AUDIX Technology Corp.
No. 53-11, Dingfu, Linkou, Dist.,
New Taipei City244, Taiwan
Tel: +886 2 26099301
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FCC 15.407 NII
5 GHz WLAN Report

for

LG Electronics Inc.

222 LG-ro Jinwi-myeon 451-713
Pyeongtaek-si,Gyeonggi-do 451-713, Korea

Brand	**:**	**LG**
Product Name	**:**	**Notebook Computer**
Model Name	**:**	**15Z970**
FCC ID	**:**	**BEJNT-18Z970**

Prepared by: **:** **AUDIX Technology Corporation, EMC Department**

Testing Laboratory
1724

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TEST REPORT CERTIFICATION

Applicant	:	LG Electronics Inc.
Factory	:	LG Electronics Nanjing New Technology Co., Ltd.
Product Name	:	Notebook Computer
Model No.	:	15Z970
Serial No.	:	N/A
Brand	:	LG

Applicable Standards:

47 CFR FCC Part 15 Subpart E:2016
ANSI C63.10:2013
789033 D02 General UNII Test Procedures New Rules v01r03

AUDIX Technology Corp. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report. ***AUDIX Technology Corp.*** does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens and samples.

Date of Test: 2016. 11. 07 ~ 24 Date of Report: 2016. 11. 24

Producer: Annie Yu
(Annie Yu/Administrator)

Signatory: Ben Cheng
(Ben Cheng/Manager)

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1. REPORT HISTORY

Revision	Date	Revision Summary	Report Number
0	2016. 11. 24	Original Report.	EM-F160753

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2. SUMMARY OF TEST RESULTS

Rule	Description	Results
15.207	Conducted Emission	**PASS**
15.247(d)/ 15.205	Radiated Band Edge and Radiated Spurious Emission	**PASS**
15.407(a)(5)/ 15.407(e)	Emission Bandwidth Measurement	**PASS**
15.407(a)	Maximum Output	**PASS**
15.407(b)	Conducted Band Edges and Conducted Spurious Emission	**PASS**
15.407(a)	Power Spectral Density	**PASS**
15.203	Antenna Requirement	**PASS**
Note: Due to update the standard, so it is unnecessary to re-test.		

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3. GENERAL INFORMATION

3.1. Description of EUT

<table>
<tr><td>Product</td><td>Notebook Computer</td></tr>
<tr><td>Model Number</td><td>15Z970</td></tr>
<tr><td>Serial Number</td><td>N/A</td></tr>
<tr><td>Brand Name</td><td>LG</td></tr>
<tr><td>Applicant</td><td>LG Electronics Inc.
222, LG-ro, Jinwi-myeon, Pyeongtaek-si, Gyeonggi-do
451-713 Korea</td></tr>
<tr><td>Factory</td><td>LG Electronics Nanjing New Technology Co., Ltd.
No.346,Yaoxin Road, Economic & Technical Development Zone, Nanjing, China.</td></tr>
<tr><td>RF Features</td><td>WLAN:802.11a/b/g/n/ac
Bluetooth: BT and BLE</td></tr>
<tr><td>Transmit Type</td><td>
<table>
<tr><th colspan="2">2.4 GHz</th></tr>
<tr><td>802.11b</td><td>1T1R</td></tr>
<tr><td>802.11g</td><td>1T1R</td></tr>
<tr><td>802.11n-HT20</td><td>2T2R</td></tr>
<tr><td>802.11n-HT40</td><td>2T2R</td></tr>
<tr><td>BT/BLE</td><td>1T1R</td></tr>
</table>
<table>
<tr><th colspan="2">UNII Bands</th></tr>
<tr><td>802.11a</td><td>1T1R</td></tr>
<tr><td>802.11n-HT20/
802.11ac-VHT20</td><td>2T2R</td></tr>
<tr><td>802.11n-HT40/
802.11ac-VHT40</td><td>2T2R</td></tr>
<tr><td>802.11ac-VHT80</td><td>2T2R</td></tr>
</table>
</td></tr>
<tr><td>Device Category</td><td>☐Outdoor Access Point
☐Fixed point-to-point Access Point
☐Indoor Access Point
■Mobile and Portable client device</td></tr>
<tr><td>Date of Receipt of Sample</td><td>2016. 11. 07</td></tr>
</table>

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3.2. Description of Key Component Lists

Item	Vendor	Model name	Description
System	Microsoft	Windows 10	---
Main Board	LGIT	13/14/15Z970 Main	---
	E&E	13/14/15Z970 Main	---
CPU (Socket: BGA1356)	Intel	i7-7500U	2.70GHz, up to 2.90GHz
	Intel	i5-7200U	2.50GHz, up to 2.71GHz
Memory	SAMSUNG	M471A1K43BB0-CPB	8GB DDR4 2133MHz
	SK hynix	HMA81GS6AFR8N-TF	8GB DDR4 2133MHz
LCD Panel	LG Display	LP156WFA-SPC1	Resolution: 1920 x 1080, 60Hz HDMI: 4K; (Including touch)
	LG Display	LP156WF8-SPA1	(Non touch)
Storage	SAMSUNG	MZNLN512HMJP (MZ-NLN512A)	512GB
	SK hynix	HFS512G39MND-3510A	512GB
Web Camera	Namuga	LC121 / LC119	1.00M/HD
WLAN Combo Card	Intel	8265D2W	802.11a/b/g/n/ac 2.4GHz/5GHz + BT 4.2 BLE FCC ID: PD98265D2 IC: 1000M-8265D2
Wireless LAN Antenna	LG (INPAQ)	WA-F-LBLB-04-049	FPCB Type Main: Black, Aux: Gray
Wireless LAN Board	E&E	15Z970 WLAN SUB	---
	HANNSTAR	15Z970 WLAN SUB	---
HDMI Board Note	LGIT / E&E	15Z970 HDMI SUB (TBT3 Model)	---
	E&E / HANNSTAR	15Z970 HDMI SUB (Non TBT3 Model)	---
Keyboard	LG	15Z970 KR HMB8154ELB13	---
	LG	15Z970 KR HMB8154ELB01	---
Touch Pad	LG	EBD62827901 FA167D-16H0	---
		EBD61685203 SA167D-26H5	---
Type C to LAN	LG	10/100 Megabit Ethernet	---
	Type C to LAN: Shielded, Undetached, 0.12m		

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Item	Vendor	Model name	Description
Battery Pack	LG	LBR1223E	60.06Wh, DC7.7V, 7800mAh
	LG	LBP7221E	34.61Wh, DC7.7V, 4495mAh
AC Adapter	LG (Lien Chang)	LCAP25B	I/P: AC 100-240V, 50-60Hz, 1.0A, O/P: DC 19V, 2.1A
	DC Power Cord: Non-Shielded, Undetached, 1.5m, Bonded a ferrite core AC Power Cord: Non-Shielded, Detached, 1.5m (2C)		

Remark: For more detailed features description, please refer to the manufacturer's specifications or the user manual.

Note: SKU: 15Z970-H for with TBT3 mode, 15Z970-G for non TBT3 mode.

3.3. EUT Specifications Assessed in Current Report

Mode	UNII Band	Fundamental Range (MHz)	Channel Number	Modulation	Data Rate (Mbps)
802.11a	I	5180-5240	4	OFDM Modulation (BPSK/QPSK/16QAM/64QAM)	Up to 54
	II-2A	5260-5320	4		
	II-2C	5500-5720	12		
	III	5745-5825	5		
802.11n-HT20/ 802.11ac-VHT20	I	5180-5240	4	OFDM Modulation (BPSK/QPSK/16QAM/64QAM)	MCS0~15
	II-2A	5260-5320	4		
	II-2C	5500-5720	12		
	III	5745-5825	5		
802.11n-HT40/ 802.11ac-VHT40	I	5190-5230	2	OFDM Modulation (BPSK/QPSK/16QAM/64QAM)	MCS0~15
	II-2A	5270-5310	2		
	II-2C	5510-5710	6		
	III	5755-5795	2		
802.11ac-VHT80	I	5210	1	OFDM Modulation (BPSK/QPSK/16QAM/64QAM)	MCS0~15
	II-2A	5290	1		
	II-2C	5530-5690	3		
	III	5775	1		
Remark: UNII Band II (DFS Function, Slave/no In service monitor, no Ad-Hoc mode)					

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Channel List					
802.11a/802.11n-HT20/802.11ac-VHT20					
UNII Band	Channel Number	Frequency (MHz)	UNII Band	Channel Number	Frequency (MHz)
I	36	5180	II-2C	120	5600
	40	5200		124	5620
	44	5220		128	5640
	48	5240		132	5660
II-2A	52	5260		136	5680
	56	5280		140	5700
	60	5300		144	5720
	64	5320	III	149	5745
II-2C	100	5500		153	5765
	104	5520		157	5785
	108	5540		161	5805
	112	5560		165	5825
	116	5580			

Channel List					
802.11n-HT40/802.11ac-VHT40					
UNII Band	Channel Number	Frequency (MHz)	UNII Band	Channel Number	Frequency (MHz)
I	38	5190	II-2C	118	5590
	46	5230		126	5630
II-2A	54	5270		134	5670
	62	5310		142	5710
II-2C	102	5510	III	151	5755
	110	5550		159	5795

Channel List					
802.11ac-VHT80					
UNII Band	Channel Number	Frequency (MHz)	UNII Band	Channel Number	Frequency (MHz)
I	42	5210	II-2C	138	5690
II-2A	58	5290	III	155	5775
II-2C	106	5530			
	122	5610			

Note 1: 80211n has similar modulation to 802.11ac at 20 MHz and 40 MHz bandwidths, we assess the worst case to be the representative mode in this report.
2: Test modes are presented at section 3.6.

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3.4. Antenna Information

2.4G Antenna					
No.	**Antenna Part Number**	**Manufacture**	**Antenna Type**	**Frequency (MHz)**	**Max Gain (dBi)**
1	WA-F-LBLB-04-049 (Main)	INPAQ	FPCB	2400	**2.53**
				2450	**3.82**
				2500	**3.49**
2	WA-F-LBLB-04-049 (AUX)			2400	**1.94**
				2450	**2.70**
				2500	**1.47**

5G Antenna					
No.	**Antenna Part Number**	**Manufacture**	**Antenna Type**	**Frequency (MHz)**	**Max Gain (dBi)**
1	WA-F-LBLB-04-049 (Main)	INPAQ	FPCB	5100	**2.61**
				5400	**1.48**
				5800	**4.59**
2	WA-F-LBLB-04-049 (AUX)			5100	**2.90**
				5400	**0.61**
				5800	**0.64**

3.5. Data Rate Relative to Output Power

802.11a				802.11n-HT20			
Channel	Modulation	Date Rate	Power (dBm)	Channel	Modulation	Date Rate	Power (dBm)
36	BPSK	6	16.97	36	BPSK	MCS8	14.96
36	QPSK	9	16.91	36	QPSK	MCS9	14.92
36	QPSK	12	16.84	36	QPSK	MCS10	14.89
36	16-QAM	18	16.79	36	16-QAM	MCS11	14.81
36	16-QAM	24	16.72	36	16-QAM	MCS12	14.75
36	64-QAM	36	16.65	36	64-QAM	MCS13	14.68
36	64-QAM	48	16.57	36	64-QAM	MCS14	14.64
36	64-QAM	54	16.51	36	64-QAM	MCS15	14.62

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802.11n-HT40				802.11ac-VHT80			
Channel	Modulation	Date Rate	Power (dBm)	Channel	Modulation	Date Rate	Power (dBm)
38	BPSK	MCS8	12.59	38	BPSK	MCS8	10.90
38	QPSK	MCS9	12.53	38	QPSK	MCS9	10.83
38	QPSK	MCS10	12.48	38	QPSK	MCS10	10.79
38	16-QAM	MCS11	12.37	38	16-QAM	MCS11	10.74
38	16-QAM	MCS12	12.34	38	16-QAM	MCS12	10.70
38	64-QAM	MCS13	12.22	38	64-QAM	MCS13	10.58
38	64-QAM	MCS14	12.18	38	64-QAM	MCS14	10.52
38	64-QAM	MCS15	12.11	38	64-QAM	MCS15	10.45

Note: Above results are assessed in average power.

3.6. Test Configuration

Mode	Duty Cycle (x)	T (ms)	Duty Cycle Factor (dB)
802.11a	1.00	2.050	0.00
802.11n-HT20/802.11ac-VHT20	0.97	0.975	0.13
802.11n-HT40/802.11ac-VHT40	0.94	0.494	0.27
802.11ac-VHT80	0.66	0.663	1.80

Note: When duty cycle is less than 98% (0.98) that duty cycle factor 10log(1/x) is needed to add in conducted test items measured in average detector.

AC Conduction	
Test Case	Normal operation

Item		Mode	Data Rate	Test Channel
Radiated Test Case	Radiated Band Edge Note1	802.11a	6 Mbps	36/64/100/140
		802.11n-HT20	MCS8	36/64/100/140
		802.11n-HT40	MCS8	38/62/102/134
		802.11ac-VHT80	MCS8	42/58/106/122
	Radiated Spurious Emission Note1 & 2	802.11a	6 Mbps	40/52/120/144/157
		802.11n-HT20	MCS8	40/52/120/144/157
		802.11n-HT40	MCS8	46/54/118/142/159
		802.11ac-VHT80	MCS8	42/58/122/138/155

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Item		Mode	Data Rate	Test Channel
Conducted Test Case	Emission Bandwidth	802.11a	6 Mbps	36/40/48/52/60/64 100/120/140/144/149/157/165
		802.11n-HT20	MCS8	36/40/48/52/60/64 100/120/140/144/149/157/165
		802.11n-HT40	MCS8	38/46/54/62/102 118/134/142/151/159
		802.11ac-VHT80	MCS8	42/58/106/122/138/155
	Maximum output power	802.11a	6 Mbps	36/40/48/52/60/64 100/120/140/144/149/157/165
		802.11n-HT20	MCS8	36/40/48/52/60/64 100/120/140/144/149/157/165
		802.11n-HT40	MCS8	38/46/54/62/102 118/134/142/151/159
		802.11ac-VHT80	MCS8	42/58/106/122/138/155
	Emission Limitations	802.11a	6 Mbps	36/40/48/52/60/64 100/120/140/144/149/157/165
		802.11n-HT20	MCS8	36/40/48/52/60/64 100/120/140/144/149/157/165
		802.11n-HT40	MCS8	38/46/54/62/102 118/134/142/151/159
		802.11ac-VHT80	MCS8	42/58/106/122/138/155
Conducted Test Case	Power spectral density	802.11a	6 Mbps	36/40/48/52/60/64 100/120/140/144/149/157/165
		802.11n-HT20	MCS8	36/40/48/52/60/64 100/120/140/144/149/157/165
		802.11n-HT40	MCS8	38/46/54/62/102 118/134/142/151/159
		802.11ac-VHT80	MCS8	42/58/106/122/138/155

Note 1:

■Mobile Device

□Portable Device, and 3 axis were assessed. The worst scenario for Radiated Spurious Emission as follow:

- □ Lie
- □ Side
- □ Stand

Note 2: Low, mid, and high channels were measured, only the worst channel of each modulation was presented in this report.

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3.7. Tested Supporting System List

3.7.1. Support Peripheral Unit

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	SD Card	ADATA	N/A	N/A	N/A
2.	Earphone	APPLE	N/A	N/A	N/A
3.	LCD Monitor	VIEWSONIC	VP2780-4K	U8K153600277	N/A
4.	External HDD #1	SONY	HD-E1	3GDL0T155151 A12	N/A
5.	External HDD #2	SONY	HD-E1	3GDL0T155150 A14	N/A
6.	USB Mouse	DELL	MS111-T	CN-0KW2YH-7 1616-282-0XYP	N/A
7.	Earphone	HTC	Max300	N/A	N/A
8.	USB Mouse	ASUS	N6-mimi	N/A	N/A
9.	LCD TV	LG	22LK330-DB	N/A	N/A
10.	USB Storage	Transcend	N/A	N/A	N/A

3.7.2. Cable Lists

No.	Cable Description Of The Above Support Units
1.	N/A
2.	Earphone Cable: Unshielded, Detachable, 0.9m
3.	HDMI Cable: Shielded, Detachable, 1.8m
4.	USB Cable: Shielded, Detachable, 0.5m
5.	USB Cable: Shielded, Detachable, 0.5m
6.	USB Cable: Shielded, Detachable, 1.8m
7	Earphone Cable: Unshielded, Detachable, 1.5m
8.	USB Cable: Shielded, Detachable, 1.5m
9.	Power Cord: Shielded, Detachable, 1.5m HDMI Cable: Shielded, Detachable, 1.5m
10.	N/A

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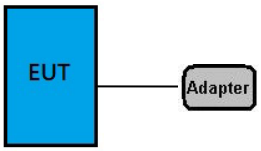
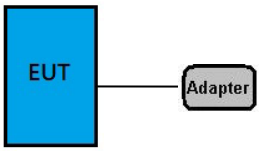
3.8. Setup Configuration

3.8.1. EUT Configuration for Power Line Emission



3.8.2. EUT Configuration for Conducted Test Items



3.9. Operating Condition of EUT

Test program "DRTU" is used for enabling EUT WLAN function under continues transmitting and choosing data rate/ channel.

3.10. Description of Test Facility

Test Firm Name	:	**AUDIX Technology Corporation** **EMC Department** No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan
Test Location & Facility	:	**No. 7 Shielded Room** No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan **Semi-Anechoic Chamber** No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan IC Test Site Registration No.: 5183B-1 Renewal on September 17, 2014 **FullyAnechoic Chamber** No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan IC Test Site Registration No.: 5183B-4 Renewal on August 31, 2015
NVLAP Lab. Code	:	200077-0
TAF Accreditation No	:	1724
FCC OET Designation	:	TW1004 & TW1090

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3.11.Measurement Uncertainty

Test Item	Frequency Range	Uncertainty
Conduction Test	150kHz~30MHz	±3.5dB
Radiation Test (Distance: 3m)	30MHz~1000MHz	± 3.68dB
	Above 1GHz	± 5.82dB

Remark：Uncertainty = $ku_c(y)$

Test Item	Uncertainty
Emission Bandwidth	± 0.2kHz
Maximum output power	± 0.33dB
Power spectral density	± 0.13dB
Conducted Emission Limitations	± 0.13dB

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4. MEASUREMENT EQUIPMENT LIST

4.1. Conducted Emission Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Test Receiver	R&S	ESCI	101276	2016. 03. 31	1 Year
2.	A.M.N.	R&S	ESH2-Z5	100366	2016. 07. 27	1 Year
3.	L.I.S.N.	Kyoritsu	KNW-407	8-1539-3	2016. 01. 21	1 Year
4.	Pulse Limiter	R&S	ESH3-Z2	101495	2016. 01. 17	1 Year
5.	Test Software	Audix	e3	V.120619C	N.C.R.	N.C.R.
1.	Test Receiver	R&S	ESCI	101276	2016. 03. 31	1 Year

4.2. Radiated Emission Measurement

4.2.1. Frequency Range 9kHz~1000MHz (Semi Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-526	MY53400071	2016. 09. 19	1 Year
2.	Test Receiver	R & S	ESCS30	100338	2016. 06. 22	1 Year
3.	Amplifier	HP	8447D	2944A06305	2016. 02. 23	1 Year
4.	Bilog Antenna	CHASE	CBL6112D	33821	2016. 01. 30	1 Year
5.	Loop Antenna	R&S	HFH2-Z2	891847/27	2015. 12. 24	1 Year
6.	Test Software	Audix	e3	V.6.110601	N.C.R.	N.C.R.

4.2.2. Frequency Range Above 1GHz (Fully Anechoic Chamber)

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300366	2016. 08. 19	1 Year
3.	Amplifier	Sonoma	310N	187161	2016. 06. 14	1 Year
4.	5G Notch Filter	Microware Circuits	N0452502	459775	2016. 01. 28	1 Year
5.	5G Notch Filter	Microware Circuits	N0555983	459481	2016. 01. 28	1 Year
6.	5G Notch Filter	Microware Circuits	N0258771	459776	2016. 01. 28	1 Year
7.	Double-Ridged Waveguide Horn	ETS-Lindgren	3117	00135902	2016. 03. 05	1 Year
8.	Horn Antenna	EMCO	3116	2653	2016. 10. 24	1 Year
9.	Test Software	Audix	e3	V.6.110601	N.C.R.	N.C.R.

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4.3. RF Conducted Measurement

Item	Type	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-507	MY52220264	2016. 08. 09	1 Year
2.	Power Meter	Anritsu	ML2495A	1145008	2016. 10. 27	1 Year
3.	Power Sensor	Anritsu	MA2411B	1126096	2016. 10. 27	1 Year

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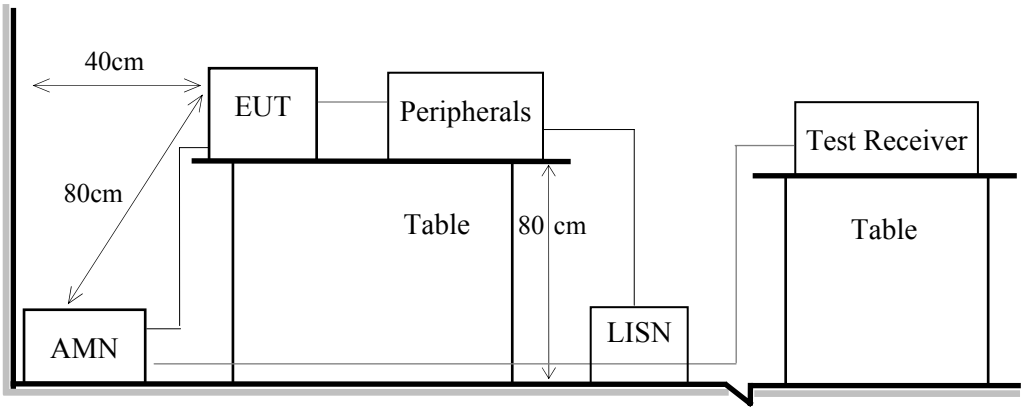
5. CONDUCTED EMISSION MEASUREMET

5.1. Block Diagram of Test Setup

Shielded Room Setup Diagram



5.2. Power Line Conducted Emission Limit

Frequency	Conducted Limit	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dBμV	56 ~ 46 dBμV
500kHz ~ 5MHz	56 dBμV	46 dBμV
5MHz ~ 30MHz	60 dBμV	50 dBμV

Remark 1.: If the average limit is met when using a Quasi-Peak detector, the measurement using the average detector is not required.
2.: The lower limit applies to the band edges.

5.3. Test Procedure

5.3.1. To set up the EUT as indicated in ANSI C 63.10. The EUT was placed on the table which has 80 cm height to the ground and 40 cm distance to the conducting wall.

5.3.2. Power supplier of the EUT was connected to the AC mains through an Artificial Mains Network (A.M.N.).

5.3.3. The AC power supplies to all peripheral devices must be provided through line impedance stabilization network (L.I.S.N.)

5.3.4. Checking frequency range from 150 kHz to 30 MHz and record the emission which does not have 20 dB below limit.

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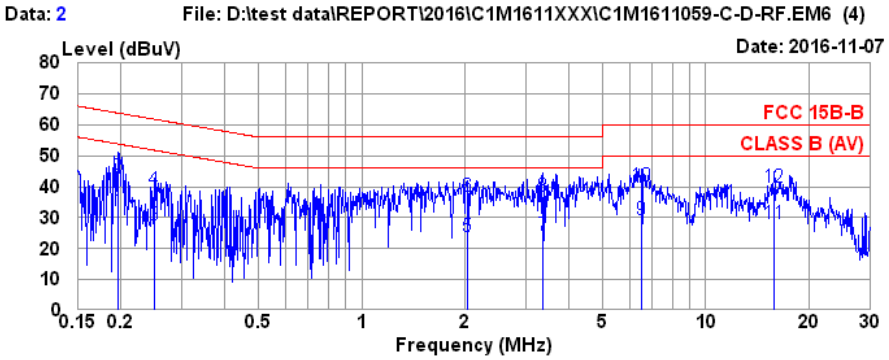
5.4. Conducted Emission Measurement Results

PASSED.

Test Date	2016/11/07	Temp./Hum.	24℃/53%
Test Voltage	AC 120V, 60Hz (via AC Adapter)		



Site no. : No.7 Shielded Room
Condition : ESH2-Z5 366(ADAPTER)
Limit : FCC 15B-B
Env. / Ins. : 24*C / 53% ESCI (1276)
EUT : 15Z970
Power Rating : 120Vac/60Hz
Test Mode : Operating

Data no. : 2
Phase : NEUTRAL
Engineer : Nick Du

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.195	0.17	0.04	9.85	21.78	31.84	53.80	21.96	Average
2	0.195	0.17	0.04	9.85	33.15	43.21	63.80	20.59	QP
3	0.249	0.18	0.04	9.85	17.45	27.52	51.78	24.26	Average
4	0.249	0.18	0.04	9.85	29.07	39.14	61.78	22.64	QP
5	2.023	0.25	0.07	9.96	13.61	23.89	46.00	22.11	Average
6	2.023	0.25	0.07	9.96	26.47	36.75	56.00	19.25	QP
7	3.364	0.30	0.10	9.90	13.90	24.20	46.00	21.80	Average
8	3.364	0.30	0.10	9.90	26.49	36.79	56.00	19.21	QP
9	6.488	0.43	0.14	9.87	18.86	29.30	50.00	20.70	Average
10	6.488	0.43	0.14	9.87	29.64	40.08	60.00	19.92	QP
11	15.801	0.83	0.22	9.91	16.99	27.95	50.00	22.05	Average
12	15.801	0.83	0.22	9.91	29.05	40.01	60.00	19.99	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
2. If the average limit is met when useing a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

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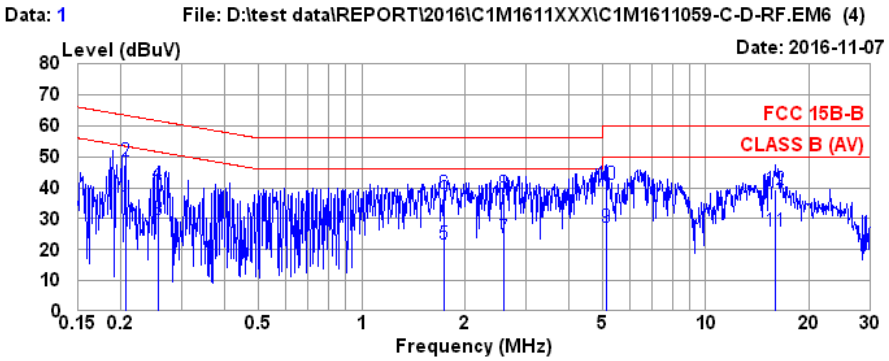
Test Date	2016/11/07	Temp./Hum.	24℃/53%
Test Voltage	AC 120V, 60Hz (via AC Adapter)		




```
Site no.      : No.7 Shielded Room          Data no.  : 1
Condition     : ESH2-Z5 366(ADAPTER)        Phase     : LINE
Limit         : FCC 15B-B
Env. / Ins.   : 24*C / 53% ESCI (1276)      Engineer  : Nick Du
EUT           : 15Z970
Power Rating  : 120Vac/60Hz
Test Mode     : Operating
```

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.206	0.16	0.04	9.85	23.69	33.74	53.36	19.62	Average
2	0.206	0.16	0.04	9.85	38.38	48.43	63.36	14.93	QP
3	0.256	0.17	0.04	9.85	19.73	29.79	51.56	21.77	Average
4	0.256	0.17	0.04	9.85	31.12	41.18	61.56	20.38	QP
5	1.744	0.24	0.07	9.95	11.47	21.73	46.00	24.27	Average
6	1.744	0.24	0.07	9.95	27.77	38.03	56.00	17.97	QP
7	2.581	0.28	0.08	9.93	13.75	24.04	46.00	21.96	Average
8	2.581	0.28	0.08	9.93	27.68	37.97	56.00	18.03	QP
9	5.166	0.40	0.12	9.86	16.89	27.27	50.00	22.73	Average
10	5.166	0.40	0.12	9.86	30.79	41.17	60.00	18.83	QP
11	15.885	0.94	0.22	9.91	15.03	26.10	50.00	23.90	Average
12	15.885	0.94	0.22	9.91	28.15	39.22	60.00	20.78	QP

```
Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
         2. If the average limit is met when useing a quasi-peak detector,
            the EUT shall be deemed to meet both limits and measurement
            with average detector is unnecessary.
```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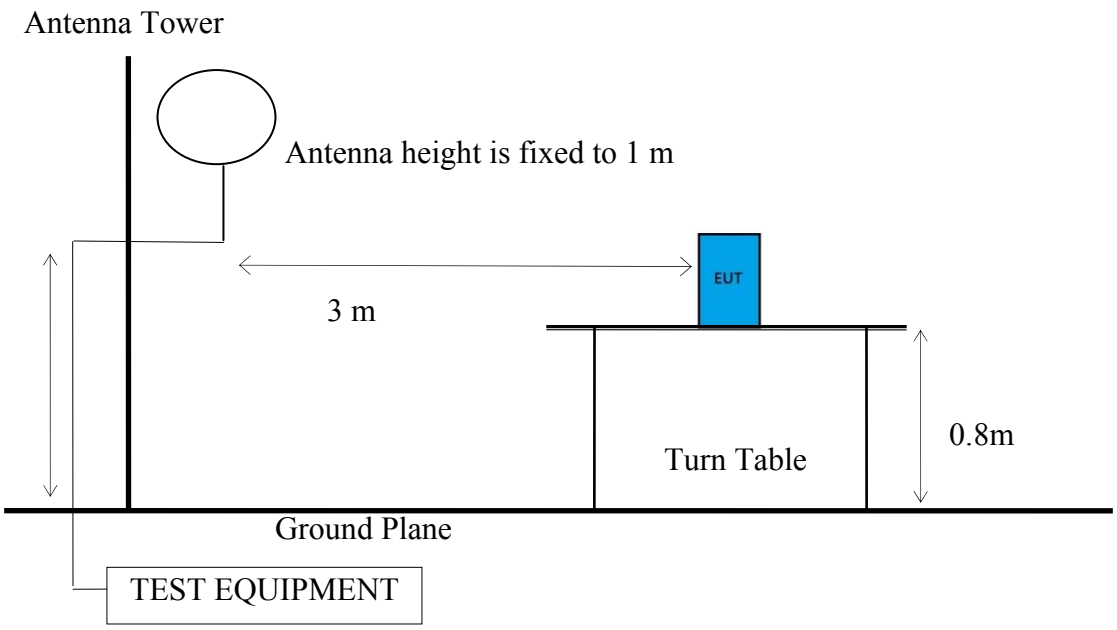
6. RADIATED EMISSION MEASUREMENT

6.1. Block Diagram of Test Setup

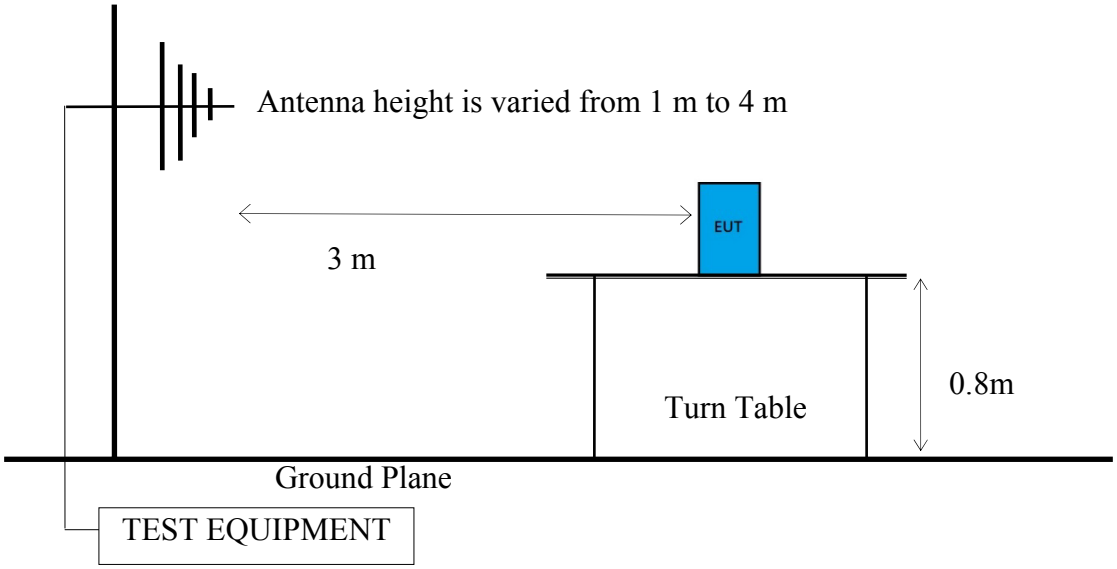
6.1.1. Block Diagram of connection between EUT and simulators

Indicated as section 3.7

6.1.2. Semi-Anechoic Chamber (3m) Setup Diagram for 9kHz-30MHz



6.1.3. Semi-Anechoic Chamber (3m) Setup Diagram for 30-1000MHz



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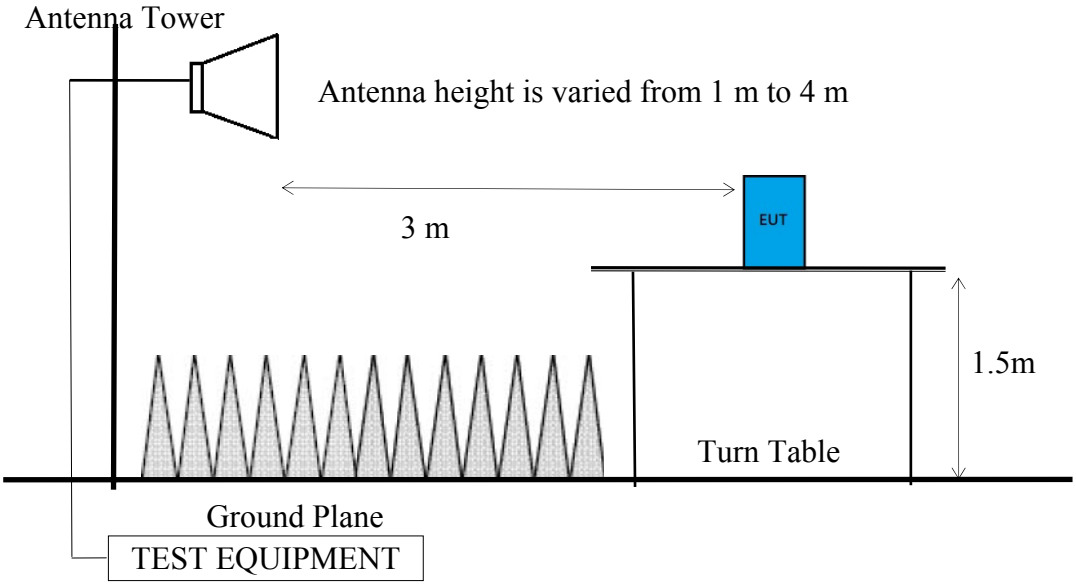
6.1.4. Fully Anechoic Chamber (3m) Setup Diagram for above 1GHz



6.2. Radiated Emission Limits

Radiated emissions fall in restricted bands, as defined in Section 15.205 must be in compliance with the radiated emission limits specified in Section 15.205 as below.

6.2.1. General Limit

Frequency (MHz)	Distance (m)	Field Strengths Limits	
		μV/m	dBμV/m
0.009 - 0.490	300	67.6	2400/kHz
0.490 - 1.705	30	87.6	24000/kHz
1.705 - 30	30	29.5	30
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0
Above 1000	3	74.0 dBμV/m (Peak) 54.0 dBμV/m (Average)	

Remark: (1) dBμV/m = 20 log (μV/m)
(2) The tighter limit applies to the edge between two frequency bands.
(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
(4) Fundamental and emission fall within operation band are exempted from this section.
(5) Pursuant to ANSI C63.10: 6.6.4.3, if the maximized peak measured value complies with the average limit, then it is unnecessary to perform an average measurement.

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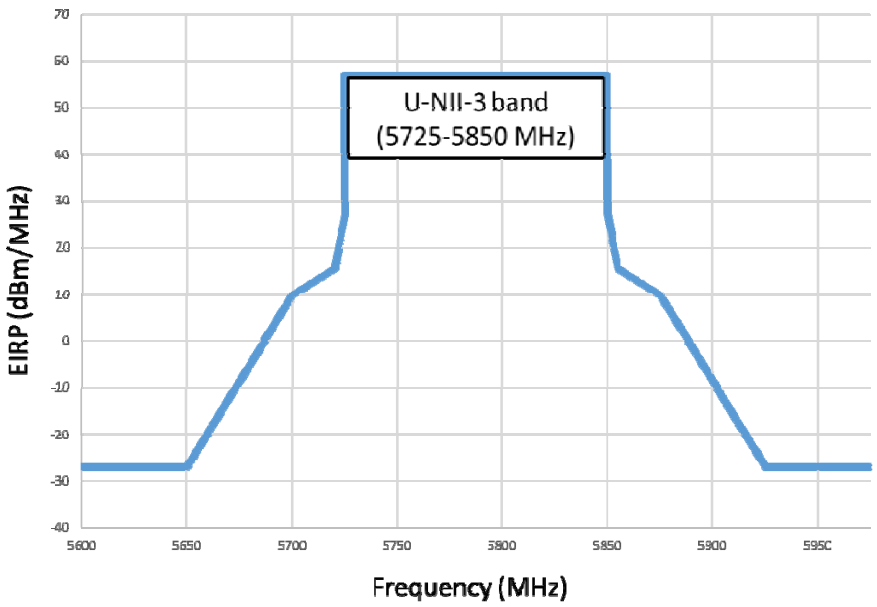
6.2.2. Limit for non-restricted frequency above 1 GHz

Frequency Band (MHz)	E.I.R.P. Limit	Field Strength Limit at 3 m (dBμV/m)
5150 to 5250	-27 dBm	68.2
5250 to 5350		68.2
5470 to 5725		68.2

Note: Field Strength at 3 m= E.I.R.P. + 95.2 dB

Frequency Band (MHz)	Field Strength Limit at 3 m	
5725 to 5850	☒	15.407(b)(4)(i) All emissions shall be limited to a level of 68.2 dBμV/m at 75 MHz or more above or below the band edge increasing linearly to 105.2dBμV/m at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 110.8 dBμV/m at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 68.2 dBμV/m at the band edge.
	☐	15.407(b)(4)(ii) ,compliance with the emission limits in § 15.247(d) Shall be at least 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power,. Attenuation below the general limits specified in §15.209(a) is not required. In addition,radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c))



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6.3. Test Procedure

Frequency Range 9kHz~30MHz:
The EUT setup on the turn table which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

(1) RBW = 9kHz with peak and average detector.
(2) Detector: average and peak (9kHz-490kHz)
Q.P. (490kHz-30MHz)

Frequency Range 30MHz ~ 40GHz:
The EUT setup on the turn table which has 0.8m (For 30-1000MHz) or 1.5m (For Above 1GHz) height to the ground. The turn table rotated 360 degrees and antenna varied from 1 m to 4 m to find the maximum emission level. Both horizontal and vertical polarization are required. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

Frequency below 1 GHz:
Spectrum Analyzer is used for pre-testing with following setting:

(1) RBW = 120 kHz
(2) VBW ≥ 3 x RBW.
(3) Detector = Peak.
(4) Sweep time = auto.
(5) Trace mode = max hold.
(6) Allow sweeps to continue until the trace stabilizes.
(7) When peak-detected value is lower than limit that the measurement using the Q.P. detector is not required. Otherwise using Q.P. for finally measurement.

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Frequency above 1GHz to 10th harmonic (up to 40 GHz):

Peak Detector:

(1) RBW = 1 MHz
(2) VBW ≥ 3 x RBW.
(3) Detector = Peak.
(4) Sweep time = auto.
(5) Trace mode = max hold.
(6) Allow sweeps to continue until the trace stabilizes.
(7) When peak-detected value is lower than limit that the measurement using the average detector is not required. Otherwise using average for finally measurement.

Average Detector:

■Option 1:

(1) RBW = 1 MHz
(2) VBW ≥ 1/ T.

Modulation Type	T (ms)	1/ T (kHz)	VBW Setting (kHz)
802.11a	2.050	0.488	0.488
802.11ac-VHT20	0.975	1.026	1.026
802.11ac-VHT40	0.494	2.024	2.024
802.11ac-VHT80	0.663	1.508	1.508

N/A: 1/ T is not implemented when duty cycle presented in section 3.5 is ≥ 98 %.

(1) Detector = Peak.
(2) Sweep time = auto.
(3) Trace mode = max hold.
(4) Allow sweeps to continue until the trace stabilizes.

□Option 2:

Average Emission Level= Peak Emission Level+ D.C.C.F.

6.4. Measurement Result Explanation

■Peak Emission Level=Antenna Factor + Cable Loss + Meter Reading
■Average Emission Level l=Antenna Factor + Cable Loss + Meter Reading
□Average Emission Level= Peak Emission Level+ DCCF
Duty Cycle Correction Factor (DCCF)= 20log (TX_{on}/TX_{on+off}) presented in section 3.5

6.5. Test Results

PASSED.

Test Date	2016/11/24	Temp./Hum.	24℃/53%
Test Voltage	AC 120V, 60Hz		

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6.5.1. Emissions within Restricted Frequency Bands

6.5.1.1. Frequency 9kHz~30MHz

The emissions (9kHz~30MHz) not reported for there is no emission be found.

6.5.1.2. Frequency 30MHz~1000MHz

Mode	802.11a	UNII Band	III
		Frequency	TX 5785MHz

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
92.08	9.49	3.17	12.57	25.23	43.50	18.27	Peak
242.43	11.96	4.28	19.89	36.13	46.00	9.87	Peak
324.88	13.78	4.93	12.87	31.58	46.00	14.42	Peak
556.71	17.77	6.48	1.97	26.22	46.00	19.78	Peak
763.32	19.58	7.01	2.31	28.90	46.00	17.10	Peak
894.27	20.55	7.52	4.26	32.33	46.00	13.67	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
30.00	18.62	2.32	13.98	34.92	40.00	5.08	Peak
74.62	7.01	2.94	17.92	27.87	40.00	12.13	Peak
243.40	12.01	4.29	12.89	29.19	46.00	16.81	Peak
326.82	13.84	4.95	8.89	27.68	46.00	18.32	Peak
593.57	18.24	6.50	1.73	26.47	46.00	19.53	Peak
813.76	20.10	7.22	1.59	28.91	46.00	17.09	Peak

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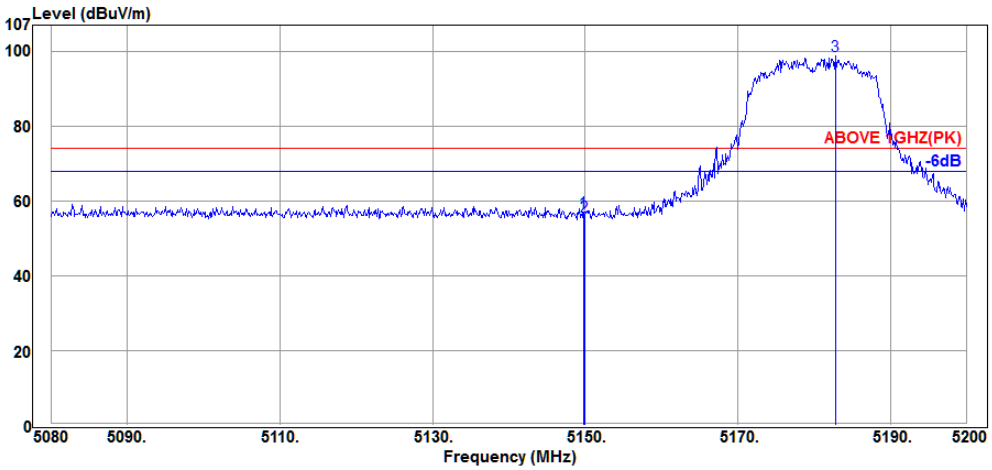
6.5.1.3. Frequency Above 1 GHz to 10th harmonics

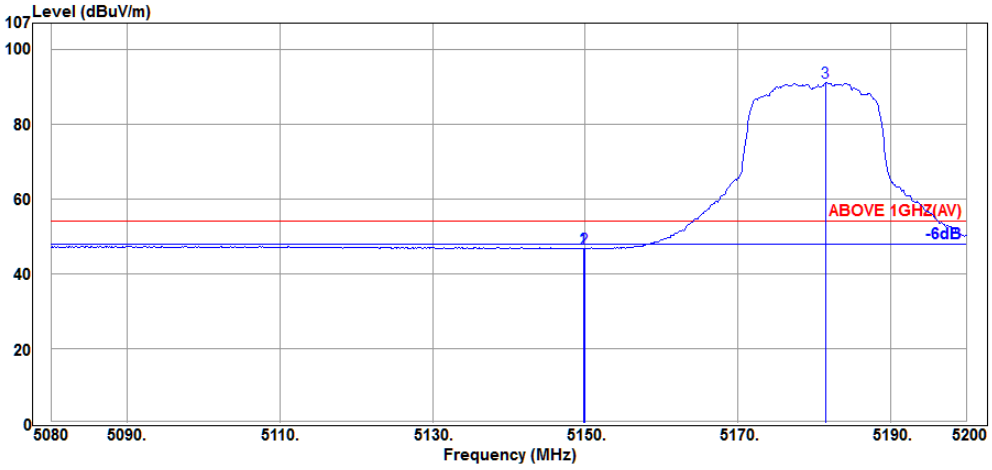
Band Edge:

Mode	802.11a	Frequency	TX 5180MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5149.84	34.45	8.84	13.65	56.94	74.00	17.06	Peak
5149.96	34.45	8.84	12.59	55.88	74.00	18.12	Peak
5182.84	34.48	8.77	55.66	98.91	---	---	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5149.84	34.45	8.84	3.48	46.77	54.00	7.23	Average
5149.96	34.45	8.84	3.46	46.75	54.00	7.25	Average
5181.52	34.48	8.77	47.82	91.07	---	---	Average

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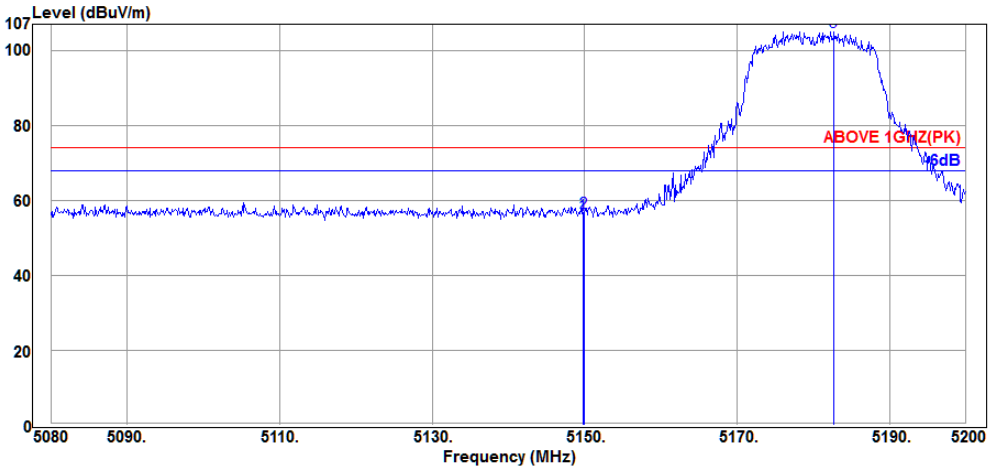
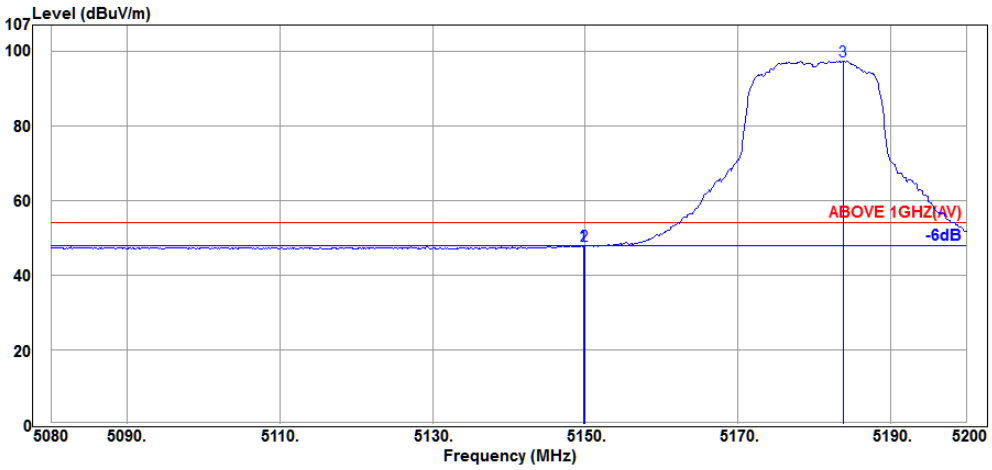
Mode	802.11a	Frequency	TX 5180MHz



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5149.84	34.45	8.84	12.97	56.26	74.00	17.74	Peak
5149.96	34.45	8.84	13.38	56.67	74.00	17.33	Peak
5182.72	34.48	8.77	61.69	104.94	---	---	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5149.84	34.45	8.84	4.61	47.90	54.00	6.10	Average
5149.96	34.45	8.84	4.51	47.80	54.00	6.20	Average
5183.80	34.48	8.77	54.14	97.39	---	---	Average

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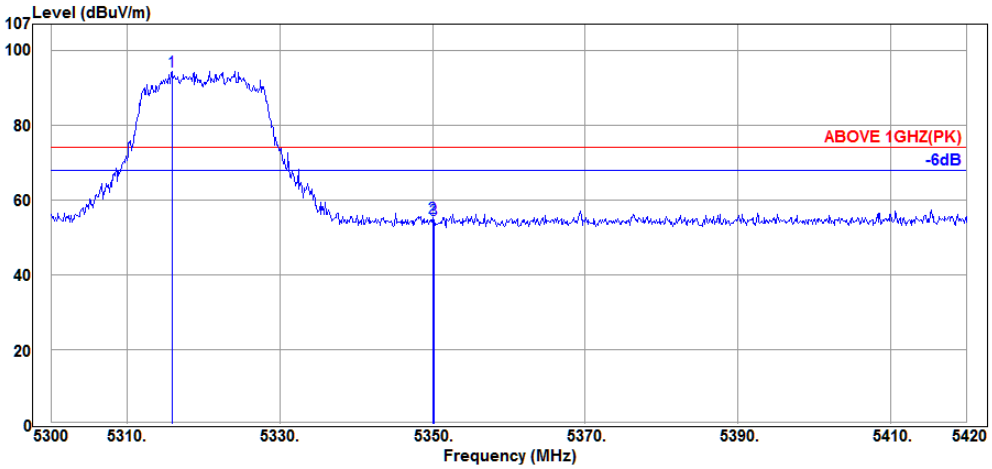
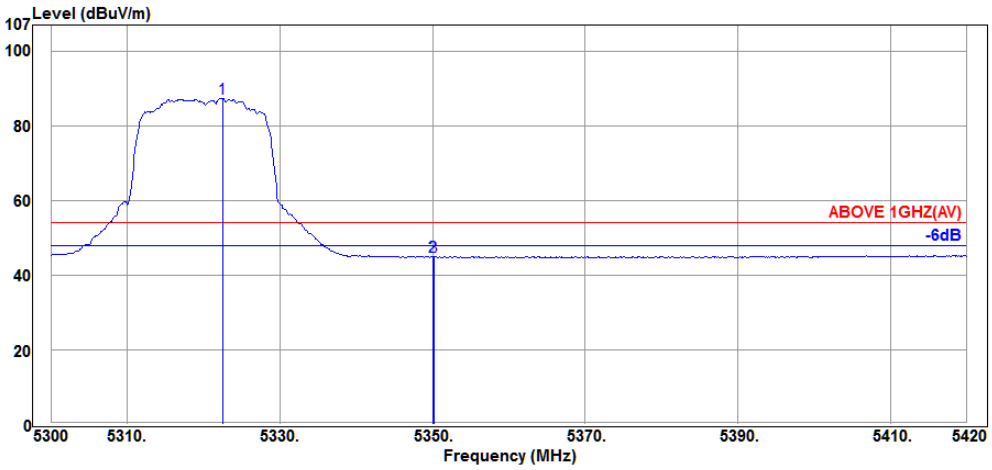
Mode	802.11a	Frequency	TX 5320MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5315.84	34.62	8.70	51.07	94.39	---	---	Peak
5350.04	34.65	8.61	12.15	55.41	74.00	18.59	Peak
5350.16	34.65	8.61	11.46	54.72	74.00	19.28	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5322.56	34.62	8.70	43.97	87.29	---	---	Average
5350.04	34.65	8.61	1.70	44.96	54.00	9.04	Average
5350.16	34.65	8.61	1.68	44.94	54.00	9.06	Average

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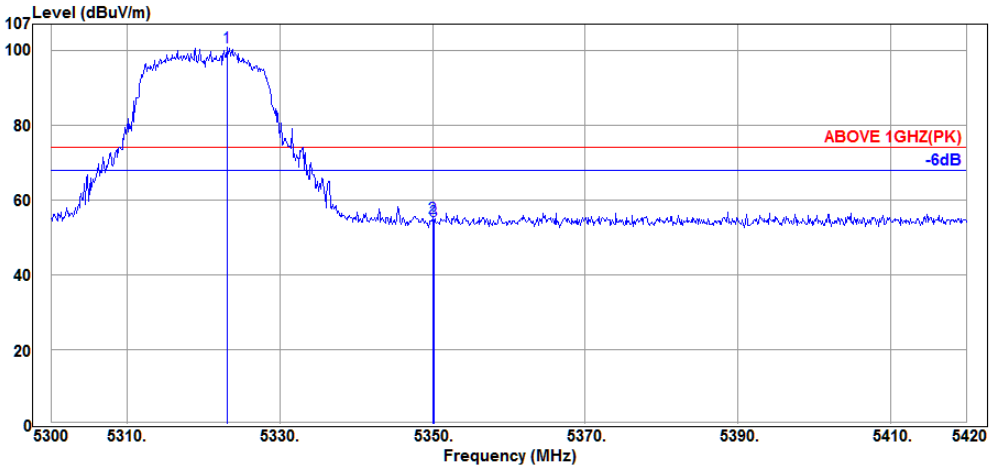
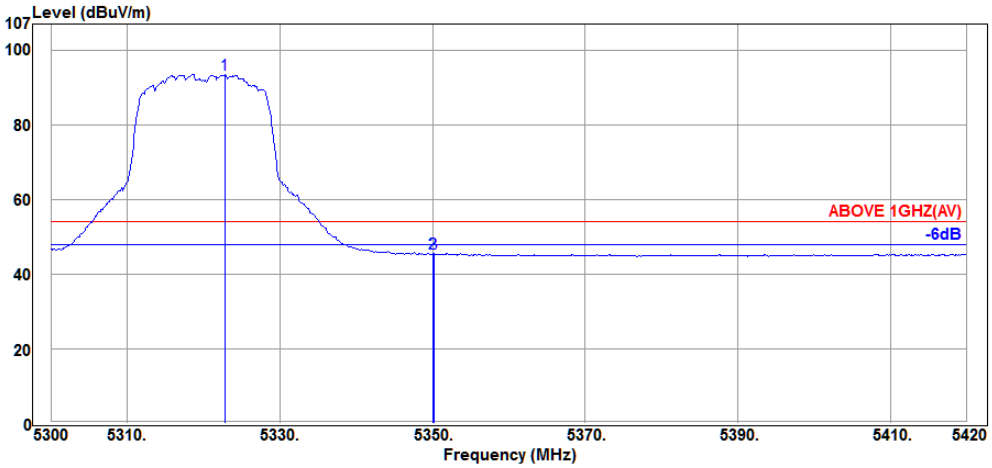
Mode	802.11a	Frequency	TX 5320MHz



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5323.04	34.62	8.70	57.57	100.89	---	---	Peak
5350.04	34.65	8.61	12.12	55.38	74.00	18.62	Peak
5350.16	34.65	8.61	11.15	54.41	74.00	19.59	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5322.80	34.62	8.70	50.04	93.36	---	---	Average
5350.04	34.65	8.61	2.24	45.50	54.00	8.50	Average
5350.16	34.65	8.61	2.24	45.50	54.00	8.50	Average

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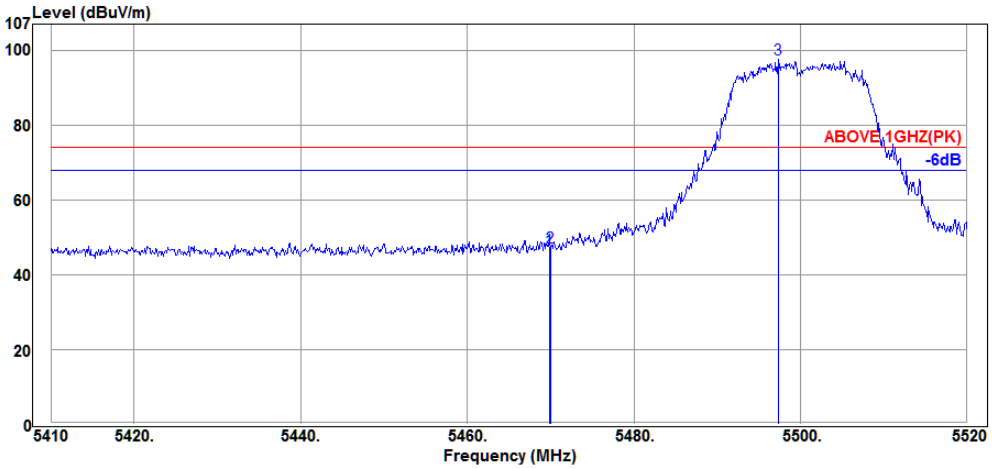
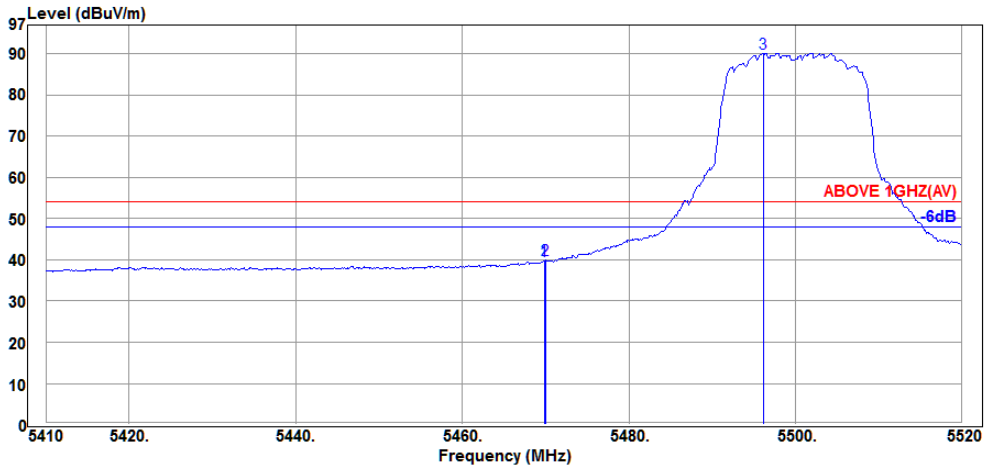
Mode	802.11a	Frequency	TX 5500MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5469.84	34.77	8.65	3.47	46.89	74.00	27.11	Peak
5469.95	34.77	8.65	3.89	47.31	74.00	26.69	Peak
5497.34	34.80	8.73	54.21	97.74	---	---	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5469.84	34.77	8.65	-3.62	39.80	54.00	14.20	Average
5469.95	34.77	8.65	-3.57	39.85	54.00	14.15	Average
5496.13	34.78	8.69	46.67	90.14	---	---	Average

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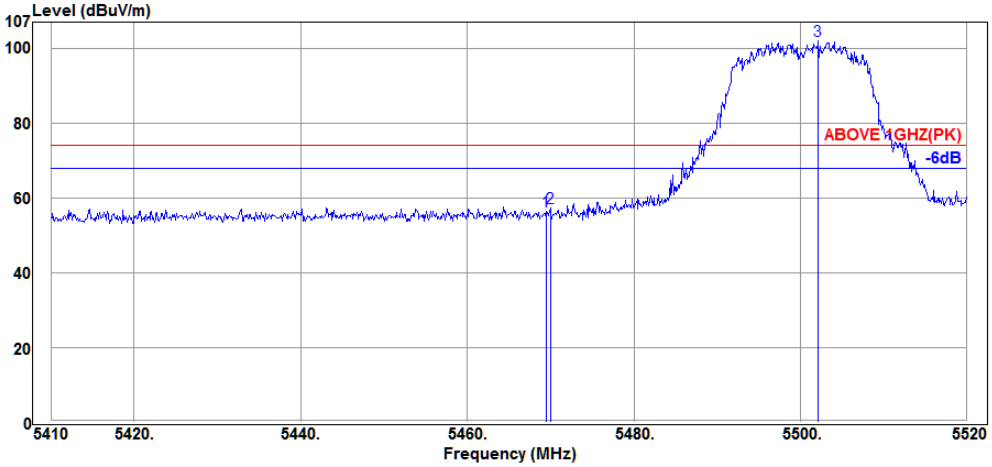
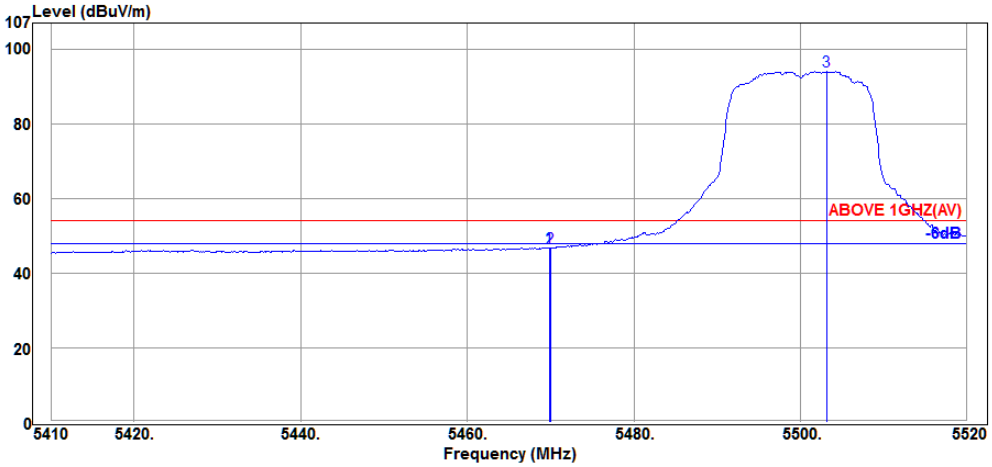
Mode	802.11a	Frequency	TX 5500MHz



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5469.51	34.77	8.65	12.95	56.37	74.00	17.63	Peak
5469.95	34.77	8.65	14.02	57.44	74.00	16.56	Peak
5502.18	34.80	8.73	58.42	101.95	---	---	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5469.84	34.77	8.65	3.31	46.73	54.00	7.27	Average
5469.95	34.77	8.65	3.35	46.77	54.00	7.23	Average
5503.17	34.80	8.73	50.46	93.99	---	---	Average

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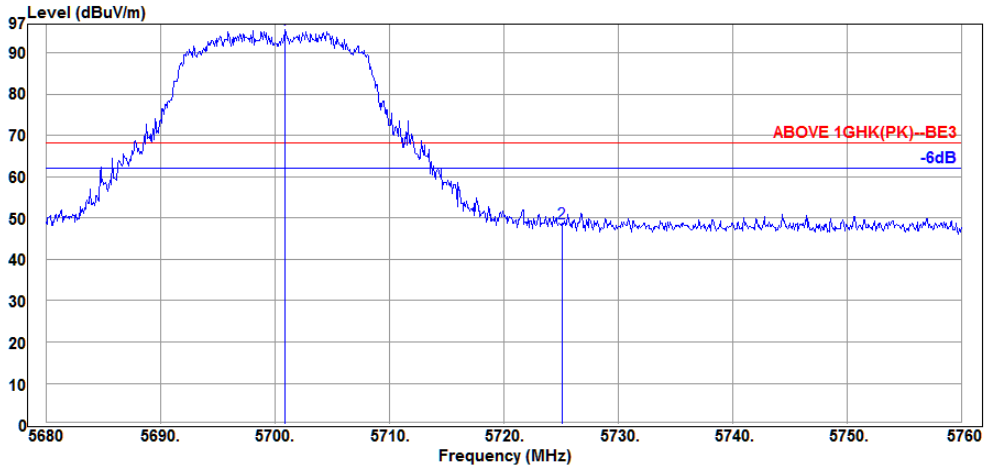
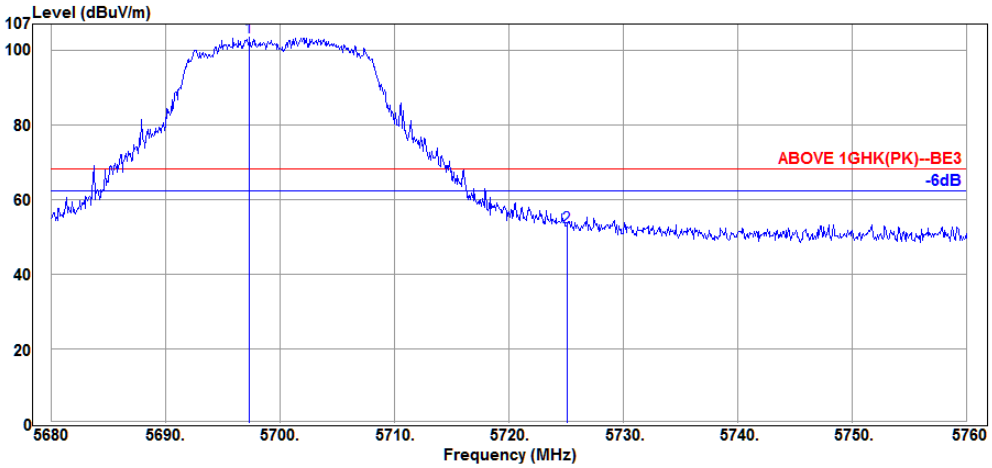
Mode	802.11a	Frequency	TX 5700MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5700.88	35.05	9.73	50.81	95.59	---	---	Peak
5725.04	35.07	9.78	3.93	48.78	68.20	19.42	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5697.36	35.03	9.68	58.84	103.55	---	---	Peak
5725.04	35.07	9.78	7.81	52.66	68.20	15.54	Peak

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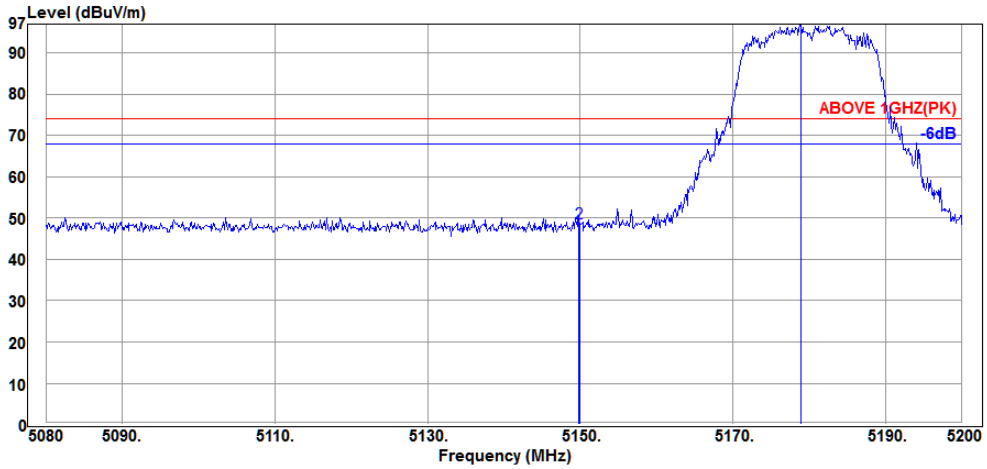
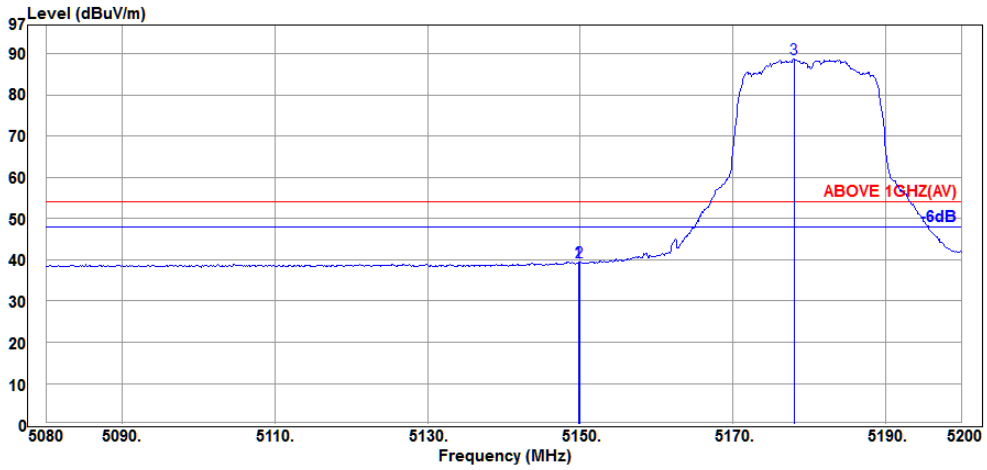
Mode	802.11n-HT20	Frequency	TX 5180MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5149.84	34.45	8.84	3.72	47.01	74.00	26.99	Peak
5149.96	34.45	8.84	5.41	48.70	74.00	25.30	Peak
5178.88	34.48	8.77	53.71	96.96	---	---	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5149.84	34.45	8.84	-3.92	39.37	54.00	14.63	Average
5149.96	34.45	8.84	-3.93	39.36	54.00	14.64	Average
5178.04	34.48	8.77	45.46	88.71	---	---	Average

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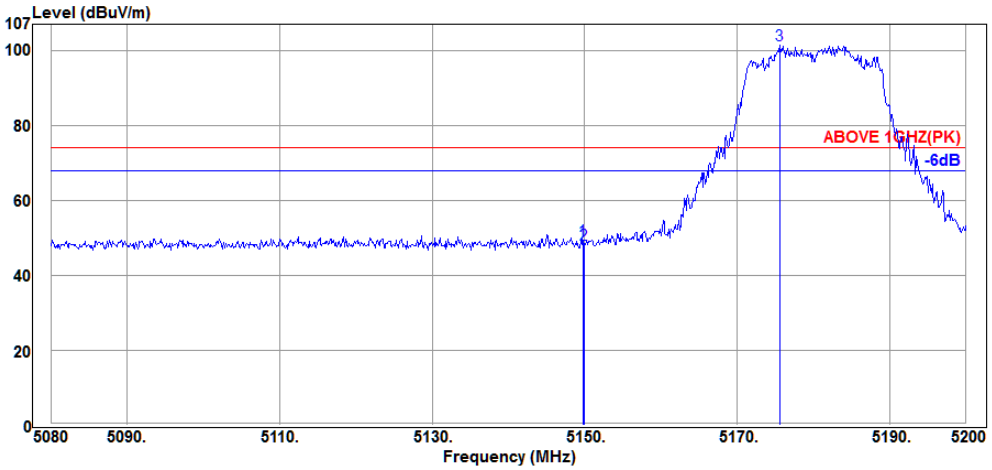
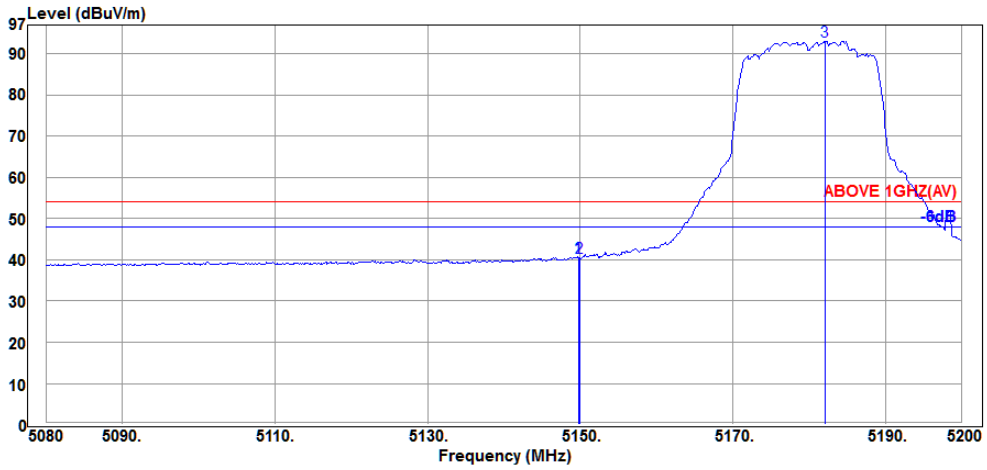
Mode	802.11n-HT20	Frequency	TX 5180MHz



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5149.84	34.45	8.84	6.14	49.43	74.00	24.57	Peak
5149.96	34.45	8.84	4.95	48.24	74.00	25.76	Peak
5175.52	34.48	8.77	58.13	101.38	---	---	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5149.84	34.45	8.84	-2.79	40.50	54.00	13.50	Average
5149.96	34.45	8.84	-2.77	40.52	54.00	13.48	Average
5182.12	34.48	8.77	49.82	93.07	---	---	Average

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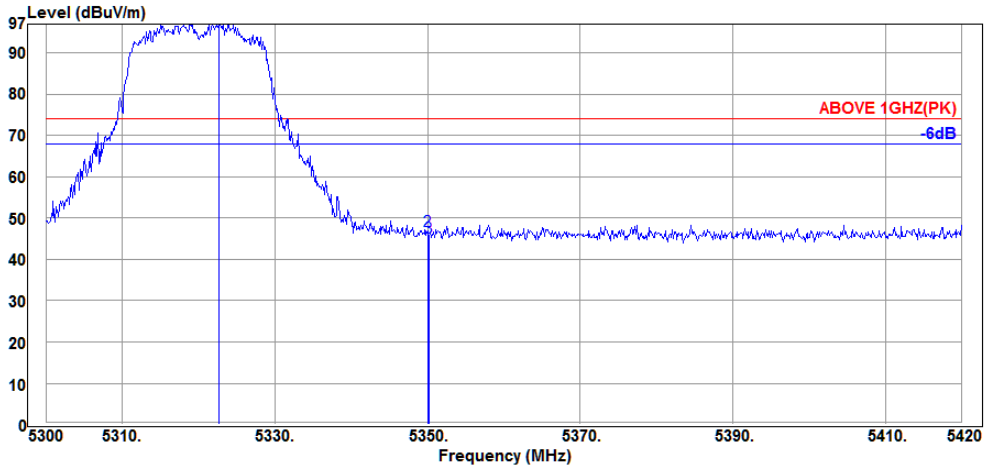
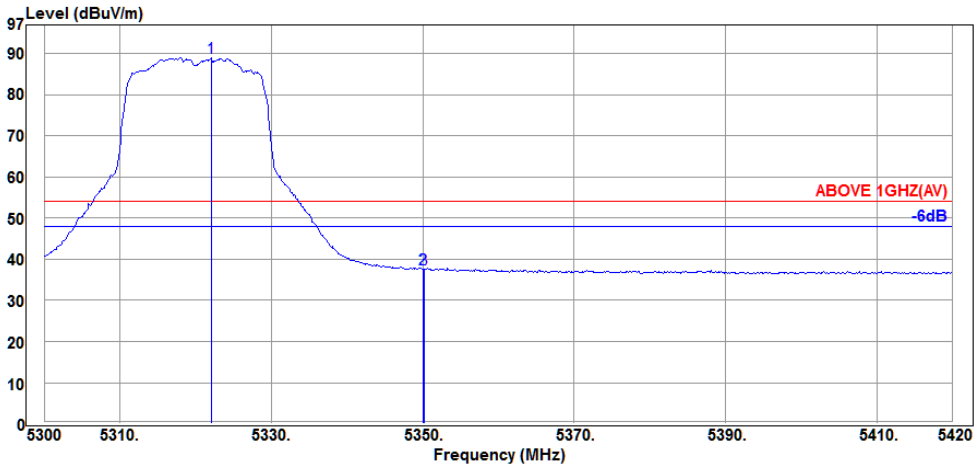
Mode	802.11n-HT20	Frequency	TX 5320MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5322.68	34.62	8.70	53.79	97.11	---	---	Peak
5350.04	34.65	8.61	3.69	46.95	74.00	27.05	Peak
5350.16	34.65	8.61	2.09	45.35	74.00	28.65	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5322.08	34.62	8.70	45.81	89.13	---	---	Average
5350.04	34.65	8.61	-5.67	37.59	54.00	16.41	Average
5350.16	34.65	8.61	-5.80	37.46	54.00	16.54	Average

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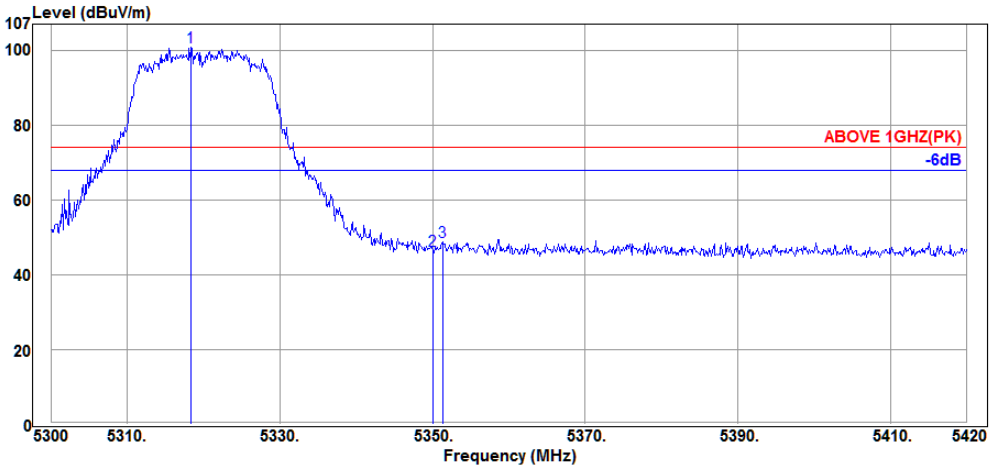
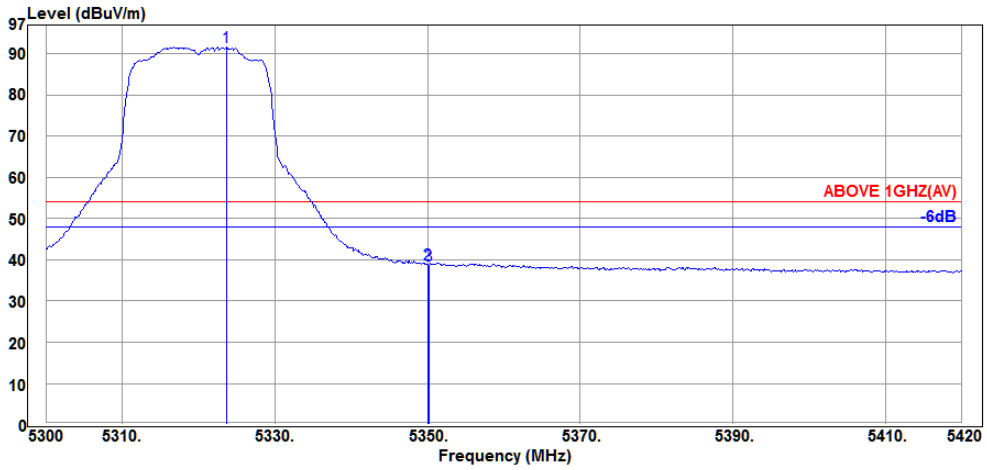
Mode	802.11n-HT20	Frequency	TX 5320MHz



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5318.36	34.62	8.70	57.47	100.79	---	---	Peak
5350.04	34.65	8.61	3.19	46.45	74.00	27.55	Peak
5351.36	34.65	8.61	5.47	48.73	74.00	25.27	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5323.64	34.62	8.70	48.28	91.60	---	---	Average
5350.04	34.65	8.61	-4.33	38.93	54.00	15.07	Average
5350.16	34.65	8.61	-4.51	38.75	54.00	15.25	Average

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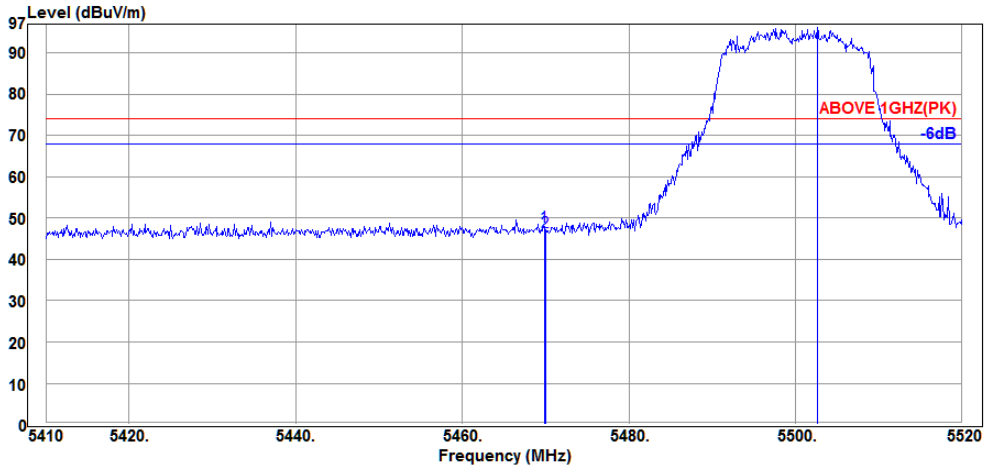
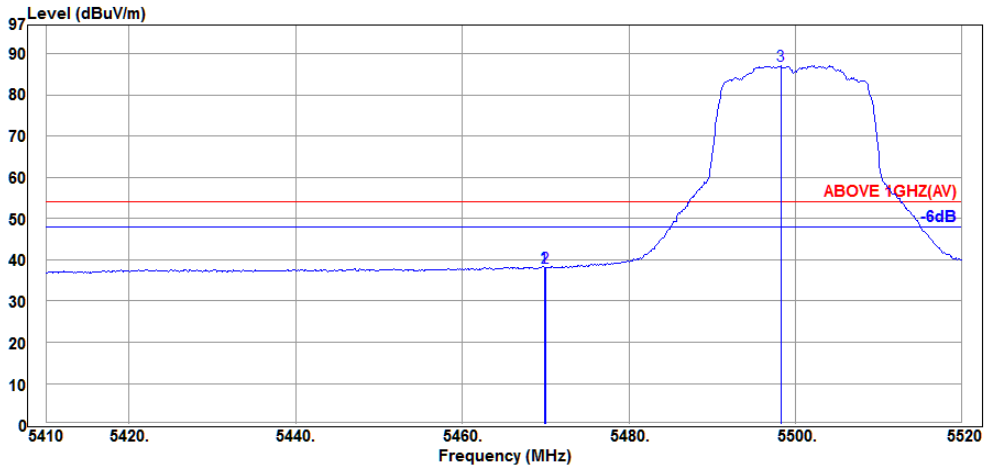
Mode	802.11n-HT20	Frequency	TX 5500MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5469.84	34.77	8.65	4.51	47.93	74.00	26.07	Peak
5469.95	34.77	8.65	3.20	46.62	74.00	27.38	Peak
5502.62	34.80	8.73	52.73	96.26	---	---	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5469.84	34.77	8.65	-5.23	38.19	54.00	15.81	Average
5469.95	34.77	8.65	-5.25	38.17	54.00	15.83	Average
5498.22	34.80	8.73	43.59	87.12	---	---	Average

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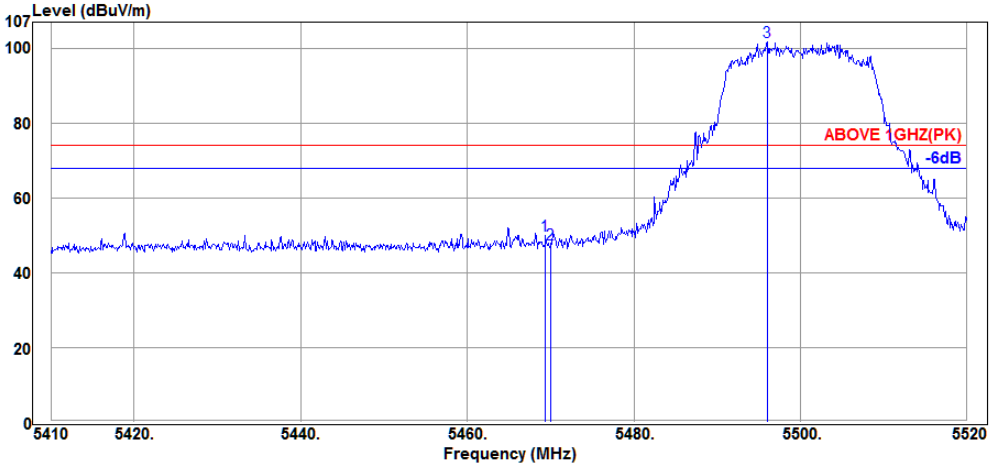
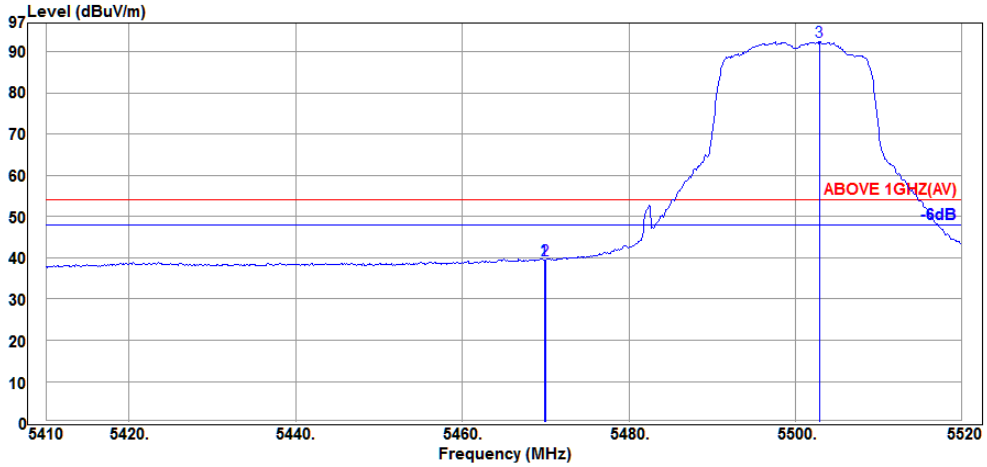
Mode	802.11n-HT20	Frequency	TX 5500MHz



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5469.40	34.77	8.65	6.47	49.89	74.00	24.11	Peak
5469.95	34.77	8.65	4.34	47.76	74.00	26.24	Peak
5496.02	34.78	8.69	58.20	101.67	---	---	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5469.84	34.77	8.65	-3.99	39.43	54.00	14.57	Average
5469.95	34.77	8.65	-3.92	39.50	54.00	14.50	Average
5502.95	34.80	8.73	49.00	92.53	---	---	Average

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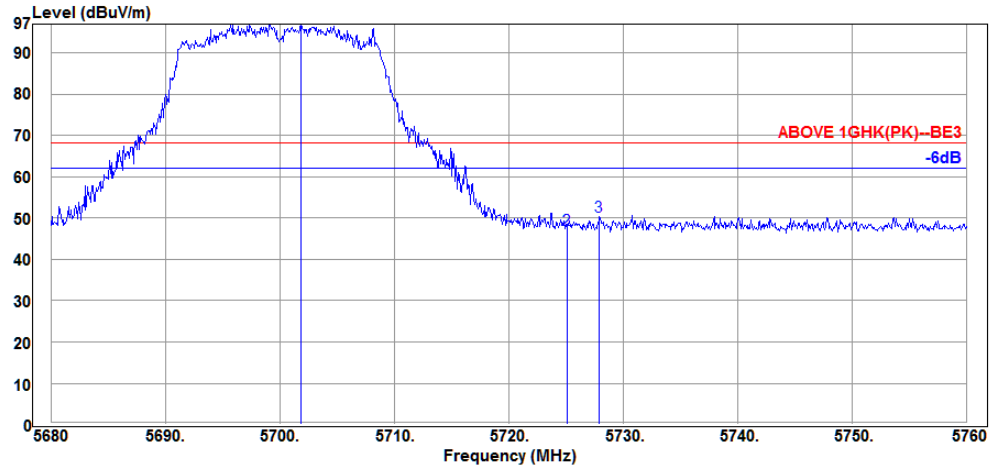
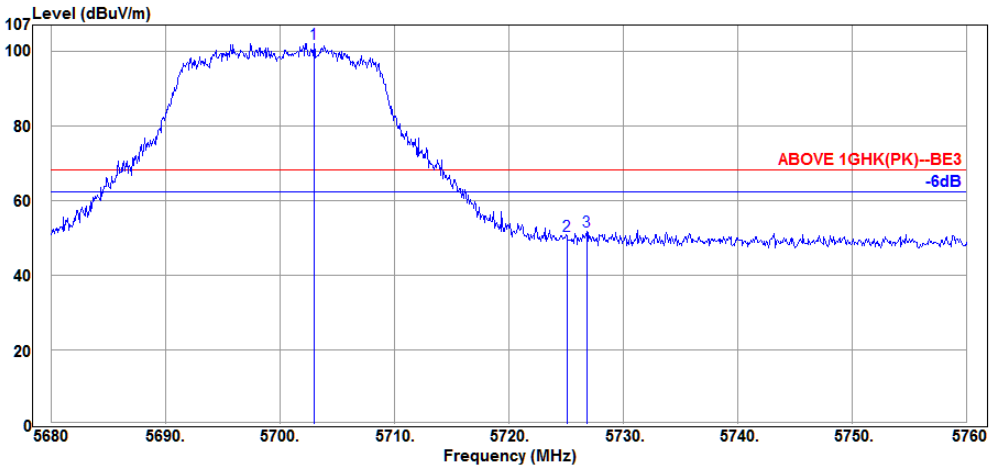
Mode	802.11n-HT20	Frequency	TX 5700MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5701.84	35.05	9.73	52.40	97.18	---	---	Peak
5725.04	35.07	9.78	2.46	47.31	68.20	20.89	Peak
5727.92	35.07	9.78	5.43	50.28	68.20	17.92	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5702.96	35.05	9.73	57.31	102.09	---	---	Peak
5725.04	35.07	9.78	5.75	50.60	68.20	17.60	Peak
5726.80	35.07	9.78	6.98	51.83	68.20	16.37	Peak

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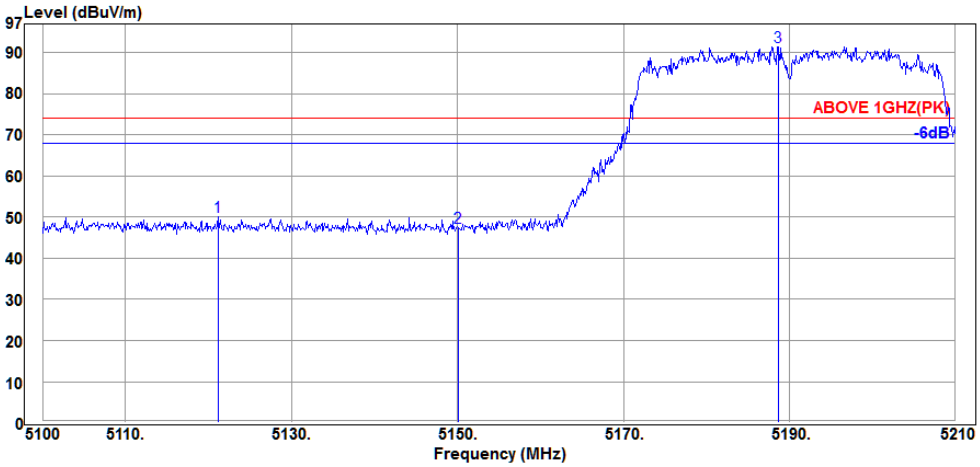
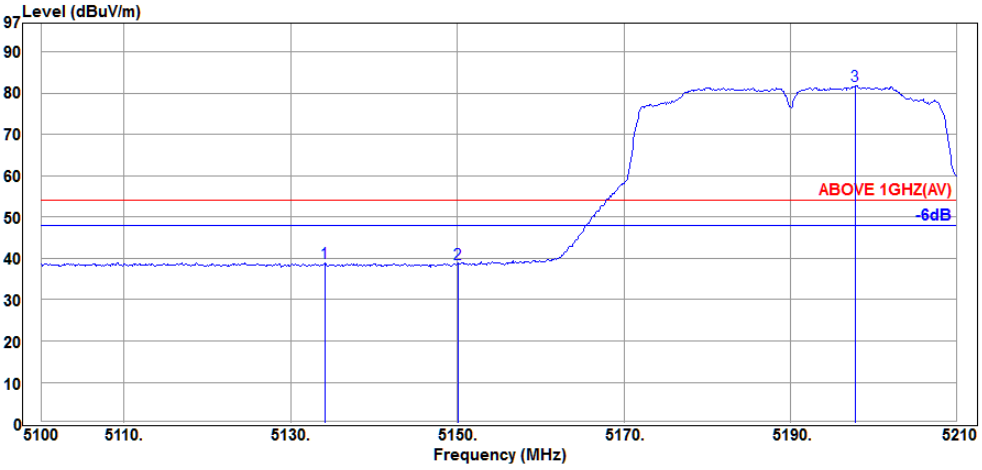
Mode	802.11n-HT40	Frequency	TX 5190MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5121.12	34.42	8.91	6.76	50.09	74.00	23.91	Peak
5150.05	34.45	8.84	4.09	47.38	74.00	26.62	Peak
5188.66	34.48	8.77	48.27	91.52	---	---	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5134.10	34.43	8.88	-4.52	38.79	54.00	15.21	Average
5150.05	34.45	8.84	-4.70	38.59	54.00	15.41	Average
5197.79	34.50	8.74	38.47	81.71	---	---	Average

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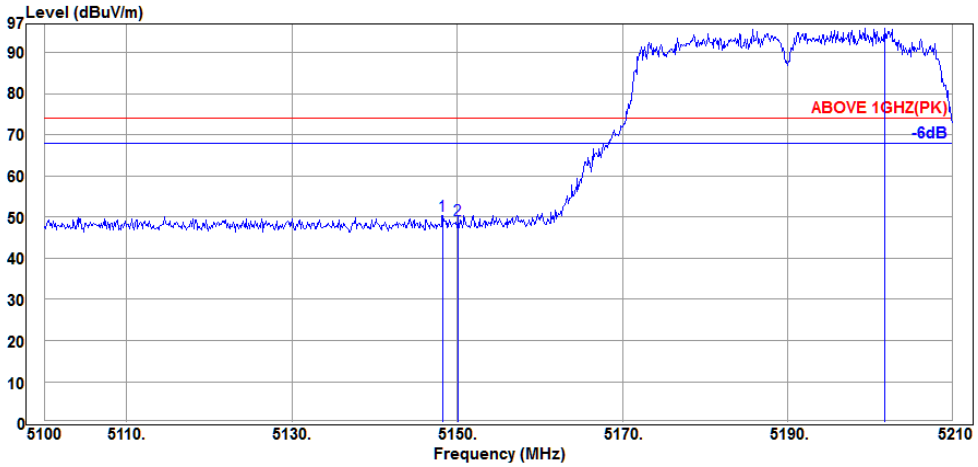
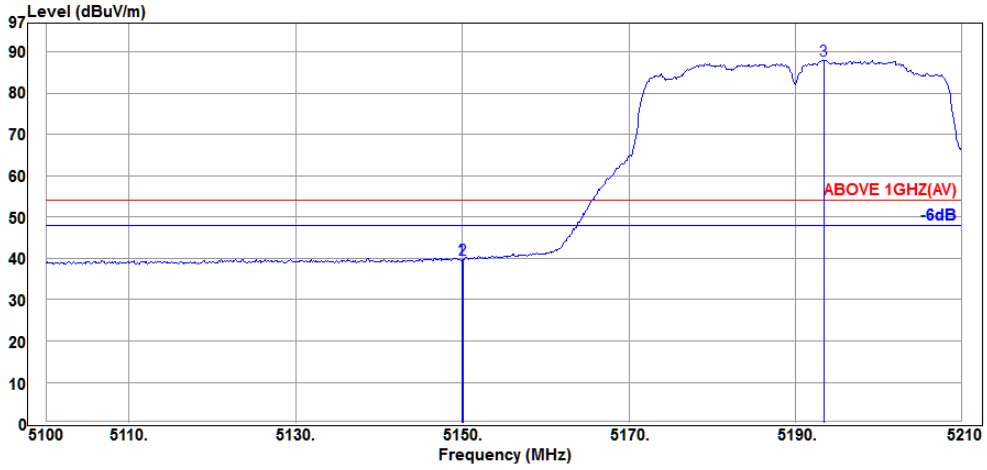
Mode	802.11n-HT40	Frequency	TX 5190MHz



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5148.29	34.45	8.84	7.17	50.46	74.00	23.54	Peak
5150.05	34.45	8.84	6.01	49.30	74.00	24.70	Peak
5201.75	34.50	8.74	52.83	96.07	---	---	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5149.94	34.45	8.84	-3.54	39.75	54.00	14.25	Average
5150.05	34.45	8.84	-3.51	39.78	54.00	14.22	Average
5193.50	34.50	8.74	44.75	87.99	---	---	Average

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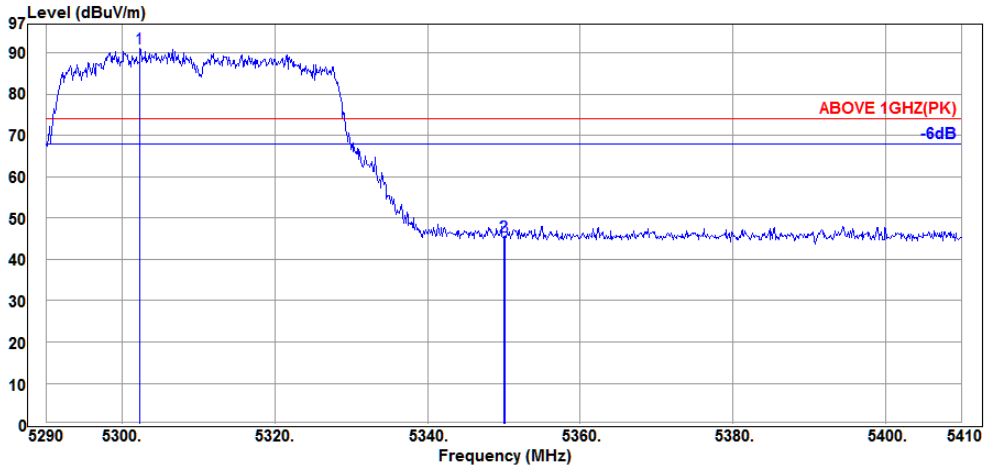
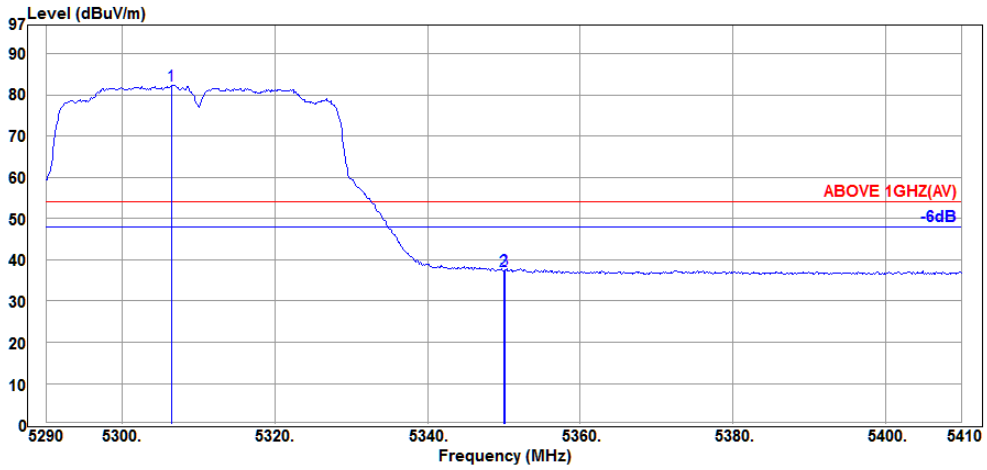
Mode	802.11n-HT40	Frequency	TX 5310MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5302.36	34.60	8.74	47.93	91.27	---	---	Peak
5350.00	34.65	8.61	2.30	45.56	74.00	28.44	Peak
5350.12	34.65	8.61	2.44	45.70	74.00	28.30	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5306.44	34.60	8.74	39.06	82.40	---	---	Average
5350.00	34.65	8.61	-5.95	37.31	54.00	16.69	Average
5350.12	34.65	8.61	-5.70	37.56	54.00	16.44	Average

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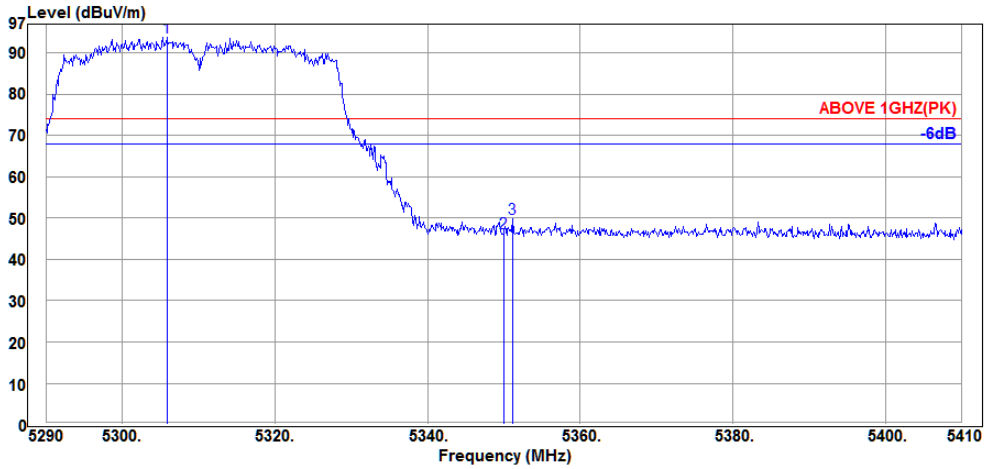
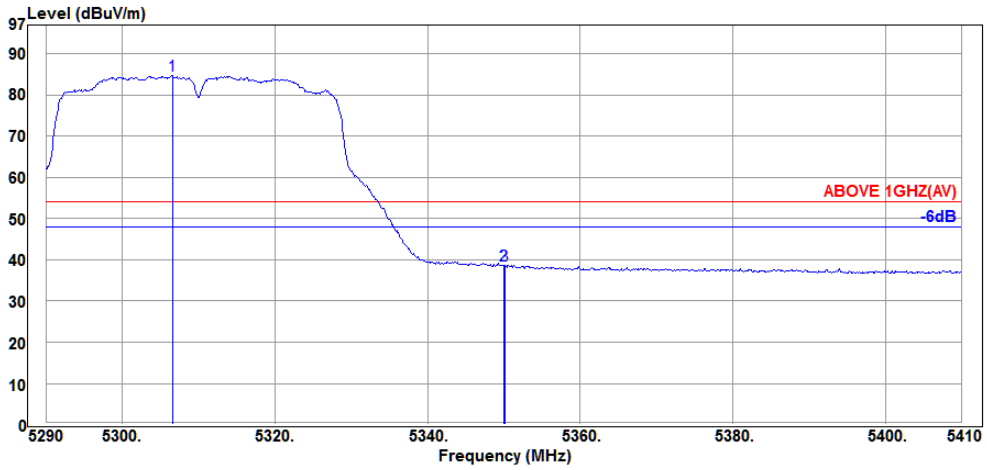
Mode	802.11n-HT40	Frequency	TX 5310MHz



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5305.84	34.60	8.74	50.55	93.89	---	---	Peak
5350.00	34.65	8.61	3.14	46.40	74.00	27.60	Peak
5351.08	34.65	8.61	6.63	49.89	74.00	24.11	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5306.56	34.60	8.74	41.48	84.82	---	---	Average
5350.00	34.65	8.61	-4.56	38.70	54.00	15.30	Average
5350.12	34.65	8.61	-4.65	38.61	54.00	15.39	Average

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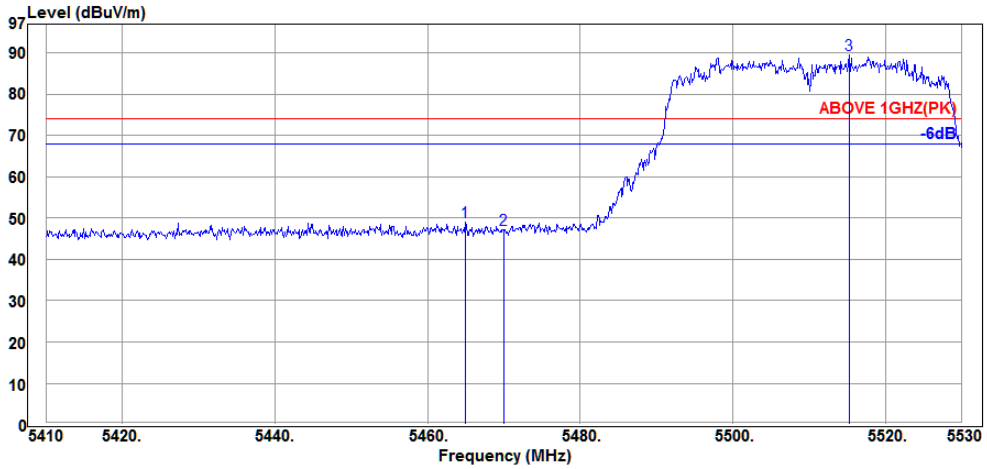
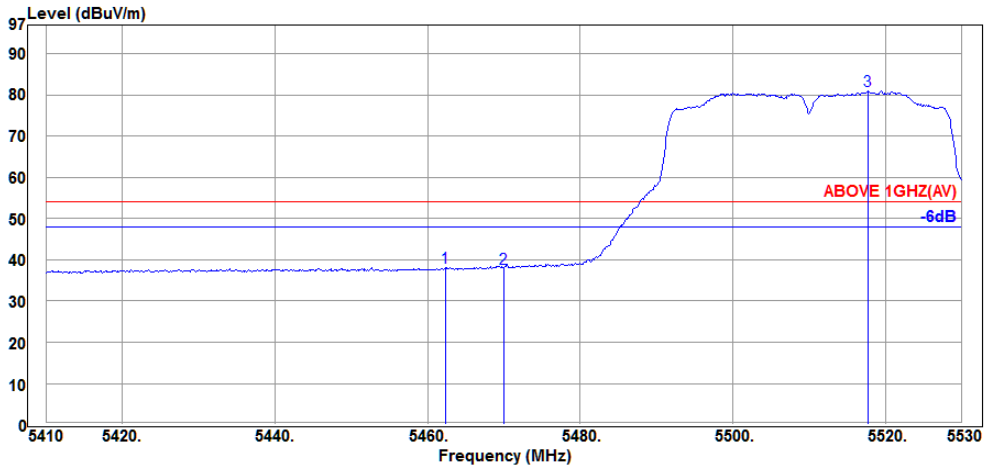
Mode	802.11n-HT40	Frequency	TX 5510MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5464.96	34.77	8.65	5.55	48.97	74.00	25.03	Peak
5470.00	34.77	8.65	3.69	47.11	74.00	26.89	Peak
5515.24	34.82	8.80	45.91	89.53	---	---	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5462.32	34.75	8.61	-5.25	38.11	54.00	15.89	Average
5470.00	34.77	8.65	-5.45	37.97	54.00	16.03	Average
5517.76	34.82	8.80	37.34	80.96	---	---	Average

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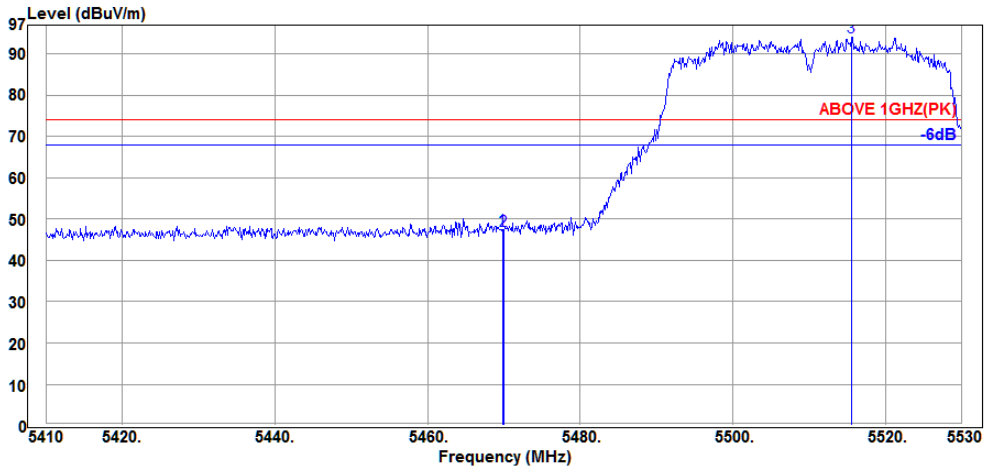
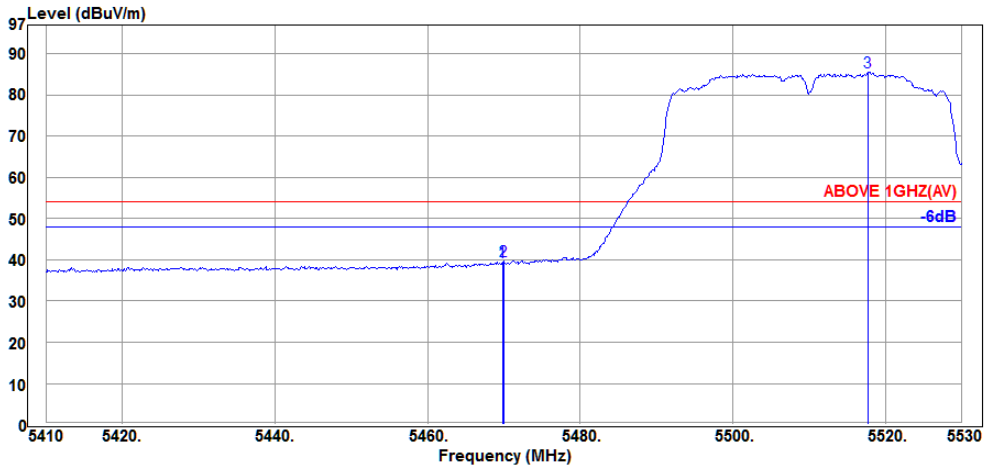
Mode	802.11n-HT40	Frequency	TX 5510MHz



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5469.88	34.77	8.65	3.98	47.40	74.00	26.60	Peak
5470.00	34.77	8.65	3.84	47.26	74.00	26.74	Peak
5515.60	34.82	8.80	50.52	94.14	---	---	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5469.88	34.77	8.65	-3.84	39.58	54.00	14.42	Average
5470.00	34.77	8.65	-3.72	39.70	54.00	14.30	Average
5517.64	34.82	8.80	42.02	85.64	---	---	Average

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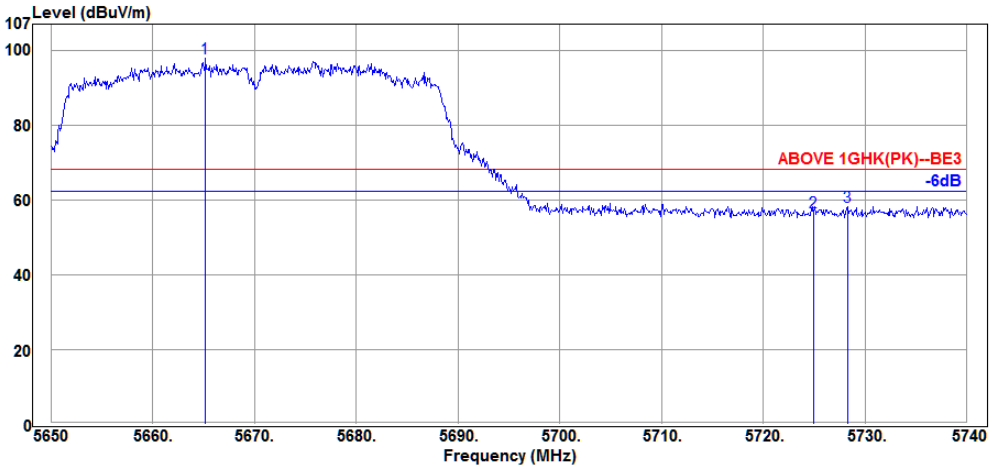
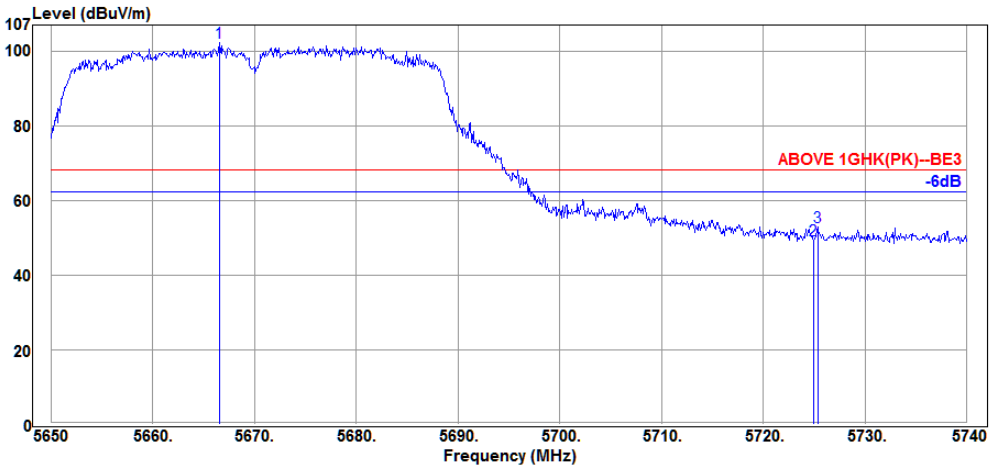
Mode	802.11n-HT40	Frequency	TX 5670MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5665.21	34.99	9.47	53.43	97.89	---	---	Peak
5724.97	35.07	9.78	11.82	56.67	68.20	11.53	Peak
5728.30	35.07	9.78	13.22	58.07	68.20	10.13	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5666.56	35.01	9.57	57.68	102.26	---	---	Peak
5724.97	35.07	9.78	4.65	49.50	68.20	18.70	Peak
5725.33	35.07	9.78	7.99	52.84	68.20	15.36	Peak

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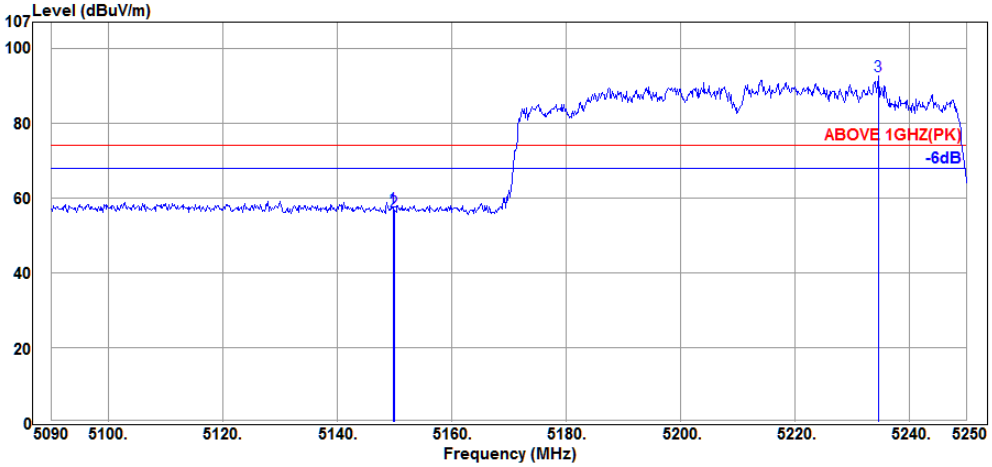
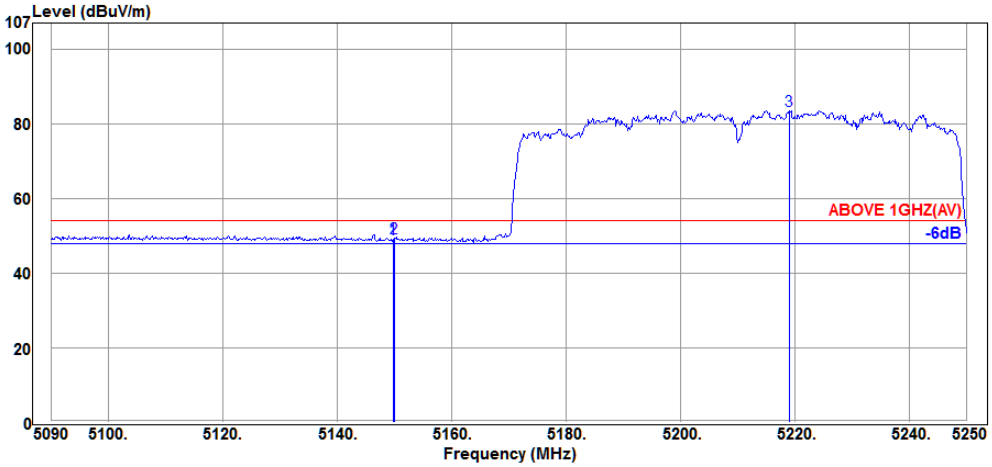
Mode	802.11ac-VHT80	Frequency	TX 5210MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5149.84	34.45	8.84	14.17	57.46	74.00	16.54	Peak
5150.00	34.45	8.84	13.08	56.37	74.00	17.63	Peak
5234.64	34.53	8.74	49.21	92.48	---	---	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5149.84	34.45	8.84	5.94	49.23	54.00	4.77	Average
5150.00	34.45	8.84	6.00	49.29	54.00	4.71	Average
5218.96	34.52	8.74	40.32	83.58	---	---	Average

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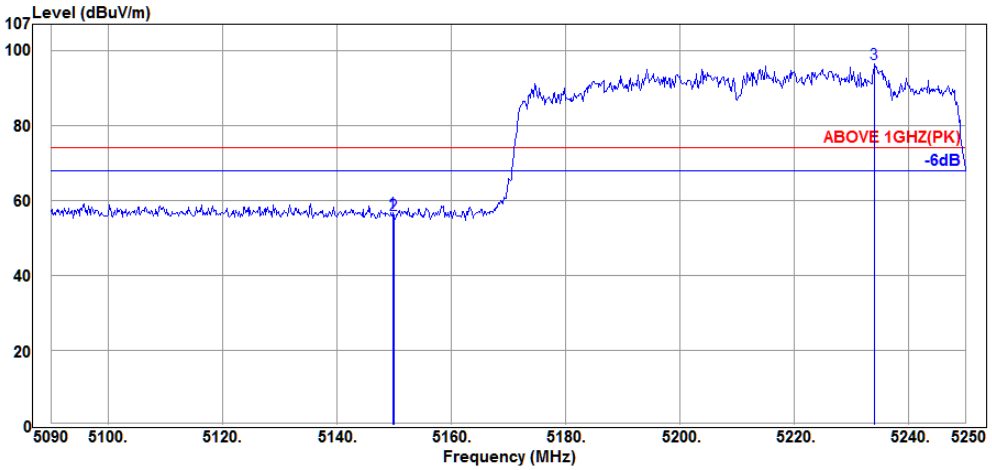
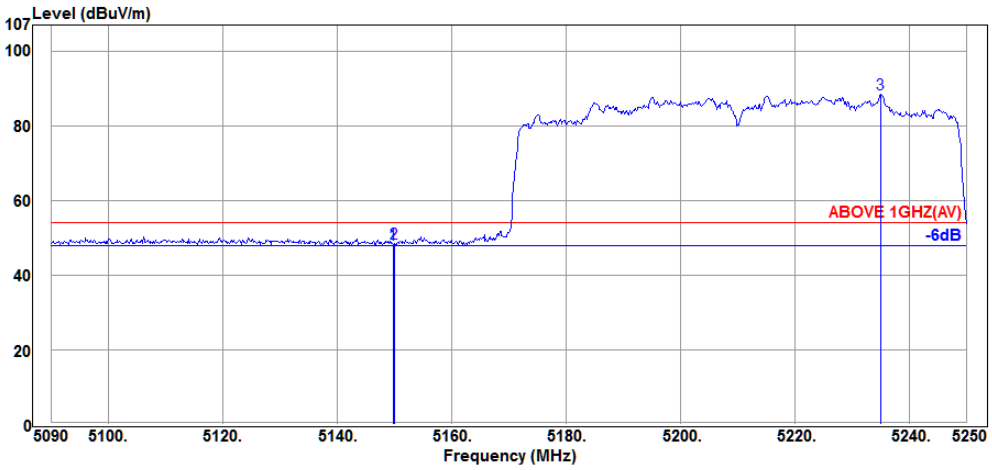
Mode	802.11ac-VHT80	Frequency	TX 5210MHz



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5149.84	34.45	8.84	13.32	56.61	74.00	17.39	Peak
5150.00	34.45	8.84	13.00	56.29	74.00	17.71	Peak
5234.00	34.53	8.74	53.23	96.50	---	---	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5149.84	34.45	8.84	4.91	48.20	54.00	5.80	Average
5150.00	34.45	8.84	5.22	48.51	54.00	5.49	Average
5234.96	34.53	8.74	45.14	88.41	---	---	Average

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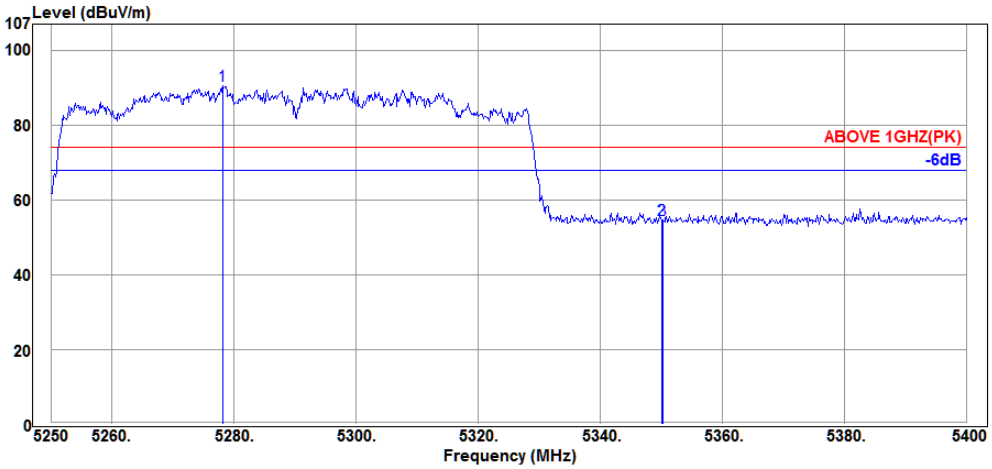
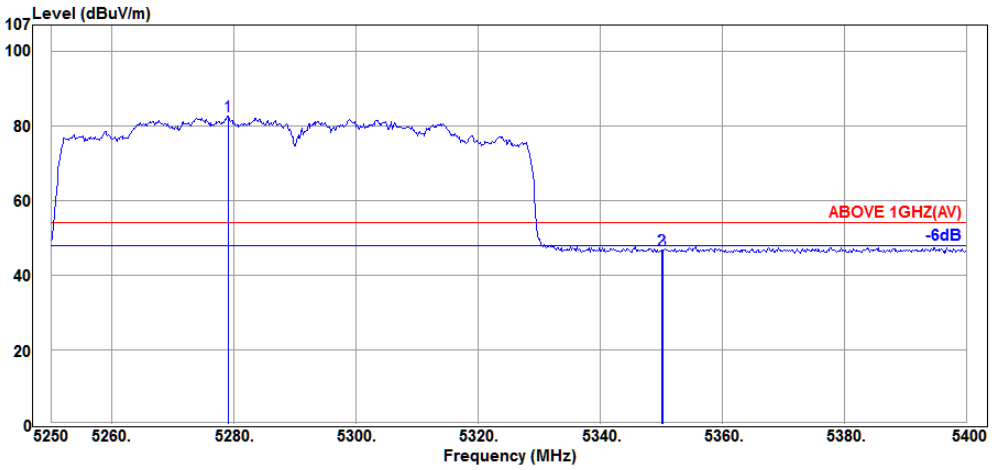
Mode	802.11ac-VHT80	Frequency	TX 5290MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5278.20	34.58	8.74	47.12	90.44	---	---	Peak
5350.05	34.65	8.61	11.52	54.78	74.00	19.22	Peak
5350.20	34.65	8.61	11.37	54.63	74.00	19.37	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5279.10	34.58	8.74	39.27	82.59	---	---	Average
5350.05	34.65	8.61	3.40	46.66	54.00	7.34	Average
5350.20	34.65	8.61	3.52	46.78	54.00	7.22	Average

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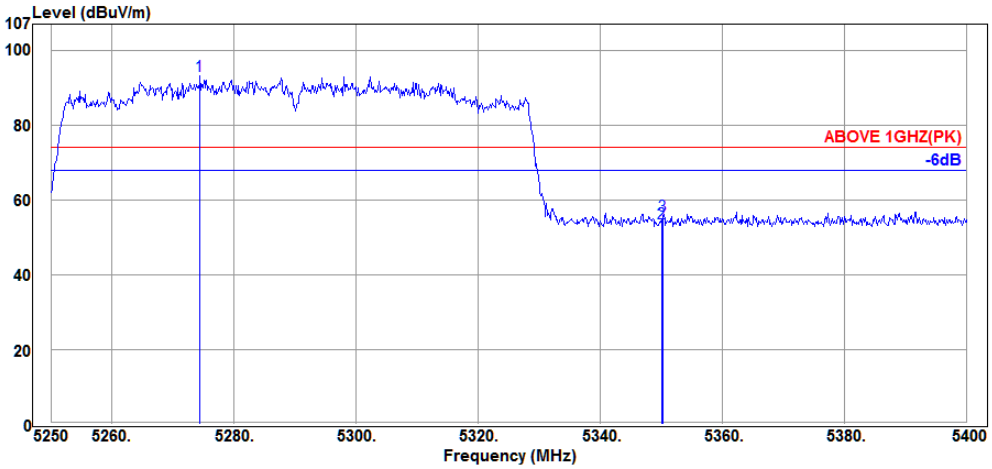
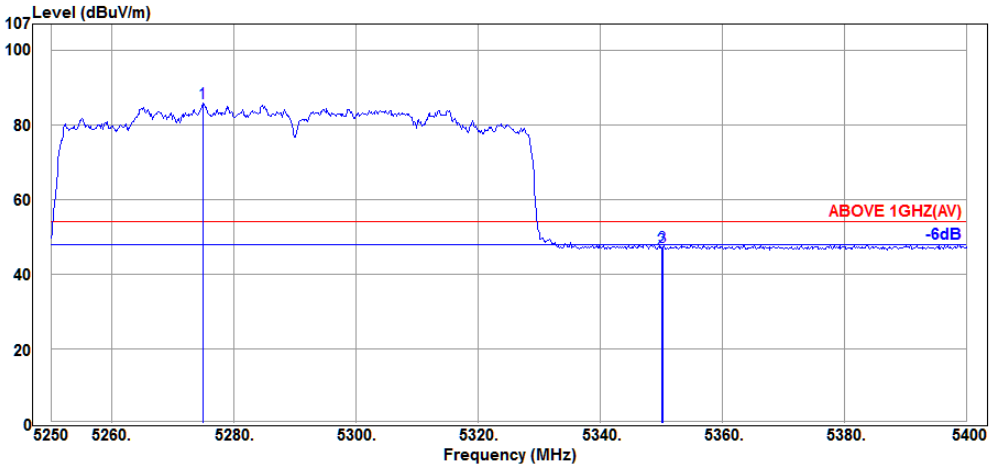
Mode	802.11ac-VHT80	Frequency	TX 5290MHz



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5274.45	34.57	8.74	49.87	93.18	---	---	Peak
5350.05	34.65	8.61	10.57	53.83	74.00	20.17	Peak
5350.20	34.65	8.61	12.72	55.98	74.00	18.02	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5274.90	34.57	8.74	42.47	85.78	---	---	Average
5350.05	34.65	8.61	3.51	46.77	54.00	7.23	Average
5350.20	34.65	8.61	4.13	47.39	54.00	6.61	Average

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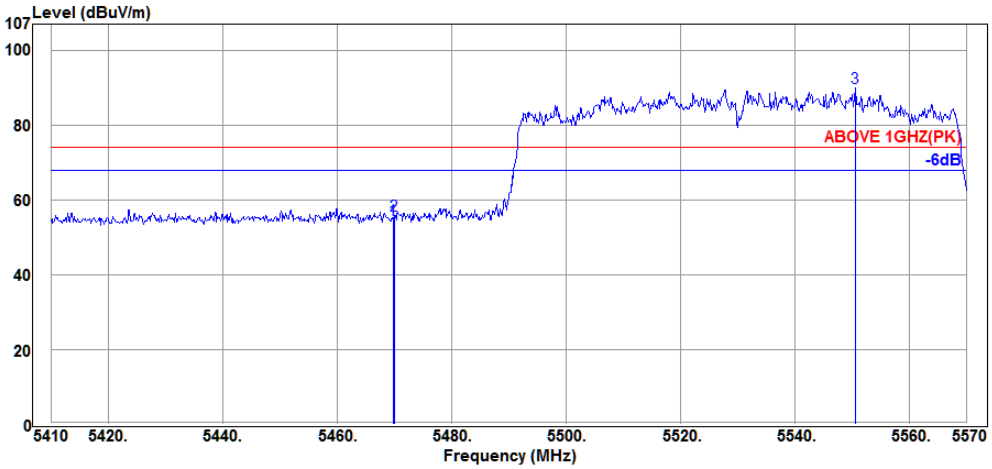
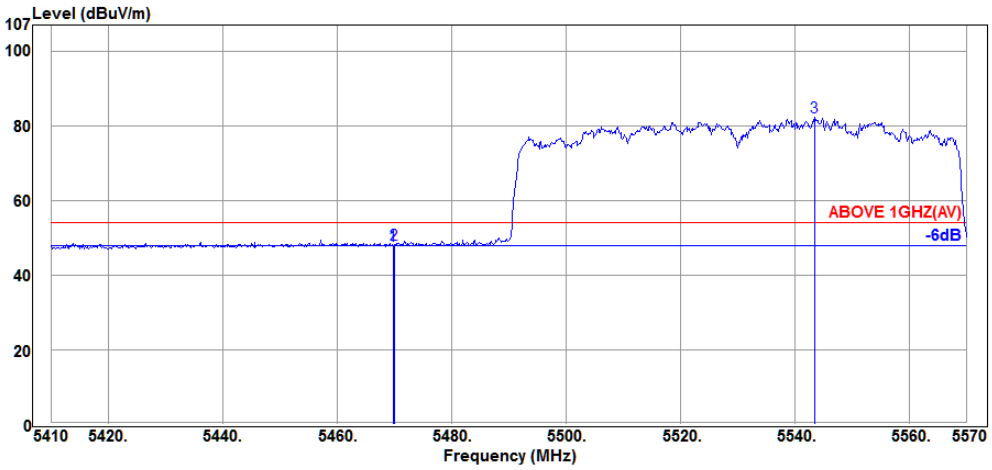
Mode	802.11ac-VHT80	Frequency	TX 5530MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5469.84	34.77	8.65	11.28	54.70	74.00	19.30	Peak
5470.00	34.77	8.65	12.39	55.81	74.00	18.19	Peak
5550.48	34.86	8.94	46.14	89.94	---	---	Peak



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5469.84	34.77	8.65	4.54	47.96	54.00	6.04	Average
5470.00	34.77	8.65	4.70	48.12	54.00	5.88	Average
5543.44	34.84	8.87	38.61	82.32	---	---	Average

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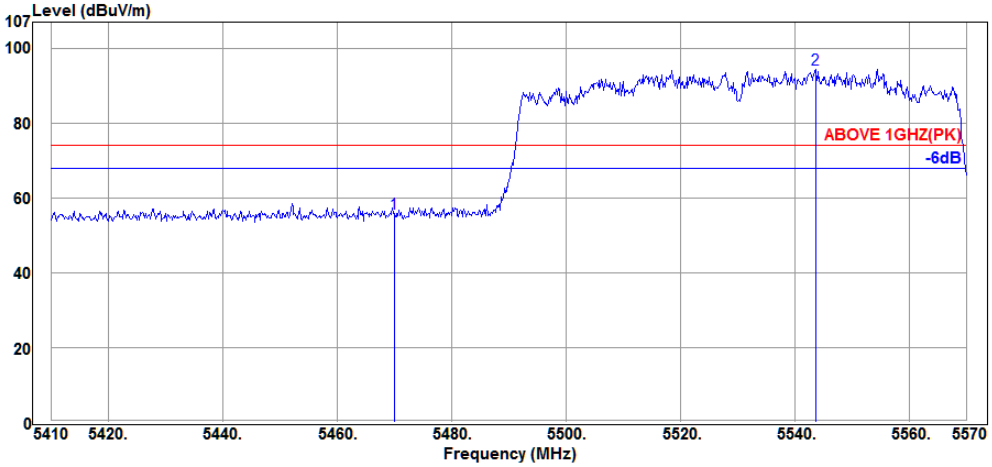
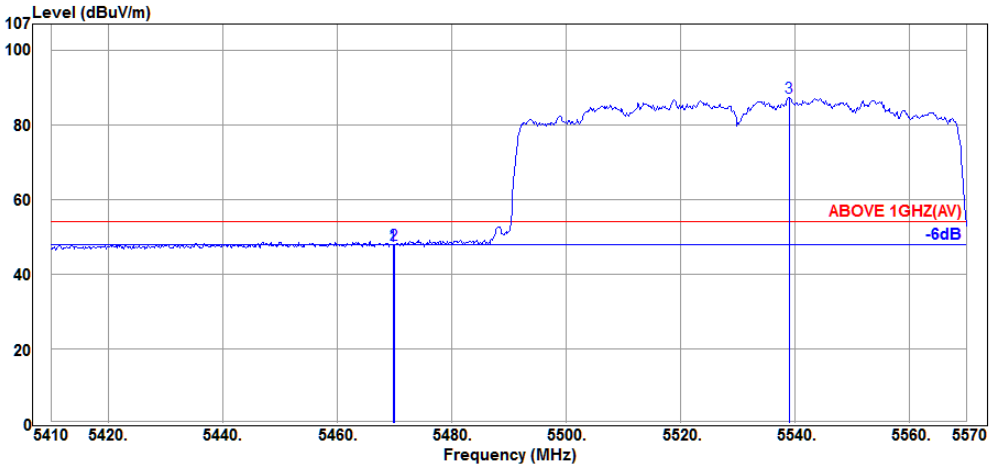
Mode	802.11ac-VHT80	Frequency	TX 5530MHz



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5470.00	34.77	8.65	12.34	55.76	74.00	18.24	Peak
5543.60	34.84	8.87	50.79	94.50	---	---	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5469.84	34.77	8.65	4.19	47.61	54.00	6.39	Average
5470.00	34.77	8.65	4.53	47.95	54.00	6.05	Average
5538.96	34.84	8.87	43.57	87.28	---	---	Average

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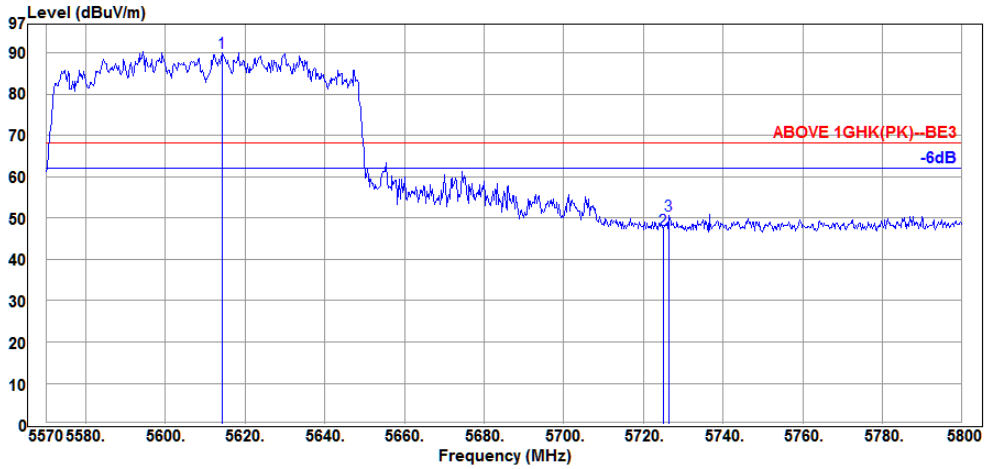
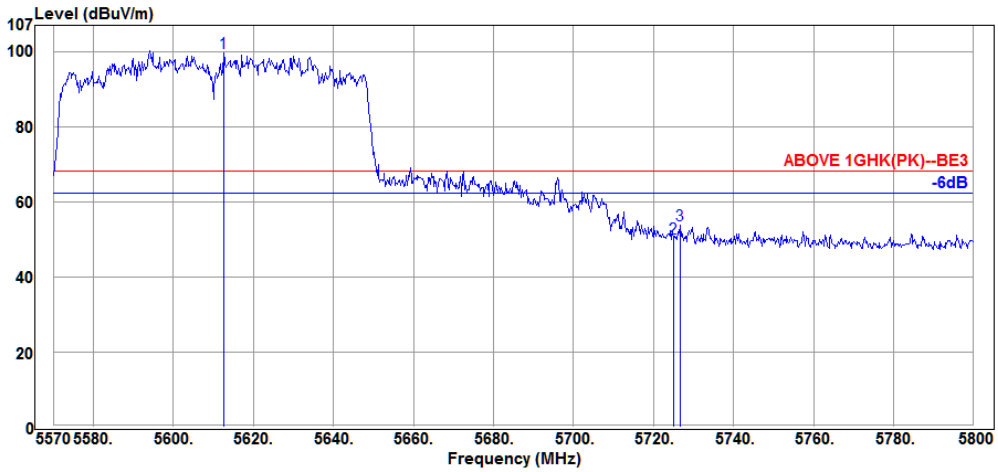
Mode	802.11ac-VHT80	Frequency	TX 5610MHz



Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5614.16	34.92	9.15	45.97	90.04	---	---	Peak
5725.02	35.07	9.78	2.31	47.16	68.20	21.04	Peak
5726.40	35.07	9.78	5.81	50.66	68.20	17.54	Peak



Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
5612.55	34.92	9.15	55.50	99.57	---	---	Peak
5725.02	35.07	9.78	5.38	50.23	68.20	17.97	Peak
5726.63	35.07	9.78	8.91	53.76	68.20	14.44	Peak

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6.5.2. Emissions outside the frequency band:

The emissions (up to 40GHz) not reported for there is no emission be found.

Mode	802.11a	UNII Band	I
		Frequency	TX 5200MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2126.00	31.77	5.43	16.03	53.23	54.00	0.77	Peak
2662.00	32.50	6.07	8.48	47.05	54.00	6.95	Peak
4255.00	33.70	8.00	4.10	45.80	54.00	8.20	Peak

Mode	802.11a	UNII Band	II-2A
		Frequency	TX 5260MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2130.00	31.77	5.43	15.53	52.73	54.00	1.27	Peak
2662.00	32.50	6.07	8.63	47.20	54.00	6.80	Peak
4250.00	33.70	8.00	4.29	45.99	54.00	8.01	Peak

Mode	802.11a	UNII Band	II-2C
		Frequency	TX 5600MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2126.00	31.77	5.43	16.13	53.33	54.00	0.67	Peak
5360.00	34.65	8.61	6.80	50.06	54.00	3.94	Peak
5595.00	34.90	9.08	7.57	51.55	54.00	2.45	Peak
5925.00	35.32	9.62	8.28	53.22	54.00	0.78	Peak

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Mode	802.11a	UNII Band	II-2C
		Frequency	TX 5720MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1722.00	29.56	4.51	11.94	46.01	54.00	7.99	Peak
2132.00	31.79	5.46	15.87	53.12	54.00	0.88	Peak
2292.00	32.01	5.64	9.36	47.01	54.00	6.99	Peak
2658.00	32.50	6.07	8.49	47.06	54.00	6.94	Peak

Mode	802.11a	UNII Band	III
		Frequency	TX 5825MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2132.00	31.79	5.46	16.58	53.83	54.00	0.17	Peak
2300.00	32.01	5.64	10.35	48.00	54.00	6.00	Peak
2656.00	32.48	6.05	8.73	47.26	54.00	6.74	Peak

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Mode	802.11n-HT20	UNII Band	I
		Frequency	TX 5200MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2461.60	32.25	5.80	8.20	46.25	54.00	7.75	Peak
4885.00	34.26	8.47	4.01	46.74	54.00	7.26	Peak
4997.50	34.30	8.78	6.18	49.26	54.00	4.74	Peak
1064.00	28.09	3.42	10.50	42.01	54.00	11.99	Peak
1330.00	28.03	3.84	10.28	42.15	54.00	11.85	Peak
1598.00	28.72	4.22	8.40	41.34	54.00	12.66	Peak
1758.00	29.92	4.65	13.27	47.84	54.00	6.16	Peak

Mode	802.11n-HT20	UNII Band	II-2A
		Frequency	TX 5260MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1330.00	28.03	3.84	9.56	41.43	54.00	12.57	Peak
1764.00	29.92	4.65	14.98	49.55	54.00	4.45	Peak
2132.00	31.79	5.46	14.93	52.18	54.00	1.82	Peak
2298.00	32.01	5.64	8.32	45.97	54.00	8.03	Peak
2656.00	32.48	6.05	7.47	46.00	54.00	8.00	Peak

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Mode	802.11n-HT20	UNII Band	II-2C
		Frequency	TX 5600MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2126.00	31.77	5.43	15.30	52.50	54.00	1.50	Peak
2352.00	32.11	5.69	7.85	45.65	54.00	8.35	Peak
4800.00	34.22	7.86	5.97	48.05	54.00	5.95	Peak
5595.00	34.90	9.08	6.37	50.35	54.00	3.65	Peak
5925.00	35.32	9.62	5.75	50.69	54.00	3.31	Peak

Mode	802.11n-HT20	UNII Band	II-2C
		Frequency	TX 5720MHz

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1064.00	28.09	3.42	9.22	40.73	54.00	13.27	Peak
1332.00	28.03	3.87	9.42	41.32	54.00	12.68	Peak
1600.00	28.72	4.22	8.95	41.89	54.00	12.11	Peak
2130.00	31.77	5.43	7.41	44.61	54.00	9.39	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1598.00	28.72	4.22	9.33	42.27	54.00	11.73	Peak
2132.00	31.79	5.46	15.90	53.15	54.00	0.85	Peak
3195.00	32.86	6.43	5.22	44.51	54.00	9.49	Peak
4255.00	33.70	8.00	5.43	47.13	54.00	6.87	Peak

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Mode	802.11n-HT20	UNII Band	III
		Frequency	TX 5825MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1334.00	28.03	3.87	9.83	41.73	54.00	12.27	Peak
1598.00	28.72	4.22	8.41	41.35	54.00	12.65	Peak
1954.00	31.24	4.93	9.26	45.43	54.00	8.57	Peak
2130.00	31.77	5.43	14.74	51.94	54.00	2.06	Peak
2300.00	32.01	5.64	11.03	48.68	54.00	5.32	Peak

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Mode	802.11n-HT40	UNII Band	I
		Frequency	TX 5230MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1144.00	28.07	3.52	11.07	42.66	54.00	11.34	Peak
1334.00	28.03	3.87	11.02	42.92	54.00	11.08	Peak
2132.00	31.79	5.46	15.68	52.93	54.00	1.07	Peak
2298.00	32.01	5.64	9.61	47.26	54.00	6.74	Peak
2666.00	32.50	6.07	9.28	47.85	54.00	6.15	Peak
4450.00	34.02	7.76	3.87	45.65	54.00	8.35	Peak

Mode	802.11n-HT40	UNII Band	II-2A
		Frequency	TX 5270MHz

The emissions not reported for there is no emission be found.

Mode	802.11n-HT40	UNII Band	II-2C
		Frequency	TX 5590MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1332.00	28.03	3.87	10.26	42.16	54.00	11.84	Peak
1720.00	29.56	4.51	11.39	45.46	54.00	8.54	Peak
2134.00	31.79	5.46	16.00	53.25	54.00	0.75	Peak
2298.00	32.01	5.64	8.11	45.76	54.00	8.24	Peak
2658.00	32.50	6.07	7.99	46.56	54.00	7.44	Peak
4790.00	34.22	7.82	5.86	47.90	54.00	6.10	Peak

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Mode	802.11n-HT40	UNII Band	II-2C
		Frequency	TX 5710MHz

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2124.00	31.77	5.43	7.98	45.18	54.00	8.82	Peak
4895.00	34.26	8.47	3.74	46.47	54.00	7.53	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2656.00	32.48	6.05	7.86	46.39	54.00	7.61	Peak

Mode	802.11n-HT40	UNII Band	III
		Frequency	TX 5795MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
2124.00	31.77	5.43	16.18	53.38	54.00	0.62	Peak
2314.00	32.03	5.65	7.94	45.62	54.00	8.38	Peak
2664.00	32.50	6.07	11.25	49.82	54.00	4.18	Peak
4965.00	34.29	8.68	4.84	47.81	54.00	6.19	Peak

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Mode	802.11ac-VHT80	UNII Band	I
		Frequency	TX 5210MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1600.00	28.72	4.22	11.28	44.22	54.00	9.78	Peak
2132.00	31.79	5.46	15.07	52.32	54.00	1.68	Peak
2300.00	32.01	5.64	8.38	46.03	54.00	7.97	Peak
2666.00	32.50	6.07	11.31	49.88	54.00	4.12	Peak
4465.00	34.05	7.74	5.33	47.12	54.00	6.88	Peak

Mode	802.11ac-VHT80	UNII Band	II-2A
		Frequency	TX 5290MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1598.00	28.72	4.22	10.03	42.97	54.00	11.03	Peak
2130.00	31.77	5.43	15.79	52.99	54.00	1.01	Peak
2294.00	32.01	5.64	8.64	46.29	54.00	7.71	Peak
2656.00	32.48	6.05	5.89	44.42	54.00	9.58	Peak

Mode	802.11ac-VHT80	UNII Band	II-2C
		Frequency	TX 5610MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1328.00	28.03	3.84	10.01	41.88	54.00	12.12	Peak
2130.00	31.77	5.43	15.47	52.67	54.00	1.33	Peak
4810.00	34.22	7.86	6.52	48.60	54.00	5.40	Peak

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Mode	802.11ac-VHT80	UNII Band	II-2C
		Frequency	TX 5690MHz

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1330.00	28.03	3.84	9.40	41.27	54.00	12.73	Peak
1594.00	28.72	4.22	9.34	42.28	54.00	11.72	Peak
1720.00	29.56	4.51	8.00	42.07	54.00	11.93	Peak
2130.00	31.77	5.43	15.60	52.80	54.00	1.20	Peak
2306.00	32.03	5.65	7.88	45.56	54.00	8.44	Peak
2460.00	32.25	5.80	7.23	45.28	54.00	8.72	Peak
2664.00	32.50	6.07	10.25	48.82	54.00	5.18	Peak
3655.00	32.96	7.31	4.98	45.25	54.00	8.75	Peak
3995.00	33.30	7.21	5.86	46.37	54.00	7.63	Peak
4875.00	34.25	8.35	5.34	47.94	54.00	6.06	Peak

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Mode	802.11ac-VHT80	UNII Band	III
		Frequency	TX 5775MHz

Antenna at Horizontal Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1958.00	31.24	4.93	15.15	51.32	54.00	2.68	Peak

Antenna at Vertical Polarization

Emission Frequency (MHz)	Antenna Factor (dB/m)	Cable Loss (dB)	Meter Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
1332.00	28.03	3.87	9.89	41.79	54.00	12.21	Peak
2130.00	31.77	5.43	15.61	52.81	54.00	1.19	Peak
2292.00	32.01	5.64	7.05	44.70	54.00	9.30	Peak
2464.00	32.25	5.80	6.85	44.90	54.00	9.10	Peak
2664.00	32.50	6.07	5.44	44.01	54.00	9.99	Peak
4260.00	33.73	8.00	5.26	46.99	54.00	7.01	Peak
4950.00	34.28	8.62	3.76	46.66	54.00	7.34	Peak

6.5.3. Emissions in Non-restricted Frequency Bands

Pursuant to 789033 D02 General UNII Test Procedures New Rules v01r03 that emission levels below the 15.209 general radiated emissions limits is not required.

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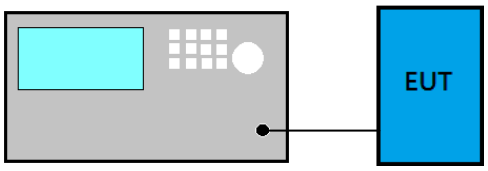
7. EMISSION BANDWIDTH MEASUREMENT

7.1. Block Diagram of Test Setup



7.2. Specification Limits

Frequency Band (MHz)	Limit
5150 to 5250	Reference only
5250 to 5350	
5470 to 5725	
5725 to 5850	≥ 500kHz

7.3. Test Procedure

Following measurement procedure is reference to 789033 D02 General UNII Test Procedures New Rules v01r03:

■ Applicable to all bands except to 5725 MHz- 5850 MHz

(1) Set RBW= 1% of the emission bandwidth
(2) Set VBW > RBW
(3) Detector = Peak
(4) Trace mode = max hold
(5) Setting channel bandwidth function x dB to -26 dB to record the final bandwidth.

■ 5725 MHz- 5850 MHz

(1) Set RBW = 100 kHz.
(2) Set the video bandwidth (VBW) ≥ 3 × RBW.
(3) Detector = Peak.
(4) Trace mode = max hold.
(5) Sweep = auto couple.
(6) Allow the trace to stabilize.
(7) Setting channel bandwidth function x dB to -6 dB to record the final bandwidth.

7.4. Test Results

Please refer to Appendix A

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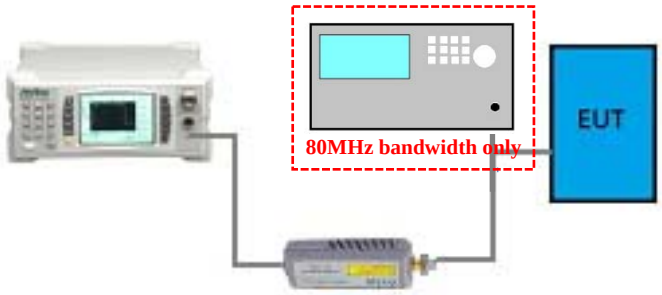
8. MAXIMUM OUTPUT POWER MEASUREMENT

8.1. Block Diagram of Test Setup



8.2. Specification Limits

Frequency Band (MHz)	Category	Limit
5150 to 5250	Outdoor Access Point	1 W(30 dBm)/ Max e.i.r.p. ≤125 mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon
	Fixed point-to-point Access Point	1 W(30 dBm)
	Indoor Access Point	1 W(30 dBm)
	Mobile and Portable client device	250 mW(24 dBm)
5250 to 5350	N/A	250 mW or 11 dBm + 10 log B[Note1]
5470 to 5725		250 mW or 11 dBm + 10 log B [Note1]
5725 to 5850		1 W(30 dBm)

Note 1: B is the 26 dB emission bandwidth, which presented in section 7 and appendix A.1.

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8.3. Test Procedure

Following measurement procedure is reference to 789033 D02 General UNII Test Procedures New Rules v01r03:

■Method AVGPM (Measurement using an RF average power meter):

EUT is connected to power sensor and record the maximum average output power and duty cycle factor is added when duty cycle presented in section 3.5 is < 98%.

■Method AVGSA-2 (Spectrum channel power)

(1) Set span to at least 1.5 times the OBW
(2) Set RBW = 1 MHz
(3) Set the video bandwidth (VBW) ≥ 3 MHz.
(4) Detector = RMS.
(5) Trace mode = trace average at least 100 traces
(6) Sweep = auto couple.
(7) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges.
(8) Duty cycle factor is added when duty cycle presented in section 3.5 is < 98%.

8.4. Test Results

Please refer to Appendix A

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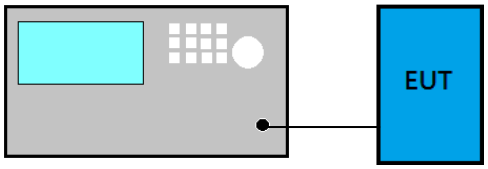
9. EMISSION LIMITATIONS MEASUREMENT

9.1. Block Diagram of Test Setup



9.2. Specification Limits

Frequency Band (MHz)	E.I.R.P. Limit
5150 to 5250	-27 dBm
5250 to 5350	
5470 to 5725	

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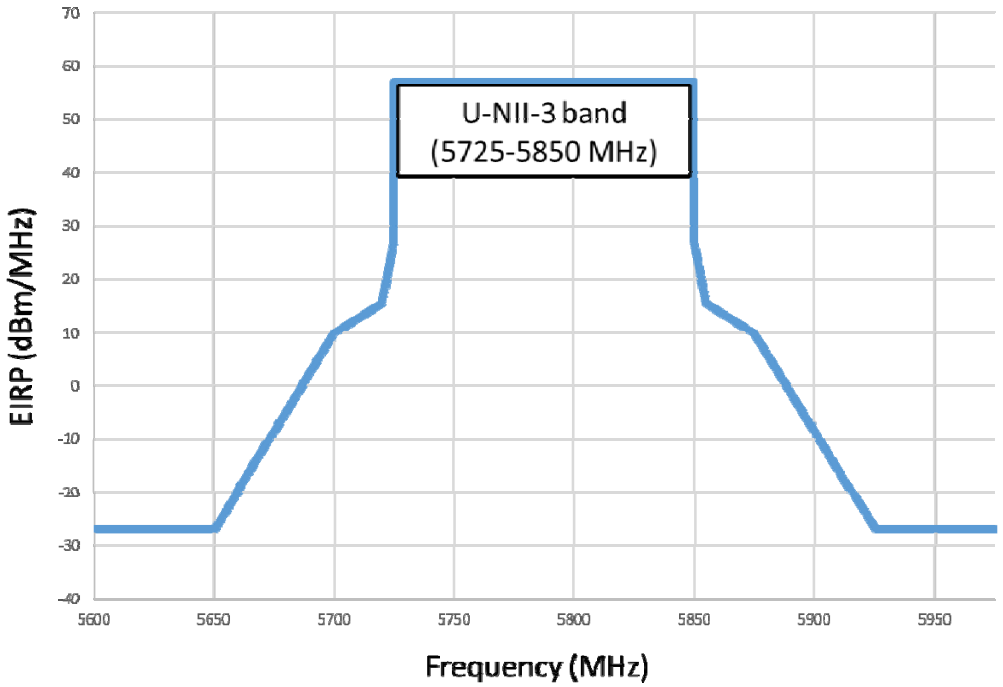
Frequency Band (MHz)	E.I.R.P. Limit	
5725 to 5850	☒	15.407(b)(4)(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
	☐	15.407(b)(4)(ii) ,compliance with the emission limits in § 15.247(d) Shall be at least 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power,. Attenuation below the general limits specified in §15.209(a) is not required. In addition,radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c))



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9.3. Test Procedure

Following measurement procedure is reference to 789033 D02 General UNII Test Procedures New Rules v01r03:

(1) RBW = 1 MHz
(2) VBW ≥ 3 x RBW
(3) Detector = Peak
(4) Sweep time = auto
(5) Trace mode = max hold
(6) Allow sweeps to continue until the trace stabilizes.

9.4. Test Results

Please refer to Appendix A

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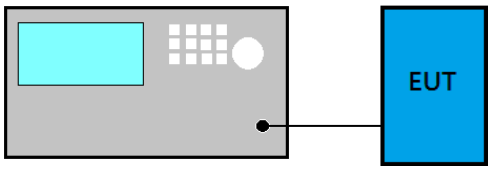
10. POWER SPECTRAL DENSITY MEASUREMENT

10.1. Block Diagram of Test Setup



10.2. Specification Limits

Frequency Band (MHz)	Category	Limit
5150 to 5250	Outdoor Access Point	17dBm
	Fixed point-to-point Access Point	
	Indoor Access Point	
	Mobile and Portable client device	11 dBm/MHz
5250 to 5350	N/A	11 dBm/MHz
5470 to 5725		11 dBm/MHz
5725 to 5850		30dBm/500 kHz

10.3. Test Procedure

Following measurement procedure is reference to 789033 D02 General UNII Test Procedures New Rules v01r03:

■Method AVGSA-2 (Spectrum channel power)

(1) Set span to at least 1.5 times the OBW
(2) Set RBW = 1 MHz
(3) Set the video bandwidth (VBW) ≥ 3 MHz.
(4) Detector = RMS.
(5) Trace mode = trace average at least 100 traces
(6) Sweep = auto couple.
(7) Use peak search function to find out the maximum power density.
(8) Duty cycle factor is added when duty cycle presented in section 3.5 is < 98%.

10.4. Test Results

Please refer to Appendix A

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11. DEVIATION TO TEST SPECIFICATIONS

【NONE】

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