

### Straddle Channel

#### ANT 1

#### 802.11a (5 720 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
11 433.50 <sup>1)</sup>	H	58.28	38.05	-48.04	-	48.29	74.00	25.71
16 942.72	V	54.47	43.31	-44.61	-	53.17	68.20	15.03
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

#### 802.11n HT20 (5 720 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
11 499.27 <sup>1)</sup>	V	57.49	38.10	-48.03	-	47.56	74.00	26.44
17 235.97	H	54.59	41.28	-44.64	-	51.23	68.20	16.97
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

#### 802.11n HT40 (5 710 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
11 397.92 <sup>1)</sup>	V	57.06	38.02	-48.04	-	47.04	74.00	26.96
17 177.03	H	53.64	41.38	-44.63	-	50.39	68.20	17.81
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

#### 802.11ac VHT20 (5 720 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
11 438.89 <sup>1)</sup>	H	58.15	38.05	-48.04	-	48.16	74.00	25.84
17 256.81	H	55.02	41.24	-44.64	-	51.62	68.20	16.58
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

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**802.11ac VHT40 (5 710 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
11 427.39 <sup>1)</sup>	V	56.74	38.04	-48.04	-	46.74	74.00	27.26
17 110.19	V	53.10	41.50	-44.63	-	49.97	68.20	18.23
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

**802.11ac VHT80 (5 690 MHz)**

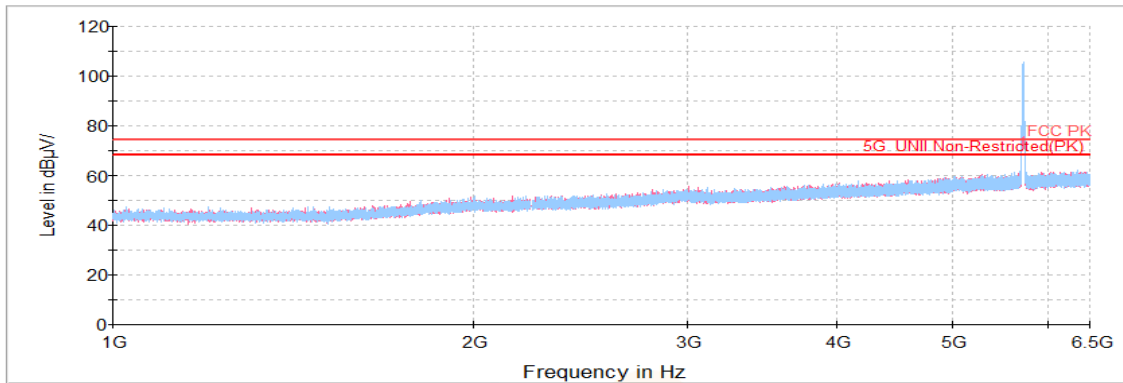
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
11 372.05 <sup>1)</sup>	H	57.57	38.00	-48.05	-	47.52	74.00	26.48
17 045.50	V	53.62	41.62	-44.62	-	50.62	68.20	17.58
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

**Plot of Harmonics and Spurious Emissions**

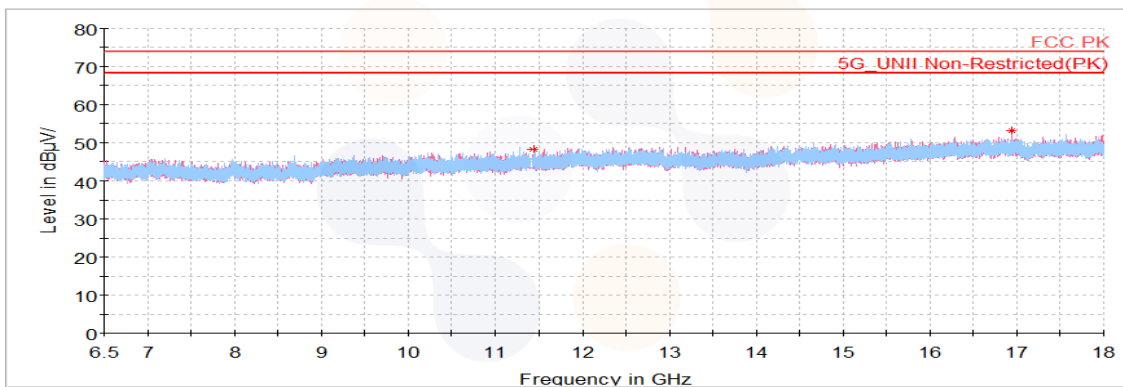
In order to simplify the report, attached plots were only the lowest margin condition

**802.11a\_Straddle Channel (5 720 MHz)**

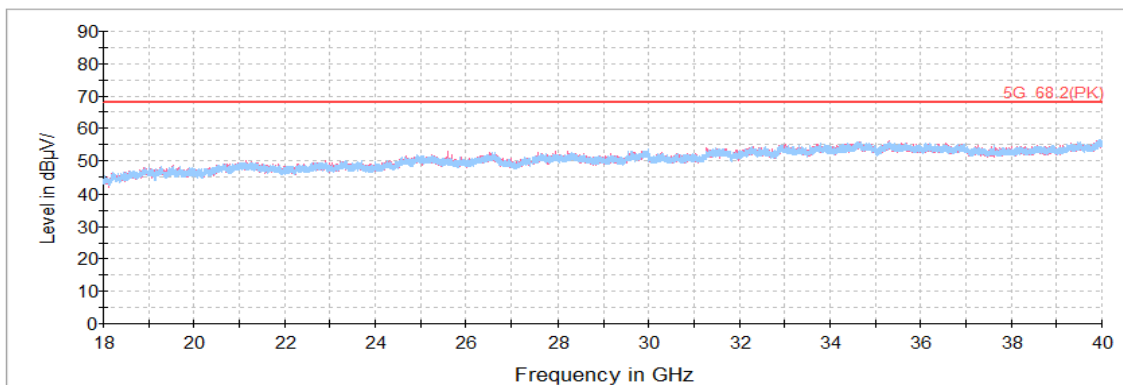
**Horizontal/Vertical for 1 GHz ~ 6.5 GHz**



**Horizontal/Vertical for 6.5 GHz ~ 18 GHz**



**Horizontal/Vertical for 18 GHz ~ 40 GHz**



**ANT 2**

**802.11a (5 720 MHz)**

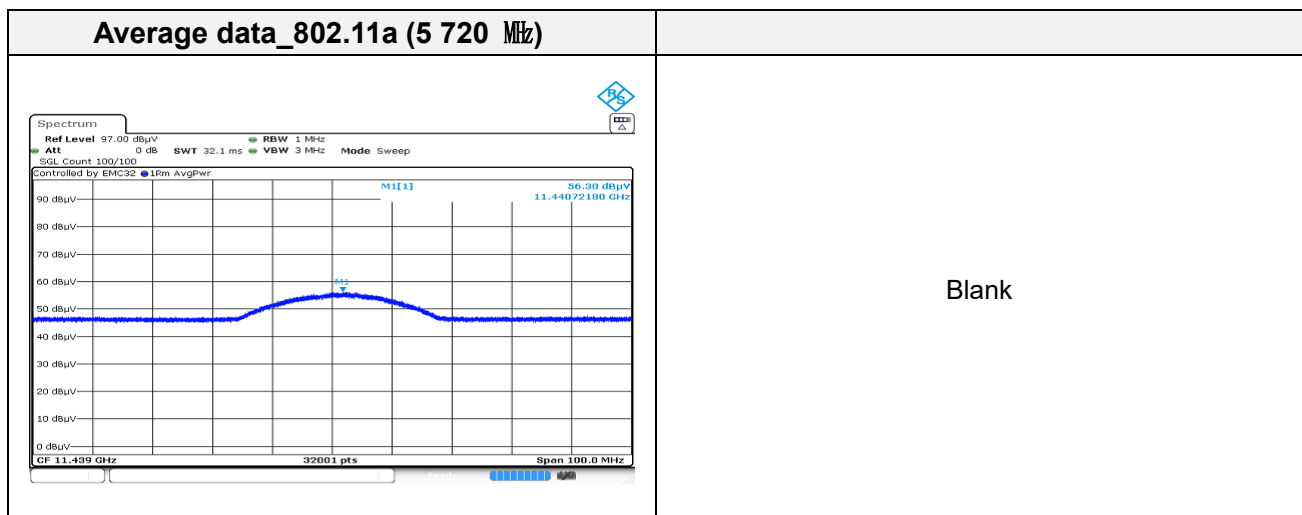
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
<b>Peak data</b>								
11 440.72 <sup>1)</sup>	H	64.04	38.05	-48.04	-	54.05	74.00	19.95
17 155.11	V	53.73	41.42	-44.63	-	50.52	68.20	17.68
<b>Average Data</b>								
11 440.72 <sup>1)</sup>	H	56.30	38.05	-48.04	0.11	46.42	54.00	7.58

**802.11n HT20 (5 720 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
<b>Peak data</b>								
11 439.26 <sup>1)</sup>	H	64.14	38.05	-48.04	-	54.15	74.00	19.85
17 160.50	V	53.31	41.41	-44.63	-	50.09	68.20	18.11
<b>Average Data</b>								
11 439.26 <sup>1)</sup>	H	54.71	38.05	-48.04	0.13	44.85	54.00	9.15

**802.11n HT40 (5 710 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
<b>Peak data</b>								
11 415.17 <sup>1)</sup>	V	60.79	38.03	-48.04	-	50.78	74.00	23.22
16 999.50	V	52.54	43.40	-44.62	-	51.32	68.20	16.88
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								



**802.11ac VHT20 (5 720 MHz)**

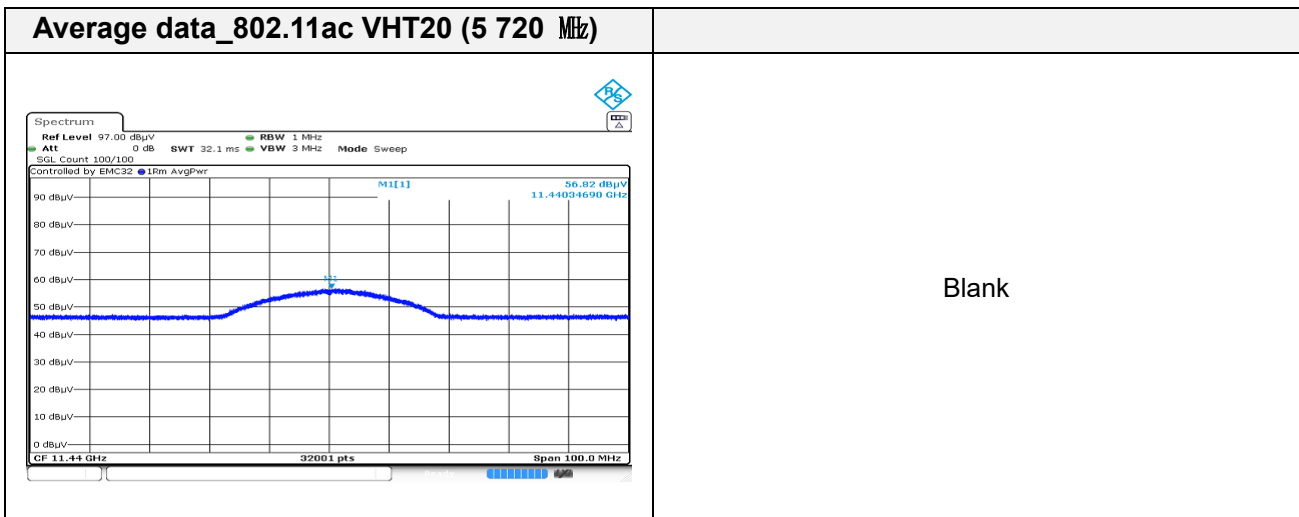
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
<b>Peak data</b>								
11 440.35 <sup>1)</sup>	H	63.27	38.05	-48.04	-	53.28	74.00	20.72
17 193.20	V	53.86	41.35	-44.64	-	50.57	68.20	17.63
<b>Average Data</b>								
11 440.35 <sup>1)</sup>	H	56.82	38.05	-48.04	0.12	46.95	54.00	7.05

**802.11ac VHT40 (5 710 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
<b>Peak data</b>								
11 417.69 <sup>1)</sup>	V	60.70	38.03	-48.04	-	50.69	74.00	23.31
17 033.64	V	55.32	41.64	-44.62	-	52.34	68.20	15.86
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

**802.11ac VHT80 (5 690 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
<b>Peak data</b>								
11 393.25 <sup>1)</sup>	V	57.51	38.01	-48.04	-	47.48	74.00	26.52
17 048.73	H	53.45	41.61	-44.62	-	50.44	68.20	17.76
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

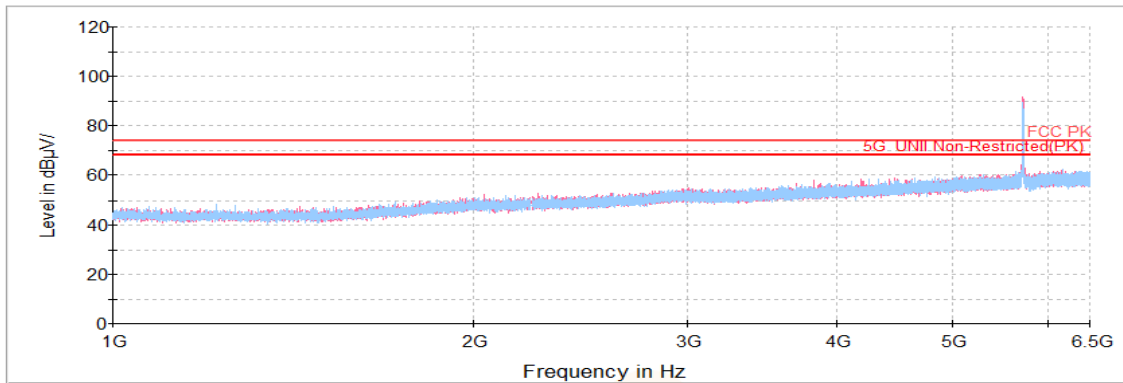


**Plot of Harmonics and Spurious Emissions**

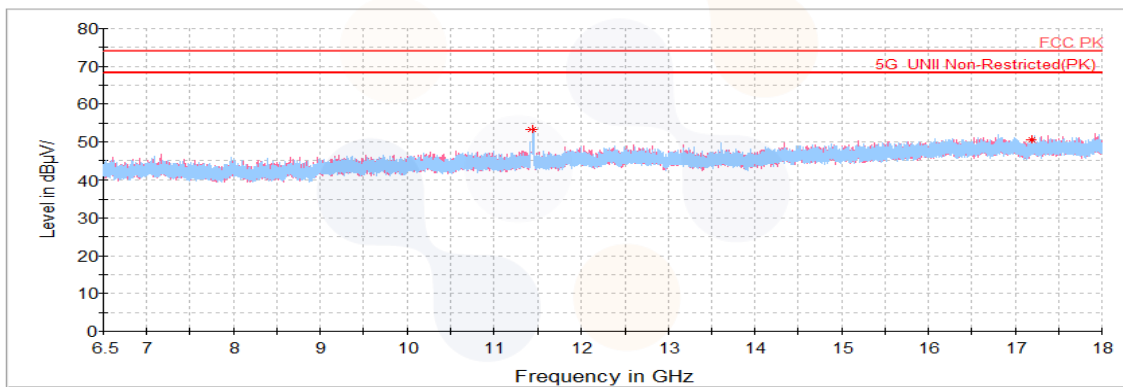
In order to simplify the report, attached plots were only the lowest margin condition

**802.11ac VHT20\_Straddle Channel (5 720 MHz)**

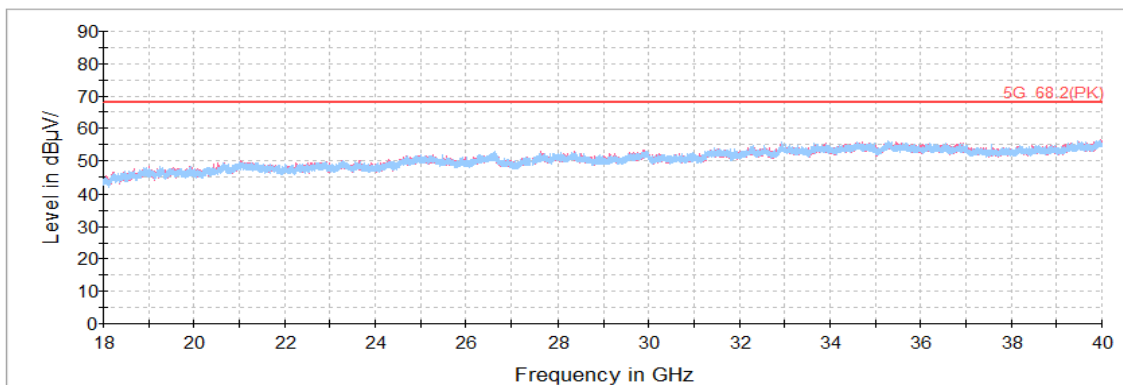
**Horizontal/Vertical for 1 GHz ~ 6.5 GHz**



**Horizontal/Vertical for 6.5 GHz ~ 18 GHz**



**Horizontal/Vertical for 18 GHz ~ 40 GHz**



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## MIMO

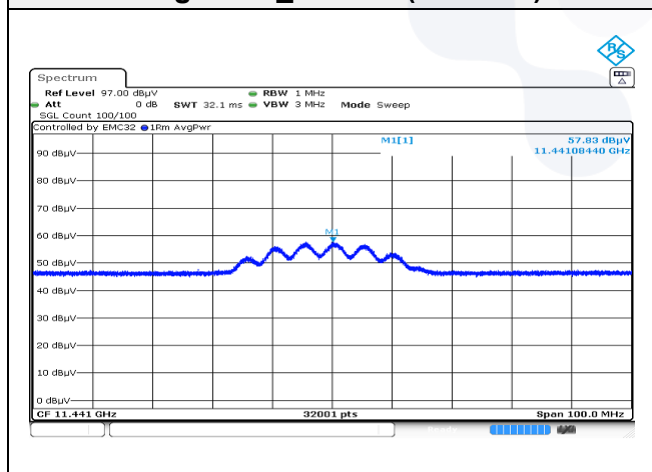
### 802.11a (5 720 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
<b>Peak data</b>								
11 441.08 <sup>1)</sup>	H	64.96	38.05	-48.04	-	54.97	74.00	19.03
17 184.22	V	54.31	41.37	-44.64	-	51.04	68.20	17.16
<b>Average Data</b>								
11 441.08 <sup>1)</sup>	H	57.83	38.05	-48.04	0.11	47.95	54.00	6.05

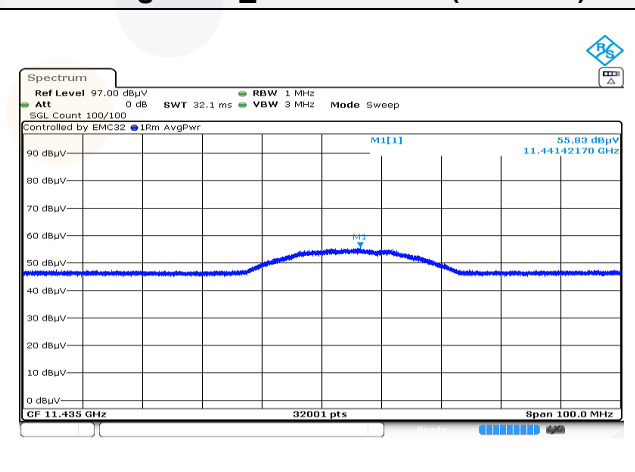
### 802.11n HT20 (5 720 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
<b>Peak data</b>								
11 441.42 <sup>1)</sup>	H	63.51	38.05	-48.04	-	53.52	74.00	20.48
17 106.23	H	53.19	41.51	-44.63	-	50.07	68.20	18.13
<b>Average Data</b>								
11 441.42 <sup>1)</sup>	H	55.83	38.05	-48.04	0.23	46.07	54.00	7.93

Average data\_802.11a (5 720 MHz)



Average data\_802.11n HT20 (5 720 MHz)

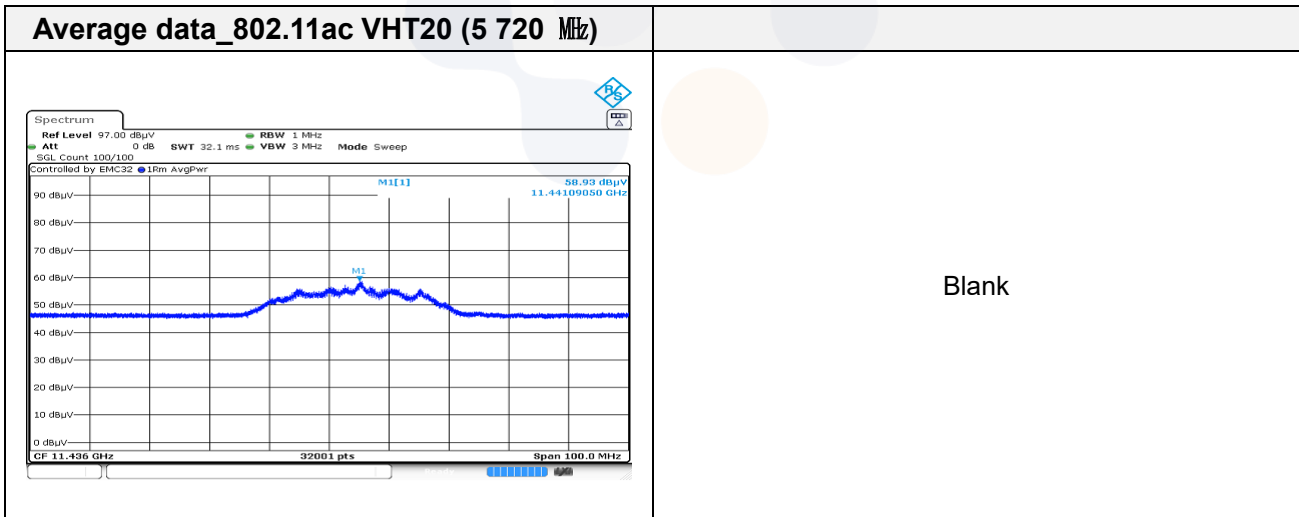


**802.11n HT40 (5 710 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
<b>Peak data</b>								
11 421.64 <sup>1)</sup>	H	59.50	38.04	-48.04	-	49.50	74.00	24.50
11 811.20 <sup>1)</sup>	H	58.81	38.60	-47.53	-	49.88	74.00	24.12
17 125.64	H	53.33	41.47	-44.63	-	50.17	68.20	18.03
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

**802.11ac VHT20 (5 720 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
<b>Peak data</b>								
11 441.09 <sup>1)</sup>	H	66.69	38.05	-48.04	-	56.70	74.00	17.30
16 599.16	V	54.36	42.76	-44.60	-	52.52	68.20	15.68
17 163.02	V	54.13	41.41	-44.63	-	50.91	68.20	17.29
<b>Average Data</b>								
11 441.09 <sup>1)</sup>	H	58.93	38.05	-48.04	0.22	49.16	54.00	4.84



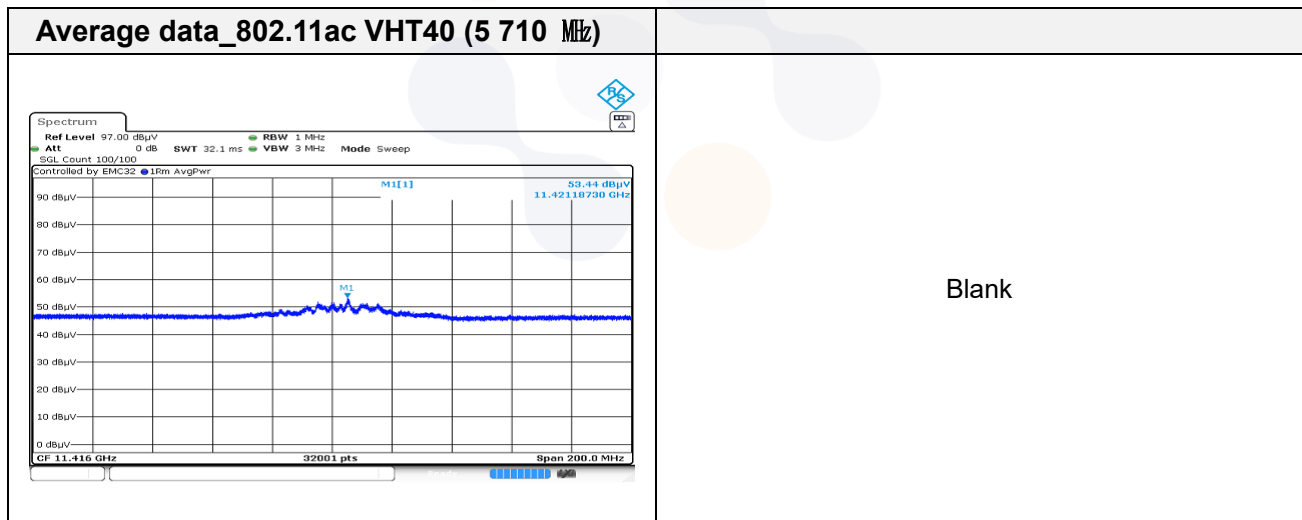


**802.11ac VHT40 (5 710 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
<b>Peak data</b>								
11 421.19 <sup>1)</sup>	H	61.38	38.04	-48.04	-	51.38	74.00	22.62
17 155.47	H	53.74	41.42	-44.63	-	50.53	68.20	17.67
<b>Average Data</b>								
11 421.19 <sup>1)</sup>	H	53.44	38.04	-48.04	0.41	43.85	54.00	10.15

**802.11ac VHT80 (5 690 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB(μV))	(dB)	(dB)	(dB)	(dB(μV/m))	(dB(μV/m))	(dB)
<b>Peak data</b>								
11 405.83 <sup>1)</sup>	V	60.37	38.02	-48.04	-	50.35	74.00	23.65
17 051.25	V	53.60	41.61	-44.62	-	50.59	68.20	17.61
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

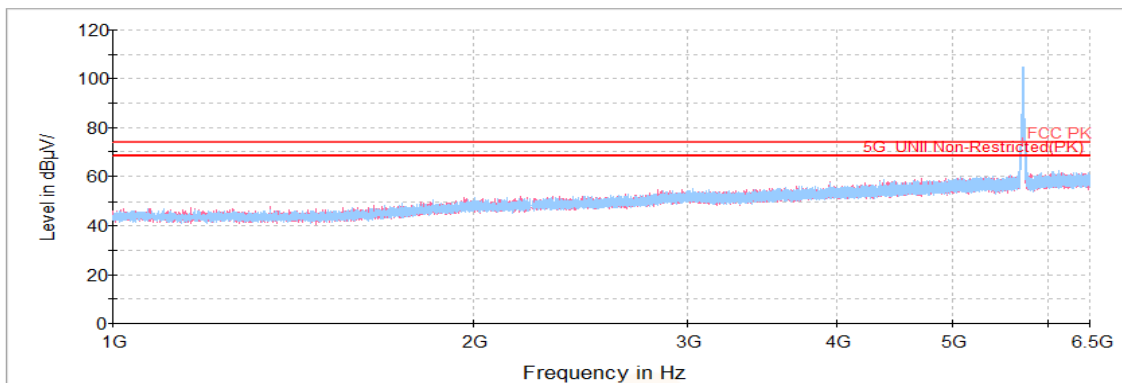


**Plot of Harmonics and Spurious Emissions**

In order to simplify the report, attached plots were only the lowest margin condition

**802.11ac VHT20\_Straddle Channel (5 720 MHz)**

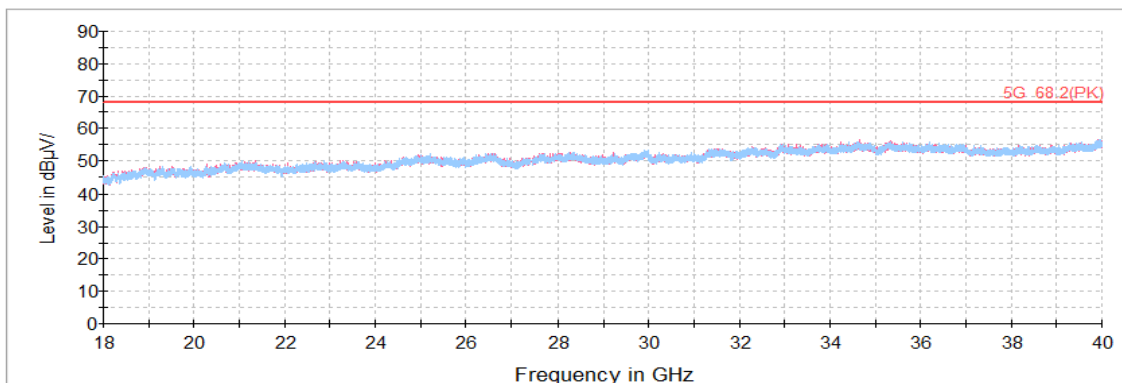
**Horizontal/Vertical for 1 GHz ~ 6.5 GHz**



**Horizontal/Vertical for 6.5 GHz ~ 18 GHz**



**Horizontal/Vertical for 18 GHz ~ 40 GHz**



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**802.11a UNII-3 ANT1****Lowest Channel (5 745 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 723.81	H	59.27	34.87	-24.11	-	70.03	119.49	49.46
11 491.00 <sup>1)</sup>	V	58.65	38.09	-48.03	-	48.71	74.00	25.29
17 250.70	V	54.31	41.25	-44.64	-	50.92	68.20	17.28
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

**Middle Channel (5 785 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
11 506.81 <sup>1)</sup>	H	57.68	38.11	-48.02	-	47.77	74.00	26.23
17 206.50	H	55.36	41.33	-44.64	-	52.05	68.20	16.15
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

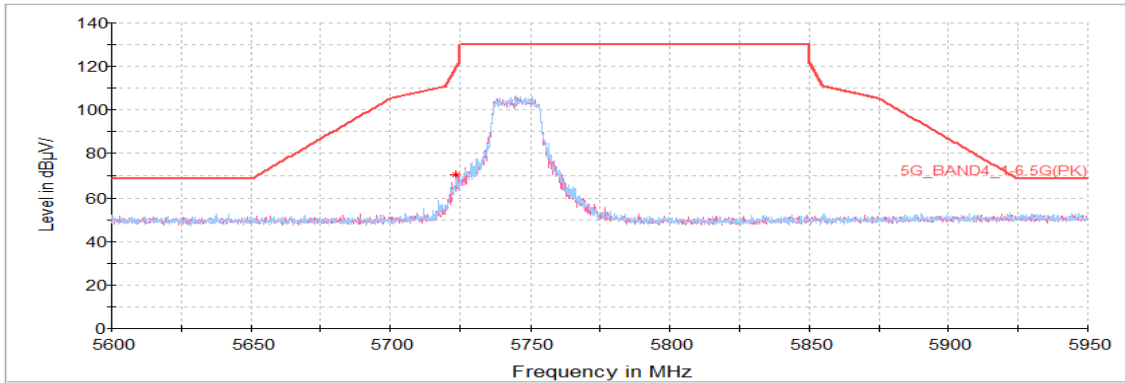
**Highest Channel (5 825 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 854.44	V	46.43	35.03	-23.65	-	57.81	112.08	54.27
11 645.89 <sup>1)</sup>	H	57.90	38.33	-47.80	-	48.43	74.00	25.57
15 193.28	V	55.21	40.29	-44.47	-	51.03	68.20	17.17
17 396.25	H	54.71	40.99	-44.66	-	51.04	68.20	17.16
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

**802.11a UNII-3 ANT1**

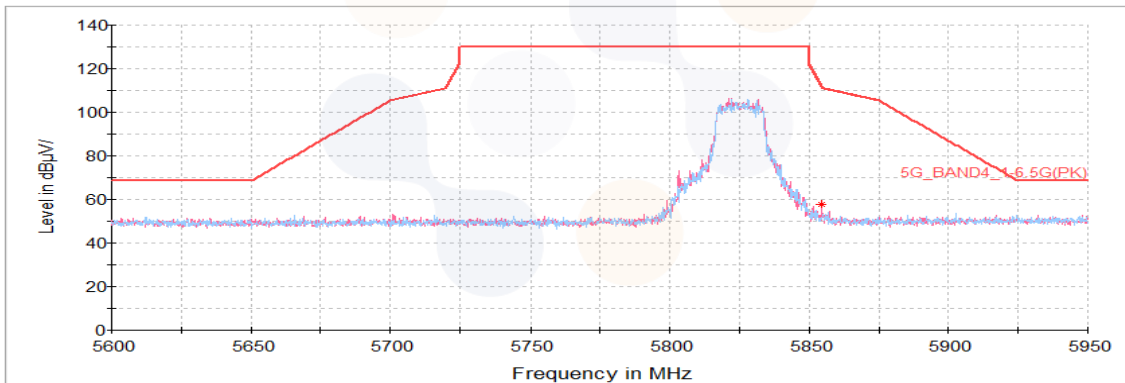
**Lowest Channel (5 745 MHz)**

**Horizontal/Vertical for Band-edge**



**Highest Channel (5 825 MHz)**

**Horizontal/Vertical for Band-edge**



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**802.11a UNII-3 ANT2****Lowest Channel (5 745 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
5 724.50	H	52.19	34.87	-24.10	-	62.96	121.06	58.10
11 491.25 <sup>1)</sup>	H	66.46	38.09	-48.03	-	56.52	74.00	17.48
17 245.31	V	53.65	41.26	-44.64	-	50.27	68.20	17.93
17 366.78	V	56.15	41.04	-44.65	-	52.54	68.20	15.66
<b>Average Data</b>								
11 491.25 <sup>1)</sup>	H	60.31	38.09	-48.03	0.11	50.48	54.00	3.52

**Middle Channel (5 785 MHz)**

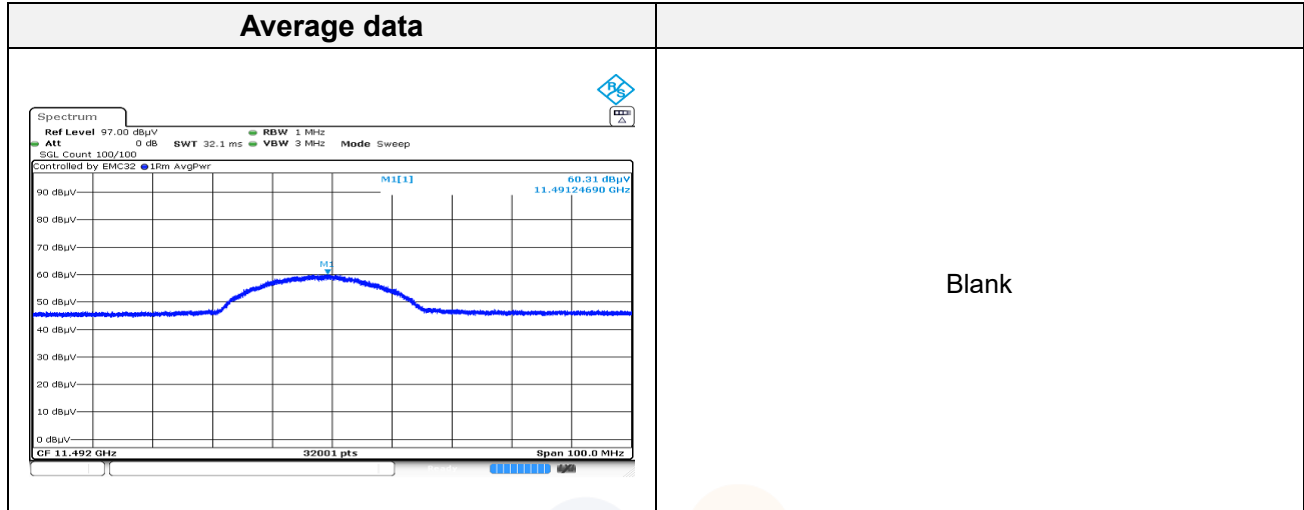
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
11 571.27 <sup>1)</sup>	H	67.55	38.21	-47.91	-	57.85	74.00	16.15
17 481.06	H	54.42	40.83	-44.67	-	50.58	68.20	17.62
<b>Average Data</b>								
11 571.27 <sup>1)</sup>	H	60.14	38.21	-47.91	0.11	50.55	54.00	3.45

**Highest Channel (5 825 MHz)**

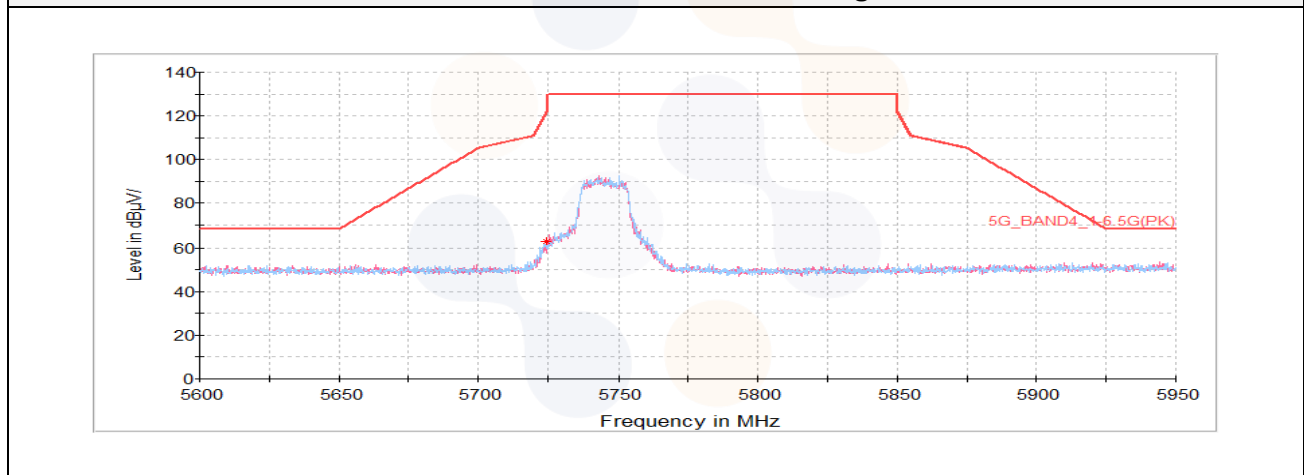
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
5 859.25	V	40.66	35.03	-23.62	-	52.07	109.61	57.54
11 649.00 <sup>1)</sup>	H	67.28	38.34	-47.79	-	57.83	74.00	16.17
17 493.64	V	54.66	40.81	-44.67	-	50.80	68.20	17.40
<b>Average Data</b>								
11 649.00 <sup>1)</sup>	H	59.67	38.34	-47.79	0.11	50.33	54.00	3.67

## 802.11a UNII-3 ANT2

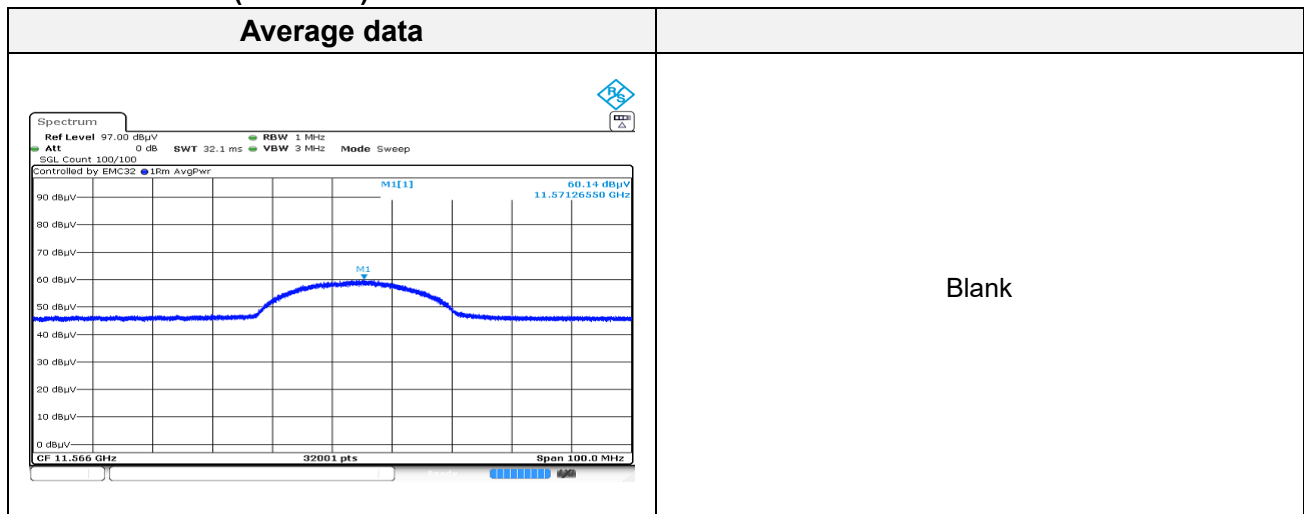
### Lowest Channel (5 745 MHz)



### Horizontal/Vertical for Band-edge



### Middle Channel (5 785 MHz)



# KCTL Inc.

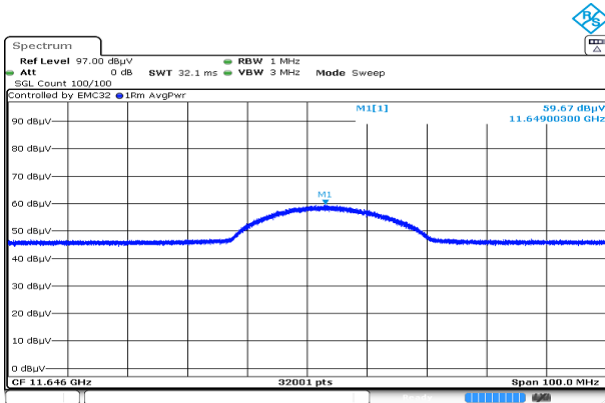
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Suwon-si, Gyeonggi-do, 16677, Korea  
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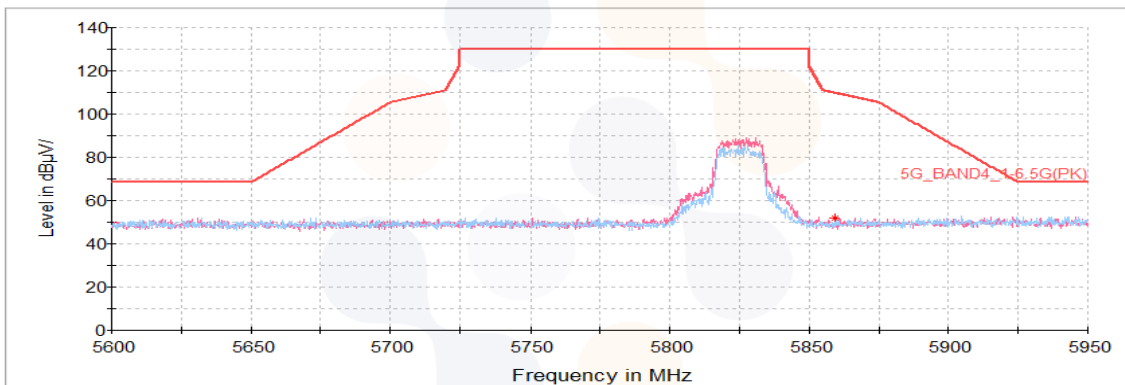
## Highest Channel (5 825 MHz)

### Average data



Blank

### Horizontal/Vertical for Band-edge



### 802.11a UNII-3 2TX MIIMO

#### Lowest Channel (5 745 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
5 724.50	H	65.34	34.87	-24.10	-	76.11	121.06	44.95
11 490.96 <sup>1)</sup>	H	65.70	38.09	-48.03	-	55.76	74.00	18.24
17 326.89	V	54.86	41.11	-44.65	-	51.32	68.20	16.88
<b>Average Data</b>								
11 490.96 <sup>1)</sup>	H	60.18	38.09	-48.03	0.11	50.35	54.00	3.65

#### Middle Channel (5 785 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
11 566.41 <sup>1)</sup>	H	66.83	38.21	-47.92	-	57.12	74.00	16.88
17 312.16	V	55.71	41.14	-44.65	-	52.20	68.20	16.00
<b>Average Data</b>								
11 566.41 <sup>1)</sup>	H	60.02	38.21	-47.92	0.11	50.42	54.00	3.58

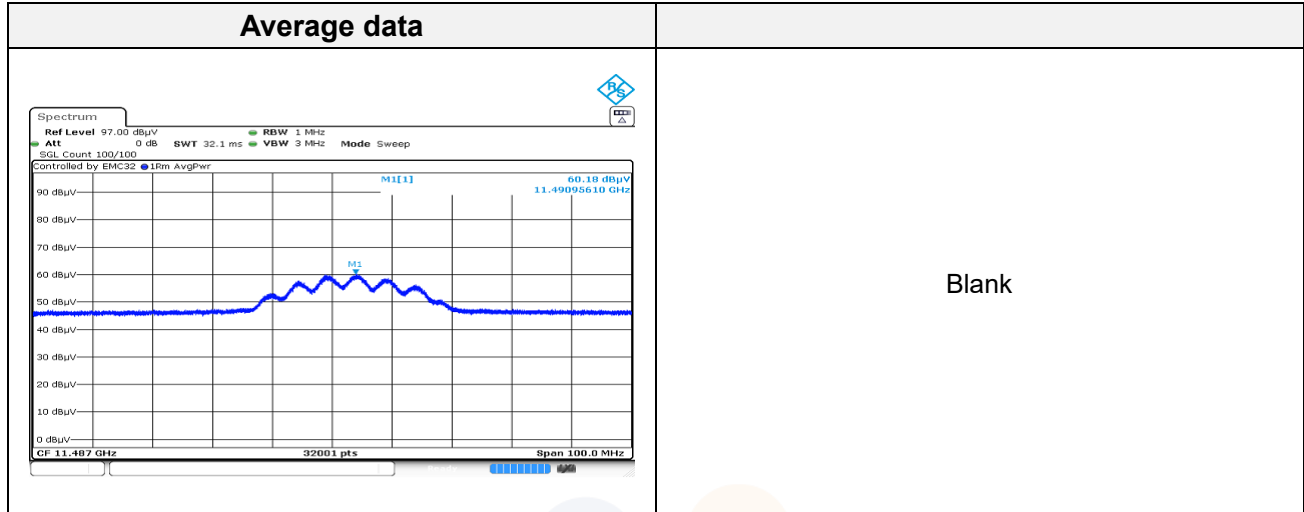
#### Highest Channel (5 825 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
5 850.66	H	50.93	35.02	-23.67	-	62.28	120.70	58.43
11 650.88 <sup>1)</sup>	H	66.69	38.34	-47.79	-	57.24	74.00	16.76
17 453.75	V	54.85	40.88	-44.66	-	51.07	68.20	17.13
<b>Average Data</b>								
11 650.88 <sup>1)</sup>	H	59.67	38.34	-47.79	0.11	50.33	54.00	3.67

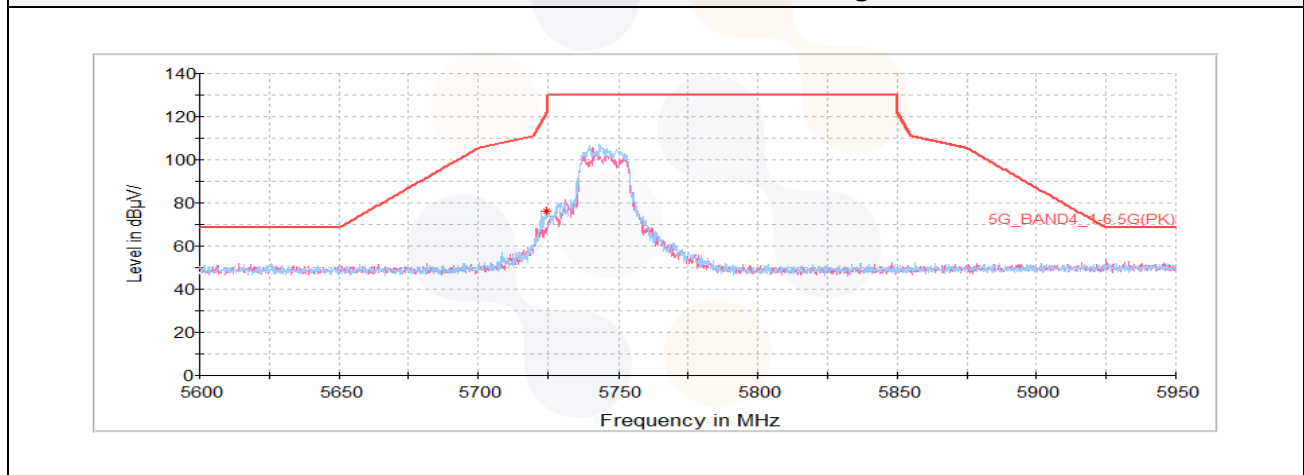


**802.11a UNII-3 2TX MIIMO**

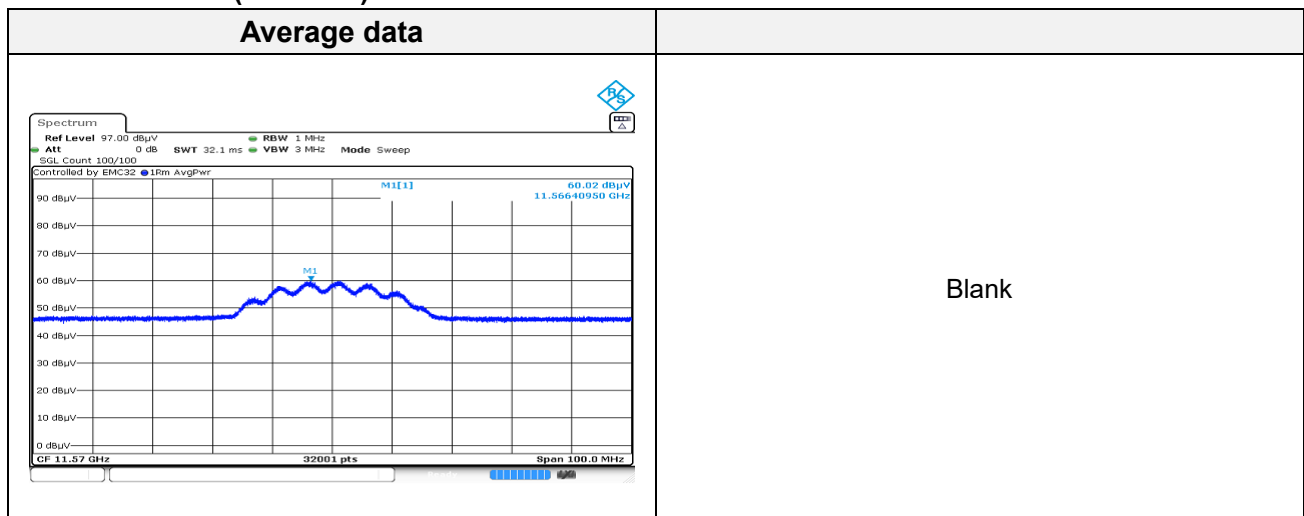
**Lowest Channel (5 745 MHz)**



**Horizontal/Vertical for Band-edge**



**Middle Channel (5 785 MHz)**



# KCTL Inc.

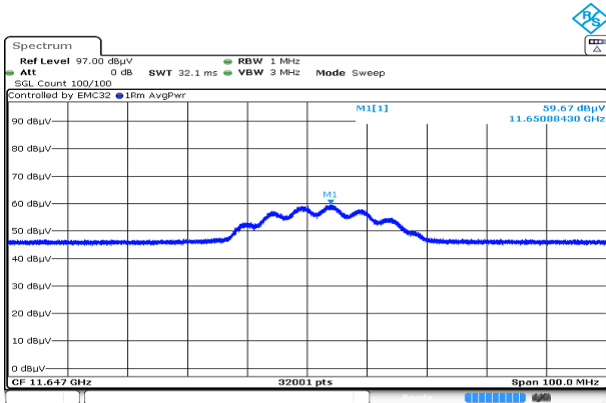
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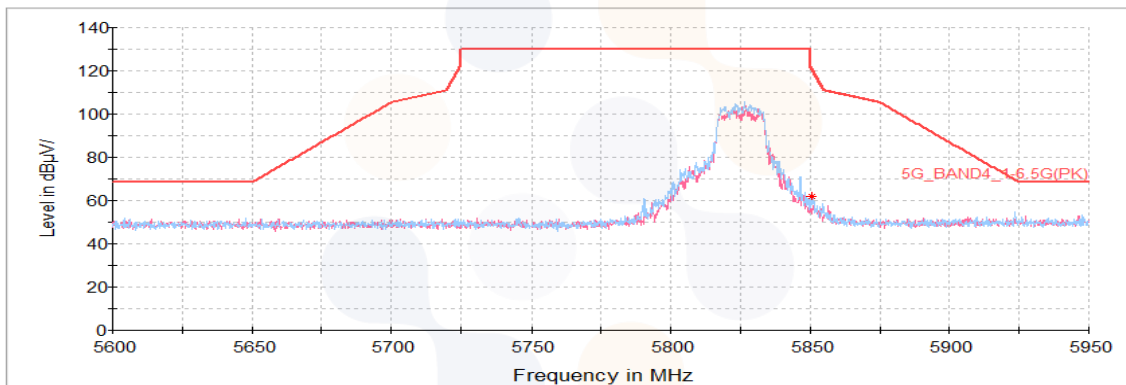
## Highest Channel (5 825 MHz)

### Average data



Blank

### Horizontal/Vertical for Band-edge



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**802.11n HT20 UNII-3 ANT1****Lowest Channel (5 745 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 722.61	H	63.88	34.87	-24.11	-	74.64	116.75	42.11
11 485.61 <sup>1)</sup>	H	58.09	38.09	-48.03	-	48.15	74.00	25.85
17 200.75	H	54.82	41.34	-44.64	-	51.52	68.20	16.68
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

**Middle Channel (5 785 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
11 566.83 <sup>1)</sup>	V	58.46	38.21	-47.92	-	48.75	74.00	25.25
17 337.31	V	54.82	41.09	-44.65	-	51.26	68.20	16.94
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

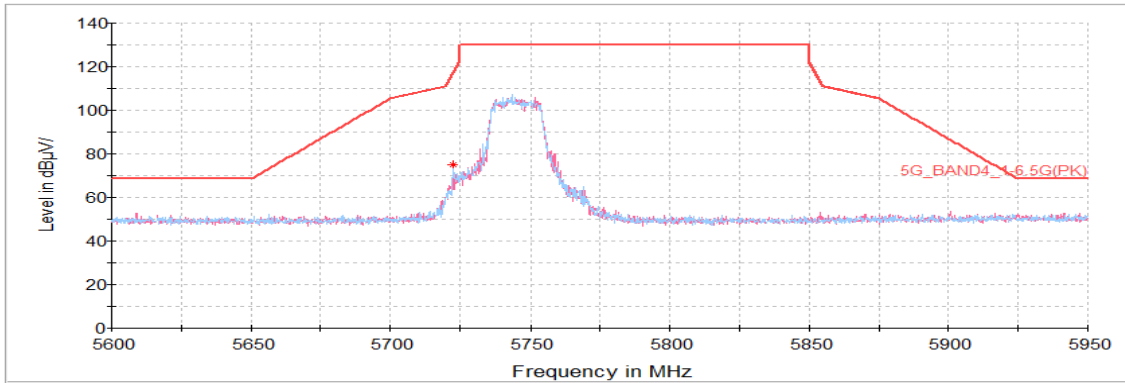
**Highest Channel (5 825 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 850.48	V	49.08	35.02	-23.67	-	60.43	121.10	60.67
11 650.20 <sup>1)</sup>	H	57.23	38.34	-47.79	-	47.78	74.00	26.22
17 355.64	V	54.60	41.06	-44.65	-	51.01	68.20	17.19
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

**802.11n HT20 UNII-3 ANT1**

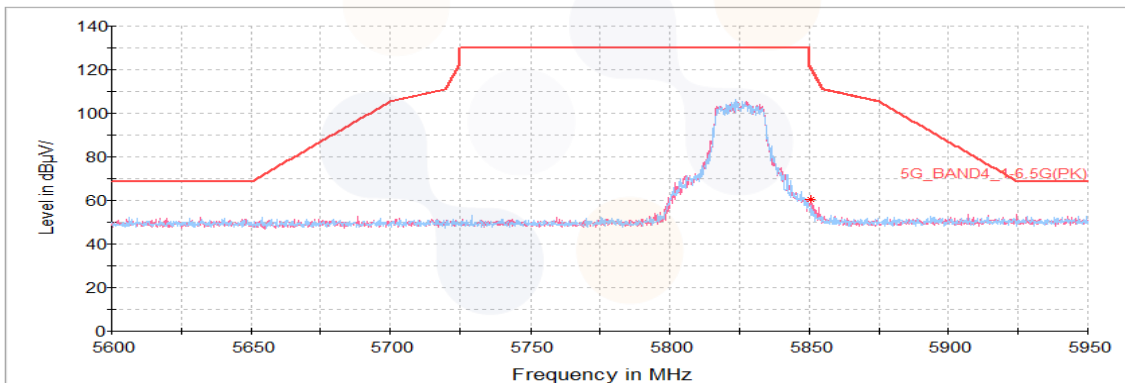
**Lowest Channel (5 745 MHz)**

**Horizontal/Vertical for Band-edge**



**Highest Channel (5 825 MHz)**

**Horizontal/Vertical for Band-edge**



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**802.11n HT20 UNII-3 ANT2****Lowest Channel (5 745 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
5 724.67	V	52.23	34.87	-24.10	-	63.00	121.45	58.45
11 488.93 <sup>1)</sup>	H	65.88	38.09	-48.03	-	55.94	74.00	18.06
17 246.03	V	54.66	41.26	-44.64	-	51.28	68.20	16.92
<b>Average Data</b>								
11 488.93 <sup>1)</sup>	H	60.17	38.09	-48.03	0.13	50.36	54.00	3.64

**Middle Channel (5 785 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
11 570.82 <sup>1)</sup>	H	66.50	38.21	-47.92	-	56.79	74.00	17.21
17 357.08	H	54.21	41.06	-44.65	-	50.62	68.20	17.58
<b>Average Data</b>								
11 570.82 <sup>1)</sup>	H	60.06	38.21	-47.92	0.13	50.48	54.00	3.52

**Highest Channel (5 825 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
5 853.75	V	40.61	35.02	-23.65	-	51.98	113.65	61.67
11 650.91 <sup>1)</sup>	H	67.81	38.34	-47.79	-	58.36	74.00	15.64
17 414.58	V	55.31	40.95	-44.66	-	51.60	68.20	16.60
<b>Average Data</b>								
11 650.91 <sup>1)</sup>	H	59.45	38.34	-47.79	0.13	50.13	54.00	3.87

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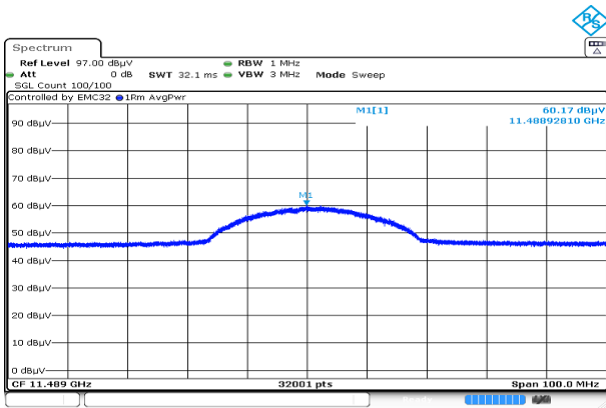
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## 802.11n HT20 UNII-3 ANT2

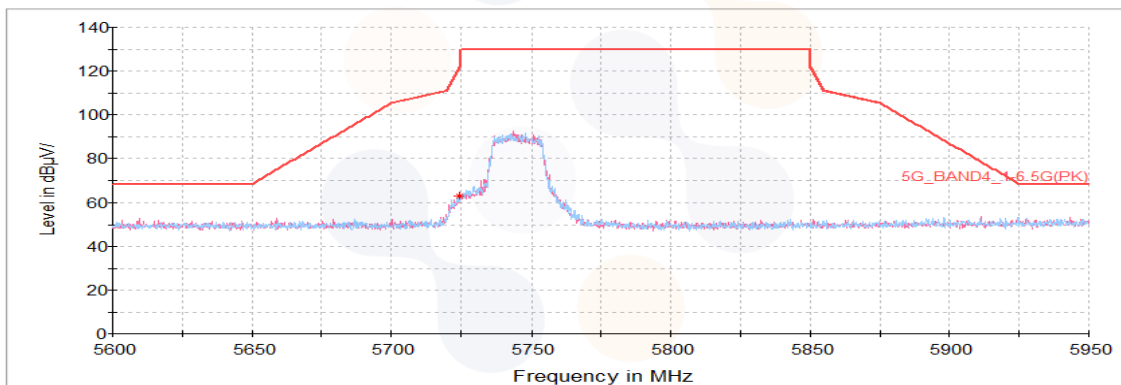
### Lowest Channel (5 745 MHz)

#### Average data



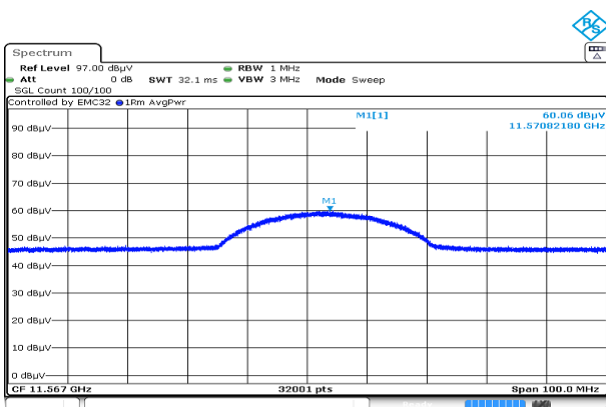
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#### Horizontal/Vertical for Band-edge



### Middle Channel (5 785 MHz)

#### Average data



Blank

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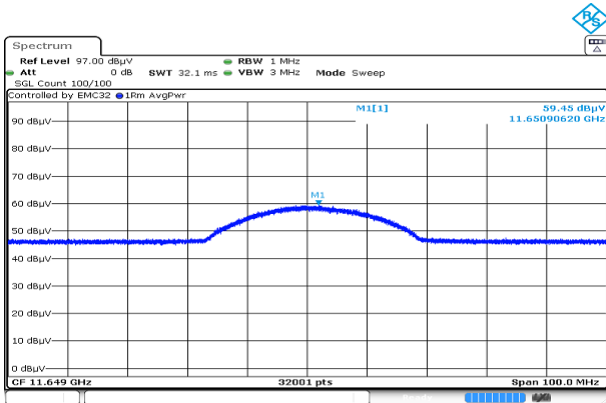
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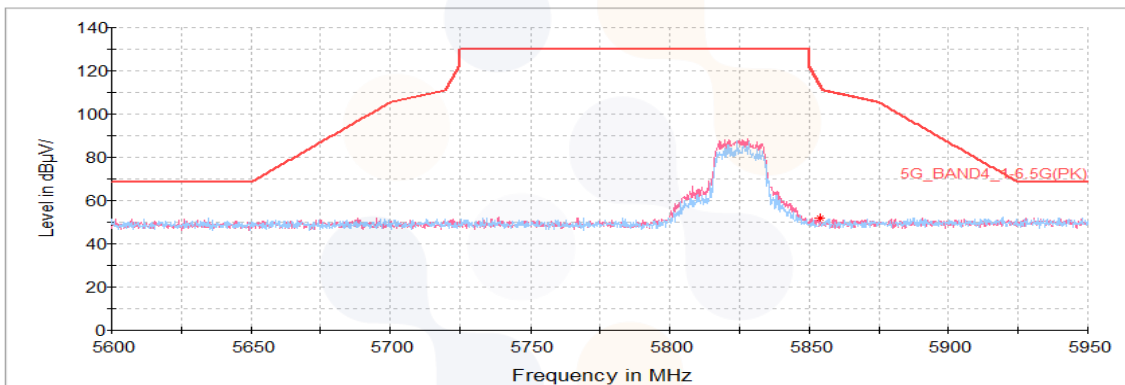
## Highest Channel (5 825 MHz)

### Average data



Blank

### Horizontal/Vertical for Band-edge



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**802.11n HT20 UNII-3 2TX MIMO****Lowest Channel (5 745 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 723.47	H	63.74	34.87	-24.11	-	74.50	118.71	44.21
11 491.38 <sup>1)</sup>	H	68.24	38.09	-48.03	-	58.30	74.00	15.70
17 312.88	V	55.27	41.14	-44.65	-	51.76	68.20	16.44
<b>Average Data</b>								
11 491.38 <sup>1)</sup>	H	60.48	38.09	-48.03	0.23	50.77	54.00	3.23

**Middle Channel (5 785 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
11 566.79 <sup>1)</sup>	H	66.57	38.21	-47.92	-	56.86	74.00	17.14
17 414.94	V	54.41	40.95	-44.66	-	50.70	68.20	17.50
<b>Average Data</b>								
11 566.79 <sup>1)</sup>	H	60.29	38.21	-47.92	0.23	50.81	54.00	3.19

**Highest Channel (5 825 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 850.14	H	49.34	35.02	-23.68	-	60.68	121.88	61.20
11 651.06 <sup>1)</sup>	H	66.97	38.34	-47.79	-	57.52	74.00	16.48
17 413.86	H	55.14	40.96	-44.66	-	51.44	68.20	16.76
<b>Average Data</b>								
11 651.06 <sup>1)</sup>	H	59.72	38.34	-47.79	0.23	50.50	54.00	3.50



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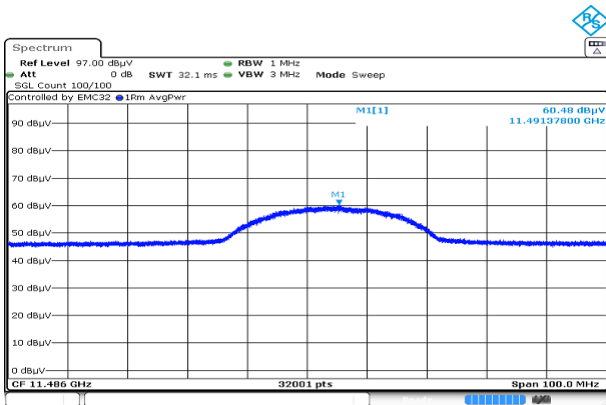
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## 802.11n HT20 UNII-3 2TX MIMO

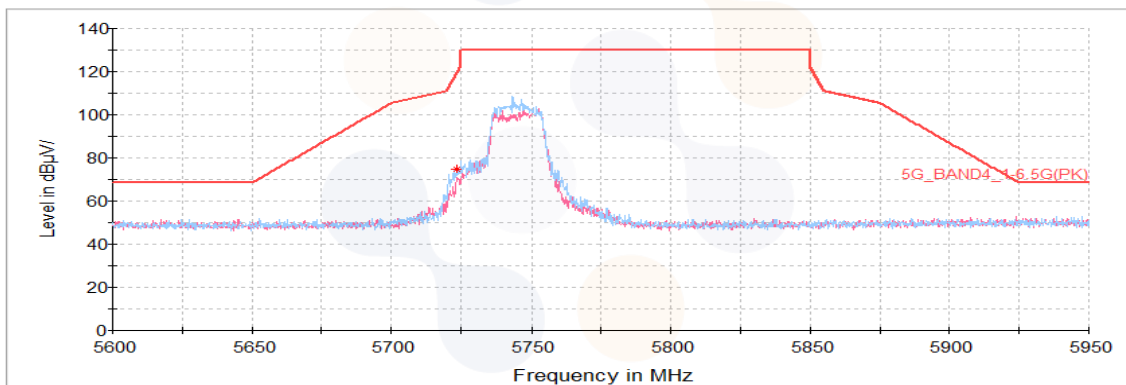
### Lowest Channel (5 745 MHz)

#### Average data



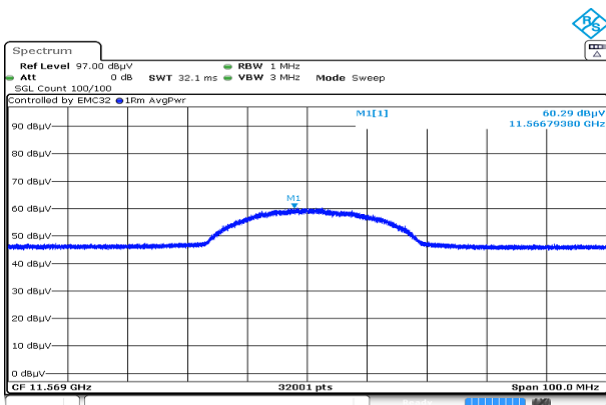
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#### Horizontal/Vertical for Band-edge



### Middle Channel (5 785 MHz)

#### Average data



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# KCTL Inc.

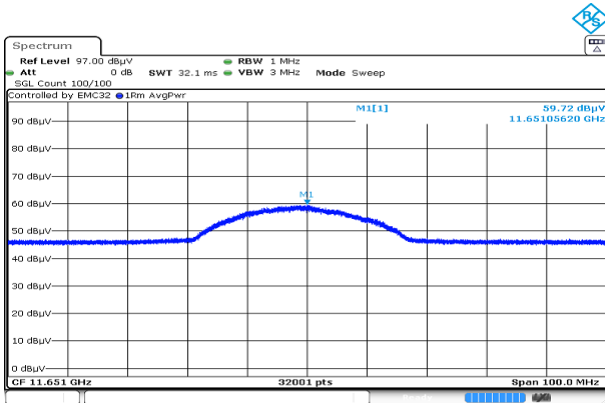
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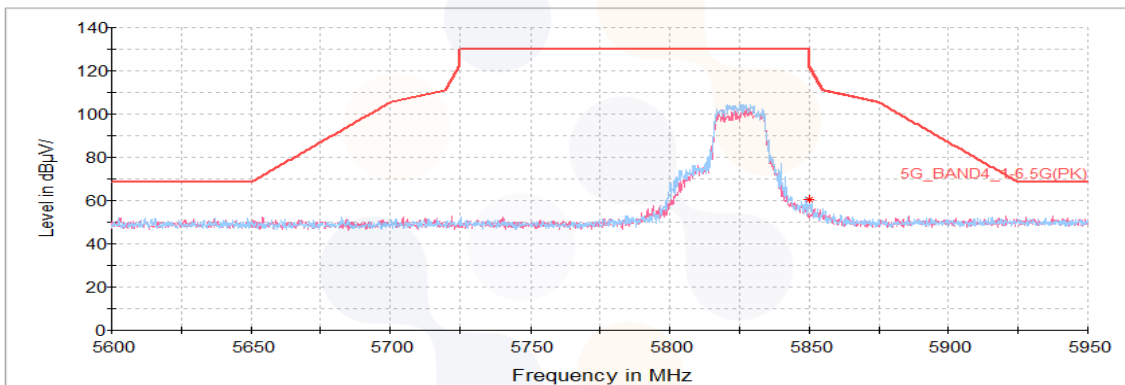
## Highest Channel (5 825 MHz)

### Average data



Blank

### Horizontal/Vertical for Band-edge



### 802.11n HT40 UNII-3 ANT1

#### Lowest Channel (5 755 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
5 710.92	V	56.49	34.85	-24.13	-	67.21	108.26	41.05
11 653.44 <sup>1)</sup>	H	57.46	38.35	-47.78	-	48.03	74.00	25.97
17 384.03	V	54.39	41.01	-44.66	-	50.74	68.20	17.46
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

#### Highest Channel (5 795 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
5 866.81	V	42.26	35.04	-23.57	-	53.73	107.49	53.77
11 539.88 <sup>1)</sup>	H	57.85	38.16	-47.96	-	48.05	74.00	25.95
17 350.25	H	54.70	41.07	-44.65	-	51.12	68.20	17.08
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

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## 802.11n HT40 UNII-3 ANT1

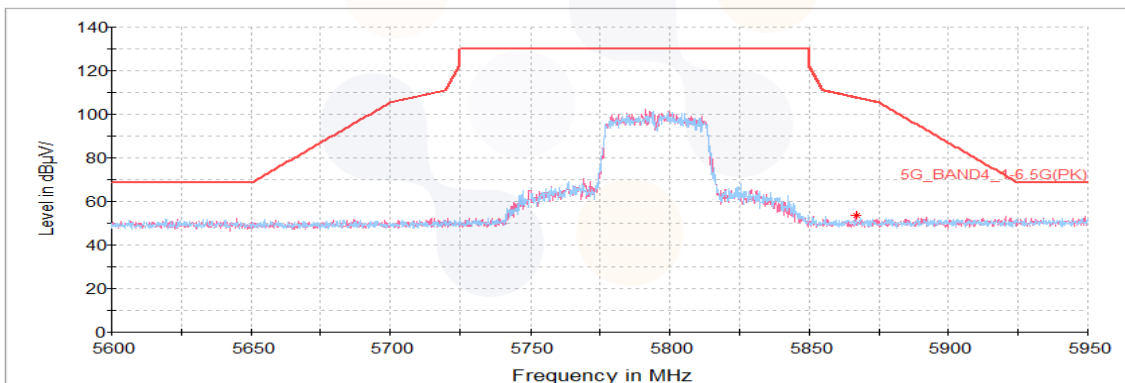
### Lowest Channel (5 755 MHz)

#### Horizontal/Vertical for Band-edge



### Highest Channel (5 795 MHz)

#### Horizontal/Vertical for Band-edge



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**802.11n HT40 UNII-3 ANT2****Lowest Channel (5 755 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 723.64	V	49.54	34.87	-24.11	-	60.30	119.10	58.80
11 508.54 <sup>1)</sup>	H	62.96	38.11	-48.01	-	53.06	74.00	20.94
17 254.30	V	53.95	41.24	-44.64	-	50.55	68.20	17.65
<b>Average Data</b>								
11 508.54 <sup>1)</sup>	H	55.41	38.11	-48.01	0.24	45.75	54.00	8.25

**Highest Channel (5 795 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 862.52	V	40.81	35.04	-23.60	-	52.25	108.70	56.44
11 591.16 <sup>1)</sup>	H	63.79	38.25	-47.88	-	54.16	74.00	19.84
17 371.81	V	54.31	41.03	-44.66	-	50.68	68.20	17.52
<b>Average Data</b>								
11 591.16 <sup>1)</sup>	H	56.00	38.25	-47.88	0.24	46.61	54.00	7.39

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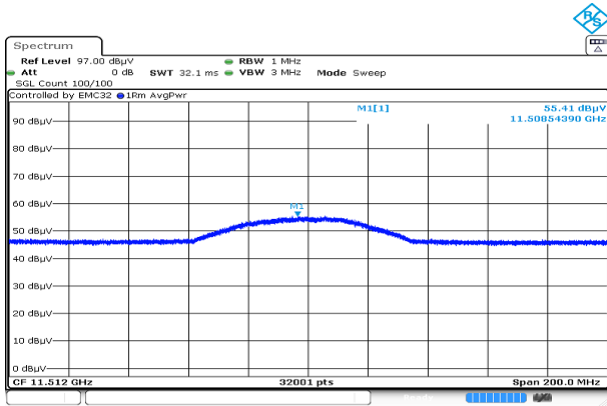
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## 802.11n HT40 UNII-3 ANT2

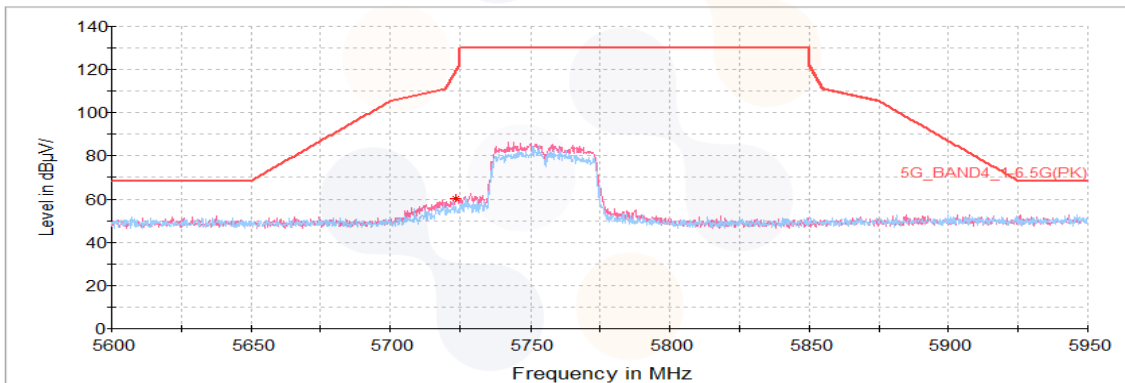
### Lowest Channel (5 755 MHz)

#### Average data



Blank

#### Horizontal/Vertical for Band-edge



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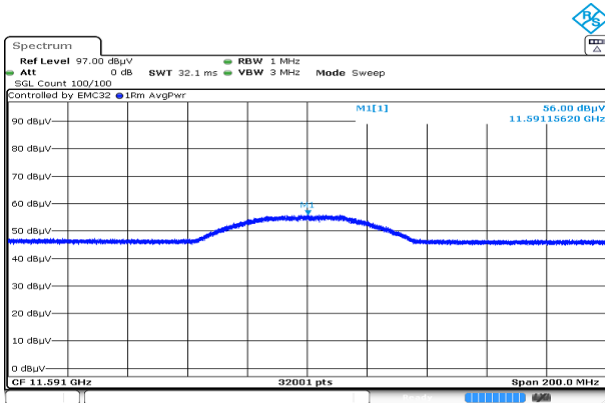
65, Sinwon-ro, Yeongtong-gu,  
Suwon-si, Gyeonggi-do, 16677, Korea  
TEL: 82-31-285-0894 FAX: 82-505-299-8311  
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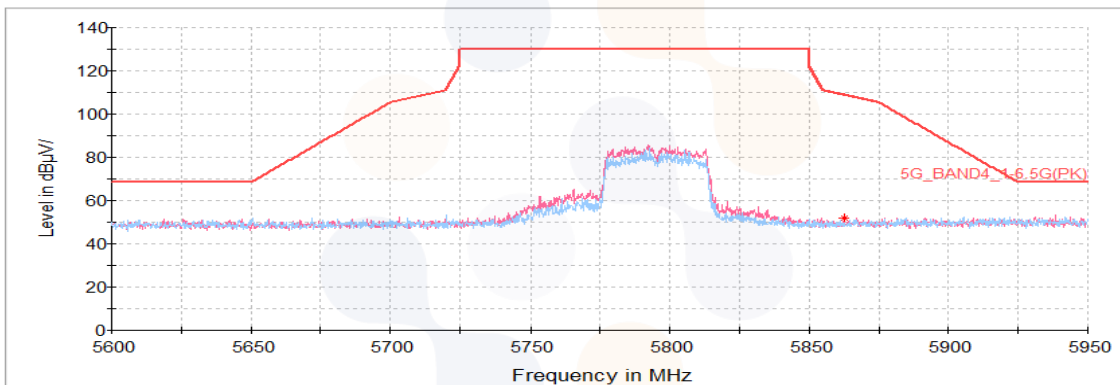
## Highest Channel (5 795 MHz)

### Average data



Blank

### Horizontal/Vertical for Band-edge



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**802.11n HT40 UNII-3 2TX MIMO****Lowest Channel (5 755 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 722.95	H	59.90	34.87	-24.11	-	70.66	117.53	46.87
11 511.09 <sup>1)</sup>	H	61.74	38.12	-48.01	-	51.85	74.00	22.15
17 275.86	V	54.24	41.20	-44.65	-	50.79	68.20	17.41
<b>Average Data</b>								
11 511.09 <sup>1)</sup>	H	53.95	38.12	-48.01	0.43	44.49	54.00	9.51

**Highest Channel (5 795 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 854.09	H	44.62	35.02	-23.65	-	55.99	112.87	56.88
11 591.17 <sup>1)</sup>	H	63.07	38.25	-47.88	-	53.44	74.00	20.56
17 363.55	H	54.35	41.05	-44.65	-	50.75	68.20	17.45
<b>Average Data</b>								
11 591.17 <sup>1)</sup>	H	55.51	38.25	-47.88	0.43	46.31	54.00	7.69



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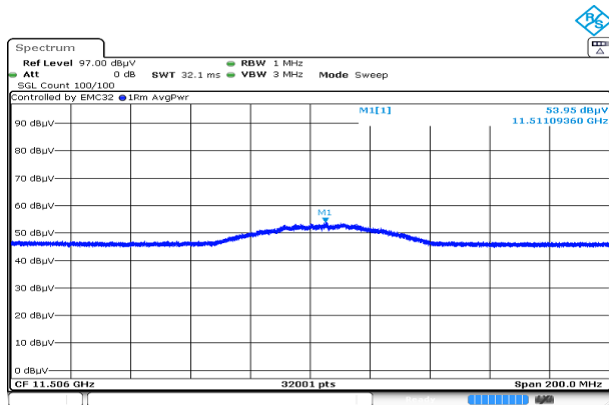
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## 802.11n HT40 UNII-3 2TX MIMO

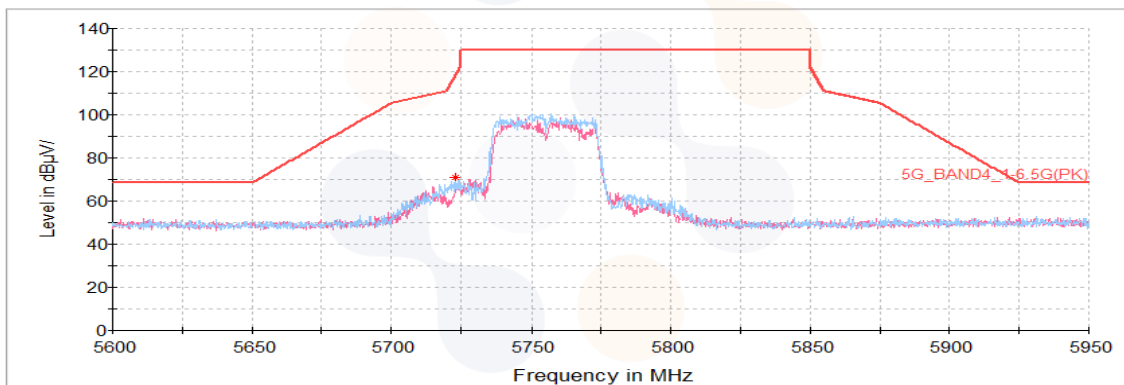
### Lowest Channel (5 755 MHz)

#### Average data



Blank

#### Horizontal/Vertical for Band-edge



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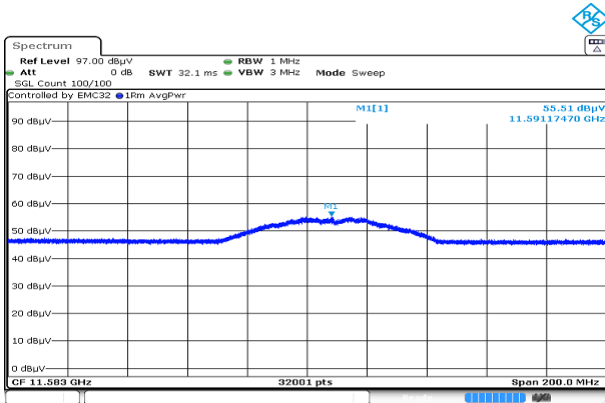
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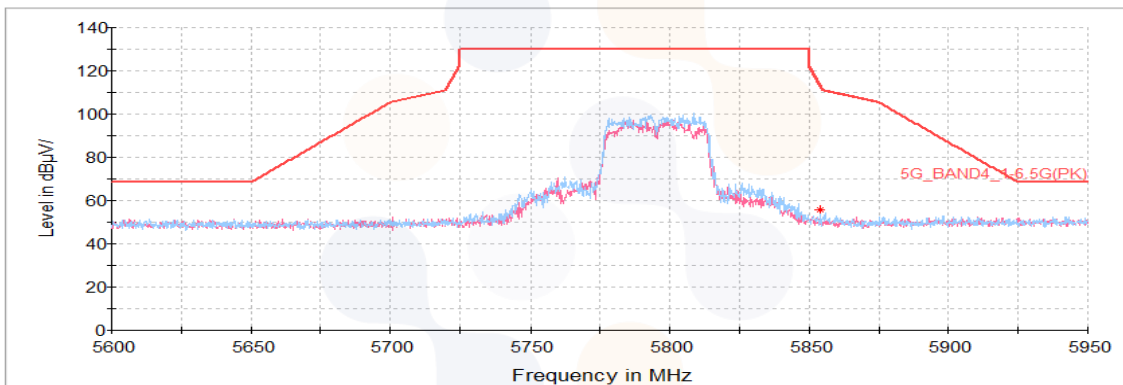
## Highest Channel (5 795 MHz)

### Average data



Blank

### Horizontal/Vertical for Band-edge



### **802.11ac VHT20 UNII-3 ANT1**

#### **Lowest Channel (5 745 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 723.81	H	59.57	34.87	-24.11	-	70.33	119.49	49.16
11 498.19 <sup>1)</sup>	V	59.20	38.10	-48.03	-	49.27	74.00	24.73
17 182.06	V	54.09	41.37	-44.64	-	50.82	68.20	17.38
17 460.58	H	56.36	40.87	-44.66	-	52.57	68.20	15.63
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

#### **Middle Channel (5 785 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
11 622.17 <sup>1)</sup>	H	57.75	38.30	-47.83	-	48.22	74.00	25.78
17 338.75	H	54.99	41.09	-44.65	-	51.43	68.20	16.77
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

#### **Highest Channel (5 825 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 850.48	V	48.83	35.02	-23.67	-	60.18	121.10	60.92
11 643.73 <sup>1)</sup>	V	57.94	38.33	-47.80	-	48.47	74.00	25.53
17 350.25	H	54.32	41.07	-44.65	-	50.74	68.20	17.46
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

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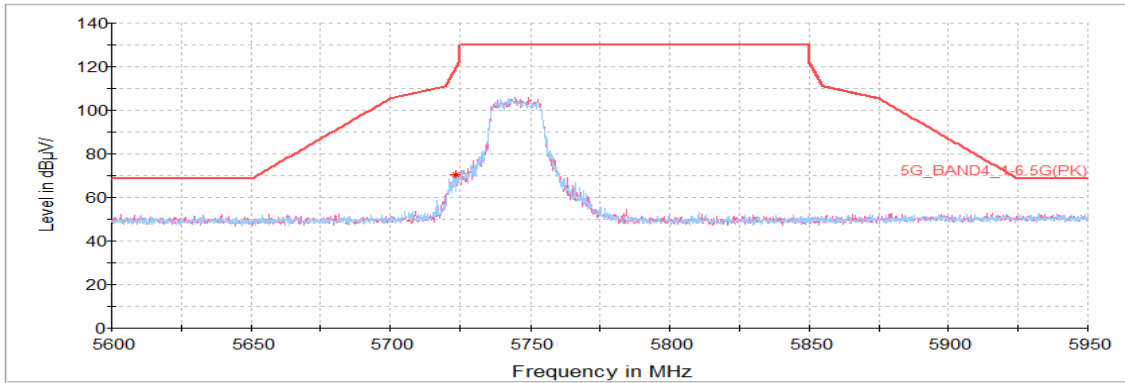
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## 802.11ac VHT20 UNII-3 ANT1

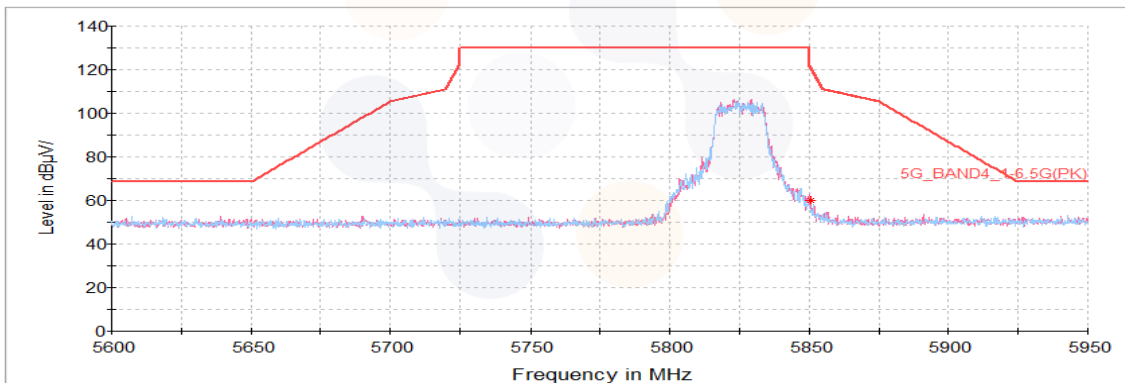
### Lowest Channel (5 745 MHz)

#### Horizontal/Vertical for Band-edge



### Highest Channel (5 825 MHz)

#### Horizontal/Vertical for Band-edge



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**802.11ac VHT20 UNII-3 ANT2****Lowest Channel (5 745 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 724.50	V	53.15	34.87	-24.10	-	63.92	121.06	57.14
11 488.79 <sup>1)</sup>	H	64.73	38.09	-48.03	-	54.79	74.00	19.21
13 179.70	V	58.07	38.21	-46.11	-	50.17	68.20	18.03
17 225.91	V	53.22	41.29	-44.64	-	49.87	68.20	18.33
<b>Average Data</b>								
11 488.79 <sup>1)</sup>	H	60.22	38.09	-48.03	0.12	50.40	54.00	3.60

**Middle Channel (5 785 MHz)**

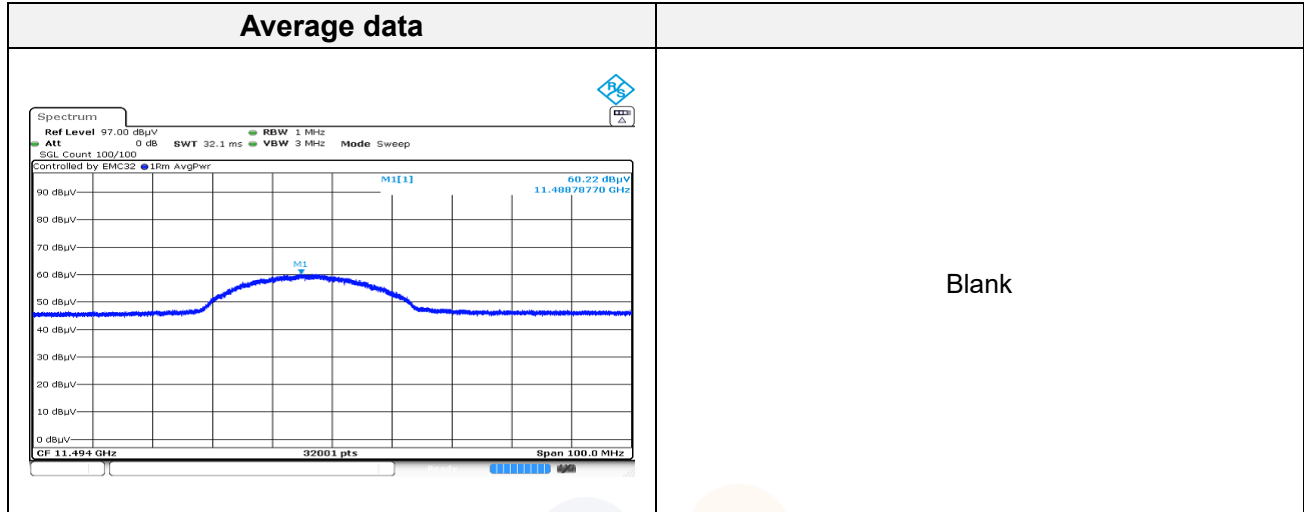
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
11 571.19 <sup>1)</sup>	H	67.05	38.21	-47.91	-	57.35	74.00	16.65
17 344.14	H	53.84	41.08	-44.65	-	50.27	68.20	17.93
<b>Average Data</b>								
11 571.19 <sup>1)</sup>	H	59.91	38.21	-47.91	0.12	50.33	54.00	3.67

**Highest Channel (5 825 MHz)**

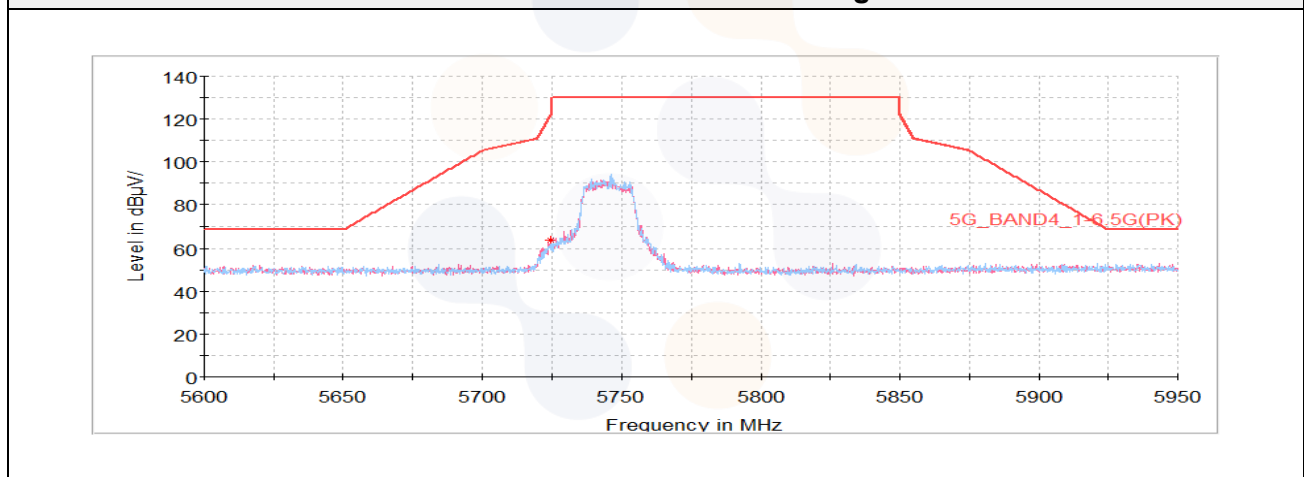
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 858.22	V	40.05	35.03	-23.63	-	51.45	109.90	58.45
11 651.36 <sup>1)</sup>	H	65.54	38.34	-47.79	-	56.09	74.00	17.91
17 370.02	H	54.54	41.03	-44.66	-	50.91	68.20	17.29
<b>Average Data</b>								
11 651.36 <sup>1)</sup>	H	59.68	38.34	-47.79	0.12	50.35	54.00	3.65

**802.11ac VHT20 UNII-3 ANT2**

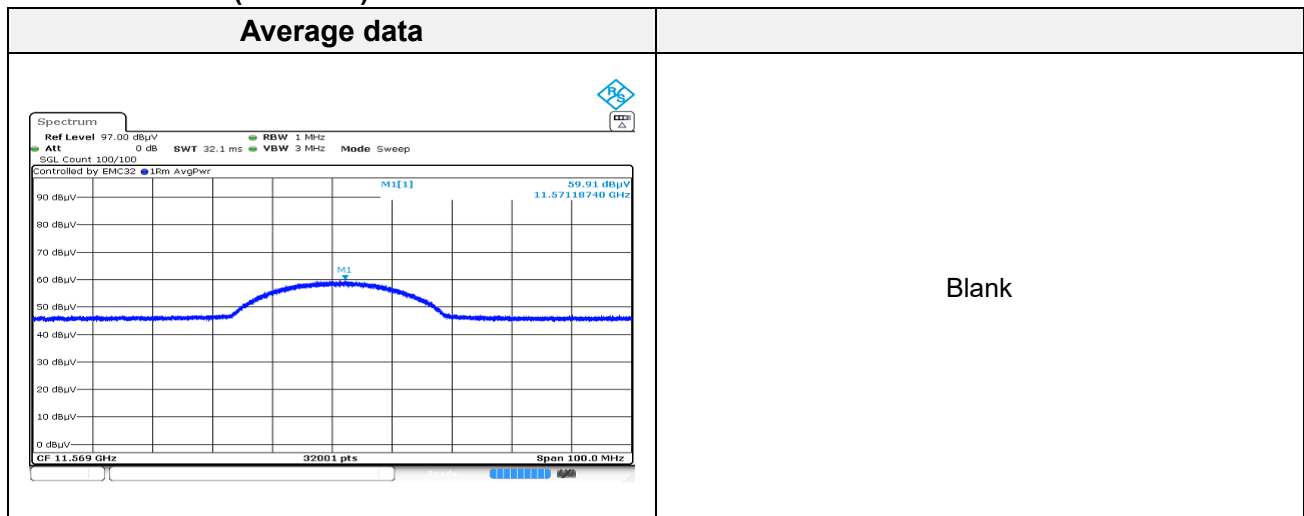
**Lowest Channel (5 745 MHz)**



**Horizontal/Vertical for Band-edge**



**Middle Channel (5 785 MHz)**



# KCTL Inc.

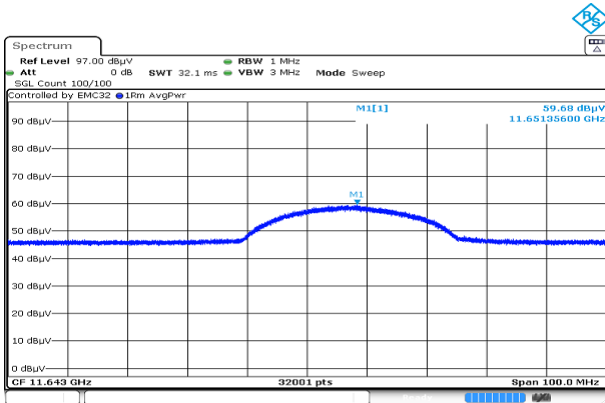
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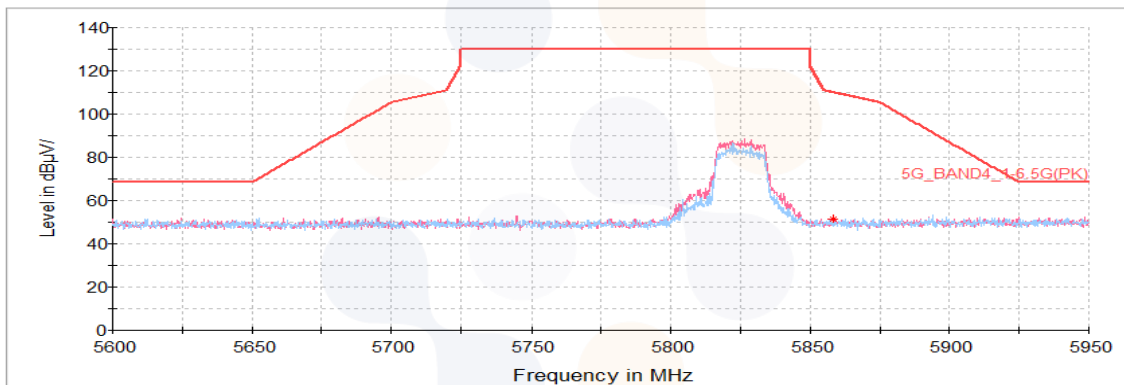
## Highest Channel (5 825 MHz)

### Average data



Blank

### Horizontal/Vertical for Band-edge



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**802.11ac VHT20 UNII-3 2TX MIMO****Lowest Channel (5 745 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 723.13	H	67.43	34.87	-24.11	-	78.19	117.93	39.74
11 491.20 <sup>1)</sup>	H	65.28	38.09	-48.03	-	55.34	74.00	18.66
17 327.25	V	55.00	41.11	-44.65	-	51.46	68.20	16.74
<b>Average Data</b>								
11 491.20 <sup>1)</sup>	H	60.30	38.09	-48.03	0.22	50.58	54.00	3.42

**Middle Channel (5 785 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
11 571.35 <sup>1)</sup>	H	65.94	38.21	-47.91	-	56.24	74.00	17.76
17 327.25	V	54.71	41.11	-44.65	-	51.17	68.20	17.03
<b>Average Data</b>								
11 571.35 <sup>1)</sup>	H	60.05	38.21	-47.91	0.22	50.57	54.00	3.43

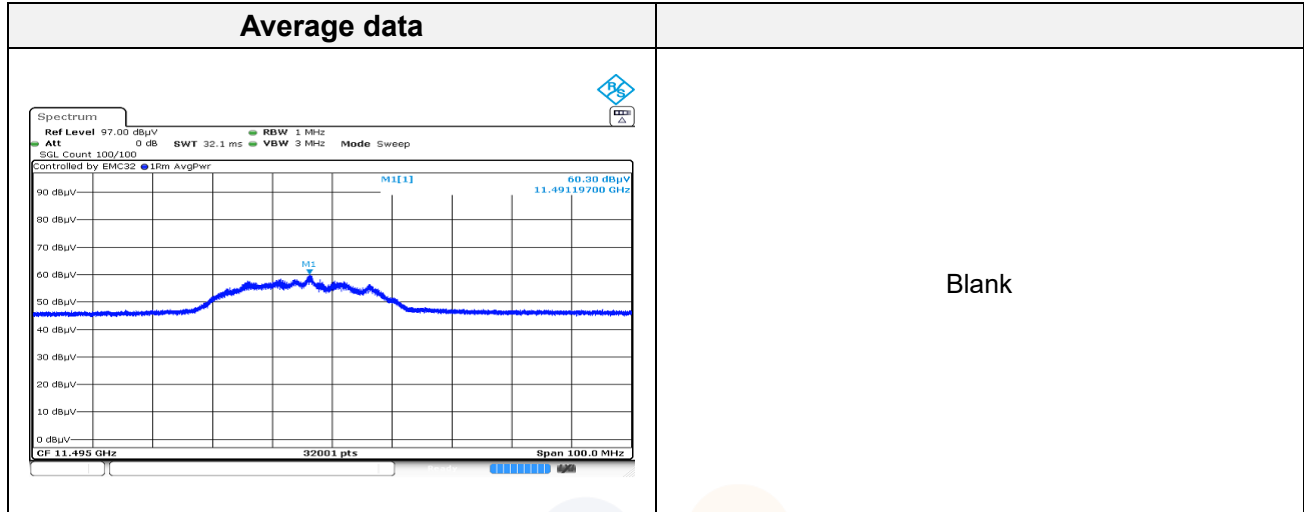
**Highest Channel (5 825 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 853.58	H	44.62	35.02	-23.66	-	55.98	114.04	58.06
11 650.98 <sup>1)</sup>	H	66.18	38.34	-47.79	-	56.73	74.00	17.27
17 441.89	H	53.97	40.90	-44.66	-	50.21	68.20	17.99
<b>Average Data</b>								
11 650.98 <sup>1)</sup>	H	59.87	38.34	-47.79	0.22	50.64	54.00	3.36

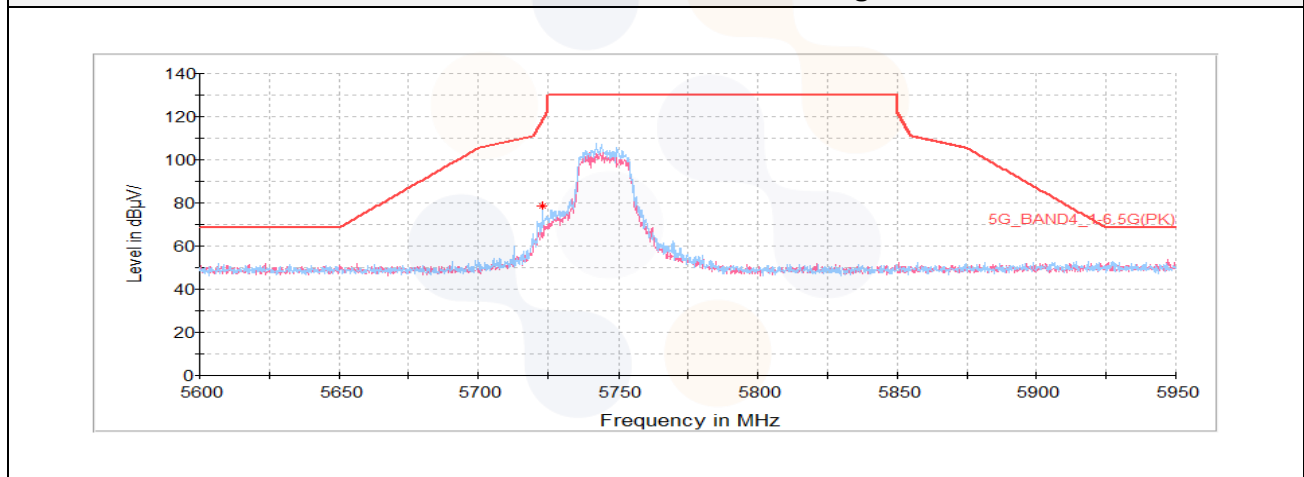


**802.11ac VHT20 UNII-3 2TX MIMO**

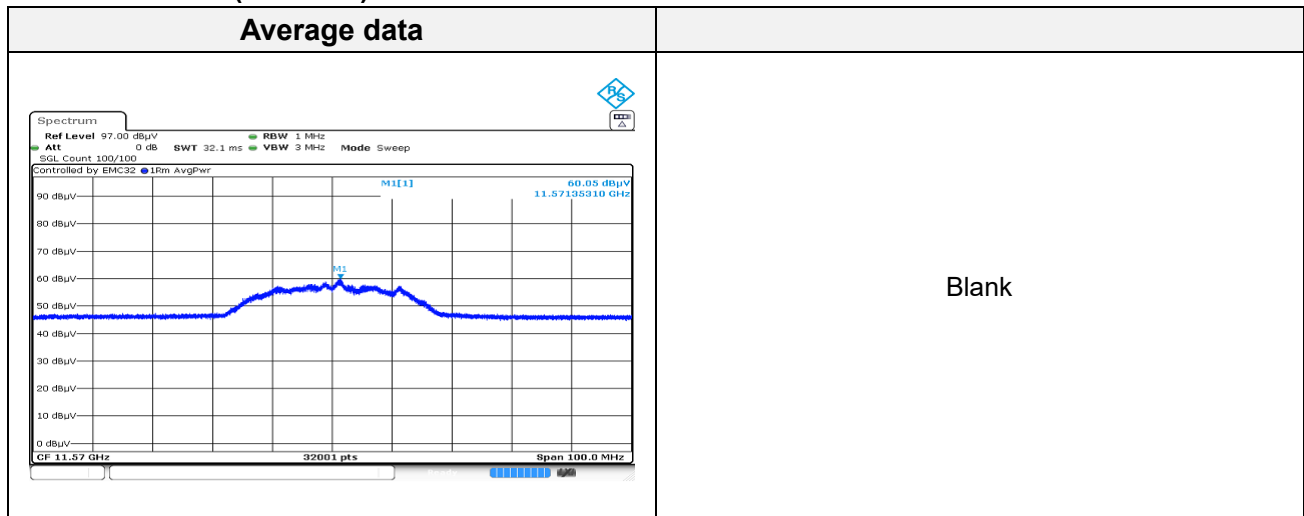
**Lowest Channel (5 745 MHz)**



**Horizontal/Vertical for Band-edge**



**Middle Channel (5 785 MHz)**



# KCTL Inc.

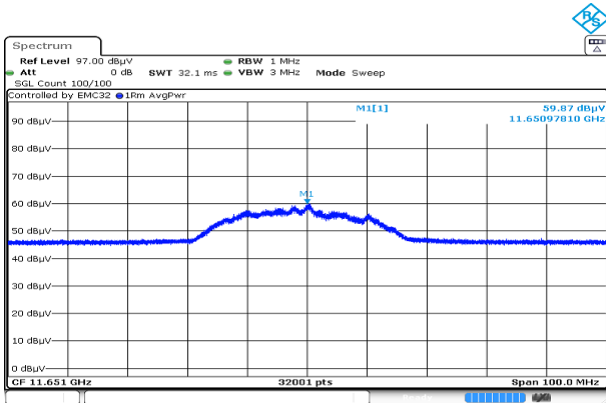
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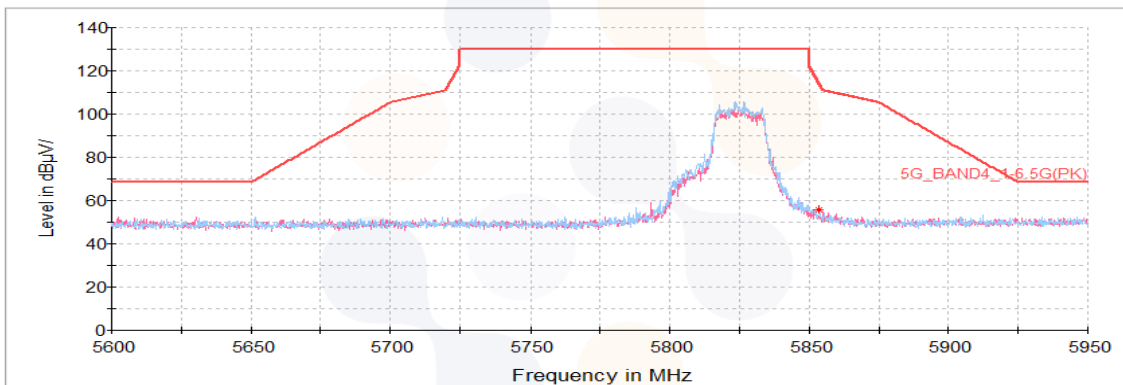
## Highest Channel (5 825 MHz)

### Average data



Blank

### Horizontal/Vertical for Band-edge



### 802.11ac VHT40 UNII-3 ANT1

#### Lowest Channel (5 755 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
5 722.27	H	58.54	34.87	-24.11	-	69.30	115.97	46.67
11 537.36 <sup>1)</sup>	V	57.02	38.16	-47.97	-	47.21	74.00	26.79
16 246.61	H	54.85	42.44	-44.65	-	52.64	68.20	15.56
17 262.92	V	53.88	41.23	-44.64	-	50.47	68.20	17.73
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

#### Highest Channel (5 795 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
5 883.66	V	42.13	35.06	-23.47	-	53.72	98.79	45.07
8 685.00	H	59.20	35.65	-49.08	-	45.77	68.20	22.43
11 364.86 <sup>1)</sup>	V	57.93	37.99	-48.05	-	47.87	74.00	26.13
17 327.25	V	54.82	41.11	-44.65	-	51.28	68.20	16.92
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

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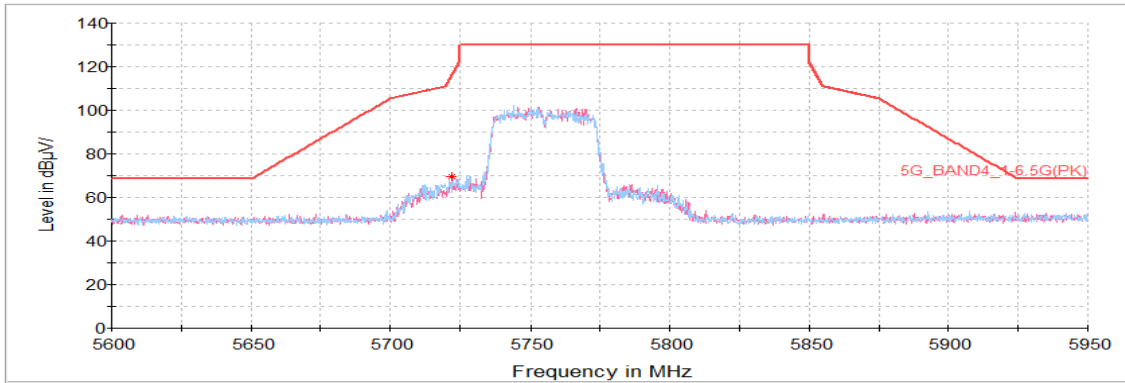
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## 802.11ac VHT40 UNII-3 ANT1

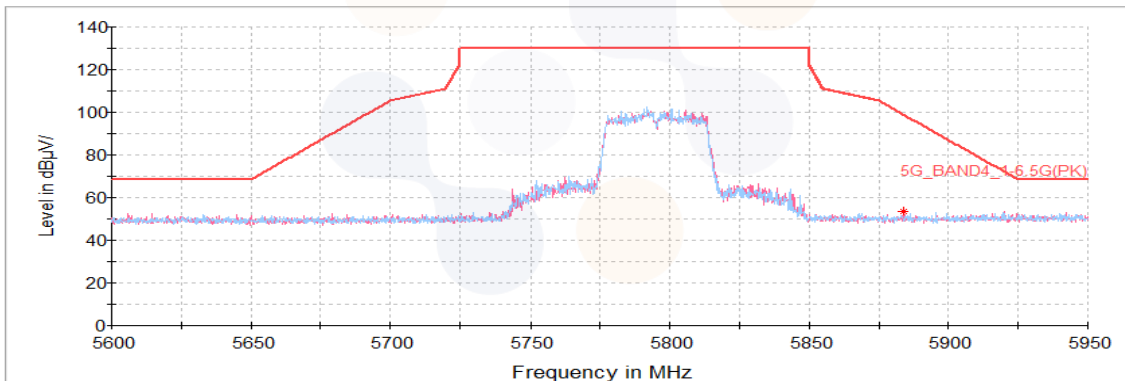
### Lowest Channel (5 755 MHz)

#### Horizontal/Vertical for Band-edge



### Highest Channel (5 795 MHz)

#### Horizontal/Vertical for Band-edge



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**802.11ac VHT40 UNII-3 ANT2****Lowest Channel (5 755 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
5 723.47	V	49.14	34.87	-24.11	-	59.90	118.71	58.81
11 508.69 <sup>1)</sup>	H	62.69	38.11	-48.01	-	52.79	74.00	21.21
17 249.98	H	53.99	41.25	-44.64	-	50.60	68.20	17.60
<b>Average Data</b>								
11 508.69 <sup>1)</sup>	H	55.48	38.11	-48.01	0.23	45.81	54.00	8.19

**Highest Channel (5 795 MHz)**

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu V$ ))	(dB)	(dB)	(dB)	(dB( $\mu V/m$ ))	(dB( $\mu V/m$ ))	(dB)
<b>Peak data</b>								
5 853.75	H	41.24	35.02	-23.65	-	52.61	113.65	61.04
11 597.86 <sup>1)</sup>	H	64.42	38.26	-47.87	-	54.81	74.00	19.19
17 374.69	V	54.62	41.03	-44.66	-	50.99	68.20	17.21
<b>Average Data</b>								
11 597.86 <sup>1)</sup>	H	55.97	38.26	-47.87	0.23	46.59	54.00	7.41

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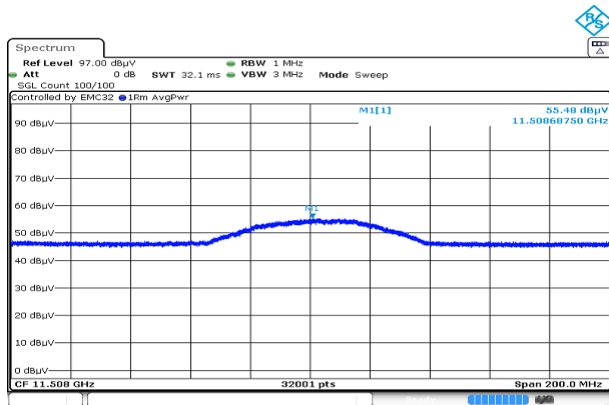
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## 802.11ac VHT40 UNII-3 ANT2

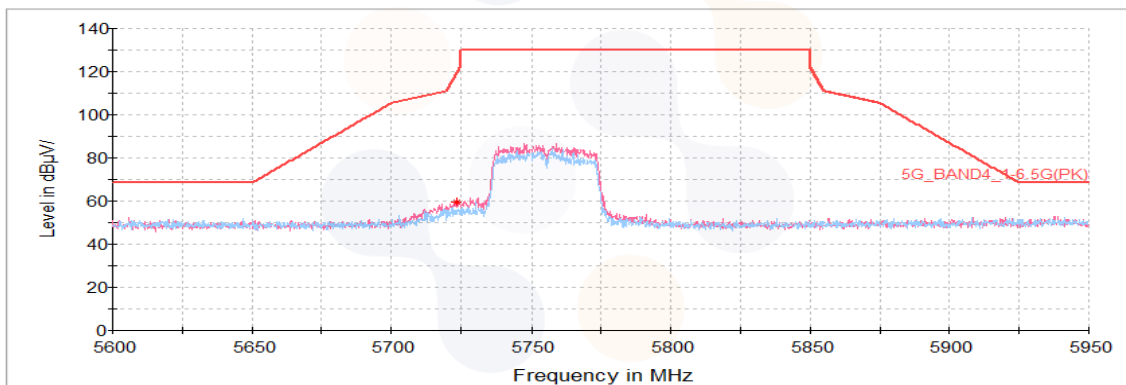
### Lowest Channel (5 755 MHz)

#### Average data



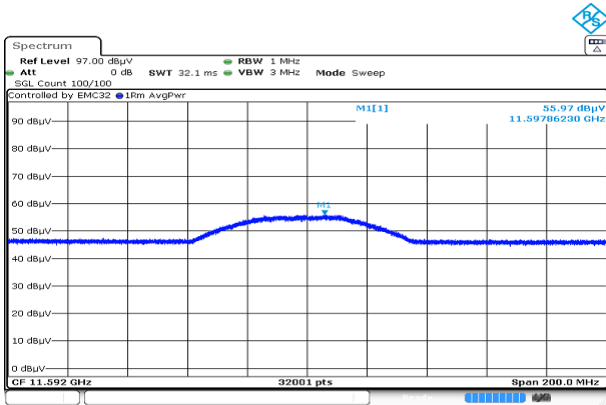
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#### Horizontal/Vertical for Band-edge



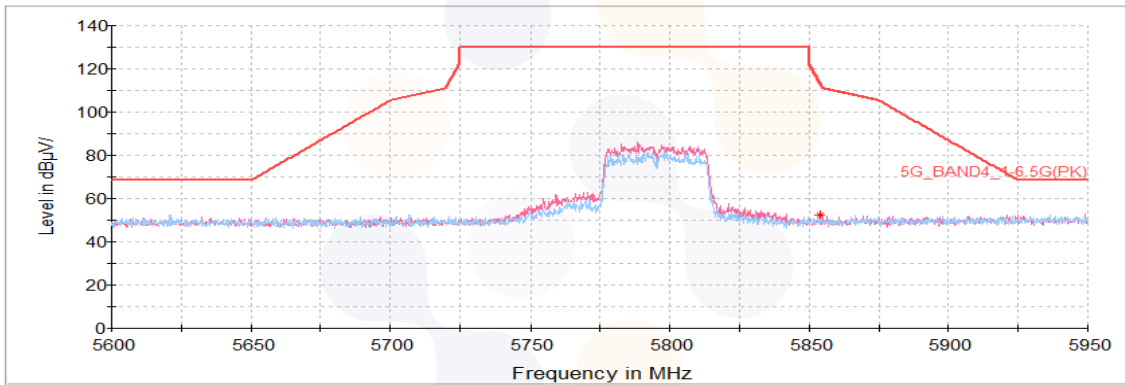
**Highest Channel (5 795 MHz)**

**Average data**



Blank

**Horizontal/Vertical for Band-edge**



### 802.11ac VHT40 UNII-3 2TX MIMO

#### Lowest Channel (5 755 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 723.98	H	59.24	34.87	-24.11	-	70.00	119.88	49.88
11 510.99 <sup>1)</sup>	H	62.57	38.12	-48.01	-	52.68	74.00	21.32
17 239.56	V	53.82	41.27	-44.64	-	50.45	68.20	17.75
<b>Average Data</b>								
11 510.99 <sup>1)</sup>	H	55.49	38.12	-48.01	0.41	46.01	54.00	7.99

#### Highest Channel (5 795 MHz)

Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 853.58	H	42.02	35.02	-23.66	-	53.38	114.04	60.66
11 591.19 <sup>1)</sup>	H	64.45	38.25	-47.88	-	54.82	74.00	19.18
17 384.75	H	54.24	41.01	-44.66	-	50.59	68.20	17.61
<b>Average Data</b>								
11 591.19 <sup>1)</sup>	H	56.87	38.25	-47.88	0.41	47.65	54.00	6.35



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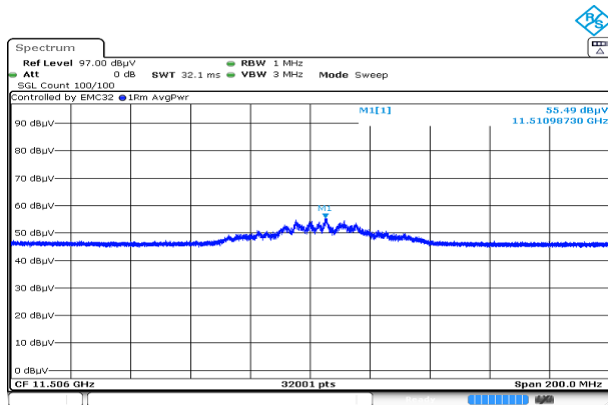
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## 802.11ac VHT40 UNII-3 2TX MIMO

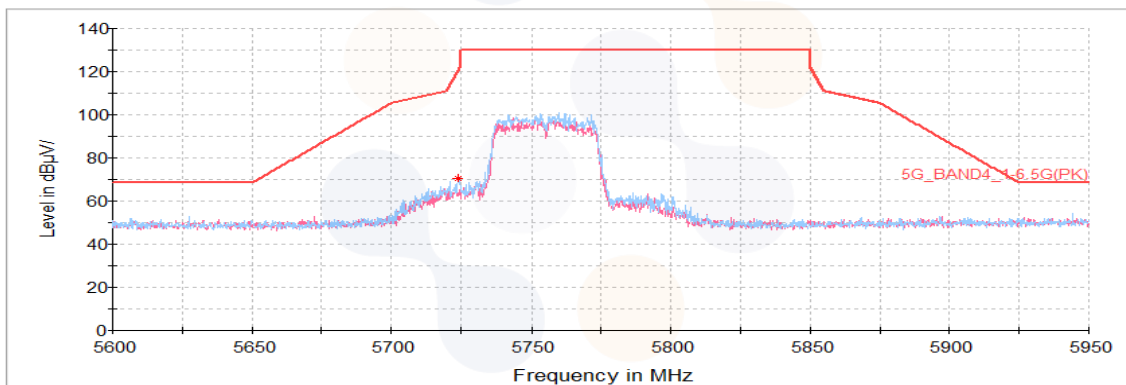
### Lowest Channel (5 755 MHz)

#### Average data



Blank

#### Horizontal/Vertical for Band-edge



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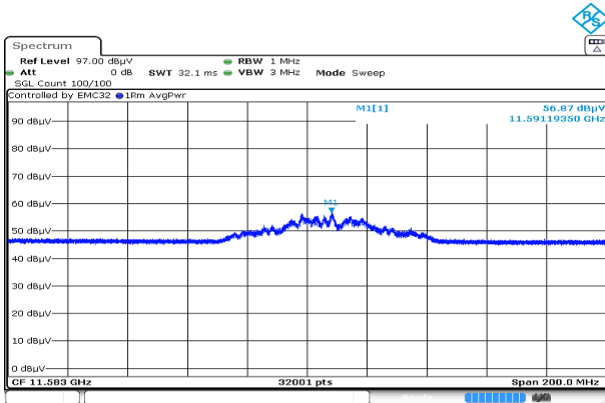
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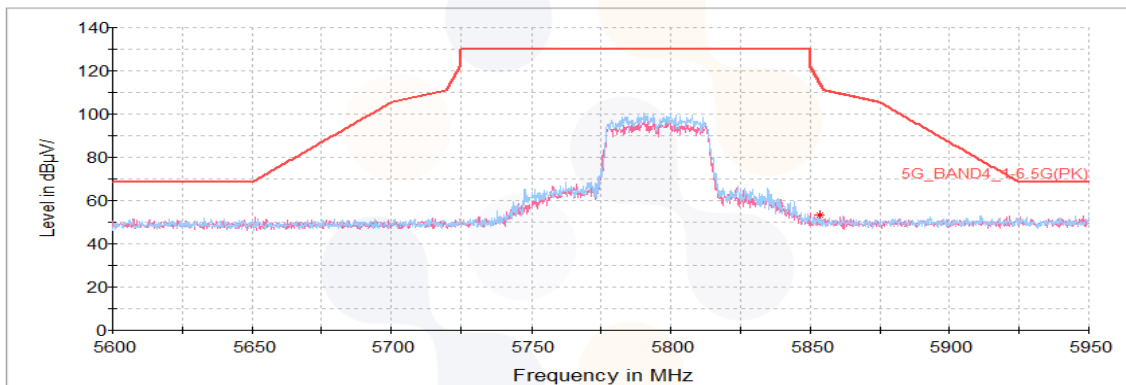
## Highest Channel (5 795 MHz)

### Average data



Blank

### Horizontal/Vertical for Band-edge



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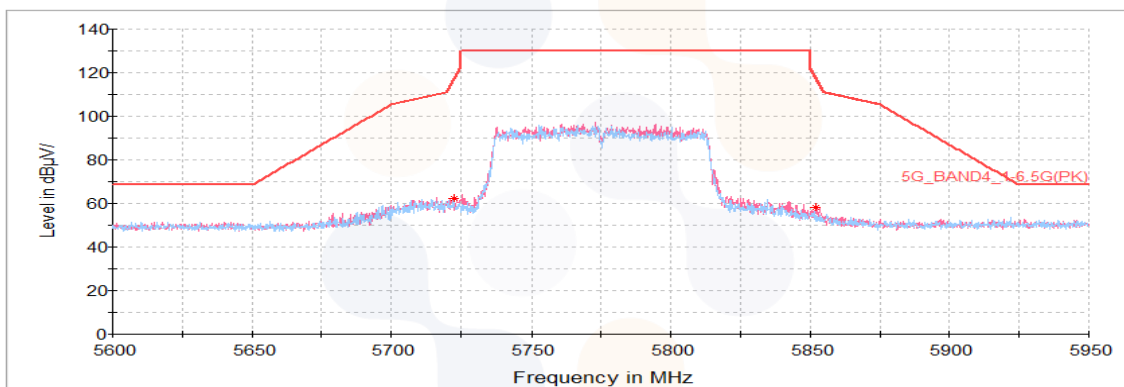


## 802.11ac VHT80 UNII-3 ANT1

### Lowest Channel (5 775 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB( $\mu$ V))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB( $\mu$ V/m))	Limit (dB( $\mu$ V/m))	Margin (dB)
<b>Peak data</b>								
5 722.61	H	51.80	34.87	-24.11	-	62.56	116.75	54.19
5 852.03	V	47.23	35.02	-23.67	-	58.58	117.57	58.99
11 524.06 <sup>1)</sup>	H	57.07	38.14	-47.99	-	47.22	74.00	26.78
17 364.98	H	54.01	41.04	-44.65	-	50.40	68.20	17.80
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

### Horizontal/Vertical for Band-edge



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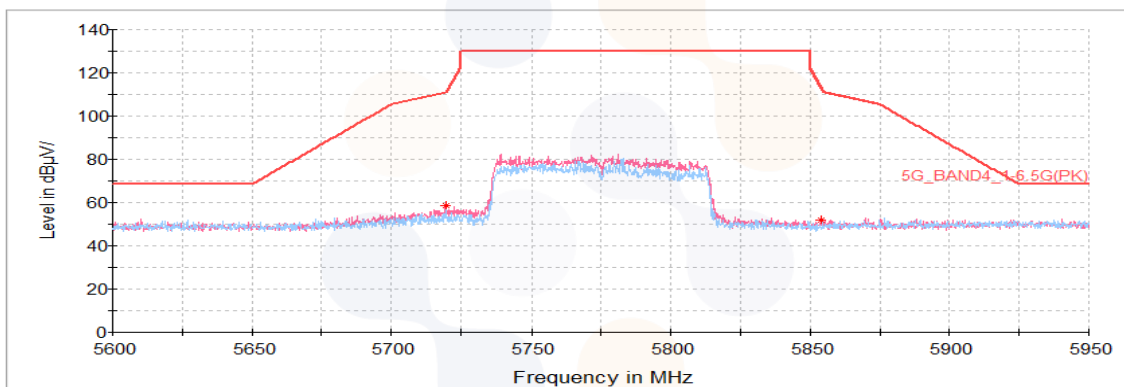


## 802.11ac VHT80 UNII-3 ANT2

### Lowest Channel (5 775 MHz)

Frequency (MHz)	Pol. (V/H)	Reading (dB( $\mu$ V))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB( $\mu$ V/m))	Limit (dB( $\mu$ V/m))	Margin (dB)
<b>Peak data</b>								
5 719.52	V	47.98	34.86	-24.11	-	58.73	110.66	51.93
5 853.92	V	40.67	35.02	-23.65	-	52.04	113.26	61.22
11 541.67 <sup>1)</sup>	H	59.32	38.17	-47.96	-	49.53	74.00	24.47
17 302.09	V	53.78	41.16	-44.65	-	50.29	68.20	17.91
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

### Horizontal/Vertical for Band-edge



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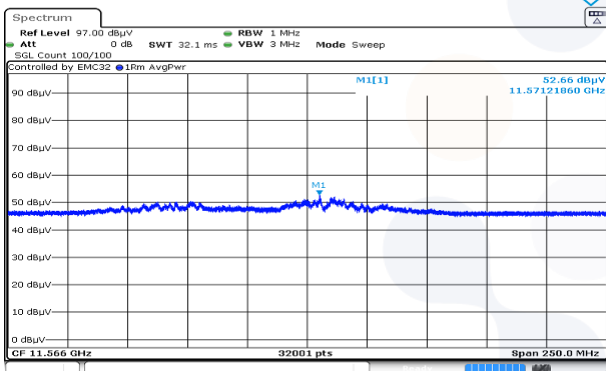
KCTL

## 802.11ac VHT80 UNII-3 2TX MIMO

### Lowest Channel (5 775 MHz)

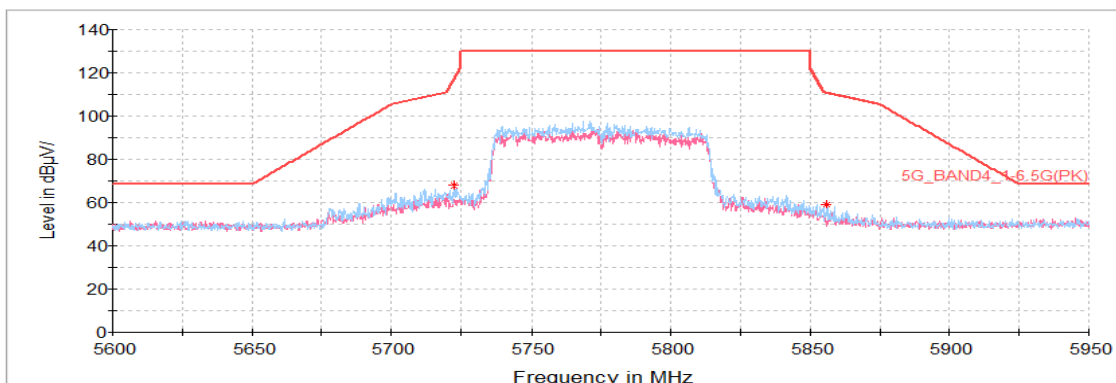
Frequency	Pol.	Reading	Ant. Factor	Amp.+Cable	DCF	Result	Limit	Margin
(MHz)	(V/H)	(dB( $\mu$ V))	(dB)	(dB)	(dB)	(dB( $\mu$ V/m))	(dB( $\mu$ V/m))	(dB)
<b>Peak data</b>								
5 722.61	H	57.12	34.87	-24.11	-	67.88	116.75	48.87
5 855.98	H	47.64	35.03	-23.64	-	59.03	110.52	51.49
11 571.22 <sup>1)</sup>	H	61.48	38.21	-47.91	-	51.78	74.00	22.22
17 325.45	H	54.30	41.11	-44.65	-	50.76	68.20	17.44
<b>Average Data</b>								
11 571.22 <sup>1)</sup>	H	52.66	38.21	-47.91	0.75	43.71	54.00	10.29

### Average data



Blank

### Horizontal/Vertical for Band-edge

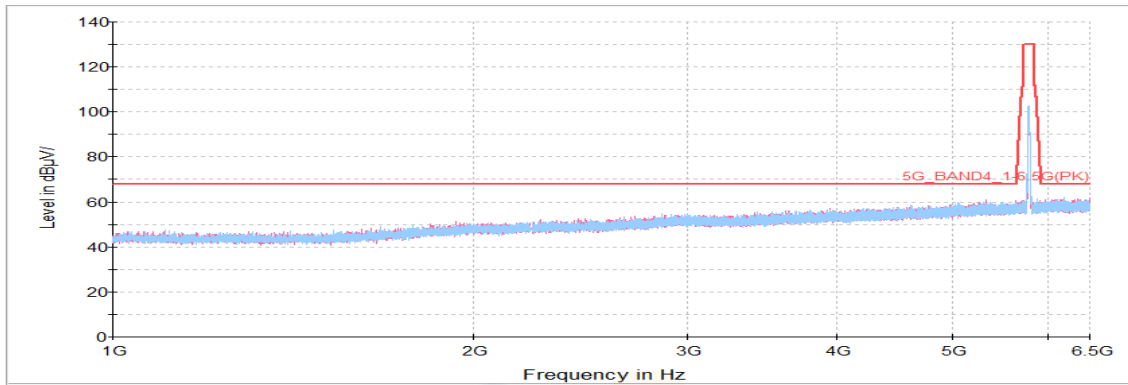


**Plot of Harmonics and Spurious Emissions**

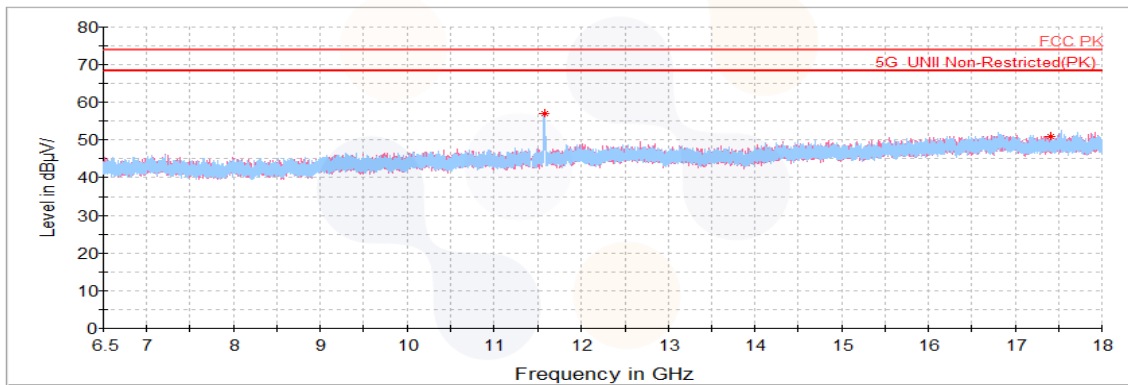
In order to simplify the report, attached plots were only the lowest margin condition

**802.11n HT20\_UNII-3\_2TX MIMO\_Middle Channel (5 785 MHz)**

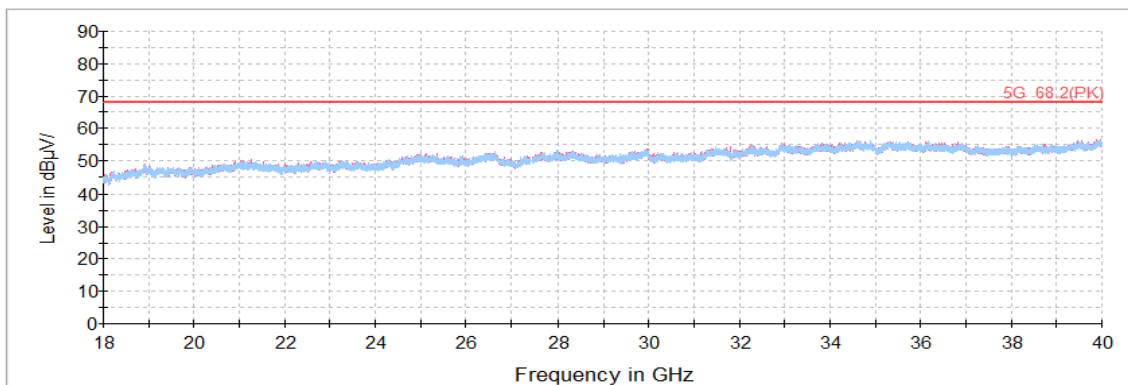
**Horizontal/Vertical for 1 GHz ~ 6.5 GHz**



**Horizontal/Vertical for 6.5 GHz ~ 18 GHz**



**Horizontal/Vertical for 18 GHz ~ 40 GHz**



### Spurious Emission for Simultaneous Tx Condition

Case	WLAN 5 GHz	Bluetooth
Mode	802.11n 40	BDR
Channel	38	78
Frequency	5 190 MHz	2 480 MHz
Data Rate	MCS8	DH1

#### Notes.

The lowest margin condition among the channels and modes were selected for test.

Frequency (MHz)	Pol. (V/H)	Reading (dB( $\mu$ V))	Ant. Factor (dB)	Amp.+Cable (dB)	DCF (dB)	Result (dB( $\mu$ V/m))	Limit (dB( $\mu$ V/m))	Margin (dB)
<b>Peak data</b>								
2 401.95	V	67.83	31.98	-45.74	-	54.07	68.20	14.13
3 599.69	V	66.11	33.16	-53.27	-	46.00	68.20	22.20
4 960.42 <sup>1)</sup>	H	61.88	33.61	-51.92	-	43.57	74.00	30.43
10 361.48	H	58.18	37.22	-48.29	-	47.11	68.20	21.09
15 567.03 <sup>1)</sup>	V	53.60	40.55	-44.28	-	49.87	74.00	24.13
<b>Average Data</b>								
No spurious emissions were detected within 20 dB of the limit.								

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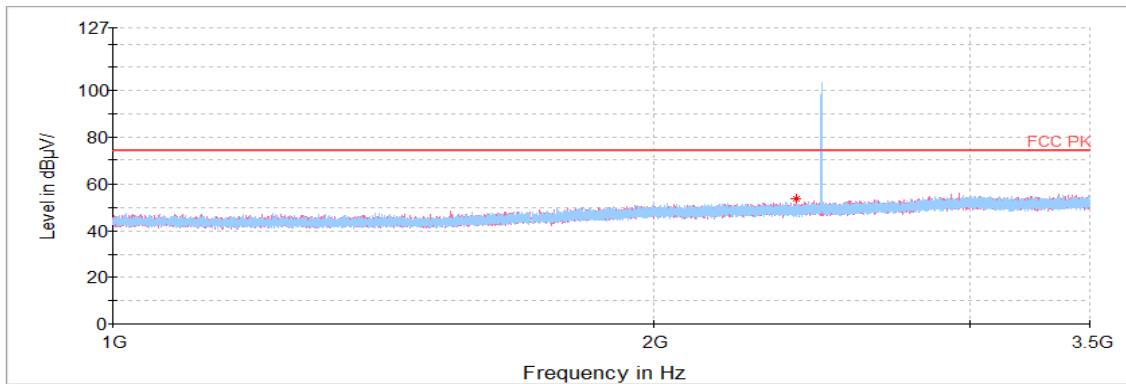
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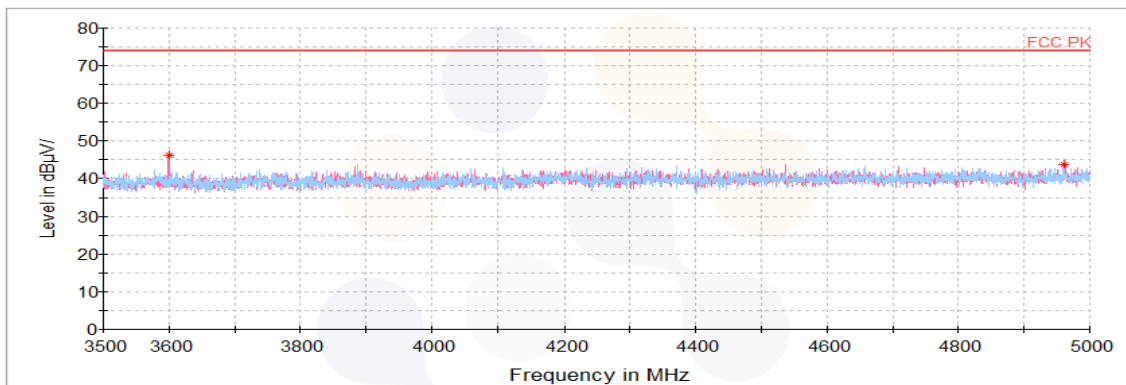


KCTL

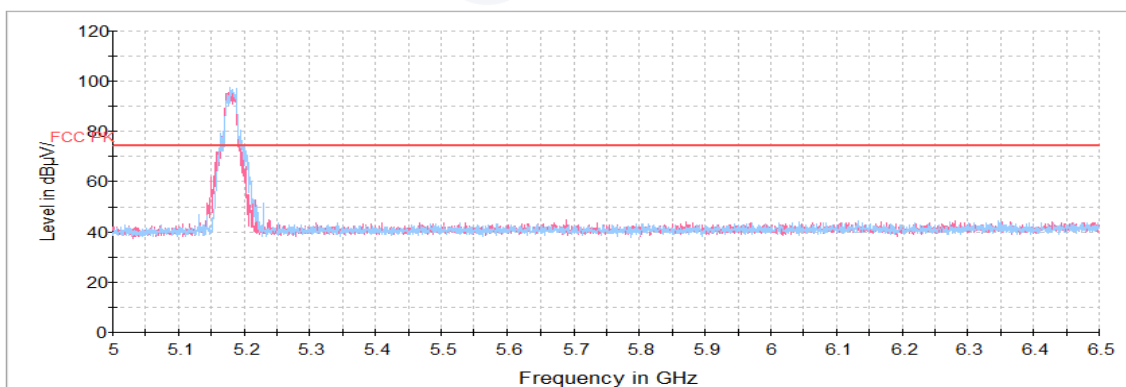
## Horizontal/Vertical for 1 GHz ~ 3.5 GHz



## Horizontal/Vertical for 3.5 GHz ~ 5 GHz



## Horizontal/Vertical for 5 GHz ~ 6.5 GHz





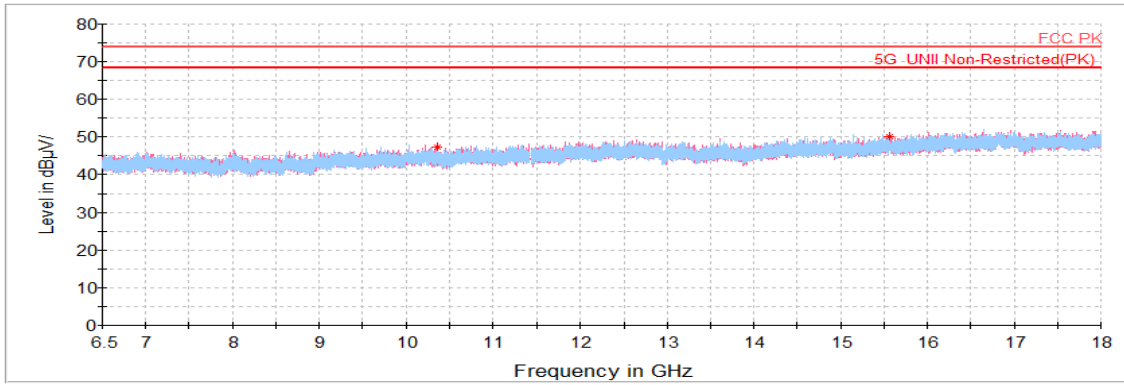
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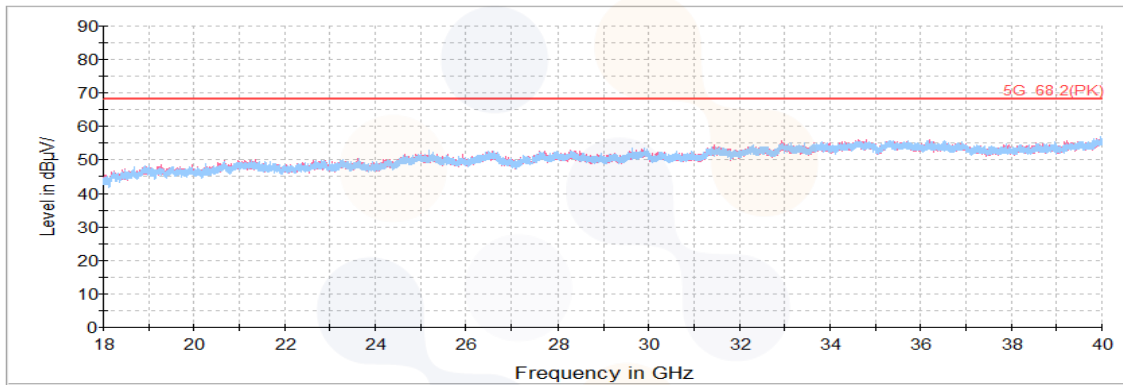
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## Horizontal/Vertical for 6.5 GHz ~ 18 GHz

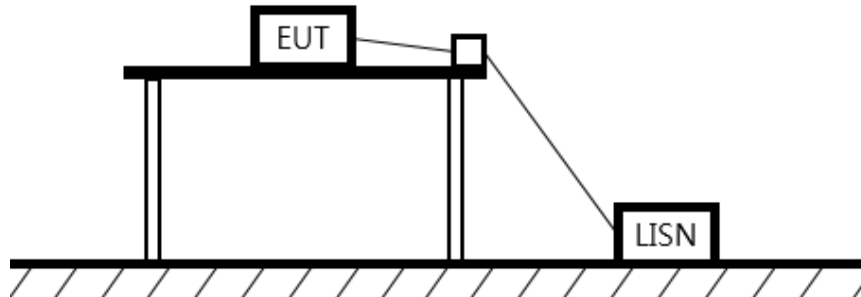


## Horizontal/Vertical for 18 GHz ~ 40 GHz



## 8.7. AC Conducted emission

### Test setup



### Limit

#### §15.407

According to 15.207(a) and RSS-Gen (8.8), for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50uH/50 ohm line impedance stabilization network (LISN). Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted limit (dB $\mu$ V/m)	
	Quasi-peak	Average
0.15 – 0.50	66 - 56*	56 - 46*
0.50 – 5.00	56	46
5.00 – 30.0	60	50

### Measurement procedure

1. The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 cm in which is located 40 cm away from the vertical wall and 1.5m away from the side wall of the shielded room.
2. Each current-carrying conductor of the EUT power cord was individually connected through a 50 $\Omega$ /50 $\mu$ H LISN, which is an input transducer to a spectrum analyzer or an EMI/Field Intensity Meter, to the input power source.
3. Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.
4. The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment is the system) was then performed over the frequency range of 0.15 MHz to 30 MHz.
5. The measurements were made with the detector set to peak amplitude within a bandwidth of 10 kHz or to quasi-peak and average within a bandwidth of 9 kHz. The EUT was in transmitting mode during the measurements.

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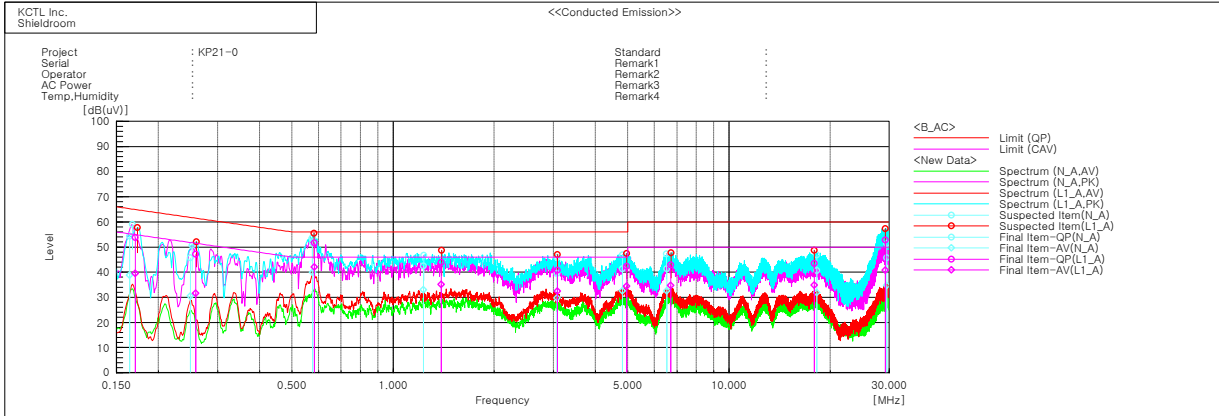
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## Test results

**Worst case: 802.11n HT 40 2TX MIMO / UNII-1 5 190 MHz**



### Final Result

--- N_A Phase ---										
No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.16405	44.3	28.7	10.1	54.4	38.8	65.3	55.3	10.9	16.5
2	0.24921	35.9	20.7	9.7	45.6	30.4	61.8	51.8	16.2	21.4
3	0.57567	41.7	30.0	9.9	51.6	39.9	56.0	46.0	4.4	6.1
4	1.23096	32.6	23.1	9.8	42.4	32.9	56.0	46.0	13.6	13.1
5	3.07366	29.7	19.9	9.8	39.5	29.7	56.0	46.0	16.5	16.3
6	4.81421	31.5	22.8	9.8	41.3	32.6	56.0	46.0	14.7	13.4
7	6.52169	31.4	22.7	9.9	41.3	32.6	60.0	50.0	18.7	17.4
8	18.27298	30.0	21.1	10.7	40.7	31.8	60.0	50.0	19.3	18.2
9	29.52212	34.7	23.7	11.0	45.7	34.7	60.0	50.0	14.3	15.3

--- L1_A Phase ---										
No.	Frequency [MHz]	Reading QP [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB]	Result QP [dB(uV)]	Result CAV [dB(uV)]	Limit QP [dB(uV)]	Limit AV [dB(uV)]	Margin QP [dB]	Margin CAV [dB]
1	0.17058	43.7	29.4	10.1	53.8	39.5	64.9	54.9	11.1	15.4
2	0.25845	37.4	21.8	9.7	47.1	31.5	61.5	51.5	14.4	20.0
3	0.58308	41.8	32.0	9.9	51.7	41.9	56.0	46.0	4.3	4.1
4	1.38989	34.1	25.3	9.8	43.9	35.1	56.0	46.0	12.1	10.9
5	3.08267	31.0	22.6	9.8	40.8	32.4	56.0	46.0	15.2	13.6
6	4.9634	32.5	24.6	9.8	42.3	34.4	56.0	46.0	13.7	11.6
7	6.71195	32.9	24.8	9.9	42.8	34.7	60.0	50.0	17.2	15.3
8	17.94288	32.8	24.2	10.6	43.4	34.8	60.0	50.0	16.6	15.2
9	29.2384	41.8	29.7	11.0	52.8	40.7	60.0	50.0	7.2	9.3

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**9. Measurement equipment**

Equipment Name	Manufacturer	Model No.	Serial No.	Next Cal. Date
Spectrum Analyzer	R&S	FSV3030	1330.5000K30-101710-Wt	22.12.02
Attenuator	API Inmet	40AH2W-10	17	22.05.11
Signal Generator	R&S	SMB100A	176206	23.01.19
Vector Signal Generator	R&S	SMBV100A	257566	22.07.09
Power Sensor	R&S	NRP-Z81	1137.9009.02-106224-tg	22.05.11
Attenuator	R&S	DNF Dämpfungsglied 10 dB in N-50 Ohm	0004	22.05.11
Spectrum Analyzer	R&S	FSV40	100989	22.12.21
EMI TEST RECEIVER	R&S	ESC17	100732	23.01.19
Bi-Log Antenna	TESEQ	CBL 6112D	55545	23.01.14
Amplifier	SONOMA INSTRUMENT	310N	284608	22.08.19
ATTENUATOR	KEYSIGHT	8491B-6dB	MY39271060	23.01.14
Horn antenna	ETS.lindgren	3117	155787	22.10.05
Horn antenna	ETS.lindgren	3116	00086635	22.05.17
Attenuator	API Inmet	40AH2W-10	12	22.05.11
Broadband PreAmplifier	SCHWARZBECK	BBV9718	216	22.07.27
AMPLIFIER	L-3 Narda-MITEQ	AMF-7D-01001800 -22-10P	2003683	22.08.19
AMPLIFIER	L-3 Narda-MITEQ	JS44-18004000-33-8P	2000996	23.01.19
LOOP Antenna	R&S	HFH2-Z2	100355	22.08.21
Antenna Mast	Innco Systems	MA4640-XP-ET	-	-
Turn Table	Innco Systems	CO3000	1175/45850319/P	-
Antenna Mast	Innco Systems	MA4000-EP	303	-
Turn Table	Innco Systems	CO3000	1175/45850319/P	-
Highpass Filter	WT	WT-A1699-HS	WT160411002	22.05.10
TWO-LINE V - NETWORK	R&S	ENV216	101358	22.09.29
EMI TEST RECEIVER	R&S	ESC13	100001	22.08.19
Cable Assembly	RadiAll	2301761768000PJ	1724.659	-
Cable Assembly	HUER+SUHNER	SUCOFLEX 102	804320/2	-
Cable Assembly	HUER+SUHNER	SUCOFLEX 102	804320/2	-

**End of test report**