FCC 47 CFR PART 15 SUBPART E 15.407

TEST REPORT

FOR

HIHI-40KH-TAB

Model : 40KH,QN_103

Issued to
HiHi Ltd
Loewy House, 11 Enterprise Way, Aviation Park West, Christchurch, Dorset, BH23 6EW, UK

Issued by
WH Technology Corp.

EMC Test Site	**Xizhi Office and Lab**	**Datong Rd. Xizhi Dist. New Taipei City Taiwan**
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APPENDIX 1 PHOTOS OF TEST CONFIGURATION

PHOTOS OF EUT

1. General Information

Applicant	:	**HiHi Ltd**
Address	:	**Loewy House, 11 Enterprise Way, Aviation Park West, Christchurch, Dorset, BH23 6EW, UK**
Manufacturer	:	**Shenzhen Emdoor Digital Technology Co.,Ltd**
Address	:	**H.Q.:6/F JinFuLai Building,49-1 Dabao Road, Bao An District, Shenzhen**
EUT	:	**HIHI-40KH-TAB**
Model Name	:	**40KH,QN_103**
Model Differences	:	**Only model name different, others are all the same.**

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 : 08/23/2018 Final Test Date : 09/04/2018

Tested By: **Reviewed by:**

Sep.05, 2018 Bing Chang/ Engineer

Date

Sep.05, 2018 Bell Wei / Manager

Date

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	:	HIHI-40KH-TAB
Model Number	:	QN_103
FCC ID	:	2AQZC-40KH
Receipt Date	:	08/23/2018
Power From	:	☑Inside ☑Outside ☑Adaptor ☑Battery ☐AC Power Source ☐DC Power Source ☐Support Unit PC or NB
USB port	:	DC5V1.8A
Battery	:	3.8V 4000mAh
Operate Frequency	:	WiFi: 802.11a/802.11n(HT20) /ac(VHT20): 5180MHz ~ 5240MHz; 5745MHz ~ 5825MHz 802.11n(HT40)/ac(VHT40): 5190MHz ~ 5230MHz, 5755MHz ~ 5795MHz 802.11ac(VHT80): 5210MHz, 5775MHz,
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		1dBi

3.2 Carrier Frequency of Channels

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	153	5765
40	5200	157	5785
44	5220	161	5805
48	5240	165	5825
149	5745		

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	151	5755
46	5230	159	5795

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

Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	155	5775

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 D02.
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	2019/08/15
	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	2019/08/10
	EMI Test Receiver	R&S	ESVS30 (20M-1000MHz)	826006/002	2018/11/28
	RF Cable	EMCI	N male on end	30m	2018/10/19

	(open site)		of both sides (EMI4)		
	RF CABLE (1~26.5G)	HARBOUT INDUSTRIES	LL142MI(4M+4M)	NA	2019/03/08
	RF CABLE (1~26.5G)	HARBOUR INDUSTRIES	LL142MI(7M)	NA	2019/08/11
	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	2019/08/10
--	Power Sensor	R&S	URV5-Z4	0395.1619.05	2019/08/10

***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: 1.0dBi

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.

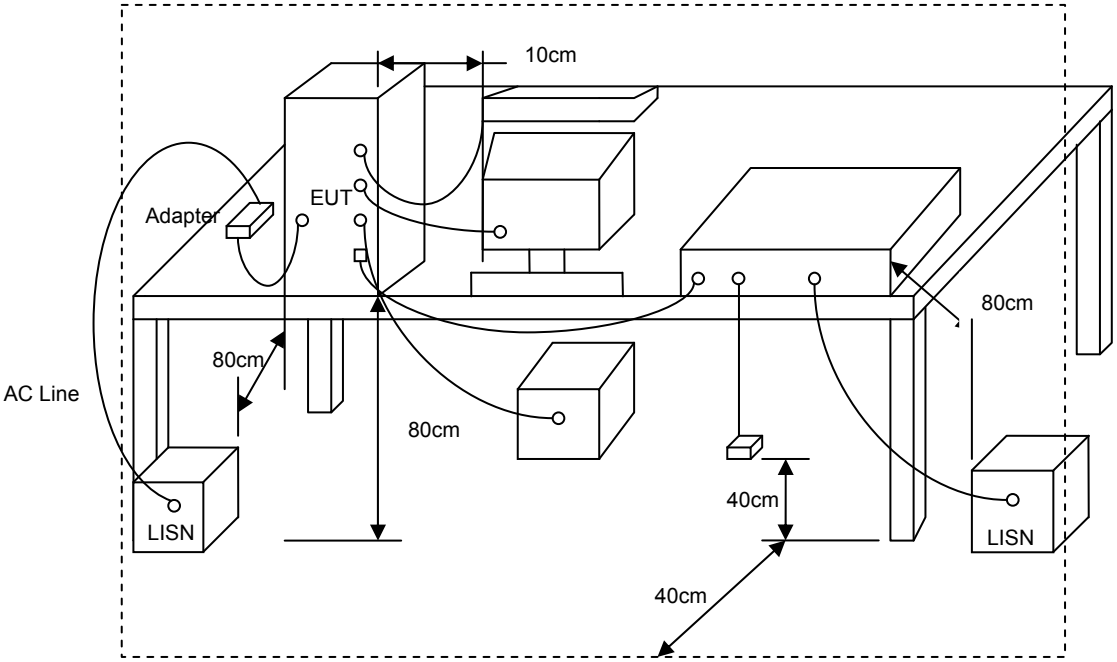
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

6.2 Test Procedures

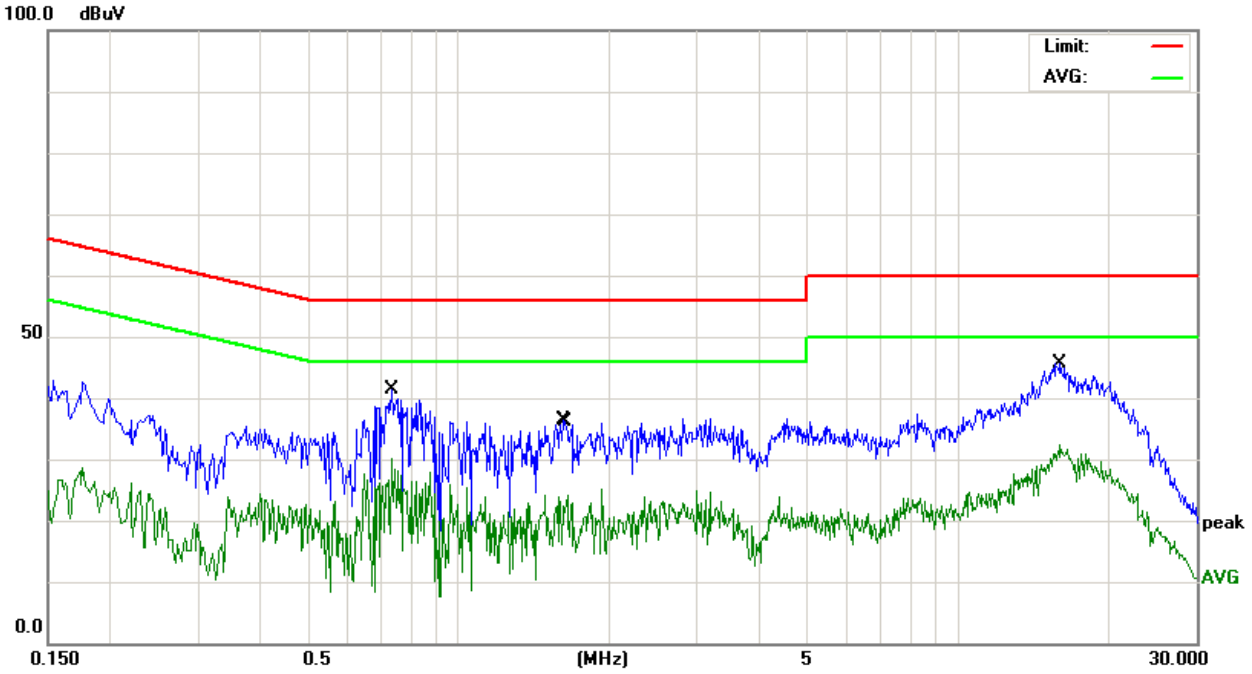
a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.
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



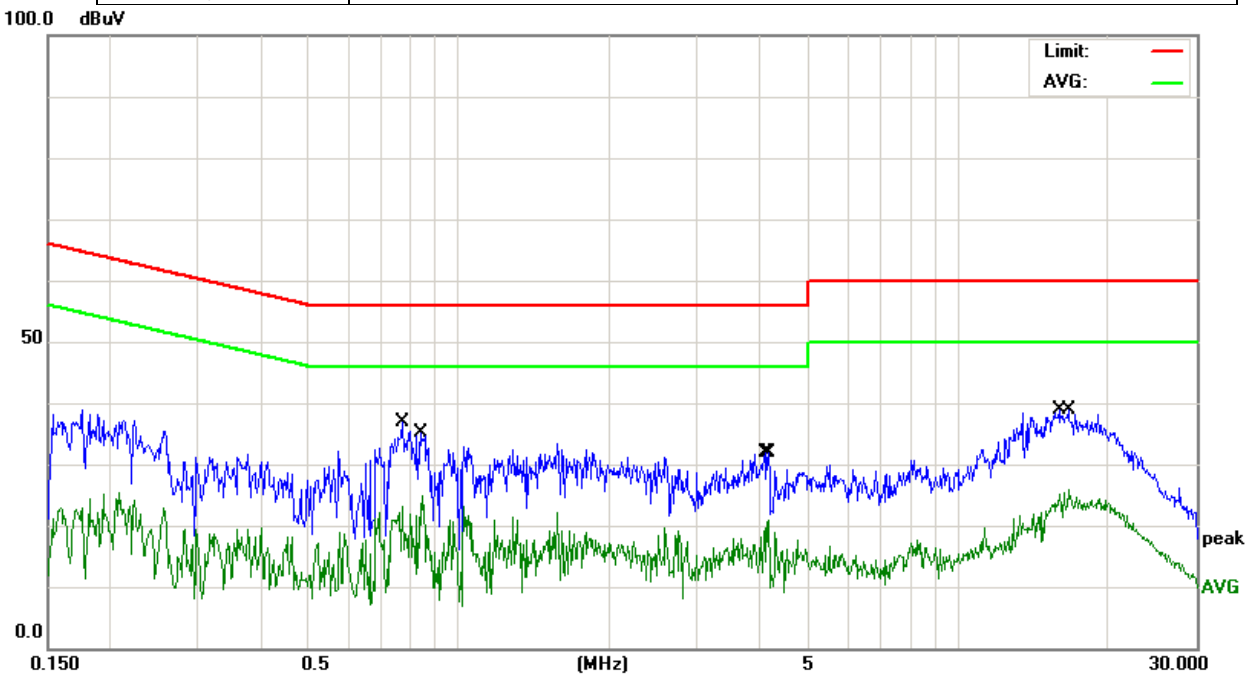
6.4 Test Result and Data

Power	:	120V/60Hz for adapter	Pol/Phase	:	LINE
Test Mode 1	:	TX CH38 5180MHz(worst-case)	Temperatur	:	22 °C
Humidity	:	43 %			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.7338	31.39	9.97	41.36	56.00	-14.64	QP
2		0.7338	20.19	9.97	30.16	46.00	-15.84	AVG
3		1.6140	26.43	9.97	36.40	56.00	-19.60	QP
4		1.6458	14.14	9.97	24.11	46.00	-21.89	AVG
5	*	15.9977	44.22	1.53	45.75	60.00	-14.25	QP
6		15.9977	30.75	1.53	32.28	50.00	-17.72	AVG

Power	:	120V/60Hz for adapter	Pol/Phase	:	NEUTRAL
Test Mode 1	:	TX CH38 5180MHz(worst-case)	Temperatur	:	22 °C
Humidity	:	43 %			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.7700	26.83	9.97	36.80	56.00	-19.20	QP
2		0.8457	15.02	9.94	24.96	46.00	-21.04	AVG
3		4.1059	21.74	10.06	31.80	56.00	-24.20	QP
4		4.1736	10.82	10.06	20.88	46.00	-25.12	AVG
5		15.9259	37.38	1.52	38.90	60.00	-21.10	QP
6		16.5856	24.17	1.60	25.77	50.00	-24.23	AVG

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

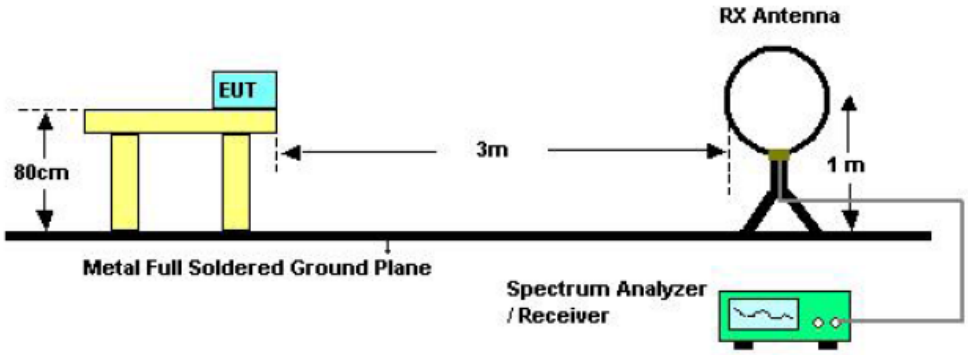
a. The EUT was placed on a rotatable table top 0.8 meter above ground.
b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
c. The table was rotated 360 degrees to determine the position of the highest radiation.
d. The antenna 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.

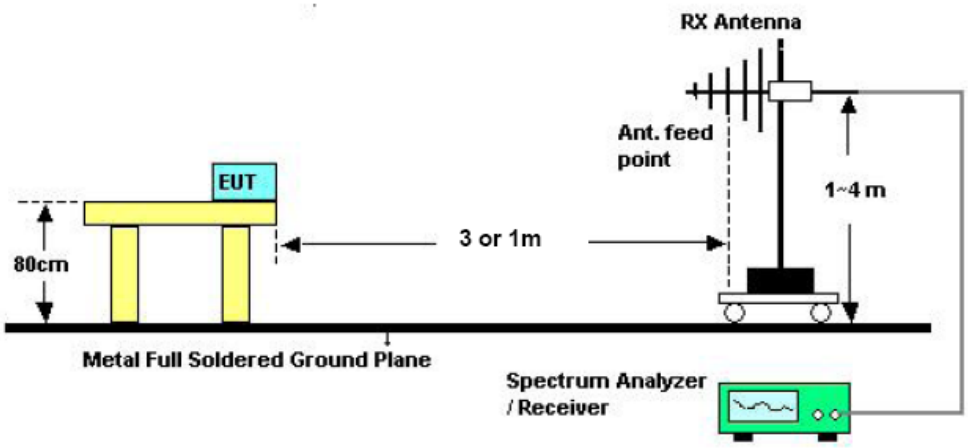
i. “Cone of radiation” has been considered to be 3dB bandwidth of the measurement antenna.

7.3 Typical Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz



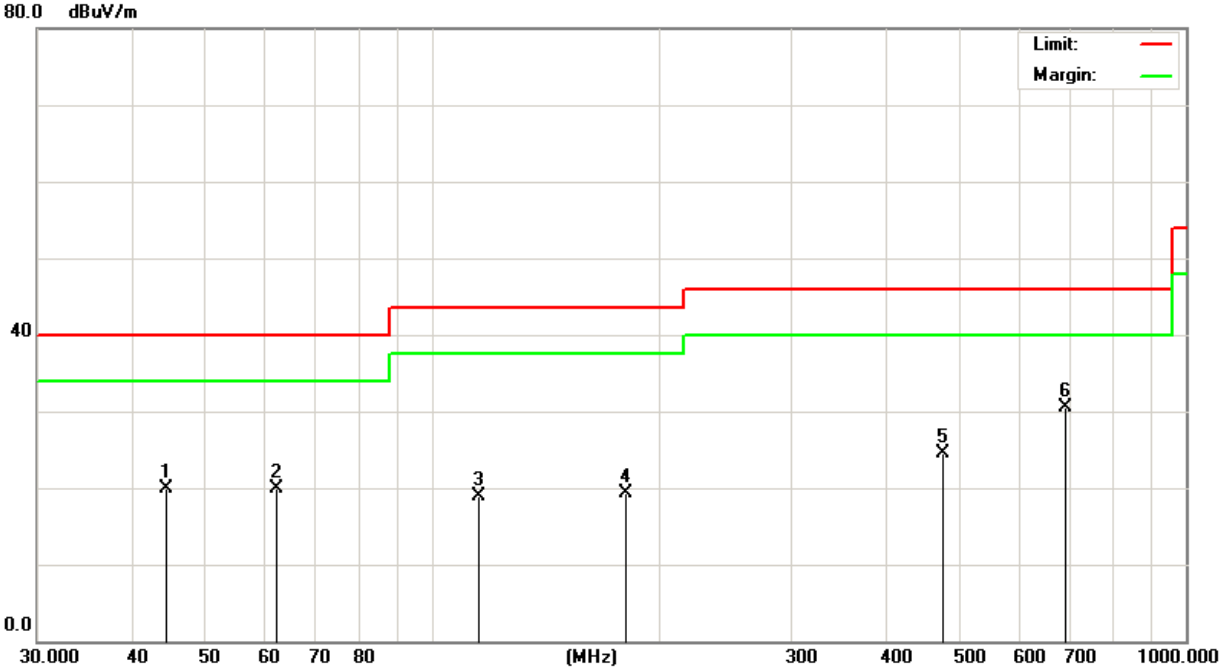
Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

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

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

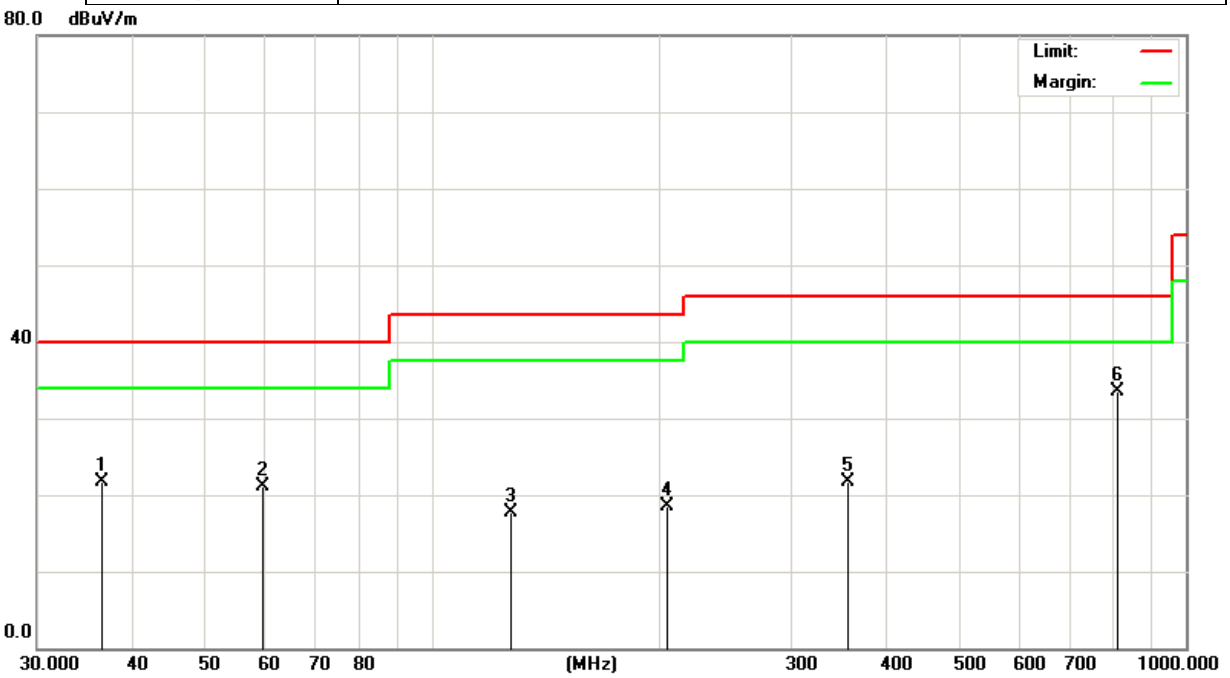
7.5 Test Result and Data (30MHz ~ 1GHz, worst emissions found)

Power	:	DC 3.8V from battery	Pol/Phase	:	HORIZONTAL
Test Mode 1	:	TX 5180MHz(worst-case)	Temperature	:	22 °C
Humidity	:	59%			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		44.5867	30.70	-10.80	19.90	40.00	-20.10	QP
2		62.4313	33.14	-13.24	19.90	40.00	-20.10	QP
3		115.3204	31.14	-12.20	18.94	43.50	-24.56	QP
4		181.2834	31.19	-11.79	19.40	43.50	-24.10	QP
5		477.1693	30.57	-5.97	24.60	46.00	-21.40	QP
6	*	691.9867	30.76	-0.16	30.60	46.00	-15.40	QP

Power	:	DC 3.8V from battery	Pol/Phase	:	VERTICAL
Test Mode 1	:	TX 5180MHz(worst-case)	Temperature	:	22 °C
Humidity	:	59%			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		36.6375	34.04	-12.34	21.70	40.00	-18.30	QP
2		59.6492	31.94	-10.90	21.04	40.00	-18.96	QP
3		127.6645	33.14	-15.36	17.78	43.50	-25.72	QP
4		205.6750	31.58	-13.11	18.47	43.50	-25.03	QP
5		356.6757	29.53	-7.73	21.80	46.00	-24.20	QP
6	*	813.1114	32.08	1.52	33.60	46.00	-12.40	QP

Note:

All the modulation modes were tested, the data of the worst mode are recorded in the above pages and the others modulation methods do not exceed the limits.

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

Above 1GHz:

802.11a-5180MHz	H	10360	34.22	12.56	46.78	74.00	-27.22	PEAK
	H	15540	36.20	16.45	52.65	74.00	-21.35	PEAK
	V	10360	35.22	12.56	47.78	74.00	-26.22	PEAK
	V	15540	36.25	16.45	52.70	74.00	-21.30	PEAK
802.11a-5200 MHz	H	10400	35.45	12.64	48.09	74.00	-25.91	PEAK
	H	15600	35.72	16.53	52.25	74.00	-21.75	PEAK
	V	10400	36.74	12.64	49.38	74.00	-24.62	PEAK
	V	15600	35.81	16.53	52.34	74.00	-21.66	PEAK
802.11a-5240 MHz	H	10480	33.37	12.68	46.05	74.00	-27.95	PEAK
	H	15720	34.63	16.54	51.17	74.00	-22.83	PEAK
	V	10480	36.10	12.68	48.78	74.00	-25.22	PEAK
	V	15720	33.96	16.54	50.50	74.00	-23.50	PEAK
802.11a-5745 MHz	H	11490	32.87	16.82	49.69	74.00	-24.31	PEAK
	H	17235	30.08	22.93	53.01	74.00	-20.99	PEAK
	V	11490	31.43	16.82	48.25	74.00	-25.75	PEAK
	V	17235	29.28	22.93	52.21	74.00	-21.79	PEAK
802.11a-5785 MHz	H	11570	32.38	16.71	49.09	74.00	-24.91	PEAK
	H	17355	28.10	24.37	52.47	74.00	-21.53	PEAK
	V	11570	30.60	16.71	47.31	74.00	-26.69	PEAK
	V	17355	28.28	24.37	52.65	74.00	-21.35	PEAK
802.11a-5825 MHz	H	11650	34.45	16.61	51.06	74.00	-22.94	PEAK
	H	17475	27.57	25.01	52.58	74.00	-21.42	PEAK
	V	11650	32.99	16.61	49.60	74.00	-24.40	PEAK
	V	17475	28.24	25.01	53.25	74.00	-20.75	PEAK

802.11n HT20-5180MHz	H	10360	32.88	12.56	45.44	74.00	-28.56	PEAK
	H	15540	35.58	16.45	52.03	74.00	-21.97	PEAK
	V	10360	36.02	12.56	48.58	74.00	-25.42	PEAK
	V	15540	36.01	16.45	52.46	74.00	-21.54	PEAK
802.11n HT20-5200MHz	H	10400	35.26	12.64	47.90	74.00	-26.10	PEAK
	H	15600	33.42	16.53	49.95	74.00	-24.05	PEAK
	V	10400	35.74	12.64	48.38	74.00	-25.62	PEAK
	V	15600	36.10	16.53	52.63	74.00	-21.37	PEAK
802.11n HT20-5240MHz	H	10480	34.71	12.68	47.39	74.00	-26.61	PEAK
	H	15720	31.78	16.54	48.32	74.00	-25.68	PEAK
	V	10480	34.62	12.68	47.30	74.00	-26.70	PEAK
	V	15720	33.11	16.54	49.65	74.00	-24.35	PEAK
802.11n HT20-5745MHz	H	11490	31.09	16.82	47.91	74.00	-26.09	PEAK
	H	17235	29.44	22.93	52.37	74.00	-21.63	PEAK
	V	11570	32.67	16.71	49.38	74.00	-24.62	PEAK
	V	17235	27.70	22.93	50.63	74.00	-23.37	PEAK
802.11n HT20-5785MHz	H	11570	29.56	16.71	46.27	74.00	-27.73	PEAK
	H	17355	28.17	24.37	52.54	74.00	-21.46	PEAK
	V	11570	32.62	16.71	49.33	74.00	-24.67	PEAK
	V	17355	28.81	24.37	53.18	74.00	-20.82	PEAK
802.11n HT20-5825MHz	H	11650	31.90	16.61	48.51	74.00	-25.49	PEAK
	H	17475	27.42	25.01	52.43	74.00	-21.57	PEAK
	V	11650	34.43	16.61	51.04	74.00	-22.96	PEAK
	V	17475	28.34	25.01	53.35	74.00	-20.65	PEAK
802.11n HT40-5190MHz	H	10380	35.60	12.58	48.18	74.00	-25.82	PEAK
	H	15570	33.80	16.48	50.28	74.00	-23.72	PEAK
	V	10380	36.71	12.58	49.29	74.00	-24.71	PEAK
	V	15570	33.15	16.48	49.63	74.00	-24.37	PEAK

802.11n HT40-5230MHz	H	10460	37.41	12.66	50.07	74.00	-23.93	PEAK
	H	15690	34.49	16.53	51.02	74.00	-22.98	PEAK
	V	10460	35.35	12.66	48.01	74.00	-25.99	PEAK
	V	15690	33.75	16.53	50.28	74.00	-23.72	PEAK
802.11n HT40-5755MHz	H	11510	32.29	16.78	49.07	74.00	-24.93	PEAK
	H	17265	27.54	23.29	50.83	74.00	-23.17	PEAK
	V	11510	33.23	16.78	50.01	74.00	-23.99	PEAK
	V	17265	29.32	23.29	52.61	74.00	-21.39	PEAK
802.11n HT40-5795MHz	H	11590	31.16	16.69	47.85	74.00	-26.15	PEAK
	H	17385	26.79	24.73	51.52	74.00	-22.48	PEAK
	V	11590	32.10	16.69	48.79	74.00	-25.21	PEAK
	V	17385	27.53	24.73	52.26	74.00	-21.74	PEAK
802.11ac HT20-5180MHz	H	10360	34.45	12.56	47.01	74.00	-26.99	PEAK
	H	15540	33.94	16.45	50.39	74.00	-23.61	PEAK
	V	10360	33.87	12.56	46.43	74.00	-27.57	PEAK
	V	15540	34.34	16.45	50.79	74.00	-23.21	PEAK
802.11ac HT20-5200MHz	H	10400	34.07	12.64	46.71	74.00	-27.29	PEAK
	H	15600	30.55	16.53	47.08	74.00	-26.92	PEAK
	V	10400	33.49	12.64	46.13	74.00	-27.87	PEAK
	V	15600	31.16	16.53	47.69	74.00	-26.31	PEAK
802.11ac HT20-5240MHz	H	10480	34.02	12.68	46.70	74.00	-27.30	PEAK
	H	15720	31.79	16.54	48.33	74.00	-25.67	PEAK
	V	10480	32.10	12.68	44.78	74.00	-29.22	PEAK
	V	15720	34.34	16.54	50.88	74.00	-23.12	PEAK
802.11ac HT20-5745MHz	H	11490	32.24	16.82	49.06	74.00	-24.94	PEAK
	H	17235	30.19	22.93	53.12	74.00	-20.88	PEAK
	V	11490	31.09	16.82	47.91	74.00	-26.09	PEAK
	V	17235	28.76	22.93	51.69	74.00	-22.31	PEAK

802.11ac HT20-5785MHz	H	11570	33.36	16.71	50.07	74.00	-23.93	PEAK
	H	17355	27.76	24.37	52.13	74.00	-21.87	PEAK
	V	11570	31.85	16.71	48.56	74.00	-25.44	PEAK
	V	17355	28.23	24.37	52.60	74.00	-21.40	PEAK
802.11ac HT20-5825MHz	H	11650	31.90	16.61	48.51	74.00	-25.49	PEAK
	H	17475	26.11	25.01	51.12	74.00	-22.88	PEAK
	V	11650	32.36	16.61	48.97	74.00	-25.03	PEAK
	V	17475	27.72	25.01	52.73	74.00	-21.27	PEAK
802.11ac HT40-5190MHz	H	10380	33.31	12.58	45.89	74.00	0 -28.11	PEAK
	H	15570	34.79	16.48	51.27	74.00	-22.73	PEAK
	V	10380	35.06	12.58	47.64	74.00	-26.36	PEAK
	V	15570	32.26	16.48	48.74	74.00	-25.26	PEAK
802.11ac HT40-5230MHz	H	10460	33.96	12.66	46.62	74.00	-27.38	PEAK
	H	15690	31.35	16.53	47.88	74.00	-26.12	PEAK
	V	10460	34.23	12.66	46.89	74.00	-27.11	PEAK
	V	15690	32.63	16.53	49.16	74.00	-24.84	PEAK
802.11ac HT40-5755MHz	H	11510	31.50	16.78	48.28	74.00	-25.72	PEAK
	H	17265	26.95	23.29	50.24	74.00	-23.76	PEAK
	V	11510	32.17	16.78	48.95	74.00	-25.05	PEAK
	V	17265	27.25	23.29	50.54	74.00	-23.46	PEAK
802.11ac HT40-5795MHz	H	11590	32.57	16.69	49.26	74.00	-24.74	PEAK
	H	17385	26.29	24.73	51.02	74.00	-22.98	PEAK
	V	11590	30.63	16.69	47.32	74.00	-26.68	PEAK
	V	17385	27.76	24.73	52.49	74.00	-21.51	PEAK
802.11ac HT80-5210MHz	H	10420	33.57	12.62	46.19	74.00	-27.81	PEAK
	H	15630	33.21	16.52	49.73	74.00	-24.27	PEAK
	V	10420	33.50	12.62	46.12	74.00	-27.88	PEAK
	V	15630	31.52	16.52	48.04	74.00	-25.96	PEAK

802.11ac HT80-5775MHz	H	11550	32.14	16.73	48.87	74.00	-25.13	PEAK
	H	17325	26.10	24.01	50.11	74.00	-23.89	PEAK
	V	11550	29.30	16.73	46.03	74.00	-27.97	PEAK
	V	17325	25.68	24.01	49.69	74.00	-24.31	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.

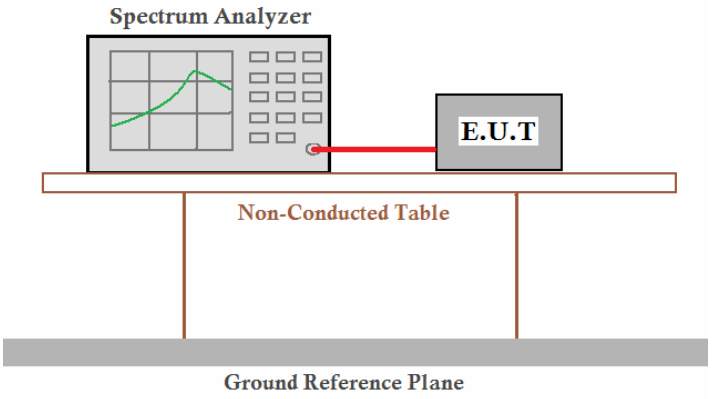
Average measurement was not performed if peak level lower than average limit.

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

According to 15.31(o), The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part.

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 UNII Test Procedures New Rules v02
Limit:	N/A (Band I)
	>500KHz(Band IV)
Test setup:	
Test procedure:	According to KDB 789033 D02 General UNII Test Procedures New Rules v02.
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

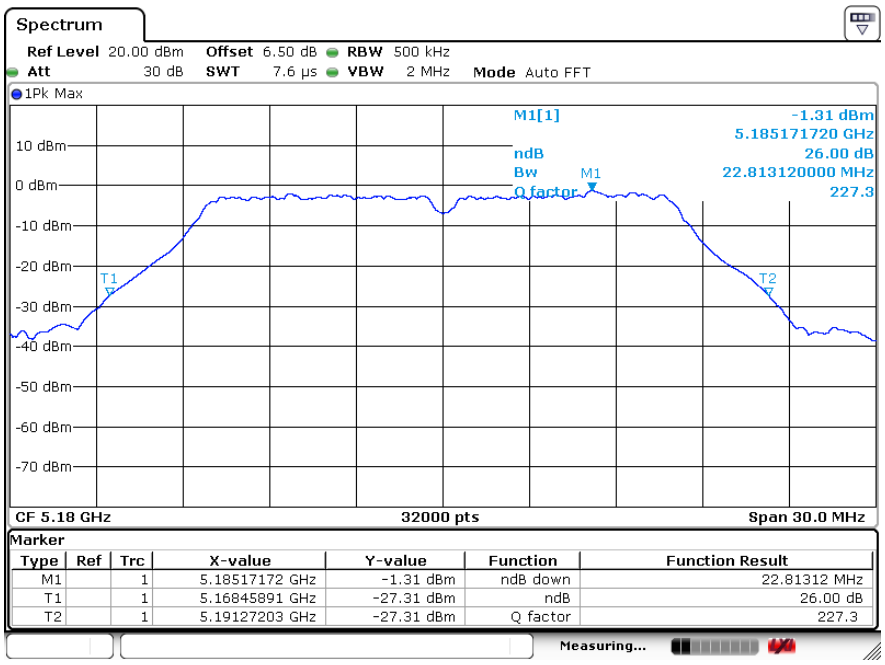
8.1 Test Result and Data

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	22.81	22.97	23.14	16.75	17.91	17.87
40	5200.00	22.96	22.69	22.87	16.70	17.72	17.80
48	5240.00	22.97	23.19	22.96	16.64	17.77	17.83
CH. No.	Frequency (MHz)	6dB Occupied Bandwidth (MHz)			99% Occupied Bandwidth (MHz)		
		802.11a	802.11n (HT20)	802.11ac (VHT20)	802.11a	802.11n (HT20)	802.11ac (VHT20)
149	5745.00	16.35	17.58	17.50	16.52	17.68	17.68
157	5785.00	16.35	17.25	17.57	16.53	17.70	17.66
165	5825.00	15.34	17.58	17.50	16.53	17.70	17.68

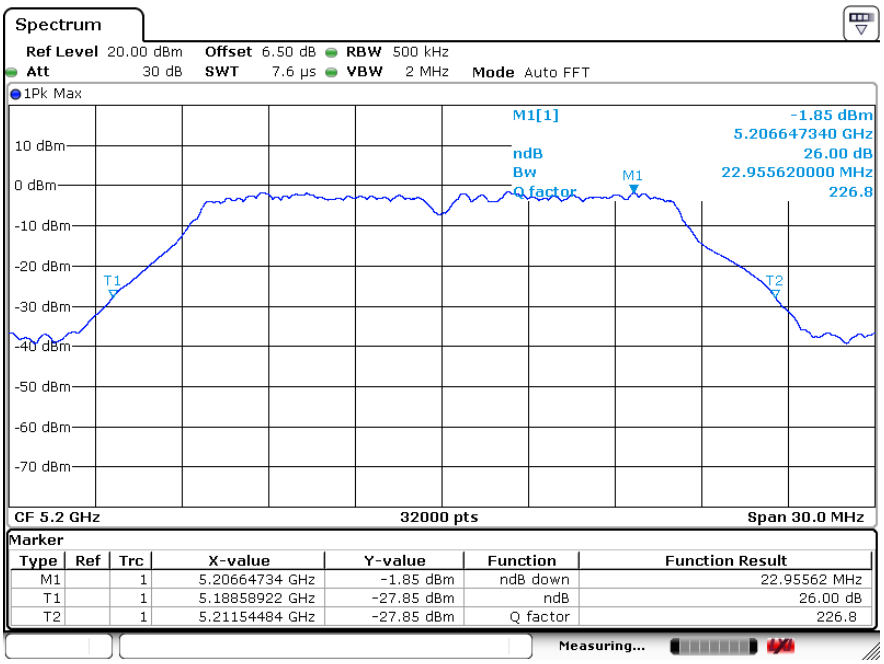
CH. No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		802.11n(HT40)	802.11ac(VHT40)	802.11n(HT40)	802.11ac(VHT40)
38	5190.00	44.41	41.79	36.15	36.38
46	5230.00	43.52	43.21	36.12	36.37
CH. No.	Frequency (MHz)	6B Occupied Bandwidth (MHz)		99% Occupied Bandwidth (MHz)	
		802.11n(HT40)	802.11ac(VHT40)	802.11n(HT40)	802.11ac(VHT40)
151	5755.00	35.13	35.17	35.88	35.90
159	5795.00	35.13	35.17	35.92	35.89

CH. No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
		802.11ac(VHT80)	802.11ac(VHT80)
42	5210	88.47	75.27
CH. No.	Frequency (MHz)	6dB Occupied Bandwidth (MHz) 802.11ac(VHT80)	99% Occupied Bandwidth (MHz) 802.11ac(VHT80)
155	5775	75.05	74.98

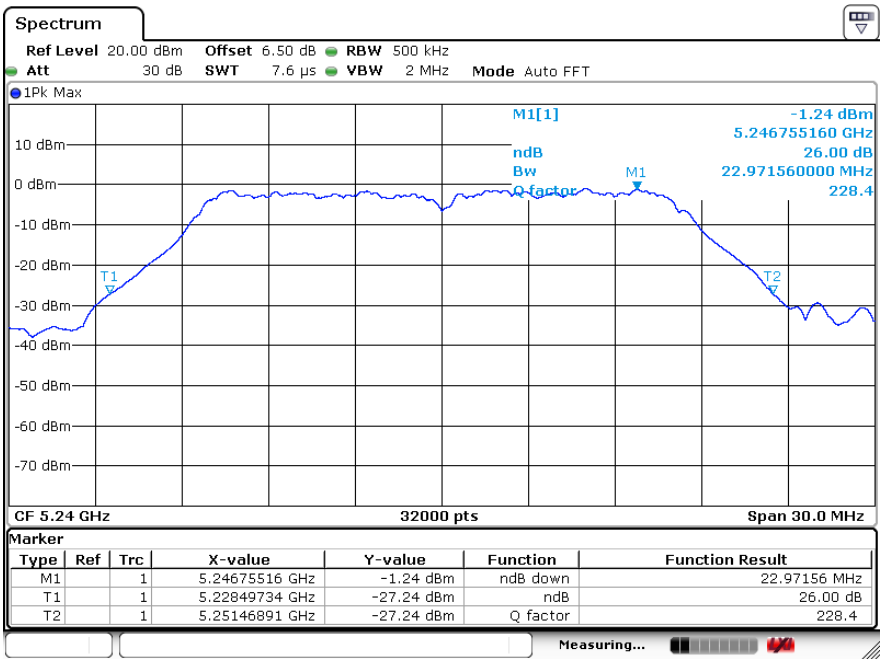
26dB BW 802.11a
Channel: 36



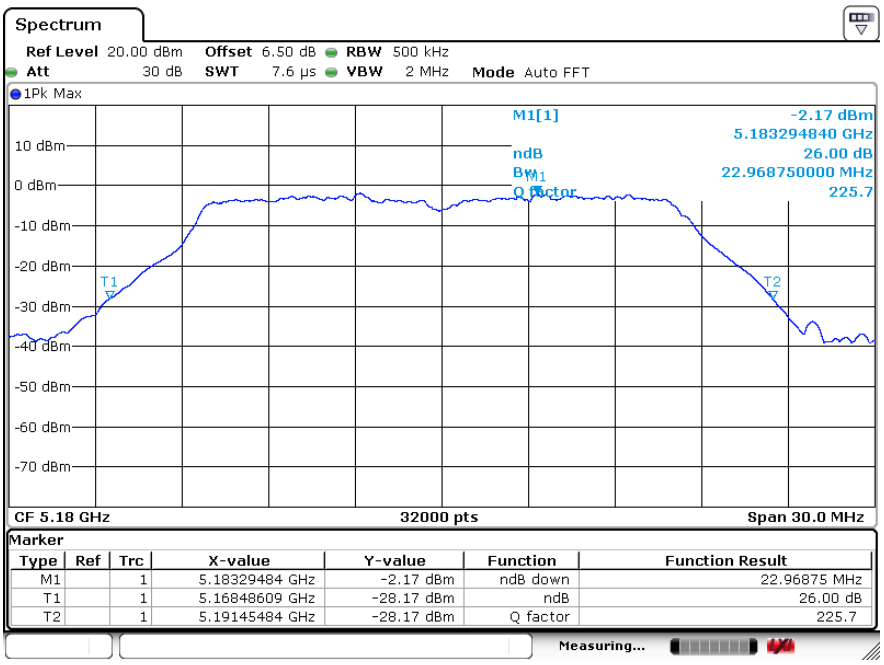
Channel: 40



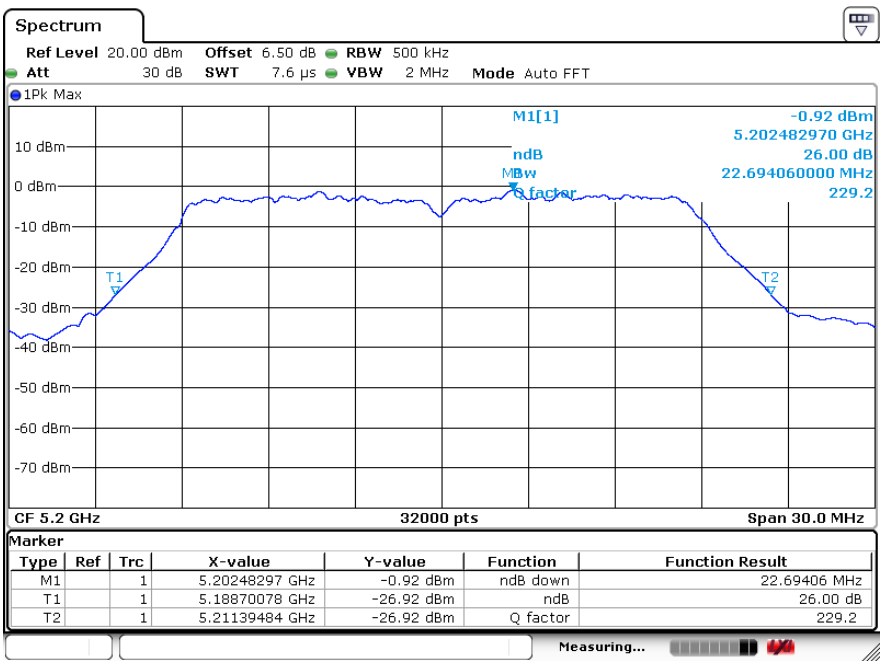
Channel: 48



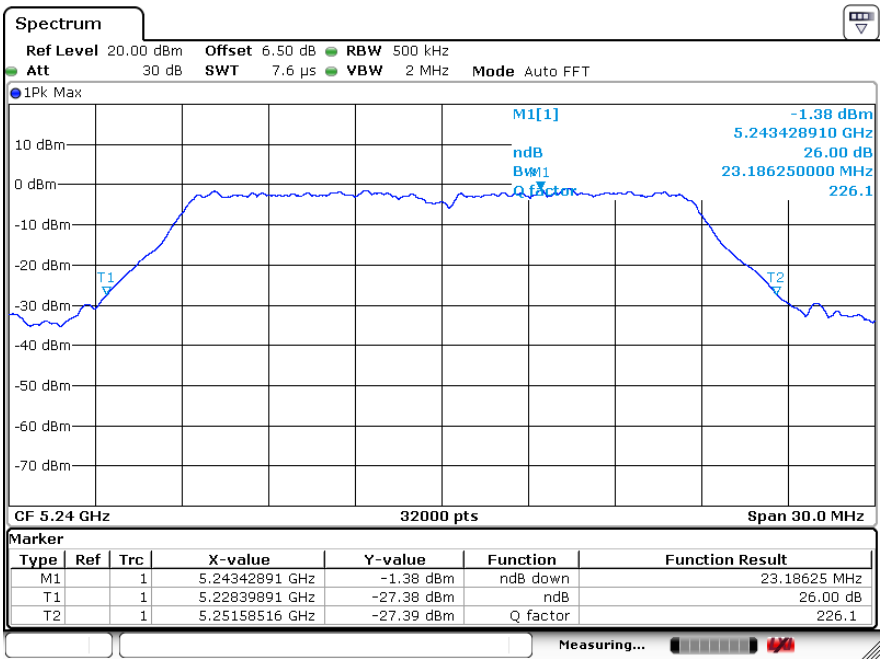
26dB BW 802.11n20
Channel: 36



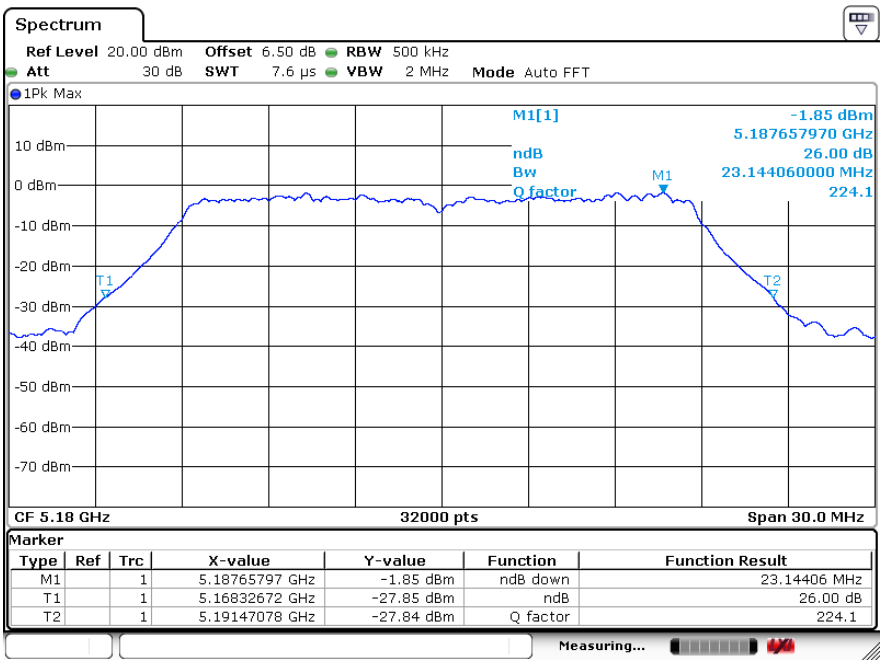
Channel: 40



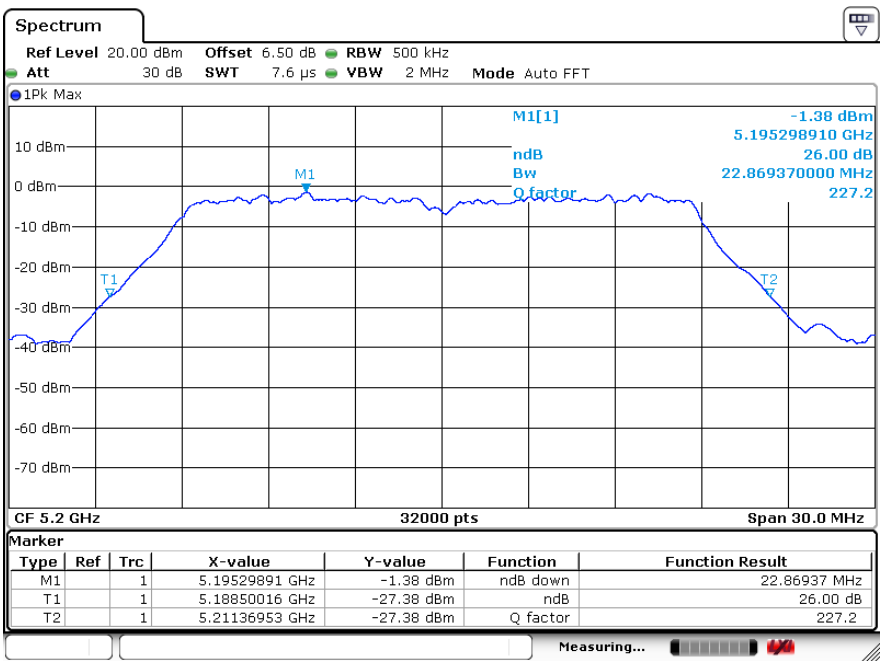
Channel: 48


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 7.6 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1]
-1.38 dBm
5.243428910 GHz
ndB
26.00 dB
BW
23.186250000 MHz
Q factor
226.1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
T1
T2
CF 5.24 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.24342891 GHz -1.38 dBm ndB down 23.18625 MHz
T1 1 5.22839891 GHz -27.38 dBm ndB 26.00 dB
T2 1 5.25158516 GHz -27.39 dBm Q factor 226.1
Measuring...

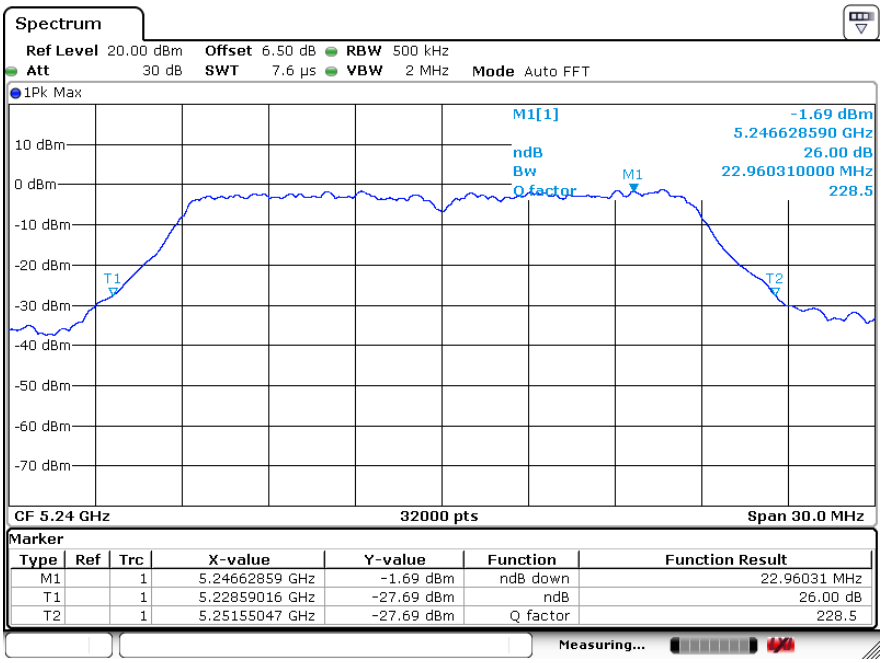
802.11ac20
Channel: 36



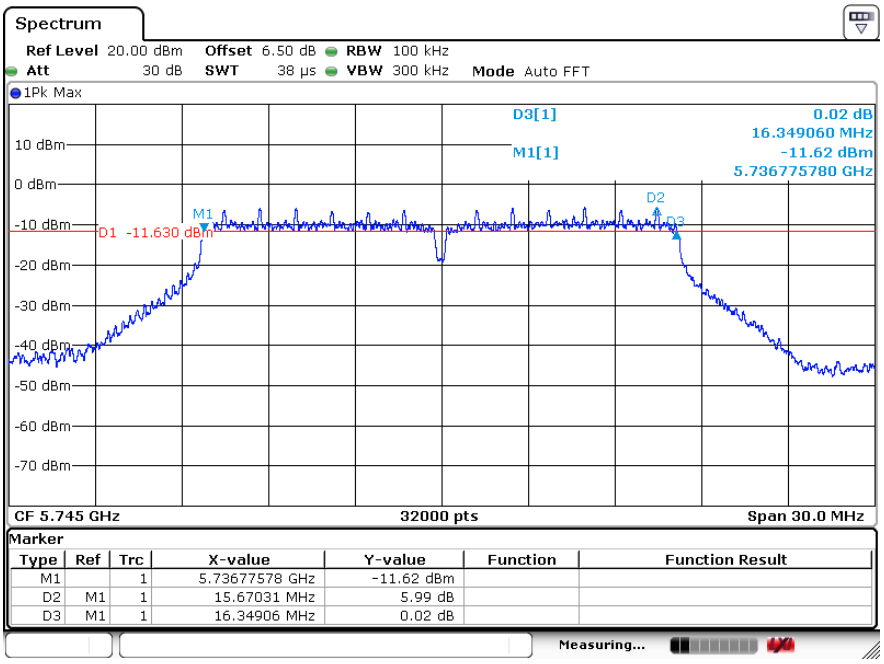
Channel: 40



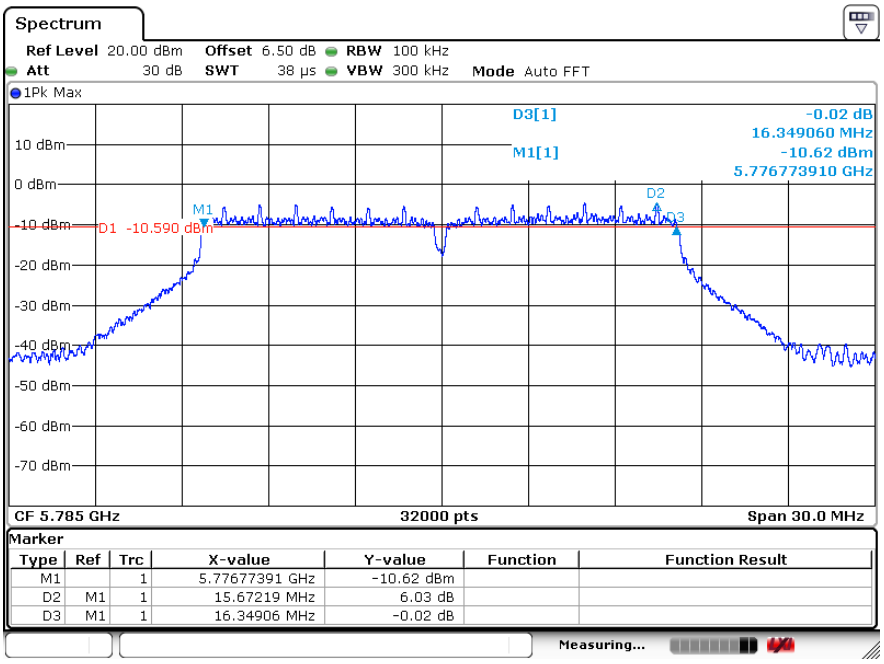
Channel: 48


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 7.6 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1]
-1.69 dBm
5.246628590 GHz
ndB 26.00 dB
Bw 22.960310000 MHz
Q factor 228.5
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 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.24662859 GHz -1.69 dBm ndB down 22.96031 MHz
T1 1 5.22859016 GHz -27.69 dBm ndB 26.00 dB
T2 1 5.25155047 GHz -27.69 dBm Q factor 228.5
Measuring...

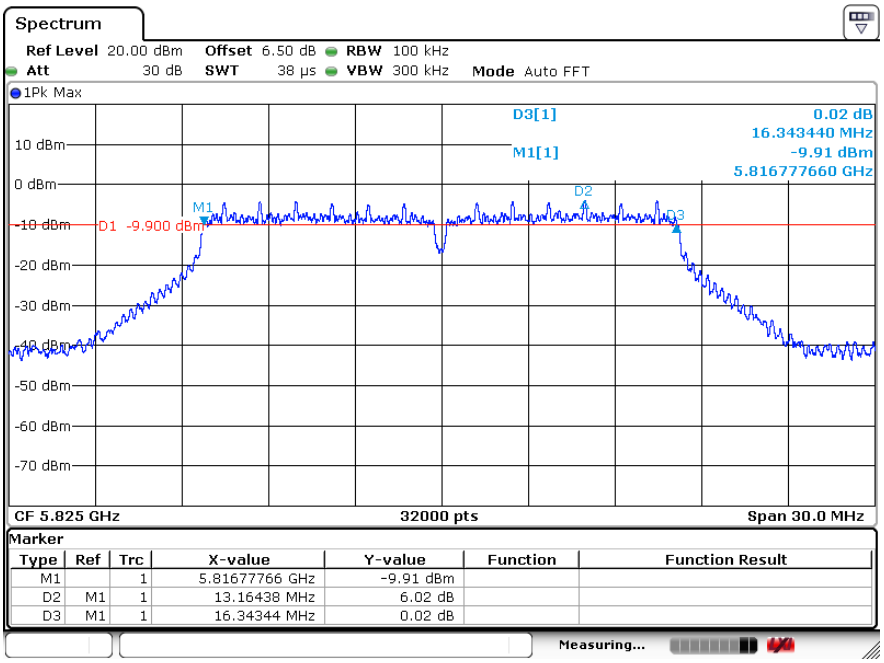
6dB BW 802.11a
Channel: 149



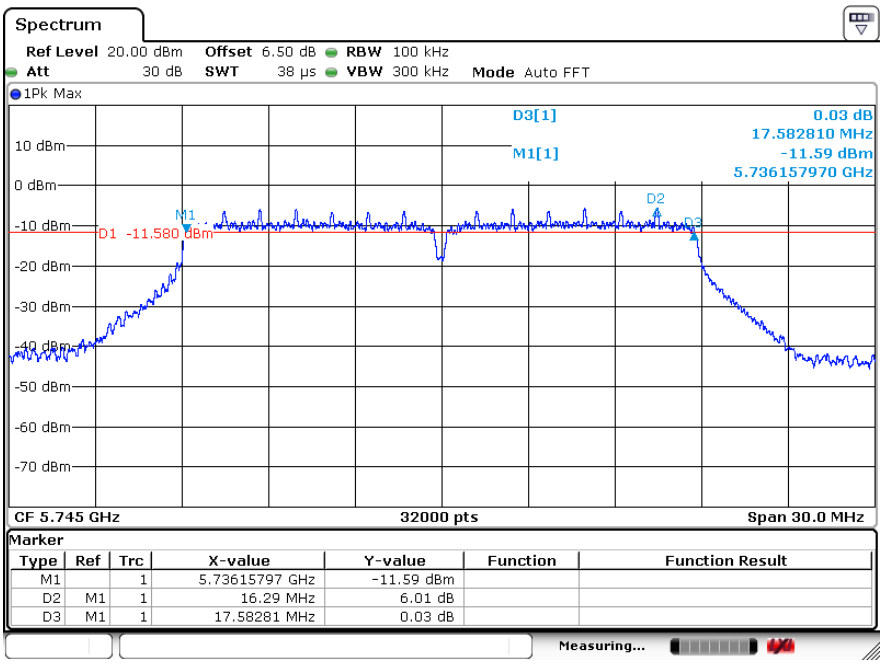
Channel: 157



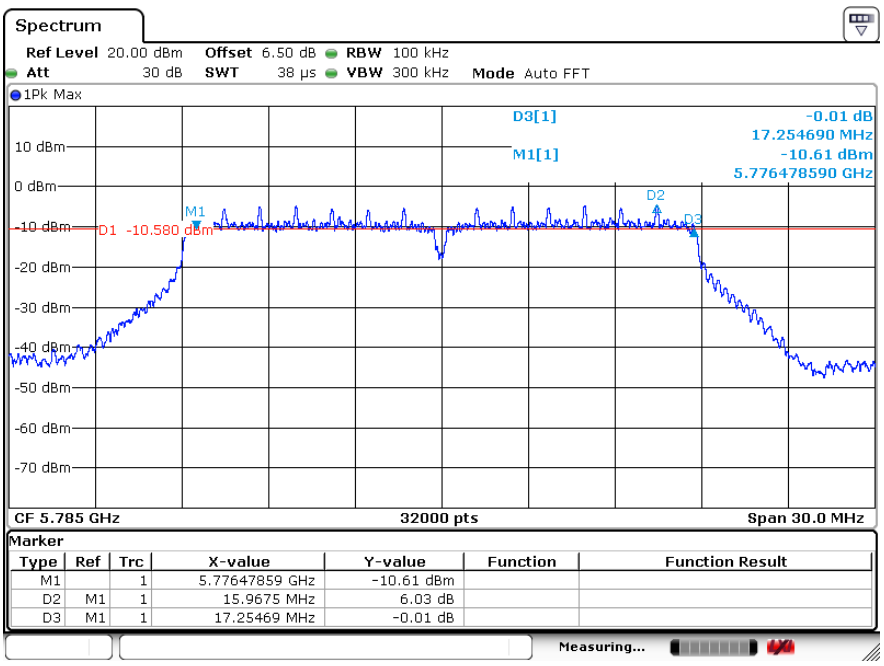
Channel: 165


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 100 kHz
Att 30 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
D3[1] 0.02 dB
16.343440 MHz
M1[1] -9.91 dBm
5.816777660 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1 -9.900 dBm
D2
D3
CF 5.825 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.81677766 GHz -9.91 dBm
D2 M1 1 13.16438 MHz 6.02 dB
D3 M1 1 16.34344 MHz 0.02 dB
Measuring...

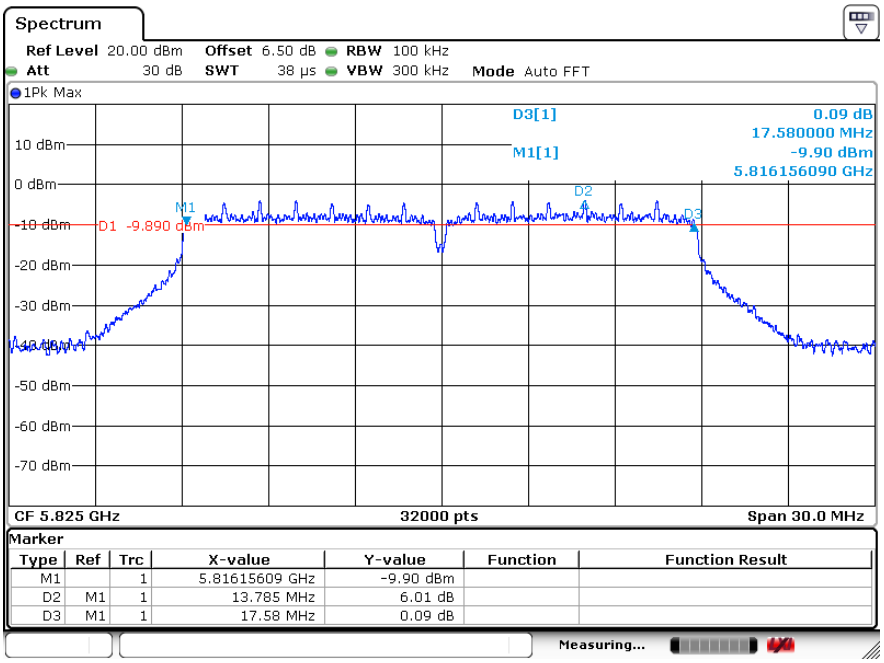
6dB BW 802.11n20
Channel: 149



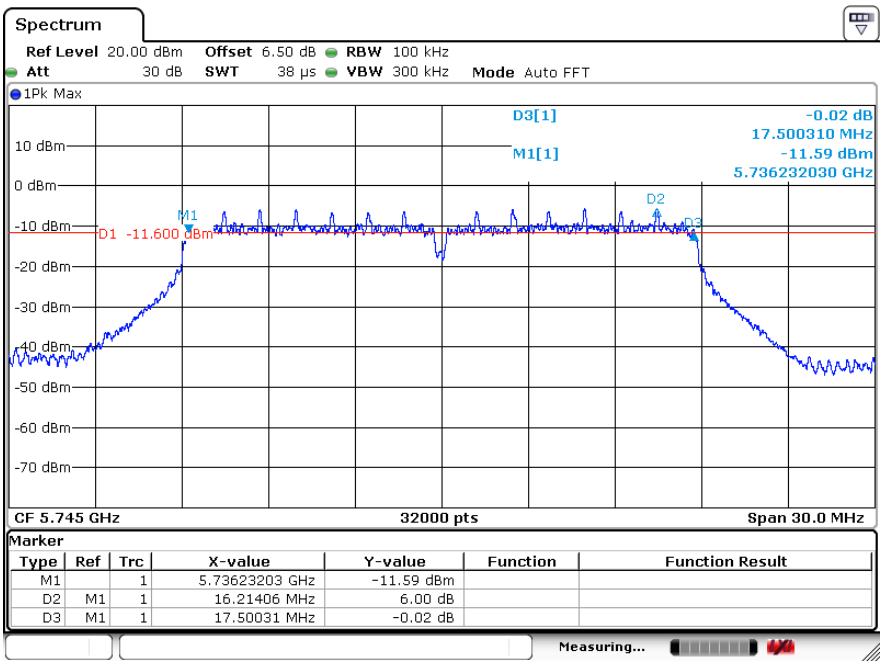
Channel: 157



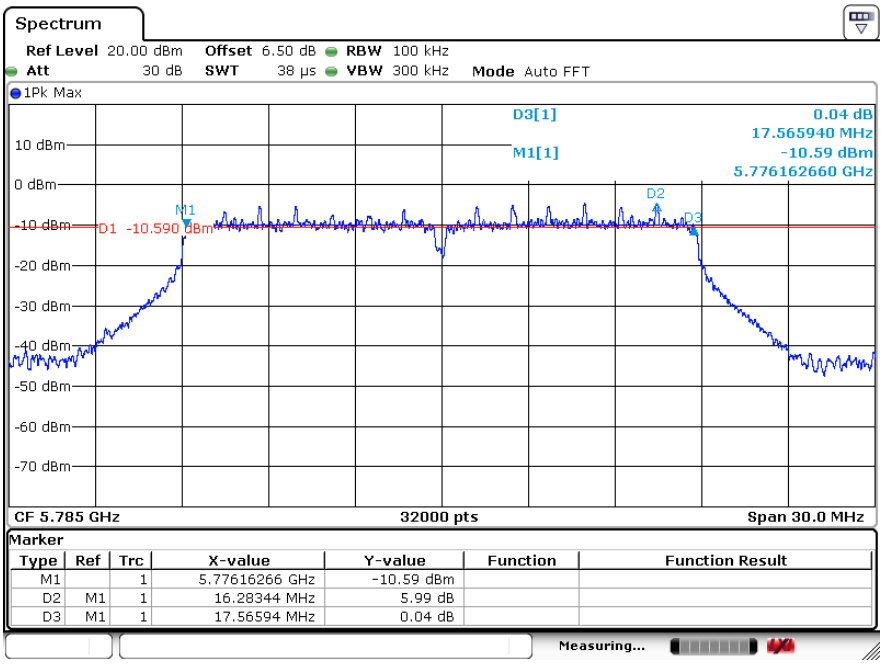
Channel: 165


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 100 kHz
Att 30 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
D3[1] 0.09 dB
17.580000 MHz
M1[1] -9.90 dBm
5.816156090 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1 -9.890 dBm
D2
D3
CF 5.825 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.81615609 GHz -9.90 dBm
D2 M1 1 13.785 MHz 6.01 dB
D3 M1 1 17.58 MHz 0.09 dB
Measuring...

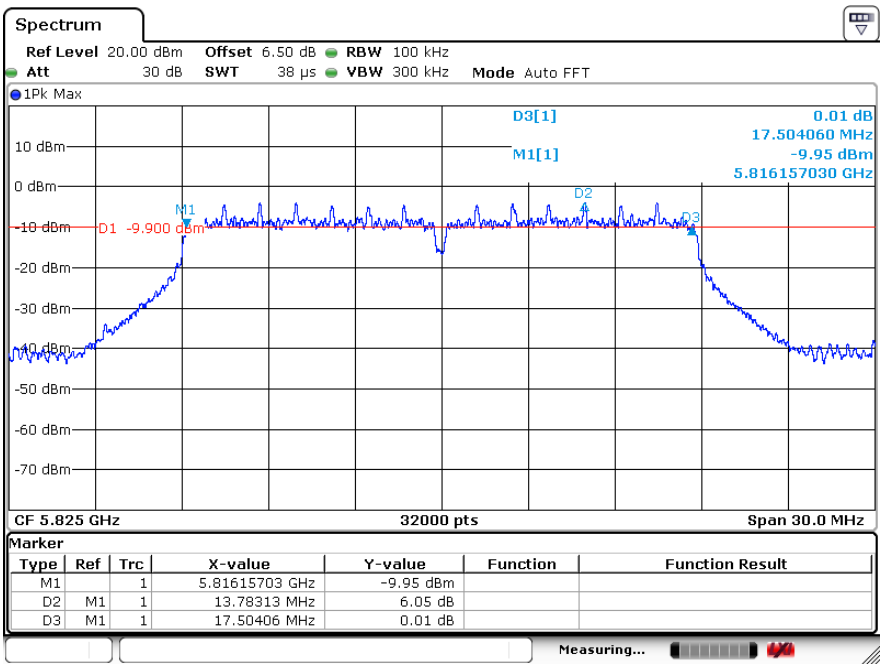
6dB BW 802.11ac20
Channel: 149



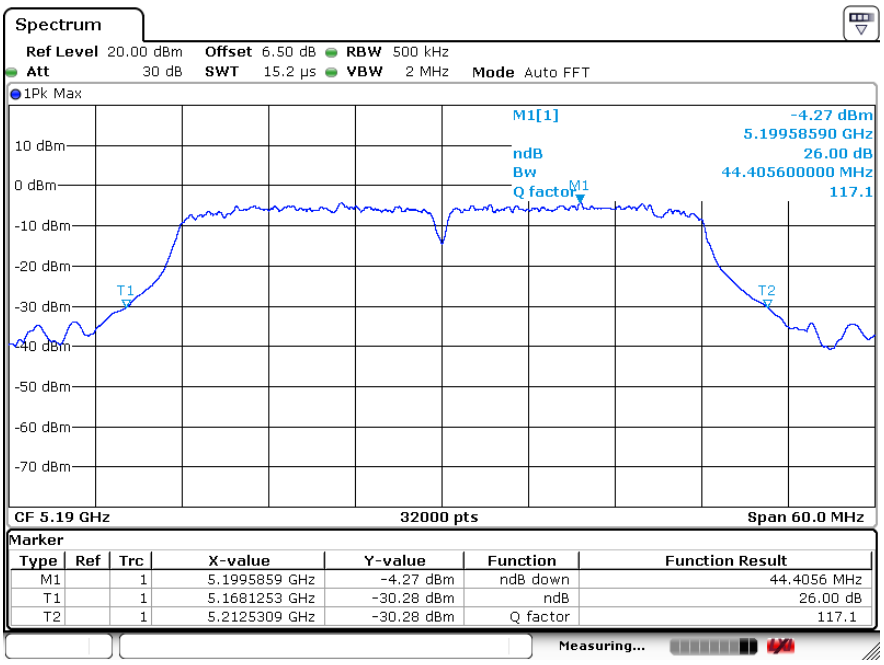
Channel: 157



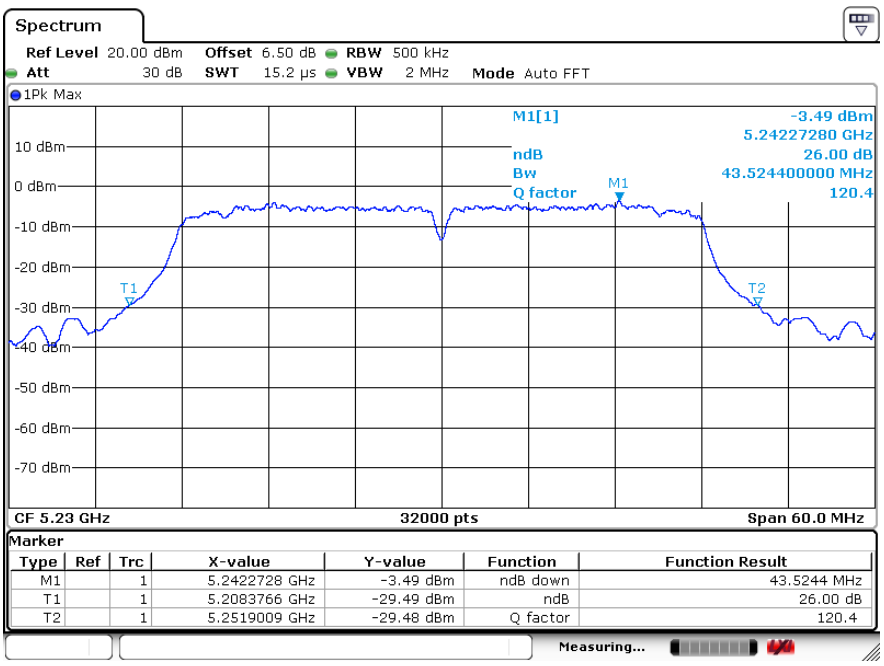
Channel: 165


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 100 kHz
Att 30 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
D3[1] 0.01 dB
17.504060 MHz
M1[1] -9.95 dBm
5.816157030 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1 -9.900 dBm
D2
D3
CF 5.825 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.81615703 GHz -9.95 dBm
D2 M1 1 13.78313 MHz 6.05 dB
D3 M1 1 17.50406 MHz 0.01 dB
Measuring...

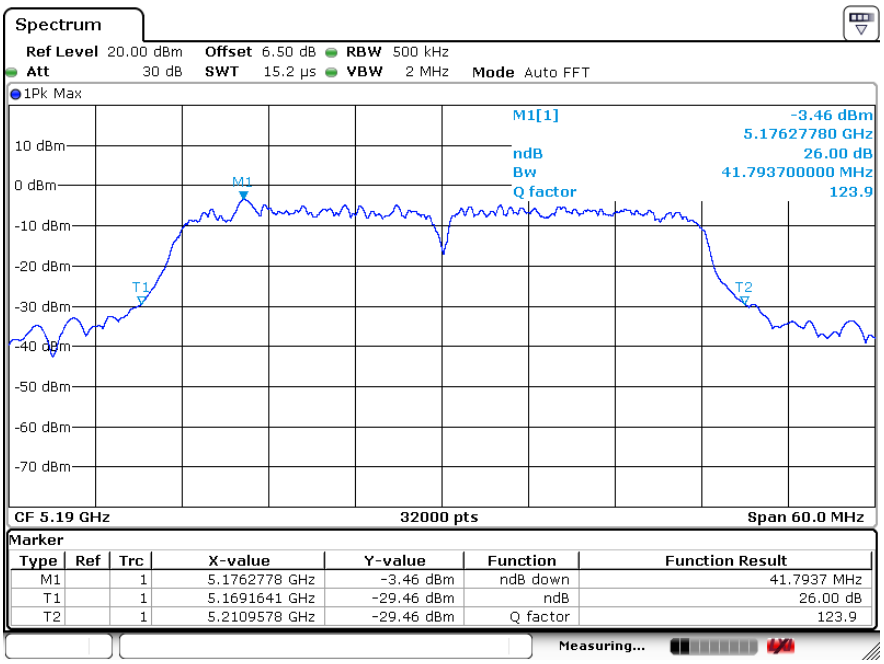
26dB BW 802.11n40
Channel: 38



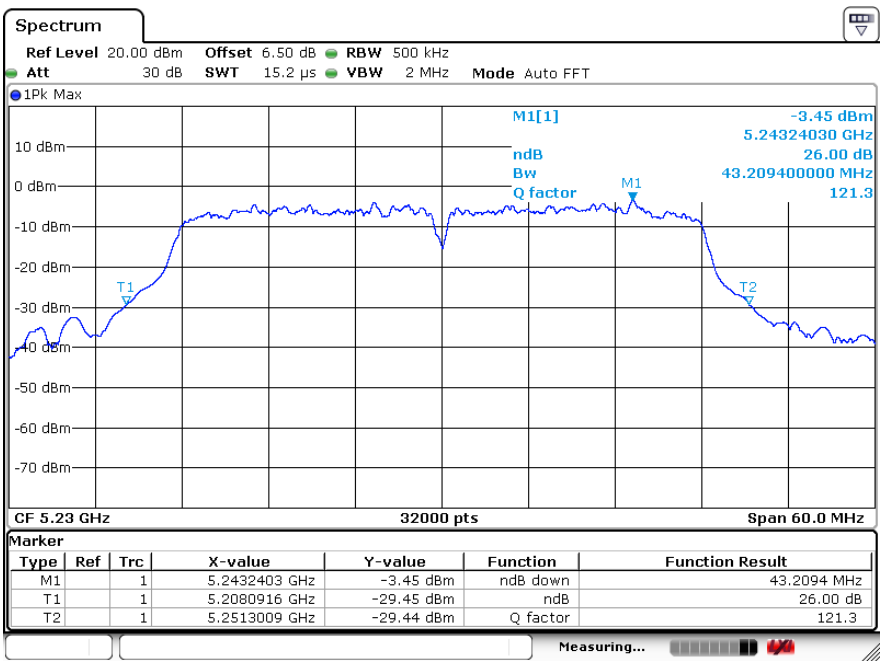
Channel: 46



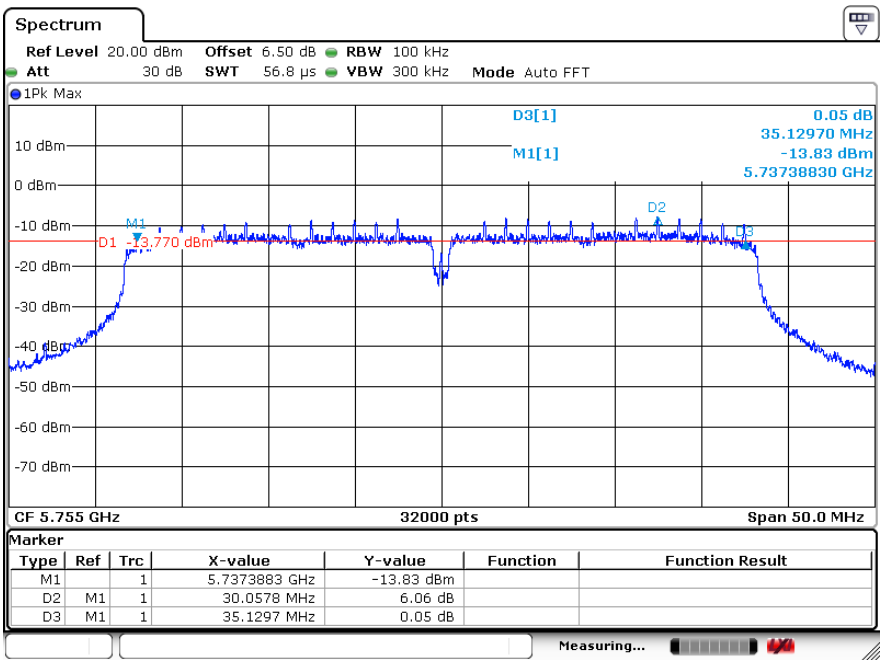
26dB BW 802.11ac40
Channel: 38



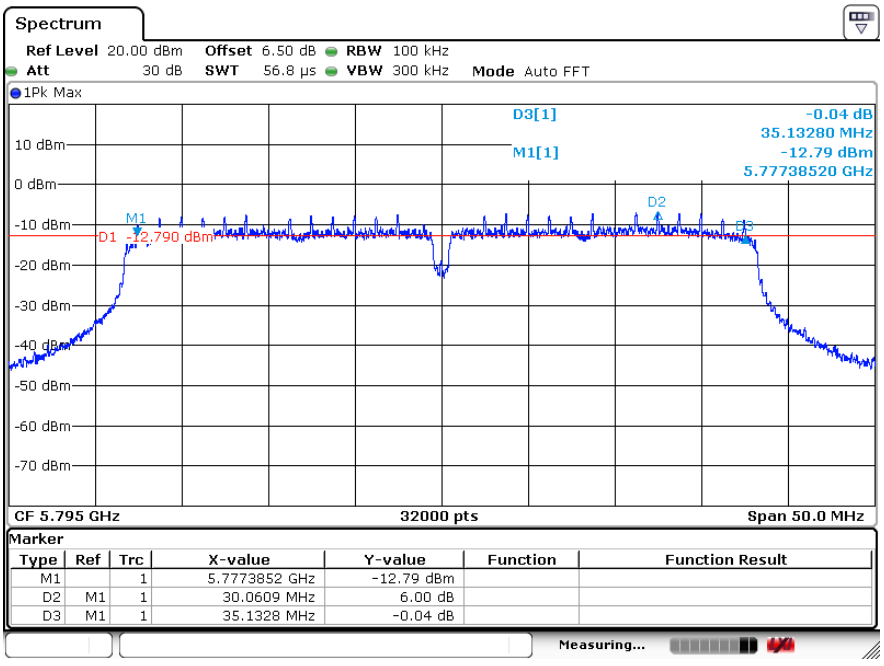
Channel: 46



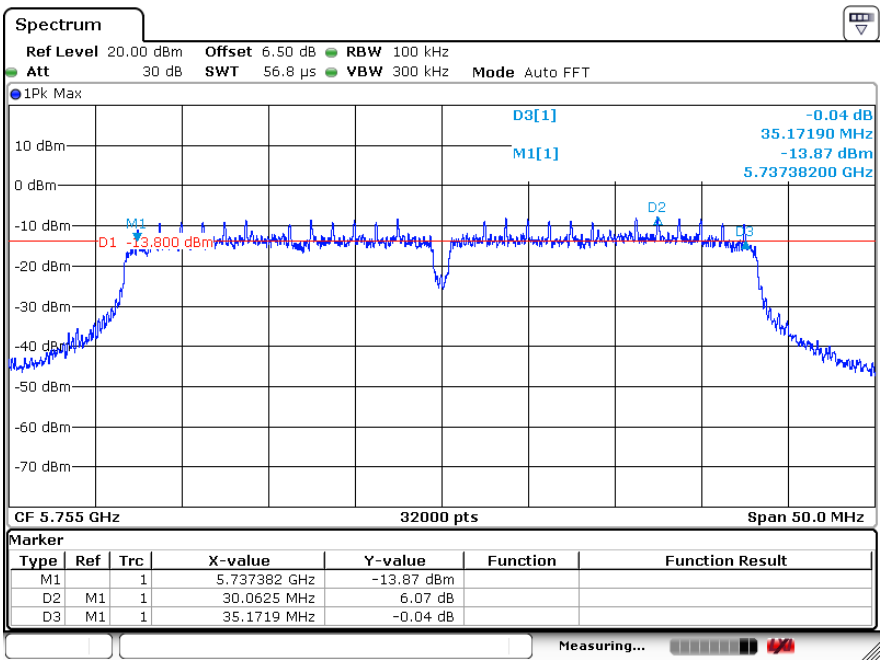
6dB BW 802.11n40
Channel: 151



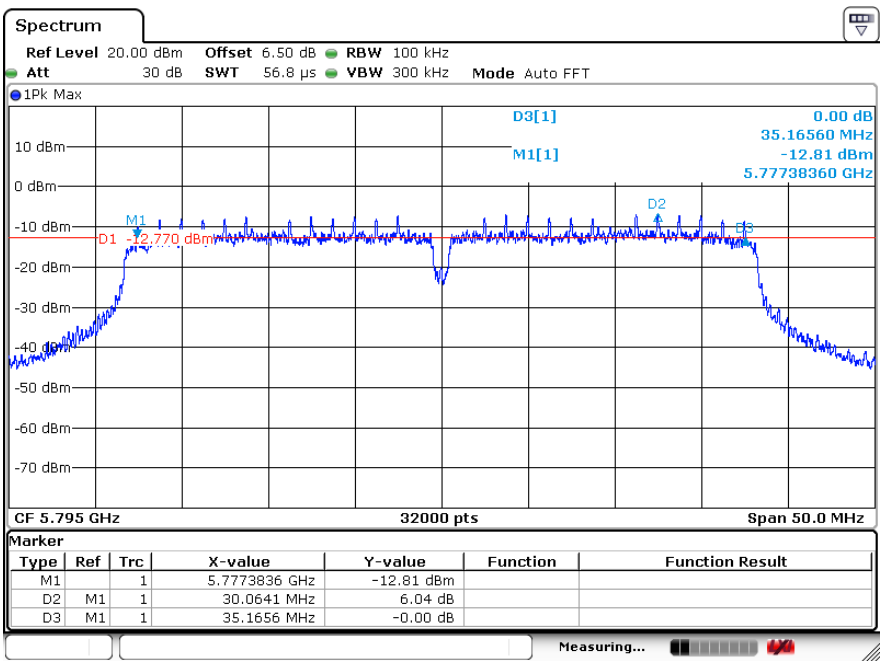
Channel: 159



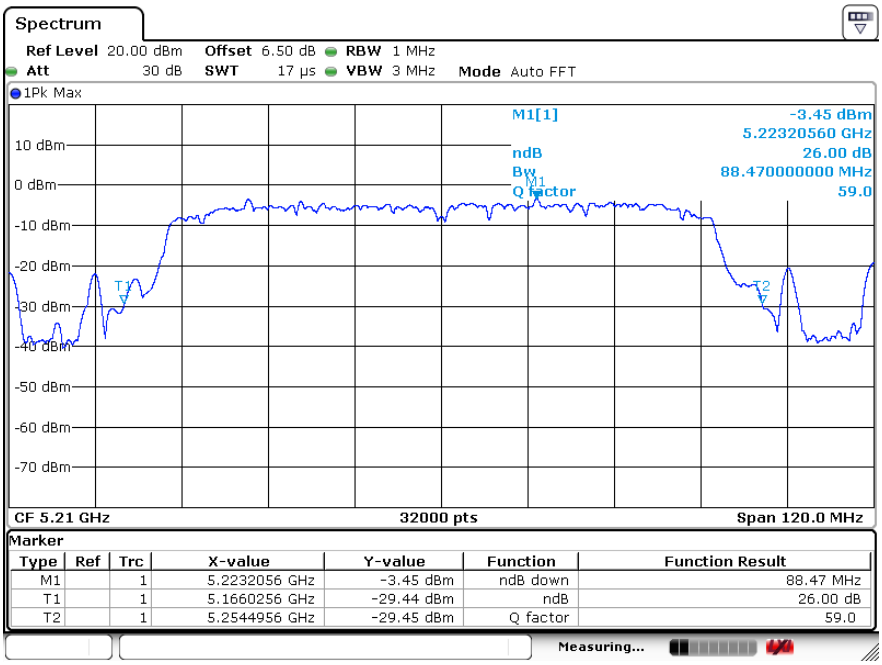
6dB BW 802.11ac40
Channel: 151



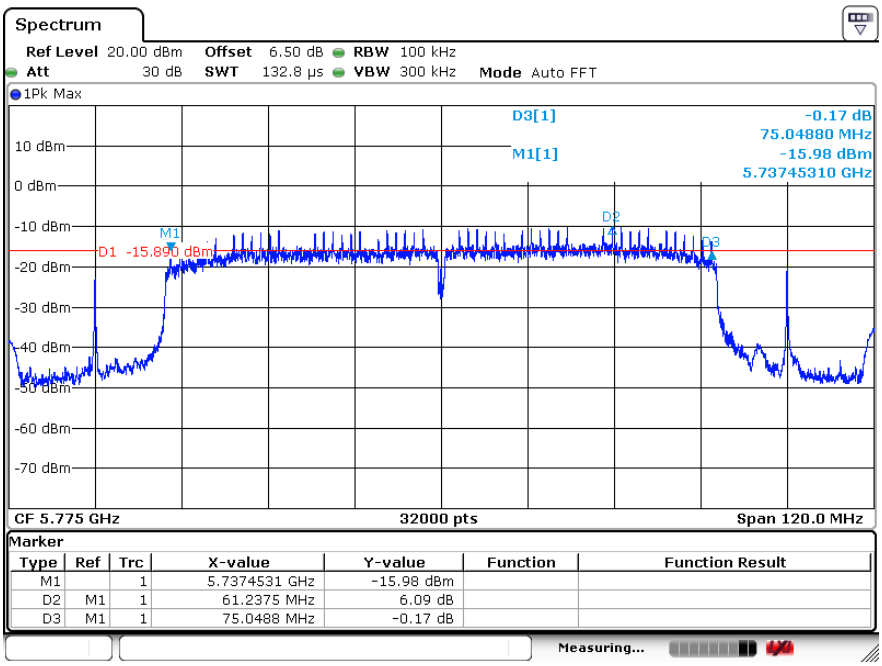
Channel: 159



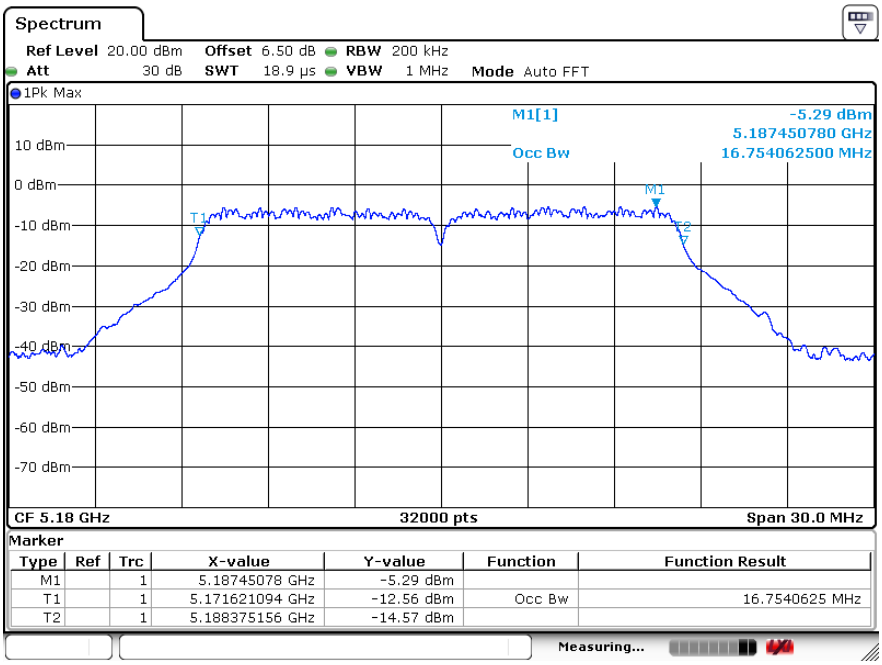
26dB BW 802.11ac80
Channel:42



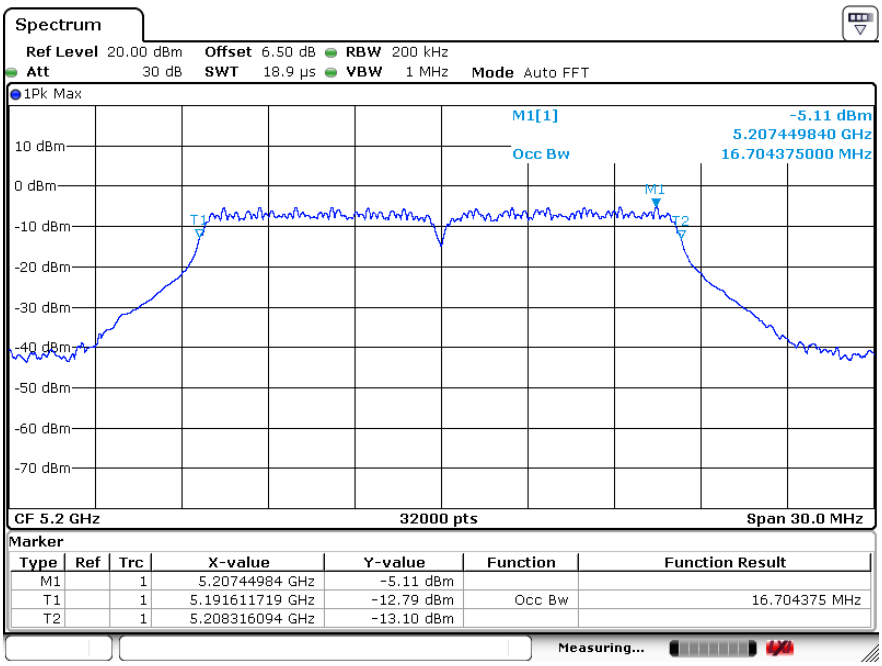
6dB BW 802.11ac80
Channel: 155



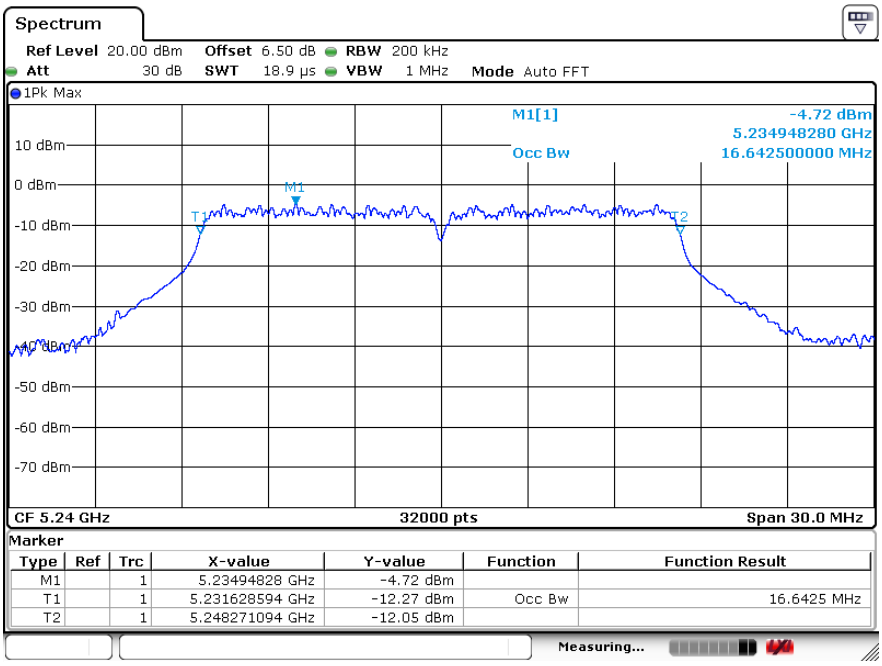
99% OBW 802.11a
Channel: 36



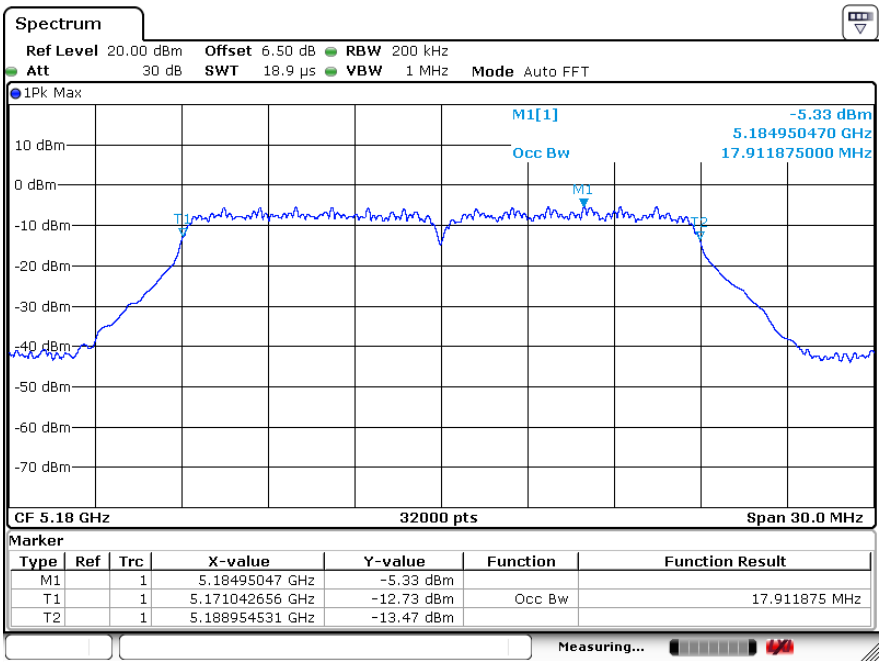
Channel: 40



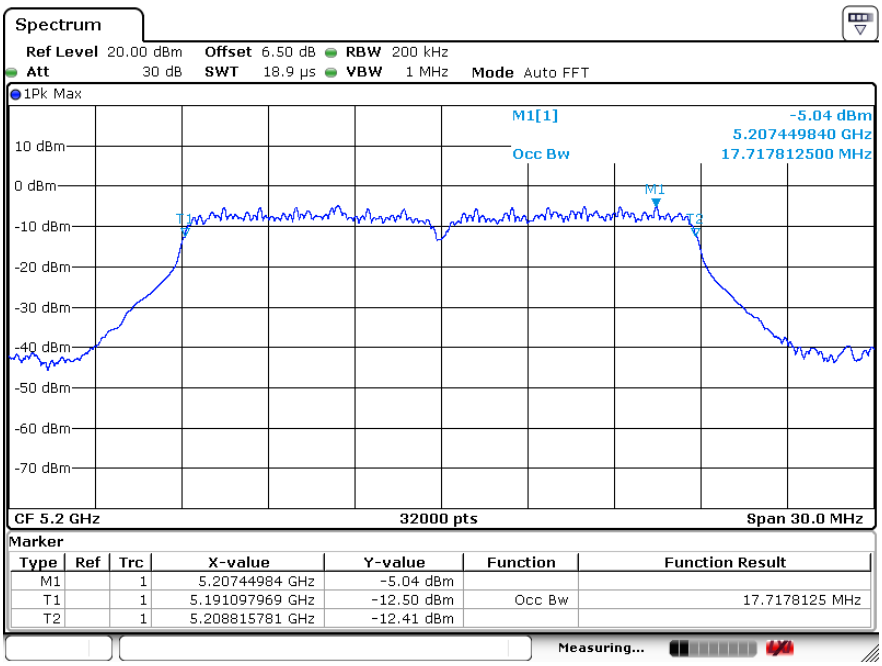
Channel: 48


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 200 kHz
Att 30 dB SWT 18.9 µs VBW 1 MHz Mode Auto FFT
1Pk Max
M1[1]
-4.72 dBm
5.234948280 GHz
Occ Bw
16.642500000 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 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.23494828 GHz -4.72 dBm
T1 1 5.231628594 GHz -12.27 dBm Occ Bw 16.6425 MHz
T2 1 5.248271094 GHz -12.05 dBm
Measuring...

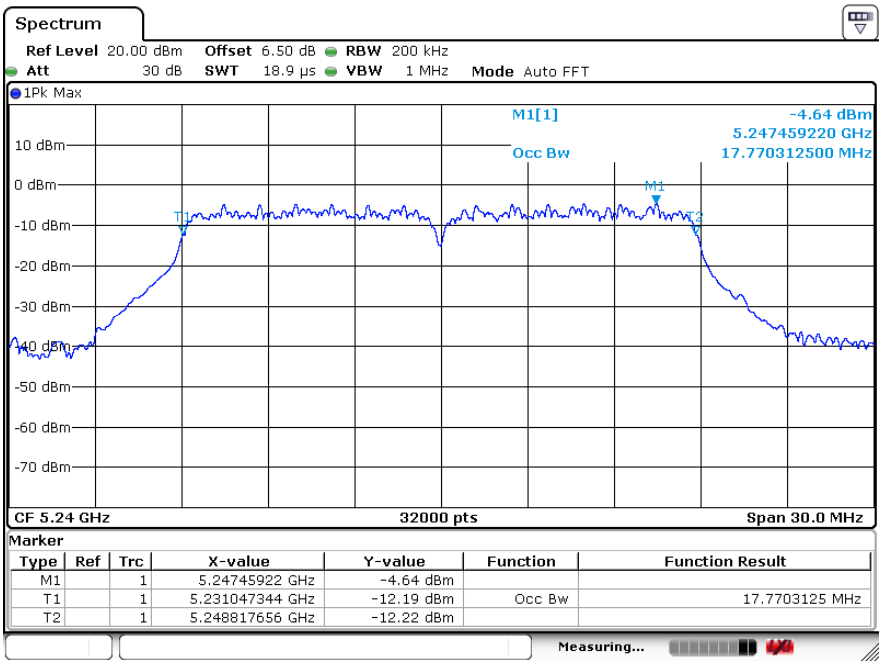
99% OBW 802.11n20
Channel: 36



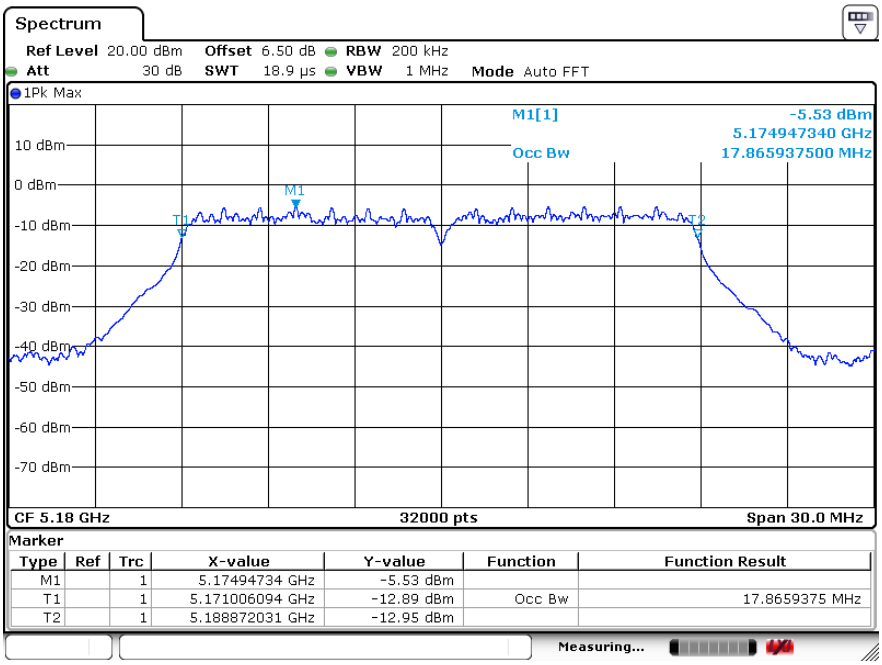
Channel: 40



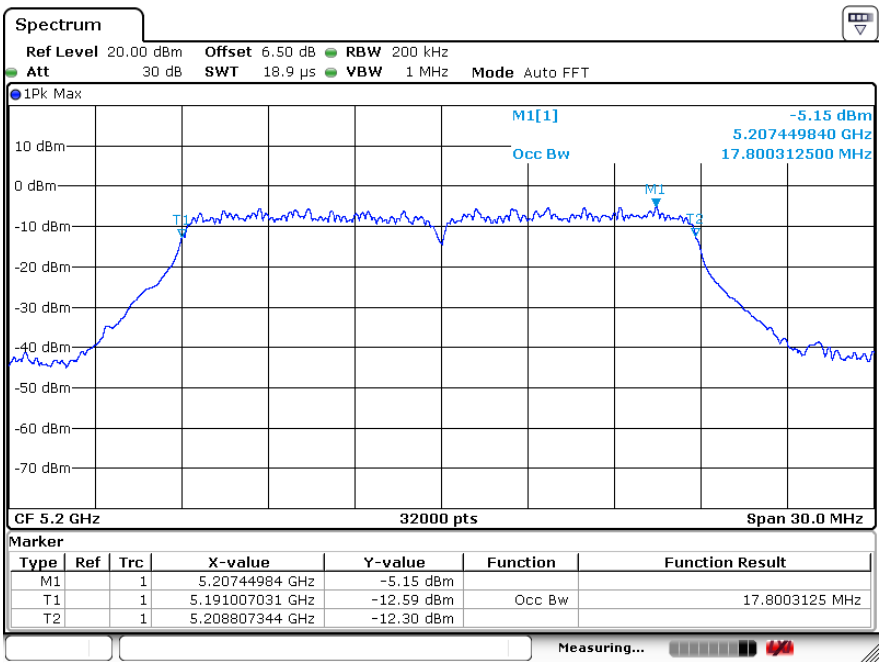
Channel: 48


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 200 kHz
Att 30 dB SWT 18.9 µs VBW 1 MHz Mode Auto FFT
1Pk Max
M1[1]
-4.64 dBm
5.247459220 GHz
Occ Bw
17.770312500 MHz
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 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.24745922 GHz -4.64 dBm
T1 1 5.231047344 GHz -12.19 dBm Occ Bw 17.7703125 MHz
T2 1 5.248817656 GHz -12.22 dBm
Measuring...

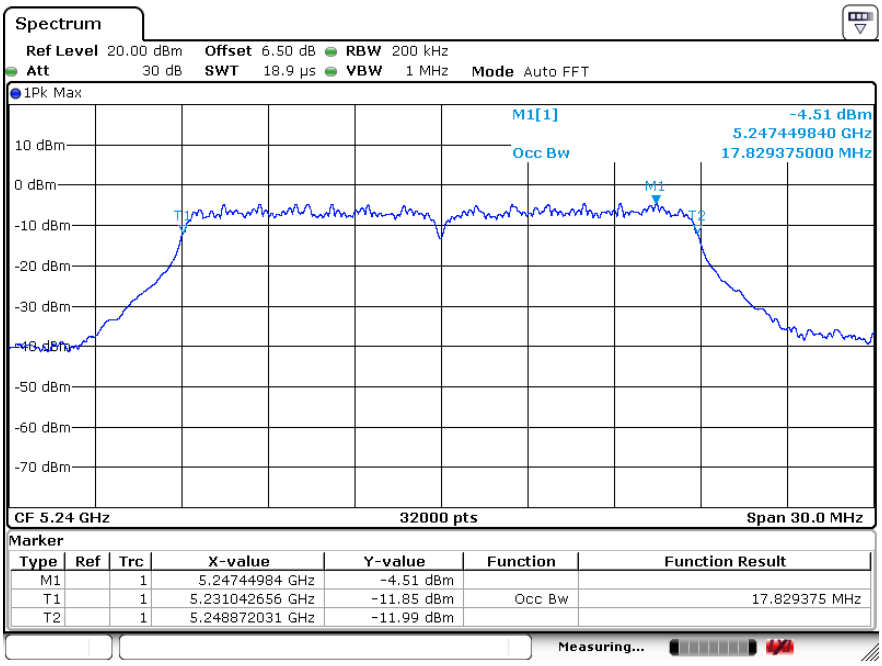
99% OBW 802.11ac20
Channel: 36



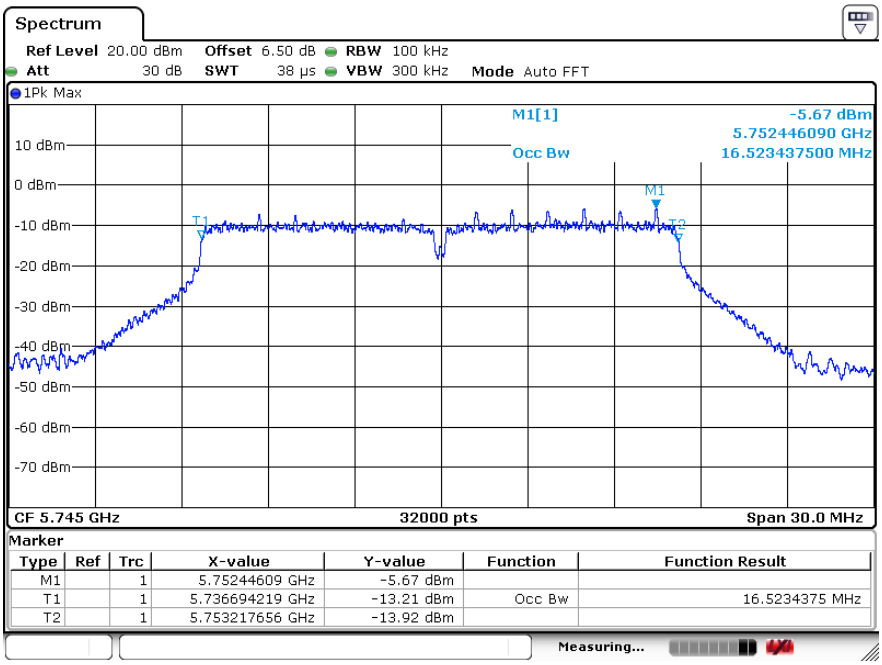
Channel: 40



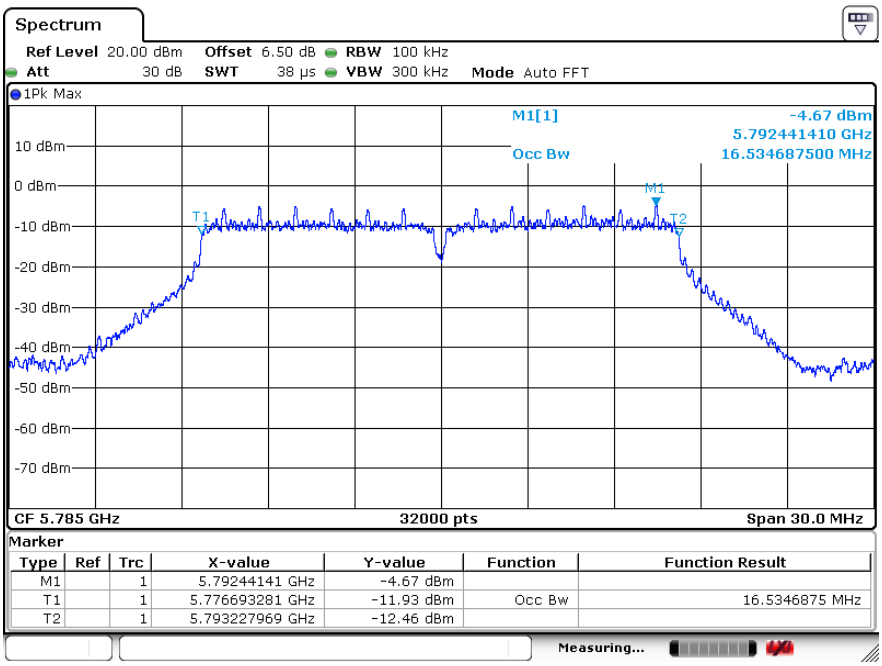
Channel: 48


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 200 kHz
Att 30 dB SWT 18.9 µs VBW 1 MHz Mode Auto FFT
1Pk Max
M1[1]
-4.51 dBm
5.247449840 GHz
Occ Bw
17.829375000 MHz
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 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.24744984 GHz -4.51 dBm
T1 1 5.231042656 GHz -11.85 dBm Occ Bw 17.829375 MHz
T2 1 5.248872031 GHz -11.99 dBm
Measuring...

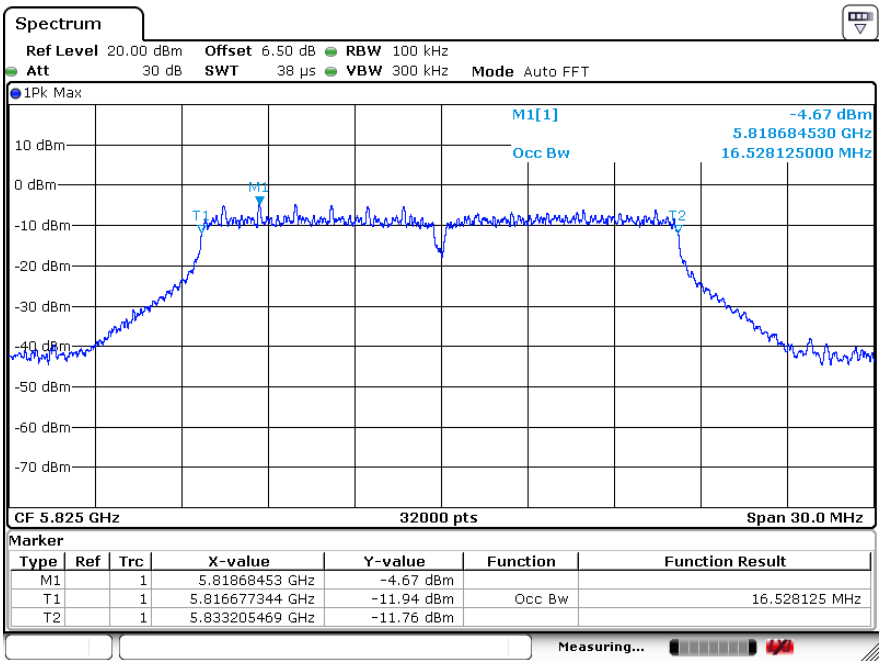
99% OBW 802.11a
Channel: 149



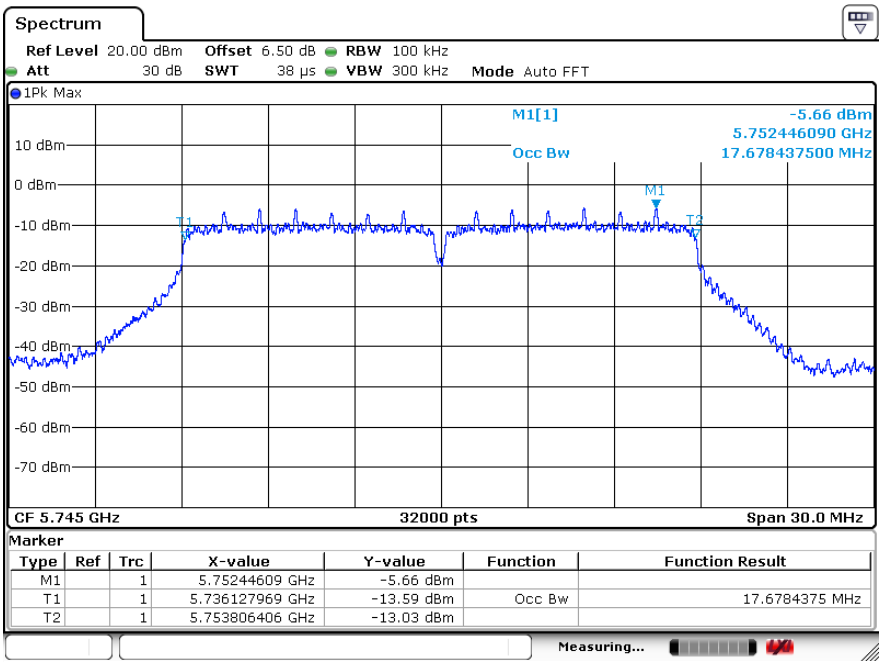
Channel: 157



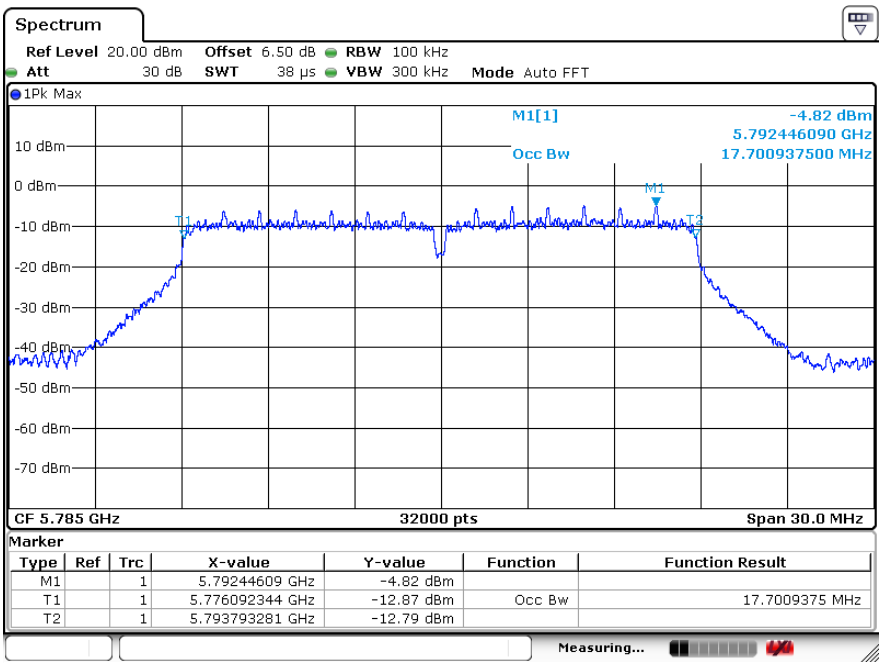
Channel: 165


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 100 kHz
Att 30 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
M1[1] -4.67 dBm
5.818684530 GHz
Occ Bw 16.528125000 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.825 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.81868453 GHz -4.67 dBm
T1 1 5.816677344 GHz -11.94 dBm Occ Bw 16.528125 MHz
T2 1 5.833205469 GHz -11.76 dBm
Measuring...

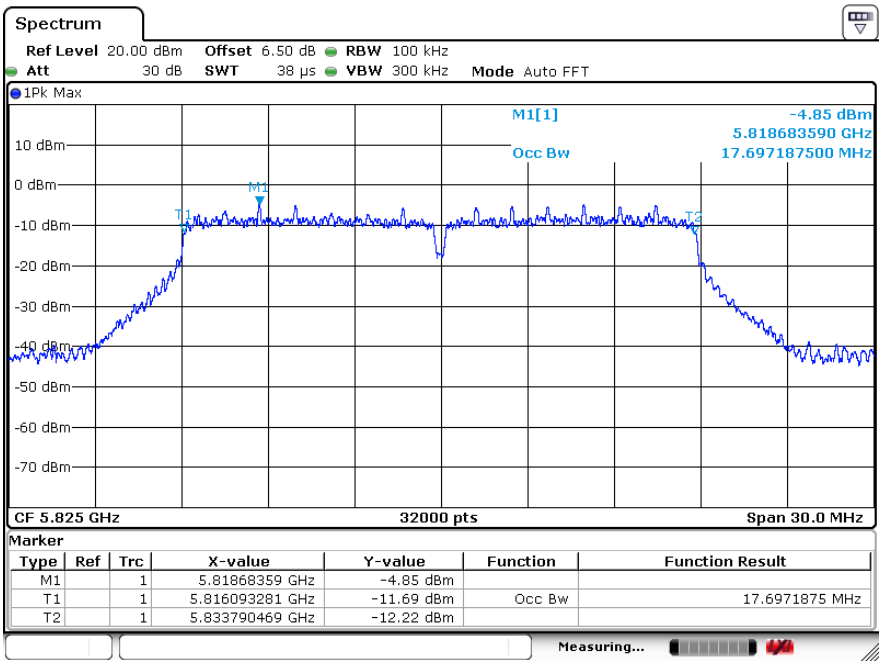
99% OBW 802.11n20
Channel: 149



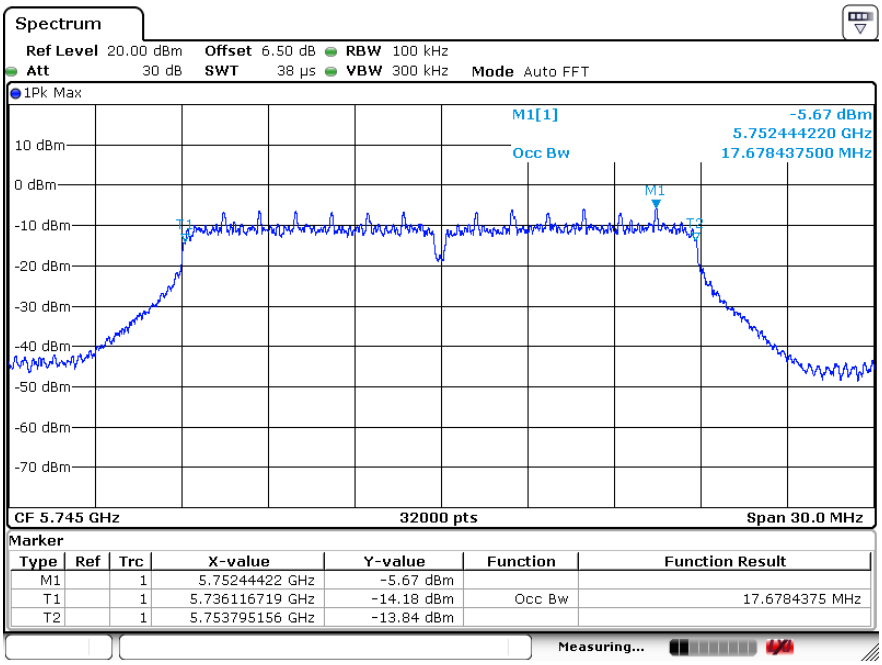
Channel: 157



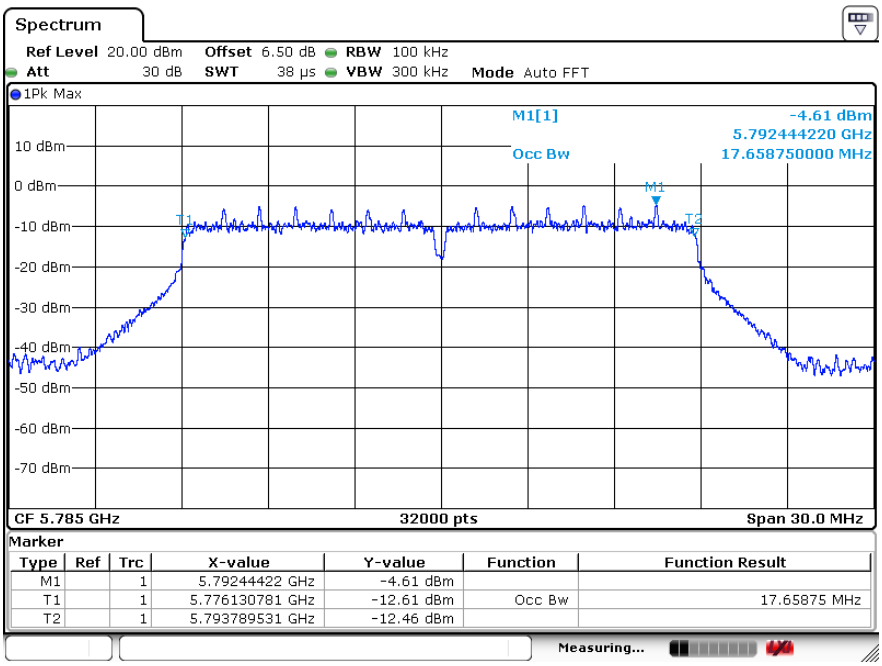
Channel: 165


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 100 kHz
Att 30 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
M1[1] -4.85 dBm
5.818683590 GHz
Occ Bw 17.697187500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.825 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.81868359 GHz -4.85 dBm
T1 1 5.816093281 GHz -11.69 dBm Occ Bw 17.6971875 MHz
T2 1 5.833790469 GHz -12.22 dBm
Measuring...

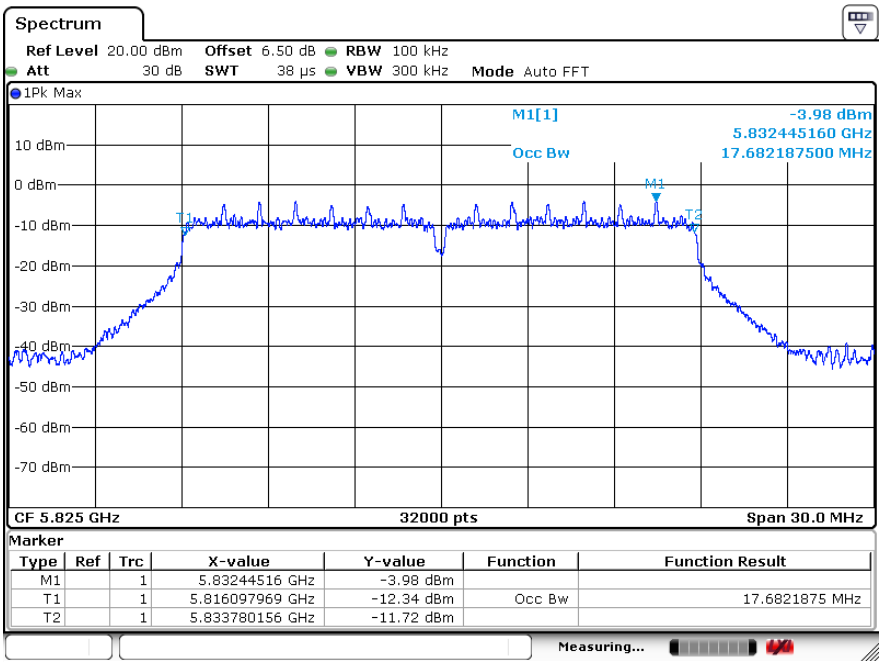
99% OBW 802.11ac20
Channel: 149



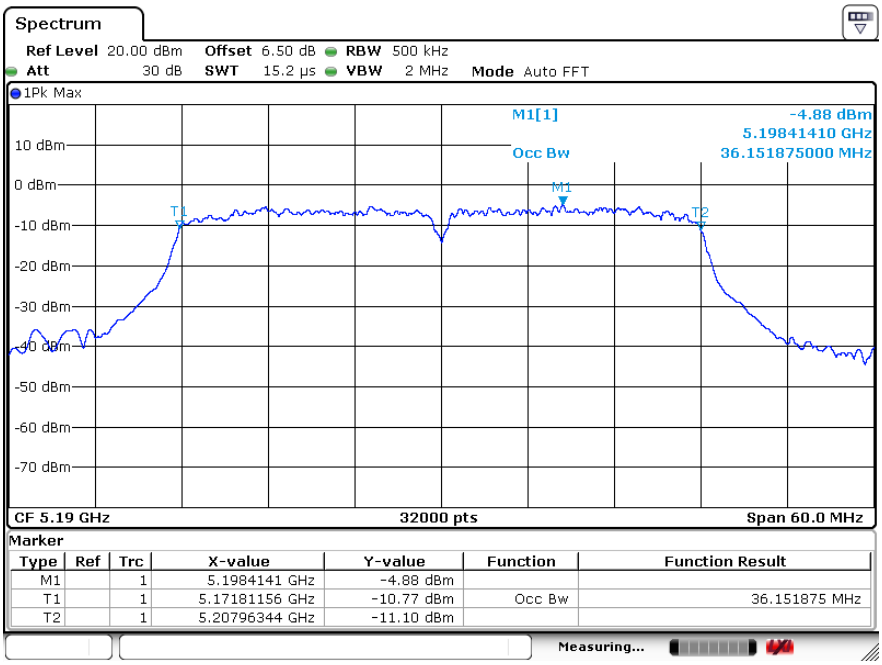
Channel: 157



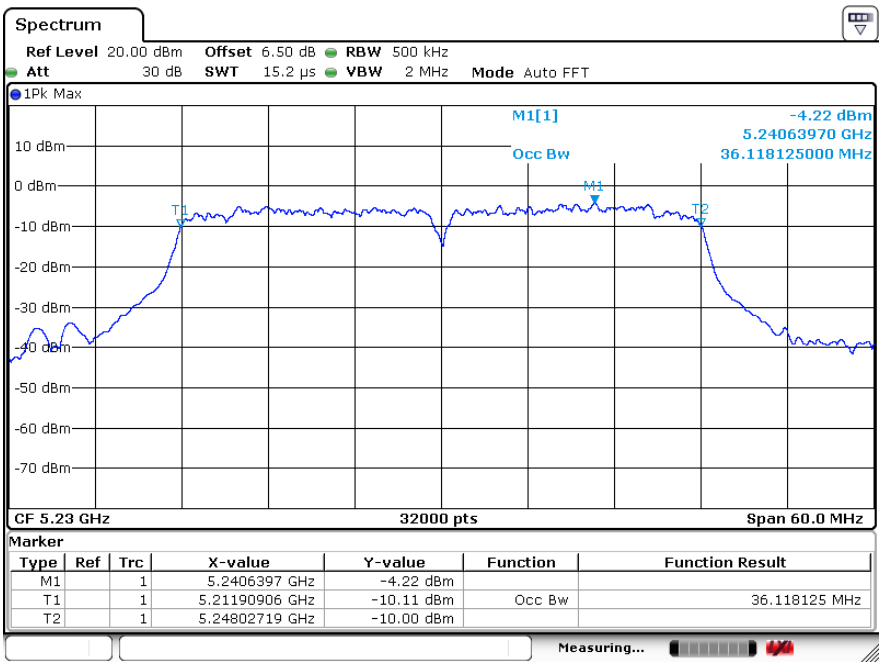
Channel: 165


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 100 kHz
Att 30 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
M1[1]
-3.98 dBm
5.832445160 GHz
Occ Bw
17.682187500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.825 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.83244516 GHz -3.98 dBm
T1 1 5.816097969 GHz -12.34 dBm Occ Bw 17.6821875 MHz
T2 1 5.833780156 GHz -11.72 dBm
Measuring...

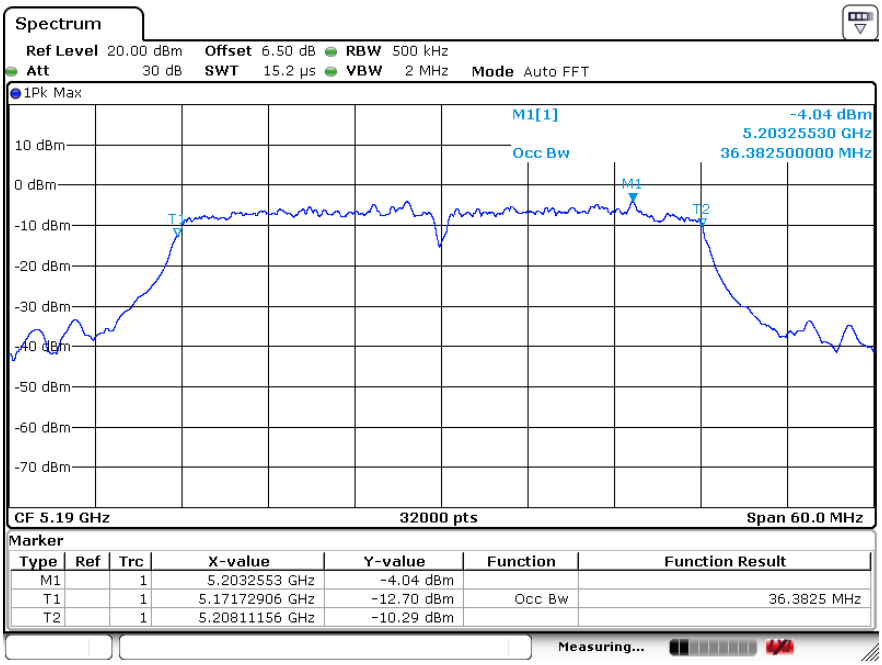
99% OBW 802.11n40
Channel: 38



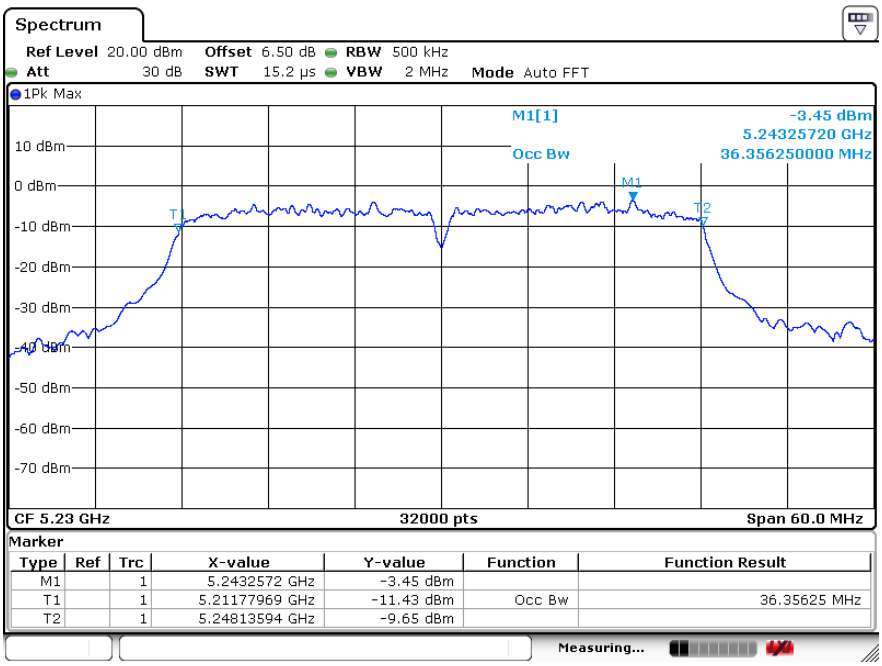
Channel: 46



99% OBW 802.11ac40
Channel: 38

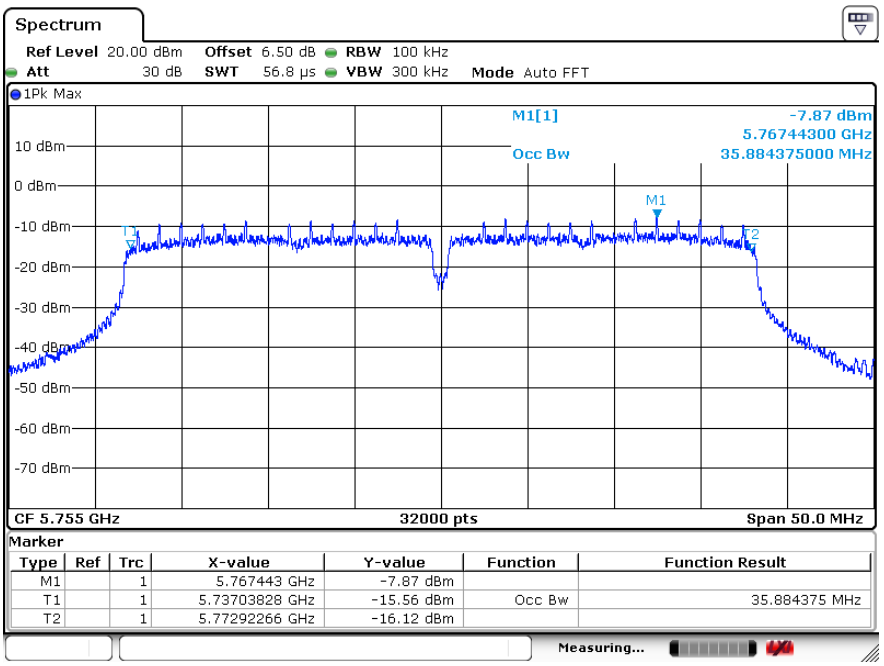


Channel: 46

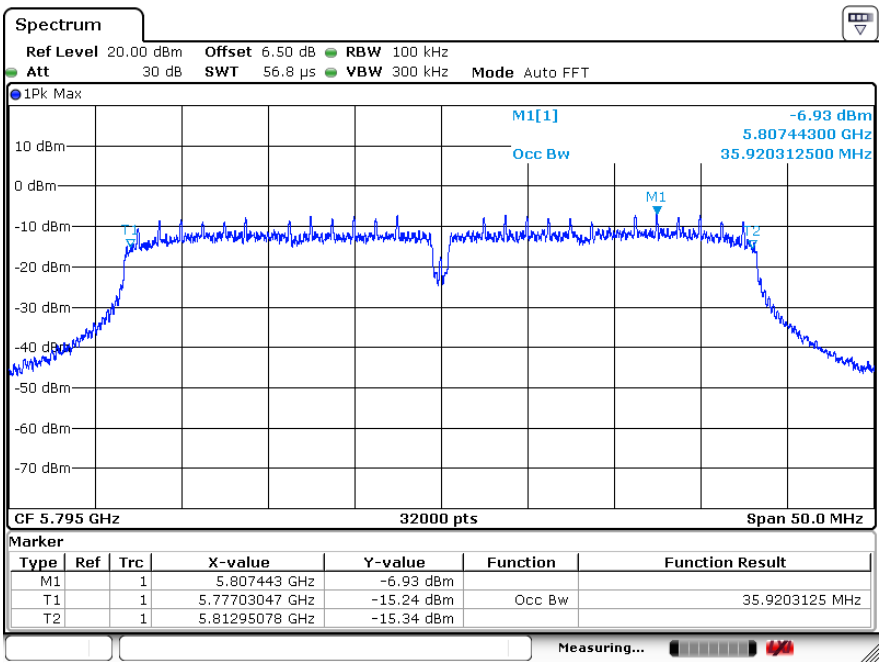


99% OBW 802.11n40

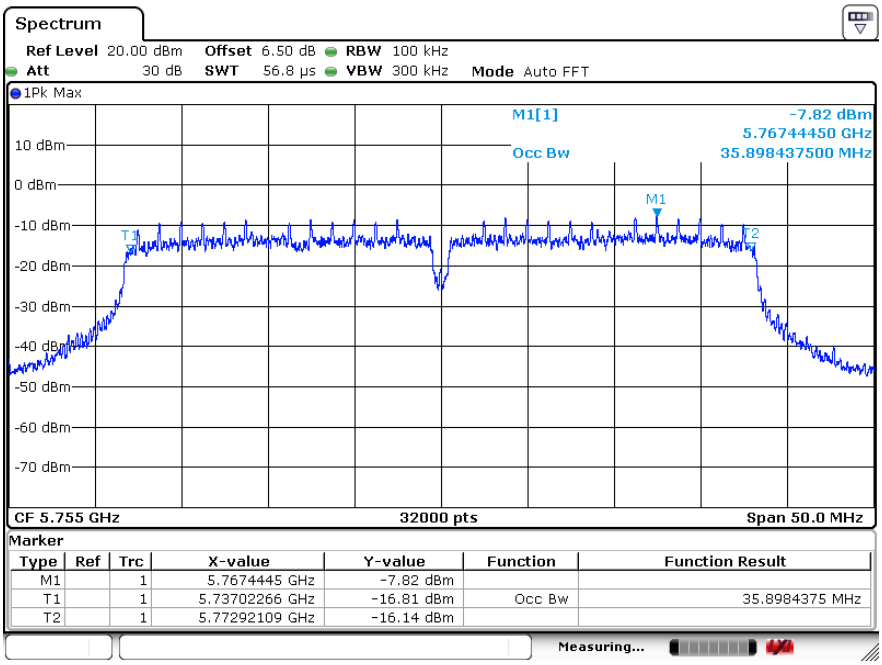
Channel: 151



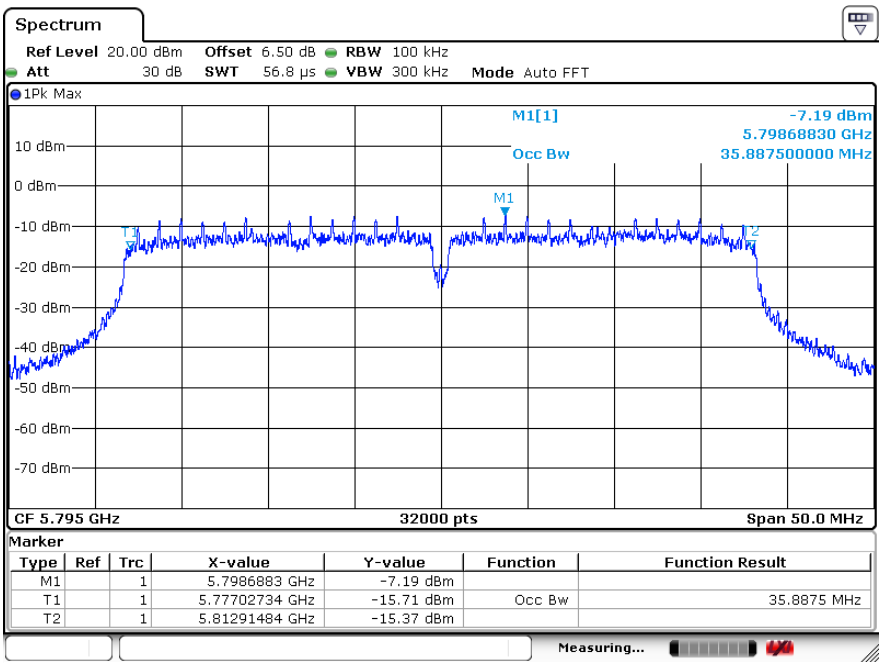
Channel: 159



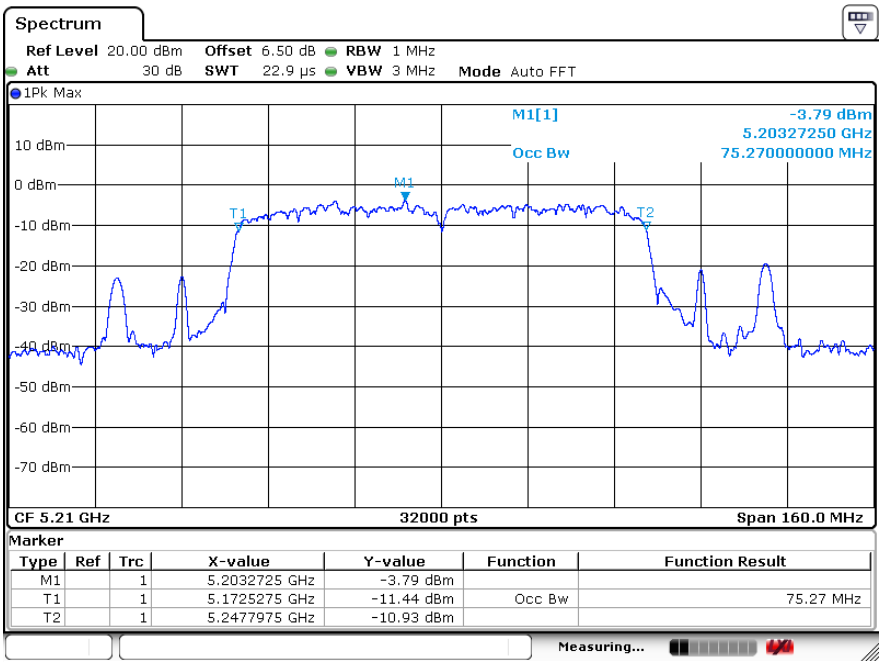
99% OBW 802.11ac40
Channel: 151



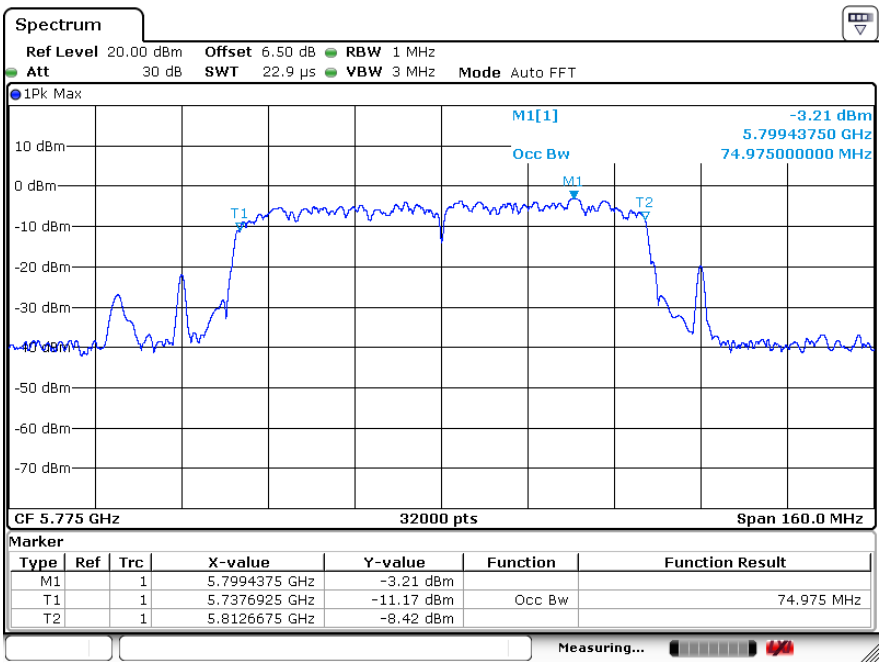
Channel: 159



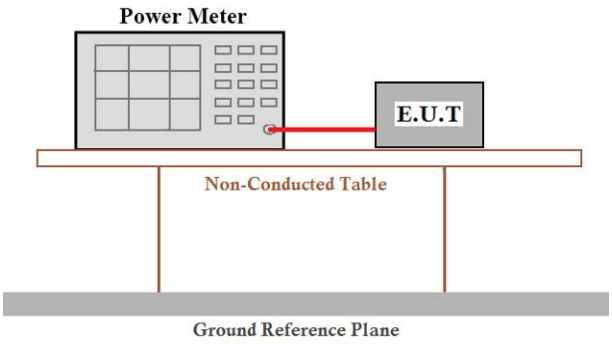
99% OBW 802.11ac80
Channel:42



Channel: 155



9. Output Power

Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General UNII Test Procedures New Rules v02
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

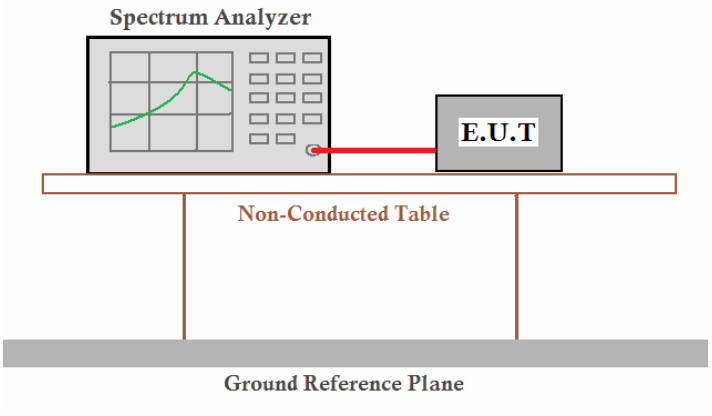
9.1 Test Result and Data

CH. No.	Frequency (MHz)	Output Power (dBm)			Limit(dBm)	Result
		802.11a	802.11n (HT20)	802.11ac (VHT20)		
36	5180.00	5.47	5.09	5.43	24	Pass
40	5200.00	5.32	5.27	5.34	24	Pass
48	5240.00	5.44	5.17	5.39	24	Pass
149	5745.00	5.09	5.00	5.17	30	Pass
157	5785.00	5.15	5.08	5.05	30	Pass
165	5825.00	5.20	5.01	5.10	30	Pass

CH. No.	Frequency (MHz)	Output Power (dBm)		Limit(dBm)	Result
		802.11n(HT40)	802.11ac(VHT40)		
38	5190.00	4.01	4.00	24	Pass
46	5230.00	4.10	3.96	24	Pass
151	5755.00	4.00	4.10	30	Pass
159	5795.00	4.23	4.16	30	Pass

CH. No.	Frequency (MHz)	Output Power (dBm)	Limit(dBm)	Result
		802.11ac(VHT80)		
42	5210	5.11	24	Pass
155	5775	5.04	30	Pass

10. Power Spectral Density

Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General UNII Test Procedures New Rules v02
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

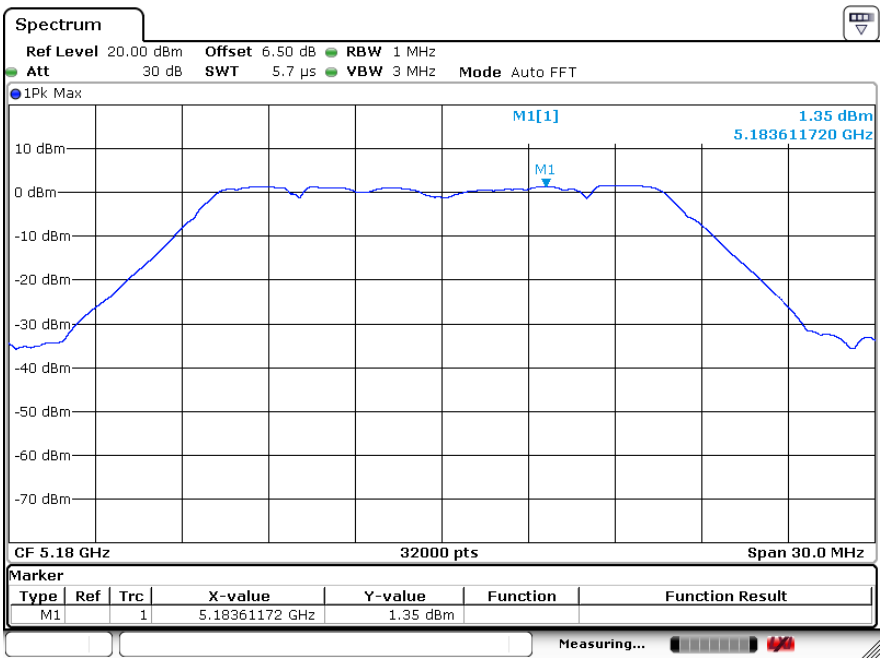
TX 802.11a Mode						
CH. No.	Frequency	Power Density ANT A (dBm/MHz)	Power Density ANT B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
CH36	5180	1.35	--	--	11	
CH40	5200	2.13	--	--	11	Pass
CH48	5240	2.58	--	--	11	Pass
CH. No.	Frequency	Power Density ANT A (dBm/500KHz)	Power Density ANT B (dBm/500KHz)	total power density (dBm/500KHz)	Limit (dBm/500KHz)	Result
CH 149	5745	1.53	--	--	30	Pass
CH 157	5785	2.35	--	--	30	Pass
CH 165	5825	2.58	--	--	30	Pass
TX 802.11n20 Mode						
CH. No.	Frequency	Power Density ANT A (dBm/MHz)	Power Density ANT B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
CH36	5180	1.46	--	--	11	Pass
CH40	5200	1.49	--	--	11	Pass
CH48	5240	1.65	--	--	11	Pass
CH. No.	Frequency	Power Density ANT A (dBm/500KHz)	Power Density ANT B (dBm/500KHz)	total power density (dBm/500KHz)	Limit (dBm/500KHz)	Result
CH 149	5745	1.43	--	--	30	Pass
CH 157	5785	1.11	--	--	30	Pass
CH 165	5825	2.42	--	--	30	Pass

TX 802.11n40 Mode						
CH. No.	Frequency	Power Density ANT A (dBm/MHz)	Power Density ANT B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
CH38	5190	-1.60	--	--	11	Pass
CH46	5230	-0.79	--	--	11	Pass
CH. No.	Frequency	Power Density ANT A (dBm/500KHz)	Power Density ANT B (dBm/500KHz)	total power density (dBm/500KHz)	Limit (dBm/500KHz)	Result
CH151	5755	-1.33	--	--	30	Pass
CH159	5795	-0.82	--	--	30	Pass
TX 802.11 ac(VHT20) Mode						
CH. No.	Frequency	Power Density ANT A (dBm/MHz)	Power Density ANT B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
CH36	5180	1.09	--	--	11	Pass
CH40	5200	1.36	--	--	11	Pass
CH48	5240	1.92	--	--	11	Pass
CH. No.	Frequency	Power Density ANT A (dBm/500KHz)	Power Density ANT B (dBm/500KHz)	total power density (dBm/500KHz)	Limit (dBm/500KHz)	Result
CH 149	5745	1.04	--	--	30	Pass
CH 157	5785	1.81	--	--	30	Pass
CH 165	5825	2.16	--	--	30	Pass

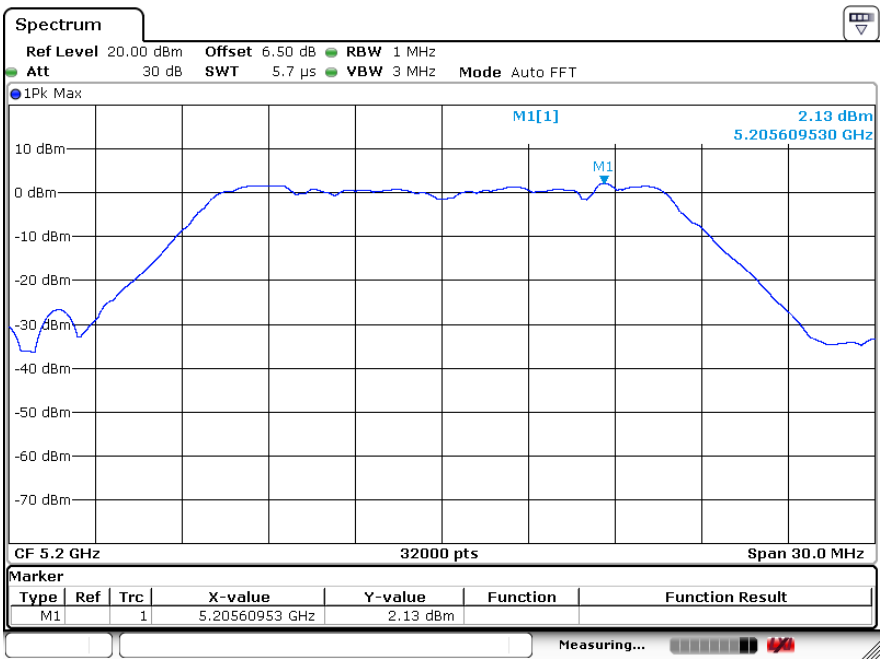
TX 802.11 ac(VHT40) Mode						
CH. No.	Frequency	Power Density ANT A (dBm/MHz)	Power Density ANT B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
CH38	5190	-1.57	--	--	11	Pass
CH46	5230	-1.49	--	--	11	Pass
CH. No.	Frequency	Power Density ANT A (dBm/500KHz)	Power Density ANT B (dBm/500KHz)	total power density (dBm/500KHz)	Limit (dBm/500KHz)	Result
CH 151	5755	-0.61	--	--	30	Pass
CH 159	5795	-0.40	--	--	30	Pass
TX 802.11 ac(VHT80) Mode						
CH. No.	Frequency	Power Density ANT A (dBm/MHz)	Power Density ANT B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
CH42	5210	-4.21	--	--	11	Pass
CH. No.	Frequency	Power Density ANT A (dBm/500KHz)	Power Density ANT B (dBm/500KHz)	total power density (dBm/500KHz)	Limit (dBm/500KHz)	Result
CH155	5775	-3.61	--	--	30	Pass

Test plots as followed:

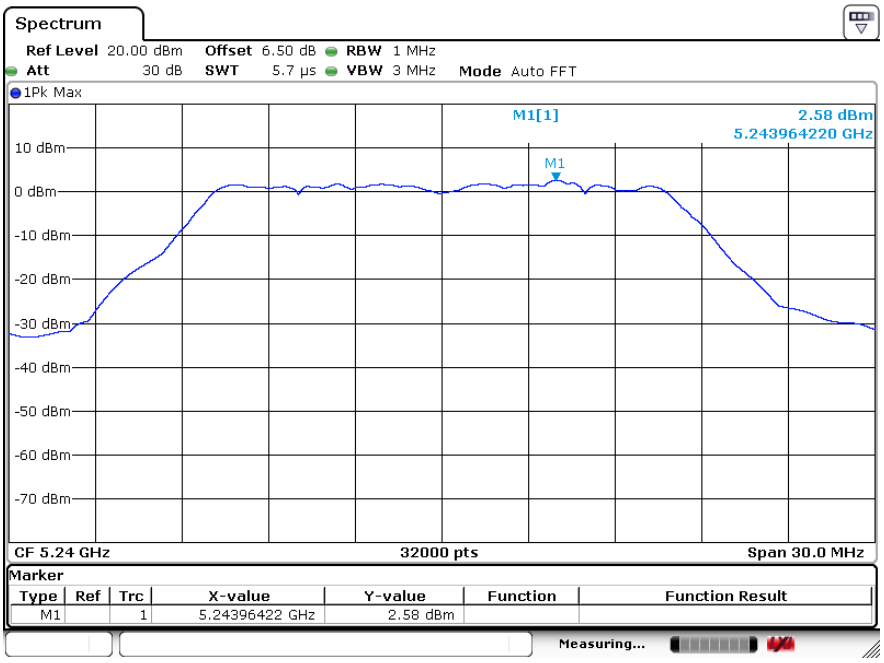
802.11a
Channel: 36



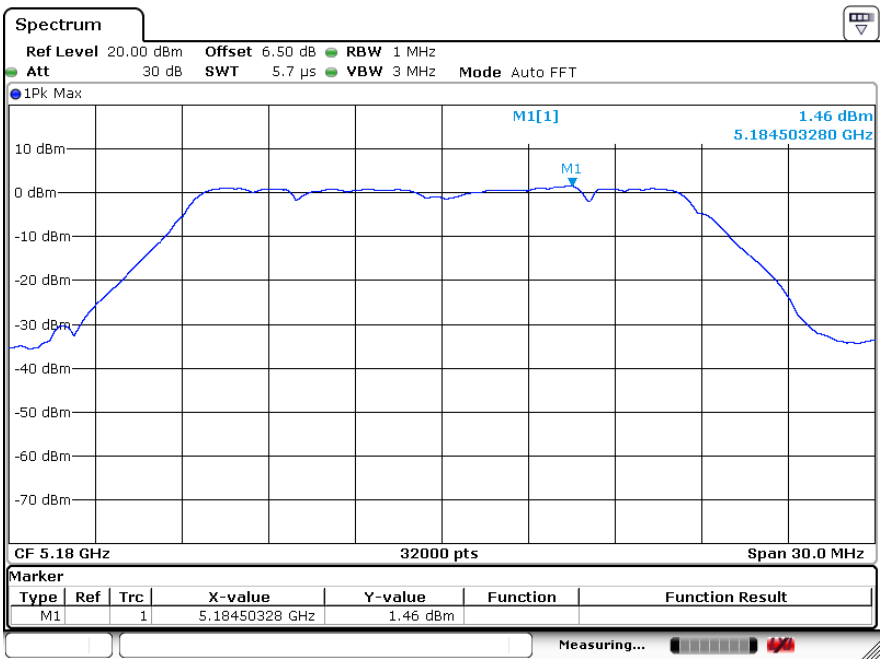
Channel: 40



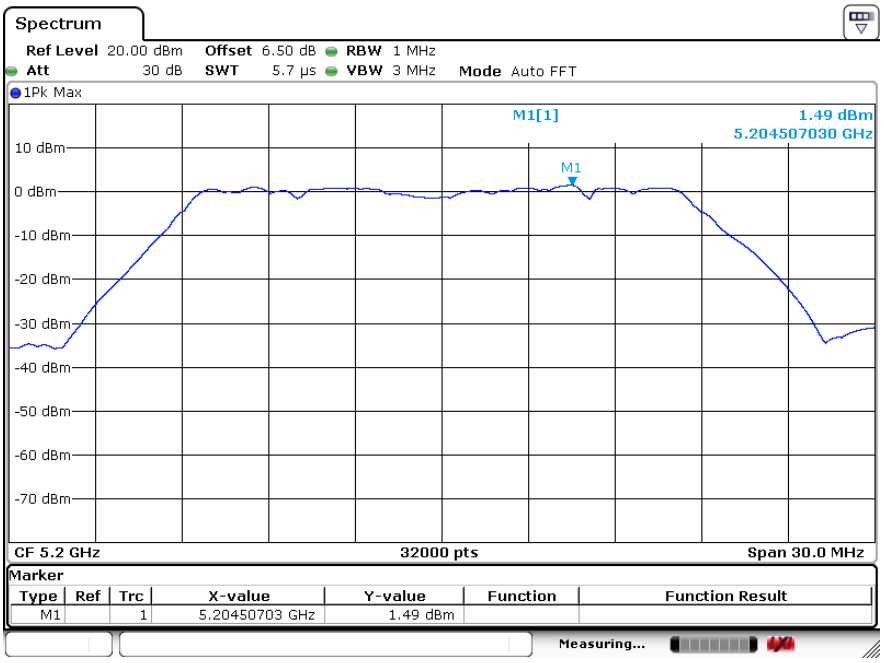
Channel: 48


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]
2.58 dBm
5.243964220 GHz
M1
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 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.24396422 GHz 2.58 dBm
Measuring...

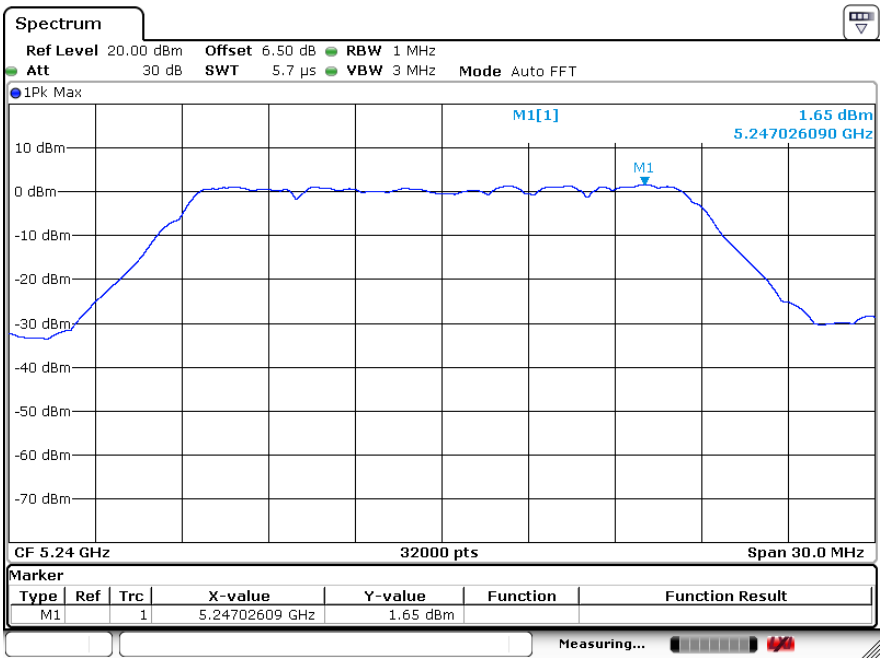
802.11n20
Channel: 36



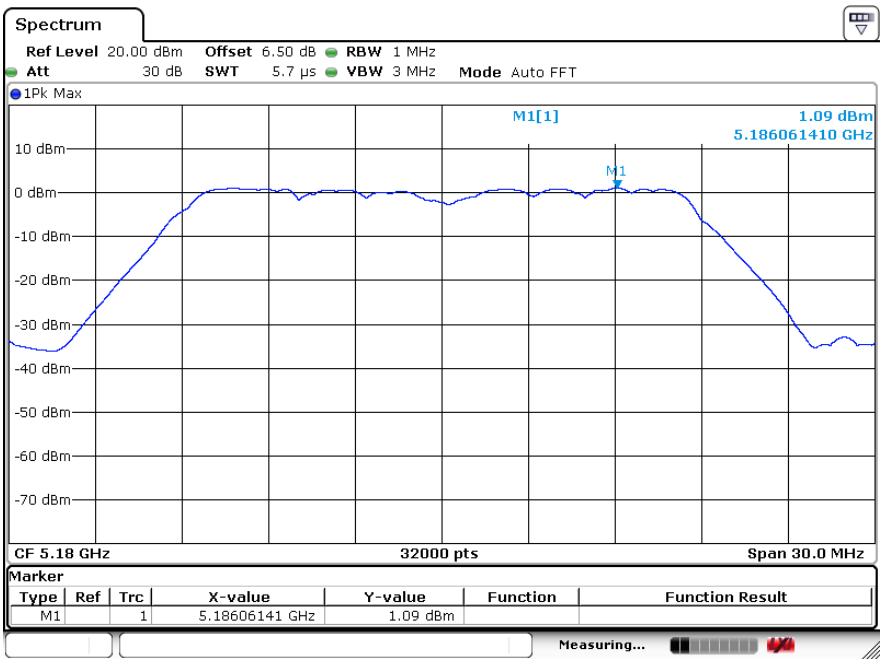
Channel: 40



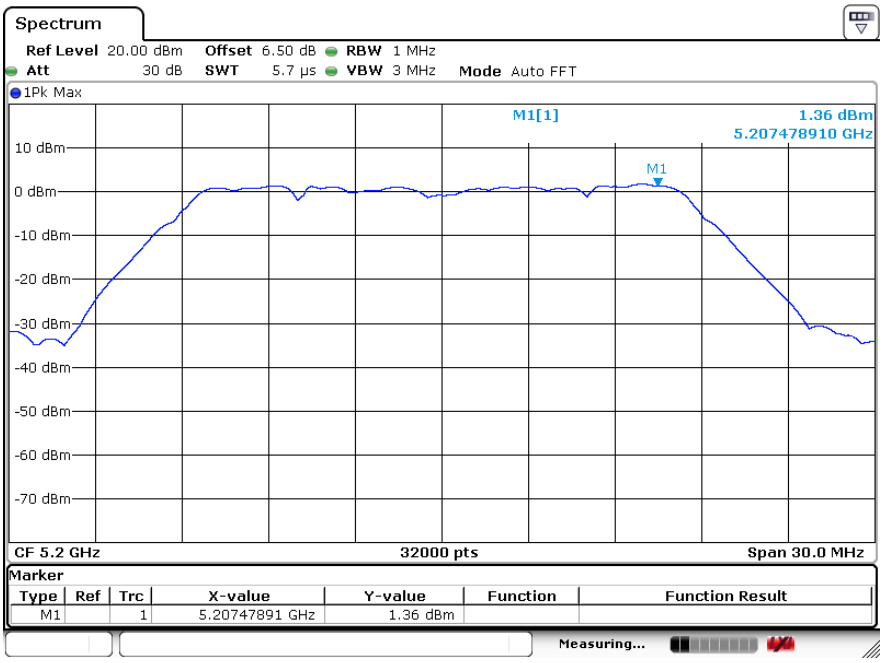
Channel: 48


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]
1.65 dBm
5.247026090 GHz
M1
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 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.24702609 GHz 1.65 dBm
Measuring...

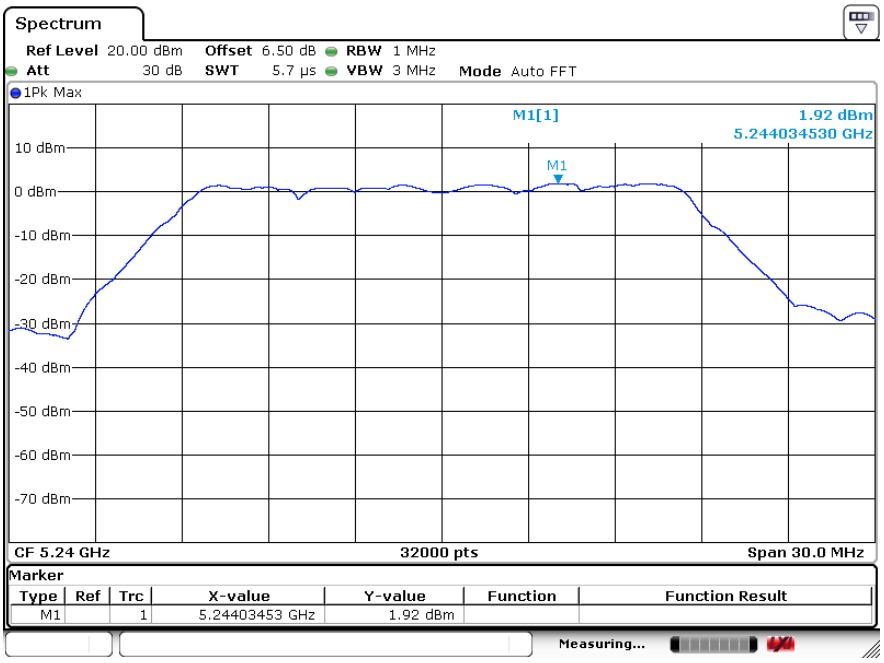
802.11ac20
Channel: 36



Channel: 40

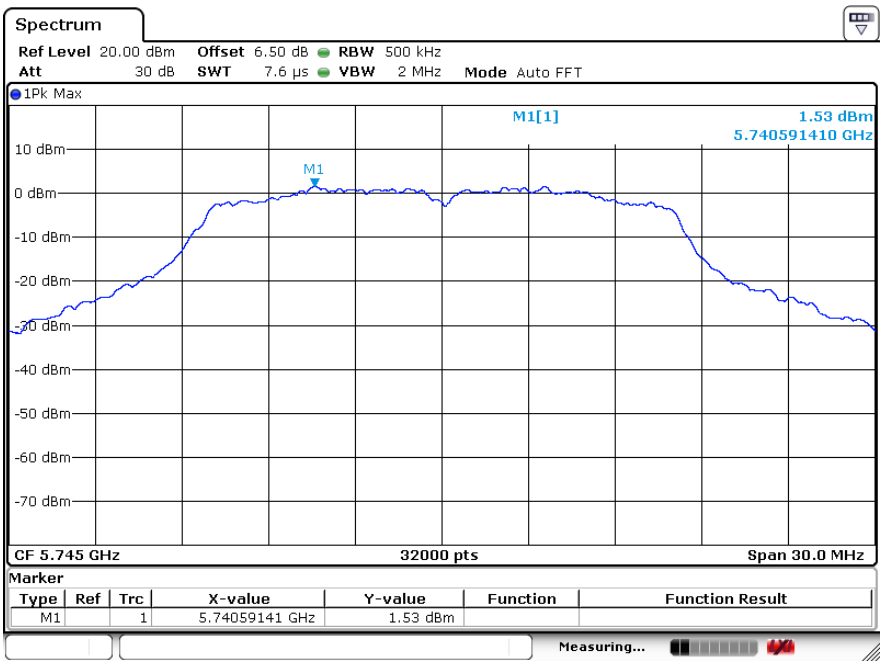


Channel: 48

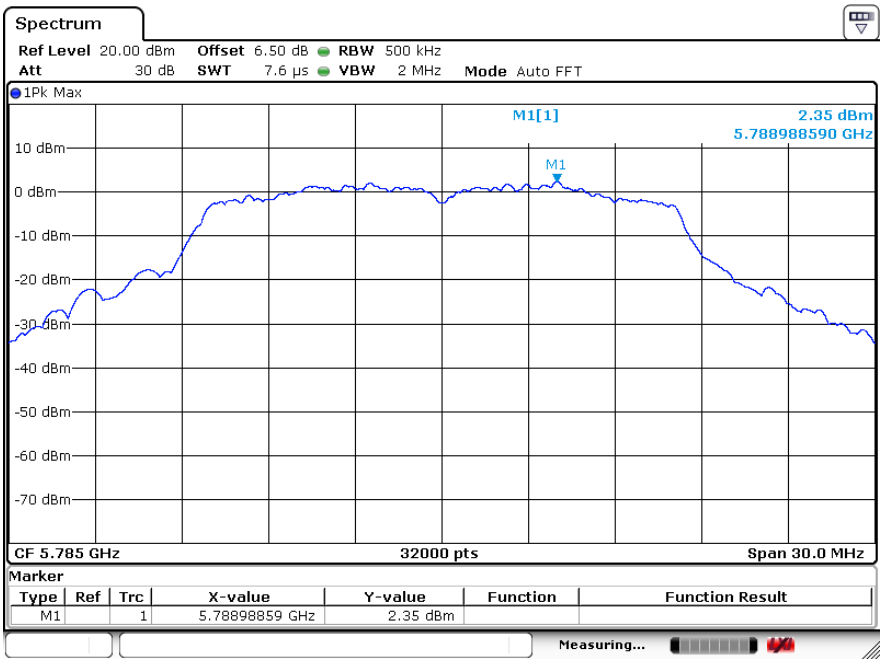

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1]
1.92 dBm
5.244034530 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.24 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.24403453 GHz 1.92 dBm
Measuring...

802.11a

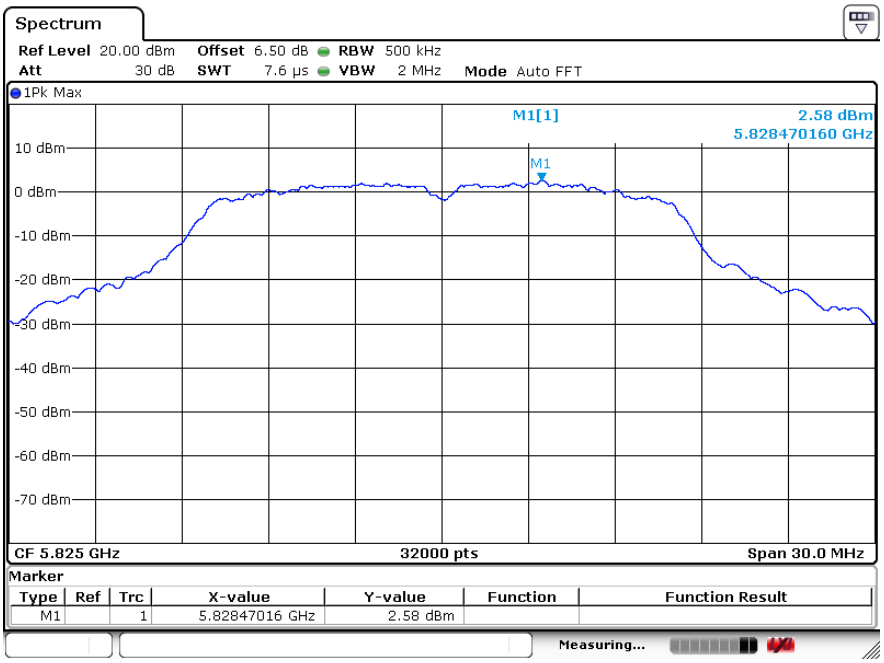
Channel: 149



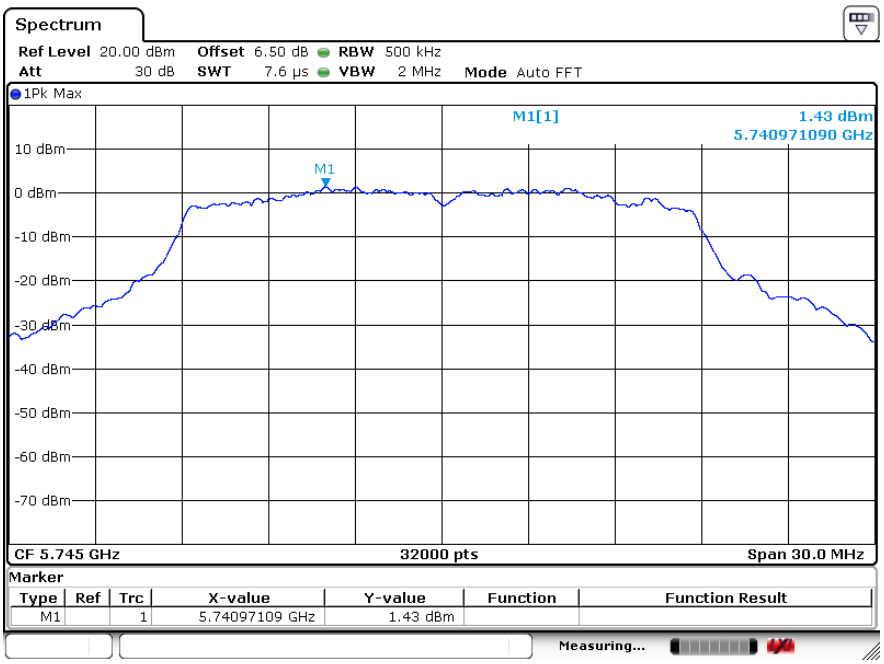
Channel: 157



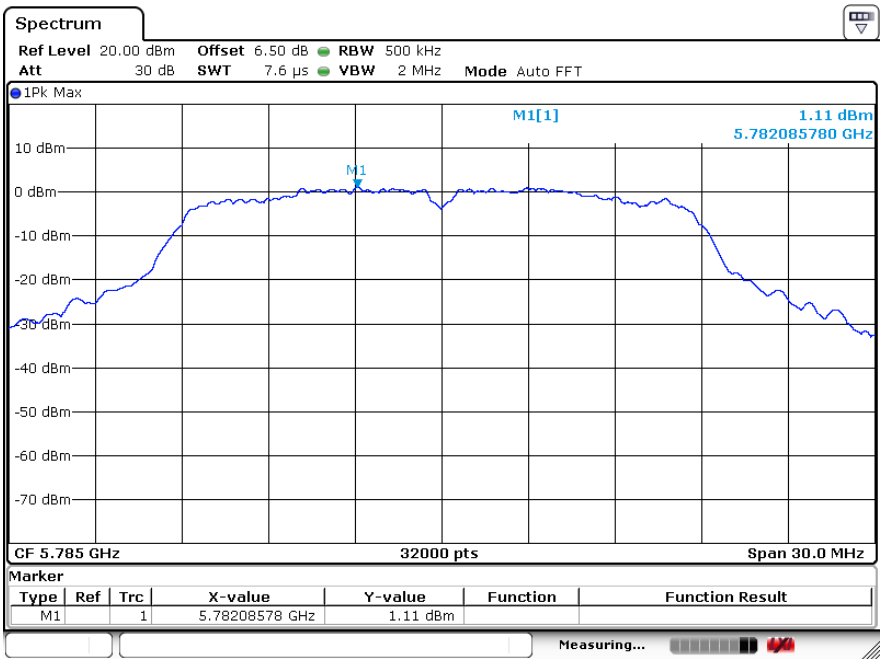
Channel: 165


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 7.6 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1]
2.58 dBm
5.828470160 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.825 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.82847016 GHz 2.58 dBm
Measuring...

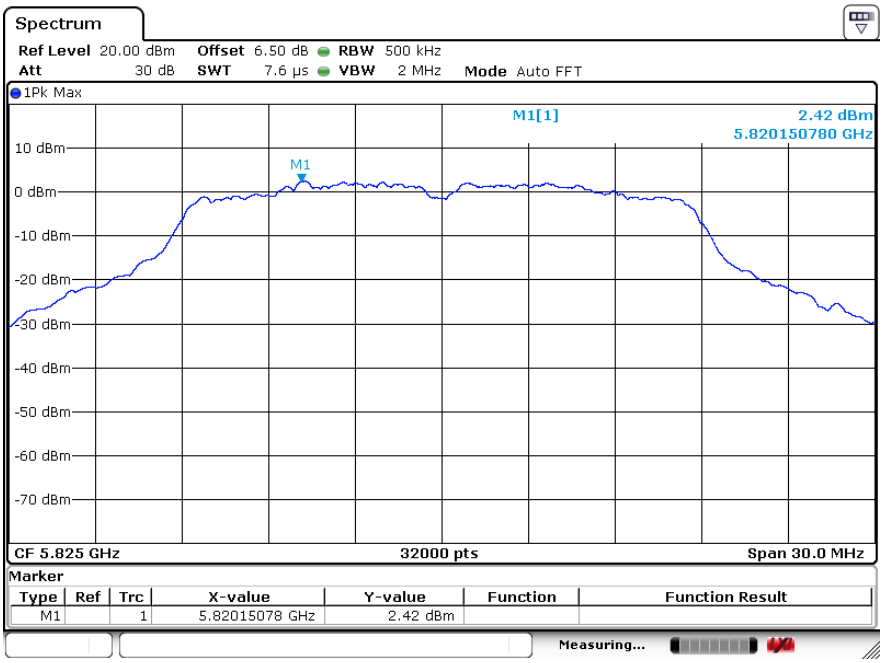
802.11n20
Channel: 149



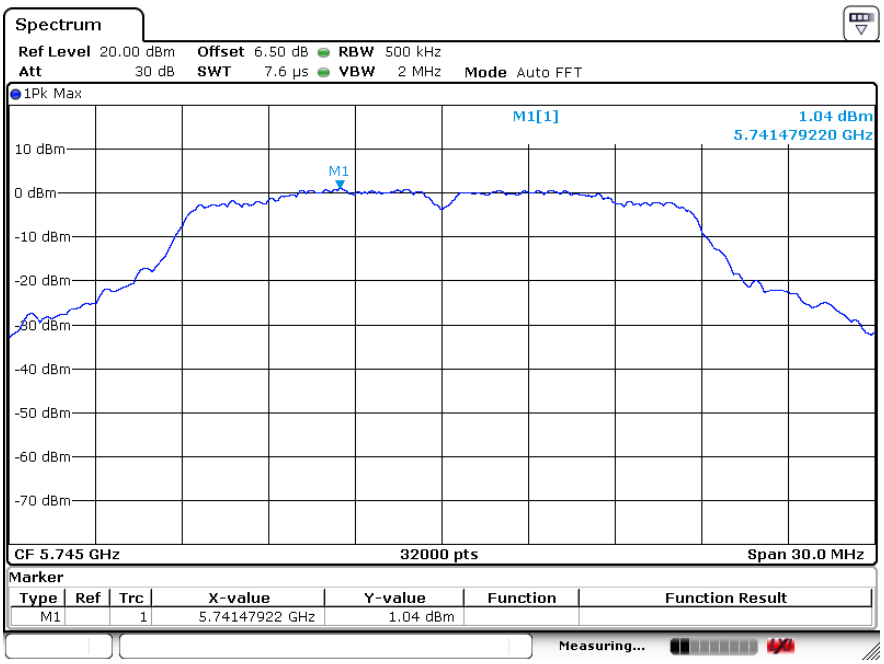
Channel: 157



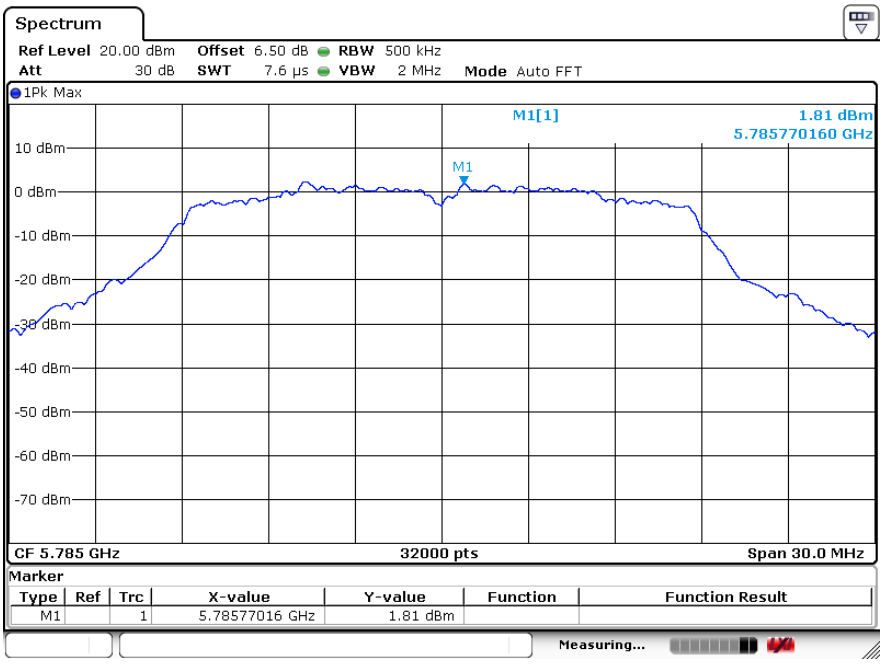
Channel: 165


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 7.6 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1]
2.42 dBm
5.820150780 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.825 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.82015078 GHz 2.42 dBm
Measuring...

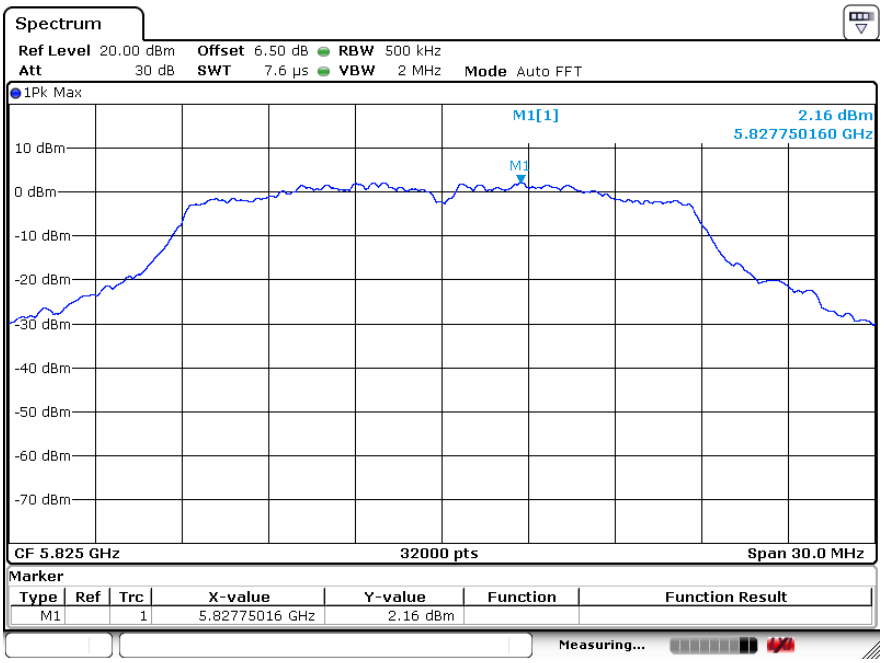
802.11ac20
Channel: 149



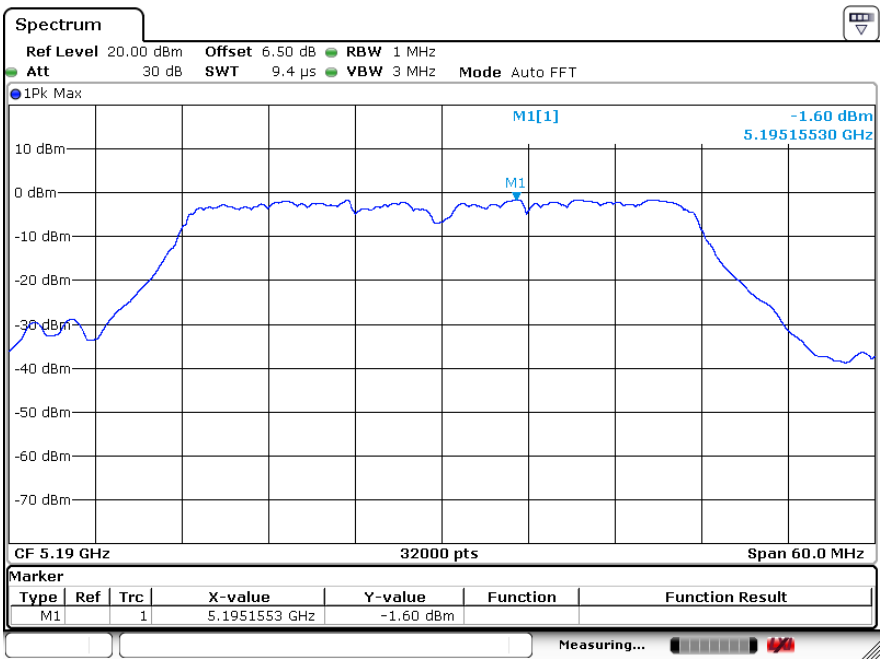
Channel: 157



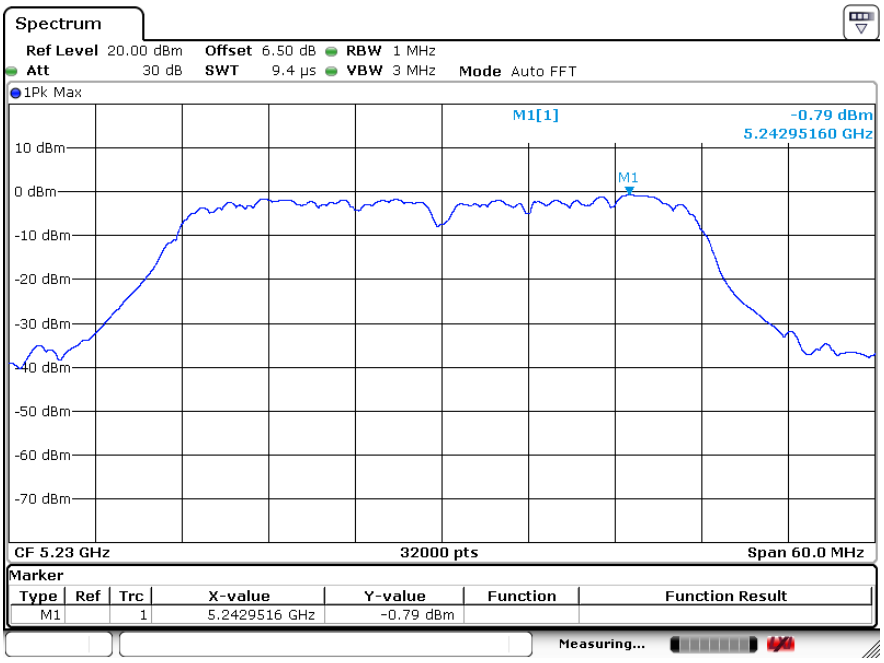
Channel: 165


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 7.6 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1]
2.16 dBm
5.827750160 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.825 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.82775016 GHz 2.16 dBm
Measuring...

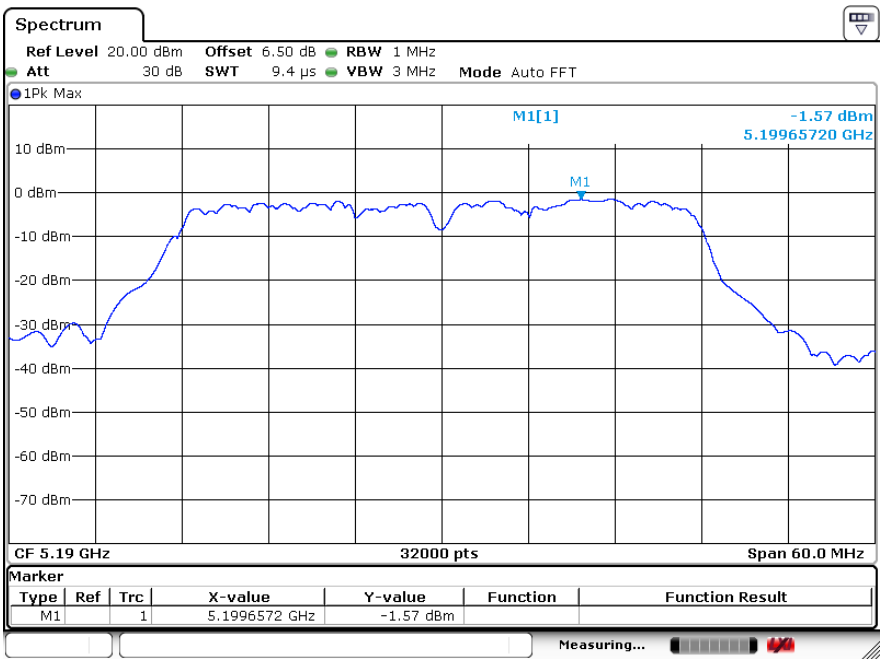
802.11n40
Channel: 38



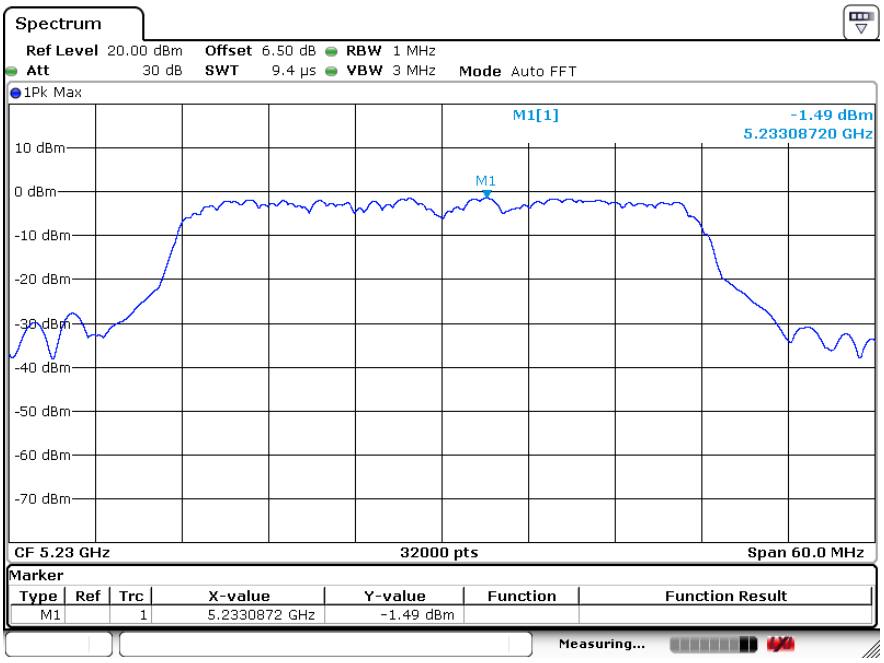
Channel: 46



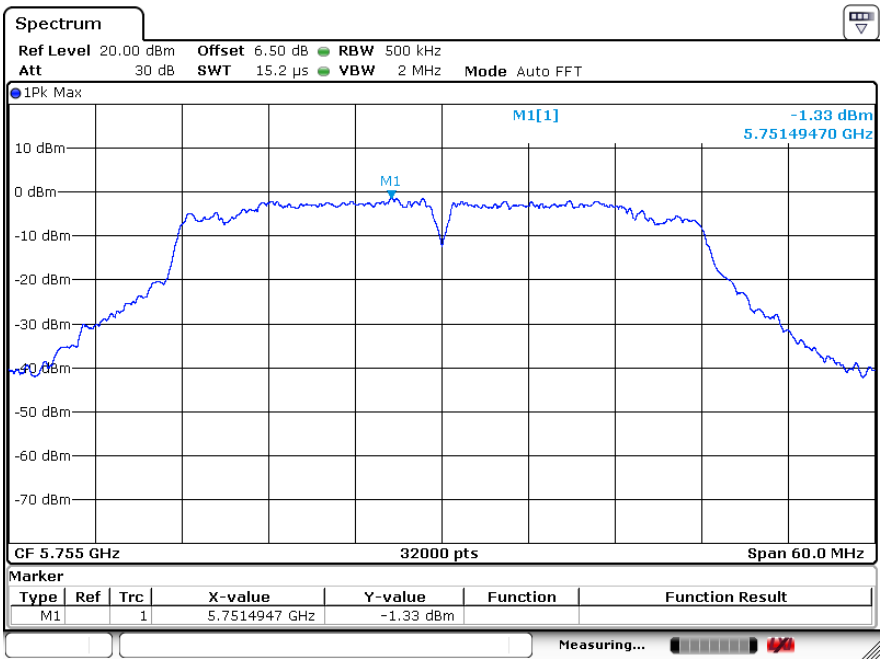
802.11ac40
Channel: 38



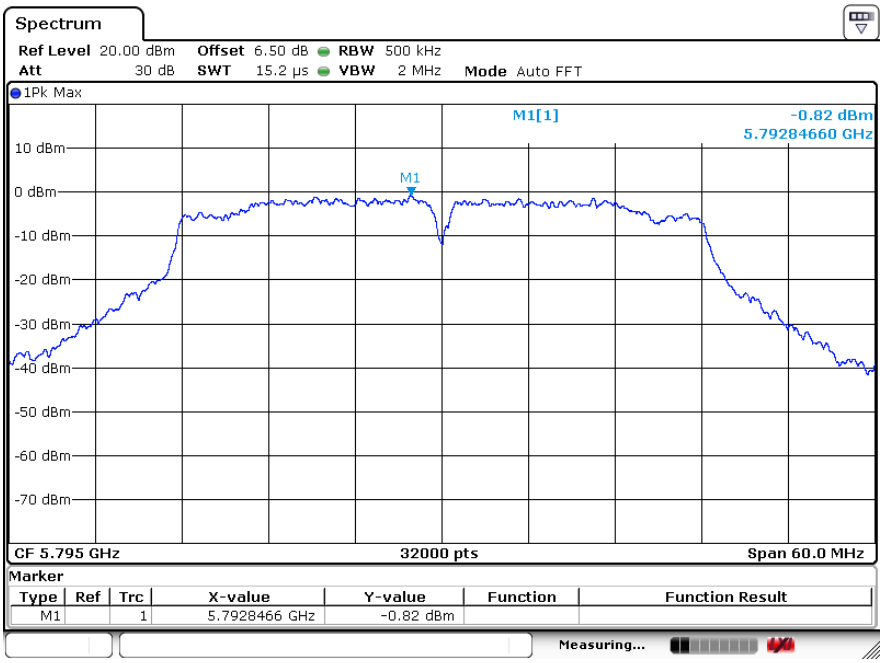
Channel: 46



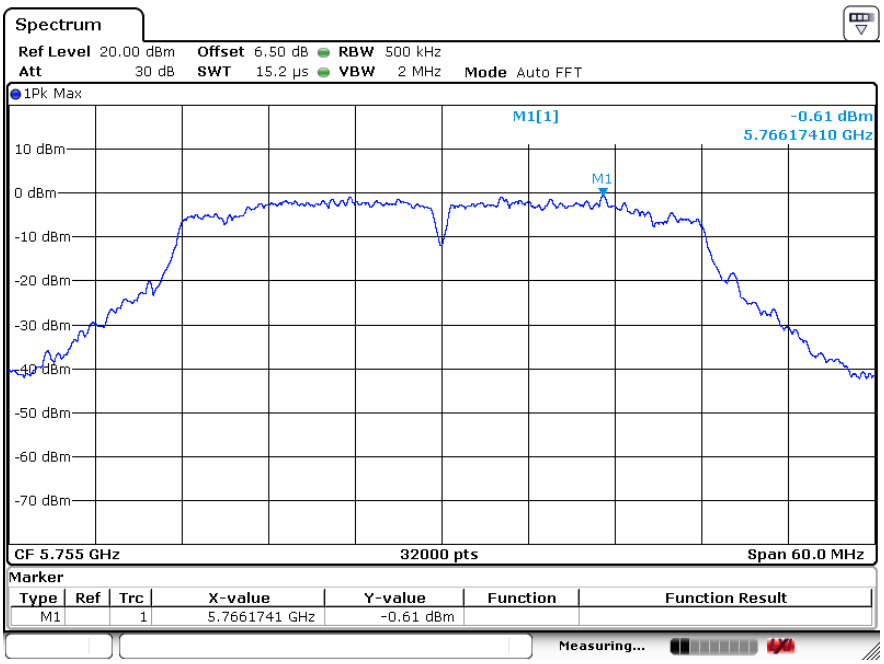
802.11n40
Channel: 151



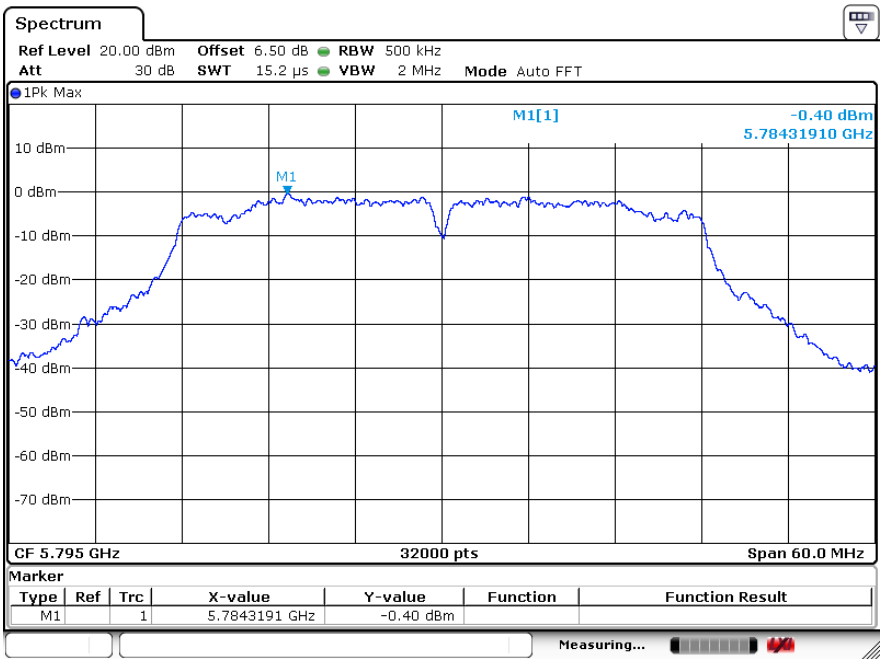
Channel: 159



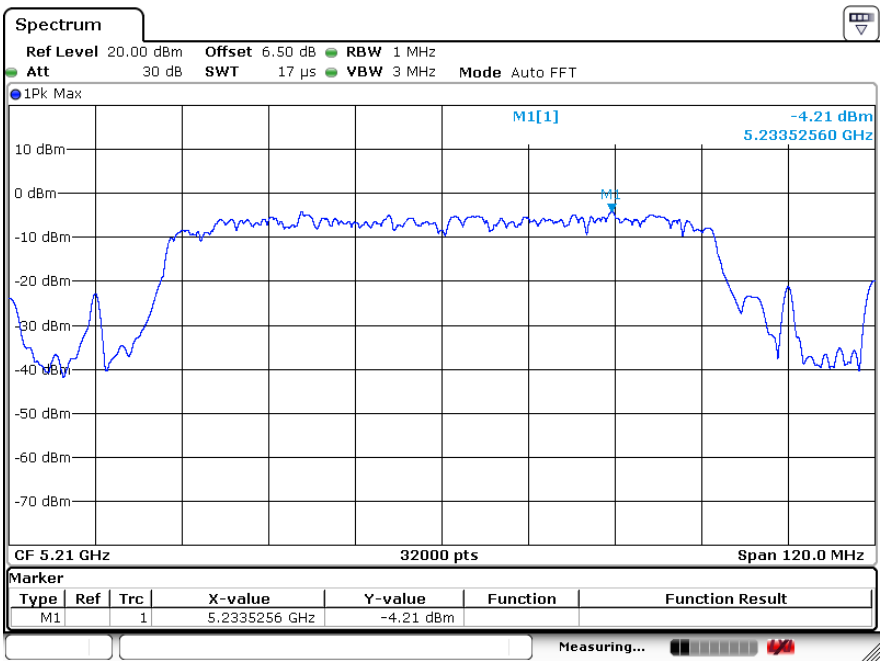
802.11ac40
Channel: 151



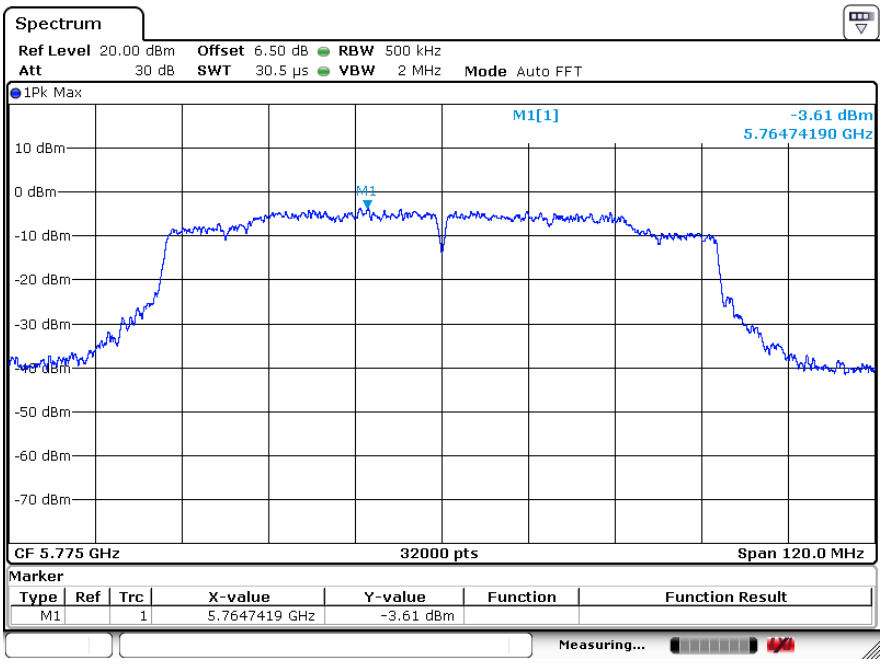
Channel: 159



802.11ac80
Channel:42



Channel: 155



11. Band Edges Measurement

Test Requirement:	FCC Part15 E Section 15.407 and 5.205
Test Method:	ANSI C63.10:2013
Test site:	Measurement Distance: 3m
Receiver setup:	

Frequency	Detector	RBW	VBW	Remark
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	AV	1MHz	3MHz	Average Value

Limit:

Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.0	Quasi-peak Value
88MHz-216MHz	43.5	Quasi-peak Value
216MHz-960MHz	46.0	Quasi-peak Value
960MHz-1GHz	54.0	Quasi-peak Value
Above 1GHz	54.0	Average Value
	74.0	Peak Value

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.

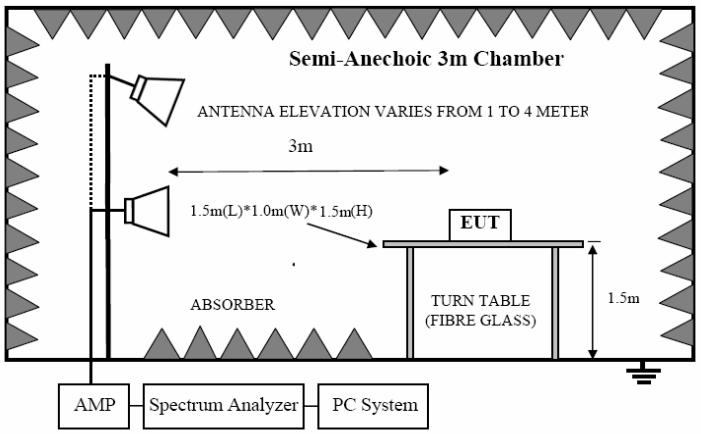
(2) For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation 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.

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

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.
Test Procedure:	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 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 D02V02 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	44.58	7.18	51.76	68.2	-16.44	PK	H
5150	43.42	7.18	50.60	68.2	-17.6	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	43.48	7.2	50.68	68.2	-17.52	PK	H
5350	49.2	7.2	56.4	68.2	-11.8	PK	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	47.91	7.2	55.11	68.2	-13.09	PK	H
5150	54.17	7.2	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	43.61	7.2	50.81	68.2	-17.39	PK	H
5350	50.36	7.2	57.56	68.2	-10.64	PK	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	43.35	7.2	50.55	68.2	-17.65	PK	H
5150	43.16	7.2	50.36	68.2	-17.84	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	44.32	7.2	51.52	68.2	-16.68	PK	H
5350	48.03	7.2	55.23	68.2	-12.97	PK	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	45.66	7.2	52.86	68.2	-15.34	PK	H
5150	48.33	7.2	55.53	68.2	-12.67	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	46.15	7.2	53.35	68.2	-14.85	PK	H
5350	48.47	7.2	55.67	68.2	-12.53	PK	V

Test mode:	802.11a	Test channel:	Lowest

Peak value:

Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5650	37.48	8.73	46.21	68.20	-21.99	Horizontal
5725	45.36	8.79	54.15	68.20	-14.05	Horizontal
5741.35	82.85	8.79	91.64	122.20	-30.56	Horizontal
5650	36.65	8.73	45.38	68.20	-22.82	Vertical
5725	46.28	8.79	55.07	68.20	-13.13	Vertical
5741.35	84.69	8.79	93.48	122.20	-28.72	Vertical

Test mode:	802.11a	Test channel:	Highest

Peak value:

Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5826.2	78.63	8.79	87.42	122.20	-34.78	Horizontal
5850	38.21	8.81	47.02	68.20	-21.18	Horizontal
5925	38.62	8.82	47.44	68.20	-20.76	Horizontal
5826.2	85.33	8.79	94.12	122.20	-28.08	Vertical
5850	39.53	8.81	48.34	68.20	-19.86	Vertical
5925	36.04	8.82	44.86	68.20	-23.34	Vertical

Test mode: 802.11n(HT20) Test channel: Lowest

Peak value:

Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5650	35.04	8.73	43.77	68.20	-24.43	Horizontal
5725	46.25	8.79	55.04	68.20	-13.16	Horizontal
5742.19	77.34	8.79	86.13	122.20	-36.07	Horizontal
5650	36.66	8.73	45.39	68.20	-22.81	Vertical
5725	45.32	8.79	54.11	68.20	-14.09	Vertical
5742.19	84.15	8.79	92.94	122.20	-29.26	Vertical

Test mode: 802.11n(HT20) Test channel: Highest

Peak value:

Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5826.2	77.84	8.79	86.63	122.20	-35.57	Horizontal
5850	38.48	8.81	47.29	68.20	-20.91	Horizontal
5925	37.66	8.82	46.48	68.20	-21.72	Horizontal
5826.2	85.72	8.79	94.51	122.20	-27.69	Vertical
5850	39.18	8.81	47.99	68.20	-20.21	Vertical
5925	35.49	8.82	44.31	68.20	-23.89	Vertical

Test mode: 802.11n(HT40) Test channel: Lowest

Peak value:

Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5650	35.24	8.73	43.97	68.20	-24.23	Horizontal
5725	45.67	8.79	54.46	68.20	-13.74	Horizontal
5745	75.31	8.79	84.10	122.20	-38.10	Horizontal
5650	36.00	8.73	44.73	68.20	-23.47	Vertical
5725	45.34	8.79	54.13	68.20	-14.07	Vertical
5745	84.63	8.79	93.42	122.20	-28.78	Vertical

Test mode: 802.11n(HT40) Test channel: Highest

Peak value:

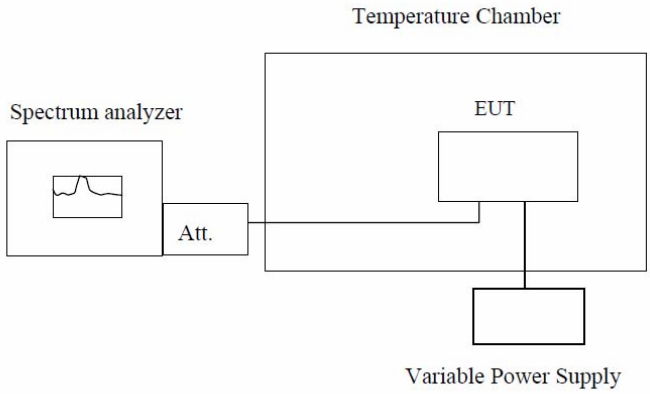
Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5784.88	79.88	8.79	88.67	122.20	-33.53	Horizontal
5850	38.96	8.81	47.77	68.20	-20.43	Horizontal
5925	37.65	8.82	46.47	68.20	-21.73	Horizontal
5784.88	84.57	8.79	93.36	122.20	-28.84	Vertical
5850	37.32	8.81	46.13	68.20	-22.07	Vertical
5925	35.45	8.82	44.27	68.20	-23.93	Vertical

Test mode: 802.11ac(VHT80)

Peak value:

Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5650	33.81	8.73	42.54	68.20	-25.66	Horizontal
5725	45.96	8.79	54.75	68.20	-13.45	Horizontal
5778.18	78.63	8.79	87.42	122.20	-34.78	Horizontal
5850	36.36	8.81	45.17	68.20	-23.03	Horizontal
5925	36.91	8.82	45.73	68.20	-22.47	Horizontal
5650	36.89	8.73	45.62	68.20	-22.58	Vertical
5725	45.39	8.79	54.18	68.20	-14.02	Vertical
5778.18	82.16	8.79	90.95	122.20	-31.25	Vertical
5850	37.16	8.81	45.97	68.20	-22.23	Vertical
5925	34.59	8.82	43.41	68.20	-24.79	Vertical

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 3.8V					
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	5181.8305	5181.8681	5179.3172	5179.6443
	5200	5201.9176	5200.2165	5198.7148	5197.9627
	5220	5220.7904	5220.1234	5219.4151	5219.8152
	5240	5240.7139	5240.8198	5238.4635	5239.3050
	5745	5744.9880	5744.9794	5744.9168	5745.0112
	5785	5784.9124	5784.9830	5785.0821	5784.9173
	5825	5825.0233	5825.0877	5824.9231	5824.8954
-20	5180	5180.9598	5180.2249	5179.1707	5179.4393
	5200	5200.1849	5200.5896	5199.9694	5199.2558
	5220	5221.0366	5220.2906	5219.5792	5219.6279
	5240	5240.1387	5240.8040	5239.3901	5239.8562
	5745	5744.9389	5744.9156	5744.9912	5745.0156
	5785	5784.8884	5784.9437	5785.0228	5784.9210
	5825	5824.9086	5824.8908	5825.0235	5825.0169
-10	5180	5180.1332	5180.5938	5179.2489	5179.2308
	5200	5200.4006	5200.5122	5199.3086	5199.4399
	5220	5220.0872	5220.8499	5219.1078	5219.2377
	5240	5240.6575	5240.4308	5239.6711	5238.9940
	5745	5744.9473	5745.0576	5744.9085	5744.9165
	5785	5785.0630	5785.0632	5785.0113	5784.8837
	5825	5824.9379	5824.8809	5825.0606	5824.9842
0	5180	5180.9528	5180.3746	5179.2283	5179.3256
	5200	5200.1438	5200.4933	5199.8587	5199.3169
	5220	5220.9928	5220.3060	5219.6046	5219.5964
	5240	5240.1609	5240.7311	5239.3188	5239.8400
	5745	5744.9066	5744.9676	5744.9846	5744.9693
	5785	5785.0262	5785.0478	5785.0716	5784.9720
	5825	5824.9826	5825.0135	5825.0370	5825.0419

10	5180	5180.8941	5180.3952	5179.2611	5179.3860
	5200	5200.2681	5200.5645	5199.8650	5199.1812
	5220	5221.0264	5220.2294	5219.7276	5219.6228
	5240	5240.1756	5240.7728	5239.3074	5239.7069
	5745	5744.9429	5745.0189	5745.0197	5744.8868
	5785	5784.9590	5785.0086	5784.9930	5785.0639
	5825	5825.0305	5824.9195	5824.9583	5824.9133
20	5180	5180.0918	5180.5139	5179.2233	5179.3591
	5200	5200.2932	5200.4326	5199.1137	5199.3887
	5220	5219.9015	5220.7539	5219.2056	5219.3171
	5240	5240.6373	5240.4528	5239.6886	5238.9622
	5745	5744.9771	5744.9206	5744.9973	5744.9231
	5785	5785.0499	5784.9002	5784.9710	5784.8980
	5825	5824.9566	5824.9436	5824.9755	5824.9533
30	5180	5181.8322	5181.8965	5179.2682	5179.5740
	5200	5201.8150	5200.1025	5198.7457	5198.0145
	5220	5220.7412	5220.1821	5219.4240	5219.8157
	5240	5240.7363	5240.8147	5238.4880	5239.4181
	5745	5744.9545	5745.0687	5744.9397	5744.9283
	5785	5784.9562	5784.9998	5784.9195	5785.0725
	5825	5825.0649	5824.9067	5825.0010	5825.0903
40	5180	5180.9957	5180.2865	5179.2393	5179.3488
	5200	5200.1004	5200.5003	5199.8939	5199.3030
	5220	5220.8784	5220.3475	5219.6994	5219.7133
	5240	5240.0006	5240.8282	5239.3373	5239.7978
	5745	5745.0371	5745.0734	5744.9010	5744.9216
	5785	5784.9417	5784.9541	5784.9368	5784.9693
	5825	5824.9447	5824.9872	5824.9061	5824.9202
50	5180	5180.0658	5180.4755	5179.2612	5179.2786
	5200	5200.4056	5200.4752	5199.1215	5199.3761
	5220	5220.0208	5220.7394	5219.1641	5219.2961
	5240	5240.6522	5240.3766	5239.5515	5239.0864
	5745	5744.9230	5744.9620	5745.0598	5744.9948
	5785	5784.9967	5785.0557	5784.9953	5784.8941
	5825	5825.0602	5824.9332	5825.0574	5825.0162

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)
3.4	5180	5181.8568	5181.8842	5179.2613	5179.5295
	5200	5201.7727	5200.1089	5198.8132	5197.9995
	5220	5220.8351	5220.1942	5219.4309	5219.8764
	5240	5240.7230	5240.6617	5238.4169	5239.2428
	5745	5744.9083	5745.0610	5744.9582	5745.0572
	5785	5785.0112	5785.0021	5785.0726	5785.0305
	5825	5825.0060	5824.9656	5824.9422	5824.9294
3.8	5180	5180.9509	5180.3112	5179.2947	5179.2711
	5200	5200.1744	5200.6596	5199.9763	5199.2741
	5220	5220.9631	5220.3613	5219.7034	5219.7287
	5240	5240.1453	5240.7094	5239.3003	5239.7815
	5745	5744.9705	5745.0634	5745.0053	5744.9086
	5785	5784.8925	5784.9918	5784.9027	5785.0216
	5825	5825.0602	5824.9711	5825.0159	5824.9153
4.2	5180	5180.1933	5180.5091	5179.1927	5179.2368
	5200	5200.4445	5200.4612	5199.2415	5199.3486
	5220	5220.0472	5220.7397	5219.1023	5219.2025
	5240	5240.6152	5240.3732	5239.5687	5239.0634
	5745	5744.9052	5744.8946	5745.0624	5744.9342
	5785	5785.0480	5784.8853	5784.9500	5785.0478
	5825	5824.9731	5824.9326	5824.8743	5824.9621

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.