

FCC TEST REPORT

For

NFC Android Reader

Model Number: FX105F

FCC ID: 2AGQIFX105F

Report Number : WT208000770

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TEST REPORT DECLARATION

Applicant : FAMOCO SAS
Address : 59 avenue Victor Hugo,Paris,France
Manufacturer : FAMOCO SAS
Address : 59 avenue Victor Hugo,Paris,France
EUT Description : NFC Android Reader
Model No : FX105F
Trade mark : Famoco
Serial Number : /
FCC ID : 2AGQIFX105F

Test Standards:

FCC Part 15 15.207, 15.209, 15.407 (2019)

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 C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with FCC Rules Part 15.207, 15.209 and 15.407.

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

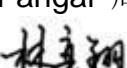
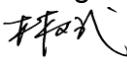
Project Engineer:		Date:	Jun.03, 2020
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	(Lin Bin 林斌)		

TABLE OF CONTENTS

TEST REPORT DECLARATION.....	2
1. TEST RESULTS SUMMARY	5
2. GENERAL INFORMATION.....	6
2.1. Report information.....	6
2.2. Laboratory Accreditation and Relationship to Customer	6
2.3. Measurement Uncertainty	7
3. PRODUCT DESCRIPTION	8
3.1. EUT Description	8
3.2. Related Submittal(s) / Grant (s).....	8
3.3. Block Diagram of EUT Configuration	8
3.4. Operating Condition of EUT	8
3.5. Directional Antenna Gain	9
3.6. Support Equipment List.....	10
3.7. Test Conditions	10
3.8. Special Accessories	10
3.9. Equipment Modifications	10
4. TEST EQUIPMENT USED.....	11
5. DUTY CYCLE	12
5.1. LIMITS OF DUTY CYCLE	12
5.2. TEST PROCEDURE	12
5.3. TEST SETUP	12
5.4. TEST DATA	12
6. 26DB BANDWIDTH MEASUREMENT	14
6.1. LIMITS OF 26dB BANDWIDTH MEASUREMENT.....	14
6.2. TEST PROCEDURE	14
6.3. TEST SETUP	14
6.4. Test Data.....	14
7. MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT.....	19
7.1. LIMITS OF Maximum Conducted Output Power Measurement	19
7.2. TEST PROCEDURE	19
7.3. TEST SETUP	19
7.4. TEST DATA	20
8. MAXIMUM POWER SPECTRAL DENSITY LEVEL MEASUREMENT	23
8.1. LIMITS OF Maximum Power Spectral Density Level Measurement.....	23
8.2. TEST PROCEDURE	23
8.3. TEST DATA	24
9. RADIATED BANDEdge AND SPURIOUS MEASUREMENT	28
9.1. LIMITS OF Radiated Bandedge and Spurious Measurement	28
9.2. TEST PROCEDURE	28
9.3. TEST DATA	29
10. CONDUCTED EMISSION TEST FOR AC POWER PORT MEASUREMENT.....	58
10.1. Test Standard and Limit	58

10.2.	Test Procedure	58
10.3.	Test Arrangement.....	58
10.4.	Test Data	58
11.	AUTOMATIC DISCONTINUE TRANSMISSION	62
11.1.	Test Standard	62
11.2.	Test Data	62
12.	FREQUENCY STABILITY	63
12.1.	LIMITS OF Frequency Stability.....	63
12.2.	TEST PROCEDURE.....	63
12.3.	TEST DATA.....	63
13.	OCCUPIED BANDWIDTH	65
13.1.	LIMITS OF Occupied Bandwidth	65
13.2.	TEST PROCEDURE.....	65
13.3.	TEST SETUP	65
13.4.	TEST DATA.....	65
14.	ANTENNA REQUIREMENTS	69

1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	FCC Rules	Test Results
26dB Bandwidth	FCC §15.407 (a)	Pass
Maximum Peak Conducted Power	FCC §15.407 (a)	Pass
Maximum Power Spectral Density Level	FCC §15.407 (a)	Pass
Radiated Bandedge and Spurious	FCC §15.407 (b) FCC §15.209 FCC §15.205	Pass
Conducted emission test for AC power port	FCC §15.207	Pass
Automatic Discontinue Transmission	FCC §15.407 (c)	Pass
Frequency stability	FCC §15.407 (g)	Pass
Antenna Requirement	FCC §15.203	Pass

Remark: "N/A" means "Not applicable."

2. GENERAL INFORMATION

2.1. Report information

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.

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.

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 NETC Building, No.4 Tongfa Rd., Xili, Nanshan, Shenzhen, China. At the time of testing, Laboratory is accredited by the following organizations:

China National Accreditation Service for Conformity Assessment (CNAS) accredits the Laboratory for conformance to FCC standards, EMC international standards and EN standards. The Registration Number is CNAS L0579.

The Laboratory is Accredited Testing Laboratory of FCC with Designation number CN1165 and Site registration number 582918.

The Laboratory is registered to perform emission tests with Innovation, Science and Economic Development (ISED), and the registration number is 11177A.

The Laboratory is registered to perform emission tests with VCCI, and the registration number are C-20048, G20076, R-20077, R-20078 and T-20047.

The Laboratory is Accredited Testing Laboratory of American Association for Laboratory Accreditation (A2LA) and certificate number is 3292.01.

2.3. Measurement Uncertainty

Conducted Emission
9 kHz~30MHz 2.9dB

Radiated Emission
30MHz~1000MHz 5.1dB
1GHz~6GHz 5.04dB
6GHz~18GHz 5.54dB
18GHz~40GHz 5.54dB

3. PRODUCT DESCRIPTION

3.1. EUT Description

Description : NFC Android Reader

Manufacturer : FAMOCO SAS

Model Number : FX105F

Operate Frequency : U-NII 1(5150~5250MHz)

Antenna Designation : PIFA Antenna

Remark: EUT, adaptor, Docking Station and USB Cable all come in two colors, white and black.

Table 2 Working Frequency List U-NII 1 (802.11a, 802.11n HT20)

Channel	Frequency	Channel	Frequency
36	5180MHz	44	5220MHz
40	5200MHz	48	5240MHz

Table 3 Working Frequency List U-NII 1,(802.11n HT40)

Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz

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

This submittal(s) (test report) is intended for FCC ID: **2AGQIFX105F** filing to comply with Section 15.207, 15.209, 15.407 of the FCC Part 15, Subpart E .

3.3. Block Diagram of EUT Configuration



Figure 1 EUT setup

3.4. Operating Condition of EUT

The Radiated spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission (X plane).

Worst-case mode and channel used for 30-1000 MHz radiated and power line conducted emissions was the mode and channel with the highest output power.

Worst-case data rates as provided by the client were:

802.11a mode: 6 Mbps

802.11n HT20 mode: MCS0

802.11n HT40 mode: MCS0

802.11a operates in SISO mode. For SISO conducted measurements, the modes tested in this report will be considered as a worst case mode.

802.11n operate in SISO mode. For SISO conducted measurements, the modes tested in this report will be considered as a worst case mode.

802.11ac operate in SISO mode. For SISO conducted measurements, the modes tested in this report will be considered as a worst case mode.

3.5. Directional Antenna Gain

The EUT does NOT support a WIFI MIMO function.
Directional gain need NOT to be considered.

3.6. Support Equipment List

Table 4 Support Equipment List

Name	Model No	S/N	Manufacturer
Adaptor for EUT	HJ-0501000E1-US	--	Shenzhen HuaJin Electronics CO.,LTD
Battery for EUT	FX105 series	--	Shen Zhen JiaYuan TongDa Technolig Co.,Ltd
USB for EUT	--	--	--

3.7. Test Conditions

Date of test : May.13, 2020- Jun.03, 2020

Date of EUT Receive : Apr.26, 2020

Temperature: 22°C-26 °C

Relative Humidity: 41%-53%

3.8. Special Accessories

Not available for this EUT intended for grant.

3.9. Equipment Modifications

Not available for this EUT intended for grant.

4. TEST EQUIPMENT USED

Table 5 Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB9058/05	Test Receiver	R&S	ESCI 3	Sep.27,2019	1 Year
SB4357	AMN	R&S	ENN216	Aug.27,2019	1 Year
SB3436	Test Receiver	R&S	ESI26	Nov.07,2019	1 Year
SB3955	Broadband Antenna	Schwarzbeck	VULB 9163	Jan.10,2020	1 Year
SB8501/09	Test Receiver	R&S	ESU40	Feb.14,2020	1 Year
SB3435	Horn Antenna	R&S	HF906	Dec.17,2019	1 Year
SB5472/02	Broadband Antenna	Schwarzbeck	VULB 9163	Jan.10,2020	1 Year
SB9058/03	Pre-Amplifier	R&S	SCU 18	Feb.14,2020	1 Year
SB8501/10	Horn Antenna	R&S	3160-09	Mar.10,2020	3 Years
SB8501/11	Horn Antenna	R&S	3160-09	Mar.09,2020	3 Years
SB8501/12	Horn Antenna	R&S	3160-10	Mar.17,2020	3 Years
SB8501/13	Horn Antenna	R&S	3160-10	Mar.10,2020	3 Years
SB3345	Loop Antenna	Schwarzbeck	FMZB1516-1 13	Feb.14,2020	1 Year
SB8501/14	Pre-Amplifier	R&S	SCU-03	Feb.14,2020	1 Year
SB8501/15	Pre-Amplifier	R&S	SCU-03	Feb.14,2020	1 Year
SB8501/16	Pre-Amplifier	R&S	SCU 26	Feb.14,2020	1 Year
SB8501/17	Pre-Amplifier	R&S	SCU-18	Feb.14,2020	1 Year
SB9060	Signal Analyzer	R&S	FSQ40	May.18, 2020	1 Year
SB11873/01	Power Sensor	R&S	OSP120+OS P-B157	May.18, 2020	1 Year
SB9721/07	DC Power Supply	Agilent	66319D	---	---
SB11818	Temperature & Humidity Test chamber	Espec	EH-010U	Mar.24,2020	1 Year
--	Radiated Test Software	Rohde & Schwarz	EMC 32 8.50.0	--	--
--	AC Line Conducted Test Software	Rohde & Schwarz	ES-K1 V1.71	--	--

5. DUTY CYCLE

5.1. LIMITS OF DUTY CYCLE

None; for reporting purposes only

5.2. TEST PROCEDURE

1. Set span = Zero
2. RBW = 20MHz
3. VBW = 30MHz,
4. Detector = Peak

5.3. TEST SETUP

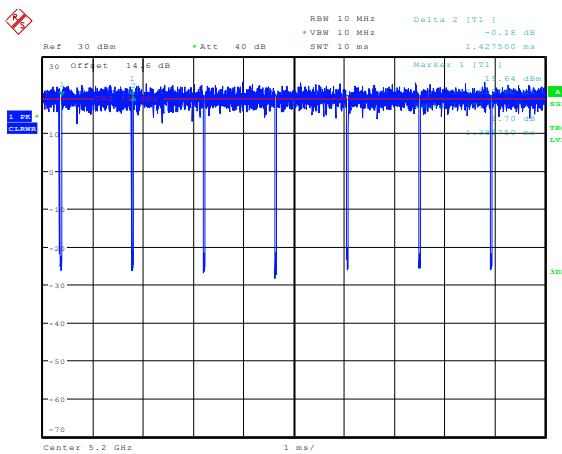


5.4. TEST DATA

Table 6 Duty Cycle Test Data

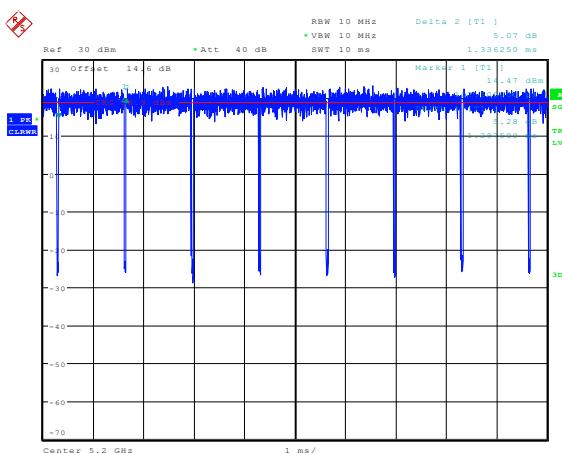
Test Mode	On Time (ms)	Duty Cycle (%)	Duty Factor	1/T Minimum VBW (kHz)
802.11a	1.39	97.29	0.13	1
802.11n HT20	1.30	97.10	0.13	1
802.11n HT40	0.65	94.51	0.26	1.5

802.11a



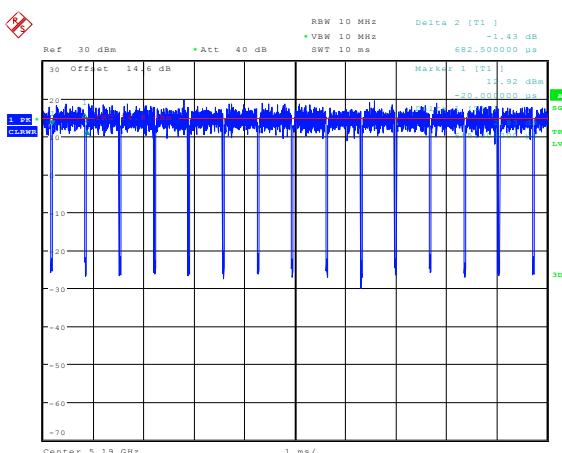
Date: 1.JAN.2003 05:31:35

802.11n HT20



DATE: 1 JAN 2003 06-15-16

802.11n HT40



DATE: 1 JAN 2003 06:35:32

6. 26DB BANDWIDTH MEASUREMENT

6.1. LIMITS OF 26dB BANDWIDTH MEASUREMENT

None; for reporting purposes only.

6.2. TEST PROCEDURE

ANSI C63.10-2013 Clause 12.4

- a) Set RBW = approximately 1% of the emission bandwidth.
- b) Set the VBW > RBW.
- c) Detector = Peak.
- d) Trace mode = max hold.
- e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

6.3. TEST SETUP

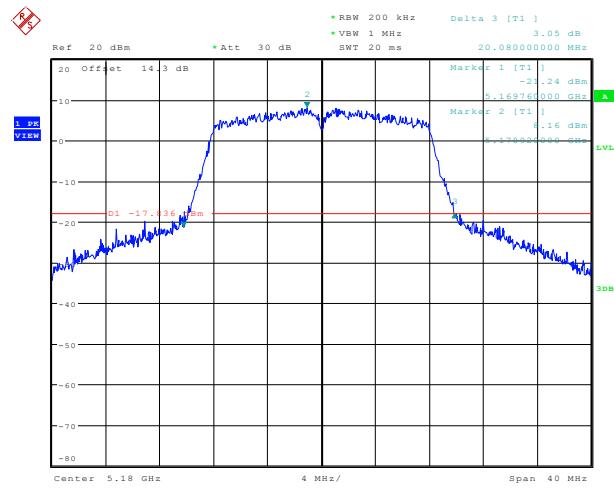


6.4. Test Data

Table 7 26dB Bandwidth Test Data

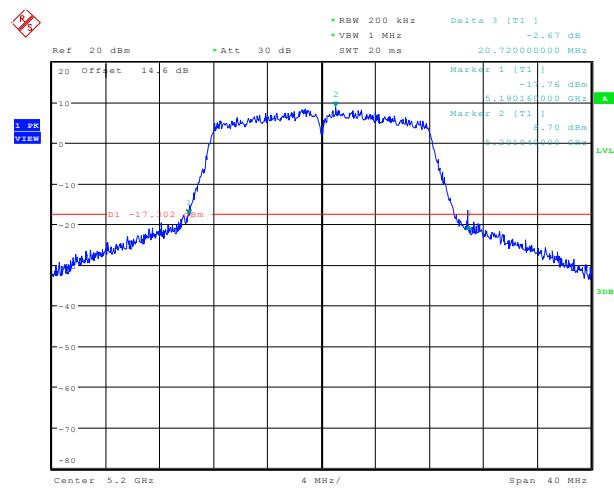
Test Mode	Test Channel	26dB Bandwidth [MHz]	Limit[MHz]	Verdict
802.11a	5180	20.080	---	PASS
802.11a	5200	20.720	---	PASS
802.11a	5240	19.800	---	PASS
802.11n HT20	5180	20.280	---	PASS
802.11n HT20	5200	20.080	---	PASS
802.11n HT20	5240	20.560	---	PASS
802.11n HT40	5190	40.440	---	PASS
802.11n HT40	5230	40.920	---	PASS

11A_5180



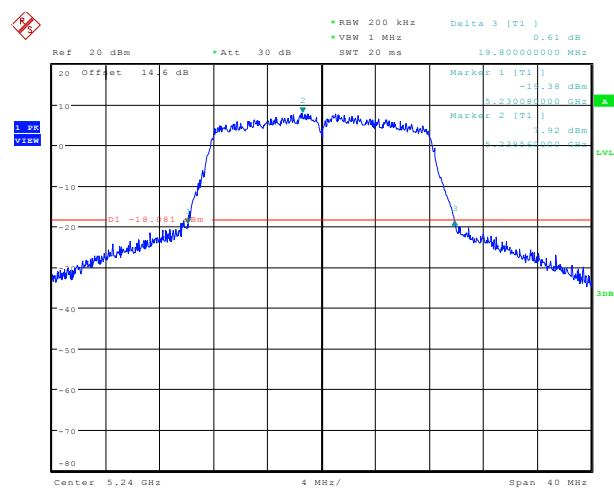
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11A_5200



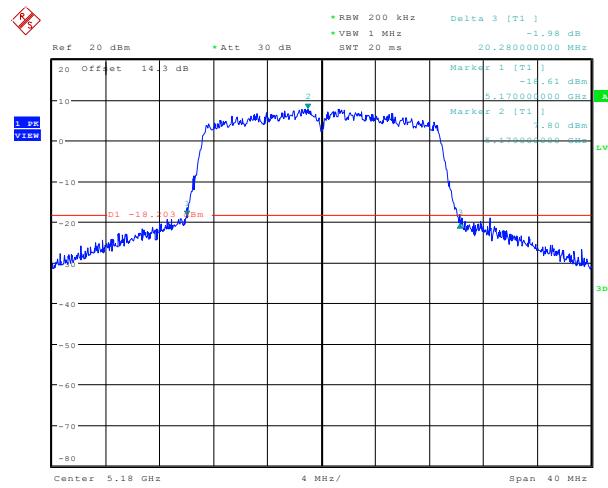
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11A_5240



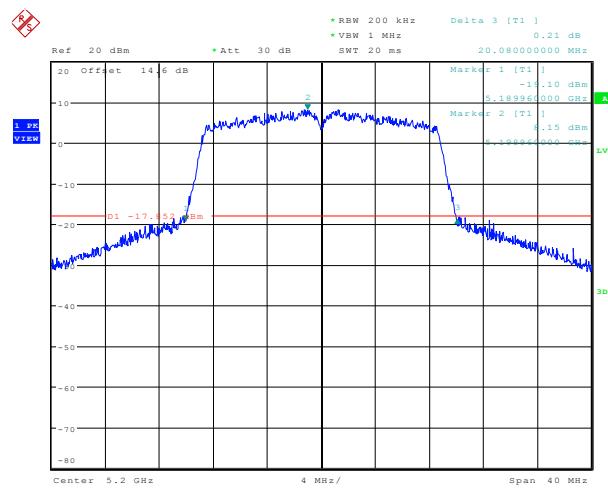
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11N20_5180



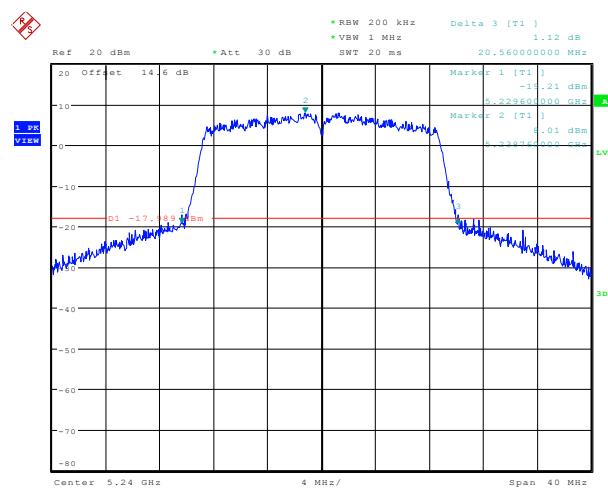
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11N20_5200



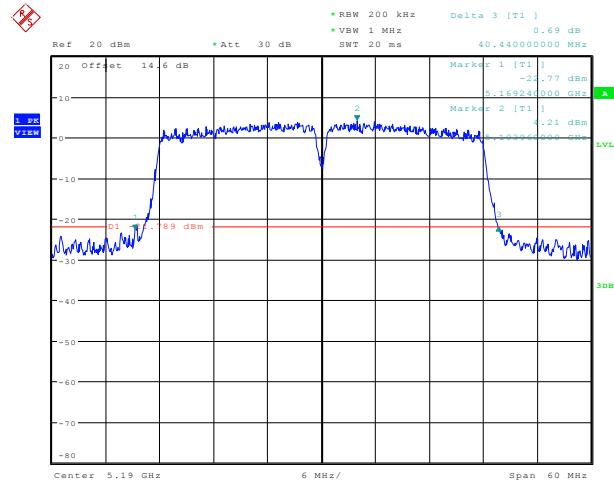
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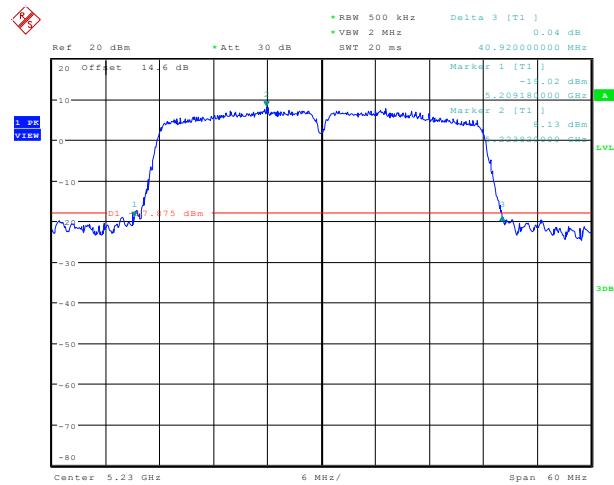
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11N40_5190



Date: 1 JAN 2003 06:34:35

11N40_5230



Date: 1 JAN 2003 06:42:40

7. MAXIMUM CONDUCTED OUTPUT POWER MEASUREMENT

7.1. LIMITS OF Maximum Conducted Output Power Measurement

CFR 47 (FCC) part 15.2407 (a)

For the band 5.15–5.25 GHz.

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

7.2. TEST PROCEDURE

ANSI C63.10-2013 Clause 12.3

- a) Measure the duty cycle D
- b) Set span to encompass the entire 26 dB EBW or 99% OBW of the signal.
- c) Set RBW = 1 MHz.
- d) Set VBW ≥ 3 MHz.
- e) Number of points in sweep $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- f) Manually set sweep time $\geq [10 \times (\text{number of points in sweep}) \times (\text{total ON / OFF period of the transmitted signal})]$.
- g) Set detector = RMS (power averaging).
- h) Perform a single sweep.
- i) Compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument's band power measurement function with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW of the spectrum.
- j) Add $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission). For example, add $[10 \log (1 / 0.25)] = 6$ dB if the duty cycle is 25%.

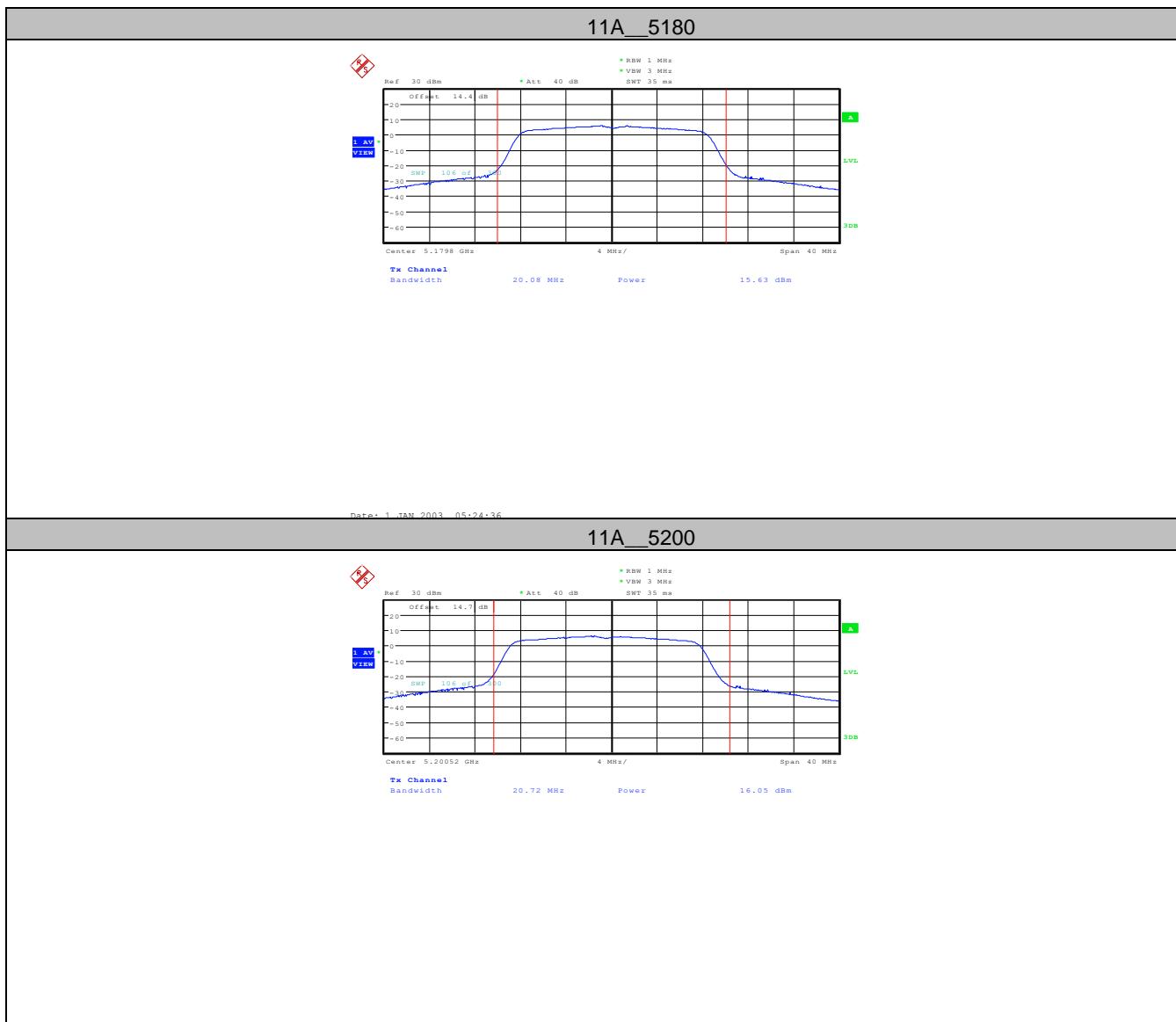
7.3. TEST SETUP



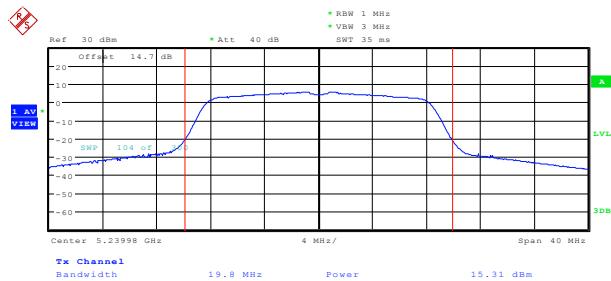
7.4. TEST DATA

Table 8 Maximum Conducted Output Power Test Data

Test Mode	Test Channel	Level [dBm]	10log(1/x) Factor [dB]	Power [dBm]	Limit [dBm]	Verdict
802.11a	5180	15.63	0.13	15.76	23.98	PASS
802.11a	5200	16.05	0.13	16.18	23.98	PASS
802.11a	5240	15.31	0.13	15.44	23.98	PASS
802.11n HT20	5180	15.76	0.13	15.89	23.98	PASS
802.11n HT20	5200	15.65	0.13	15.78	23.98	PASS
802.11n HT20	5240	15.89	0.13	16.02	23.98	PASS
802.11n HT40	5190	15.01	0.26	15.27	23.98	PASS
802.11n HT40	5230	15.22	0.26	15.48	23.98	PASS

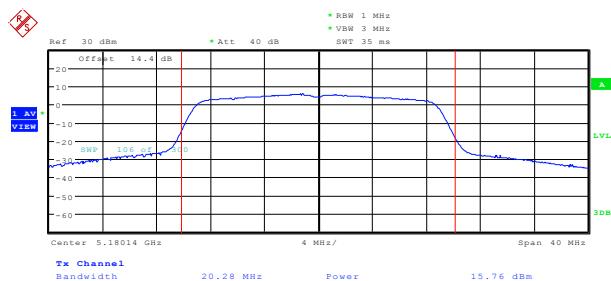


11A_5240



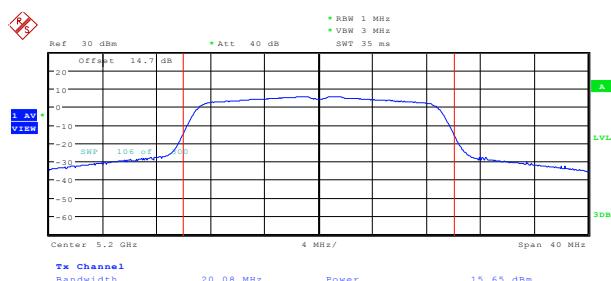
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11N20_5180



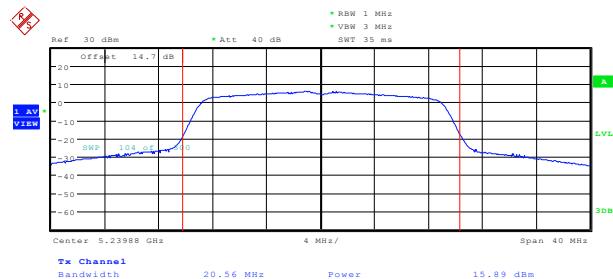
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11N20_5200



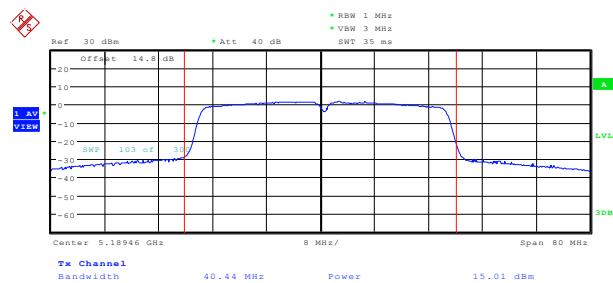
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11N20_5240



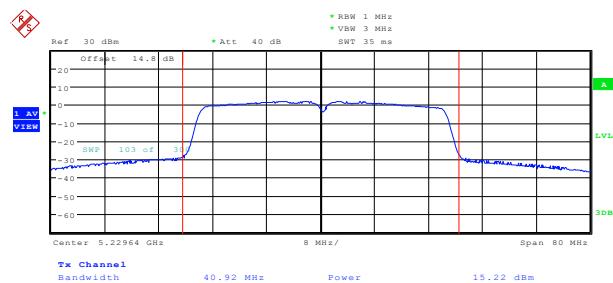
Date: 1 JAN 2003 06:23:37

11N40_5190



Date: 1 JAN 2003 06:35:53

11N40_5230



Date: 1 JAN 2003 06:42:55

8. MAXIMUM POWER SPECTRAL DENSITY LEVEL MEASUREMENT

8.1. LIMITS OF Maximum Power Spectral Density Level Measurement

CFR 47 (FCC) part 15.407 (a)

For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

8.2. TEST PROCEDURE

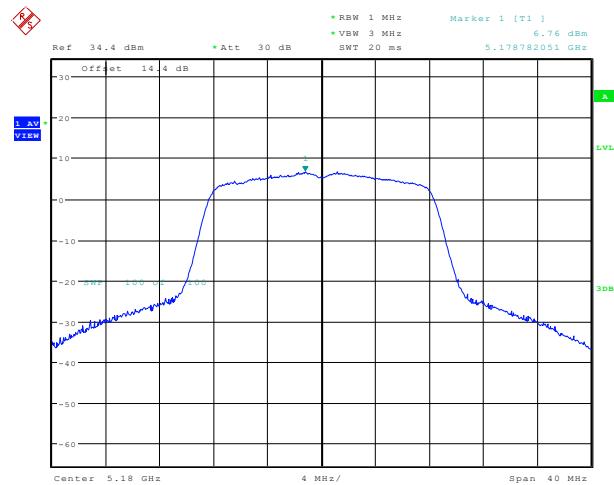
1. Create an average power spectrum for the EUT operating mode being tested by following the instructions in section II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, "Compute power...." (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)
2. Use the peak search function on the instrument to find the peak of the spectrum and record its value.
3. Make the following adjustments to the peak value of the spectrum, if applicable:
 - a) If Method SA-2 or SA-2 Alternative was used, add $10 \log (1/x)$, where x is the duty cycle, to the peak of the spectrum.
 - b) If Method SA-3 Alternative was used and the linear mode was used in step II.E.2.g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
4. The result is the Maximum PSD over 1 MHz reference bandwidth.
5. For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)

8.3. TEST DATA

Table 9 Maximum Power Spectral Density Level Test Data

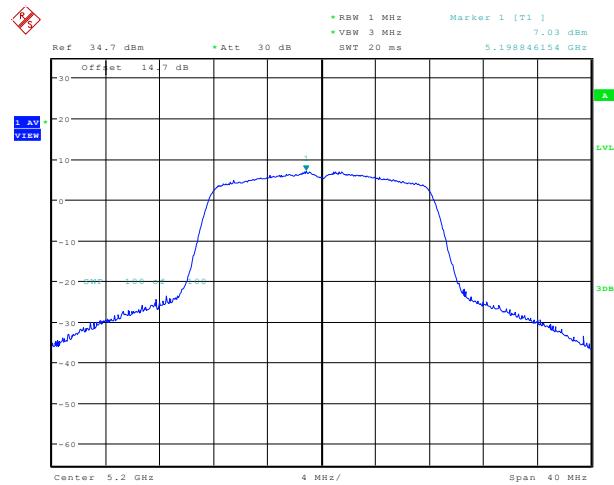
Test Mode	Test Channel	Level [dBm/MHz]	10log(1/x) Factor [dB]	PSD [dBm/MHz]	Limit [dBm/MHz]	Verdict
802.11a	5180	6.76	0.13	6.89	11.00	PASS
802.11a	5200	7.03	0.13	7.16	11.00	PASS
802.11a	5240	6.19	0.13	6.32	11.00	PASS
802.11n HT20	5180	7.02	0.13	7.15	11.00	PASS
802.11n HT20	5200	6.79	0.13	6.92	11.00	PASS
802.11n HT20	5240	6.86	0.13	6.99	11.00	PASS
802.11n HT40	5190	2.45	0.26	2.71	11.00	PASS
802.11n HT40	5230	2.53	0.26	2.79	11.00	PASS

11A_5180



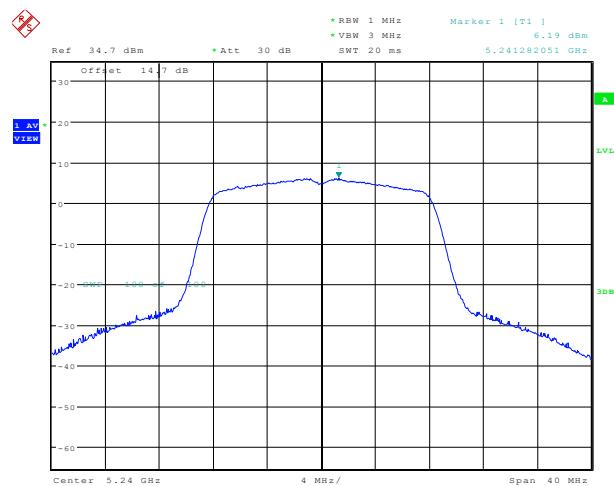
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11A_5200



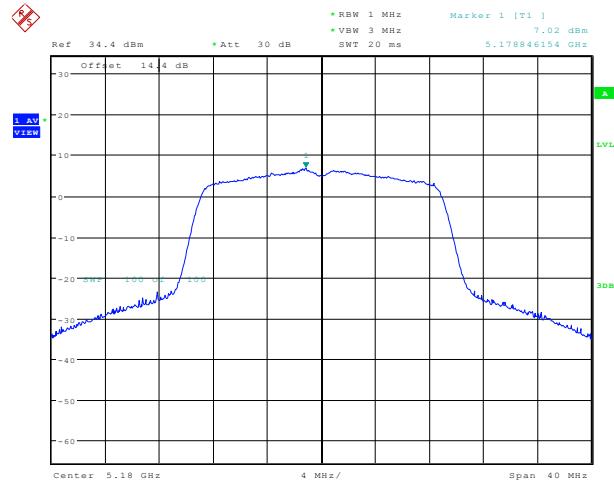
Date: 1 JAN 2003 05:39:08

11A_5240



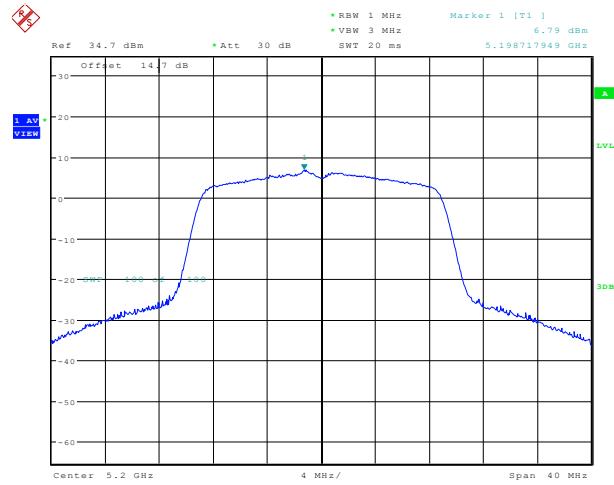
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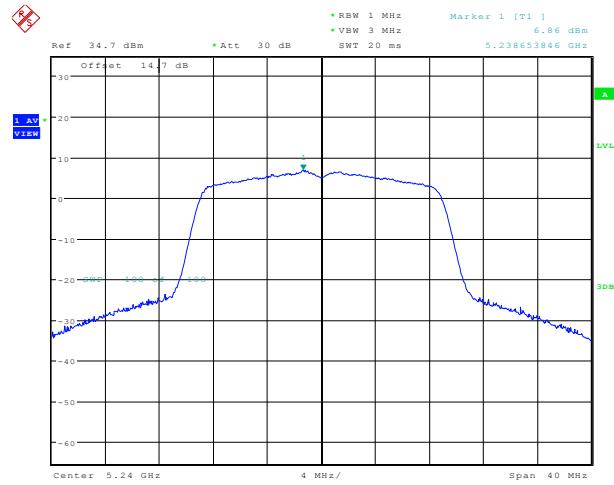
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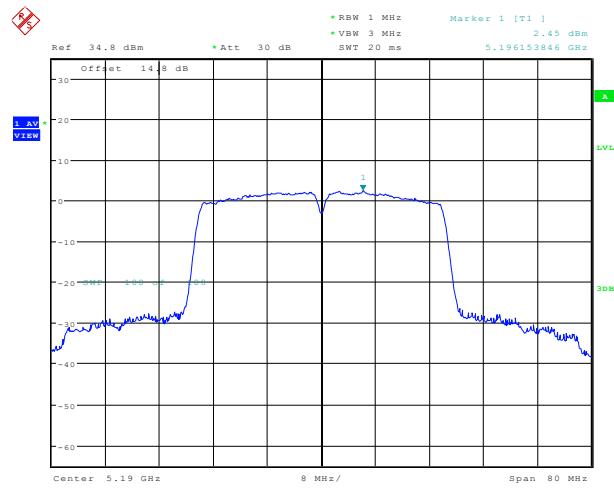


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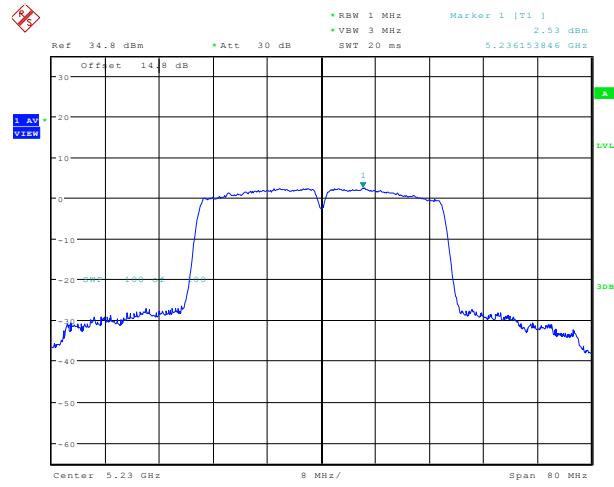


11N40_5190



Date: 1 JAN 2003 06:36:06

11N40_5230



Date: 1 JAN 2003 06:44:07

9. RADIATED BANDEDGE AND SPURIOUS MEASUREMENT

9.1. LIMITS OF Radiated Bandedge and Spurious Measurement

FCC Part 15.205 and 15.209

Table 10 Radiation Emission Test Limit for FCC (9KHz-1GHz)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
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	3
88~216	150	3
216~960	200	3
960~1000	500	3

Table 11 Radiation Emission Test Limit for FCC (Above 1G)

Frequency (MHz)	(dBuV/m) (at 3 meters)	
	PEAK	AVERAGE
Above 1000	74	54

* The lower limit shall apply at the transition frequency.

* The test distance is 3m.

FCC Part 15.407(b)

For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

9.2. TEST PROCEDURE

1. The testing follows the guidelines in ANSI C63.10-2013.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. For measurement below 1GHz, the EUT was placed on a turntable with 0.8 meter, above ground. For measurement above 1 GHz, test at FAR, the EUT is placed on a non-conductive table, which is 1.5 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the

quasi-peak detector and reported.

7. Use the following spectrum analyzer settings:

- (1) Span shall wide enough to fully capture the emission being measured;
- (2) Set RBW=100 kHz for $f < 1$ GHz; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold;
- (3) Set RBW = 1 MHz, VBW= 3MHz for $f > 1$ GHz for peak measurement.
Set RBW = 1 MHz, and 1/T (on time) for average measurement.

9.3. TEST DATA

9 kHz-30MHz

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

Table 12 Radiated Emission Test Data 9k Hz-30MHz

Frequency (MHz)	Cable Loss +preamp (dB)	Antenna Factor (dB)	Reading (dB μ V/m)	Level (dB μ V/m)	Polarity (H/V)	Limit (dB μ V/m)	Margin (dB)	Note
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--

30MHz-1GHz

Worst case is shown below for 30MHz-1GHz only.

The emissions don't show in following result tables are more than 20dB below the limits.

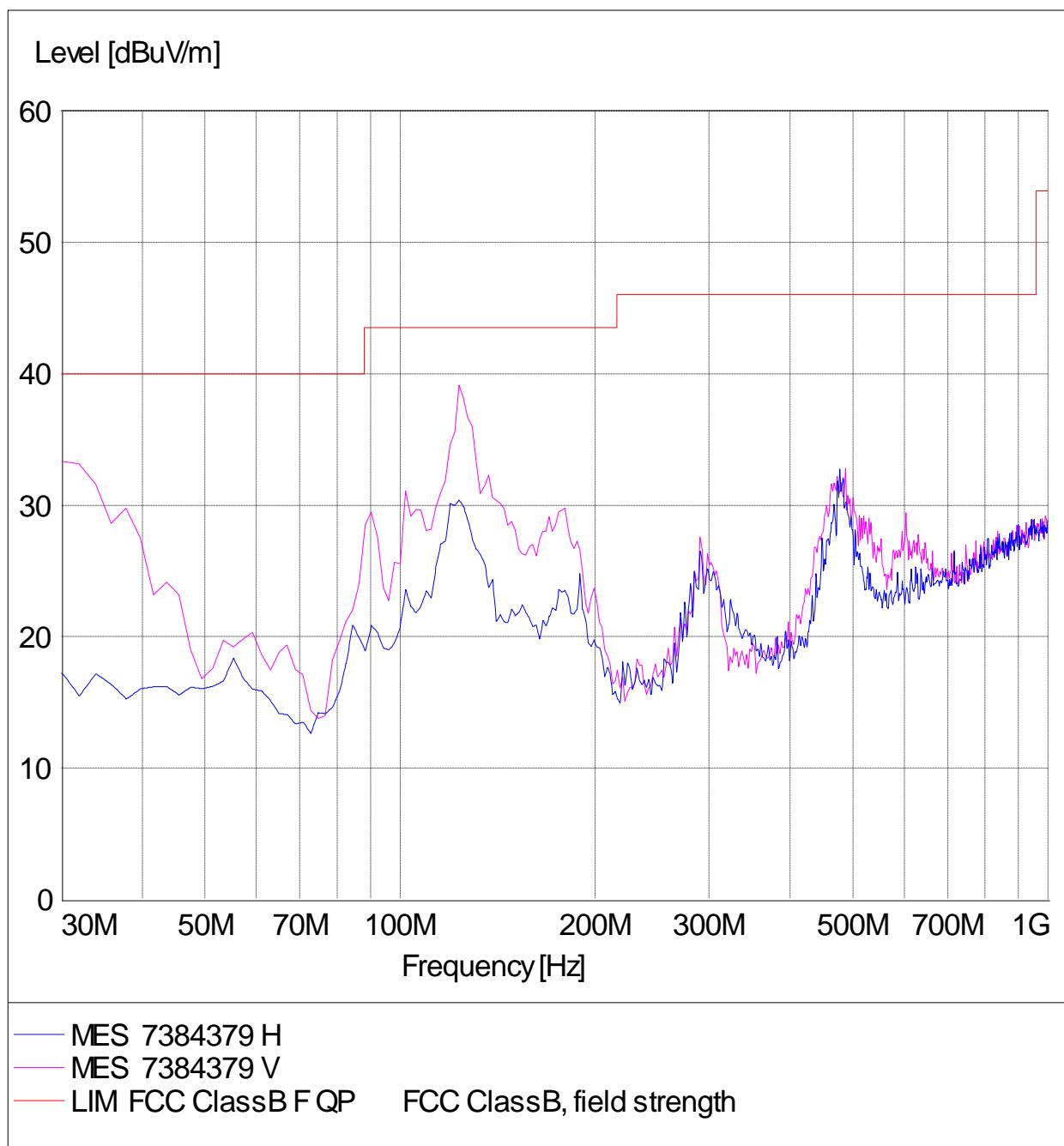
Table 13 Radiated Emission Test Data 30MHz-1GHz

Frequency (MHz)	Cable Loss +preamp (dB)	Antenna Factor (dB)	Reading (dB μ V/m)	Level (dB μ V/m)	Polarity (H/V)	Limit (dB μ V/m)	Margin (dB)	Note
30.125	0.6	12.3	17.5	30.4	V	40	9.6	QP
38.021	0.7	12.3	13.8	26.8	V	40	13.2	QP
101.923	1.1	13.2	14.9	29.2	V	43.5	14.3	QP
123.306	1.2	10.5	25.4	37.1	V	43.5	6.4	QP
136.913	1.4	10.5	18.2	30.1	V	43.5	13.4	QP
482.531	2.6	16.1	11.1	29.8	V	46	16.2	QP
119.418	1.3	12.3	14.8	28.4	H	43.5	15.1	QP
123.306	1.2	10.5	16.3	28.0	H	43.5	15.5	QP
189.485	1.6	9.7	10.6	21.9	H	43.5	21.6	QP
295.312	2.0	12.7	8.5	23.2	H	46	22.8	QP
479.298	2.6	15.6	11.9	30.1	H	46	15.9	QP

Remark: Emission level (dB μ V)=Read Value(dB μ V/m) + Antenna Factor(dB)+ Cable Loss +preamp(dB)

Radiated Emission

EUT Name: FX105F
Operating Condition: Charging and Transmitting
Test site: SMQ NETC EMC Lab.
Antenna Position: Vertical & Horizontal
Test Voltage: AC 120V/60Hz



1-18G

11a IN THE 5.2GHz BAND

Ch36

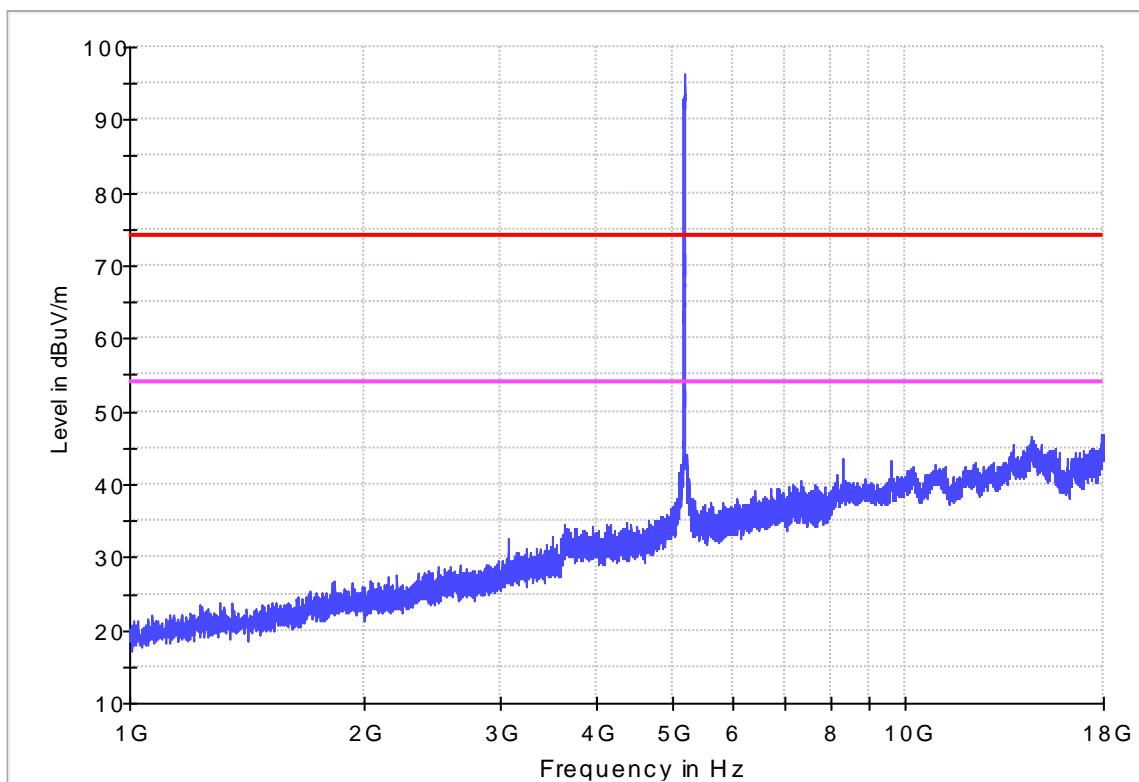
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11a CH36
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Horizontal
Operator Name:
Comment:



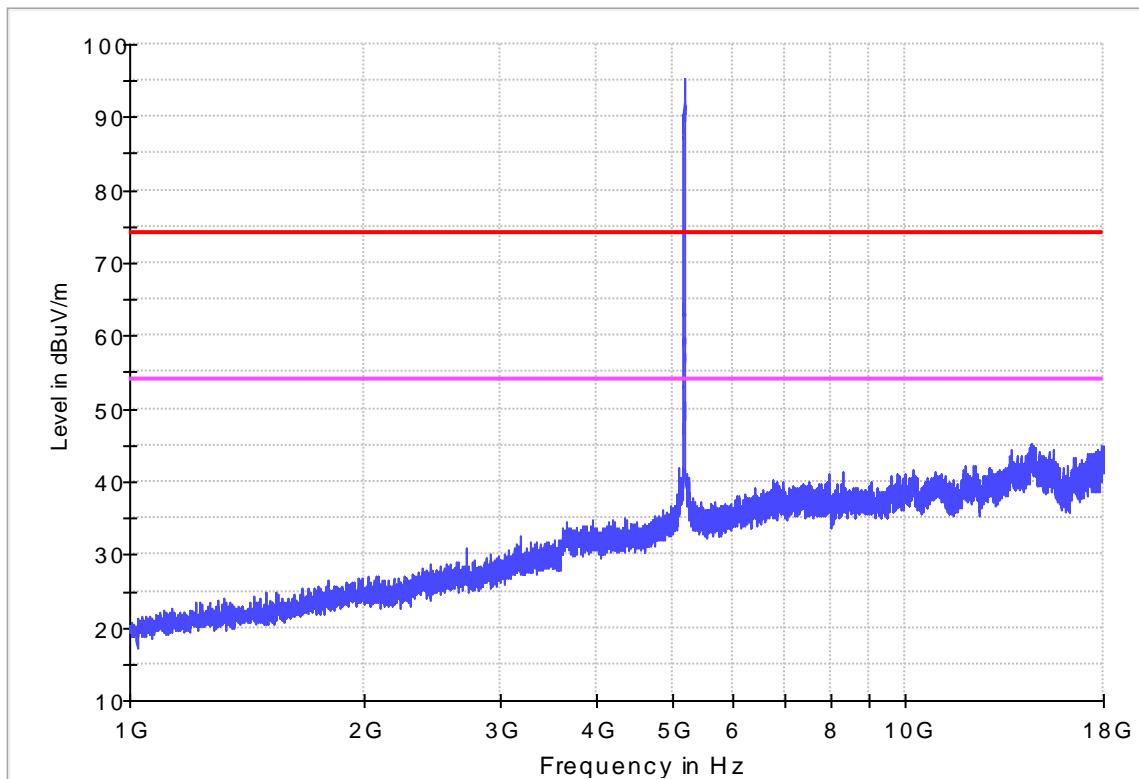
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11a CH36
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Vertical
Operator Name:
Comment:



1-18G

11a IN THE 5.2GHz BAND

CH40

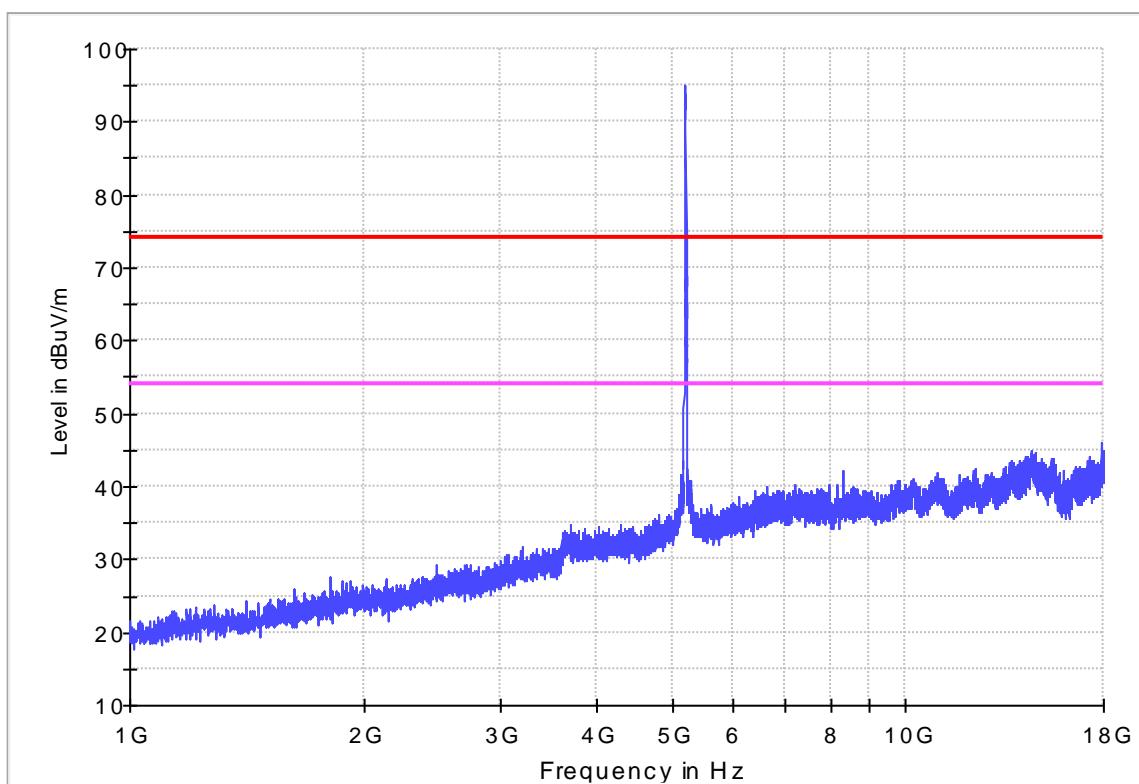
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11a CH40
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Horizontal
Operator Name:
Comment:



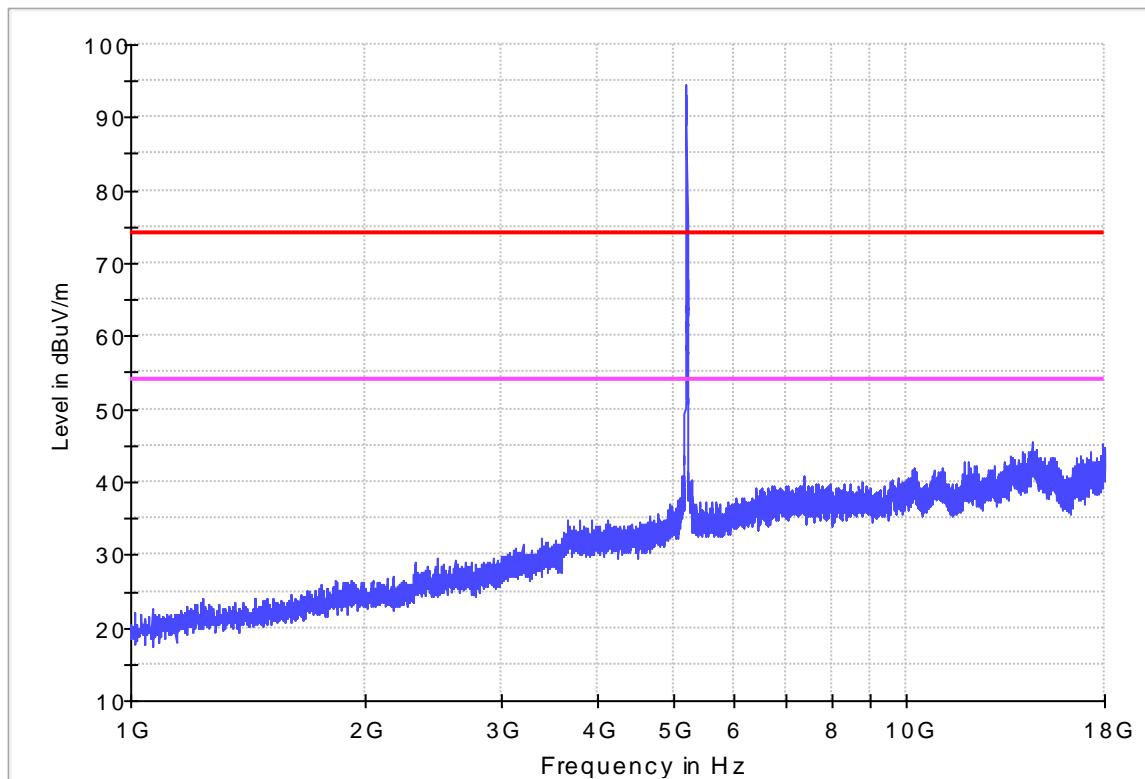
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11a CH40
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Vertical
Operator Name:
Comment:



1-18G

11a IN THE 5.2GHz BAND

CH48

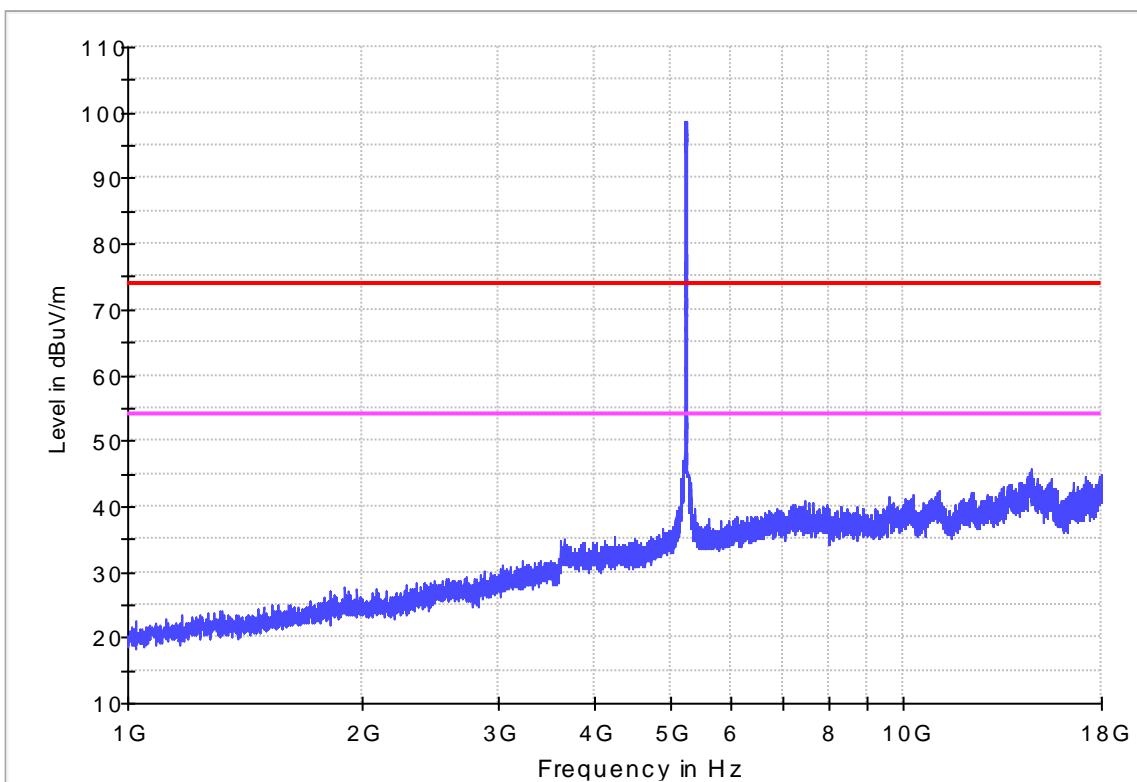
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11a CH48
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Horizontal
Operator Name:
Comment:



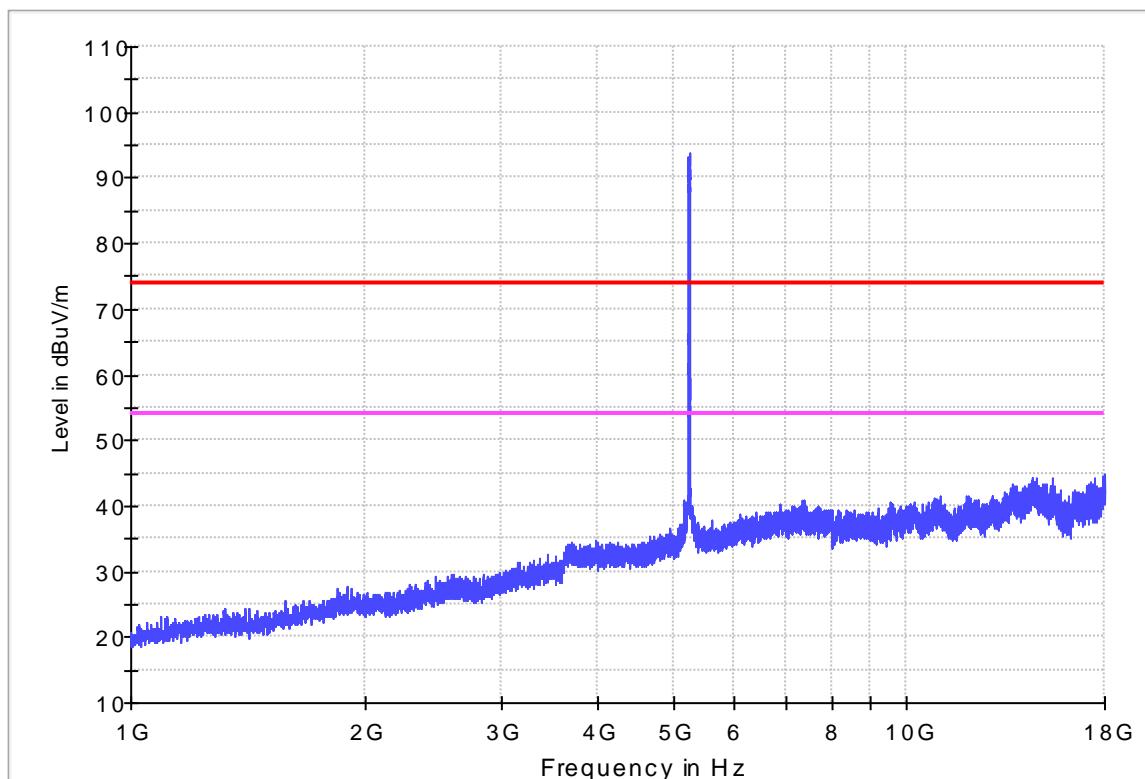
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11a CH48
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Vertical
Operator Name:
Comment:



1-18G

11n HT20 IN THE 5.2GHz BAND

CH36

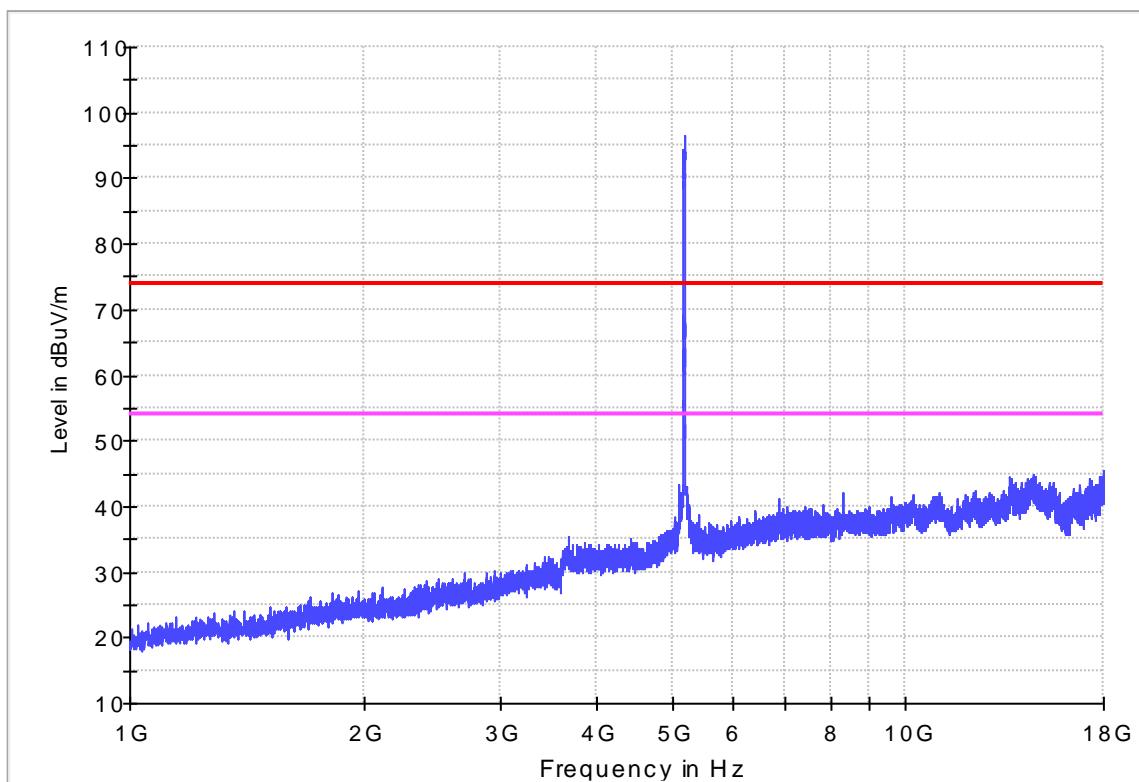
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11n HT20 CH36
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Horizontal
Operator Name:
Comment:



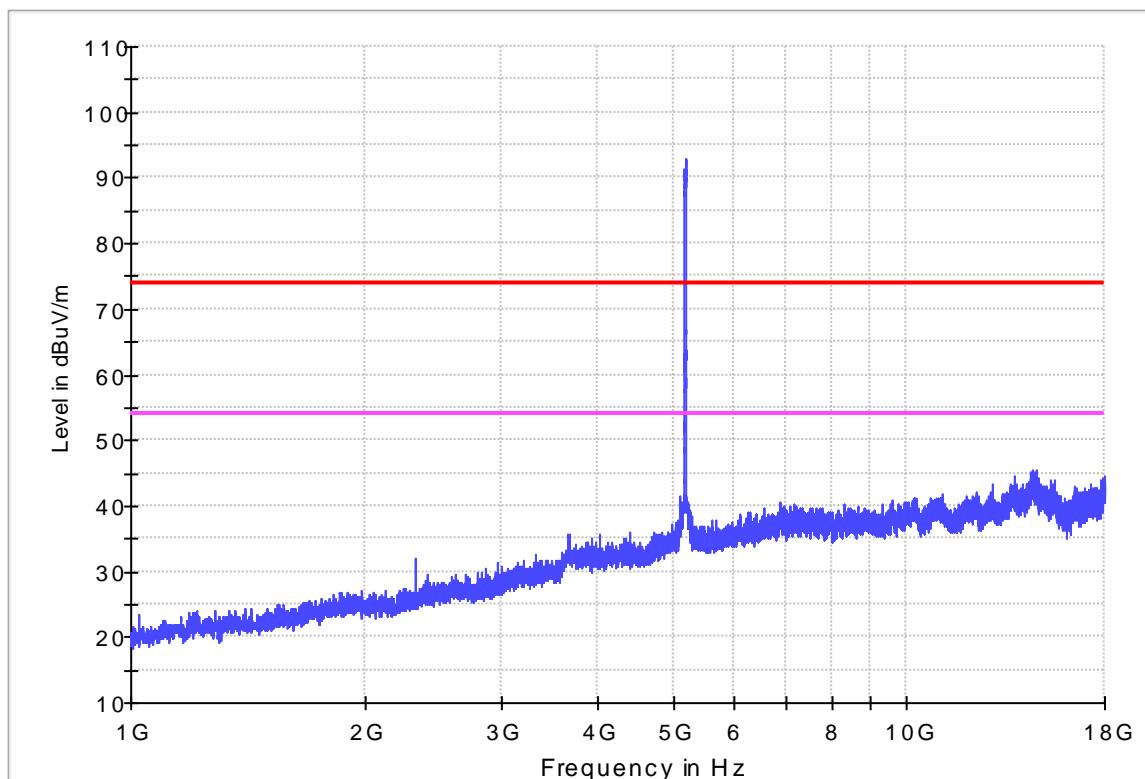
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11n HT20 CH36
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Vertical
Operator Name:
Comment:



1-18G

11n HT20 IN THE 5.2GHz BAND

CH40

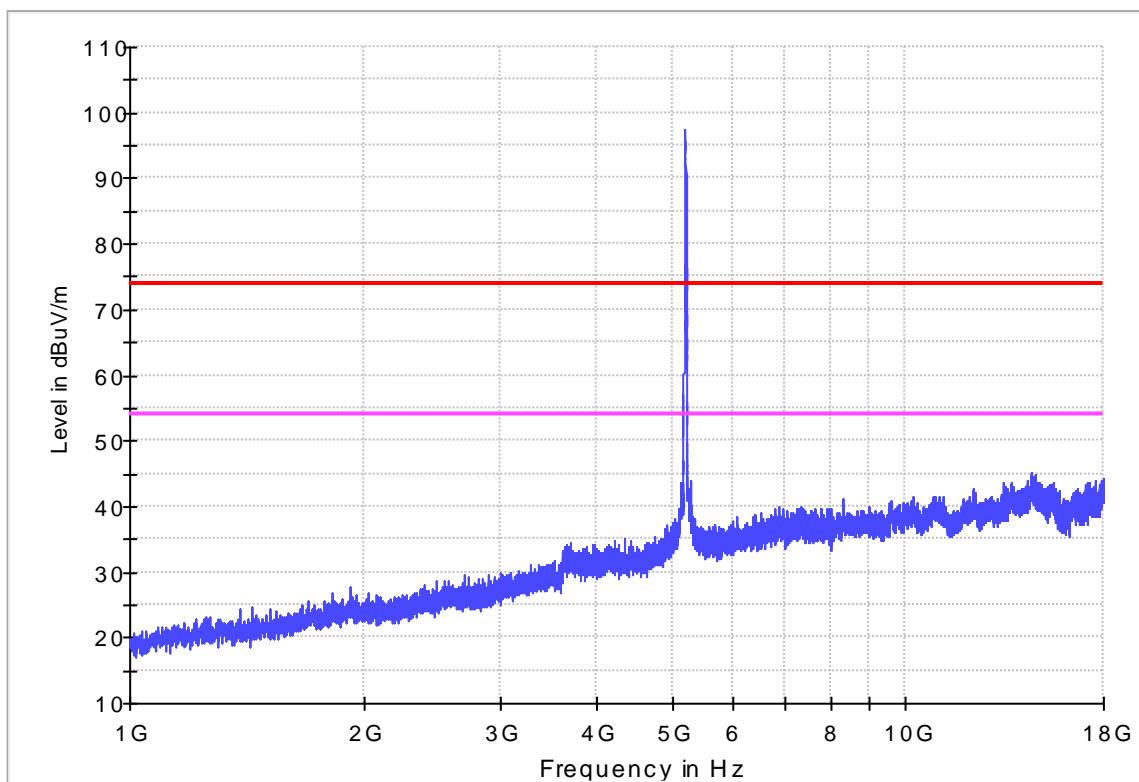
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11n HT20 CH40
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Horizontal
Operator Name:
Comment:



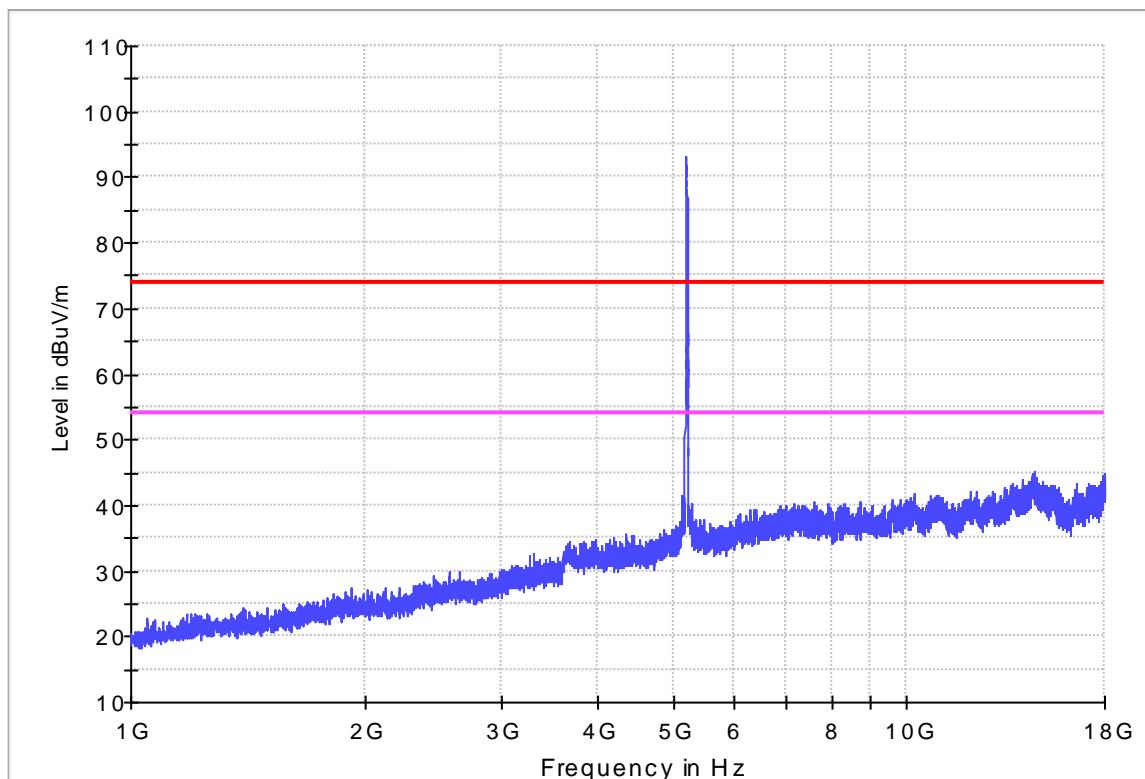
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11n HT20 CH40
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Vertical
Operator Name:
Comment:



1-18G

11n HT20 IN THE 5.2GHz BAND

CH48

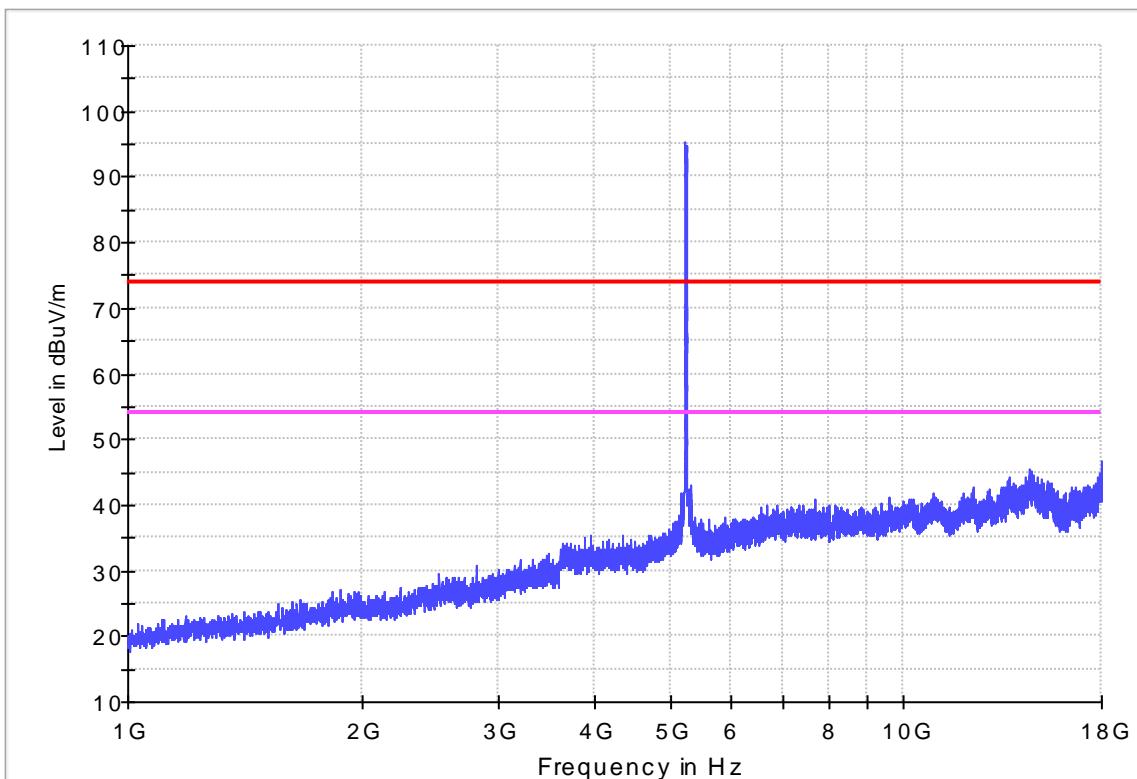
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11n HT20 CH48
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Horizontal
Operator Name:
Comment:



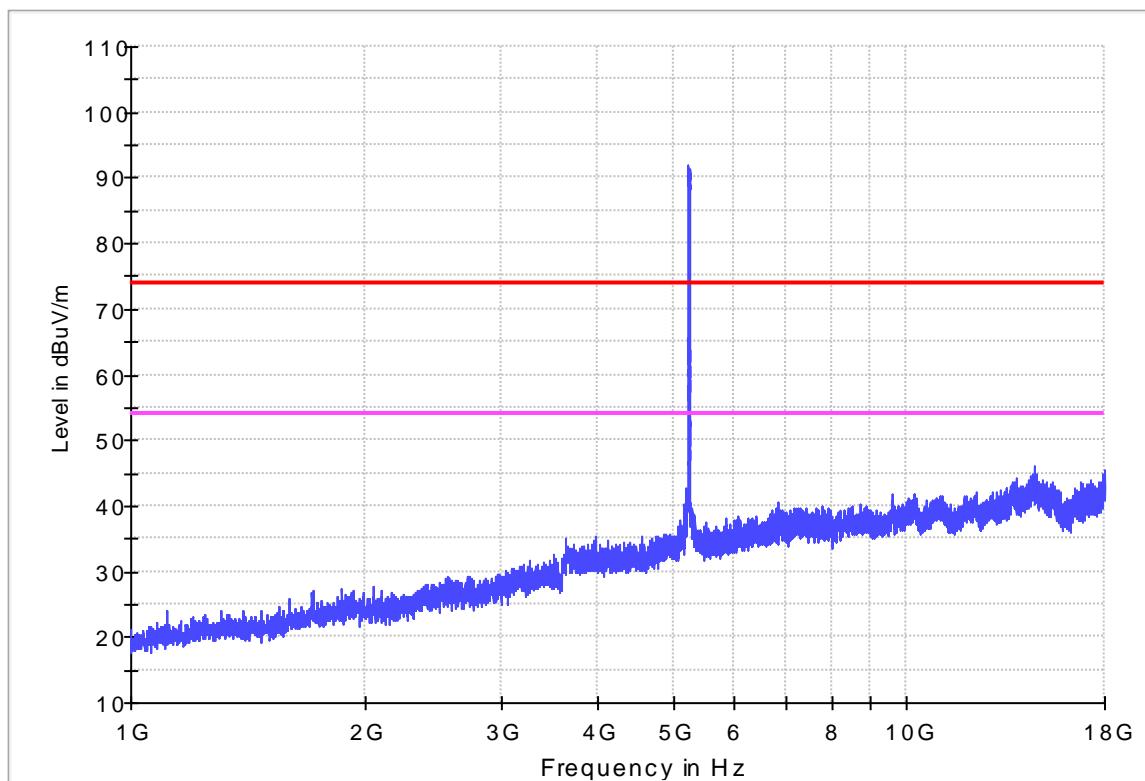
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11n HT20 CH48
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Vertical
Operator Name:
Comment:



1-18G

11n HT40 IN THE 5.2GHz BAND

CH38

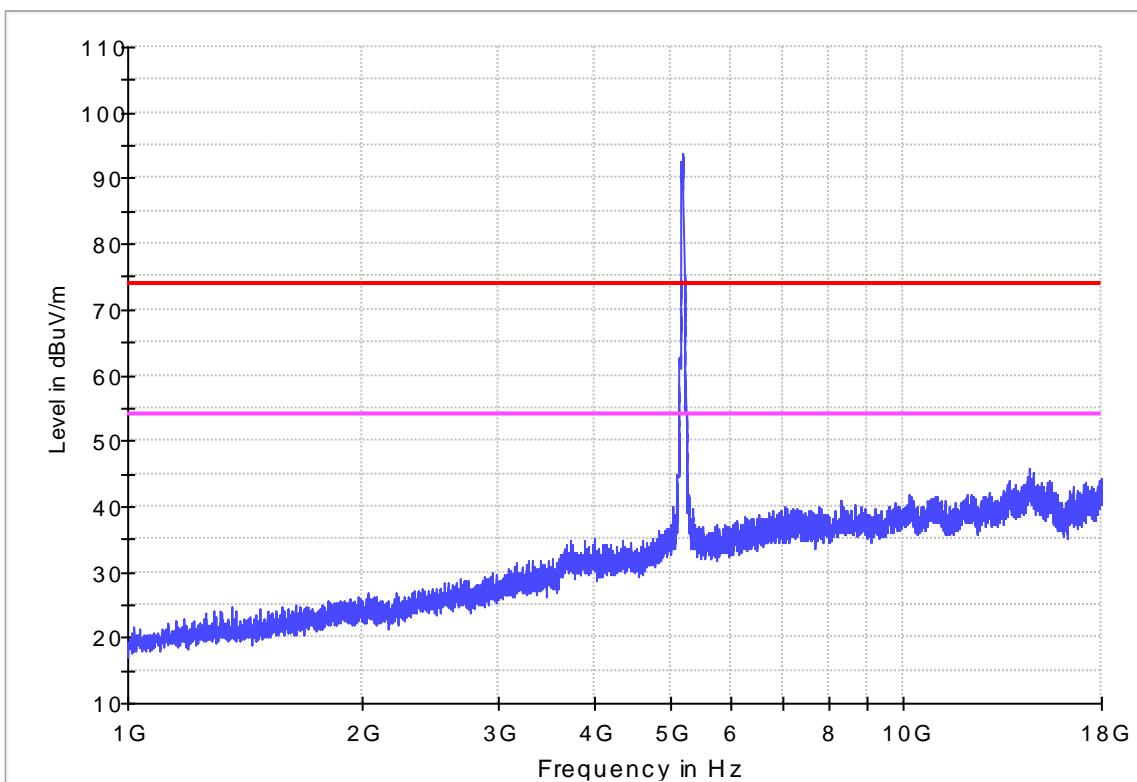
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11n HT40 CH38
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Horizontal
Operator Name:
Comment:



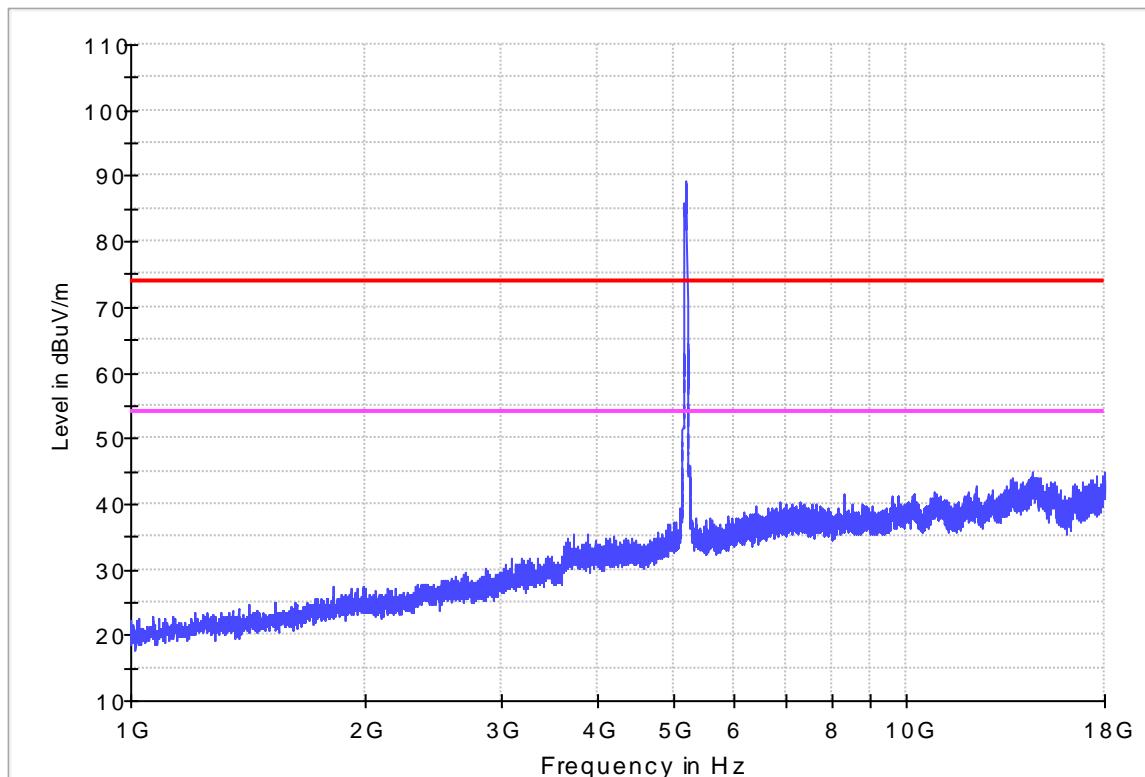
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11n HT40 CH38
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Vertical
Operator Name:
Comment:



1-18G

11n HT40 IN THE 5.2GHz BAND

CH46

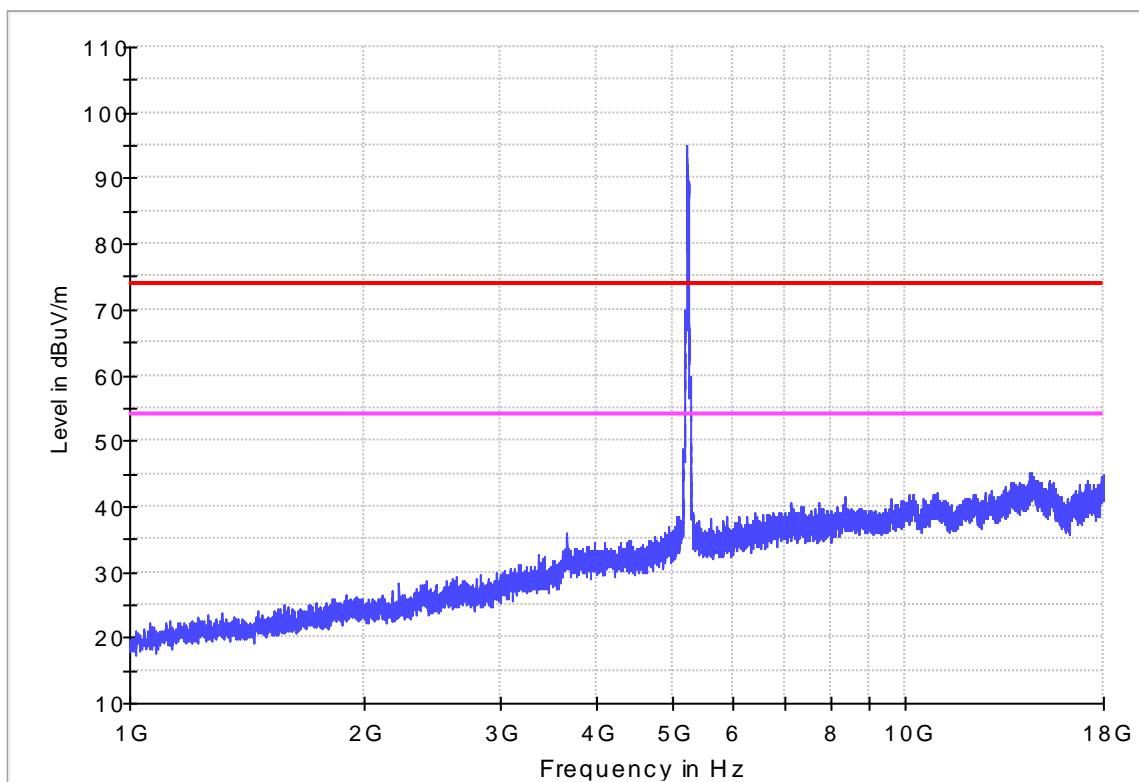
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11n HT40 CH46
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Horizontal
Operator Name:
Comment:



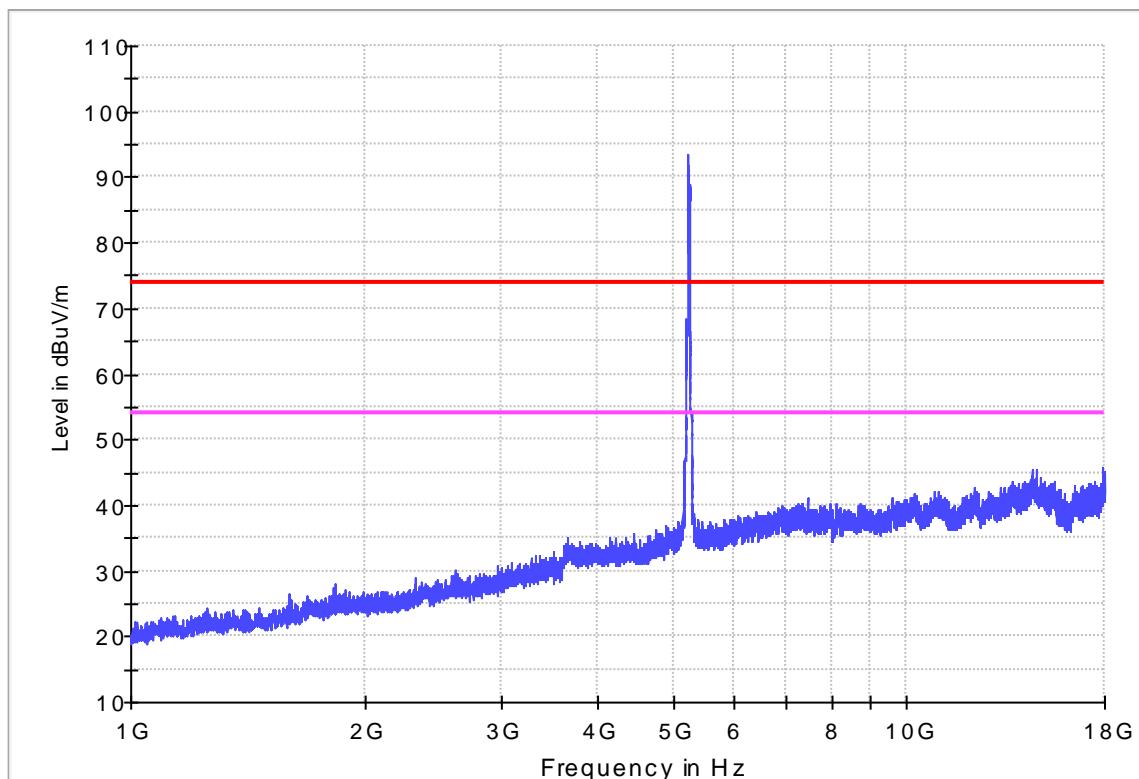
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11n HT40 CH46
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Vertical
Operator Name:
Comment:



18-26.5G

No Peak found in pre-scan, only worst case result is listed in this report.

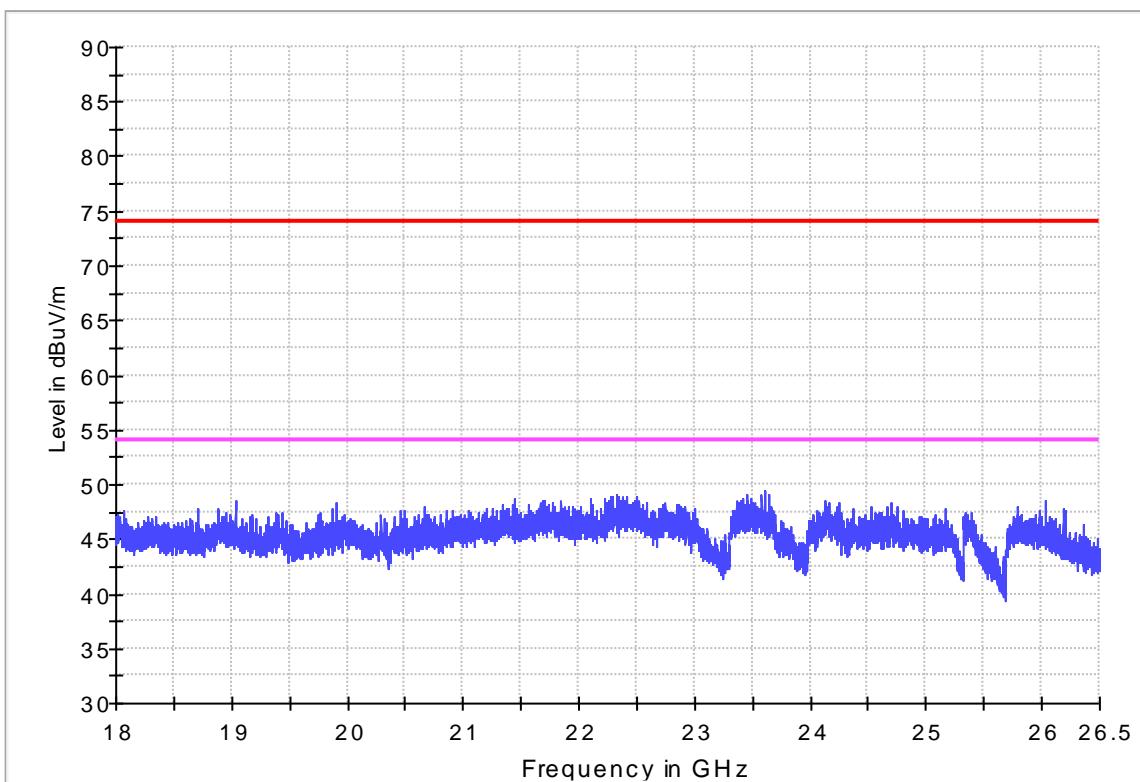
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11a CH40
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Horizontal
Operator Name:
Comment:



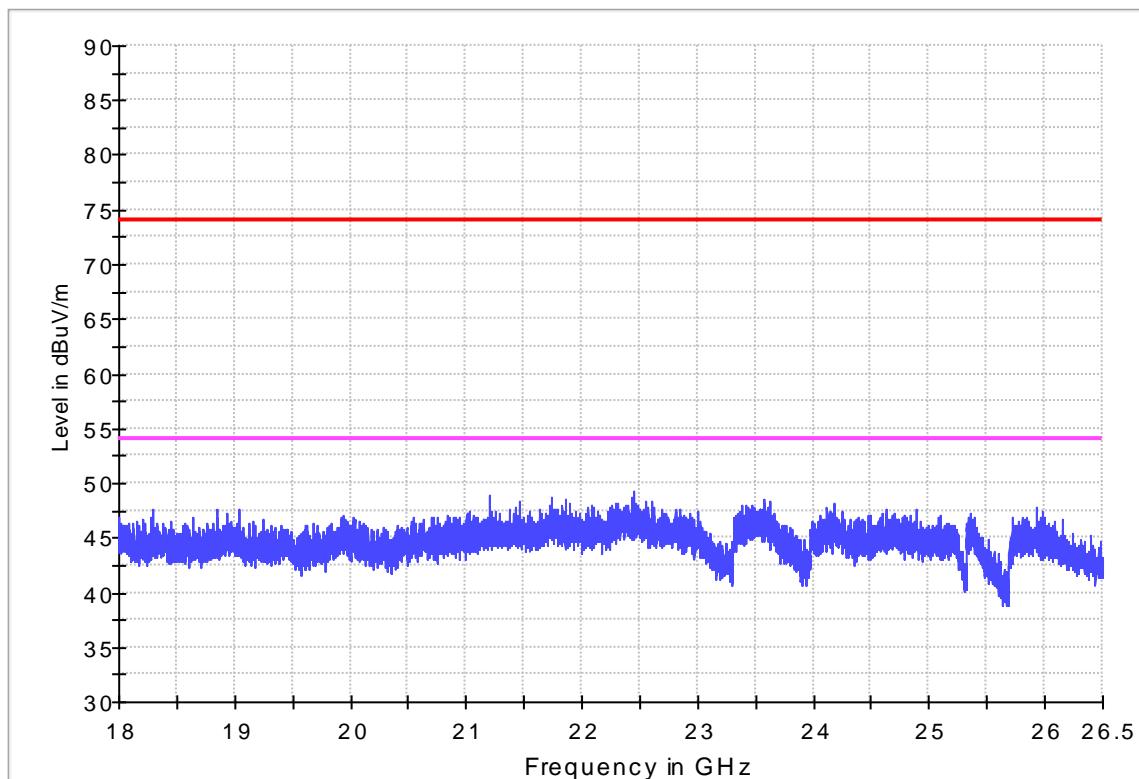
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: 11a CH40
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Vertical
Operator Name:
Comment:



26.5-40G

No Peak found in pre-scan, only worst case result is listed in this report.

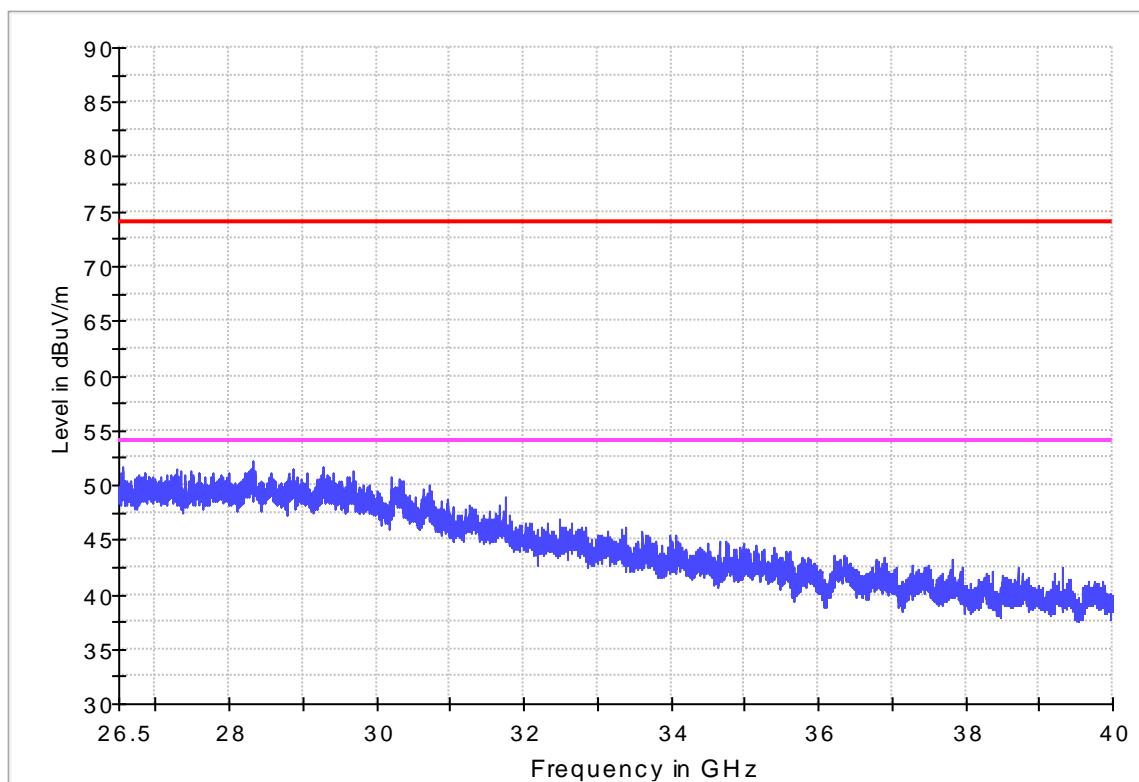
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: Transmittina
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Horizontal
Operator Name:
Comment:



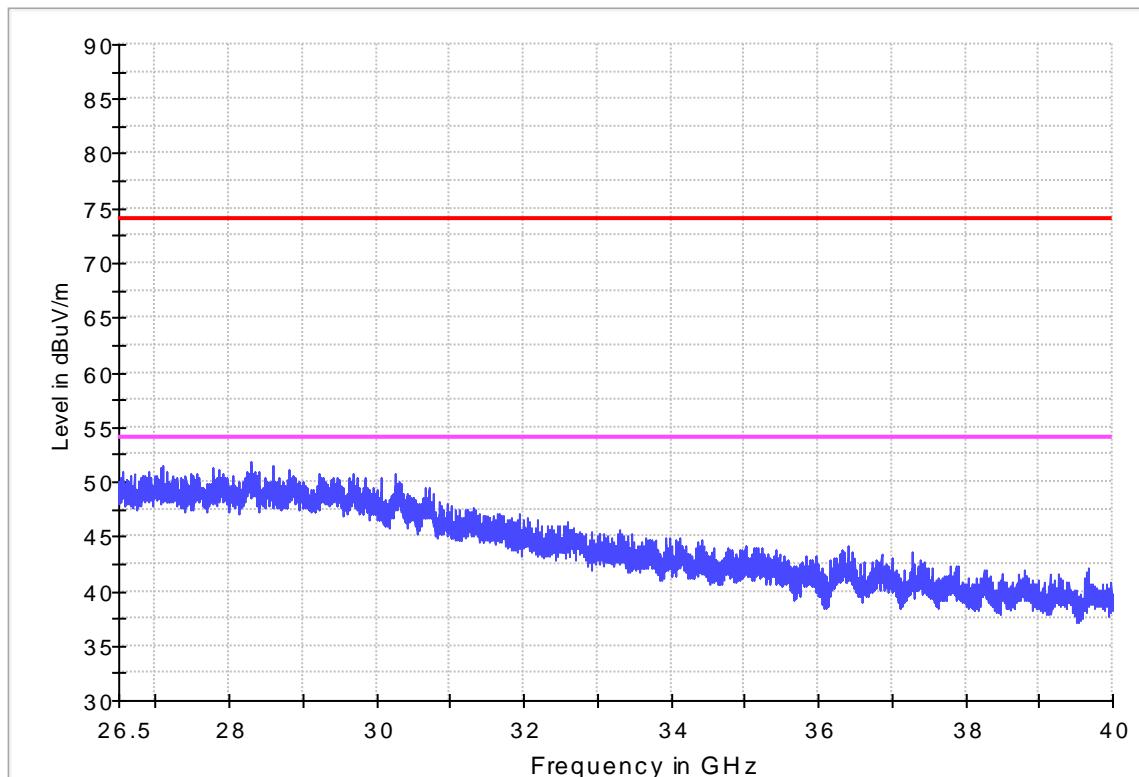
Radiated Emission

EUT Information

EUT Model Name: FX105F
Operation mode: Transmitting
Test Voltage:
Comment:

Common Information

Test Site: SMQ EMC Lab.
Environment Conditions:
Antenna Polarization: Vertical
Operator Name:
Comment:

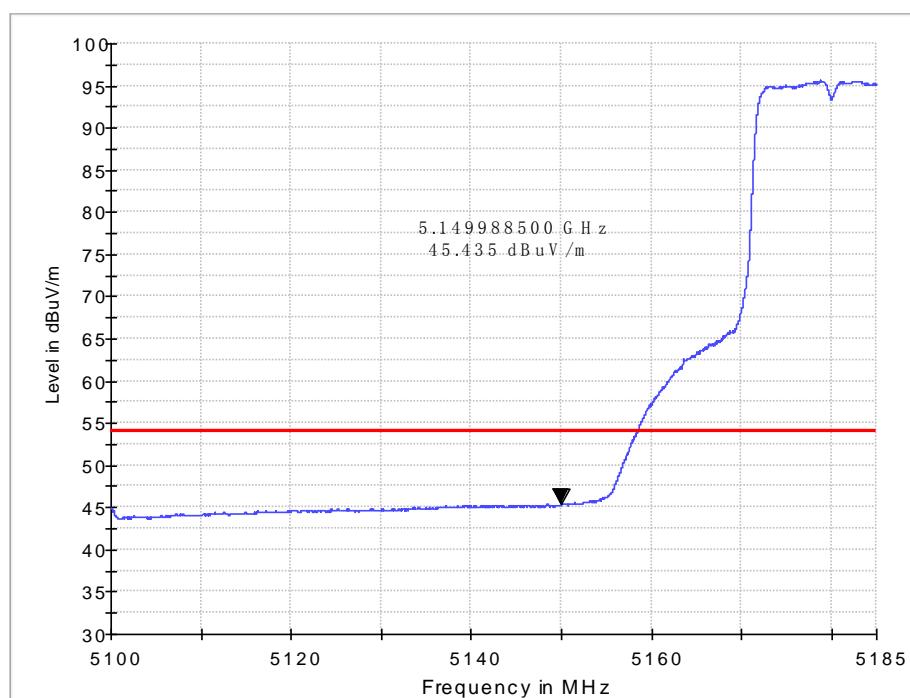
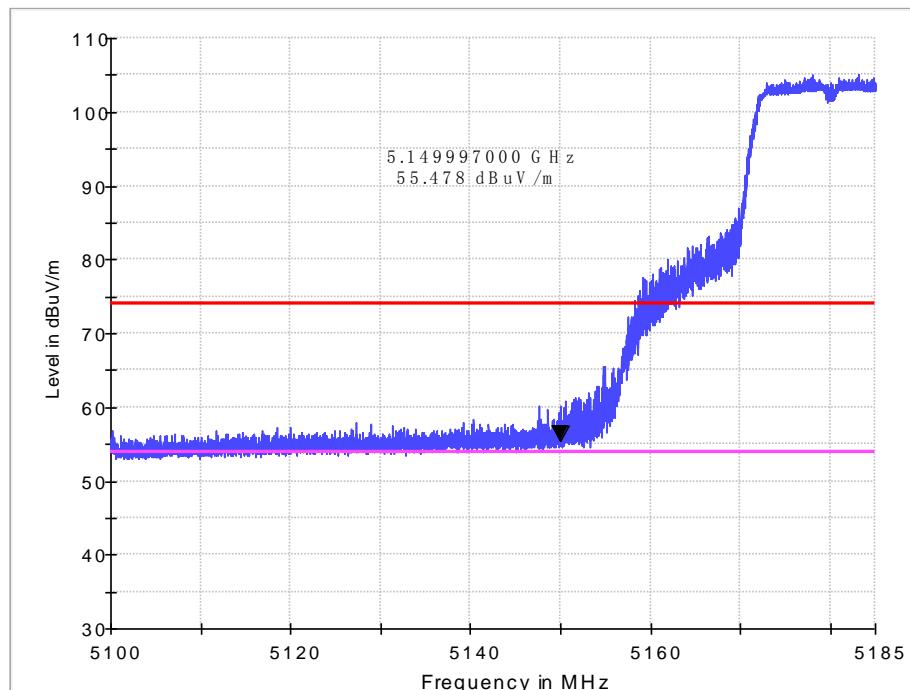


Band edge

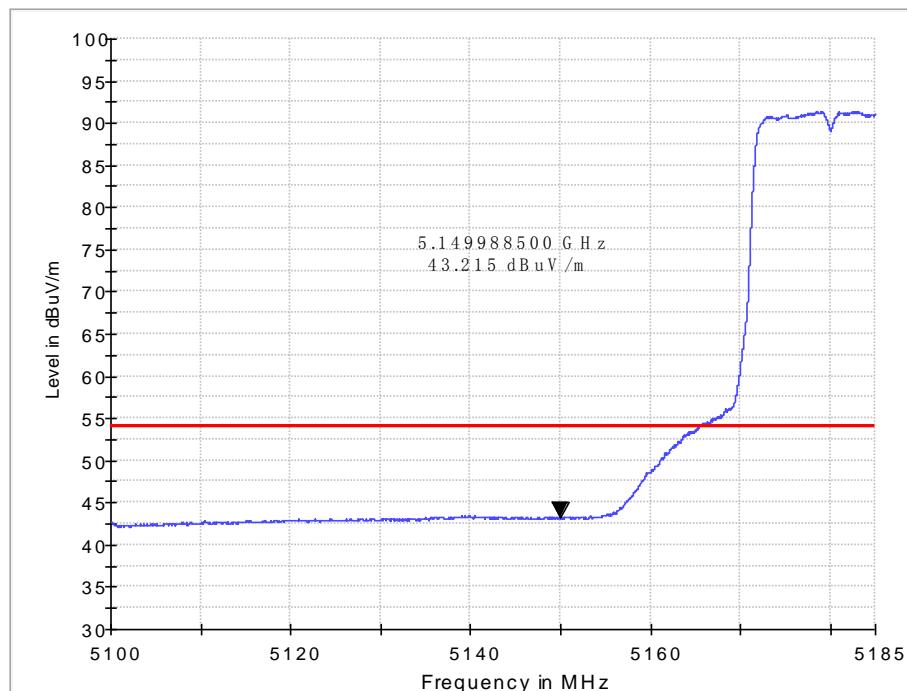
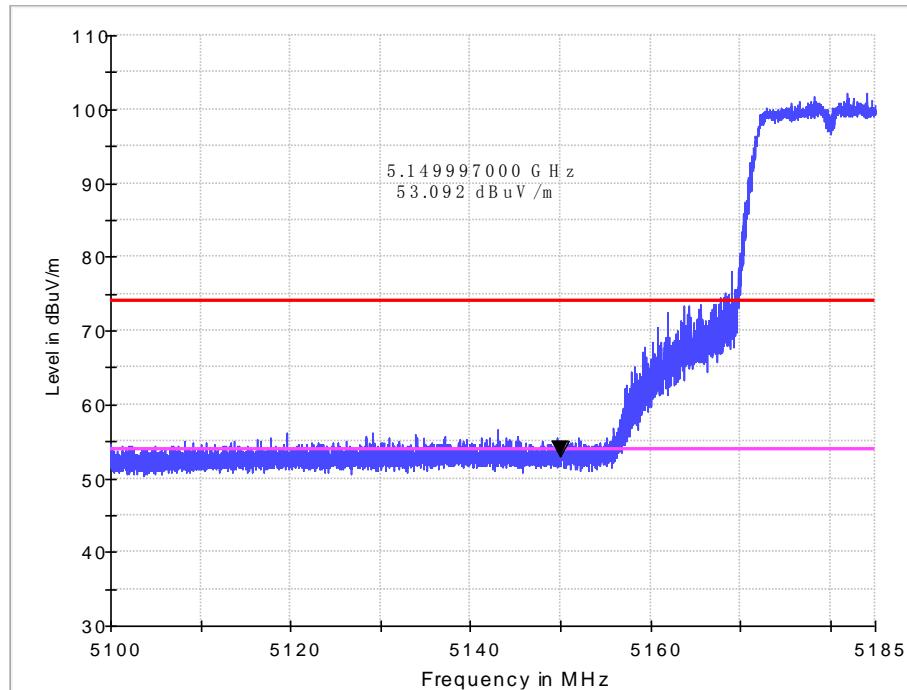
11a IN THE 5.2GHz BAND

CH36

Horizontal



Vertical

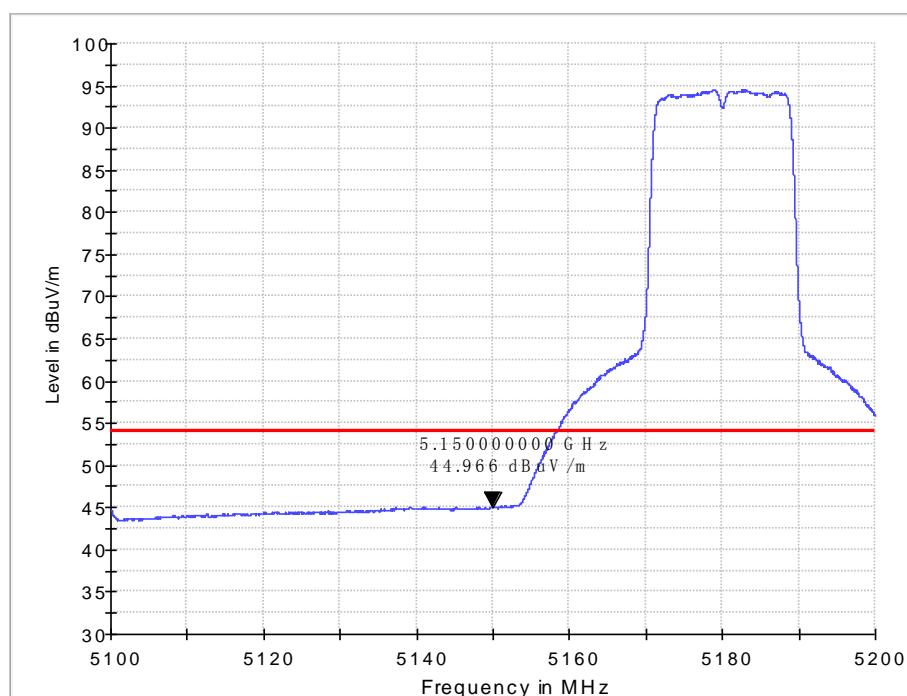
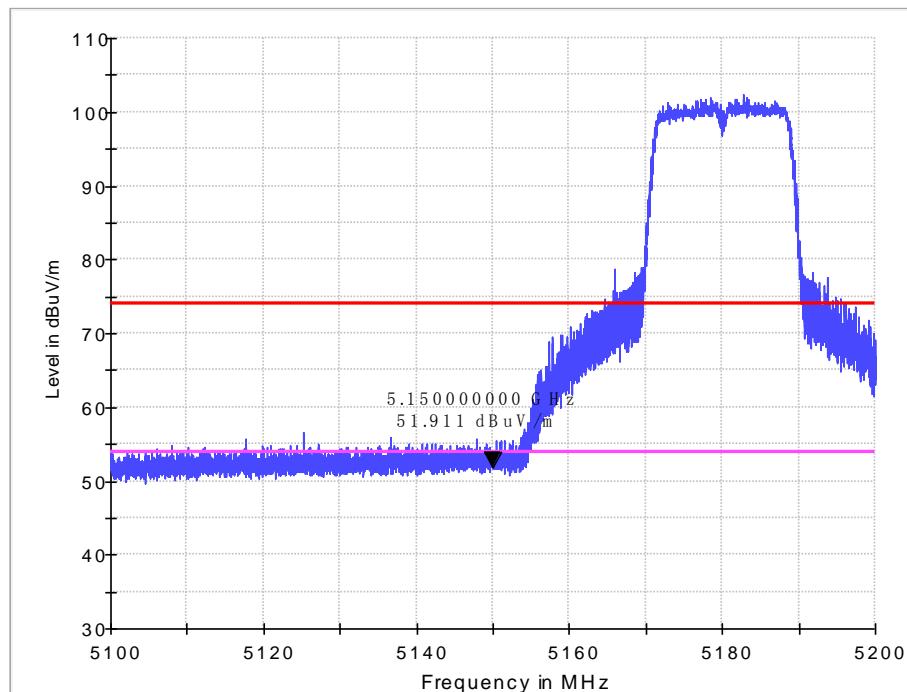


Band edge

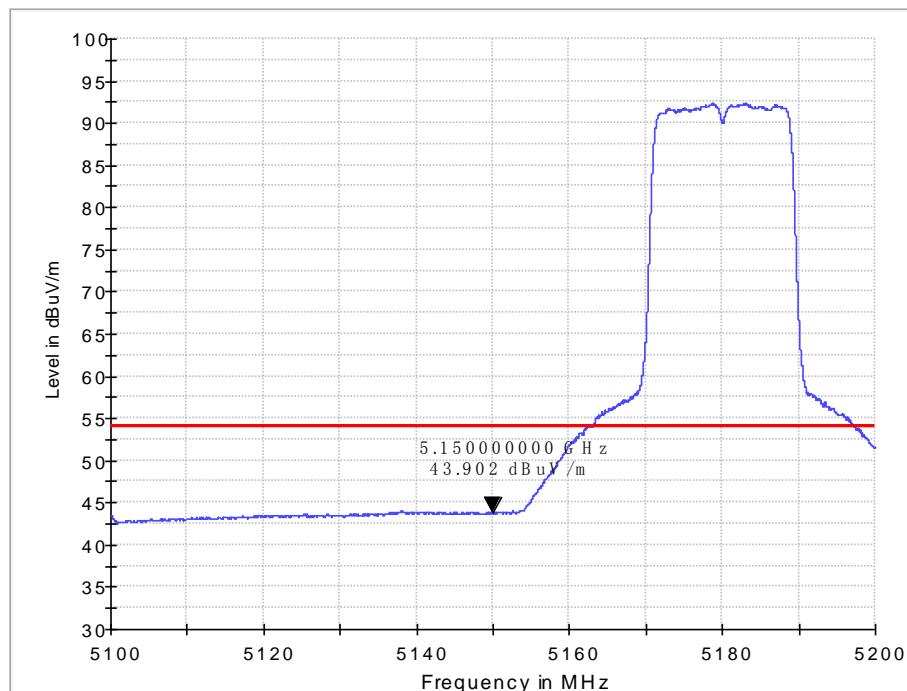
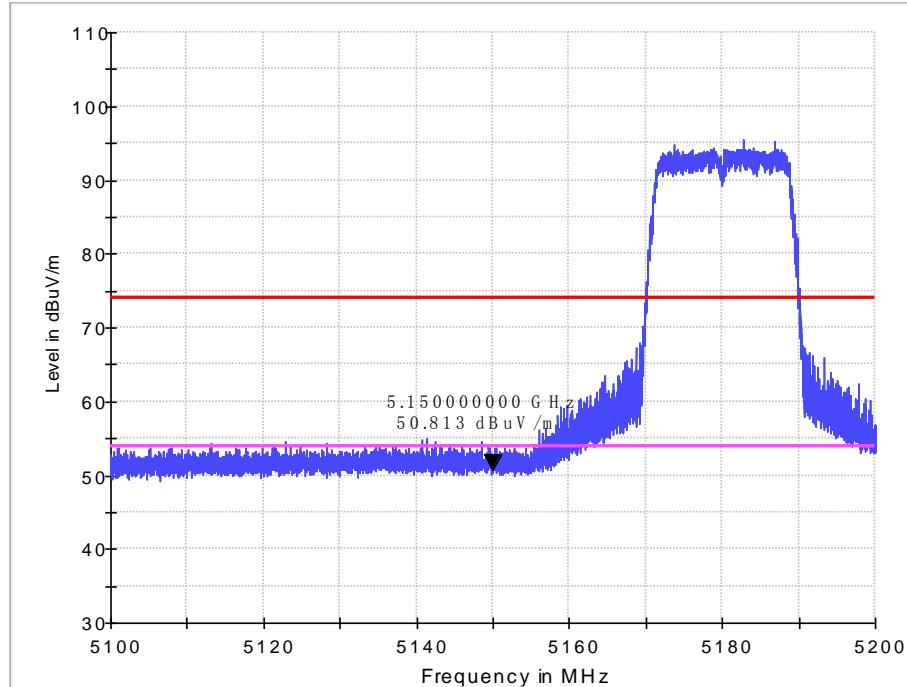
11n HT20 IN THE 5.2GHz BAND

CH36

Horizontal



Vertical

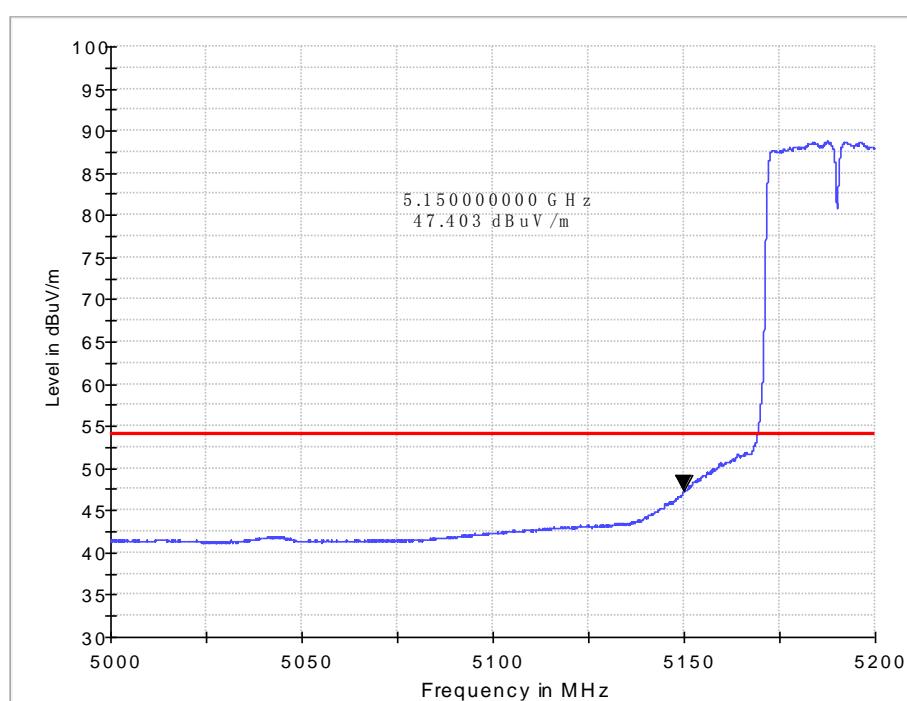
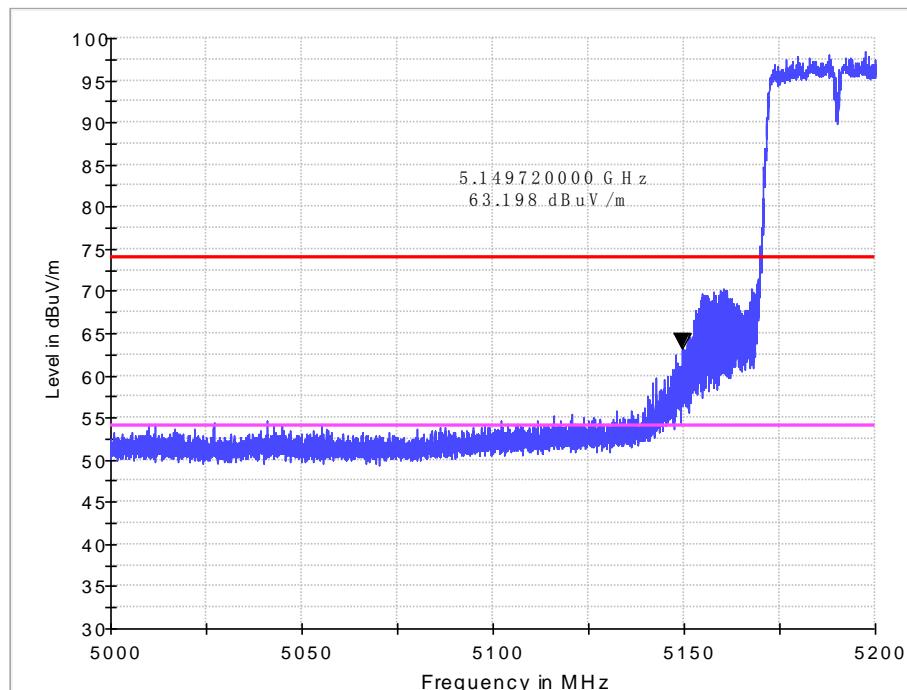


Band edge

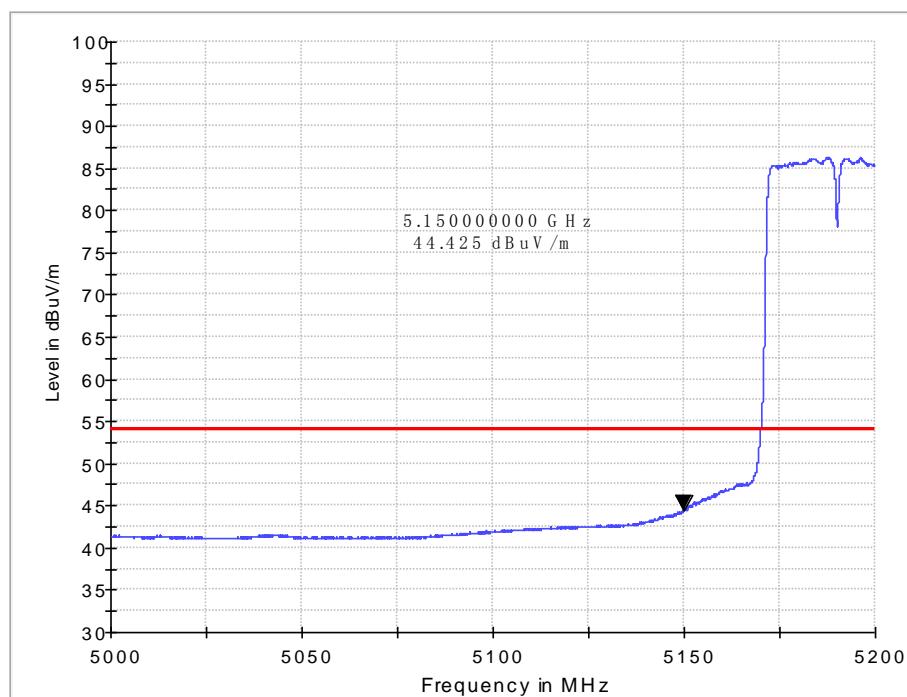
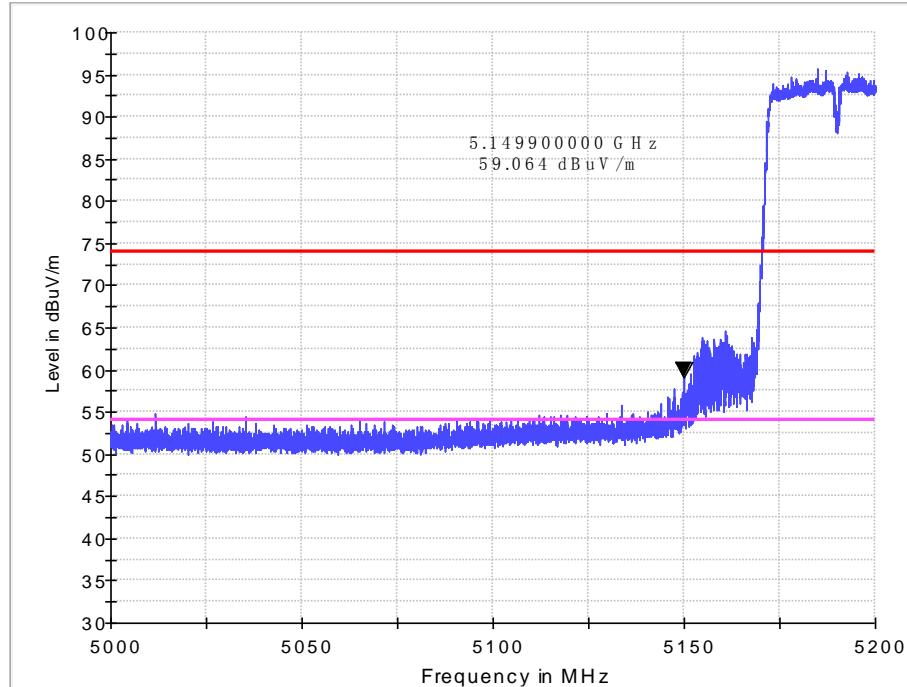
11n HT40 IN THE 5.2GHz BAND

CH38

Horizontal



Vertical



10.CONDUCTED EMISSION TEST FOR AC POWER PORT MEASUREMENT

10.1.Test Standard and Limit

Test Standard
FCC Part 15 15.207
Test Limit

Table 14 Conducted Disturbance Test Limit

Frequency	Maximum RF Line Voltage (dB μ V)	
	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.

10.2.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 of ANSI C63.10-2013.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.

10.3.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.

10.4.Test Data

The emissions don't show in below are too low against the limits. Refer to the test curves.

Table 15 Conducted Emission Test Data

Model No.: FX105F								
Test mode: Charging and Transmitting								
	Frequency (MHz)	Correction Factor (dB)	Quasi-Peak			Average		
			Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)	Reading (dB μ V)	Emission Level (dB μ V)	Limits (dB μ V)
Line	0.483	9.7	30.8	40.5	56.3	17.0	26.7	46.3
	1.666	9.8	31.3	41.1	56	18.3	28.1	46
	3.714	9.9	29.8	39.7	56	18.2	28.1	46
	4.632	9.9	27.7	37.6	56	16.6	26.5	46
	6.616	10.0	31.3	41.3	60	20.7	30.7	50
	7.026	10.0	31.7	41.7	60	21.7	31.7	50
Neutral	1.666	9.8	28.0	37.8	56	15.8	25.6	46
	3.637	9.9	25.7	35.6	56	15.8	25.7	46
	4.227	9.9	26.2	36.1	56	15.0	24.9	46
	4.974	9.9	27.0	36.9	56	16.3	26.2	46
	6.625	10.0	29.6	39.6	60	19.6	29.6	50
	7.422	10.0	27.6	37.6	60	18.6	28.6	50

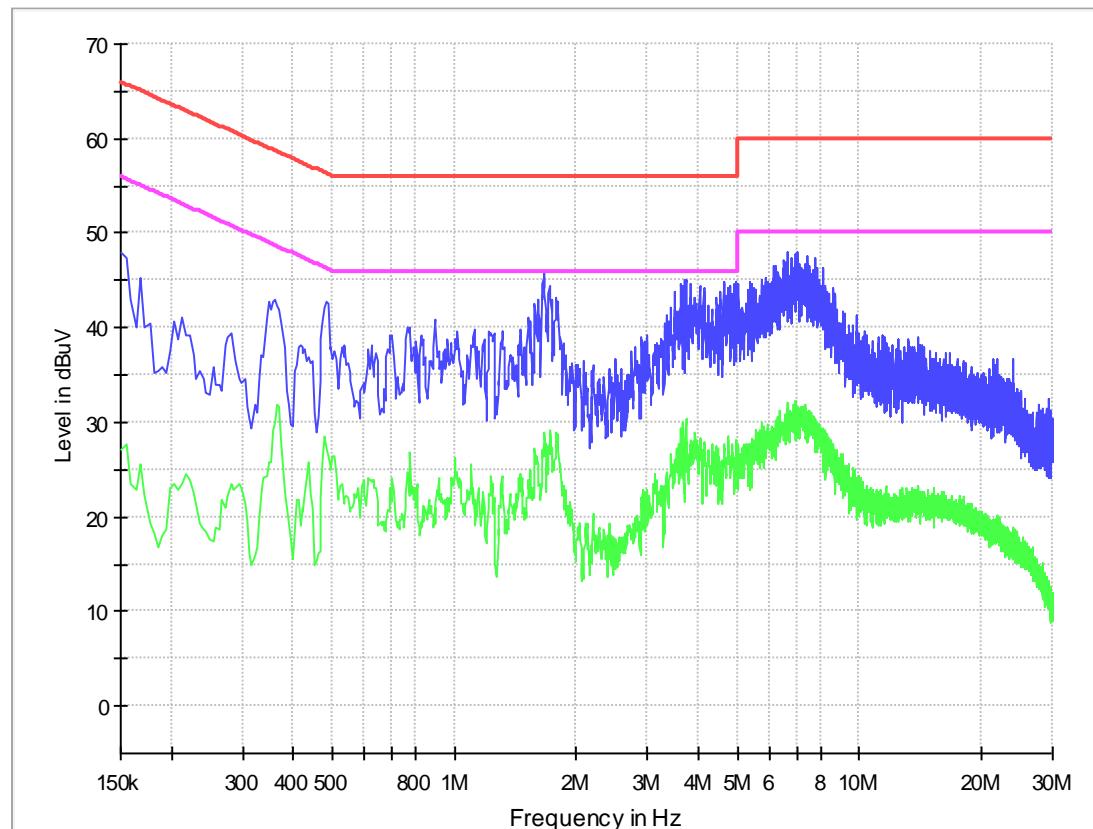
REMARKS: 1. Emission level (dB μ V) =Read Value (dB μ V) + Correction Factor (dB)
 2. Correction Factor (dB) =LISN Factor (dB) + Cable Factor (dB) +Limiter Factor (dB)
 3. The other emission levels were very low against the limit.

EUT: FX105F

Operating Condition: Charging and Transmitting

Test Specification: L

Test Voltage: AC 120V/60Hz

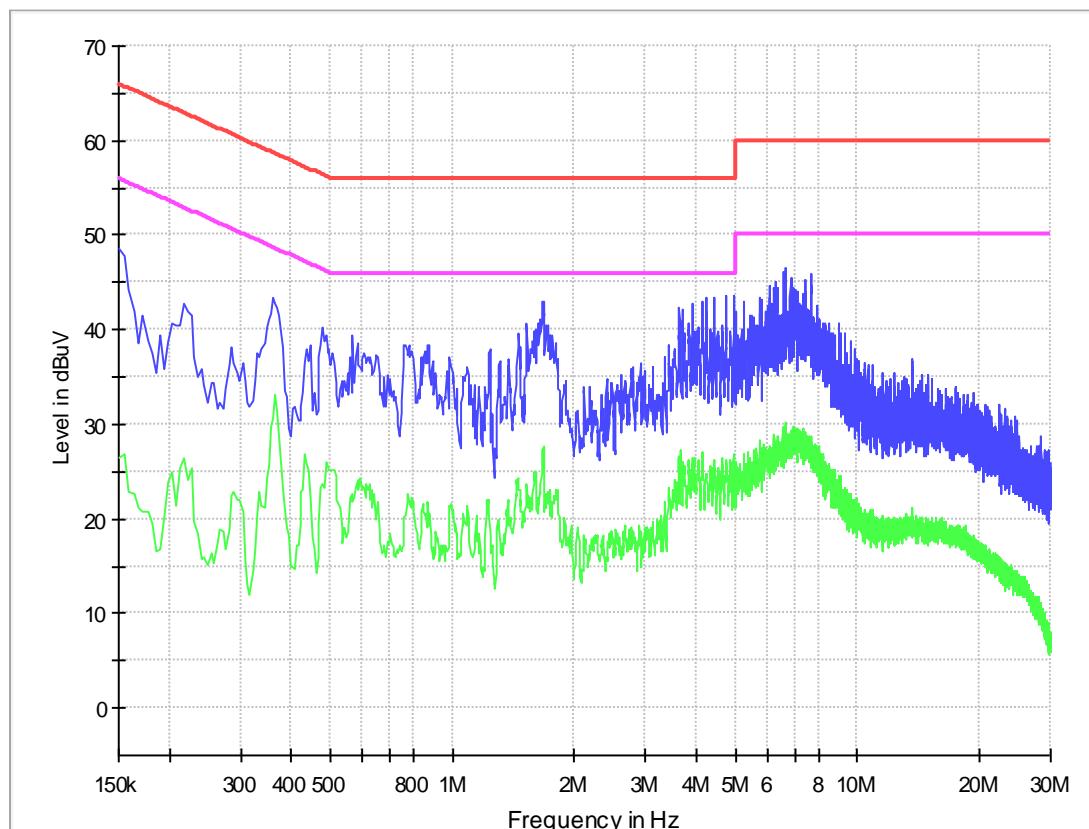


EUT: FX105F

Operating Condition: Charging and Transmitting

Test Specification: N

Test Voltage: AC 120V/60Hz



11. AUTOMATIC DISCONTINUE TRANSMISSION

11.1. Test Standard

FCC Part 15.407

(c) The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

11.2. Test Data

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting for remote device and verify whether it shall resend or discontinue transmission.

12.FREQUENCY STABILITY

12.1.LIMITS OF Frequency Stability

FCC Part 15.407

(g) Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

12.2.TEST PROCEDURE

The EUT was placed inside of an environmental chamber as the temperature in chamber was varied between -30 °C and +50 °C. The temperature was incremented by 10 ° intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded. Data for the worst case channel is shown below.

12.3.TEST DATA

Measurement Results vs. Variation of Temperature—UNII Band1 (CH 36)

Voltage	Temperature	Frequency (Hz)	Deviation [ppm]
DC 3.8V	-30 °C	5179.97	-5.79151
	-20 °C	5180.03	5.79151
	-10 °C	5180.00	0.00000
	0 °C	5179.99	-2.89575
	+10 °C	5180.00	0.00000
	+20 °C	5180.00	0.00000
	+30 °C	5180.00	0.00000
	+40 °C	5180.02	2.88462
	+50 °C	5180.00	0.00000
DC 3.5V	+20 °C	5180.00	0.00000
DC 4.35V	+20 °C	5180.02	2.89575

13. OCCUPIED BANDWIDTH

13.1. LIMITS OF Occupied Bandwidth

For reporting purposes only

13.2. TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer.

The transmitter output is connected to a spectrum analyzer.

The RBW is set to $\geq 1\%$ to 5% of the actual occupied.

The VBW is set to ≥ 3 RBW. The sweep time is coupled

13.3. TEST SETUP

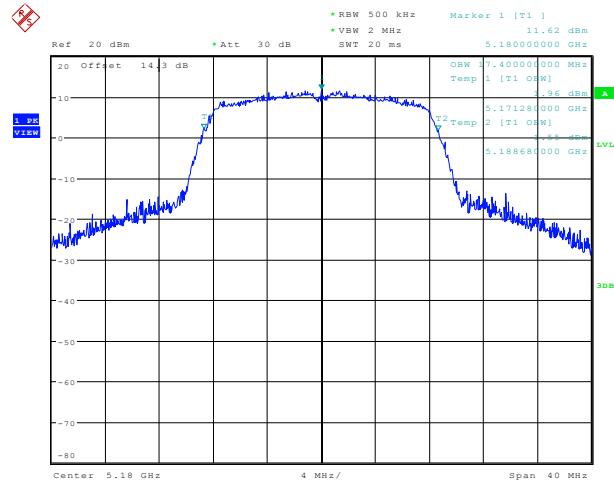


13.4. TEST DATA

Table 16 99% Bandwidth Test Data

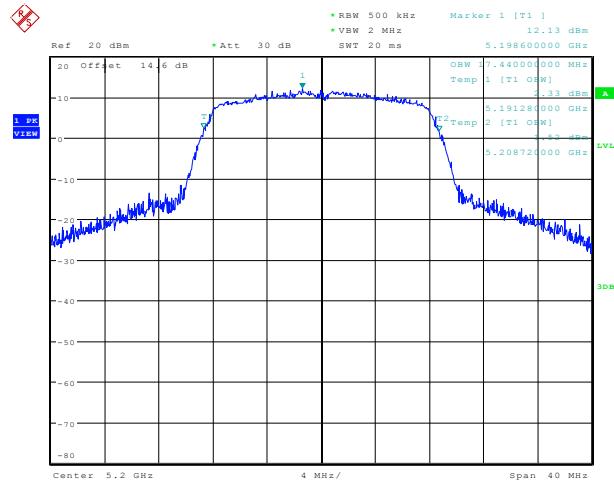
Test Mode	Test Channel	Ant	OBW[MHz]	Limit[MHz]	Verdict
11A	5180	Ant1	17.40	---	PASS
11A	5200	Ant1	17.44	---	PASS
11A	5240	Ant1	17.36	---	PASS
11N20	5180	Ant1	18.16	---	PASS
11N20	5200	Ant1	18.16	---	PASS
11N20	5240	Ant1	18.16	---	PASS
11N40	5190	Ant1	36.48	---	PASS
11N40	5230	Ant1	36.54	---	PASS

11A_Ant1_5180



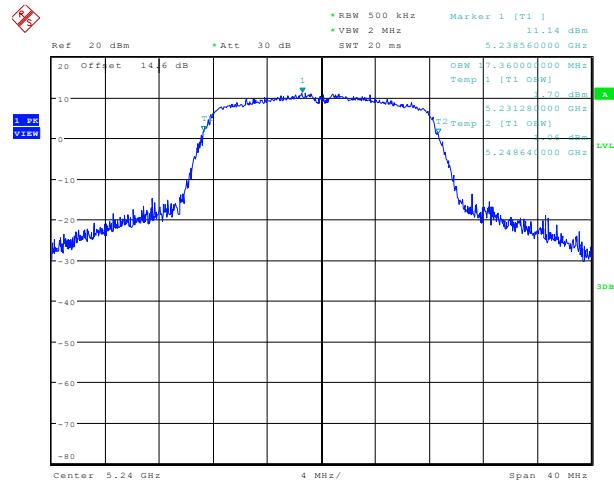
Date: 1 JAN 2003 05:23:57

11A_Ant1_5200



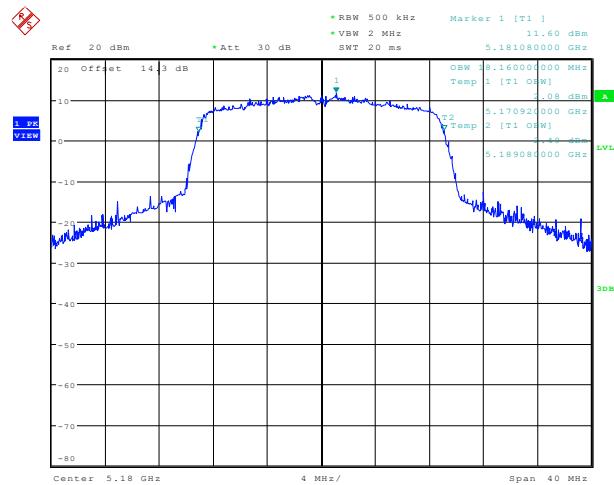
Date: 1 JAN 2003 05:31:18

11A_Ant1_5240



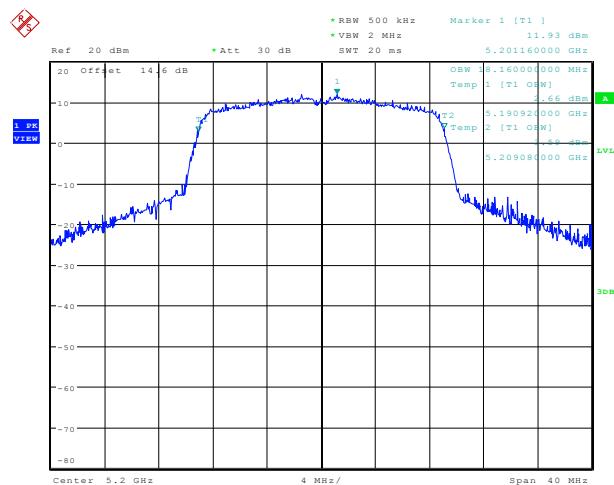
Date: 1 JAN 2003 05:39:21

11N20SISO_Ant1_5180



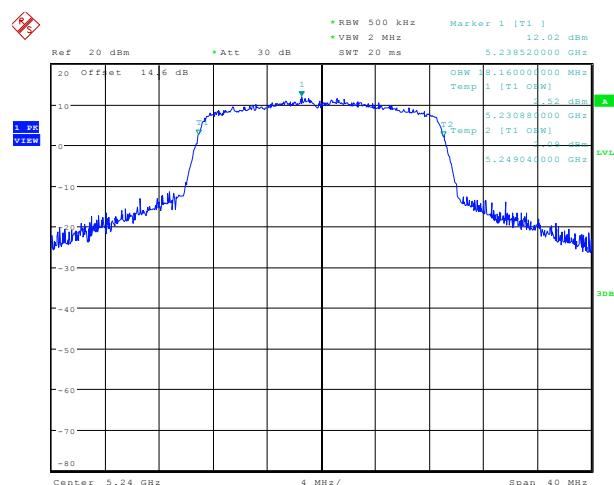
Date: 1 JAN 2003 06:07:00

11N20SISO_Ant1_5200

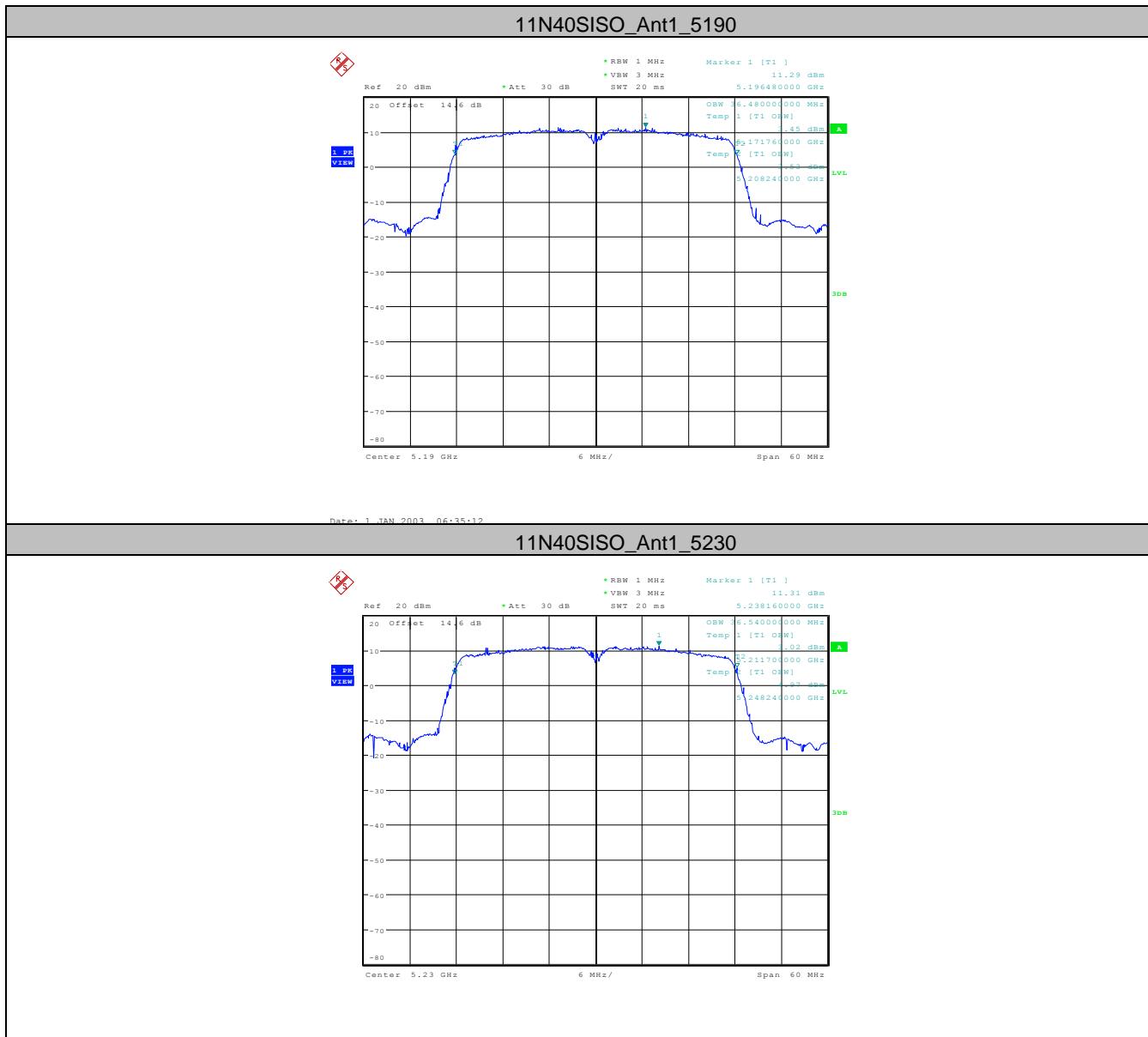


Date: 1 JAN 2003 06:14:59

11N20SISO_Ant1_5240



Date: 1 JAN 2007 06:29:50



14. ANTENNA REQUIREMENTS

According to 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.

The EUT has a built in antenna which is integrated inside the enclosure, this is permanently attached antenna and meets the requirements of this section.

END OF REPORT