



FCC 47 CFR PART 15 SUBPART E

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA Phone + Bluetooth & DTS/UNII a/b/g/n

MODEL NUMBER : GT-I9192I

FCC ID: A3LGTI9192I

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Prepared for

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ACCREDITED

TL-637

Revision History

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
EUT DESCRIPTION: GSM/WCDMA Phone + Bluetooth & DTS/UNII a/b/g/n
MODEL NUMBER: GT-I9192I
SERIAL NUMBER: R31FC02BPRY (RADIATED); R31FC01MYAK (CONDUCTED)
DATE TESTED: JANUARY 14-20, 2015

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart E	Pass

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Korea, Ltd. By:

Tested By:



Ji Ho Choi
Suwon Lab Manager
UL Korea, Ltd.



CY Choi
Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2009.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 443-823, Korea. Line conducted emissions are measured only at the 218 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

218 Maeyeong-ro	
☒	Chamber 1
☐	Chamber 2

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <http://www.iasonline.org/PDF/TL/TL-637.pdf>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned}\text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \\ &\text{Cable Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m}\end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	2.32 dB
Radiated Disturbance, Below 1GHz	4.14 dB
Radiated Disturbance, Above 1 GHz	5.97 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA Phone + Bluetooth & DTS/UNII a/b/g/n.
This test report addresses the NII(UNII) operational mode.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum total conducted output power as follows:

Frequency Range (MHz)	Mode	Total Output Power (dBm)	Total Output Power (mW)
5180-5240	802.11a	11.5	14.13
5180-5240	802.11n HT20	11.5	14.13
5190-5230	802.11n HT40	12.0	15.85
5260-5320	802.11a	11.9	15.49
5260-5320	802.11n HT20	11.9	15.49
5270-5310	802.11n HT40	12.4	17.38
5500-5700	802.11a	12.3	16.98
5500-5700	802.11n HT20	12.3	16.98
5510-5670	802.11n HT40	11.9	15.49
5745-5825	802.11a	12.0	15.85
5745-5825	802.11n HT20	12.0	15.85
5755-5795	802.11n HT40	12.0	15.85

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of:
5.15-5.25GHz: -3.8dBi, 5.25-5.35GHz: -2.3dBi, 5.47-5.57GHz: -2.4dBi, 5.725-5.85GHz: -2.5dBi

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, Z it was determined that the X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in the X orientation.

Based on the baseline scan, the worst-case data rates were:

802.11a mode: 6 Mbps
802.11n HT20mode: MCS0
802.11n HT40mode: MCS0

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Charger	SAMSUNG	ETA0U83EWE	N/A	N/A
Earphone	SAMSUNG	EHS64AVFWE	N/A	N/A

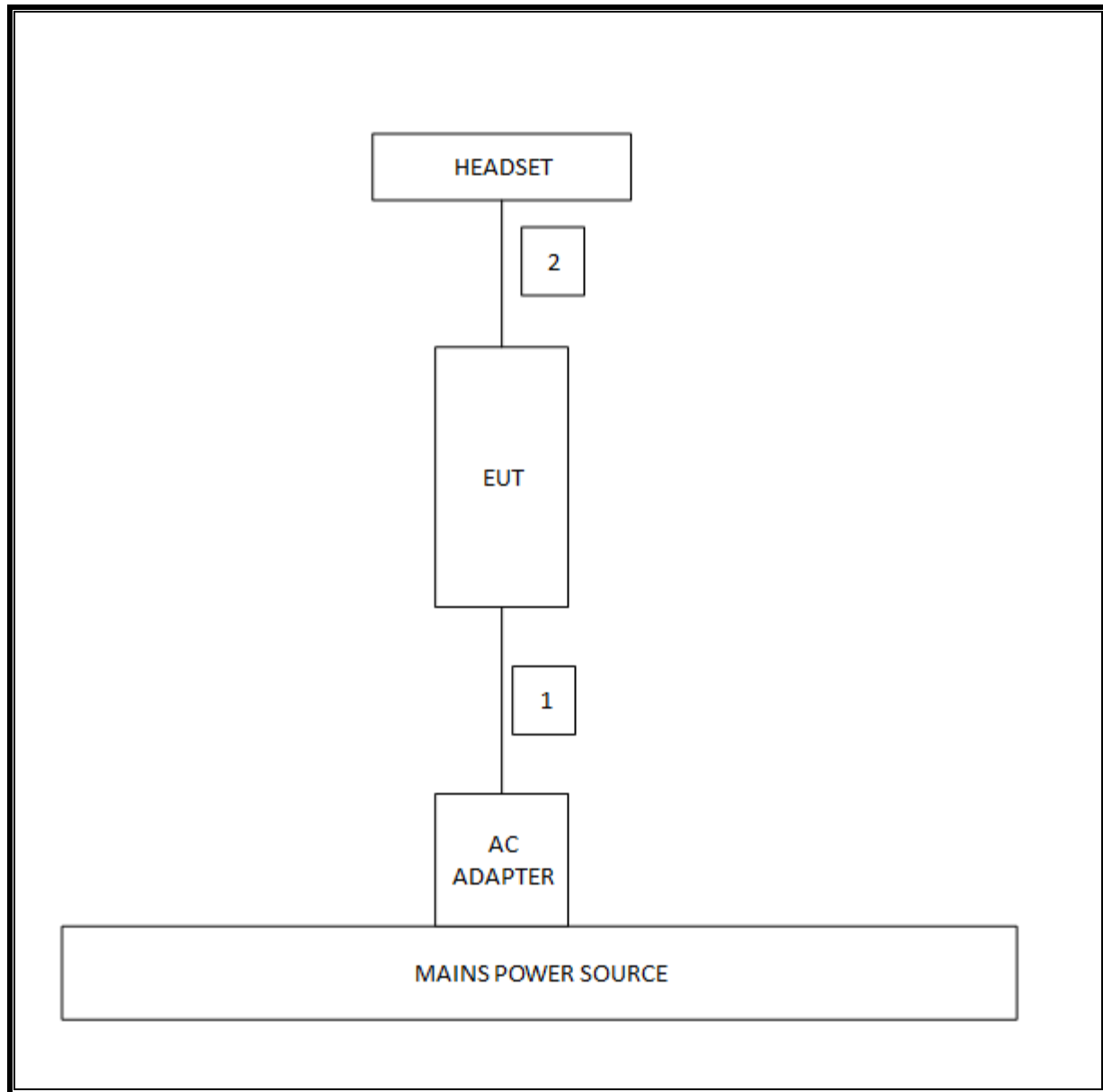
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	Mini-USB	Shielded	0.8m	N/A
2	Audio	1	Mini-Jack	Unshielded	1.0m	N/A

TEST SETUP

The EUT is a stand-alone unit during the tests. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	Manufacturer	Model	S/N	Cal Due
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	950	11-17-15
Antenna, Horn, 18 GHz	ETS	3115	00167211	09-20-15
Antenna, Horn, 40 GHz	ETS	3116C	00166255	09-23-15
Antenna, Horn, 40 GHz	ETS	3116C-PA	00168841	09-29-15
Preamplifier, 1000 MHz	Sonoma	310N	341282	11-17-15
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	11-18-15
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	09-23-14
Bluetooth Tester	TESCOM	TC-3000C	3000C000546	11-17-15
Average Power Sensor	R&S	NRZ-Z91	102681	11-17-15
Average Power Sensor	Agilent / HP	U2000	MY54270007	09-23-15
EMI Test Receive, 40 GHz	R&S	ESU40	100439	11-17-15
EMI Test Receive, 3 GHz	R&S	ESR3	101832	11-17-15
Attenuator / Switch driver	HP	11713A	3748A04272	N/A
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	009	11-17-15
High Pass Filter 5GHz	Micro-Tronics	HPS17542	009	11-17-15
High Pass Filter 6GHz	Micro-Tronics	HPM17543	010	11-17-15

7. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.407 (a)	Occupied Band width (26dB)	N/A	Conducted	Pass	20.386MHz
15.407	6dB Band width (5.8Ghz)	500KHz		Pass	16.35MHz
15.407 (a)(2)	TX Cond. Power 5.15-2.25, 5.25-5.35 & 5.47-5.725	<24dBm or 11+10Log(OBW)		Pass	12.4dBm
15.407 (a)(3)	TX Cond. Power 5.725-5.825	< 30dBm or 17+10Log(OBW)		Pass	12dBm
15.407 (a)(5)	PSD (5.2,5.3,5.5GHz)	<11dBm		Pass	1.84dBm
15.407 (a)(5)	PSD (5.8GHz)	30dBm per 500kHz		Pass	2.04dBm
15.207 (a)	AC Power Line conducted emissions	Section 10	Radiated	Pass	47.92dBuV(AV)
15.407 (b) & 15.209	Radiated Spurious Emission	< 54dBuV/m		Pass	50.64dBuV/m
15.407 (h)(2)	Dynamic Frequency Selection	N/A	Radiated / Conducted	Pass	N/A

8. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

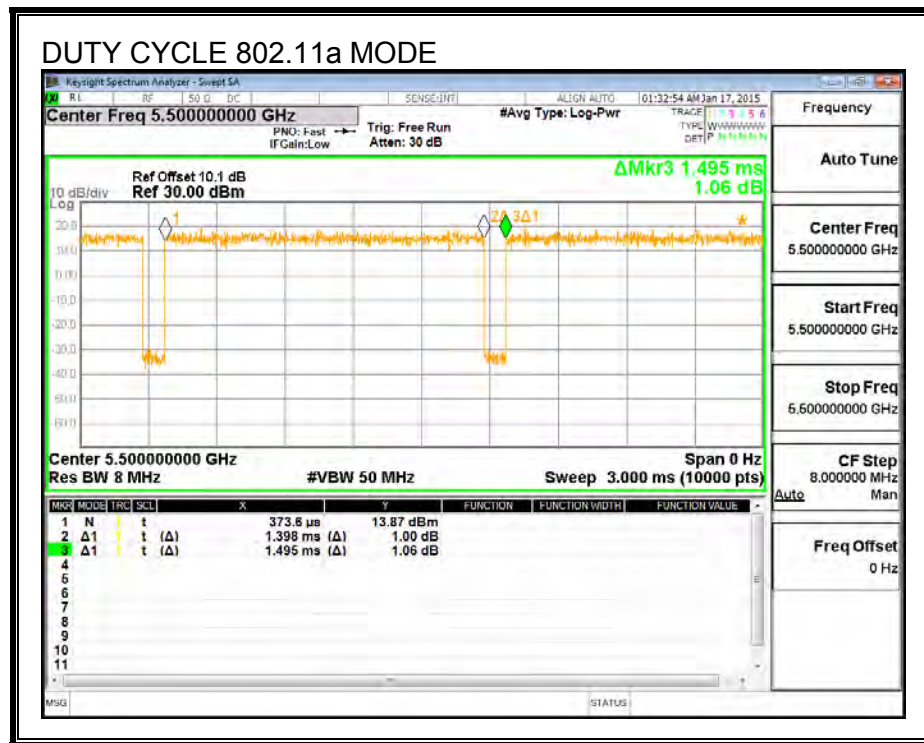
PROCEDURE

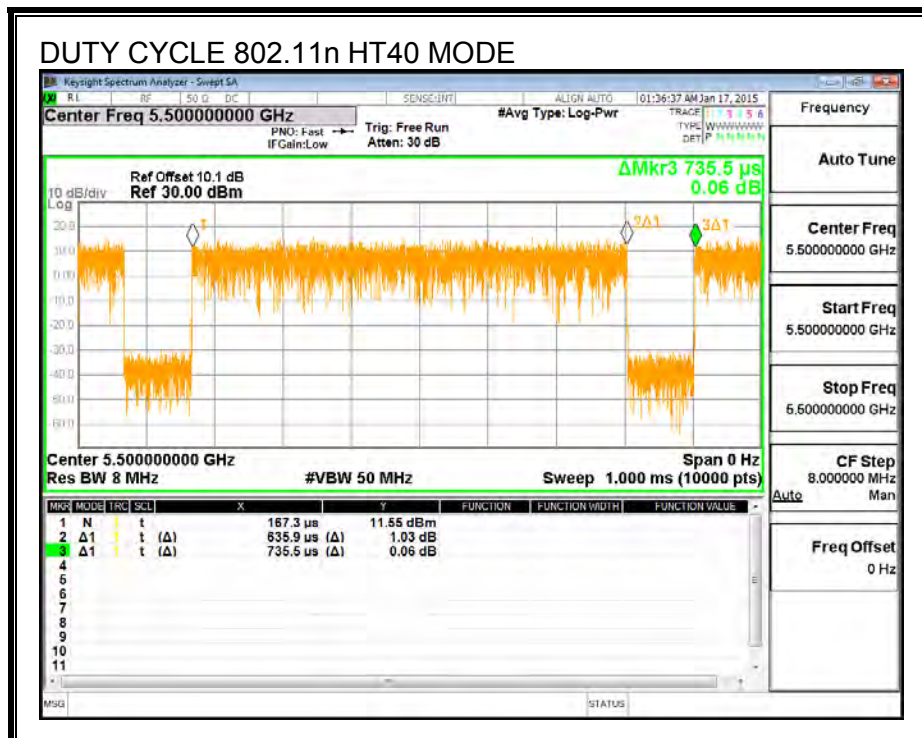
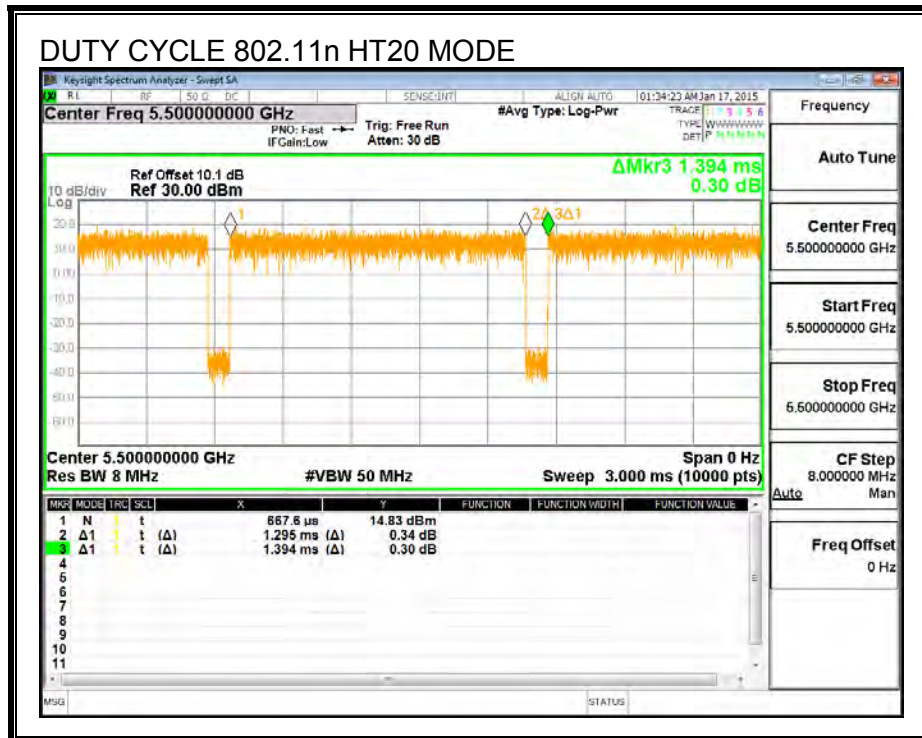
KDB 789033 Zero-Span Spectrum Analyzer Method.

8.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
802.11a	1.398	1.495	0.935	93.5%	0.29	0.715
802.11n HT20	1.295	1.394	0.929	92.9%	0.32	0.772
802.11n HT40	0.636	0.736	0.865	86.5%	0.63	1.573

8.2. DUTY CYCLE PLOTS





9. MEASUREMENT METHOD

789033 D02 General UNII Test Procedures New Rules v01

The Duty Cycle is less than 98% and consistent therefore KDB 789033 Method SA-2 is used for power and PPSD

The Duty Cycle is less than 98% and consistent, KDB 789033 Method AD with Power RMS Averaging and duty cycle correction is used.

10. ANTENNA PORT TEST RESULTS

10.1. 6 dB BANDWIDTH

LIMITS

FCC §15.407

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

TEST PROCEDURE

Reference to 789033 D02 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW set to 100kHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

10.1.1. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	16.350	0.5
Mid	5785	16.400	0.5
High	5825	16.475	0.5
Worst		16.475	

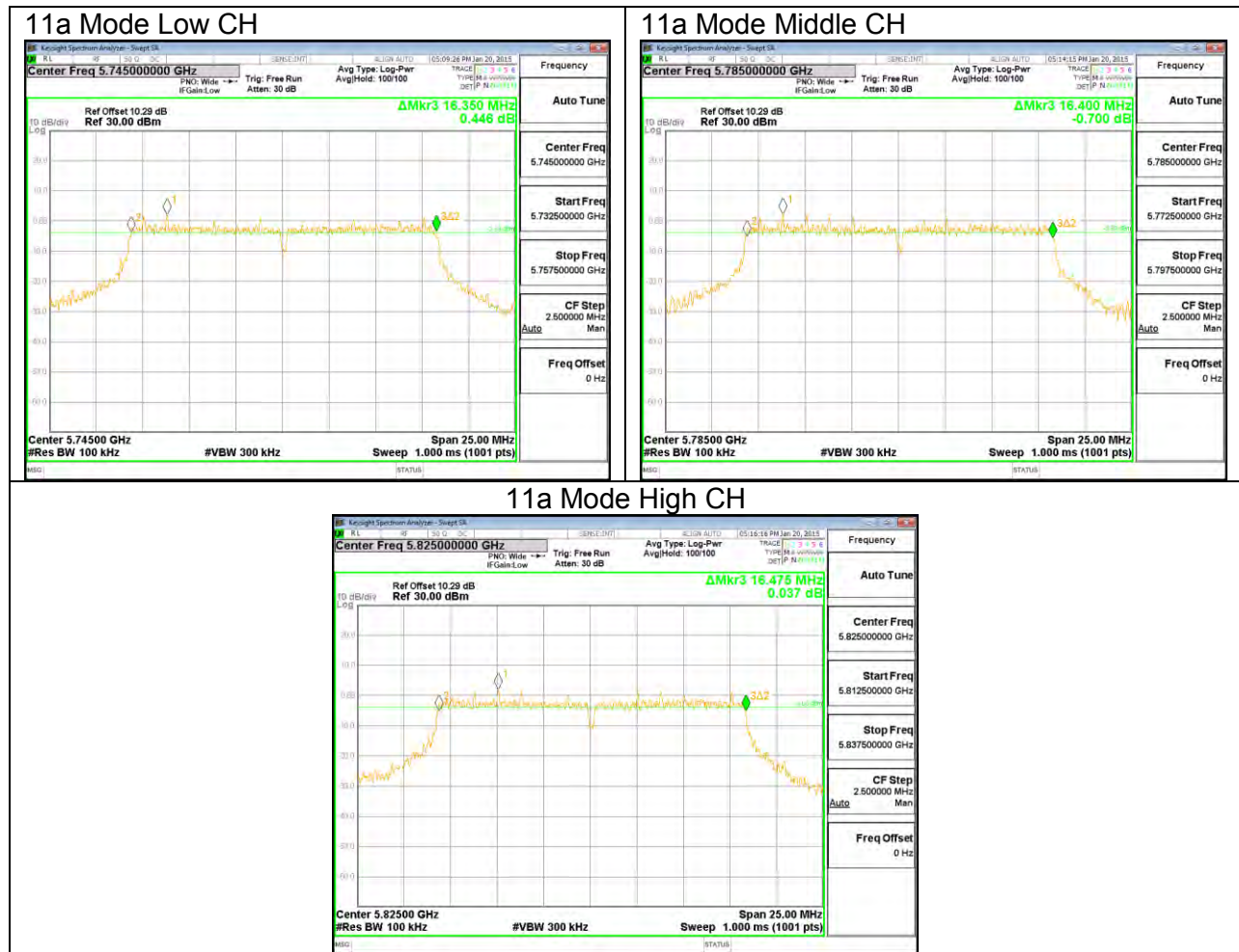
10.1.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	17.600	0.5
Mid	5785	17.600	0.5
High	5825	17.575	0.5
Worst		17.600	

10.1.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5765	36.300	0.5
High	5795	36.300	0.5
Worst		36.300	

10.1.4. 6 dB BANDWIDTH PLOTS



11n HT20 Mode Low CH



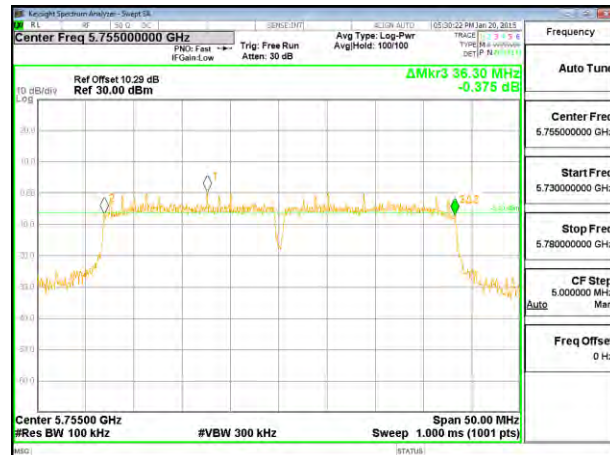
11n HT20 Middle CH



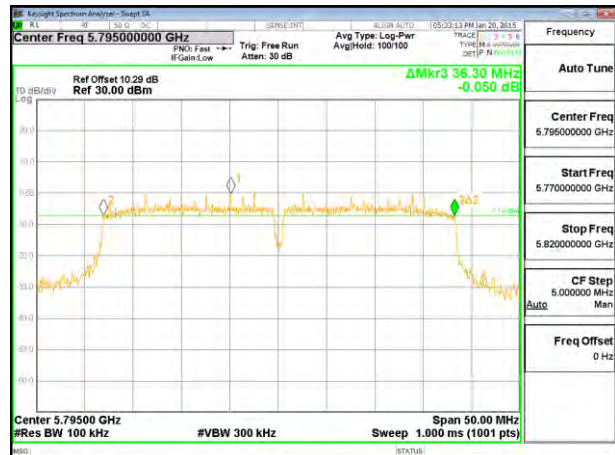
11n HT20 High CH



11n HT40 Mode Low CH



11n HT40 Middle CH



10.2. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

10.2.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	20.936
Mid	5200	21.404
High	5240	21.086
Worst		21.404

10.2.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	20.746
Mid	5200	21.580
High	5240	21.442
Worst		21.580

10.2.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5190	39.747
High	5230	38.784
Worst		39.747

10.2.4. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	20.994
Mid	5300	21.254
High	5320	21.566
Worst		21.566

10.2.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	22.832
Mid	5300	21.712
High	5320	21.460
Worst		22.832

10.2.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5270	40.809
High	5310	39.660
Worst		40.809

10.2.7. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	20.898
Mid	5580	20.660
High	5700	20.494
Worst		20.898

10.2.8. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	20.444
Mid	5580	21.044
High	5700	21.208
Worst		21.208

10.2.9. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5510	38.394
Mid	5550	39.246
High	5670	39.240
Worst		39.246

10.2.10. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5745	20.386
Mid	5785	21.222
High	5825	20.172
Worst		21.222

10.2.11. 802.11n HT20 MODE IN THE 5.8 GHz BAND

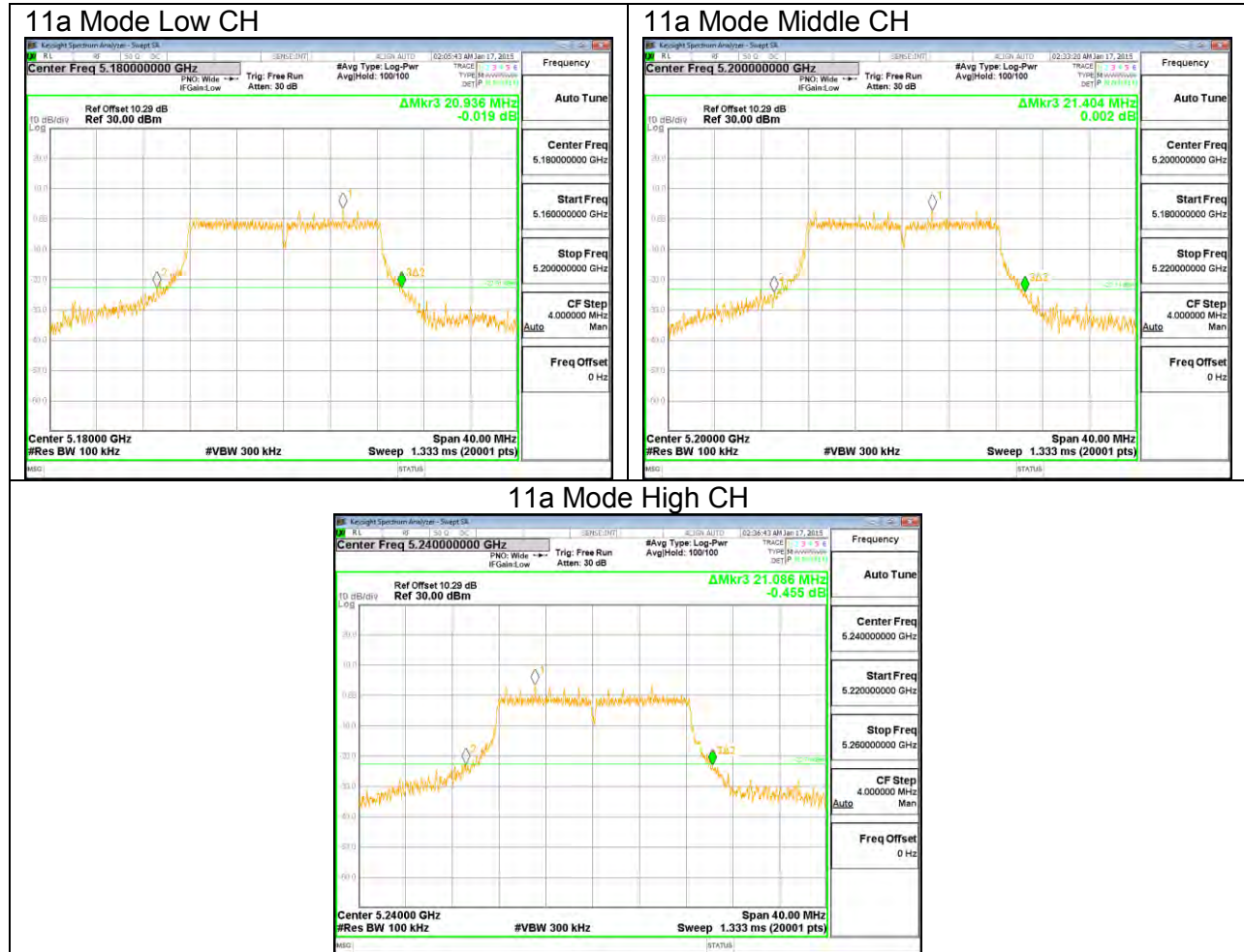
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5745	21.098
Mid	5785	20.954
High	5825	21.274
Worst		21.274

10.2.12. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5755	40.683
High	5795	39.567
Worst		40.683

10.2.13. 26 dB BANDWIDTH PLOTS

UNII 5.2 GHz



11n HT20 Mode Low CH



11n HT20 Mode Middle CH



11n HT20 Mode High CH



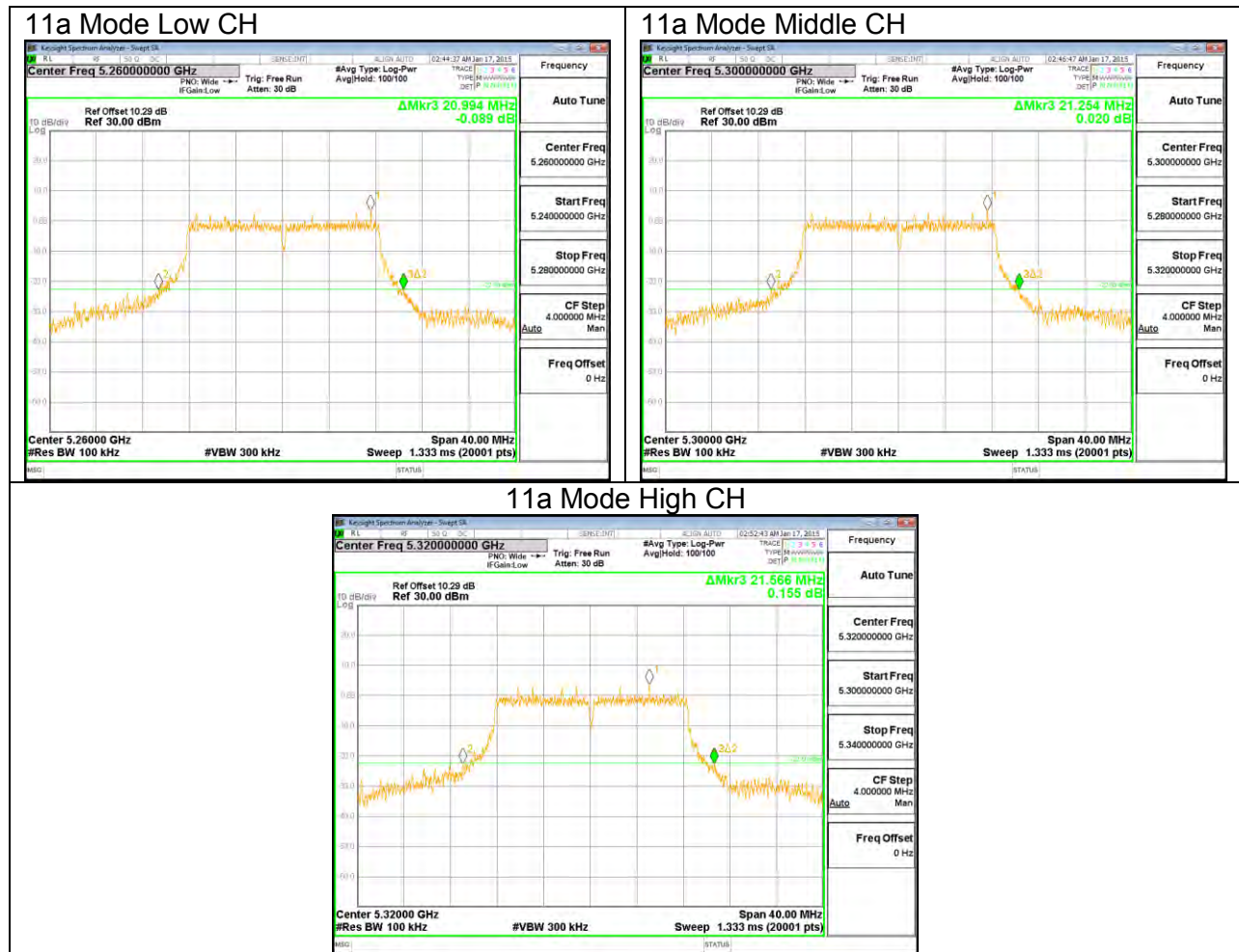
11n HT40 Mode Low CH



11n HT40 High Middle CH



UNII 5.3GHz



11n HT20 Mode Low CH



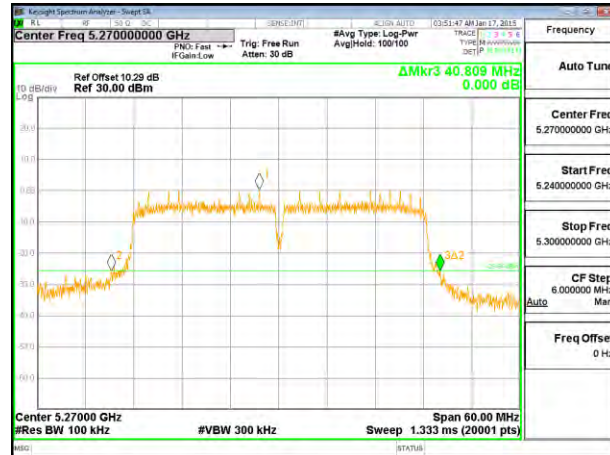
11n HT20 Mode Middle CH



11n HT20 Mode High CH



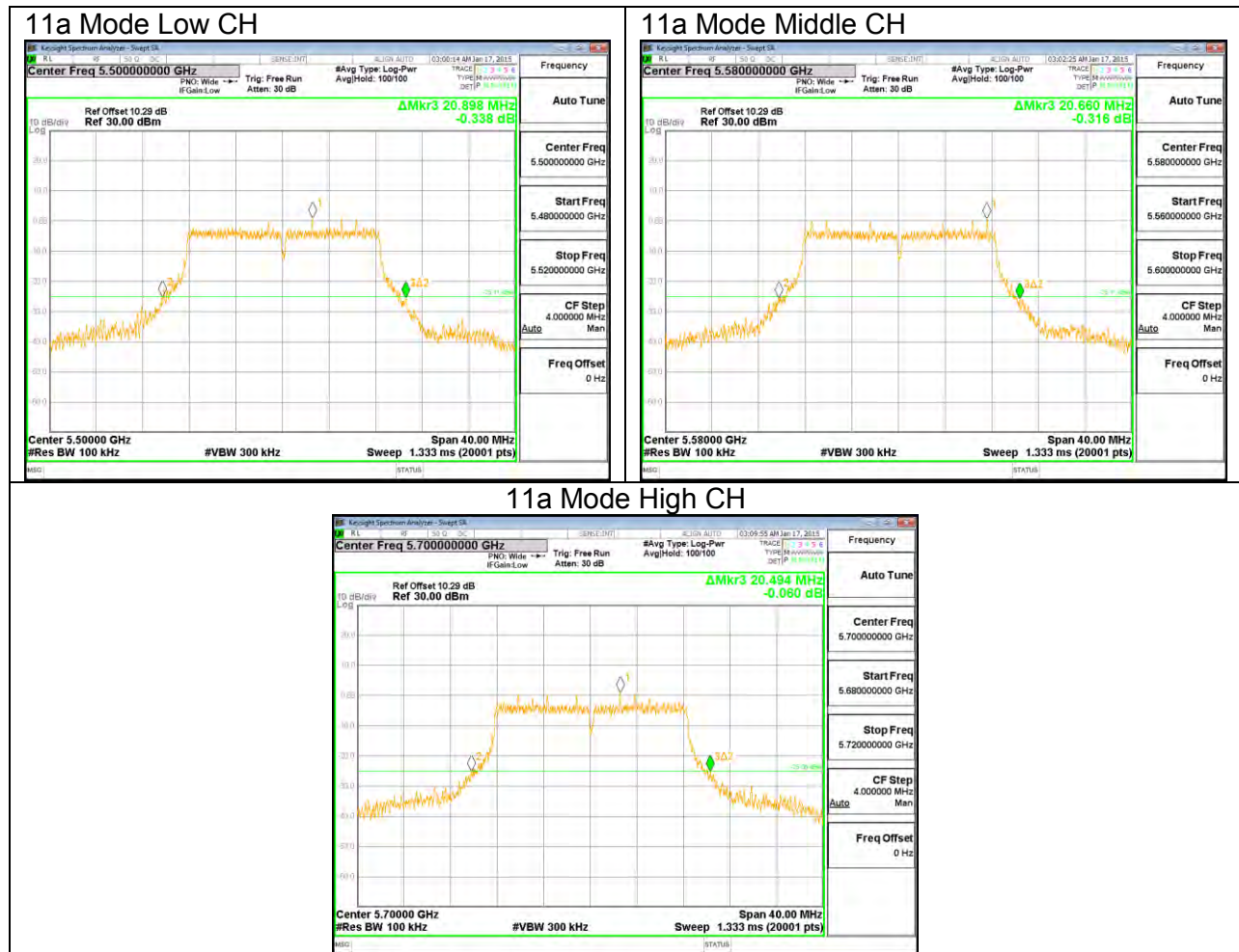
11n HT40 Mode Low CH



11n HT40 Mode Middle CH



UNII 5.5GHz



11n HT20 Mode Low CH



11n HT20 Mode Middle CH



11n HT20 Mode High CH



11n HT40 Mode Low CH



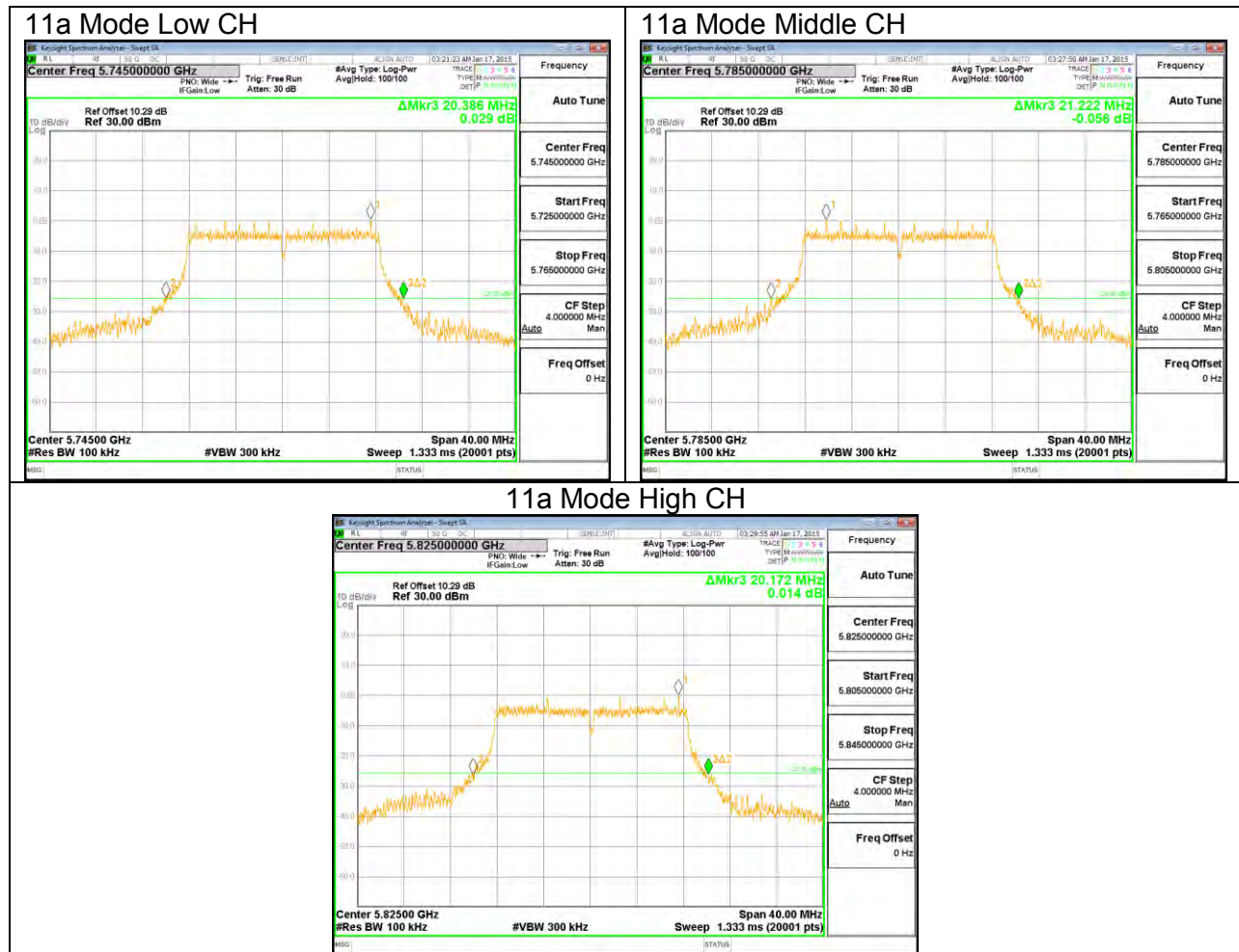
11n HT40 Mode Middle CH



11n HT20 Mode High CH



UNII 5.8GHz



11n HT20 Mode Low CH



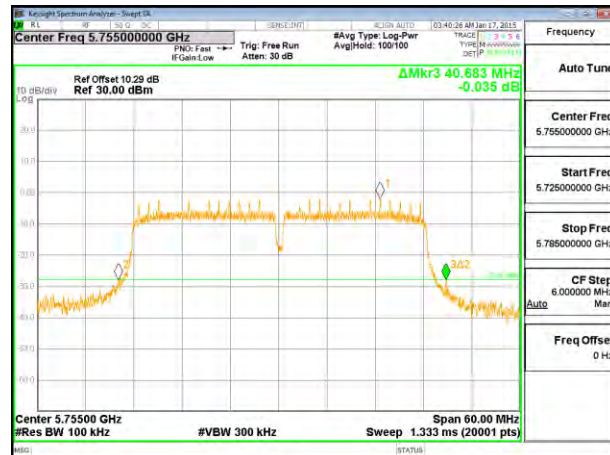
11n HT20 Mode Middle CH



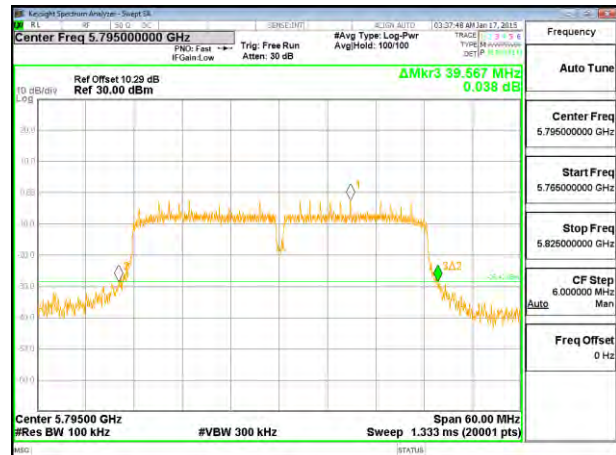
11n HT20 Mode High CH



11n HT40 Mode Low CH



11n HT40 Mode Middle CH



10.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

10.3.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	16.567
Mid	5200	16.568
High	5240	16.670
Worst		16.670

10.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	17.826
Mid	5200	17.747
High	5240	17.827
Worst		17.827

10.3.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.118
High	5230	36.032
Worst		36.118

10.3.4. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	16.630
Mid	5300	16.619
High	5320	16.670
Worst		16.670

10.3.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	17.824
Mid	5300	17.808
High	5320	17.896
Worst		17.896

10.3.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5270	35.845
High	5310	36.133
Worst		36.133

10.3.7. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	16.552
Mid	5580	16.634
High	5700	16.641
Worst		16.641

10.3.8. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.795
Mid	5580	17.813
High	5700	17.758
Worst		17.813

10.3.9. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	36.235
Mid	5550	36.034
High	5670	36.209
Worst		36.235

10.3.10. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	16.707
Mid	5785	16.643
High	5825	16.654
Worst		16.707

10.3.11. 802.11n HT20 MODE IN THE 5.8 GHz BAND

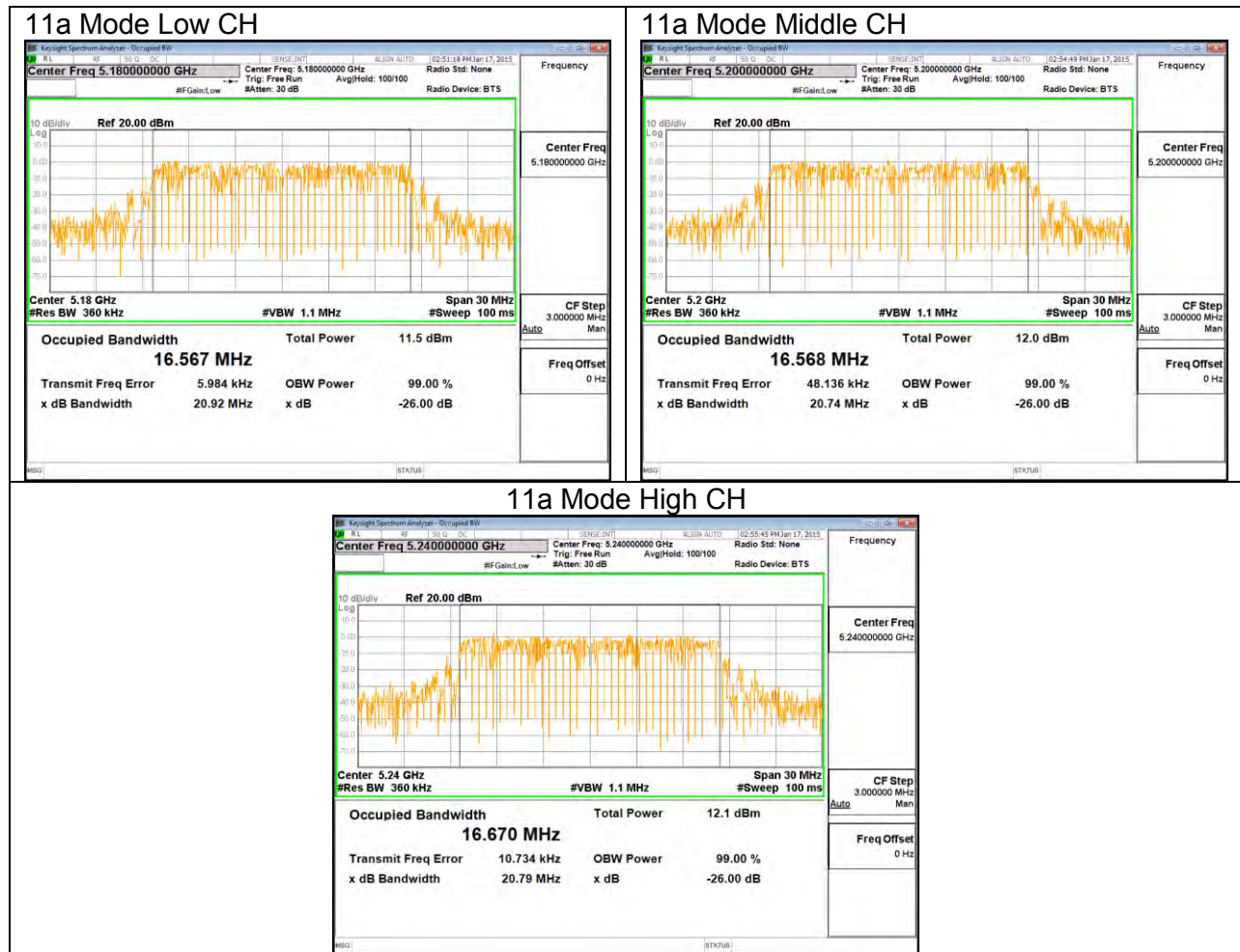
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.745
Mid	5785	17.928
High	5825	17.805
Worst		17.928

10.3.12. 802.11n HT40 MODE IN THE 5.8 GHz BAND

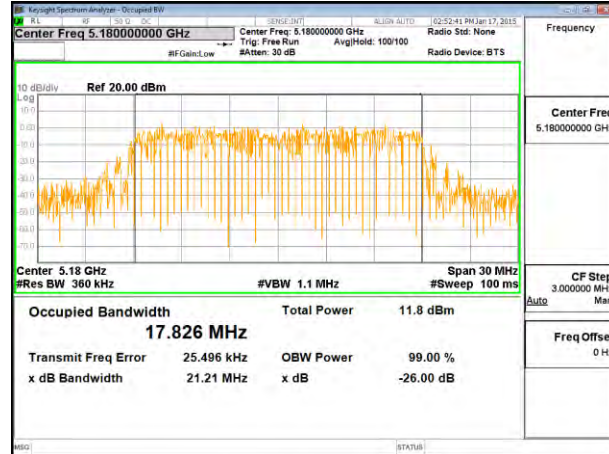
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	36.189
High	5795	36.623
Worst		36.623

10.3.13. 99% BANDWIDTH PLOTS

UNII 5.2 GHz



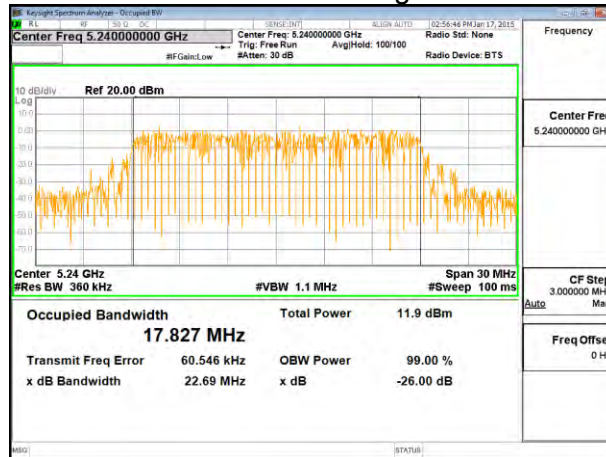
11n HT20 Mode Low CH



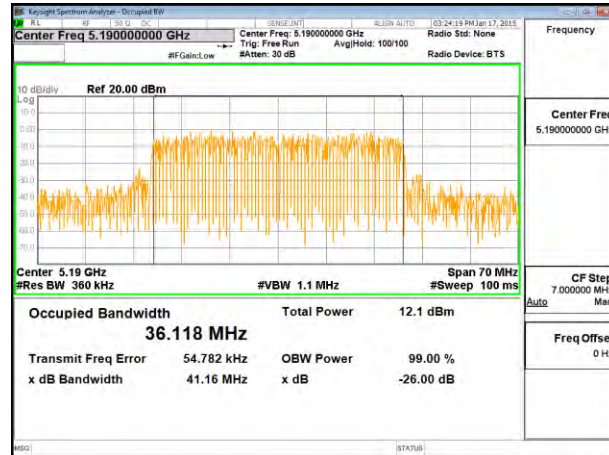
11n HT20 Mode Middle CH



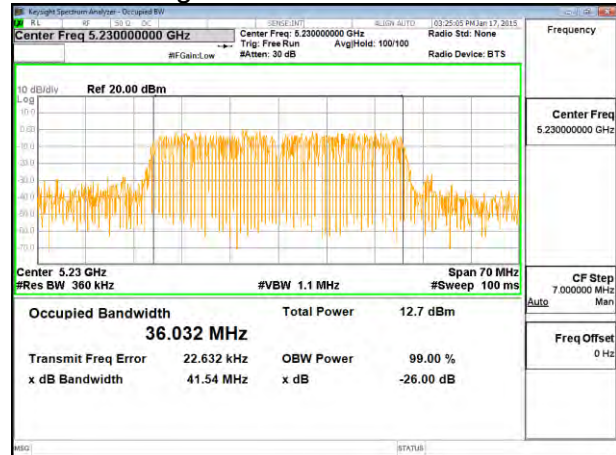
11n HT20 Mode High CH



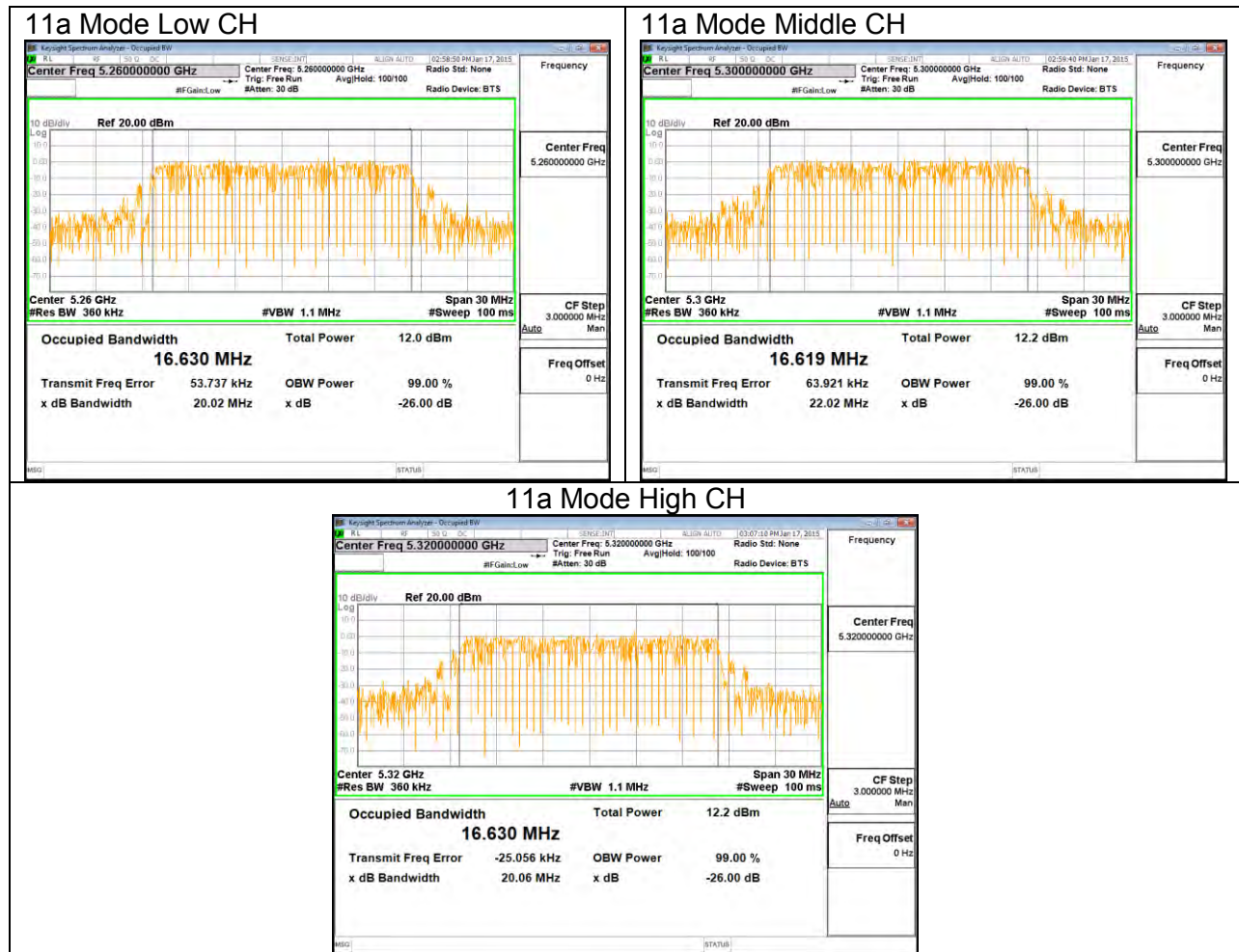
11n HT40 Mode Low CH



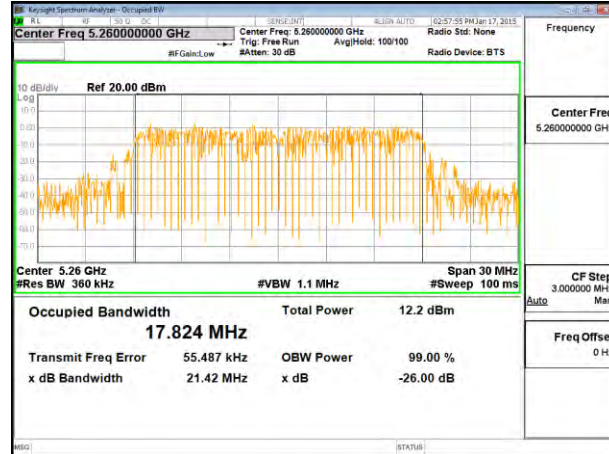
11n HT40 High Middle CH



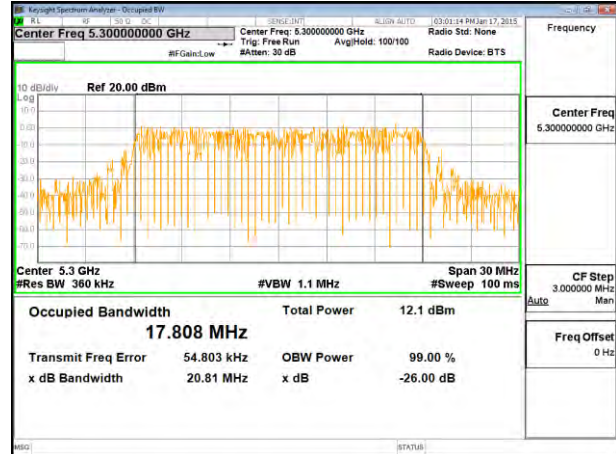
UNII 5.3GHz



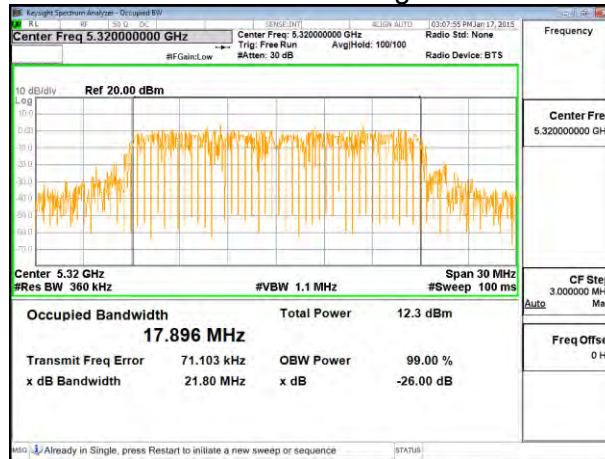
11n HT20 Mode Low CH



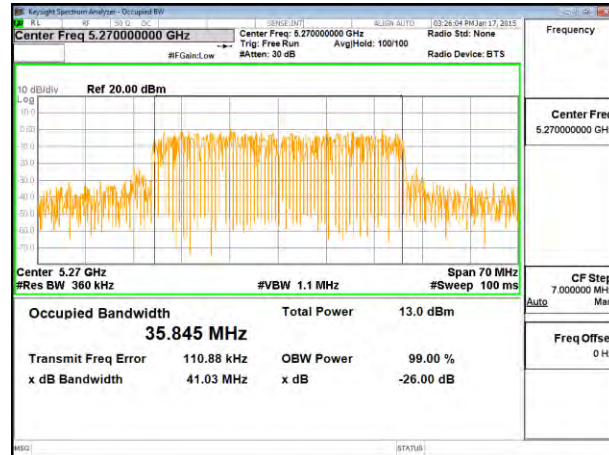
11n HT20 Mode Middle CH



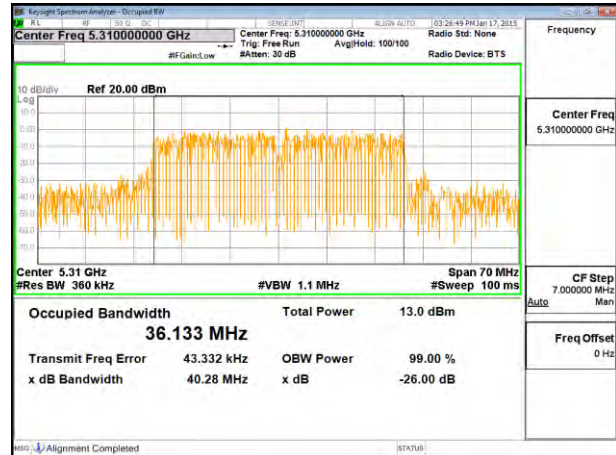
11n HT20 Mode High CH



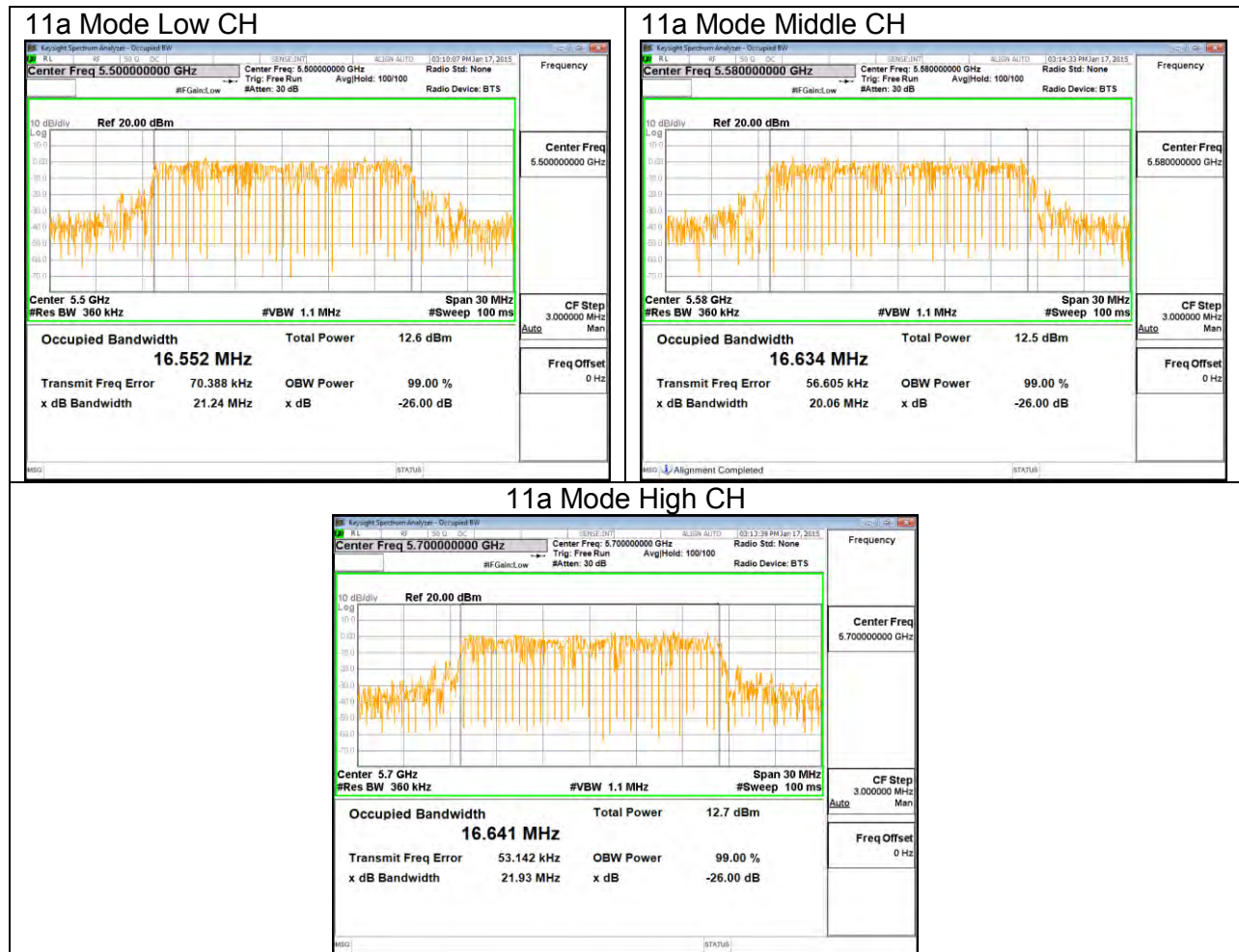
11n HT40 Mode Low CH



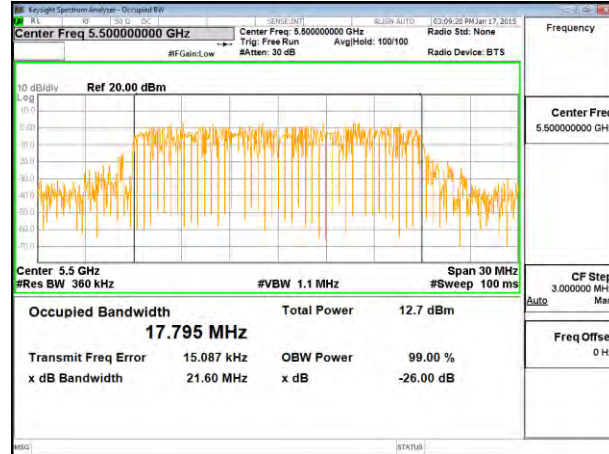
11n HT40 Mode Middle CH



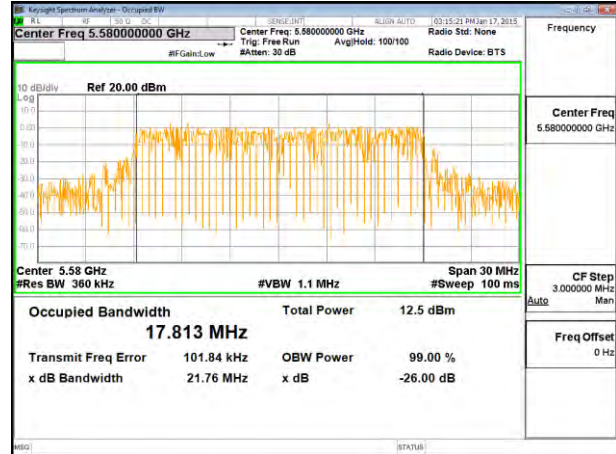
UNII 5.5GHz



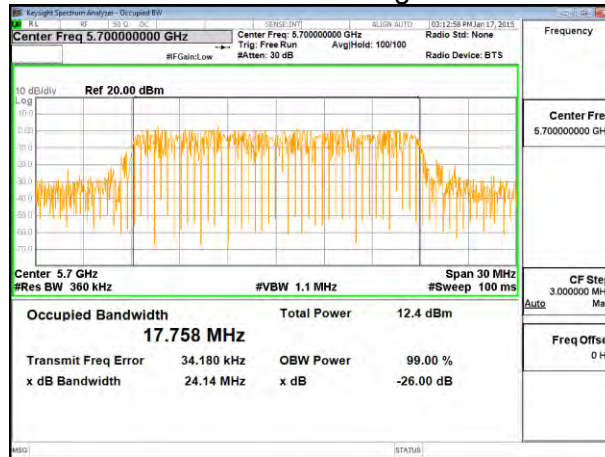
11n HT20 Mode Low CH



11n HT20 Mode Middle CH



11n HT20 Mode High CH



11n HT40 Mode Low CH



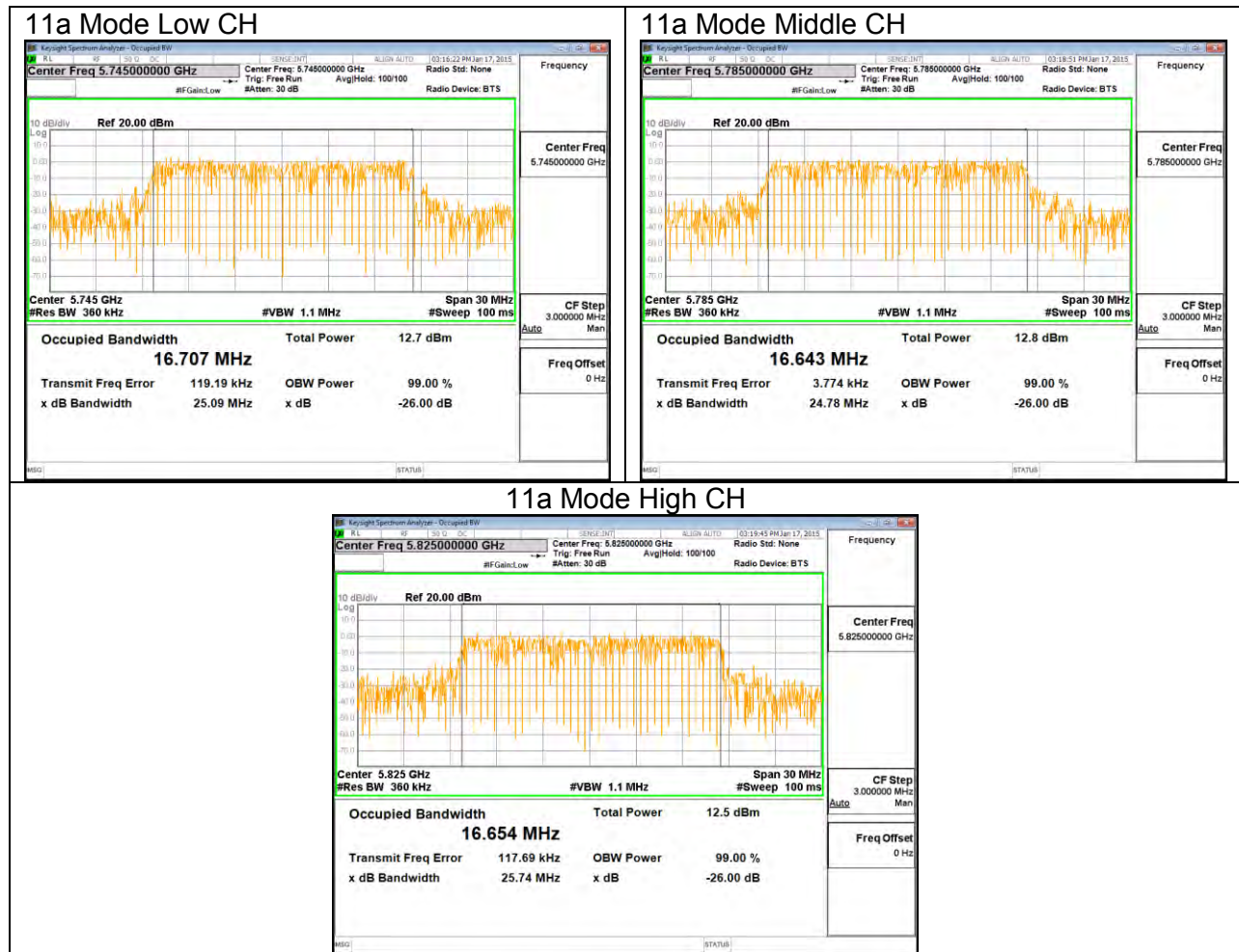
11n HT40 Mode Middle CH



11n HT20 Mode High CH



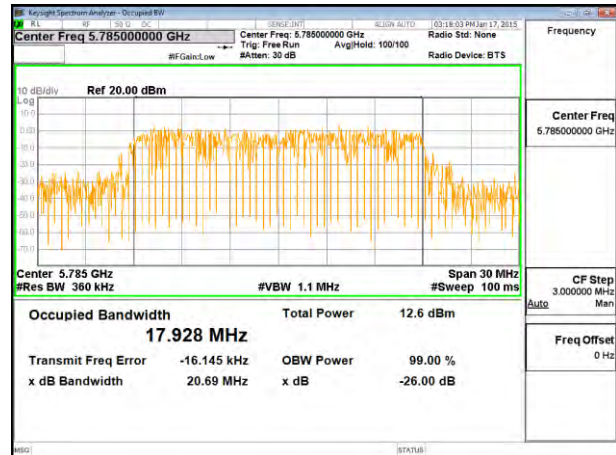
UNII 5.8GHz



11n HT20 Mode Low CH



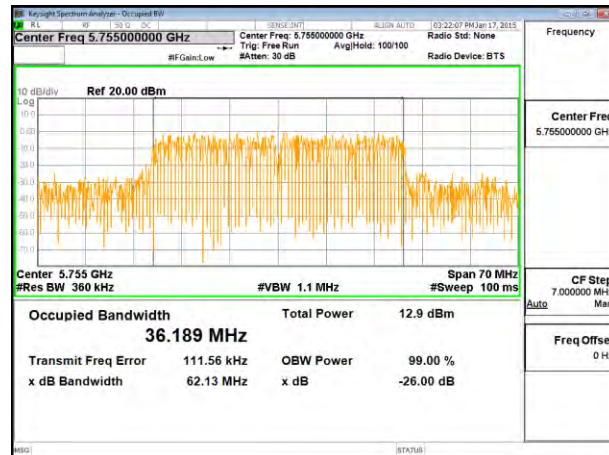
11n HT20 Mode Middle CH



11n HT20 Mode High CH



11n HT40 Mode Low CH



11n HT40 Mode Middle CH



10.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.29 dB (including 10 dB pad and 0.29 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

10.4.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5180	11.4
Mid	5200	11.4
High	5240	11.5
Worst		11.5

10.4.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5180	11.3
Mid	5200	11.3
High	5240	11.5
Worst		11.5

10.4.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5190	12.0
High	5130	12.0
Worst		12.0

10.4.4. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5260	11.7
Mid	5300	11.8
High	5320	11.9
Worst		11.9

10.4.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5260	11.6
Mid	5300	11.7
High	5320	11.8
Worst		11.8

10.4.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5270	12.2
High	5310	12.4
Worst		12.4

10.4.7. 802.11a MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5500	12.3
Mid	5580	11.8
High	5700	11.8
Worst		12.3

10.4.8. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5500	11.9
Mid	5580	11.7
High	5700	11.7
Worst		11.9

10.4.9. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5510	11.7
Mid	5550	11.9
High	5670	11.5
Worst		11.9

10.4.10. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5745	11.9
Mid	5785	11.9
High	5825	11.9
Worst		11.9

10.4.11. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5745	11.9
Mid	5785	11.9
High	5825	11.9
Worst		11.9

10.4.12. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5755	12.0
High	5795	12.0
Worst		12.0

10.5. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1)

For the band 5.15–5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26–dB emission bandwidth in MHz. In addition, the peak power spectral density shall not exceed 4 dBm in any 1–MHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

Test Methodology

RESULTS

10.5.1. 802.11a MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	20.936	16.567	-3.80
Mid	5200	21.404	16.568	-3.80
High	5240	21.086	16.670	-3.80

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	17.00	22.19	25.99	17.00	4.00	10.00	4.00
Mid	5200	17.00	22.19	25.99	17.00	4.00	10.00	4.00
High	5240	17.00	22.22	26.02	17.00	4.00	10.00	4.00

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd Power & PSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	11.872	12.16	17.00	-4.84
Mid	5200	11.904	12.19	17.00	-4.81
High	5240	12.064	12.35	17.00	-4.65

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	0.883	1.17	4.00	-2.83
Mid	5200	1.003	1.29	4.00	-2.71
High	5240	1.091	1.38	4.00	-2.62

10.5.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	20.746	17.826	-3.80
Mid	5200	21.580	17.747	-3.80
High	5240	21.442	17.827	-3.80

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	17.00	22.51	26.31	17.00	4.00	10.00	4.00
Mid	5200	17.00	22.49	26.29	17.00	4.00	10.00	4.00
High	5240	17.00	22.51	26.31	17.00	4.00	10.00	4.00

Duty Cycle CF (dB)	0.32	Included in Calculations of Corr'd Power & PSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	11.923	12.24	17.00	-4.76
Mid	5200	11.966	12.29	17.00	-4.71
High	5240	12.048	12.37	17.00	-4.63

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	0.628	0.95	4.00	-3.05
Mid	5200	0.954	1.27	4.00	-2.73
High	5240	1.152	1.47	4.00	-2.53

10.5.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5190	39.747	36.118	-3.80
High	5230	38.784	36.032	-3.80

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5190	17.00	23.00	26.80	17.00	4.00	10.00	4.00
High	5230	17.00	23.00	26.80	17.00	4.00	10.00	4.00
Duty Cycle CF (dB)		0.63	Included in Calculations of Corr'd Power & PPSP					

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	12.595	13.23	17.00	-3.78
High	5230	12.644	13.27	17.00	-3.73

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	-1.427	-0.80	4.00	-4.80
High	5230	-1.439	-0.81	4.00	-4.81

10.5.4. 802.11a MODE IN THE 5.3 GHZ BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	22.832	17.824	-2.30
Mid	5300	21.712	17.808	-2.30
High	5320	21.460	17.896	-2.30

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	22.51	24.81	24.00	11.00	11.00	11.00
Mid	5300	24.00	22.51	24.81	24.00	11.00	11.00	11.00
High	5320	24.00	22.53	24.83	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd Power & PSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	12.013	12.30	24.00	-11.70
Mid	5300	12.082	12.37	24.00	-11.63
High	5320	12.139	12.43	24.00	-11.57

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	1.145	1.44	11.00	-9.57
Mid	5300	1.291	1.58	11.00	-9.42
High	5320	1.178	1.47	11.00	-9.53

10.5.5. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	20.994	16.630	-2.30
Mid	5300	21.254	16.619	-2.30
High	5320	21.566	16.670	-2.30

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	22.21	24.51	24.00	11.00	11.00	11.00
Mid	5300	24.00	22.21	24.51	24.00	11.00	11.00	11.00
High	5320	24.00	22.22	24.52	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.32	Included in Calculations of Corr'd Power & PSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	12.044	12.36	24.00	-11.64
Mid	5300	12.069	12.39	24.00	-11.61
High	5320	12.138	12.46	24.00	-11.54

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	0.918	1.24	11.00	-9.76
Mid	5300	0.891	1.21	11.00	-9.79
High	5320	1.352	1.67	11.00	-9.33

10.5.6. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5270	40.809	35.845	-2.30
High	5310	39.660	36.133	-2.30

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5270	24.00	23.00	25.30	24.00	11.00	11.00	11.00
High	5310	24.00	23.00	25.30	24.00	11.00	11.00	11.00
Duty Cycle CF (dB)		0.63	Included in Calculations of Corr'd Power & PSD					

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	12.685	13.32	24.00	-10.69
High	5310	12.736	13.37	24.00	-10.63

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5270	-1.155	-0.53	11.00	-11.53
High	5310	-1.082	-0.45	11.00	-11.45

10.5.7. 802.11a MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	20.898	16.552	-2.40
Mid	5580	20.660	16.634	-2.40
High	5700	20.494	16.641	-2.40

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	22.19	24.59	24.00	11.00	11.00	11.00
Mid	5580	24.00	22.21	24.61	24.00	11.00	11.00	11.00
High	5700	24.00	22.21	24.61	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd Power & PSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	12.446	12.74	24.00	-11.26
Mid	5580	11.776	12.07	24.00	-11.93
High	5700	1.519	1.81	24.00	-22.19

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	1.605	1.90	11.00	-9.11
Mid	5580	1.051	1.34	11.00	-9.66
High	5700	1.257	1.55	11.00	-9.45

10.5.8. 802.11n HT20 MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	20.444	17.795	-2.40
Mid	5580	21.044	17.813	-2.40
High	5700	21.208	17.758	-2.40

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	22.50	24.90	24.00	11.00	11.00	11.00
Mid	5580	24.00	22.51	24.91	24.00	11.00	11.00	11.00
High	5700	24.00	22.49	24.89	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.32	Included in Calculations of Corr'd Power & PSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	12.313	12.63	24.00	-11.37
Mid	5580	12.071	12.39	24.00	-11.61
High	5700	12.662	12.98	24.00	-11.02

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	1.227	1.55	11.00	-9.45
Mid	5580	1.113	1.43	11.00	-9.57
High	5700	1.521	1.84	11.00	-9.16

10.5.9. 802.11n HT40 MODE IN THE 5.5 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5510	38.394	36.235	-2.40
Mid	5550	39.246	36.034	-2.40
High	5670	39.240	36.209	-2.40

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5510	24.00	23.00	25.40	24.00	11.00	11.00	11.00
Mid	5550	24.00	23.00	25.40	24.00	11.00	11.00	11.00
High	5670	24.00	23.00	25.40	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.63	Included in Calculations of Corr'd Power & PSD
--------------------	------	--

Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	12.320	12.95	24.00	-11.05
Mid	5550	12.561	13.19	24.00	-10.81
High	5670	12.932	13.56	24.00	-10.44

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5510	-1.797	-1.17	11.00	-12.17
Mid	5550	-1.264	-0.63	11.00	-11.63
High	5670	-1.139	-0.51	11.00	-11.51

10.5.10. 802.11a MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5745	20.386	16.707	-2.50
Mid	5785	21.222	16.643	-2.50
High	5825	20.172	16.654	-2.50

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5745	24.00	22.23	24.73	24.00	11.00	11.00	11.00
Mid	5785	24.00	22.21	24.71	24.00	11.00	11.00	11.00
High	5825	24.00	22.22	24.72	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.29	Included in Calculations of Corr'd Power & PSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	12.829	13.12	24.00	-10.88
Mid	5785	12.805	13.10	24.00	-10.91
High	5825	12.637	12.93	24.00	-11.07

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5745	1.997	2.29	11.00	-8.71
Mid	5785	2.041	2.33	11.00	-8.67
High	5825	1.936	2.23	11.00	-8.77

10.5.11. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5745	21.098	17.745	-2.50
Mid	5785	20.954	17.928	-2.50
High	5825	21.274	17.805	-2.50

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5745	24.00	22.49	24.99	24.00	11.00	11.00	11.00
Mid	5785	24.00	22.54	25.04	24.00	11.00	11.00	11.00
High	5825	24.00	22.51	25.01	24.00	11.00	11.00	11.00

Duty Cycle CF (dB)	0.32	Included in Calculations of Corr'd Power & PSD
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Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	12.938	13.26	24.00	-10.74
Mid	5785	12.854	13.17	24.00	-10.83
High	5825	12.636	12.96	24.00	-11.04

PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5745	1.858	2.18	11.00	-8.82
Mid	5785	1.577	1.90	11.00	-9.10
High	5825	1.416	1.74	11.00	-9.26

10.5.12. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5755	40.683	36.189	-2.50
High	5795	39.567	36.623	-2.50

Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5755	24.00	23.00	25.50	24.00	11.00	11.00	11.00
High	5795	24.00	23.00	25.50	24.00	11.00	11.00	11.00
Duty Cycle CF (dB)		0.63	Included in Calculations of Corr'd Power & PSD					

Output Power Results

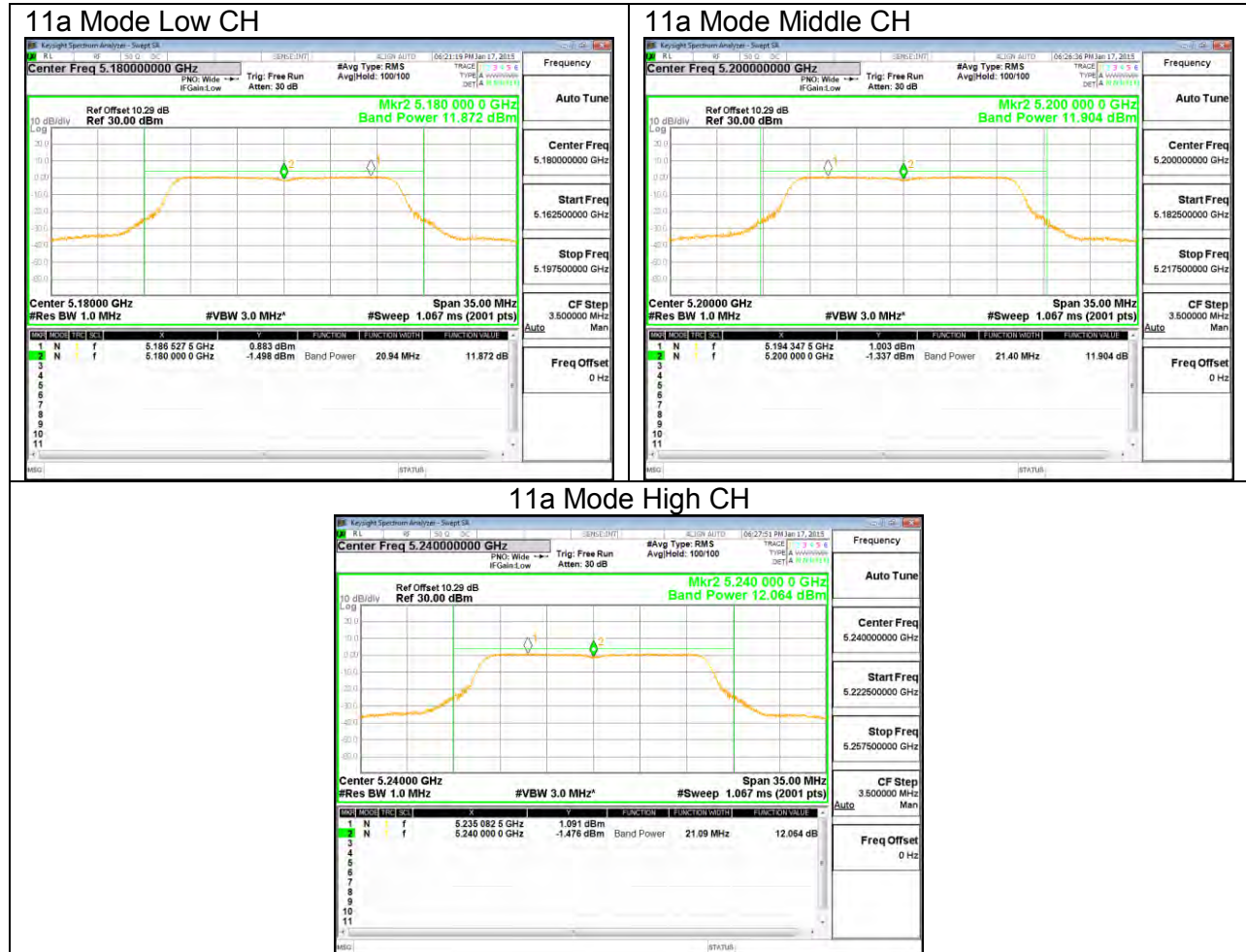
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5755	12.358	12.99	24.00	-11.01
High	5795	12.163	12.79	24.00	-11.21

PPSD Results

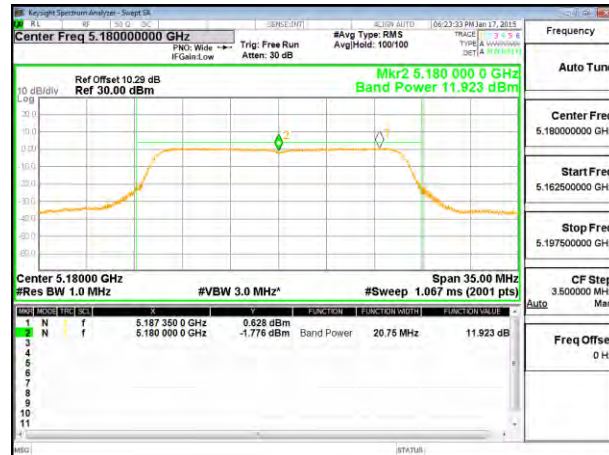
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5755	-1.357	-0.73	11.00	-11.73
High	5795	-1.487	-0.86	11.00	-11.86

10.5.13. OUTPUT POWER AND PPSD PLOTS

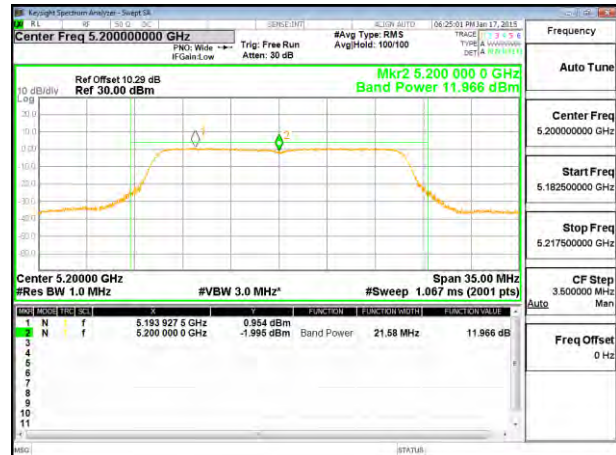
UNII 5.2 GHz



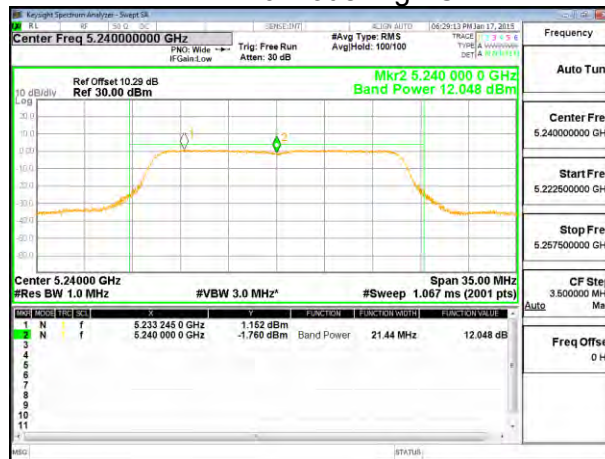
11n HT20 Mode Low CH



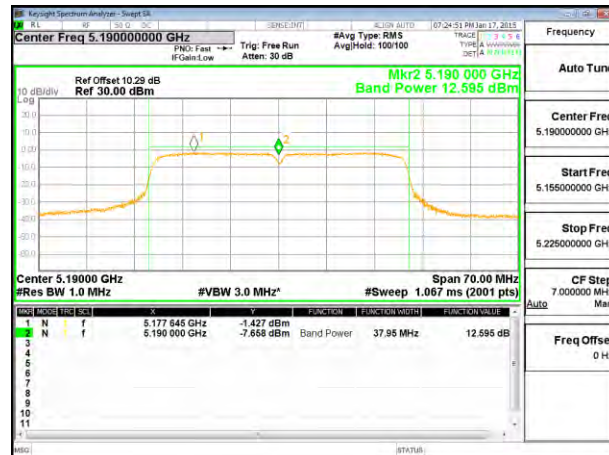
11n HT20 Mode Middle CH



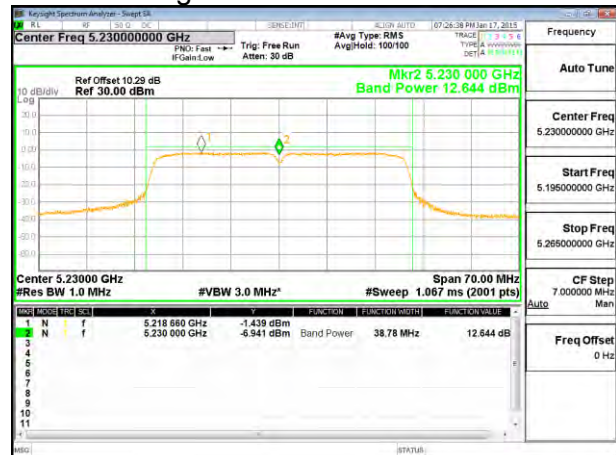
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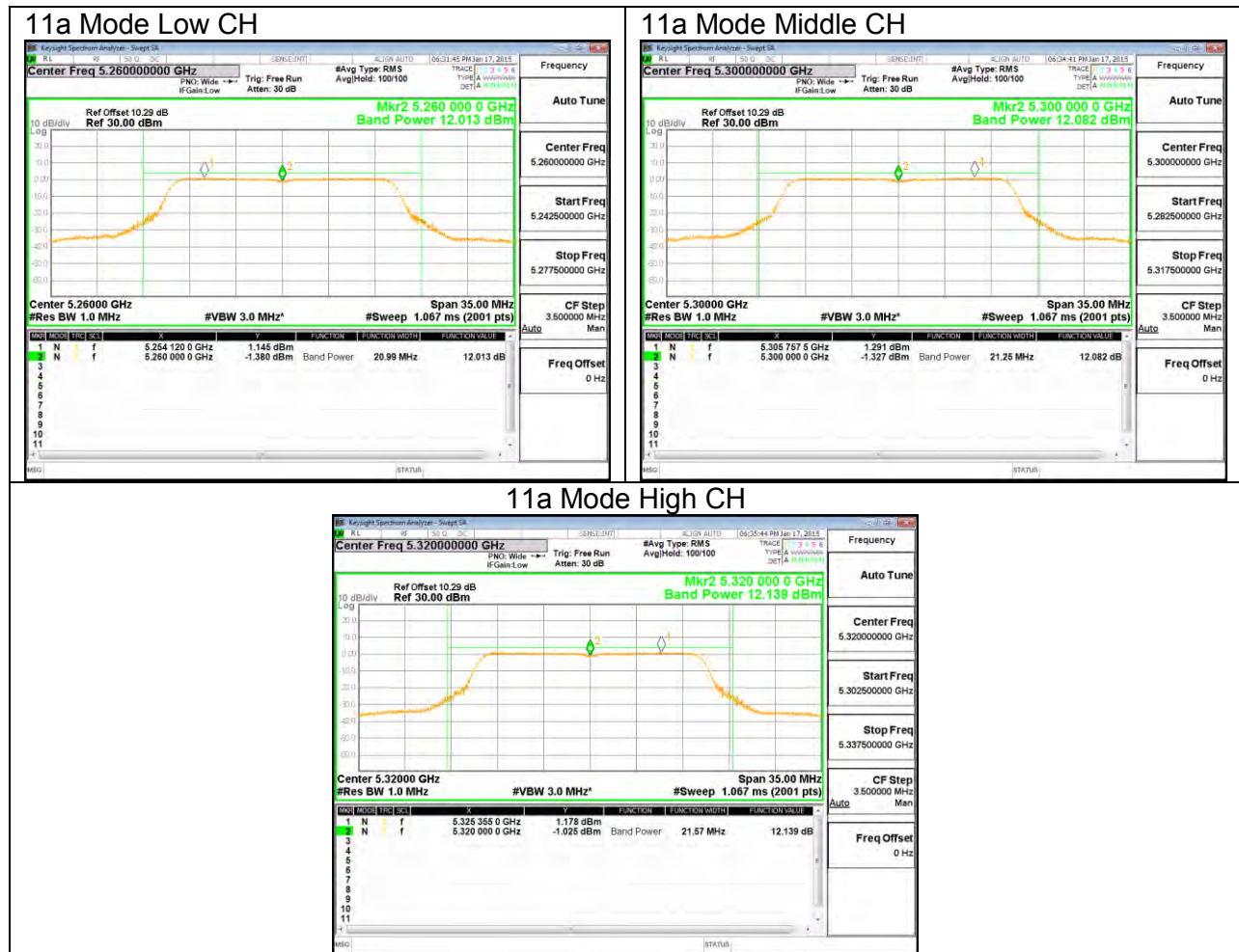
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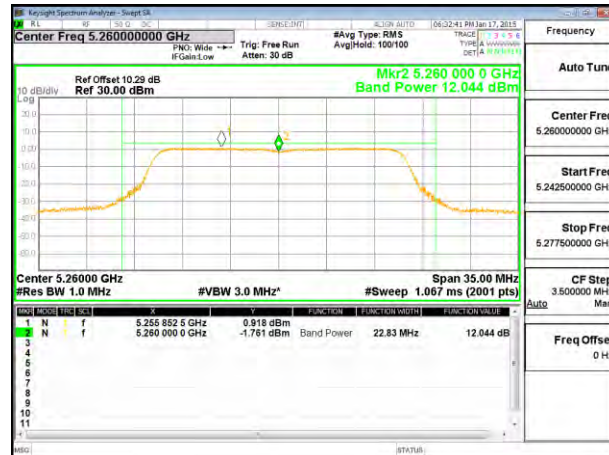
11n HT40 High Middle CH



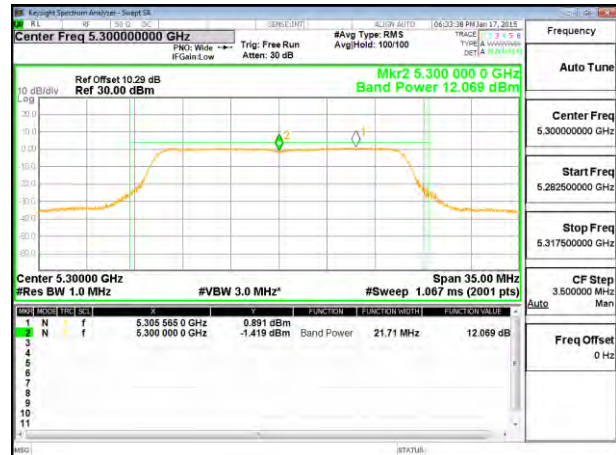
UNII 5.3GHz



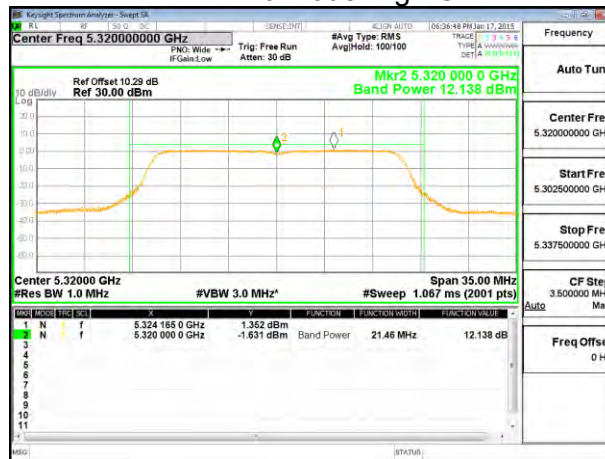
11n HT20 Mode Low CH



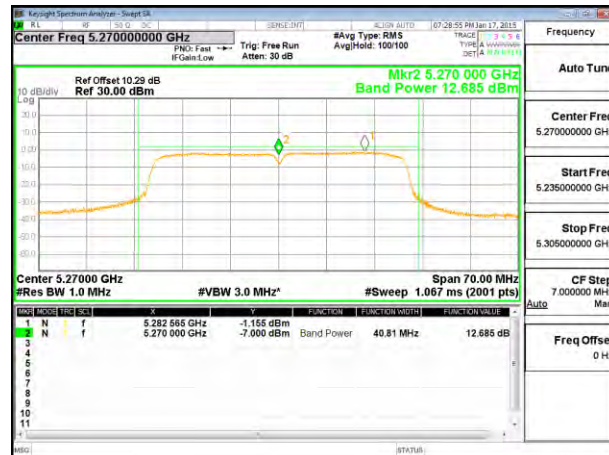
11n HT20 Mode Middle CH



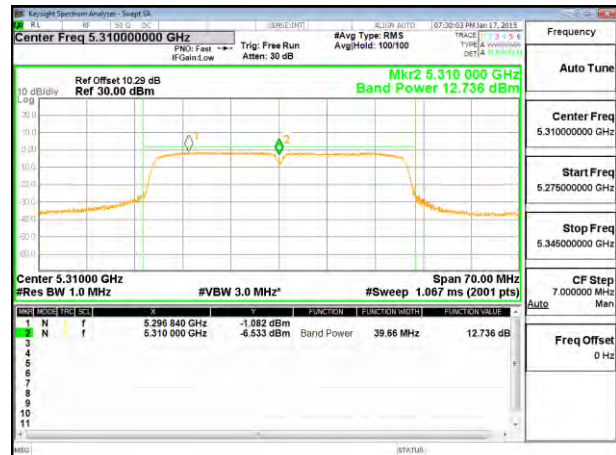
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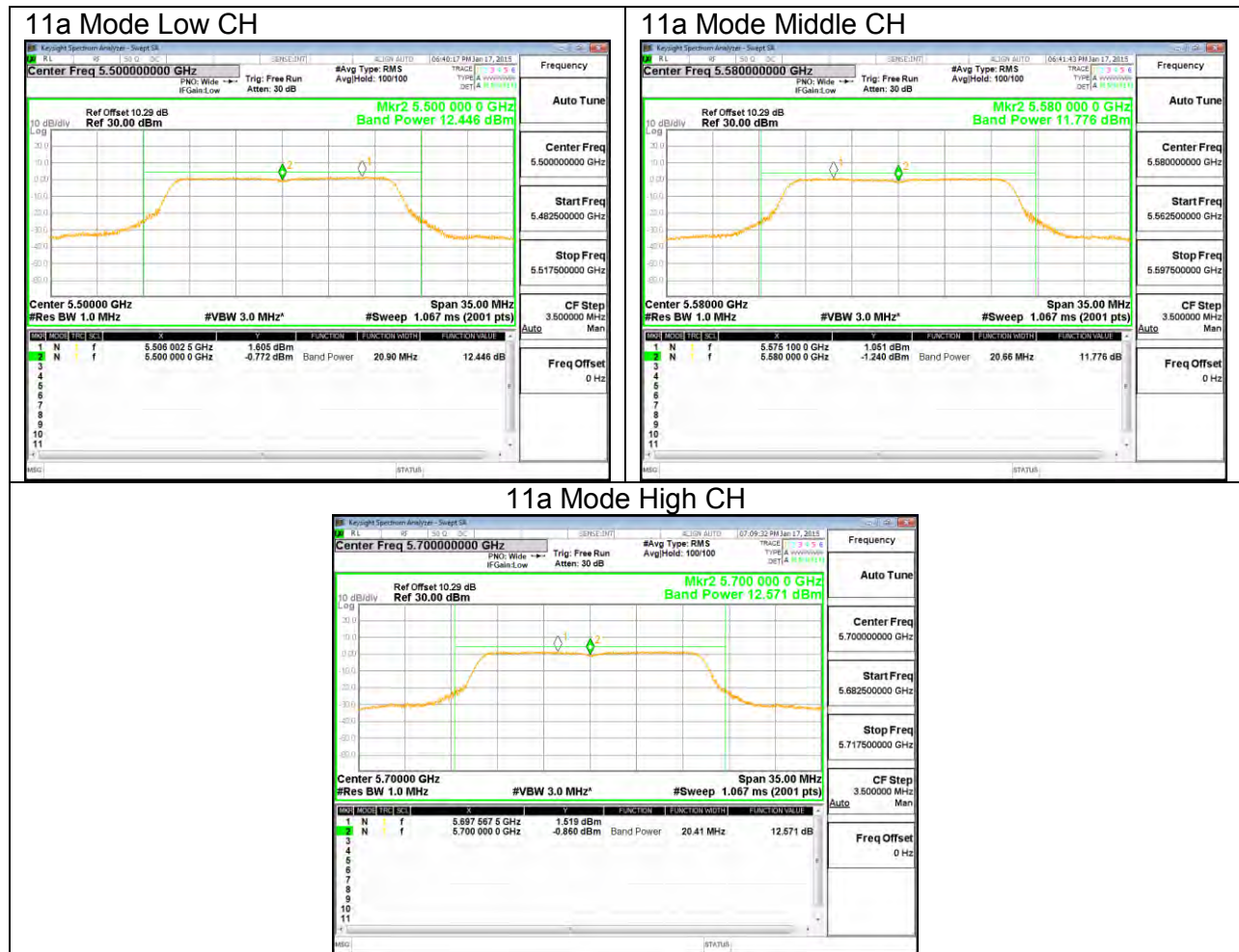
11n HT40 Mode Low CH



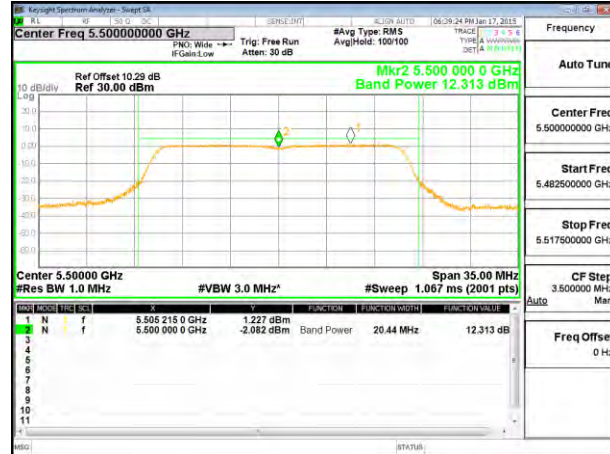
11n HT40 Mode Middle CH



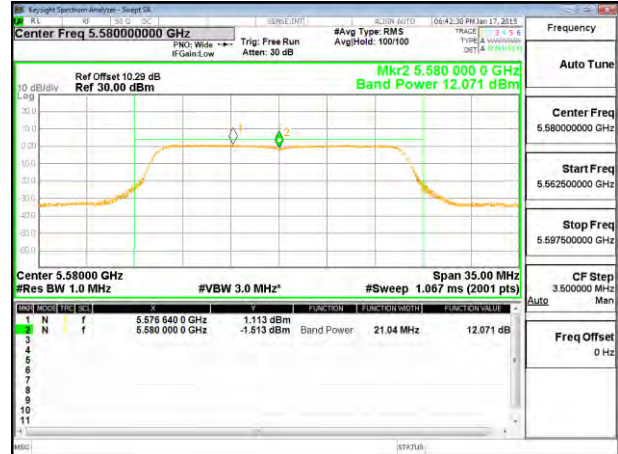
UNII 5.5GHz



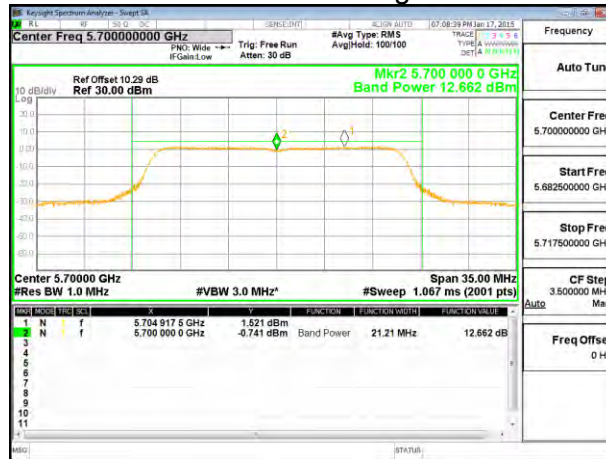
11n HT20 Mode Low CH



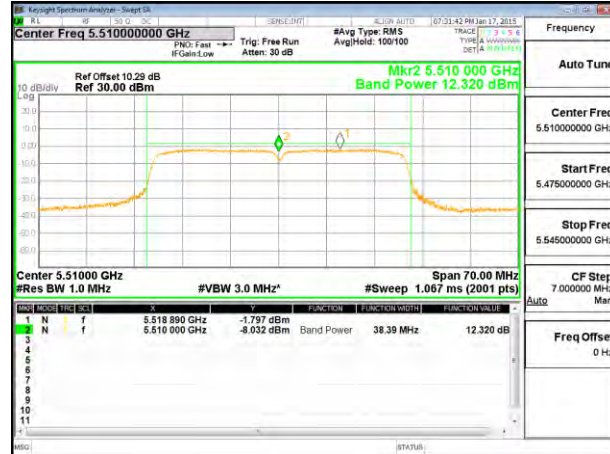
11n HT20 Mode Middle CH



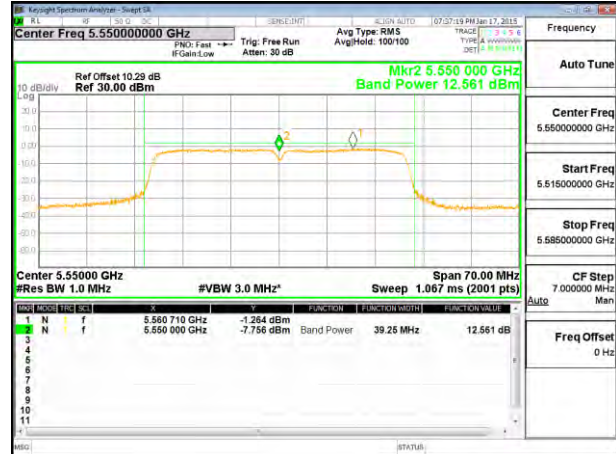
11n HT20 Mode High CH



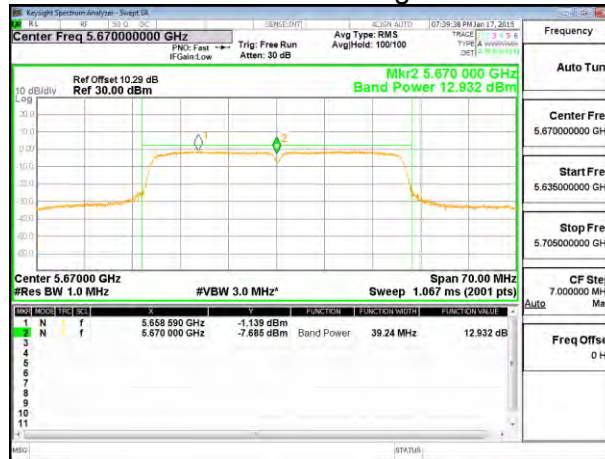
11n HT40 Mode Low CH



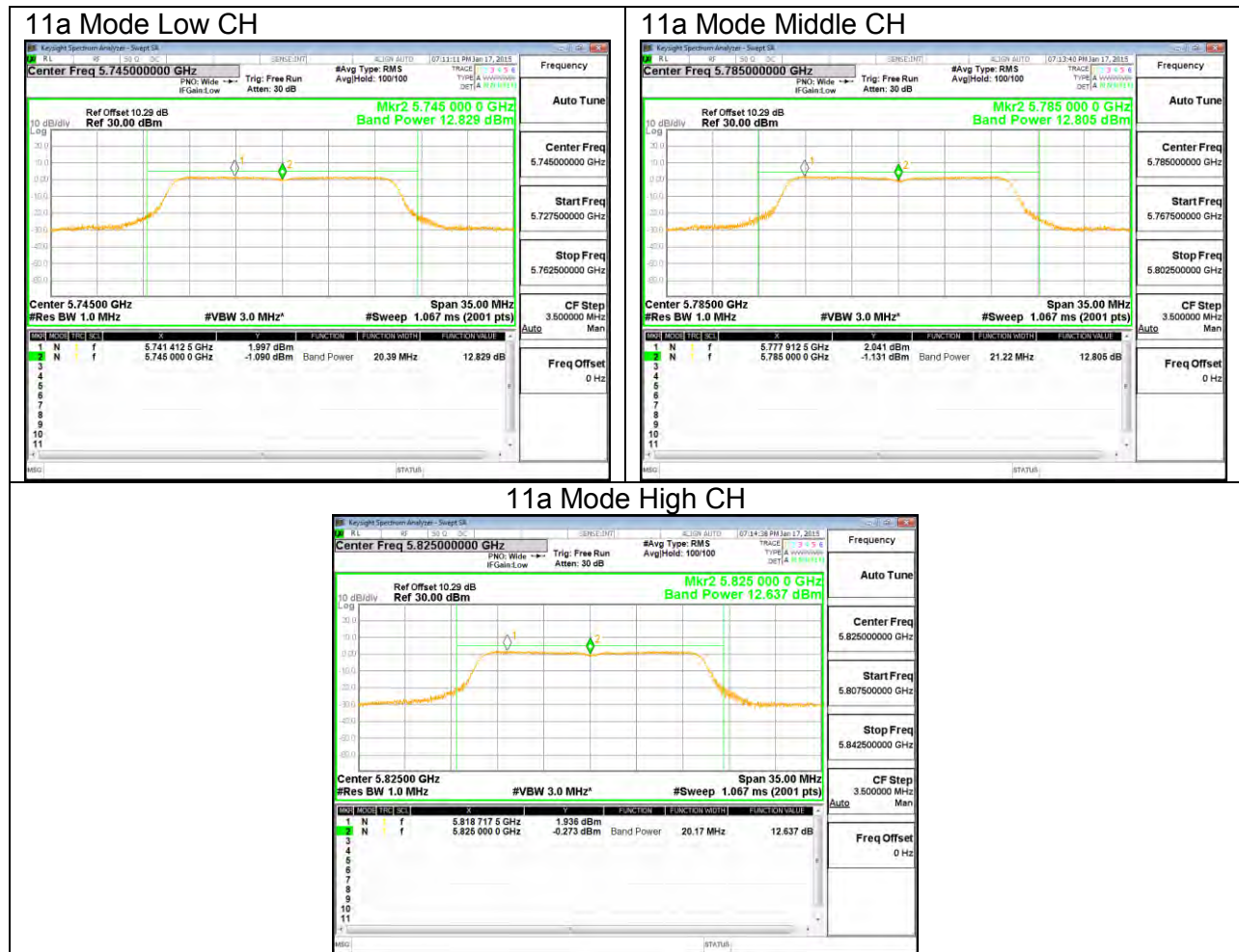
11n HT40 Mode Middle CH



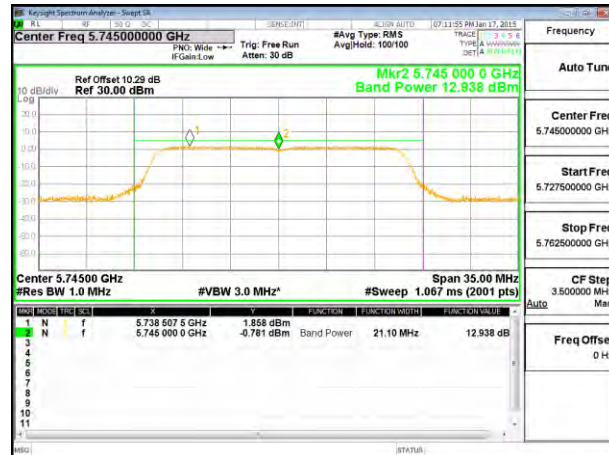
11n HT20 Mode High CH



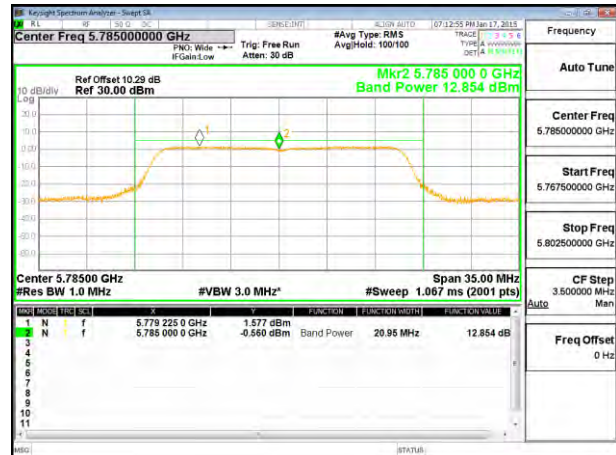
UNII 5.8GHz



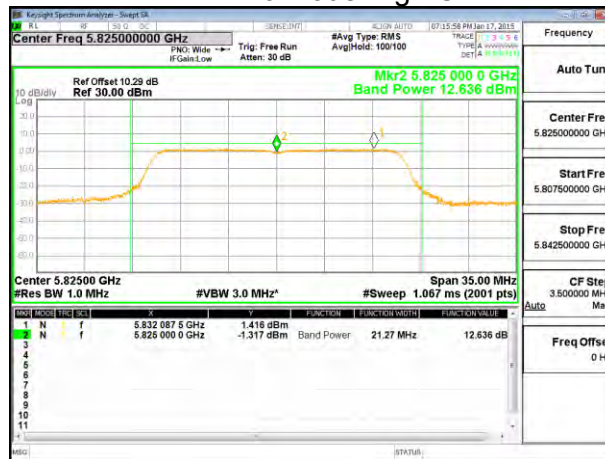
11n HT20 Mode Low CH



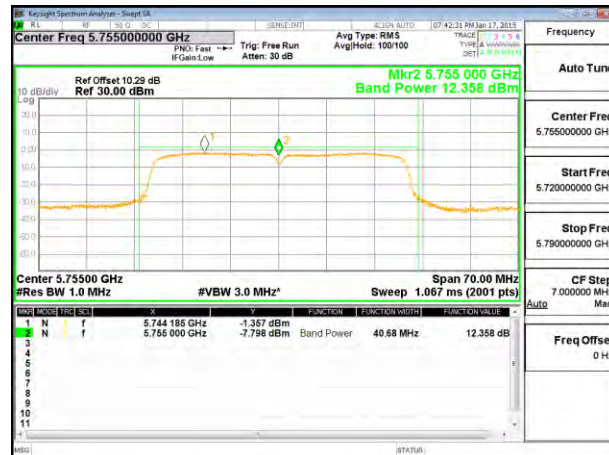
11n HT20 Mode Middle CH



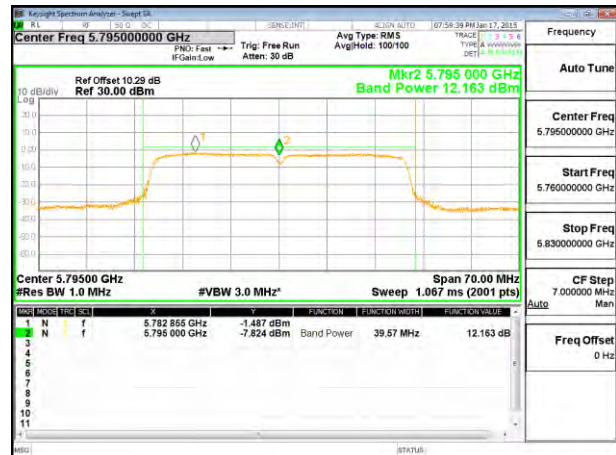
11n HT20 Mode High CH



11n HT40 Mode Low CH



11n HT40 Mode Middle CH



11. TRANSMITTER ABOVE 1 GHz

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

Reference to KDB 789033 UNII part H) 6) d) Method AD:

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor to the reading offset for average measurements.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

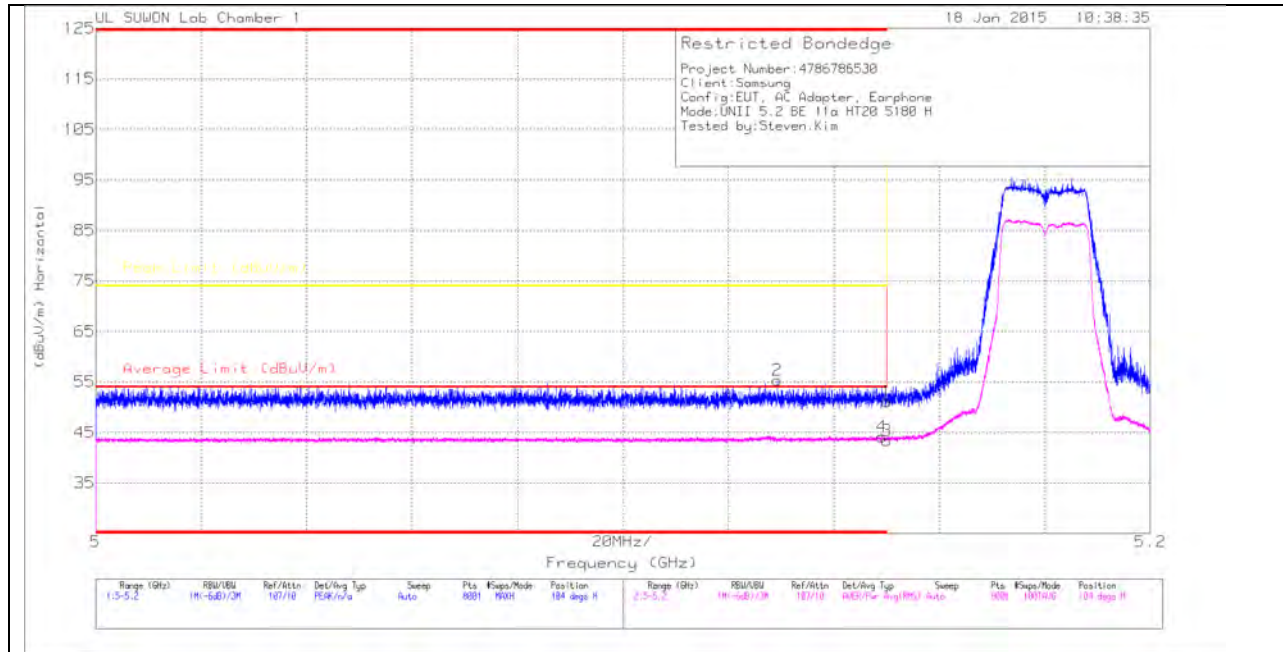
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

11.1. 5.2 GHz

11.1.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.2 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

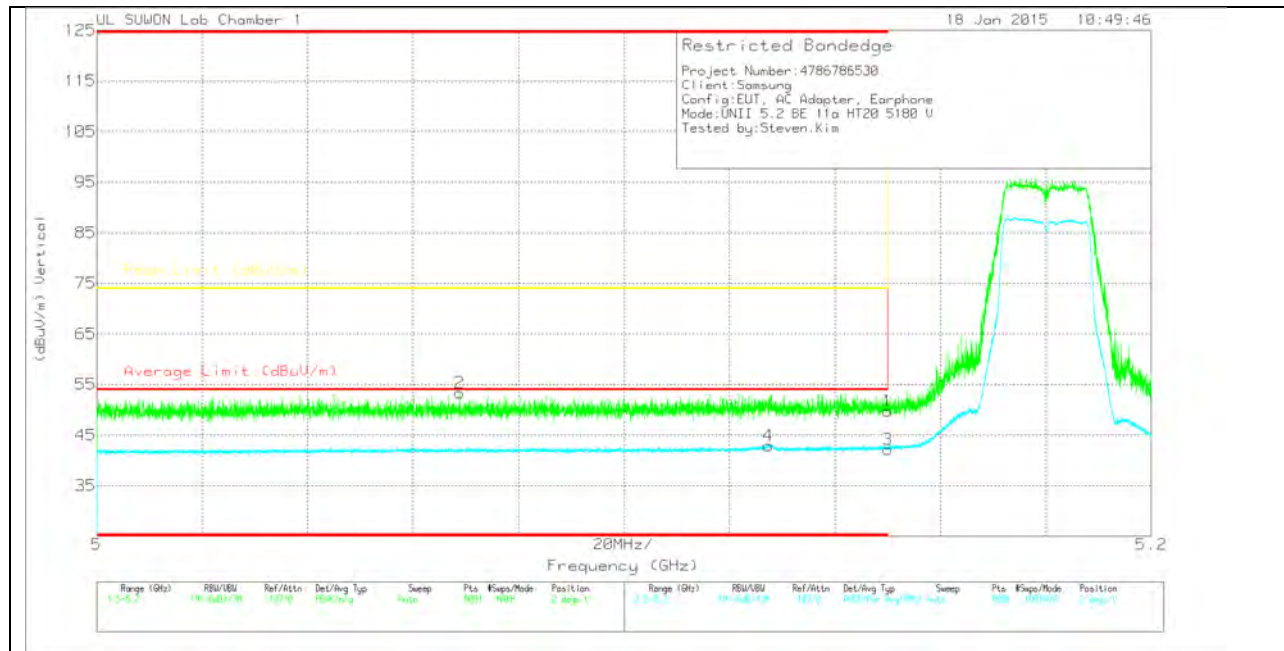
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	37.88	Pk	32.7	-19.5	0	51.08	-	-	74	-22.92	104	235	H
2	* 5.129	42.23	Pk	32.6	-19.5	0	55.33	-	-	74	-18.67	104	235	H
3	* 5.15	30.18	RMS	32.7	-19.5	.29	43.67	54	-10.33	-	-	104	235	H
4	* 5.149	30.95	RMS	32.7	-19.5	.29	44.44	54	-9.56	-	-	104	235	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	36.54	Pk	32.7	-19.5	0	49.74	-	-	74	-24.26	2	262	V
2	* 5.069	40.45	Pk	32.4	-19.5	0	53.35	-	-	74	-20.65	2	262	V
3	* 5.15	29.04	RMS	32.7	-19.5	.29	42.53	54	-11.47	-	-	2	262	V
4	* 5.127	29.83	RMS	32.6	-19.5	.29	43.22	54	-10.78	-	-	2	262	V

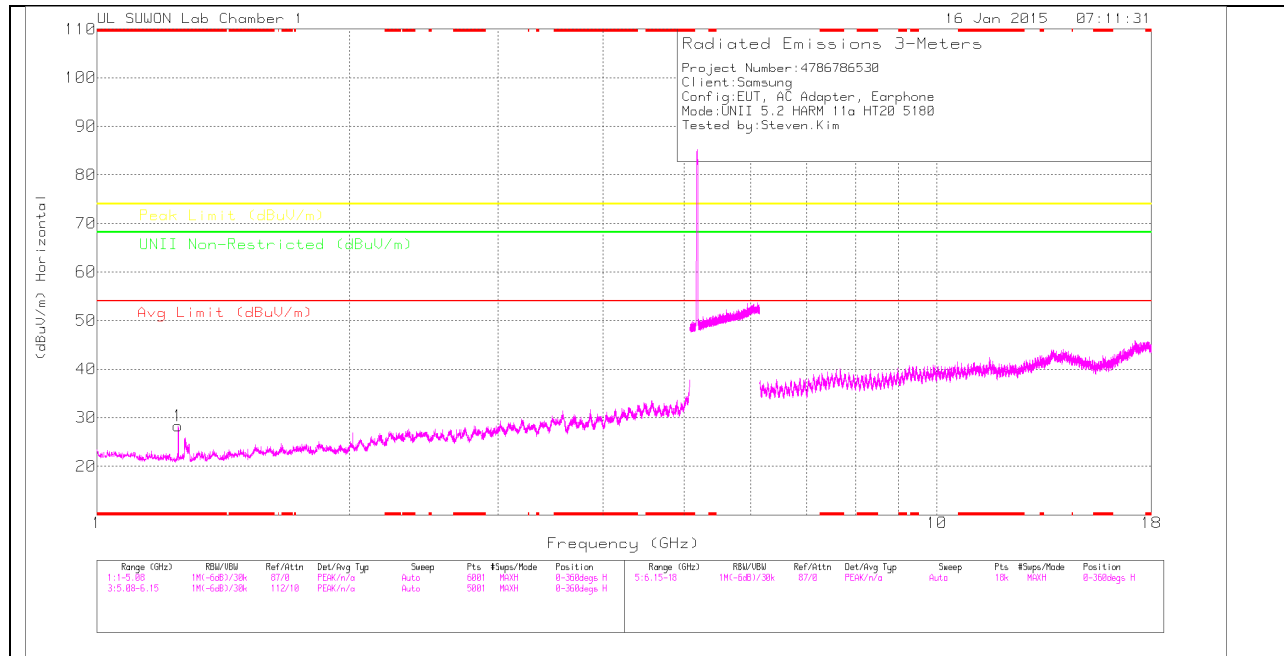
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

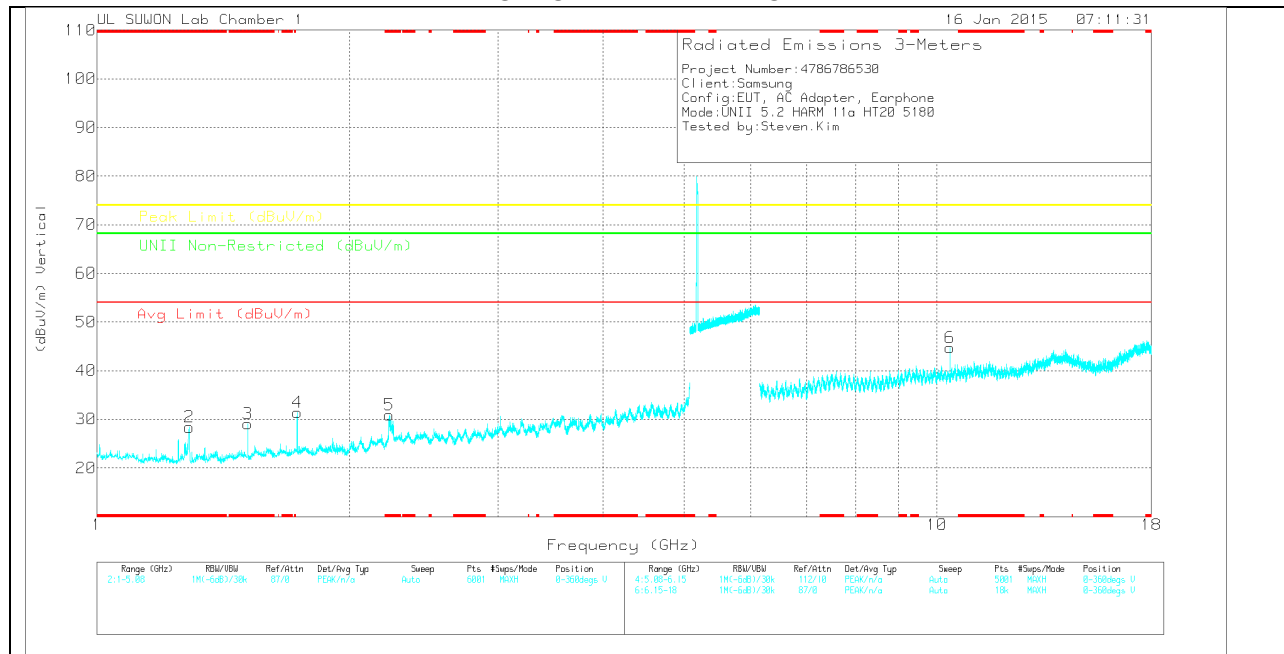
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	3115D Factor	5GHz Path4	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non- Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.25	38.83	Avg	23.6	-34.1	0	28.33	54	-25.67	-	-	-	-	0-360	200	H
2	* 1.288	38.17	Avg	23.8	-33.6	0	28.37	54	-25.63	-	-	-	-	0-360	200	V
3	* 1.512	37.99	Avg	24.6	-33.5	0	29.09	54	-24.91	-	-	-	-	0-360	200	V
4	1.731	39.35	Avg	25.2	-33.1	0	31.45	-	-	-	-	-	-	0-360	100	V
5	* 2.229	35.44	Avg	27.6	-32.2	0	30.84	54	-23.16	-	-	-	-	0-360	200	V
6	10.36	27.76	Avg	38.3	-21.3	0	44.76	-	-	-	-	-	-	0-360	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Avg - Video bandwidth < Resolution bandwidth

Radiated Emissions

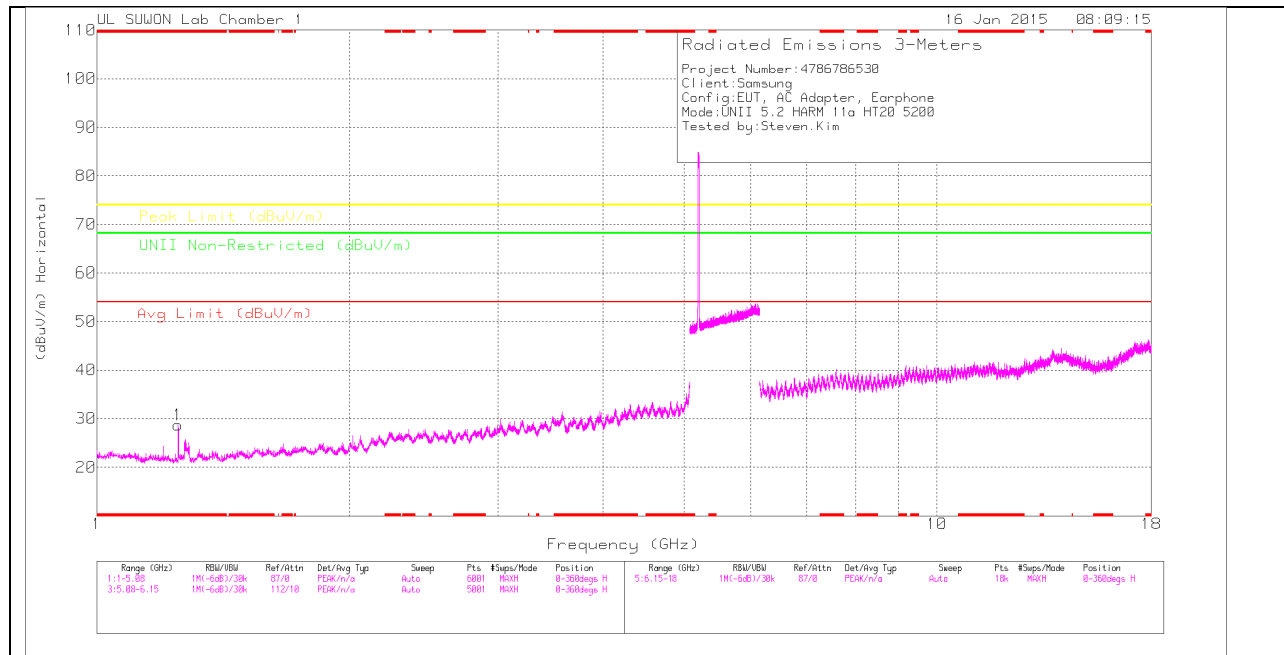
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	6GHz HPF_Path5	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non- Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
10.36	27.62	AD1	38.3	-21.3	0	44.62	-	-	-	-	-	-	334	100	V
10.36	35.11	PK1	38.3	-21.3	0	52.11	-	-	-	-	68.2	-16.09	334	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

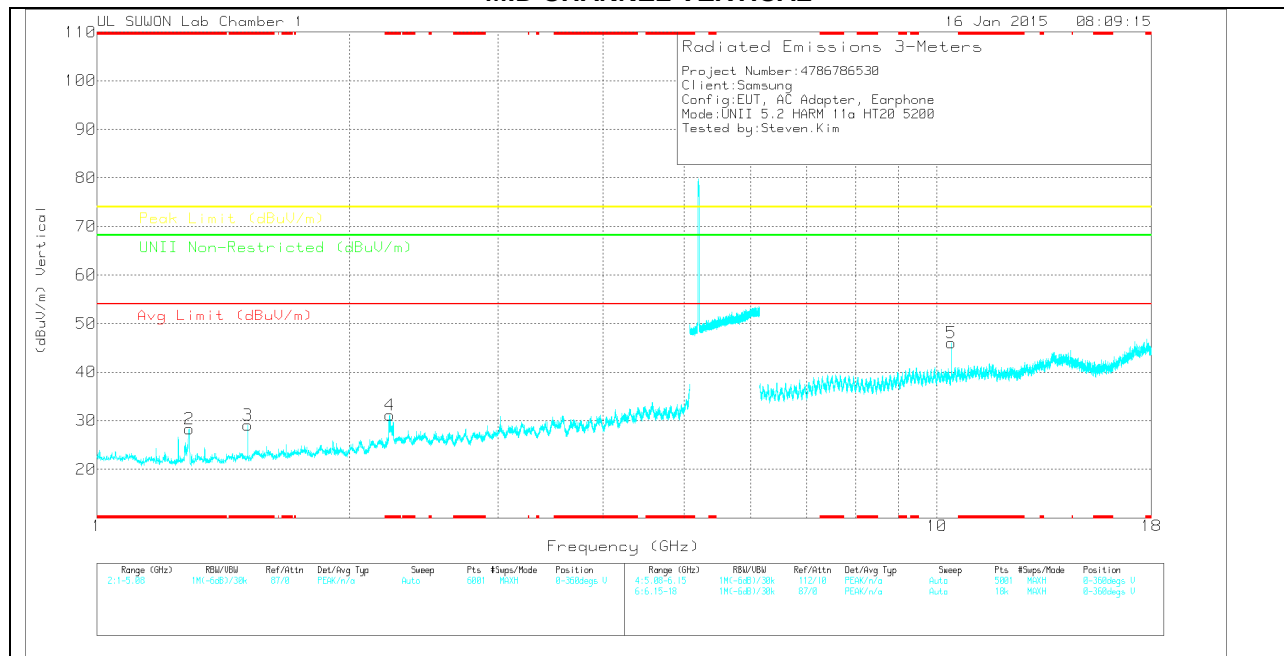
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	5GHz Path4	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.25	39.17	Avg	23.6	-34.1	0	28.67	54	-25.33	-	-	-	-	0-360	200	H
2	* 1.288	38.05	Avg	23.8	-33.6	0	28.25	54	-25.75	-	-	-	-	0-360	200	V
3	* 1.512	37.92	Avg	24.6	-33.5	0	29.02	54	-24.98	-	-	-	-	0-360	200	V
4	* 2.23	35.71	Avg	27.6	-32.2	0	31.11	54	-22.89	-	-	-	-	0-360	100	V
5	10.4	28.78	Avg	38.3	-21.1	0	45.98	-	-	-	-	-	-	0-360	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Avg - Video bandwidth < Resolution bandwidth

Radiated Emissions

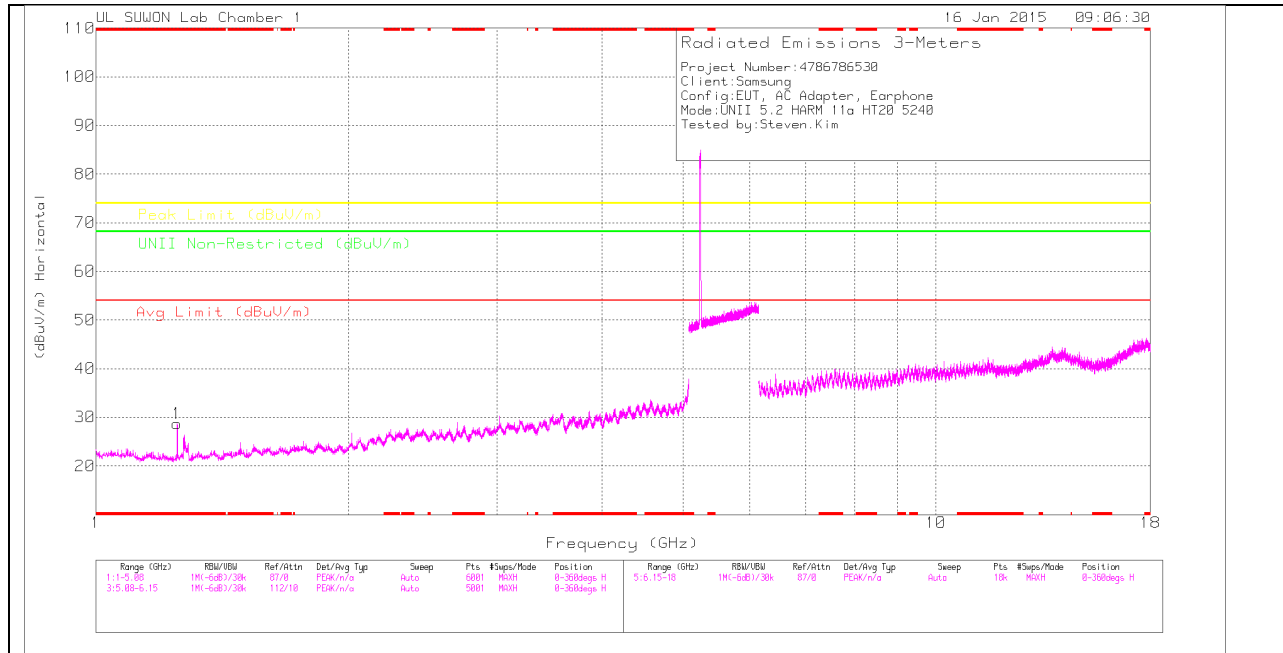
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	6GHz HPF_Path5	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
10.4	36.33	PK1	38.3	-21.1	0	53.53	-	-	-	-	68.2	-14.67	330	100	V
10.4	28.9	AD1	38.3	-21.1	0	46.1	-	-	-	-	-	-	330	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

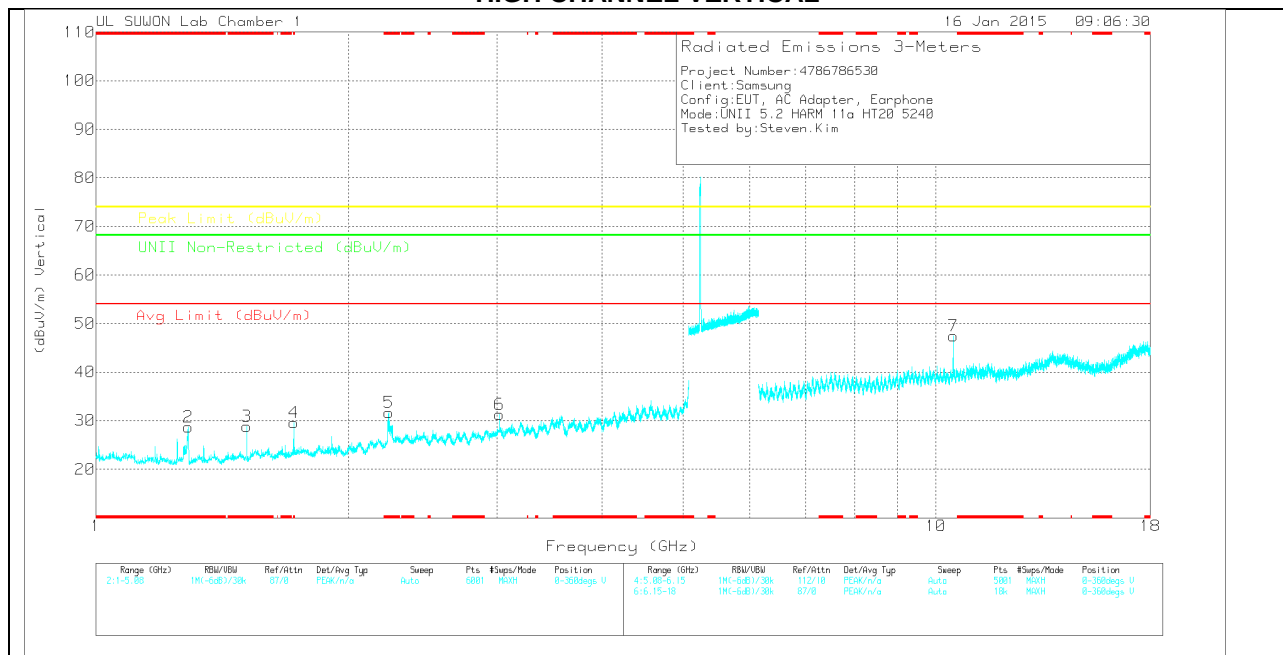
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	3115D Factor	5GHz Path4	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non- Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.25	39.22	Avg	23.6	-34.1	0	28.72	54	-25.28	-	-	-	-	0-360	200	H
2	* 1.288	38.51	Avg	23.8	-33.6	0	28.71	54	-25.29	-	-	-	-	0-360	200	V
3	* 1.512	37.7	Avg	24.6	-33.5	0	28.8	54	-25.2	-	-	-	-	0-360	200	V
4	* 1.719	37.83	Avg	25.1	-33.3	0	29.63	54	-24.37	-	-	-	-	0-360	100	V
5	* 2.23	36.28	Avg	27.6	-32.2	0	31.68	54	-22.32	-	-	-	-	0-360	200	V
6	3.024	33.73	Avg	28.8	-31.2	0	31.33	-	-	-	-	-	-	0-360	200	V
7	10.48	30.49	Avg	38.4	-21.5	0	47.39	-	-	-	-	-	-	0-360	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Avg - Video bandwidth < Resolution bandwidth

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	6GHz HPF_Path5	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non- Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
10.48	35.87	PK1	38.4	-21.5	0	52.77	-	-	-	-	68.2	-15.43	306	115	V
10.48	28.89	AD1	38.4	-21.5	0	45.79	-	-	-	-	-	-	306	115	V

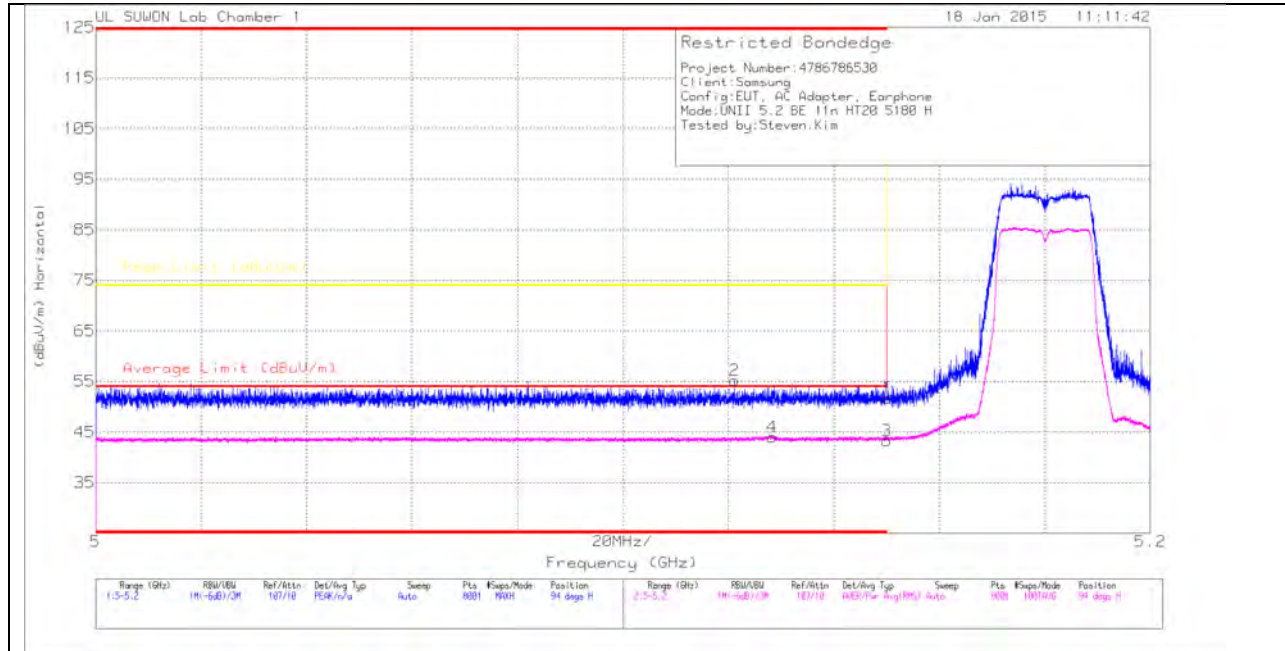
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

11.1.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

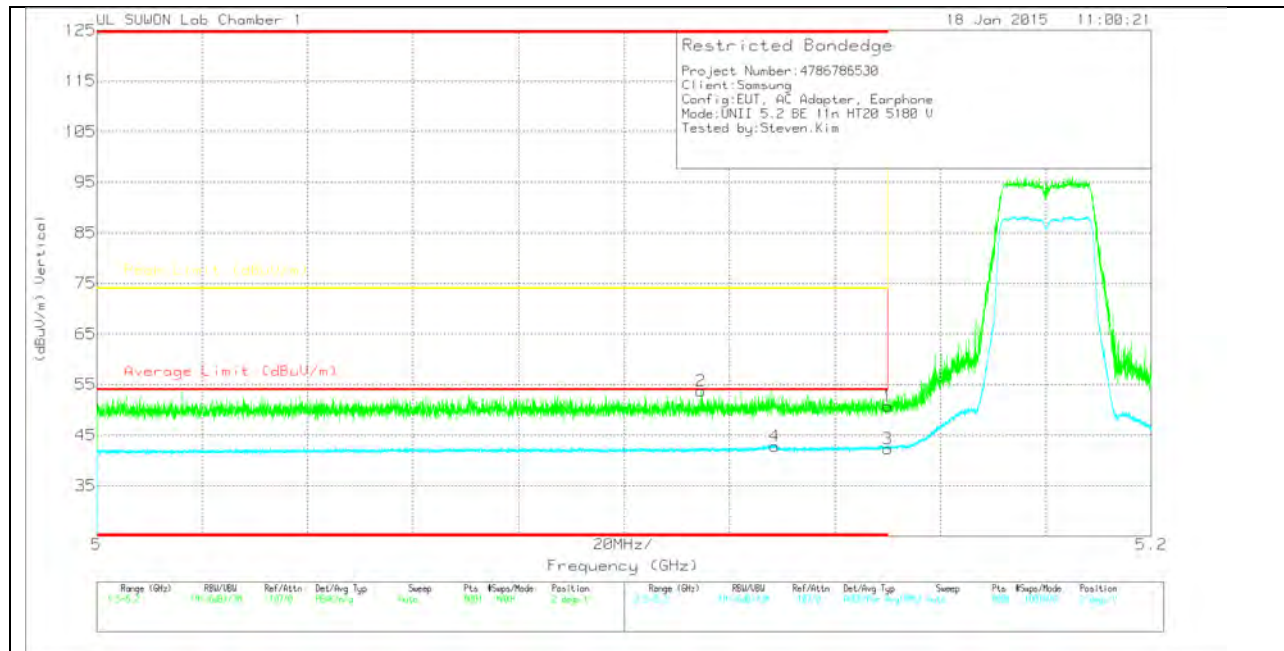
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	38.6	Pk	32.7	-19.5	0	51.8	-	-	74	-22.2	94	102	H
2	* 5.121	42.17	Pk	32.6	-19.6	0	55.17	-	-	74	-18.83	94	102	H
3	* 5.15	30.15	RMS	32.7	-19.5	.32	43.67	54	-10.33	-	-	94	102	H
4	* 5.128	30.96	RMS	32.6	-19.5	.32	44.38	54	-9.62	-	-	94	102	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	37.53	Pk	32.7	-19.5	0	50.73	-	-	74	-23.27	2	258	V
2	* 5.115	40.77	Pk	32.6	-19.6	0	53.77	-	-	74	-20.23	2	258	V
3	* 5.15	29.08	RMS	32.7	-19.5	.32	42.6	54	-11.4	-	-	2	258	V
4	* 5.129	29.73	RMS	32.6	-19.5	.32	43.15	54	-10.85	-	-	2	258	V

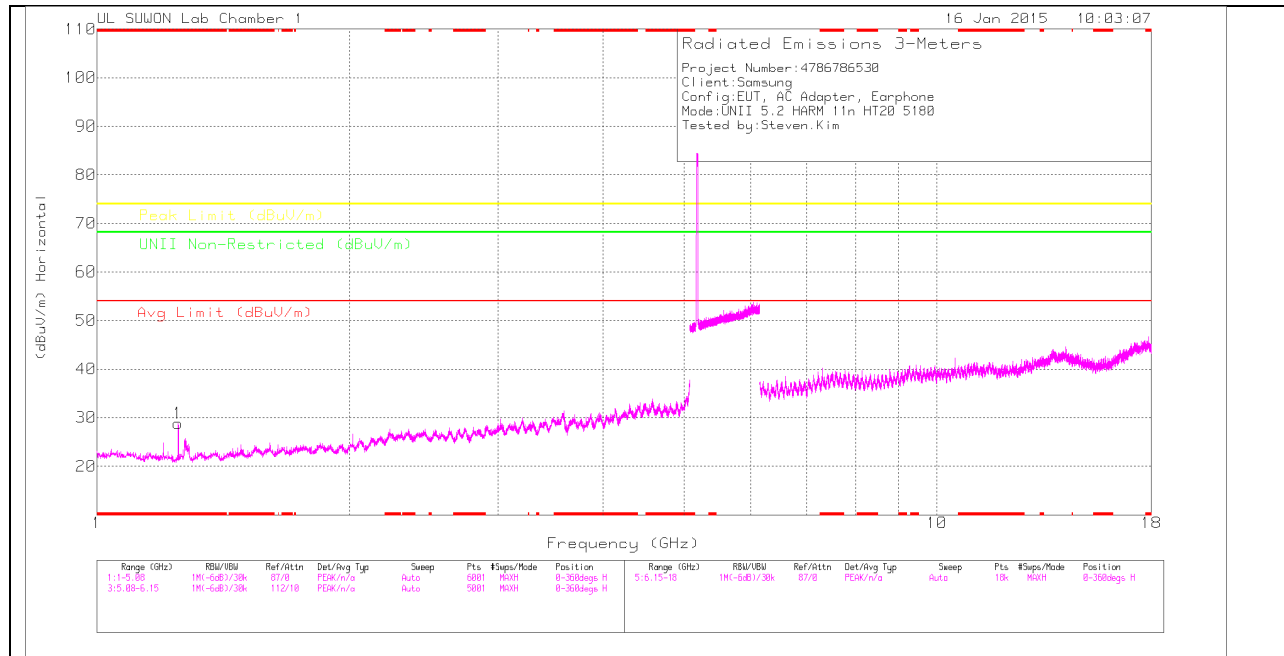
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

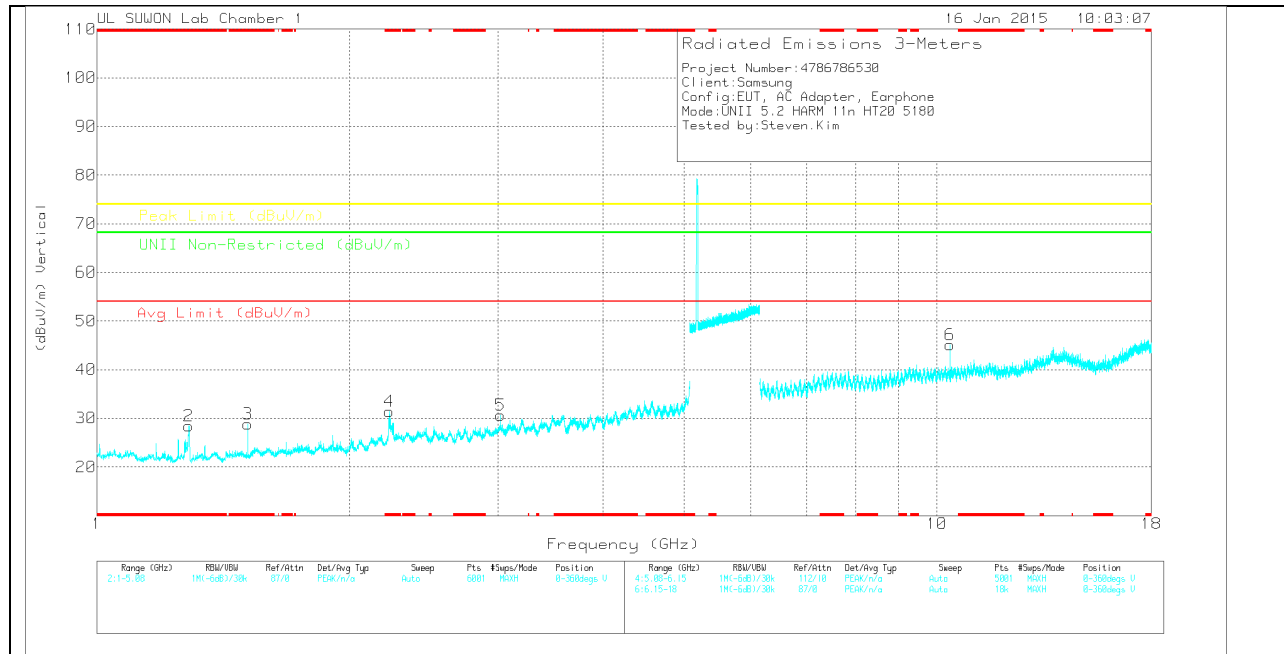
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	5GHz Path4	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.25	39.29	Avg	23.6	-34.1	0	28.79	54	-25.21	-	-	-	-	0-360	100	H
2	* 1.286	38.4	Avg	23.7	-33.7	0	28.4	54	-25.6	-	-	-	-	0-360	200	V
3	* 1.512	37.72	Avg	24.6	-33.5	0	28.82	54	-25.18	-	-	-	-	0-360	200	V
4	* 2.229	35.96	Avg	27.6	-32.2	0	31.36	54	-22.64	-	-	-	-	0-360	200	V
5	3.024	33.01	Avg	28.8	-31.2	0	30.61	-	-	-	-	-	-	0-360	200	V
6	10.36	28.08	Avg	38.3	-21.3	0	45.08	-	-	-	-	-	-	0-360	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Avg - Video bandwidth < Resolution bandwidth

Radiated Emissions

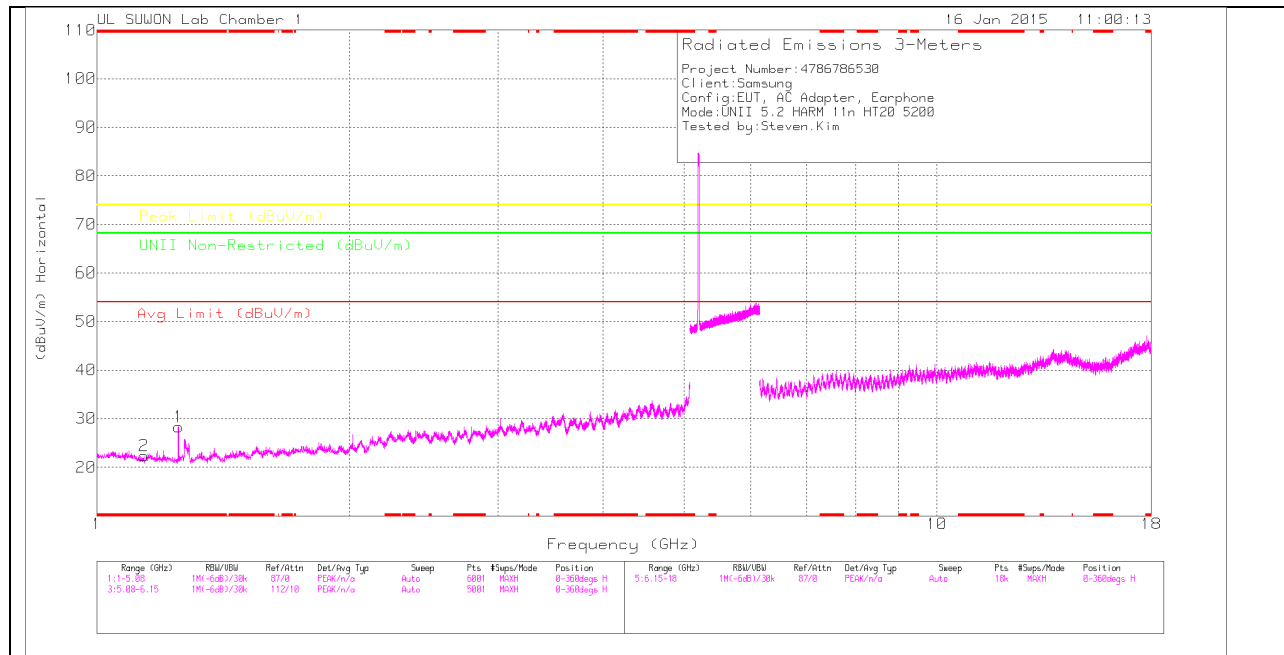
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	6GHz HPF_Path5	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
10.36	33.61	PK1	38.3	-21.3	0	50.61	-	-	-	-	68.2	-17.59	333	100	V
10.36	27.37	AD1	38.3	-21.3	0	44.37	-	-	-	-	-	-	333	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

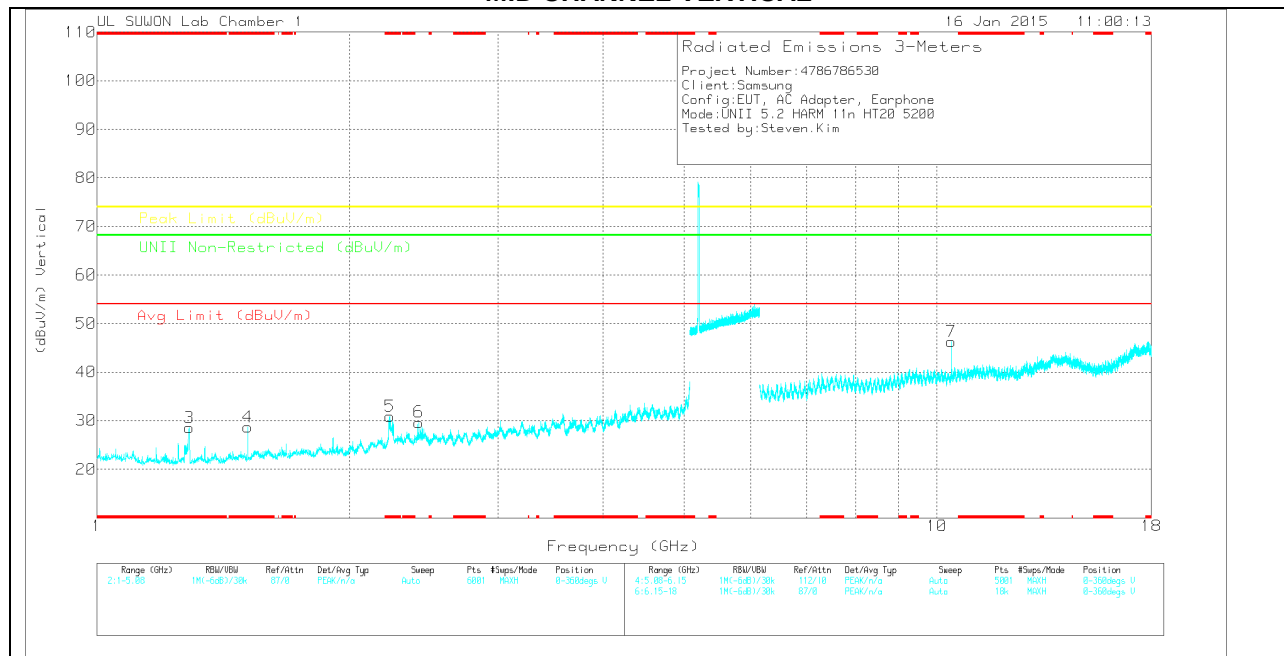
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	3115D Factor	5GHz Path4	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non- Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.125	38.83	Avg	23.6	-34.1	0	28.33	54	-25.67	-	-	-	-	0-360	200	H
2	* 1.137	32.71	Avg	24.1	-34.4	0	22.41	54	-31.59	-	-	-	-	0-360	100	H
3	* 1.288	38.36	Avg	23.8	-33.6	0	28.56	54	-25.44	-	-	-	-	0-360	200	V
4	* 1.511	37.58	Avg	24.6	-33.5	0	28.68	54	-25.32	-	-	-	-	0-360	200	V
5	* 2.23	35.53	Avg	27.6	-32.2	0	30.93	54	-23.07	-	-	-	-	0-360	200	V
6	2.416	33.76	Avg	27.9	-32	0	29.66	-	-	-	-	-	-	0-360	200	V
7	10.4	29.13	Avg	38.3	-21.1	0	46.33	-	-	-	-	-	-	0-360	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Ban

PK - Peak detector

Avg - Video bandwidth < Resolution bandwidth

Radiated Emissions

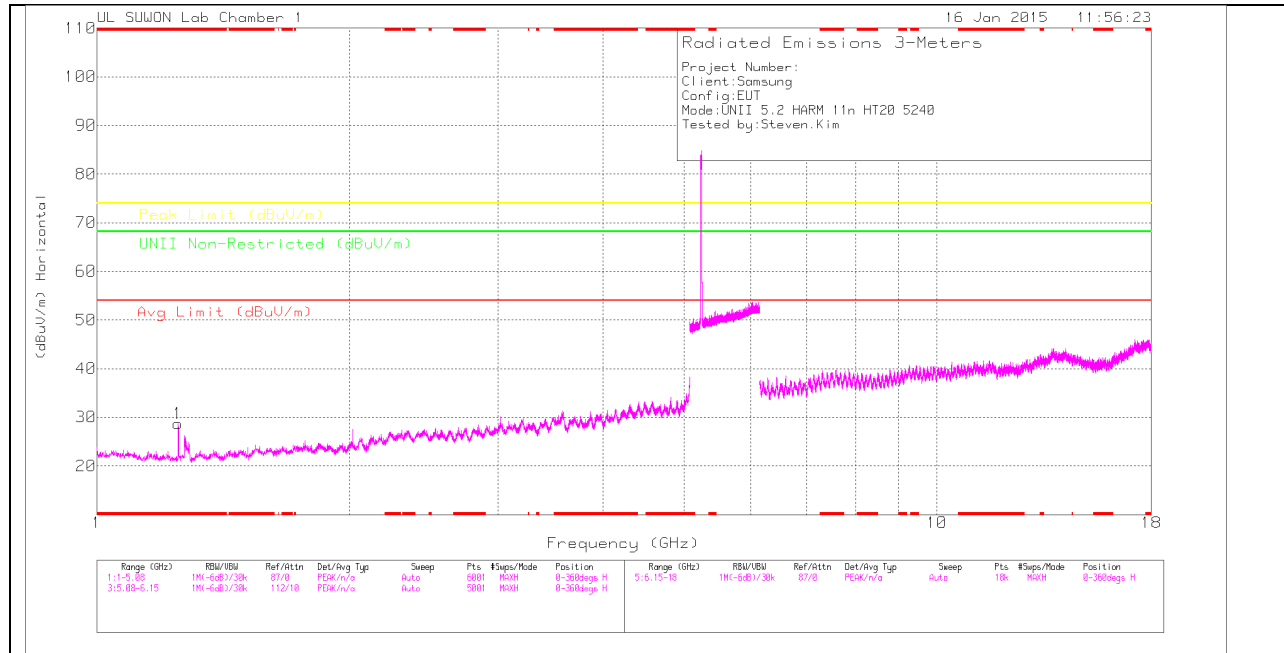
Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	6GHz HPF_Path5	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non- Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
10.4	36.6	PK1	38.3	-21.1	0	53.8	-	-	-	-	68.2	-14.4	326	101	V
10.4	28.75	AD1	38.3	-21.1	0	45.95	-	-	-	-	-	-	326	101	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

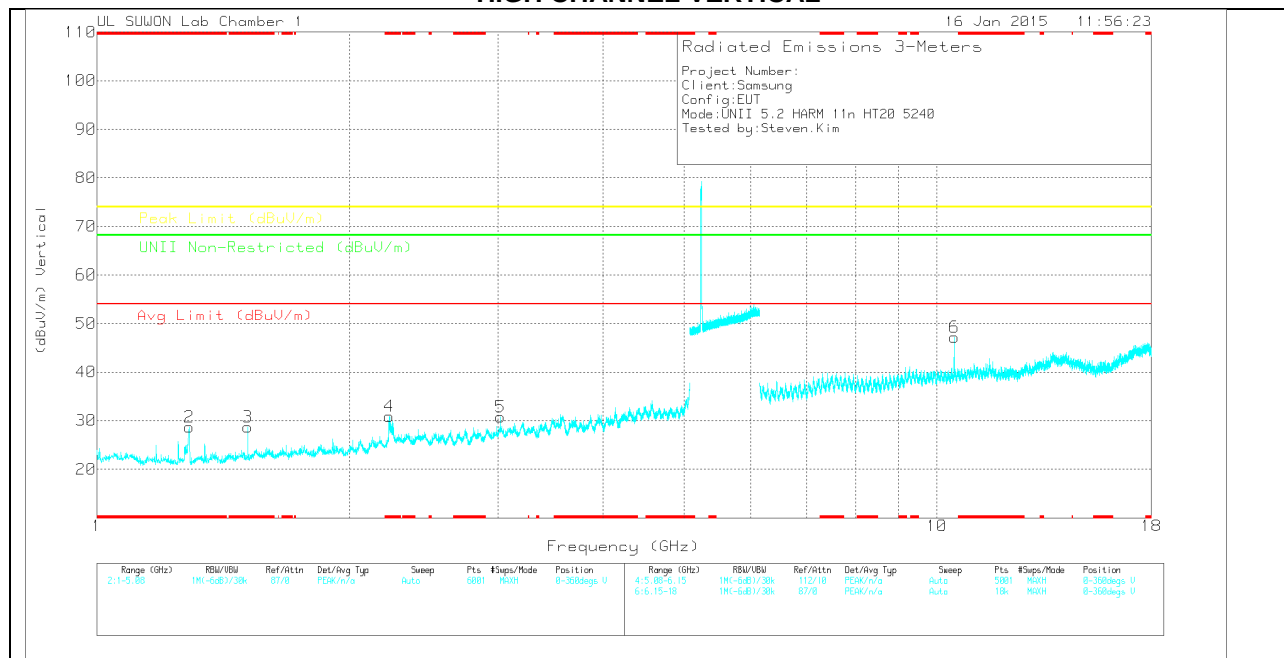
PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	5GHz Path4	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.25	39.17	Avg	23.6	-34.1	0	28.67	54	-25.33	-	-	-	-	0-360	200	H
2	* 1.288	38.51	Avg	23.8	-33.6	0	28.71	54	-25.29	-	-	-	-	0-360	200	V
3	* 1.511	37.61	Avg	24.6	-33.5	0	28.71	54	-25.29	-	-	-	-	0-360	200	V
4	* 2.229	35.53	Avg	27.6	-32.2	0	30.93	54	-23.07	-	-	-	-	0-360	200	V
5	3.024	33.21	Avg	28.8	-31.2	0	30.81	-	-	-	-	-	-	0-360	200	V
6	10.48	30.24	Avg	38.4	-21.5	0	47.14	-	-	-	-	-	-	0-360	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

Avg - Video bandwidth < Resolution bandwidth

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	6GHz HPF_Path5	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
10.48	35.98	PK1	38.4	-21.5	0	52.88	-	-	-	-	68.2	-15.32	304	100	V
10.48	29.22	AD1	38.4	-21.5	0	46.12	-	-	-	-	-	-	304	100	V

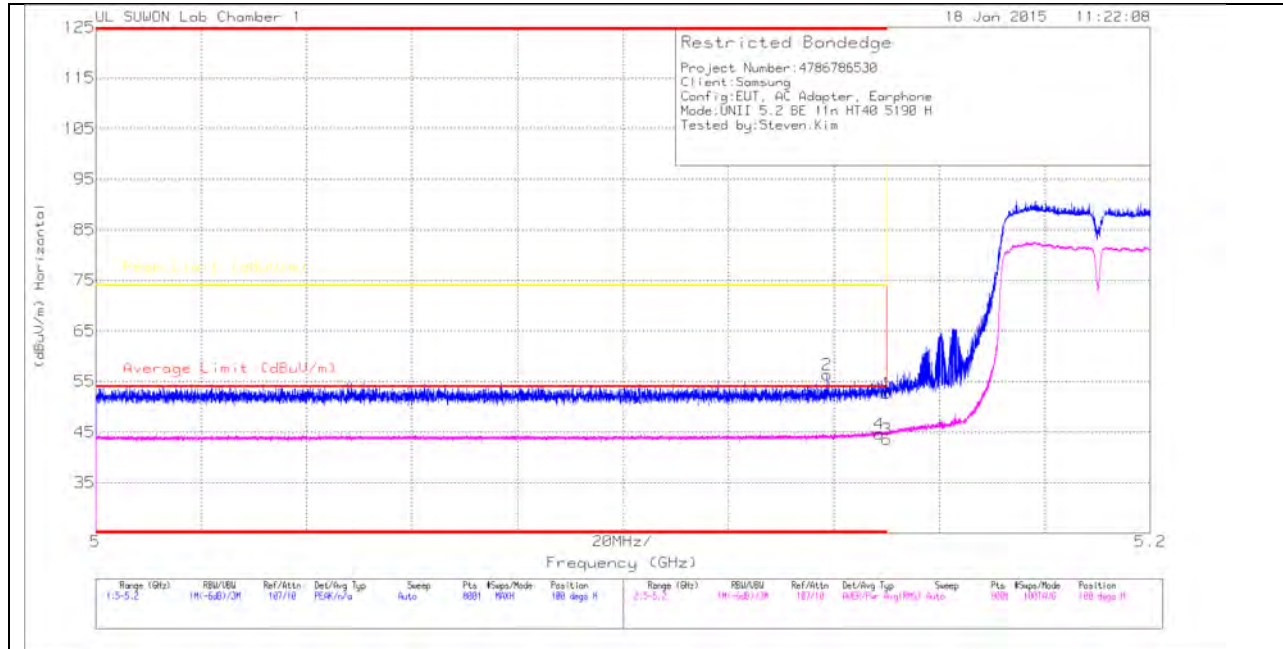
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK1 - KDB789033 Method: Peak

AD1 - KDB789033 Method: AD Primary Power Average

11.1.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

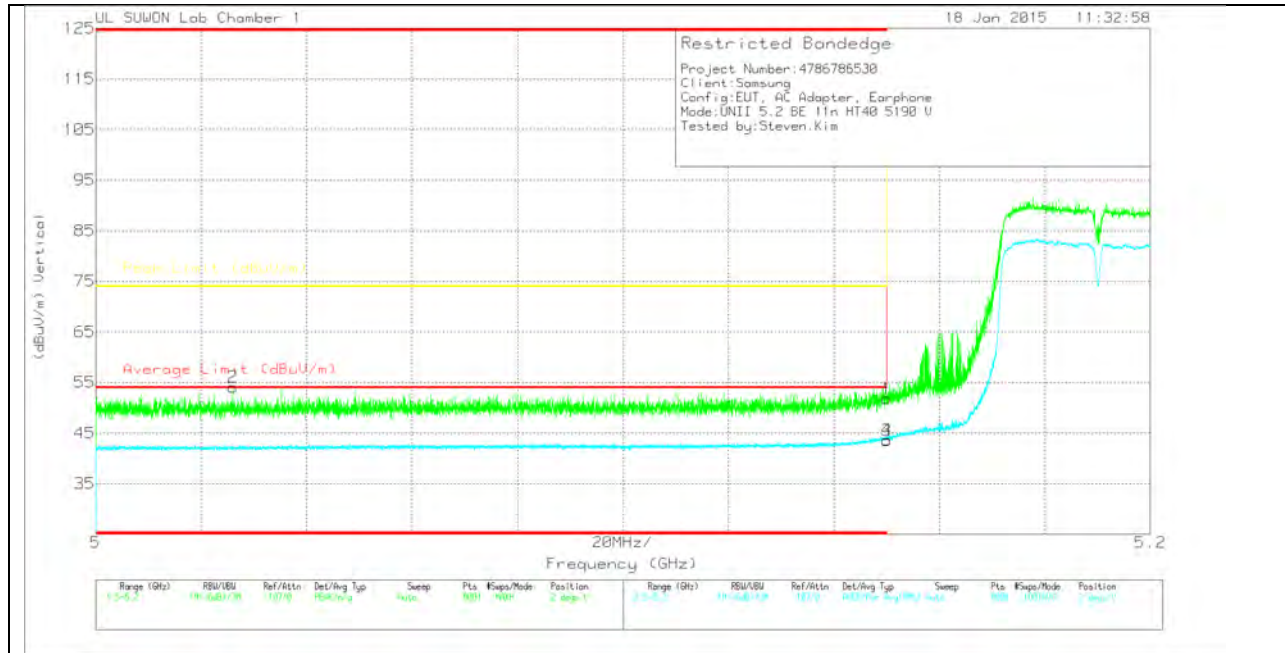
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	39.48	Pk	32.7	-19.5	0	52.68	-	-	74	-21.32	100	234	H
2	* 5.139	43.27	Pk	32.6	-19.5	0	56.37	-	-	74	-17.63	100	234	H
3	* 5.15	30.38	RMS	32.7	-19.5	.63	44.21	54	-9.79	-	-	100	234	H
4	* 5.149	31.41	RMS	32.7	-19.5	.63	45.24	54	-8.76	-	-	100	234	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3115D Factor	10dB_Path2	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	38.61	Pk	32.7	-19.5	0	51.81	-	-	74	-22.19	2	292	V
2	* 5.026	41.21	Pk	32.3	-19.4	0	54.11	-	-	74	-19.89	2	292	V
3	* 5.15	30.41	RMS	32.7	-19.5	.63	44.24	54	-9.76	-	-	2	292	V
4	* 5.15	30.47	RMS	32.7	-19.5	.63	44.3	54	-9.7	-	-	2	292	V

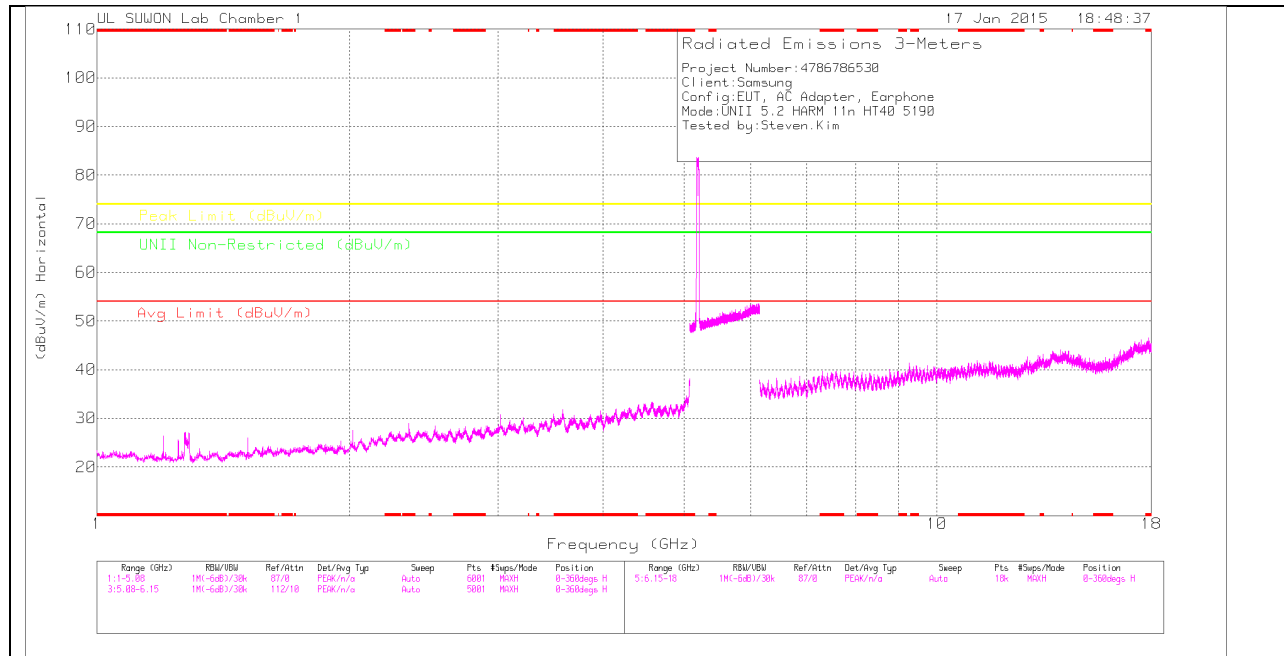
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

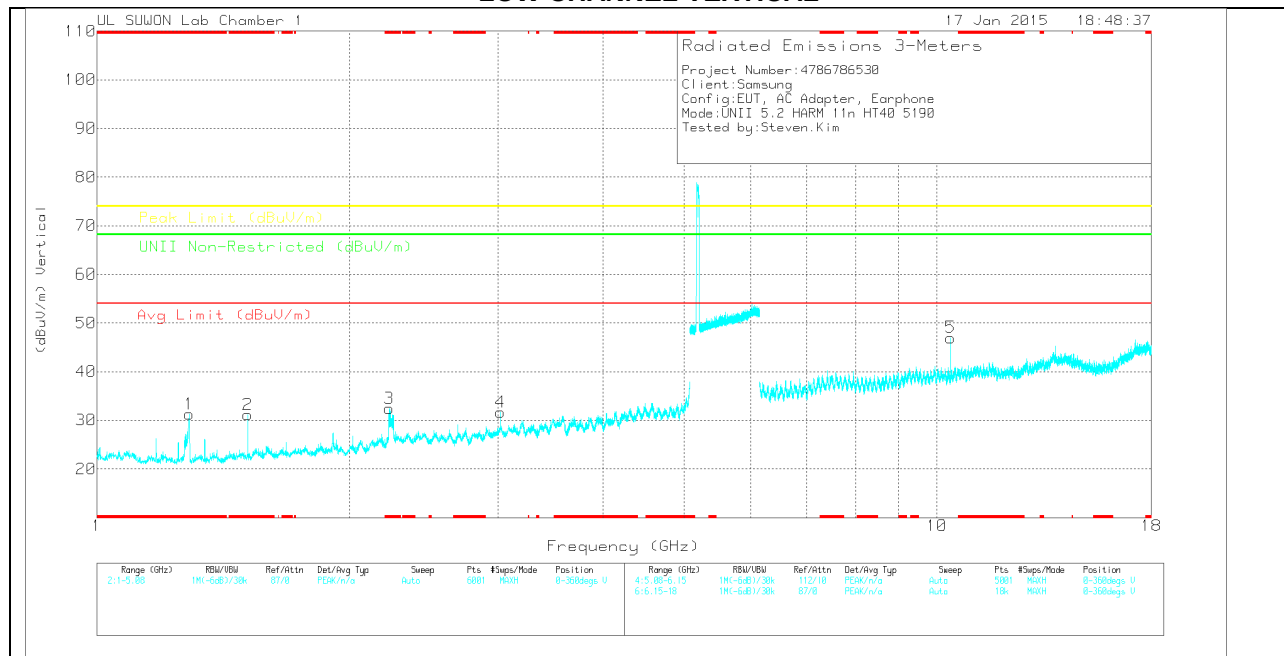
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.