FCC RADIO TEST REPORT

For

FCC ID：2AMY3-A14Z3471

Report Reference No..... :	19EFAS11008 3151
Date of issue..... :	2019-10-15
Testing Laboratory..... :	DongGuan ShuoXin Electronic Technology Co., Ltd.
Address..... :	Zone A, 1F, No. 6, XinGang Road YuanGang Street, XinAn District, ChangAn Town, DongGuan City, GuangDong, China
Applicant's name ..... :	Acer India (Pvt) Ltd
Address..... :	Embassy Heights, 6th Floor No. 13, Magrath Road Bangalore - 560025 India
Manufacturer..... :	ShenZhen YUKO Technology Co., Ltd
Test specification:	
Test item description..... :	Acer One 14 Z3-471
Trade Mark ..... :	ACER
Model/Type reference ..... :	EASR14, EASR14x(x stands for 0-9, or a-z, or A-Z, or symbol '－', or blank for
Ratings..... :	Adapter:ADP060-190300 INPUT: 100-240V~ 50/60Hz 1.5A, Output: DC19V 3.0A

Responsible Engineer : Smile Wang

Smile Wang

Authorized Signatory: King Wang

King Wang

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TEST REPORT DECLARE

Applicant	:	Acer India (Pvt) Ltd
Address	:	Embassy Heights, 6th Floor No. 13, Magrath Road Bangalore - 560025 India
Equipment under Test	:	Acer One 14 Z3-471
Model No	:	EASR14, EASR14x(x stands for 0-9, or a-z, or A-Z, or symbol ‘－’, or blank for marketing purpose)
Trade Mark	:	ACER
Manufacturer	:	ShenZhen YUKO Technology Co., Ltd
Address	:	6th Floor, A9 Building, TianRui Industrial Park, FuYuan 1st Road, FuYong, Bao’an, Shenzhen, China

Test Standard Used: FCC Part 15E 15.407

Test procedure used: ANSI C63.10-2013 and KDB 789033 D02 General UNII Test Procedures New Rules v02r01 .

We Declare:

The equipment described above is tested by DongGuan ShuoXin Electronic Technology Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and DongGuan ShuoXin Electronic Technology Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC standards.

Report No:			
Date of Test:	2019-10-08	**Date of Report**:	2019-10-15

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of DongGuan ShuoXin Electronic Technology Co., Ltd.

1. SUMMARY OF TEST RESULTS

The EUT have been tested according to the applicable standards as referenced below.		
FCC Part15 (15.407) , Subpart E		
Description of Test Item	**Standard**	**Results**
AC Power Line Conducted Emissions	FCC §15.207/ RSS-Gen	PASS
Spurious Radiated Emissions	FCC §15.209(a), 15.407(b)	PASS
26 dB and 99% Emission Bandwidth	FCC §15.407(a)	PASS
Maximum Conducted Output Power	FCC §407(a)(1)	PASS
Band Edges	FCC §2.1051, §15.407(b)	PASS
Power Spectral Density	FCC §15.407(a)(1)	PASS
Spurious Emissions at Antenna Terminals	FCC §2.1051, §15.407(b)	PASS
Frequency Stability	FCC §15.407(a)(6)	PASS
Antenna Requirement	FCC §15.203	PASS

2. GENERAL TEST INFORMATION

2.1. DESCRIPTION OF EUT

EUT* Name	:	Acer One 14 Z3-471
Model Number	:	EASR14
EUT function description	:	Acer One 14 Z3-471 with WiFi & BT function.
Power supply	:	Adapter:ADP060-190300 INPUT: 100-240V~ 50/60Hz 1.5A, Output: DC19V 3.0A
Adaptor		ADP060-190300
Operation frequency	:	WiFi: 802.11a/802.11n(HT20) /ac(VHT20): 5180MHz~5240MHz;5260MHz~5320MHz; 5500MHz~5700MHz;5745MHz~5825MHz 802.11n(HT40)/ac(VHT40): 5190MHz~5230MHz;5270MHz~5310MHz 5510MHz~5670MHz;5755MHz~5795MHz 802.11ac(VHT80): 5210MHz,5290MHz,5530MHz~5610MHz,5775MHz
Modulation	:	OFDM with OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM for 802.11a/n/ac;
Data Rate	:	802.11 a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20):MCS0-MCS7; 802.11n(HT40): MCS0-MCS7; 802.11ac(HT20/HT40/HT80):Up to 433Mbps
Antenna Type	:	FPCB Antenna, Antenna A only WIFI, Antenna B WIFI&BT maximum PK gain: Antenna A :1 .82dBi(Main) Antenna B : 1.82dBi(Aux)
Battery	:	N/A
Date of Receipt	:	2019/10/08
Sample Type	:	N/A

Channel List							
802.11a/n/ac(20MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	40	5200	44	5220	48	5240
52	5260	56	5280	60	5300	64	5320
100	5500	104	5520	108	5540	112	5560
116	5580	120	5600	124	5620	128	5640
132	5660	136	5680	140	5700	--	--
802.11n/ac(40MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230	54	5270	62	5310
102	5510	110	5550	118	5590	126	5630
134	5670	--	--	--	--	--	--
802.11 ac(80MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	58	5290	106	5530	122	5610

2.2. ACCESSORIES OF EUT

Description of Accessories	Shielded Type	Ferrite Core	Length
Adapter	Shen Zhen Shi Shan Jing Power Supply Co.,Ltd	ADP060-190300	/

2.3. ASSISTANT EQUIPMENT USED FOR TEST

Description of Assistant equipment	Manufacturer	Model number or Type	EMC Compliance	SN
/	/	/	/	/

2.4. BLOCK DIAGRAM OF EUT CONFIGURATION FOR TEST

2.5. TEST ENVIRONMENT CONDITIONS

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	Link Mode
Mode 2	802.11a / n 20/ac20 CH36/ CH44/ CH48 802.11a / n 20/ac20 CH52/ CH56/ CH64 802.11a / n 20/ac20 CH100/ CH120/ CH140 802.11a / n 20/ac20 CH149/ CH157/ CH165
Mode 3	802.11n40/ac40 CH38/ CH46 802.11n40/ac40 CH54/ CH62 802.11n40/ac40 CH102/ CH118/ CH134 802.11 n40/ac40 CH151/ CH159

For Radiated Emission	
Final Test Mode	Description
Mode 1	Link Mode
Mode 2	802.11a / n 20/ac20 CH36/ CH44/ CH48 802.11a / n 20/ac20 CH52/ CH56/ CH64 802.11a / n 20/ac20 CH100/ CH120/ CH140 802.11a / n 20/ac20 CH149/ CH157/ CH165
Mode 3	802.11n40/ac40 CH38/ CH46 802.11n40/ac40 CH54/ CH62 802.11n40/ac40 CH102/ CH118/ CH134 802.11 n40/ac40 CH151/ CH159

Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

(2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

(3) The EUT was used fully-charged battery and programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.

(4) The EUT does not support MIMO mode.

2.6. TEST ENVIRONMENT CONDITIONS

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25℃
Humidity range:	40-75%
Pressure range:	86-106kPa

2.7. MEASUREMENT UNCERTAINTY

Test Item	Uncertainty
Uncertainty for Conduction emission test (9kHz-150kHz)	3.7 dB
Uncertainty for Conduction emission test (150kHz-30MHz)	3.3 dB
Uncertainty for Radiation Emission test (30MHz-200MHz)	4.6 dB (Polarize: V)
	4.6 dB (Polarize: H)
Uncertainty for Radiation Emission test (200MHz-1GHz)	6.0 dB (Polarize: V)
	5.0 dB (Polarize: H)
Uncertainty for Radiation Emission test (1GHz-6GHz)	5.1 dB (Polarize: V)
	5.1 dB (Polarize: H)
Uncertainty for Radiation Emission test (6GHz-18GHz)	5.4 dB (Polarize: V)
	5.4 dB (Polarize: H)
Uncertainty for Radiation Emission test (18GHz-40GHz)	5.06 dB (Polarize: V)
	5.06 dB (Polarize: H)
Uncertainty for radio frequency	±0.048kHz
Uncertainty for conducted RF Power	±0.32dB

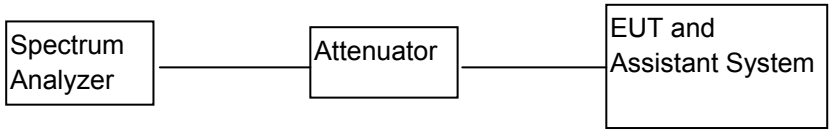
Note：This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3. POWER SPECTRAL DENSITY TEST

3.1. TEST EQUIPMENT

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Due.	Cal. Interval
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2020/05/25	1 Year
2	Attenuator	Mini-Circuits	BW-S10W2	101109	2019/12/17	1 Year
3	RF Cable	Micable	C10-01-01-1	100309	2019/12/17	1 Year
4	Spectrum analyzer	R&S	FSV40	101470	2020/06/28	1 Year

3.2. BLOCK DIAGRAM OF TEST SETUP



3.3. APPLIED PROCEDURES / LIMIT

According to FCC §15.407(a)(3)

For the band 5.15-5.25 GHz,

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

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

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

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

For the band 5.725-5.85 GHz

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi..

3.4. TEST PROCEDURE

（For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in § 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/T, where T is defined in section II.B.I.a).

b) Set VBW ≥ 3 RBW.

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

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10log(1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since RBW=100 KHZ is available on nearly all spectrum analyzers.

3.5. TEST RESULT

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	3.99	3.87	--	11	Pass
CH44	5220	3.14	3.06	--	11	Pass
CH48	5240	2.92	2.79	--	11	Pass
CH52	5260	2.76	2.68	--	11	Pass
CH56	5280	2.44	2.35	--	11	Pass
CH64	5230	2.33	2.24	--	11	Pass
CH100	5500	2.83	2.71	--	11	Pass
CH120	5600	2.19	2.10	--	11	Pass
CH140	5700	1.43	1.37	--	11	Pass
CH 149	5745	-1.05	-1.26	--	30	Pass
CH 157	5785	-0.39	-0.42	--	30	Pass
CH 165	5825	-0.08	-0.19	--	30	Pass
TX 802.11n20 Mode						
CH36	5180	3.08	3.00	--	11	Pass
CH44	5220	2.89	2.79	--	11	Pass
CH48	5240	2.92	2.84	--	11	Pass
CH52	5260	2.46	2.35	--	11	Pass
CH56	5280	2.13	2.05	--	11	Pass
CH64	5230	1.72	1.64	--	11	Pass
CH100	5500	2.74	2.63	--	11	Pass
CH120	5600	1.74	1.61	--	11	Pass
CH140	5700	0.61	0.52	--	11	Pass
CH 149	5745	-1.18	-1.28	--	30	Pass
CH 157	5785	-1.06	-1.12	--	30	Pass
CH 165	5825	-0.16	-0.29	--	30	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 802.11n40 Mode						
CH38	5190	-0.57	-0.69	--	11	Pass
CH46	5230	-0.93	-1.06	--	11	Pass
CH54	5270	-0.99	-1.11	--	11	Pass
CH62	5310	-1.53	-1.75	--	11	Pass
CH102	5510	-1.23	-1.39	--	11	Pass
CH118	5590	-2.09	-2.25	--	11	Pass
CH134	5670	-2.65	-2.78	--	11	Pass
CH151	5755	-5.05	-5.24	--	30	Pass
CH159	5795	-4.60	-4.76	--	30	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	2.99	2.89	--	11	Pass
CH44	5220	2.72	2.67	--	11	Pass
CH48	5240	2.86	2.75	--	11	Pass
CH52	5260	2.66	2.54	--	11	Pass
CH56	5280	2.19	2.11	--	11	Pass
CH64	5230	2.05	1.98	--	11	Pass
CH100	5500	2.07	2.00	--	11	Pass
CH120	5600	1.76	1.68	--	11	Pass
CH140	5700	0.94	0.84	--	11	Pass
CH 149	5745	-1.94	-2.02	--	30	Pass
CH 157	5785	-0.90	-0.96	--	30	Pass
CH 165	5825	-0.32	-0.42	--	30	Pass

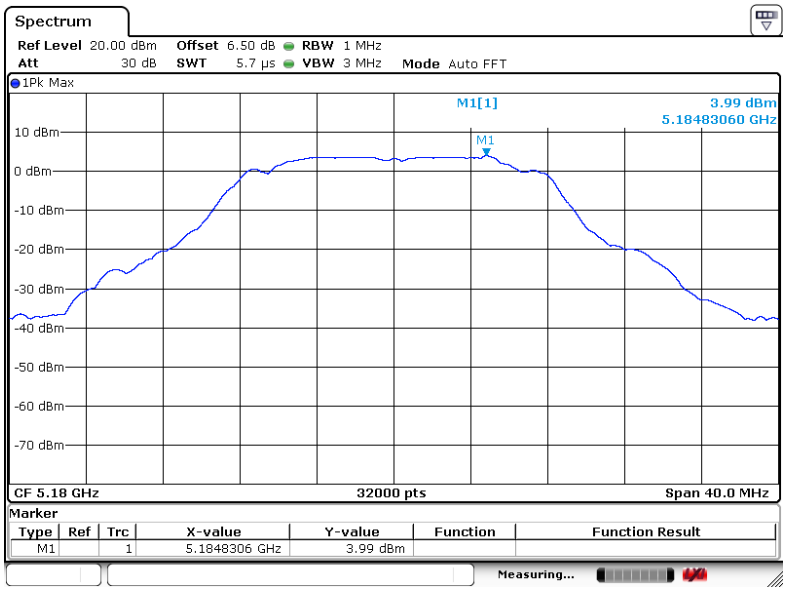
CH. No.	Frequency	Power Density ANT A (dBm/MHz)	Power Density ANT B (dBm/MHz)	total power density (dBm/MHz)	Limit (dBm/MHz)	Result
TX 802.11 ac(VHT40) Mode						
CH38	5190	-0.76	-0.84	--	11	Pass
CH46	5230	-1.08	-1.19	--	11	Pass
CH54	5270	-1.36	-1.43	--	11	Pass
CH62	5310	-1.41	-1.52	--	11	Pass
CH102	5510	-2.07	-2.16	--	11	Pass
CH118	5590	-1.63	-1.79	--	11	Pass
CH134	5670	-2.78	-2.84	--	11	Pass
CH151	5755	-5.27	-5.37	--	30	Pass
CH159	5795	-4.49	-4.55	--	30	Pass
TX 802.11 ac(VHT80) Mode						
CH42	5210	-4.95	-4.99	--	11	Pass
CH58	5290	-5.18	-5.25	--	11	Pass
CH106	5530	-5.44	-5.54	--	11	Pass
CH122	5610	-6.10	-6.16	--	11	Pass
CH155	5775	-8.04	-8.18	--	30	Pass

Note: The worst data is Antenna A, only shown Antenna A Plot.

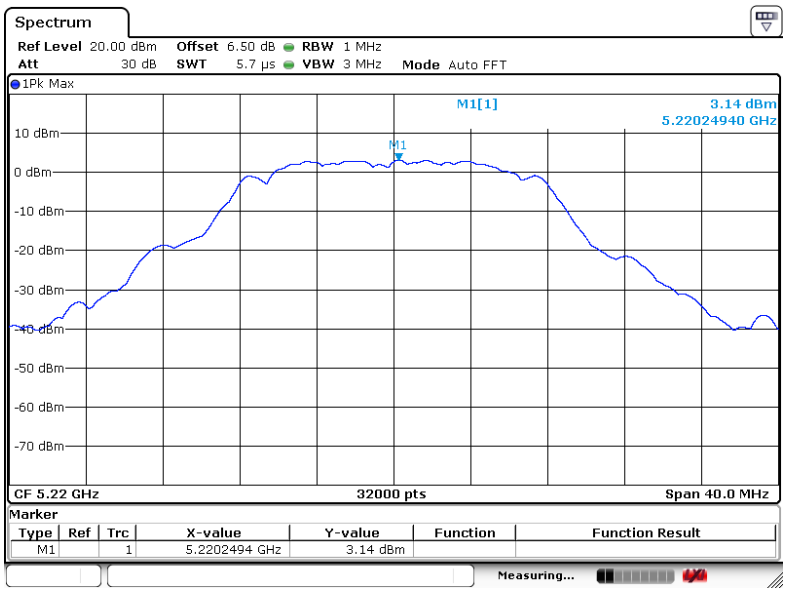
Test plots as followed: Antenna A

802.11a

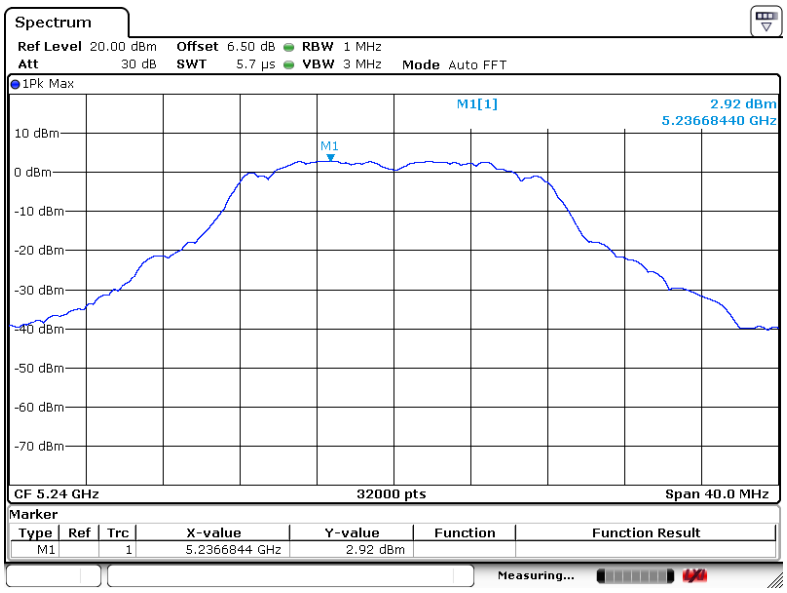
Channel: 36



Channel: 44

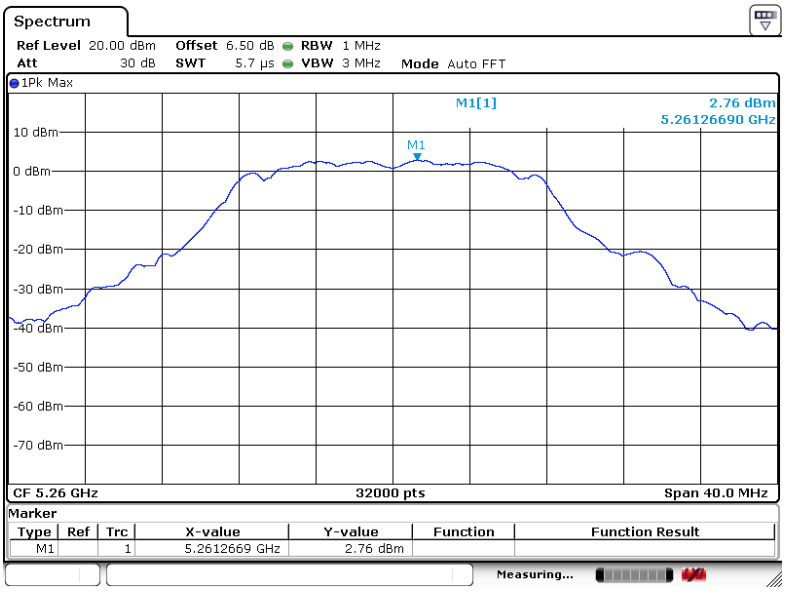


Channel: 48

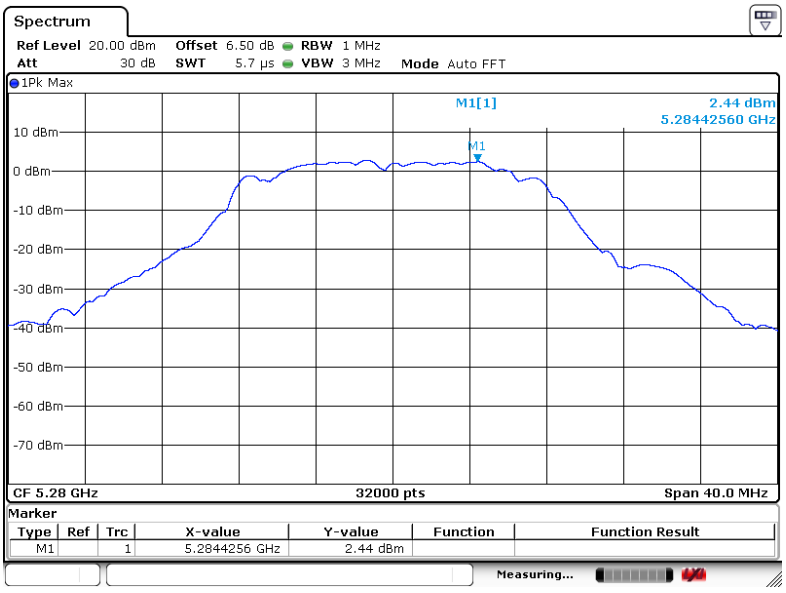

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] 2.92 dBm
5.23668440 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.24 GHz 32000 pts Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2366844 GHz 2.92 dBm
Measuring...

802.11a

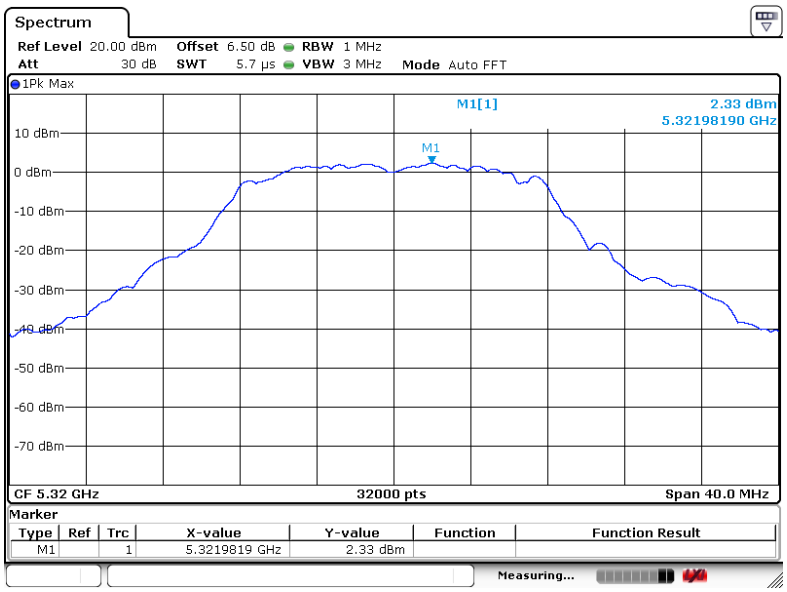
Channel: 52



Channel: 56

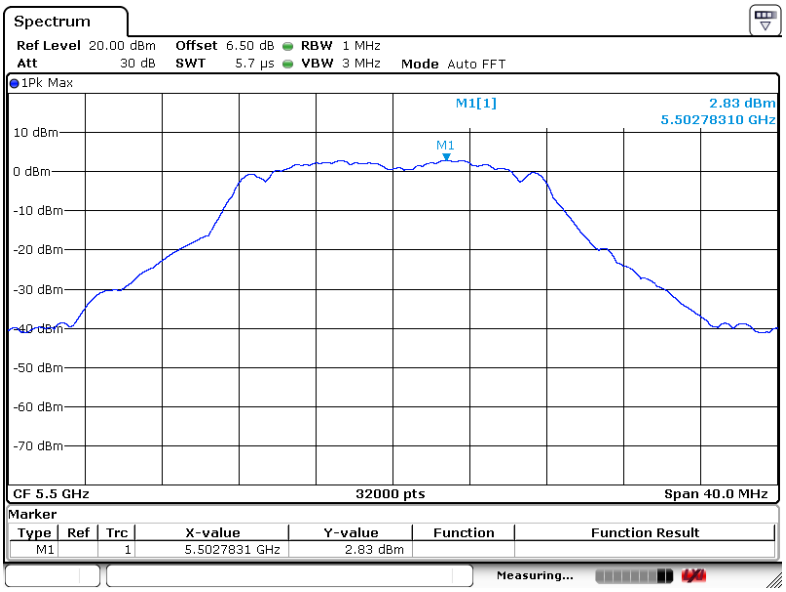


Channel: 64

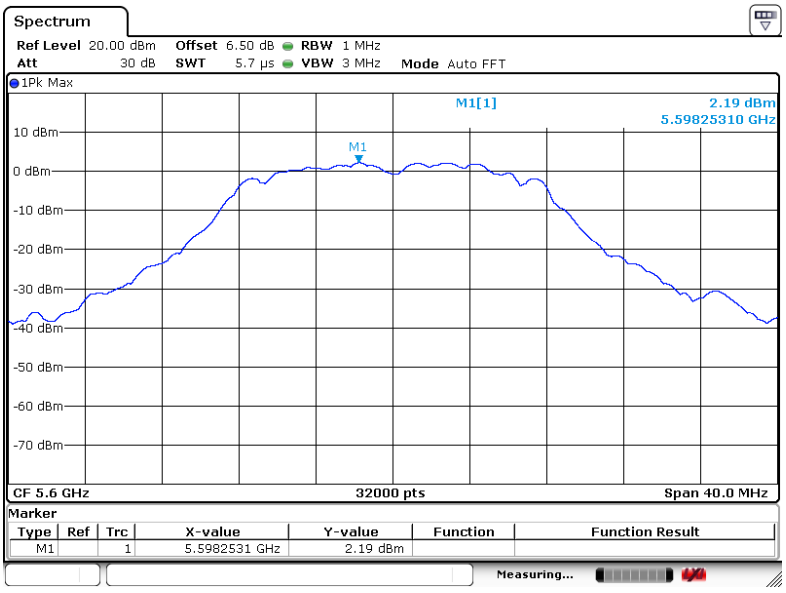

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] 2.33 dBm
5.32198190 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.32 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.3219819 GHz 2.33 dBm
Measuring...

802.11a

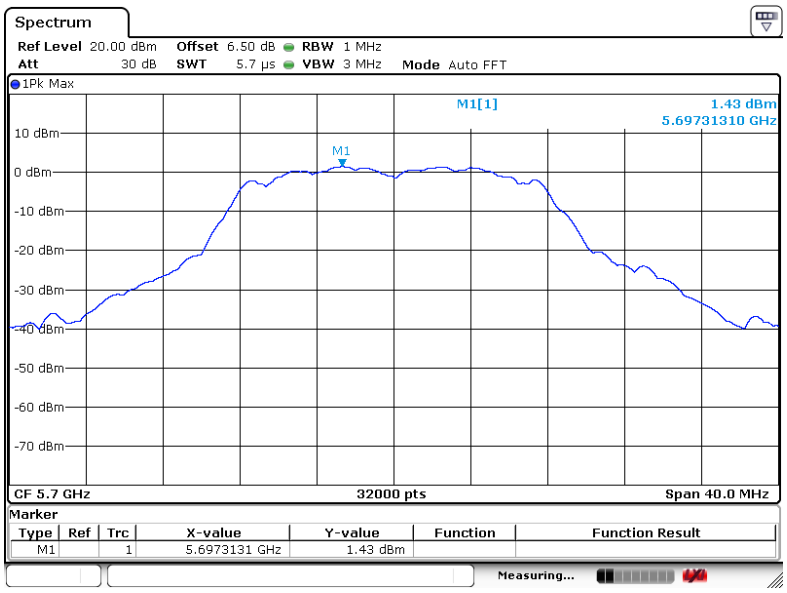
Channel: 100



Channel: 120

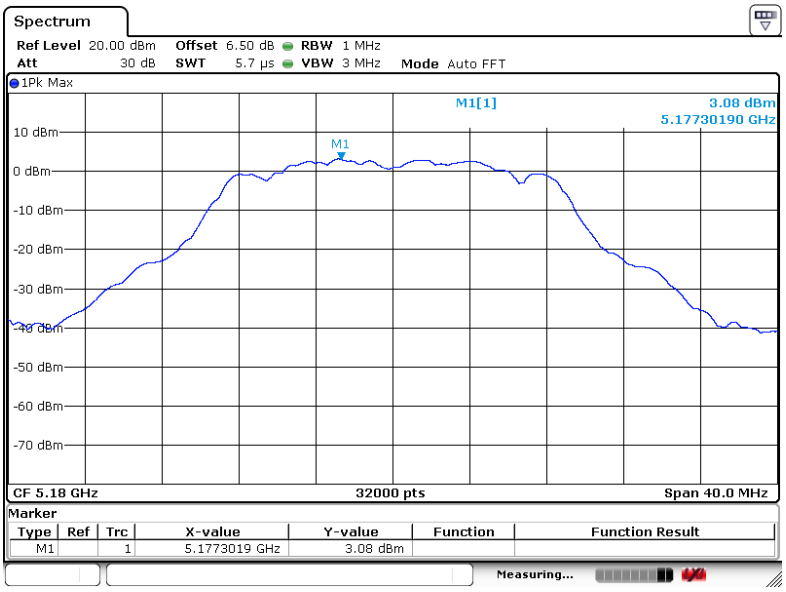


Channel: 140

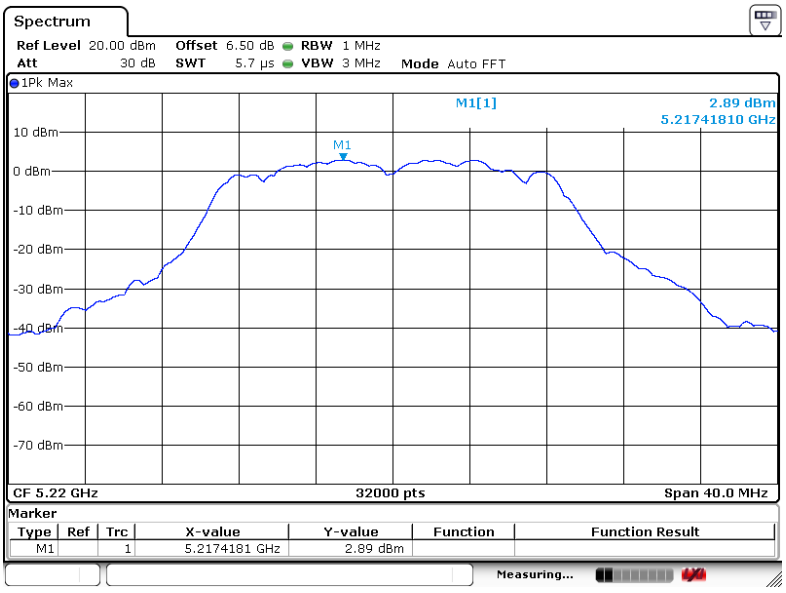

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] 1.43 dBm
5.69731310 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.7 GHz 32000 pts Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.6973131 GHz 1.43 dBm
Measuring...

802.11n20

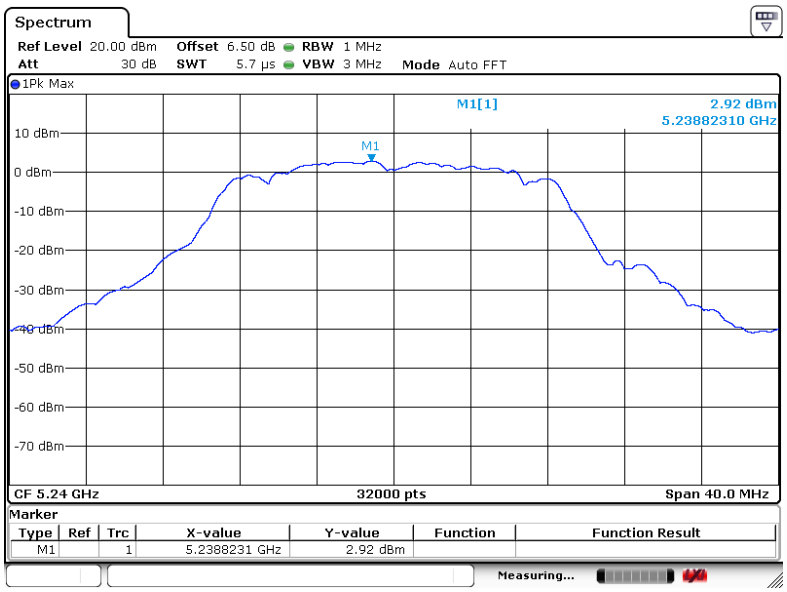
Channel: 36



Channel: 44

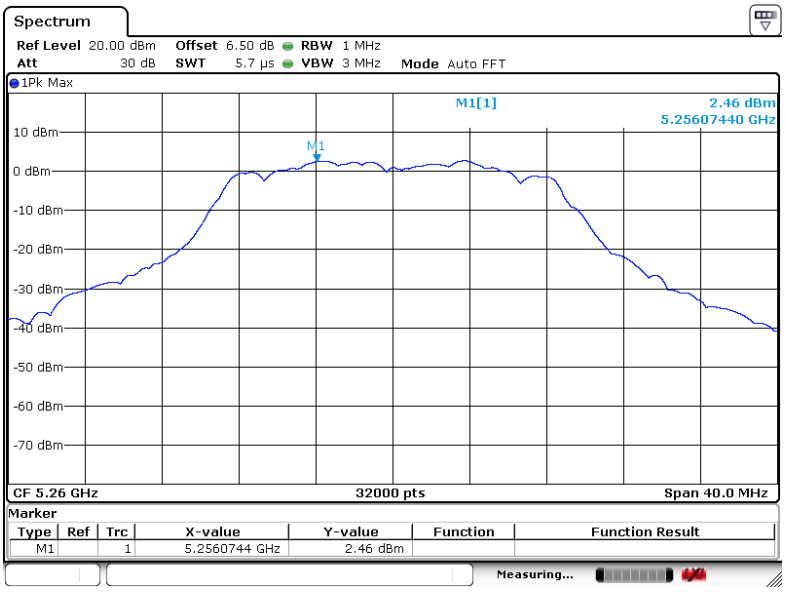


Channel: 48

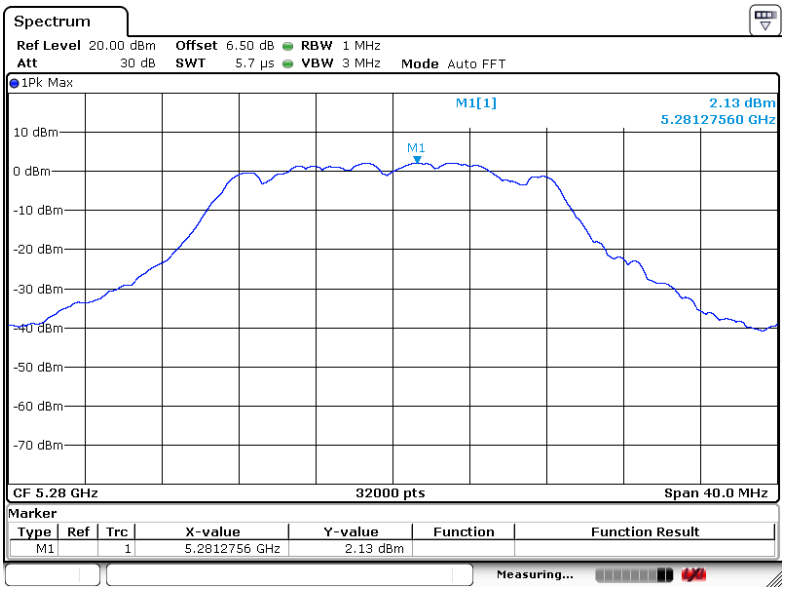

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] 2.92 dBm
5.23882310 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2388231 GHz 2.92 dBm
Measuring...

802.11n20

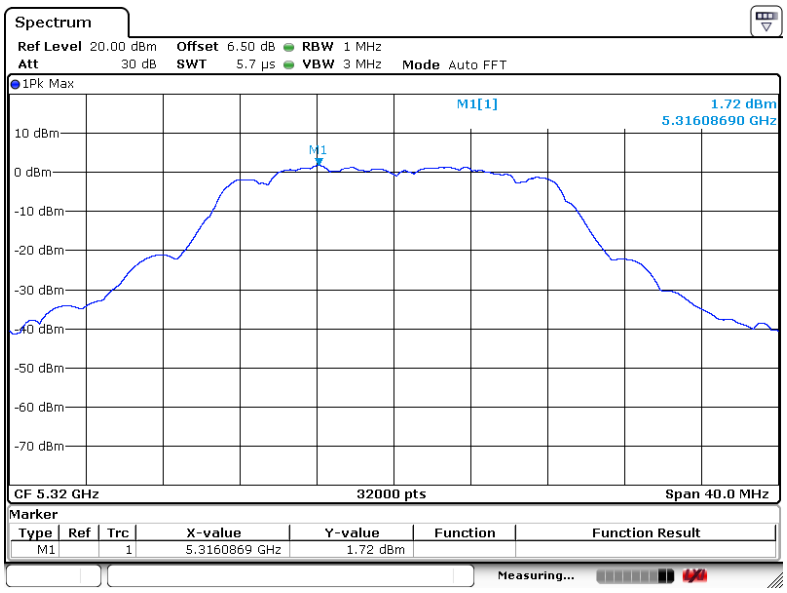
Channel: 52



Channel: 56

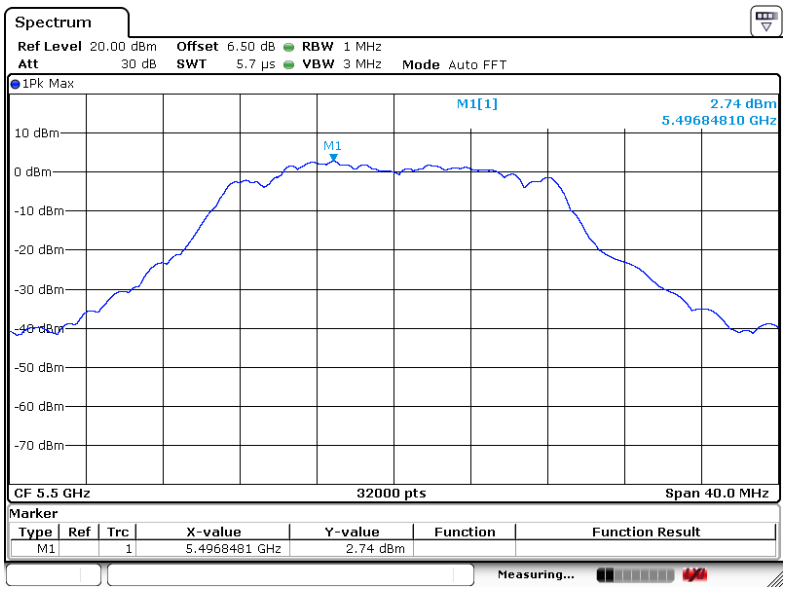


Channel: 64

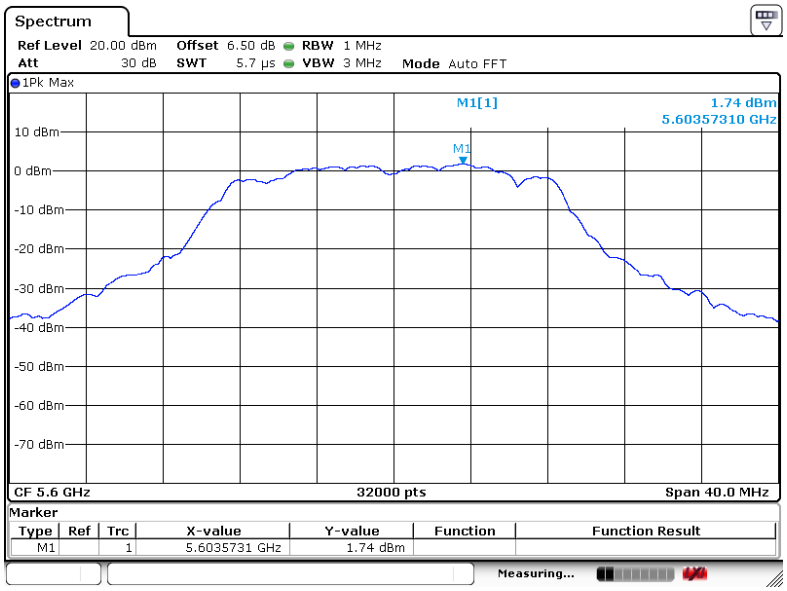

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] 1.72 dBm
5.31608690 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.32 GHz 32000 pts Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.3160869 GHz 1.72 dBm
Measuring...

802.11n20

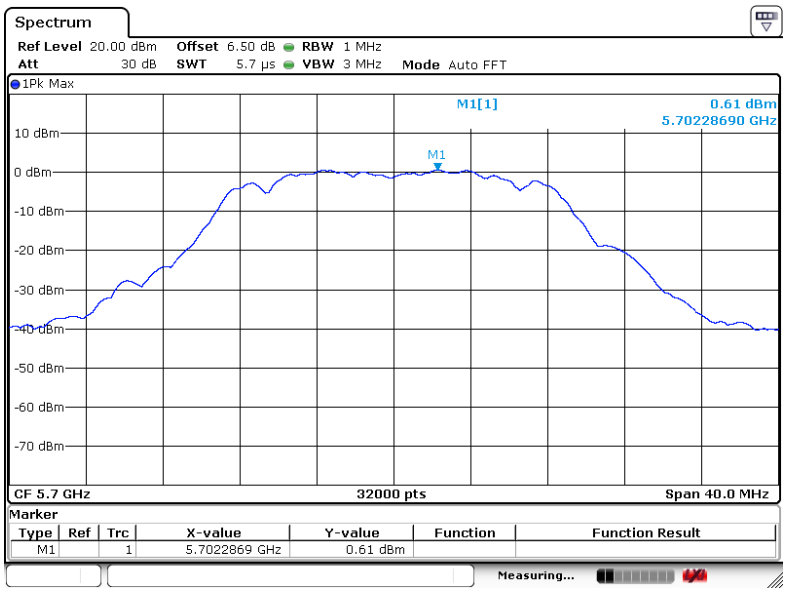
Channel: 100



Channel: 120

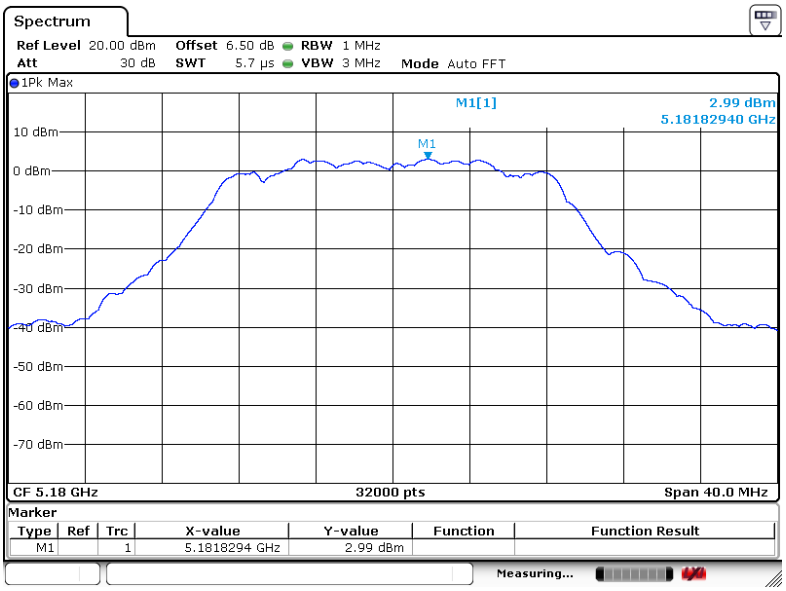


Channel: 140

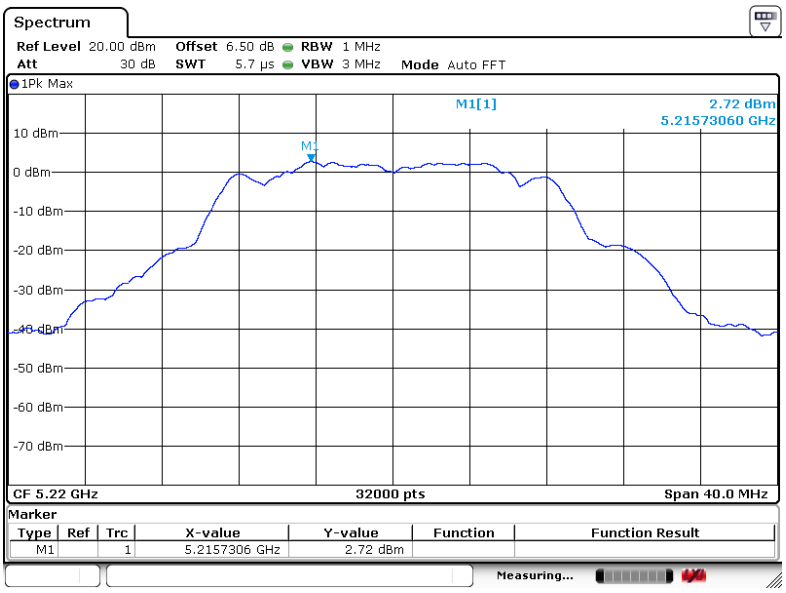

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] 0.61 dBm
5.70228690 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.7 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.7022869 GHz 0.61 dBm
Measuring...

802.11ac20

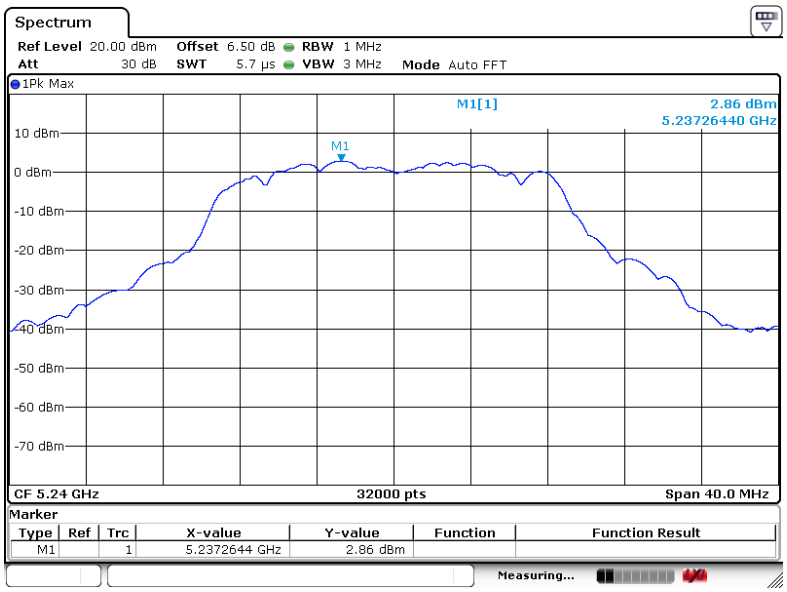
Channel: 36



Channel: 44

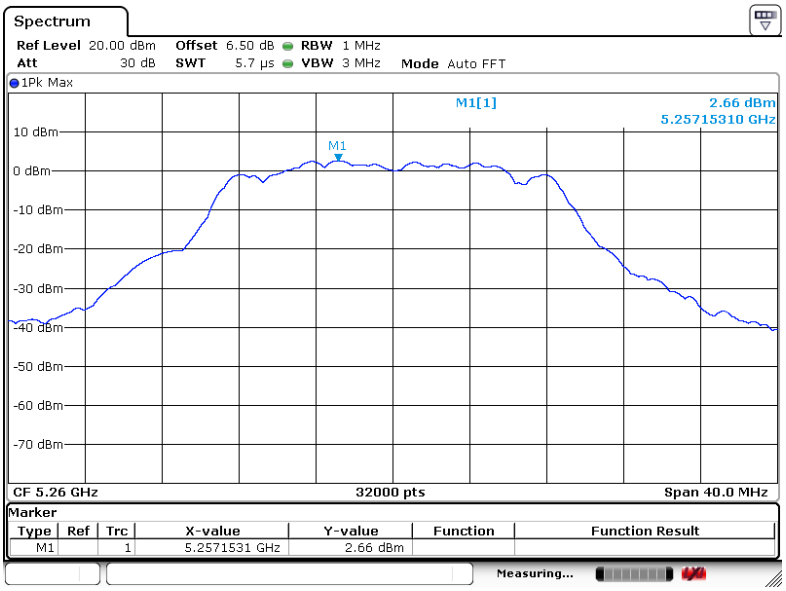


Channel: 48

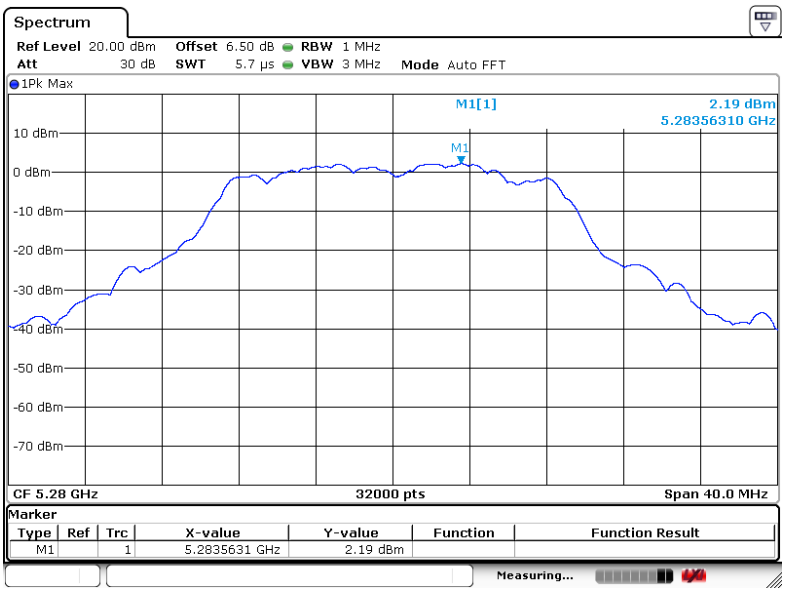

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] 2.86 dBm
5.23726440 GHz
M1
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.24 GHz 32000 pts Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2372644 GHz 2.86 dBm
Measuring...

802.11ac20

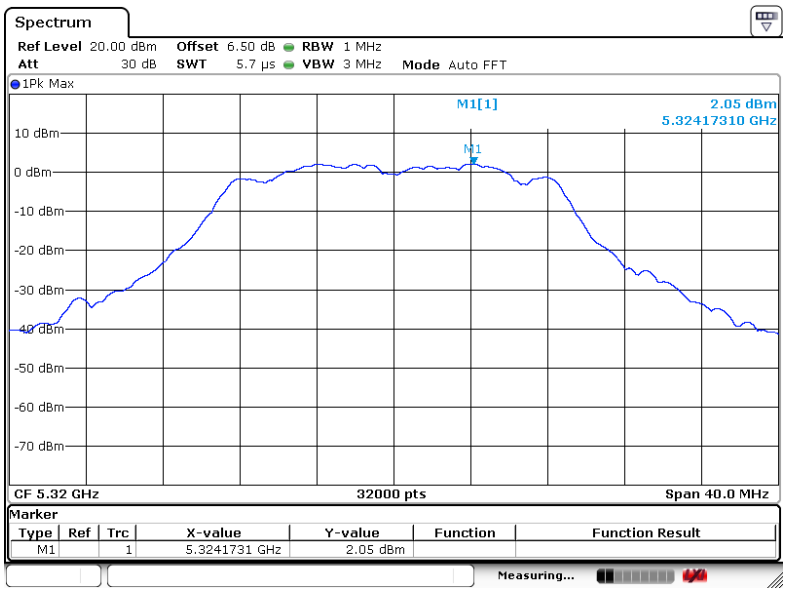
Channel: 52



Channel: 56

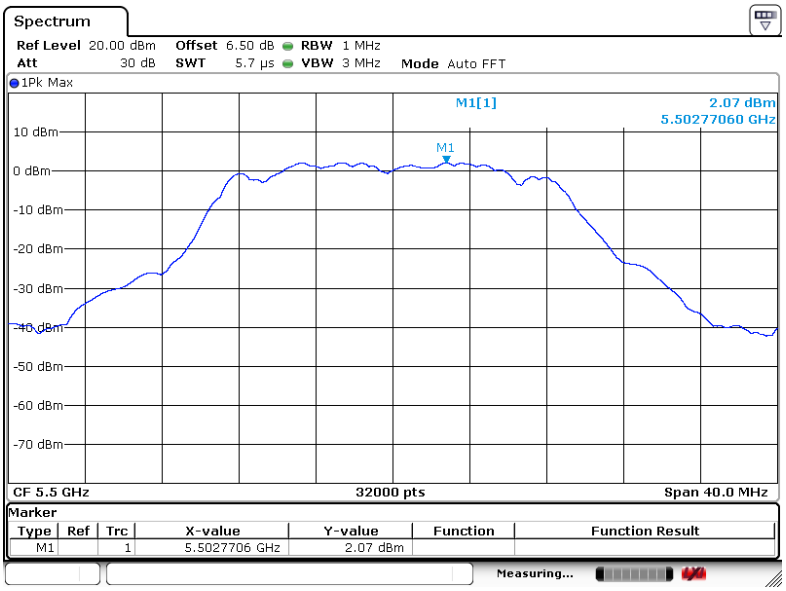


Channel: 64

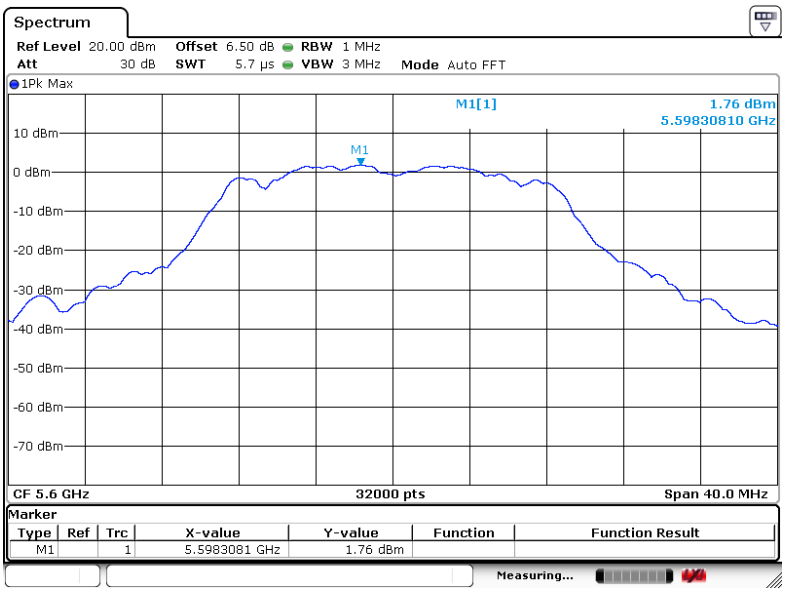

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] 2.05 dBm
5.32417310 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.32 GHz 32000 pts Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.3241731 GHz 2.05 dBm
Measuring...

802.11ac20

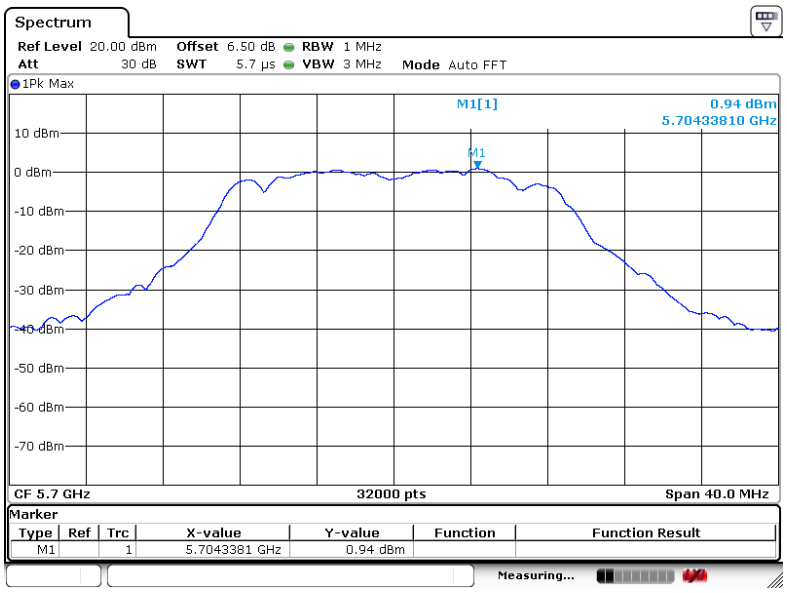
Channel: 100



Channel: 120

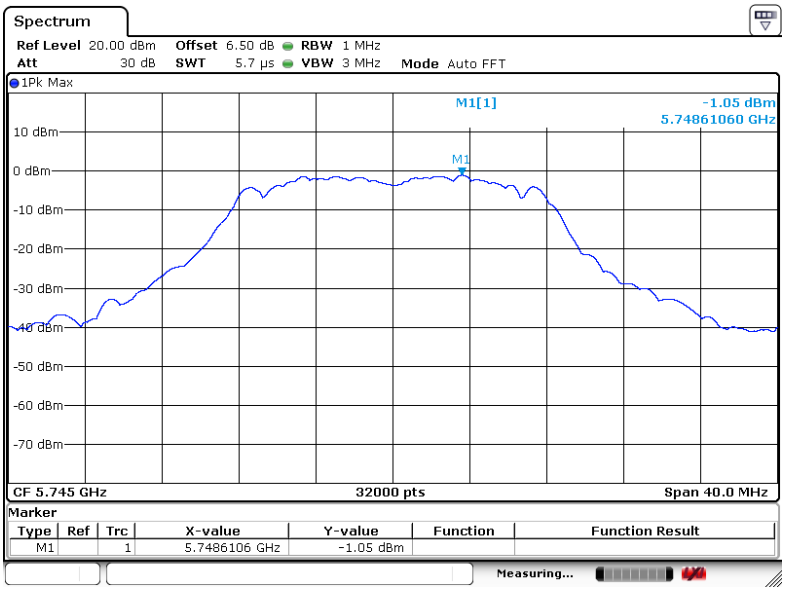


Channel: 140

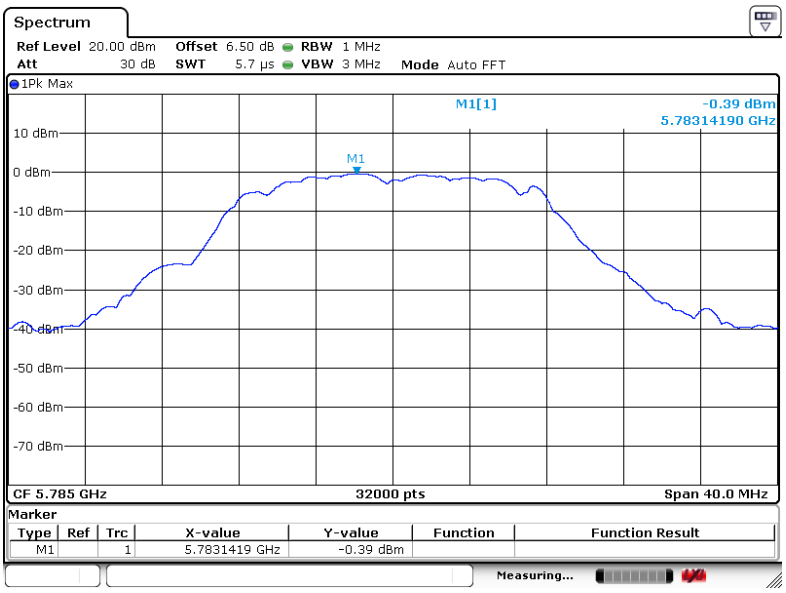

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] 0.94 dBm
5.70433810 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.7 GHz 32000 pts Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.7043381 GHz 0.94 dBm
Measuring...

802.11a

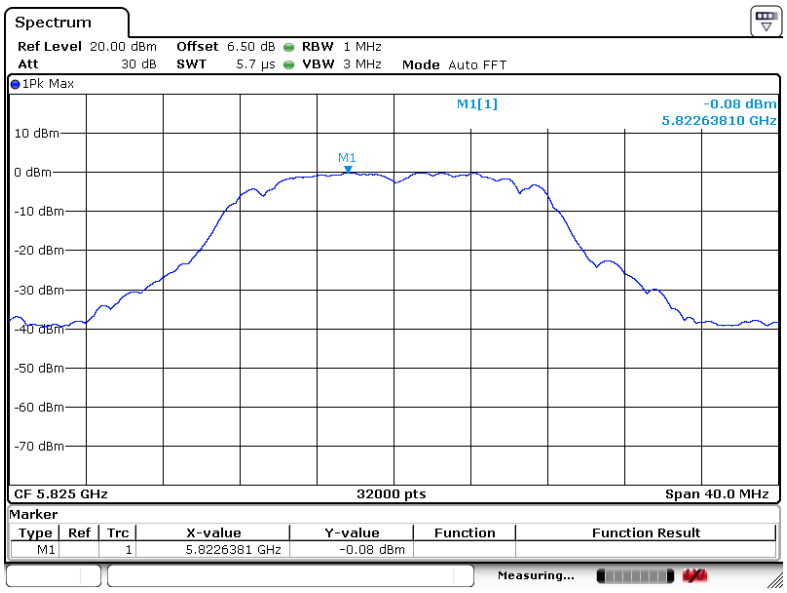
Channel: 149



Channel: 157

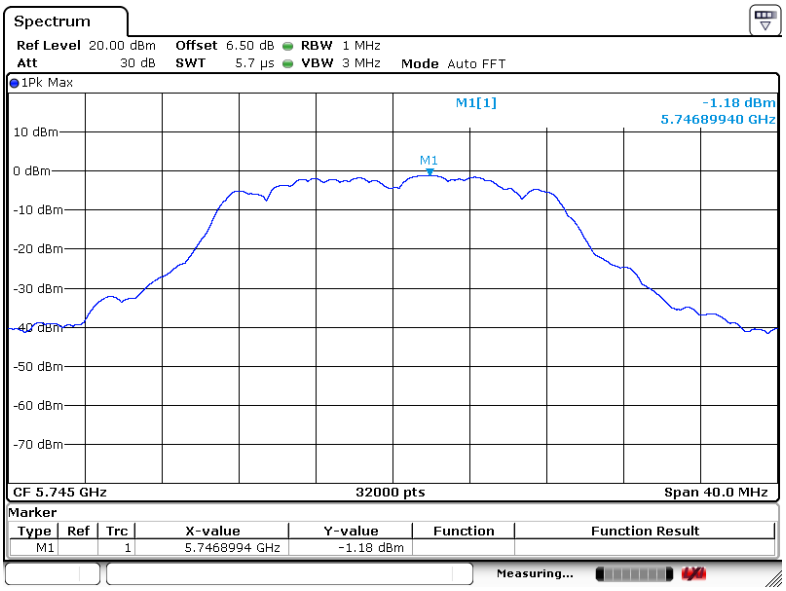


Channel: 165

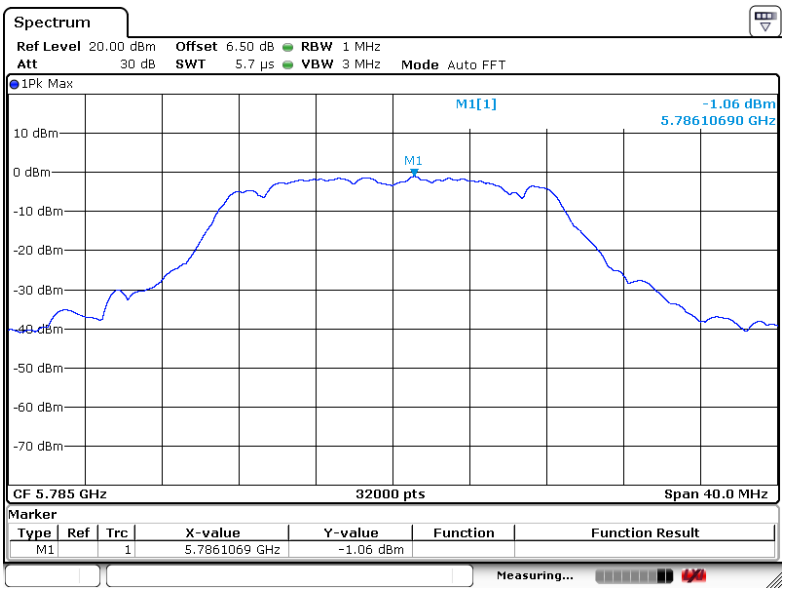

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] -0.08 dBm
5.82263810 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.825 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.8226381 GHz -0.08 dBm
Measuring...

802.11n20

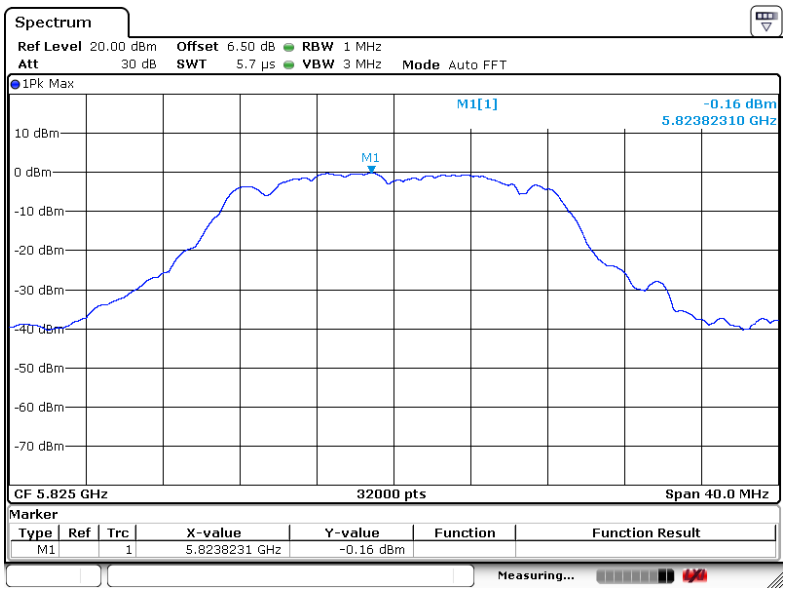
Channel: 149



Channel: 157

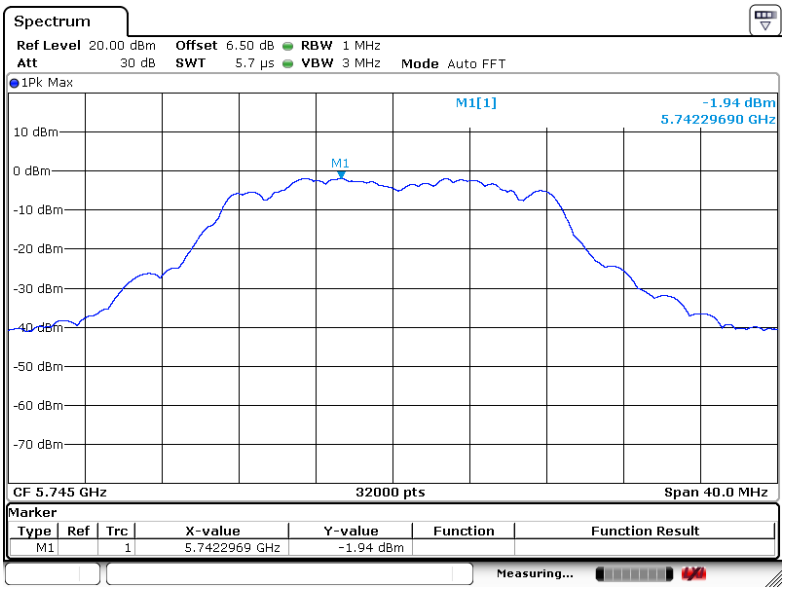


Channel: 165

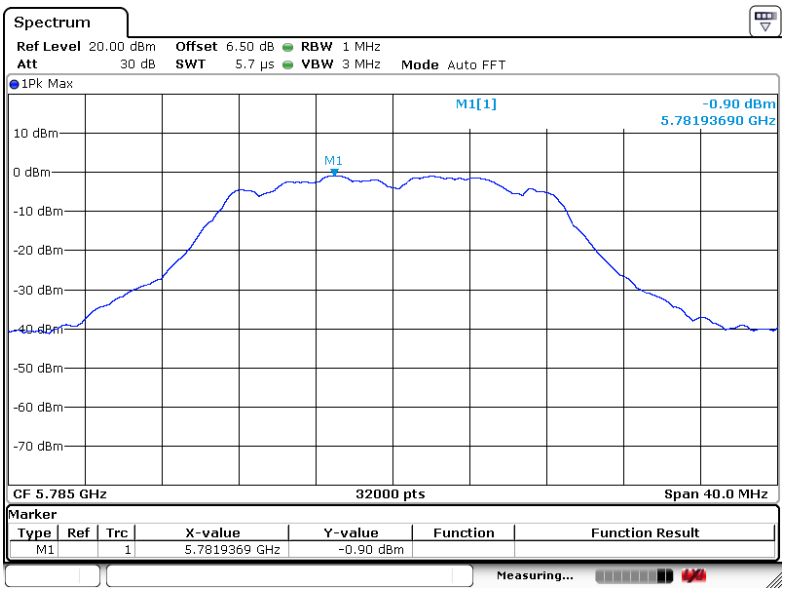

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] -0.16 dBm
5.82382310 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.825 GHz 32000 pts Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.8238231 GHz -0.16 dBm
Measuring...

802.11ac20

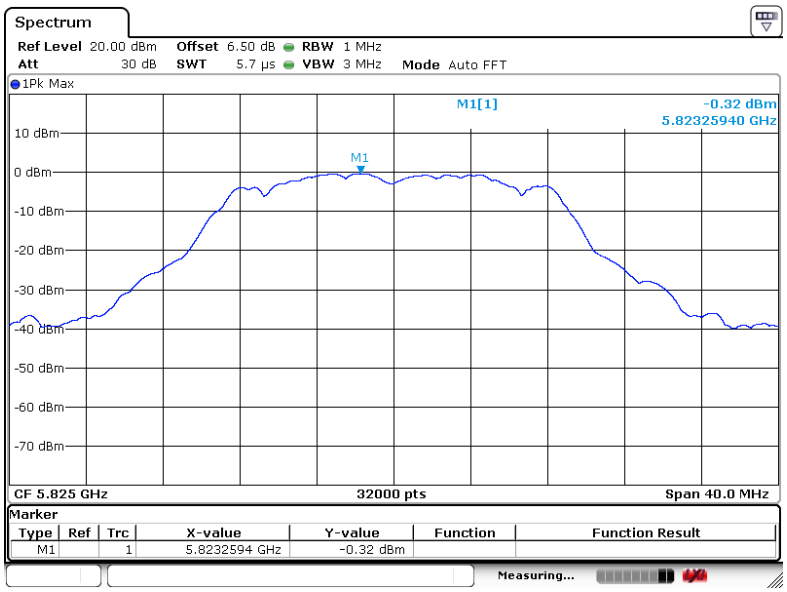
Channel: 149



Channel: 157

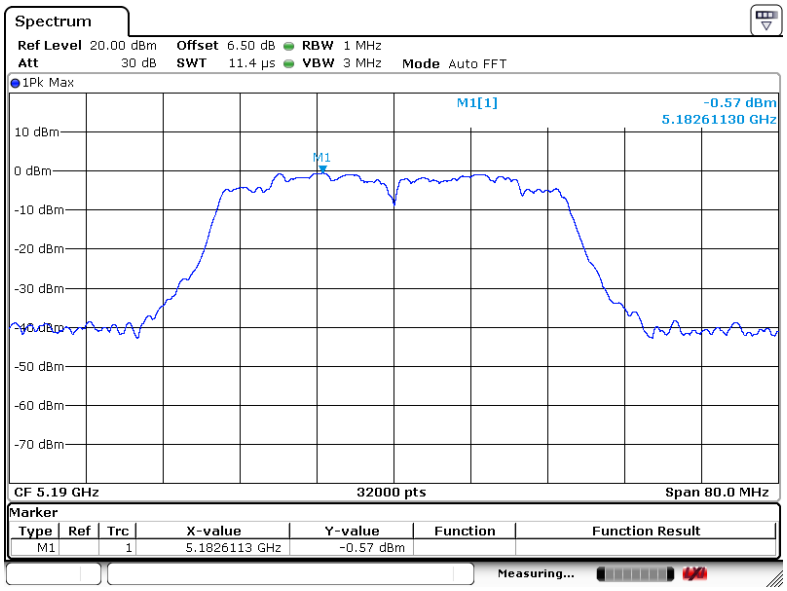


Channel: 165

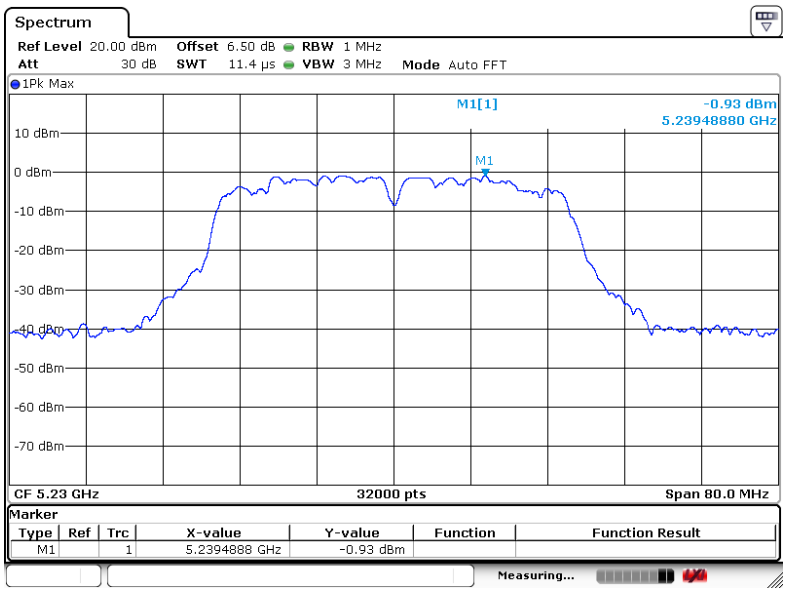

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 5.7 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] -0.32 dBm
5.82325940 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.825 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.8232594 GHz -0.32 dBm
Measuring...

802.11n40

Channel: 38

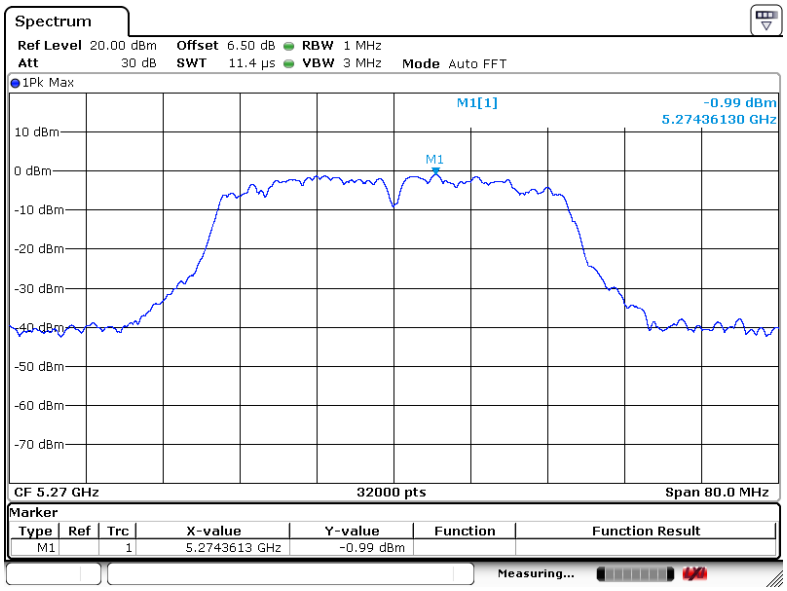


Channel: 46

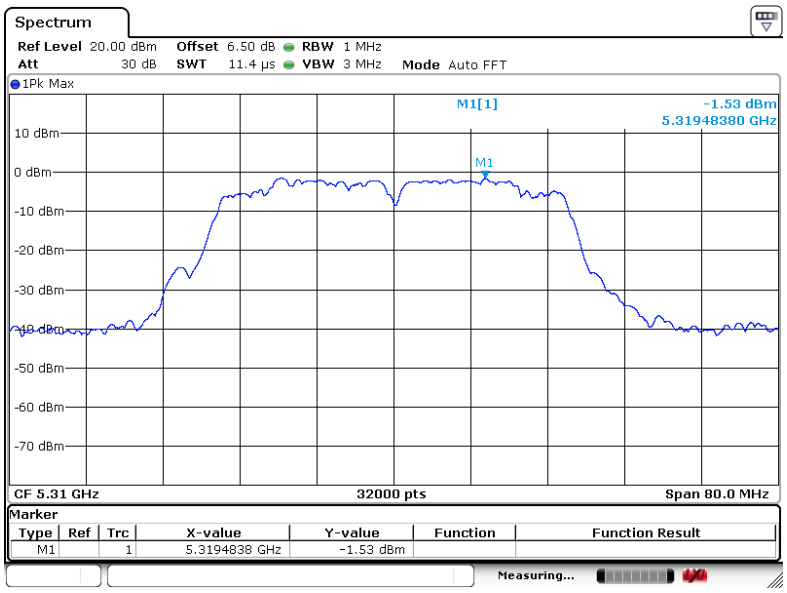


802.11n40

Channel: 54

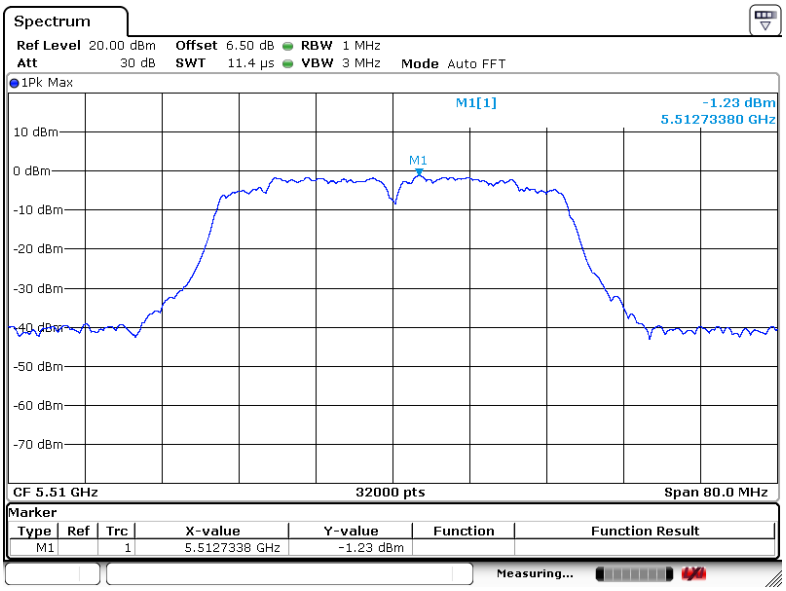


Channel: 62

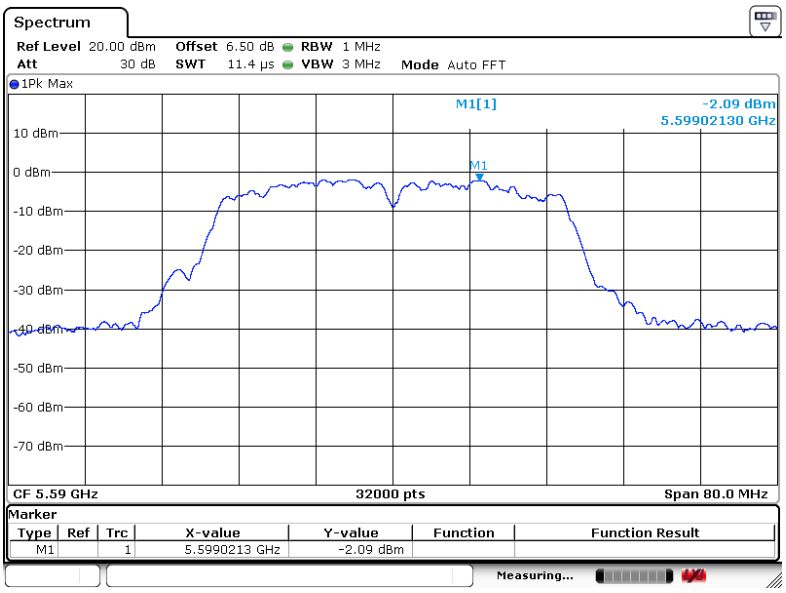


802.11n40

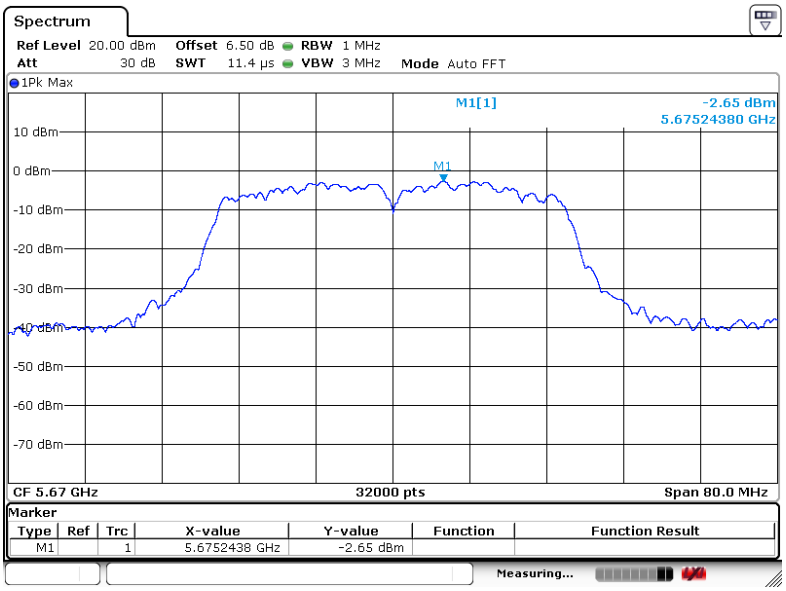
Channel: 102



Channel: 118

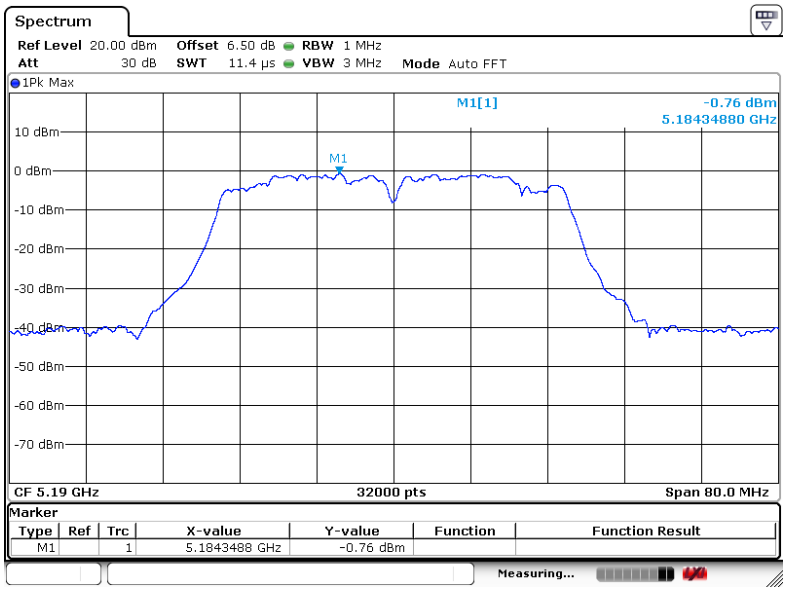


Channel: 134

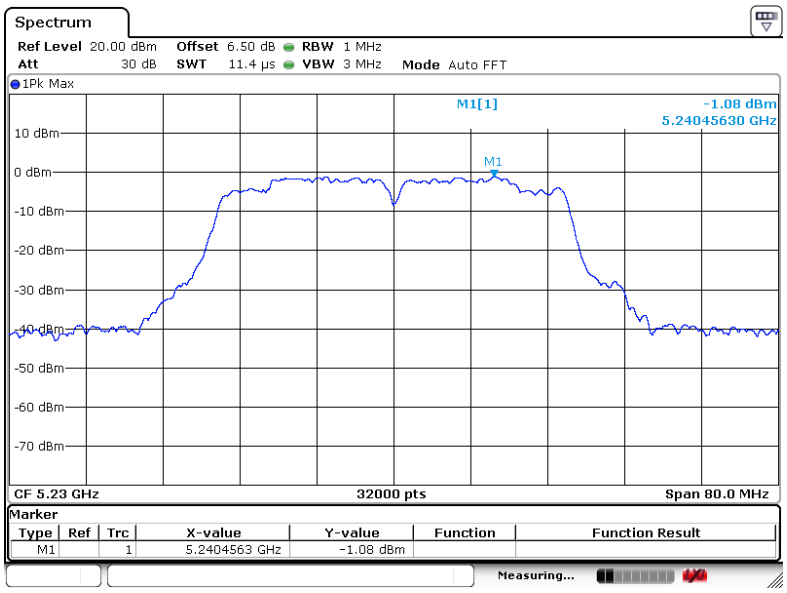

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 11.4 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] -2.65 dBm
5.67524380 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.67 GHz 32000 pts Span 80.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.6752438 GHz -2.65 dBm
Measuring...

802.11ac40

Channel: 38

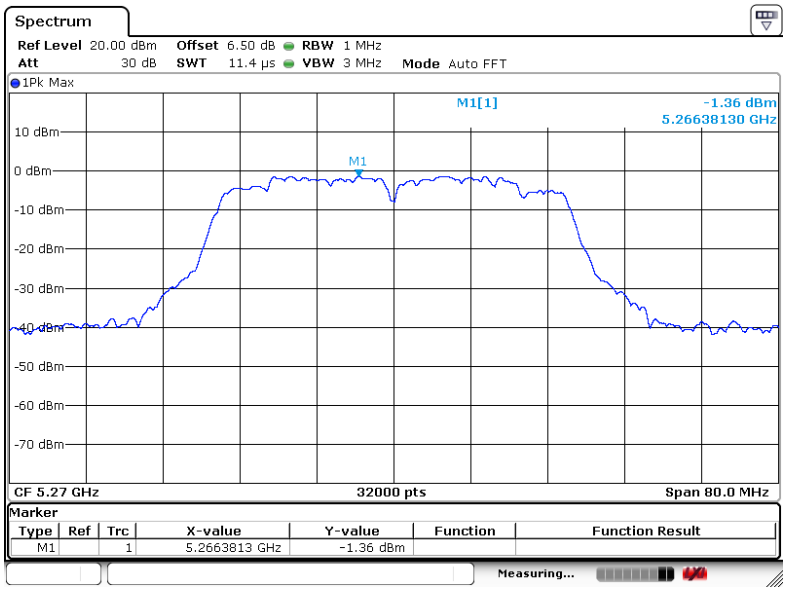


Channel: 46

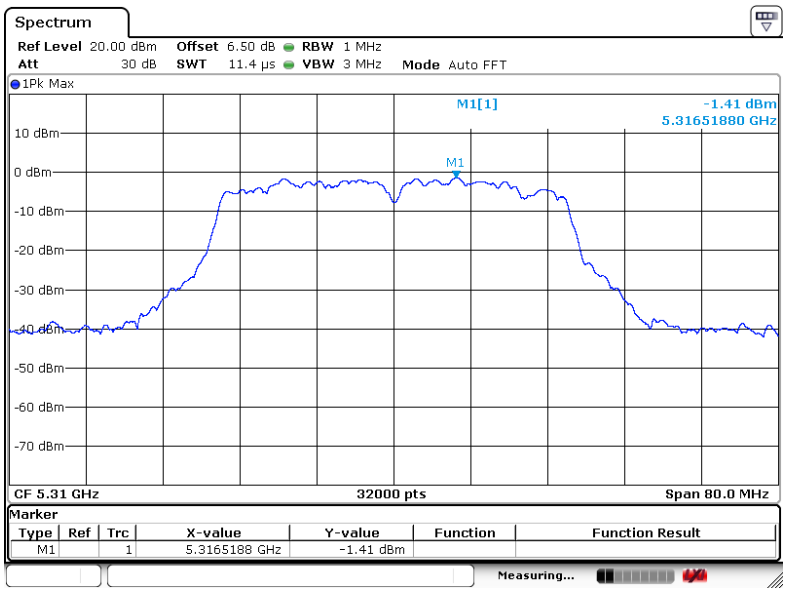


802.11ac40

Channel: 54

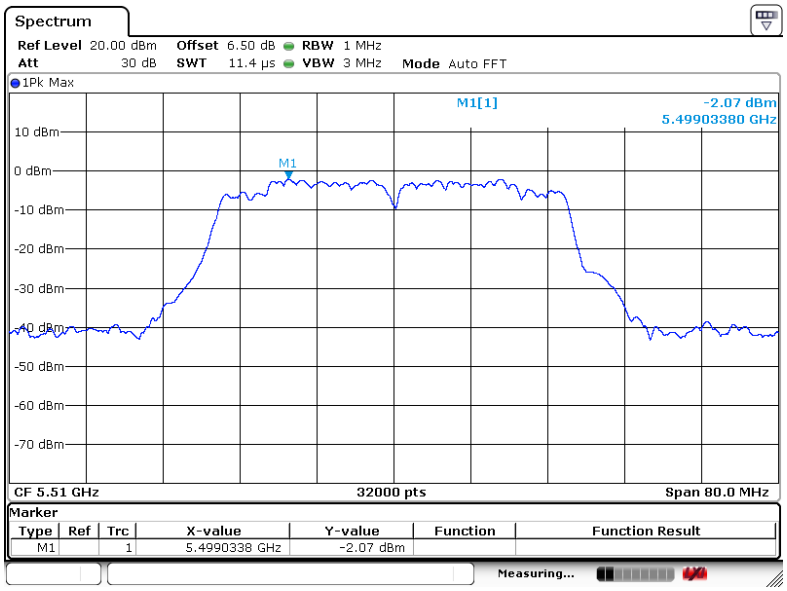


Channel: 62

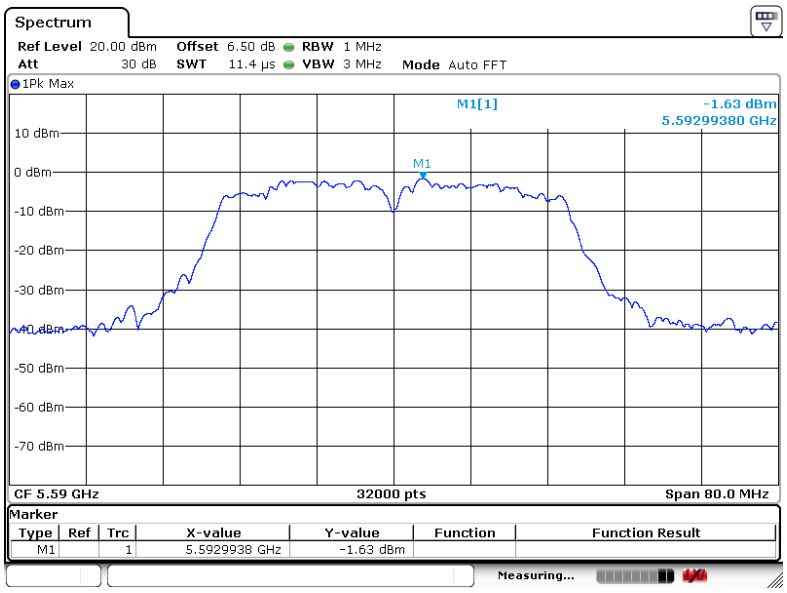


802.11ac40

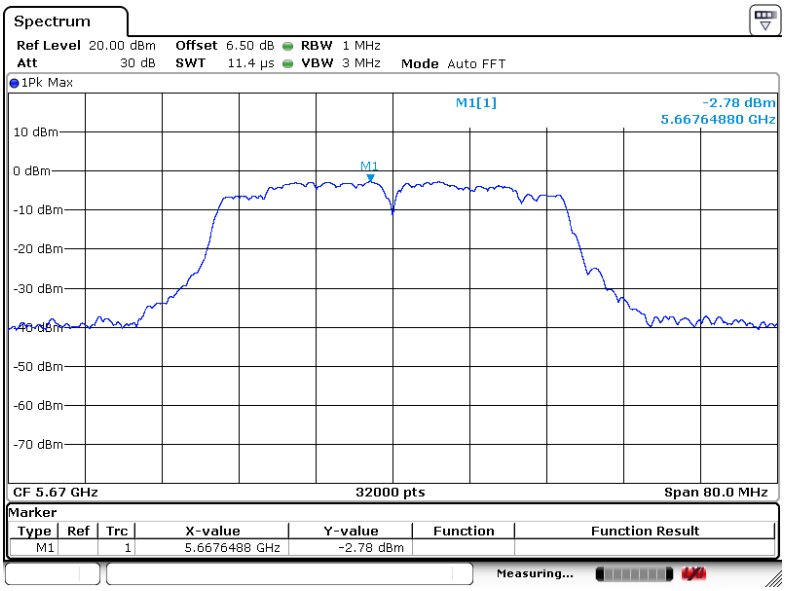
Channel: 102



Channel: 118

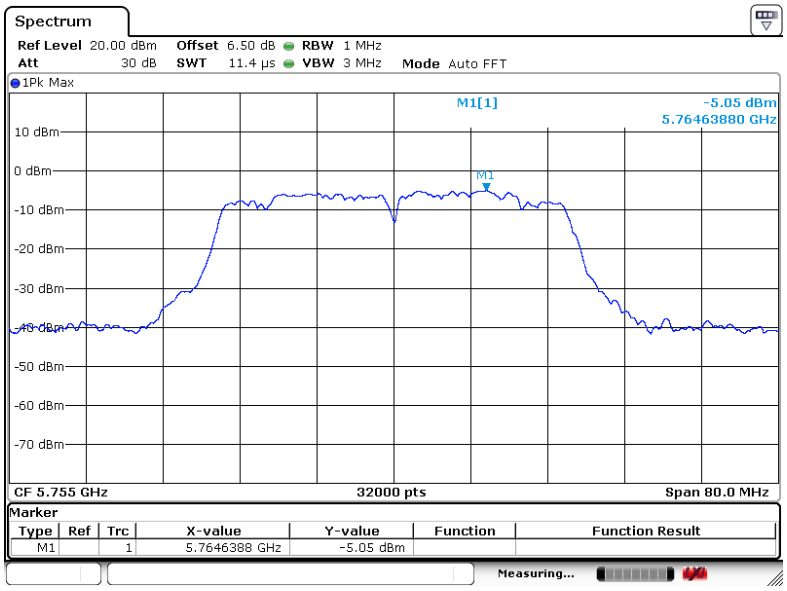


Channel: 134

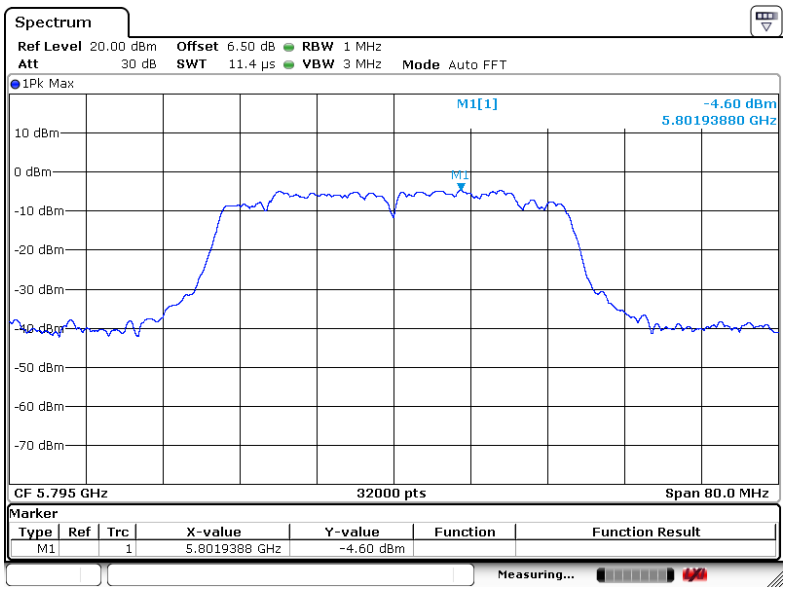

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 11.4 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] -2.78 dBm
5.66764880 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.67 GHz 32000 pts Span 80.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.6676488 GHz -2.78 dBm
Measuring...

802.11n40

Channel: 151

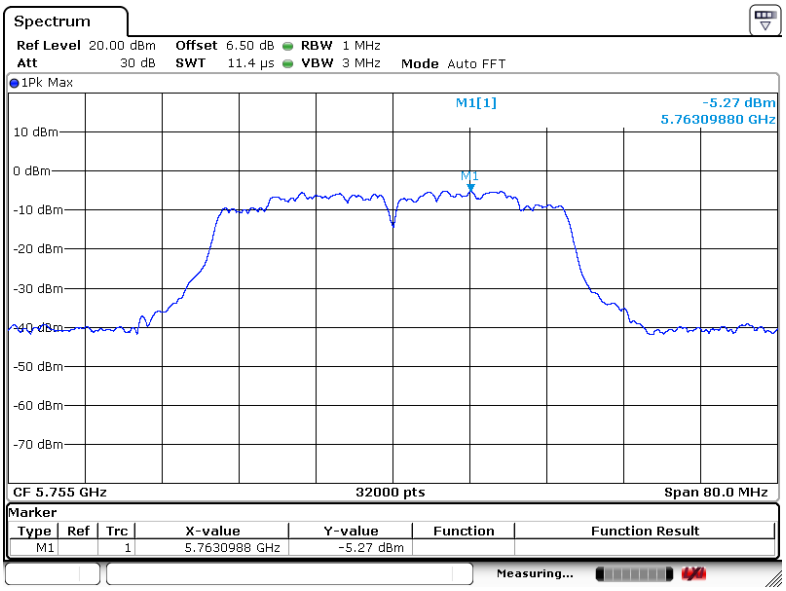


Channel: 159

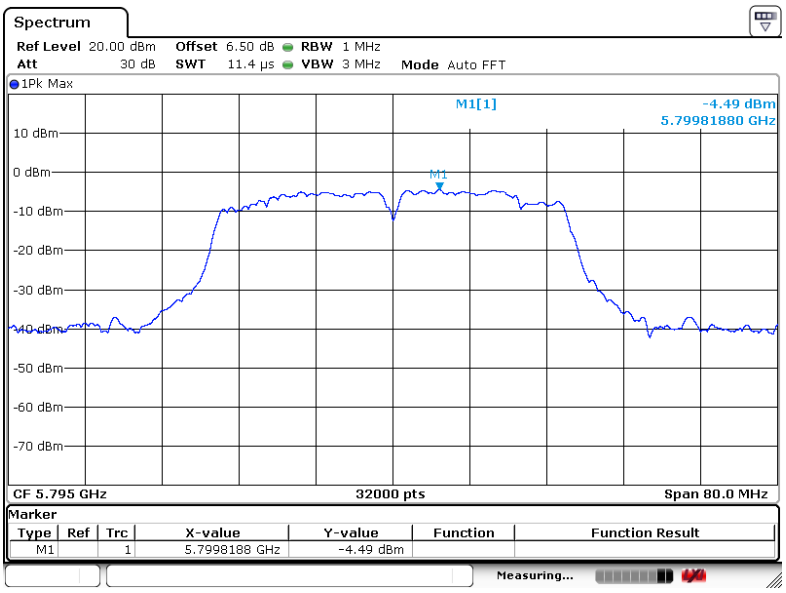


802.11ac40

Channel: 151

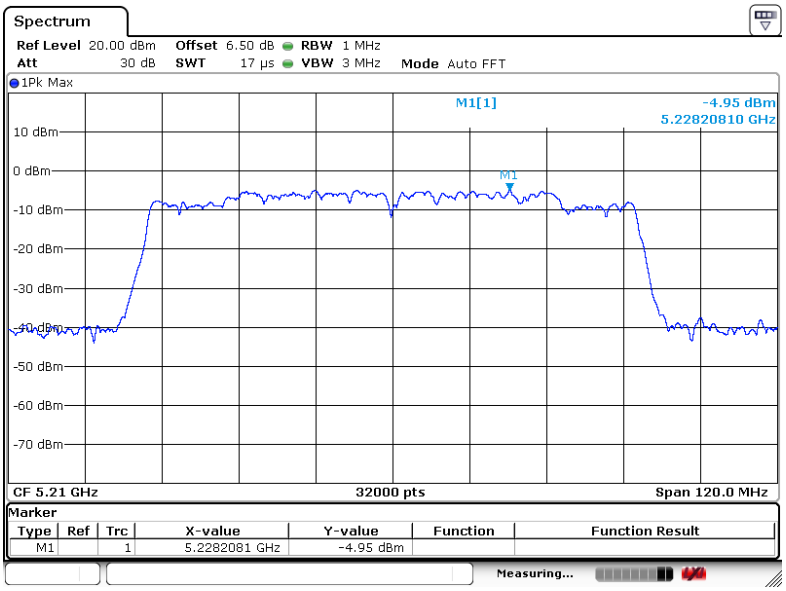


Channel: 159

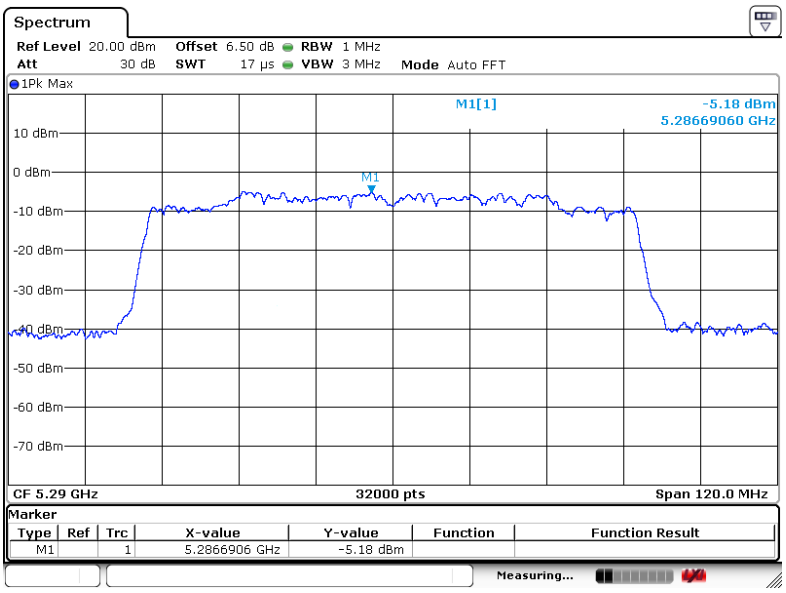


802.11ac80

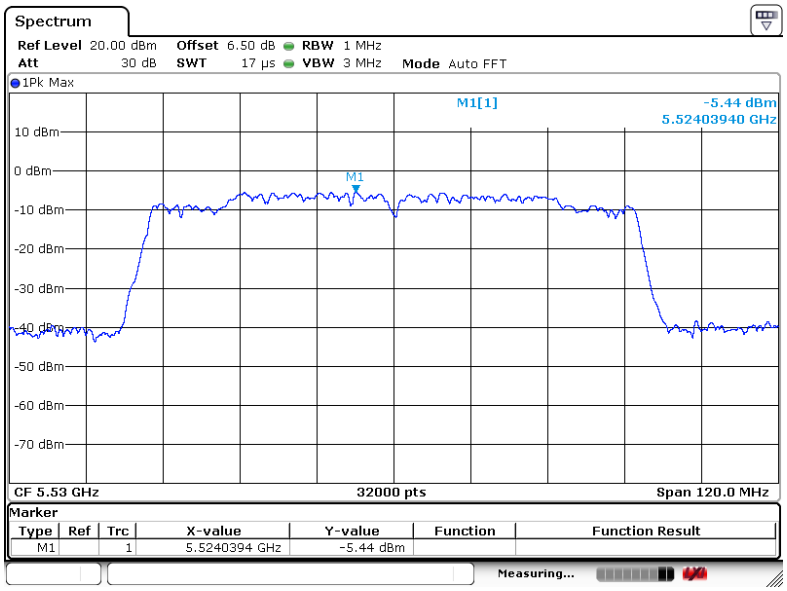
Channel:42



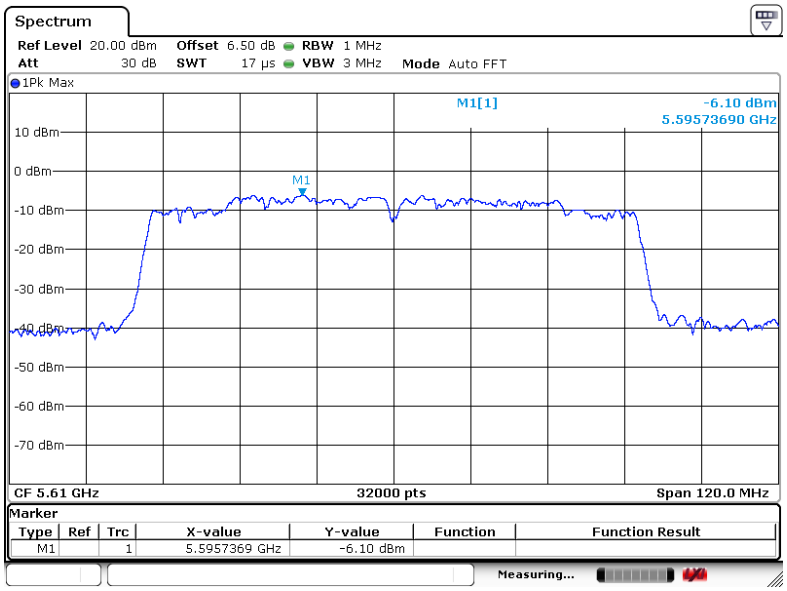
Channel: 58



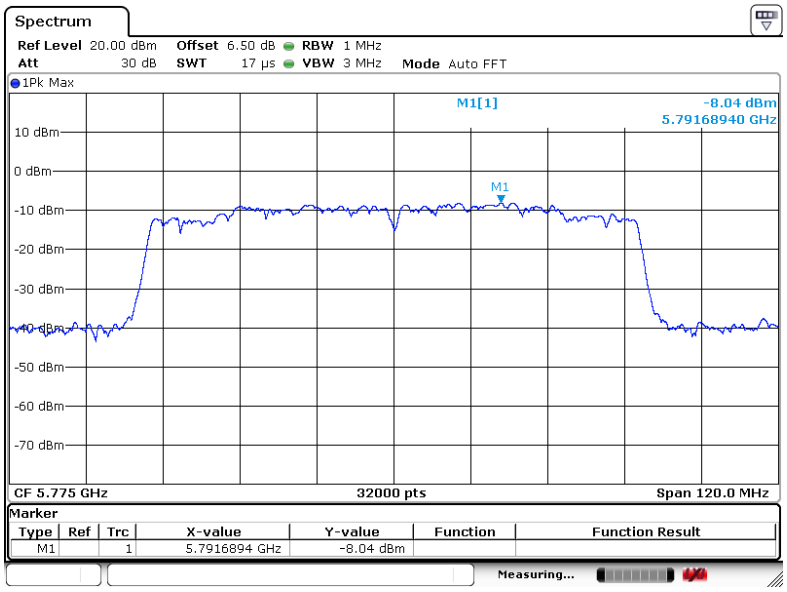
Channel:106



Channel: 122



Channel: 155

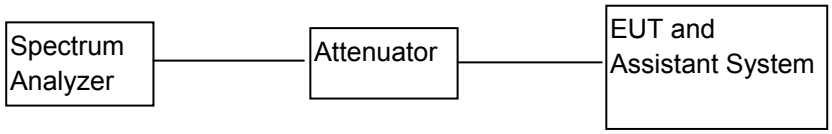

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 17 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] -8.04 dBm
5.79168940 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
CF 5.775 GHz
32000 pts
Span 120.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.7916894 GHz -8.04 dBm
Measuring...

4. 26 dB & 99% Emission Bandwidth

4.1. TEST EQUIPMENT

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Due.	Cal. Interval
1	Spectrum analyzer	KEYSIGHT	N9010A	MY55150427	2020/05/25	1 Year
2	Attenuator	Mini-Circuits	BW-S10W2	101109	2019/12/17	1 Year
3	RF Cable	Micable	C10-01-01-1	100309	2019/12/17	1 Year
4	Spectrum analyzer	R&S	FSV40	101470	2020/06/28	1 Year

4.2. BLOCK DIAGRAM OF TEST SETUP



4.3. APPLIED PROCEDURES / LIMIT

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power
is integrated over the full reference bandwidth.

4.4. TEST PROCEDURE

a) Set RBW = approximately 1% of the emission bandwidth.

b) Set the VBW > RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.
2. Set span = 1.5 times to 5.0 times the OBW.
3. Set RBW = 1 % to 5 % of the OBW
4. Set VBW ≥ 3 · RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes)

shall be used.

6. Use the 99 % power bandwidth function of the instrument (if available).

7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as

the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

4.5. TEST RESULT

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	22.22	23.31	23.02	16.38	17.57	17.57
44	5220.00	23.61	23.79	23.54	16.39	17.58	17.58
48	5240.00	23.31	24.06	23.34	16.45	17.59	17.59
52	5260.00	23.65	24.13	24.10	16.43	17.60	17.59
56	5280.00	23.60	24.57	23.68	16.47	17.62	17.61
64	5320.00	23.31	23.46	24.82	16.39	17.60	17.59
100	5500.00	22.63	22.89	23.50	16.34	17.59	17.56
120	5600.00	24.01	23.79	23.36	16.42	17.63	17.61
140	5700.00	24.34	24.71	23.52	16.45	17.60	17.59
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	15.12	15.13	15.13	16.40	17.59	17.59
157	5785.00	15.12	15.12	15.12	16.42	17.61	17.58
165	5825.00	15.33	15.12	15.12	16.40	17.59	17.55

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	43.17	42.90	35.89	35.89
46	5230.00	42.78	43.96	35.93	35.94
54	5270.00	42.10	42.36	35.95	35.94
62	5310.00	42.64	41.46	35.94	35.95
102	5510.00	42.15	41.23	35.91	35.90
118	5590.00	42.75	43.10	35.96	35.98
134	5670.00	43.78	43.29	35.98	35.96
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	35.11	35.11	35.94	35.99
159	5795.00	35.11	35.11	35.94	35.96

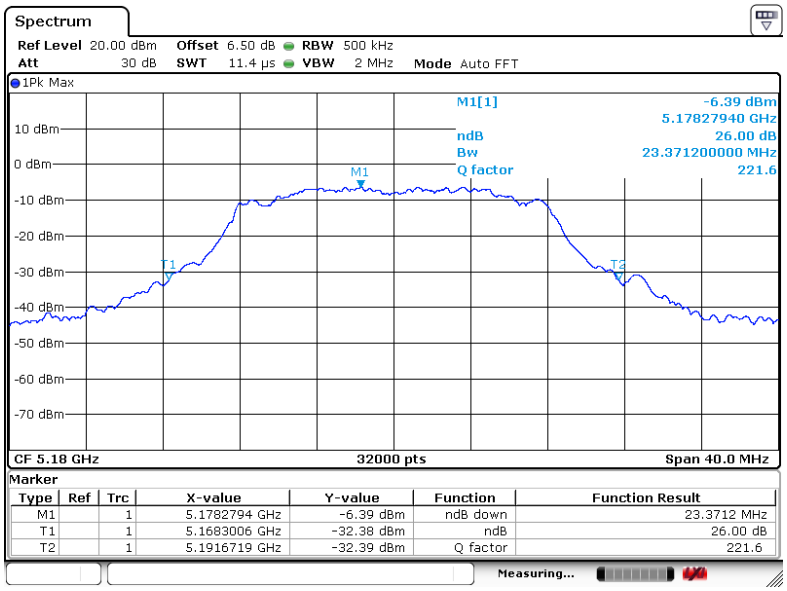
CH. No.	Frequency (MHz)	26dB Occupied Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
		802.11ac(VHT80)	802.11ac(VHT80)
42	5210	80.65	75.11
58	5290	80.65	75.18
106	5530	82.07	75.17
122	5610	81.31	75.18
CH. No.	Frequency (MHz)	6dB Occupied Bandwidth (MHz) 802.11ac(VHT80)	99% Occupied Bandwidth (MHz) 802.11ac(VHT80)
155	5775	75.11	75.22

Note: The worst data is Antenna A, only shown Antenna A Plot.

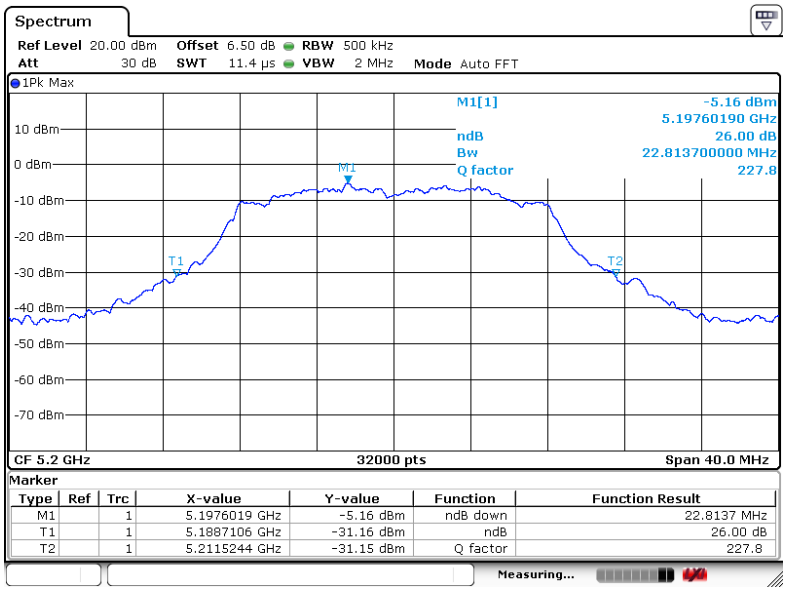
Test plots as followed: Antenna A

26dB BW 802.11a

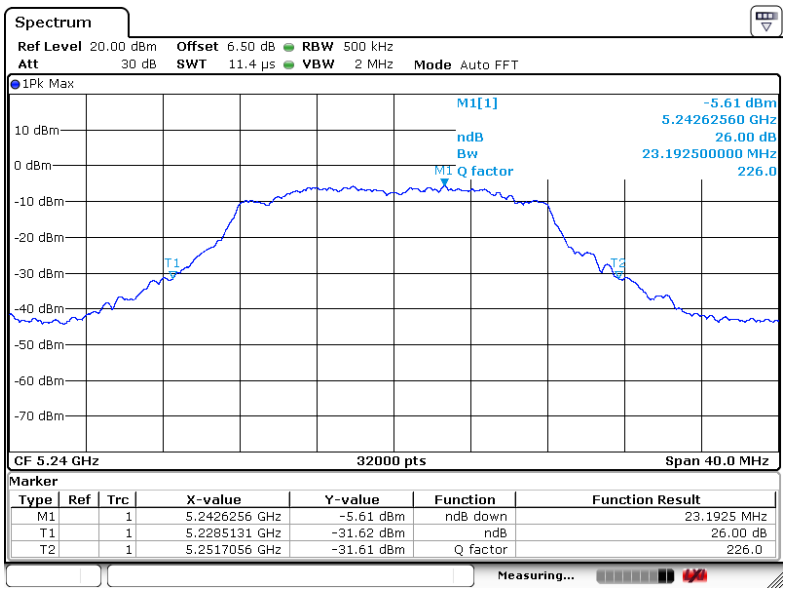
Channel: 36



Channel: 44

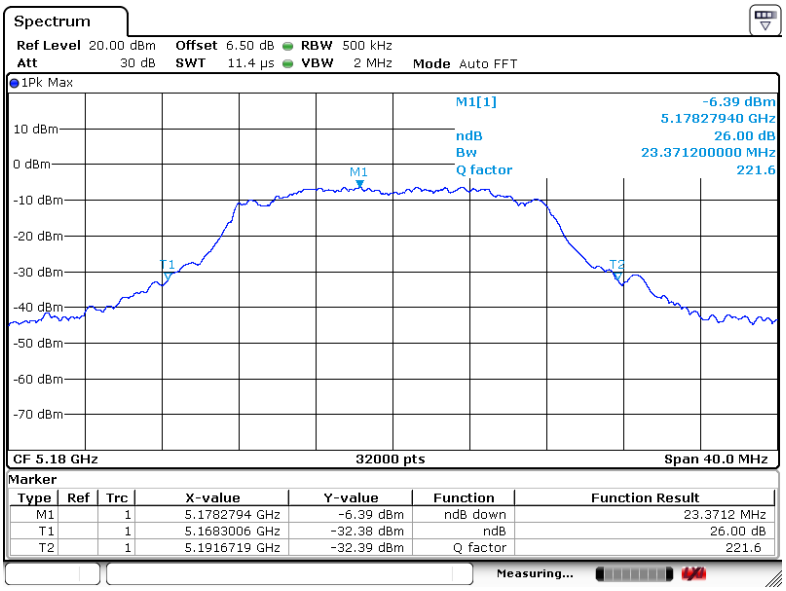


Channel: 48

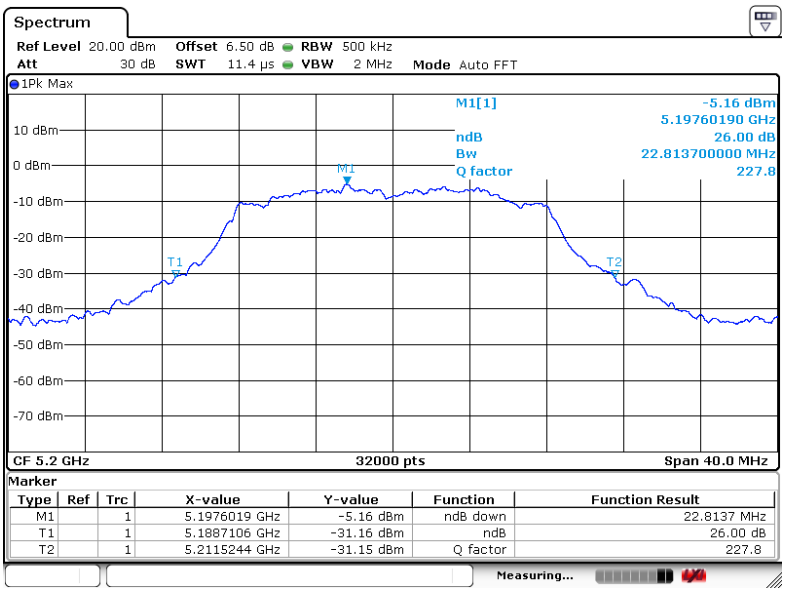

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1] -5.61 dBm
5.24262560 GHz
ndB 26.00 dB
Bw 23.192500000 MHz
Q factor 226.0
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2426256 GHz -5.61 dBm ndB down 23.1925 MHz
T1 1 5.2285131 GHz -31.62 dBm ndB 26.00 dB
T2 1 5.2517056 GHz -31.61 dBm Q factor 226.0
Measuring...

26dB BW 802.11a

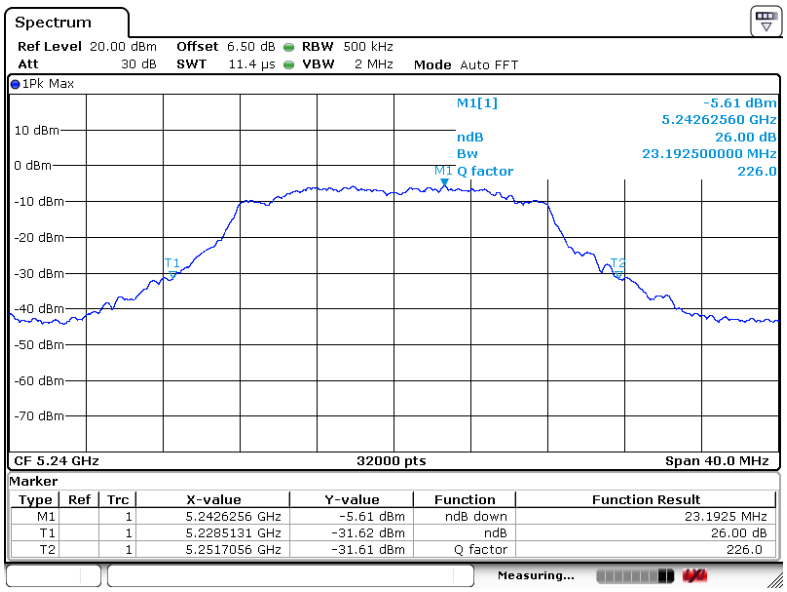
Channel: 52



Channel: 56

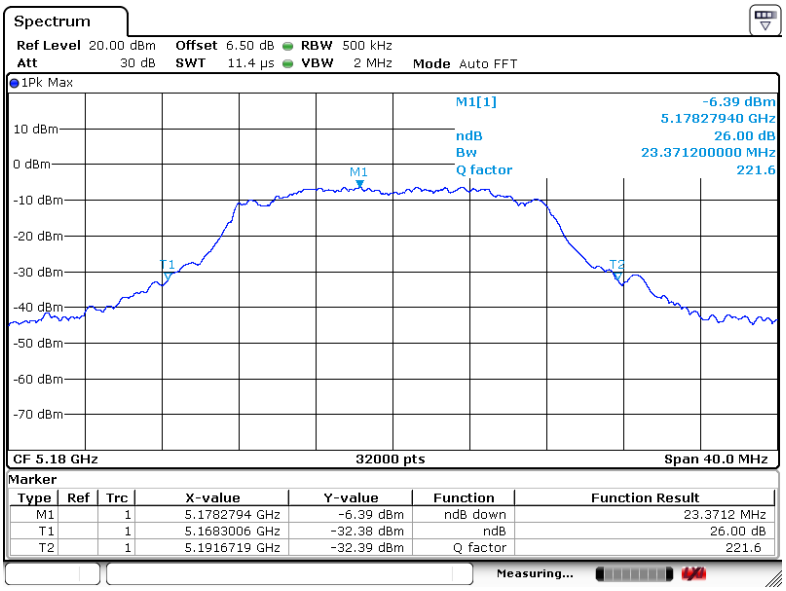


Channel: 64

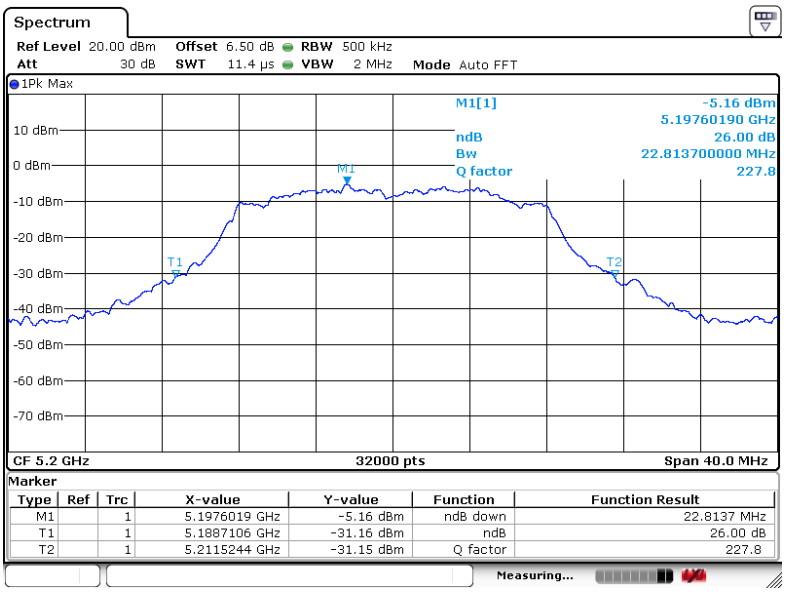

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1] -5.61 dBm
5.24262560 GHz
ndB 26.00 dB
Bw 23.192500000 MHz
Q factor 226.0
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2426256 GHz -5.61 dBm ndB down 23.1925 MHz
T1 1 5.2285131 GHz -31.62 dBm ndB 26.00 dB
T2 1 5.2517056 GHz -31.61 dBm Q factor 226.0
Measuring...

26dB BW 802.11a

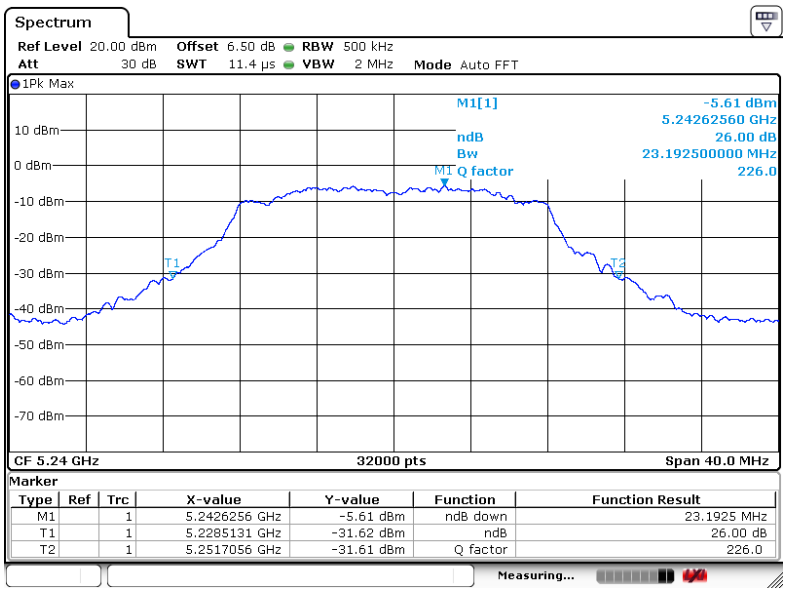
Channel: 100



Channel: 120

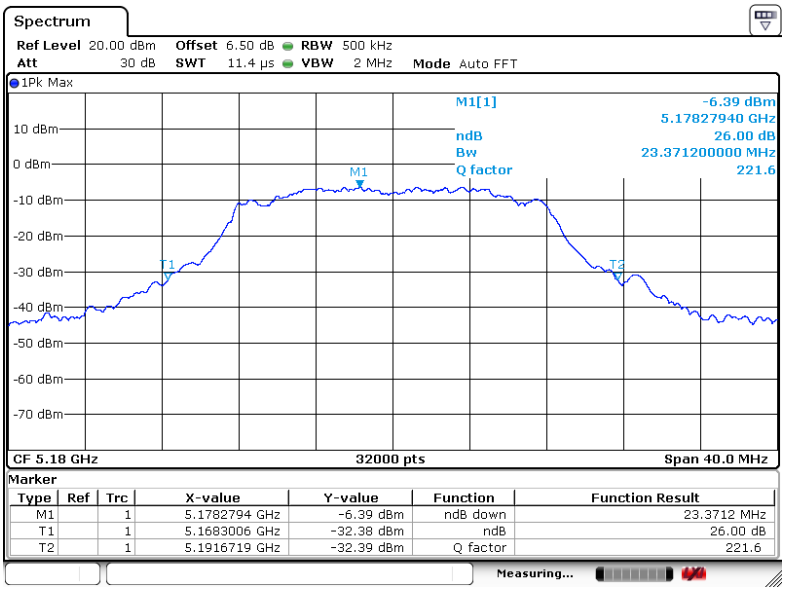


Channel: 140

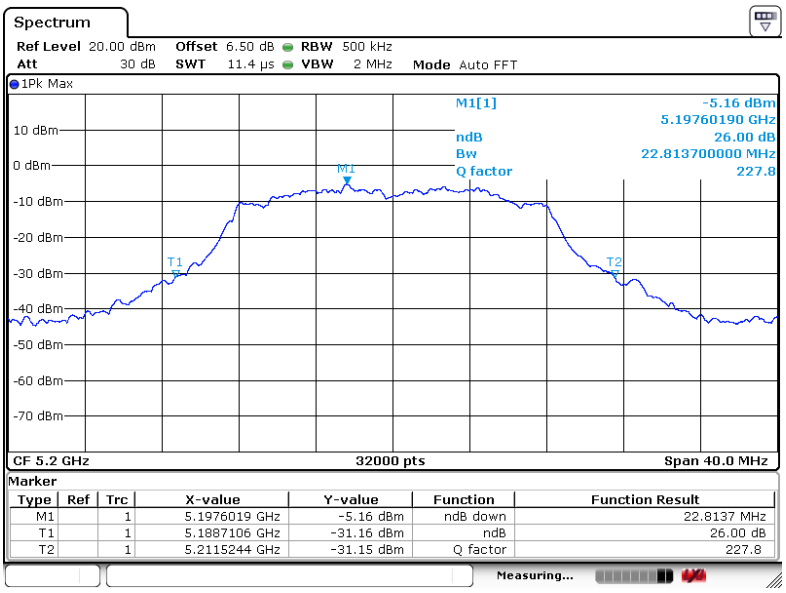

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1] -5.61 dBm
5.24262560 GHz
ndB 26.00 dB
Bw 23.192500000 MHz
Q factor 226.0
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2426256 GHz -5.61 dBm ndB down 23.1925 MHz
T1 1 5.2285131 GHz -31.62 dBm ndB 26.00 dB
T2 1 5.2517056 GHz -31.61 dBm Q factor 226.0
Measuring...

26dB BW 802.11n20

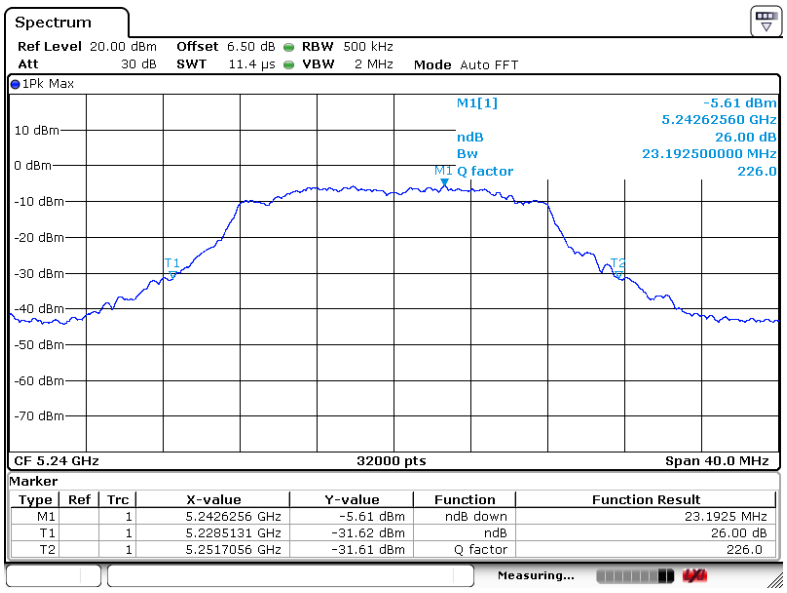
Channel: 36



Channel: 44

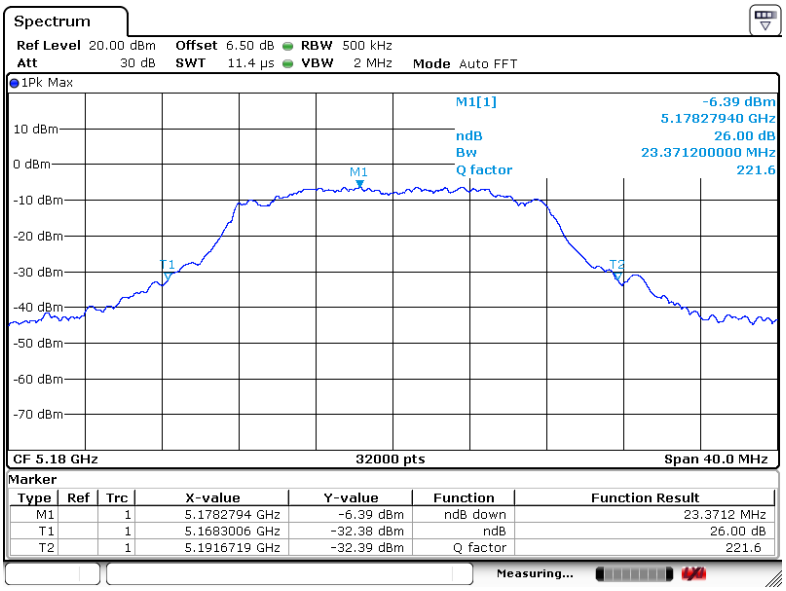


Channel: 48

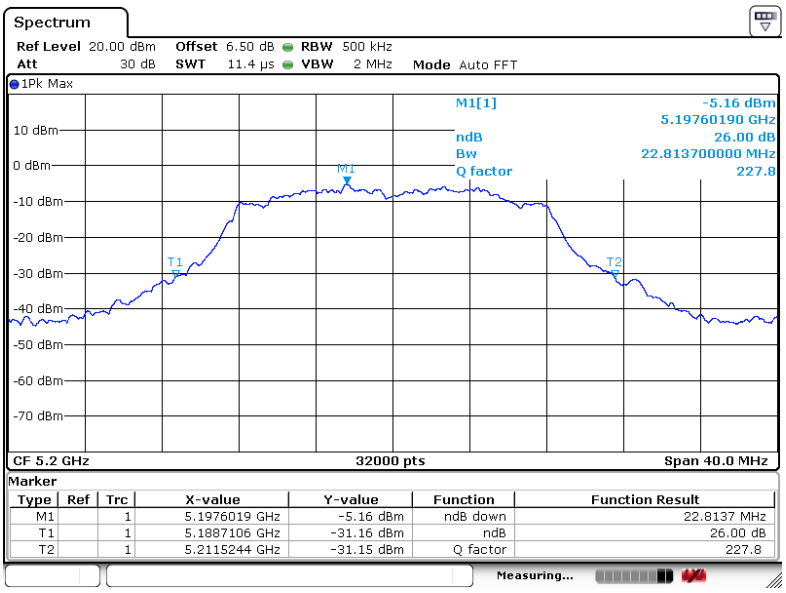

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1] -5.61 dBm
5.24262560 GHz
ndB 26.00 dB
Bw 23.192500000 MHz
Q factor 226.0
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2426256 GHz -5.61 dBm ndB down 23.1925 MHz
T1 1 5.2285131 GHz -31.62 dBm ndB 26.00 dB
T2 1 5.2517056 GHz -31.61 dBm Q factor 226.0
Measuring...

26dB BW 802.11n20

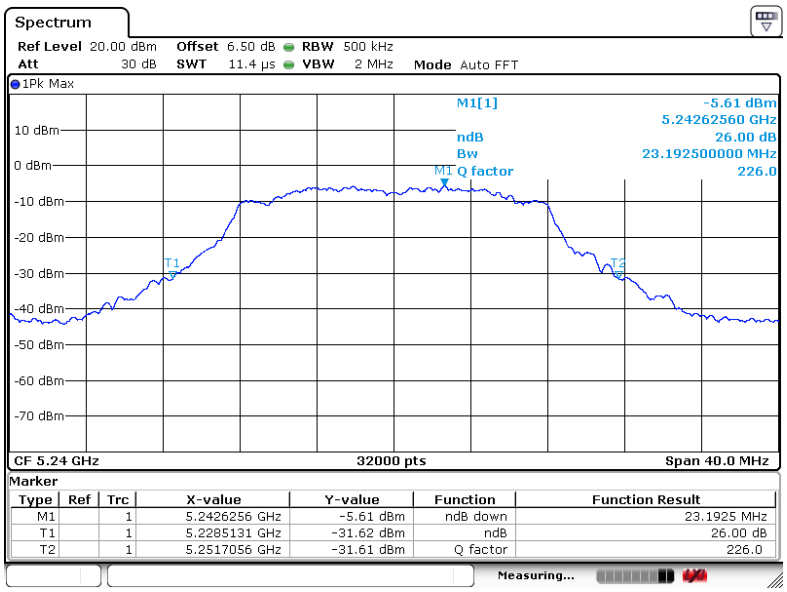
Channel: 52



Channel: 56

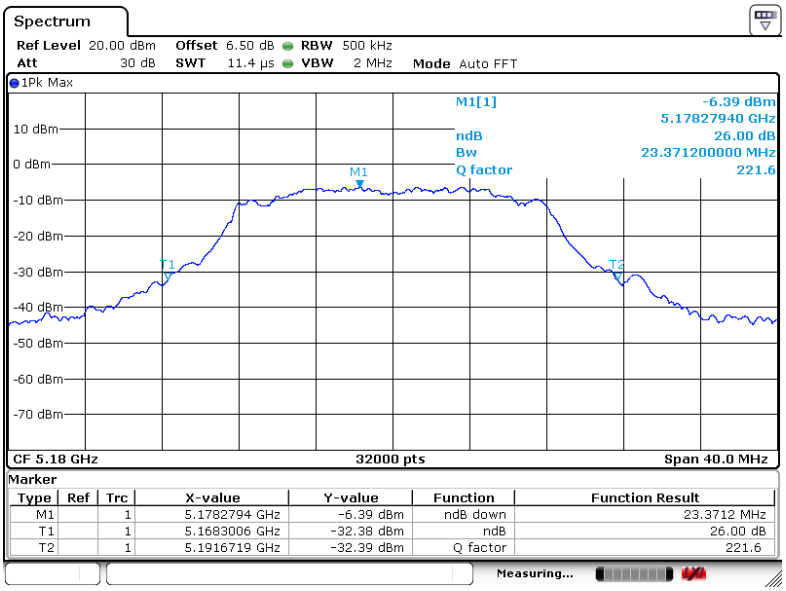


Channel: 64

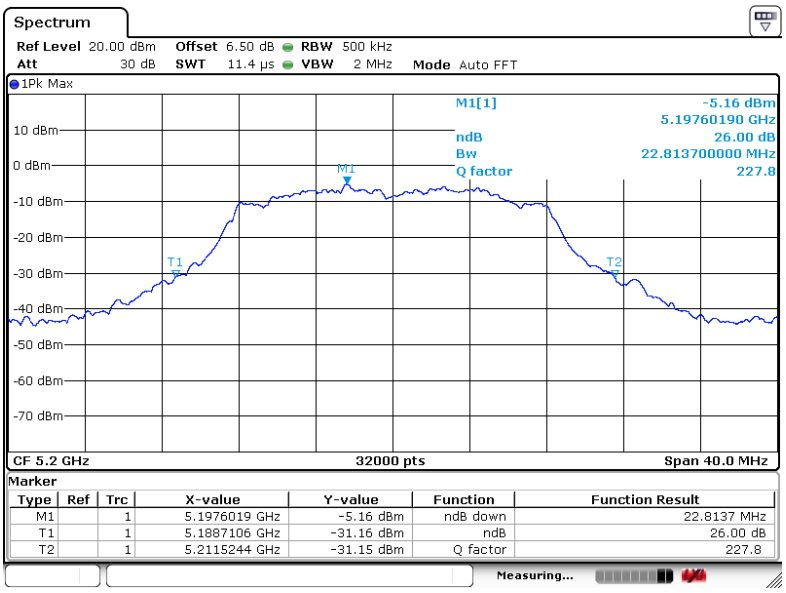

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1] -5.61 dBm
5.24262560 GHz
ndB 26.00 dB
Bw 23.192500000 MHz
Q factor 226.0
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2426256 GHz -5.61 dBm ndB down 23.1925 MHz
T1 1 5.2285131 GHz -31.62 dBm ndB 26.00 dB
T2 1 5.2517056 GHz -31.61 dBm Q factor 226.0
Measuring...

26dB BW 802.11n20

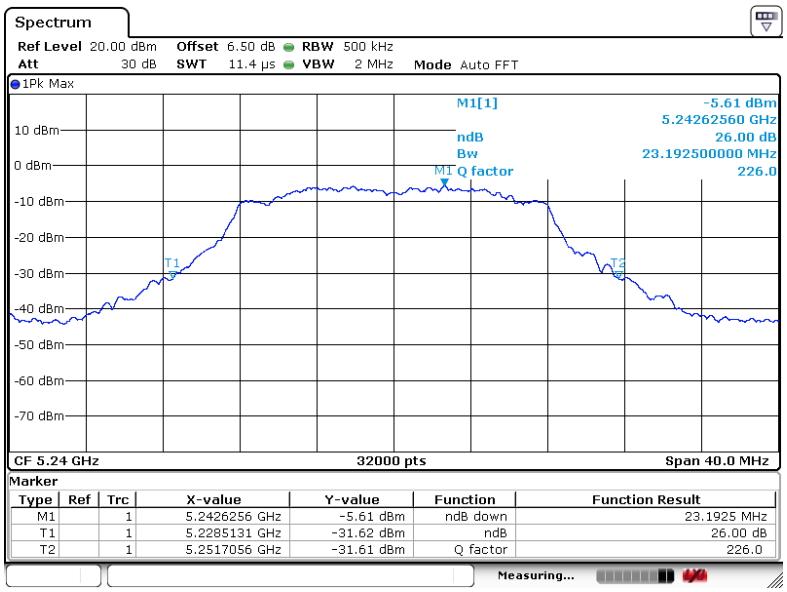
Channel: 100



Channel: 120

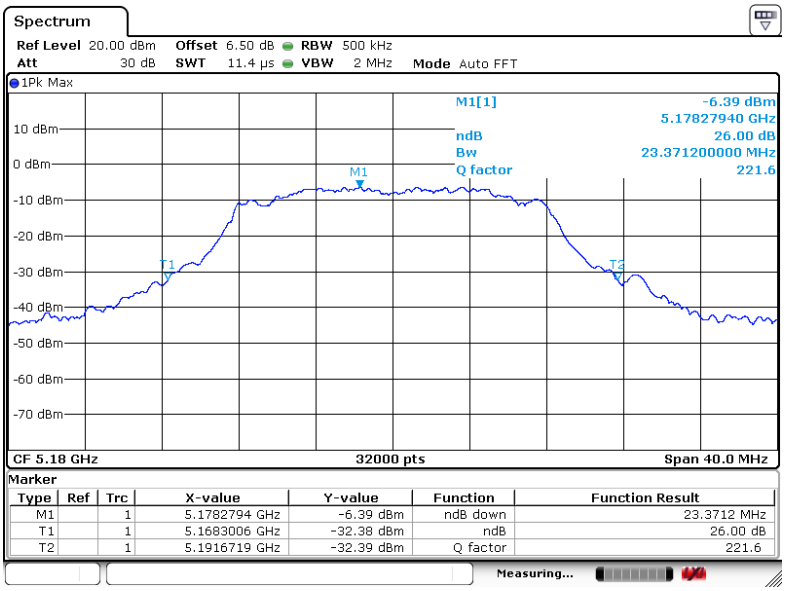


Channel: 140

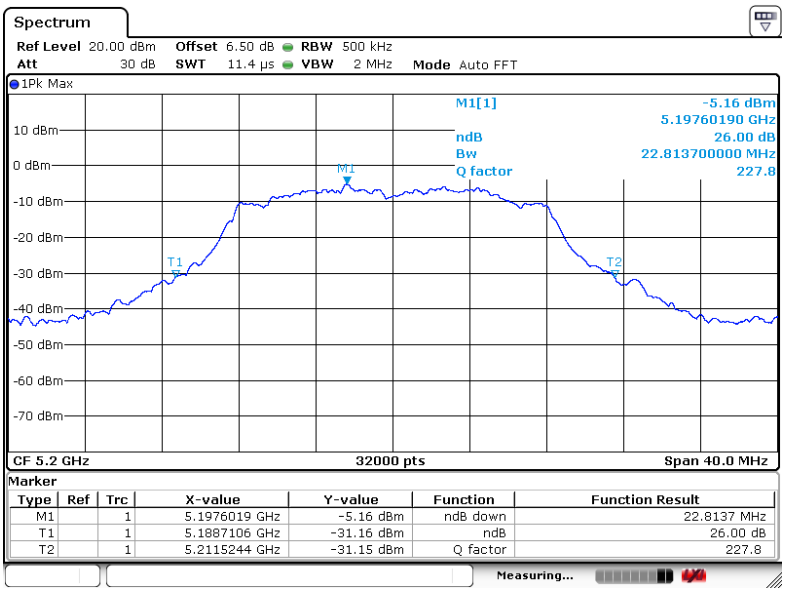

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1] -5.61 dBm
5.24262560 GHz
ndB 26.00 dB
Bw 23.192500000 MHz
Q factor 226.0
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2426256 GHz -5.61 dBm ndB down 23.1925 MHz
T1 1 5.2285131 GHz -31.62 dBm ndB 26.00 dB
T2 1 5.2517056 GHz -31.61 dBm Q factor 226.0
Measuring...

26dB BW 802.11ac20

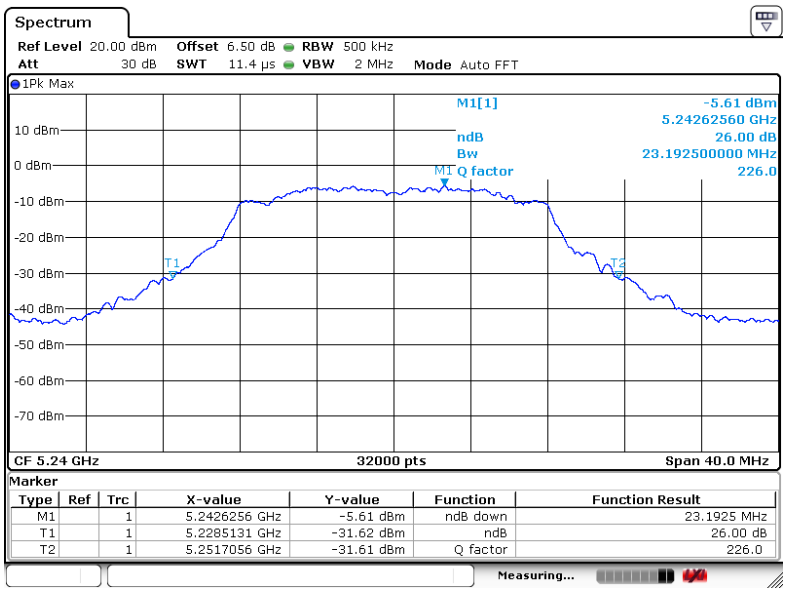
Channel: 36



Channel: 44

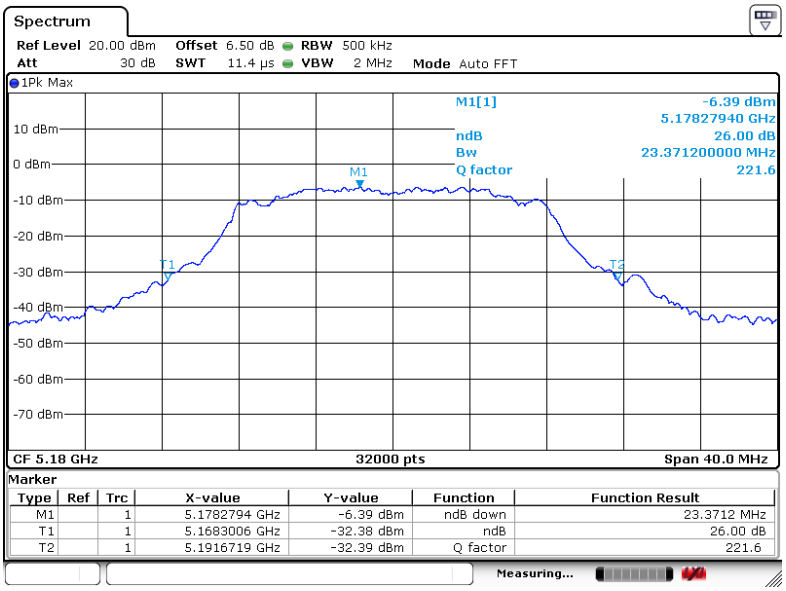


Channel: 48

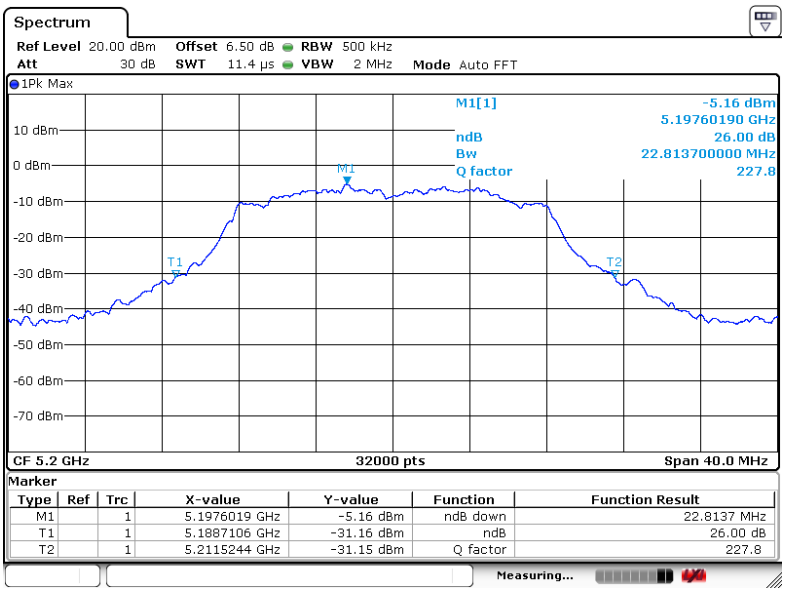

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1] -5.61 dBm
5.24262560 GHz
ndB 26.00 dB
Bw 23.192500000 MHz
Q factor 226.0
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2426256 GHz -5.61 dBm ndB down 23.1925 MHz
T1 1 5.2285131 GHz -31.62 dBm ndB 26.00 dB
T2 1 5.2517056 GHz -31.61 dBm Q factor 226.0
Measuring...

26dB BW 802.11ac20

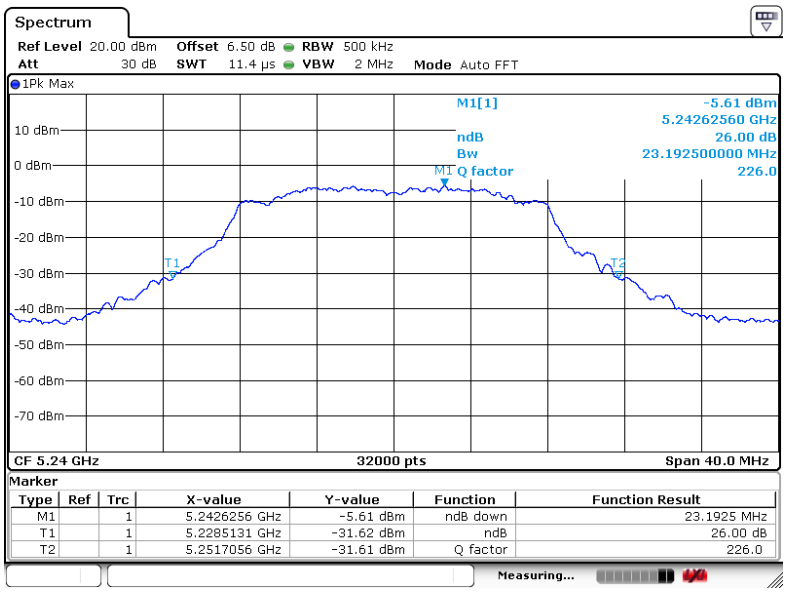
Channel: 52



Channel: 56

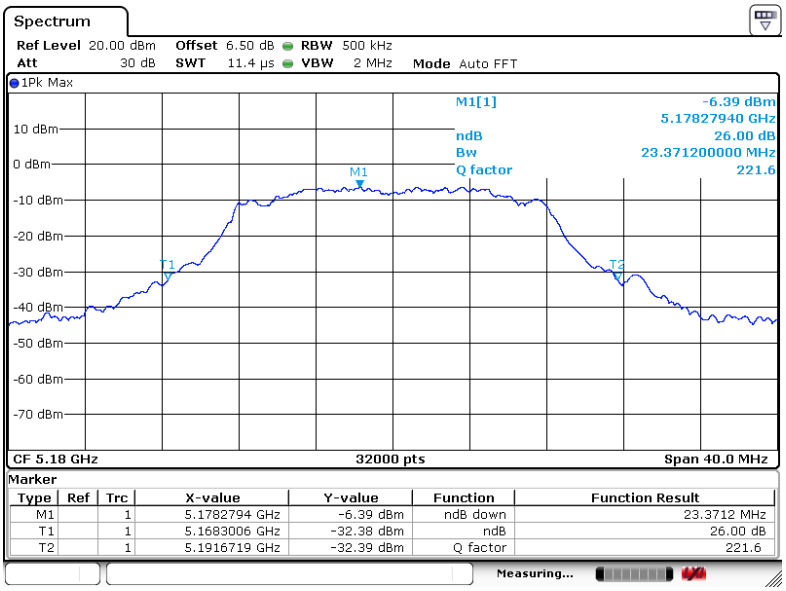


Channel: 64

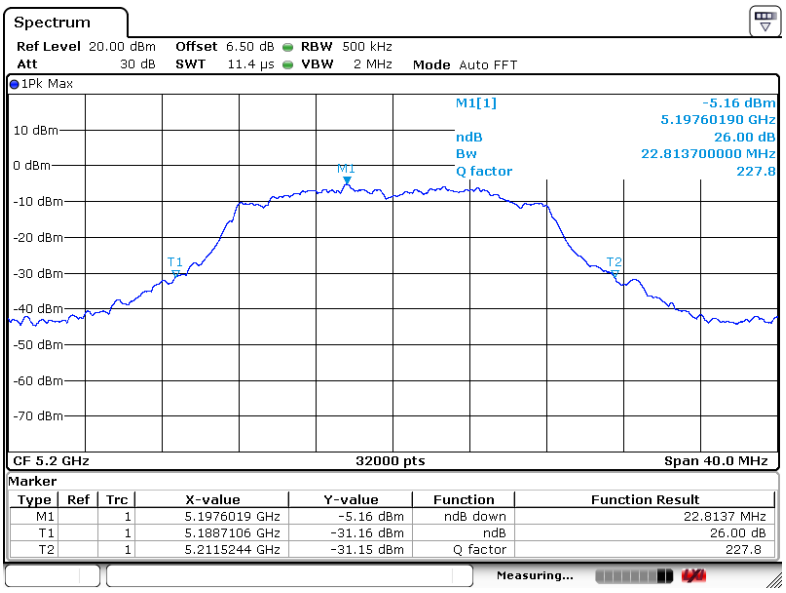

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1] -5.61 dBm
5.24262560 GHz
ndB 26.00 dB
Bw 23.192500000 MHz
Q factor 226.0
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2426256 GHz -5.61 dBm ndB down 23.1925 MHz
T1 1 5.2285131 GHz -31.62 dBm ndB 26.00 dB
T2 1 5.2517056 GHz -31.61 dBm Q factor 226.0
Measuring...

26dB BW 802.11ac20

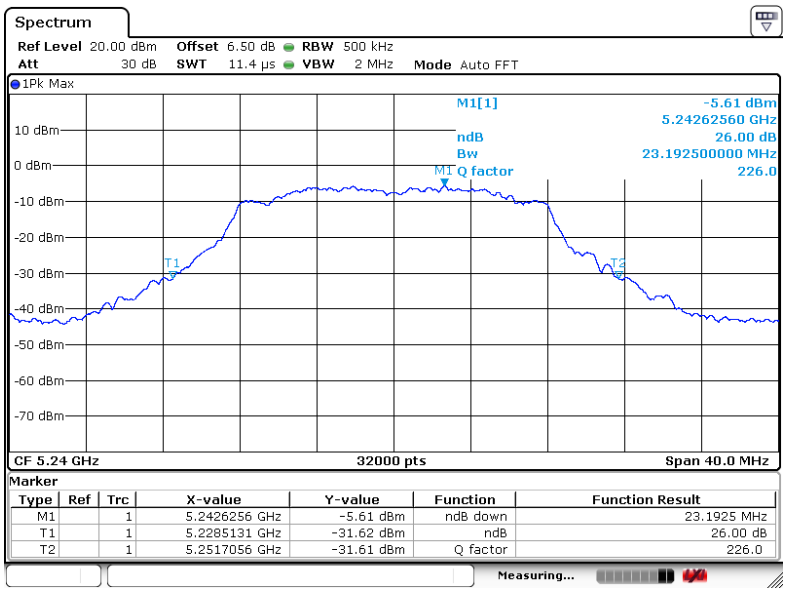
Channel: 100



Channel: 120

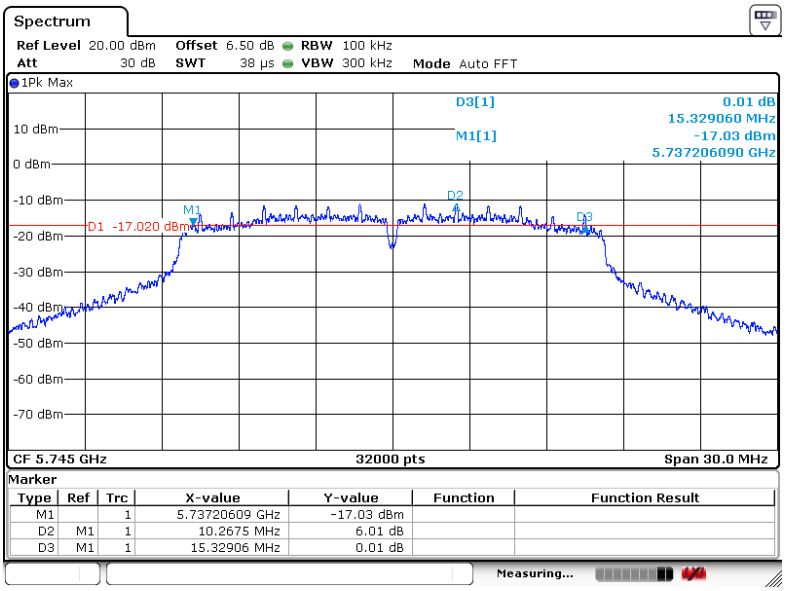


Channel: 140

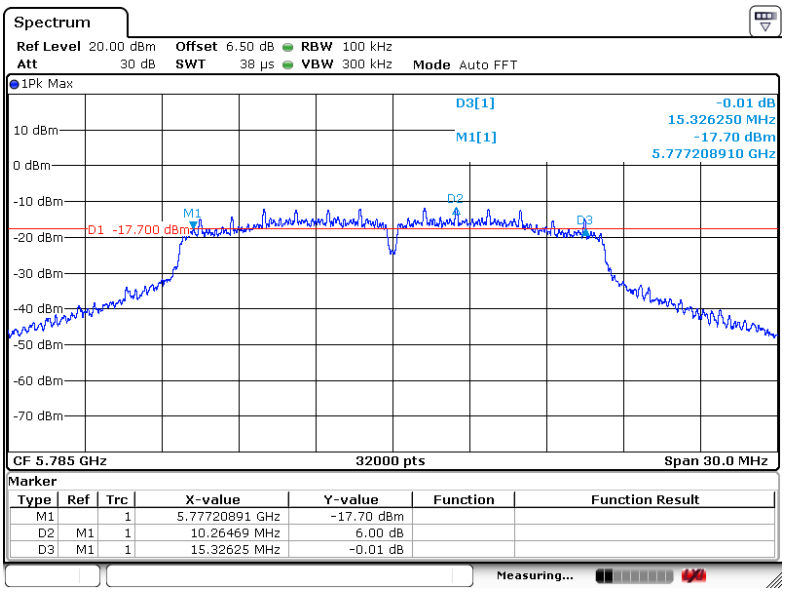

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 11.4 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1] -5.61 dBm
5.24262560 GHz
ndB 26.00 dB
Bw 23.192500000 MHz
Q factor 226.0
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 5.24 GHz
32000 pts
Span 40.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2426256 GHz -5.61 dBm ndB down 23.1925 MHz
T1 1 5.2285131 GHz -31.62 dBm ndB 26.00 dB
T2 1 5.2517056 GHz -31.61 dBm Q factor 226.0
Measuring...

6dB BW 802.11a

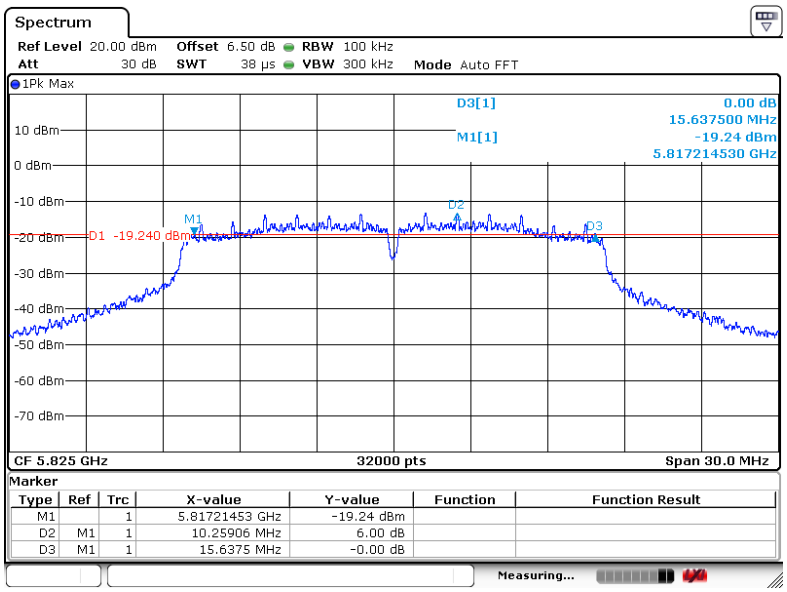
Channel: 149



Channel: 157

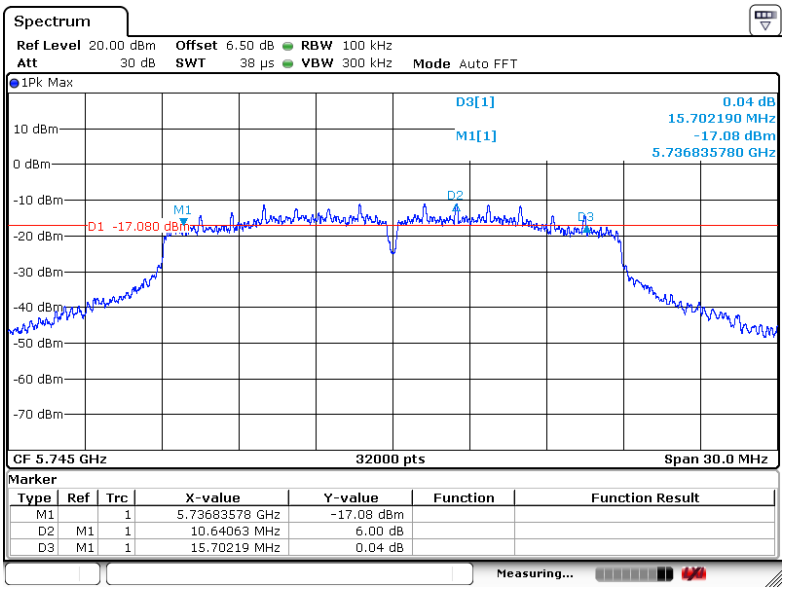


Channel: 165

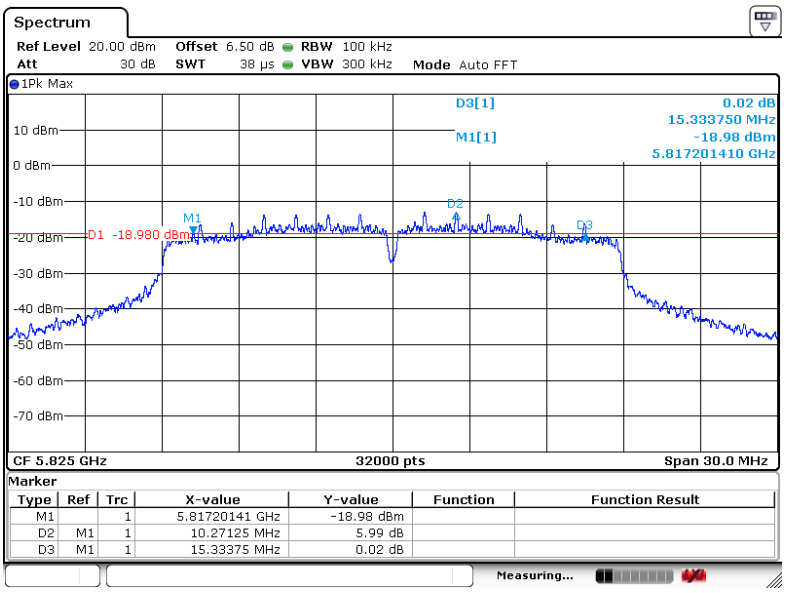

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 100 kHz
Att 30 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
D3[1] 0.00 dB
15.637500 MHz
M1[1] -19.24 dBm
5.817214530 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D2
D3
D1 -19.240 dBm
CF 5.825 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.81721453 GHz -19.24 dBm
D2 M1 1 10.25906 MHz 6.00 dB
D3 M1 1 15.6375 MHz -0.00 dB
Measuring...

6dB BW 802.11n20

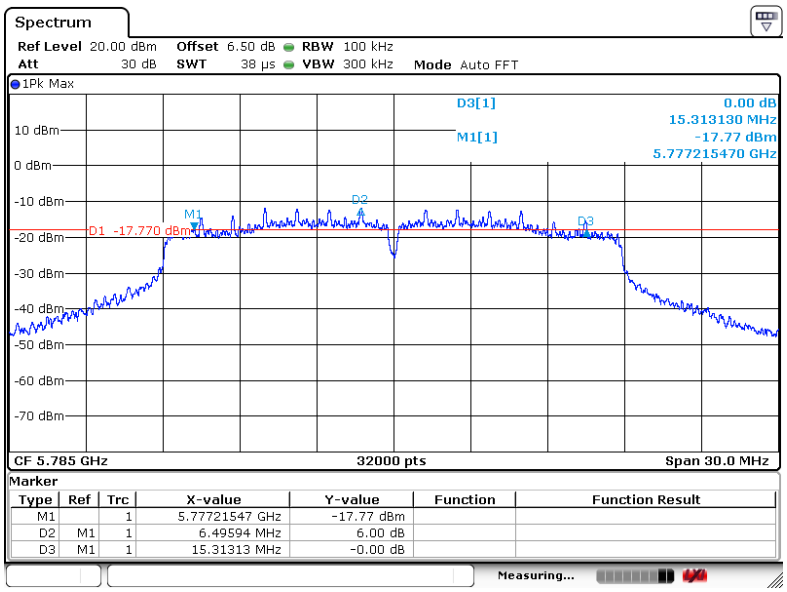
Channel: 149



Channel: 157

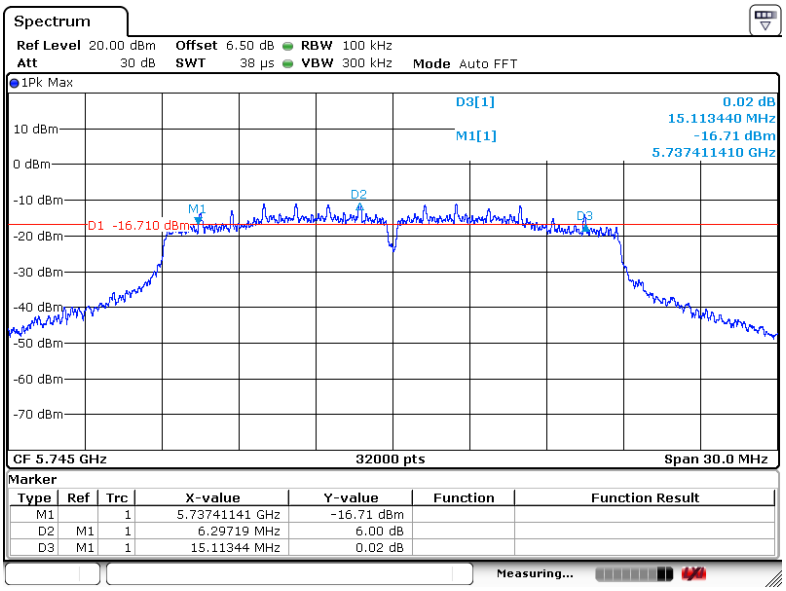


Channel: 165

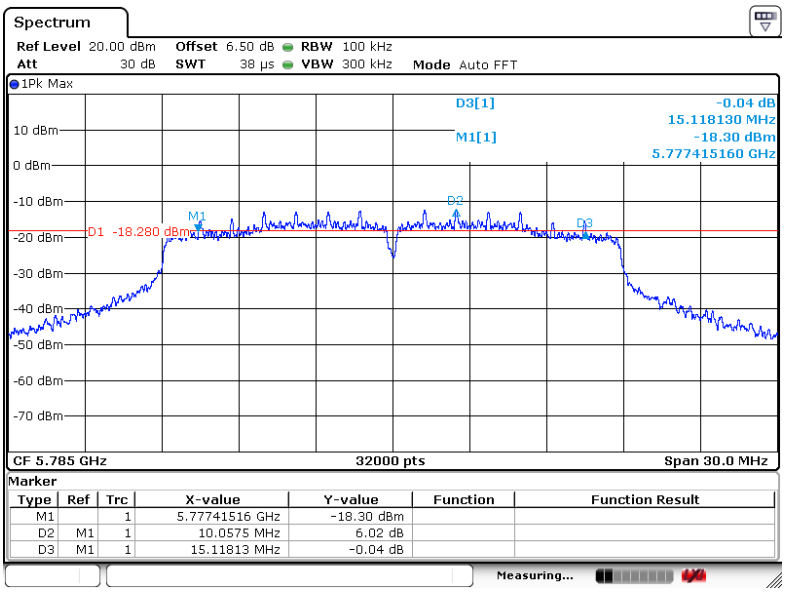

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 100 kHz
Att 30 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
D3[1] 0.00 dB
15.313130 MHz
M1[1] -17.77 dBm
5.777215470 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
D1 -17.770 dBm
M1
D2
D3
CF 5.785 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.77721547 GHz -17.77 dBm
D2 M1 1 6.49594 MHz 6.00 dB
D3 M1 1 15.31313 MHz -0.00 dB
Measuring...

6dB BW 802.11ac20

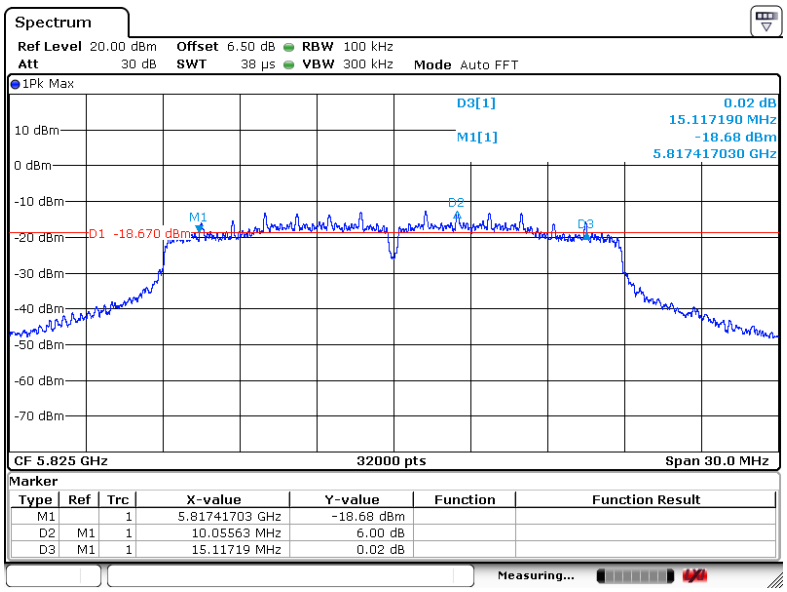
Channel: 149



Channel: 157

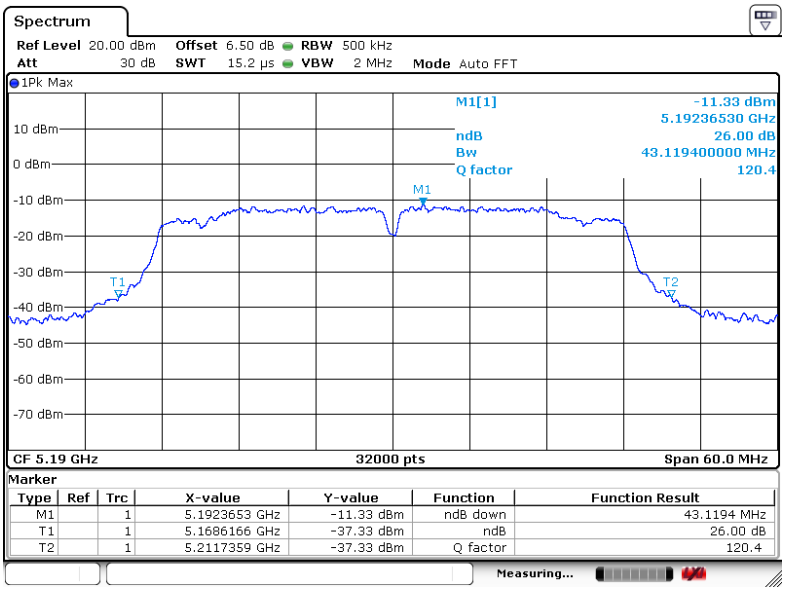


Channel: 165

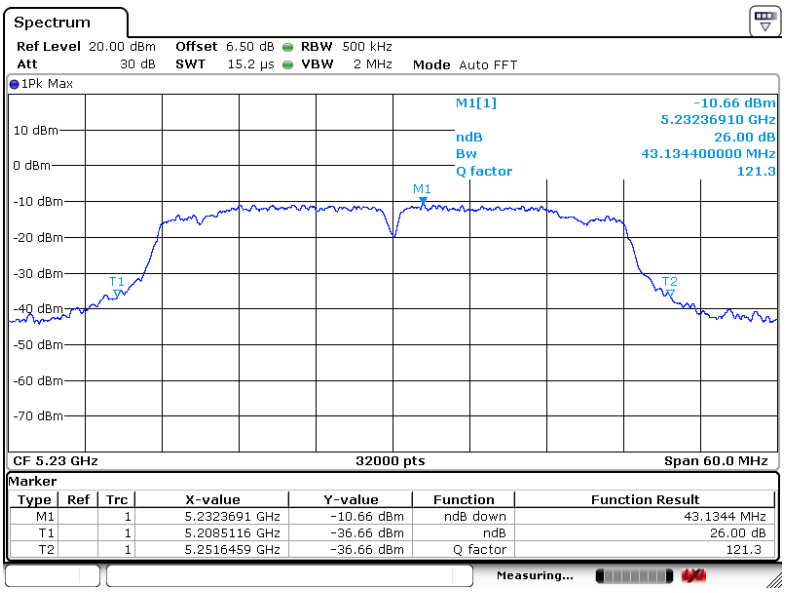

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 100 kHz
Att 30 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
D3[1] 0.02 dB
15.117190 MHz
M1[1] -18.68 dBm
5.817417030 GHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
D1 -18.670 dBm
M1
D2
D3
CF 5.825 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.81741703 GHz -18.68 dBm
D2 M1 1 10.05563 MHz 6.00 dB
D3 M1 1 15.11719 MHz 0.02 dB
Measuring...

26dB BW 802.11n40

Channel: 38

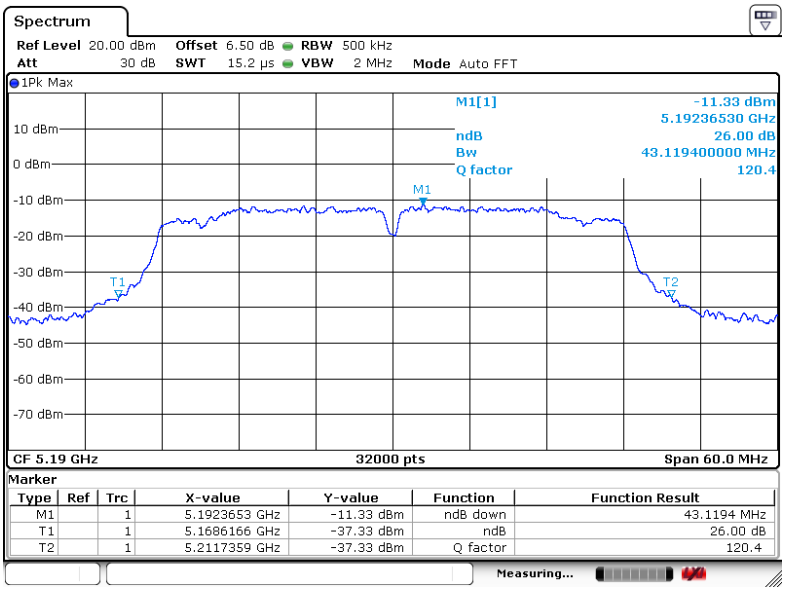


Channel: 46

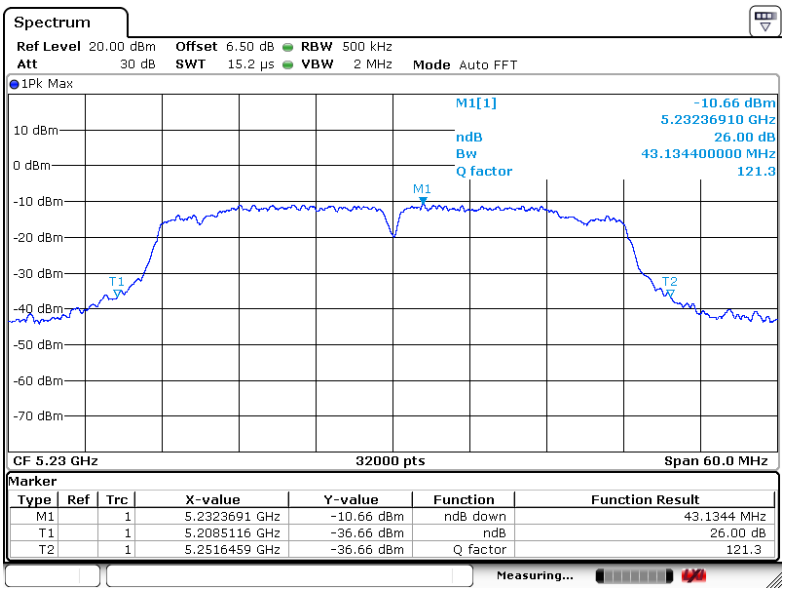


26dB BW 802.11n40

Channel: 54

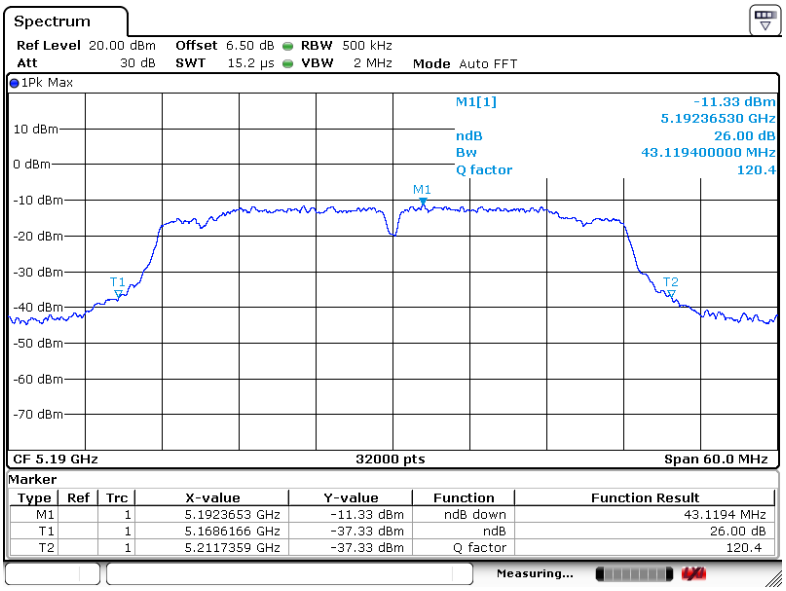


Channel: 62

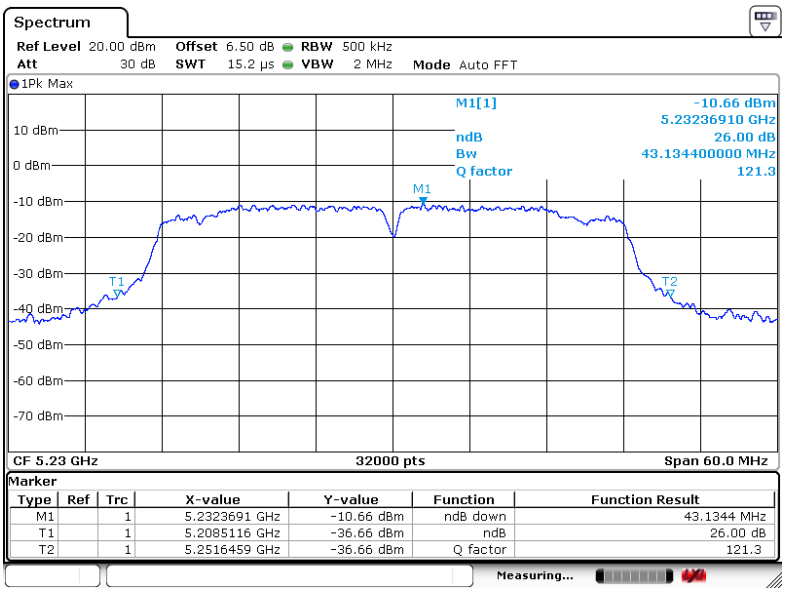


26dB BW 802.11n40

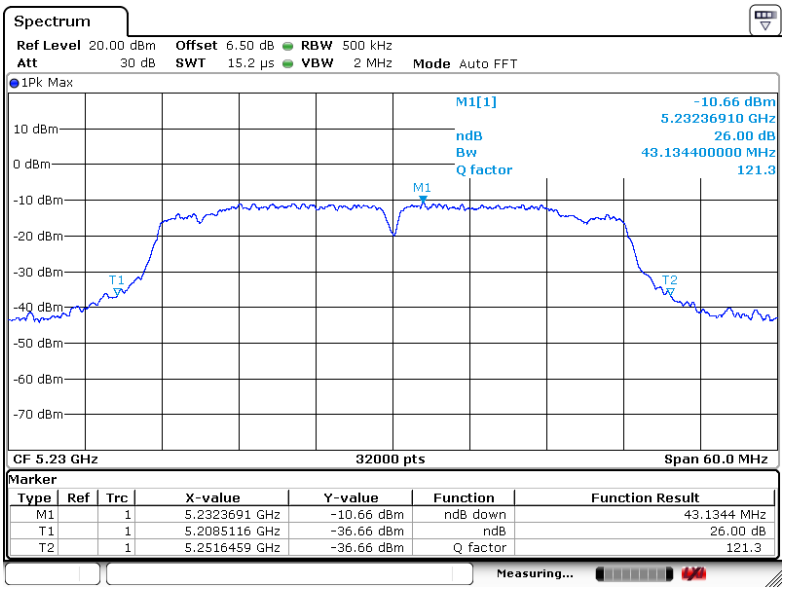
Channel: 62



Channel: 118

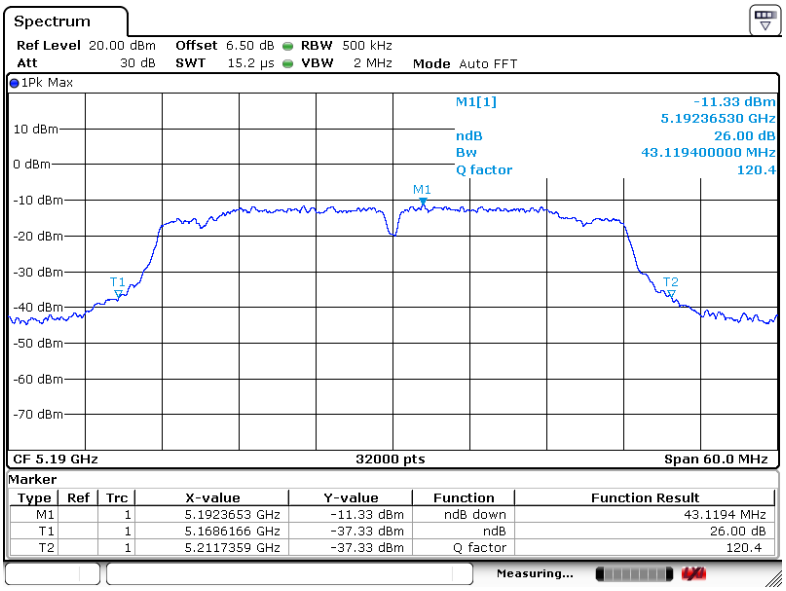


Channel: 134

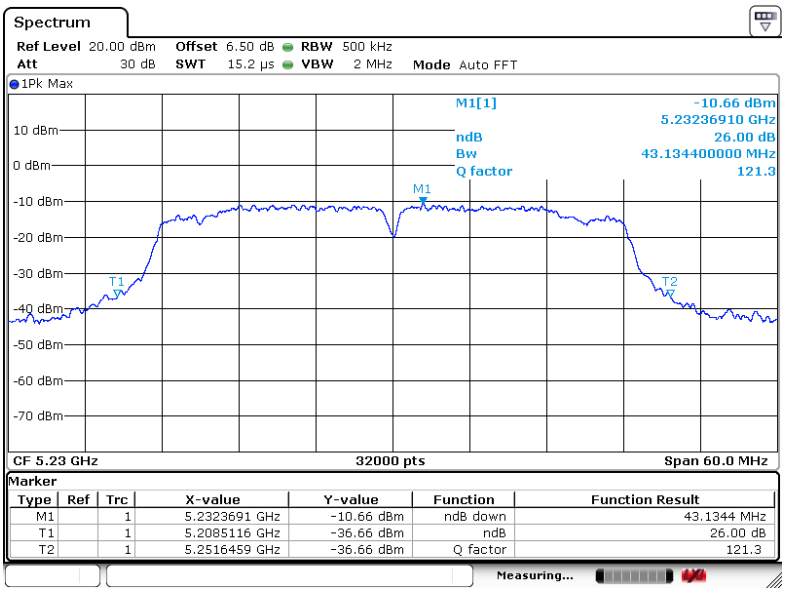

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 15.2 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1] -10.66 dBm
5.23236910 GHz
ndB 26.00 dB
Bw 43.134400000 MHz
Q factor 121.3
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.23 GHz
32000 pts
Span 60.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2323691 GHz -10.66 dBm ndB down 43.1344 MHz
T1 1 5.2085116 GHz -36.66 dBm ndB 26.00 dB
T2 1 5.2516459 GHz -36.66 dBm Q factor 121.3
Measuring...

26dB BW 802.11ac40

Channel: 38

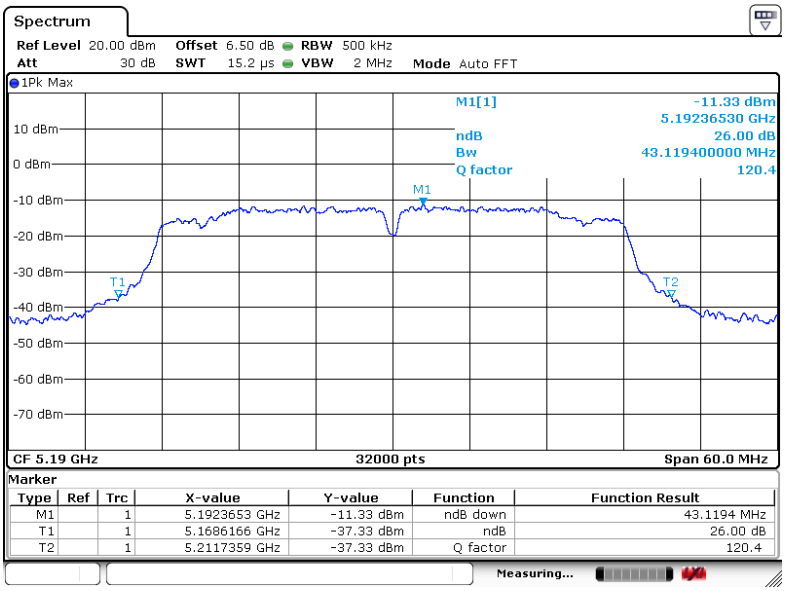


Channel: 46

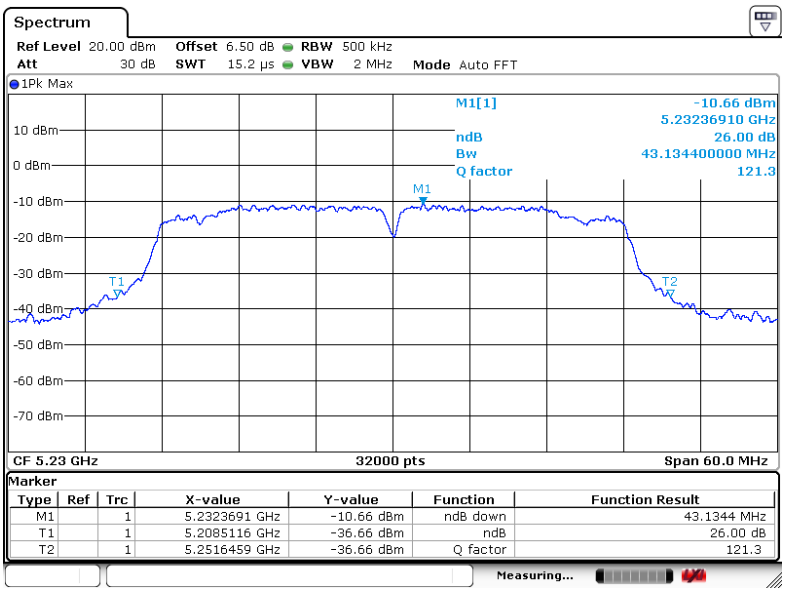


26dB BW 802.11ac40

Channel: 54

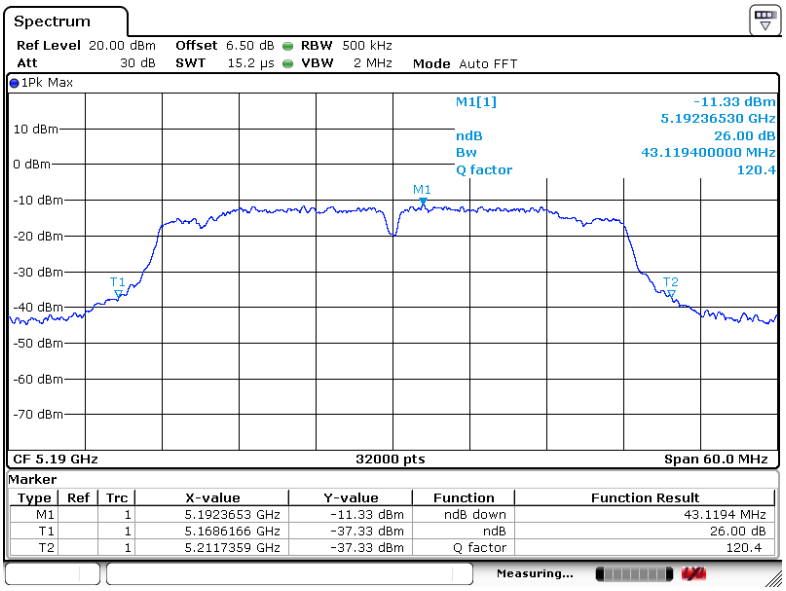


Channel: 62

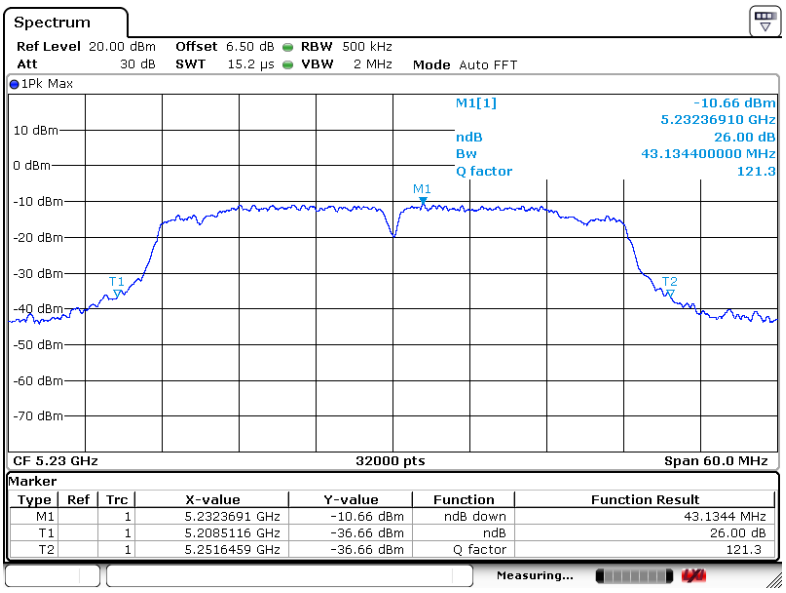


26dB BW 802.11ac40

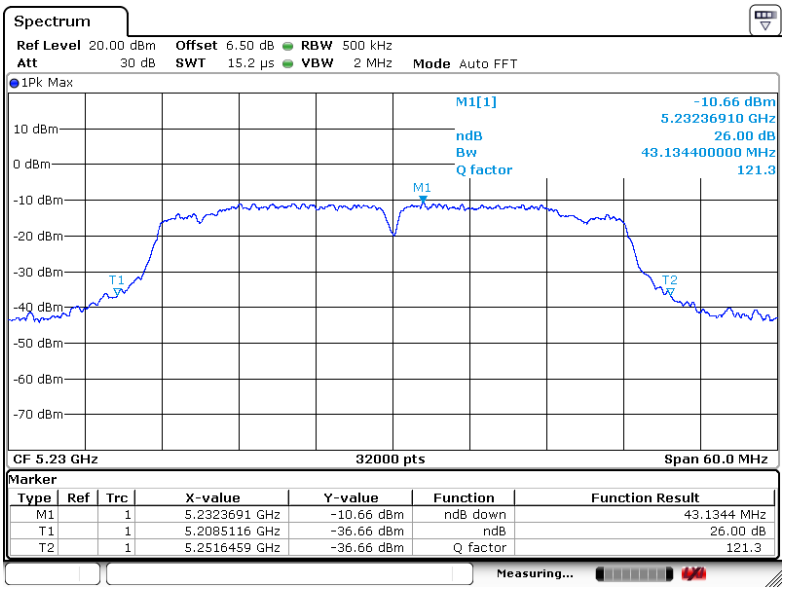
Channel: 62



Channel: 118

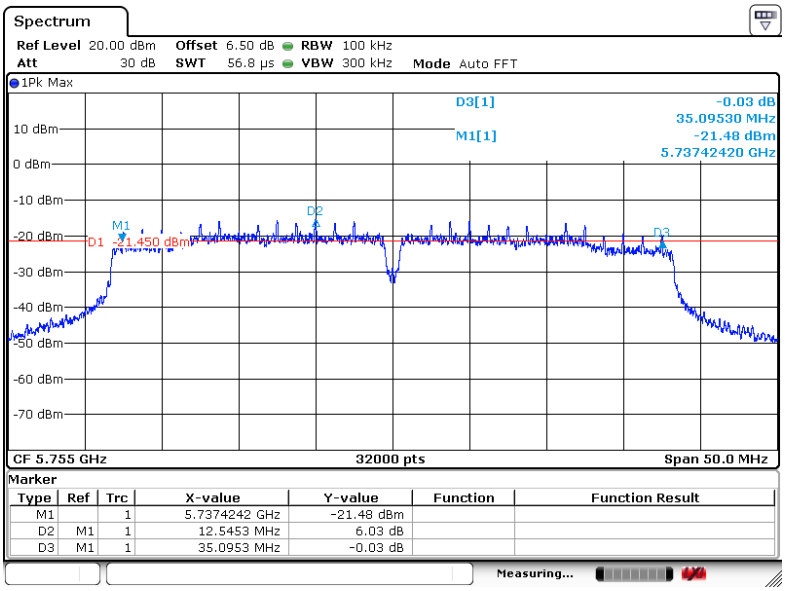


Channel: 134

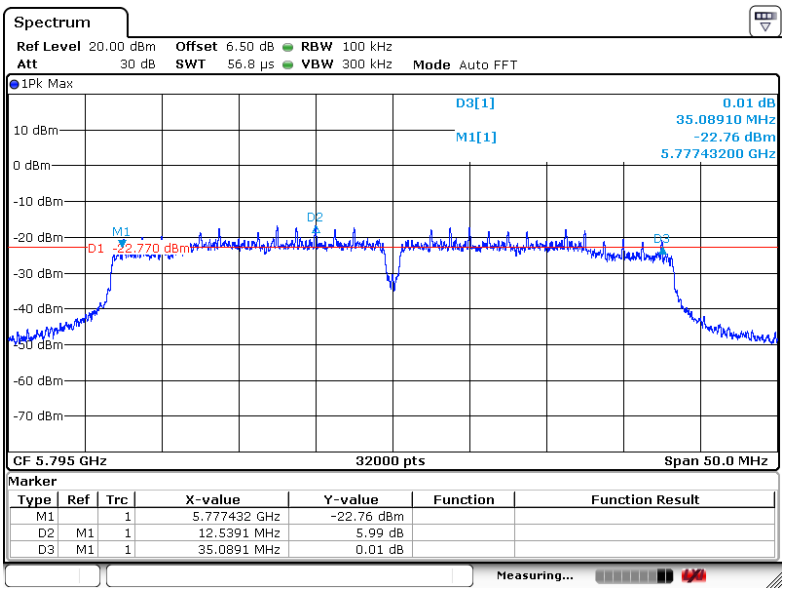

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 15.2 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1] -10.66 dBm
5.23236910 GHz
ndB 26.00 dB
Bw 43.134400000 MHz
Q factor 121.3
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.23 GHz
32000 pts
Span 60.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2323691 GHz -10.66 dBm ndB down 43.1344 MHz
T1 1 5.2085116 GHz -36.66 dBm ndB 26.00 dB
T2 1 5.2516459 GHz -36.66 dBm Q factor 121.3
Measuring...

6dB BW 802.11n40

Channel: 151

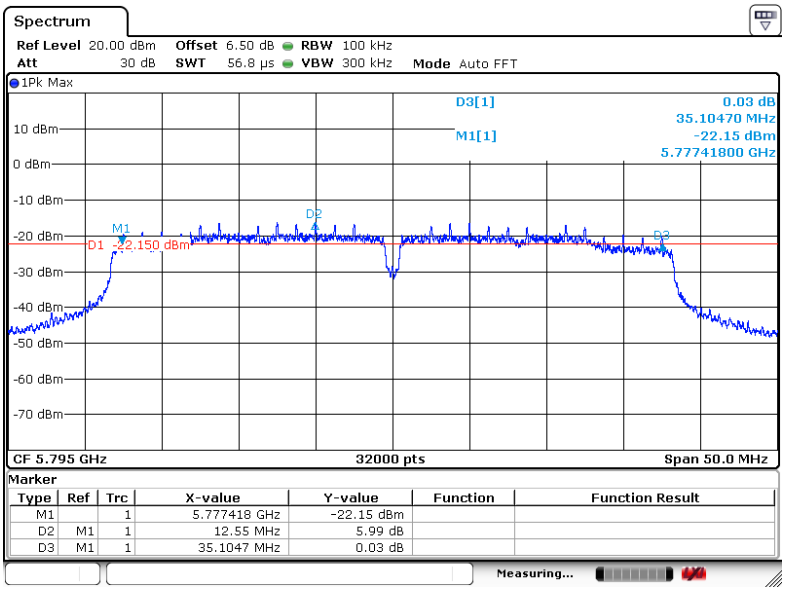


Channel: 159

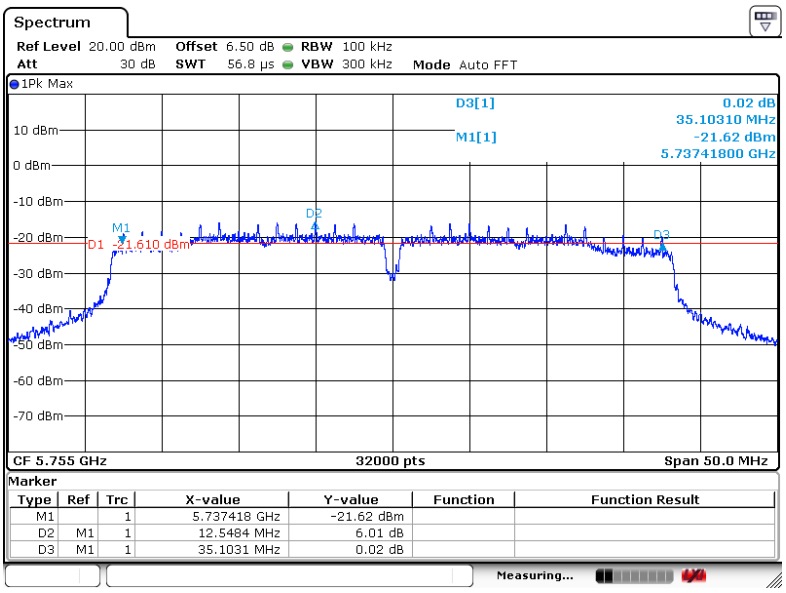


6dB BW 802.11ac40

Channel: 151

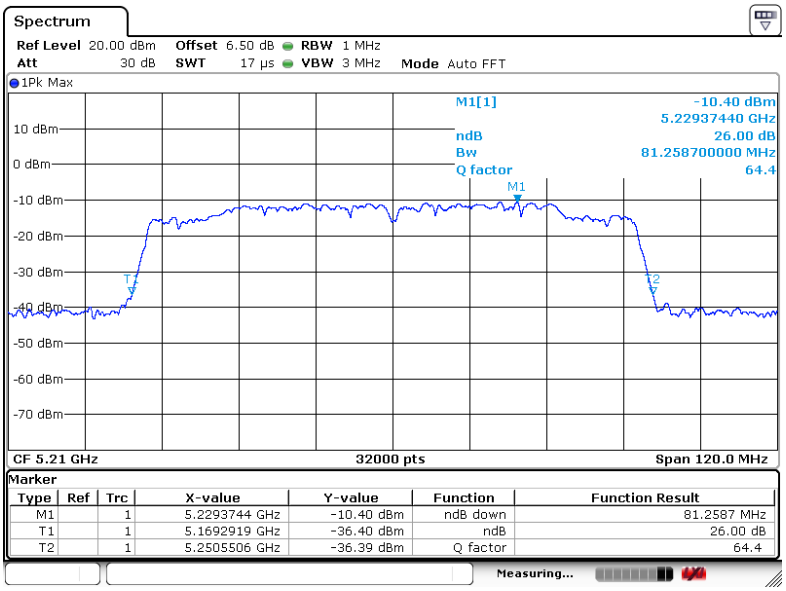


Channel: 159

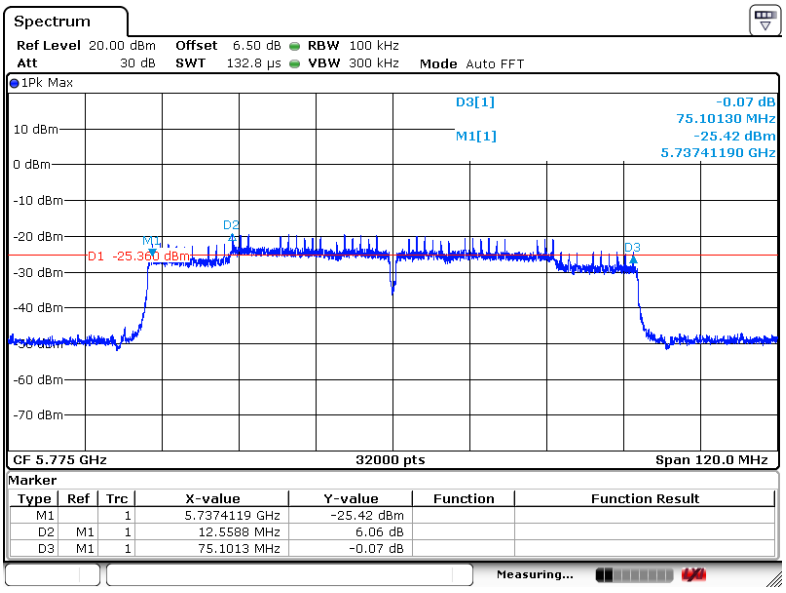


26dB BW 802.11ac80

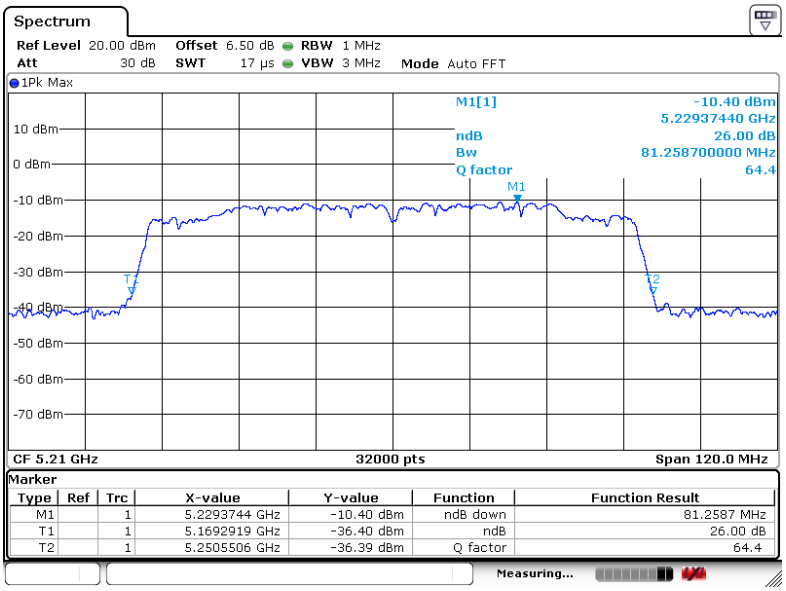
Channel:42



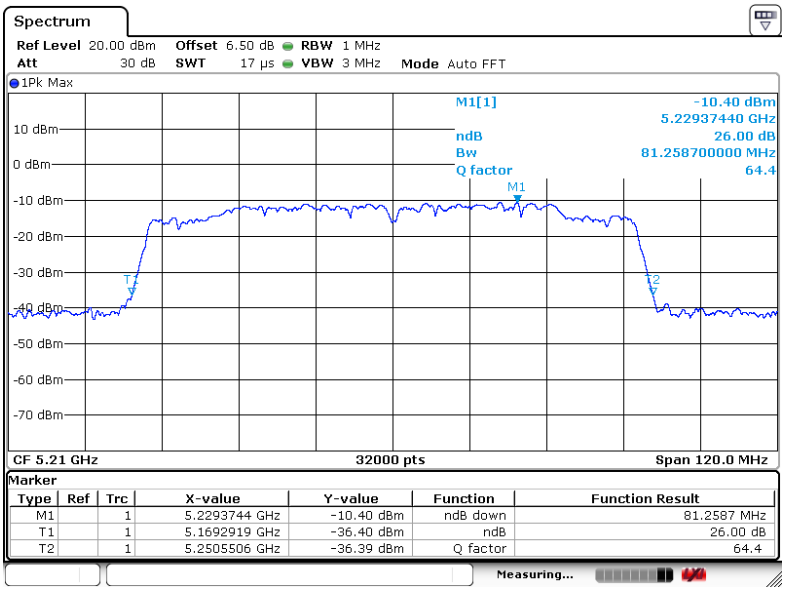
Channel: 58



Channel:106

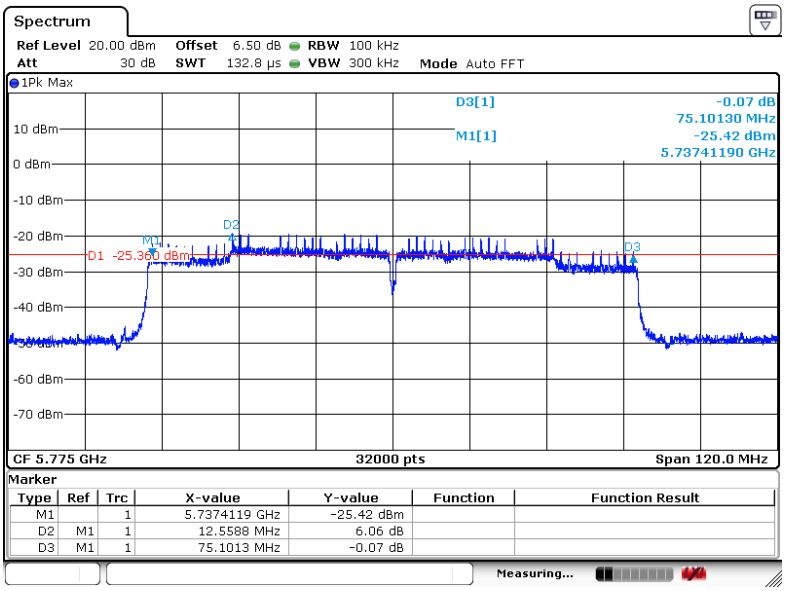


Channel: 122



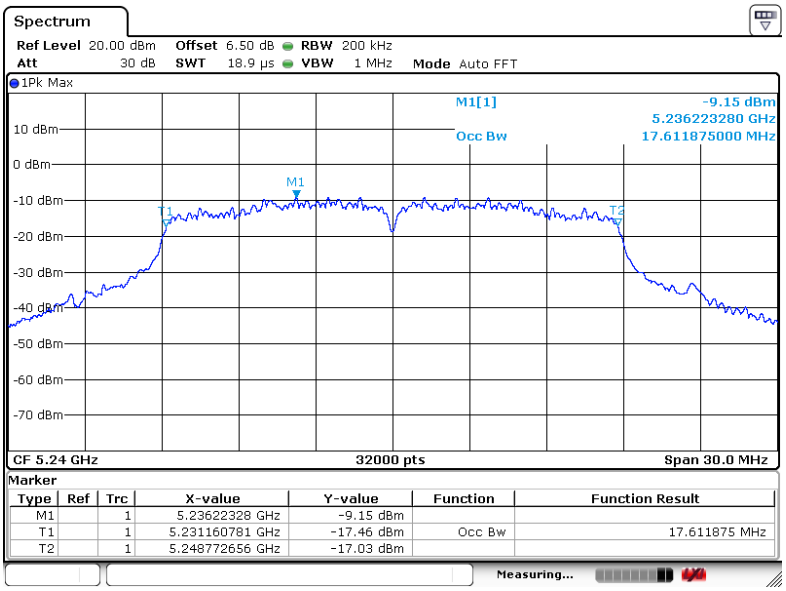
6dB BW 802.11ac80

Channel: 155

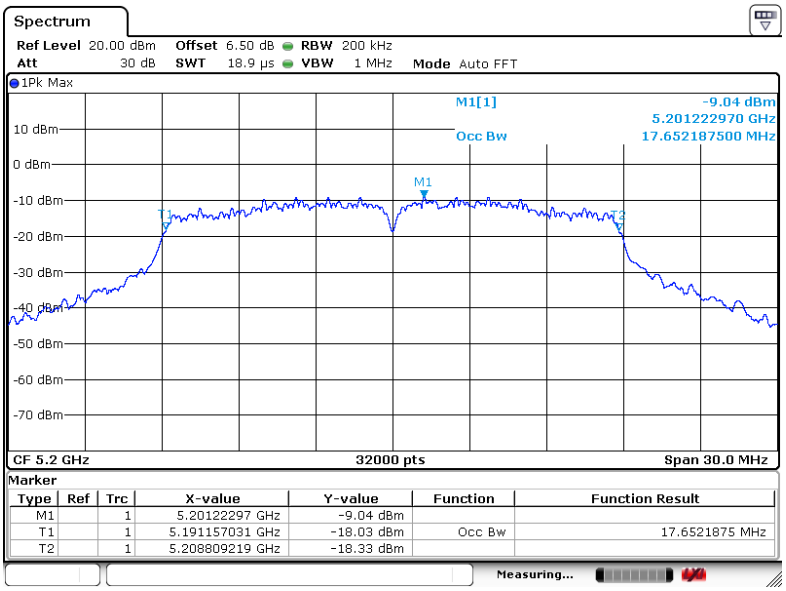


99% OBW 802.11a

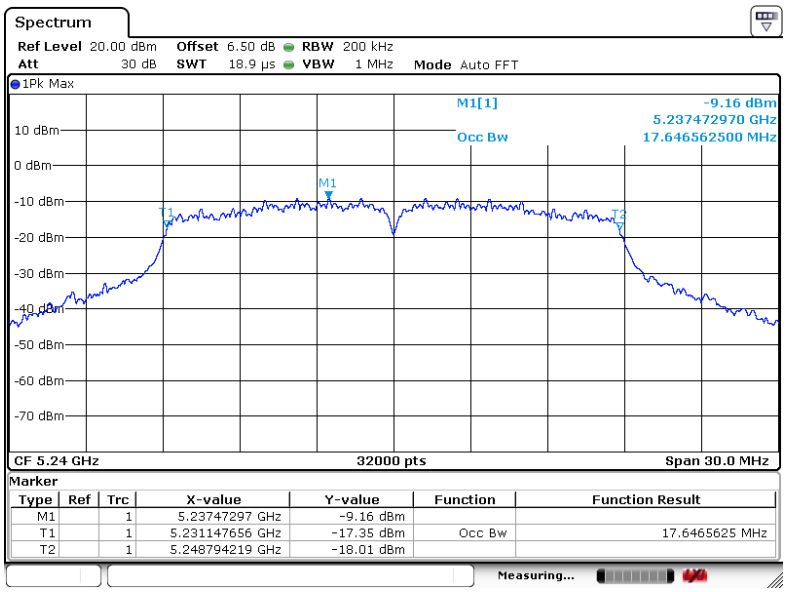
Channel: 36



Channel: 44

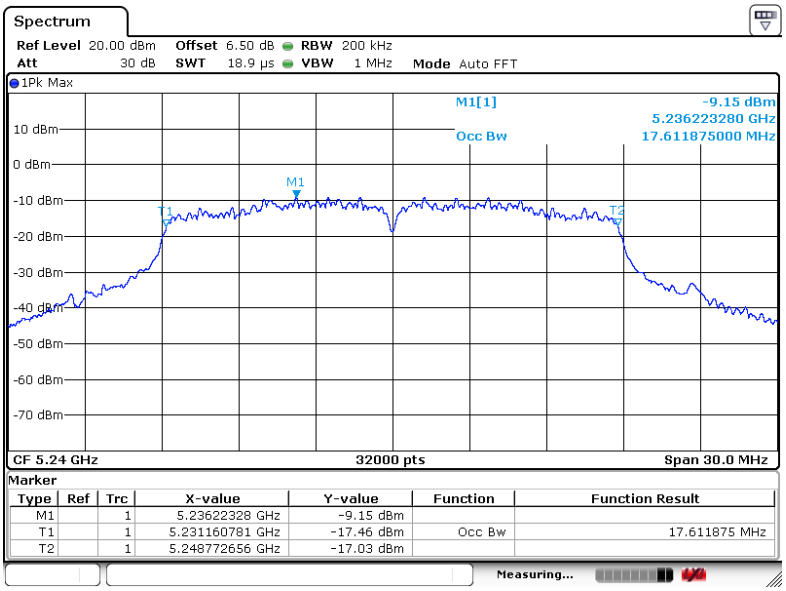


Channel: 48

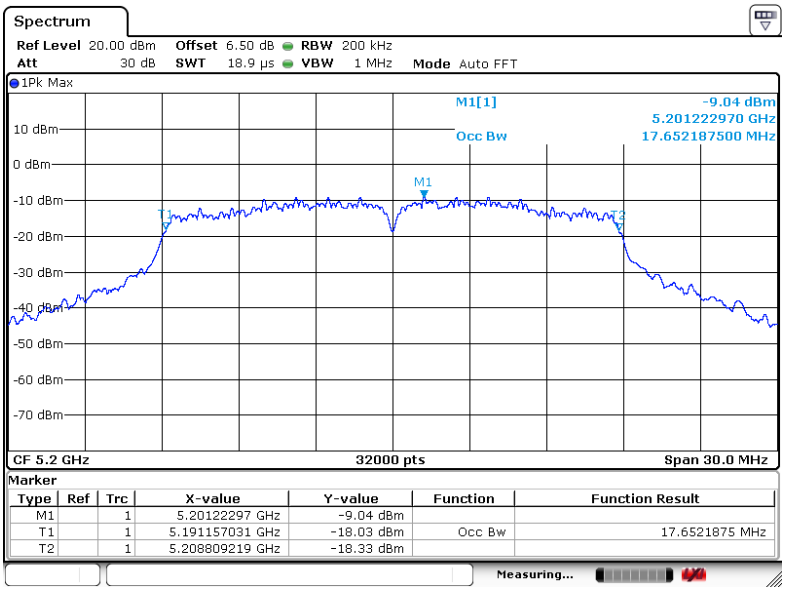

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 200 kHz
Att 30 dB SWT 18.9 µs VBW 1 MHz Mode Auto FFT
1Pk Max
M1[1] -9.16 dBm
5.237472970 GHz
Occ Bw 17.646562500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.24 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.23747297 GHz -9.16 dBm
T1 1 5.231147656 GHz -17.35 dBm Occ Bw 17.6465625 MHz
T2 1 5.248794219 GHz -18.01 dBm
Measuring...

99% OBW 802.11a

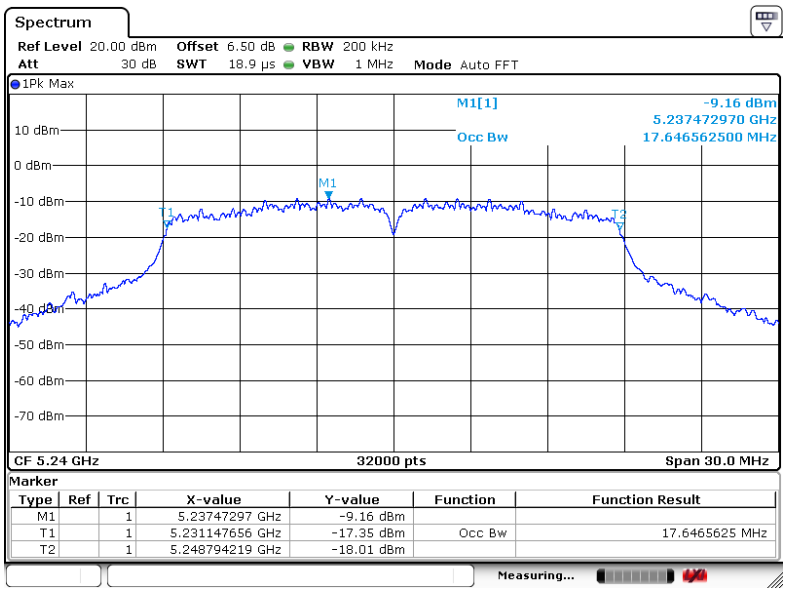
Channel: 52



Channel: 56

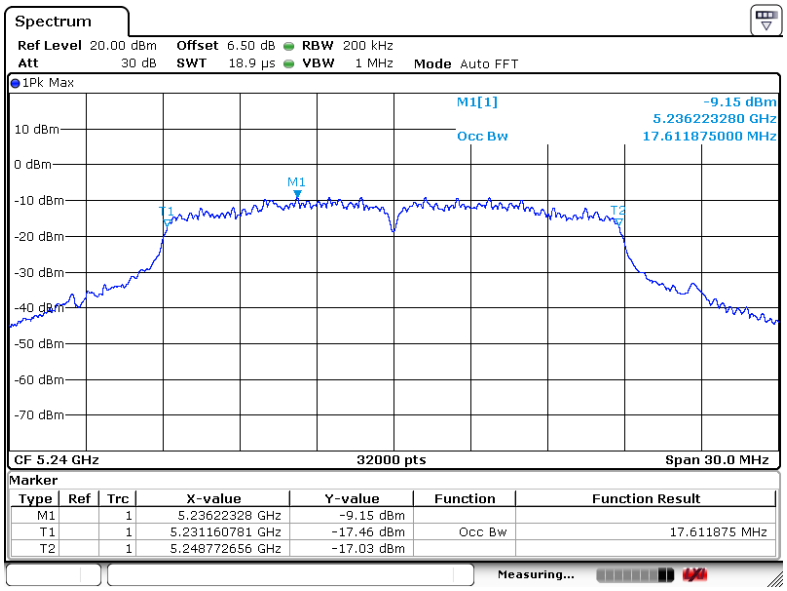


Channel: 64

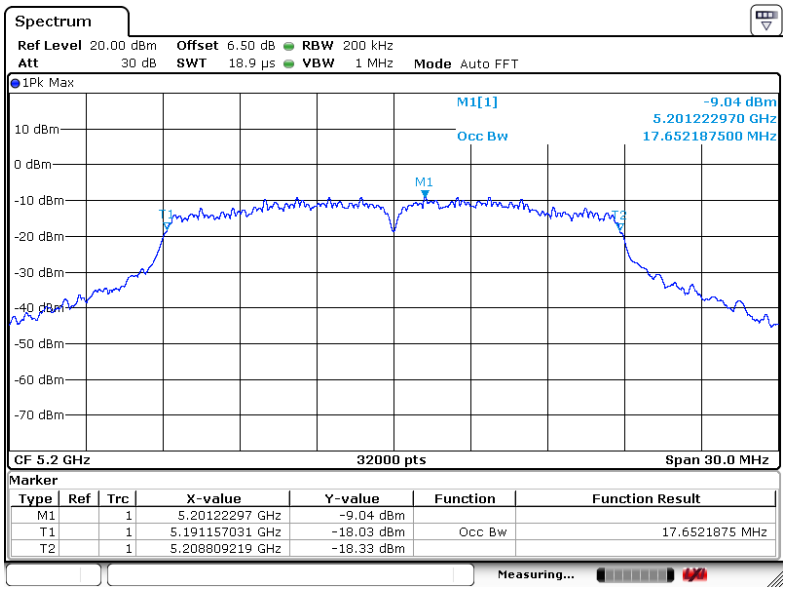

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 200 kHz
Att 30 dB SWT 18.9 µs VBW 1 MHz Mode Auto FFT
1Pk Max
M1[1] -9.16 dBm
5.237472970 GHz
Occ Bw 17.646562500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.24 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.23747297 GHz -9.16 dBm
T1 1 5.231147656 GHz -17.35 dBm Occ Bw 17.6465625 MHz
T2 1 5.248794219 GHz -18.01 dBm
Measuring...

99% OBW 802.11a

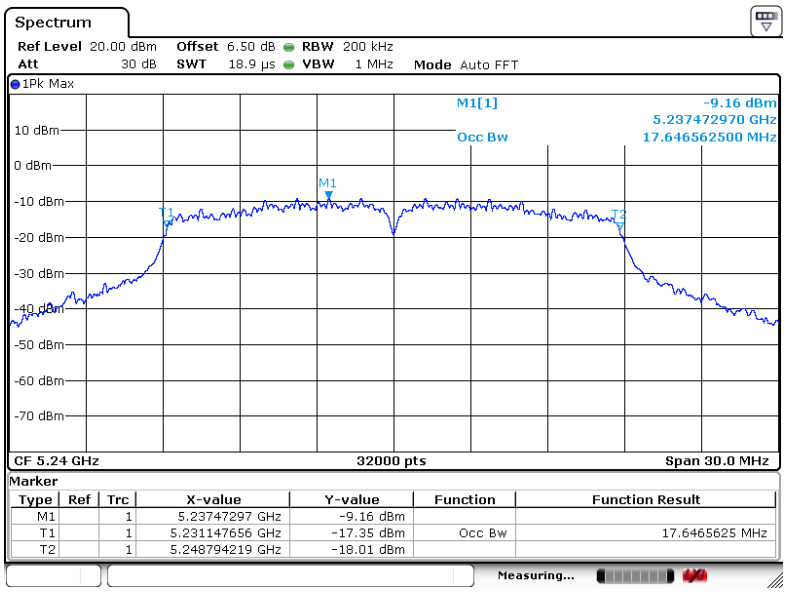
Channel: 100



Channel: 120

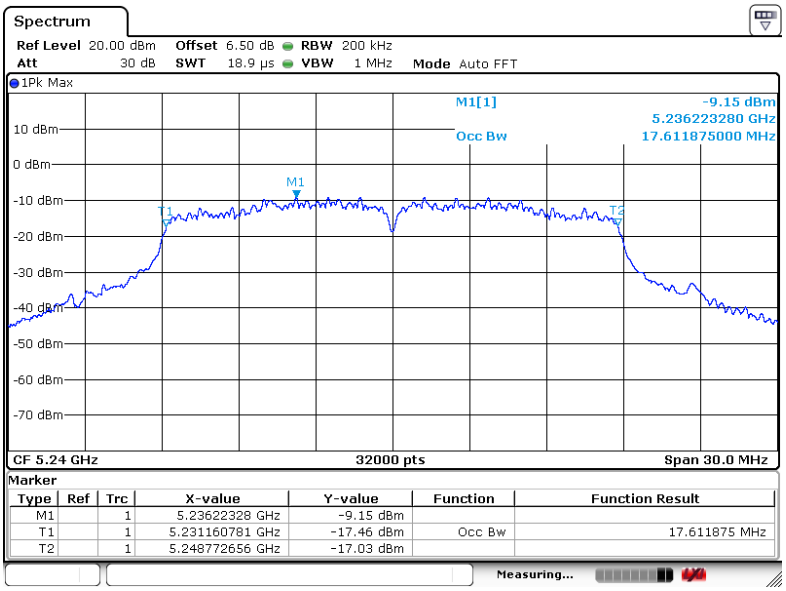


Channel: 140

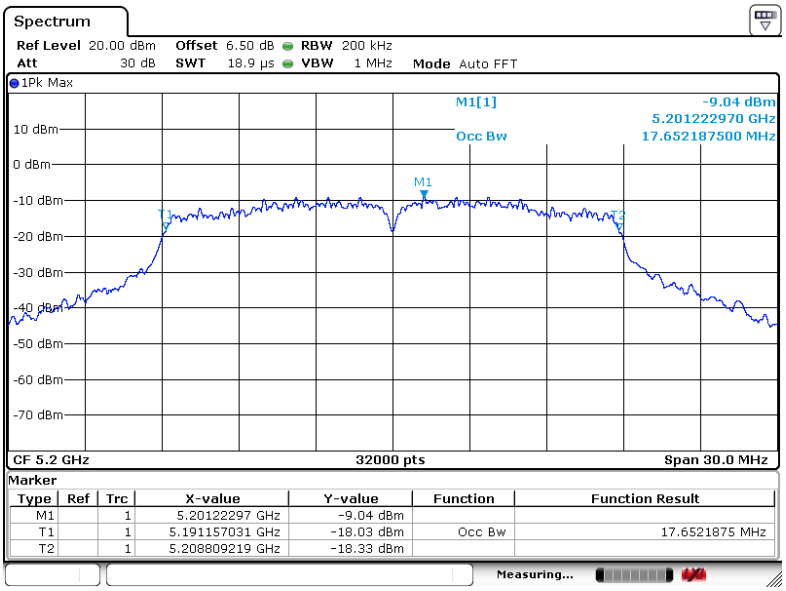

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 200 kHz
Att 30 dB SWT 18.9 µs VBW 1 MHz Mode Auto FFT
1Pk Max
M1[1] -9.16 dBm
5.237472970 GHz
Occ Bw 17.646562500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.24 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.23747297 GHz -9.16 dBm
T1 1 5.231147656 GHz -17.35 dBm Occ Bw 17.6465625 MHz
T2 1 5.248794219 GHz -18.01 dBm
Measuring...

99% OBW 802.11n20

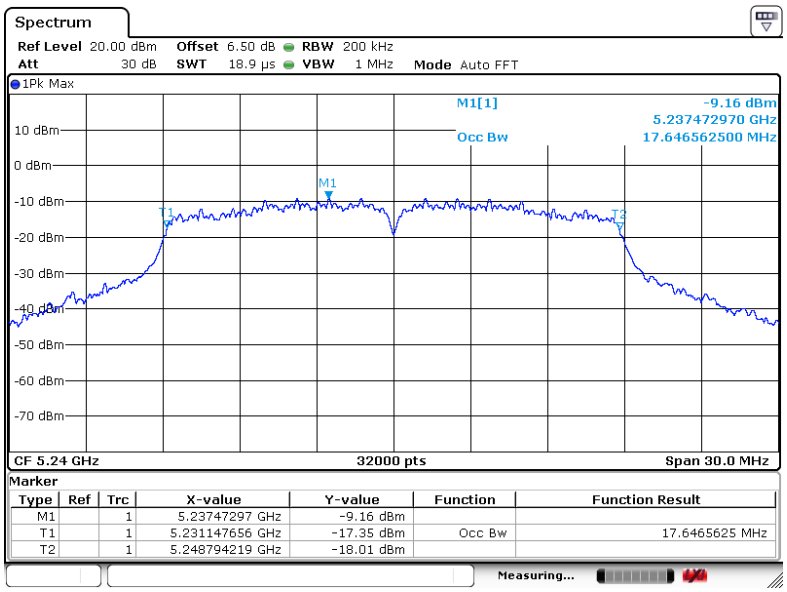
Channel: 36



Channel: 44

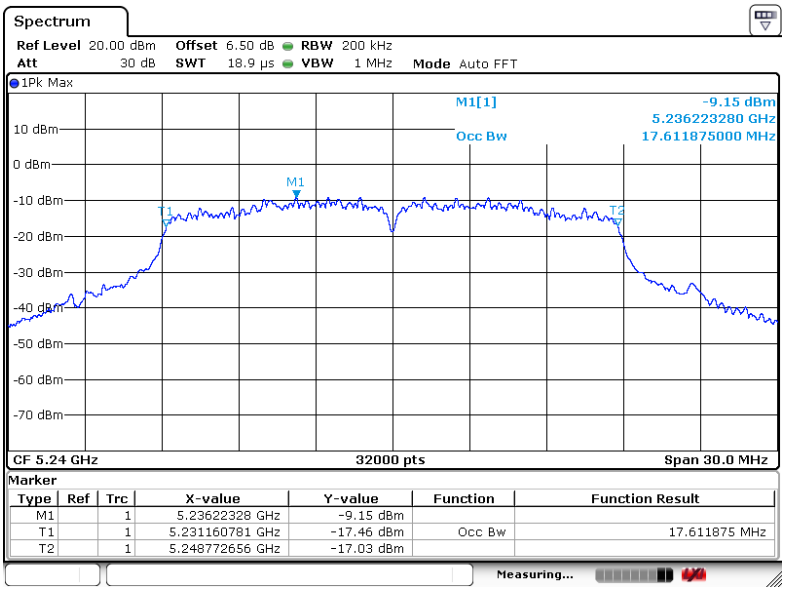


Channel: 48

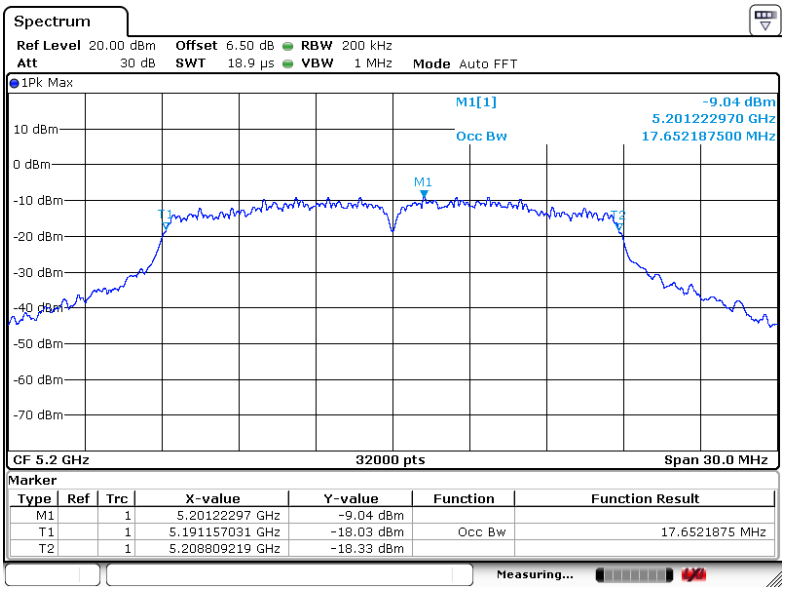

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 200 kHz
Att 30 dB SWT 18.9 µs VBW 1 MHz Mode Auto FFT
1Pk Max
M1[1] -9.16 dBm
5.237472970 GHz
Occ Bw 17.646562500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.24 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.23747297 GHz -9.16 dBm
T1 1 5.231147656 GHz -17.35 dBm Occ Bw 17.6465625 MHz
T2 1 5.248794219 GHz -18.01 dBm
Measuring...

99% OBW 802.11n20

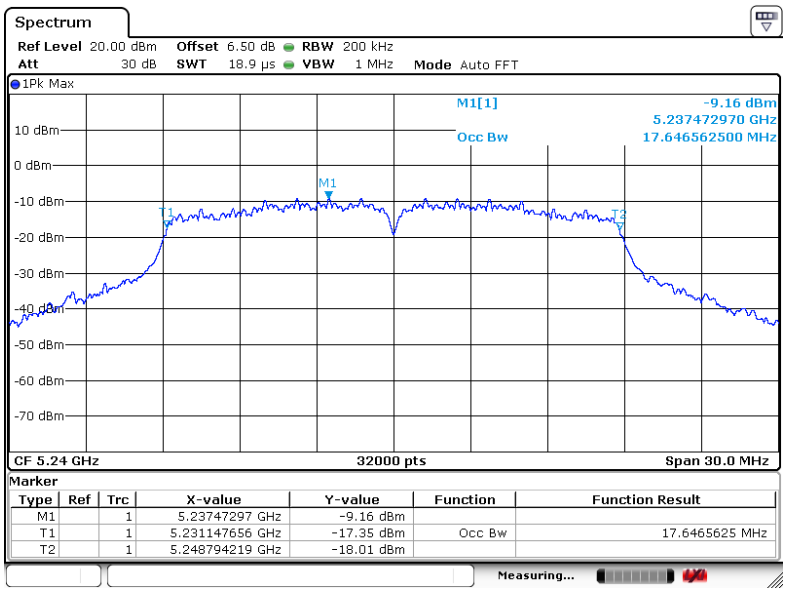
Channel: 52



Channel: 56

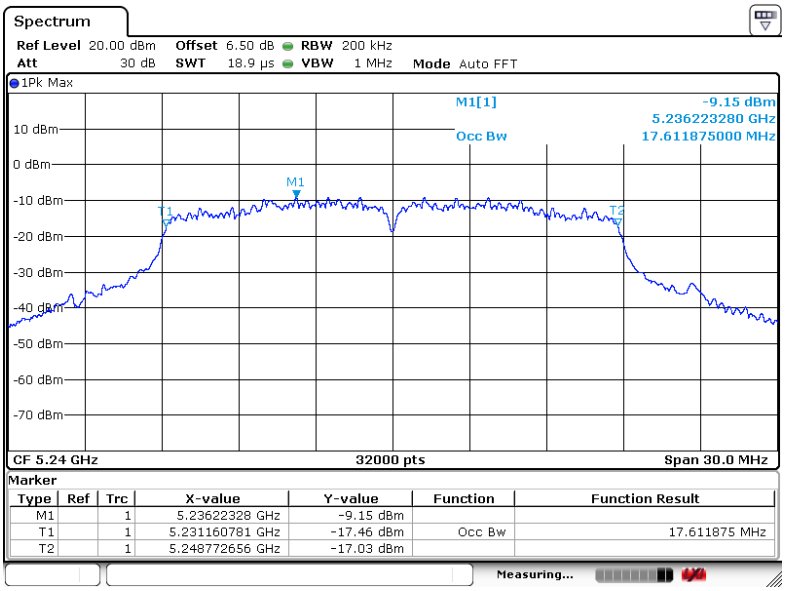


Channel: 64

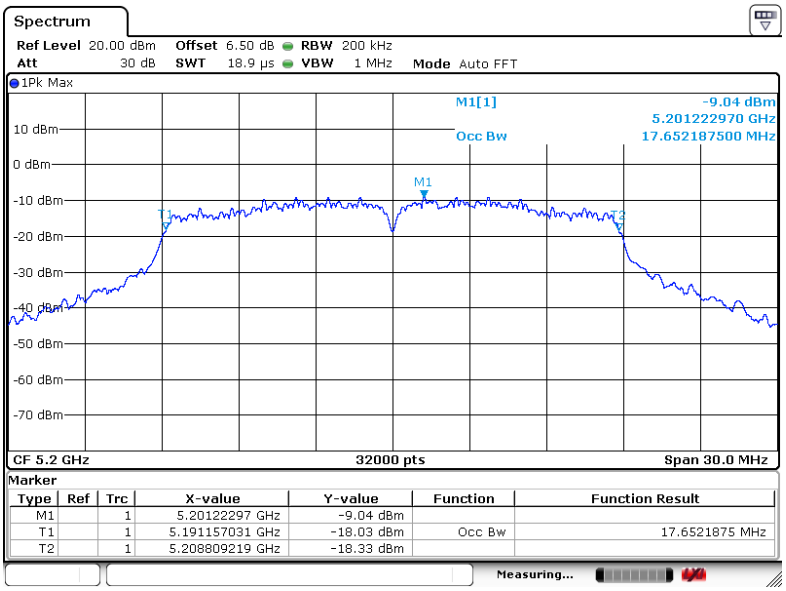

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 200 kHz
Att 30 dB SWT 18.9 µs VBW 1 MHz Mode Auto FFT
1Pk Max
M1[1] -9.16 dBm
5.237472970 GHz
Occ Bw 17.646562500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.24 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.23747297 GHz -9.16 dBm
T1 1 5.231147656 GHz -17.35 dBm Occ Bw 17.6465625 MHz
T2 1 5.248794219 GHz -18.01 dBm
Measuring...

99% OBW 802.11n20

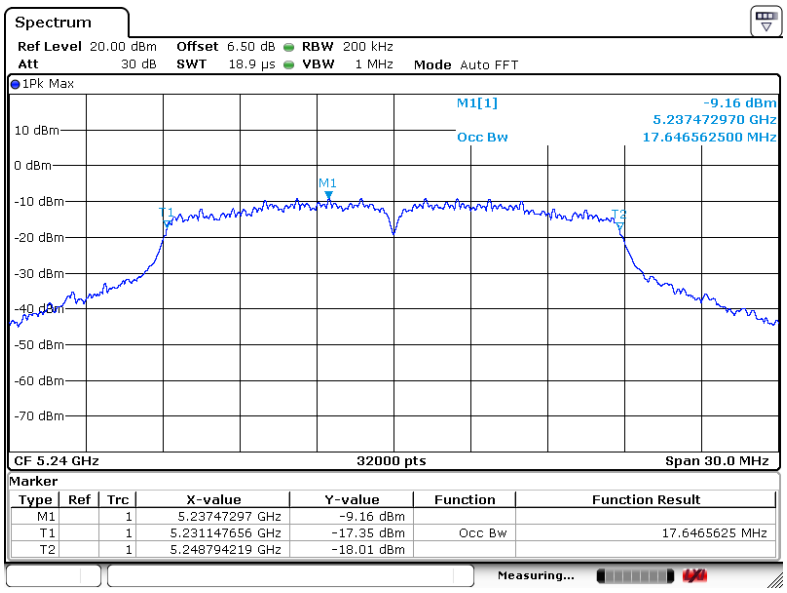
Channel: 100



Channel: 120

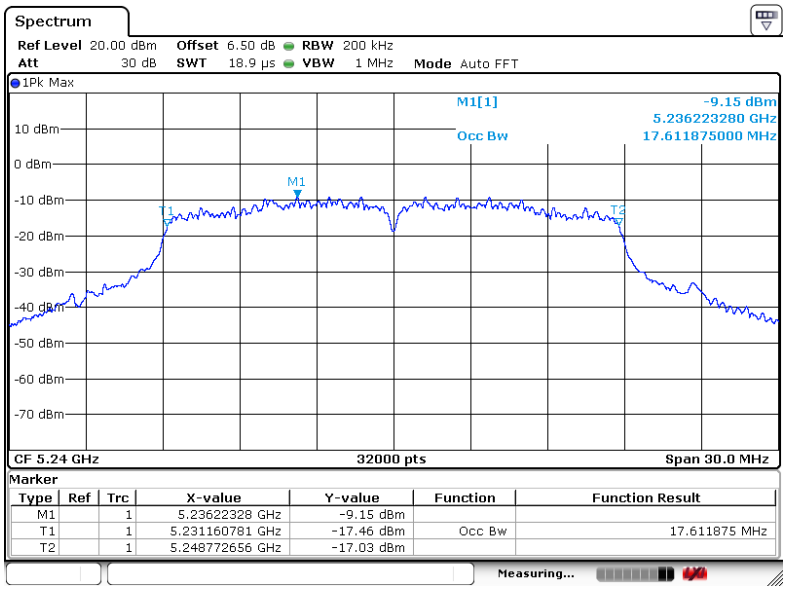


Channel: 140

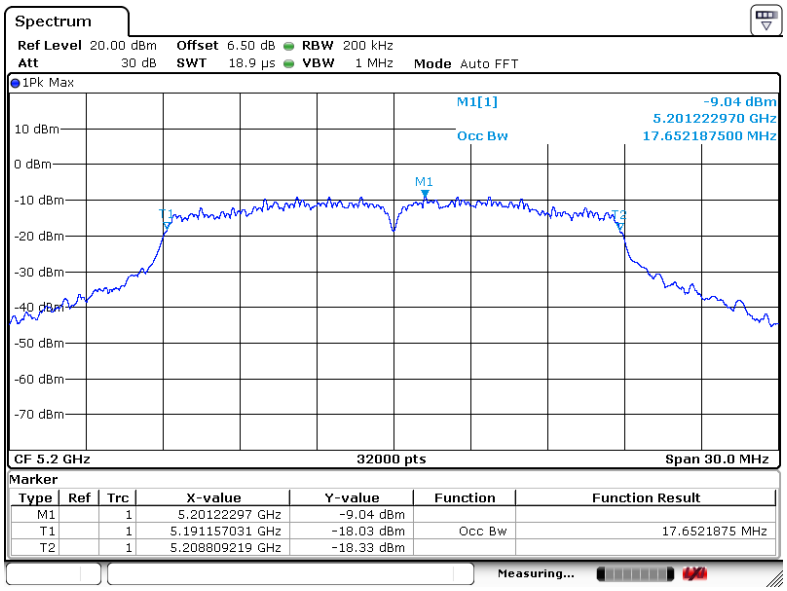

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 200 kHz
Att 30 dB SWT 18.9 µs VBW 1 MHz Mode Auto FFT
1Pk Max
M1[1] -9.16 dBm
5.237472970 GHz
Occ Bw 17.646562500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.24 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.23747297 GHz -9.16 dBm
T1 1 5.231147656 GHz -17.35 dBm Occ Bw 17.6465625 MHz
T2 1 5.248794219 GHz -18.01 dBm
Measuring...

99% OBW 802.11ac20

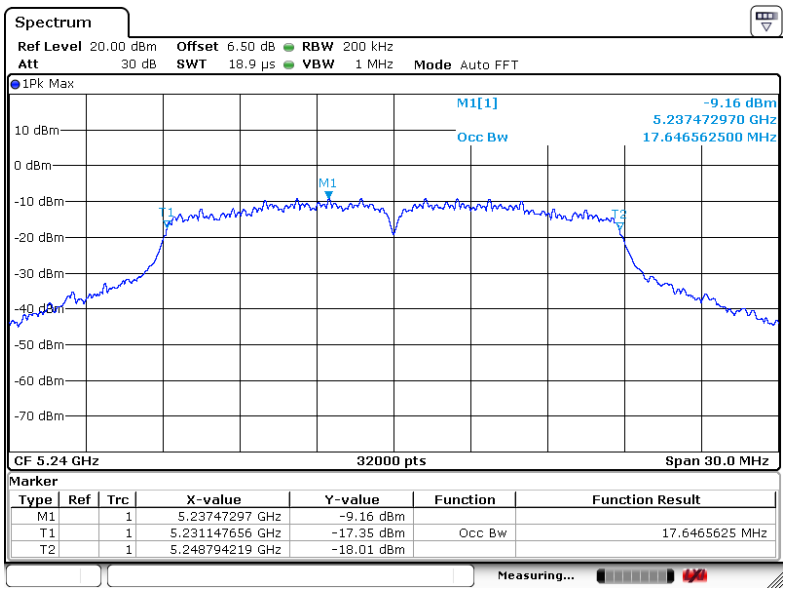
Channel: 36



Channel: 44

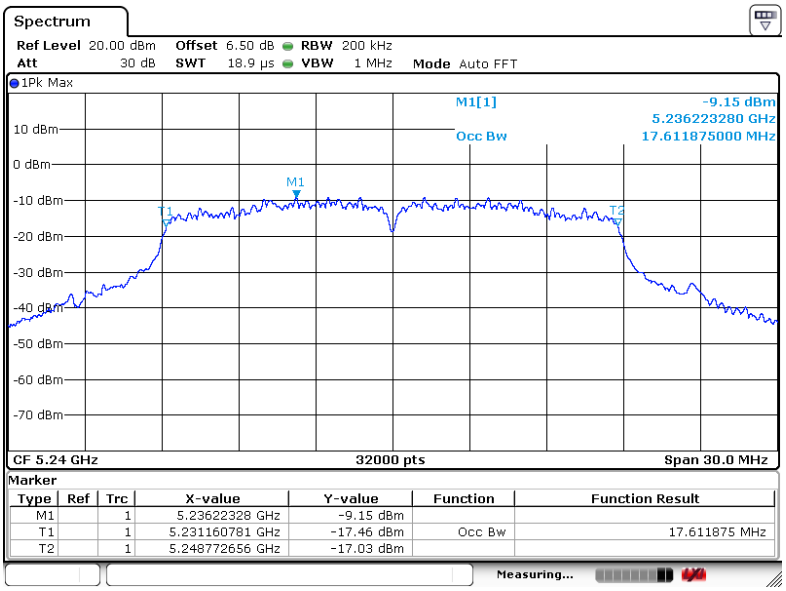


Channel: 48

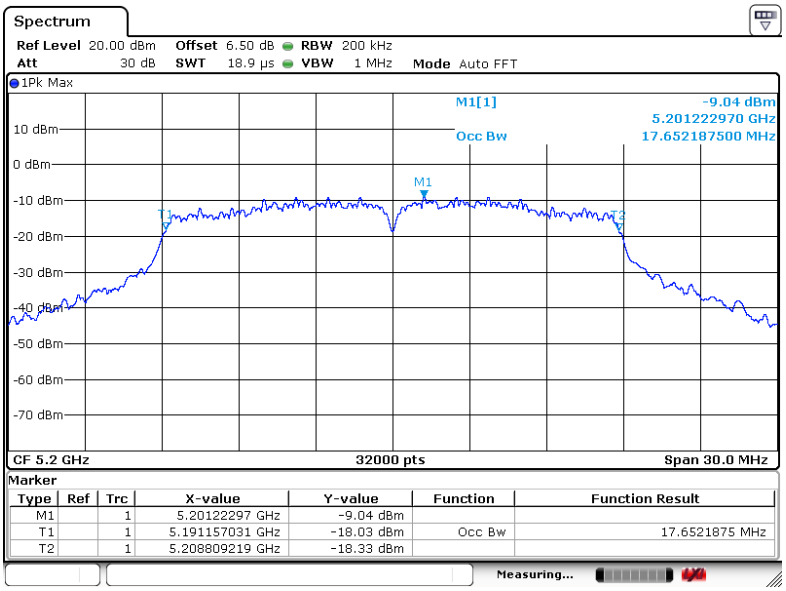

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 200 kHz
Att 30 dB SWT 18.9 µs VBW 1 MHz Mode Auto FFT
1Pk Max
M1[1] -9.16 dBm
5.237472970 GHz
Occ Bw 17.646562500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.24 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.23747297 GHz -9.16 dBm
T1 1 5.231147656 GHz -17.35 dBm Occ Bw 17.6465625 MHz
T2 1 5.248794219 GHz -18.01 dBm
Measuring...

99% OBW 802.11ac20

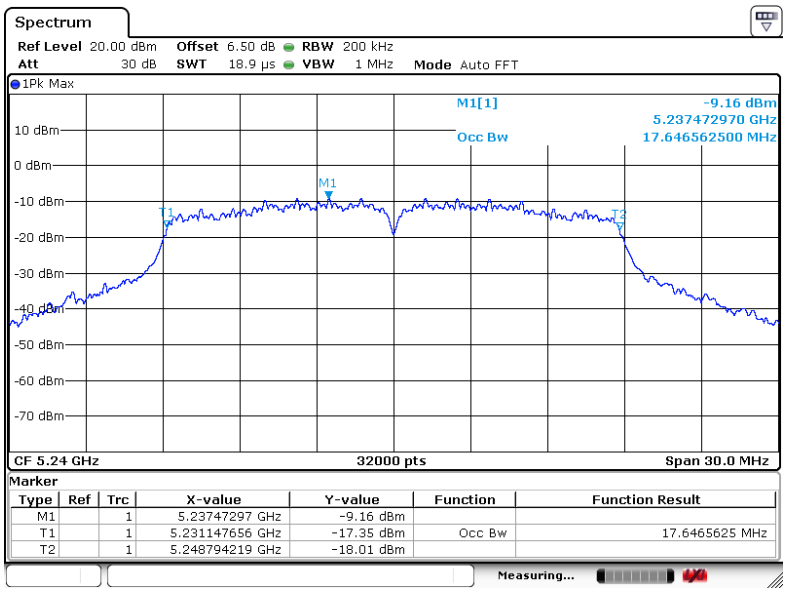
Channel: 52



Channel: 56

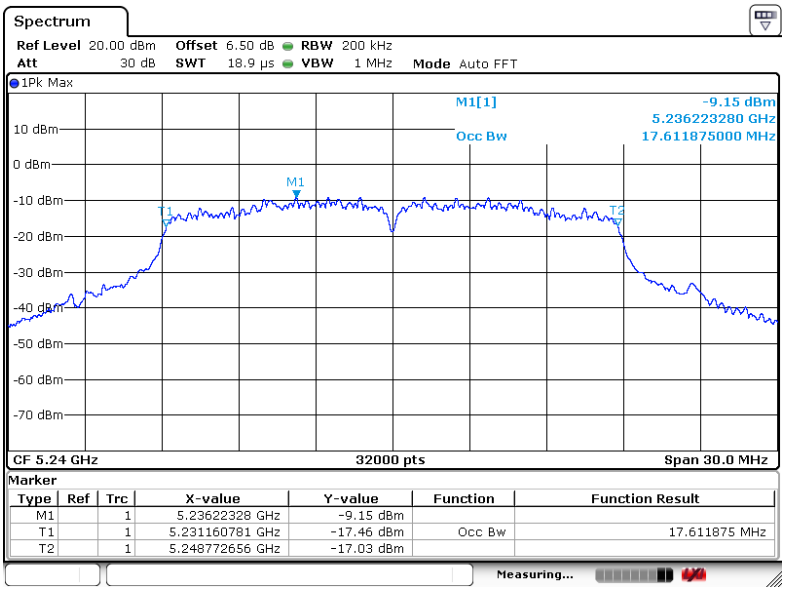


Channel: 64

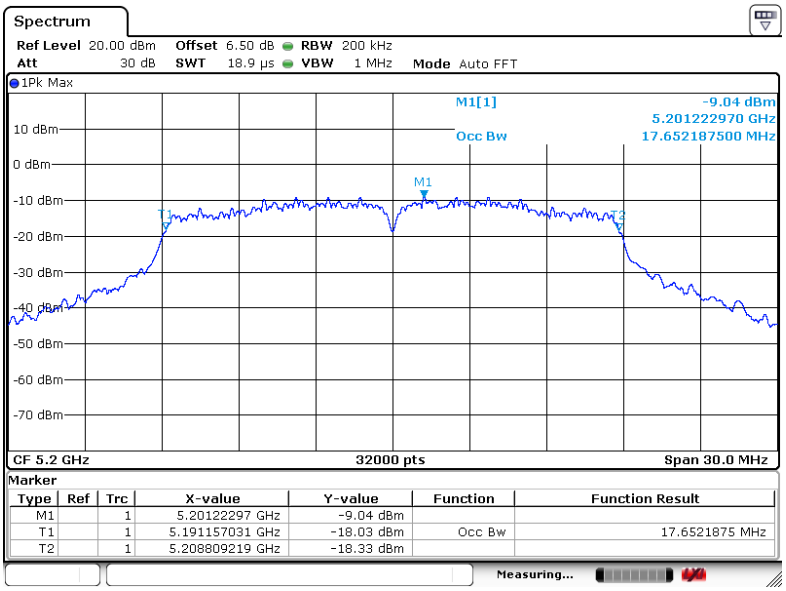

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 200 kHz
Att 30 dB SWT 18.9 µs VBW 1 MHz Mode Auto FFT
1Pk Max
M1[1] -9.16 dBm
5.237472970 GHz
Occ Bw 17.646562500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.24 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.23747297 GHz -9.16 dBm
T1 1 5.231147656 GHz -17.35 dBm Occ Bw 17.6465625 MHz
T2 1 5.248794219 GHz -18.01 dBm
Measuring...

99% OBW 802.11ac20

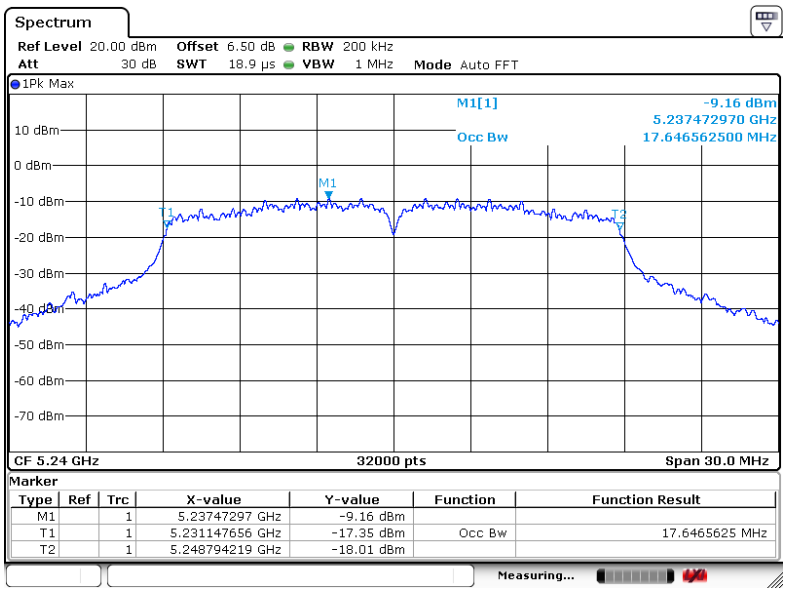
Channel: 100



Channel: 120

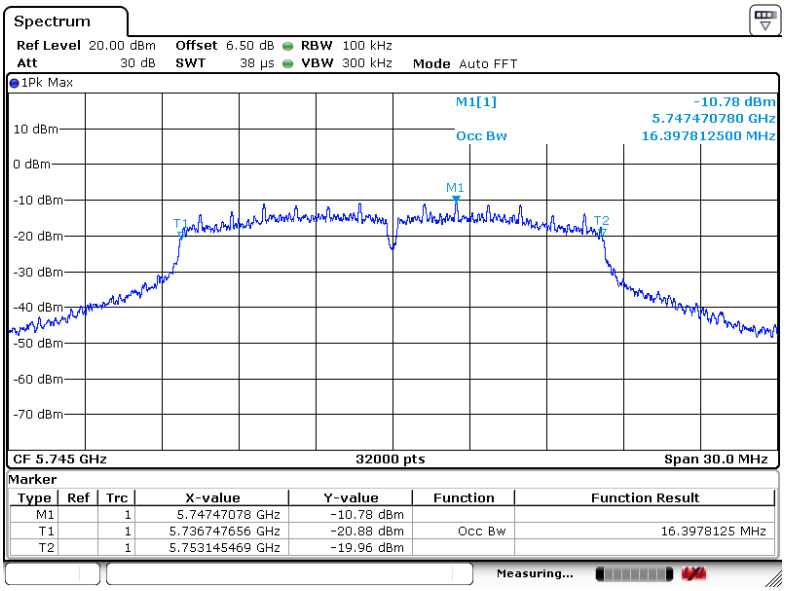


Channel: 140

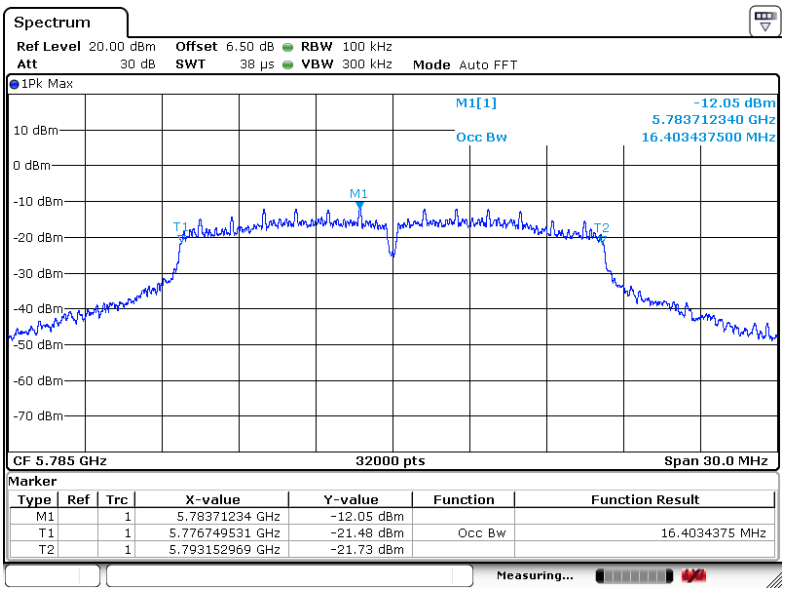

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 200 kHz
Att 30 dB SWT 18.9 µs VBW 1 MHz Mode Auto FFT
1Pk Max
M1[1] -9.16 dBm
5.237472970 GHz
Occ Bw 17.646562500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.24 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.23747297 GHz -9.16 dBm
T1 1 5.231147656 GHz -17.35 dBm Occ Bw 17.6465625 MHz
T2 1 5.248794219 GHz -18.01 dBm
Measuring...

99% OBW 802.11a

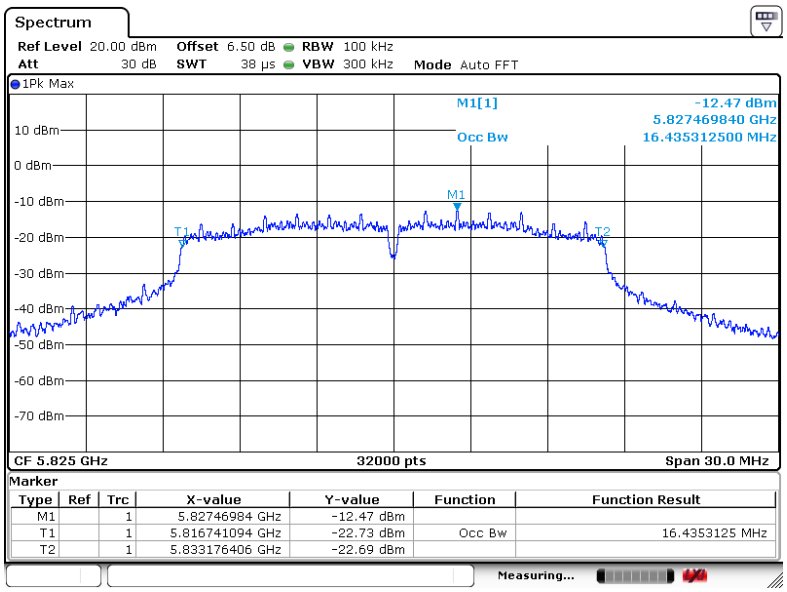
Channel: 149



Channel: 157

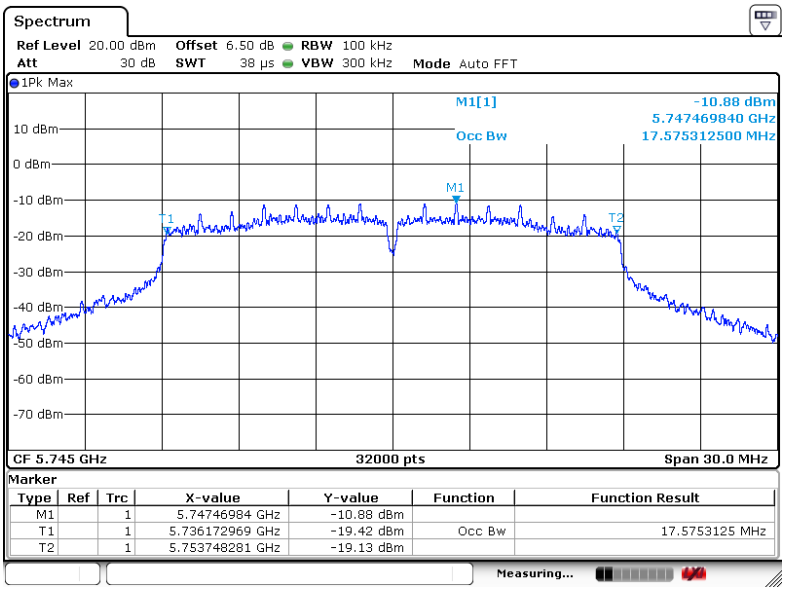


Channel: 165

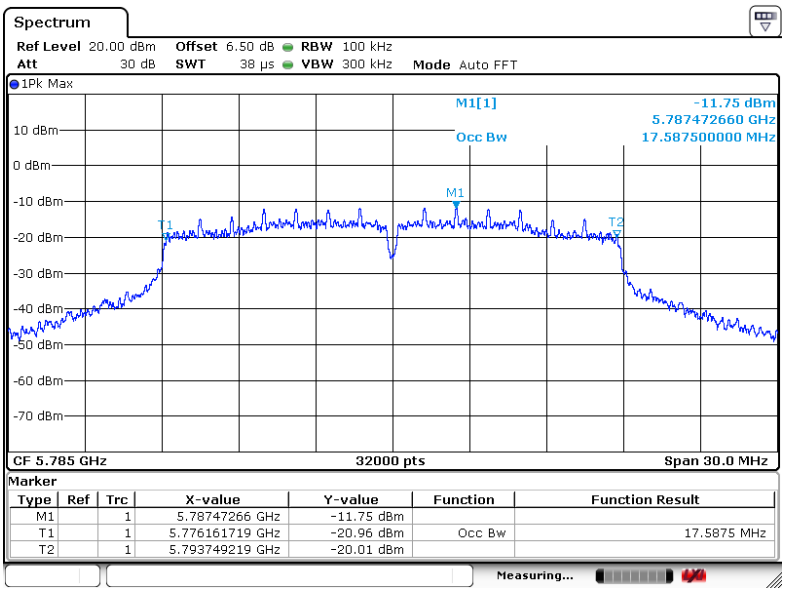

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 100 kHz
Att 30 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
M1[1] -12.47 dBm
5.827469840 GHz
Occ Bw 16.435312500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.825 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.82746984 GHz -12.47 dBm
T1 1 5.816741094 GHz -22.73 dBm Occ Bw 16.4353125 MHz
T2 1 5.833176406 GHz -22.69 dBm
Measuring...

99% OBW 802.11n20

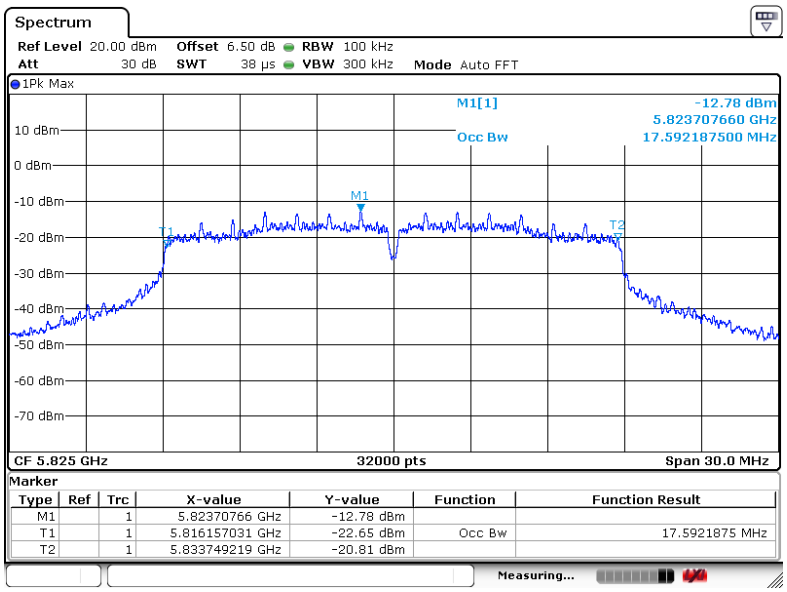
Channel: 149



Channel: 157

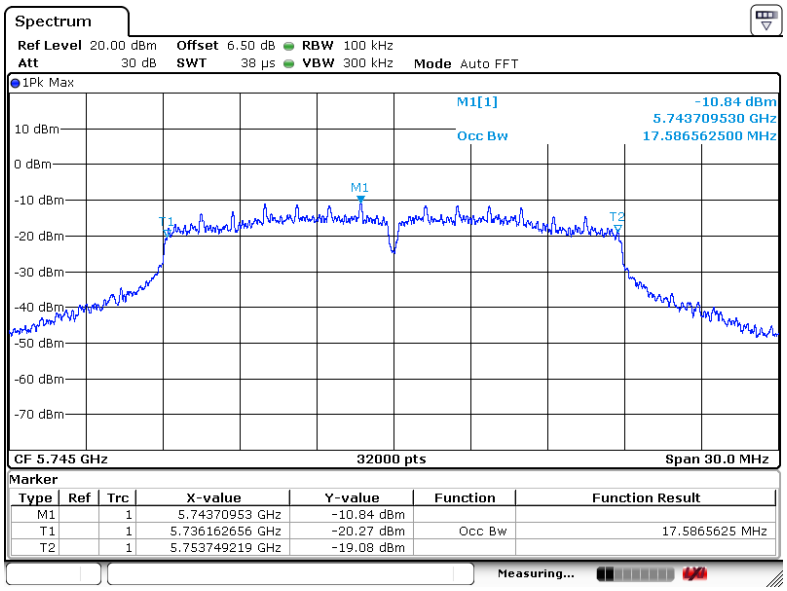


Channel: 165

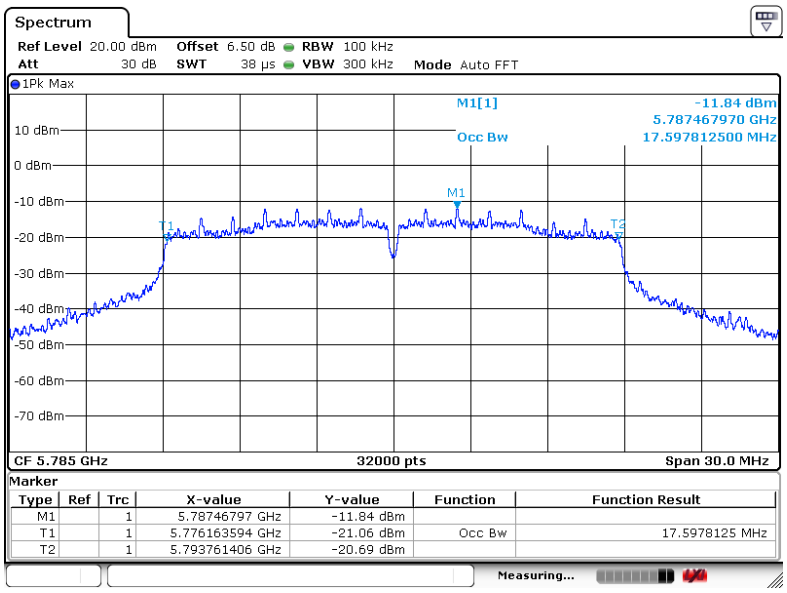

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 100 kHz
Att 30 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
M1[1] -12.78 dBm
5.823707660 GHz
Occ Bw 17.592187500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.825 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.82370766 GHz -12.78 dBm
T1 1 5.816157031 GHz -22.65 dBm Occ Bw 17.5921875 MHz
T2 1 5.833749219 GHz -20.81 dBm
Measuring...

99% OBW 802.11ac20

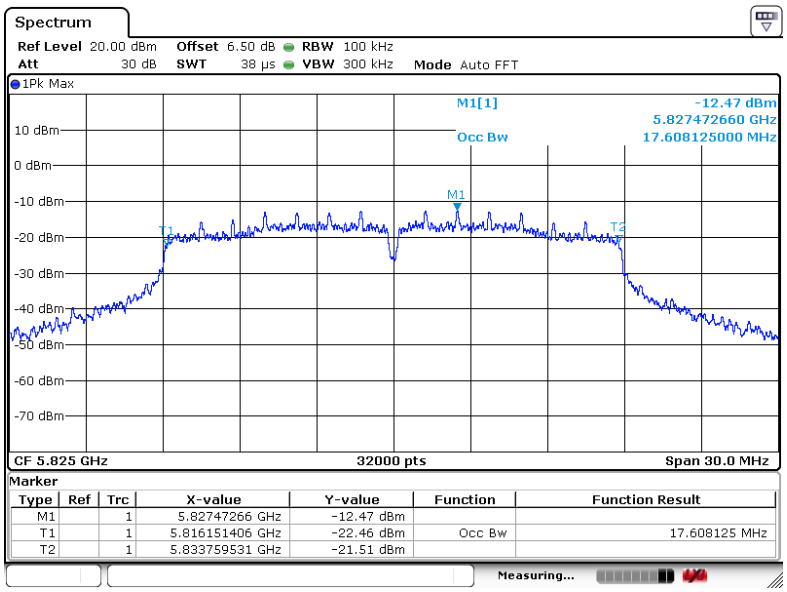
Channel: 149



Channel: 157

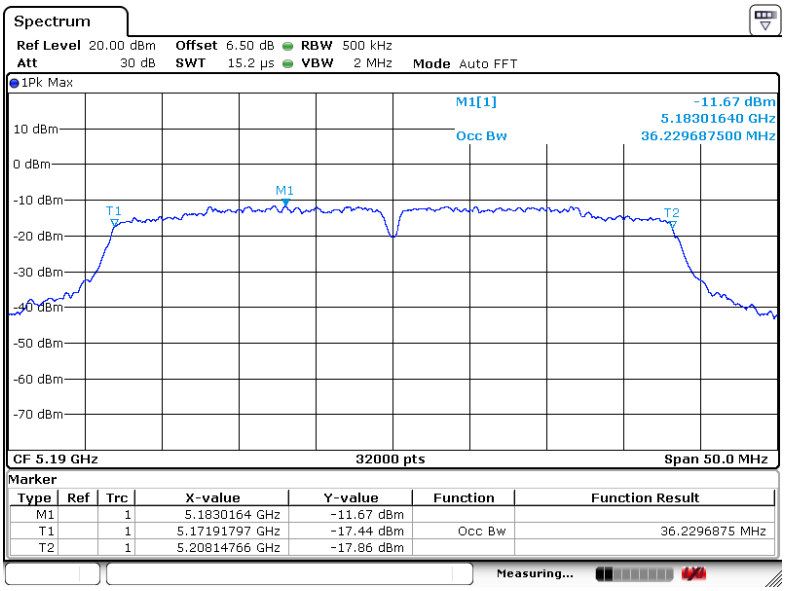


Channel: 165

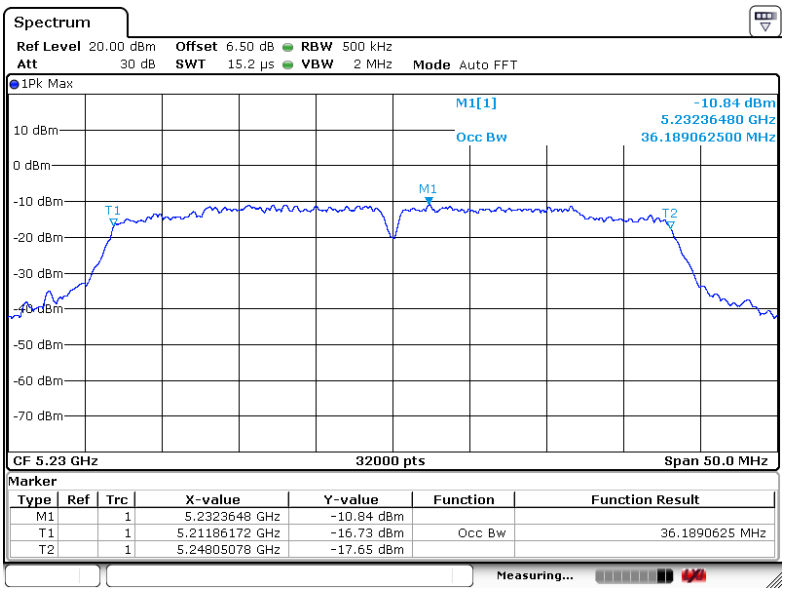

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 100 kHz
Att 30 dB SWT 38 µs VBW 300 kHz Mode Auto FFT
1Pk Max
M1[1] -12.47 dBm
5.827472660 GHz
Occ Bw 17.608125000 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.825 GHz
32000 pts
Span 30.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.82747266 GHz -12.47 dBm
T1 1 5.816151406 GHz -22.46 dBm Occ Bw 17.608125 MHz
T2 1 5.833759531 GHz -21.51 dBm
Measuring...

99% OBW 802.11n40

Channel: 38

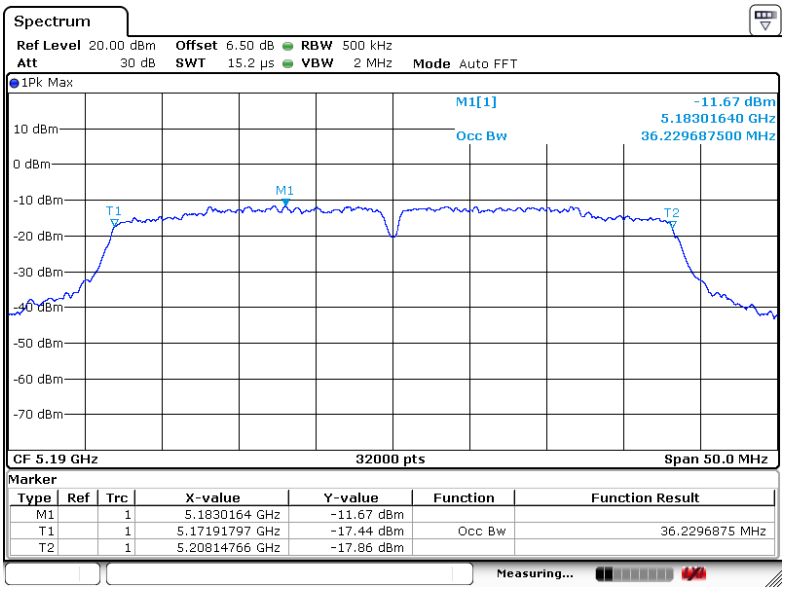


Channel: 46

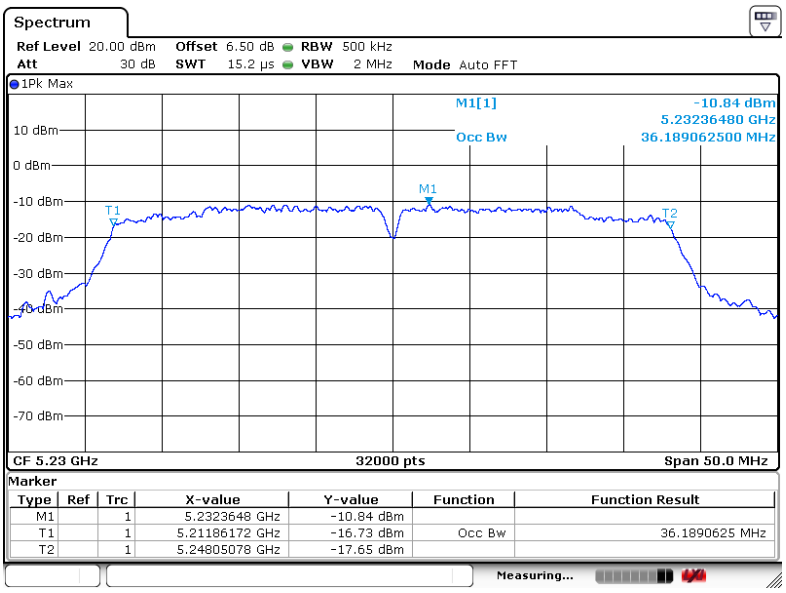


99% OBW 802.11n40

Channel: 54

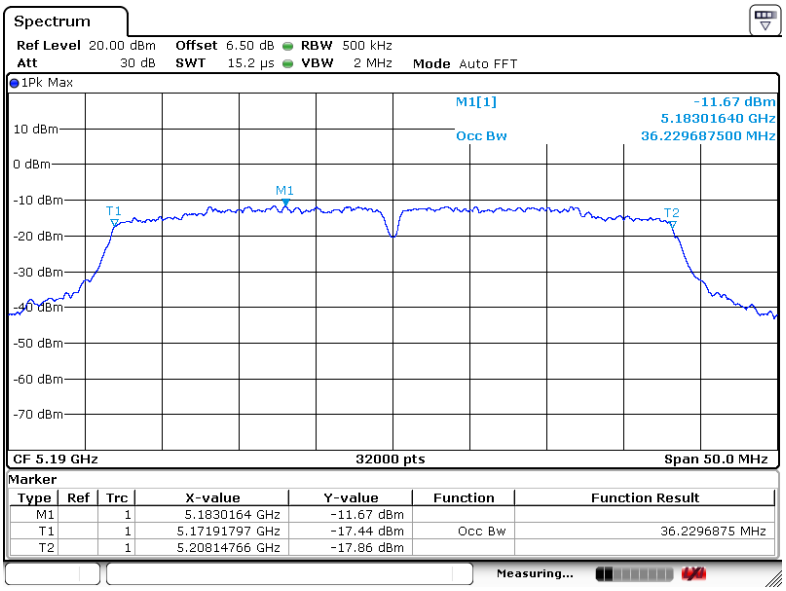


Channel: 62

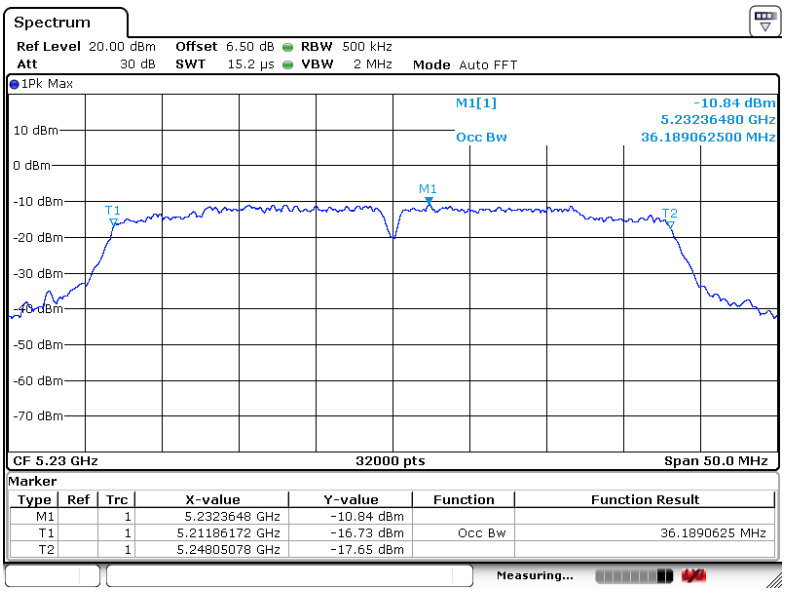


99% OBW 802.11n40

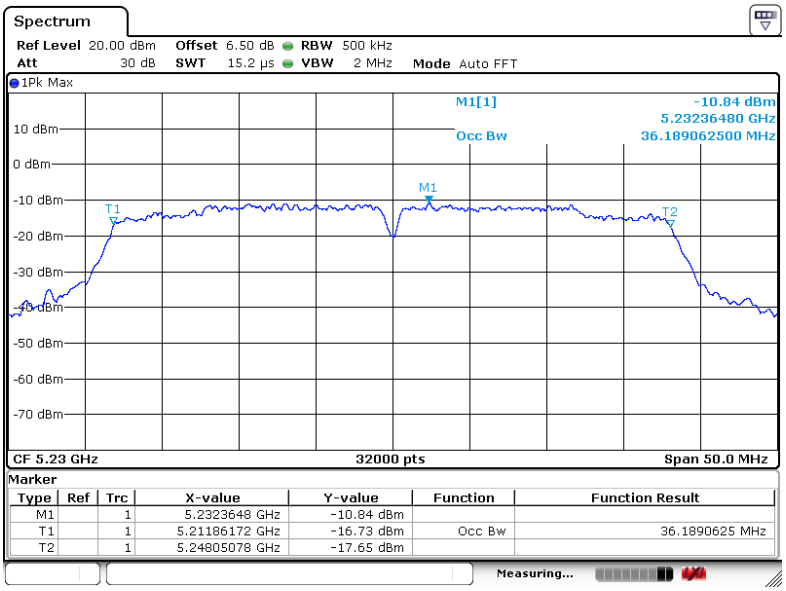
Channel: 102



Channel: 118

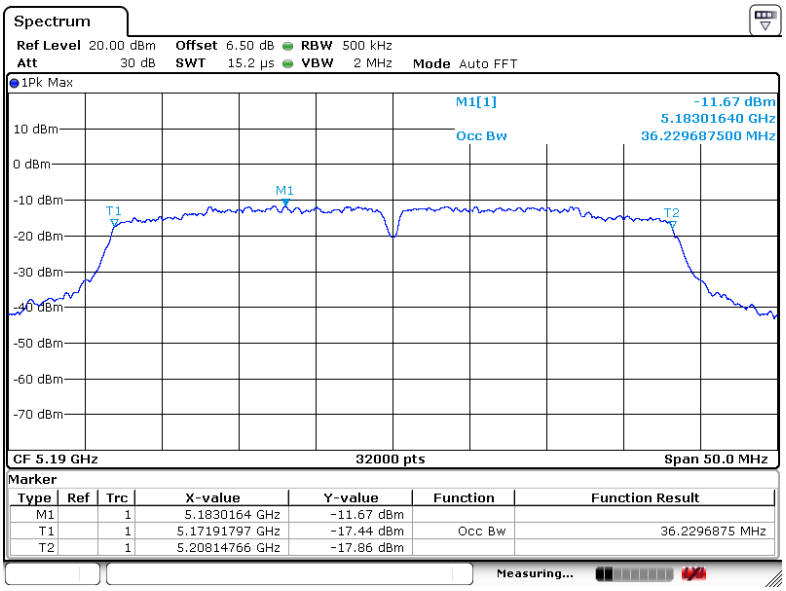


Channel: 134

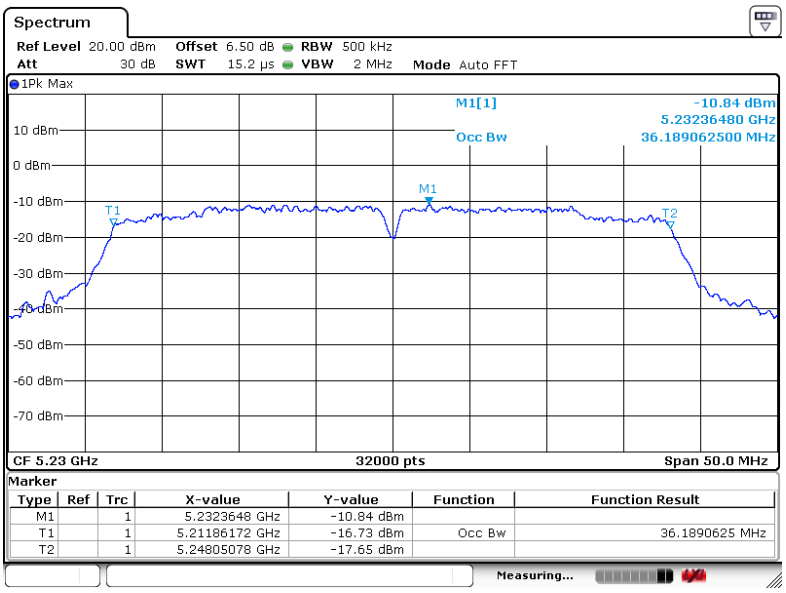

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 15.2 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1] -10.84 dBm
5.23236480 GHz
Occ Bw 36.189062500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.23 GHz
32000 pts
Span 50.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2323648 GHz -10.84 dBm
T1 1 5.21186172 GHz -16.73 dBm Occ Bw 36.1890625 MHz
T2 1 5.24805078 GHz -17.65 dBm
Measuring...

99% OBW 802.11ac40

Channel: 38

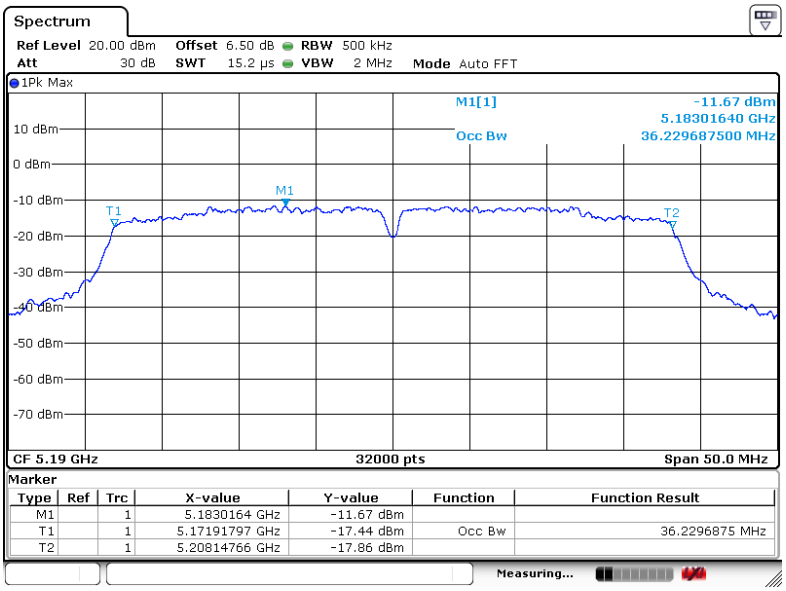


Channel: 46

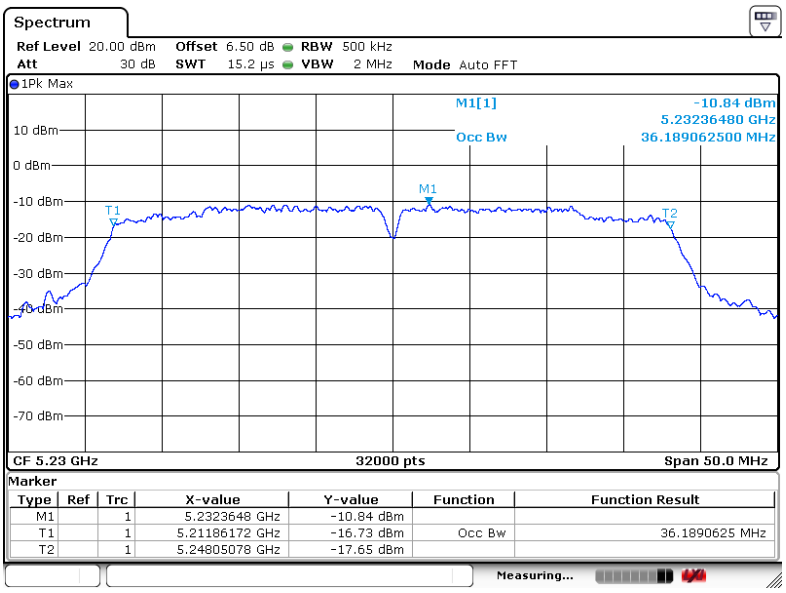


99% OBW 802.11ac40

Channel: 54

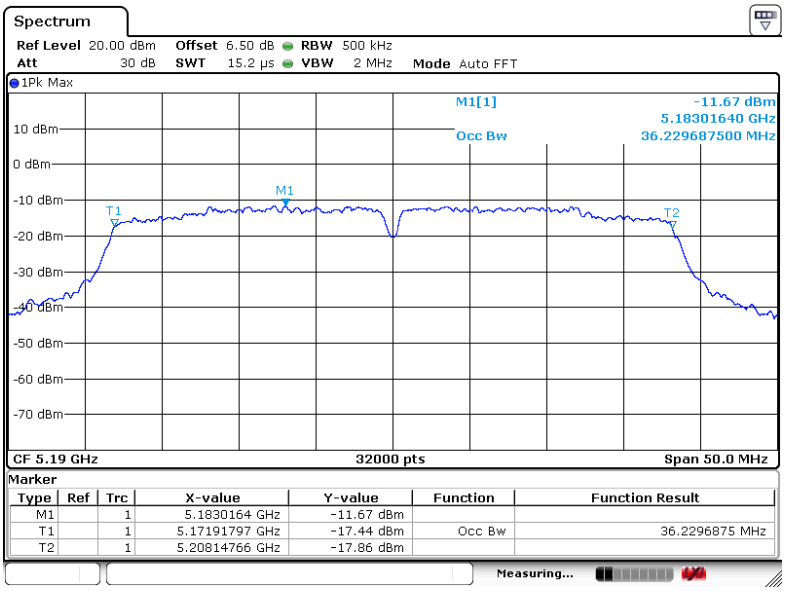


Channel: 62

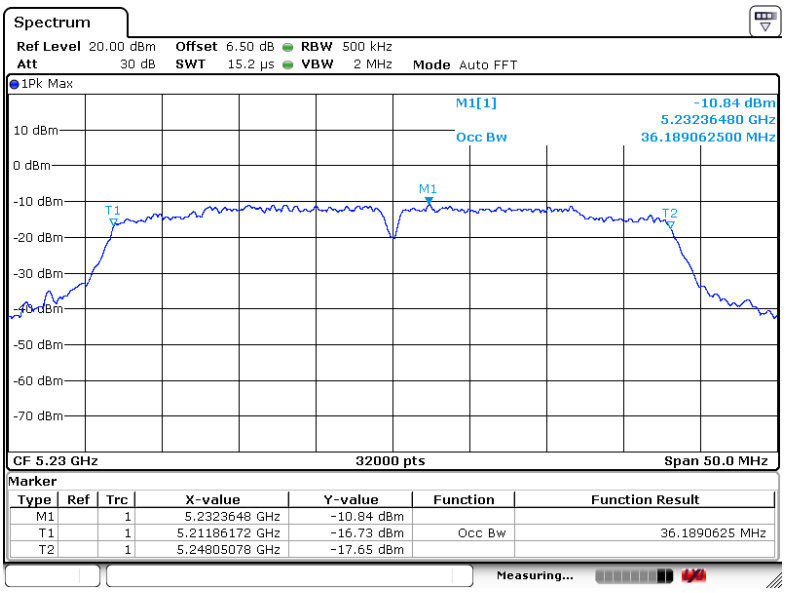


99% OBW 802.11ac40

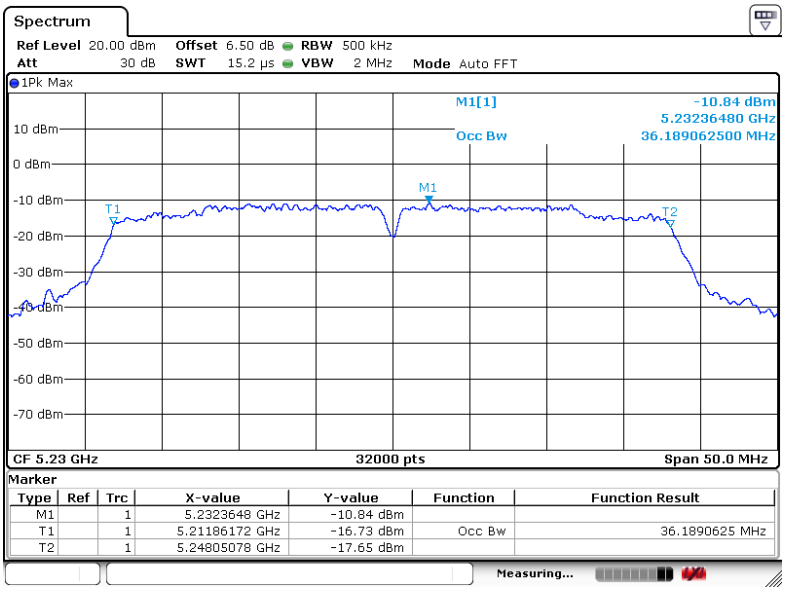
Channel: 102



Channel: 118

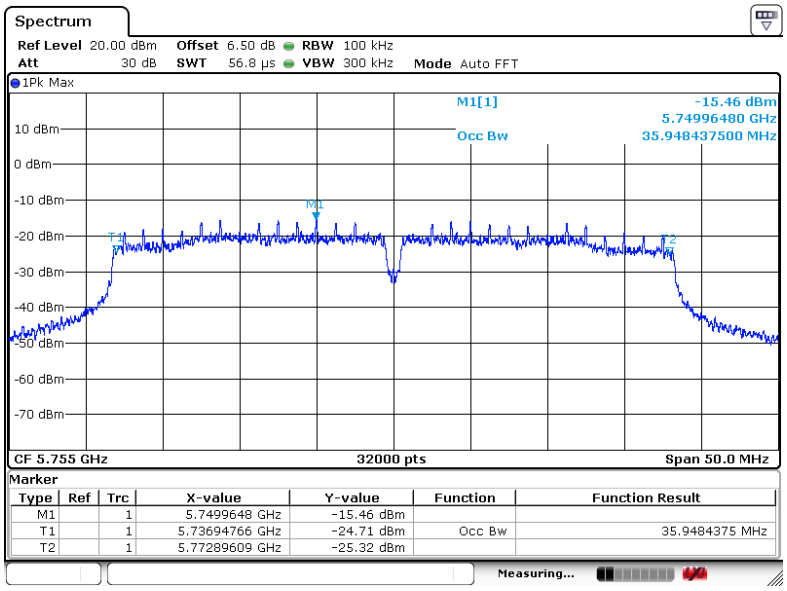


Channel: 134

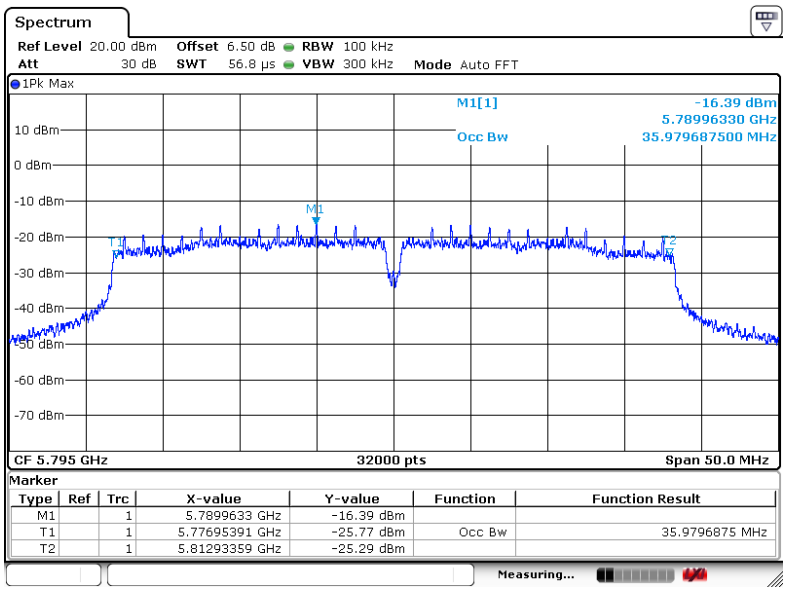

Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 500 kHz
Att 30 dB SWT 15.2 µs VBW 2 MHz Mode Auto FFT
1Pk Max
M1[1] -10.84 dBm
5.23236480 GHz
Occ Bw 36.189062500 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.23 GHz
32000 pts
Span 50.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2323648 GHz -10.84 dBm
T1 1 5.21186172 GHz -16.73 dBm Occ Bw 36.1890625 MHz
T2 1 5.24805078 GHz -17.65 dBm
Measuring...

99% OBW 802.11n40

Channel: 151

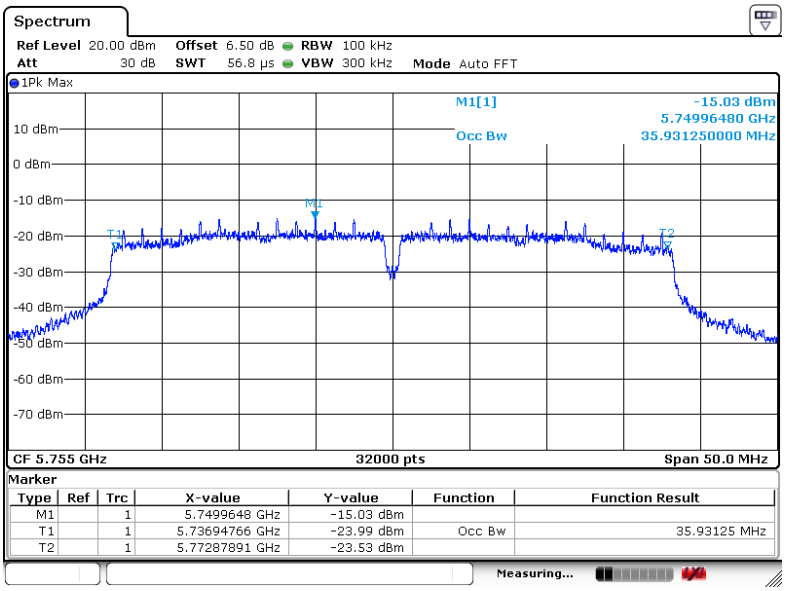


Channel: 159

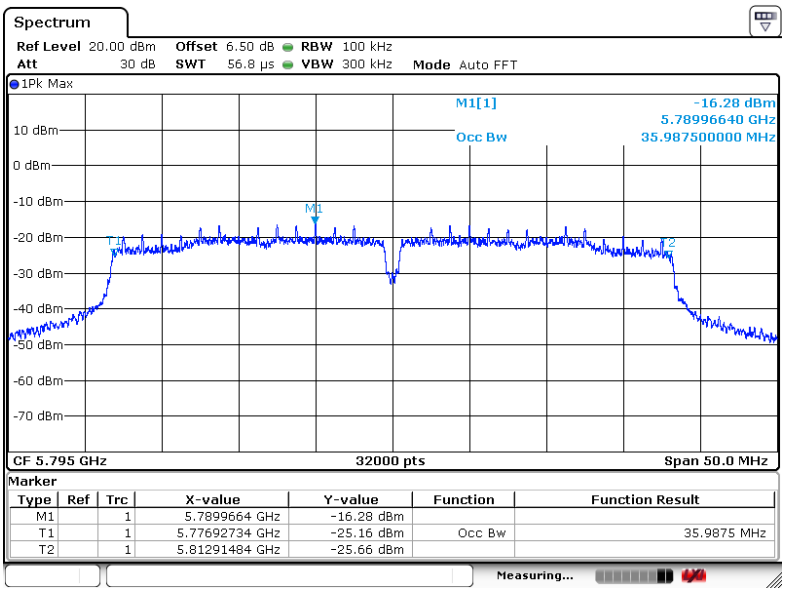


99% OBW 802.11ac40

Channel: 151

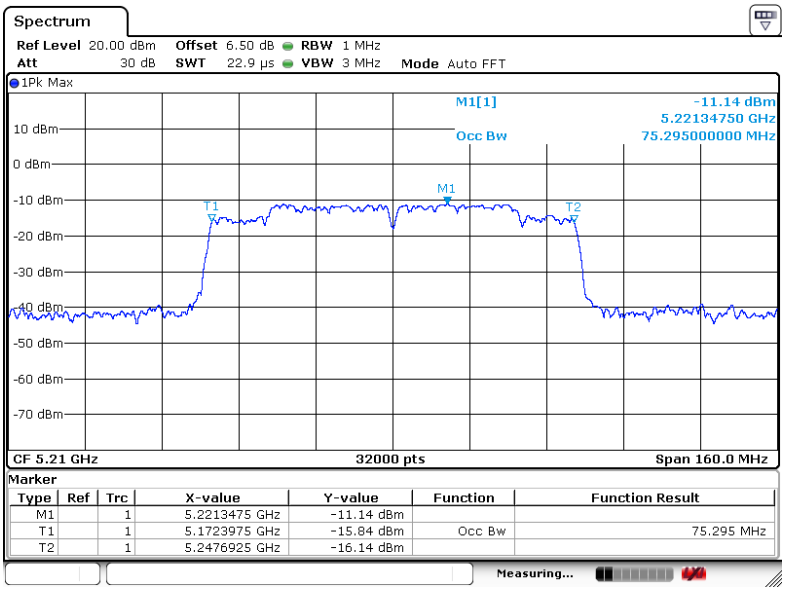


Channel: 159

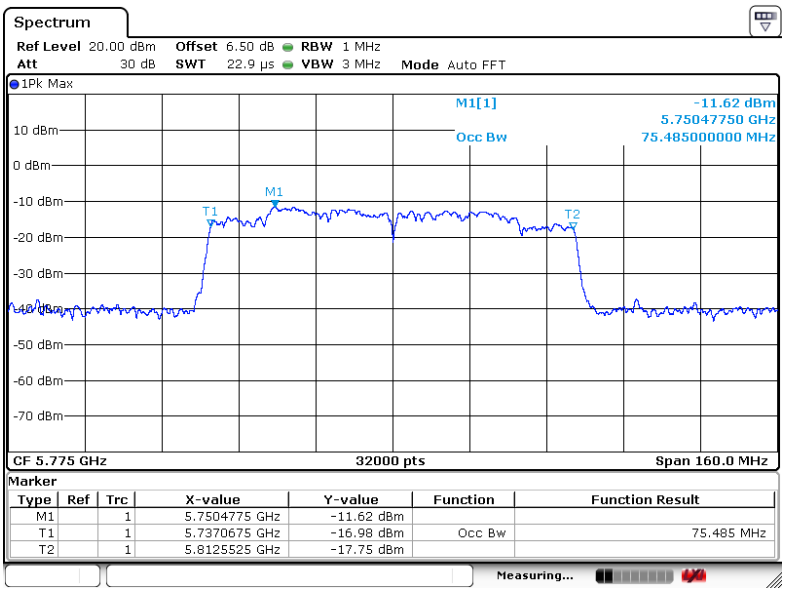


99% OBW 802.11ac80

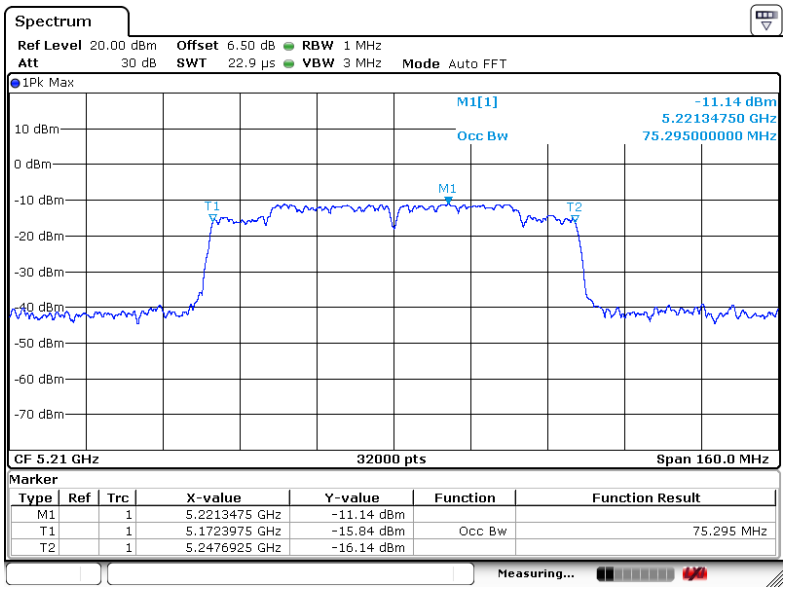
Channel:42



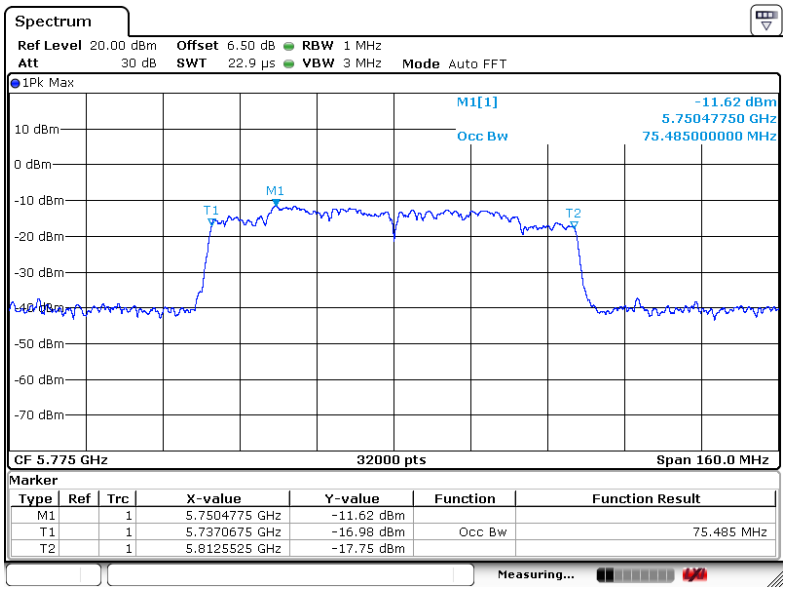
Channel: 58



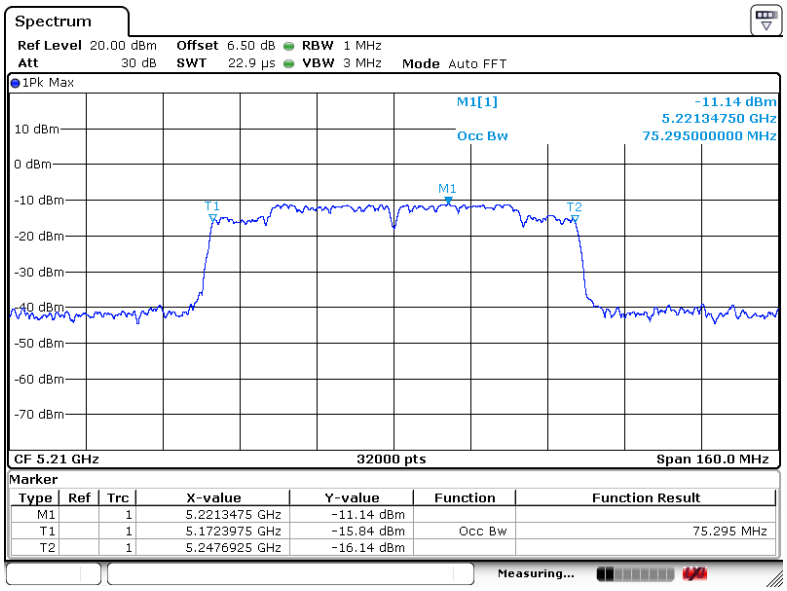
Channel:106



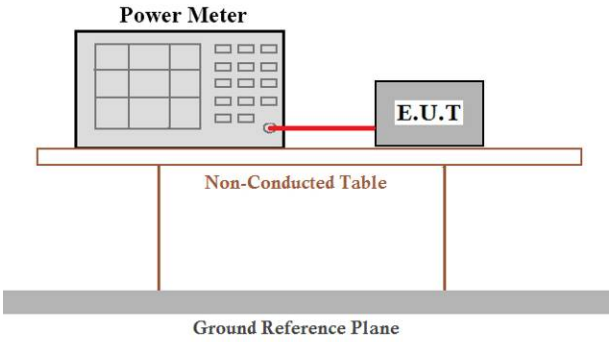
Channel: 122



Channel:155


Spectrum
Ref Level 20.00 dBm Offset 6.50 dB RBW 1 MHz
Att 30 dB SWT 22.9 µs VBW 3 MHz Mode Auto FFT
1Pk Max
M1[1] -11.14 dBm
5.22134750 GHz
Occ Bw 75.295000000 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
T1
T2
CF 5.21 GHz
32000 pts
Span 160.0 MHz
Marker
Type Ref Trc X-value Y-value Function Function Result
M1 1 5.2213475 GHz -11.14 dBm
T1 1 5.1723975 GHz -15.84 dBm Occ Bw 75.295 MHz
T2 1 5.2476925 GHz -16.14 dBm
Measuring...

5. MAXIMUM CONDUCTED OUTPUT POWER

Test Requirement:	FCC Part15 E Section 15.407
Test Method:	KDB 789033 D02 General UNII 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

5.1. TEST RESULT

Antenna A:

CH. No.	Frequency (MHz)	Output Power (dBm)			Limit(dBm)	Result
		802.11a	802.11n (HT20)	802.11ac (VHT20)		
36	5180.00	14.36	14.21	14.22	24	Pass
44	5220.00	14.17	14.09	14.08	24	Pass
48	5240.00	14.13	13.88	13.86	24	Pass
52	5260.00	13.94	13.87	13.85	24	Pass
56	5280.00	13.77	13.69	13.70	24	Pass
64	5320.00	13.50	13.42	13.41	24	Pass
100	5500.00	13.88	13.78	13.75	24	Pass
120	5600.00	13.06	12.99	12.97	24	Pass
140	5700.00	12.45	12.32	12.31	24	Pass
149	5745.00	10.04	10.00	9.97	30	Pass
157	5785.00	10.29	10.14	10.09	30	Pass
165	5825.00	10.99	10.86	10.83	30	Pass

CH. No.	Frequency (MHz)	Output Power (dBm)		Limit(dBm)	Result
		802.11n(HT40)	802.11ac(VHT40)		
38	5190.00	13.27	13.25	24	Pass
46	5230.00	13.49	13.47	24	Pass
54	5270.00	13.27	13.26	24	Pass
62	5310.00	12.93	12.94	24	Pass
102	5510.00	13.25	13.23	24	Pass
118	5590.00	12.69	12.68	24	Pass
134	5670.00	11.81	11.80	24	Pass
151	5755.00	10.16	10.13	30	Pass
159	5795.00	9.97	9.91	30	Pass

CH. No.	Frequency (MHz)	Output Power (dBm)	Limit(dBm)	Result
		802.11ac(VHT80)		
42	5210.00	12.83	24	Pass
58	5290.00	12.17	24	Pass
106	5530.00	12.11	24	Pass
122	5610.00	11.82	24	Pass
155	5775.00	9.63	30	Pass

Antenna B:

CH. No.	Frequency (MHz)	Output Power (dBm)			Limit(dBm)	Result
		802.11a	802.11n (HT20)	802.11ac (VHT20)		
36	5180.00	14.29	14.14	14.09	24	Pass
44	5220.00	14.12	14.00	14.01	24	Pass
48	5240.00	14.08	13.73	13.69	24	Pass
52	5260.00	13.83	13.78	13.64	24	Pass
56	5280.00	13.69	13.54	13.43	24	Pass
64	5320.00	13.41	13.32	13.22	24	Pass
100	5500.00	13.78	13.64	13.59	24	Pass
120	5600.00	13.00	12.85	12.84	24	Pass
140	5700.00	12.33	12.26	12.19	24	Pass
149	5745.00	9.98	9.84	9.83	30	Pass
157	5785.00	10.15	10.03	10.02	30	Pass
165	5825.00	10.86	10.74	10.76	30	Pass

CH. No.	Frequency (MHz)	Output Power (dBm)		Limit(dBm)	Result
		802.11n(HT40)	802.11ac(VHT40)		
38	5190.00	13.18	13.13	24	Pass
46	5230.00	13.35	13.32	24	Pass
54	5270.00	13.14	13.11	24	Pass
62	5310.00	12.83	12.79	24	Pass
102	5510.00	13.17	13.16	24	Pass
118	5590.00	12.59	12.57	24	Pass
134	5670.00	11.77	11.73	24	Pass
151	5755.00	10.10	10.09	30	Pass
159	5795.00	9.89	9.85	30	Pass

CH. No.	Frequency (MHz)	Output Power (dBm)	Limit(dBm)	Result
		802.11ac(VHT80)		
42	5210.00	12.76	24	Pass
58	5290.00	12.09	24	Pass
106	5530.00	12.04	24	Pass
122	5610.00	11.73	24	Pass
155	5775.00	9.58	30	Pass

6. 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:

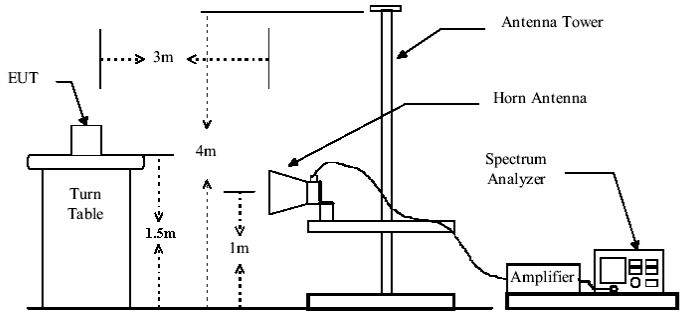
(1) For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

(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.

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 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.

6.1. TEST RESULT

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	45.63	7.18	52.81	68.2	-15.39	PK	H
5150	44.02	7.18	51.2	68.2	-17	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	43.96	7.2	51.16	68.2	-17.04	PK	H
5350	50.11	7.2	57.31	68.2	-10.89	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	47.65	7.18	54.83	68.2	-13.37	PK	H
5150	54.96	7.18	62.14	68.2	-6.06	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	43.87	7.2	51.07	68.2	-17.13	PK	H
5350	50.21	7.2	57.41	68.2	-10.79	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	43.02	7.18	50.2	68.2	-18	PK	H
5150	43.27	7.18	50.45	68.2	-17.75	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	44.16	7.2	51.36	68.2	-16.84	PK	H
5350	47.25	7.2	54.45	68.2	-13.75	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	45.73	7.18	52.91	68.2	-15.29	PK	H
5150	48.64	7.18	55.82	68.2	-12.38	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	46.22	7.2	53.42	68.2	-14.78	PK	H
5350	48.45	7.2	55.65	68.2	-12.55	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
5725	40.26	8.79	49.05	74	-24.95	Horizontal
5741.35	82.64	8.57	91.21	N/A	N/A	Horizontal
5725	41.06	8.79	49.85	74	-24.15	Vertical
5741.35	84.75	8.57	93.32	N/A	N/A	Vertical

Average

Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725	30.15	8.79	38.94	54	-15.06	Horizontal
5741.35	72.31	8.57	80.88	N/A	N/A	Horizontal
5725	30.46	8.79	39.25	54	-14.75	Vertical
5741.35	75.24	8.57	83.81	N/A	N/A	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	78.43	8.79	87.22	N/A	N/A	Horizontal
5850	38.26	8.82	47.08	74	-26.92	Horizontal
5826.2	85.41	8.79	94.2	N/A	N/A	Vertical
5850	39.79	8.82	48.61	74	-25.39	Vertical

Average

Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5826.2	70.32	8.79	79.11	N/A	N/A	Horizontal
5850	28.19	8.82	37.01	54	-16.99	Horizontal
5826.2	76.16	8.79	84.95	N/A	N/A	Vertical
5850	28.69	8.82	37.51	54	-16.49	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
5725	37.98	8.79	46.77	74	-27.23	Horizontal
5742.19	77.73	8.57	86.3	N/A	N/A	Horizontal
5725	39.98	8.79	48.77	74	-25.23	Vertical
5742.19	84.25	8.57	92.82	N/A	N/A	Vertical

Average

Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725	28.41	8.79	37.2	54	-16.8	Horizontal
5742.19	68.63	8.57	77.2	N/A	N/A	Horizontal
5725	29.76	8.79	38.55	54	-15.45	Vertical
5742.19	75.85	8.57	84.42	N/A	N/A	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	77.33	8.79	86.12	N/A	N/A	Horizontal
5850	38.36	8.82	47.18	74	-26.82	Horizontal
5826.2	35.94	8.79	44.73	N/A	N/A	Vertical
5850	40.72	8.82	49.54	74	-24.46	Vertical

Average

Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5826.2	68.35	8.79	77.14	N/A	N/A	Horizontal
5850	29.02	8.82	37.84	54	-16.16	Horizontal
5826.2	74.37	8.79	83.16	N/A	N/A	Vertical
5850	29.42	8.82	38.24	54	-15.76	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
5725	38.36	8.52	46.88	74	-27.12	Horizontal
5745	75.18	8.57	83.75	N/A	N/A	Horizontal
5725	37.76	8.52	46.28	74	-27.72	Vertical
5745	84.29	8.57	92.86	N/A	N/A	Vertical

Average

Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725	30.78	8.52	39.3	54	-14.7	Horizontal
5745	68.92	8.57	77.49	N/A	N/A	Horizontal
5725	28.33	8.52	36.85	54	-17.15	Vertical
5745	75.46	8.57	84.03	N/A	N/A	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	78.89	8.68	87.57	N/A	N/A	Horizontal
5850	38.76	8.82	47.58	74	-26.42	Horizontal
5784.88	84.59	8.68	93.27	N/A	N/A	Vertical
5850	43.05	8.82	51.87	74	-22.13	Vertical

Average

Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5784.88	71.44	8.68	80.12	N/A	N/A	Horizontal
5850	29.04	8.82	37.86	54	-16.14	Horizontal
5784.88	74.36	8.68	83.04	N/A	N/A	Vertical
5850	27.85	8.82	36.67	54	-17.33	Vertical

Test mode: 802.11ac(VHT80) Test channel: Middle

Peak value:

Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.000	37.69	8.52	46.21	74	-27.79	Horizontal
5778.180	78.46	8.68	87.14	N/A	N/A	Horizontal
5850.000	36.85	8.82	45.67	74	-28.33	Horizontal
5725.000	37.46	8.52	45.98	74	-28.02	Vertical
5778.180	82.34	8.68	91.02	N/A	N/A	Vertical
5850.000	40.49	8.82	49.31	74	-24.69	Vertical

Average

Frequency (MHz)	Read Level (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
5725.000	30.09	8.52	38.61	54	-15.39	Horizontal
5778.180	69.84	8.68	78.52	N/A	N/A	Horizontal
5850.000	28.76	8.82	37.58	54	-16.42	Horizontal
5725.000	29.05	8.52	37.57	54	-16.43	Vertical
5778.180	71.16	8.68	79.84	N/A	N/A	Vertical
5850.000	29.48	8.82	38.3	54	-15.7	Vertical

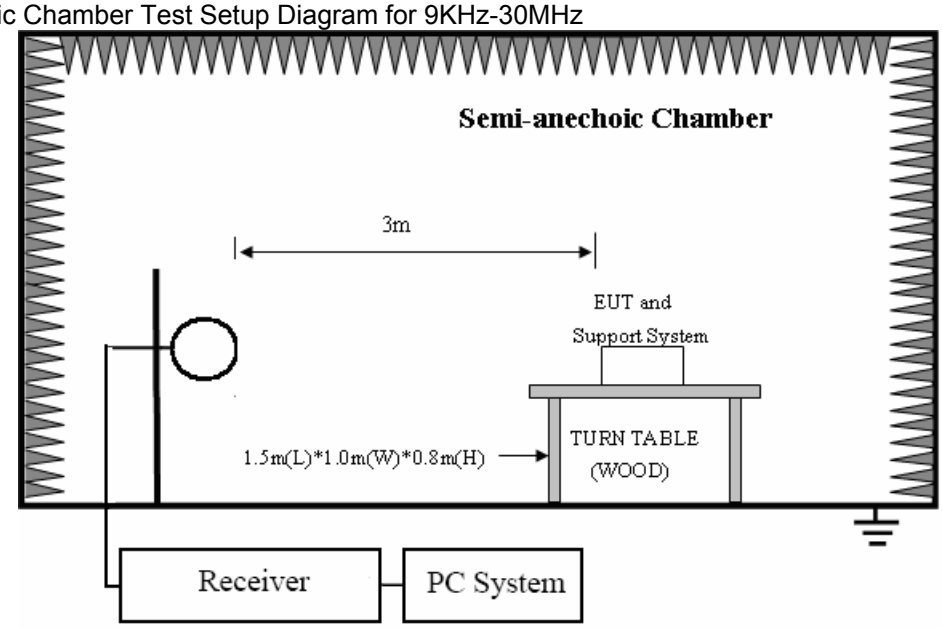
7. RADIATED EMISSION MEASUREMENT

7.1. Test equipment

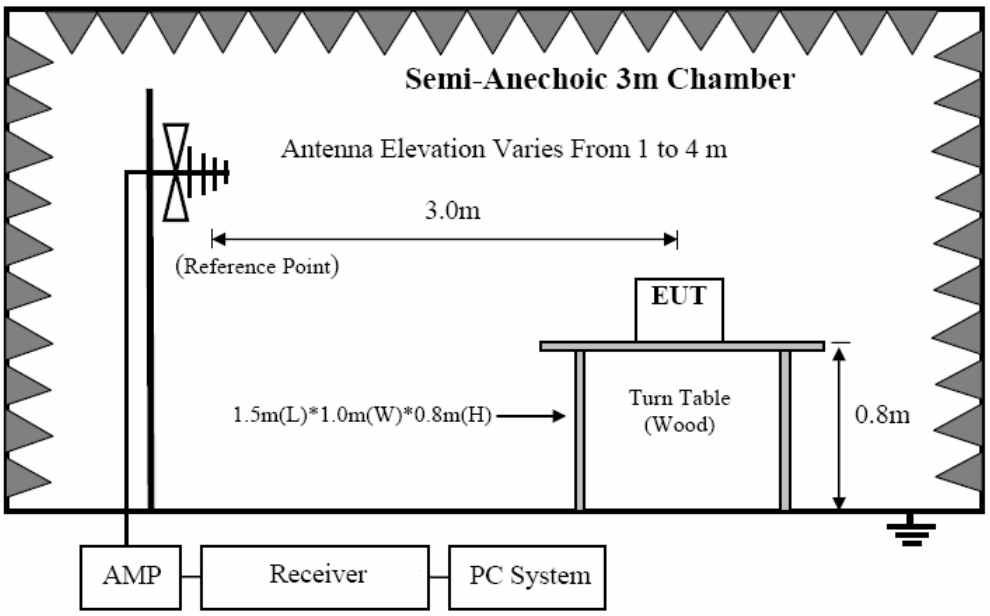
Item	Equipment	Manufacturer	Model No.	Serial No.	Calibrated until	Calibrated Date
1	EMI Test Receiver	R&S	ESCI	101307	12/17/2019	12/18/2018
2	Spectrum analyzer	Agilent	E4407B	US40240708	07/04/2020	07/05/2019
3	Trilog Broadband Antenna	Schwarzbeck	VULB9168	VULB9168 -192	03/04/2020	03/05/2019
4	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D1065	100276	12/17/2019	12/18/2018
5	Double Ridged Horn Antenna	SCHWARZBECK	BBHA 9120D1065	100546	12/17/2019	12/18/2018
6	Dipole antenna	Schwarzbeck	UHAP	1101	12/17/2019	12/18/2018
7	Dipole antenna	Schwarzbeck	VHAP	1118	12/17/2019	12/18/2018
8	Pre-Amplifier	CY	EMC011830	980136	12/17/2019	12/18/2018
9	Pre-amplifier	HP	8447F	3113A05680	12/17/2019	12/18/2018
10	RF Cable	R&S	R01	10403	12/17/2019	12/18/2018
11	RF Cable	R&S	R02	10512	12/17/2019	12/18/2018
12	RF Cable	R&S	R01	10454	12/17/2019	12/18/2018
13	RF Cable	R&S	R02	10343	12/17/2019	12/18/2018
14	Spectrum analyze	R&S	FSV40	101470	06/28/2020	06/29/2019
15	MeasurementSoftware	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A	N/A
16	Loop antenna	TESEQ	HLA6120	20129	12/17/2019	12/18/2018

7.2. Block diagram of test setup

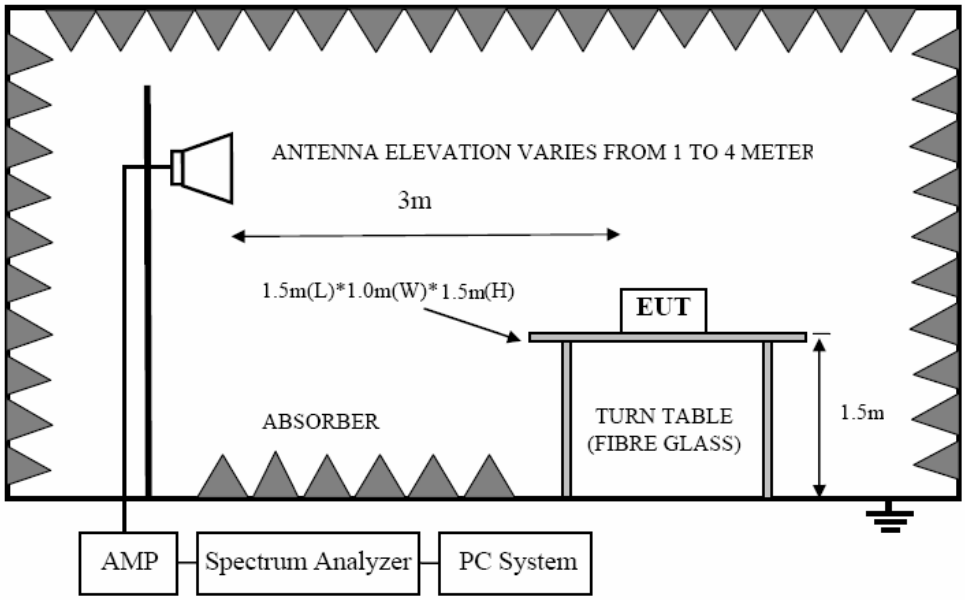
In 3m Anechoic Chamber Test Setup Diagram for 9KHz-30MHz



In 3m Anechoic Chamber Test Setup Diagram for 30MHz-1GHz



In 3m Anechoic Chamber Test Setup Diagram for frequency above 1GHz



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

7.3. Limit

9.3.1 FCC 15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])

9.3.2. FCC 15.209 Limit.

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(KHz)	67.6-20log(F)
0.490 ~ 1.705	30	24000/F(KHz)	87.6-20log(F)
1.705 ~ 30.0	30	30	29.54
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Note: (1) The emission limits shown in the above table are based on measurements employing a CISPR QP detector except for the frequency bands 9-90KHz, 110-490KHz and above 1000MHz. Radiated emissions limits in these three bands are based on measurements employing an average detector.

(2) At frequencies below 30MHz, measurement may be performed at a distance closer then that specified, and the limit at closer measurement distance can be extrapolated by below formula:

$Limit_{3m}(dBuV/m) = Limit_{30m}(dBuV/m) + 40Log(30m/3m)$

9.3.3. Limit for this EUT

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 30dB below the fundamental emissions, or comply with 15.209 limits.

7.4. Test Procedure

(1) EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber.

(2) Setup EUT and assistant system according clause 2.4 and 7.2

(3) Test antenna was located 3m(except 18GHz-40GHz was 1m) from the EUT on an adjustable mast, and the antenna used as below table.

Test frequency range	Test antenna used
9KHz-30MHz	Active Loop antenna
30MHz-1GHz	Trilog Broadband Antenna
1GHz-18GHz	Double Ridged Horn Antenna(1GHz-18GHz)
18GHz-40GHz	Horn Antenna(18GHz-40GHz)

According ANSI C63.10:2013 clause 6.4.4.2 and 6,5.3, for measurements below 30 MHz, the loop antenna was positioned with its plane vertical from the EUT and rotated about its vertical axis for maximum response at each azimuth position around the EUT. And the loop antenna also be positioned with its plane horizontal at the specified distance from the EUT. The center of the loop is 1 m above the ground. for measurement above 30MHz, the Trilog Broadband Antenna or Horn Antenna was located 3m from EUT, Measurements were made with the antenna positioned in both the horizontal and vertical planes of Polarization, and the measurement antenna was varied from 1 m to 4 m. in height above the reference ground plane to obtain the maximum signal strength.

(4) Below pre-scan procedure was first performed in order to find prominent frequency spectrum radiated emissions from 9KHz to 25GHz:

(a) Scanning the peak frequency spectrum with the antenna specified in step (3), and the EUT was rotated 360 degree, the antenna height was varied from 1m to 4m(Except loop antenna, it's fixed 1m above ground.)

(b) Change work frequency or channel of device if practicable.

(c) Change modulation type of device if practicable.

(d) new battery is used during testing

(e) Rotated EUT though three orthogonal axes to determine the attitude of EUT arrangement produces highest emissions.

Spectrum frequency from 9KHz to 25GHz (tenth harmonic of fundamental frequency) was investigated, and no any obvious emission were detected from 18GHz to 25GHz, so below final test was performed with frequency range from 9KHz to 18GHz.

(5) For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.10 2013 on Radiated Emission test.

(6) The emissions from 9KHz to 1GHz were measured based on CISPR QP detector except for the frequency bands 9-90KHz, 110-490KHz, for emissions from 9KHz-90KHz,110KHz-490KHz and above 1GHz were measured based on average detector, for emissions above 1GHz, peak emissions also be measured and need comply with Peak limit.

(7) The emissions from 9KHz to 1GHz, QP or average values were measured with EMI receiver with below RBW

Frequency band	RBW
9KHz-150KHz	200Hz
150KHz-30MHz	9KHz
30MHz-1GHz	120KHz

（8）For emissions above 1GHz, both Peak and Average level were measured with Spectrum Analyzer, and the RBW is set at 1MHz, VBW is set at 3MHz for Peak measure; RBW is set at 1MHz, VBW is set at 10Hz for Average measure(according ANSI C63.10:2013 clause 4.2.3.2.3 procedure for average measure). Peak detector is used for Peak and AV measurement both.

7.5. Test result(Below 30MHz)

EUT:	Acer One 14 Z3-471	Model No.:	EASR14
Temperature:	24℃	Relative Humidity:	55%
Distance:	3m	Test Power:	120V 60Hz
Polarization:	--	Test Result:	Pass
Test Mode:	Keeping TX mode	Test By:	Smile

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	P
--	--	--	--	P

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

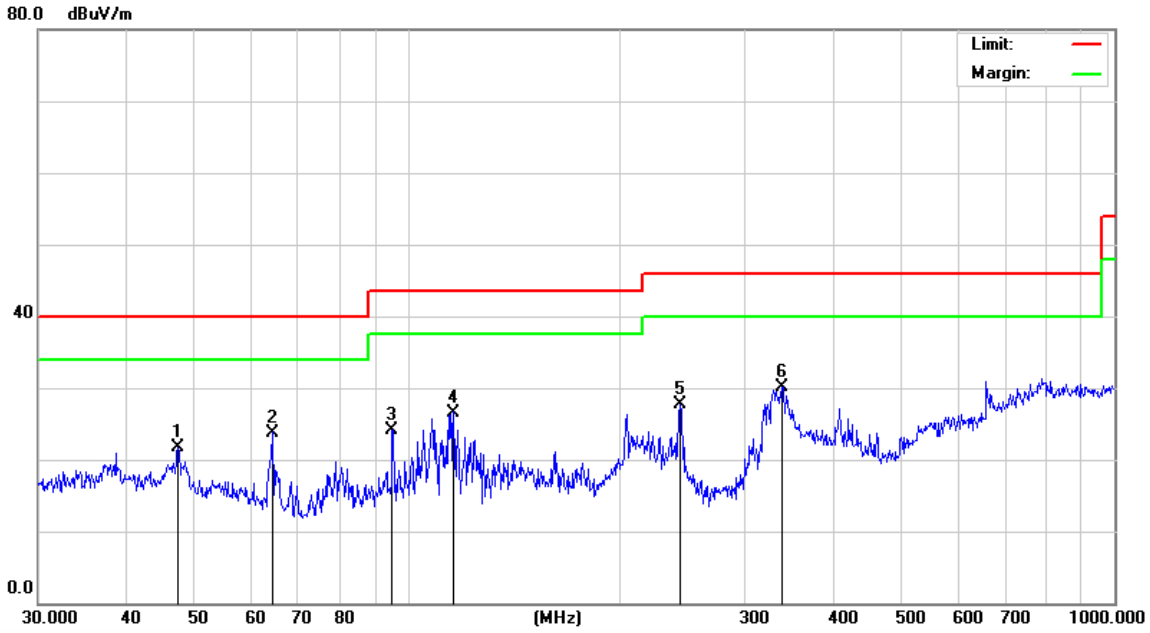
Distance extrapolation factor =20 log (specific distance/test distance)(dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

Note: The worst data is Antenna A, only shown Antenna A Plot.

TEST RESULTS (Between 30M – 1000 MHz)

EUT:	Acer One 14 Z3-471	Model No.:	EASR14
Temperature:	24	Relative Humidity:	55%
Distance:	3m	Test Power:	AC120V/60Hz
Polarization:	Vertical	Test Result:	Pass
Standard:	(RE)FCC PART 15	Test By:	Smile
Test Mode:	Keeping TX mode		

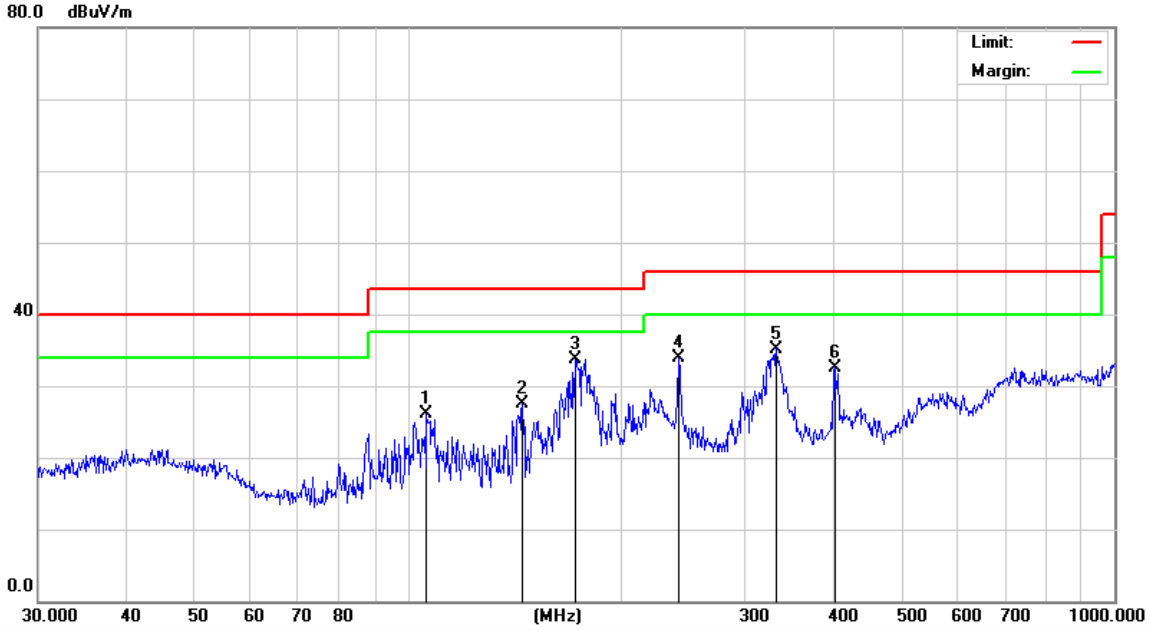


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		47.3253	26.93	-5.23	21.70	40.00	-18.30	peak
2		64.4330	32.46	-8.66	23.80	40.00	-16.20	peak
3		95.0930	33.91	-9.71	24.20	43.50	-19.30	peak
4		116.1320	35.11	-8.51	26.60	43.50	-16.90	peak
5		243.3771	34.19	-6.49	27.70	46.00	-18.30	peak
6	*	338.4001	35.71	-5.51	30.20	46.00	-15.80	peak

The test result is calculated as the following:

(1) Result = Reading + Correct Factor
(2) Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator
(3) Margin = Result - Limit

EUT:	Acer One 14 Z3-471	Model No.:	EASR14
Temperature:	24	Relative Humidity:	55%
Distance:	3m	Test Power:	AC120V/60Hz
Polarization:	**Horizontal**	Test Result:	Pass
Standard:	(RE)FCC PART 15	Test By:	Smile
Test Mode:	Keeping TX mode		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector
1		106.3850	33.27	-7.17	26.10	43.50	-17.40	peak
2		145.3505	34.27	-6.77	27.50	43.50	-16.00	peak
3	*	172.5988	41.22	-7.42	33.80	43.50	-9.70	peak
4		241.6762	40.41	-6.51	33.90	46.00	-12.10	peak
5		332.5187	42.87	-7.67	35.20	46.00	-10.80	peak
6		401.8385	35.31	-2.71	32.60	46.00	-13.40	peak

The test result is calculated as the following:

(4) Result = Reading + Correct Factor

(5) Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator

(6) Margin = Result - Limit

TEST RESULTS (Above 1000 MHz)

EUT:	Acer One 14 Z3-471	Model No.:	EASR14
Temperature:	24℃	Relative Humidity:	55%
Distance:	3m	Test Power:	120V 60Hz
Polarization:		Test Result:	Pass
Test Mode:	TX-802.11a/n20/n40/ac20/ac40/ac/80	Test By:	Smile

Above 1GHz:

Mode	Polar (H/V)	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV/m)	Margin (dB)	Detector (PK/AV)
802.11a-5180MHz	H	10360	33.99	12.56	46.55	74.00	-27.45	PEAK
	H	15540	35.96	16.45	52.41	74.00	-21.59	PEAK
	V	10360	35.61	12.56	48.17	74.00	-25.83	PEAK
	V	15540	36.23	16.45	52.68	74.00	-21.32	PEAK
802.11a-5220 MHz	H	10440	35.91	12.64	48.55	74.00	-25.45	PEAK
	H	15660	36.04	16.53	52.57	74.00	-21.43	PEAK
	V	10440	37.36	12.64	50.00	74.00	-24.00	PEAK
	V	15660	34.96	16.53	51.49	74.00	-22.51	PEAK
802.11a-5240 MHz	H	10480	33.56	12.68	46.24	74.00	-27.76	PEAK
	H	15720	34.37	16.54	50.91	74.00	-23.09	PEAK
	V	10480	35.69	12.68	48.37	74.00	-25.63	PEAK
	V	15720	34.39	16.54	50.93	74.00	-23.07	PEAK
802.11a-5745 MHz	H	11490	32.60	16.82	49.42	74.00	-24.58	PEAK
	H	17235	30.12	22.93	53.05	74.00	-20.95	PEAK
	V	11490	31.19	16.82	48.01	74.00	-25.99	PEAK
	V	17235	29.54	22.93	52.47	74.00	-21.53	PEAK
802.11a-5785 MHz	H	11570	31.51	16.71	48.22	74.00	-25.78	PEAK
	H	17355	28.09	24.37	52.46	74.00	-21.54	PEAK
	V	11570	30.49	16.71	47.20	74.00	-26.80	PEAK
	V	17355	28.56	24.37	52.93	74.00	-21.07	PEAK
802.11a-5825 MHz	H	11650	33.86	16.61	50.47	74.00	-23.53	PEAK
	H	17475	27.19	25.01	52.20	74.00	-21.80	PEAK
	V	11650	32.14	16.61	48.75	74.00	-25.25	PEAK
	V	17475	28.66	25.01	53.67	74.00	-20.33	PEAK

Mode	Polar (H/V)	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV/m)	Margin (dB)	Detector (PK/AV)
802.11n HT20-5180MHz	H	10360	32.58	12.56	45.14	74.00	-28.86	PEAK
	H	15540	35.20	16.45	51.65	74.00	-22.35	PEAK
	V	10360	35.34	12.56	47.90	74.00	-26.10	PEAK
	V	15540	36.42	16.45	52.87	74.00	-21.13	PEAK
802.11n HT20-5220MHz	H	10440	35.16	12.64	47.80	74.00	-26.20	PEAK
	H	15660	33.11	16.53	49.64	74.00	-24.36	PEAK
	V	10440	36.10	12.64	48.74	74.00	-25.26	PEAK
	V	15660	35.33	16.53	51.86	74.00	-22.14	PEAK
802.11n HT20-5240MHz	H	10480	35.17	12.68	47.85	74.00	-26.15	PEAK
	H	15720	32.48	16.54	49.02	74.00	-24.98	PEAK
	V	10480	33.75	12.68	46.43	74.00	-27.57	PEAK
	V	15720	33.80	16.54	50.34	74.00	-23.66	PEAK
802.11n HT20-5745MHz	H	11490	31.10	16.82	47.92	74.00	-26.08	PEAK
	H	17235	29.96	22.93	52.89	74.00	-21.11	PEAK
	V	11570	32.20	16.71	48.91	74.00	-25.09	PEAK
	V	17235	27.74	22.93	50.67	74.00	-23.33	PEAK
802.11n HT20-5785MHz	H	11570	29.65	16.71	46.36	74.00	-27.64	PEAK
	H	17355	28.04	24.37	52.41	74.00	-21.59	PEAK
	V	11570	33.26	16.71	49.97	74.00	-24.03	PEAK
	V	17355	29.04	24.37	53.41	74.00	-20.59	PEAK
802.11n HT20-5825MHz	H	11650	32.65	16.61	49.26	74.00	-24.74	PEAK
	H	17475	27.11	25.01	52.12	74.00	-21.88	PEAK
	V	11650	34.86	16.61	51.47	74.00	-22.53	PEAK
	V	17475	27.86	25.01	52.87	74.00	-21.13	PEAK
802.11n HT40-5190MHz	H	10380	36.09	12.58	48.67	74.00	-25.33	PEAK
	H	15570	34.56	16.48	51.04	74.00	-22.96	PEAK
	V	10380	36.54	12.58	49.12	74.00	-24.88	PEAK
	V	15570	33.08	16.48	49.56	74.00	-24.44	PEAK

Mode	Polar (H/V)	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV/m)	Margin (dB)	Detector (PK/AV)
802.11n HT40-5230MHz	H	10460	36.90	12.66	49.56	74.00	-24.44	PEAK
	H	15690	34.29	16.53	50.82	74.00	-23.18	PEAK
	V	10460	36.17	12.66	48.83	74.00	-25.17	PEAK
	V	15690	33.71	16.53	50.24	74.00	-23.76	PEAK
802.11n HT40-5755MHz	H	11510	32.44	16.78	49.22	74.00	-24.78	PEAK
	H	17265	28.25	23.29	51.54	74.00	-22.46	PEAK
	V	11510	33.22	16.78	50.00	74.00	-24.00	PEAK
	V	17265	29.20	23.29	52.49	74.00	-21.51	PEAK
802.11n HT40-5795MHz	H	11590	31.06	16.69	47.75	74.00	-26.25	PEAK
	H	17385	26.92	24.73	51.65	74.00	-22.35	PEAK
	V	11590	32.29	16.69	48.98	74.00	-25.02	PEAK
	V	17385	27.93	24.73	52.66	74.00	-21.34	PEAK
802.11ac HT20-5180MHz	H	10360	34.69	12.56	47.25	74.00	-26.75	PEAK
	H	15540	33.76	16.45	50.21	74.00	-23.79	PEAK
	V	10360	33.02	12.56	45.58	74.00	-28.42	PEAK
	V	15540	35.02	16.45	51.47	74.00	-22.53	PEAK
802.11ac HT20-5220MHz	H	10440	34.10	12.64	46.74	74.00	-27.26	PEAK
	H	15660	31.46	16.53	47.99	74.00	-26.01	PEAK
	V	10440	33.36	12.64	46.00	74.00	-28.00	PEAK
	V	15660	31.06	16.53	47.59	74.00	-26.41	PEAK
802.11ac HT20-5240MHz	H	10480	34.11	12.68	46.79	74.00	-27.21	PEAK
	H	15720	32.33	16.54	48.87	74.00	-25.13	PEAK
	V	10480	32.33	12.68	45.01	74.00	-28.99	PEAK
	V	15720	34.24	16.54	50.78	74.00	-23.22	PEAK
802.11ac HT20-5745MHz	H	11490	32.61	16.82	49.43	74.00	-24.57	PEAK
	H	17235	30.22	22.93	53.15	74.00	-20.85	PEAK
	V	11490	30.94	16.82	47.76	74.00	-26.24	PEAK
	V	17235	28.44	22.93	51.37	74.00	-22.63	PEAK

Mode	Polar (H/V)	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV/m)	Margin (dB)	Detector (PK/AV)
802.11ac HT20-5785MHz	H	11570	33.48	16.71	50.19	74.00	-23.81	PEAK
	H	17355	27.09	24.37	51.46	74.00	-22.54	PEAK
	V	11570	31.85	16.71	48.56	74.00	-25.44	PEAK
	V	17355	28.20	24.37	52.57	74.00	-21.43	PEAK
802.11ac HT20-5825MHz	H	11650	32.15	16.61	48.76	74.00	-25.24	PEAK
	H	17475	26.98	25.01	51.99	74.00	-22.01	PEAK
	V	11650	32.45	16.61	49.06	74.00	-24.94	PEAK
	V	17475	27.49	25.01	52.50	74.00	-21.50	PEAK
802.11ac HT40-5190MHz	H	10380	32.80	12.58	45.38	74.00	-28.62	PEAK
	H	15570	34.78	16.48	51.26	74.00	-22.74	PEAK
	V	10380	35.18	12.58	47.76	74.00	-26.24	PEAK
	V	15570	32.71	16.48	49.19	74.00	-24.81	PEAK
802.11ac HT40-5230MHz	H	10460	34.47	12.66	47.13	74.00	-26.87	PEAK
	H	15690	31.60	16.53	48.13	74.00	-25.87	PEAK
	V	10460	34.55	12.66	47.21	74.00	-26.79	PEAK
	V	15690	33.01	16.53	49.54	74.00	-24.46	PEAK
802.11ac HT40-5755MHz	H	11510	31.81	16.78	48.59	74.00	-25.41	PEAK
	H	17265	27.39	23.29	50.68	74.00	-23.32	PEAK
	V	11510	31.62	16.78	48.40	74.00	-25.60	PEAK
	V	17265	27.34	23.29	50.63	74.00	-23.37	PEAK
802.11ac HT40-5795MHz	H	11590	31.87	16.69	48.56	74.00	-25.44	PEAK
	H	17385	26.18	24.73	50.91	74.00	-23.09	PEAK
	V	11590	30.82	16.69	47.51	74.00	-26.49	PEAK
	V	17385	27.65	24.73	52.38	74.00	-21.62	PEAK
802.11ac HT80-5210MHz	H	10420	32.84	12.62	45.46	74.00	-28.54	PEAK
	H	15630	33.17	16.52	49.69	74.00	-24.31	PEAK
	V	10420	33.77	12.62	46.39	74.00	-27.61	PEAK
	V	15630	32.15	16.52	48.67	74.00	-25.33	PEAK

Mode	Polar (H/V)	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV/m)	Margin (dB)	Detector (PK/AV)
802.11ac HT80-5775MHz	H	11550	32.00	16.73	48.73	74.00	-25.27	PEAK
	H	17325	26.28	24.01	50.29	74.00	-23.71	PEAK
	V	11550	29.86	16.73	46.59	74.00	-27.41	PEAK
	V	17325	25.16	24.01	49.17	74.00	-24.83	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.

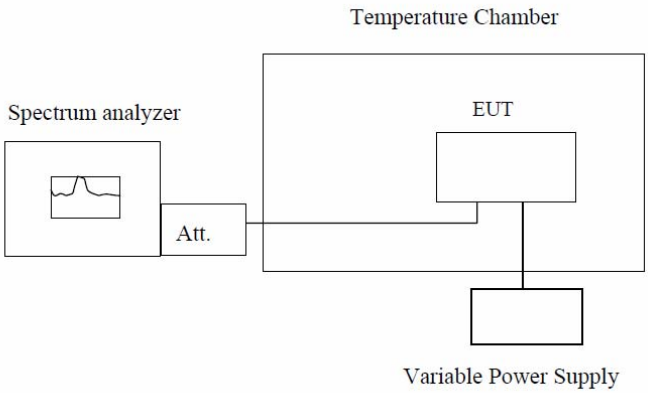
Average measurement was not performed if peak level lower than average limit.

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. 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 7.6V					
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	5180.0077	5180.0396	5180.4997	5179.9395
	5200	5200.0096	5200.7765	5199.8823	5199.3177
	5220	5219.8654	5220.3884	5220.5184	5220.1628
	5240	5239.8948	5240.6343	5240.2208	5239.6181
	5745	5745.0867	5745.1231	5745.0519	5745.2713
	5785	5784.9459	5785.0006	5785.0584	5785.0531
	5825	5824.9602	5825.0632	5825.0526	5825.0087
-20	5180	5179.7134	5180.3065	5180.6032	5179.9941
	5200	5199.4938	5200.5849	5200.1116	5199.7174
	5220	5219.4432	5220.5758	5220.0845	5219.6105
	5240	5239.2972	5240.1933	5240.4719	5238.9535
	5745	5744.9968	5744.7737	5745.0501	5744.9519
	5785	5784.8050	5785.1518	5785.0753	5784.8073
	5825	5824.8493	5825.0664	5824.8677	5824.8958
-10	5180	5178.9931	5180.3528	5180.1319	5178.8999
	5200	5199.8707	5200.6847	5200.9602	5199.0439
	5220	5219.6594	5220.7005	5220.2398	5219.4705
	5240	5239.4116	5240.6426	5240.9164	5239.2351
	5745	5744.8857	5745.0446	5745.0524	5744.9424
	5785	5785.0655	5784.8130	5785.0492	5784.8774
	5825	5824.9996	5824.8815	5825.0597	5825.0265
0	5180	5180.1578	5180.6914	5180.4269	5179.3517
	5200	5199.5006	5200.6395	5200.6838	5199.7878
	5220	5219.1496	5219.8829	5220.0698	5219.8858
	5240	5239.4931	5240.7902	5240.2230	5239.4248
	5745	5745.0029	5744.9788	5744.9876	5745.1017
	5785	5785.1133	5785.0702	5784.9540	5784.8163
	5825	5825.0293	5824.9794	5825.0588	5825.0279

10	5180	5179.7834	5180.0232	5180.2874	5179.7654
	5200	5199.8097	5200.1238	5200.5805	5199.7177
	5220	5219.1243	5220.2104	5220.1196	5220.0240
	5240	5239.7958	5240.3628	5240.6828	5239.6979
	5745	5744.8786	5745.0039	5745.1539	5745.1595
	5785	5785.0718	5784.9550	5785.0292	5785.0091
	5825	5825.0773	5825.0913	5824.9930	5824.9489
20	5180	5179.8711	5180.1071	5180.2750	5179.4002
	5200	5199.6281	5200.2599	5200.8768	5199.4620
	5220	5219.3830	5220.8355	5220.3600	5219.5245
	5240	5239.1970	5240.9399	5240.2897	5239.3777
	5745	5744.9891	5744.8945	5745.1738	5744.8251
	5785	5784.8177	5784.8031	5784.8627	5785.0345
	5825	5824.9305	5824.9555	5825.1707	5825.0113
30	5180	5179.7192	5180.0505	5180.1893	5179.8640
	5200	5199.2499	5200.2637	5200.4372	5199.5986
	5220	5219.3585	5220.4822	5220.9199	5219.5543
	5240	5239.5044	5240.2337	5240.5960	5239.8827
	5745	5744.8528	5744.8915	5744.9274	5745.0691
	5785	5785.1089	5784.7701	5784.7312	5784.6856
	5825	5825.0402	5825.0205	5824.7903	5824.8628
40	5180	5179.7005	5180.6169	5180.2424	5180.0489
	5200	5199.3899	5200.5656	5200.8614	5199.8618
	5220	5219.4181	5220.6180	5220.6302	5219.8635
	5240	5239.2315	5240.8680	5240.9009	5240.0820
	5745	5744.9944	5744.9937	5745.1626	5745.1909
	5785	5785.0319	5785.0570	5784.9323	5785.2067
	5825	5825.0863	5825.1778	5824.8547	5824.8409
50	5180	5179.3993	5180.6832	5180.3388	5179.2610
	5200	5199.3434	5200.7762	5200.2362	5199.2486
	5220	5219.6475	5220.8343	5220.4289	5219.4427
	5240	5239.4529	5240.1688	5239.9703	5239.4181
	5745	5745.0027	5744.9144	5745.0233	5745.0025
	5785	5784.9467	5785.0129	5785.0714	5784.9061
	5825	5824.9126	5824.9224	5825.2220	5825.1058

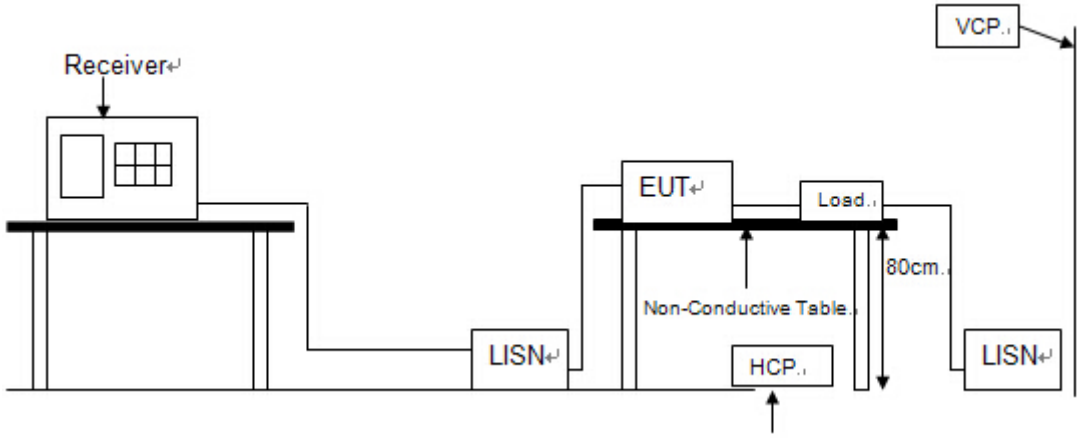
Frequency stability versus Voltage					
Temperature: 25°C					
Power Supply (VDC)	Operating Frequency (MHz)	0 minute Measured Frequency (MHz)	2 minute Measured Frequency (MHz)	5 minute Measured Frequency (MHz)	10 minute Measured Frequency (MHz)
6.9	5180	5179.9954	5179.9798	5180.0984	5180.0762
	5200	5200.0228	5200.0602	5199.7836	5200.0289
	5220	5219.9579	5220.3818	5219.9721	5219.9079
	5240	5240.8100	5240.7670	5239.8696	5239.4233
	5745	5745.0483	5744.9367	5744.8335	5745.1117
	5785	5784.7181	5785.0363	5784.8840	5785.1811
	5825	5825.0322	5824.8314	5824.9232	5824.9248
7.6	5180	5181.1544	5180.2484	5179.1764	5179.1654
	5200	5200.2315	5200.4309	5199.9379	5199.1920
	5220	5220.1629	5220.2528	5219.8481	5219.5668
	5240	5240.0710	5240.8685	5239.1965	5239.6956
	5745	5744.9071	5744.8398	5745.1517	5744.9604
	5785	5784.8779	5785.0332	5785.0008	5784.9463
	5825	5824.8483	5825.0241	5824.8454	5824.9458
8.4	5180	5180.1669	5180.5917	5179.2623	5179.2367
	5200	5200.3482	5200.4080	5199.2099	5199.2577
	5220	5219.8670	5220.7085	5219.0231	5219.2967
	5240	5240.6742	5240.3940	5239.5189	5239.0839
	5745	5744.7861	5744.9421	5745.0656	5744.9607
	5785	5784.7945	5784.7504	5784.8934	5784.8472
	5825	5824.7289	5824.9320	5824.7380	5825.0317

9. POWER LINE CONDUCTED EMISSION

9.1 Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Pulse Limiter	MTS-systemtechnik	MTS-IMP-136	261115-010-0024	12/17/2019
2	EMI Test Receiver	R&S	ESCI	101308	12/17/2019
3	LISN	AFJ	LS16	16011103219	12/17/2019
4	LISN	Schwarzbeck	NSLK 8127	8127-432	12/17/2019
5	Measurement Software	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A
6	MeasurementSoftware	Farad	EZ-EMC (Ver.ATT-03A)	N/A	N/A

9.2 Block diagram of test setup



9.3 Power Line Conducted Emission Limits(Class B)

Frequency	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Note 1: * Decreasing linearly with logarithm of frequency.

Note 2: The lower limit shall apply at the transition frequencies.

9.4 TEST PROCEDURE

The EUT and Support equipment, if needed, were put placed on a non-metallic table, 80cm above the ground plane.

Configuration EUT to simulate typical usage as described in clause 2.4 and test equipment as described in clause 10.2 of this report.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.

All support equipment power received from a second LISN.

Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in clause 2.4 were scanned during the preliminary test.

After the preliminary scan, we found the test mode producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Neutral and Line, recording at least the six highest emissions.

Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

The bandwidth of test receiver is set at 9 KHz.

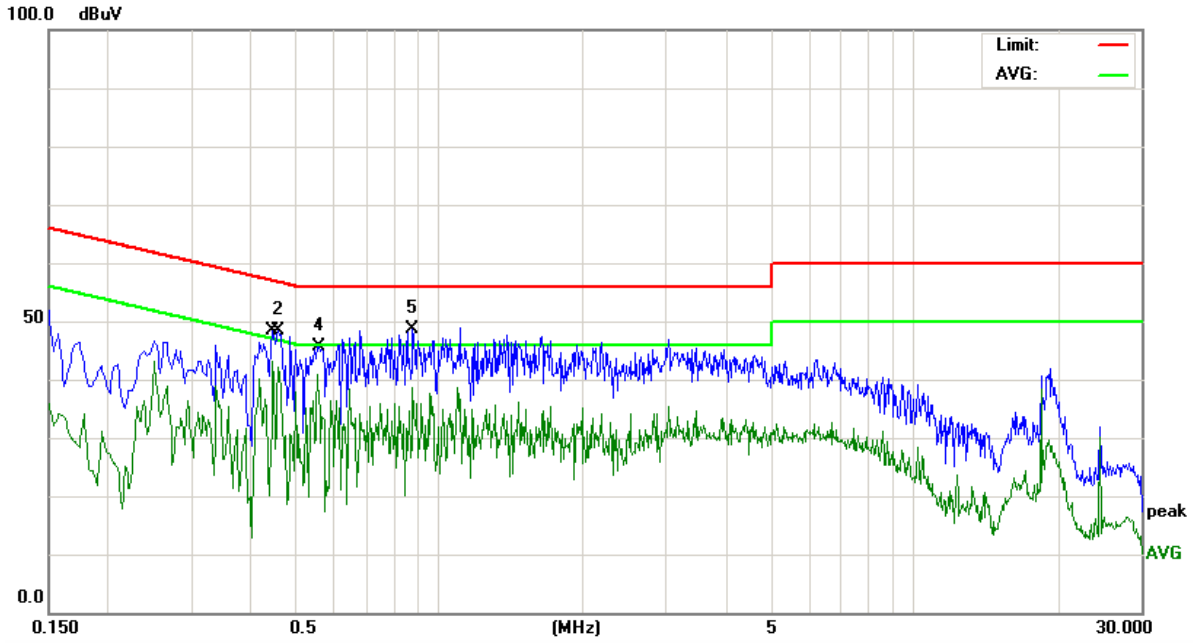
9.5 Test Result

PASS. (See below detailed test result)

Note1: All emissions not reported below are too low against the prescribed limits.

Note2: “-----” means peak detection; “-----” mans average detection

EUT:	Table PC	Model No.:	EASR14
Temperature:	23℃	Relative Humidity:	52%
Probe:	N	Test Power:	AC 120V/60Hz
Test Time:	2019-10-09	Test Result:	Pass
Standard:	(CE)FCC PART 15 class B_QP		
Test Mode:	TX		
Note:			

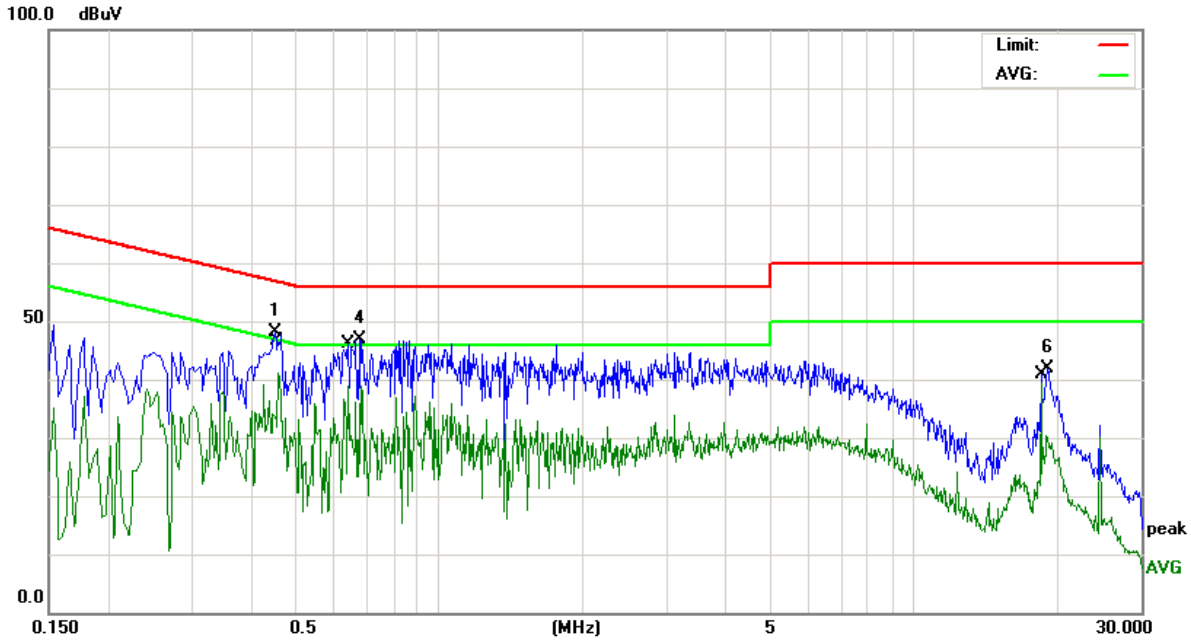


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.4460	33.11	10.07	43.18	46.95	-3.77	AVG
2		0.4580	38.28	10.06	48.34	56.73	-8.39	peak
3		0.5540	30.91	10.00	40.91	46.00	-5.09	AVG
4		0.5580	35.59	10.00	45.59	56.00	-10.41	peak
5		0.8780	38.56	9.95	48.51	56.00	-7.49	peak
6		0.8780	28.61	9.95	38.56	46.00	-7.44	AVG

The test result is calculated as the following:

(1) Result = Reading + Correct Factor
(2) Correct Factor = (LISN, ISN, PLC or Current Probe) Factor + Cable Loss +Attenuator
(3) Margin = Result - Limit

EUT:	Table PC	Model No.:	EASR14
Temperature:	23℃	Relative Humidity:	52%
Probe:	L1	Test Power:	AC 120V/60Hz
Test Time:	2019-10-09	Test Result:	Pass
Standard:	(CE)FCC PART 15 class B_QP		
Test Mode:	TX		
Note:			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.4500	38.16	10.07	48.23	56.87	-8.64	peak
2	*	0.4580	31.11	10.06	41.17	46.73	-5.56	AVG
3		0.6419	28.94	9.99	38.93	46.00	-7.07	AVG
4		0.6780	37.01	9.98	46.99	56.00	-9.01	peak
5		18.4340	28.61	10.87	39.48	50.00	-10.52	AVG
6		19.1060	31.01	10.97	41.98	60.00	-18.02	peak

The test result is calculated as the following:

(1) Result = Reading + Correct Factor
(2) Correct Factor = (LISN, ISN, PLC or Current Probe) Factor + Cable Loss +Attenuator
(3) Margin = Result - Limit

10. ANTENNA REQUIREMENTS

10.1. Limit

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

10.2. EUT ANTENNA

The antennas used for this product are built-in undetachable FPCB antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 1.94 dBi. and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

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