EMC TEST REPORT

For

300Mbps 11n Wireless LAN PCI Adapter

Model Number: HWNP-300
FCC ID: NAM5090385

Report Number **:** WT078002032

Test Laboratory	:	Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory Guangdong EMC Compliance Test Center
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TEST REPORT DECLARATION

Applicant	:	Guillemot Corp S.A.
Address	:	Place du Granier, B.P97143, Chantepie, France, 35171
Manufacturer	:	Guillemot Corp S.A.
Address	:	Place du Granier, B.P97143, Chantepie, France, 35171
EUT Description	:	300Mbps 11n Wireless LAN PCI Adapter
Model Number		HWNP-300
FCC ID Number		NAM5090385

Test Standards:

FCC Part 15 15.247

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory is assumed full responsibility for the accuracy of the test results. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.247.

The test report is valid for above tested sample only and shall not be reproduced in part without written approval of the laboratory.

Tested by:	(Ryan Chen)	Date:	Jul.28,2008
Checked by:	(Dewelly Yang)	Date:	Jul.28,2008
Approved by:	(Peter Lin)	Date:	Jul.28,2008

1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	FCC Rules	Test Results
Conducted Disturbance	15.207	Pass
Radiated disturbance	15.247 d	Pass
Spectrum Bandwidth of a Direct Sequence Spread Spectrum System	15.247(a)(2)	Pass
Maximum Peak Output Power	15.247(b)	Pass
Spurious emissions at antenna terminals	2.1051	Pass
Power Spectral Density	15.247(e)	Pass
Band Edge Measurement	15.247(d)	Pass
Antenna Requirement	15.203	Pass

2. GENERAL INFORMATION

2.1. Report information

2.1.1.This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that SMQ approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that SMQ in any way guarantees the later performance of the product/equipment.

2.1.2.The sample/s mentioned in this report is/are supplied by Applicant, SMQ therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

2.1.3.Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through SMQ, unless the applicant has authorized SMQ in writing to do so.

2.2. Laboratory Accreditation and Relationship to Customer

The testing report were performed by the Shenzhen Academy of Metrology and quality Inspection EMC Laboratory (Guangdong EMC compliance testing center), in their facilities located at Bldg. of Metrology & Quality Inspection, Longzhu Road, Nanshan District, Shenzhen, Guangdong, China. At the time of testing, Laboratory is accredited by the following organizations:
China National Accreditation Committee for Laboratories (**CNAL**) accredits the Laboratory for conformance to FCC standards, EMC international standards and EN standards. The Registration Number is L0579.

The Laboratory is listed in the United States of American Federal Communications Commission (**FCC**), and the registration number are **97379**(open area test site) and **274801**(semi anechoic chamber).
The Laboratory is listed in Voluntary Control Council for Interference by Information Technology Equipment (**VCCI**), and the registration number are **R-1974**(open area test site) , **R-1966**(semi anechoic chamber),**C-2117**(mains ports conducted interference measurement) and **T-180**(telecommunication ports conducted interference measurement).

The Laboratory is registered to perform emission tests with Industry Canada (**IC**), and the registration number is **IC4174**.

TUV Rhineland accredits the Laboratory for conformance to IEC and EN standards, the registration number is **E2024086Z02**.
Measurement Uncertainty

2.3. Measurement Uncertainty

Conducted Disturbance : 9kHz~30MHz 3.5dB

Radiated Disturbance: 30MHz~1000MHz 4.5dB
1GHz~18GHz 4.6dB

3. PRODUCT DESCRIPTION

3.1. EUT Description

Description	:	300Mbps 11n Wireless LAN PCI Adapter
Manufacturer	:	Guillemot Corp S.A.
Model Number	:	HWNP-300
Input	:	AC120V 60Hz
Operate Frequency	:	IEEE802.11 b/g 2412~2462MHz(11channel)
Antenna Designation	:	Non-User Replaceable (Fixed)

Table 2 _ The working Frequency List(802.11b,802.11g,802.11n HT20)

Channel	Frequency	Channel	Frequency
1	2412 MHz	7	2442 MHz
2	2417 MHz	8	2447 MHz
3	2422 MHz	9	2452 MHz
4	2427 MHz	10	2457 MHz
5	2432 MHz	11	2462 MHz
6	2437 MHz		

Table 3 The working Frequency List(802.11n HT40)

channel	Frequency	channel	Frequency
1	2422MHz	6	2447MHz
2	2427MHz	7	2452MHz
3	2432MHz	8	2457MHz
4	2437MHz	9	2462MHz
5	2442MHz		

3.2. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: NAM5090385 filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

3.3. Block Diagram of EUT Configuration

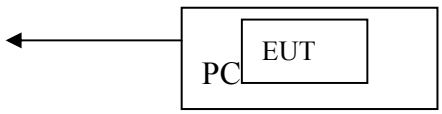


Figure 1 EUT setup 1

3.4. Operating Condition of EUT

Mode 1: ch1(IEEE802.11b)
Mode2: ch6(IEEE802.11b)
Mode3: ch11(IEEE802.11b)
Mode 4: ch1(IEEE802.11g)
Mode5: ch6(IEEE802.11g)
Mode6: ch11(IEEE802.11g)
Mode 7: ch1(IEEE802.11n HT20)
Mode8: ch6(IEEE802.11n HT20)
Mode9: ch11 IEEE802.11n HT20)
Mode 10: ch1(IEEE802.11n HT40)
Mode11: ch5(IEEE802.11n HT40)
Mode12: ch9(IEEE802.11n HT40)

3.5. Special Accessories

Not available for this EUT intended for grant.

3.6. Equipment Modifications

Not available for this EUT intended for grant.

3.7. Support Equipment List

Table 4 Support Equipment List

Name	Model No	S/N	Manufacturer	Used"√"
Computer	P9111A #AB2	CN31104346	COMPAQ	√
LCD Monitor	P4825	CN3087A026	COMPAQ	√
Adaptor for LCD Monitor	PA-1400-02	3101571101LN	LITEON	√
Keyboard	KB-0133	CT:B55930DGANN3NU	COMPAQ	√
Mouse	M-S69	CT:F466BOMMSNS05J2	COMPAQ	√
Printer	BJC-265SP	EVX81604	CANON	√
Adaptor for Printer	AD-300	---	CANON	√
MODEM	56000BPS	200060057	KPT	√
Adaptor for MODEM	AM-1280AV	---	KPT	√

3.8. Test Conditions

Date of test：Jun.10-Jul.5,2008
Date of EUT Receive：Jun.10,2008
Temperature: 24-26 ℃
Relative Humidity: 45-53%

4. TEST EQUIPMENT USED

Table 5 Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB2603	EMI Test Receiver	Rohde & Schwarz	ESCS30	Jan.24, 2008	1 Year
SB3321	AMN	Rohde & Schwarz	ESH2-Z5	Jan.24, 2008	1 Year
SB2604	AMN	Rohde & Schwarz	ESH3-Z5	Jan.24, 2008	1 Year
SB3436	EMI Test Receiver	Rohde & Schwarz	ESI26	Jan.24, 2008	1 Year
SB3440	Bilog Antenna	Chase	CBL6112B	Jan.24, 2008	1 Year
SB3435	Horn Antenna	Rohde & Schwarz	HF906	Jan.24, 2008	1 Year
SB3435/01	Amplifier(1-18GHz)	Rohde & Schwarz	---	Jan.24, 2008	1 Year
SB3435/02	Amplifier(18-40GHz)	Rohde & Schwarz	---	May.04, 2008	1 Year
SB3435/03	Horn Antenna	Rohde & Schwarz	AT4560	May.04, 2008	1 Year
SB3450/01	3m Semi-anechoic chamber	Albatross Projects	9X6X6	Jan.24, 2008	1 Year
SB3437/02	Power probe	R&S	URV5-Z2	Jan.24, 2008	1 Year
SB3437	Power meter	R&S	NRVD	Jan.24, 2008	1 Year
---	Power combiner	4226	huatong	Jan.24, 2008	1 Year

5. CONDUCTED DISTURBANCE TEST

5.1. Test Standard and Limit

5.1.1.Test Standard

FCC Part 15 15.207

5.1.2.Test Limit

Table 6 Conducted Disturbance Test Limit (Class B)

Frequency	Maximum RF Line Voltage (dBμV)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

- Decreasing linearly with logarithm of the frequency
- The lower limit shall apply at the transition frequency.

5.2. Test Procedure

The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCS30) is used to test the emissions form both sides of AC line. According to the requirements in Section 7 and 13 of ANSI C63.4-2003.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode.
The bandwidth of EMI test receiver is set at 9kHz.

5.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.

5.4. Test Data

The emissions don't show in below are too low against the limits. Refer to the test curves .
Working mode: Ch1 (the worst case)

Table 7 Conducted Disturbance Test Data

Model：HWNP-300

Mode: 1

Line							
Frequency (MHz)	Correction Factor (dB)	Quasi-Peak			Average		
		Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)
0.186	10.0	27.4	37.4	64.2	16.4	26.4	54.2
0.234	10.0	24.3	34.3	62.3	18.8	28.8	52.3
0.278	10.0	31.9	41.9	60.8	27.2	37.2	50.8
0.326	10.0	28.9	38.9	59.5	24.5	34.5	49.5
0.462	10.0	22.1	32.1	56	16.4	26.4	46.6
0.508	10.0	21.3	31.3	56	16.5	26.5	46

REMARKS: 1. Emission level(dBuV)=Read Value(dBuV) + Correction Factor(dB)
2. Correction Factor(dB) =LISN Factor (dB) + Cable Factor (dB)+Limiter Factor(dB)
3. The other emission levels were very low against the limit.

Table 8 Conducted Disturbance Test Data

Model：HWNP-300

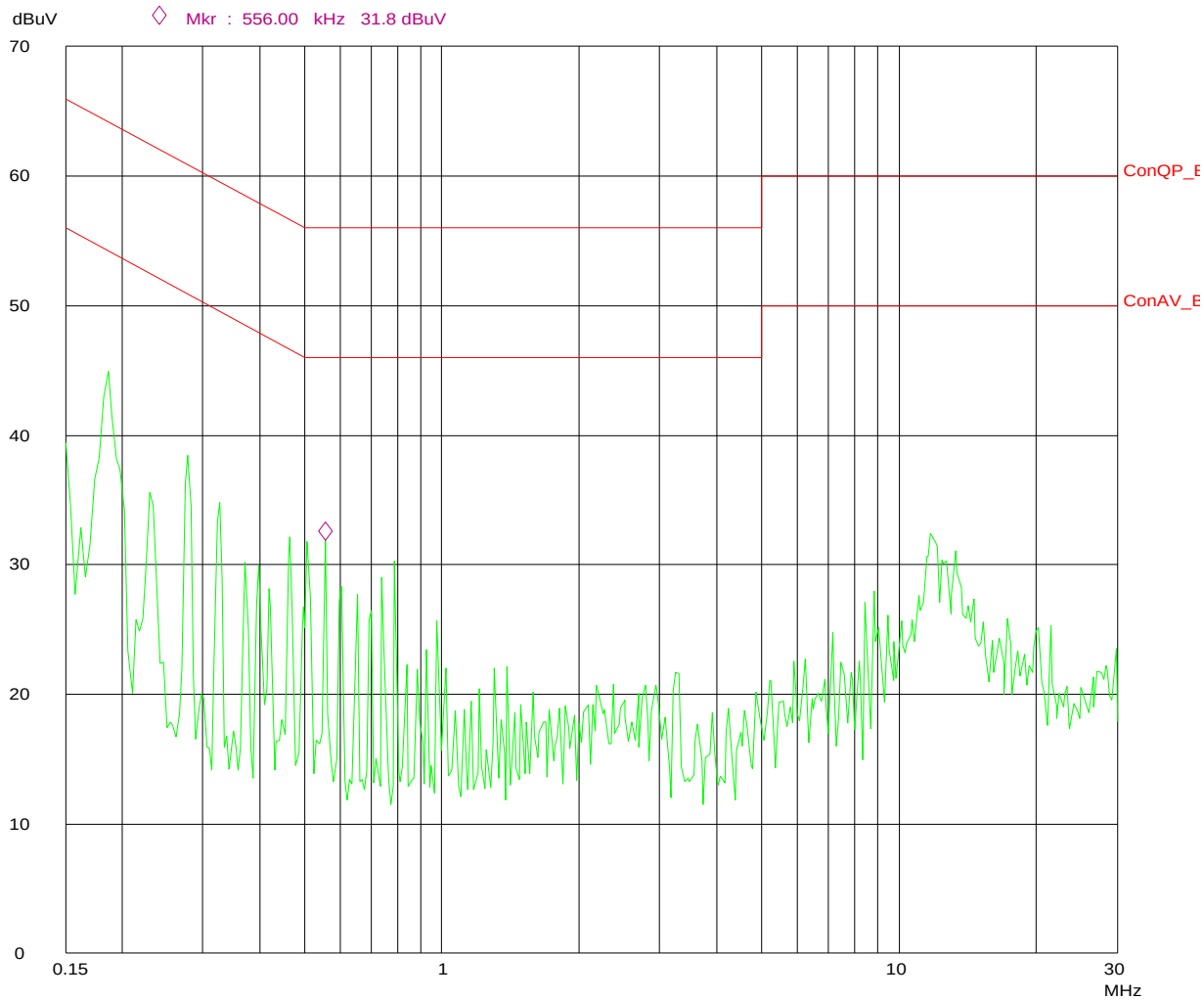
Mode: 1

Neutral							
Frequency (MHz)	Correction Factor (dB)	Quasi-Peak			Average		
		Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)
0.186	10.0	31.6	41.6	64.2	19.7	29.7	54.2
0.230	10.0	26.1	36.1	62.4	19.8	29.8	52.4
0.278	10.0	28.2	38.2	60.8	25.1	35.1	50.8
0.326	10.0	23.5	33.5	59.5	21.2	31.2	49.5
0.466	10.0	19.0	29.0	56.6	15.0	25.0	46.6
0.556	10.0	21.1	31.1	56	17.1	27.1	46

REMARKS: 1. Emission level(dBuV)=Read Value(dBuV) + Correction Factor(dB)
2. Correction Factor(dB) =LISN Factor (dB) + Cable Factor (dB)+Limiter Factor(dB)
3. The other emission levels were very low against the limit.

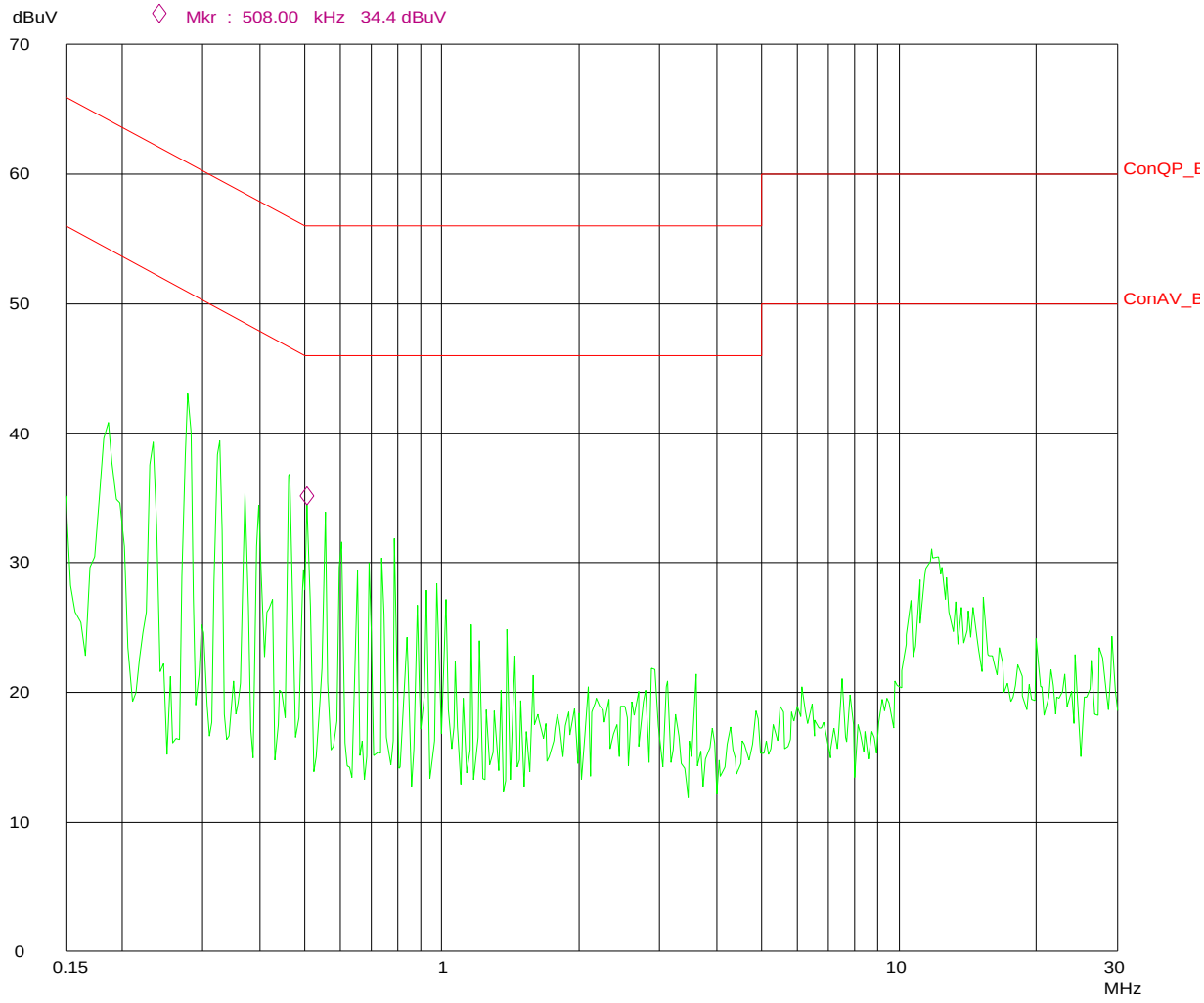
Conducted Disturbance

EUT:	M/N:HWNP-300
Op Cond:	ON
Test Spec:	N
Comment:	AC 120V/60Hz



Conducted Disturbance

EUT:	M/N:HWNP-300
Op Cond:	ON
Test Spec:	L
Comment:	AC 120V/60Hz



6. RADIATED DISTURBANCE TEST

6.1. Test Standard and Limit

6.1.1.Test Standard

FCC Part 15 15.247 d

6.1.2.Test Limit

Table 9 Radiated Disturbance Test Limit

FREQUENCY MHz	FIELD STRENGTHS LIMITS （μV/m)	FIELD STRENGTHS LIMITS dB (μV/m)
Fundamental	50000	94.0
Harmonics	500	54.0
30 ~ 88	100	40.0
88 ~ 216	150	43.5
216 ~ 960	200	46.0
960 ~	500	54.0

* The lower limit shall apply at the transition frequency.
* The test distance is 3m.

6.2. Test Procedure

The EUT is placed on a turntable, which is 0.8 meter above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level. Broadband antenna is used as a receiving antenna. Both horizontal and vertical polarization of the antenna is set on test. In order to find out the max. emission, the relative positions of this hand-held transmitter(EUT) was rotated through three orthogonal axes according to the requirements in Section 8 and13 of ANSI C63.4-2003.
The frequency spectrum from 30 MHz to 25 GHz was investigated. Measurements were made at 3 meters
the setting of the EMI test receiver is
30-1000MHz Detector=QP RBW=120kHz VBW=300kHz
1-25GHz Detector=Peak RBW=1MHz RBW=3MHz
AV Detector=PEAK RBW=1MHz RBW=10Hz

6.3. Test Arrangement

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application. The detailed information refers to test picture.
The EUT transmit the same channel on chain1 and chain 0.

6.4. Test Data

Emissions don't show below are too low against the limits, the test curves are shown in the APPENDIX Ⅰ

Note: 1. Emission level (dBuV/m)=Reading Value(dBuV) + Correction Factor(dB/m)+ Antenna Factor (dB/m)
2. Correction Factor (dB/m) = Cable Factor (dB)+Amplifier Factor(dB)
3. The other emission levels were very low against the limit.

Table 10 General Radiated Emission Data

Model number: HWNP-300
Test Mode: 802.11b ch 1

Frequency (MHz)	Polarization	Reading Value (dBμV)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level dB(μV/m)	Limits dB(μV/m)	Detector
298.256	H	18.1	2.9	13.5	34.5	46.0	QP
930.020	V	14.6	5.1	21.0	40.7	46.0	QP
980.561	V	13.4	5.2	21.3	39.9	54.0	QP
2416.470	V	98.0	-32.2	28.5	94.3	----	Fundamental Peak
2416.470	V	90.2	-32.2	28.5	86.5	----	Fundamental AV
4833.553	V	57.3	-31.0	33.3	59.6	74.0	Peak
4833.553	V	48.0	-31.0	33.3	50.3	54.0	AV
7240.731	V	50.5	-28.3	36.4	58.6	74.0	Peak
7240.731	V	43.5	-28.3	36.4	51.6	54.0	AV

Table 11 General Radiated Emission Data

Model number: HWNP-300
Test Mode: 802.11b ch 6

Frequency (MHz)	Polarization	Reading Value (dB μ V)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Detector
298.256	H	18.1	2.9	13.5	34.5	46.0	QP
930.020	V	14.6	5.1	21.0	40.7	46.0	QP
980.561	V	13.4	5.2	21.3	39.9	54.0	QP
2438.560	V	97.7	-32.2	28.5	94.0	----	Fundamental Peak
2438.560	V	88.4	-32.2	28.5	84.7	----	Fundamental AV
4875.560	V	58.2	-31.0	33.3	60.5	74.0	Peak
4875.560	V	48.5	-31.0	33.3	50.8	54.0	AV
7320.710	V	50.8	-28.3	36.4	58.9	74.0	Peak
7320.710	V	43.7	-28.3	36.4	51.8	54.0	AV

Table 12 General Radiated Emission Data

Model number: HWNP-300
Test Mode: 802.11b ch 11

Frequency (MHz)	Polarization	Reading Value (dB μ V)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Detector
298.256	H	18.1	2.9	13.5	34.5	46.0	QP
930.020	V	14.6	5.1	21.0	40.7	46.0	QP
980.561	V	13.4	5.2	21.3	39.9	54.0	QP
2463.500	V	97.2	-32.2	28.5	93.5	----	Fundamental Peak
2463.500	V	87.2	-32.2	28.5	83.5	----	Fundamental AV
4926.890	V	57.6	-31.0	33.3	59.9	74.0	Peak
4926.890	V	47.7	-31.0	33.3	50.0	54.0	AV
7386.710	V	48.4	-28.3	36.4	56.5	74.0	Peak
7386.710	V	42.7	-28.3	36.4	50.8	54.0	AV

Table 13 General Radiated Emission Data

Model number: HWNP-300
Test Mode: 802.11g ch 1

Frequency (MHz)	Polarization	Reading Value (dB μ V)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Detector
298.256	H	18.1	2.9	13.5	34.5	46.0	QP
930.020	V	14.6	5.1	21.0	40.7	46.0	QP
980.561	V	13.4	5.2	21.3	39.9	54.0	QP
2415.870	V	98.5	-32.2	28.5	94.8	----	Fundamental Peak
2415.870	V	89.8	-32.2	28.5	86.1	----	Fundamental AV
4834.653	V	57.9	-31.0	33.3	60.2	74.0	Peak
4834.653	V	47.8	-31.0	33.3	50.1	54.0	AV
7243.731	V	51.4	-28.3	36.4	59.5	74.0	Peak
7243.731	V	43.1	-28.3	36.4	51.2	54.0	AV

Table 14 General Radiated Emission Data

Model number: HWNP-300
Test Mode: 802.11g ch 6

Frequency (MHz)	Polarization	Reading Value (dB μ V)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Detector
298.256	H	18.1	2.9	13.5	34.5	46.0	QP
930.020	V	14.6	5.1	21.0	40.7	46.0	QP
980.561	V	13.4	5.2	21.3	39.9	54.0	QP
2438.890	V	99.5	-32.2	28.5	95.8	----	Fundamental Peak
2438.890	V	90.4	-32.2	28.5	86.7	----	Fundamental AV
4877.660	V	57.7	-31.0	33.3	60.0	74.0	Peak
4877.660	V	46.8	-31.0	33.3	49.1	54.0	AV
7323.740	V	51.6	-28.3	36.4	59.7	74.0	Peak
7323.740	V	43.4	-28.3	36.4	51.5	54.0	AV

Table 15 General Radiated Emission Data

Model number: HWNP-300
Test Mode: 802.11g ch 11

Frequency (MHz)	Polarization	Reading Value (dB μ V)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Detector
298.256	H	18.1	2.9	13.5	34.5	46.0	QP
930.020	V	14.6	5.1	21.0	40.7	46.0	QP
980.561	V	13.4	5.2	21.3	39.9	54.0	QP
2463.850	V	98.7	-32.2	28.5	95.0	----	Fundamental Peak
2463.850	V	89.7	-32.2	28.5	86.0	----	Fundamental AV
4926.800	V	58.3	-31.0	33.3	60.6	74.0	Peak
4926.800	V	46.8	-31.0	33.3	49.1	54.0	AV
7385.923	V	51.7	-28.3	36.4	59.8	74.0	Peak
7385.923	V	43.3	-28.3	36.4	51.4	54.0	AV

Table 16 General Radiated Emission Data

Model number: HWNP-300
Test Mode: 802.11n HT20 ch 1

Frequency (MHz)	Polarization	Reading Value (dBμV)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level dB(μV/m)	Limits dB(μV/m)	Detector
298.256	H	18.1	2.9	13.5	34.5	46.0	QP
930.020	V	14.6	5.1	21.0	40.7	46.0	QP
980.561	V	13.4	5.2	21.3	39.9	54.0	QP
2415.670	V	97.7	-32.2	28.5	94.0	----	Fundamental Peak
2415.670	V	89.1	-32.2	28.5	85.4	----	Fundamental AV
4835.453	V	57.1	-31.0	33.3	59.4	74.0	Peak
4835.453	V	46.7	-31.0	33.3	49.0	54.0	AV
7244.831	V	50.9	-28.3	36.4	59.0	74.0	Peak
7244.831	V	42.7	-28.3	36.4	50.8	54.0	AV

Table 17 General Radiated Emission Data

Model number: HWNP-300
Test Mode: 802.11n HT20 ch 6

Frequency (MHz)	Polarization	Reading Value (dBμV)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level dB(μV/m)	Limits dB(μV/m)	Detector
298.256	H	18.1	2.9	13.5	34.5	46.0	QP
930.020	V	14.6	5.1	21.0	40.7	46.0	QP
980.561	V	13.4	5.2	21.3	39.9	54.0	QP
2437.990	V	100.5	-32.2	28.5	96.8	----	Fundamental Peak
2437.990	V	91.4	-32.2	28.5	87.7	----	Fundamental AV
4877.990	V	59.7	-31.0	33.3	62.0	74.0	Peak
4877.990	V	48.7	-31.0	33.3	51.0	54.0	AV
7324.740	V	52.4	-28.3	36.4	60.5	74.0	Peak
7324.740	V	44.2	-28.3	36.4	52.3	54.0	AV

Table 18 General Radiated Emission Data

Model number: HWNP-300
Test Mode: 802.11n HT20 ch 11

Frequency (MHz)	Polarization	Reading Value (dBμV)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level dB(μV/m)	Limits dB(μV/m)	Detector
298.256	H	18.1	2.9	13.5	34.5	46.0	QP
930.020	V	14.6	5.1	21.0	40.7	46.0	QP
980.561	V	13.4	5.2	21.3	39.9	54.0	QP
2464.350	V	97.1	-32.2	28.5	93.4	----	Fundamental Peak
2464.350	V	87.8	-32.2	28.5	84.1	----	Fundamental AV
4927.810	V	56.3	-31.0	33.3	58.6	74.0	Peak
4927.810	V	46.7	-31.0	33.3	49.0	54.0	AV
7385.993	V	50.7	-28.3	36.4	58.8	74.0	Peak
7385.993	V	41.8	-28.3	36.4	49.9	54.0	AV

Table 19 General Radiated Emission Data

Model number: HWNP-300
Test Mode: 802.11n HT40 ch 1

Frequency (MHz)	Polarization	Reading Value (dB μ V)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Detector
298.256	H	18.1	2.9	13.5	34.5	46.0	QP
930.020	V	14.6	5.1	21.0	40.7	46.0	QP
980.561	V	13.4	5.2	21.3	39.9	54.0	QP
2423.150	V	96.2	-32.2	28.5	92.5	----	Fundamental Peak
2423.150	V	87.2	-32.2	28.5	83.5	----	Fundamental AV
4846.100	V	56.2	-31.0	33.3	58.5	74.0	Peak
4846.100	V	45.7	-31.0	33.3	48.0	54.0	AV
7270.150	V	49.4	-28.3	36.4	57.5	74.0	Peak
7270.150	V	39.5	-28.3	36.4	47.6	54.0	AV

Table 20 General Radiated Emission Data

Model number: HWNP-300
Test Mode: 802.11n HT40 ch 5

Frequency (MHz)	Polarization	Reading Value (dBμV)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level dB(μV/m)	Limits dB(μV/m)	Detector
298.256	H	18.1	2.9	13.5	34.5	46.0	QP
930.020	V	14.6	5.1	21.0	40.7	46.0	QP
980.561	V	13.4	5.2	21.3	39.9	54.0	QP
2443.511	V	95.7	-32.2	28.5	92.0	----	Fundamental Peak
2443.511	V	85.8	-32.2	28.5	82.1	----	Fundamental AV
4889.560	V	55.0	-31.0	33.3	57.3	74.0	Peak
4889.560	V	45.2	-31.0	33.3	47.5	54.0	AV
7330.122	V	48.9	-28.3	36.4	57.0	74.0	Peak
7330.122	V	38.0	-28.3	36.4	46.1	54.0	AV

Table 21 General Radiated Emission Data

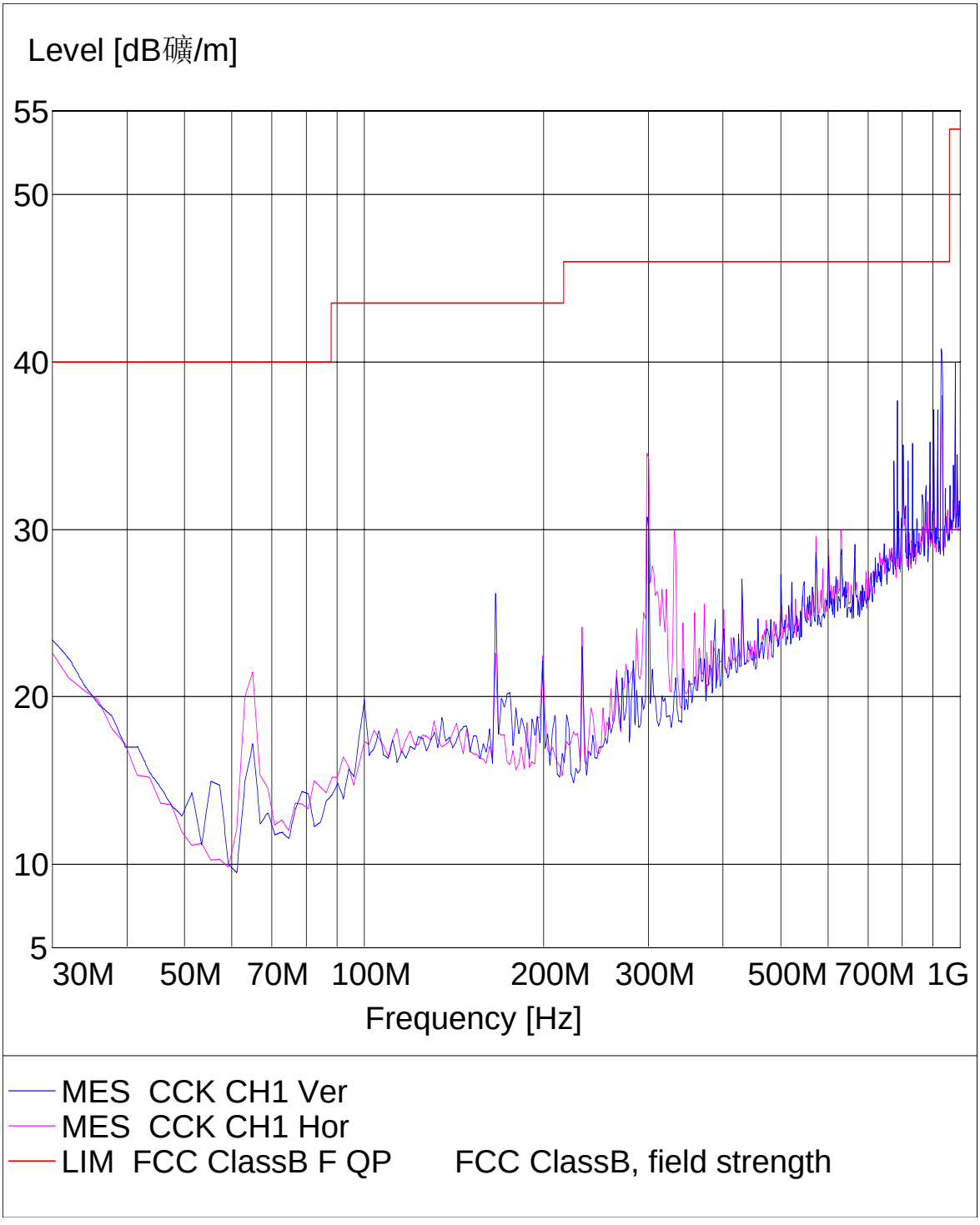
Model number: HWNP-300
Test Mode: 802.11n HT40 ch 9

Frequency (MHz)	Polarization	Reading Value (dB μ V)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level dB (μ V/m)	Limits dB (μ V/m)	Detector
298.256	H	18.1	2.9	13.5	34.5	46.0	QP
930.020	V	14.6	5.1	21.0	40.7	46.0	QP
980.561	V	13.4	5.2	21.3	39.9	54.0	QP
2463.350	V	95.2	-32.2	28.5	91.5	----	Fundamental Peak
2463.350	V	85.2	-32.2	28.5	81.5	----	Fundamental AV
4928.121	V	55.7	-31.0	33.3	58.0	74.0	Peak
4928.121	V	45.5	-31.0	33.3	47.8	54.0	AV
7385.793	V	49.1	-28.3	36.4	57.2	74.0	Peak
7385.793	V	38.9	-28.3	36.4	47.0	54.0	AV

Radiated Disturbance

EUT: M/N:HWNP-300

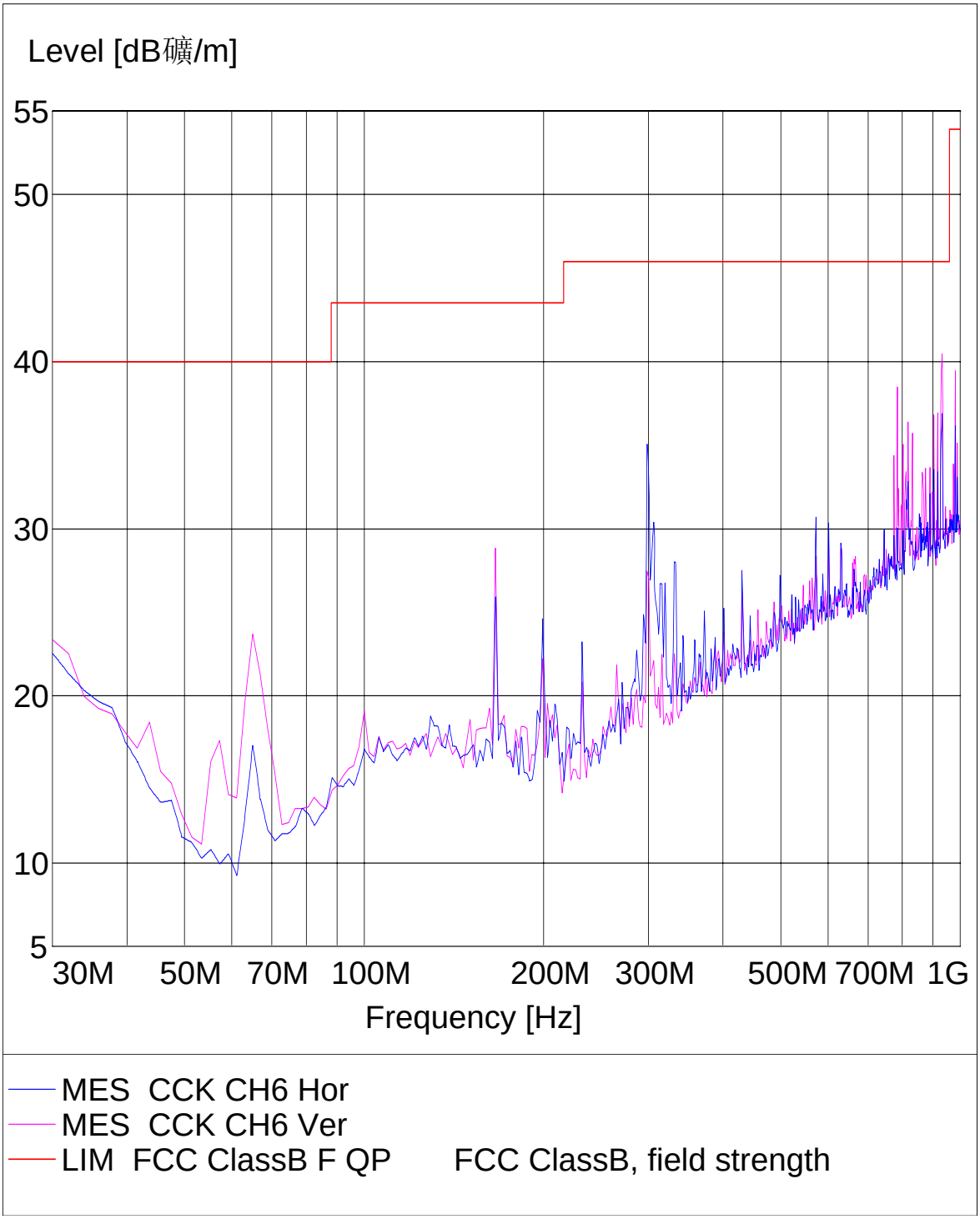
Operating Condition: TX CH1 802.11b
Test Site: SMQ EMC Lab.SAC
Test Specification: Vertical & Horizontal
Comment:



Radiated Disturbance

EUT: M/N:HWNP-300

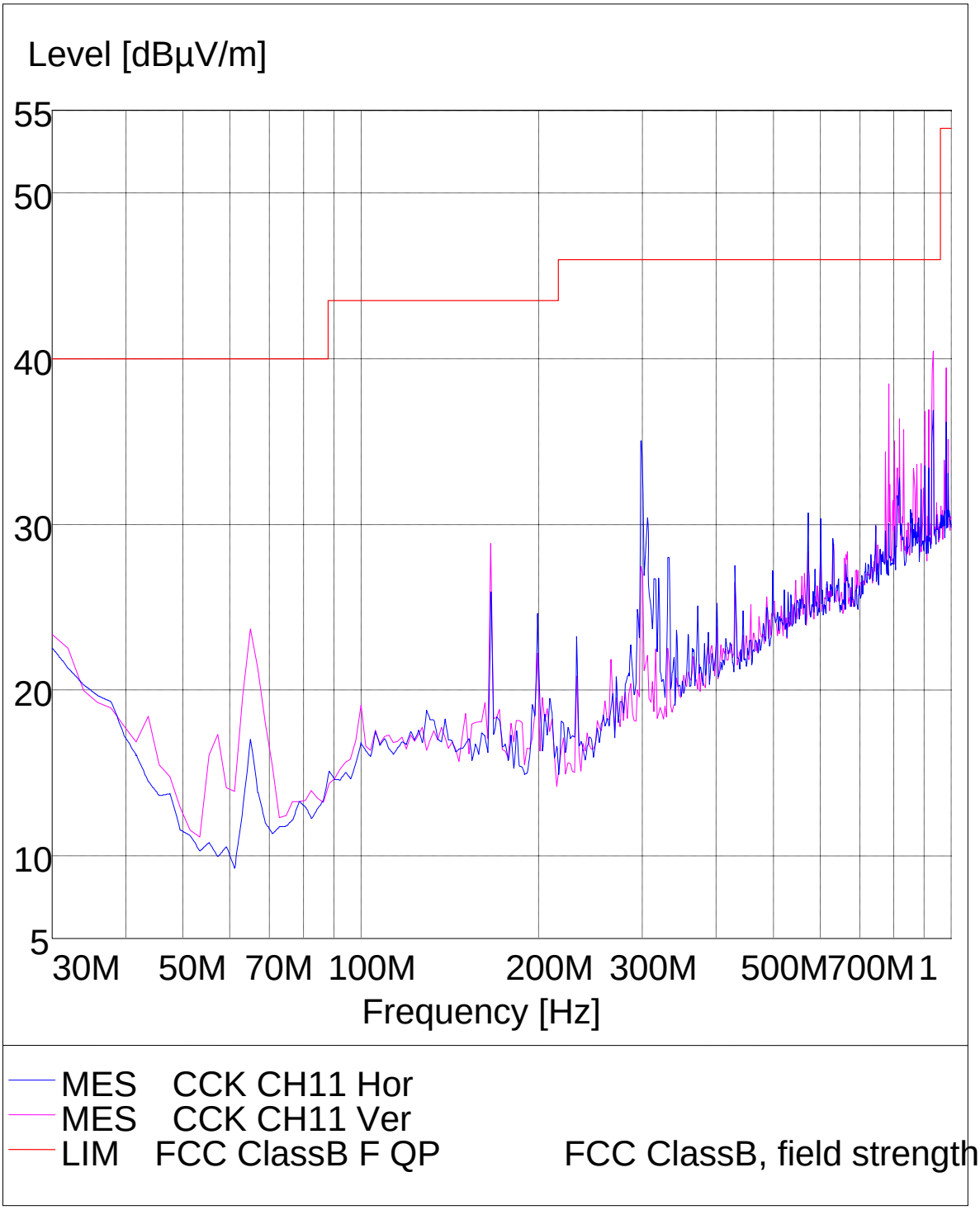
Operating Condition: TX CH6 802.11b
Test Site: SMQ EMC Lab.SAC
Test Specification: Vertical & Horizontal



Radiated Disturbance

EUT: M/N:HWNP-300

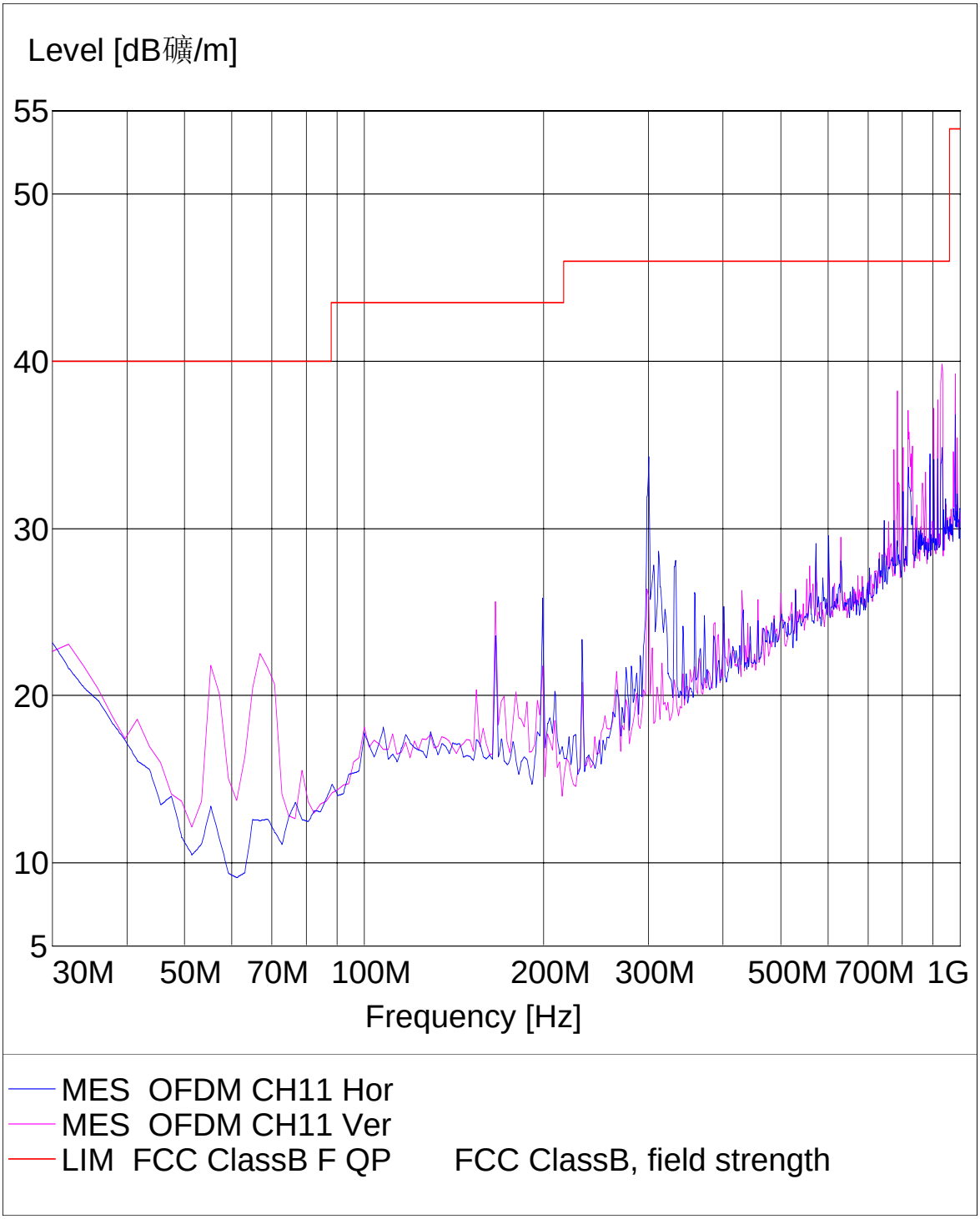
Operating Condition: TX CH11 802.11b
Test Site: SMQ EMC Lab.SAC
Test Specification: Vertical & Horizontal
Comment :



Radiated Disturbance

EUT: M/N:HWNP-300

Operating Condition: TX CH11 802.11g
Test Site: SMQ EMC Lab.SAC
Test Specification: Vertical & Horizontal

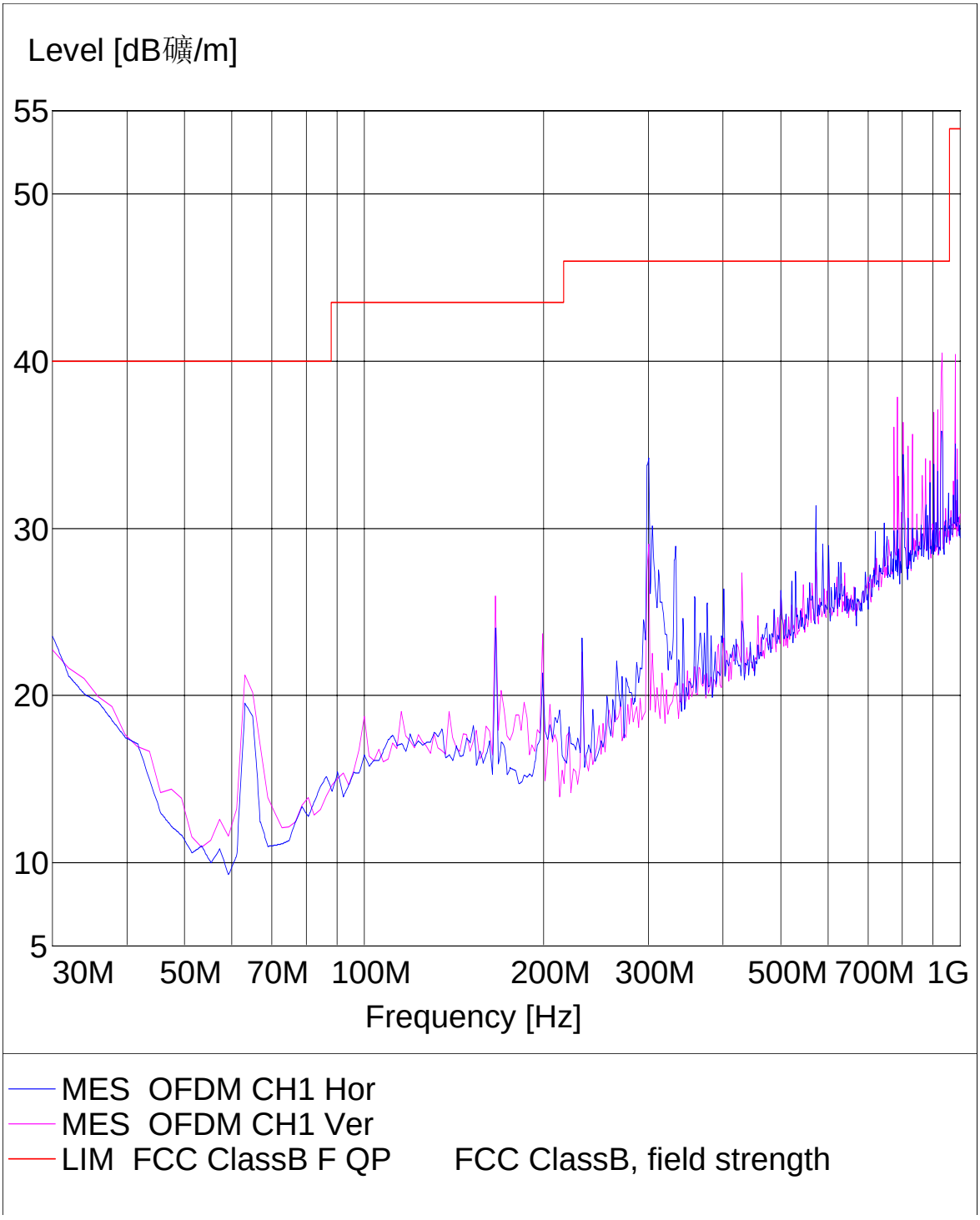


Radiated Disturbance

EUT: M/N:HWNP-300

Operating Condition: TX CH1 802.11g

Test Site: SMQ EMC Lab.SAC
Test Specification: Vertical & Horizontal

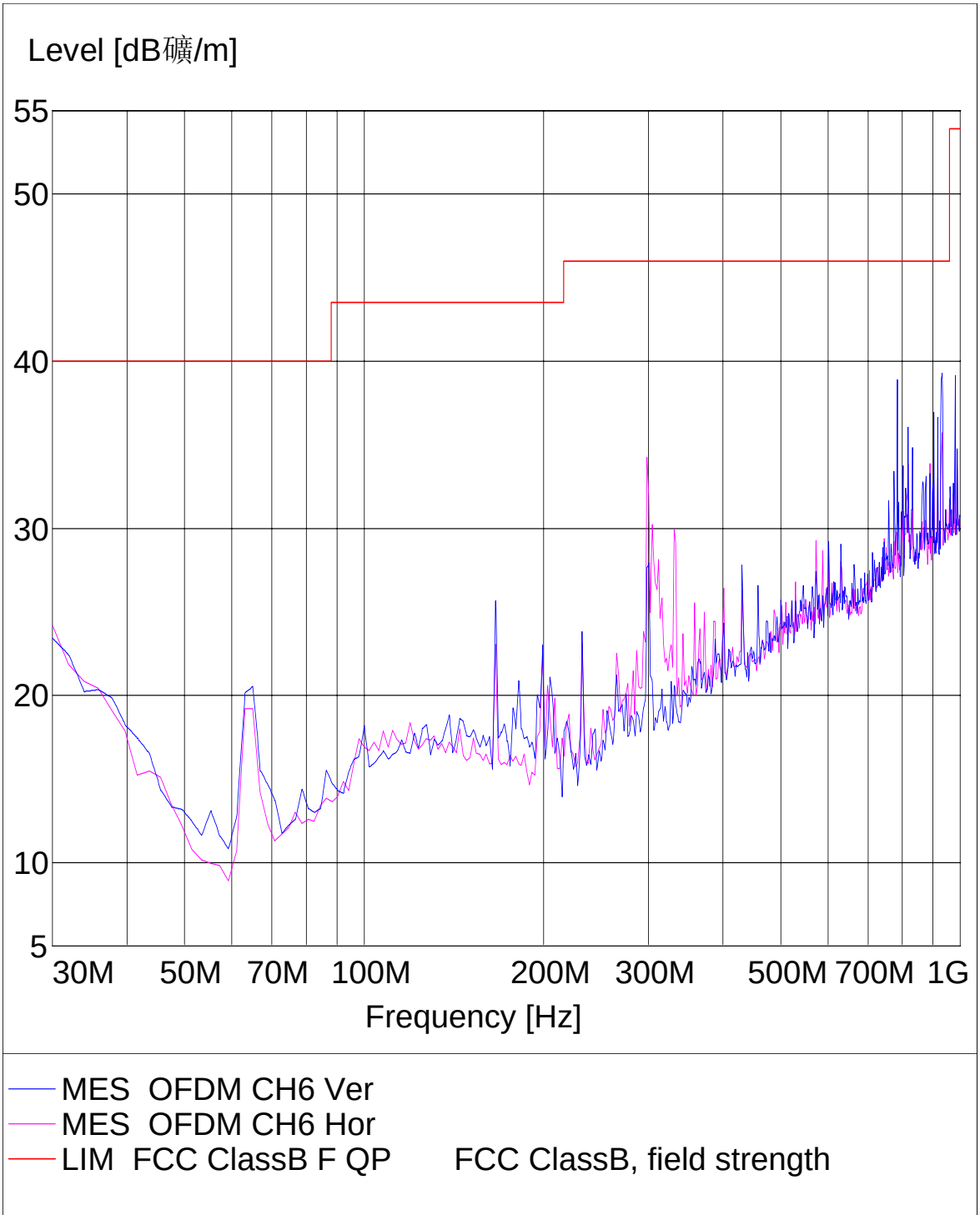


Radiated Disturbance

EUT: M/N:HWNP-300

Operating Condition: TX CH6 802.11g
Test Site: SMQ EMC Lab.SAC

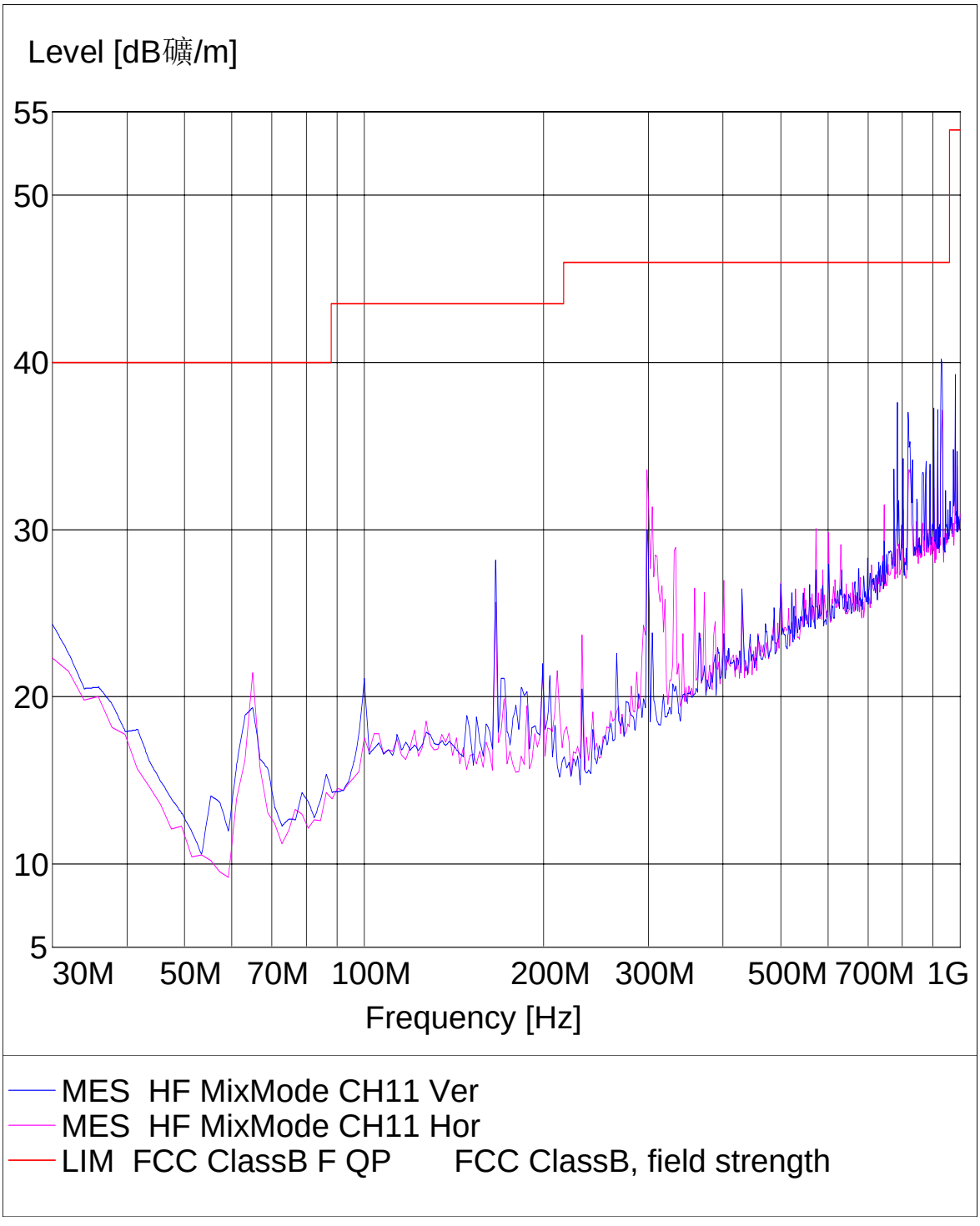
Test Specification: Vertical & Horizontal



Radiated Disturbance

EUT: M/N:HWNP-300

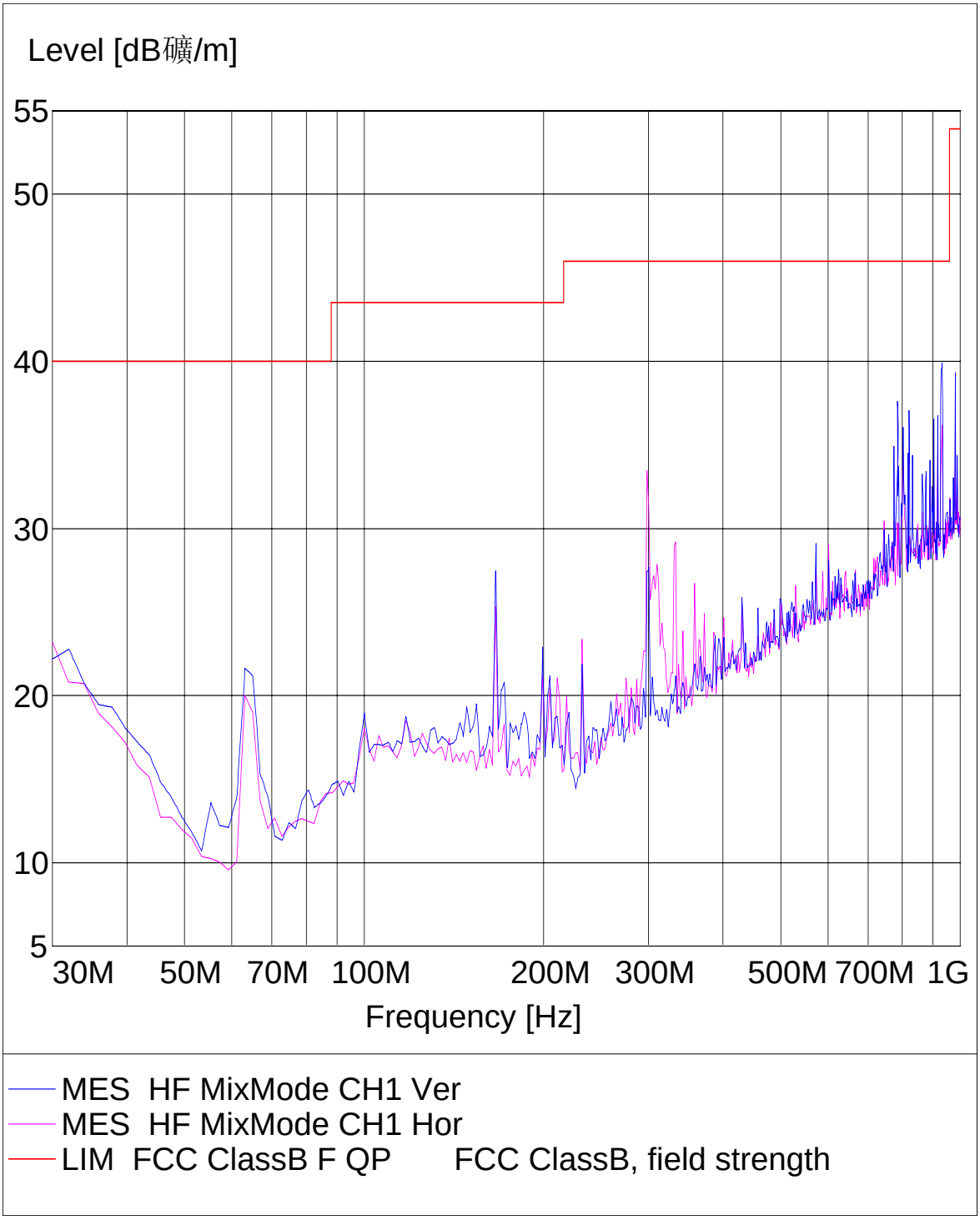
Operating Condition: TX CH11 802.11n HT20
Test Site: SMQ EMC Lab.SAC
Test Specification: Vertical & Horizontal



Radiated Disturbance

EUT: M/N:HWNP-300

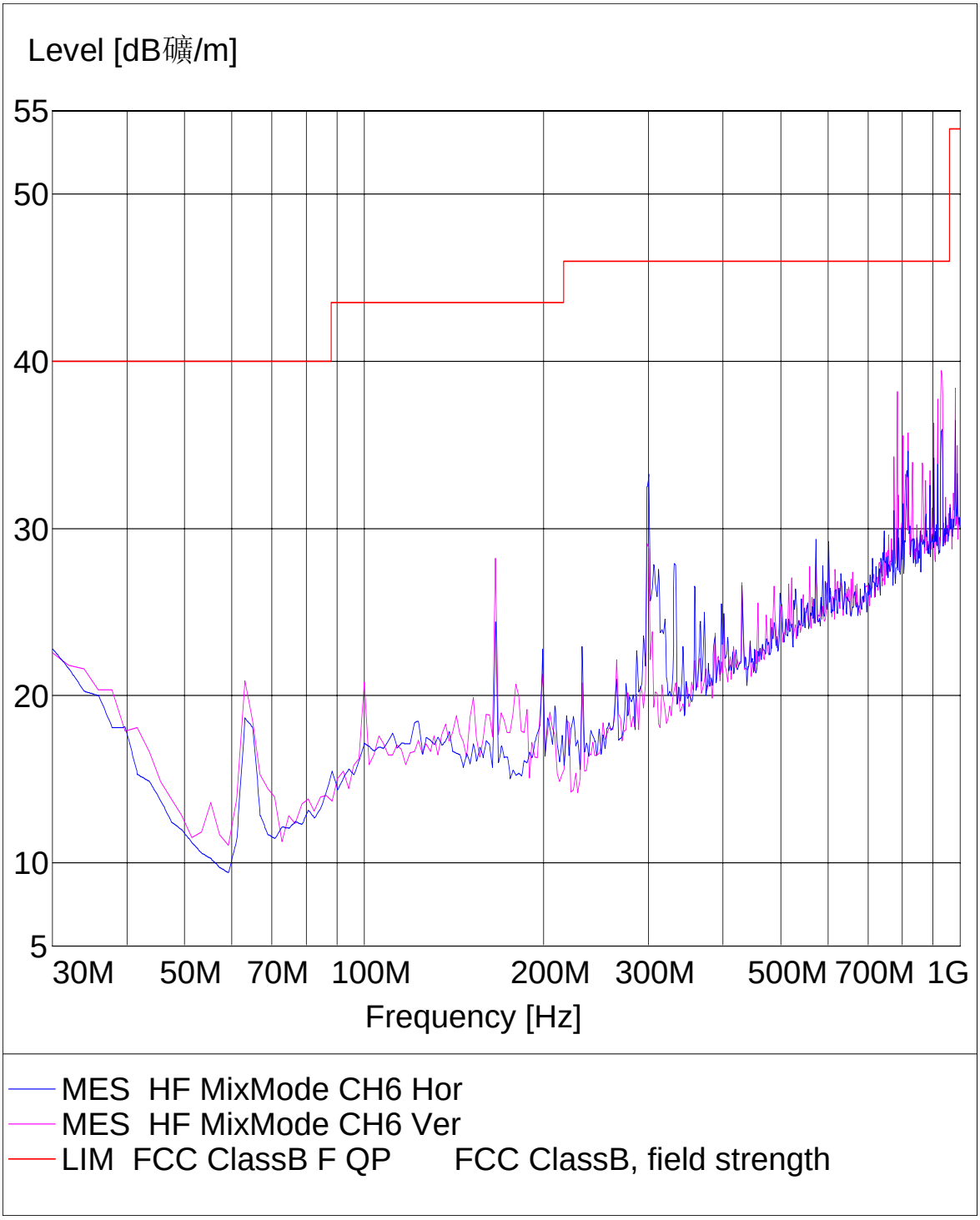
Operating Condition: TX CH1 802.11n HT20
Test Site: SMQ EMC Lab.SAC
Test Specification: Vertical & Horizontal



Radiated Disturbance

EUT: M/N:HWNP-300

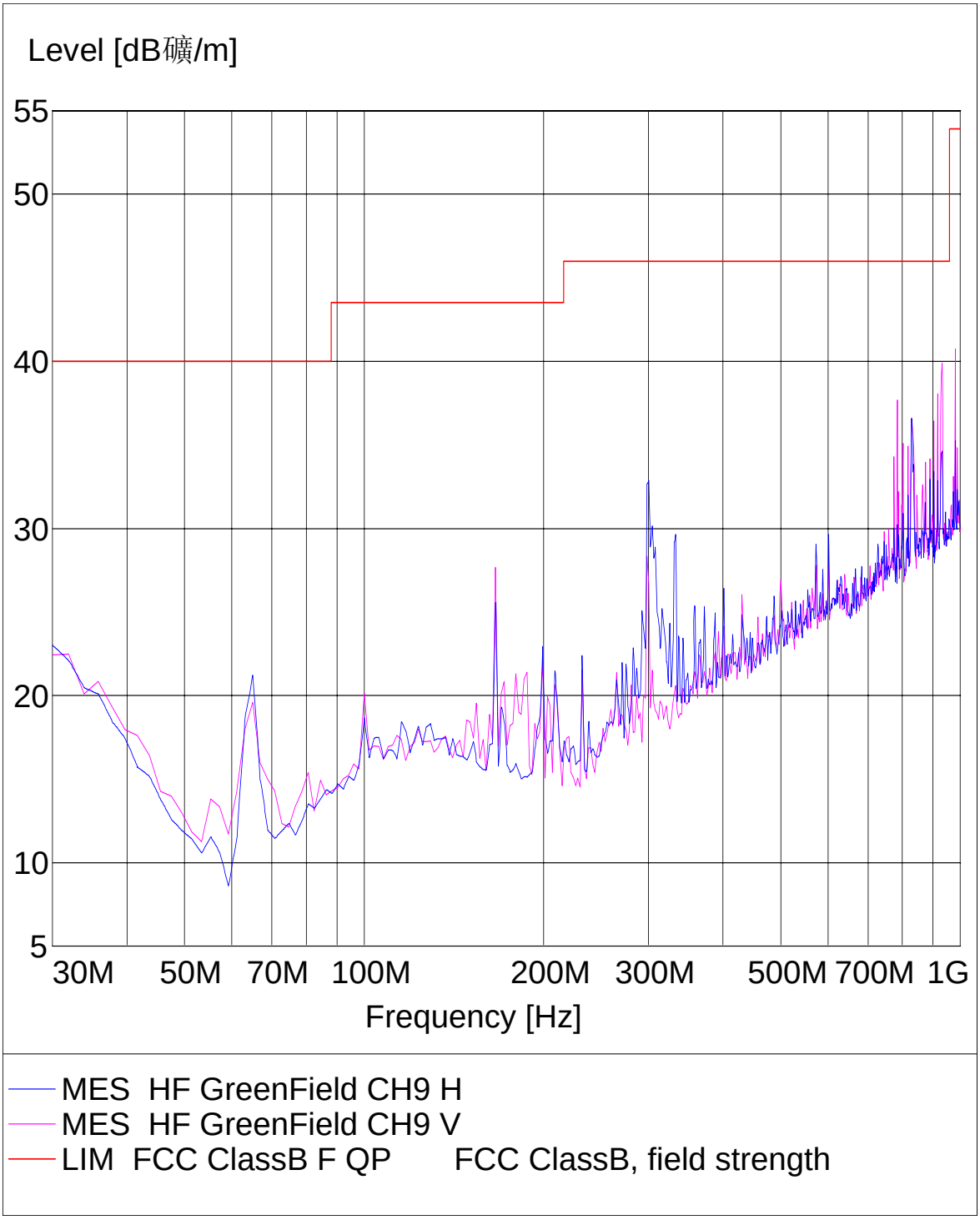
Operating Condition: TX CH6 802.11n HT20
Test Site: SMQ EMC Lab.SAC
Test Specification: Vertical & Horizontal



Radiated Disturbance

EUT: M/N:HWNP-300

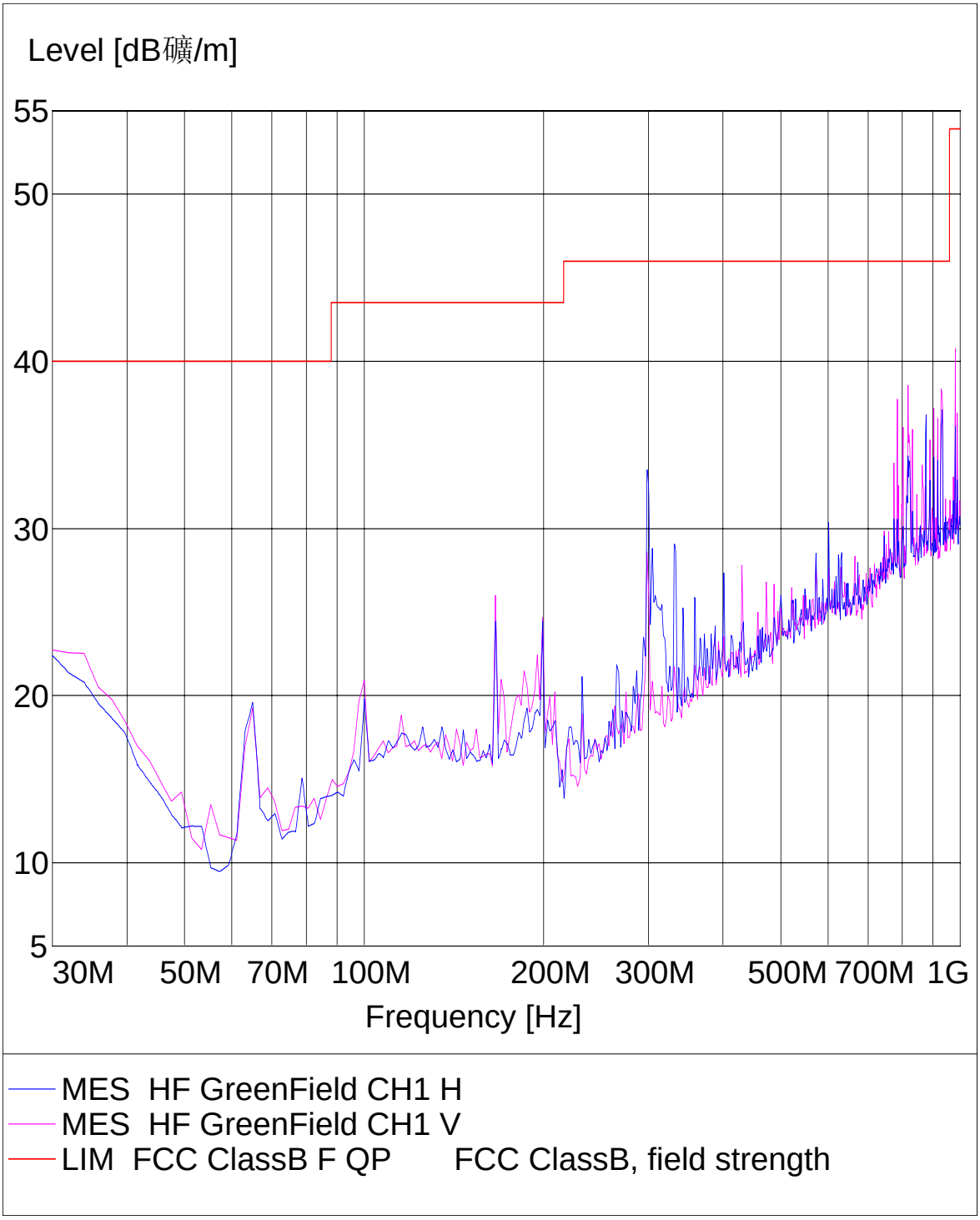
Operating Condition: TX CH9 802.11n HT40
Test Site: SMQ EMC Lab.SAC
Test Specification: Vertical & Horizontal



Radiated Disturbance

EUT: M/N:HWNP-300

Operating Condition: TX CH1 802.11n HT40
Test Site: SMQ EMC Lab.SAC
Test Specification: Vertical & Horizontal



Radiated Disturbance

EUT: M/N:HWNP-300

Operating Condition: TX CH5 802.11n HT40
Test Site: SMQ EMC Lab.SAC
Test Specification: Vertical & Horizontal

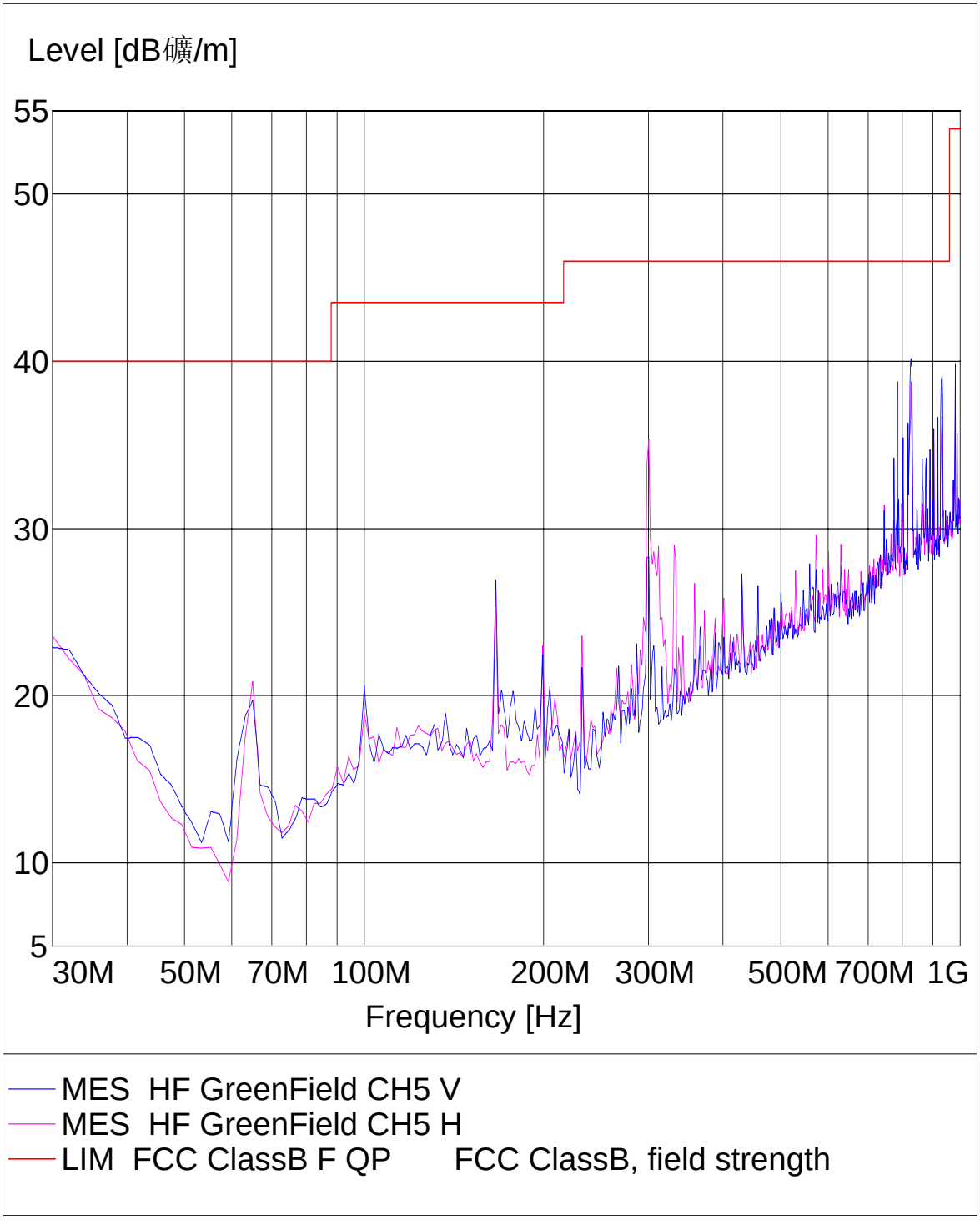


Table 22 **Restricted Band Radiated Emission Data**

MHz	MHz	MHz	GHz
0.090 - 0.110 0.495 - 0.505	16.42 - 16.423 16.69475 - 16.69525	399.9 - 410 608 - 614	4.5 - 5.15 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	2655 - 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	
12.51975 - 12.52025	240 - 285	3345.8 - 3358	
12.57675 - 12.57725	322 - 335.4	3600 - 4400	
13.36 - 13.41			

All the emission of the above band were less than the limit 20dB.

7. SPURIOUS EMISSIONS AT ANTENNA TERMINALS.

7.1. Test Standard and Limit

7.1.1.Test Standard

FCC Part 2 2.1051 FCC Part15 15.247

7.1.2.Test Limit

The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

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.

7.2. MEASUREMENT PROCEDURE

1). The eut antenna port connect to the spectrum analyzer through a 20dB attenuator.
2). Let the eut working in transmitter and used the RF Communication Tester to measure the conducted emission.
3). The output of the antenna shall be connected to the EMI test receiver(R&S ESIB26).
The setup of test receiver:
Detector: Peak
RBW: 200Hz for 9-150kHz
10kHz for 150kHz-30MHz
100kHz for 30-1000MHz
100kHz for above1GHz
VBW: 500Hz for 9-150kHz
30kHz for 150kHz-30MHz
100kHz for 30-1000MHz
100kHz for above1GHz

7.2.1.TEST SETUP BLOCK DIAGRAM (block diagram of configuration)

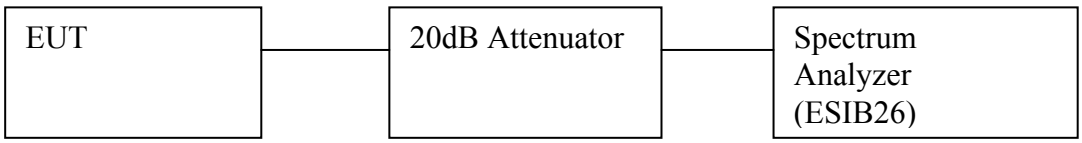


Figure 2 Conducted spurious Test setup

Note: the test was performed with the EUT transmit on chain 0, the EUT transmit on chain1 and the EUT transmit the same channel on the chain 0 and chain 1. when the EUT transmit the same channel on chain0 and chain1, the measure result is the combined power of chain 0 and chain 1.

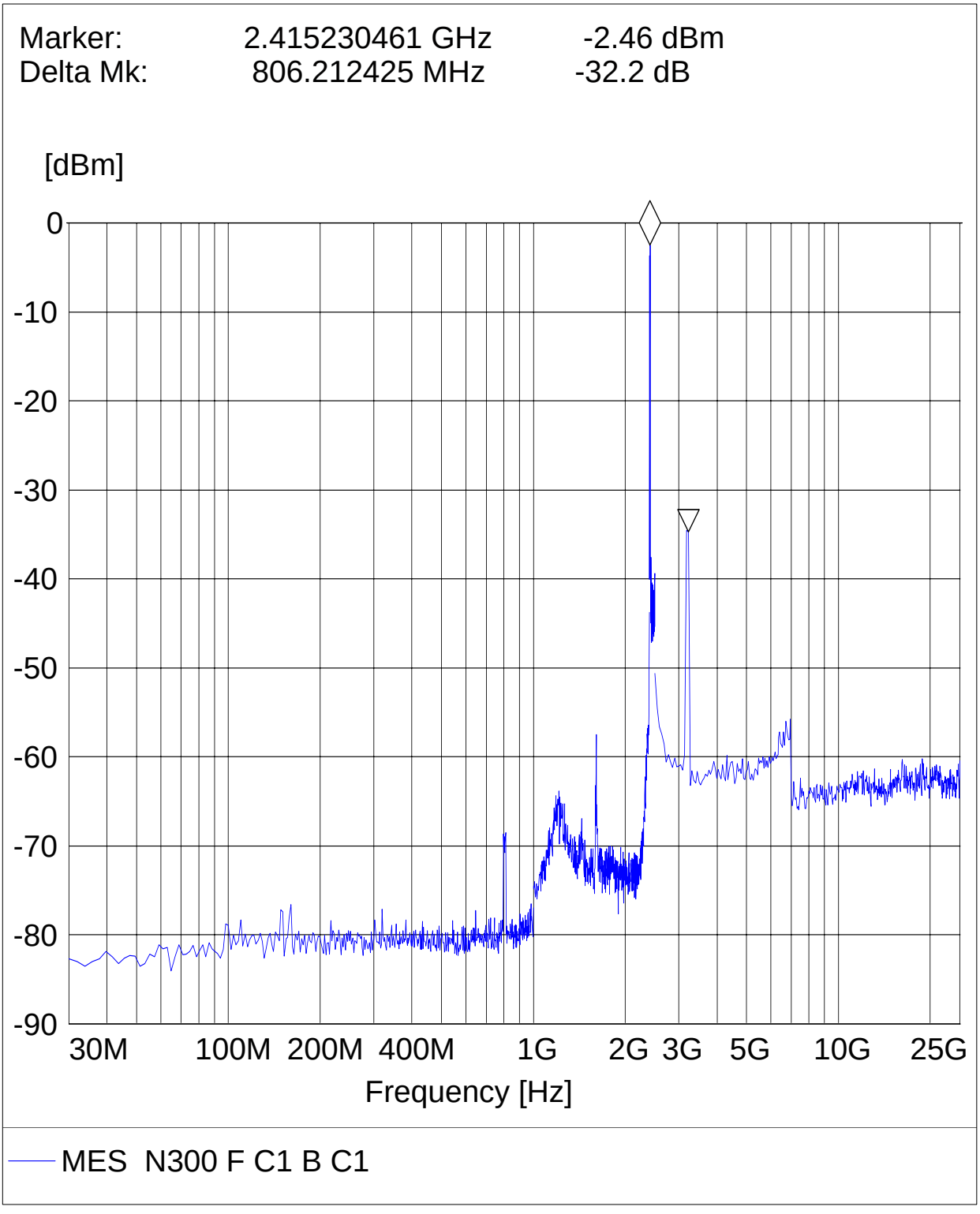
7.3. MEASUREMENT RESULTS:

Conducted Spurious

EUT: M/N:HWNP-300

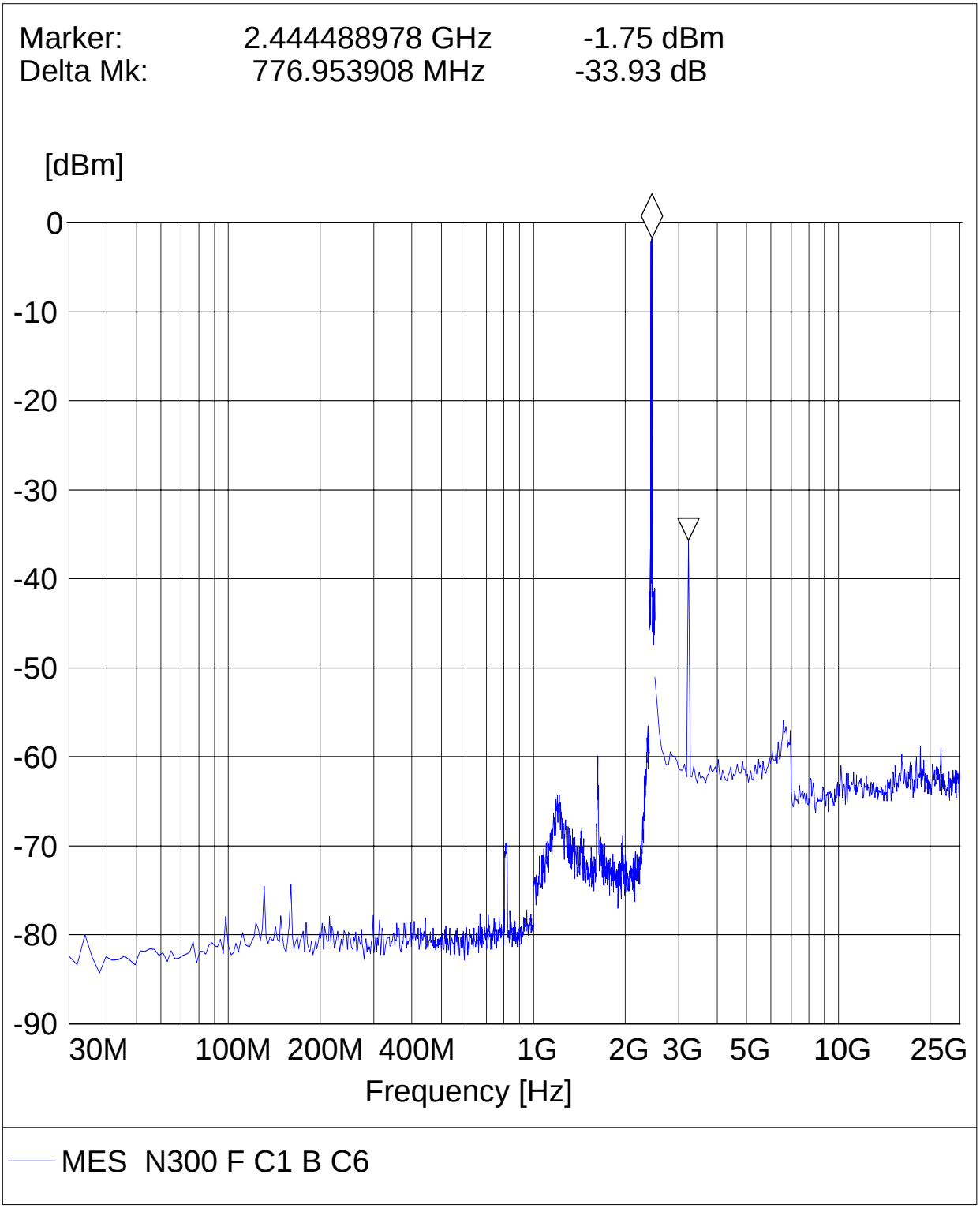
Manufacturer:

Operating Condition: 802.11b Chain1 ch1



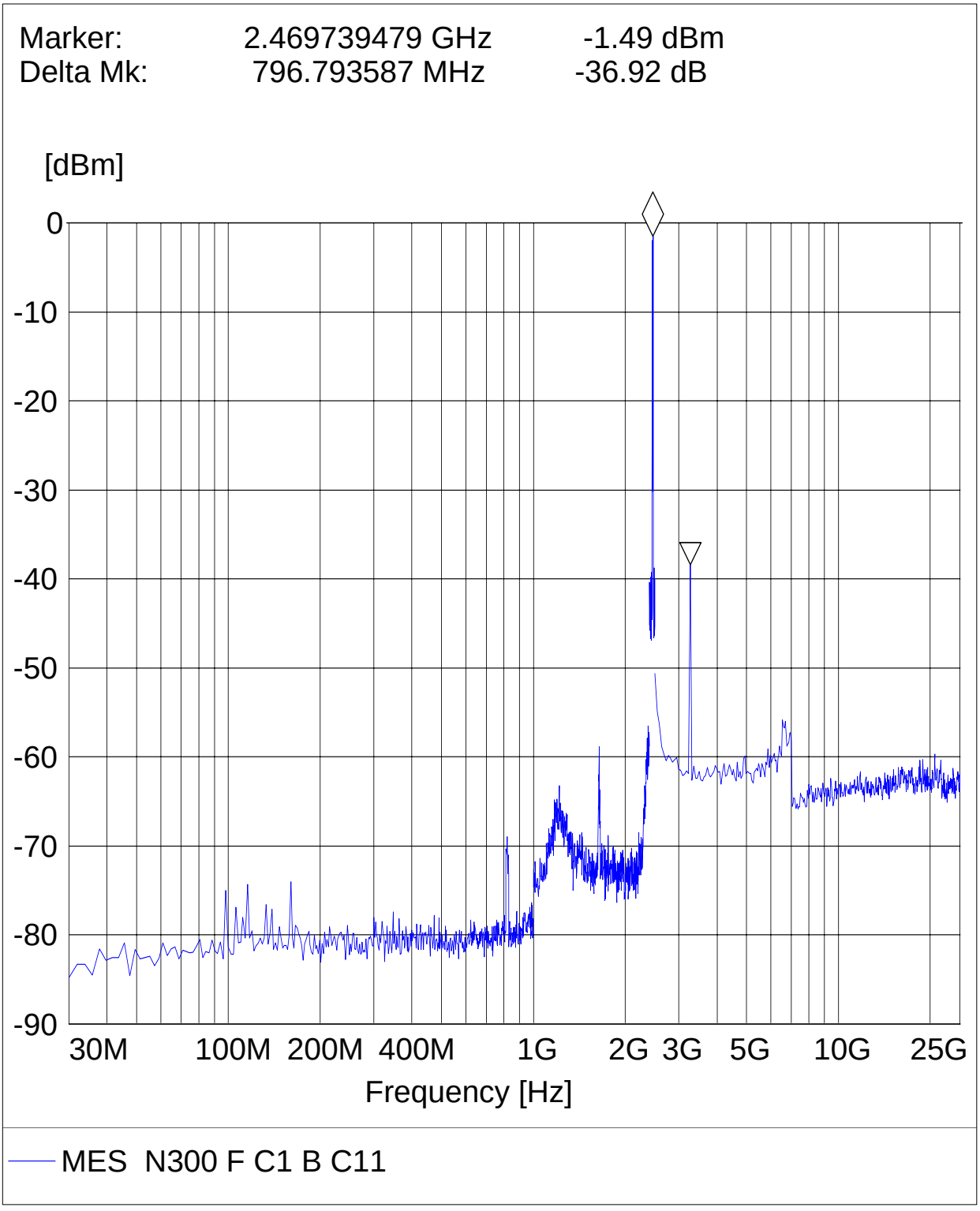
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11b Chain1 ch6



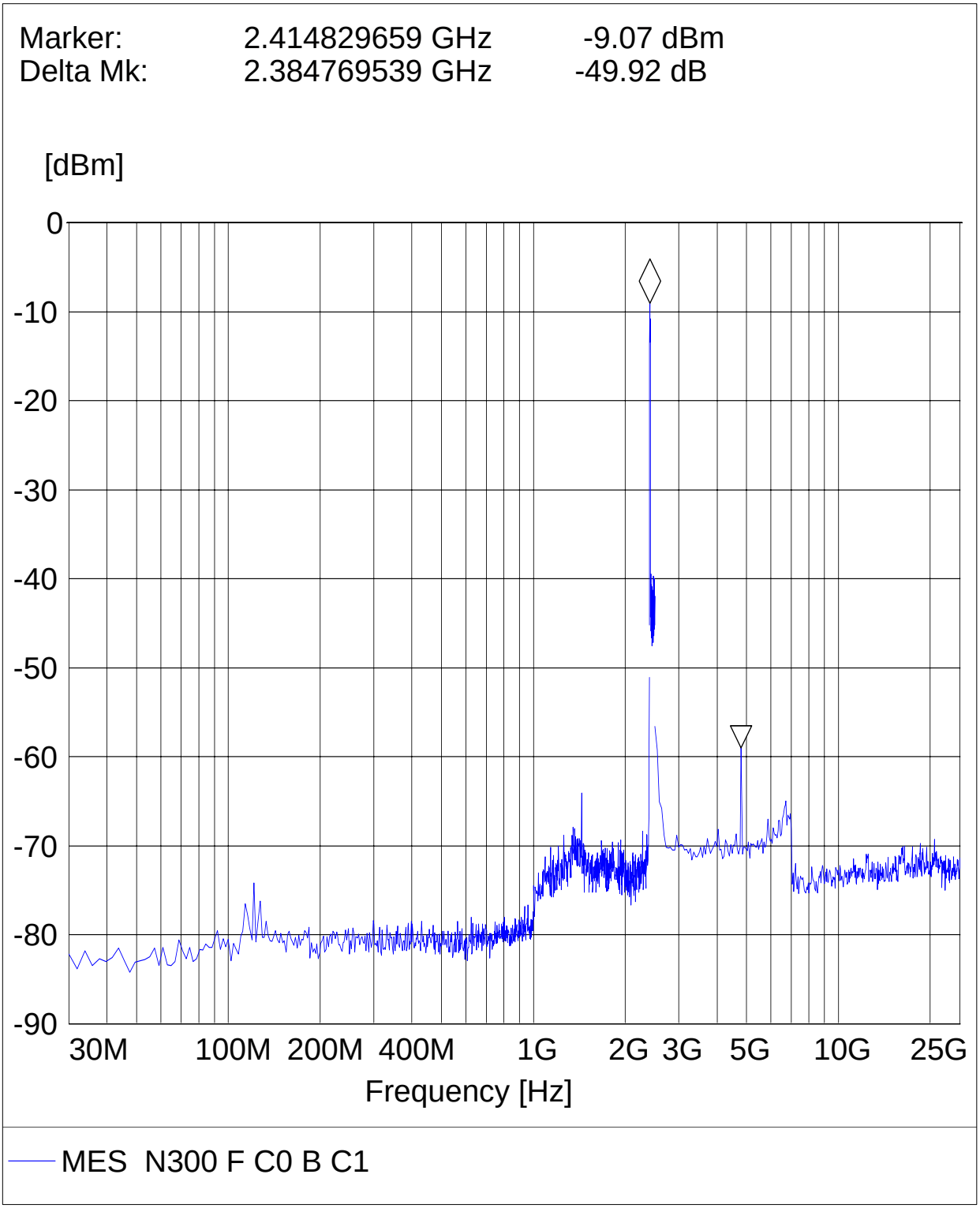
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11b Chain1 ch11



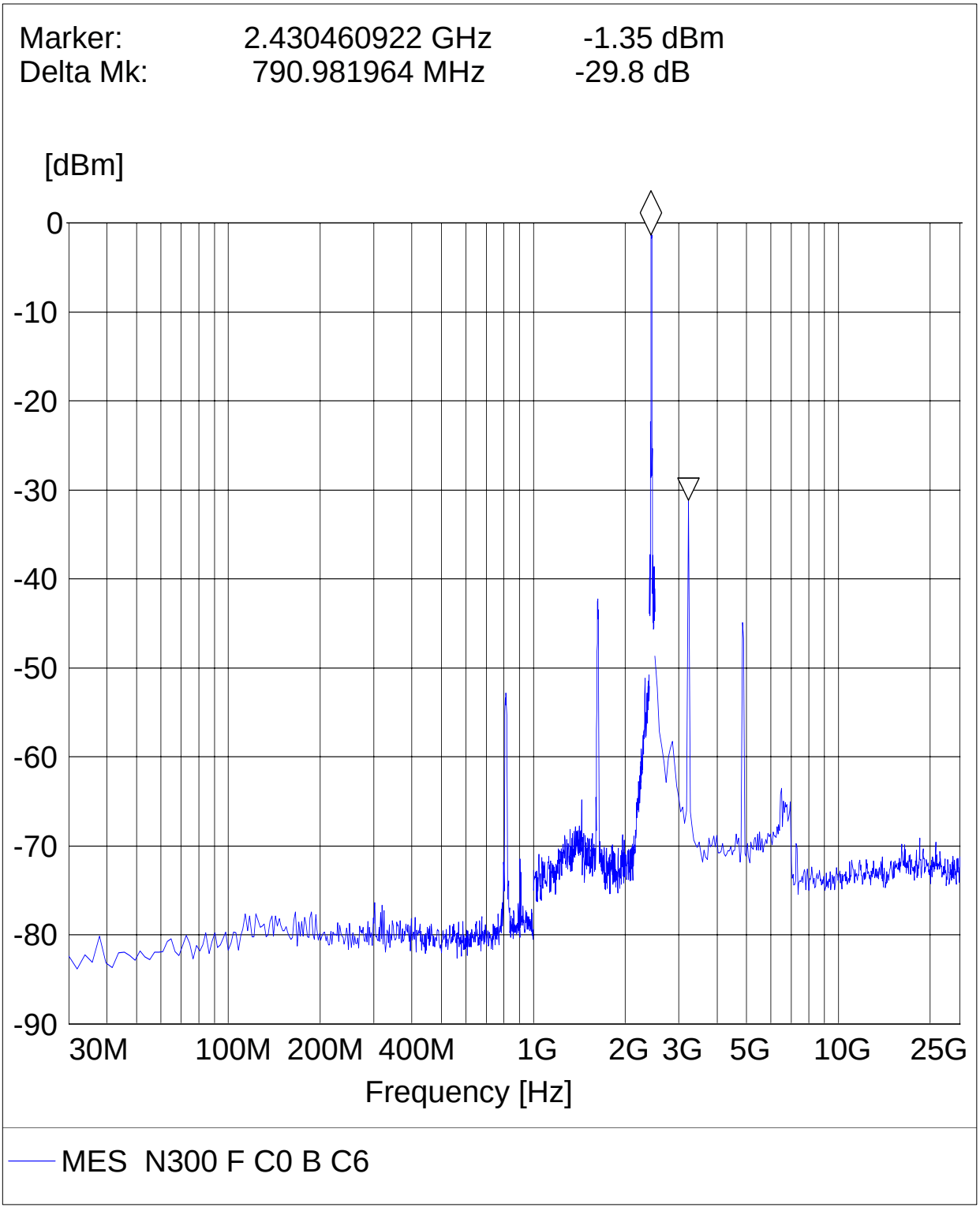
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11b Chain0 ch1



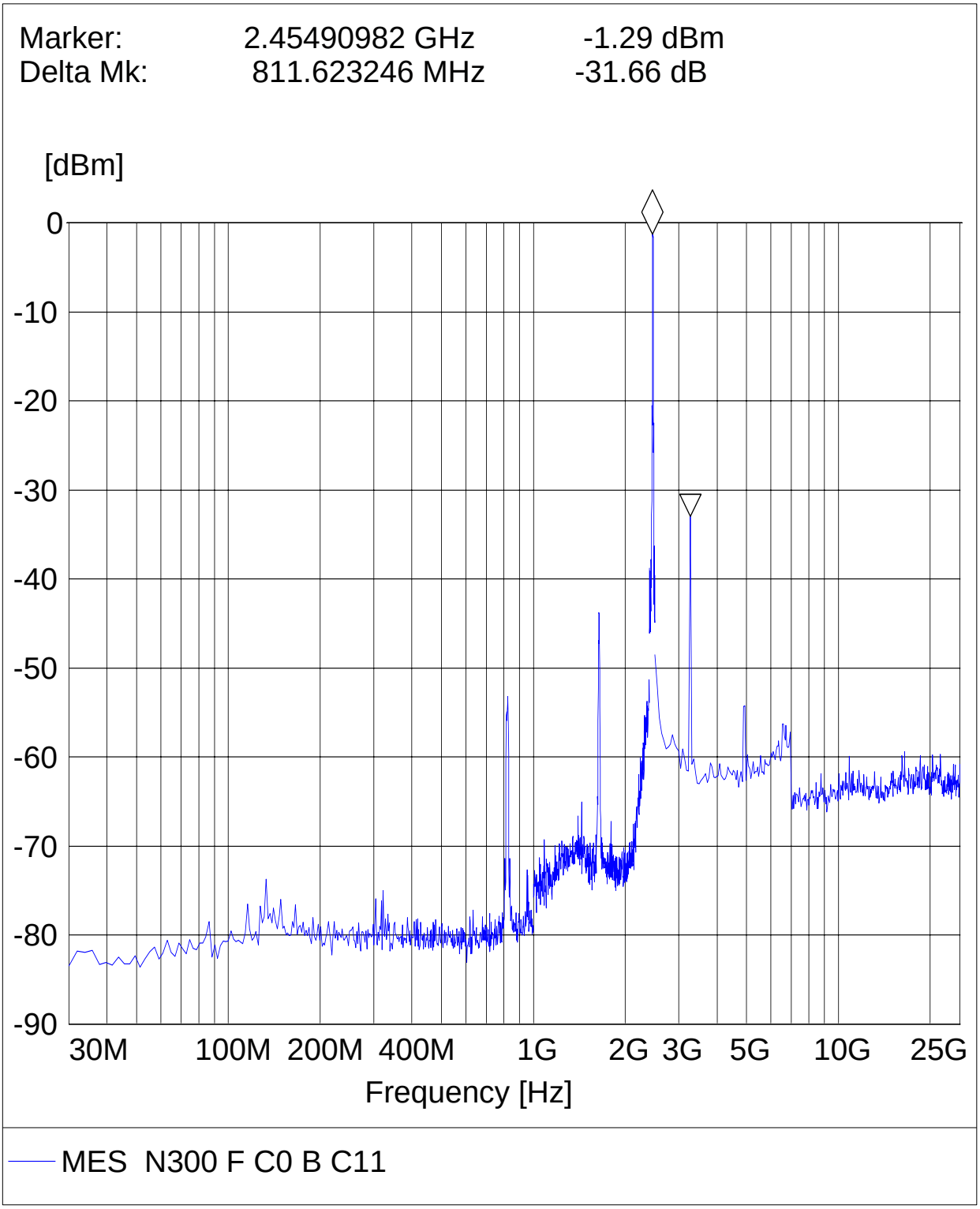
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11b Chain0 ch6



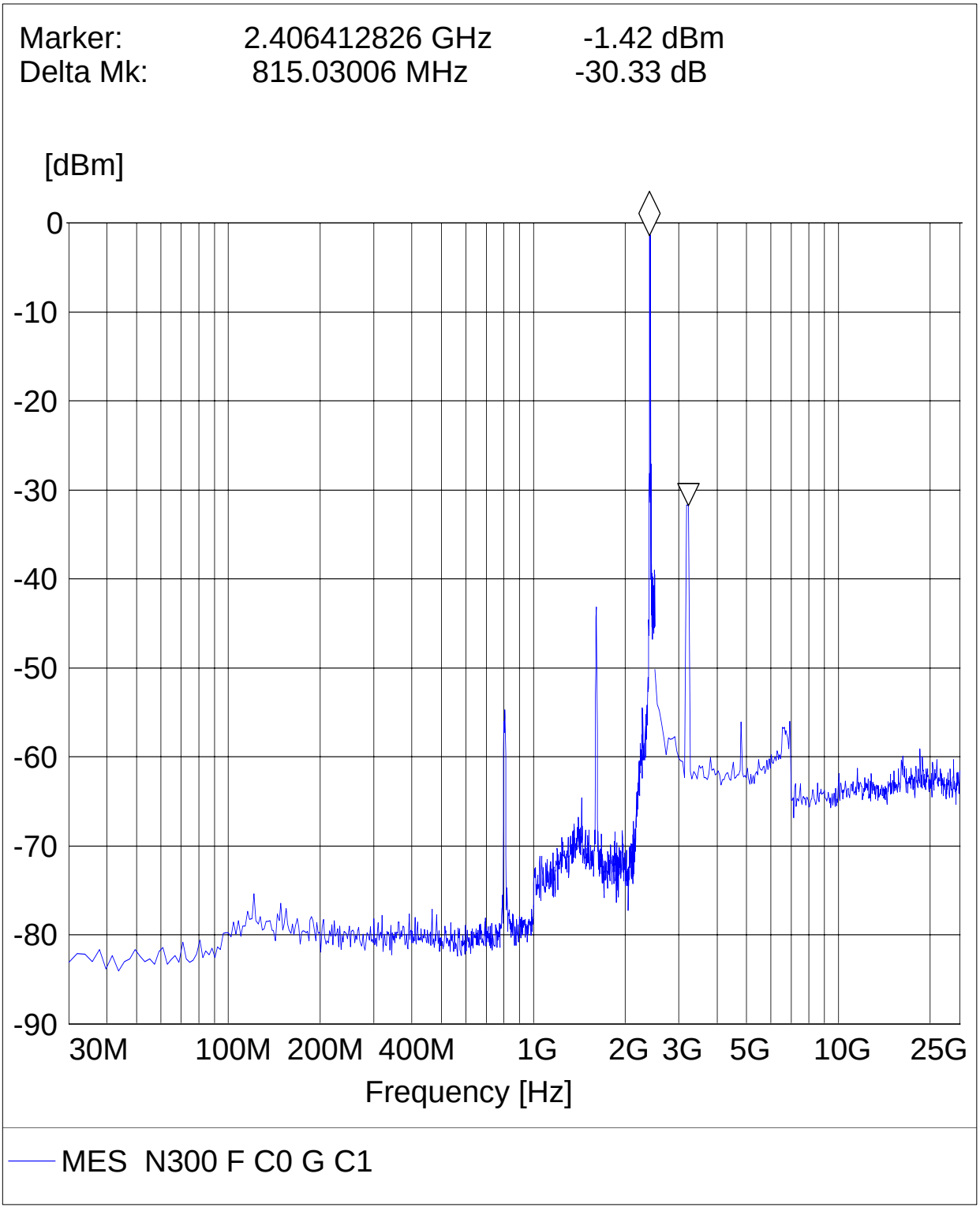
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11b Chain0 ch11



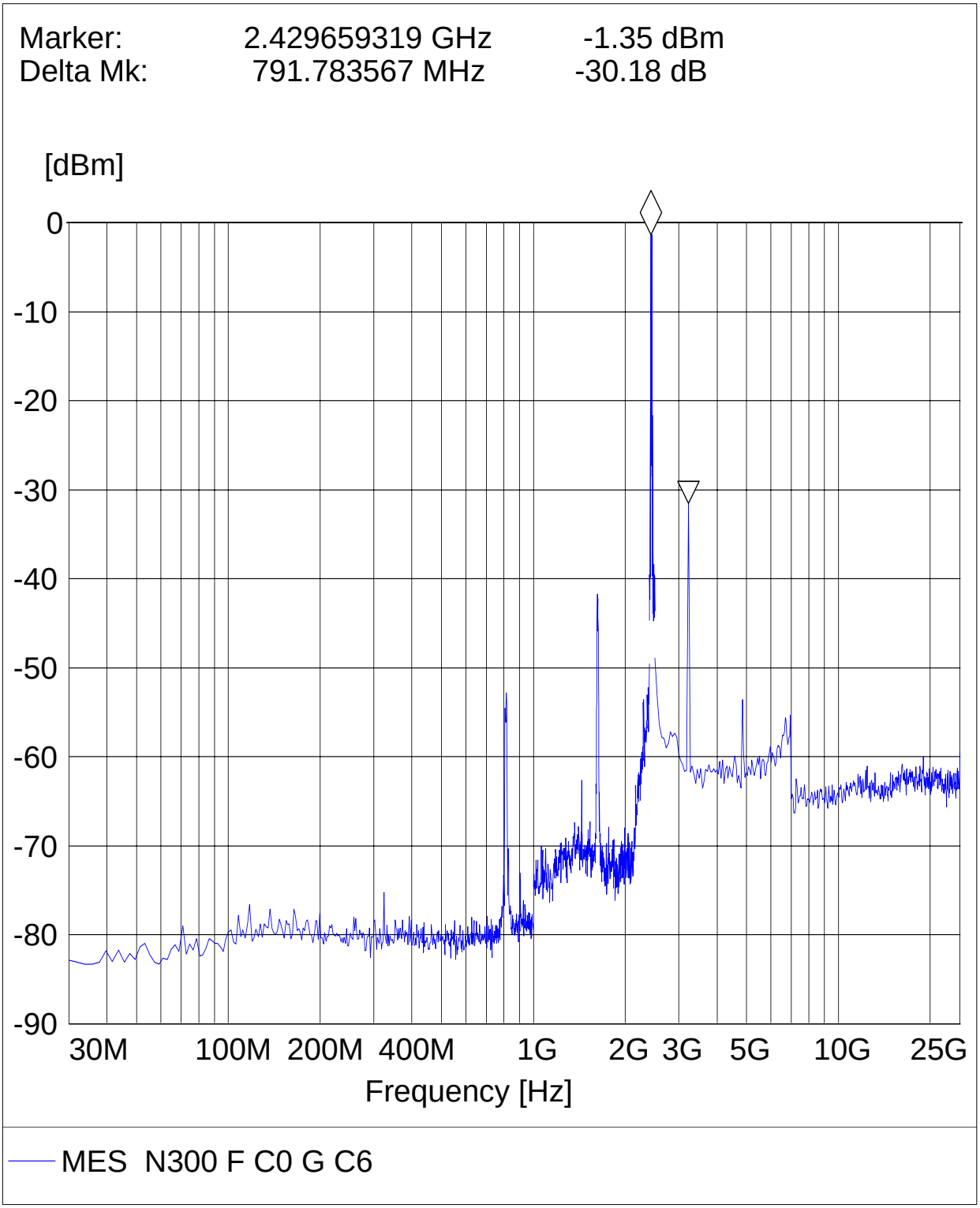
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11g Chain0 ch1



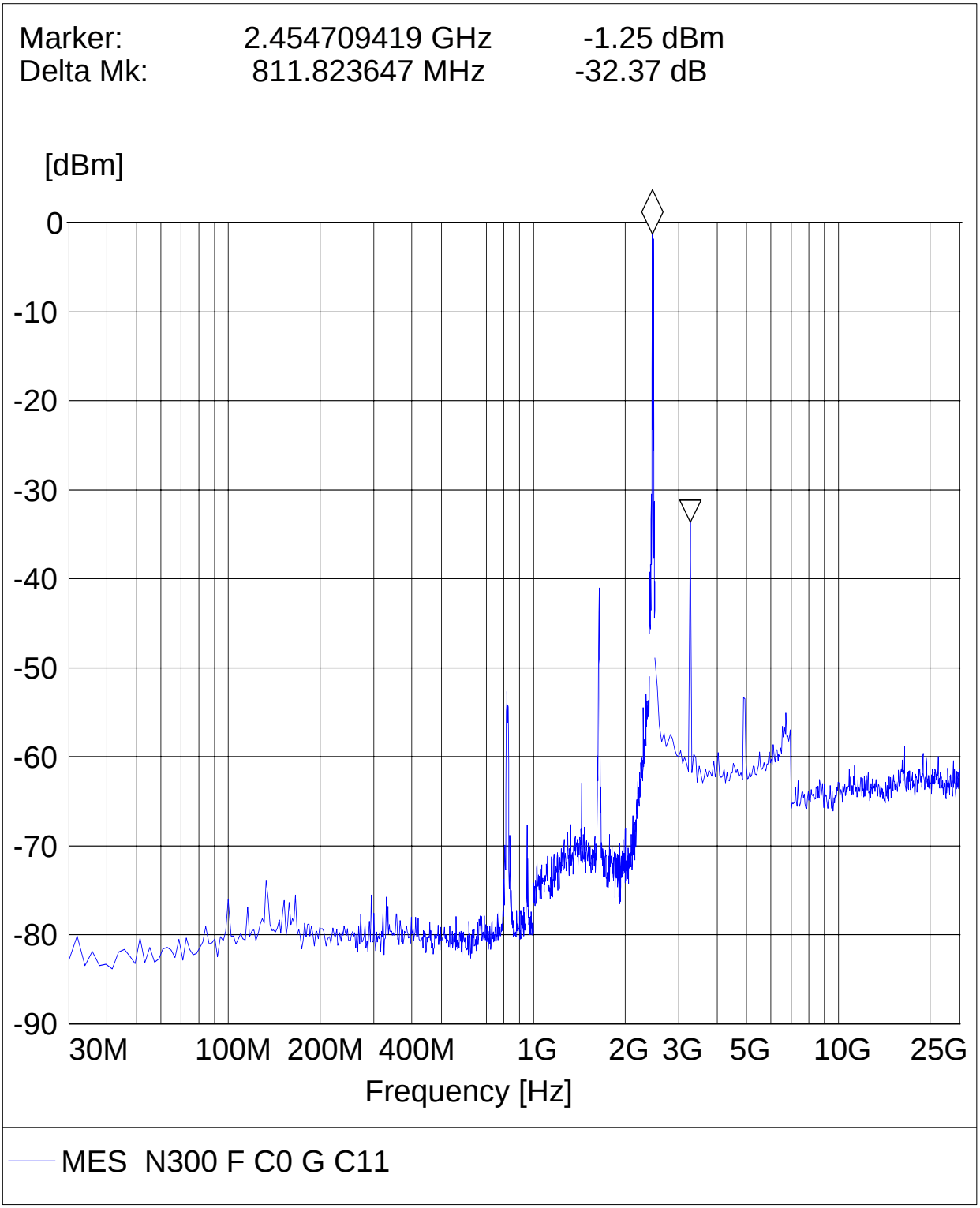
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11g Chain0 ch6



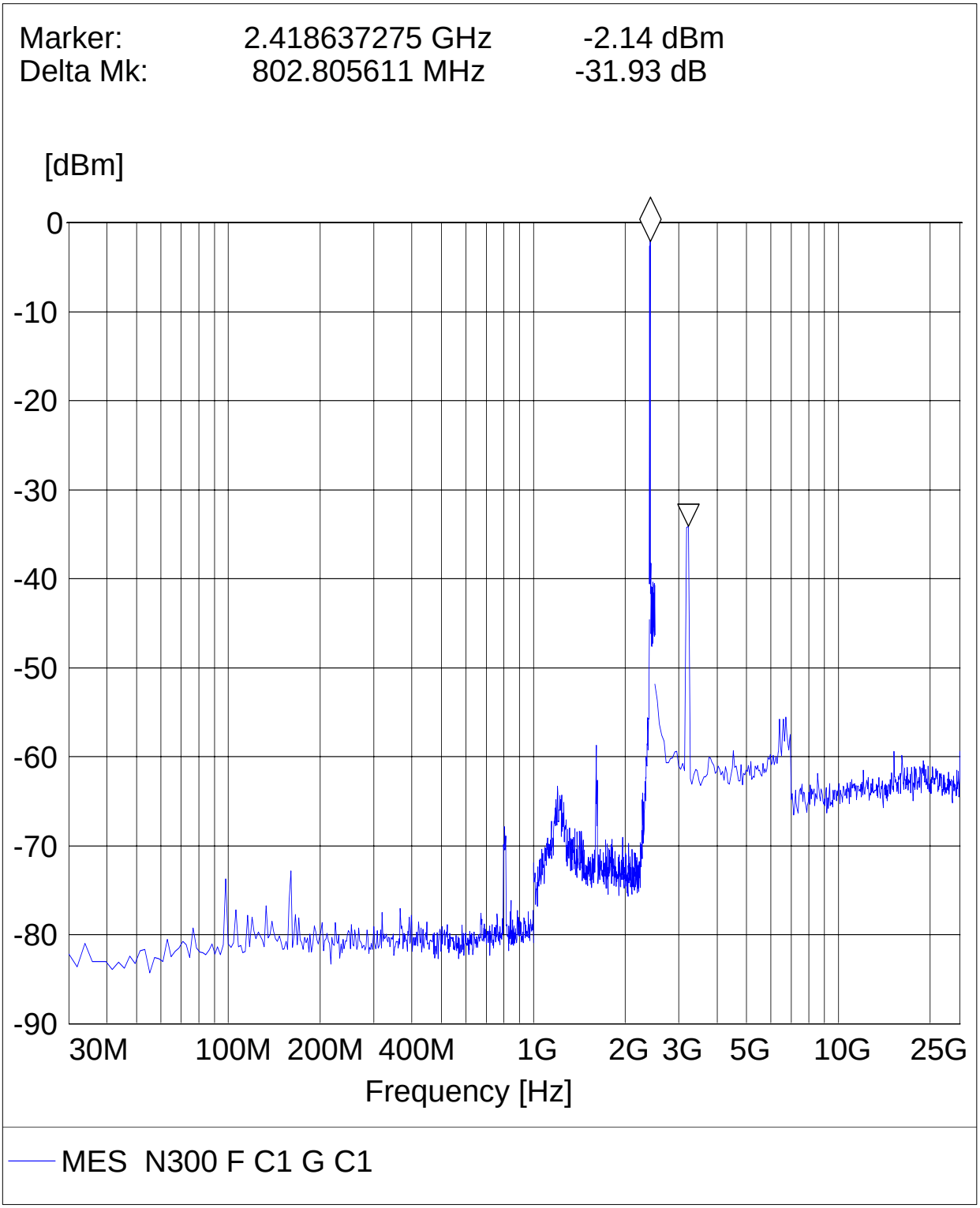
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11g Chain0 ch11



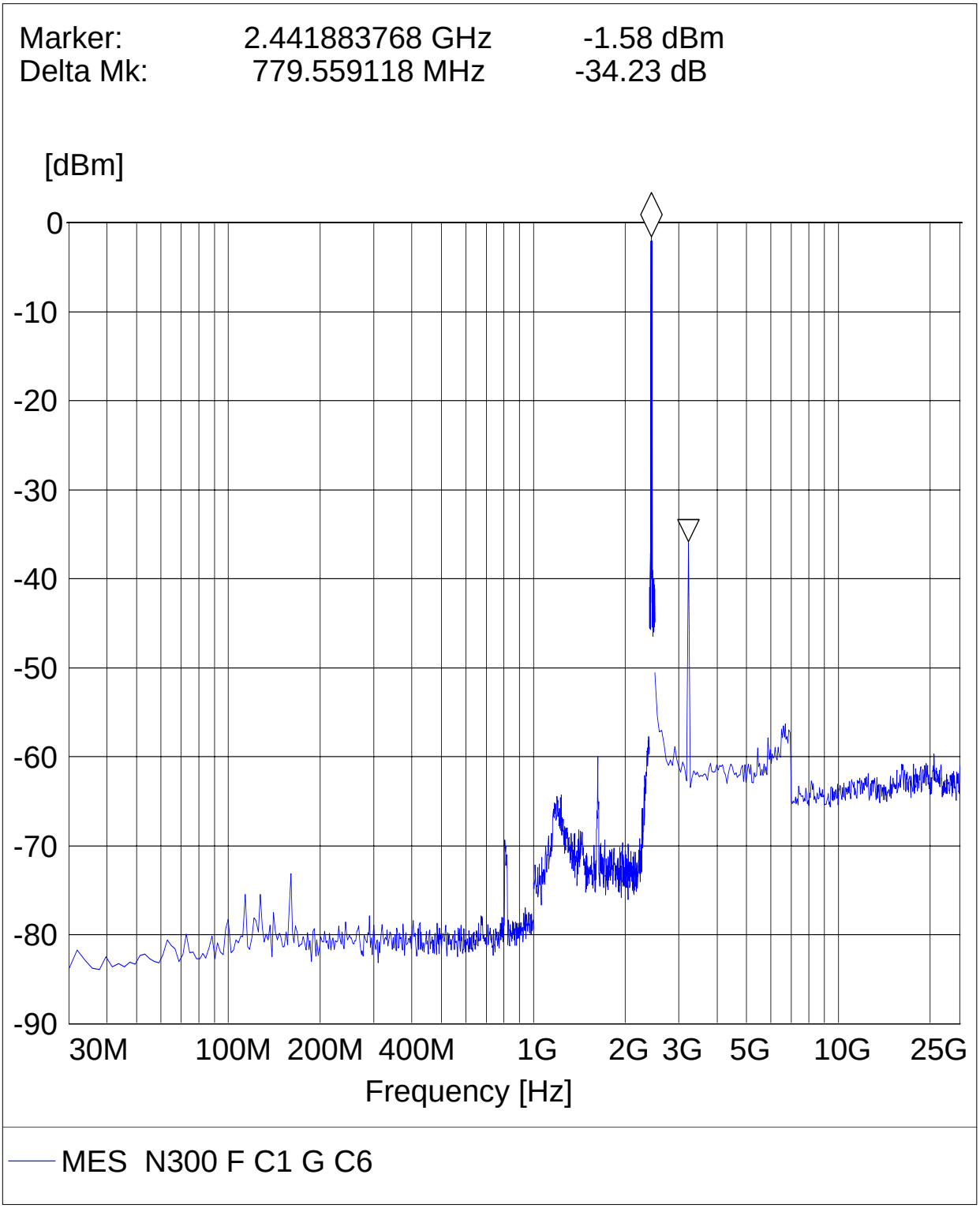
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11g Chain1 ch1



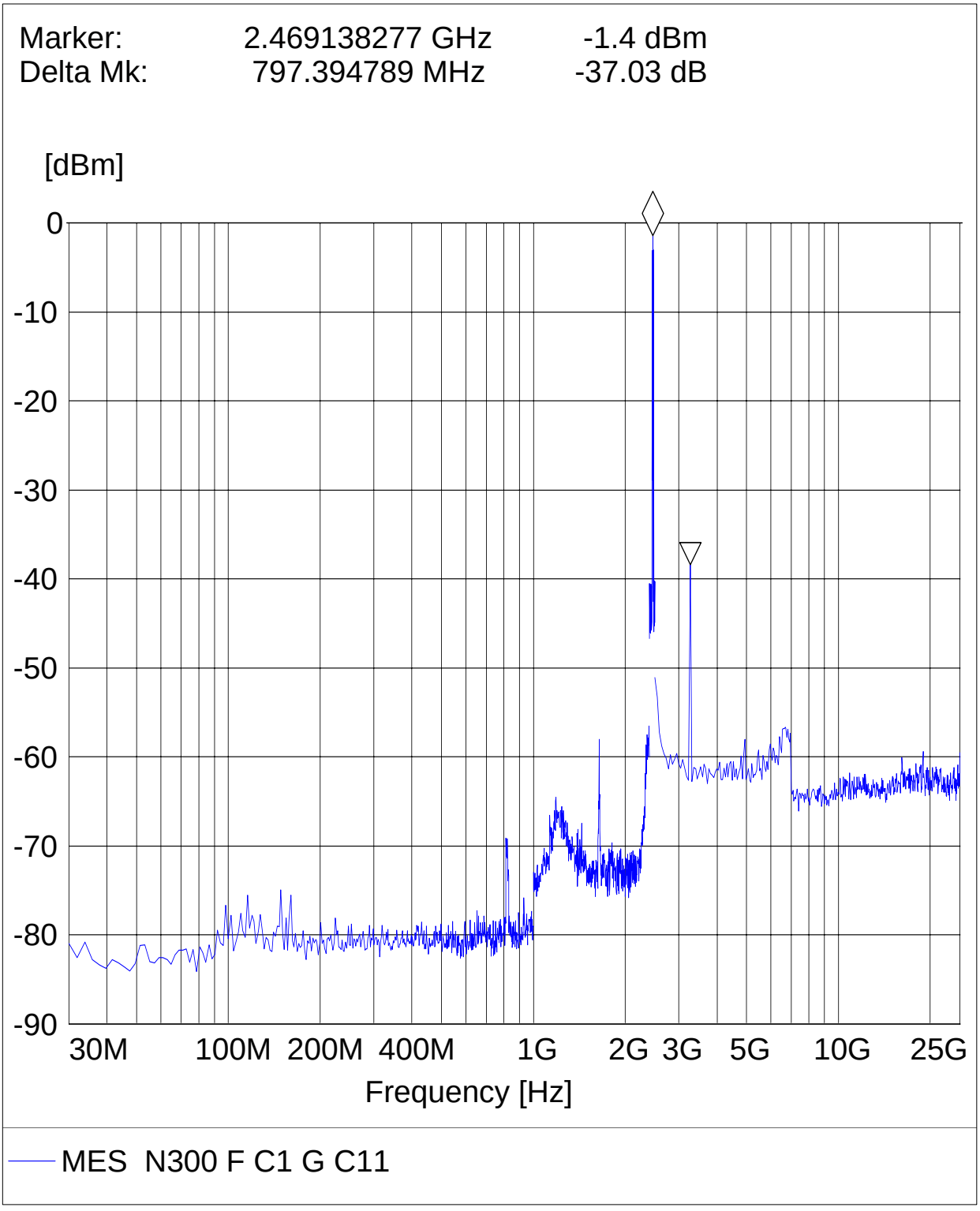
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11g Chain1 ch6



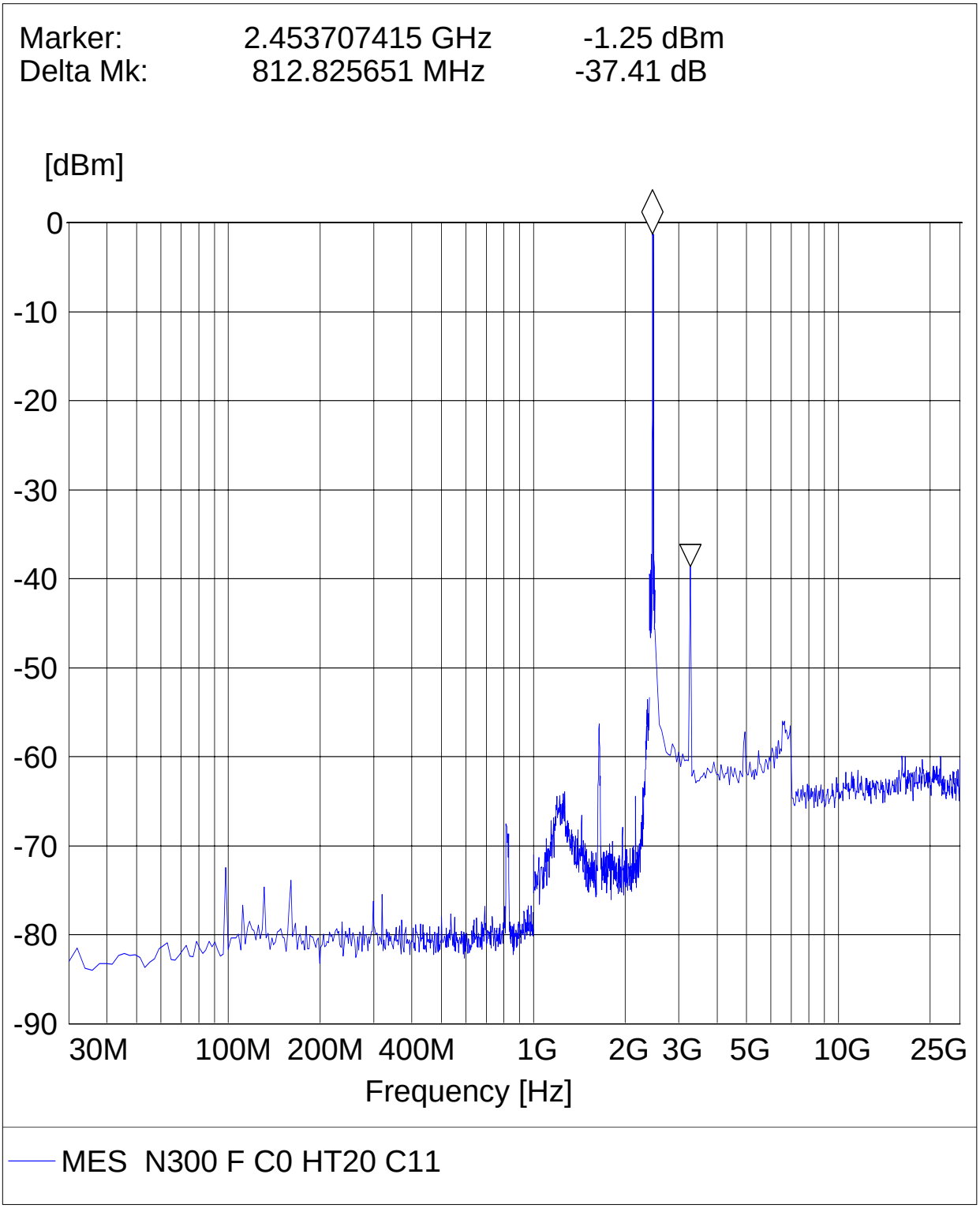
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11g Chain1 ch11



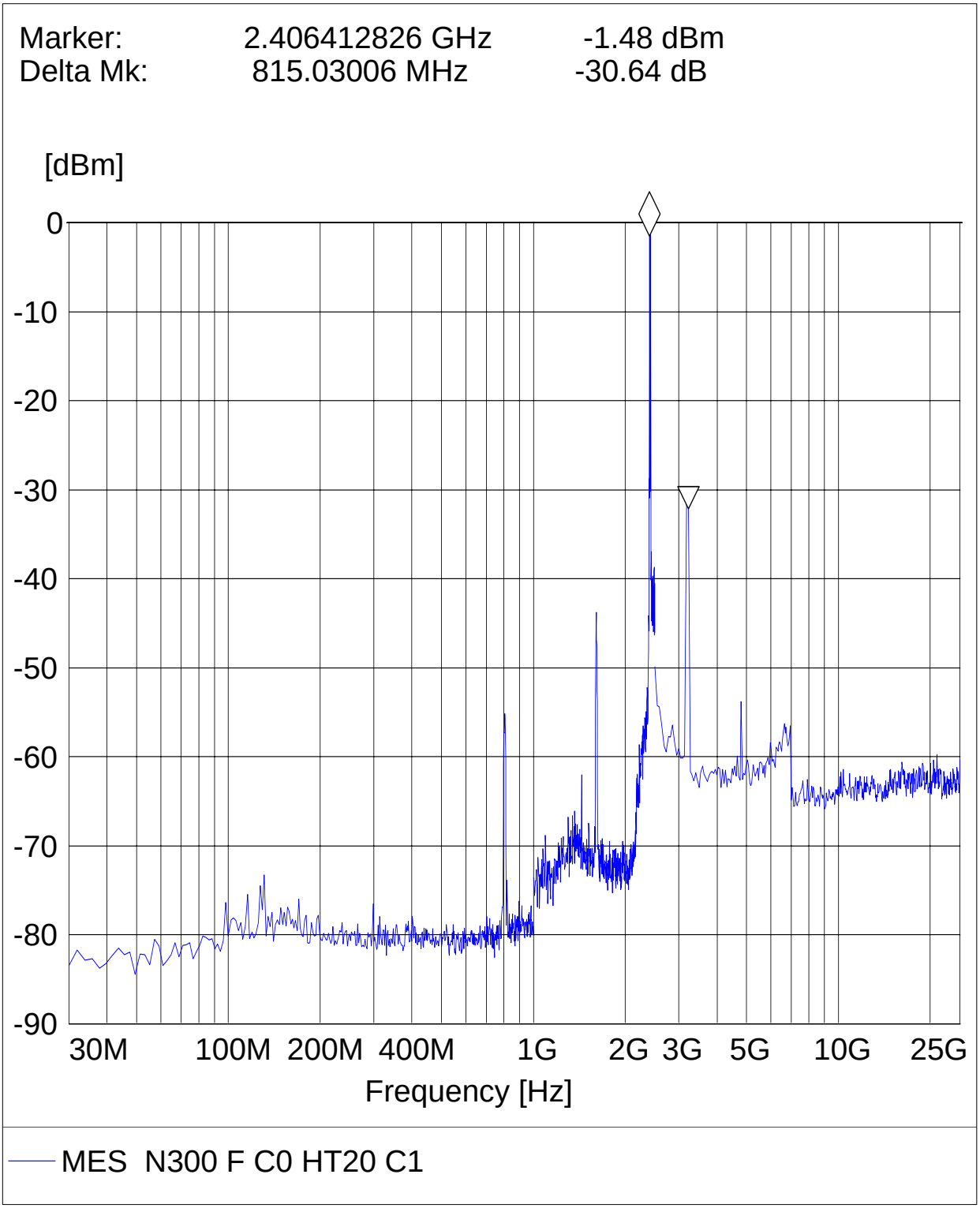
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT20 Chain0 ch11



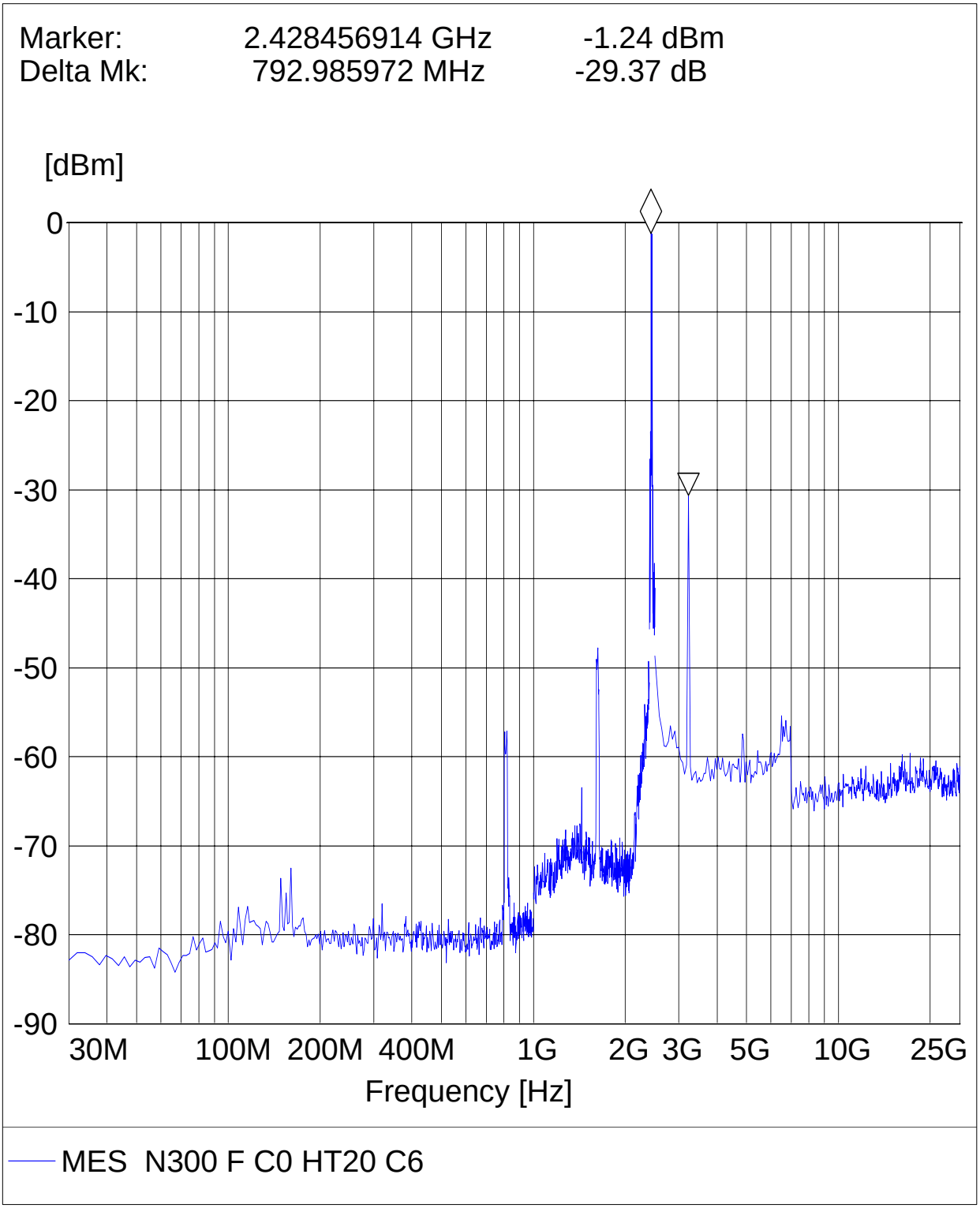
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT20 Chain0 ch1



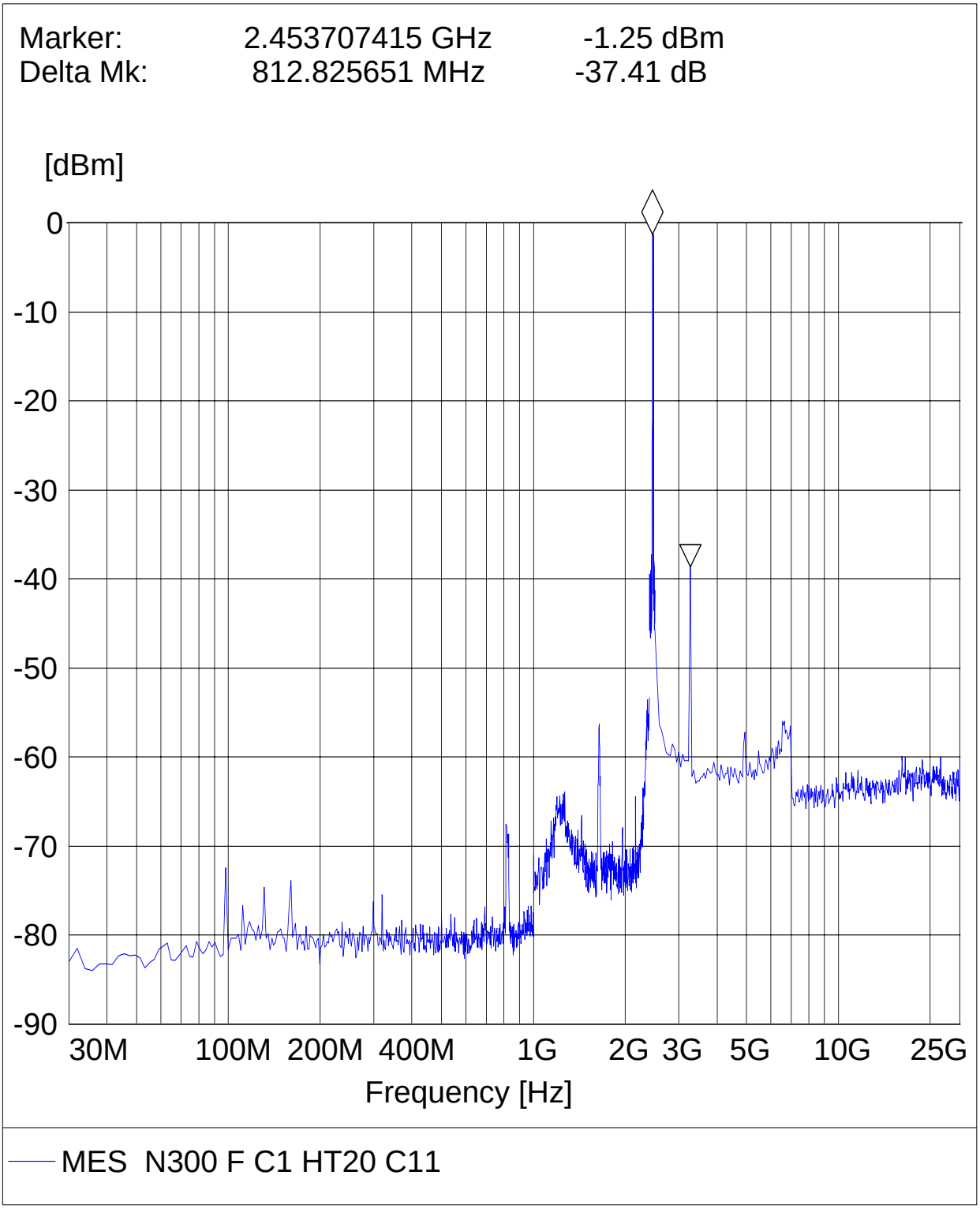
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT20 Chain0 ch6



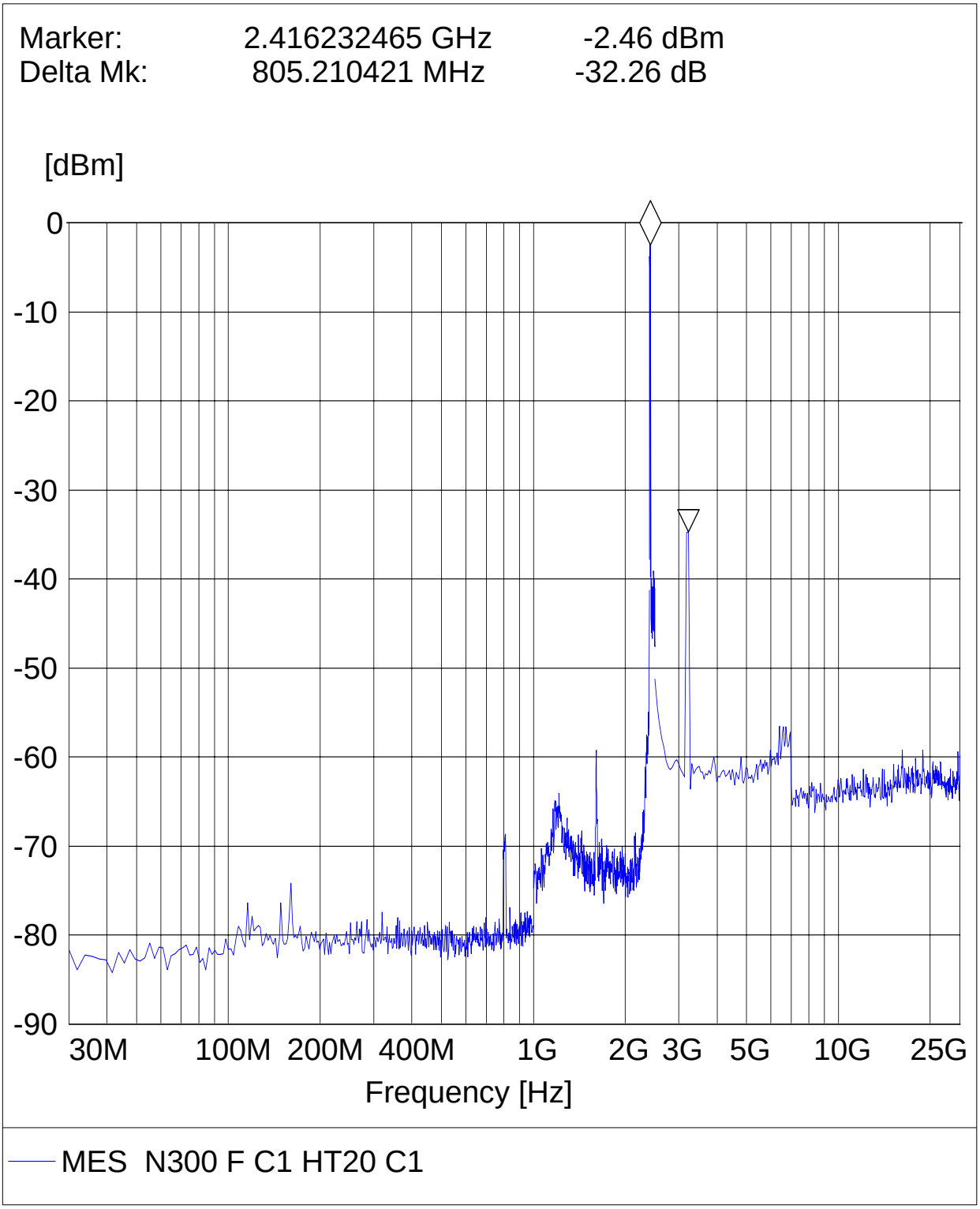
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT20 Chain1 ch11



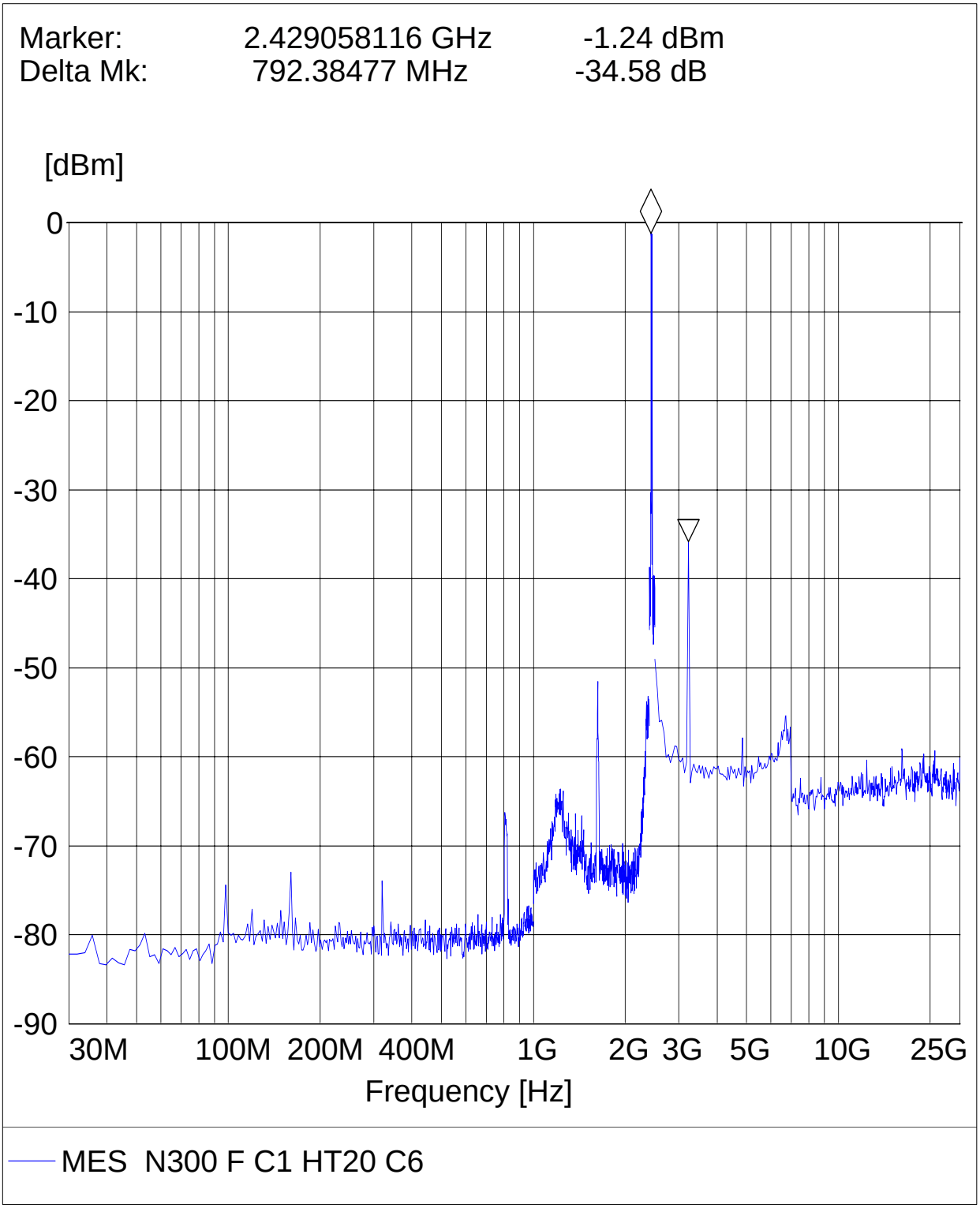
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT20 Chain1 ch1



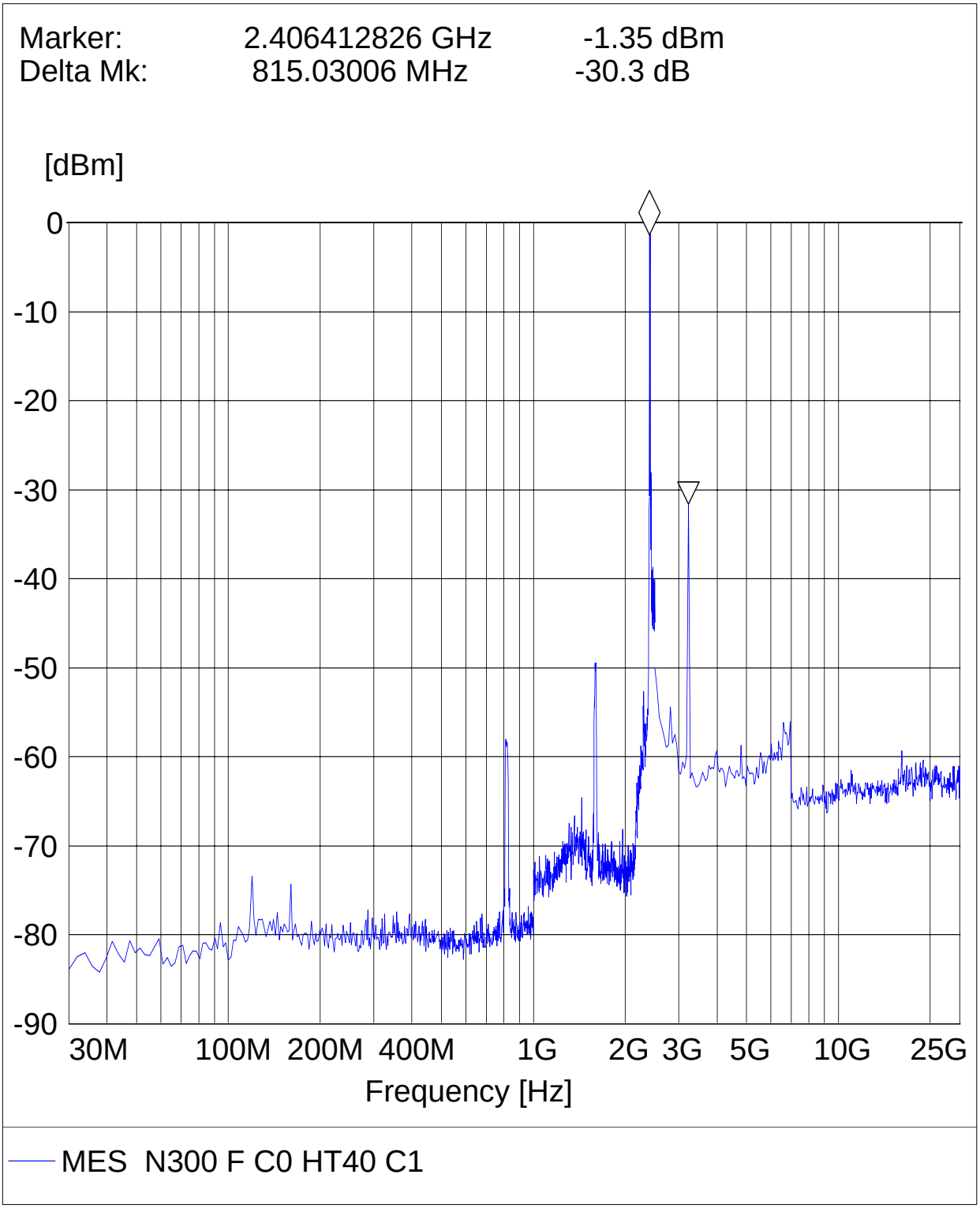
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT20 Chain1 ch6



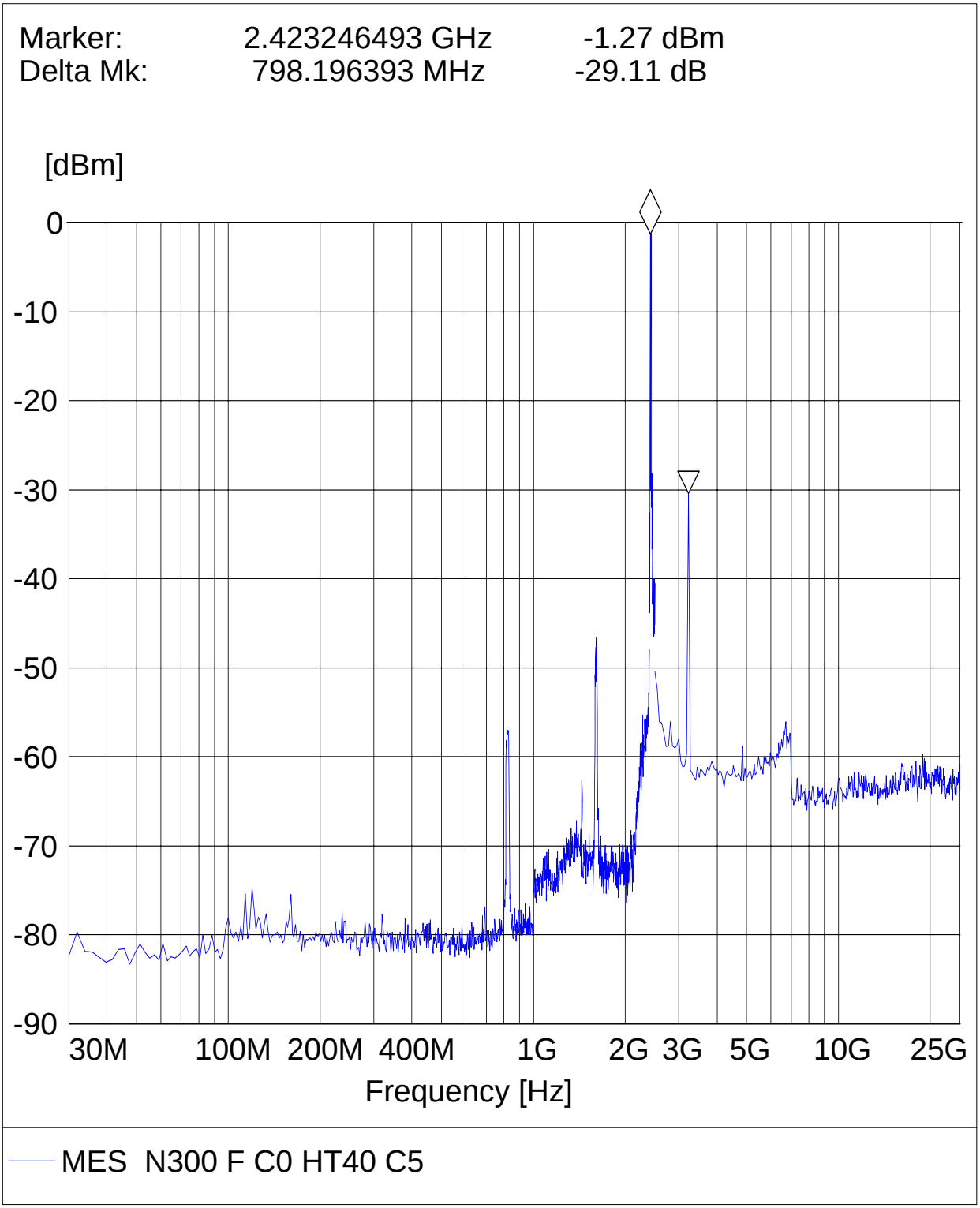
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT40 Chain0 ch1



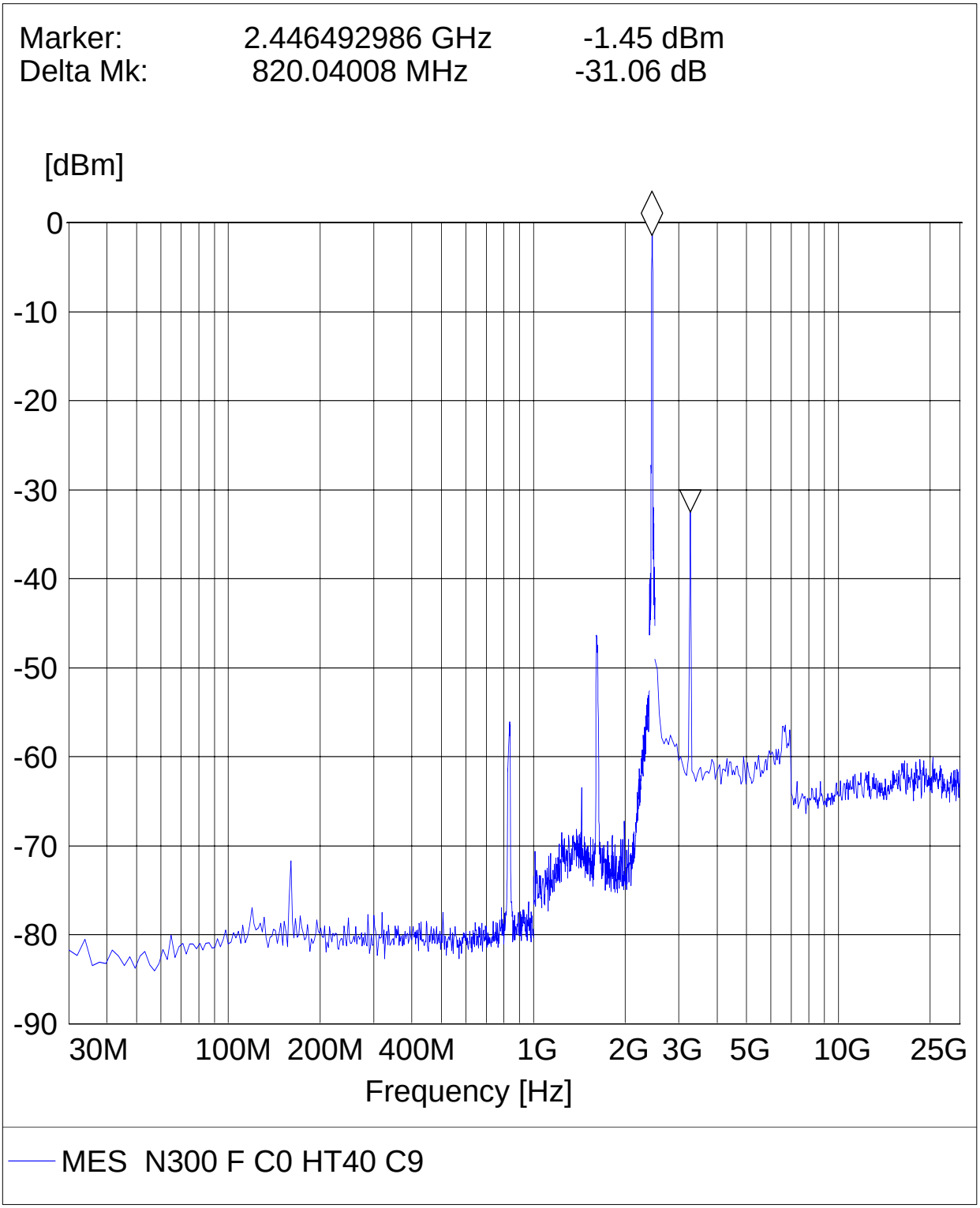
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT40 Chain0 ch5



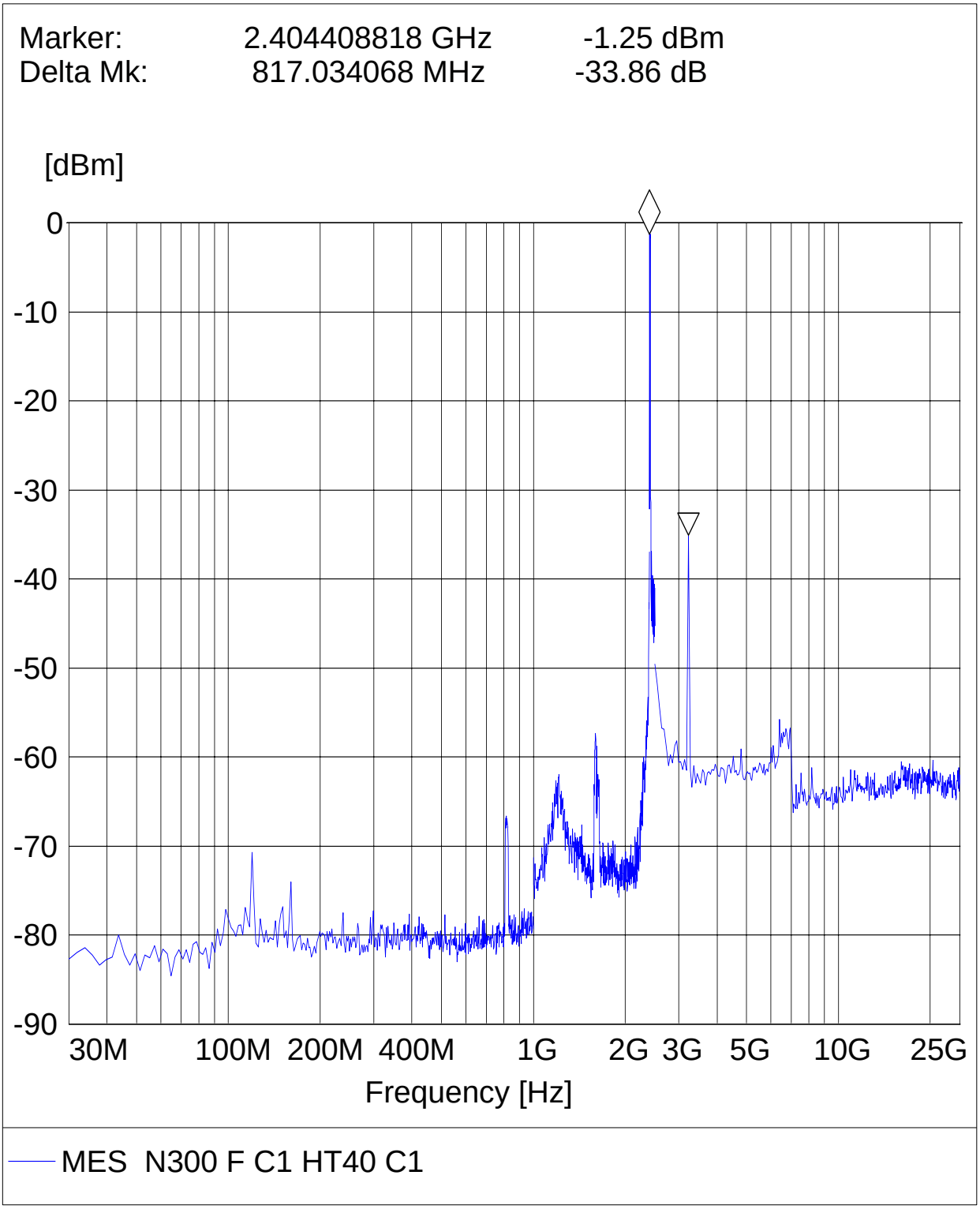
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT40 Chain0 ch9



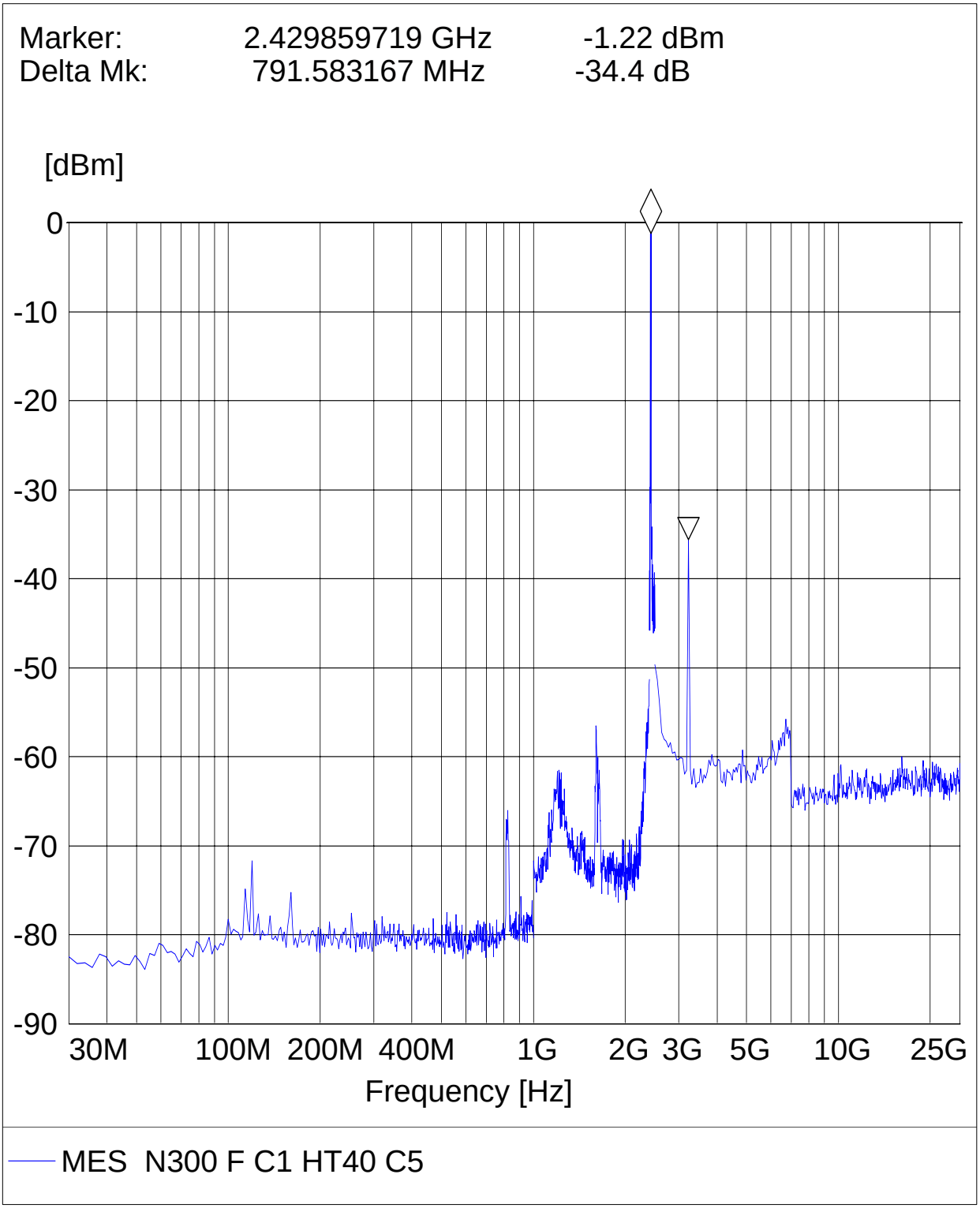
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT40 Chain1 ch1



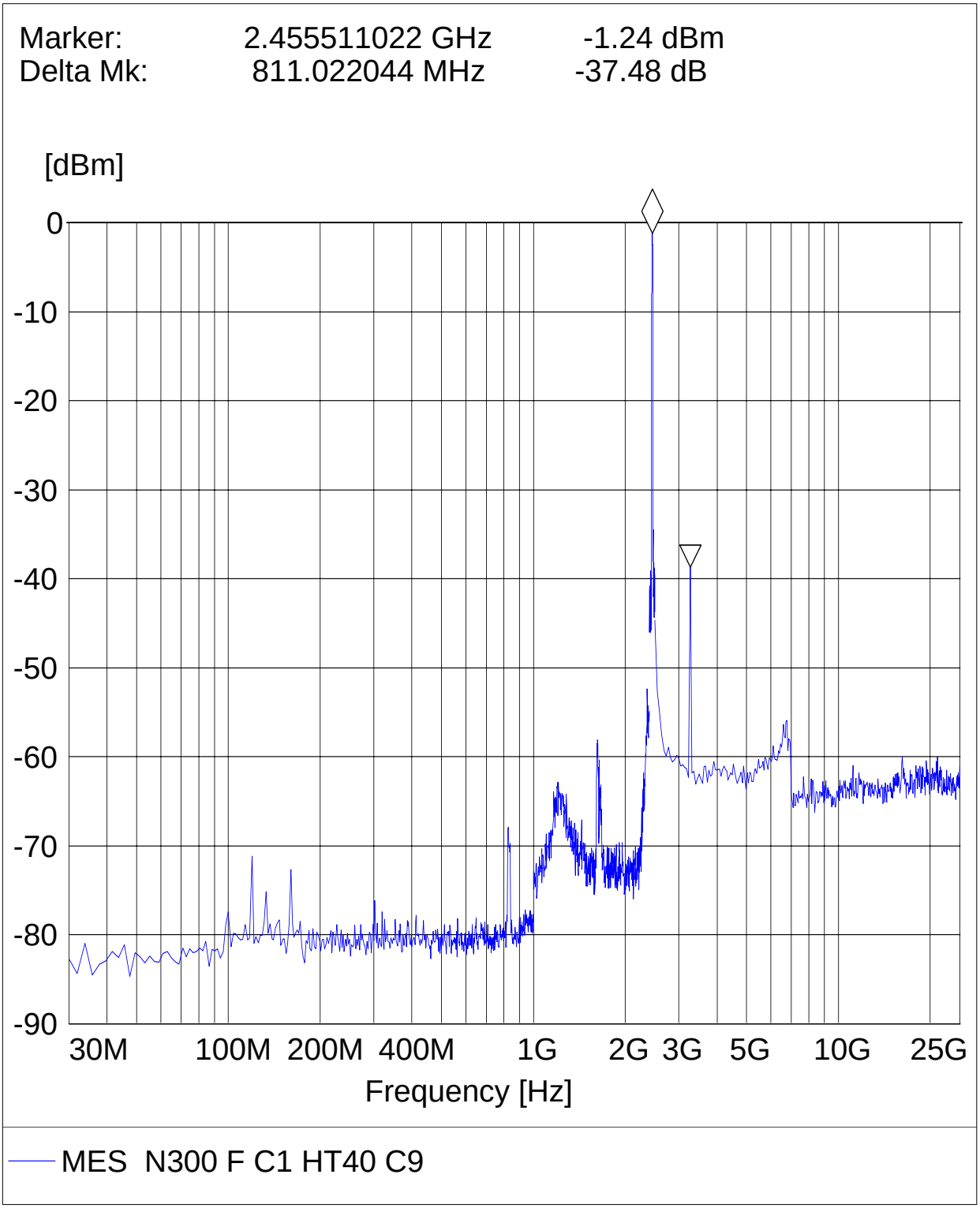
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT40 Chain1 ch5



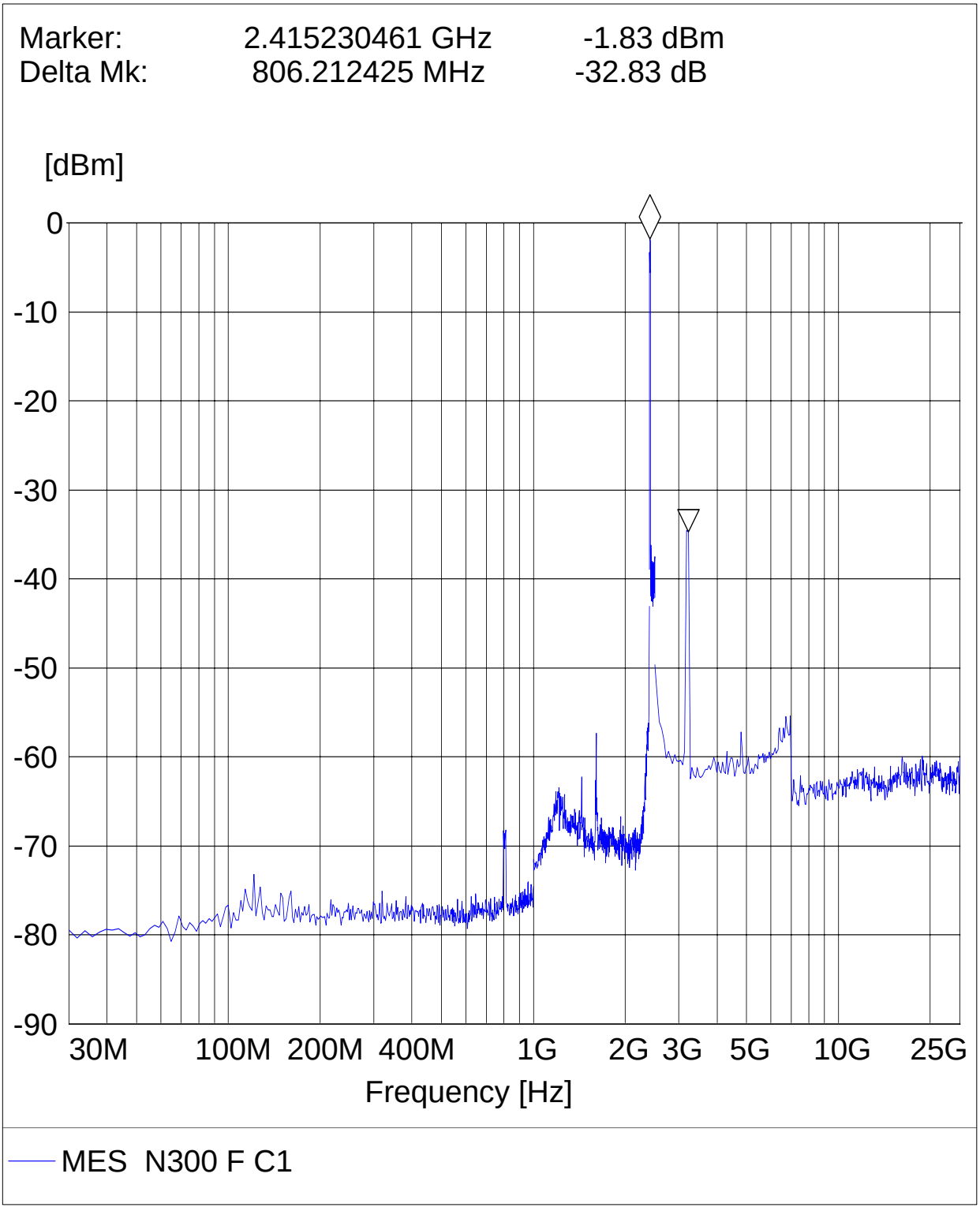
Conducted Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT40 Chain1 ch9



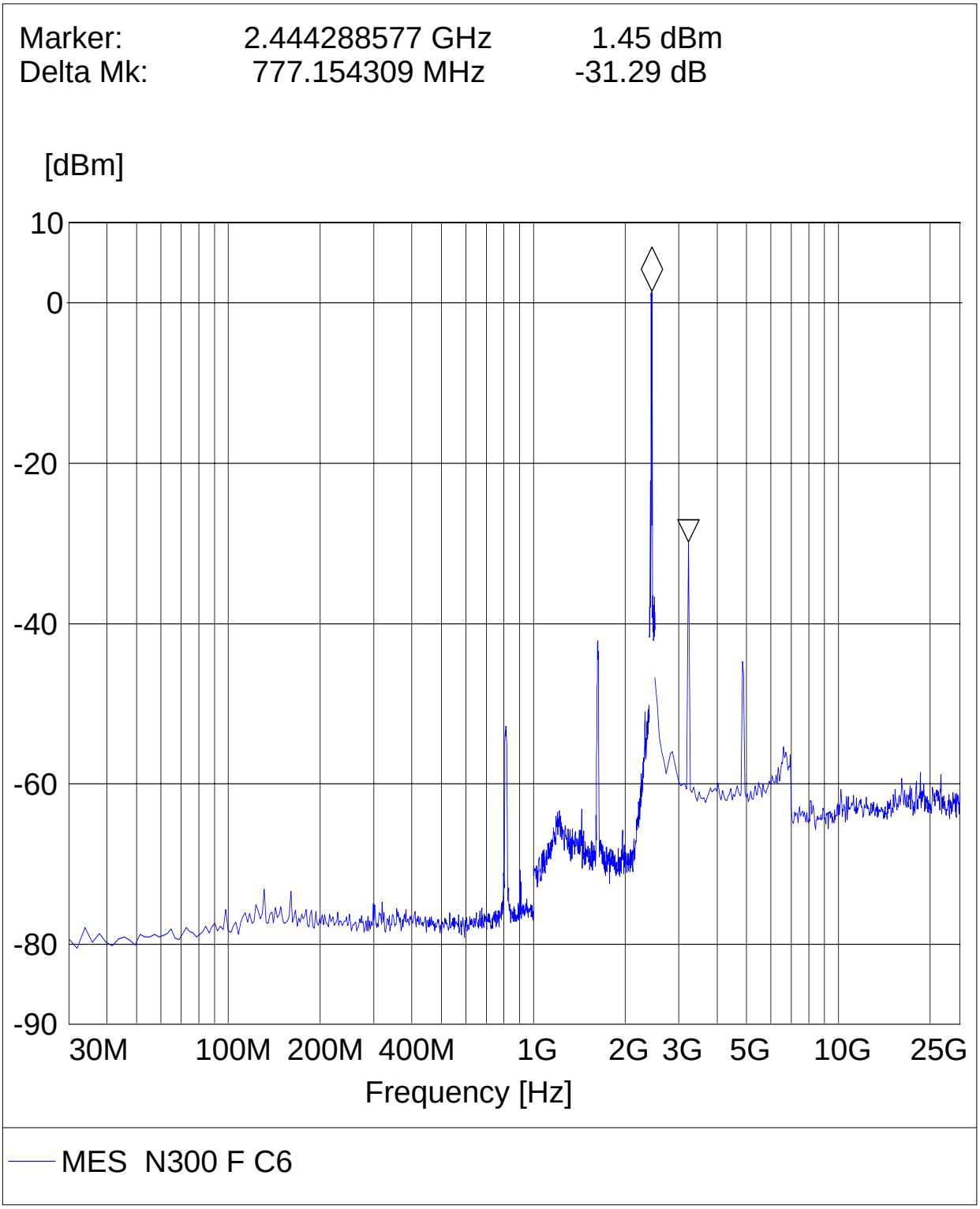
Antenna Terminal Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11b ch1



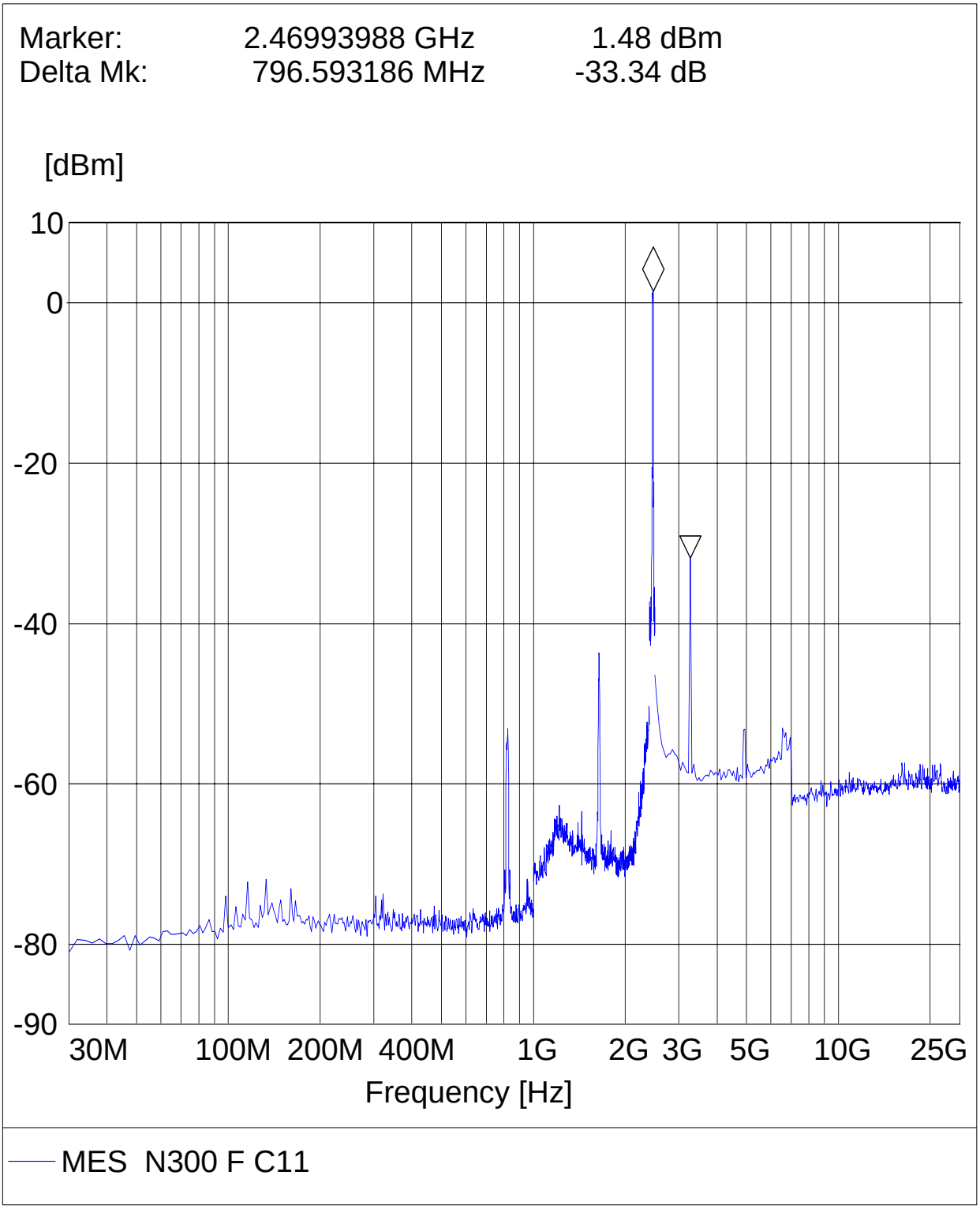
Antenna Terminal Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11b ch6



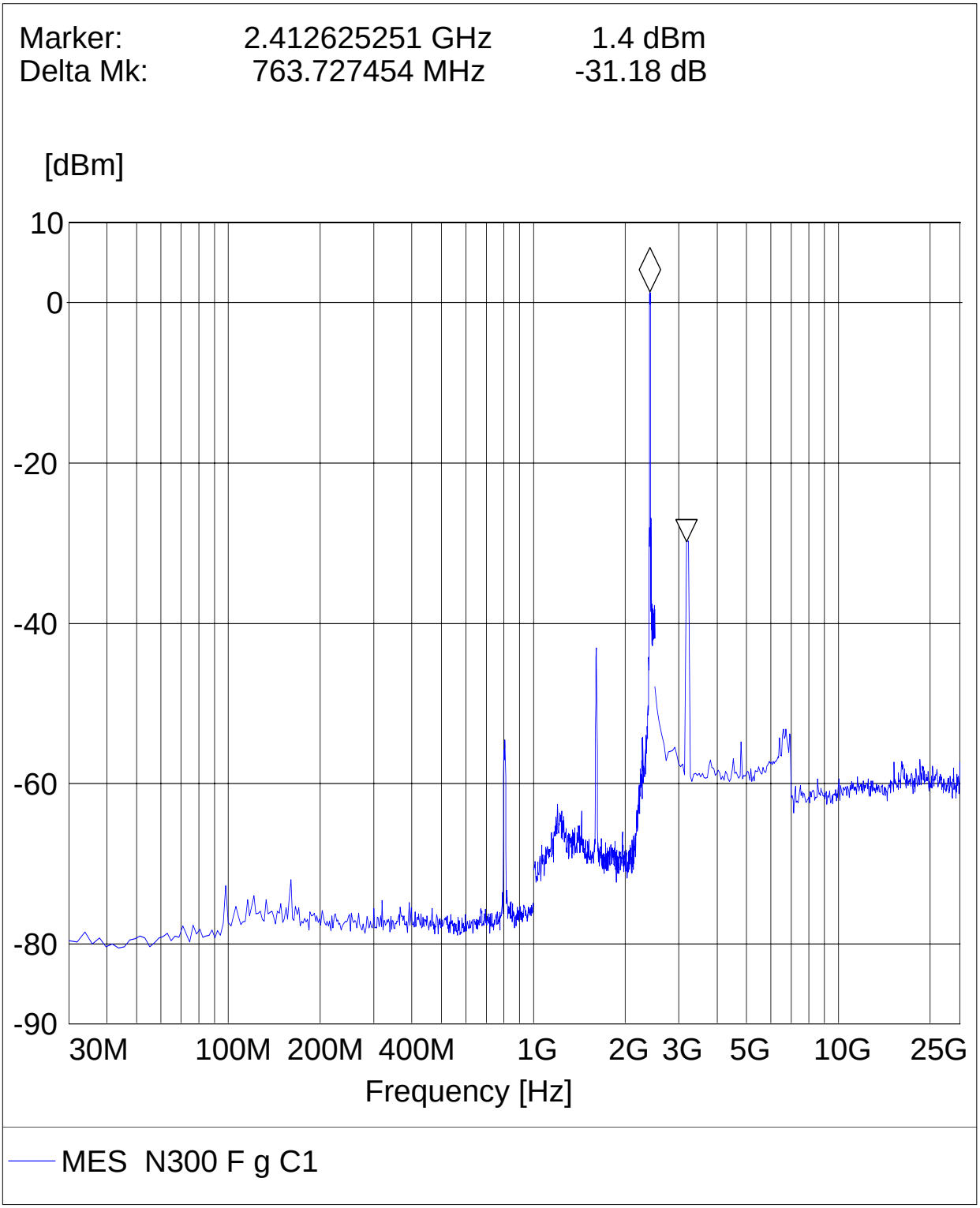
Antenna Terminal Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11b ch11



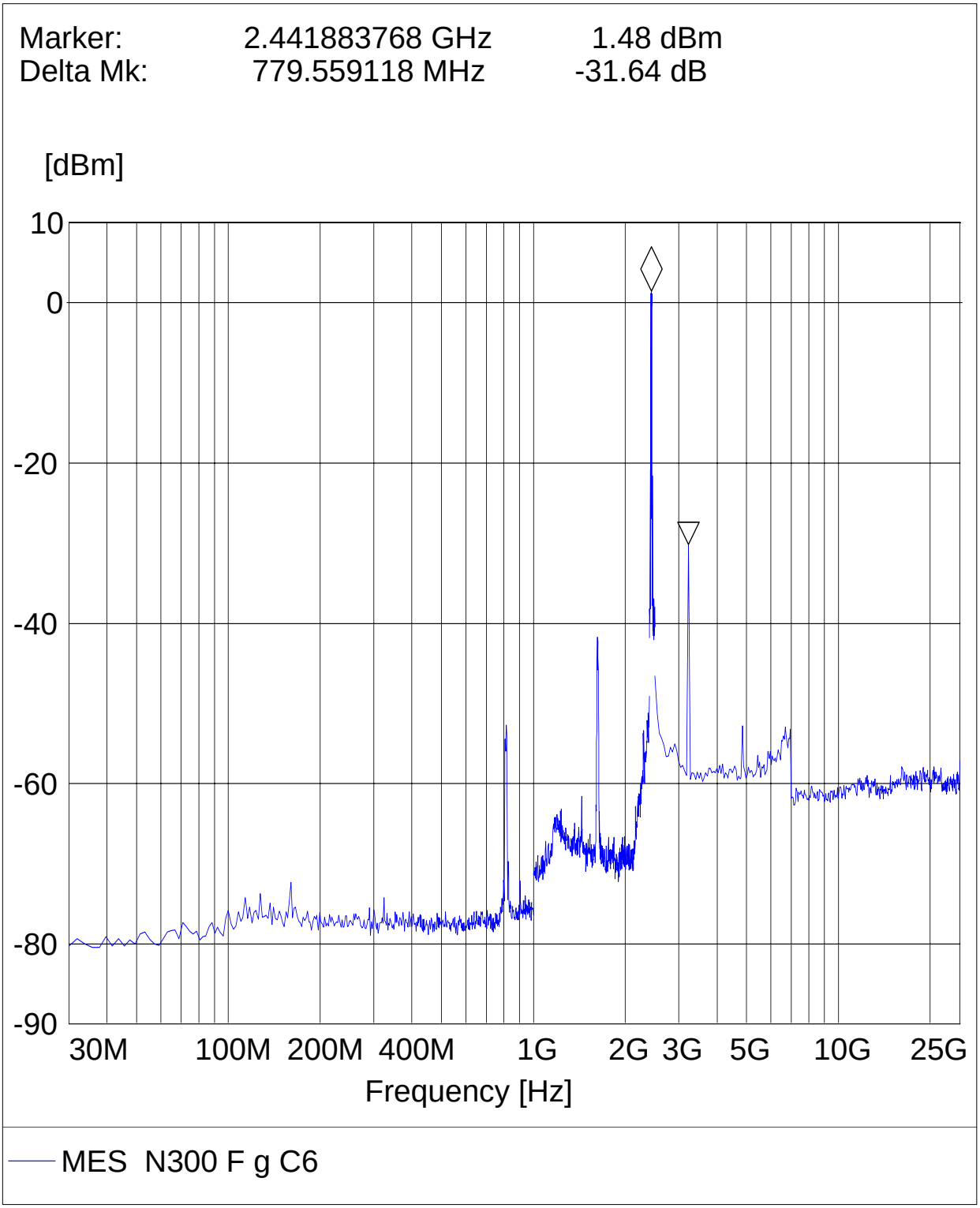
Antenna Terminal Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11g ch1



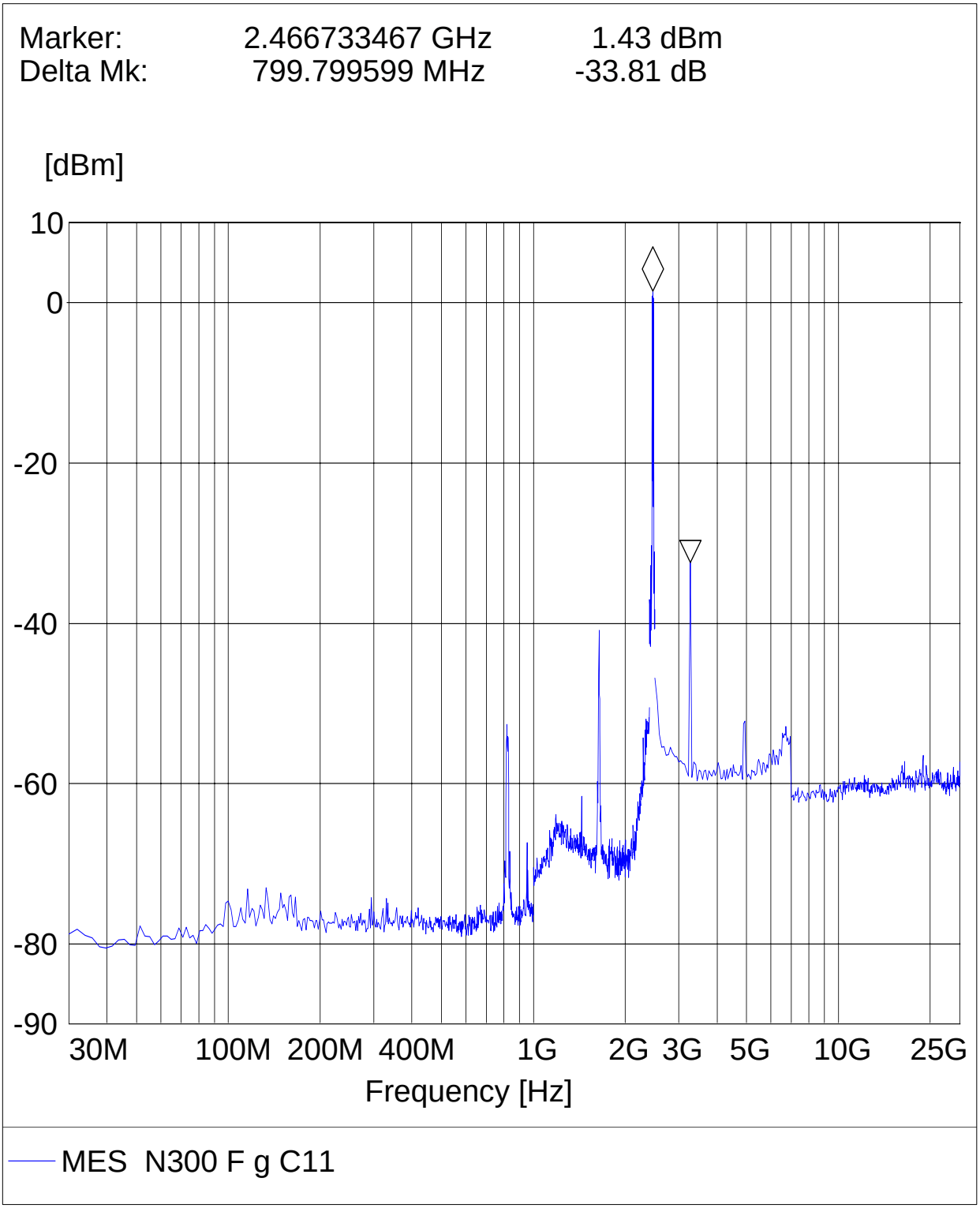
Antenna Terminal Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11g ch6



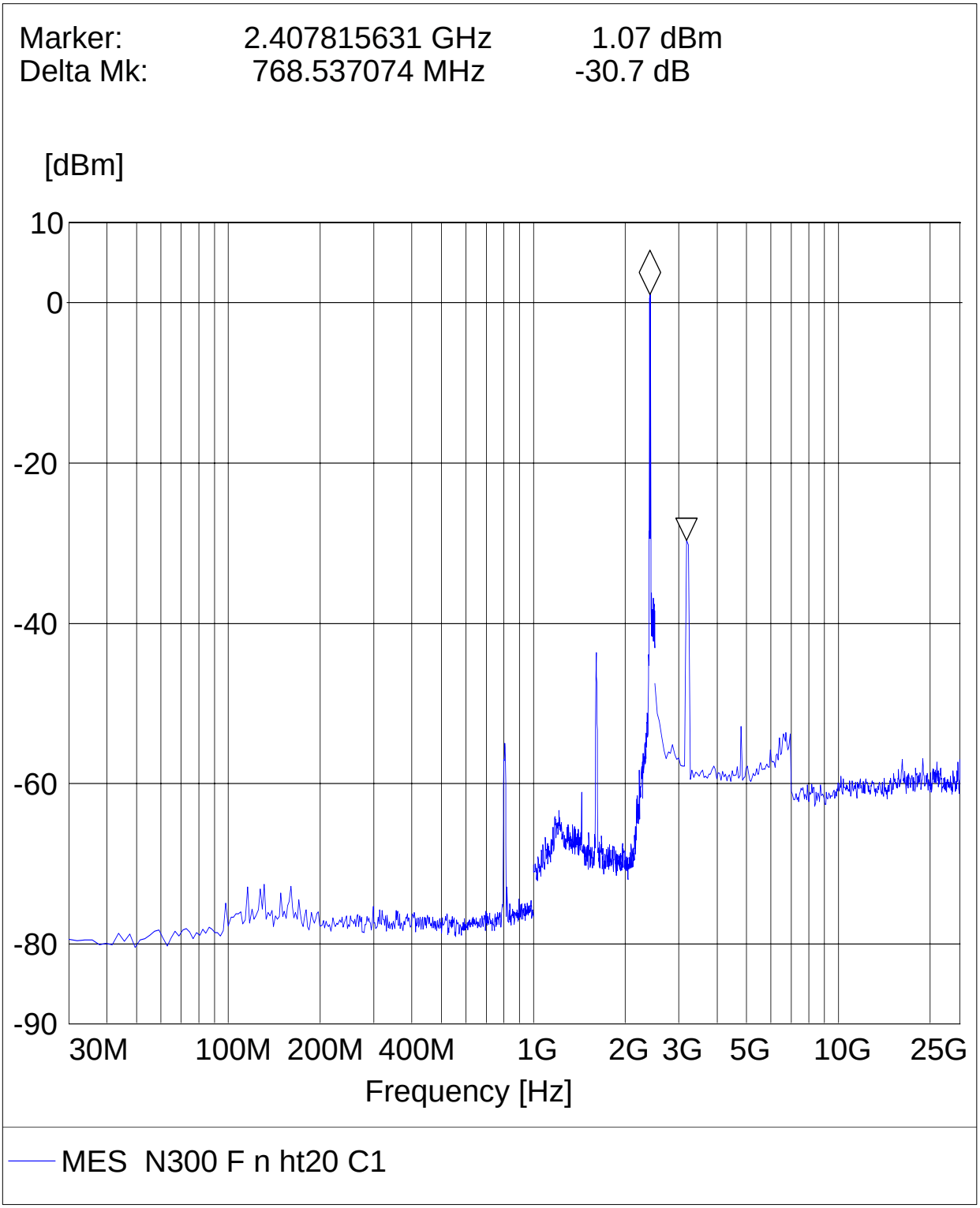
Antenna Terminal Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11g ch11



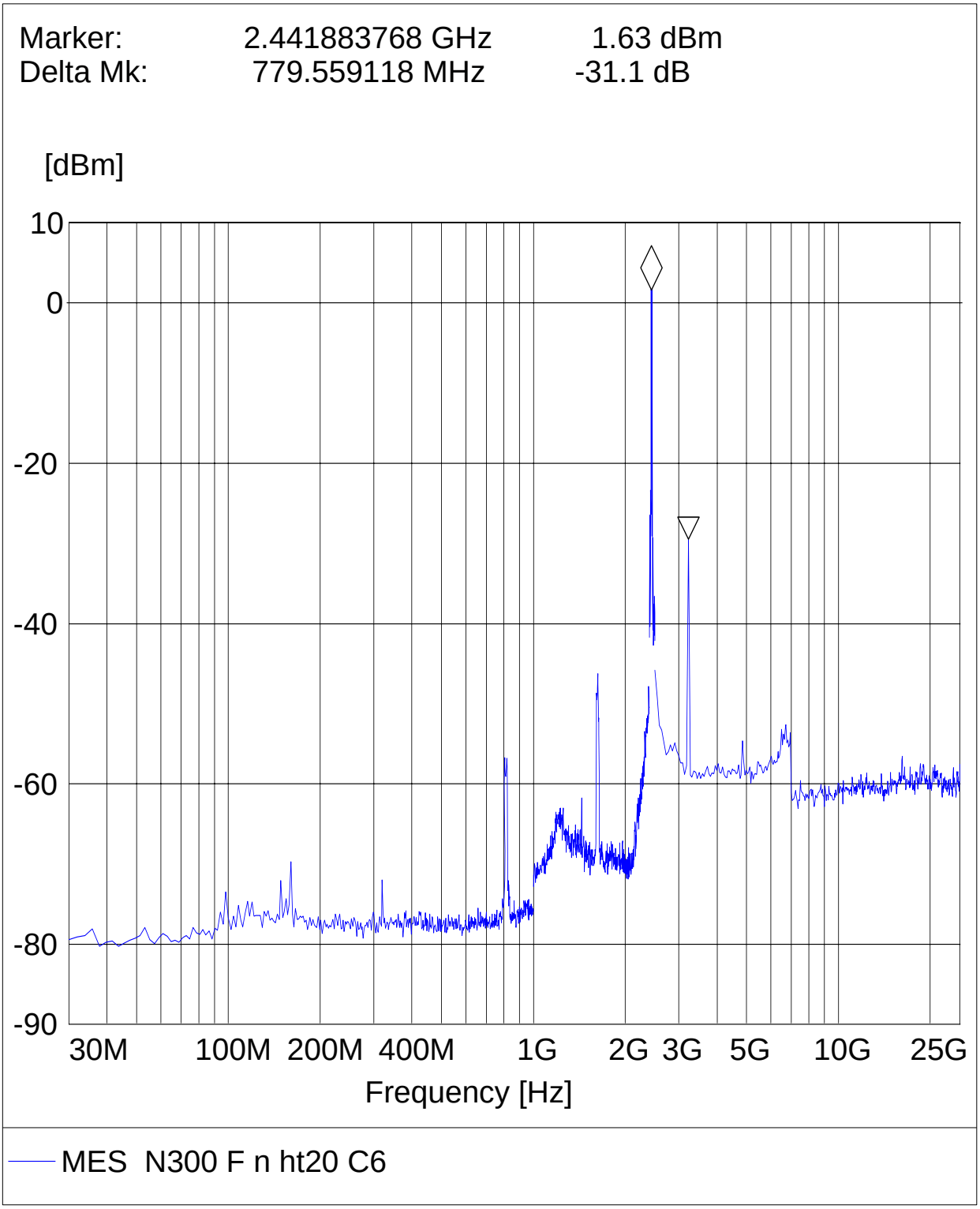
Antenna Terminal Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT20 ch1



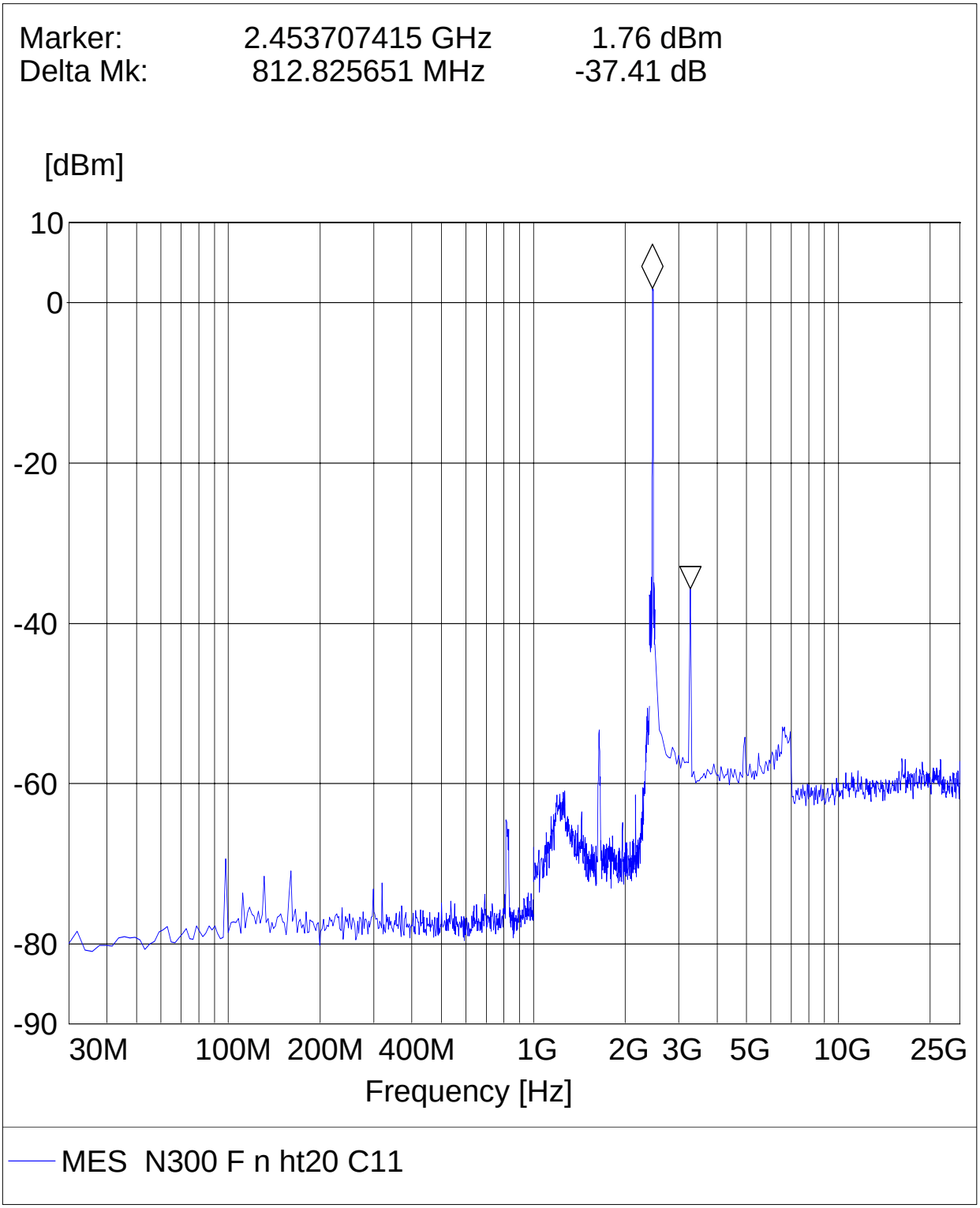
Antenna Terminal Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT20 ch6



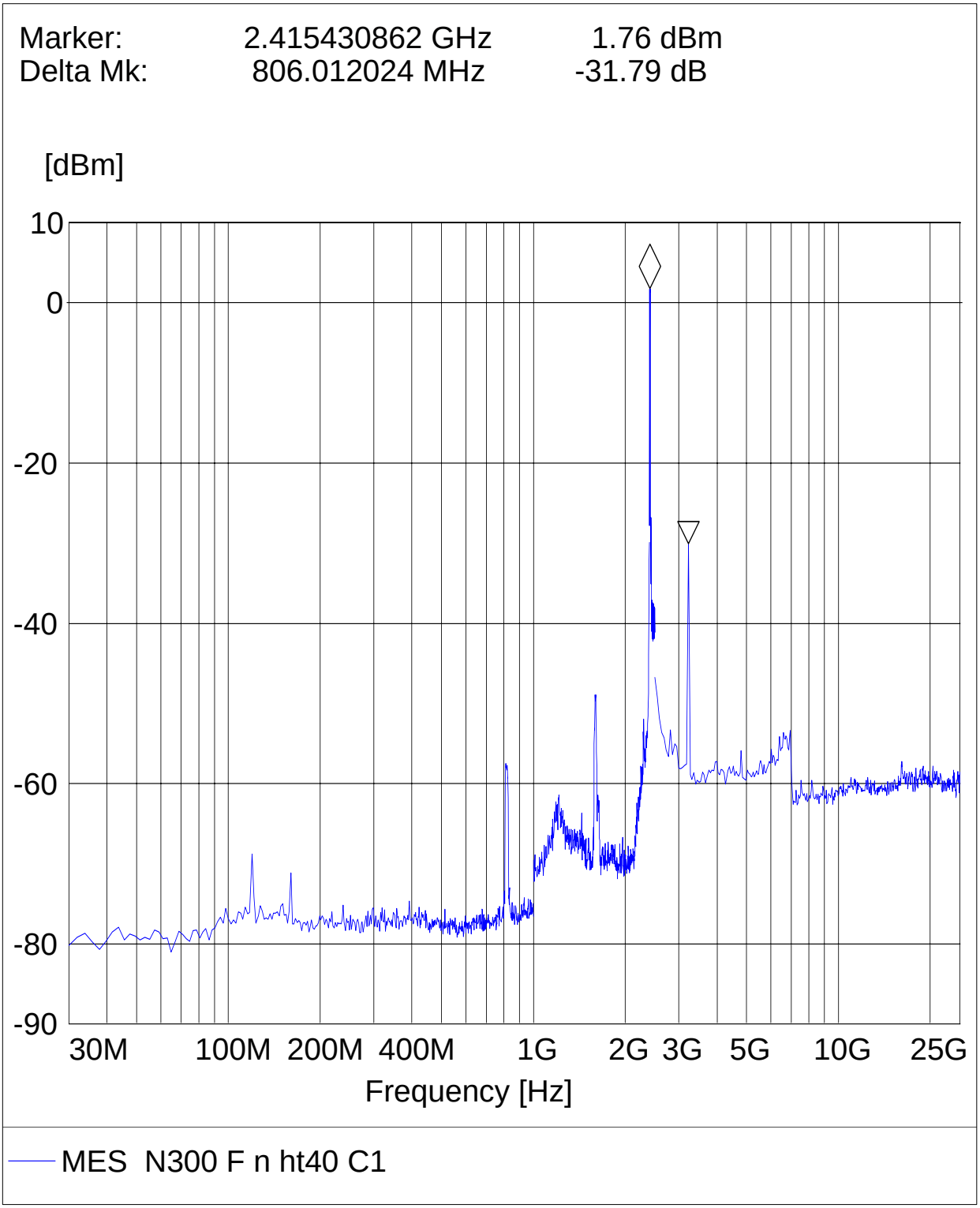
Antenna Terminal Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT20 ch11



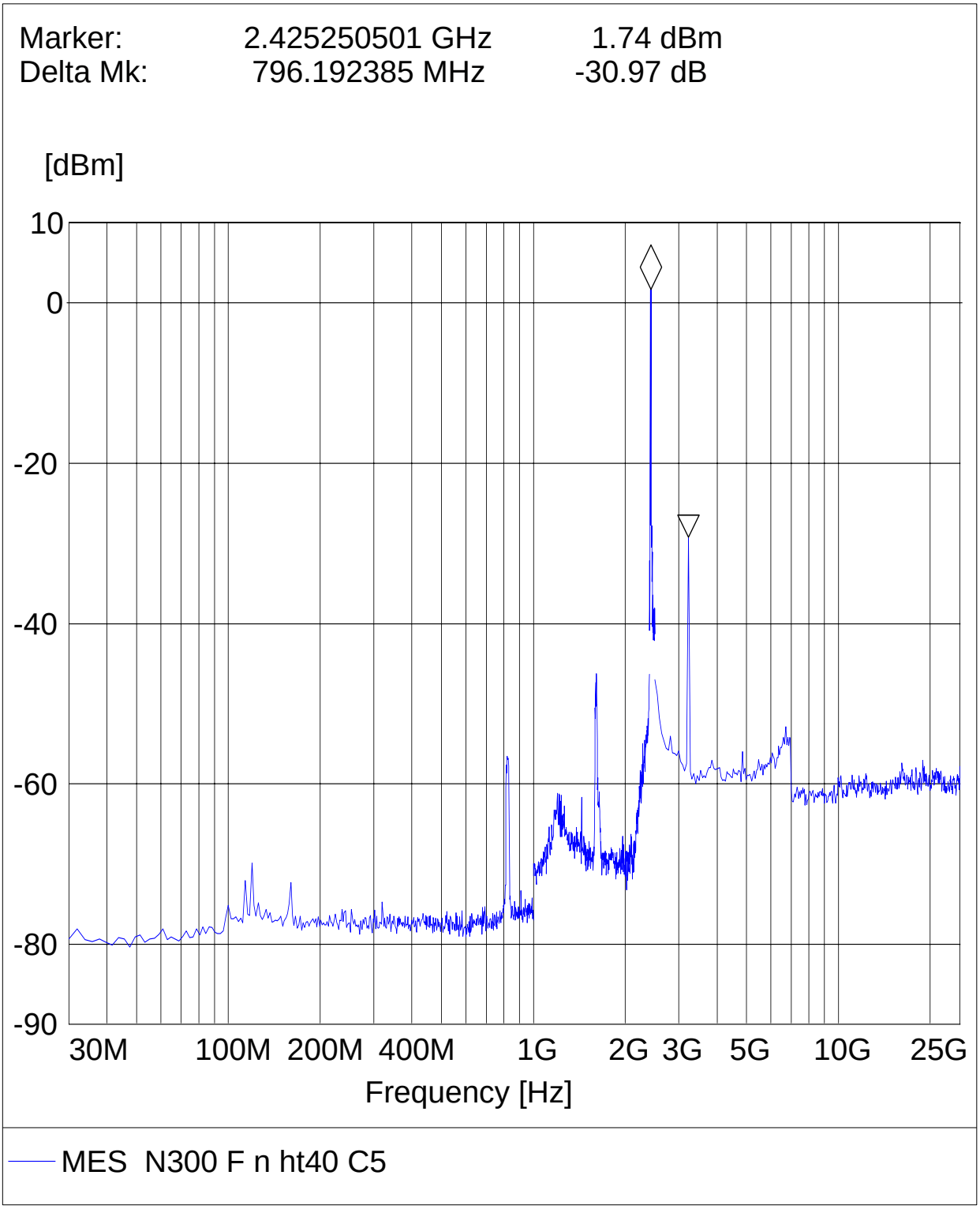
Antenna Terminal Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT40 ch1



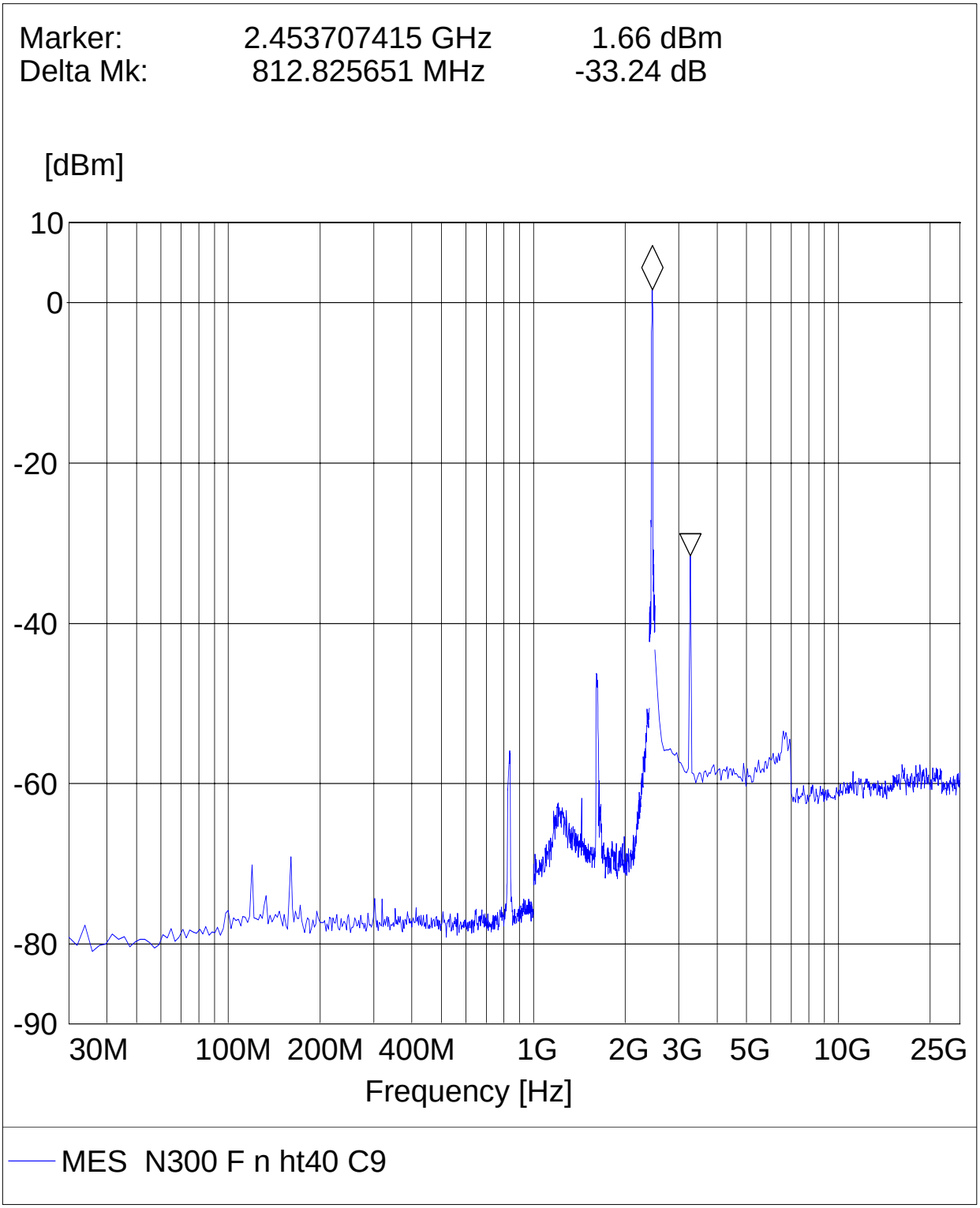
Antenna Terminal Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT40 ch5



Antenna Terminal Spurious

EUT: M/N:HWNP-300
Manufacturer:
Operating Condition: 802.11n HT40 ch9



8. 6DB BANDWIDTH MEASUREMENT

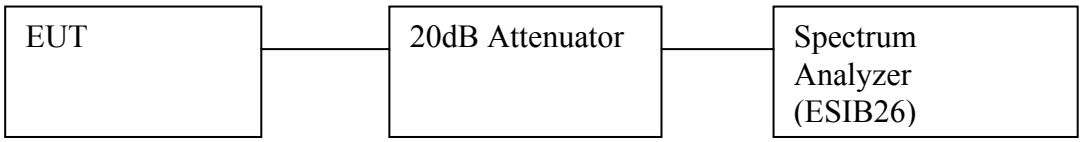
8.1. LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

8.2. TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

8.3. TEST SETUP

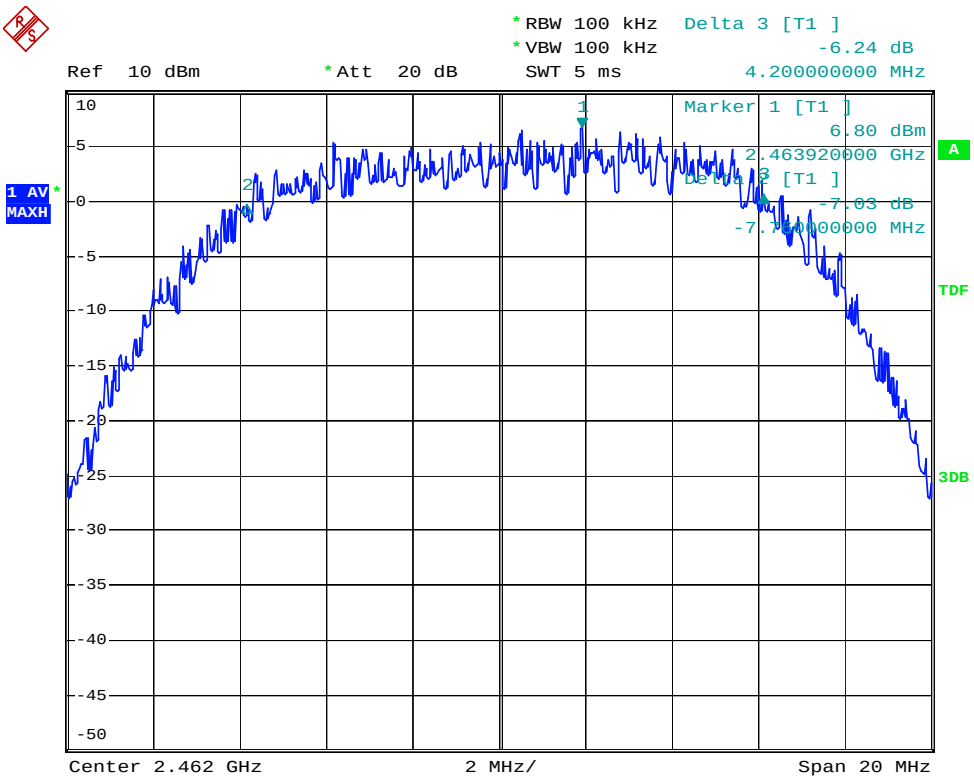


8.4. Test Data

Table 23 802.11b Test Data

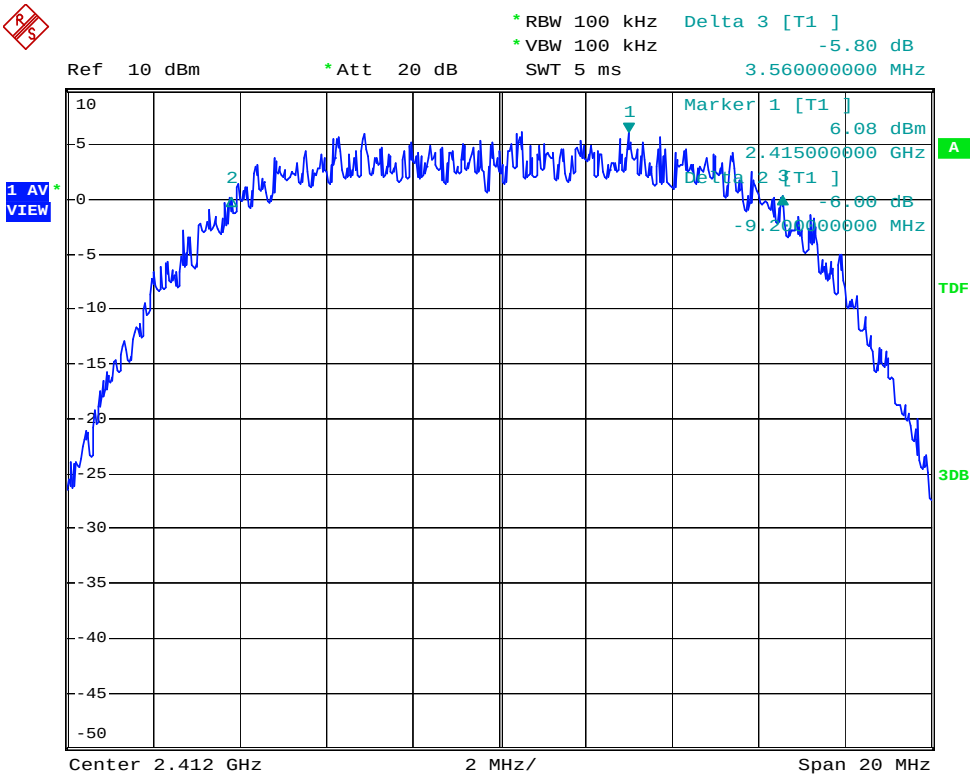
CHANNEL	**6dB BANDWIDTH (MHz)**	**MINIMUM LIMIT (MHz)**	**results**
Ch1	12.7	0.5	Pass
Ch5	11.9	0.5	Pass
Ch11	11.9	0.5	Pass

802.11b ch11



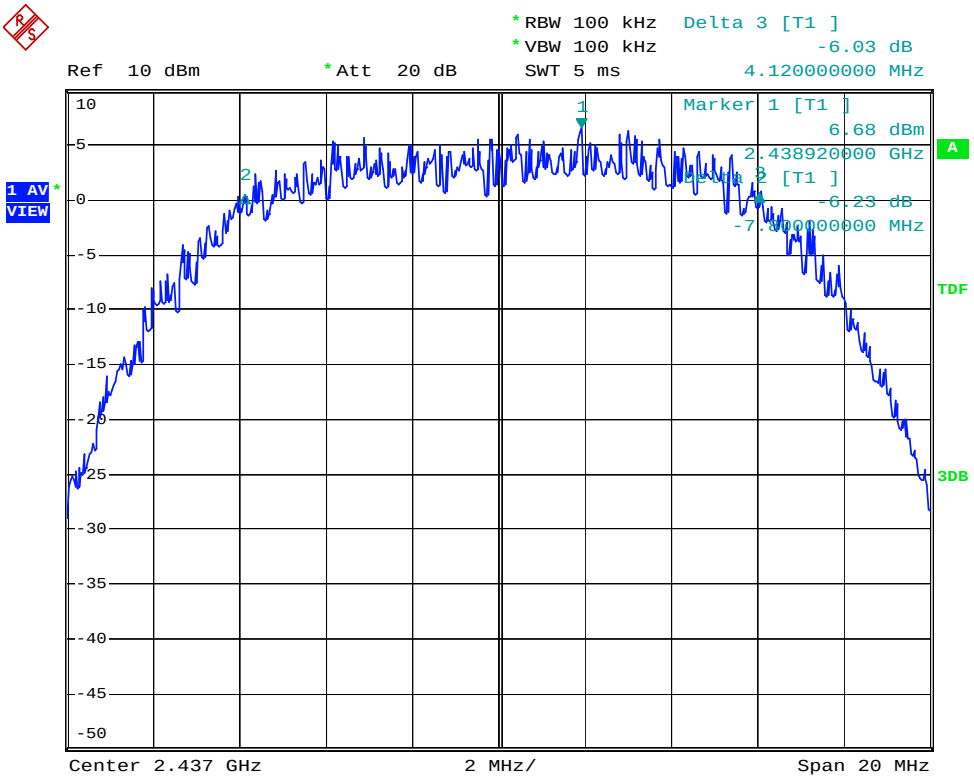
Date: 15.JUN.2008 04:19:34

802.11b ch1



Date: 15.JUN.2008 04:16:53

802.11b ch6

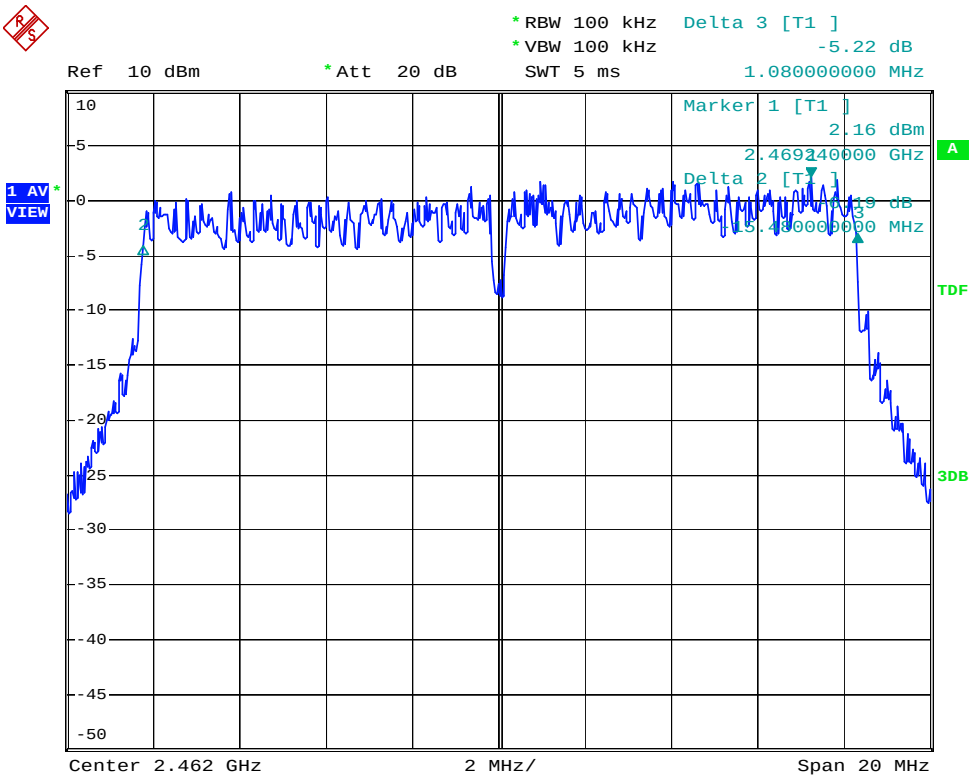


Date: 15.JUN.2008 04:18:23

Table 24 802.11g Test Data

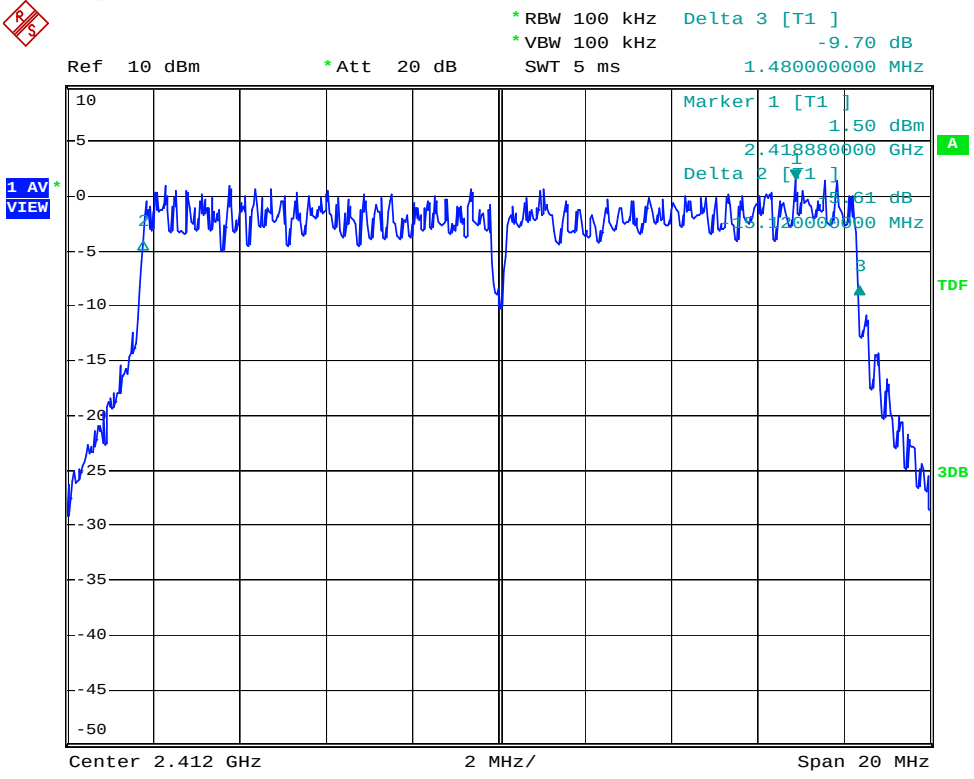
CHANNEL	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	results
Ch1	16.6	0.5	Pass
Ch6	16.6	0.5	Pass
Ch11	16.5	0.5	Pass

802.11g ch11



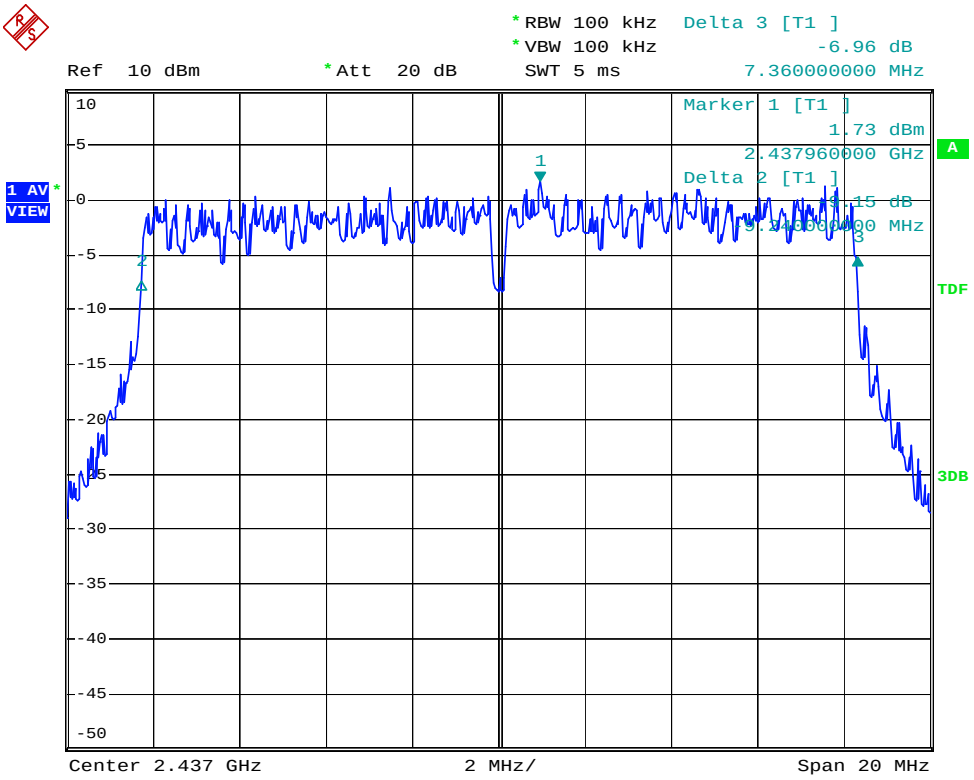
Date: 15.JUN.2008 04:21:02

802.11g ch1



Date: 15.JUN.2008 04:23:37

802.11g ch6

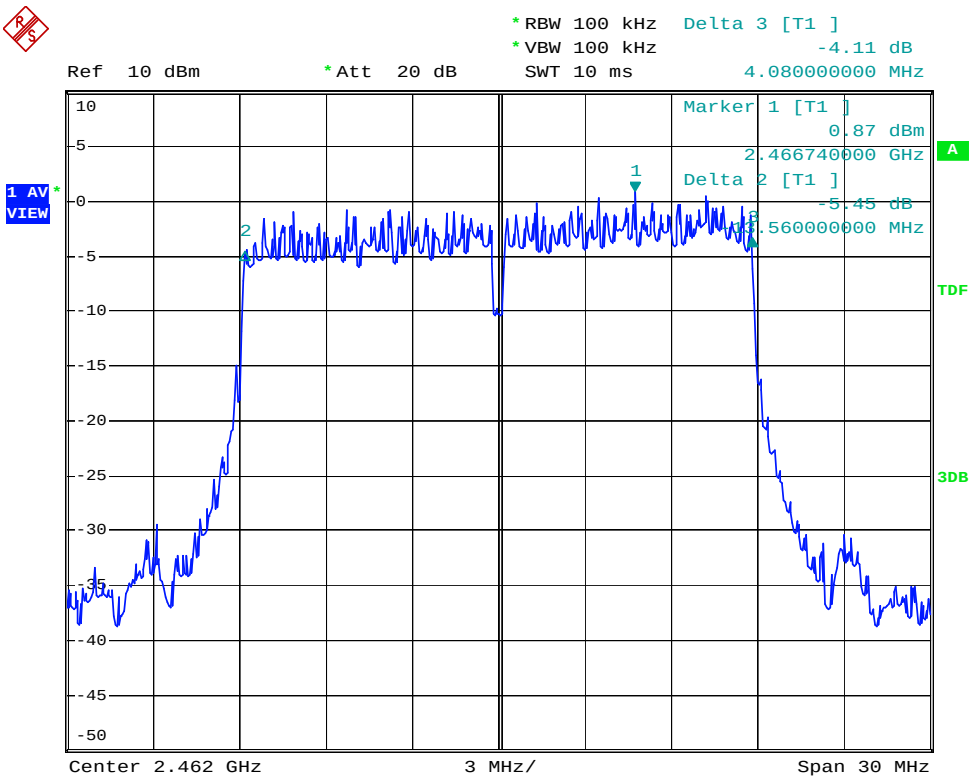


Date: 15.JUN.2008 04:22:16

Table 25 802.11n HT20 Test Data

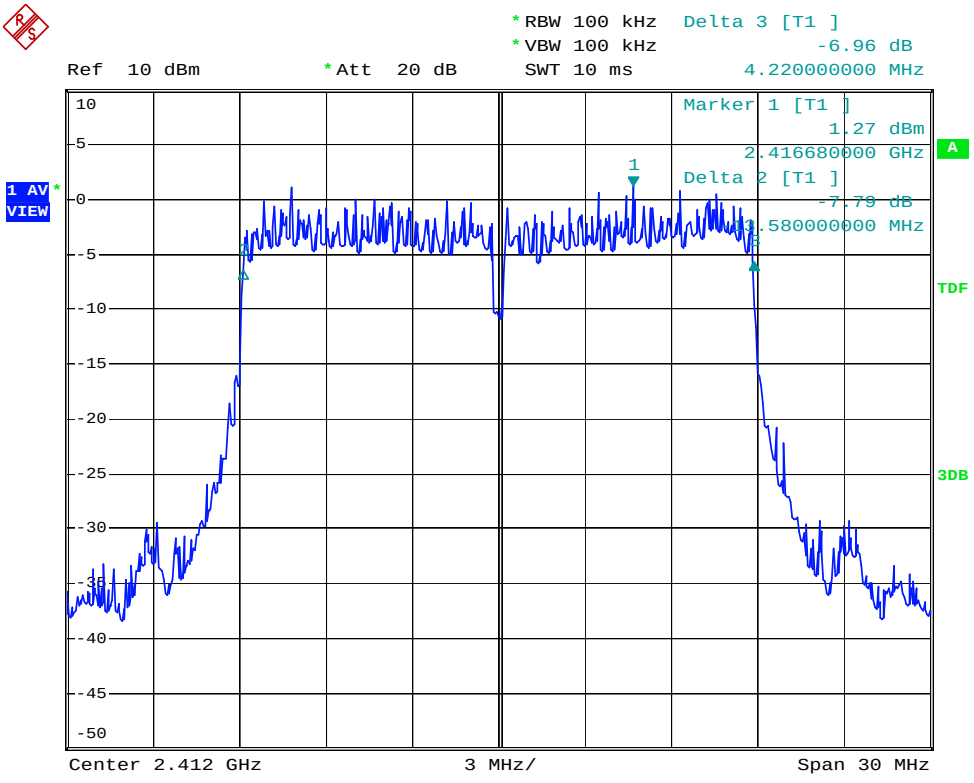
CHANNEL	**6dB BANDWIDTH (MHz)**	**MINIMUM LIMIT (MHz)**	**results**
Ch1	17.8	0.5	Pass
Ch6	17.5	0.5	Pass
Ch11	17.6	0.5	Pass

802.11n HT20 CH11



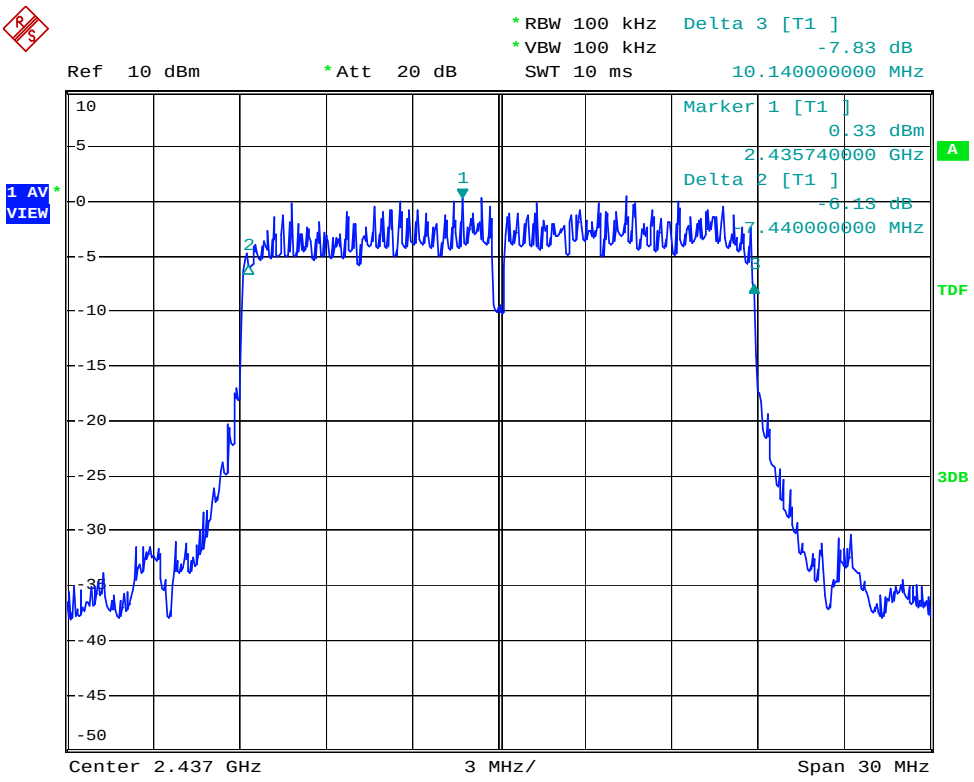
Date: 15.JUN.2008 04:28:52

802.11n HT20 Ch1



Date: 15.JUN.2008 04:25:56

802.11n HT20 Ch6

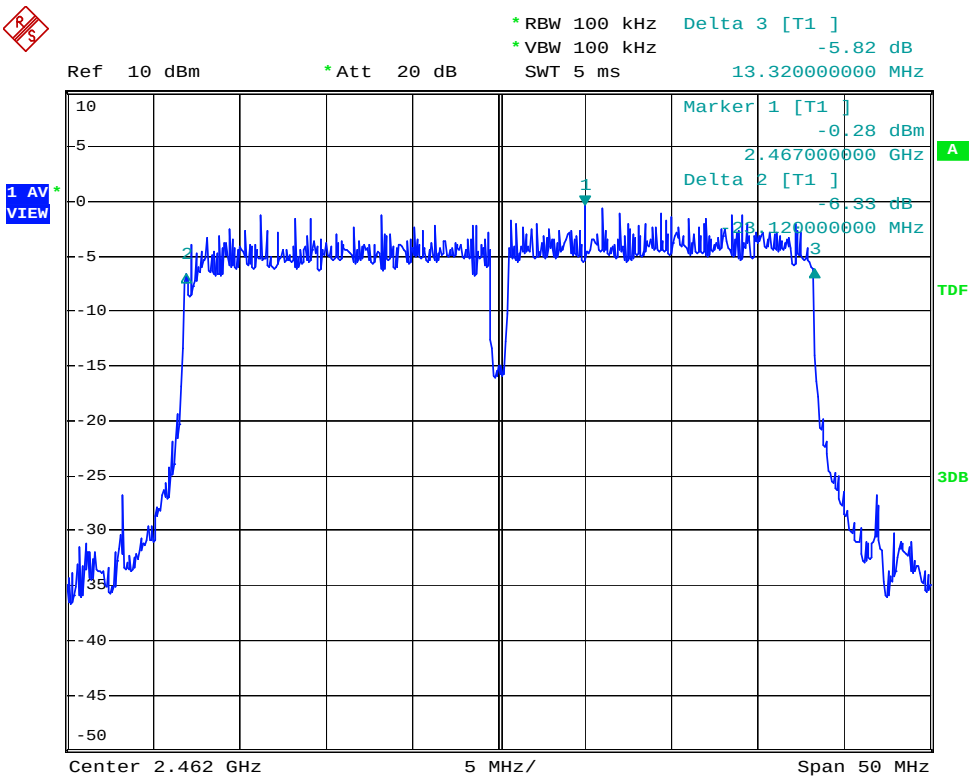


Date: 15.JUN.2008 04:27:21

Table 26 802.11n HT40 Test Data

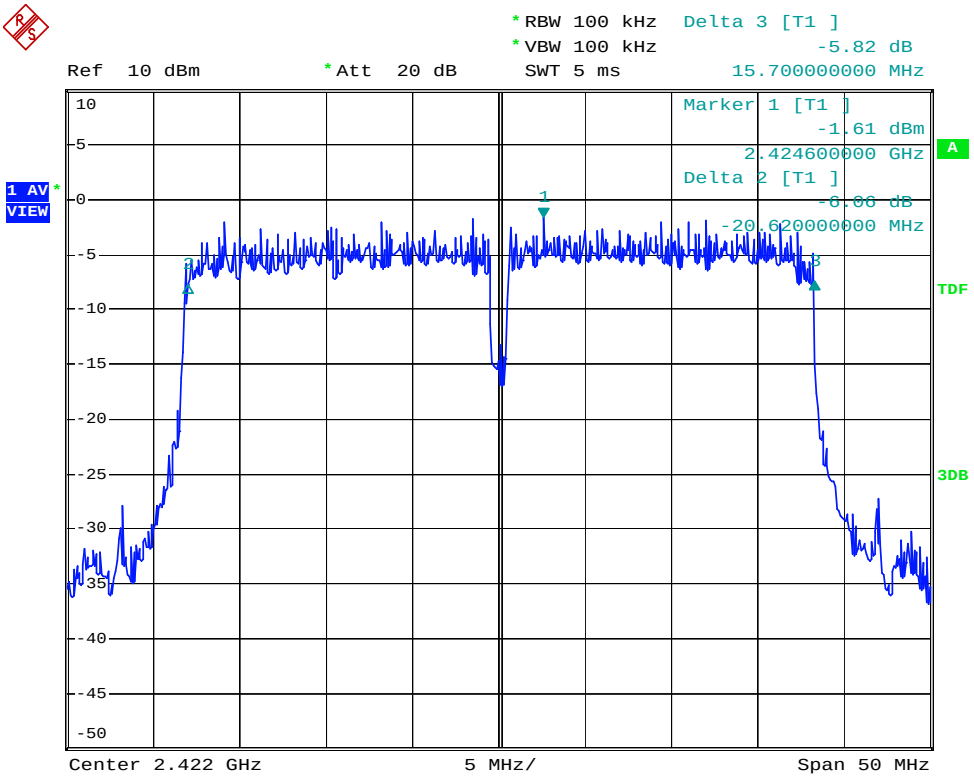
CHANNEL	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	results
Ch1	36.3	0.5	Pass
Ch5	36.5	0.5	Pass
Ch9	36.4	0.5	Pass

802.11n HT40 Ch9



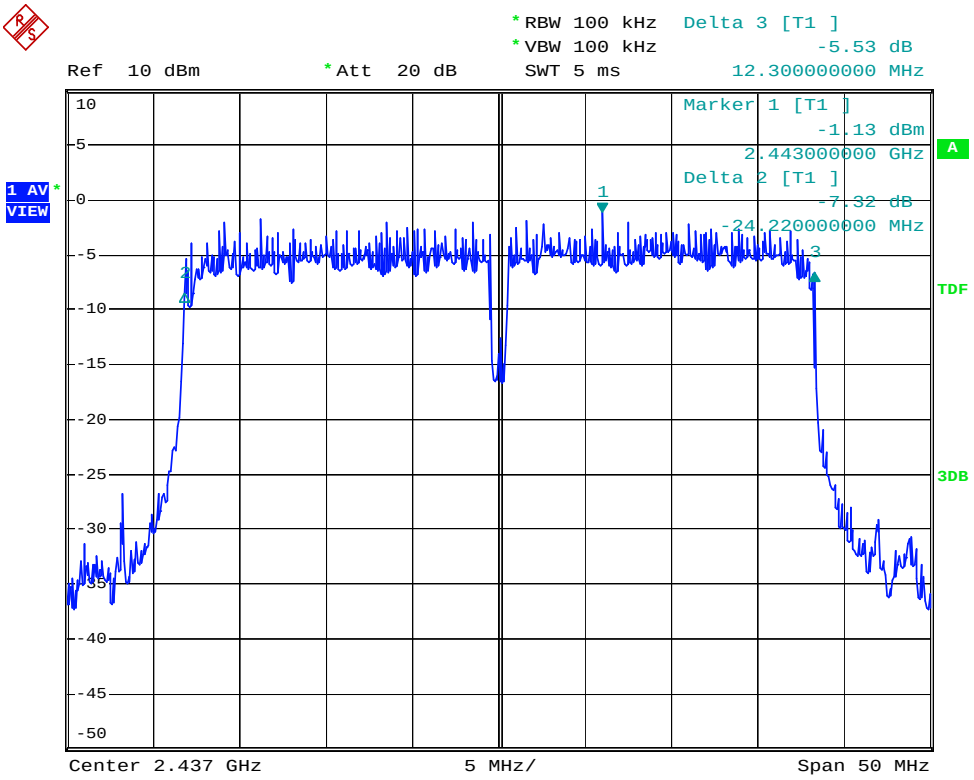
Date: 15.JUN.2008 04:30:45

802.11n HT40 Ch1



Date: 15.JUN.2008 04:38:11

802.11n HT40 Ch5



Date: 15.JUN.2008 04:37:18

9. MAXIMUM PEAK OUTPUT POWER

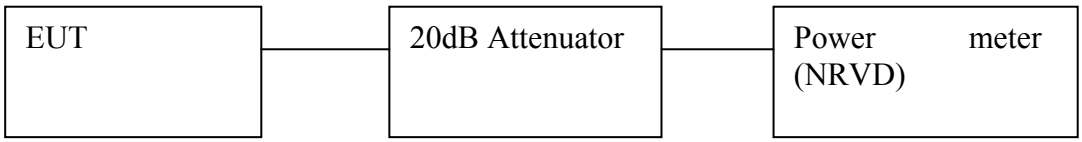
9.1. LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

9.2. TEST PROCEDURES

1. A detector was used on the output port of the EUT. An power meter was used to read the response of the detector.
2.set the power meter to Peak Power measurement mode.
3. let the EUT working in transmit mode, and record the reading of the power meter.
4. the output power= reading+20dB

9.3. TEST SETUP



9.4. EUT OPERATING CONDITIONS

Same as Item 4.3.6

9.5. Test Data

Table 27 Test Data

	Mode	Chain 0			Chain 1			Total Power (W)	Total Power (dBm)	Limit (dBm)
		Read (dBm)	Level (dBm)	Level (w)	Read (dBm)	Level (dBm)	Level (w)			
11b 20℃	CH1	10.50	13.1	0.0204	10.22	12.82	0.0191	0.0395	15.966	20
	CH6	10.60	13.2	0.0209	10.34	12.94	0.0197	0.0406	16.085	20
	CH11	11.38	13.98	0.0250	11.15	13.75	0.0237	0.0487	16.875	20
11g 20℃	CH1	9.90	12.5	0.0178	9.90	12.5	0.0178	0.0356	15.514	20
	CH6	10.02	12.62	0.0183	10.00	12.6	0.0182	0.0365	15.623	20
	CH11	10.71	13.31	0.0214	10.64	13.24	0.0211	0.0425	16.284	20
11n HT20 20℃	CH1	9.06	11.66	0.0147	9.05	11.65	0.0146	0.0293	14.669	20
	CH6	9.21	11.81	0.0152	9.12	11.72	0.0149	0.0301	14.786	20
	CH11	9.30	11.9	0.0155	9.22	11.82	0.0152	0.0307	14.871	20
11n HT40 20℃	CH1	8.80	11.4	0.0138	8.71	11.31	0.0135	0.0273	14.362	20
	CH5	8.88	11.48	0.0141	8.80	11.4	0.0138	0.0279	14.456	20
	CH9	9.45	12.05	0.0160	9.40	12.0	0.0158	0.0318	15.024	20
Total power=chain1 level+chain0 level (linear addition) The reading is peak value.										

10. POWER SPECTRAL DENSITY MEASUREMENT

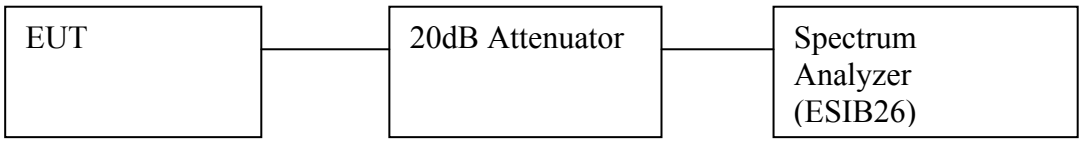
10.1.LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

10.2.TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 3kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

10.3.TEST SETUP

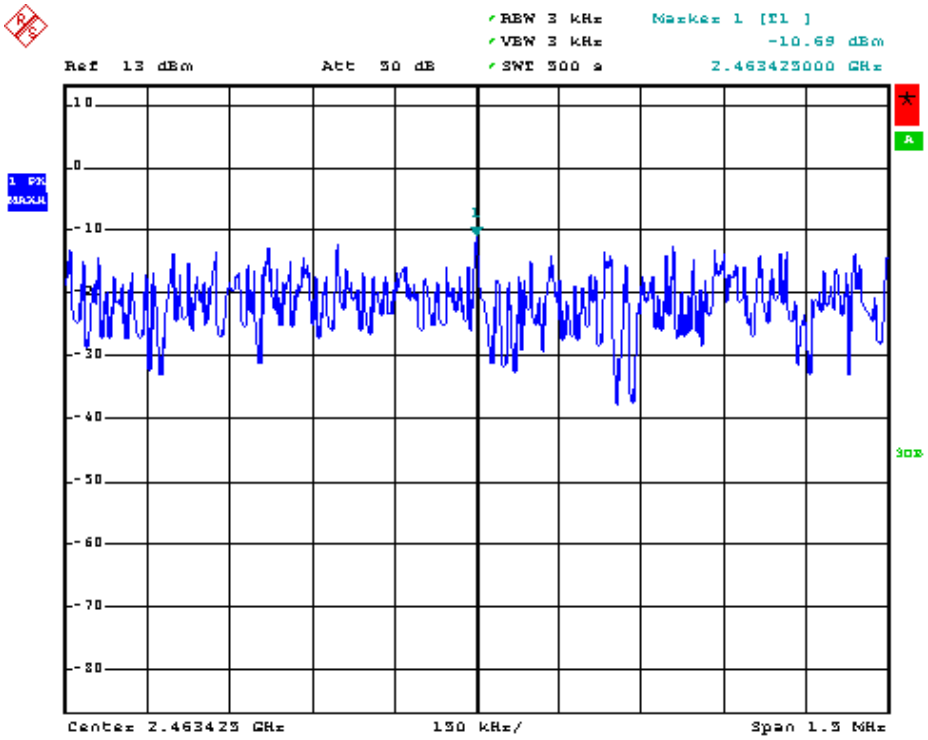


10.4.Test Data

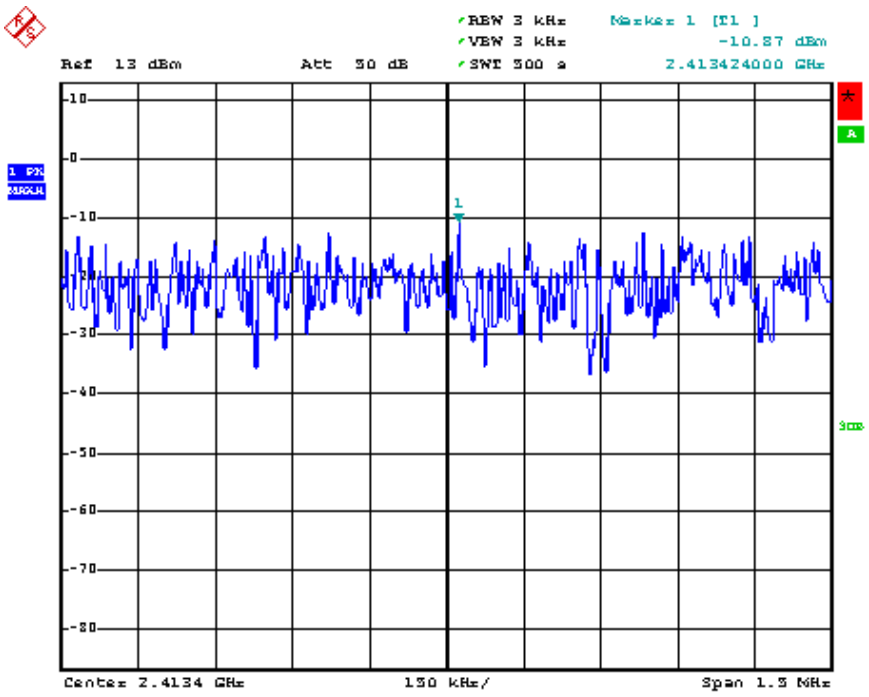
Table 28 Test Data

	Mode	Chain 0		Chain 1		Total Power (W)	Total Power (dBm)	Limit (dBm)
		Level (dBm)	Level (mW)	Level (dBm)	Level (mW)			
11b	CH1	-10.6	0.0871	-11.8	0.0661	0.1532	-8.15	8
	CH6	-10.1	0.0977	-12.6	0.0550	0.1527	-8.16	8
	CH11	-10.6	0.0871	-12.7	0.0537	0.1408	-8.51	8

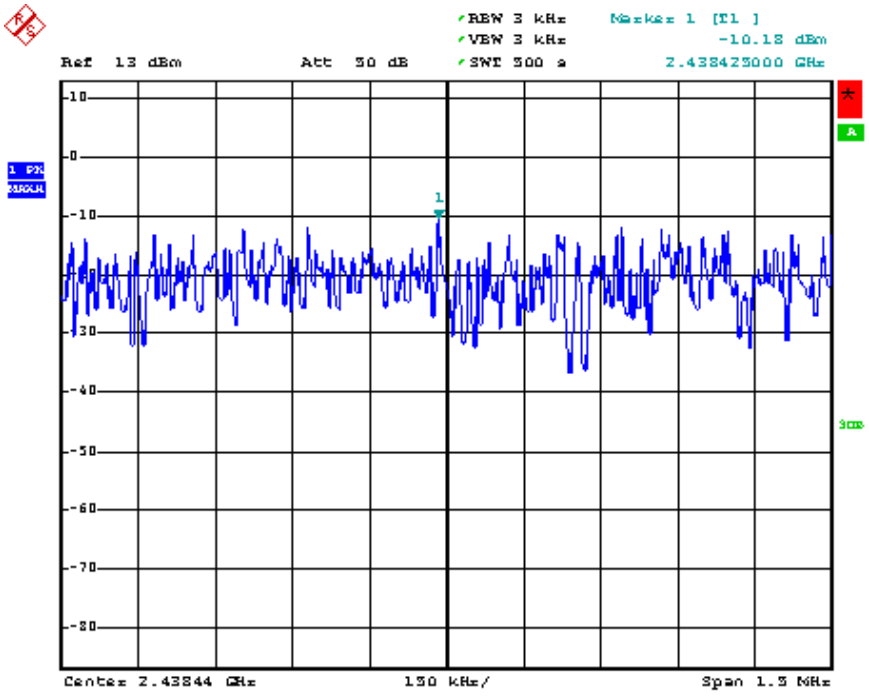
802.11b chain 0 ch11



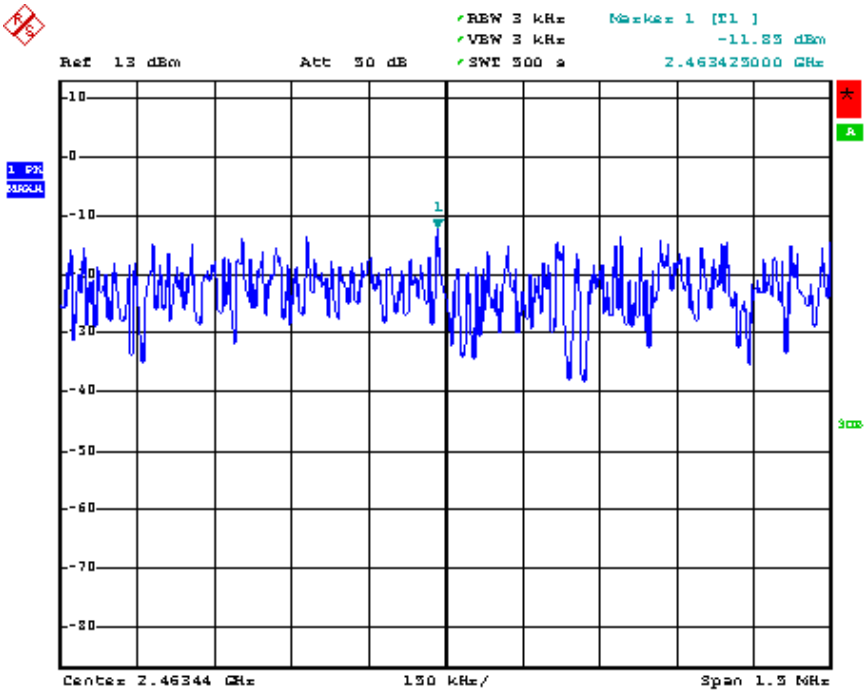
802.11b chain 0 ch1



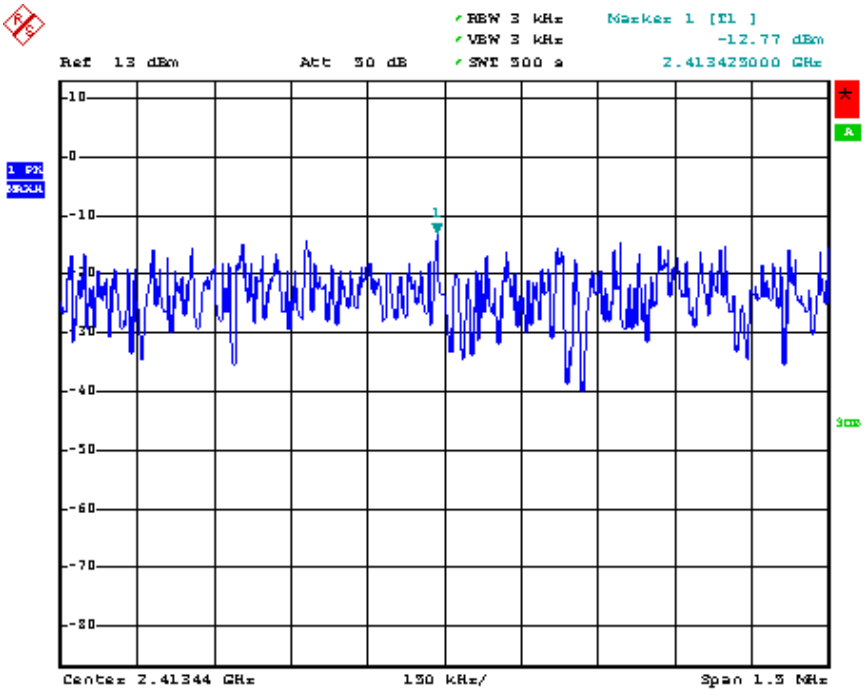
802.11b chain 0 ch6



802.11b chain 1 ch11



802.11b chain 1 ch1



802.11b chain 1 ch6

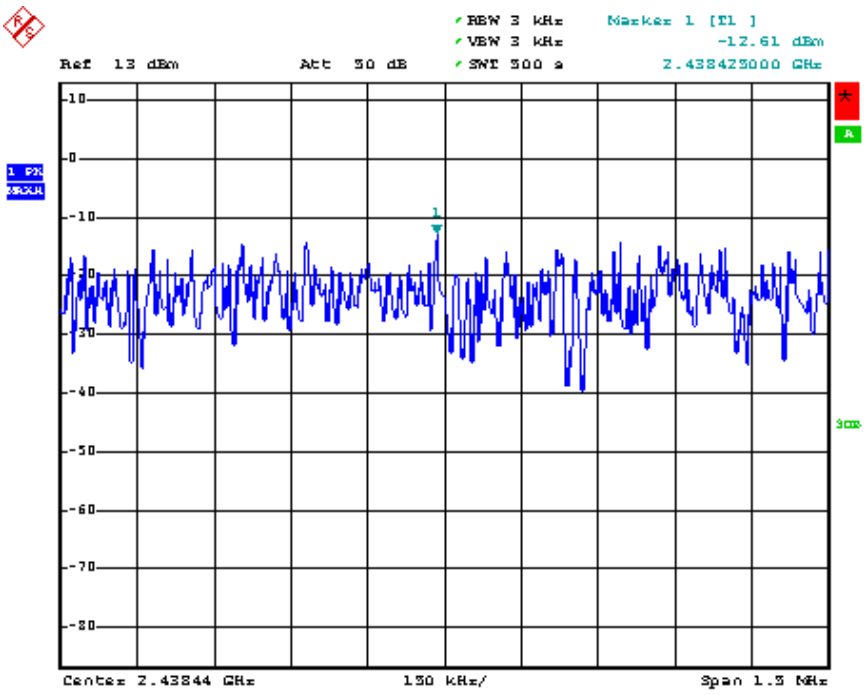
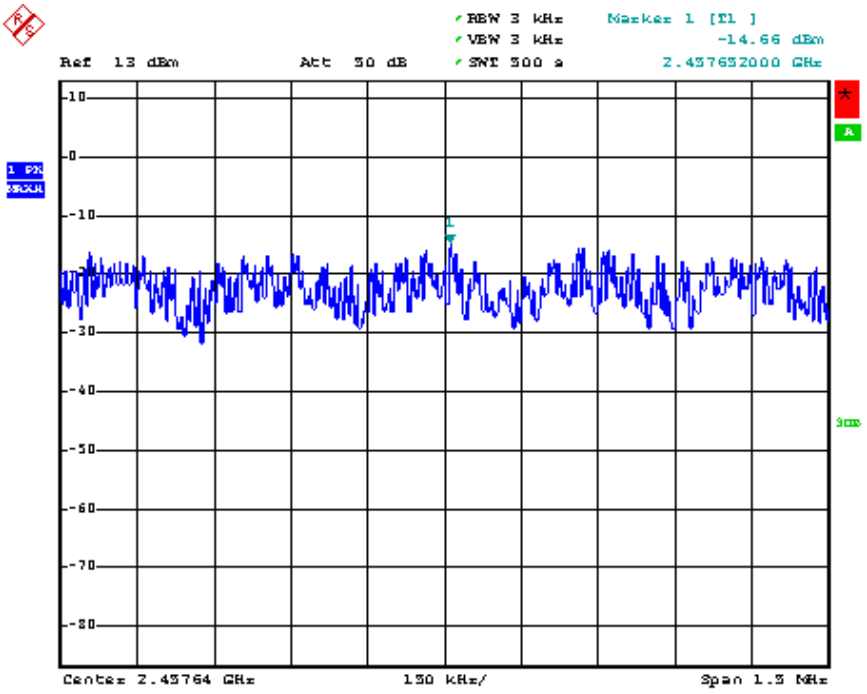


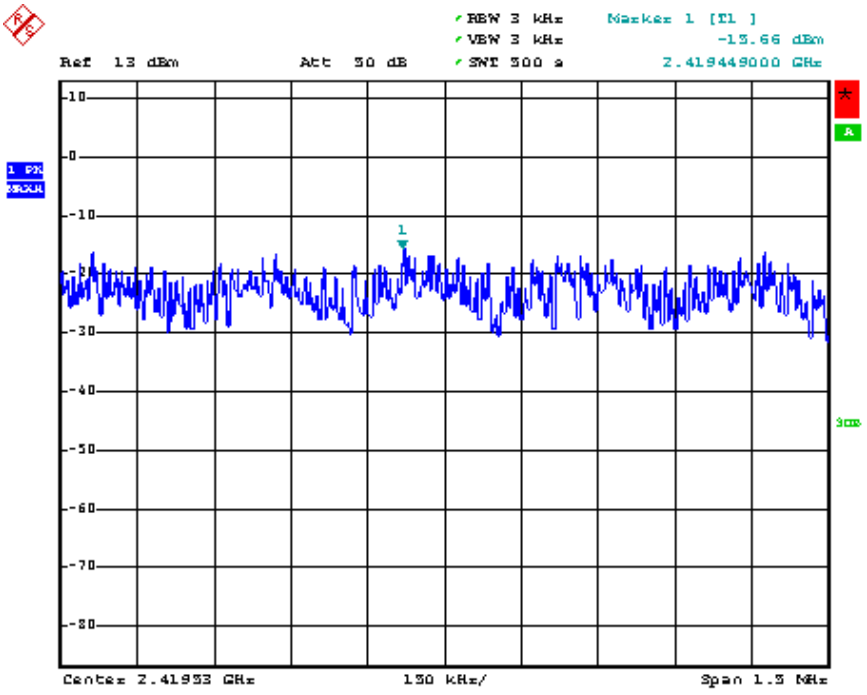
Table 29 802.11g Test Data

	Mode	Chain 0		Chain 1		Total Power (W)	Total Power (dBm)	Limit (dBm)
		Level (dBm)	Level (mW)	Level (dBm)	Level (mW)			
11g	CH1	-14.6	0.0347	-16.7	0.0214	0.0561	-12.51	8
	CH6	-15.6	0.0275	-18.6	0.0138	0.0413	-13.84	8
	CH11	-15	0.0316	-17.8	0.0166	0.0482	-13.17	8

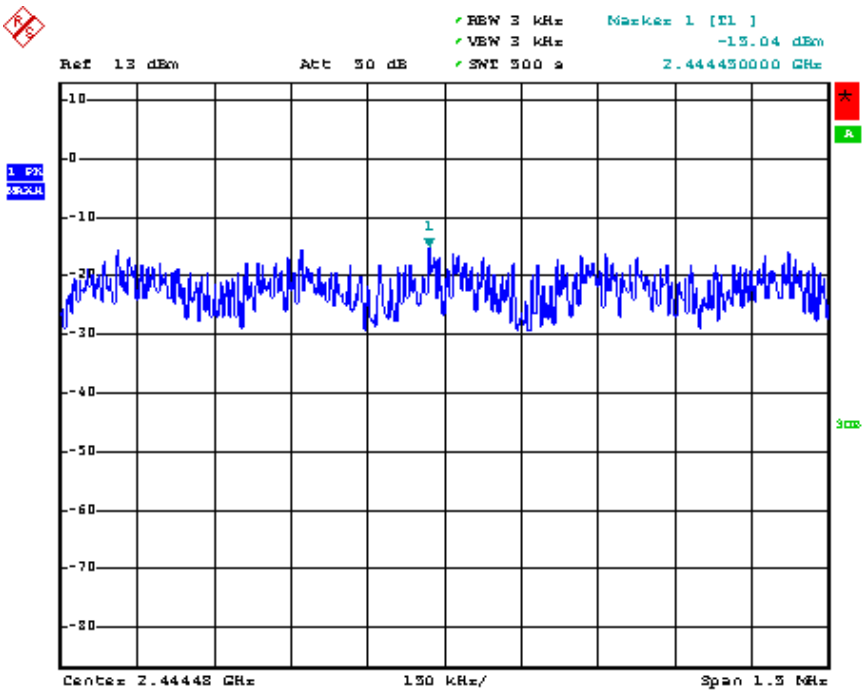
802.11g Chain0 ch11



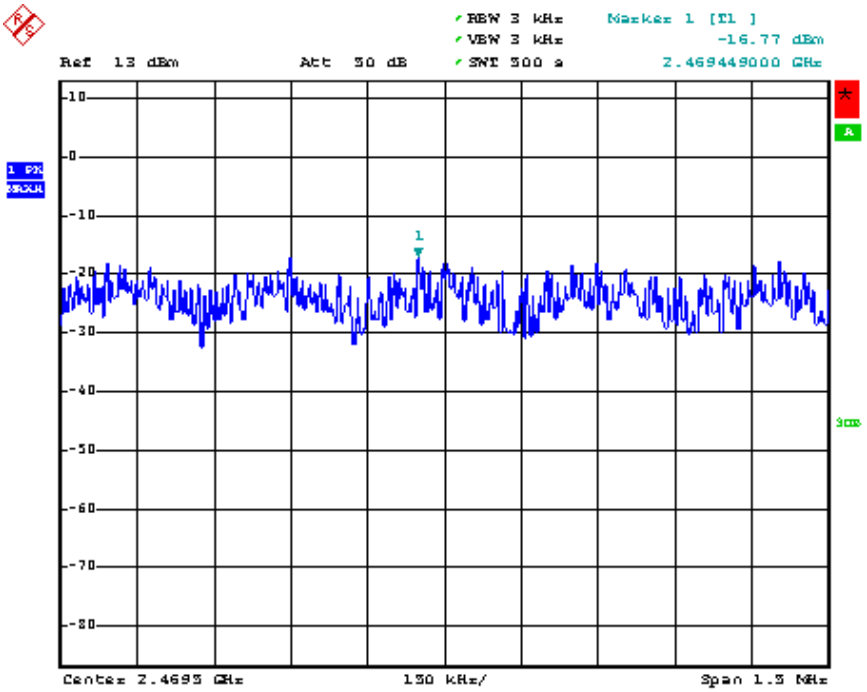
802.11g Chain0 ch1



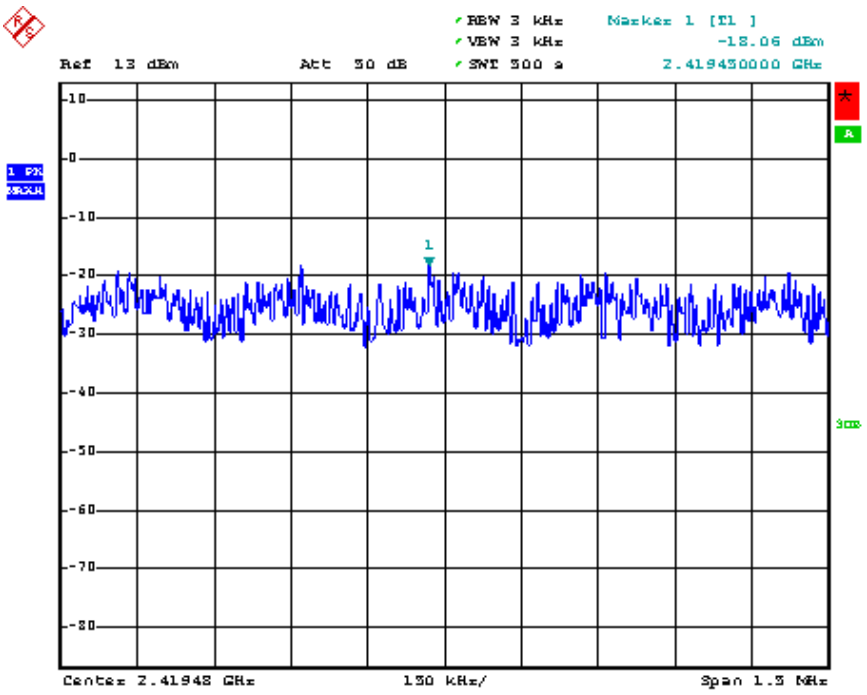
802.11g Chain0 ch1



802.11g Chain1 ch11



802.11g Chain1 ch1



802.11g Chain1 ch6

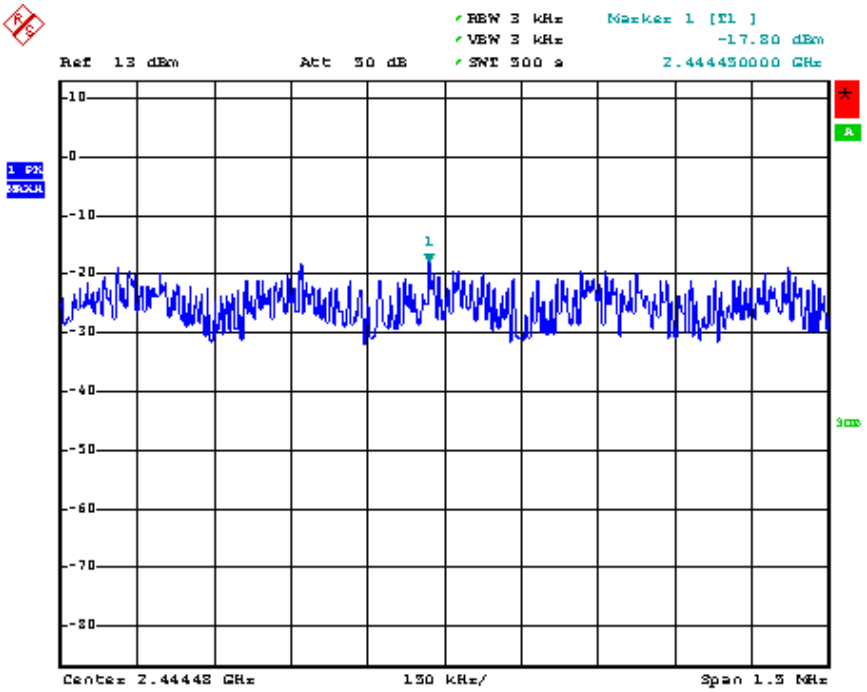
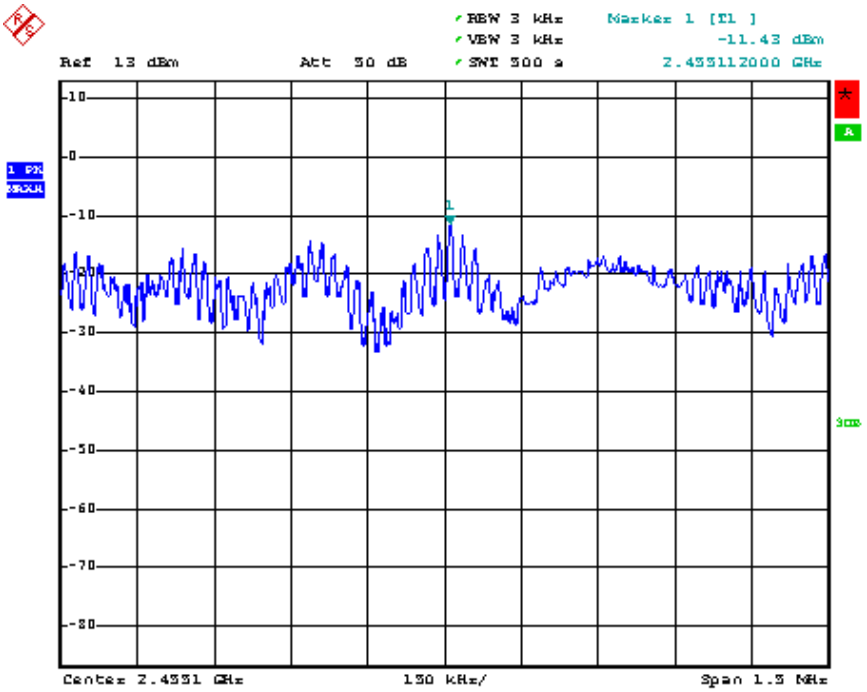


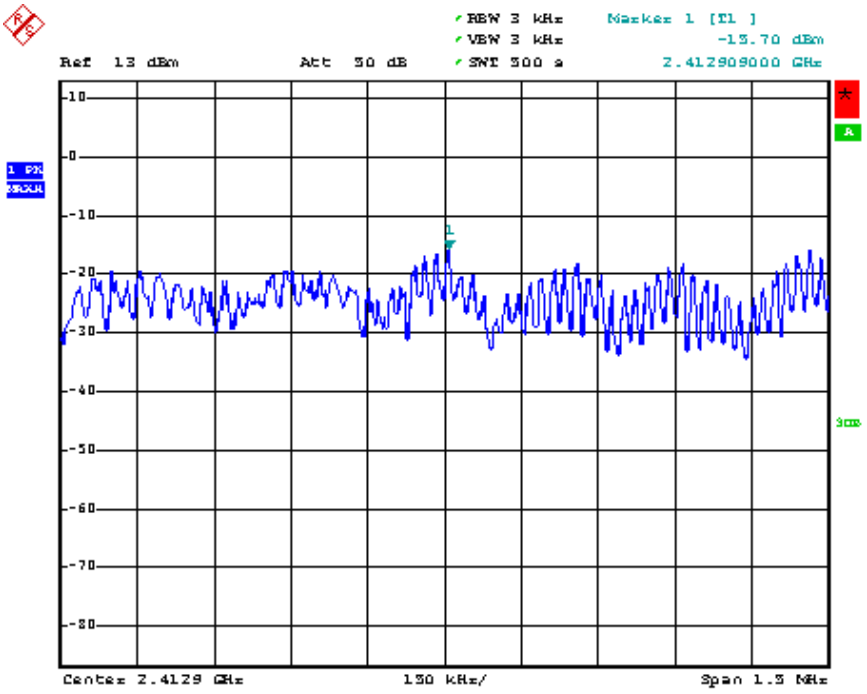
Table 30 802.11n HT20 Test Data

	Mode	Chain 0		Chain 1		Total Power (W)	Total Power (dBm)	Limit (dBm)
		Level (dBm)	Level (mW)	Level (dBm)	Level (mW)			
11n HT20	CH1	-15.7	0.0269	-18.6	0.0138	0.0407	-13.90	8
	CH6	-14.0	0.0398	-18.4	0.0145	0.0543	-12.65	8
	CH11	-11.4	0.0724	-17.6	0.0174	0.0898	-10.47	8

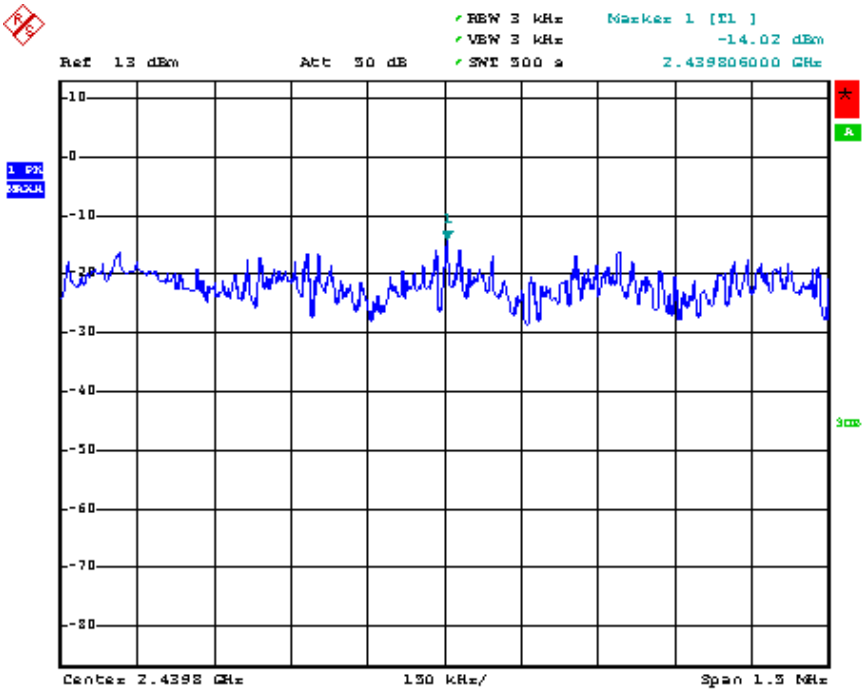
802.11n chain0 HT20 ch11



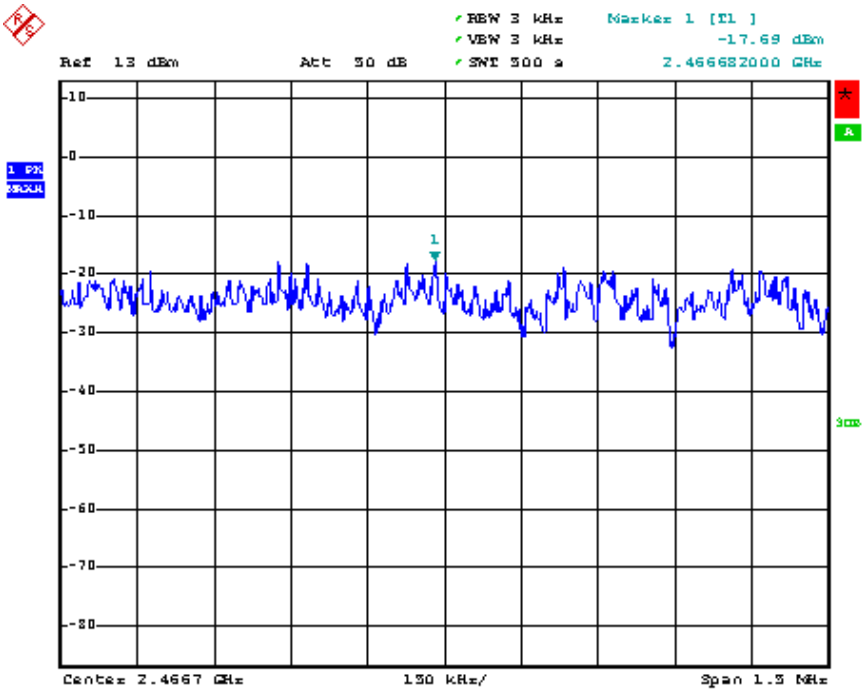
802.11n chain0 HT20 ch1



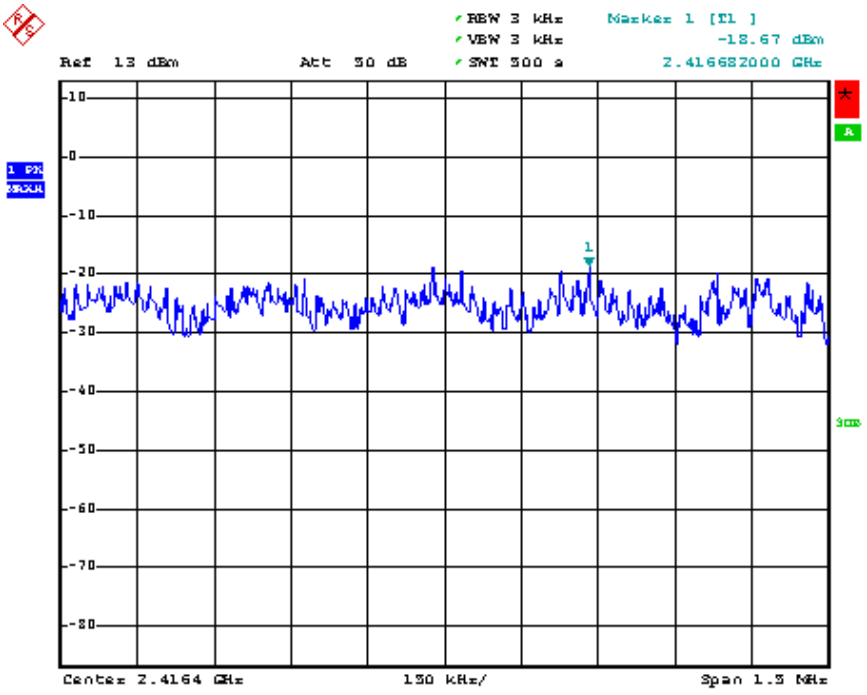
802.11n chain0 HT20 ch6



802.11n chain1 HT20 ch11



802.11n chain1 HT20 ch1



802.11n chain1 HT20 ch6

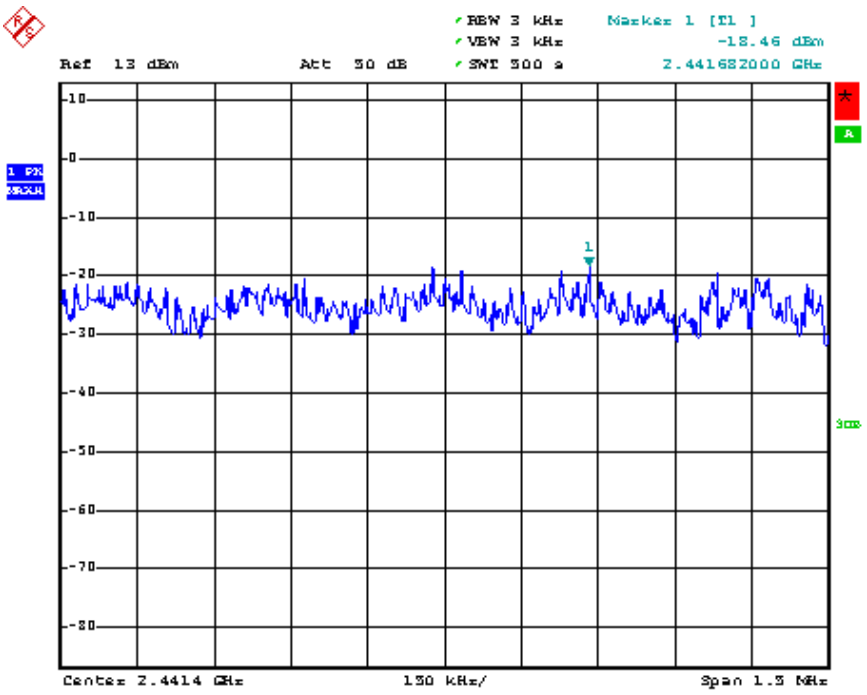
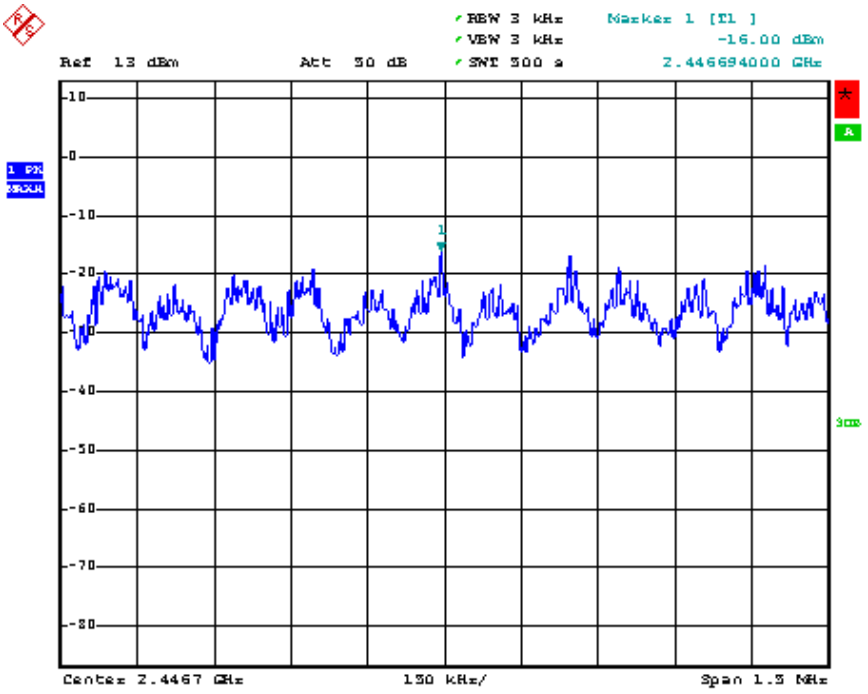


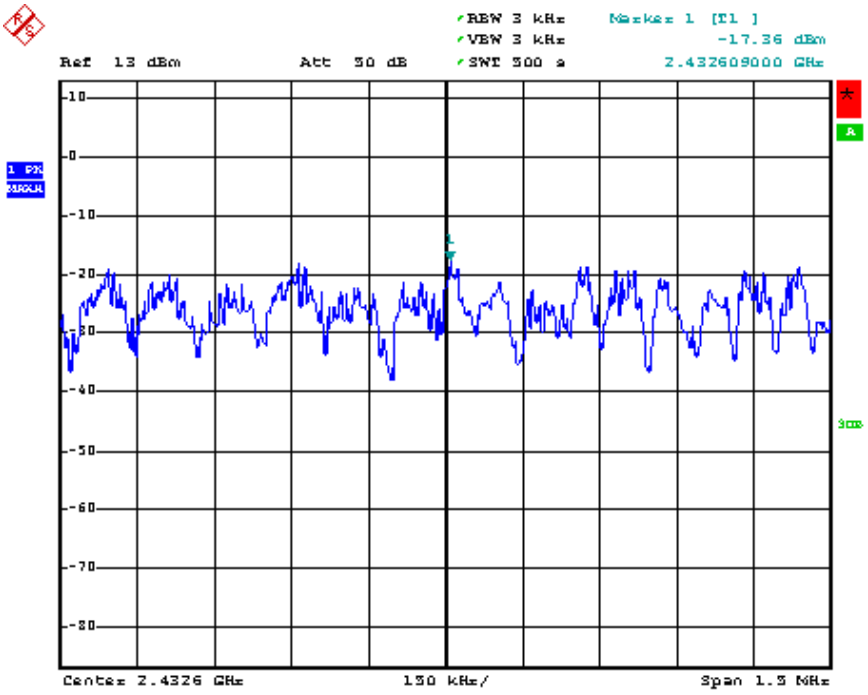
Table 31 802.11n HT40 Test Data

	Mode	Chain 0		Chain 1		Total Power (W)	Total Power (dBm)	Limit (dBm)
		Level (dBm)	Level (mW)	Level (dBm)	Level (mW)			
11n HT40	CH1	-17.3	0.0186	-20.6	0.0087	0.0273	-15.63	8
	CH5	-16.0	0.0251	-21.0	0.0079	0.0331	-14.81	8
	CH9	-16.0	0.0251	-20.0	0.0100	0.0351	-14.54	8

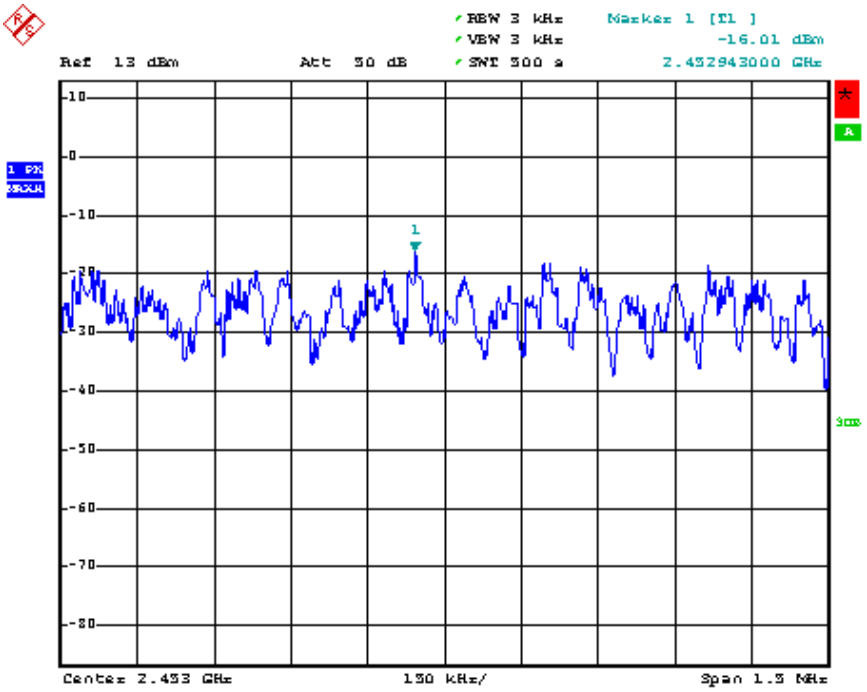
802.11n chain0 HT40 ch9



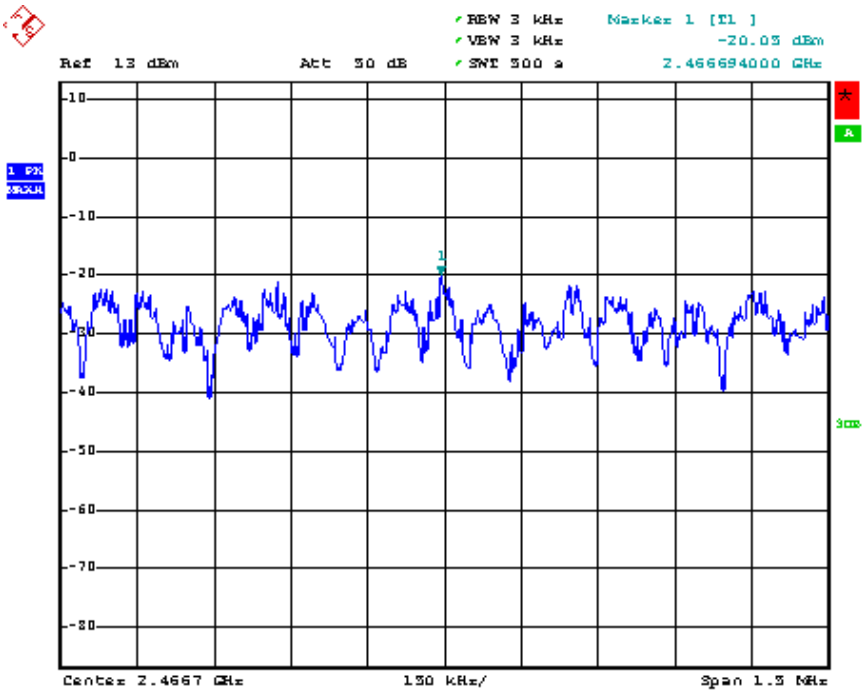
802.11n chain0 HT40 ch1



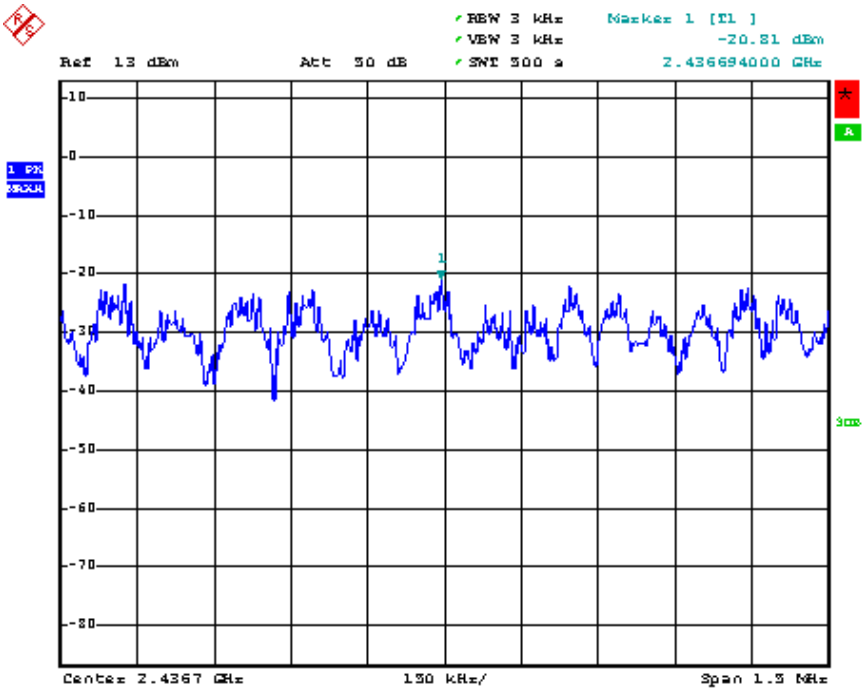
802.11n chain0 HT40 ch5



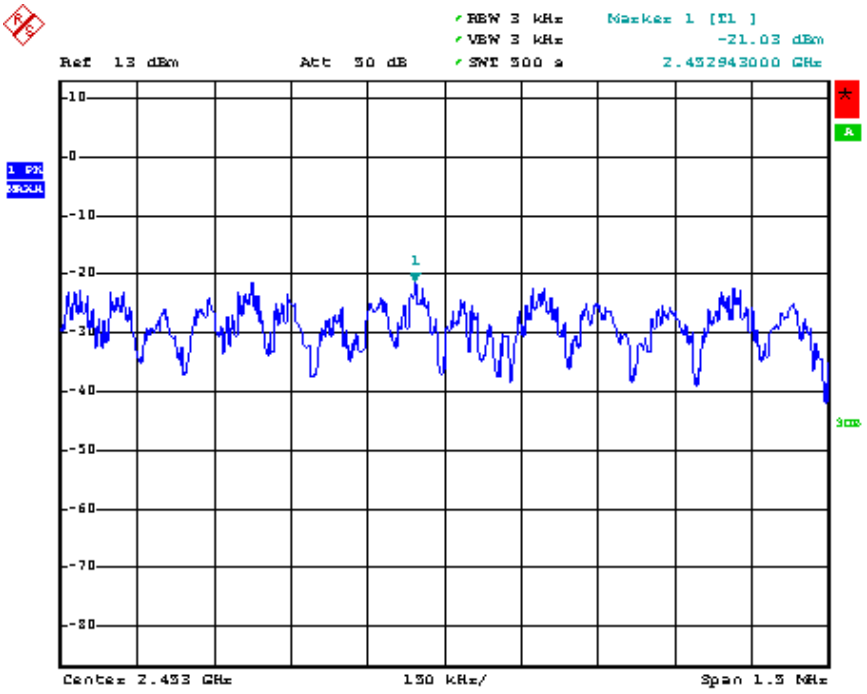
802.11n chain1 HT40 ch9



802.11n chain1 HT40 ch1



802.11n chain1 HT40 ch5



11. BAND EDGES MEASUREMENT

11.1.LIMITS OF BAND EDGES MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

11.2.TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable.
Set both RBW and VBW of spectrum analyzer to 100kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.
The spectrum plots (Peak RBW=VBW=100kHz) are attached on the following pages.

11.3.EUT OPERATING CONDITION

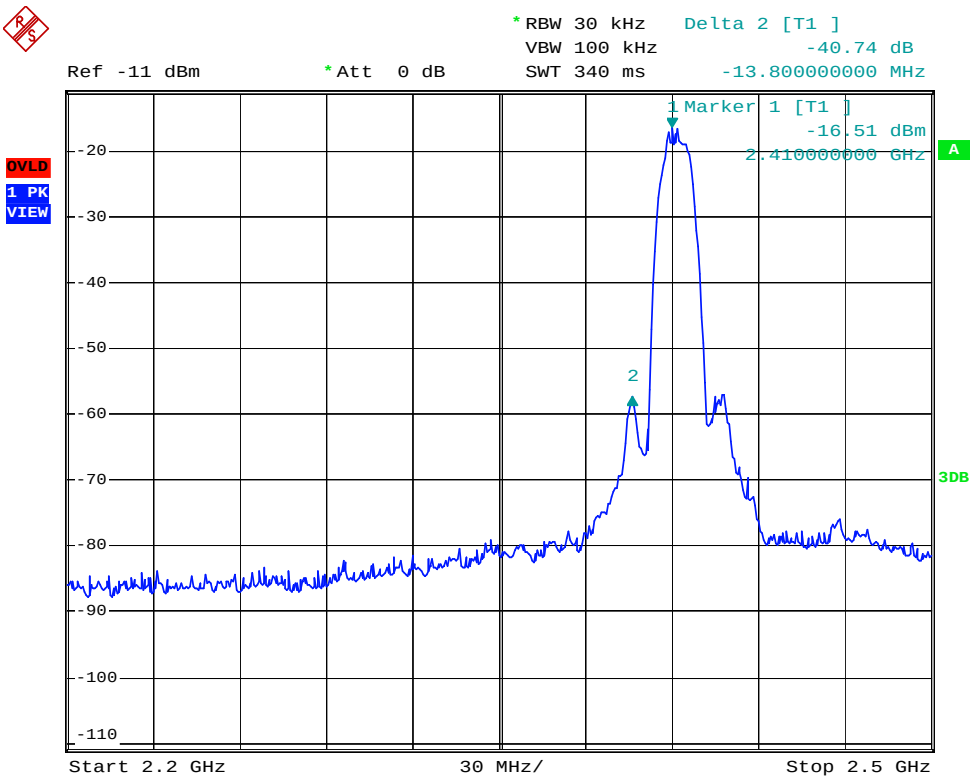
Mode1
Mode 3

11.4.TEST RESULTS

The spectrum plots are attached on the following images. It shows compliance with the requirement in part 15.247(d).
NOTE: The band edge emission plot of 802.11b shows 40.7dBc. The emission of carrier strength list in the test result of channel 1 is 86.5V/m (AV), so the maximum field strength (AV)in restrict band is86.5-40.7=45.8 dBuV/m which is under 54dBuV/m(AV) limit.
The emission of carrier strength list in the test result of channel 1 is 94.3V/m (PK), so the maximum field strength (PK)in restrict band is94.3-40.7=53.6 dBuV/m which is under 74dBuV/m (PK)limit.

The band edge emission plot of 802.11b shows 52.0dBc. The emission of carrier strength list in the test result of channel 1 is 83.5dBuV/m (AV), so the maximum field strength(AV) in restrict band is 83.5-52.0=31.5dBuV/m which is under 54dBuV/m(AV) limit.
The emission of carrier strength list in the test result of channel 1 is 93.5V/m (PK), so the maximum field strength (PK)in restrict band is93.5-52.0=43.5 dBuV/m which is under 74dBuV/m (PK)limit.

802.11b



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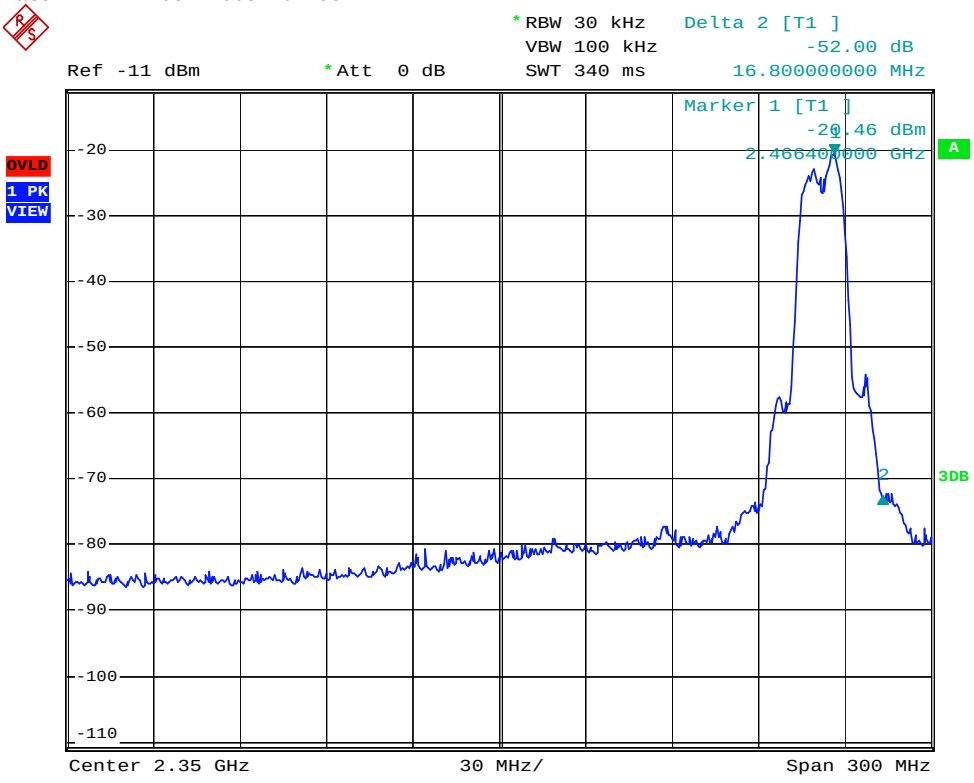

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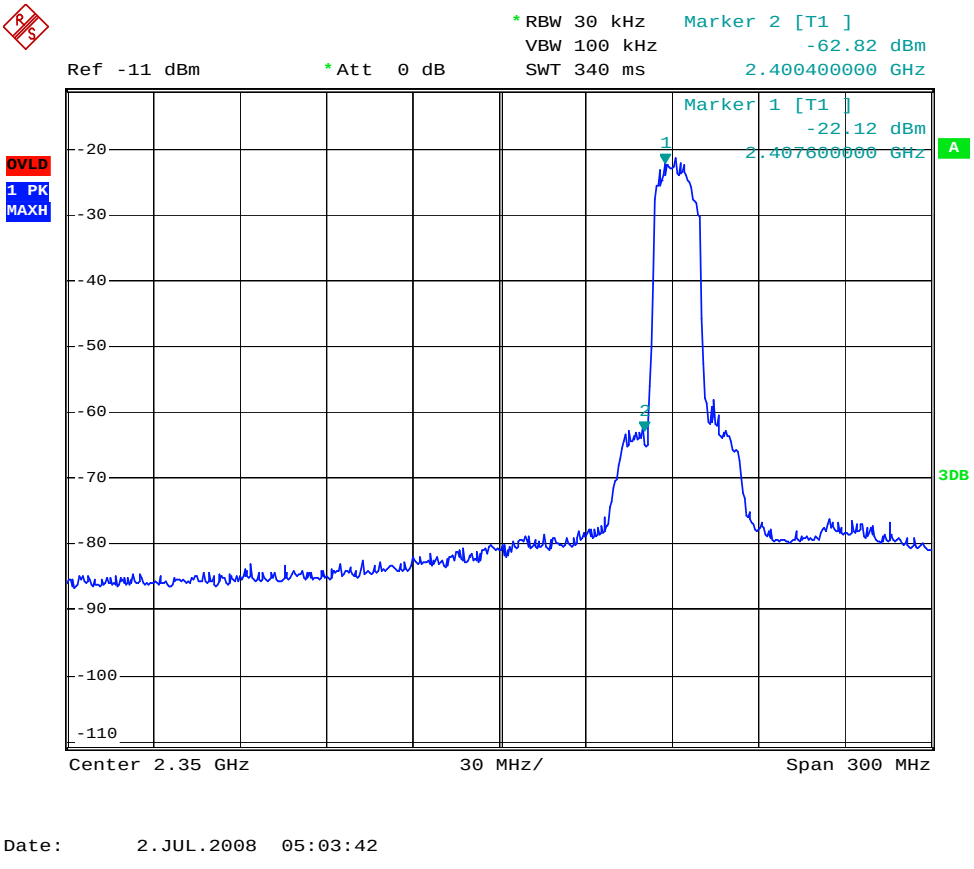
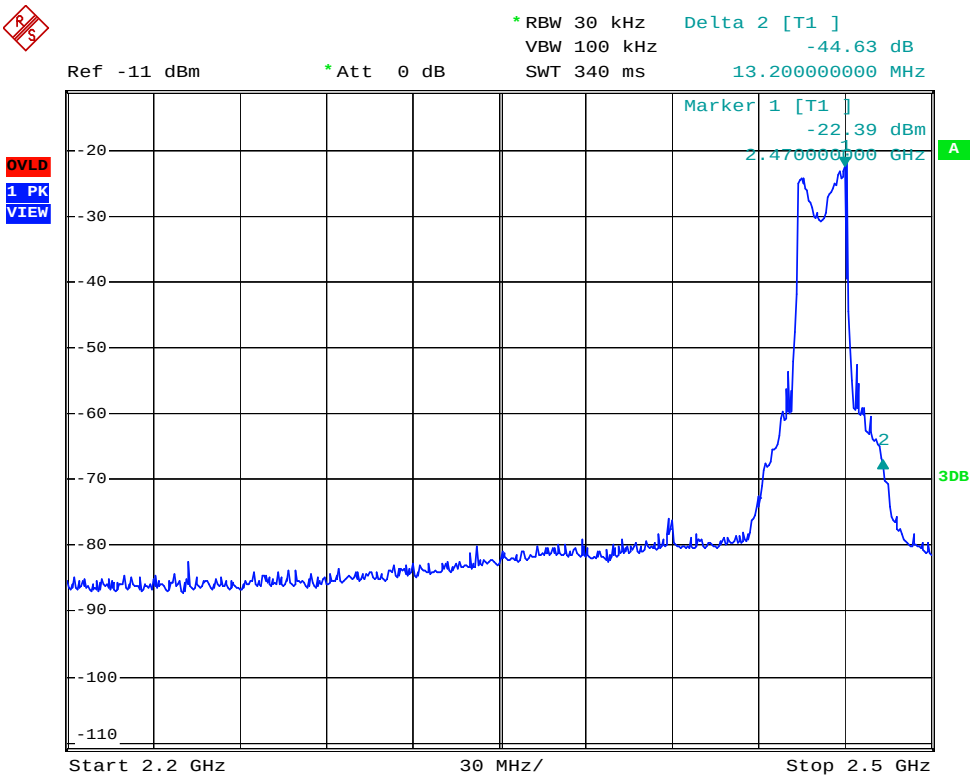
NOTE: The band edge emission plot of 802.11g shows 40.7dBc. The emission of carrier strength list in the test result of channel 1 is 86.1V/m (AV), so the maximum field strength(AV) in restrict band is86.1-40.7=45.4 dBuV/m which is under 54dBuV/m (AV)limit.
The emission of carrier strength list in the test result of channel 1 is 94.8V/m (PK), so the maximum field strength (PK)in restrict band is94.8-40.7=54.1 dBuV/m which is under 74dBuV/m (PK)limit.
The band edge emission plot of 802.11g shows 44.6dBc. The emission of carrier strength list in the test result of channel 1 is 86.0dBuV/m (AV), so the maximum field strength(AV) in restrict band is 86.0-44.6=41.4dBuV/m which is under 54dBuV/m(AV) limit.
The emission of carrier strength list in the test result of channel 1 is 95.0V/m (PK), so the maximum field strength (PK)in restrict band is95.0-44.6=50.4 dBuV/m which is under 74dBuV/m (PK)limit.

802.11g





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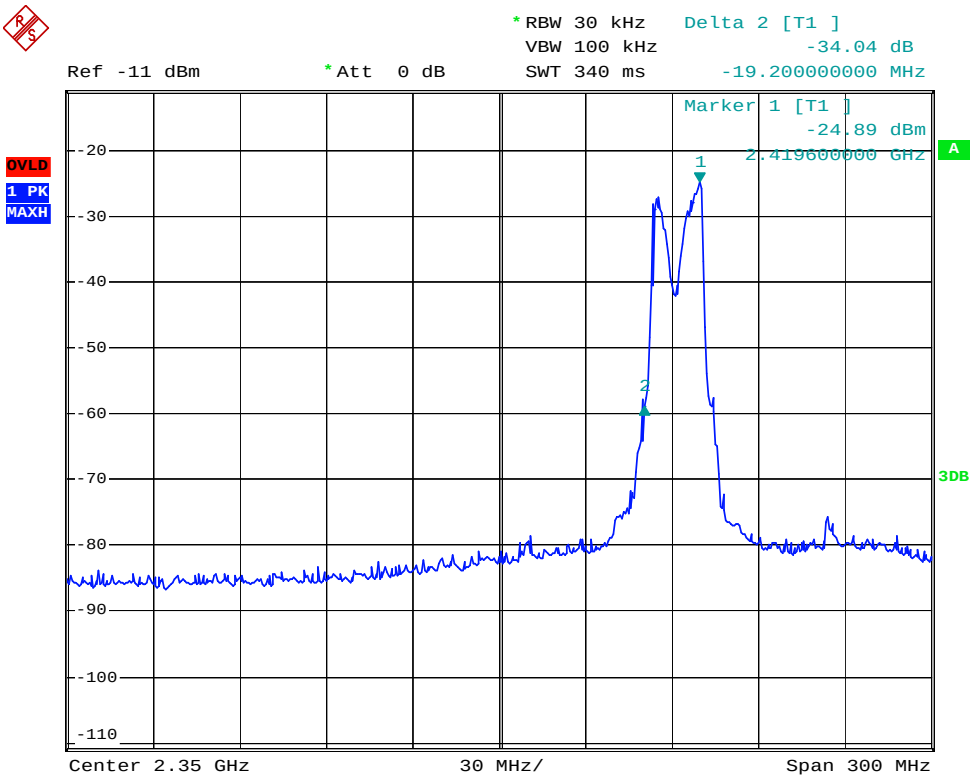
NOTE: The band edge emission plot of 802.11n HT20 shows 34.0dBc. The emission of carrier strength list in the test result of channel 1 is 85.4V/m (AV), so the maximum field strength(AV) in restrict band is85.4-34.0=50.4 dBuV/m which is under 54dBuV/m(AV) limit.
The emission of carrier strength list in the test result of channel 1 is 94.0V/m (PK), so the maximum field strength (PK)in restrict band is94.0-34.0=60.0 dBuV/m which is under 74dBuV/m (PK)limit.

The band edge emission plot of 802.11n HT20 shows 50.9dBc. The emission of carrier strength list in the test result of channel 1 is 84.1dBuV/m (AV), so the maximum field strength (AV)in restrict band is 84.1-50.9=33.2dBuV/m which is under 54dBuV/m (AV)limit.
The emission of carrier strength list in the test result of channel 1 is 93.4V/m (PK), so the maximum field strength (PK)in restrict band is93.4-50.9=42.5 dBuV/m which is under 74dBuV/m (PK)limit.

802.11n HT20



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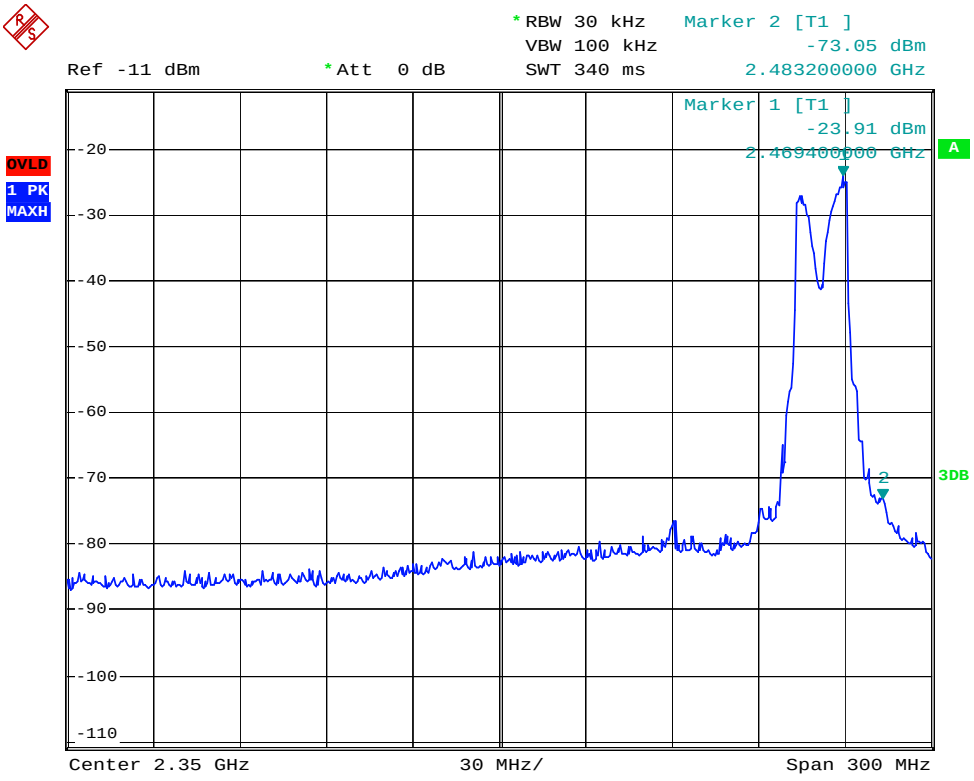

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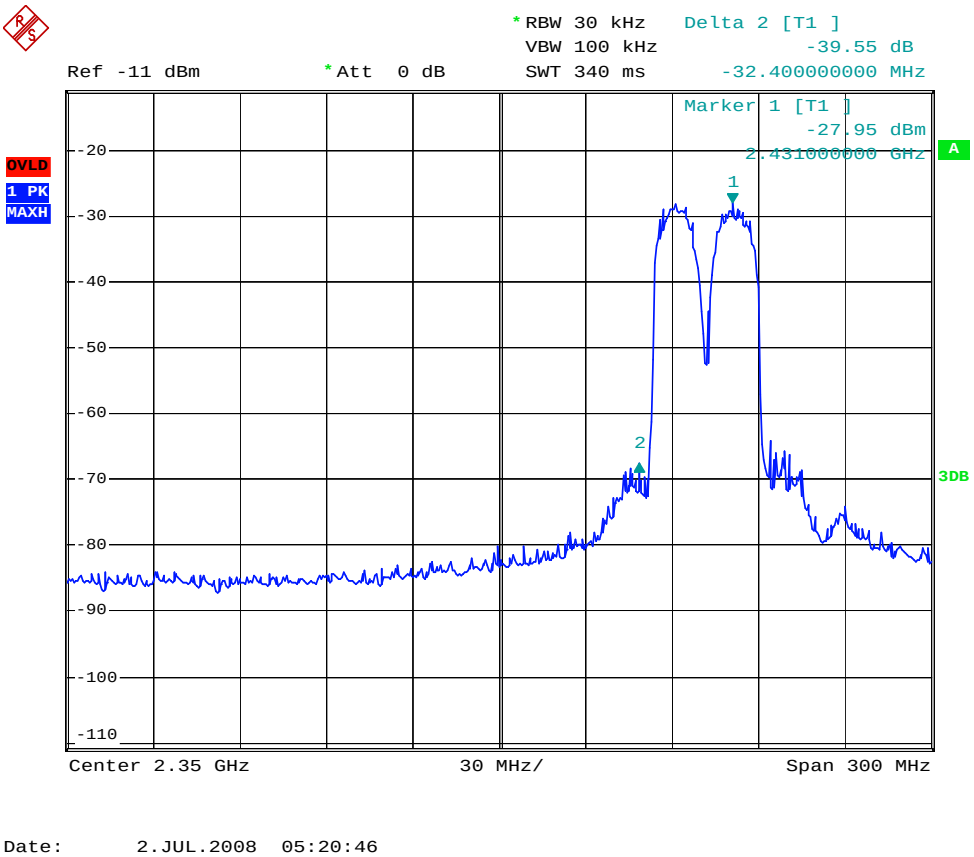
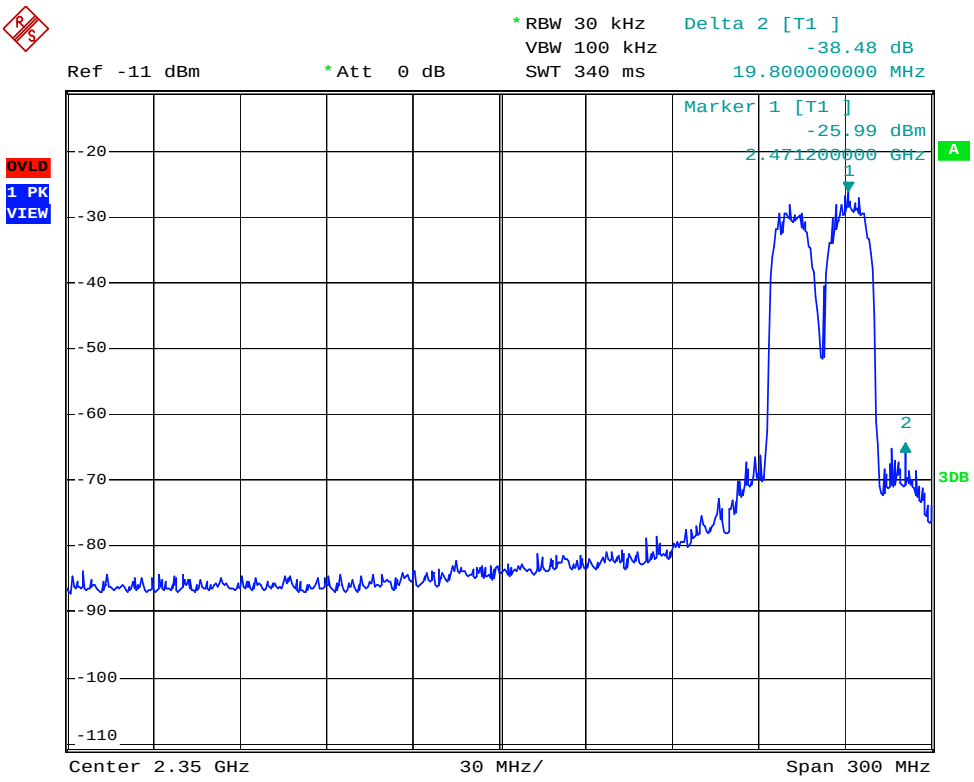
NOTE: The band edge emission plot of 802.11n HT40 shows 39.5dBc. The emission of

carrier strength list in the test result of channel 1 is 83.5V/m (AV), so the maximum field strength(AV) in restrict band is83.5-39.5=44.0 dBuV/m which is under 54dBuV/m(AV) limit.
The emission of carrier strength list in the test result of channel 1 is 92.5V/m (PK), so the maximum field strength (PK)in restrict band is92.5-39.5=53.0 dBuV/m which is under 74dBuV/m (PK)limit.

The band edge emission plot of 802.11n HT40 shows 38.4dBc. The emission of carrier strength list in the test result of channel 1 is 81.5dBuV/m (AV), so the maximum field strength(AV) in restrict band is 81.5-38.4=43.1dBuV/m which is under 54dBuV/m (AV)limit.
The emission of carrier strength list in the test result of channel 1 is 91.5V/m (PK), so the maximum field strength (PK)in restrict band is91.5-38.4=53.1 dBuV/m which is under 74dBuV/m (PK)limit.

802.11n HT40





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12. ANTENNA REQUIREMENT

12.1. STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

12.2. ANTENNA CONNECTED CONSTRUCTION

The antenna used in this product is reverse polarity SMA connector. The maximum Gain of the antenna is 2.0dBi.

13. MPE CALCULATION

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{PG}{4\pi R^2}$$

where: S = power density
P = power input to the antenna
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna
Maximum peak output power at antenna input terminal: 16.8 (dBm)
Maximum peak output power at antenna input terminal: 47.8 (mW)
Antenna gain(typical): 2.0 (dBi)
Maximum antenna gain: 1.584(numeric)
Prediction distance: 20 (cm)
Prediction frequency: 2450 (MHz)
MPE limit for uncontrolled exposure at prediction frequency: 1 (mW/cm^2)
Power density at prediction frequency: 0.15 (mW/cm^2)

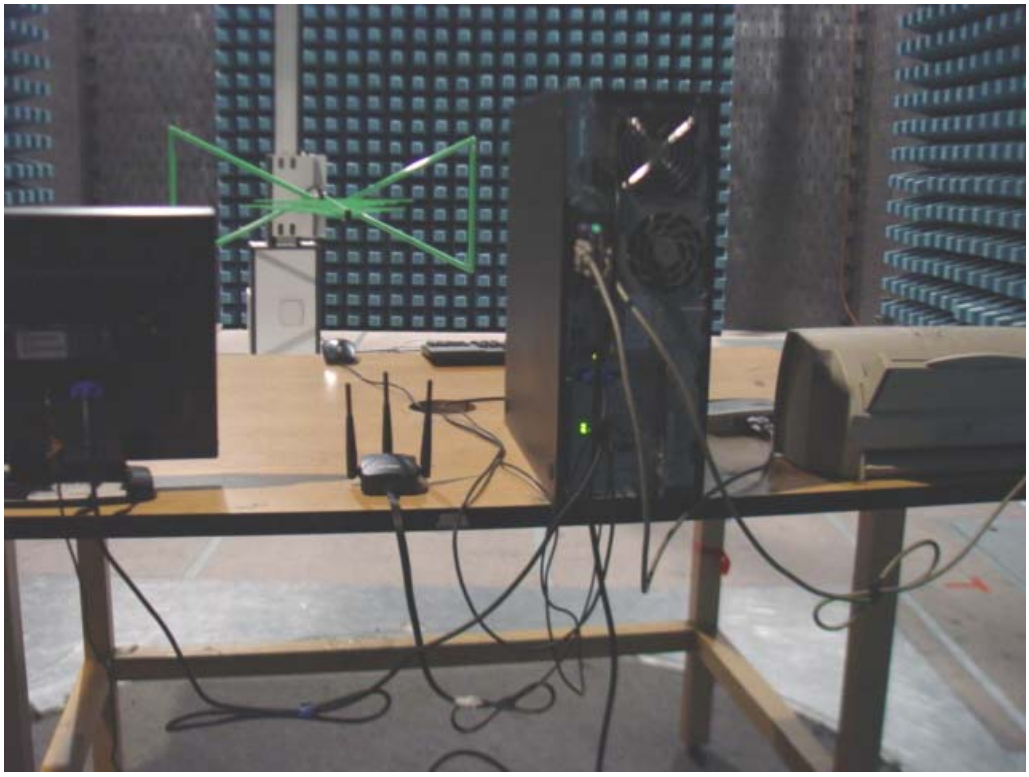
APPENDIX I TEST PHOTO

Photo 1 Conducted Emission Test

Photo 2 Conducted Emission Test

Photo 3 Radiated Emission Test

Photo 4 Radiated Emission Test



APPENDIX II EUT PHOTO

Photo 1 Appearance of EUT

Photo 2 Appearance of EUT

Photo 3 Inside of EUT

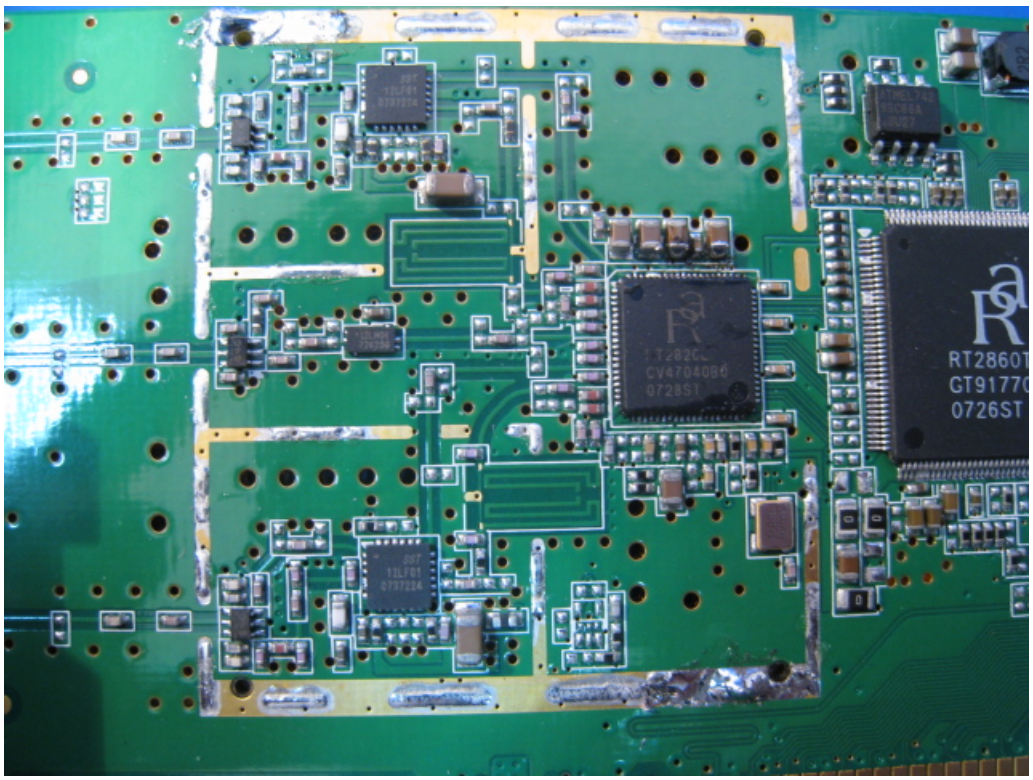


Photo 4 Appearance of Antenna

Photo 5 Appearance of antenna

Photo 6 Inside of antenna

Photo 7 connector of antenna