RADIO TEST REPORT

Applicant	:	AOpen Inc.
Address	:	5F., No.15, Ln. 128, Sinhu 1st Rd., Neihu District, Taipei City 114, Taiwan(R.O.C.)
Equipment	:	AOPEN Chromebox Commercial
Model No.	:	DE3255
Trade Name	:	AOPEN
FCC ID	:	YEW-32557260NGW
IC ID	:	20532-32557260NGW

I HEREBY CERTIFY THAT :

The sample was received on Aug. 20, 2015 and the testing was carried out on Sep. 02, 2015 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Steven Wang
Manager

Tested by:

Spree Yei
Engineer

Laboratory Accreditation:

☒ Cerpass Technology Corporation Test Laboratory

☐ Cerpass Technology(SuZhou) Co., Ltd.

CONTENTS

History of this test report

■ ORIGINAL.

☐ Additional attachment as following record:

Attachment No.	Issue Date	Description
TEGE1508046	Sep. 02, 2015	Original.

1. Summary of Test Procedure and Test Results

1.1. Applicable Standards

ANSI C63.4: 2009

FCC Rules and Regulations Part 15 Subpart E §15.407

KDB789033

RSS-247 issue 1

RSS-Gen issue 3

FCC Rule	IC Rule	. Description of Test	Result
15.203	RSS-GEN 6.7	. Antenna Requirement	Pass
15.207(a)	RSS-GEN 8.8	. AC Power Line Conducted Emission	Pass
15.407(b) 15.209	RSS-GEN Section 8.9 & 8.10	. Radiated Spurious Emission	Pass
15.407(a)	RSS-247	. 26 dB Occupied Bandwidth	Pass
15.407	RSS-247 6.2.4	. 6dB Bandwidth	Pass
15.407 (a) & (a)(3)	RSS-247 6.2 & 6.2.4	. Average Power	Pass
15.407(a)	RSS-247 6.2 &6.2.4	. Output and PPSD	Pass
15.407(h)(2)	RSS-247 6.3	. Dynamic Frequency Selection	Pass

2. Test Configuration of Equipment under Test

2.1. Feature of Equipment under Test

Frequency Range	802.11a/an/ac: 5150-5250MHz/ 5250-5350MHz, 5470-5725MHz, 5725-5850MHz 802.11b/g/n: 2412-2462MHz Bluetooth: 2402-2480 MHz
Type of Modulation	OFDM, DSSS, FHSS, GFSK (Bluetooth low energy)
Channel of Bandwidth	802.11a/an/ac: 20MHz/ 40MHz/ 80MHz 802.11b/g/n: 5MHz Bluetooth: 1MHz Bluetooth Low Energy: 2MHz
Data Rate	802.11a/an/ac: up to 867Mbps 802.11b/g/n: up to 270Mbps Bluetooth: 1, 2, 3Mbps Bluetooth Low Energy: 1Mbps
Type of Antenna	Dipole antenna*2
Antenna Gain	2 dBi
Rating Input	I/P: 100-240Vac, 50-60Hz, 1.5A O/P: 19Vdc, 3.42A

2.2. Carrier Frequency of Channels

Band: 5150MHz-5250MHz

802.11a, 802.11an HT 20, 802.11ac VHT20

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

802.11an HT 40, 802.11ac VHT40

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

802.11ac VHT80

Channel	Frequency(MHz)
***42**	**5210**

Band: 5250MHz -5350MHz

802.11a, 802.11an HT20, 802.11ac VHT20

Channel	Frequency(MHz)	Channel	Frequency(MHz)
***52**	**5260**	***60**	**5300**
56	5280	***64**	**5320**

802.11an HT 40, 802.11ac VHT40

Channel	Frequency(MHz)	Channel	Frequency(MHz)
***54**	**5270**	***62**	**5310**

802.11ac VHT80

Channel	Frequency(MHz)
***58**	**5290**

Band: 5470MHz -5725MHz

802.11a, 802.11an HT20, 802.11ac VHT20

Channel	Frequency(MHz)	Channel	Frequency(MHz)
***100**	**5500**	***116**	**5580**
104	5520	132	5660
108	5540	136	5680
122	5560	***140**	**5700**

802.11an HT 40, 802.11ac VHT40

Channel	Frequency(MHz)	Channel	Frequency(MHz)
***102**	**5510**	***134**	**5670**
***110**	**5550**	---	----

802.11ac VHT80

Channel	Frequency(MHz)
***106**	**5530**

Band: 5725MHz -5850MHz

802.11a, 802.11an HT20, 802.11ac VHT20

Channel	Frequency(MHz)	Channel	Frequency(MHz)
***149**	**5745**	***157**	**5785**
153	5765	161	5805
155	5775	***165**	**5825**

802.11an HT 40, 802.11ac VHT40

Channel	Frequency(MHz)	Channel	Frequency(MHz)
***151**	**5755**	***159**	**5795**

802.11ac VHT80

Channel	Frequency(MHz)
***155**	**5775**

Note: Channels remarked * are selected to perform test.

2.3. Test Mode and Test Software

a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.

b. The complete test system included Monitor, Mouse, Keyboard, Notebook and EUT for RF test.

c. An executive program, ”DRUT” under Chrome was executed to transmit and receive data via WLAN.

d. Pre-Scanned RF Power:

Band: 5150MHz - 5250MHz

Antenna A	802.11a mode							
Data Rate	6M	9M	12M	18M	24M	36M	48M	54M
Avg. Power Output(dBm)	12.58	12.53	12.45	12.41	12.37	12.33	12.24	12.03
Peak. Power Output(dBm)	18.11	18.36	18.15	18.24	18.06	18.33	18.46	18.52
Antenna B								
Avg. Power Output(dBm)	12.83	12.69	12.71	12.11	12.36	12.49	12.51	12.59
Peak. Power Output(dBm)	16.33	17.22	17.92	18.35	18.78	19.24	19.67	19.78

Antenna A	802.11n HT20 mode							
Data Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Avg. Power Output(dBm)	10.54	10.34	10.44	10.25	10.49	10.34	10.26	10.21
Peak. Power Output(dBm)	16.44	16.56	16.71	17.23	17.58	18.02	18.26	18.39
Antenna B								
Avg. Power Output(dBm)	10.72	10.69	10.71	10.55	10.51	10.37	10.44	10.11
Peak. Power Output(dBm)	16.27	16.71	16.75	17.44	17.76	18.25	18.36	18.43

Antenna A	802.11n HT40 mode							
Data Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Avg. Power Output(dBm)	6.73	6.38	6.49	6.51	6.44	6.56	6.41	6.57
Peak. Power Output(dBm)	12.24	13.48	13.91	14.22	15.36	16.11	17.52	18.53
Antenna B								
Avg. Power Output(dBm)	6.2	6.17	6.01	6.18	6.02	5.83	5.99	5.80
Peak. Power Output(dBm)	11.8	12.99	13.47	14.06	15.11	16.08	17.24	18.13

Antenna A	802.11n VHT80 mode									
Data Rate	VHT 0	VHT 1	VHT 2	VHT 3	VHT 4	VHT 5	VHT 6	VHT 7	VHT 8	VHT 9
Avg. Power Output(dBm)	6.53	6.44	6.49	6.46	6.47	6.51	6.31	6.38	6.29	6.33
Antenna B										
Avg. Power Output(dBm)	6.53	6.33	6.29	6.28	6.34	6.49	6.37	6.18	6.22	6.09

Band: 5250MHz - 5350MHz

Antenna A	802.11a mode							
Data Rate	6M	9M	12M	18M	24M	36M	48M	54M
Avg. Power Output(dBm)	13.77	13.52	13.46	13.35	13.51	13.63	13.41	13.44
Peak. Power Output(dBm)	17.59	17.55	17.69	18.11	18.15	18.25	18.32	18.33
Antenna B								
Avg. Power Output(dBm)	14.62	14.52	14.66	14.08	14.21	14.36	14.28	14.15
Peak. Power Output(dBm)	19.68	19.78	19.85	19.92	20.24	20.43	20.51	20.54

Antenna A	802.11n HT20 mode							
Data Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Avg. Power Output(dBm)	11.52	11.19	11.22	11.17	11.39	11.14	11.21	11.18
Peak. Power Output(dBm)	16.36	16.77	16.85	17.25	17.69	18.01	18.12	18.21
Antenna B								
Avg. Power Output(dBm)	11.63	11.42	11.36	11.22	11.29	11.08	11.34	11.09
Peak. Power Output(dBm)	16.88	16.83	16.91	17.33	17.78	18.05	18.45	18.85

Antenna A	802.11n HT40 mode							
Data Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Avg. Power Output(dBm)	7.78	7.66	7.58	7.49	7.43	7.11	7.05	6.94
Peak. Power Output(dBm)	13.85	14.22	15.63	15.78	16.29	16.76	17.11	17.66
Antenna B								
Avg. Power Output(dBm)	7.66	7.54	7.61	7.63	7.58	7.25	7.11	7.03
Peak. Power Output(dBm)	13.11	14.03	15.45	15.66	16.01	16.59	17.23	17.79

Antenna A	802.11n VHT80 mode									
Data Rate	VHT 0	VHT 1	VHT 2	VHT 3	VHT 4	VHT 5	VHT 6	VHT 7	VHT 8	VHT 9
Avg. Power Output(dBm)	7.22	7.09	7.19	7.18	7.11	7.08	7.15	7.10	7.04	7.01
Antenna B										
Avg. Power Output(dBm)	7.2	7.1	7.05	6.84	6.95	6.89	7.02	6.91	6.88	6.95

Band: 5470MHz - 5600MHz

Antenna A	802.11a mode							
Data Rate	6M	9M	12M	18M	24M	36M	48M	54M
Avg. Power Output(dBm)	11.56	11.35	11.43	11.39	11.25	11.18	11.26	11.23
Peak. Power Output(dBm)	17.23	17.88	18.23	18.59	18.65	18.77	19.02	19.11
Antenna B								
Avg. Power Output(dBm)	11.94	11.83	11.79	11.72	11.61	11.58	11.43	11.33
Peak. Power Output(dBm)	17.63	17.92	18.55	18.73	18.86	19.21	19.67	20.12

Antenna A	802.11n HT20 mode							
Data Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Avg. Power Output(dBm)	8.65	8.58	8.59	8.55	8.51	8.46	8.37	8.32
Peak. Power Output(dBm)	14.33	14.79	15.42	15.91	16.55	17.23	17.88	18.66
Antenna B								
Avg. Power Output(dBm)	8.73	8.70	8.71	8.67	8.56	8.33	8.41	8.43
Peak. Power Output(dBm)	14.65	14.81	15.54	15.99	16.72	17.43	17.92	18.29

Antenna A	802.11n HT40 mode							
Data Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Avg. Power Output(dBm)	6.93	6.81	6.77	6.86	6.77	6.52	6.72	6.81
Peak. Power Output(dBm)	12.66	13.58	14.16	15.63	16.01	16.88	17.45	18.23
Antenna B								
Avg. Power Output(dBm)	6.65	6.61	6.58	6.38	6.62	6.45	6.59	6.55
Peak. Power Output(dBm)	12.18	13.44	14.28	15.71	16.12	16.81	17.52	18.82

Antenna A	802.11n VHT80 mode									
Data Rate	VHT 0	VHT 1	VHT 2	VHT 3	VHT 4	VHT 5	VHT 6	VHT 7	VHT 8	VHT 9
Avg. Power Output(dBm)	7.23	7.06	7.15	6.88	7.01	6.98	6.89	7.12	7.05	7.04
Antenna B										
Avg. Power Output(dBm)	7.14	7.03	7.05	6.56	7.10	7.11	7.02	6.91	6.85	6.78

Band: 5725MHz - 5850MHz

Antenna A	802.11a mode							
Data Rate	6M	9M	12M	18M	24M	36M	48M	54M
Avg. Power Output(dBm)	13.71	13.68	13.69	13.75	13.66	13.59	13.65	13.70
Peak. Power Output(dBm)	18.46	18.33	18.41	18.39	18.37	18.40	18.32	18.30
Antenna B								
Avg. Power Output(dBm)	15.32	15.11	15.09	15.13	15.24	15.22	15.26	15.14
Peak. Power Output(dBm)	20.22	20.01	20.23	20.28	20.36	20.41	20.55	20.33

Antenna A	802.11n HT20 mode							
Data Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Avg. Power Output(dBm)	12.08	11.93	11.86	11.83	11.72	11.46	11.42	11.33
Peak. Power Output(dBm)	17.78	18.23	18.52	18.76	19.05	19.22	19.46	19.68
Antenna B								
Avg. Power Output(dBm)	12.11	12.01	11.96	11.82	11.75	11.67	11.55	11.43
Peak. Power Output(dBm)	18.07	18.43	18.84	19.02	19.11	19.45	19.57	19.66

Antenna A	802.11n HT40 mode							
Data Rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Avg. Power Output(dBm)	12.33	12.11	11.89	11.78	11.67	11.53	11.45	11.37
Peak. Power Output(dBm)	17.76	18.22	18.43	18.86	19.02	19.11	19.43	19.5
Antenna B								
Avg. Power Output(dBm)	12.55	12.51	12.37	12.48	12.29	12.37	12.43	12.35
Peak. Power Output(dBm)	18.55	18.67	18.88	19.05	19.14	19.28	19.67	20.42

Antenna A	802.11n VHT80 mode									
Data Rate	VHT 0	VHT 1	VHT 2	VHT 3	VHT 4	VHT 5	VHT 6	VHT 7	VHT 8	VHT 9
Avg. Power Output(dBm)	12.29	12.18	12.03	11.72	11.65	12.03	11.15	11.91	11.82	11.78
Antenna B										
Avg. Power Output(dBm)	12.45	12.36	12.24	12.41	12.38	12.44	12.12	12.27	12.35	12.19

e. Test modes:

Test Mode 1. 802.11a (6Mbps)

Test Mode 2. 802.11an HT20 (13Mbps)

Test Mode 3. 802.11an HT40 (27Mbps)

Test Mode 4. 802.11ac VHT20 (13Mbps)

Test Mode 5. 802.11ac VHT40 (27Mbps)

Test Mode 6. 802.11ac VHT80 (58.5Mbps)

Test Mode 6 generates the worst case; it was reported as final result.

Base on the pre-scan data, the worst case data were:

802.11a mode: 6Mbps

802.11an HT20 mode: 13Mbps

802.11an HT40 mode: 27Mbps

802.11ac VHT80 mode: 58.5Mbps

2.4. Description of Test System

Device	Manufacturer	Model No.	Description
Monitor	DELL	U2410f	HDMI Cable, Shielding 1.35m Power Cable, Unshielding 1.8m
Mouse	DELL	M-UV83	USB Cable, Shielding, 1.8m
Keyboard	DELL	SK-8175	USB Cable, Shielding, 1.8m
Remote Workstation			
Notebook	HP	ProBook 5310m	Power Cable, Unshielding, 1.8m
AP Router (for DFS test)	D-Link	AC1570	FCC ID: KA2IR868LA1

Used cable

Cable	Quantity	Description
Network Cable	1	Unshielding, 1.2m

2.5. General Information of Test

☒	Test Site	**Cerpass Technology Corporation Test Laboratory** Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881 Address: No.68-1, Shihbachongsi, Shihding Township, New Taipei City 223, Taiwan, R.O.C. Tel: +886-2-2663-8582
	FCC	TW1079, TW1061,390316, 228391, 641184
	IC	4934B-1, 4934E-1, 4934E-2
	VCCI	T-2205 for Telecommunication Test C-4663 for Conducted emission test R-3428, R-4218 for Radiated emission test G-812, G-813 for radiated disturbance above 1GHz
☐	Test Site	**Cerpass Technology (Suzhou) Co.,Ltd** Address: No.66,Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China Tel: +86-512-6917-5888 Fax: +86-512-6917-5666
	FCC	916572, 331395
	IC	7290A-1, 7290A-2
	VCCI	T-343 for Telecommunication Test C-2919 for Conducted emission test R-2670 for Radiated emission test G-227 for radiated disturbance above 1GHz
Frequency Range Investigated:		Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 40,000MHz
Test Distance:		The test distance of radiated emission from antenna to EUT is 3 M.

3. Test Equipment and Ancillaries Used for Tests

Instrument	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	R&S	FSP40	100047	2015/03/07	2016/03/06
PREAMPLIFIER	AGILENT	8449B	3008A01954	2015/03/05	2016/03/04
HORN ANTENNA	EMCO	3115	31589	2015/03/09	2016/03/08
HIGH PASS FILTER	HP	84300-80038	006	N/A	N/A
HORN ANTENNA	EMCO	3116	31970	2015/03/05	2016/03/04
Bilog Antenna	SchwarzBeck	VULB 9168	275	2014/09/18	2015/09/17
Amplifier	Agilent	8447D	2944A10539	2014/03/11	2015/03/10
SERIES POWER METER	ANRITSU	ML2495A	1224005	2015/03/05	2016/03/04
POWER SENSOR	ANRITSU	MA2411B	1207295	2015/03/05	2016/03/04
PREAMPLIFIER	MITEQ	AMF-7D-0010 1800-30-10P	186212	2015/03/09	2016/03/08
Microware Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2014/09/01	2015/08/31
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY54200207	2015/03/14	2016/03/13
MXG MW Analog Signal Generator	KEYSIGHT	N5183A	MY50142931	2015/03/13	2016/03/12
TEMPERATURE CHAMBER	T-MACHINE	TMJ-9712	T-12-040111	2014/10/17	2015/10/16
DC Power Supply	GPD-3030	GM	7020936	N/A	N/A
AC POWER CONVERTER	AFC-11005	APC	F103120008	N/A	N/A

4. Antenna Requirements

4.1. Standard Applicable

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

And according to FCC 47 CFR Section 15.407 (a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4.2. Antenna Construction and Directional Gain

No.	Antenna Type	Antenna Gain
A	Dipole antenna	2.0 dBi
B	Dipole antenna	2.0 dBi

Directional gain = G_{ant} + 10log(N) dBi
= 2 + 10log(2)
= 5 (dBi)

5. Test of AC Power Line Conducted Emission

5.1. Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2009 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

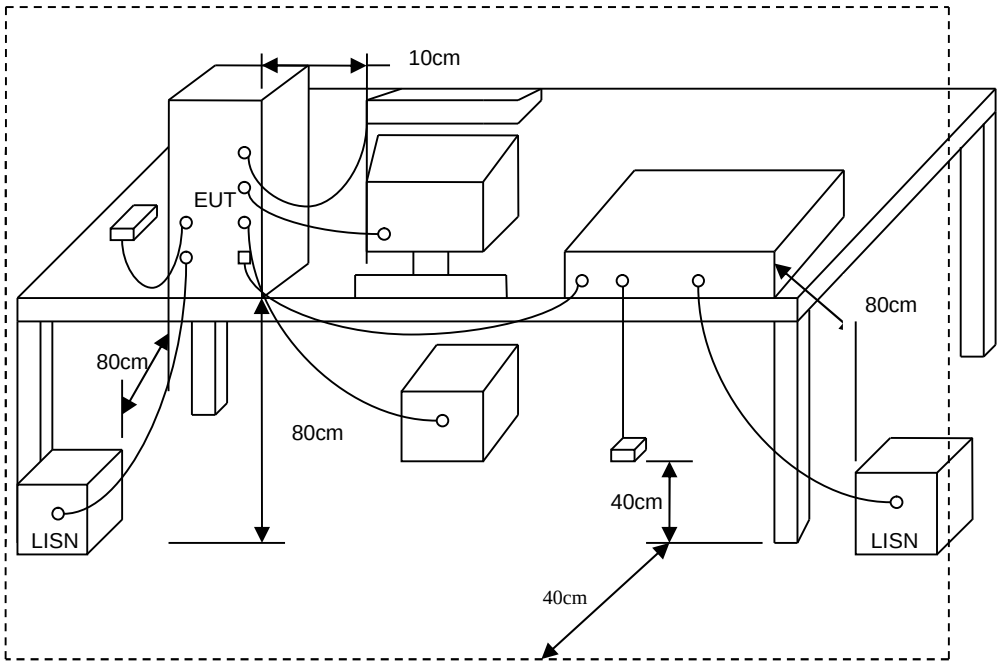
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

5.2. Test Procedures

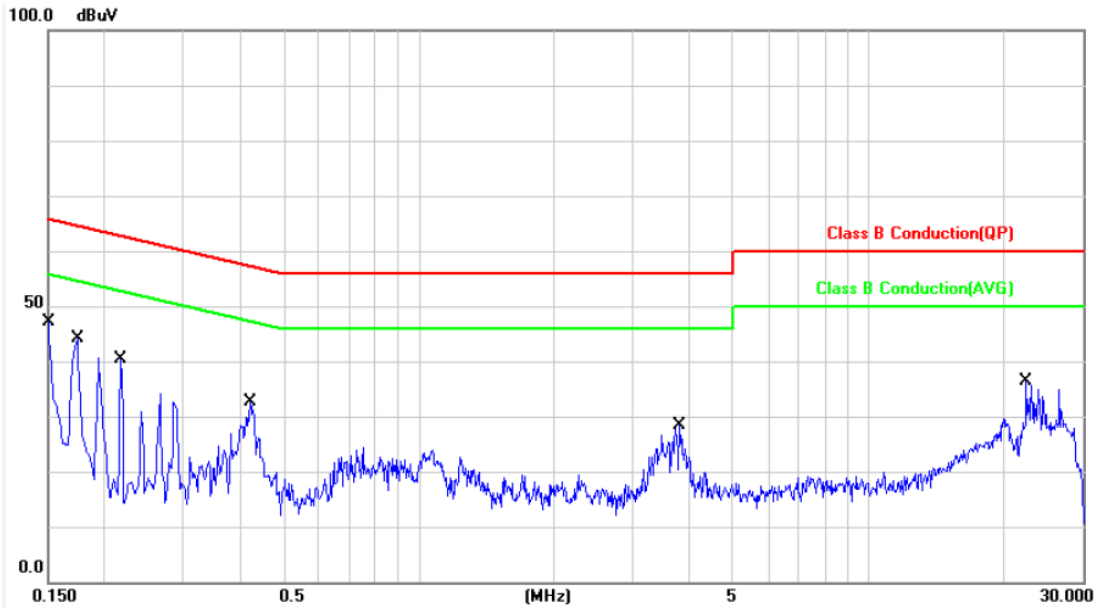
a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.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

5.3. Typical Test Setup



5.4. Test Result and Data

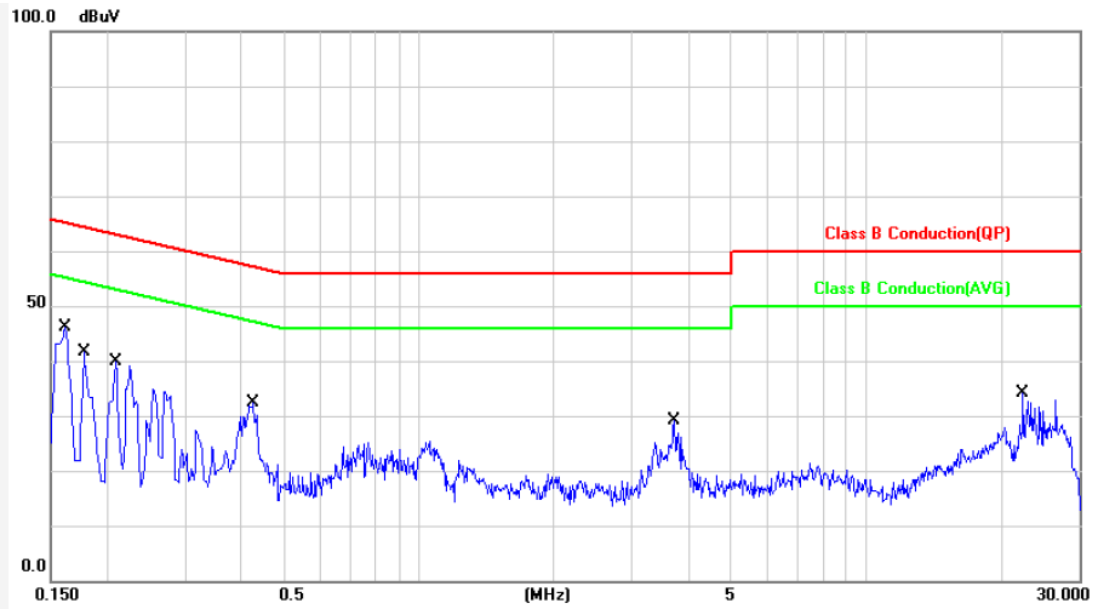
Power	:	AC 120V	Pol/Phase	:	LINE
Test Mode	:	Mode 6	Temperature	:	26 °C
Test date	:	Aug. 20, 2015	Humidity	:	48 %
Memo	:		Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1500	9.92	28.50	38.42	65.99	-27.57	QP	P
2	0.1500	9.92	11.48	21.40	55.99	-34.59	AVG	P
3	0.1740	9.92	27.78	37.70	64.76	-27.06	QP	P
4	0.1740	9.92	8.66	18.58	54.76	-36.18	AVG	P
5	0.2180	9.92	24.24	34.16	62.89	-28.73	QP	P
6	0.2180	9.92	5.00	14.92	52.89	-37.97	AVG	P
7	0.4220	9.91	20.62	30.53	57.41	-26.88	QP	P
8	0.4220	9.91	12.53	22.44	47.41	-24.97	AVG	P
9	3.8140	9.89	12.23	22.12	56.00	-33.88	QP	P
10	3.8140	9.89	1.36	11.25	46.00	-34.75	AVG	P
11	22.5300	10.18	25.65	35.83	60.00	-24.17	QP	P
12	22.5300	10.18	22.33	32.51	50.00	-17.49	AVG	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor = (LISN, ISN, PLC, or Current Probe) Factor + Cable Loss + Attenuator

Power	:	AC 120V	Pol/Phase	:	NEUTRAL
Test Mode	:	Mode 6	Temperature	:	26 °C
Test date	:	Aug. 20, 2015	Humidity	:	48 %
Memo	:		Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1620	9.92	32.91	42.83	65.36	-22.53	QP	P
2	0.1620	9.92	13.49	23.41	55.36	-31.95	AVG	P
3	0.1780	9.91	25.79	35.70	64.57	-28.87	QP	P
4	0.1780	9.91	7.09	17.00	54.57	-37.57	AVG	P
5	0.2100	9.91	24.83	34.74	63.20	-28.46	QP	P
6	0.2100	9.91	5.23	15.14	53.20	-38.06	AVG	P
7	0.4260	9.89	19.86	29.75	57.33	-27.58	QP	P
8	0.4260	9.89	12.23	22.12	47.33	-25.21	AVG	P
9	3.7260	9.88	12.57	22.45	56.00	-33.55	QP	P
10	3.7260	9.88	1.68	11.56	46.00	-34.44	AVG	P
11	22.5260	10.22	23.37	33.59	60.00	-26.41	QP	P
12	22.5260	10.22	20.08	30.30	50.00	-19.70	AVG	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor = (LISN, ISN, PLC, or Current Probe) Factor + Cable Loss + Attenuator

6. Test of Spurious Emission (Radiated)

6.1. Test Limit

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

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

6.2. Test Procedures

a. The EUT was placed on a rotatable table top 0.8 meter above ground.

b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.

c. The table was rotated 360 degrees to determine the position of the highest radiation.

d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.

e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.

f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.

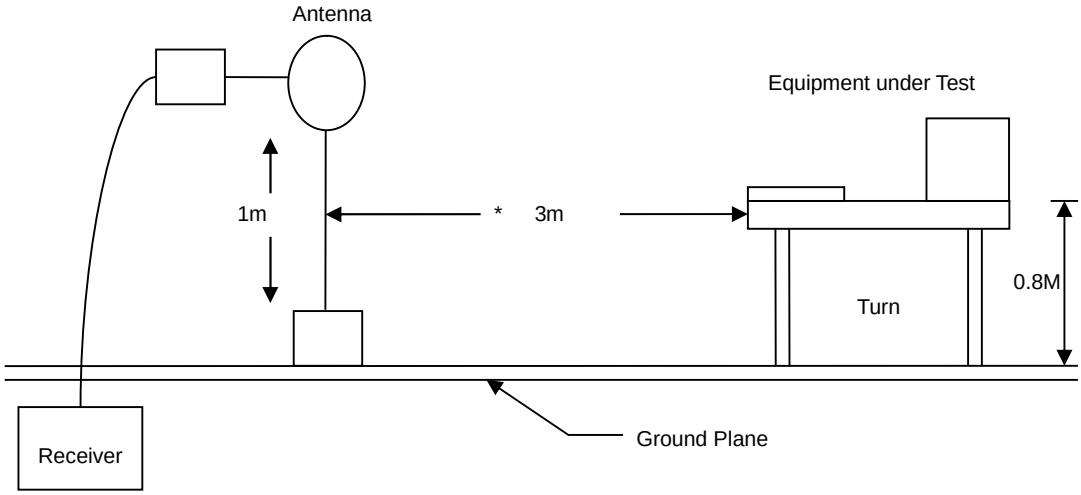
g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.

h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

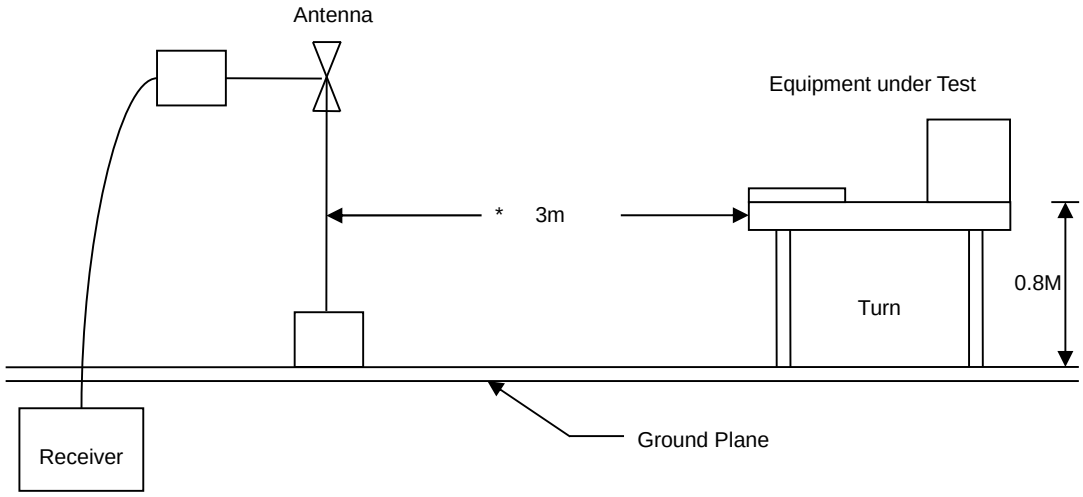
i. “Cone of radiation” has been considered to be 3dB bandwidth of the measurement antenna.

6.3. Typical Test Setup

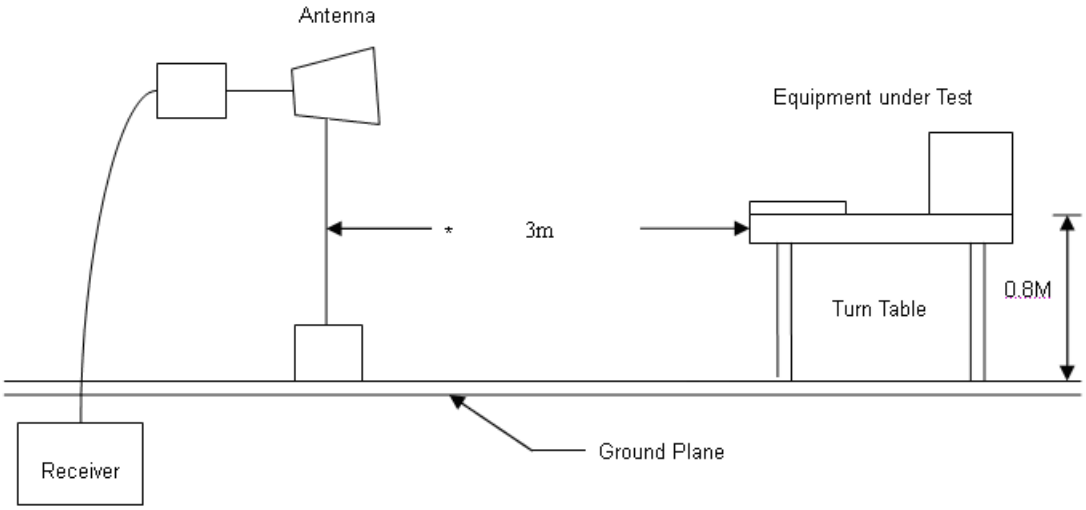
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup



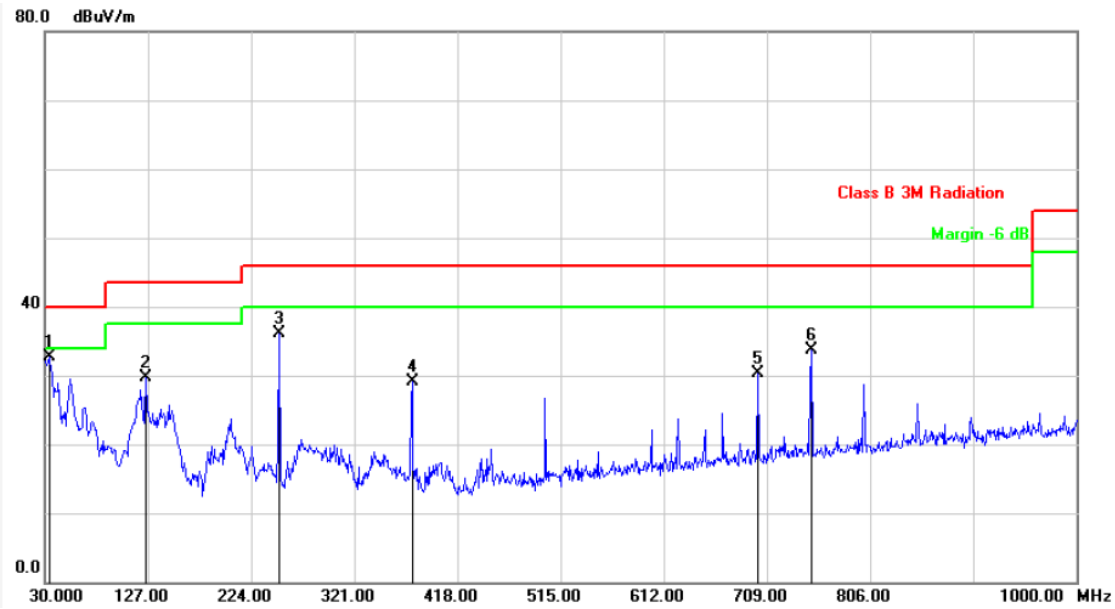
6.4. Test Result and Data (9kHz ~ 30MHz)

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

6.5. Test Result and Data (30MHz ~ 1GHz)

6.5.1. Test Result and Data of Transmitter

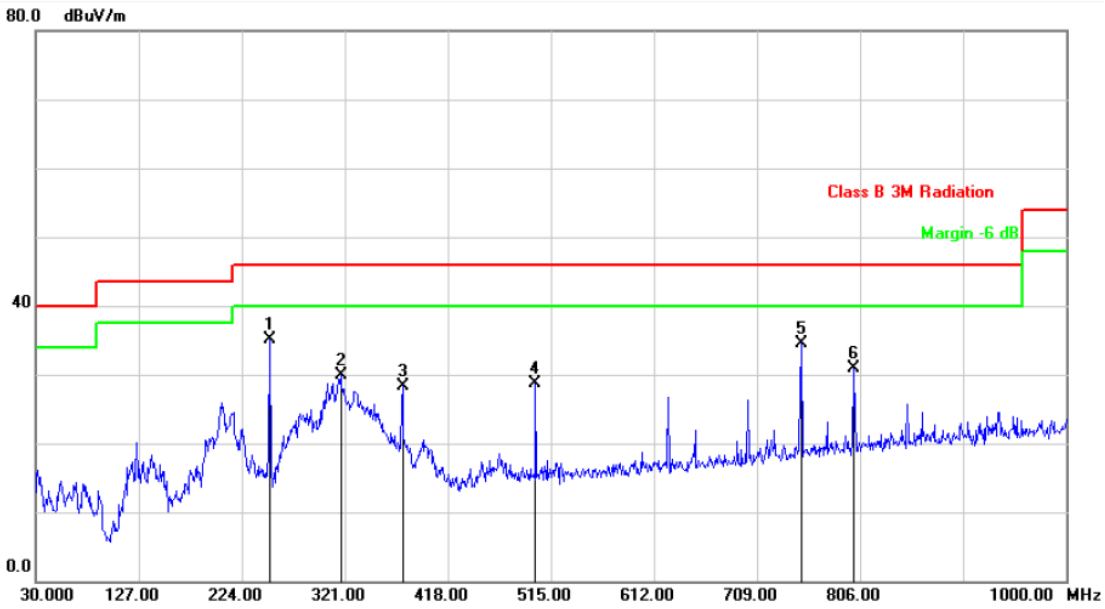
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 25, 2015	Humidity	:	49 %
Memo	:	CH 42	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	33.8800	-18.67	51.29	32.62	40.00	-7.38	peak	200	0	P
2	125.0600	-20.79	50.50	29.71	43.50	-13.79	peak	200	0	P
3	250.1900	-19.45	55.50	36.05	46.00	-9.95	peak	200	0	P
4	375.3200	-15.66	44.81	29.15	46.00	-16.85	peak	200	0	P
5	700.2700	-8.68	38.89	30.21	46.00	-15.79	peak	200	0	P
6	750.7100	-7.52	41.20	33.68	46.00	-12.32	peak	200	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 25, 2015	Humidity	:	49 %
Memo	:	CH 42	Atmospheric Pressure	:	1008 hpa

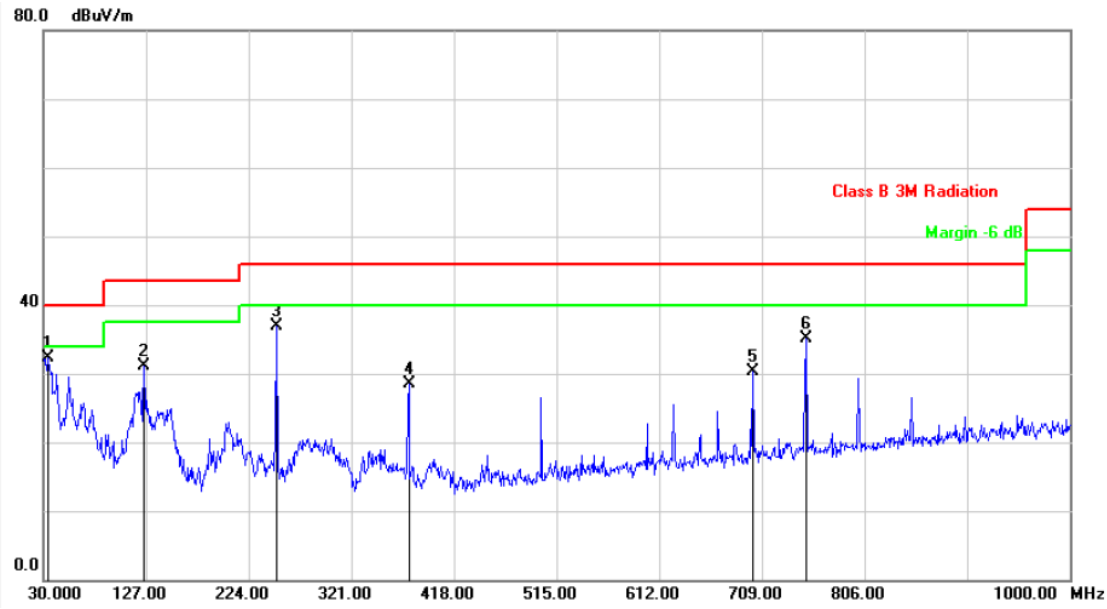


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	250.1900	-19.45	54.62	35.17	46.00	-10.83	peak	100	0	P
2	317.1200	-17.23	47.04	29.81	46.00	-16.19	peak	100	0	P
3	375.3200	-15.66	44.06	28.40	46.00	-17.60	peak	100	0	P
4	500.4500	-12.54	41.24	28.70	46.00	-17.30	peak	100	0	P
5	750.7100	-7.52	41.98	34.46	46.00	-11.54	peak	100	0	P
6	800.1800	-6.79	37.60	30.81	46.00	-15.19	peak	100	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

6.5.2. Test Result and Data of Receiver

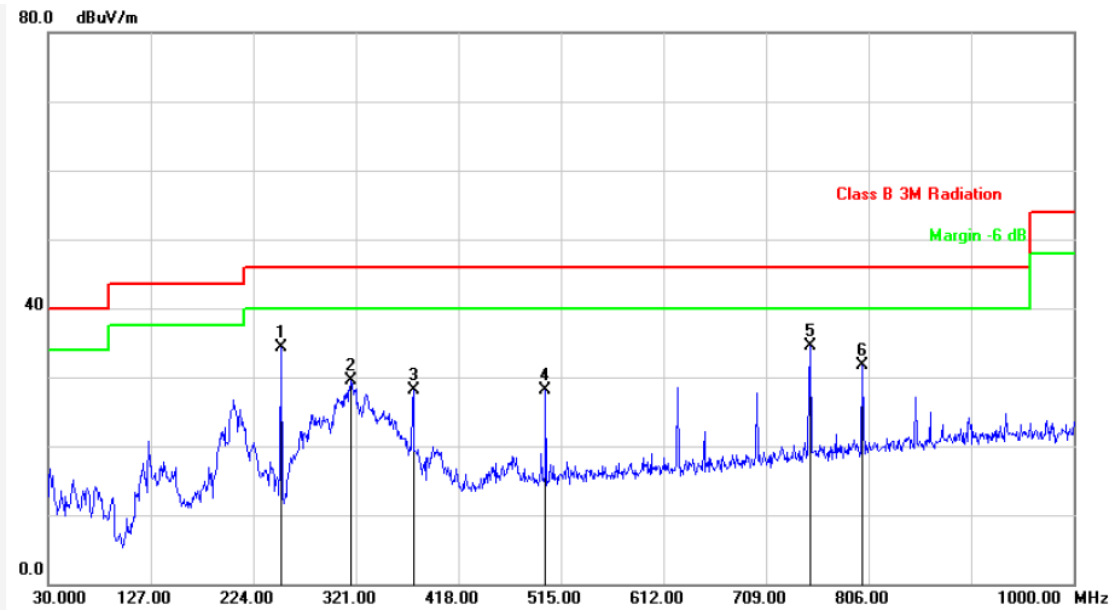
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 25, 2015	Humidity	:	49 %
Memo	:	CH 42	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	33.8800	-18.67	51.02	32.35	40.00	-7.65	peak	200	0	P
2	125.0600	-20.79	51.81	31.02	43.50	-12.48	peak	200	0	P
3	250.1900	-19.45	56.34	36.89	46.00	-9.11	peak	200	0	P
4	375.3200	-15.66	44.24	28.58	46.00	-17.42	peak	200	0	P
5	700.2700	-8.68	39.05	30.37	46.00	-15.63	peak	200	0	P
6	750.7100	-7.52	42.55	35.03	46.00	-10.97	peak	200	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 25, 2015	Humidity	:	49 %
Memo	:	CH 42	Atmospheric Pressure	:	1008 hpa



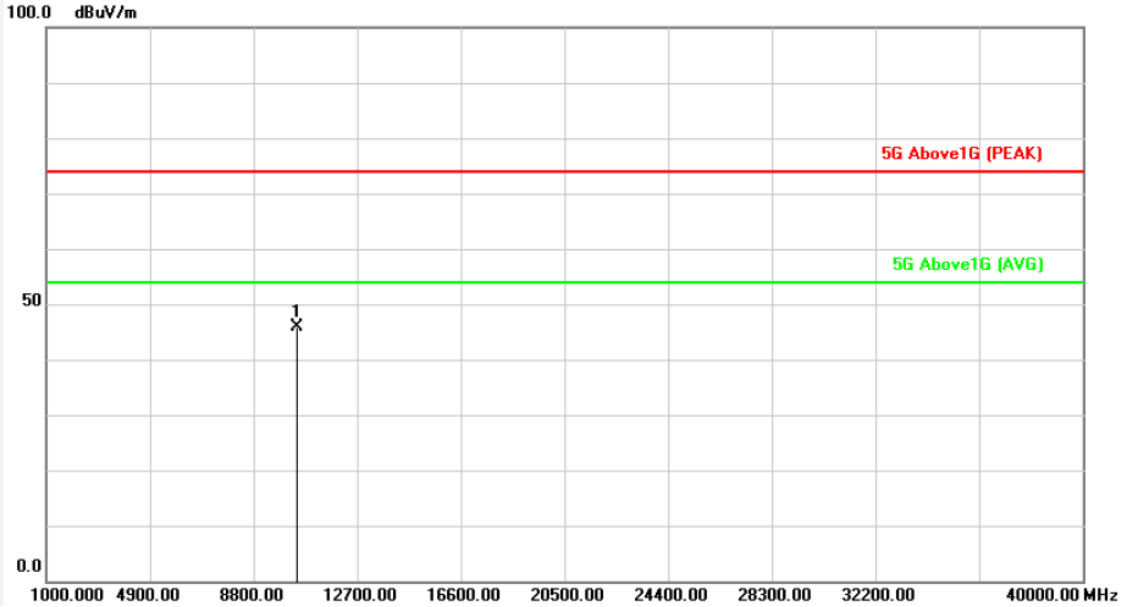
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	250.1900	-19.45	53.75	34.30	46.00	-11.70	peak	100	0	P
2	316.1500	-17.25	46.70	29.45	46.00	-16.55	peak	100	0	P
3	375.3200	-15.66	43.74	28.08	46.00	-17.92	peak	100	0	P
4	500.4500	-12.54	40.67	28.13	46.00	-17.87	peak	100	0	P
5	750.7100	-7.52	41.97	34.45	46.00	-11.55	peak	100	0	P
6	800.1800	-6.79	38.48	31.69	46.00	-14.31	peak	100	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

6.6. Test Result and Data (Above 1GHz)

6.6.1. Test Result and Data of Transmitter

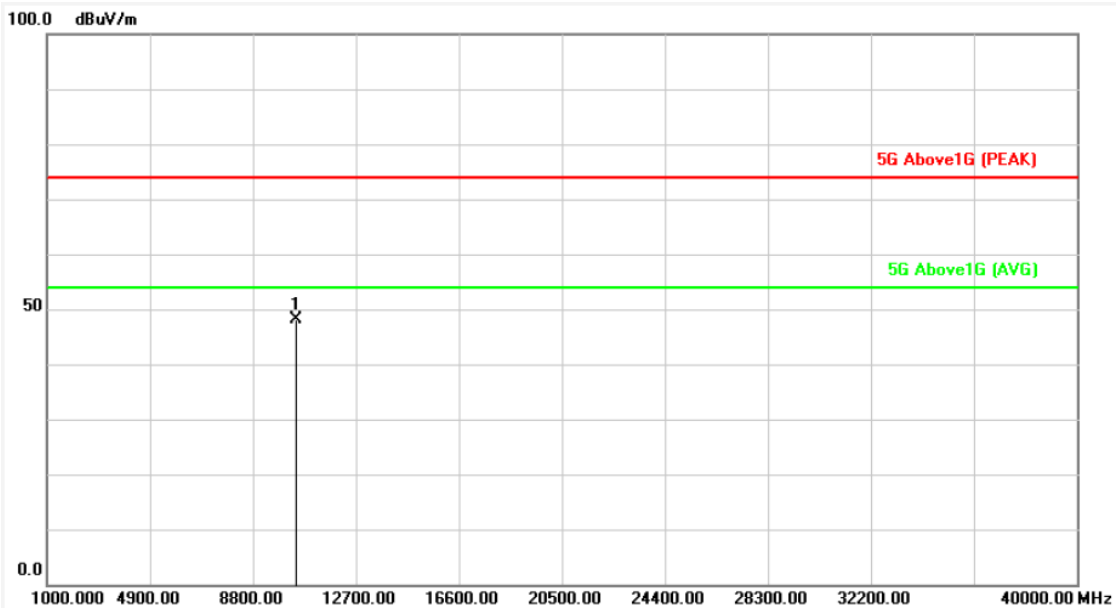
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 42	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	10420.000	-7.26	53.10	45.84	74.00	-28.16	peak	200	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

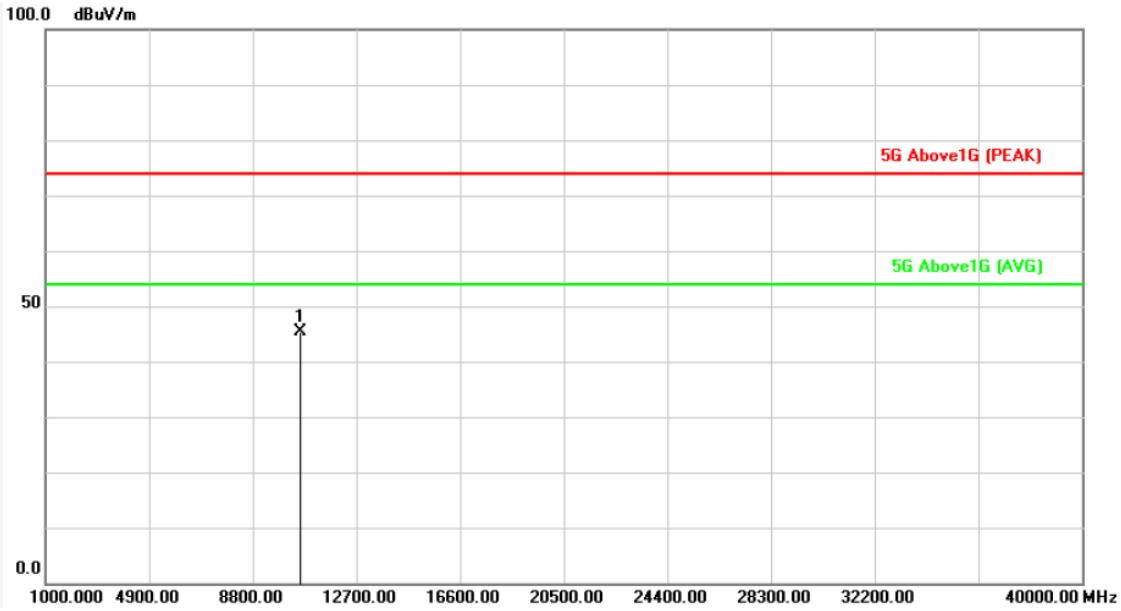
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 42	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	10420.000	-7.26	55.49	48.23	74.00	-25.77	peak	100	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

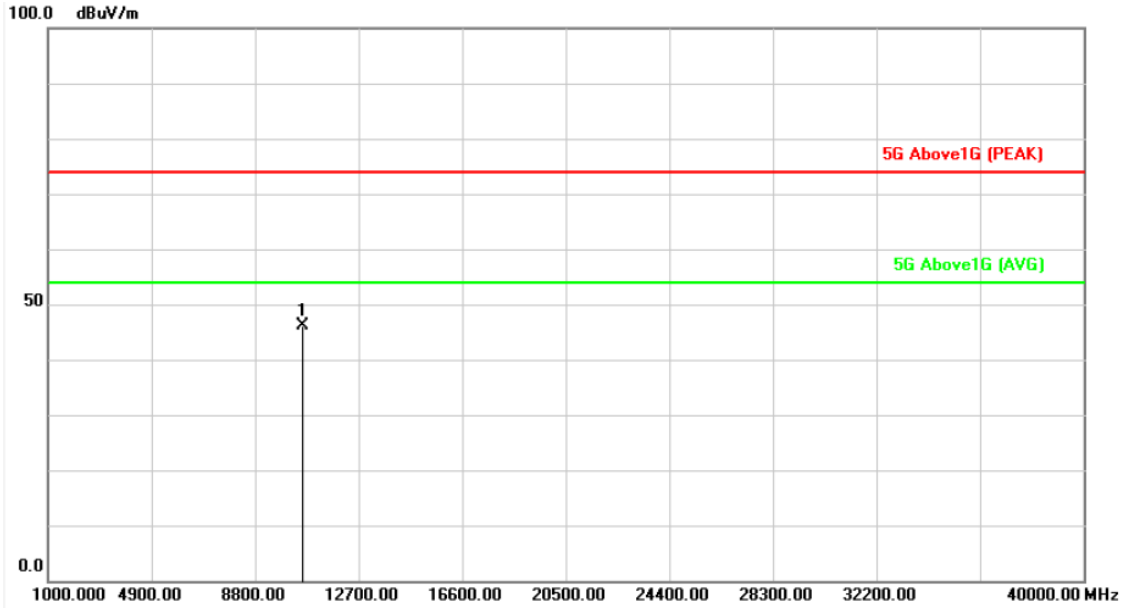
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 58	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	10580.000	-7.50	52.89	45.39	74.00	-28.61	peak	200	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

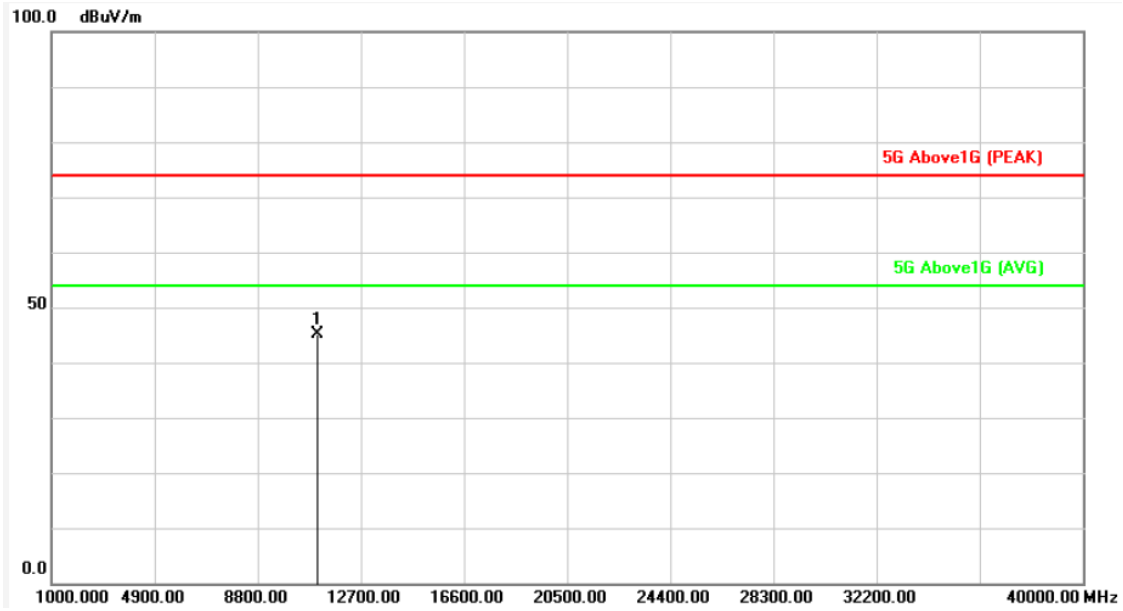
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 58	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	10580.000	-7.50	53.63	46.13	74.00	-27.87	peak	100	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

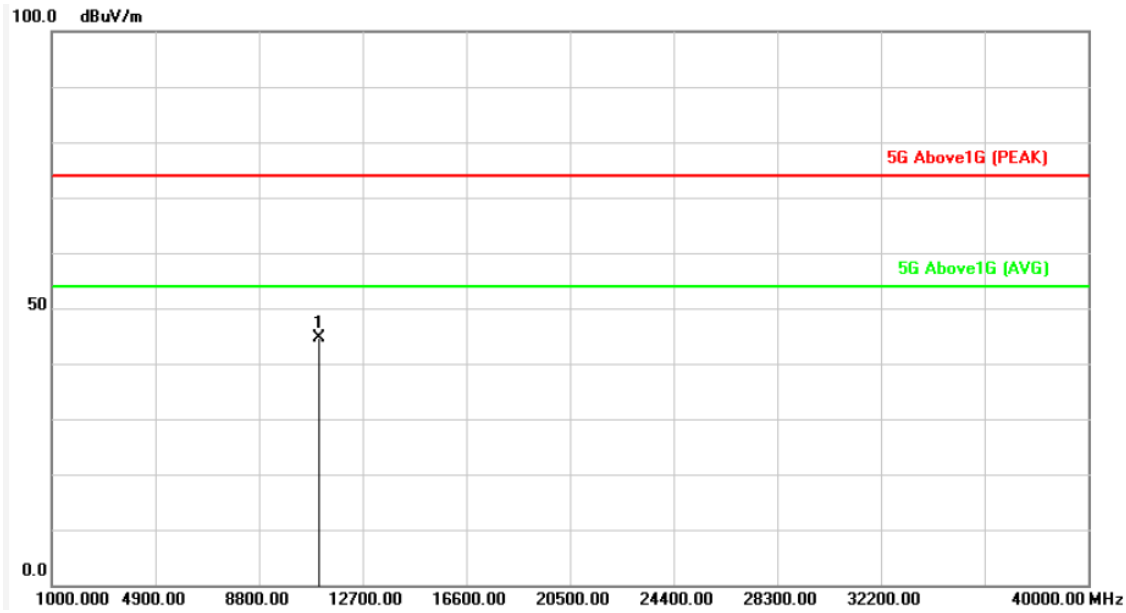
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 106	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	11060.000	-7.75	52.81	45.06	74.00	-28.94	peak	200	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

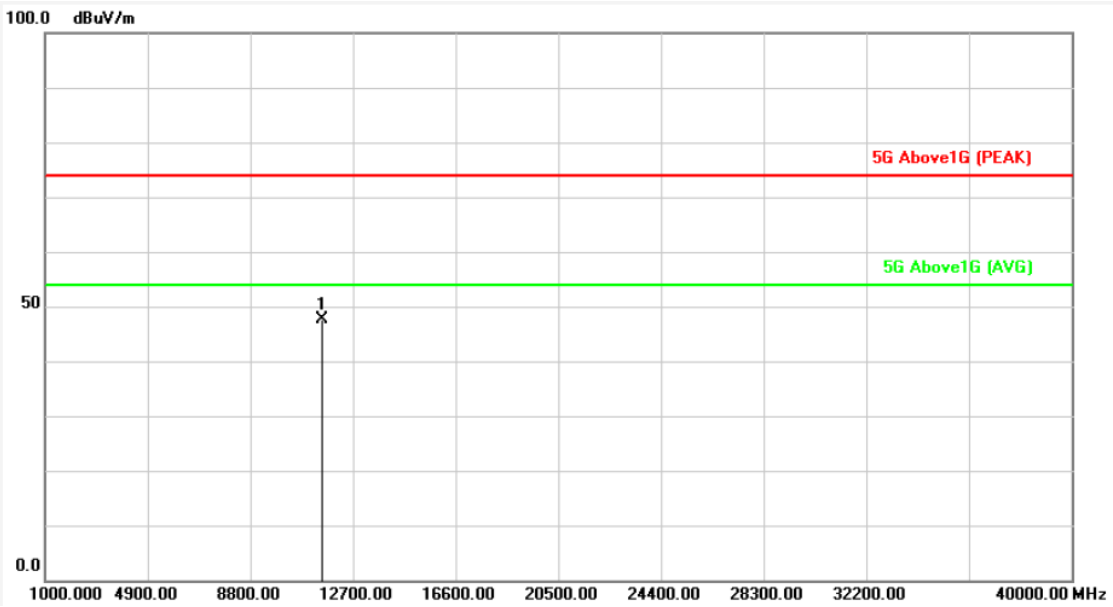
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 106	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	11060.000	-7.75	52.28	44.53	74.00	-29.47	peak	100	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

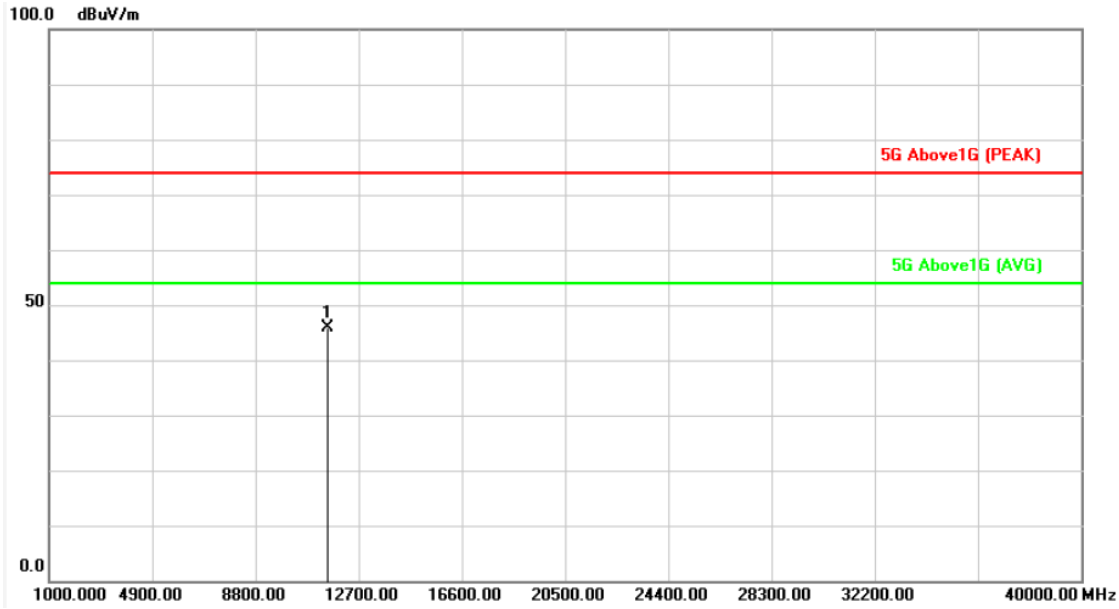
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 155	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	11550.000	-5.08	52.78	47.70	74.00	-26.30	peak	200	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 155	Atmospheric Pressure	:	1008 hpa

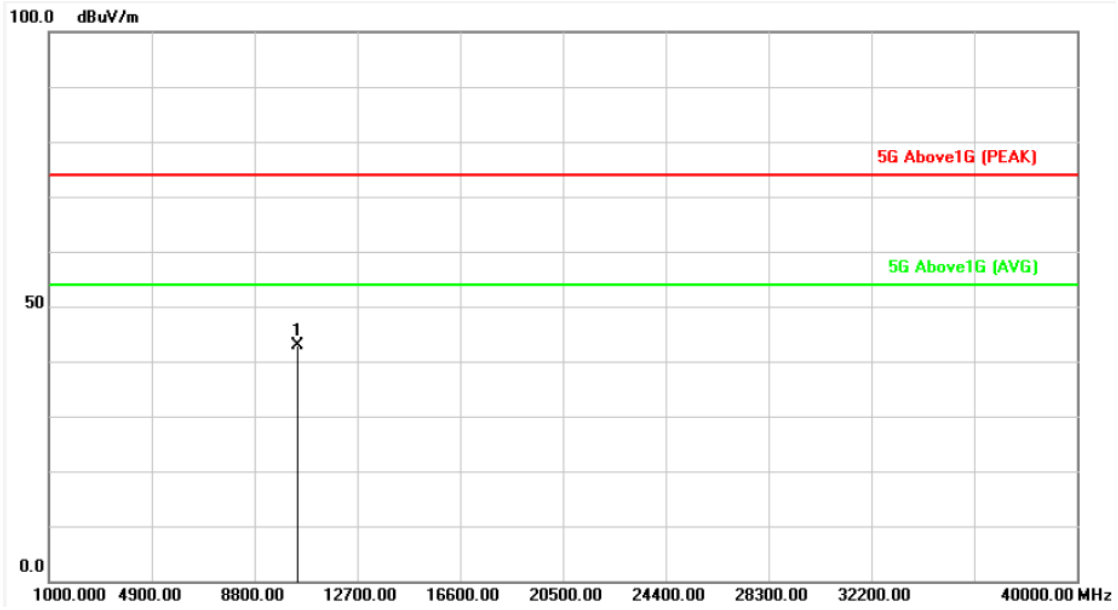


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	11550.000	-5.08	50.93	45.85	74.00	-28.15	peak	100	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

6.6.2. Test Result and Data of Receiver

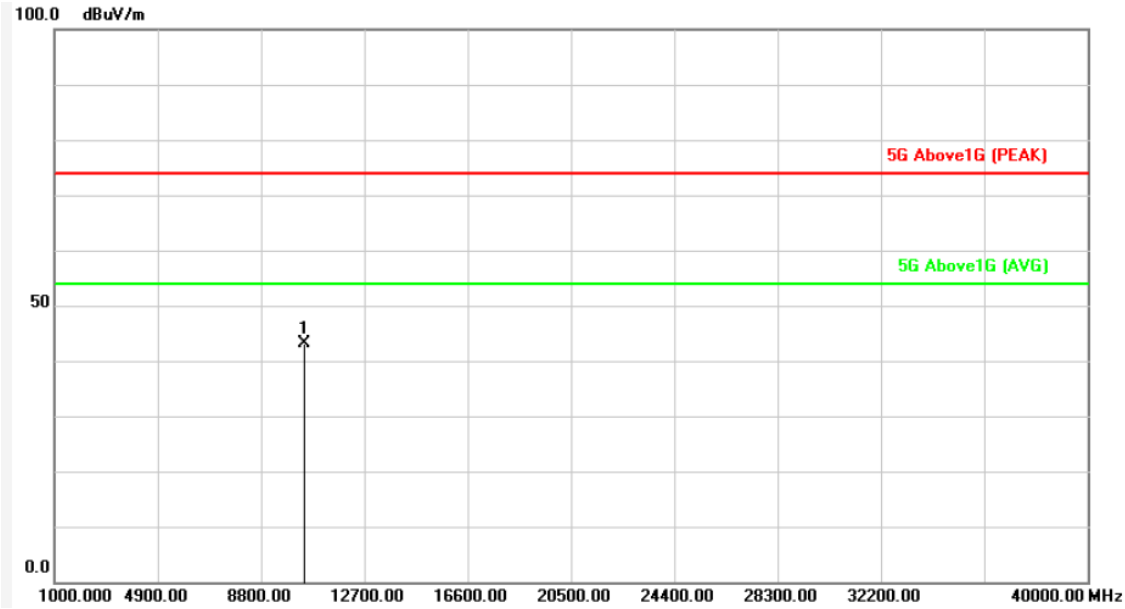
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 42	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	10420.000	-7.26	50.02	42.76	74.00	-31.24	peak	200	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

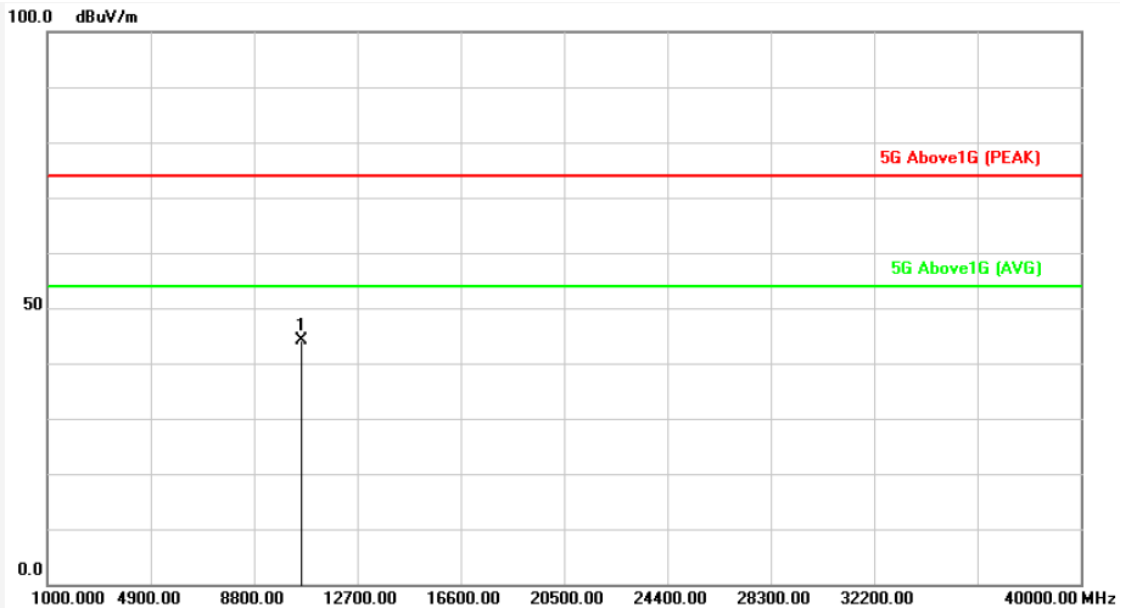
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 42	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	10420.000	-7.26	50.43	43.17	74.00	-30.83	peak	100	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

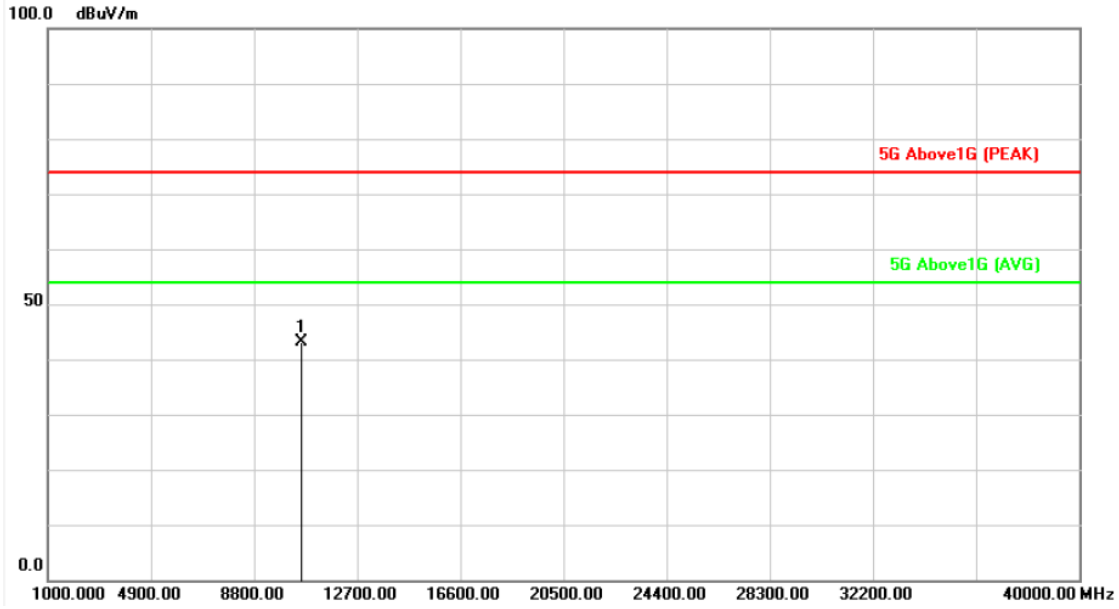
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 58	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	10580.000	-7.50	51.60	44.10	74.00	-29.90	peak	200	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

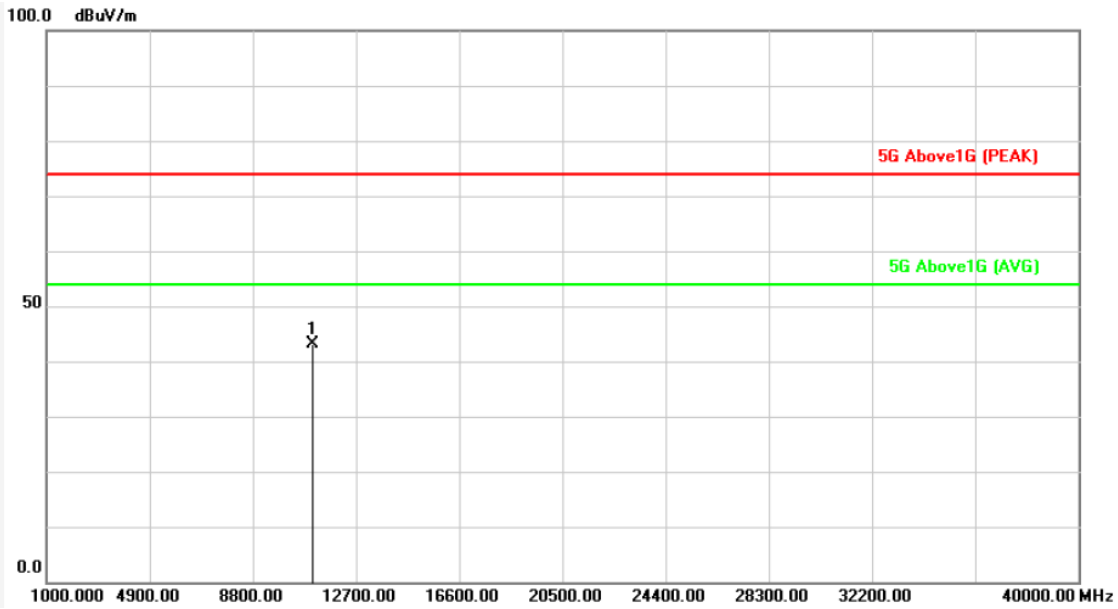
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 58	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	10580.000	-7.50	50.69	43.19	74.00	-30.81	peak	100	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

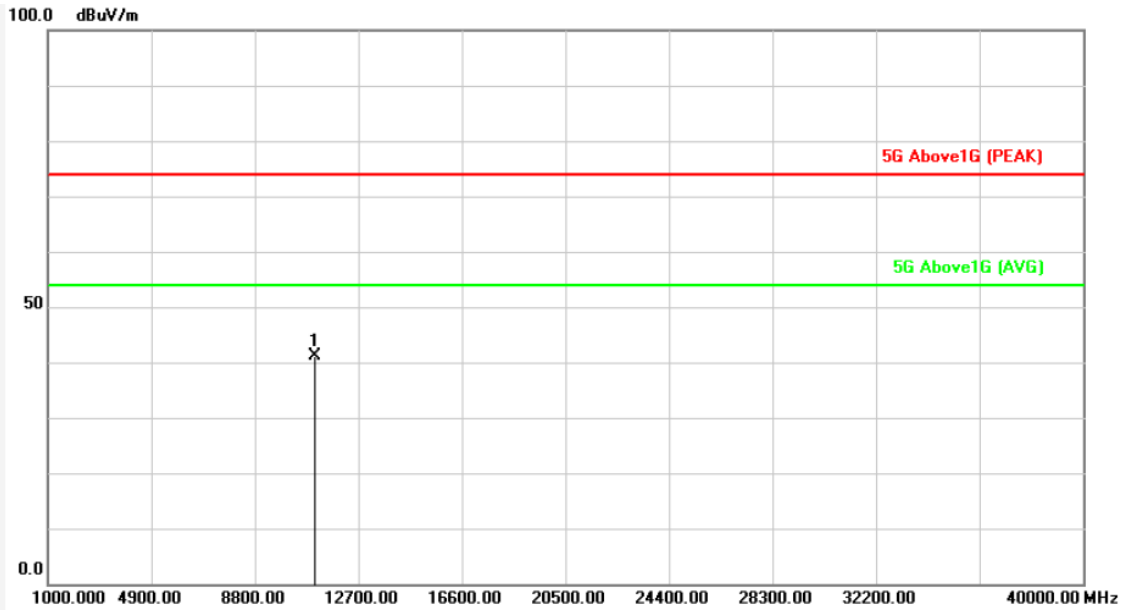
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 106	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	11060.000	-7.75	50.91	43.16	74.00	-30.84	peak	200	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

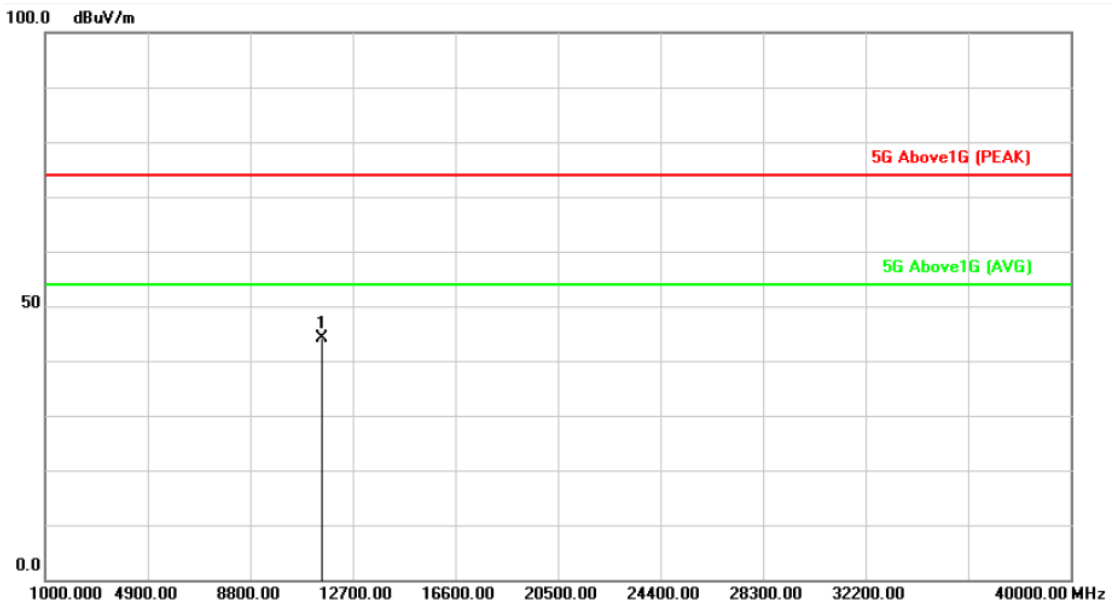
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 106	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	11060.000	-7.75	48.92	41.17	74.00	-32.83	peak	100	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

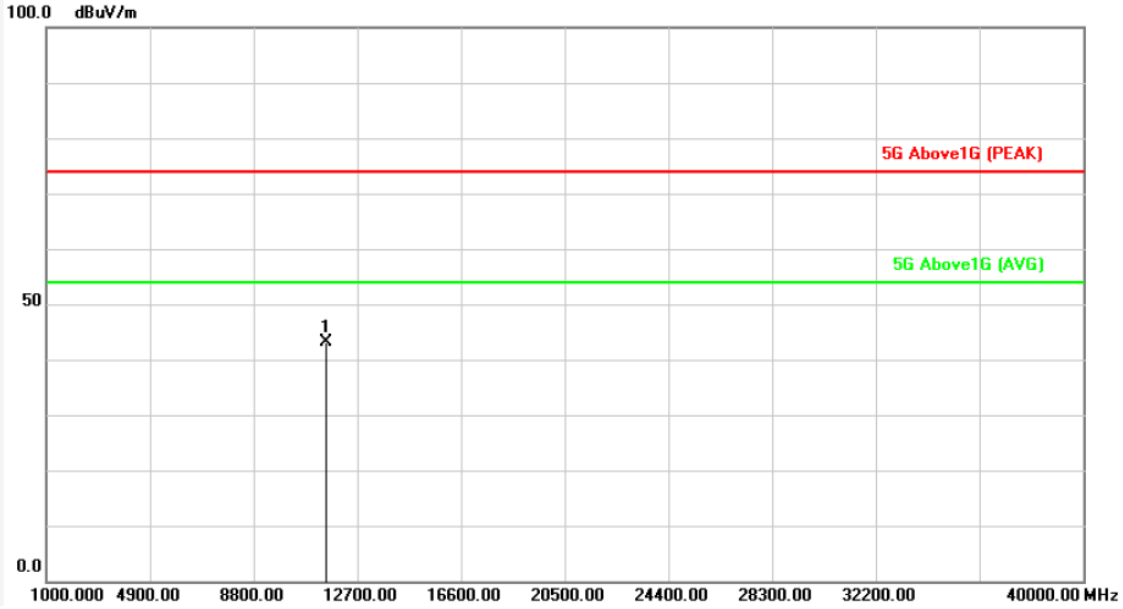
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 155	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	11550.000	-5.08	49.13	44.05	74.00	-29.95	peak	200	0	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 6	Temperature	:	24 °C
Test Date	:	Aug. 21, 2015	Humidity	:	59 %
Memo	:	CH 155	Atmospheric Pressure	:	1008 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (◦)	P/F
1	11550.000	-5.08	48.18	43.10	74.00	-30.90	peak	100	0	P

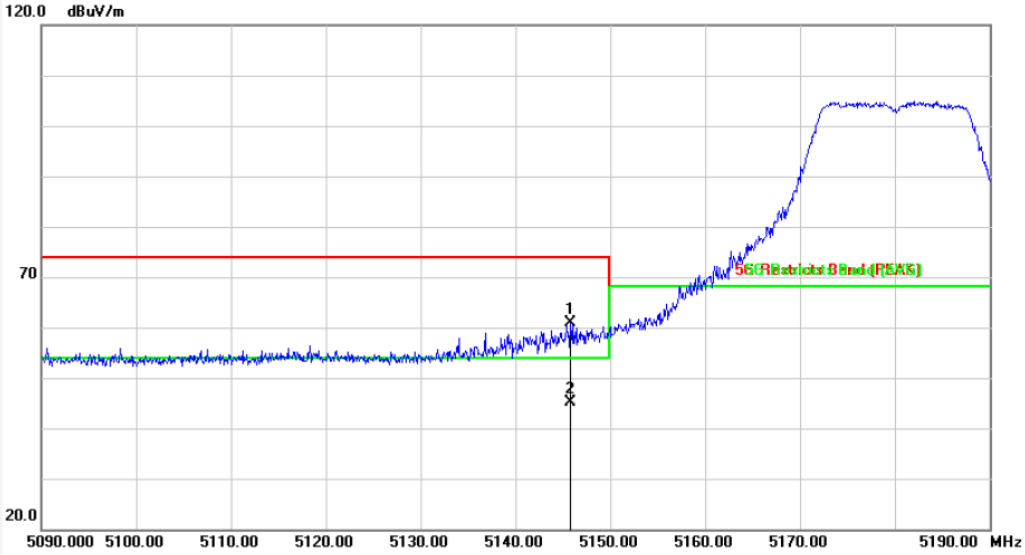
Note: Level = Reading + Factor
Margin = Level – Limit
Factor= Antenna Factor + Cable Loss - Amplifier Factor

6.7. Restrict Band Emission and Band Edges Measurement Data

Antenna A

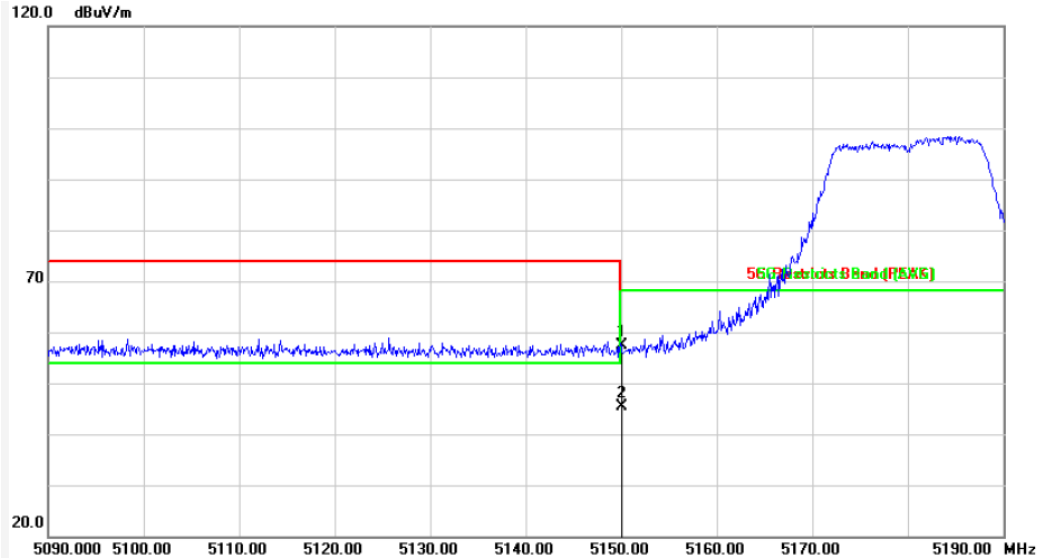
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Vertical

Channel: 36

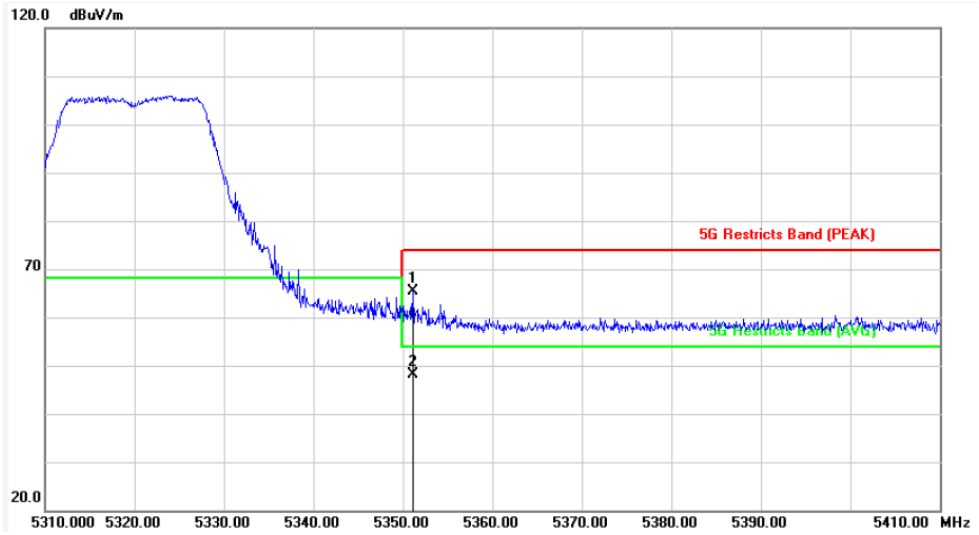


Modulation Standard: 802.11a (6Mbps), Pol/Phase: Horizontal

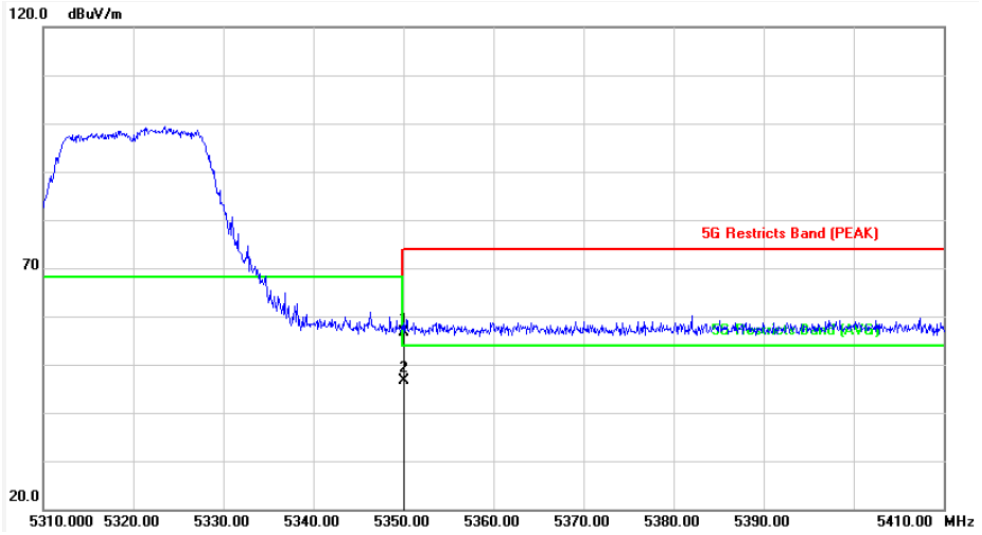
Channel: 36



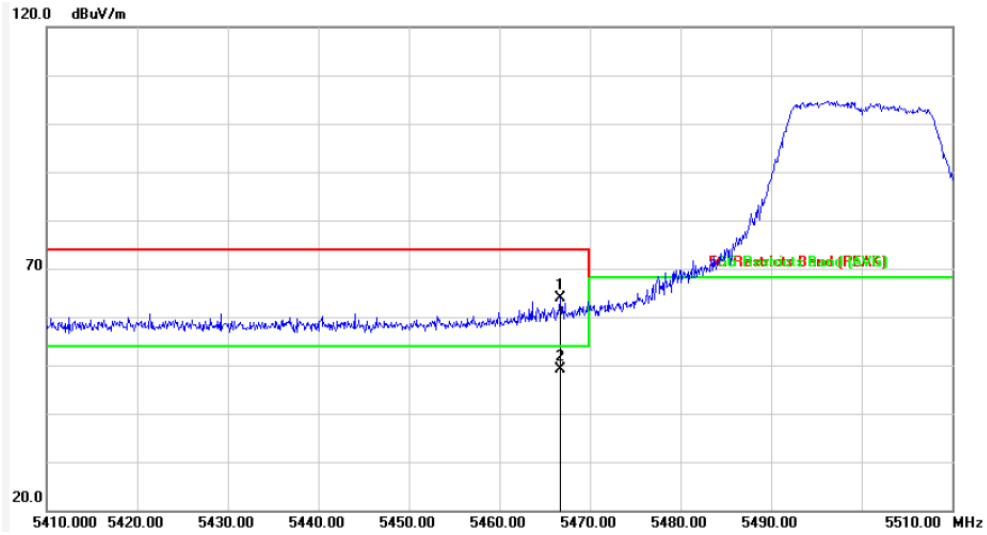
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Vertical
Channel: 64



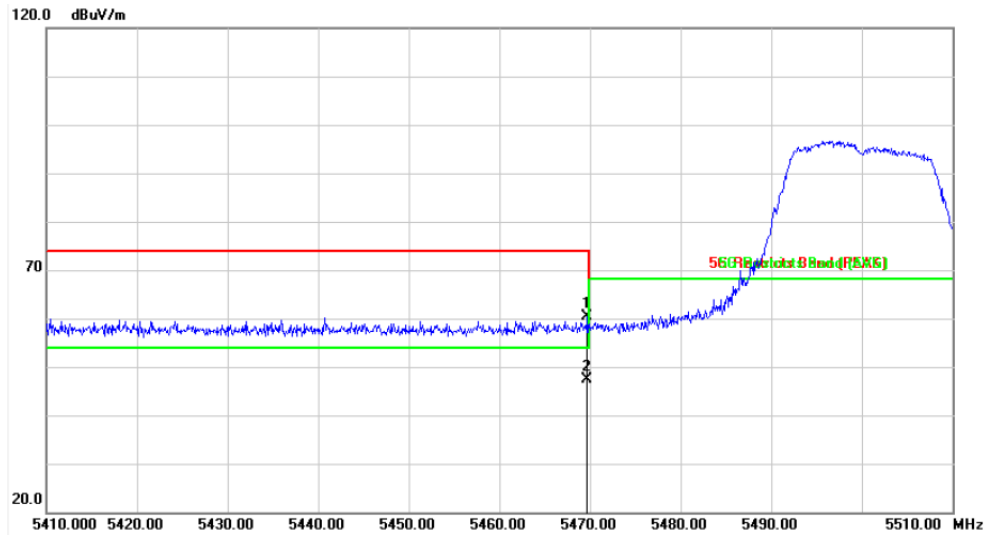
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Horizontal
Channel: 64



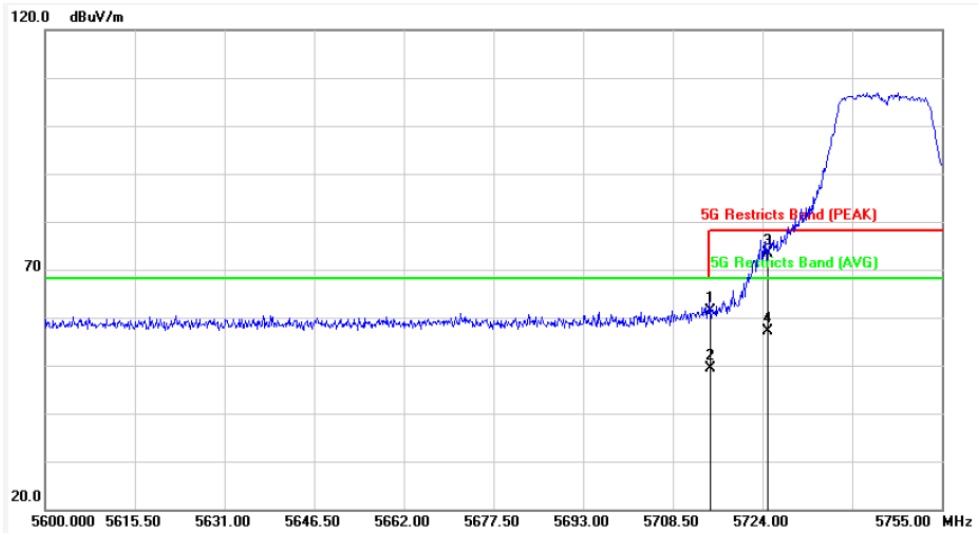
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Vertical
Channel: 100



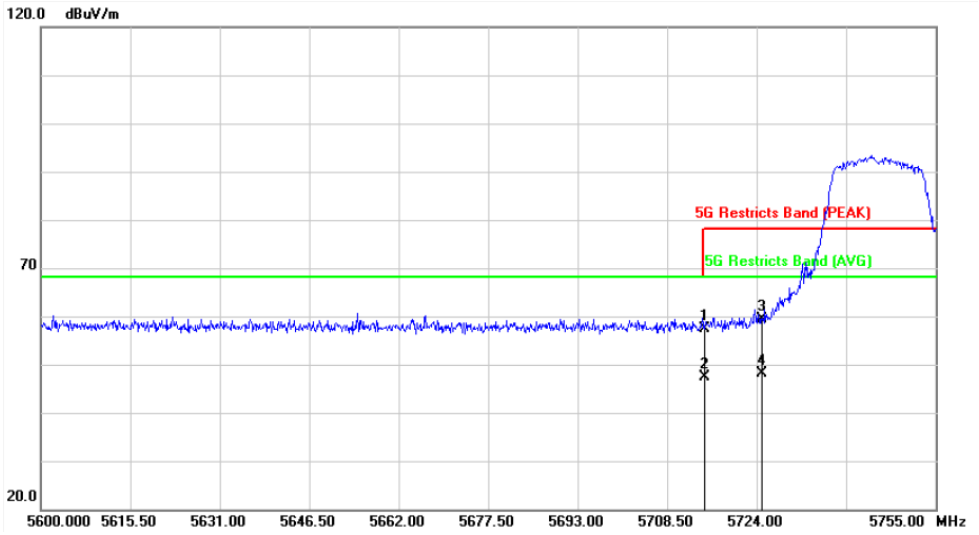
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Horizontal
Channel: 100



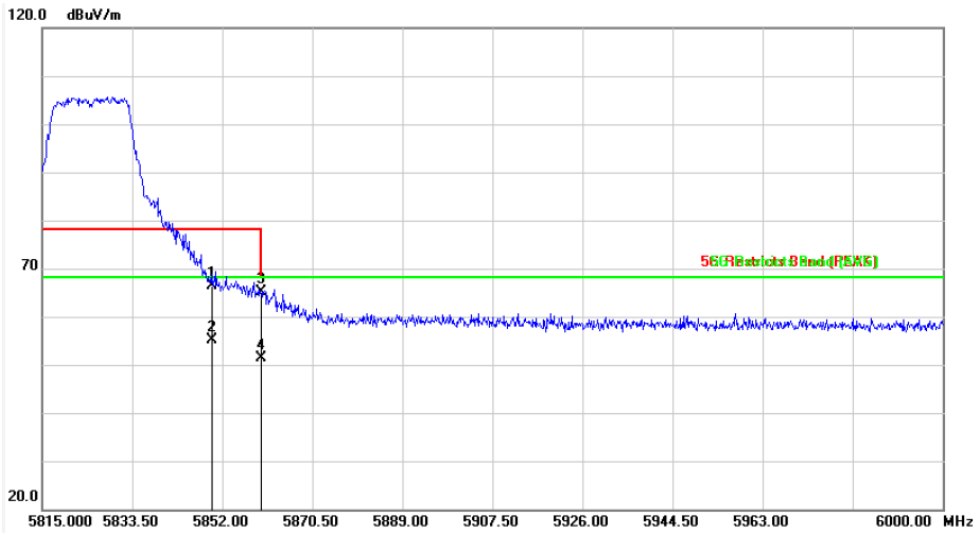
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Vertical
Channel: 149



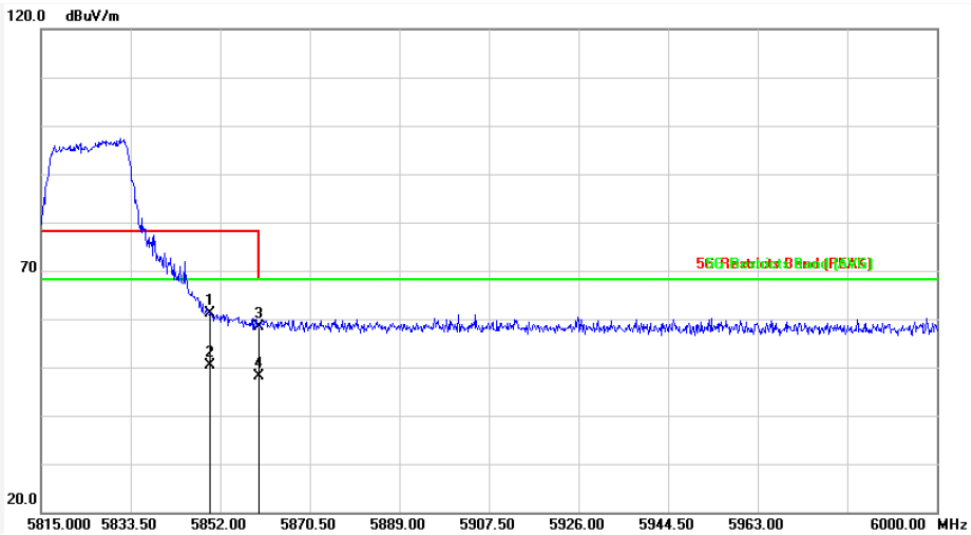
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Horizontal
Channel: 149



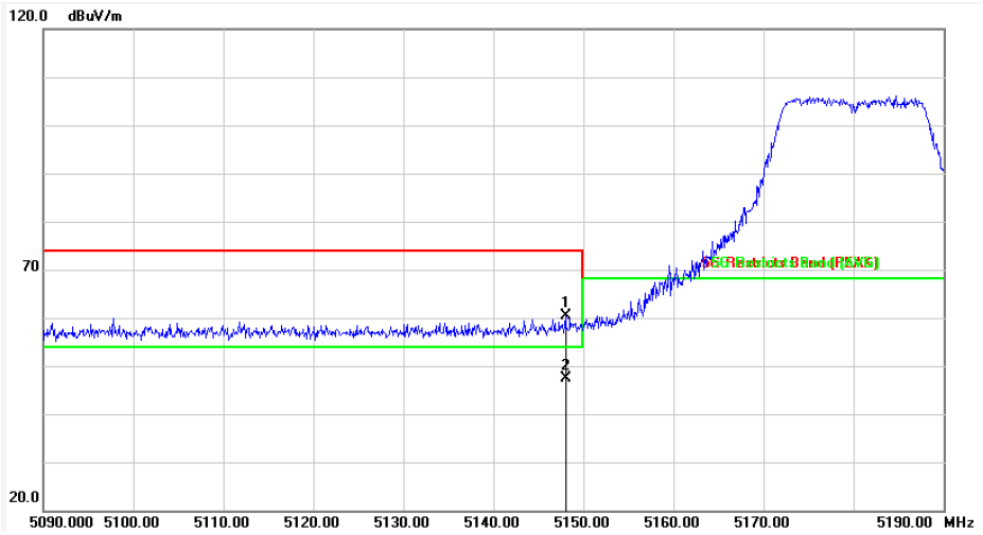
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Vertical
Channel: 165



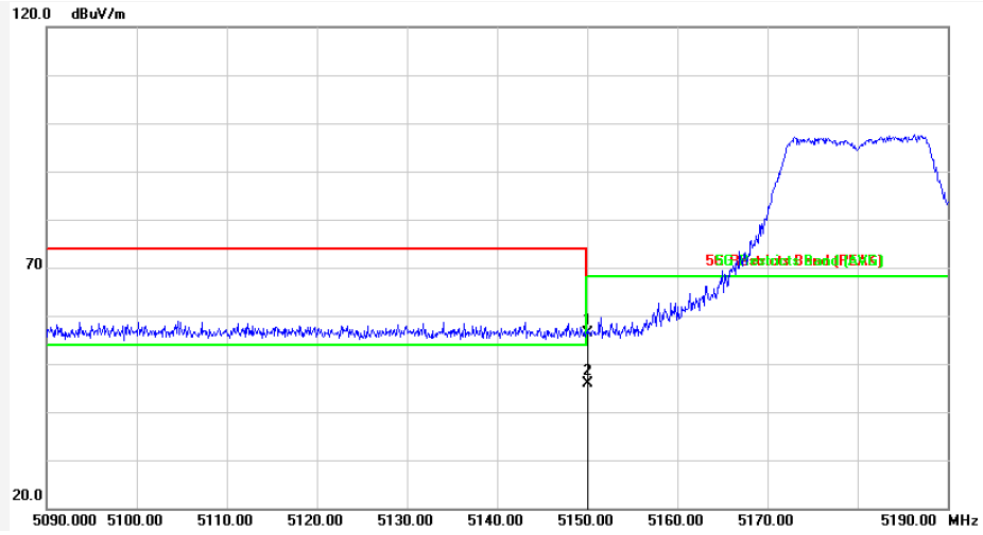
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Horizontal
Channel: 165



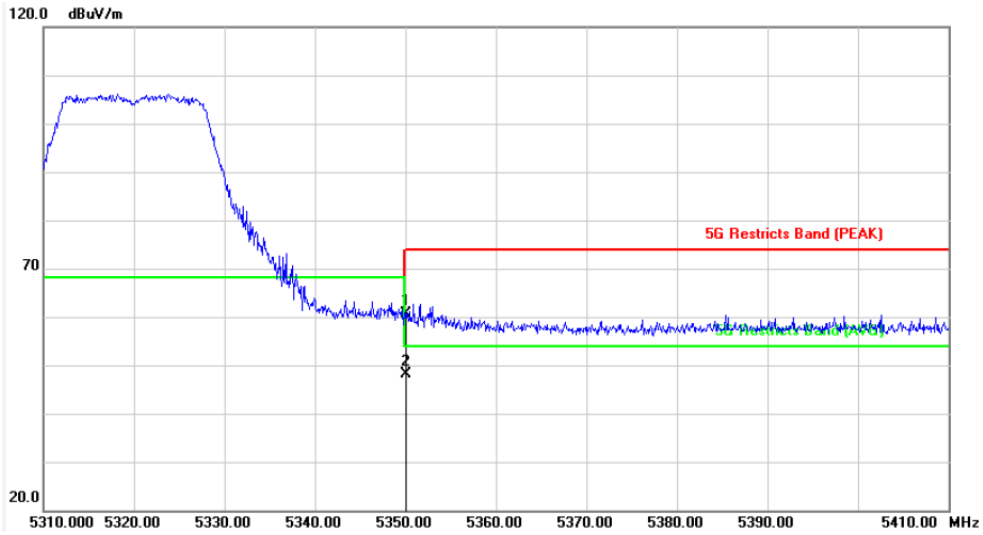
Antenna B
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Vertical
Channel: 36



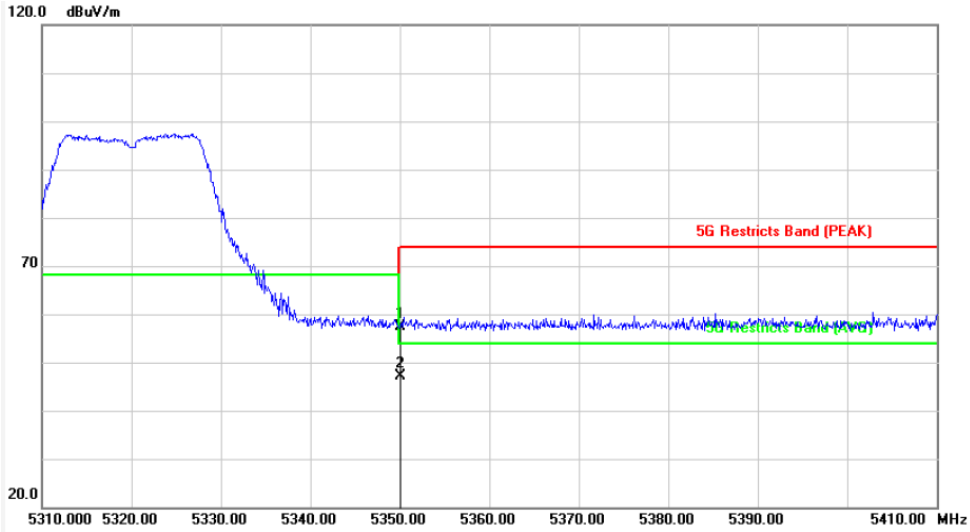
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Horizontal
Channel: 36



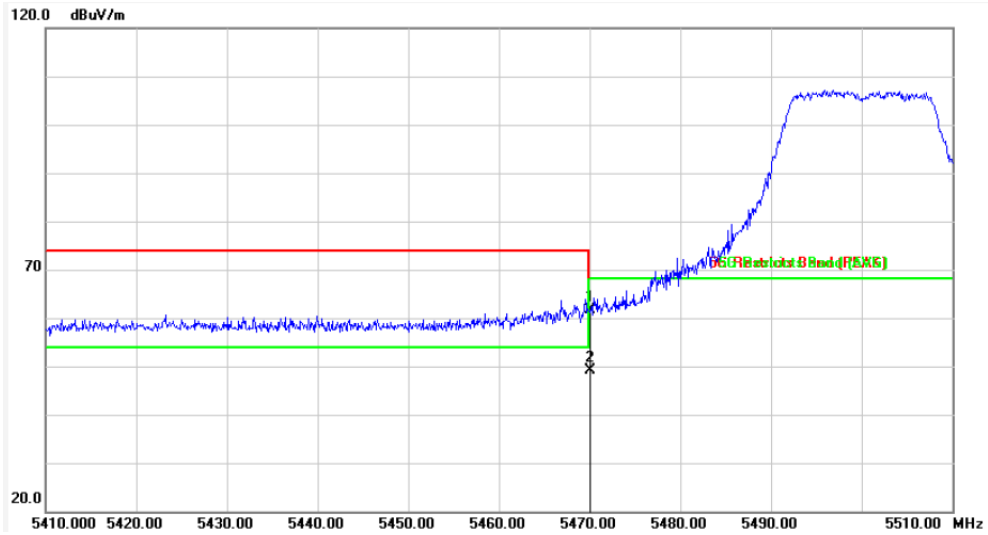
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Vertical
Channel: 64



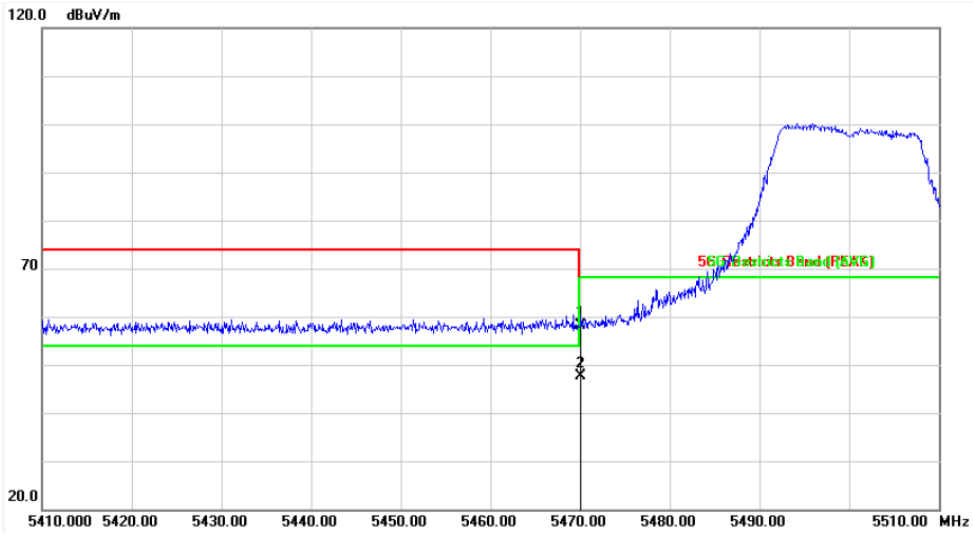
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Horizontal
Channel: 64



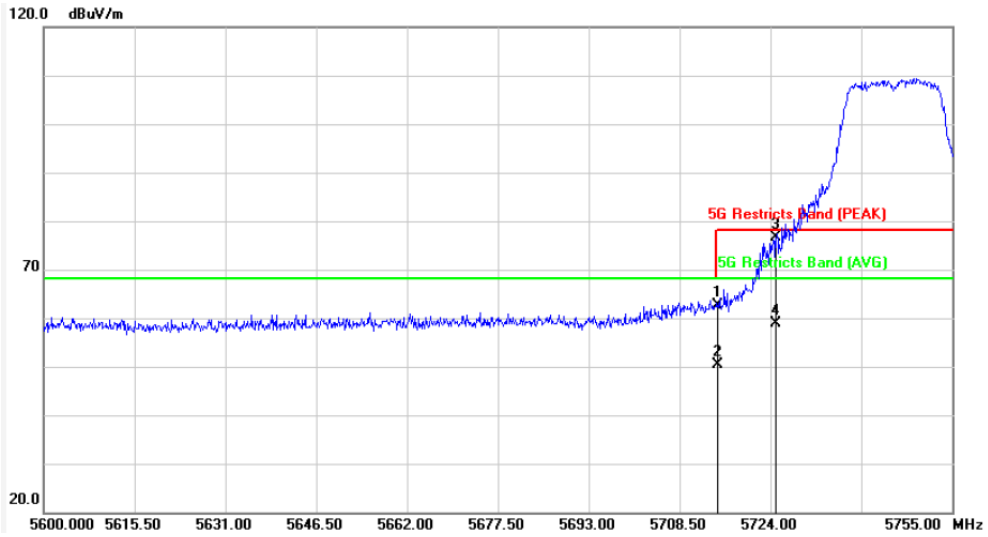
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Vertical
Channel: 100



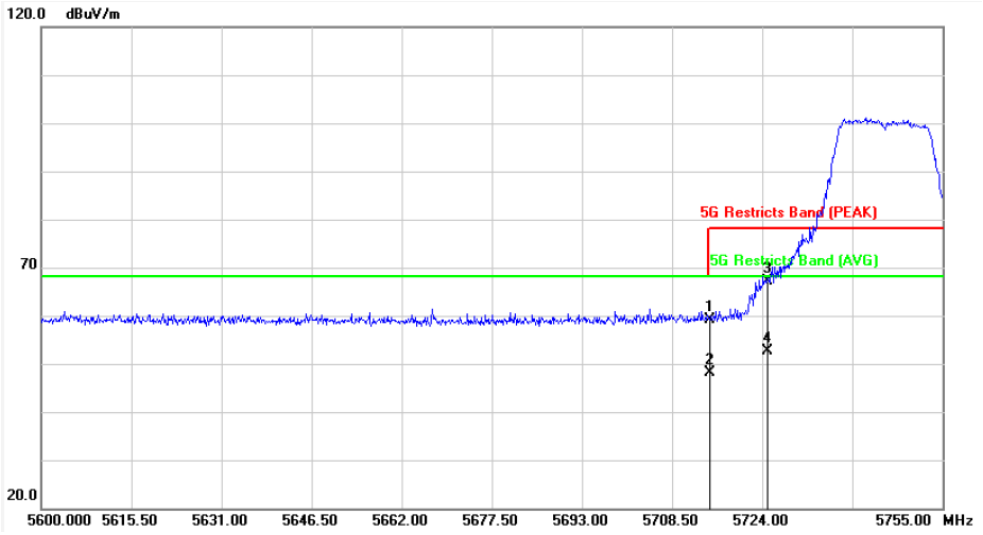
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Horizontal
Channel: 100



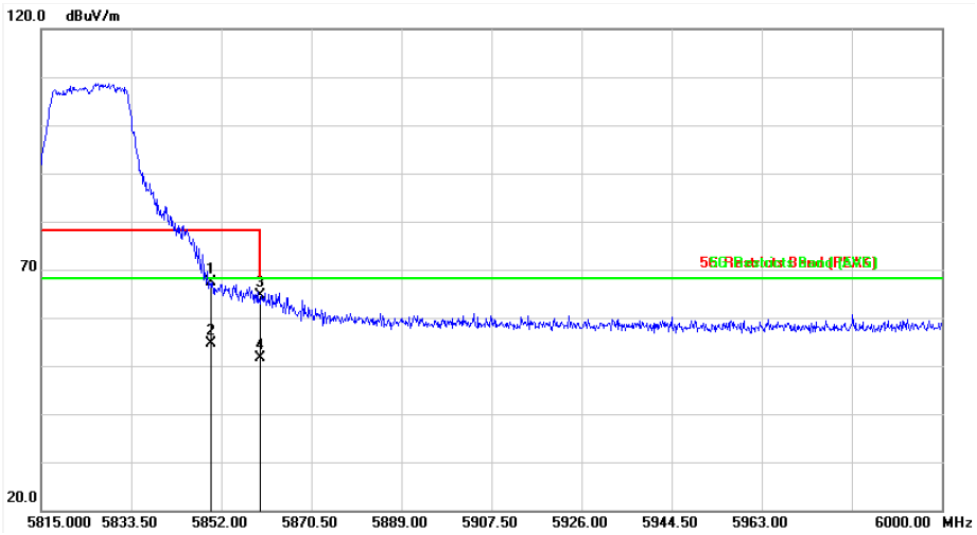
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Vertical
Channel: 149



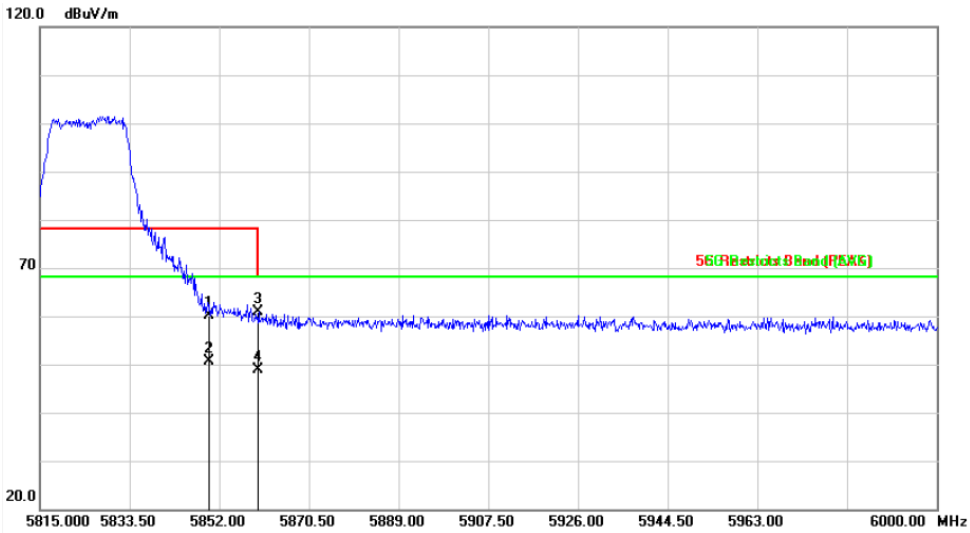
Modulation Standard: 802.11a (6Mbps), Pol/Phase: Horizontal
Channel: 149



Modulation Standard: 802.11a (6Mbps), Pol/Phase: Vertical
Channel: 165

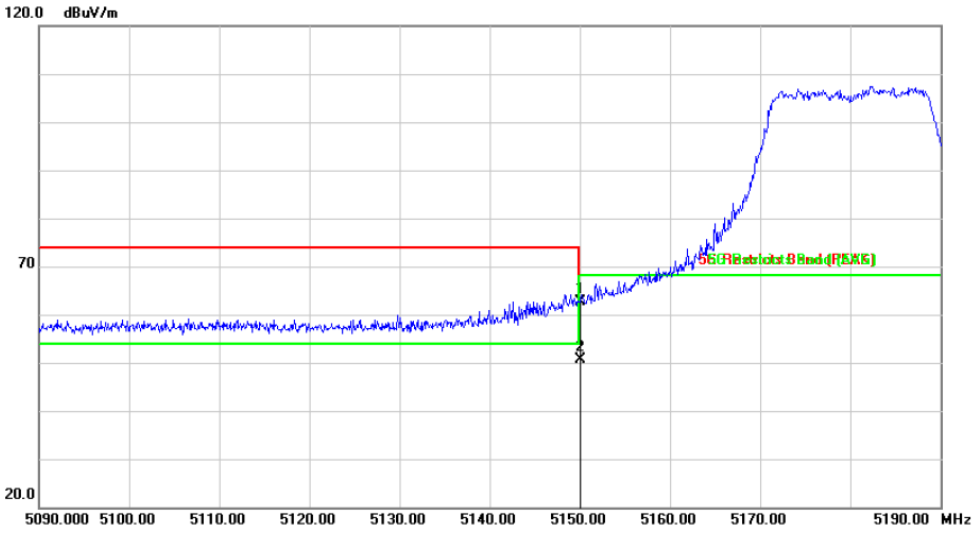


Modulation Standard: 802.11a (6Mbps), Pol/Phase: Horizontal
Channel: 165

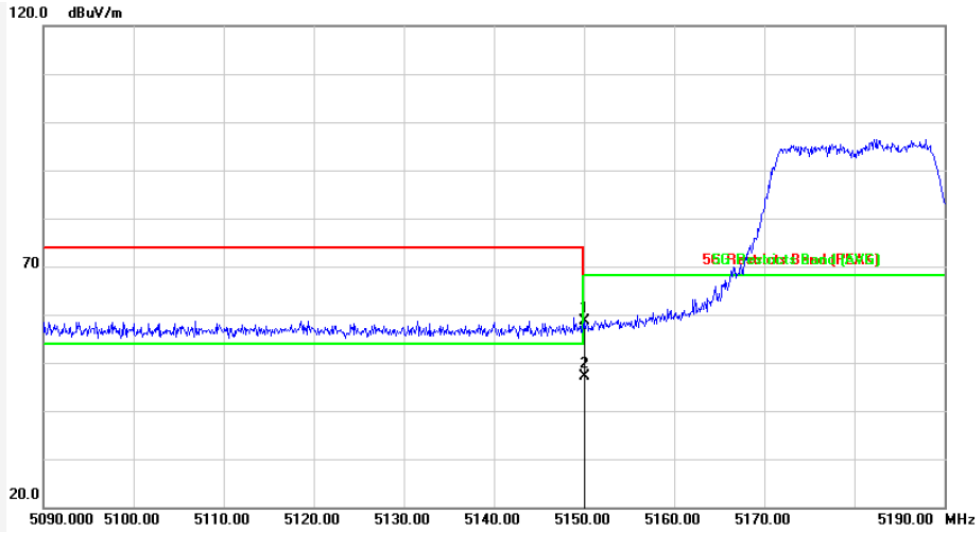


Antenna A+B
Modulation Standard: 802.11an HT20 (13Mbps), Pol/Phase: Vertical

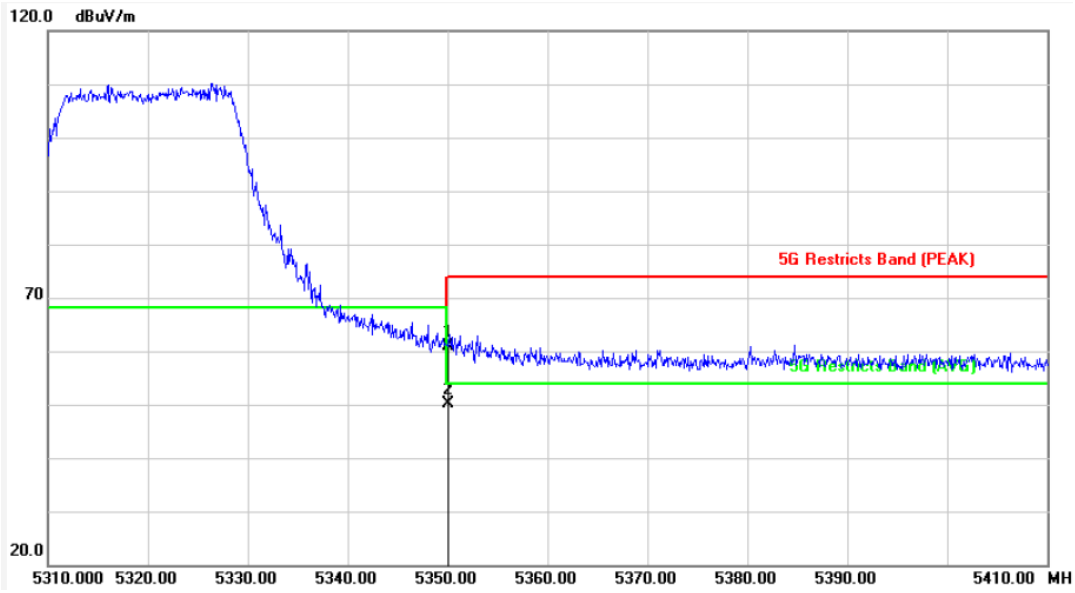
Channel: 36



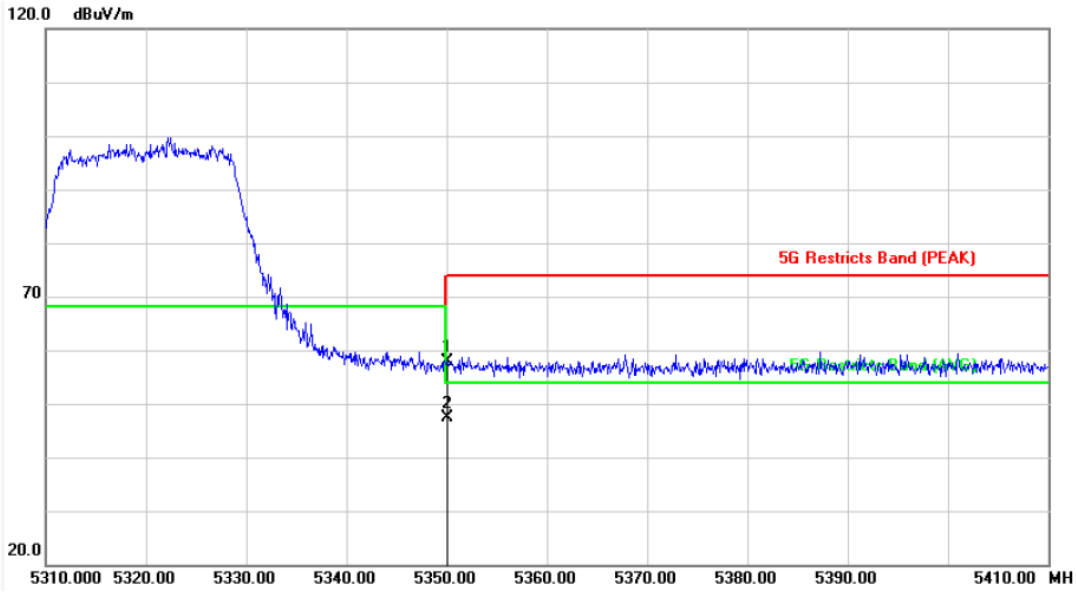
Modulation Standard: 802.11an HT20 (13Mbps), Pol/Phase: Horizontal
Channel: 36



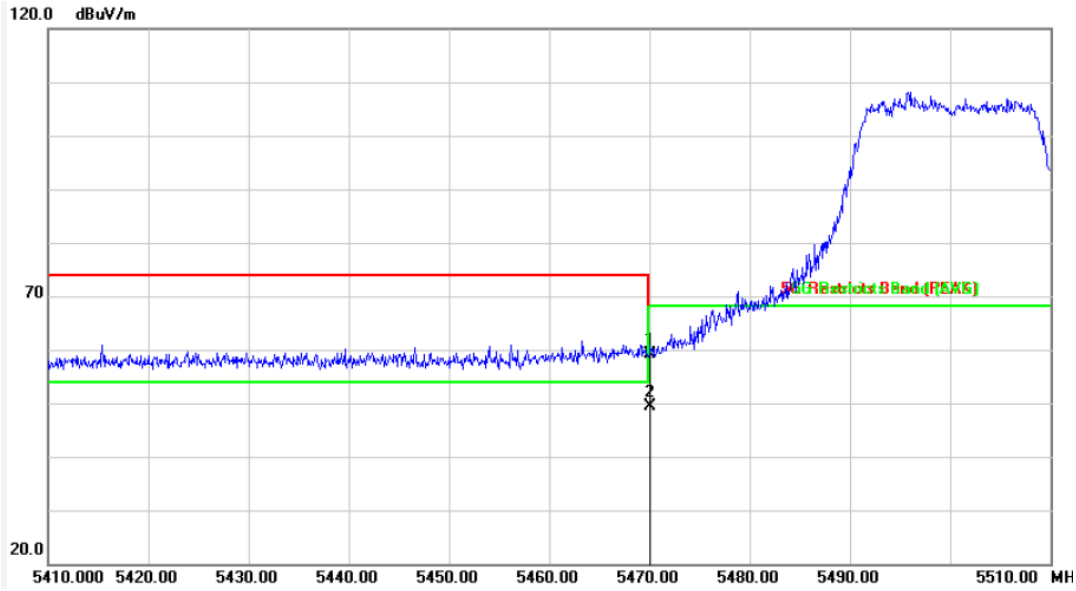
Modulation Standard: 802.11an HT20 (13Mbps) Pol/Phase: Vertical
Channel: 64



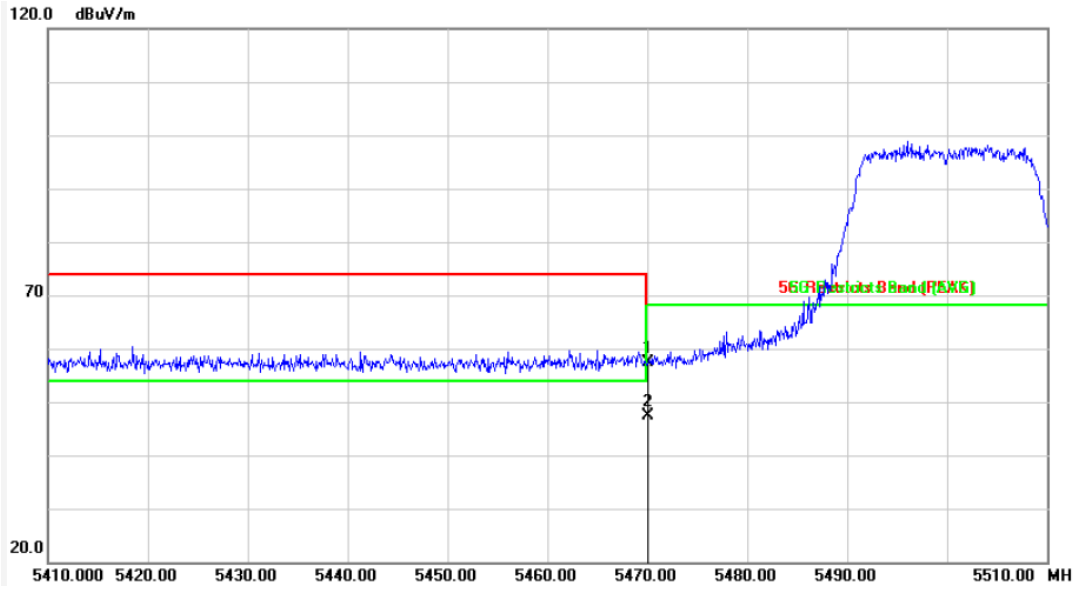
Modulation Standard: 802.11an HT20 (13Mbps), Pol/Phase: Horizontal
Channel: 64



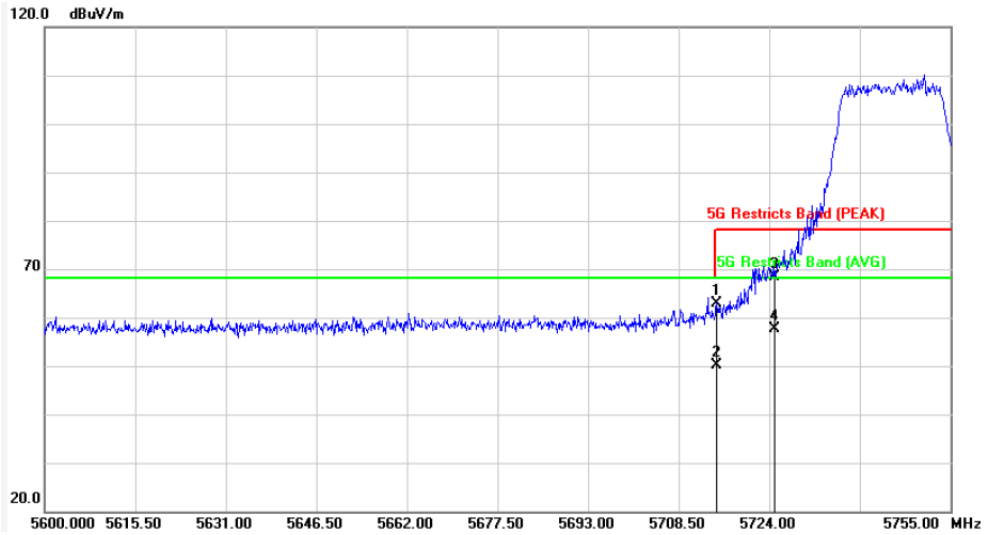
Modulation Standard: 802.11an HT20 (13Mbps), Pol/Phase: Vertical
Channel: 100



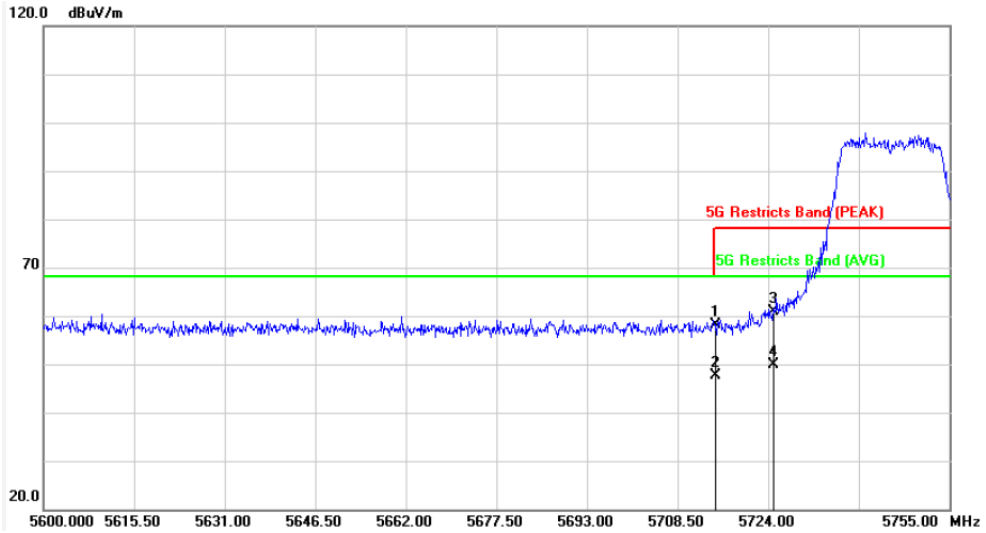
Modulation Standard: 802.11an HT20 (13Mbps), Pol/Phase: Horizontal
Channel: 100



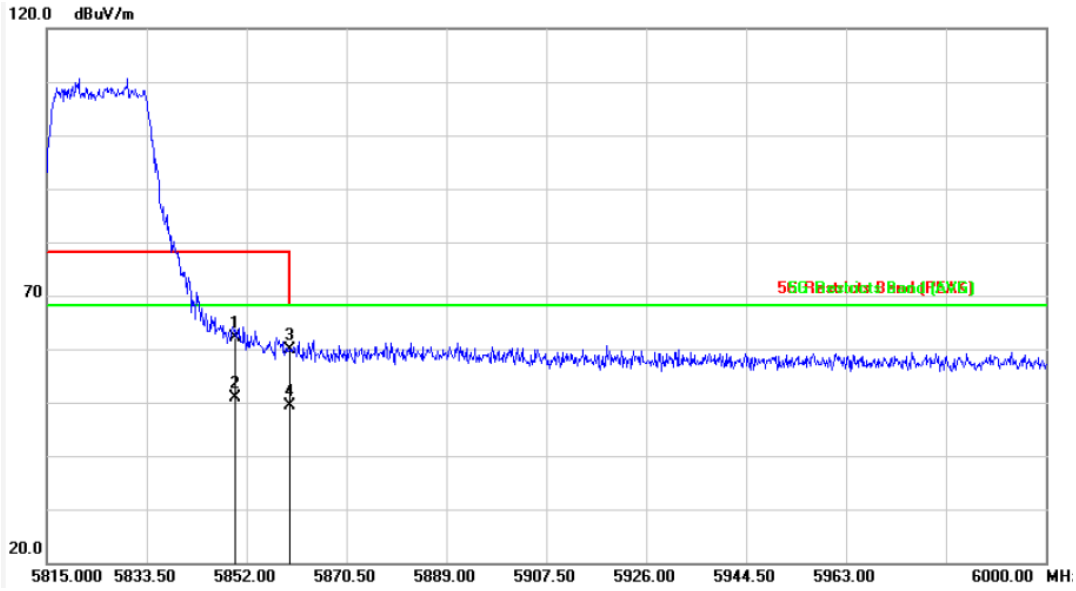
Modulation Standard: 802.11an HT20 (13Mbps), Pol/Phase: Vertical
Channel: 149



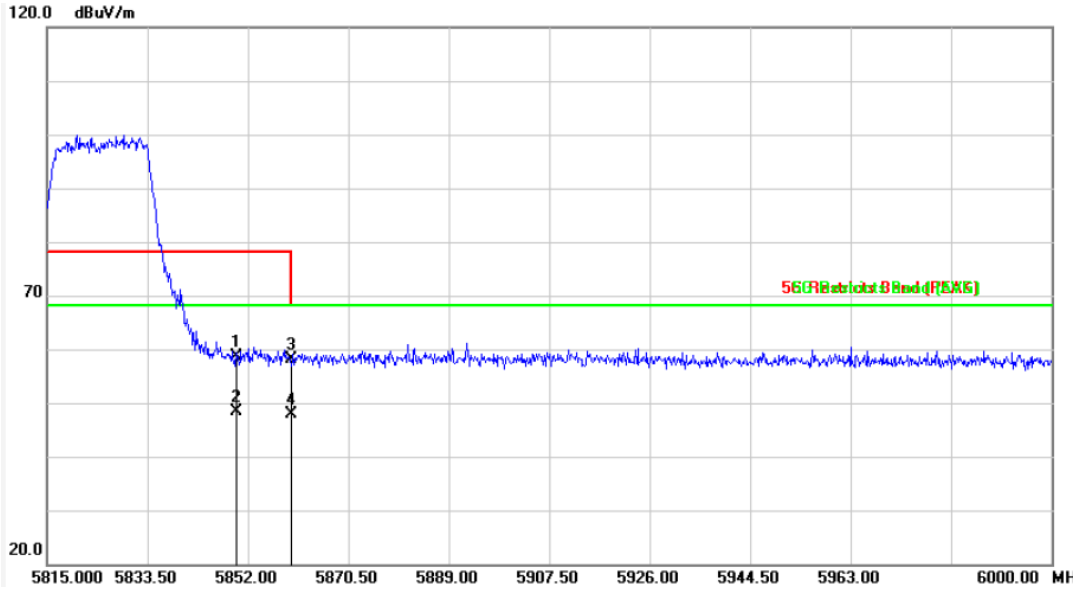
Modulation Standard: 802.11an HT20 (13Mbps), Pol/Phase: Horizontal
Channel: 149



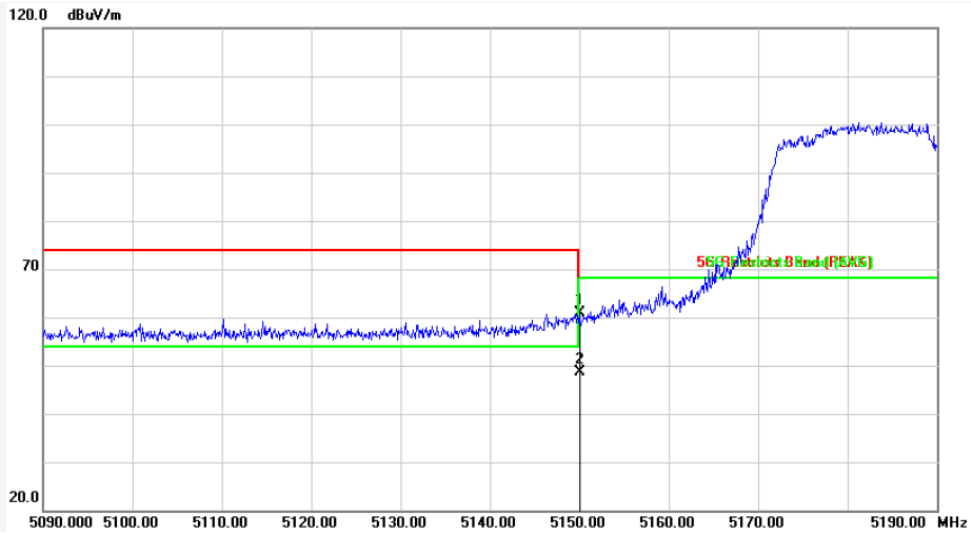
Modulation Standard: 802.11an HT20 (13Mbps), Pol/Phase: Vertical
Channel: 165



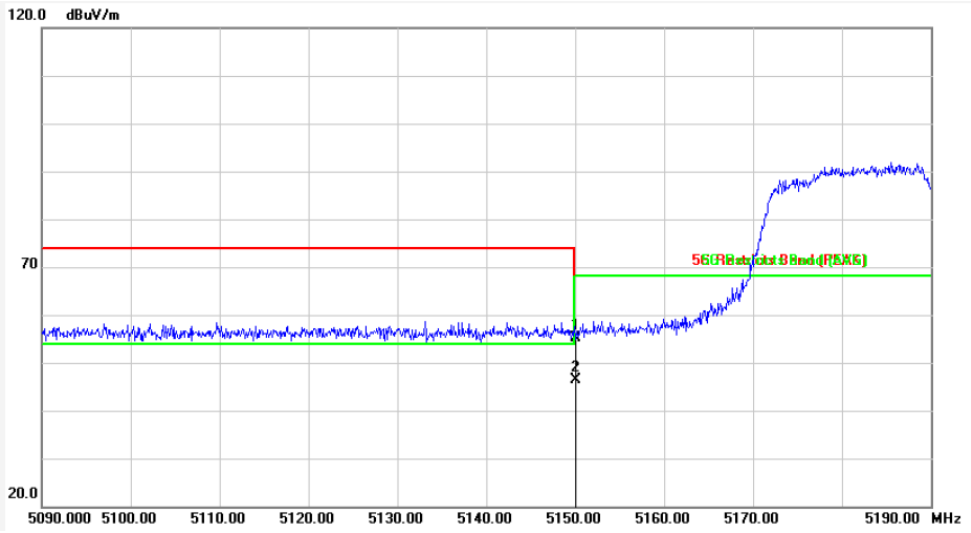
Modulation Standard: 802.11an HT20 (13Mbps), Pol/Phase: Horizontal
Channel: 165



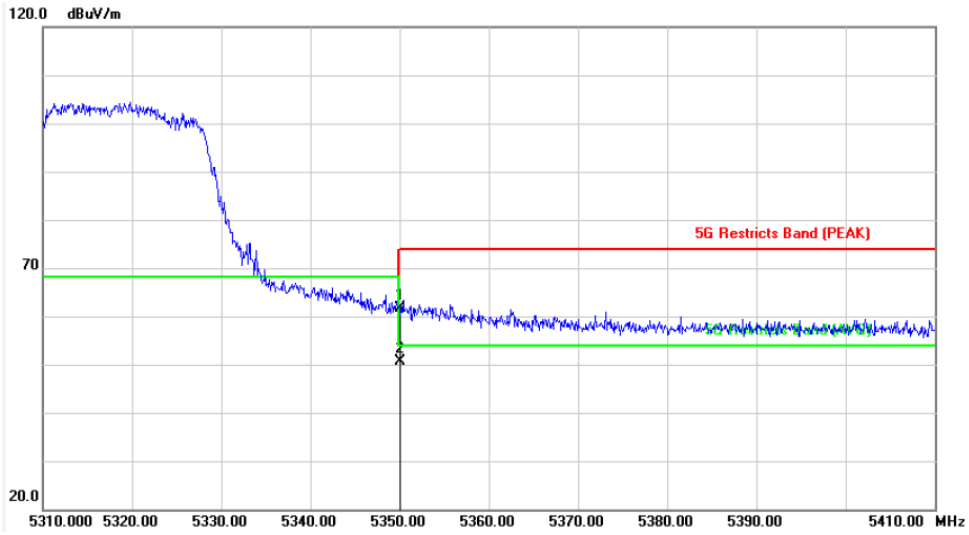
Modulation Standard: 802.11an HT40 (27Mbps), Pol/Phase: Vertical
Channel: 38



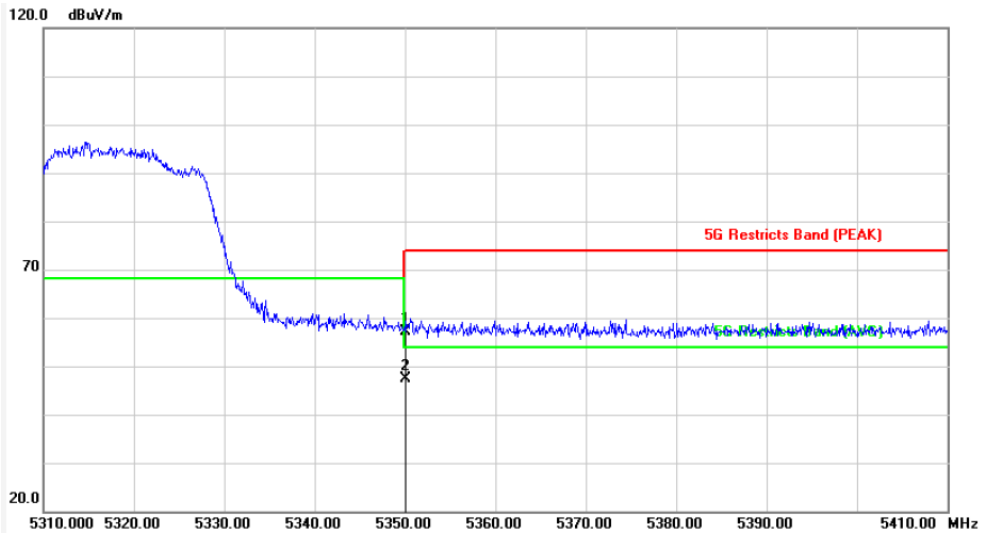
Modulation Standard: 802.11an HT40 (27Mbps), Pol/Phase: Horizontal
Channel: 38



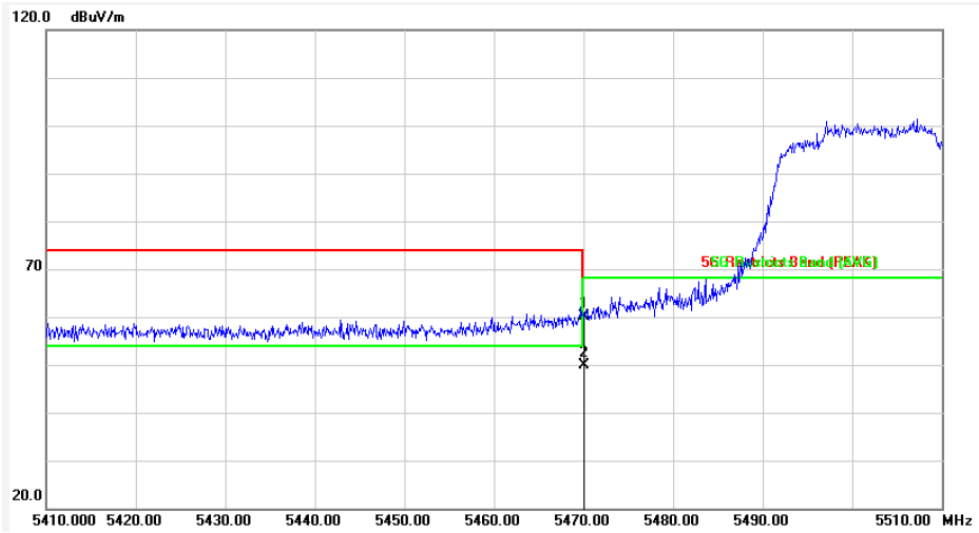
Modulation Standard: 802.11an HT40 (27Mbps), Pol/Phase: Vertical
Channel: 62



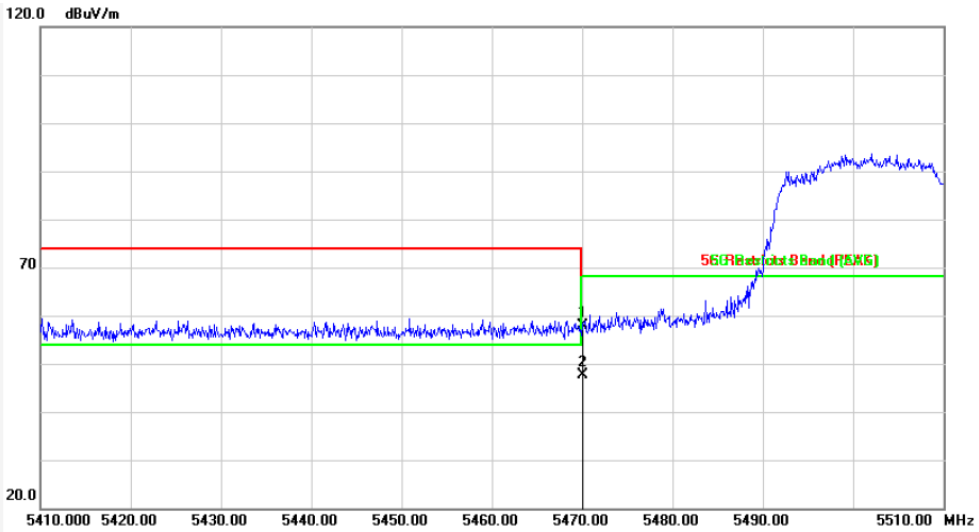
Modulation Standard: 802.11an HT40 (27Mbps), Pol/Phase: Horizontal
Channel: 62



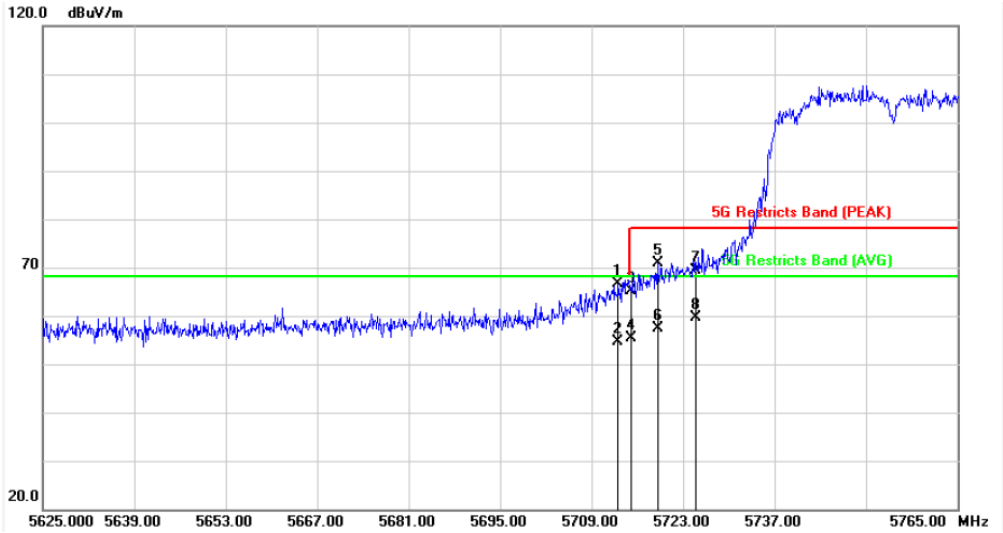
Modulation Standard: 802.11an HT40 (27Mbps),, Pol/Phase: Vertical
Channel: 102



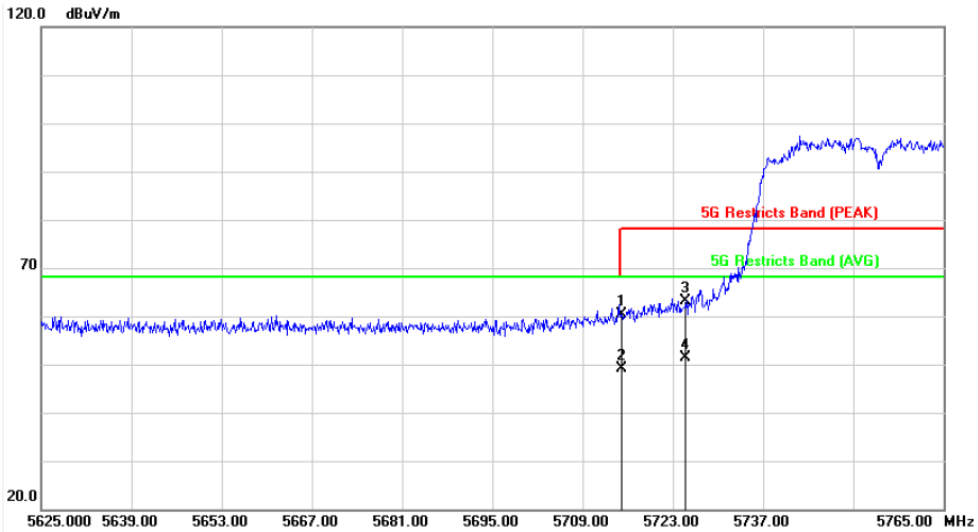
Modulation Standard: 802.11an HT40 (27Mbps), Pol/Phase: Horizontal
Channel: 102



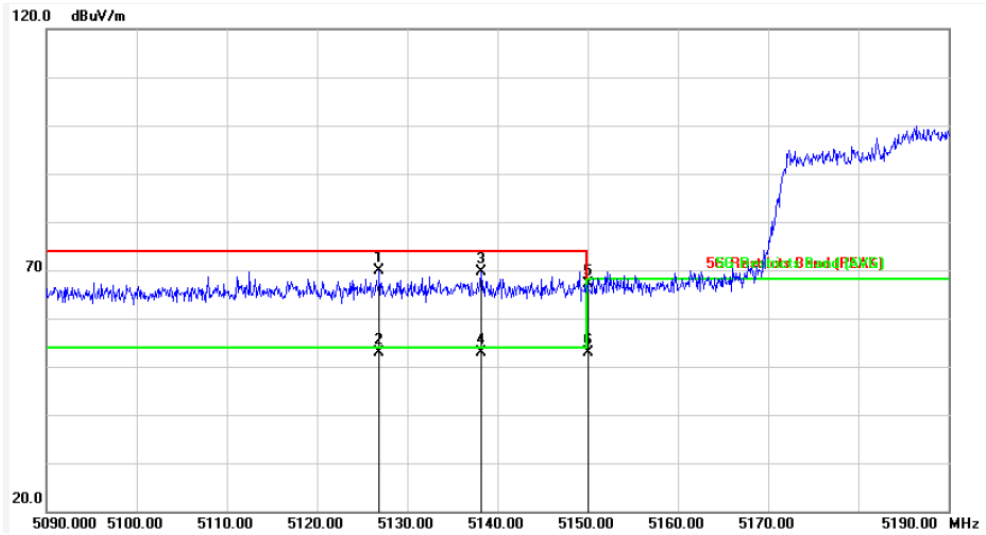
Modulation Standard: 802.11an HT40 (27Mbps), Pol/Phase: Vertical
Channel: 151



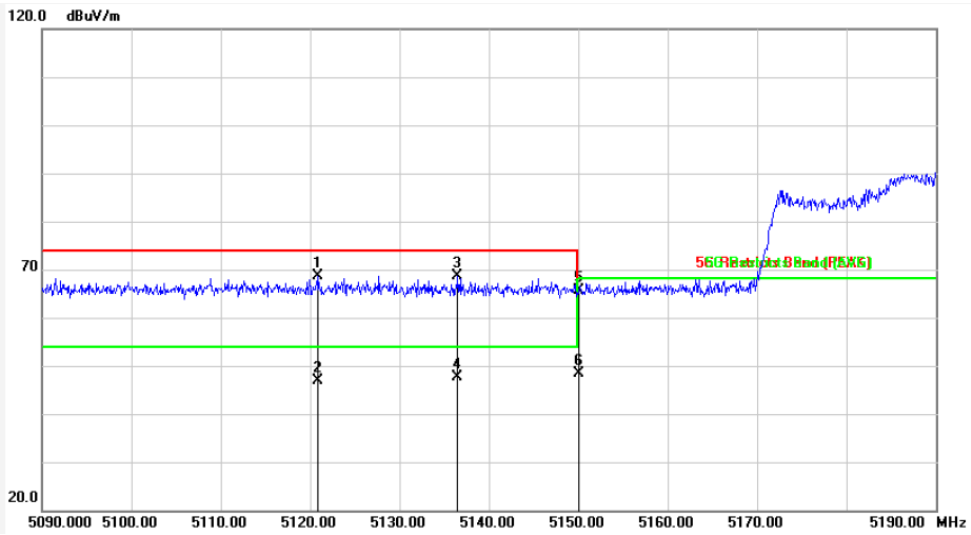
Modulation Standard: 802.11an HT40 (27Mbps), Pol/Phase: Horizontal
Channel: 151



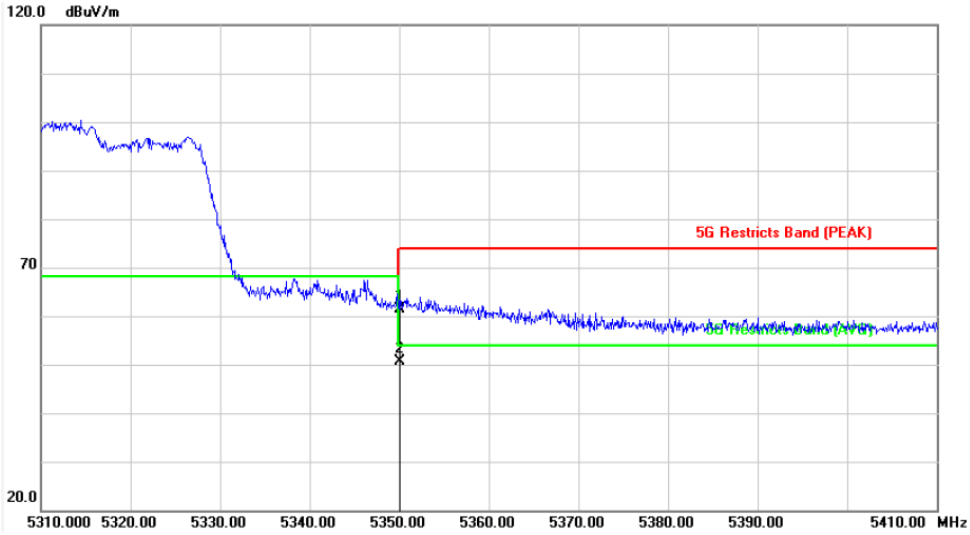
Modulation Standard: 802.11an VHT80 (58.5Mbps), Pol/Phase: Horizontal
Channel: 42



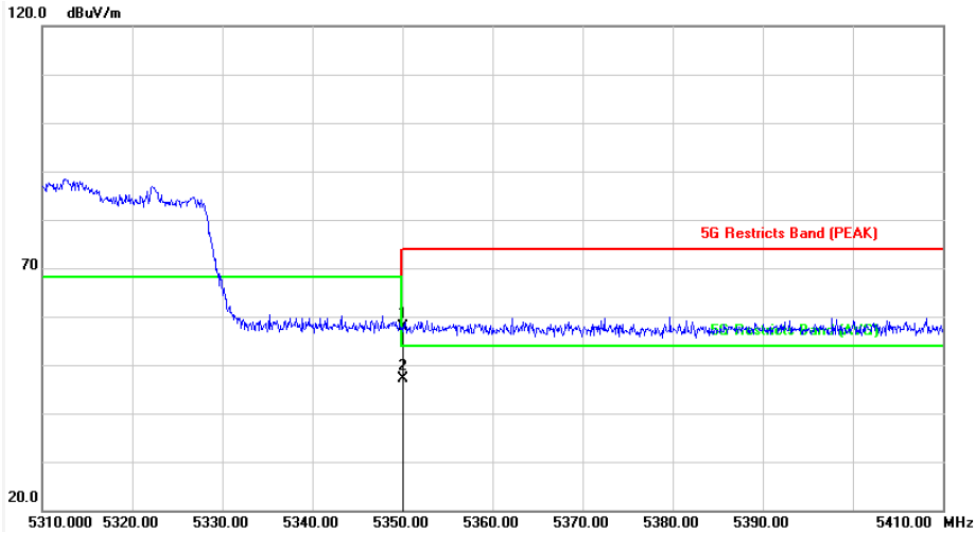
Modulation Standard: 802.11an VHT80 (58.5Mbps), Pol/Phase: Horizontal
Channel: 42



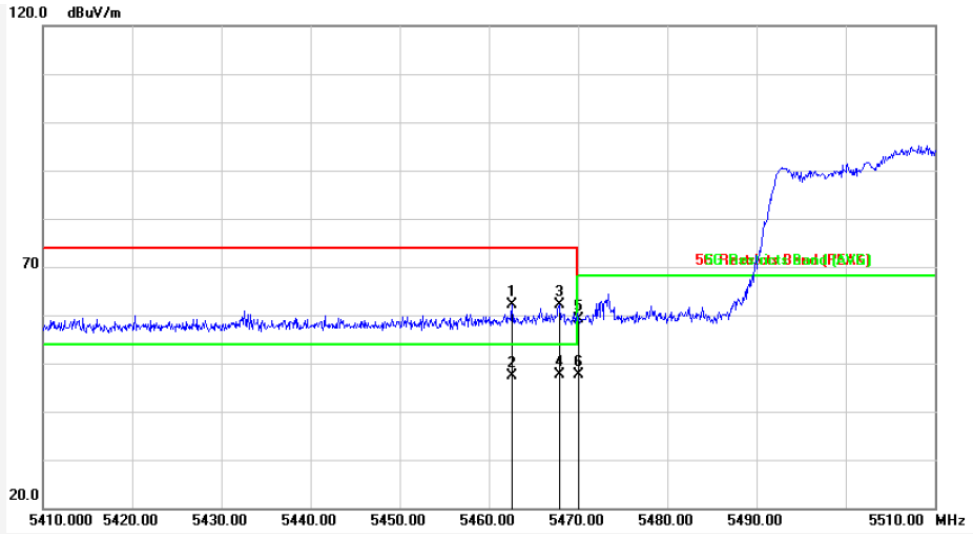
Modulation Standard: 802.11an VHT80 (58.5Mbps), Pol/Phase: Vertical
Channel: 58



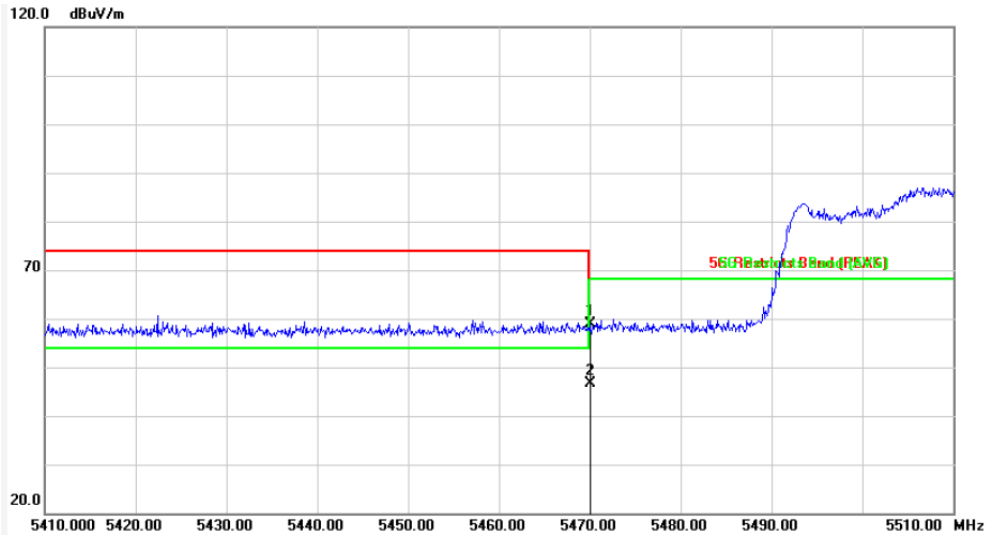
Modulation Standard: 802.11an VHT80 (58.5Mbps), Pol/Phase: Horizontal
Channel: 58



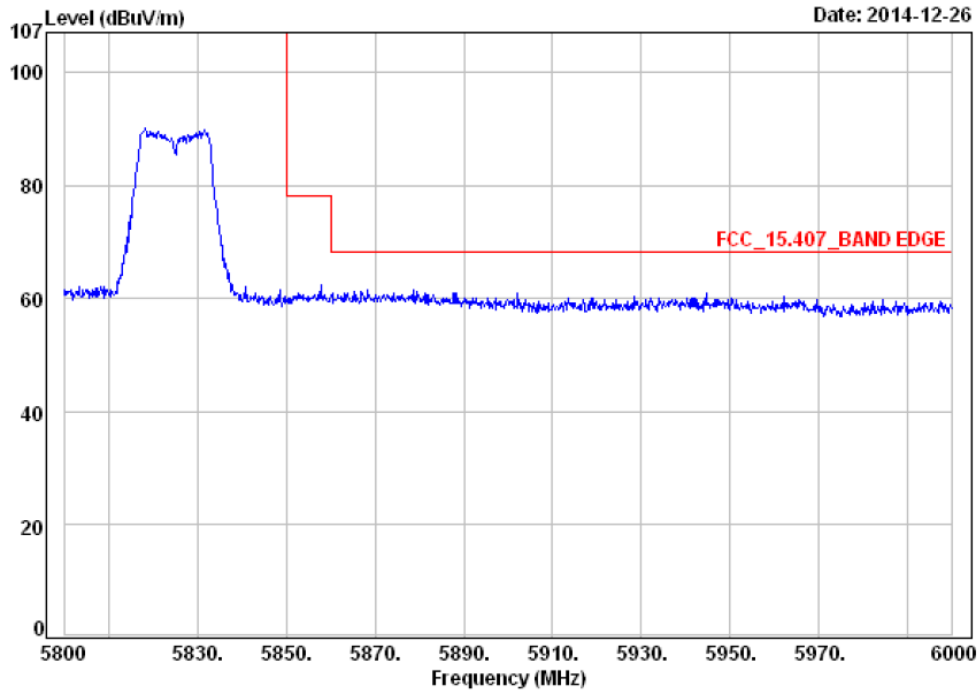
Modulation Standard: 802.11an VHT80 (58.5Mbps), Pol/Phase: Vertical
Channel: 106



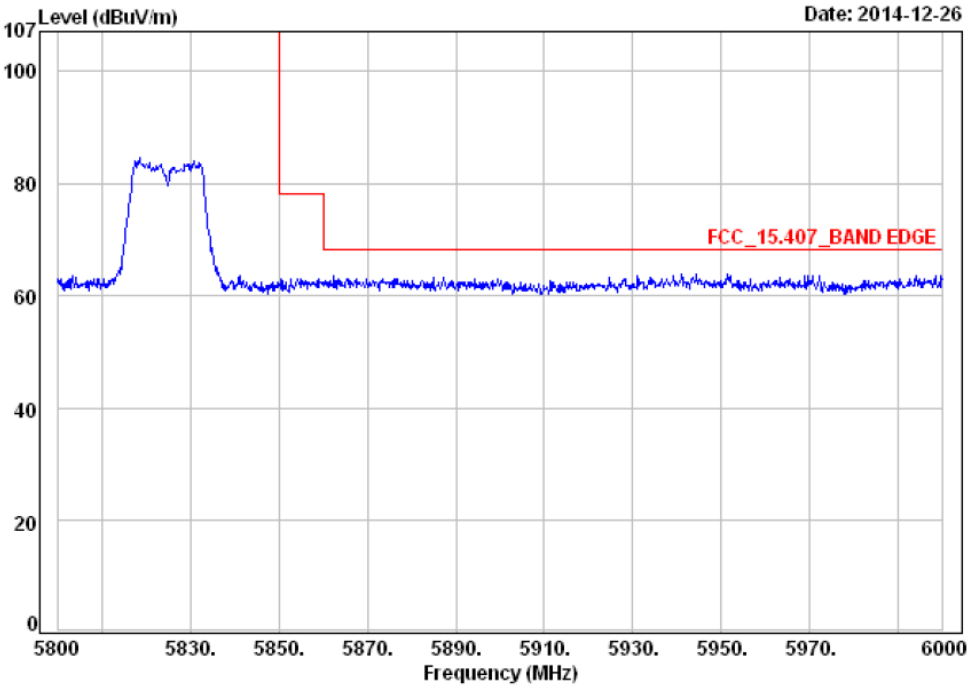
Modulation Standard: 802.11an VHT80 (58.5Mbps), Pol/Phase: Horizontal
Channel: 106



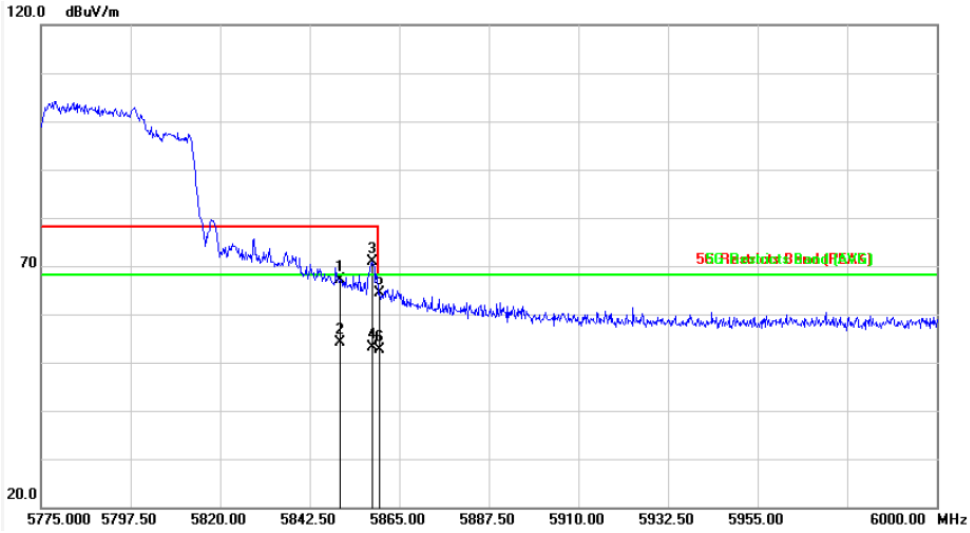
Modulation Standard: 802.11an VHT80 (58.5Mbps), Pol/Phase: Vertical
Channel: 155



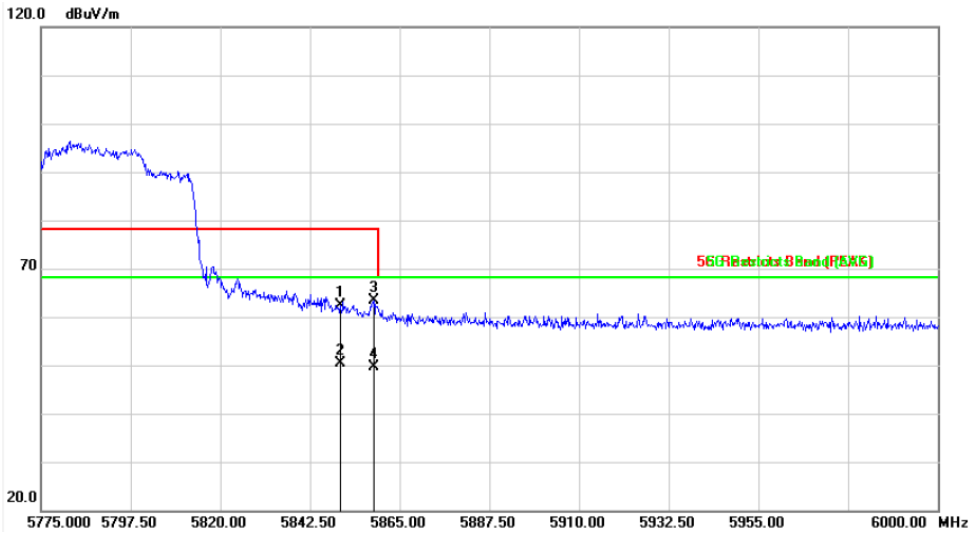
Modulation Standard: 802.11an VHT80 (58.5Mbps), Pol/Phase: Horizontal
Channel: 165



Modulation Standard: 802.11an VHT80 (58.5Mbps), Pol/Phase: Vertical
Channel: 155



Modulation Standard: 802.11an VHT80 (58.5Mbps), Pol/Phase: Horizontal
Channel: 155



7. On Time, Duty Cycle and Measurement methods

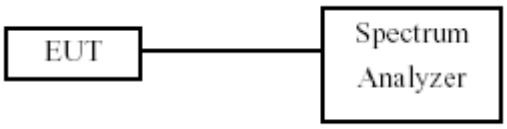
7.1. Test Limit

None; for reporting purposes only.

7.2. Test Procedure

KDB 789033 Zero-Span Spectrum Analyzer Method.

7.3. Test Setup Layout



7.4. Test Result and Data

Test Date: Aug. 22, 2015 Temperature: 25℃

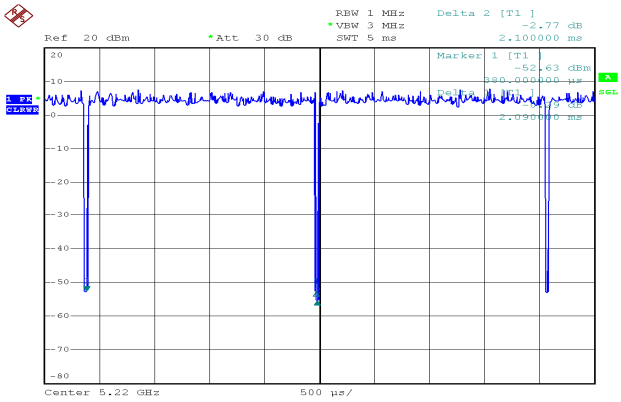
Atmospheric pressure: 1056 hPa Humidity: 52%

Mode	On Time B (msec)	Period Time (msec)	Duty Cycle x (linear)	Duty Cycle(%)	1/T Minimum VBW (kHz)	Duty Cycle correction Factor (dB)
802.11a	2090	2100	0.9952	99.52%	1.00	0.02
802.11a HT20	1000	1016	0.9843	98.43%	1.02	0.07
802.11a HT40	506	524	0.9656	96.56%	1.04	0.15
802.11ac VHT20	1008	1024	0.9844	98.44%	1.02	0.07
802.11ac VHT40	508	524	0.9695	96.95%	1.03	0.13
802.11ac VHT80	264	285	0.9263	92.63%	1.08	0.33

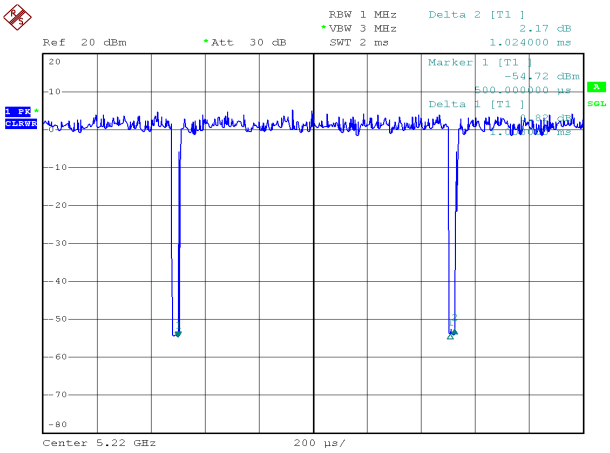
7.5. Measurement Methods

26 dB and 6dB Emission BW	KDB 789033 D02 v01, Section C
99% Occupied BW	KDB 789033 D02 v01, Section D
Conducted Output Power	KDB 789033 D02 v01, Section E.2.d and E.3.b (Method PM-G)
Power Spectral Density	KDB 789033 D02 v01, Section F
Unwanted emissions in restricted bands	KDB 789033 D02 v01, Sections G and H
Unwanted emissions in non-restricted bands	KDB 789033 D02 v01, Sections G and H

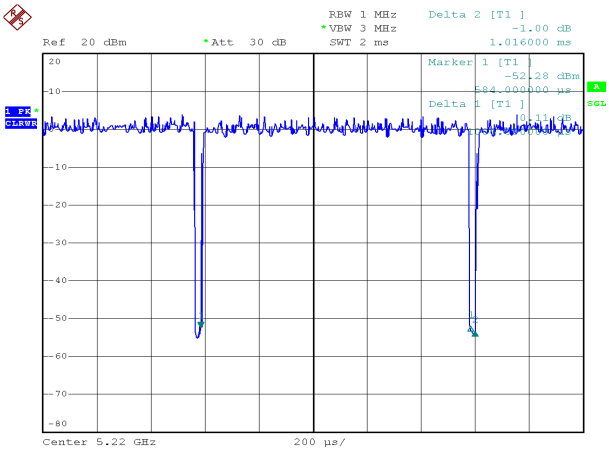
Modulation Standard: 802.11a (6Mbps)



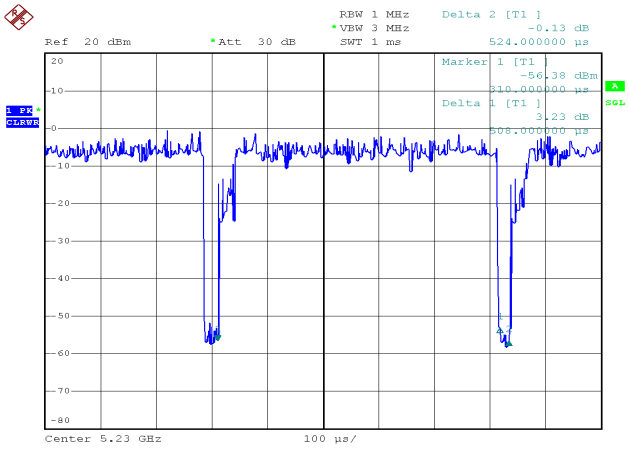
Modulation Standard: 802.11ac, VHT20 (27Mbps)



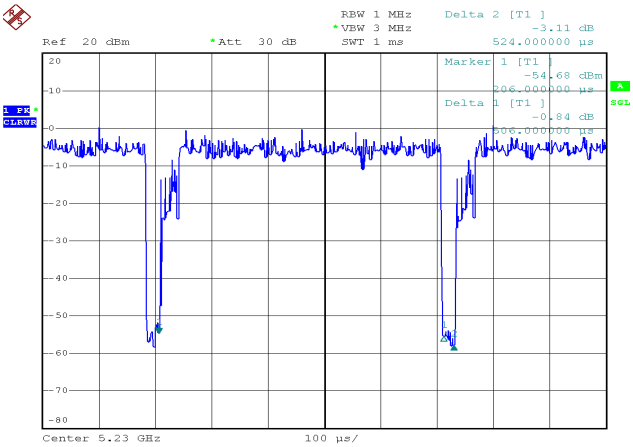
Modulation Standard: 802.11an HT20 (13Mbps)



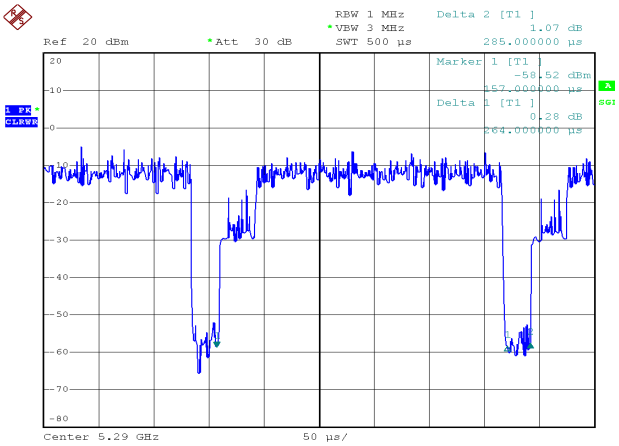
Modulation Standard: 802.11ac, VHT40 (27Mbps)



Modulation Standard: 802.11an, HT40 (27Mbps)



Modulation Standard: 802.11ac, VHT80 (58.5Mbps)



8. 6dB Bandwidth

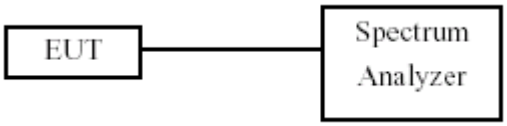
8.1. Test Limit

FCC §15.407
The minimum 6 dB bandwidth shall be at least 500 kHz.

8.2. Test Procedure

Reference to 789033 D02 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW set to100KHz, the VBW >= 3 x RBW, peak detector and max hold.

8.3. Test Setup Layout



8.4. Test Result and Data

Test Date: Aug. 22, 2015 Temperature: 25℃
Atmospheric pressure: 1020 hPa Humidity: 65%

802.11a mode in the 5.8G Band

Channel	Frequency (MHz)	Ant. A 6dB Bandwidth (MHz)	Ant. B 6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	16.5	16.5	0.5
Middle	5785	16.4	16.4	0.5
High	5825	16.5	16.5	0.5
Worst		16.5	16.5	

802.11n HT20 mode in the 5.8G Band

Channel	Frequency (MHz)	Ant. A 6dB Bandwidth (MHz)	Ant. B 6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	17.6	17.6	0.5
Middle	5785	17.6	17.6	0.5
High	5825	17.6	17.6	0.5
Worst		17.6	17.6	

802.11n HT40 mode in the 5.8G Band

Channel	Frequency (MHz)	Ant. A 6dB Bandwidth (MHz)	Ant. B 6dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	36.2	36.4	0.5
High	5795	36.0	36.4	0.5
Worst		36.2	36.4	

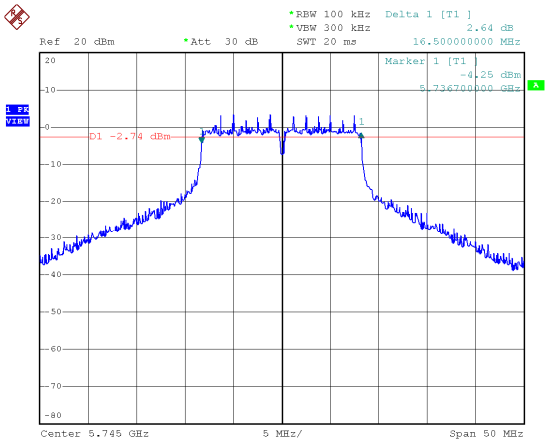
802.11ac VHT80 mode in the 5.8G Band

Channel	Frequency (MHz)	Ant. A 6dB Bandwidth (MHz)	Ant. B 6dB Bandwidth (MHz)	Minimum Limit (MHz)
Middle	5775	75.84	75.52	0.5
Worst		75.84	75.52	

Antenna A

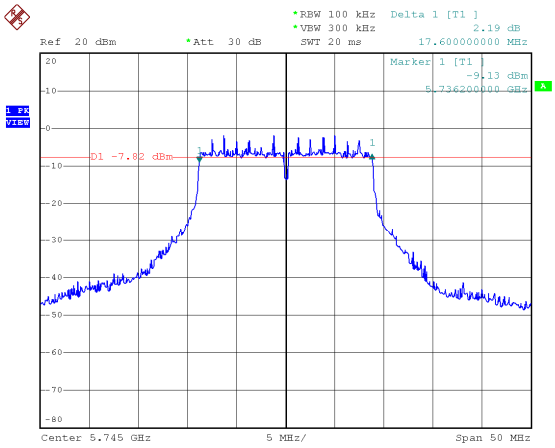
Modulation Standard: 802.11a (6Mbps)

CH149

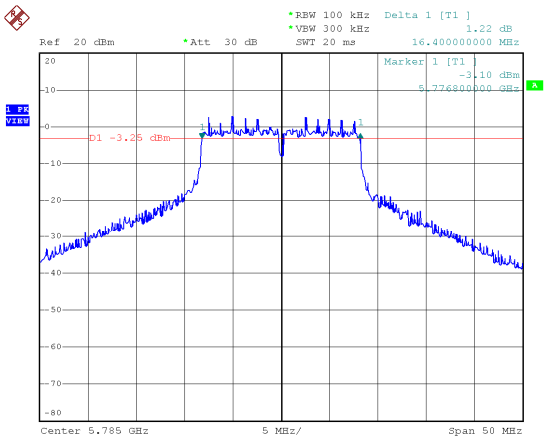


Modulation Standard: 802.11an, HT20 (13Mbps)

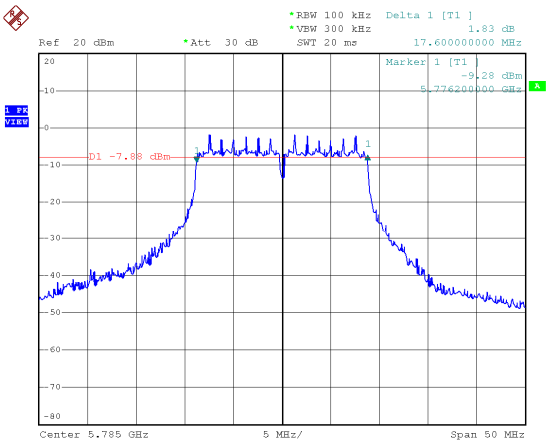
CH149



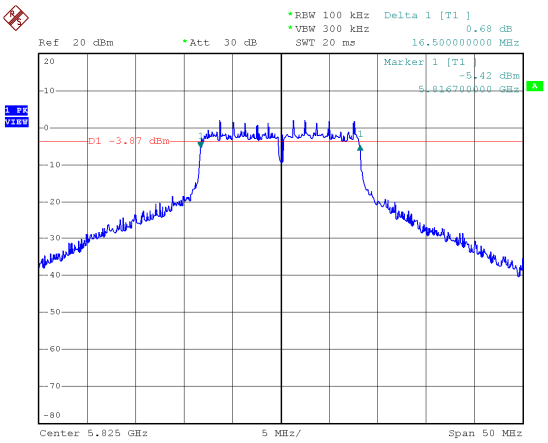
CH157



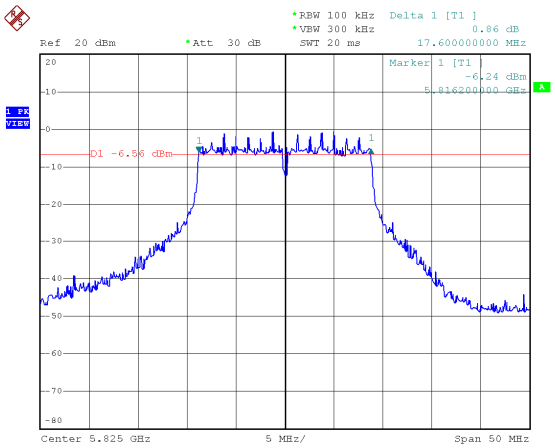
CH157



CH165



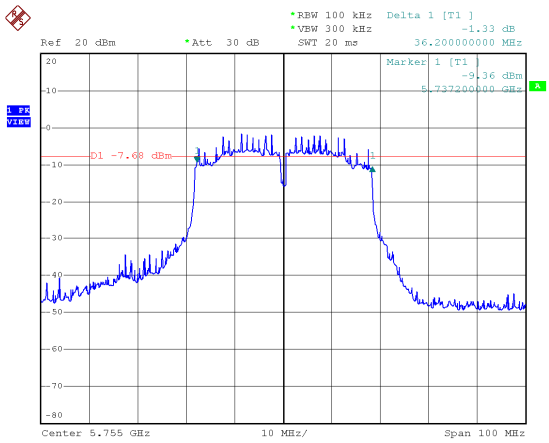
CH165



Antenna B:

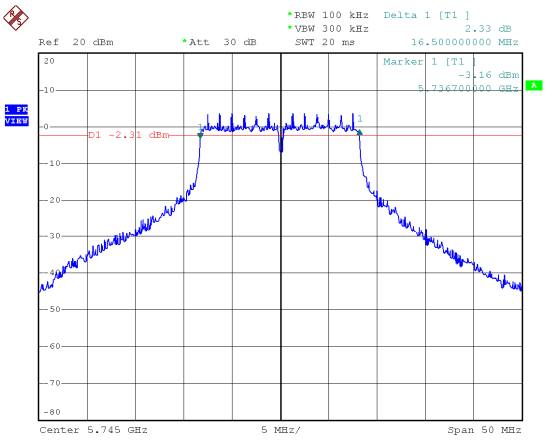
Modulation Standard: 802.11an, HT40 (27Mbps)

CH151

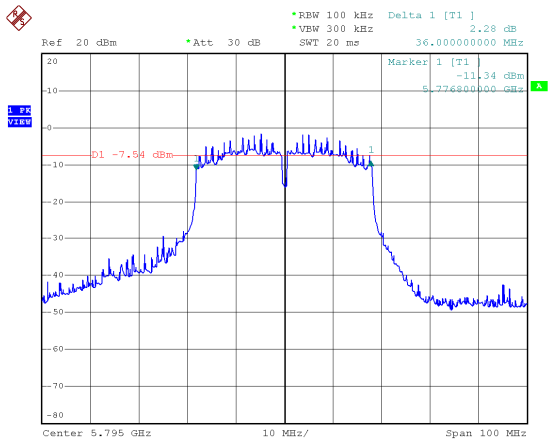


Modulation Standard: 802.11a (6Mbps)

CH149



CH159



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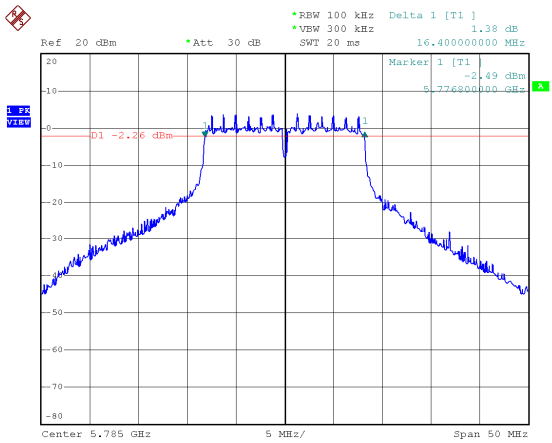
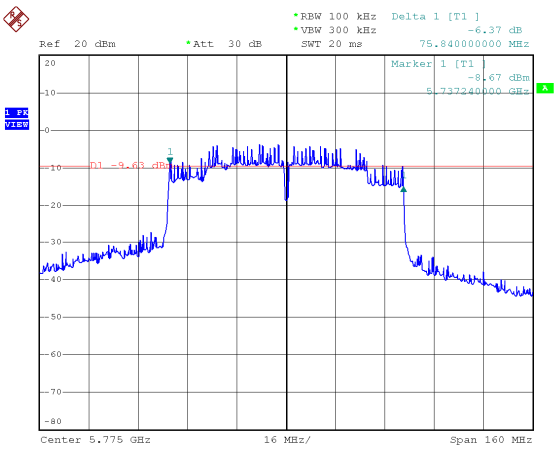
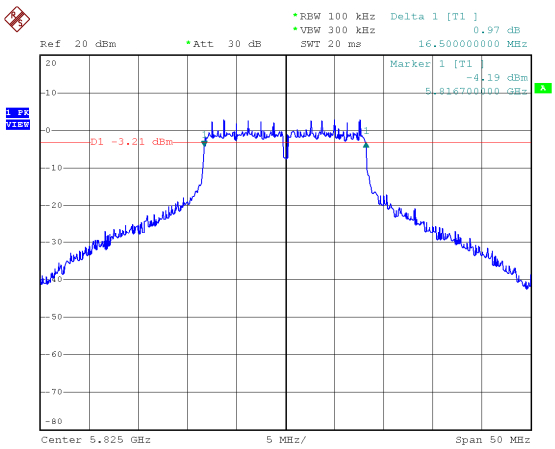


Modulation Standard: 802.11ac, VHT80 (58.5Mbps)

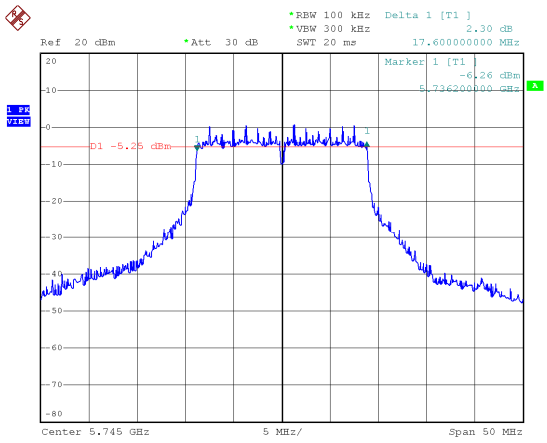
CH155



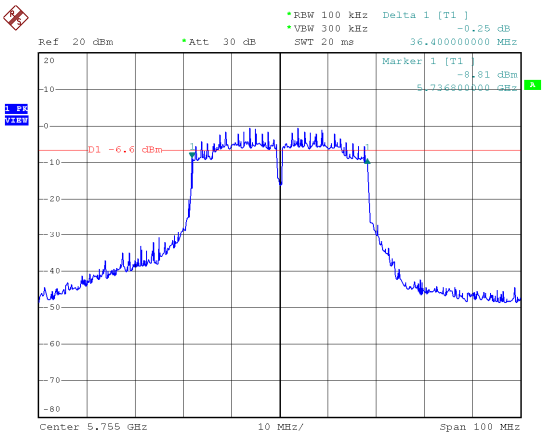
CH165



Modulation Standard: 802.11an, HT20 (13Mbps)
CH149



Modulation Standard: 802.11an, HT40 (27Mbps)
CH151



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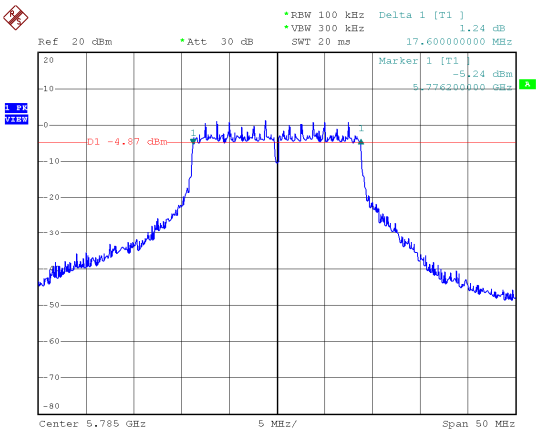
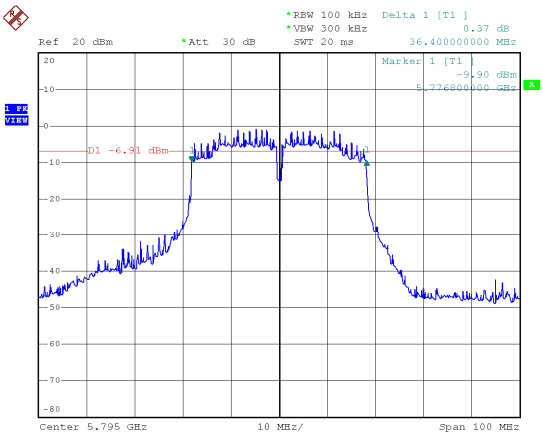
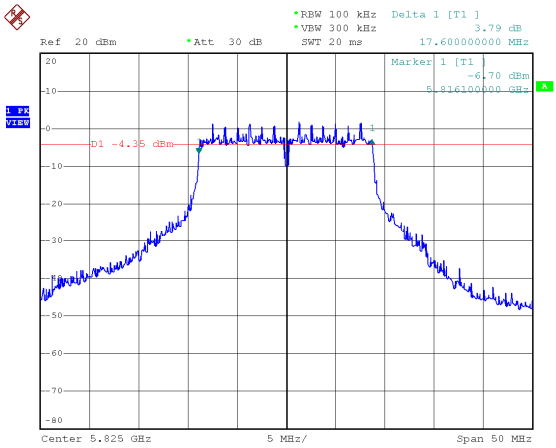


CH159

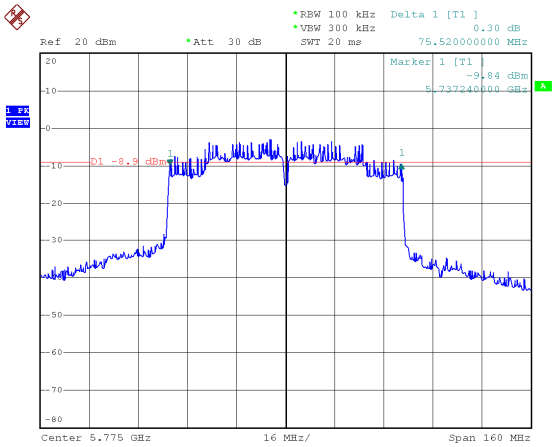


Modulation Standard: 802.11ac, VHT80 (58.5Mbps)

CH165



CH155



9. 26dB Bandwidth

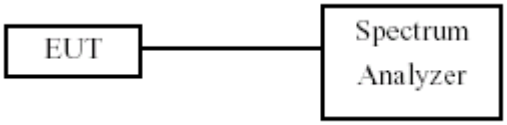
9.1. Test Limit

None; for reporting purposes only.

9.2. Test Procedure

Reference to 789033 D02 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW set to100KHz, the VBW >= 3 x RBW, peak detector and max hold.

9.3. Test Setup Layout



9.4. Test Result and Data

Test Date: Aug. 22, 2015 Temperature: 25℃

Atmospheric pressure: 1020 hPa Humidity: 65%

802.11a mode in the 5.2G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Low	5180	22.90	24.10
Middle	5220	34.40	23.90
High	5240	30.00	24.00
Worst		34.40	24.10

802.11n HT20 mode in the 5.2G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Low	5180	25.60	22.90
Middle	5220	24.20	23.60
High	5240	23.90	23.00
Worst		25.60	23.60

802.11n HT40 mode in the 5.2G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Low	5190	42.40	41.00
High	5230	41.20	41.00
Worst		42.40	41.00

802.11ac VHT80 mode in the 5.2G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Middle	5210	79.68	79.36
Worst		79.68	79.36

802.11a mode in the 5.3G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Low	5260	31.70	25.00
Middle	5300	31.70	25.90
High	5320	23.40	23.20
Worst		31.70	25.90

802.11n HT20 mode in the 5.3G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Low	5260	23.60	23.00
Middle	5300	23.80	23.30
High	5320	23.80	23.50
Worst		23.80	23.50

802.11n HT40 mode in the 5.3G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Low	5270	41.20	41.40
High	5310	41.20	40.80
Worst		41.20	41.40

802.11ac VHT80 mode in the 5.3G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Middle	5290	79.68	79.36
Worst		79.68	79.36

802.11a mode in the 5.5G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Low	5500	23.00	22.80
Middle	5580	29.20	28.60
High	5700	22.70	22.40
Worst		29.20	28.60

802.11n HT20 mode in the 5.5G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Low	5500	23.60	22.80
Middle	5580	23.10	23.60
High	5700	23.90	22.40
Worst		23.90	23.60

802.11n HT40 mode in the 5.5G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Low	5510	41.20	41.20
Middle	5550	41.40	41.60
High	5670	41.60	41.00
Worst		41.60	41.60

802.11ac VHT80 mode in the 5.5G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Middle	5530	79.68	79.36
Worst		79.68	79.36

802.11a mode in the 5.8G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Low	5745	18.80	17.40
Middle	5785	18.20	17.30
High	5825	19.00	18.80
Worst		19.00	18.80

802.11n HT20 mode in the 5.8G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Low	5745	18.20	18.10
Middle	5785	18.20	18.00
High	5825	18.20	18.10
Worst		18.20	18.10

802.11n HT40 mode in the 5.8G Band

Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Low	5755	36.00	36.00
High	5795	36.00	36.00
Worst		36.00	36.00

802.11ac VHT80 mode in the 5.8G Band

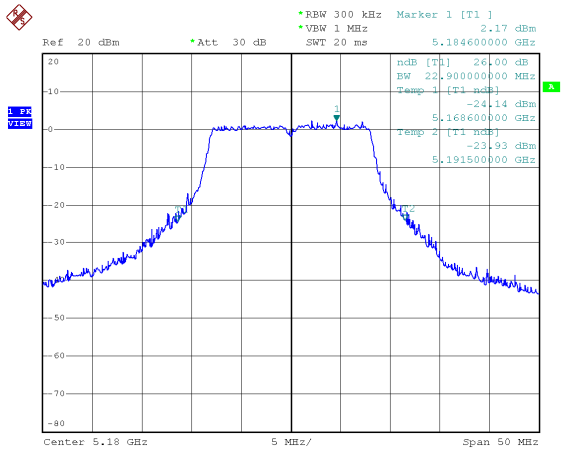
Channel	Frequency (MHz)	Ant. A 26dB Bandwidth (MHz)	Ant. B 26dB Bandwidth (MHz)
Middle	5775	75.52	75.52
Worst		75.52	75.52

5.2G Band:

Antenna A

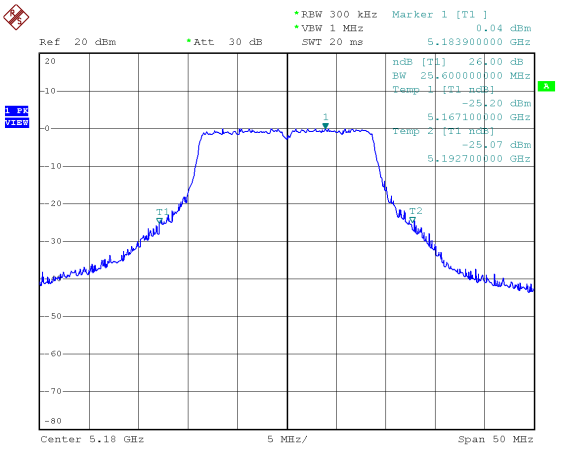
Modulation Standard: 802.11a (6Mbps)

CH36

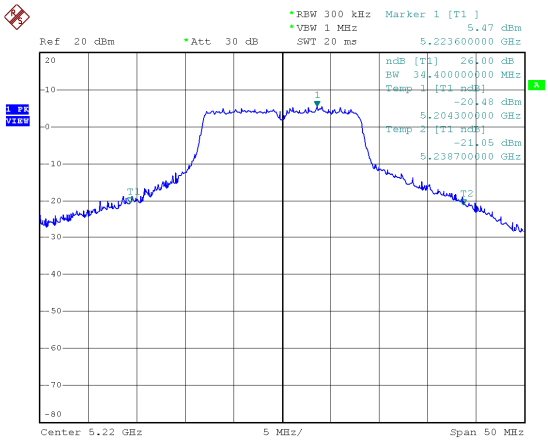


Modulation Standard: 802.11an HT20 (13Mbps)

CH36



CH44



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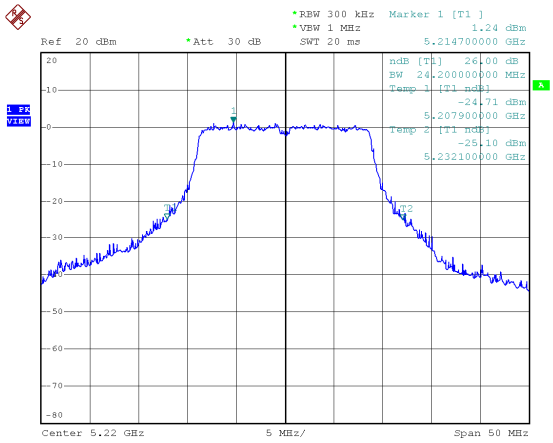
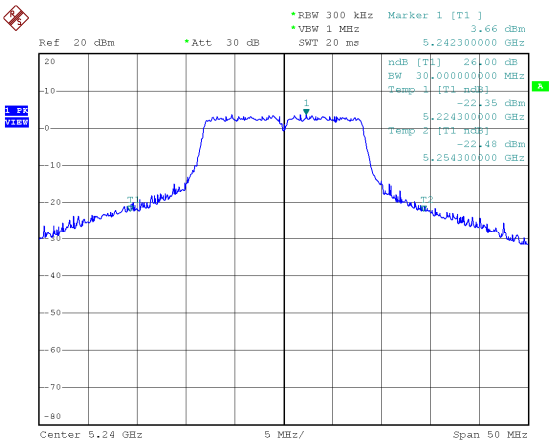
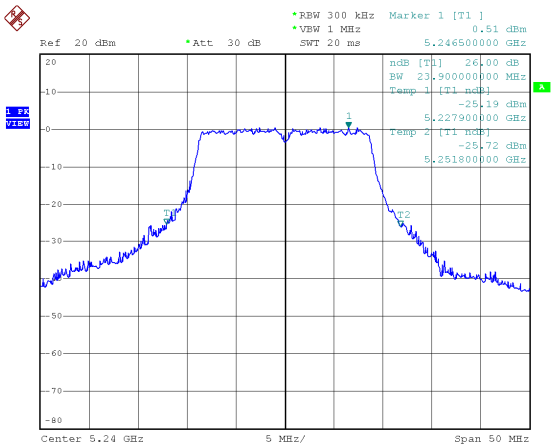


CH48



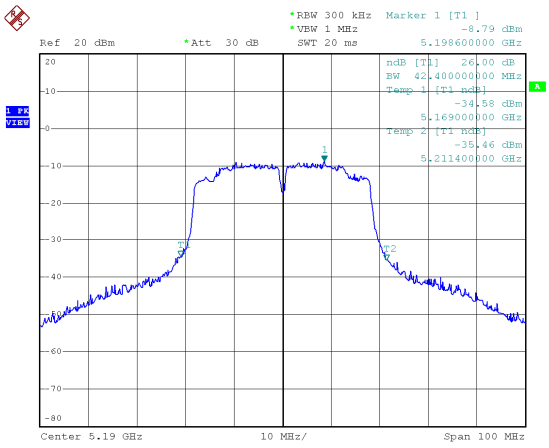
CH48



Antenna B:

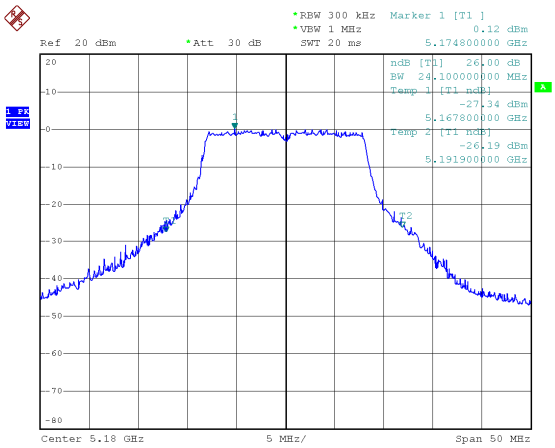
Modulation Standard: 802.11an HT40 (27Mbps)

CH38

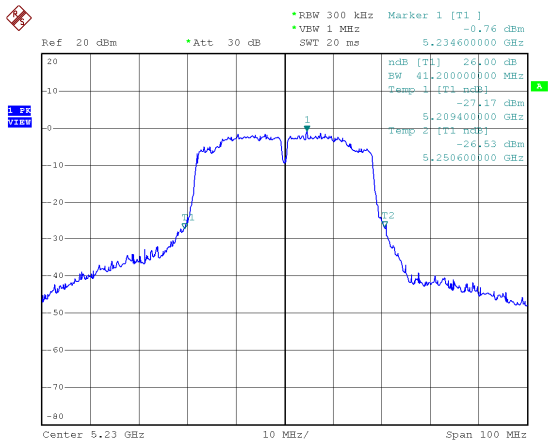


Modulation Standard: 802.11a (6Mbps)

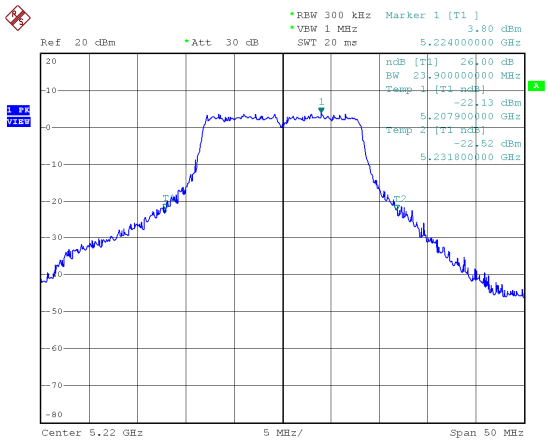
CH36



CH46

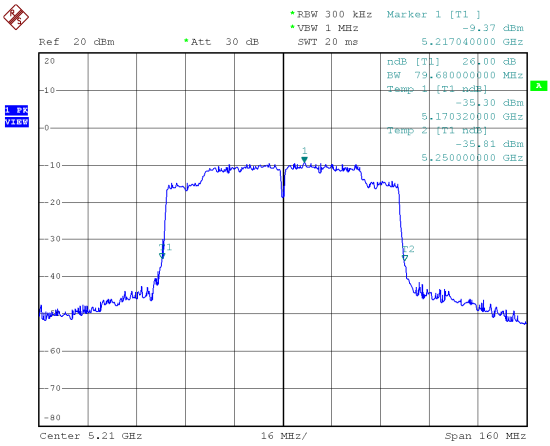


CH44

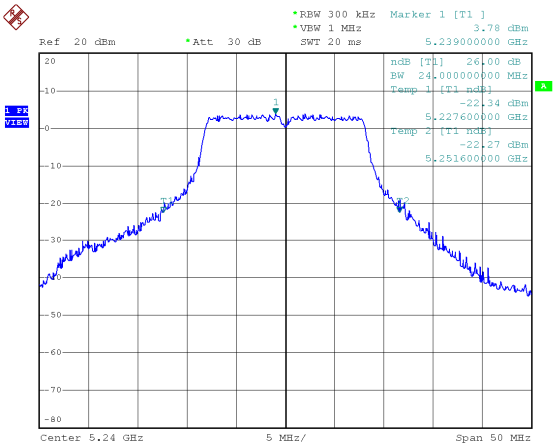


Modulation Standard: 802.11ac VHT80 (58.5Mbps)

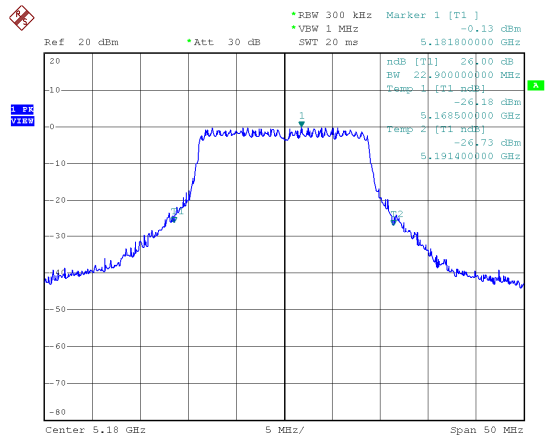
CH42



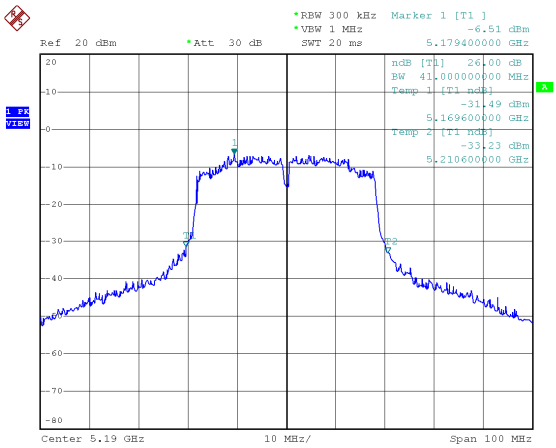
CH48



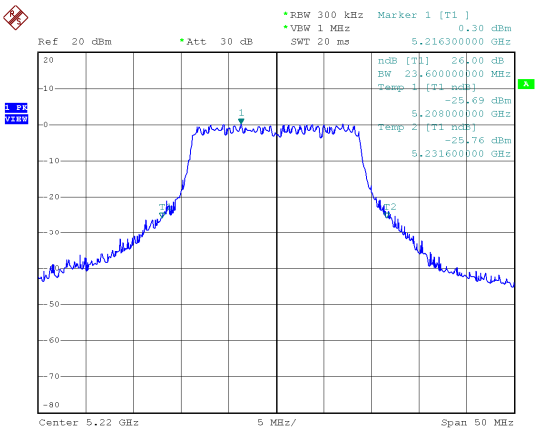
Modulation Standard: 802.11an HT20 (13Mbps)
CH36



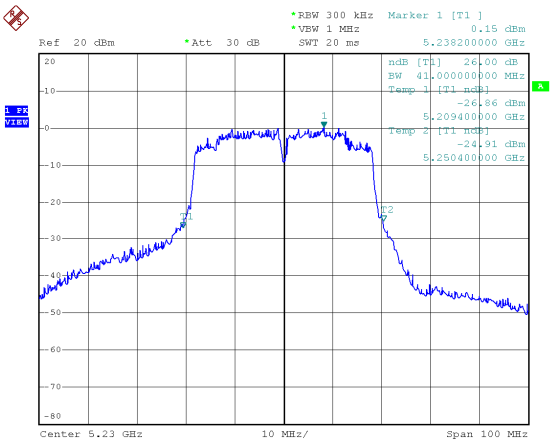
Modulation Standard: 802.11an HT40 (27Mbps)
CH38



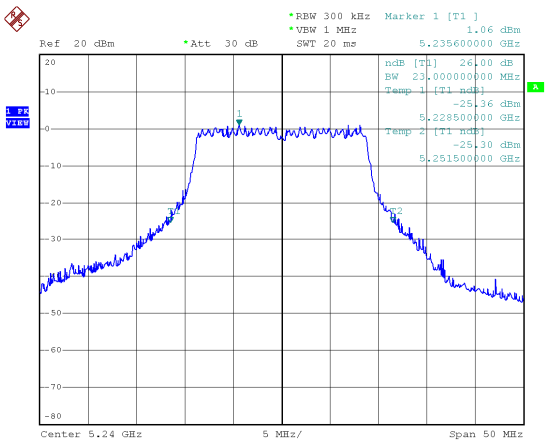
CH44



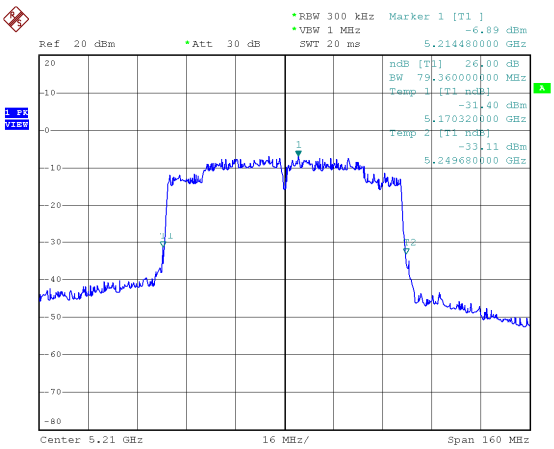
CH46



Modulation Standard: 802.11ac VHT80 (58.5Mbps)
CH48

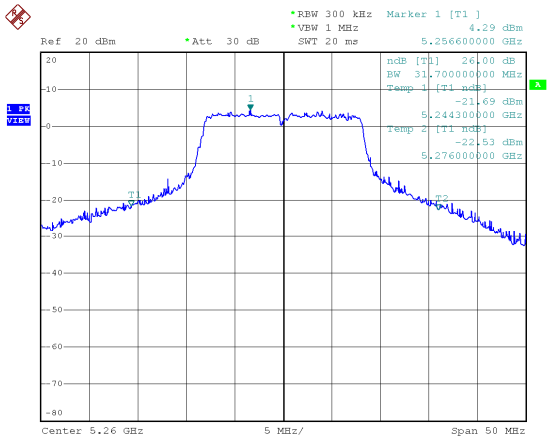


CH42

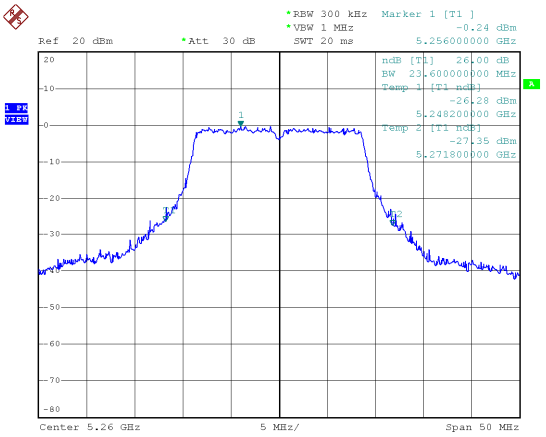


5.3G Band:
Antenna A

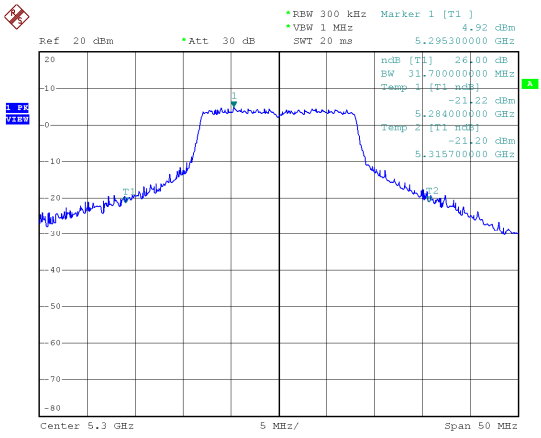
Modulation Standard: 802.11a (6Mbps)
CH52



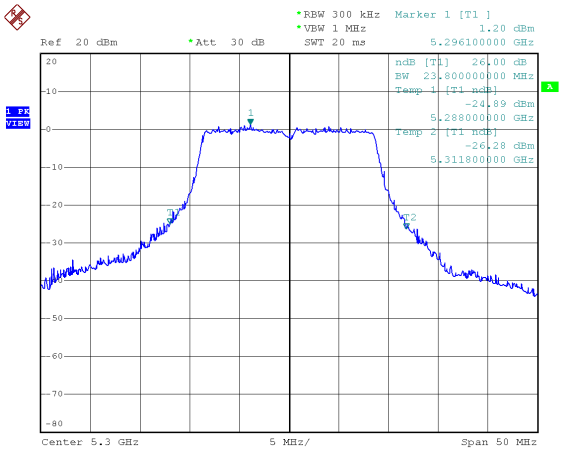
Modulation Standard: 802.11an HT20 (13Mbps)
CH52



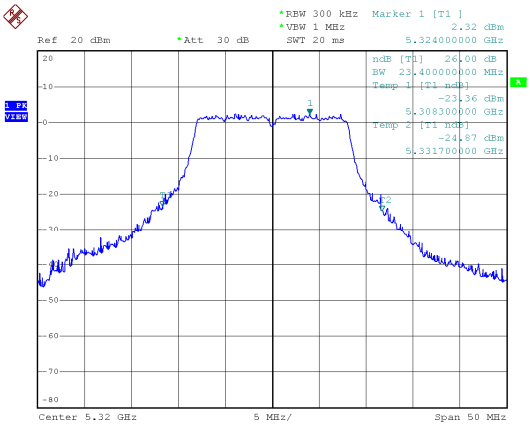
CH60



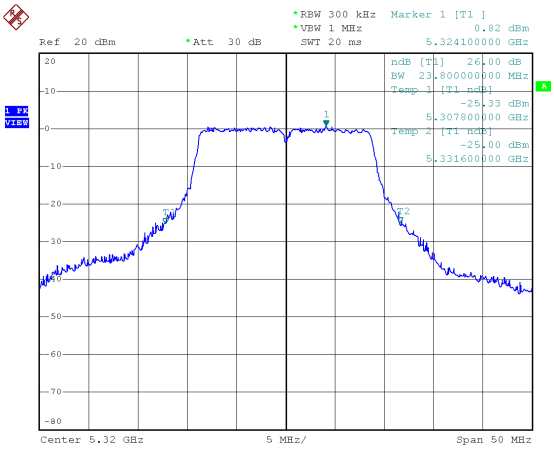
CH60



CH64



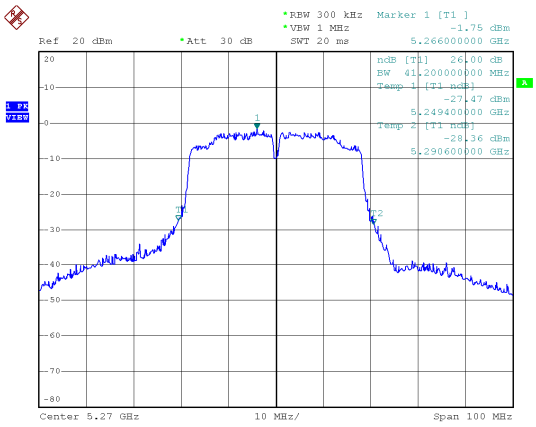
CH64



Antenna B:

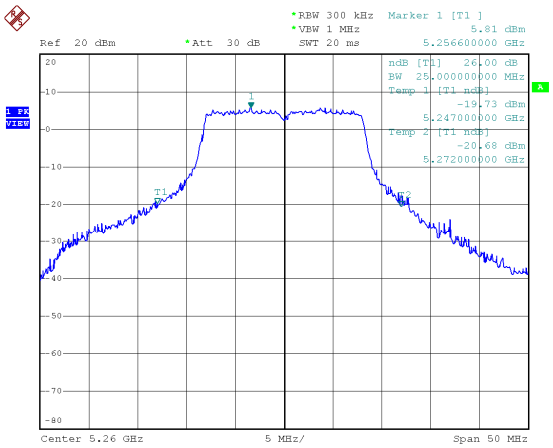
Modulation Standard: 802.11an HT40 (27Mbps)

CH54

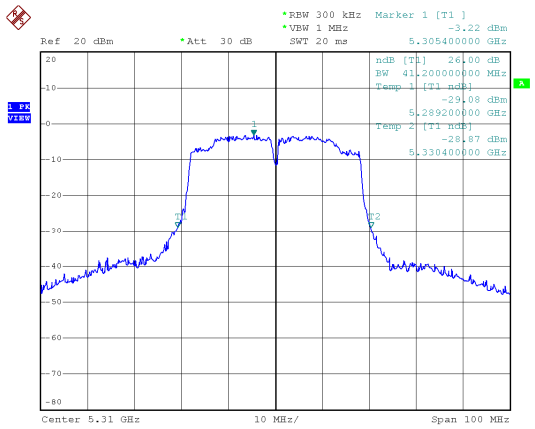


Modulation Standard: 802.11a (6Mbps)

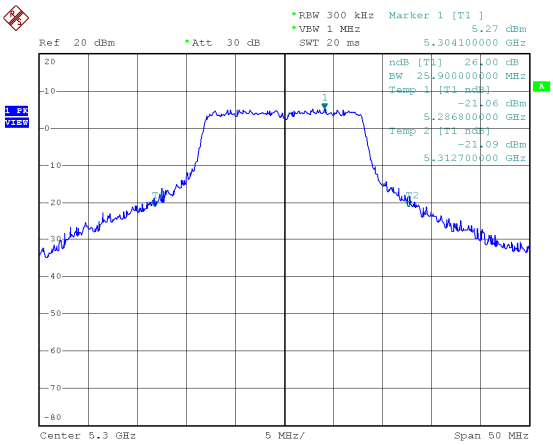
CH52



CH62

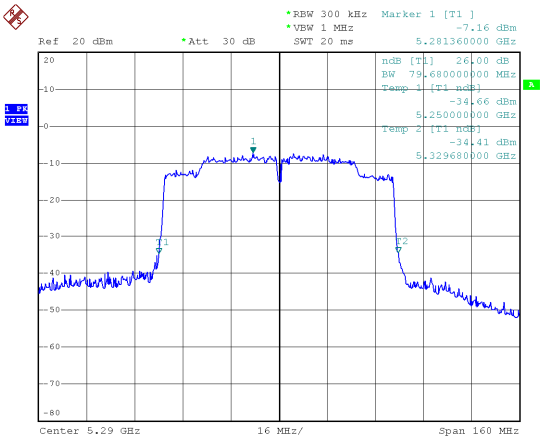


CH60

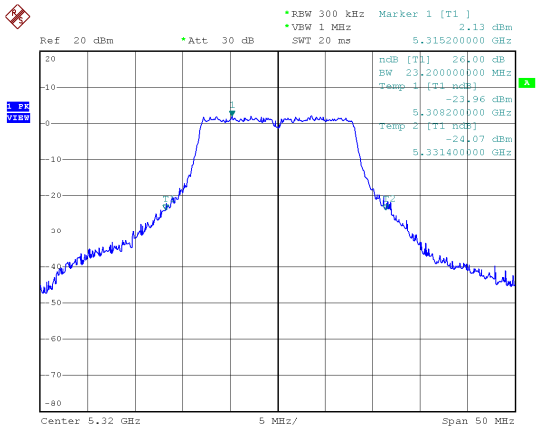


Modulation Standard: 802.11ac VHT80 (58.5Mbps)

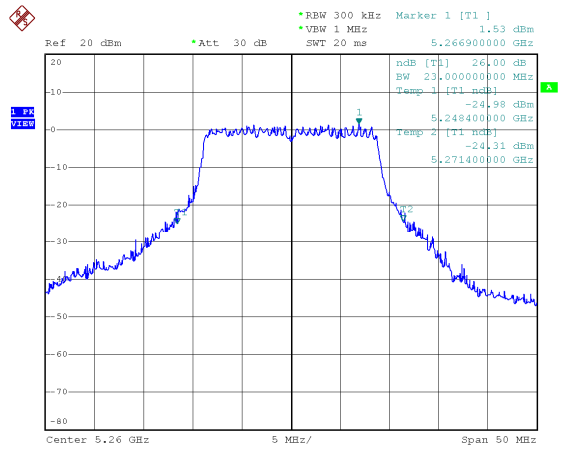
CH58



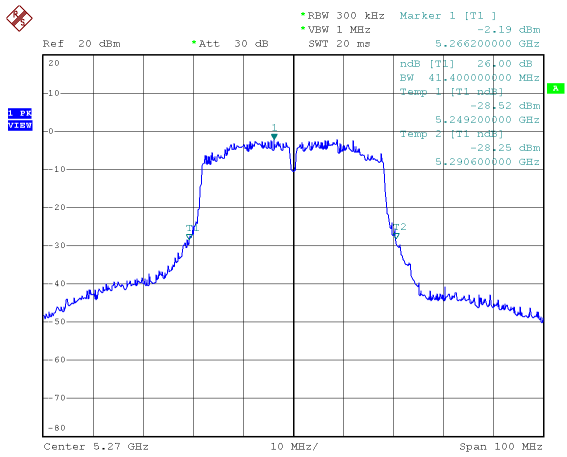
CH64



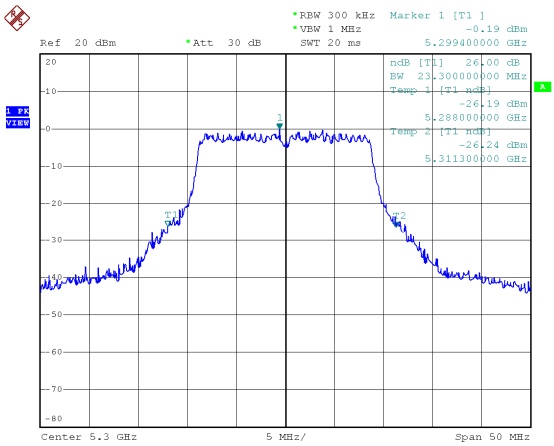
Modulation Standard: 802.11an HT20 (13Mbps)
CH52



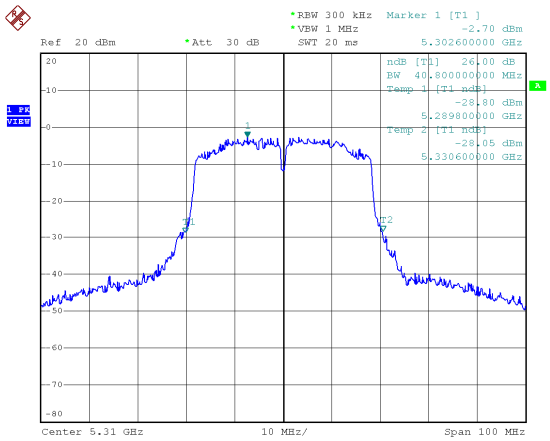
Modulation Standard: 802.11an HT40 (27Mbps)
CH54



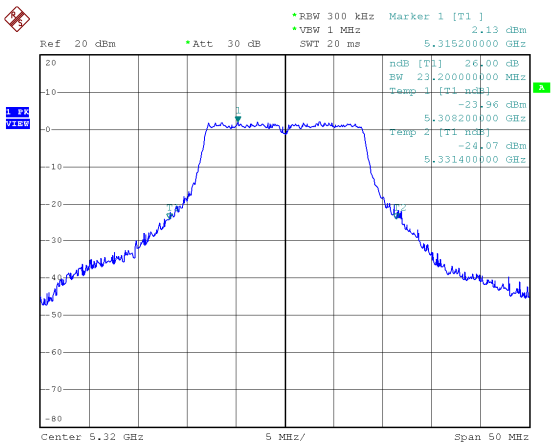
CH60



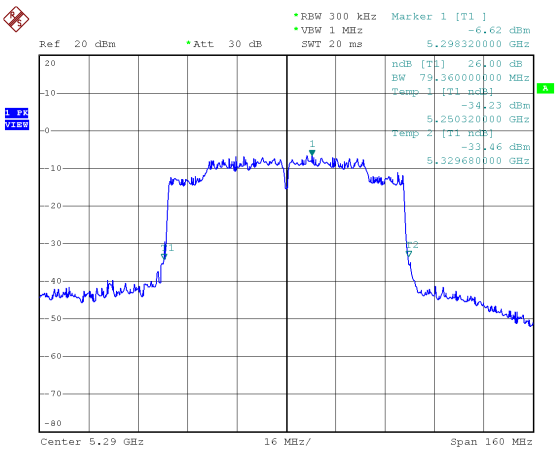
CH62



Modulation Standard: 802.11ac VHT80 (58.5Mbps)
CH64

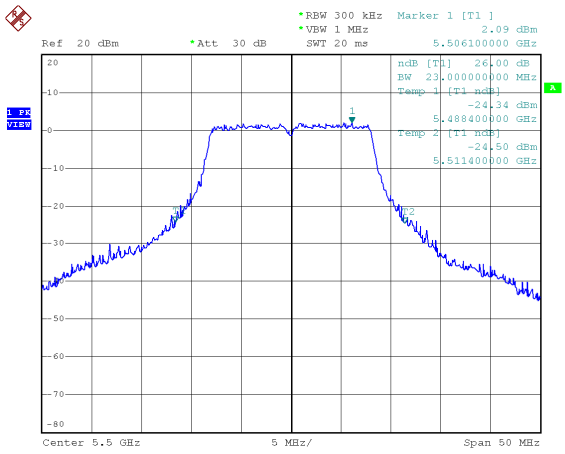


Modulation Standard: 802.11ac VHT80 (58.5Mbps)
CH58

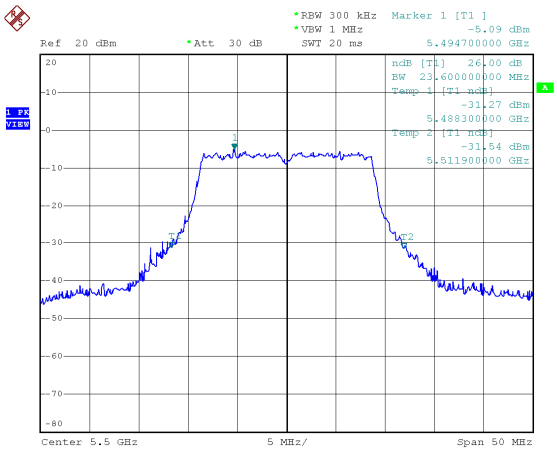


5.5G Band:
Antenna A

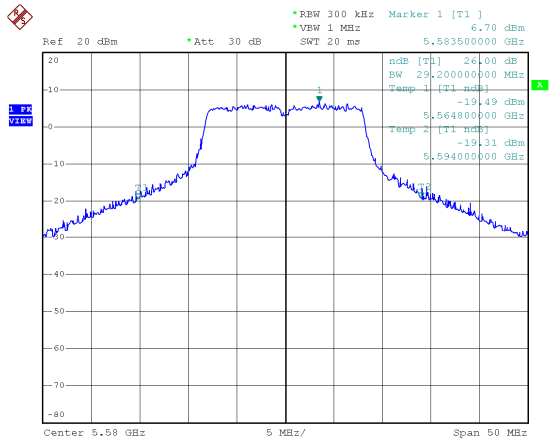
Modulation Standard: 802.11a (6Mbps)
CH100



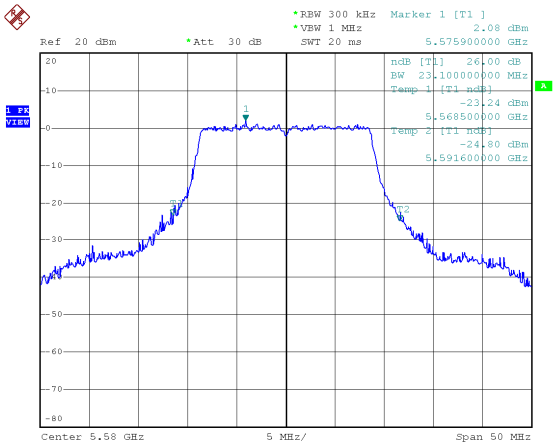
Modulation Standard: 802.11an HT20 (13Mbps)
CH100



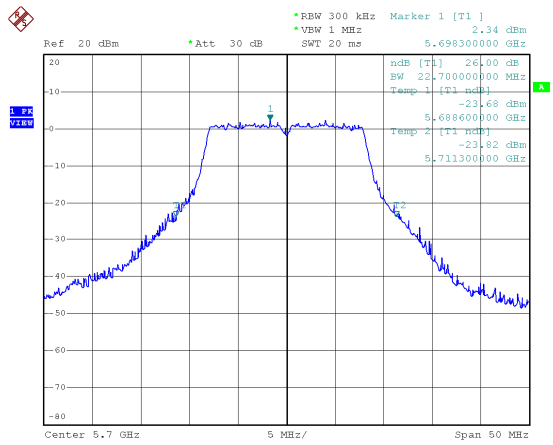
CH116



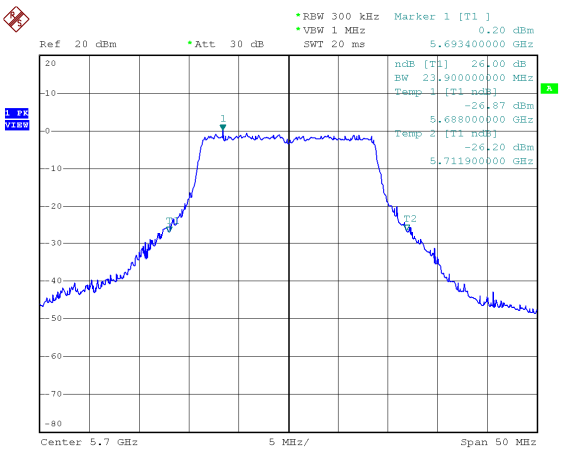
CH116



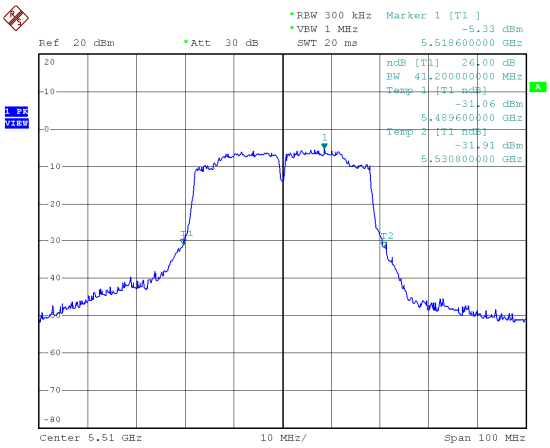
CH140



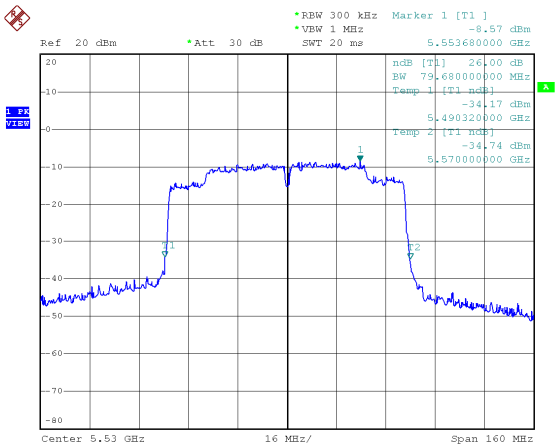
CH140



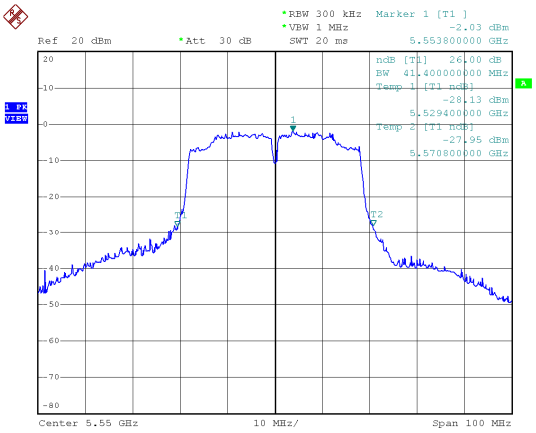
Modulation Standard: 802.11an HT40 (27Mbps)
CH102



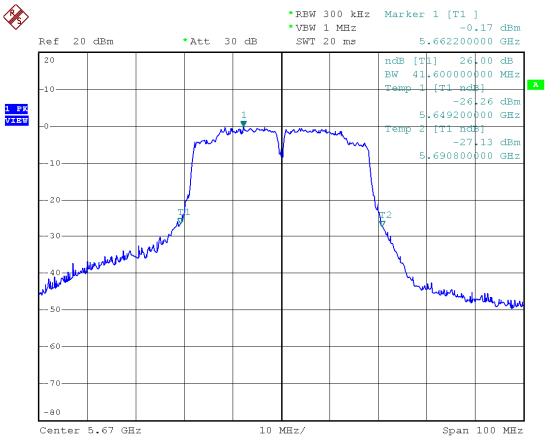
Modulation Standard: 802.11ac VHT80 (58.5Mbps)
CH106



CH110

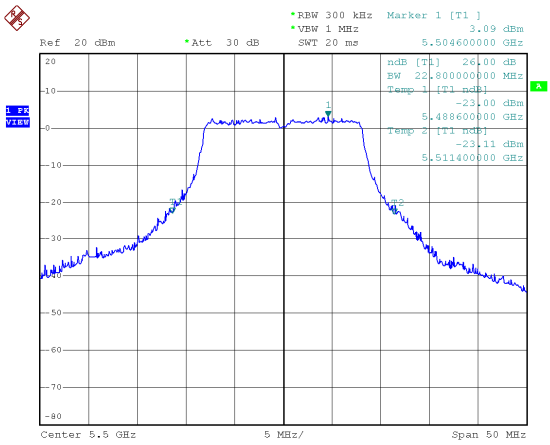


CH134

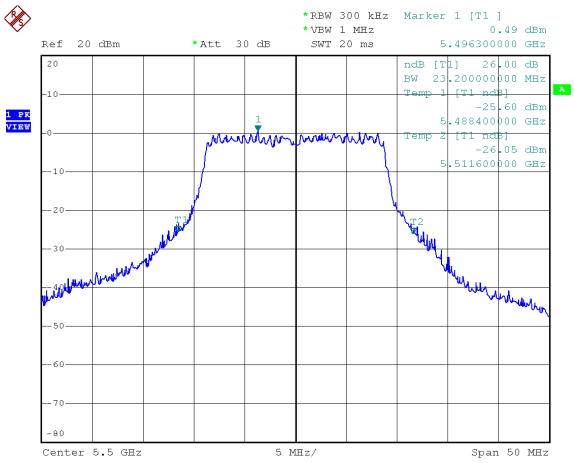


Antenna B

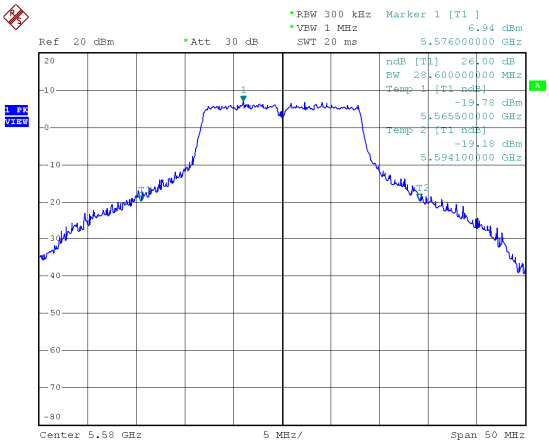
Modulation Standard: 802.11a (6Mbps)
CH100



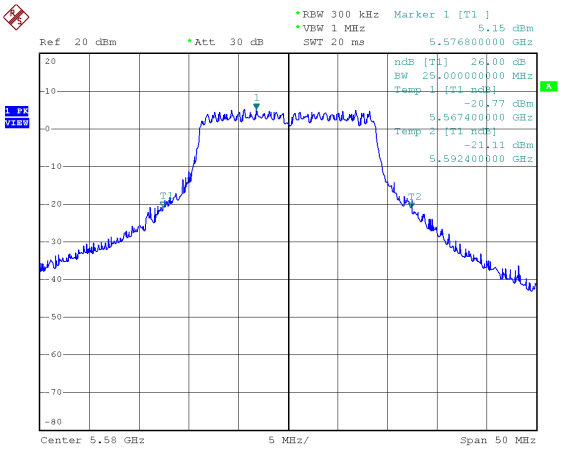
Modulation Standard: 802.11an HT20 (13Mbps)
CH100



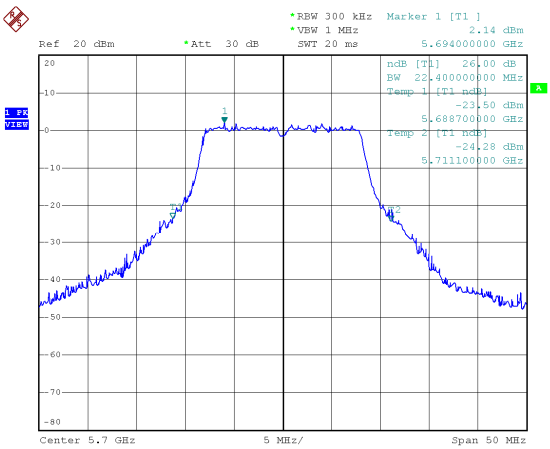
CH116



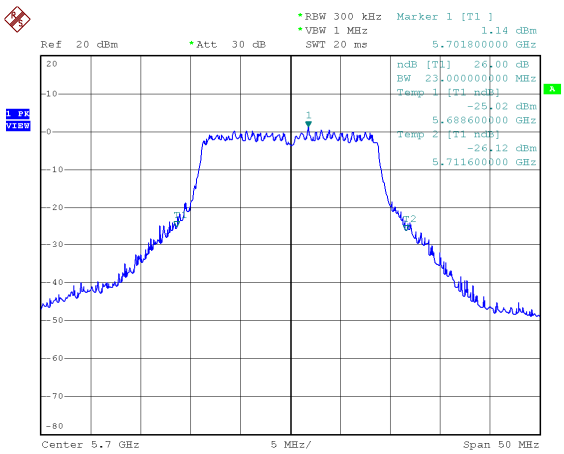
CH116



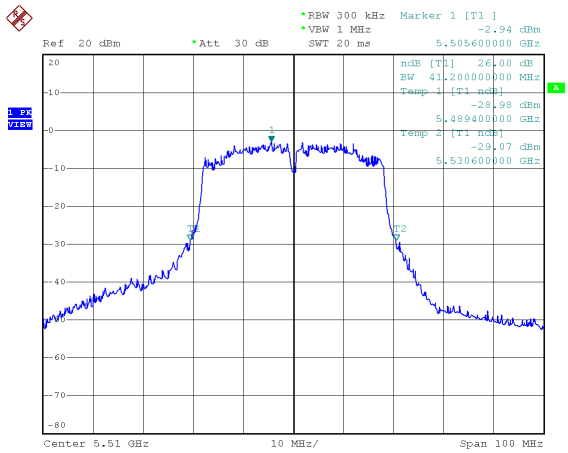
CH140



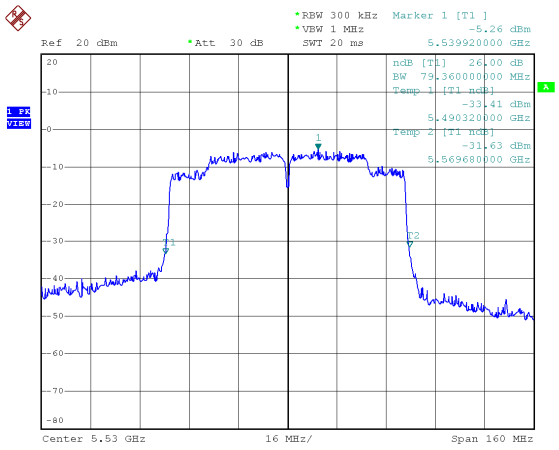
CH140



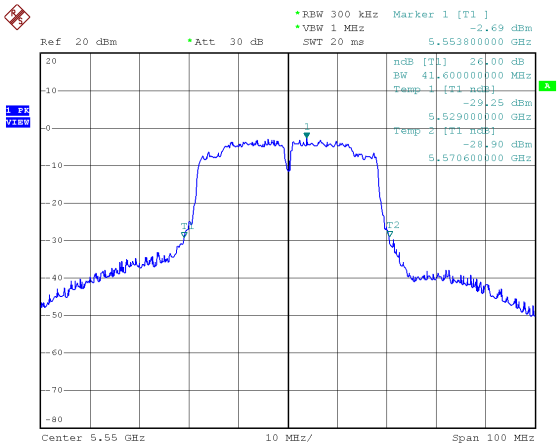
Modulation Standard: 802.11an HT40 (27Mbps)
CH102



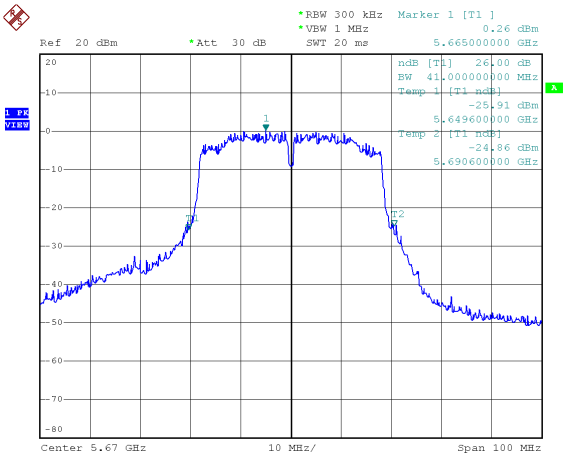
Modulation Standard: 802.11ac VHT80 (58.5Mbps)
CH106



CH110

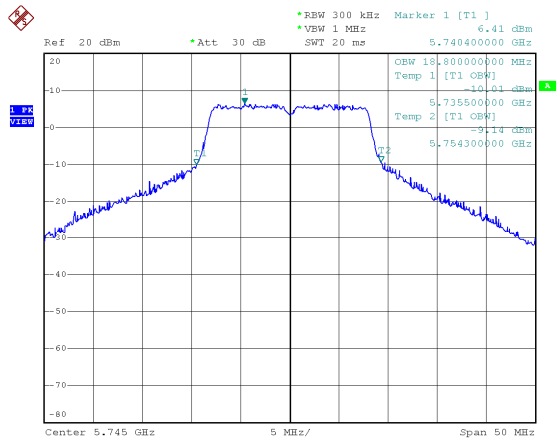


CH134

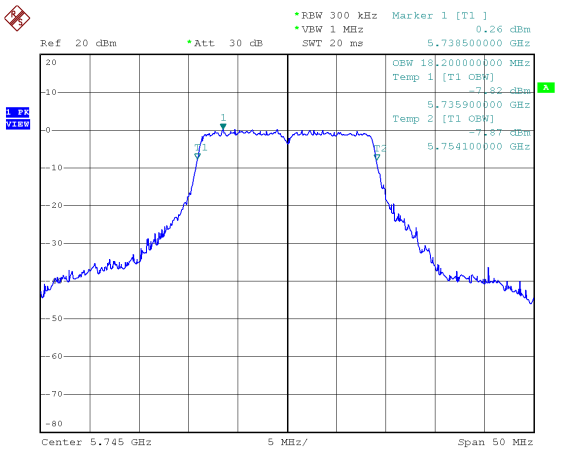


5.8G Band:
Antenna A

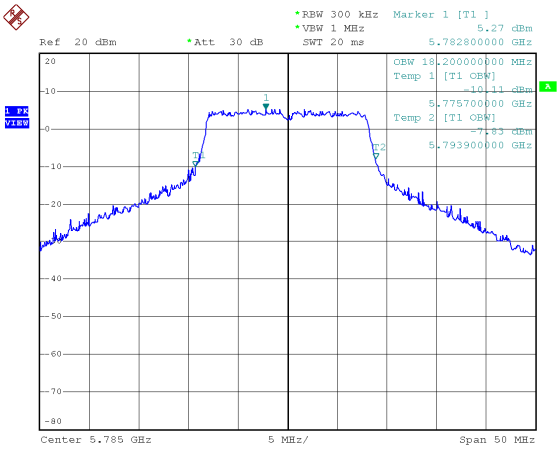
Modulation Standard: 802.11a (6Mbps)
CH149



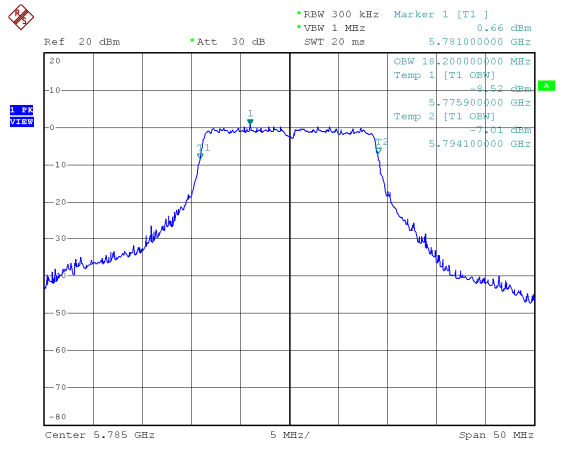
Modulation Standard: 802.11an HT20 (13Mbps)
CH149



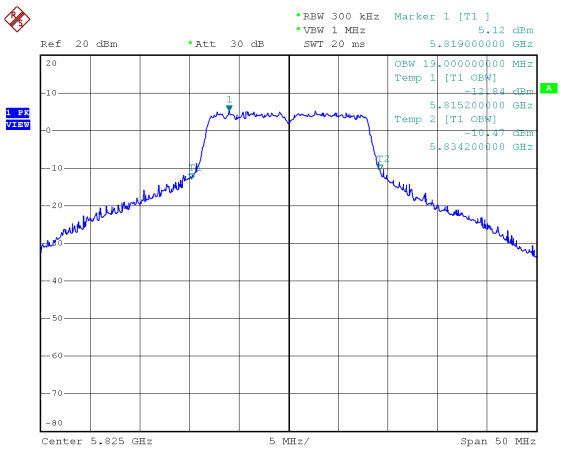
CH157



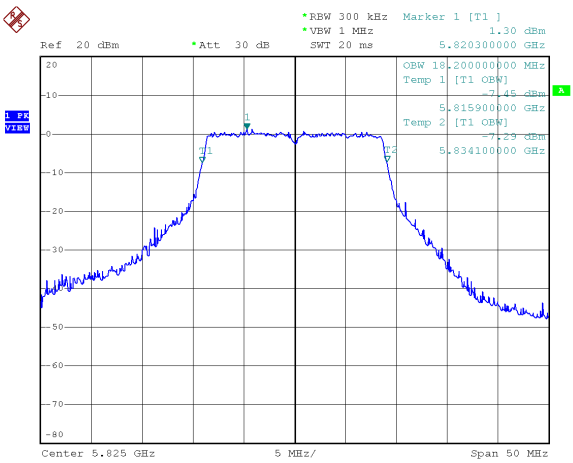
CH157



CH165



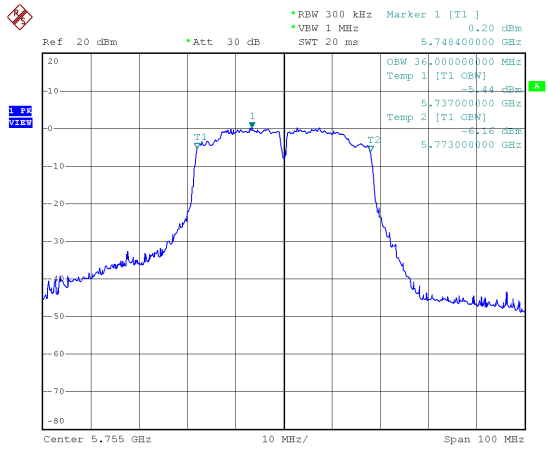
CH165



Antenna B:

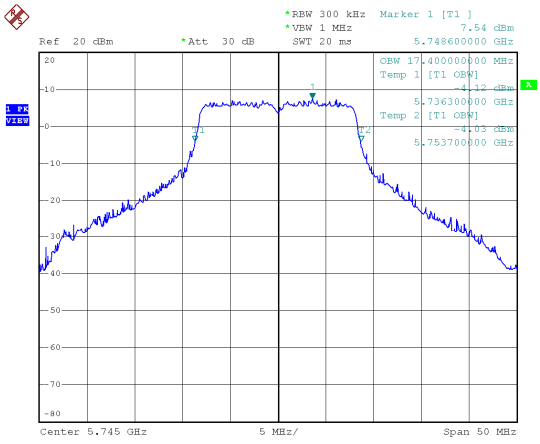
Modulation Standard: 802.11an HT40 (27Mbps)

CH151

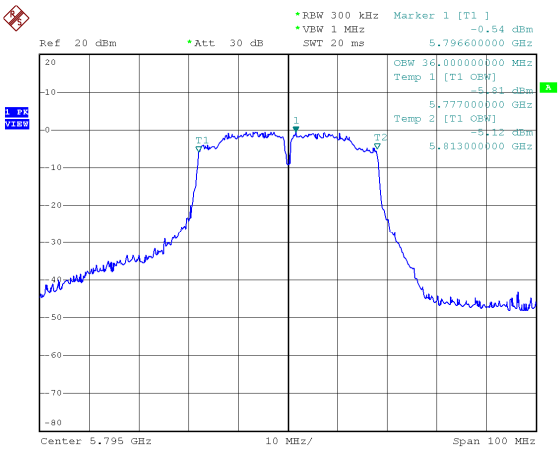


Modulation Standard: 802.11a (6Mbps)

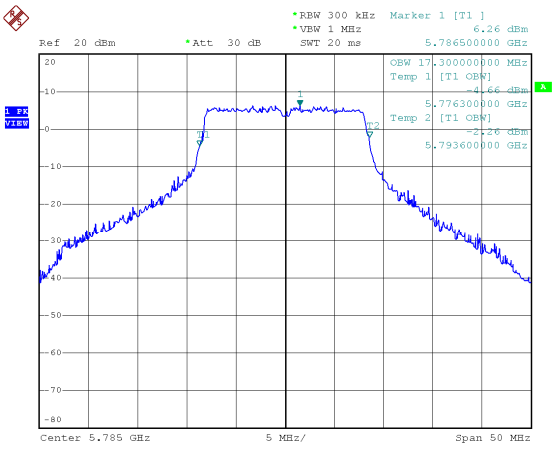
CH149



CH159

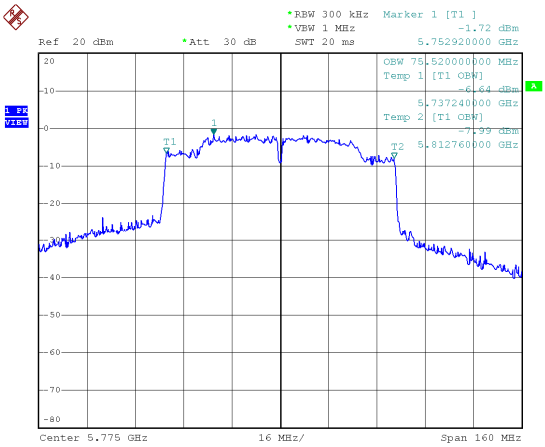


CH157

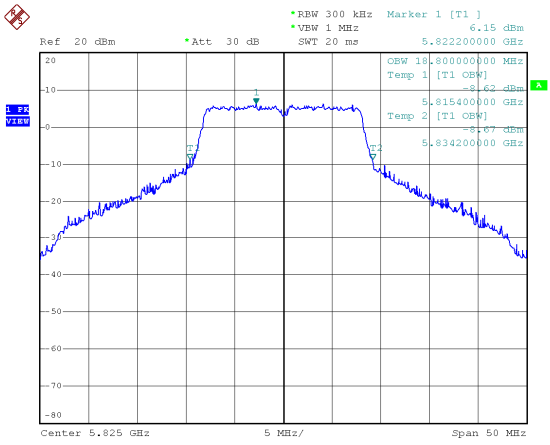


Modulation Standard: 802.11ac VHT80 (58.5Mbps)

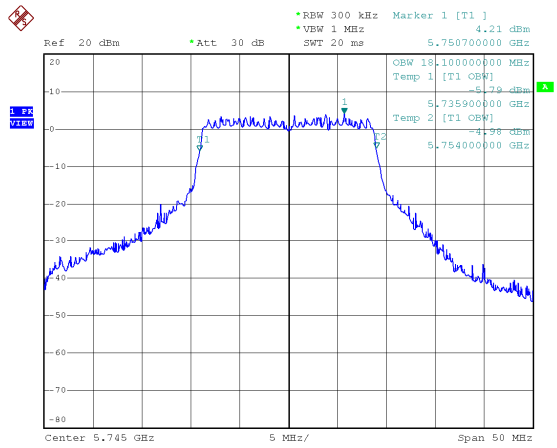
CH155



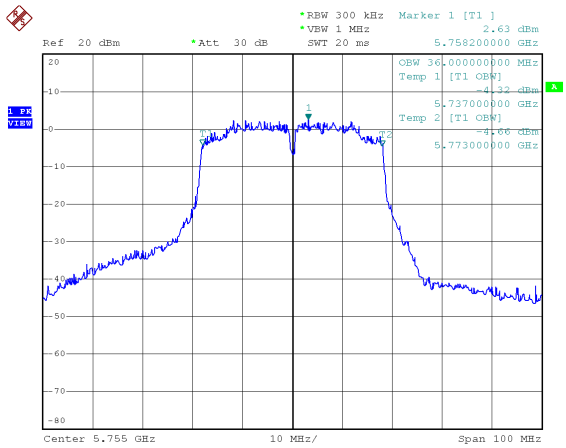
CH165



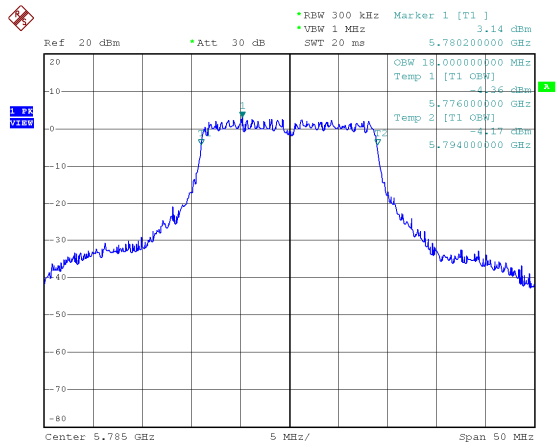
Modulation Standard: 802.11an HT20 (13Mbps)
CH149



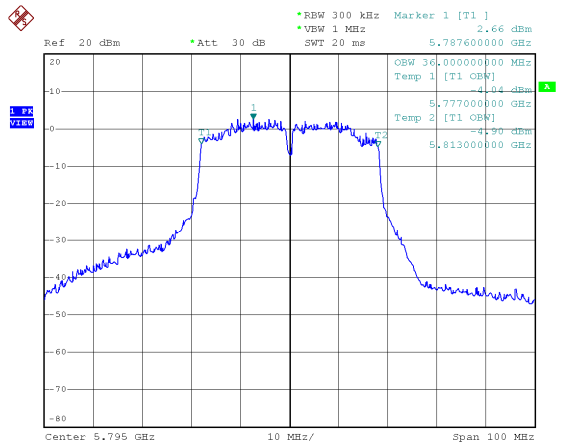
Modulation Standard: 802.11an HT40 (27Mbps)
CH151



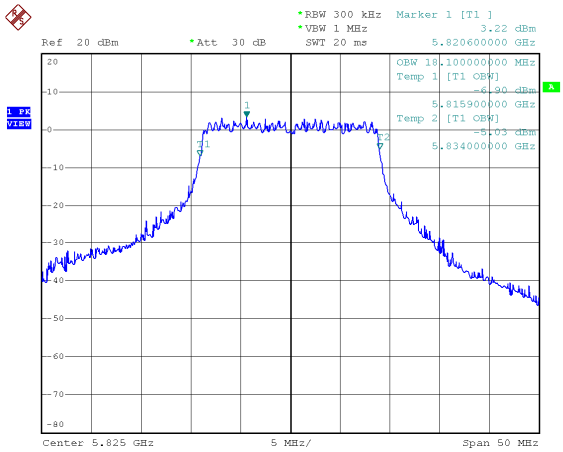
CH157



CH159



Modulation Standard: 802.11ac VHT80 (58.5Mbps)
CH165



CH155