

## 4.6. Emissions Measurement

### 4.6.1. Limit

30dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/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

### 4.6.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RBW / VBW (Emission in restricted band)	1 MHz / 3MHz for Peak, 1 MHz / 1/T for Average
RBW / VBW (30dBc in any 100 kHz bandwidth emission)	100 kHz / 300 kHz for Peak

### 4.6.3. Test Procedures

For Radiated band edges Measurement:

1. The test procedure is the same as section 4.5.3.

For Radiated Out of Band Emission Measurement:

1. Test was performed in accordance with KDB558074 D01 v04 for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247 section 10.1 Unwanted Emissions into Non-Restricted Frequency Bands Measurement Procedure.

#### **4.6.4. Test Setup Layout**

For Radiated band edges Measurement:

This test setup layout is the same as that shown in section 4.5.4.

For Radiated Out of Band Emission Measurement:

This test setup layout is the same as that shown in section 4.5.4.

#### **4.6.5. Test Deviation**

There is no deviation with the original standard.

#### **4.6.6. EUT Operation during Test**

The EUT was programmed to be in continuously transmitting mode.

#### 4.6.7. Test Result of Band Edge and Fundamental Emissions

<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
<b>Test Date</b>	Nov. 21, 2015		
<b>Test Mode</b>	Mode 1: EUT 1 + Set 1 Ceiling Mount Omni Antenna / 4 dBi		

##### Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2388.60	63.17	74.00	-10.83	29.85	5.01	28.31	0.00	153	360	Peak	VERTICAL
2	2390.00	52.25	54.00	-1.75	18.93	5.01	28.31	0.00	153	360	Average	VERTICAL
3	2409.40	118.06			84.67	5.04	28.35	0.00	153	360	Peak	VERTICAL
4	2411.20	109.36			75.95	5.05	28.36	0.00	153	360	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

##### Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2374.20	56.73	74.00	-17.27	23.45	4.99	28.29	0.00	136	82	Peak	HORIZONTAL
2	2389.80	46.10	54.00	-7.90	12.78	5.01	28.31	0.00	136	82	Average	HORIZONTAL
3	2432.60	104.63			71.17	5.07	28.39	0.00	136	82	Peak	HORIZONTAL
4	2436.20	98.38			64.92	5.07	28.39	0.00	136	82	Average	HORIZONTAL
5	2483.50	46.41	54.00	-7.59	12.81	5.12	28.48	0.00	136	82	Average	HORIZONTAL
6	2488.20	57.86	74.00	-16.14	24.26	5.12	28.48	0.00	136	82	Peak	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

##### Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2457.40	104.36			70.84	5.09	28.43	0.00	146	359	Average	VERTICAL
2	2468.20	116.27			82.71	5.11	28.45	0.00	146	359	Peak	VERTICAL
3	2483.50	64.29	74.00	-9.71	30.69	5.12	28.48	0.00	146	359	Peak	VERTICAL
4	2484.00	52.94	54.00	-1.06	19.34	5.12	28.48	0.00	146	359	Average	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
<b>Test Date</b>	Nov. 21, 2015		
<b>Test Mode</b>	Mode 1: EUT 1 + Set 1 Ceiling Mount Omni Antenna / 4 dBi		

### Channel 3

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2388.00	69.99	74.00	-4.01	36.67	5.01	28.31	0.00	125	360	Peak	VERTICAL
2	2389.60	52.98	54.00	-1.02	19.66	5.01	28.31	0.00	125	360	Average	VERTICAL
3	2411.60	101.87			68.46	5.05	28.36	0.00	125	360	Average	VERTICAL
4	2429.60	112.39			78.95	5.06	28.38	0.00	125	360	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

### Channel 6

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2387.00	63.62	74.00	-10.38	30.30	5.01	28.31	0.00	141	360	Peak	VERTICAL
2	2390.00	50.60	54.00	-3.40	17.28	5.01	28.31	0.00	141	360	Average	VERTICAL
3	2426.20	105.62			72.18	5.06	28.38	0.00	141	360	Average	VERTICAL
4	2439.80	115.19			81.70	5.08	28.41	0.00	141	360	Peak	VERTICAL
5	2483.50	52.96	54.00	-1.04	19.36	5.12	28.48	0.00	141	360	Average	VERTICAL
6	2484.60	70.18	74.00	-3.82	36.58	5.12	28.48	0.00	141	360	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

### Channel 9

	Freq	Level	Limit	Over	Read	CableAntenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase	
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2440.46	106.44			72.95	5.08	28.41	0.00	150	0	Average	VERTICAL
2	2441.10	111.86			78.37	5.08	28.41	0.00	150	0	Peak	VERTICAL
3	2483.73	52.32	54.00	-1.68	18.72	5.12	28.48	0.00	150	0	Average	VERTICAL
4	2486.62	70.95	74.00	-3.05	37.35	5.12	28.48	0.00	150	0	Peak	VERTICAL

Item 1, 2 are the fundamental frequency at 2452 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
<b>Test Date</b>	Nov. 21, 2015		
<b>Test Mode</b>	Mode 2: EUT 1 + Set 2 Sector Antenna / 7.5 dBi		

**Channel 1**

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.40	63.88	74.00	-10.12	30.56	5.01	28.31	0.00	136	0	Peak	VERTICAL
2	2390.00	52.54	54.00	-1.46	19.22	5.01	28.31	0.00	136	0	Average	VERTICAL
3	2413.60	119.44			86.03	5.05	28.36	0.00	136	0	Peak	VERTICAL
4	2414.20	107.63			74.22	5.05	28.36	0.00	136	0	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

**Channel 6**

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.80	59.83	74.00	-14.17	26.51	5.01	28.31	0.00	147	359	Peak	HORIZONTAL
2	2390.00	48.62	54.00	-5.38	15.30	5.01	28.31	0.00	147	359	Average	HORIZONTAL
3	2440.60	121.64			88.15	5.08	28.41	0.00	147	359	Peak	HORIZONTAL
4	2443.00	110.56			77.07	5.08	28.41	0.00	147	359	Average	HORIZONTAL
5	2483.50	50.44	54.00	-3.56	16.84	5.12	28.48	0.00	147	359	Average	HORIZONTAL
6	2512.20	62.62	74.00	-11.38	28.92	5.15	28.55	0.00	147	359	Peak	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

**Channel 11**

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2459.80	116.30			82.78	5.09	28.43	0.00	117	0	Peak	HORIZONTAL
2	2468.80	105.70			72.14	5.11	28.45	0.00	117	0	Average	HORIZONTAL
3	2483.50	52.66	54.00	-1.34	19.06	5.12	28.48	0.00	117	0	Average	HORIZONTAL
4	2483.80	64.30	74.00	-9.70	30.70	5.12	28.48	0.00	117	0	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
<b>Test Date</b>	Nov. 21, 2015		
<b>Test Mode</b>	Mode 2: EUT 1 + Set 2 Sector Antenna / 7.5 dBi		

### Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2388.80	64.88	74.00	-9.12	31.56	5.01	28.31	0.00	104	0	Peak	VERTICAL
2	2389.20	52.90	54.00	-1.10	19.58	5.01	28.31	0.00	104	0	Average	VERTICAL
3	2412.80	108.39			74.98	5.05	28.36	0.00	104	0	Average	VERTICAL
4	2414.80	113.80			80.39	5.05	28.36	0.00	104	0	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

### Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2390.00	64.92	74.00	-9.08	31.60	5.01	28.31	0.00	102	0	Peak	VERTICAL
2	2390.00	52.27	54.00	-1.73	18.95	5.01	28.31	0.00	102	0	Average	VERTICAL
3	2425.00	115.54			82.12	5.05	28.37	0.00	102	0	Peak	VERTICAL
4	2428.20	110.15			76.71	5.06	28.38	0.00	102	0	Average	VERTICAL
5	2483.50	67.27	74.00	-6.73	33.67	5.12	28.48	0.00	102	0	Peak	VERTICAL
6	2483.50	52.73	54.00	-1.27	19.13	5.12	28.48	0.00	102	0	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

### Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2442.00	111.82			78.33	5.08	28.41	0.00	101	360	Peak	VERTICAL
2	2444.80	102.99			69.50	5.08	28.41	0.00	101	360	Average	VERTICAL
3	2484.00	65.12	74.00	-8.88	31.52	5.12	28.48	0.00	101	360	Peak	VERTICAL
4	2484.40	52.39	54.00	-1.61	18.79	5.12	28.48	0.00	101	360	Average	VERTICAL

Item 1, 2 are the fundamental frequency at 2452 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.



<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
<b>Test Date</b>	Nov. 21, 2015		
<b>Test Mode</b>	Mode 3: EUT 1 + Set 3 Sector Antenna / 5.5 dBi		

### Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2390.00	66.94	74.00	-7.06	33.62	5.01	28.31	0.00	151	2	Peak	VERTICAL
2	2390.00	52.46	54.00	-1.54	19.14	5.01	28.31	0.00	151	2	Average	VERTICAL
3	2409.40	116.13			82.74	5.04	28.35	0.00	151	2	Peak	VERTICAL
4	2417.80	104.01			70.60	5.05	28.36	0.00	151	2	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

### Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2354.20	59.10	74.00	-14.90	25.89	4.96	28.25	0.00	151	5	Peak	VERTICAL
2	2360.20	48.40	54.00	-5.60	15.16	4.97	28.27	0.00	151	5	Average	VERTICAL
3	2435.00	109.47			76.01	5.07	28.39	0.00	151	5	Average	VERTICAL
4	2439.00	119.49			86.03	5.07	28.39	0.00	151	5	Peak	VERTICAL
5	2484.20	48.69	54.00	-5.31	15.09	5.12	28.48	0.00	151	5	Average	VERTICAL
6	2485.80	60.83	74.00	-13.17	27.23	5.12	28.48	0.00	151	5	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

### Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2461.20	108.36			74.82	5.10	28.44	0.00	118	7	Average	HORIZONTAL
2	2465.60	115.46			81.92	5.10	28.44	0.00	118	7	Peak	HORIZONTAL
3	2483.50	62.44	74.00	-11.56	28.84	5.12	28.48	0.00	118	7	Peak	HORIZONTAL
4	2483.50	52.83	54.00	-1.17	19.23	5.12	28.48	0.00	118	7	Average	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
<b>Test Date</b>	Nov. 21, 2015		
<b>Test Mode</b>	Mode 3: EUT 1 + Set 3 Sector Antenna / 5.5 dBi		

### Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2386.80	62.72	74.00	-11.28	29.40	5.01	28.31	0.00	105	14	Peak	VERTICAL
2	2389.60	52.41	54.00	-1.59	19.09	5.01	28.31	0.00	105	14	Average	VERTICAL
3	2409.20	103.74			70.35	5.04	28.35	0.00	105	14	Average	VERTICAL
4	2424.80	110.62			77.20	5.05	28.37	0.00	105	14	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

### Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.00	68.63	74.00	-5.37	35.31	5.01	28.31	0.00	147	6	Peak	HORIZONTAL
2	2390.00	51.58	54.00	-2.42	18.26	5.01	28.31	0.00	147	6	Average	HORIZONTAL
3	2427.00	113.21			79.77	5.06	28.38	0.00	147	6	Peak	HORIZONTAL
4	2428.00	104.81			71.37	5.06	28.38	0.00	147	6	Average	HORIZONTAL
5	2483.50	52.08	54.00	-1.92	18.48	5.12	28.48	0.00	147	6	Average	HORIZONTAL
6	2486.00	64.00	74.00	-10.00	30.40	5.12	28.48	0.00	147	6	Peak	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

### Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2441.20	101.80			68.31	5.08	28.41	0.00	142	8	Average	HORIZONTAL
2	2450.00	112.43			78.93	5.08	28.42	0.00	142	8	Peak	HORIZONTAL
3	2484.00	68.25	74.00	-5.75	34.65	5.12	28.48	0.00	142	8	Peak	HORIZONTAL
4	2484.40	52.94	54.00	-1.06	19.34	5.12	28.48	0.00	142	8	Average	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2452 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.



<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
<b>Test Date</b>	Nov. 20, 2015		
<b>Test Mode</b>	Mode 4: EUT 1 + Set 4 Sector Antenna / 10.5 dBi		

### Channel 1

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.20	64.51	74.00	-9.49	31.19	5.01	28.31	0.00	150	0	Peak	VERTICAL
2	2390.00	52.80	54.00	-1.20	19.48	5.01	28.31	0.00	150	0	Average	VERTICAL
3	2409.20	119.63			86.24	5.04	28.35	0.00	150	0	Peak	VERTICAL
4	2413.60	110.04			76.63	5.05	28.36	0.00	150	0	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

### Channel 6

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.40	62.71	74.00	-11.29	29.39	5.01	28.31	0.00	148	360	Peak	VERTICAL
2	2390.00	52.33	54.00	-1.67	19.01	5.01	28.31	0.00	148	360	Average	VERTICAL
3	2439.40	114.46			80.97	5.08	28.41	0.00	148	360	Average	VERTICAL
4	2441.40	126.66			93.17	5.08	28.41	0.00	148	360	Peak	VERTICAL
5	2490.20	63.81	74.00	-10.19	30.19	5.13	28.49	0.00	148	360	Peak	VERTICAL
6	2519.00	51.80	54.00	-2.20	18.06	5.16	28.58	0.00	148	360	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

### Channel 11

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2460.00	107.99			74.47	5.09	28.43	0.00	140	360	Average	HORIZONTAL
2	2463.60	119.50			85.96	5.10	28.44	0.00	140	360	Peak	HORIZONTAL
3	2483.50	52.57	54.00	-1.43	18.97	5.12	28.48	0.00	140	360	Average	HORIZONTAL
4	2484.00	63.76	74.00	-10.24	30.16	5.12	28.48	0.00	140	360	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
<b>Test Date</b>	Nov. 20, 2015		
<b>Test Mode</b>	Mode 4: EUT 1 + Set 4 Sector Antenna / 10.5 dBi		

### Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.60	52.73	54.00	-1.27	19.41	5.01	28.31	0.00	153	0	Average	VERTICAL
2	2390.00	63.57	74.00	-10.43	30.25	5.01	28.31	0.00	153	0	Peak	VERTICAL
3	2410.80	104.45			71.06	5.04	28.35	0.00	153	0	Average	VERTICAL
4	2424.40	113.96			80.54	5.05	28.37	0.00	153	0	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

### Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.00	68.14	74.00	-5.86	34.82	5.01	28.31	0.00	156	360	Peak	VERTICAL
2	2390.00	52.83	54.00	-1.17	19.51	5.01	28.31	0.00	156	360	Average	VERTICAL
3	2439.40	118.64			85.15	5.08	28.41	0.00	156	360	Peak	VERTICAL
4	2443.80	106.76			73.27	5.08	28.41	0.00	156	360	Average	VERTICAL
5	2483.50	52.35	54.00	-1.65	18.75	5.12	28.48	0.00	156	360	Average	VERTICAL
6	2485.00	65.10	74.00	-8.90	31.50	5.12	28.48	0.00	156	360	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

### Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2444.40	105.85			72.36	5.08	28.41	0.00	128	359	Average	HORIZONTAL
2	2464.40	112.78			79.24	5.10	28.44	0.00	128	359	Peak	HORIZONTAL
3	2483.50	52.33	54.00	-1.67	18.73	5.12	28.48	0.00	128	359	Average	HORIZONTAL
4	2484.00	71.49	74.00	-2.51	37.89	5.12	28.48	0.00	128	359	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2452 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
<b>Test Date</b>	Nov. 21, 2015		
<b>Test Mode</b>	Mode 5: EUT 1 + Set 7 Sector Antenna / 5 dBi		

### Channel 1

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	2389.60	57.55	74.00	-16.45	24.23	5.01	28.31	0.00	177	355	Peak	HORIZONTAL
2	2390.00	52.10	54.00	-1.90	18.78	5.01	28.31	0.00	177	355	Average	HORIZONTAL
3	2405.60	113.87			80.48	5.04	28.35	0.00	177	355	Peak	HORIZONTAL
4	2411.40	104.09			70.68	5.05	28.36	0.00	177	355	Average	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

### Channel 6

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	2389.80	48.18	54.00	-5.82	14.86	5.01	28.31	0.00	141	0	Average	HORIZONTAL
2	2390.00	59.01	74.00	-14.99	25.69	5.01	28.31	0.00	141	0	Peak	HORIZONTAL
3	2439.40	120.22			86.73	5.08	28.41	0.00	141	0	Peak	HORIZONTAL
4	2439.40	111.79			78.30	5.08	28.41	0.00	141	0	Average	HORIZONTAL
5	2483.80	62.44	74.00	-11.56	28.84	5.12	28.48	0.00	141	0	Peak	HORIZONTAL
6	2485.80	49.41	54.00	-4.59	15.81	5.12	28.48	0.00	141	0	Average	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

### Channel 11

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	2459.40	116.51			82.99	5.09	28.43	0.00	165	349	Peak	HORIZONTAL
2	2464.00	104.64			71.10	5.10	28.44	0.00	165	349	Average	HORIZONTAL
3	2483.50	52.75	54.00	-1.25	19.15	5.12	28.48	0.00	165	349	Average	HORIZONTAL
4	2484.00	63.22	74.00	-10.78	29.62	5.12	28.48	0.00	165	349	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
<b>Test Date</b>	Nov. 21, 2015		
<b>Test Mode</b>	Mode 5: EUT 1 + Set 7 Sector Antenna / 5 dBi		

### Channel 3

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	2384.80	52.57	54.00	-1.43	19.25	5.01	28.31	0.00	111	360	Average	VERTICAL
2	2386.40	70.41	74.00	-3.59	37.09	5.01	28.31	0.00	111	360	Peak	VERTICAL
3	2411.20	112.27			78.86	5.05	28.36	0.00	111	360	Peak	VERTICAL
4	2412.80	108.00			74.59	5.05	28.36	0.00	111	360	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

### Channel 6

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	2387.80	64.27	74.00	-9.73	30.95	5.01	28.31	0.00	174	4	Peak	HORIZONTAL
2	2390.00	49.99	54.00	-4.01	16.67	5.01	28.31	0.00	174	4	Average	HORIZONTAL
3	2429.80	108.49			75.05	5.06	28.38	0.00	174	4	Average	HORIZONTAL
4	2449.60	115.25			81.75	5.08	28.42	0.00	174	4	Peak	HORIZONTAL
5	2483.50	52.92	54.00	-1.08	19.32	5.12	28.48	0.00	174	4	Average	HORIZONTAL
6	2484.40	72.74	74.00	-1.26	39.14	5.12	28.48	0.00	174	4	Peak	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

### Channel 9

	Freq	Level	Limit	Over	Read	Cable	Antenna	Preamp	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	cm	deg		
1	2444.40	100.62			67.13	5.08	28.41	0.00	134	0	Average	HORIZONTAL
2	2457.20	110.29			76.77	5.09	28.43	0.00	134	0	Peak	HORIZONTAL
3	2484.00	52.42	54.00	-1.58	18.82	5.12	28.48	0.00	134	0	Average	HORIZONTAL
4	2485.20	70.66	74.00	-3.34	37.06	5.12	28.48	0.00	134	0	Peak	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2452 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
<b>Test Date</b>	Nov. 21, 2015		
<b>Test Mode</b>	Mode 6: EUT 1 + Set 8 Dipole Antenna / 4.66 dBi		

### Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2390.00	62.81	74.00	-11.19	29.49	5.01	28.31	0.00	157	207	Peak	VERTICAL
2	2390.00	52.60	54.00	-1.40	19.28	5.01	28.31	0.00	157	207	Average	VERTICAL
3	2412.80	107.39			73.98	5.05	28.36	0.00	157	207	Average	VERTICAL
4	2416.00	118.19			84.78	5.05	28.36	0.00	157	207	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

### Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2357.00	59.26	74.00	-14.74	26.02	4.97	28.27	0.00	138	37	Peak	VERTICAL
2	2390.00	48.35	54.00	-5.65	15.03	5.01	28.31	0.00	138	37	Average	VERTICAL
3	2439.40	120.96			87.47	5.08	28.41	0.00	138	37	Peak	VERTICAL
4	2439.80	109.97			76.48	5.08	28.41	0.00	138	37	Average	VERTICAL
5	2483.90	59.63	74.00	-14.37	26.03	5.12	28.48	0.00	138	37	Peak	VERTICAL
6	2484.20	49.26	54.00	-4.74	15.66	5.12	28.48	0.00	138	37	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

### Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2461.20	106.25			72.71	5.10	28.44	0.00	142	9	Average	VERTICAL
2	2468.80	113.85			80.29	5.11	28.45	0.00	142	9	Peak	VERTICAL
3	2483.50	52.39	54.00	-1.61	18.79	5.12	28.48	0.00	142	9	Average	VERTICAL
4	2484.40	63.71	74.00	-10.29	30.11	5.12	28.48	0.00	142	9	Peak	VERTICAL

Item 1, 2 are the fundamental frequency at 2462 MHz.



<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
<b>Test Date</b>	Nov. 21, 2015		
<b>Test Mode</b>	Mode 6: EUT 1 + Set 8 Dipole Antenna / 4.66 dBi		

### Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2384.40	52.65	54.00	-1.35	19.33	5.01	28.31	0.00	135	336	Average	VERTICAL
2	2385.20	69.93	74.00	-4.07	36.61	5.01	28.31	0.00	135	336	Peak	VERTICAL
3	2411.20	107.73			74.32	5.05	28.36	0.00	135	336	Average	VERTICAL
4	2430.80	115.16			81.72	5.06	28.38	0.00	135	336	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

### Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2387.20	72.81	74.00	-1.19	39.49	5.01	28.31	0.00	114	209	Peak	VERTICAL
2	2390.00	51.09	54.00	-2.91	17.77	5.01	28.31	0.00	114	209	Average	VERTICAL
3	2423.80	107.79			74.37	5.05	28.37	0.00	114	209	Average	VERTICAL
4	2433.40	118.33			84.87	5.07	28.39	0.00	114	209	Peak	VERTICAL
5	2483.50	50.49	54.00	-3.51	16.89	5.12	28.48	0.00	114	209	Average	VERTICAL
6	2486.20	67.11	74.00	-6.89	33.51	5.12	28.48	0.00	114	209	Peak	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

### Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2441.60	113.62			80.13	5.08	28.41	0.00	104	34	Peak	VERTICAL
2	2445.20	106.47			72.98	5.08	28.41	0.00	104	34	Average	VERTICAL
3	2486.00	52.82	54.00	-1.18	19.22	5.12	28.48	0.00	104	34	Average	VERTICAL
4	2490.40	72.62	74.00	-1.38	39.00	5.13	28.49	0.00	104	34	Peak	VERTICAL

Item 1, 2 are the fundamental frequency at 2452 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.



<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	IEEE 802.11ac MCS0/Nss1 VHT20 CH 1, 6, 11 / Chain 1 + Chain 2 + Chain 3 + Chain 4
<b>Test Date</b>	Nov. 19, 2015		
<b>Test Mode</b>	Mode 7: EUT 2 + Set 10 PIFA Antenna / Chain1:3.81 dBi, Chain2:3.75 dBi, Chain3:3.98 dBi, Chain4:3.47 dBi		

### Channel 1

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2390.00	63.37	74.00	-10.63	30.05	5.01	28.31	0.00	228	357	Peak	VERTICAL
2	2390.00	52.29	54.00	-1.71	18.97	5.01	28.31	0.00	228	357	Average	VERTICAL
3	2404.00	112.24			78.87	5.03	28.34	0.00	228	357	Peak	VERTICAL
4	2404.20	102.40			69.03	5.03	28.34	0.00	228	357	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 2412 MHz.

### Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2352.60	59.40	74.00	-14.60	26.19	4.96	28.25	0.00	212	360	Peak	VERTICAL
2	2358.20	47.86	54.00	-6.14	14.62	4.97	28.27	0.00	212	360	Average	VERTICAL
3	2439.40	116.25			82.76	5.08	28.41	0.00	212	360	Peak	VERTICAL
4	2440.60	106.30			72.81	5.08	28.41	0.00	212	360	Average	VERTICAL
5	2493.40	58.59	74.00	-15.41	24.97	5.13	28.49	0.00	212	360	Peak	VERTICAL
6	2517.80	47.83	54.00	-6.17	14.13	5.15	28.55	0.00	212	360	Average	VERTICAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

### Channel 11

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2464.80	104.39			70.85	5.10	28.44	0.00	275	309	Average	HORIZONTAL
2	2465.60	117.76			84.22	5.10	28.44	0.00	275	309	Peak	HORIZONTAL
3	2483.50	65.06	74.00	-8.94	31.46	5.12	28.48	0.00	275	309	Peak	HORIZONTAL
4	2483.50	52.61	54.00	-1.39	19.01	5.12	28.48	0.00	275	309	Average	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2462 MHz.

<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	IEEE 802.11ac MCS0/Nss1 VHT40 CH 3, 6, 9 / Chain 1 + Chain 2 + Chain 3 + Chain 4
<b>Test Date</b>	Nov. 19, 2015		
<b>Test Mode</b>	Mode 7: EUT 2 + Set 10 PIFA Antenna / Chain1:3.81 dBi, Chain2:3.75 dBi, Chain3:3.98 dBi, Chain4:3.47 dBi		

### Channel 3

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2388.80	70.91	74.00	-3.09	37.59	5.01	28.31	0.00	228	308	Peak	HORIZONTAL
2	2388.80	52.84	54.00	-1.16	19.52	5.01	28.31	0.00	228	308	Average	HORIZONTAL
3	2409.20	103.36			69.97	5.04	28.35	0.00	228	308	Average	HORIZONTAL
4	2425.60	112.62			79.18	5.06	28.38	0.00	228	308	Peak	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2422 MHz.

### Channel 6

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2389.80	46.69	54.00	-7.31	13.37	5.01	28.31	0.00	202	310	Average	HORIZONTAL
2	2390.00	58.45	74.00	-15.55	25.13	5.01	28.31	0.00	202	310	Peak	HORIZONTAL
3	2430.20	99.92			66.48	5.06	28.38	0.00	202	310	Average	HORIZONTAL
4	2449.40	111.94			78.44	5.08	28.42	0.00	202	310	Peak	HORIZONTAL
5	2483.50	67.44	74.00	-6.56	33.84	5.12	28.48	0.00	202	310	Peak	HORIZONTAL
6	2483.50	52.93	54.00	-1.07	19.33	5.12	28.48	0.00	202	310	Average	HORIZONTAL

Item 3, 4 are the fundamental frequency at 2437 MHz.

### Channel 9

	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	2440.80	101.58			68.09	5.08	28.41	0.00	212	303	Average	HORIZONTAL
2	2459.60	110.77			77.25	5.09	28.43	0.00	212	303	Peak	HORIZONTAL
3	2484.00	68.09	74.00	-5.91	34.49	5.12	28.48	0.00	212	303	Peak	HORIZONTAL
4	2484.00	52.68	54.00	-1.32	19.08	5.12	28.48	0.00	212	303	Average	HORIZONTAL

Item 1, 2 are the fundamental frequency at 2452 MHz.

Note:

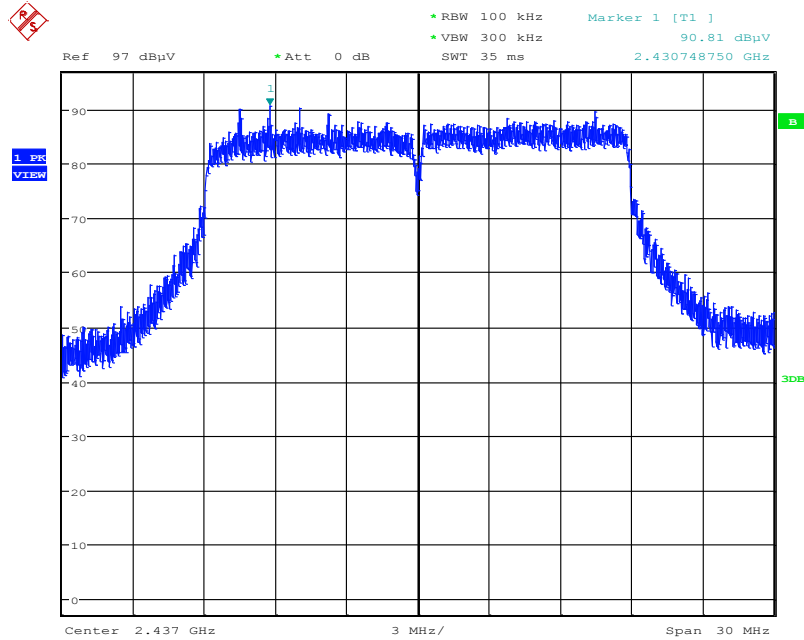
Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

**For Emission not in Restricted Band**

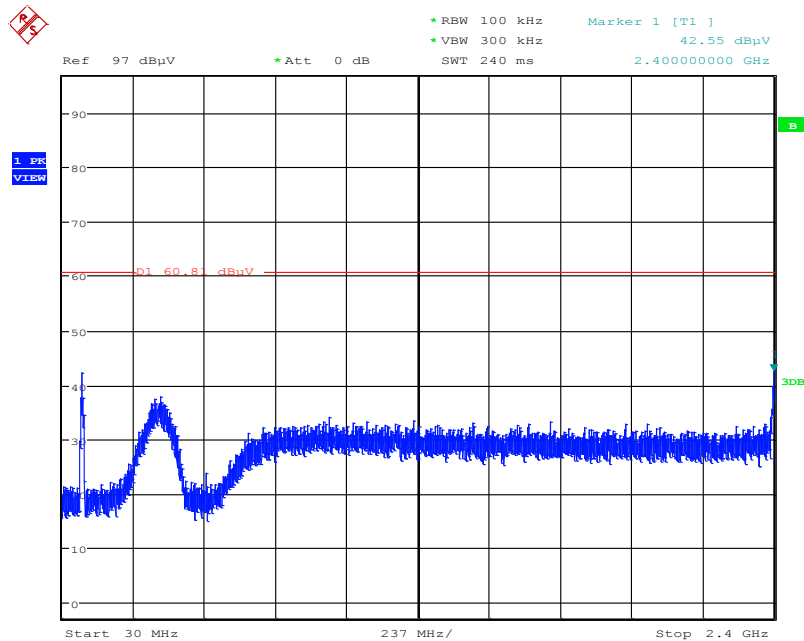
**Mode 1: EUT 1 + Set 1 Ceiling Mount Omni Antenna / 4 dBi**

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Reference Level**



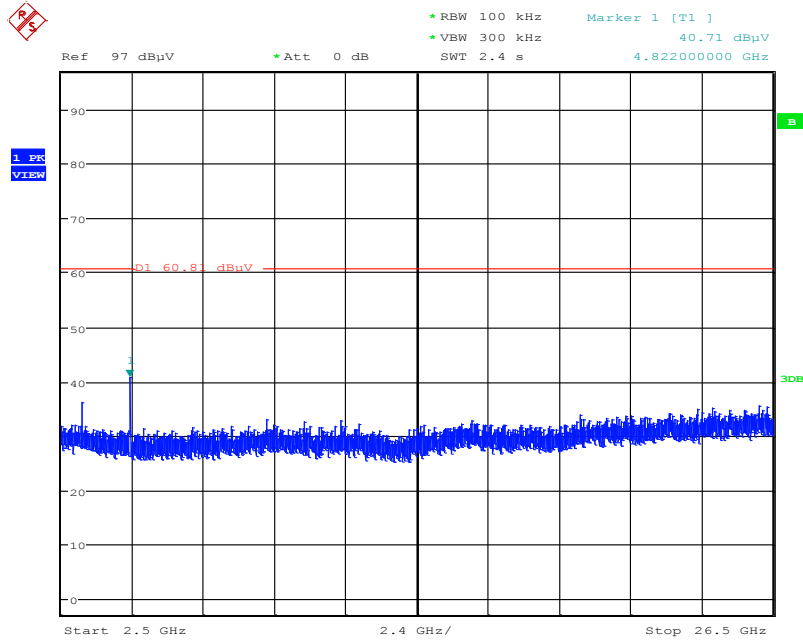
Date: 21.NOV.2015 19:17:46

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 30MHz~2400MHz (down 30dBc)**



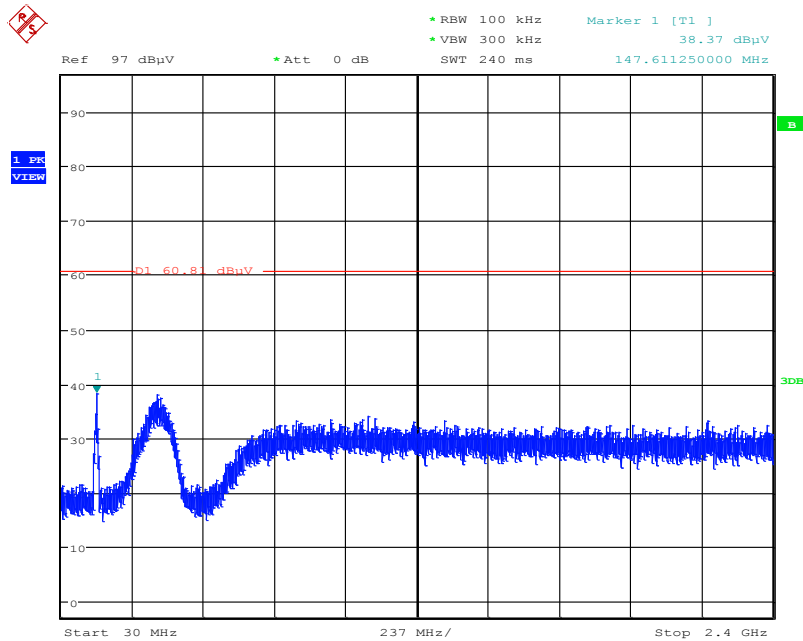
Date: 21.NOV.2015 19:19:03

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 2500MHz~26500MHz (down 30dBc)**



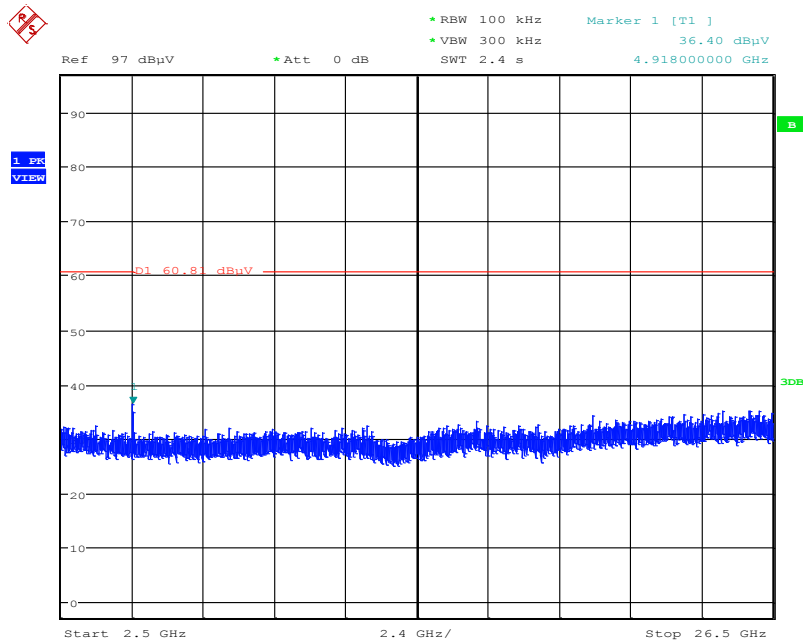
Date: 21.NOV.2015 19:19:32

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 30MHz~2400MHz (down 30dBc)**



Date: 21.NOV.2015 19:21:10

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 2500MHz~26500MHz (down 30dBc)

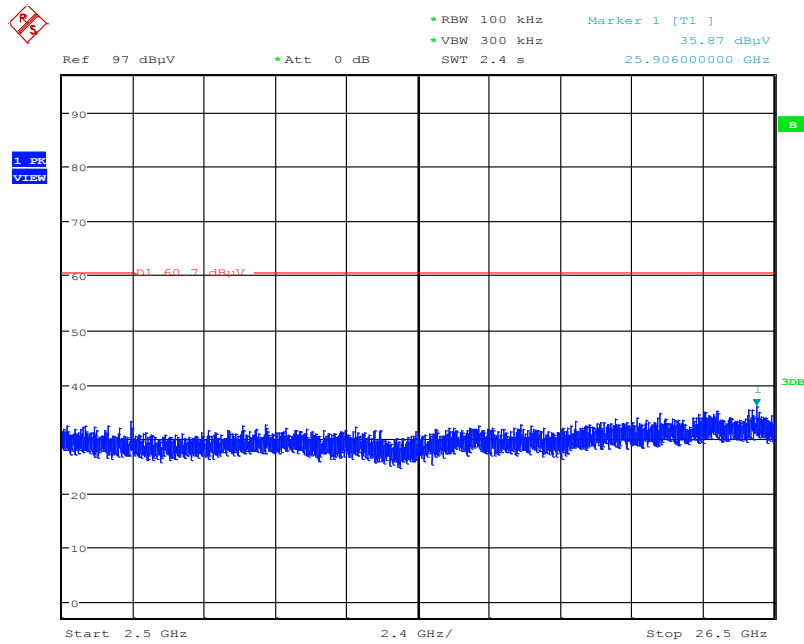


Date: 21.NOV.2015 19:20:29



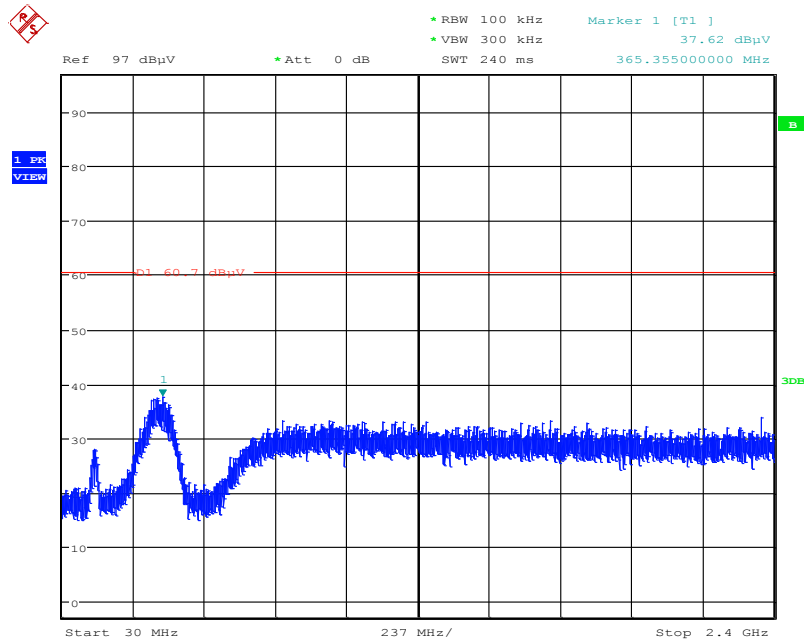


**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 2500MHz~26500MHz (down 30dBc)**



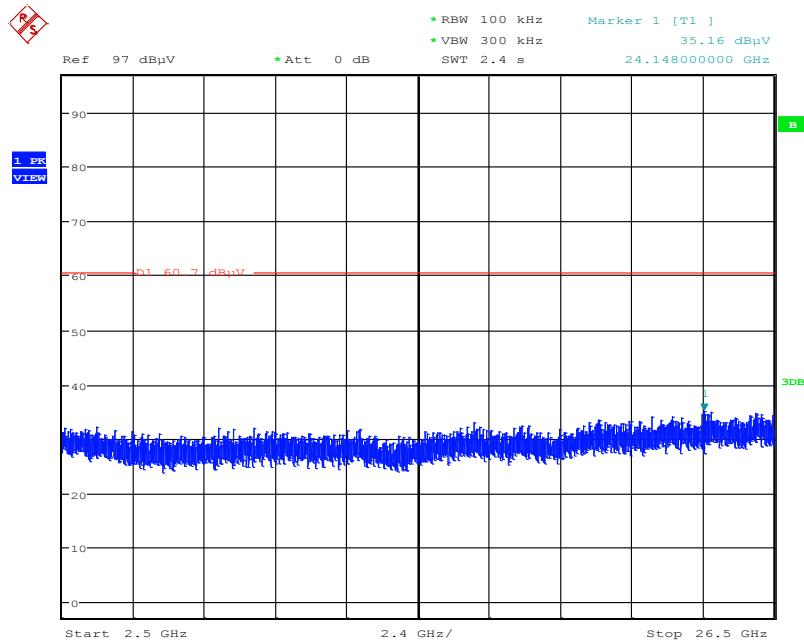
Date: 21.NOV.2015 19:25:17

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 30MHz~2400MHz (down 30dBc)**



Date: 21.NOV.2015 19:26:35

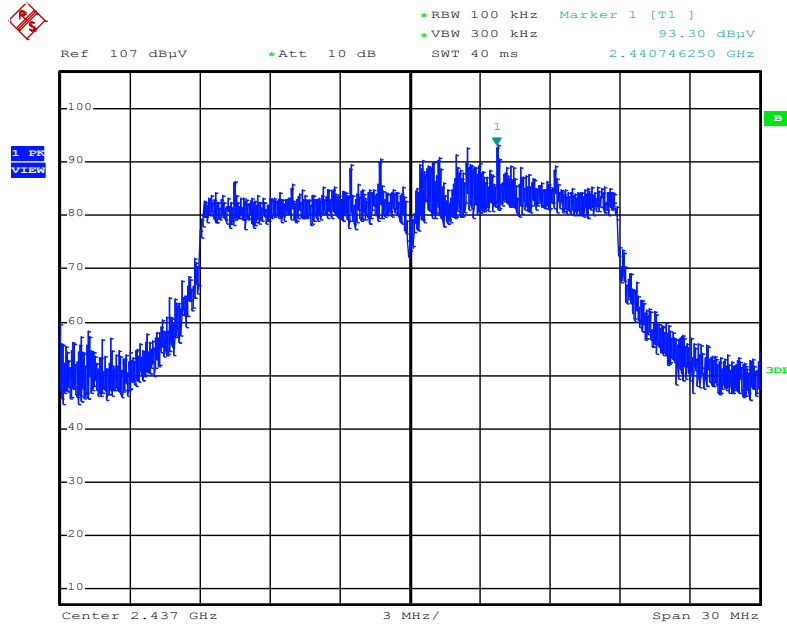
Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 2500MHz~26500MHz (down 30dBc)



Date: 21.NOV.2015 19:26:15

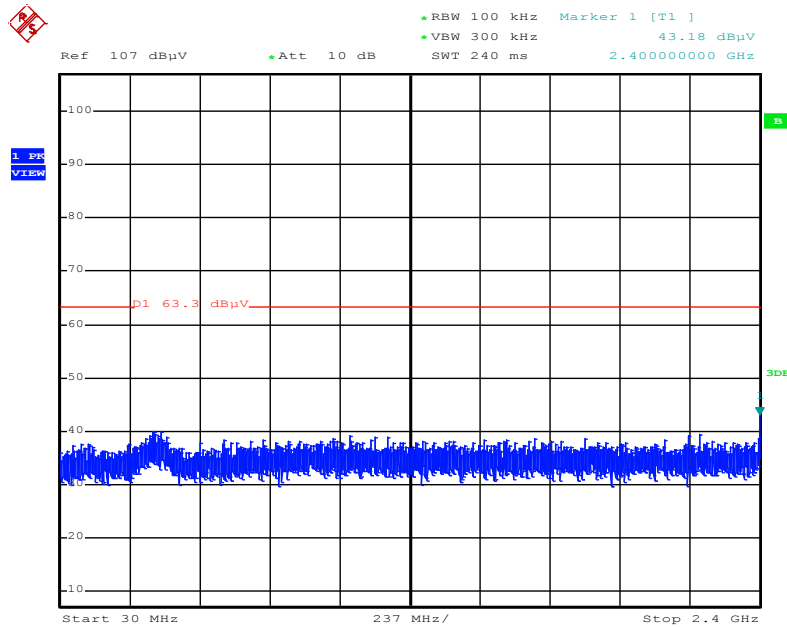
**Mode 2: EUT 1 + Set 2 Sector Antenna / 7.5 dBi**

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Reference Level**



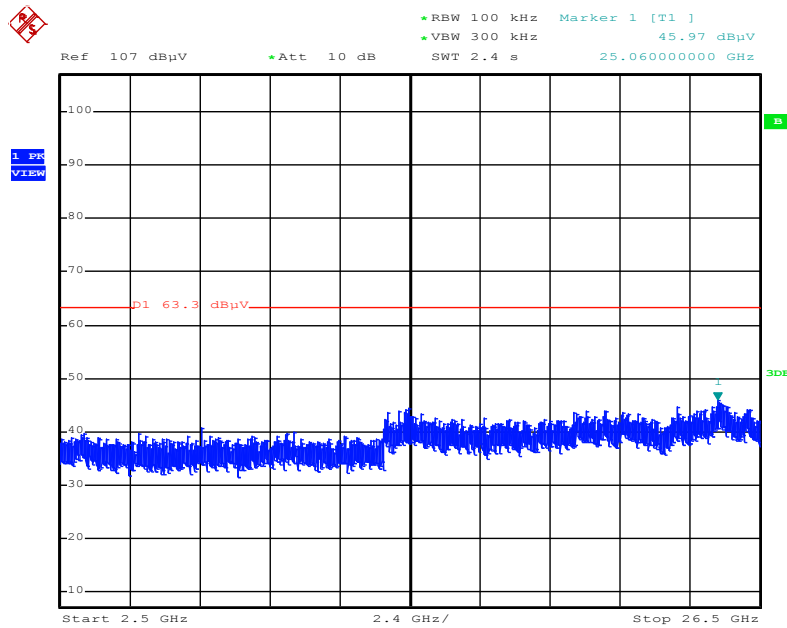
Date: 21.NOV.2015 01:39:48

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 30MHz~2400MHz (down 30dBc)**



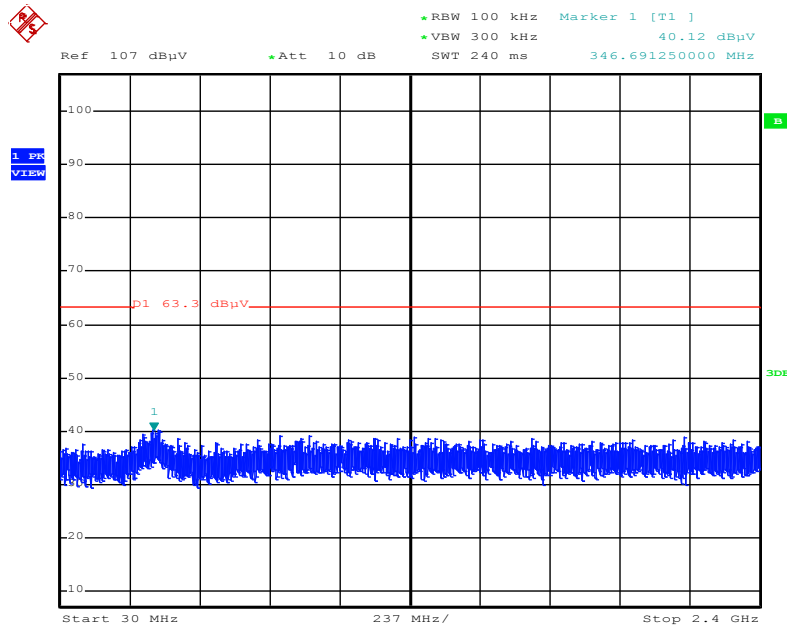
Date: 21.NOV.2015 01:41:11

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 2500MHz~26500MHz (down 30dBc)**



Date: 21.NOV.2015 01:41:35

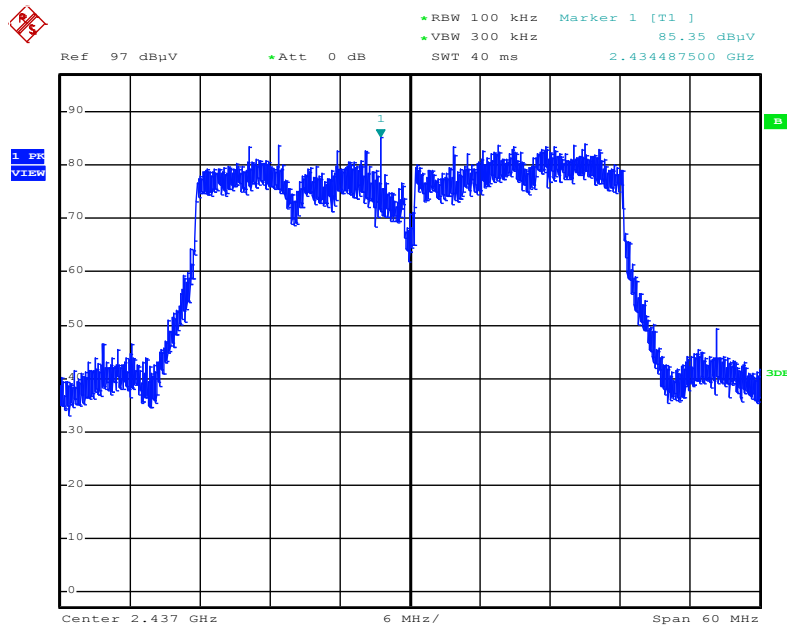
**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 30MHz~2400MHz (down 30dBc)**



Date: 21.NOV.2015 01:43:03

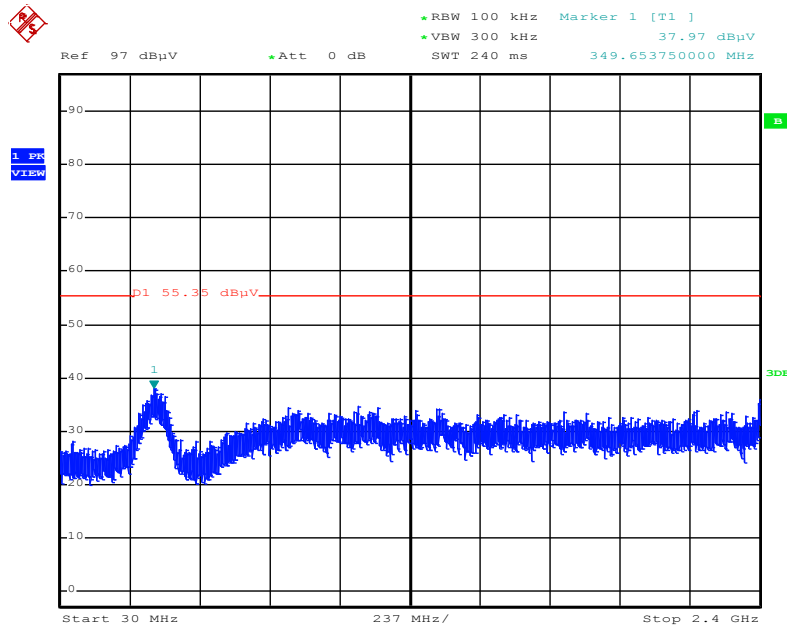


**Plot on Configuration 802.11ac MCS0/Nss1 VHT40 / Reference Level**



Date: 21.NOV.2015 01:44:29

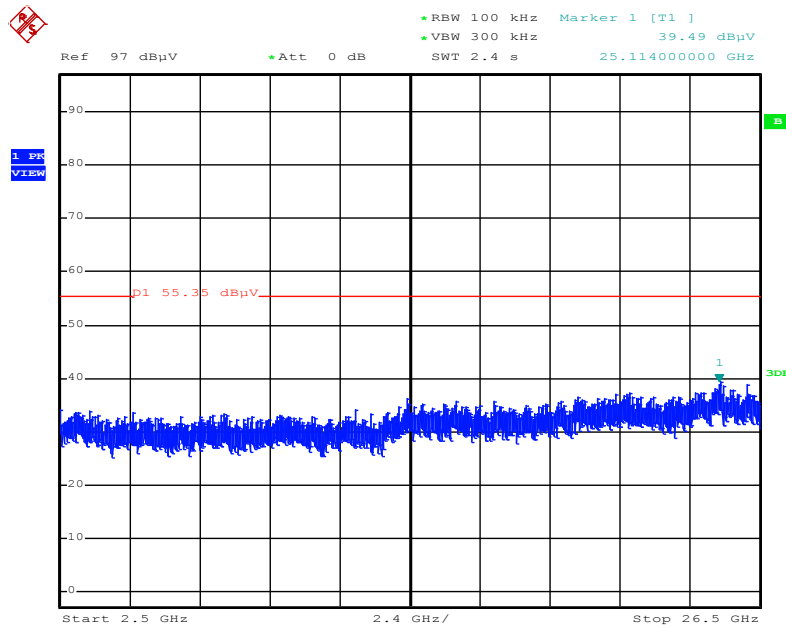
**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 30MHz~2400MHz (down 30dBc)**



Date: 21.NOV.2015 01:47:09

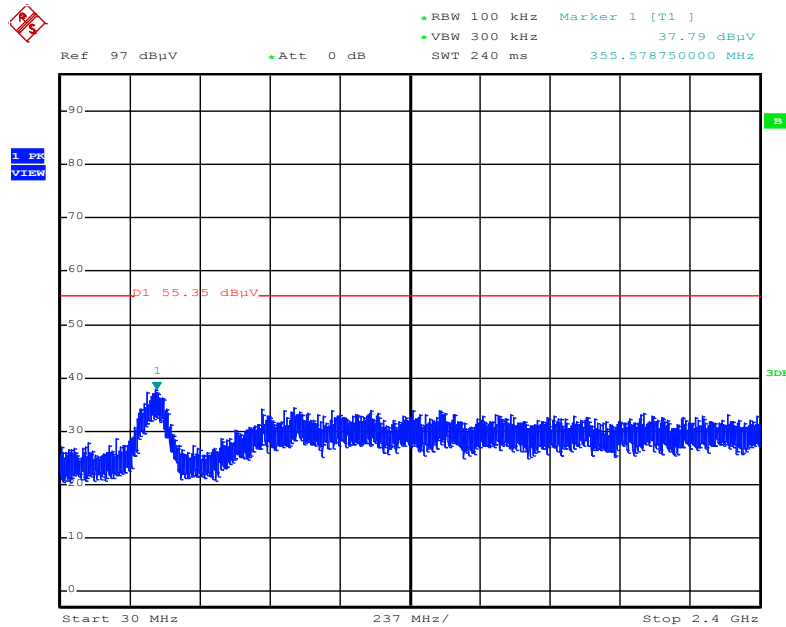


**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 2500MHz~26500MHz (down 30dBc)**



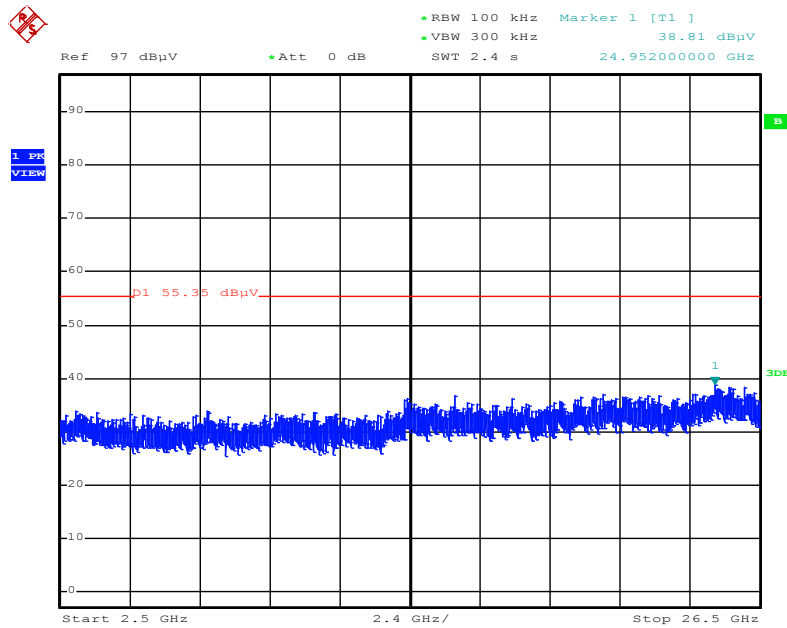
Date: 21.NOV.2015 01:47:56

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 30MHz~2400MHz (down 30dBc)**



Date: 21.NOV.2015 01:49:30

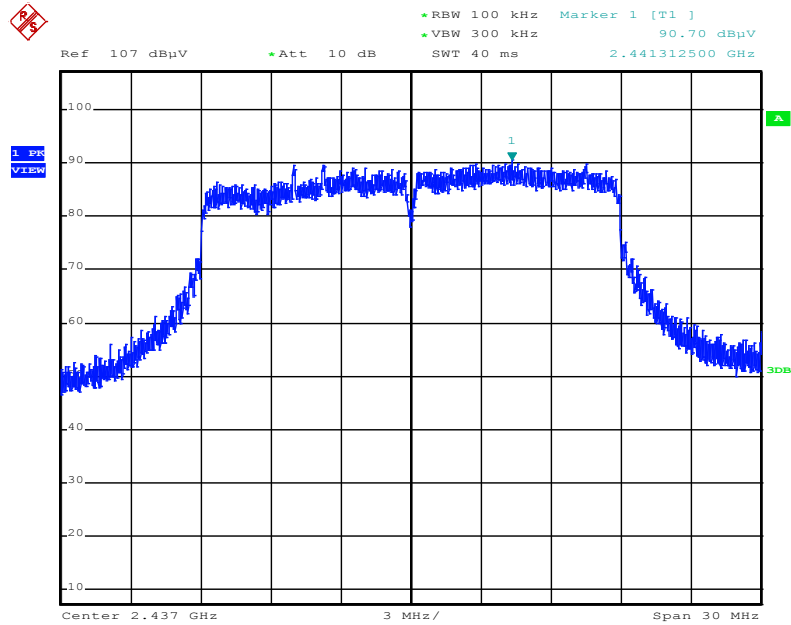
Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 2500MHz~26500MHz (down 30dBc)



Date: 21.NOV.2015 01:49:09

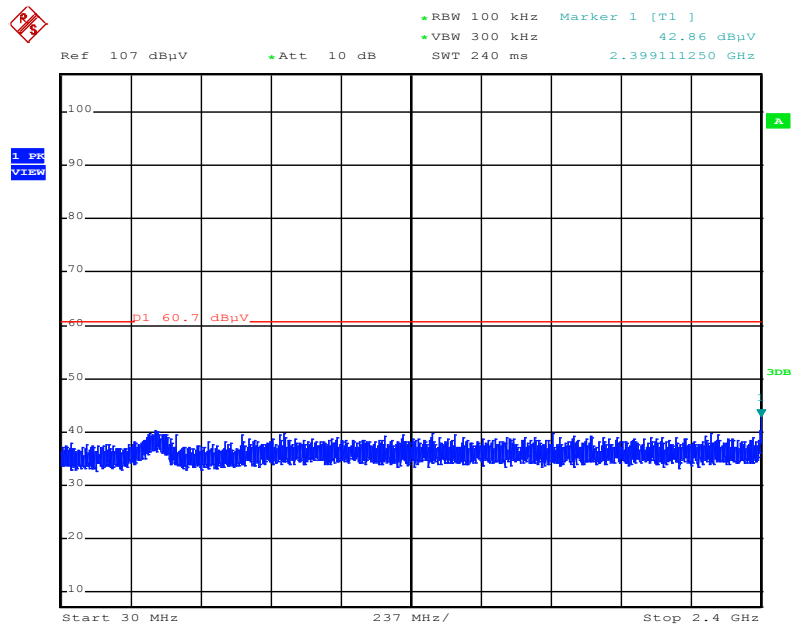
**Mode 3: EUT 1 + Set 3 Sector Antenna / 5.5 dBi**

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Reference Level**



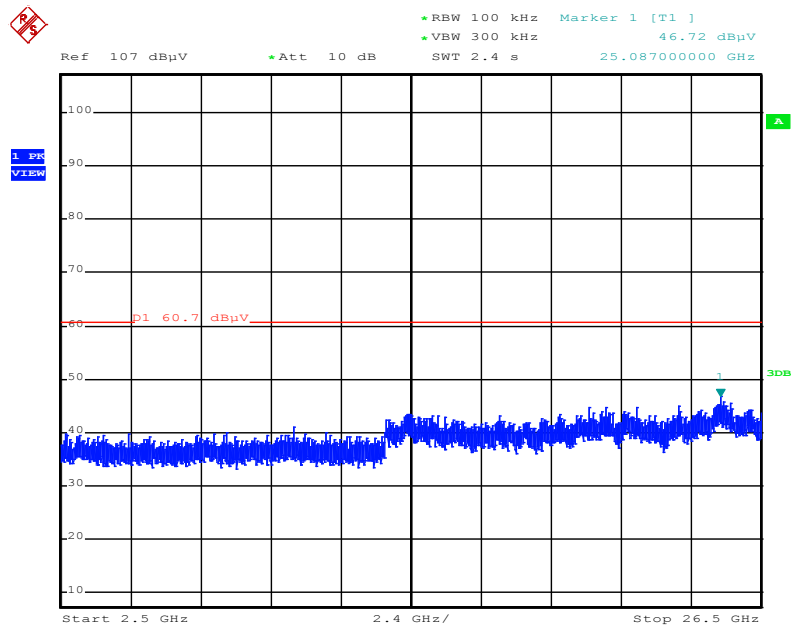
Date: 21.NOV.2015 12:44:56

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 30MHz~2400MHz (down 30dBc)**



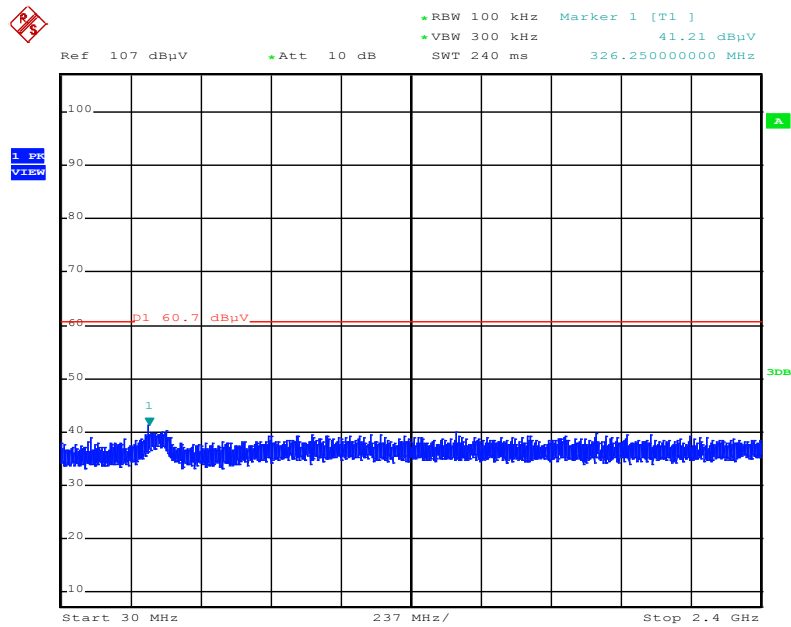
Date: 21.NOV.2015 12:47:54

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 2500MHz~26500MHz (down 30dBc)**



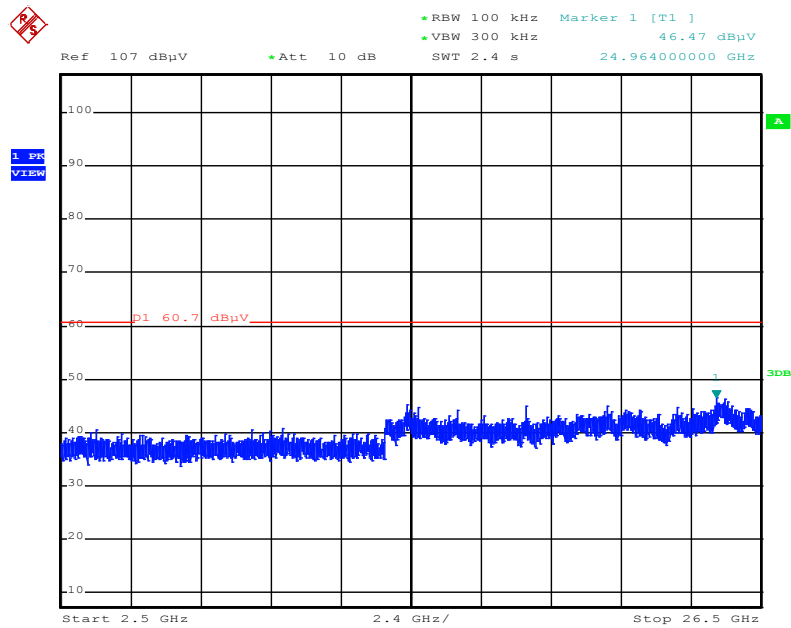
Date: 21.NOV.2015 12:48:45

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 30MHz~2400MHz (down 30dBc)**



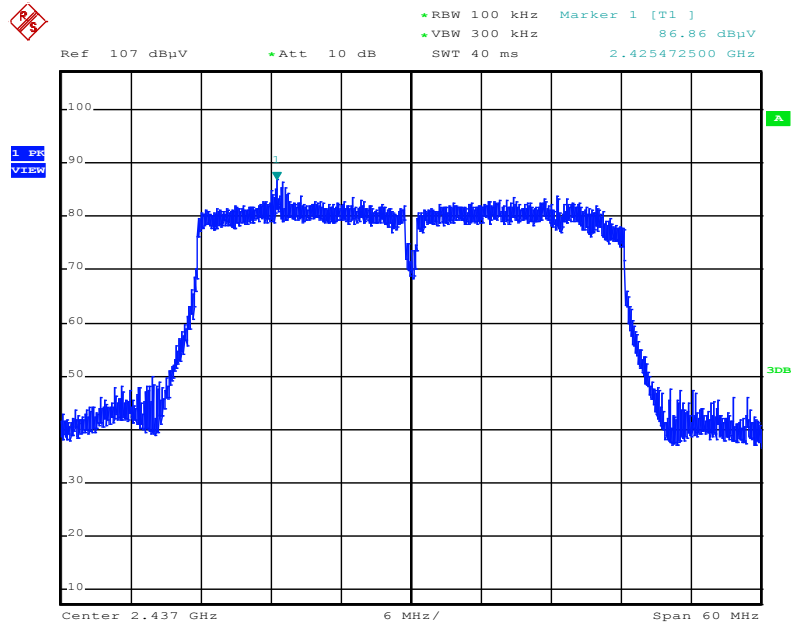
Date: 21.NOV.2015 12:50:15

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 2500MHz~26500MHz (down 30dBc)



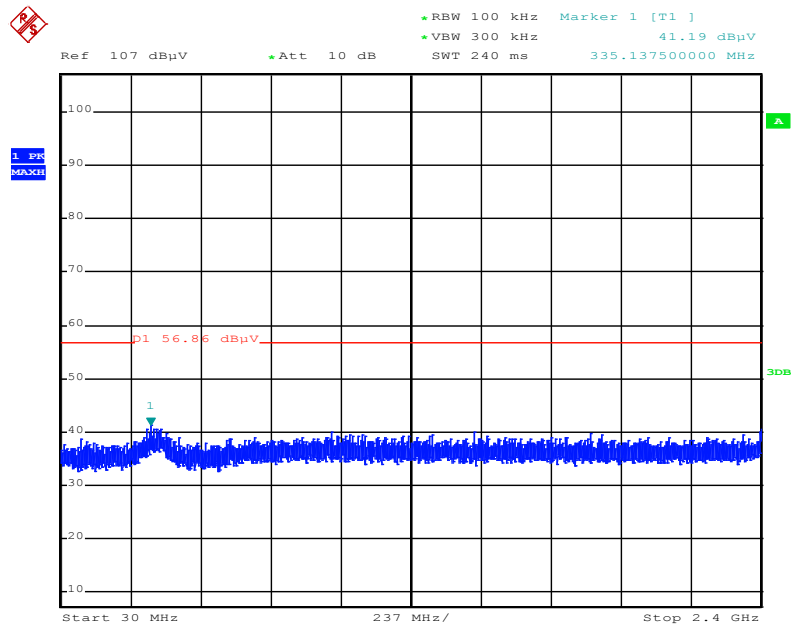
Date: 21.NOV.2015 12:49:38

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Reference Level**



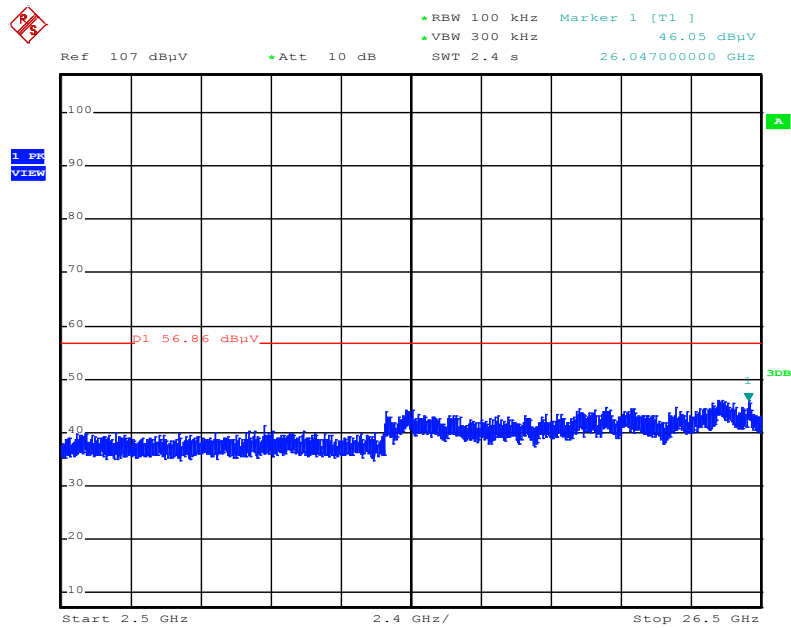
Date: 21.NOV.2015 12:53:24

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 30MHz~2400MHz (down 30dBc)**



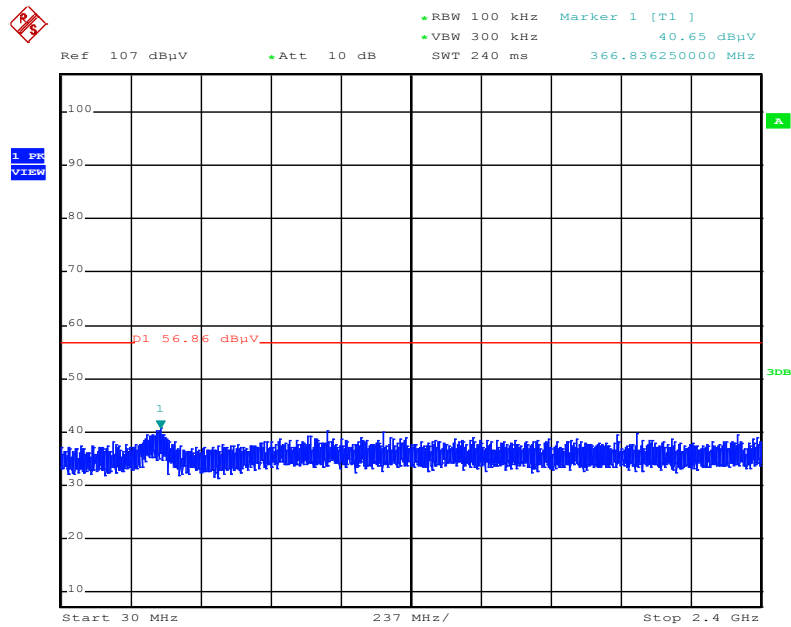
Date: 21.NOV.2015 12:54:51

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 2500MHz~26500MHz (down 30dBc)**



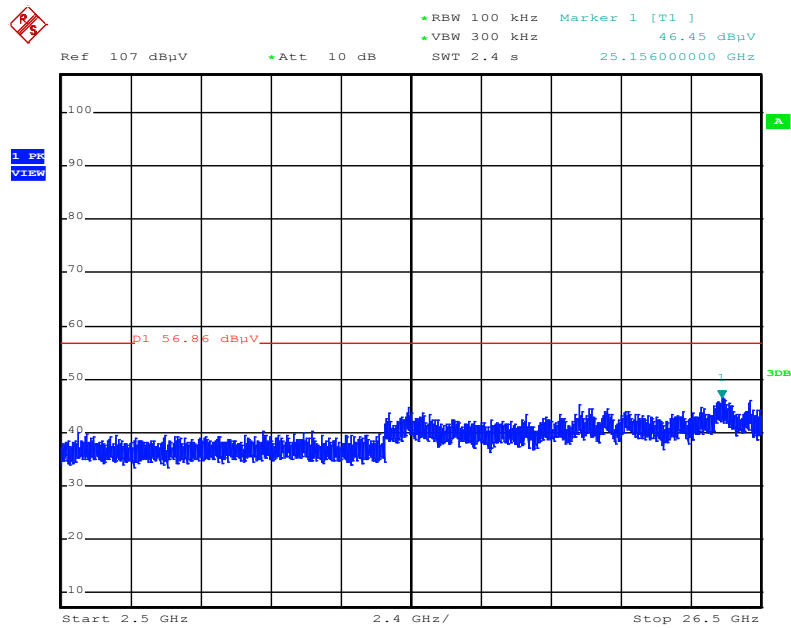
Date: 21.NOV.2015 12:55:49

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 30MHz~2400MHz (down 30dBc)**



Date: 21.NOV.2015 12:56:51

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 2500MHz~26500MHz (down 30dBc)

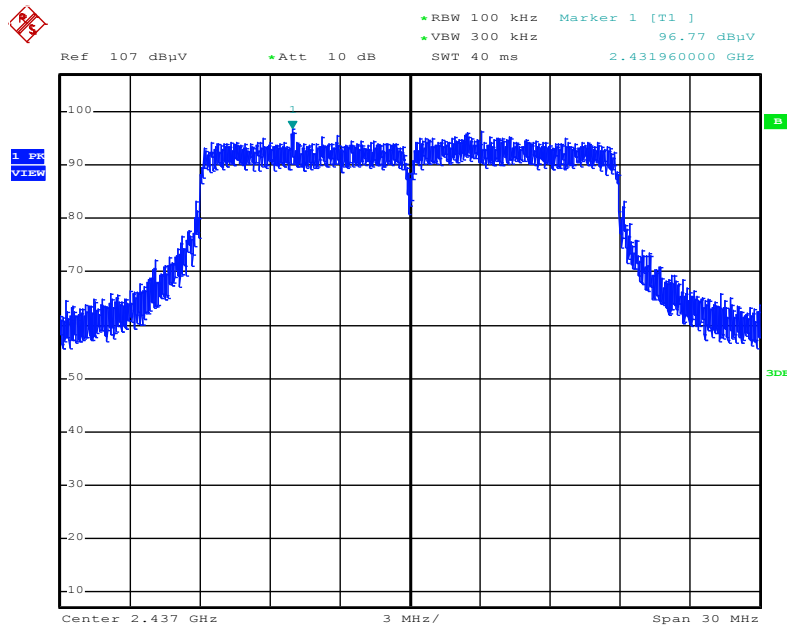


Date: 21.NOV.2015 12:56:30



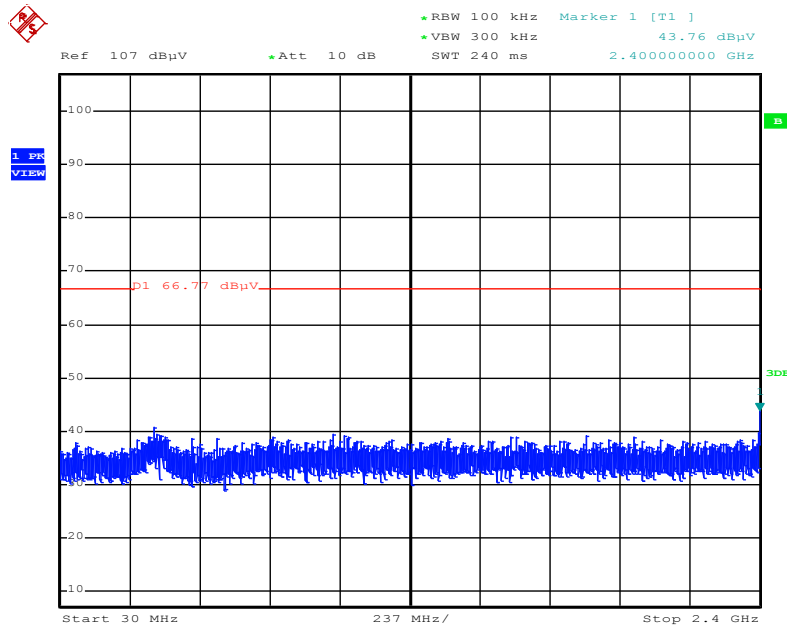
**Mode 4: EUT 1 + Set 4 Sector Antenna / 10.5 dBi**

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Reference Level**



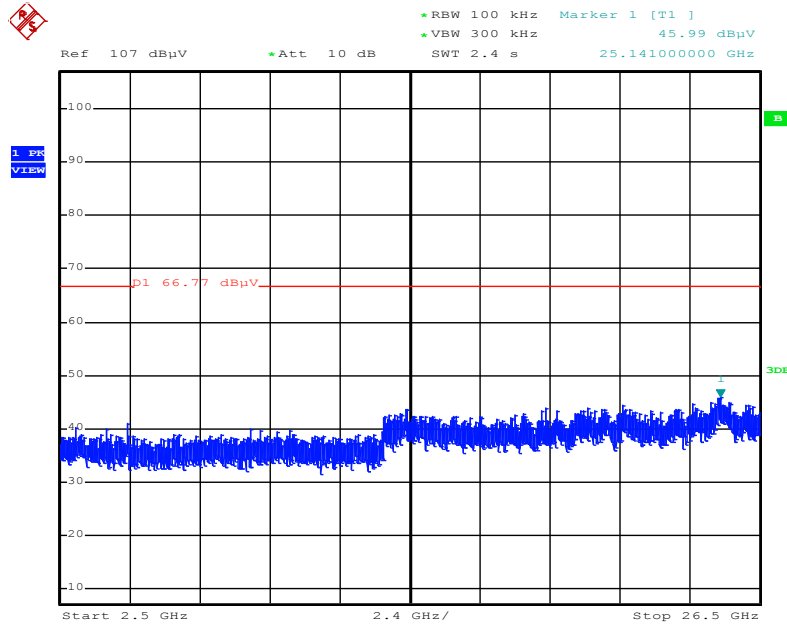
Date: 20.NOV.2015 23:45:25

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 30MHz~2400MHz (down 30dBc)**



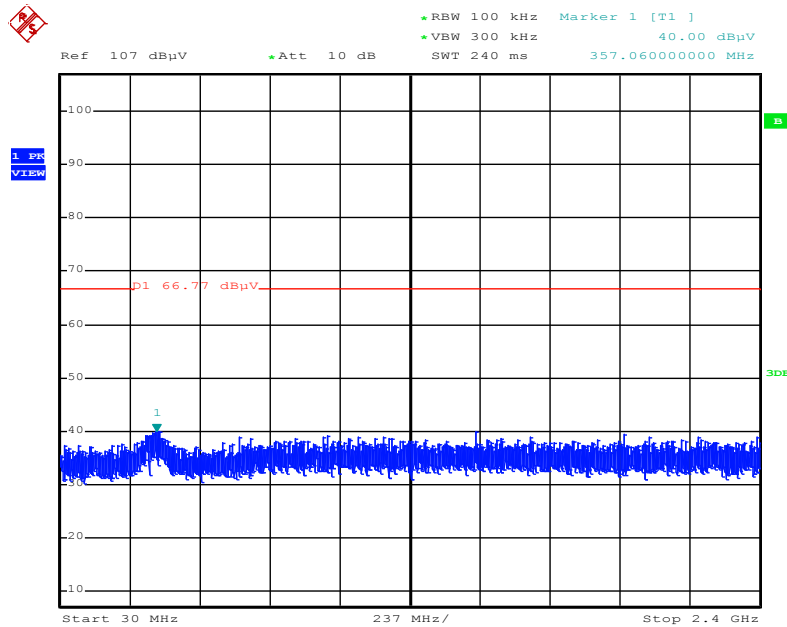
Date: 20.NOV.2015 23:46:50

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 2500MHz~26500MHz (down 30dBc)**



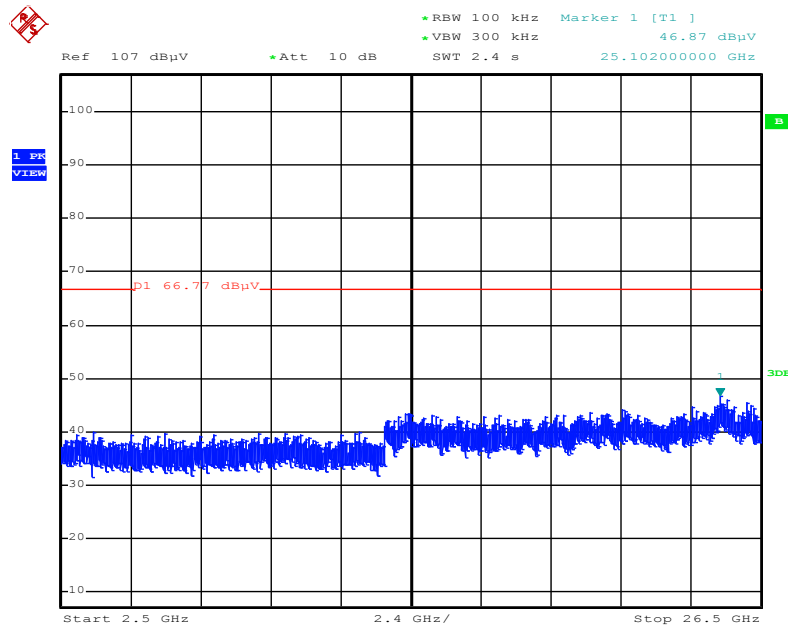
Date: 20.NOV.2015 23:47:12

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 30MHz~2400MHz (down 30dBc)**



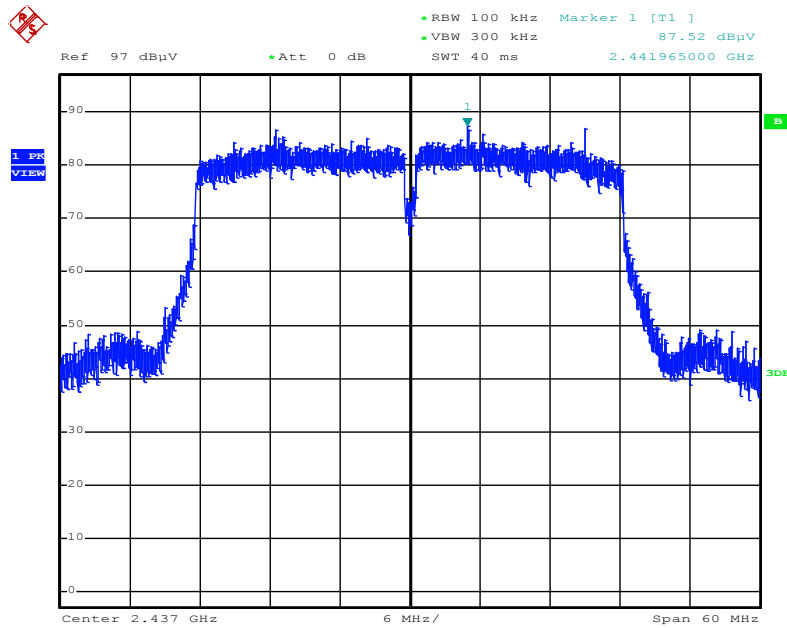
Date: 20.NOV.2015 23:48:25

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 2500MHz~26500MHz (down 30dBc)



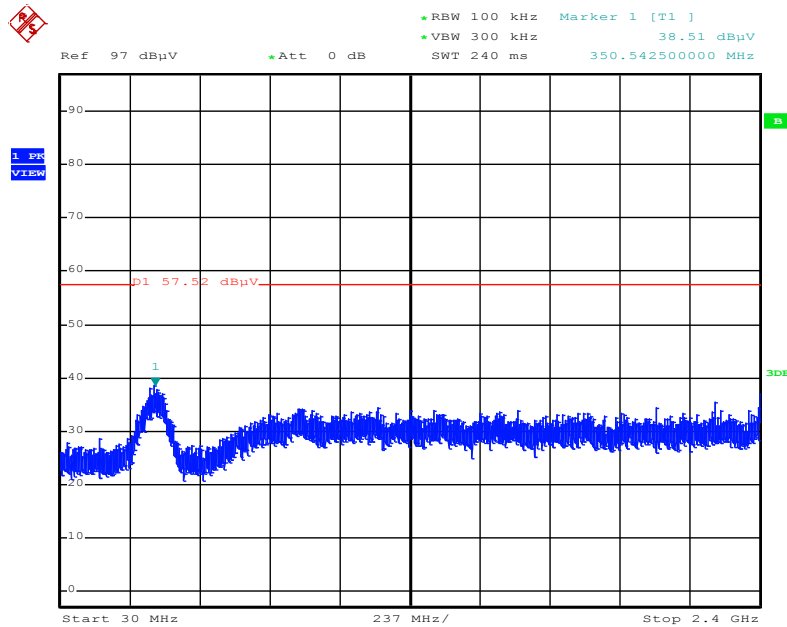
Date: 20.NOV.2015 23:48:06

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Reference Level**



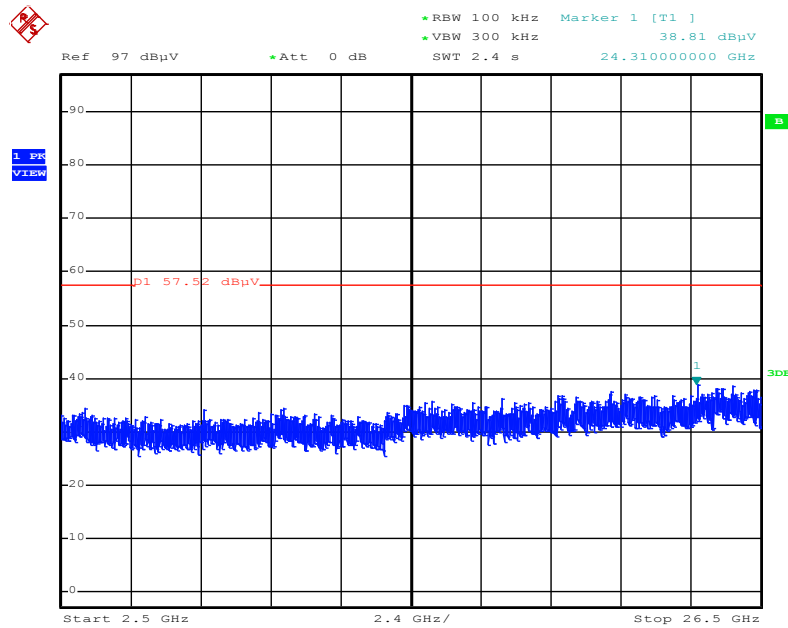
Date: 20.NOV.2015 23:51:04

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 30MHz~2400MHz (down 30dBc)**



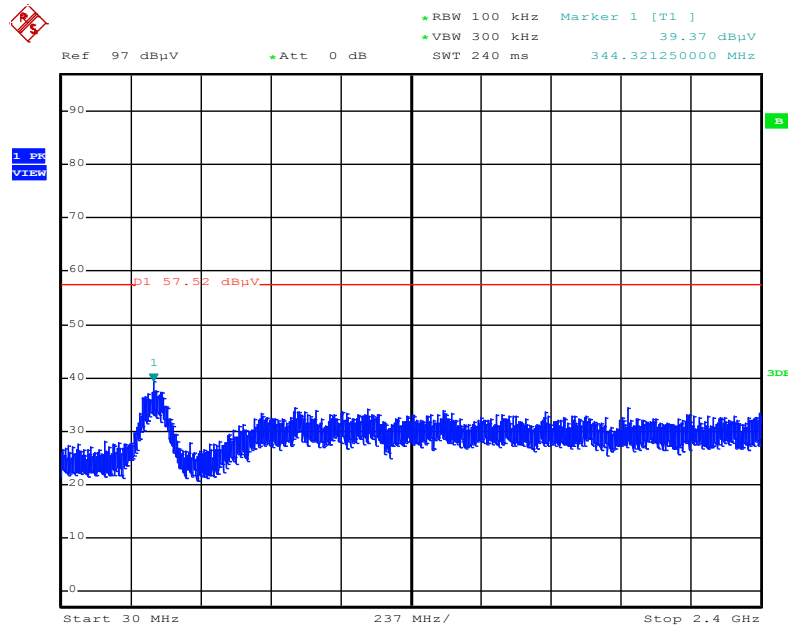
Date: 20.NOV.2015 23:52:15

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 2500MHz~26500MHz (down 30dBc)**



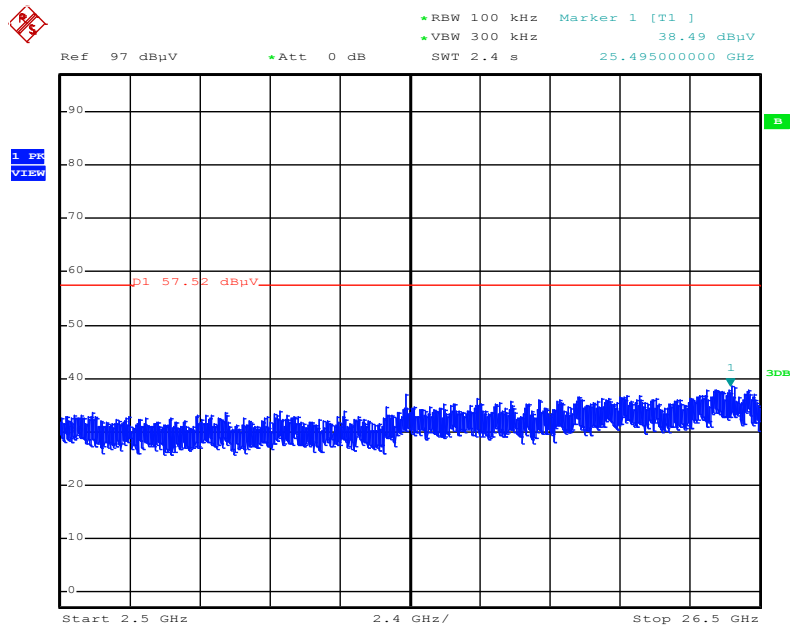
Date: 20.NOV.2015 23:52:38

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 30MHz~2400MHz (down 30dBc)**



Date: 20.NOV.2015 23:53:46

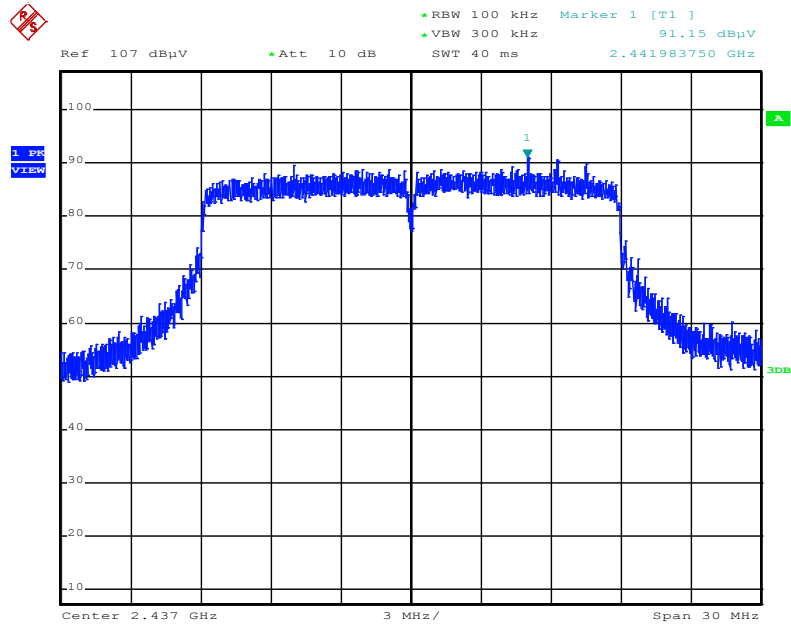
Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 2500MHz~26500MHz (down 30dBc)



Date: 20.NOV.2015 23:53:27

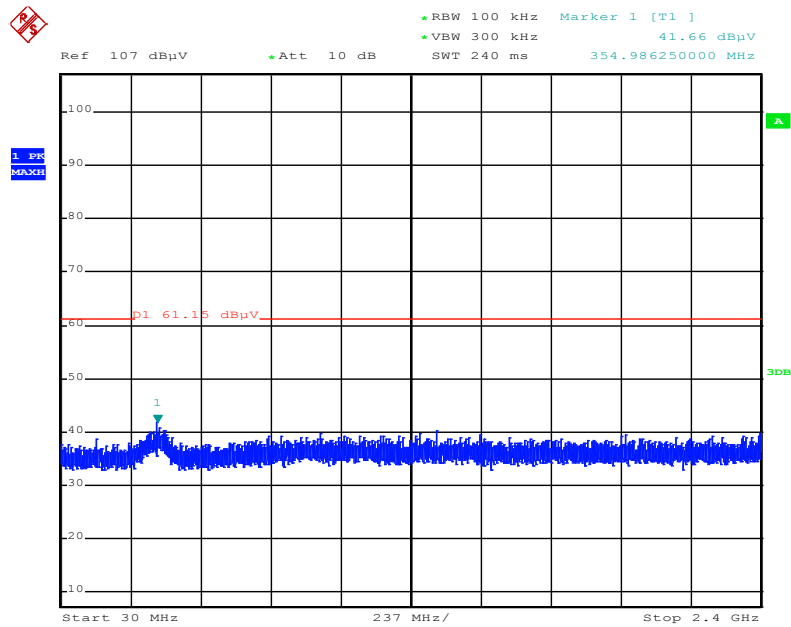
**Mode 5: EUT 1 + Set 7 Sector Antenna / 5 dBi**

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Reference Level**



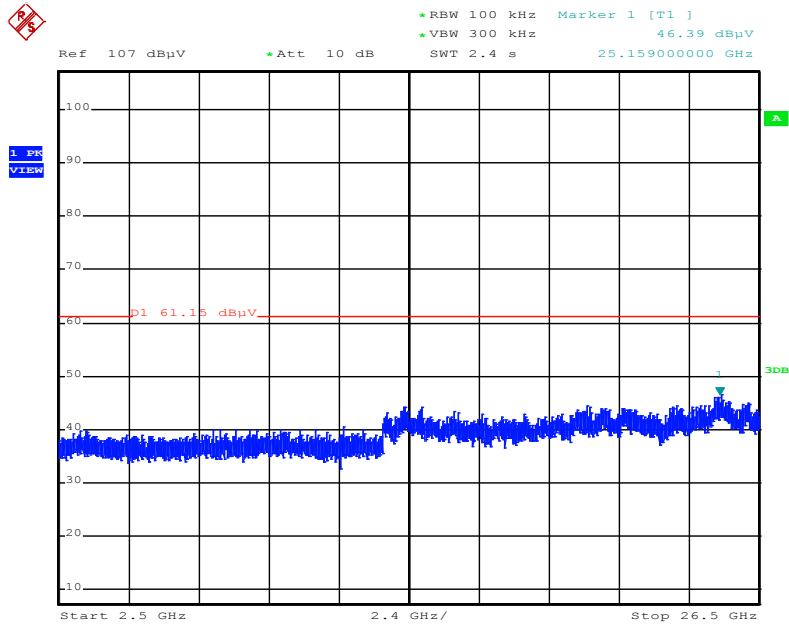
Date: 21.NOV.2015 14:53:03

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 30MHz~2400MHz (down 30dBc)**



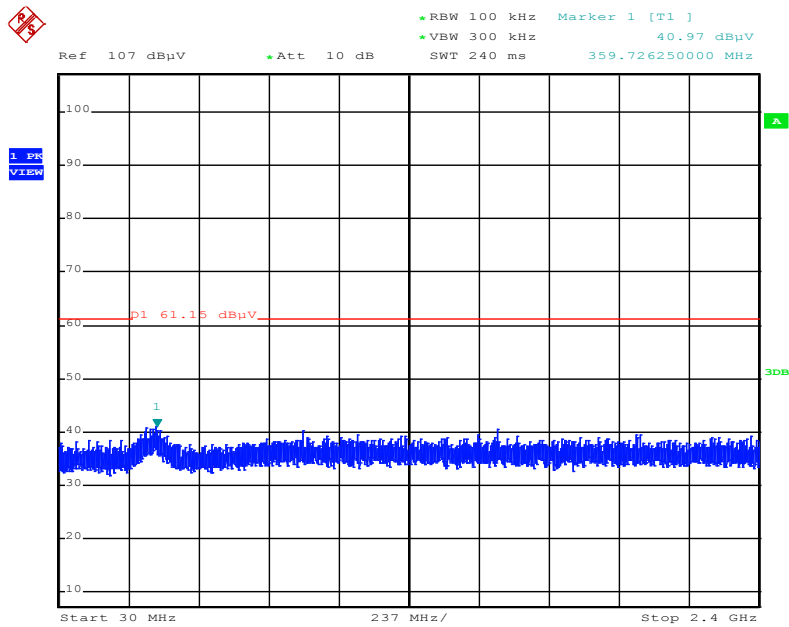
Date: 21.NOV.2015 14:55:47

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 2500MHz~26500MHz (down 30dBc)**



Date: 21.NOV.2015 14:56:22

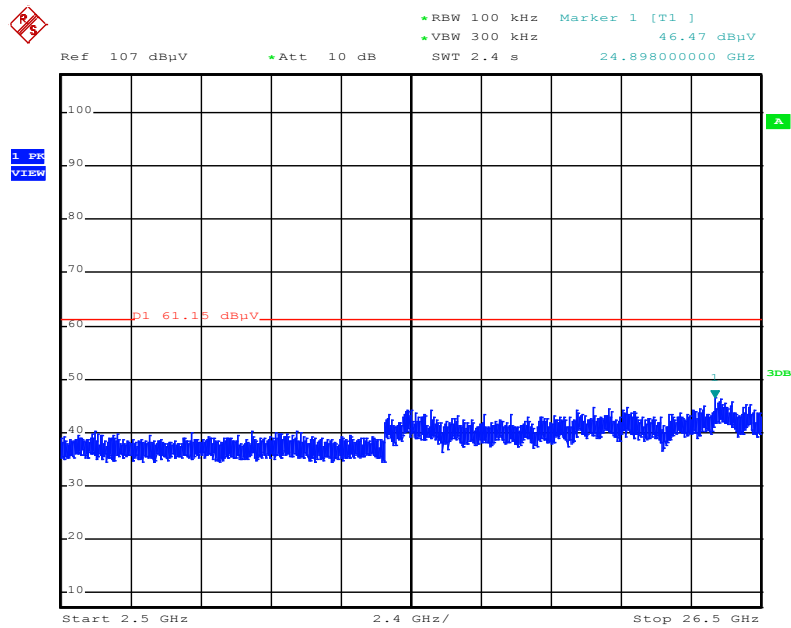
**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 30MHz~2400MHz (down 30dBc)**



Date: 21.NOV.2015 14:57:52

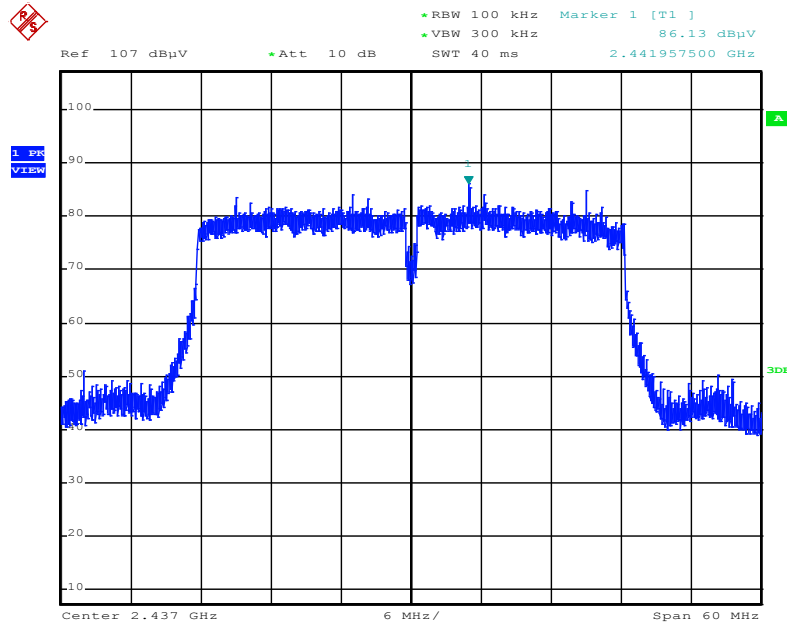


Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 2500MHz~26500MHz (down 30dBc)



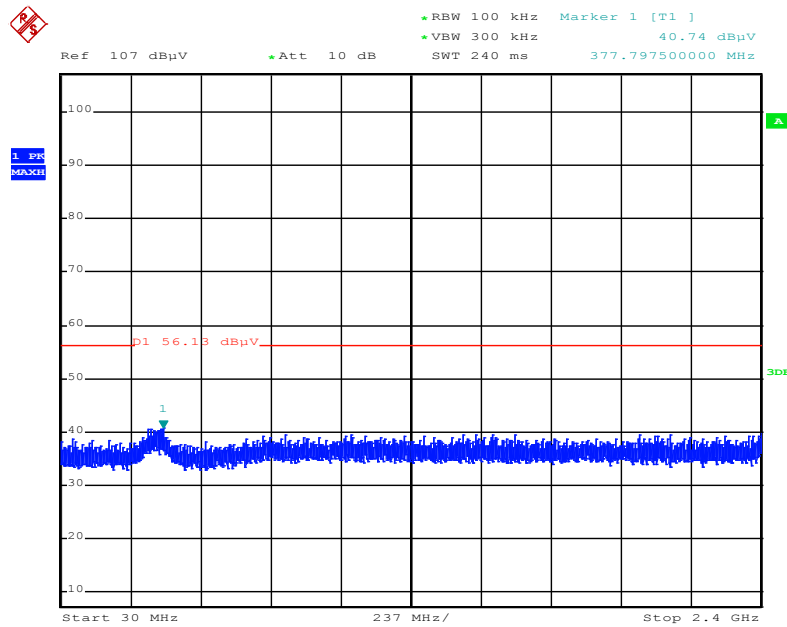
Date: 21.NOV.2015 14:57:25

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Reference Level**



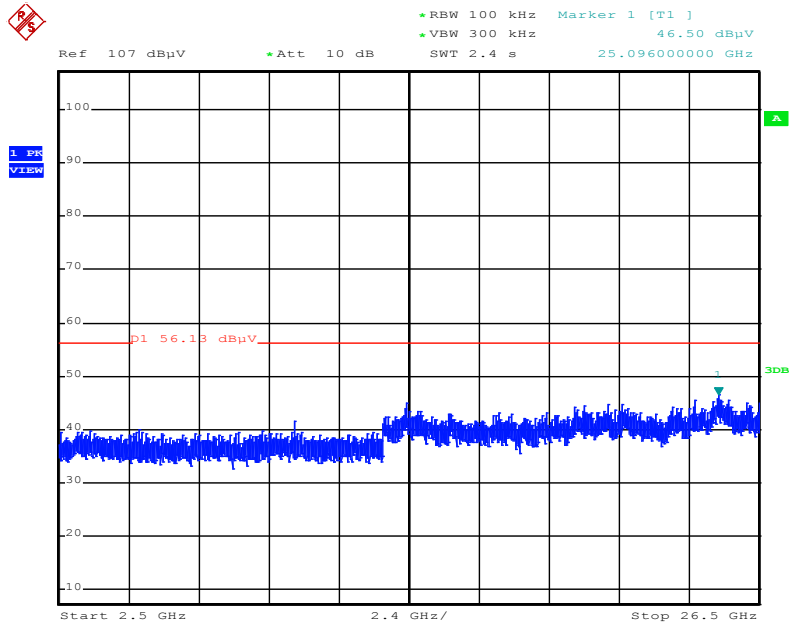
Date: 21.NOV.2015 14:54:16

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 30MHz~2400MHz (down 30dBc)**



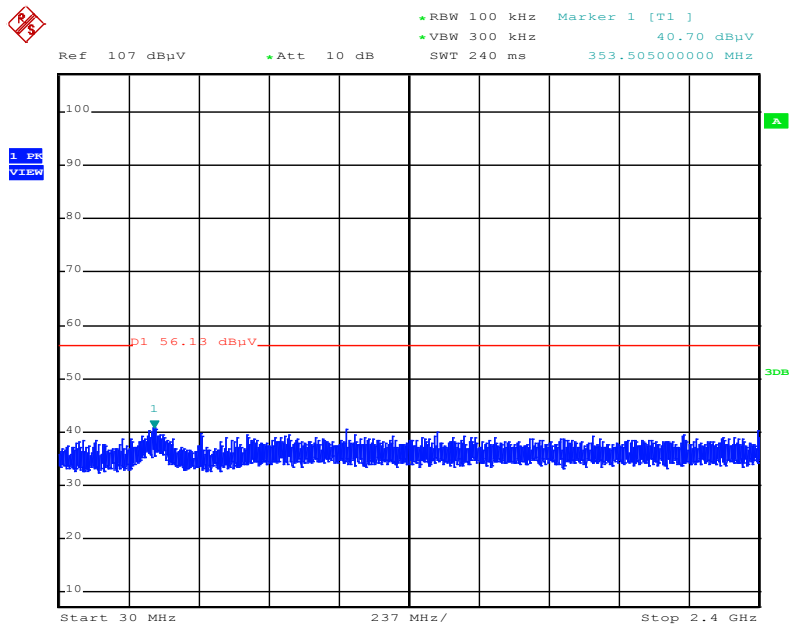
Date: 21.NOV.2015 14:59:04

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 2500MHz~26500MHz (down 30dBc)**



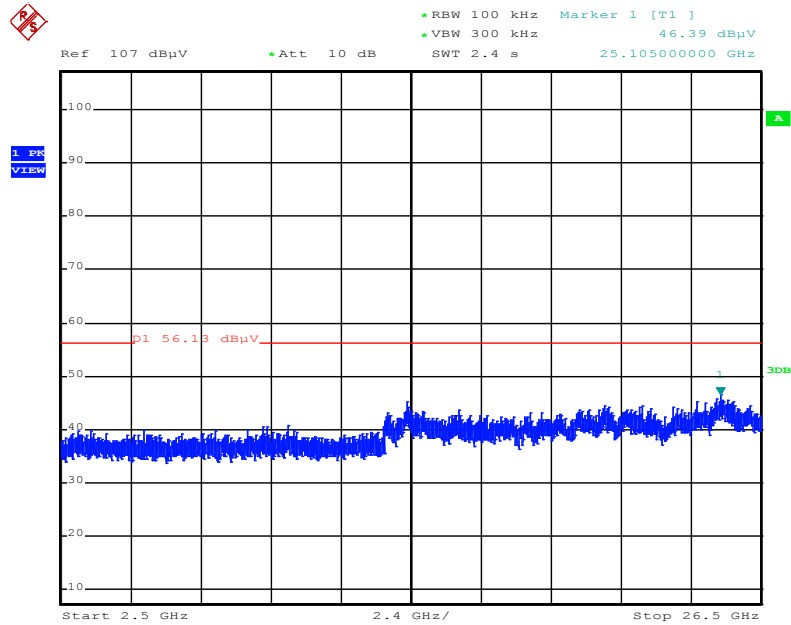
Date: 21.NOV.2015 14:59:37

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 30MHz~2400MHz (down 30dBc)**



Date: 21.NOV.2015 15:00:52

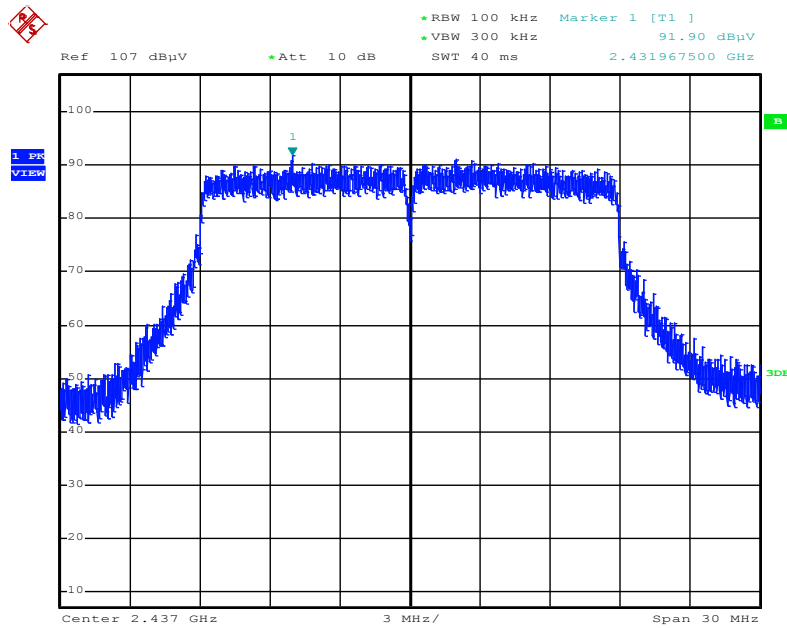
Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 2500MHz~26500MHz (down 30dBc)



Date: 21.NOV.2015 15:00:25

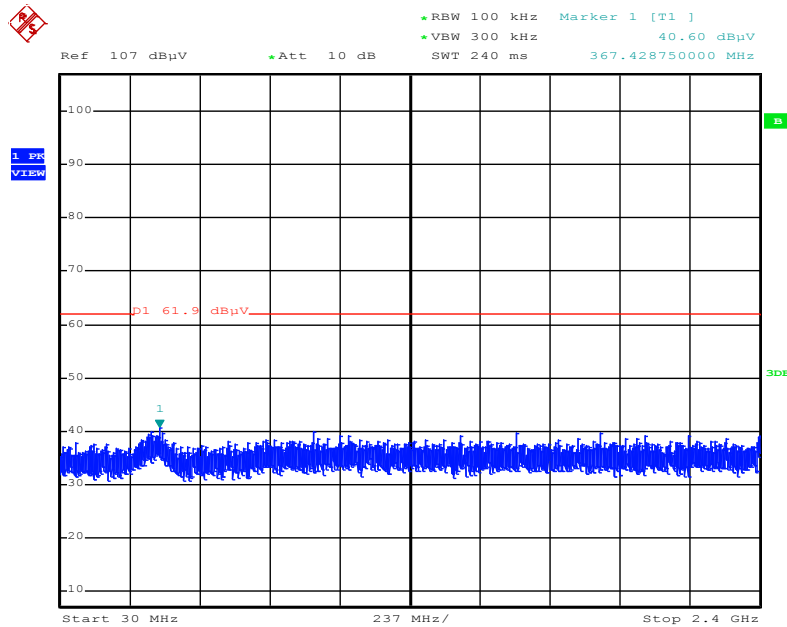
**Mode 6: EUT 1 + Set 8 Dipole Antenna / 4.66 dBi**

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Reference Level**



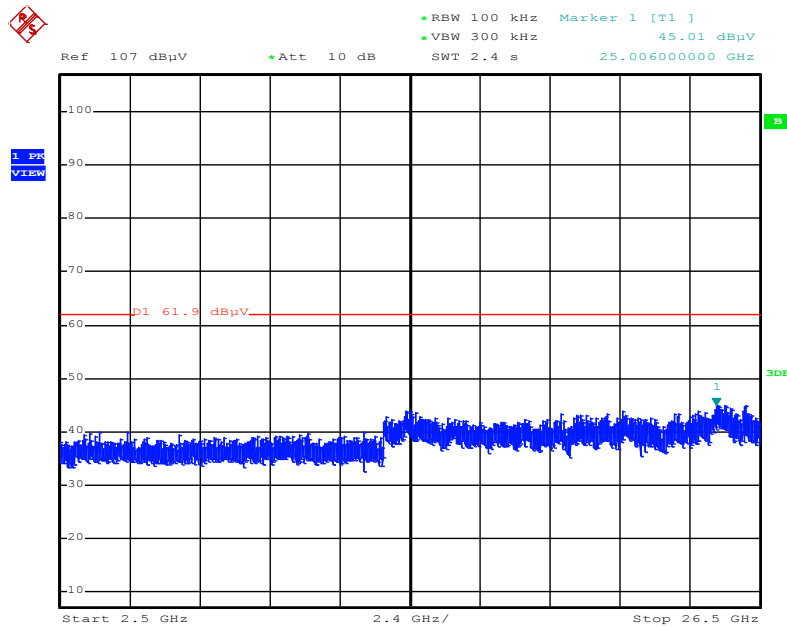
Date: 21.NOV.2015 17:26:41

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 30MHz~2400MHz (down 30dBc)**



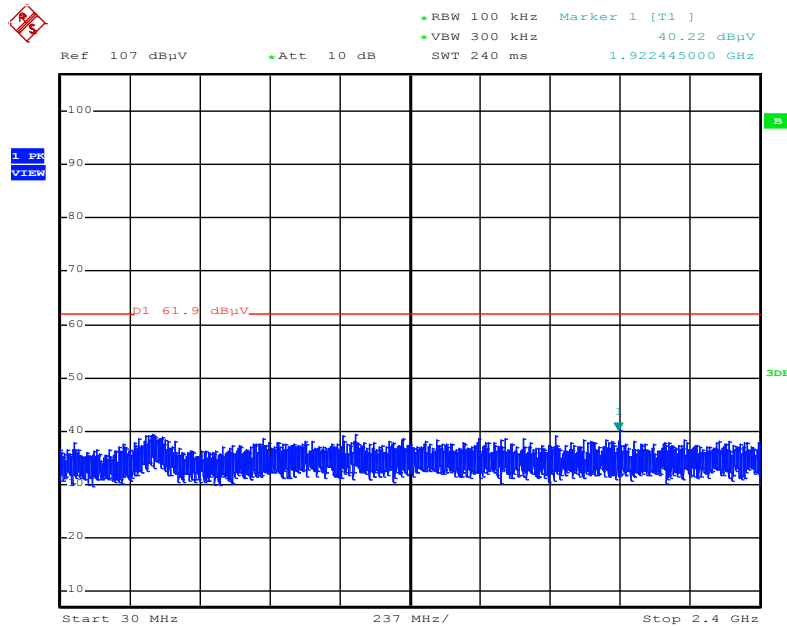
Date: 21.NOV.2015 17:29:32

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 2500MHz~26500MHz (down 30dBc)**



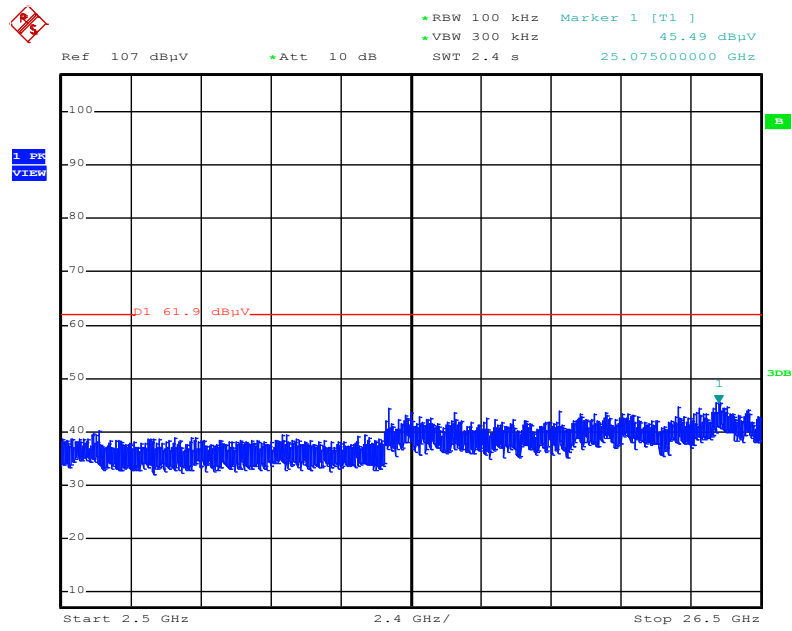
Date: 21.NOV.2015 17:30:16

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 30MHz~2400MHz (down 30dBc)**



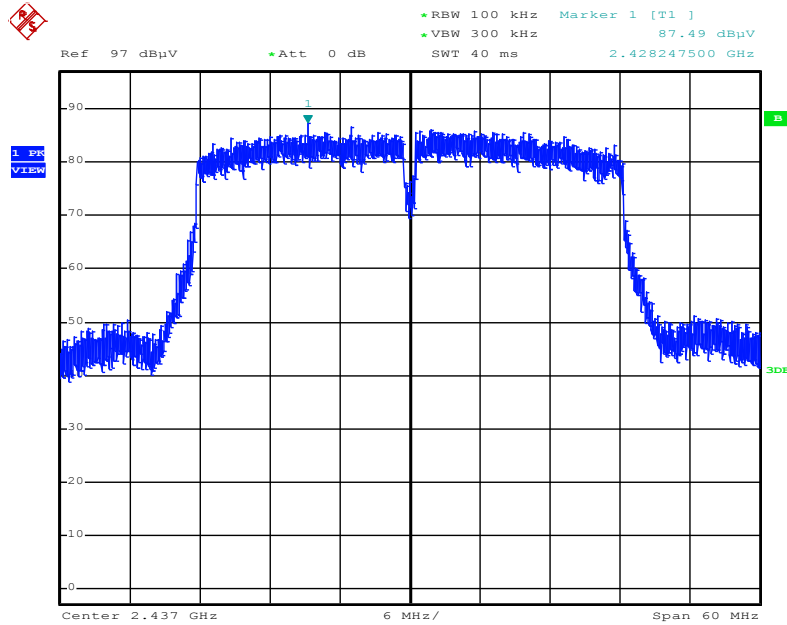
Date: 21.NOV.2015 17:32:28

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 2500MHz~26500MHz (down 30dBc)



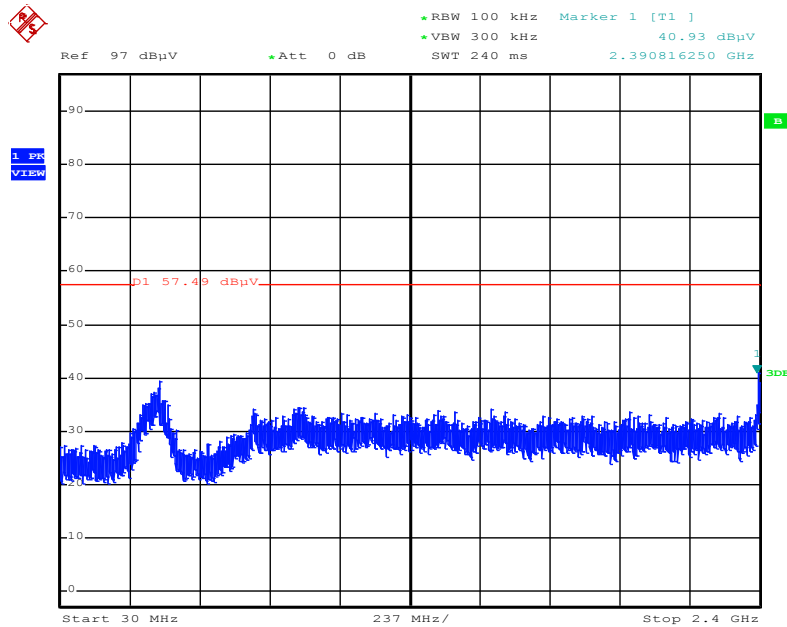
Date: 21.NOV.2015 17:31:33

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Reference Level**



Date: 21.NOV.2015 17:34:25

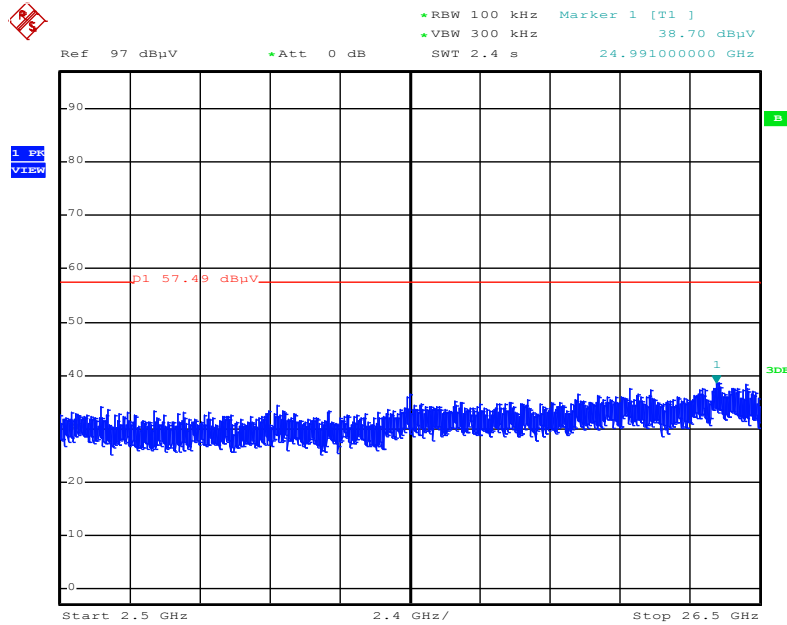
**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 30MHz~2400MHz (down 30dBc)**



Date: 21.NOV.2015 17:36:44

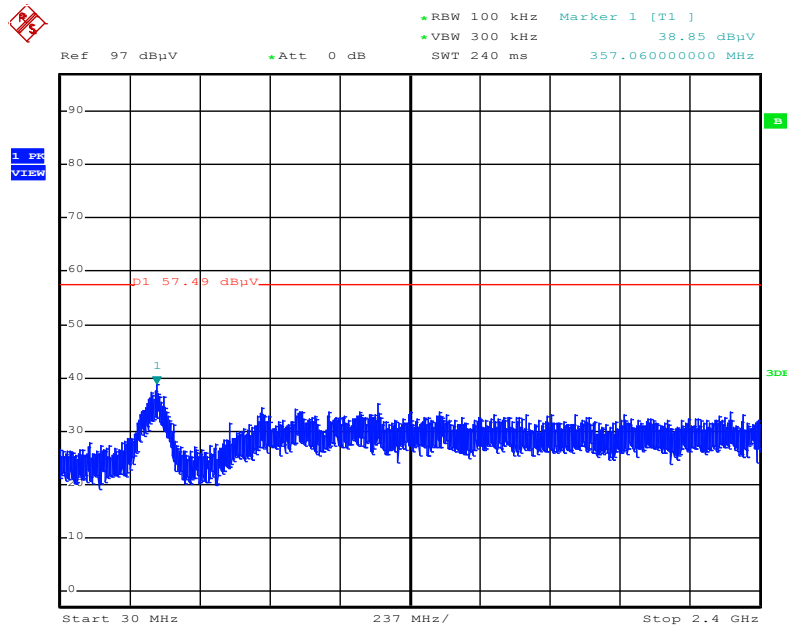


**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 2500MHz~26500MHz (down 30dBc)**



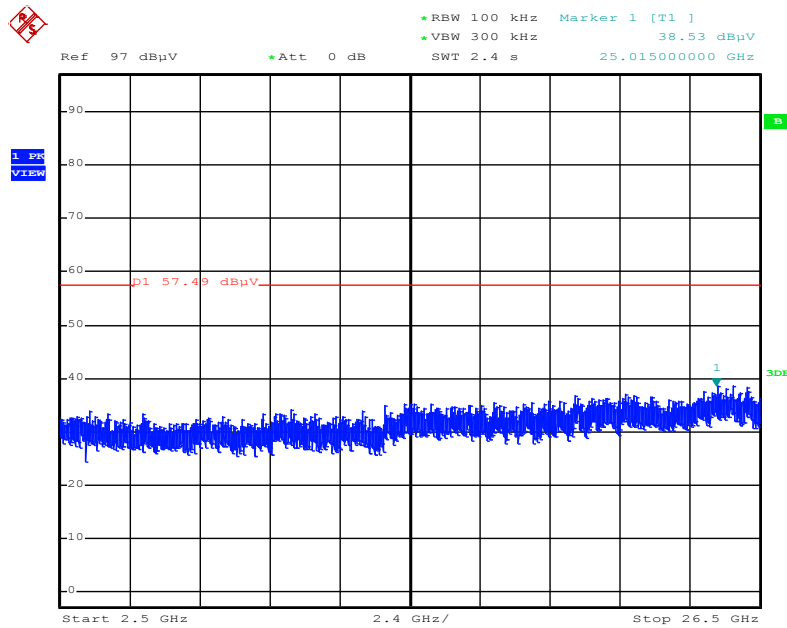
Date: 21.NOV.2015 17:37:16

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 30MHz~2400MHz (down 30dBc)**



Date: 21.NOV.2015 17:38:34

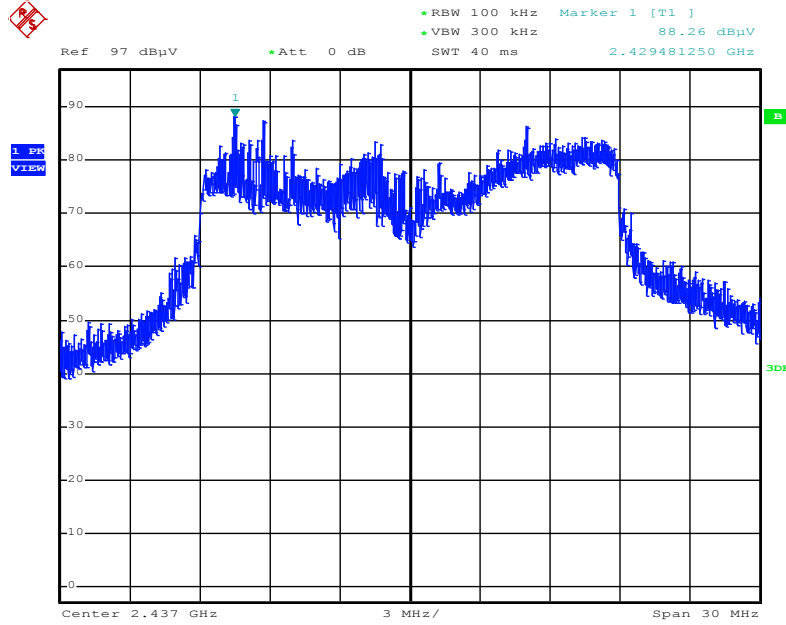
Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 2500MHz~26500MHz (down 30dBc)



Date: 21.NOV.2015 17:38:09

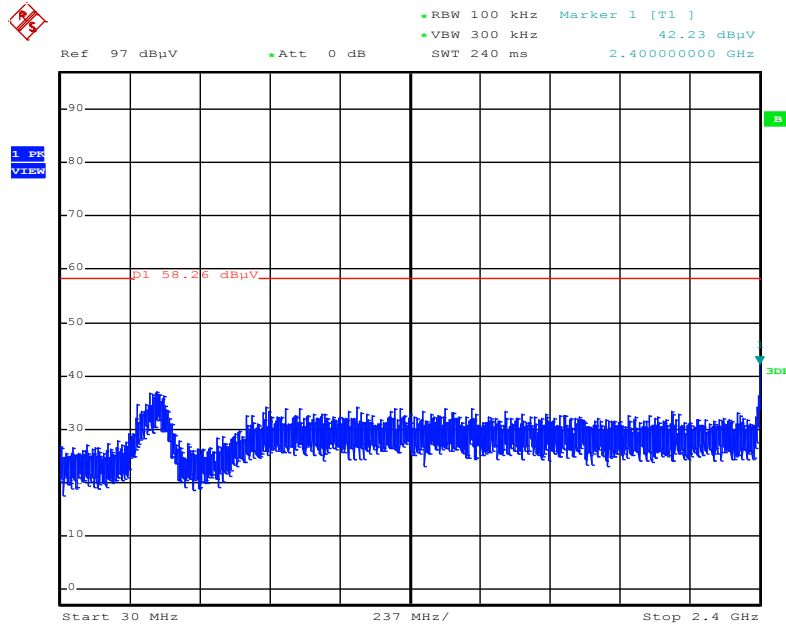
Mode 7: EUT 2 + Set 10 PIFA Antenna / Chain1:3.81 dBi, Chain2:3.75 dBi, Chain3:3.98 dBi,  
Chain4:3.47 dBi

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / Reference Level



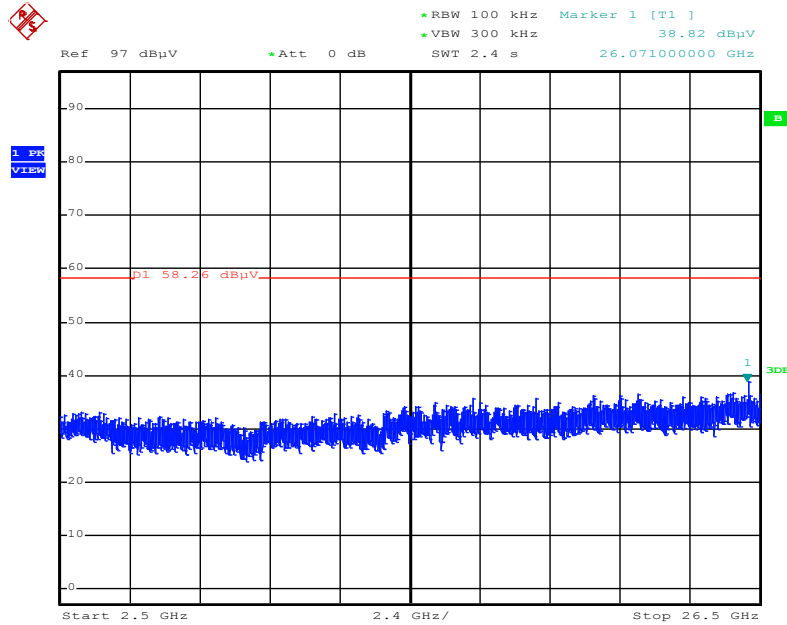
Date: 19.NOV.2015 22:22:42

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 30MHz~2400MHz (down 30dBc)



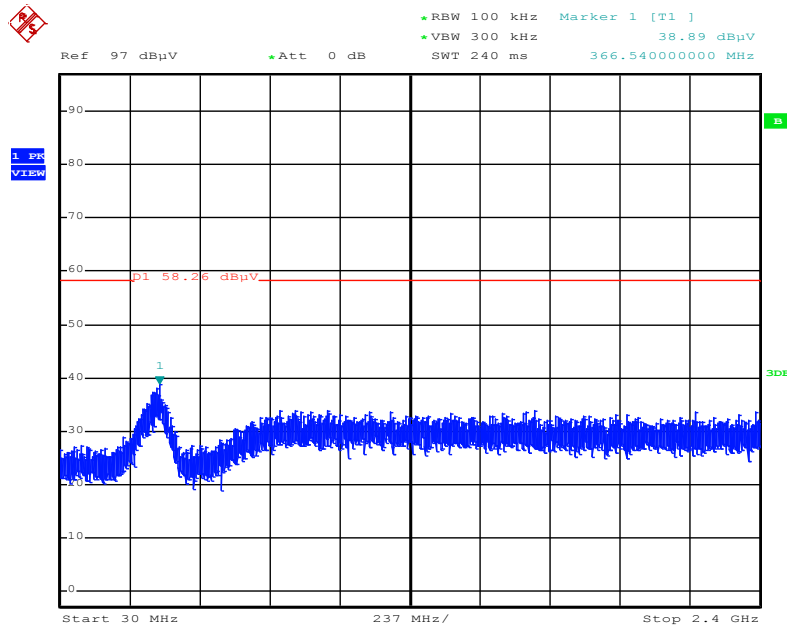
Date: 19.NOV.2015 22:24:17

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 1 / 2500MHz~26500MHz (down 30dBc)**



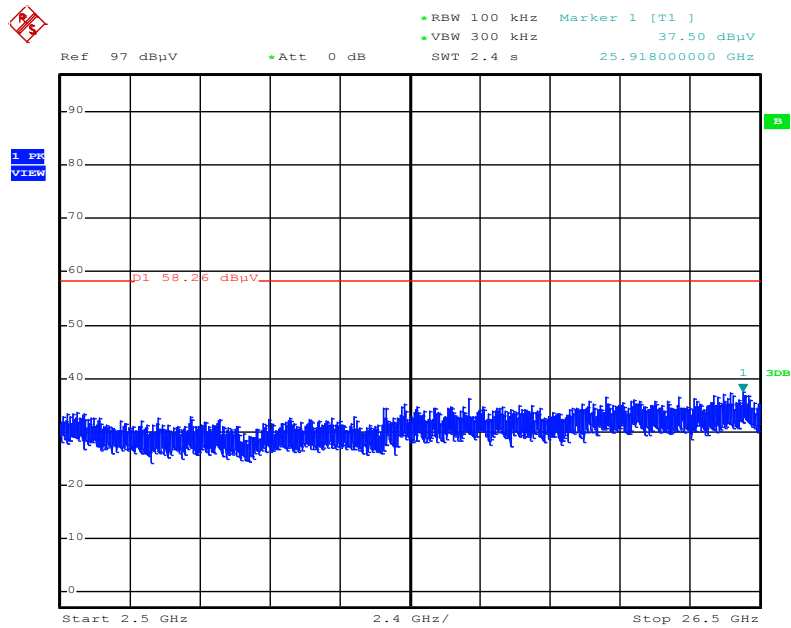
Date: 19.NOV.2015 22:24:42

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 30MHz~2400MHz (down 30dBc)**



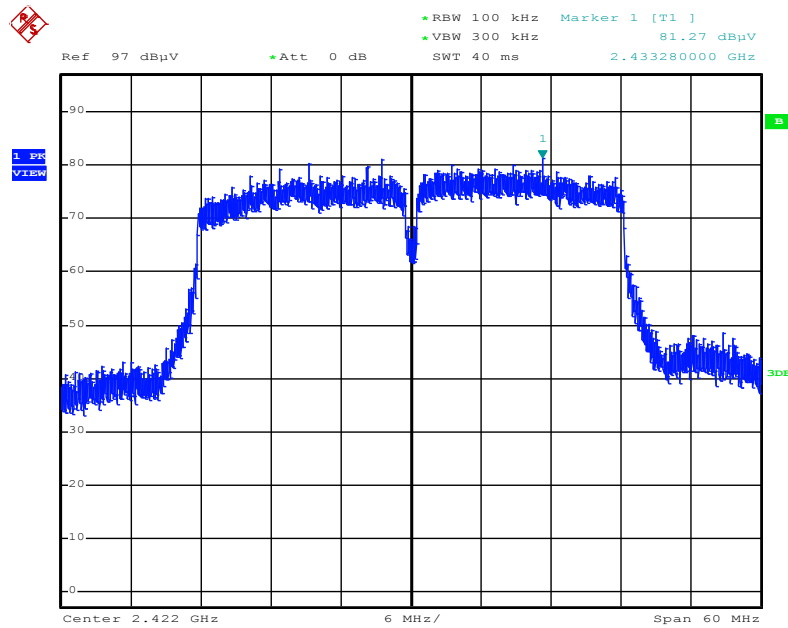
Date: 19.NOV.2015 22:26:34

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT20 / CH 11 / 2500MHz~26500MHz (down 30dBc)



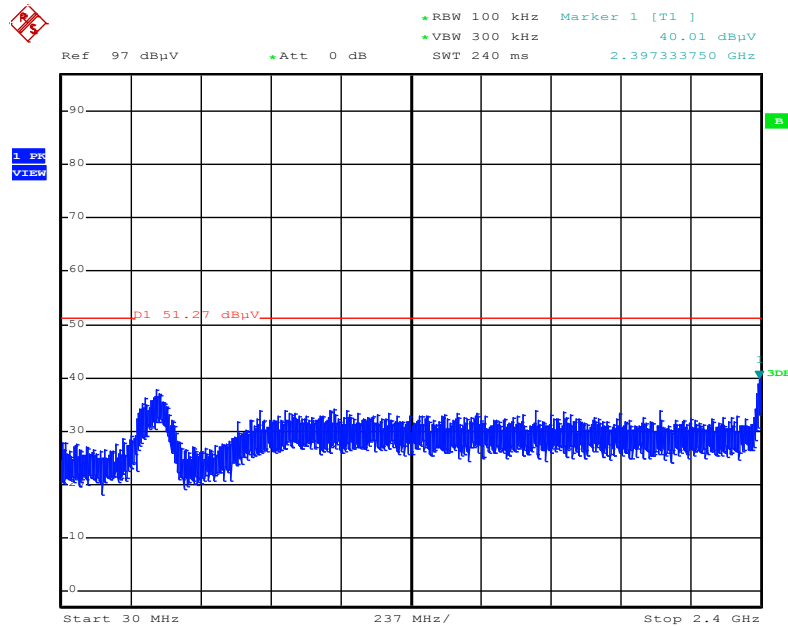
Date: 19.NOV.2015 22:26:11

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / Reference Level**



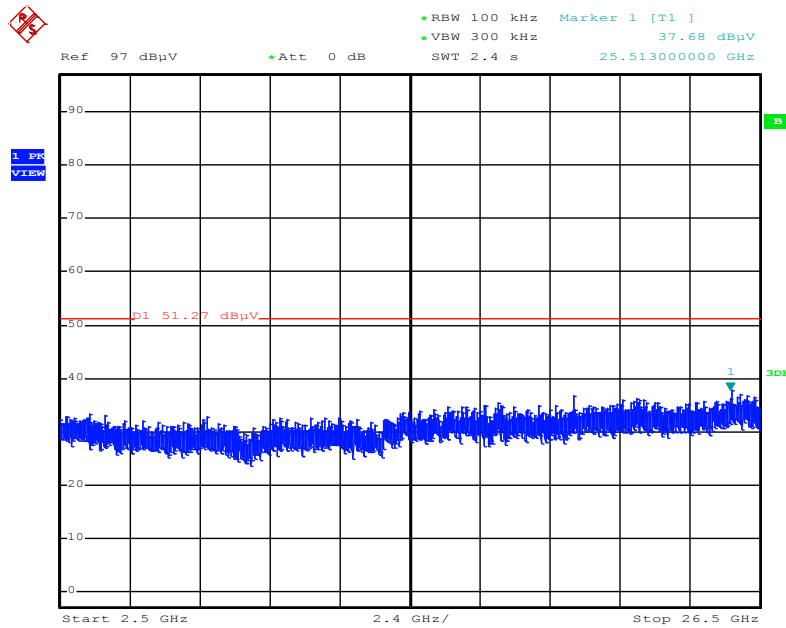
Date: 19.NOV.2015 22:29:40

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 30MHz~2400MHz (down 30dBc)**



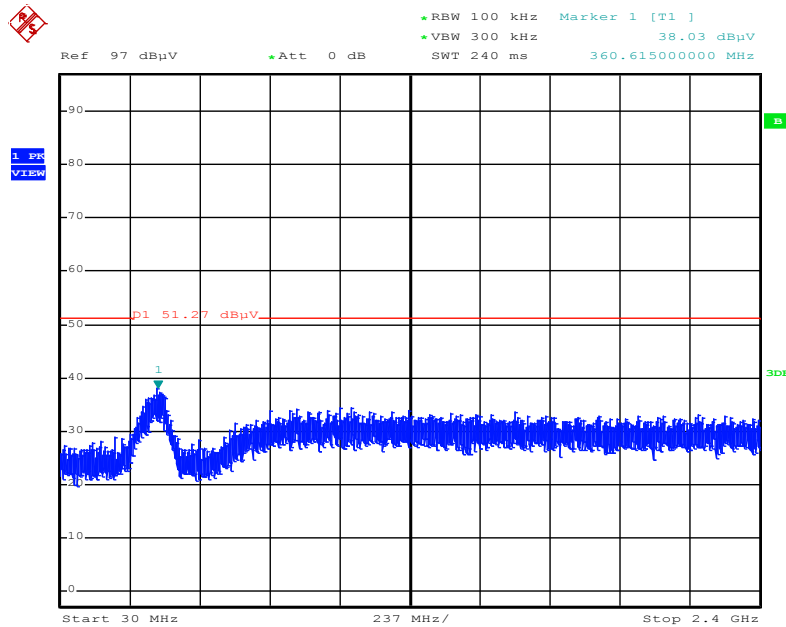
Date: 19.NOV.2015 22:31:00

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 3 / 2500MHz~26500MHz (down 30dBc)**



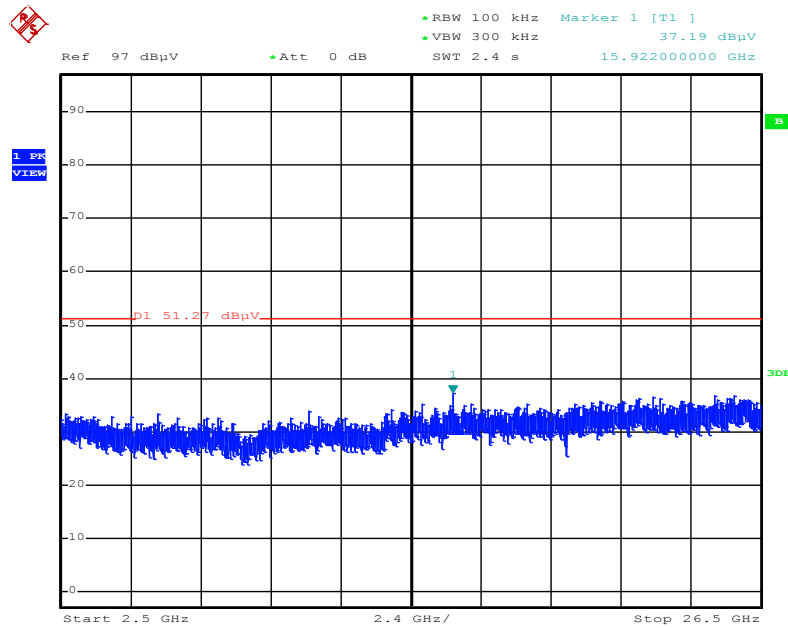
Date: 19.NOV.2015 22:32:21

**Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 30MHz~2400MHz (down 30dBc)**



Date: 19.NOV.2015 22:36:09

Plot on Configuration IEEE 802.11ac MCS0/Nss1 VHT40 / CH 9 / 2500MHz~26500MHz (down 30dBc)



Date: 19.NOV.2015 22:35:36



## **4.7. Antenna Requirements**

### **4.7.1. Limit**

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

### **4.7.2. Antenna Connector Construction**

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

## 5. LIST OF MEASURING EQUIPMENTS

### Conducted Emission

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESR3	102051	9KHz ~ 3.6GHz	29/Apr/2017	Conduction (CO04-HY)
LISN	R&S	ENV216	101295	9kHz ~ 30MHz	15/Nov/2016	Conduction (CO04-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9kHz ~ 30MHz	24/Oct/2016	Conduction (CO04-HY)
Impuls Begrenzer Pulse Limiter	R&S	ESH3-Z2	100921	10 kHz ~ 30 MHz	20/Oct/2016	Conduction (CO04-HY)

### Radiated Emission Below 1GHz

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSP40	100593	9KHz - 40GHz	26/Oct/2016	03CH02-HY
3m Semi Anechoic	SIDT FRANKONIA	SAC-3M	03CH02-HY	30MHz-1GHz	21/Oct/2016	03CH02-HY
Amplifier	Agilent	8447D	2944A11149	100KHz-1.3GHz	29/Jun/2017	03CH02-HY
Bilog Antenna	SCHAFFNER	CBL6112B	2723	30MHz-1GHz	01/Oct/2016	03CH02-HY
RF Cable-R03m	Jye Bao	RG142	CB017	9kHz ~ 1GHz	26/Jan/2017	03CH02-HY
Receiver	R&S	ESU-26	100422/026	20Hz ~ 26.5GHz	21/Sep/2016	03CH02-HY
Loop Antenna	TESEQ	HLA 6120	24155	9 kHz~30 MHz	02/Mar/2017	01/Mar/2018

**Radiated Emission Above 1GHz**

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Oct. 22, 2015	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 21, 2015	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 12, 2015	Radiation (03CH01-CB)
Pre-Amplifier	WM	TF-130N-R1	923365	26GHz ~ 40GHz	Feb.10, 2015	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Oct. 27, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-17	N/A	1 GHz ~ 18 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-1	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G-2	N/A	18GHz ~ 40 GHz	Nov. 02, 2015	Radiation (03CH01-CB)

**Conducted**

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 12, 2014	Conducted (TH01-CB)
Temp. and Humidity Chamber	Ten Billion	TTH-D3SP	TBN-931011	-30~100 degree	Jun. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Nov. 02, 2015	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 02, 2015	Conducted (TH01-CB)

Note: Calibration Interval of instruments listed above is one year.

“\*” Calibration Interval of instruments listed above is two years.

N.C.R. means Non-Calibration required.

## 6. MEASUREMENT UNCERTAINTY

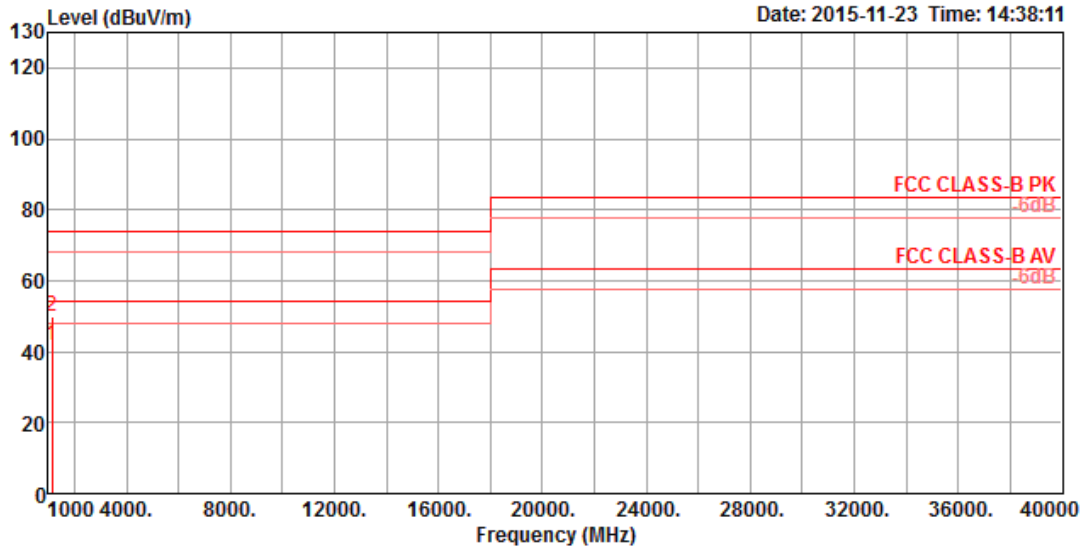
Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	2.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	2.1 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%

## Appendix B. Radiated Emission Co-location Report

# 1. Results of Radiated Emissions for Co-located

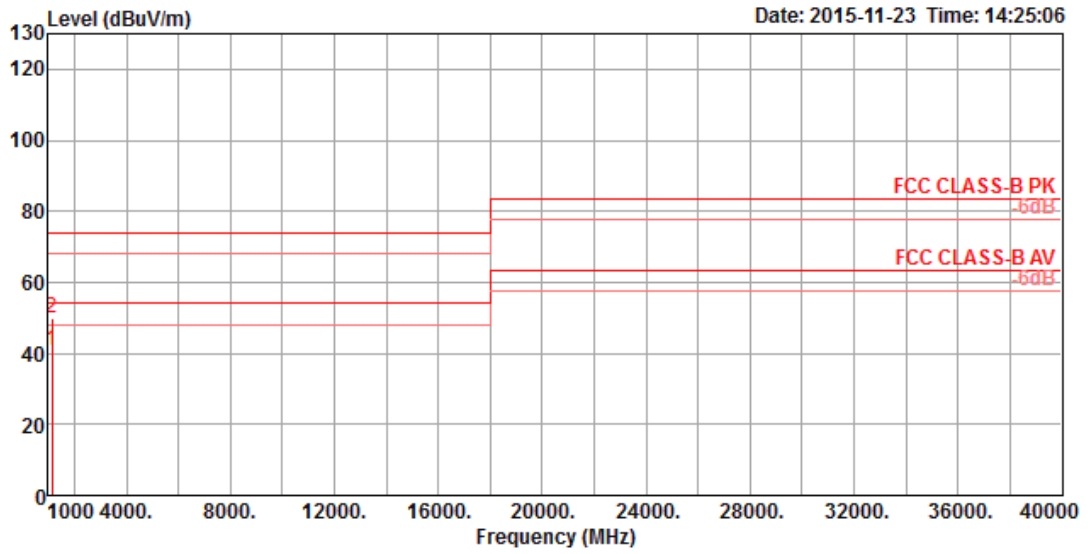
<b>Temperature</b>	25°C	<b>Humidity</b>	55%
<b>Test Engineer</b>	Stim Sung	<b>Configurations</b>	2.4GHz + 5GHz

**Horizontal**



	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	1129.38	41.78	54.00	-12.22	50.83	3.35	24.77	37.17	100	350	Average	HORIZONTAL
2	1129.38	49.78	74.00	-24.22	58.83	3.35	24.77	37.17	100	350	Peak	HORIZONTAL

Vertical



	Freq	Level	Limit Line	Over Limit	Read Level	CableAntenna Loss	Antenna Factor	Preamp Factor	A/Pos	T/Pos	Remark	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB/m	dB	cm	deg		
1	1129.38	41.00	54.00	-13.00	50.05	3.35	24.77	37.17	100	285	Average	VERTICAL
2	1129.38	50.00	74.00	-24.00	59.05	3.35	24.77	37.17	100	285	Peak	VERTICAL