TESTING LABORATORY
CERTIFICATE #4820.01

FCC PART 15.407
RSS-GEN, ISSUE 4, NOVEMBER 2014
RSS-247, ISSUE 2, FEBRUARY 2017

TEST REPORT

For

Fujian LANDI Commercial Equipment Co., Ltd.

Building 17, Section A, Software Park, No. 89 Software Road, Gulou District, Fuzhou Municipality, Fujian Province, P.R. China.

FCC ID: 2AG6N-APOSA8-BLWF
IC: 23725-APOSA8BLWF

Report Type: Original Report	**Product Type:** APOS A8
Report Number:	RXM171225055-00D
Report Date:	2018-03-14
Reviewed By:	Jerry Zhang EMC Manager Jerry Zhang
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:		APOS A8
EUT Model:		APOS A8-I94A4
FCC ID:		2AG6N-APOSA8-BLWF
IC:		23725-APOSA8BLWF
Rated Input Voltage:		DC7.2V from battery or DC 5V from USB port
Adapter #1 Information	**Model:**	HKA00505010-XA
	Input:	AC 100-240V, 50/60Hz, 0.2A
	Output:	DC 5V, 1.0A
Adapter #2 Information	**Model:**	HKC0115021-2D
	Input:	AC 100-240V, 50/60Hz, 0.5A
	Output:	DC 5V, 2A
External Dimension:		Length (183mm)*Width (84mm)*High (64mm)
Serial Number:		171225055
EUT Received Date:		2018.1.26

Objective

This report is prepared on behalf of *Fujian LANDI Commercial Equipment Co., Ltd.* in accordance with FCC Part 15.407 Part 2, Part 2-Subpart J, Part 15-Subparts A, and E of the Federal Communications Commission's rules and RSS-247, Issue 2, February 2017, RSS-Gen Issue 4, November 2014 of the Innovation, Science and Economic Development Canada.

The tests were performed in order to determine compliance with FCC Rules Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules, and RSS-247, Issue 2, February 2017, RSS-Gen Issue 4, November 2014 of the Innovation, Science and Economic Development Canada.

Related Submittal(s)/Grant(s)

FCC Part 15C DTS submissions with FCC ID: 2AG6N-APOSA8-BLWF.
FCC Part 15C DSS submissions with FCC ID: 2AG6N-APOSA8-BLWF.
FCC Part 15C DXX submissions with FCC ID: 2AG6N-APOSA8-BLWF.
RSS-247 FHSs, RSS-247 DTSs, RSS-210 submissions with IC: 23725-APOSA8BLWF.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices. RSS-247, Issue 2, February 2017, RSS-Gen Issue 4, November 2014 of the Innovation, Science and Economic Development Canada. And KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	30M~200MHz: 4.58 dB for Horizontal, 4.59 dB for Vertical 200M~1GHz: 4.83 dB for Horizontal, 5.85 dB for Vertical 1G~6GHz: 4.45 dB, 6G~40GHz: 5.23 dB
Unwanted Emissions, conducted	±1.5 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218,the FCC Designation No. : CN1220.

The test site has been registered with ISED Canada under ISED Canada Registration Number 3062D.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The EUT was configured for testing in an engineering mode which was provided by the manufacturer.

The system support 802.11a/n ht20/n ht40.

For 5150~5250 MHz band, 6 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
38	5190	46	5230
40	5200	48	5240

802.11a, 802.11n ht20 modes were tested with Channel 36, 40 and 48,
802.11n ht40 modes were tested with Channel 38 and 46.

For 5250~5350 MHz band, 6 channels are provided:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	60	5300
54	5270	62	5310
56	5280	64	5320

For 802.11a, 802.11n ht20, Channel 52, 56 and 64 were tested, for 802.11n ht40 Channel 54, 62 were tested.

For 5470~5725 MHz band, 18 channels are provided:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	116	5580	132	5660
102	5510	118	5590	134	5670
104	5520	120	5600	136	5680
108	5540	124	5620	140	5700
110	5550	126	5630	/	/
112	5560	128	5640	/	/

For 802.11a, 802.11n ht20 Channel 100, 116 and 140 were tested, for 802.11n ht40 Channel 102, 110 and 134 were tested.

For Canada RSS-247, channels 118 to 128 were disabled by software since the frequency occupied the frequency band 5600-5650MHz.

For 5725~5850MHz band, 7 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	159	5795
151	5755	161	5805
153	5765	165	5825
157	5785	/	/

802.11a, 802.11n ht20 modes were tested with Channel 149, 157 and 165,
802.11n ht40 modes were tested with Channel 151 and 159.

Equipment Modifications

No modification was made to the EUT.

EUT Exercise Software

The software "QRCT" was used for testing, which was provided by manufacturer. The worst-case data rates are determined to be as follows for each mode based upon investigations by measuring the average power and PSD across all data rates bandwidths, and modulations. The maximum power was configured as below table, that provided by the manufacturer:

5150-5250MHz

Test Mode	Test Software Version	QRCT		
802.11a	Test Frequency	5180MHz	5200MHz	5240MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Power Level Setting	16	17	16
802.11n ht20	Test Frequency	5180MHz	5200MHz	5240MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level Setting	16	17	16
802.11n ht40	Test Frequency	5190MHz	/	5230MHz
	Data Rate	MCS0	/	MCS0
	Power Level Setting	12	/	12

5250-5350MHz

Test Mode	Test Software Version	QRCT		
802.11a	Test Frequency	5260MHz	5280MHz	5320MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Power Level Setting	16	16	16
802.11n ht20	Test Frequency	5260MHz	5280MHz	5320MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level Setting	16	16	16
802.11n ht40	Test Frequency	5270MHz	/	5310MHz
	Data Rate	MCS0	/	MCS0
	Power Level Setting	12	/	12

5470-5725MHz

Test Mode	Test Software Version	QRCT		
802.11a	Test Frequency	5500MHz	5580MHz	5700MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Power Level Setting	17	16	12
802.11n ht20	Test Frequency	5500MHz	5580MHz	5700MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level Setting	17	16	11
802.11n ht40	Test Frequency	5510MHz	5550MHz	5670MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level Setting	14	14	13

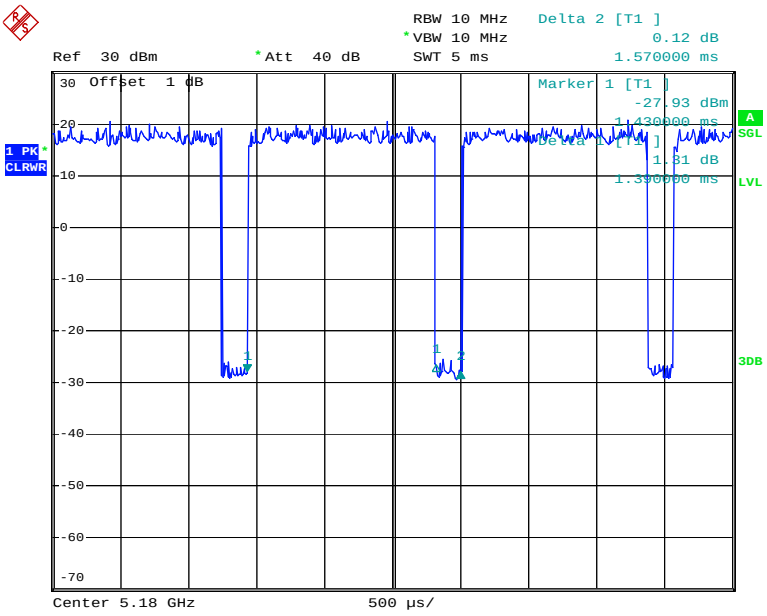
5725-5850MHz

Test Mode	Test Software Version	QRCT		
802.11a	Test Frequency	5745MHz	5785MHz	5825MHz
	Data Rate	6Mbps	6Mbps	6Mbps
	Power Level	13	13	14
802.11n ht20	Test Frequency	5745MHz	5785MHz	5825MHz
	Data Rate	MCS0	MCS0	MCS0
	Power Level	13	13	14
802.11n ht40	Test Frequency	5755MHz	/	5795MHz
	Data Rate	MCS0	/	MCS0
	Power Level Setting	12	/	12

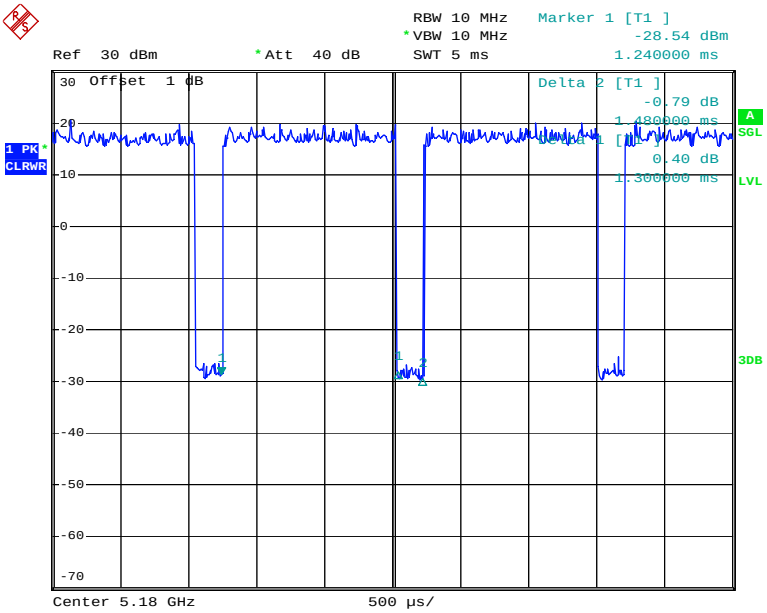
The duty cycle as below:

Mode	T_{on} (ms)	T_{on+off} (ms)	Duty Cycle (%)	Duty Cycle Factor(x) (10*log(1/x)) (dB)
802.11a	1.39	1.57	88.54	0.53
802.11n ht20	1.30	1.48	87.84	0.56
802.11n ht40	0.658	0.844	77.96	1.08

802.11a mode



802.11n ht20 mode



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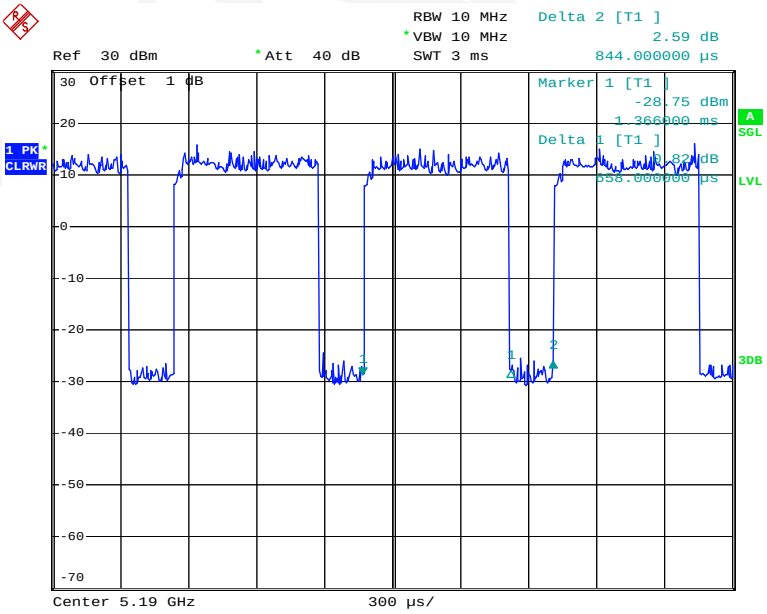
802.11n ht40 mode



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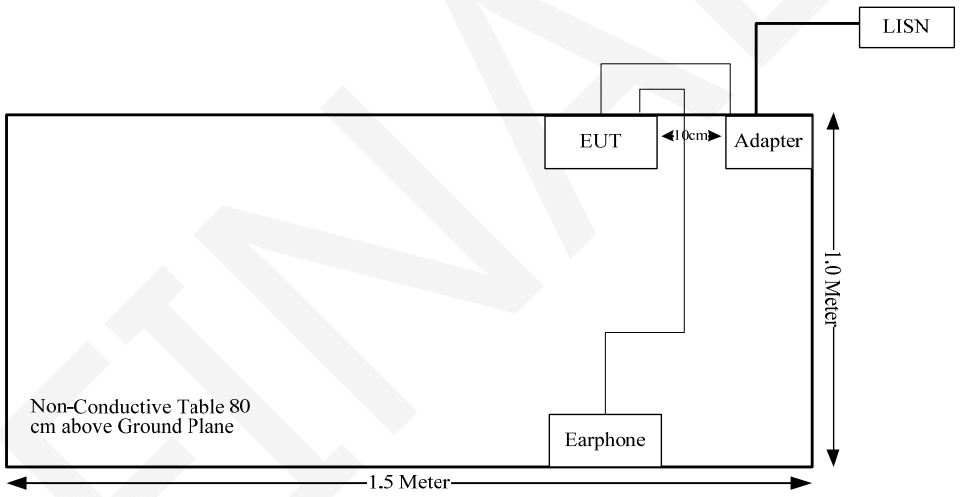
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
HUAWEI	Earphone	/	/

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
USB cable	yes	No	0.8	Adapter	EUT

Block Diagram of Test Setup



Test Equipment List

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSP 38	100478	2017-12-8	2018-12-8
Agilent	USB Wideband Power Sensor	U2022XA	MY5417006	2017-12-11	2018-12-11
E-Microwave	DC Blocking	EMDCB-00036	0E01201047	Each time	N/A
N/A	Coaxial Cable	C-SJ00-0010	C0010/01	Each time	N/A
R&S	EMI Test Receiver	ESCS 30	830245/006	2017-12-11	2018-12-11
N/A	Coaxial Cable	C-NJNJ-50	C-0200-01	2017-09-05	2018-09-05
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
R&S	Two-line V-network	ENV 216	101614	2017-12-08	2018-12-08
R&S	L.I.S.N	ESH2-Z5	892107/021	2017-09-25	2018-09-25
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
R&S	EMI Test Receiver	ESCI	100224	2017-12-11	2018-12-11
HP	Amplifier	8447D	2727A05902	2017-09-05	2018-09-05
N/A	Coaxial Cable	C-NJNJ-50	C-0400-01	2017-09-05	2018-09-05
N/A	Coaxial Cable	C-NJNJ-50	C-0075-01	2017-09-05	2018-09-05
N/A	Coaxial Cable	C-NJNJ-50	C-1000-01	2017-09-05	2018-09-05
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
Chengdu OuLi	Bandrejector Filter	5725-5850	005	2017-09-05	2018-09-05
Chengdu OuLi	Bandrejector Filter	5150-5350	004	2017-09-05	2018-09-05
Ducommun Technolagies	Horn Antenna	ARH-2823-02	1007726-01 1302	2016-11-18	2019-11-18
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2016-11-18	2019-11-18
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2017-06-27	2018-06-27
Agilent	Spectrum Analyzer	E4440A	SG43360054	2018-01-04	2019-01-04
N/A	Coaxial Cable	C-SJSJ-50	C-0800-01	2017-09-05	2018-09-05
N/A	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2017-06-27	2018-06-27
MITEQ	Amplifier	AFS42-00101800 -25-S-42	2001271	2017-09-05	2018-09-05

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

SUMMARY OF TEST RESULTS

Rule and Clause	Description of Test	Test Result
FCC §15.407 (f) & §1.1310 & §2.1093 RSS-102 Clause 4	RF Exposure - SAR Test	Compliance*
FCC §15.203 RSS-GEN§8.3	Antenna Requirement	Compliance
FCC §15.207(a) RSS-Gen §8.8	AC Line Conducted Emissions	Compliance
FCC §15.205 & §15.209 & §15.407(b) RSS-247§6.2	Unwanted Emission	Compliance
FCC §15.407(b) (1),(2),(3),(4) RSS-247§6.2	Out of Band Emissions	Compliance
FCC §15.407(a) RSS-247§6.2 RSS-Gen§6.6	Emission Bandwidth	Compliance
FCC §15.407(a) RSS-247 §6.2	Maximum Conducted Output Power	Compliance
FCC §15.407 (a) RSS-247 §6.2	Power Spectral Density	Compliance
FCC §15.407(h) RSS-247 §6.3	Dynamic Frequency Selection (DFS)	Compliance**

RF EXPOSURE

Applicable Standard

According to§15.407(f) and §1.1310, U-NII devices are subject to the radio frequency radiation exposure requirements specified in §§ 1.1307(b), 2.1091 and 2.1093 of this chapter, as appropriate. All equipment shall be considered to operate in a "general population/uncontrolled" environment. Applications for equipment authorization of devices operating under this section must contain a statement confirming compliance with these requirements for both fundamental emissions and unwanted emissions. Technical information showing the basis for this statement must be submitted to the Commission upon request.

According to RSS-102 Clause 4 Table 3, SAR limits for device used by the general public

Body Region	Average SAR (W/Kg)	Averaging Time (minutes)	Mass Average (g)
Whole Body	0.08	6	Whole Body
Localized Head, Neck and Trunk	1.6	6	1
Localized Limbs	4	6	10

Result

The SAR data please refer to the SAR report, report No.:RXM171225055-20.

ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The 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 provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
And according to FCC 47 CFR section 15.407 (a)(1),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.

According to RSS-Gen §8.3, The applicant for equipment certification, as per RSP-100, must provide a list of all antenna types that may be used with the licence-exempt transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna.
Licence-exempt transmitters that have received equipment certification may operate with different types of antennas. However, it is not permissible to exceed the maximum equivalent isotropically radiated power (e.i.r.p.) limits specified in the applicable standard (RSS) for the licence-exempt apparatus.

Testing shall be performed using the highest gain antenna of each combination of licence-exempt transmitter and antenna type, with the transmitter output power set at the maximum level.When a measurement at the antenna connector is used to determine RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna manufacturer.

User manuals for transmitters equipped with detachable antennas shall also contain the following notice in a conspicuous location:

This radio transmitter (identify the device by certification number or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types approved for use with the transmitter, indicating the maximum permissible antenna gain (in dBi).

Antenna Connector Construction

The EUT has one internal antenna arrangement for WLAN, and the antenna gain is 2.85 dBi in 5GHz band, fulfill the requirement of this section. Please refer to the EUT photos.

Result:

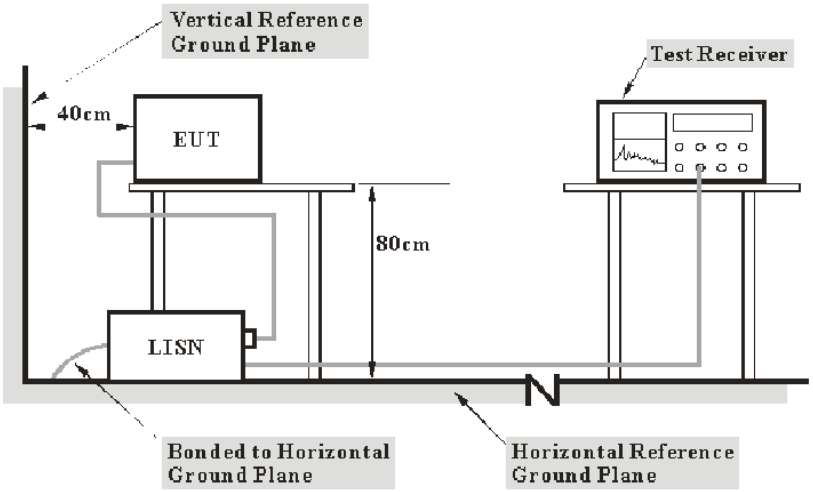
Compliance.

AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a), §15.407(b) (6), RSS-GEN CLAUSE 8.8.

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits and RSS-Gen clause 8.8 limits.

The spacing between the peripherals was 10 cm.

The adapter was connected to the main lisn with a 120 V/60 Hz AC power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$V_C = V_R + A_C + VDF$
$C_f = A_C + VDF$

Herein,
V_C (cord. Reading): corrected voltage amplitude
V_R: reading voltage amplitude
A_c: attenuation caused by cable loss
VDF: voltage division factor of AMN
C_f: Correction Factor

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Procedure

During the conducted emission test, the adapter was connected to the first LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Test Data

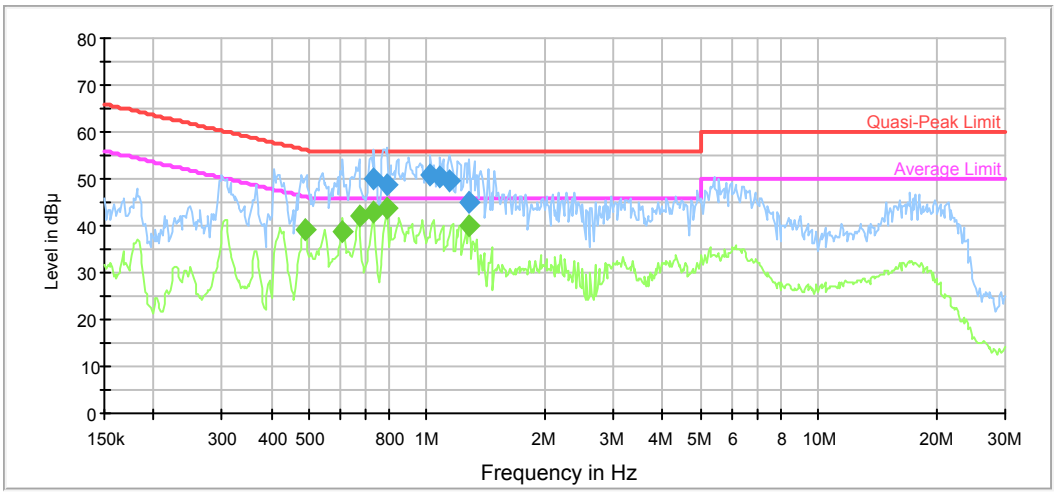
Environmental Conditions

Temperature:	19.4°C
Relative Humidity:	26 %
ATM Pressure:	102.1kPa

The testing was performed by Alex You on 2018-02-06.

Please refer to following table and plots:

Model Number:	APOS A8-I94A4
Port:	L
Test Mode:	Transmitting
Power Source:	AC 120V/60Hz
Note:	Adapter #1



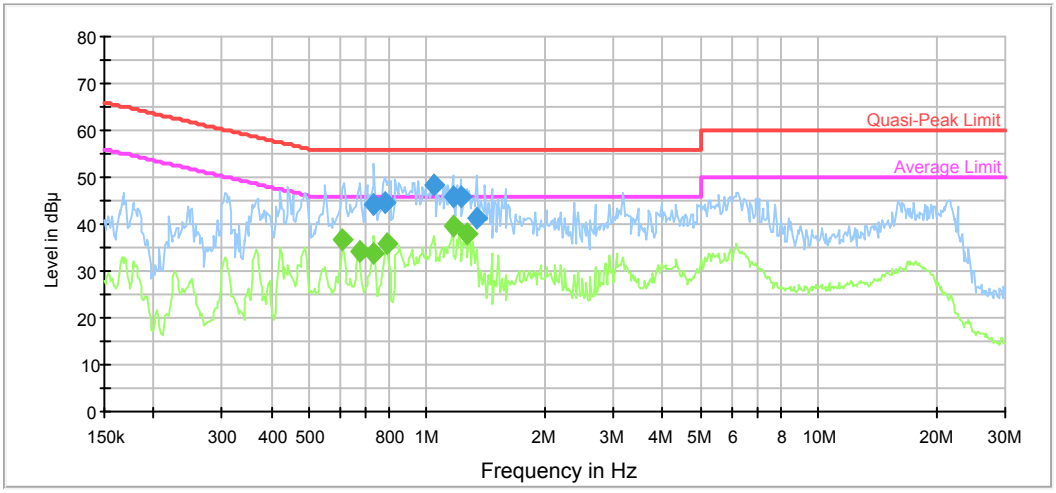
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.732382	49.8	9.000	L1	9.8	6.2	56.0
0.793127	48.8	9.000	L1	9.8	7.2	56.0
1.023481	50.7	9.000	L1	9.8	5.3	56.0
1.082190	50.6	9.000	L1	9.8	5.4	56.0
1.144267	49.7	9.000	L1	9.8	6.3	56.0
1.279307	45.0	9.000	L1	9.8	11.0	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.487810	39.4	9.000	L1	9.9	6.8	46.2
0.609741	38.9	9.000	L1	9.8	7.1	46.0
0.670921	42.1	9.000	L1	9.8	3.9	46.0
0.732382	43.1	9.000	L1	9.8	2.9	46.0
0.793127	43.7	9.000	L1	9.8	2.3	46.0
1.279307	40.1	9.000	L1	9.8	5.9	46.0

Model Number:	APOS A8-I94A4
Port:	N
Test Mode:	Transmitting
Power Source:	AC 120V/60Hz
Note:	Adapter #1



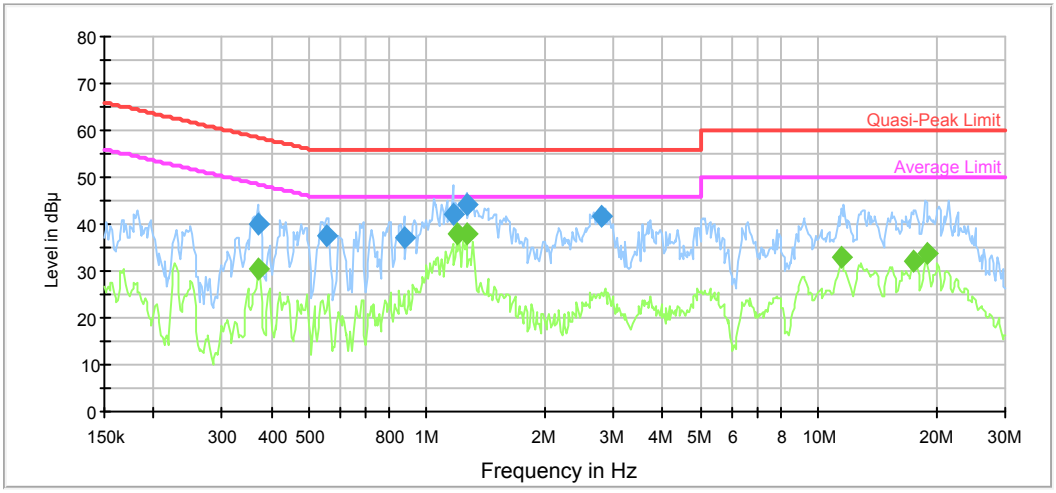
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.732382	44.2	9.000	N	9.8	11.8	56.0
0.780588	44.4	9.000	N	9.8	11.6	56.0
1.039922	48.1	9.000	N	9.8	7.9	56.0
1.162648	45.8	9.000	N	9.8	10.2	56.0
1.219583	46.0	9.000	N	9.8	10.0	56.0
1.341955	41.5	9.000	N	9.7	14.5	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.609741	36.6	9.000	N	9.8	9.4	46.0
0.670921	34.1	9.000	N	9.8	11.9	46.0
0.732382	33.8	9.000	N	9.8	12.2	46.0
0.786832	35.8	9.000	N	9.8	10.2	46.0
1.162648	39.6	9.000	N	9.8	6.4	46.0
1.259081	38.0	9.000	N	9.8	8.0	46.0

Model Number:	APOS A8-I94A4
Port:	L
Test Mode:	Transmitting
Power Source:	AC 120V/60Hz
Note:	Adapter #2



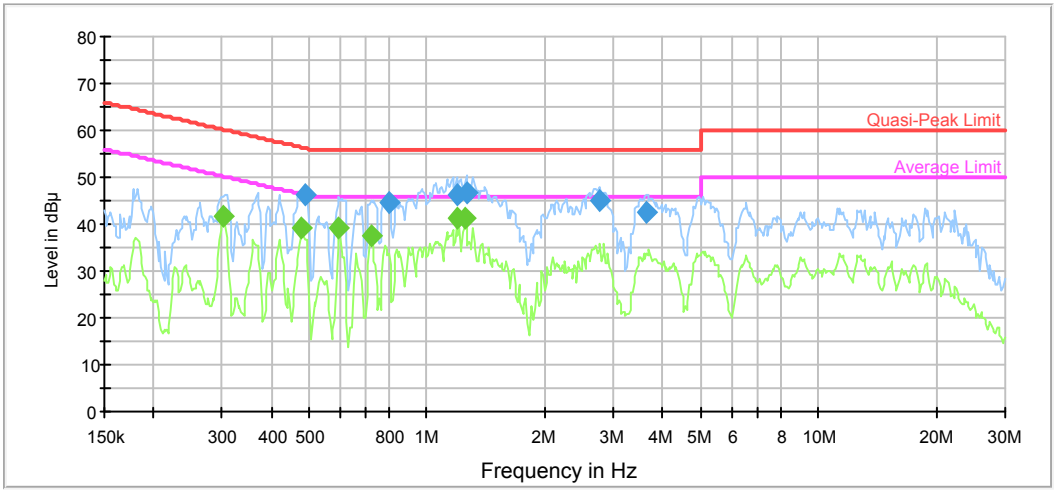
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.369089	39.9	9.000	L1	10.0	18.6	58.5
0.554139	37.7	9.000	L1	9.9	18.3	56.0
0.872708	37.0	9.000	L1	9.8	19.0	56.0
1.162648	42.1	9.000	L1	9.8	13.9	56.0
1.259081	44.2	9.000	L1	9.8	11.8	56.0
2.793231	41.6	9.000	L1	9.8	14.4	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.372042	30.4	9.000	L1	10.0	18.1	48.5
1.190776	38.0	9.000	L1	9.8	8.0	46.0
1.259081	38.0	9.000	L1	9.8	8.0	46.0
11.445138	33.0	9.000	L1	9.9	17.0	50.0
17.599071	32.1	9.000	L1	10.0	17.9	50.0
18.907519	33.6	9.000	L1	10.1	16.4	50.0

Model Number:	APOS A8-I94A4
Port:	N
Test Mode:	Transmitting
Power Source:	AC 120V/60Hz
Note:	Adapter #2



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.487810	46.1	9.000	N	9.9	10.1	56.2
0.799472	44.5	9.000	N	9.8	11.5	56.0
1.190776	46.4	9.000	N	9.8	9.6	56.0
1.259081	46.5	9.000	N	9.8	9.5	56.0
2.749070	45.1	9.000	N	9.8	10.9	56.0
3.633326	42.6	9.000	N	9.8	13.4	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.302425	41.5	9.000	N	10.1	8.7	50.2
0.480097	39.3	9.000	N	9.9	7.0	46.3
0.595338	39.3	9.000	N	9.8	6.7	46.0
0.720803	37.6	9.000	N	9.8	8.4	46.0
1.190776	41.1	9.000	N	9.8	4.9	46.0
1.249088	41.2	9.000	N	9.8	4.8	46.0

UNWANTED EMISSION

Applicable Standard

FCC §15.407; §15.209; §15.205;

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

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

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

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.

(7) The provisions of §15.205 apply to intentional radiators operating under this section.

(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

According to RSS-247§6.2

Frequency band 5150-5250 MHz

6.2.1.2 Unwanted emission limits

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz. The 26 dB bandwidth may fall into the 5250-5350 MHz band; however, if the occupied bandwidth also falls within the 5250-5350 MHz band, the transmission is considered as intentional and the devices shall comply with all requirements in the band 5250-5350 MHz including implementing dynamic frequency selection (DFS) and TPC, on the portion of the emission that resides in the 5250-5350 MHz band.

Frequency band 5250-5350 MHz

6.2.2.2 Unwanted emission limits

Devices shall comply with the following:

a) All emissions outside the band 5250-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p.; or

b) All emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. and its power shall comply with the spectral power density for operation within the band 5150-5250 MHz. The device, except devices installed in vehicles, shall be labelled or include in the user manual the following text “for indoor use only.”

Frequency bands 5470-5600 MHz and 5650-5725 MHz:

6.2.3.2 Unwanted emission limits

Emissions outside the band 5470-5600 MHz and 5650-5725 MHz shall not exceed -27 dBm/MHz e.i.r.p. However, devices with bandwidth overlapping the band edge of 5725 MHz can meet the emission limit of -27 dBm/MHz e.i.r.p. at 5850 MHz instead of 5725 MHz.

Frequency band 5725-5850 MHz

6.2.4.2 Unwanted emission limits

Devices operating in the band 5725-5850 MHz with antenna gain greater than 10 dBi can have unwanted emissions that comply with either the limits in this section or in section 5.5 until six (6) months after the publication date of this standard for certification. Certified devices that do not comply with emission limits in this section shall not be manufactured, imported, distributed, leased, offered for sale or sold after April 1, 2018.

Devices operating in the band 5725-5850 MHz with antenna gain of 10 dBi or less can have unwanted emissions that comply with either the limits in this section or in section 5.5 until April 1, 2018 for certification. Certified devices that do not comply with emission limits in this section shall not be manufactured, imported, distributed, leased, offered for sale or sold after April 1, 2020.

Devices operating in the band 5725-5850 MHz shall have e.i.r.p. of unwanted emissions comply with the following:

a) 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges;

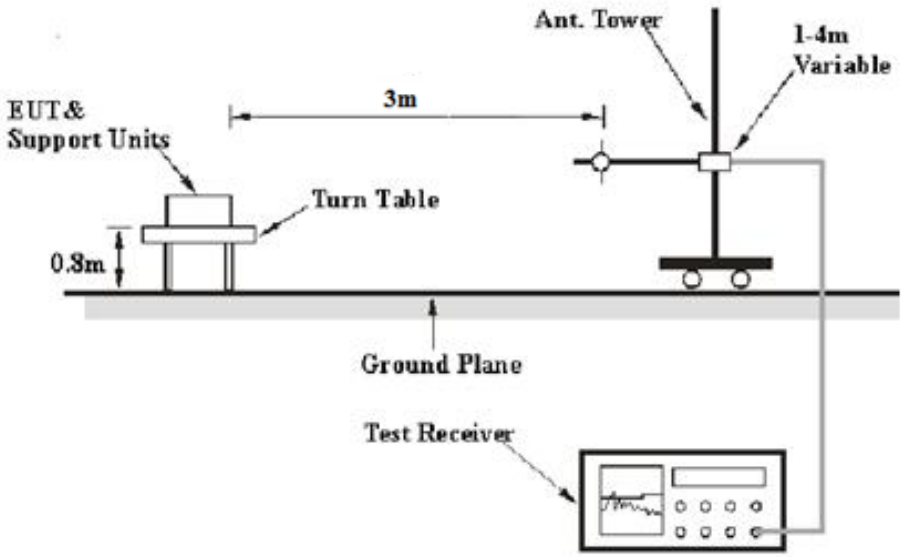
b) 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;

c) 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and

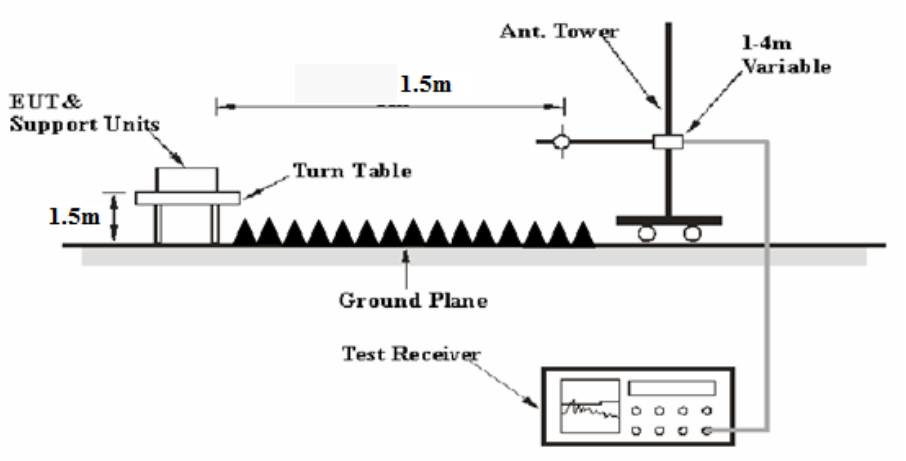
d) -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

EUT Setup

Below 1 GHz:



Above 1 GHz:



The radiated emission Below 1GHz tests were performed in the 3 meters chamber test site A, above 1GHz tests were performed in the 3 meters chamber test site B, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.407 limits and RSS-247, RSS-Gen limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

30-1000MHz:

Frequency Range	RBW	Video B/W	IF B/W	Detector
30– 1000 MHz	120 kHz	300 kHz	120 kHz	QP

1GHz- 40GHz:

Measurement	Duty cycle	RBW	VBW
PK	Any	1MHz	3 MHz
Ave.	>98%	1MHz	10 Hz
	<98%	1MHz	1/T

Test Procedure

During the radiated emission test, the Adapter was connected to the first AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and Average detection modes for frequencies above 1GHz.

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, emission shall be computed as: E [dBμV/m] = EIRP[dBm] + 95.2, for d = 3 meters.

According to C63.10, the above 1G test result shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade from 3m to 1.5m
Distance extrapolation factor =20 log (specific distance [3m]/test distance [1.5m]) dB
Extrapolation result = Corrected Amplitude (dBμV/m) - distance extrapolation factor (6dB)

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Extrapolation result -Limit

Test Data

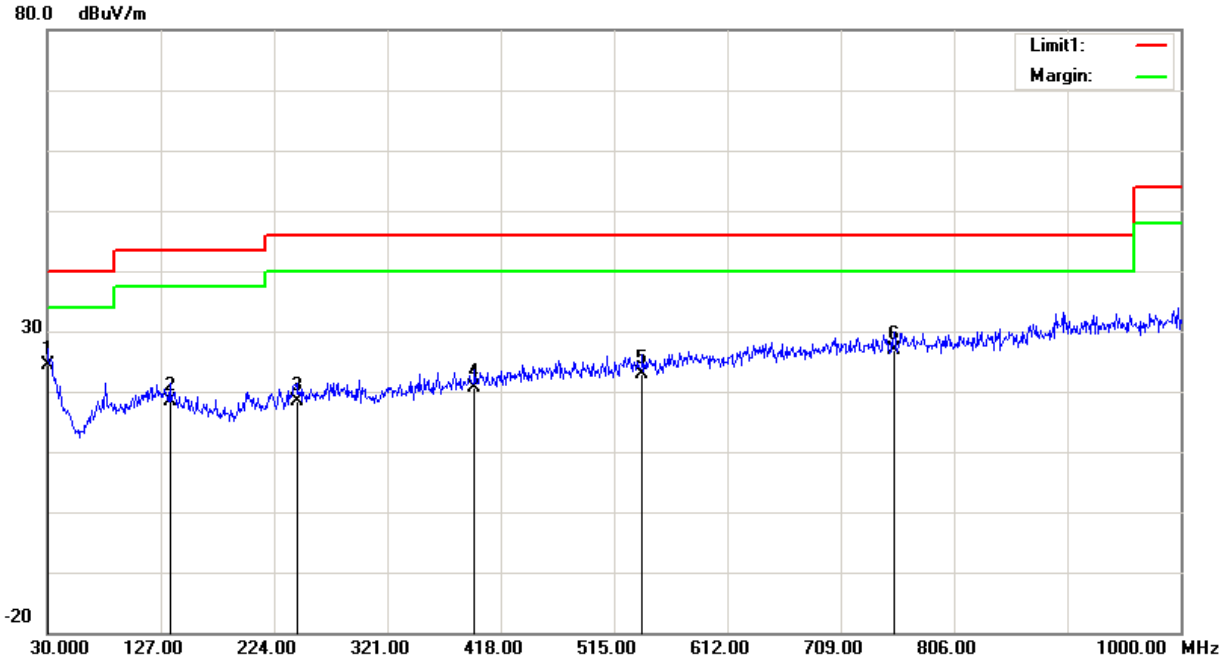
Environmental Conditions

Temperature:	20.6 °C
Relative Humidity:	44 %
ATM Pressure:	101.4 kPa

** The testing was performed by Steven Zuo on 2018-02-24.*

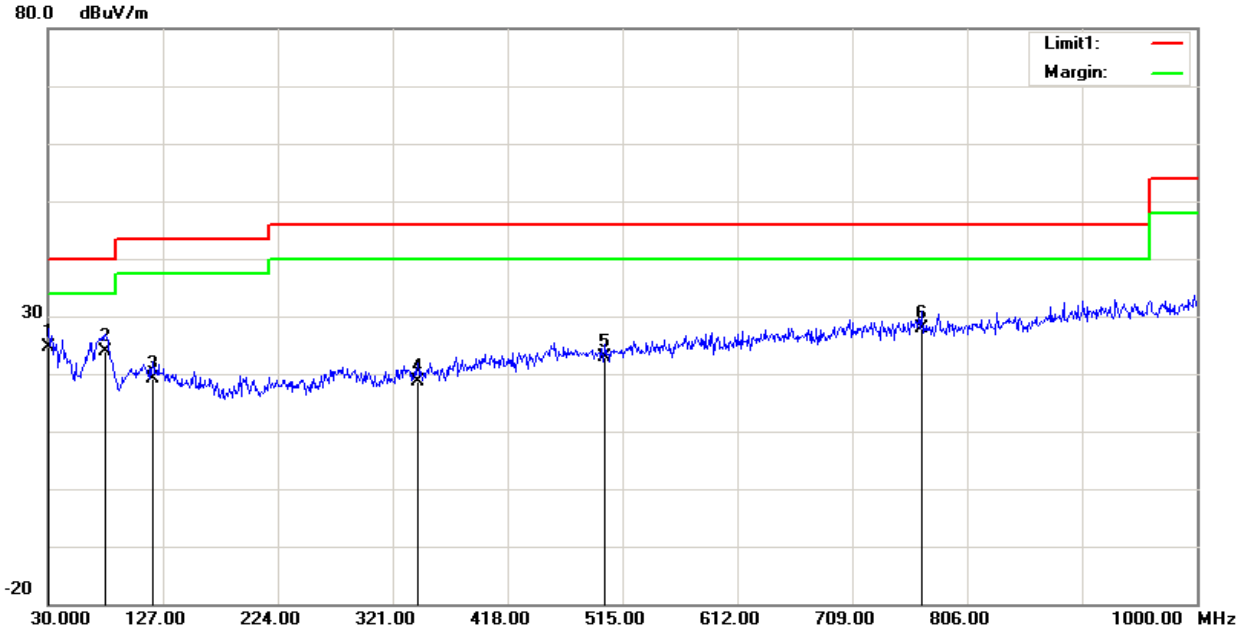
30MHz-1GHz(802.11a 5785MHz was the worst)*:*

Condition:	**FCC 3M Radiation**	**Polarization:**	**Horizontal**
EUT:	**APOS A8**	**Power:**	**AC 120V/60Hz**
Model:	**APOS A8-I94A4**	**Distance:**	**3m**
Test Mode:	**Transmitting**		
Note:	**Adapter #1**		



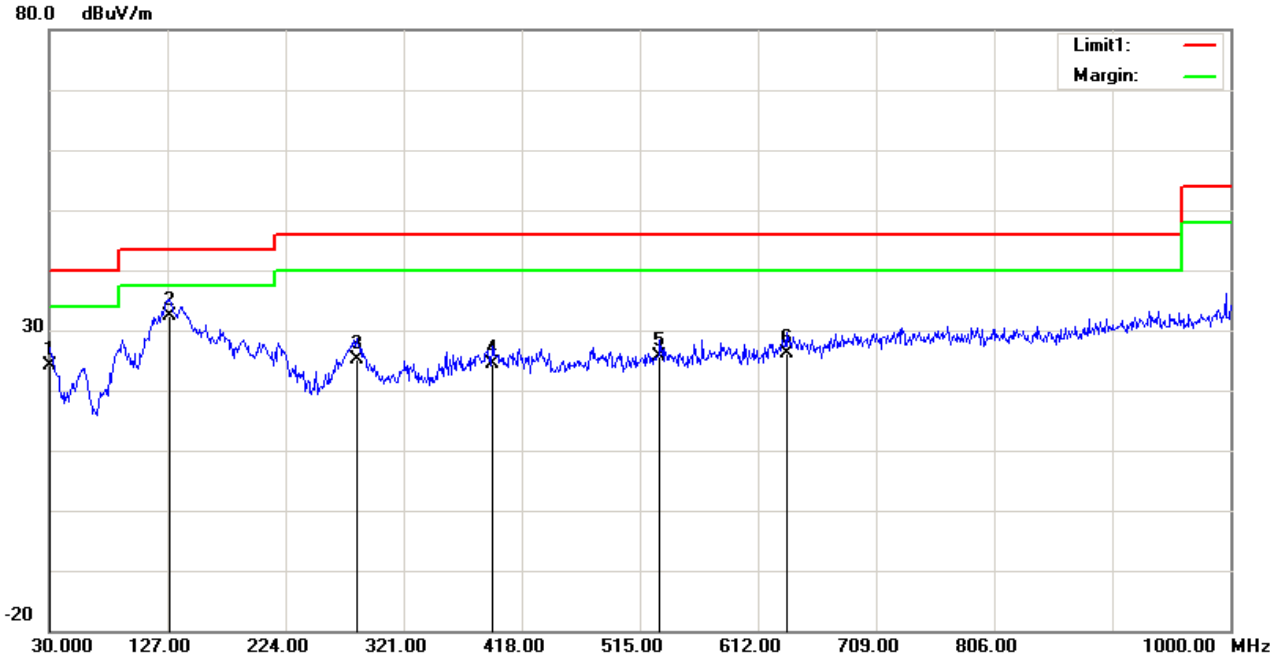
No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	30.0000	23.22	QP	1.08	24.30	40.00	15.70
2	134.7600	23.80	QP	-5.50	18.30	43.50	25.20
3	243.4000	24.68	QP	-6.28	18.40	46.00	27.60
4	395.6900	22.89	QP	-2.29	20.60	46.00	25.40
5	539.2500	23.34	QP	-0.34	23.00	46.00	23.00
6	754.5900	23.41	QP	3.49	26.90	46.00	19.10

Condition:	**FCC 3M Radiation**	**Polarization:**	**Vertical**
EUT:	**APOS A8**	**Power:**	**AC 120V/60Hz**
Model:	**APOS A8-I94A4**	**Distance:**	**3m**
Test Mode:	**Transmitting**		
Note:	**Adapter #1**		



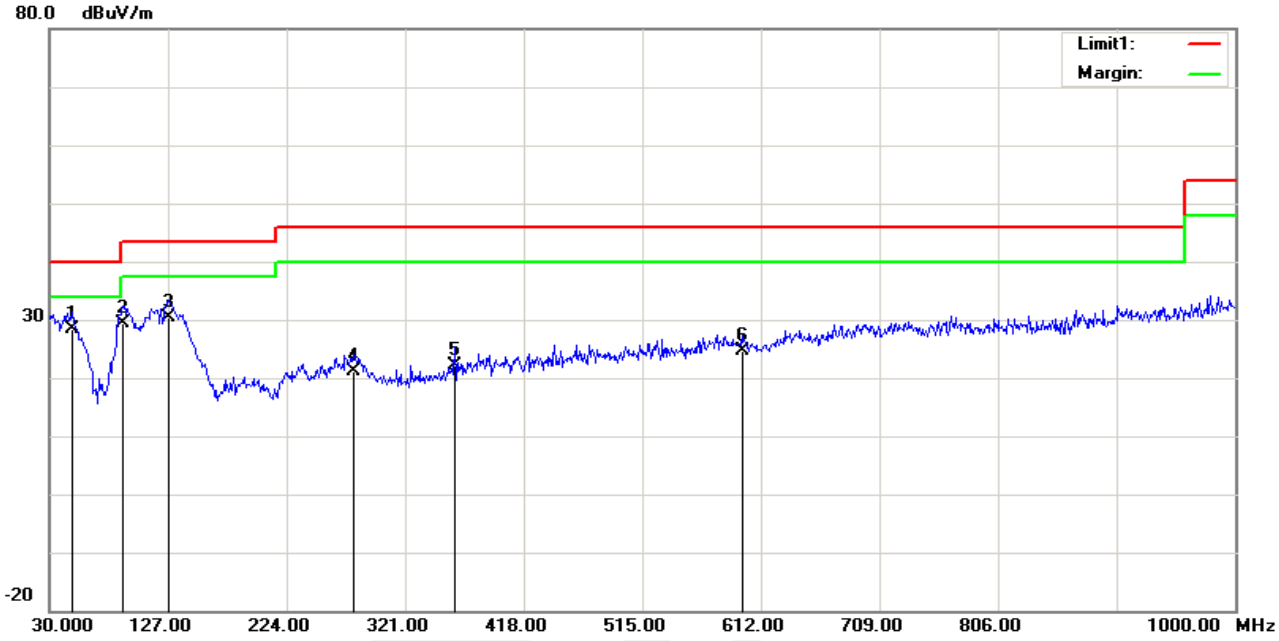
No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	30.9700	24.35	QP	0.35	24.70	40.00	15.30
2	78.5000	35.01	QP	-11.11	23.90	40.00	16.10
3	118.2700	24.13	QP	-4.93	19.20	43.50	24.30
4	342.3400	22.15	QP	-3.45	18.70	46.00	27.30
5	500.4500	24.07	QP	-1.07	23.00	46.00	23.00
6	767.2000	24.08	QP	3.72	27.80	46.00	18.20

Condition:	**FCC 3M Radiation**	**Polarization:**	**Horizontal**
EUT:	**APOS A8**	**Power:**	**AC 120V/60Hz**
Model:	**APOS A8-I94A4**	**Distance:**	**3m**
Test Mode:	**Transmitting**		
Note:	**Adapter #2**		



No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	30.9700	23.85	QP	0.35	24.20	40.00	15.80
2	128.9400	37.38	QP	-5.08	32.30	43.50	11.20
3	282.2000	28.76	QP	-3.66	25.10	46.00	20.90
4	393.7500	26.67	QP	-2.37	24.30	46.00	21.70
5	531.4900	25.85	QP	-0.25	25.60	46.00	20.40
6	635.2800	24.40	QP	1.70	26.10	46.00	19.90

Condition:	**FCC 3M Radiation**	**Polarization:**	**Vertical**
EUT:	**APOS A8**	**Power:**	**AC 120V/60Hz**
Model:	**APOS A8-I94A4**	**Distance:**	**3m**
Test Mode:	**Transmitting**		
Note:	**Adapter #2**		



No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected dB/m	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	48.4300	39.39	QP	-11.09	28.30	40.00	11.70
2	90.1400	40.16	QP	-10.86	29.30	43.50	14.20
3	127.9700	35.41	QP	-5.01	30.40	43.50	13.10
4	278.3200	24.78	QP	-3.68	21.10	46.00	24.90
5	361.7400	25.10	QP	-2.90	22.20	46.00	23.80
6	596.4800	24.42	QP	0.18	24.60	46.00	21.40

1-40GHz(Adapter #1 was used for above 1GHz test):
5150-5250MHz:
802.11a:

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5180 MHz										
5180.00	74.52	PK	H	33.59	3.58	0.00	111.69	105.67	N/A	N/A
5180.00	64.15	AV	H	33.59	3.58	0.00	101.32	95.3	N/A	N/A
5180.00	66.98	PK	V	33.59	3.58	0.00	104.15	98.13	N/A	N/A
5180.00	57.23	AV	V	33.59	3.58	0.00	94.40	88.38	N/A	N/A
5150.00	31.82	PK	H	33.54	3.56	0.00	68.92	62.9	74.00	11.10
5150.00	15.86	AV	H	33.54	3.56	0.00	52.96	46.94	54.00	7.06
10360.00	46.53	PK	H	38.17	6.29	36.85	54.14	48.12	74.00	25.88
10360.00	35.46	AV	H	38.17	6.29	36.85	43.07	37.05	54.00	16.95
15540.00	44.57	PK	H	38.06	8.85	39.04	52.44	46.42	74.00	27.58
15540.00	34.28	AV	H	38.06	8.85	39.04	42.15	36.13	54.00	17.87
Middle Channel: 5200 MHz										
5200.00	74.68	PK	H	33.62	3.60	0.00	111.90	105.88	N/A	N/A
5200.00	64.43	AV	H	33.62	3.60	0.00	101.65	95.63	N/A	N/A
5200.00	66.84	PK	V	33.62	3.60	0.00	104.06	98.04	N/A	N/A
5200.00	56.46	AV	V	33.62	3.60	0.00	93.68	87.66	N/A	N/A
10400.00	46.73	PK	H	38.18	6.32	36.86	54.37	48.35	74.00	25.65
10400.00	35.48	AV	H	38.18	6.32	36.86	43.12	37.1	54.00	16.90
15600.00	44.69	PK	H	38.00	8.83	39.09	52.43	46.41	74.00	27.59
15600.00	34.52	AV	H	38.00	8.83	39.09	42.26	36.24	54.00	17.76
High Channel: 5240 MHz										
5240.00	73.72	PK	H	33.68	3.52	0.00	110.92	104.9	N/A	N/A
5240.00	63.56	AV	H	33.68	3.52	0.00	100.76	94.74	N/A	N/A
5240.00	66.84	PK	V	33.68	3.52	0.00	104.04	98.02	N/A	N/A
5240.00	56.56	AV	V	33.68	3.52	0.00	93.76	87.74	N/A	N/A
5350.00	26.84	PK	H	33.86	3.52	0.00	64.22	58.2	74.00	15.80
5350.00	14.26	AV	H	33.86	3.52	0.00	51.64	45.62	54.00	8.38
10480.00	46.67	PK	H	38.20	6.37	36.88	54.36	48.34	74.00	25.66
10480.00	34.54	AV	H	38.20	6.37	36.88	42.23	36.21	54.00	17.79
15720.00	44.75	PK	H	37.88	8.79	39.18	52.24	46.22	74.00	27.78
15720.00	34.29	AV	H	37.88	8.79	39.18	41.78	35.76	54.00	18.24

802.11n ht20:

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5180 MHz										
5180.00	72.56	PK	H	33.59	3.58	0.00	109.73	103.71	N/A	N/A
5180.00	62.34	AV	H	33.59	3.58	0.00	99.51	93.49	N/A	N/A
5180.00	66.78	PK	V	33.59	3.58	0.00	103.95	97.93	N/A	N/A
5180.00	56.63	AV	V	33.59	3.58	0.00	93.80	87.78	N/A	N/A
5150.00	32.48	PK	H	33.54	3.56	0.00	69.58	63.56	74.00	10.44
5150.00	16.27	AV	H	33.54	3.56	0.00	53.37	47.35	54.00	6.65
10360.00	46.95	PK	H	38.17	6.29	36.85	54.56	48.54	74.00	25.46
10360.00	35.46	AV	H	38.17	6.29	36.85	43.07	37.05	54.00	16.95
15540.00	44.57	PK	H	38.06	8.85	39.04	52.44	46.42	74.00	27.58
15540.00	34.36	AV	H	38.06	8.85	39.04	42.23	36.21	54.00	17.79
Middle Channel: 5200 MHz										
5200.00	74.23	PK	H	33.62	3.60	0.00	111.45	105.43	N/A	N/A
5200.00	64.18	AV	H	33.62	3.60	0.00	101.40	95.38	N/A	N/A
5200.00	65.86	PK	V	33.62	3.60	0.00	103.08	97.06	N/A	N/A
5200.00	55.49	AV	V	33.62	3.60	0.00	92.71	86.69	N/A	N/A
10400.00	47.45	PK	H	38.18	6.32	36.86	55.09	49.07	74.00	24.93
10400.00	35.68	AV	H	38.18	6.32	36.86	43.32	37.3	54.00	16.70
15600.00	44.52	PK	H	38.00	8.83	39.09	52.26	46.24	74.00	27.76
15600.00	34.37	AV	H	38.00	8.83	39.09	42.11	36.09	54.00	17.91
High Channel: 5240 MHz										
5240.00	73.26	PK	H	33.68	3.52	0.00	110.46	104.44	N/A	N/A
5240.00	63.43	AV	H	33.68	3.52	0.00	100.63	94.61	N/A	N/A
5240.00	65.52	PK	V	33.68	3.52	0.00	102.72	96.7	N/A	N/A
5240.00	55.68	AV	V	33.68	3.52	0.00	92.88	86.86	N/A	N/A
5350.00	26.57	PK	H	33.86	3.52	0.00	63.95	57.93	74.00	16.07
5350.00	14.36	AV	H	33.86	3.52	0.00	51.74	45.72	54.00	8.28
10480.00	47.15	PK	H	38.20	6.37	36.88	54.84	48.82	74.00	25.18
10480.00	35.27	AV	H	38.20	6.37	36.88	42.96	36.94	54.00	17.06
15720.00	44.63	PK	H	37.88	8.79	39.18	52.12	46.1	74.00	27.90
15720.00	34.57	AV	H	37.88	8.79	39.18	42.06	36.04	54.00	17.96

802.11n40:

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5190 MHz										
5190.00	69.38	PK	H	33.60	3.59	0.00	106.57	100.55	N/A	N/A
5190.00	59.42	AV	H	33.60	3.59	0.00	96.61	90.59	N/A	N/A
5190.00	63.85	PK	V	33.60	3.59	0.00	101.04	95.02	N/A	N/A
5190.00	53.69	AV	V	33.60	3.59	0.00	90.88	84.86	N/A	N/A
5150.00	34.26	PK	H	33.54	3.56	0.00	71.36	65.34	74.00	8.66
5150.00	16.63	AV	H	33.54	3.56	0.00	53.73	47.71	54.00	6.29
10380.00	47.65	PK	H	38.18	6.31	36.85	55.29	49.27	74.00	24.73
10380.00	35.47	AV	H	38.18	6.31	36.85	43.11	37.09	54.00	16.91
15570.00	44.63	PK	H	38.03	8.84	39.06	52.44	46.42	74.00	27.58
15570.00	34.39	AV	H	38.03	8.84	39.06	42.20	36.18	54.00	17.82
High Channel: 5230 MHz										
5230.00	69.87	PK	H	33.67	3.54	0.00	107.08	101.06	N/A	N/A
5230.00	59.64	AV	H	33.67	3.54	0.00	96.85	90.83	N/A	N/A
5230.00	63.89	PK	V	33.67	3.54	0.00	101.10	95.08	N/A	N/A
5230.00	53.75	AV	V	33.67	3.54	0.00	90.96	84.94	N/A	N/A
5350.00	26.67	PK	H	33.86	3.52	0.00	64.05	58.03	74.00	15.97
5350.00	14.53	AV	H	33.86	3.52	0.00	51.91	45.89	54.00	8.11
10460.00	47.38	PK	H	38.19	6.36	36.87	55.06	49.04	74.00	24.96
10460.00	35.42	AV	H	38.19	6.36	36.87	43.10	37.08	54.00	16.92
15690.00	44.67	PK	H	37.91	8.80	39.15	52.23	46.21	74.00	27.79
15690.00	34.39	AV	H	37.91	8.80	39.15	41.95	35.93	54.00	18.07

5250-5350MHz

802.11a

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5260 MHz										
5260.00	73.49	PK	H	33.72	3.49	0.00	110.70	104.68	N/A	N/A
5260.00	63.63	AV	H	33.72	3.49	0.00	100.84	94.82	N/A	N/A
5260.00	67.54	PK	V	33.72	3.49	0.00	104.75	98.73	N/A	N/A
5260.00	57.62	AV	V	33.72	3.49	0.00	94.83	88.81	N/A	N/A
5150.00	26.48	PK	H	33.54	3.56	0.00	63.58	57.56	74.00	16.44
5150.00	13.56	AV	H	33.54	3.56	0.00	50.66	44.64	54.00	9.36
10520.00	47.38	PK	H	38.21	6.39	36.89	55.09	49.07	74.00	24.93
10520.00	35.29	AV	H	38.21	6.39	36.89	43.00	36.98	54.00	17.02
15780.00	44.75	PK	H	37.82	8.76	39.22	52.11	46.09	74.00	27.91
15780.00	34.46	AV	H	37.82	8.76	39.22	41.82	35.8	54.00	18.20
Middle Channel: 5280 MHz										
5280.00	73.66	PK	H	33.75	3.45	0.00	110.86	104.84	N/A	N/A
5280.00	63.59	AV	H	33.75	3.45	0.00	100.79	94.77	N/A	N/A
5280.00	67.85	PK	V	33.75	3.45	0.00	105.05	99.03	N/A	N/A
5280.00	57.34	AV	V	33.75	3.45	0.00	94.54	88.52	N/A	N/A
10560.00	47.65	PK	H	38.24	6.40	36.90	55.39	49.37	74.00	24.63
10560.00	35.26	AV	H	38.24	6.40	36.90	43.00	36.98	54.00	17.02
15840.00	44.84	PK	H	37.76	8.74	39.27	52.07	46.05	74.00	27.95
15840.00	34.57	AV	H	37.76	8.74	39.27	41.80	35.78	54.00	18.22
High Channel: 5320 MHz										
5320.00	74.13	PK	H	33.81	3.45	0.00	111.39	105.37	N/A	N/A
5320.00	64.22	AV	H	33.81	3.45	0.00	101.48	95.46	N/A	N/A
5320.00	68.54	PK	V	33.81	3.45	0.00	105.80	99.78	N/A	N/A
5320.00	58.72	AV	V	33.81	3.45	0.00	95.98	89.96	N/A	N/A
5350.00	31.84	PK	H	33.86	3.52	0.00	69.22	63.2	74.00	10.80
5350.00	15.76	AV	H	33.86	3.52	0.00	53.14	47.12	54.00	6.88
10640.00	47.38	PK	H	38.28	6.43	36.93	55.16	49.14	74.00	24.86
10640.00	35.16	AV	H	38.28	6.43	36.93	42.94	36.92	54.00	17.08
15960.00	44.52	PK	H	37.64	8.70	39.36	51.50	45.48	74.00	28.52
15960.00	34.36	AV	H	37.64	8.70	39.36	41.34	35.32	54.00	18.68

802.11n20

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5260 MHz										
5260.00	74.93	PK	H	33.72	3.49	0.00	112.14	106.12	N/A	N/A
5260.00	64.87	AV	H	33.72	3.49	0.00	102.08	96.06	N/A	N/A
5260.00	69.52	PK	V	33.72	3.49	0.00	106.73	100.71	N/A	N/A
5260.00	59.48	AV	V	33.72	3.49	0.00	96.69	90.67	N/A	N/A
5150.00	26.64	PK	H	33.54	3.56	0.00	63.74	57.72	74.00	16.28
5150.00	14.35	AV	H	33.54	3.56	0.00	51.45	45.43	54.00	8.57
10520.00	47.69	PK	H	38.21	6.39	36.89	55.40	49.38	74.00	24.62
10520.00	35.45	AV	H	38.21	6.39	36.89	43.16	37.14	54.00	16.86
15780.00	45.26	PK	H	37.82	8.76	39.22	52.62	46.6	74.00	27.40
15780.00	34.43	AV	H	37.82	8.76	39.22	41.79	35.77	54.00	18.23
Middle Channel: 5280 MHz										
5280.00	74.64	PK	H	33.75	3.45	0.00	111.84	105.82	N/A	N/A
5280.00	64.35	AV	H	33.75	3.45	0.00	101.55	95.53	N/A	N/A
5280.00	68.84	PK	V	33.75	3.45	0.00	106.04	100.02	N/A	N/A
5280.00	58.56	AV	V	33.75	3.45	0.00	95.76	89.74	N/A	N/A
10560.00	47.85	PK	H	38.24	6.40	36.90	55.59	49.57	74.00	24.43
10560.00	35.67	AV	H	38.24	6.40	36.90	43.41	37.39	54.00	16.61
15840.00	46.53	PK	H	37.76	8.74	39.27	53.76	47.74	74.00	26.26
15840.00	34.49	AV	H	37.76	8.74	39.27	41.72	35.7	54.00	18.30
High Channel: 5320 MHz										
5320.00	74.17	PK	H	33.81	3.45	0.00	111.43	105.41	N/A	N/A
5320.00	63.86	AV	H	33.81	3.45	0.00	101.12	95.1	N/A	N/A
5320.00	68.37	PK	V	33.81	3.45	0.00	105.63	99.61	N/A	N/A
5320.00	58.42	AV	V	33.81	3.45	0.00	95.68	89.66	N/A	N/A
5350.00	33.16	PK	H	33.86	3.52	0.00	70.54	64.52	74.00	9.48
5350.00	16.83	AV	H	33.86	3.52	0.00	54.21	48.19	54.00	5.81
10640.00	47.44	PK	H	38.28	6.43	36.93	55.22	49.2	74.00	24.80
10640.00	35.67	AV	H	38.28	6.43	36.93	43.45	37.43	54.00	16.57
15960.00	45.36	PK	H	37.64	8.70	39.36	52.34	46.32	74.00	27.68
15960.00	34.28	AV	H	37.64	8.70	39.36	41.26	35.24	54.00	18.76

802.11n40

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB(1/m)	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5270 MHz										
5270.00	71.33	PK	H	33.73	3.47	0.00	108.53	102.51	N/A	N/A
5270.00	61.52	AV	H	33.73	3.47	0.00	98.72	92.7	N/A	N/A
5270.00	65.86	PK	V	33.73	3.47	0.00	103.06	97.04	N/A	N/A
5270.00	55.79	AV	V	33.73	3.47	0.00	92.99	86.97	N/A	N/A
5150.00	26.79	PK	H	33.54	3.56	0.00	63.89	57.87	74.00	16.13
5150.00	14.36	AV	H	33.54	3.56	0.00	51.46	45.44	54.00	8.56
10540.00	46.15	PK	H	38.22	6.40	36.89	53.88	47.86	74.00	26.14
10540.00	35.48	AV	H	38.22	6.40	36.89	43.21	37.19	54.00	16.81
15810.00	44.26	PK	H	37.79	8.75	39.25	51.55	45.53	74.00	28.47
15810.00	34.49	AV	H	37.79	8.75	39.25	41.78	35.76	54.00	18.24
High Channel: 5310 MHz										
5310.00	71.35	PK	H	33.80	3.43	0.00	108.58	102.56	N/A	N/A
5310.00	60.29	AV	H	33.80	3.43	0.00	97.52	91.5	N/A	N/A
5310.00	64.73	PK	V	33.80	3.43	0.00	101.96	95.94	N/A	N/A
5310.00	54.82	AV	V	33.80	3.43	0.00	92.05	86.03	N/A	N/A
5350.00	36.58	PK	H	33.86	3.52	0.00	73.96	67.94	74.00	6.06
5350.00	16.56	AV	H	33.86	3.52	0.00	53.94	47.92	54.00	6.08
10620.00	45.63	PK	H	38.27	6.43	36.92	53.41	47.39	74.00	26.61
10620.00	35.42	AV	H	38.27	6.43	36.92	43.20	37.18	54.00	16.82
15930.00	44.83	PK	H	37.67	8.71	39.34	51.87	45.85	74.00	28.15
15930.00	34.67	AV	H	37.67	8.71	39.34	41.71	35.69	54.00	18.31

5470-5725MHz:

802.11a

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5500 MHz										
5500.00	75.58	PK	H	34.10	3.54	0.00	113.22	107.2	N/A	N/A
5500.00	65.35	AV	H	34.10	3.54	0.00	102.99	96.97	N/A	N/A
5500.00	68.44	PK	V	34.10	3.54	0.00	106.08	100.06	N/A	N/A
5500.00	58.38	AV	V	34.10	3.54	0.00	96.02	90	N/A	N/A
5470.00	34.46	PK	H	34.05	3.56	0.00	72.07	66.05	74.00	7.95
5470.00	16.39	AV	H	34.05	3.56	0.00	54.00	47.98	54.00	6.02
11000.00	48.57	PK	H	38.50	6.57	37.06	56.58	50.56	74.00	23.44
11000.00	35.62	AV	H	38.50	6.57	37.06	43.63	37.61	54.00	16.39
16500.00	45.36	PK	H	38.20	8.63	39.30	52.89	46.87	74.00	27.13
16500.00	34.85	AV	H	38.20	8.63	39.30	42.38	36.36	54.00	17.64
Middle Channel: 5580 MHz										
5580.00	74.73	PK	H	34.13	3.56	0.00	112.42	106.4	N/A	N/A
5580.00	64.85	AV	H	34.13	3.56	0.00	102.54	96.52	N/A	N/A
5580.00	68.13	PK	V	34.13	3.56	0.00	105.82	99.8	N/A	N/A
5580.00	58.27	AV	V	34.13	3.56	0.00	95.96	89.94	N/A	N/A
11160.00	48.16	PK	H	38.66	6.58	37.16	56.24	50.22	74.00	23.78
11160.00	35.78	AV	H	38.66	6.58	37.16	43.86	37.84	54.00	16.16
16740.00	45.35	PK	H	39.16	8.67	39.05	54.13	48.11	74.00	25.89
16740.00	34.27	AV	H	39.16	8.67	39.05	43.05	37.03	54.00	16.97
High Channel: 5700 MHz										
5700.00	72.49	PK	H	34.18	3.68	0.00	110.35	104.33	N/A	N/A
5700.00	61.55	AV	H	34.18	3.68	0.00	99.41	93.39	N/A	N/A
5700.00	63.37	PK	V	34.18	3.68	0.00	101.23	95.21	N/A	N/A
5700.00	53.48	AV	V	34.18	3.68	0.00	91.34	85.32	N/A	N/A
5725.00	31.29	PK	H	34.19	3.69	0.00	69.17	63.15	74.00	10.85
5725.00	15.46	AV	H	34.19	3.69	0.00	53.34	47.32	54.00	6.68
11400.00	46.53	PK	H	38.90	6.59	37.30	54.72	48.7	74.00	25.30
11400.00	35.48	AV	H	38.90	6.59	37.30	43.67	37.65	54.00	16.35
17100.00	44.52	PK	H	40.78	8.75	38.70	55.35	49.33	74.00	24.67
17100.00	34.37	AV	H	40.78	8.75	38.70	45.20	39.18	54.00	14.82

802.11n20

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5500 MHz										
5500.00	75.68	PK	H	34.10	3.54	0.00	113.32	107.3	N/A	N/A
5500.00	65.54	AV	H	34.10	3.54	0.00	103.18	97.16	N/A	N/A
5500.00	67.25	PK	V	34.10	3.54	0.00	104.89	98.87	N/A	N/A
5500.00	57.57	AV	V	34.10	3.54	0.00	95.21	89.19	N/A	N/A
5470.00	32.53	PK	H	34.05	3.56	0.00	70.14	64.12	74.00	9.88
5470.00	16.45	AV	H	34.05	3.56	0.00	54.06	48.04	54.00	5.96
11000.00	48.35	PK	H	38.50	6.57	37.06	56.36	50.34	74.00	23.66
11000.00	35.68	AV	H	38.50	6.57	37.06	43.69	37.67	54.00	16.33
16500.00	46.37	PK	H	38.20	8.63	39.30	53.90	47.88	74.00	26.12
16500.00	34.36	AV	H	38.20	8.63	39.30	41.89	35.87	54.00	18.13
Middle Channel: 5580 MHz										
5580.00	74.43	PK	H	34.13	3.56	0.00	112.12	106.1	N/A	N/A
5580.00	64.59	AV	H	34.13	3.56	0.00	102.28	96.26	N/A	N/A
5580.00	66.68	PK	V	34.13	3.56	0.00	104.37	98.35	N/A	N/A
5580.00	56.72	AV	V	34.13	3.56	0.00	94.41	88.39	N/A	N/A
11160.00	47.86	PK	H	38.66	6.58	37.16	55.94	49.92	74.00	24.08
11160.00	35.52	AV	H	38.66	6.58	37.16	43.60	37.58	54.00	16.42
16740.00	46.57	PK	H	39.16	8.67	39.05	55.35	49.33	74.00	24.67
16740.00	34.27	AV	H	39.16	8.67	39.05	43.05	37.03	54.00	16.97
High Channel: 5700 MHz										
5700.00	71.49	PK	H	34.18	3.68	0.00	109.35	103.33	N/A	N/A
5700.00	61.65	AV	H	34.18	3.68	0.00	99.51	93.49	N/A	N/A
5700.00	63.38	PK	V	34.18	3.68	0.00	101.24	95.22	N/A	N/A
5700.00	53.52	AV	V	34.18	3.68	0.00	91.38	85.36	N/A	N/A
5725.00	30.36	PK	H	34.19	3.69	0.00	68.24	62.22	74.00	11.78
5725.00	15.44	AV	H	34.19	3.69	0.00	53.32	47.3	54.00	6.70
11400.00	45.67	PK	H	38.90	6.59	37.30	53.86	47.84	74.00	26.16
11400.00	35.46	AV	H	38.90	6.59	37.30	43.65	37.63	54.00	16.37
17100.00	45.29	PK	H	40.78	8.75	38.70	56.12	50.1	74.00	23.90
17100.00	35.18	AV	H	40.78	8.75	38.70	46.01	39.99	54.00	14.01

802.11n40

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5510 MHz										
5510.00	72.78	PK	H	34.10	3.54	0.00	110.42	104.4	N/A	N/A
5510.00	62.35	AV	H	34.10	3.54	0.00	99.99	93.97	N/A	N/A
5510.00	64.92	PK	V	34.10	3.54	0.00	102.56	96.54	N/A	N/A
5510.00	54.88	AV	V	34.10	3.54	0.00	92.52	86.5	N/A	N/A
5470.00	38.24	PK	H	34.05	3.56	0.00	75.85	69.83	74.00	4.17
5470.00	18.96	AV	H	34.05	3.56	0.00	56.57	50.55	54.00	3.45
11020.00	45.58	PK	H	38.52	6.57	37.07	53.26	47.24	74.00	26.76
11020.00	35.67	AV	H	38.52	6.57	37.07	43.69	37.67	54.00	16.33
16530.00	45.24	PK	H	38.32	8.64	39.27	7.69	1.67	74.00	72.33
16530.00	35.36	AV	H	38.32	8.64	39.27	43.05	37.03	54.00	16.97
Middle Channel: 5550 MHz										
5550.00	72.93	PK	H	34.12	3.56	0.00	110.61	104.59	N/A	N/A
5550.00	62.78	AV	H	34.12	3.56	0.00	100.46	94.44	N/A	N/A
5550.00	64.67	PK	V	34.12	3.56	0.00	102.35	96.33	N/A	N/A
5550.00	54.82	AV	V	34.12	3.56	0.00	92.50	86.48	N/A	N/A
11100.00	45.63	PK	H	38.60	6.57	37.12	53.68	47.66	74.00	26.34
11100.00	35.57	AV	H	38.60	6.57	37.12	43.62	37.6	54.00	16.40
16650.00	45.16	PK	H	38.80	8.66	39.14	53.48	47.46	74.00	26.54
16650.00	35.22	AV	H	38.80	8.66	39.14	43.54	37.52	54.00	16.48
High Channel: 5670 MHz										
5670.00	71.36	PK	H	34.17	3.65	0.00	109.18	103.16	N/A	N/A
5670.00	60.97	AV	H	34.17	3.65	0.00	98.79	92.77	N/A	N/A
5670.00	63.49	PK	V	34.17	3.65	0.00	101.31	95.29	N/A	N/A
5670.00	53.58	AV	V	34.17	3.65	0.00	91.40	85.38	N/A	N/A
5725.00	28.16	PK	H	34.19	3.69	0.00	66.04	60.02	74.00	13.98
5725.00	15.84	AV	H	34.19	3.69	0.00	53.72	47.7	54.00	6.30
11340.00	45.76	PK	H	38.84	6.58	37.26	53.92	47.9	74.00	26.10
11340.00	35.39	AV	H	38.84	6.58	37.26	43.55	37.53	54.00	16.47
17010.00	45.26	PK	H	40.26	8.72	38.76	55.48	49.46	74.00	24.54
17010.00	35.34	AV	H	40.26	8.72	38.76	45.56	39.54	54.00	14.46

5725-5850MHz:

802.11a

Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5745 MHz										
5745.00	76.35	PK	H	34.20	3.69	0.00	114.24	108.22	N/A	N/A
5745.00	65.69	AV	H	34.20	3.69	0.00	103.58	97.56	N/A	N/A
5745.00	66.44	PK	V	34.20	3.69	0.00	104.33	98.31	N/A	N/A
5745.00	56.37	AV	V	34.20	3.69	0.00	94.26	88.24	N/A	N/A
5725.00	42.97	PK	H	34.19	3.69	0.00	80.85	74.83	122.20	47.37
5720.00	33.99	PK	H	34.19	3.69	0.00	71.87	65.85	110.80	44.95
5700.00	26.69	PK	H	34.18	3.68	0.00	64.55	58.53	105.20	46.67
5650.00	26.94	PK	H	34.16	3.63	0.00	64.73	58.71	68.20	9.49
11490.00	51.75	PK	H	38.99	6.59	37.35	59.98	53.96	74.00	20.04
11490.00	40.21	AV	H	38.99	6.59	37.35	48.44	42.42	54.00	11.58
17235.00	48.75	PK	H	41.56	8.78	38.61	60.48	54.46	74.00	19.54
17235.00	37.42	AV	H	41.56	8.78	38.61	49.15	43.13	54.00	10.87
Middle Channel: 5785MHz										
5785.00	75.50	PK	H	34.21	3.71	0.00	113.42	107.4	N/A	N/A
5785.00	65.39	AV	H	34.21	3.71	0.00	103.31	97.29	N/A	N/A
5785.00	66.35	PK	V	34.21	3.71	0.00	104.27	98.25	N/A	N/A
5785.00	56.74	AV	V	34.21	3.71	0.00	94.66	88.64	N/A	N/A
11570.00	54.15	PK	H	39.00	6.61	37.44	62.32	56.3	74.00	17.70
11570.00	42.12	AV	H	39.00	6.61	37.44	50.29	44.27	54.00	9.73
17355.00	49.67	PK	H	42.26	8.81	38.52	62.22	56.2	74.00	17.80
17355.00	37.65	AV	H	42.26	8.81	38.52	50.20	44.18	54.00	9.82
High Channel: 5825MHz										
5825.00	74.32	PK	H	34.23	3.73	0.00	112.28	106.26	N/A	N/A
5825.00	64.56	AV	H	34.23	3.73	0.00	102.52	96.5	N/A	N/A
5825.00	66.23	PK	V	34.23	3.73	0.00	104.19	98.17	N/A	N/A
5825.00	56.46	AV	V	34.23	3.73	0.00	94.42	88.4	N/A	N/A
5850.00	27.42	PK	H	34.24	3.75	0.00	65.41	59.39	122.20	62.81
5855.00	26.62	PK	H	34.24	3.75	0.00	64.61	58.59	110.80	52.21
5875.00	26.82	PK	H	34.25	3.77	0.00	64.84	58.82	105.20	46.38
5925.00	27.15	PK	H	34.27	3.80	0.00	65.22	59.2	68.20	9.00
11650.00	57.67	PK	H	39.00	6.64	37.53	65.78	59.76	74.00	14.24
11650.00	44.43	AV	H	39.00	6.64	37.53	52.54	46.52	54.00	7.48
17475.00	53.49	PK	H	42.96	8.84	38.44	66.85	60.83	74.00	13.17
17475.00	40.38	AV	H	42.96	8.84	38.44	53.74	47.72	54.00	6.28

802.11n20

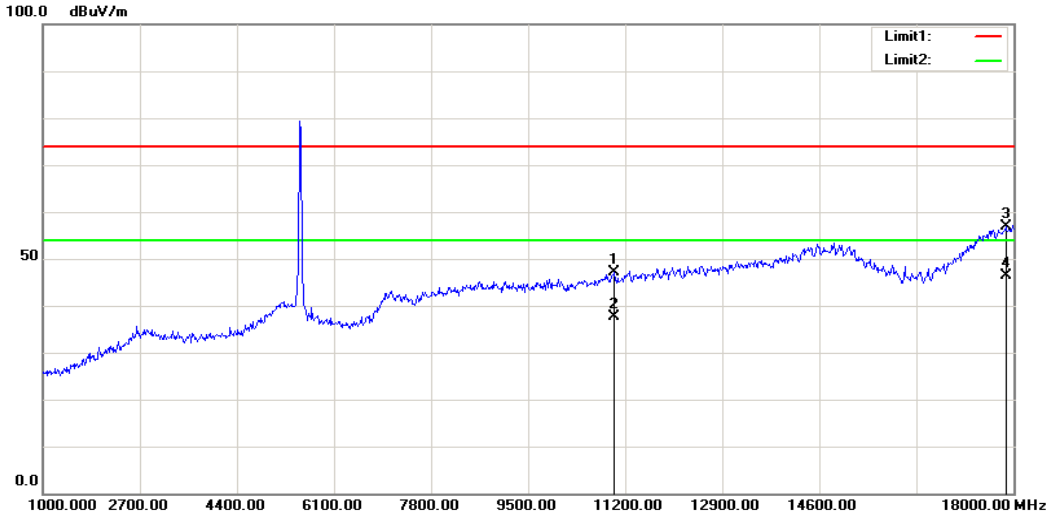
Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5745 MHz										
5745.00	75.01	PK	H	34.20	3.69	0.00	112.90	106.88	N/A	N/A
5745.00	65.54	AV	H	34.20	3.69	0.00	103.43	97.41	N/A	N/A
5745.00	66.42	PK	V	34.20	3.69	0.00	104.31	98.29	N/A	N/A
5745.00	56.46	AV	V	34.20	3.69	0.00	94.35	88.33	N/A	N/A
5725.00	44.34	PK	H	34.19	3.69	0.00	82.22	76.2	122.20	46.00
5720.00	36.84	PK	H	34.19	3.69	0.00	74.72	68.7	110.80	42.10
5700.00	27.91	PK	H	34.18	3.68	0.00	65.77	59.75	105.20	45.45
5650.00	27.31	PK	H	34.16	3.63	0.00	65.10	59.08	68.20	9.12
11490.00	52.45	PK	H	38.99	6.59	37.35	60.68	54.66	74.00	19.34
11490.00	40.38	AV	H	38.99	6.59	37.35	48.61	42.59	54.00	11.41
17235.00	48.89	PK	H	41.56	8.78	38.61	60.62	54.6	74.00	19.40
17235.00	36.56	AV	H	41.56	8.78	38.61	48.29	42.27	54.00	11.73
Middle Channel: 5785 MHz										
5785.00	75.52	PK	H	34.21	3.71	0.00	113.44	107.42	N/A	N/A
5785.00	65.34	AV	H	34.21	3.71	0.00	103.26	97.24	N/A	N/A
5785.00	65.73	PK	V	34.21	3.71	0.00	103.65	97.63	N/A	N/A
5785.00	55.72	AV	V	34.21	3.71	0.00	93.64	87.62	N/A	N/A
11570.00	52.67	PK	H	39.00	6.61	37.44	60.84	54.82	74.00	19.18
11570.00	40.87	AV	H	39.00	6.61	37.44	49.04	43.02	54.00	10.98
17355.00	47.95	PK	H	42.26	8.81	38.52	60.50	54.48	74.00	19.52
17355.00	35.89	AV	H	42.26	8.81	38.52	48.44	42.42	54.00	11.58
High Channel: 5825 MHz										
5825.00	74.00	PK	H	34.23	3.73	0.00	111.96	105.94	N/A	N/A
5825.00	64.19	AV	H	34.23	3.73	0.00	102.15	96.13	N/A	N/A
5825.00	64.95	PK	V	34.23	3.73	0.00	102.91	96.89	N/A	N/A
5825.00	54.38	AV	V	34.23	3.73	0.00	92.34	86.32	N/A	N/A
5850.00	32.22	PK	H	34.24	3.75	0.00	70.21	64.19	122.20	58.01
5855.00	27.68	PK	H	34.24	3.75	0.00	65.67	59.65	110.80	51.15
5875.00	26.96	PK	H	34.25	3.77	0.00	64.98	58.96	105.20	46.24
5925.00	27.26	PK	H	34.27	3.80	0.00	65.33	59.31	68.20	8.89
11650.00	53.44	PK	H	39.00	6.64	37.53	61.55	55.53	74.00	18.47
11650.00	41.63	AV	H	39.00	6.64	37.53	49.74	43.72	54.00	10.28
17475.00	49.56	PK	H	42.96	8.84	38.44	62.92	56.9	74.00	17.10
17475.00	38.47	AV	H	42.96	8.84	38.44	51.83	45.81	54.00	8.19

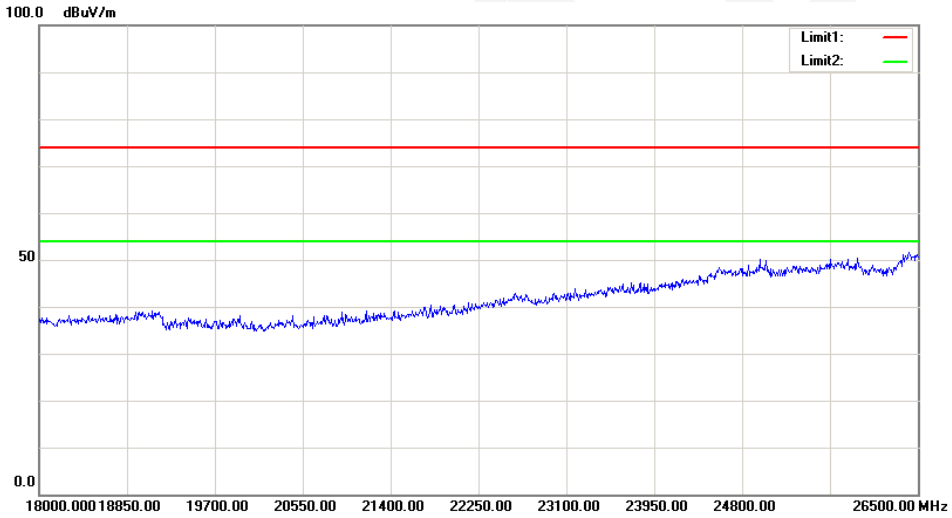
802.11n40

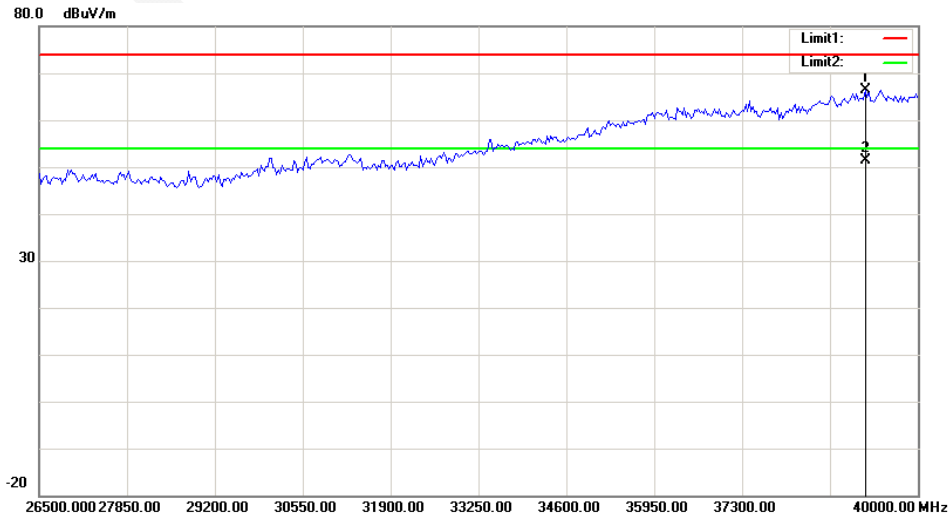
Frequency	Receiver		Rx Antenna		Cable loss	Amplifier Gain	Corrected Amplitude	Extrapolation result	Limit	Margin
	Reading	Detector	Polar	Factor						
MHz	dBµV	PK/QP/AV	H/V	dB/m	dB	dB	dBµV/m	dBµV/m	dBµV/m	dB
Low Channel: 5755 MHz										
5755.00	73.33	PK	H	34.20	3.70	0.00	111.23	105.21	N/A	N/A
5755.00	61.96	AV	H	34.20	3.70	0.00	99.86	93.84	N/A	N/A
5755.00	65.22	PK	V	34.20	3.70	0.00	103.12	97.1	N/A	N/A
5755.00	54.70	AV	V	34.20	3.70	0.00	92.60	86.58	N/A	N/A
5725.00	42.69	PK	H	34.19	3.69	0.00	80.57	74.55	122.20	47.65
5720.00	38.92	PK	H	34.19	3.69	0.00	76.80	70.78	110.80	40.02
5700.00	28.46	PK	H	34.18	3.68	0.00	66.32	60.3	105.20	44.90
5650.00	22.48	PK	H	34.16	3.63	0.00	60.27	54.25	68.20	13.95
11510.00	50.45	PK	H	39.00	6.59	37.37	58.67	52.65	74.00	21.35
11510.00	39.26	AV	H	39.00	6.59	37.37	47.48	41.46	54.00	12.54
17265.00	46.92	PK	H	41.74	8.79	38.58	58.87	52.85	74.00	21.15
17265.00	35.56	AV	H	41.74	8.79	38.58	47.51	41.49	54.00	12.51
High Channel: 5795 MHz										
5795.00	71.59	PK	H	34.22	3.71	0.00	109.52	103.5	N/A	N/A
5795.00	60.89	AV	H	34.22	3.71	0.00	98.82	92.8	N/A	N/A
5795.00	62.79	PK	V	34.22	3.71	0.00	100.72	94.7	N/A	N/A
5795.00	50.48	AV	V	34.22	3.71	0.00	88.41	82.39	N/A	N/A
5850.00	27.41	PK	H	34.24	3.75	0.00	65.40	59.38	122.20	62.82
5855.00	26.93	PK	H	34.24	3.75	0.00	64.92	58.9	110.80	51.90
5875.00	28.91	PK	H	34.25	3.77	0.00	66.93	60.91	105.20	44.29
5925.00	25.42	PK	H	34.27	3.80	0.00	63.49	57.47	68.20	10.73
11590.00	49.57	PK	H	39.00	6.62	37.46	57.73	51.71	74.00	22.29
11590.00	38.97	AV	H	39.00	6.62	37.46	47.13	41.11	54.00	12.89
17385.00	47.53	PK	H	42.43	8.82	38.50	60.28	54.26	74.00	19.74
17385.00	36.55	AV	H	42.43	8.82	38.50	49.30	43.28	54.00	10.72

Worst Plots(802.11a 5745MHz):

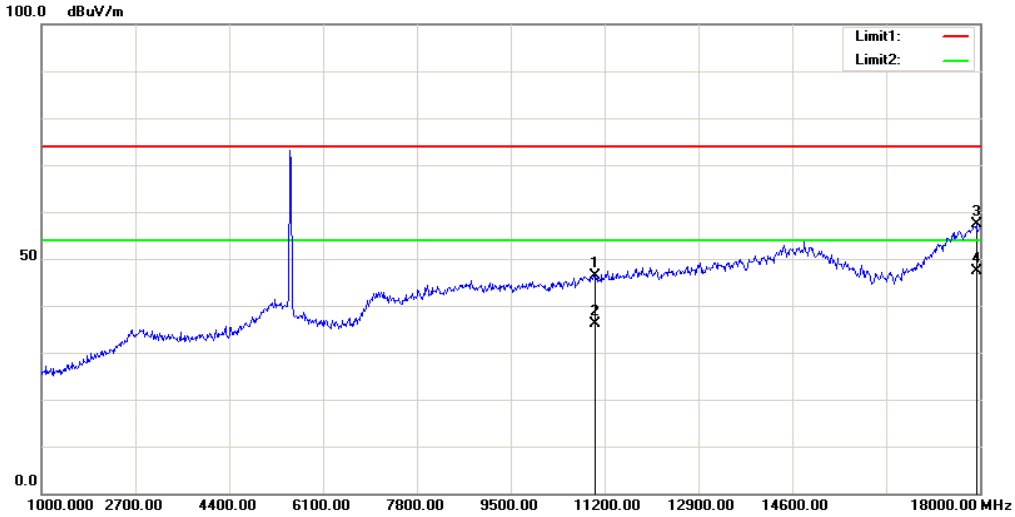
Horizontal:







Vertical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Limit1:
Limit2:
50
0.0
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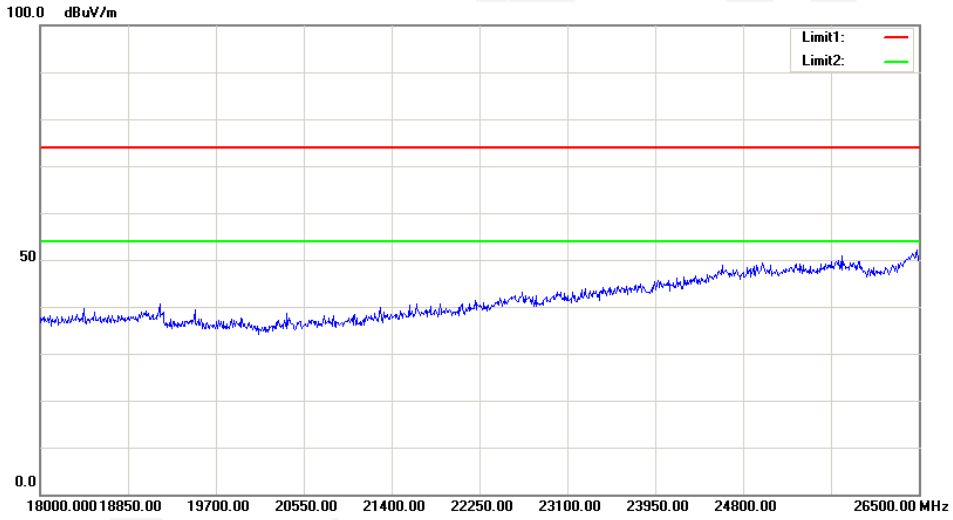
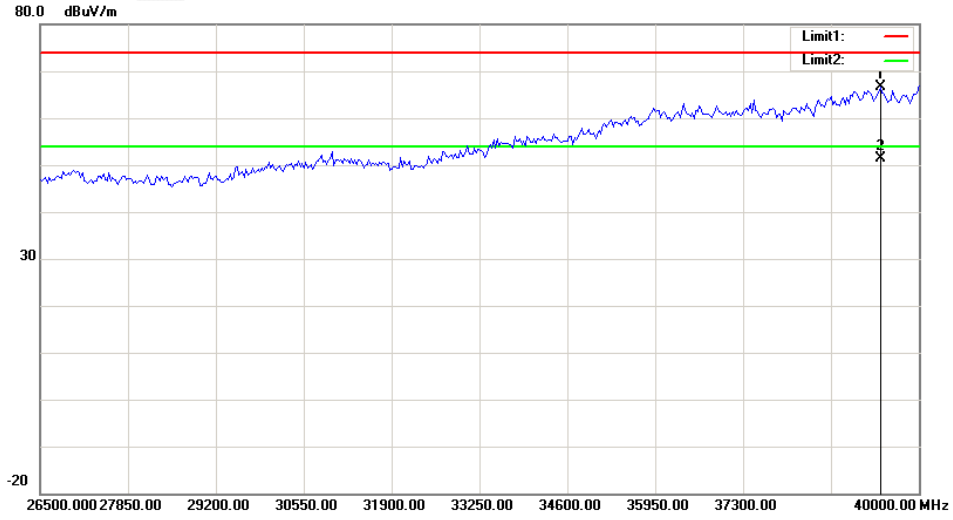

100.0 dBuV/m
Limit1:
Limit2:
50
0.0
18000.000 18850.00 19700.00 20550.00 21400.00 22250.00 23100.00 23950.00 24800.00 26500.00 MHz


80.0 dBuV/m
Limit1:
Limit2:
30
-20
26500.000 27850.00 29200.00 30550.00 31900.00 33250.00 34600.00 35950.00 37300.00 40000.00 MHz

OUT OF BAND EMISSIONS

Applicable Standard

FCC §15.407

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

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

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

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in §15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.

(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

According to RSS-247§6.2

Frequency band 5150-5250 MHz

6.2.1.2 Unwanted emission limits

For transmitters with operating frequencies in the band 5150-5250 MHz, all emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. Any unwanted emissions that fall into the band 5250-5350 MHz shall be attenuated below the channel power by at least 26 dB, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth (i.e. 99% bandwidth), above 5250 MHz. The 26 dB bandwidth may fall into the 5250-5350 MHz band; however, if the occupied bandwidth also falls within the 5250-5350 MHz band, the transmission is considered as intentional and the devices shall comply with all requirements in the band 5250-5350 MHz including implementing dynamic frequency selection (DFS) and TPC, on the portion of the emission that resides in the 5250-5350 MHz band.

Frequency band 5250-5350 MHz

6.2.2.2 Unwanted emission limits

Devices shall comply with the following:

a) All emissions outside the band 5250-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p.; or

b) All emissions outside the band 5150-5350 MHz shall not exceed -27 dBm/MHz e.i.r.p. and its power shall comply with the spectral power density for operation within the band 5150-5250 MHz. The device, except devices installed in vehicles, shall be labelled or include in the user manual the following text "for indoor use only."

Frequency bands 5470-5600 MHz and 5650-5725 MHz:

6.2.3.2 Unwanted emission limits

Emissions outside the band 5470-5600 MHz and 5650-5725 MHz shall not exceed -27 dBm/MHz e.i.r.p. However, devices with bandwidth overlapping the band edge of 5725 MHz can meet the emission limit of -27 dBm/MHz e.i.r.p. at 5850 MHz instead of 5725 MHz.

Frequency band 5725-5850 MHz

6.2.4.2 Unwanted emission limits

Devices operating in the band 5725-5850 MHz with antenna gain greater than 10 dBi can have unwanted emissions that comply with either the limits in this section or in section 5.5 until six (6) months after the publication date of this standard for certification. Certified devices that do not comply with emission limits in this section shall not be manufactured, imported, distributed, leased, offered for sale or sold after April 1, 2018.

Devices operating in the band 5725-5850 MHz with antenna gain of 10 dBi or less can have unwanted emissions that comply with either the limits in this section or in section 5.5 until April 1, 2018 for certification. Certified devices that do not comply with emission limits in this section shall not be manufactured, imported, distributed, leased, offered for sale or sold after April 1, 2020.

Devices operating in the band 5725-5850 MHz shall have e.i.r.p. of unwanted emissions comply with the following:

a) 27 dBm/MHz at frequencies from the band edges decreasing linearly to 15.6 dBm/MHz at 5 MHz above or below the band edges;

b) 15.6 dBm/MHz at 5 MHz above or below the band edges decreasing linearly to 10 dBm/MHz at 25 MHz above or below the band edges;

c) 10 dBm/MHz at 25 MHz above or below the band edges decreasing linearly to -27 dBm/MHz at 75 MHz above or below the band edges; and

d) -27 dBm/MHz at frequencies more than 75 MHz above or below the band edges.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Test Data

Environmental Conditions

Temperature:	21.3 °C
Relative Humidity:	36 %
ATM Pressure:	102 kPa

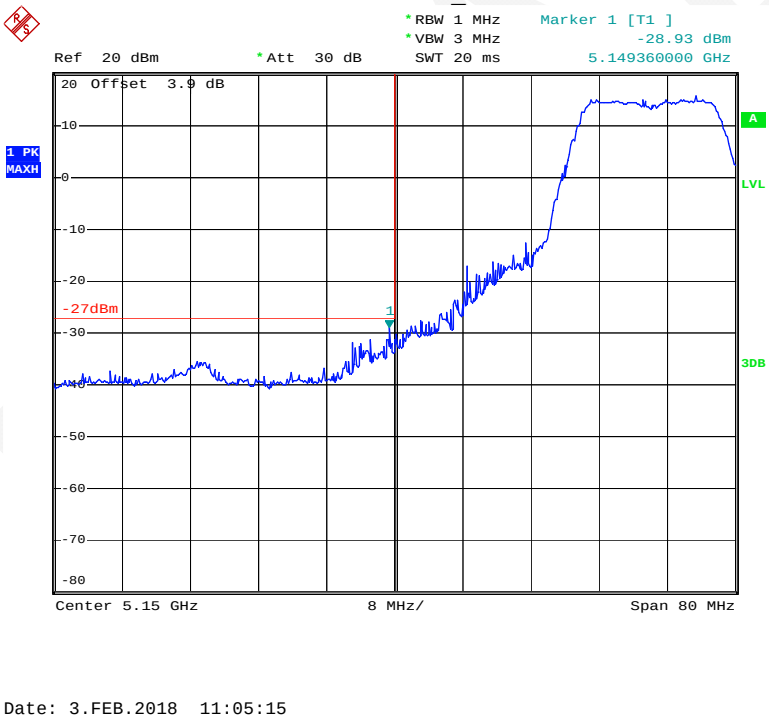
** The testing was performed by George Pang on 2018-02-03.*

Test Mode: Transmitting

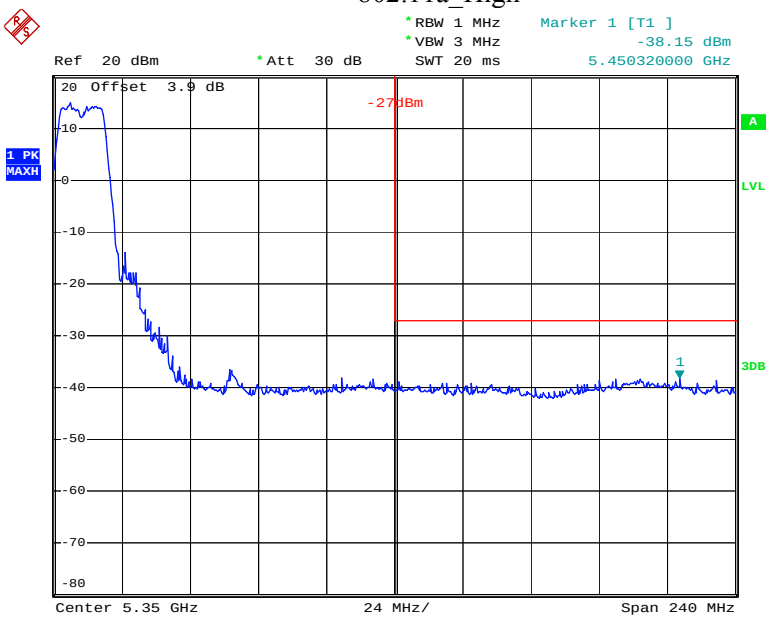
Result: Compliance, antenna gain+ Cable loss was offset in the plots, please refer to following plots:

5150-5250MHz

802.11a_Low



802.11a_High



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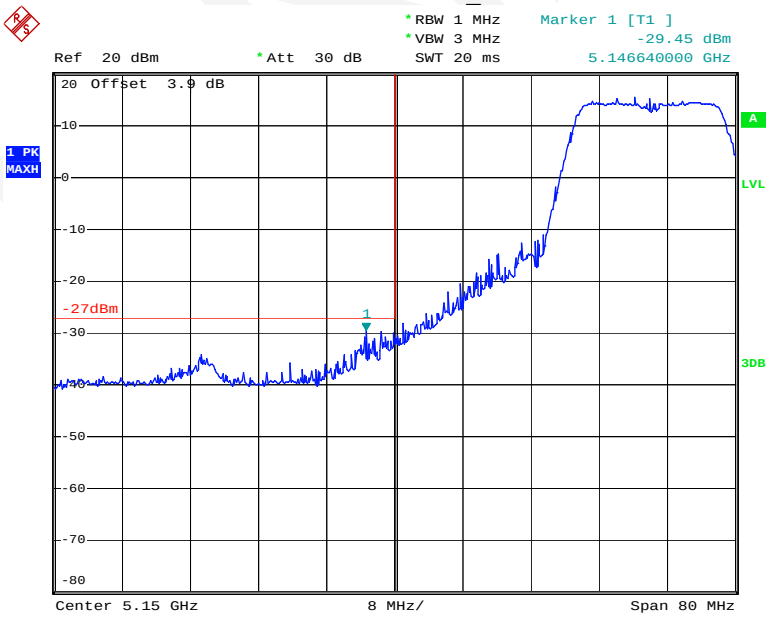
802.11n20_Low



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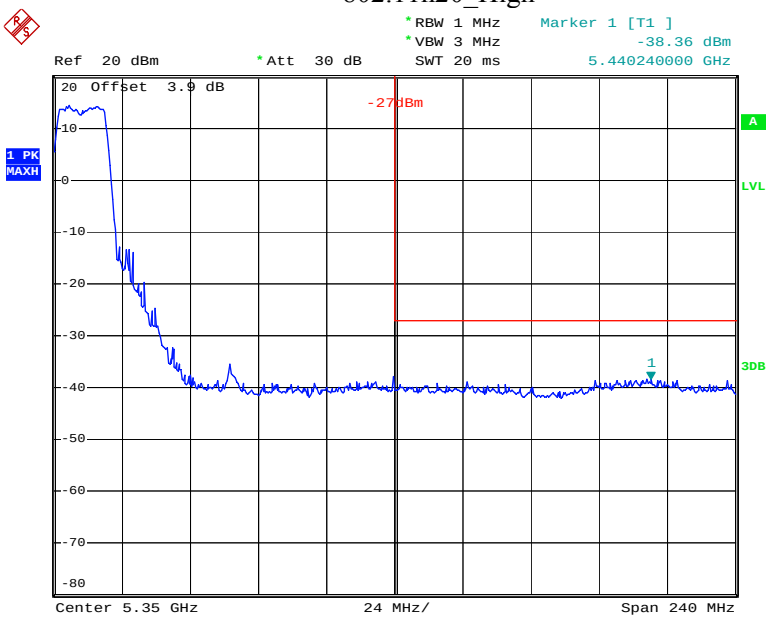

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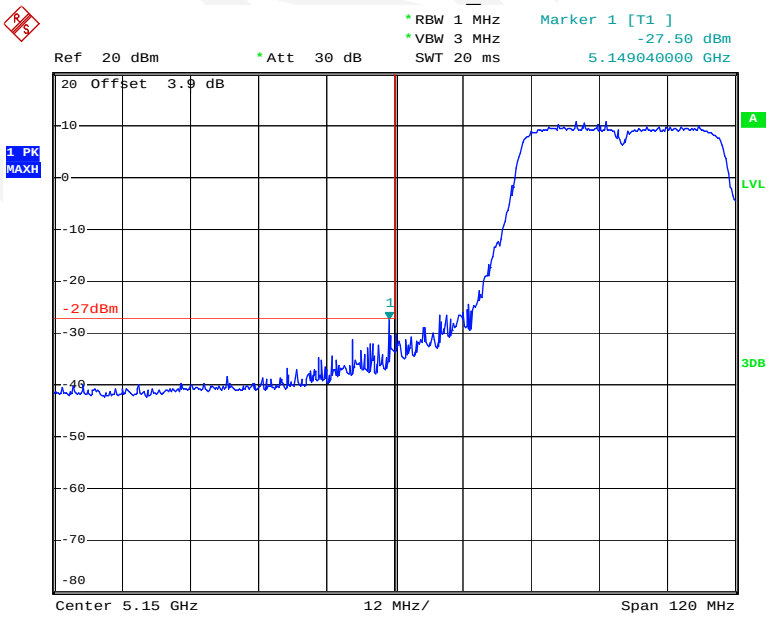

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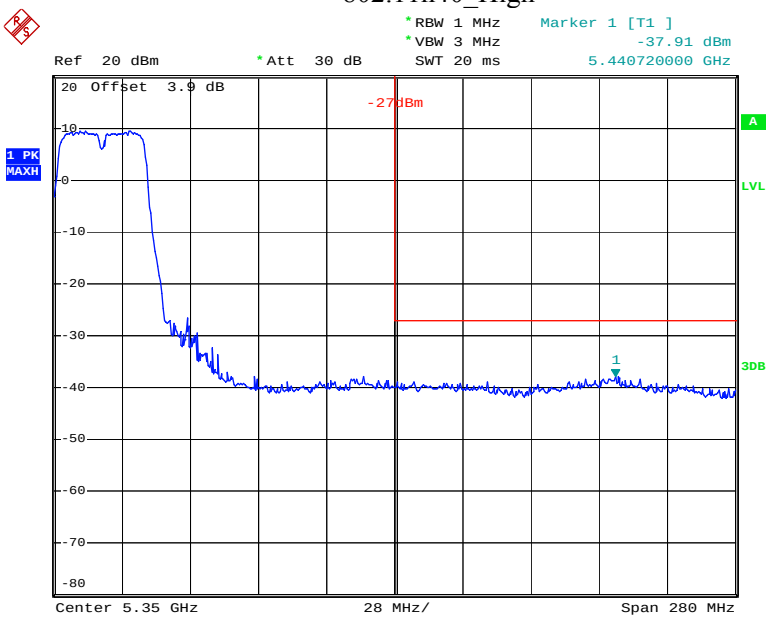

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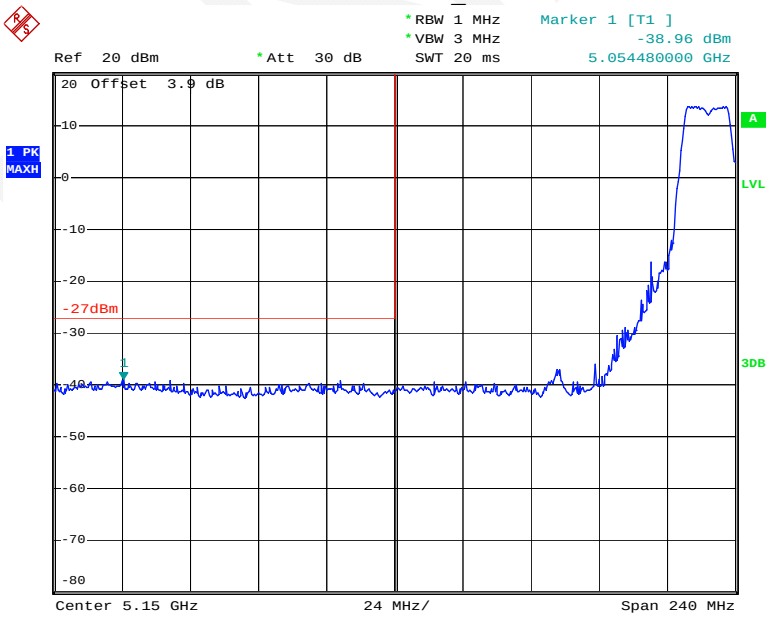
5250-5350MHz

802.11a_Low



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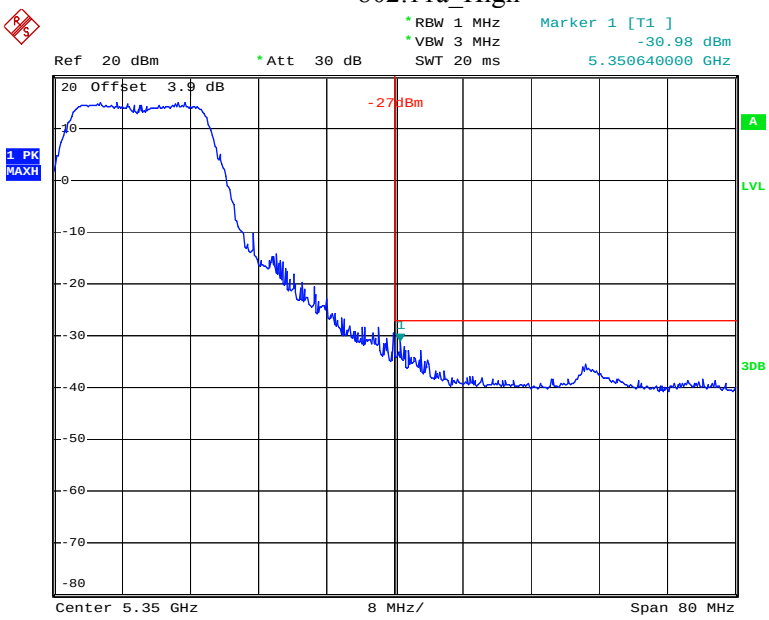
802.11a_High



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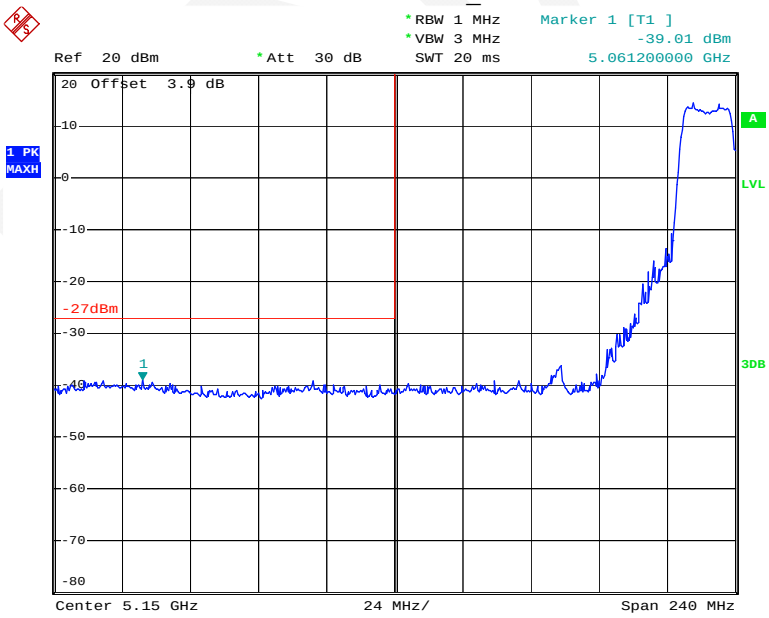

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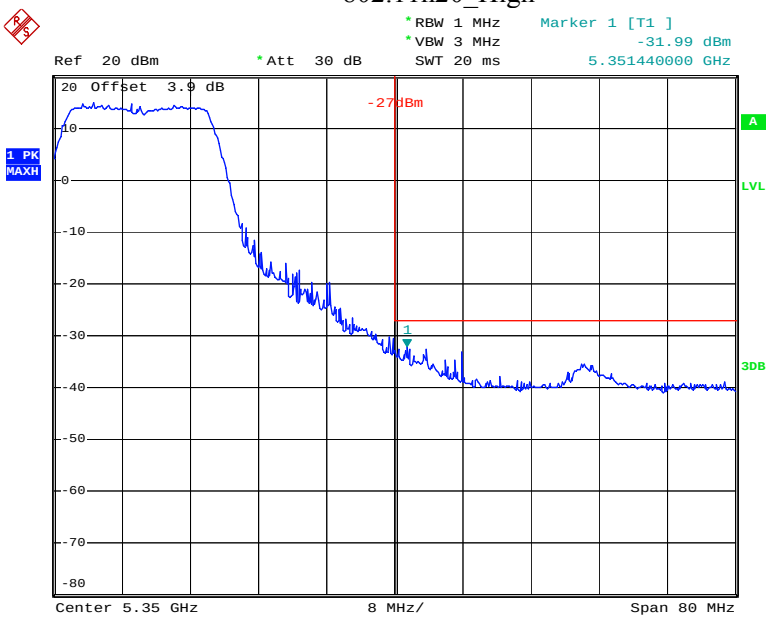

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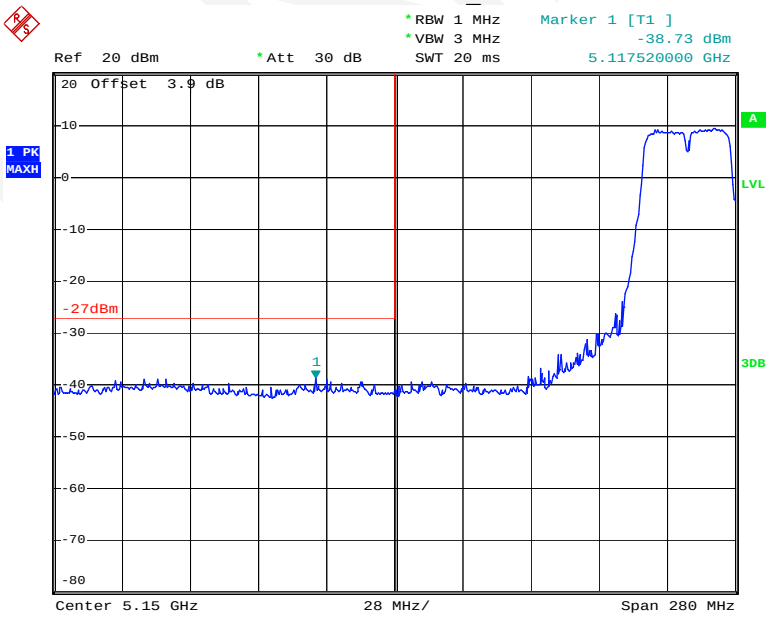
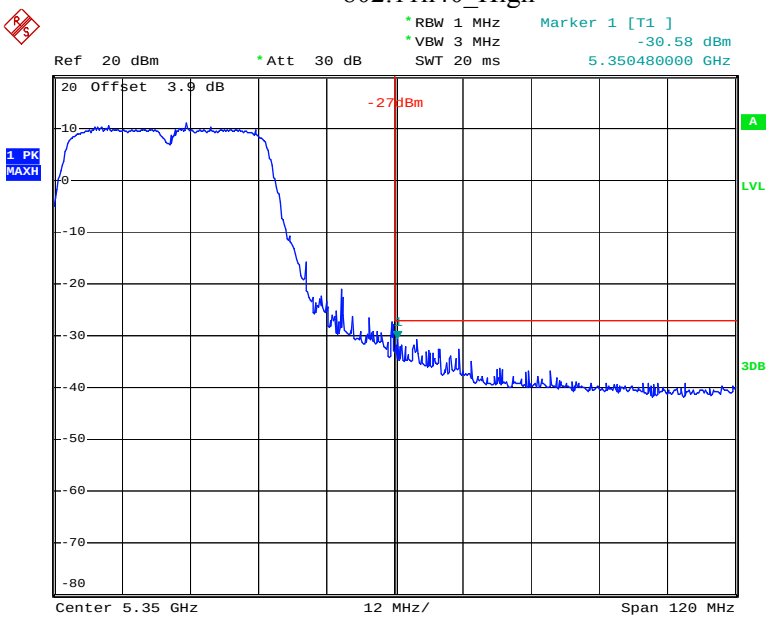


Date: 3.FEB.2018 16:33:55

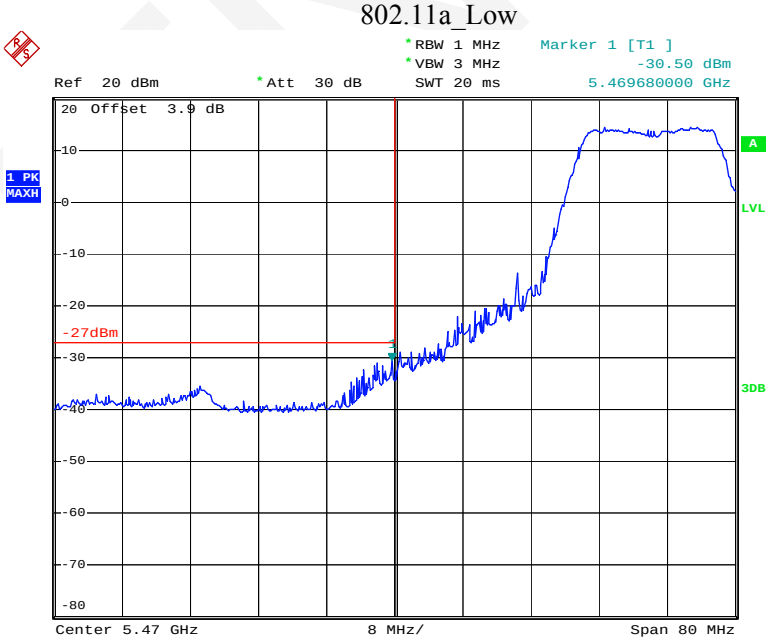
802.11n40_High



Date: 3.FEB.2018 13:23:48

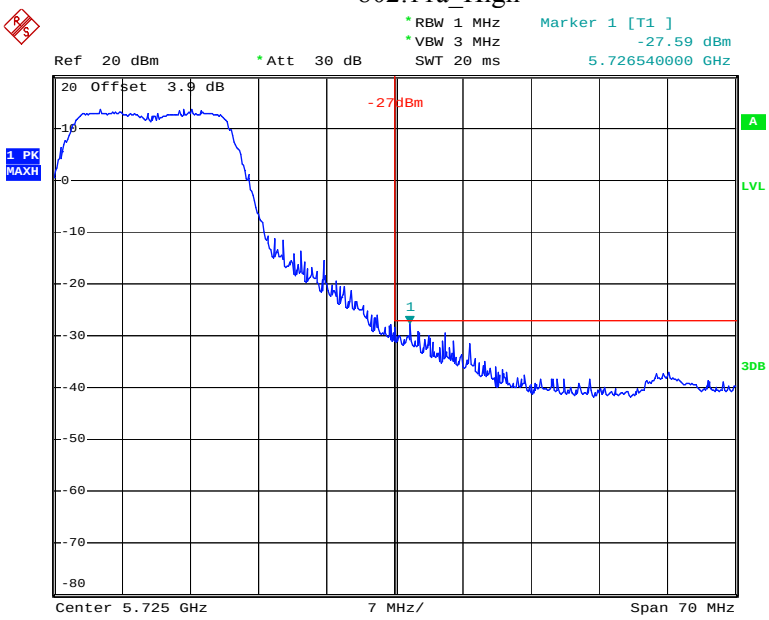
5470-5725MHz:

802.11a_Low



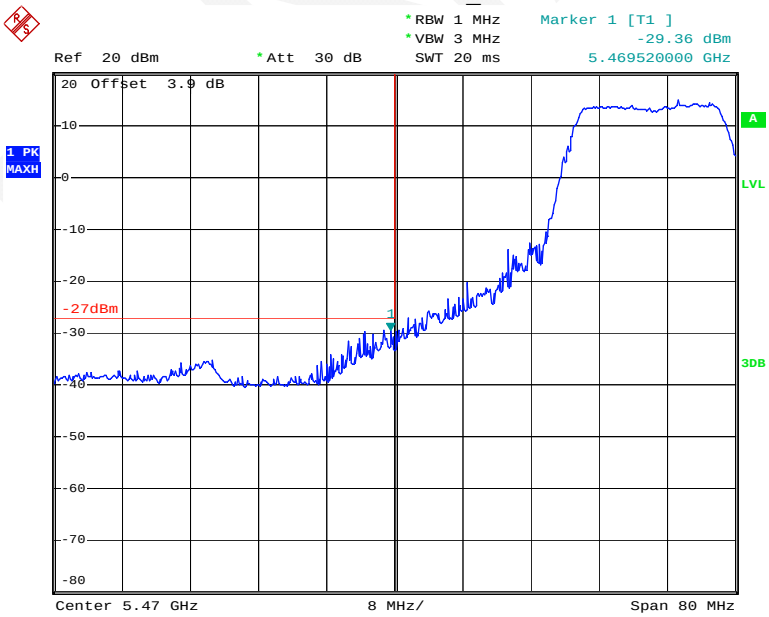
Date: 3.FEB.2018 13:27:35

802.11a_High



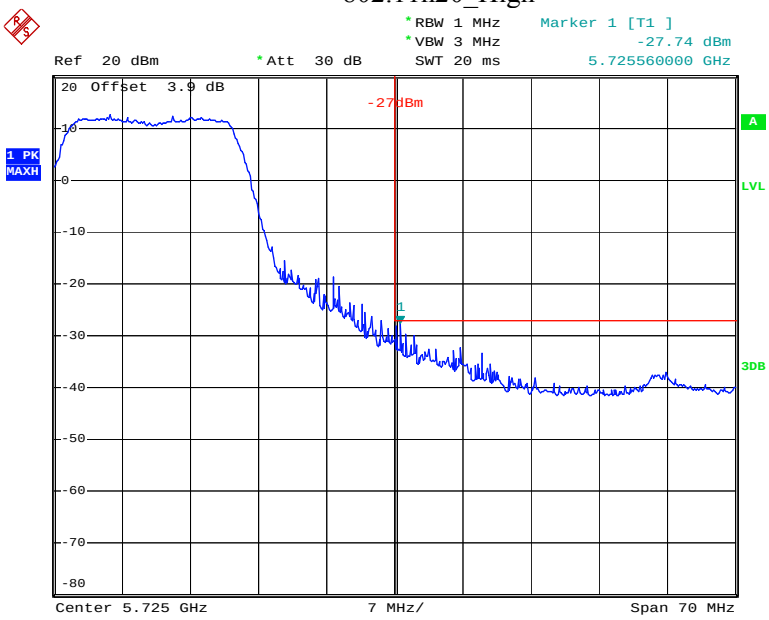
Date: 3.FEB.2018 13:46:02

802.11n20_Low



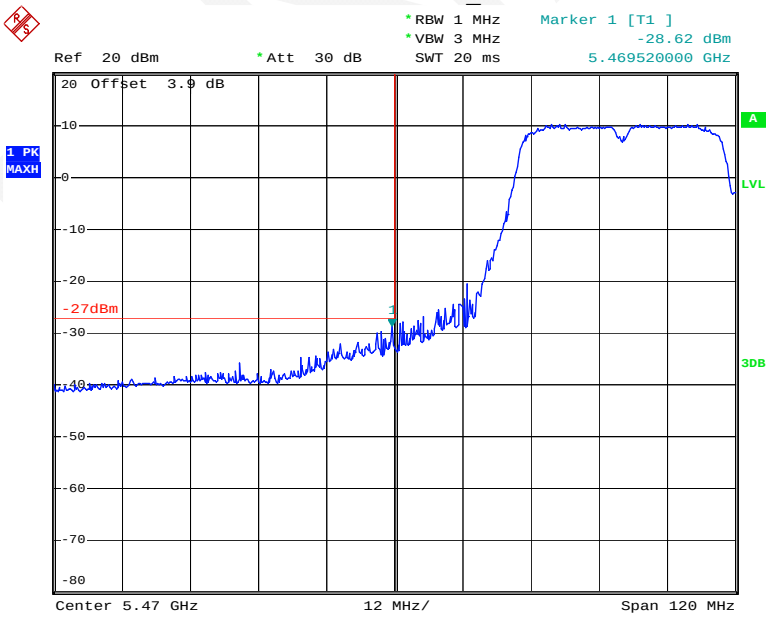
Date: 3.FEB.2018 13:30:59

802.11n20_High



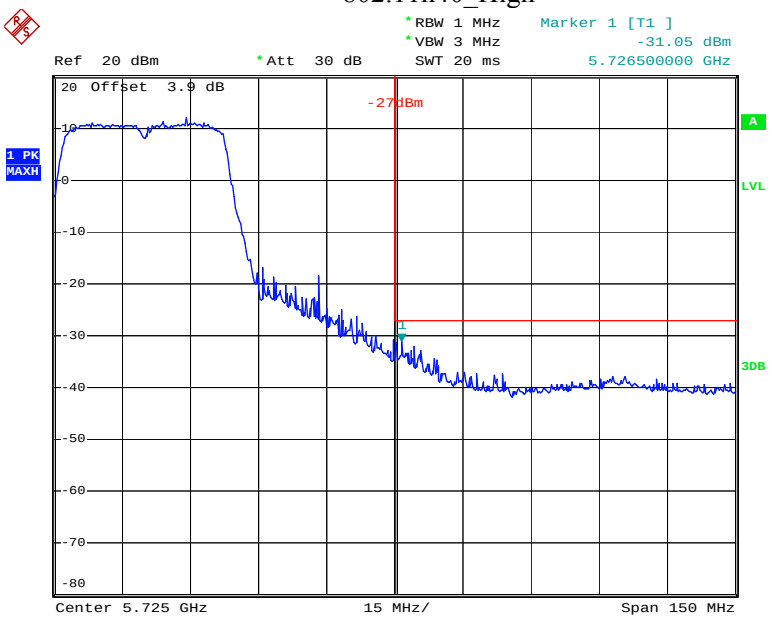
Date: 3.FEB.2018 13:54:02

802.11n40_Low



Date: 3.FEB.2018 14:02:58

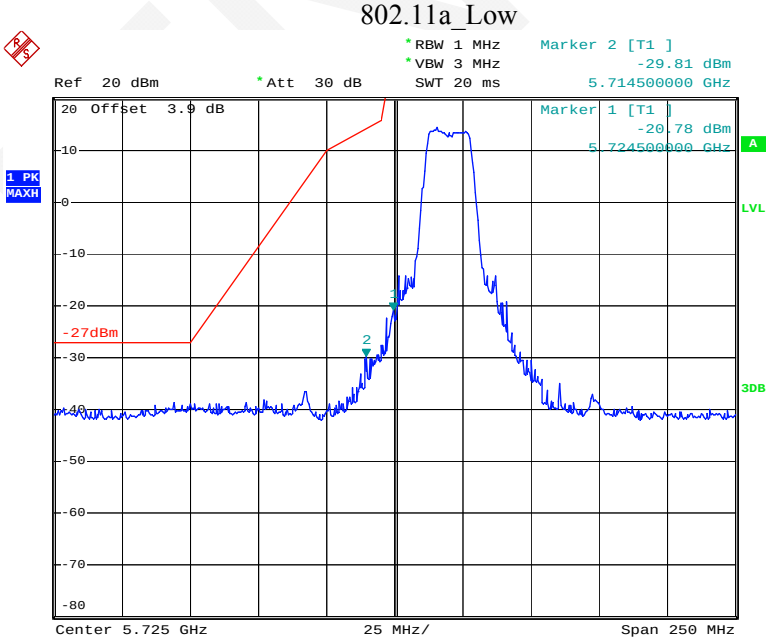
802.11n40_High



Date: 3.FEB.2018 16:40:30

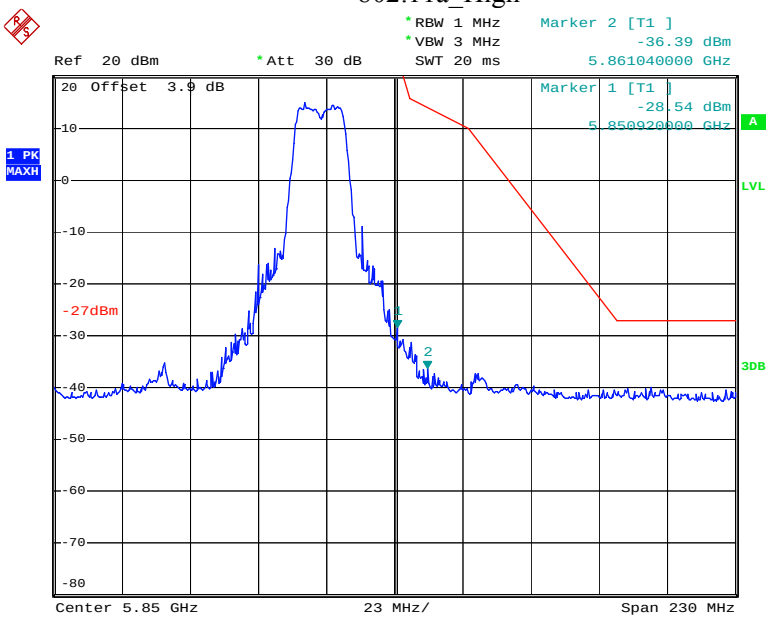
5725-5850MHz:

802.11a_Low



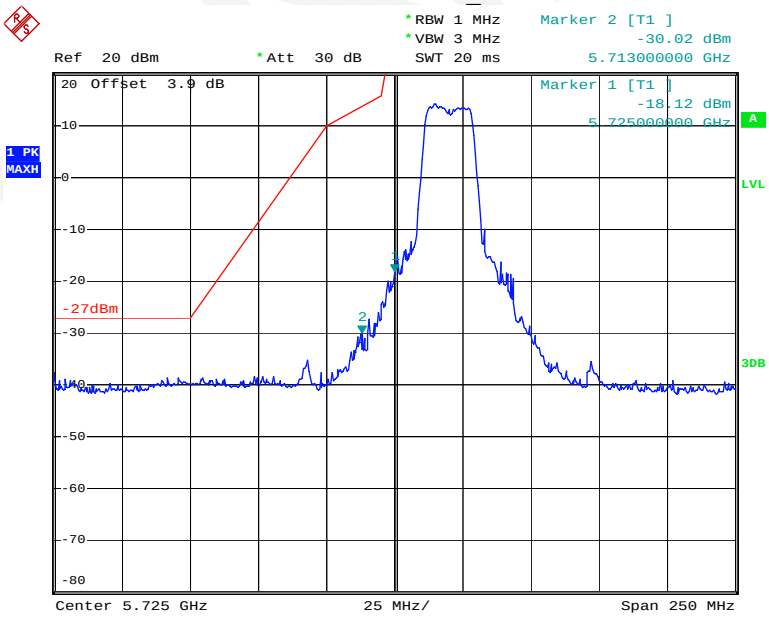
Date: 3.FEB.2018 14:18:47

802.11a_High



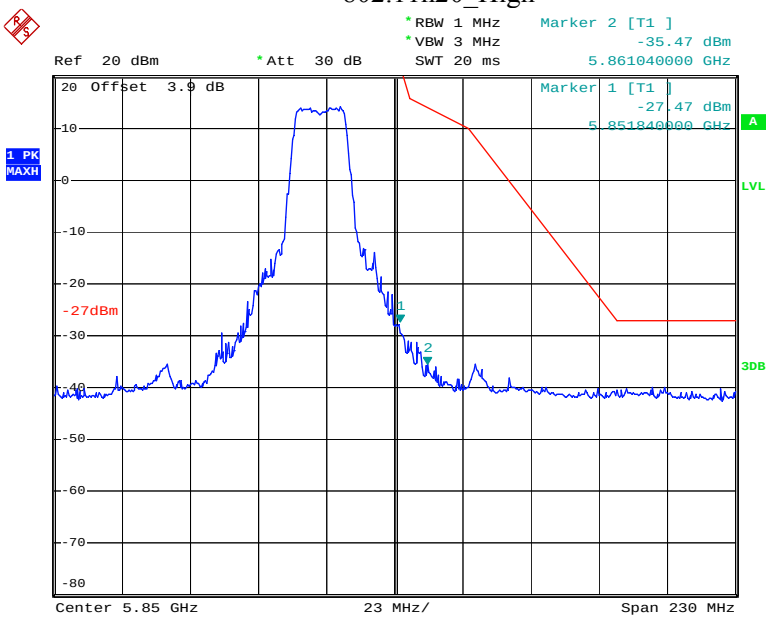
Date: 3.FEB.2018 14:32:45

802.11n20_Low



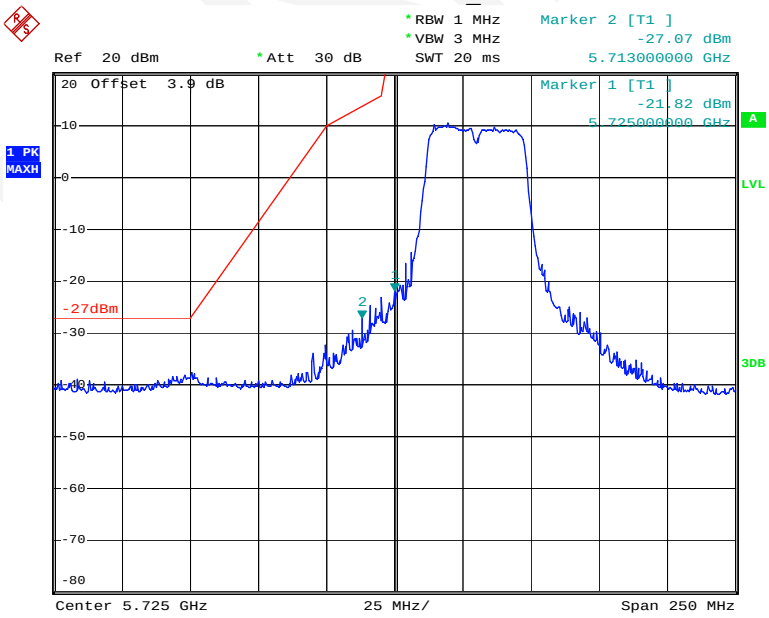
Date: 3.FEB.2018 14:22:20

802.11n20_High



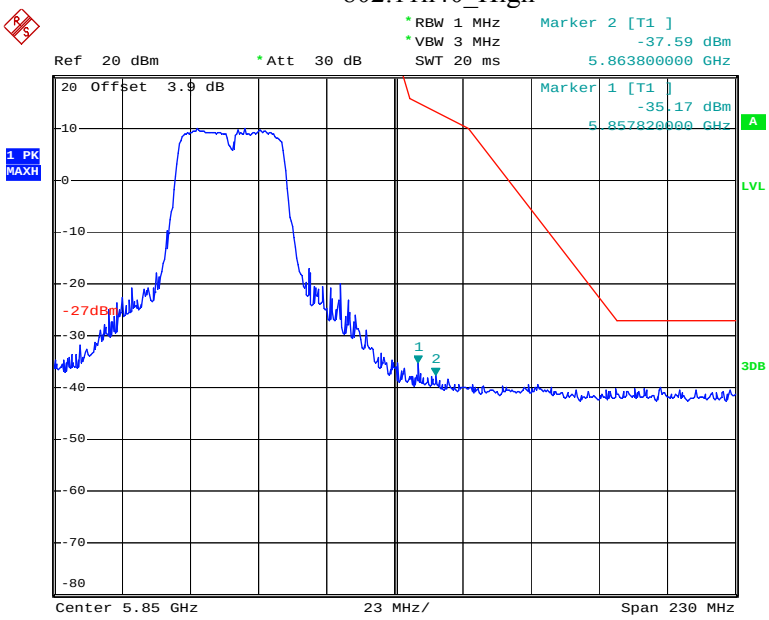
Date: 3.FEB.2018 14:35:59

802.11n40_Low



Date: 3.FEB.2018 16:43:57

802.11n40_High



Date: 3.FEB.2018 16:47:04

EMISSION BANDWIDTH AND OCCUPIED BANDWIDTH

Applicable Standard

15.407(a) (e), RSS-247 §6.2 and RSS-Gen §6.6.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Test Data

Environmental Conditions

Temperature:	20.7 ~ 26.5 °C
Relative Humidity:	28 ~ 61 %
ATM Pressure:	100.6 ~ 102.1 kPa

** The testing was performed by George Pang from 2018-02-03 to 2018-04-01.*

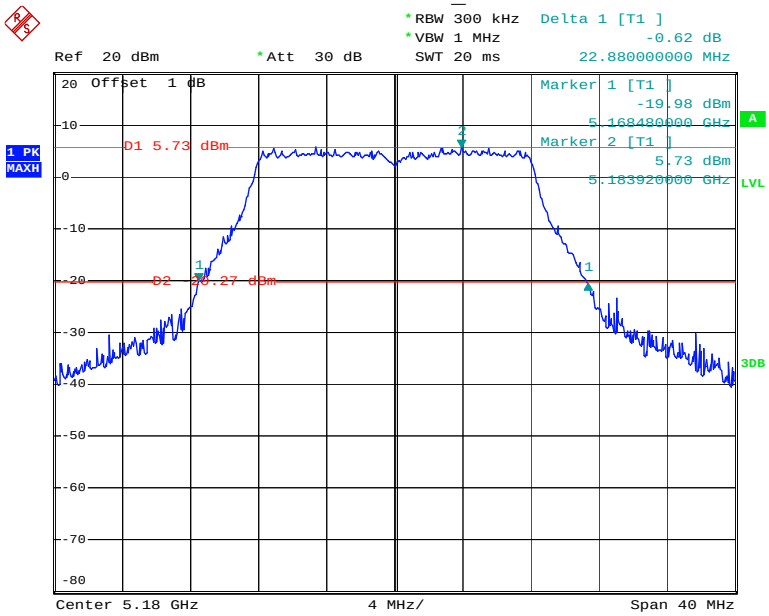
Please refer to following table and plots:

UNII Band	Mode	Channel	Frequency (MHz)	26 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
5150-5250MHz	802.11a	Low	5180	22.88	17.44
		Middle	5200	22.96	17.36
		High	5240	22.96	17.28
	802.11n20	Low	5180	23.04	18.24
		Middle	5200	24.08	18.32
		High	5240	22.80	18.32
	802.11n40	Low	5190	44.00	37.12
		High	5230	43.04	37.12
5250-5350MHz	802.11a	Low	5260	22.72	17.28
		Middle	5280	22.56	17.36
		High	5320	22.80	17.36
	802.11n20	Low	5260	23.12	18.24
		Middle	5280	23.04	18.32
		High	5320	23.20	18.32
	802.11n40	Low	5270	43.36	37.12
		High	5310	43.52	37.12
5470-5725MHz	802.11a	Low	5500	22.80	17.36
		Middle	5580	22.88	17.28
		High	5700	22.64	17.36
	802.11n20	Low	5500	23.04	18.32
		Middle	5580	23.36	18.32
		High	5700	23.20	18.32
	802.11n40	Low	5510	43.68	37.28
		Middle	5550	43.20	37.28
		High	5670	43.04	37.12

UNII Band	Mode	Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Limits (MHz)
5725-5850MHz	802.11a	Low	5745	16.48	17.36	≥0.5
		Middle	5785	16.56	17.36	≥0.5
		High	5825	16.48	17.36	≥0.5
	802.11n20	Low	5745	17.68	18.40	≥0.5
		Middle	5785	17.76	18.40	≥0.5
		High	5825	17.68	18.24	≥0.5
	802.11n40	Low	5755	35.52	37.28	≥0.5
		High	5795	35.52	37.28	≥0.5

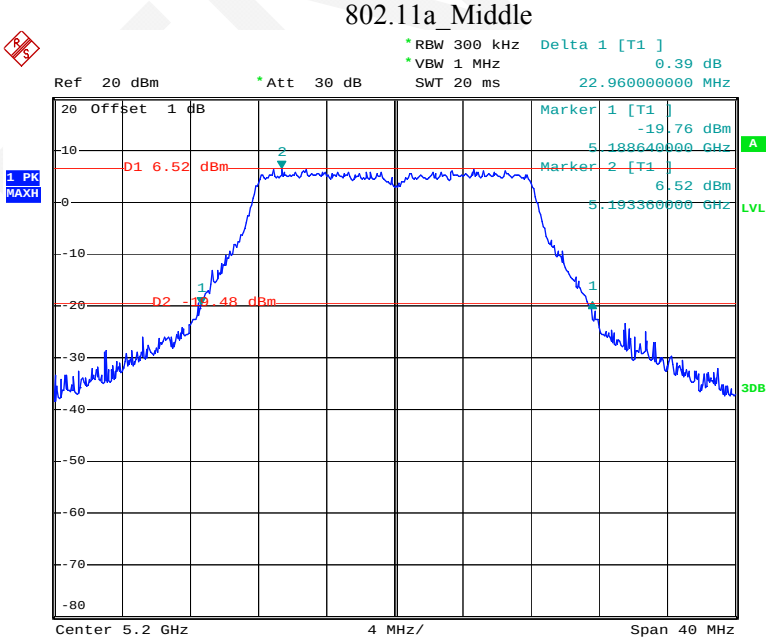
5150-5250MHz: 26dB Emission Bandwidth:

802.11a_Low



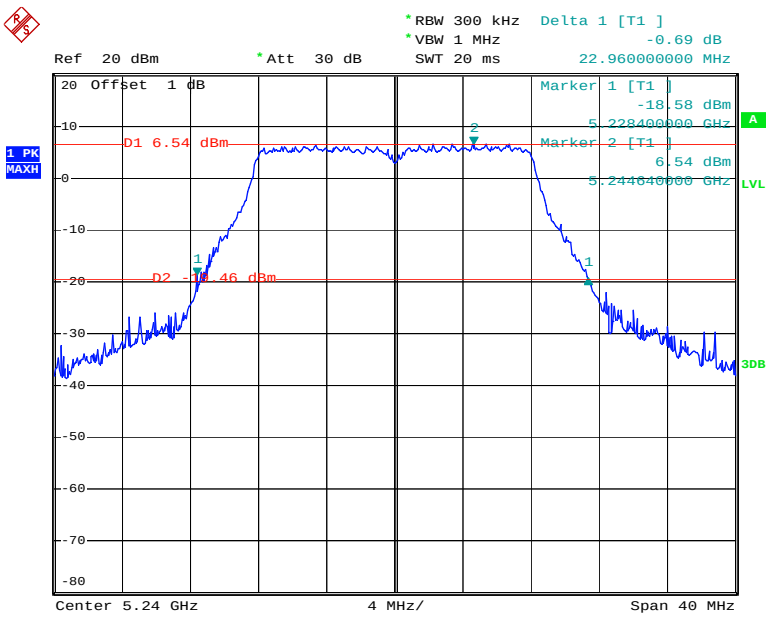
Date: 28.MAR.2018 21:18:19

802.11a_Middle



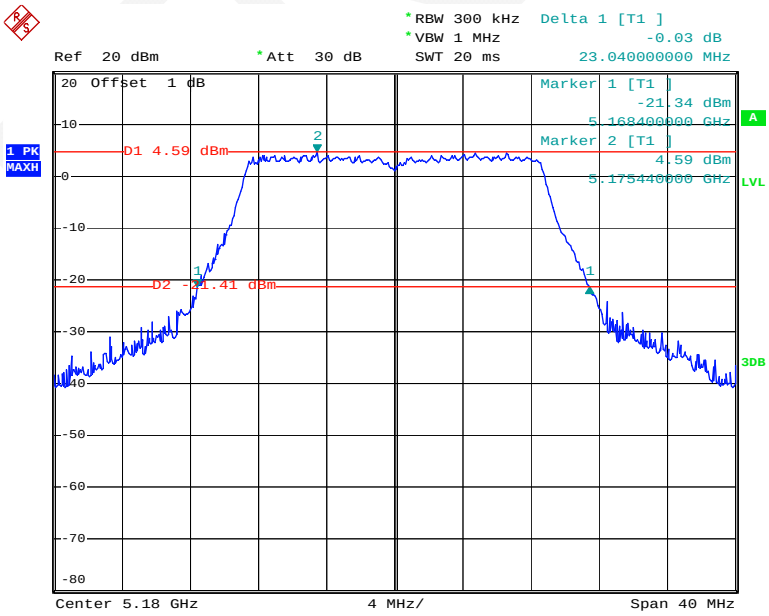
Date: 28.MAR.2018 21:20:26

802.11a_High



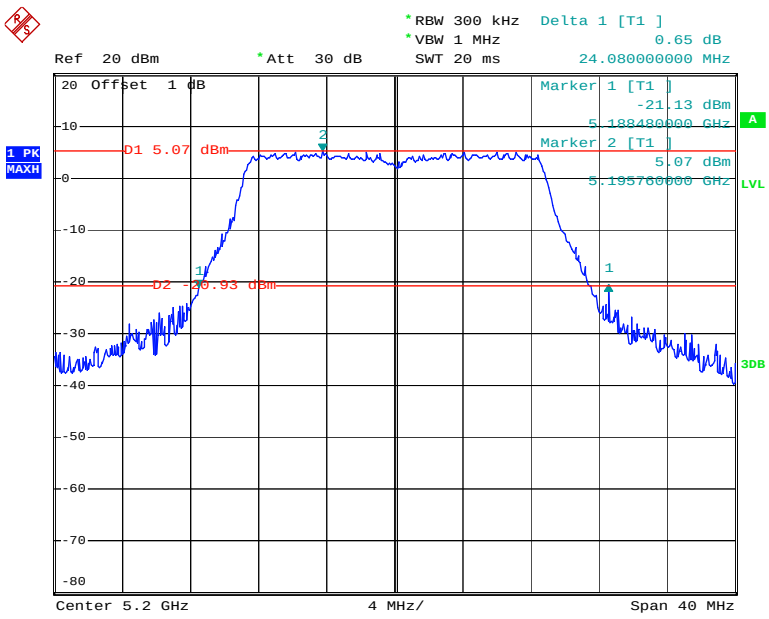
Date: 28.MAR.2018 21:27:26

802.11n20_Low



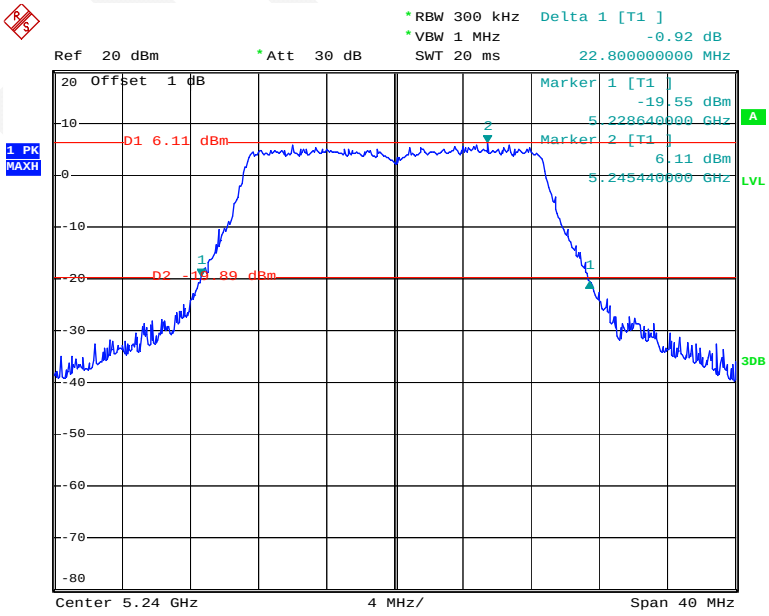
Date: 1.APR.2018 17:14:39

802.11n20_Middle



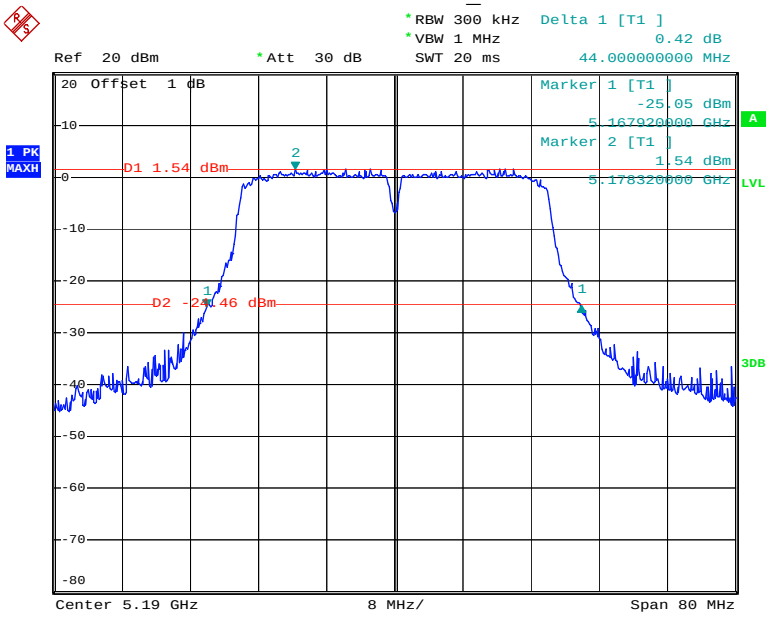
Date: 1.APR.2018 17:16:21

802.11n20_High



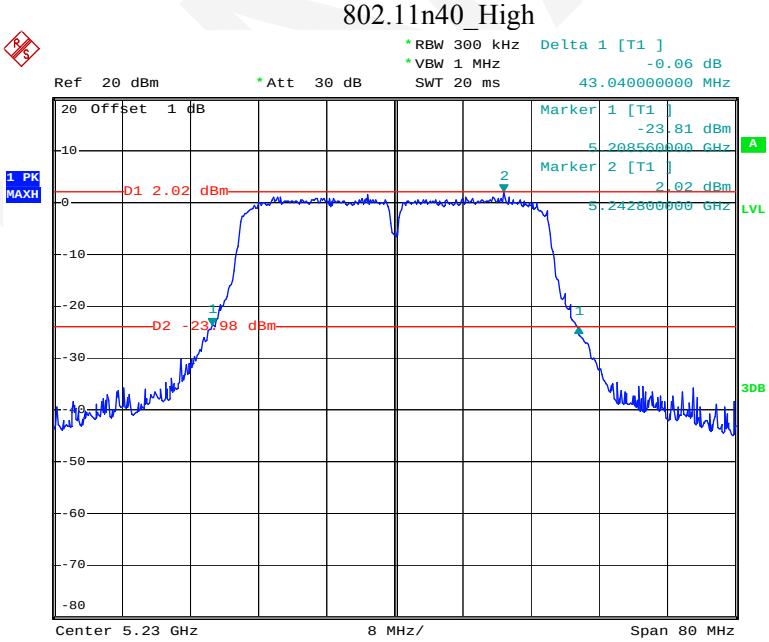
Date: 1.APR.2018 17:13:00

802.11n40_Low



Date: 3.FEB.2018 11:41:20

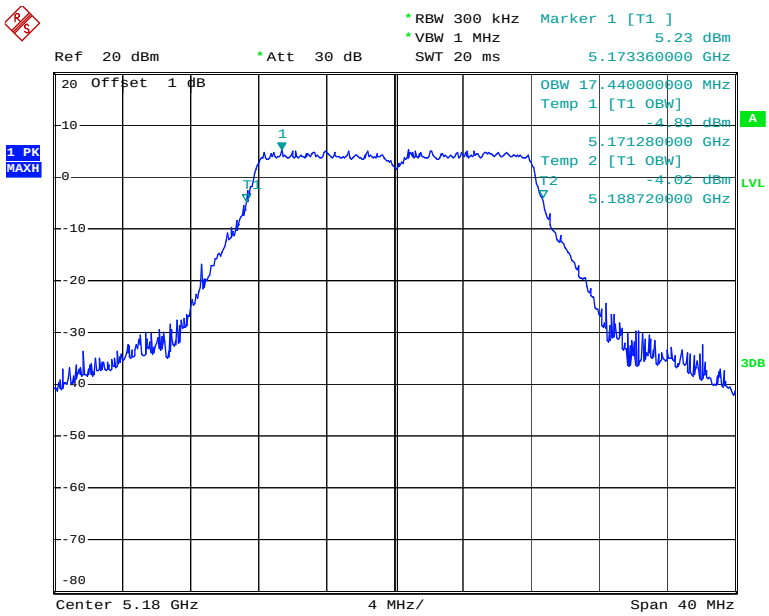
802.11n40_High



Date: 3.FEB.2018 16:29:41

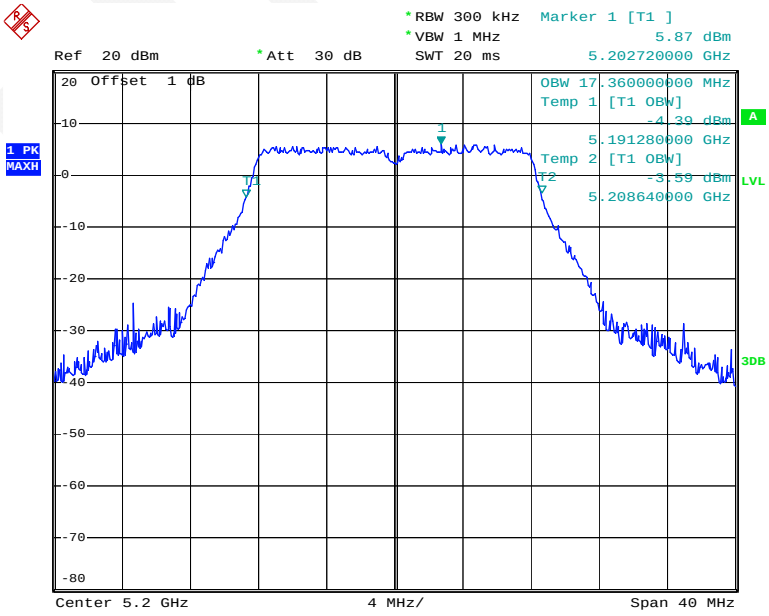
99% Occupied Bandwidth

802.11a_Low



Date: 28.MAR.2018 21:18:34

802.11a_Middle



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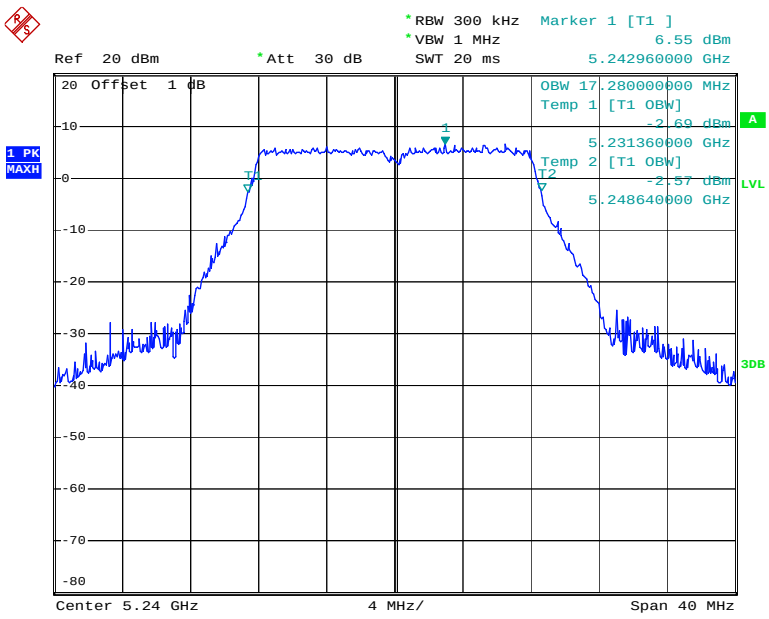
802.11a_High



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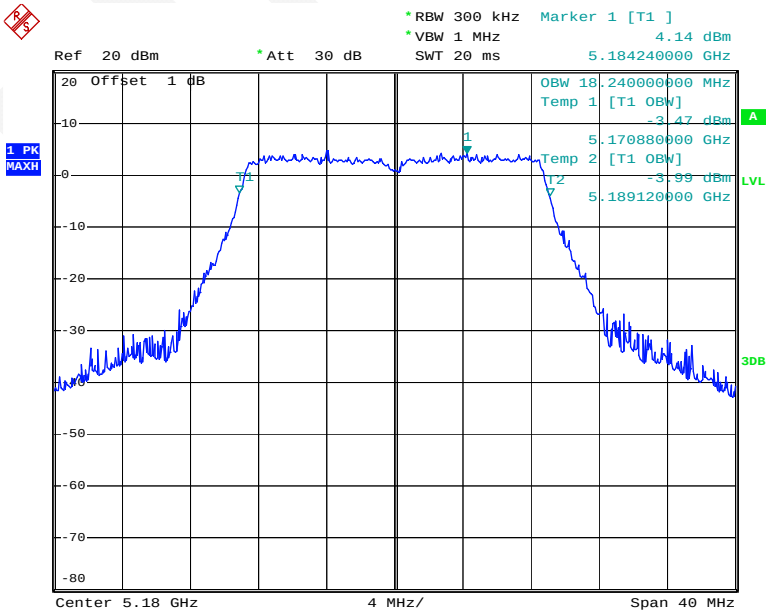
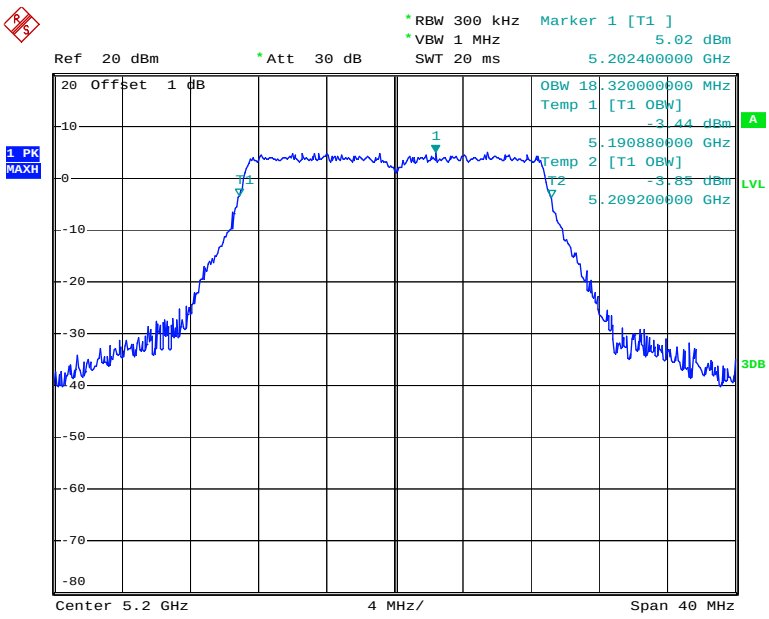
802.11n20_Low



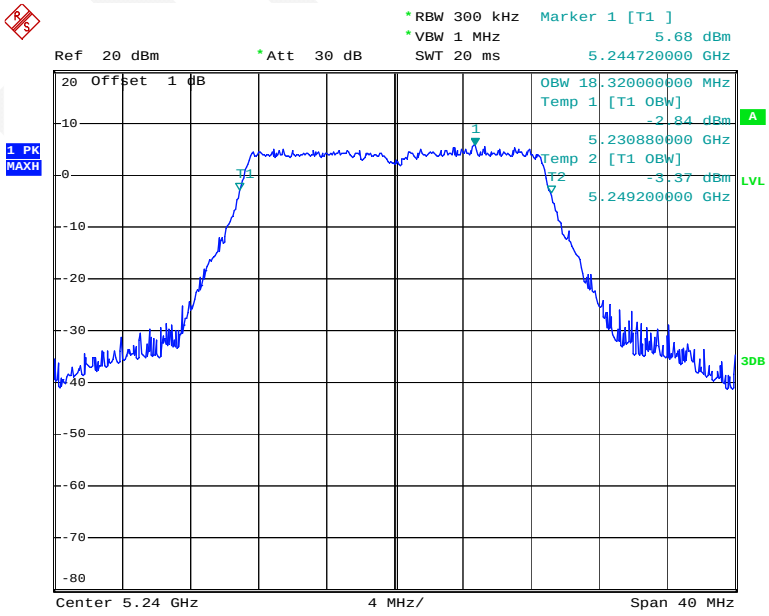
Date: 1.APR.2018 17:14:52

802.11n20_Middle



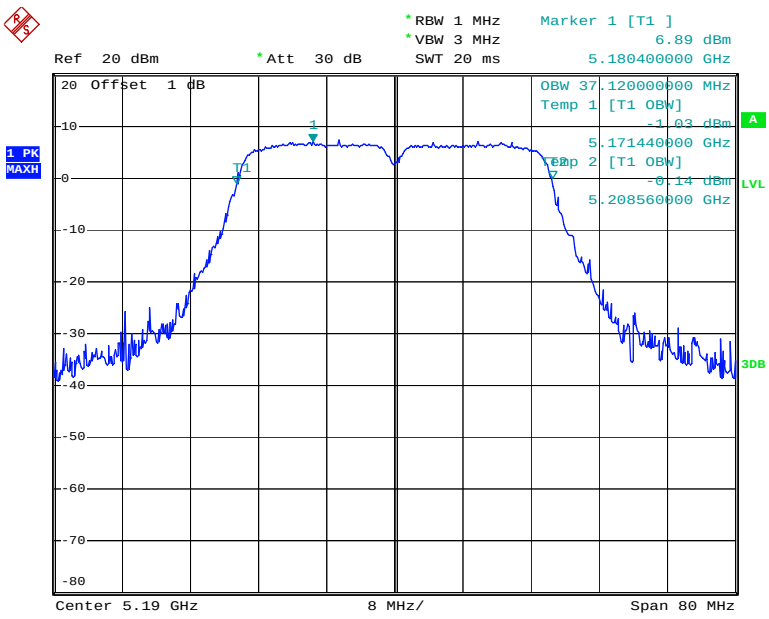
Date: 1.APR.2018 17:16:37

802.11n20_High



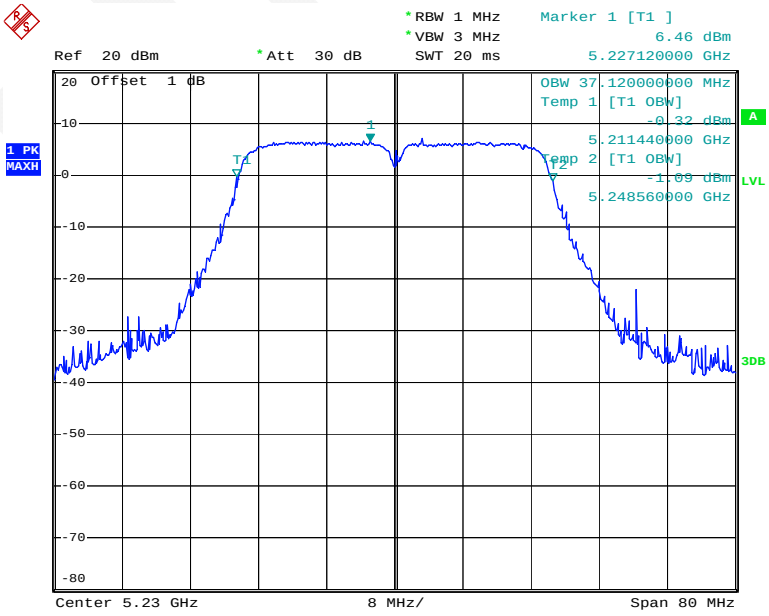
Date: 1.APR.2018 17:13:13

802.11n40_Low



Date: 3.FEB.2018 11:41:37

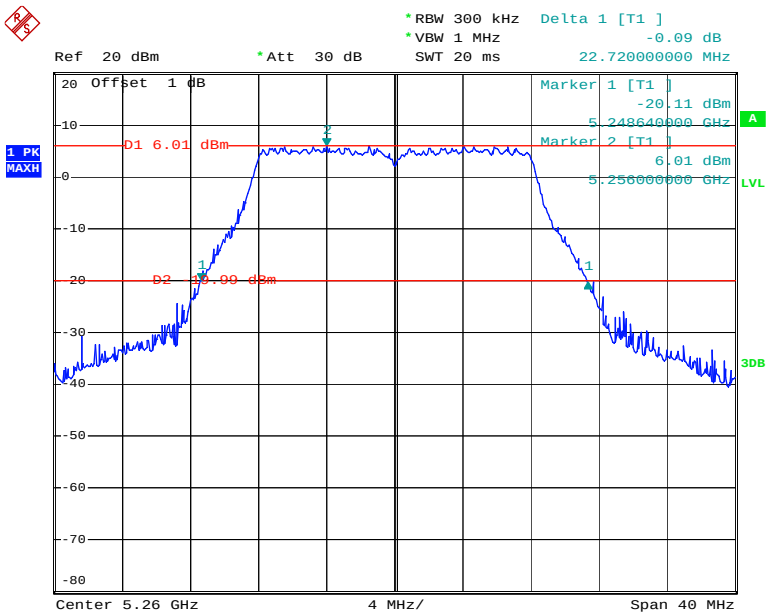
802.11n40_High



Date: 3.FEB.2018 16:29:57

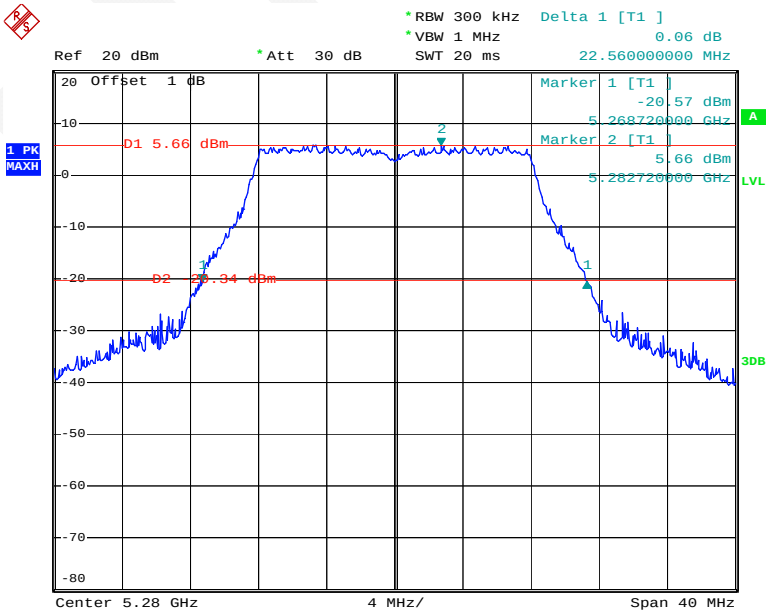
5250-5350MHz: 26dB Emission Bandwidth:

802.11a_Low



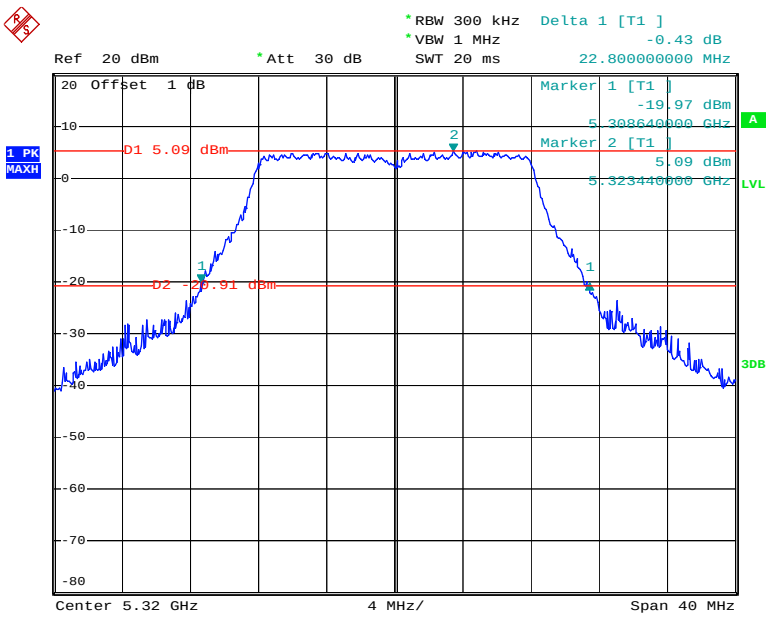
Date: 28.MAR.2018 21:29:47

802.11a_Middle



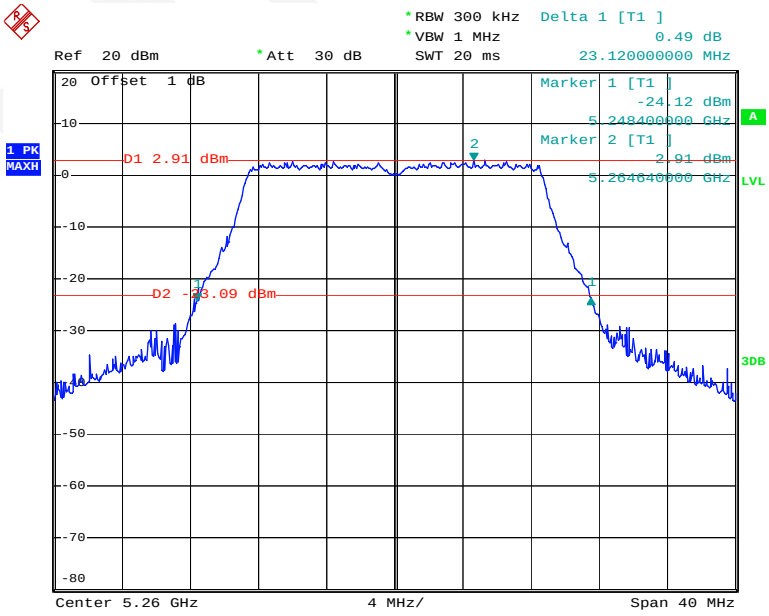
Date: 28.MAR.2018 21:31:50

802.11a_High



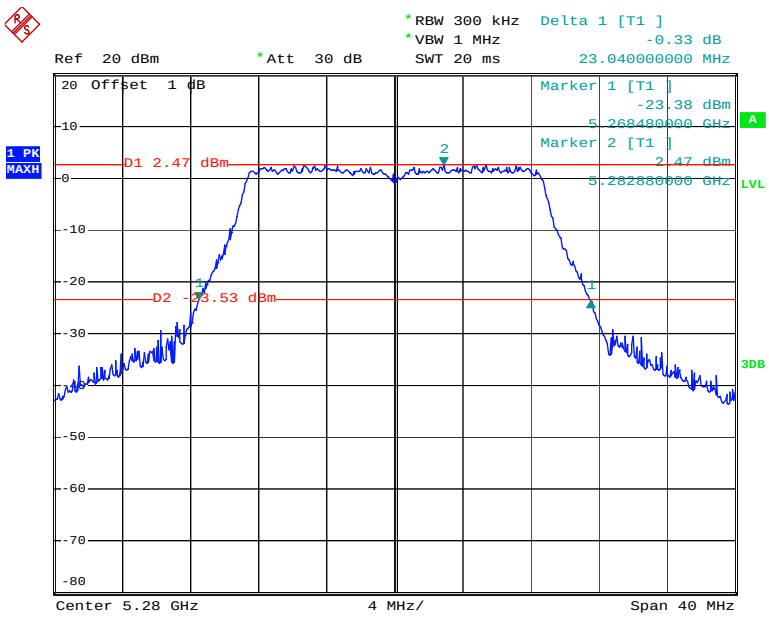
Date: 28.MAR.2018 21:33:25

802.11n20_Low



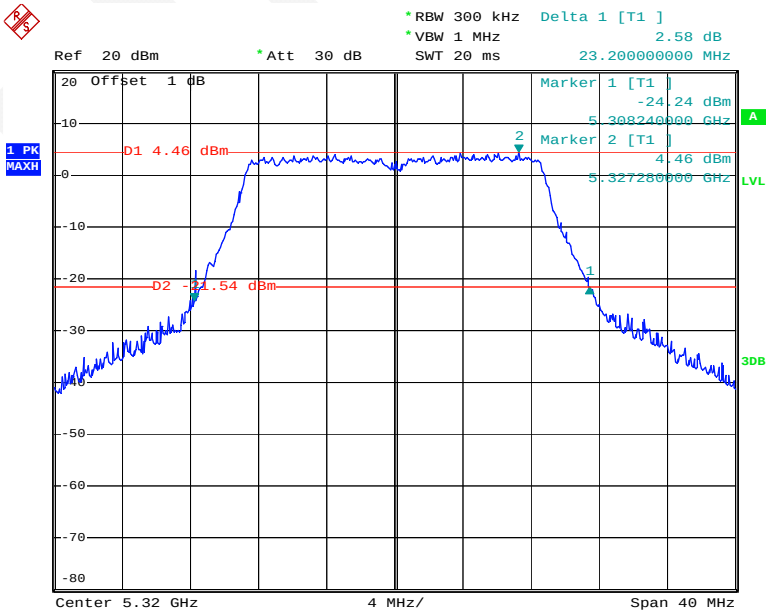
Date: 1.APR.2018 17:21:05

802.11n20_Middle



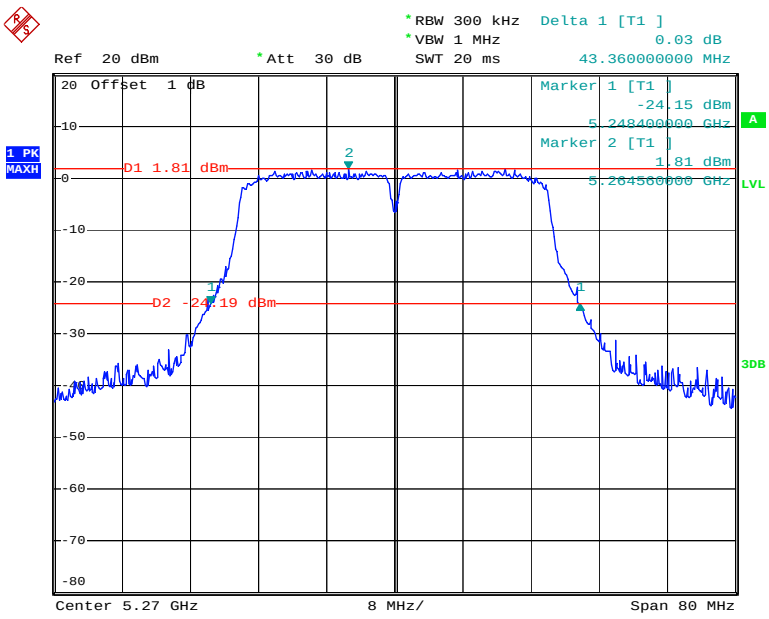
Date: 1.APR.2018 17:19:43

802.11n20_High



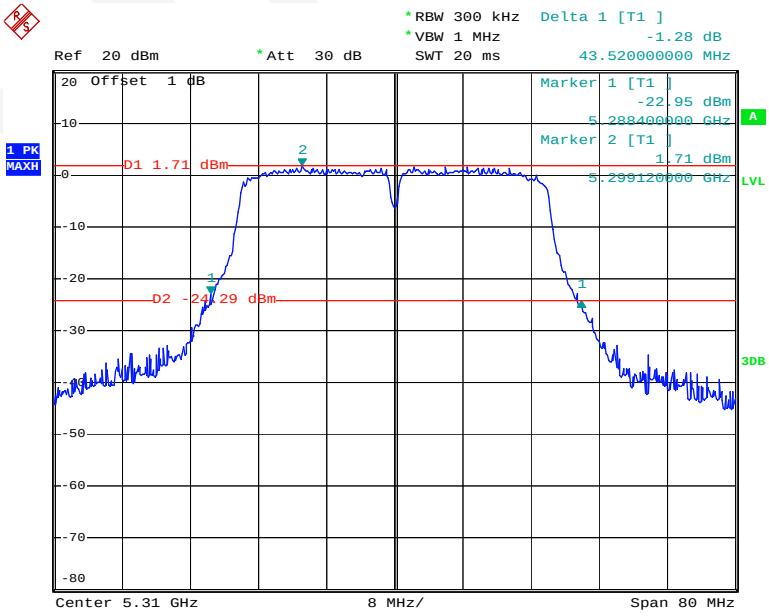
Date: 1.APR.2018 17:18:14

802.11n40_Low



Date: 3.FEB.2018 16:32:34

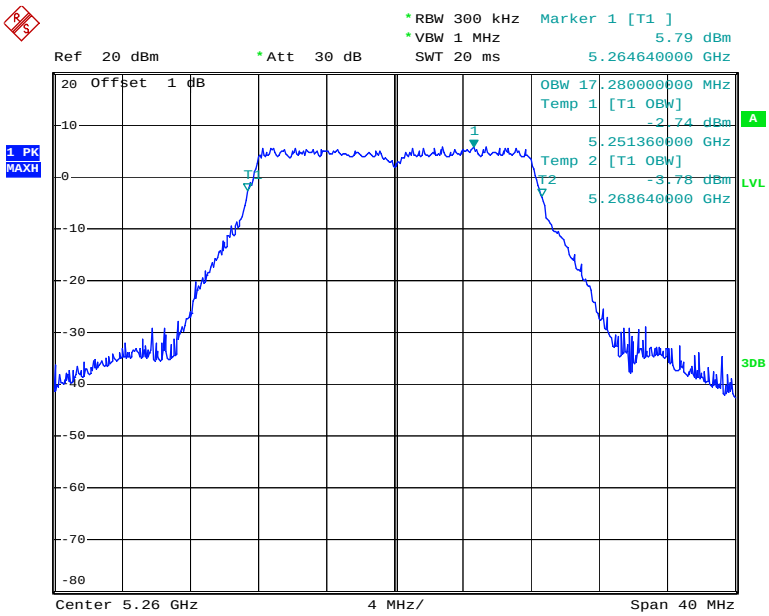
802.11n40_High



Date: 3.FEB.2018 13:22:15

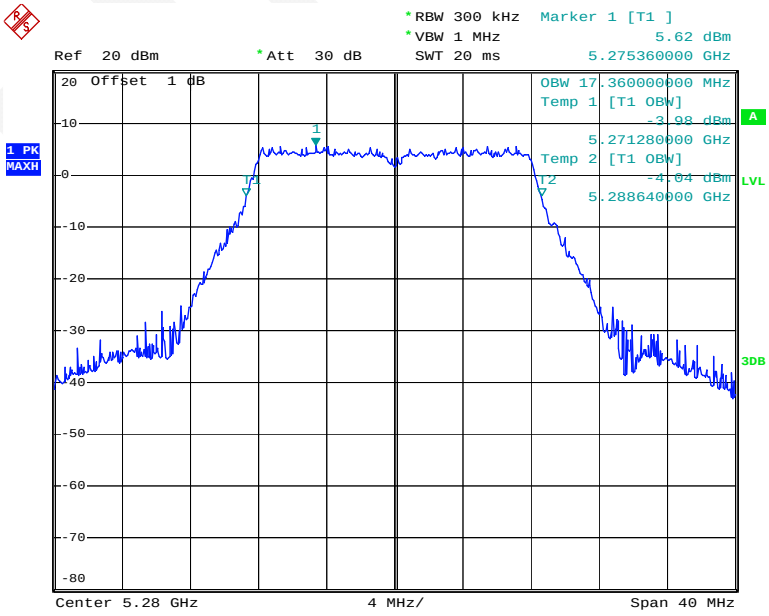
99% Occupied Bandwidth

802.11a_Low



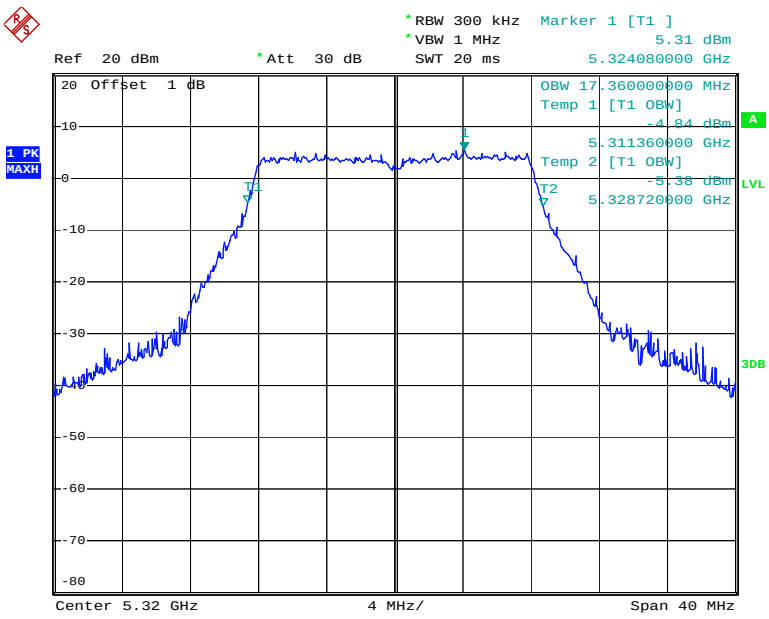
Date: 28.MAR.2018 21:30:02

802.11a_Middle



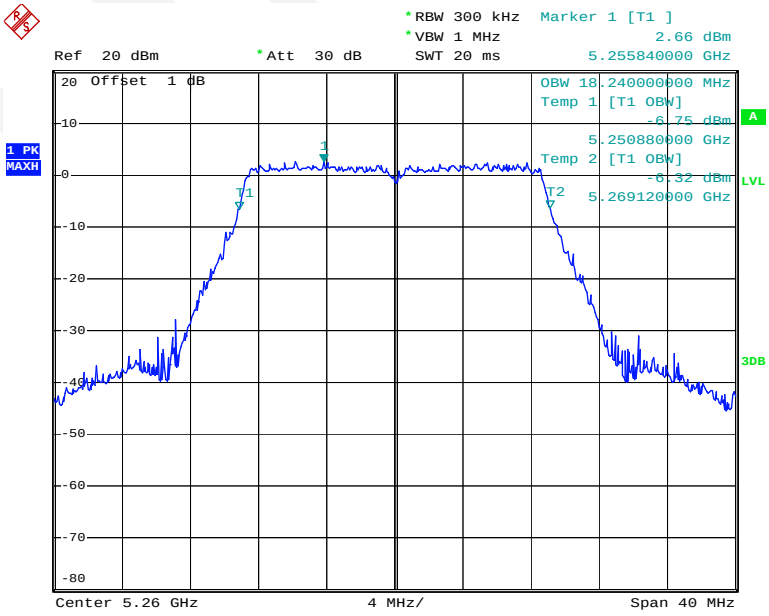
Date: 28.MAR.2018 21:32:05

802.11a_High



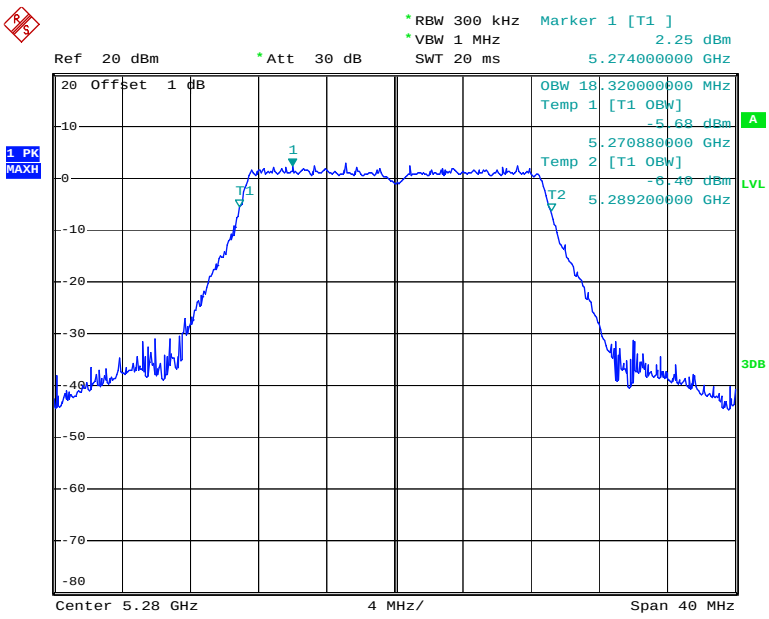
Date: 28.MAR.2018 21:33:40

802.11n20_Low



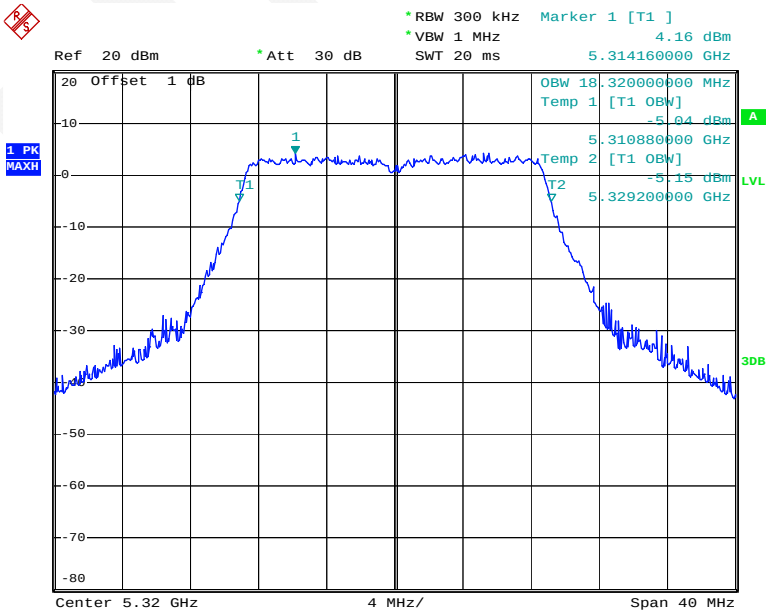
Date: 1.APR.2018 17:21:20

802.11n20_Middle



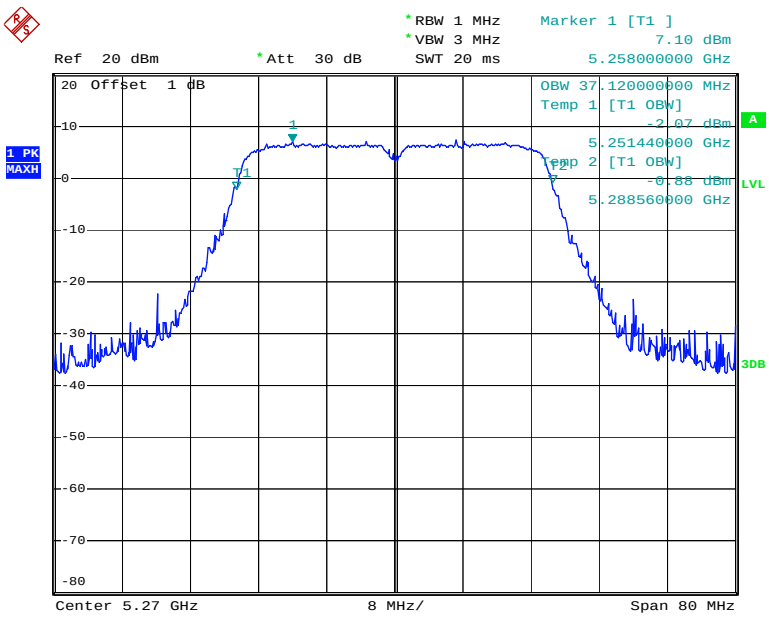
Date: 1.APR.2018 17:19:58

802.11n20_High



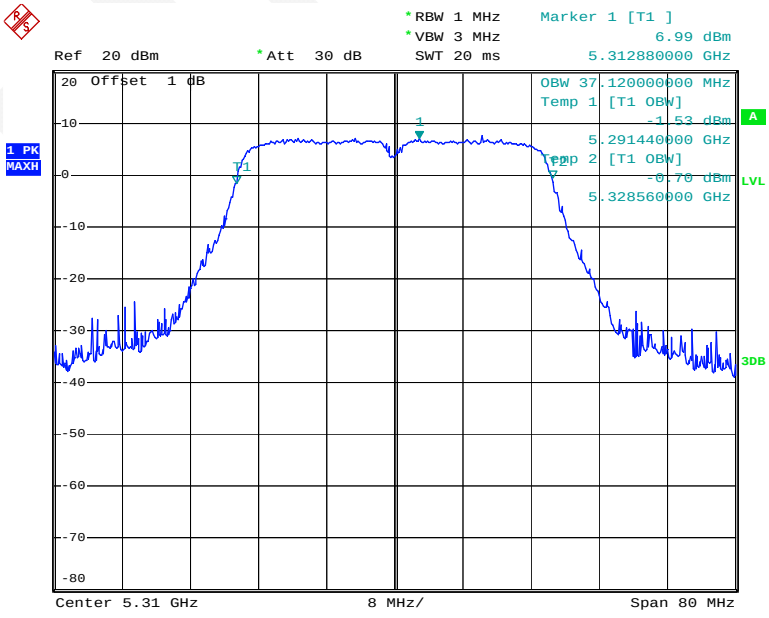
Date: 1.APR.2018 17:18:29

802.11n40_Low



Date: 3.FEB.2018 16:32:52

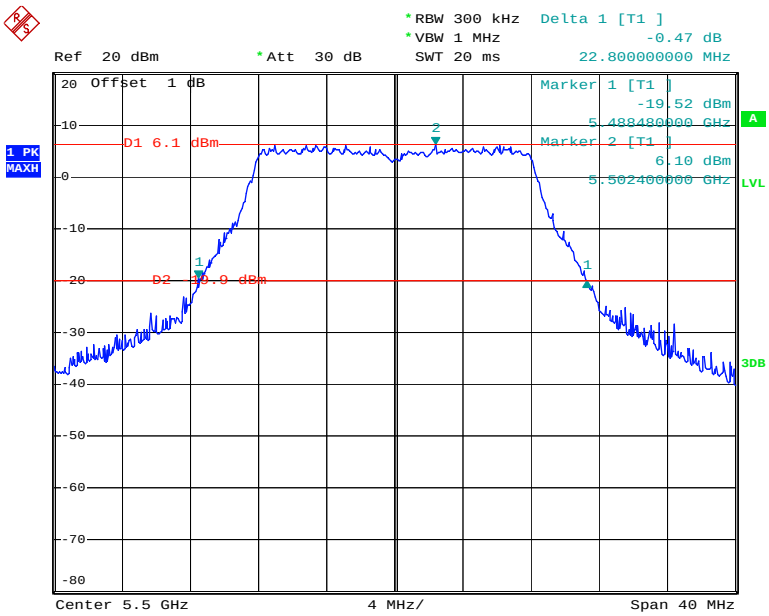
802.11n40_High



Date: 3.FEB.2018 13:22:31

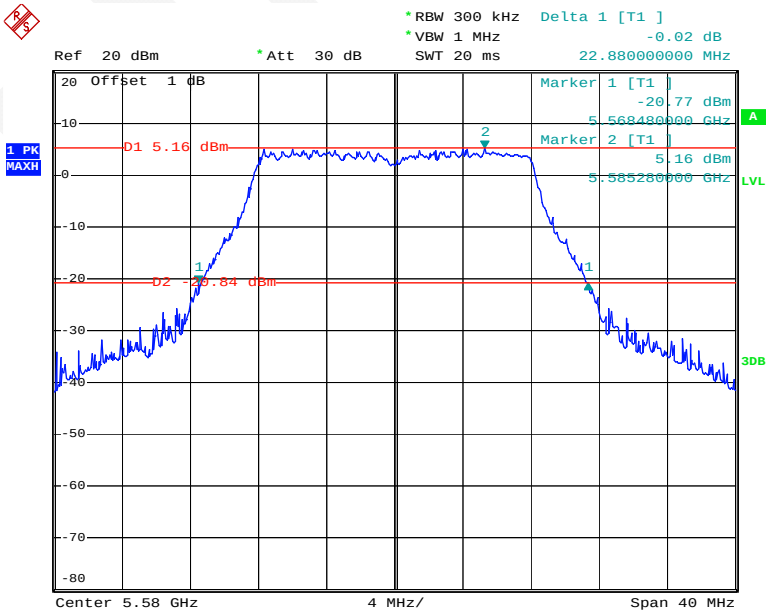
5475-5725MHz: 26dB Emission Bandwidth:

802.11a_Low



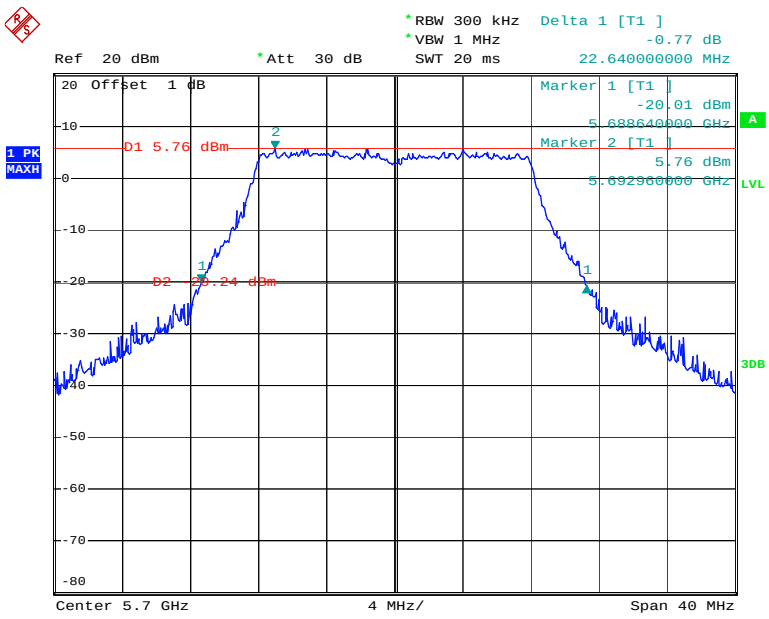
Date: 28.MAR.2018 21:35:39

802.11a_Middle



Date: 28.MAR.2018 21:38:06

802.11a_High



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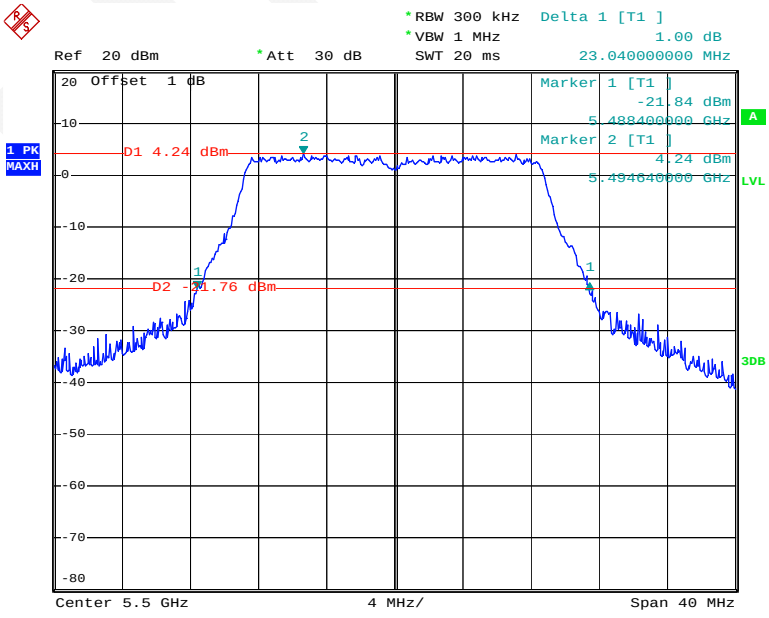

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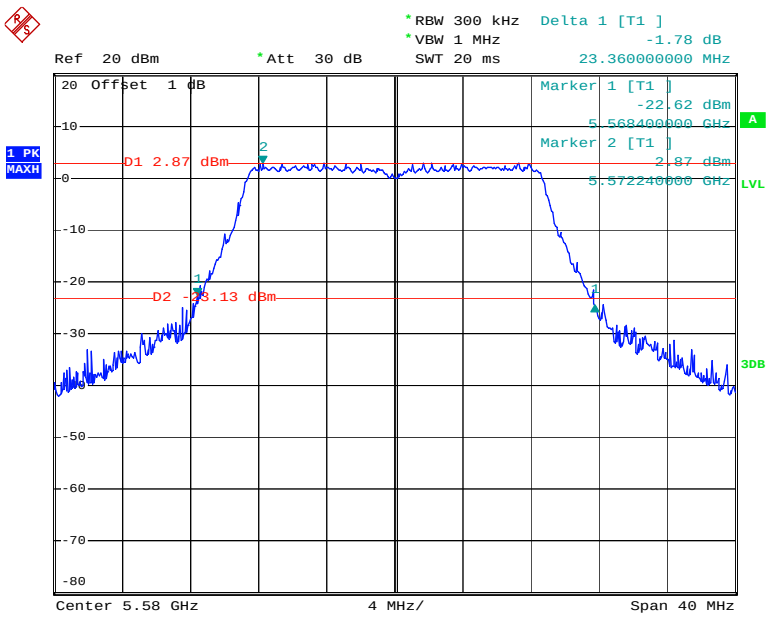

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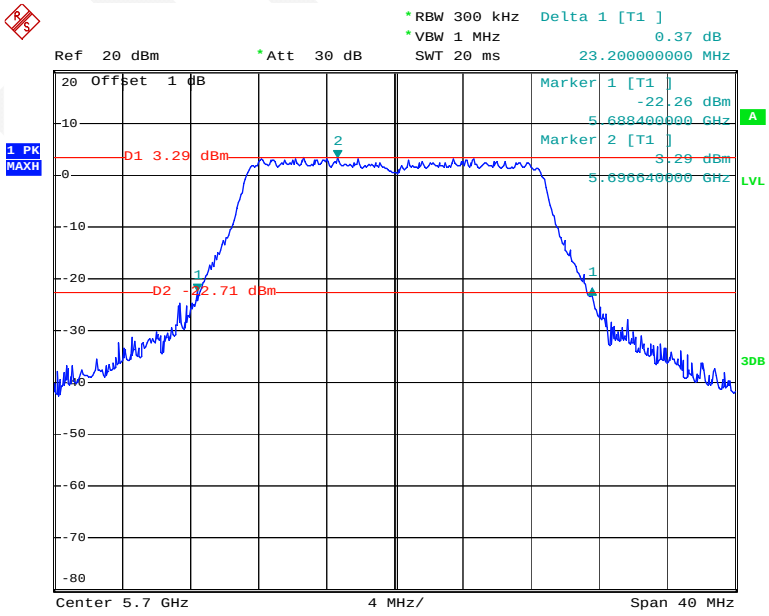

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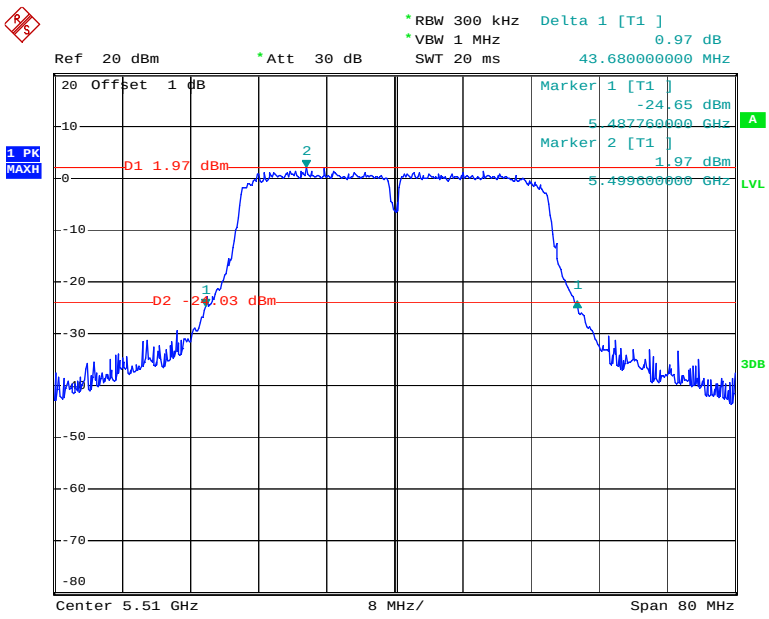

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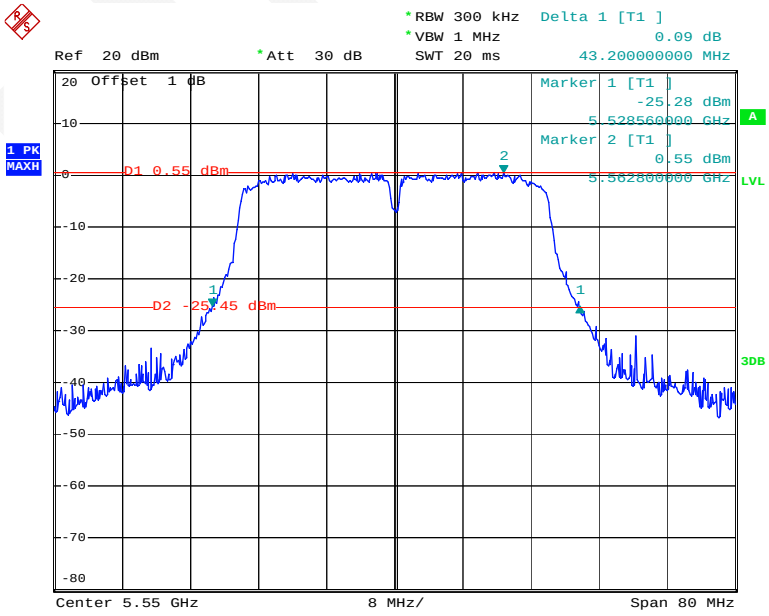

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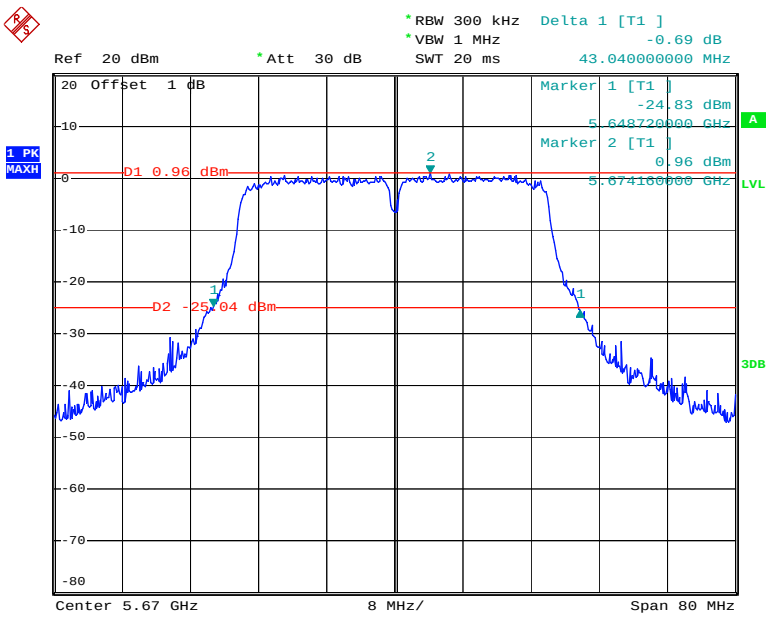
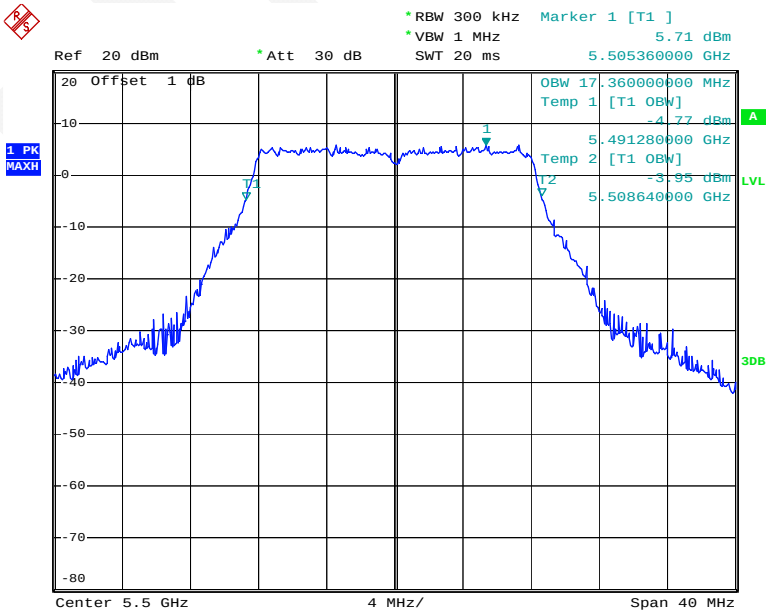


Date: 1.APR.2018 17:28:34

99% Occupied Bandwidth

802.11a_Low



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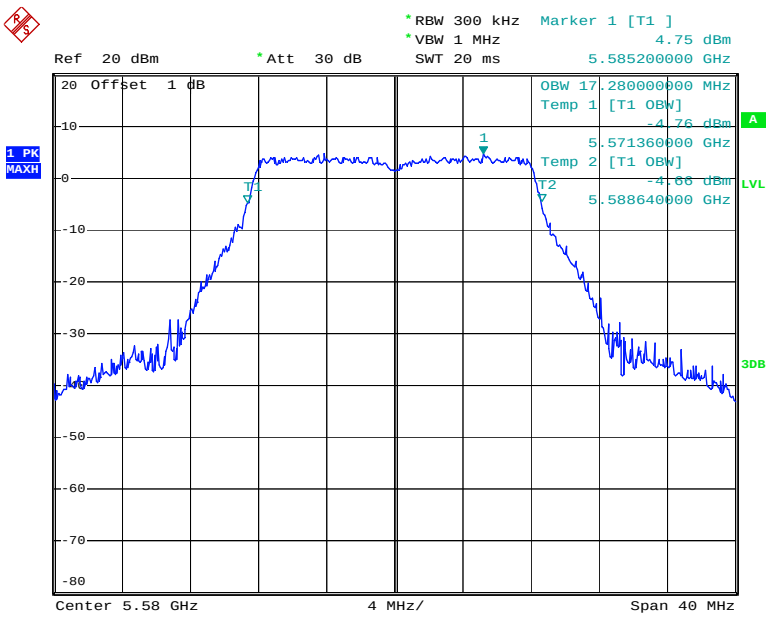

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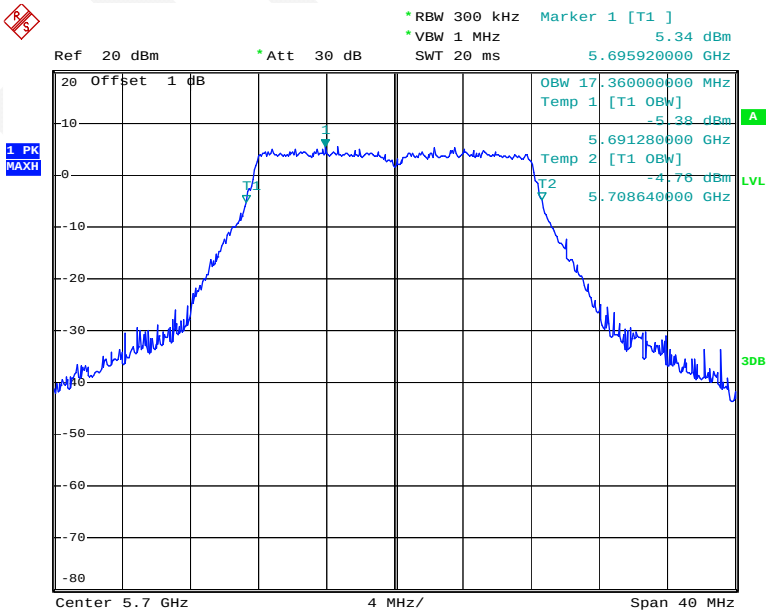

Date: 28.MAR.2018 21:43:17

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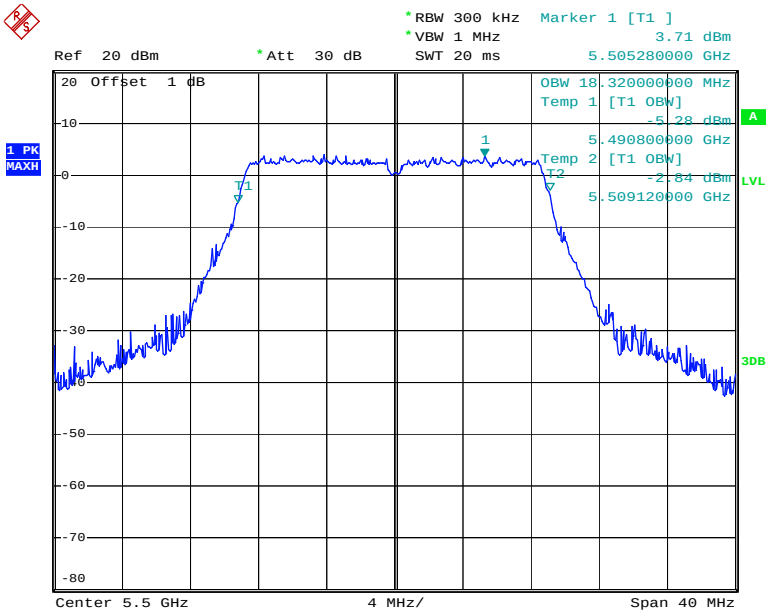

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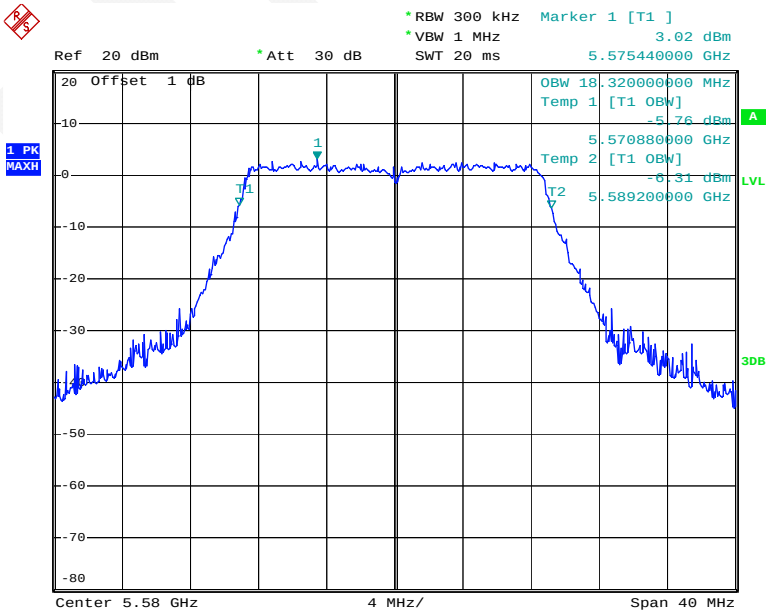

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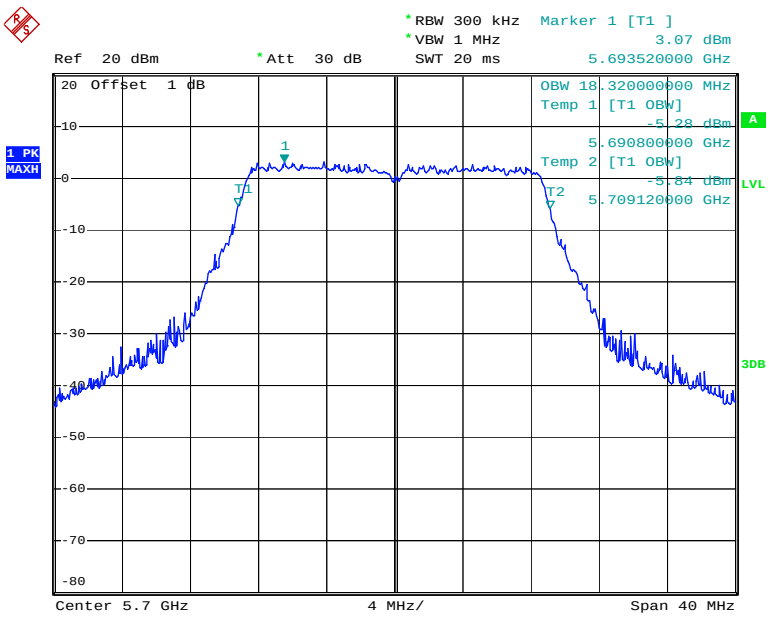

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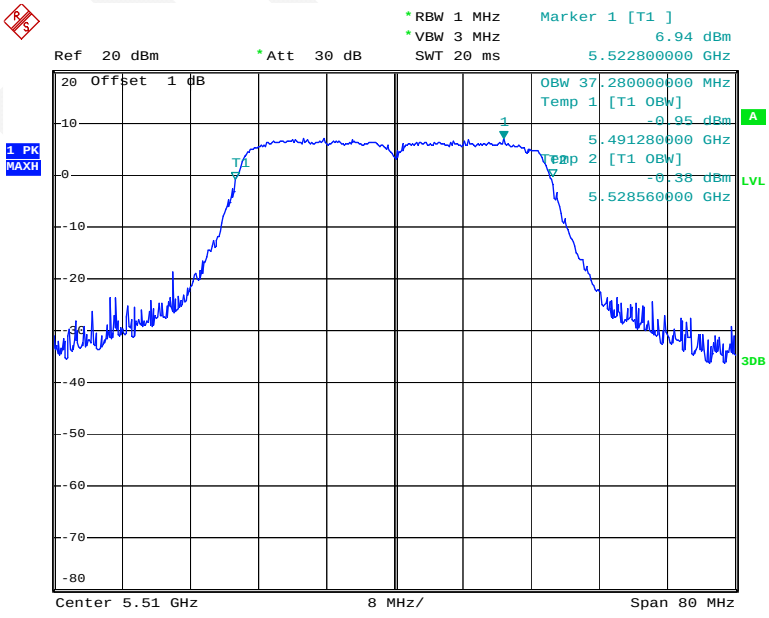

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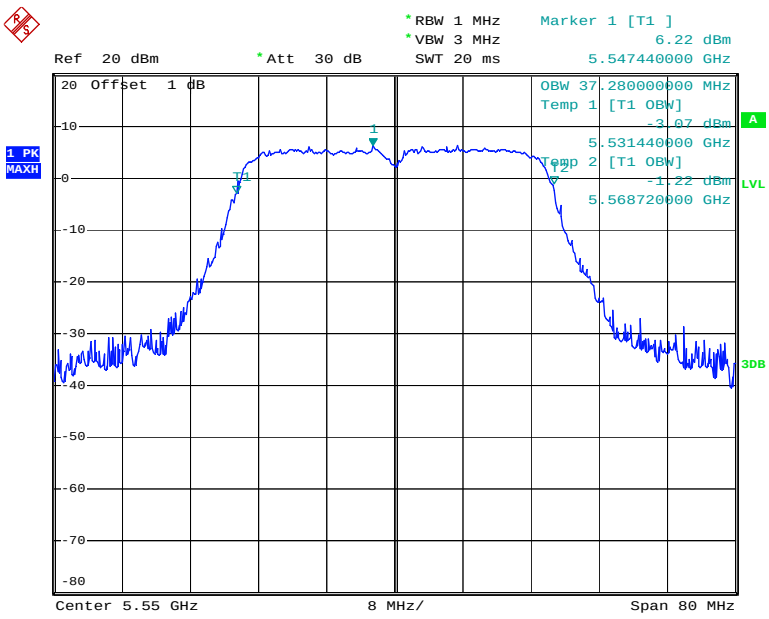

Date: 1.APR.2018 17:30:40

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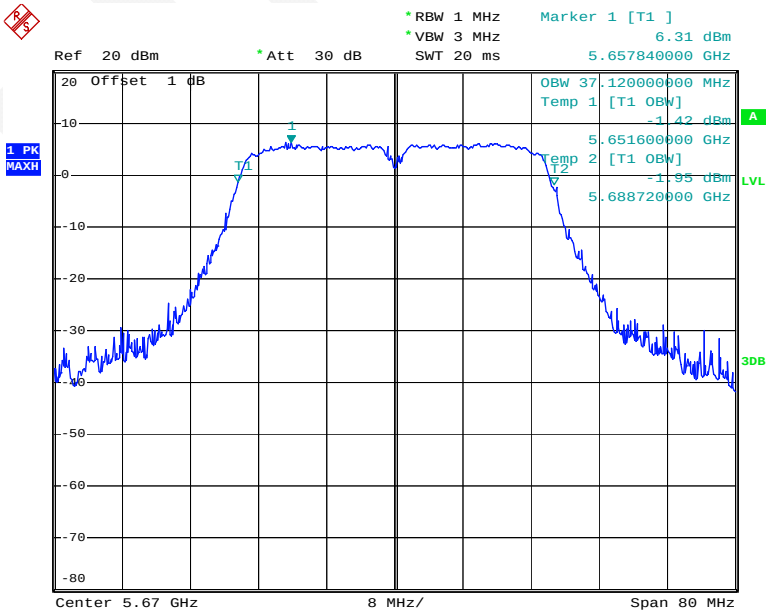
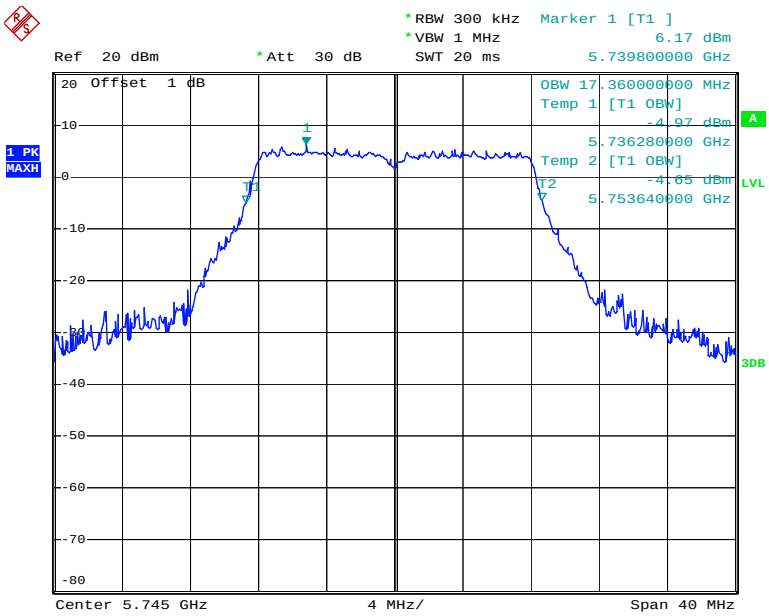


Date: 1.APR.2018 17:28:48

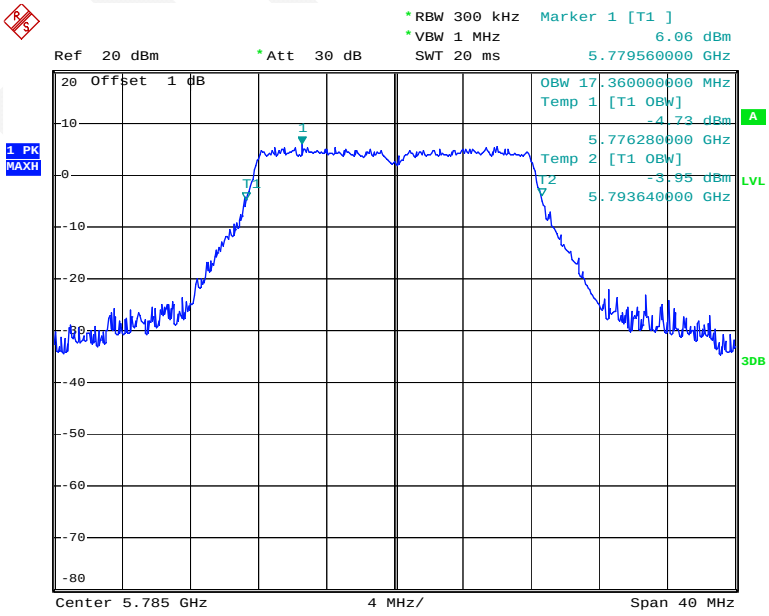
5725-5850MHz, 99% Occupied Bandwidth

802.11a_Low



Date: 3.FEB.2018 14:17:48

802.11a_Middle



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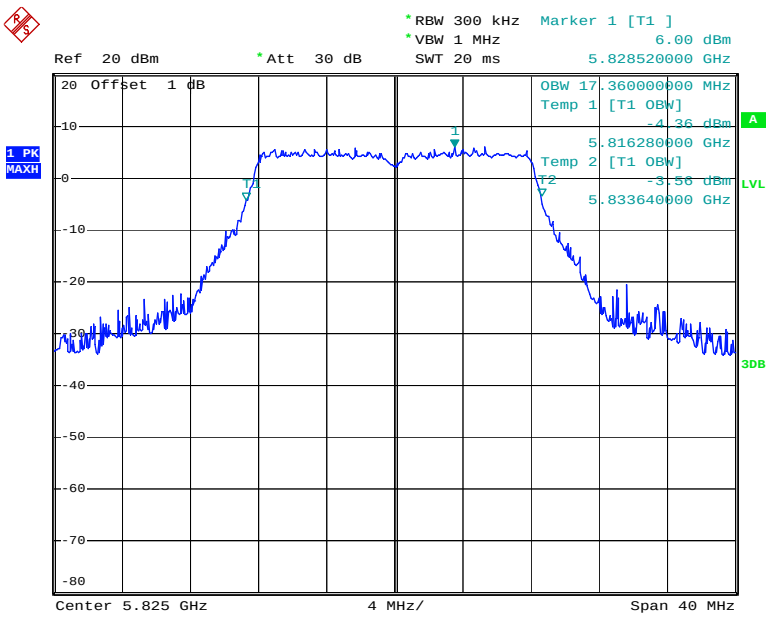

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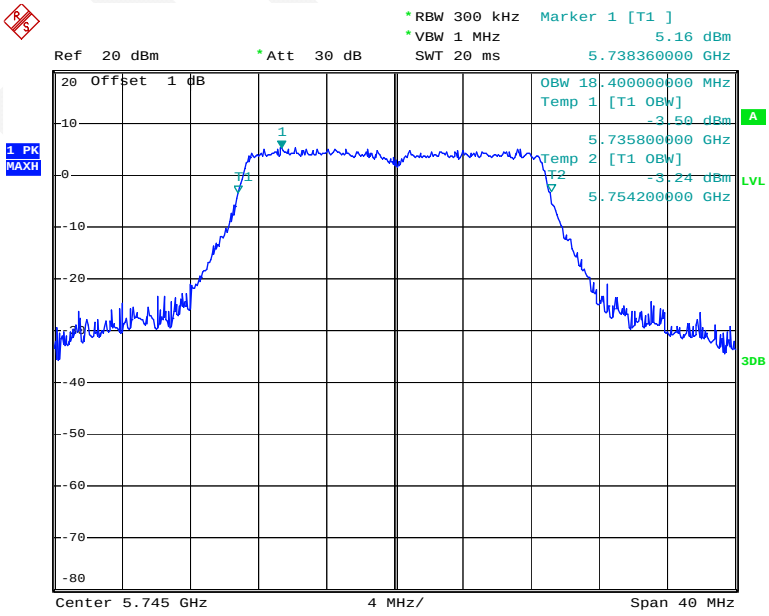

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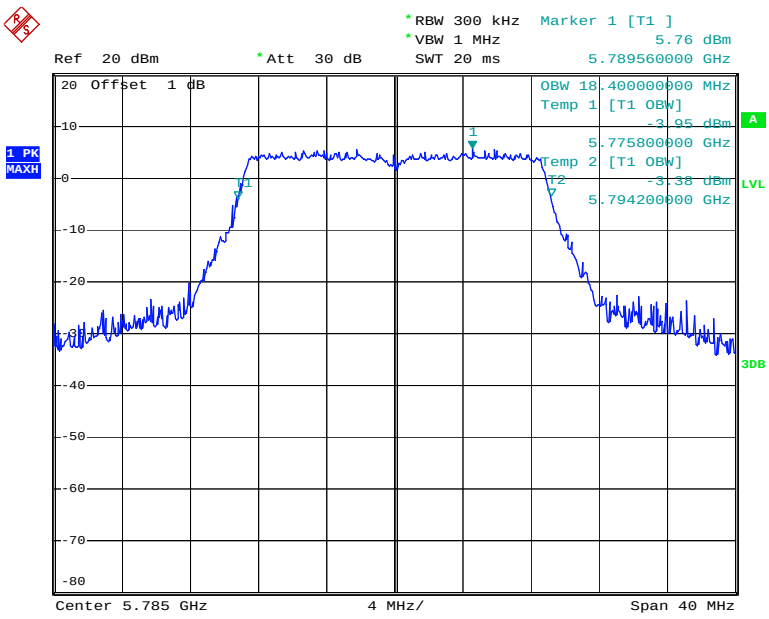
802.11n20_Middle



Date: 3.FEB.2018 14:28:16

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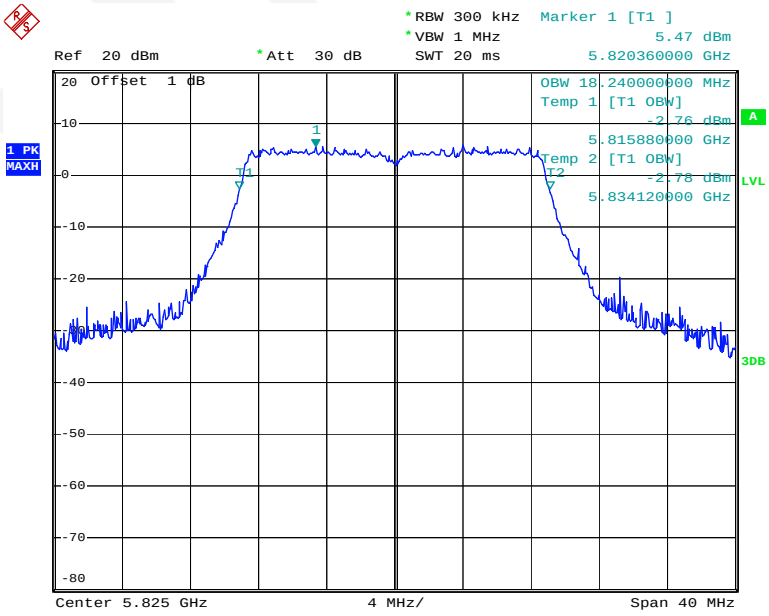
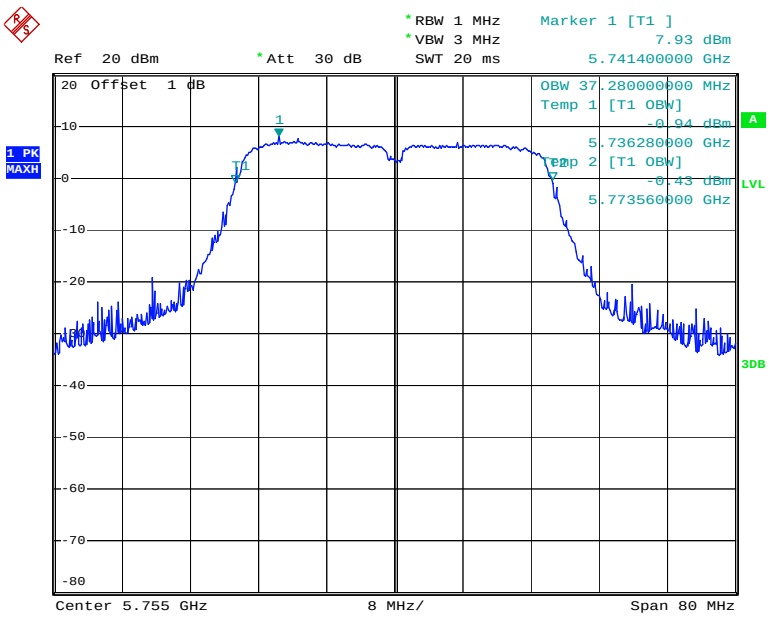


Date: 3.FEB.2018 14:34:49

802.11n40_Low



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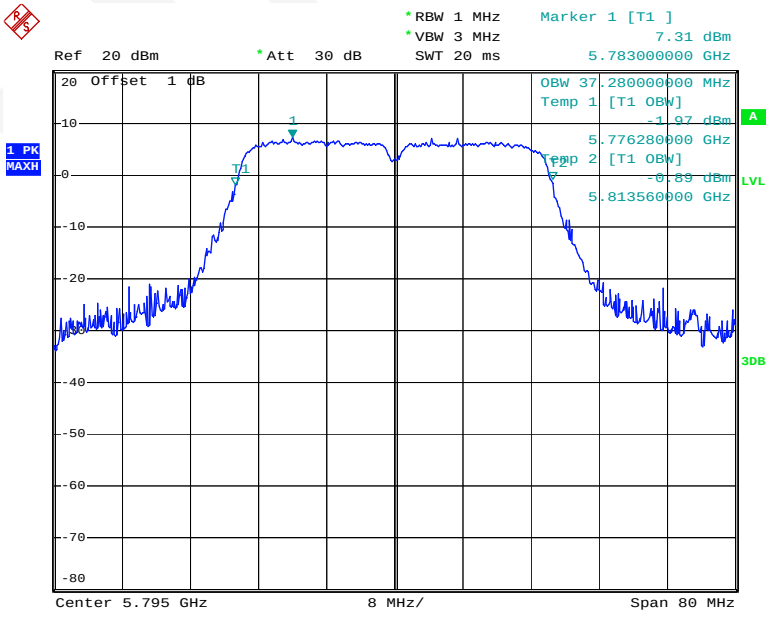
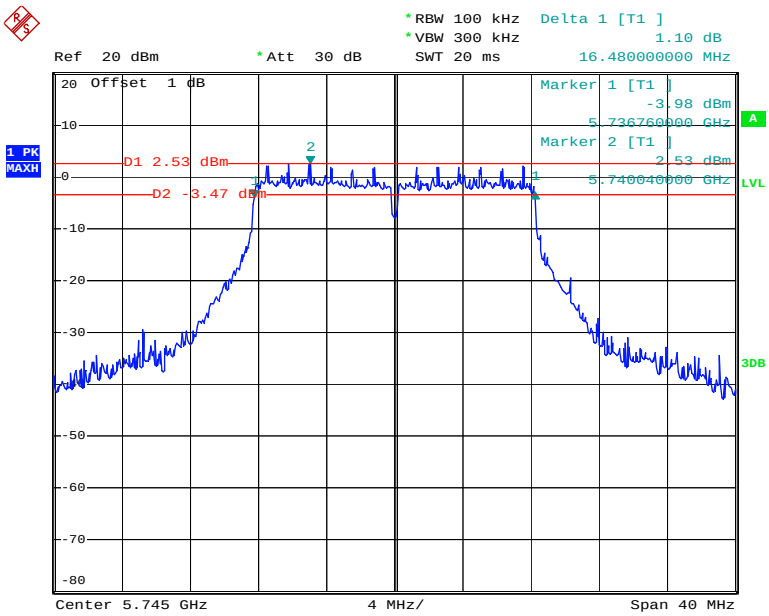
802.11n40_High



Date: 3.FEB.2018 16:46:02

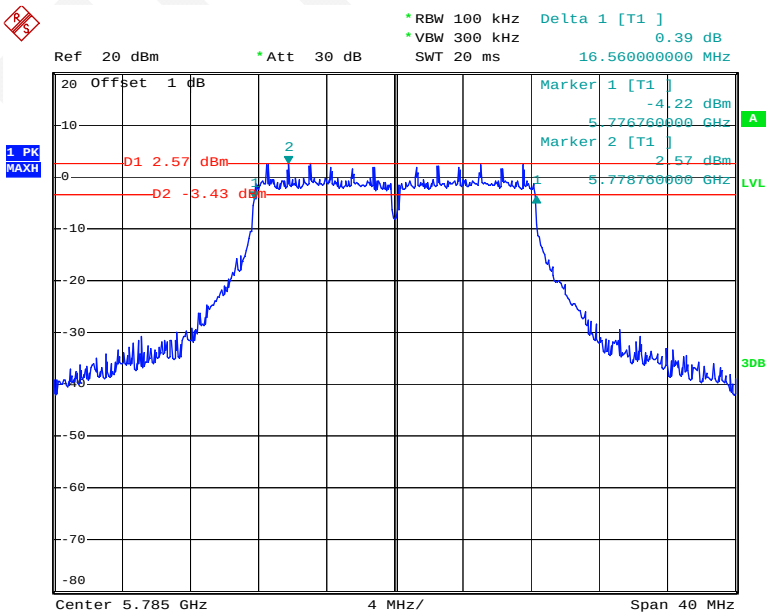
6dB Bandwidth

802.11a_Low



Date: 3.FEB.2018 14:17:32

802.11a_Middle



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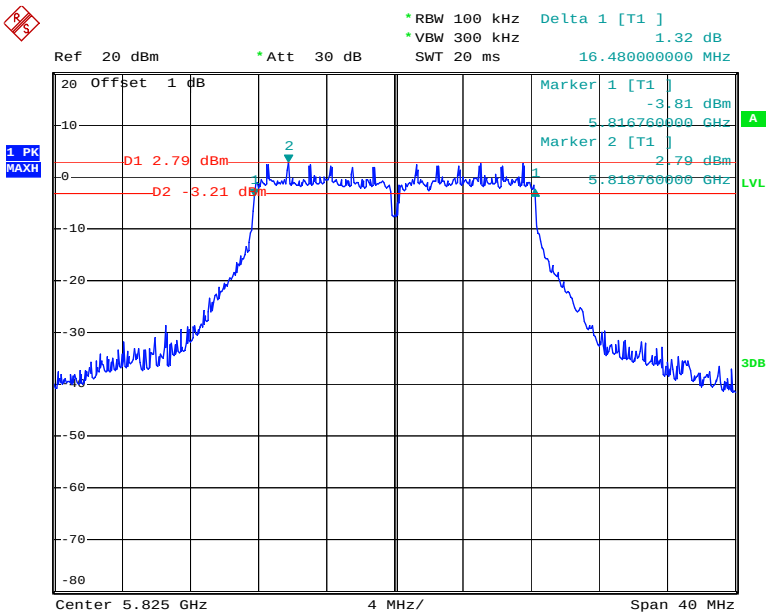
802.11a_High



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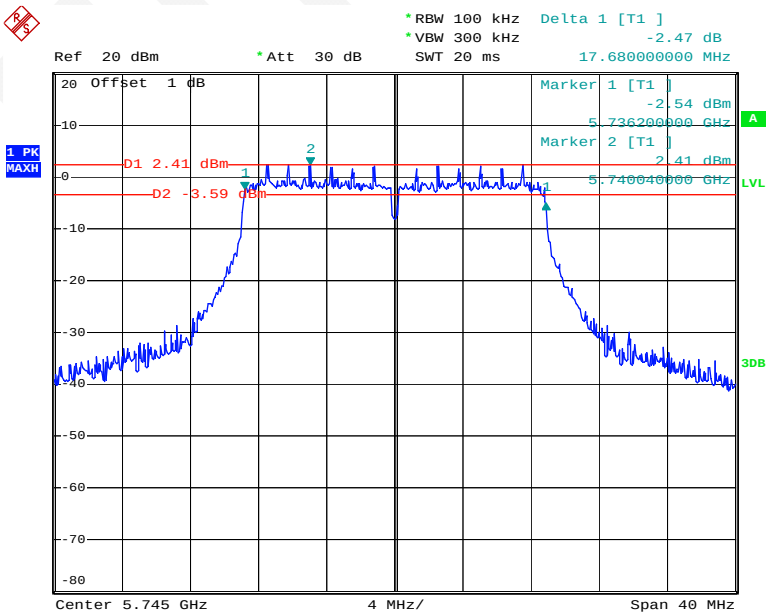

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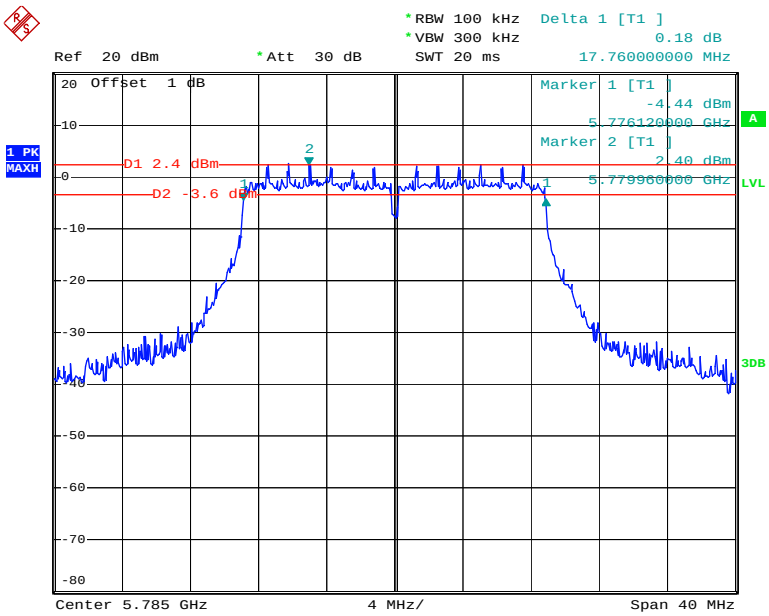
802.11n20_Middle



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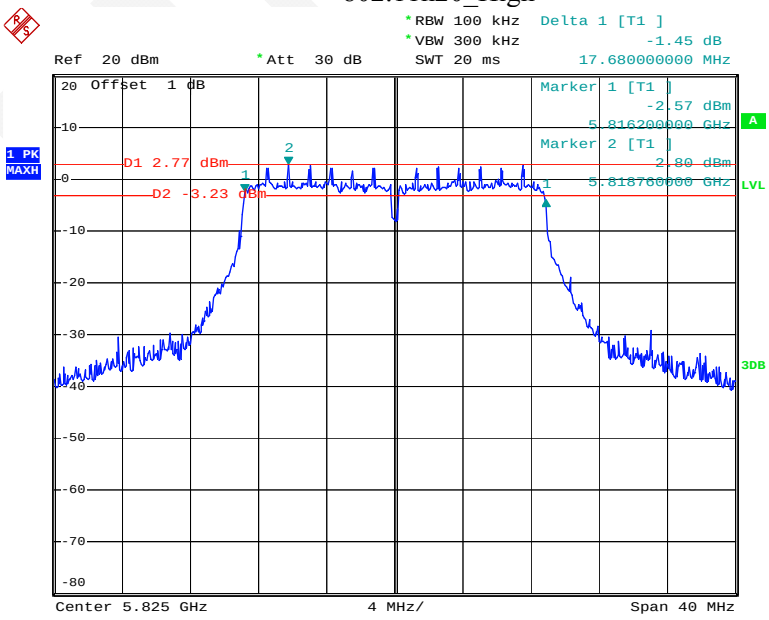
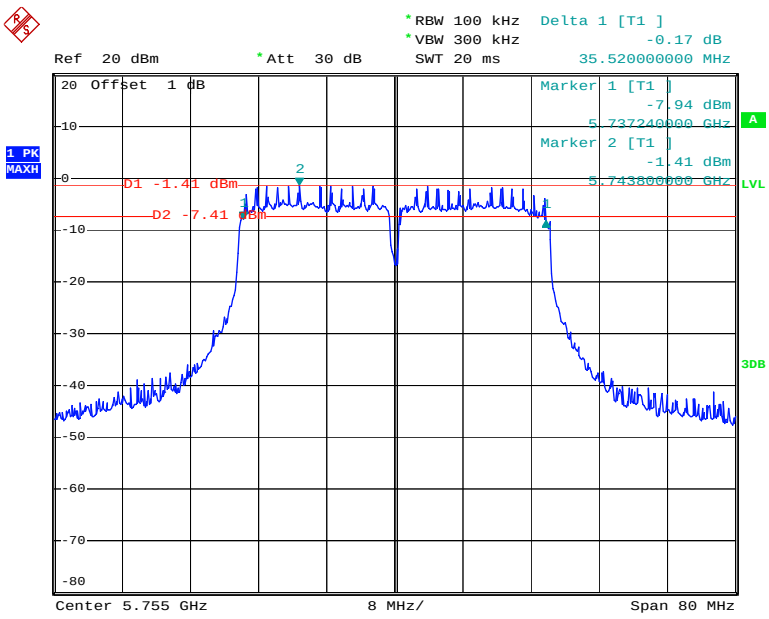


Date: 3.FEB.2018 14:34:31

802.11n40_Low



Date: 3.FEB.2018 16:42:36

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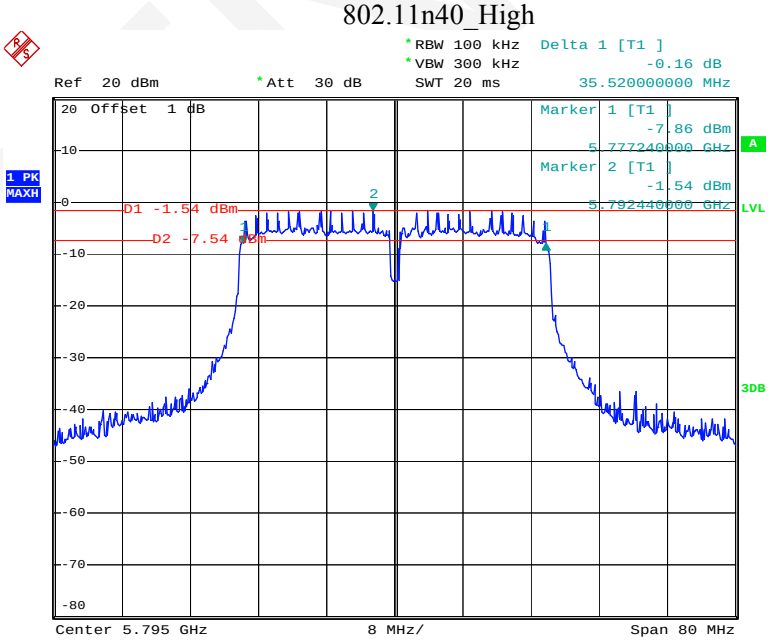


Date: 3.FEB.2018 16:45:46

MAXIMUM CONDUCTED OUTPUT POWER

Applicable Standard

According to FCC §15.407(a)

(a) Power limits:

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(4) The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

According to RSS-247 §6.2:

Frequency band 5150-5250 MHz

6.2.1.1 Power limits

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 $\log_{10}$B, dBm, whichever is less stringent. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

For other devices, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 $\log_{10}$B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Frequency band 5250-5350 MHz

6.2.2.1 Power limits

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 $\log_{10}$B, dBm, whichever is less. Devices shall implement TPC in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

Devices, other than devices installed in vehicles, shall comply with the following:

a) The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band;

b) The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency bands 5470-5600 MHz and 5650-5725 MHz

6.2.3.1 Power limits

The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency band 5725-5850 MHz

6.2.4.1 Power limits

For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

The maximum conducted output power shall not exceed 1 W. The output power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the output power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-point operations exclude the use of point-to-multipoint[3] systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Test Data

Environmental Conditions

Temperature:	21.3 °C
Relative Humidity:	36 %
ATM Pressure:	102 kPa

** The testing was performed by George Pang on 2018-02-03.*

Test mode: Transmitting

Test Result: Compliant(the duty cycle factor was calculated into the test result)

Please refer to following table:

5150-5250MHz:

Mode	Channel	Frequency (MHz)	RMS Conducted Output Power (dBm)	FCC Conducted Limit (dBm)	Maximum E.I.R.P (dBm)	RSS-247 E.I.R.P Limits (dBm)
802.11a	Low	5180	14.01	24.00	16.86	22.42
	Middle	5200	14.62		17.47	22.40
	High	5240	14.59		17.44	22.38
802.11n20	Low	5180	13.52		16.37	22.61
	Middle	5200	14.43		17.28	22.63
	High	5240	14.11		16.96	22.63
802.11n40	Low	5190	13.51		16.36	23.00
	High	5230	14.21		17.06	23.00

Note: For RSS-247, The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever is less.

5250-5350MHz:

Mode	Channel	Frequency (MHz)	RMS Conducted Output Power (dBm)	Conducted Limit (dBm)		Maximum E.I.R.P (dBm)	RSS-247 E.I.R.P Limits (dBm)
				FCC	RSS-247		
802.11a	Low	5260	13.74	24.00	23.38	16.59	29.38
	Middle	5280	13.67		23.4	16.52	29.40
	High	5320	13.36		23.4	16.21	29.40
802.11n20	Low	5260	13.26		23.61	16.11	29.61
	Middle	5280	13.21		23.63	16.06	29.63
	High	5320	12.88		23.63	15.73	29.63
802.11n40	Low	5270	13.48		24.00	16.33	30.00
	High	5310	13.29		24.00	16.14	30.00

Note: For RSS-247, The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less.

5470-5725MHz:

Mode	Channel	Frequency (MHz)	RMS Conducted Output Power (dBm)	Conducted Limit (dBm)		Maximum E.I.R.P (dBm)	RSS-247 E.I.R.P Limits (dBm)
				FCC	RSS-247		
802.11a	Low	5500	14.08	24.00	23.40	16.93	29.40
	Middle	5580	13.69		23.38	16.54	29.38
	High	5700	13.15		23.40	16.00	29.40
802.11n20	Low	5500	13.62		23.63	16.47	29.63
	Middle	5580	13.23		23.63	16.08	29.63
	High	5700	12.65		23.63	15.50	29.63
802.11n40	Low	5510	13.91		24.00	16.76	30.00
	Middle	5550	13.19		24.00	16.04	30.00
	High	5670	12.84		24.00	15.69	30.00

Note: For RSS-247, The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less.

5725-5850MHz:

Mode	Channel	Frequency (MHz)	RMS Conducted Output Power (dBm)	Limit (dBm)
802.11a	Low	5745	14.71	30.00
	Middle	5785	14.98	30.00
	High	5825	15.20	30.00
802.11n20	Low	5745	14.81	30.00
	Middle	5785	15.06	30.00
	High	5825	15.16	30.00
802.11n40	Low	5755	14.46	30.00
	High	5795	14.68	30.00

Note: the device is client device.

POWER SPECTRAL DENSITY

Applicable Standard

According to FCC §15.407(a)

(a) Power limits:

(1) For the band 5.15-5.25 GHz.

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(2) For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(3) For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

According to RSS-247 §6.2:

Frequency band 5150-5250 MHz

6.2.1.1 Power limits

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 $\log_{10}$B, dBm, whichever is less stringent. Devices shall implement transmitter power control (TPC) in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

For other devices, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 $\log_{10}$B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Frequency band 5250-5350 MHz

6.2.2.1 Power limits

For OEM devices installed in vehicles, the maximum e.i.r.p. shall not exceed 30 mW or 1.76 + 10 $\log_{10}$B, dBm, whichever is less. Devices shall implement TPC in order to have the capability to operate at least 3 dB below the maximum permitted e.i.r.p. of 30 mW.

Devices, other than devices installed in vehicles, shall comply with the following:

a) The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band;

b) The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency bands 5470-5600 MHz and 5650-5725 MHz

6.2.3.1 Power limits

The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 $\log_{10}$B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Frequency band 5725-5850 MHz

6.2.4.1 Power limits

For equipment operating in the band 5725-5850 MHz, the minimum 6 dB bandwidth shall be at least 500 kHz.

The maximum conducted output power shall not exceed 1 W. The output power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the output power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-point operations exclude the use of point-to-multipoint[3] systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Test Data

Environmental Conditions

Temperature:	20.7 ~ 26.5 °C
Relative Humidity:	28 ~ 61 %
ATM Pressure:	100.6 ~102.1 kPa

** The testing was performed by George Pang from 2018-02-03 to 2018-04-01*

Test mode: Transmitting

Test Result: Compliant

Please refer to following table:

5150-5250MHz:

Mode	Frequency (MHz)	Reading (dBm/MHz)	Duty Cycle factor (dB)	Conducted PSD (dBm/MHz)	FCC Conducted Limit (dBm/MHz)	Maximum E.I.R.P PSD (dBm)	RSS-247 E.I.R.P PSD Limits (dBm)
802.11a	5180	2.64	0.53	3.17	11.00	6.02	10.00
	5200	3.19	0.53	3.72		6.57	
	5240	3.95	0.53	4.48		7.33	
802.11n20	5180	1.53	0.56	2.09		4.94	
	5200	2.30	0.56	2.86		5.71	
	5240	2.76	0.56	3.32		6.17	
802.11n40	5190	-1.35	1.08	-0.27		2.58	
	5230	-1.37	1.08	-0.29		2.56	

Note: the maximum antenna gain is 2.85 dBi

5250-5350MHz:

Mode	Frequency (MHz)	Reading (dBm/MHz)	Duty Cycle factor (dB)	Conducted PSD (dBm/MHz)	FCC/ RSS-247 Conducted Limit (dBm/MHz)
802.11a	5260	3.07	0.53	3.6	11
	5280	2.69	0.53	3.22	
	5320	2.44	0.53	2.97	
802.11n20	5260	-0.07	0.56	0.49	
	5280	-0.44	0.56	0.12	
	5320	1.23	0.56	1.79	
802.11n40	5270	-1.44	1.08	-0.36	
	5310	-1.21	1.08	-0.13	

5470-5725MHz:

Mode	Frequency (MHz)	Reading (dBm/MHz)	Duty Cycle factor (dB)	Conducted PSD (dBm/MHz)	FCC/ RSS-247 Conducted Limit (dBm/MHz)
802.11a	5500	3.23	0.53	3.76	11
	5580	2.05	0.53	2.58	
	5700	2.58	0.53	3.11	
802.11n20	5500	1.19	0.56	1.75	
	5580	0.23	0.56	0.79	
	5700	0.41	0.56	0.97	
802.11n40	5510	-1.24	1.08	-0.16	
	5550	-2.36	1.08	-1.28	
	5670	-1.89	1.08	-0.81	

5725-5850MHz:

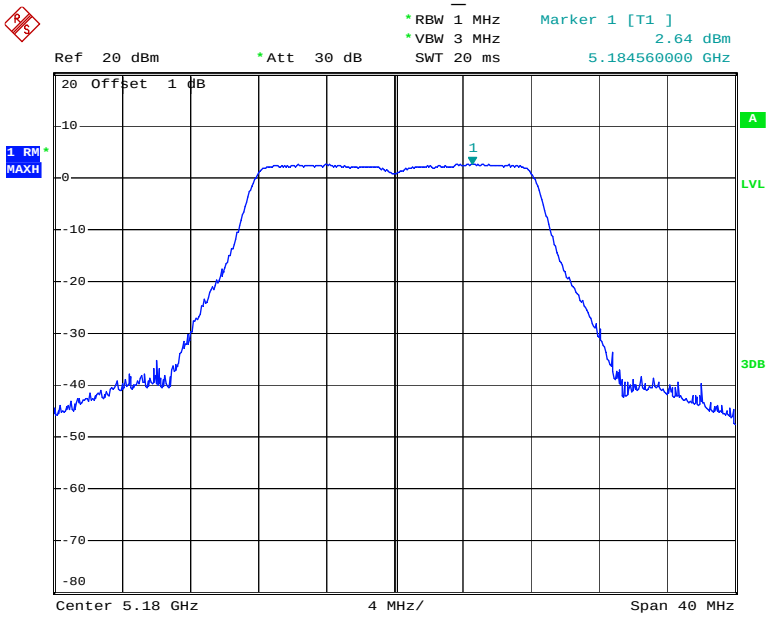
Mode	Frequency (MHz)	Reading (dBm/300kHz)	Duty Cycle factor (dB)	Conducted PSD (dBm/500kHz)	FCC/ RSS-247 Conducted Limit (dBm/500kHz)
802.11a	5745	-1.21	0.53	1.54	30
	5785	-0.84	0.53	1.91	
	5825	-0.56	0.53	2.19	
802.11n20	5745	-0.45	0.56	2.33	
	5785	-0.47	0.56	2.31	
	5825	-0.29	0.56	2.49	
802.11n40	5755	-4.13	1.08	-0.83	
	5795	-4.79	1.08	-1.49	

Note:
For 5.8GHz band, If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10log(500kHz/RBW) to the measured result, whereas RBW (< 500 KHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

Please refer to following plots:

5150-5250MHz

802.11a_Low



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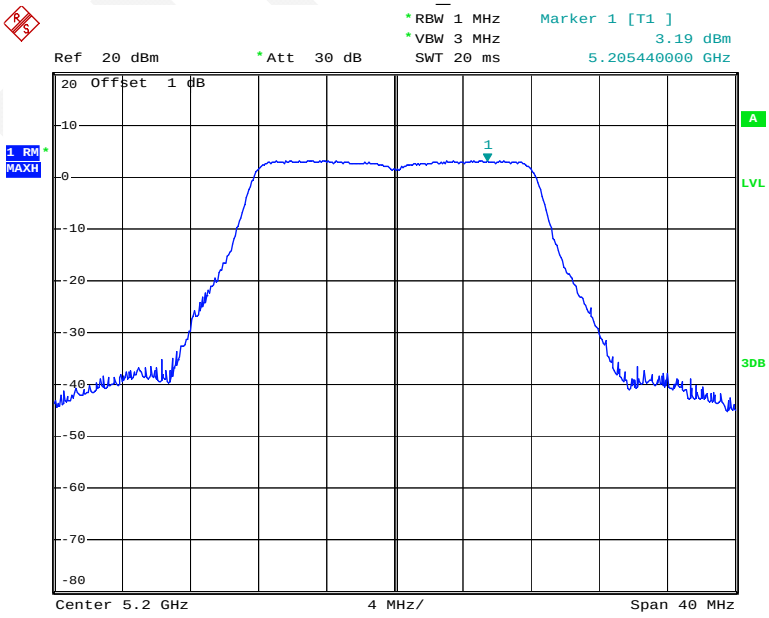
802.11a_Middle



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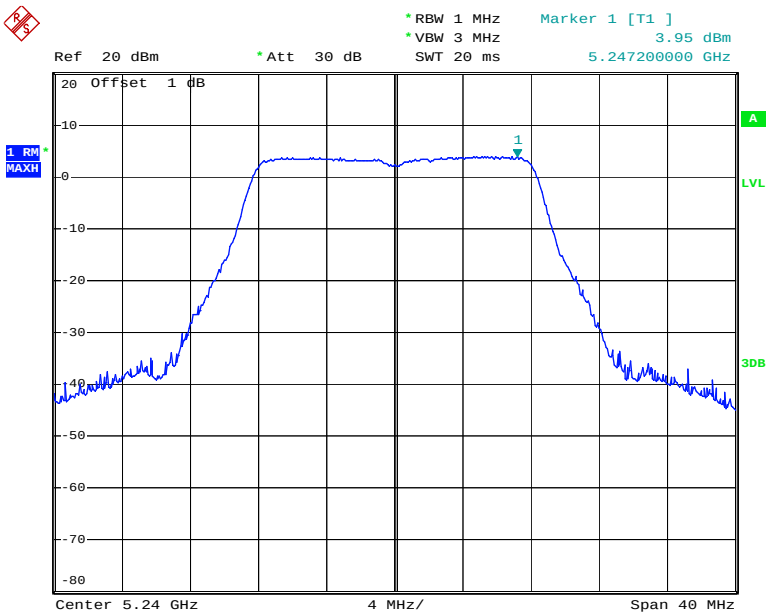
802.11a_High



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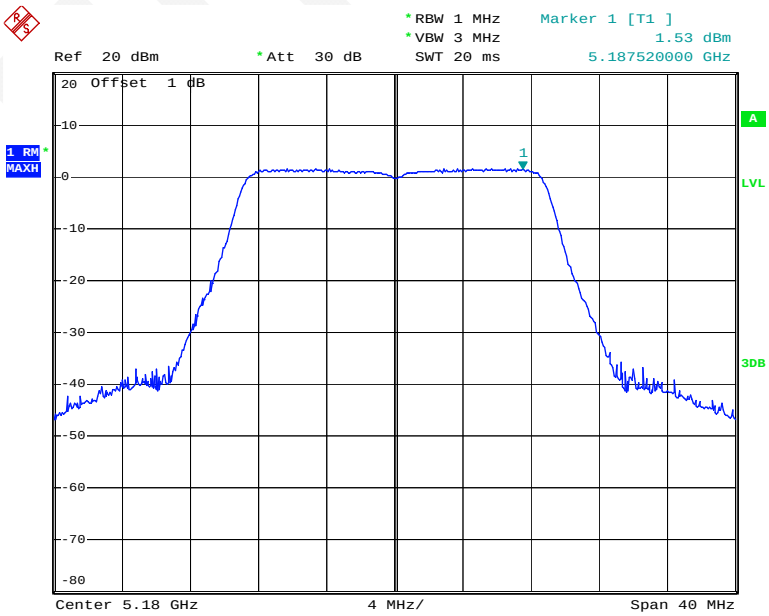

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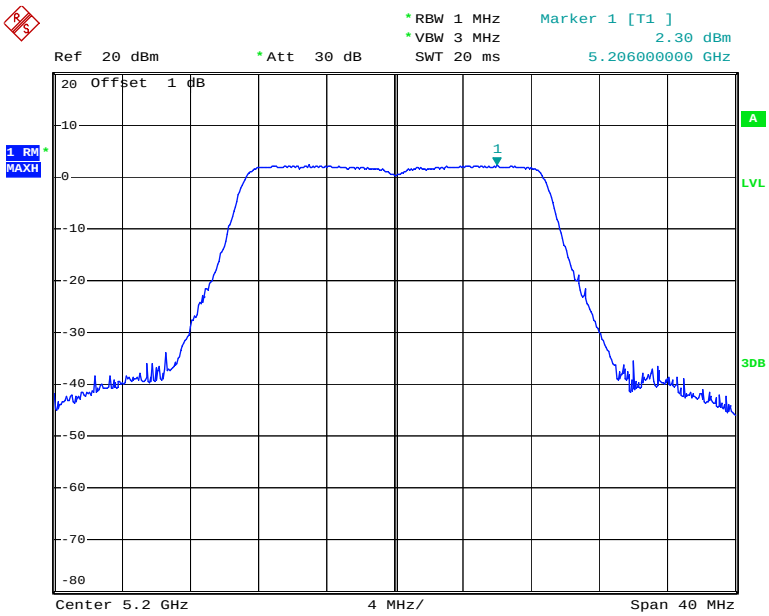

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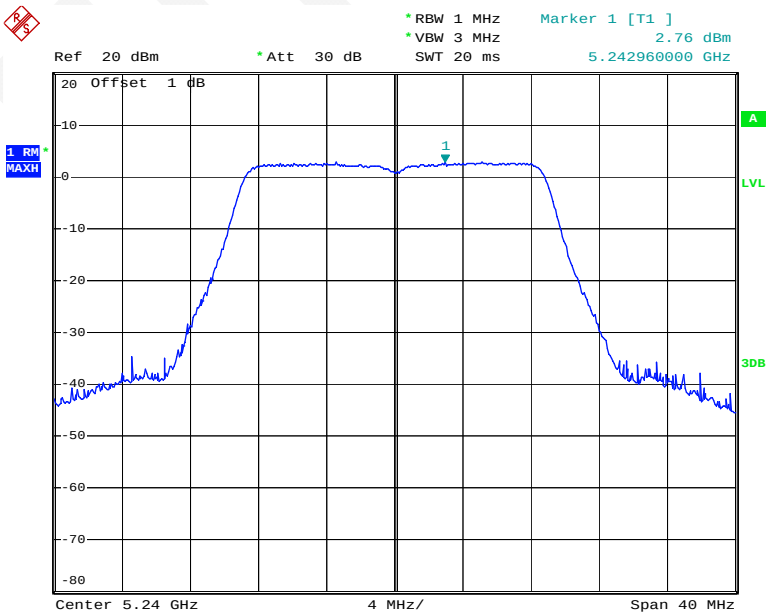

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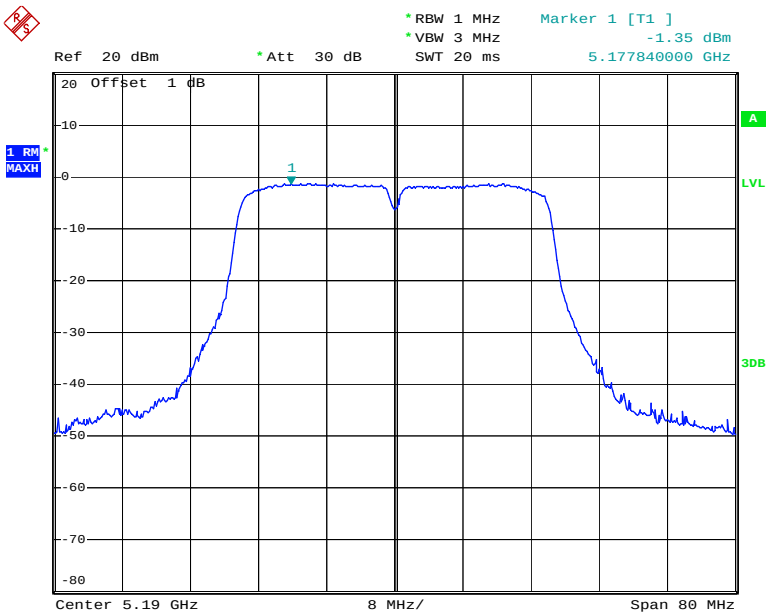

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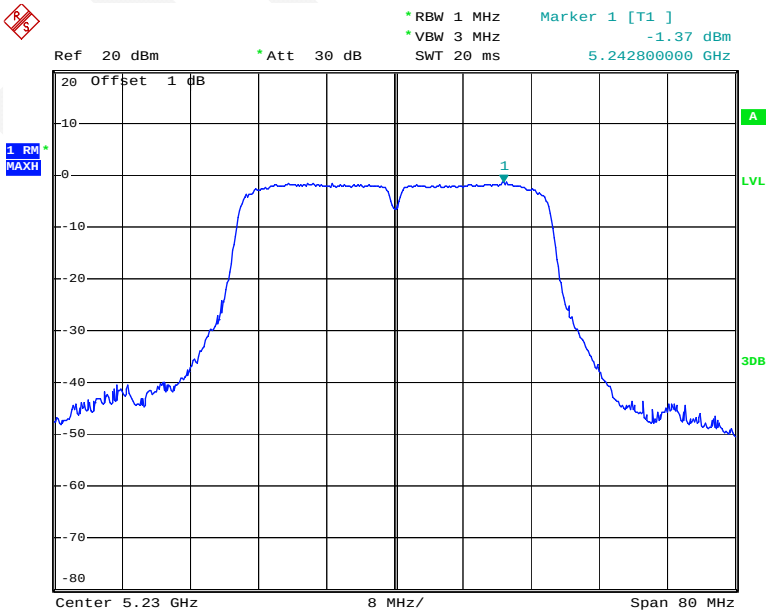

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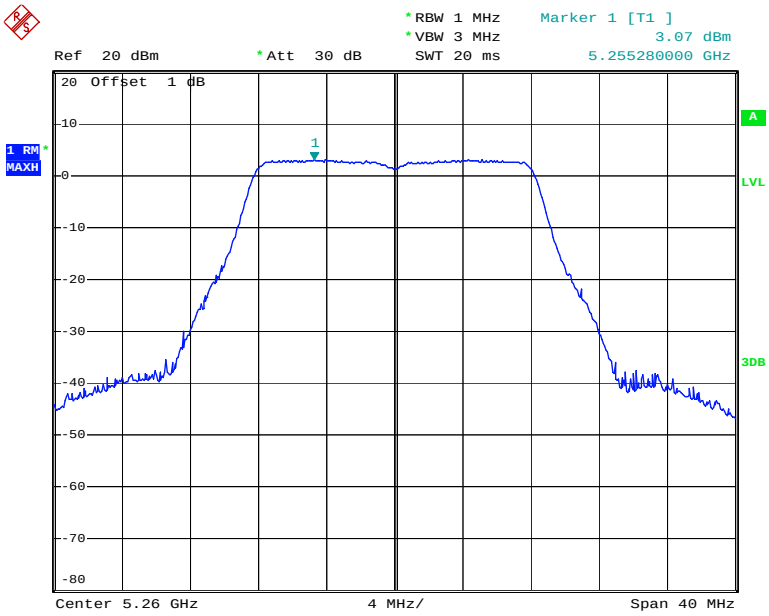
5250-5350MHz

802.11a_Low



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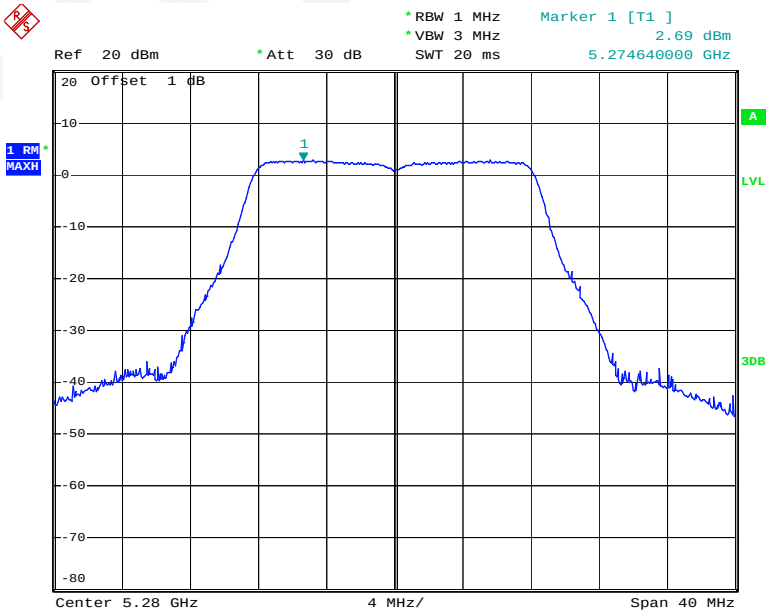

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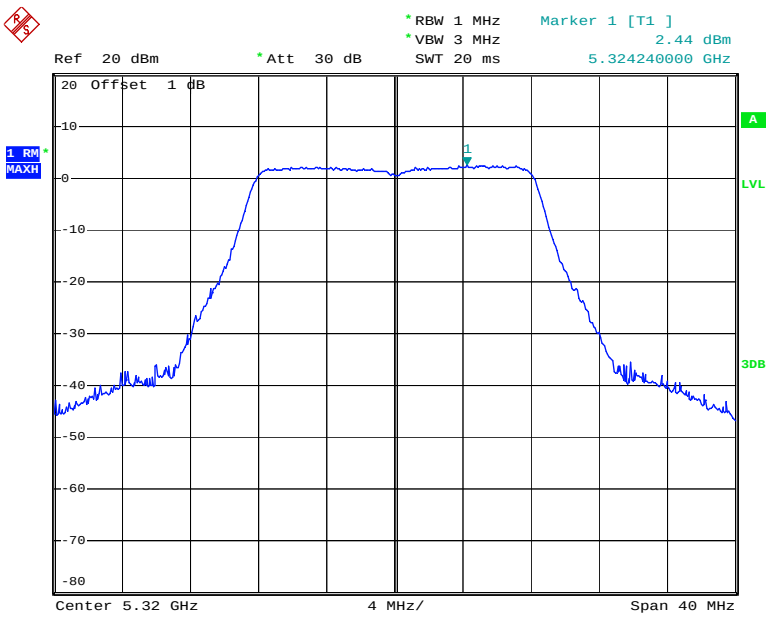

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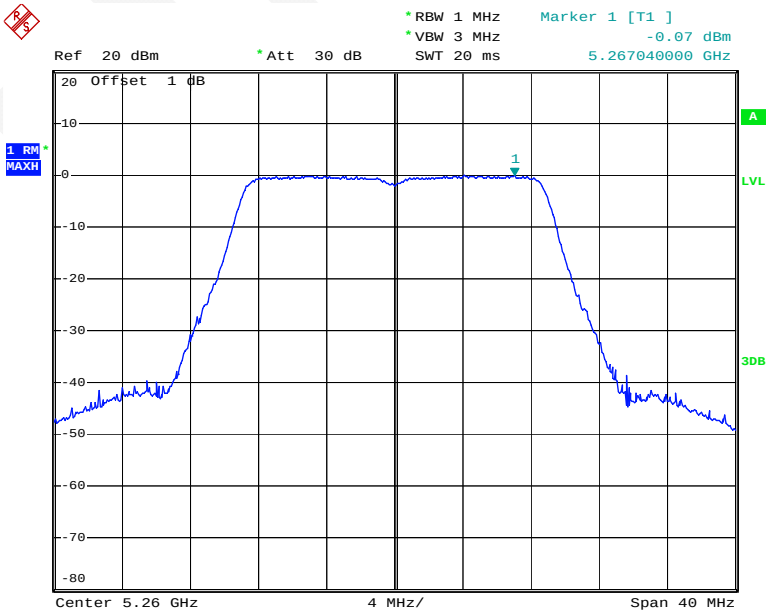

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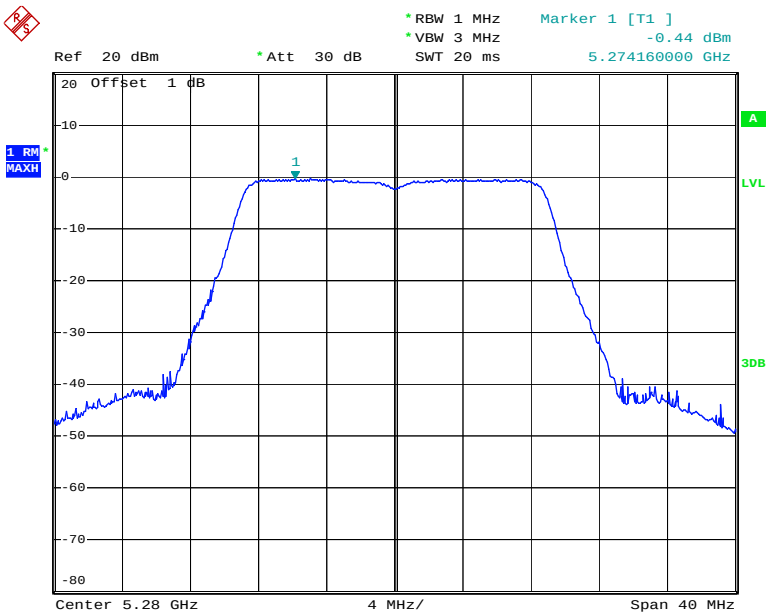

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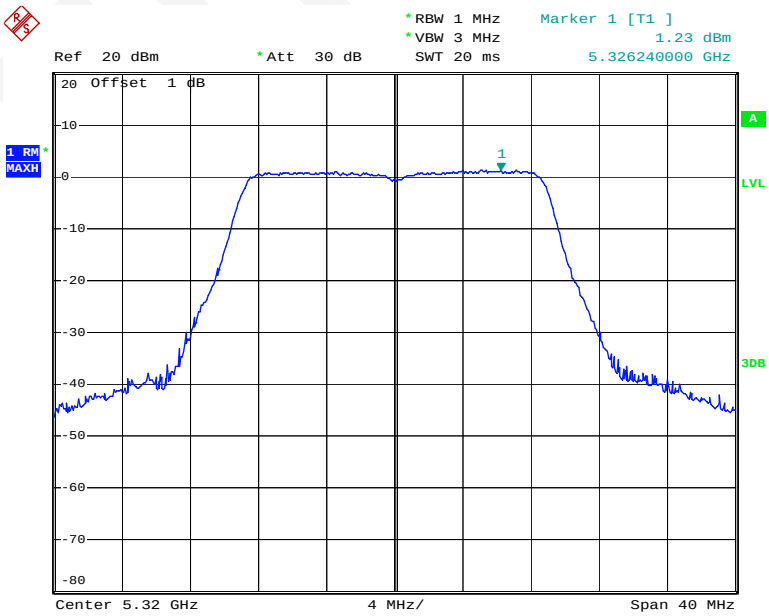

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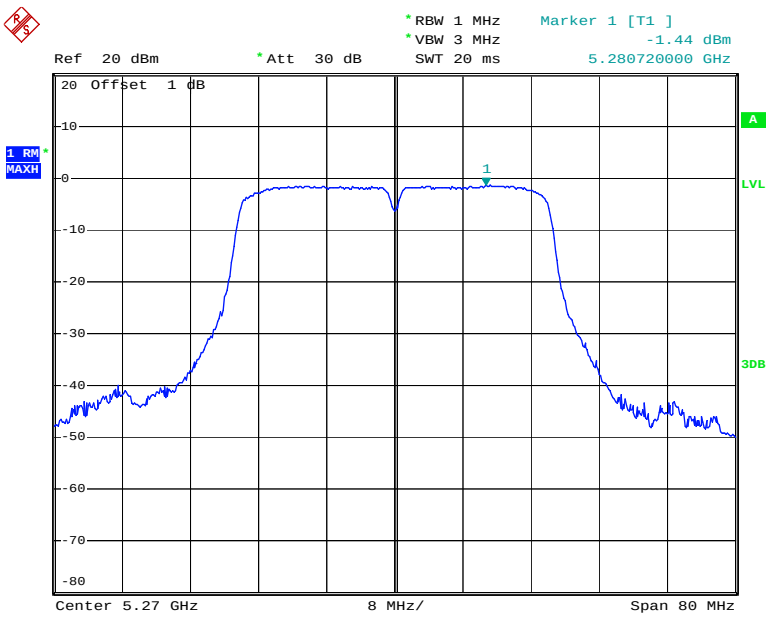

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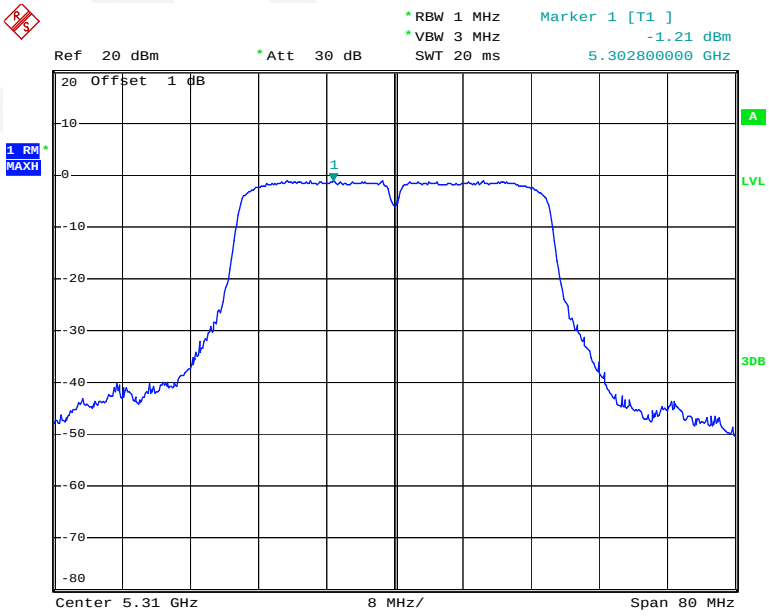

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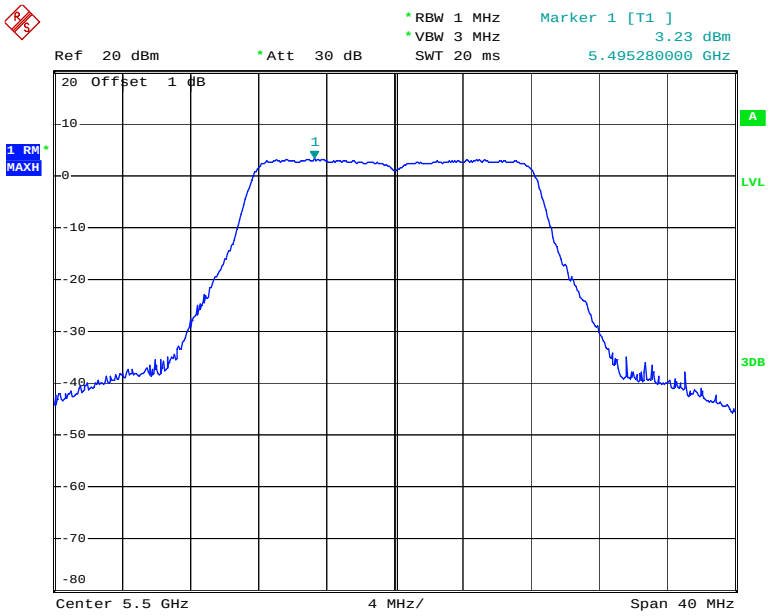
5470-5725MHz

802.11a_Low



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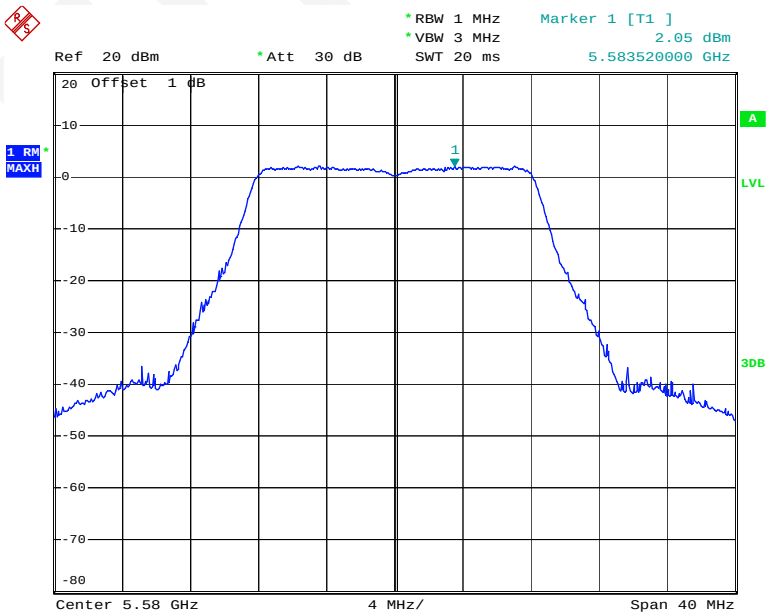

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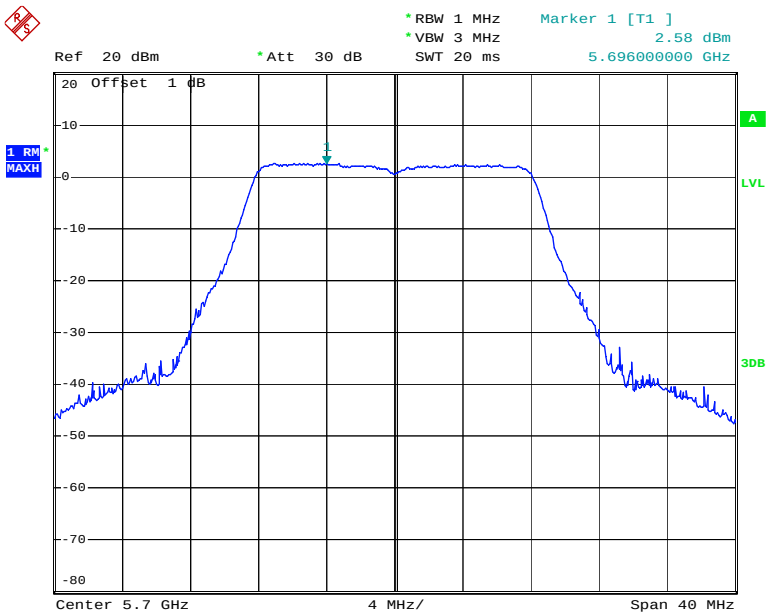

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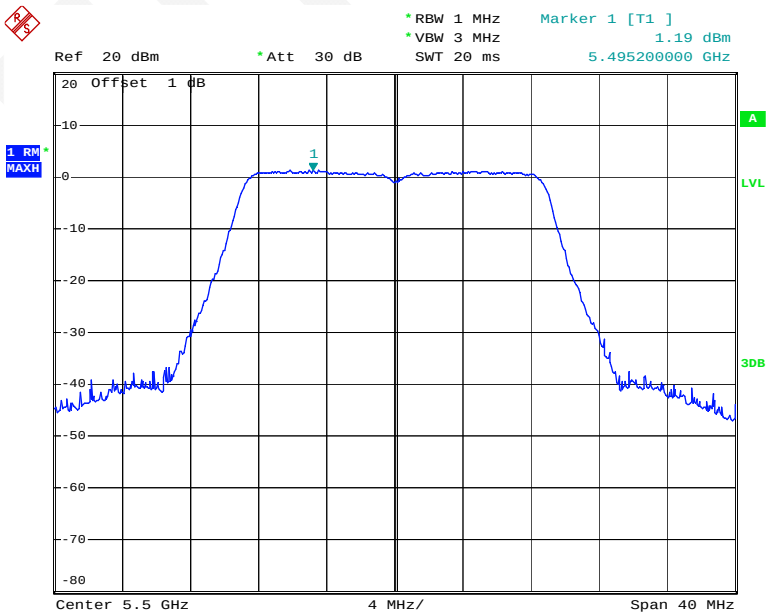

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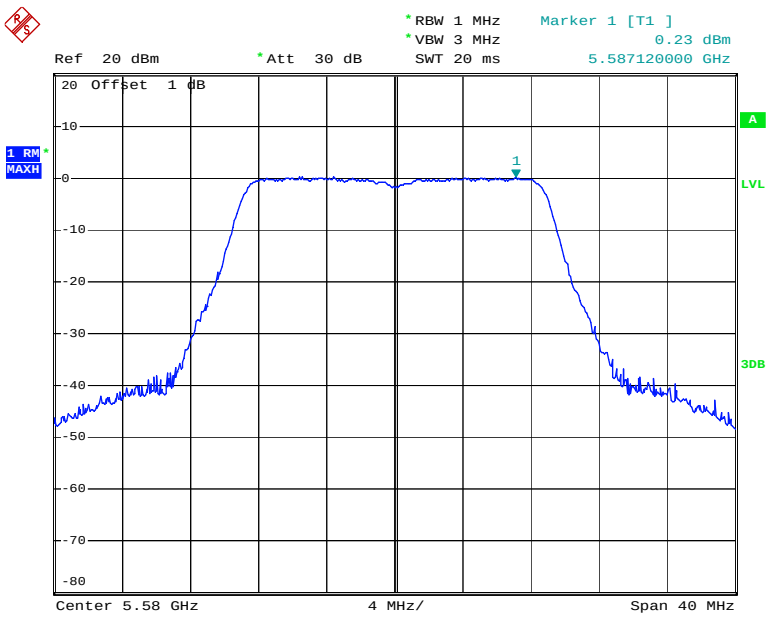

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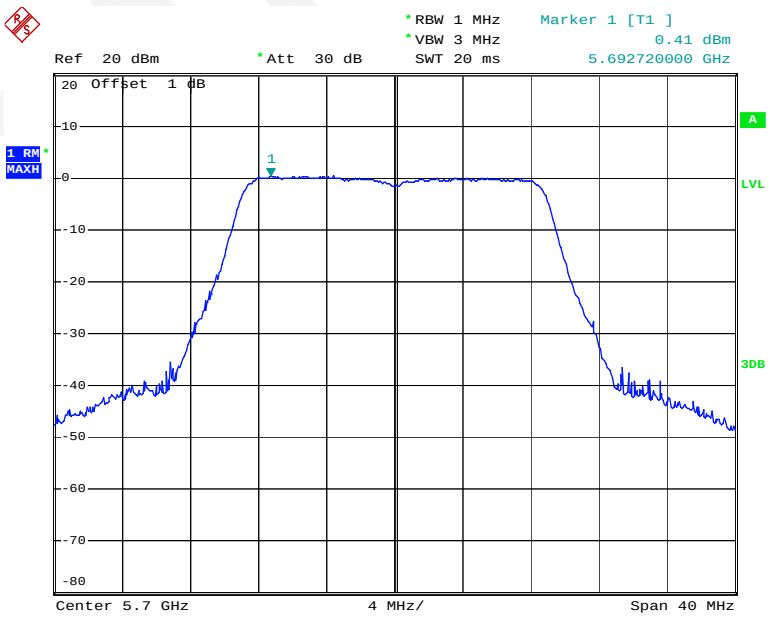

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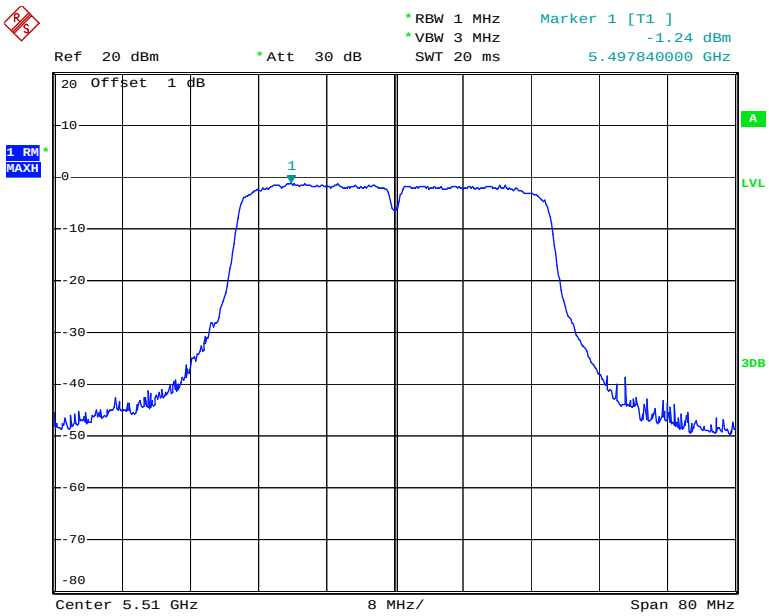

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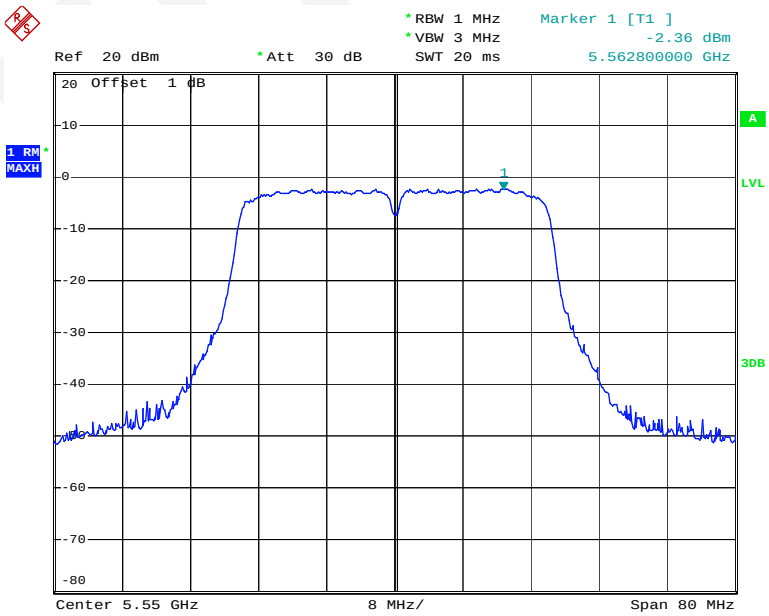

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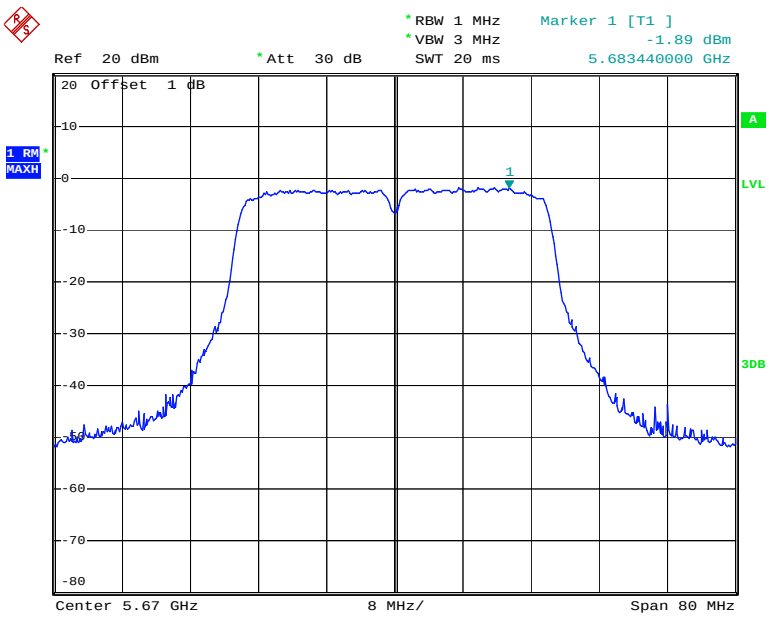

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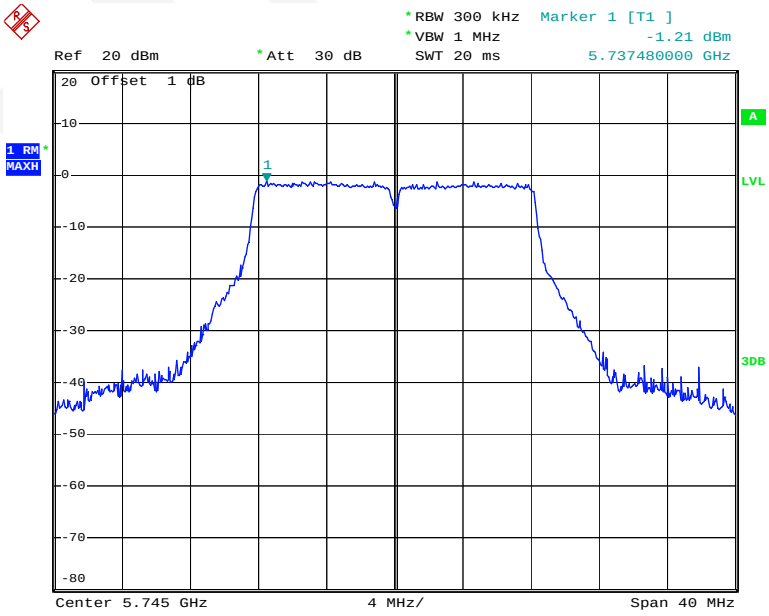
5725-5850MHz

802.11a_Low



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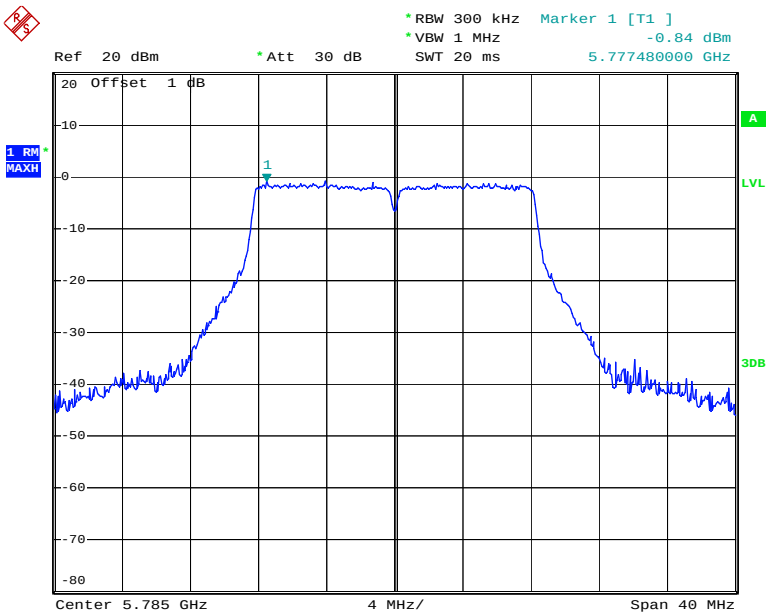

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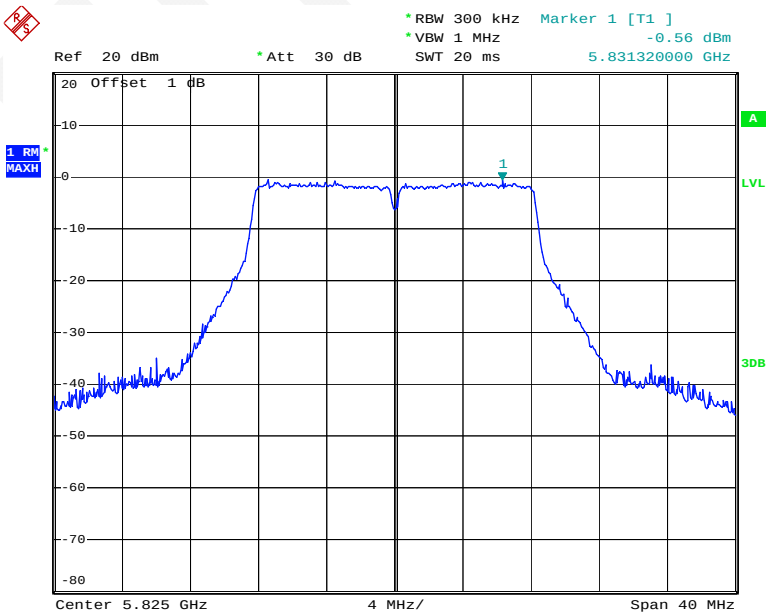

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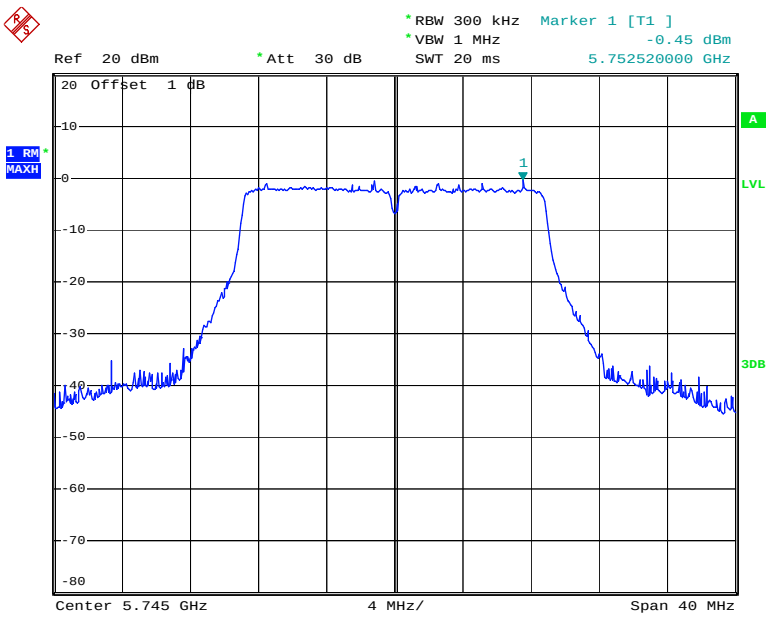

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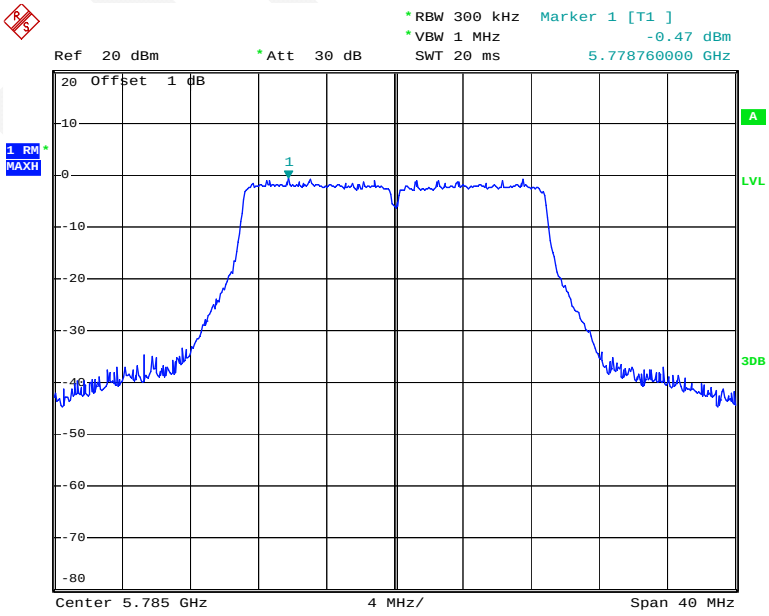

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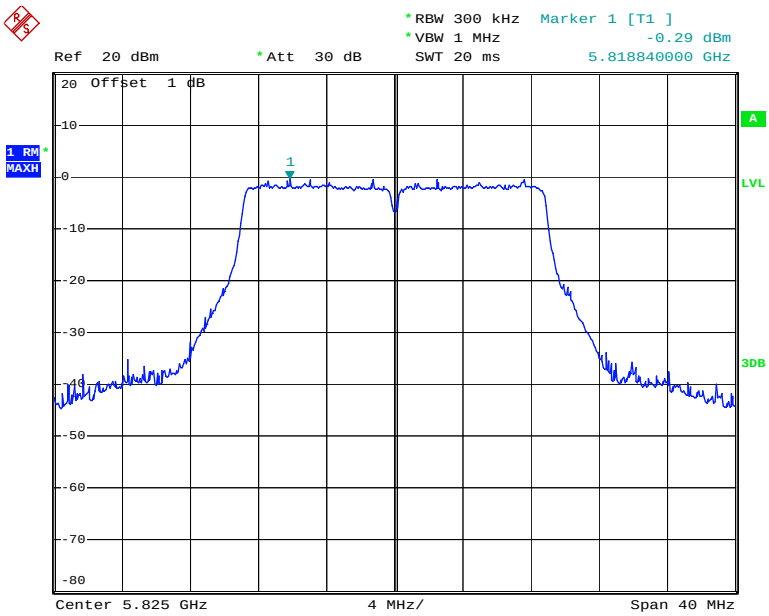

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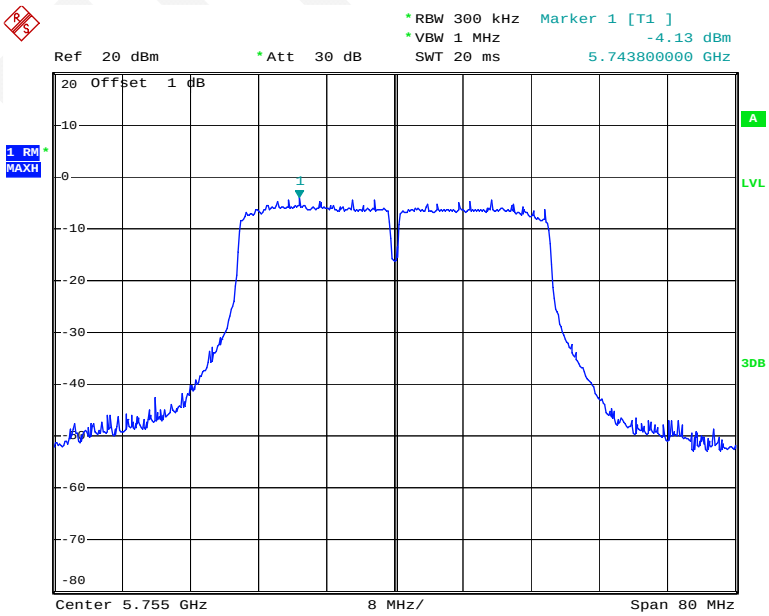

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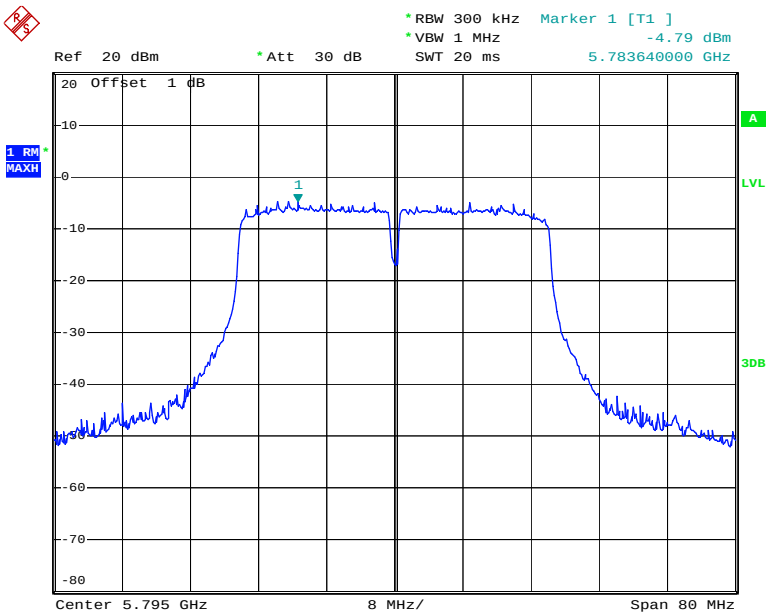

*******END OF REPORT*******