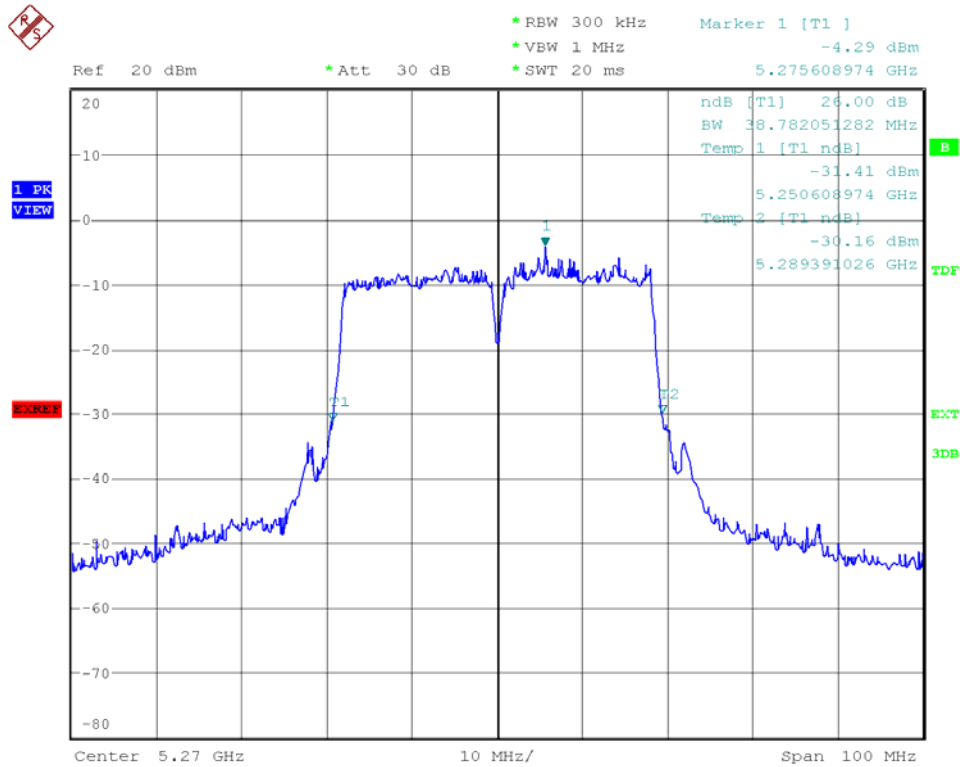
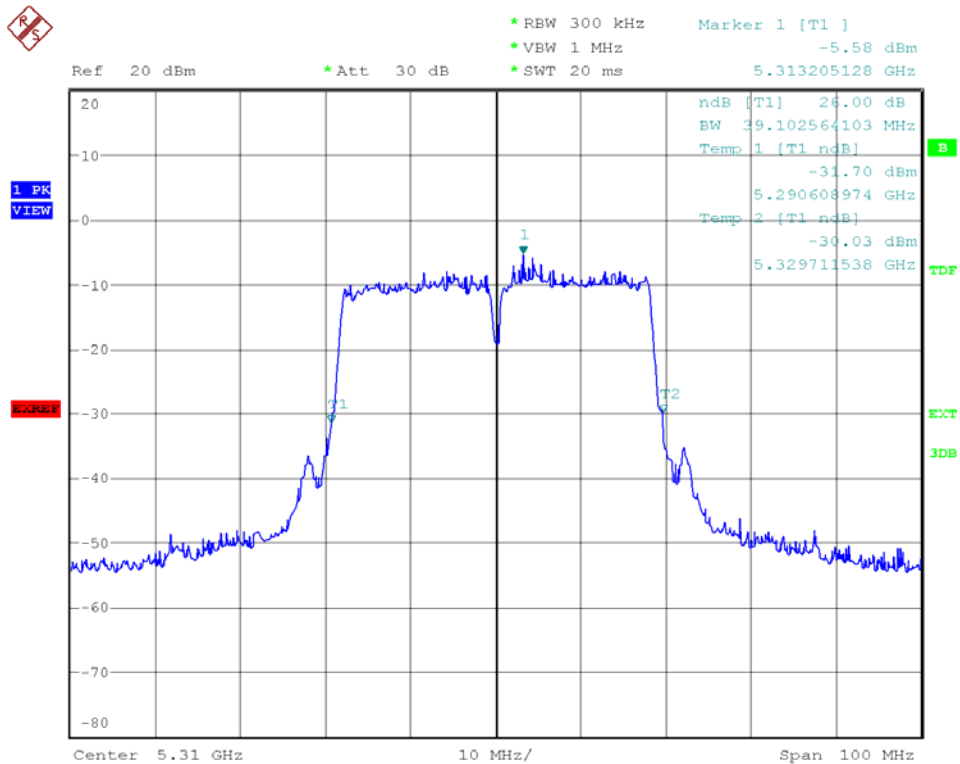




Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 54

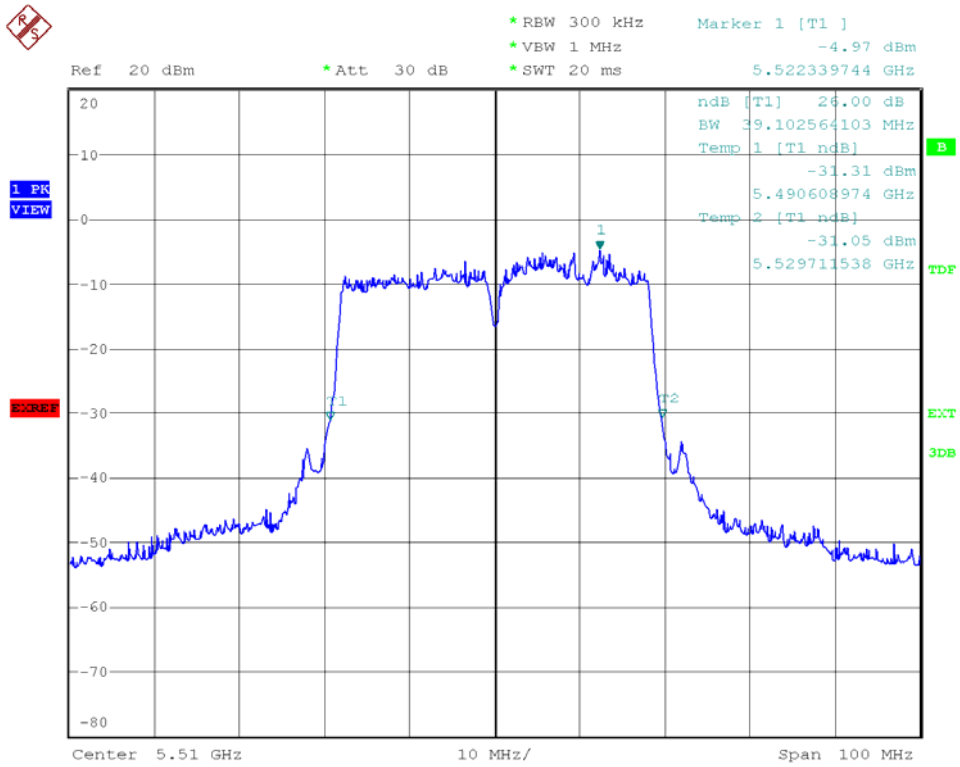


Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 62

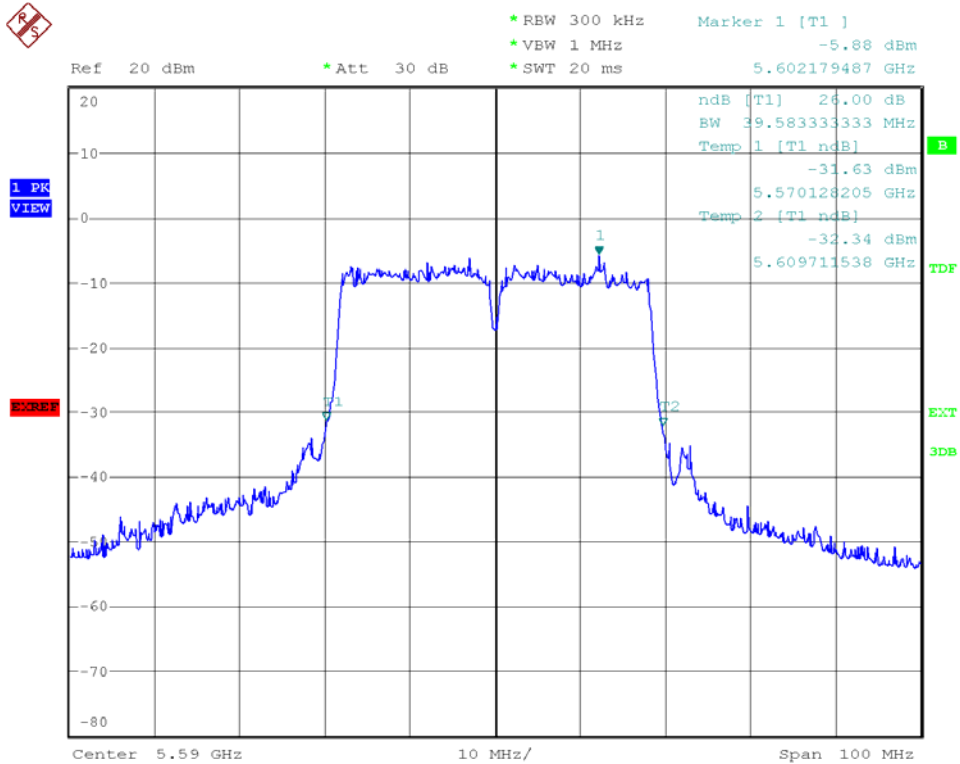




Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 102

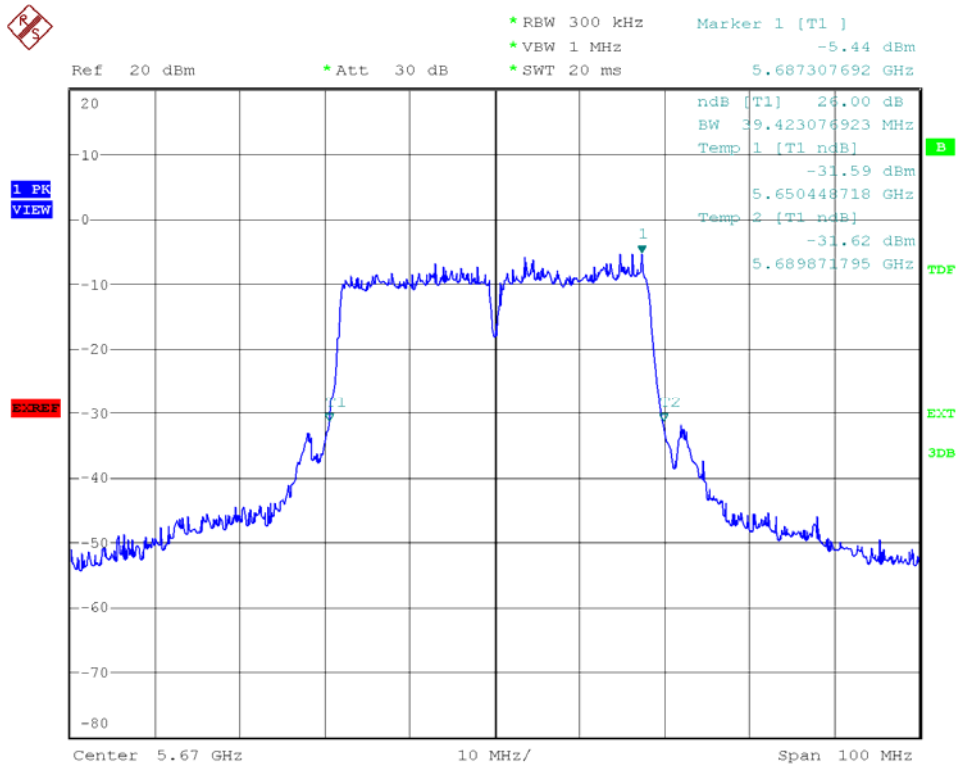


Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 118

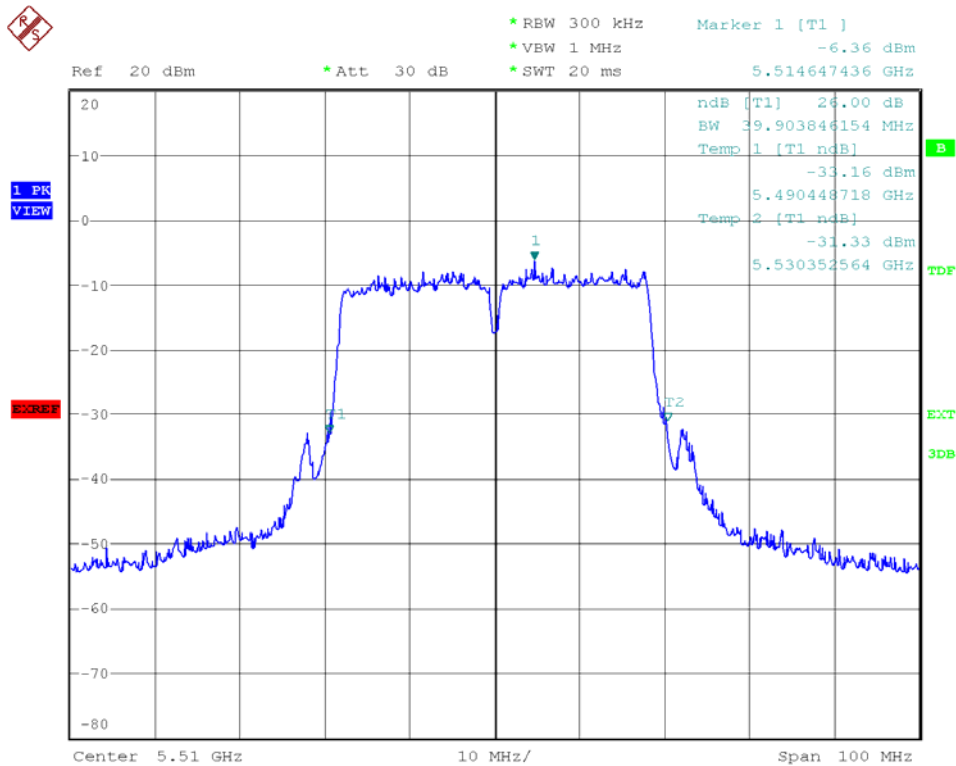




Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 134

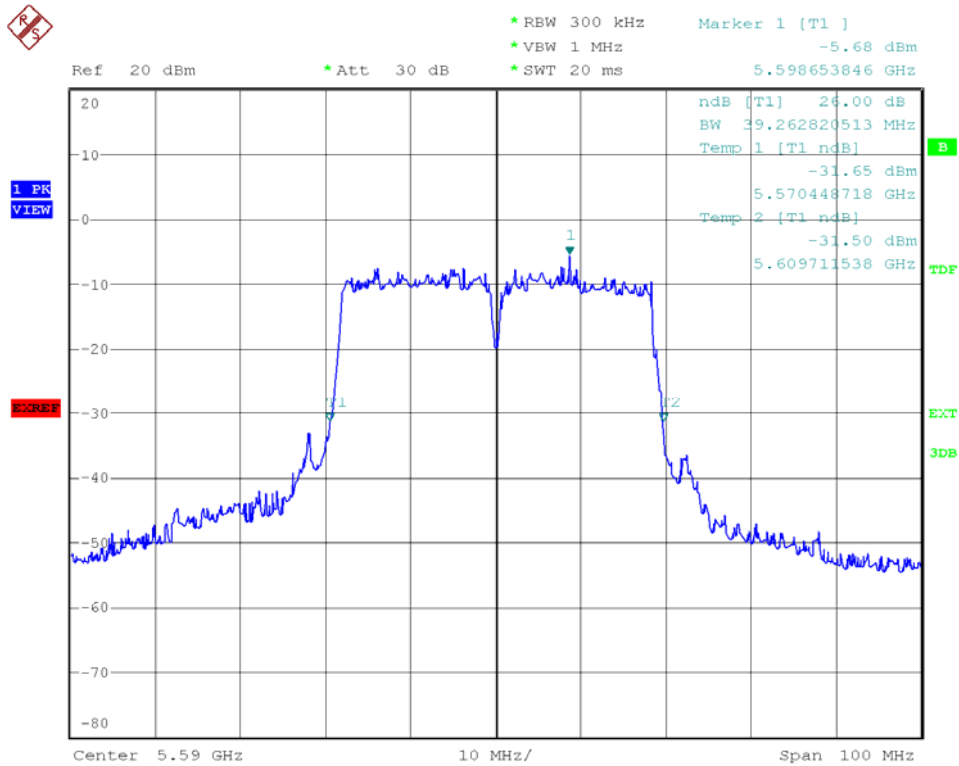


Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 102

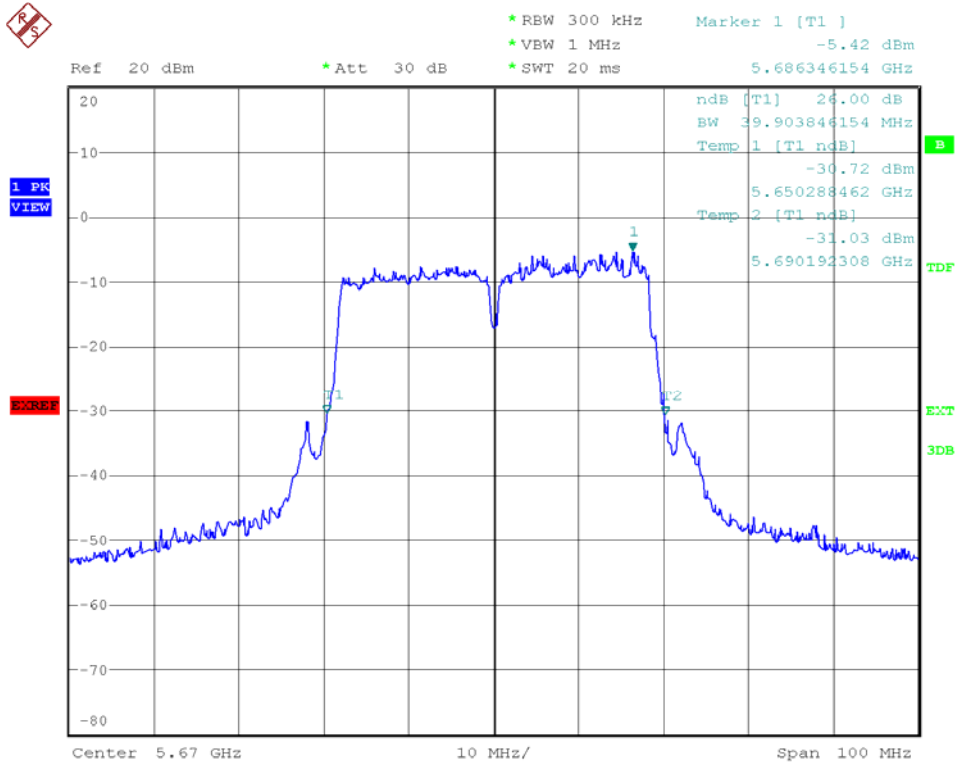




Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 118



Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 134



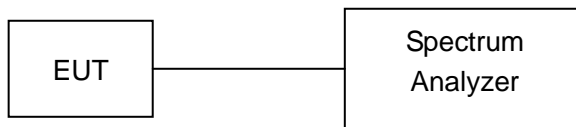


## 7. Peak Power Excursion

### 7.1. Test Procedure

1. The transmitter output was connected to the spectrum analyzer
2. Using Peak detector and max-hold function for Trace 1 MHz and VBW to 3 MHz for Trace 1. Using average detector for Trace 2.
3. Set RBW of spectrum analyzer to 1 MHz and VBW to 3 MHz for Trace 1.
4. Set RBW of spectrum analyzer to 1 MHz and VBW to 300 kHz for Trace 2.
5. The largest difference between Trace 1 and Trace 2 in any 1 MHz band on any frequency was recorded.

### 7.2. Test Setup Layout



### 7.3. Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date.
Spectrum Analyzer	FSP40	R&S	10047	2009/02/21	2010/02/20

### 7.4. Test Result and Data

Test Date: Mar. 10, 2009

Temperature: 25°C

Atmospheric pressure: 1024 hPa

Humidity: 48%

Modulation Standard: 802.11a (6Mbps)

Channel	Frequency (MHz)	Peak Power Output (dBm)		Limit (dB)
		Ant R	Ant L	
36	5180	12.48	12.77	13
44	5220	12.92	12.80	13
48	5240	12.25	12.63	13
56	5280	11.57	12.52	13
60	5300	11.73	11.05	13
64	5320	12.43	11.76	13
100	5500	12.07	11.74	13
120	5600	11.53	11.17	13
140	5700	11.57	12.02	13



Modulation Standard: 802.11an HT20 (130Mbps)

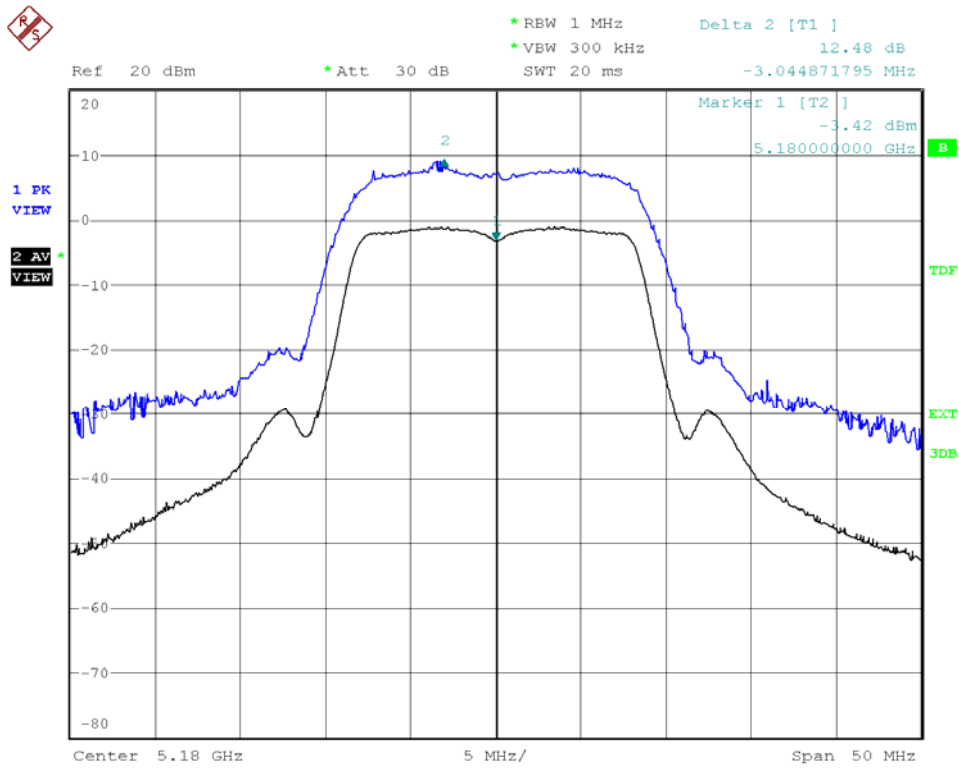
Channel	Frequency (MHz)	Peak Power Output (dBm)		Limit (dB)
		Ant R	Ant L	
36	5180	12.06	11.55	13
44	5220	12.30	12.35	13
48	5240	11.91	11.54	13
56	5280	11.75	11.80	13
60	5300	11.97	11.22	13
64	5320	11.61	12.01	13
100	5500	12.10	12.16	13
120	5600	12.07	11.47	13
140	5700	11.64	11.95	13

Modulation Standard: 802.11an HT40 (270Mbps)

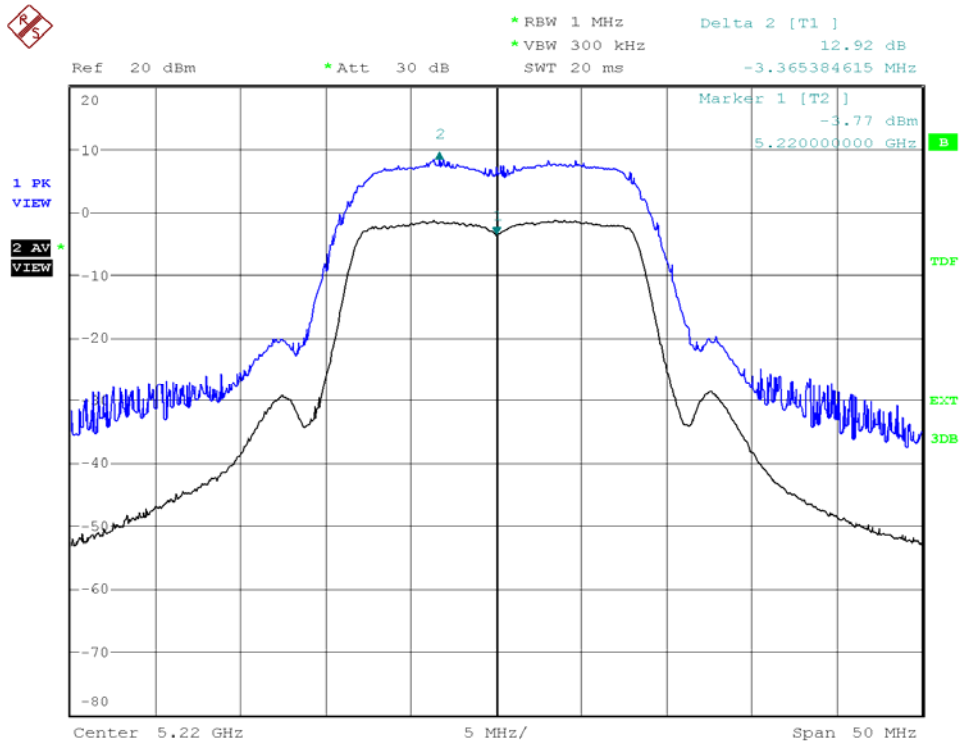
Channel	Frequency (MHz)	Peak Power Output (dBm)		Limit (dB)
		Ant R	Ant L	
38	5190	12.49	11.56	13
46	5230	11.52	11.82	13
54	5270	11.64	11.42	13
62	5310	10.90	11.65	13
102	5510	12.07	12.35	13
118	5590	11.69	11.84	13
134	5670	12.04	11.58	13



Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 36

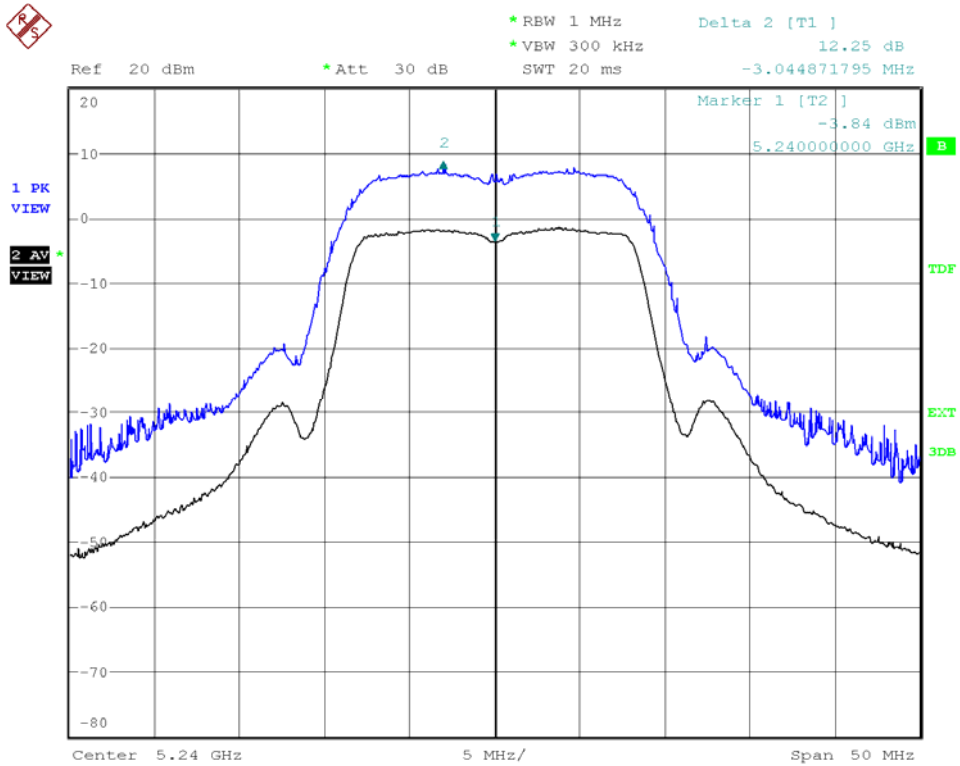


Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 44

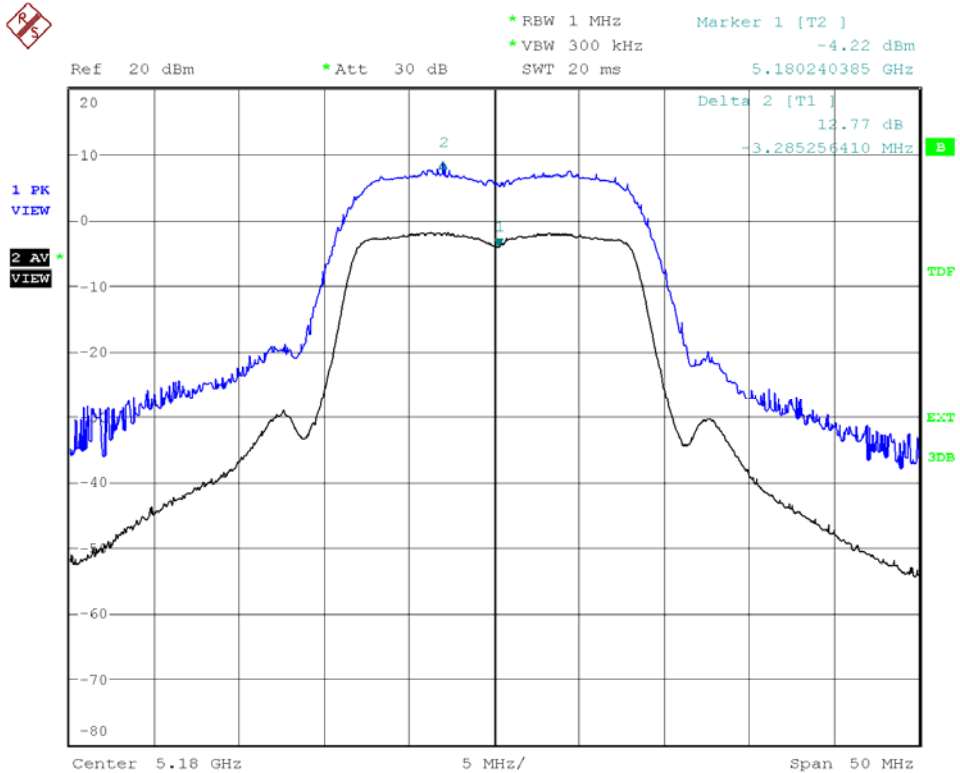




Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 48



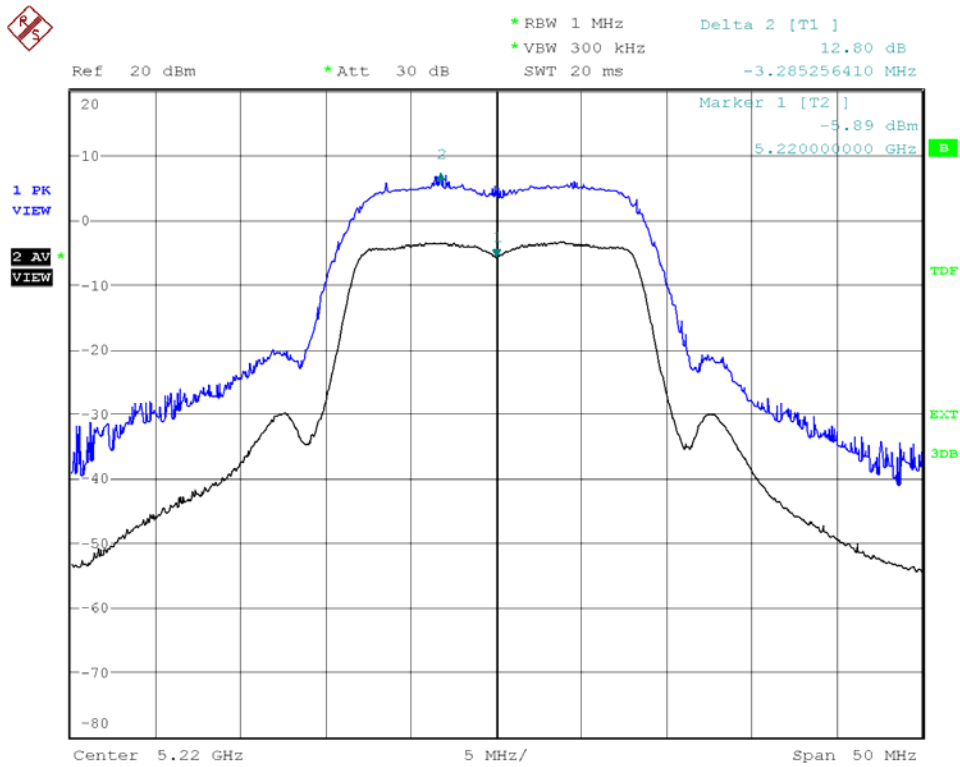
Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 36



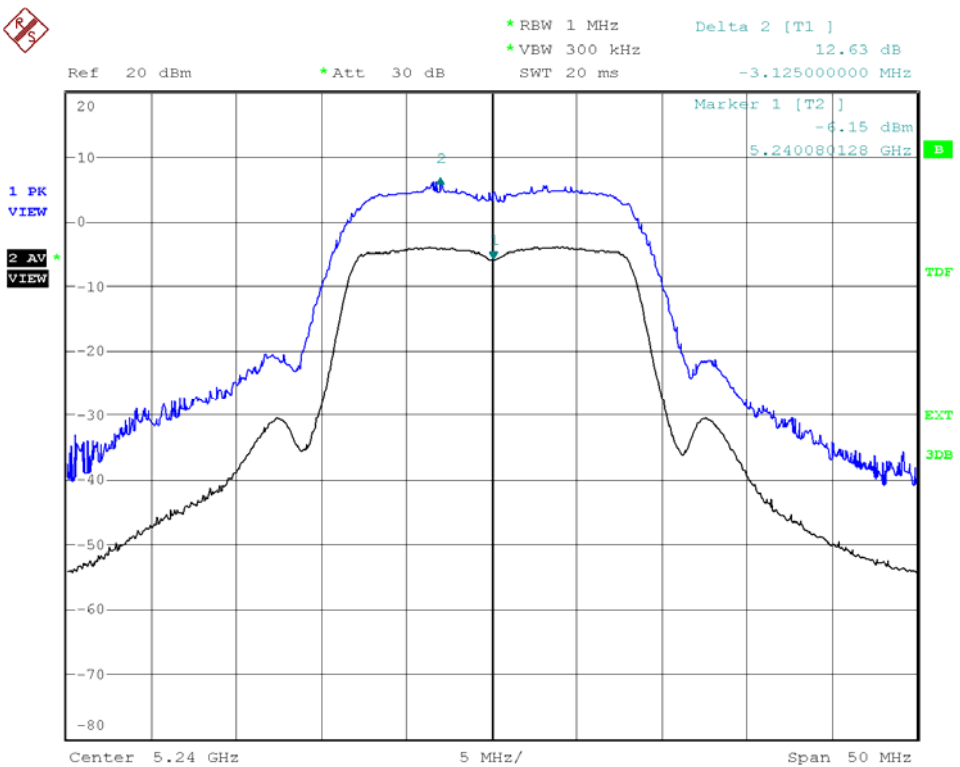




Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 44

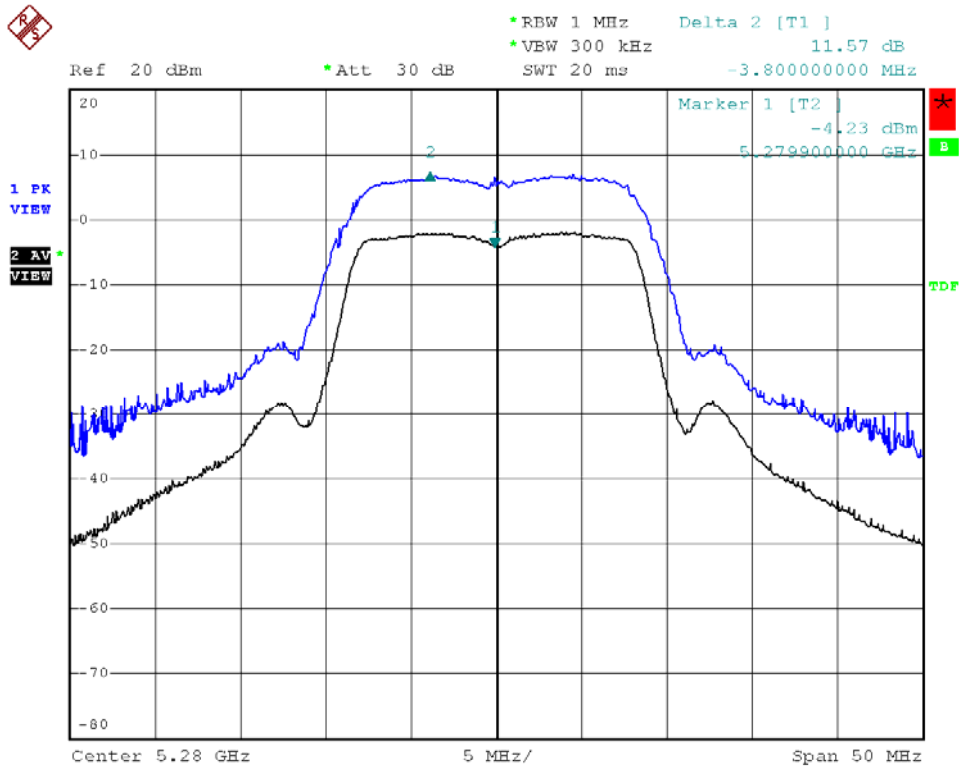


Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 48

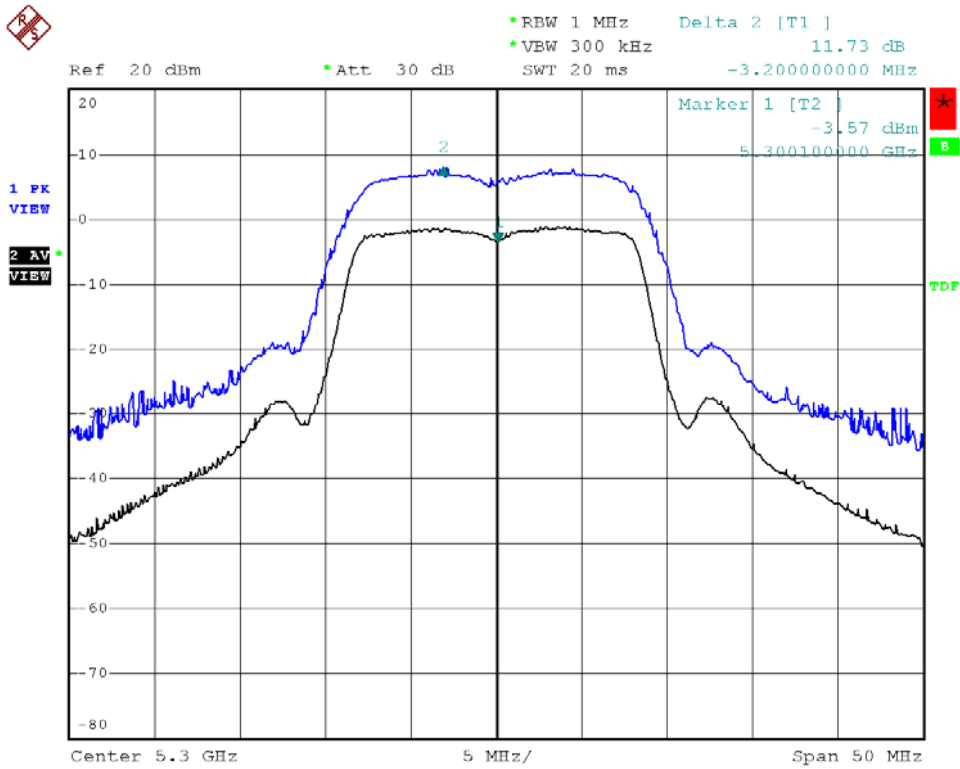




Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 56

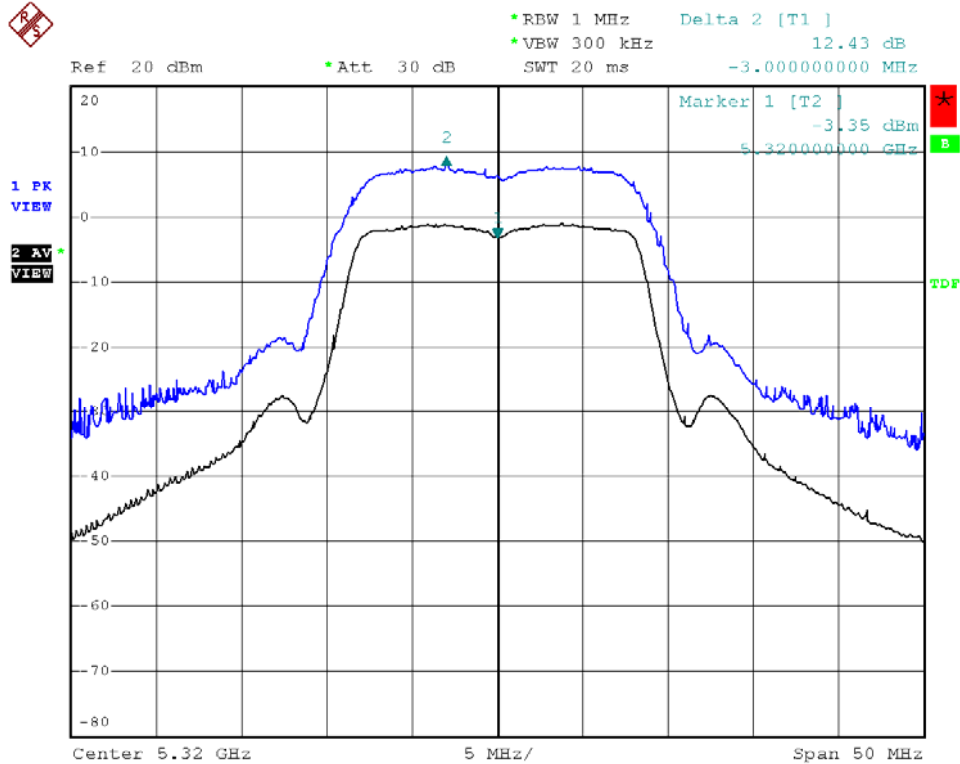


Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 60

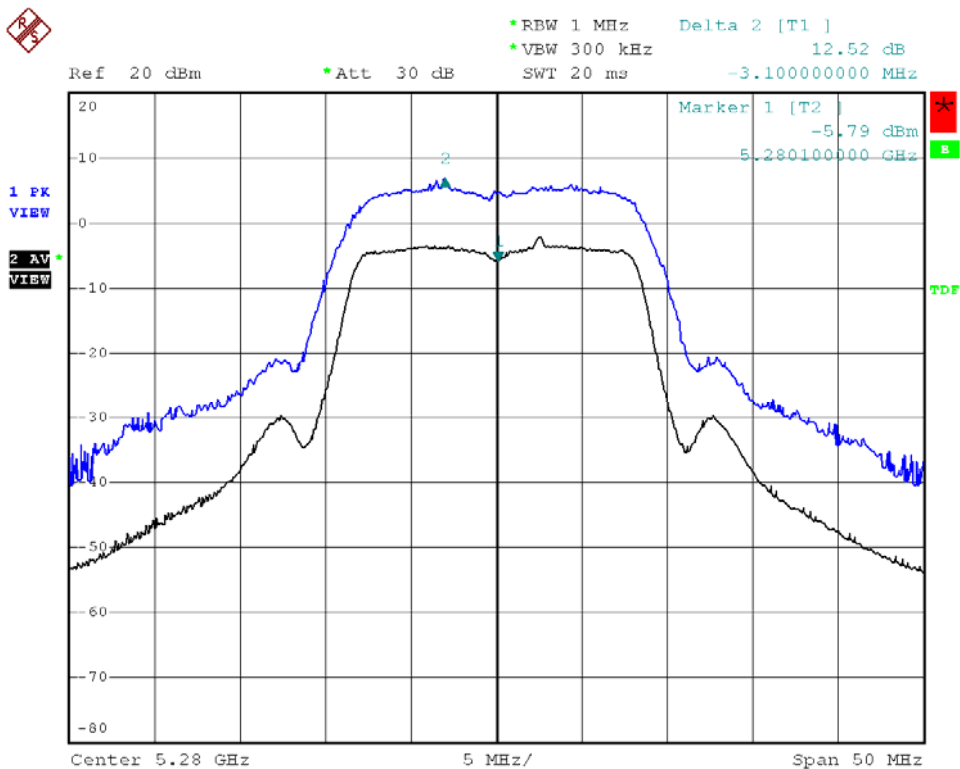




Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 64

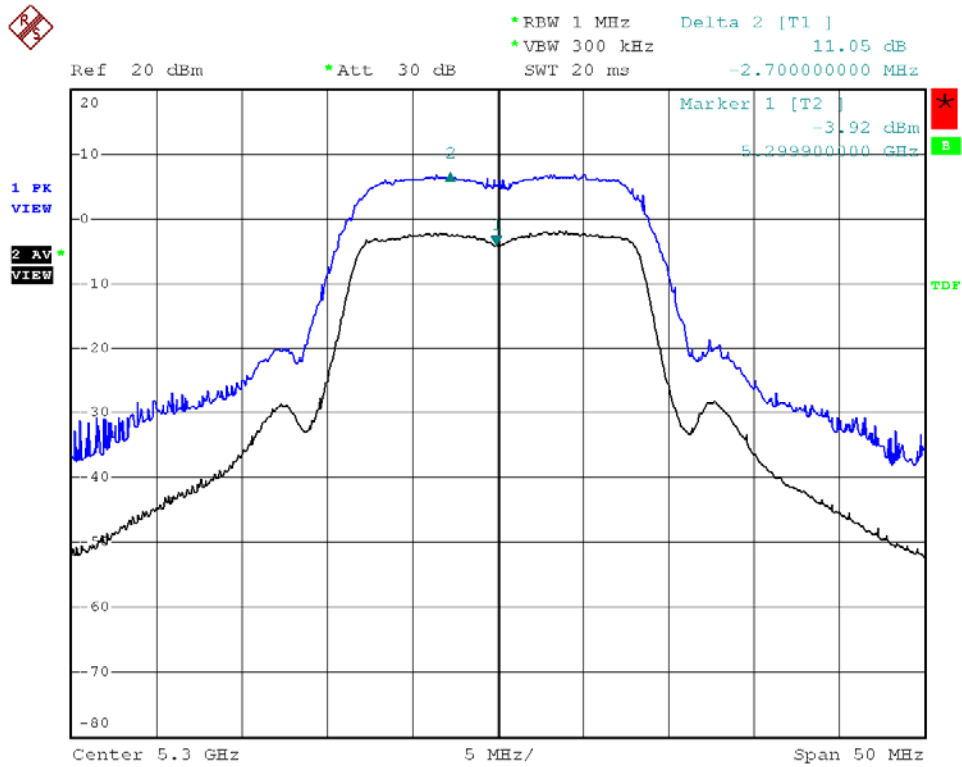


Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 56

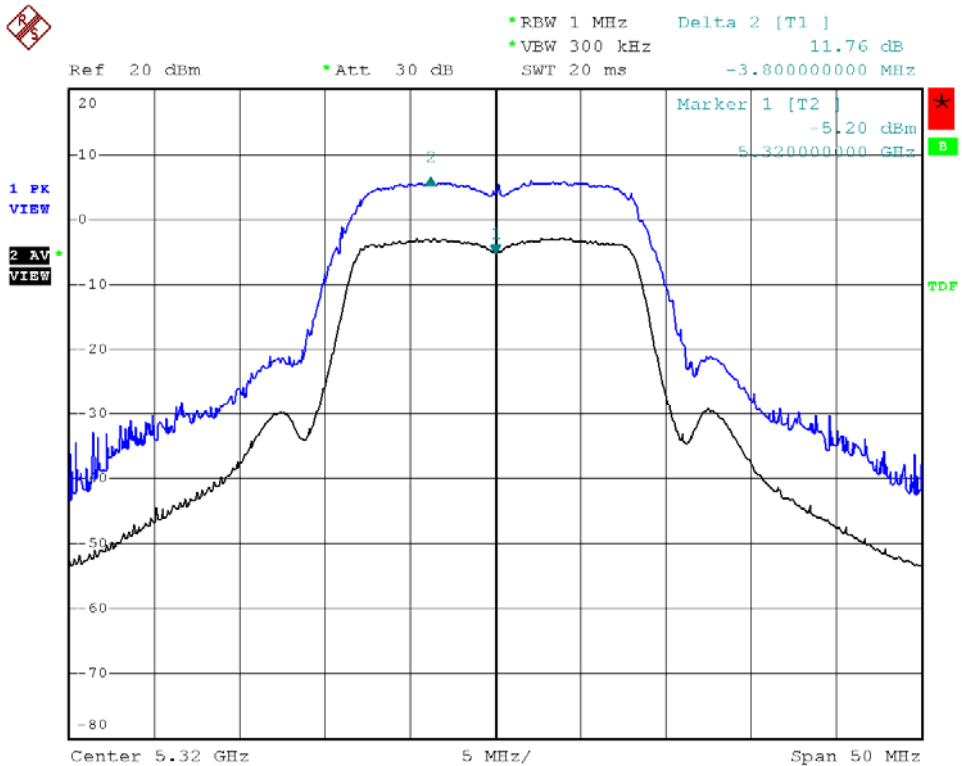




Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 60

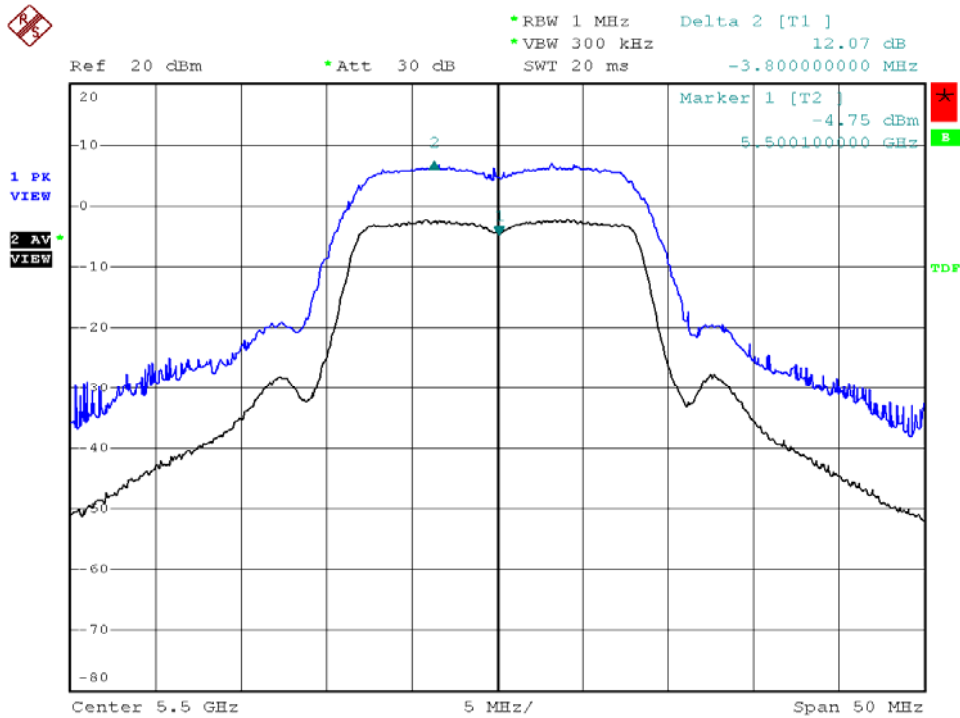


Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 64

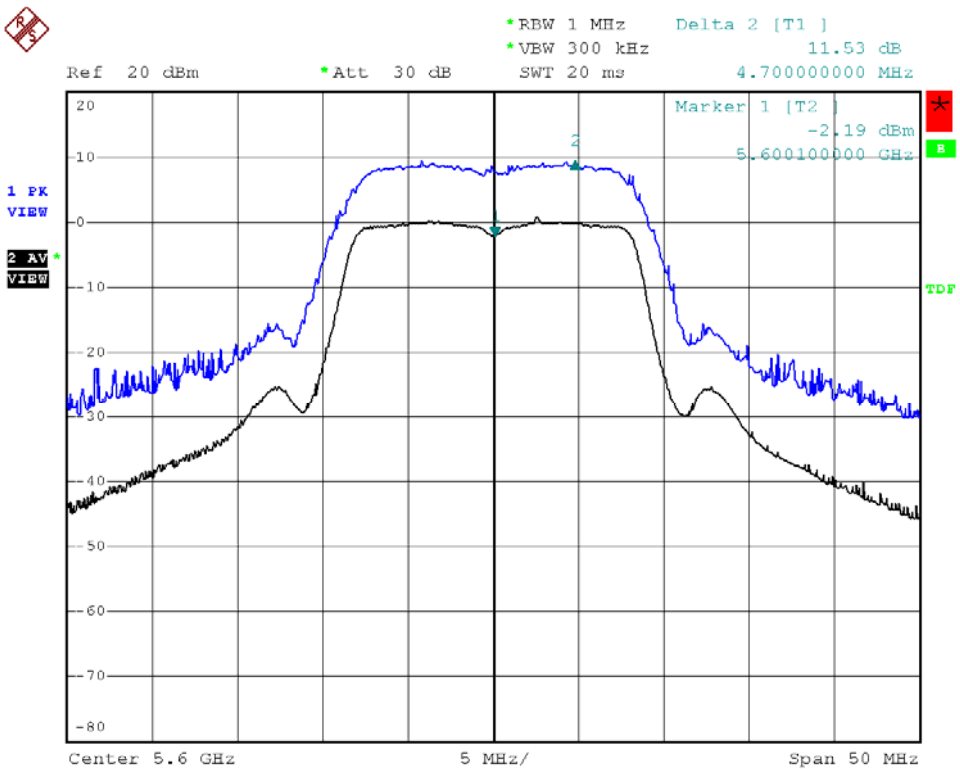




Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 100

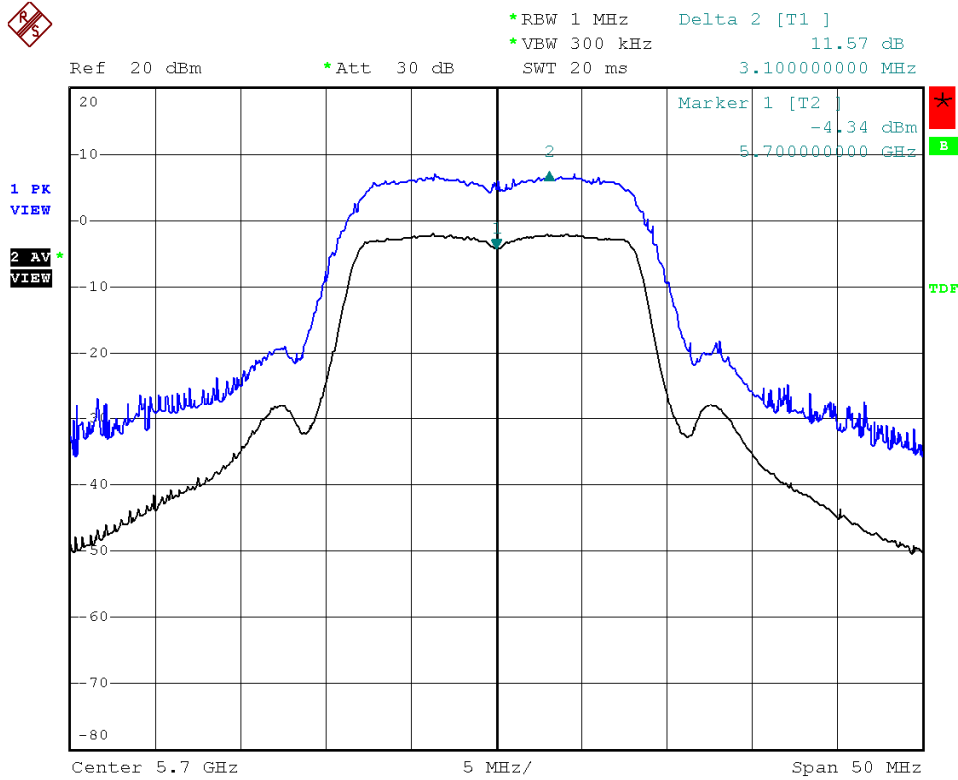


Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 120

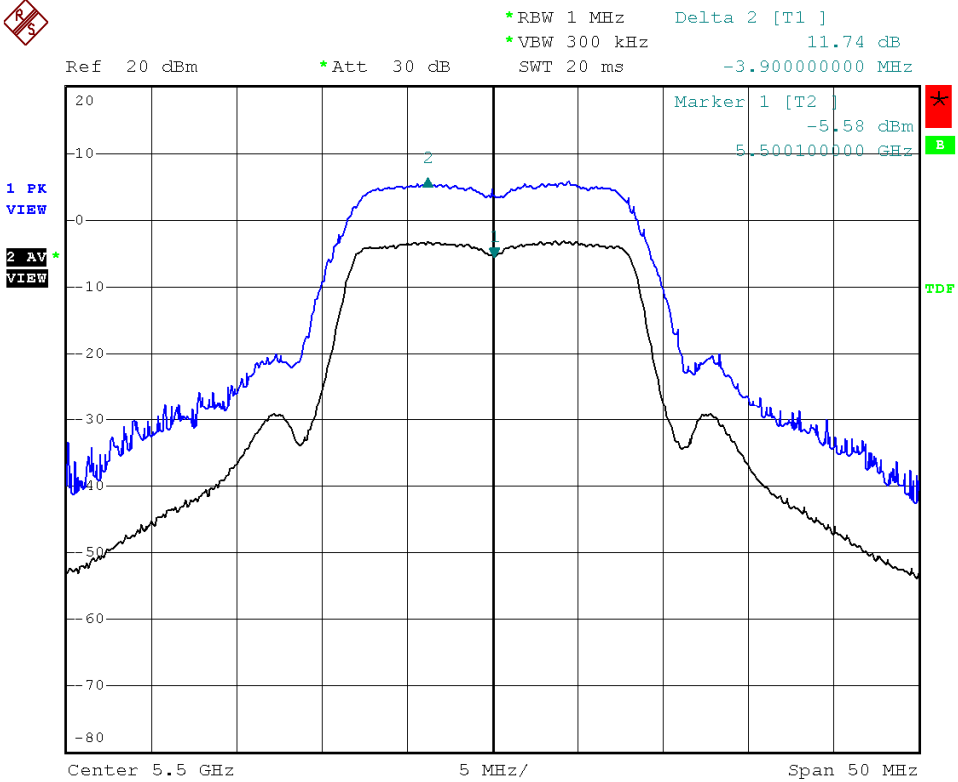




Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 140

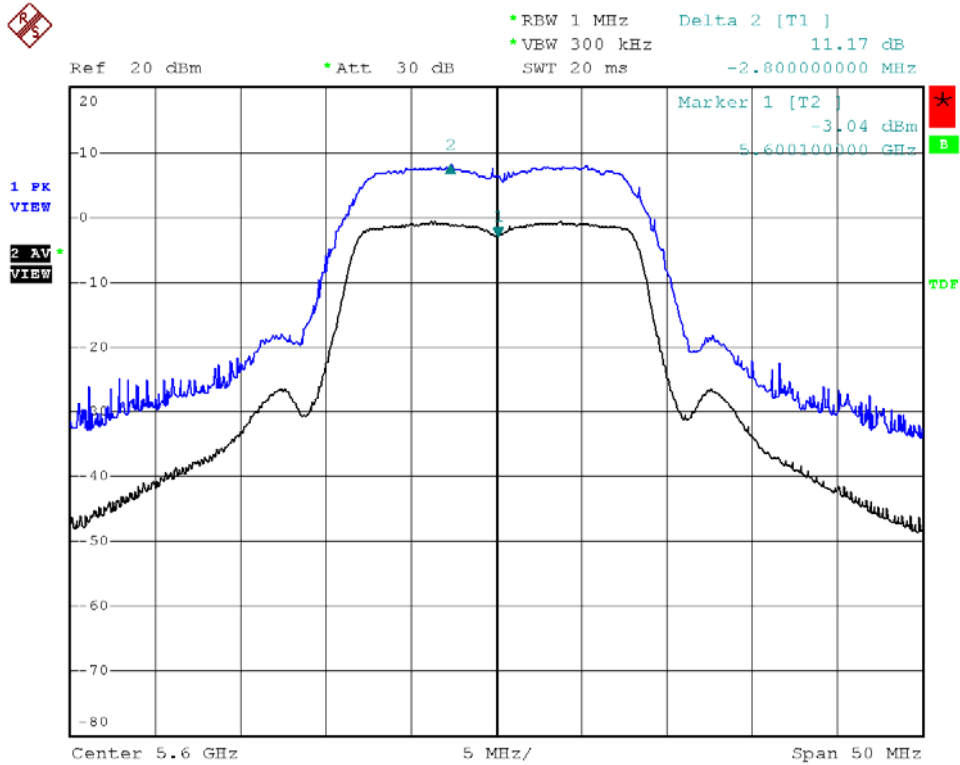


Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 100

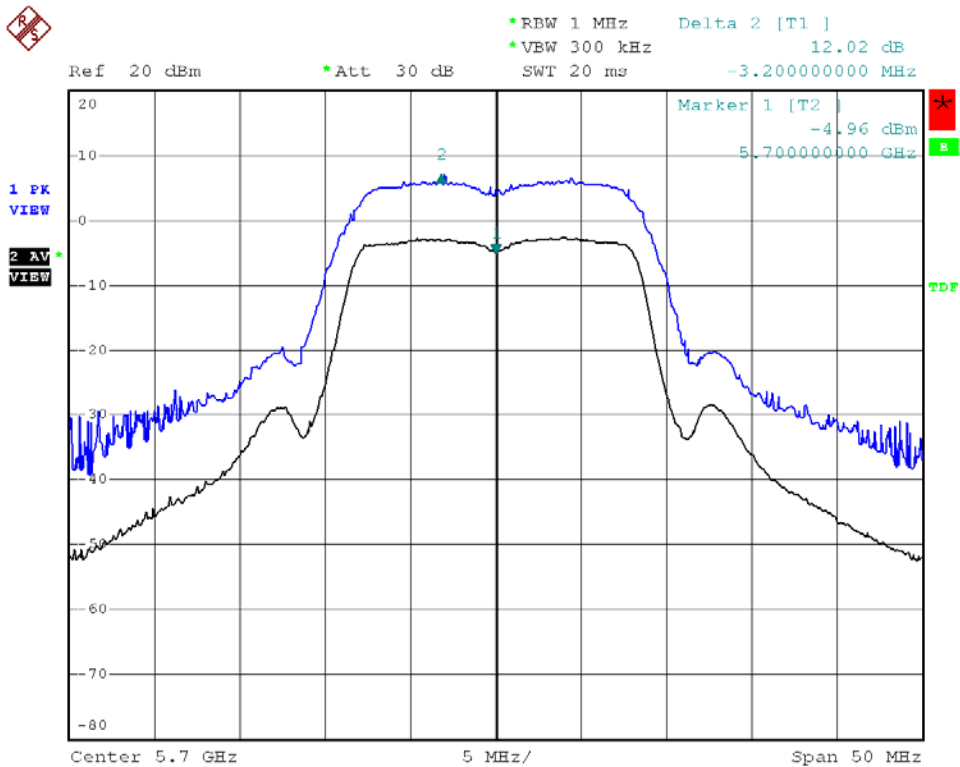




Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 120

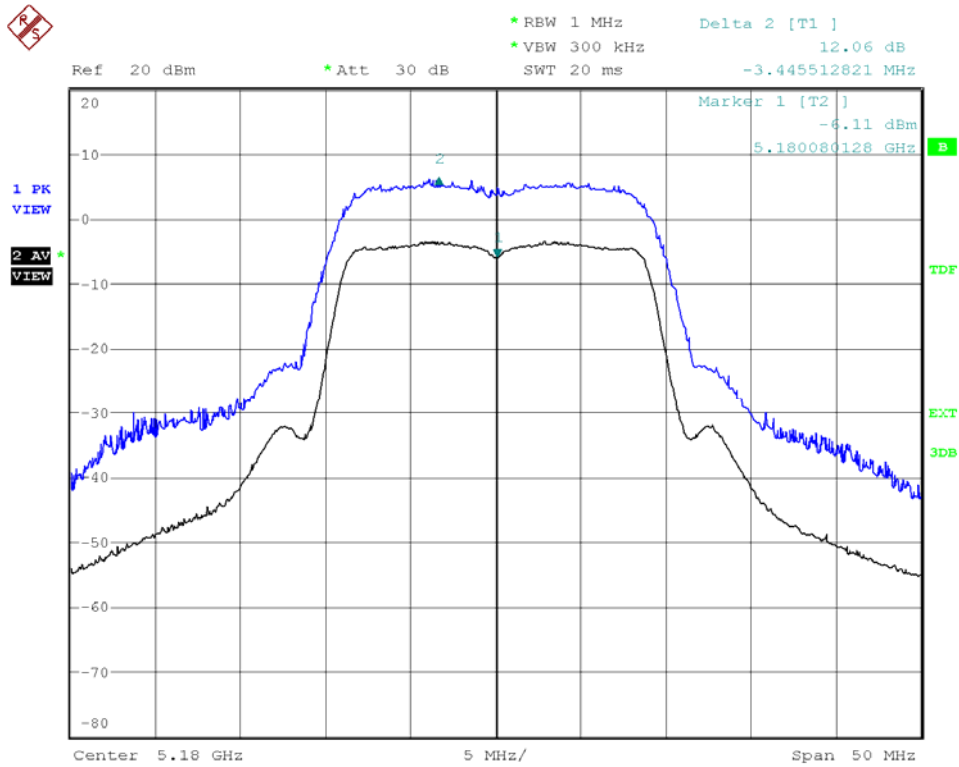


Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 140

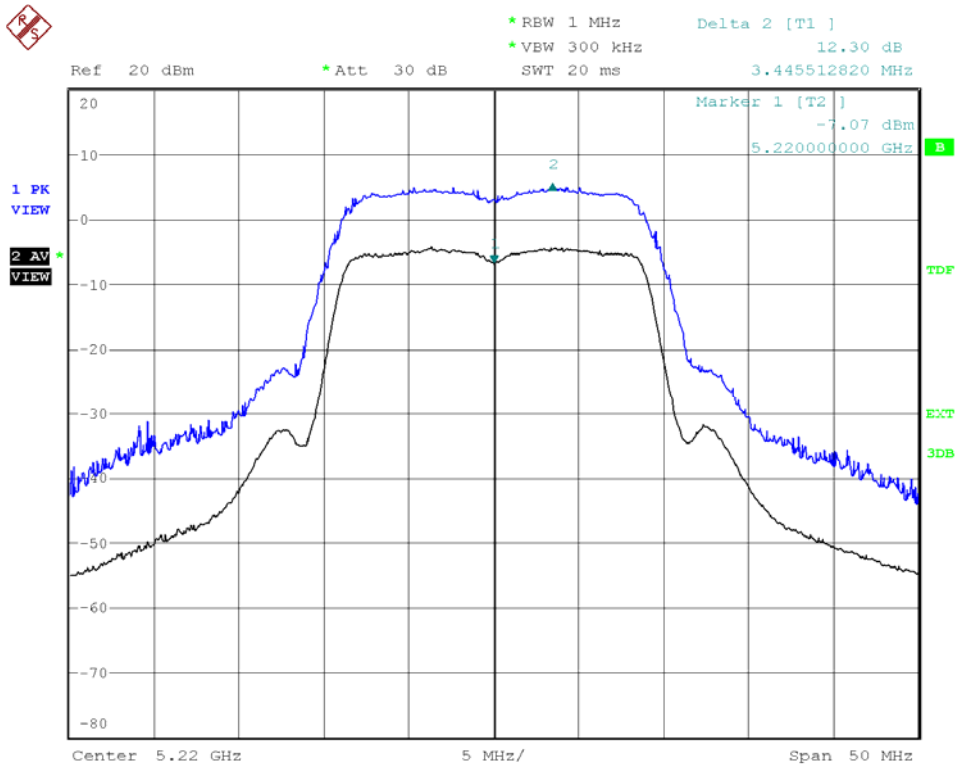




Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 36



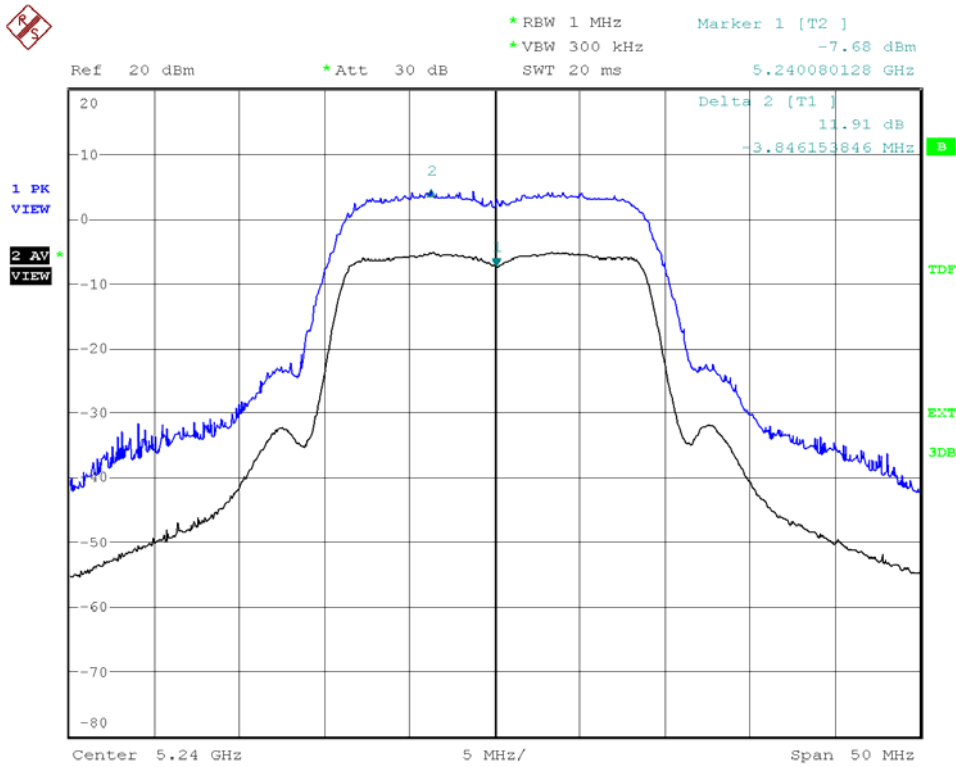
Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 44



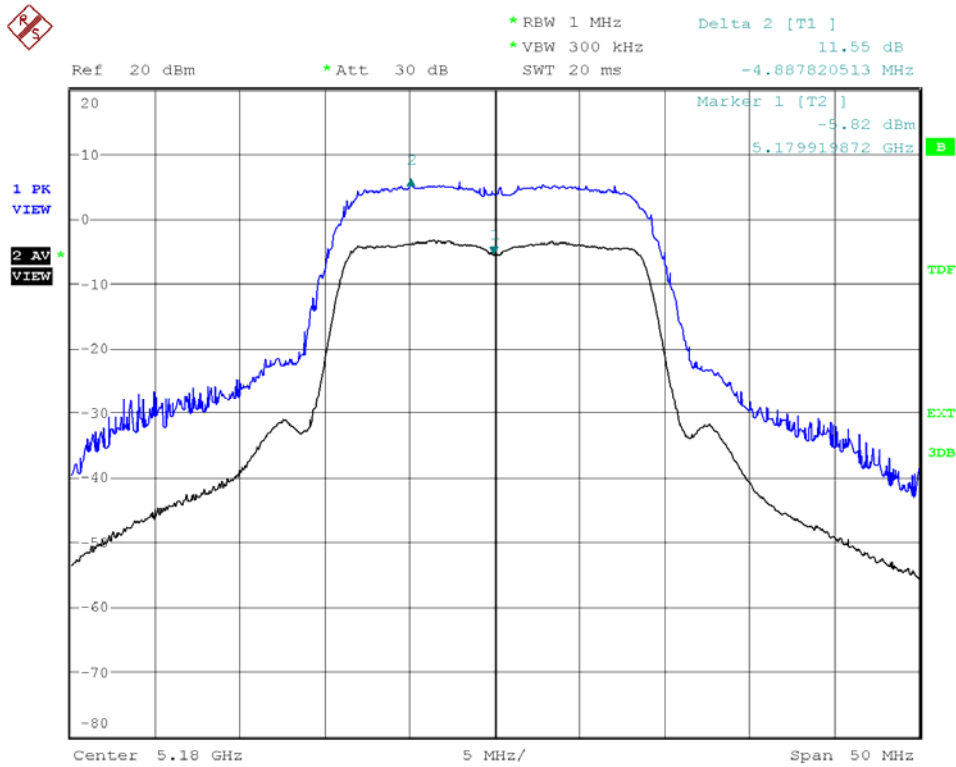




Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 48

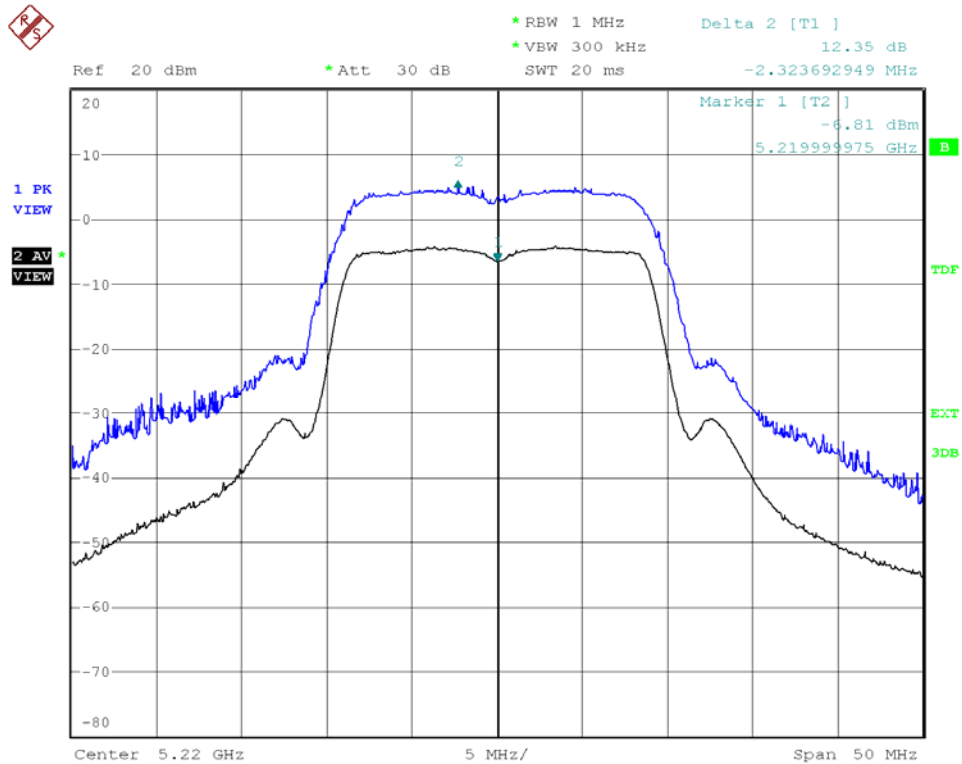


Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 36

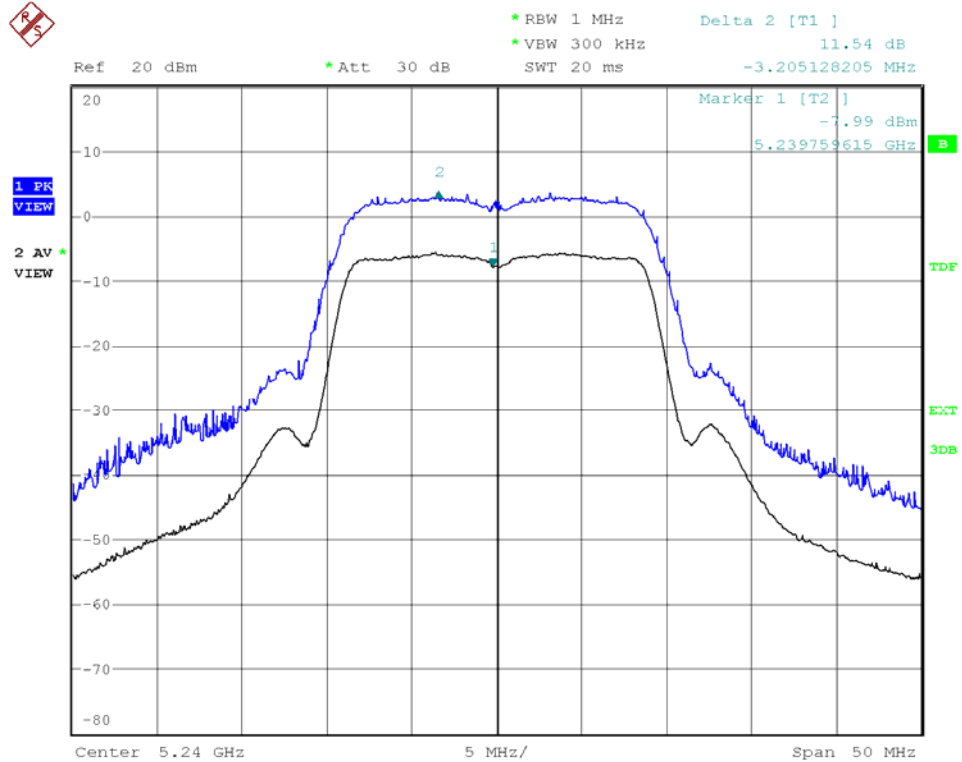




Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 44

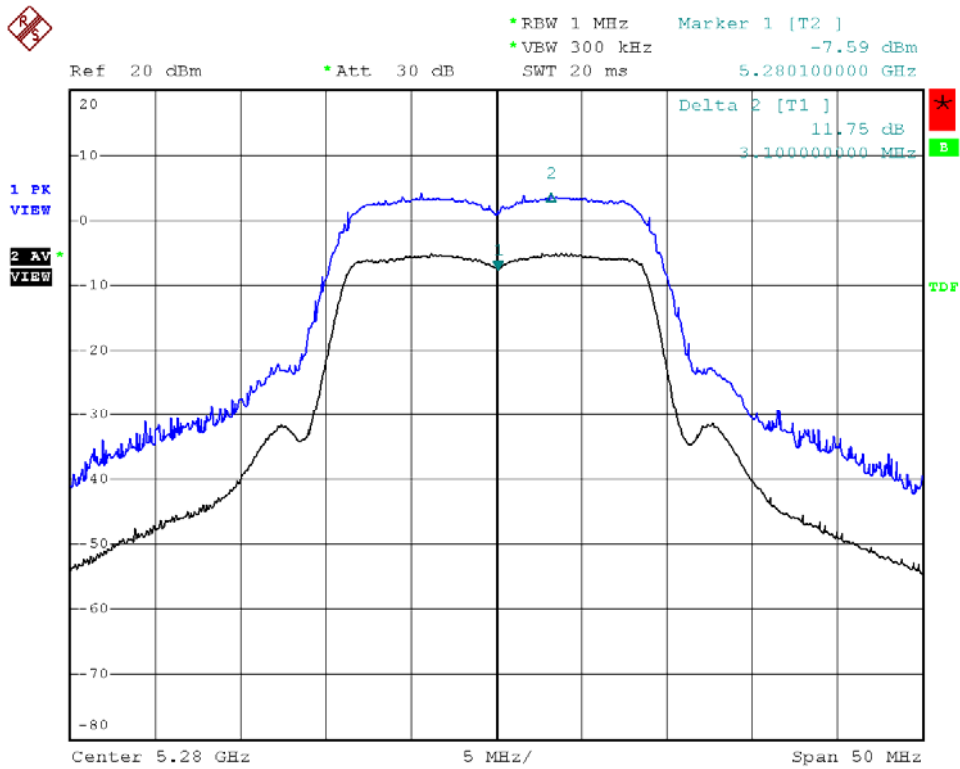


Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 48

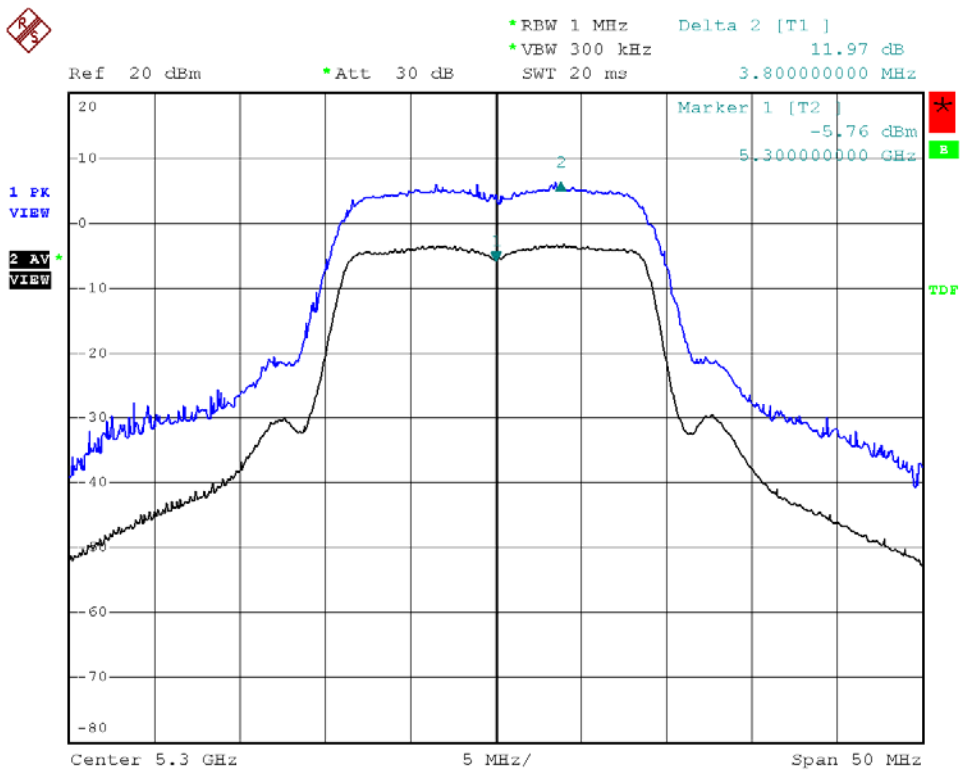




Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 56

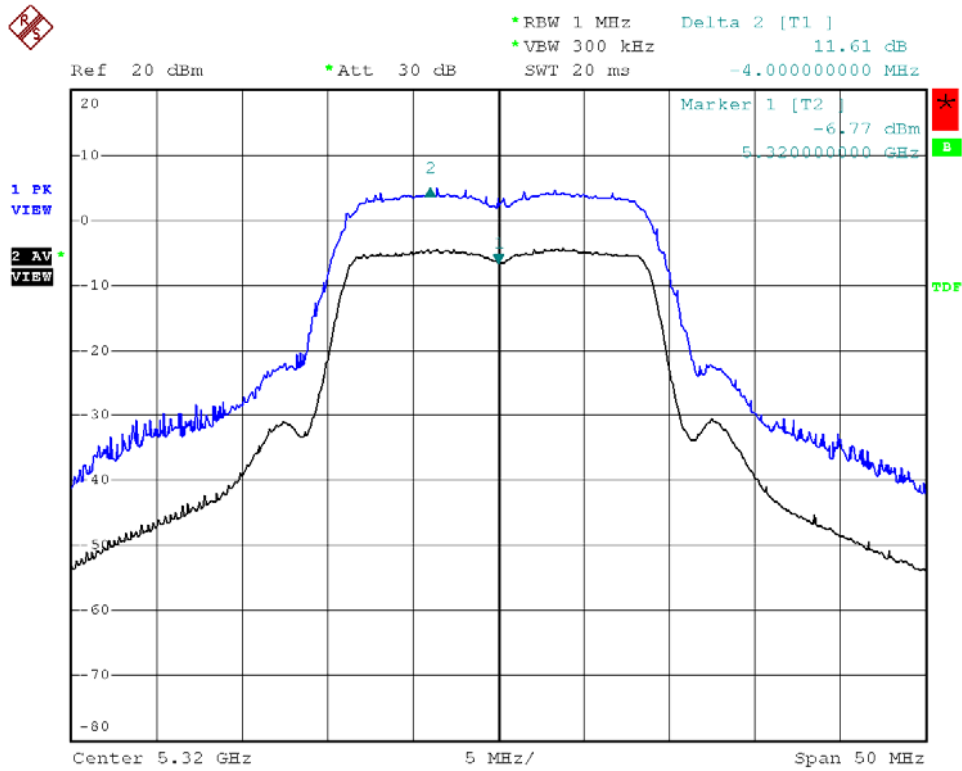


Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 60

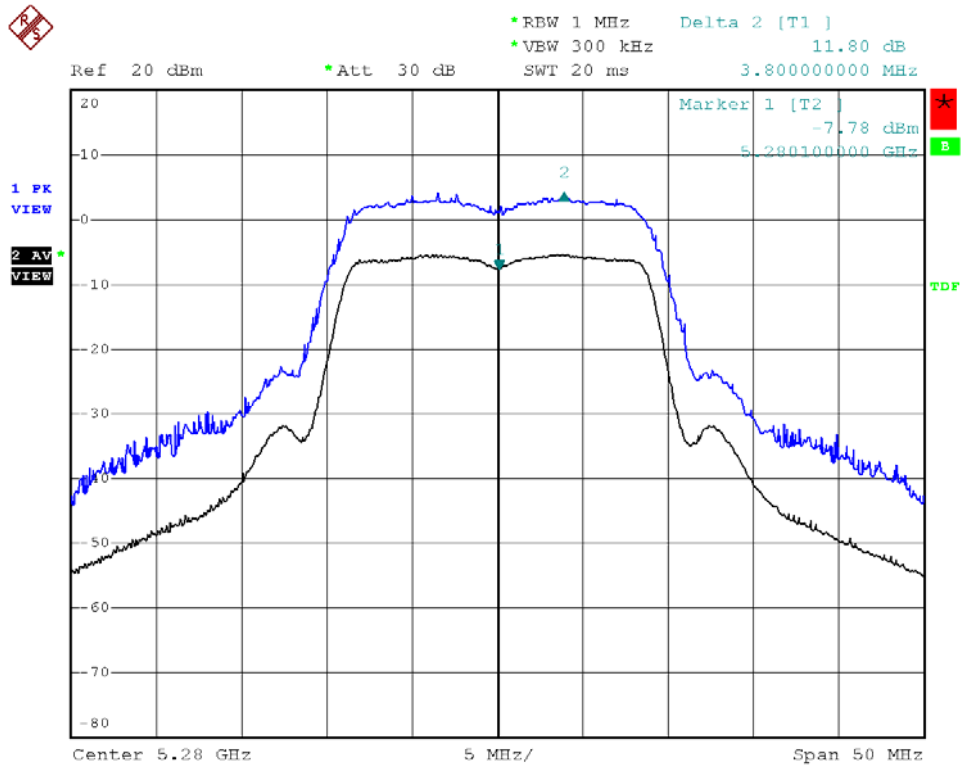




Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 64

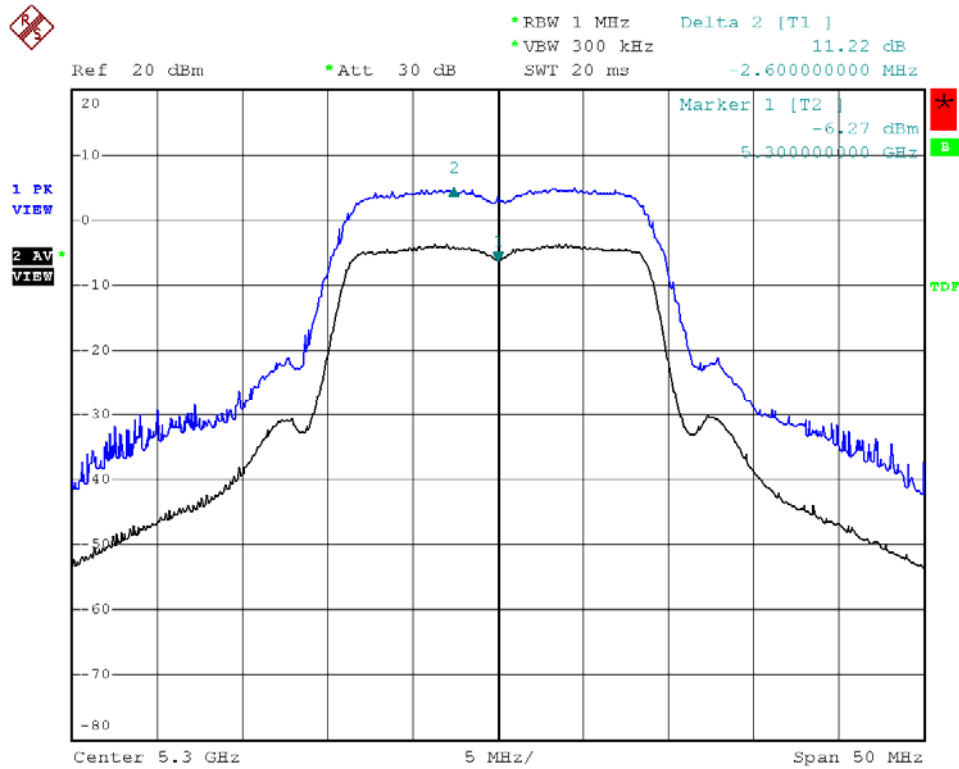


Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 56

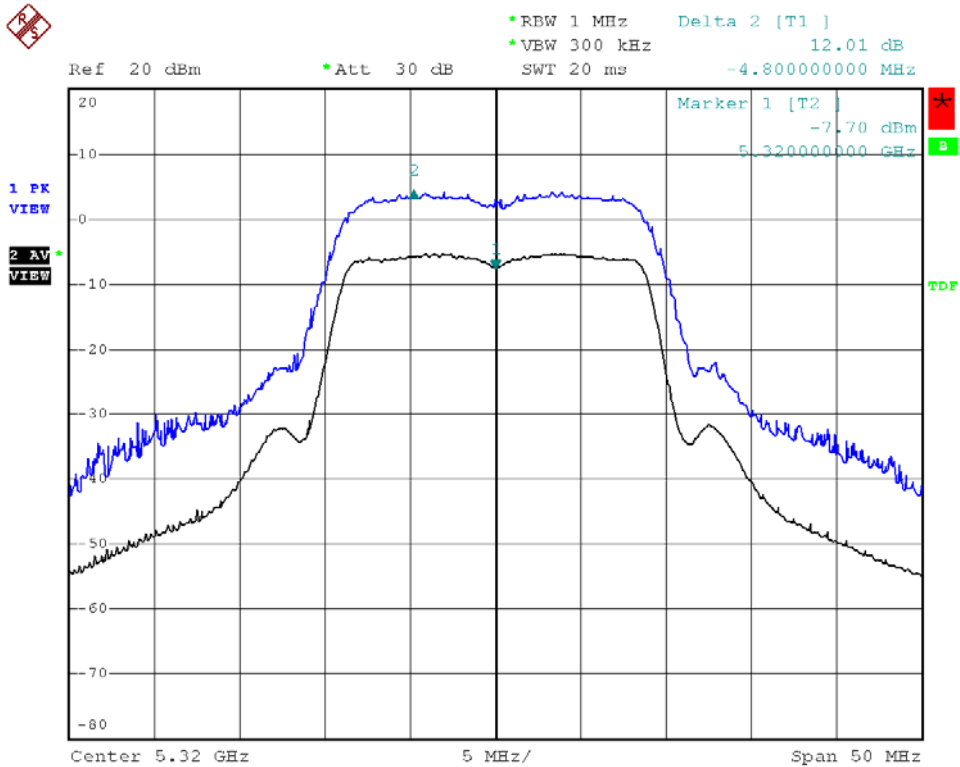




Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
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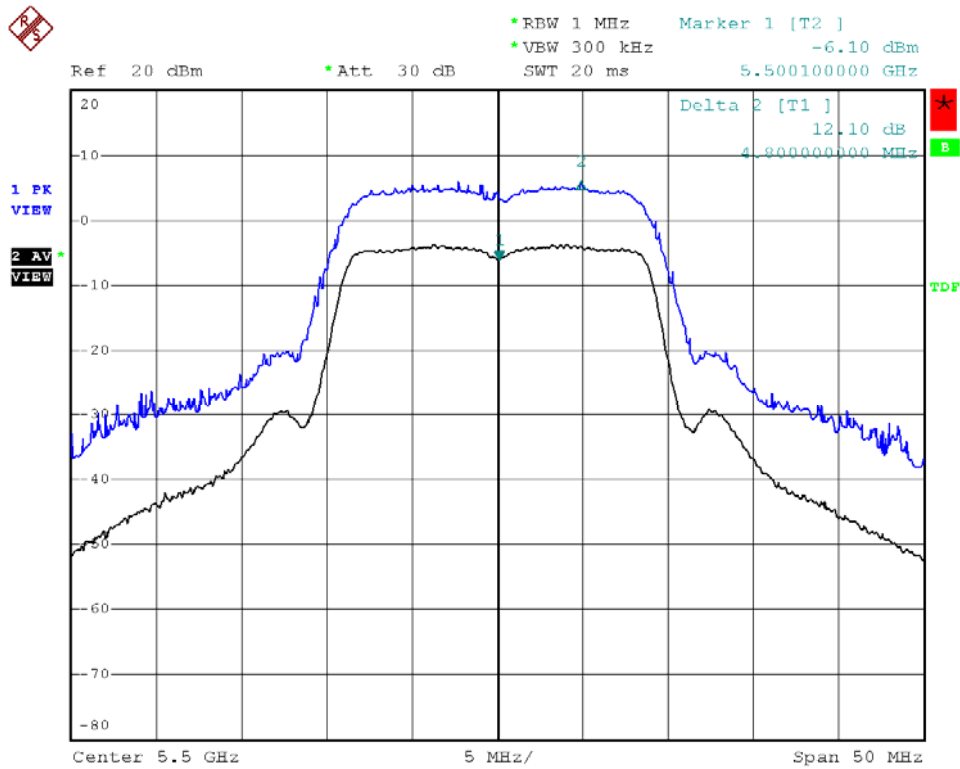


Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 64

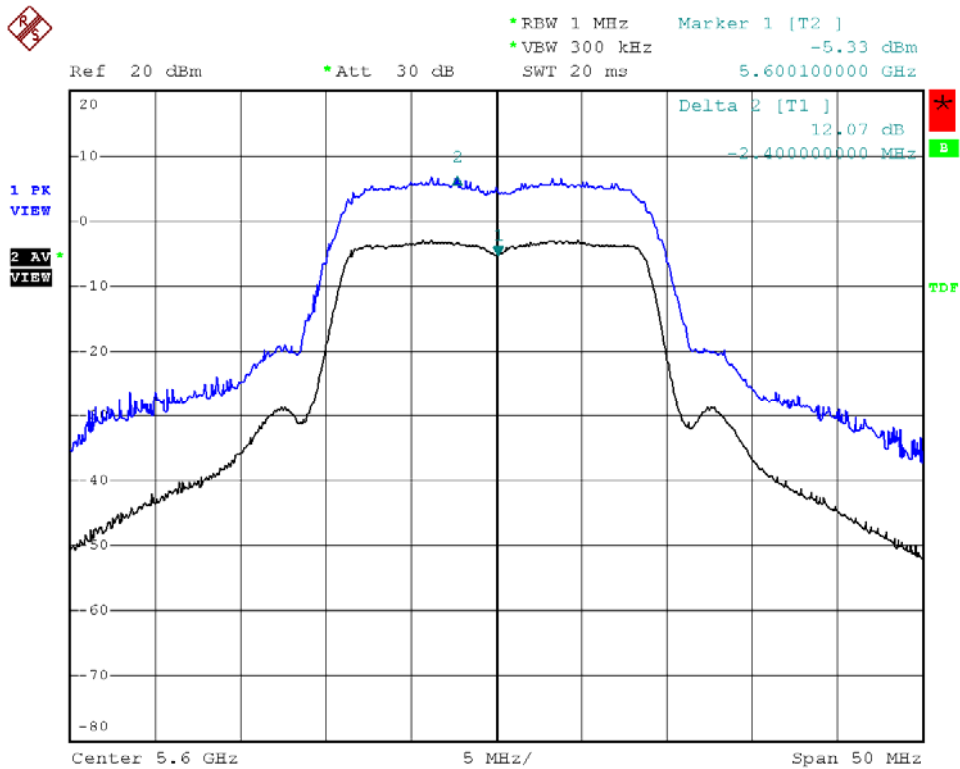




Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 100

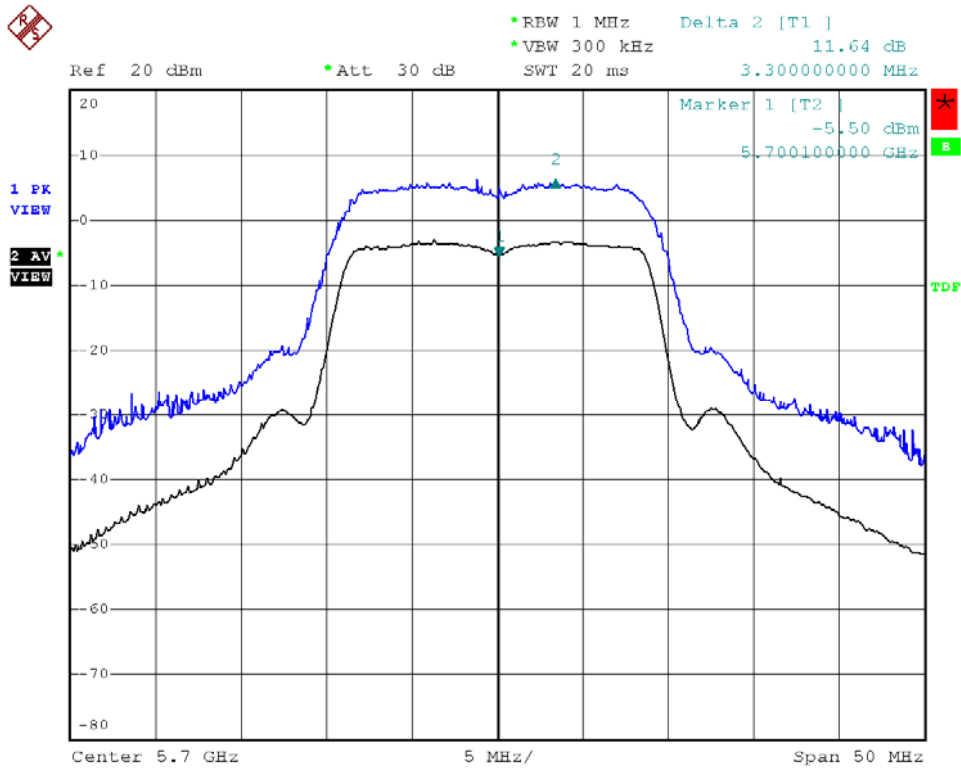


Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 120

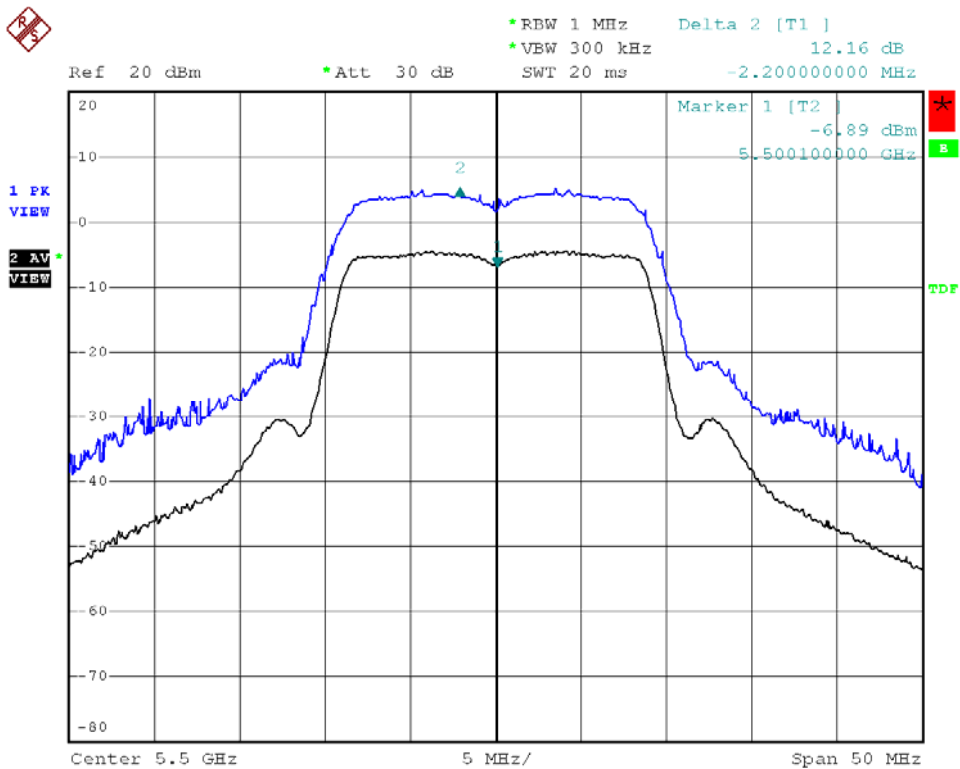




Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 140

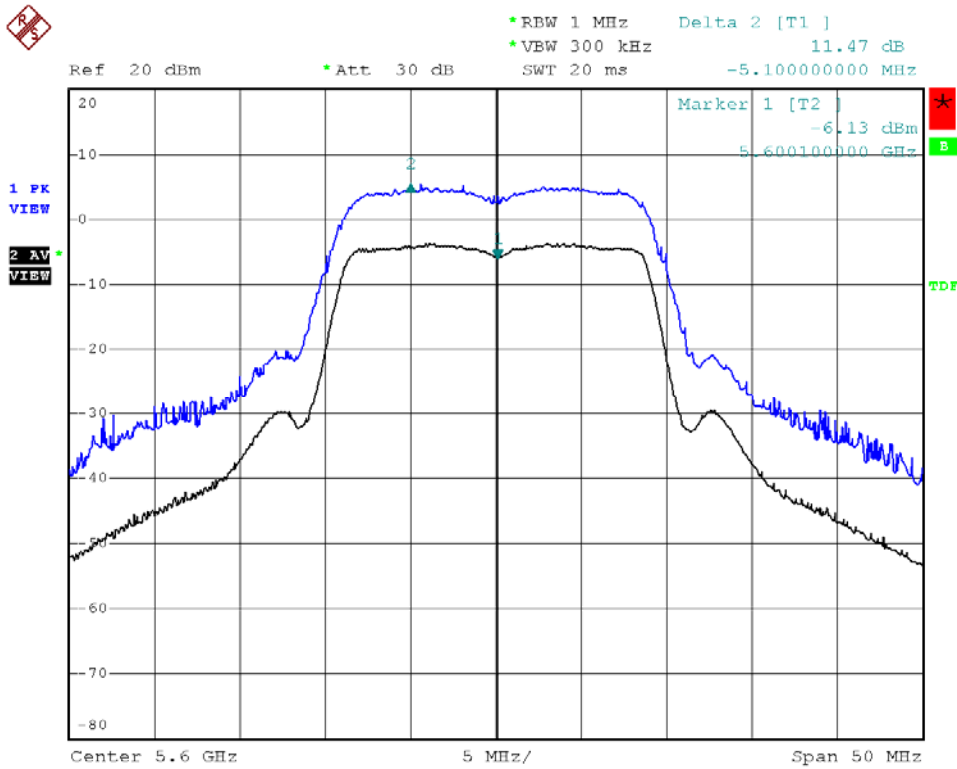


Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 100

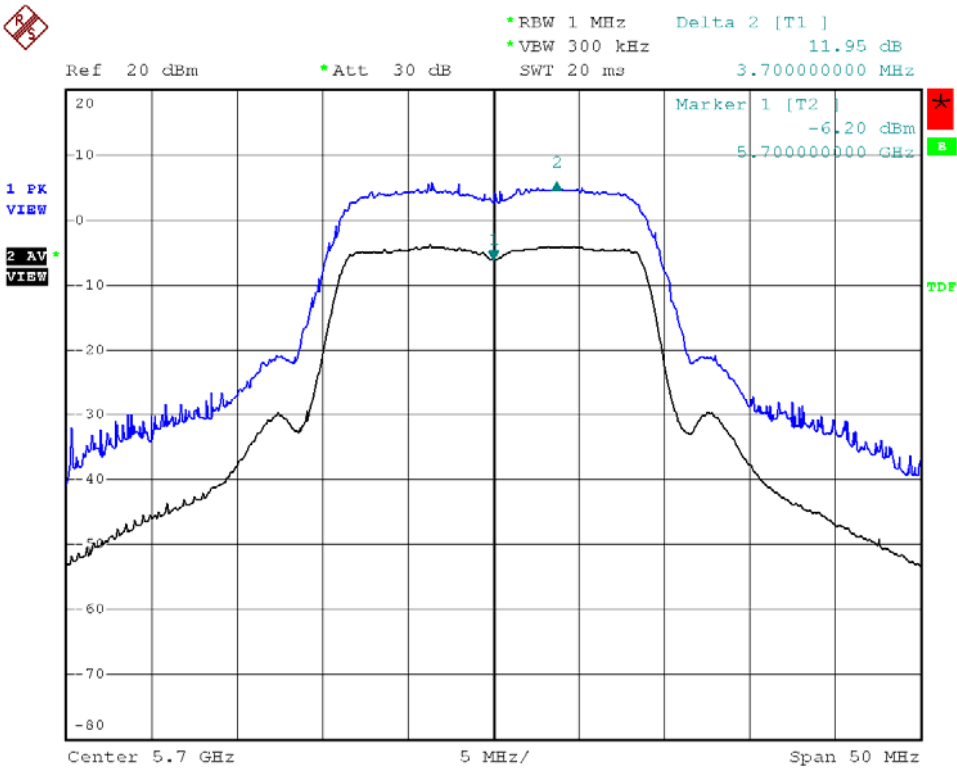




Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 120



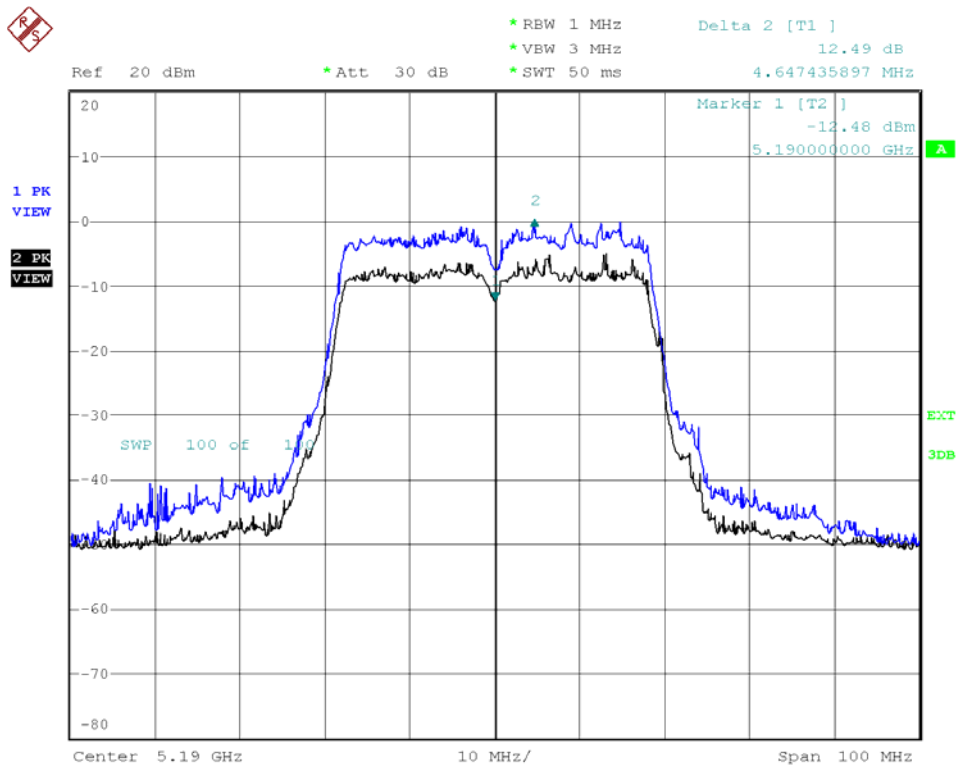
Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 140



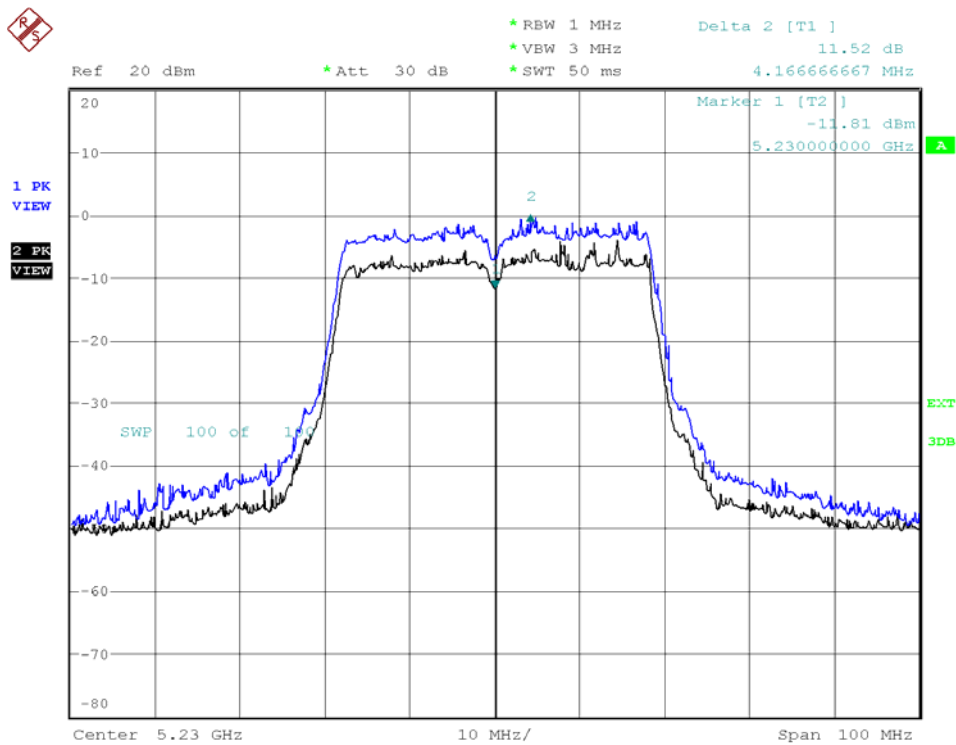




Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 38

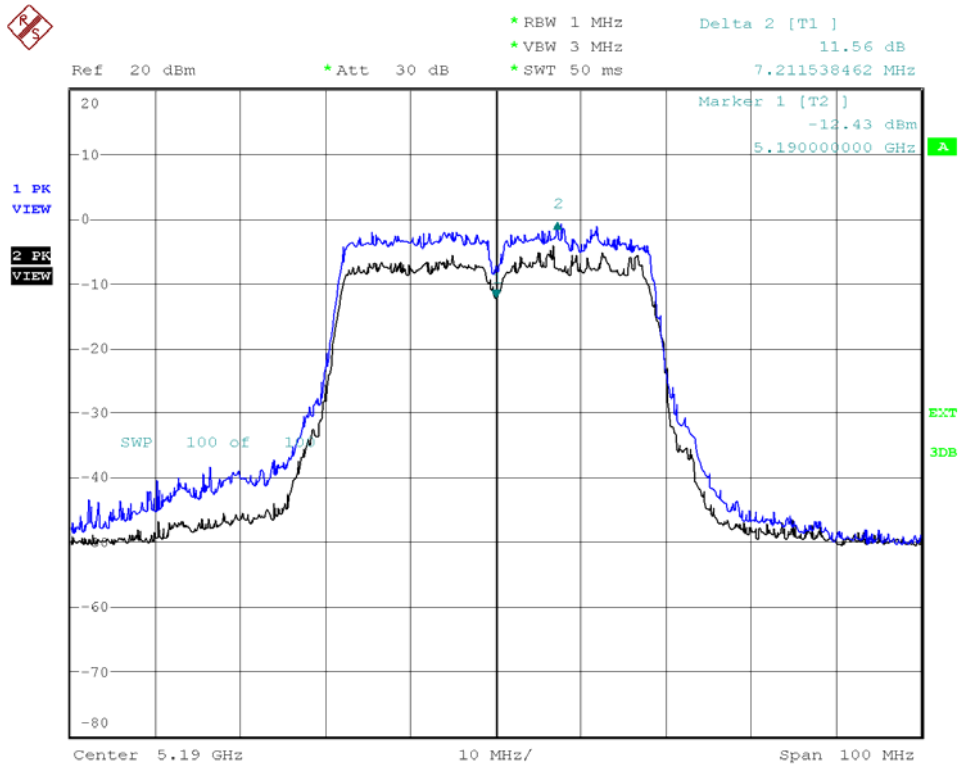


Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 46

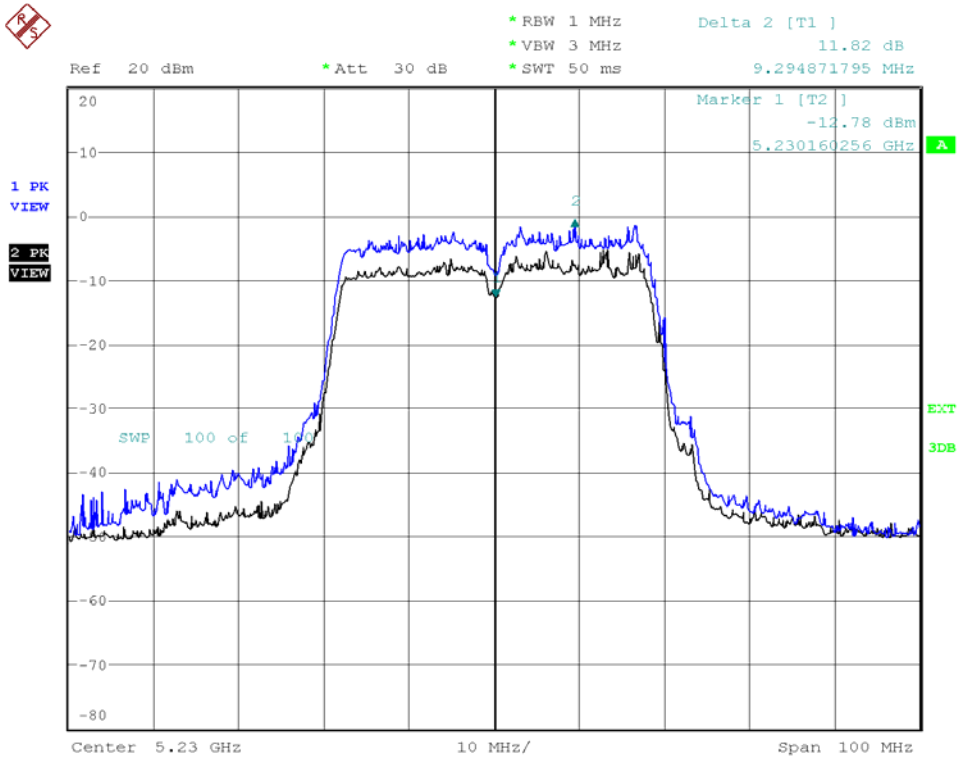




Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 38



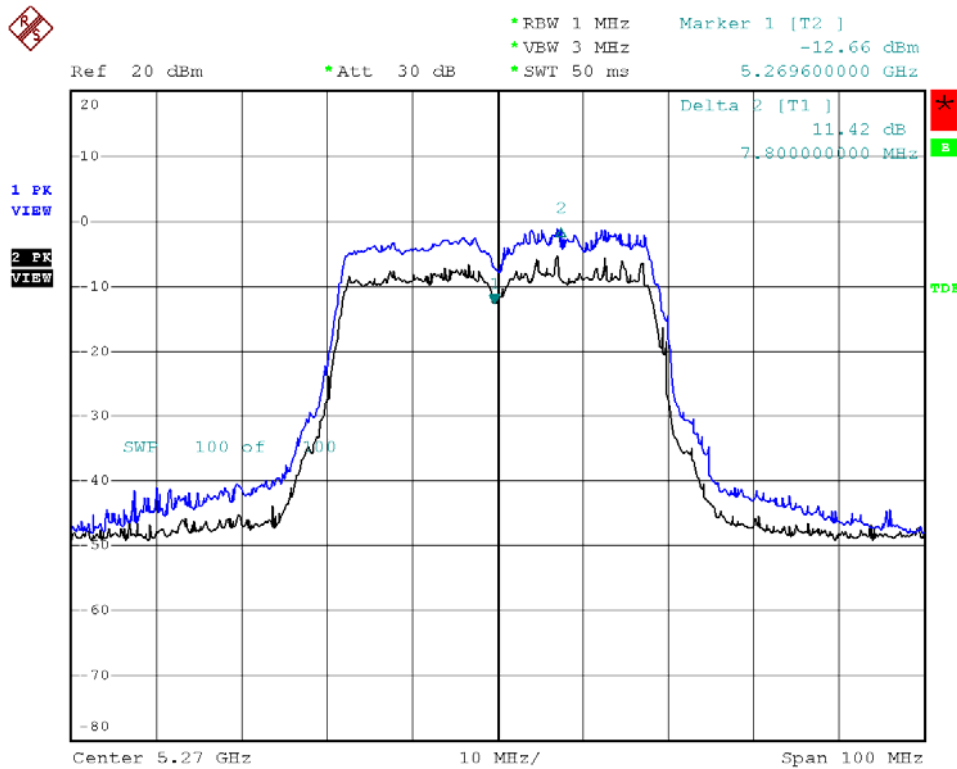
Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 46



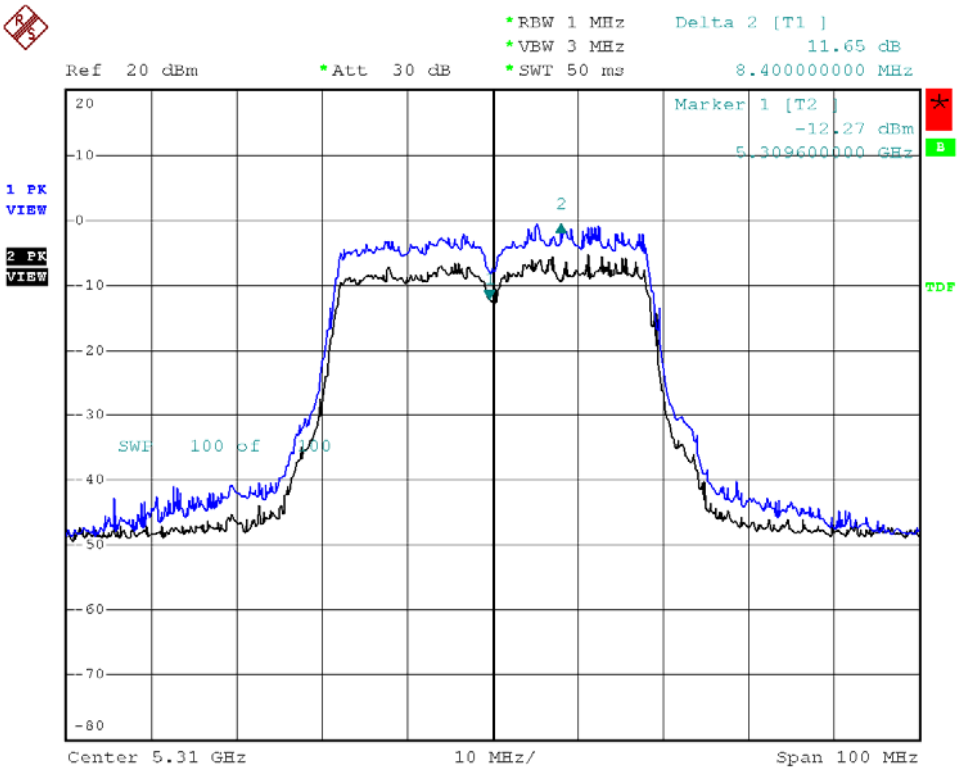




Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 54

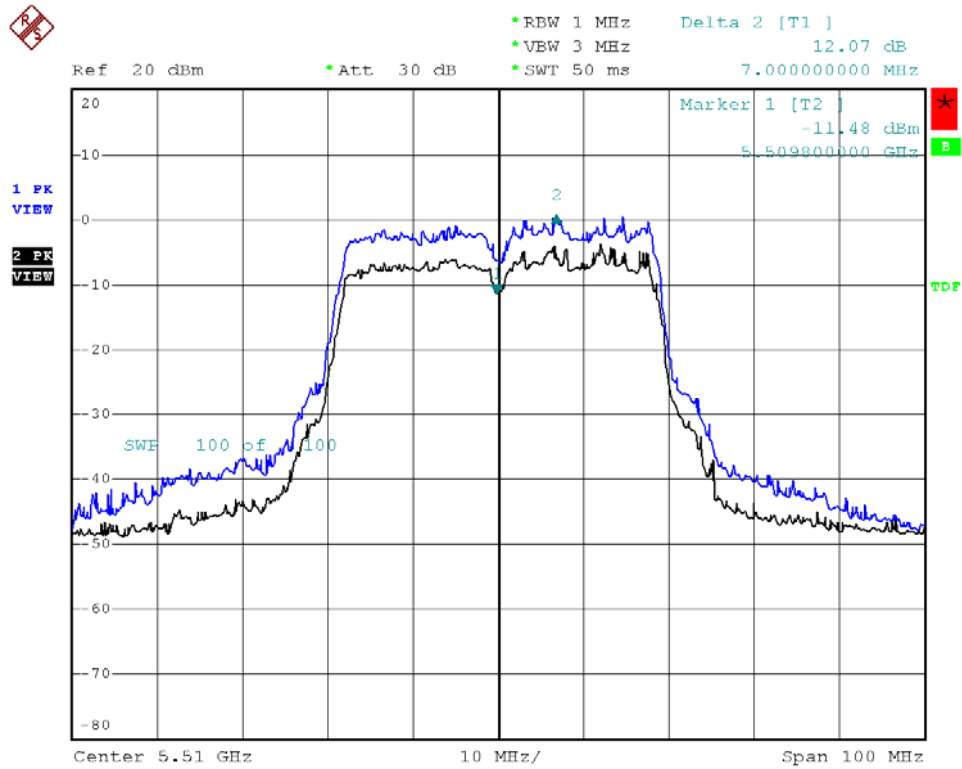


Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 62

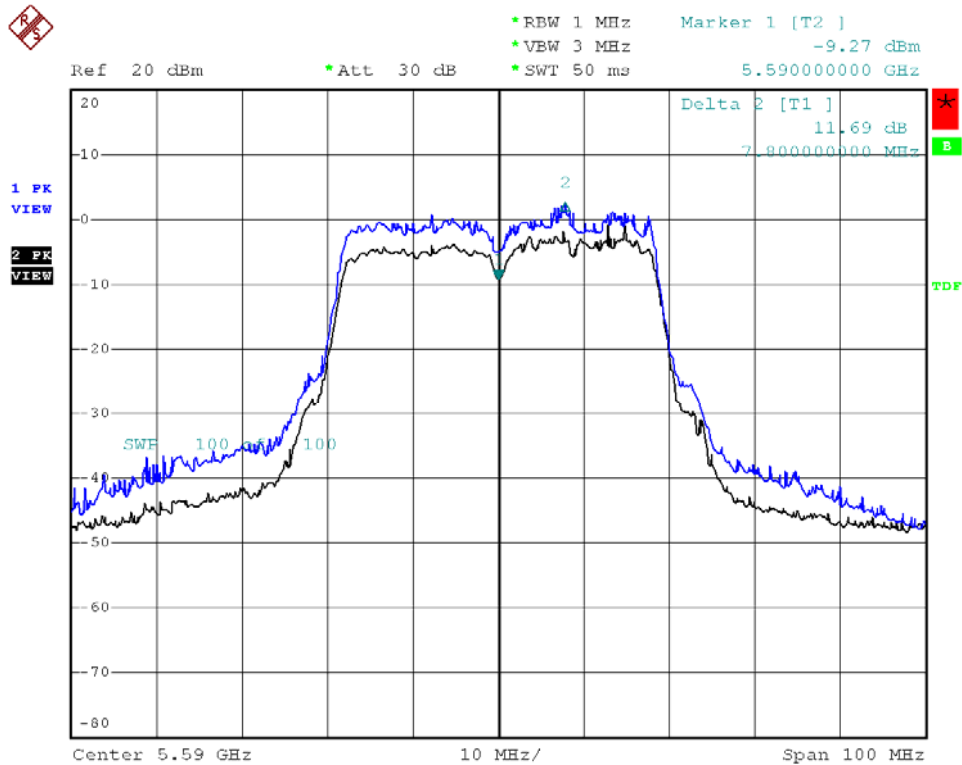




Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 102

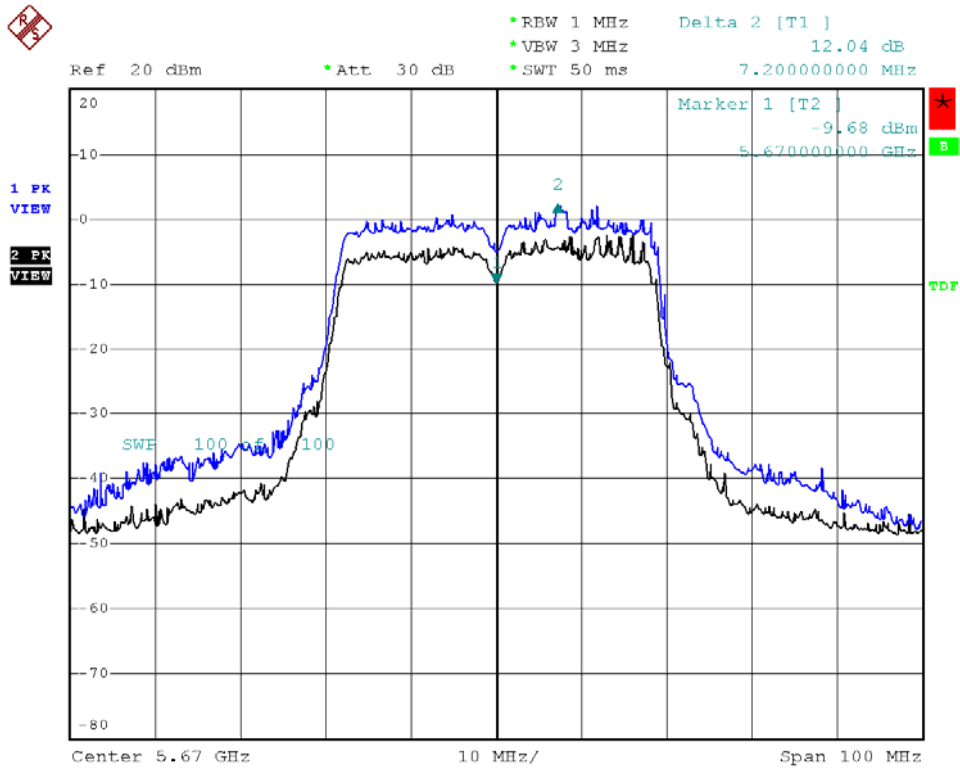


Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 118

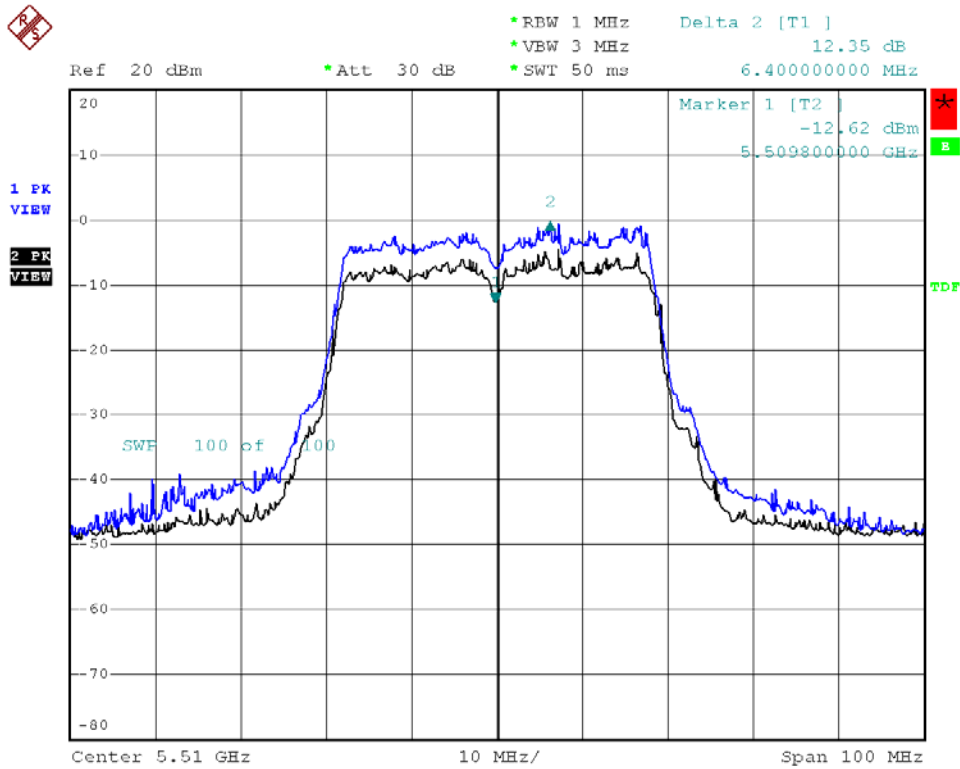




Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 134

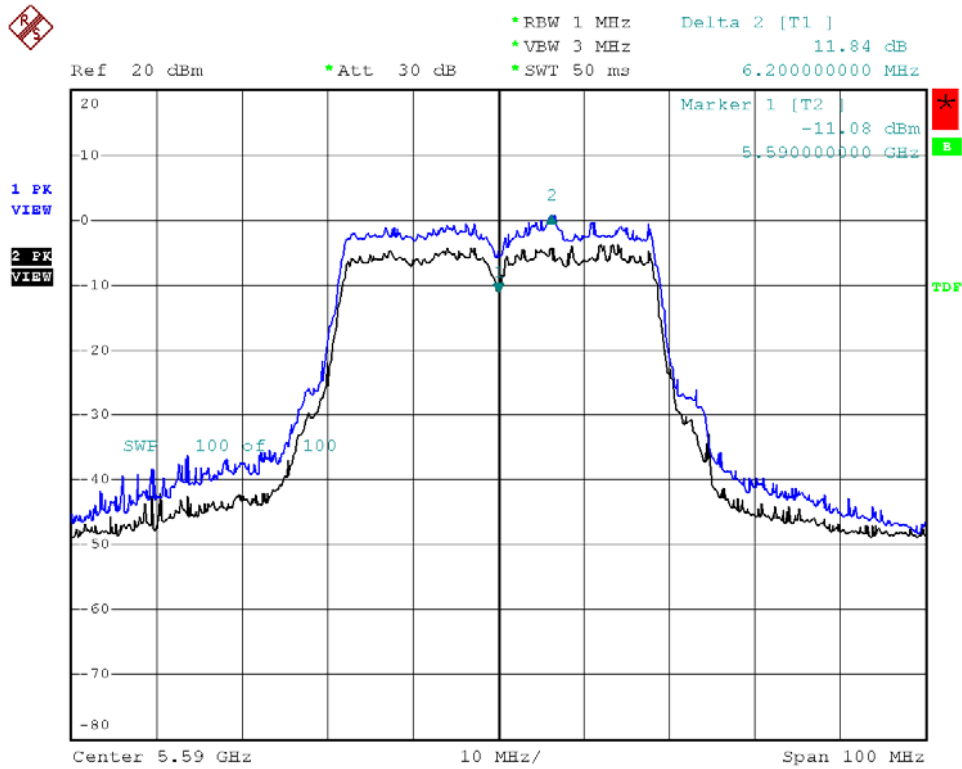


Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 102

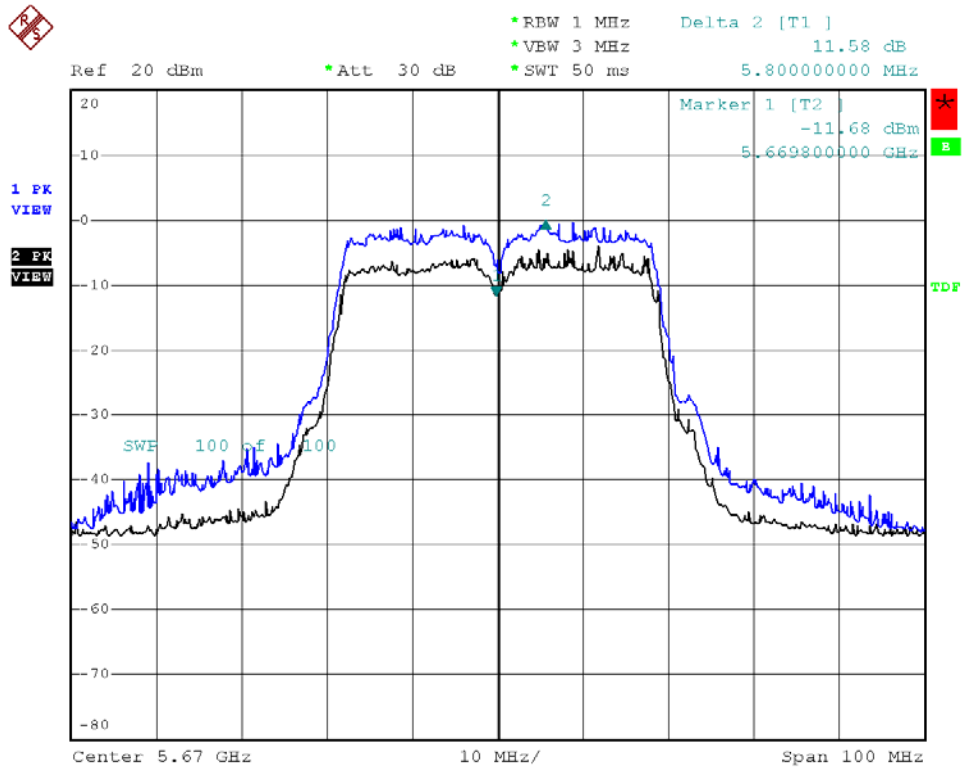




Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 118



Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 134



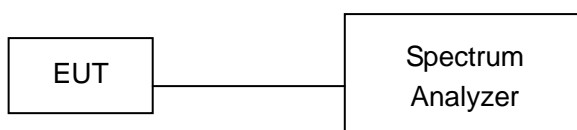


## 8. Peak Power Spectral Density

### 8.1. Test Procedure

1. The transmitter output was connected to spectrum analyzer.
2. Set RBW of spectrum analyzer to 1 MHz and VBW to 3 MHz
3. The Peak Power Spectral Density is the highest level found across the emission in any 1MHz Band

### 8.2. Test Setup Layout



### 8.3. Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date.
Spectrum Analyzer	FSP40	R&S	10047	2009/02/21	2010/02/20

### 8.4. Test Result and Data

Test Date: Mar. 11, 2009

Temperature: 26°C

Atmospheric pressure: 1025 hPa

Humidity: 48%

Modulation Standard: 802.11a (6Mbps)

Channel	Frequency (MHz)	RF Power Level In 1MHz BW (dBm)		Limit (dB)
		Ant R	Ant L	
36	5180	-7.34	-7.45	4
44	5220	-8.20	-8.07	4
48	5240	-7.12	-9.58	4
56	5280	-6.63	-7.70	11
60	5300	-6.33	-7.13	11
64	5320	-7.71	-7.53	11
100	5500	-8.42	-9.17	11
120	5600	-4.22	-5.28	11
140	5700	-7.75	-7.98	11





Modulation Standard: 802.11an HT20 (130Mbps)

Channel	Frequency (MHz)	RF Power Level In 1MHz BW (dBm)			Limit (dB)
		Ant R	Ant L	Ant R+L	
36	5180	-11.61	-10.69	-8.12	4
44	5220	-11.25	-11.50	-8.36	4
48	5240	-11.14	-12.20	-8.63	4
56	5280	-10.57	-10.00	-7.27	11
60	5300	-8.91	-8.71	-5.80	11
64	5320	-10.06	-9.32	-6.66	11
100	5500	-9.98	-10.38	-7.17	11
120	5600	-7.66	-9.08	-5.30	11
140	5700	-8.65	-9.15	-5.88	11

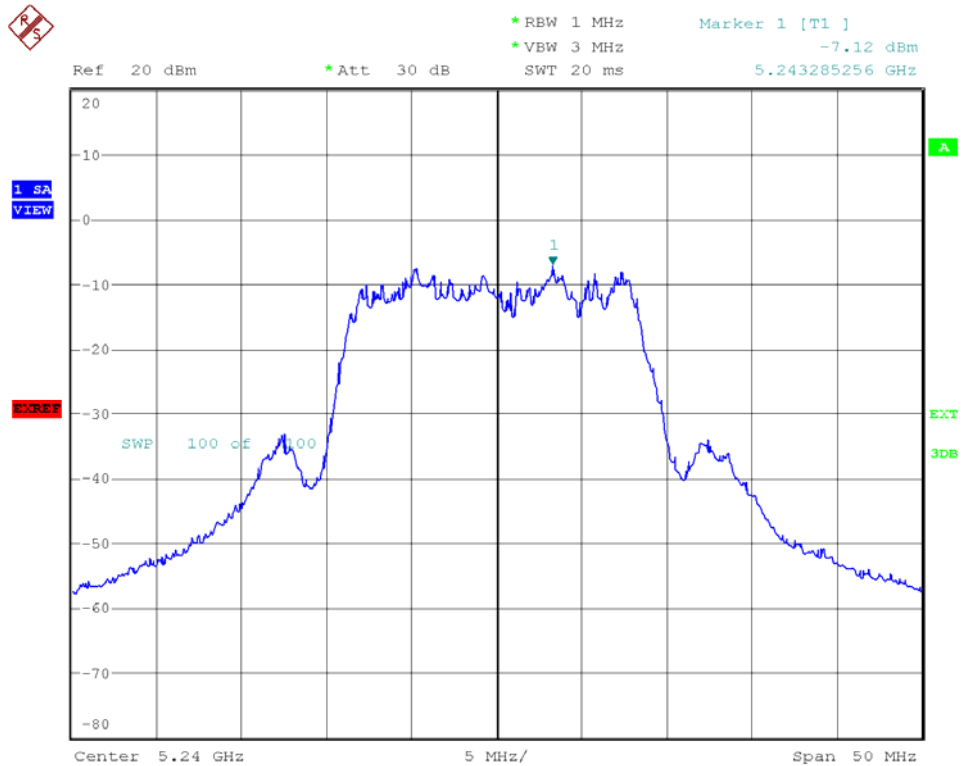
Modulation Standard: 802.11an HT40 (270Mbps)

Channel	Frequency (MHz)	RF Power Level In 1MHz BW (dBm)			Limit (dB)
		Ant R	Ant L	Ant R+L	
38	5190	-45.38	-45.85	-42.60	4
46	5230	-45.58	-46.85	-43.16	4
54	5270	-46.26	-44.00	-41.97	11
62	5310	-46.30	-45.04	-42.61	11
102	5510	-43.59	-45.64	-41.48	11
118	5590	-44.83	-44.71	-41.76	11
134	5670	-43.14	-43.57	-40.34	11

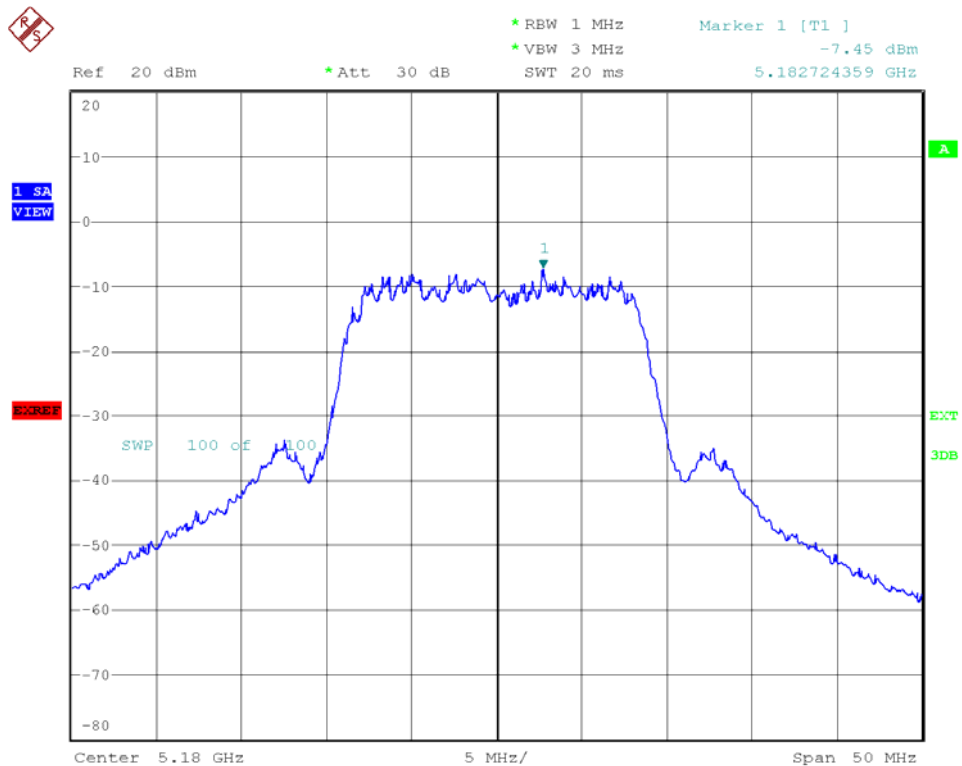




Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 48

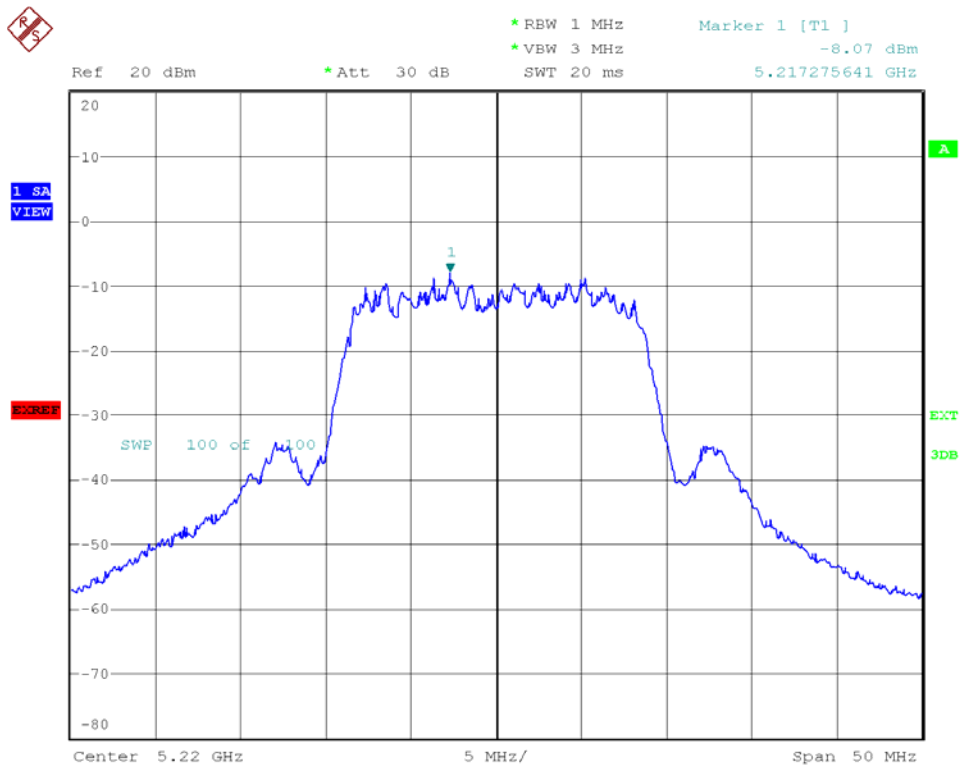


Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 36

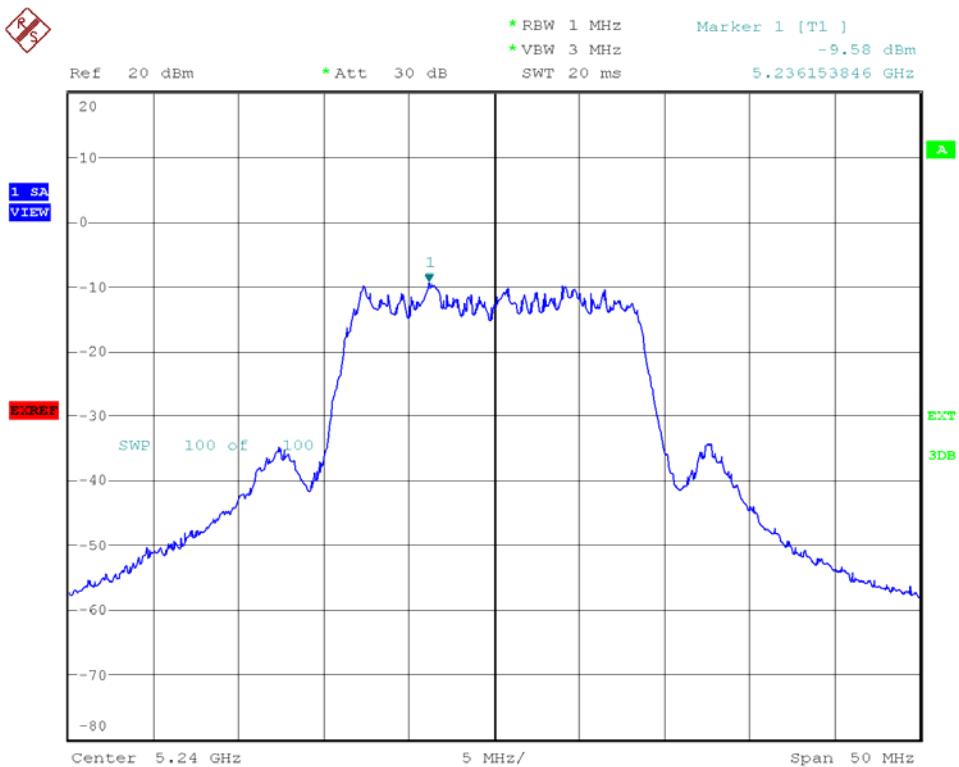




Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 44

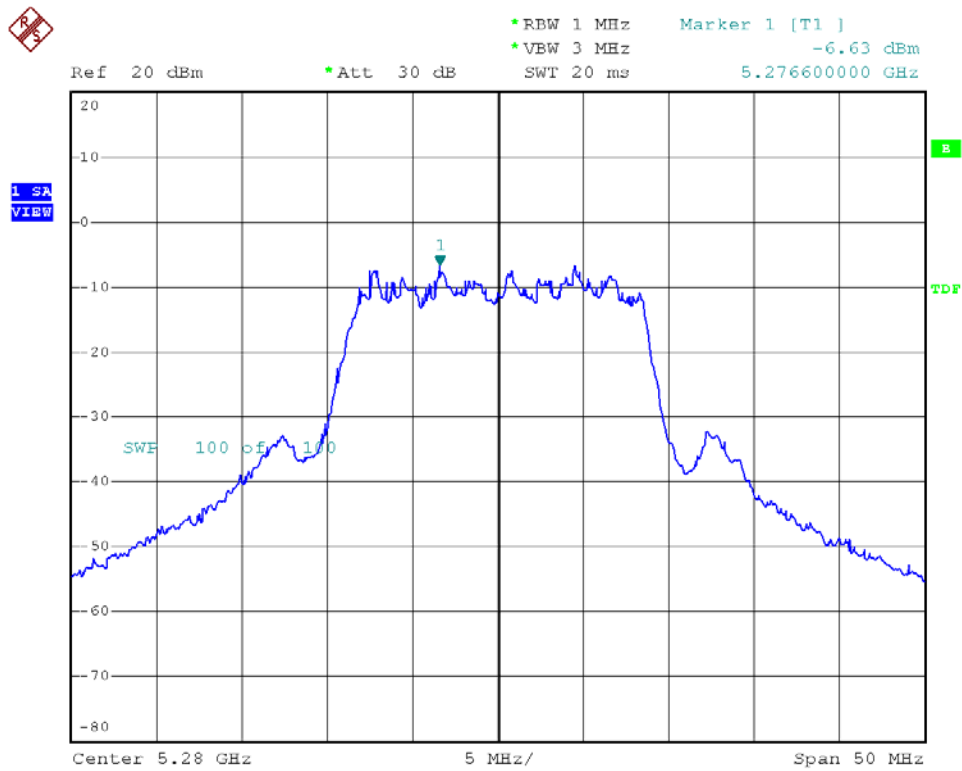


Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 48

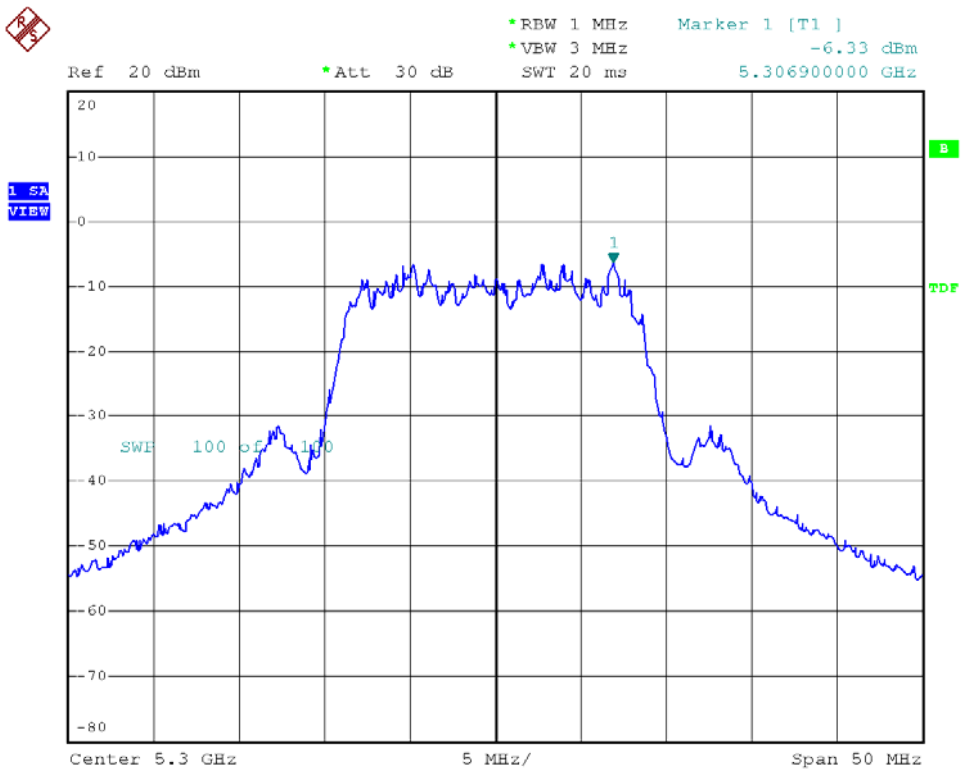




Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 56

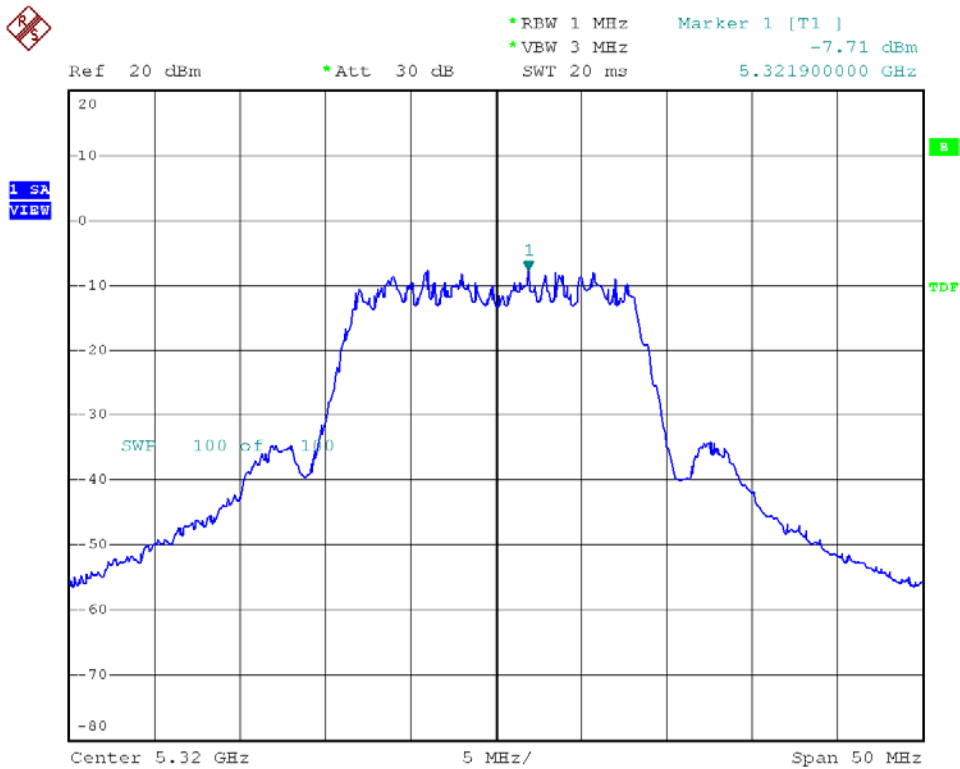


Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 60

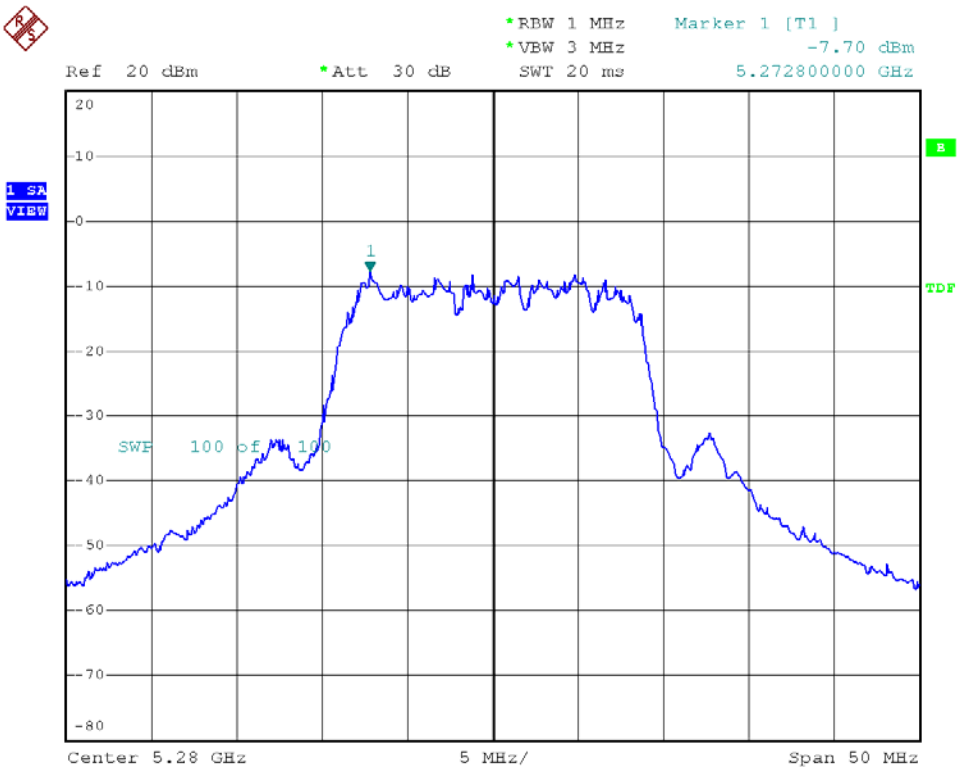




Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 64

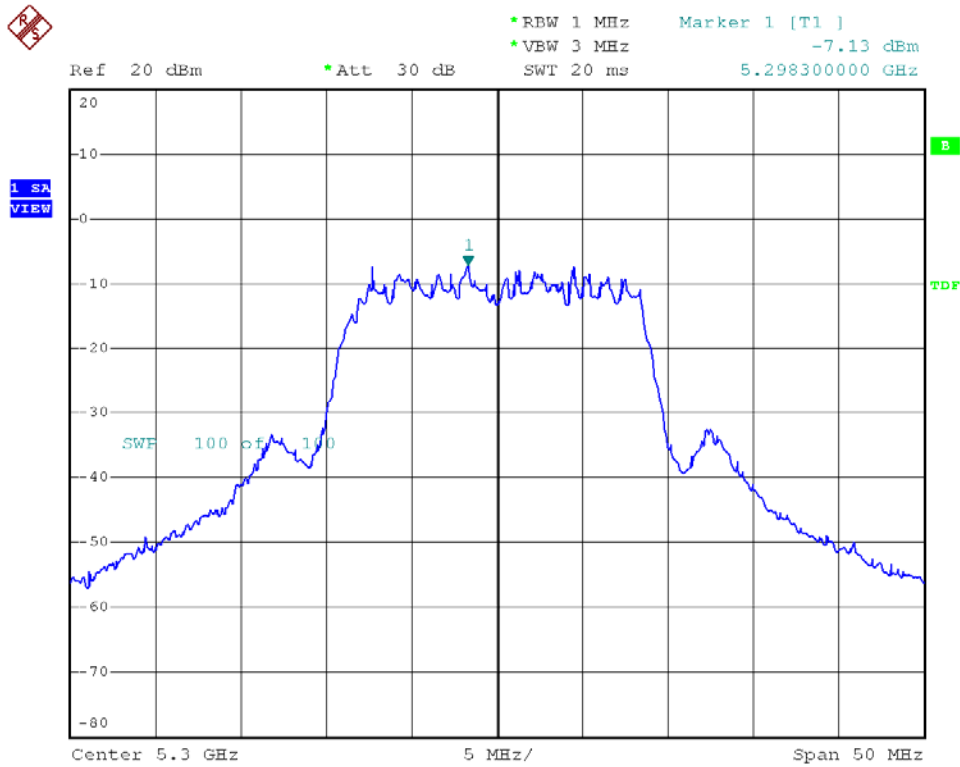


Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 56

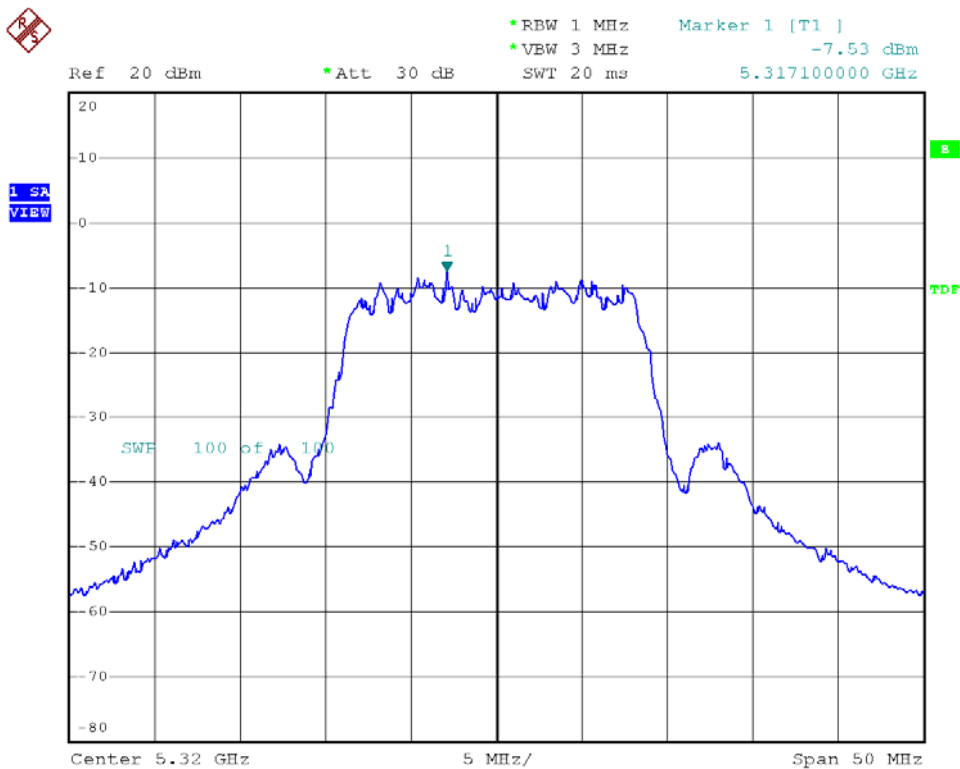




Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 60

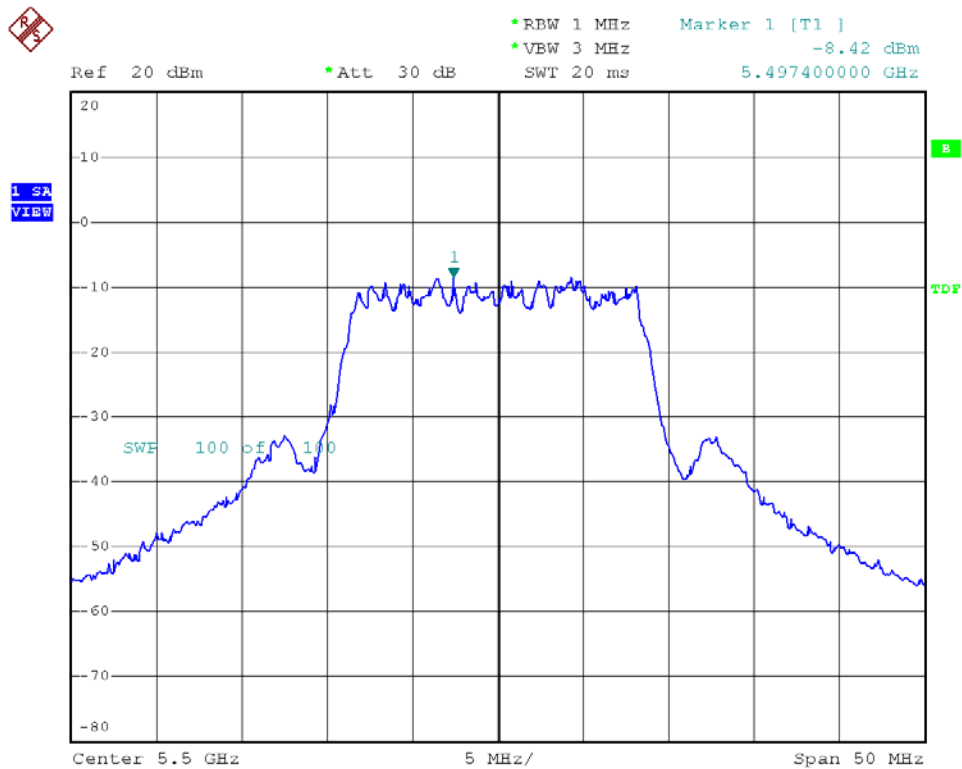


Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 64

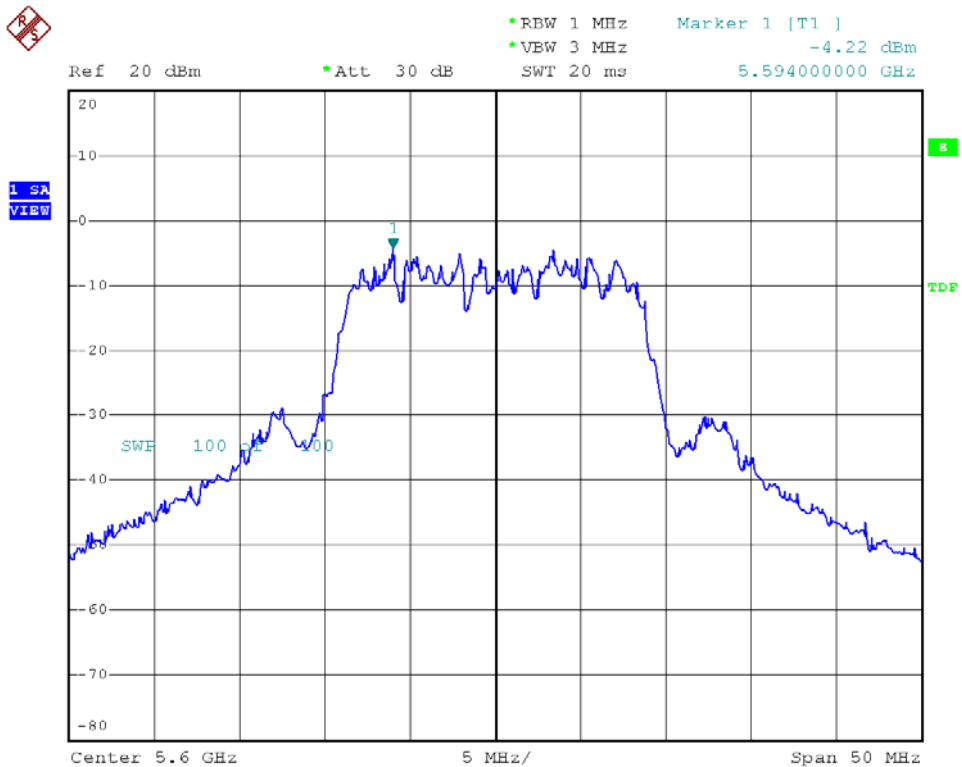




Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 100



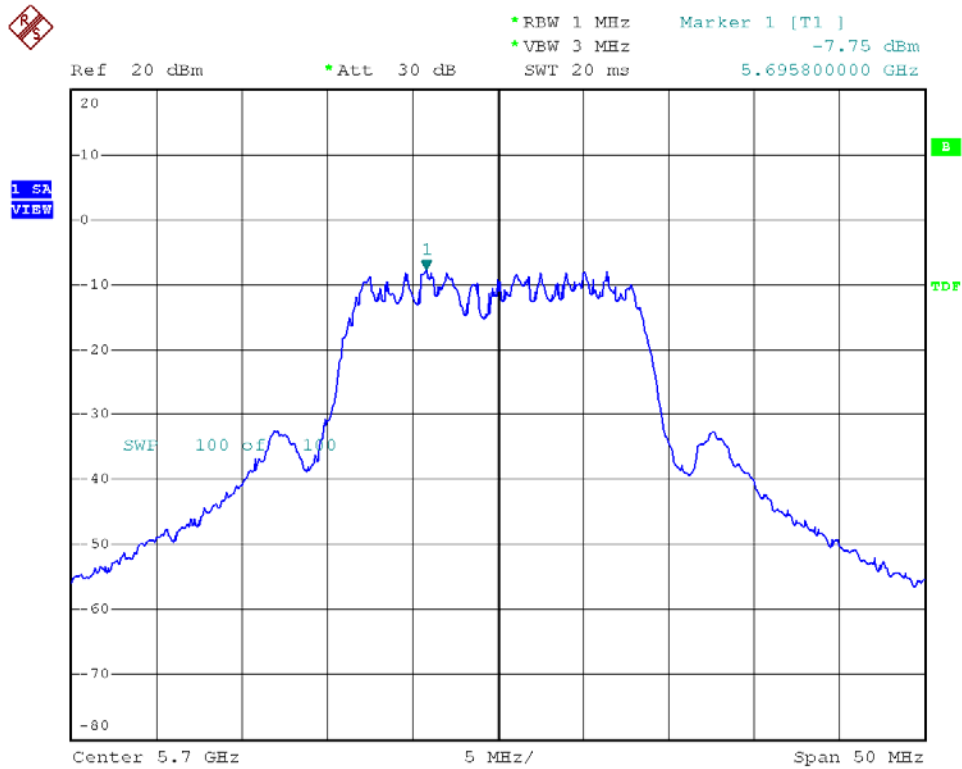
Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 120



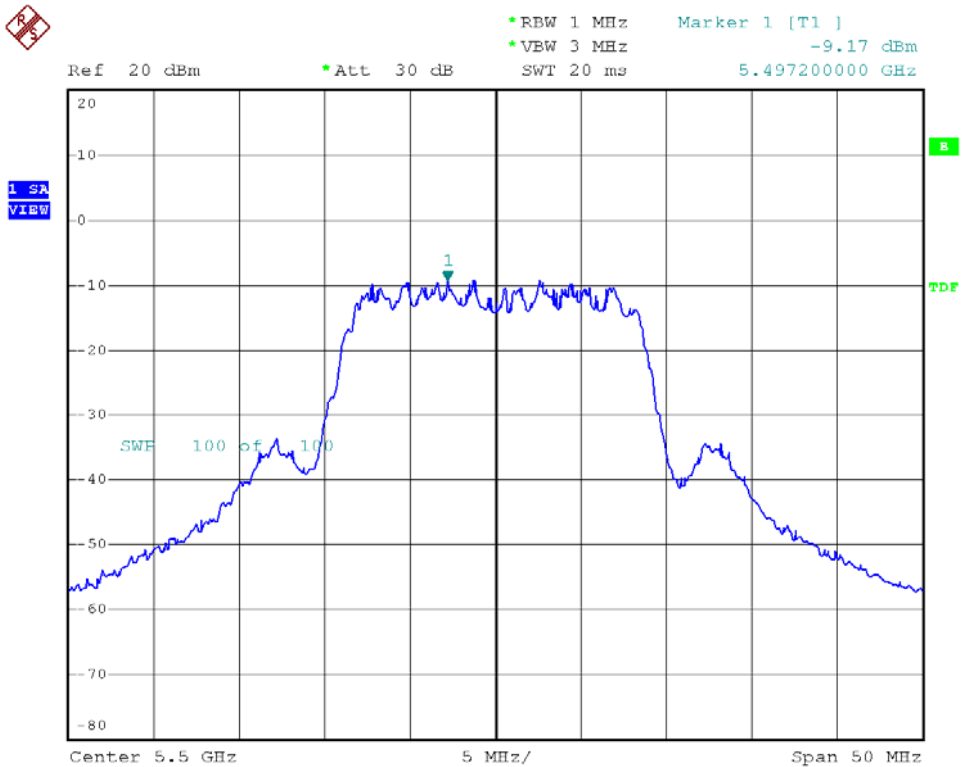




Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 140

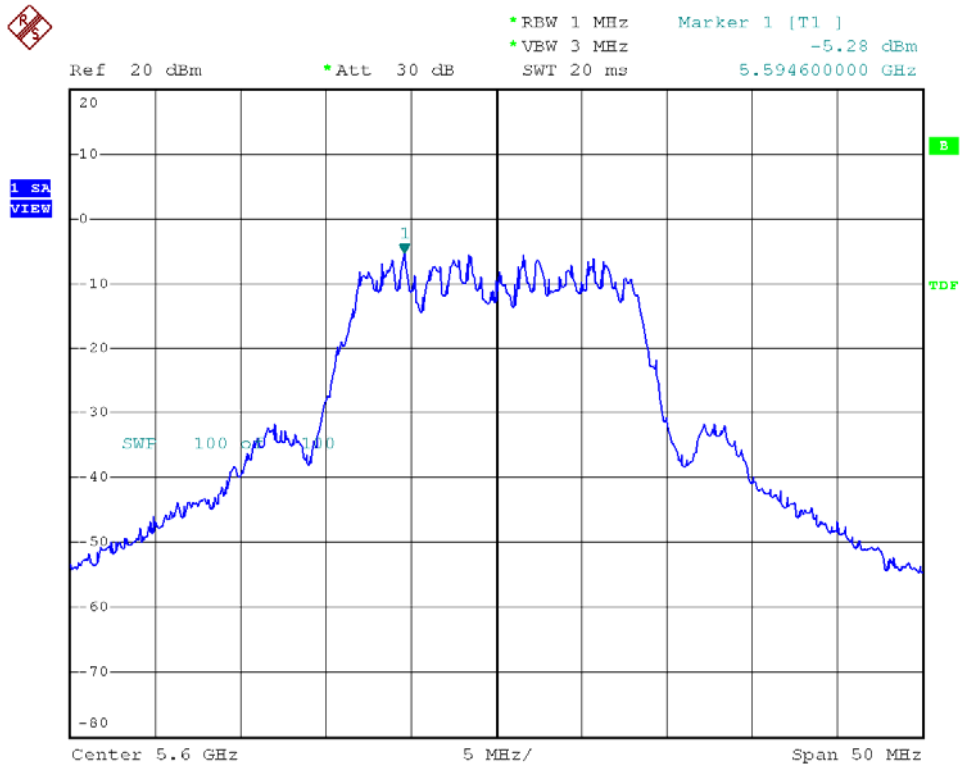


Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 100

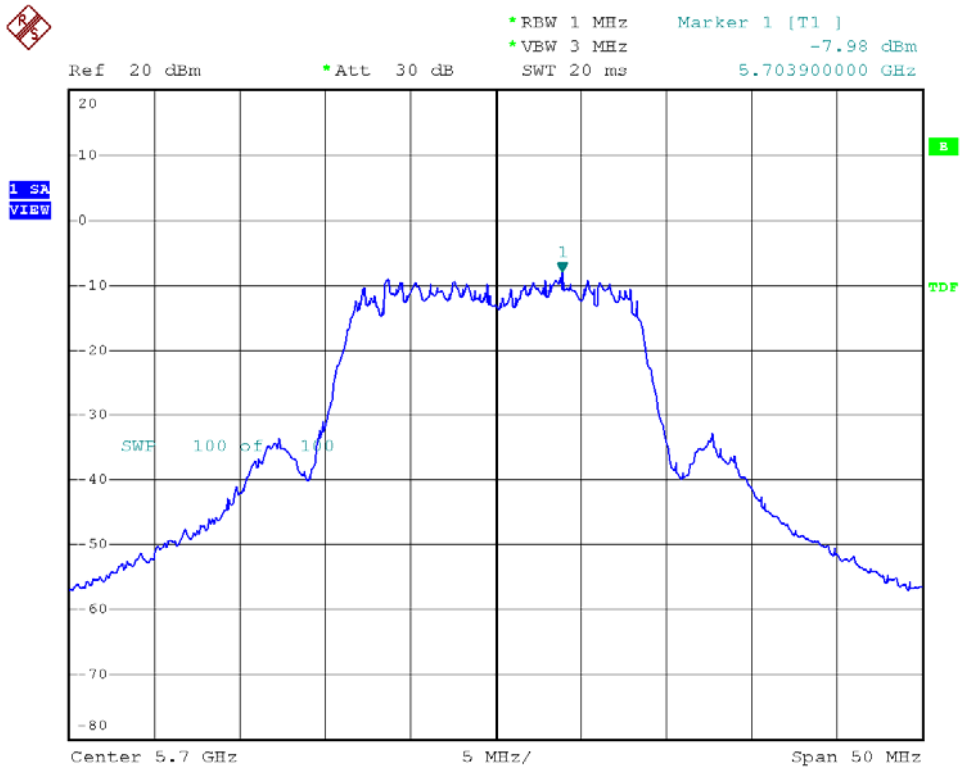




Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 120

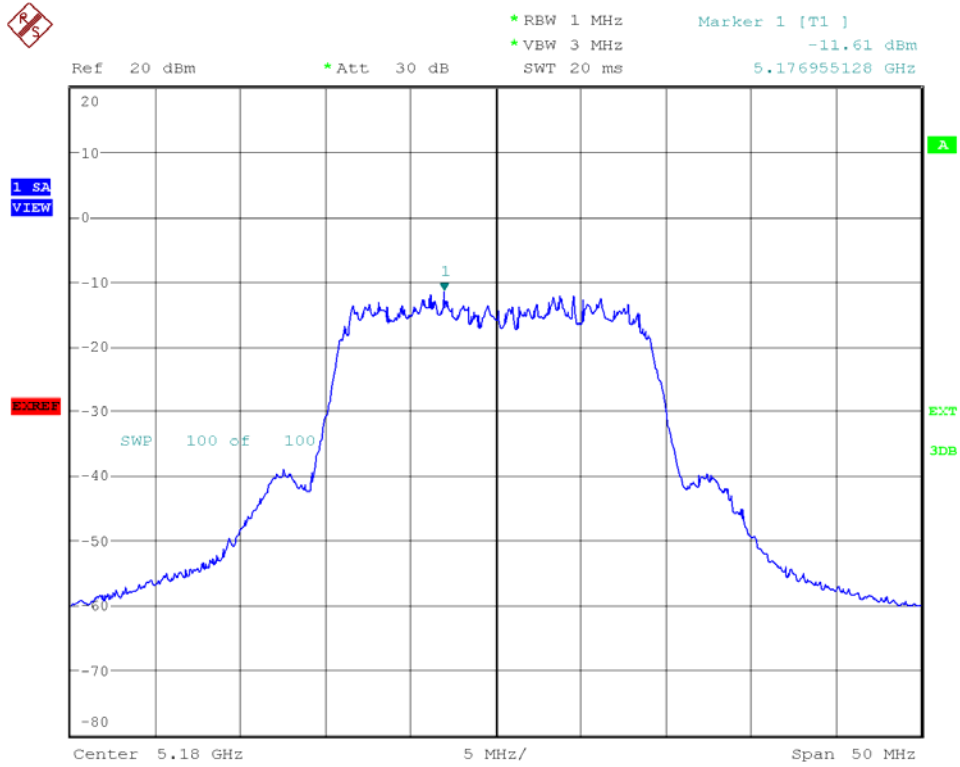


Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 140

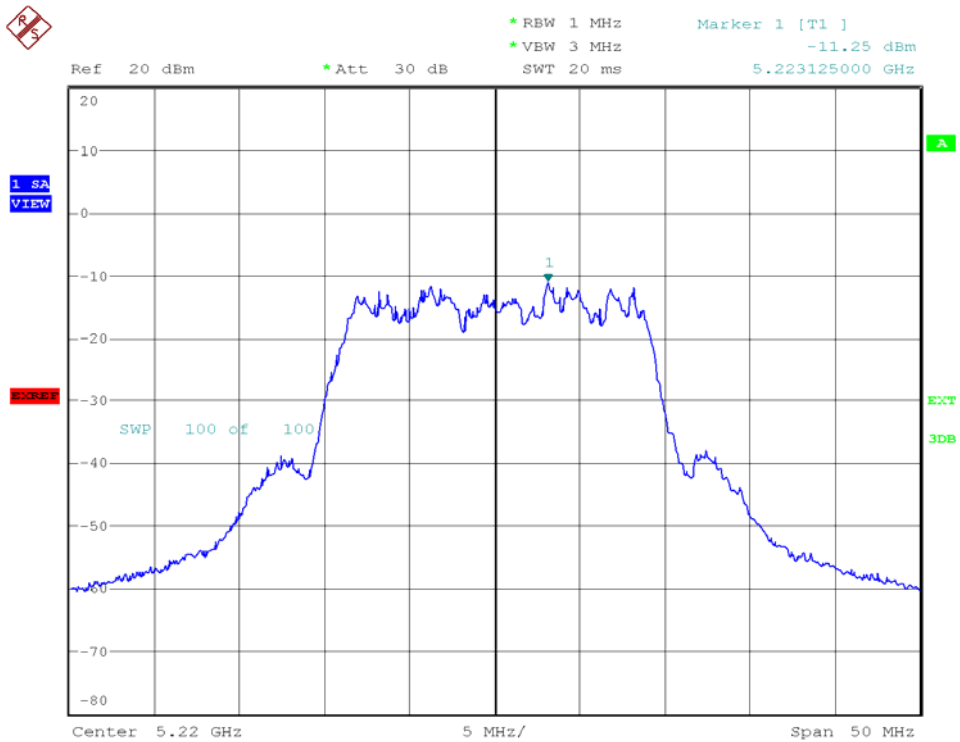




Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 36

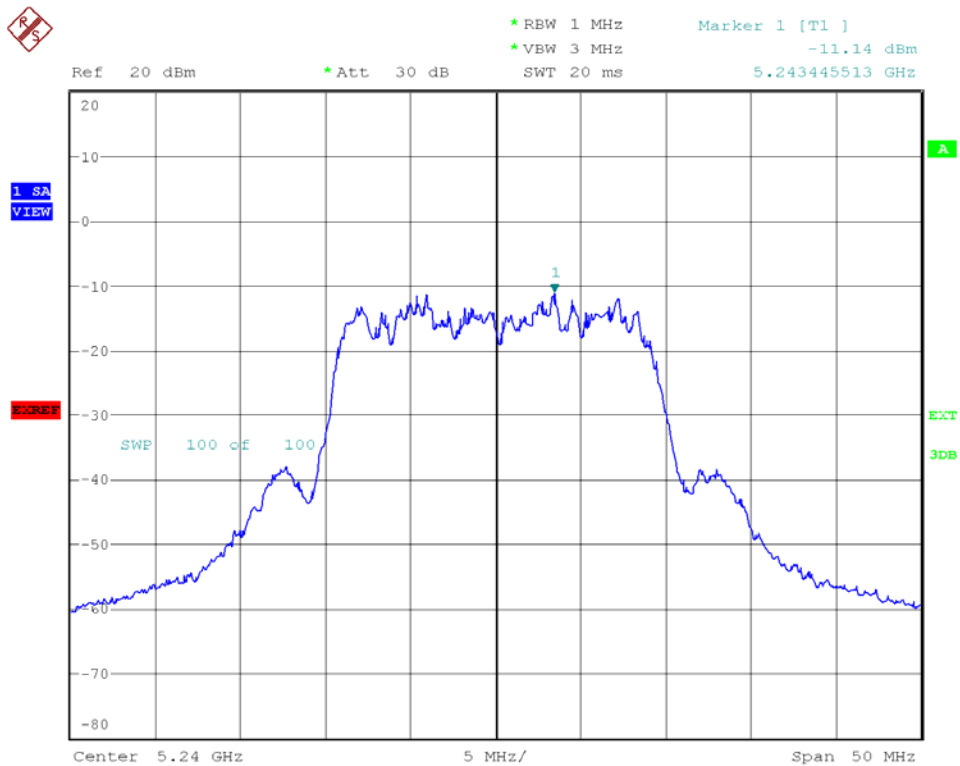


Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 44

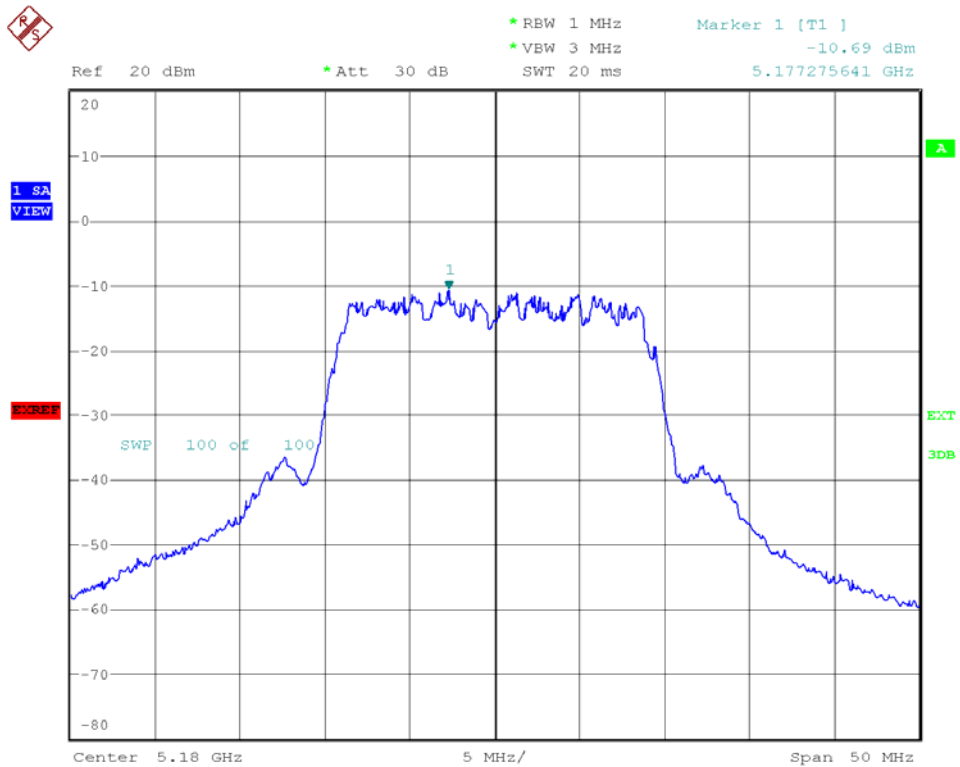




Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 48

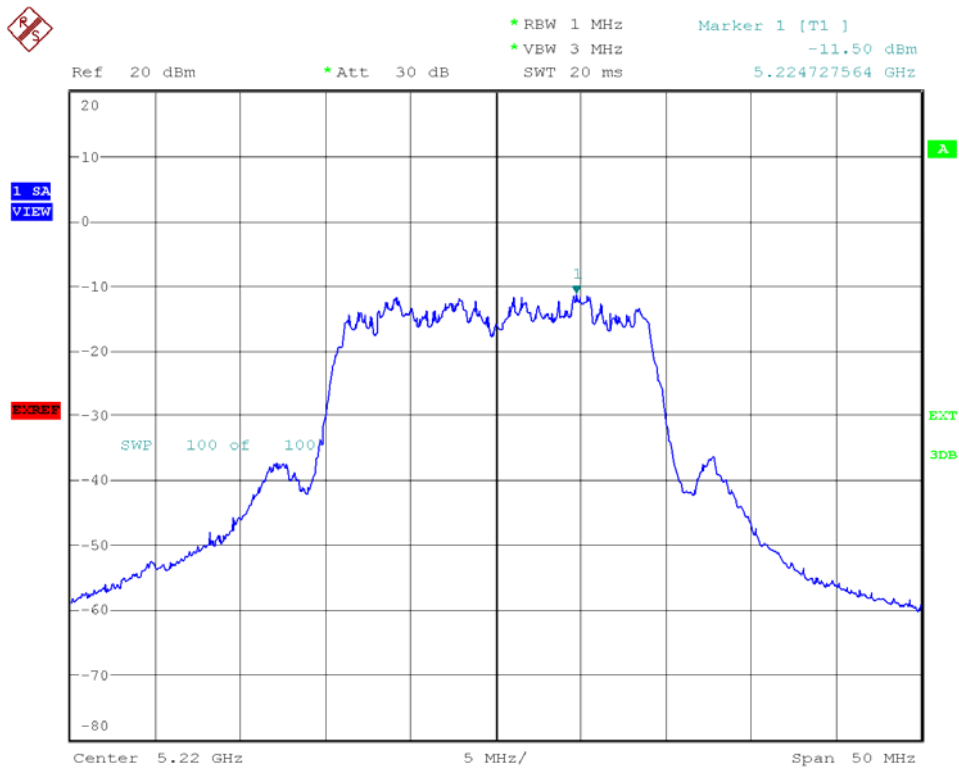


Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 36

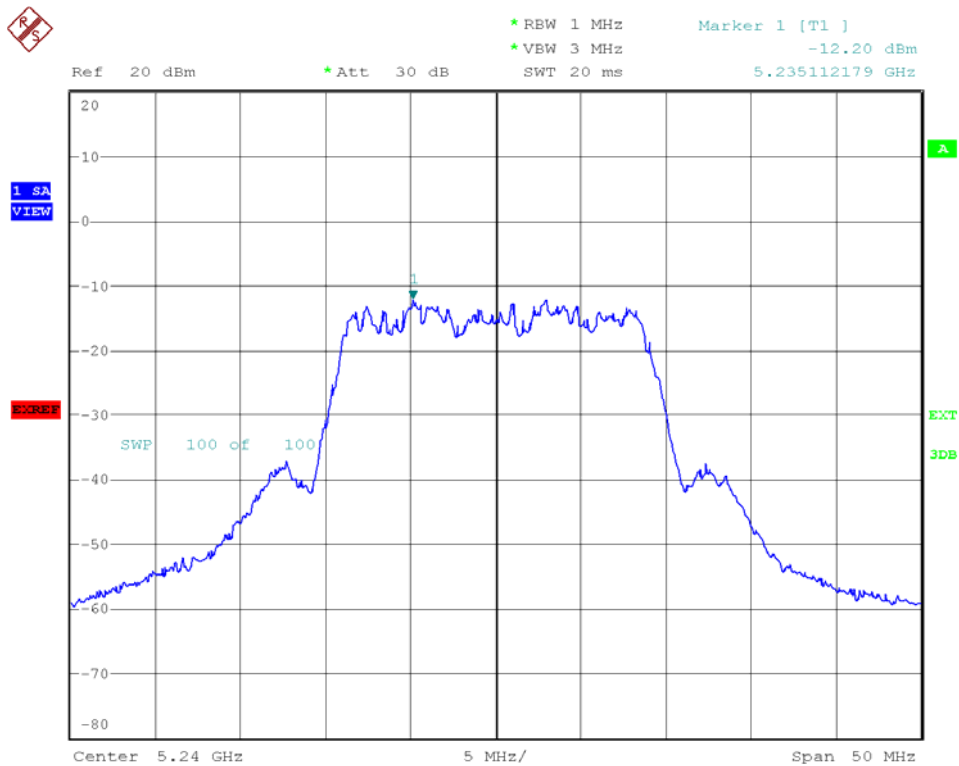




Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 44

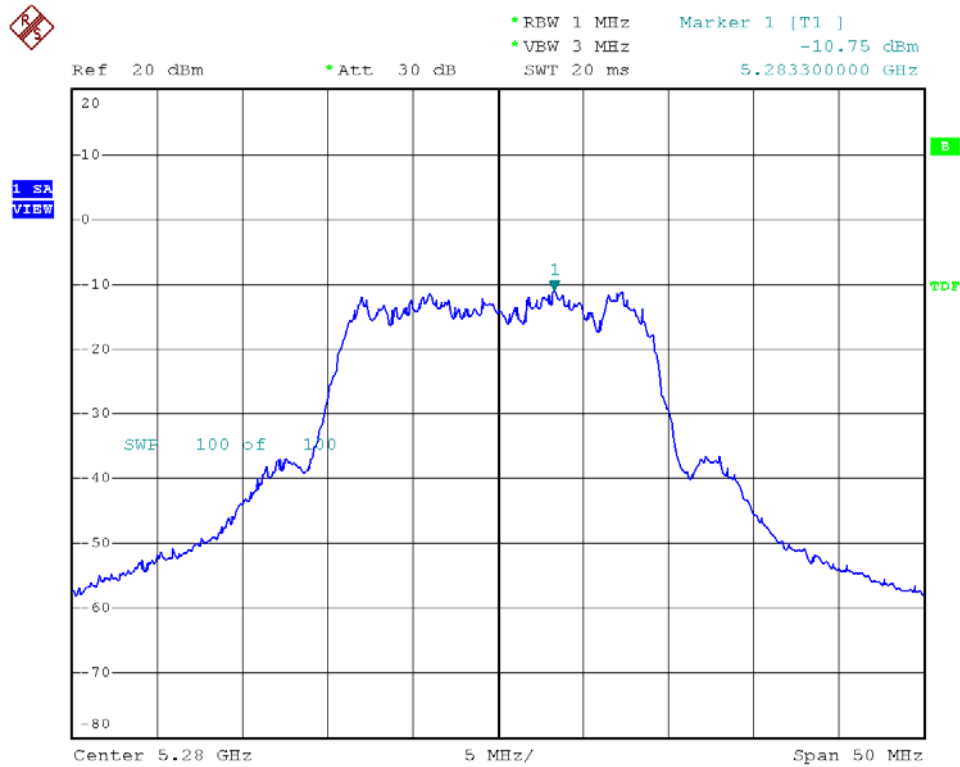


Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 48

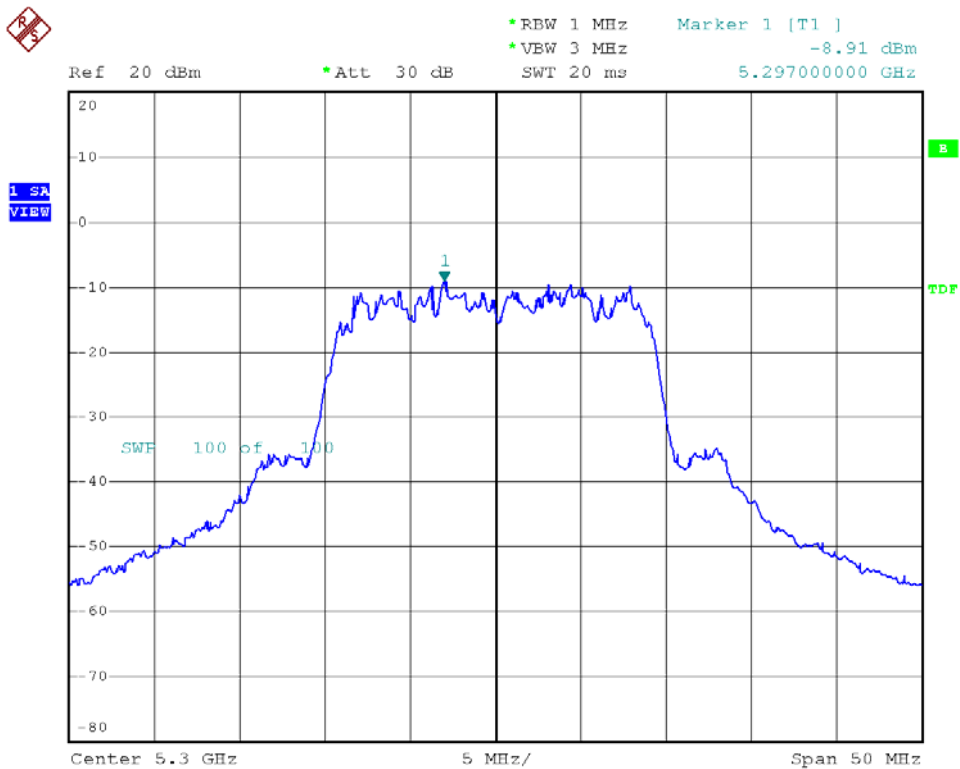




Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 56

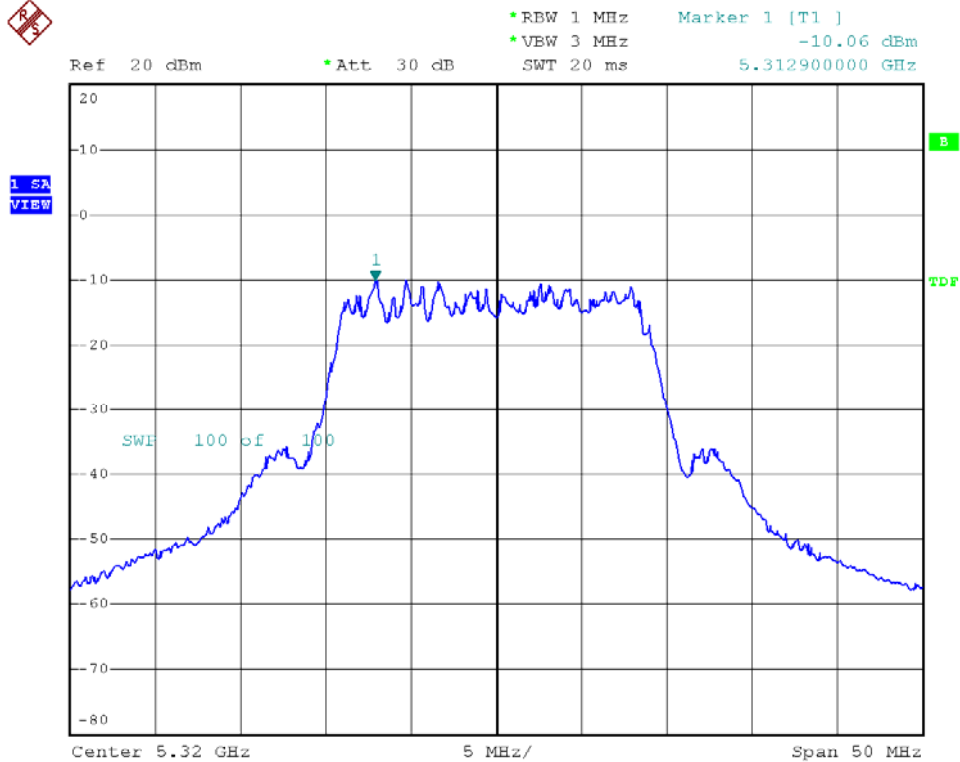


Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 60

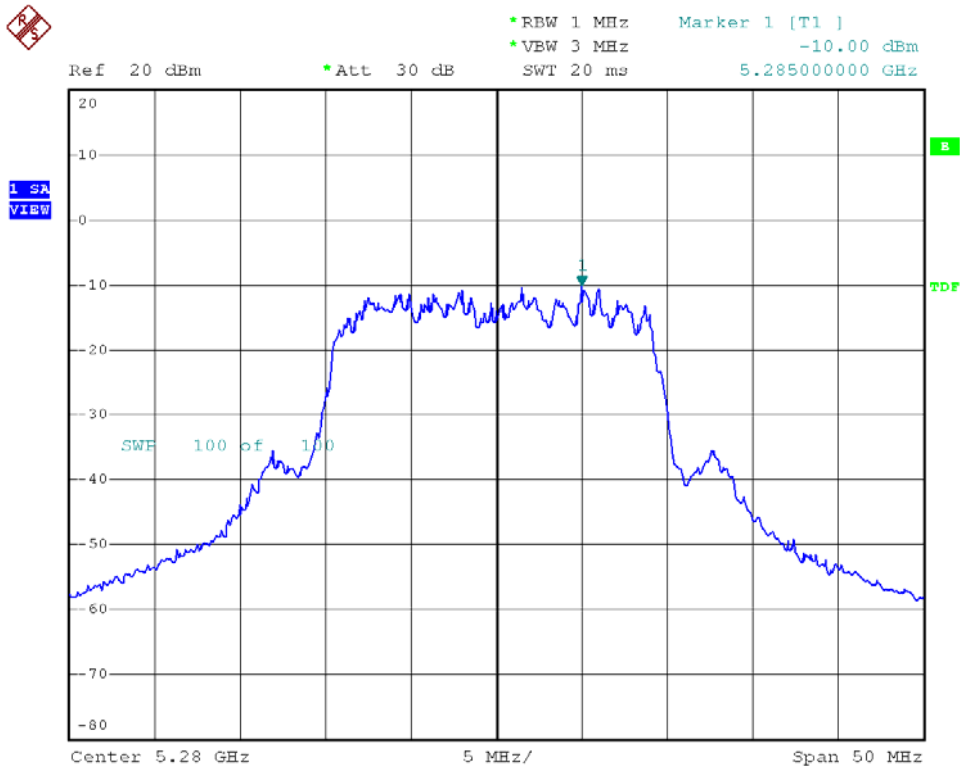




Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 64

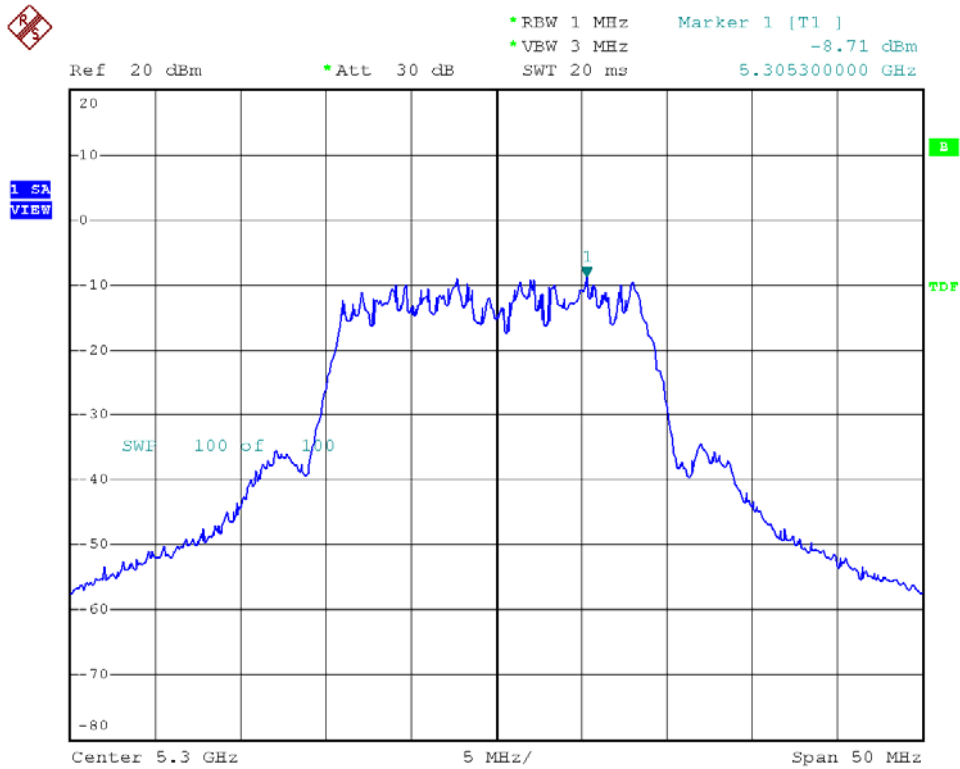


Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 56

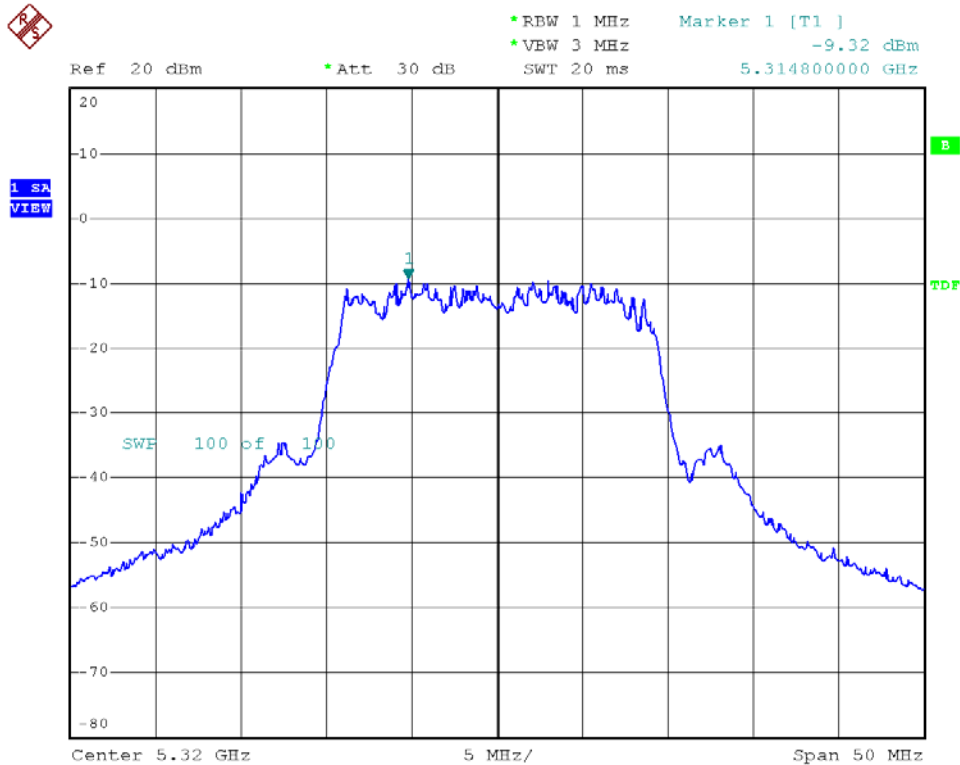




Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 60



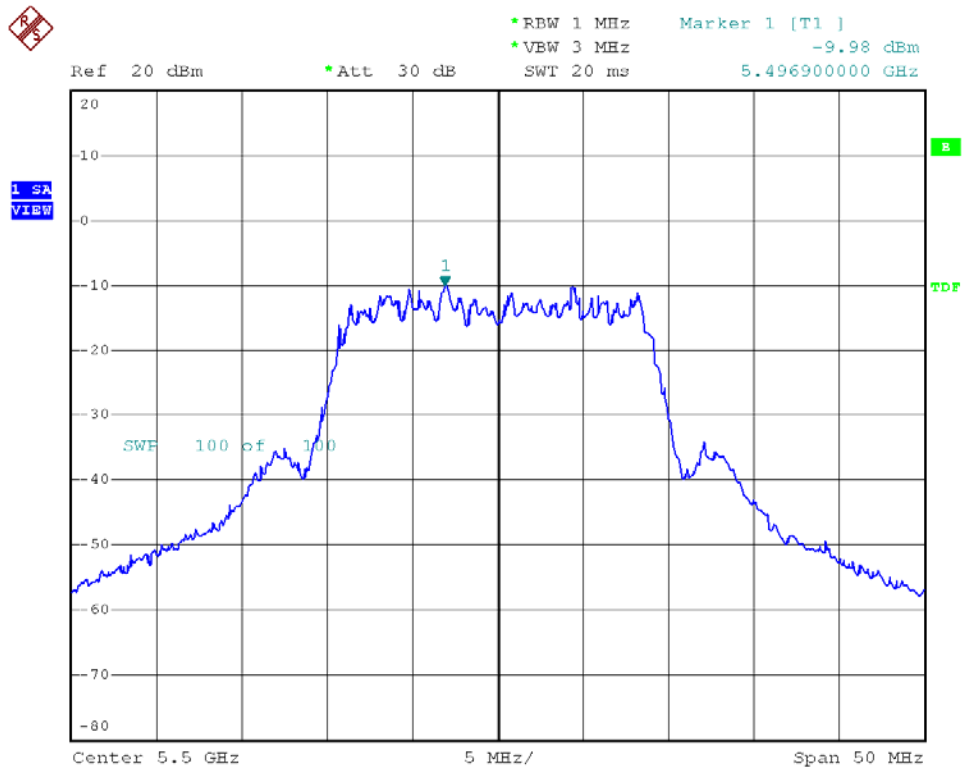
Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 64



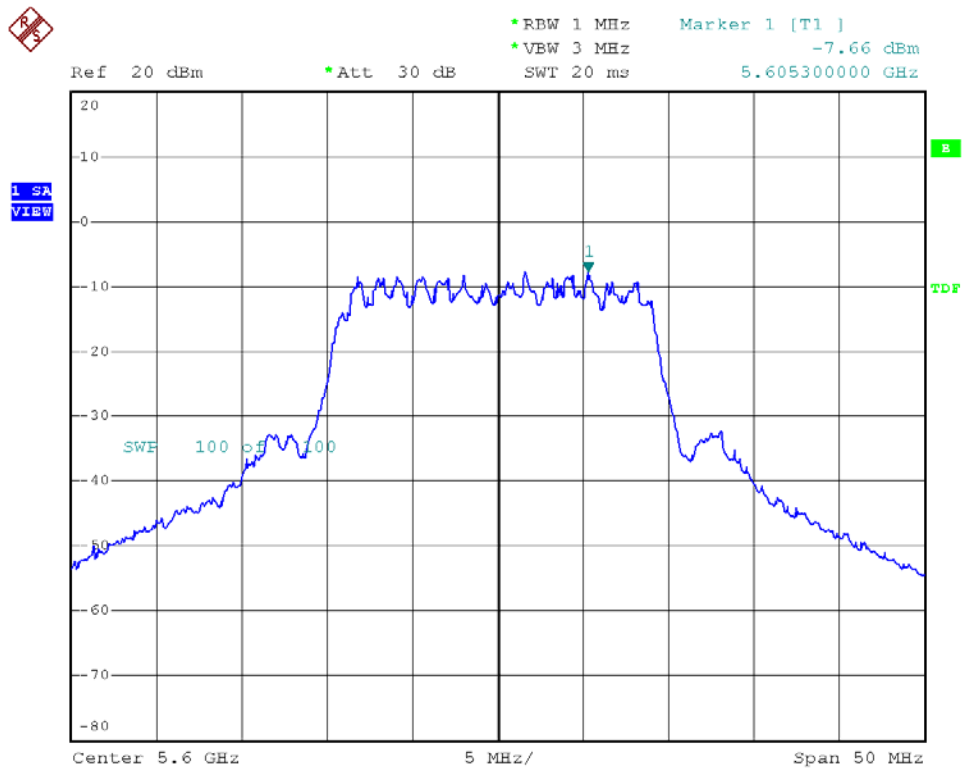




Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 100

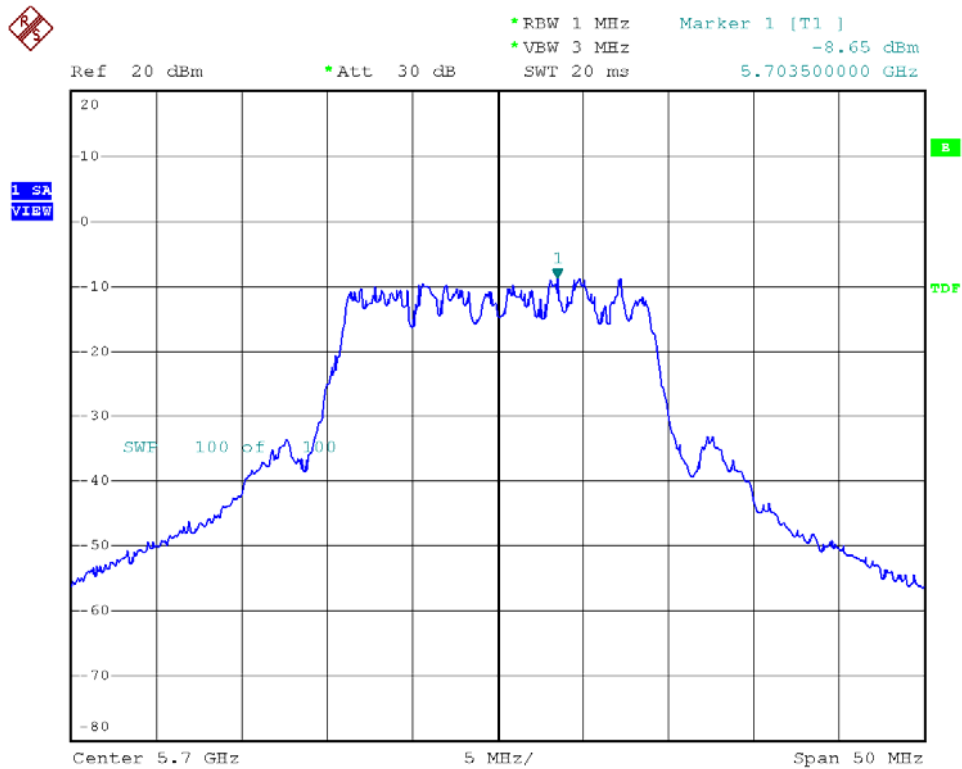


Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 120

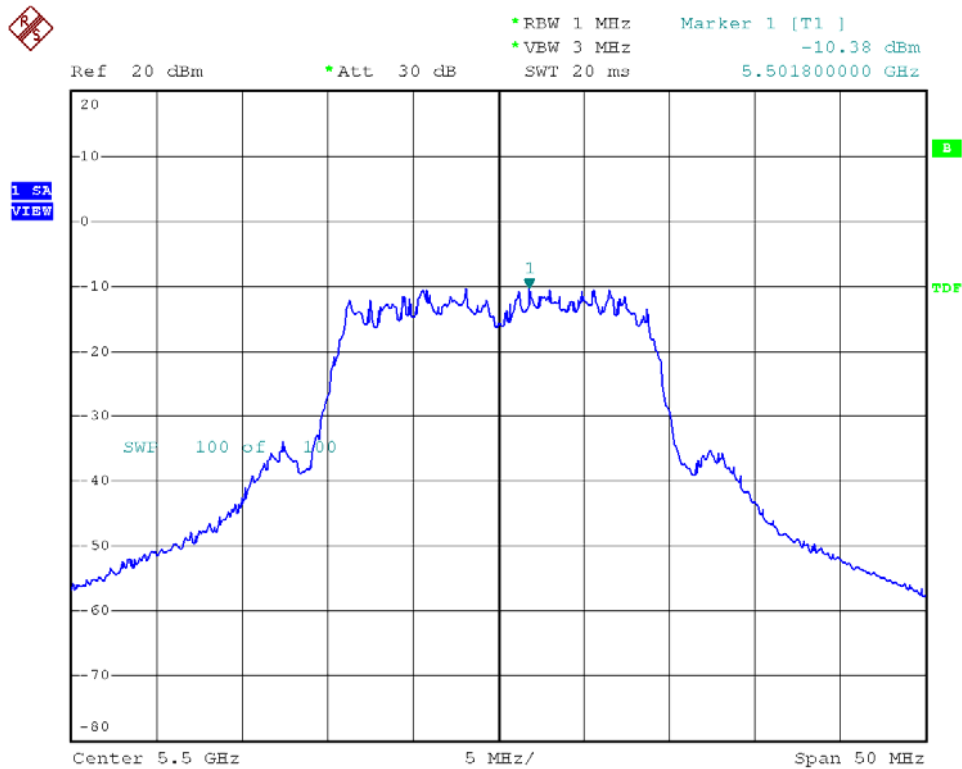




Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 140

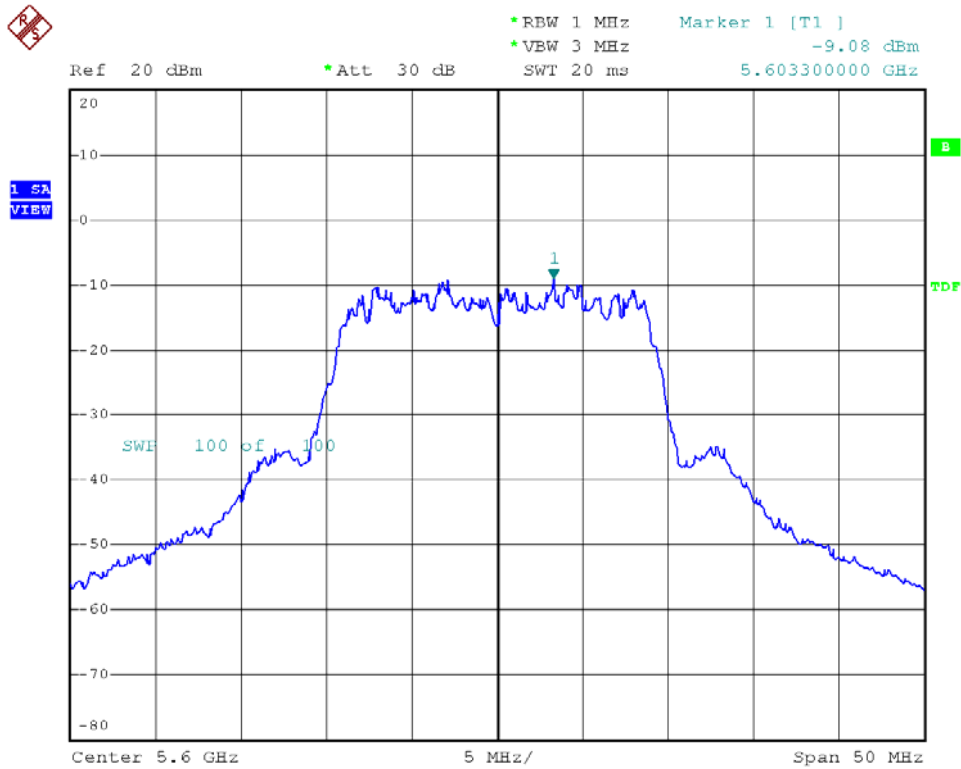


Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 100

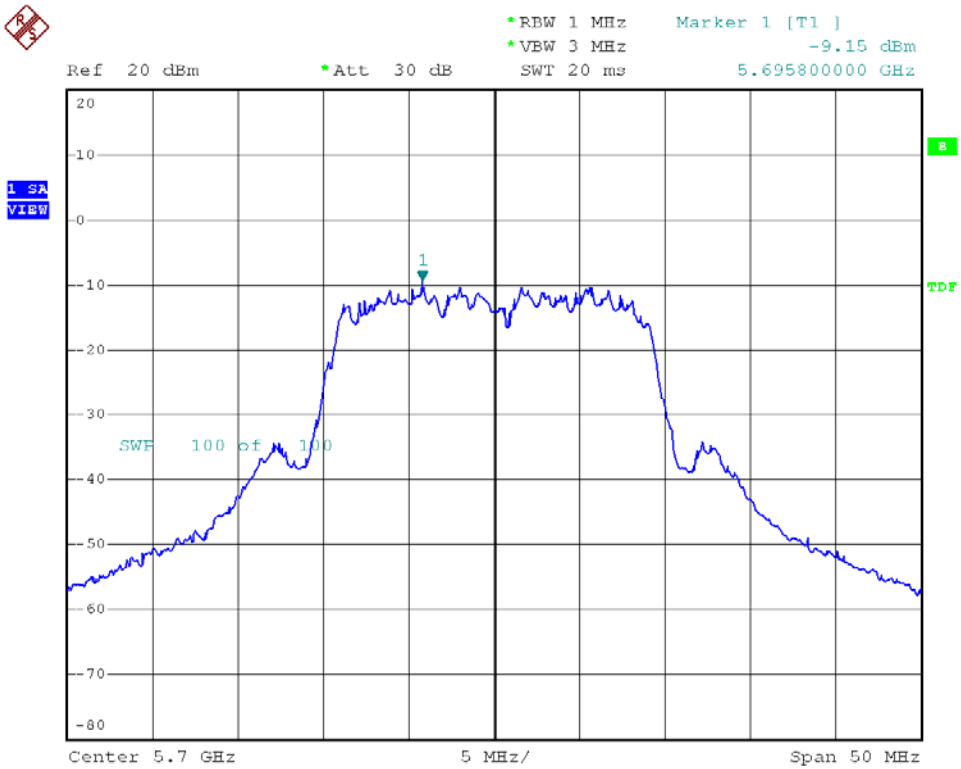




Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 120

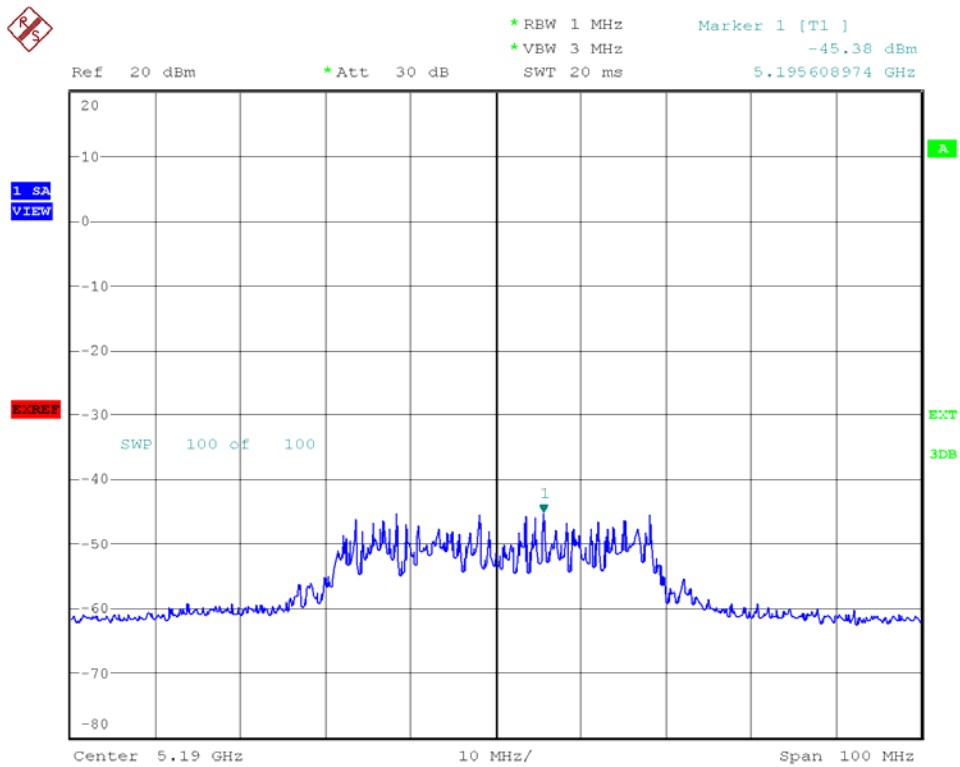


Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 140

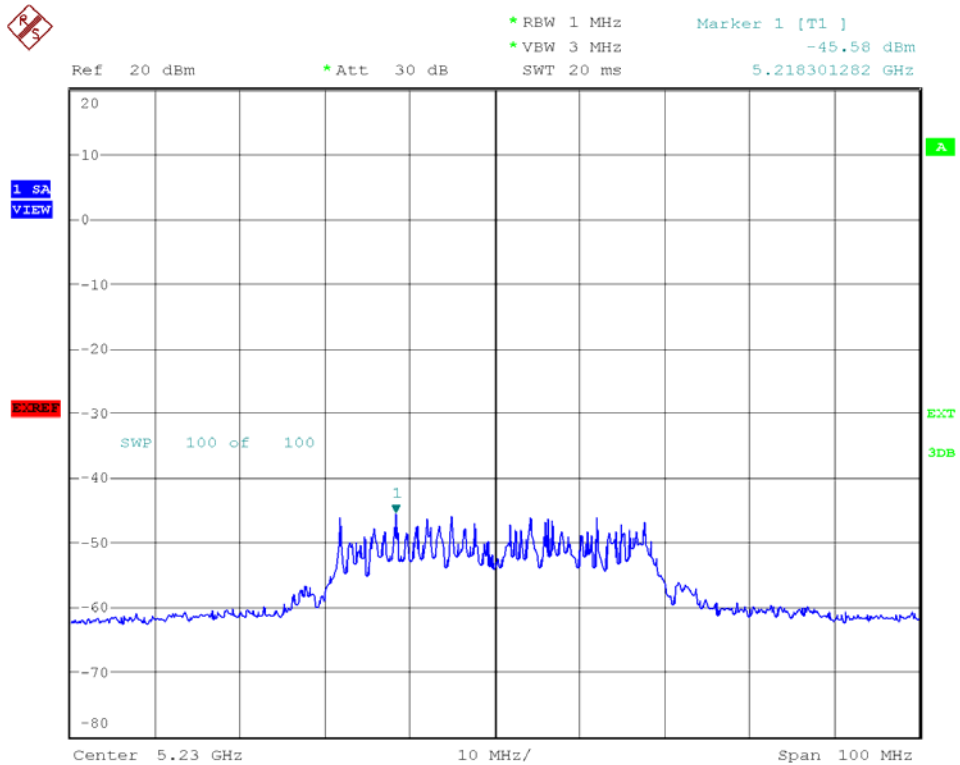




Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 38

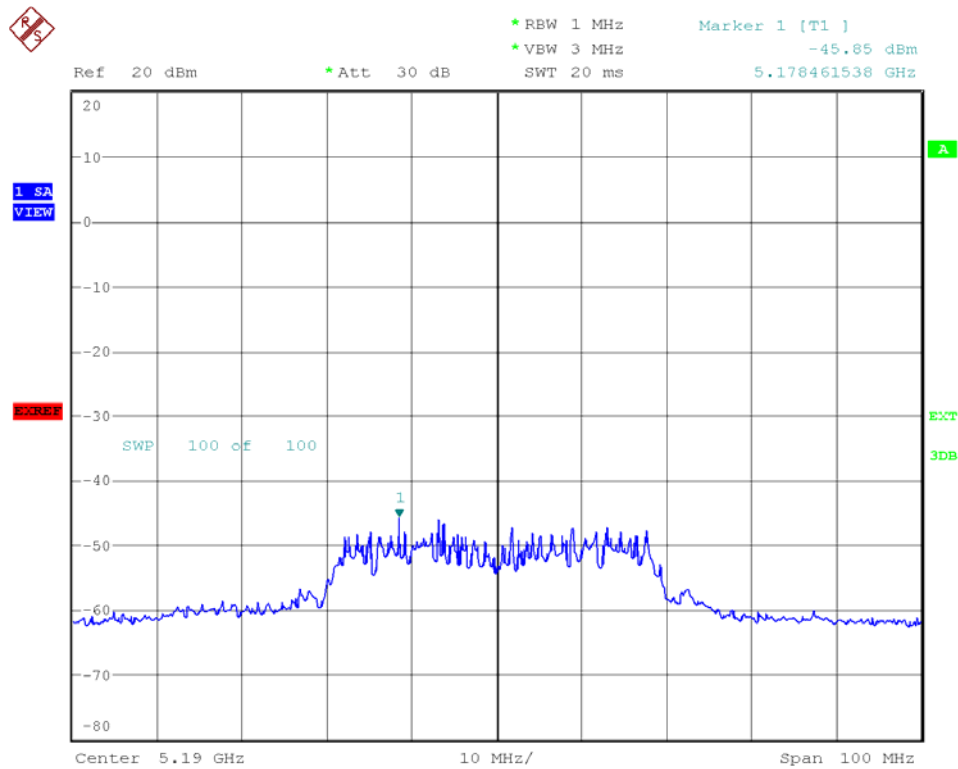


Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 46

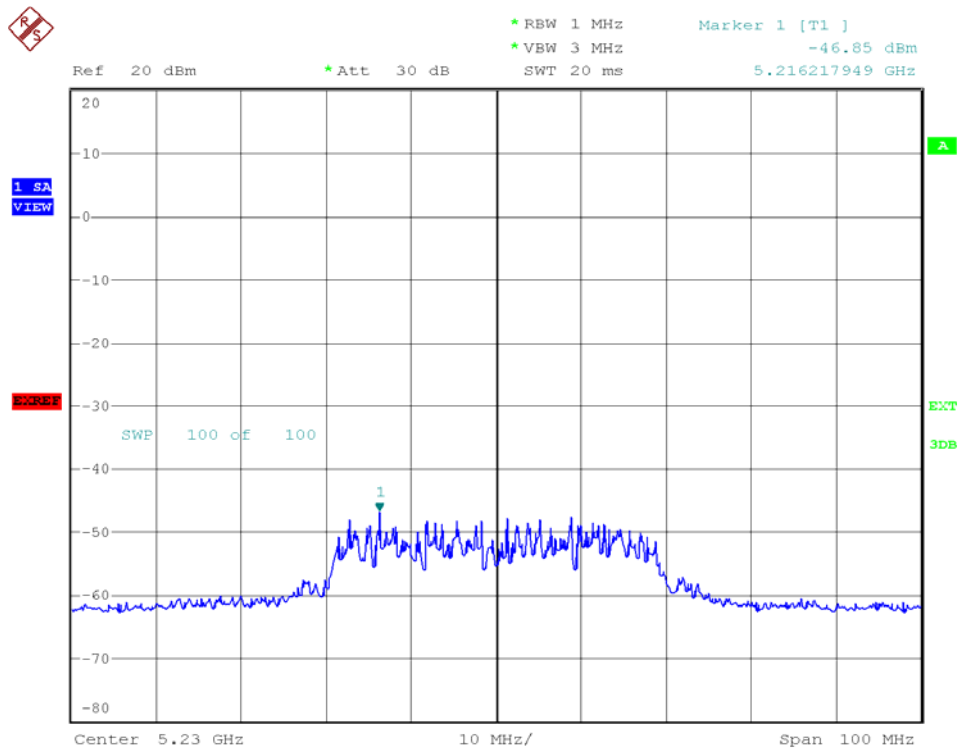




Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 38

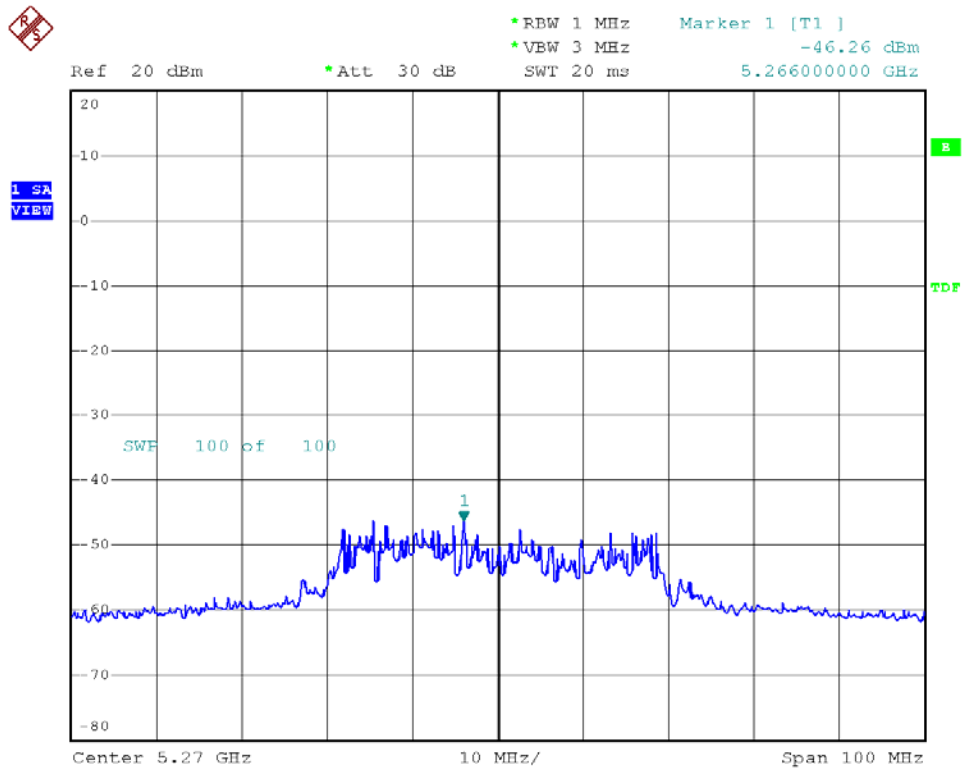


Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 46

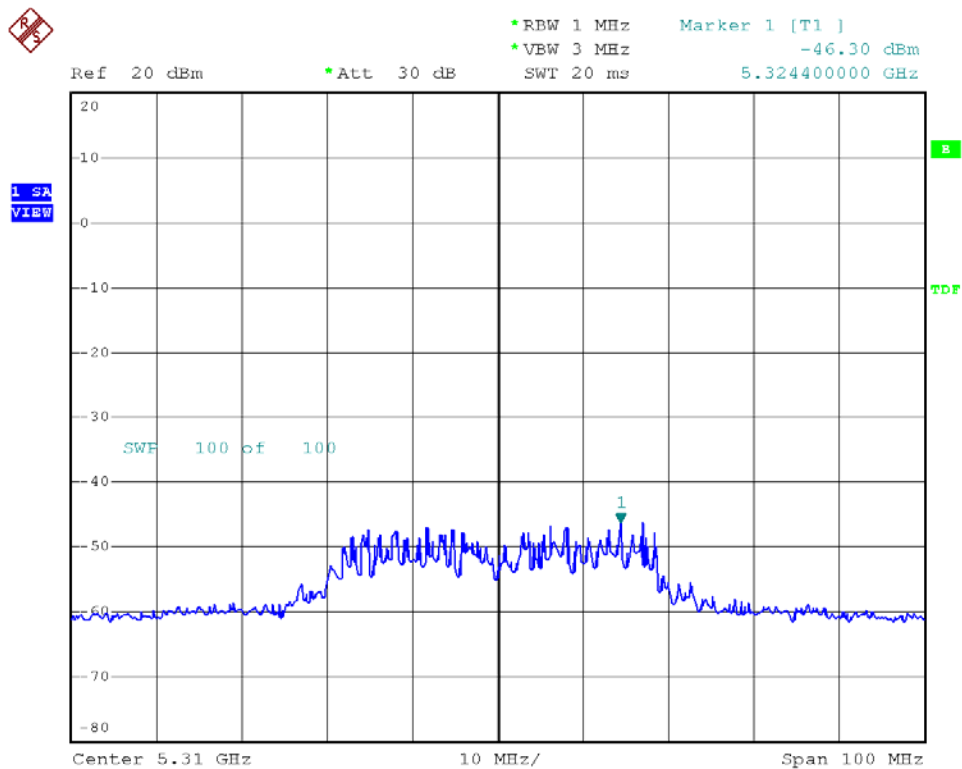




Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 54

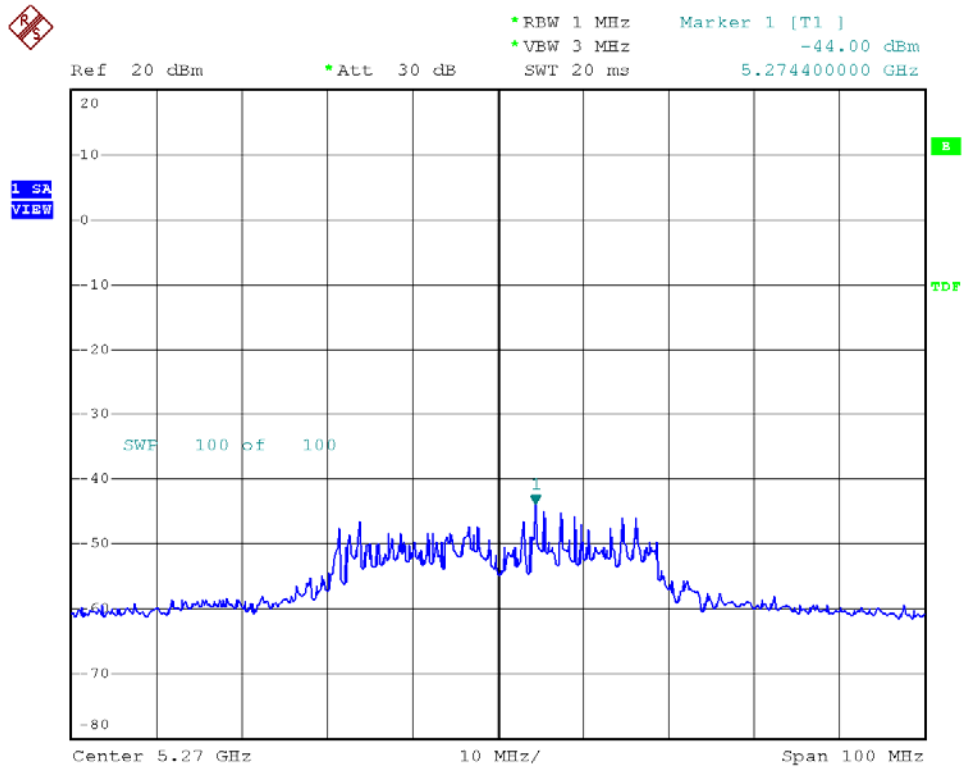


Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 62

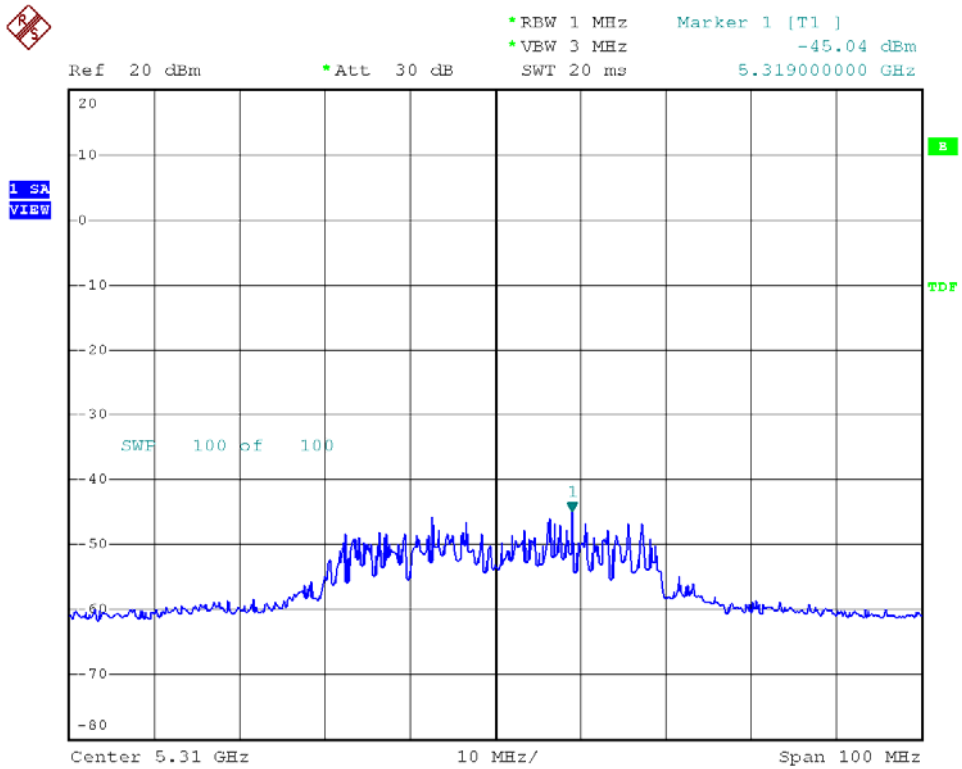




Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 54

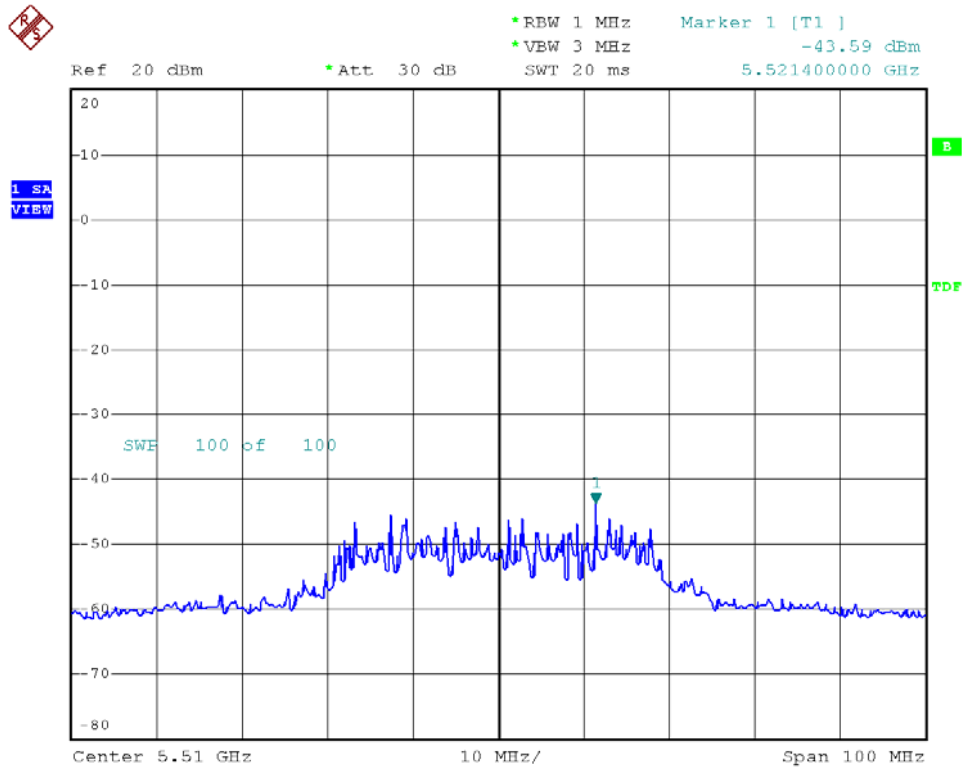


Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 62

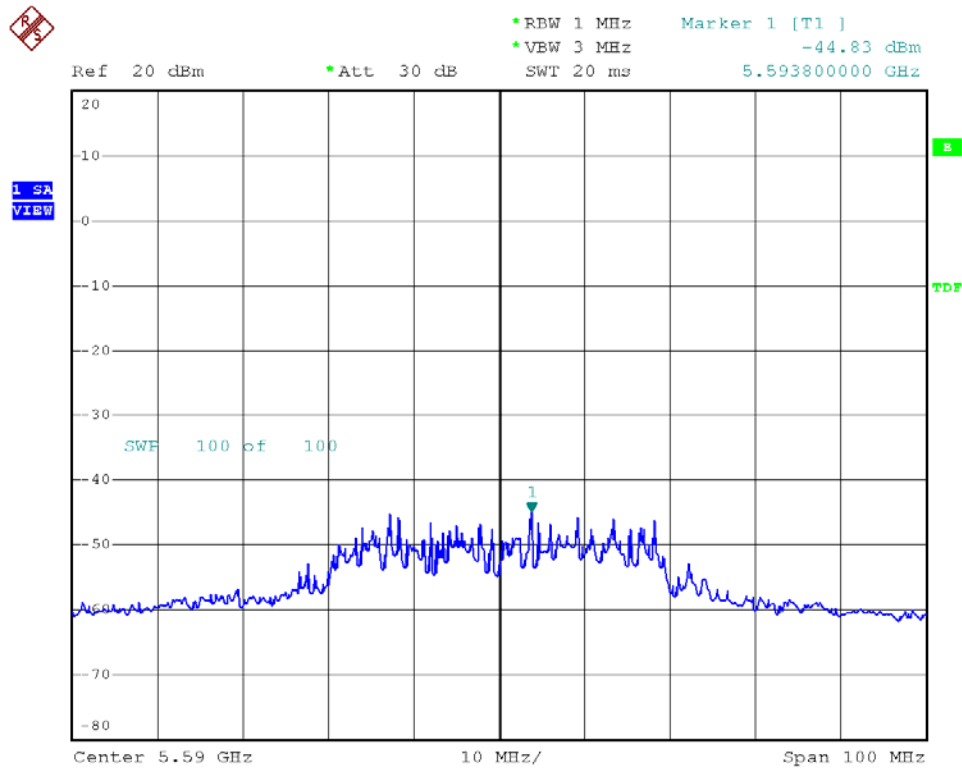




Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 102



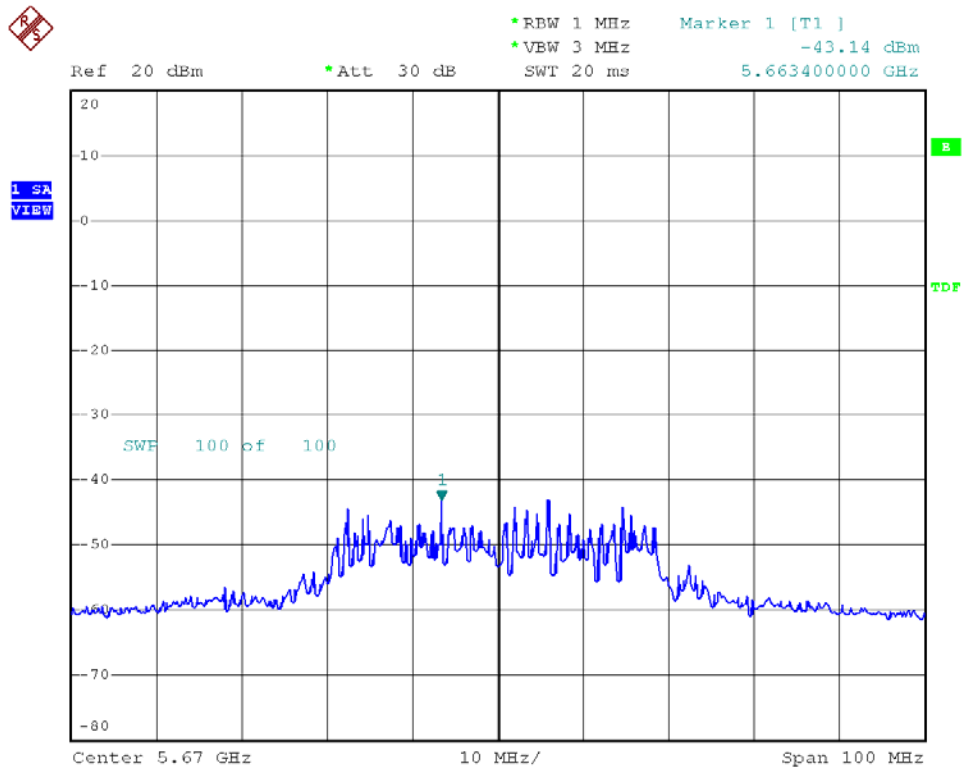
Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 118



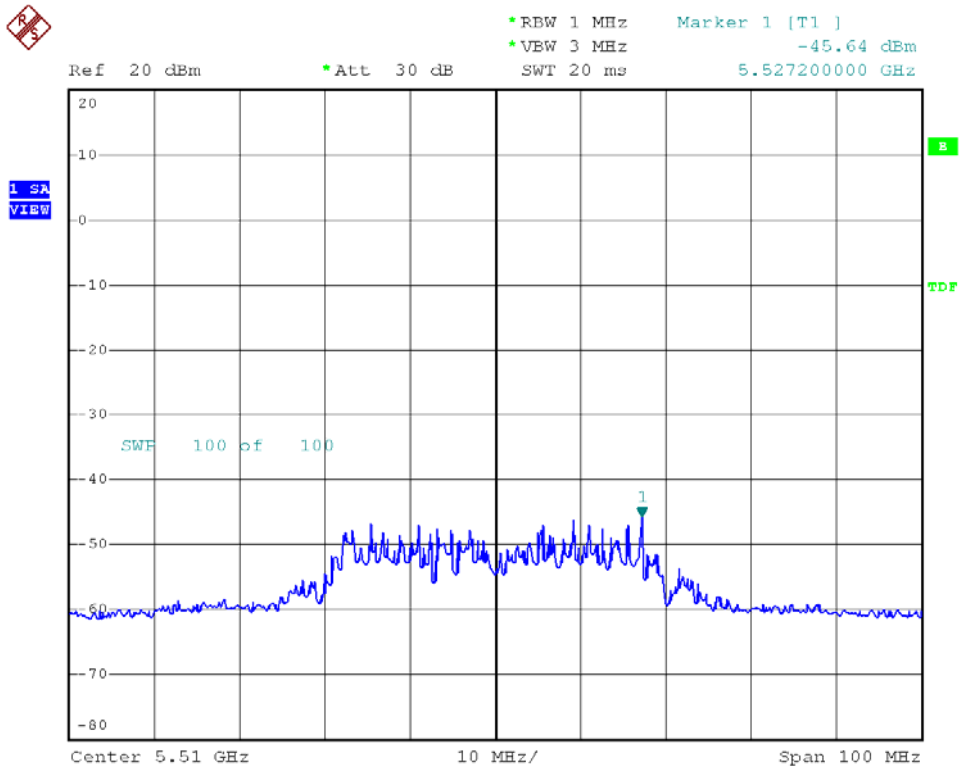




Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 134

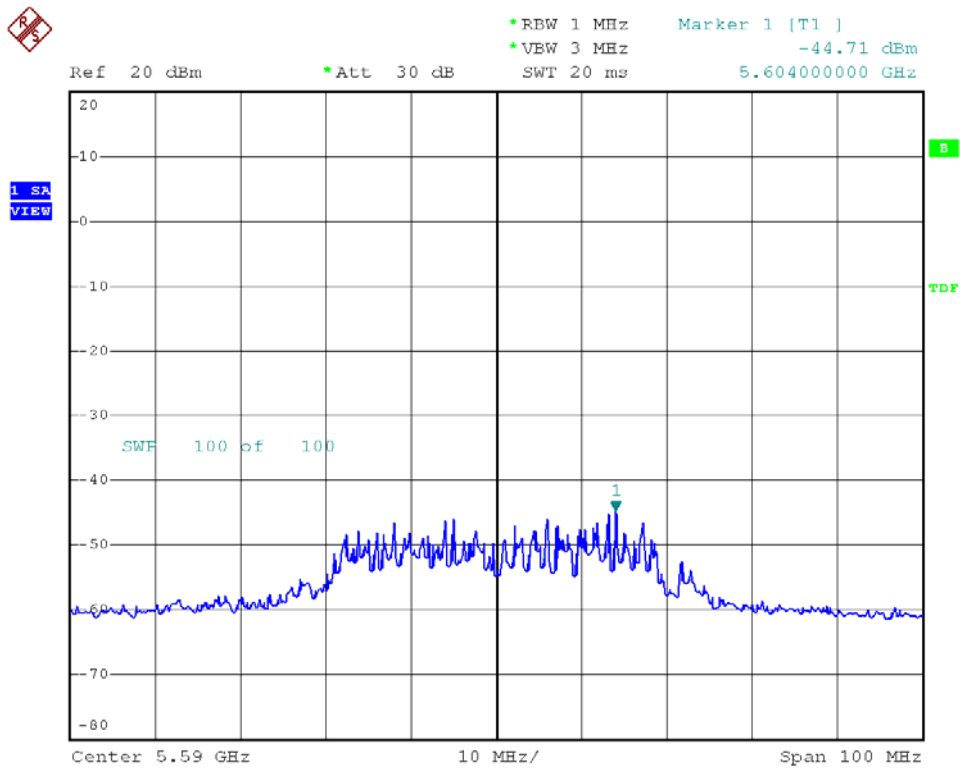


Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 102

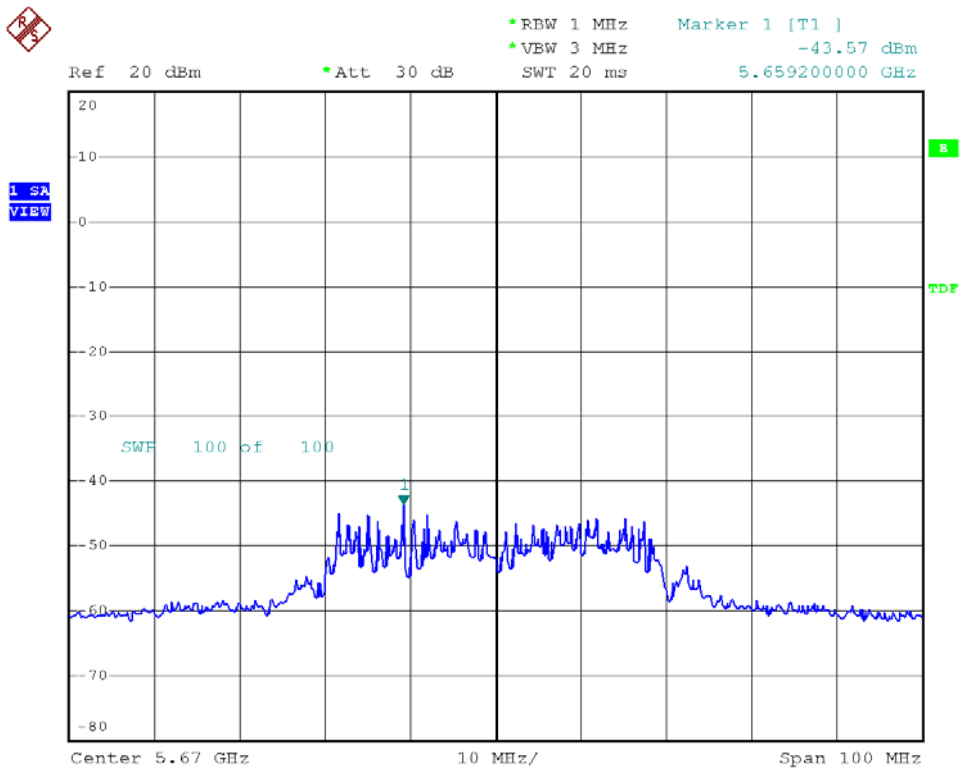




Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 118



Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 134



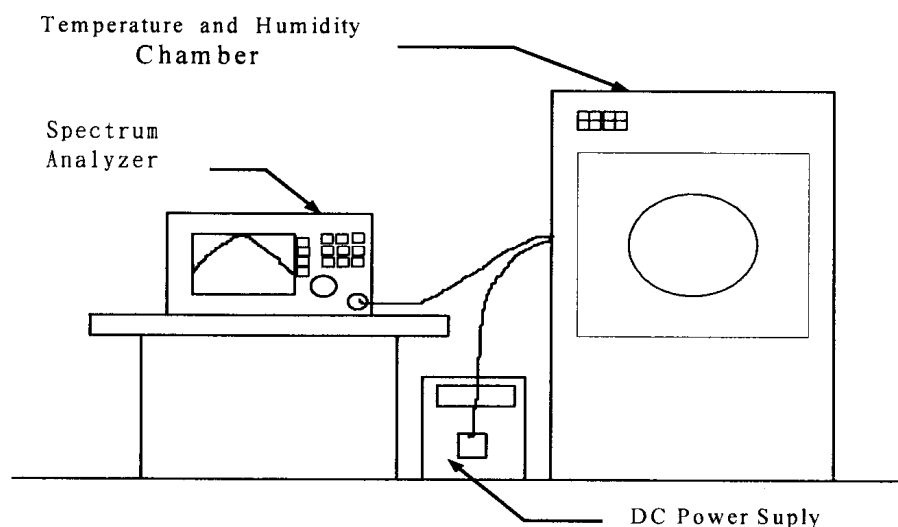


## 9. Frequency Stability

### 9.1. Test Procedure

1. The EUT was placed inside the Temperature and Humidity chamber.
2. The transmitter output was connected to spectrum analyzer.
3. Turn the EUT on and couple its output to a spectrum analyzer.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
6. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
7. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

### 9.2. Test Setup Layout



### 9.3. Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date.
Spectrum Analyzer	FSP40	R&S	10047	2009/02/21	2010/02/20
TEMPERATURE CHAMBER	TMJ-9712	T MACHINE	T-12-040111	2009/01/23	2010/01/22
DC Power Supply	GPD-3030	GM	7020936	N/A	N/A
AC POWER CONVERTER	AFC-11005	APC	F103120008	N/A	N/A



**9.4. Test Result and Data**

Operating frequency: 5230 MHz							
Temp (°C)	Power supply (V)	2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	93.5	5230.0154	-0.190546%	5229.9235	-0.192300%	5229.9898	-0.191033%
	110	5230.0011	-0.190818%	5229.9446	-0.191898%	5229.9635	-0.191537%
	126.5	5229.9964	-0.190909%	5229.9537	-0.191724%	5229.9747	-0.191322%
40	93.5	5229.9856	-0.191115%	5229.9848	-0.191129%	5230.0052	-0.190740%
	110	5229.9742	-0.191331%	5230.0209	-0.190441%	5229.9755	-0.191307%
	126.5	5229.9707	-0.191399%	5229.9832	-0.191160%	5229.9776	-0.191267%
30	93.5	5230.0222	-0.190417%	5230.0064	-0.190718%	5229.9918	-0.190996%
	110	5230.0264	-0.190336%	5230.0052	-0.190740%	5229.9969	-0.190898%
	126.5	5229.9950	-0.190934%	5230.0087	-0.190674%	5229.9671	-0.191467%
20	93.5	5230.0273	-0.190319%	5230.0055	-0.190734%	5229.9933	-0.190968%
	110	5230.0100	-0.190649%	5229.9799	-0.191223%	5230.0126	-0.190599%
	126.5	5230.0176	-0.190503%	5230.0136	-0.190581%	5229.9701	-0.191410%
10	93.5	5229.9975	-0.190887%	5230.0114	-0.190622%	5230.0005	-0.190830%
	110	5230.0162	-0.190530%	5229.9739	-0.191337%	5230.0063	-0.190719%
	126.5	5230.0165	-0.190525%	5229.9956	-0.190924%	5229.9877	-0.191075%
0	93.5	5229.9989	-0.190861%	5229.9922	-0.190989%	5229.9736	-0.191344%
	110	5230.0172	-0.190511%	5229.9724	-0.191367%	5229.9831	-0.191162%
	126.5	5229.9906	-0.191018%	5229.9699	-0.191415%	5229.9819	-0.191186%
-10	93.5	5229.9673	-0.191465%	5229.9669	-0.191471%	5230.0188	-0.190480%
	110	5229.9581	-0.191639%	5230.0116	-0.190618%	5230.0183	-0.190491%
	126.5	5229.9799	-0.191222%	5229.9931	-0.190972%	5229.9904	-0.191022%
-20	93.5	5230.0184	-0.190488%	5230.0091	-0.190667%	5230.0186	-0.190485%
	110	5230.0134	-0.190584%	5230.0010	-0.190821%	5230.0258	-0.190347%
	126.5	5229.9848	-0.191129%	5230.0152	-0.190549%	5230.0168	-0.190519%
-30	93.5	5230.0174	-0.190508%	5230.0033	-0.190777%	5230.0017	-0.190807%
	110	5230.0212	-0.190435%	5229.9960	-0.190917%	5230.0191	-0.190475%
	126.5	5230.0146	-0.190561%	5230.0024	-0.190794%	5230.0355	-0.190162%

Limit :

Manufacturers 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 in the users manual.



## 10. Band Edges Measurement

### 10.1. Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set both RBW and VBW of spectrum analyzer to 100 KHz with convenient frequency span including 100 MHz bandwidth from band edge
3. The band edges was measured and recorded.

### 10.2. Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	FSP40	R&S	10047	2009/02/21	2010/02/20

### 10.3. Test Result and Data

Test Date: Mar. 11, 2009

Temperature: 26°C

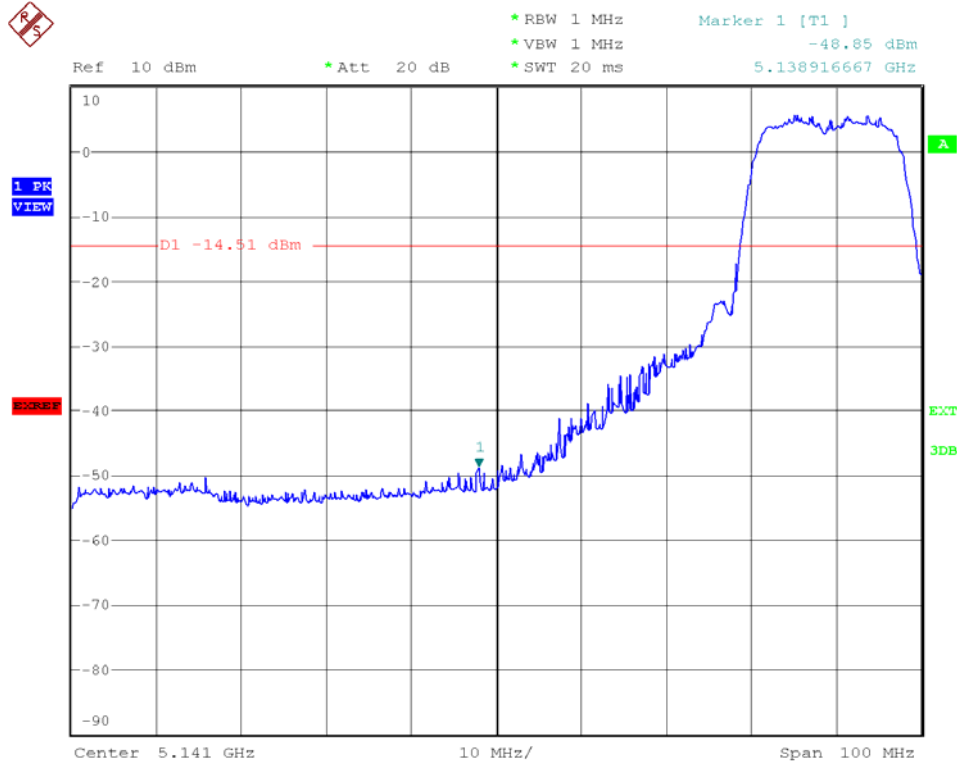
Atmospheric pressure: 1025 hPa

Humidity: 48%

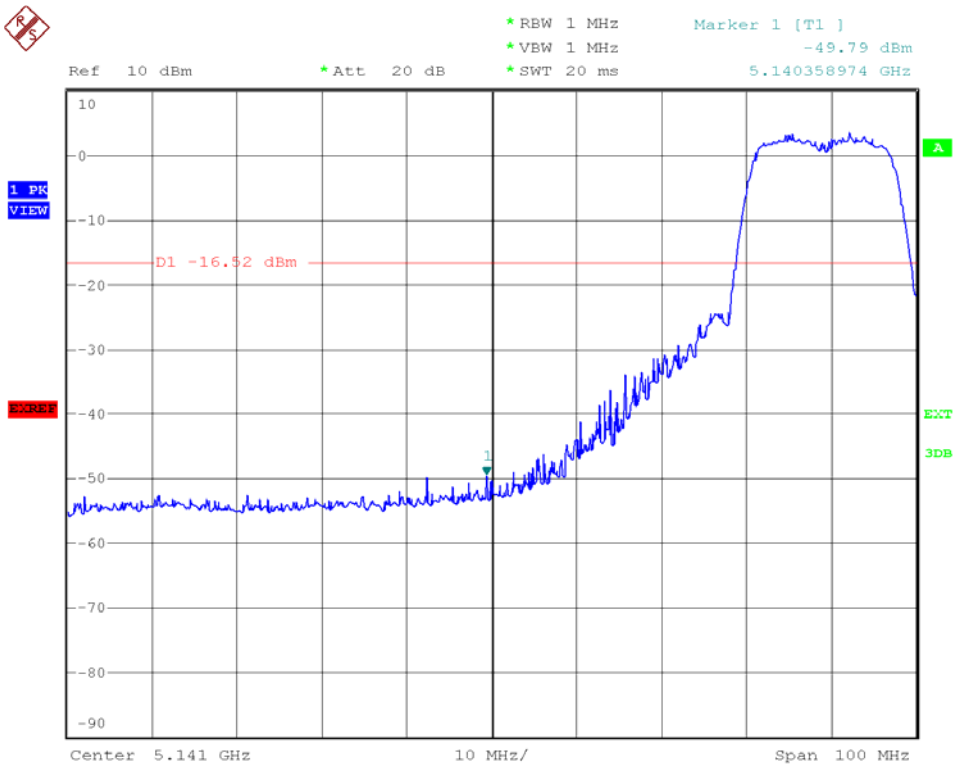
Modulation Standard	Channel	Frequency (MHz)	maximum value in frequency (MHz)		maximum value (dBm)	
			Ant R	Ant L	Ant R	Ant L
802.11a (6Mbps)	36	5180	5138.91	5140.35	-48.85	-49.79
	64	5320	5350.40	5350.40	-39.73	-41.76
802.11an HT20 (130Mbps)	36	5180	5140.20	5140.40	-45.62	-47.34
	64	5320	5350.40	5350.40	-46.05	-45.75
802.11an HT40 (270Mbps)	38	5190	5140.10	5139.80	-46.95	-42.11
	62	5310	5354.80	5353.00	-43.42	-41.98



Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 36

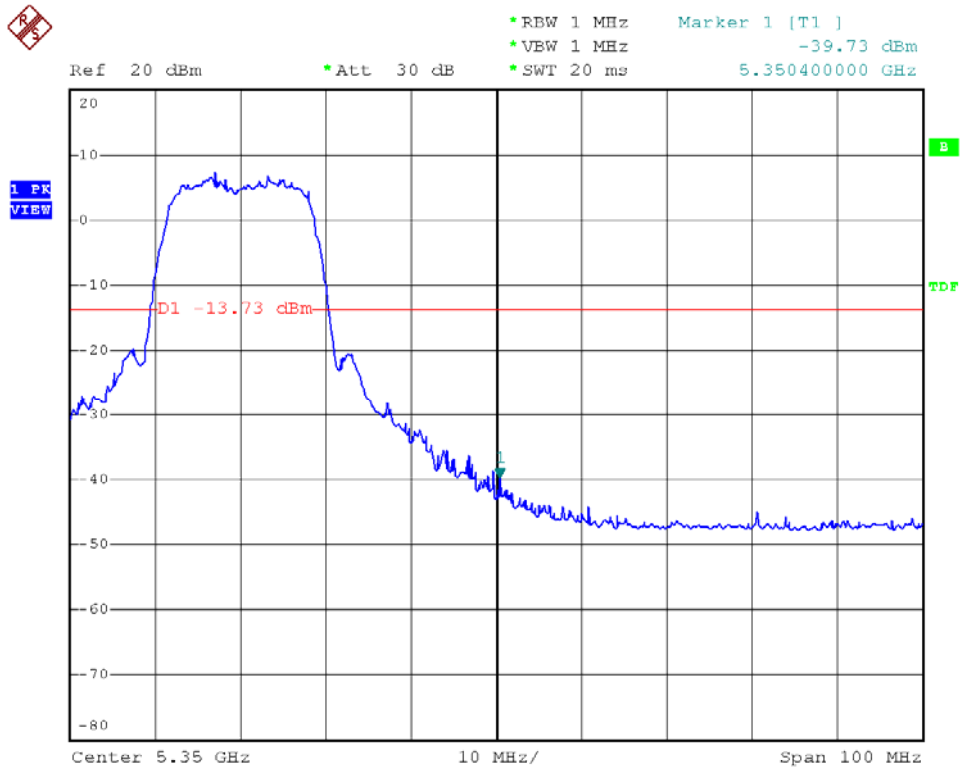


Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 36

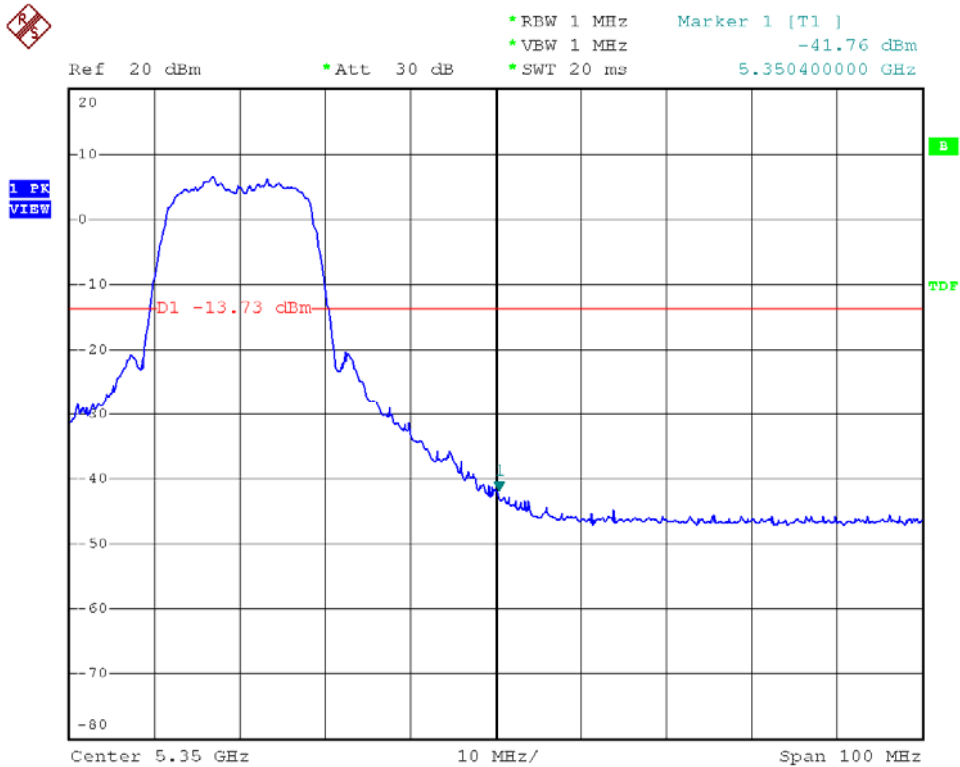




Modulation Standard: 802.11a (6Mbps), Ant R  
Channel: 64

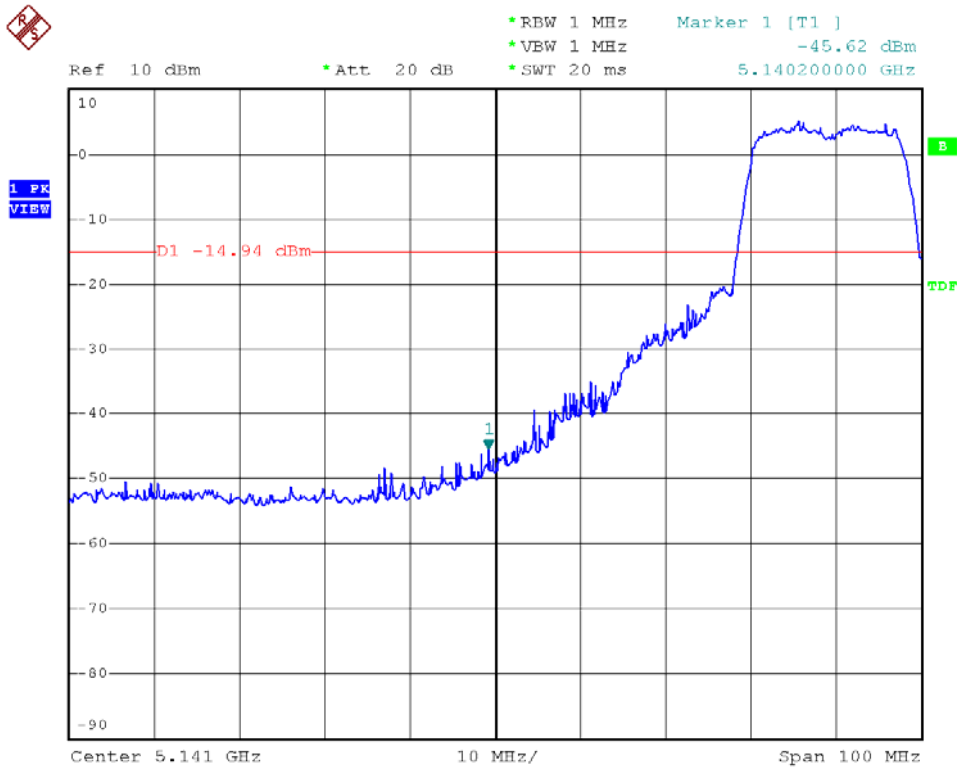


Modulation Standard: 802.11a (6Mbps), Ant L  
Channel: 64

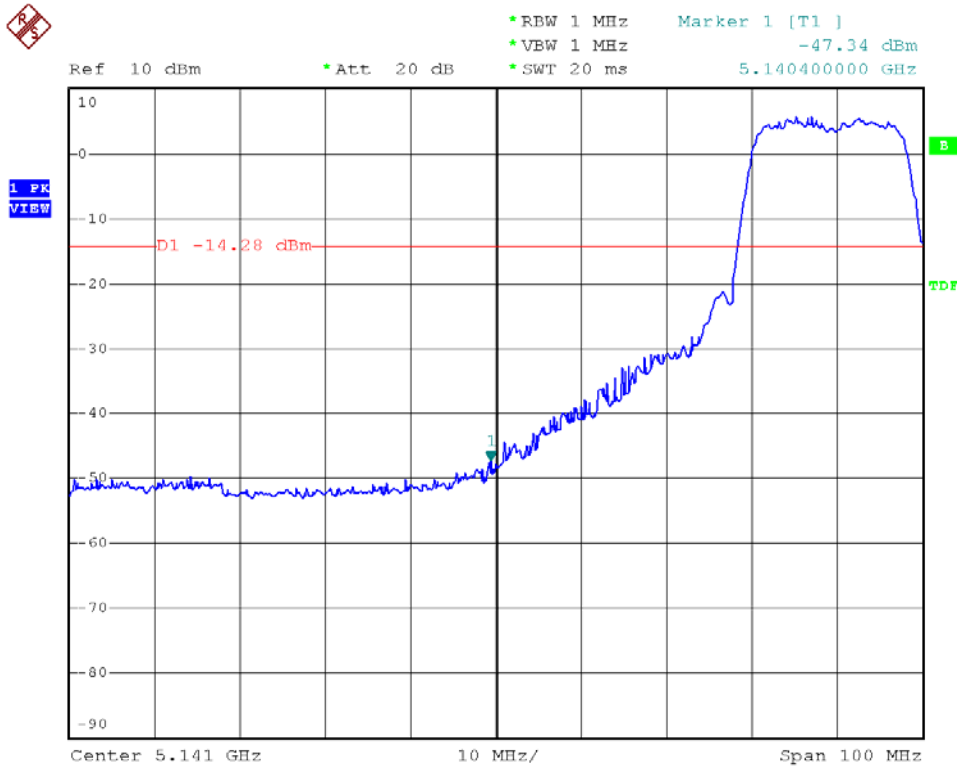




Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 36



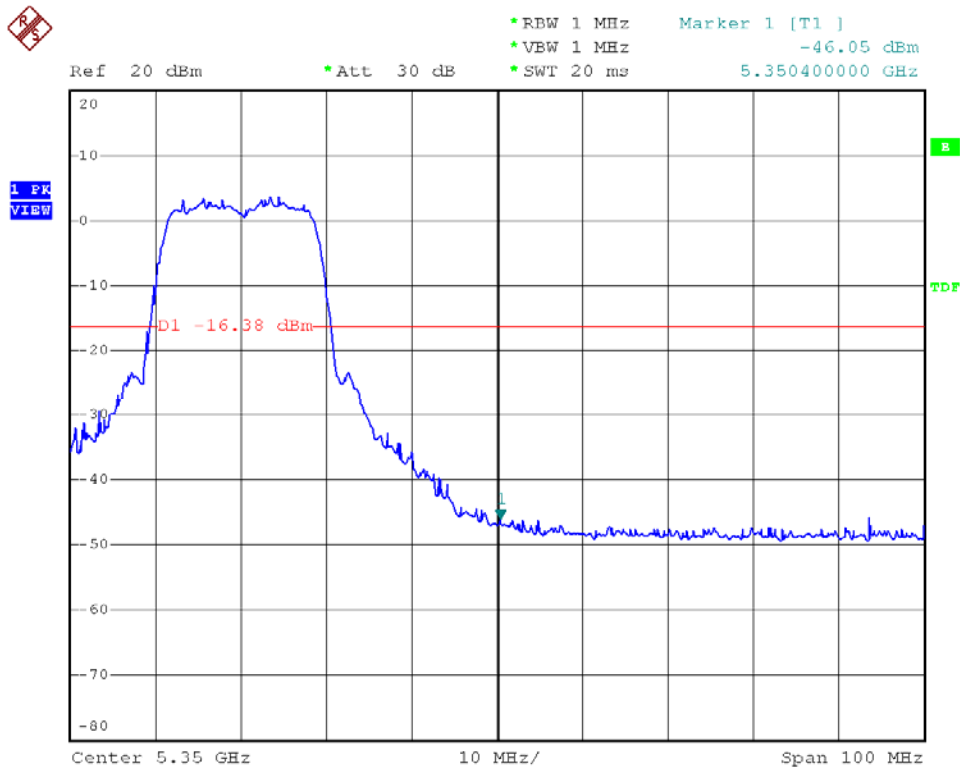
Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 36



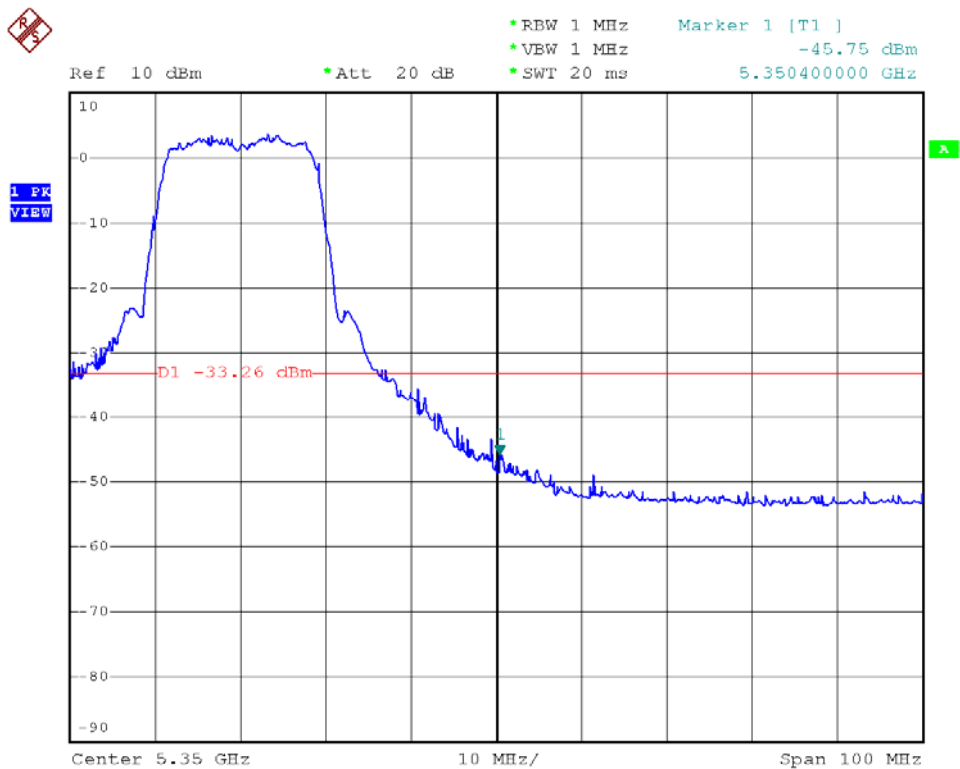




Modulation Standard: 802.11an HT20 (130Mbps), Ant R  
Channel: 64



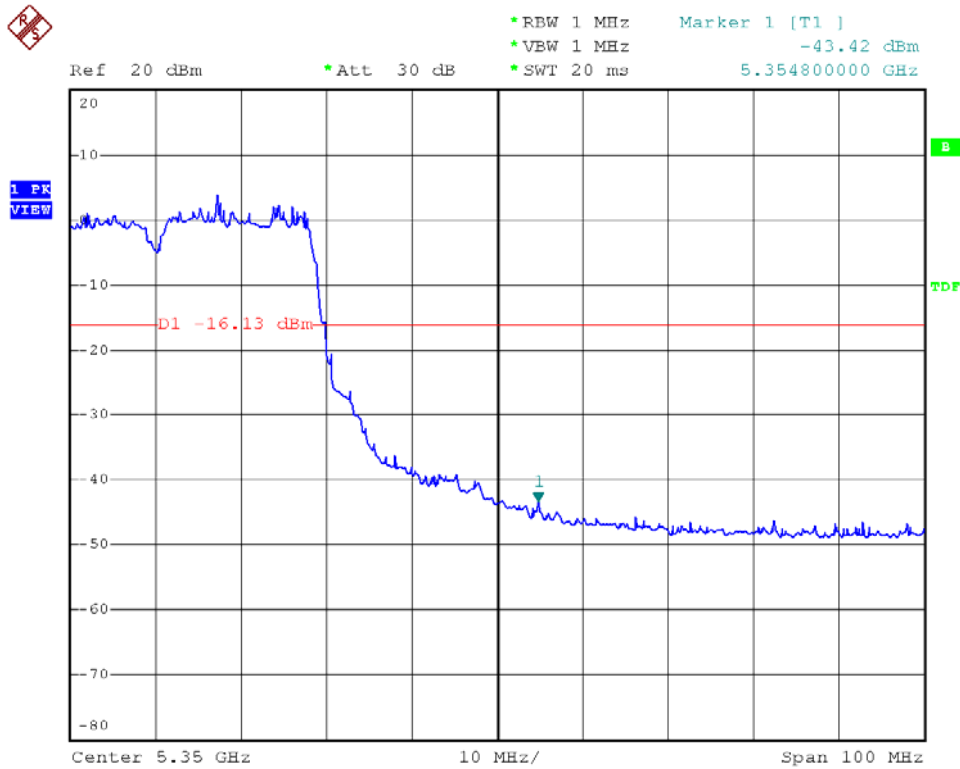
Modulation Standard: 802.11an HT20 (130Mbps), Ant L  
Channel: 64



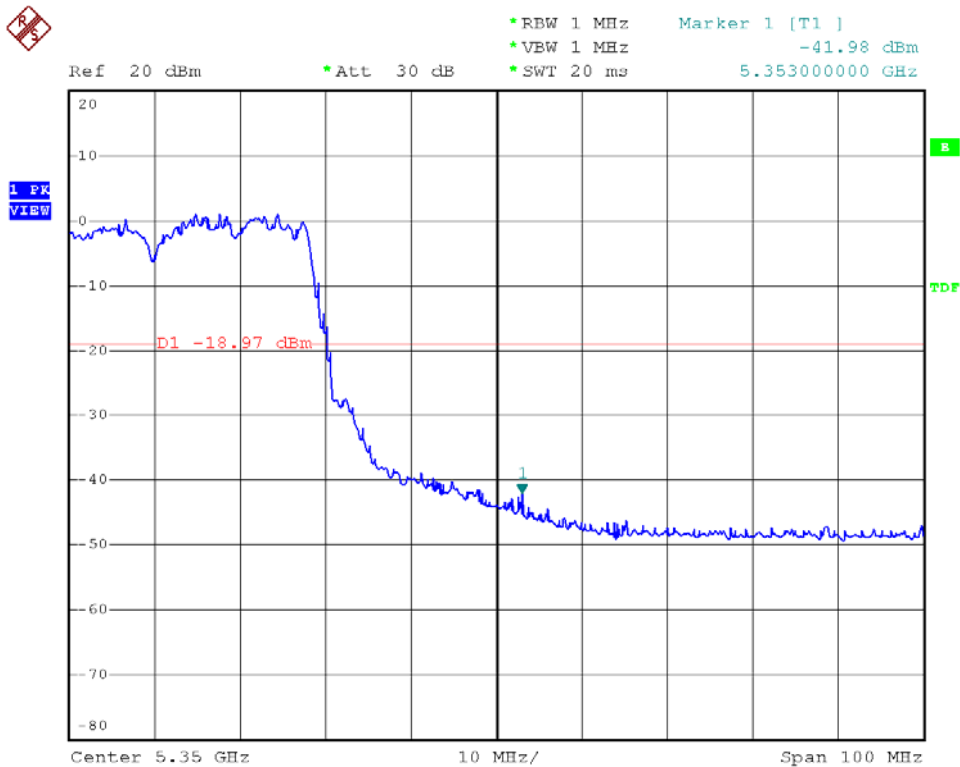




Modulation Standard: 802.11an HT40 (270Mbps), Ant R  
Channel: 62



Modulation Standard: 802.11an HT40 (270Mbps), Ant L  
Channel: 62





**10.4. Restrict Band Emission Measurement Data**

Test Date: Mar. 21, 2009                      Temperature: 23°C  
 Atmospheric pressure: 1024 hPa              Humidity: 47%

Modulation Standard: IEEE 802.11a (6Mbps)

Channel 36						Fundamental Frequency: 5180 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
5110.7	H	53.27	-3.05	50.22	Peak	74	54	-23.78	202	150
5149.8	H	39.36	-3.04	36.32	Ave	74	54	-17.68	205	150
5128.3	V	53.14	-1.19	51.95	Peak	74	54	-22.05	62	150
5149.5	V	39.01	-1.18	37.83	Ave	74	54	-16.17	65	150
Channel 64						Fundamental Frequency: 5320 MHz				
5350.4	H	54.23	-2.98	51.25	Peak	74	54	-22.75	202	150
5350.4	H	40.33	-2.98	37.35	Ave	74	54	-16.65	205	150
5365.5	V	53.54	-1.15	52.39	Peak	74	54	-21.61	62	150
5350.6	V	39.43	-1.16	38.27	Ave	74	54	-15.73	65	150

Modulation Standard: IEEE 802.11an, HT20 (130Mbps)

Channel 36						Fundamental Frequency: 5180 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
5141.5	H	52.50	-3.04	49.46	Peak	74	54	-24.54	202	150
5149.7	H	38.91	-3.03	35.88	Ave	74	54	-18.12	205	150
5105.8	V	53.54	-1.19	52.35	Peak	74	54	-21.65	62	150
5144.2	V	38.84	-1.18	37.66	Ave	74	54	-16.34	65	150
Channel 64						Fundamental Frequency: 5320 MHz				
5389.3	H	53.84	-2.98	50.86	Peak	74	54	-23.14	202	150
5351.5	H	39.46	-2.98	36.48	Ave	74	54	-17.52	205	150
5356.4	V	53.30	-1.16	52.14	Peak	74	54	-21.86	62	150
5351.0	V	39.30	-1.15	38.15	Ave	74	54	-15.85	65	150



Modulation Standard: IEEE 802.11an, HT40 (270Mbps)

Channel 38						Fundamental Frequency: 5190 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
5133.2	H	53.38	-3.04	50.34	Peak	74	54	-23.66	202	150
5147.6	H	38.90	-3.03	35.87	Ave	74	54	-18.13	205	150
5124.1	V	53.02	-1.18	51.84	Peak	74	54	-22.16	62	150
5149.9	V	38.85	-1.18	37.67	Ave	74	54	-16.33	65	150
Channel 62						Fundamental Frequency: 5310 MHz				
5389.4	H	52.52	-2.97	49.55	Peak	74	54	-24.45	202	150
5350.9	H	39.38	-2.98	36.40	Ave	74	54	-17.60	205	150
5382.9	V	53.77	-1.15	52.62	Peak	74	54	-21.38	62	150
5350.5	V	39.31	-1.16	38.15	Ave	74	54	-15.85	65	150

Notes:

1. Result = Meter Reading + Factor
2. Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10 MHz for Average detection at frequency above 1GHz.



Test Mode: EUT with USB cable

Test Date: Mar. 21, 2009

Temperature: 23°C

Atmospheric pressure: 1024 hPa

Humidity: 47%

Modulation Standard: IEEE 802.11a (6Mbps)

Channel 36						Fundamental Frequency: 5180 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
5110.7	H	53.63	-3.26	50.37	Peak	74	54	-23.63	202	150
5149.1	H	39.64	-2.42	37.21	Ave	74	54	-16.79	205	150
5128.4	V	52.37	-0.64	51.73	Peak	74	54	-22.27	62	150
5149.3	V	38.60	-0.83	37.78	Ave	74	54	-16.22	65	150
Channel 64						Fundamental Frequency: 5320 MHz				
5350.4	H	54.50	-2.69	51.81	Peak	74	54	-22.19	202	150
5350.1	H	40.38	-2.52	37.86	Ave	74	54	-16.14	205	150
5366.0	V	53.52	-2.02	51.50	Peak	74	54	-22.50	62	150
5350.1	V	38.90	-1.40	37.50	Ave	74	54	-16.50	65	150

Modulation Standard: IEEE 802.11an, HT20 (130Mbps)

Channel 36						Fundamental Frequency: 5180 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
5141.1	H	53.05	-2.97	50.08	Peak	74	54	-23.92	202	150
5149.2	H	38.98	-2.52	36.46	Ave	74	54	-17.54	205	150
5105.9	V	53.16	-1.33	51.82	Peak	74	54	-22.18	62	150
5144.9	V	38.02	-1.12	36.90	Ave	74	54	-17.10	65	150
Channel 64						Fundamental Frequency: 5320 MHz				
5389.6	H	54.12	-2.90	51.22	Peak	74	54	-22.78	202	150
5350.9	H	40.15	-3.60	36.55	Ave	74	54	-17.45	205	150
5356.3	V	53.05	-1.49	51.56	Peak	74	54	-22.44	62	150
5351.2	V	39.08	-1.39	37.69	Ave	74	54	-16.31	65	150



Modulation Standard: IEEE 802.11an, HT40 (270Mbps)

Channel 38						Fundamental Frequency: 5190 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
5133.4	H	54.16	-3.41	50.75	Peak	74	54	-23.25	202	150
5148.0	H	39.53	-2.76	36.77	Ave	74	54	-17.23	205	150
5123.7	V	52.99	-1.87	51.12	Peak	74	54	-22.88	62	150
5149.8	V	37.95	-1.16	36.78	Ave	74	54	-17.22	65	150
Channel 62						Fundamental Frequency: 5310 MHz				
5389.6	H	52.76	-2.75	50.01	Peak	74	54	-23.99	202	150
5350.7	H	40.16	-3.23	36.93	Ave	74	54	-17.07	205	150
5383.7	V	53.62	-1.65	51.97	Peak	74	54	-22.03	62	150
5350.6	V	39.14	-1.43	37.71	Ave	74	54	-16.29	65	150

Notes:

1. Result = Meter Reading + Factor
2. Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10 MHz for Average detection at frequency above 1GHz.



### 11. Restricted Bands of Operation

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

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.250
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

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

#### 11.1. Labeling Requirement

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





## 12. RF Exposure

FCC Rules and Regulations Part 1.1307, 1.1310, 2.1091, 2.1093:  
RF Exposure Compliance

### 12.1. Limit for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Averaging Time  E  <sup>2</sup> , H  <sup>2</sup> or S ( minutes )
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

F=frequency in MHz

\*Plane-wave equivalent power density



## 12.2. MPE Calculations

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \quad \text{Power Density: } Pd \text{ (mW/cm}^2\text{)} = \frac{E^2}{3770}$$

E = Electric field (V/m)

P = Peak output power (W)

G = Antenna numeric gain (numeric)

d = Separation distance (m)

Because the EUT is belong to General Population/ Uncontrolled Exposure. So the Limit of Power Density is 10 W/m<sup>2</sup>. We can change the formula to:

$$d = \sqrt{\frac{30 \times P \times G}{3770}}$$

## 12.3. FCC Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation. Proposed RF exposure safety information to include in User's Manual.