

5190MHz

Ref: 20 dBm Att: 20 dB

Hacker 1 [T1]
 Freq: 5.195256450 GHz
 BW: 6.153846154 MHz
 Temp: 1 [T1 CW]
 SNT: 20 ms

Center: 5.19 GHz 8 MHz/ Span: 80 MHz

5230MHz

Ref: 20 dBm Att: 20 dB

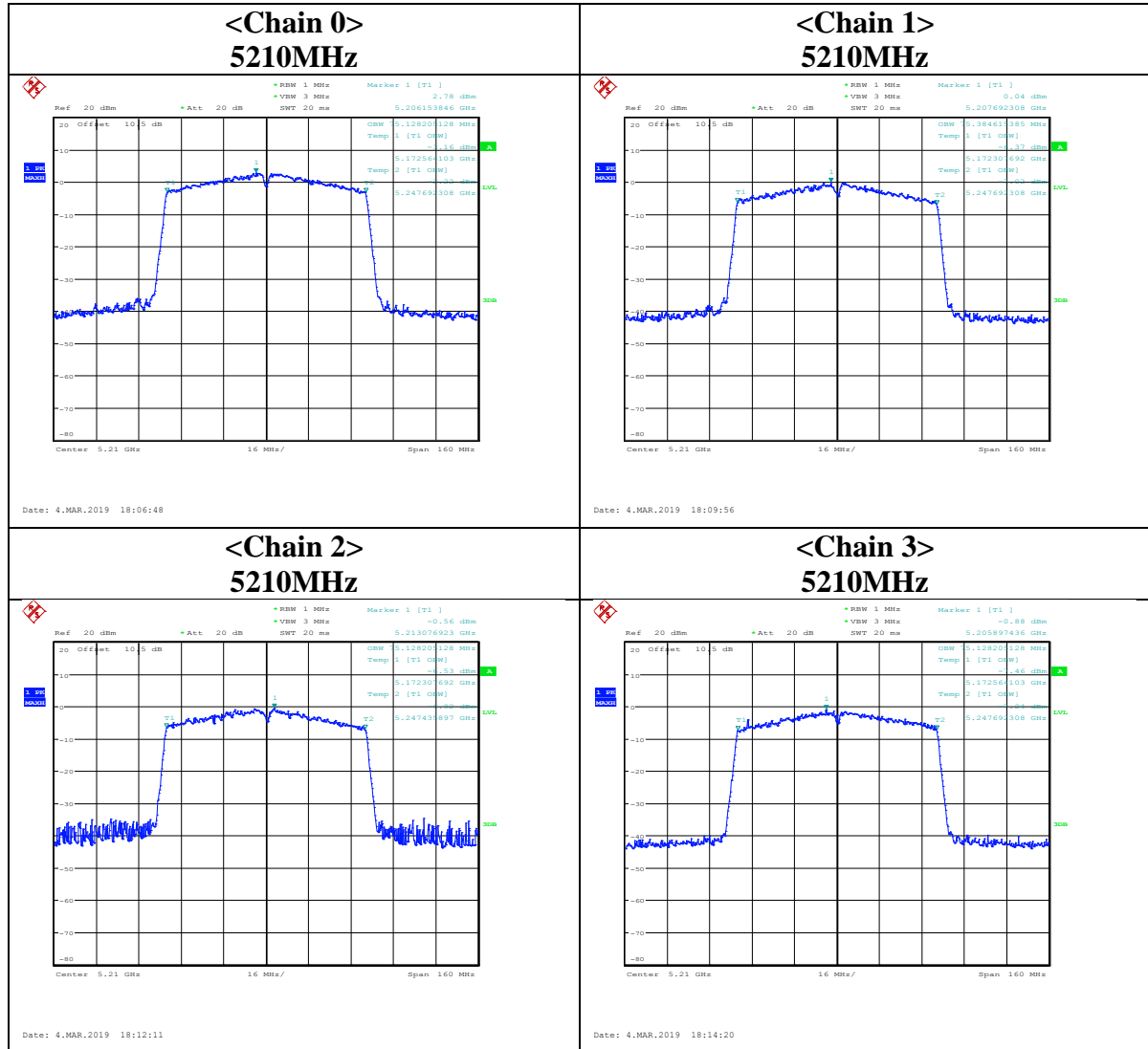
Hacker 1 [T1]
 Freq: 5.225256410 GHz
 BW: 6.282051282 MHz
 Temp: 1 [T1 CW]
 SNT: 20 ms

Center: 5.23 GHz 8 MHz/ Span: 80 MHz

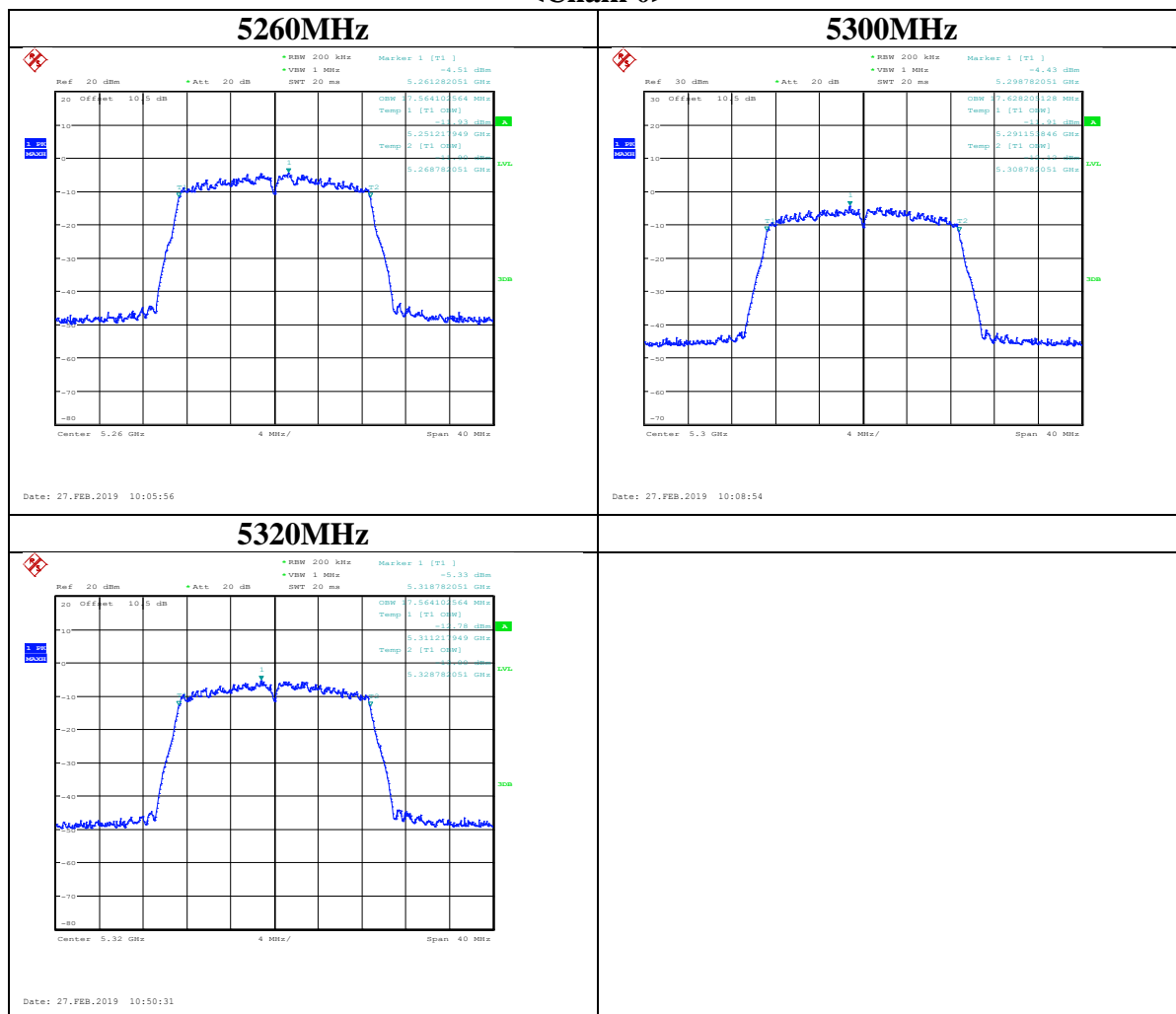
The figure displays two side-by-side spectral plots comparing a 5190 MHz signal (left) and a 5230 MHz signal (right). Both plots show a signal with a 10 dBm peak and a 20 MHz span. The left plot is for 5190 MHz and the right plot is for 5230 MHz. Both plots show a signal with a 10 dBm peak and a 20 MHz span.

[illegible][illegible]

IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz



<Chain 0>



5260MHz

Ref: 30 dBm Att: 20 dB BW: 20 MHz Marker 1 [T1] -1.82 dBm

OSW 5.26420564 GHz Temp 5 [T1 OSW] -1.82 dBm

5.251251949 GHz Temp 2 [T1 OSW] -1.82 dBm

5.268782051 GHz

Center 5.26 GHz 4 MHz/ Span 40 MHz

Date: 27.FEB.2019 10:02:53

5300MHz

Ref: 30 dBm Att: 20 dB BW: 20 MHz Marker 1 [T1] -3.24 dBm

OSW 5.299782056 GHz Temp 1 [T1 OSW] -3.24 dBm

5.291251949 GHz Temp 2 [T1 OSW] -3.24 dBm

5.308782051 GHz

Center 5.3 GHz 4 MHz/ Span 40 MHz

Date: 27.FEB.2019 10:25:06

5320MHz

Ref: 30 dBm Att: 20 dB BW: 20 MHz Marker 1 [T1] -1.91 dBm

OSW 5.321858974 GHz Temp 5 [T1 OSW] -1.91 dBm

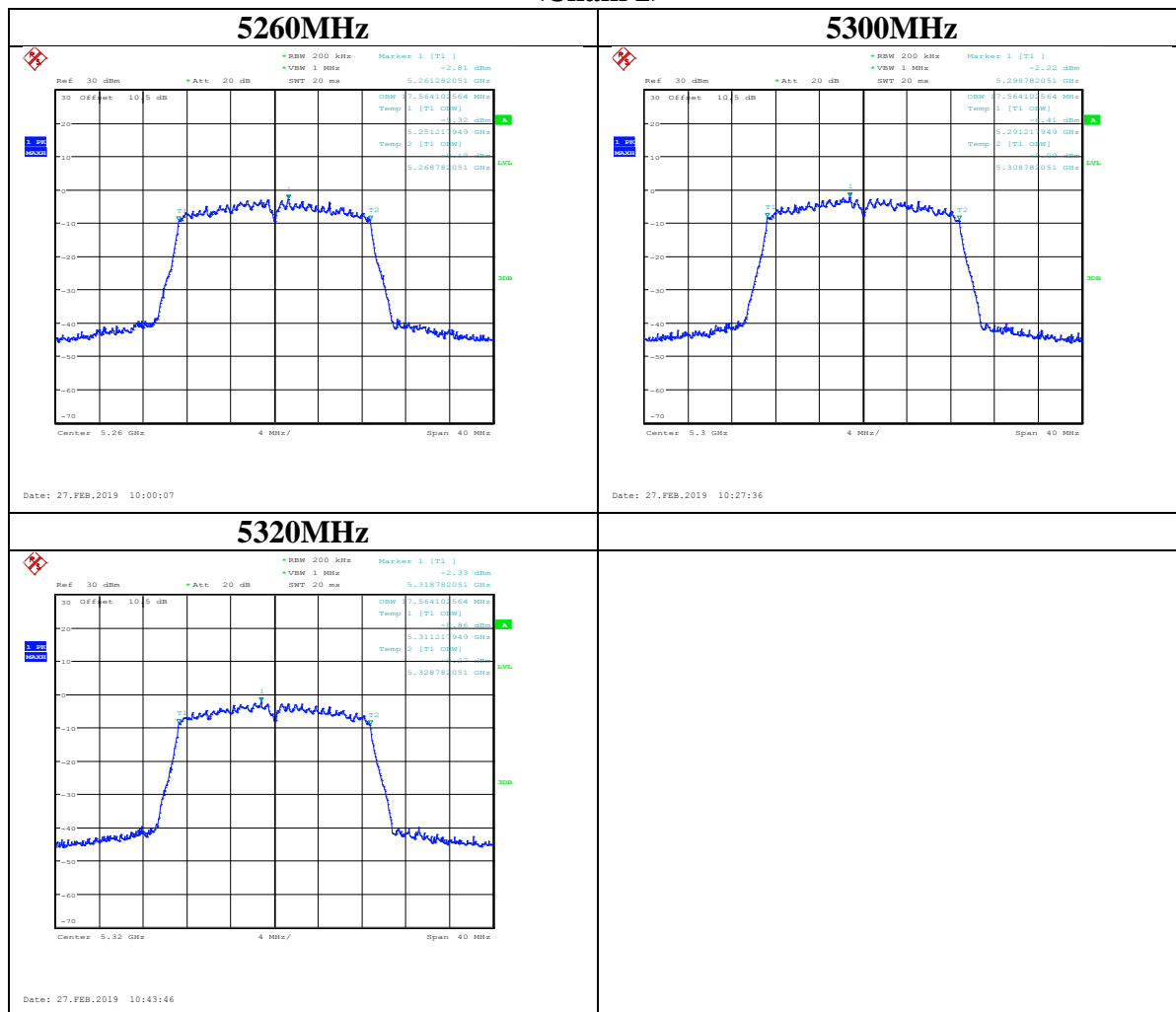
5.311251949 GHz Temp 2 [T1 OSW] -1.91 dBm

5.328782051 GHz

Center 5.32 GHz 4 MHz/ Span 40 MHz

Date: 27.FEB.2019 10:47:37

<Chain 2>



5260MHz

Ref: 30 dBm Att: 20 dB BW: 20 MHz Marker 1 [T1] -2.70 dBm

RBW 200 kHz VBW 1 MHz

OSW 5.2515846 GHz Temp 1 [T1 OSW] -10.06 dBm

5.2515846 GHz Temp 2 [T1 OSW] -10.06 dBm

5.26878051 GHz

Center 5.26 GHz 4 MHz/ Span 40 MHz

Date: 27.FEB.2019 09:57:46

5300MHz

Ref: 30 dBm Att: 20 dB BW: 20 MHz Marker 1 [T1] -2.46 dBm

RBW 200 kHz VBW 1 MHz

OSW 5.2915846 GHz Temp 1 [T1 OSW] -10.06 dBm

5.2915846 GHz Temp 2 [T1 OSW] -10.06 dBm

5.30884154 GHz

Center 5.3 GHz 4 MHz/ Span 40 MHz

Date: 27.FEB.2019 10:37:59

5320MHz

Ref: 30 dBm Att: 20 dB BW: 20 MHz Marker 1 [T1] -2.26 dBm

RBW 200 kHz VBW 1 MHz

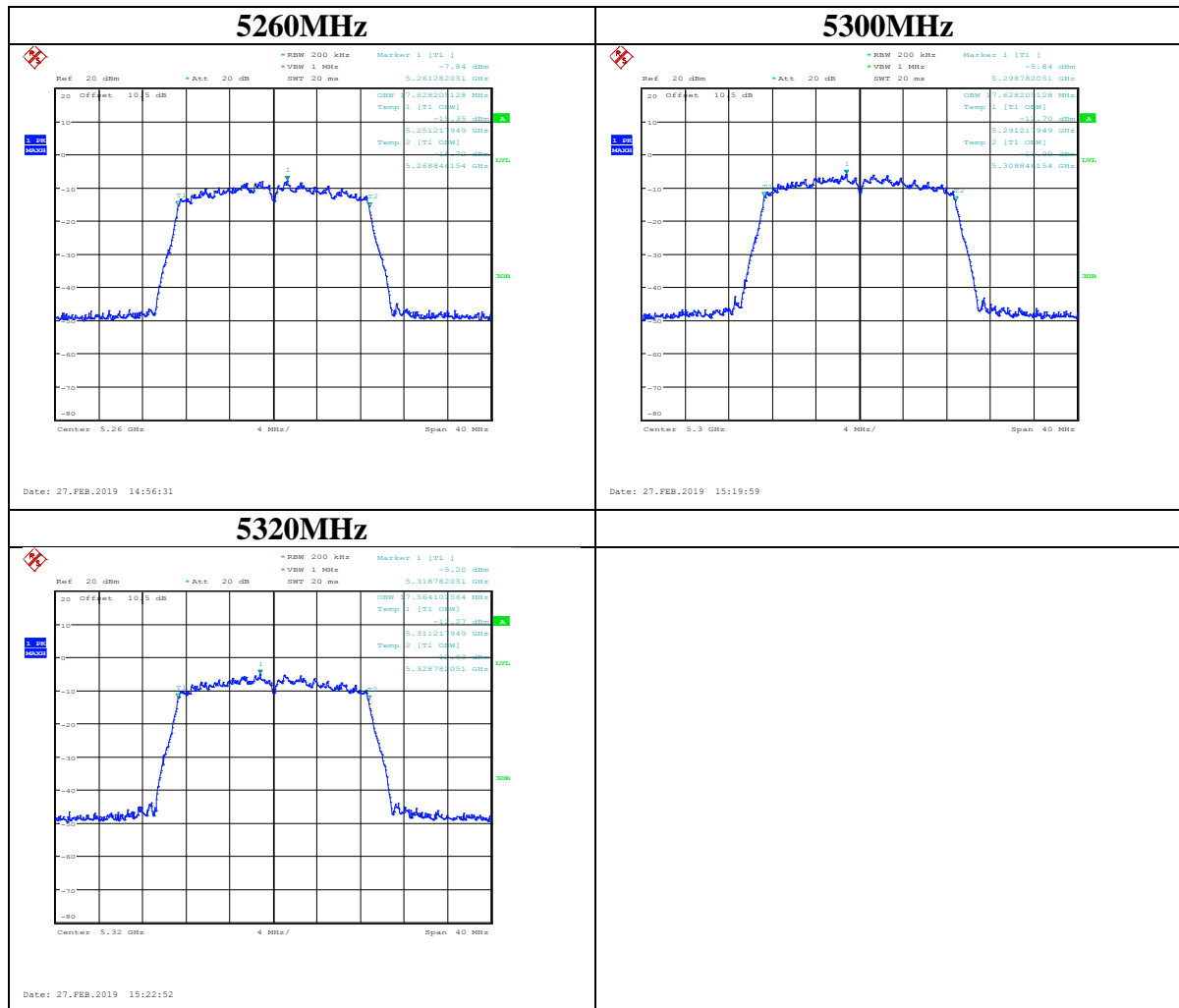
OSW 5.3121949 GHz Temp 1 [T1 OSW] -10.06 dBm

5.3121949 GHz Temp 2 [T1 OSW] -10.06 dBm

5.32878051 GHz

Center 5.32 GHz 4 MHz/ Span 40 MHz

Date: 27.FEB.2019 10:41:28

IEEE 802.11ac VHT20 Mode / 5250 ~ 5350MHz
<Chain 0>

5260MHz

Ref: 30 dBm Att: 20 dB BW: 20 MHz Marker 1 [T1] -2.50 dBm

5.261262055 GHz

5.252201129 GHz 1.92 dBm

5.251251949 GHz 2.01 dBm

5.268844154 GHz

Center: 5.26 GHz 4 MHz/ Span: 40 MHz

Date: 27.FEB.2019 14:59:08

5300MHz

Ref: 30 dBm Att: 20 dB BW: 20 MHz Marker 1 [T1] -2.83 dBm

5.299782055 GHz

5.292201129 GHz 1.92 dBm

5.291151846 GHz 2.01 dBm

5.308844154 GHz

Center: 5.3 GHz 4 MHz/ Span: 40 MHz

Date: 27.FEB.2019 15:17:05

5320MHz

Ref: 30 dBm Att: 20 dB BW: 20 MHz Marker 1 [T1] -3.12 dBm

5.319737049 GHz

5.312201129 GHz 1.92 dBm

5.311251949 GHz 2.01 dBm

5.328844154 GHz

Center: 5.32 GHz 4 MHz/ Span: 40 MHz

Date: 27.FEB.2019 15:28:30

5200MHz

Ref 20 dBm Att 20 dB SWT 20 ms Marker 1 [T1] -4.86 dBm

RBW 200 kHz VBW 1 MHz

Center 5.26 GHz 4 MHz/ Span 40 MHz

Date: 27.FEB.2019 15:01:23

5300MHz

Ref 30 dBm Att 20 dB SWT 20 ms Marker 1 [T1] -2.33 dBm

RBW 200 kHz VBW 1 MHz

Center 5.30 GHz 4 MHz/ Span 40 MHz

Date: 27.FEB.2019 15:14:14

5320MHz

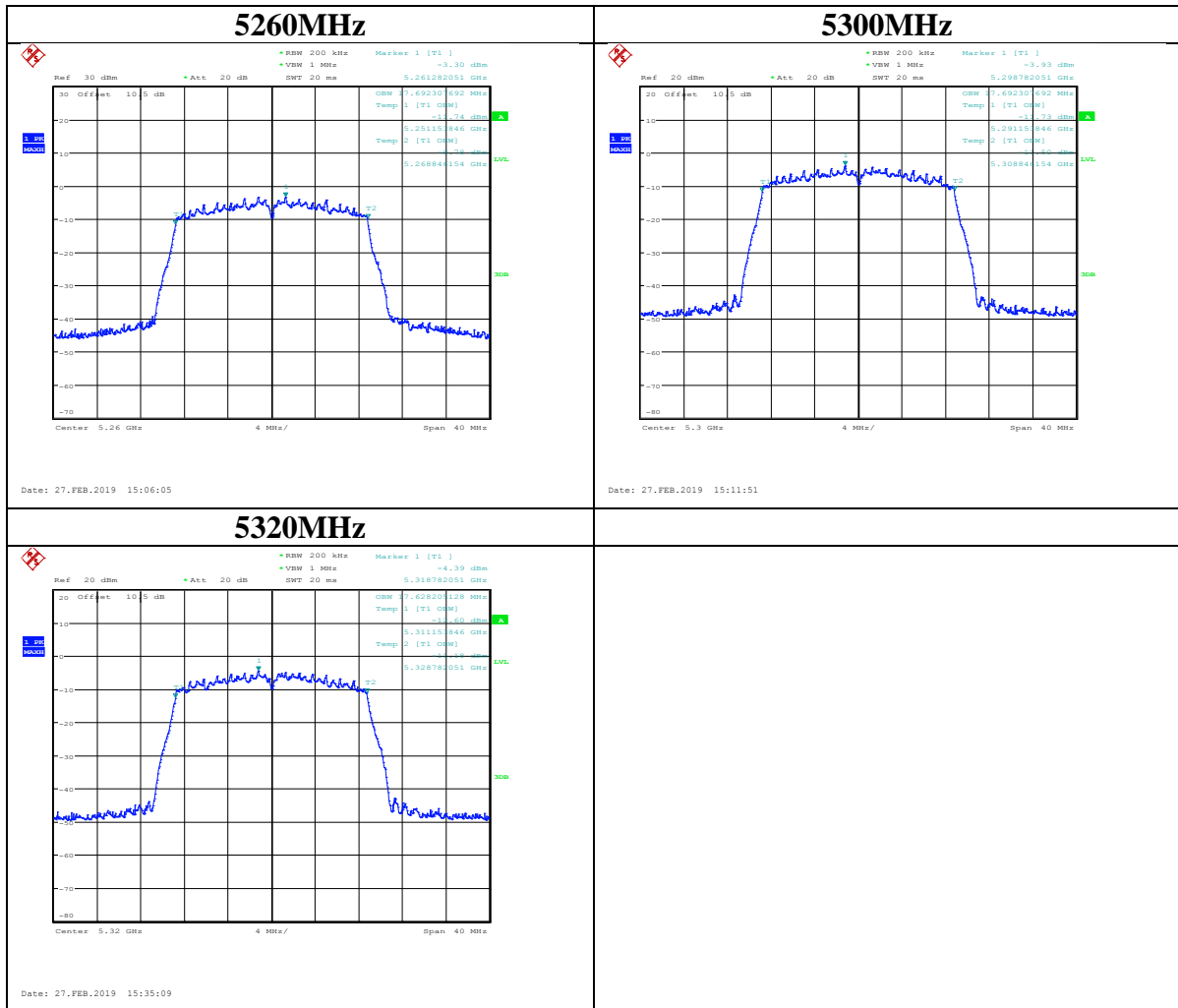
Ref 30 dBm Att 20 dB SWT 20 ms Marker 1 [T1] -2.36 dBm

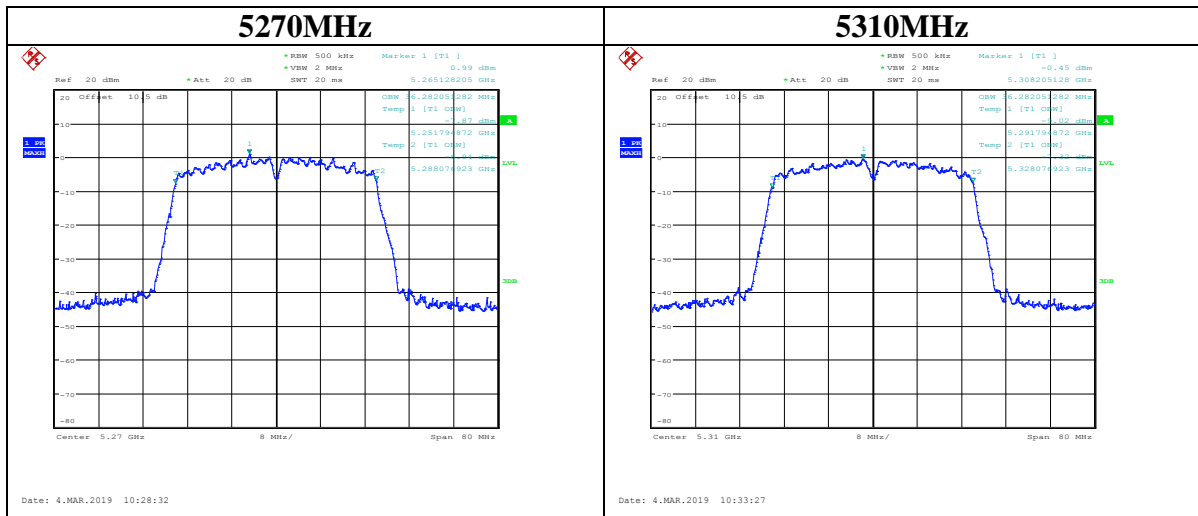
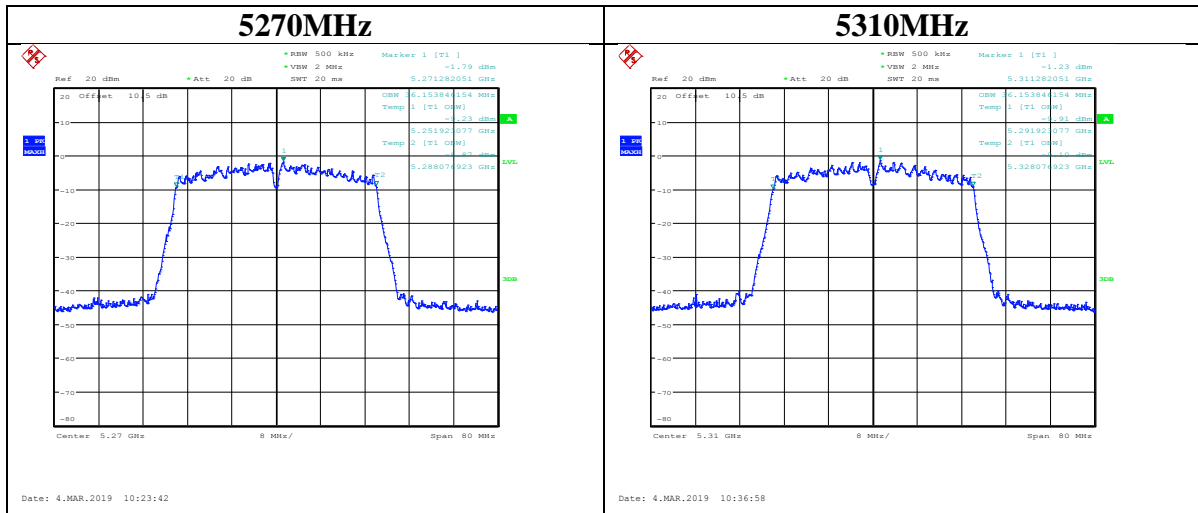
RBW 200 kHz VBW 1 MHz

Center 5.32 GHz 4 MHz/ Span 40 MHz

Date: 27.FEB.2019 15:30:49

<Chain 3>



IEEE 802.11ac VHT40 Mode / 5250 ~ 5350MHz
<Chain 0>**<Chain 1>**

5270MHz

• RBW 500 kHz
• VBW 2 MHz
• SMT 20 ms

Marker 1 [T1]
-2.34 dBm

Ref 20 dBm
*Att 20 dB

20 Offset 10.5 dB

1.00
dBm

OSW 5.297431897 GHz
Temp 1 [T1 OSW]
-1.01 dBm

5.25205282 GHz
Temp 2 [T1 OSW]
-1.01 dBm

5.287944718 GHz
Temp 3 [T1 OSW]
-1.01 dBm

Center 5.27 GHz
8 MHz/
Span 80 MHz

100

100

5310MHz

• RBW 500 kHz
• VBW 2 MHz
• SMT 20 ms

Marker 1 [T1]
-3.00 dBm

Ref 20 dBm
*Att 20 dB

20 Offset 10.5 dB

1.00
dBm

OSW 5.297431897 GHz
Temp 1 [T1 OSW]
-1.01 dBm

5.29205282 GHz
Temp 2 [T1 OSW]
-1.01 dBm

5.327944718 GHz
Temp 3 [T1 OSW]
-1.01 dBm

Center 5.31 GHz
8 MHz/
Span 80 MHz

100

100

2570MHz

Ref 20 dBm Act 20 dBm BW 20 MHz

Marker 1 [F1]

RBW 500 kHz VSW 2 MHz

5.26794872 GHz

30 Offset 10.5 dB

10

0

-10

-20

-30

-40

-50

-60

-70

Center 5.27 GHz 8 MHz/ Span 80 MHz

5310MHz

Ref 30 dBm Act 30 dBm BW 20 MHz

Marker 1 [F1]

RBW 500 kHz VSW 2 MHz

5.312844154 GHz

30 Offset 10.5 dB

10

0

-10

-20

-30

-40

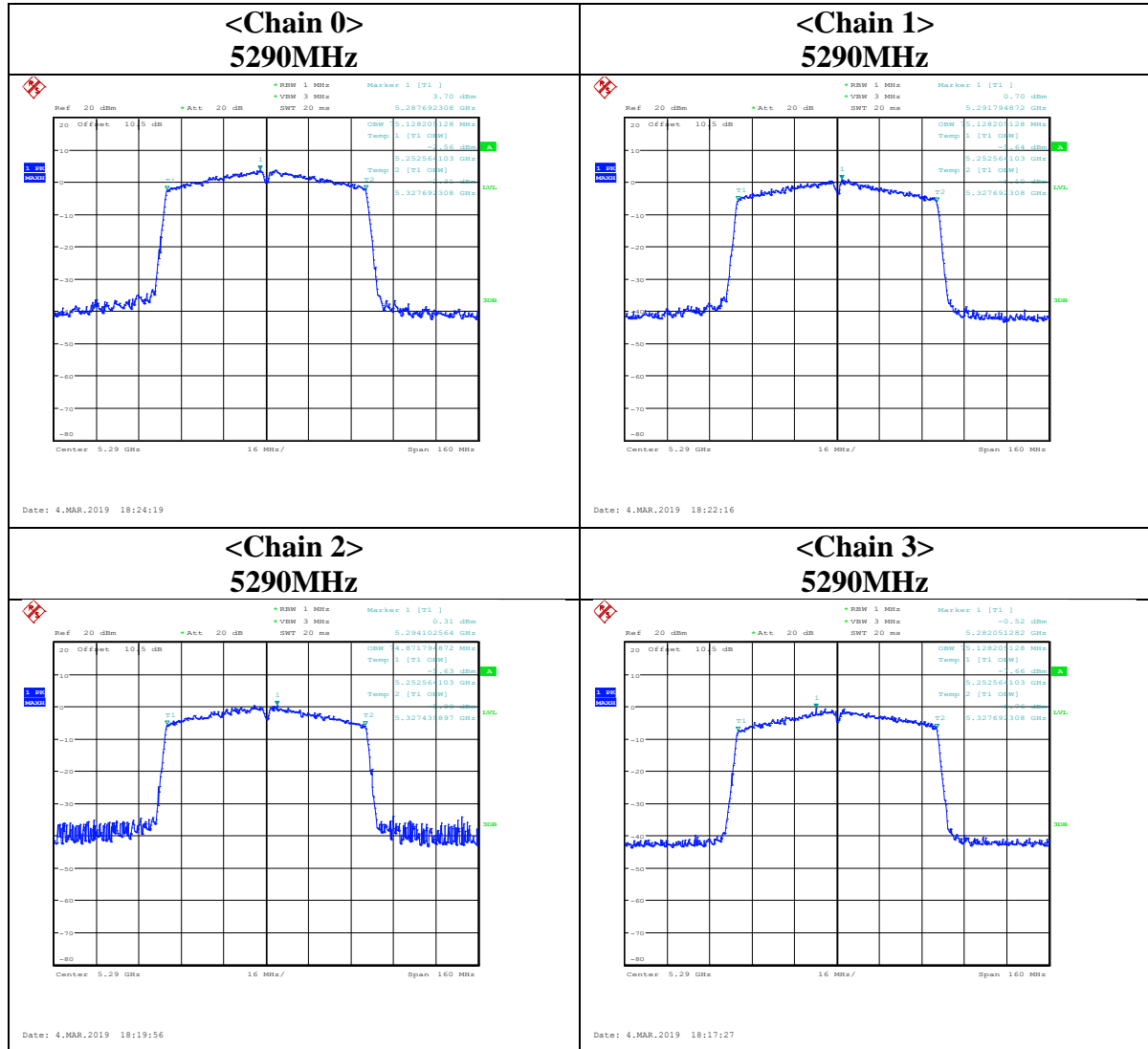
-50

-60

-70

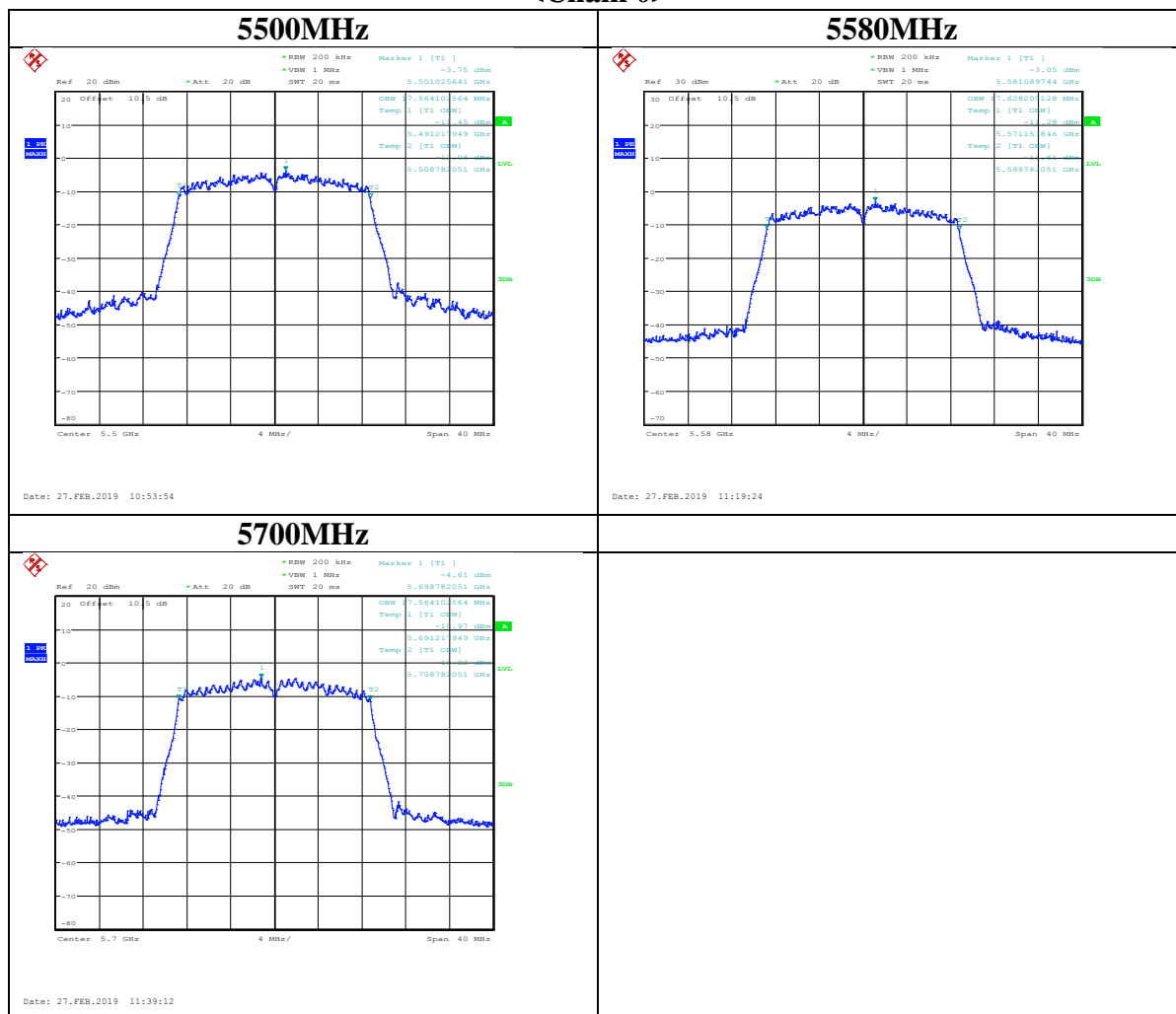
Center 5.31 GHz 8 MHz/ Span 80 MHz

IEEE 802.11ac VHT80 Mode / 5250 ~ 5350MHz

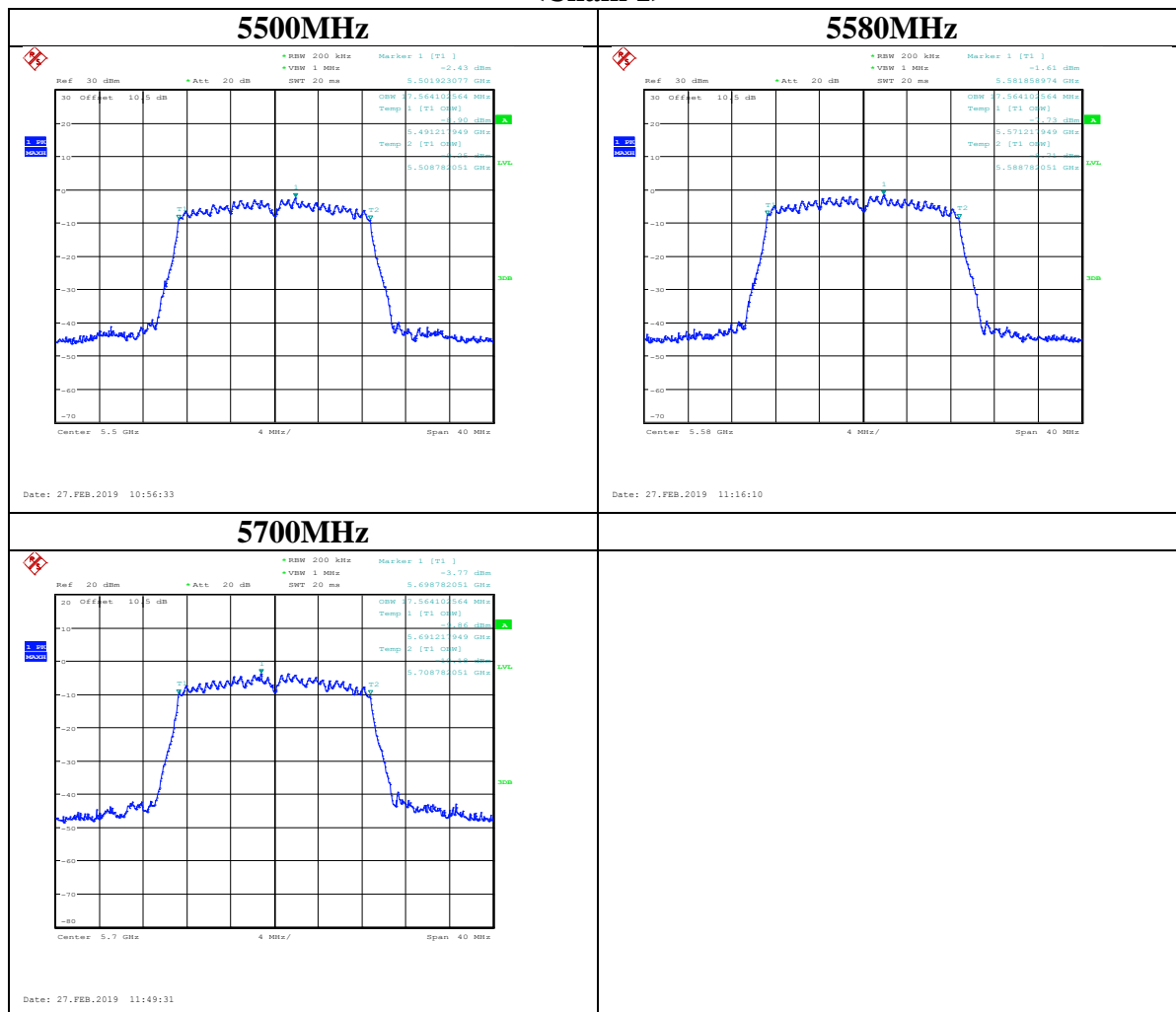


UNII-2C Band III / OBW 99%
IEEE 802.11a Mode / 5470 ~ 5725MHz

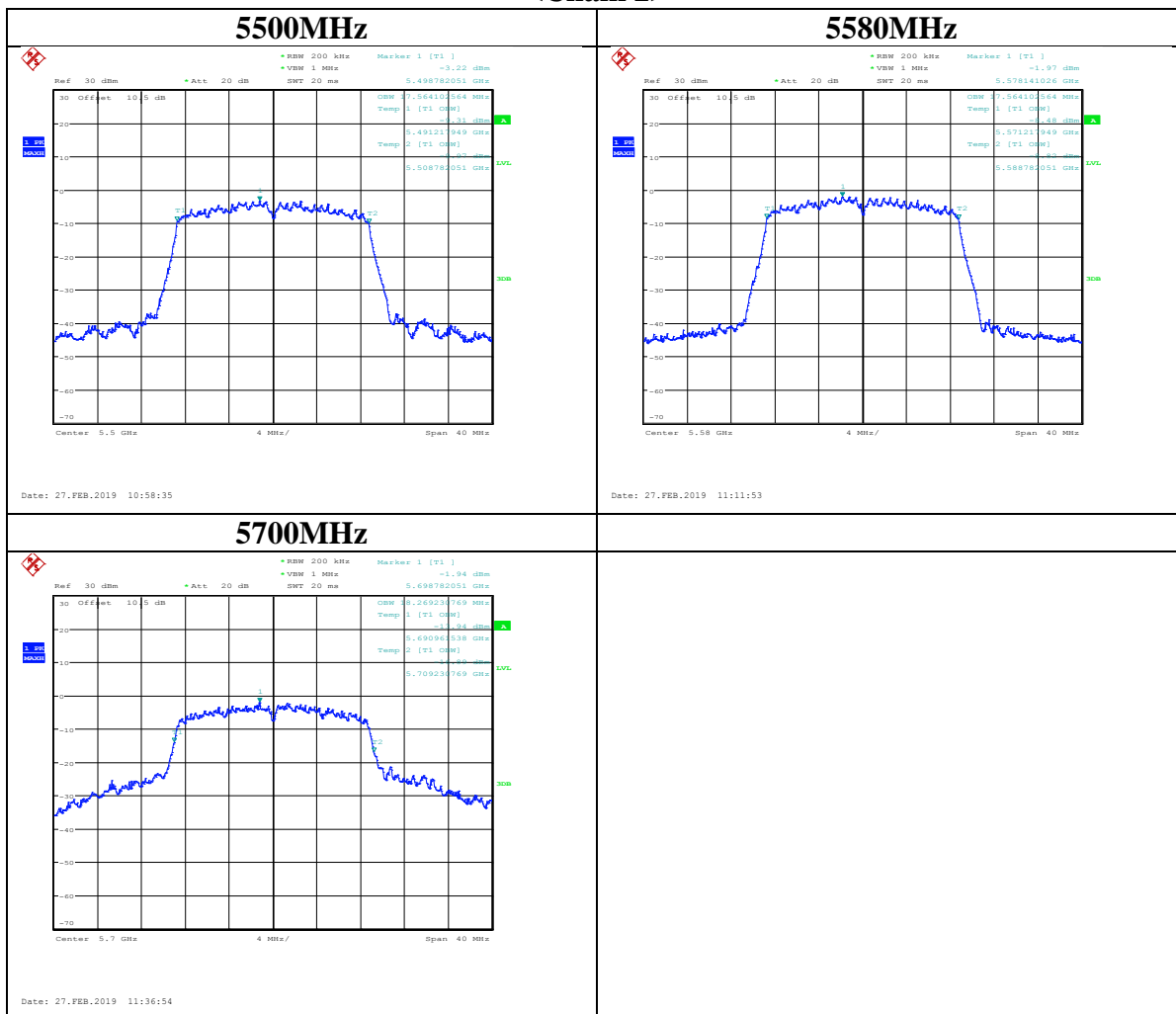
<Chain 0>



<Chain 1>

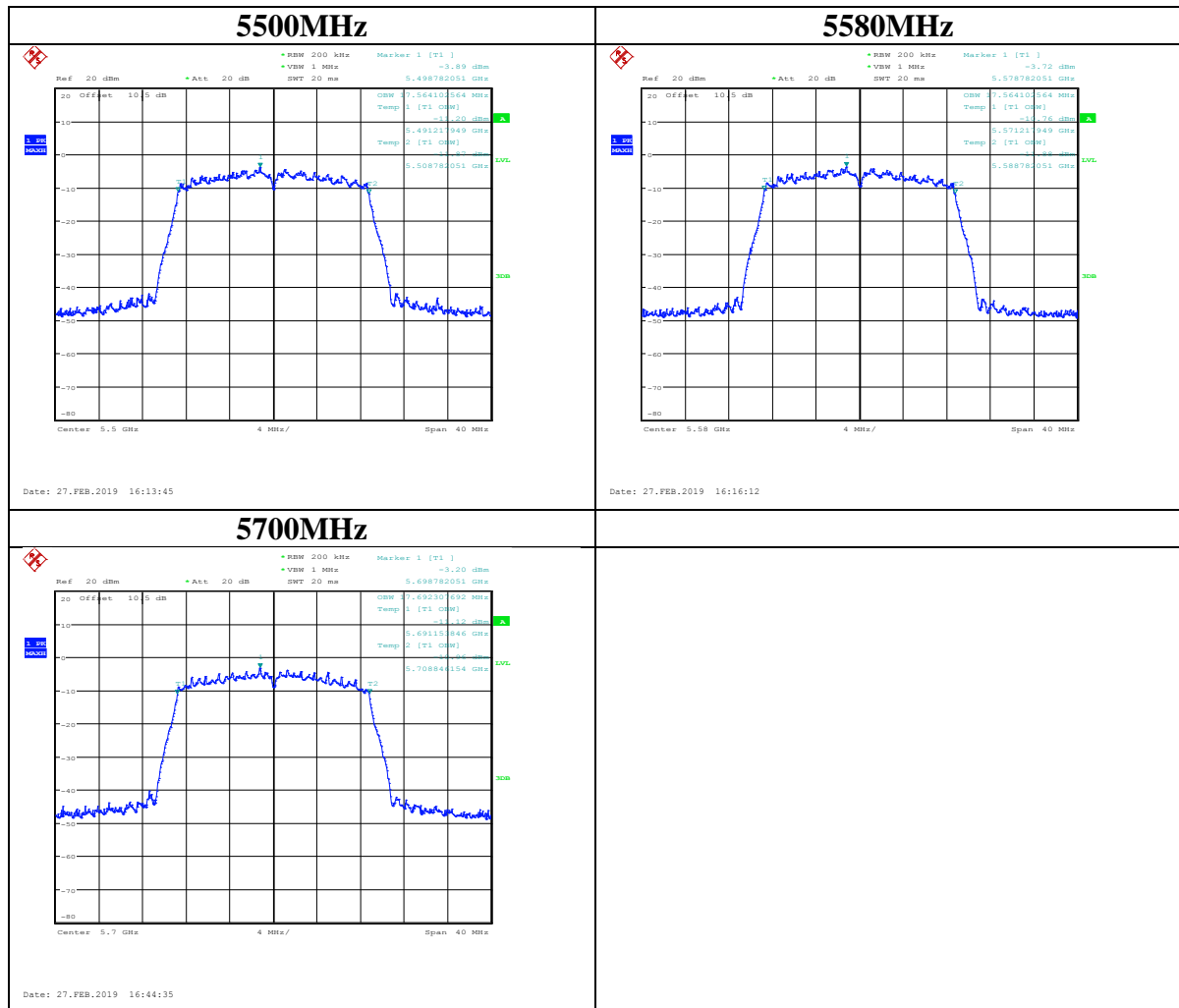


<Chain 2>

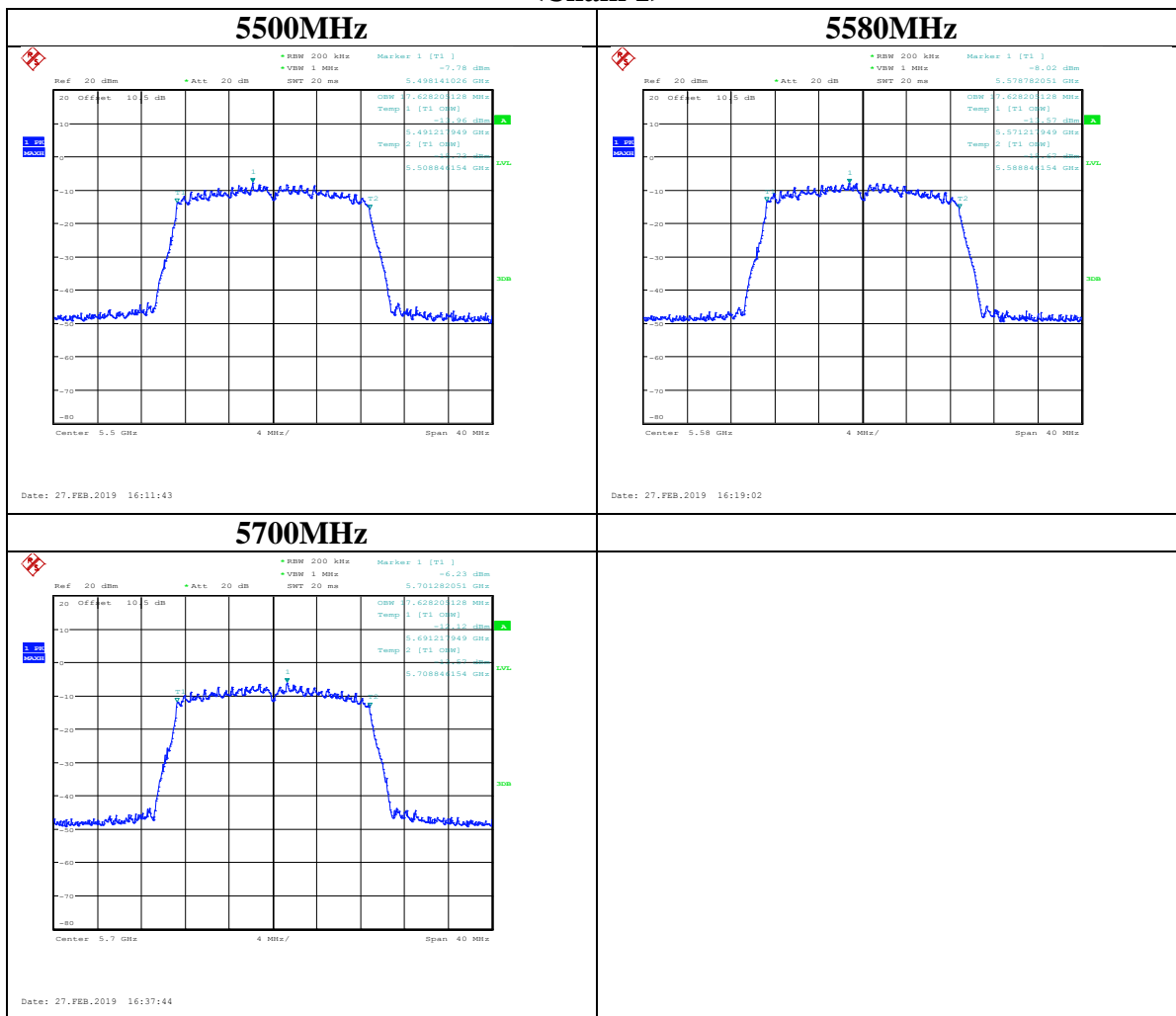


5500MHz

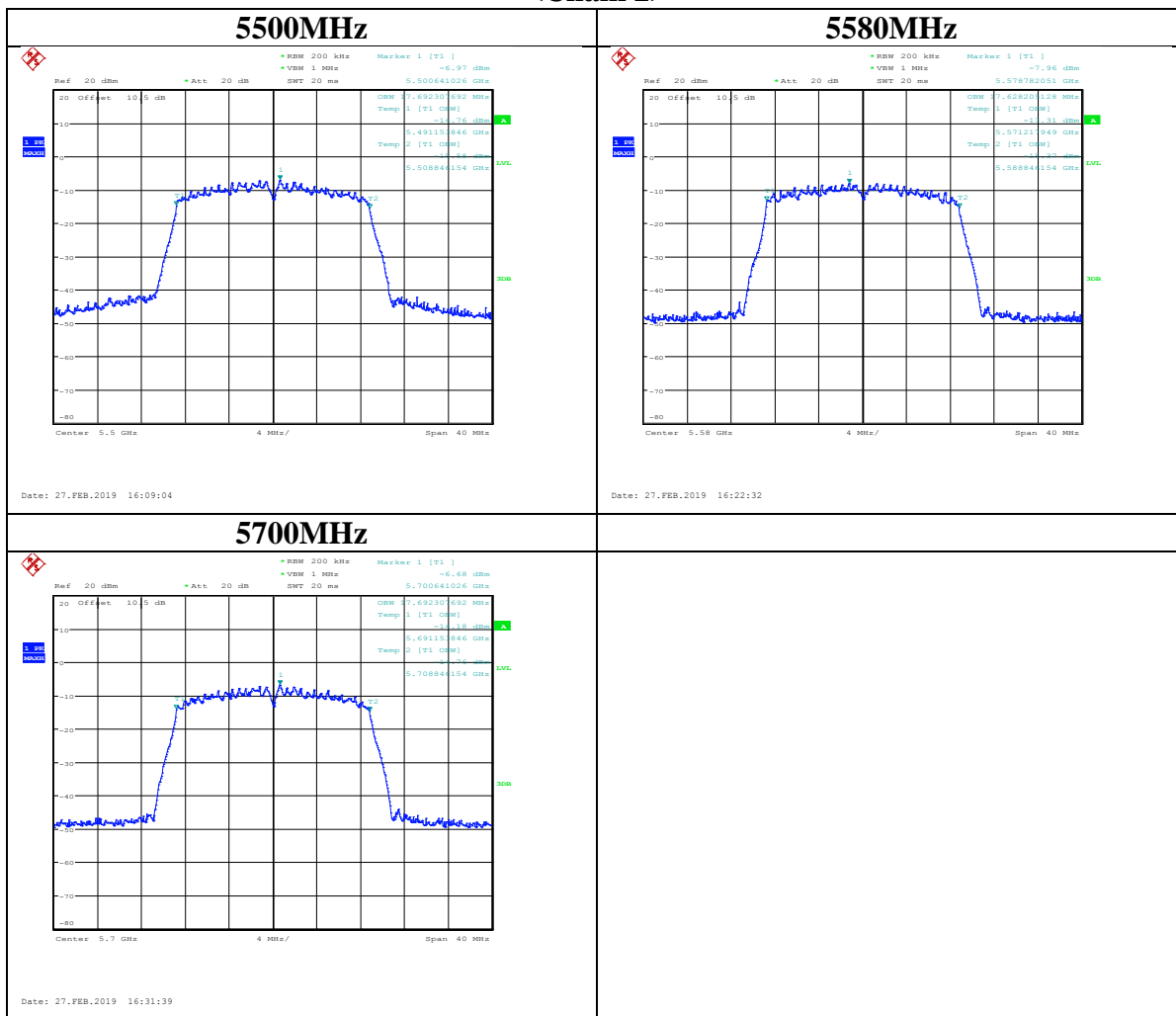


IEEE 802.11ac VHT20 Mode / 5470 ~ 5725MHz
<Chain 0>

<Chain 1>



<Chain 2>



5500MHz

Ref: 30 dBm Att: 20 dB BW: 20 MHz Marker 1 [T1] -0.94 dBm

RBW 200 kHz VBW 1 MHz

OSW 1.692301502 MHz Temp 1 [T1 OSW] -1.9 dBm

Temp 5.49115846 GHz 2 [T1 OSW] -1.9 dBm

5.50884154 GHz

Center 5.5 GHz 4 MHz/ Span 40 MHz

Date: 27.FEB.2019 16:06:14

5580MHz

Ref: 30 dBm Att: 20 dB BW: 20 MHz Marker 1 [T1] -1.01 dBm

RBW 200 kHz VBW 1 MHz

OSW 1.629201128 MHz Temp 1 [T1 OSW] -1.9 dBm

Temp 5.57115846 GHz 2 [T1 OSW] -1.9 dBm

5.588787051 GHz

Center 5.58 GHz 4 MHz/ Span 40 MHz

Date: 27.FEB.2019 16:25:18

5700MHz

Ref: 30 dBm Att: 20 dB BW: 20 MHz Marker 1 [T1] -0.82 dBm

RBW 200 kHz VBW 1 MHz

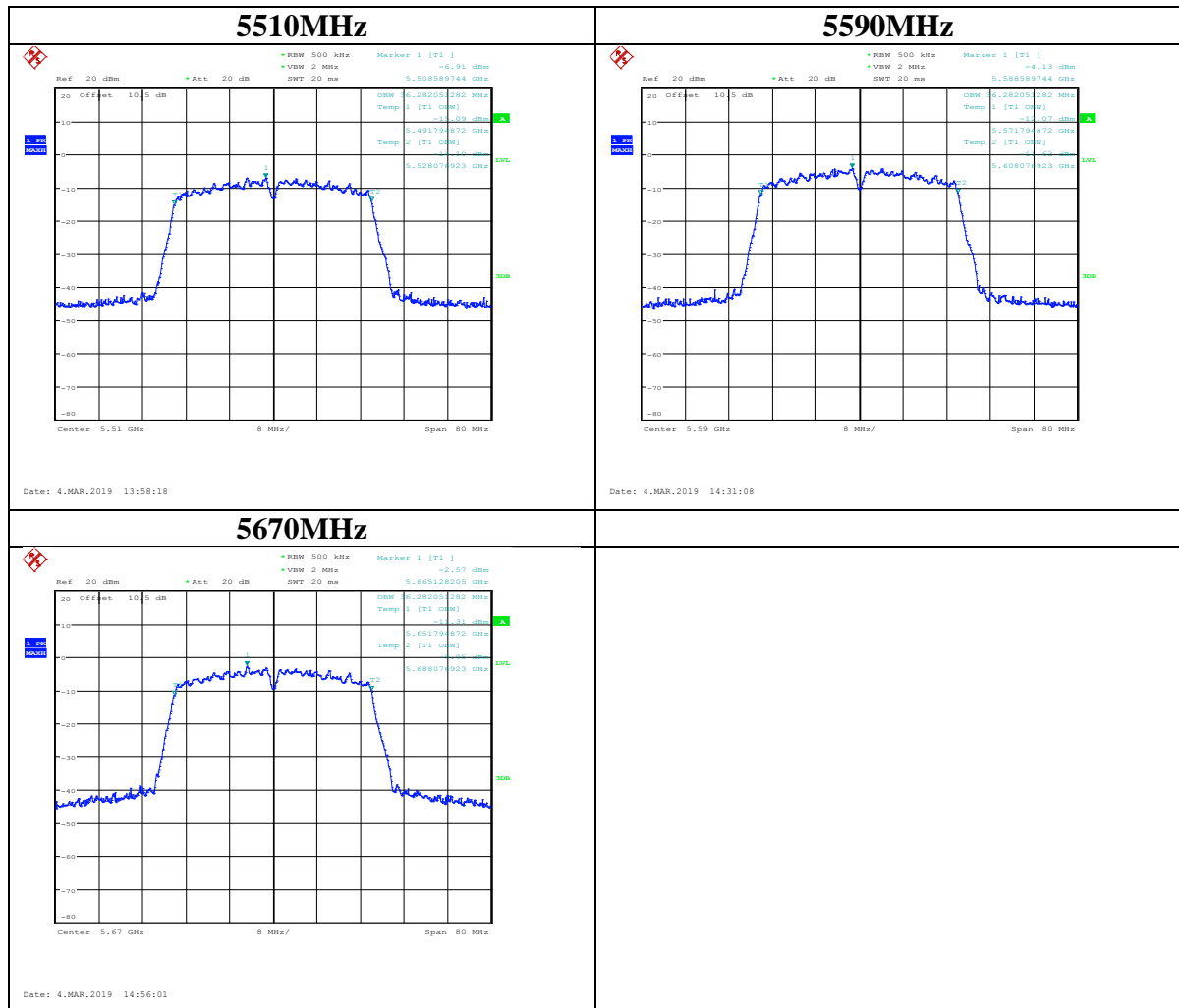
OSW 1.692301502 MHz Temp 1 [T1 OSW] -1.9 dBm

Temp 5.69115846 GHz 2 [T1 OSW] -1.9 dBm

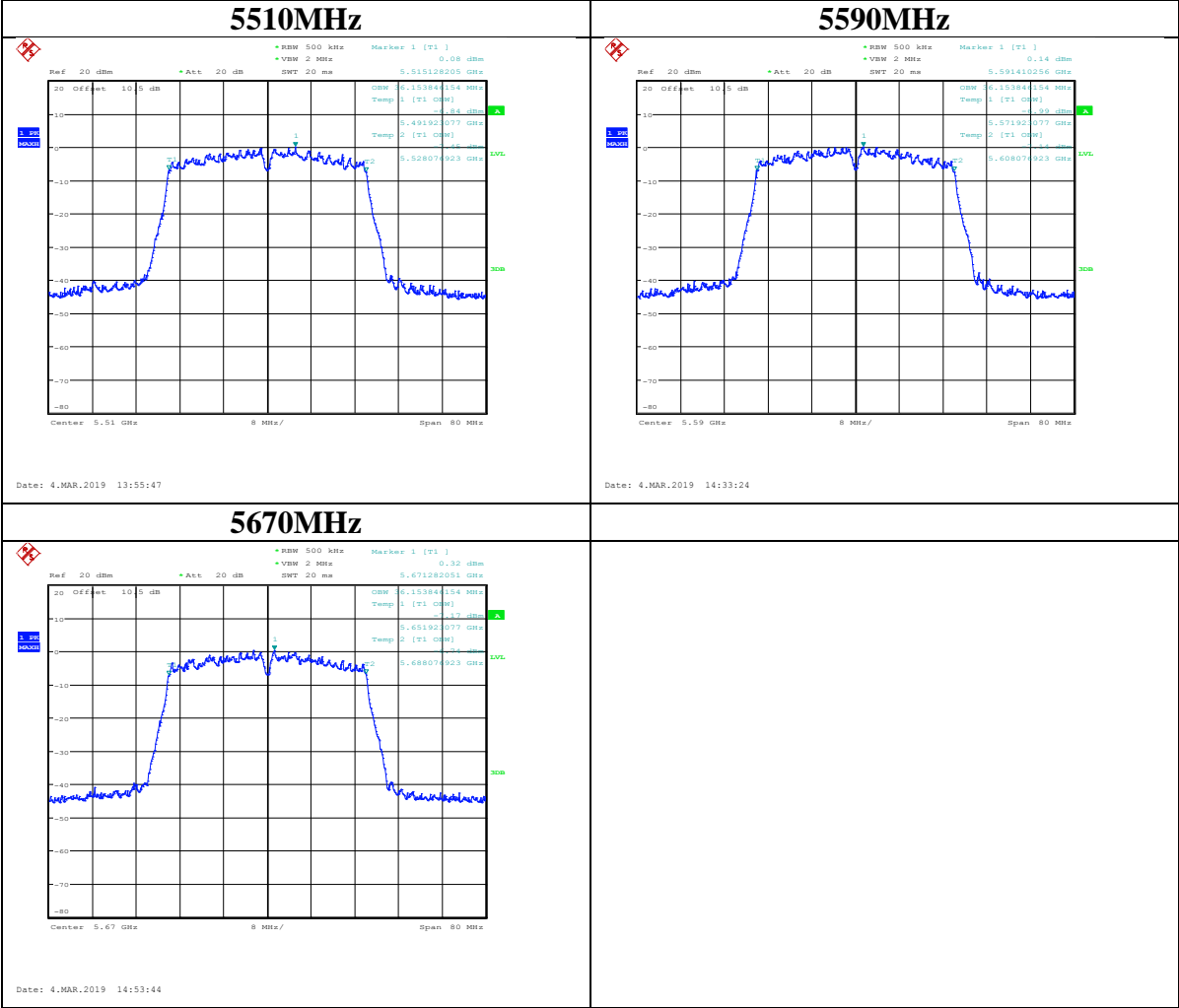
5.70884154 GHz

Center 5.7 GHz 4 MHz/ Span 40 MHz

Date: 27.FEB.2019 16:29:02

IEEE 802.11ac VHT40 Mode / 5470 ~ 5725MHz
<Chain 0>

<Chain 1>



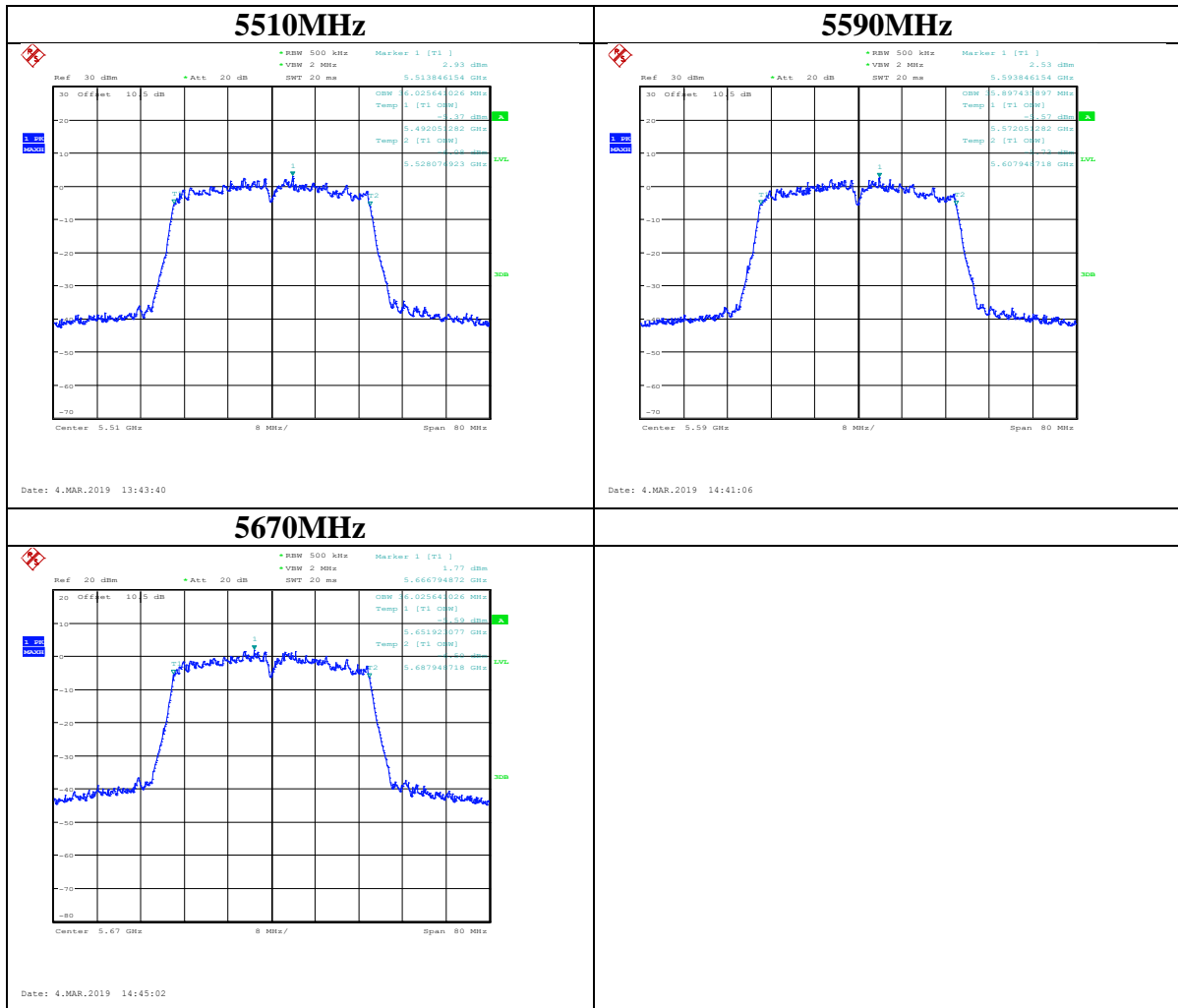
5510MHz

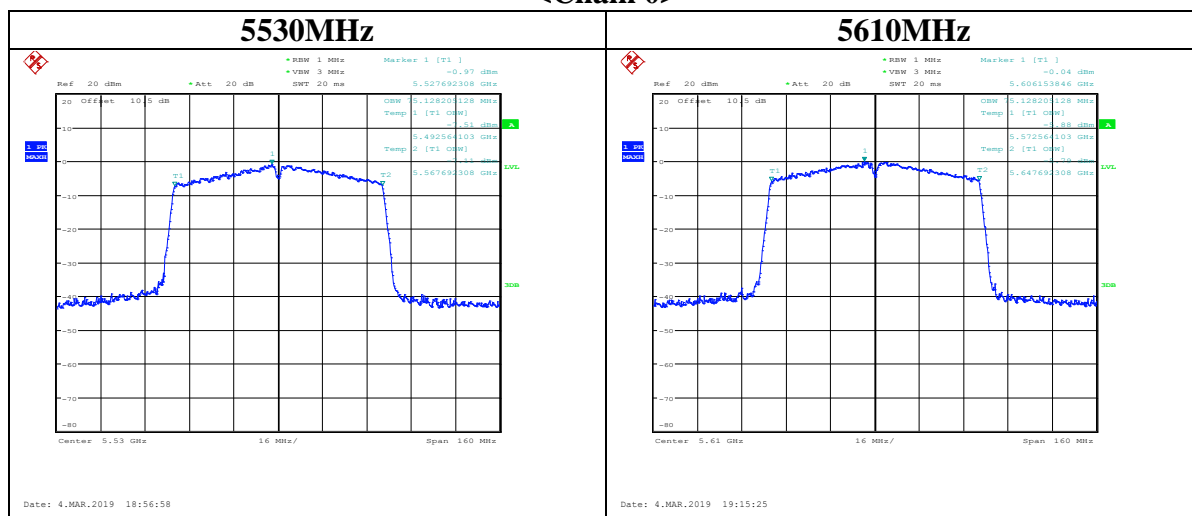
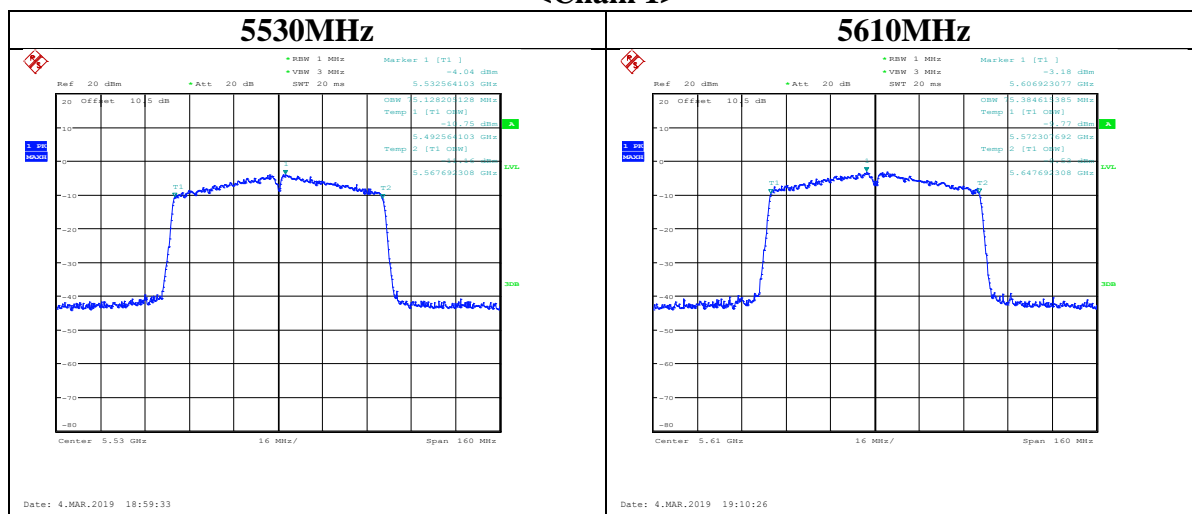


5670MHz



<Chain 3>



IEEE 802.11ac VHT80 Mode / 5470 ~ 5725MHz
<Chain 0>**<Chain 1>**

5530MHz

Center 5.53 GHz 16 MHz/ Span 160 MHz

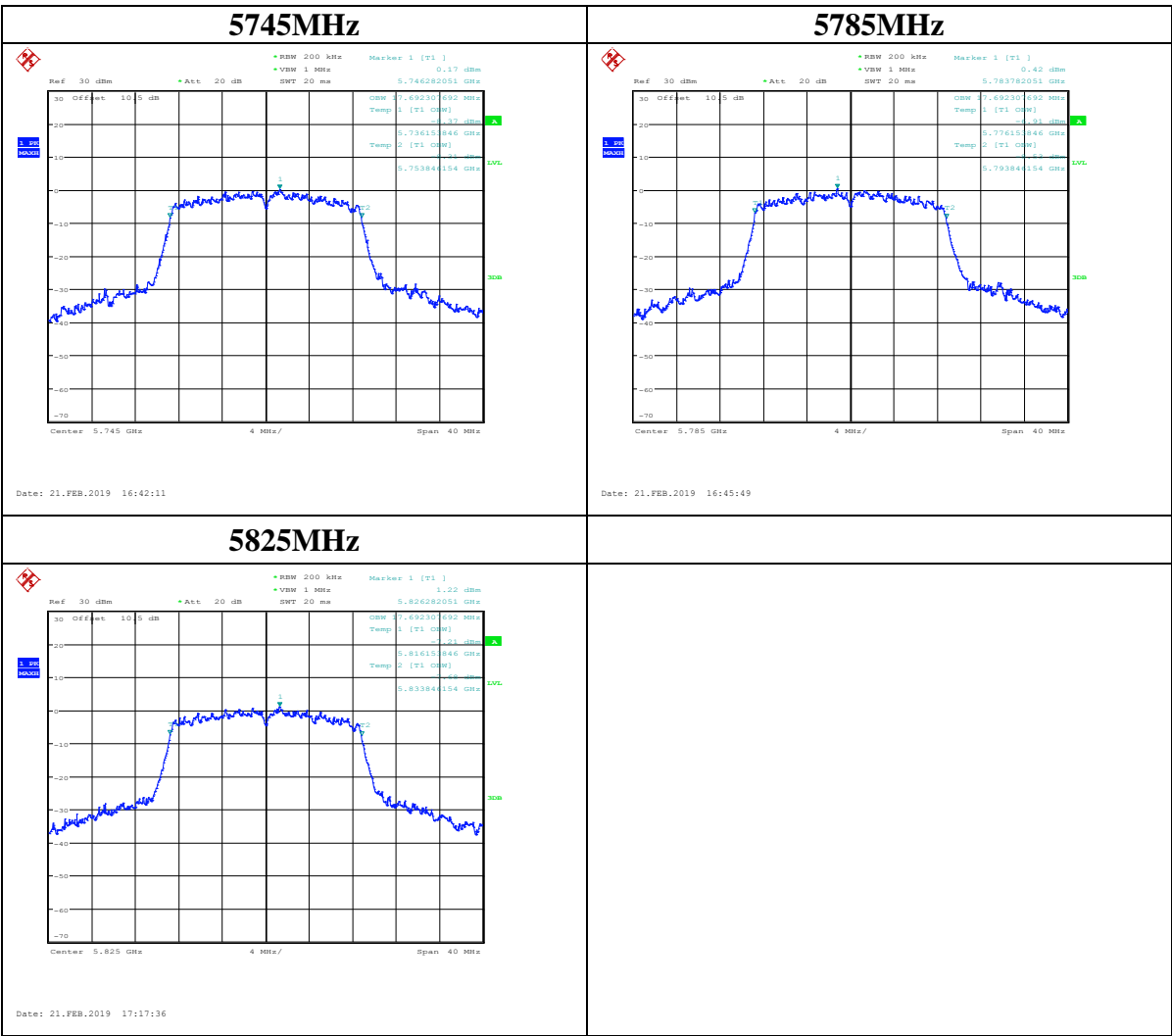
5610MHz

Center 5.61 GHz 16 MHz/ Span 160 MHz

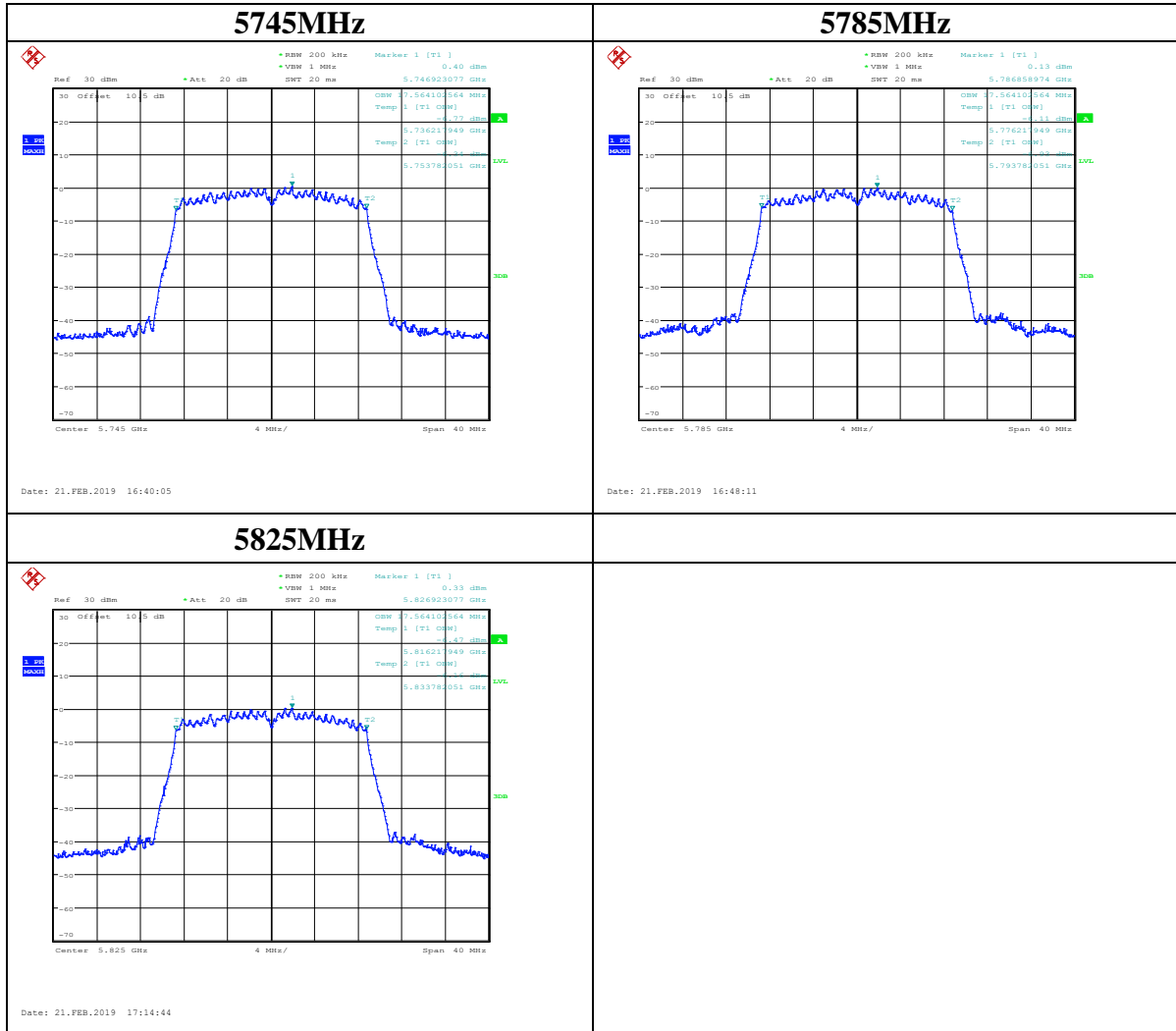
[illegible]

UNII-3 Band IV / OBW 99%
IEEE 802.11a Mode / 5725 ~ 5850MHz

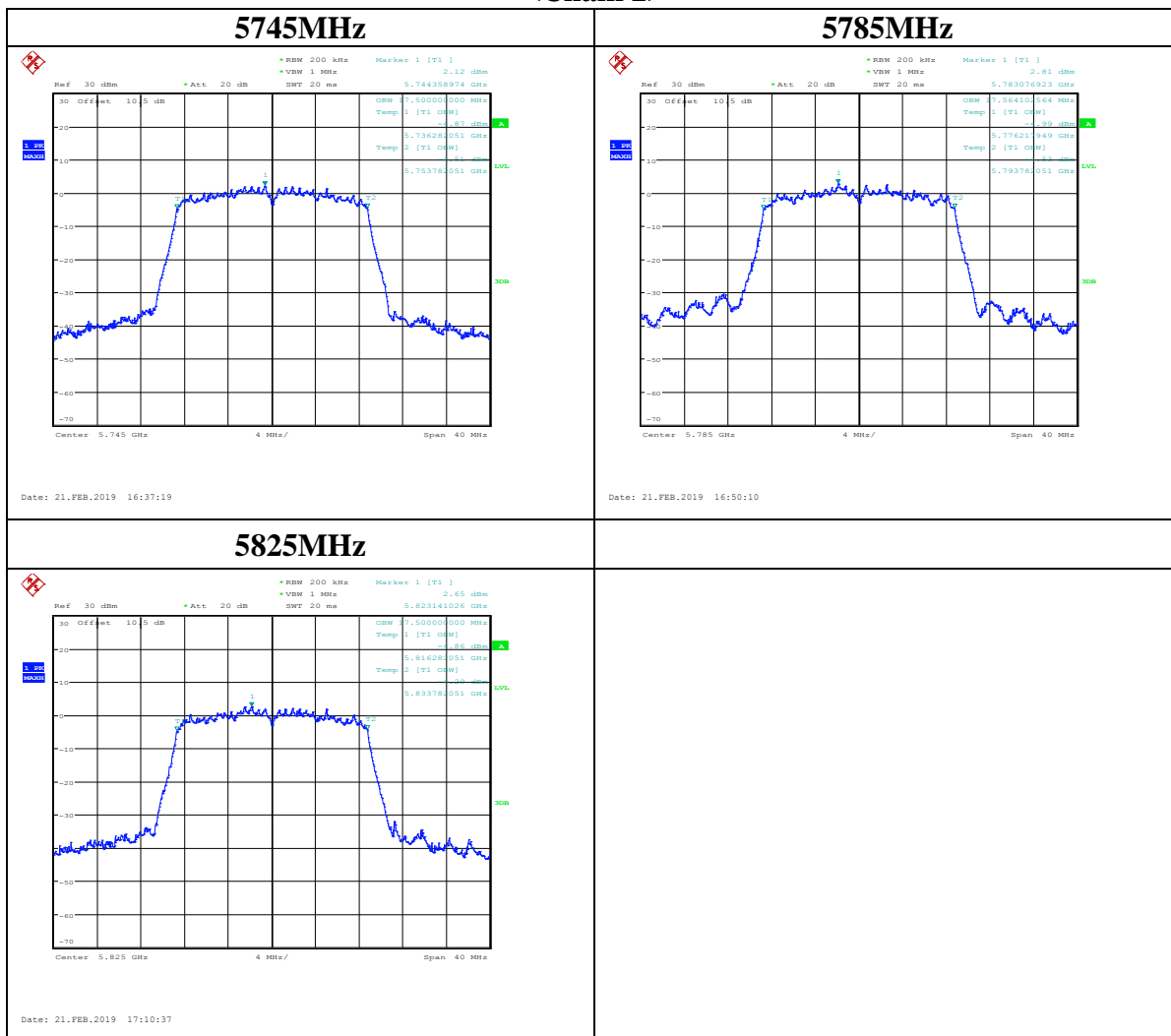
<Chain 0>



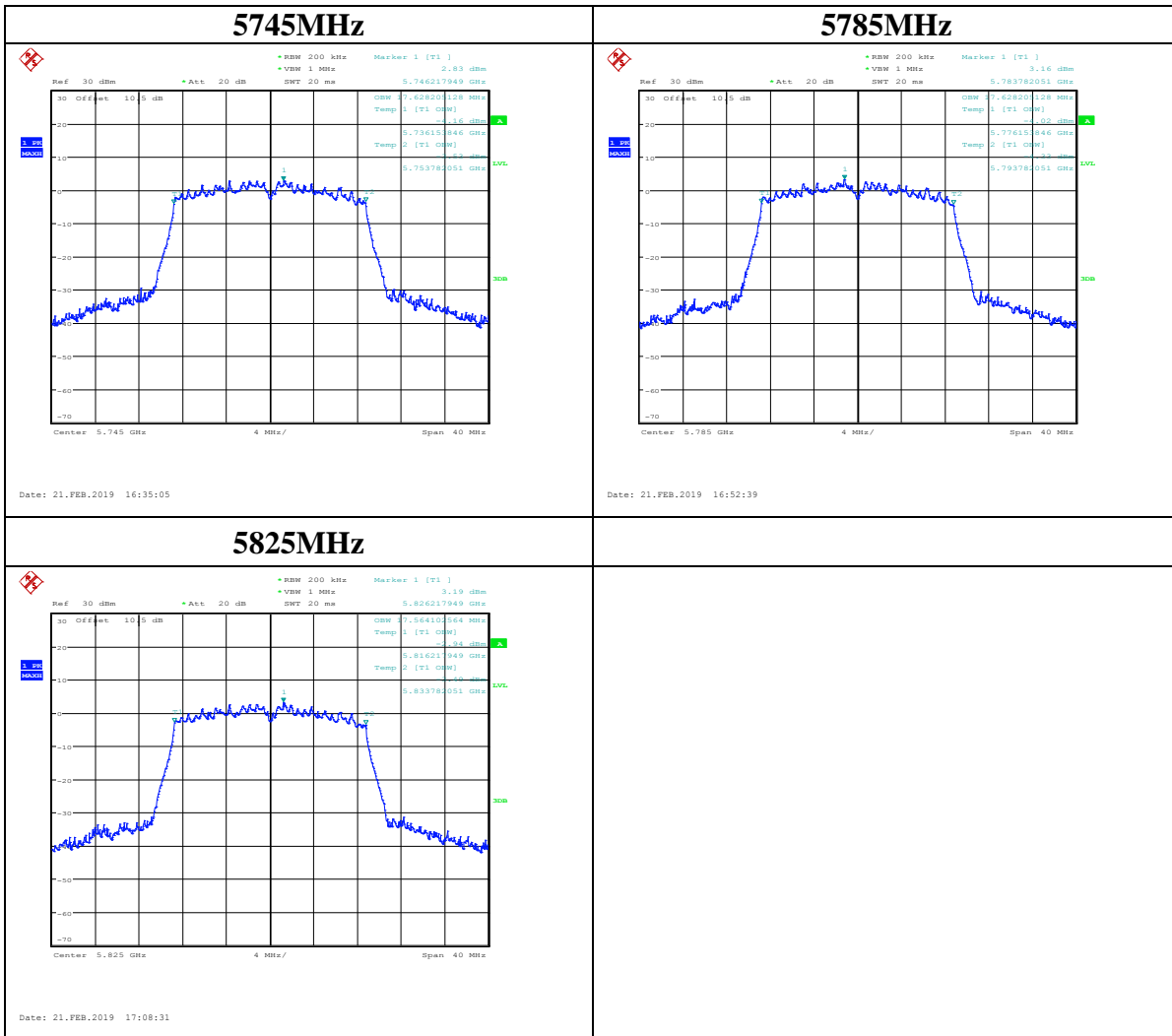
<Chain 1>

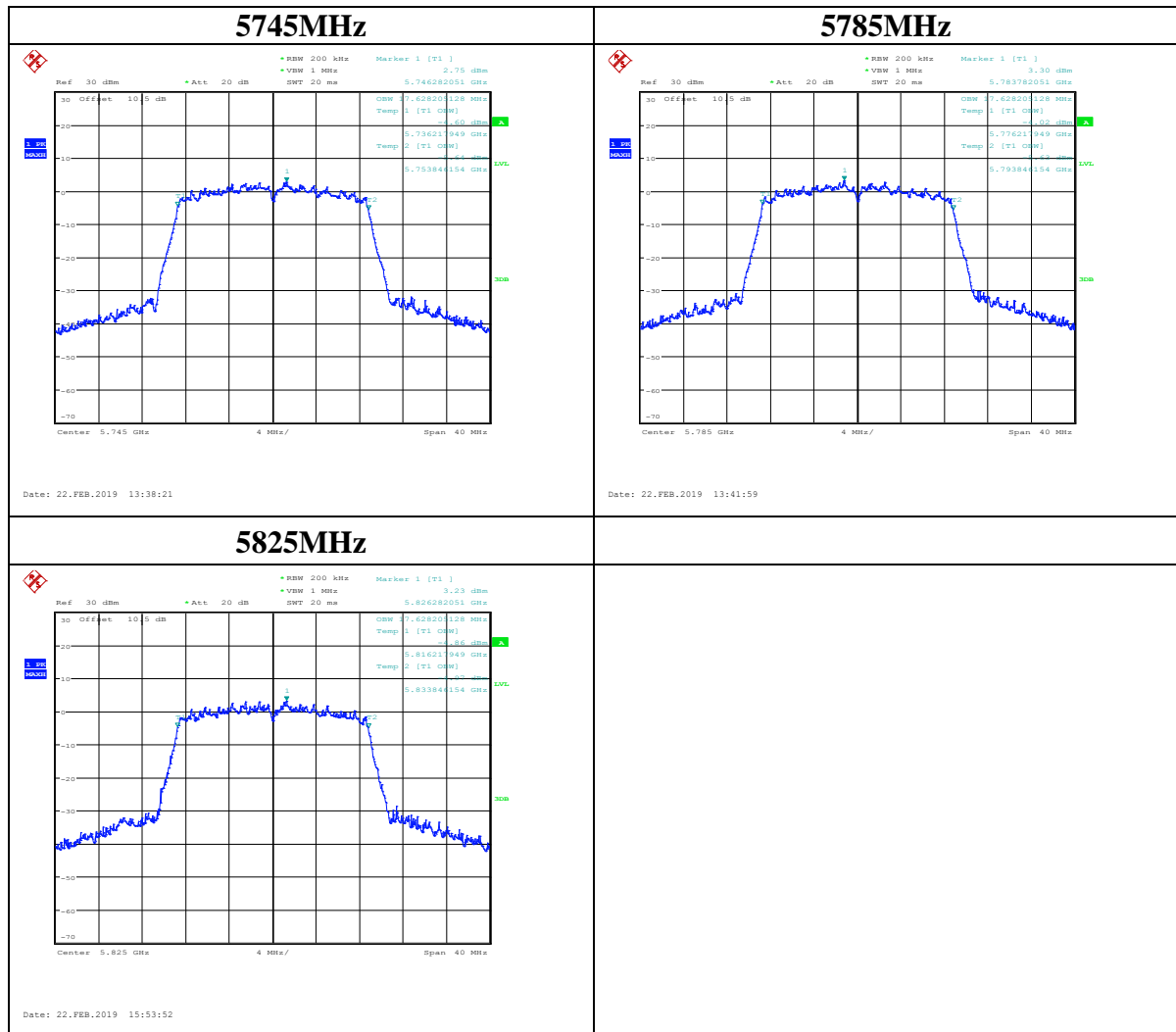


<Chain 2>

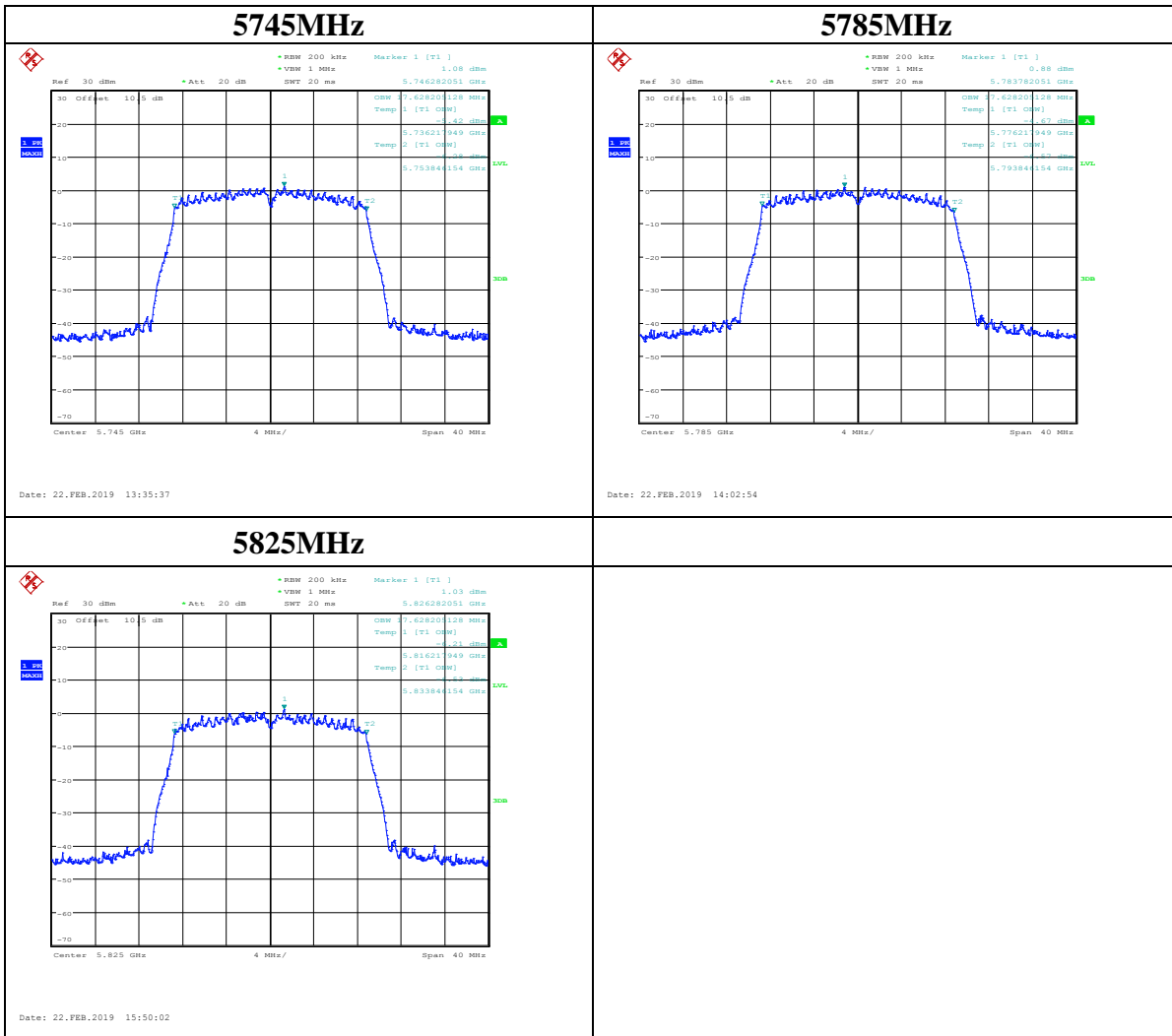


<Chain 3>



IEEE 802.11ac VHT20 Mode / 5725 ~ 5850MHz
<Chain 0>

<Chain 1>



[illegible]

5745MHz

Ref 30 dBm Att 20 dB SWT 20 ms Marker 1 [T1] 3.61 dBm 5.74550000 GHz

RBW 200 kHz VBW 1 MHz

Center 5.745 GHz 4 MHz/ Span 40 MHz

Date: 22.FEB.2019 13:24:14

5785MHz

Ref 30 dBm Att 20 dB SWT 20 ms Marker 1 [T1] 3.78 dBm 5.785780051 GHz

RBW 200 kHz VBW 1 MHz

Center 5.785 GHz 4 MHz/ Span 40 MHz

Date: 22.FEB.2019 15:14:44

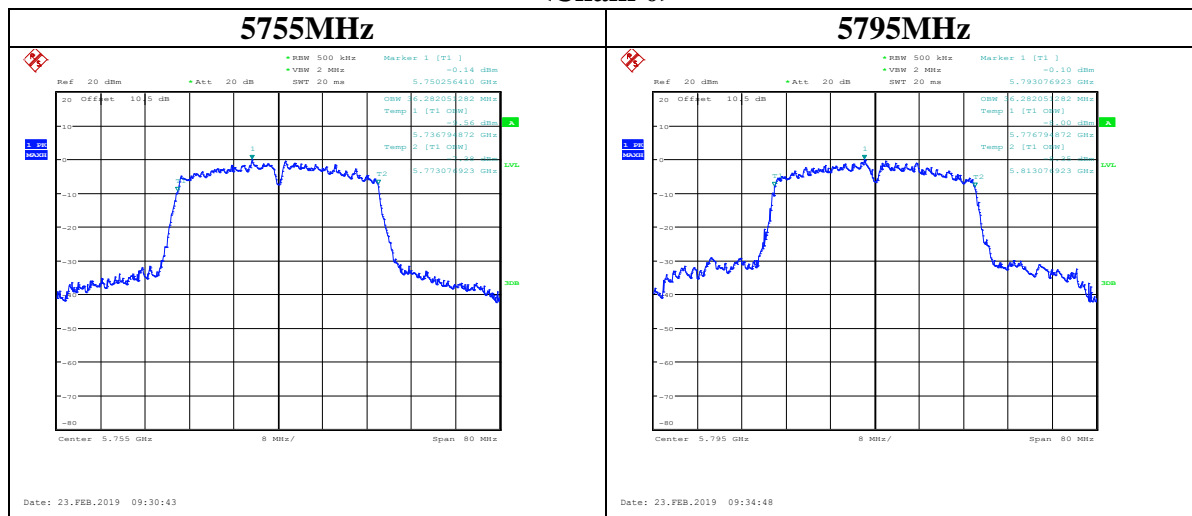
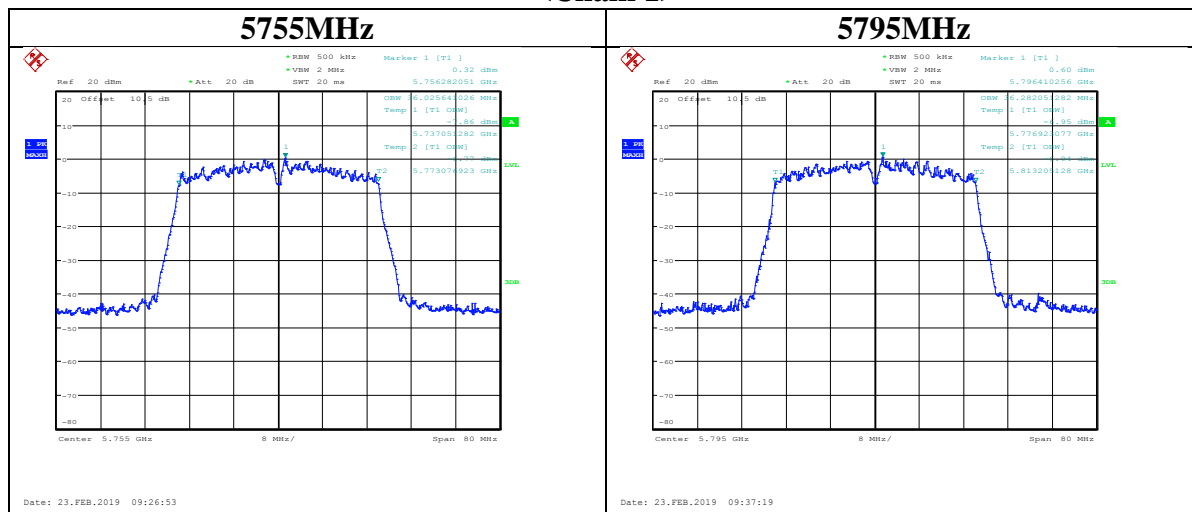
5825MHz

Ref 30 dBm Att 20 dB SWT 20 ms Marker 1 [T1] 4.04 dBm 5.822500000 GHz

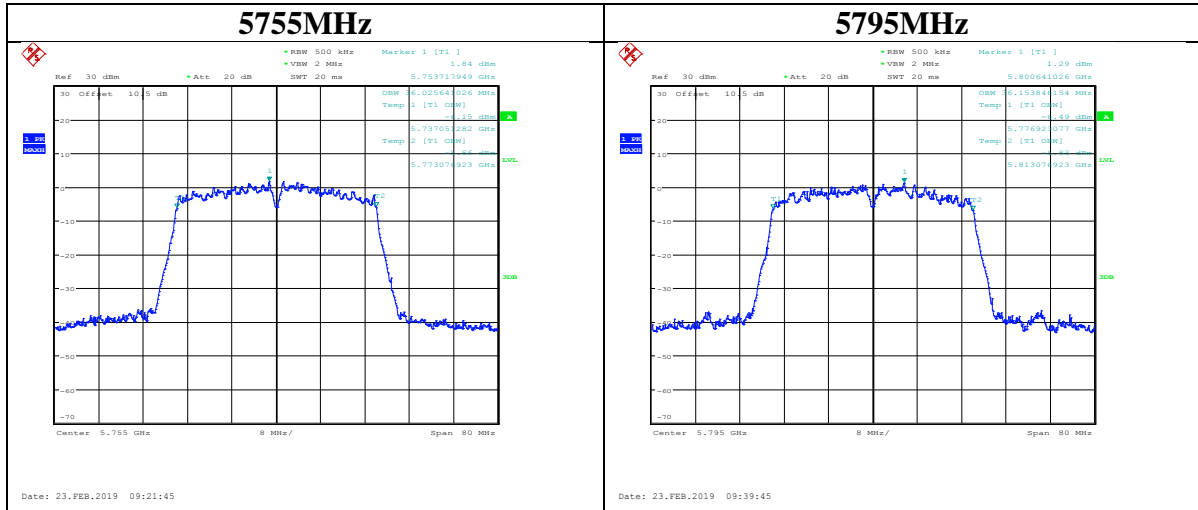
RBW 200 kHz VBW 1 MHz

Center 5.825 GHz 4 MHz/ Span 40 MHz

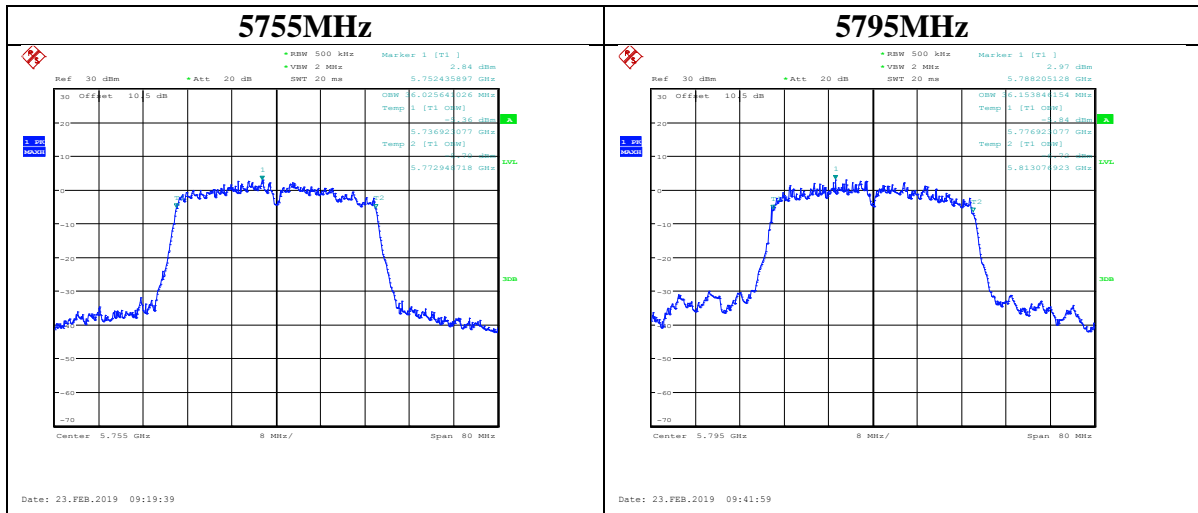
Date: 22.FEB.2019 15:40:48

IEEE 802.11ac VHT40 Mode / 5725 ~ 5850MHz
<Chain 0>**<Chain 1>**

<Chain 2>



<Chain 3>



[illegible]

10 FCC §15.407(a)(1),(2),(3) – Maximum Output Power

10.1 Applicable Standard

According to FCC §15.407(a):

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

10.2 Test Procedure

According to 789033 D02 General U-NII Test Procedures New Rules v02r01

The use Power Meter

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a Power sensor.

10.3 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	55 %
ATM Pressure:	1010 hPa

The testing was performed by Tom Hsu from 2019-02-21 to 2019-03-04.

10.4 Test Results

Test Mode: Transmitting

UNII Band	Mode	Channel	Frequency (MHz)	Maximum Conducted Average Output Power(dBm)					Duty Factor (dB)	Total Maximum Conducted Average Output Power With Duty Factor (dBm)	Limit (dBm)
				Chain 0	Chain 1	Chain 2	Chain3	Total			
UNII-1	802.11a	36	5180	4.04	6.73	5.69	5.81	11.69	0.97	12.66	23.5
		40	5200	4.27	6.73	6.75	6.09	12.09	0.97	13.06	23.5
		48	5240	4.09	6.27	5.98	6.19	11.74	0.97	12.71	23.5
UNII-2A		52	5260	4.34	7.58	6.72	6.52	12.46	0.97	13.43	23.5
		60	5300	4.85	6.7	6.97	6.72	12.41	0.97	13.38	23.5
		64	5320	4.3	7.29	6.93	7.22	12.61	0.97	13.58	23.5
UNII-2C		100	5500	5.05	6.74	6.65	8.91	13.08	0.97	14.05	23.5
		116	5580	5.58	7.42	7.66	7.53	13.15	0.97	14.12	23.5
		140	5700	4.72	5.11	6.91	7.92	12.38	0.97	13.35	23.5
UNII-3		149	5745	9.5	7.79	9.49	9.86	15.25	0.97	16.22	29.5
		157	5785	9.58	7.88	9.31	9.71	15.2	0.97	16.17	29.5
		165	5825	9.81	7.42	9.23	10.15	15.29	0.97	16.26	29.5
UNII-1	802.11 ac20	36	5180	2.7	5.85	6.16	4.66	11.06	2.68	13.74	23.5
		40	5200	3.57	5.91	6.13	5.18	11.33	2.68	14.01	23.5
		48	5240	3.51	5.39	5.54	5.53	11.09	2.68	13.77	23.5
UNII-2A		52	5260	2.03	6.21	5.88	4.98	11.07	2.68	13.75	23.5
		60	5300	3.23	6.16	6.44	4.86	11.37	2.68	14.05	23.5
		64	5320	3.63	5.91	6.03	4.89	11.24	2.68	13.92	23.5
UNII-2C		100	5500	5.19	1.07	1.43	8.16	10.98	2.68	13.66	23.5
		116	5580	5.46	1.42	1.49	7.93	10.98	2.68	13.66	23.5
		140	5700	5.57	2.73	1.68	8.18	11.31	2.68	13.99	23.5
UNII-3		149	5745	8.24	6.11	8.08	8.85	13.95	2.68	16.63	29.5
		157	5785	8.52	6.25	8.27	8.97	14.14	2.68	16.82	29.5
		165	5825	8.88	6.05	8.32	9.15	14.28	2.68	16.96	29.5

UNII Band	Mode	Channel	Frequency (MHz)	Maximum Conducted Average Output Power(dBm)					Duty Factor (dB)	Total Maximum Conducted Average Output Power With Duty Factor (dBm)	Limit (dBm)
				Chain 0	Chain 1	Chain 2	Chain3	Total			
UNII-1	802.11 ac 40	38	5190	7.62	4.71	3.77	8.21	12.49	3.98	16.47	23.5
		46	5230	7.73	4.3	3.45	8.26	12.44	3.98	16.42	23.5
UNII-2A		54	5270	7.87	5.32	4.41	8.31	12.8	3.98	16.78	23.5
		62	5310	8.04	5.24	4.16	8.71	12.95	3.98	16.93	23.5
UNII-2C		102	5510	1.32	7.01	6.95	9.17	12.92	3.98	16.90	23.5
		118	5590	4.26	7.33	7.29	8.76	13.21	3.98	17.19	23.5
		134	5670	5.26	7.26	7.06	8.21	13.09	3.98	17.07	23.5
UNII-3		151	5755	5.44	3	5.52	5.73	11.07	3.98	15.05	29.5
		159	5795	5.53	3.13	5.7	6.07	11.27	3.98	15.25	29.5
UNII-1	802.11 ac 80	42	5210	8.95	5.56	5.19	4.76	12.49	5.38	17.87	23.5
UNII-2A		58	5290	6.55	5.82	6.17	5.13	11.97	5.38	17.35	23.5
UNII-2C		106	5530	5.06	1.97	1.98	8.78	11.43	5.38	16.81	23.5
		122	5610	6.01	2.59	1.69	9	11.83	5.38	17.21	23.5
UNII-3		155	5775	4.75	3.21	4.64	5.29	10.56	5.38	15.94	29.5

According to FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For power measurements on IEEE 802.11 devices, Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

The device have four antenna, so array gain is 0 dB.

11 FCC § 15.407(a)(1),(2),(3) – Power Spectral Density

11.1 Applicable Standard

According to FCC §15.407(a):

For an indoor access point operating in the band 5.15-5.25GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6dBi.

In addition, the maximum power spectral density shall not exceed 17dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

11.2 Test Procedure

According to 789033 D02 General U-NII Test Procedures New Rules v02r01

For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the above procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5).

For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz.

Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth (i.e., 1 MHz,

or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

- a) Set $RBW \geq 1/T$, where T is defined in II.B.1.a).
- b) Set $VBW \geq 3$ RBW.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10 \log (500 \text{ kHz}/RBW)$ to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10 \log (1\text{MHz}/RBW)$ to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

11.3 Environmental Conditions

Temperature:	25 °C
Relative Humidity:	55 %
ATM Pressure:	1010 hPa

The testing was performed by Tom Hsu from 2019-02-21 to 2019-03-04.

11.4 Test Results

Test Mode: Transmitting

UNII Band	Mode	Channel	Frequency (MHz)	Maximum Power Spectral Density(dBm/MHz)					Duty Factor (dB)	Total Maximum Power Spectral DensityV with duty factor (dBm/MHz)	Limit (dBm/MHz)
				Chain 0	Chain 1	Chain 2	Chain3	Total			
UNII-1	802.11a	36	5180	-5.95	-2.83	-4.02	-3.94	1.97	0.97	2.94	4.48
		40	5200	-5.32	-2.86	-3.08	-3.5	2.43	0.97	3.40	4.48
		48	5240	-5.72	-3.37	-3.63	-3.48	2.07	0.97	3.04	4.48
	802.11 ac20	36	5180	-6.87	-3.55	-3.57	-4.97	1.48	2.68	4.16	4.48
		40	5200	-6.1	-3.57	-3.63	-4.51	1.68	2.68	4.36	4.48
		48	5240	-5.99	-4.08	-4.13	-4.39	1.44	2.68	4.12	4.48
	802.11 ac40	38	5190	-4.55	-7.84	-8.86	-4.56	-0.02	3.98	3.96	4.48
		46	5230	-4.81	-7.87	-9.1	-4.23	-0.02	3.98	3.96	4.48
	802.11 ac80	42	5210	-4.87	-8.14	-8.32	-9.26	-1.28	5.38	4.10	4.48
UNII-2A	802.11a	52	5260	-4.99	-2.13	-3.13	-3.28	2.75	0.97	3.72	4.48
		60	5300	-4.67	-3.32	-2.86	-3	2.61	0.97	3.58	4.48
		64	5320	-5.62	-2.31	-2.73	-2.56	2.9	0.97	3.87	4.48
	802.11 ac20	52	5260	-7.14	-3.2	-3.85	-3.86	1.75	2.68	4.43	4.48
		60	5300	-6.41	-3.45	-3.45	-4.76	1.66	2.68	4.34	4.48
		64	5320	-6	-3.44	-3.56	-4.85	1.68	2.68	4.36	4.48
	802.11 ac40	54	5270	-4.55	-7.25	-8.23	-4.2	0.29	3.98	4.27	4.48
		62	5310	-4.48	-7.18	-8.53	-3.86	0.41	3.98	4.39	4.48
	802.11 ac80	58	5290	-7.12	-7.82	-7.42	-8.8	-1.72	5.38	3.66	4.48
UNII-2C	802.11a	100	5500	-4.93	-3	-3.53	-0.56	3.31	0.97	4.28	4.48
		116	5580	-4.05	-2.17	-2.22	-1.97	3.49	0.97	4.46	4.48
		140	5700	-5.02	-4.22	-2.26	-1.34	3.06	0.97	4.03	4.48
	802.11 ac20	100	5500	-4.45	-8.51	-7.74	-1.56	1.36	2.68	4.04	4.48
		116	5580	-4.26	-8.05	-8.02	-1.73	1.34	2.68	4.02	4.48
		140	5700	-4.1	-7.01	-8.02	-1.62	1.57	2.68	4.25	4.48
	802.11 ac40	102	5510	-11.27	-5.55	-5.76	-3.25	0.38	3.98	4.36	4.48
		118	5590	-8.18	-5.33	-5.34	-4.24	0.47	3.98	4.45	4.48
		134	5670	-7.24	-5.49	-5.68	-4.28	0.47	3.98	4.45	4.48
	802.11 ac80	106	5530	-8.56	-11.96	-11.89	-4.96	-2.31	5.38	3.07	4.48
		122	5610	-7.64	-11.33	-11.78	-4.93	-1.98	5.38	3.40	4.48

UNII Band	Mode	Channel	Frequency (MHz)	Maximum Power Spectral Density(dBm/MHz)					Duty Factor (dB)	Total Maximum Power Spectral DensityV with duty factor (dBm/MHz)	Limit (dBm/MHz)
				Chain 0	Chain 1	Chain 2	Chain3	Total			
UNII-3	802.11a	149	5745	-1.77	-2.25	-0.28	0.91	5.35	0.97	6.32	23.48
		157	5785	-1.74	-2.48	-0.02	0.61	5.29	0.97	6.26	23.48
		165	5825	-1.32	-2.34	-0.18	0.71	5.39	0.97	6.36	23.48
	802.11 ac20	149	5745	0.5	-1.33	0.35	1.4	6.36	2.68	9.04	23.48
		157	5785	0.85	-1.45	0.69	1.12	6.43	2.68	9.11	23.48
		165	5825	0.78	-1.49	0.74	1.51	6.54	2.68	9.22	23.48
	802.11 ac40	151	5755	-6.31	-7.91	-5.16	-5.04	0.06	3.98	4.04	23.48
		159	5795	-5.95	-6.94	-5.1	-3.57	0.81	3.98	4.79	23.48
	802.11 ac80	155	5775	-7.41	-8.35	-5.52	-5.3	-0.44	5.38	4.94	23.48

The device is a client device. the 4 antenna maximum antenna gain are 6.5dBi, and employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for

Power spectral density (PSD) measurements on the devices:

Array Gain = $10 \log(N_{\text{ANT}}/N_{\text{SS}})$ dB.

So:

Directional gain = $G_{\text{ANT}} + \text{Array Gain} = 6.5 + 10 * \log(4) = 12.52$ dBi

The Power density Limits was reduce 6.52 dB

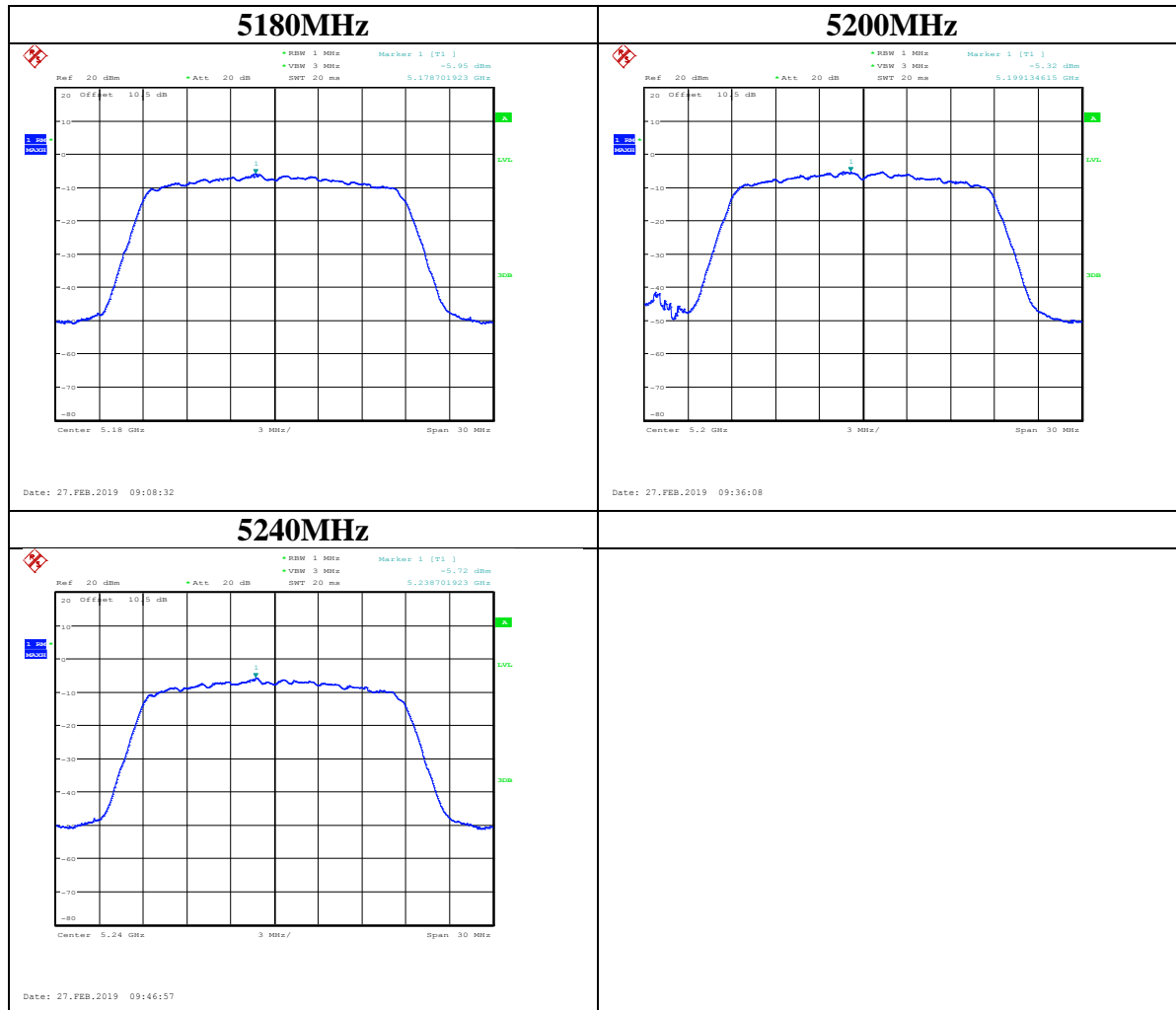
Please refer to the following plots

Test Mode: Transmitting

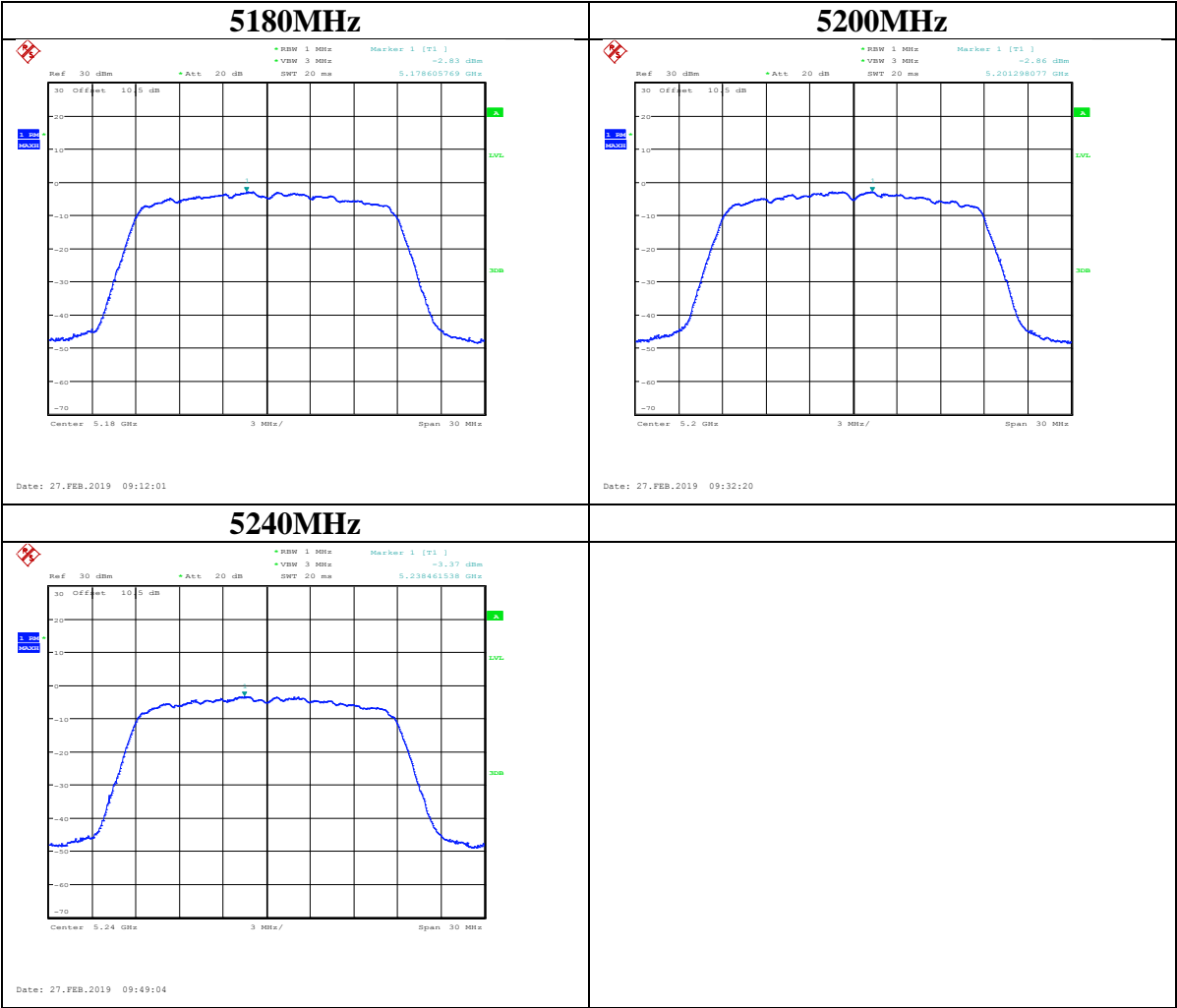
UNII-1 Band I PSD

IEEE 802.11a Mode / 5150 ~ 5250MHz

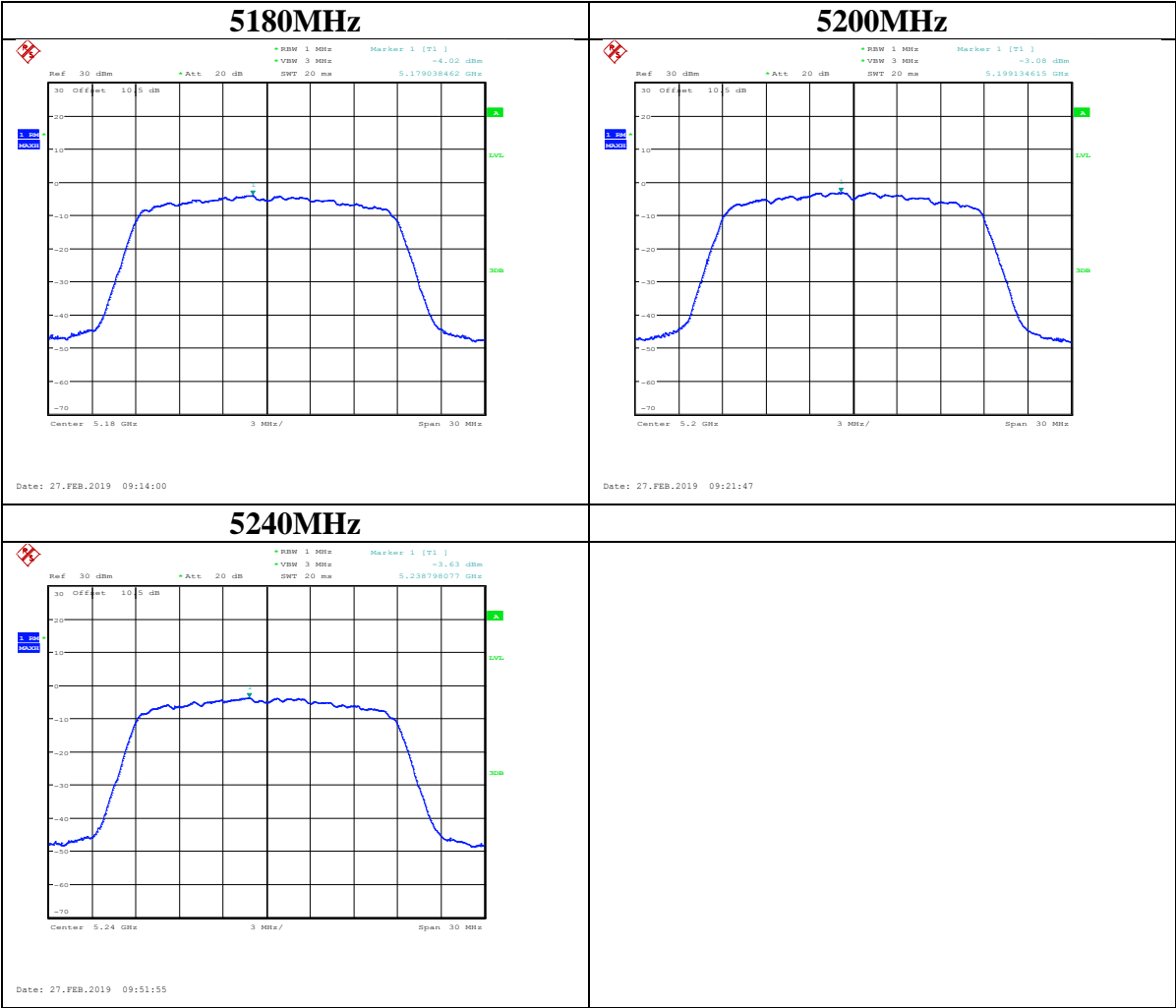
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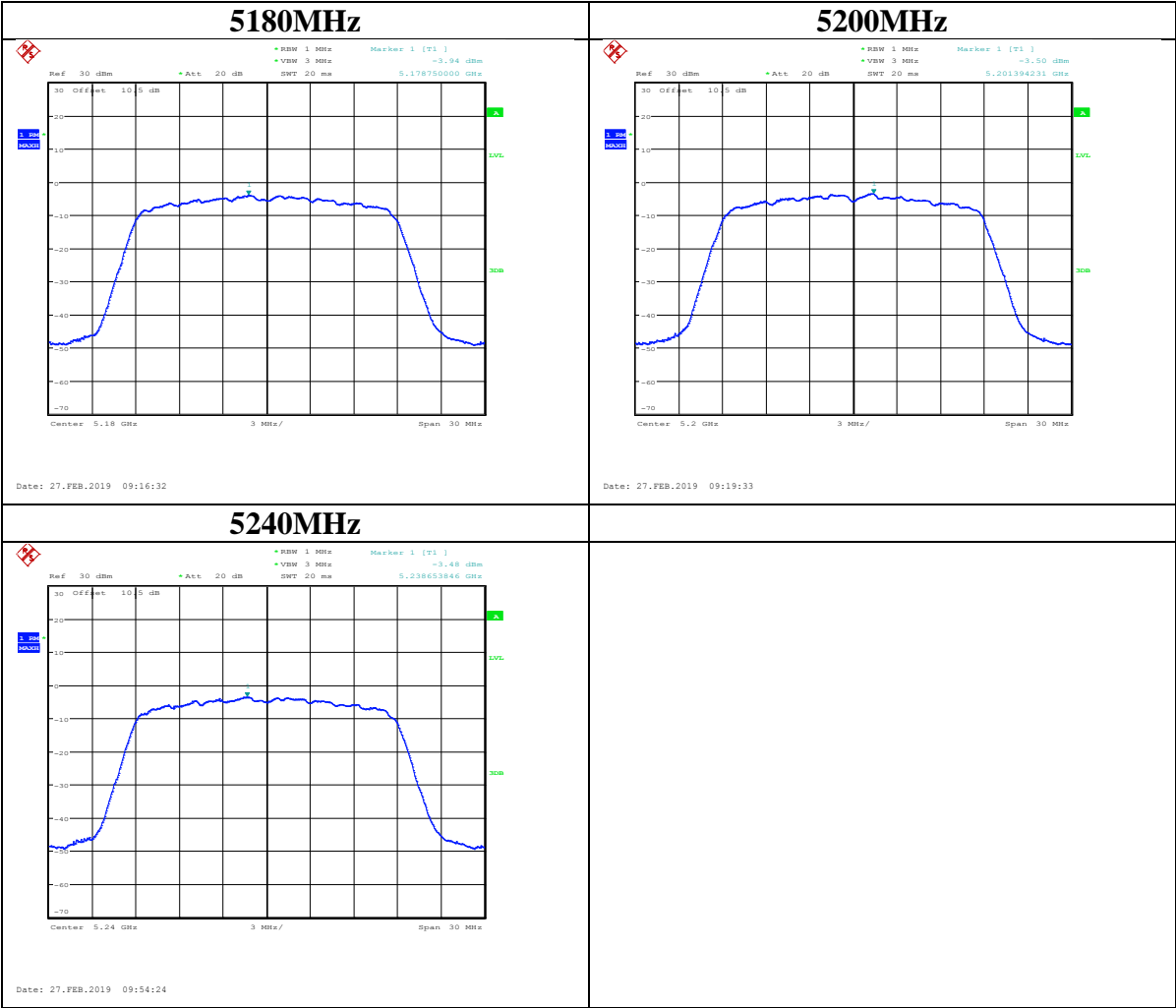
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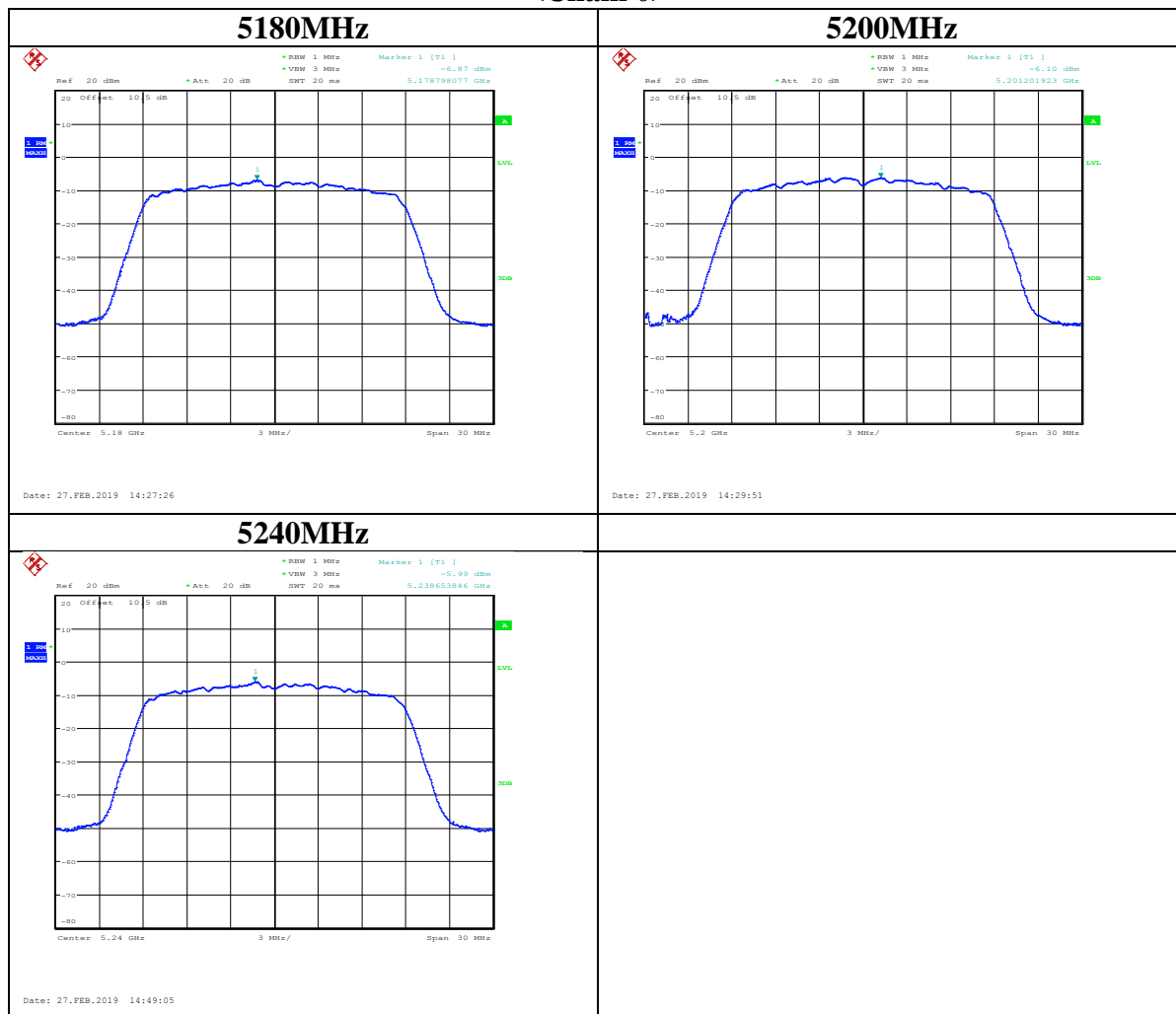


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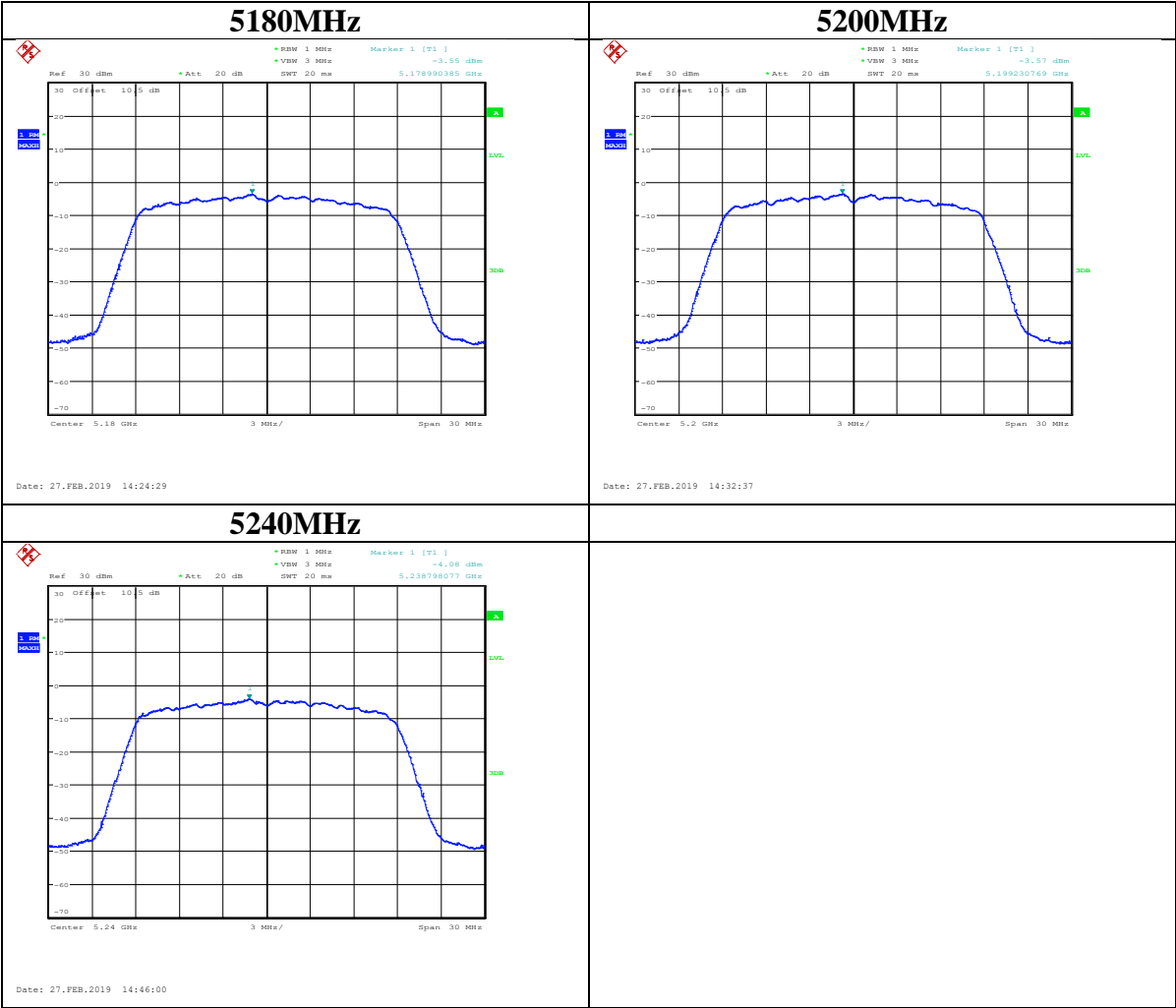


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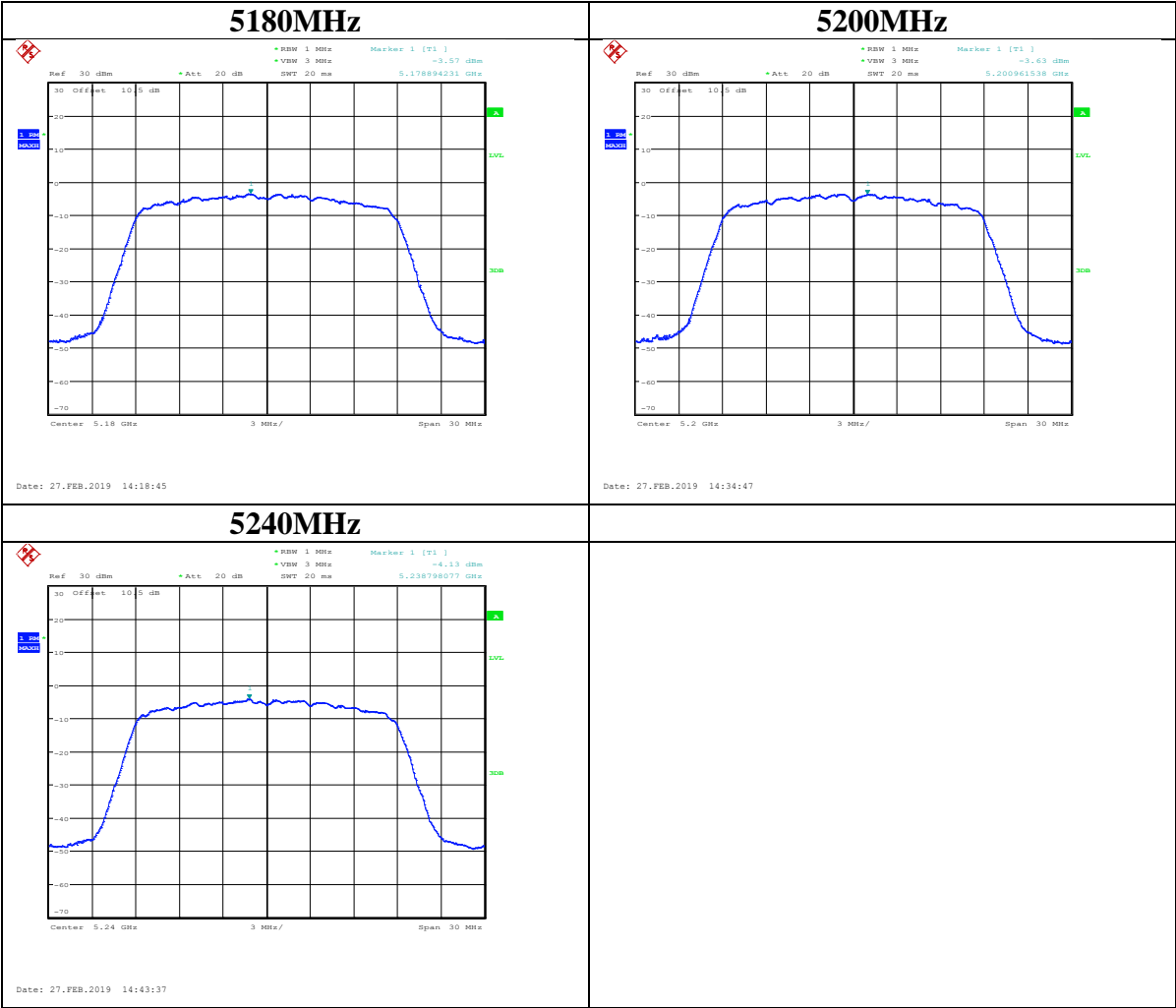


IEEE 802.11ac VHT20 Mode / 5150 ~ 5250MHz
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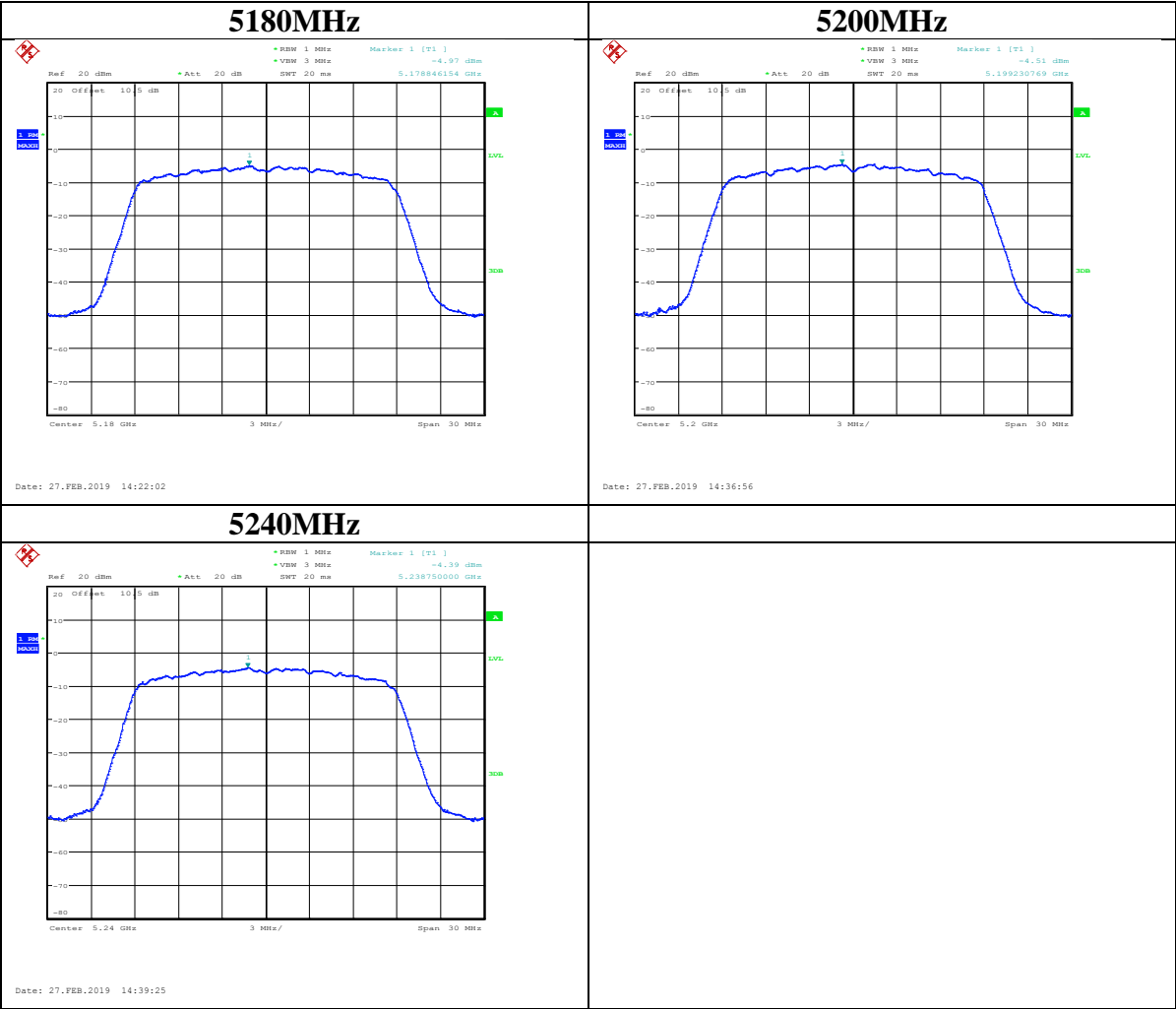
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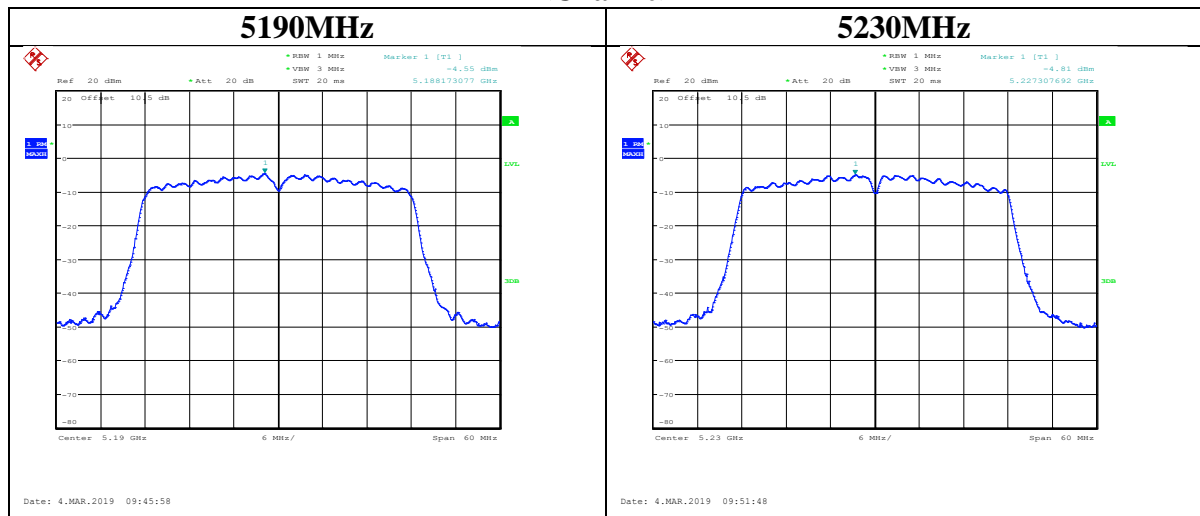
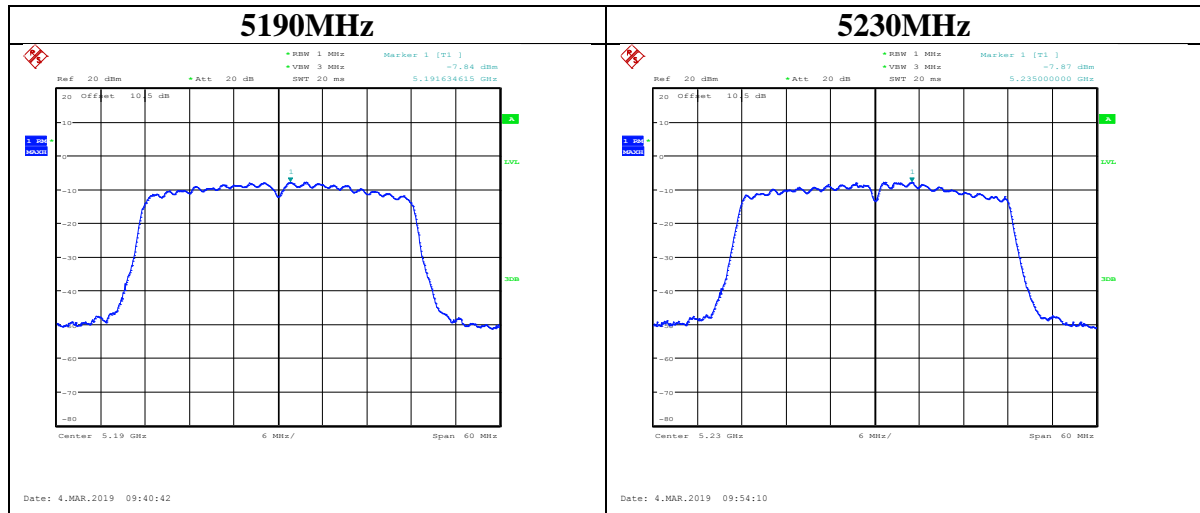


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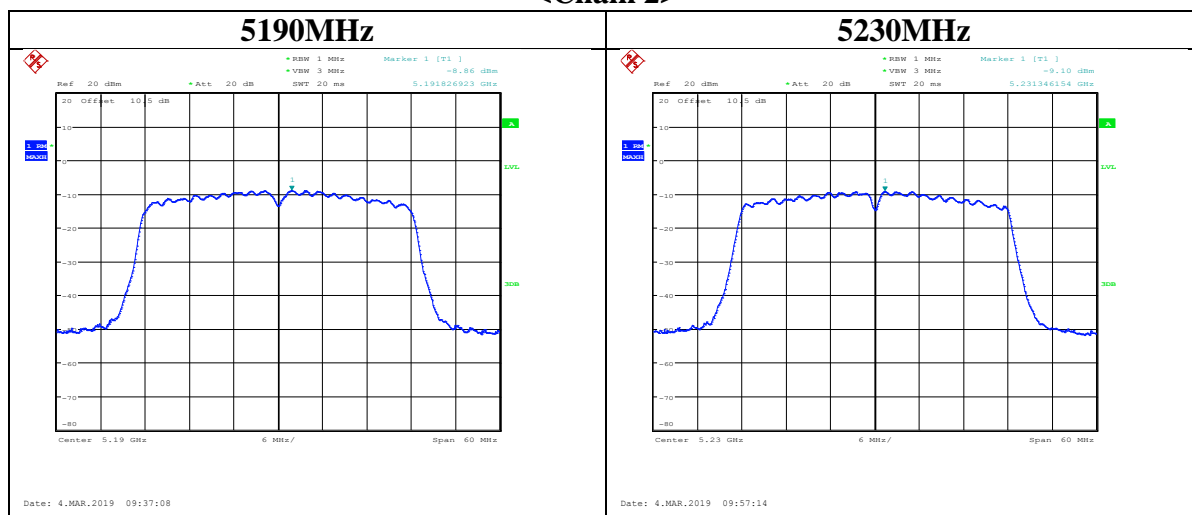


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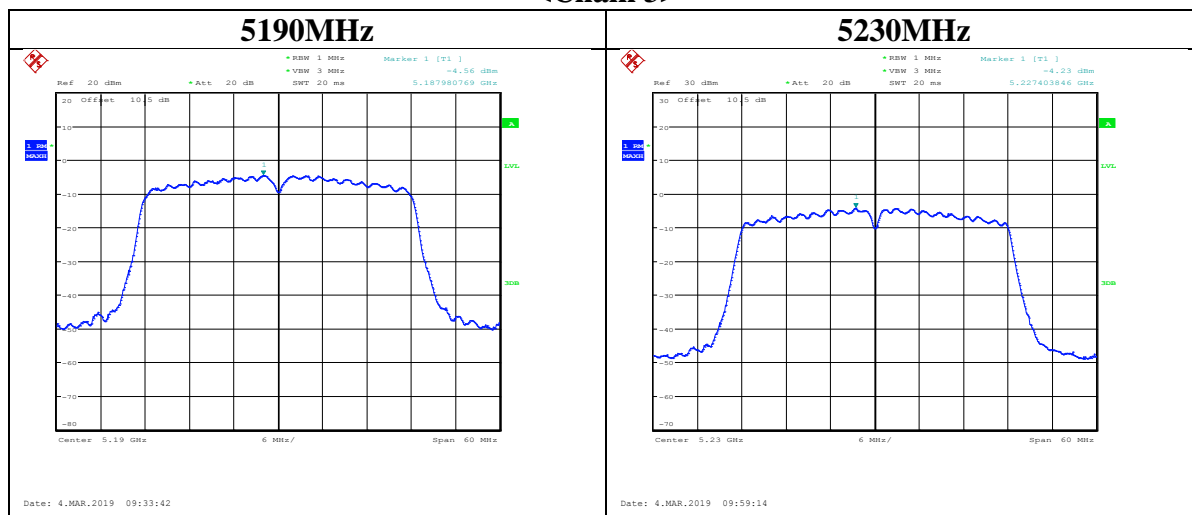


IEEE 802.11ac VHT40 Mode / 5150 ~ 5250MHz**<Chain 0>****<Chain 1>**

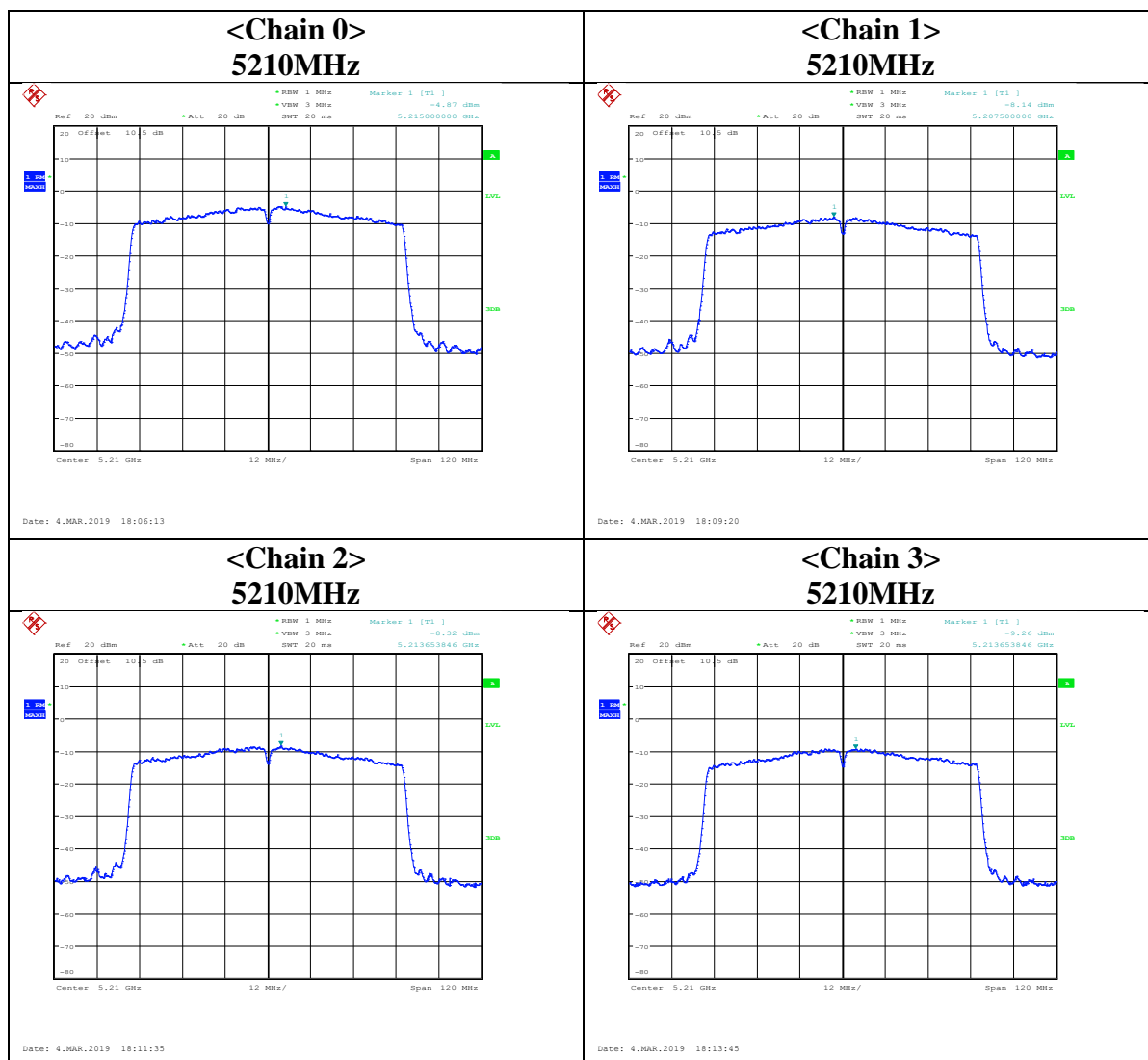
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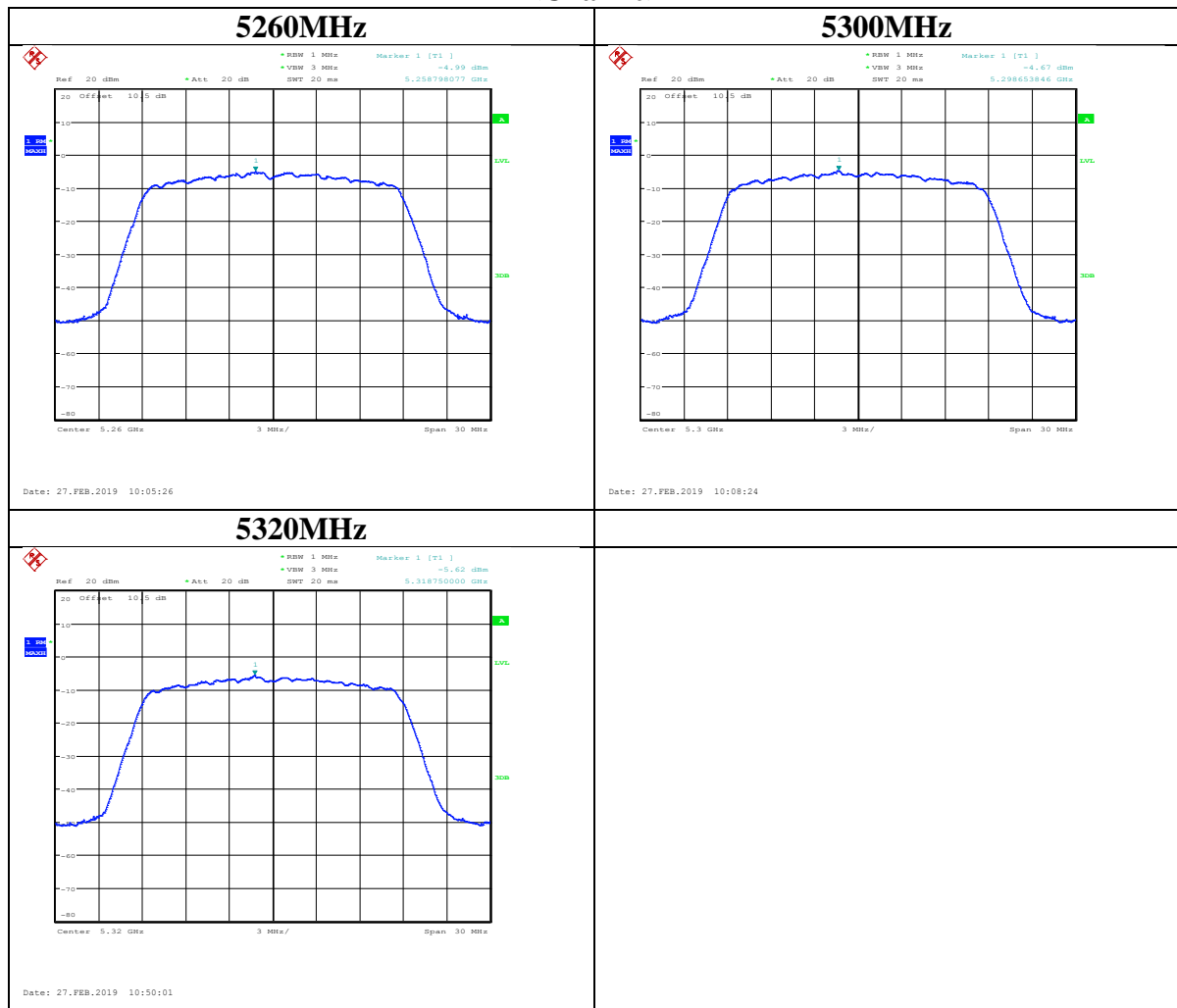


IEEE 802.11ac VHT80 Mode / 5150 ~ 5250MHz

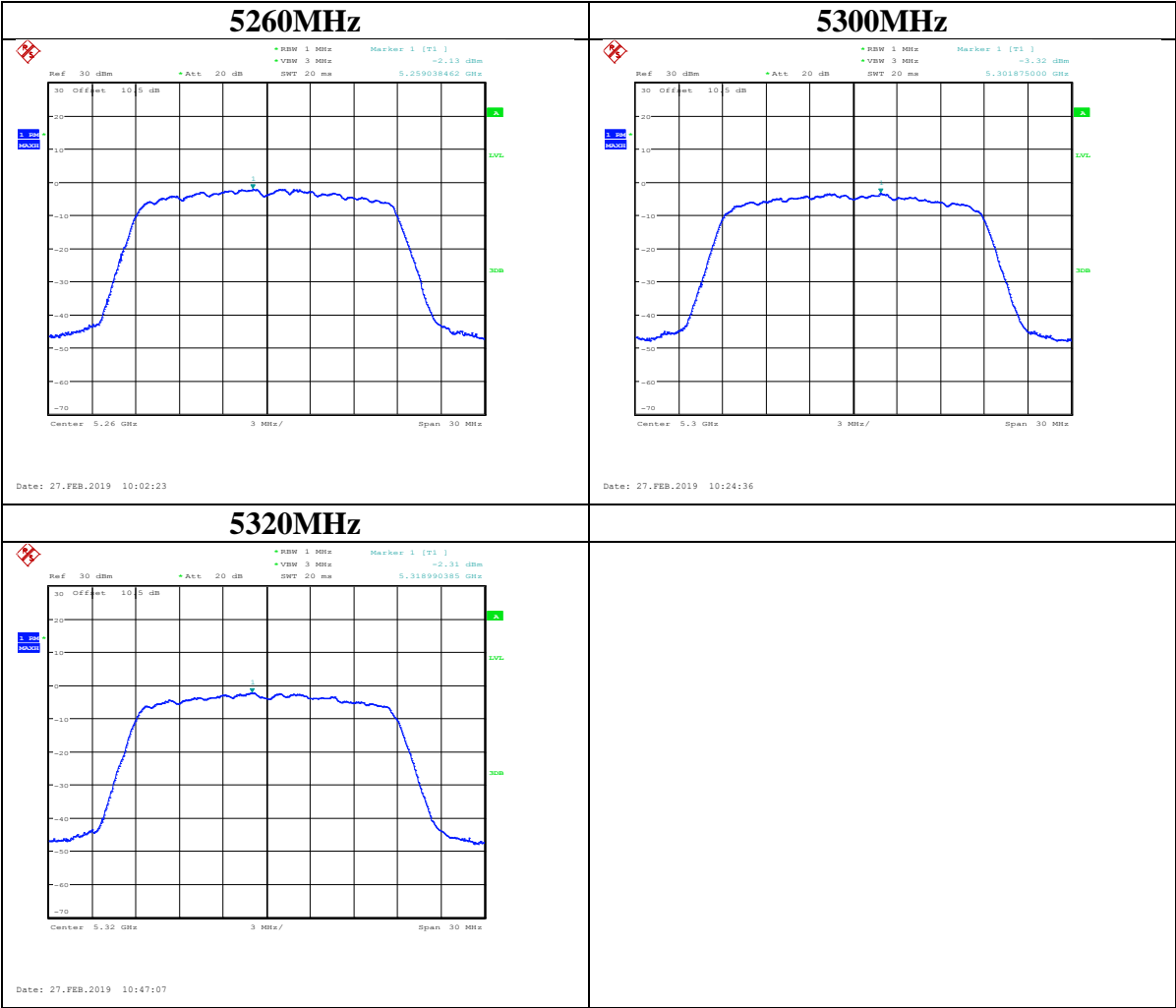


UNII-2A Band II PSD
IEEE 802.11a Mode / 5250 ~ 5350MHz

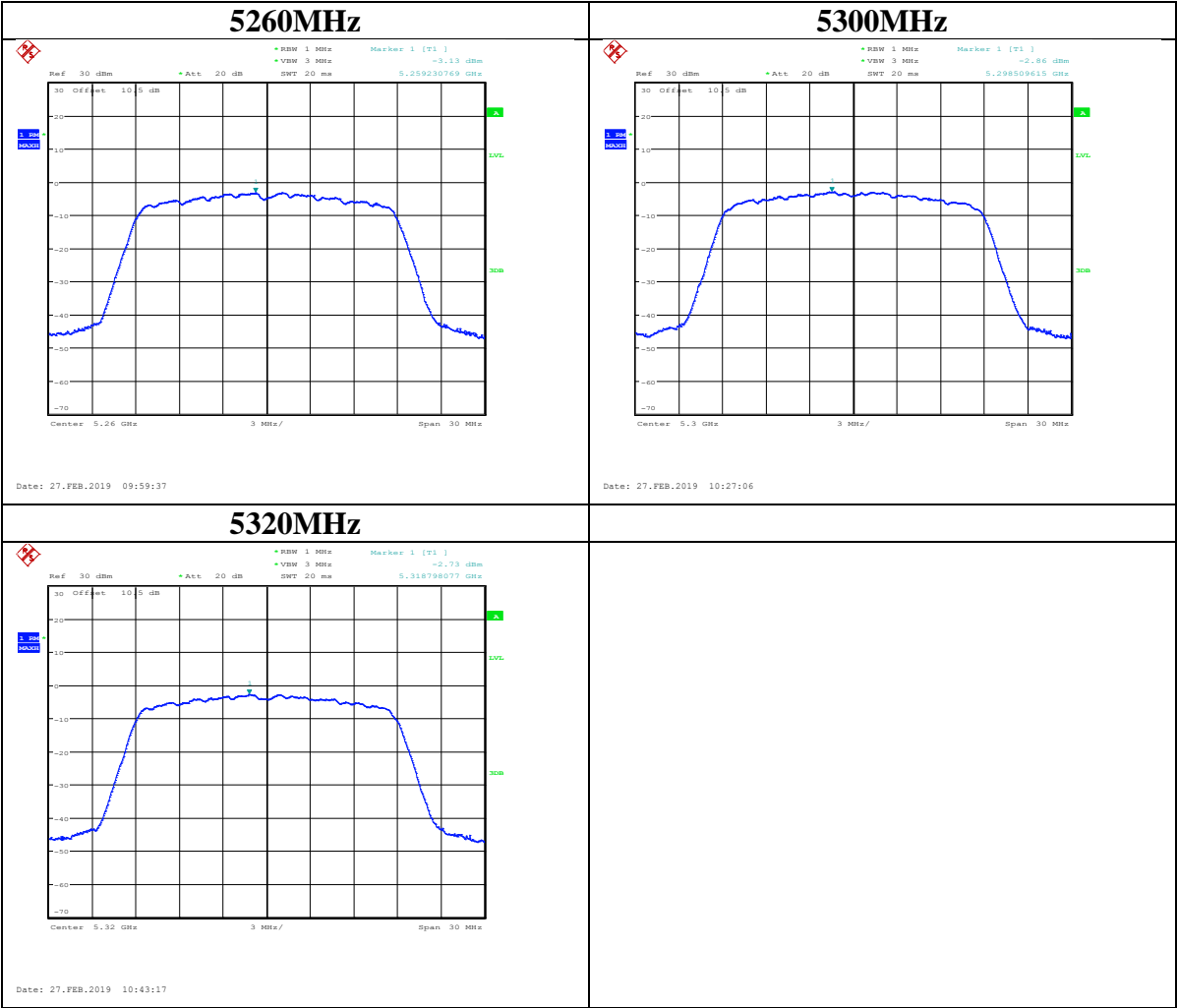
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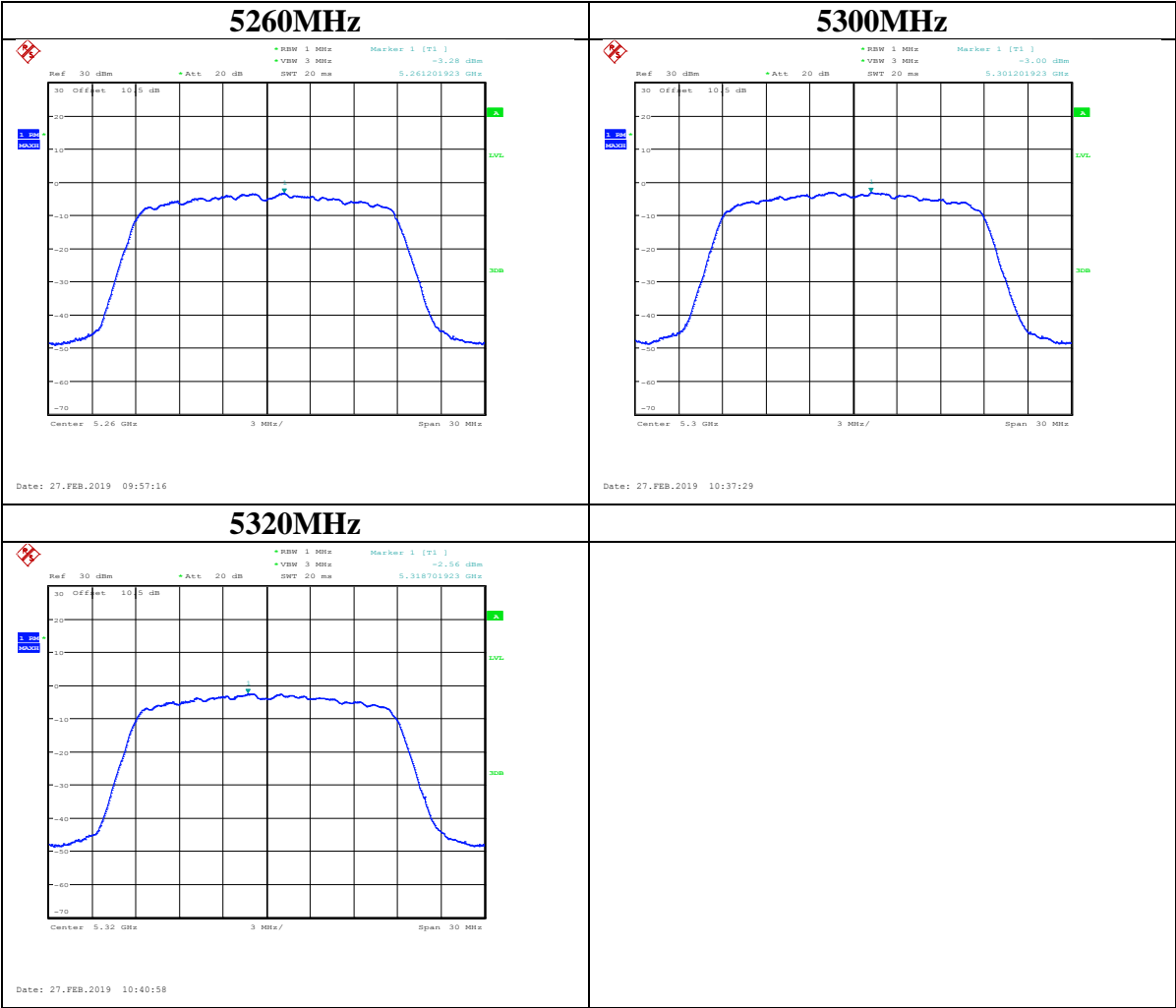
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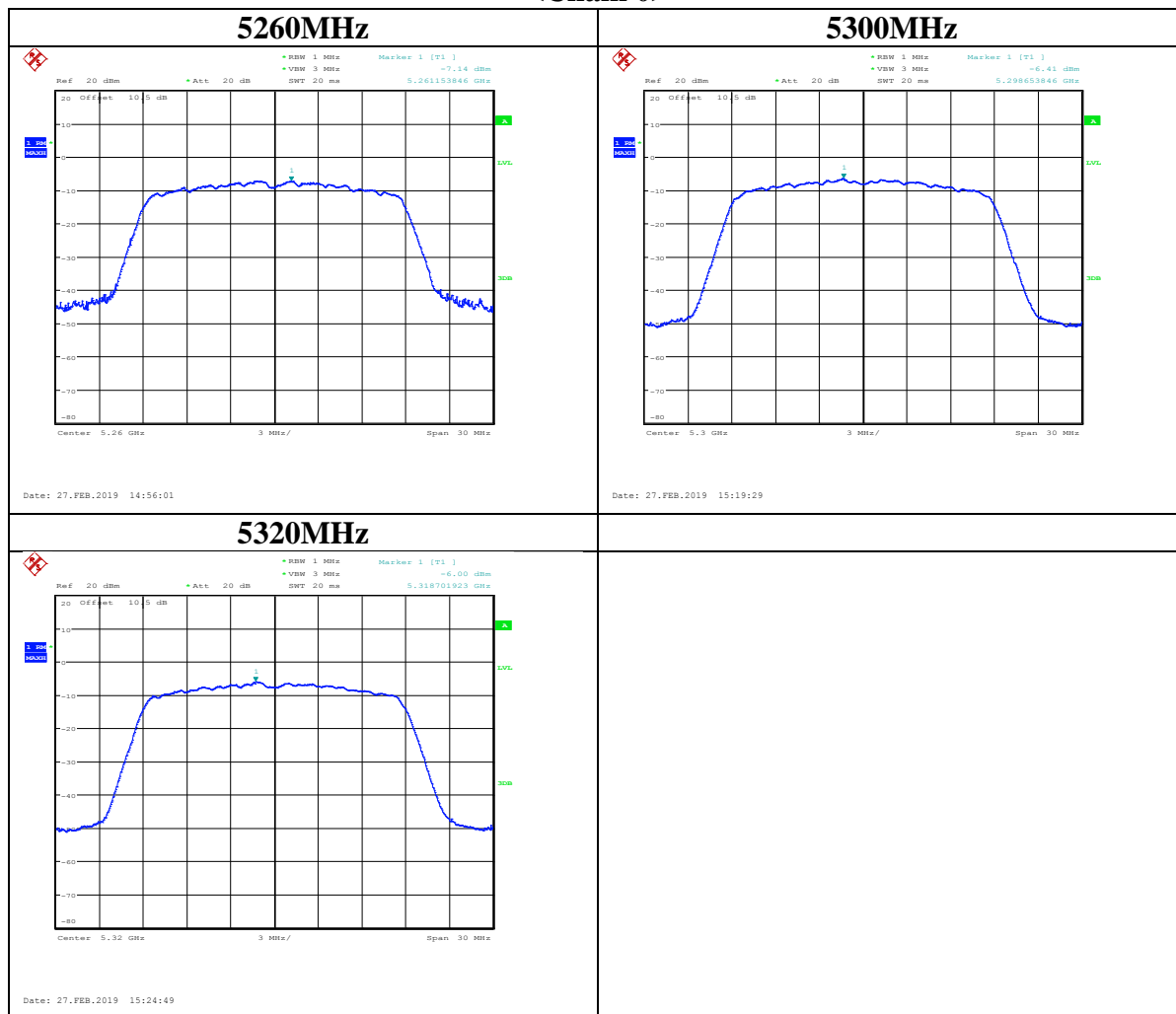


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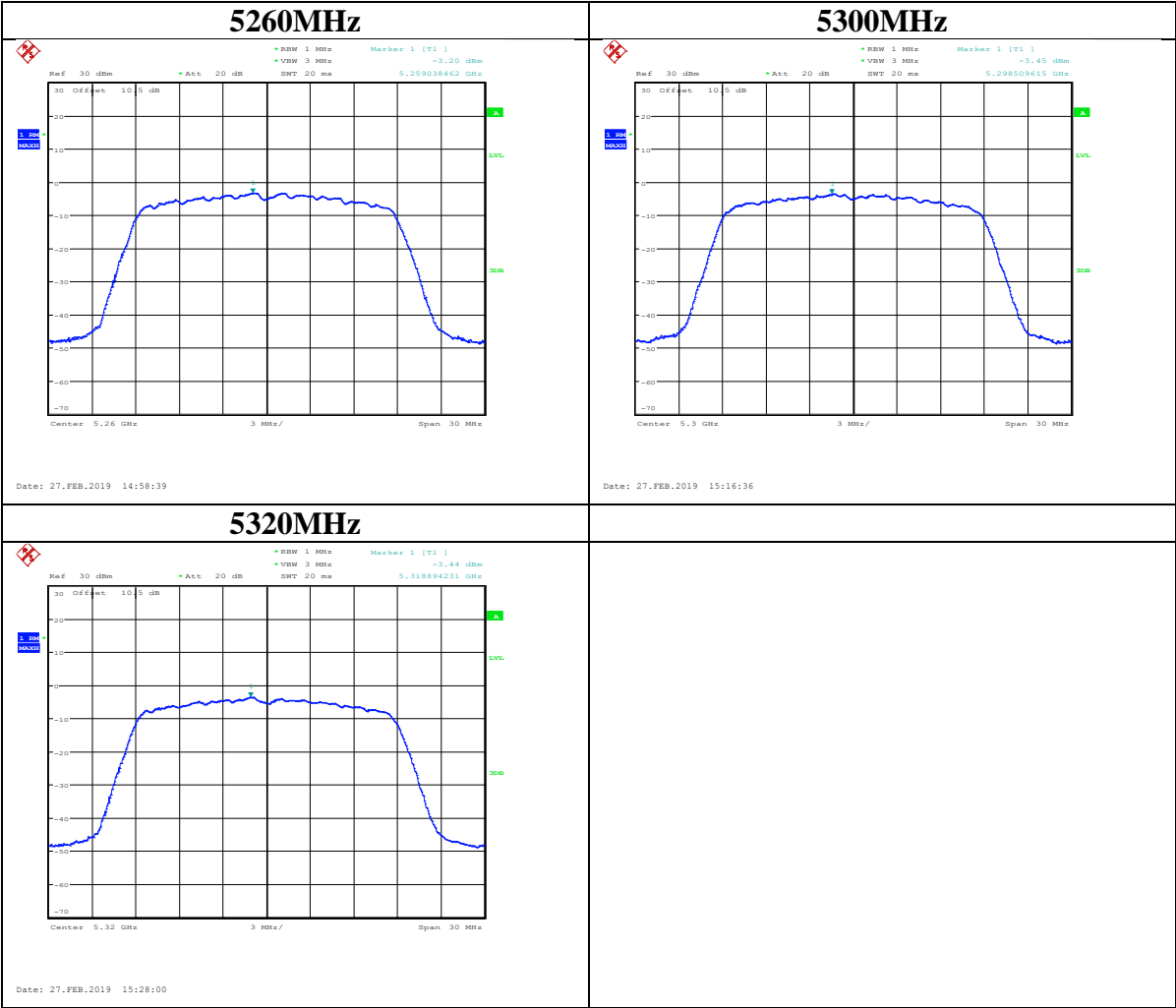


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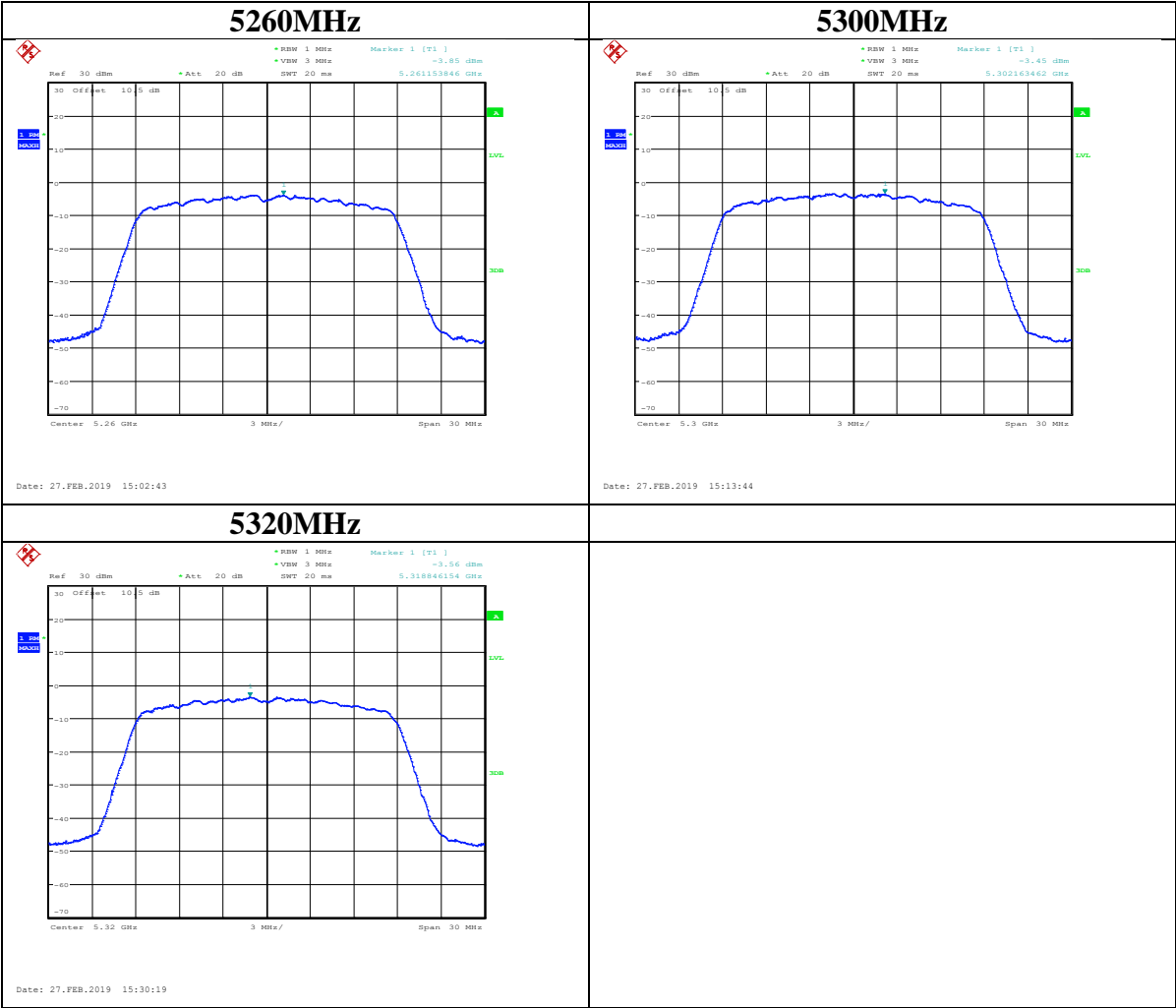


IEEE 802.11ac VHT20 Mode / 5250 ~ 5350MHz
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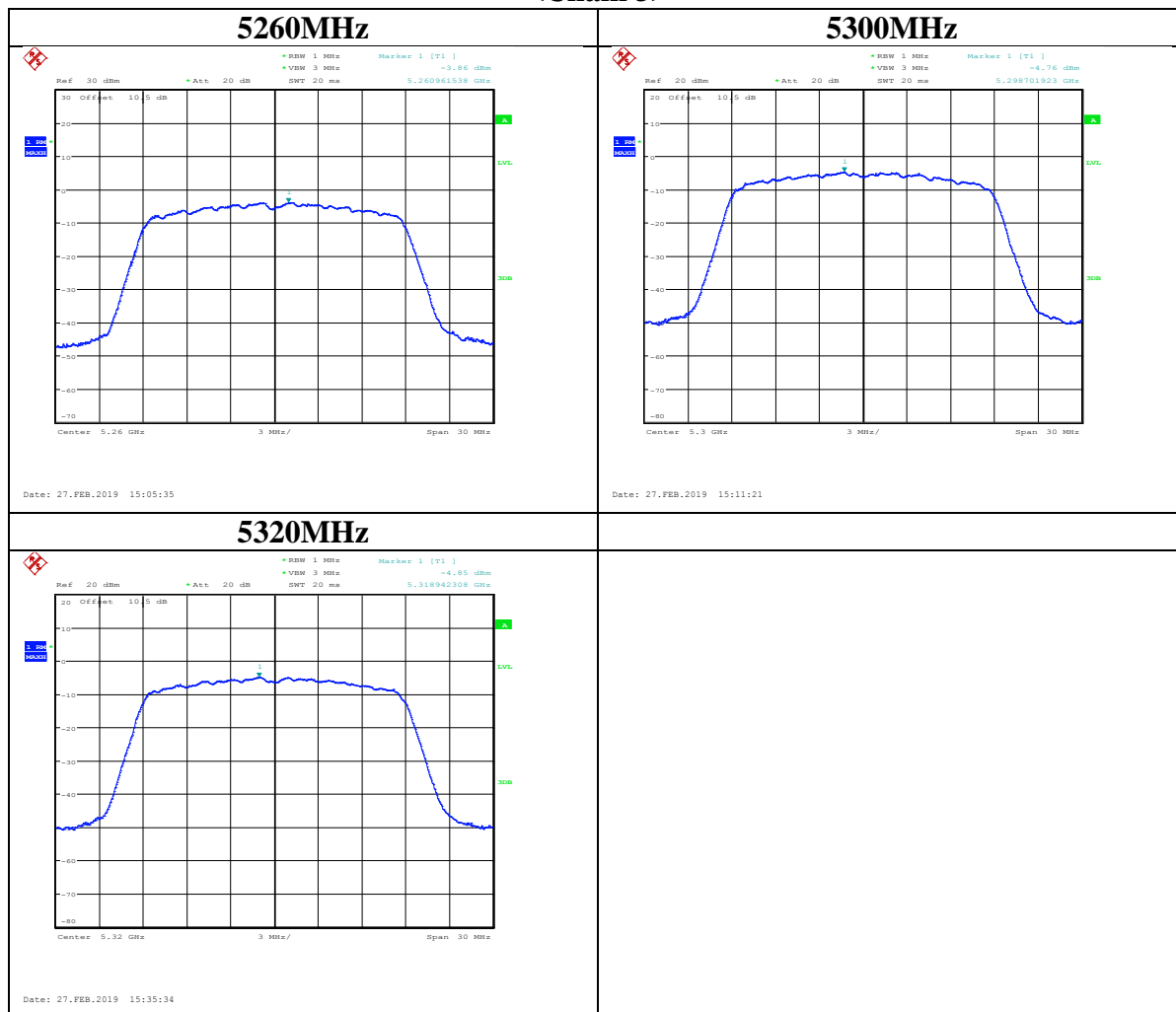
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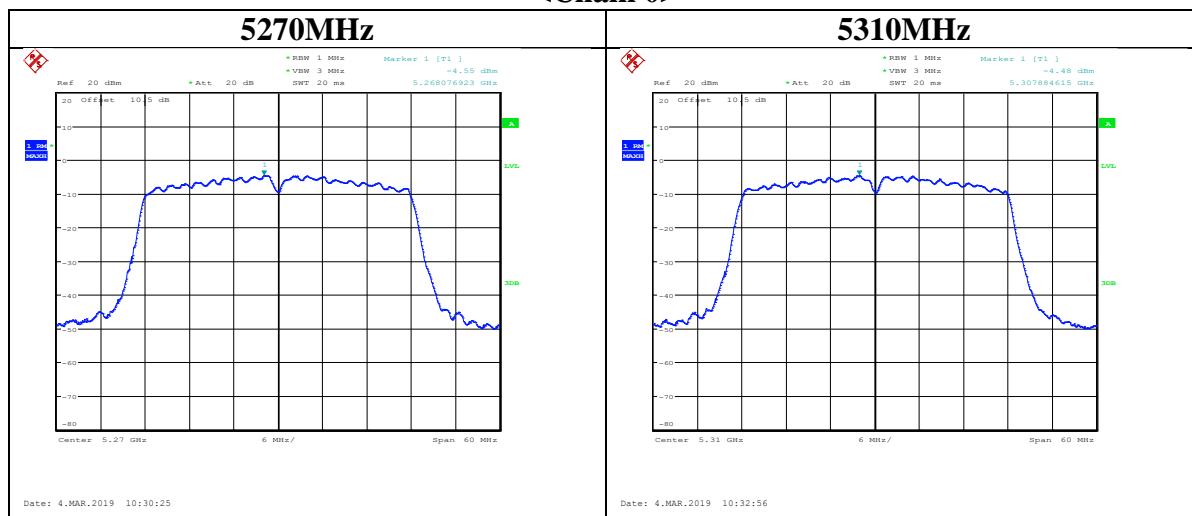


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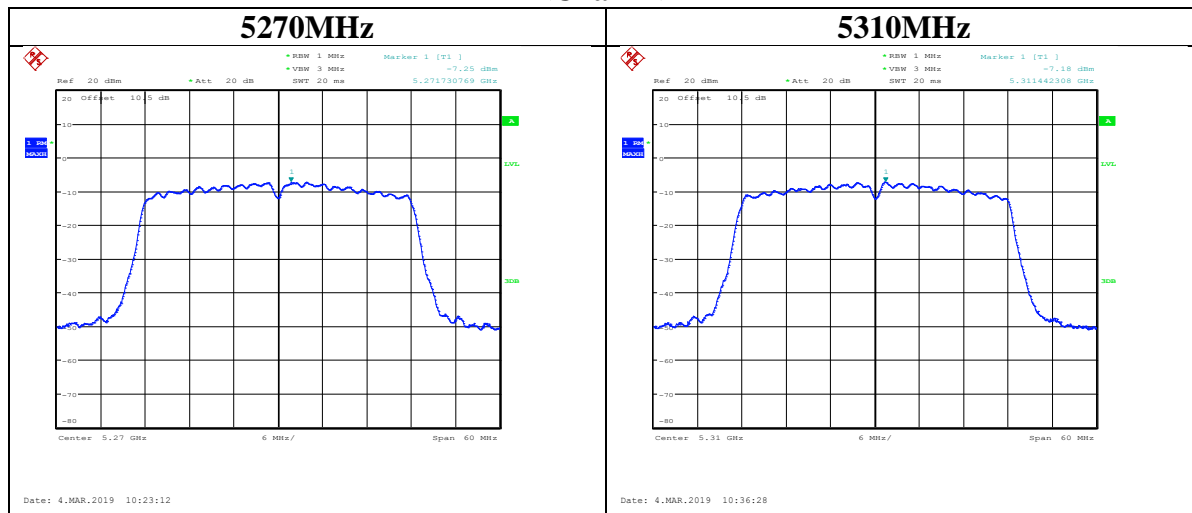


IEEE 802.11ac VHT40 Mode / 5250 ~ 5350MHz

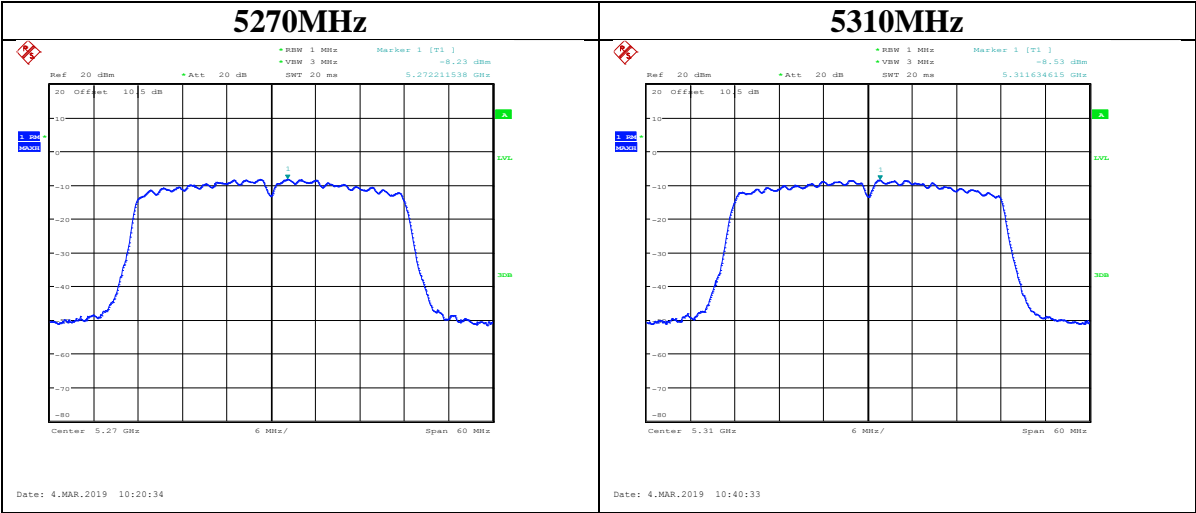
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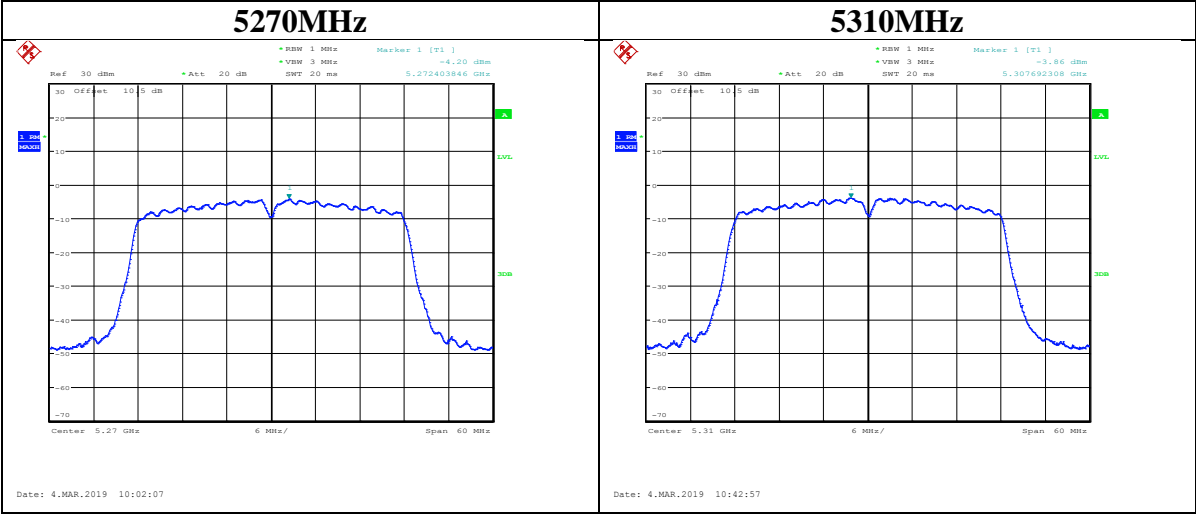
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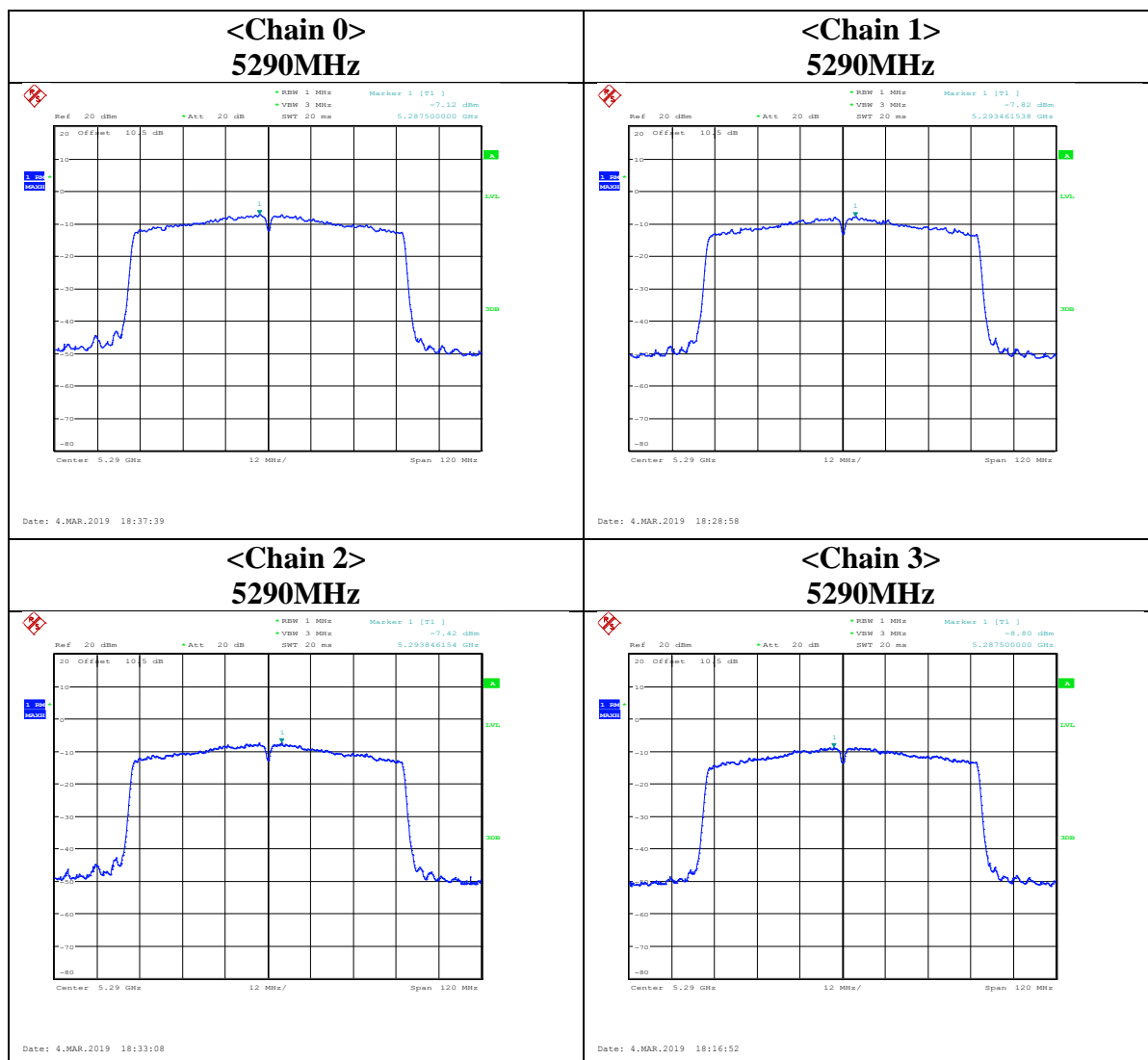
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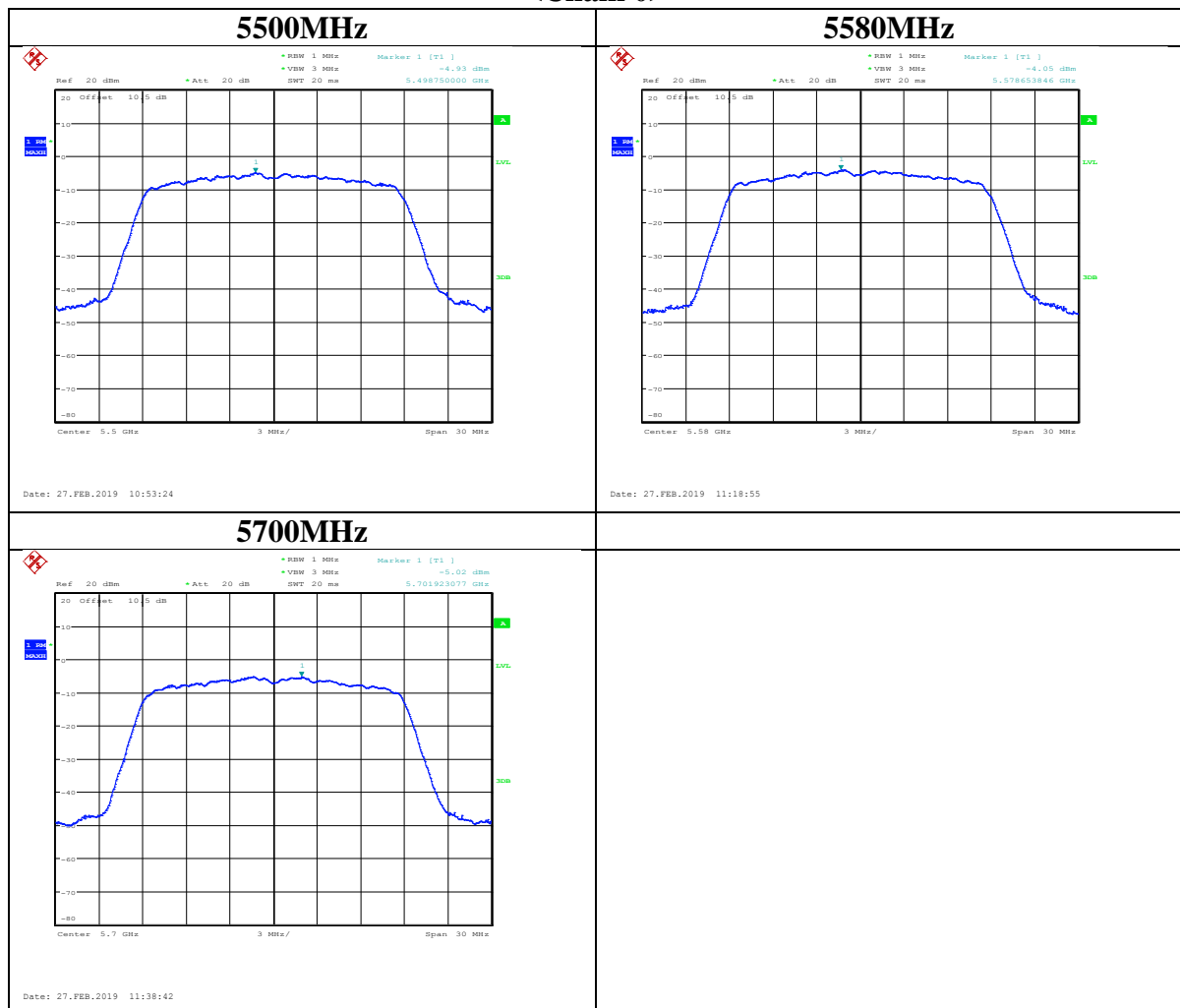


IEEE 802.11ac VHT80 Mode / 5250 ~ 5350MHz

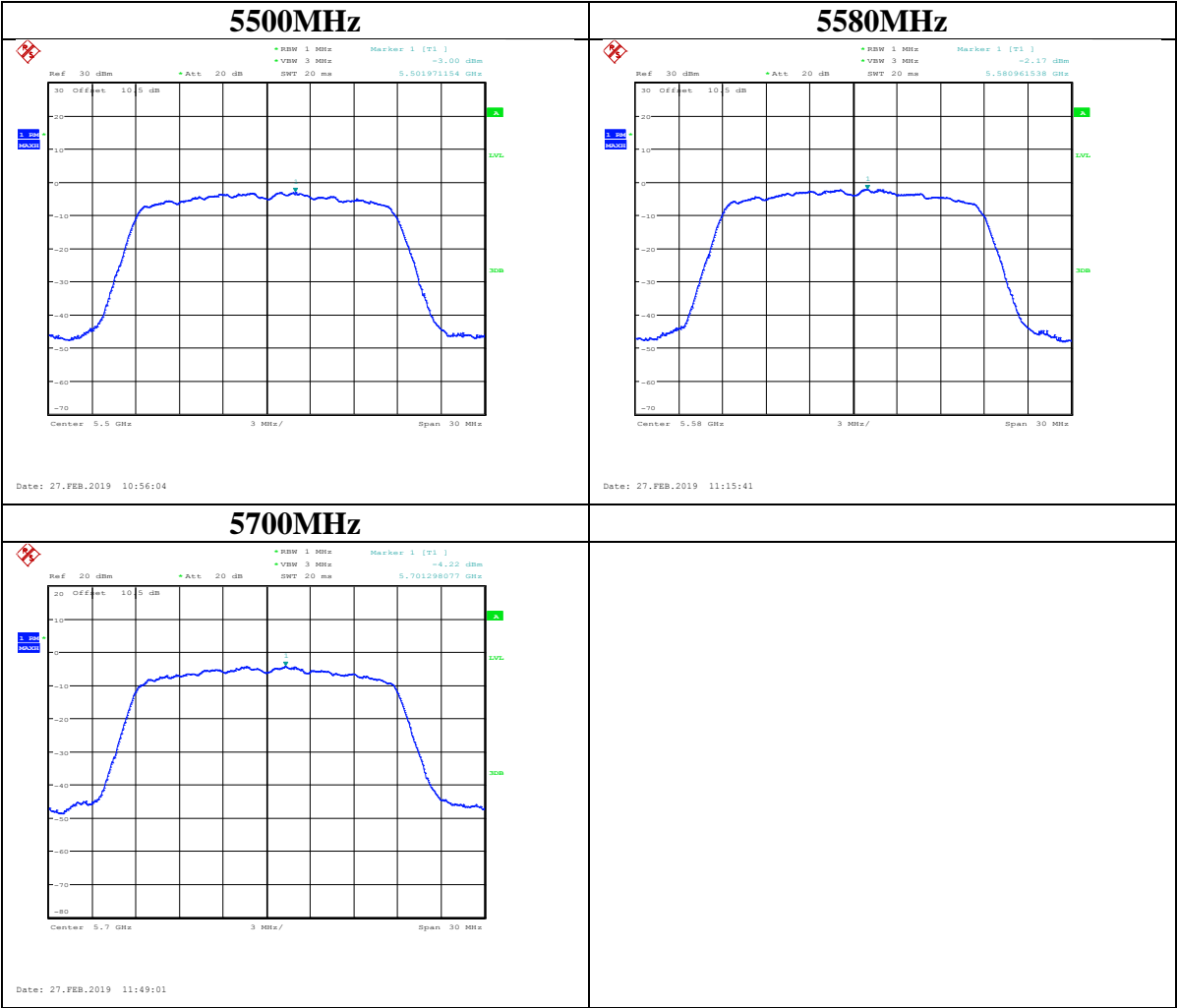


UNII-2C Band III PSD
IEEE 802.11a Mode / 5470 ~ 5725MHz

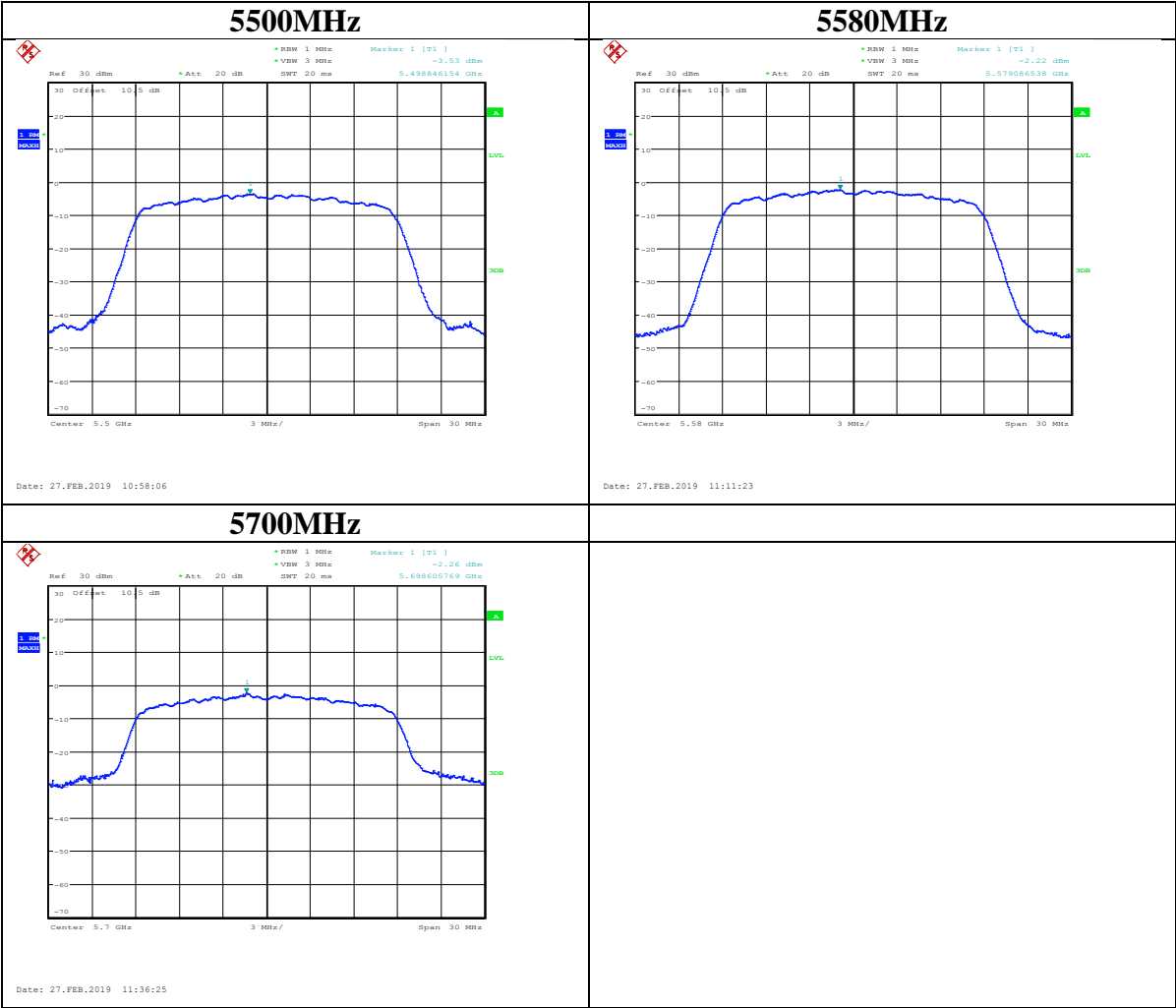
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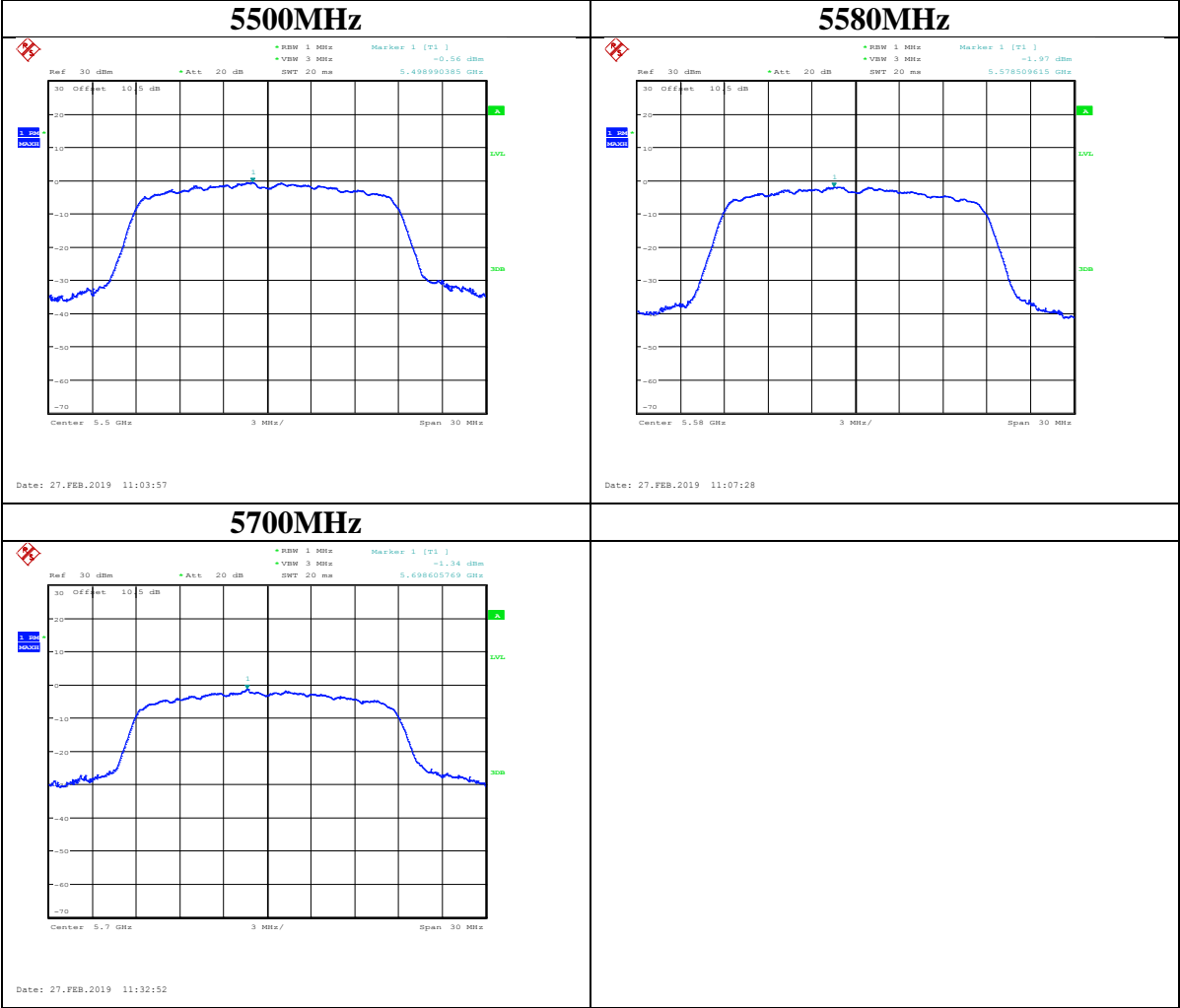
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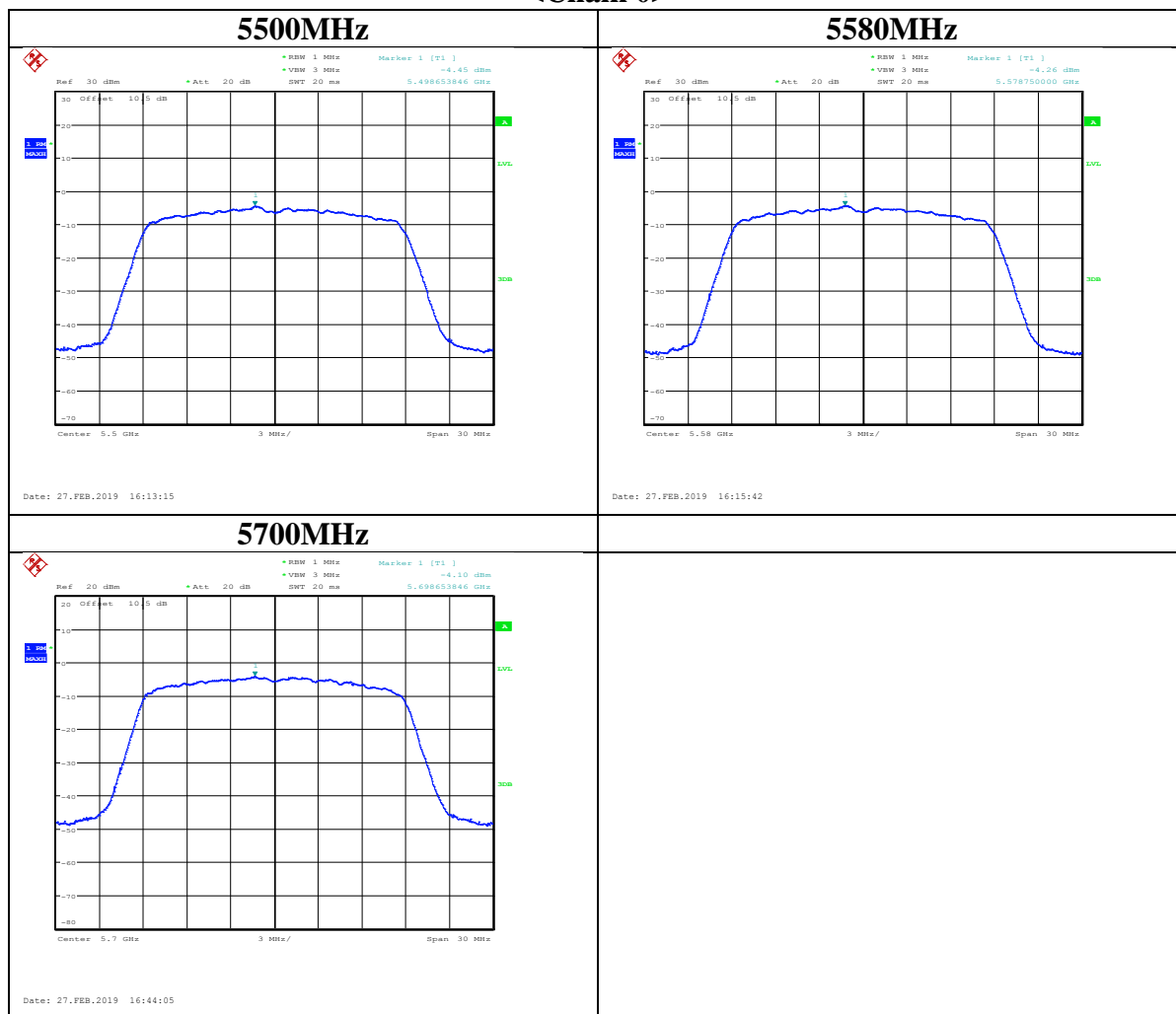


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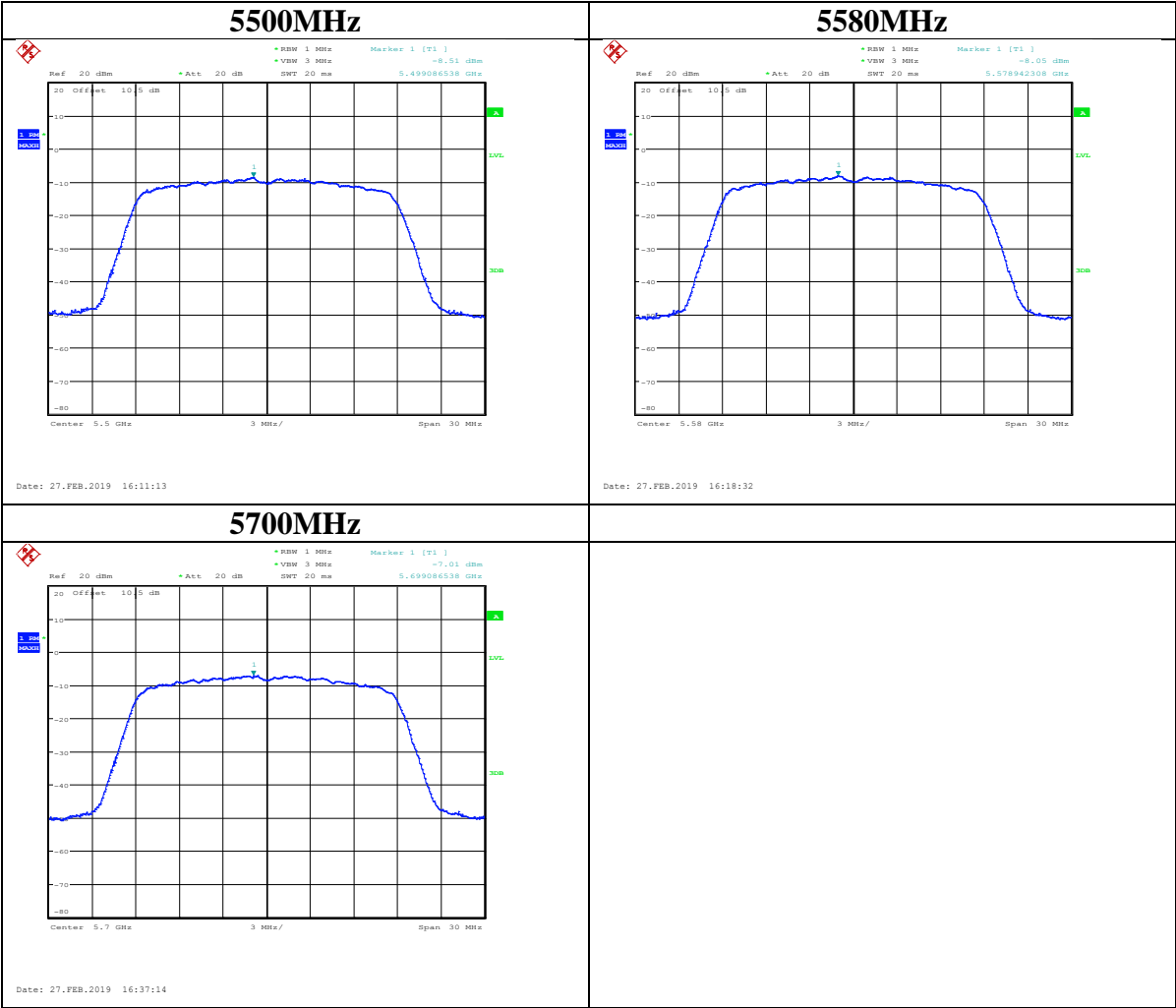


IEEE 802.11ac VHT20 Mode / 5470 ~ 5725MHz

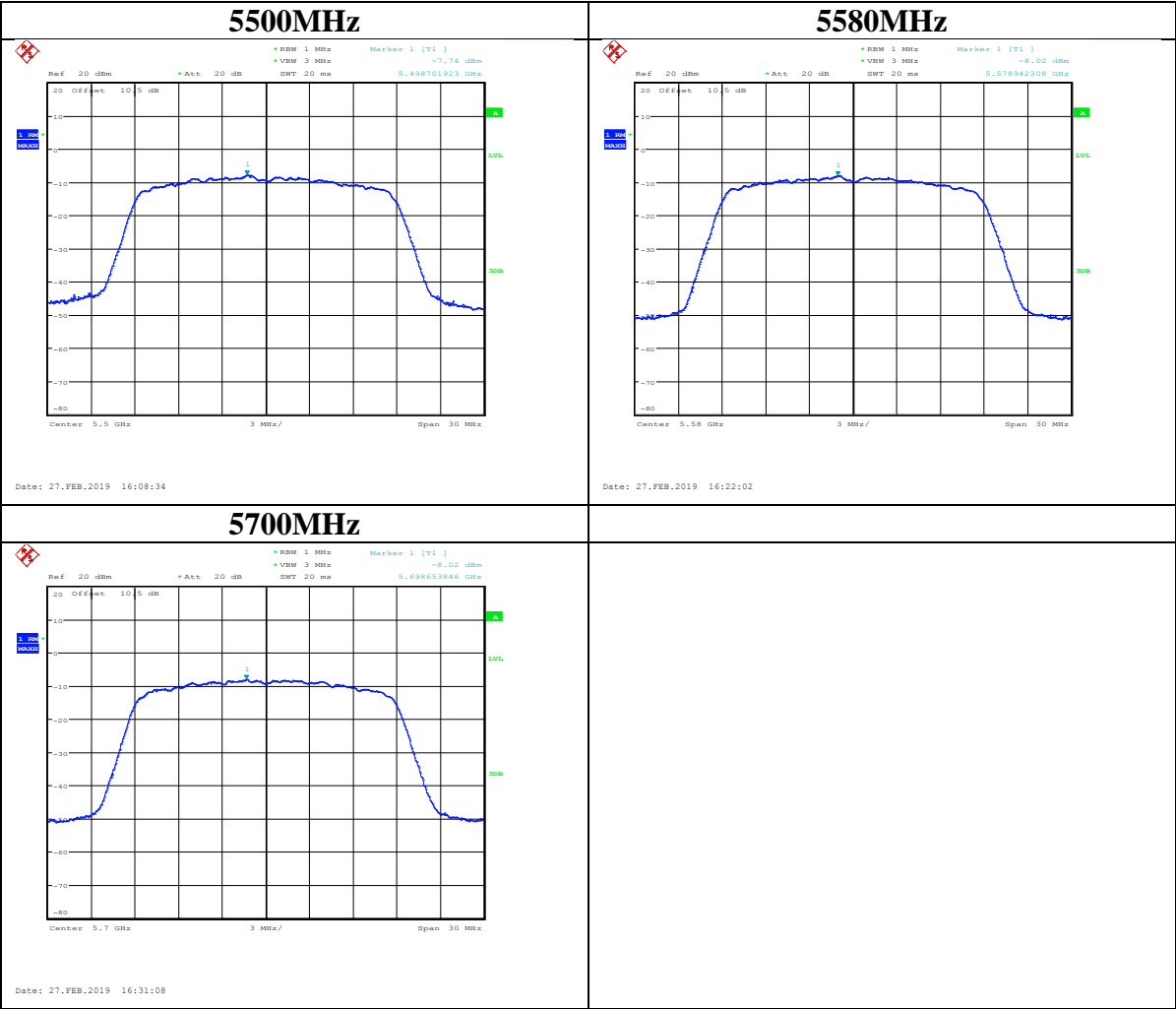
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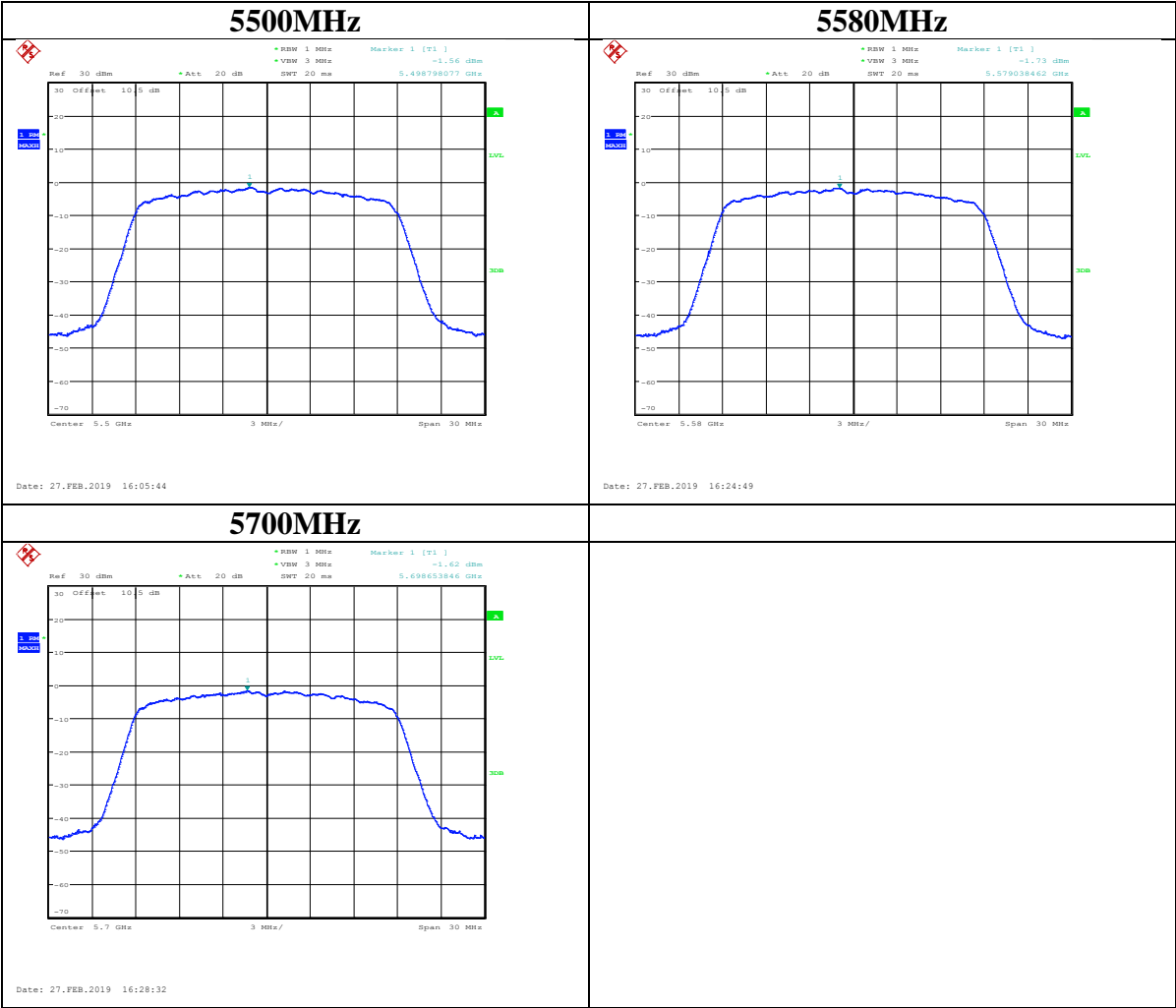
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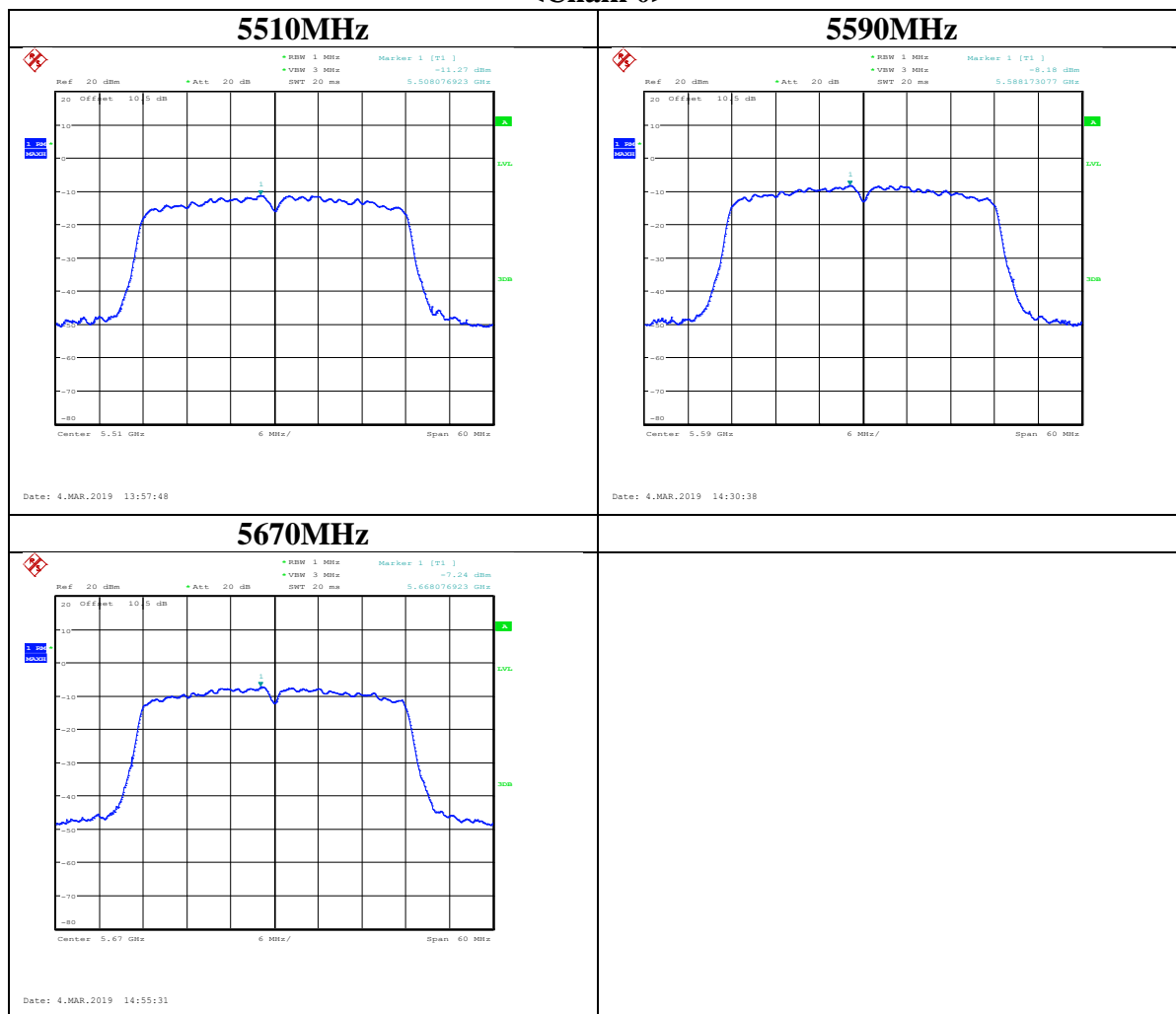


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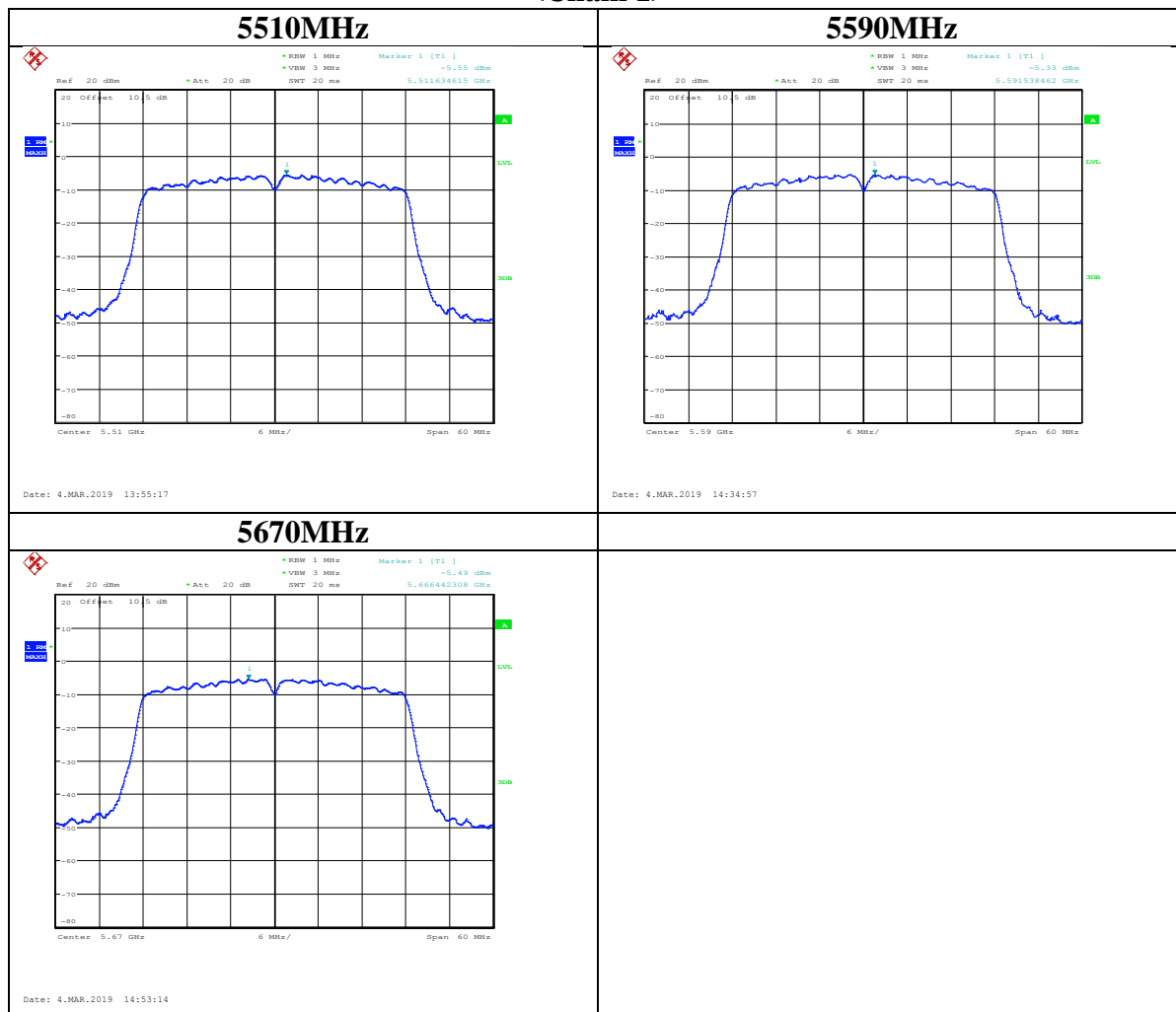


IEEE 802.11ac VHT40 Mode / 5470 ~ 5725MHz

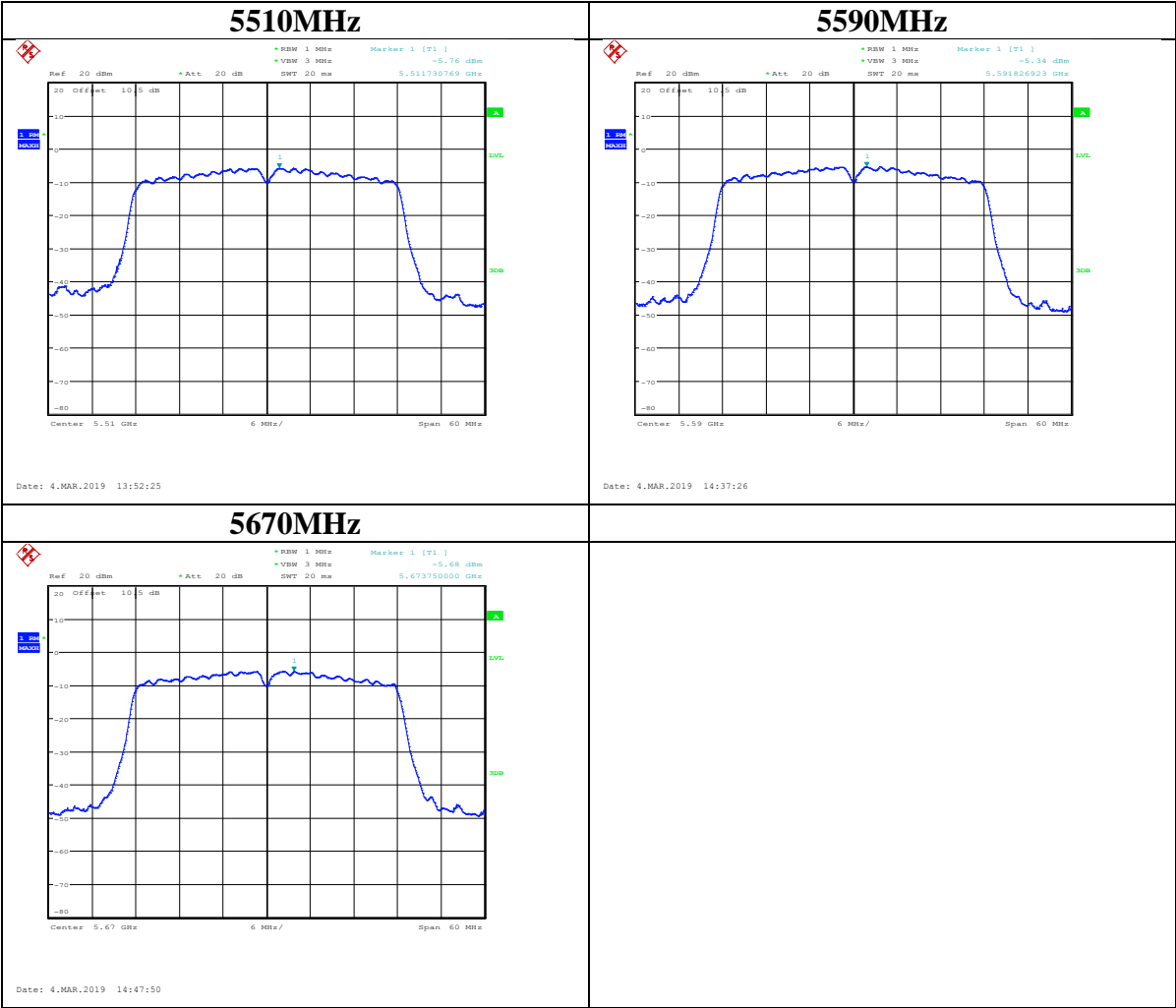
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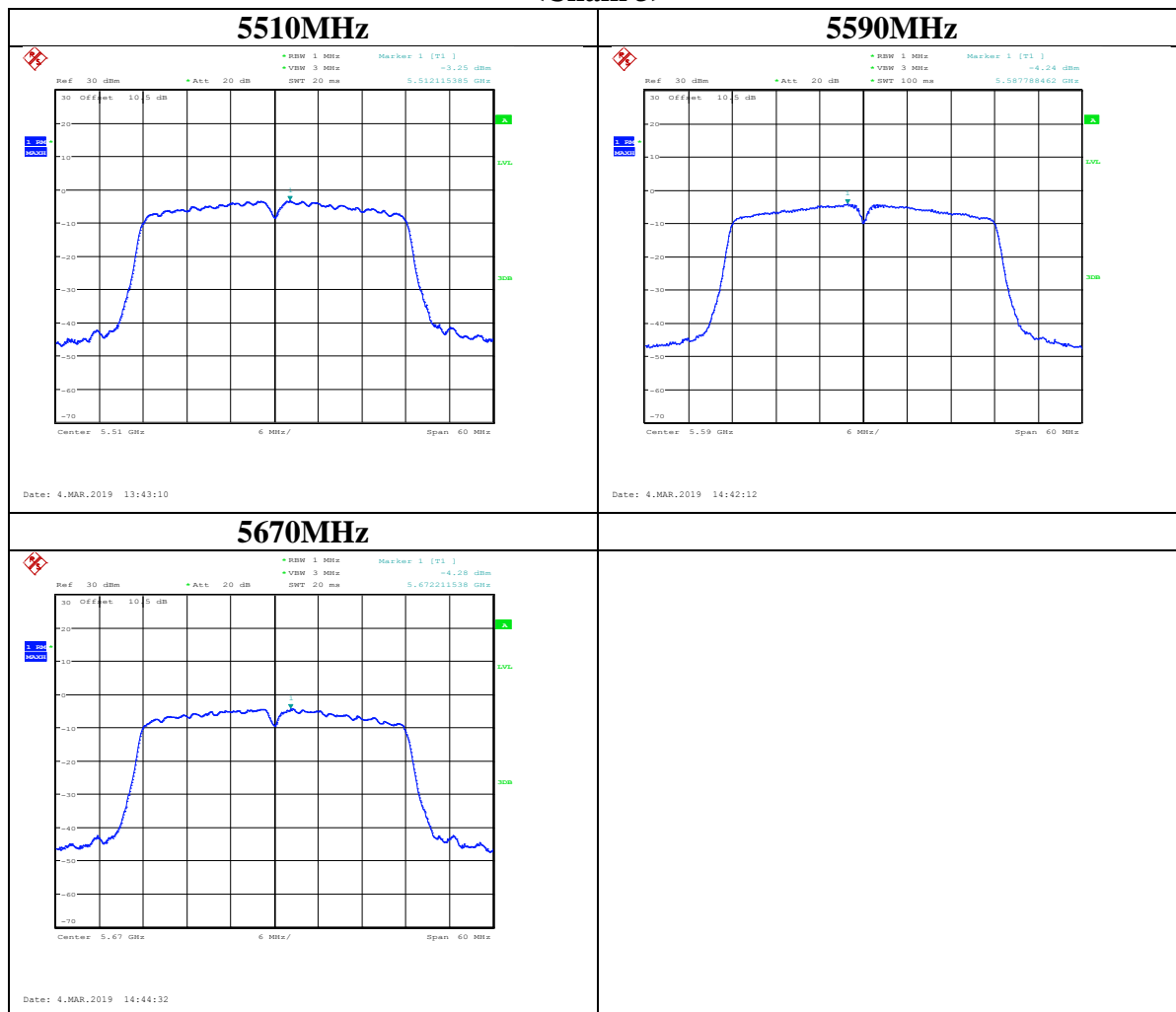
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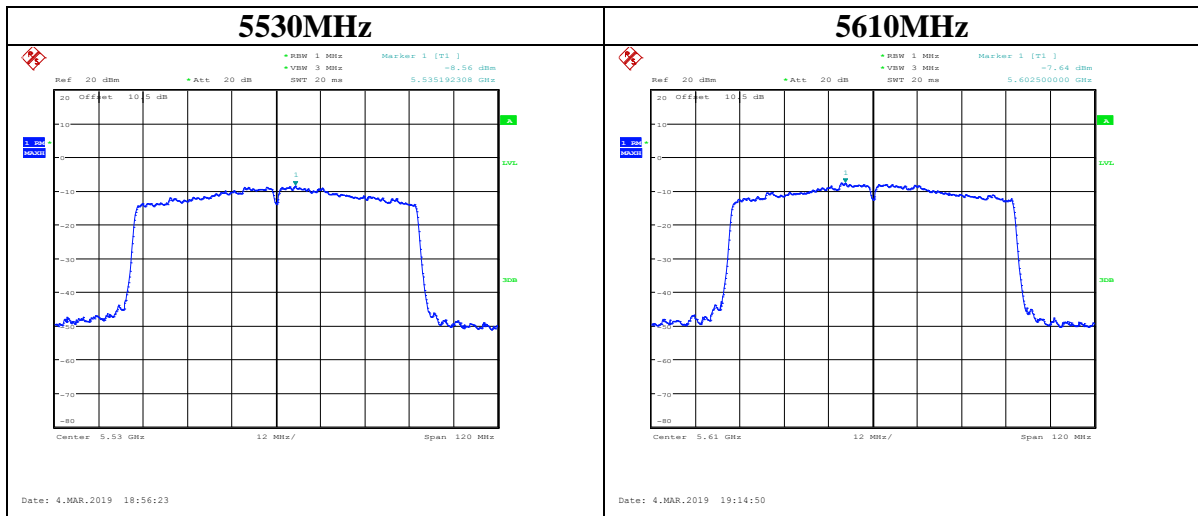
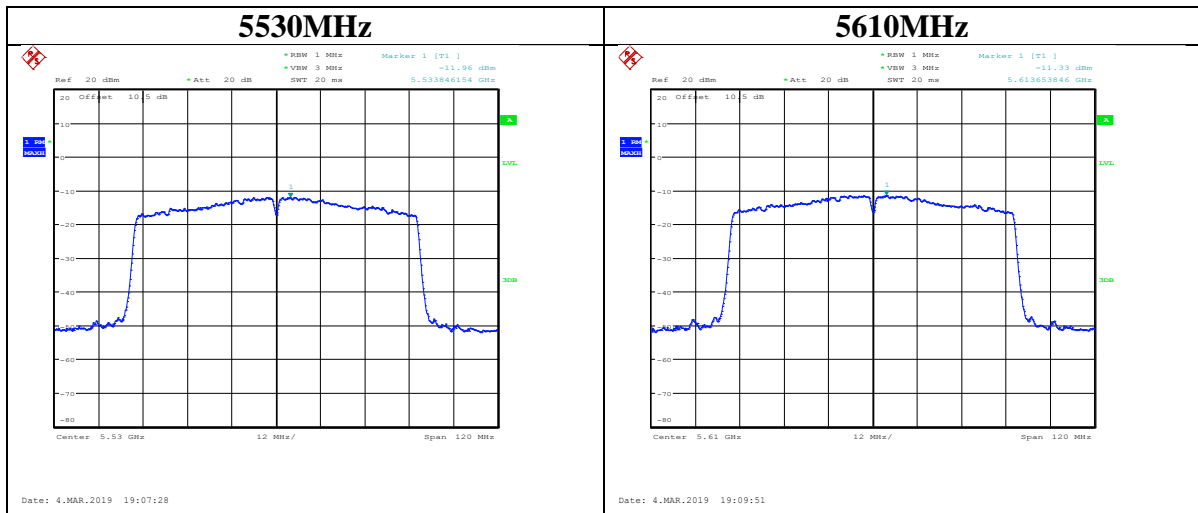


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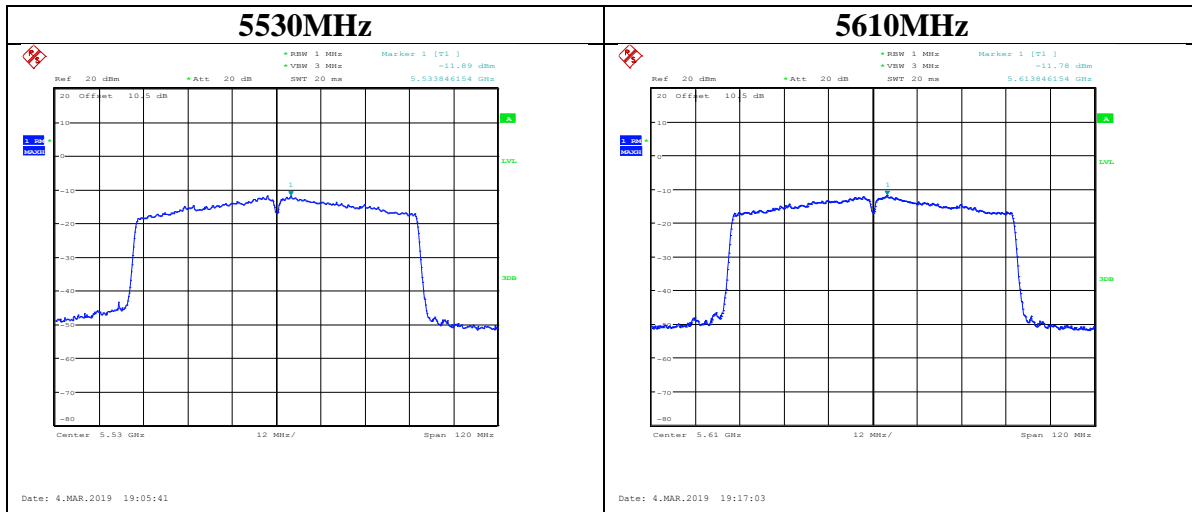


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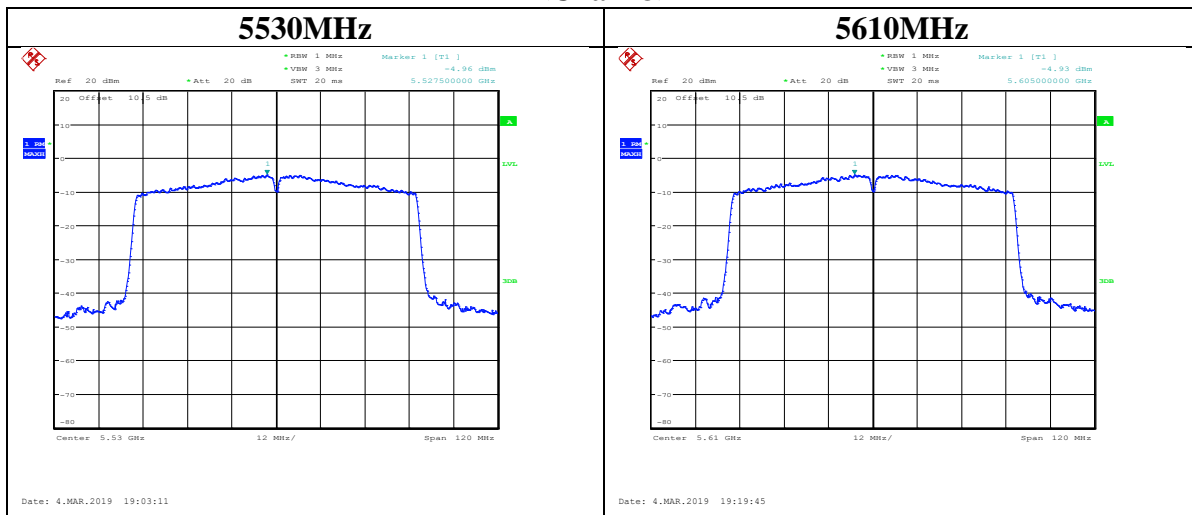


IEEE 802.11ac VHT80 Mode / 5470 ~ 5725MHz
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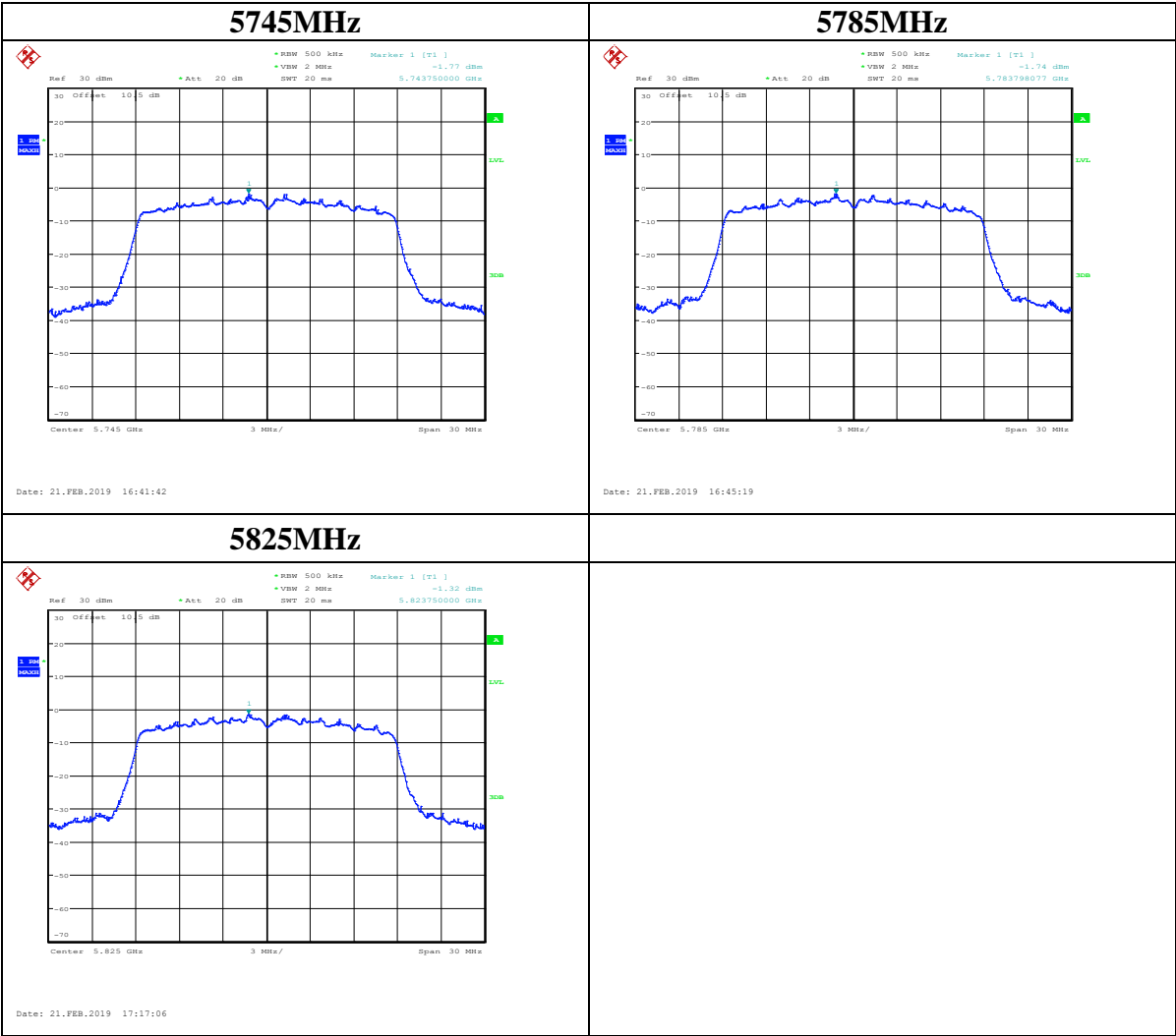


<Chain 3>



UNII-3 Band IV PSD
IEEE 802.11a mode / 5725 ~ 5850MHz

<Chain 0>



5745MHz

Ref 30 dBm Att 20 dB VSW 2 MHz SWT 20 ms Marker 1 [T1] -2.25 dBm 5.745750000 GHz

Center 5.745 GHz 3 MHz/ Span 30 MHz

Date: 21.FEB.2019 16:39:35

5785MHz

Ref 30 dBm Att 20 dB VSW 2 MHz SWT 20 ms Marker 1 [T1] -2.48 dBm 5.785701923 GHz

Center 5.785 GHz 3 MHz/ Span 30 MHz

Date: 21.FEB.2019 16:47:41

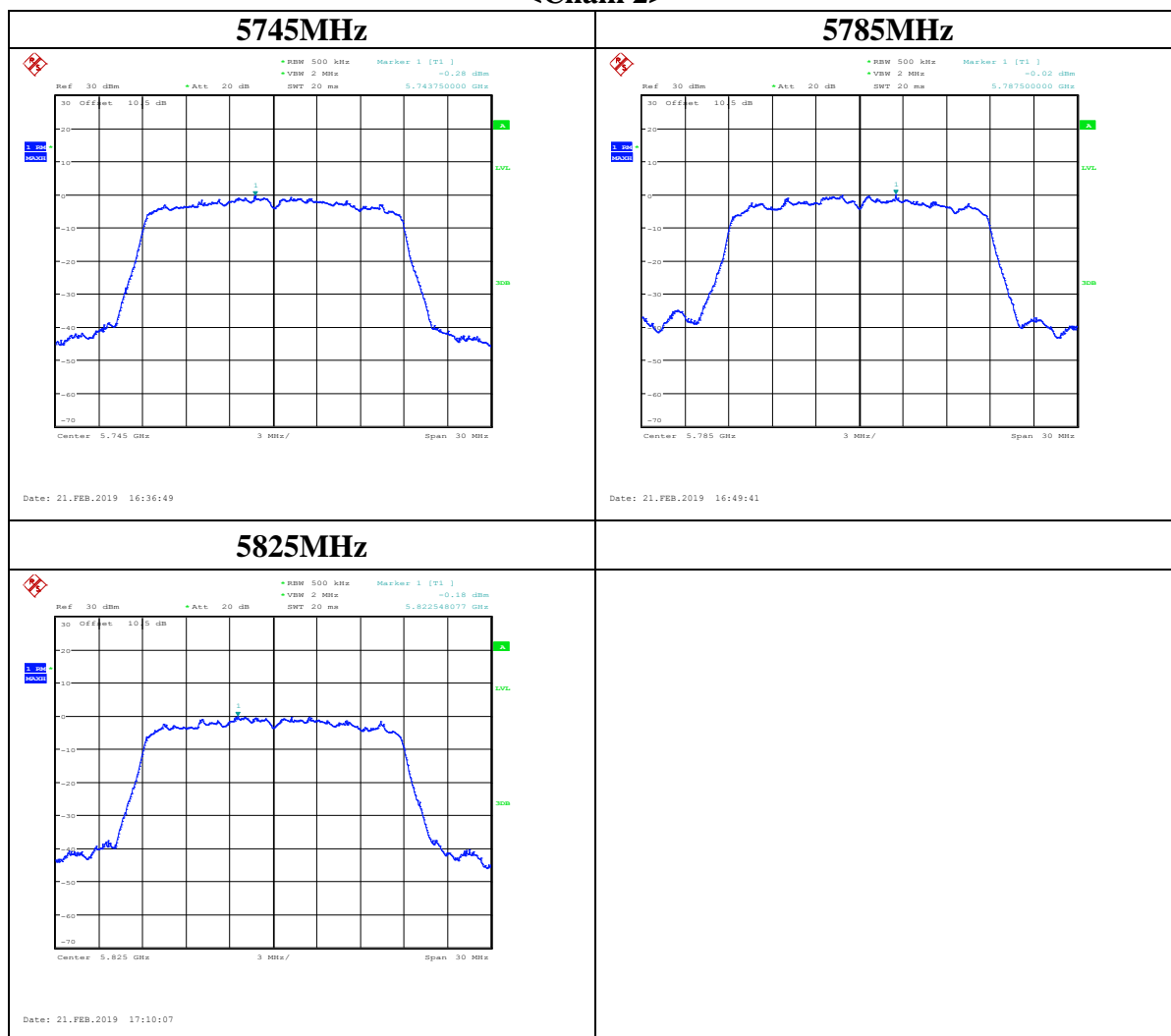
5825MHz

Ref 30 dBm Att 20 dB VSW 2 MHz SWT 20 ms Marker 1 [T1] -2.34 dBm 5.823750000 GHz

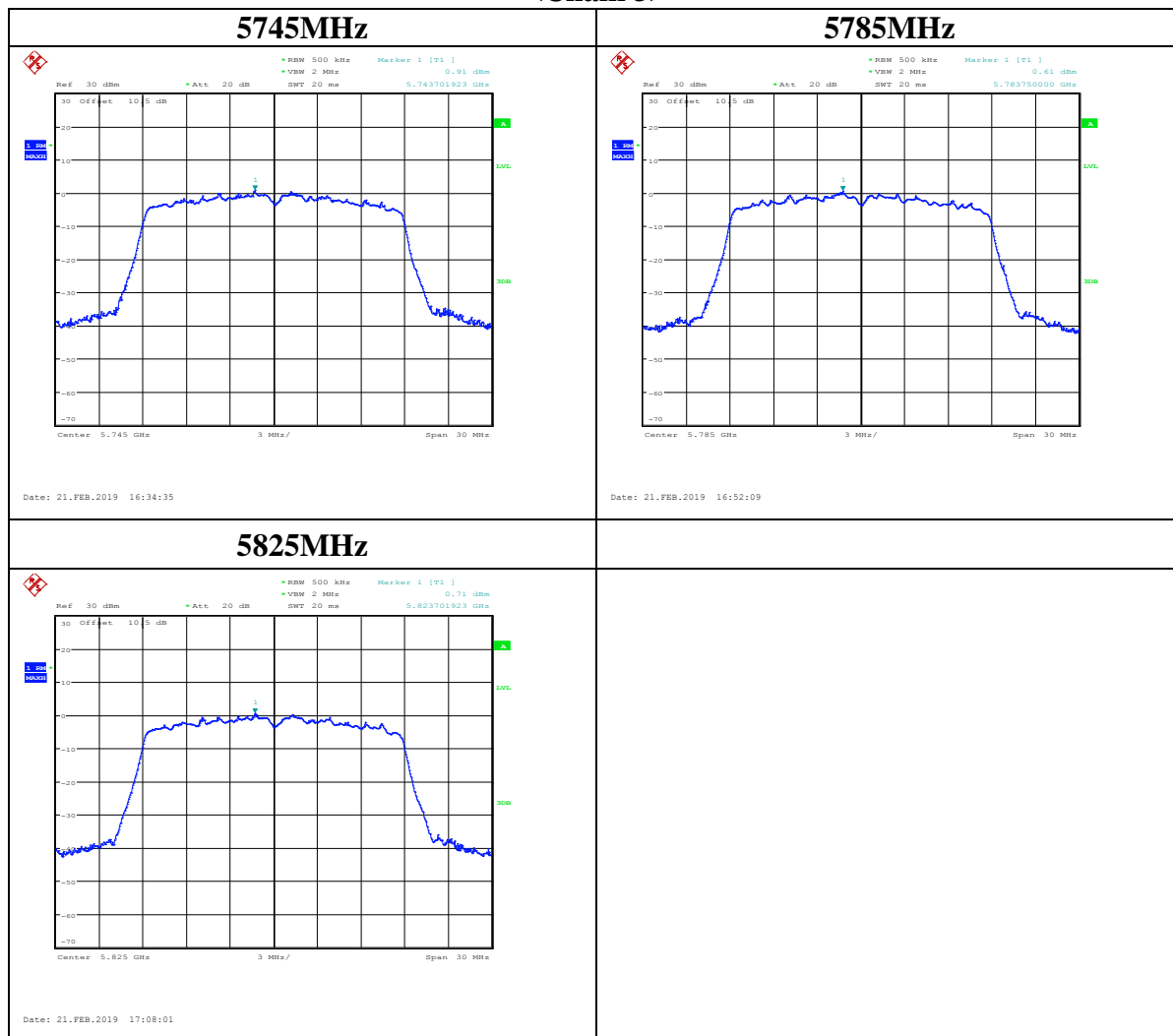
Center 5.825 GHz 3 MHz/ Span 30 MHz

Date: 21.FEB.2019 17:14:14

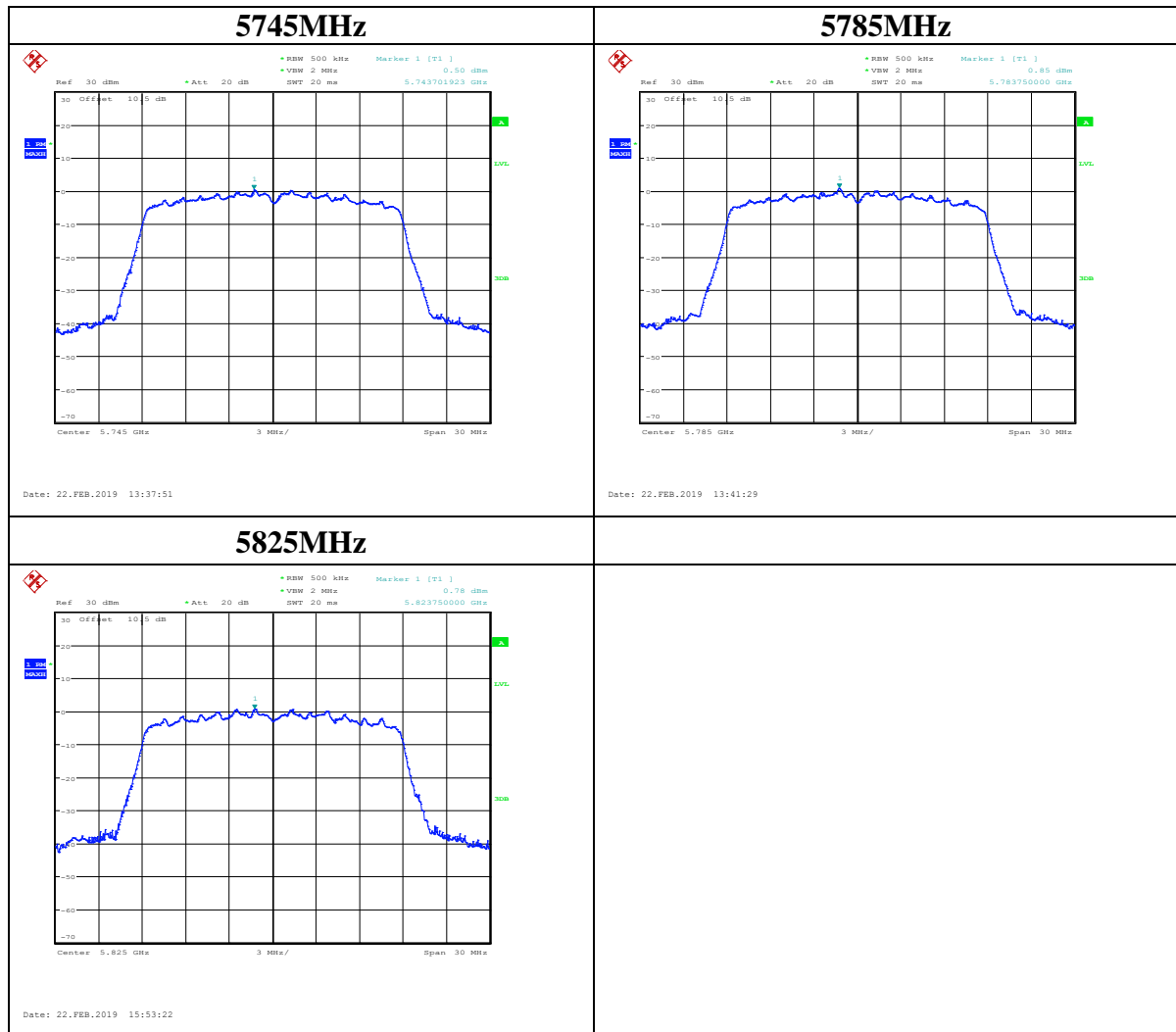
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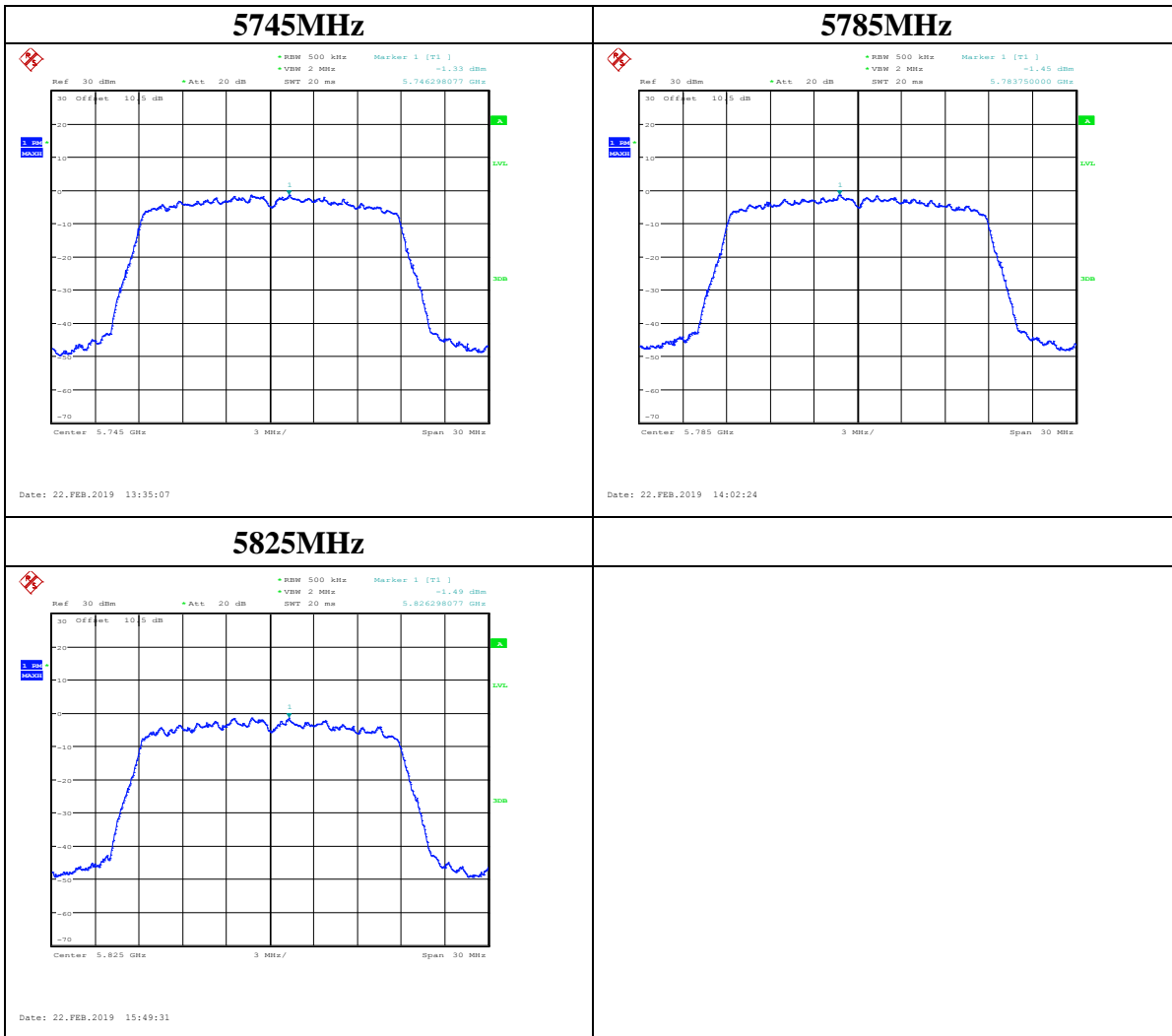
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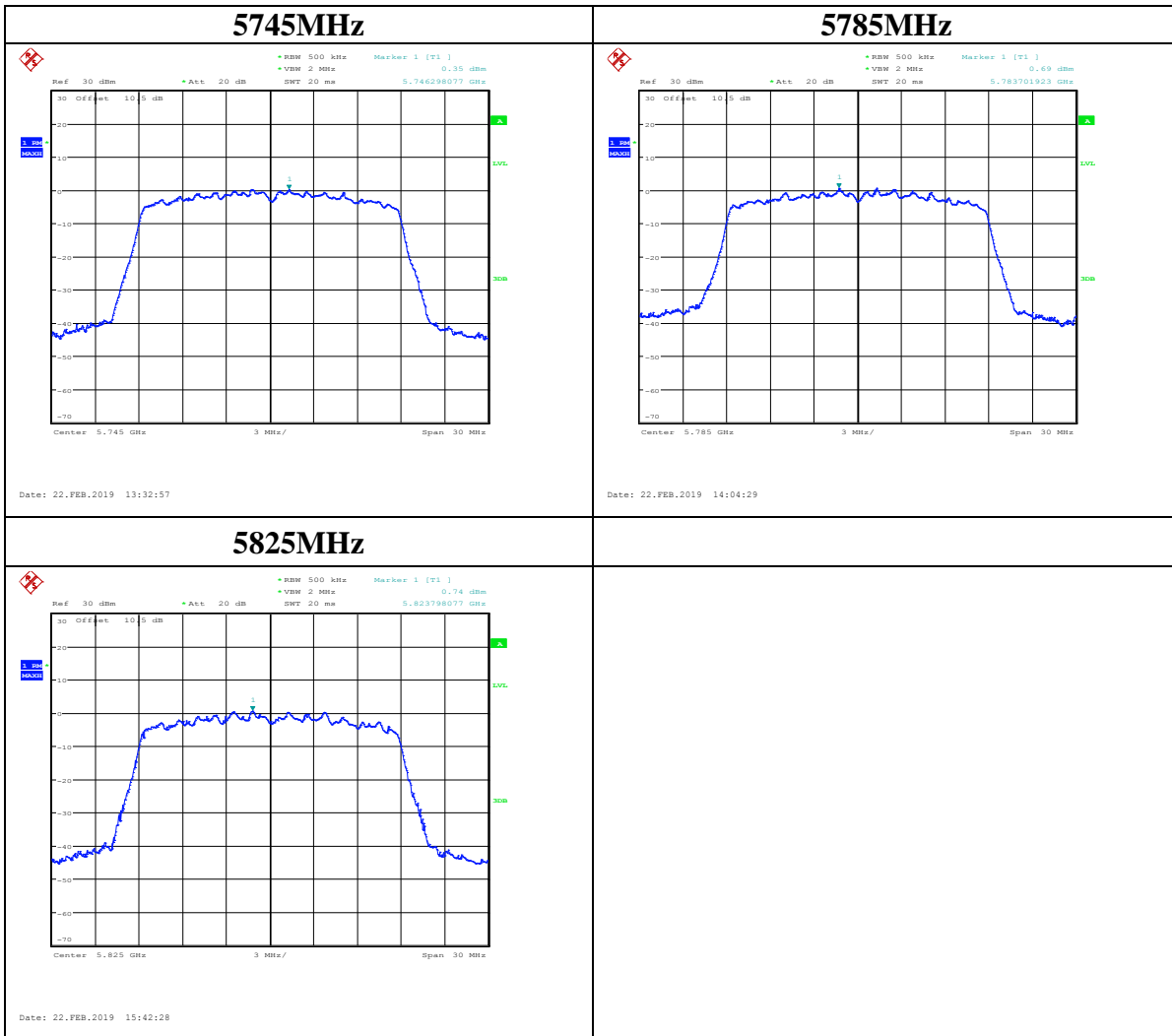
IEEE 802.11ac VHT20 Mode / 5725 ~ 5850MHz
<Chain 0>



<Chain 1>



<Chain 2>



5745MHz

Ref: 30 dBm Att: 20 dB BW: 500 kHz VSWR: 2 MHz SWT: 20 ms Marker 1 [T1]: 1.40 dBm 5.743846154 GHz

Center: 5.745 GHz Span: 30 MHz

Date: 22.FEB.2019 13:23:44

5785MHz

Ref: 30 dBm Att: 20 dB BW: 500 kHz VSWR: 2 MHz SWT: 20 ms Marker 1 [T1]: 1.12 dBm 5.783796077 GHz

Center: 5.785 GHz Span: 30 MHz

Date: 22.FEB.2019 15:14:14

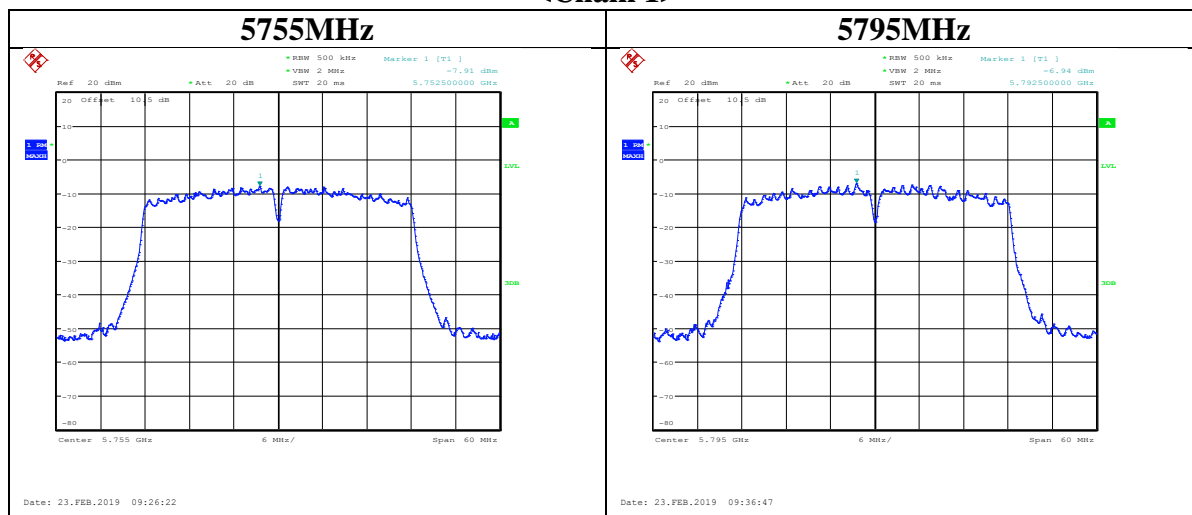
5825MHz

Ref: 30 dBm Att: 20 dB BW: 500 kHz VSWR: 2 MHz SWT: 20 ms Marker 1 [T1]: 1.51 dBm 5.828846154 GHz

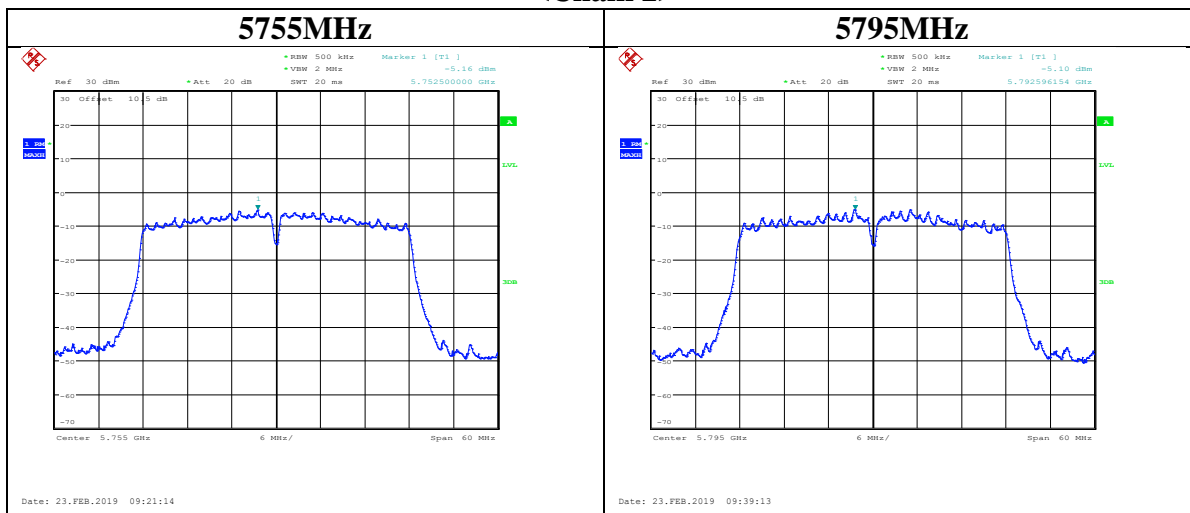
Center: 5.825 GHz Span: 30 MHz

Date: 22.FEB.2019 15:40:17

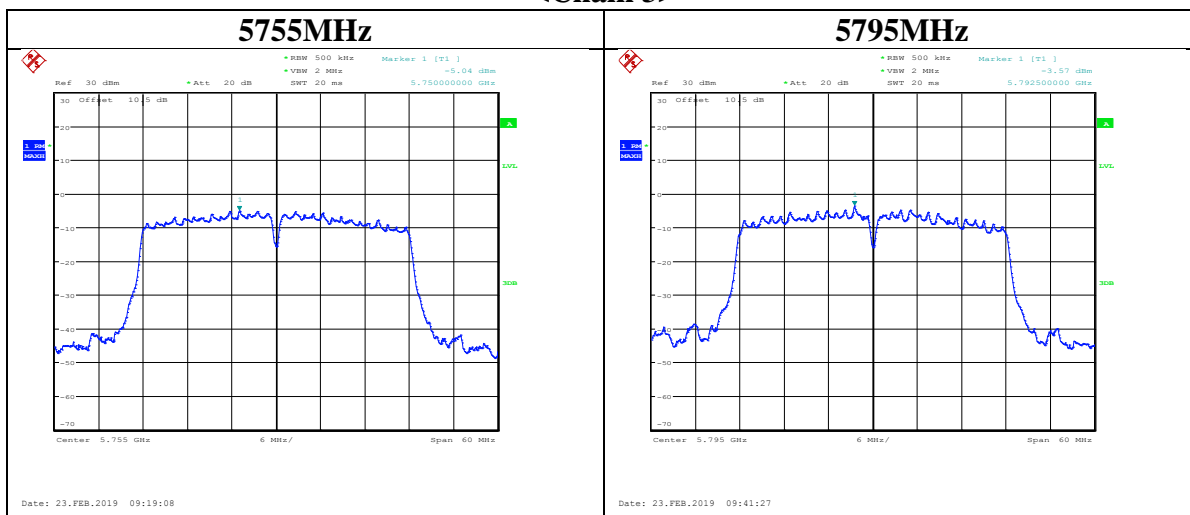
<Chain 0>

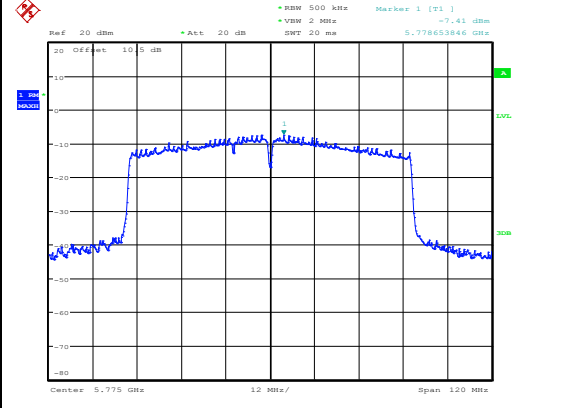
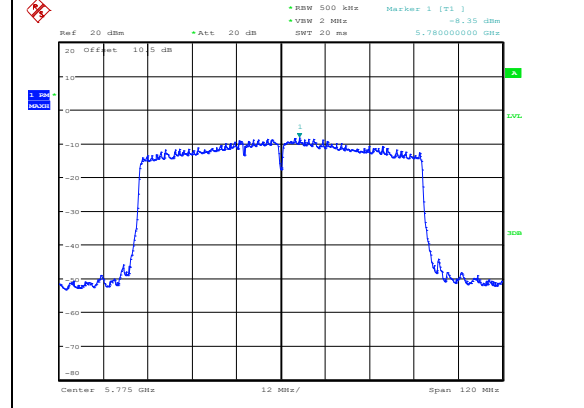
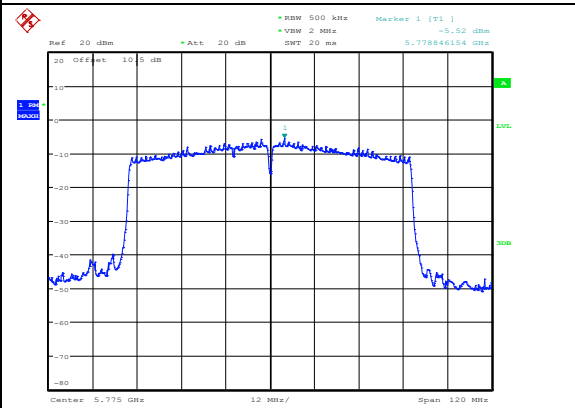
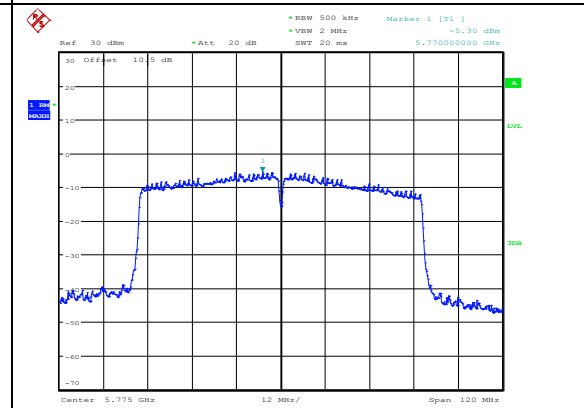


<Chain 2>



<Chain 3>



<h3><Chain 0></h3> <h2>5775MHz</h2>  <p>Ref: 20 dBm Alt: 20 dB BW: 500 kHz VM: 2 MHz SM: 20 ms Marker 1 [T1] -7.41 dBm 5.77865846 GHz</p> <p>Center: 5.775 GHz 12 MHz/ Span: 120 MHz</p> <p>Date: 23.FEB.2019 10:57:36</p>	<h3><Chain 1></h3> <h2>5775MHz</h2>  <p>Ref: 20 dBm Alt: 20 dB BW: 500 kHz VM: 2 MHz SM: 20 ms Marker 1 [T1] -8.35 dBm 5.780000000 GHz</p> <p>Center: 5.775 GHz 12 MHz/ Span: 120 MHz</p> <p>Date: 23.FEB.2019 10:54:21</p>
<h3><Chain 2></h3> <h2>5775MHz</h2>  <p>Ref: 20 dBm Alt: 20 dB BW: 500 kHz VM: 2 MHz SM: 20 ms Marker 1 [T1] -5.52 dBm 5.778846154 GHz</p> <p>Center: 5.775 GHz 12 MHz/ Span: 120 MHz</p> <p>Date: 23.FEB.2019 10:52:03</p>	<h3><Chain 3></h3> <h2>5775MHz</h2>  <p>Ref: 20 dBm Alt: 20 dB BW: 500 kHz VM: 2 MHz SM: 20 ms Marker 1 [T1] -5.30 dBm 5.770000000 GHz</p> <p>Center: 5.775 GHz 12 MHz/ Span: 120 MHz</p> <p>Date: 23.FEB.2019 10:49:12</p>

***** END OF REPORT *****