

FCC TEST REPORT

For

GSM/WCDMA MOBILE PHONE

Model Number: M4 SS1060

FCC ID: CLNSS1060

Report Number : WT138002571

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1. TEST RESULTS SUMMARY

Table 1 Test Results Summary

Test Items	FCC Rules	Test Results
6dB DTS bandwidth measurement	15.247 (a) (2)	Pass
Maximum Peak Conducted Power	15.247 (b) (3)	Pass
Maximum Power Spectral Density Level	15.247 (3)	Pass
Conducted Bandedge and Spurious	15.247 (d)	Pass
Radiated Bandedge and Spurious	15.247 (d) 15.209 15.205	Pass
Conducted emission test for AC power port	15.207	Pass
Antenna Requirement	15.203	Pass

Remark: “ N/A” means “ Not applicable.”

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 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 listed in the United States of American Federal Communications Commission (FCC), and the registration number are 446246 806614 994606(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 11177A-1 11177A-2.

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

2.3.Measurement Uncertainty

Conducted Emission

9kHz~30MHz 3.5dB

Radiated Emission

30MHz~1000MHz 4.5dB

1GHz~18GHz 4.6dB

3. PRODUCT DESCRIPTION

3.1.EUT Description

Description : GSM/WCDMA MOBILE PHONE
Manufacturer : CK Telecom Limited
Model Number : M4 SS1060
Operate : 2.412GHz~2.462GHz
Frequency
Antenna : PCB Antenna
Designation -2dBi

WLAN :

Table 2 Working Frequency List

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

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

This submittal(s) (test report) is intended for FCC ID: CLN551060, filing to comply with Section 15.207 , 15.209 , 15.247 of the FCC Part 15, Subpart C Rules.

3.3.Block Diagram of EUT Configuration



Figure 1 EUT setup

3.4. Operating Condition of EUT

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:

802.11b mode: 1 Mbps

802.11g mode: 6 Mbps

802.11n HT20mode: MCS0

802.11n HT40mode: MCS0

Test mode is configured to be with duty cycle >98%

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

802.11n operates 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 3 Support Equipment List

Name	Model No	S/N	Manufacturer
Adaptor	HKC0035050-2R	--	Huntkey

3.7.Test Conditions

Date of test : Aug 29-Sept 6, 2013

Date of EUT Receive : Aug 28, 2013

Temperature: 23-24 °C

Relative Humidity: 53-56%

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 4 Test Equipment

No.	Equipment	Manufacturer	Model No.	Last Cal.	Cal. Interval
SB2603	EMI Test Receiver	Rohde & Schwarz	ESCS30	Jan.21, 2013	1 Year
SB3321	AMN	Rohde & Schwarz	ESH2-Z5	Jan.21, 2013	1 Year
SB2604	AMN	Rohde & Schwarz	ESH3-Z5	Jan.21, 2013	1 Year
SB8501/09	EMI Test Receiver	Rohde & Schwarz	ESU40	May.17, 2013	1 Year
SB8501/04	Bilog Antenna	Schwarzbeck	VULB9163	Jan.21, 2013	1 Year
SB3435	Horn Antenna	Rohde & Schwarz	HF906	Jan.21, 2013	1 Year
SB3435/01	Amplifier(1-18GHz)	Rohde & Schwarz	---	Jan.21, 2013	1 Year
SB3435/02	Amplifier(18-40GHz)	Rohde & Schwarz	---	May.17, 2013	1 Year
SB5392/02	Horn Antenna	Amplifier Research	AT4560	May.17, 2013	1 Year
SB3450/01	3m Semi-anechoic chamber	Albatross Projects	9X6X6	Oct.12, 2012	2 Years
SB3345	Loop Antenna	Schwarzbeck	FMZB1516	Jan.23, 2012	2 Years

5. 6DB BANDWIDTH MEASUREMENT

5.1.LIMITS OF 6dB BANDWIDTH MEASUREMENT

CFR 47 (FCC) part 15.247 (a) (2) and 558074 D01 DTS Meas Guidance v03r01

5.2.TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer.

- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) \geq 3 RBW.
- c)Detector = Peak.
- d)Trace mode = max hold.
- e)Sweep = auto couple.
- f)Allow the trace to stabilize.
- g)Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.3.TEST SETUP



5.4.Test Data

Table 5 6dB Bandwidth Test Data 802.11b

CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	results
2412	10.100	Pass
2437	10.100	Pass
2462	10.012	Pass

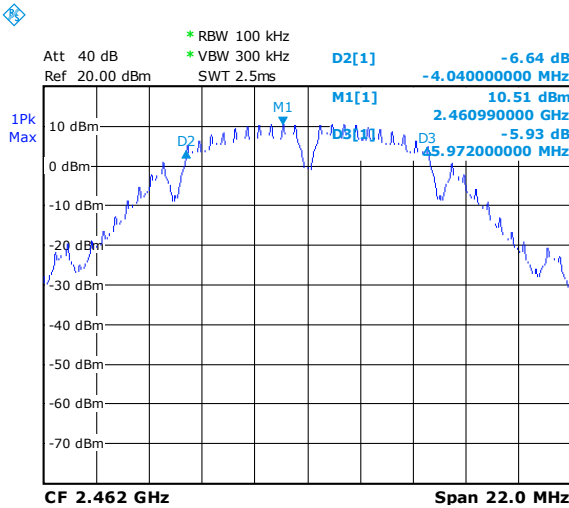
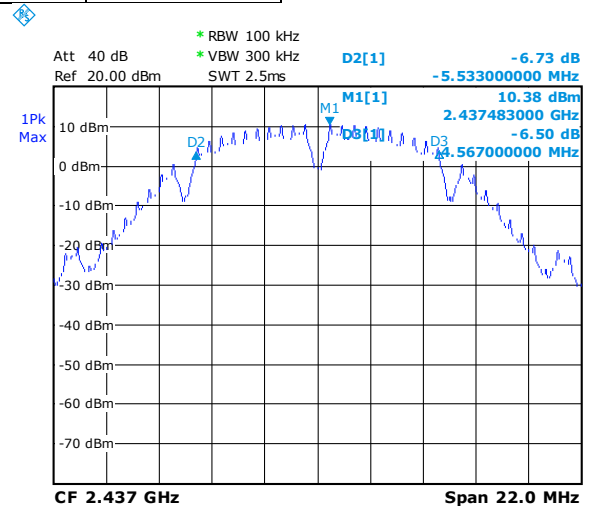
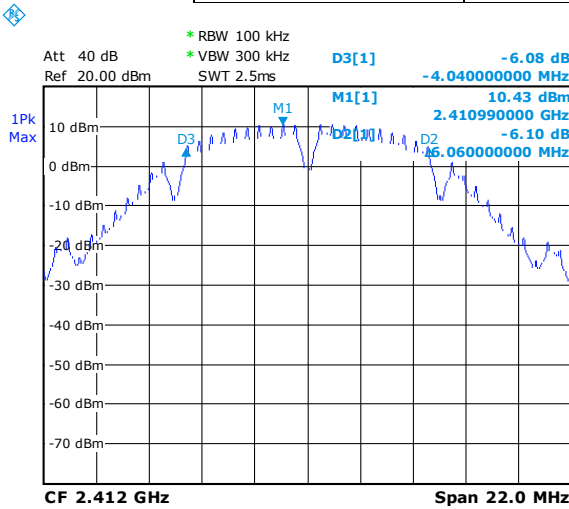


Table 6 6dB Bandwidth Test Data 802.11g

CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	results
2412	15.633	Pass
2437	15.545	Pass
2462	15.809	Pass

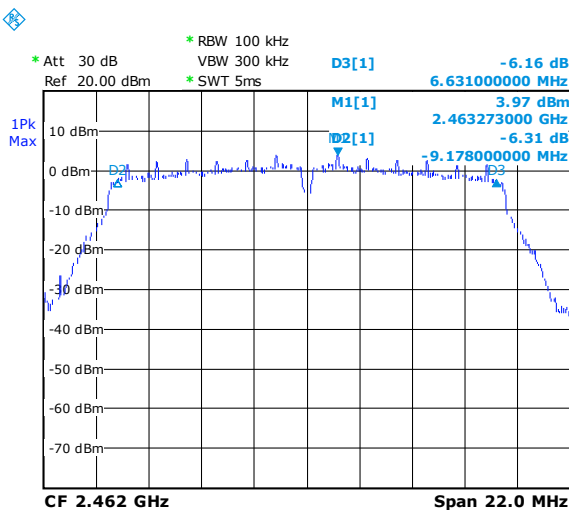
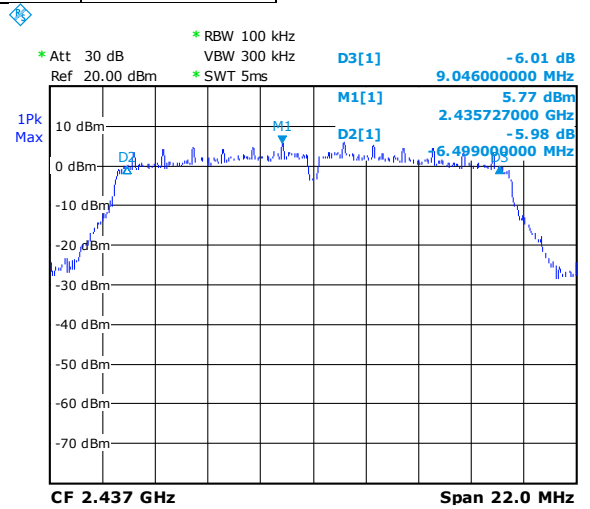
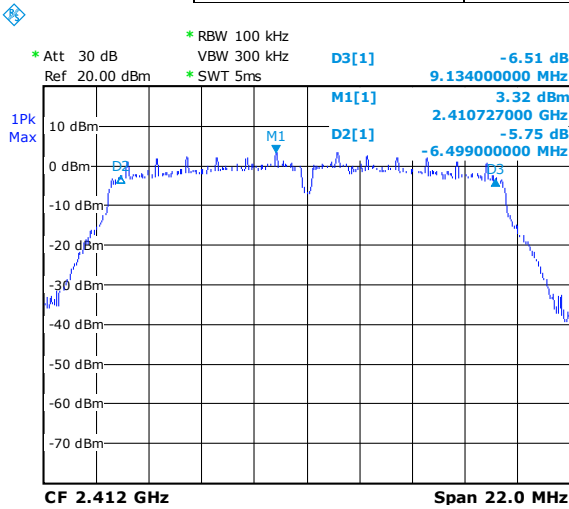


Table 7 6dB Bandwidth Test Data 802.11n 20M

CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	results
2412	16.886	Pass
2437	17.086	Pass
2462	16.841	Pass

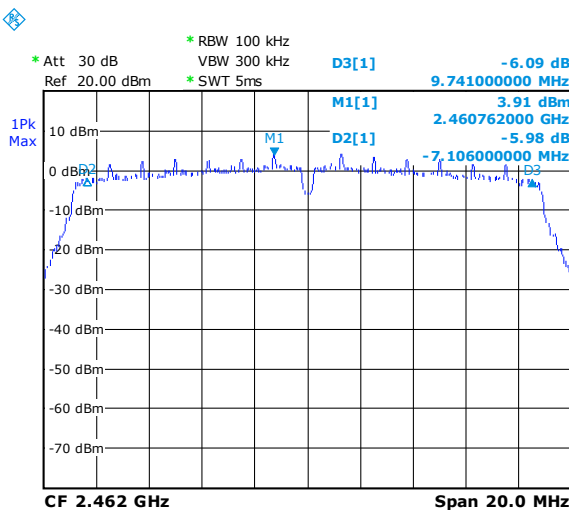
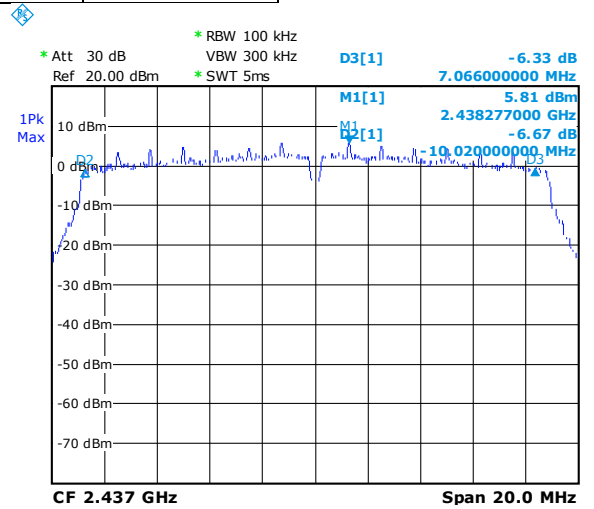
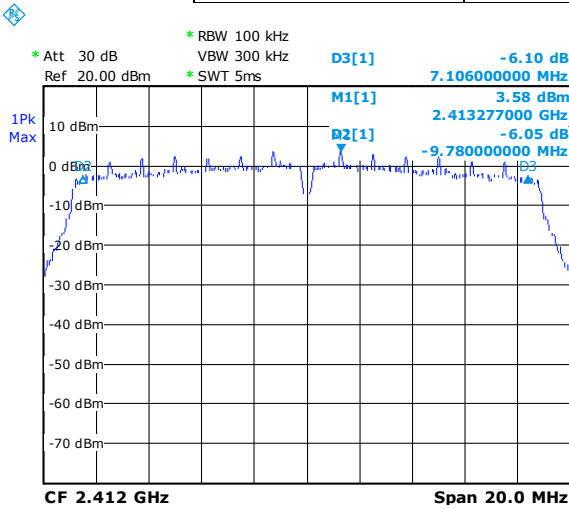
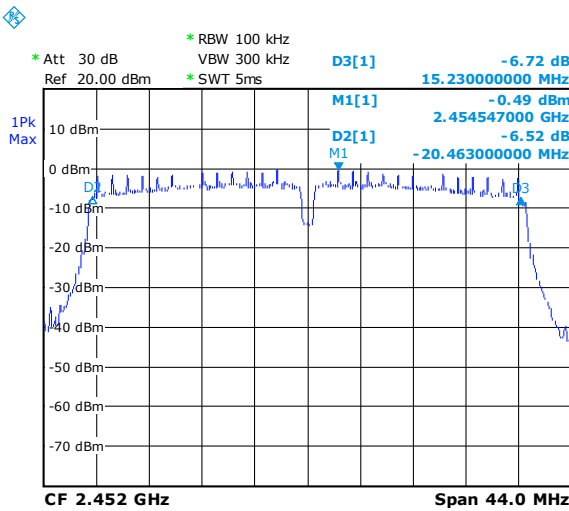
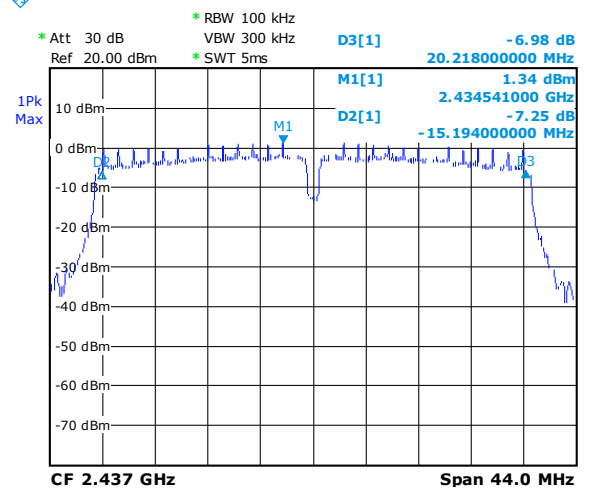
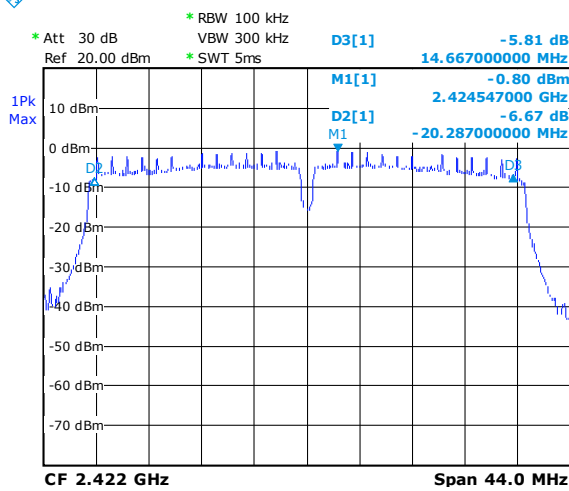


Table 8 6dB Bandwidth Test Data 802.11n 40M

CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	results
2422	34.954	Pass
2437	35.412	Pass
2452	35.693	Pass



6. MAXIMUM PEAK CONDUCTED OUTPUT POWER MEASUREMENT

6.1.LIMITS OF Maximum Peak Conducted Output Power Measurement

CFR 47 (FCC) part 15.247 (b) (3) and 558074 D01 DTS Meas Guidance v03r01

6.2.TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer.

- a)Set the RBW = 1 MHz.
- b)Set the VBW \geq 3 RBW
- c)Set the span \geq 1.5 x DTS bandwidth.
- d)Detector = peak.
- e)Sweep time = auto couple.
- f)Trace mode = max hold.
- g)Allow trace to fully stabilize.
- h)Use the instrument' s band/channel power measurement function with the band limits set equal to the DTS bandwidth edges

6.3.TEST DATA

Table 9 Maximum Peak Conducted Output Power Test Data 802.11b

Center Freq.[MHz]	Meas. Level (Cond.) [dBm]	Limit [dBm]	Result
2412	21.74	< 30	Pass
2437	21.84	< 30	Pass
2462	22.13	< 30	Pass

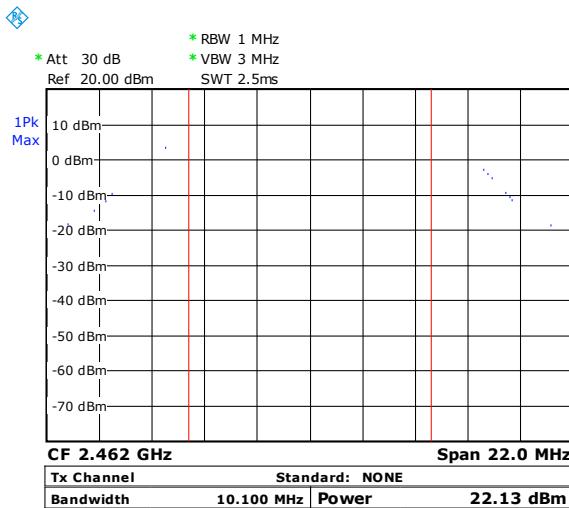
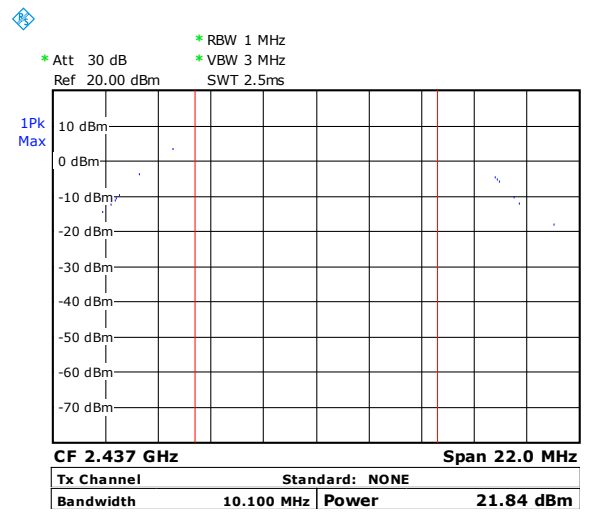
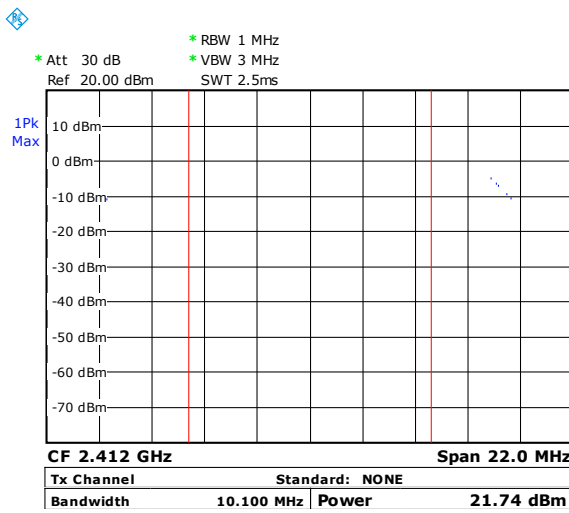


Table 10 Maximum Peak Conducted Output Power Test Data 802.11g

Center Freq.[MHz]	Meas. Level (Cond.) [dBm]	Limit [dBm]	Result
2412	22.68	< 30	Pass
2437	24.93	< 30	Pass
2462	22.81	< 30	Pass

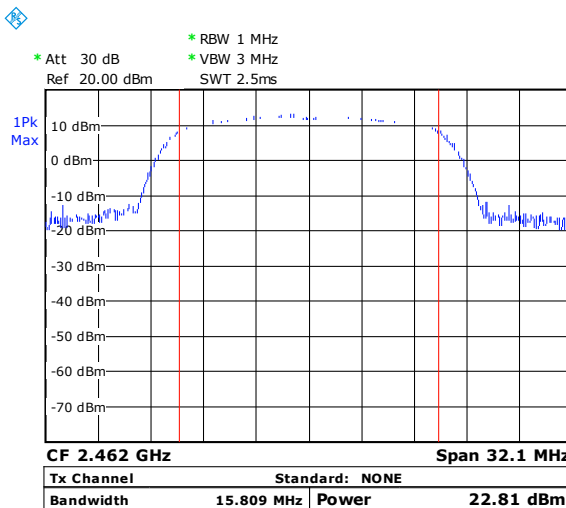
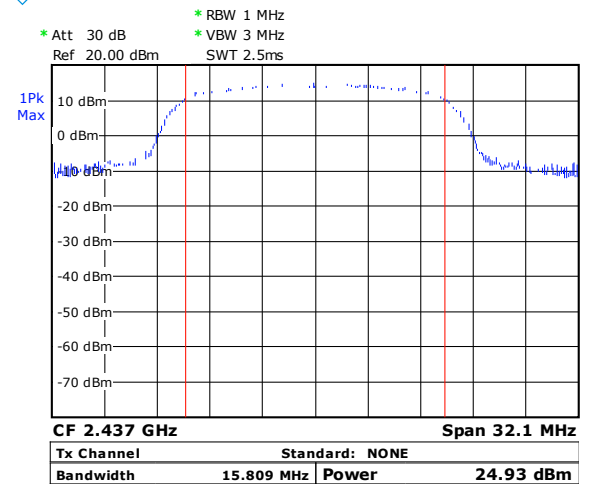
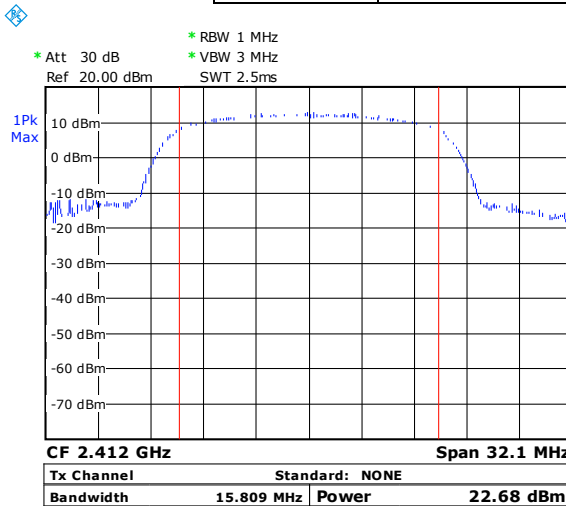


Table 11 Maximum Peak Conducted Output Power Test Data 802.11n 20M Ant 0

Center Freq.[MHz]	Meas. Level (Cond.) [dBm]	Limit [dBm]	Result
2412	22.29	< 30	Pass
2437	24.98	< 30	Pass
2462	22.99	< 30	Pass

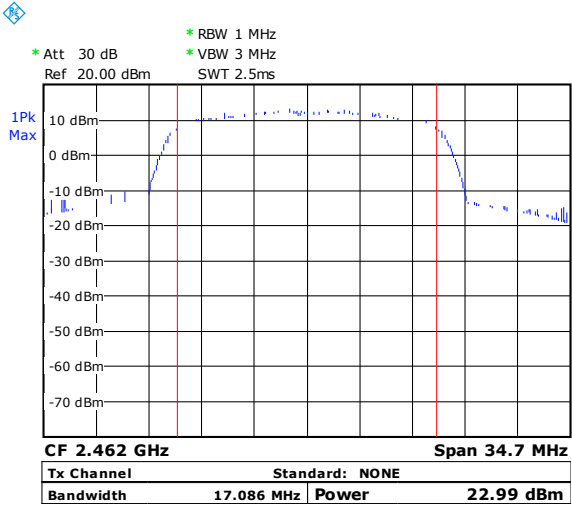
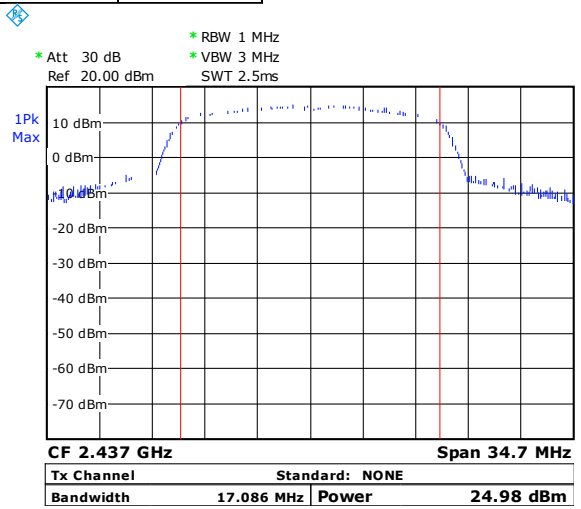
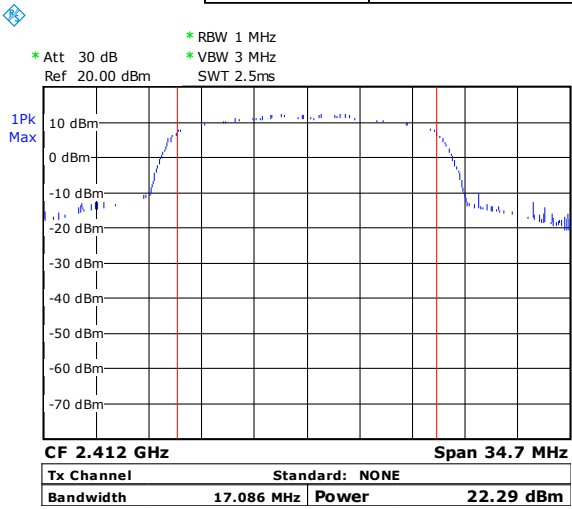
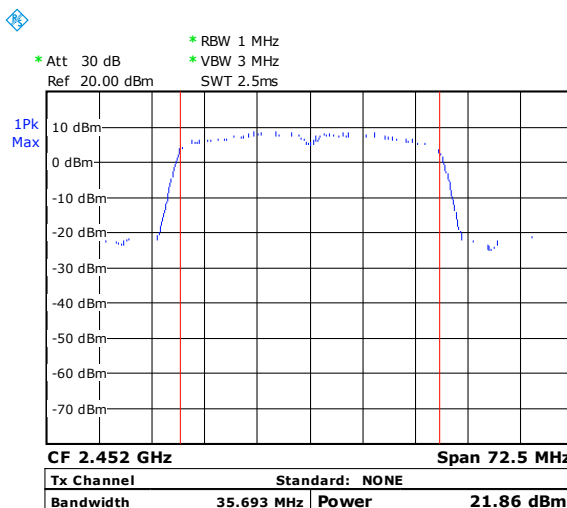
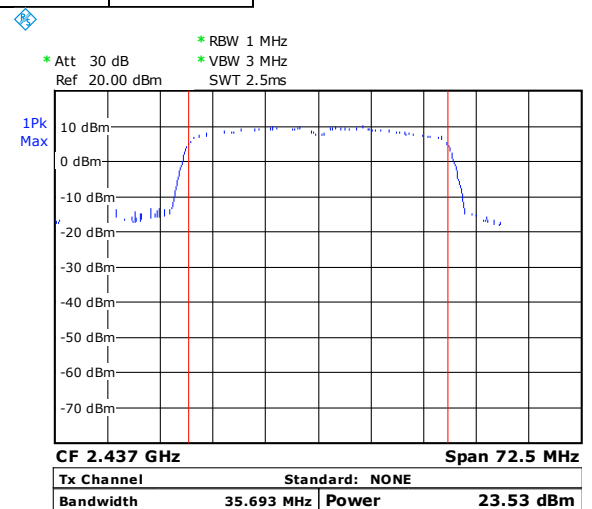
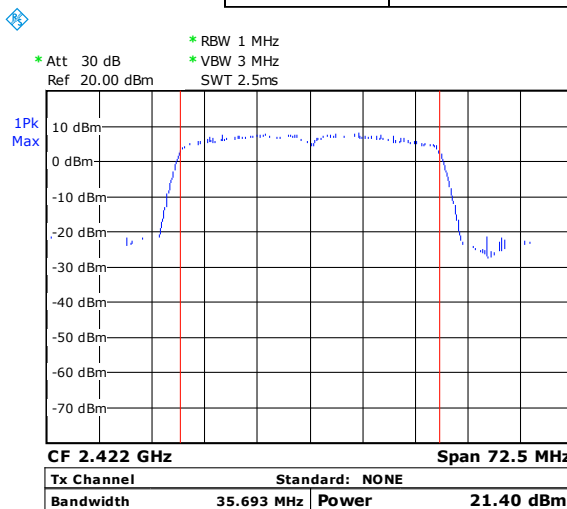


Table 12 Maximum Peak Conducted Output Power Test Data 802.11n 40M Ant 0

Center Freq.[MHz]	Meas. Level (Cond.) [dBm]	Limit [dBm]	Result
2422	21.40	< 30	Pass
2437	23.53	< 30	Pass
2452	21.86	< 30	Pass



7. MAXIMUM POWER SPECTRAL DENSITY LEVEL MEASUREMENT

7.1.LIMITS OF Maximum Power Spectral Density Level Measurement

CFR 47 (FCC) part 15.247 (e) and 558074 D01 DTS Meas Guidance v03r01

7.2.TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer.

- a)Set analyzer center frequency to DTS channel center frequency.
- b)Set the span to 1.5 times the DTS bandwidth.
- c)Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- d)Set the VBW $\geq 3 \text{ RBW}$.
- e)Detector = peak.
- f)Sweep time = auto couple.
- g)Trace mode = max hold.
- h)Allow trace to fully stabilize.
- i)Use the peak marker function to determine the maximum amplitude level within the RBW.
- j)If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

7.3.TEST DATA

Table 14 Maximum Power Spectral Density Level Test Data 802.11g

Center Freq.[MHz]	PSD [dBm]	Limit [dBm]	Result
2412	-10.42	8	Pass
2437	-7.47	8	Pass
2462	-10.56	8	Pass

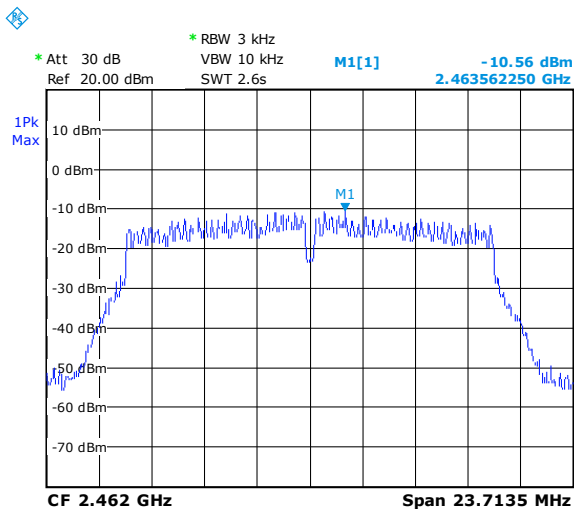
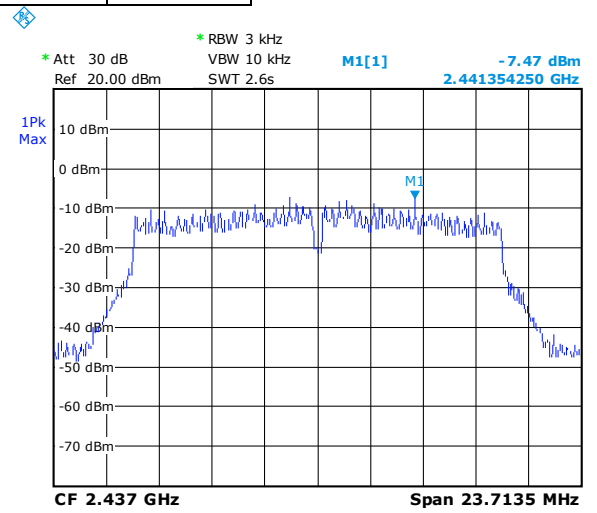
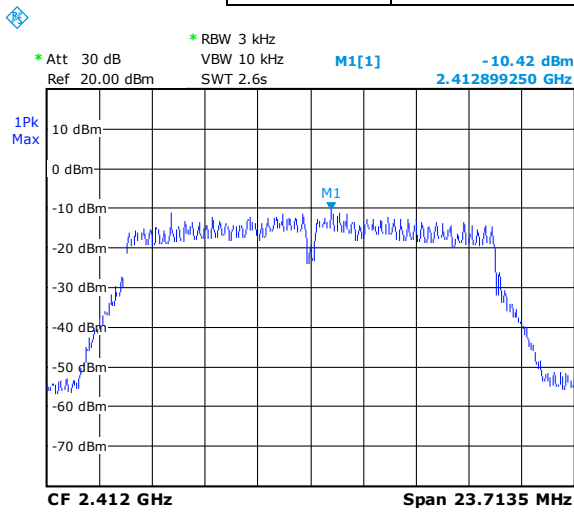
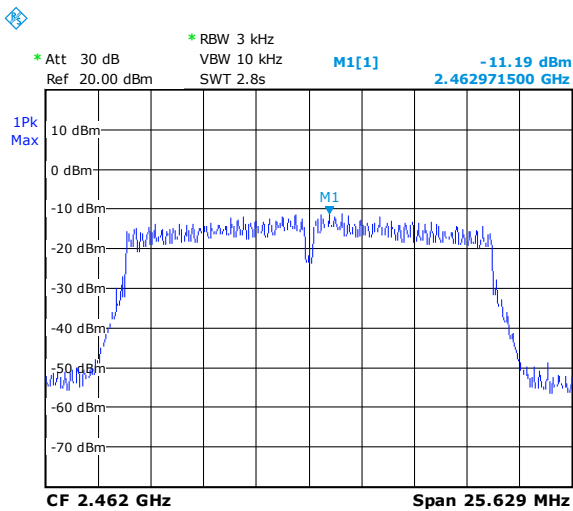
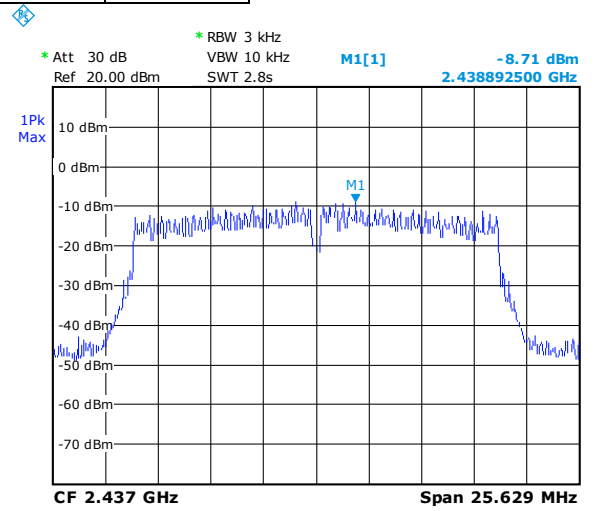
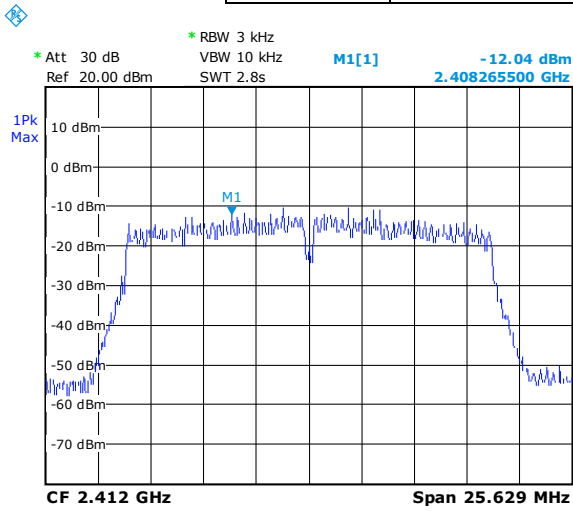


Table 15 Maximum Power Spectral Density Level Test Data 802.11n 20M

Center Freq.[MHz]	PSD [dBm]	Limit [dBm]	Result
2412	-12.04	8	Pass
2437	-8.17	8	Pass
2462	-11.19	8	Pass



8. CONDUCTED BANDEGE AND SPURIOUS MEASUREMENT

8.1.LIMITS OF Conducted Bandedge and Spurious Measurement

CFR 47 (FCC) part 15.247 (d) and 558074 D01 DTS Meas Guidance v03r01

8.2.TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer.

Establish a reference level by using the following procedure:

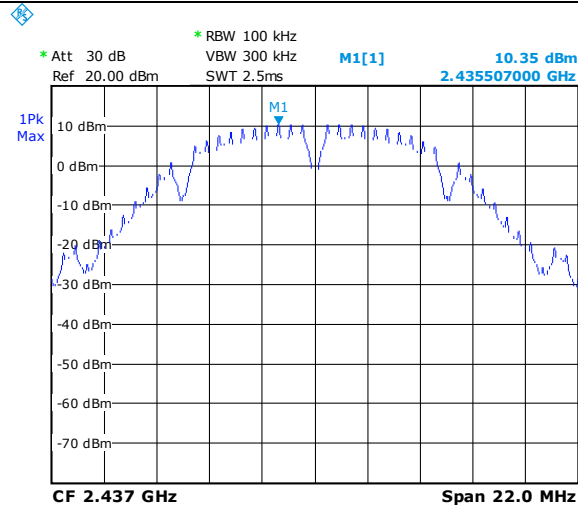
- a)Set instrument center frequency to DTS channel center frequency.
- b)Set the span to ≥ 1.5 times the DTS bandwidth.
- c)Set the RBW = 100 kHz.
- d)Set the VBW $\geq 3 \times$ RBW.
- e)Detector = peak.
- f)Sweep time = auto couple.
- g)Trace mode = max hold.
- h)Allow trace to fully stabilize.
- i)Use the peak marker function to determine the maximum PSD level.

Emission level measurement

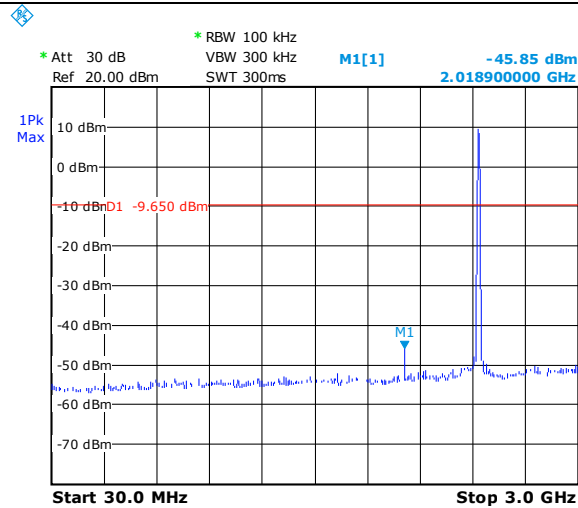
- a)Set the center frequency and span to encompass frequency range to be measured.
- b)Set the RBW = 100 kHz.
- c)Set the VBW $\geq 3 \times$ RBW.
- d)Detector = peak.
- e)Ensure that the number of measurement points \geq span/RBW
- f)Sweep time = auto couple.
- g)Trace mode = max hold.
- h)Allow trace to fully stabilize.
- i)Use the peak marker function to determine the maximum amplitude level.

802.11b CH6

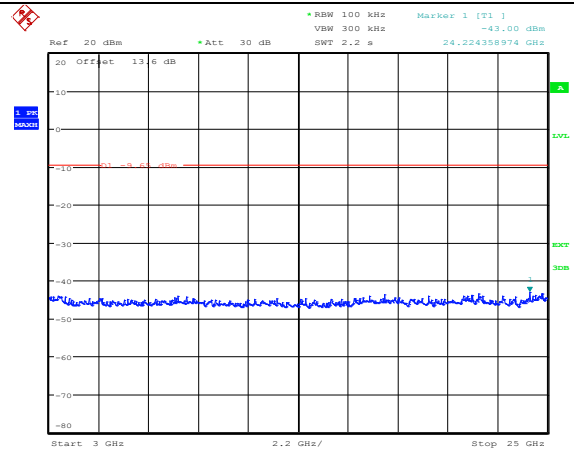
Pref



30MHz-3GHz



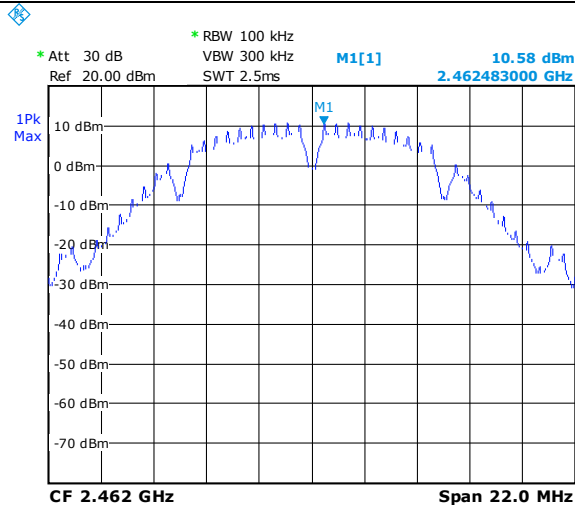
3GHz-25GHz



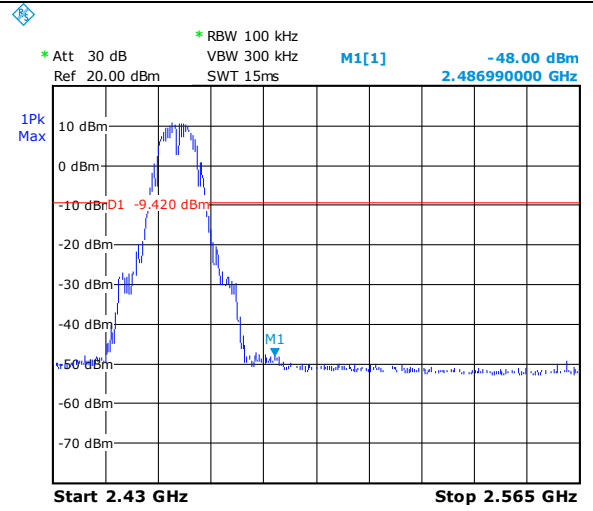
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802.11b CH11

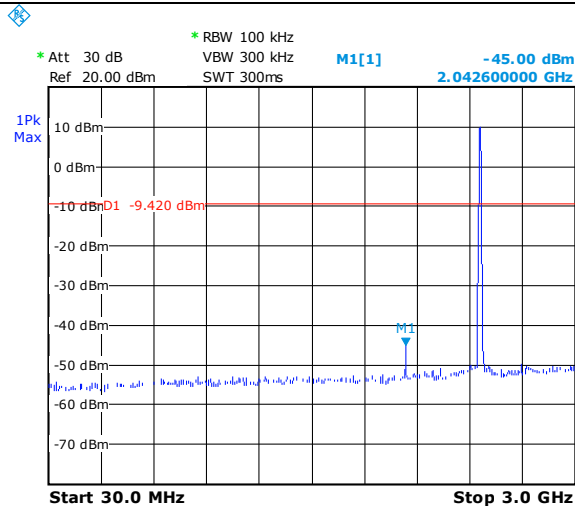
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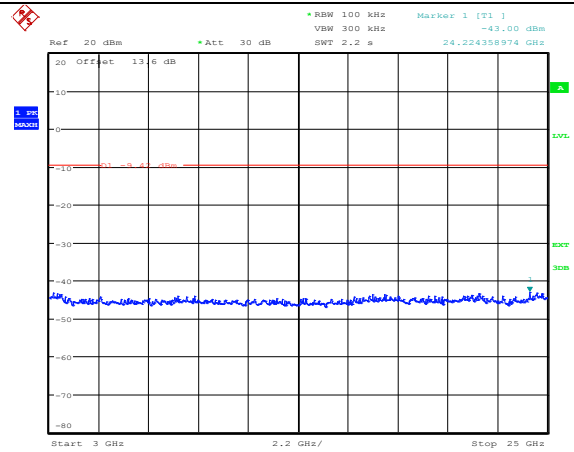
Upper Edge



30MHz-3GHz



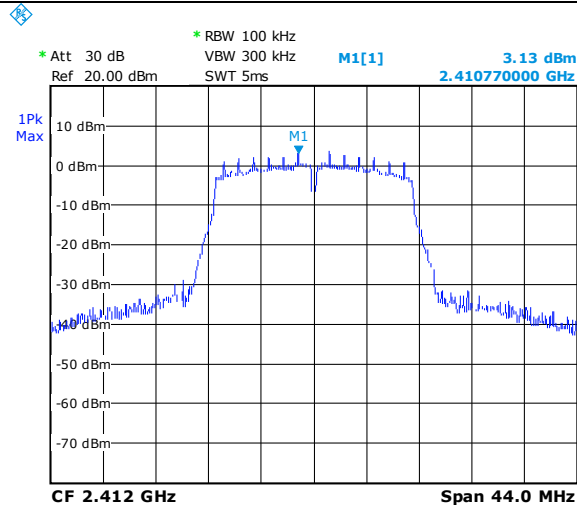
3GHz-25GHz



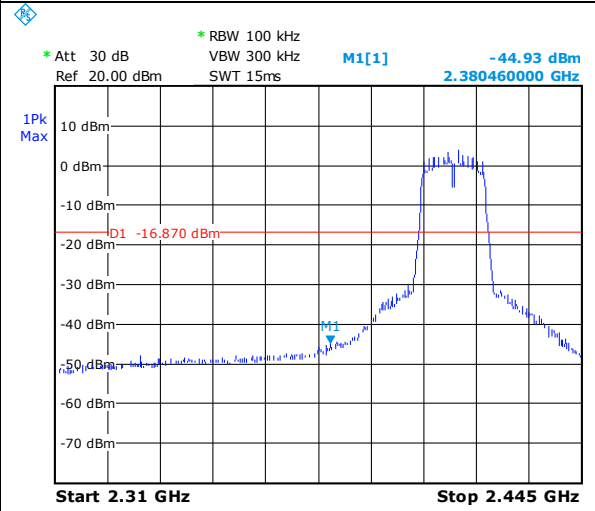
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802.11g CH1

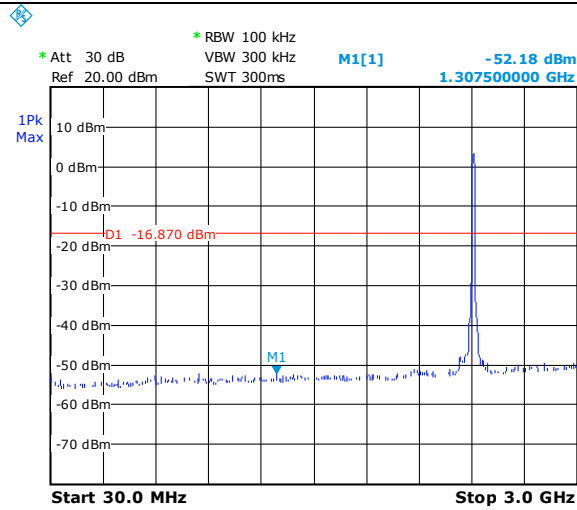
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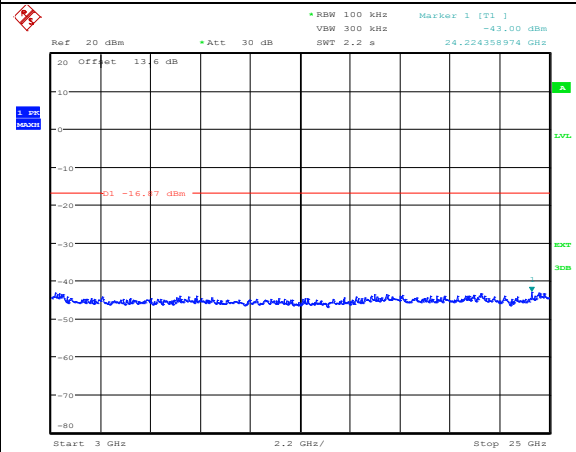
Lower Edge



30MHz-3GHz



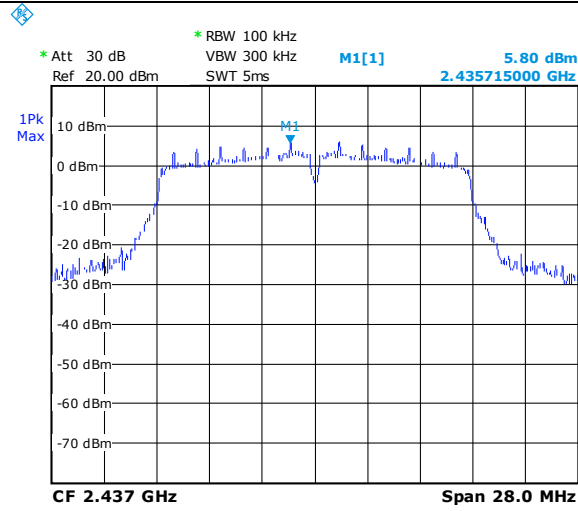
3GHz-25GHz



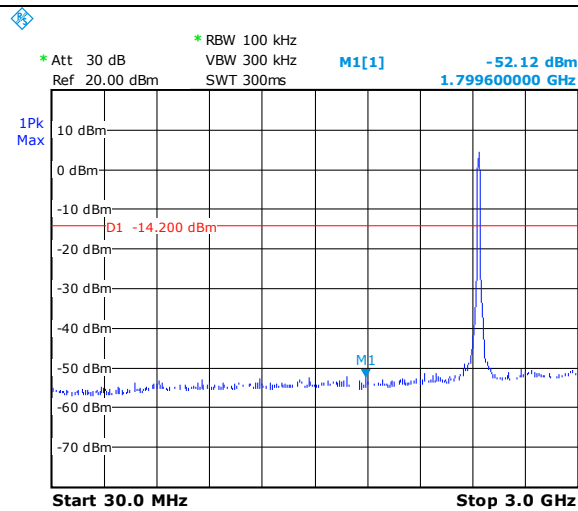
Date: 30.AUG.2013 09:20:14

802.11g CH6

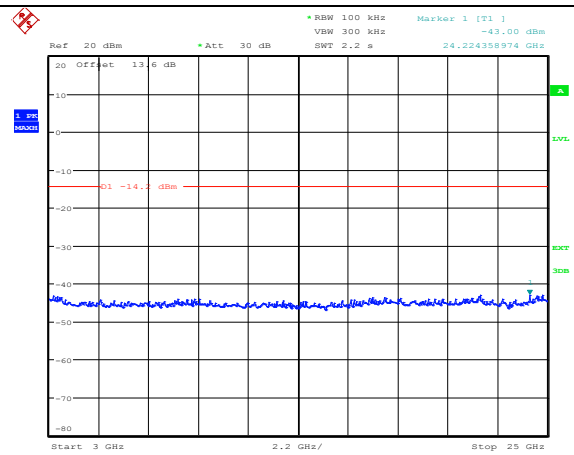
Pref



30MHz-3GHz



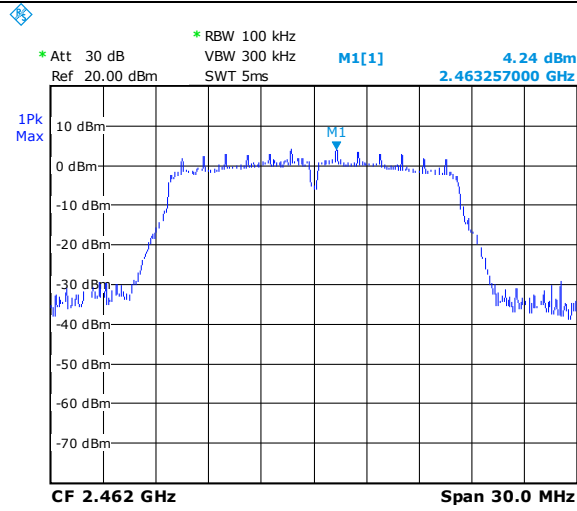
3GHz-25GHz



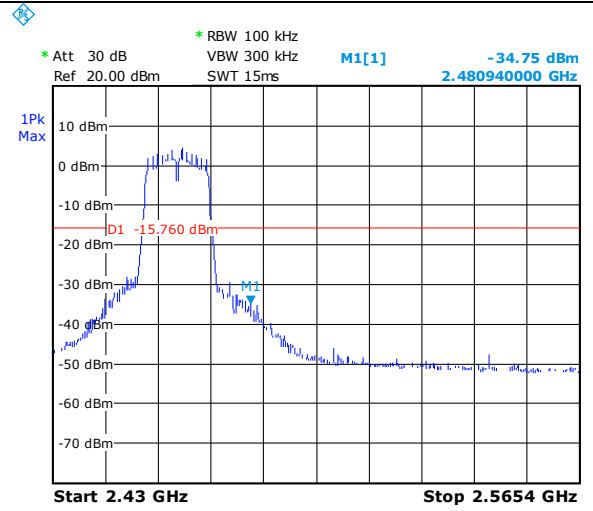
Date: 30.AUG.2013 09:21:00

802.11g CH11

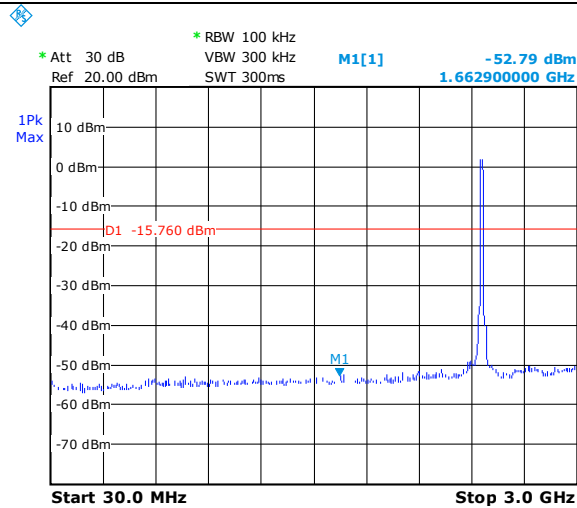
Pref



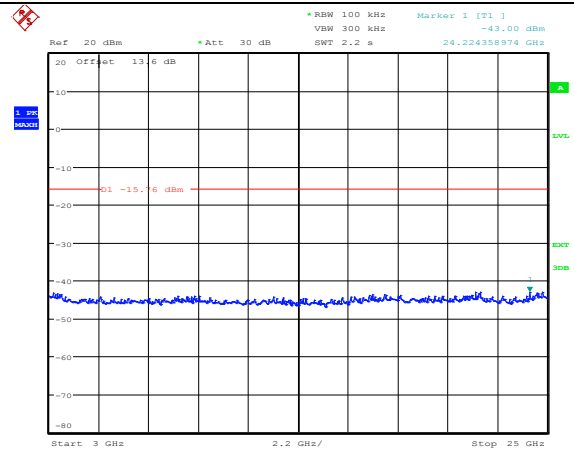
Upper Edge



30MHz-3GHz



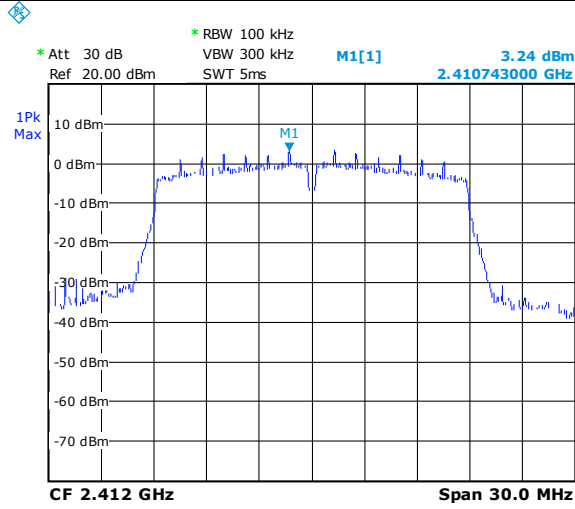
3GHz-25GHz



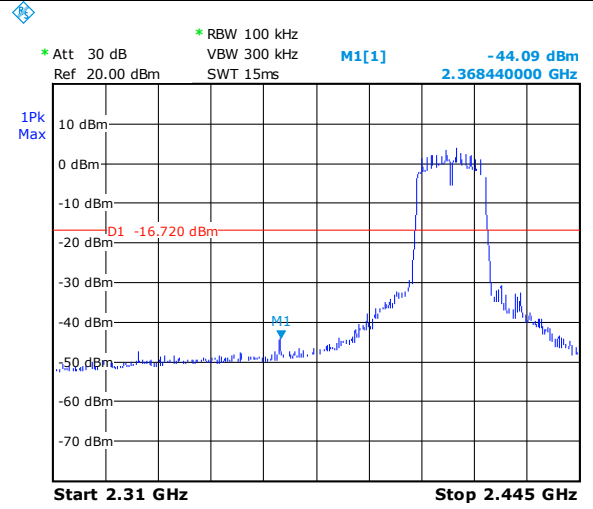
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802.11n 20M CH1

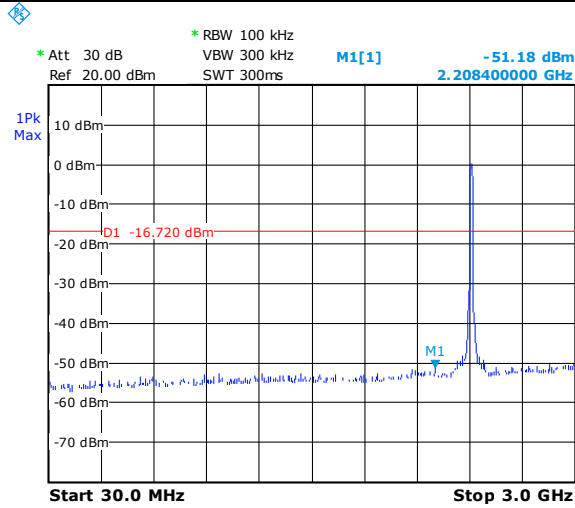
Pref



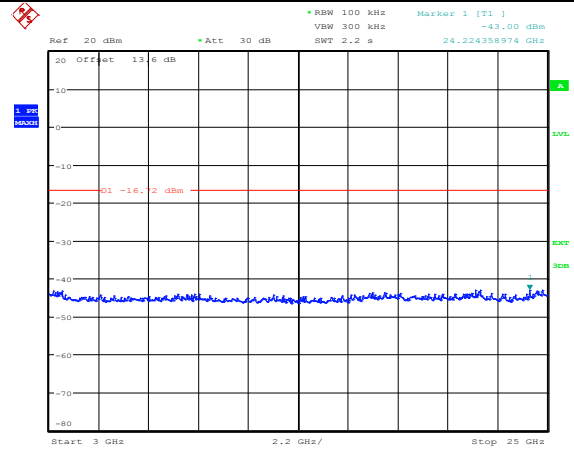
Lower Edge



30MHz-3GHz



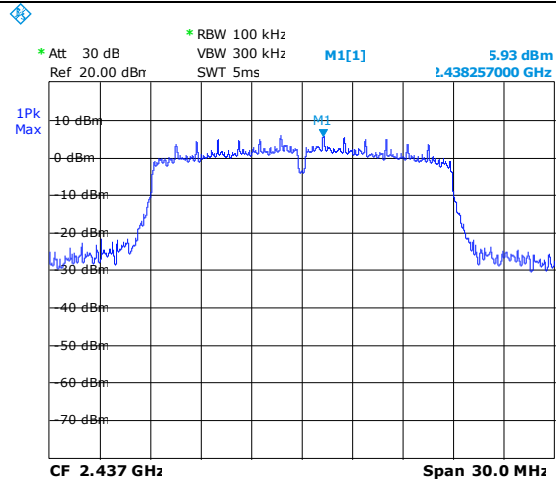
3GHz-25GHz



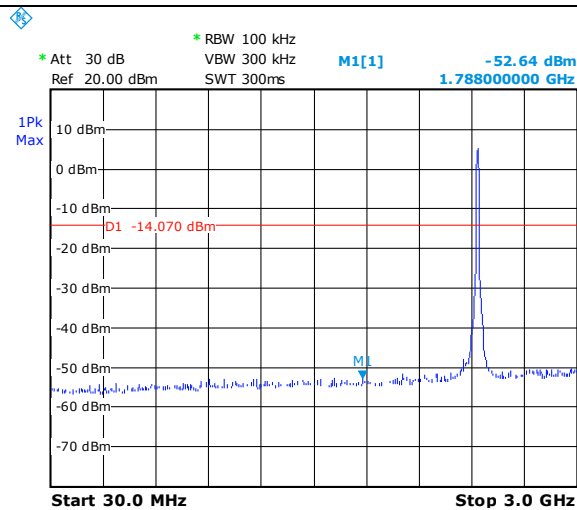
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802.11n 20M CH6

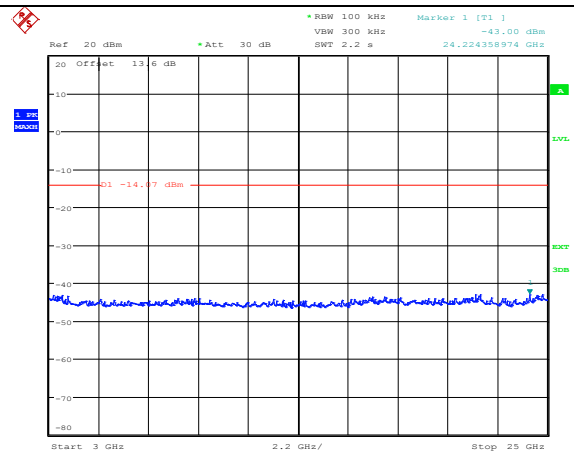
Pref



30MHz-3GHz



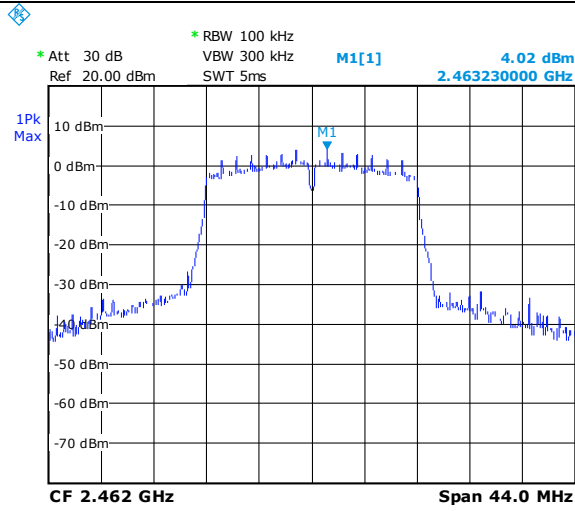
3GHz-25GHz



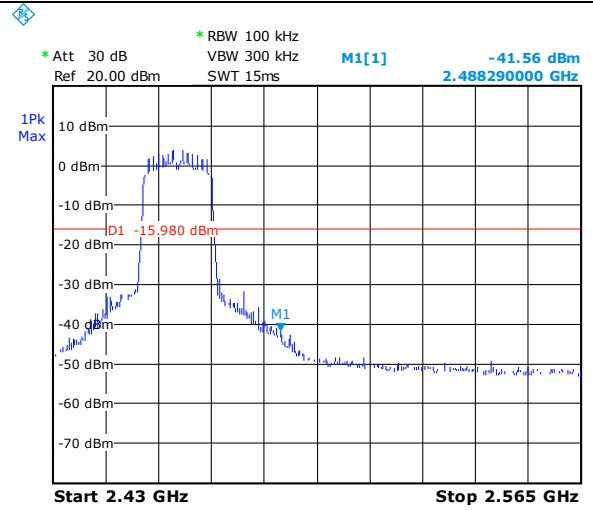
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802.11n 20M CH11

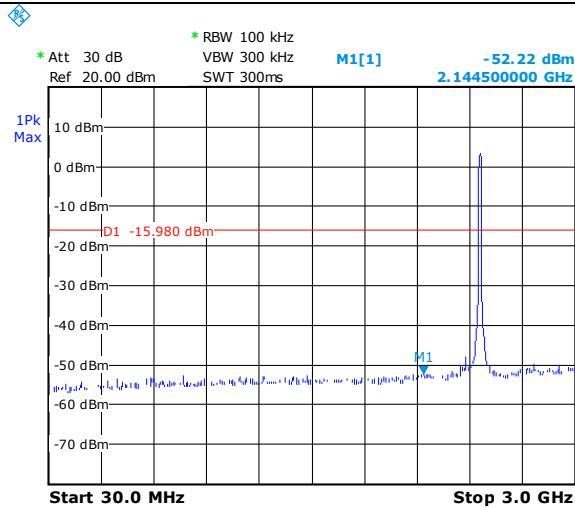
Pref



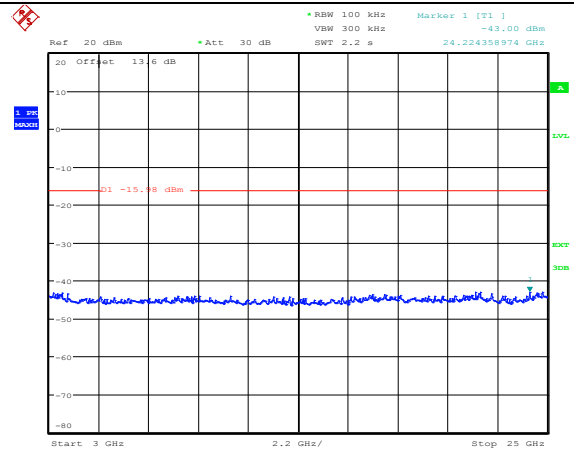
Upper Edge



30MHz-3GHz



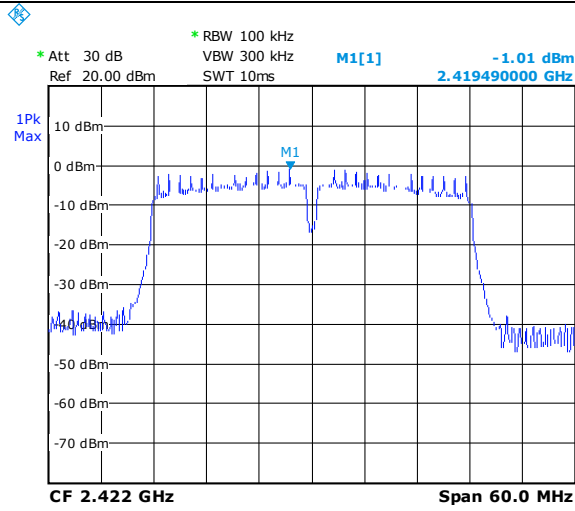
3GHz-25GHz



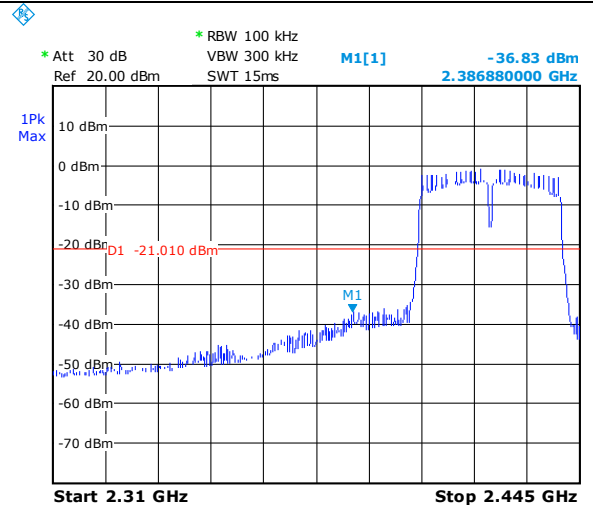
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802.11n 40M CH3

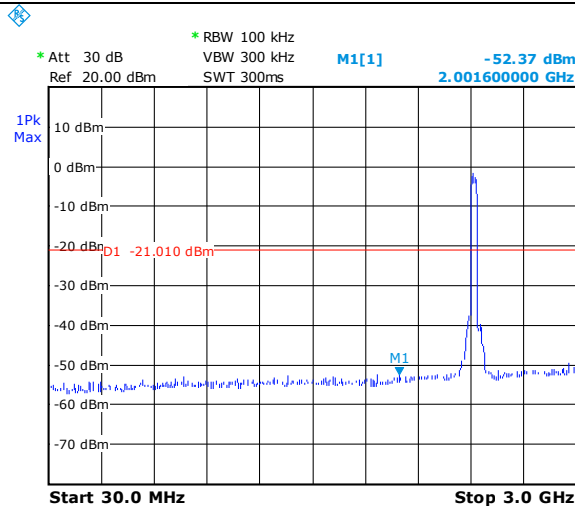
Pref



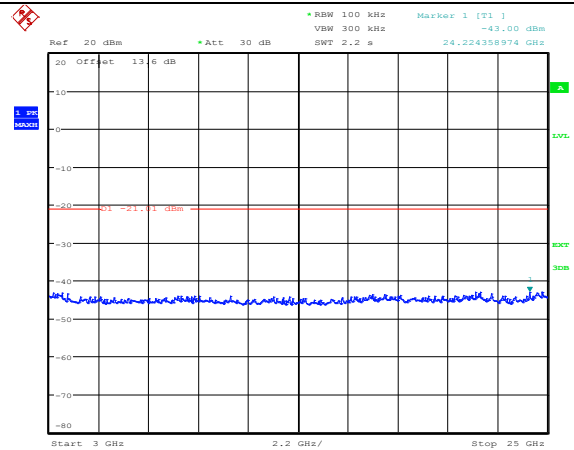
Lower Edge



30MHz-3GHz



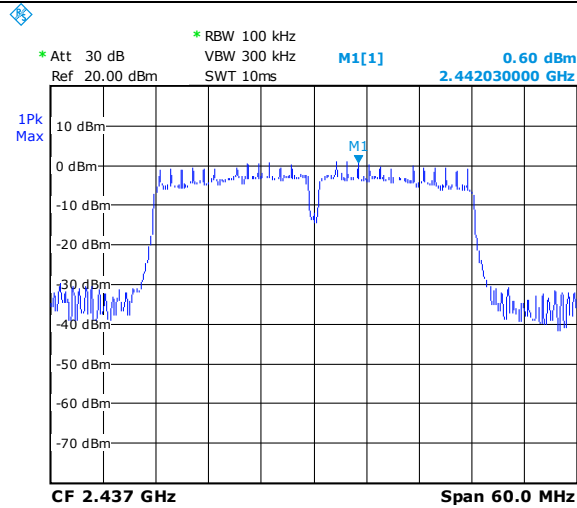
3GHz-25GHz



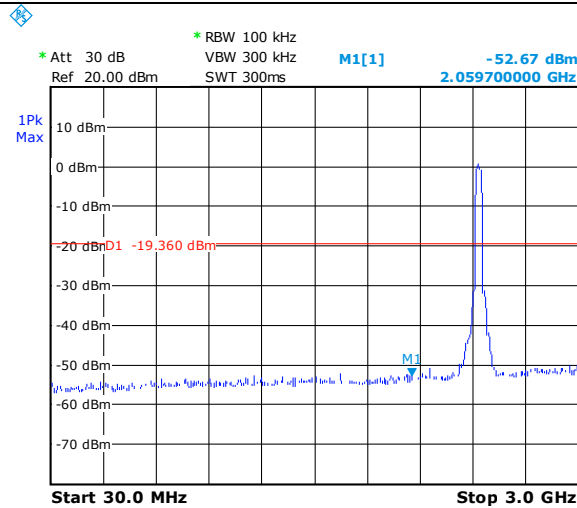
Date: 30.AUG.2013 09:23:41

802.11n 40M CH6

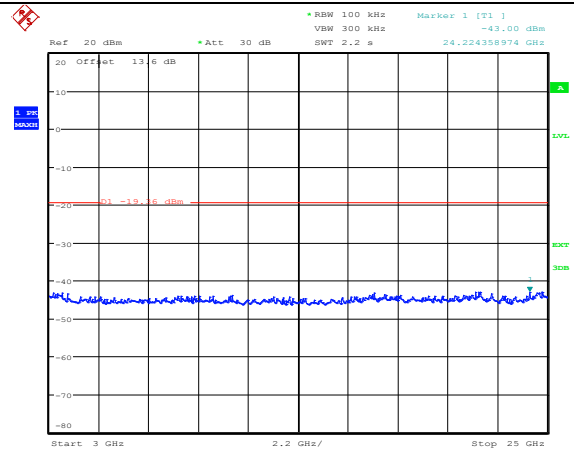
Pref



30MHz-3GHz



3GHz-25GHz



Date: 30.AUG.2013 09:24:13

9. RADIATED BANDEDGE AND SPURIOUS MEASUREMENT

9.1.LIMITS OF Radiated Bandedge and Spurious Measurement

CFR 47 (FCC) part 15.247 (d) and 558074 D01 DTS Meas Guidance v03r01

9.2.TEST PROCEDURE

1. The testing follows the guidelines in ANSI C63.10-2009.
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. The EUT was placed on a turntable with 0.8 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: $\text{Antenna Factor} + \text{Cable Loss} + \text{Read Level} - \text{Preamp Factor} = \text{Level}$
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 $f < 1 \text{ GHz}$; VBW \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold;
 - (3) Set RBW = 1 MHz, VBW= 3MHz for $f > 1 \text{ GHz}$ for peak measurement.
Set RBW = 1 MHz, VBW= 10Hz for $f > 1 \text{ GHz}$ for AV measurement.

9.3.TEST DATA

30MHz-1GHz

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

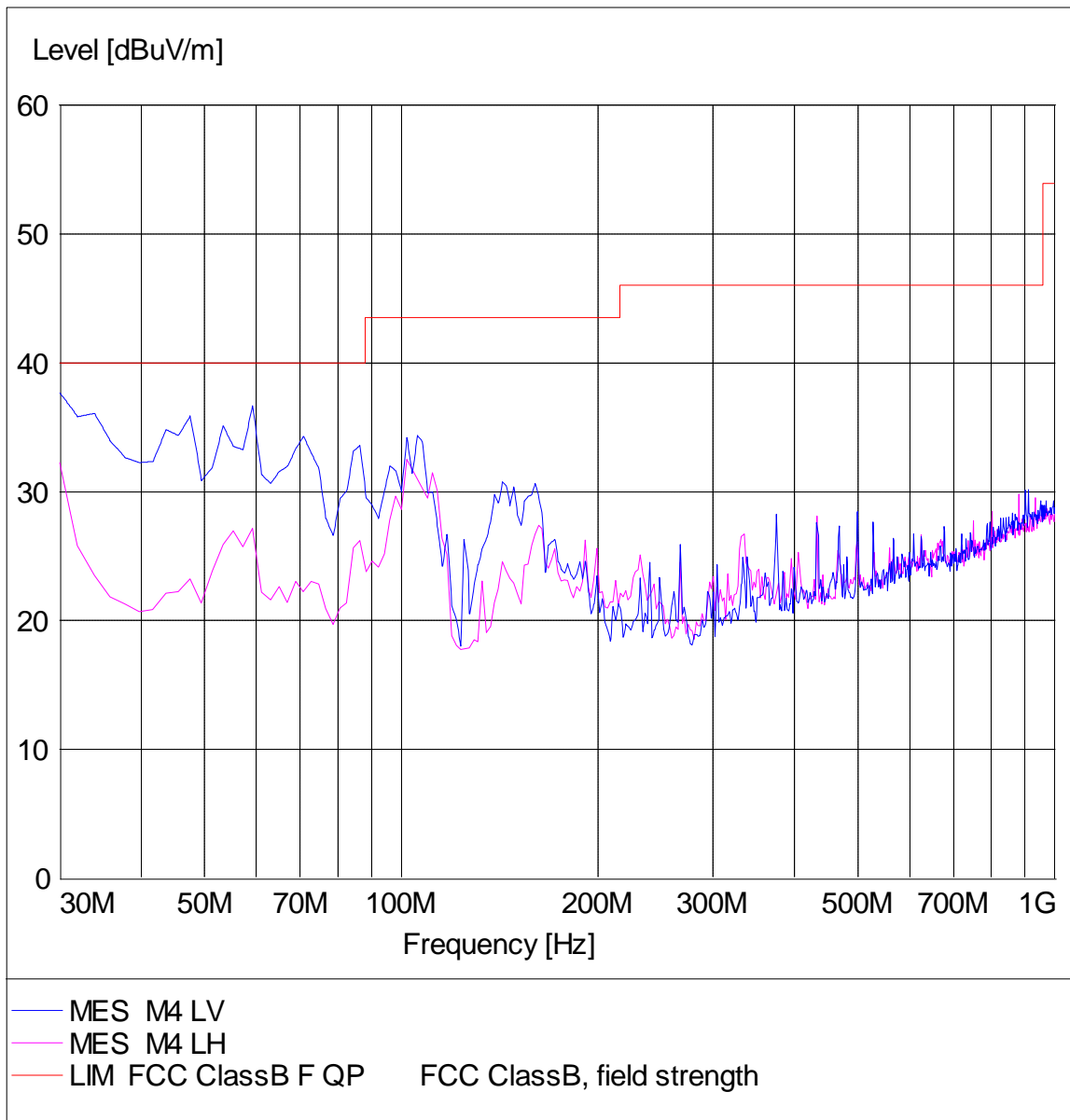
Table 17 Radiated Emission Test Data 30-1GHz

Frequency MHz	Cable Loss(dB)	Antenna Factor(dB)	Readings(dBμV/m)	Level(dBμV/m)	Polarity(H/V)	Turntable Angle(deg)	Antenna Height(m)	Limits(dBμV/m)	Margin(dB)
30.012	0.6	12.3	17.8	30.7	H	206.4	1.2	40.0	9.3
125.012	1.2	10.5	20.4	32.1	H	234.2	1.0	43.5	11.4
105.811	1.2	13.2	17.1	31.5	H	87.2	1.2	43.5	12.0
120.325	1.3	10.5	17.9	29.7	H	278.1	1.1	43.5	13.8
175.634	1.5	9.0	15.8	26.3	H	12.7	1.1	43.5	17.2
330.436	2.2	13.3	4.6	20.1	H	3.9	1.1	46.0	25.9
30.000	0.6	12.3	21.7	34.6	V	321.2	1.1	40.0	5.4
47.494	0.8	13.6	15.8	30.2	V	352.3	1.2	40.0	9.8
59.158	0.9	13.0	19.7	33.6	V	193.1	1.1	40.0	6.4
70.821	0.9	8.7	20.0	29.6	V	110.2	1.1	40.0	10.4
105.811	1.2	13.2	18.0	32.4	V	55.0	1.1	43.5	11.1
152.736	1.4	8.3	18.6	28.3	V	135.5	1.2	43.5	15.2

Radiated Emission

SMQ NETC EMC Lab.3m Chamber

EUT Name: M4 SS1060
Manufacturer:
Operator:
Operating Condition: 802.11n 40M
Antenna Position: Vertical&Horizontal
Comment1: AC 120V/60Hz
Comment2:



1GHz-18GHz

11B CH1

Radiated Emission

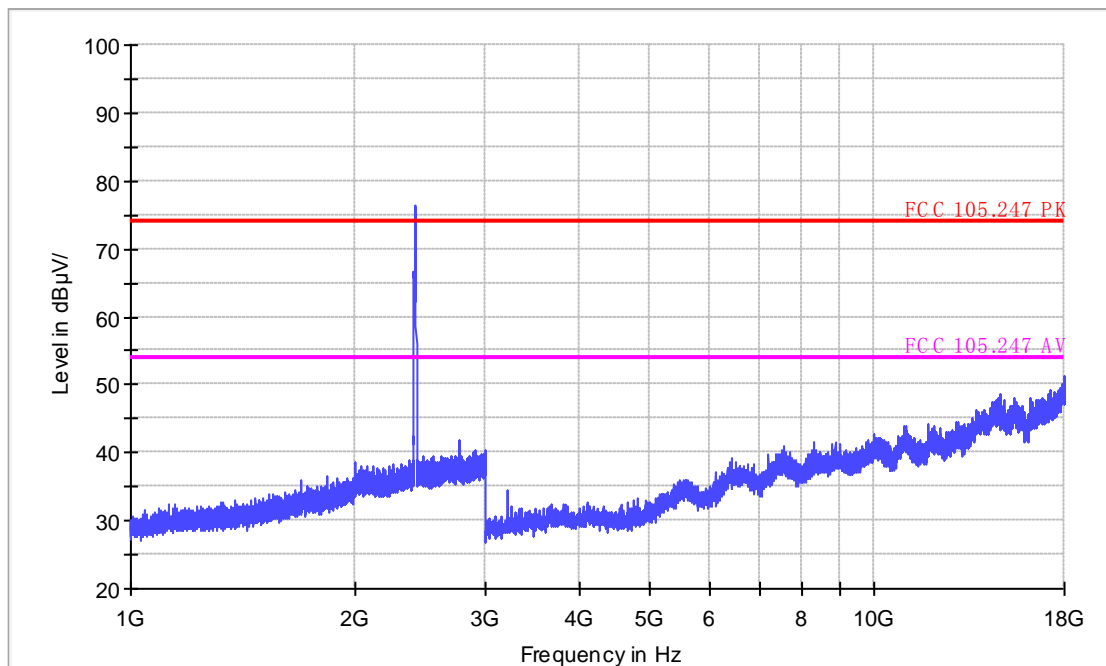
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11B CH1
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

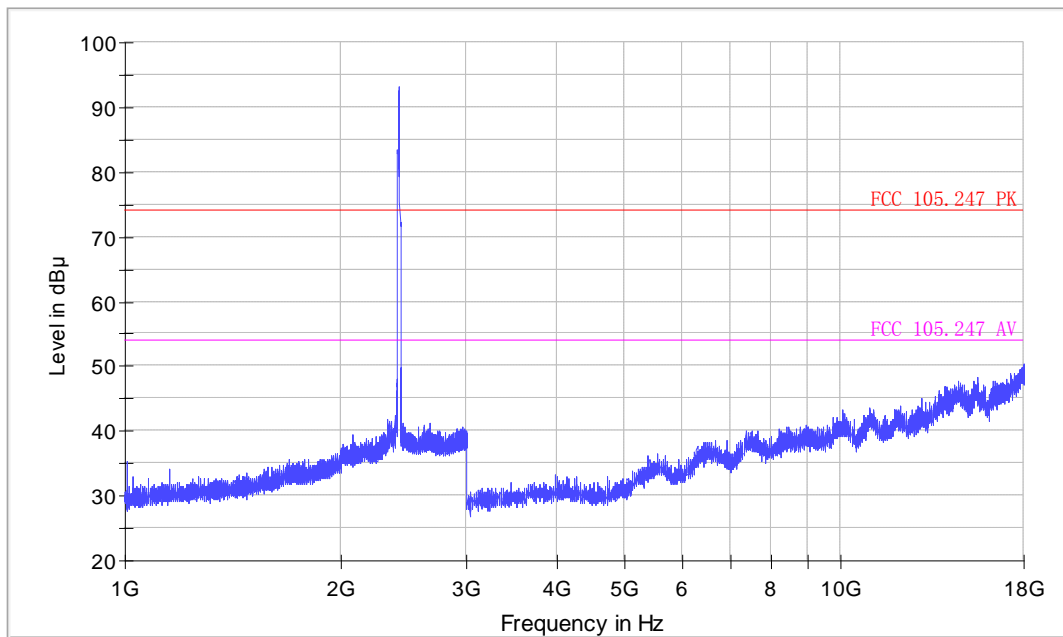
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11B CH1
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

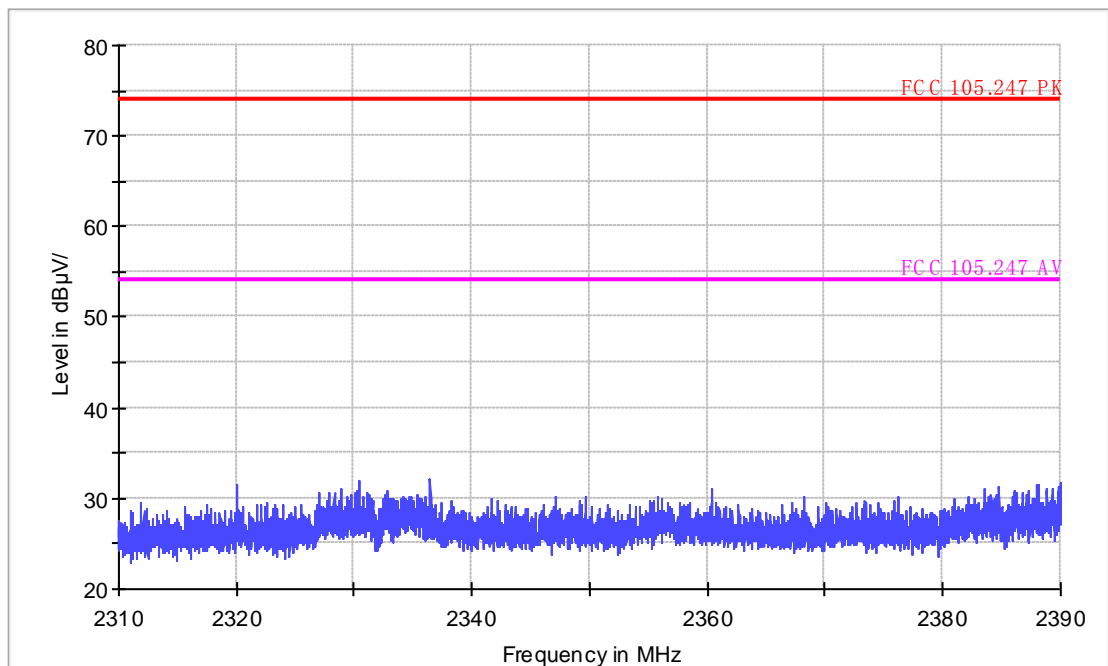
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11B CH1
Test Voltage:
Comment:

Common Information

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

FCC Electric Field Strength 2.4GHz Bandedge-PK



Radiated Emission

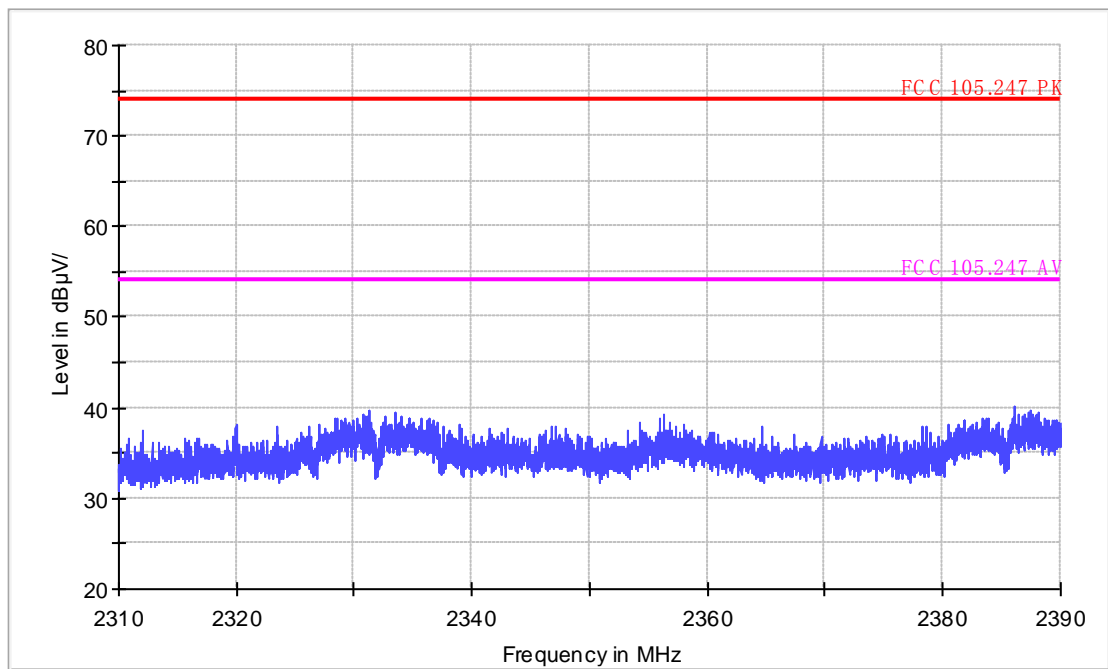
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11B CH1
Test Voltage:
Comment:

Common Information

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

FCC Electric Field Strength 2.4GHz Bandedge-PK



11B CH6

Radiated Emission

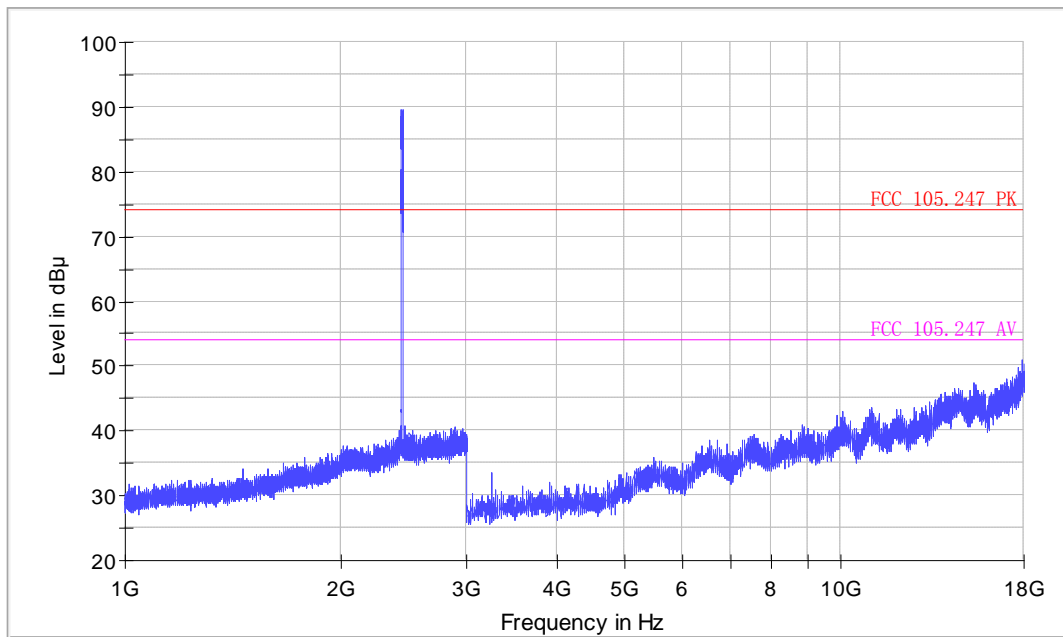
EUT Information

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Operation mode: 11B CH6
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

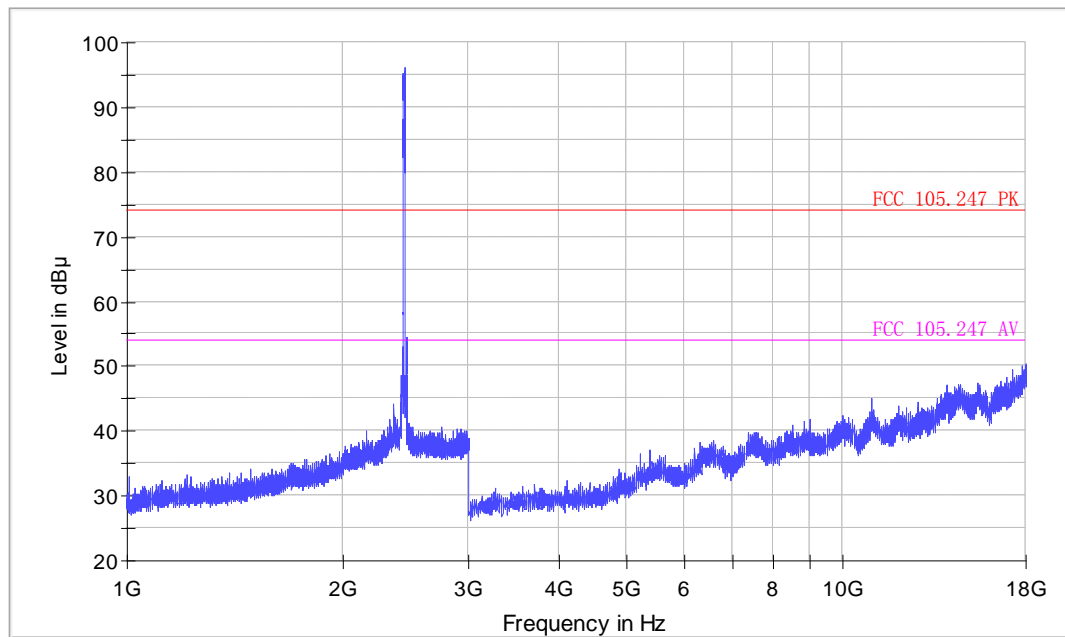
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11B CH6
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



11B CH11

Radiated Emission

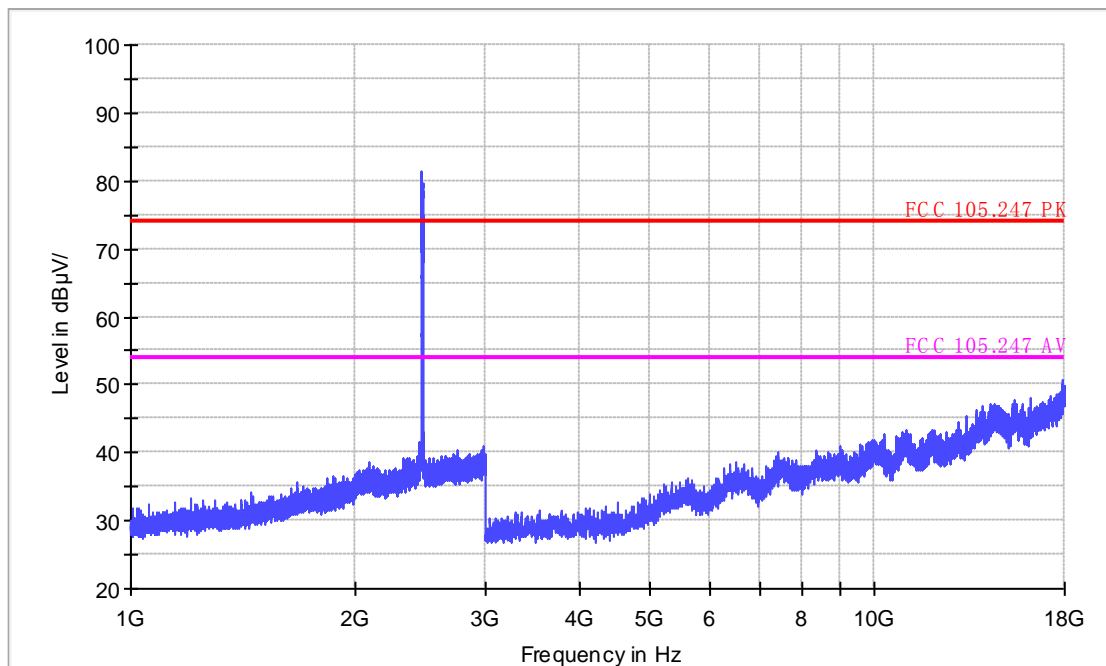
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11B CH11
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

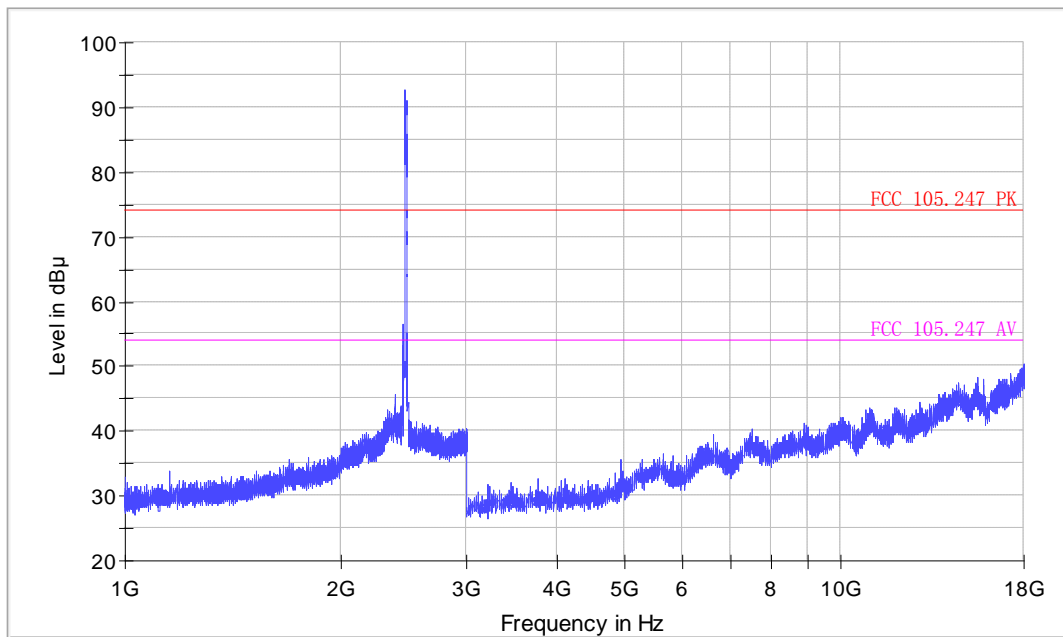
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11B CH11
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

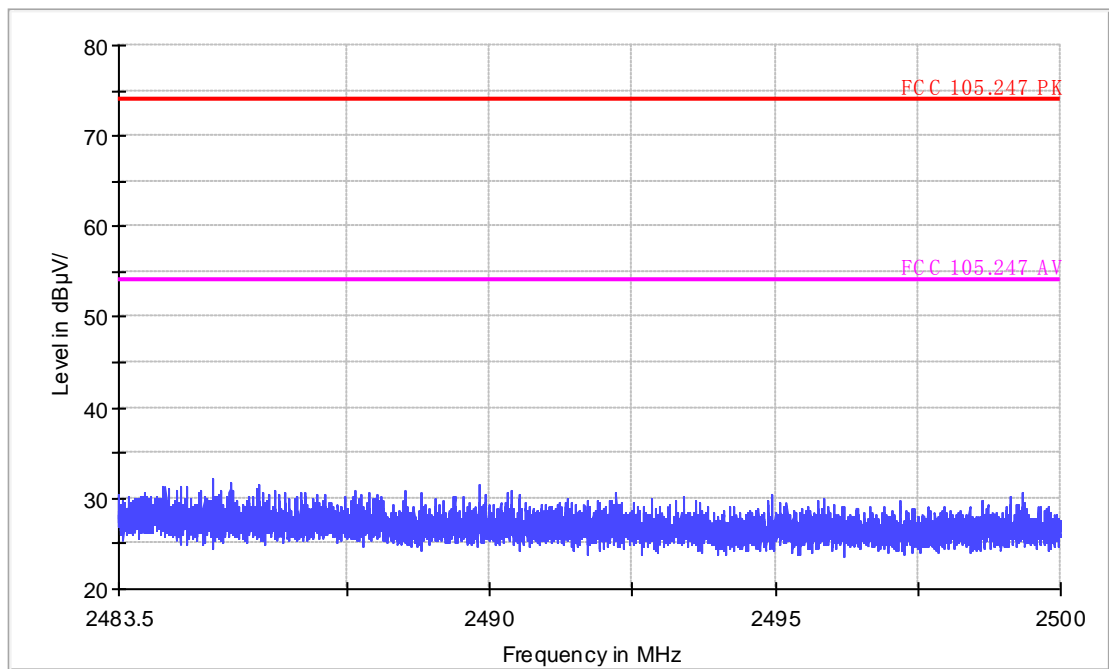
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11B CH11
Test Voltage:
Comment:

Common Information

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

Copy of FCC Electric Field Strength 1-18GHz



Radiated Emission

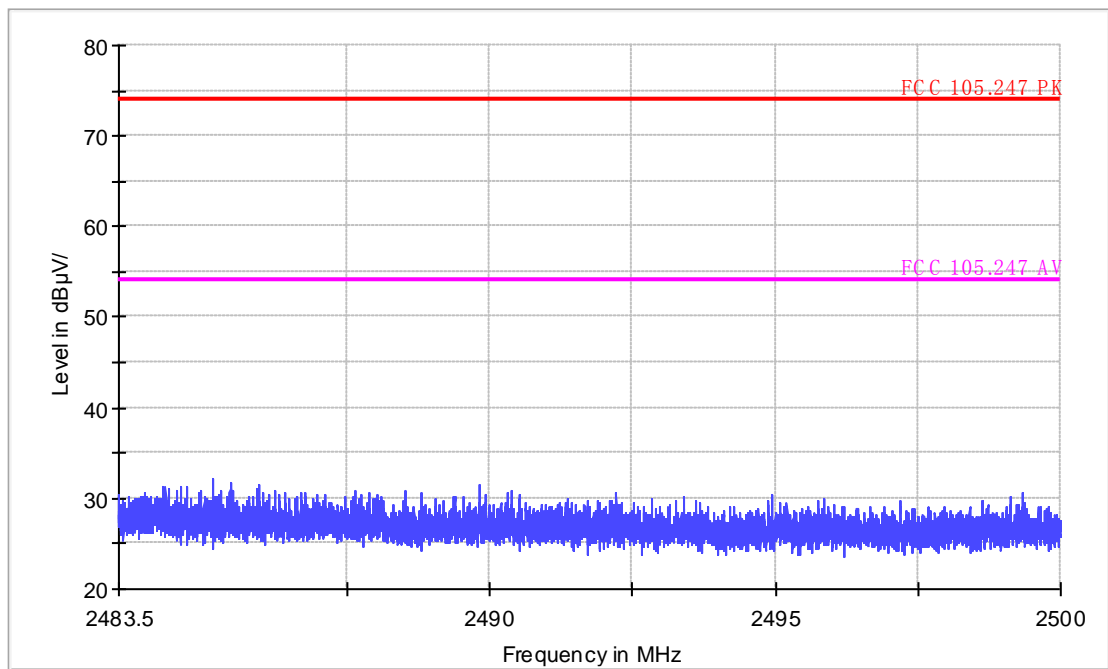
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11B CH11
Test Voltage:
Comment:

Common Information

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

Copy of FCC Electric Field Strength 1-18GHz



11G CH1

Radiated Emission

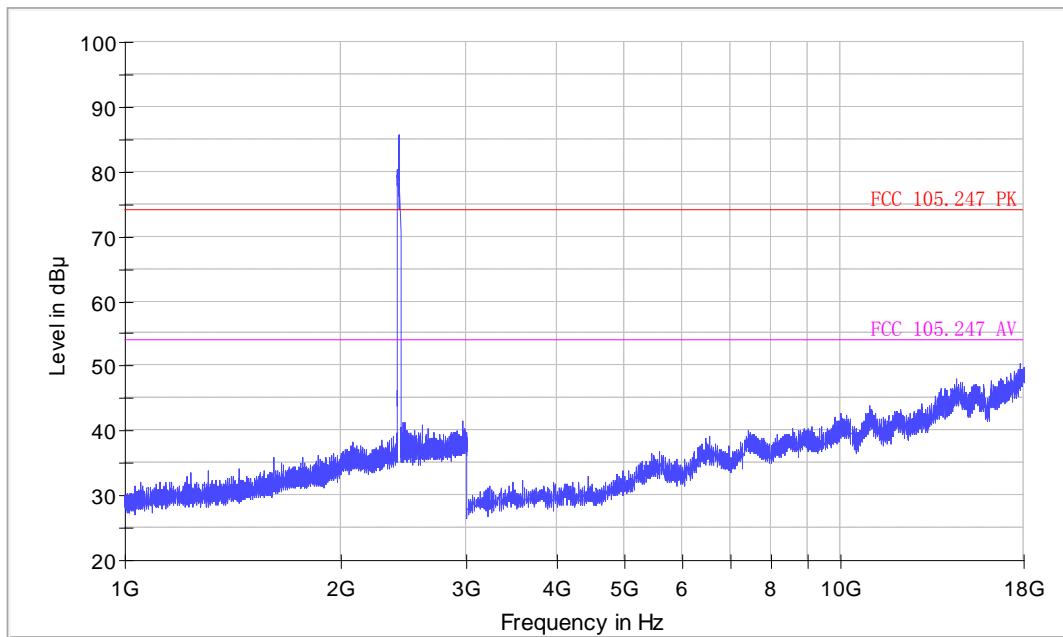
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11a CH1
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

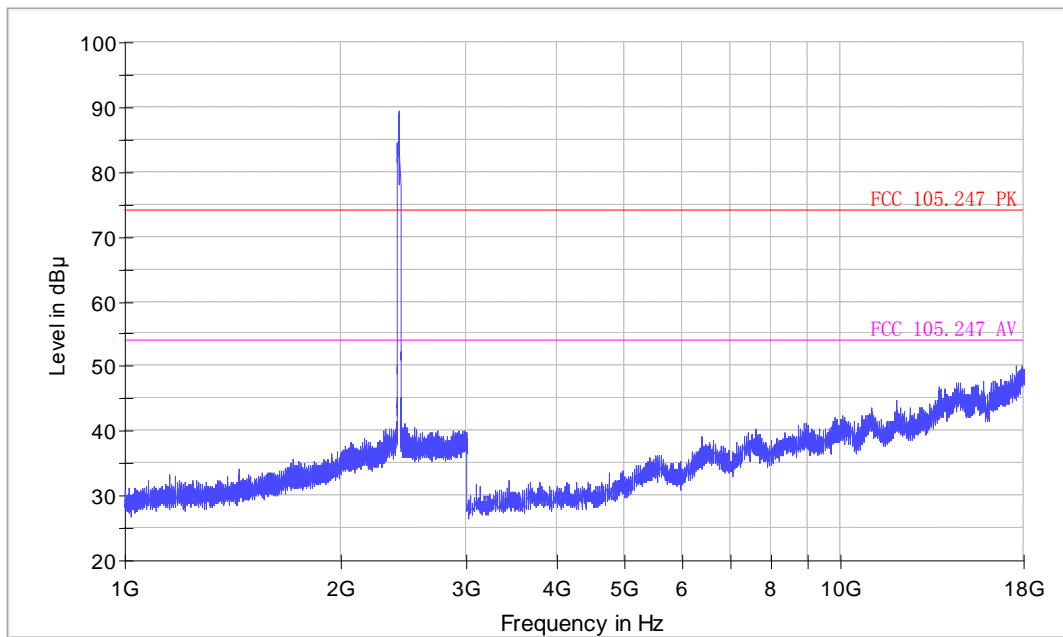
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11g CH1
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

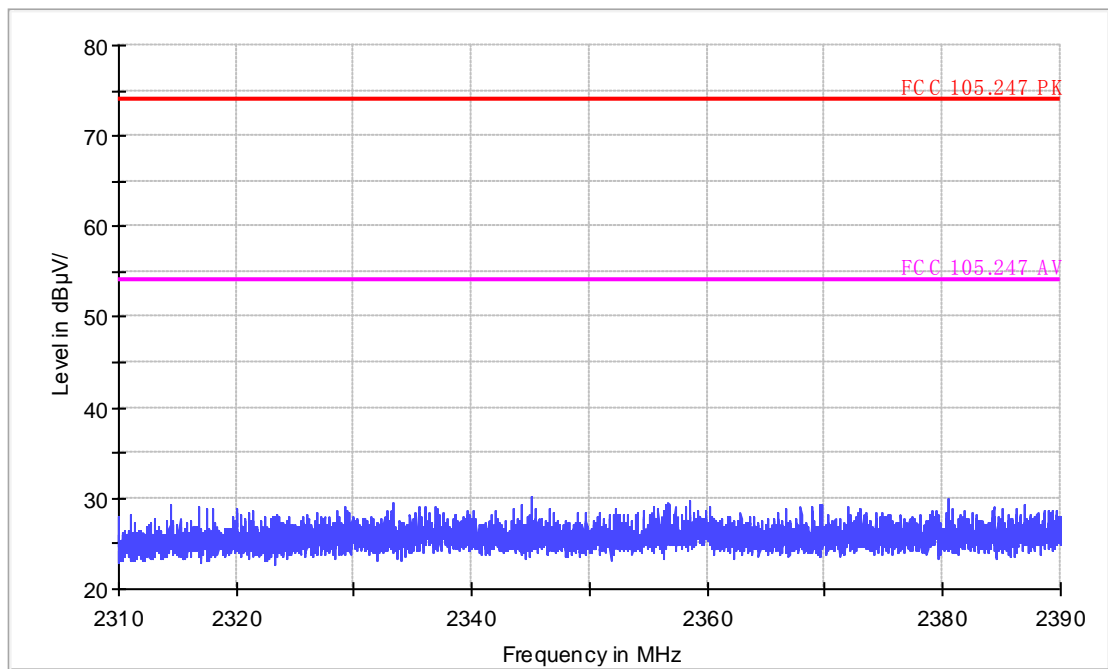
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11g CH1
Test Voltage:
Comment:

Common Information

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

FCC Electric Field Strength 2.4GHz Bandedge-PK



Radiated Emission

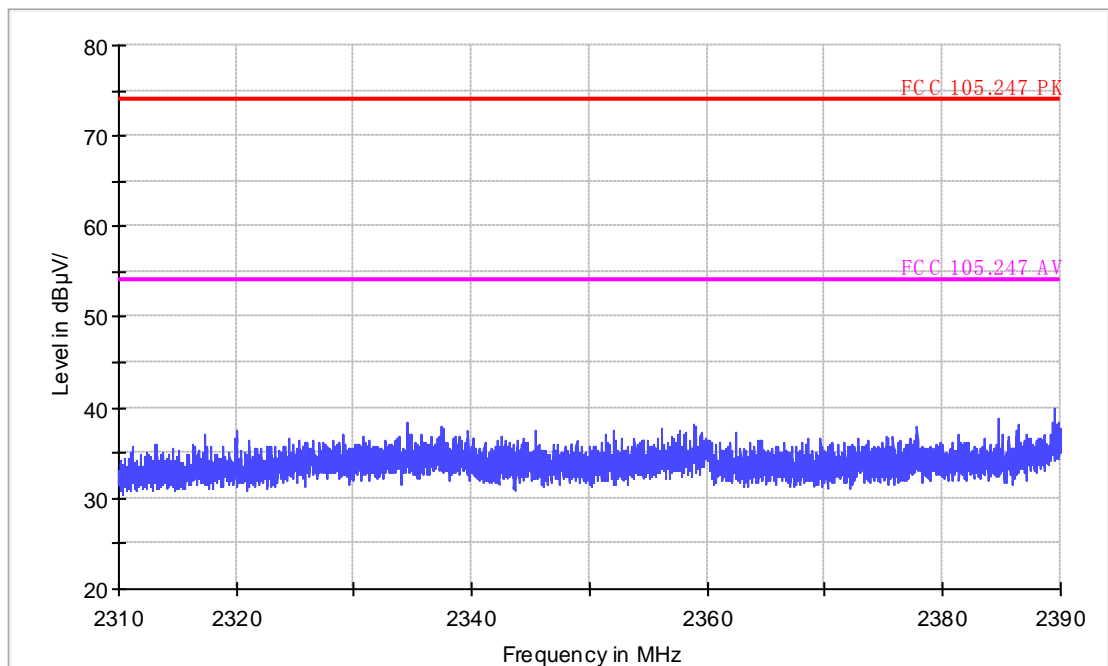
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11g CH1
Test Voltage:
Comment:

Common Information

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

FCC Electric Field Strength 2.4GHz Bandedge-PK



11G CH6

Radiated Emission

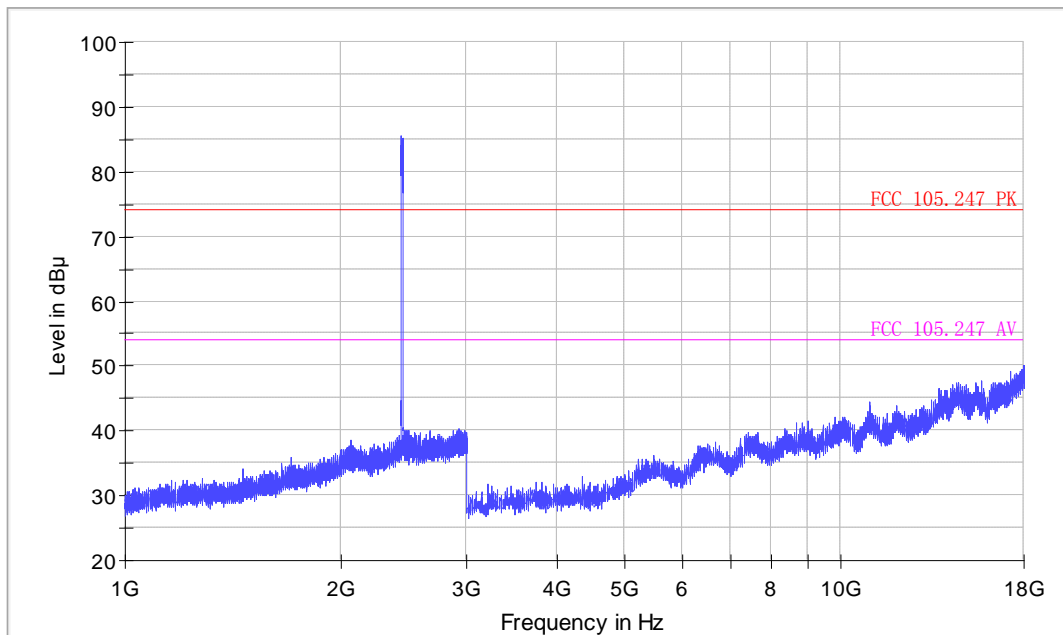
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11a CH6
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

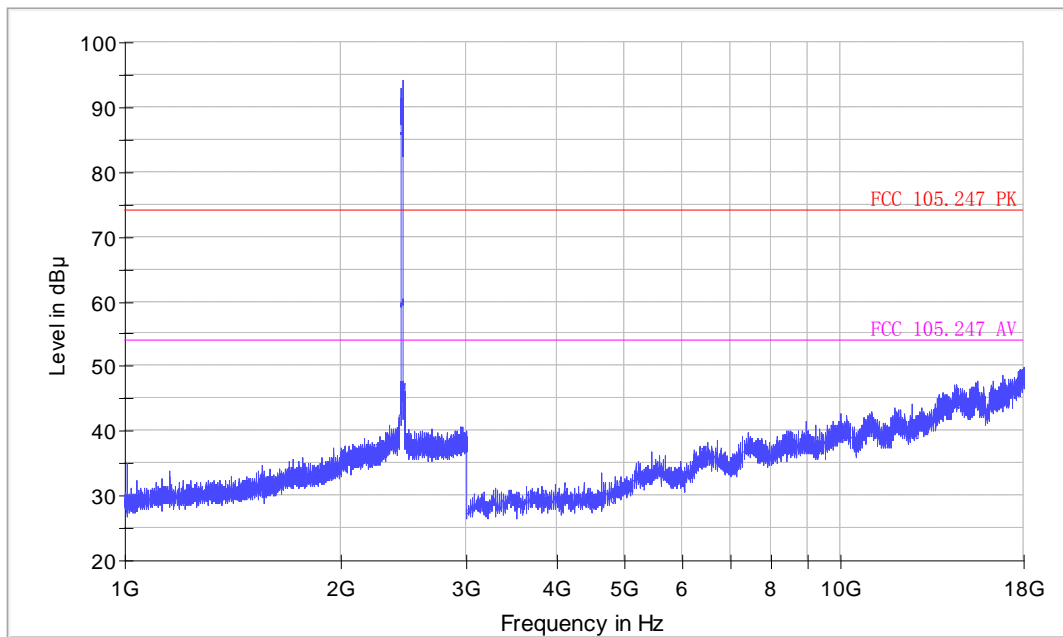
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11g CH6
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



11G CH11

Radiated Emission

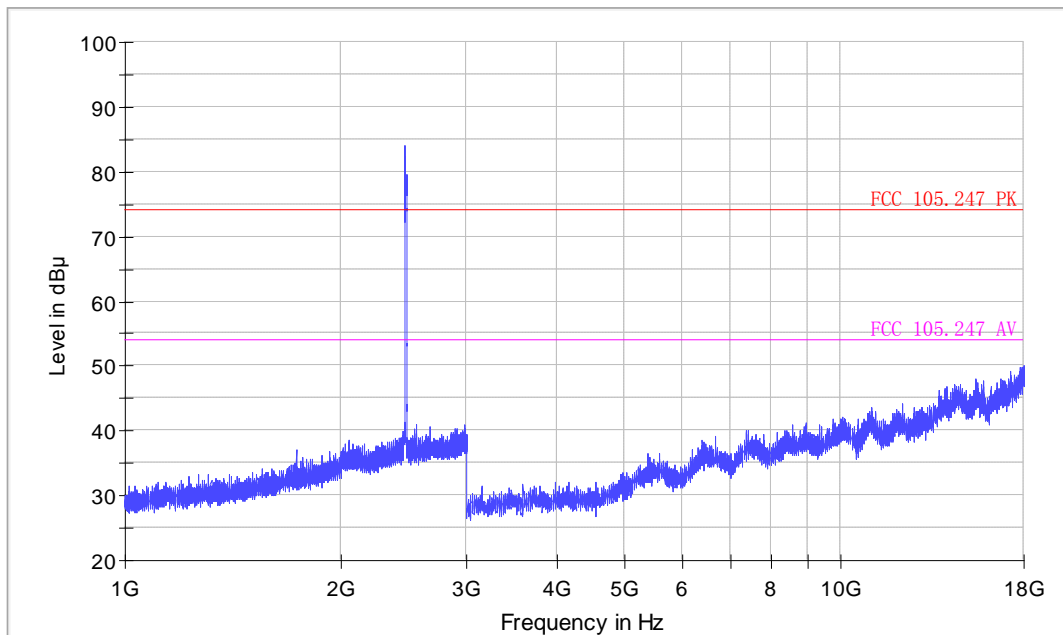
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11a CH11
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

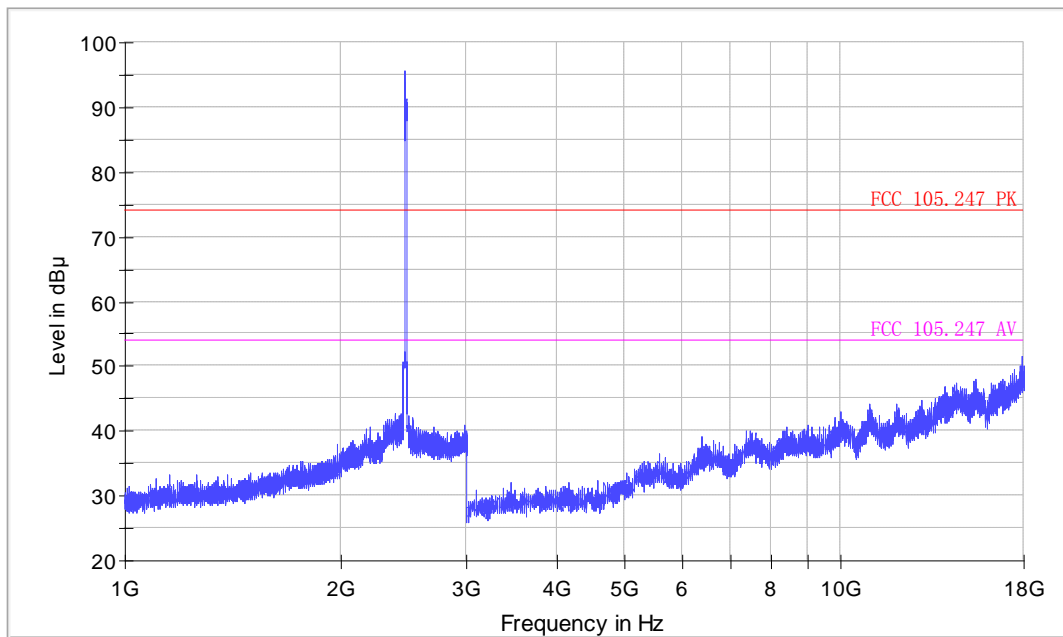
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11g CH11
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

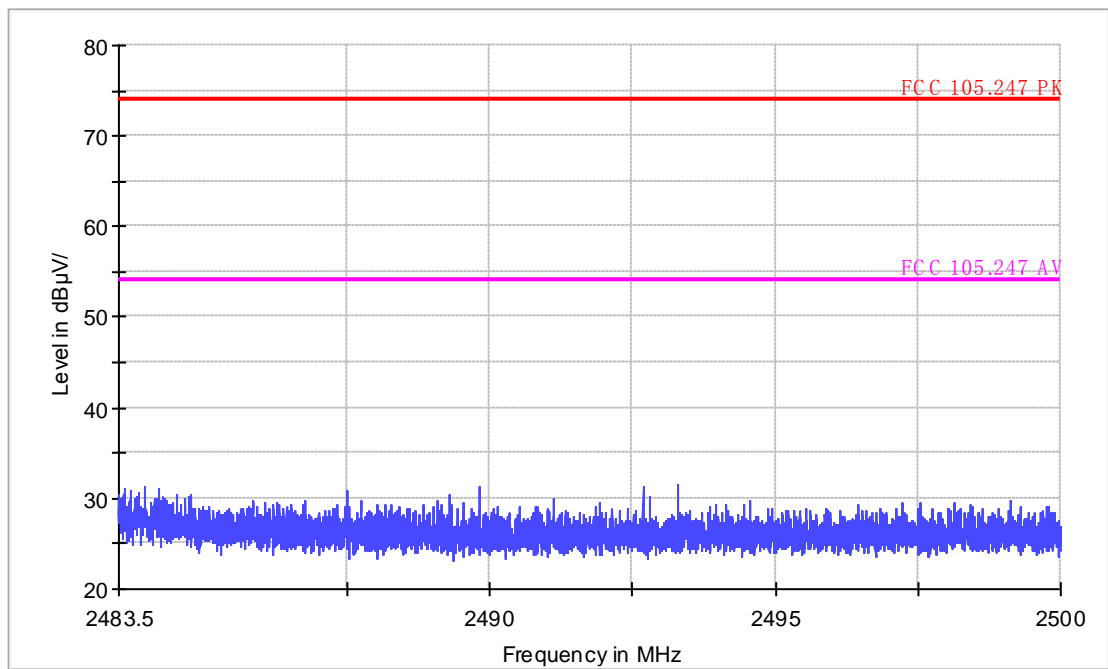
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11g CH11
Test Voltage:
Comment:

Common Information

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

Copy of FCC Electric Field Strength 1-18GHz



Radiated Emission

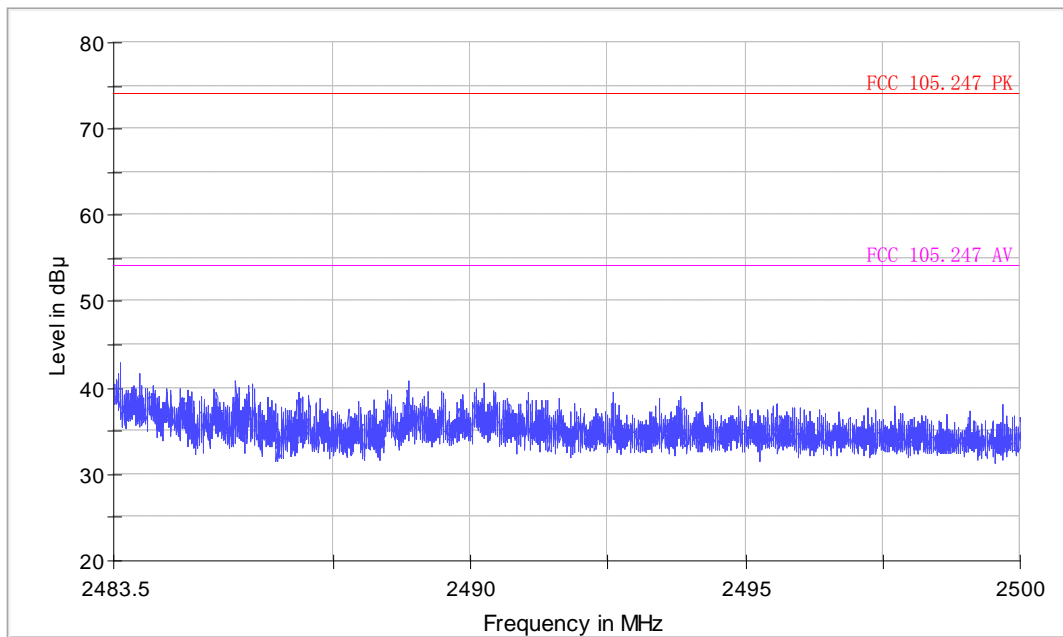
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11g CH11
Test Voltage:
Comment:

Common Information

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

FCC Electric Field Strength 2.4GHz Bandedge-PK



11N 20M CH1

Radiated Emission

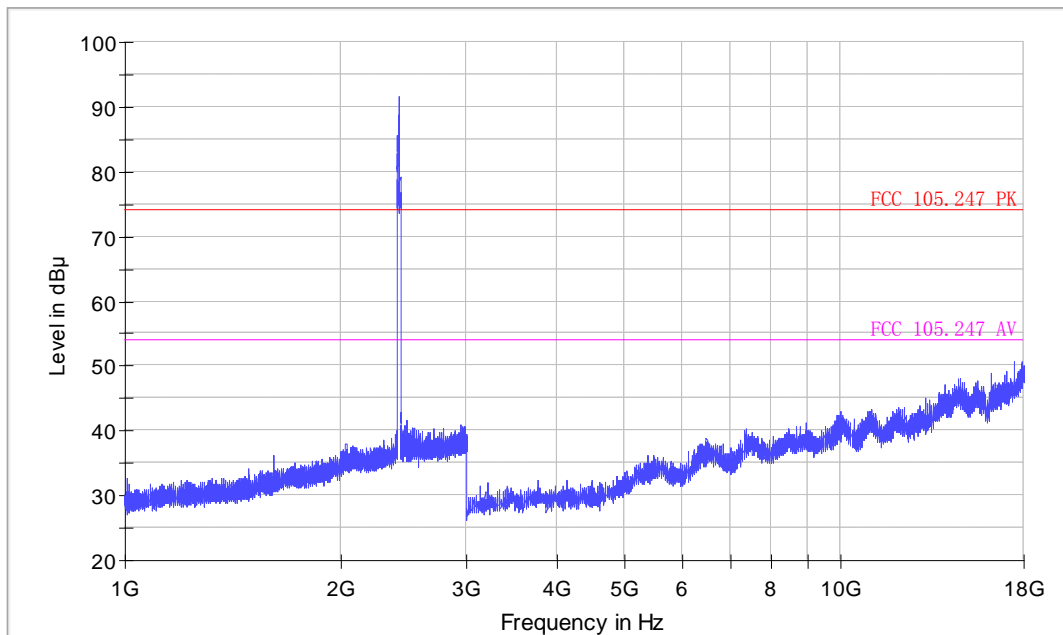
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(20M) CH1
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

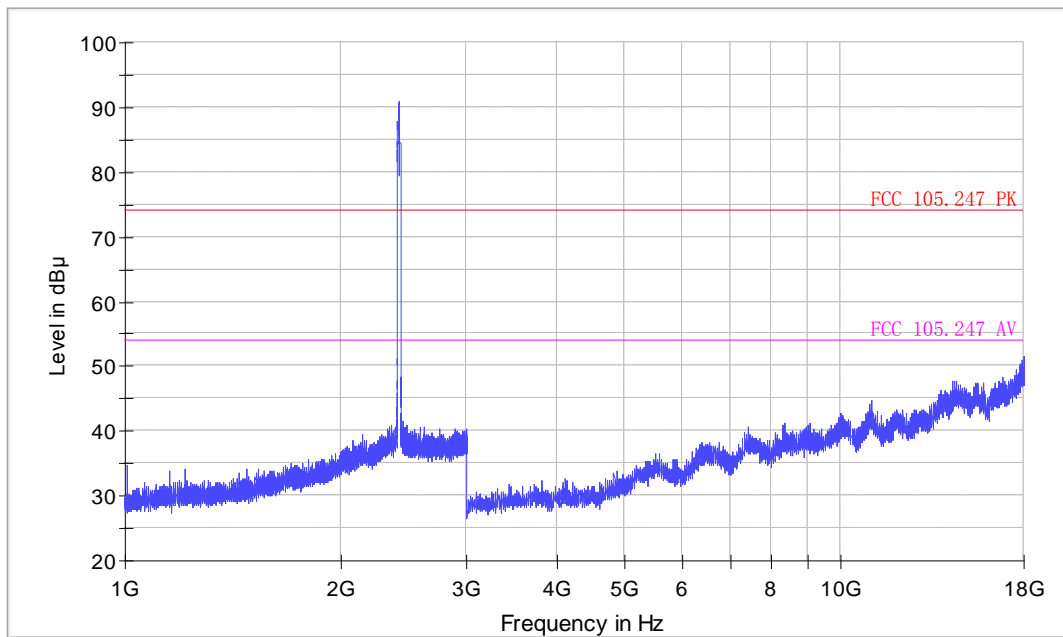
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(20M) CH1
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

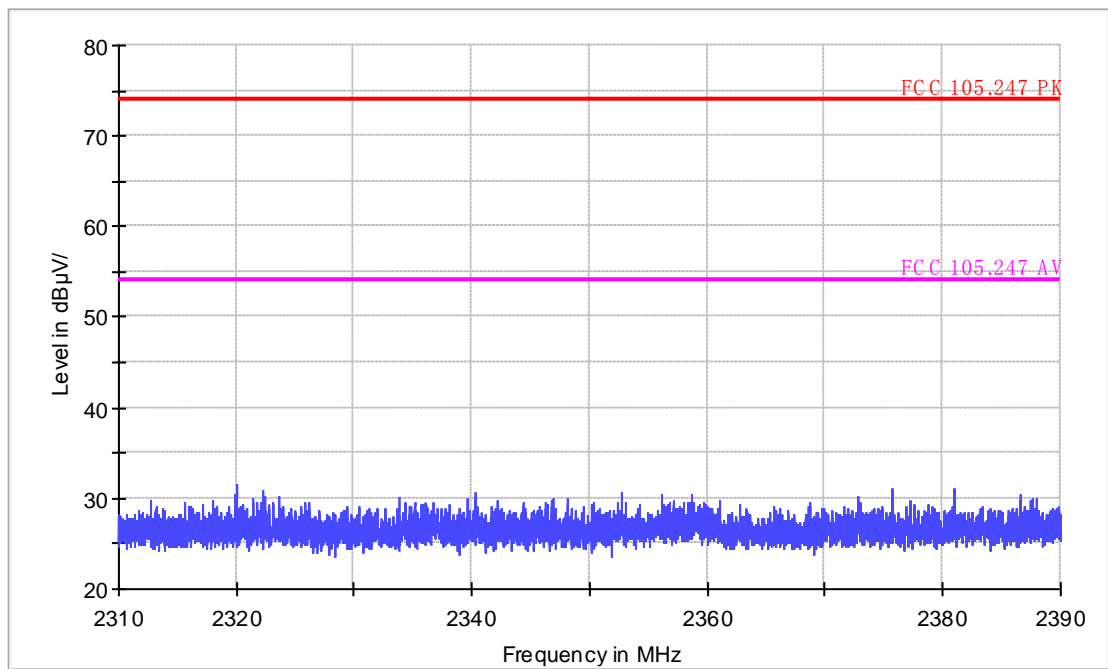
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(20M) CH1
Test Voltage:
Comment:

Common Information

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

FCC Electric Field Strength 2.4GHz Bandedge-PK



Radiated Emission

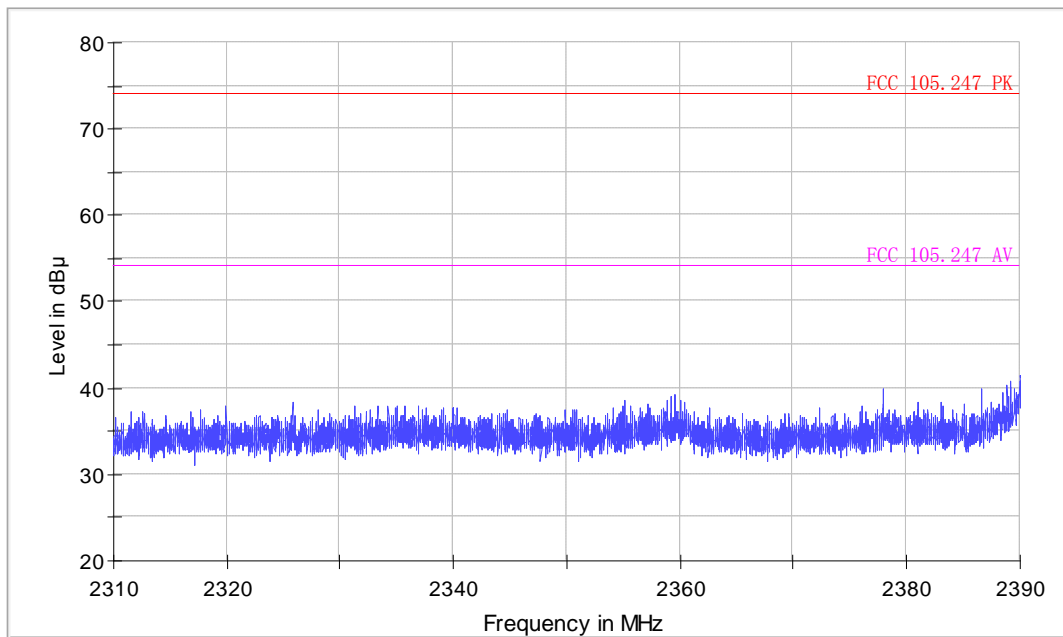
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(20M) CH1
Test Voltage:
Comment:

Common Information

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

FCC Electric Field Strength 2.4GHz Bandedge-PK



11N 20M CH6

Radiated Emission

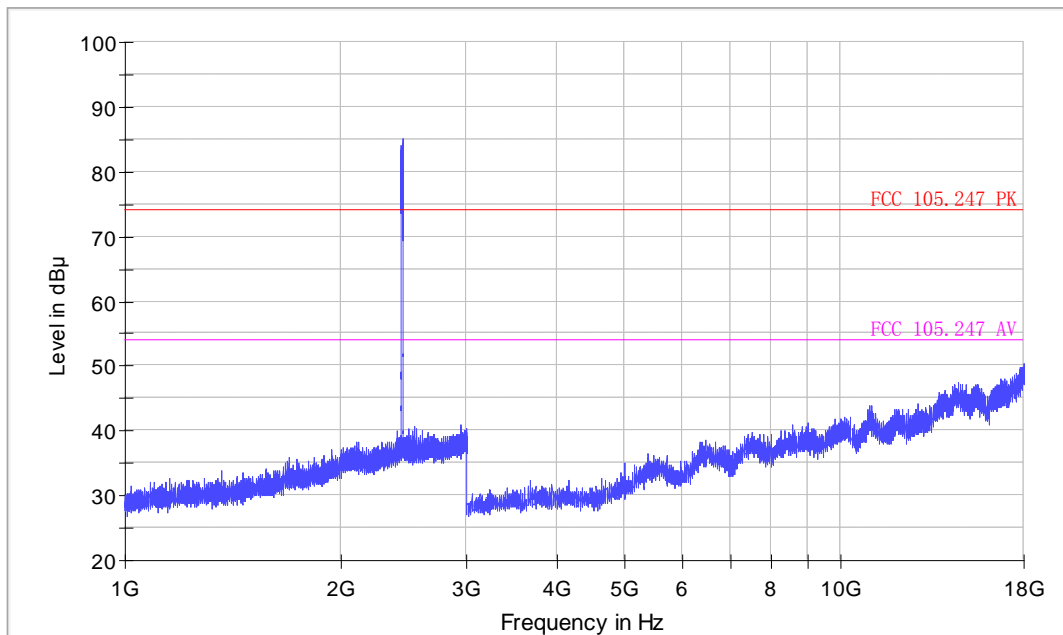
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(20M) CH6
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

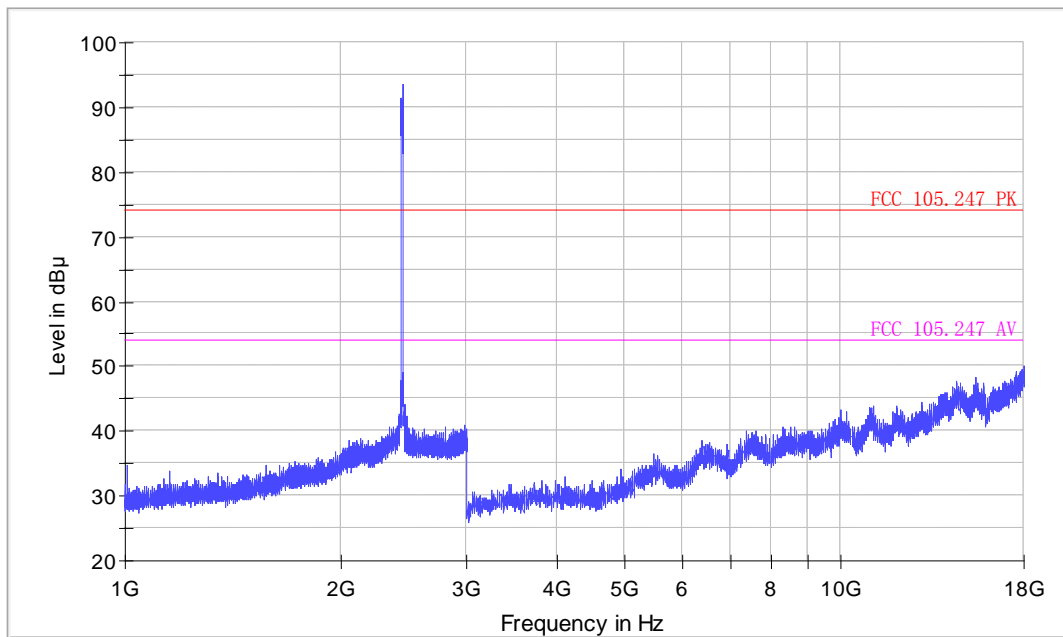
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(20M) CH6
Test Voltage: AC 120V/60Hz
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



11N 20M CH11

Radiated Emission

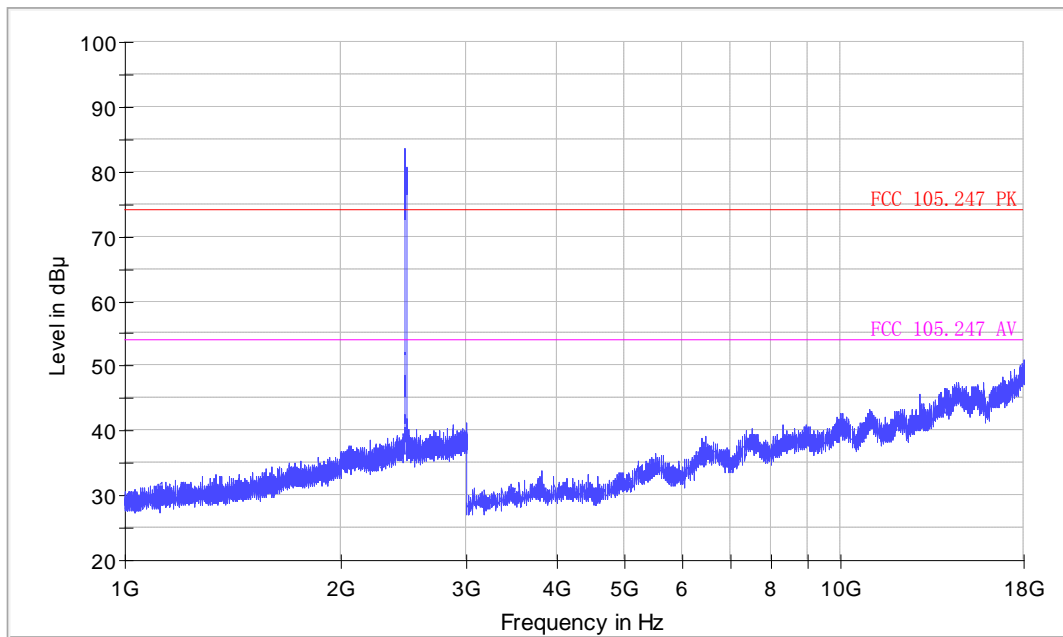
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(20M) CH11
Test Voltage:
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

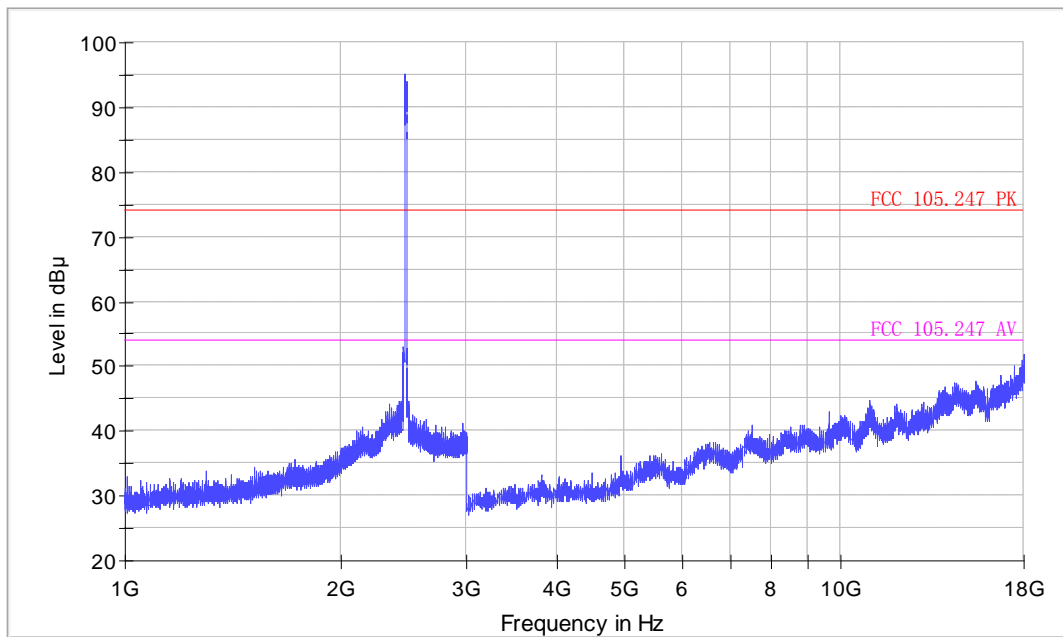
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(20M)
Test Voltage:
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

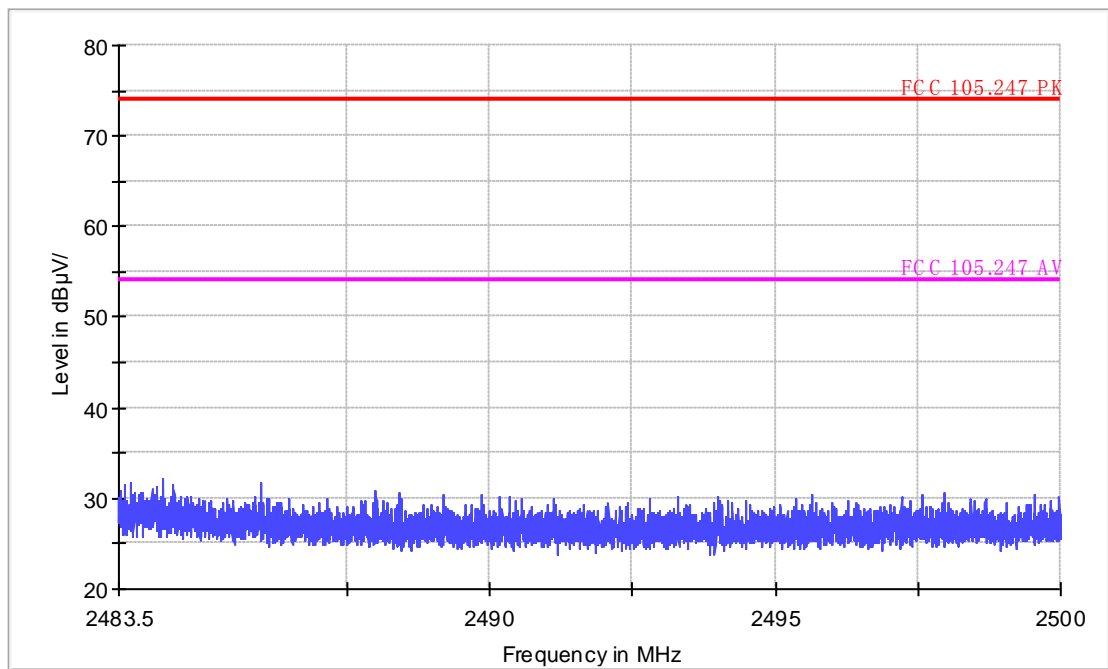
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(20M) CH11
Test Voltage:
Comment:

Common Information

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

Copy of FCC Electric Field Strength 1-18GHz



Radiated Emission

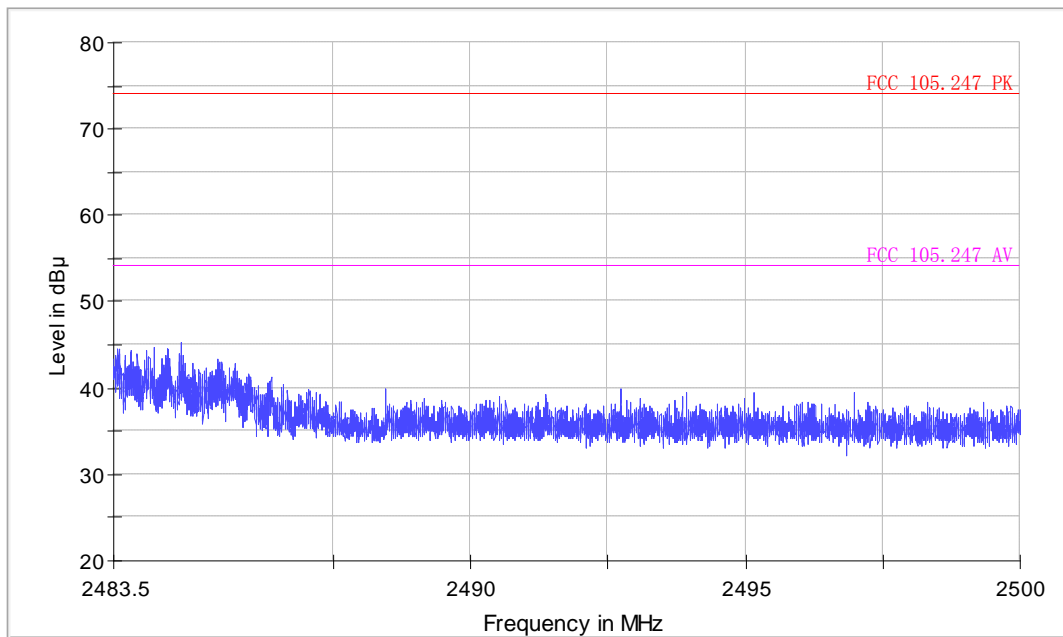
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(20M) CH11
Test Voltage:
Comment:

Common Information

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

FCC Electric Field Strength 2.4GHz Bandedge-PK



11N 40M CH3

Radiated Emission

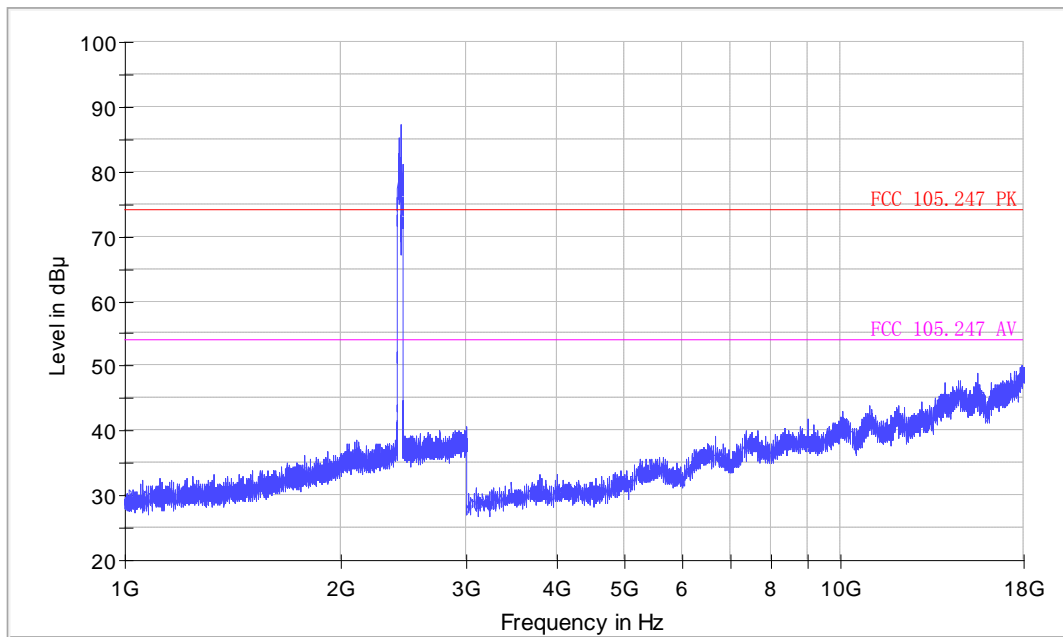
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(40M) CH3
Test Voltage:
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

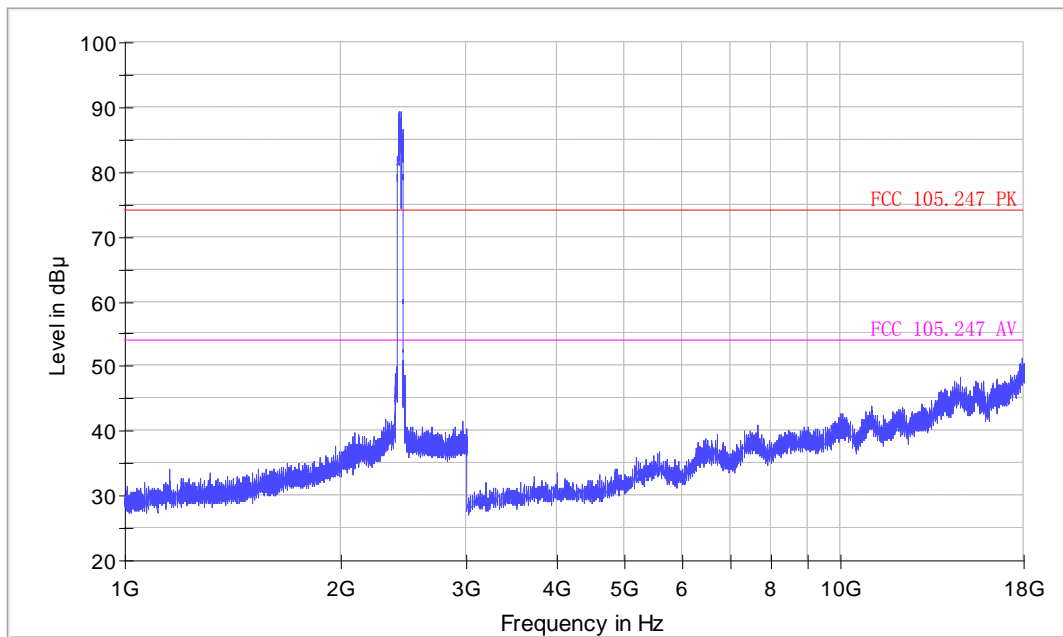
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(40M) CH3
Test Voltage:
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

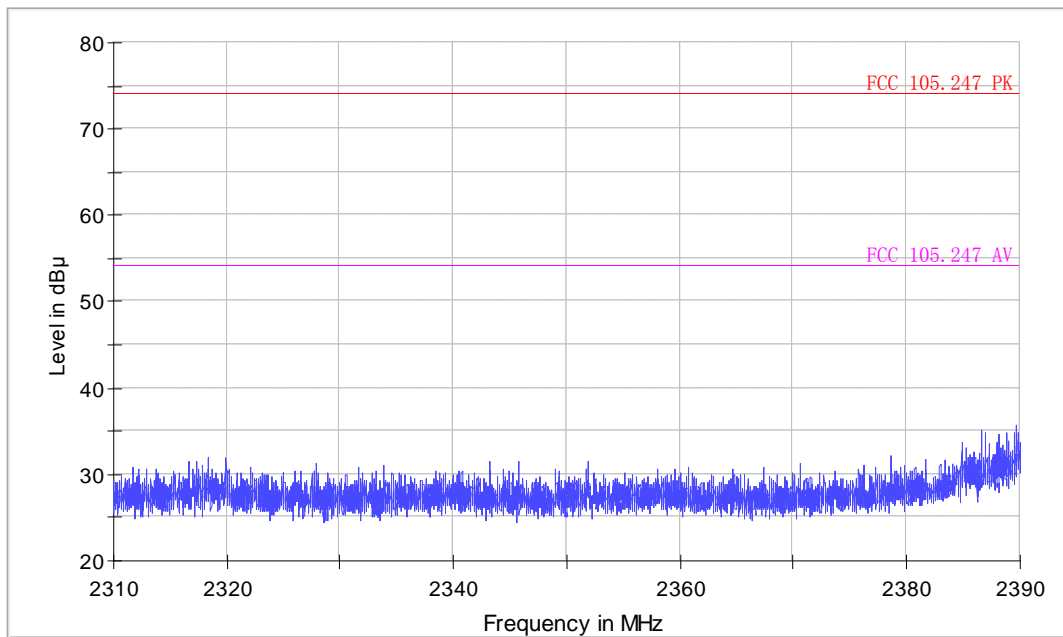
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(40M) CH3
Test Voltage:
Comment:

Common Information

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

FCC Electric Field Strength 2.4GHz Bandedge-PK



Radiated Emission

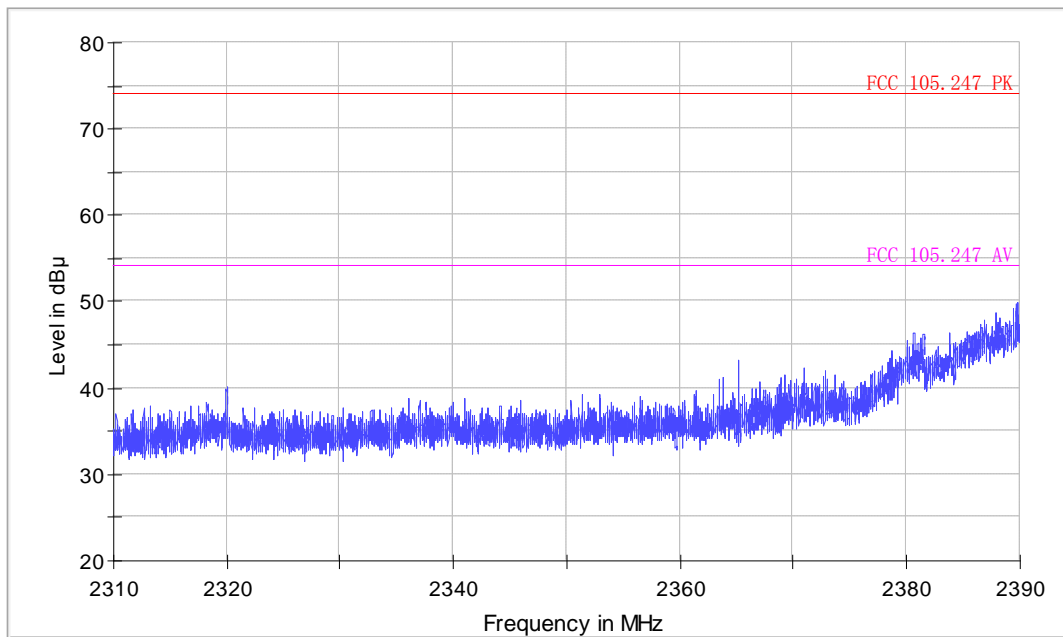
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(40M) CH3
Test Voltage:
Comment:

Common Information

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

FCC Electric Field Strength 2.4GHz Bandedge-PK



Radiated Emission

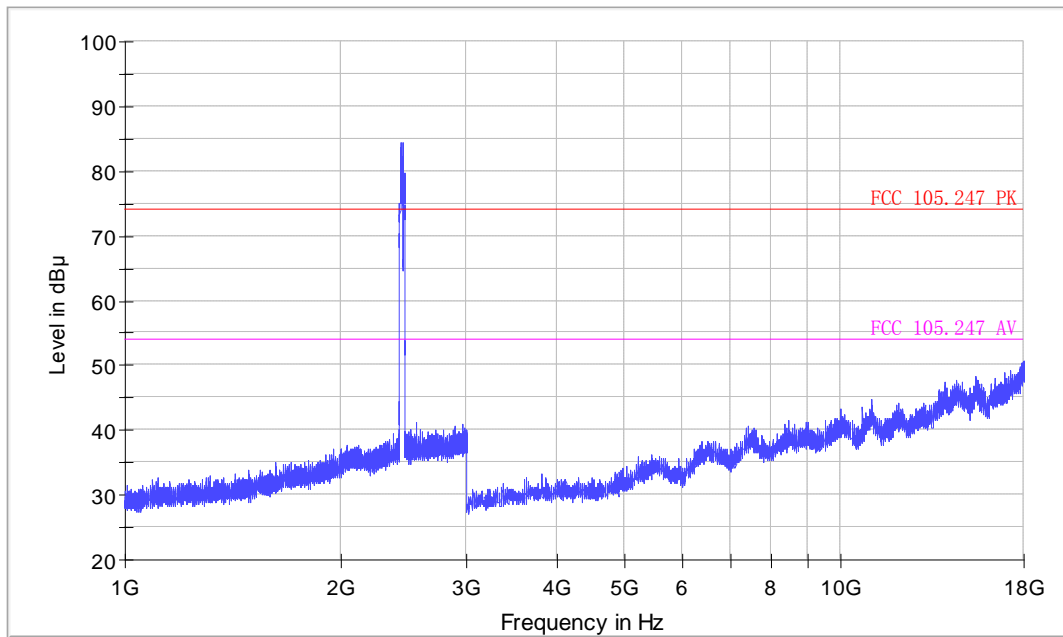
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(40M) CH6
Test Voltage:
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

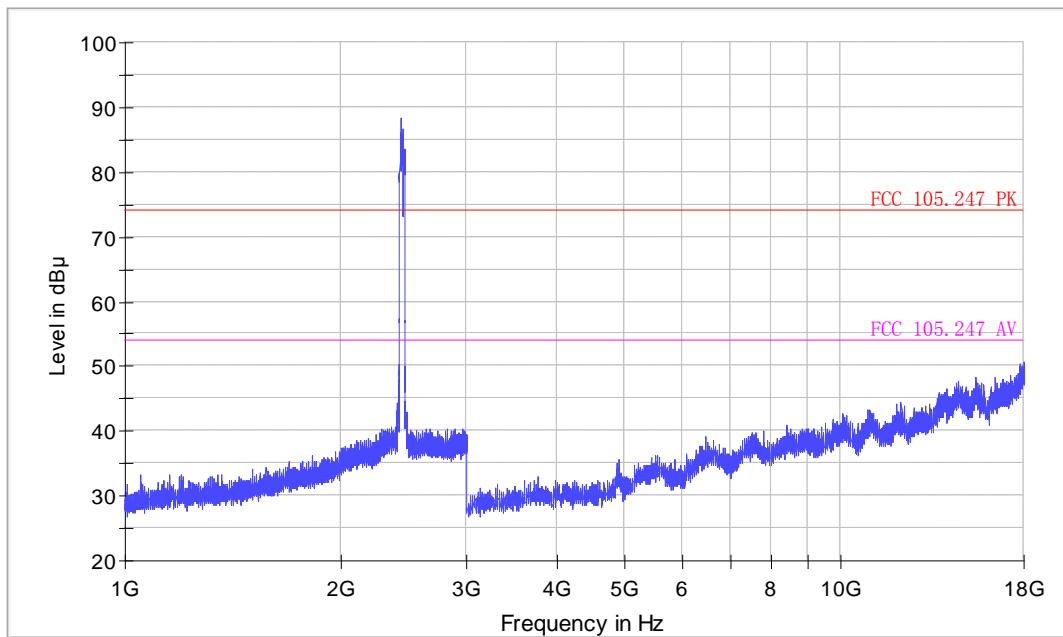
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(40M) CH6
Test Voltage:
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

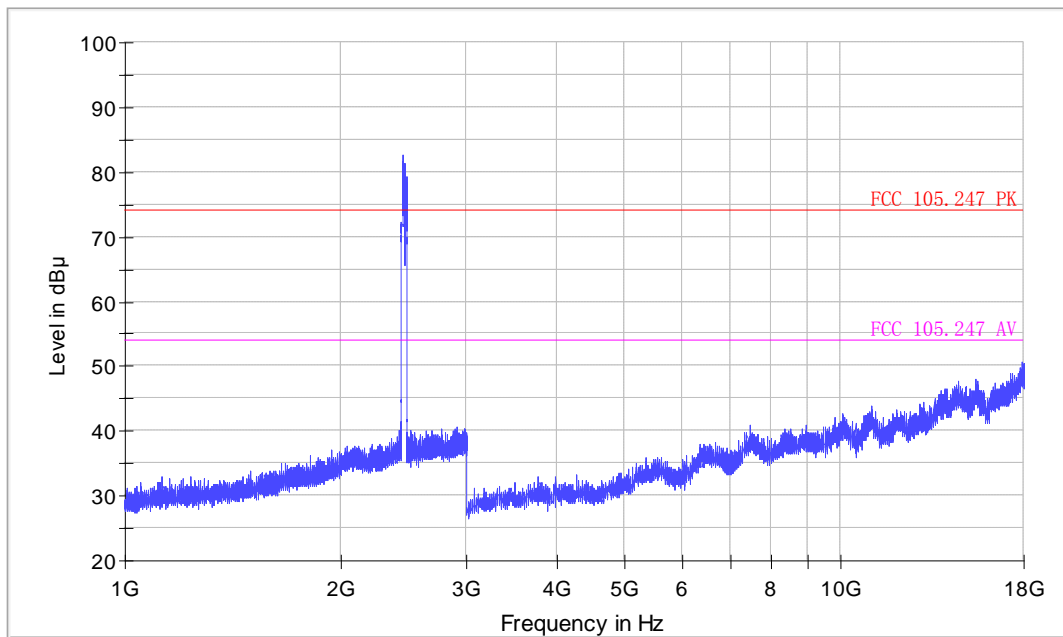
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(40M) CH9
Test Voltage:
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

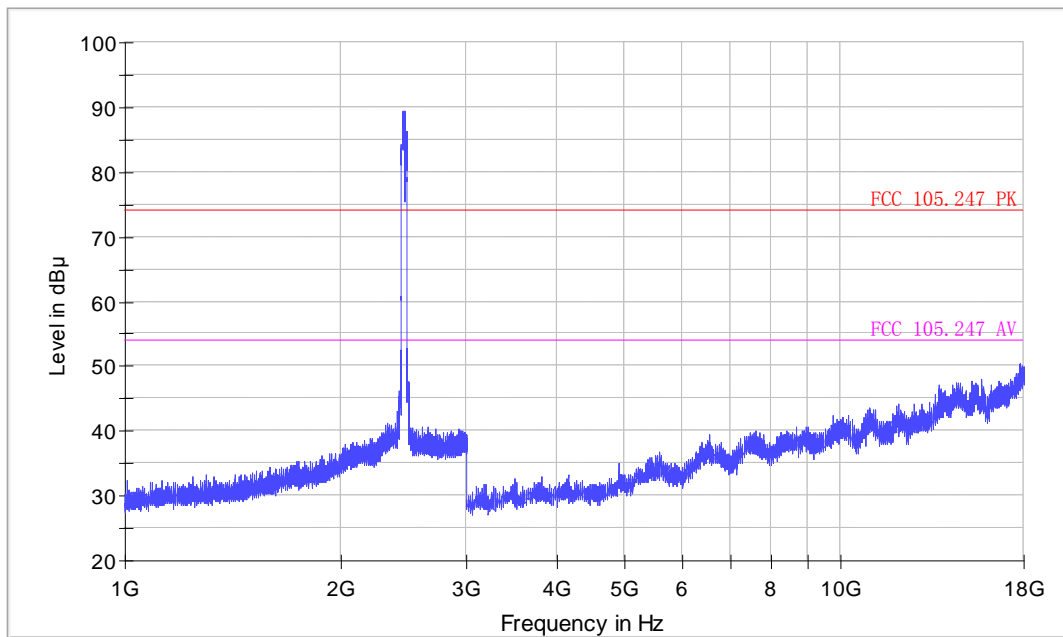
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(40M) CH9
Test Voltage:
Comment:

Common Information

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

Electric Field Strength FCC 15.247 1-18GHz



Radiated Emission

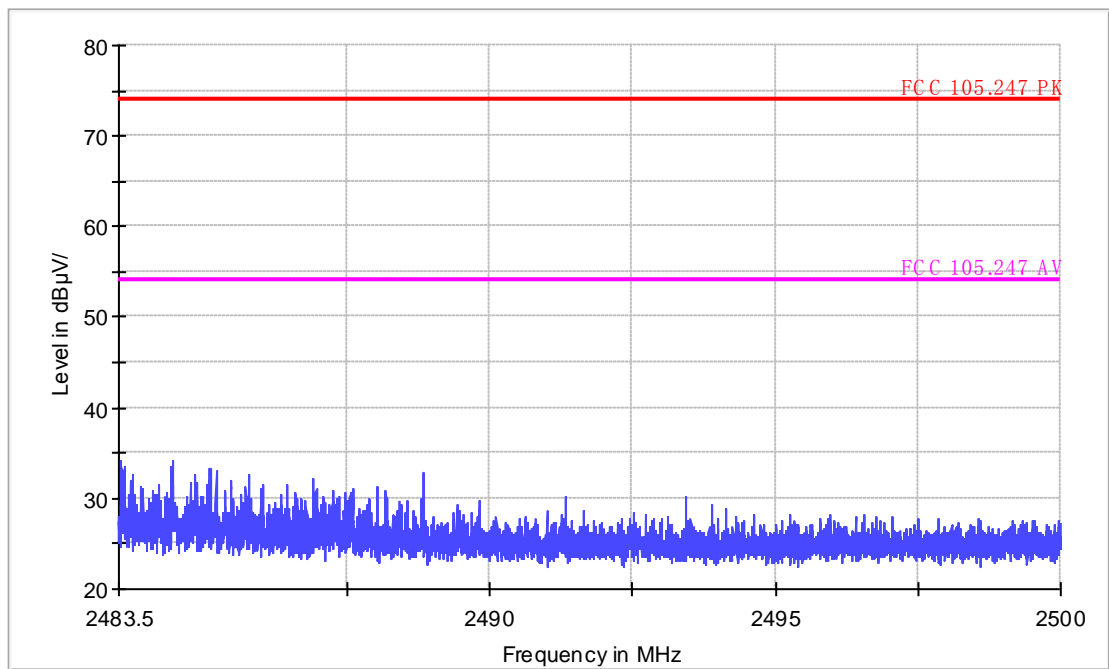
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(40M) CH9
Test Voltage:
Comment:

Common Information

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

Copy of FCC Electric Field Strength 1-18GHz



Radiated Emission

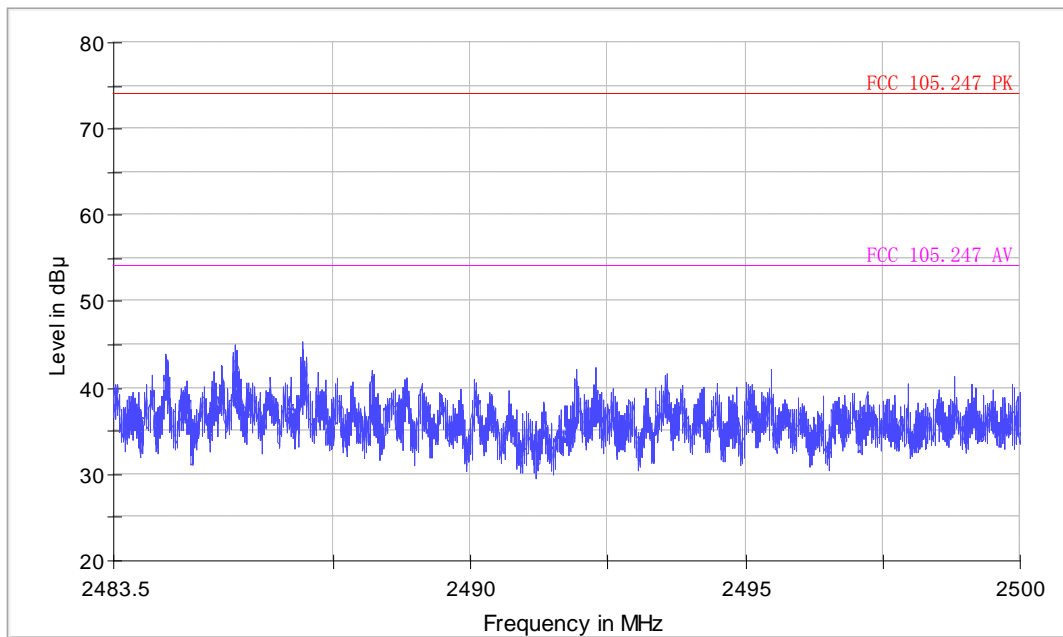
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 11n(40M) CH9
Test Voltage:
Comment:

Common Information

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

FCC Electric Field Strength 2.4GHz Bandedge-PK



18-26.5GHz

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

Radiated Emission

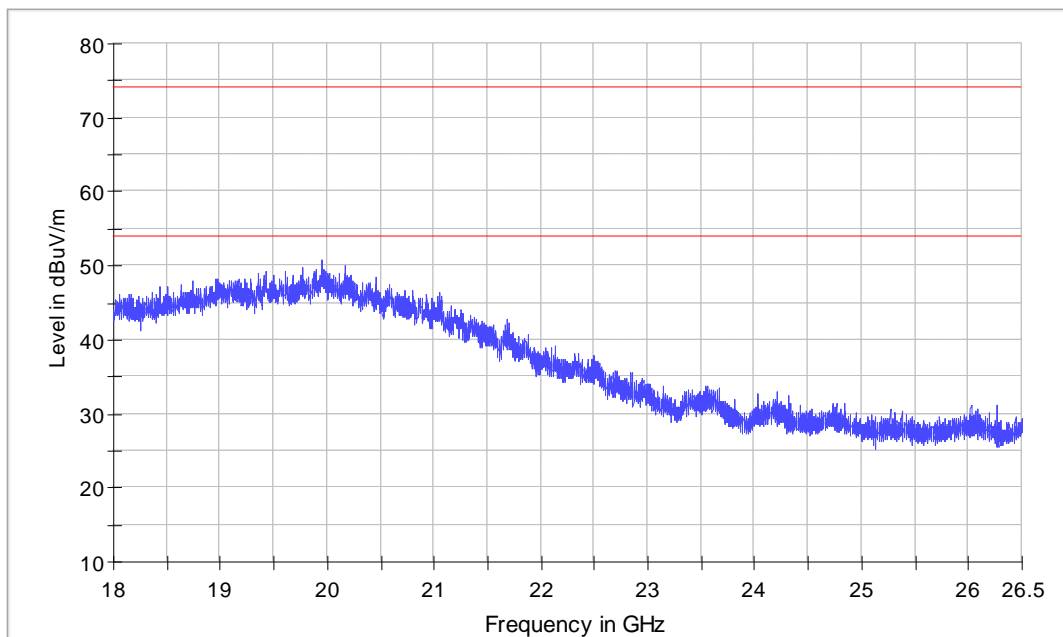
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 802.11n 40M
Test Voltage:
Comment:

Common Information

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

Electric Field Strength 18-26.5GHz



Radiated Emission

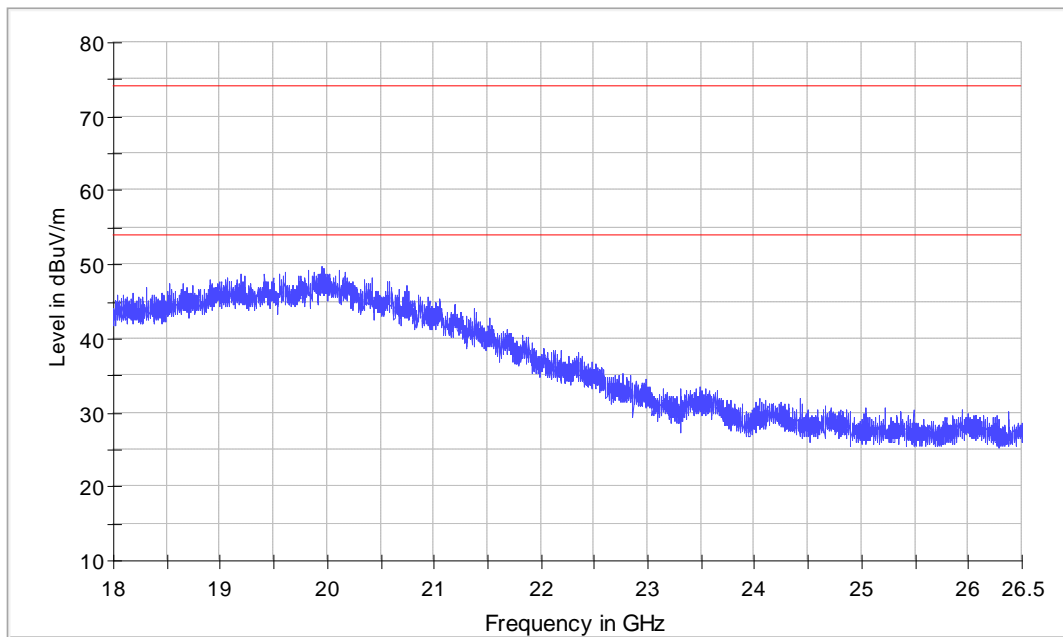
EUT Information

EUT Model Name: M4 SS1060
Operation mode: 802.11n 40M
Test Voltage:
Comment:

Common Information

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

Electric Field Strength 18-26.5GHz



10. CONDUCTED EMISSION TEST FOR AC POWER PORT MEASUREMENT

10.1. Test Standard and Limit

10.1.1. Test Standard

FCC Part 15 15.207

10.1.2. Test Limit

Table 18 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 from 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.

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.

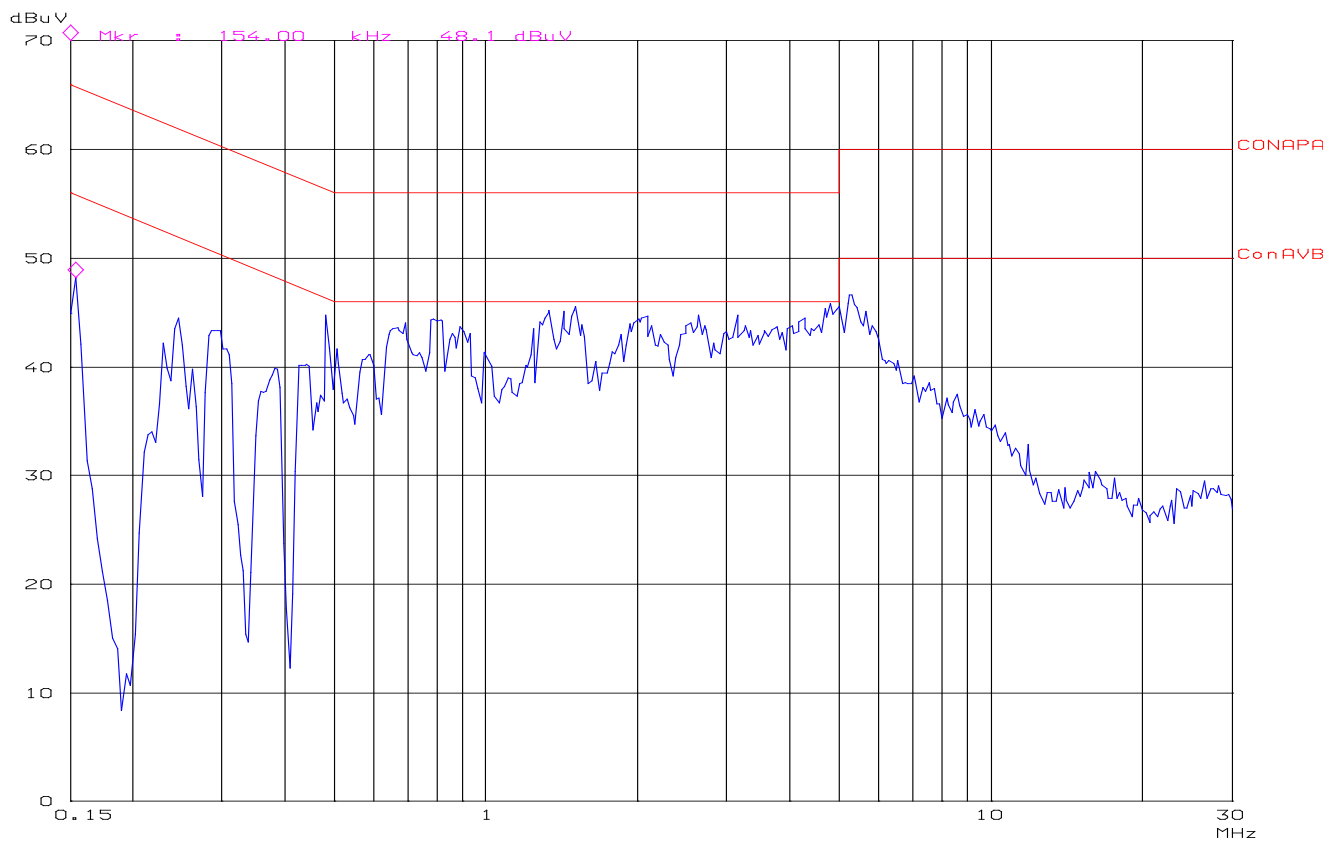
Table 19 Conducted Disturbance Test Data

Model No.: M4 SS1060								
Test mode: 802.11n 40M								
	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	0.154	9.7	32.2	41.9	65.8	18.5	28.2	55.8
	0.246	9.7	25.8	35.5	61.9	2.9	12.6	51.9
	0.786	9.8	32.3	42.1	56	14.5	24.3	46
	1.335	9.8	28.8	38.6	56	13.7	23.5	46
	1.495	9.8	30.8	40.6	56	14.3	24.1	46
	5.240	10.0	27.8	37.8	60	17.6	27.6	50
Neutral	0.690	9.8	27.4	37.2	56	9.8	19.6	46
	0.902	9.8	27.3	37.1	56	13.0	22.8	46
	1.240	9.8	24.4	34.2	56	5.0	14.8	46
	1.425	9.8	27.3	37.1	56	13.1	22.9	46
	1.995	9.8	26.0	35.8	56	11.3	21.1	46
	5.370	10.0	23.9	33.9	60	11.7	21.7	50

- 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.

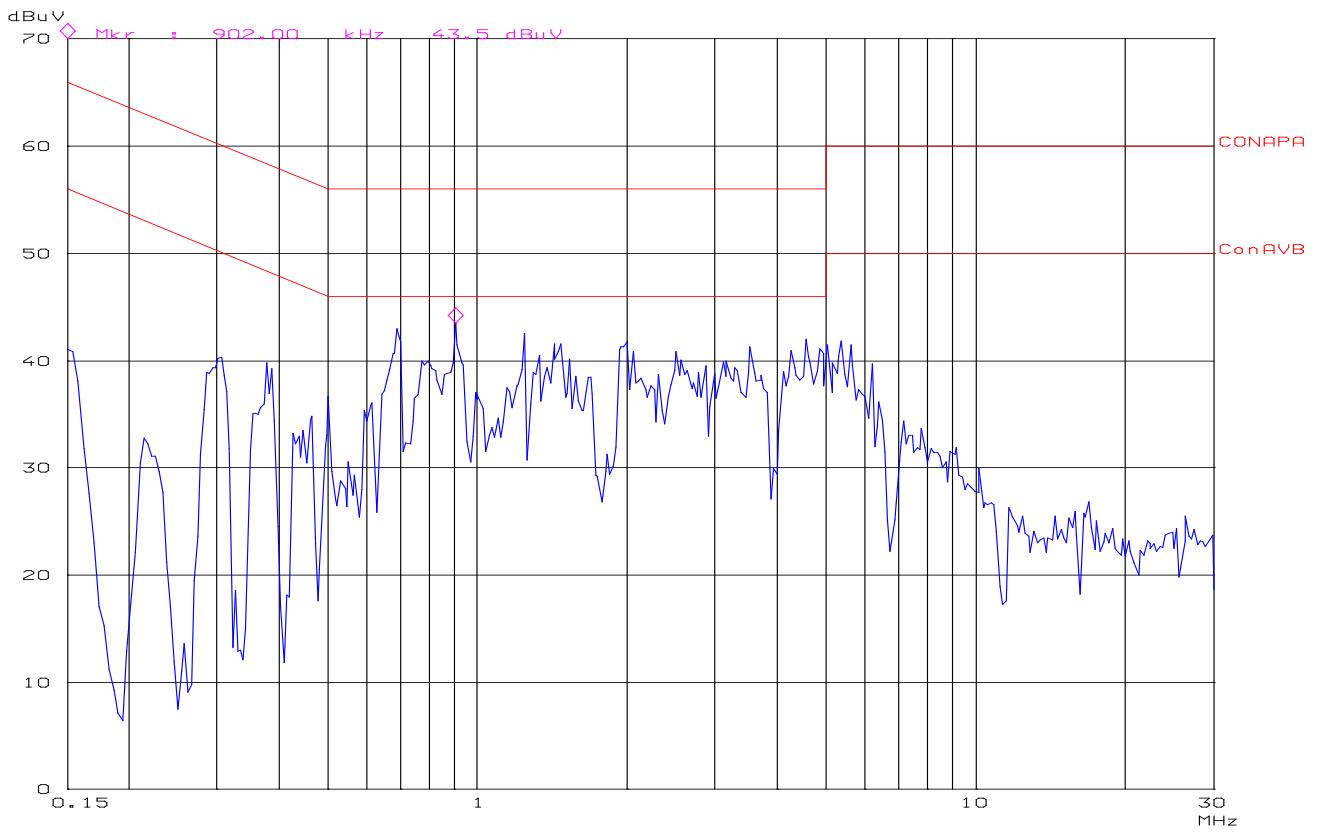
Conducted Disturbance

EUT: M/N:M4 SS1060
Op Cond: Charging
Test Spec: L
Comment: AC 120V/60Hz



Conducted Disturbance

EUT: M/N:M4 SS1060
Op Cond: Charging
Test Spec: N
Comment: AC 120V/60Hz



11. ANTENNA REQUIREMENTS

11.1. Applicable requirements

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

11.2. Antenna Connector

Antenna Connector is on the PCB within enclosure and not accessible to user.

11.3. Antenna Gain

The antenna gain of EUT is less than 6 dBi.