FCC 47 CFR PART 15 SUBPART E 15.407

TEST REPORT

FOR

Trekstor Primebook C13B

Model : CFPN5SW02464, CFCN4SW02464

Issued to
TREKSTOR GmbH
Berliner Ring 7, 64625 Bensheim, Germany

Issued by
WH Technology Corp.

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APPENDIX 1 PHOTOS OF TEST CONFIGURATION
PHOTOS OF EUT

1. General Information

Applicant	:	**TREKSTOR GmbH**
Address	:	**Berliner Ring 7, 64625 Bensheim, Germany**
Manufacturer	:	**Heyuan Vastking Electronic Co.,Ltd**
Address	:	**No.13, Hepu Avenue, Yuancheng District, Heyuan City, Guangdong Province, China.**
EUT	:	**TREKSTOR PRIMEBOOK C13B**
Model Name	:	**CFPN5SW02464, CFCN4SW02464**
Model Differences	:	**Only model name different.**

Is here with confirmed to comply with the requirements set out in the FCC Rules and Regulations Part 15 Subpart C and the measurement procedures were according to ANSI C63.4-2014. The said equipment in the configuration described in this report shows the maximum emission levels emanating

FCC part 15 subpart E

Receipt Date : 08/30/2018 Final Test Date : 09/11/2018

Tested By: **Reviewed by:**

Sept. 12, 2018 Sept. 12, 2018

Date Bing Chang/ Engineer **Date** Bell Wei / Manager

Designation Number: TW2954

2. Report of Measurements and Examinations

2.1 List of Measurements and Examinations

FCC Rule	Description of Test	Result
15.203	Antenna requirement	Pass
15.207	AC Power Line Conducted Emission	Pass
15.407(a)(1)	Peak Transmit Power	Pass
15.407(a)(1)	Power Spectral Density	Pass
15.407(e)	Channel Bandwidth	Pass
15.407(b)(6), 15.205/15.209	Undesirable Emission	Pass
15.205/15.209	Radiated Emission	Pass
15.205	Band Edge	Pass
15.407(f)	Frequency Stability	Pass

3. Test Configuration of Equipment under Test

3.1 Description of the tested samples

EUT Name	:	Trekstor Primebook C13B
Model Number	:	CFPN5SW02464
FCCID	:	2ALTX-CFPN5SW02464
Receipt Date	:	08/30/2018
Power From	:	☑Inside ☑Outside ☑Adaptor ☑Battery ☐AC Power Source ☐DC Power Source ☐Support Unit PC or NB
Adapter	:	JHD-AP024U-120200BA-A INPUT: AC100-240V~ 50/60Hz 0.45A, Output: DC12V 2000mA
Battery	:	7.4V
Operate Frequency	:	WiFi: 802.11a/802.11n(HT20) /ac(VHT20): 5180MHz ~ 5240MHz;
Modulation Technique	:	802.11a/n/ac: OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM
Number of Channels	:	Refer to the channel list as described below
Antenna Type	:	FPCB Antenna
Antenna gain		2.4GWIFI 1.0dBi; 5G WIFI 1.0dBi

3.2 Carrier Frequency of Channels

1. **Channel List for 802.11a/n-HT20/ac-VHT20**

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	--	--
40	5200	--	--
44	5220	--	--
48	5240	--	--
149	--		

2. **Channel List for 802.11n-HT40/ac-VHT40**

Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	--	--
46	5230	--	--

3. **Channel List for 802.11ac-VHT80**

Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	--	--

3.3 Test Mode and Test Software

a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
b. The complete test system included Notebook and EUT for RF test.
c. Test Software: Radio Test.exe
d. Full charge Battery was used for all testing and the worst radiated emission case from X,Y and Z axis evaluation was selected for testing.

Note:

Have verified all construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as Test Mode as below:
Transmit (802.11a)
Transmit (802.11n MCS0 20MBW)
Transmit (802.11n MCS0 40MBW)
Transmit (802.11ac MCS0 80MBW)

3.4 TEST Methodology & General Test Procedures

All testing as described bellowed were performed in accordance with ANSI C63.4:2014 and ANSI C63.10:2013.

Conducted Emissions

The EUT is placed on a wood table, which is at 0.8 m above ground plane acceding to clause 15.207 and requirements of ANSI C63.4:2014. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz are using CISPR Quasi-Peak / Average detectors.

Radiated Emissions

The EUT is a placed on a turn table, which is 0.8 m above ground plane. The turntable was rotated through 360 degrees to determine the position of maximum emission level. The EUT is placed at 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

1) Putting the EUT on the platform and turning on the EUT (on/off button on the bottom of the EUT).
2) Setting test channel described as “Channel setting and operating condition”, and testing channel by channel.
3) For the maximum output power measurement, we followed the method of measurement KDB 789033 v02r01.
4) For the spurious emission test based on ANSI(2014), at the frequency where below 1GHz used quasi-peak detector mode; where above 1GHz used the peak and average detector mode. IF the peak value may be under average limit, the average mode will not be performed.

3.5 Measurement Uncertainty

Measurement Item	Uncertainty
Peak Output Power(conducted)	±1.345dB
Power Spectral Density	±1.347dB
Radiated emission(1G-40GHz)	±5.00dB
Radiated emission(30M-1GHz)	±3.89dB
Conducted emission	±1.81dB

3.6 Description of the Support Equipments

Setup Diagram

See test photographs attached in appendix 1 for the actual connections between EUT and support equipment.

Support Equipment

Peripherals Devices:

OUTSIDE SUPPORT EQUIPMENT							
No.	Equipment	Model	Serial No.	FCC ID/ BSMI ID	Trade name	Data Cable	Power Cord
1.	N/A	N/A	N/A	N/A	N/A	N/A	N/A
INSIDE SUPPORT EQUIPMENT							
No.	Equipment	Model	Serial No.	FCC ID/ BSMI ID	Trade name	Data Cable	Power Cord
1.	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Note: All the above equipment /cable were placed in worse case position to maximize emission signals during emission test

Grounding: Grounding was in accordance with the manufacturer's requirement and conditions for the intended use.

4. Test and measurement equipment

4.1 calibration

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

4.2 equipment

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and. Other required standards.

Calibration of all test and measurement, including any accessories that may effect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective.

TABLELIST OF TEST AND MEASUREMENT EQUIPMENT

Test Site	Instrument	Manufacturer	Model No.	S/N	Next Cal. Date
Conduction	Spectrum (9K--3GHz)	R&S	FSP3	833387/010	2018/09/20
	EMI Receiver	R&S	ESHS10	830223/008	2019/05/22
	LISN	Rolf Heine Hochfrequenztechnik	NNB-2/16z	98062	2019/05/25
	ISN	Schwarzbeck	8-Wire ISN CAT5	CAT5-8158-0094	2018/09/21
	RF Cable	N/A	N/A	EMI-3	2018/10/19
Radiation	Bilog antenna(30M-1G)	ETC	MCTD2786B	BLB16M04004/JB-5-004	2019/05/03
	Double Ridged Guide Horn antenna(1G-18G)	ETC	MCTD 1209	DRH15N02009	2018/11/23
	Horn antenna (18G-26G)	com-power	AH-826	81000	2019/08/14
	LOOP Antenna (Below 30M)	com-power	AL-130	17117	2018/10/04
	Pre amplifier (30M-1G)	EMC INSTRUMENT	EMC9135	980334	2019/05/04
	Microwave Preamplifier (1G-18G)	EMC INSTRUMENT	EMC051845	980108&AT-18001	2018/10/23
	Pre amplifier (18G~26G)	MITEQ	JS4-18002600-30-5A	808329	2019/08/09
	EMI Test Receiver	R&S	ESVS30 (20M-1000MHz)	826006/002	2018/11/28

	RF Cable (open site)	EMCI	N male on end of both sides (EMI4)	30m	2018/10/19
	RF CABLE (1~26.5G)	HARBOUT INDUSTRIES	LL142MI(4M+4M)	NA	2019/03/08
	RF CABLE (1~26.5G)	HARBOUR INDUSTRIES	LL142MI(7M)	NA	2019/08/10
	Spectrum (9K--7GHz)	R&S	FSP7	830180/006	2019/03/25
	Spectrum (9K--40GHz)	AGILENT	8564EC	4046A0032	2019/03/01
--	Power Meter	R&S	NRVS	100696	2019/08/09
--	Power Sensor	R&S	URV5-Z4	0395.1619.05	2019/08/09

***CALIBRATION INTERVAL OF INSTRUMENTS LISTED ABOVE IS ONE YEAR**

5. Antenna Requirements

5.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

5.2 Antenna Construction and Directional Gain

Antenna Type: FPCB Antenna
Antenna Gain: Gain:
2.4GWIFI 1.0dBi; 5G WIFI 1.0 dBi

6. Test of Conducted Emission

6.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 110 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2014 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

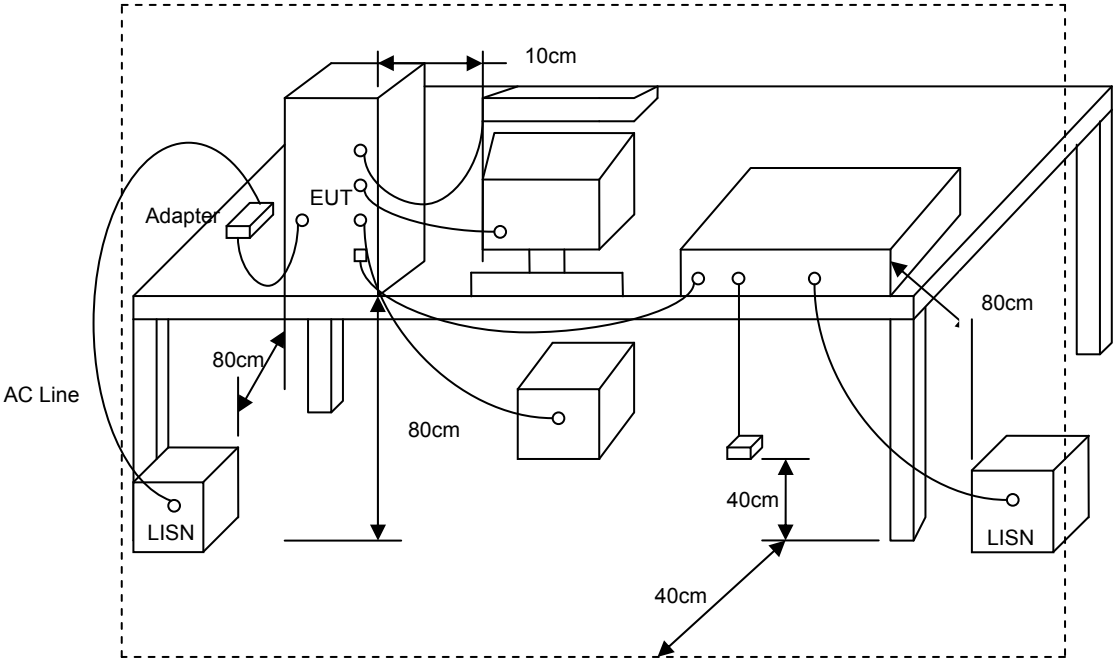
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

6.2 Test Procedures

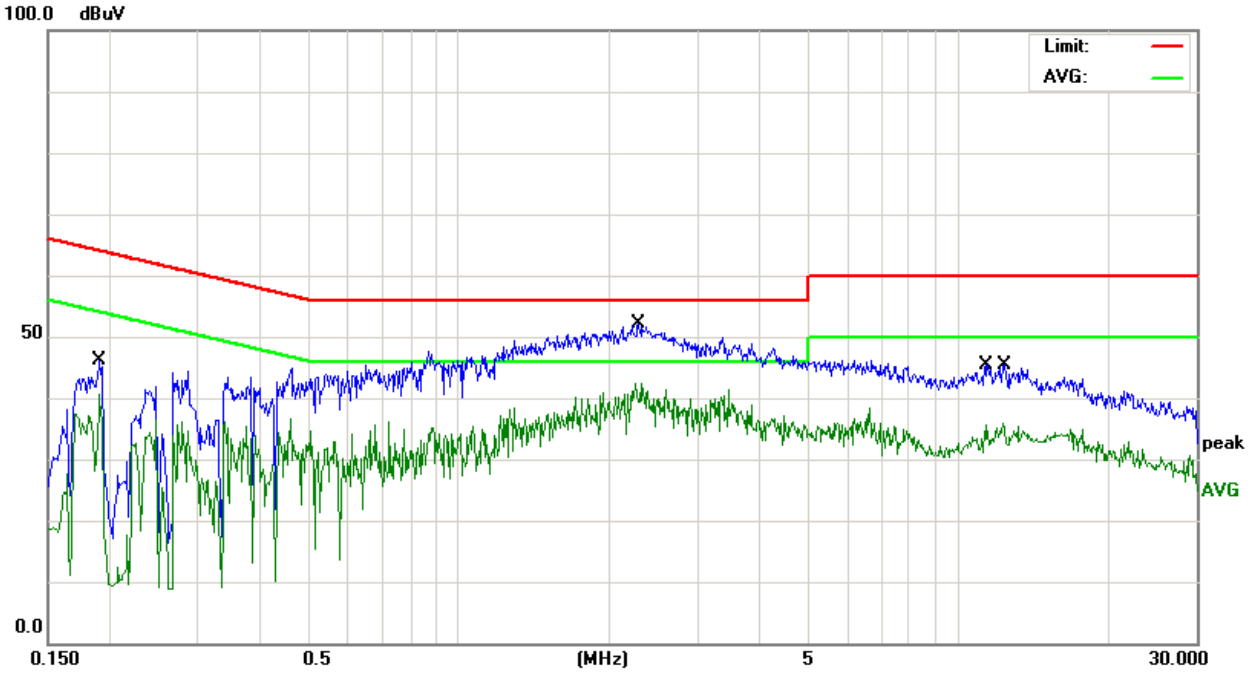
a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 kHz to 30 MHz was searched.
h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

6.3 Typical Test Setup



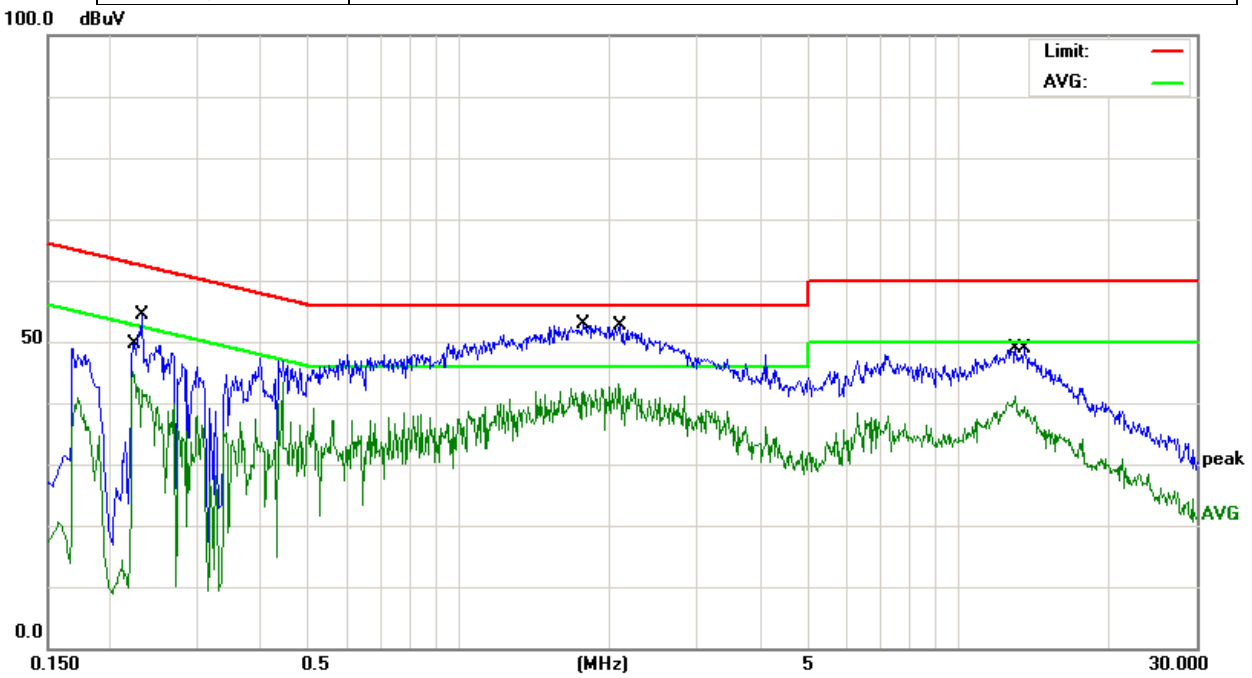
6.4 Test Result and Data

Power	:	120V/60Hz for adapter	Pol/Phase	:	LINE
Test Mode 1	:	TX CH38 5180MHz(worst-case)	Temperatur	:	28 °C
Humidity	:	43 %			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1901	43.98	2.22	46.20	64.03	-17.83	QP
2		0.1901	38.38	2.22	40.60	54.03	-13.43	AVG
3		2.2900	51.30	0.85	52.15	56.00	-3.85	QP
4	*	2.3179	41.55	0.85	42.40	46.00	-3.60	AVG
5		11.3817	35.16	10.24	45.40	60.00	-14.60	QP
6		12.2896	25.56	10.24	35.80	50.00	-14.20	AVG

Power	:	120V/60Hz for adapter	Pol/Phase	:	NEUTRAL
Test Mode 1	:	TX CH38 5180MHz(worst-case)	Temperatur	:	28 °C
Humidity	:	43 %			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2220	43.23	1.94	45.17	52.74	-7.57	AVG
2		0.2316	52.54	1.91	54.45	62.39	-7.94	QP
3	*	1.7740	52.11	0.83	52.94	56.00	-3.06	QP
4		2.0899	40.13	0.84	40.97	46.00	-5.03	AVG
5		13.0495	30.88	10.24	41.12	50.00	-8.88	AVG
6		13.5859	38.75	10.25	49.00	60.00	-11.00	QP

7. Test of Radiated Emission

7.1 Test Limit

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

7.2 Test Procedures

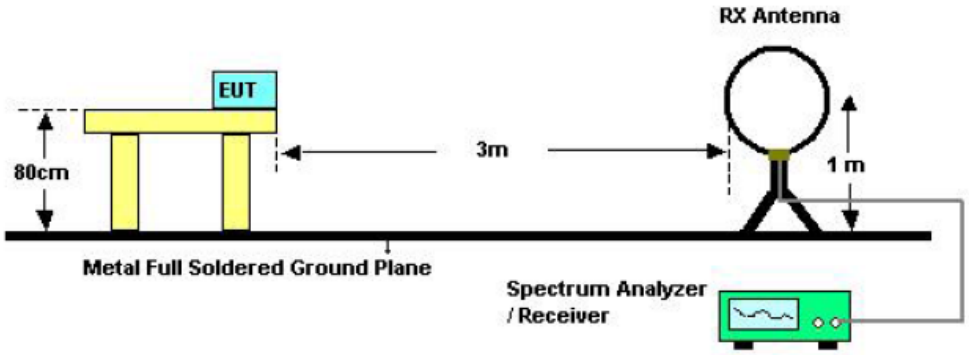
a. The EUT was placed on a rotatable table top 0.8 meter above ground.
b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
c. The table was rotated 360 degrees to determine the position of the highest radiation.
d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise,

the emissions will be measured in average mode again and reported.

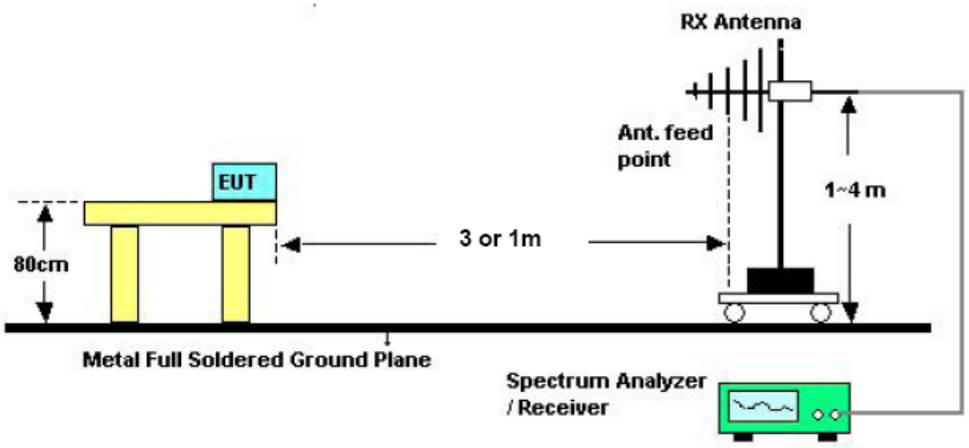
i. “Cone of radiation” has been considered to be 3dB bandwidth of the measurement antenna.

7.3 Typical Test Setup

For radiated emissions below 30MHz

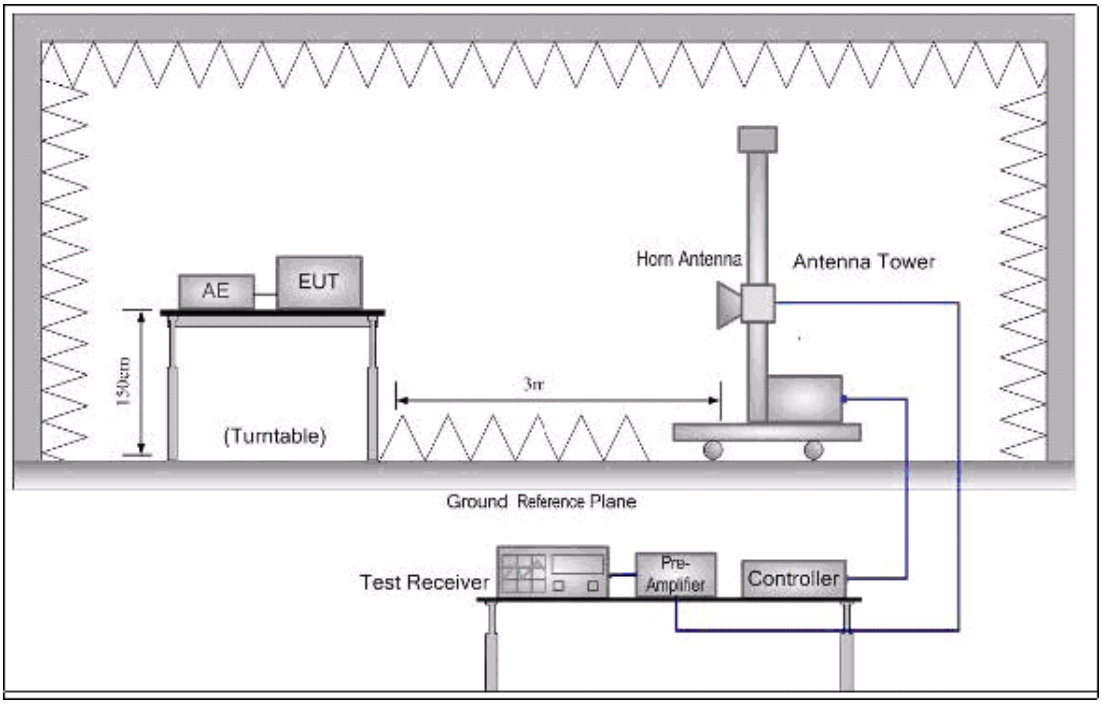


For radiated emissions above 30MHz



Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

For radiated emissions frequency above 1GHz



Note: For harmonic emissions test a appropriate high pass filter was inserted in the input port of AMP.

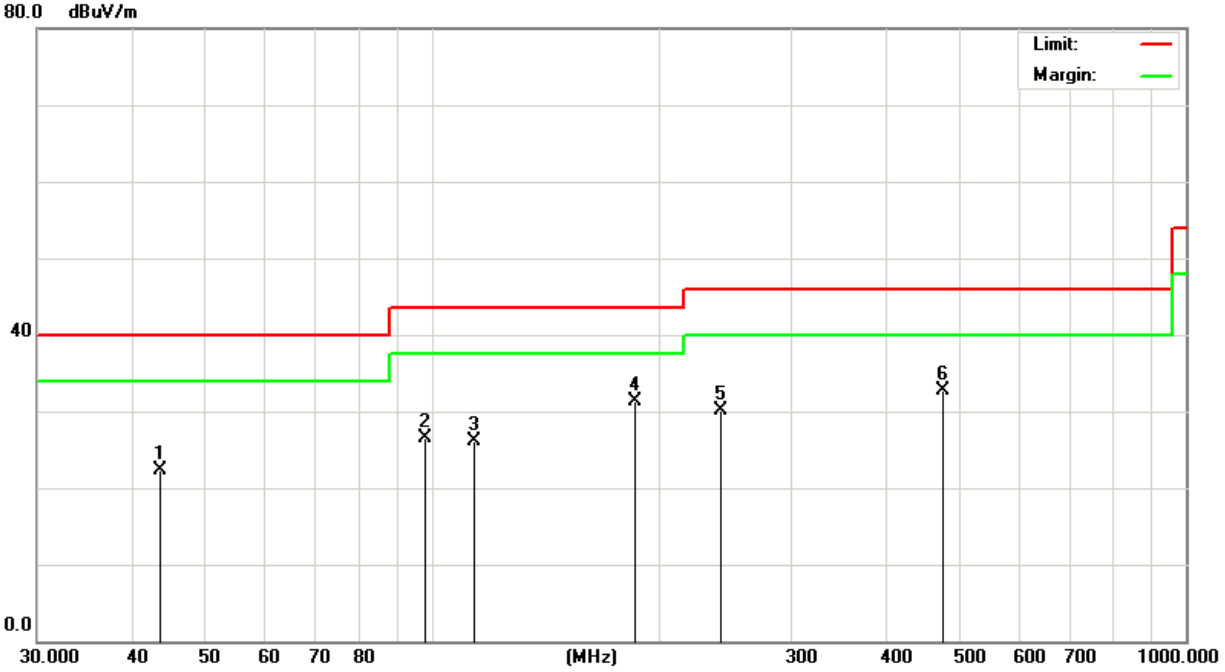
7.4 Test Result and Data (9kHz ~ 30MHz)

The 9kHz - 30MHz spurious emission is under limit 20dB more.

7.5 Test Result and Data (30MHz ~ 1GHz, worst emissions found)

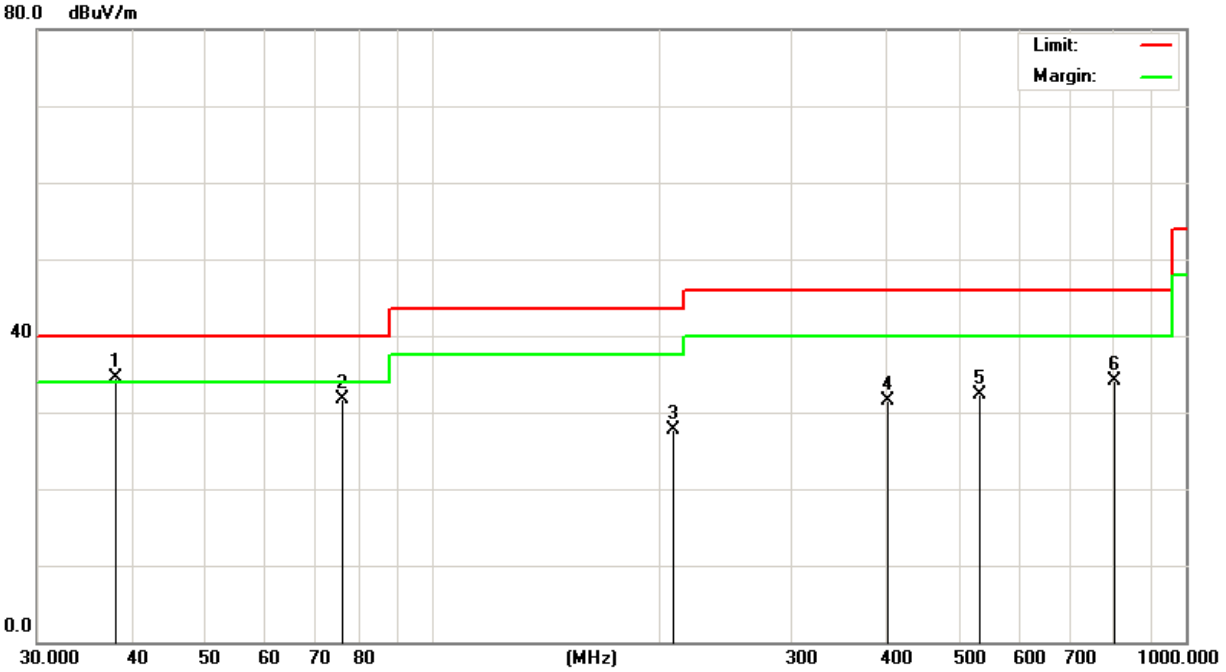
Antenna A:

Power	:	DC 7.4V from battery	Pol/Phase	:	HORIZONTAL
Test Mode 1	:	TX 5180MHz(worst-case)	Temperature	:	28 °C
Humidity	:	59%			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		43.6584	33.11	-10.89	22.22	40.00	-17.78	QP
2		98.1419	40.33	-13.85	26.48	43.50	-17.02	QP
3		114.1136	38.49	-12.47	26.02	43.50	-17.48	QP
4	*	185.7880	43.28	-11.99	31.29	43.50	-12.21	QP
5		240.8302	42.32	-12.15	30.17	46.00	-15.83	QP
6		475.4990	38.52	-5.89	32.63	46.00	-13.37	QP

Power	:	DC 7.4V from battery	Pol/Phase	:	VERTICAL
Test Mode 1	:	TX 5180MHz(worst-case)	Temperature	:	28 °C
Humidity	:	59%			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1	*	38.2120	46.52	-12.10	34.42	40.00	-5.58	QP
2		76.2442	47.79	-16.10	31.69	40.00	-8.31	QP
3		208.5801	37.45	-9.84	27.61	43.50	-15.89	QP
4		403.2500	37.55	-6.05	31.50	46.00	-14.50	QP
5		533.8318	37.46	-5.21	32.25	46.00	-13.75	QP
6		804.6028	3.58	30.48	34.06	46.00	-11.94	QP

7.6 Test Result and Data (Between 1~40 GHz)

Above 1GHz:

802.11a-5180MHz	H	10360	33.65	12.56	46.21	74	-27.79	PEAK
	H	15540	36.03	16.45	52.48	68.2	-15.72	PEAK
	V	10360	34.96	12.56	47.52	74	-26.48	PEAK
	V	15540	36.57	16.45	53.02	68.2	-15.18	PEAK
802.11a-5200 MHz	H	10400	35.69	12.64	48.33	74	-25.67	PEAK
	H	15600	35.47	16.53	52	68.2	-16.2	PEAK
	V	10400	37.52	12.64	50.16	74	-23.84	PEAK
	V	15600	35.33	16.53	51.86	68.2	-16.34	PEAK
802.11a-5240 MHz	H	10480	33.25	12.68	45.93	74	-28.07	PEAK
	H	15720	35.02	16.54	51.56	68.2	-16.64	PEAK
	V	10480	36.24	12.68	48.92	74	-25.08	PEAK
	V	15720	34.71	16.54	51.25	68.2	-16.95	PEAK
802.11n HT20-5180MHz	H	10360	33.25	12.56	45.81	74	-28.19	PEAK
	H	15540	35.97	16.45	52.42	68.2	-15.78	PEAK
	V	10360	34.82	12.56	47.38	74	-26.62	PEAK
	V	15540	36.59	16.45	53.04	68.2	-15.16	PEAK
802.11n HT20-5200MHz	H	10400	36.31	12.64	48.95	74	-25.05	PEAK
	H	15600	35.68	16.53	52.21	68.2	-15.99	PEAK
	V	10400	37.44	12.64	50.08	74	-23.92	PEAK
	V	15600	35.49	16.53	52.02	68.2	-16.18	PEAK

802.11n HT20-5240MHz	H	10480	33.35	12.68	46.03	74	-27.97	PEAK
	H	15720	35.62	16.54	52.16	68.2	-16.04	PEAK
	V	10480	36.16	12.68	48.84	74	-25.16	PEAK
	V	15720	34.89	16.54	51.43	68.2	-16.77	PEAK

802.11n HT40-5190MHz	H	10380	36.13	12.58	48.71	74	-25.29	PEAK
	H	15570	34.50	16.48	50.98	68.2	-17.22	PEAK
	V	10380	38.30	12.58	50.88	74	-23.12	PEAK
	V	15570	33.43	16.48	49.91	68.2	-18.29	PEAK

802.11n HT40-5230MHz	H	10460	35.59	12.66	48.25	74	-25.75	PEAK
	H	15690	33.03	16.53	49.56	68.2	-18.64	PEAK
	V	10460	35.26	12.66	47.92	74	-26.08	PEAK
	V	15690	33.49	16.53	50.02	68.2	-18.18	PEAK

802.11ac HT20-5180MHz	H	10360	33.36	12.56	45.92	74	-28.08	PEAK
	H	15540	35.97	16.45	52.42	68.2	-15.78	PEAK
	V	10360	34.91	12.56	47.47	74	-26.53	PEAK
	V	15540	36.64	16.45	53.09	68.2	-15.11	PEAK

802.11ac HT20-5200MHz	H	10400	36.61	12.64	49.25	74	-24.75	PEAK
	H	15600	35.81	16.53	52.34	68.2	-15.86	PEAK
	V	10400	37.36	12.64	50.00	74	-24.00	PEAK
	V	15600	35.59	16.53	52.12	68.2	-16.08	PEAK

802.11ac HT20-5240MHz	H	10480	33.69	12.68	46.37	74	-27.63	PEAK
	H	15720	35.71	16.54	52.25	68.2	-15.95	PEAK
	V	10480	36.26	12.68	48.94	74	-25.06	PEAK
	V	15720	34.78	16.54	51.32	68.2	-16.88	PEAK

802.11ac HT40-5190MHz	H	10380	36.03	12.58	48.61	74	-25.39	PEAK
	H	15570	34.29	16.48	50.77	68.2	-17.43	PEAK
	V	10380	38.11	12.58	50.69	74	-23.31	PEAK
	V	15570	33.41	16.48	49.89	68.2	-18.31	PEAK

802.11ac HT40-5230MHz	H	10460	37.51	12.66	50.17	74	-23.83	PEAK
	H	15690	35.15	16.53	51.68	68.2	-16.52	PEAK
	V	10460	36.26	12.66	48.92	74	-25.08	PEAK
	V	15690	32.41	16.53	48.94	68.2	-19.26	PEAK

802.11ac HT80-5210MHz	H	10420	34.33	12.62	46.95	74	-27.05	PEAK
	H	15630	33.65	16.52	50.17	68.2	-18.03	PEAK
	V	10420	34.48	12.62	47.10	74	-26.9	PEAK
	V	15630	32.82	16.52	49.34	68.2	-18.86	PEAK

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

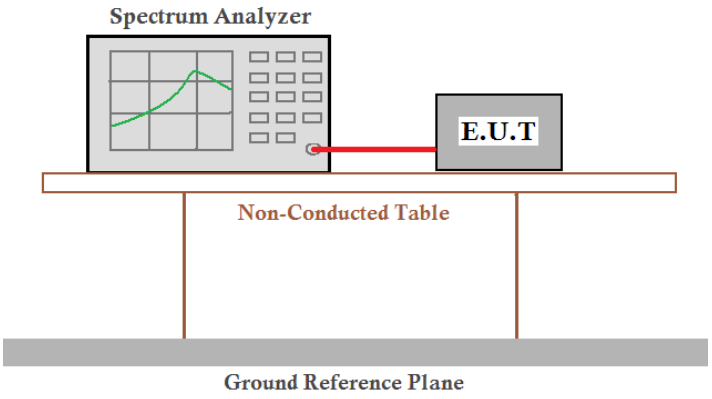
Final Test Level =Receiver Reading + Antenna Factor + Cable Factor –Preamplifier Factor.

Average measurement was not performed if peak level lower than average limit.

No any other emissions level very low which are attenuated less than 20dB below the limit.

Hence there no other emissions have been reported.

8. Bandwidth Measurement Data

Test Requirement:	FCC Part15 E Section 15.407
Test Method	ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	N/A (Band I)
	>500KHz(Band IV)
Test setup:	
Test procedure:	According to KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Test Instruments:	Refer to section 5.10 f & section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

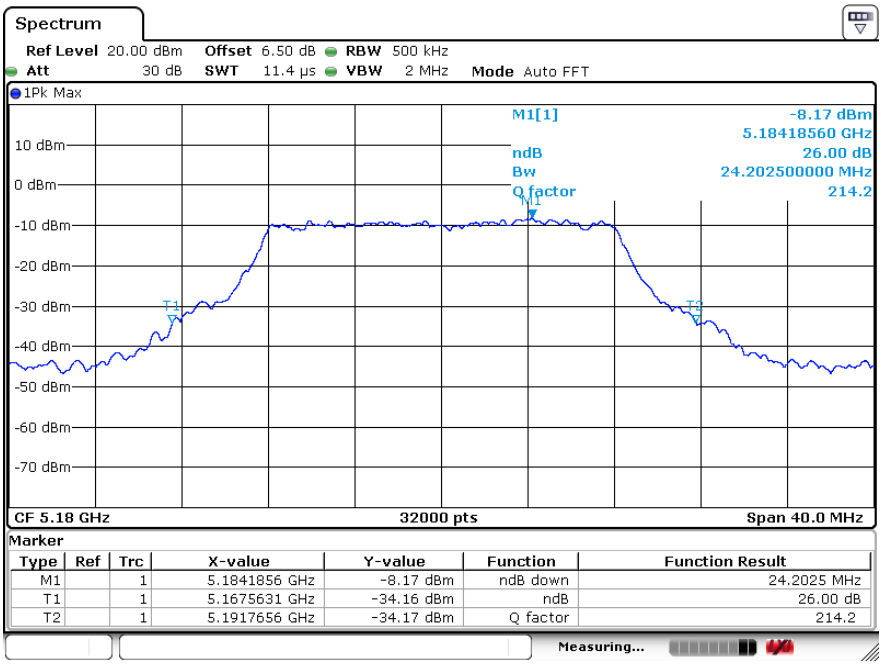
8.1 Test Result and Data

CH. No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)			99% Occupied Bandwidth (MHz)		
		802.11a	802.11n (HT20)	802.11ac (VHT20)	802.11a	802.11n (HT20)	802.11ac (VHT20)
36	5180.00	24.20	24.69	24.25	17.57	18.44	18.54
40	5200.00	23.81	23.96	24.42	17.32	18.23	18.45
48	5240.00	24.43	24.39	25.29	17.38	18.23	18.42

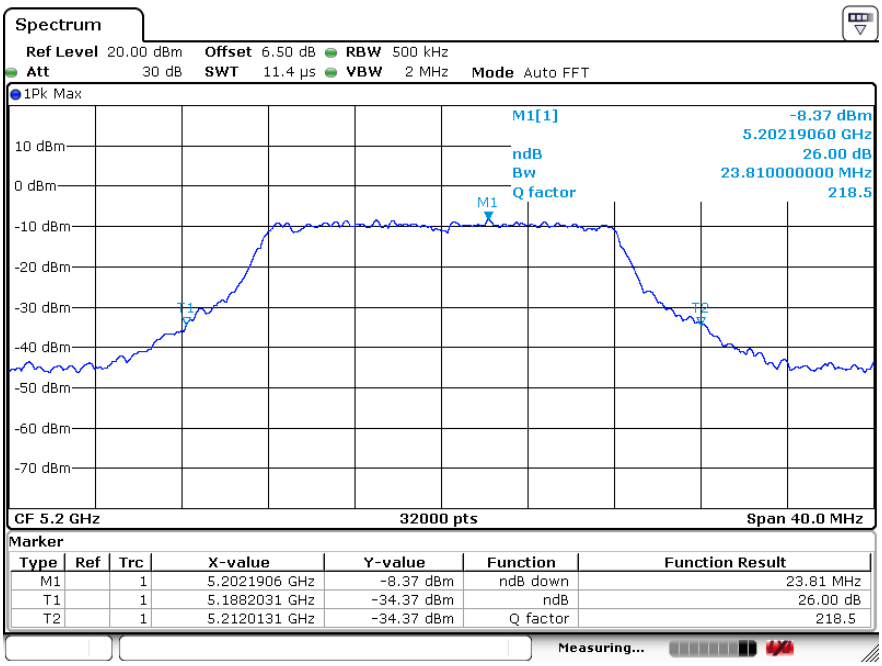
CH. No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		802.11n(HT40)	802.11ac(VHT40)	802.11n(HT40)	802.11ac(VHT40)
38	5190.00	44.92	44.43	36.43	36.51
46	5230.00	44.79	43.15	36.45	36.67

CH. No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
		802.11ac(VHT80)	802.11ac(VHT80)
42	5210	82.99	75.26

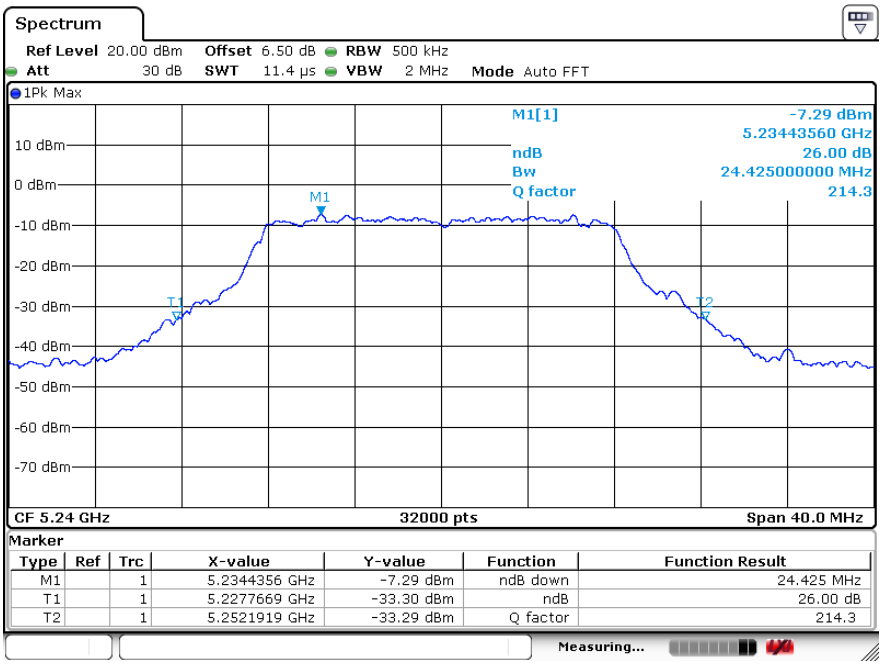
26dB BW 802.11a
Channel: 36



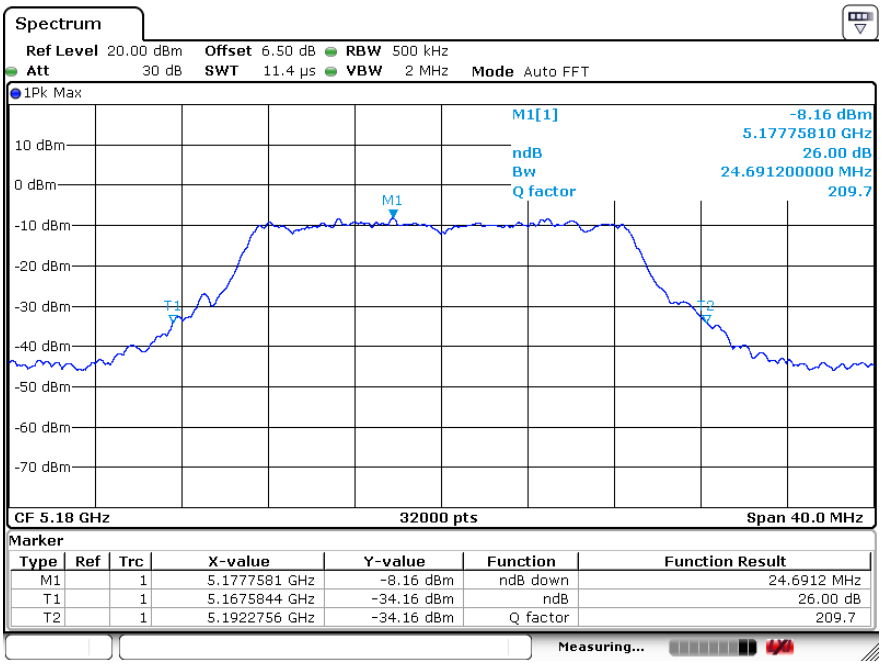
Channel: 40



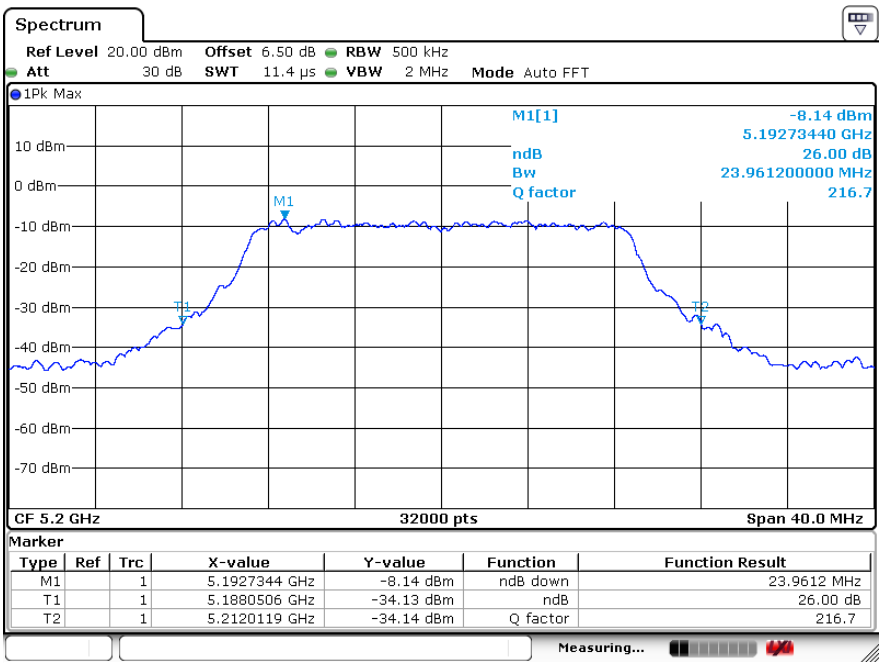
Channel: 48


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1]
-7.29 dBm
5.23443560 GHz
ndB
26.00 dB
Bw
24.425000000 MHz
Q factor
214.3
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2344356 GHz -7.29 dBm ndB down 24.425 MHz
T1 1 5.2277669 GHz -33.30 dBm ndB 26.00 dB
T2 1 5.2521919 GHz -33.29 dBm Q factor 214.3
Measuring...

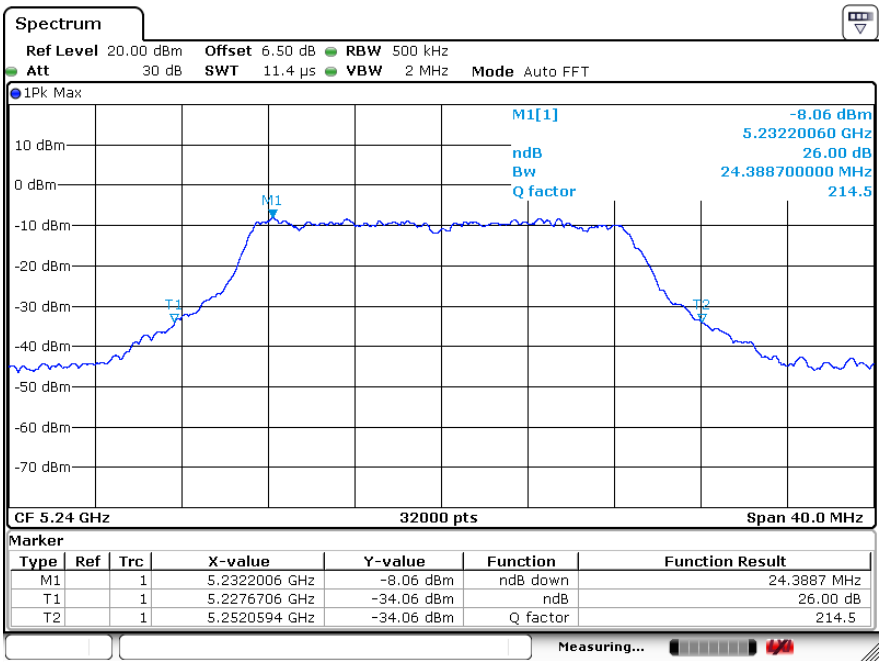
26dB BW 802.11n20
Channel: 36



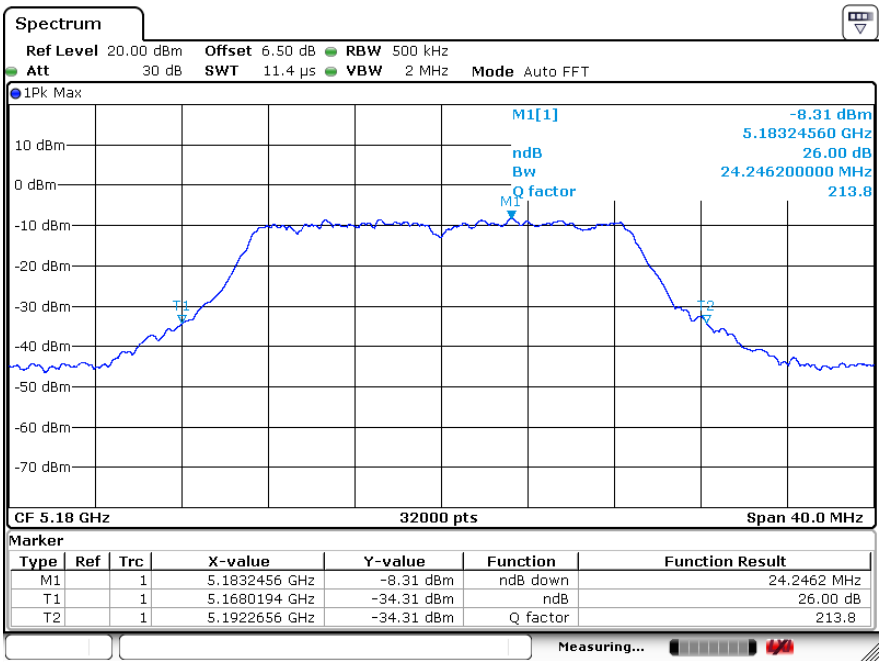
Channel: 40



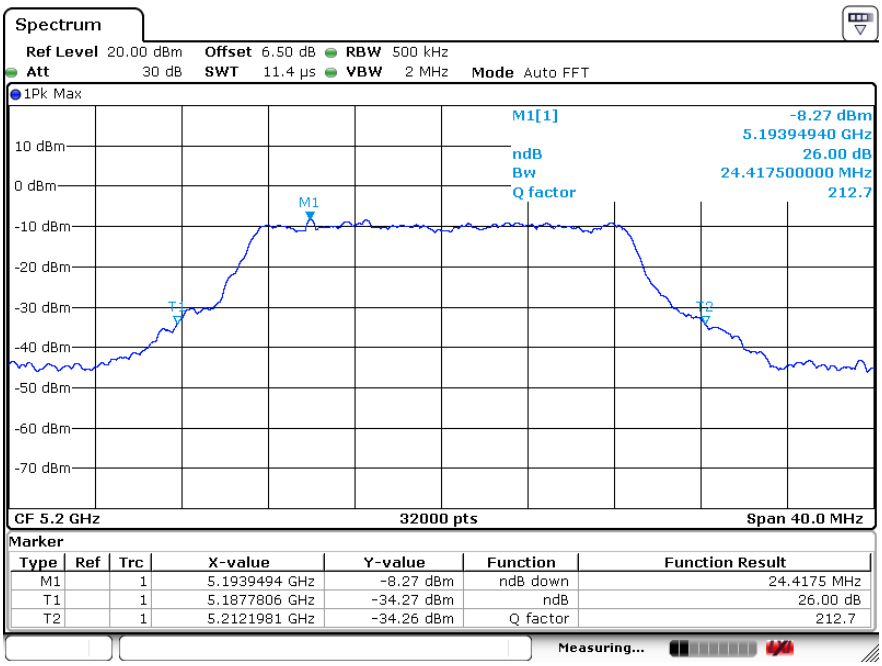
Channel: 48


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1]
-8.06 dBm
5.23220060 GHz
ndB
26.00 dB
Bw
24.388700000 MHz
Q factor
214.5
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2322006 GHz -8.06 dBm ndB down 24.3887 MHz
T1 1 5.2276706 GHz -34.06 dBm ndB 26.00 dB
T2 1 5.2520594 GHz -34.06 dBm Q factor 214.5
Measuring...

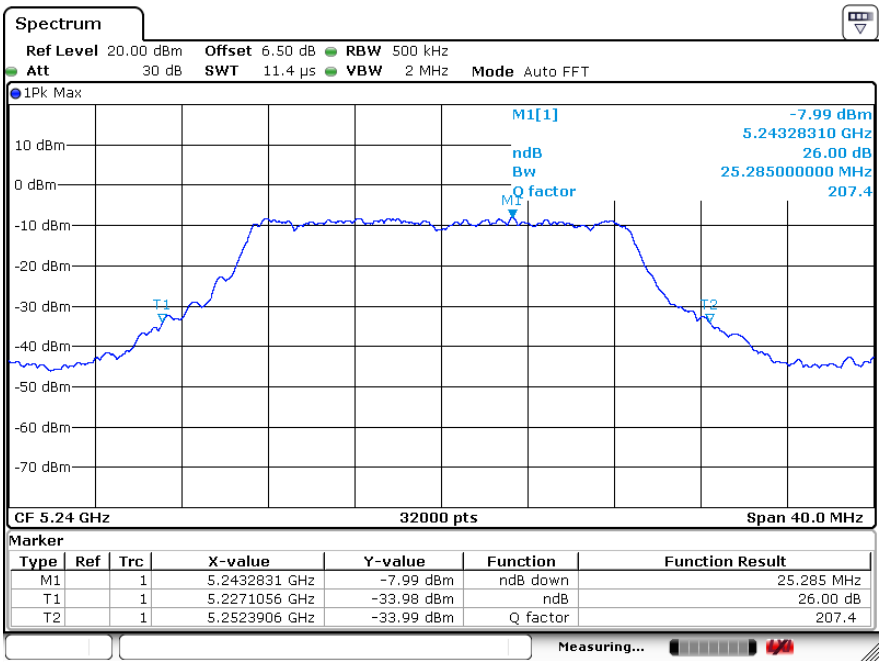
802.11ac20
Channel: 36



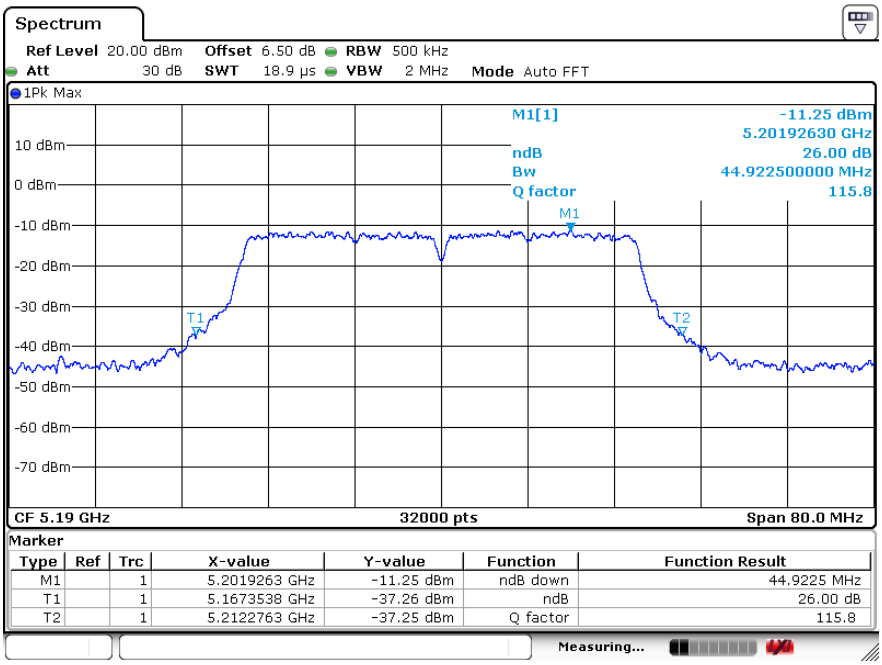
Channel: 40



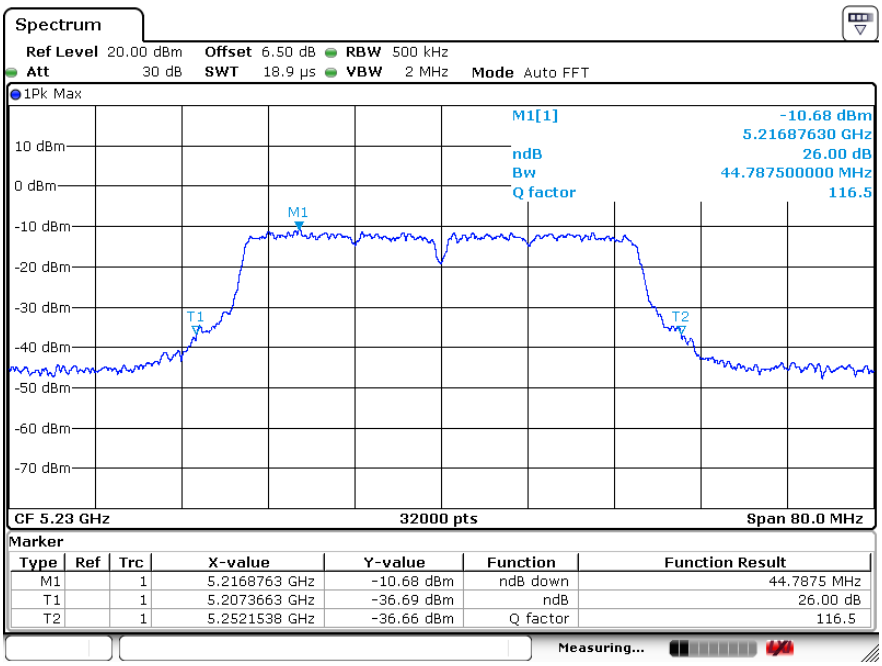
Channel: 48


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1] -7.99 dBm
5.24328310 GHz
ndB 26.00 dB
Bw 25.285000000 MHz
Q factor 207.4
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2432831 GHz -7.99 dBm ndB down 25.285 MHz
T1 1 5.2271056 GHz -33.98 dBm ndB 26.00 dB
T2 1 5.2523906 GHz -33.99 dBm Q factor 207.4
Measuring...

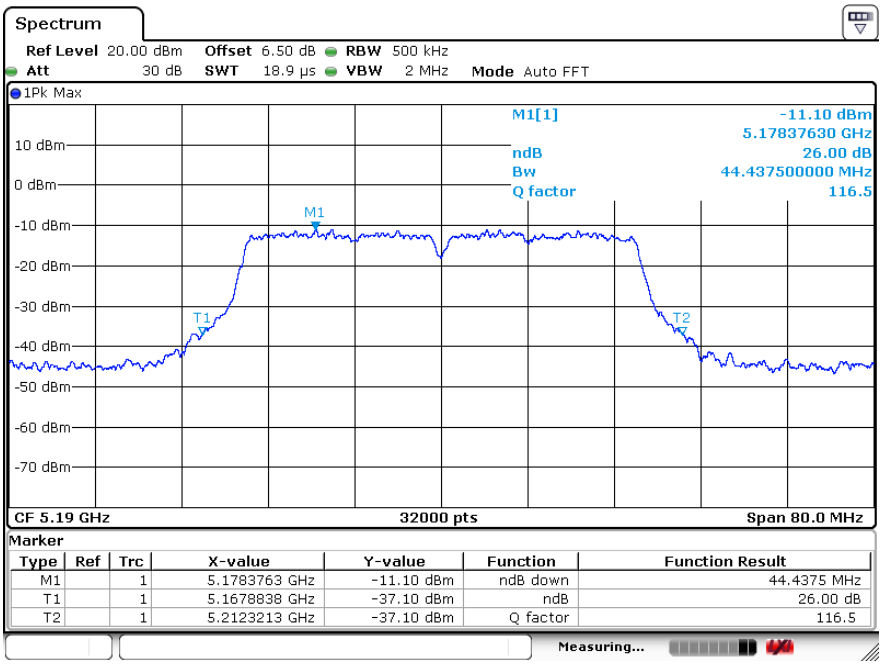
26dB BW 802.11n40
Channel: 38



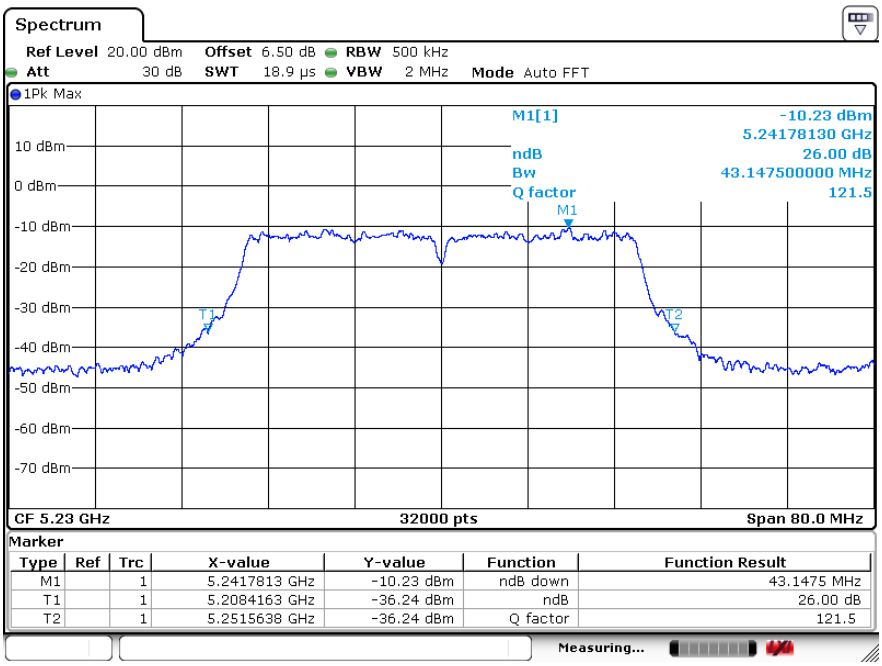
Channel: 46



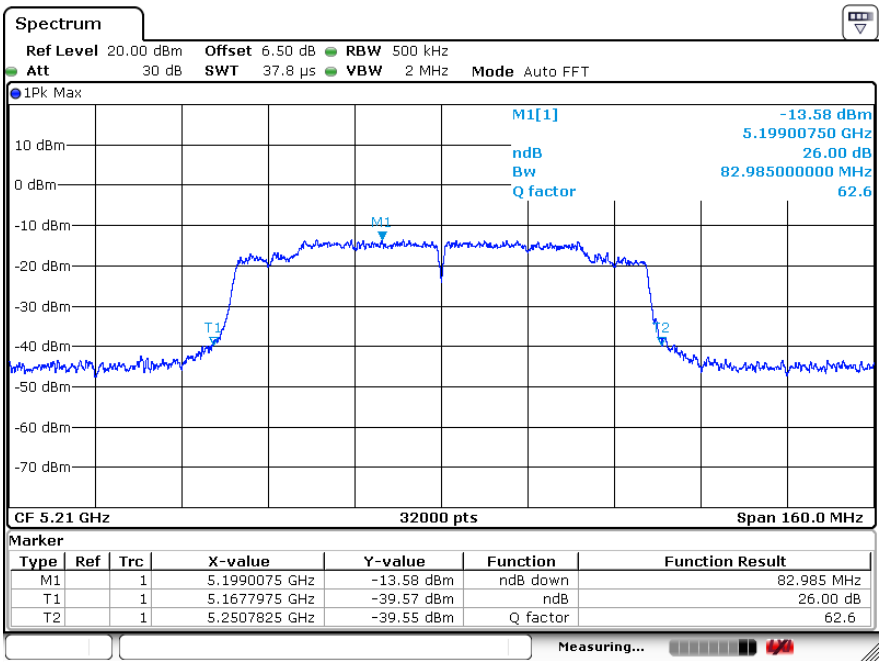
26dB BW 802.11ac40
Channel: 38



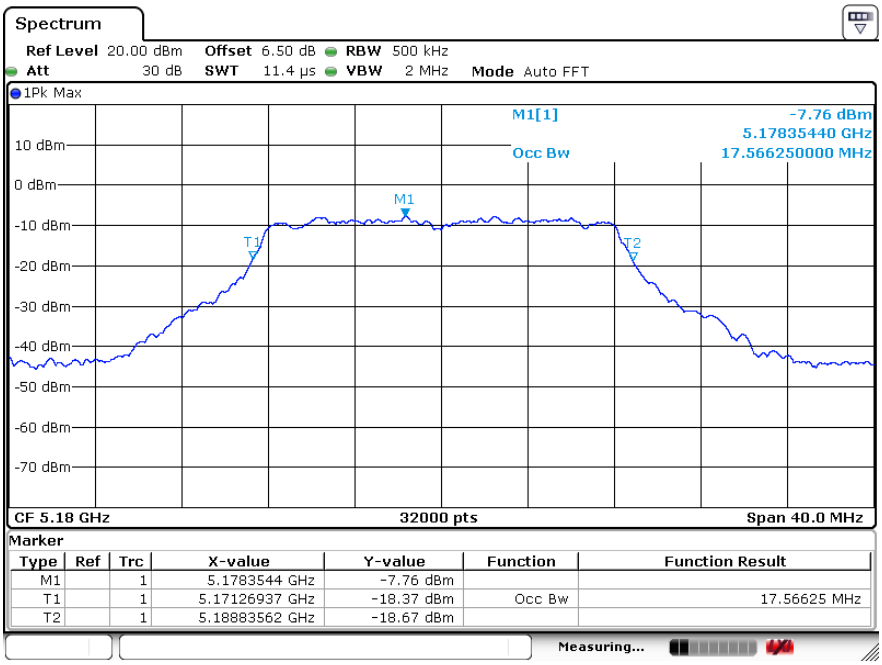
Channel: 46



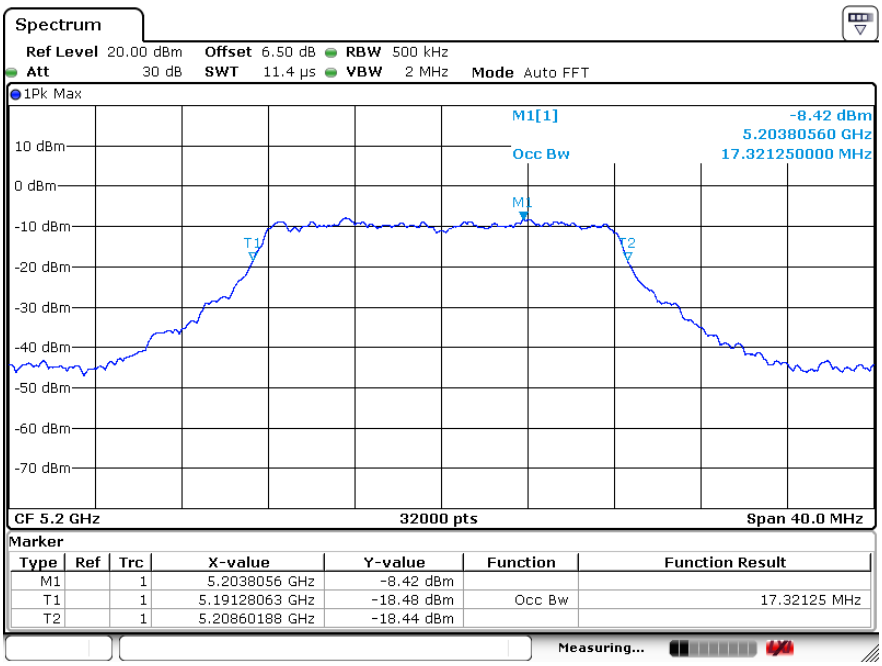
26dB BW 802.11ac80
Channel:42



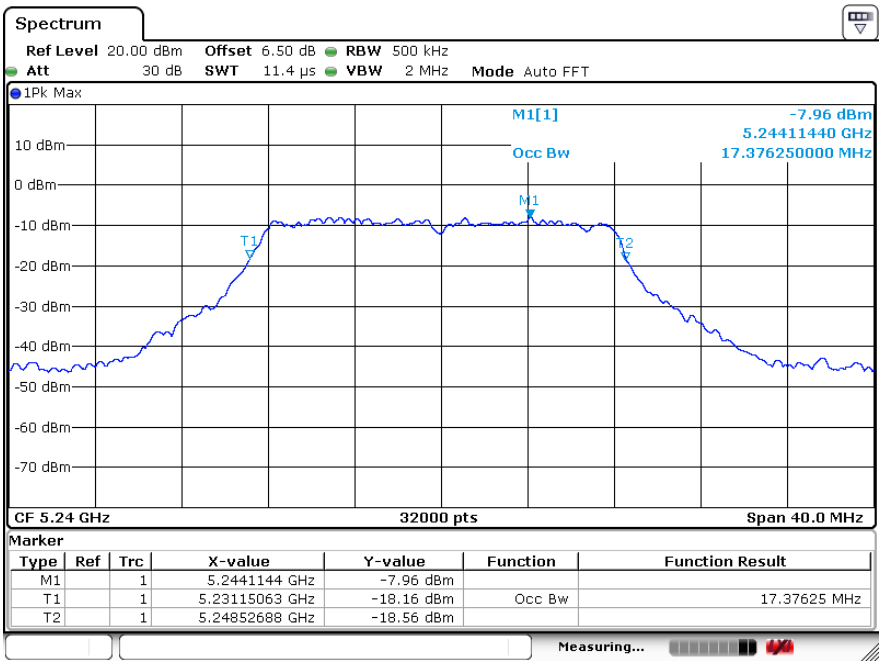
99% OBW 802.11a
Channel: 36



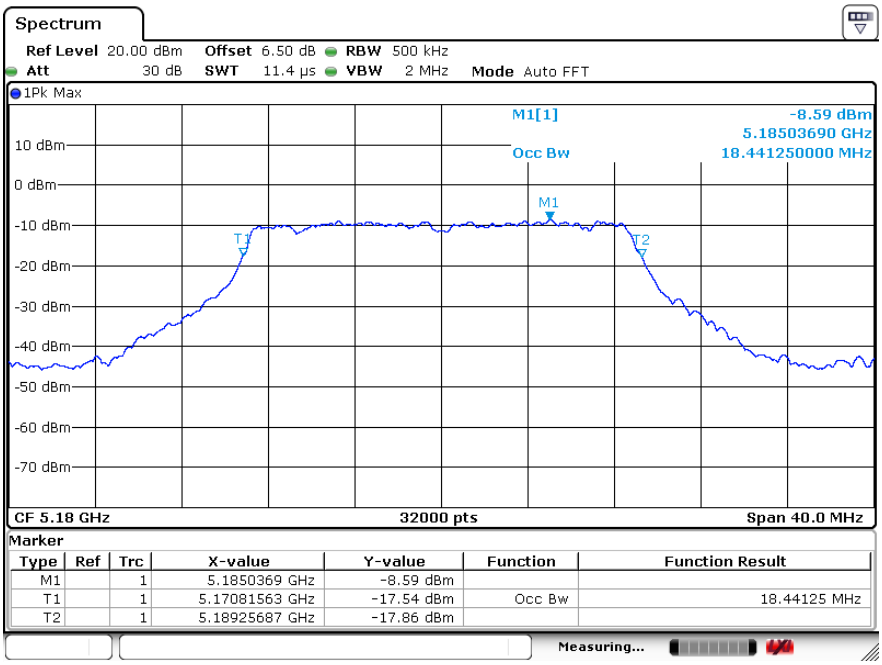
Channel: 40



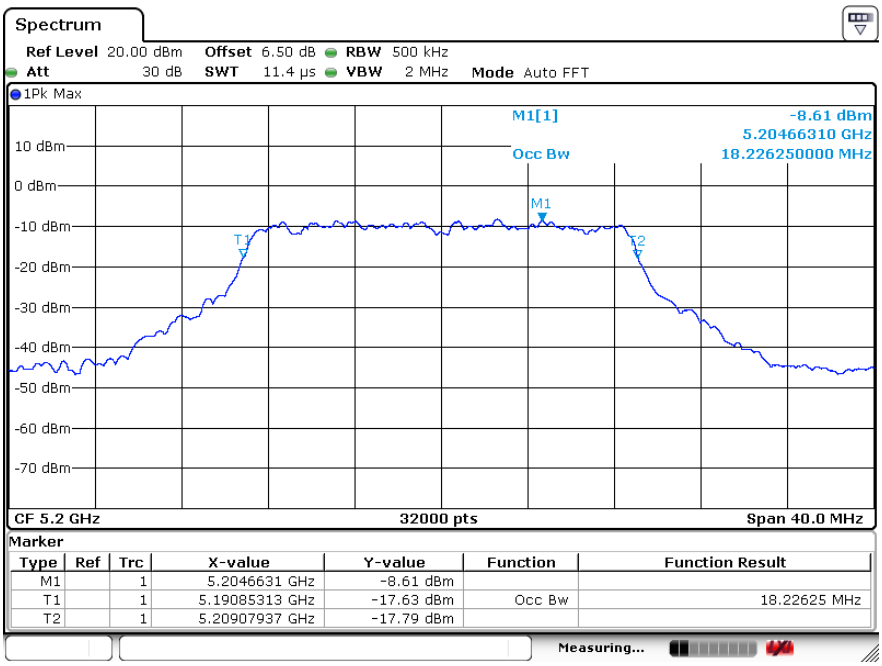
Channel: 48


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1]
-7.96 dBm
5.24411440 GHz
Occ Bw
17.376250000 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2441144 GHz -7.96 dBm
T1 1 5.23115063 GHz -18.16 dBm Occ Bw 17.37625 MHz
T2 1 5.24852688 GHz -18.56 dBm
Measuring...

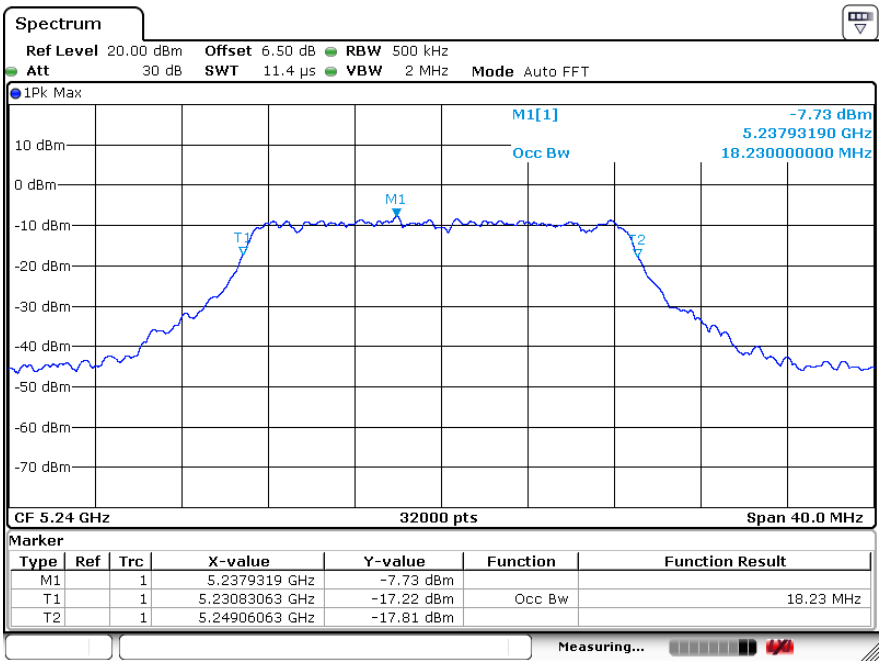
99% OBW 802.11n20
Channel: 36



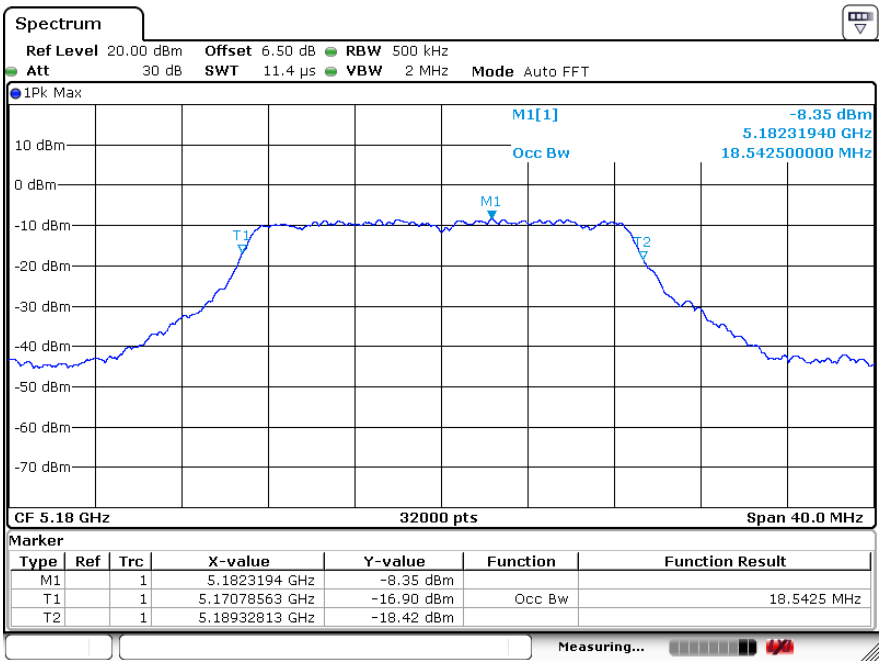
Channel: 40



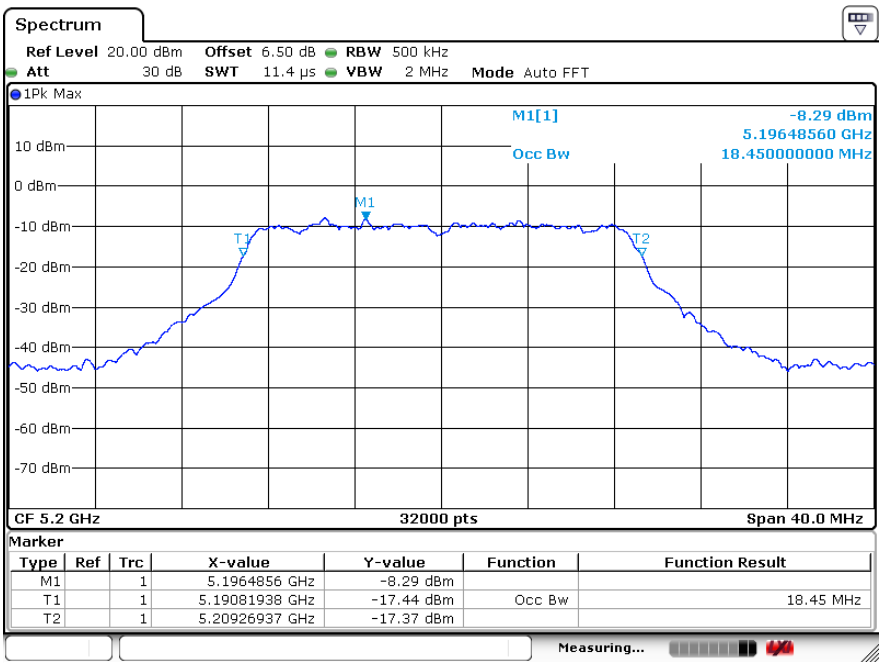
Channel: 48


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1]
-7.73 dBm
5.23793190 GHz
Occ Bw
18.230000000 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2379319 GHz -7.73 dBm
T1 1 5.23083063 GHz -17.22 dBm Occ Bw 18.23 MHz
T2 1 5.24906063 GHz -17.81 dBm
Measuring...

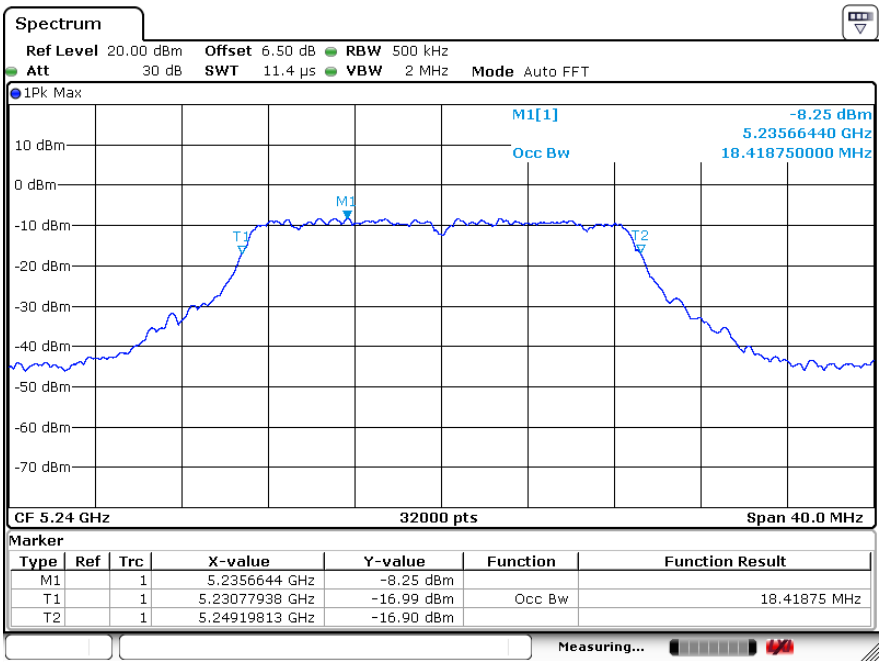
99% OBW 802.11ac20
Channel: 36



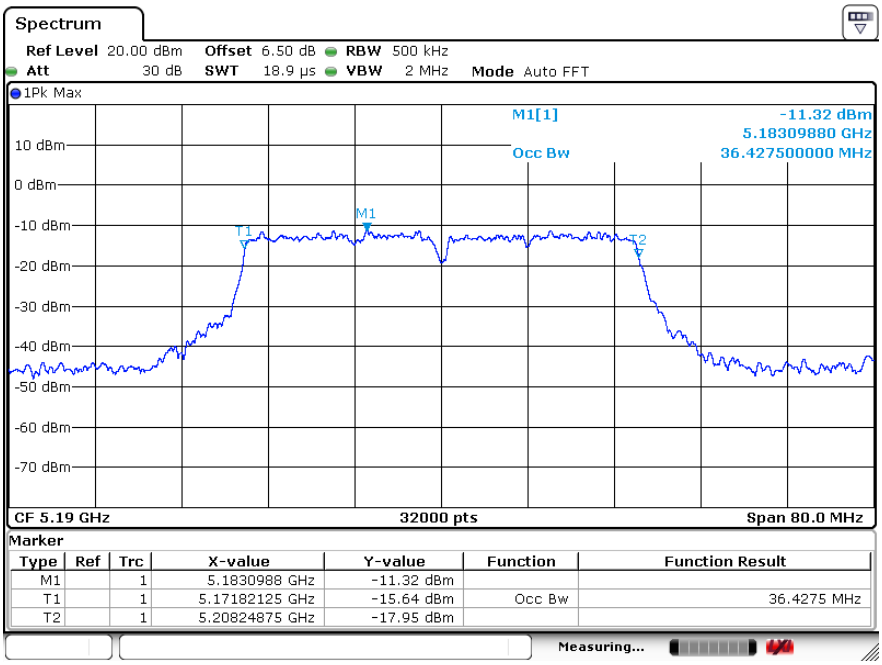
Channel: 40



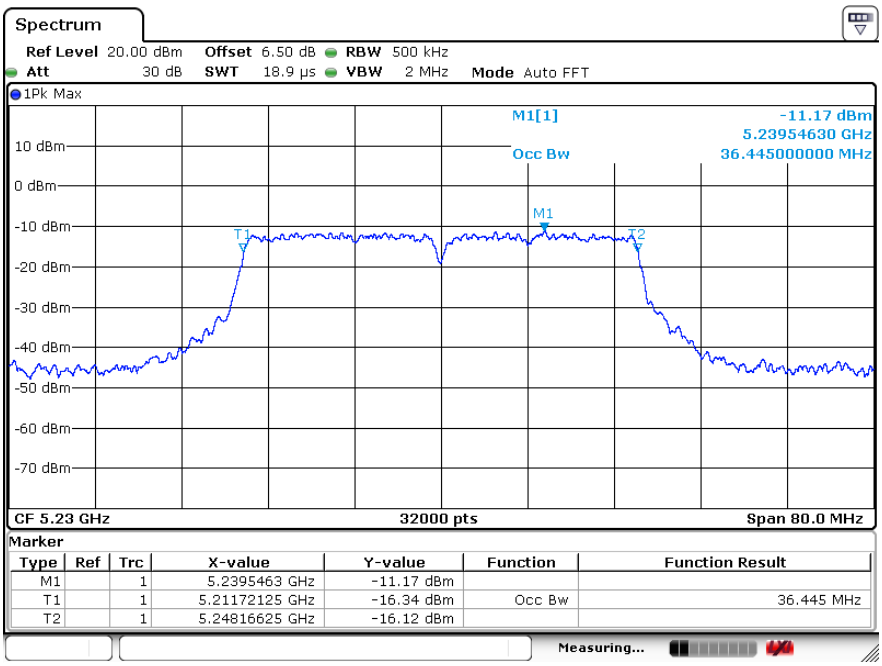
Channel: 48


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1]
-8.25 dBm
5.23566440 GHz
Occ Bw
18.418750000 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2356644 GHz -8.25 dBm
T1 1 5.23077938 GHz -16.99 dBm Occ Bw 18.41875 MHz
T2 1 5.24919813 GHz -16.90 dBm
Measuring...

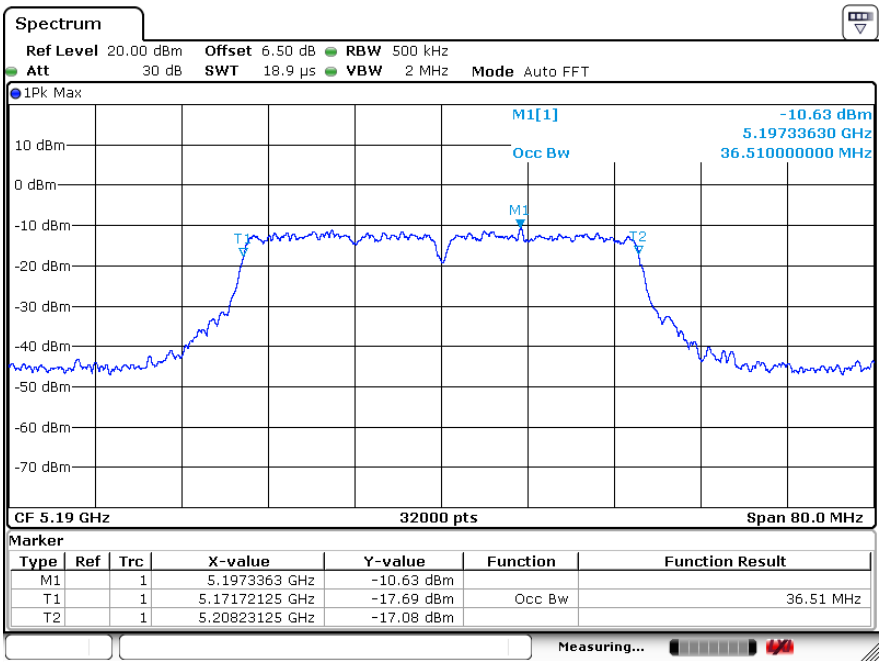
99% OBW 802.11n40
Channel: 38



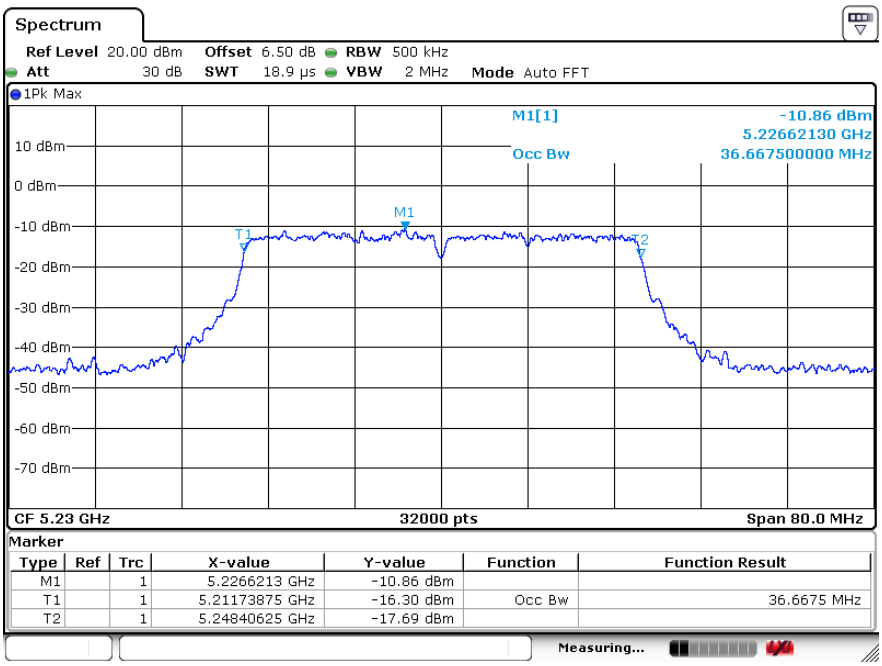
Channel: 46



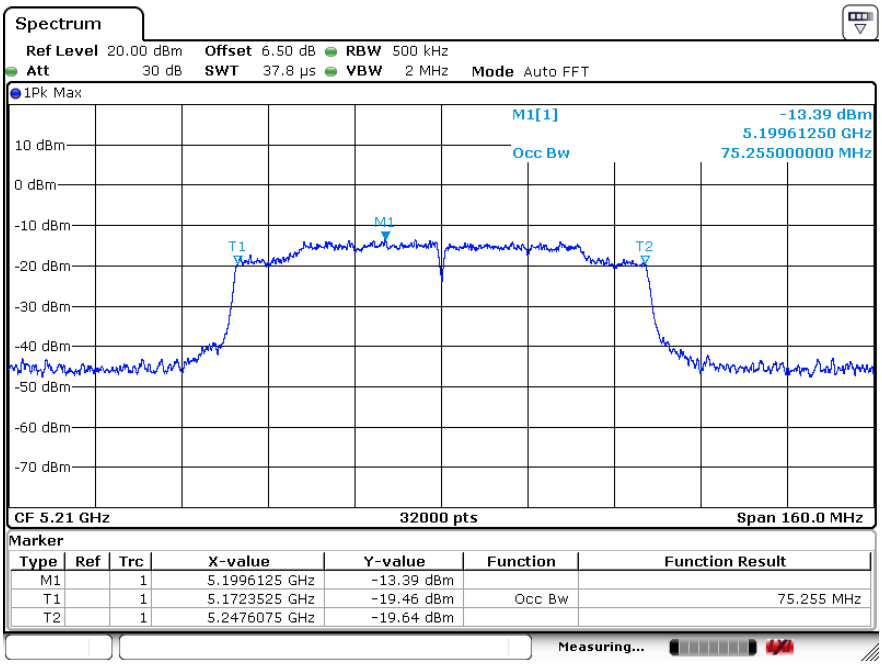
99% OBW 802.11ac40
Channel: 38



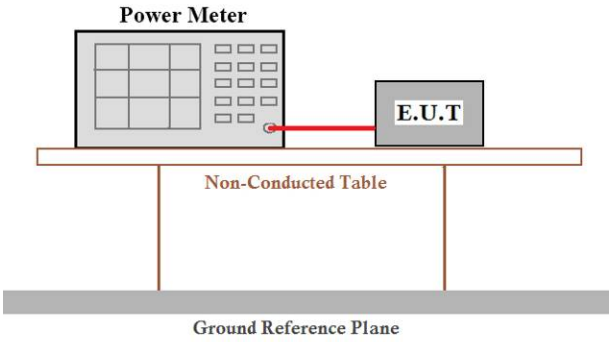
Channel: 46



99% OBW 802.11ac80
Channel:42



9. Output Power

Test Requirement:	FCC Part15 E Section 15.407
Test Method	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency bands of operation shall not exceed 250mW. For the band 5.745-5.850 GHz, the maximum conducted output power over the frequency bands of operation shall not exceed 30dBm
Test setup:	
Test procedure:	**Measurement using an RF average power meter** (i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied a) The EUT is configured to transmit continuously or to transmit with a constant duty cycle. b) At all times when the EUT is transmitting, it must be transmitting at its maximum power control level. c) The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five. (ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in section B). (iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter. (iv) Adjust the measurement in dBm by adding 10 log(1/x) where x is the duty cycle (e.g., 10log(1/0.25) if the duty cycle is 25 percent).
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details

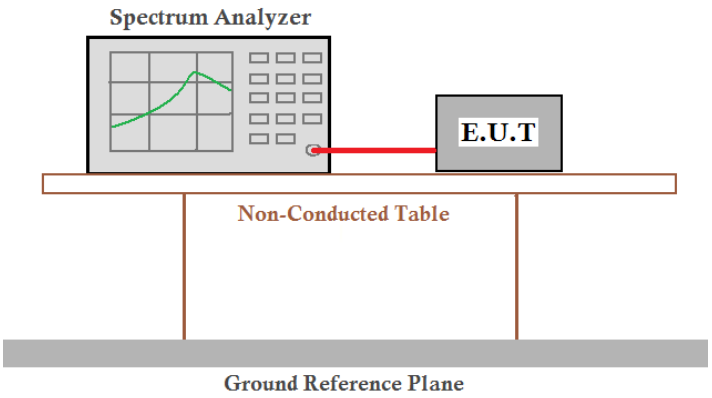
9.1 Test Result and Data

CH. No.	Frequency (MHz)	Output Power (dBm)			Limit(dBm)	Result
		802.11a	802.11n (HT20)	802.11ac (VHT20)		
36	5180.00	5.69	5.72	5.58	24	Pass
40	5200.00	5.65	5.85	5.54	24	Pass
48	5240.00	5.71	5.82	5.48	24	Pass

CH. No.	Frequency (MHz)	Output Power (dBm)		Limit(dBm)	Result
		802.11n(HT40)	802.11ac(VHT40)		
38	5190.00	4.34	4.30	24	Pass
46	5230.00	4.25	4.23	24	Pass

CH. No.	Frequency (MHz)	Output Power (dBm)	Limit(dBm)	Result
		802.11ac(VHT80)		
42	5210	5.34	24	Pass

10. Power Spectral Density

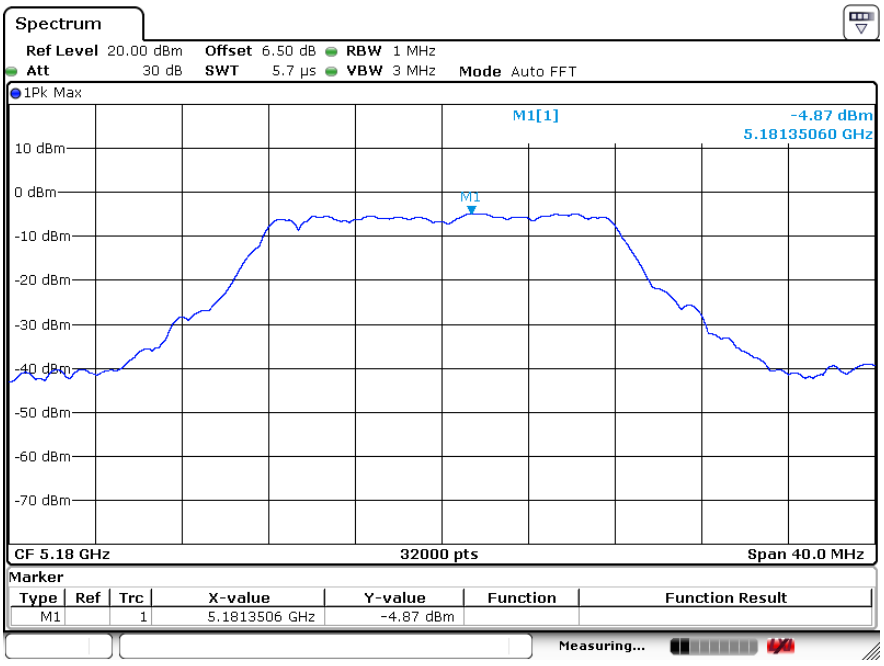
Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v02r01
Limit:	11dBm/MHz(Band I), 30 dBm(Band IV)
Test setup:	
Test procedure:	1) Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power…”. 2) Use the peak search function on the instrument to find the peak of the spectrum. 3) Make the following adjustments to the peak value of the spectrum, if applicable: a) If Method SA-2 or SA-2 Alternative was used, add 10 log(1/x), where x is the duty cycle, to the peak of the spectrum. b) If Method SA-3 Alternative was used and the linear mode was used in step E)2)g)(viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging. 4) The result is the PPSD.
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

10.1 Test Result and Data

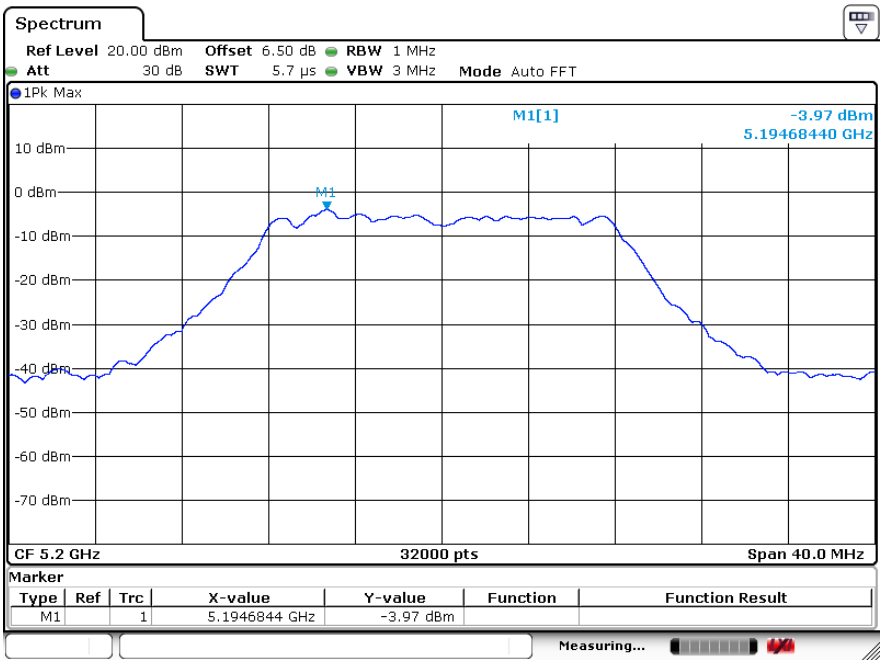
CH. No.	Frequency	Power Density ANT A (dBm/MHz)	Power Density ANT B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
TX 802.11a Mode						
CH36	5180	-4.87	--	--	11	Pass
CH40	5200	-3.97	--	--	11	Pass
CH48	5240	-4.47	--	--	11	Pass
TX 802.11n20 Mode						
CH36	5180	-8.41	--	--	11	Pass
CH40	5200	-8.15	--	--	11	Pass
CH48	5240	-5.37	--	--	11	Pass
TX 802.11n40 Mode						
CH38	5190	-7.03	--	--	11	Pass
CH46	5230	-7.66	--	--	11	Pass

CH. No.	Frequency	Power Density ANT A (dBm/MHz)	Power Density ANT B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
TX 802.11 ac(VHT20) Mode						
CH36	5180	-8.62	--	--	11	Pass
CH40	5200	-7.93	--	--	11	Pass
CH48	5240	-7.54	--	--	11	Pass
TX 802.11 ac(VHT40) Mode						
CH38	5190	-7.87	--	--	11	Pass
CH46	5230	-7.48	--	--	11	Pass
TX 802.11 ac(VHT80) Mode						
CH42	5210	-8.28	--	--	11	Pass

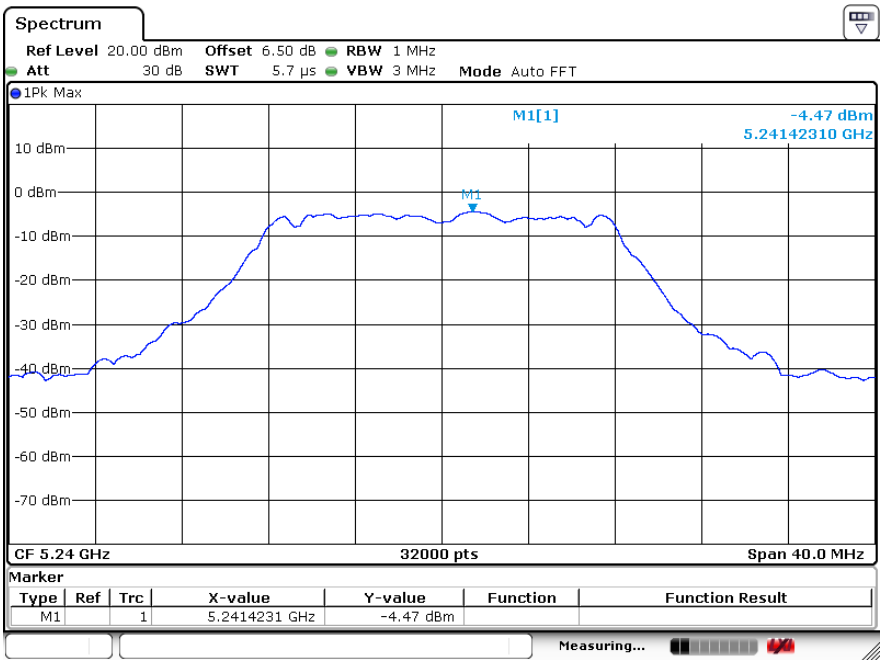
802.11a
Channel: 36



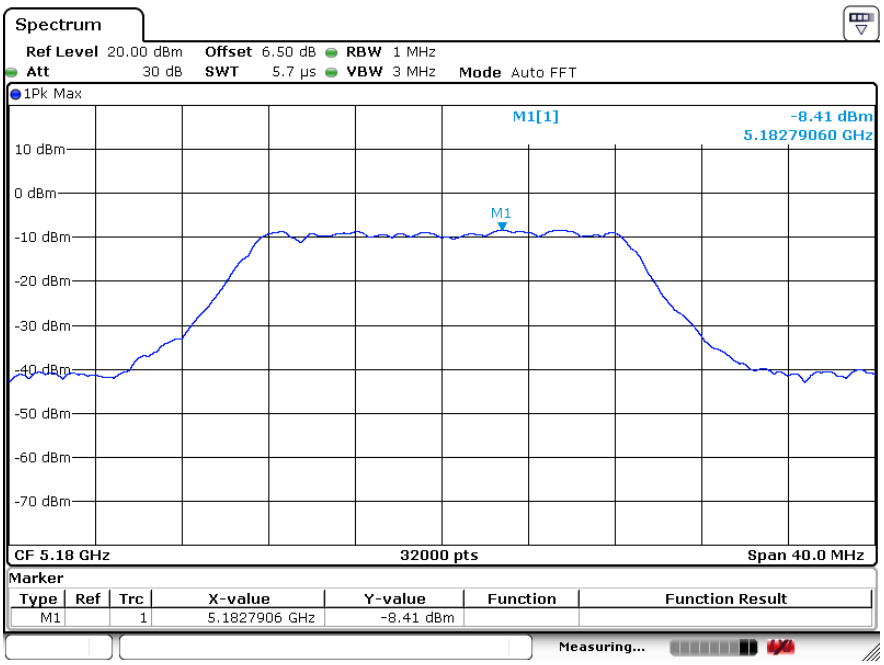
Channel: 40



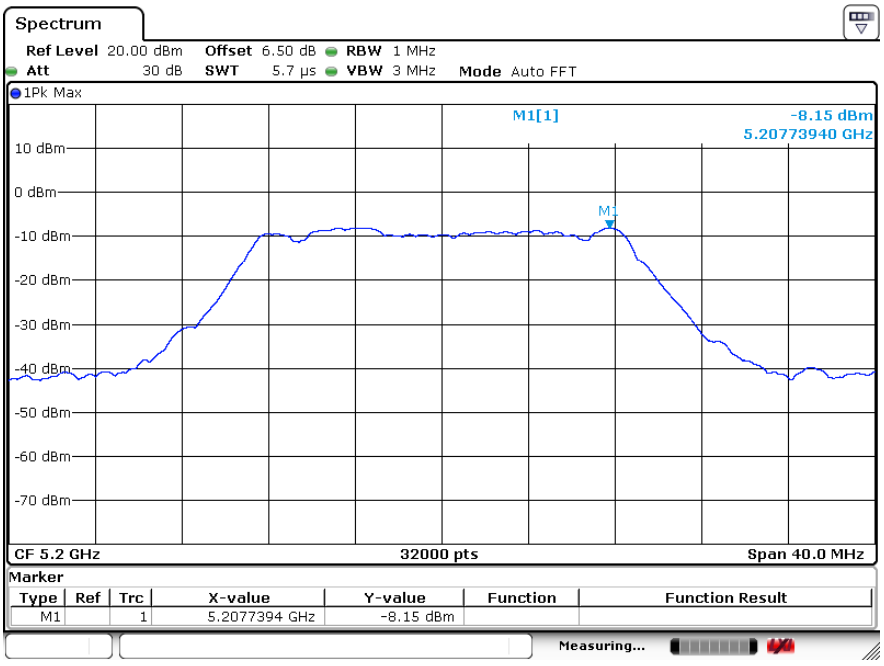
Channel: 48


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1]
-4.47 dBm
5.24142310 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2414231 GHz -4.47 dBm
Measuring...

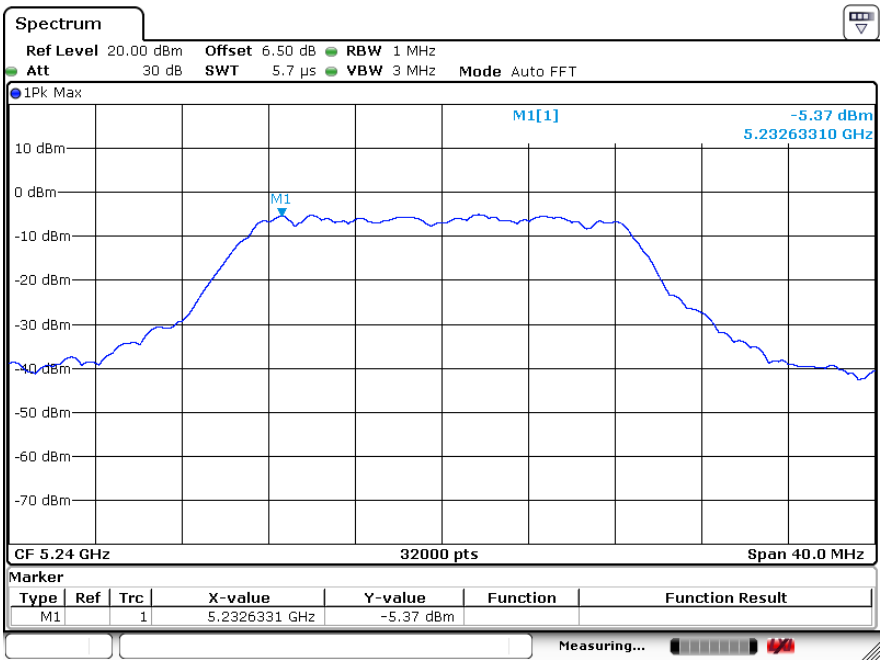
802.11n20
Channel: 36



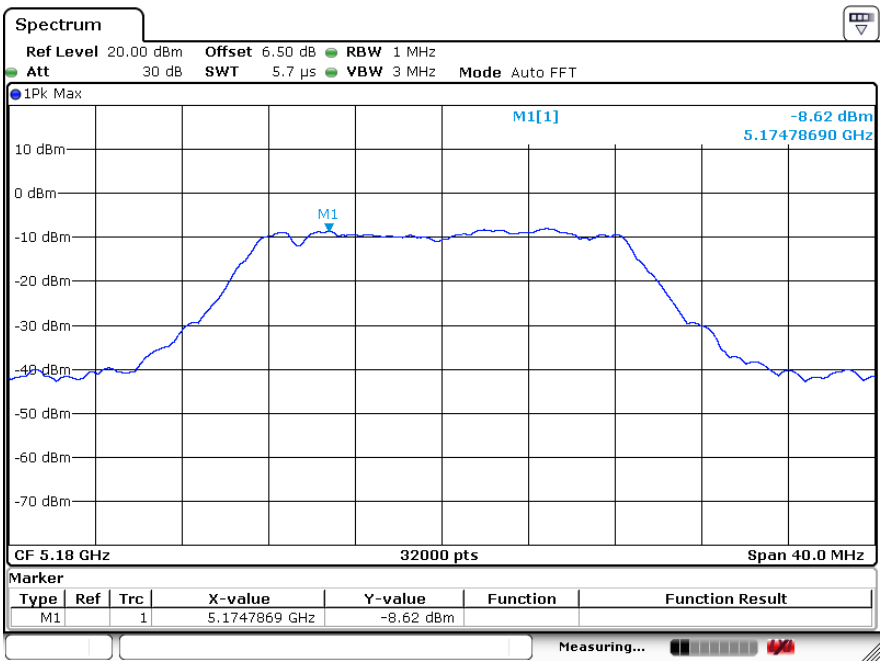
Channel: 40



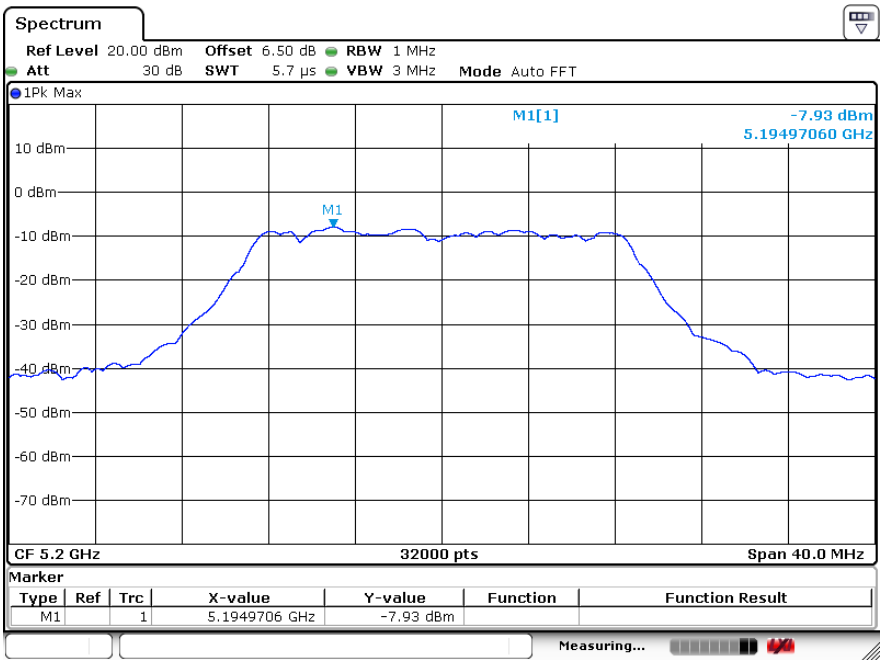
Channel: 48


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1]
-5.37 dBm
5.23263310 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2326331 GHz -5.37 dBm
Measuring...

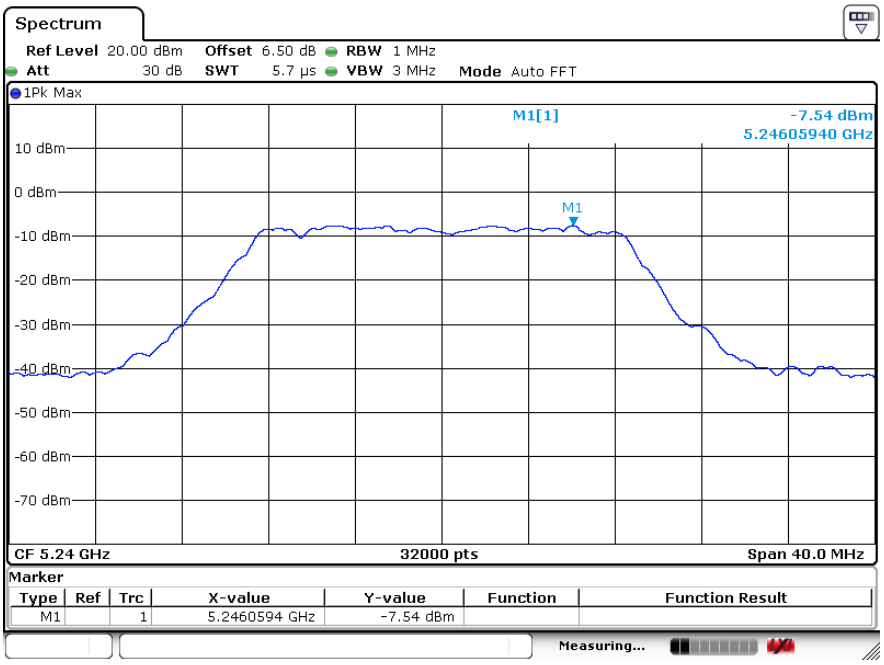
802.11ac20
Channel: 36



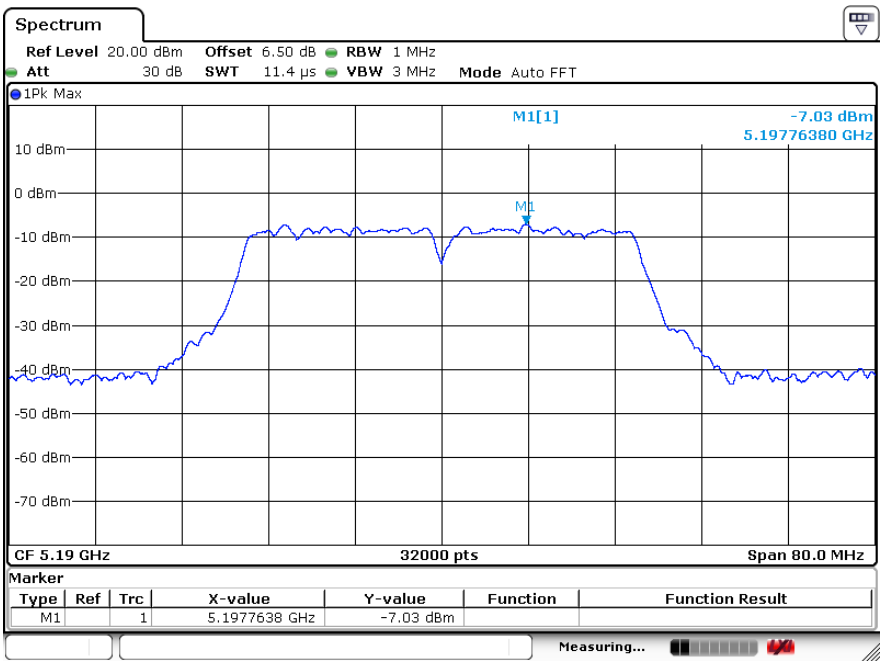
Channel: 40



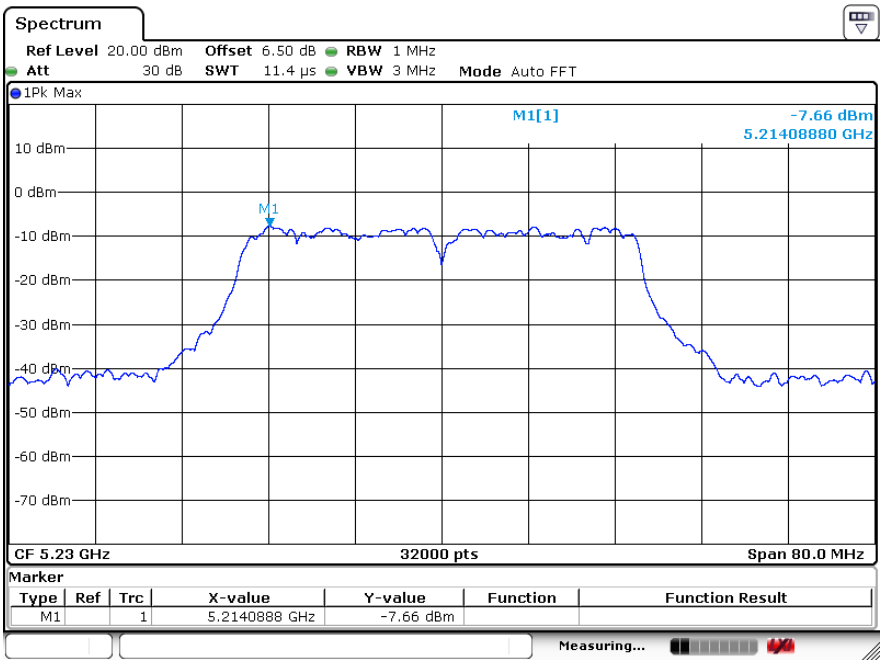
Channel: 48


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1]
-7.54 dBm
5.24605940 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2460594 GHz -7.54 dBm
Measuring...

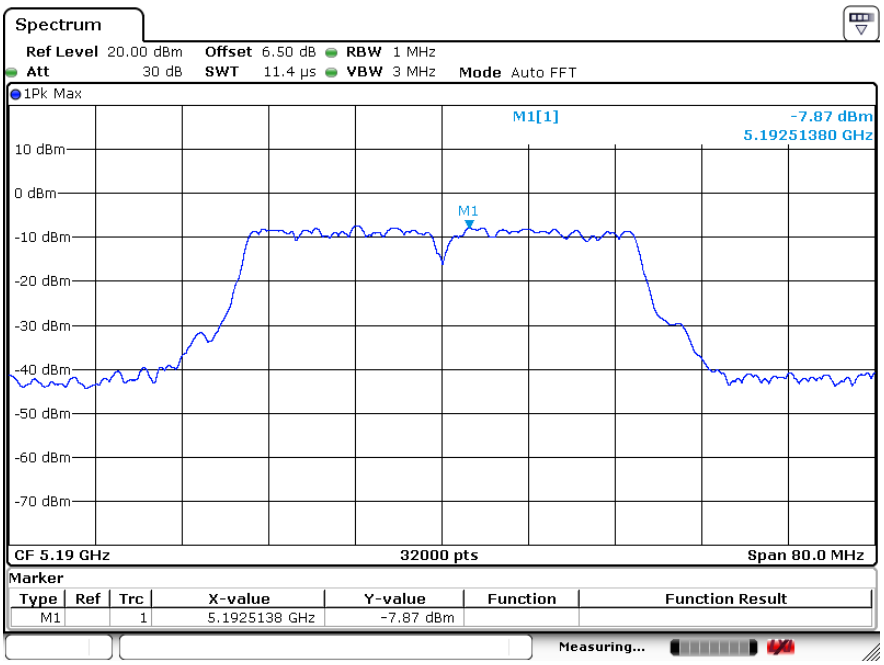
802.11n40
Channel: 38



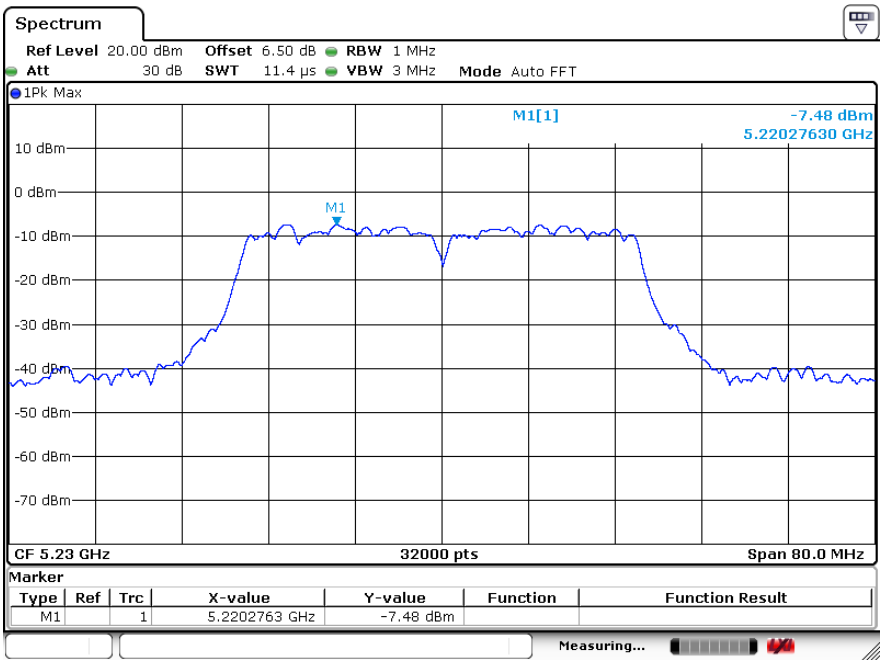
Channel: 46



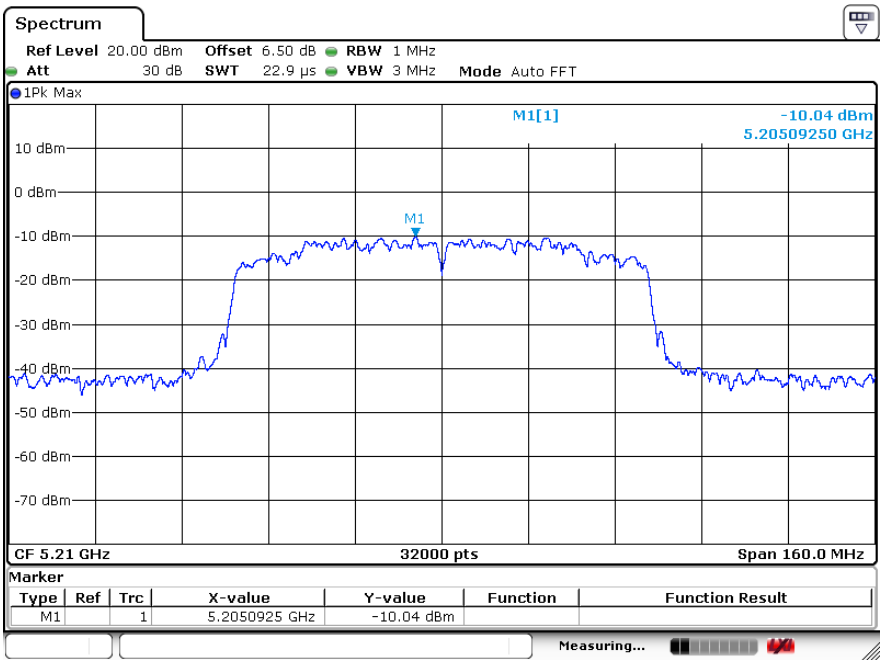
802.11ac40
Channel: 38



Channel: 46

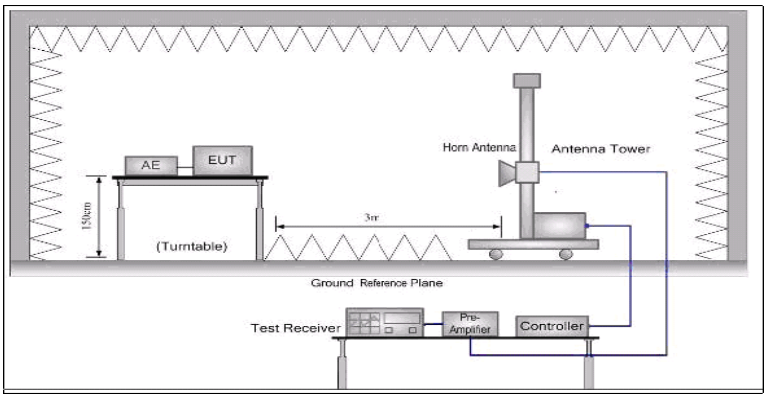


802.11ac80
Channel:42



11. Band Edges Measurement

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 E Section 15.407 and 5.205</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td>AV</td><td>1MHz</td><td>3MHz</td><td>Average Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr>
<tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>54.0</td><td>Average Value</td></tr>
<tr><td>74.0</td><td>Peak Value</td></tr>
</table>
Undesirable emission 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 EIRP 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 EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.
(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 EIRP of −27 dBm/MHz.
</td></tr>
<tr><td>Test Procedure:</td><td>a. The EUT was placed on the top of a rotating table 1.5 m above the ground at a 3 meter camber. The table was rotated 360 degrees to</td></tr>
</table>

	determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test setup:	Above 1GHz 
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Remark:

According to KDB 789033 D02 v02r01 section G) 1) (d), for For measurements above 1000 MHz @ 3m distance, the limit of field strength is computed as follows:

E[dBuV/m] = EIRP[dBm] + 95.2;

For example, if EIRP = -27dBm

E[dBuV/m] = -27 + 95.2 = 68.2dBuV/m.

11.1 Test Result and Data

Peak value:

Test mode:		802.11a		Test channel:		Lowest	
Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector	Antenna Pol.
5150	44.32	7.18	51.50	68.2	-16.70	PK	H
5150	44.41	7.18	51.59	68.2	-16.61	PK	V
Test mode:		802.11a		Test channel:		Highest	
Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector	Antenna Pol.
5350	43.63	7.2	50.83	68.2	-17.37	PK	H
5350	49.12	7.2	56.32	68.2	-11.88	PK	V

Average:

Test mode:		802.11a		Test channel:		Lowest	
Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector	Antenna Pol.
5150	31.62	7.18	38.80	48.2	-9.4	AV	H
5150	30.18	7.18	37.36	48.2	-10.84	AV	V
Test mode:		802.11a		Test channel:		Highest	
Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector	Antenna Pol.
5350	30.26	7.2	37.46	48.2	-10.74	AV	H
5350	35.78	7.2	42.98	48.2	-5.22	AV	V

Peak value:

Test mode:		802.11n(HT20)		Test channel:		Lowest	
Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector	Antenna Pol.
5150	47.47	7.18	54.65	68.2	-13.55	PK	H
5150	54.19	7.18	61.37	68.2	-6.83	PK	V
Test mode:		802.11n(HT20)		Test channel:		Highest	
Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector	Antenna Pol.
5350	43.06	7.2	50.26	68.2	-17.94	PK	H
5350	50.36	7.2	57.56	68.2	-10.64	PK	V

Average:

Test mode:		802.11n(HT20)		Test channel:		Lowest	
Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector	Antenna Pol.
5150	32.99	7.18	40.17	48.2	-8.03	AV	H
5150	38.11	7.18	45.29	48.2	-2.91	AV	V
Test mode:		802.11n(HT20)		Test channel:		Highest	
Frequency (MHz)	Reading Level (dBuV)	Factor (dB/m)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over limit(dB)	Detector	Antenna Pol.
5350	30.09	7.2	37.29	48.2	-10.91	AV	H
5350	35.78	7.2	42.98	48.2	-5.22	AV	V

Peak value:

Test mode:		802.11n(HT40)		Test channel:		Lowest	
Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Pol.
5150	43.11	7.18	50.29	68.2	-17.91	PK	H
5150	43.34	7.18	50.52	68.2	-17.68	PK	V
Test mode:		802.11n(HT40)		Test channel:		Highest	
Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Pol.
5350	43.85	7.2	51.05	68.2	-17.15	PK	H
5350	47.06	7.2	54.26	68.2	-13.94	PK	V

Average:

Test mode:		802.11n(HT40)		Test channel:		Lowest	
Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Pol.
5150	30.18	7.18	37.36	48.2	-10.84	AV	H
5150	29.23	7.18	36.41	48.2	-11.79	AV	V
Test mode:		802.11n(HT40)		Test channel:		Highest	
Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Pol.
5350	29.99	7.2	37.19	48.2	-11.01	AV	H
5350	32.14	7.2	39.34	48.2	-8.86	AV	V

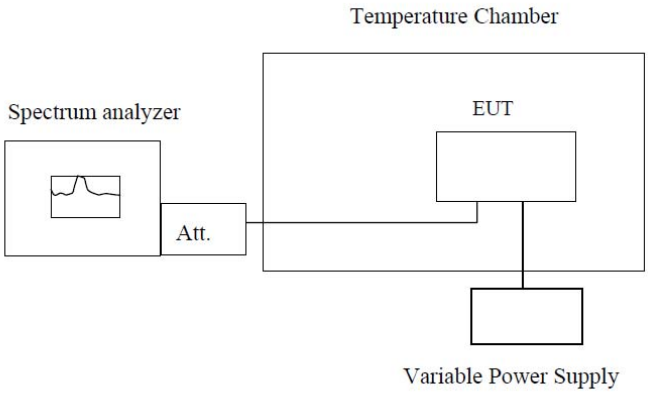
Peak value:

Test mode:		802.11ac(VHT80)		Test channel:		Lowest	
Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Pol.
5150	44.58	7.18	51.76	68.2	-16.44	PK	H
5150	48.74	7.18	55.92	68.2	-12.28	PK	V
Test mode:		802.11ac(VHT80)		Test channel:		Highest	
Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Pol.
5350	46.03	7.2	53.23	68.2	-14.97	PK	H
5350	48.19	7.2	55.39	68.2	-12.81	PK	V

Average:

Test mode:		802.11ac(VHT80)		Test channel:		Lowest	
Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Pol.
5150	31.05	7.18	38.23	48.2	-9.97	AV	H
5150	34.63	7.18	41.81	48.2	-6.39	AV	V
Test mode:		802.11ac(VHT80)		Test channel:		Highest	
Frequency (MHz)	Reading Level	Factor	Measure Level	Limit (dBuV/m)	Margin (dB)	Detector	Antenna Pol.
5350	34.36	7.2	41.56	48.2	-6.64	AV	H
5350	35.77	7.2	42.97	48.2	-5.23	AV	V

12. Frequency stability

Test Requirement:	FCC Part15 C Section 15.407(g)
Test Method:	ANSI C63.10:2013, FCC Part 2.1055
Limit:	Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified
Test Procedure:	The EUT was setup to ANSI C63.4, 2014; tested to 2.1055 for compliance to FCC Part 15.407(g) requirements.
Test setup:	 **Note :** Measurement setup for testing on Antenna connector
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Frequency stability versus Temp.					
Power Supply: DC 7.4V					
Temp. (°C)	Operating Frequency (MHz)	0 minute	2 minute	5 minute	10 minute
		Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)	Measured Frequency (MHz)
-30	5180	5176.2728	5182.8912	5181.2240	5177.7182
	5200	5198.4203	5202.8435	5202.1179	5199.4012
	5220	5219.7713	5220.2624	5221.2079	5219.7240
	5240	5240.1158	5240.5584	5240.0586	5239.5461
-20	5180	5179.5771	5180.3409	5180.7147	5179.9661
	5200	5199.5663	5200.2679	5199.9207	5199.9056
	5220	5219.2733	5220.6502	5220.0555	5219.6254
	5240	5239.2747	5240.0617	5240.4168	5239.1076
-10	5180	5178.9660	5180.2109	5180.1763	5179.2307
	5200	5199.8044	5200.7175	5201.0481	5199.0277
	5220	5219.8937	5220.5075	5220.3098	5219.5489
	5240	5239.3391	5240.5365	5241.0358	5239.3098
0	5180	5179.8663	5180.5927	5180.3076	5179.2023
	5200	5199.1284	5200.6014	5200.7791	5199.9417
	5220	5218.8086	5219.9237	5219.9087	5219.9063
	5240	5239.5894	5240.6486	5240.3029	5239.5077
10	5180	5179.3475	5179.9495	5180.8823	5179.4860
	5200	5199.3171	5200.1930	5200.6294	5199.6487
	5220	5219.0421	5220.2782	5220.2145	5219.9391
	5240	5239.0123	5240.5670	5240.6003	5239.5708
20	5180	5179.8370	5180.3476	5180.3571	5179.3201
	5200	5199.7821	5200.5777	5200.7657	5199.3550
	5220	5219.3398	5220.5568	5220.3808	5219.6812
	5240	5239.1909	5240.8887	5240.2034	5239.2591
30	5180	5179.8004	5180.8260	5180.1214	5179.5741
	5200	5199.2070	5200.1721	5200.2410	5199.5659
	5220	5219.2527	5220.3856	5220.9826	5219.6441
	5240	5239.5266	5240.3083	5240.7128	5239.9334

40	5180	5179.8353	5180.7697	5180.3318	5180.0329
	5200	5199.4650	5200.7822	5200.7834	5199.8698
	5220	5219.4806	5220.5675	5220.5181	5219.6132
	5240	5239.2141	5240.7206	5240.7170	5240.1313
50	5180	5179.4350	5180.6169	5180.4523	5179.2025
	5200	5199.2342	5200.7004	5200.3452	5199.4265
	5220	5219.8728	5220.8460	5220.4926	5219.3545
	5240	5239.6106	5240.2109	5240.0733	5239.3843

Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
6.9	5180	5183.8597	5181.9778	5176.3524	5178.6094
	5200	5203.7869	5200.2181	5196.7875	5197.9654
	5220	5220.8358	5220.2096	5217.3800	5219.9330
	5240	5240.6924	5240.7011	5238.3927	5239.3223
7.4	5180	5180.9053	5180.3823	5179.3460	5179.3735
	5200	5200.2116	5200.5174	5199.8248	5199.3633
	5220	5220.9554	5220.2434	5219.4994	5219.6139
	5240	5240.0979	5240.7326	5239.2979	5239.7450
8.4	5180	5180.1677	5180.5696	5179.2367	5179.3561
	5200	5200.5691	5200.5726	5199.2054	5199.3282
	5220	5219.9014	5220.8274	5219.0973	5219.3590
	5240	5240.7509	5240.3575	5239.6777	5239.2099

13. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.150
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

**: Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

13.1 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device:
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.