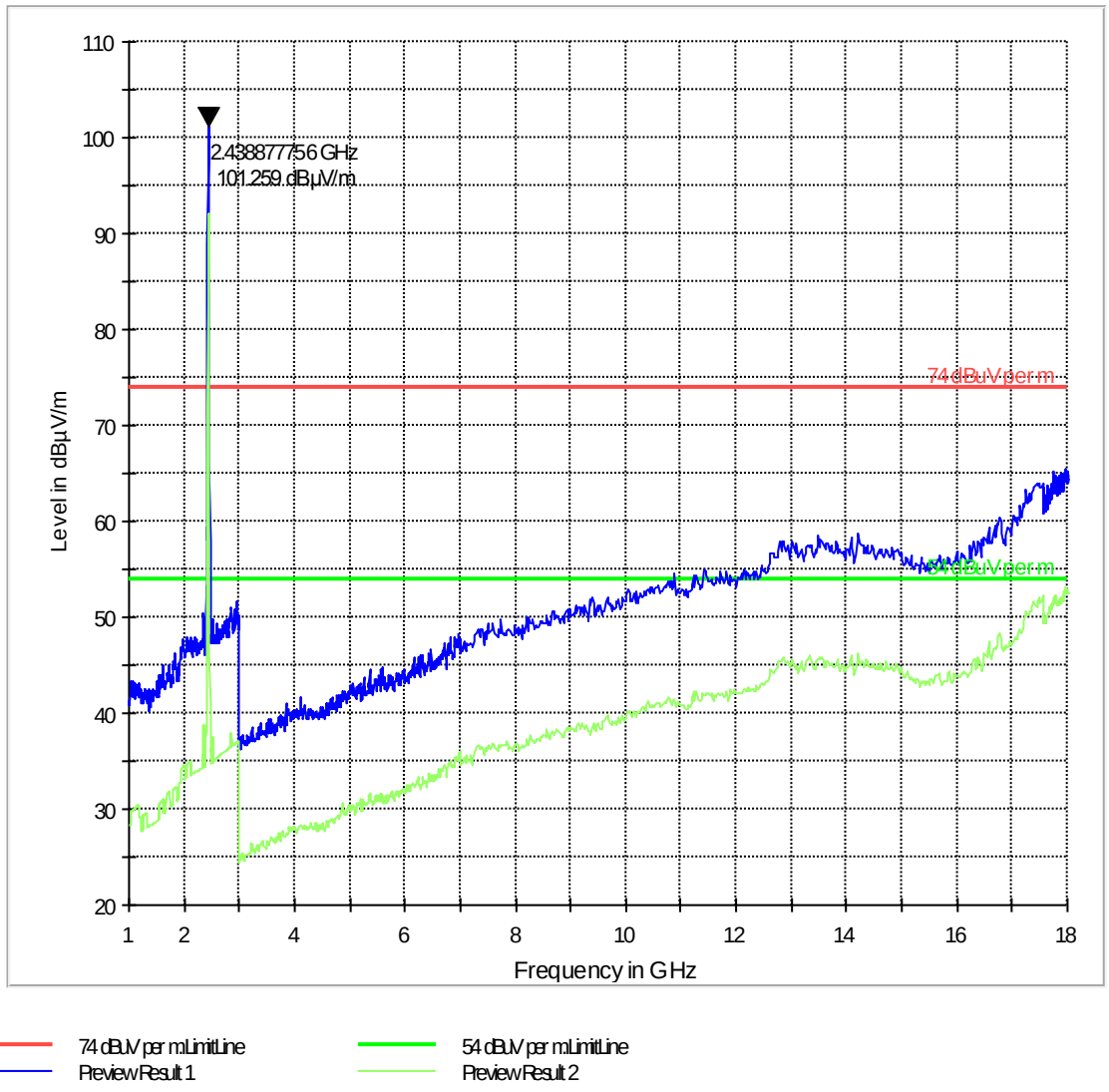
EUT Information

Comment: 802.11b ch11 power level 16.6dBm avg./ tx1



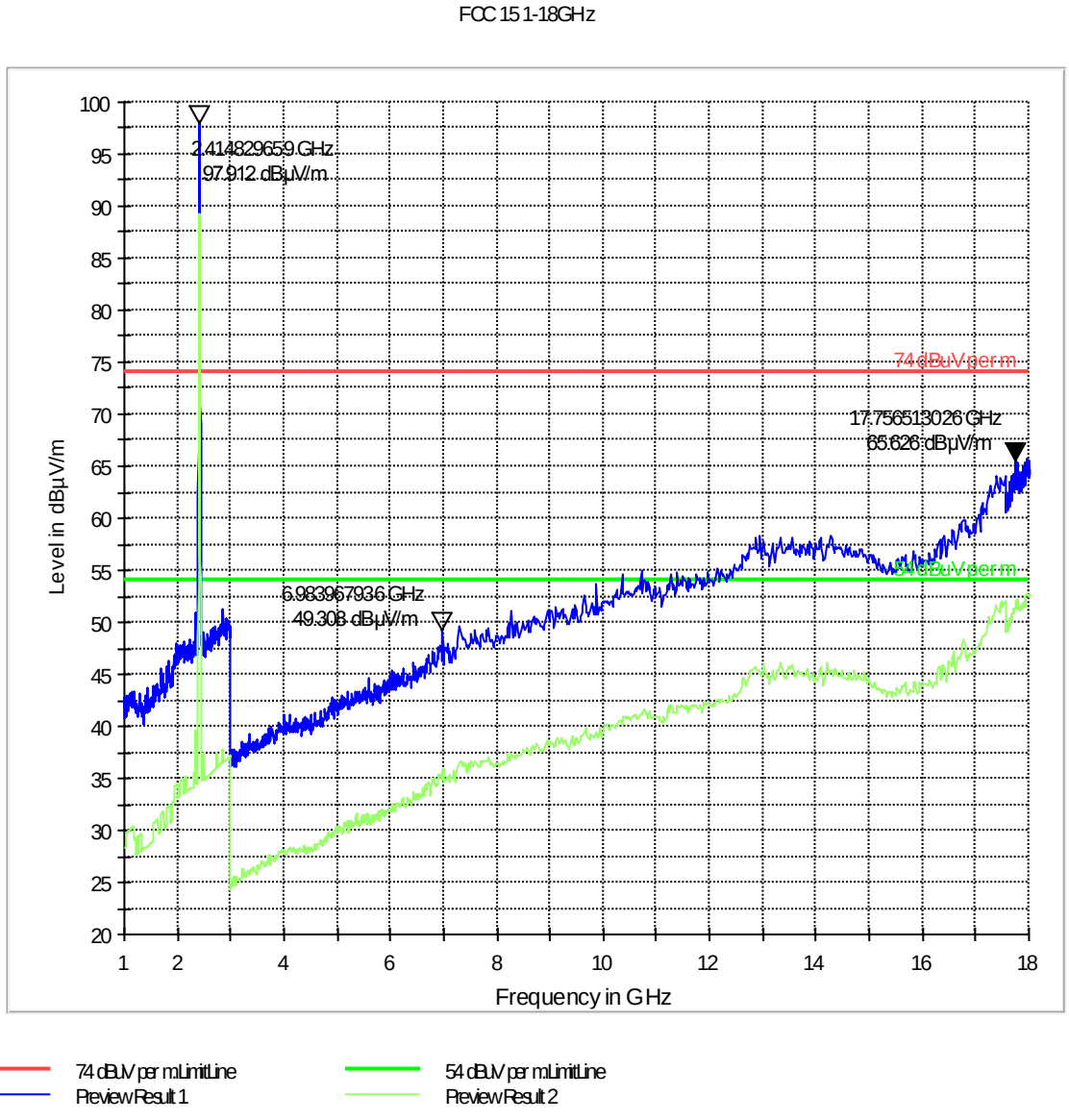
EUT Information

Comment: 802.11g ch6 power level 16.6dBm avg. Tx 0



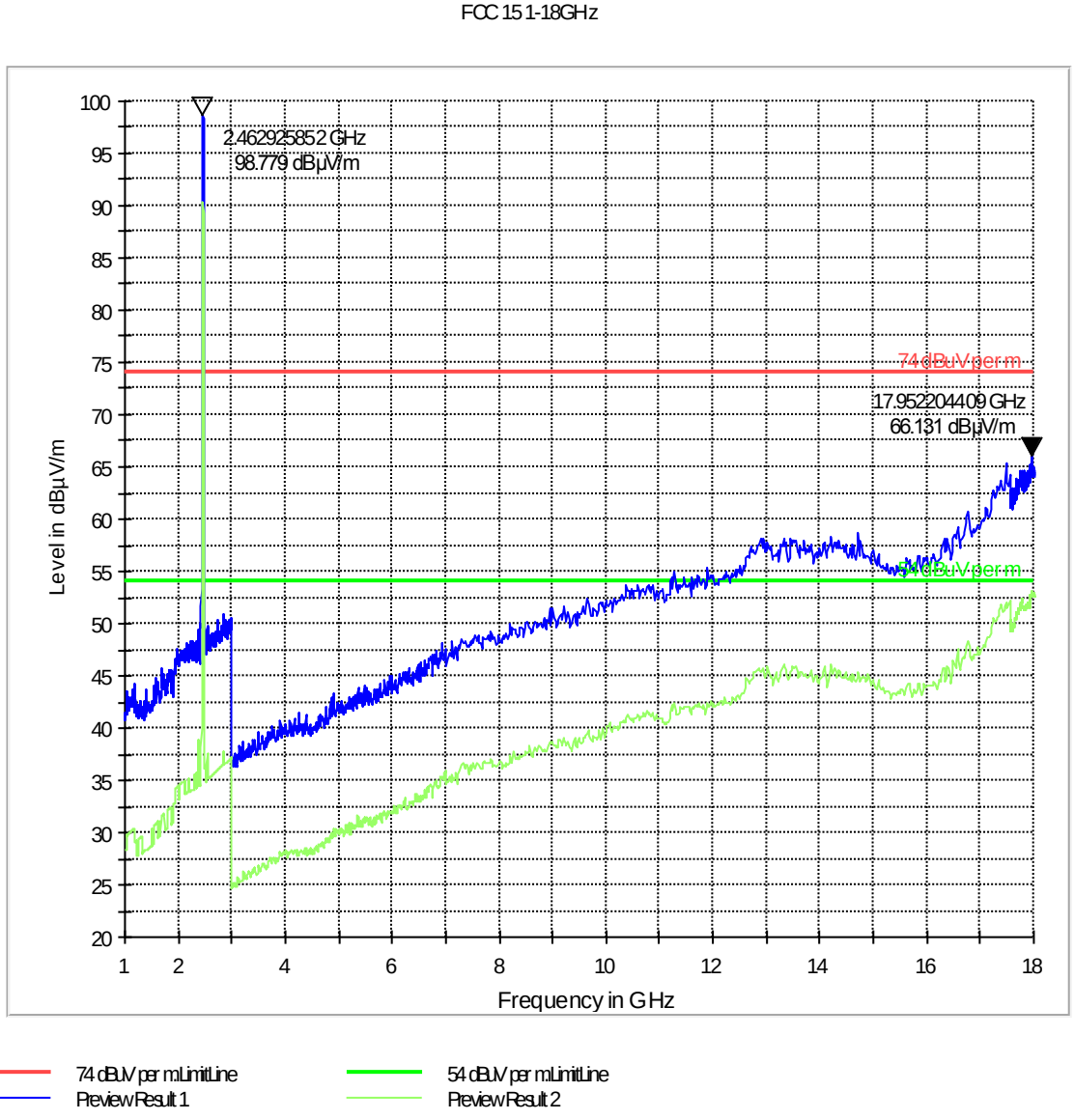
EUT Information

Comment: 802.11g ch1 power level 14.5dBm avg. Tx 0



EUT Information

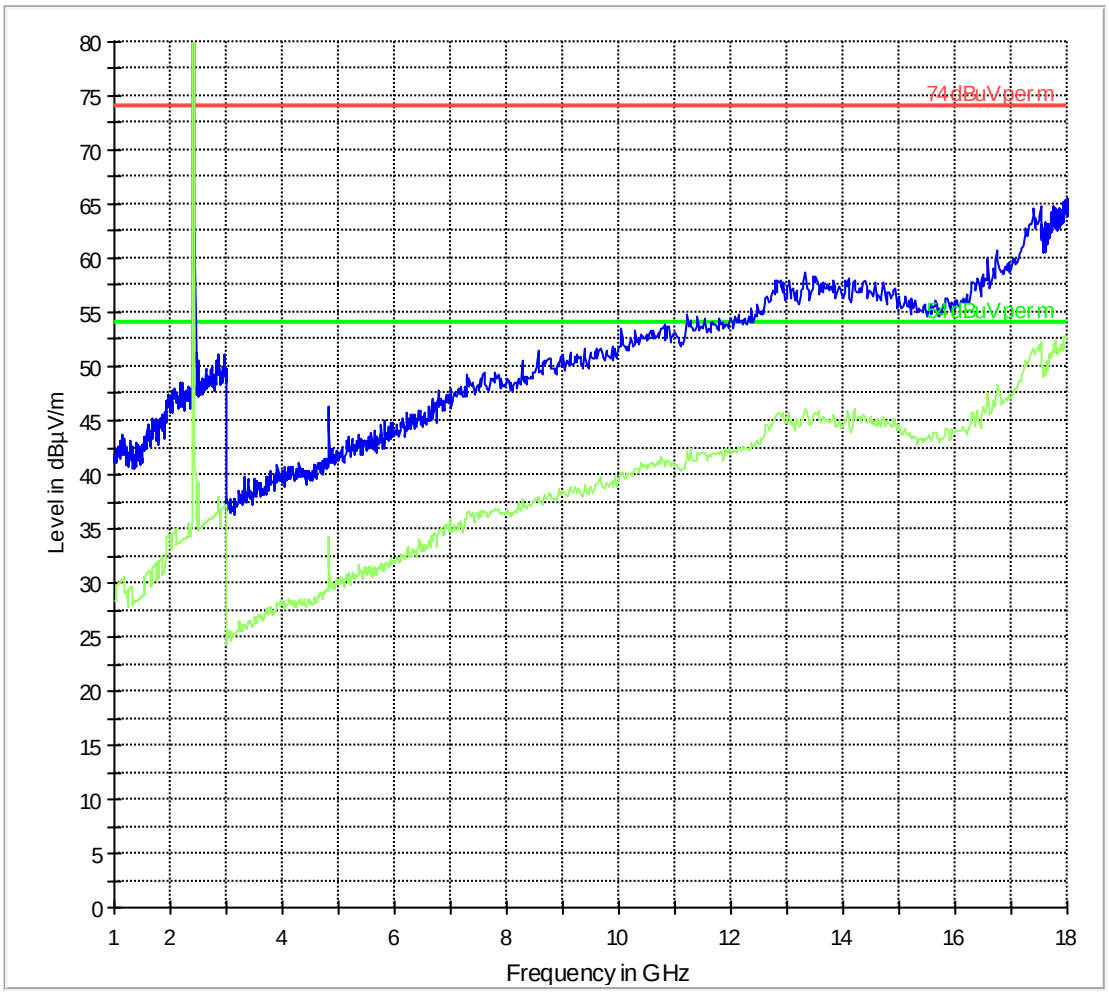
Comment: 802.11g ch11 power level 14dBm avg. Tx 0



EUT Information

Comment: 802.11g ch1 power level 13.3dBm avg. Tx 1

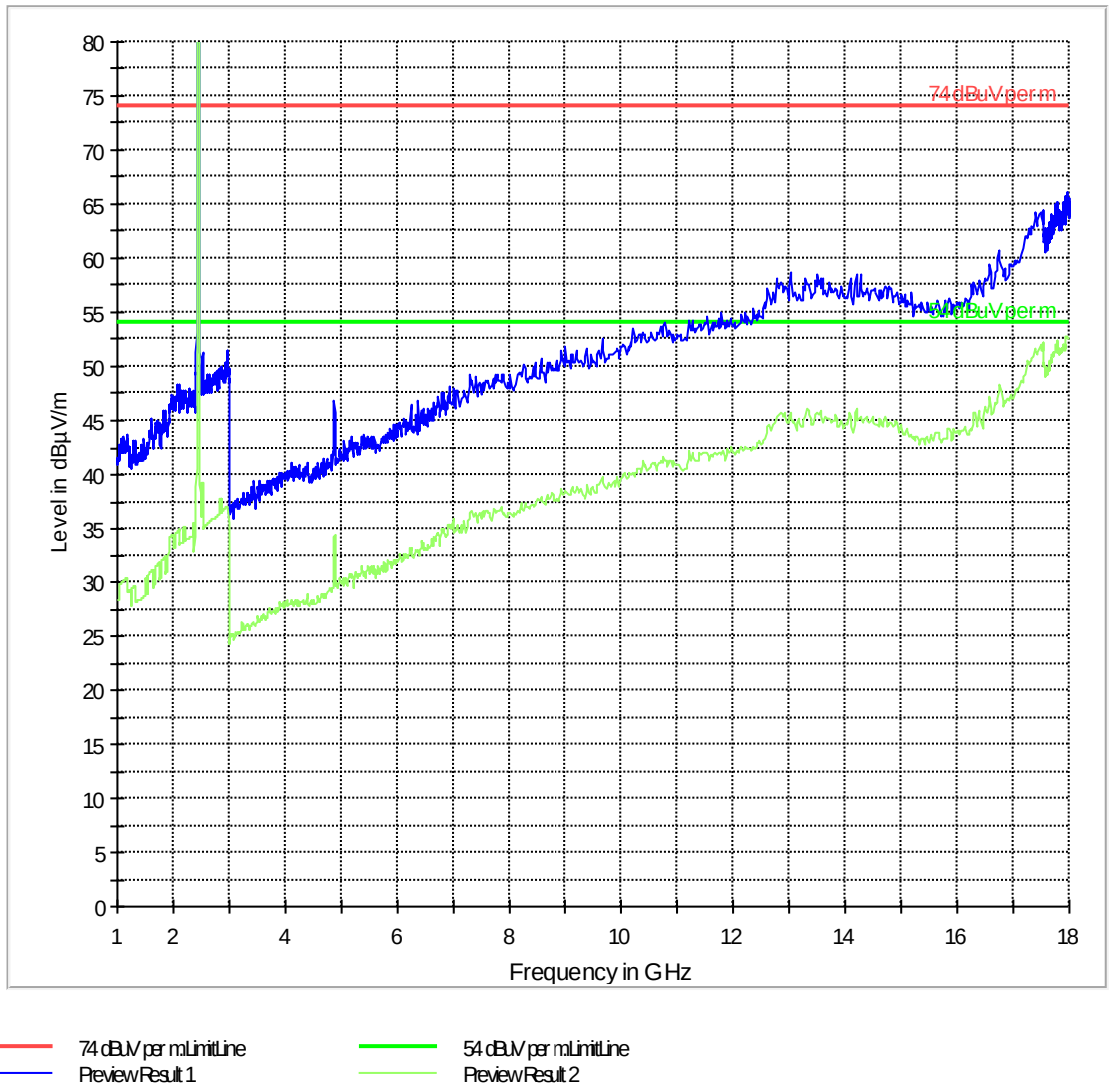
FCC 15 1-18GHz



74 dBuV per m LimitLine
Preview Result 1
54 dBuV per m LimitLine
Preview Result 2

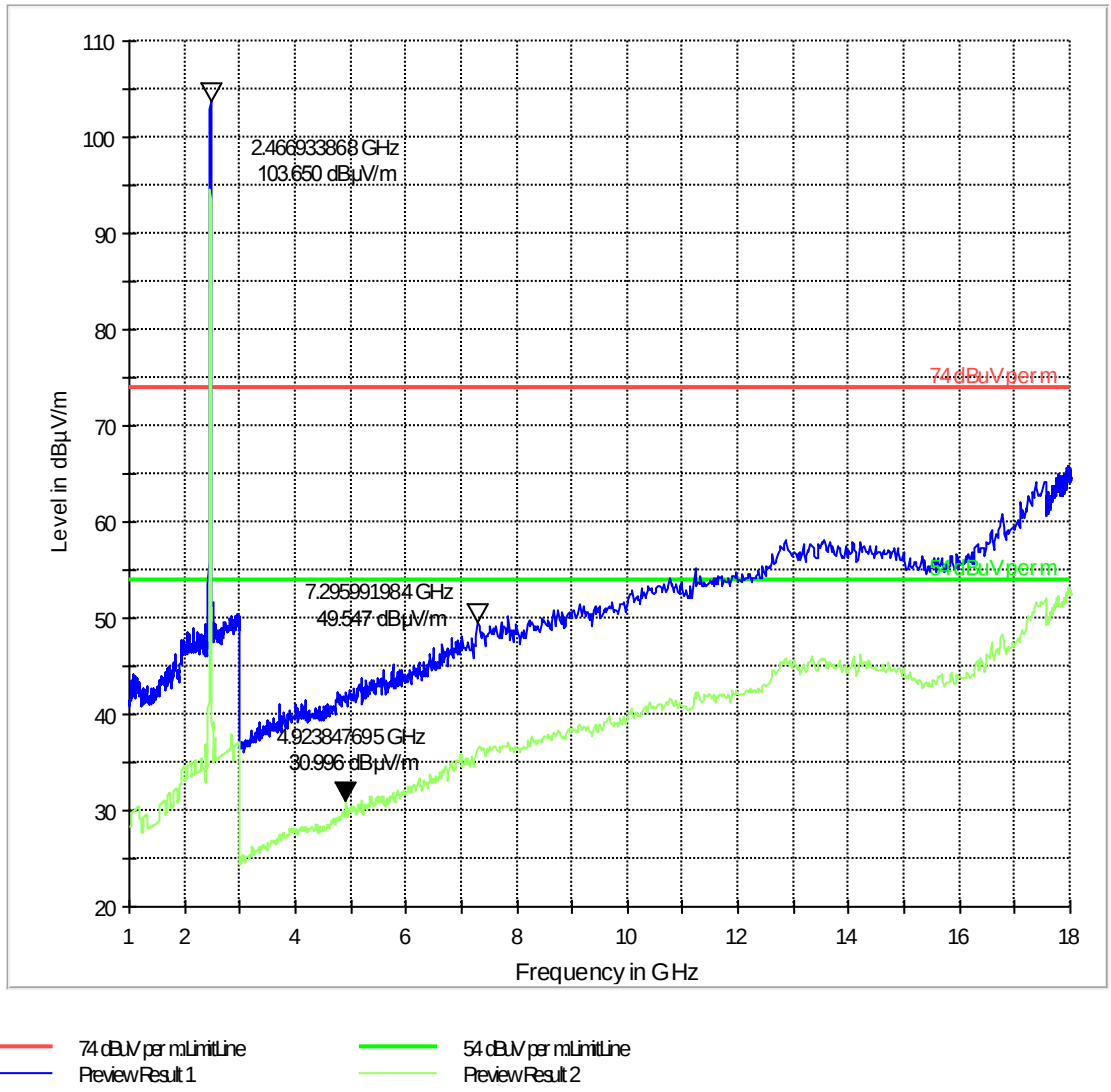
EUT Information

Comment: 802.11g ch6 power level 16.6dBm avg. Tx 1



EUT Information

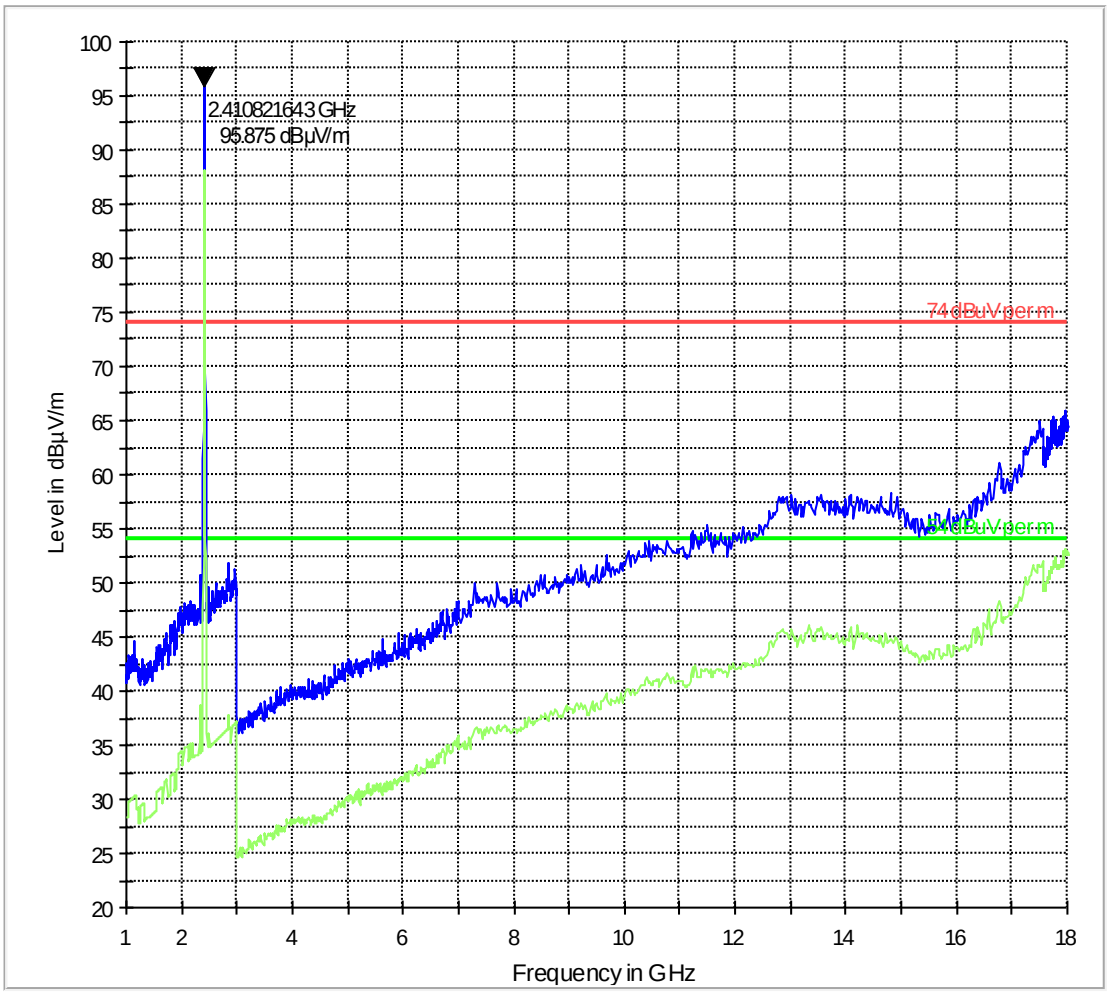
Comment: 802.11g ch11 power level 13.15dBm avg. Tx 1



EUT Information

Comment: 802.11n ht20 ch1 power level 13dBm avg./ Tx 0

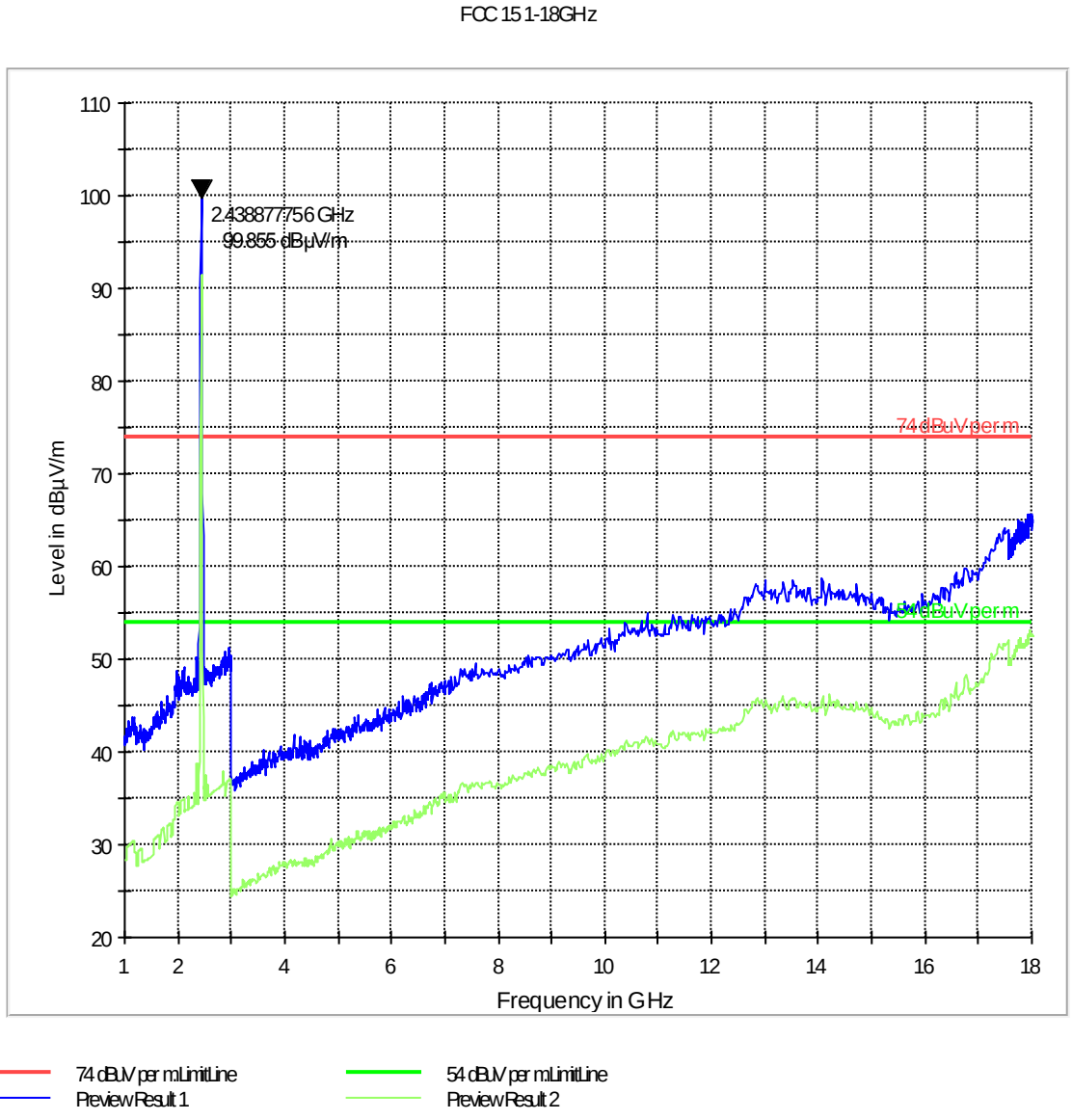
FCC 15 1-18GHz



74 dBuV per m Limit Line
Preview Result 1
54 dBuV per m Limit Line
Preview Result 2

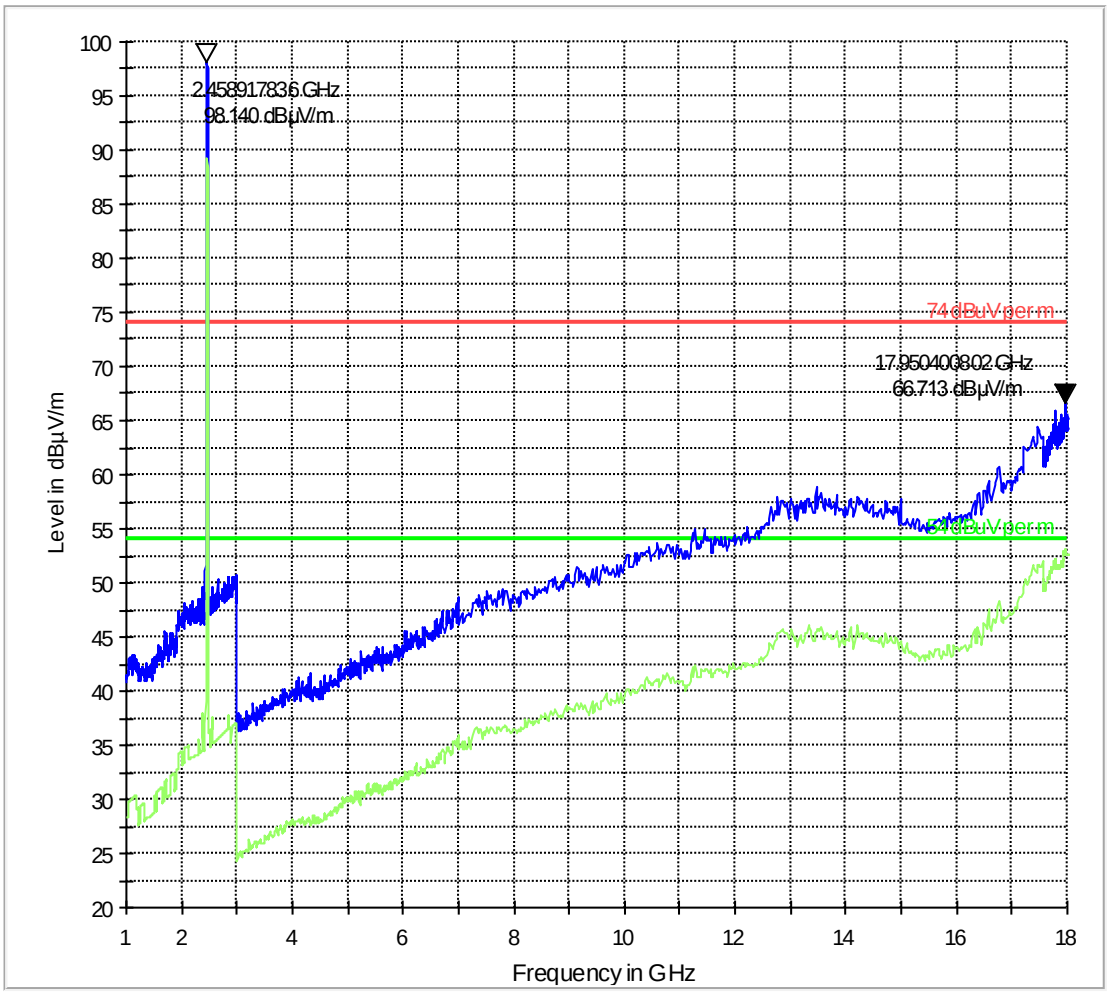
EUT Information

Comment: 802.11n ht20 ch6 power level 16.8dBm avg./ Tx 0



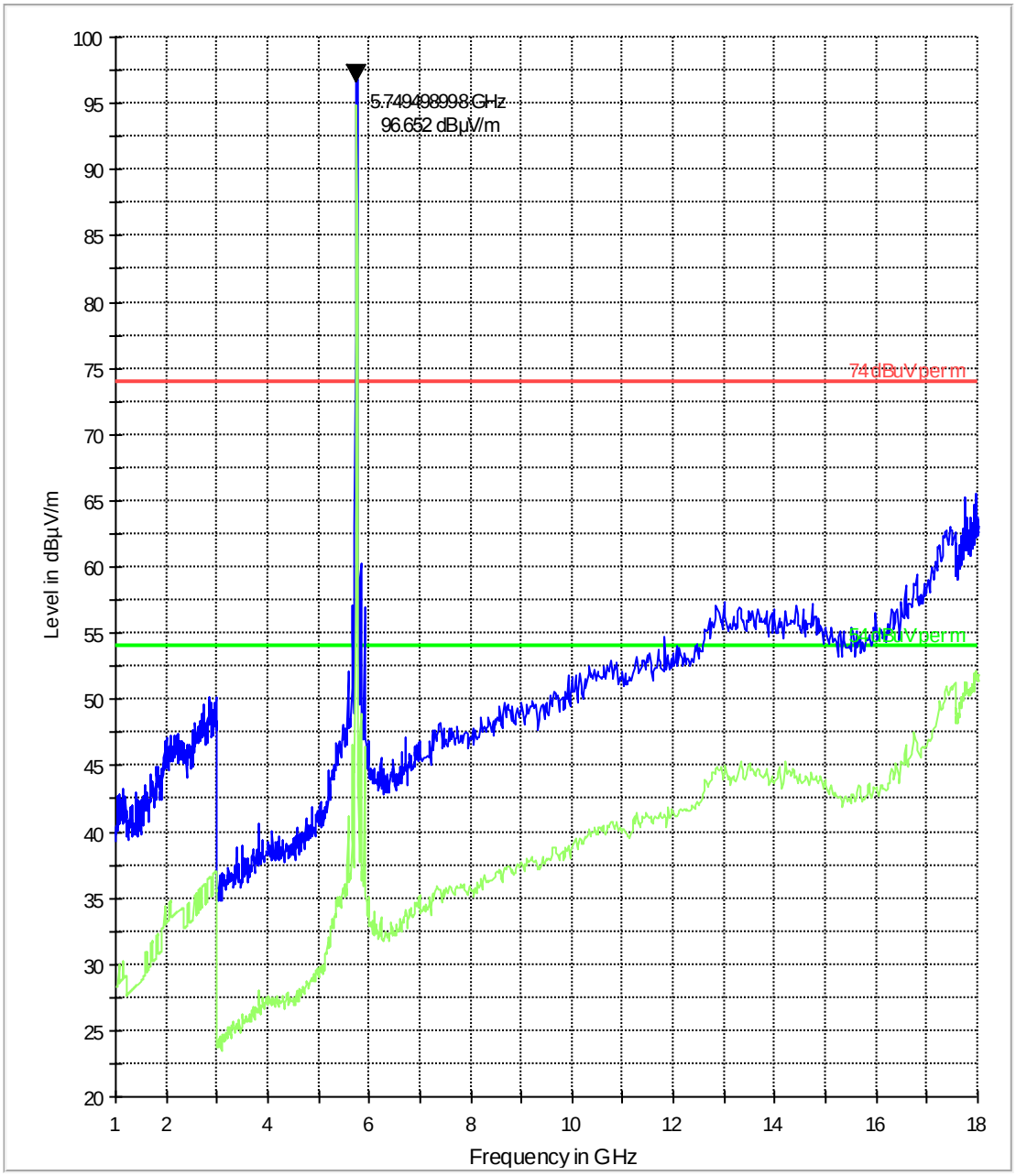
EUT Information

Comment: 802.11n ht20 ch11 power level 13.1 dBm avg./ Tx 0



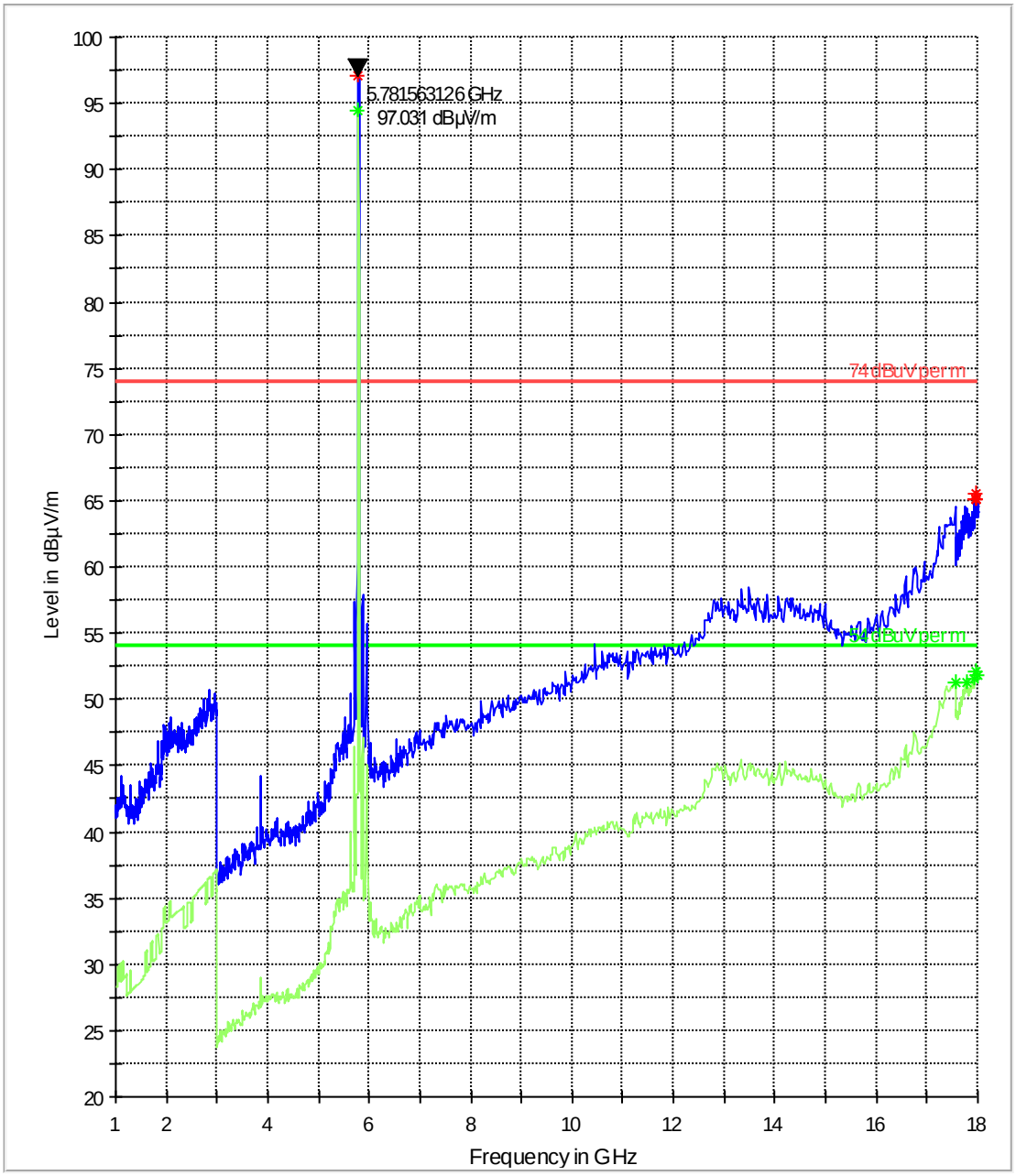
a mode_CH 149 Tx0

FCC 15 1-18GHz



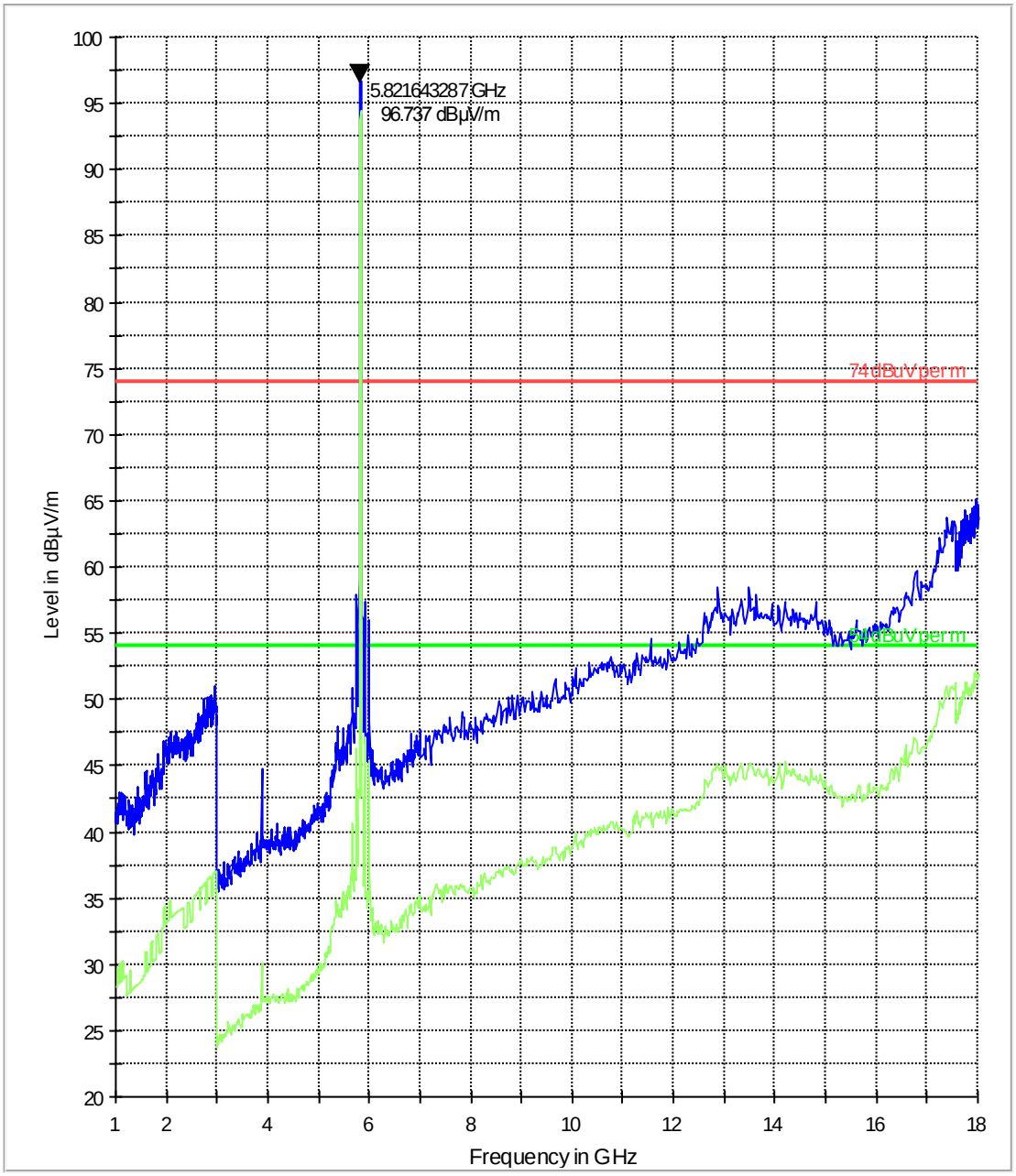
a mode_CH 157 Tx0

FCC 15 1-18GHz



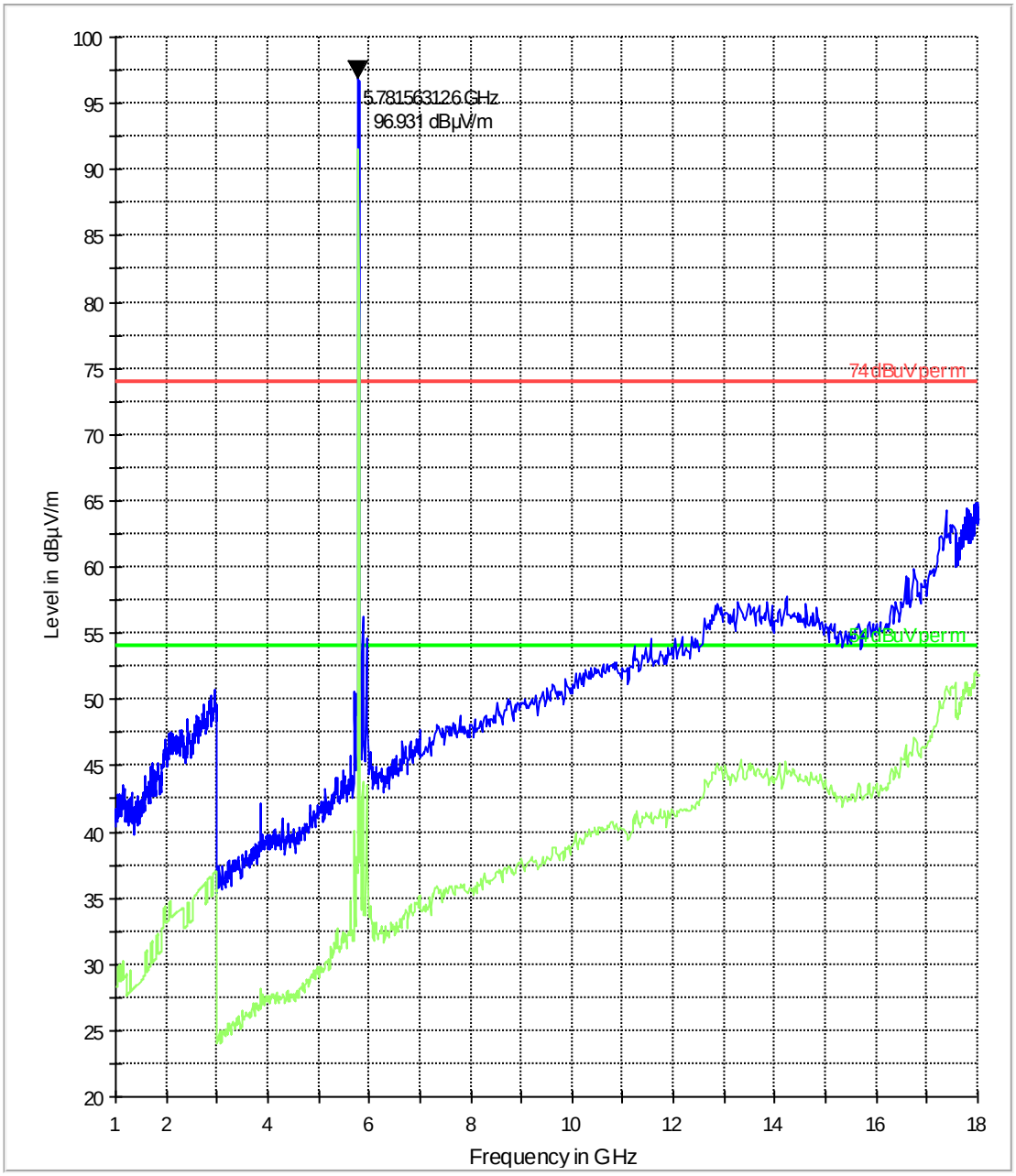
a mode_CH 165 Tx0

FCC 15 1-18GHz



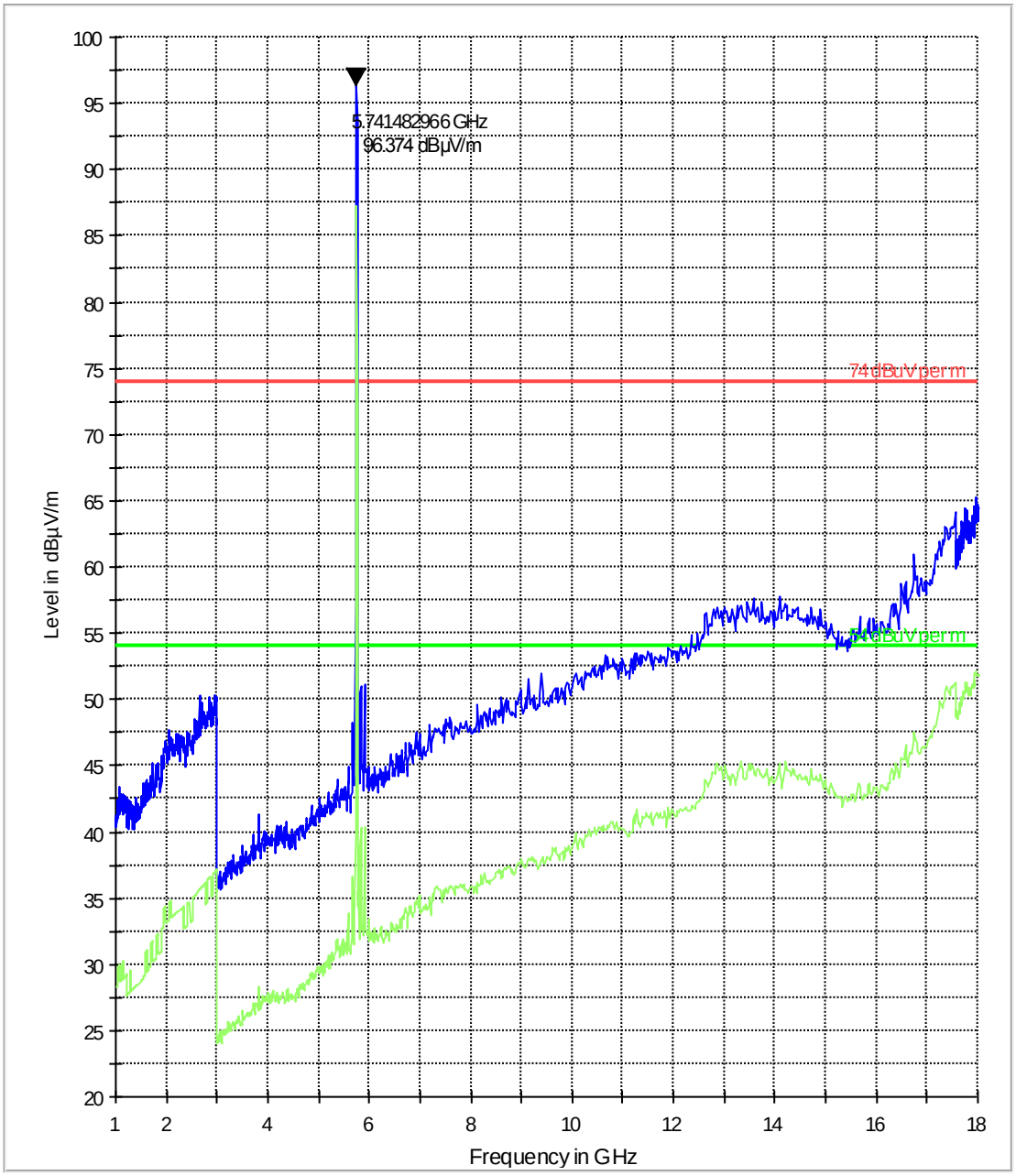
HT20_CH 157 Tx0

FCC 15 1-18GHz

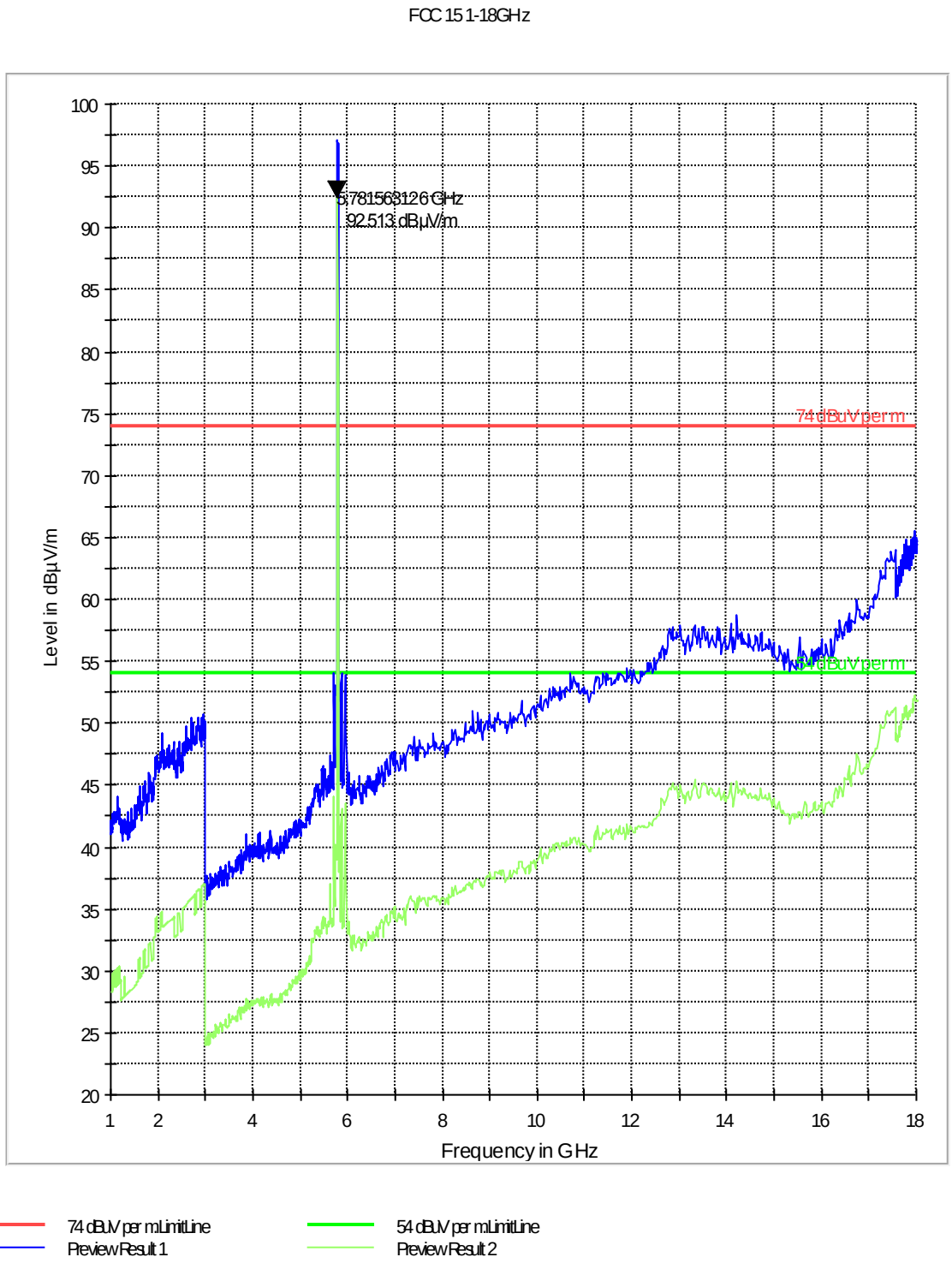


a mode_CH 149 Tx1

FCC 15 1-18GHz

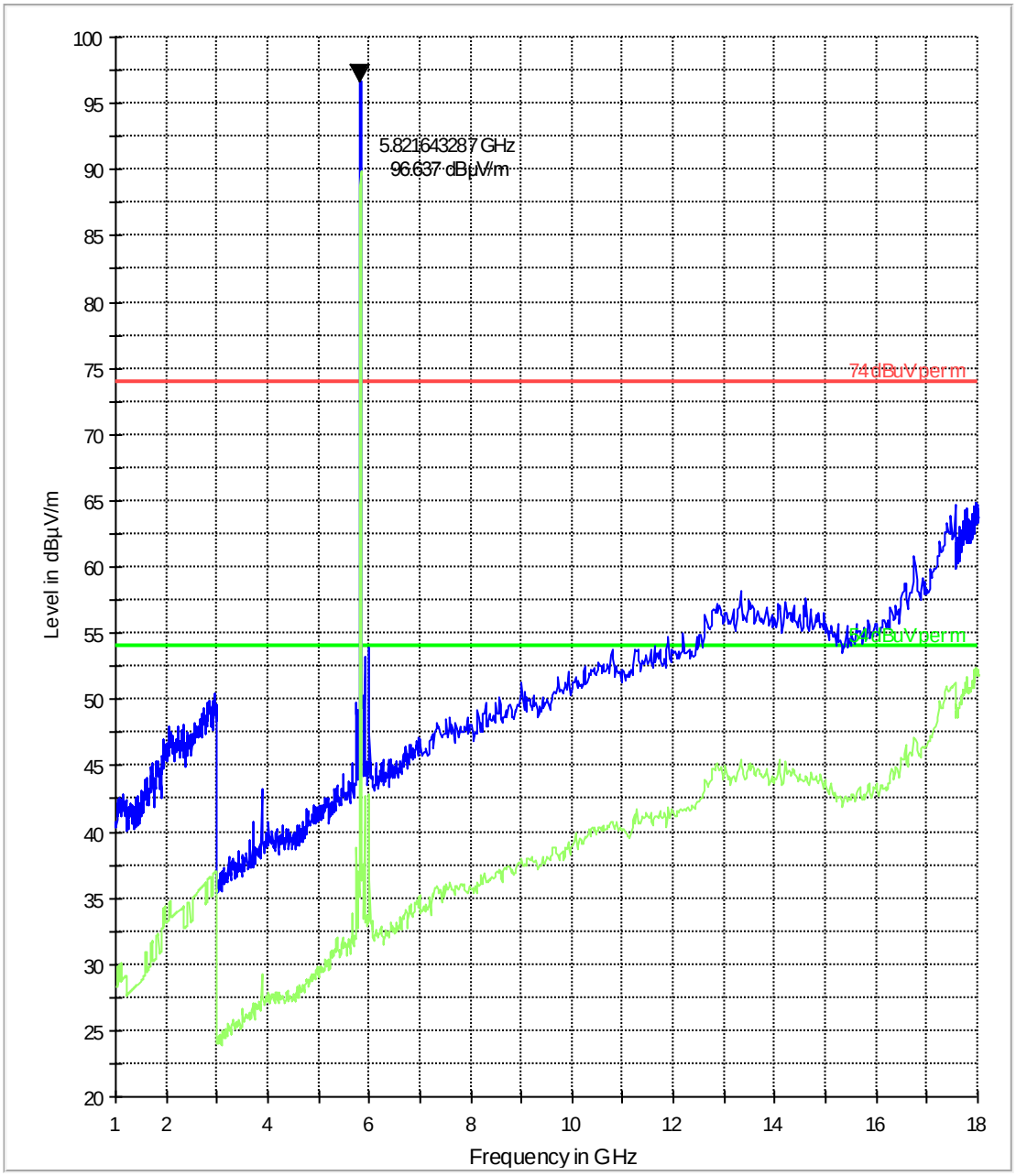


a mode_CH 157 Tx1

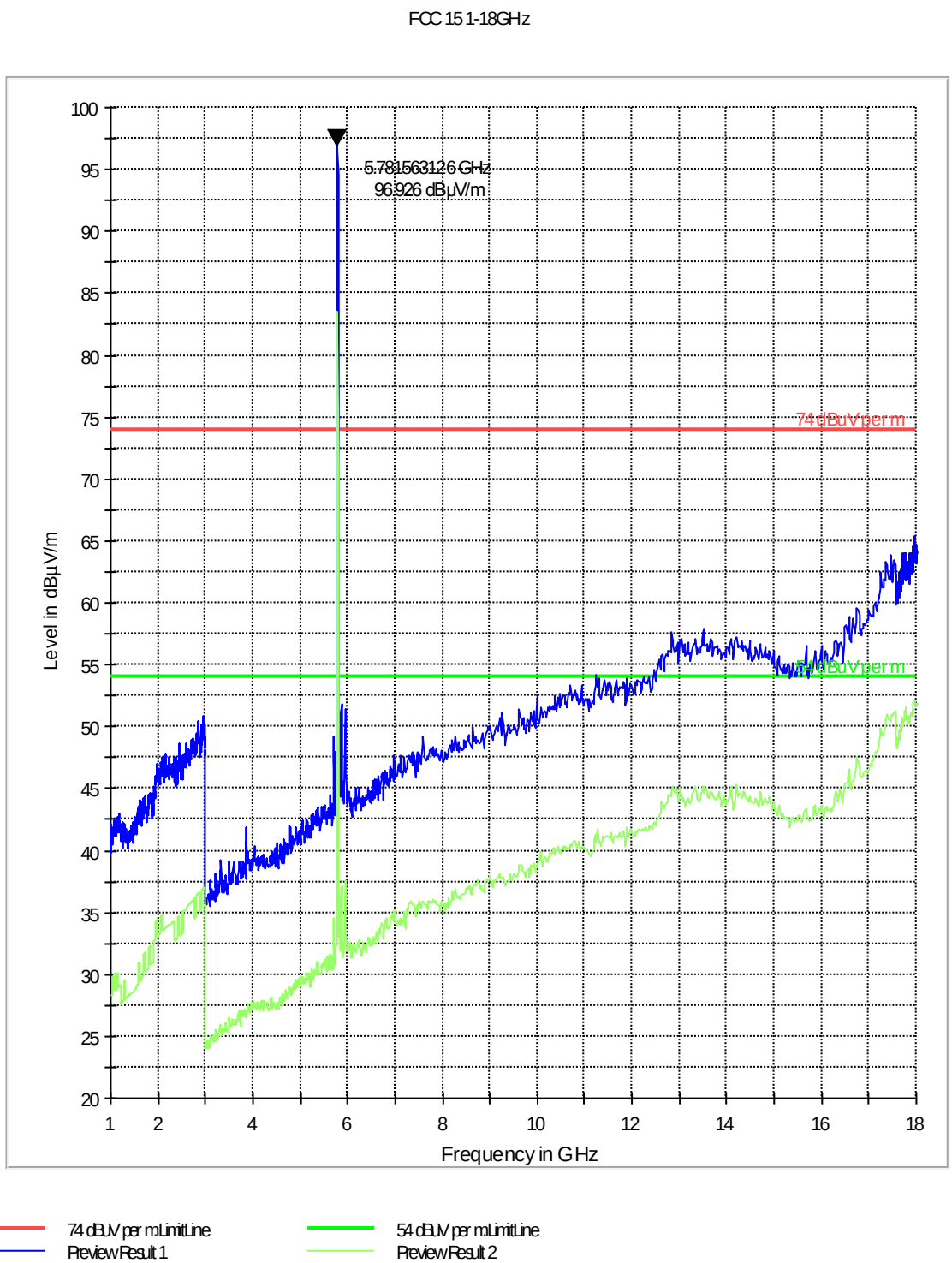


a mode_CH 165 Tx1

FCC 15 1-18GHz



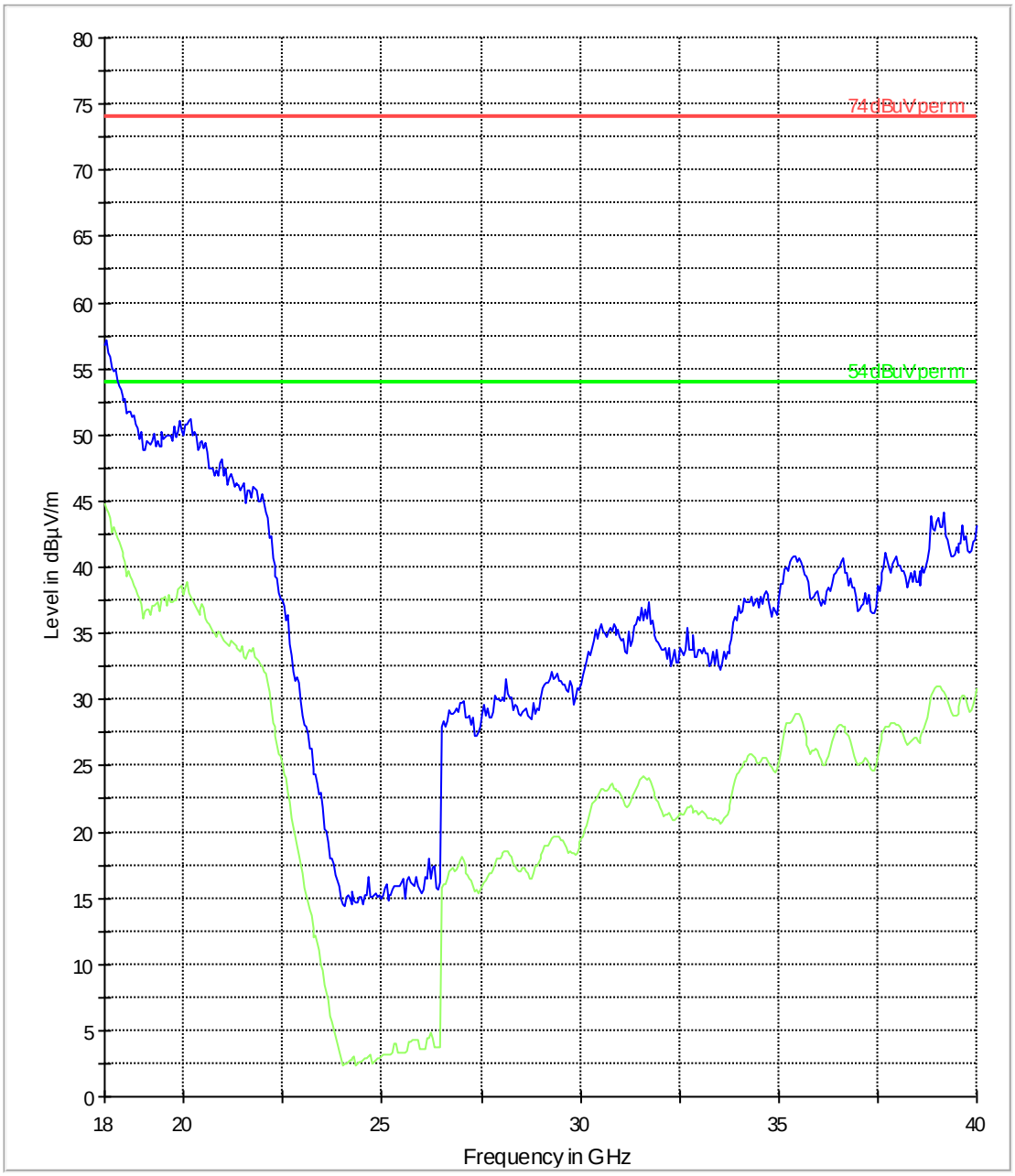
HT20_CH 157 Tx1



Note – Worst case plot for all channels and modes

a mode_CH 157

FCC 15 18-40GHz



4.9 Receiver Spurious Emissions- Radiated

4.9.1 Limits: §15.109

Frequency of emission (MHz)	Field strength (µV/m)	Measurement Distance (m)
0.009–0.490	2400/F(kHz)	300
0.490–1.705	24000/F(kHz)	30
1.705–30.0	30	30
30–88	100 (40dBµV/m)	3
88–216	150 (43.5 dBµV/m)	3
216–960	200 (46 dBµV/m)	3
Above 960	500 (54 dBµV/m)	3

4.9.2 Test Result:

Plots reported here represent the worse case emissions.

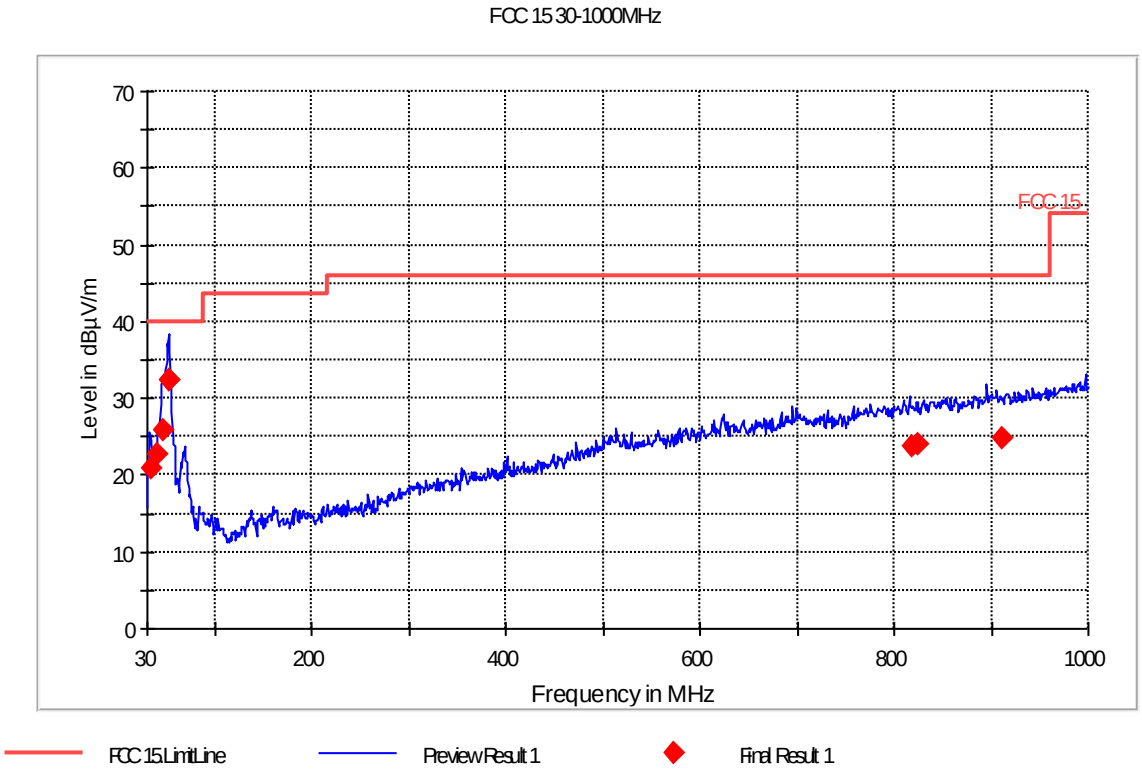
4.9.3 Test data/ plots:

idle 30-1

Final Result 1

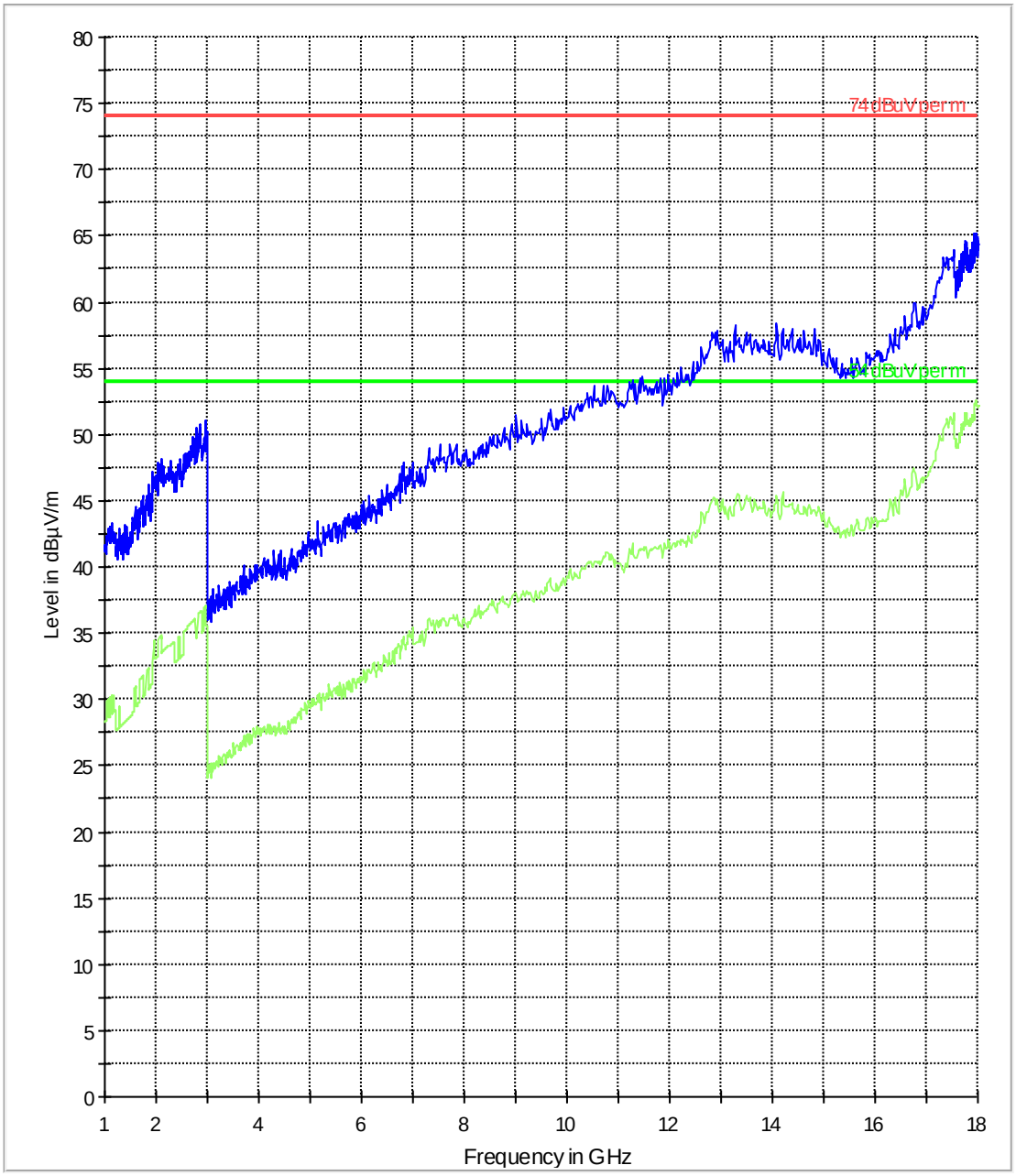
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
33.238367	21.0	20.000	120.000	120.0	V	45.0	6.8	19.0	40.0
41.337368	22.7	20.000	120.000	120.0	V	135.0	5.6	17.3	40.0
46.991909	25.8	20.000	120.000	120.0	V	199.0	6.4	14.2	40.0
51.857307	32.4	20.000	120.000	180.0	V	119.0	6.9	7.6	40.0
53.224499	32.4	20.000	120.000	177.0	V	1.0	7.1	7.6	40.0
818.826841	23.8	20.000	120.000	237.0	H	32.0	25.7	22.2	46.0
823.599690	23.9	20.000	120.000	186.0	H	86.0	25.8	22.1	46.0
911.331354	24.9	20.000	120.000	205.0	H	20.0	26.5	21.1	46.0

(continuation of the "Final Result 1" table from column 10 ...)



idle 1-18

FCC 15 1-18GHz



4.10 AC Power Line Conducted Emissions

4.10.1 Limits: §15.107/15.207

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator 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 the logarithm of the frequency.

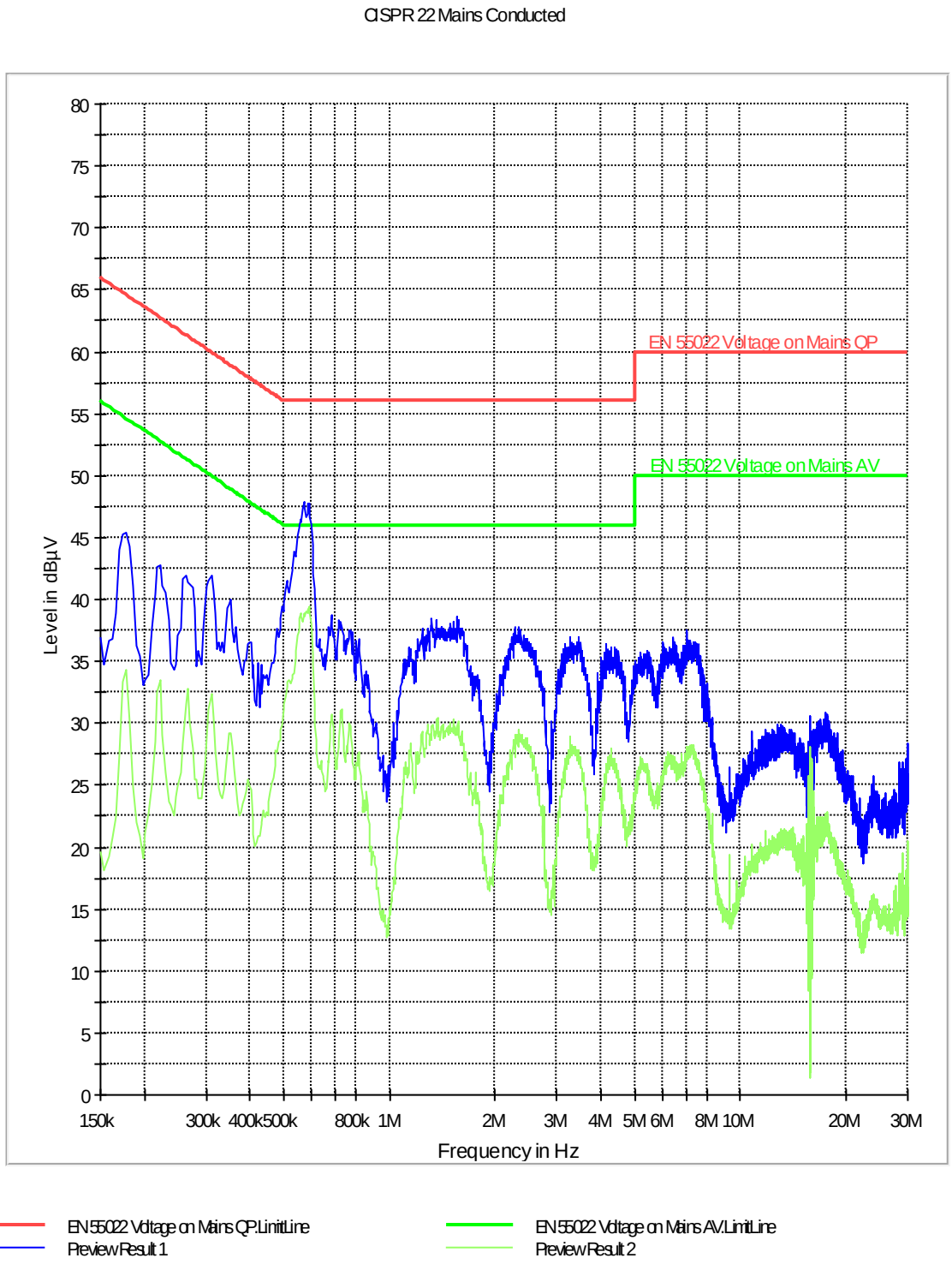
Analyzer Settings: RBW = 10KHz; VBW = 10KHz

4.10.2 Test Result:

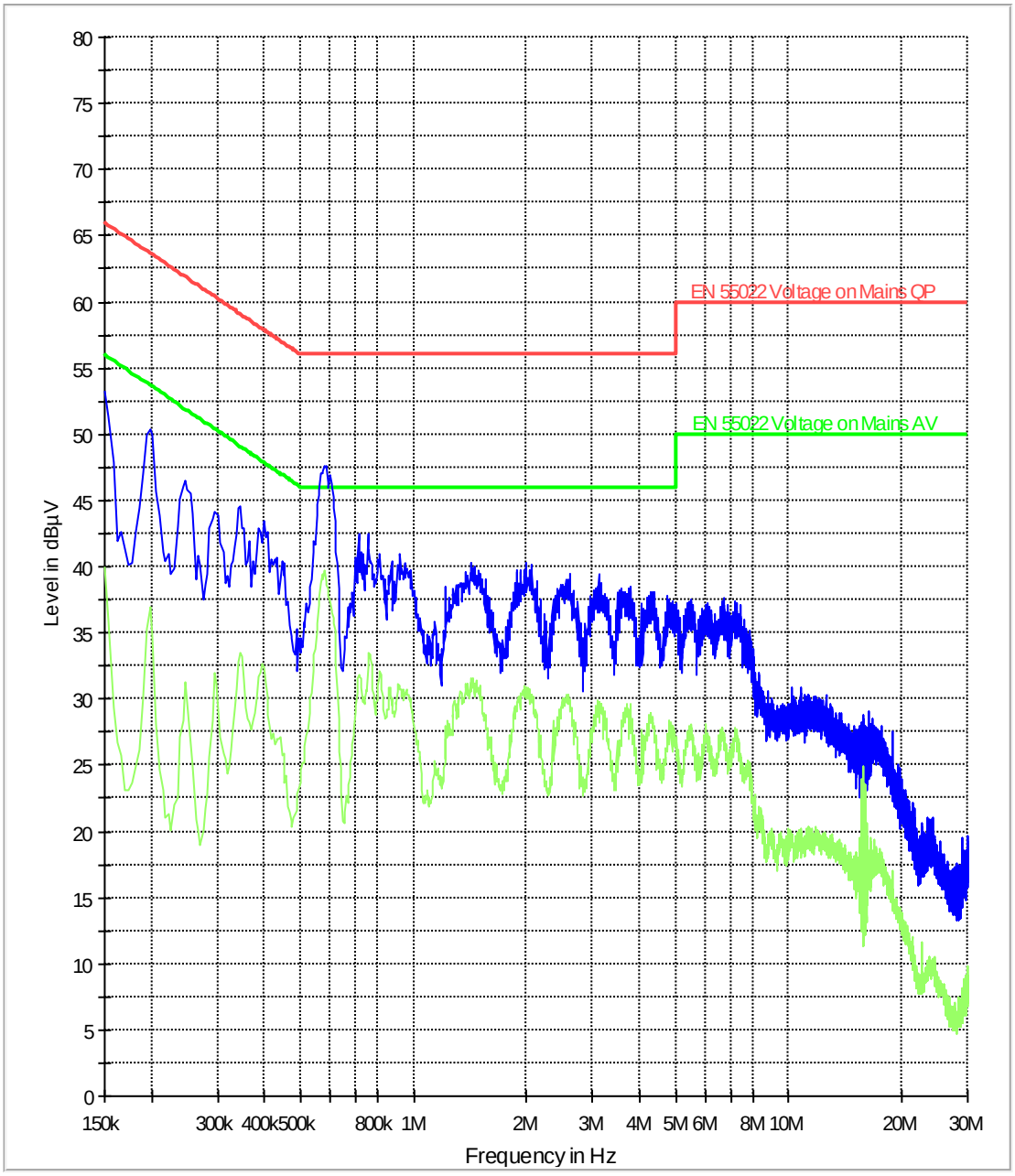
No significant emissions measurable. Plots reported here represent the worse case emissions.

4.10.3 Test data/ plots:

TX Mode- Line & Neutral



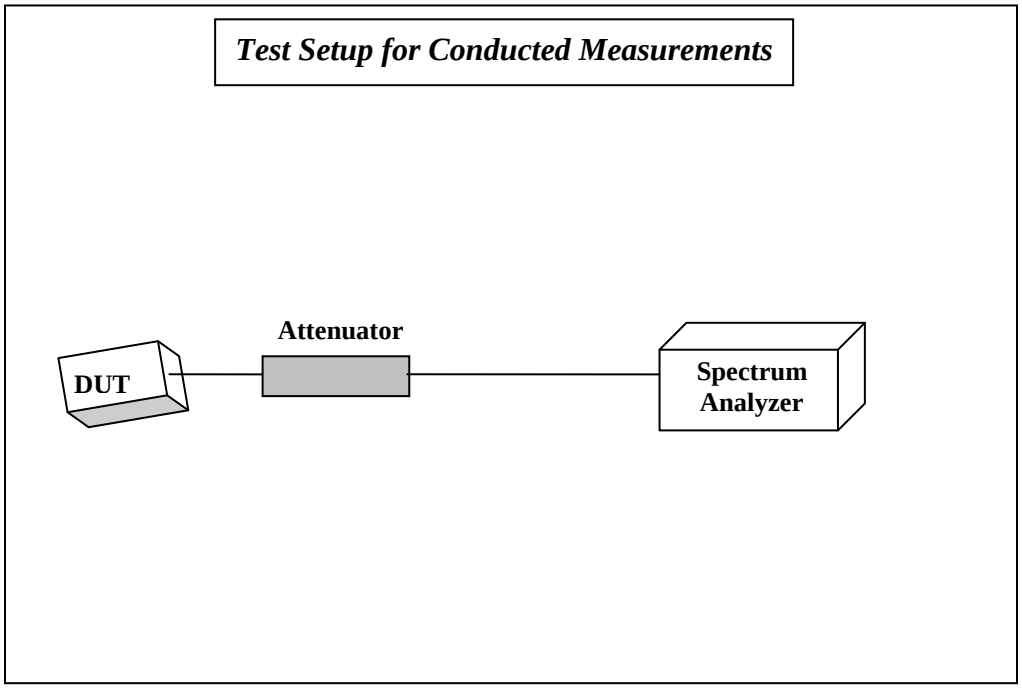
RX Mode- Line & Neutral

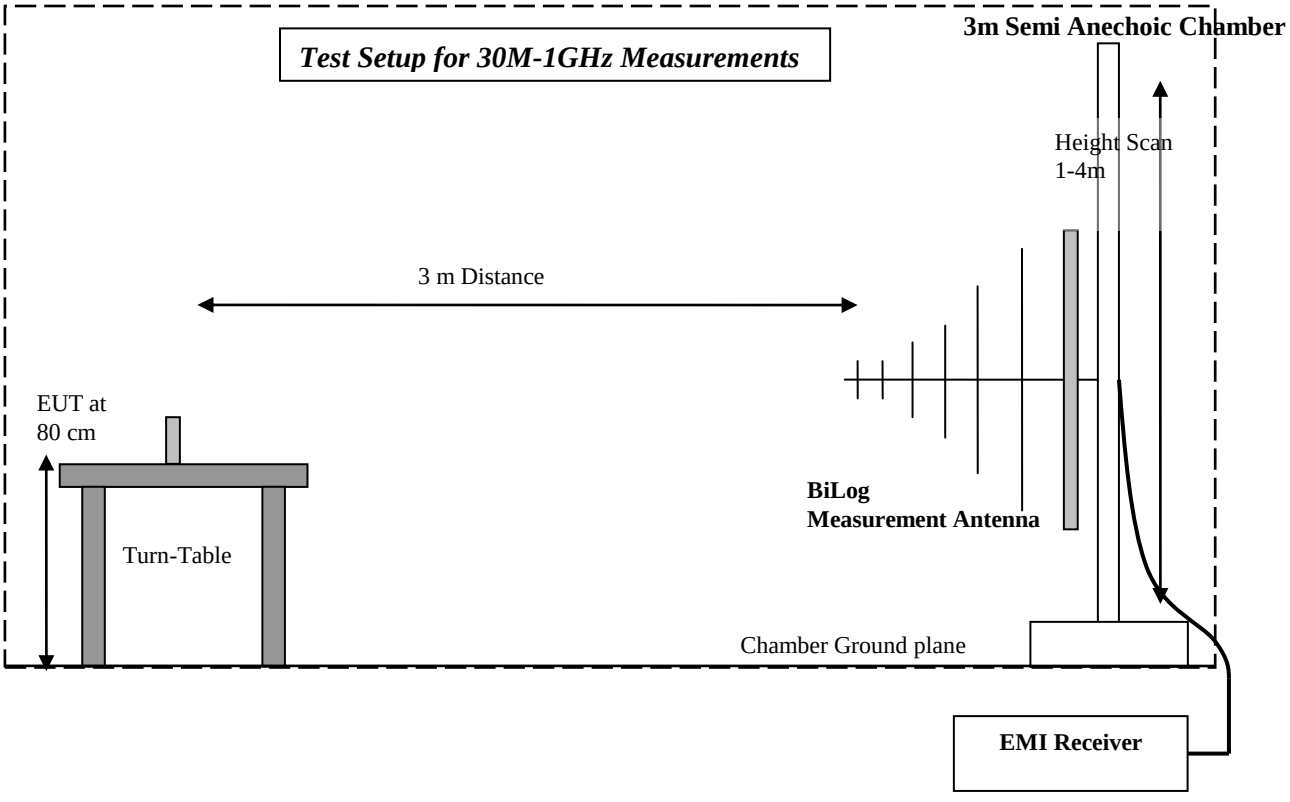


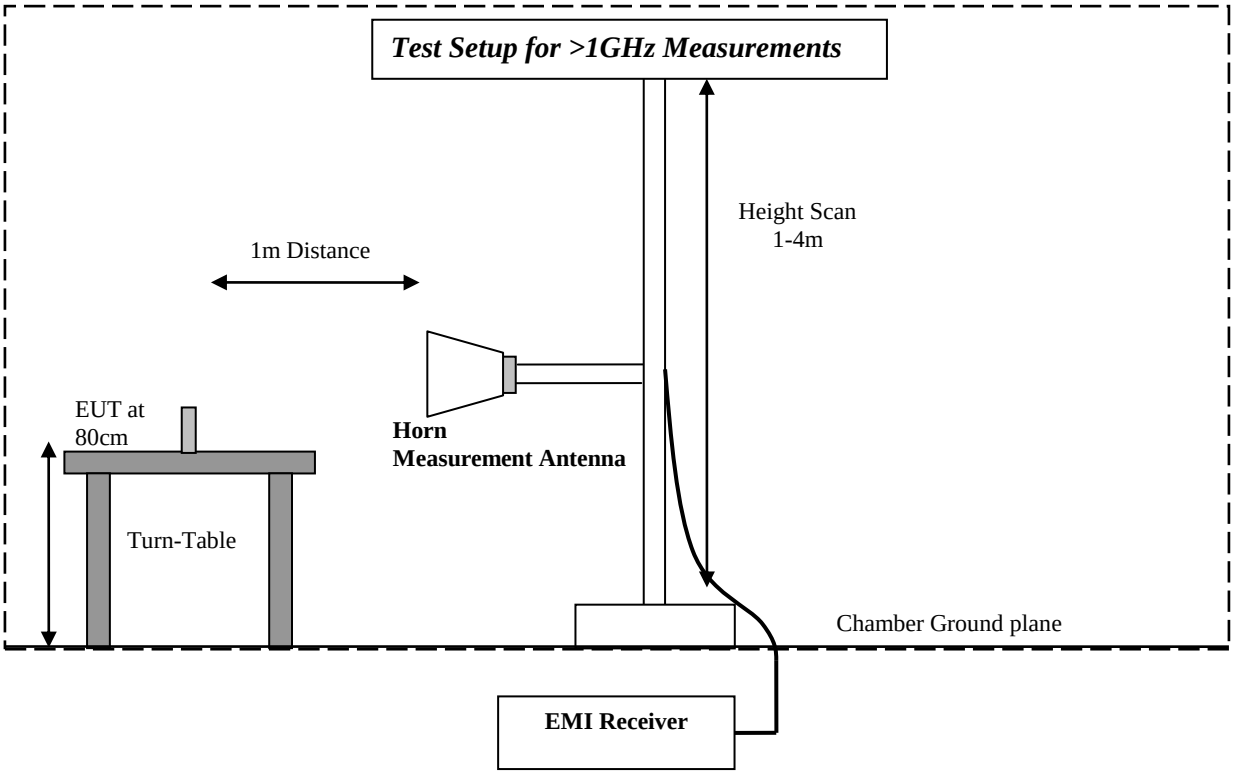
5 Test Equipment and Ancillaries used for tests

No	Instrument/Ancillary	Type	Manufacturer	Serial No.	Cal Due	Interval
01	Spectrum Analyzer	ESIB 40	Rohde & Schwarz	100107	May 2010	1 year
02	Spectrum Analyzer	FSEM 30	Rohde & Schwarz	100017	May 2010	1 year
03	Signal Generator	SMY02	Rohde & Schwarz	836878/011	May 2010	1 year
04	Power-Meter	NRVD	Rohde & Schwarz	0857.8008.02	May 2010	1 year
05	Biconilog Antenna	3141	EMCO	0005-1186	June 2010	1 year
06	Horn Antenna (1-18GHz)	SAS-200/571	AH Systems	325	June 2010	1 year
07	Horn Antenna (18-26.5GHz)	3160-09	EMCO	1240	June 2010	1 year
08	Power Splitter	11667B	Hewlett Packard	645348	n/a	n/a
09	Climatic Chamber	VT4004	Voltsch	G1115	May 2010	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 2010	1 year
13	Power Sensor	URV5-Z2	Rohde & Schwarz	DE30807	May 2010	1 year
14	Digital Radio Comm. Tester	CMD-55	Rohde & Schwarz	847958/008	May 2010	1 year
15	Universal Radio Comm. Tester	CMU 200	Rohde & Schwarz	832221/06	May 2010	1 year
16	LISN	ESH3-Z5	Rohde & Schwarz	836679/003	May 2010	1 year
17	Loop Antenna	6512	EMCO	00049838	July 2010	2 years

6 BLOCK DIAGRAMS






Test Setup for >1GHz Measurements
Height Scan
1-4m
1m Distance
EUT at
80cm
Horn
Measurement Antenna
Turn-Table
Chamber Ground plane
EMI Receiver

7 Revision History

Date	Report Name	Changes to report	Report prepared by
2010-02-17	EMC_ APPLE_055_15.247_DSSS_81A	Original	Marc
2010-03-01	EMC_ APPLE_055_15.247_DSSS_81A_Rev1	Updated plots for bandwidth, PSD, and conducted emissions. Added H/V statement. Updated modulation types.	Marc
2010-03-05	EMC_ APPLE_055_15.247_DSSS_81A_Rev2	Corrected OBW table. Added 40GHz conducted spurious emission.	Marc
2010-03-11	EMC_ APPLE_055_15.247_DSSS_81A_Rev3	Updated radiated measurement procedure	Marc