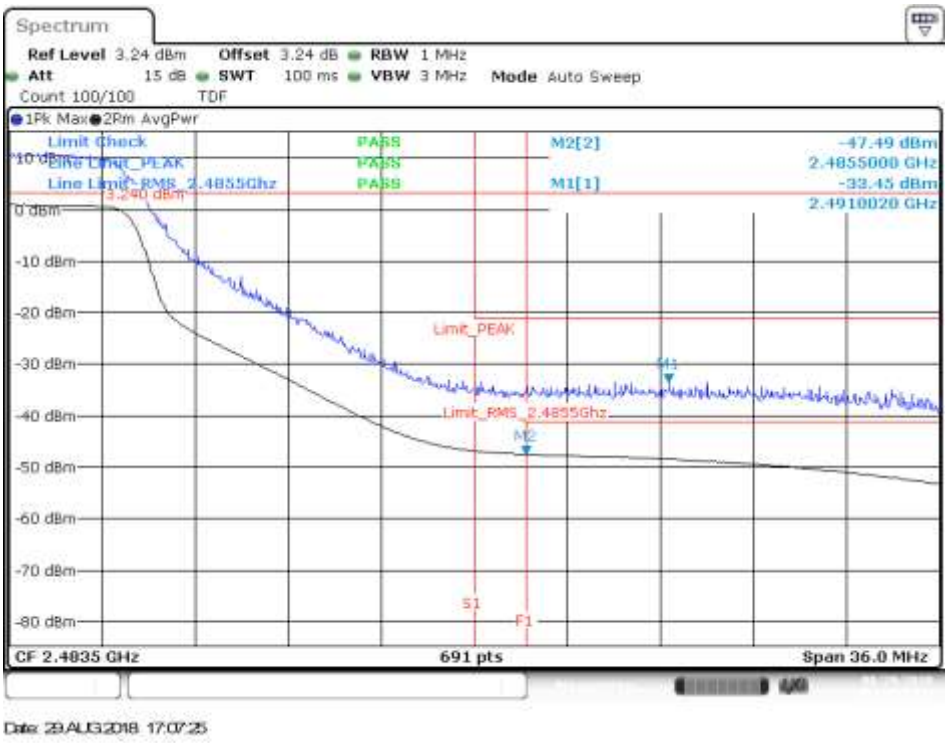
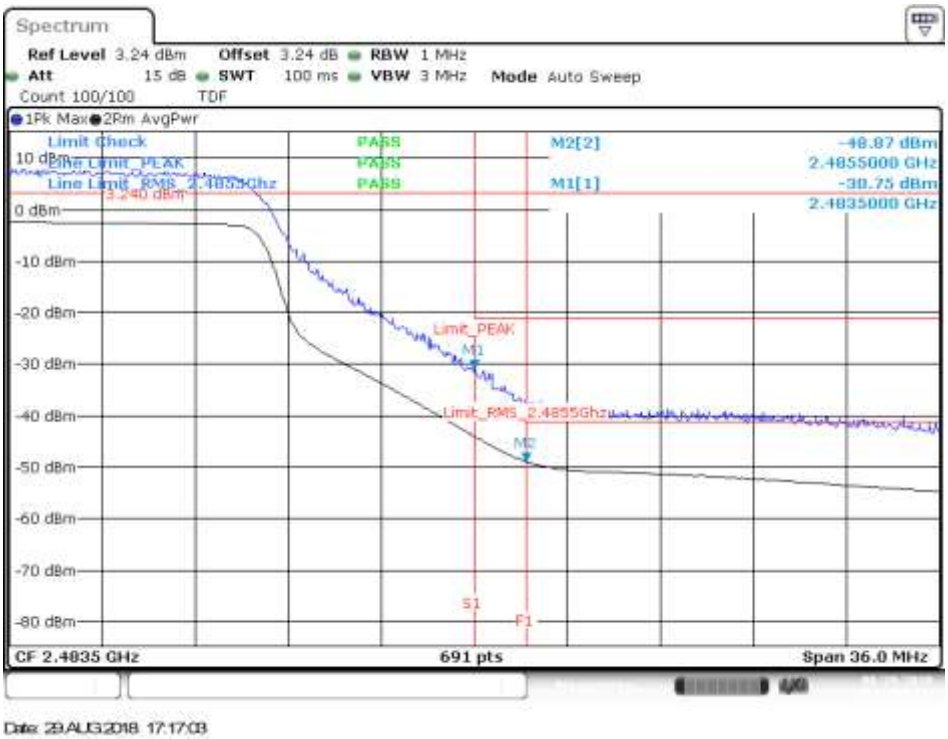
MIMO-B, 802.11n40, HT8

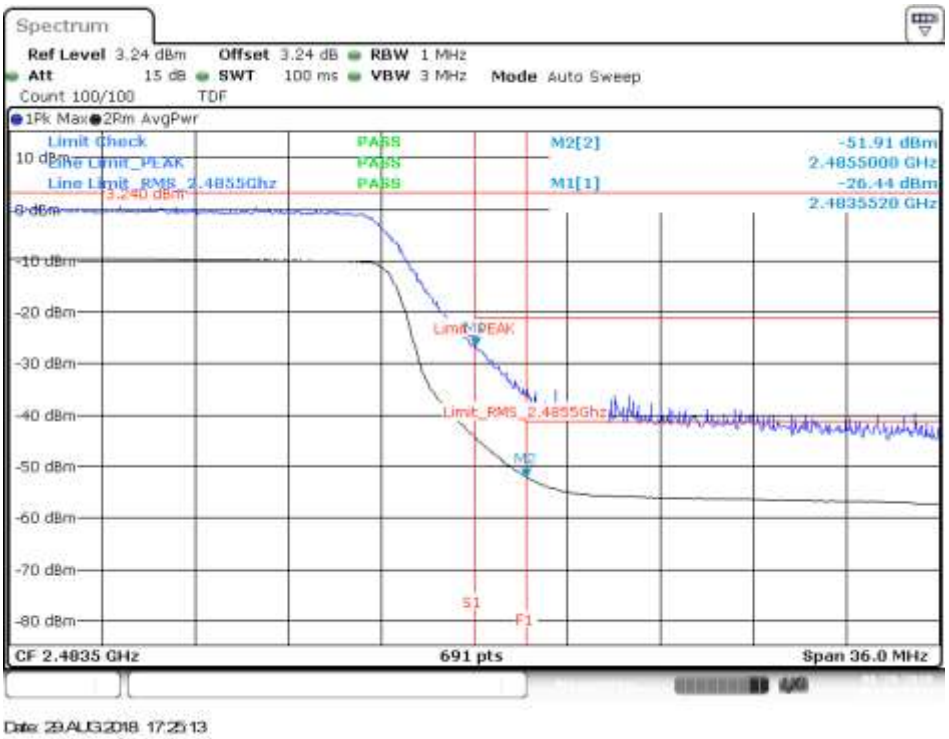
Channel 9F - BE High Freq Section (restricted)



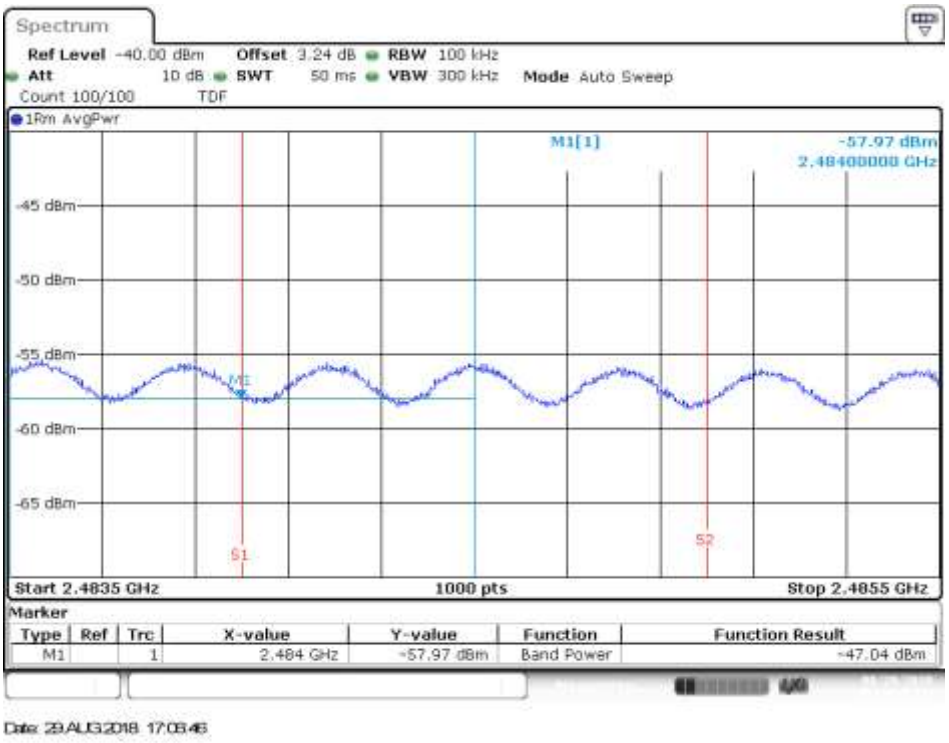
Channel 10F - BE High Freq Section (restricted)



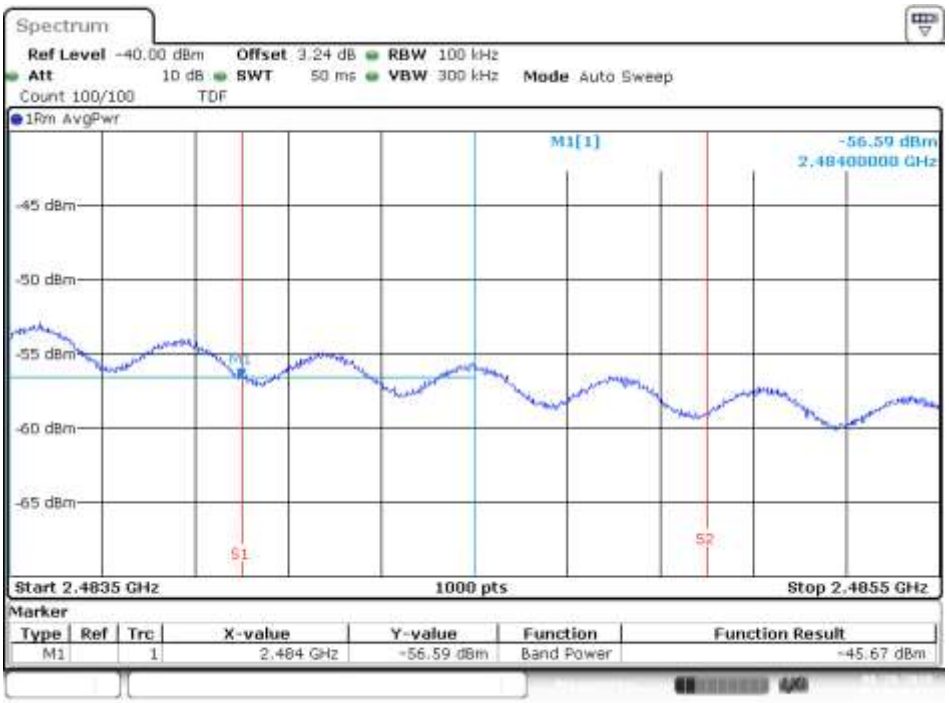
Channel 11F - BE High Freq Section (restricted)



Channel 9F - BE High Freq Section RMS within 2MHz (restricted)

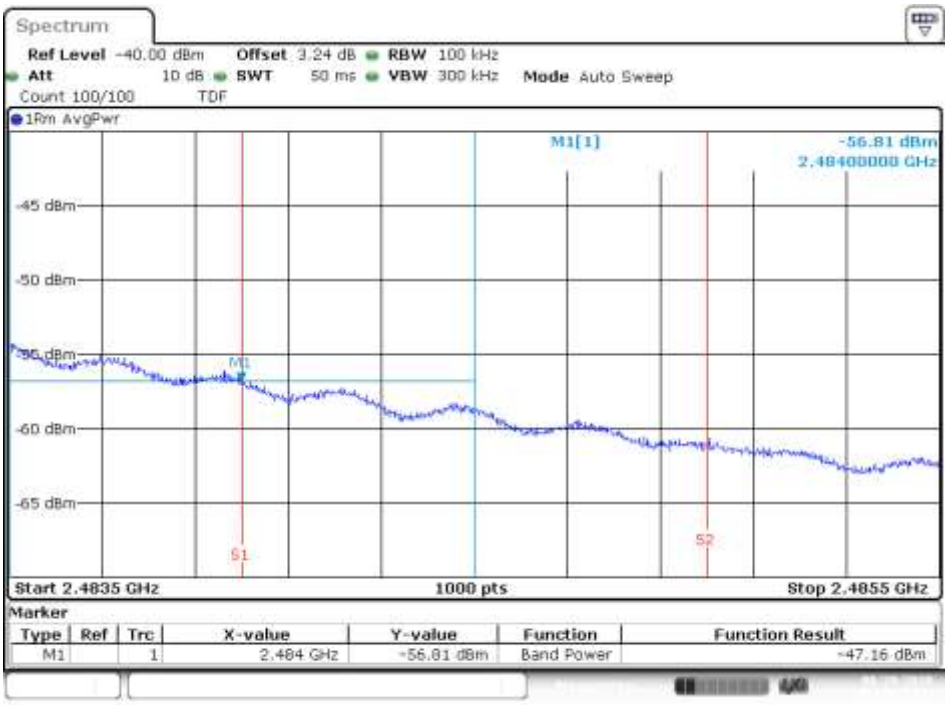


Channel 10F - BE High Freq Section RMS within 2MHz (restricted)



Date: 29.AUG.2018 17:16:31

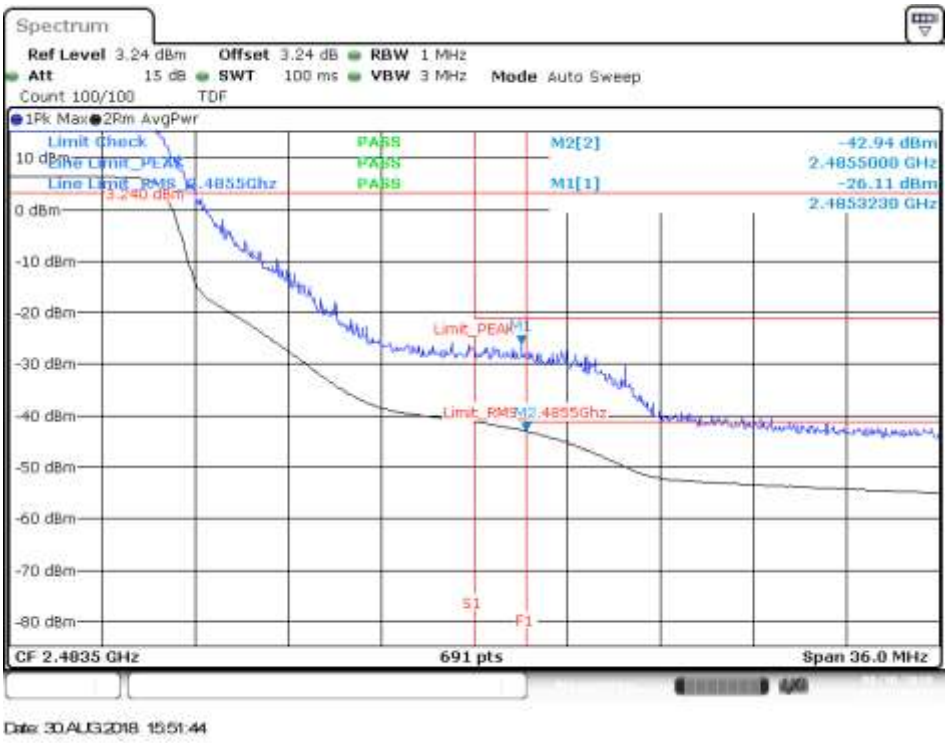
Channel 11F - BE High Freq Section RMS within 2MHz (restricted)



Date: 29.AUG.2018 17:25:38

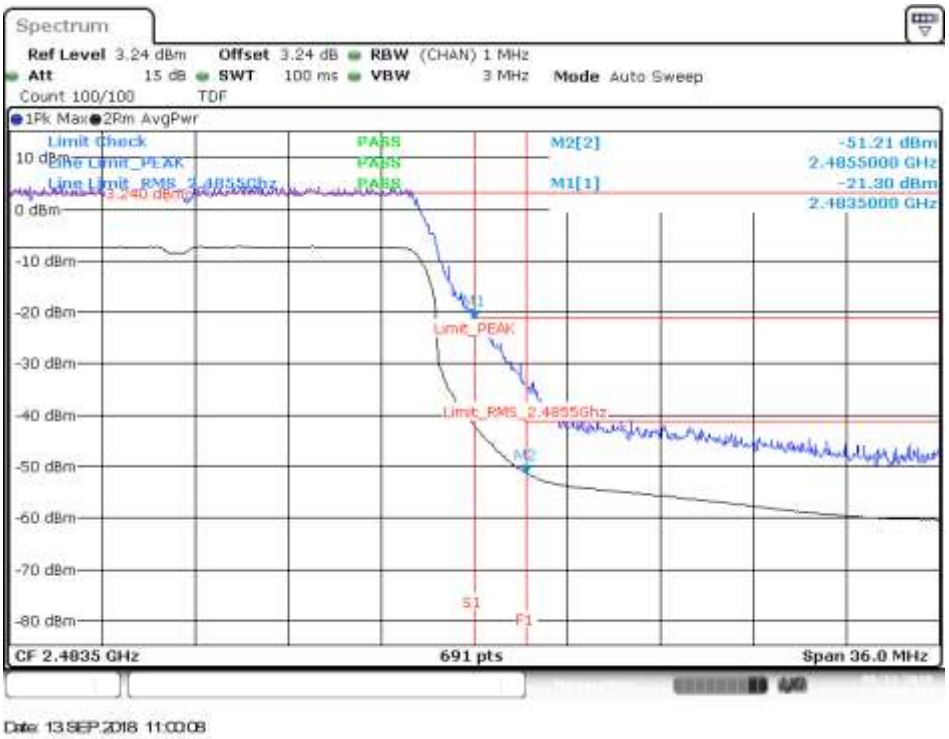
SISO-A, 802.11ax20, HE0

Channel 11 - BE High Freq Section (restricted)

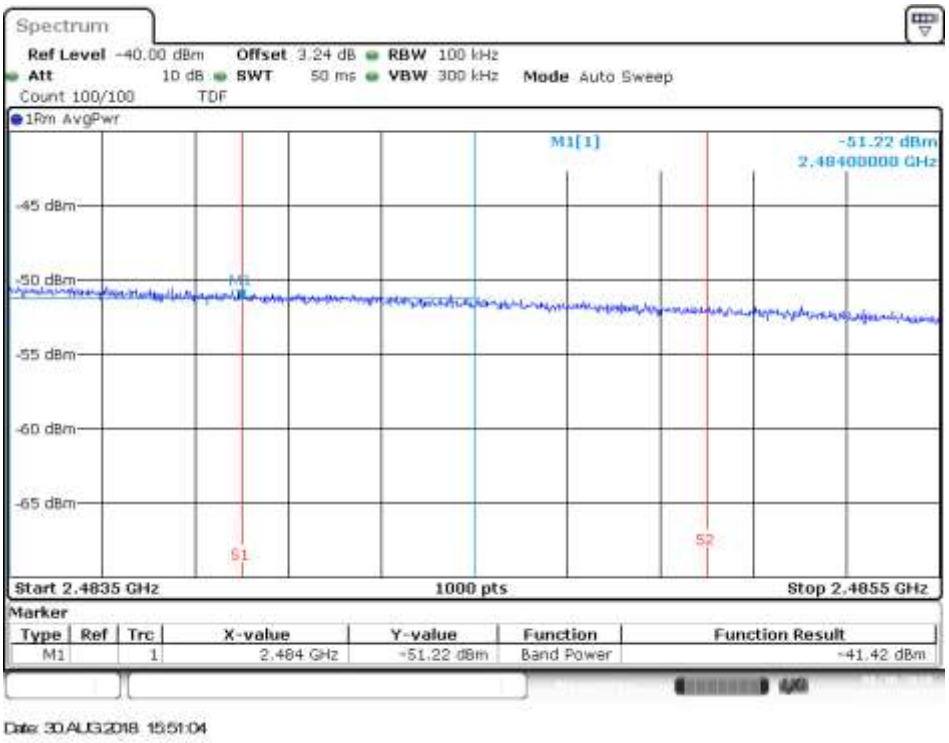


Channel 12 - BE High Freq Section (restricted)

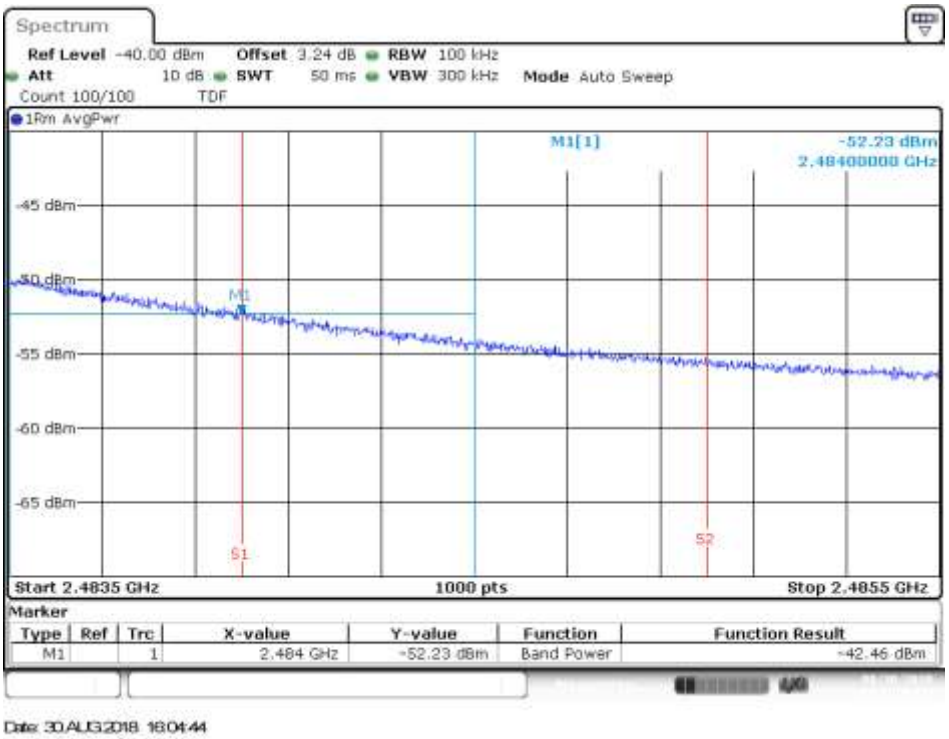
Channel 13 - BE High Freq Section (restricted)



Channel 11 - BE High Freq Section RMS within 2MHz (restricted)

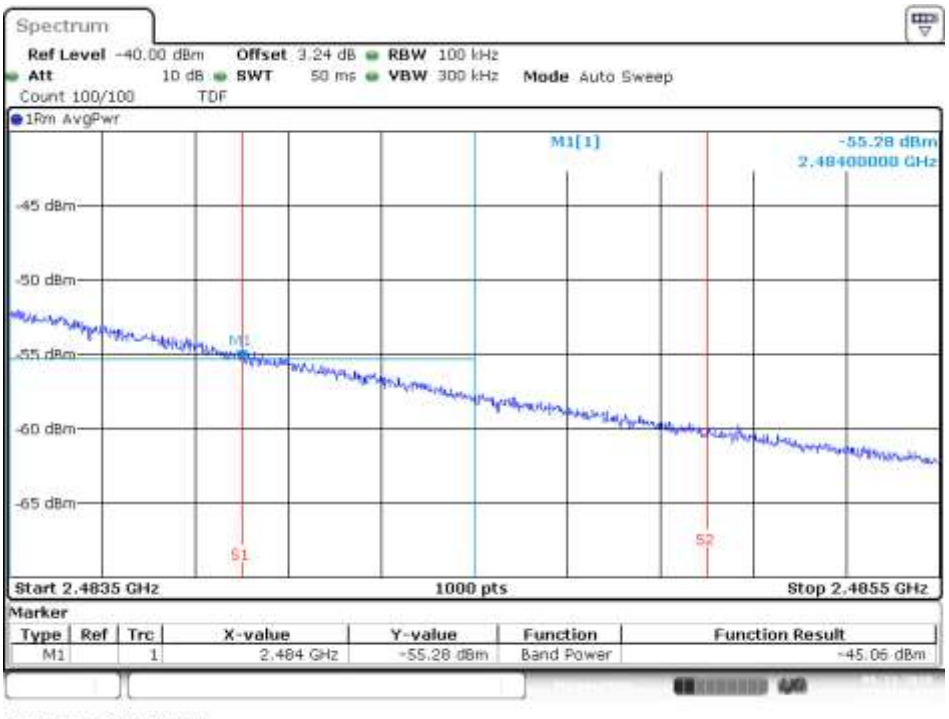


Channel 12 - BE High Freq Section RMS within 2MHz (restricted)



Date: 30.AUG.2018 18:04:44

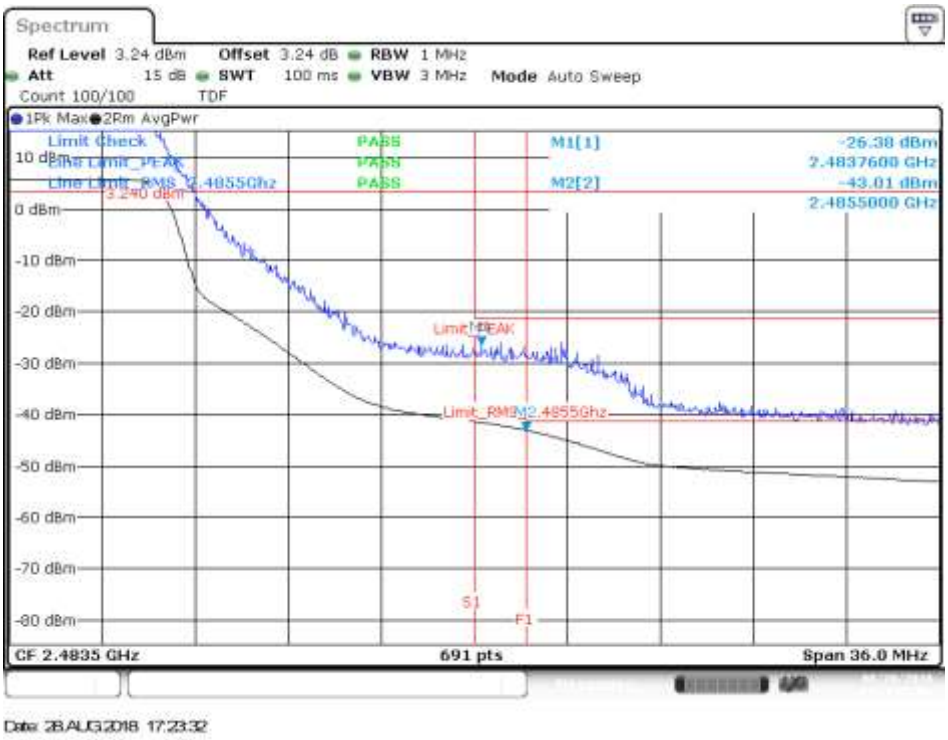
Channel 13 - BE High Freq Section RMS within 2MHz (restricted)



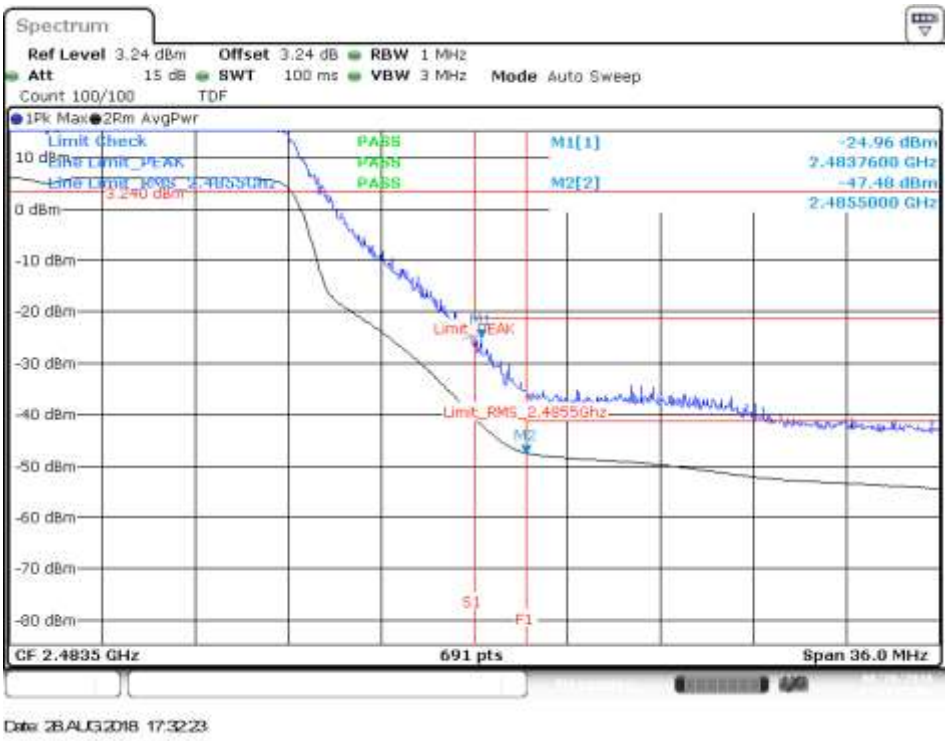
Date: 13.SEP.2018 11:48:50

SISO-B, 802.11ax20, HE0

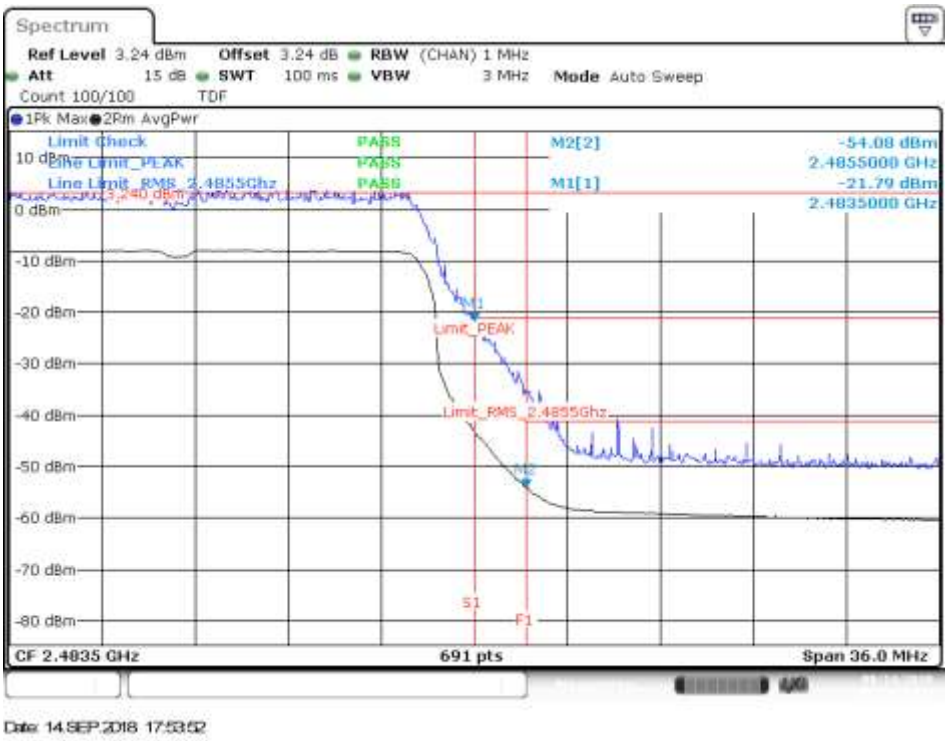
Channel 11 - BE High Freq Section (restricted)



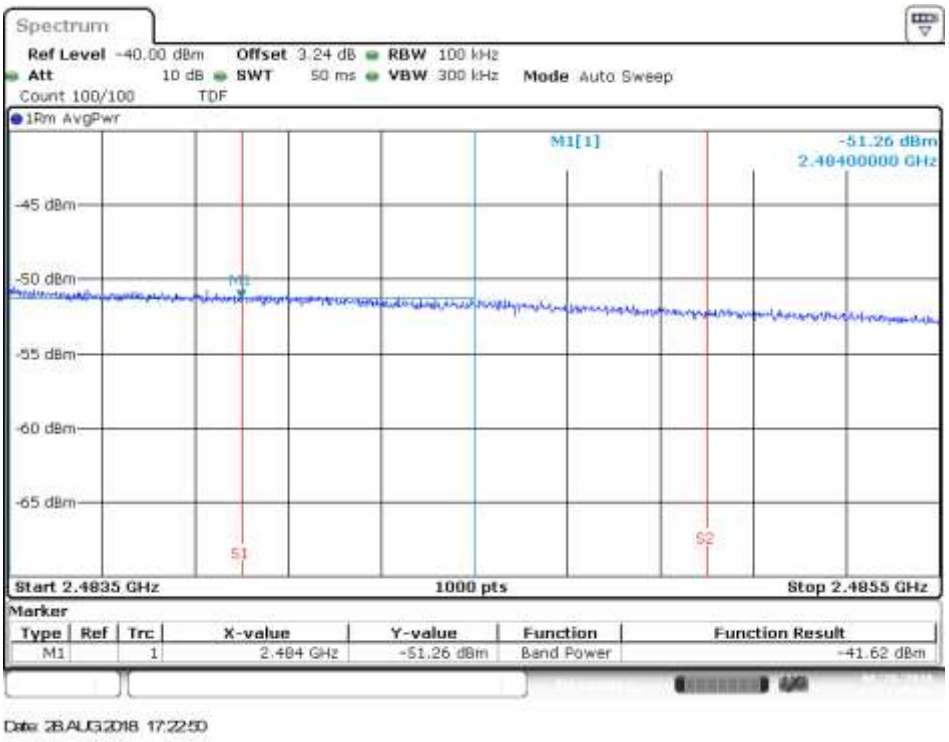
Channel 12 - BE High Freq Section (restricted)



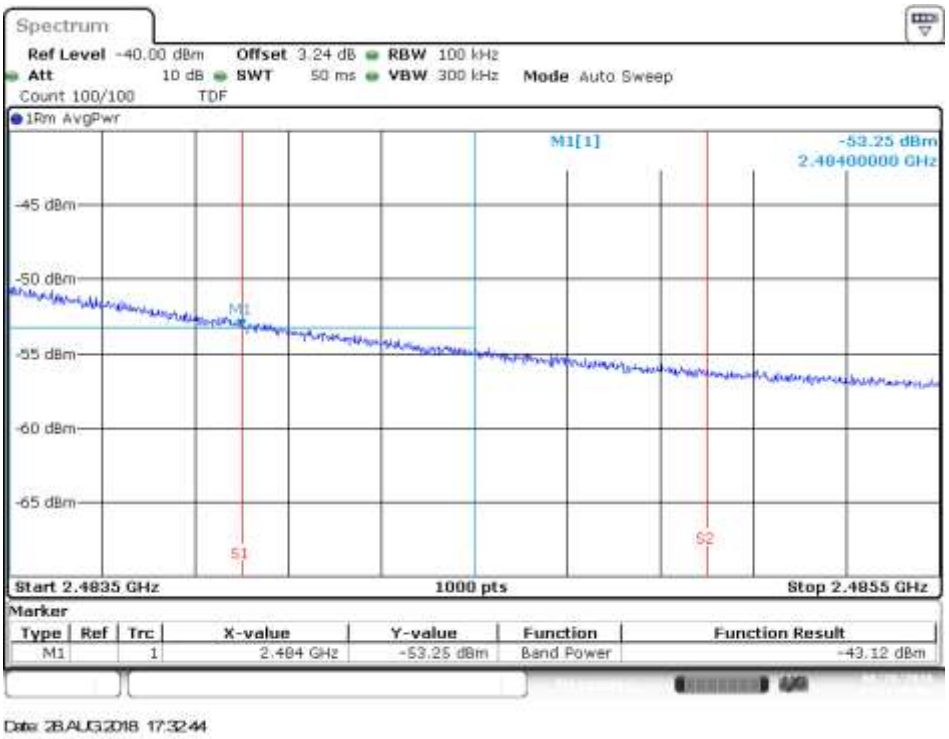
Channel 13 - BE High Freq Section (restricted)



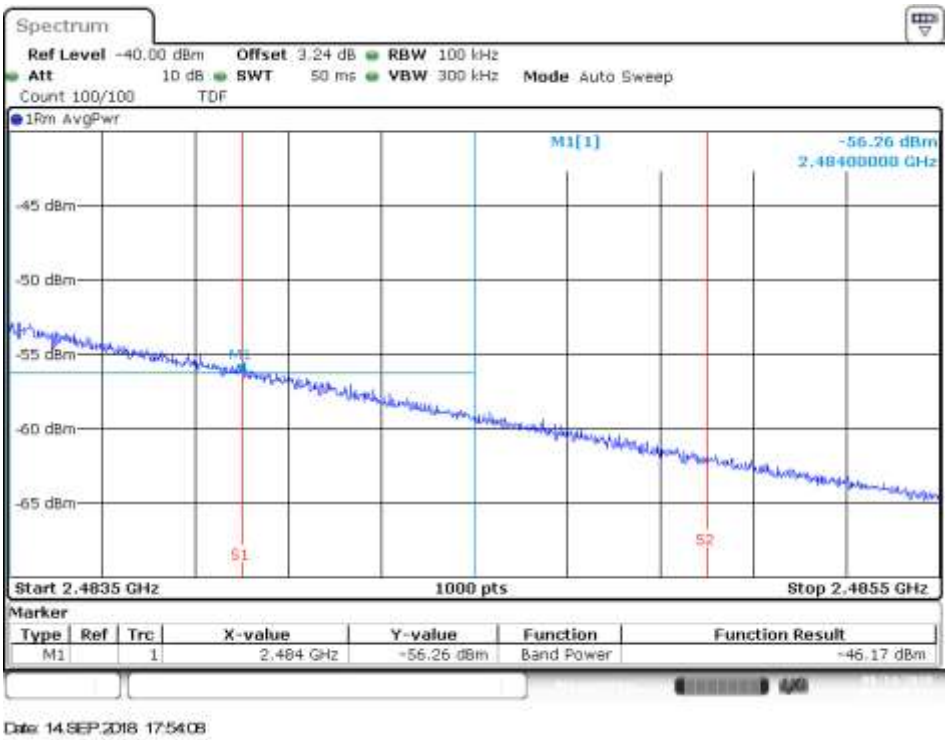
Channel 11 - BE High Freq Section RMS within 2MHz (restricted)



Channel 12 - BE High Freq Section RMS within 2MHz (restricted)

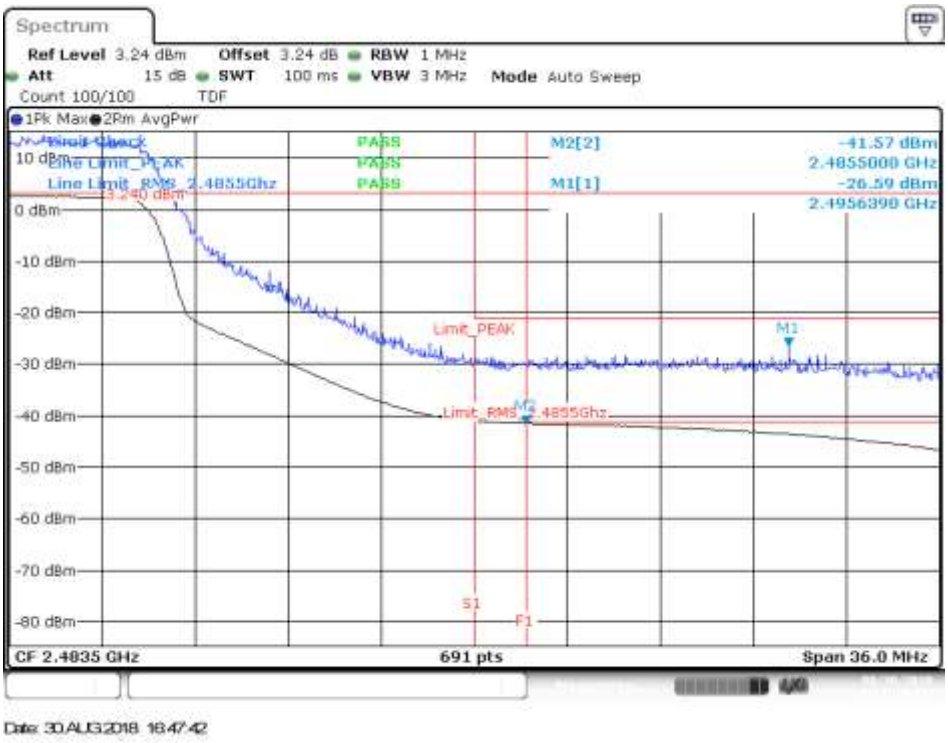


Channel 13 - BE High Freq Section RMS within 2MHz (restricted)

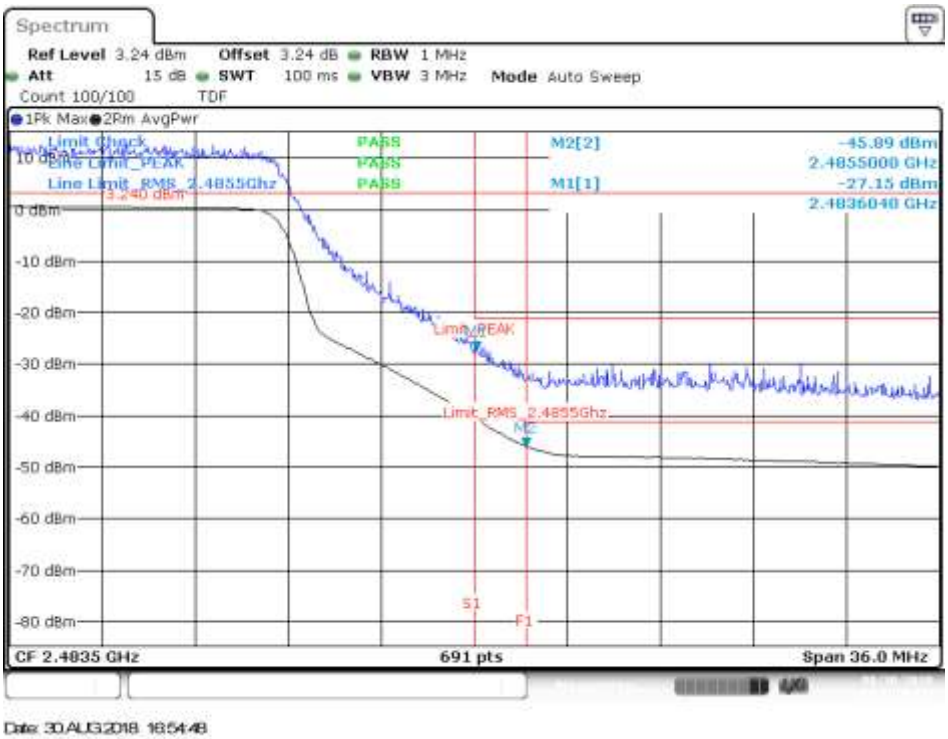


SISO-A, 802.11ax40, HE0

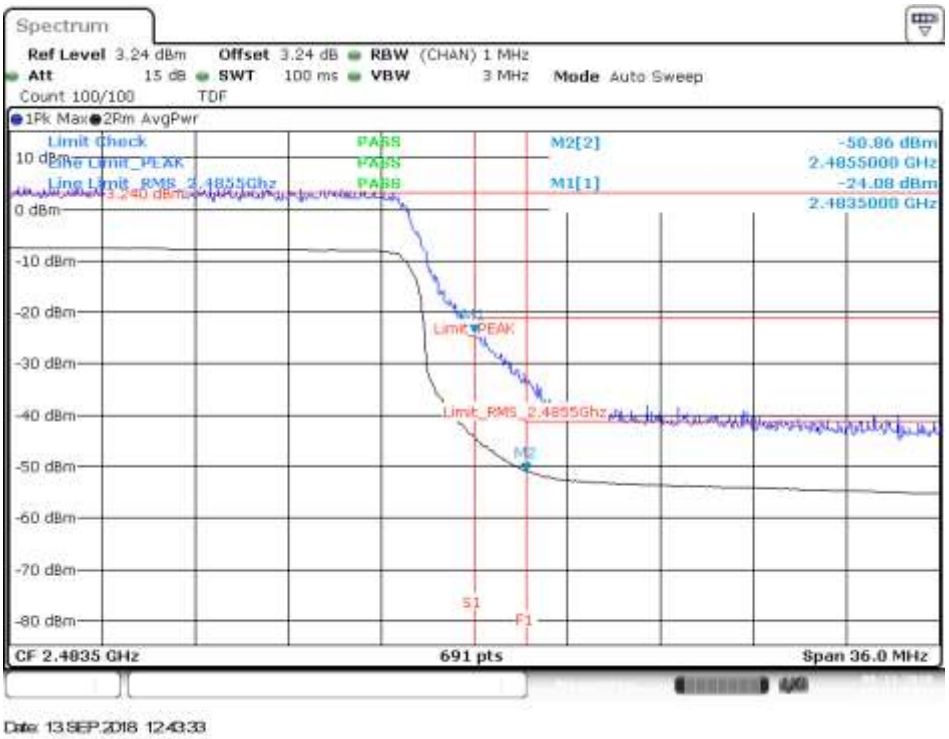
Channel 9F - BE High Freq Section (restricted)



Channel 10F - BE High Freq Section (restricted)

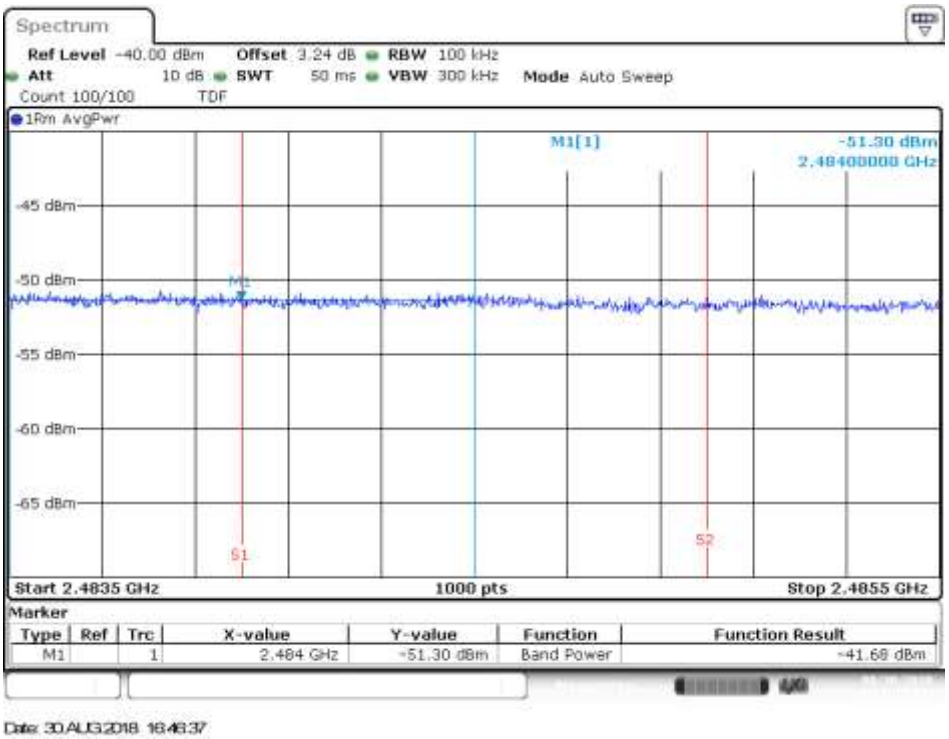


Channel 11F - BE High Freq Section (restricted)



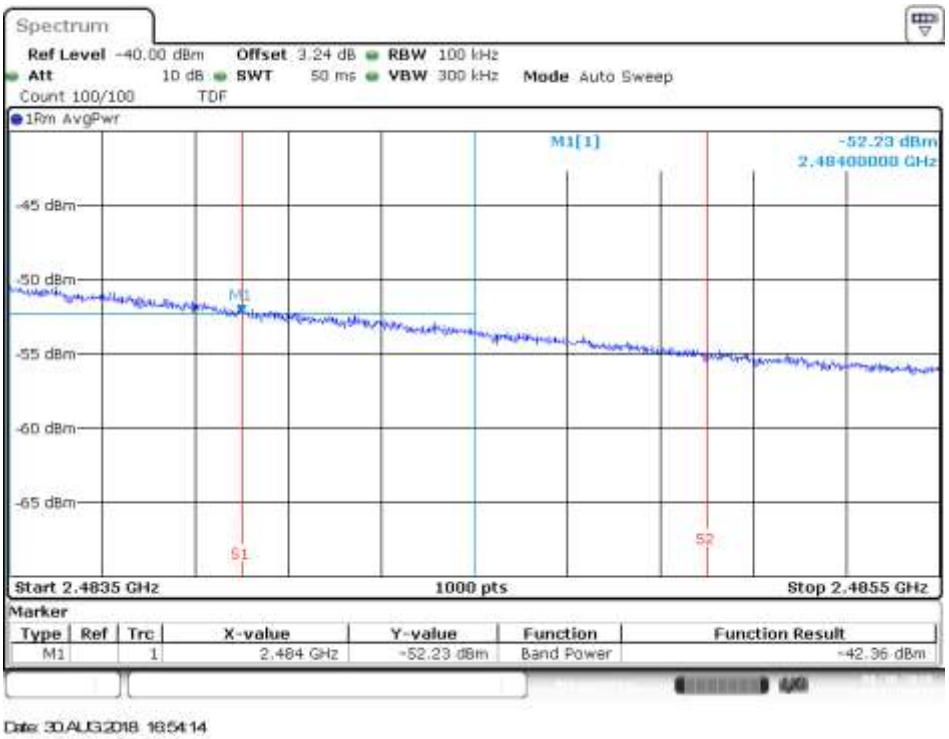
Date: 13.SEP.2018 12:43:33

Channel 9F - BE High Freq Section RMS within 2MHz (restricted)



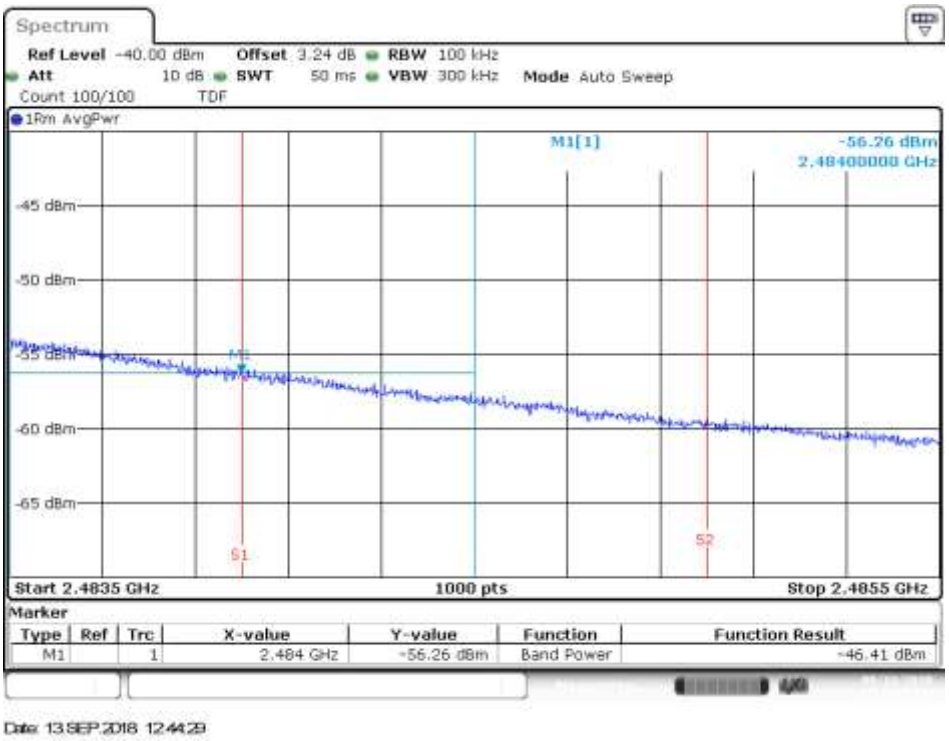
Date: 30.AUG.2018 16:48:37

Channel 10F - BE High Freq Section RMS within 2MHz (restricted)



Date: 30.AUG.2018 16:54:14

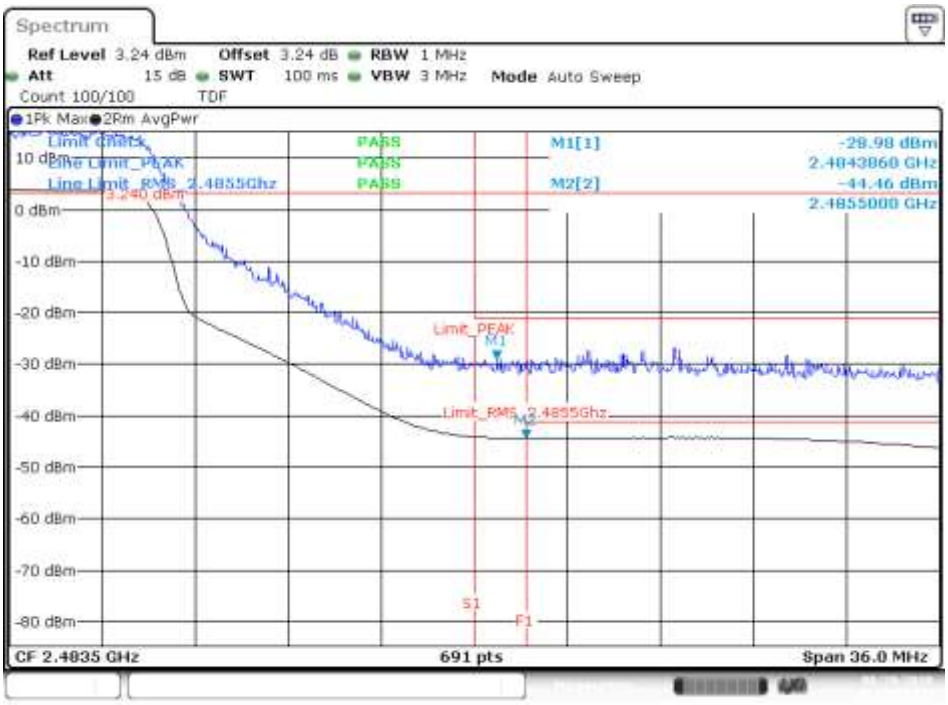
Channel 11F - BE High Freq Section RMS within 2MHz (restricted)



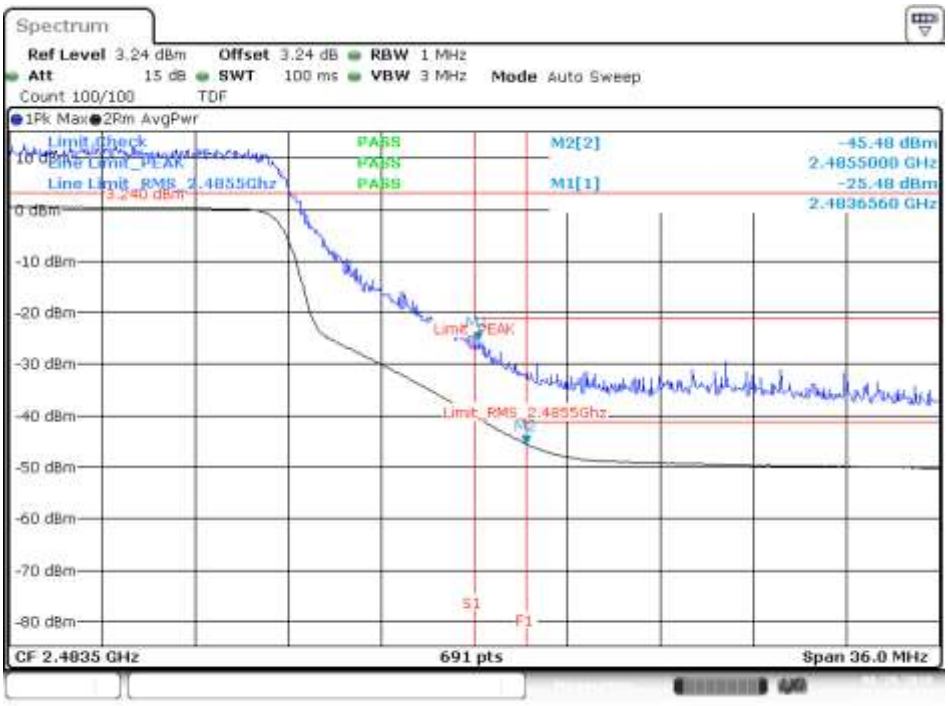
Date: 13.SEP.2018 12:44:29

SISO-B, 802.11ax40, HE0

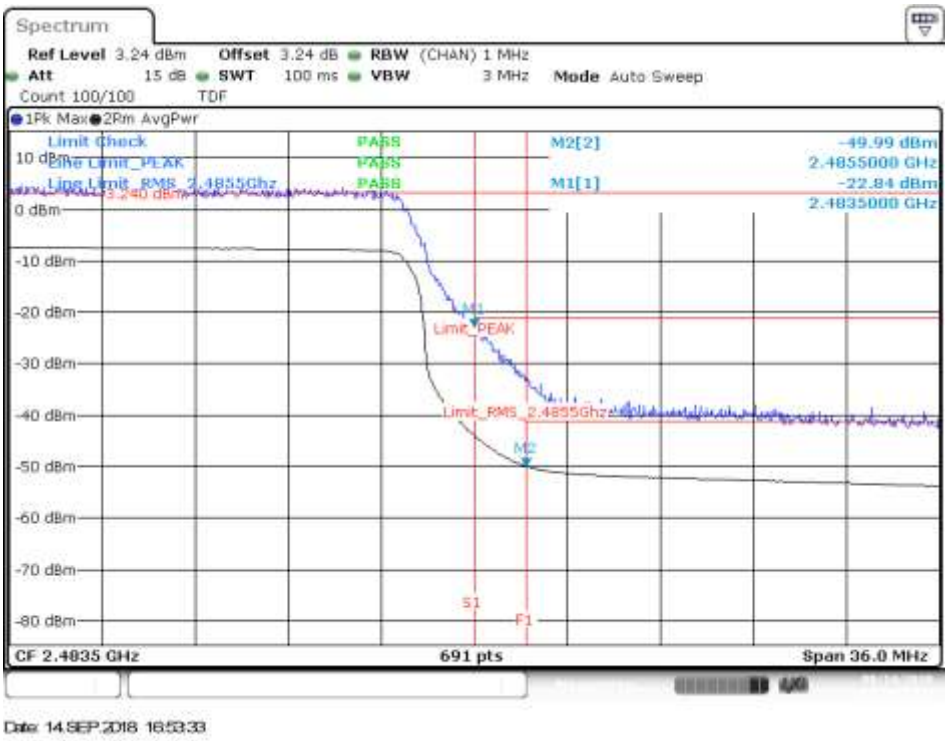
Channel 9F - BE High Freq Section (restricted)



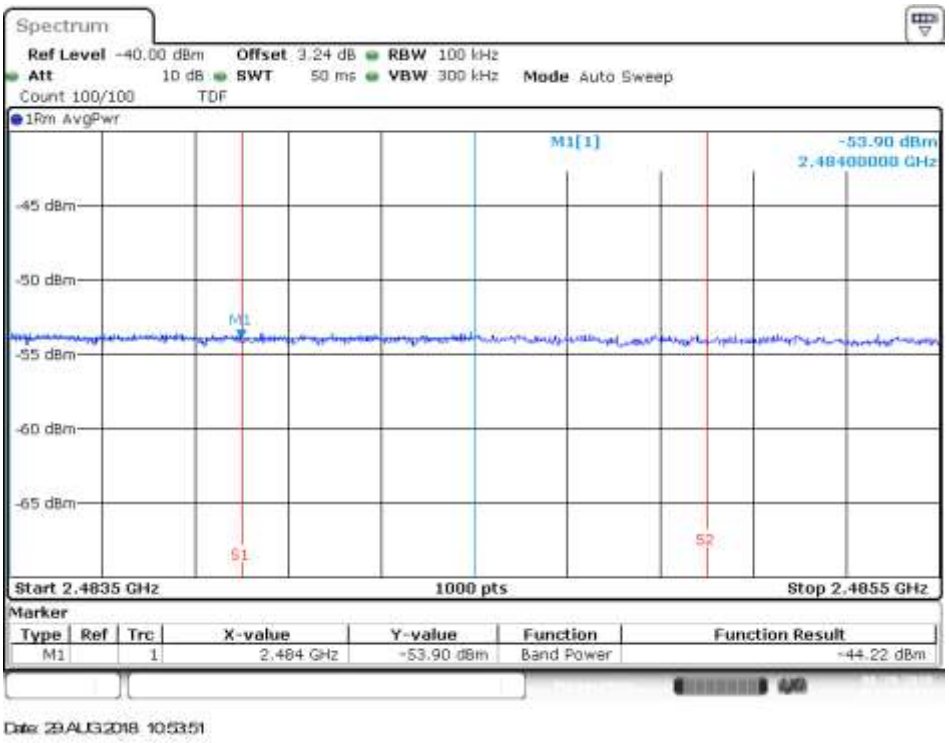
Channel 10F - BE High Freq Section (restricted)



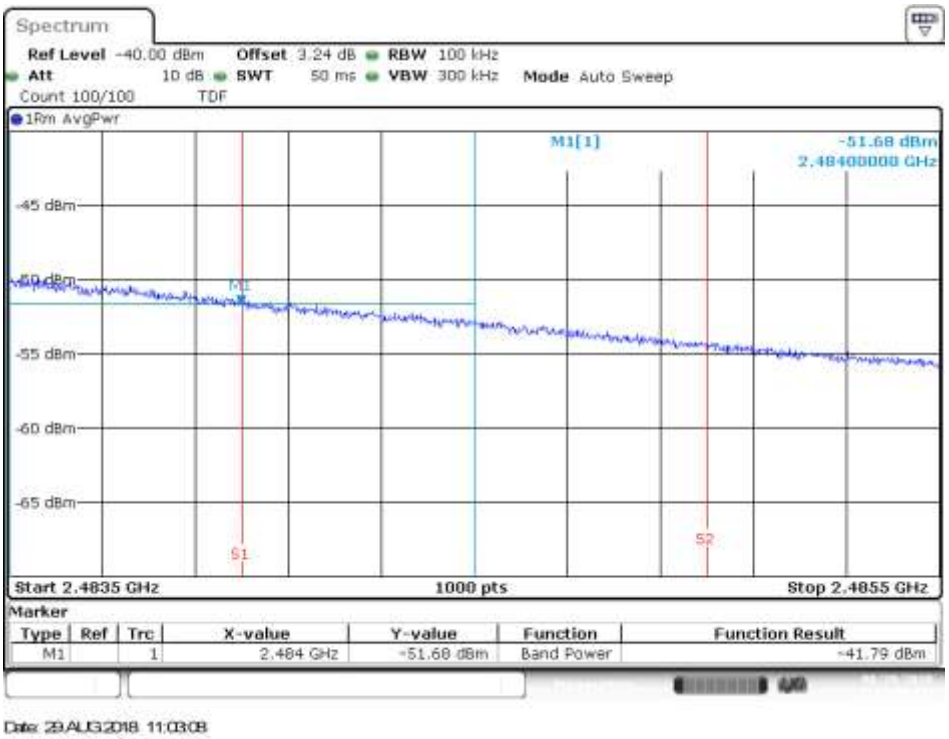
Channel 11F - BE High Freq Section (restricted)



Channel 9F - BE High Freq Section RMS within 2MHz (restricted)

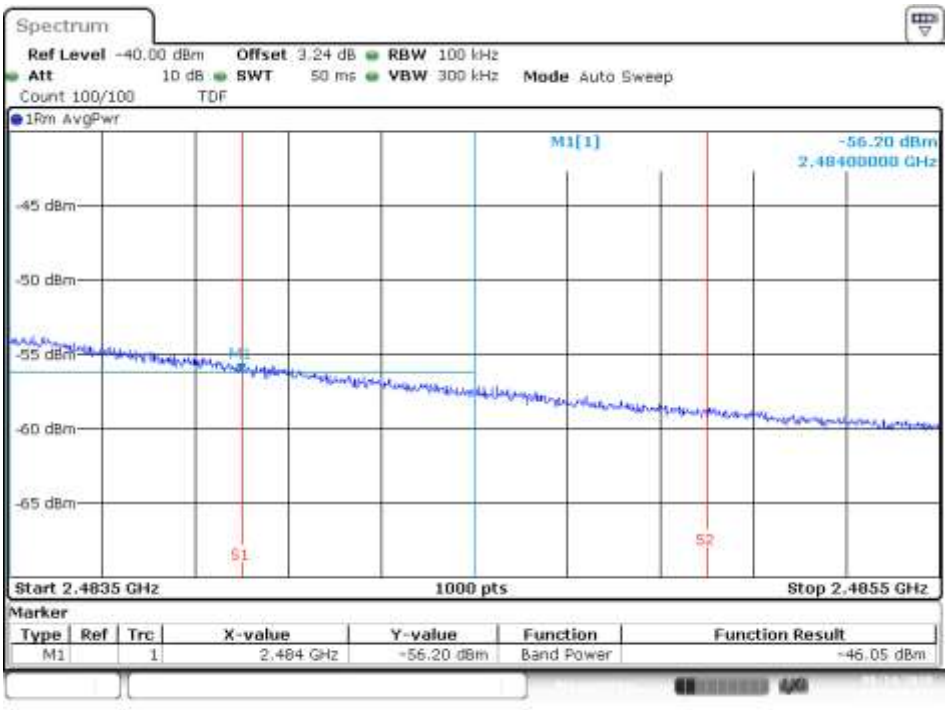


Channel 10F - BE High Freq Section RMS within 2MHz (restricted)



Date: 29.AUG.2018 11:03:08

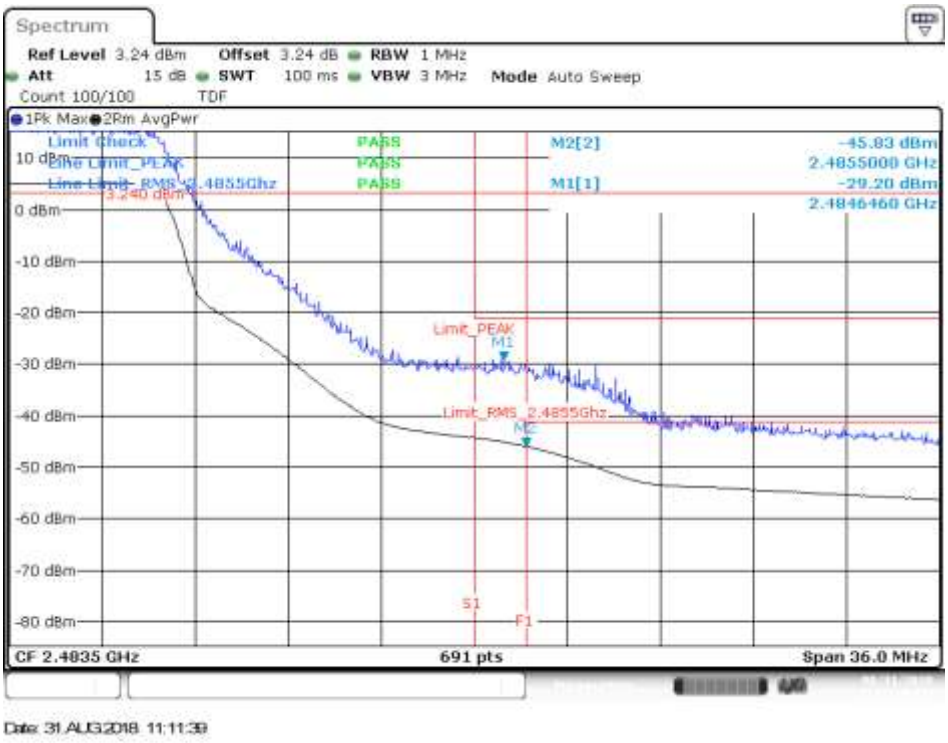
Channel 11F - BE High Freq Section RMS within 2MHz (restricted)



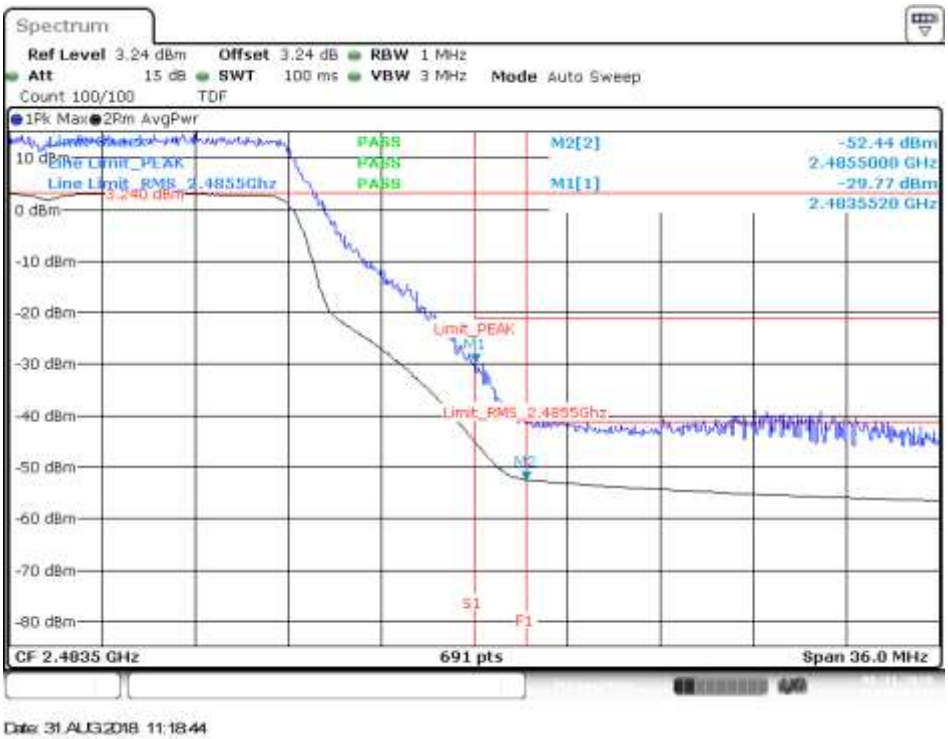
Date: 14.SEP.2018 16:54:37

MIMO-A, 802.11ax20, HE0

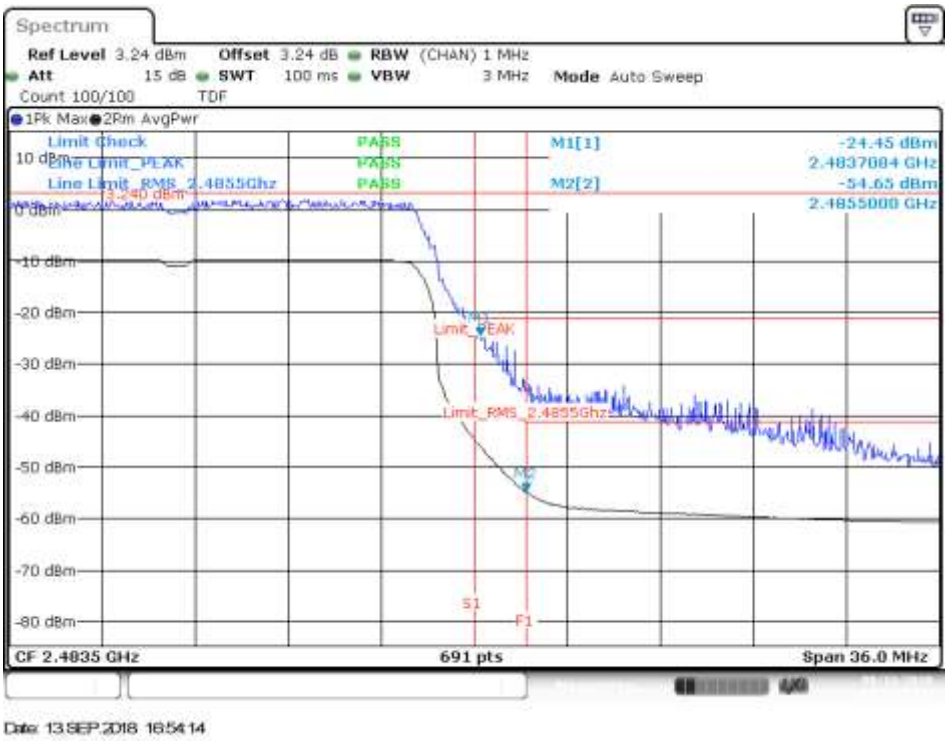
Channel 11 - BE High Freq Section (restricted)



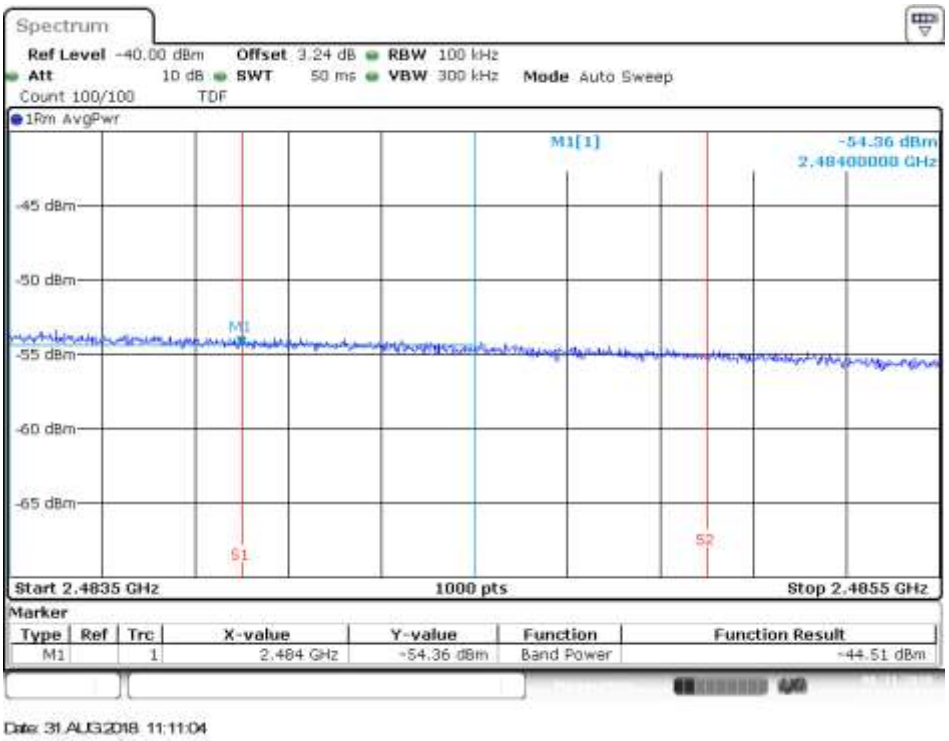
Channel 12 - BE High Freq Section (restricted)



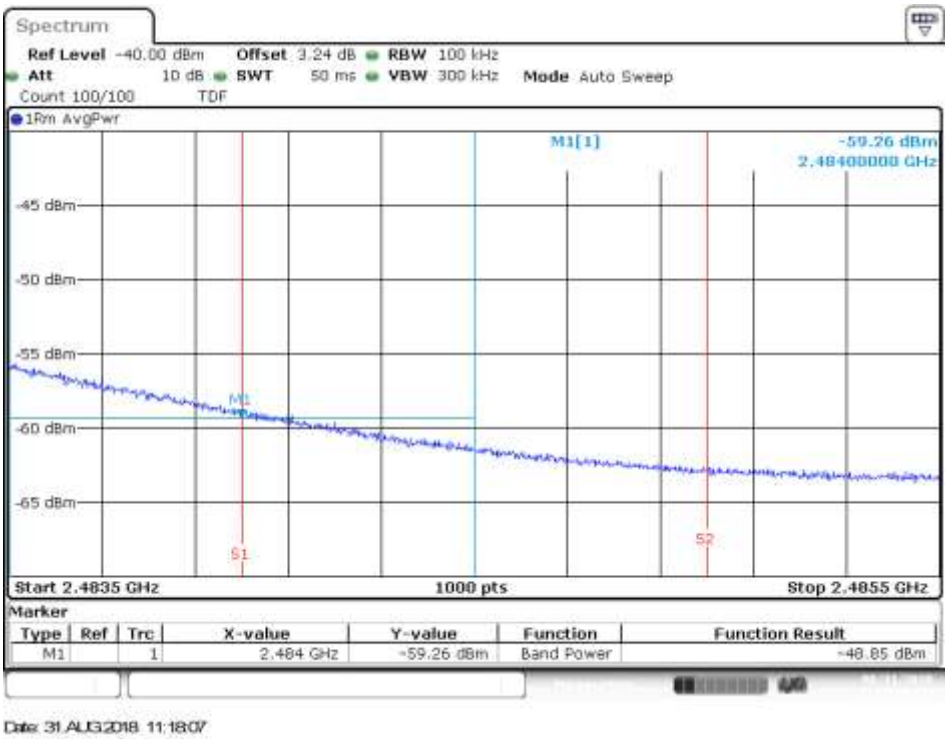
Channel 13 - BE High Freq Section (restricted)



Channel 11 - BE High Freq Section RMS within 2MHz (restricted)

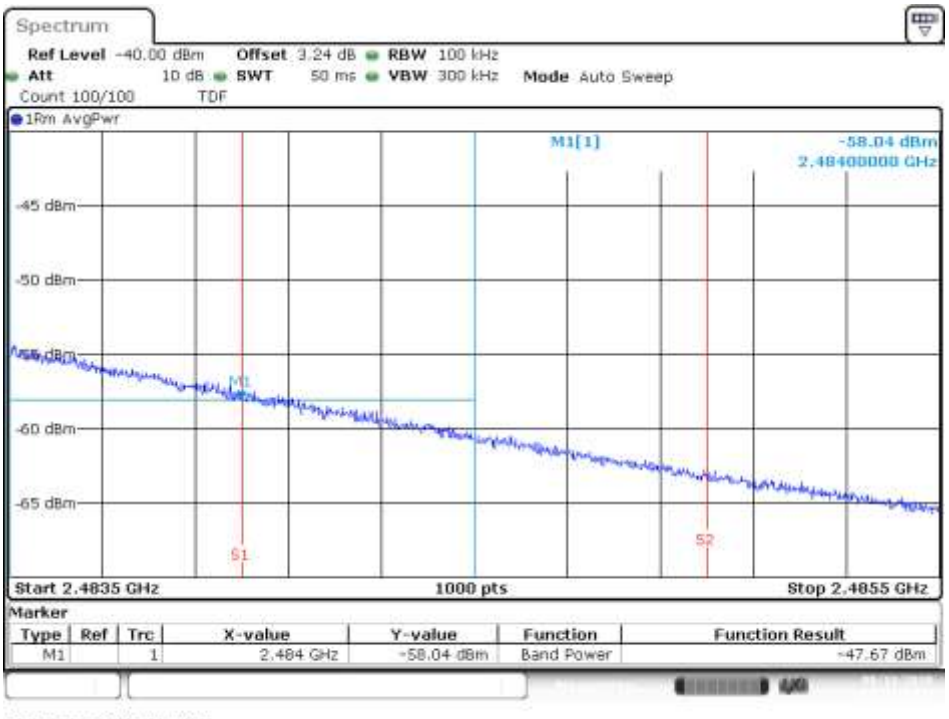


Channel 12 - BE High Freq Section RMS within 2MHz (restricted)



Date: 31.AUG.2018 11:18:07

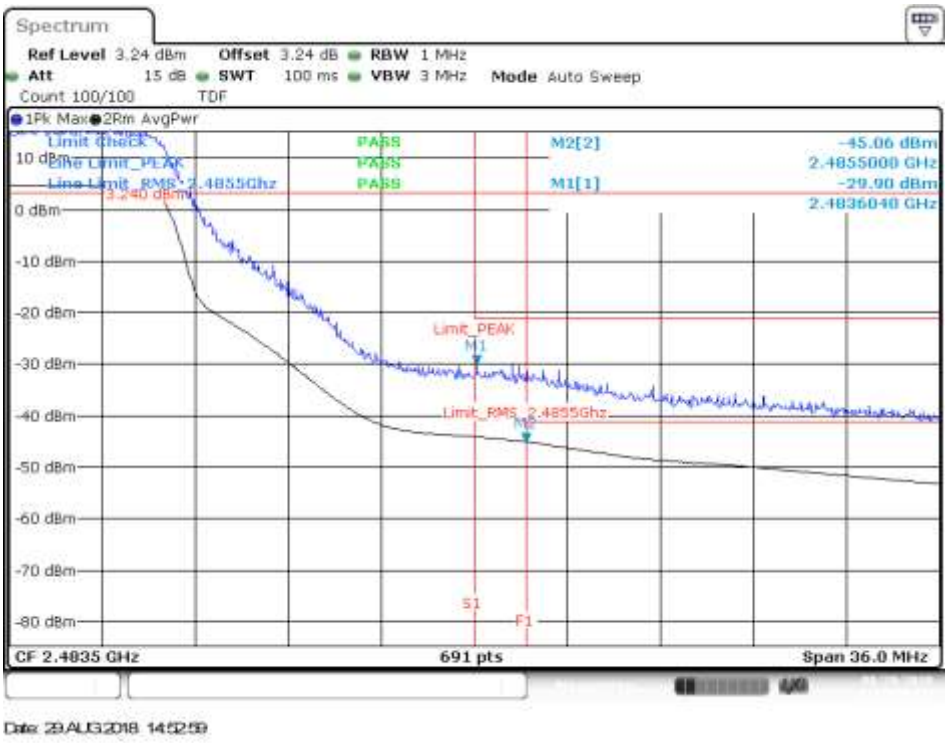
Channel 13 - BE High Freq Section RMS within 2MHz (restricted)



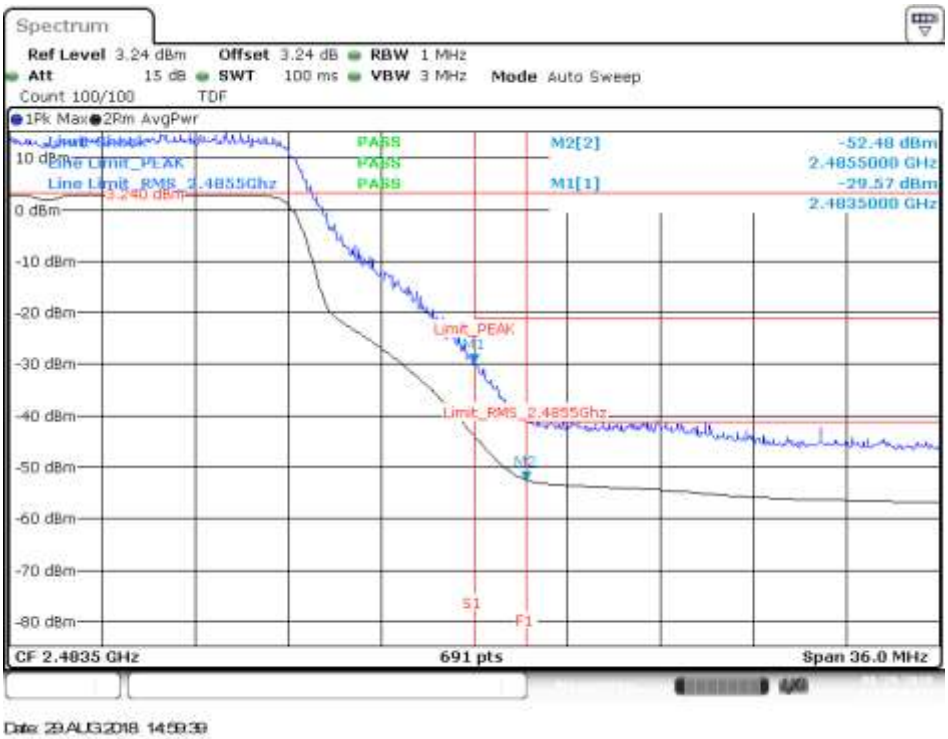
Date: 13.SEP.2018 16:55:32

MIMO-B, 802.11ax20, HE0

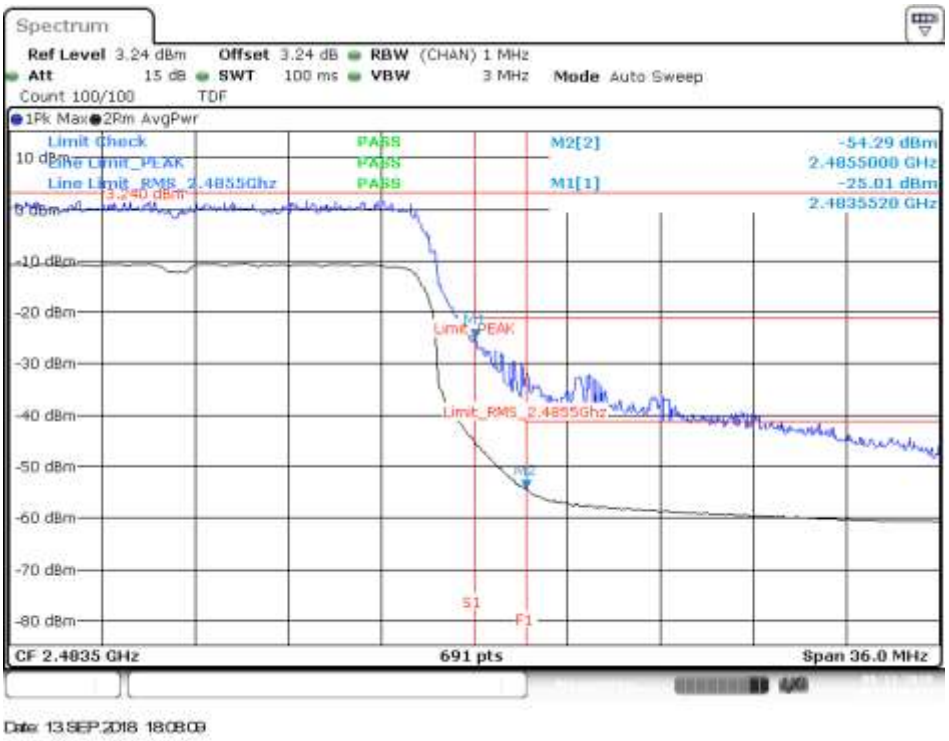
Channel 11 - BE High Freq Section (restricted)



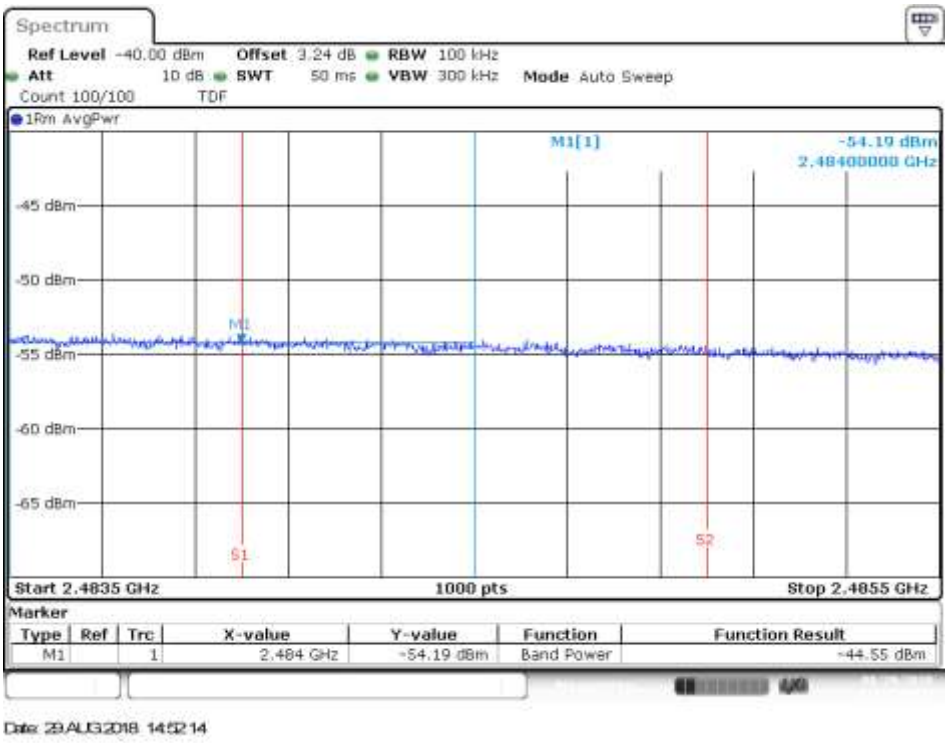
Channel 12 - BE High Freq Section (restricted)



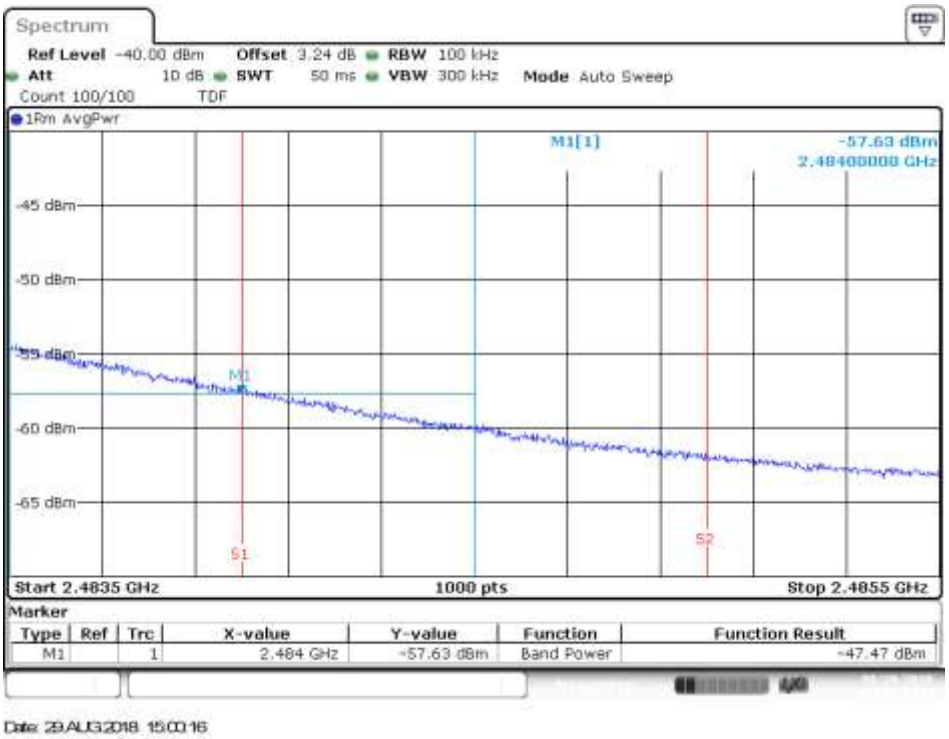
Channel 13 - BE High Freq Section (restricted)



Channel 11 - BE High Freq Section RMS within 2MHz (restricted)

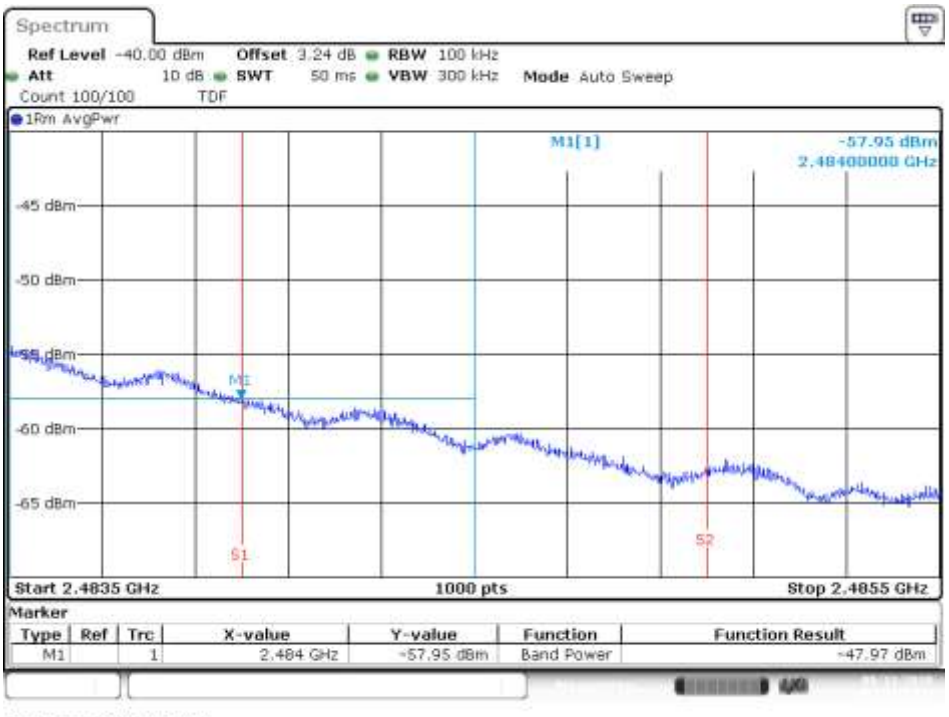


Channel 12 - BE High Freq Section RMS within 2MHz (restricted)



Date: 29.AUG.2018 15:00:16

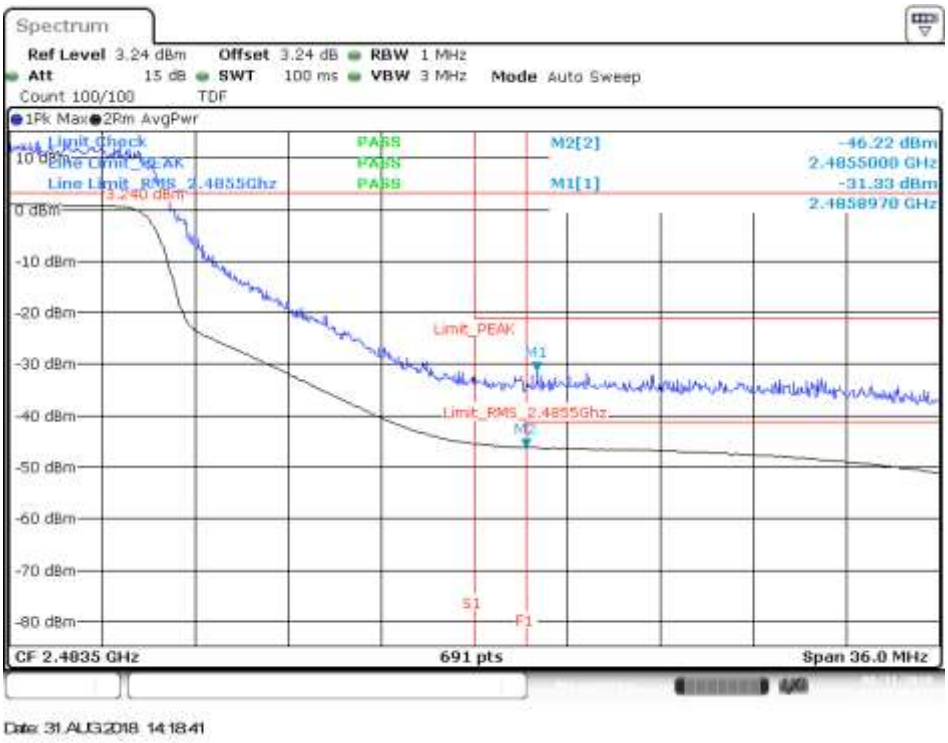
Channel 13 - BE High Freq Section RMS within 2MHz (restricted)



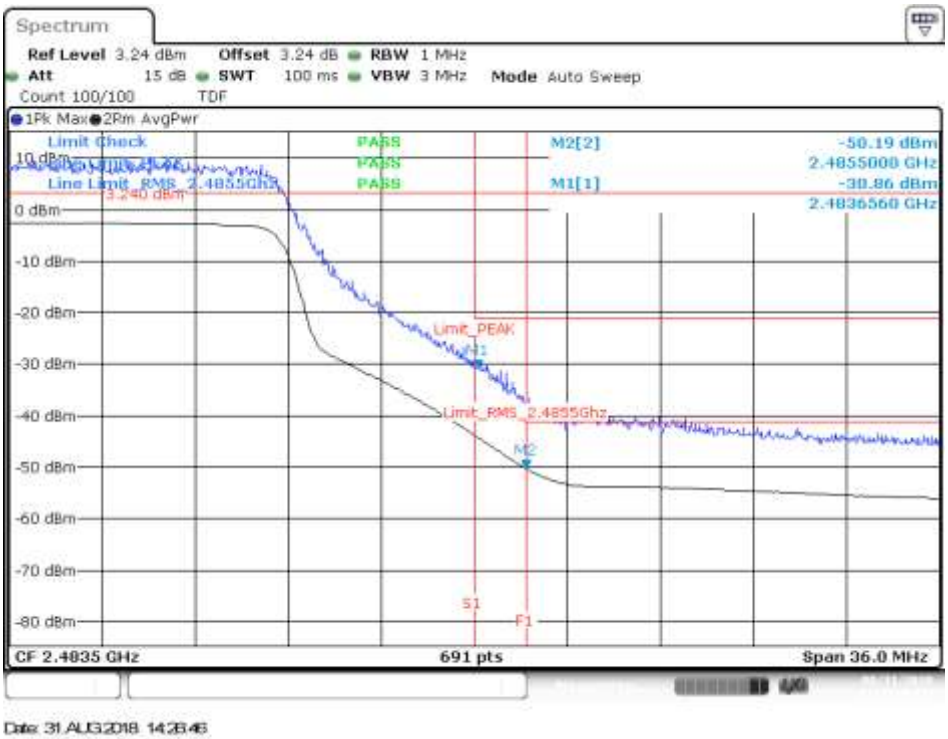
Date: 13.SEP.2018 18:09:03

MIMO-A, 802.11ax40, HE0

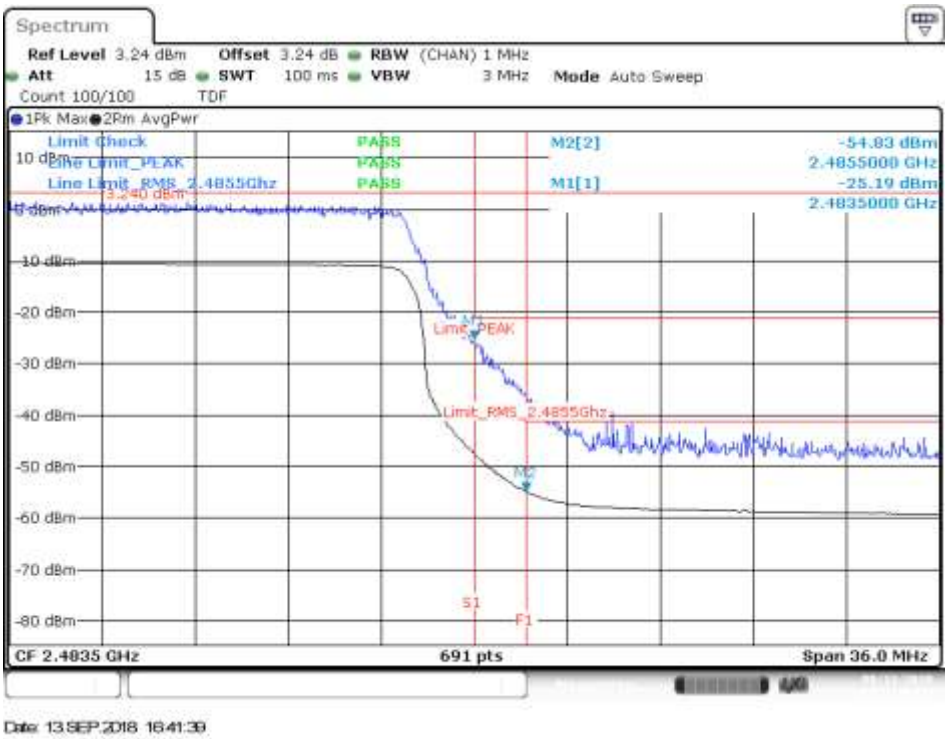
Channel 9F - BE High Freq Section (restricted)



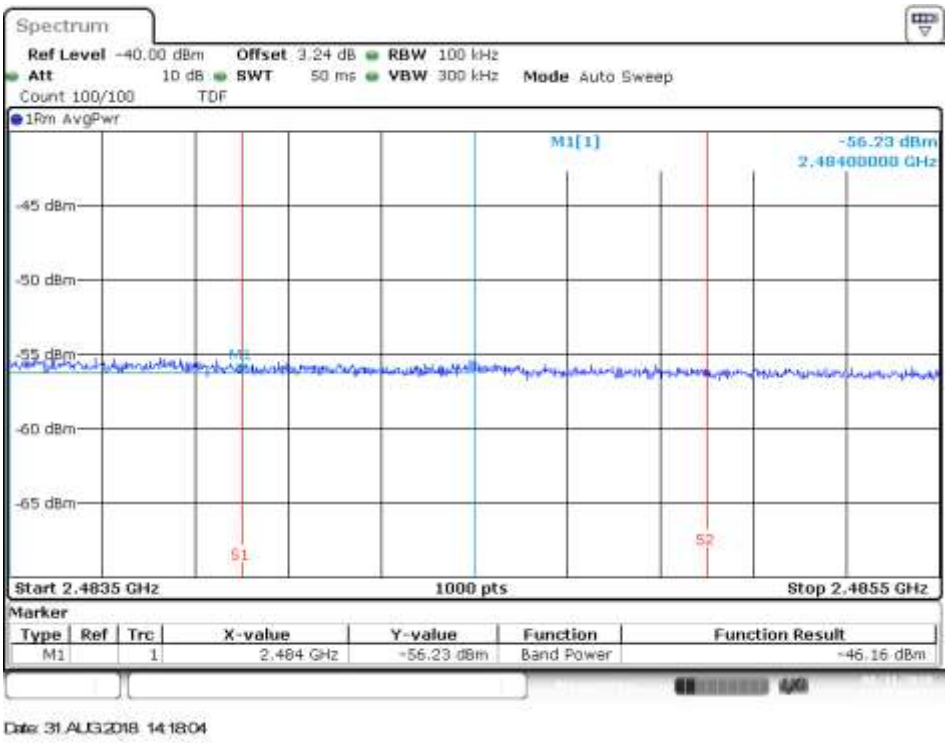
Channel 10F - BE High Freq Section (restricted)



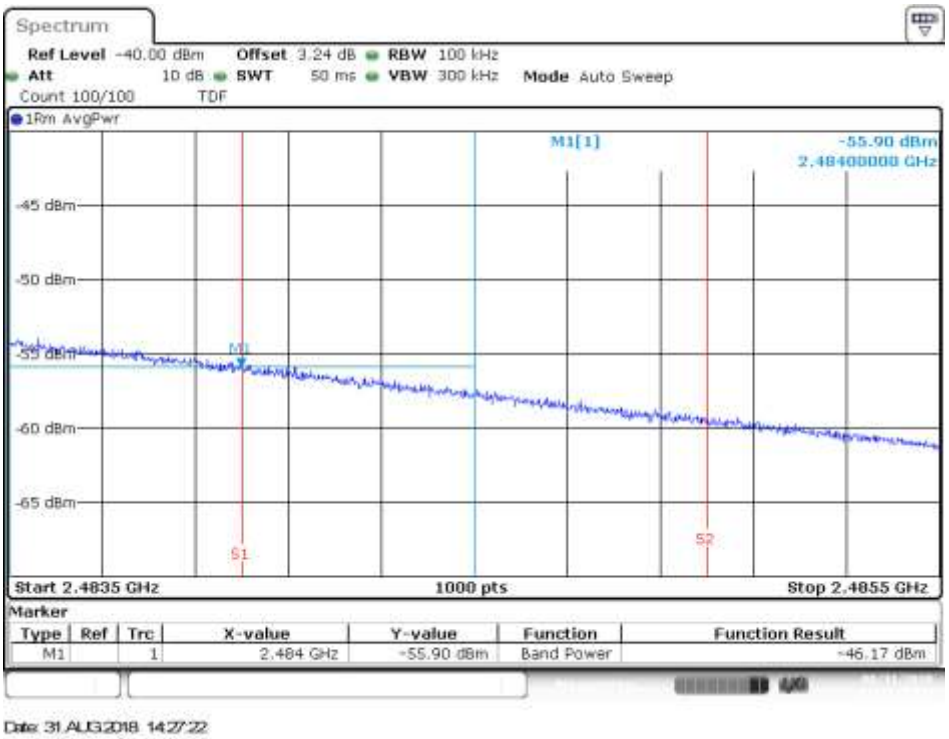
Channel 11F - BE High Freq Section (restricted)



Channel 9F - BE High Freq Section RMS within 2MHz (restricted)

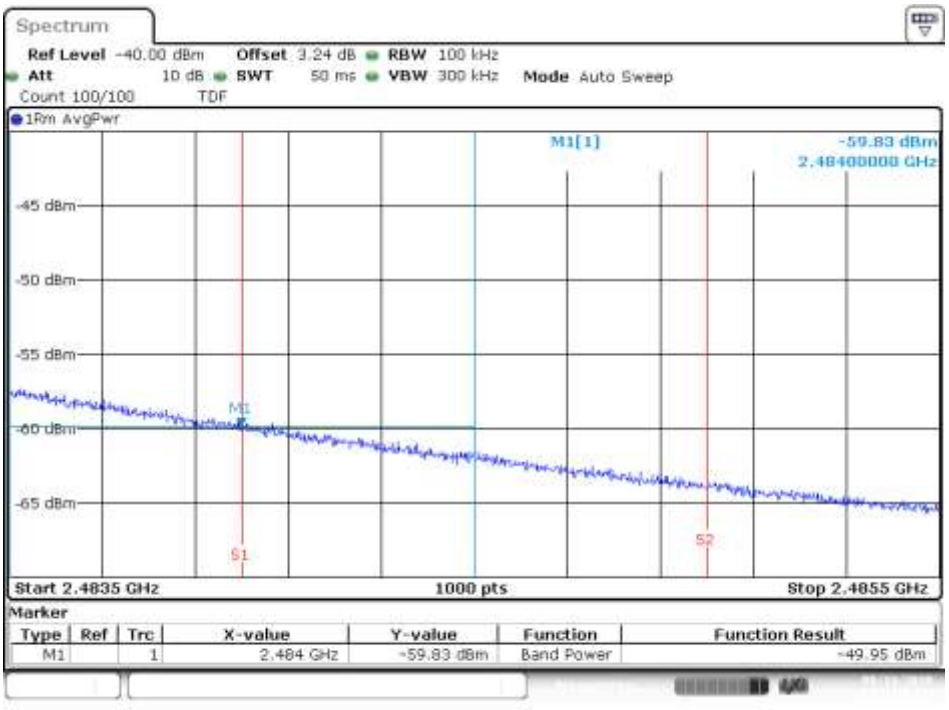


Channel 10F - BE High Freq Section RMS within 2MHz (restricted)



Date: 31.AUG.2018 14:27:22

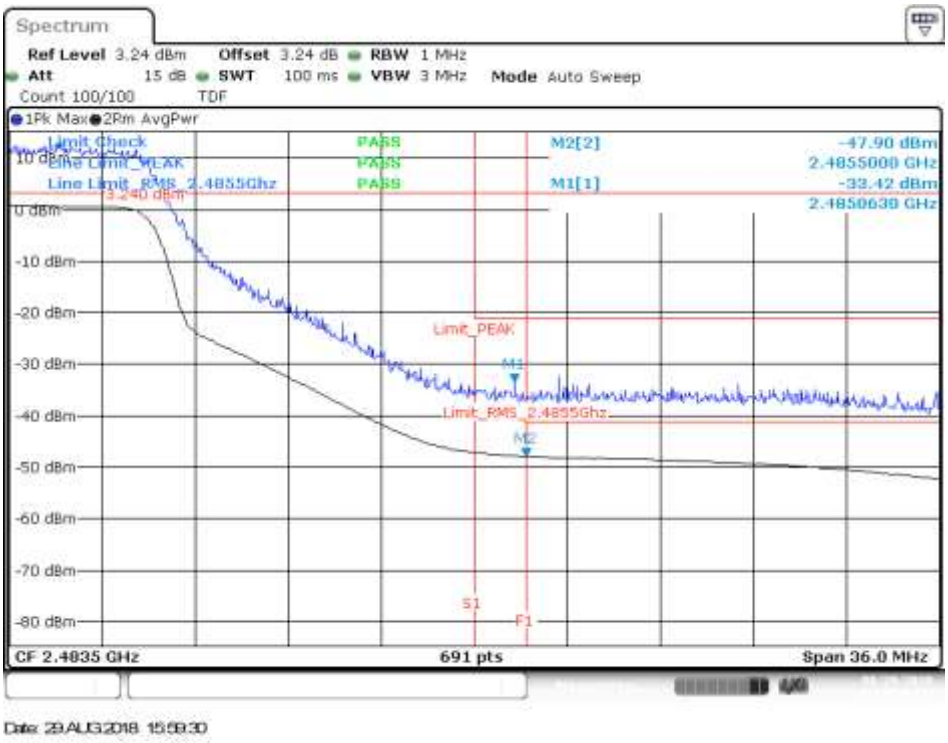
Channel 11F - BE High Freq Section RMS within 2MHz (restricted)



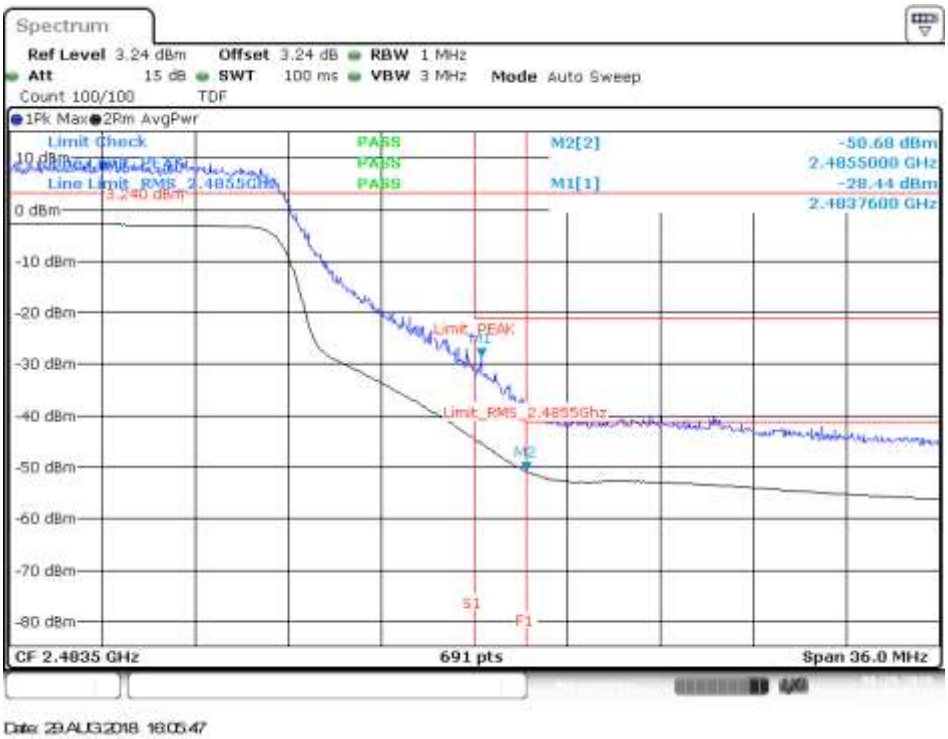
Date: 13.SEP.2018 16:42:03

MIMO-B, 802.11ax40, HE0

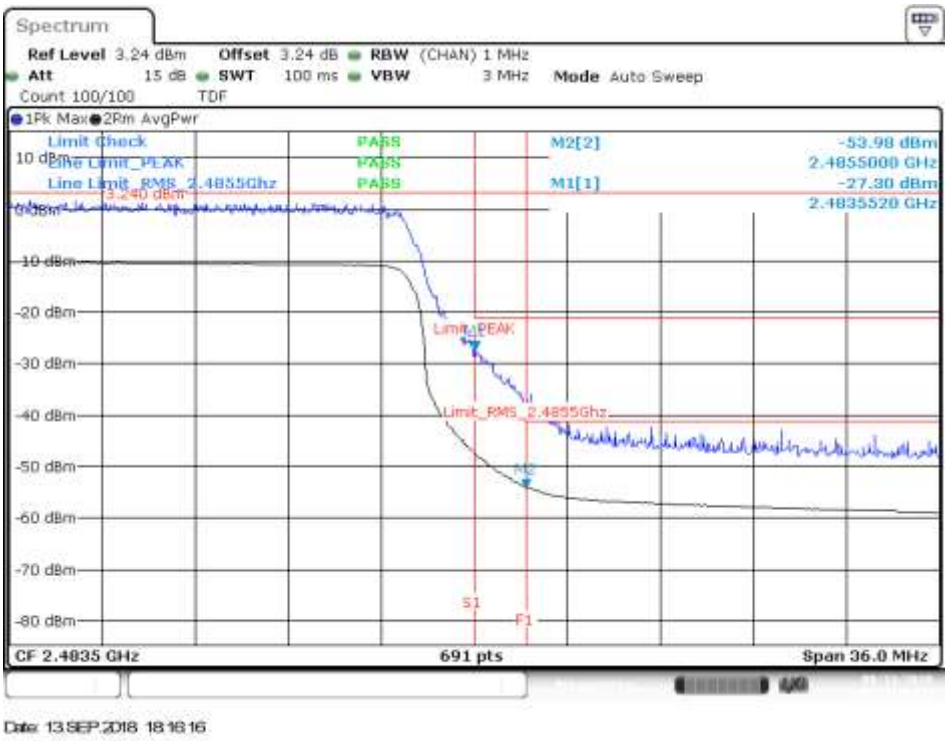
Channel 9F - BE High Freq Section (restricted)



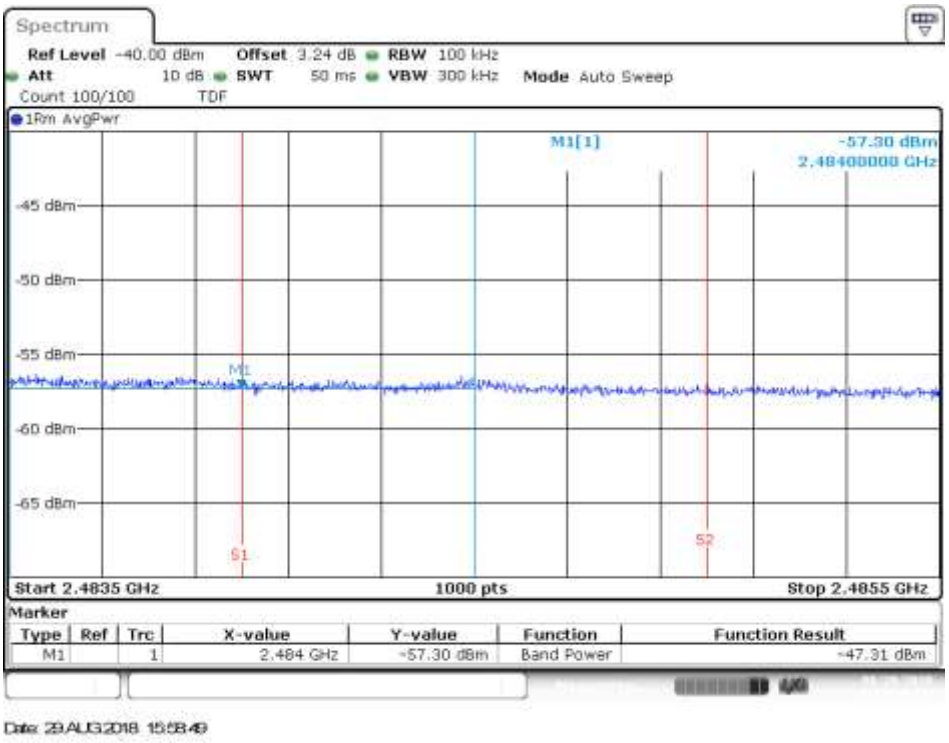
Channel 10F - BE High Freq Section (restricted)



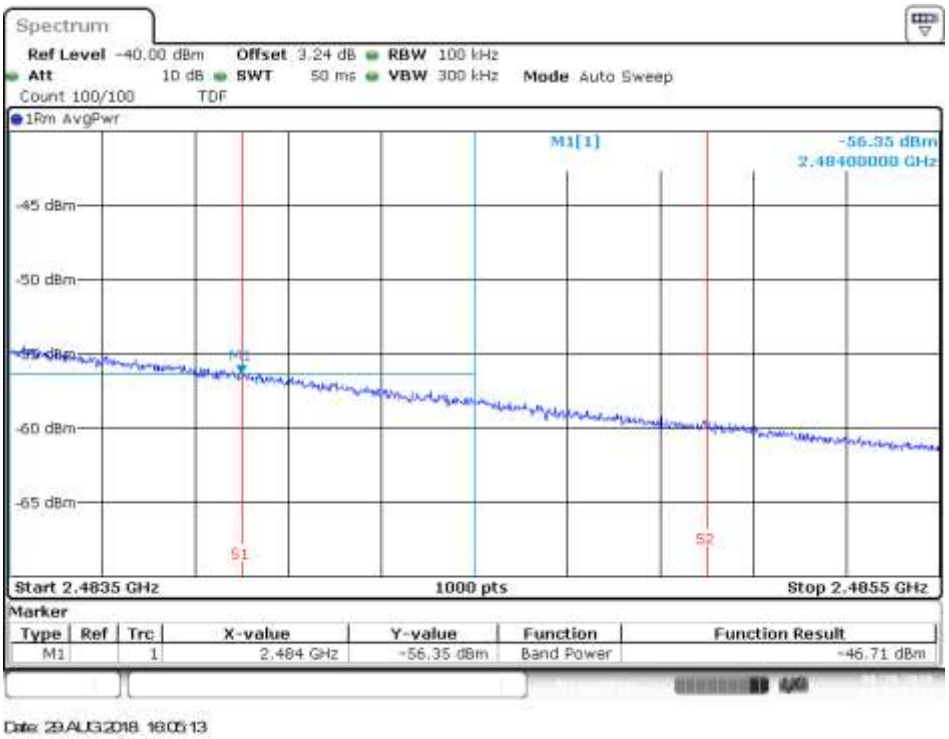
Channel 11F - BE High Freq Section (restricted)



Channel 9F - BE High Freq Section RMS within 2MHz (restricted)

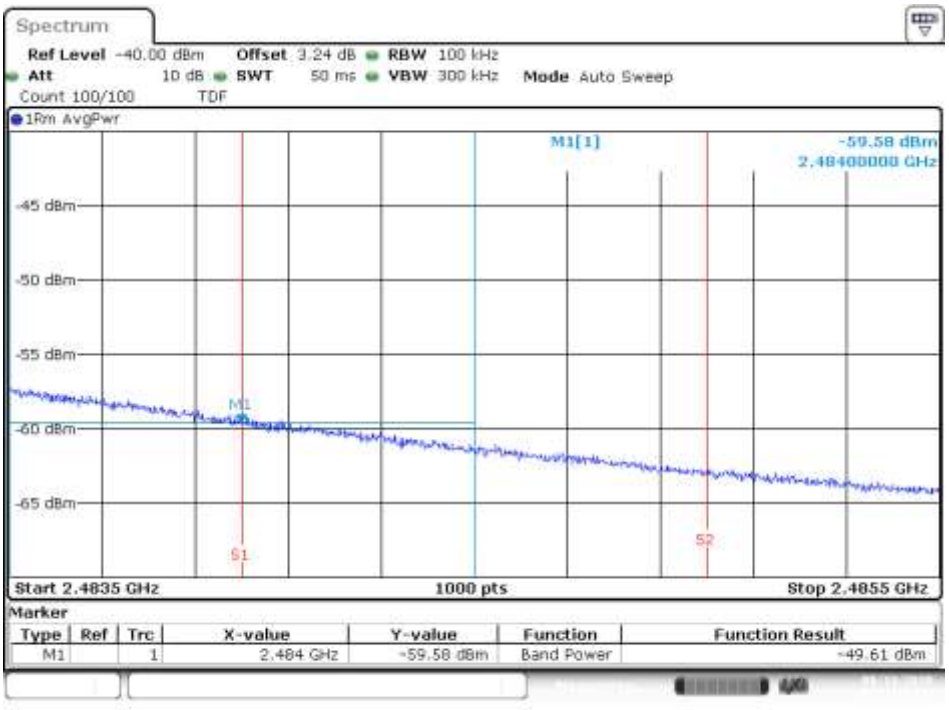


Channel 10F - BE High Freq Section RMS within 2MHz (restricted)



Date: 29.AUG.2018 18:05:13

Channel 11F - BE High Freq Section RMS within 2MHz (restricted)

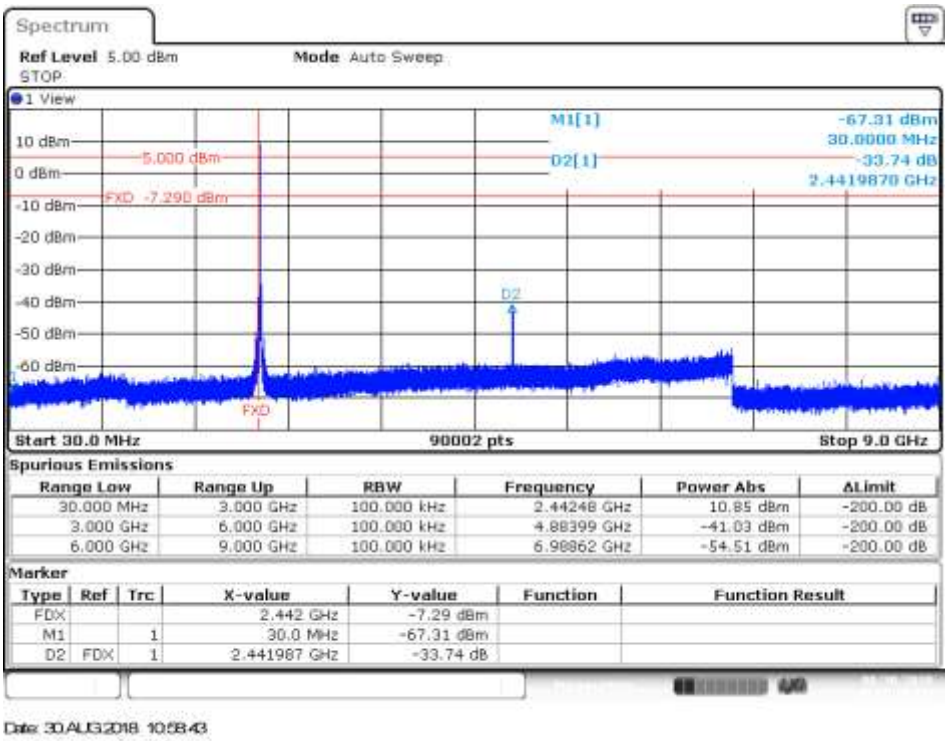


Date: 13.SEP.2018 18:17:02

B.3.7 Out of band emissions - spurious

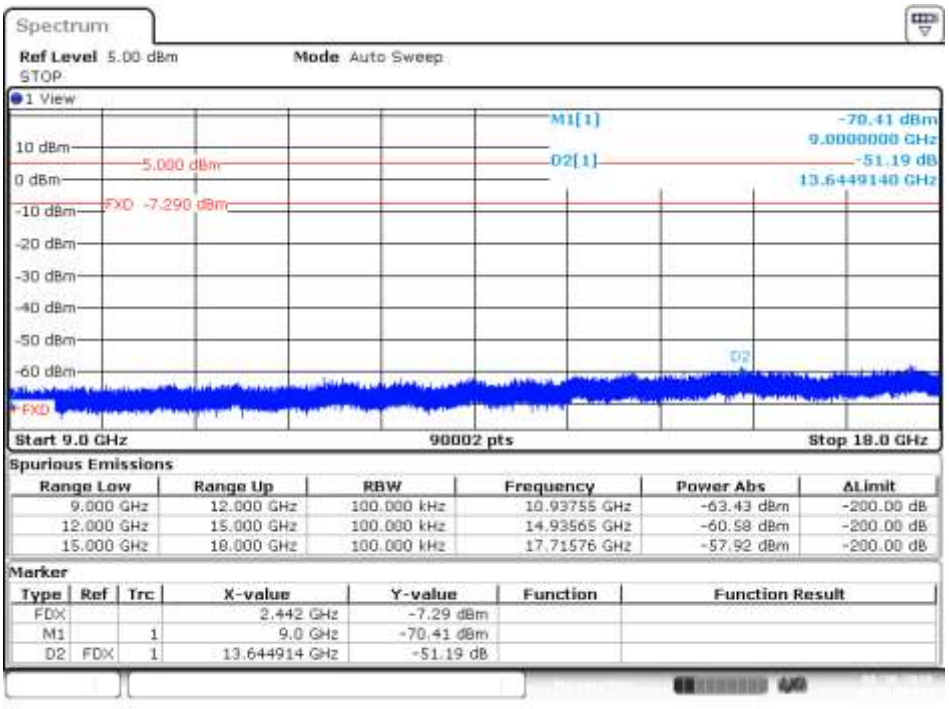
SISO-A, 802.11b, 1Mbps

Channel 7 - Range 30MHz to 9GHz - Delta Marker Measurement



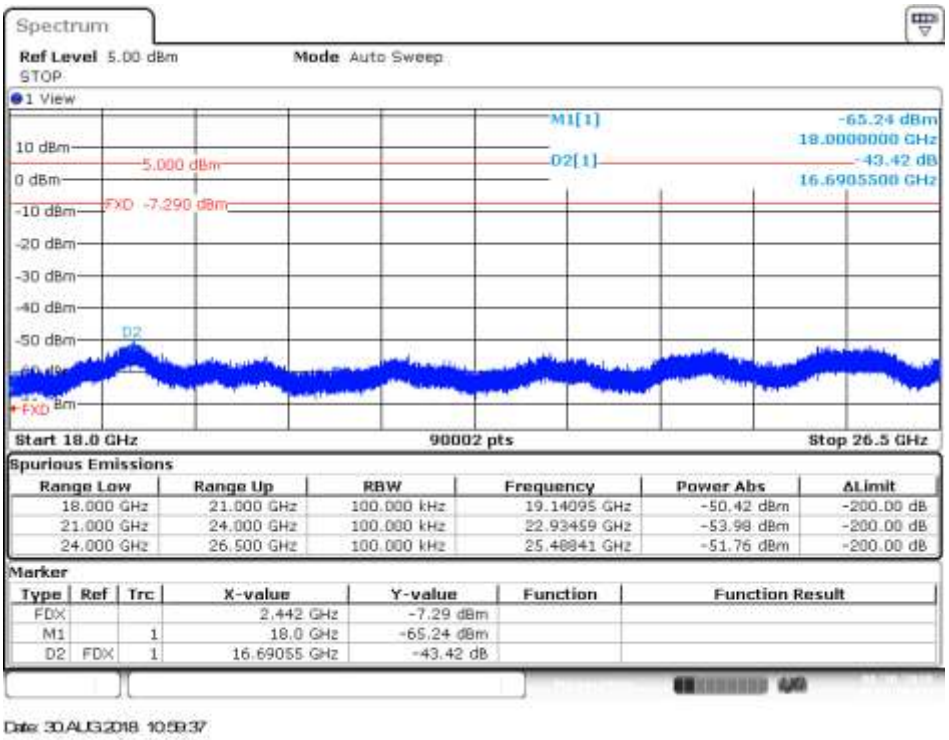
Date: 30.AUG.2018 10:58:43

Channel 7 - Range 9GHz to 18GHz - Delta Marker Measurement



Date: 30.AUG.2018 10:59:10

Channel 7 - Range 18GHz to 26.5GHz - Delta Marker Measurement



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
18.000 GHz	21.000 GHz	100.000 kHz	19.14095 GHz	-50.42 dBm	-200.00 dB
21.000 GHz	24.000 GHz	100.000 kHz	22.93459 GHz	-53.98 dBm	-200.00 dB
24.000 GHz	26.500 GHz	100.000 kHz	25.48841 GHz	-51.76 dBm	-200.00 dB

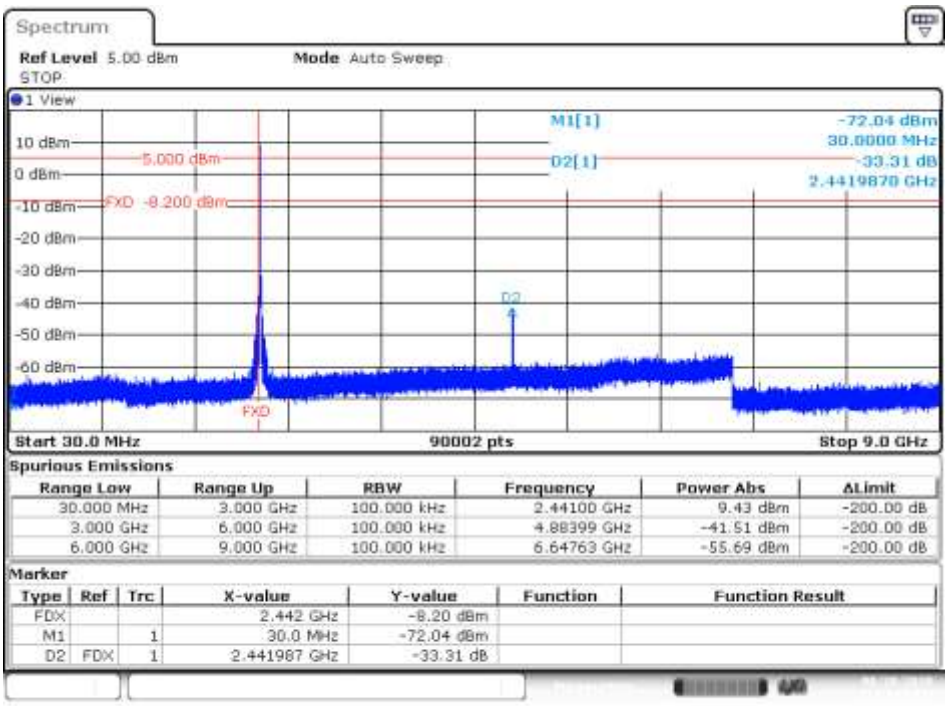
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-7.29 dBm		
M1		1	18.0 GHz	-65.24 dBm		
D2	FDX	1	16.69055 GHz	-43.42 dB		

Date: 30.AUG.2018 10:59:37

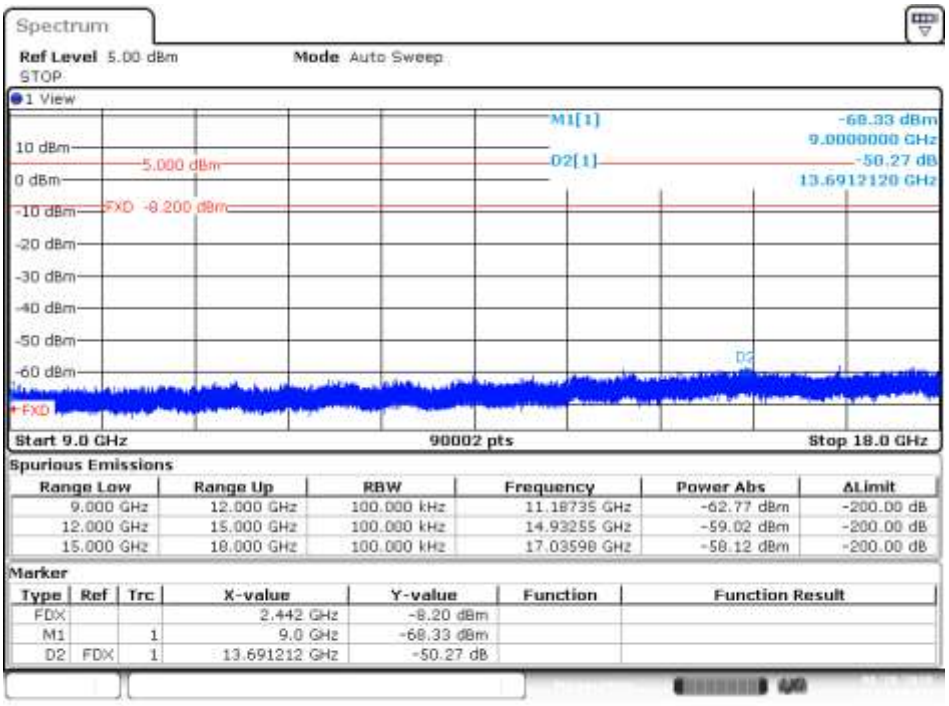
SISO-B, 802.11b, 1Mbps

Channel 7 - Range 30MHz to 9GHz - Delta Marker Measurement



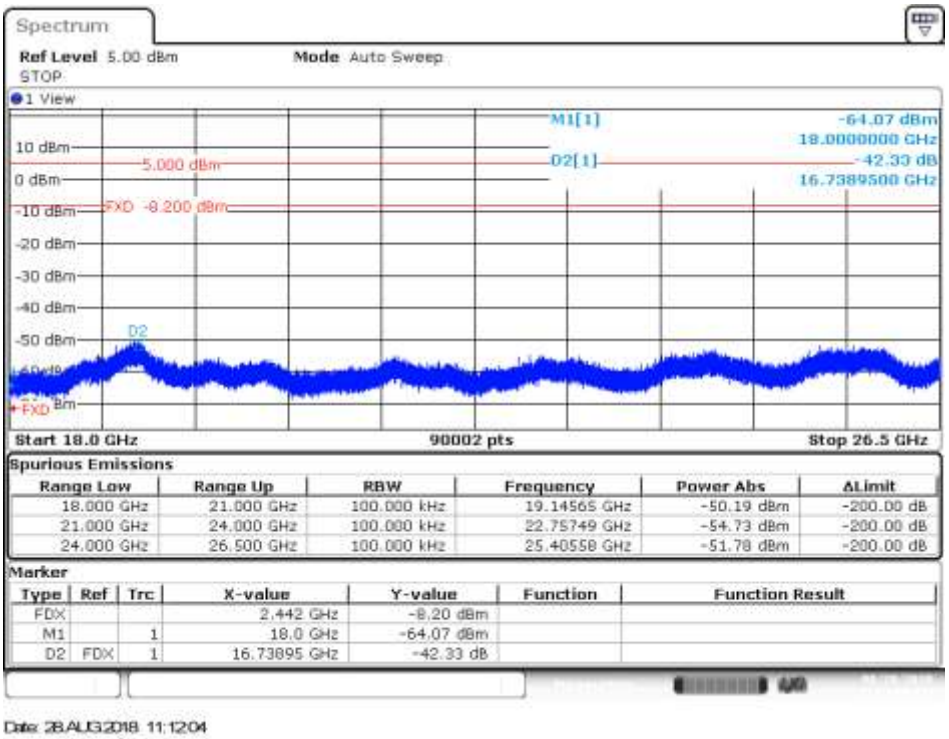
Date: 28.AUG.2018 11:11:14

Channel 7 - Range 9GHz to 18GHz - Delta Marker Measurement



Date: 28.AUG.2018 11:11:39

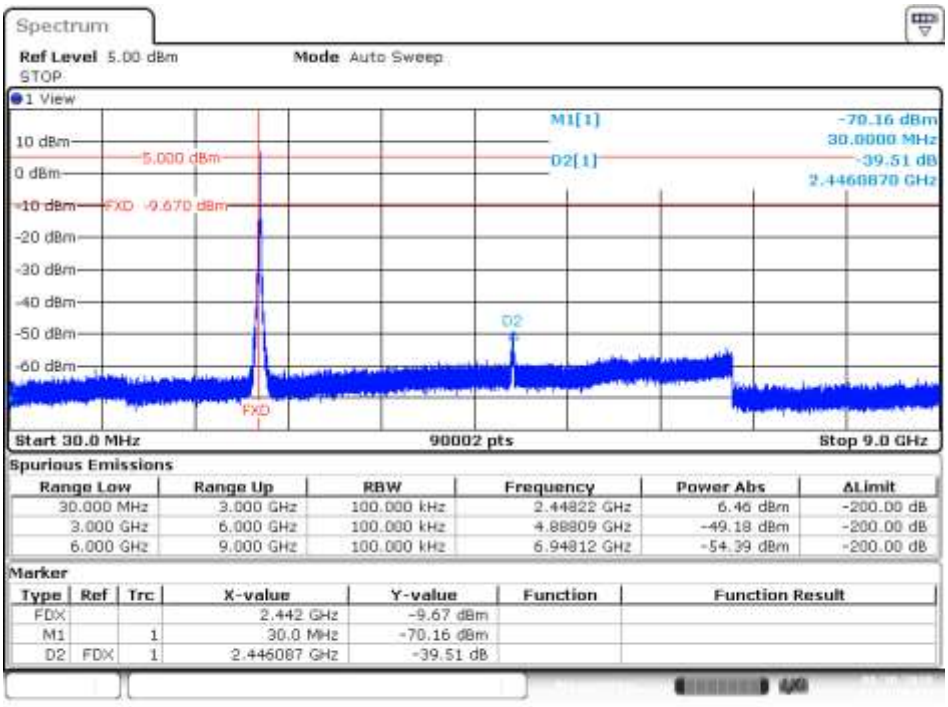
Channel 7 - Range 18GHz to 26.5GHz - Delta Marker Measurement



Date: 28.AUG.2018 11:12:04

SISO-A, 802.11g, 6Mbps

Channel 7 - Range 30MHz to 9GHz - Delta Marker Measurement



Spurious Emissions

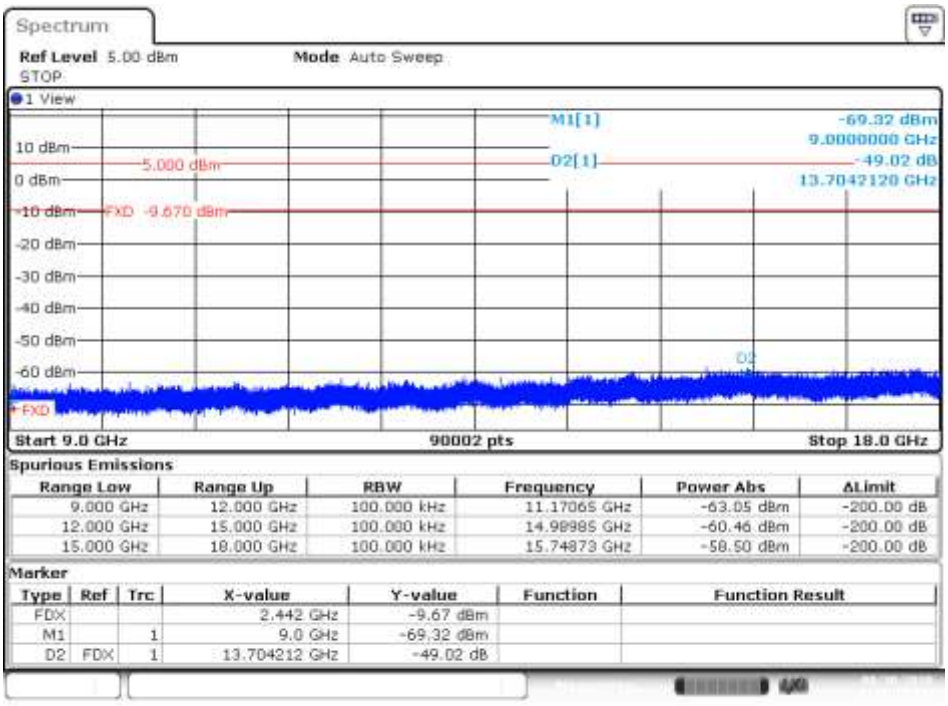
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.44822 GHz	6.46 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	4.88809 GHz	-49.18 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.94812 GHz	-54.39 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-9.67 dBm		
M1		1	30.0 MHz	-70.16 dBm		
D2	FDX	1	2.446087 GHz	-39.51 dB		

Date: 30.AUG.2018 13:25:58

Channel 7 - Range 9GHz to 18GHz - Delta Marker Measurement



Spurious Emissions

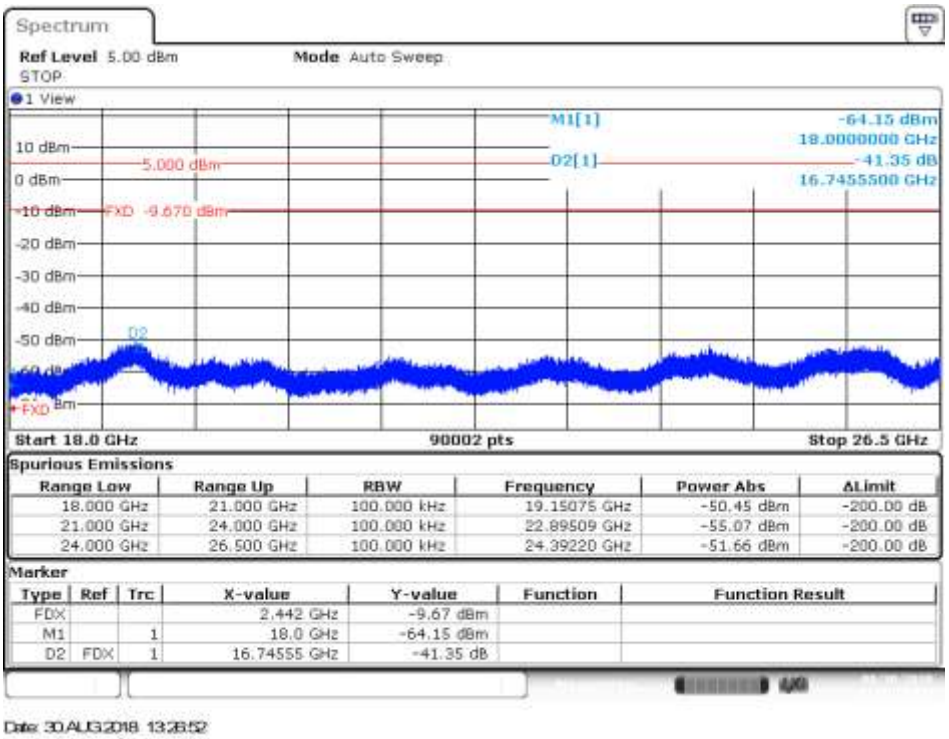
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.17065 GHz	-63.05 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.98985 GHz	-60.46 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	15.74873 GHz	-58.50 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-9.67 dBm		
M1		1	9.0 GHz	-69.32 dBm		
D2	FDX	1	13.704212 GHz	-49.02 dB		

Date: 30.AUG.2018 13:28:25

Channel 7 - Range 18GHz to 26.5GHz - Delta Marker Measurement



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
18.000 GHz	21.000 GHz	100.000 kHz	19.15075 GHz	-50.45 dBm	-200.00 dB
21.000 GHz	24.000 GHz	100.000 kHz	22.89509 GHz	-55.07 dBm	-200.00 dB
24.000 GHz	26.500 GHz	100.000 kHz	24.39220 GHz	-51.66 dBm	-200.00 dB

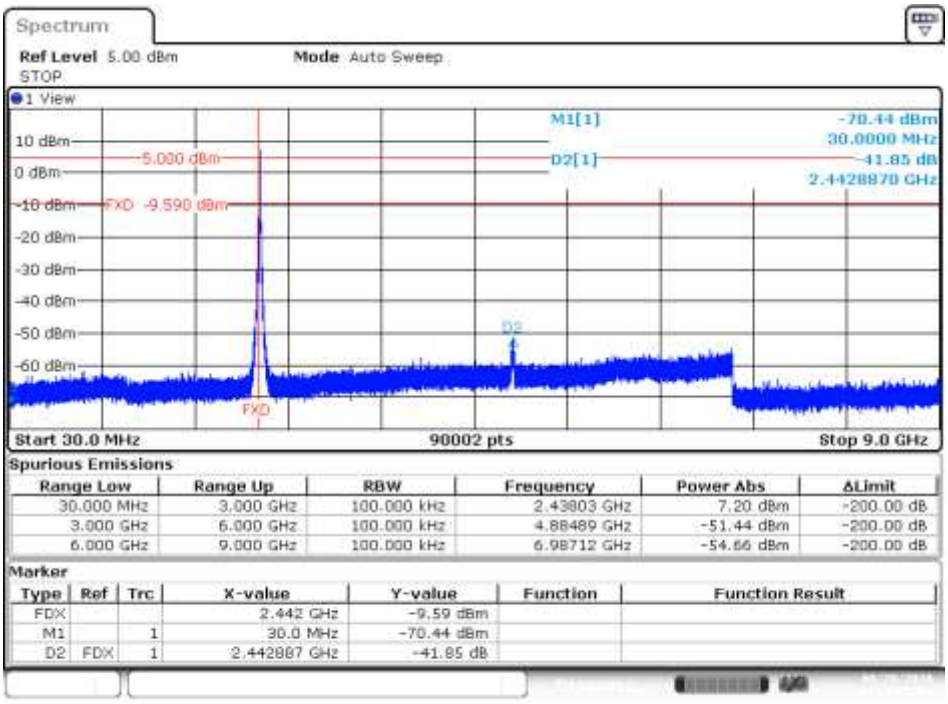
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-9.67 dBm		
M1		1	18.0 GHz	-64.15 dBm		
D2	FDX	1	16.74555 GHz	-41.35 dB		

Date: 30.AUG.2018 13:28:52

SISO-B, 802.11g, 6Mbps

Channel 7 - Range 30MHz to 9GHz - Delta Marker Measurement



Spurious Emissions

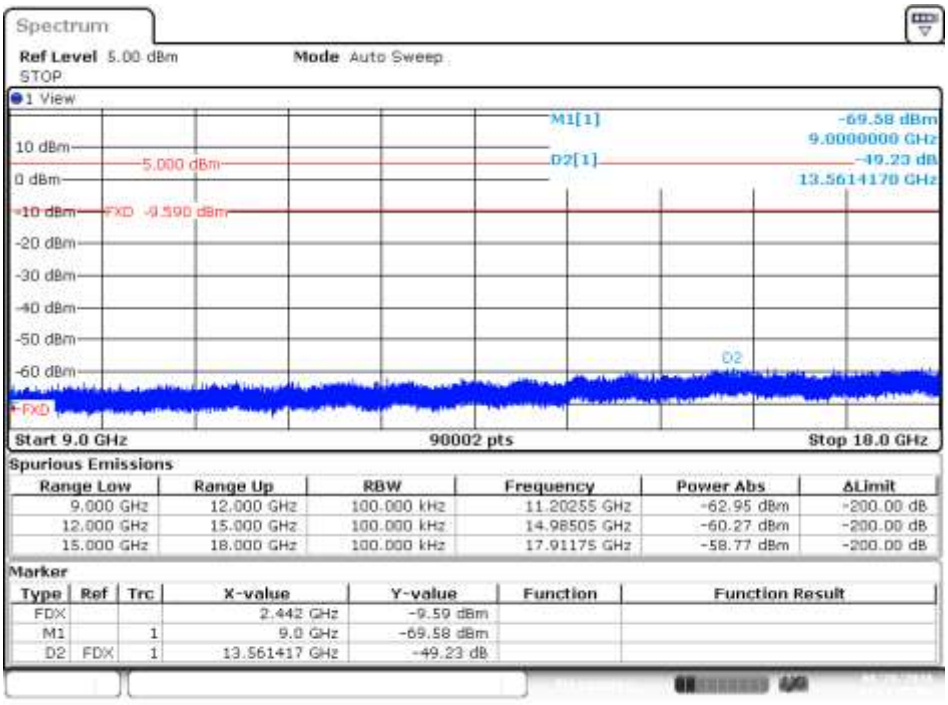
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.43803 GHz	7.20 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	4.88489 GHz	-51.44 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.98712 GHz	-54.66 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-9.59 dBm		
M1		1	30.0 MHz	-70.44 dBm		
D2	FDX	1	2.442887 GHz	-41.85 dB		

Date: 28.AUG.2018 12:20:53

Channel 7 - Range 9GHz to 18GHz - Delta Marker Measurement



Spurious Emissions

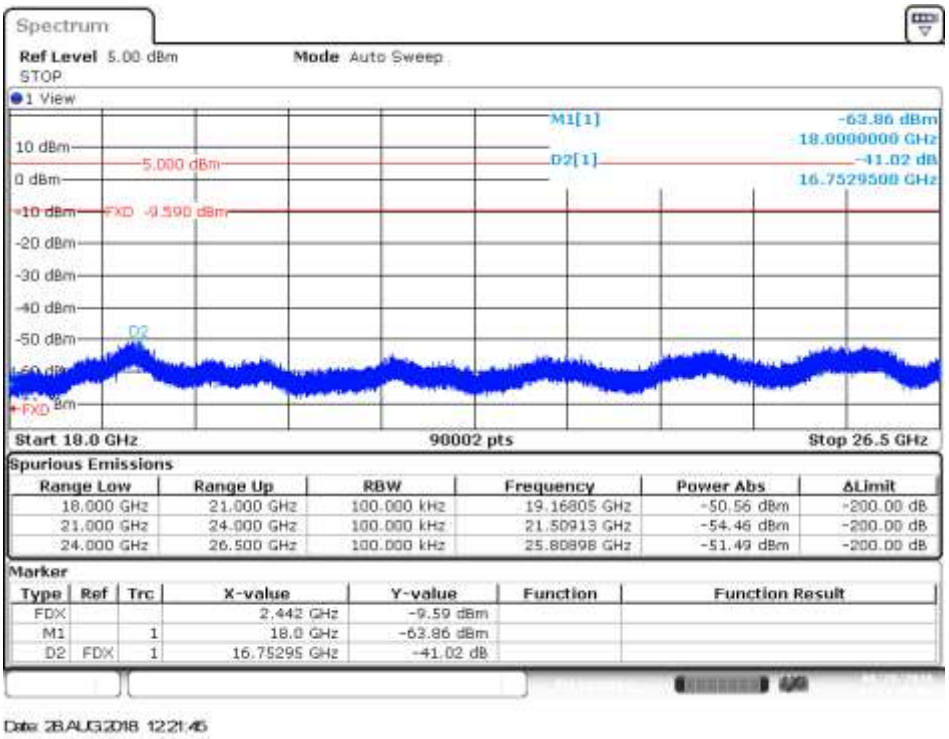
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.20255 GHz	-62.95 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.98505 GHz	-60.27 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	17.91175 GHz	-58.77 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-9.59 dBm		
M1		1	9.0 GHz	-69.58 dBm		
D2	FDX	1	13.561417 GHz	-49.23 dB		

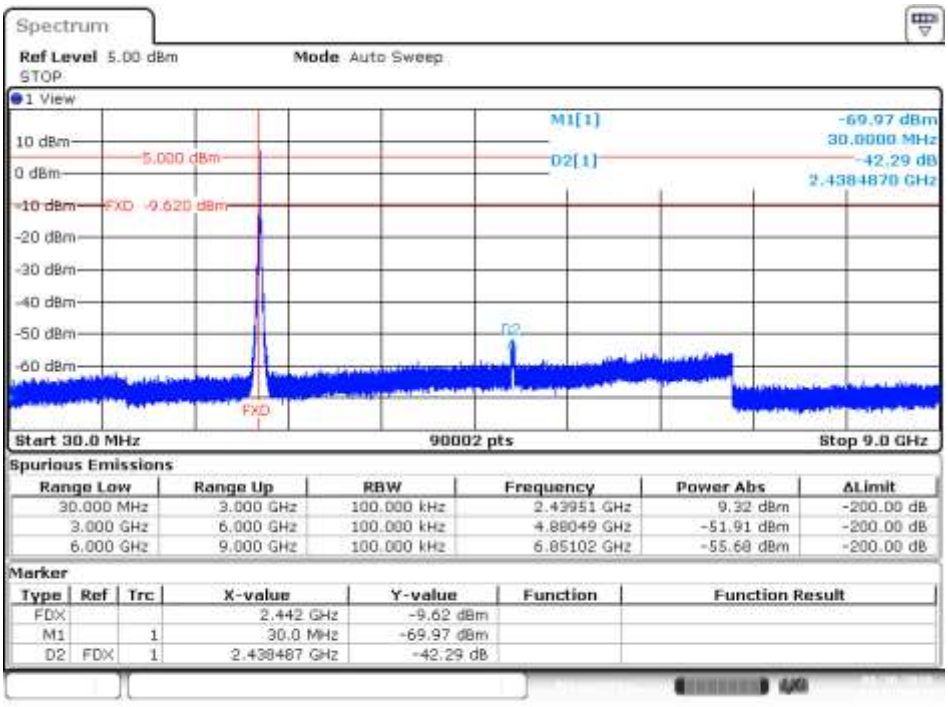
Date: 28.AUG.2018 12:21:19

Channel 7 - Range 18GHz to 26.5GHz - Delta Marker Measurement



SISO-A, 802.11n20, HT0

Channel 7 - Range 30MHz to 9GHz - Delta Marker Measurement



Spurious Emissions

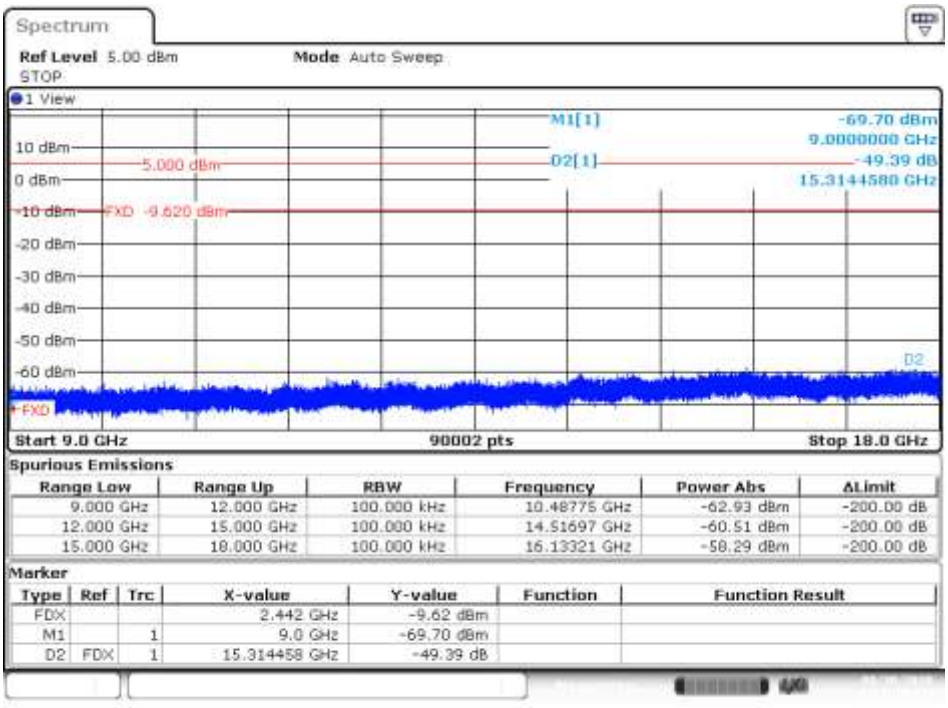
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.43951 GHz	9.32 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	4.88049 GHz	-51.91 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.85102 GHz	-55.68 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-9.62 dBm		
M1		1	30.0 MHz	-69.97 dBm		
D2	FDX	1	2.438487 GHz	-42.29 dB		

Date: 30.AUG.2018 14:39:24

Channel 7 - Range 9GHz to 18GHz - Delta Marker Measurement



Spurious Emissions

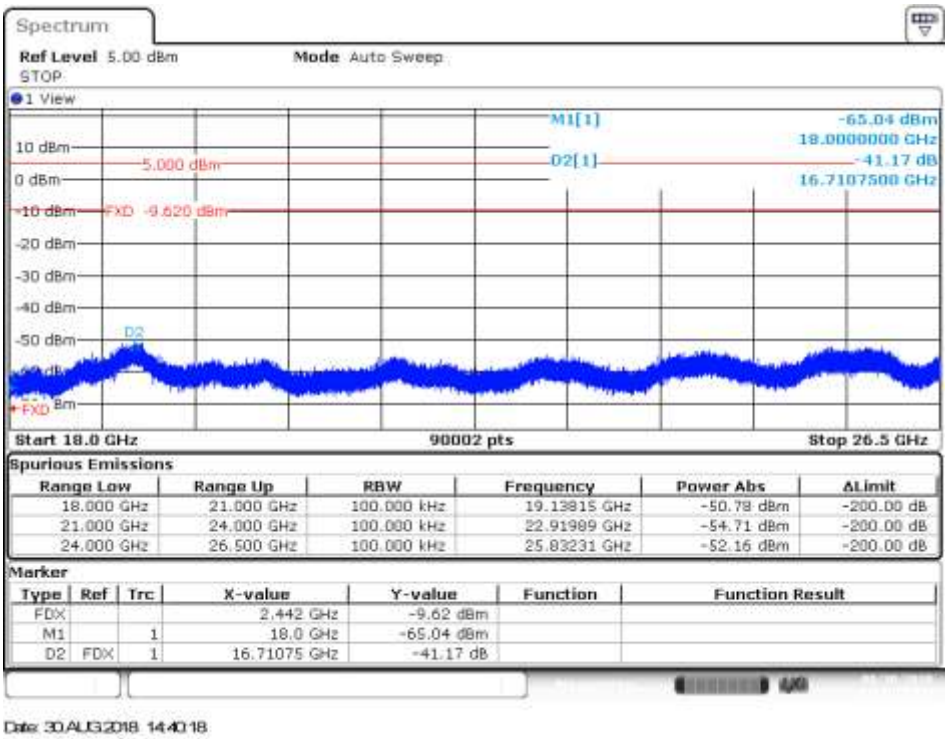
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	10.48775 GHz	-62.93 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.51697 GHz	-60.51 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	16.13321 GHz	-58.29 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-9.62 dBm		
M1		1	9.0 GHz	-69.70 dBm		
D2	FDX	1	15.314458 GHz	-49.39 dB		

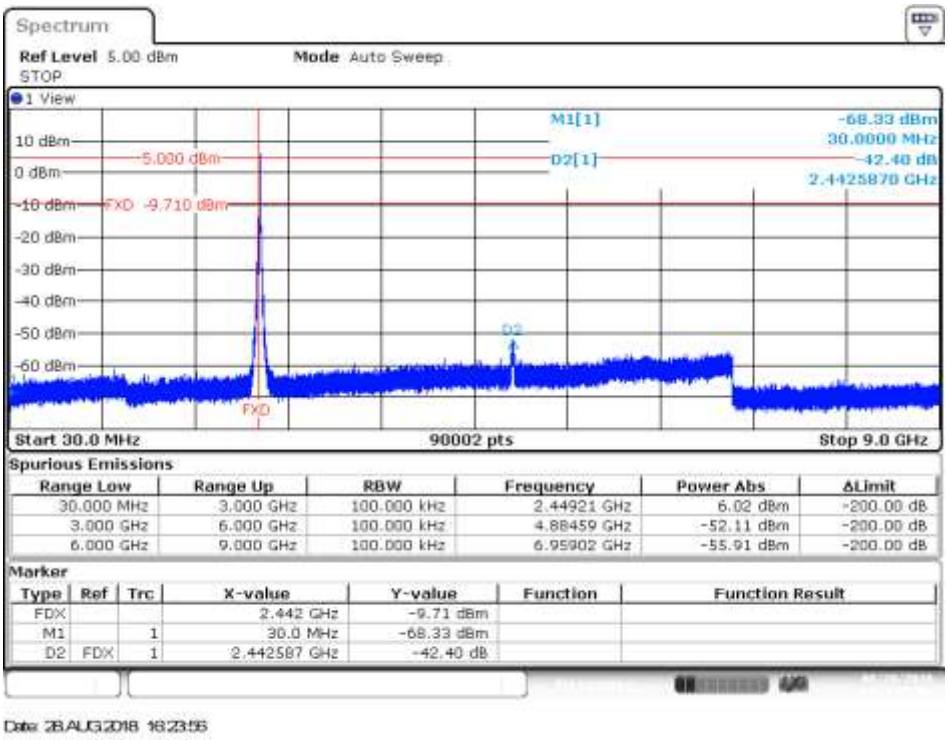
Date: 30.AUG.2018 14:39:51

Channel 7 - Range 18GHz to 26.5GHz - Delta Marker Measurement



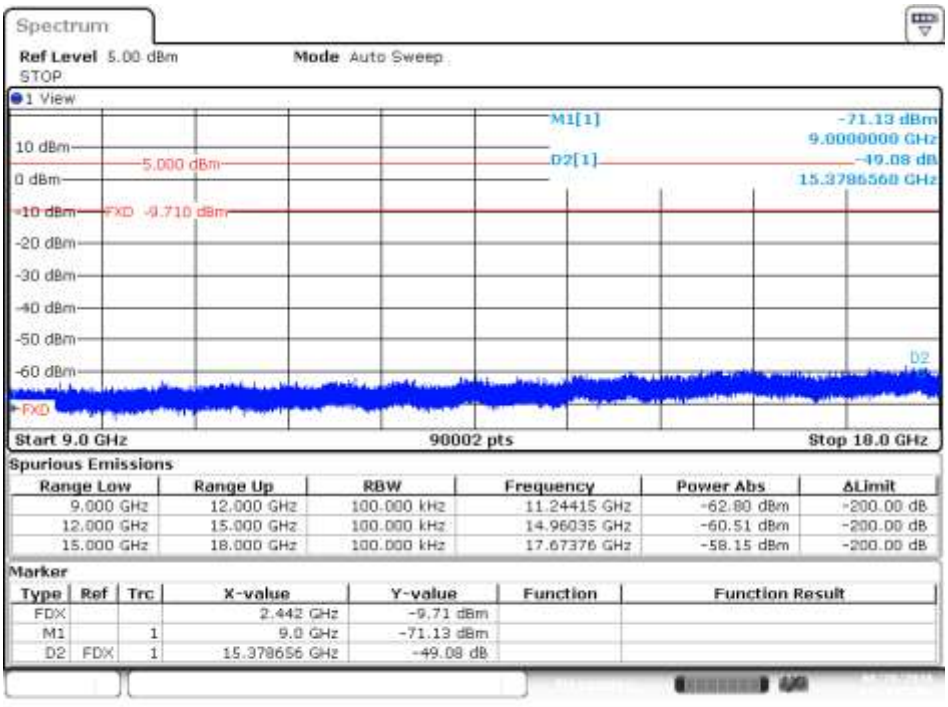
SISO-B, 802.11n20, HT0

Channel 7 - Range 30MHz to 9GHz - Delta Marker Measurement



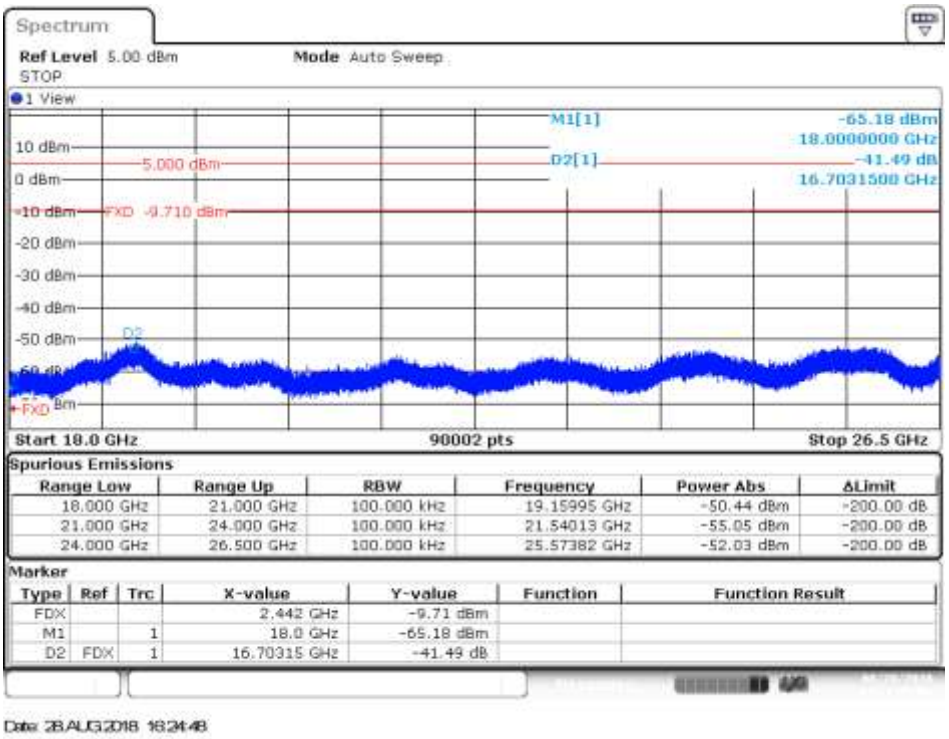
Date: 28.AUG.2018 16:23:55

Channel 7 - Range 9GHz to 18GHz - Delta Marker Measurement



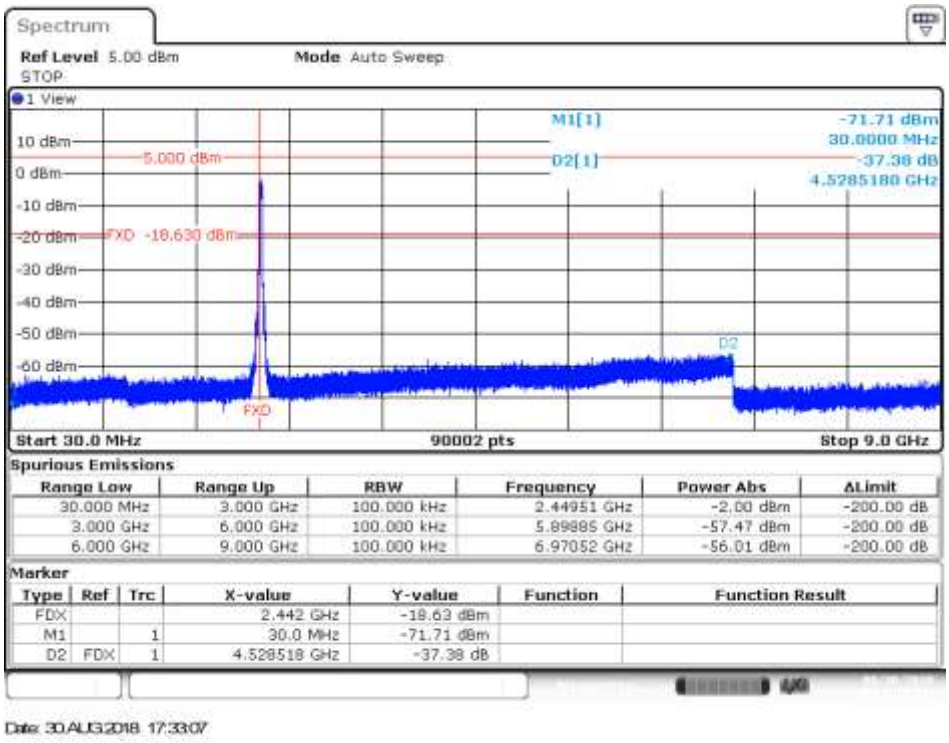
Date: 28.AUG.2018 16:24:22

Channel 7 - Range 18GHz to 26.5GHz - Delta Marker Measurement



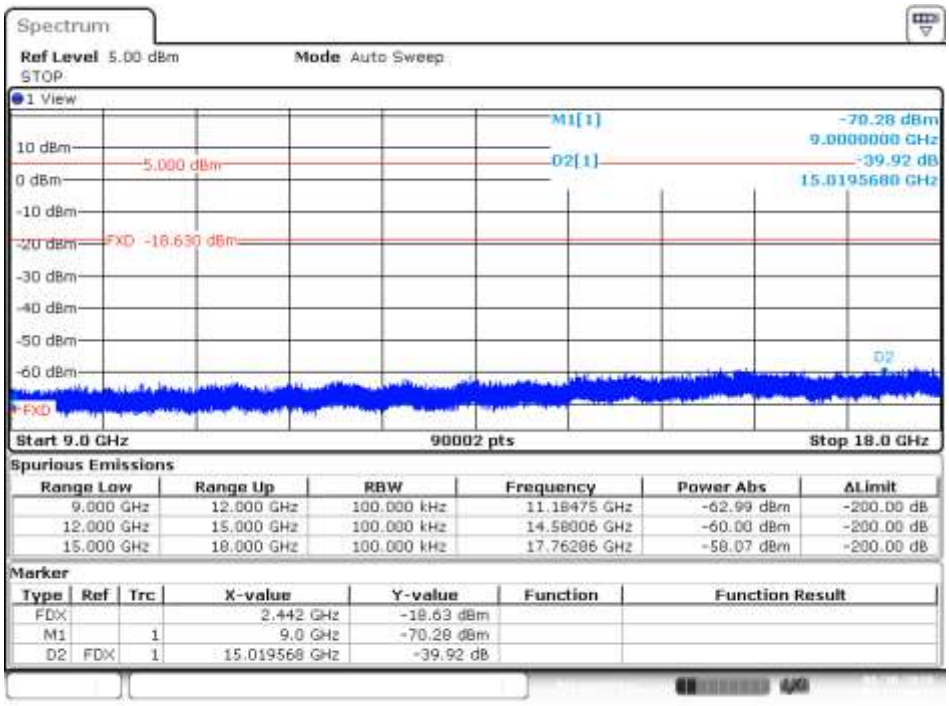
SISO-A, 802.11n40, HT0

Channel 7F - Range 30MHz to 9GHz - Delta Marker Measurement



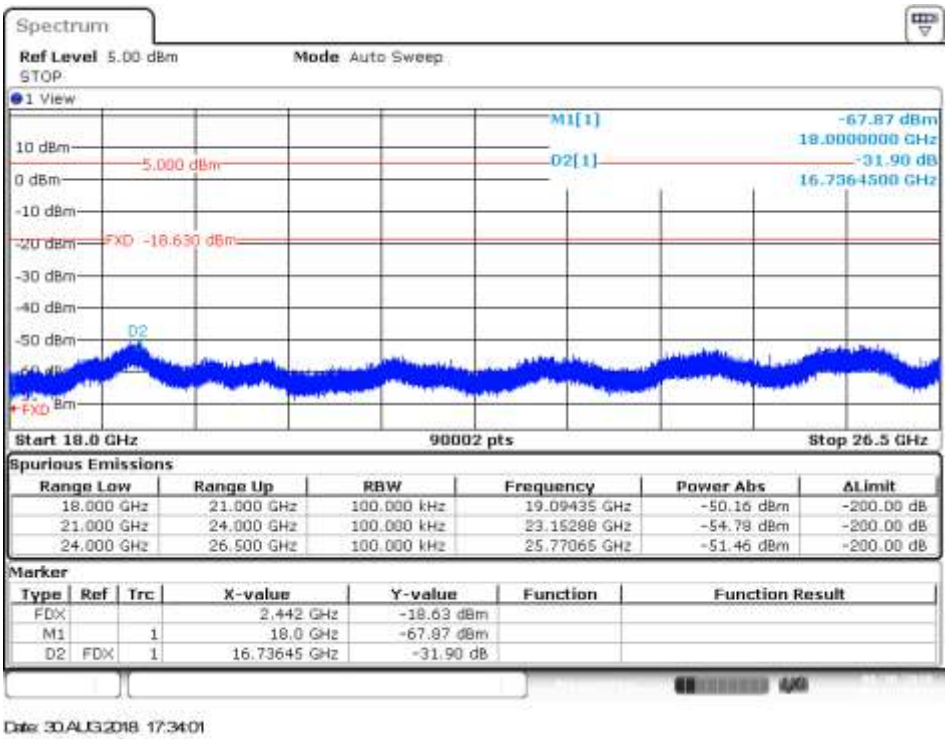
Date: 30.AUG.2018 17:33:07

Channel 7F - Range 9GHz to 18GHz - Delta Marker Measurement



Date: 30.AUG.2018 17:33:34

Channel 7F - Range 18GHz to 26.5GHz - Delta Marker Measurement



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
18.000 GHz	21.000 GHz	100.000 kHz	19.09435 GHz	-50.16 dBm	-200.00 dB
21.000 GHz	24.000 GHz	100.000 kHz	23.15288 GHz	-54.78 dBm	-200.00 dB
24.000 GHz	26.500 GHz	100.000 kHz	25.77065 GHz	-51.46 dBm	-200.00 dB

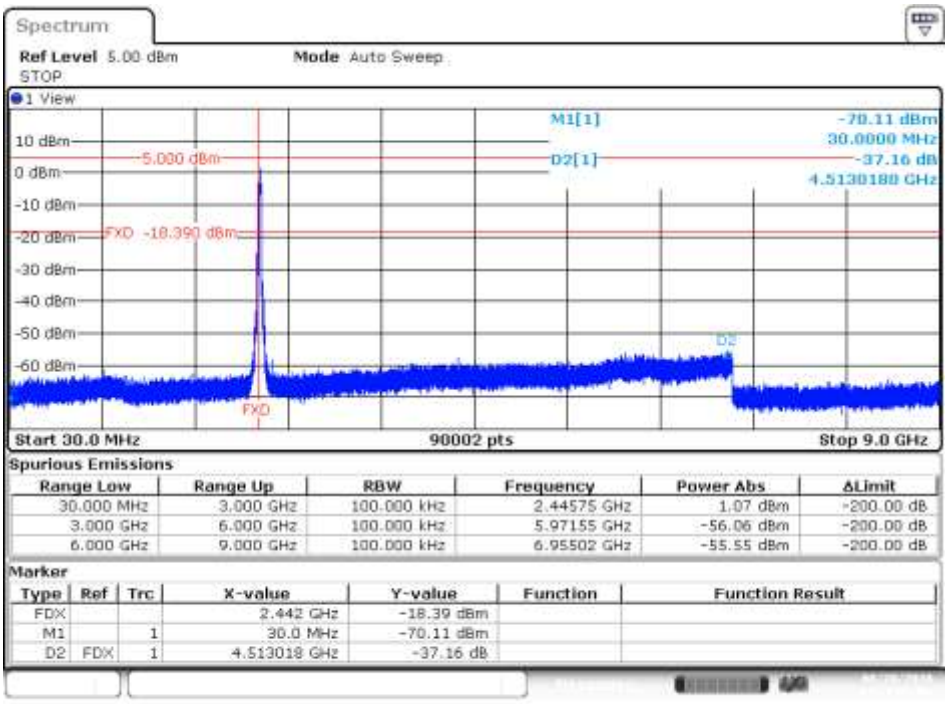
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-18.63 dBm		
M1		1	18.0 GHz	-67.87 dBm		
D2	FDX	1	16.73645 GHz	-31.90 dB		

Date: 30.AUG.2018 17:34:01

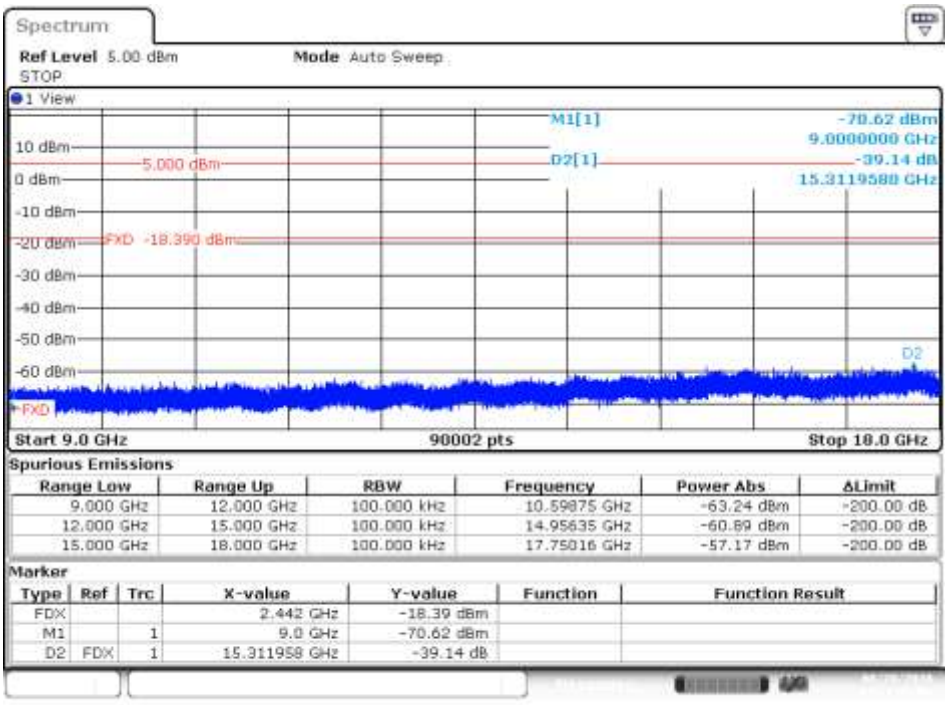
SISO-B, 802.11n40, HT0

Channel 7F - Range 30MHz to 9GHz - Delta Marker Measurement



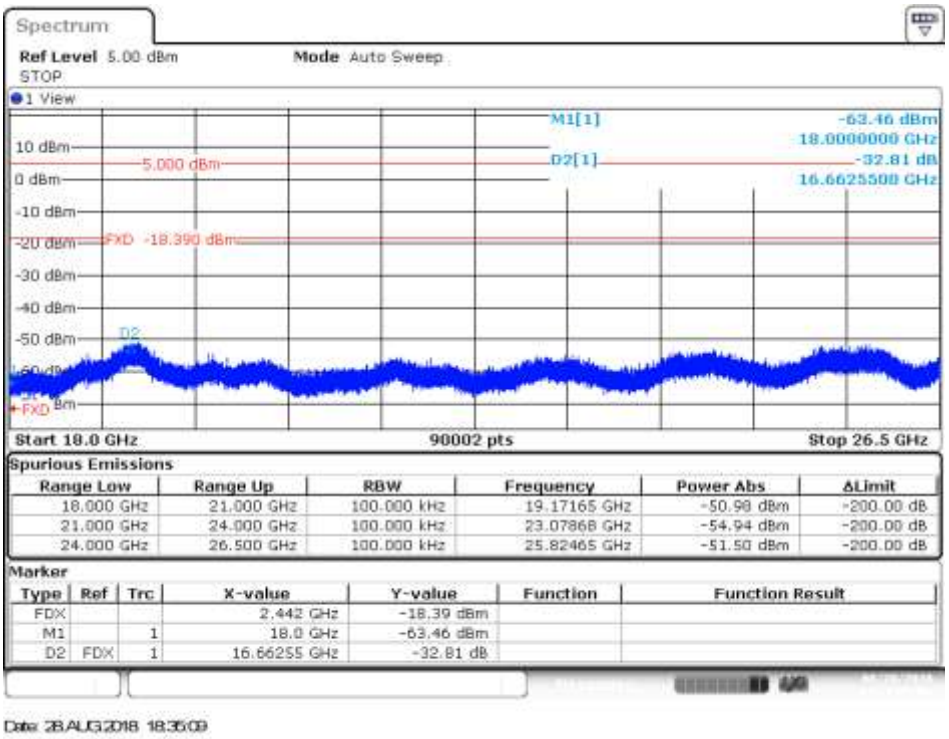
Date: 28.AUG.2018 18:34:16

Channel 7F - Range 9GHz to 18GHz - Delta Marker Measurement



Date: 28.AUG.2018 18:34:43

Channel 7F - Range 18GHz to 26.5GHz - Delta Marker Measurement



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
18.000 GHz	21.000 GHz	100.000 kHz	19.17165 GHz	-50.98 dBm	-200.00 dB
21.000 GHz	24.000 GHz	100.000 kHz	23.07868 GHz	-54.94 dBm	-200.00 dB
24.000 GHz	26.500 GHz	100.000 kHz	25.82465 GHz	-51.50 dBm	-200.00 dB

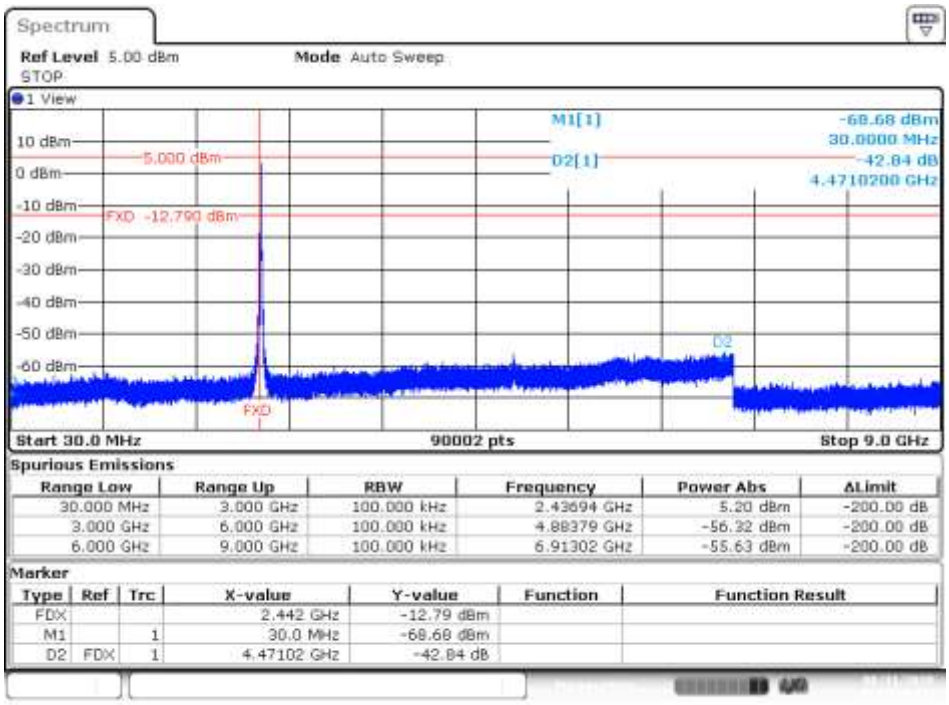
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-18.39 dBm		
M1		1	18.0 GHz	-63.46 dBm		
D2	FDX	1	16.66255 GHz	-32.81 dB		

Date: 28.AUG.2018 18:35:09

MIMO-A, 802.11n20, HT8

Channel 7 - Range 30MHz to 9GHz - Delta Marker Measurement



Spurious Emissions

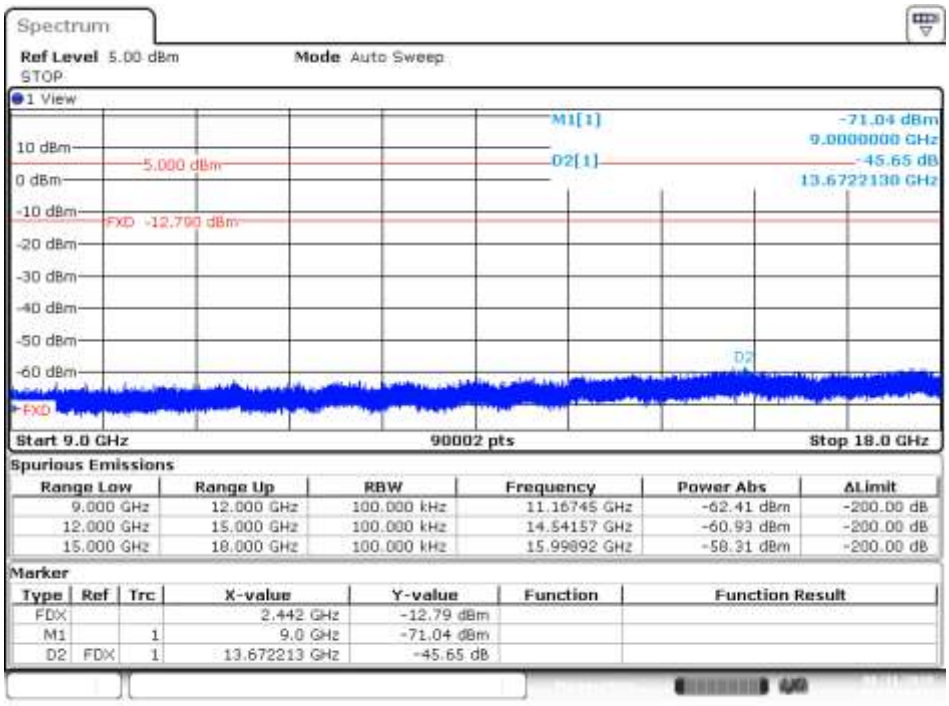
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.43694 GHz	5.20 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	4.88379 GHz	-56.32 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.91302 GHz	-55.63 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-12.79 dBm		
M1		1	30.0 MHz	-68.68 dBm		
D2	FDX	1	4.47102 GHz	-42.84 dB		

Date: 31.AUG.2018 10:03:47

Channel 7 - Range 9GHz to 18GHz - Delta Marker Measurement



Spurious Emissions

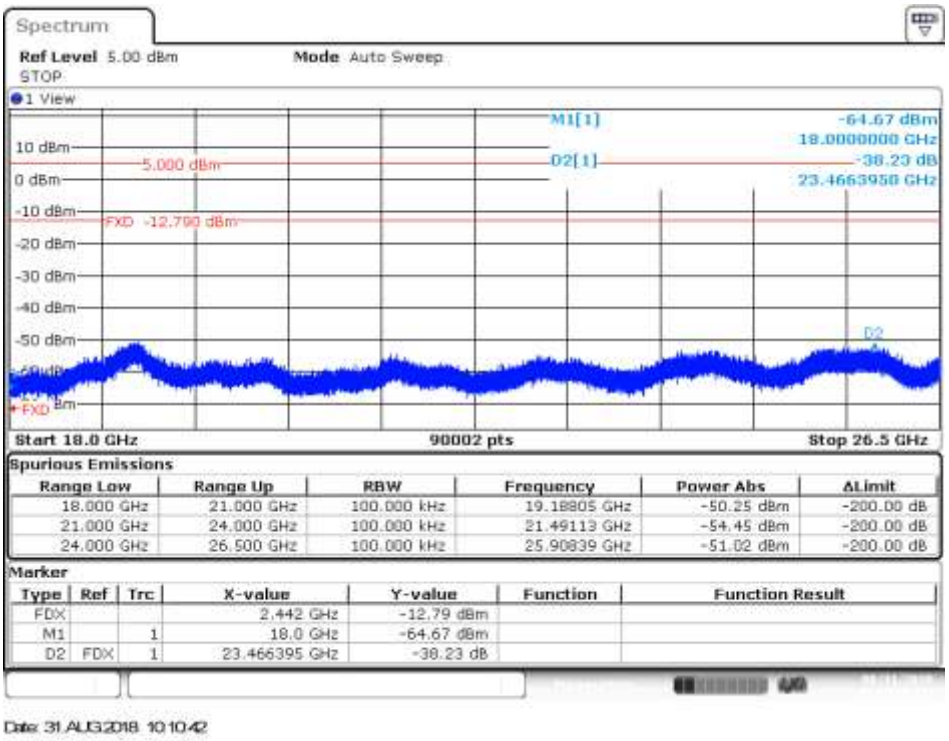
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.16745 GHz	-62.41 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.54157 GHz	-60.93 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	15.99892 GHz	-58.31 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-12.79 dBm		
M1		1	9.0 GHz	-71.04 dBm		
D2	FDX	1	13.672213 GHz	-45.65 dB		

Date: 31.AUG.2018 10:10:14

Channel 7 - Range 18GHz to 26.5GHz - Delta Marker Measurement



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
18.000 GHz	21.000 GHz	100.000 kHz	19.18805 GHz	-50.25 dBm	-200.00 dB
21.000 GHz	24.000 GHz	100.000 kHz	21.49113 GHz	-54.45 dBm	-200.00 dB
24.000 GHz	26.500 GHz	100.000 kHz	25.90839 GHz	-51.02 dBm	-200.00 dB

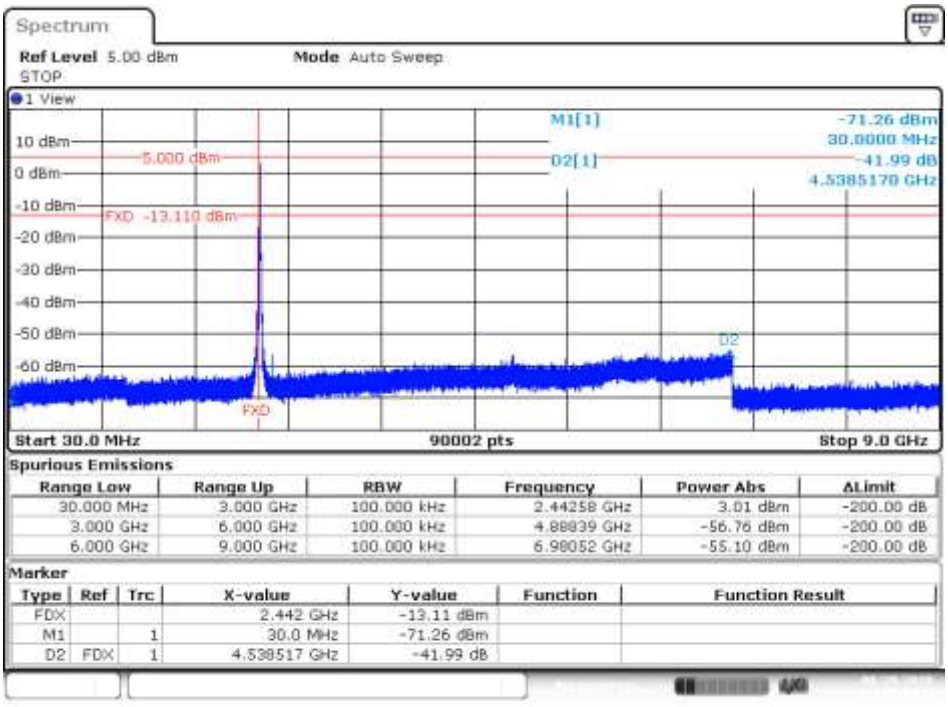
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-12.79 dBm		
M1		1	18.0 GHz	-64.67 dBm		
D2	FDX	1	23.466395 GHz	-38.23 dB		

Date: 31.AUG.2018 10:10:42

MIMO-B, 802.11n20, HT8

Channel 7 - Range 30MHz to 9GHz - Delta Marker Measurement



Spurious Emissions

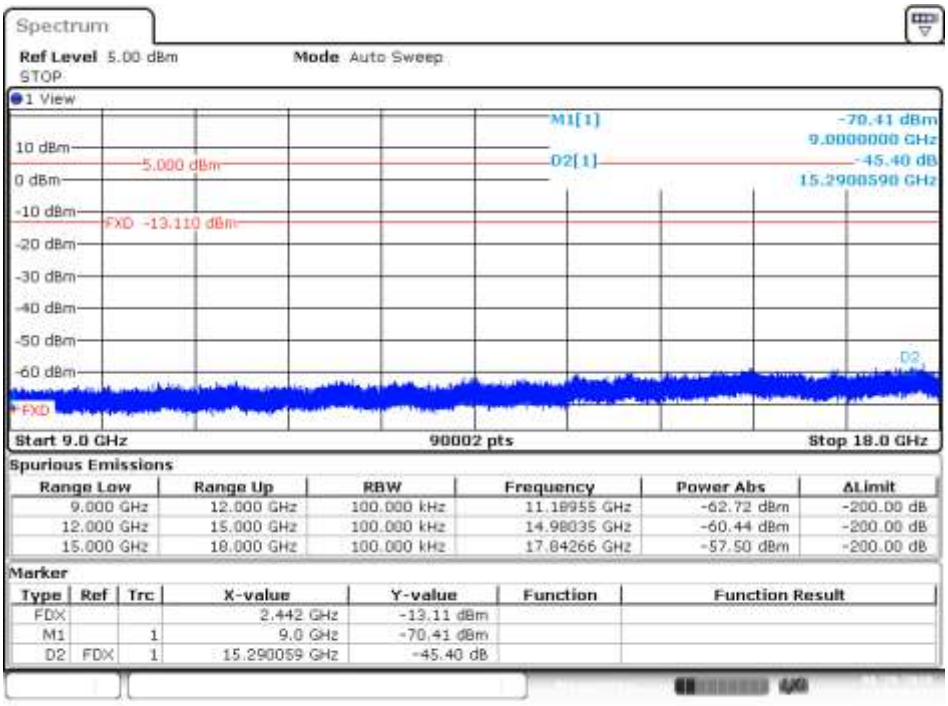
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.44258 GHz	3.01 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	4.88839 GHz	-56.76 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.98052 GHz	-55.10 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-13.11 dBm		
M1		1	30.0 MHz	-71.26 dBm		
D2	FDX	1	4.538517 GHz	-41.99 dB		

Date: 29.AUG.2018 12:19:29

Channel 7 - Range 9GHz to 18GHz - Delta Marker Measurement



Spurious Emissions

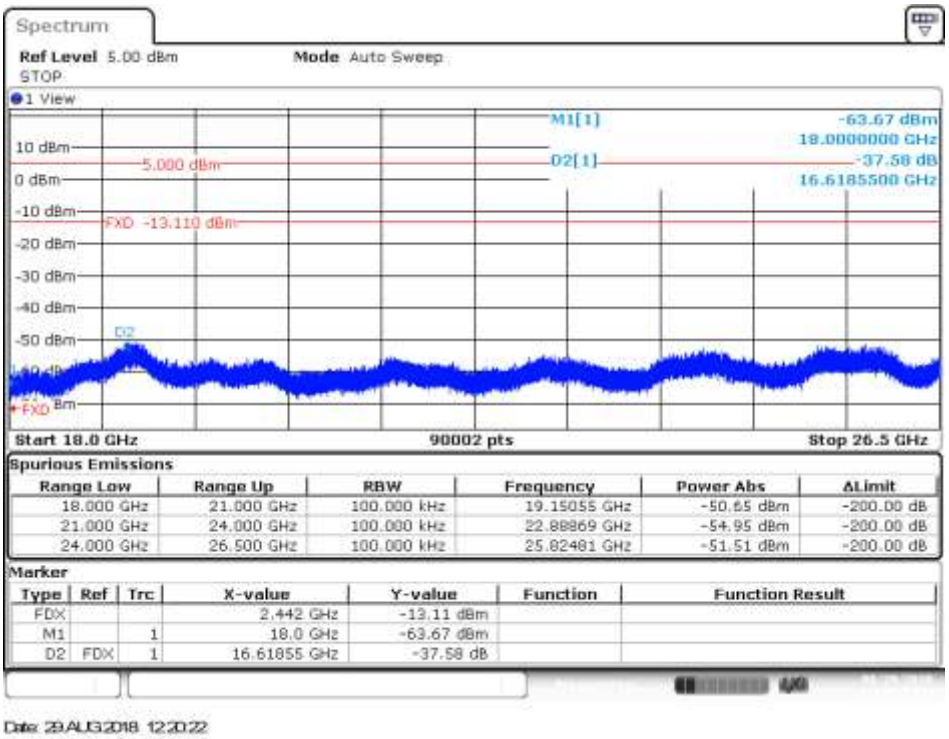
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.18955 GHz	-62.72 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.98035 GHz	-60.44 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	17.84266 GHz	-57.50 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-13.11 dBm		
M1		1	9.0 GHz	-70.41 dBm		
D2	FDX	1	15.290059 GHz	-45.40 dB		

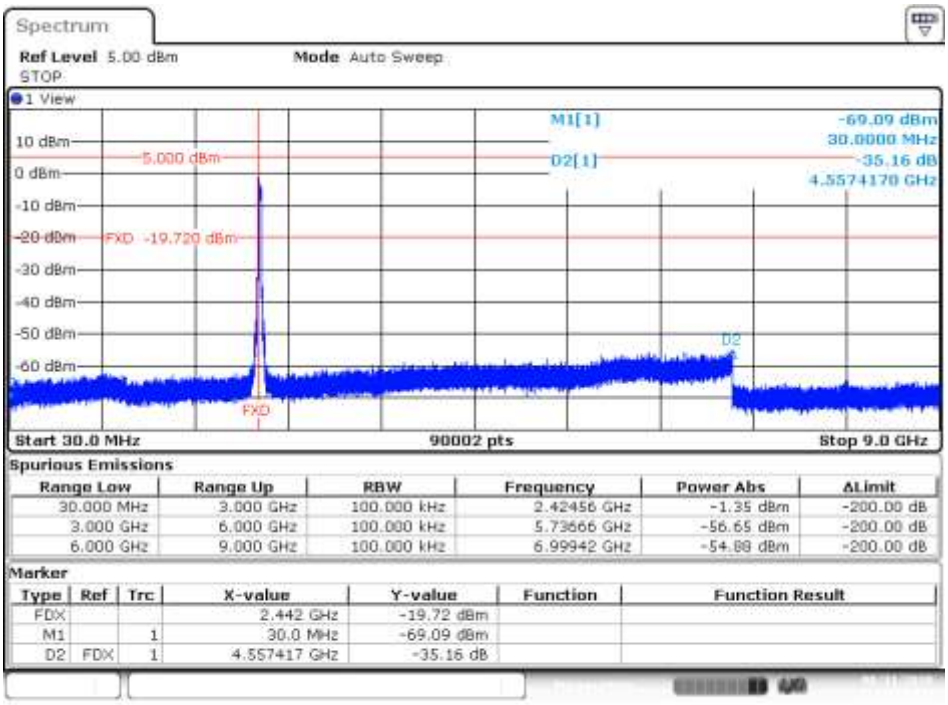
Date: 29.AUG.2018 12:19:55

Channel 7 - Range 18GHz to 26.5GHz - Delta Marker Measurement



MIMO-A, 802.11n40, HT8

Channel 7F - Range 30MHz to 9GHz - Delta Marker Measurement



Spurious Emissions

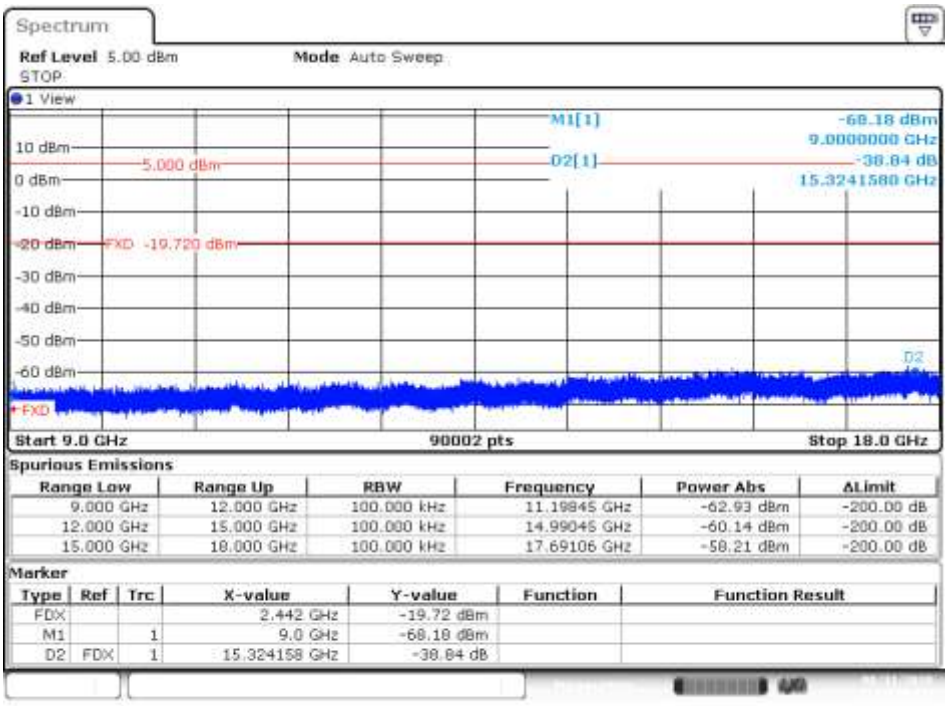
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.42456 GHz	-1.35 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.73666 GHz	-56.65 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.99942 GHz	-54.88 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-19.72 dBm		
M1		1	30.0 MHz	-69.09 dBm		
D2	FDX	1	4.557417 GHz	-35.16 dB		

Date: 31.AUG.2018 11:54:03

Channel 7F - Range 9GHz to 18GHz - Delta Marker Measurement



Spurious Emissions

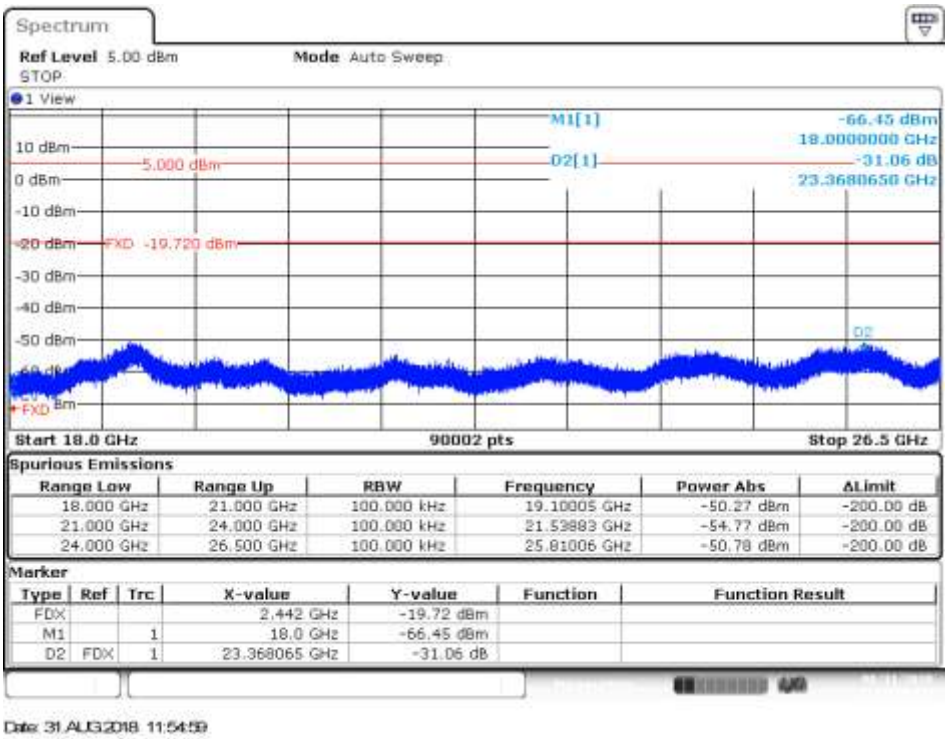
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.19845 GHz	-62.93 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.99045 GHz	-60.14 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	17.69106 GHz	-58.21 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-19.72 dBm		
M1		1	9.0 GHz	-68.18 dBm		
D2	FDX	1	15.324158 GHz	-38.84 dB		

Date: 31.AUG.2018 11:54:31

Channel 7F - Range 18GHz to 26.5GHz - Delta Marker Measurement



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
18.000 GHz	21.000 GHz	100.000 kHz	19.10005 GHz	-50.27 dBm	-200.00 dB
21.000 GHz	24.000 GHz	100.000 kHz	21.53883 GHz	-54.77 dBm	-200.00 dB
24.000 GHz	26.500 GHz	100.000 kHz	25.81006 GHz	-50.78 dBm	-200.00 dB

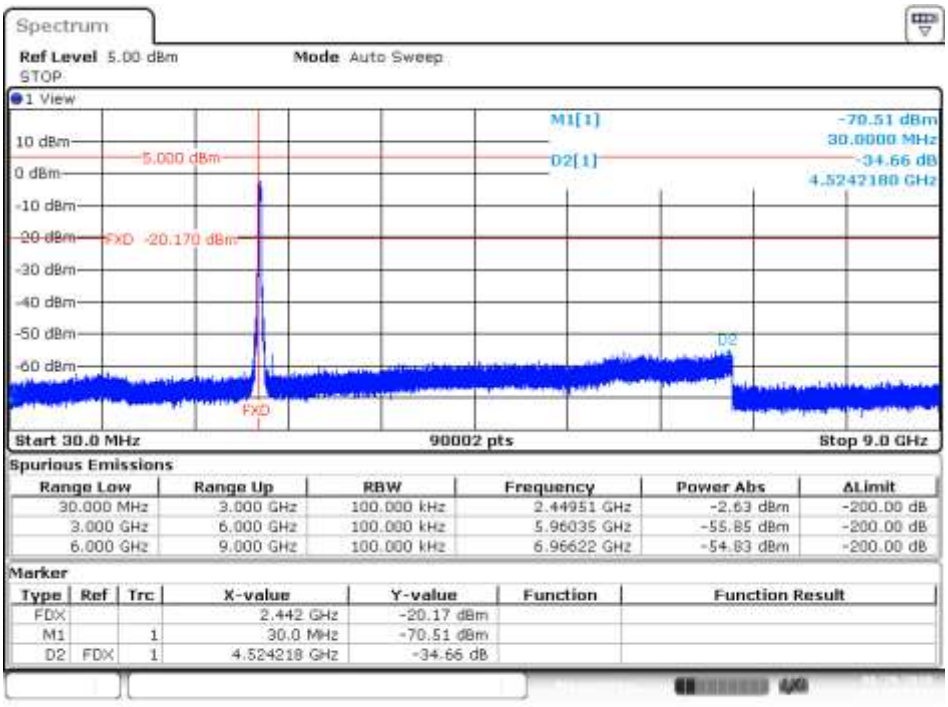
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-19.72 dBm		
M1		1	18.0 GHz	-66.45 dBm		
D2	FDX	1	23.368065 GHz	-31.06 dB		

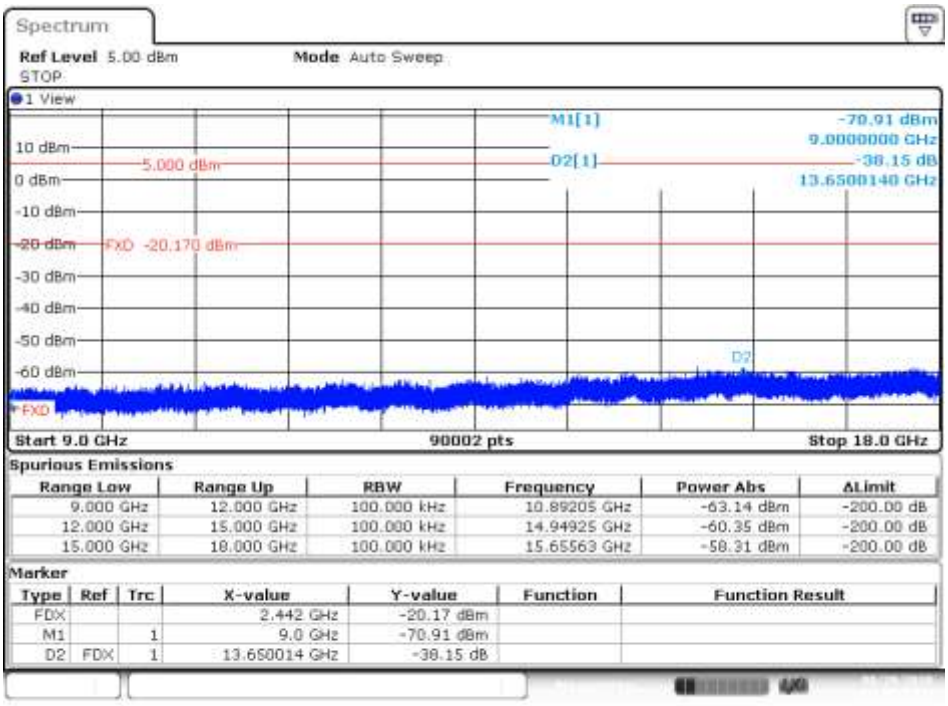
Date: 31.AUG.2018 11:54:59

MIMO-B, 802.11n40, HT8

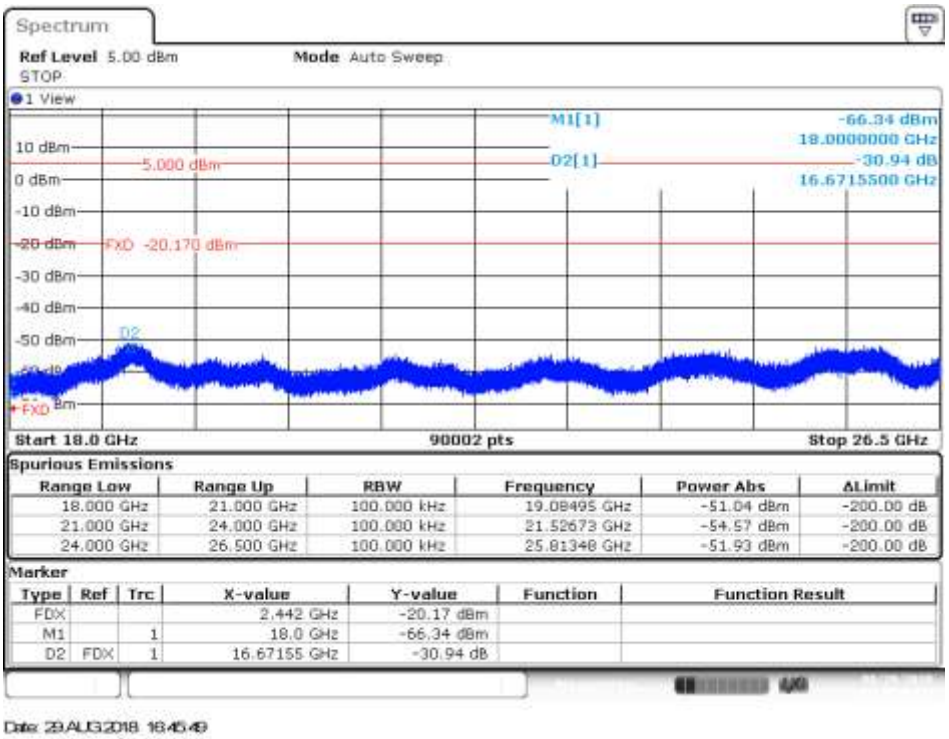
Channel 7F - Range 30MHz to 9GHz - Delta Marker Measurement



Channel 7F - Range 9GHz to 18GHz - Delta Marker Measurement



Channel 7F - Range 18GHz to 26.5GHz - Delta Marker Measurement



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
18.000 GHz	21.000 GHz	100.000 kHz	19.08495 GHz	-51.04 dBm	-200.00 dB
21.000 GHz	24.000 GHz	100.000 kHz	21.52673 GHz	-54.57 dBm	-200.00 dB
24.000 GHz	26.500 GHz	100.000 kHz	25.81348 GHz	-51.93 dBm	-200.00 dB

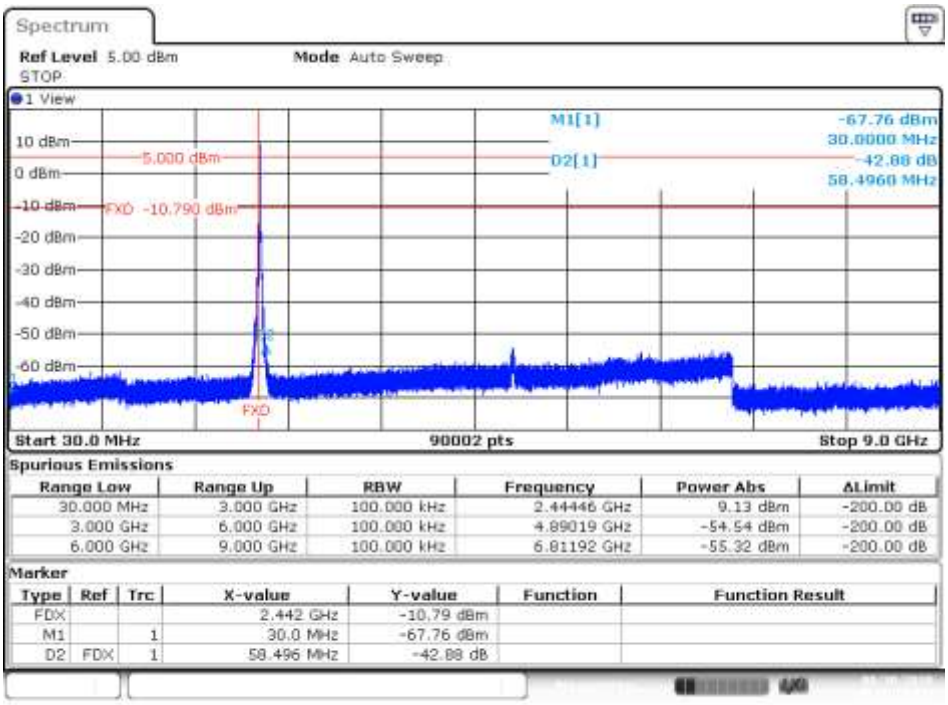
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-20.17 dBm		
M1		1	18.0 GHz	-66.34 dBm		
D2	FDX	1	16.67155 GHz	-30.94 dB		

Date: 29.AUG.2018 18:45:49

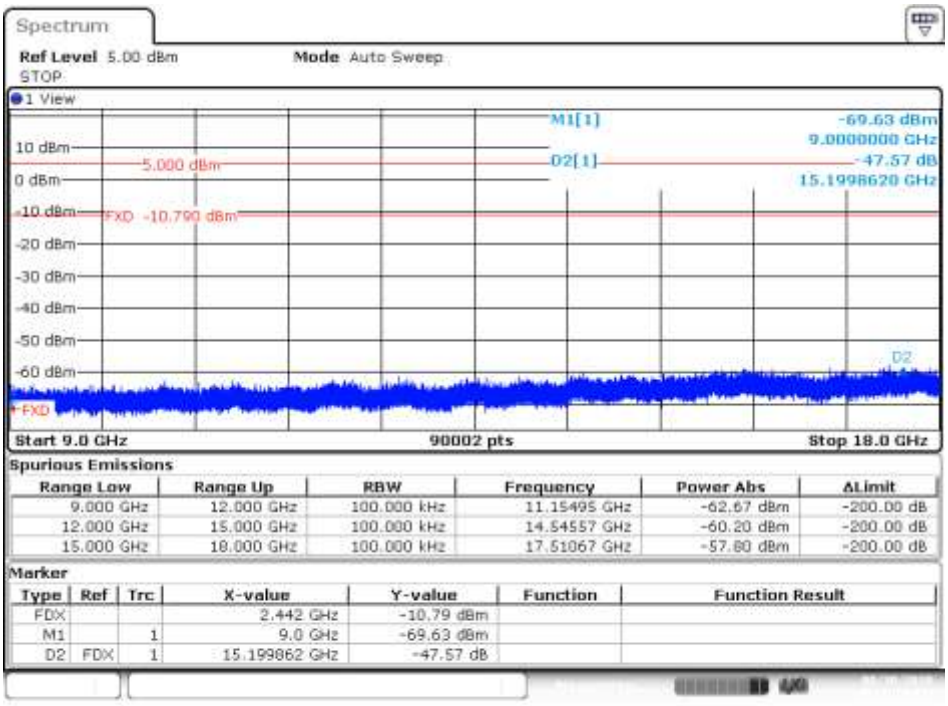
SISO-A, 802.11ax20, HE0

Channel 7 - Range 30MHz to 9GHz - Delta Marker Measurement



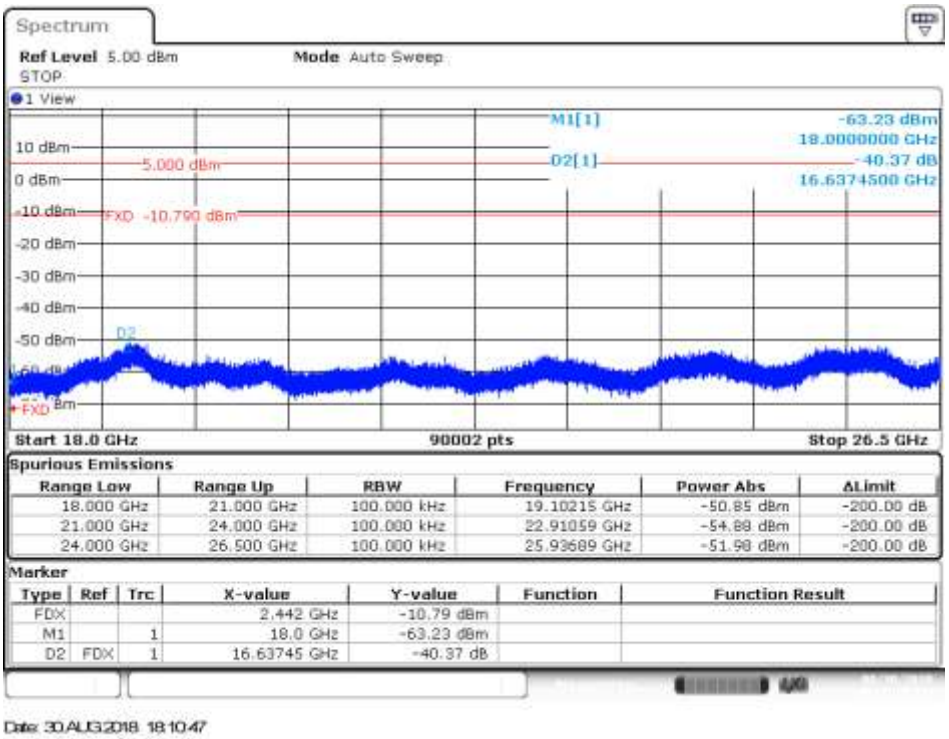
Date: 30.AUG.2018 18:09:51

Channel 7 - Range 9GHz to 18GHz - Delta Marker Measurement



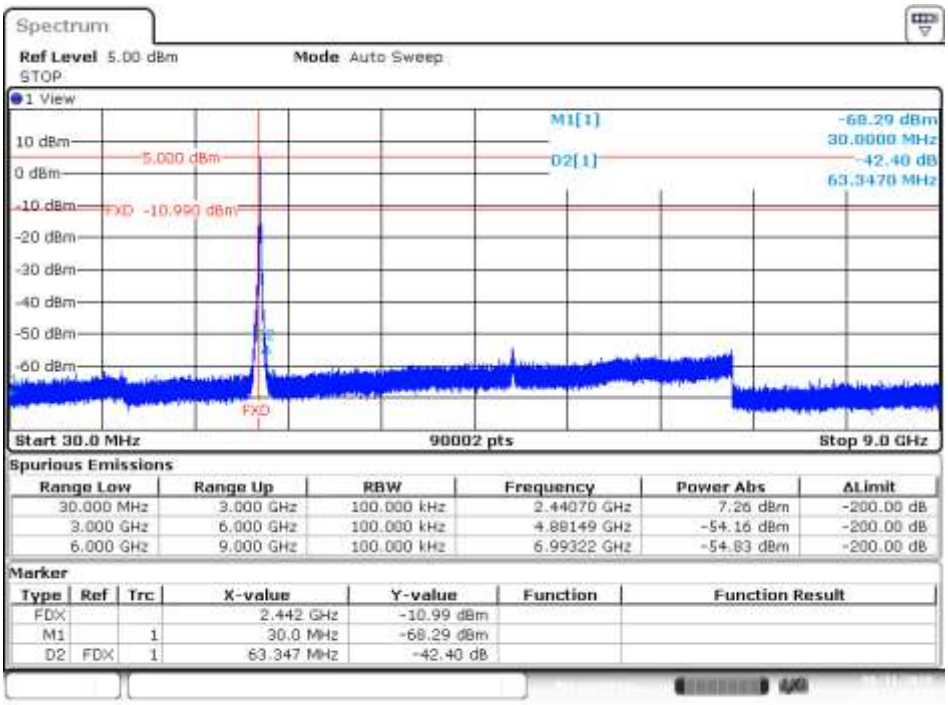
Date: 30.AUG.2018 18:10:20

Channel 7 - Range 18GHz to 26.5GHz - Delta Marker Measurement



SISO-B, 802.11ax20, HE0

Channel 7 - Range 30MHz to 9GHz - Delta Marker Measurement



Spurious Emissions

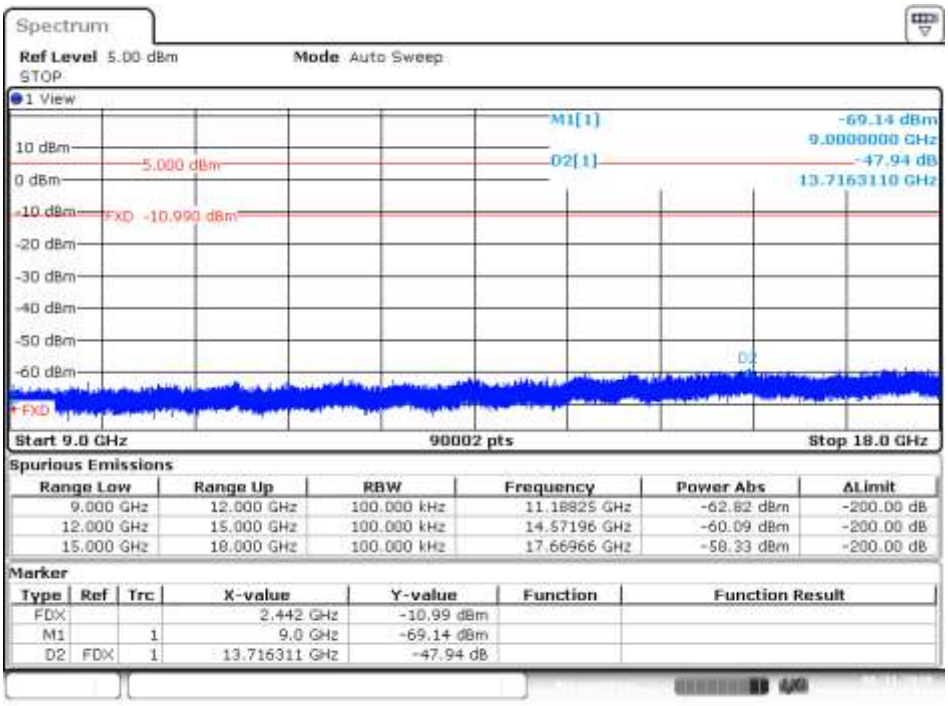
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.44070 GHz	7.26 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	4.88149 GHz	-54.16 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.99322 GHz	-54.83 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-10.99 dBm		
M1		1	30.0 MHz	-68.29 dBm		
D2	FDX	1	63.347 MHz	-42.40 dB		

Date: 31.AUG.2018 15:37:36

Channel 7 - Range 9GHz to 18GHz - Delta Marker Measurement



Spurious Emissions

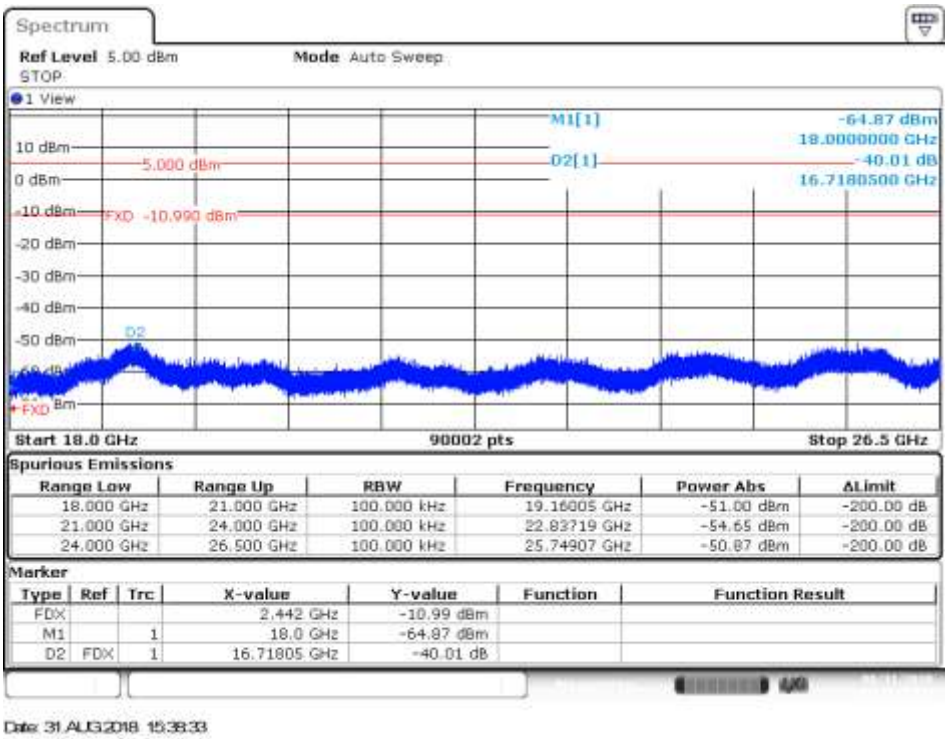
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.18825 GHz	-62.82 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.57196 GHz	-60.09 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	17.66966 GHz	-58.33 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-10.99 dBm		
M1		1	9.0 GHz	-69.14 dBm		
D2	FDX	1	13.716311 GHz	-47.94 dB		

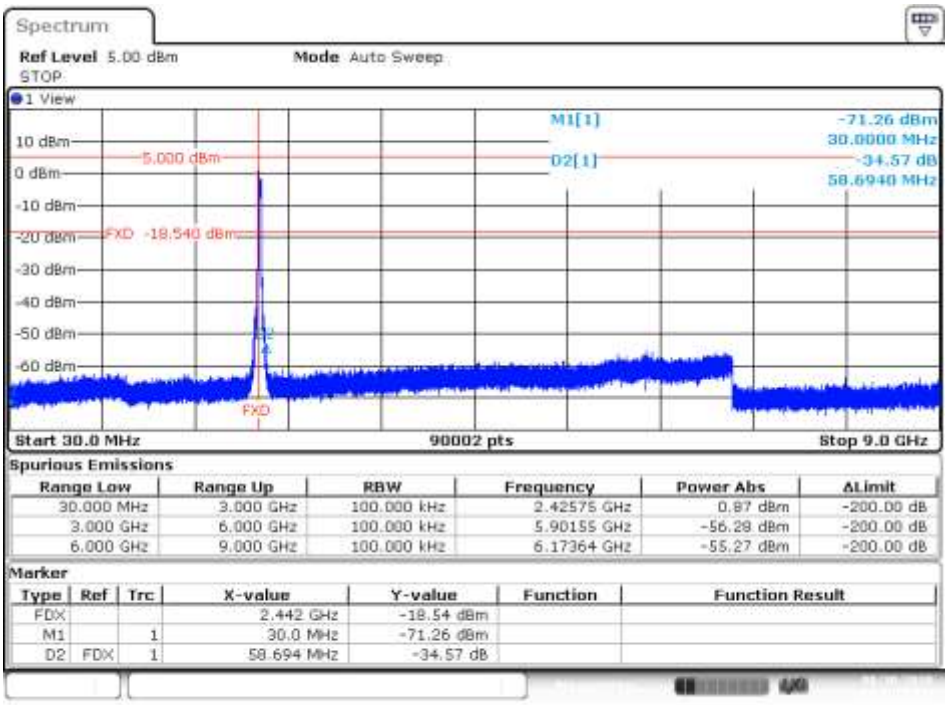
Date: 31.AUG.2018 15:38:04

Channel 7 - Range 18GHz to 26.5GHz - Delta Marker Measurement



SISO-A, 802.11ax40, HE0

Channel 7F - Range 30MHz to 9GHz - Delta Marker Measurement



Spurious Emissions

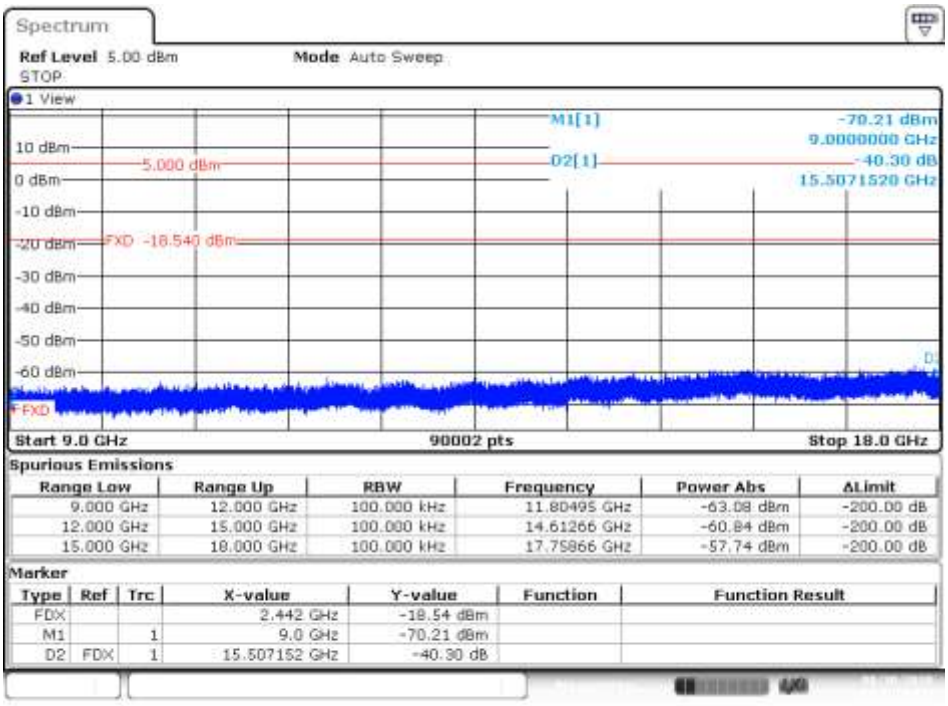
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.42575 GHz	0.87 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.90155 GHz	-56.28 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.17364 GHz	-55.27 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-18.54 dBm		
M1		1	30.0 MHz	-71.26 dBm		
D2	FDX	1	58.694 MHz	-34.57 dB		

Date: 30.AUG.2018 16:38:27

Channel 7F - Range 9GHz to 18GHz - Delta Marker Measurement



Spurious Emissions

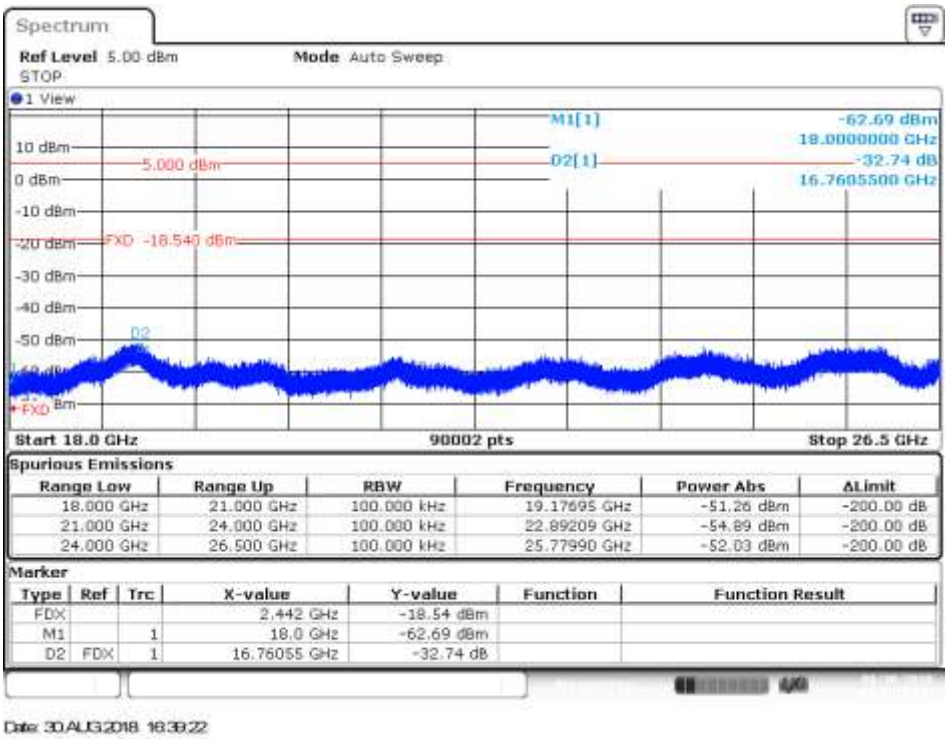
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.80495 GHz	-63.08 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.61266 GHz	-60.84 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	17.75866 GHz	-57.74 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-18.54 dBm		
M1		1	9.0 GHz	-70.21 dBm		
D2	FDX	1	15.507152 GHz	-40.30 dB		

Date: 30.AUG.2018 16:38:54

Channel 7F - Range 18GHz to 26.5GHz - Delta Marker Measurement



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
18.000 GHz	21.000 GHz	100.000 kHz	19.17695 GHz	-51.26 dBm	-200.00 dB
21.000 GHz	24.000 GHz	100.000 kHz	22.89209 GHz	-54.89 dBm	-200.00 dB
24.000 GHz	26.500 GHz	100.000 kHz	25.77990 GHz	-52.03 dBm	-200.00 dB

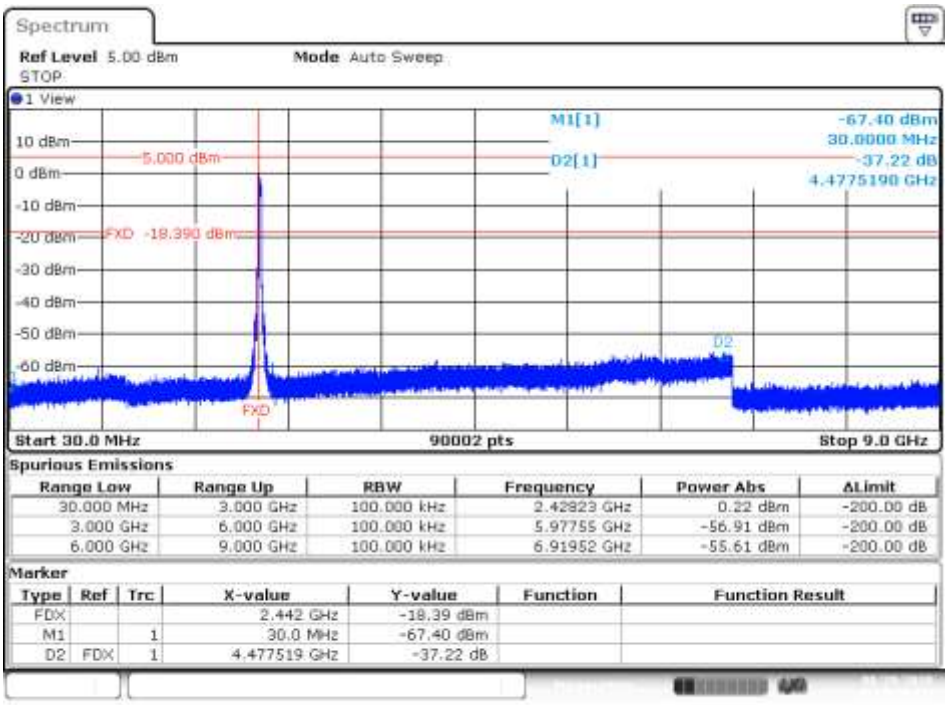
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-18.54 dBm		
M1		1	18.0 GHz	-62.69 dBm		
D2	FDX	1	16.76055 GHz	-32.74 dB		

Date: 30.AUG.2018 16:39:22

SISO-B, 802.11ax40, HE0

Channel 7F - Range 30MHz to 9GHz - Delta Marker Measurement



Spurious Emissions

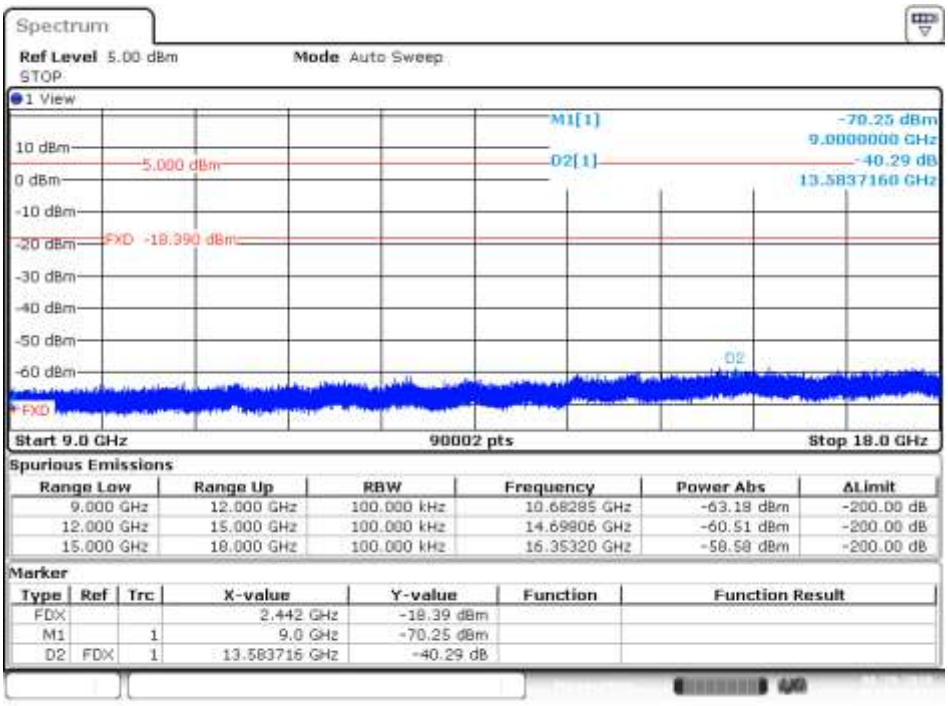
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.42823 GHz	0.22 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.97755 GHz	-56.91 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.91952 GHz	-55.61 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-18.39 dBm		
M1		1	30.0 MHz	-67.40 dBm		
D2	FDX	1	4.477519 GHz	-37.22 dB		

Date: 29.AUG.2018 10:49:50

Channel 7F - Range 9GHz to 18GHz - Delta Marker Measurement



Spurious Emissions

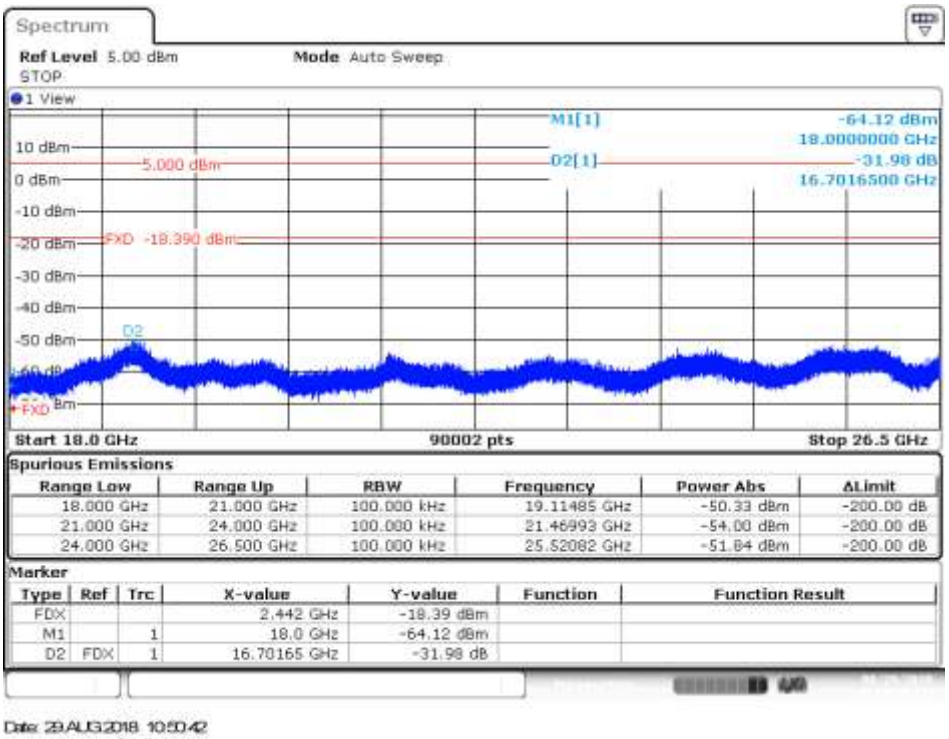
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	10.68285 GHz	-63.18 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.69806 GHz	-60.51 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	16.35320 GHz	-58.58 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-18.39 dBm		
M1		1	9.0 GHz	-70.25 dBm		
D2	FDX	1	13.583716 GHz	-40.29 dB		

Date: 29.AUG.2018 10:50:16

Channel 7F - Range 18GHz to 26.5GHz - Delta Marker Measurement



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
18.000 GHz	21.000 GHz	100.000 kHz	19.11485 GHz	-50.33 dBm	-200.00 dB
21.000 GHz	24.000 GHz	100.000 kHz	21.46993 GHz	-54.00 dBm	-200.00 dB
24.000 GHz	26.500 GHz	100.000 kHz	25.52082 GHz	-51.84 dBm	-200.00 dB

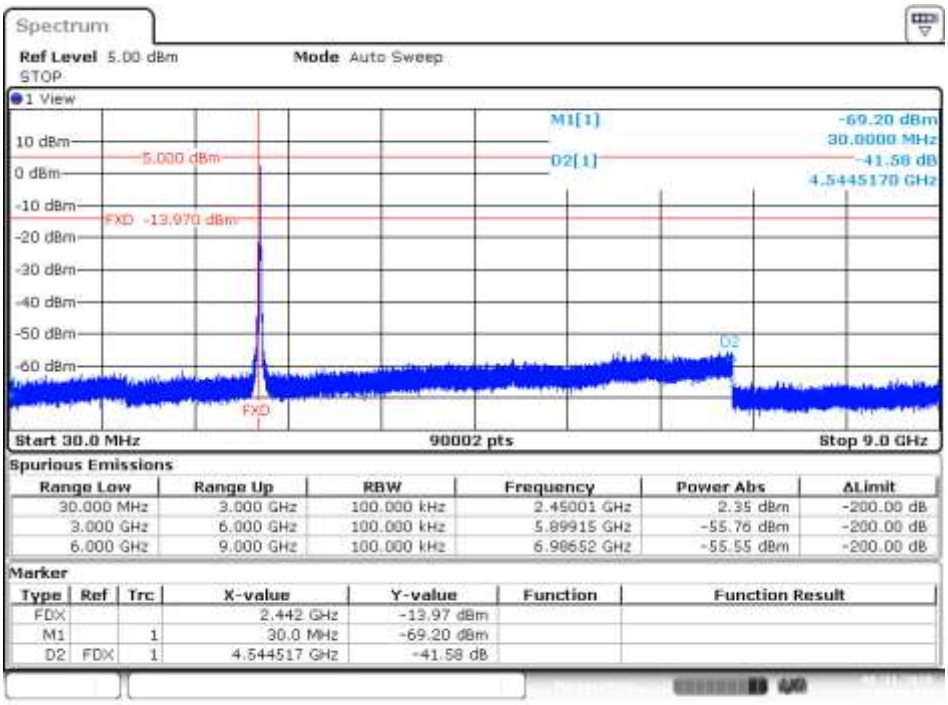
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-18.39 dBm		
M1		1	18.0 GHz	-64.12 dBm		
D2	FDX	1	16.70165 GHz	-31.98 dB		

Date: 29.AUG.2018 10:50:42

MIMO-A, 802.11ax20, HE0

Channel 7 - Range 30MHz to 9GHz - Delta Marker Measurement



Spurious Emissions

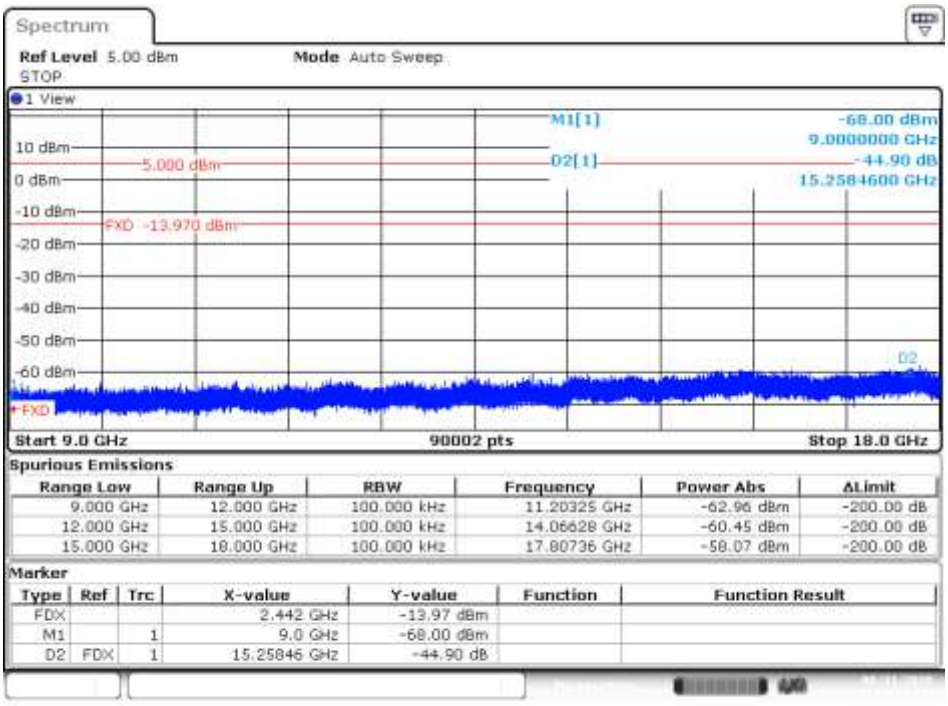
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.45001 GHz	2.35 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.89915 GHz	-55.76 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.98652 GHz	-55.55 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-13.97 dBm		
M1		1	30.0 MHz	-69.20 dBm		
D2	FDX	1	4.544517 GHz	-41.58 dB		

Date: 31.AUG.2018 11:04:26

Channel 7 - Range 9GHz to 18GHz - Delta Marker Measurement



Spurious Emissions

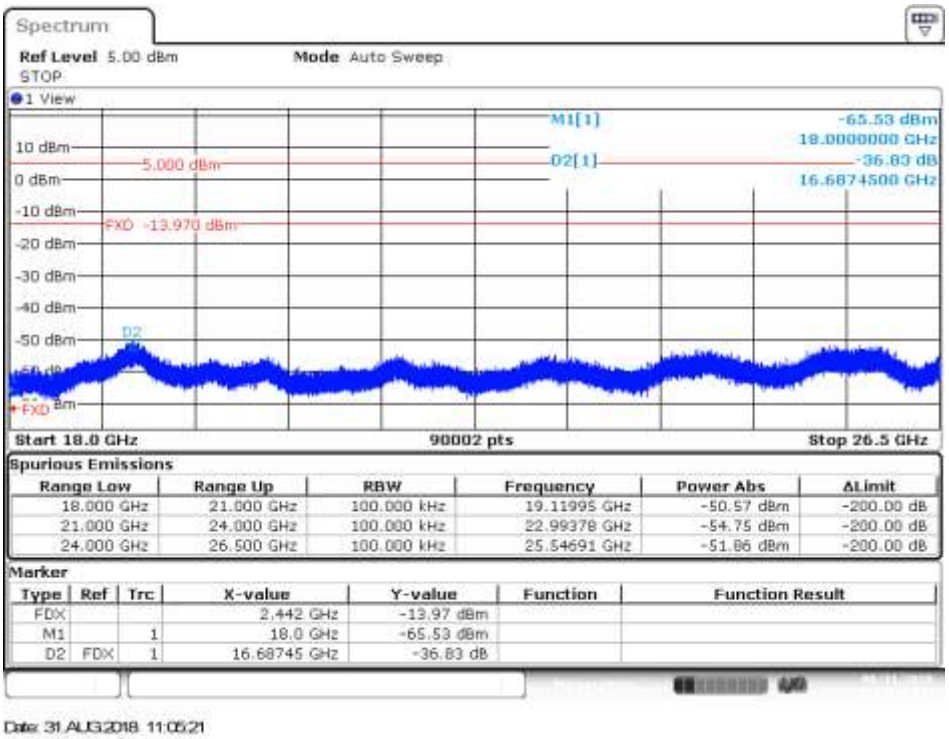
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.20325 GHz	-62.96 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.06628 GHz	-60.45 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	17.80736 GHz	-58.07 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-13.97 dBm		
M1		1	9.0 GHz	-68.00 dBm		
D2	FDX	1	15.25846 GHz	-44.90 dB		

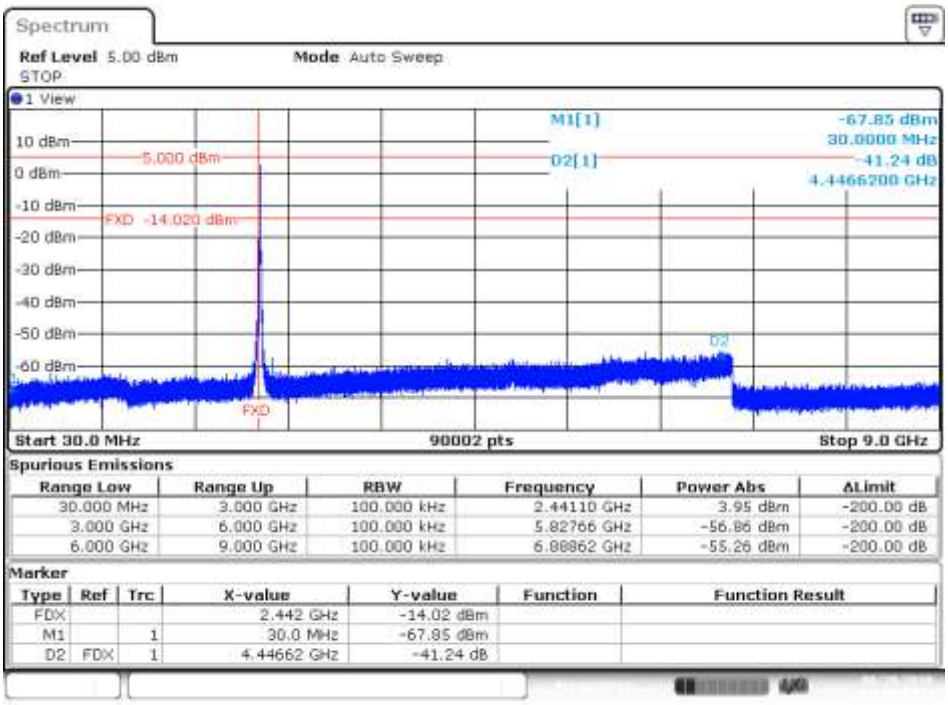
Date: 31.AUG.2018 11:04:53

Channel 7 - Range 18GHz to 26.5GHz - Delta Marker Measurement



MIMO-B, 802.11ax20, HE0

Channel 7 - Range 30MHz to 9GHz - Delta Marker Measurement



Spurious Emissions

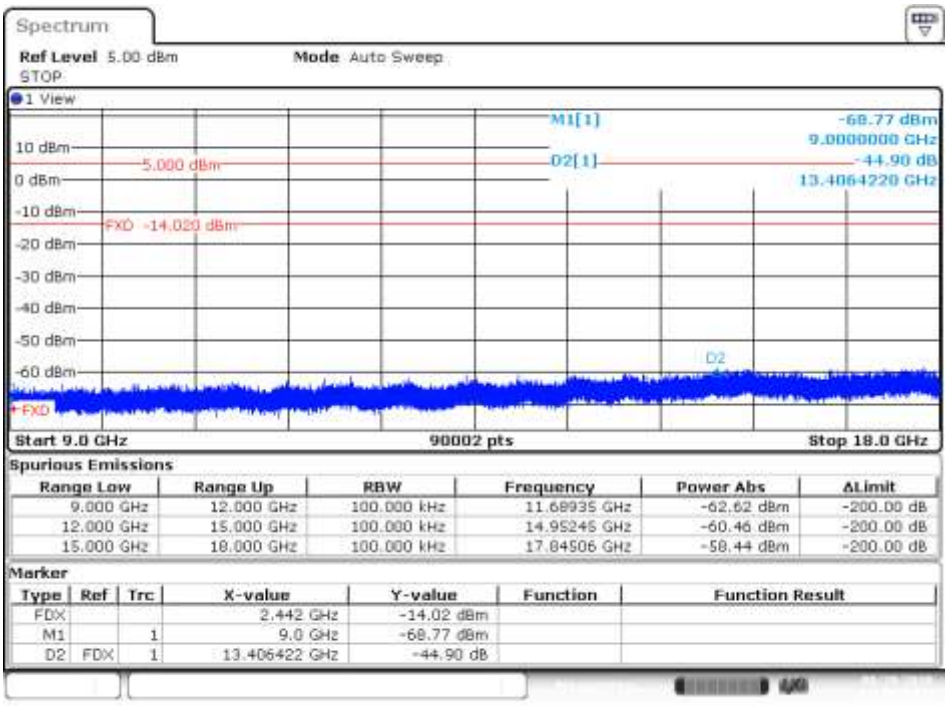
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.44110 GHz	3.95 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.82766 GHz	-56.86 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.88862 GHz	-55.26 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-14.02 dBm		
M1		1	30.0 MHz	-67.85 dBm		
D2	FDX	1	4.44662 GHz	-41.24 dB		

Date: 29.AUG.2018 14:49:26

Channel 7 - Range 9GHz to 18GHz - Delta Marker Measurement



Spurious Emissions

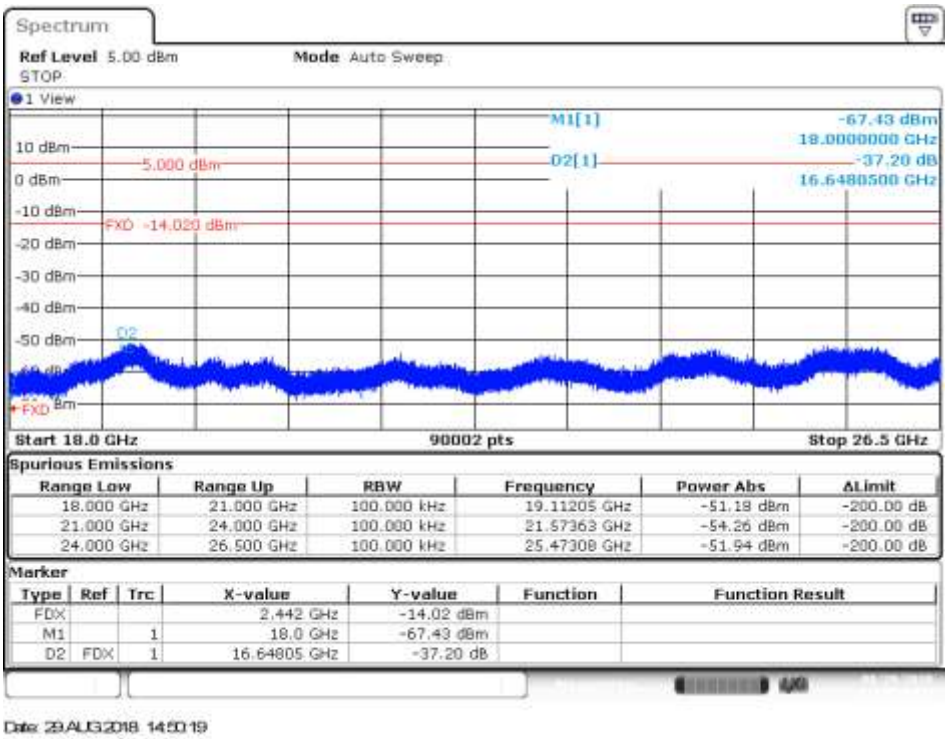
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.68935 GHz	-62.62 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.95245 GHz	-60.46 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	17.84506 GHz	-58.44 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-14.02 dBm		
M1		1	9.0 GHz	-68.77 dBm		
D2	FDX	1	13.406422 GHz	-44.90 dB		

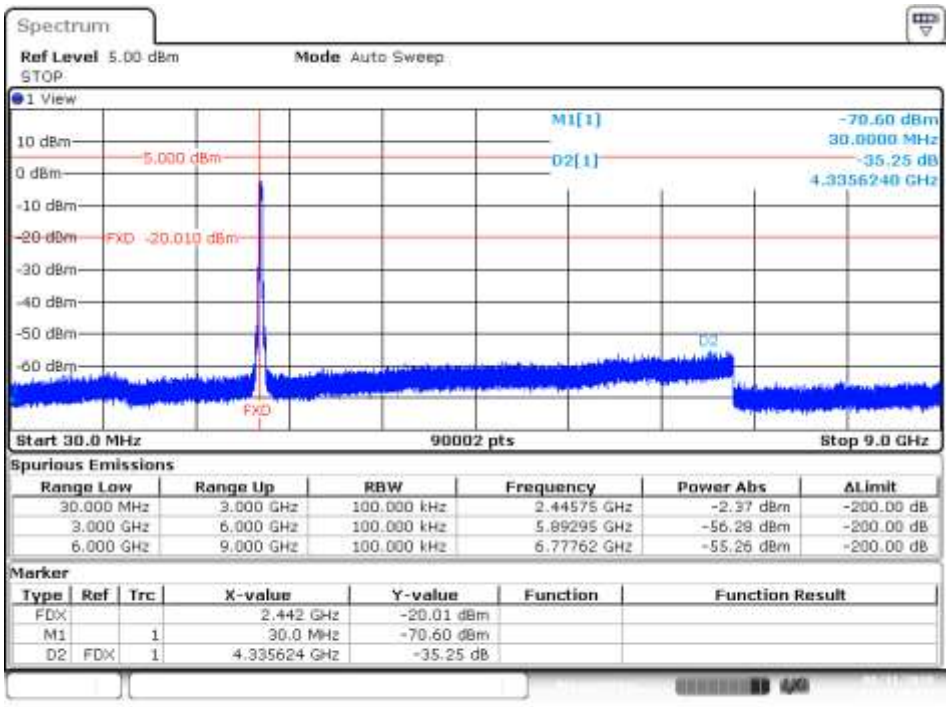
Date: 29.AUG.2018 14:49:53

Channel 7 - Range 18GHz to 26.5GHz - Delta Marker Measurement



MIMO-A, 802.11ax40, HE0

Channel 7F - Range 30MHz to 9GHz - Delta Marker Measurement



Spurious Emissions

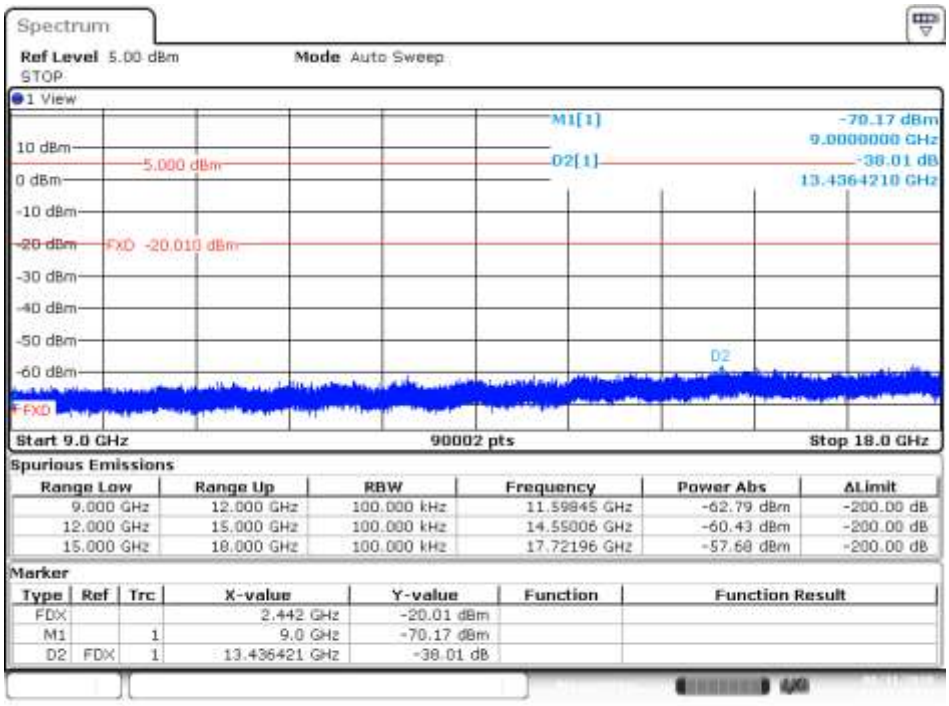
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.44575 GHz	-2.37 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.89295 GHz	-56.28 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.77762 GHz	-55.26 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-20.01 dBm		
M1		1	30.0 MHz	-70.60 dBm		
D2	FDX	1	4.335624 GHz	-35.25 dB		

Date: 31.AUG.2018 14:13:10

Channel 7F - Range 9GHz to 18GHz - Delta Marker Measurement



Spurious Emissions

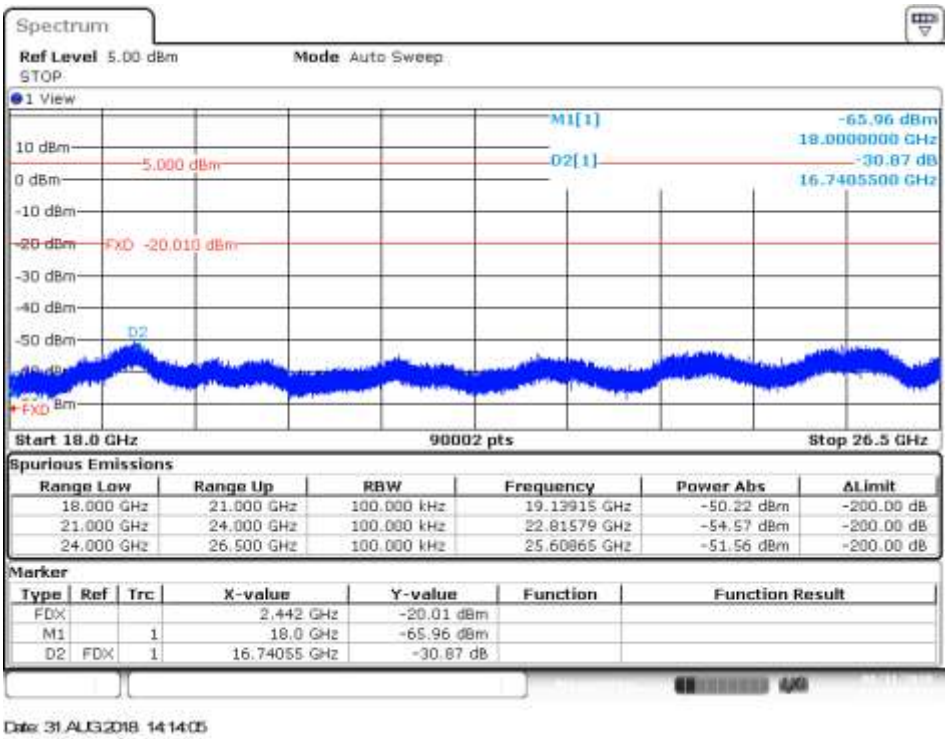
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.59845 GHz	-62.79 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.55006 GHz	-60.43 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	17.72196 GHz	-57.68 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-20.01 dBm		
M1		1	9.0 GHz	-70.17 dBm		
D2	FDX	1	13.436421 GHz	-38.01 dB		

Date: 31.AUG.2018 14:13:38

Channel 7F - Range 18GHz to 26.5GHz - Delta Marker Measurement



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
18.000 GHz	21.000 GHz	100.000 kHz	19.13915 GHz	-50.22 dBm	-200.00 dB
21.000 GHz	24.000 GHz	100.000 kHz	22.81579 GHz	-54.57 dBm	-200.00 dB
24.000 GHz	26.500 GHz	100.000 kHz	25.60865 GHz	-51.56 dBm	-200.00 dB

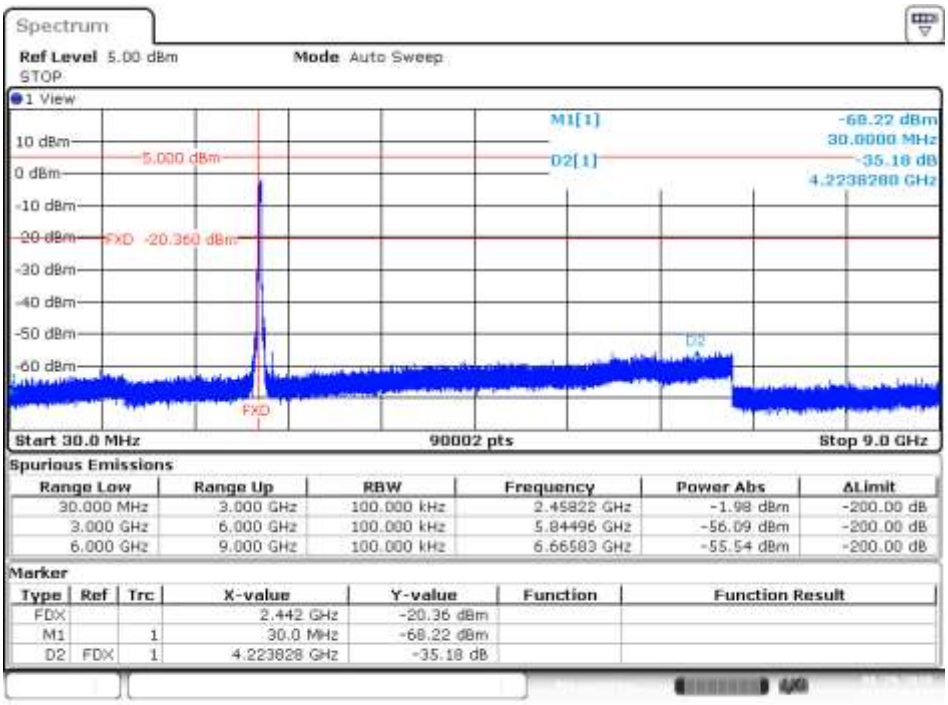
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-20.01 dBm		
M1		1	18.0 GHz	-65.96 dBm		
D2	FDX	1	16.74055 GHz	-30.87 dB		

Date: 31.AUG.2018 14:14:05

MIMO-B, 802.11ax40, HE0

Channel 7F - Range 30MHz to 9GHz - Delta Marker Measurement



Spurious Emissions

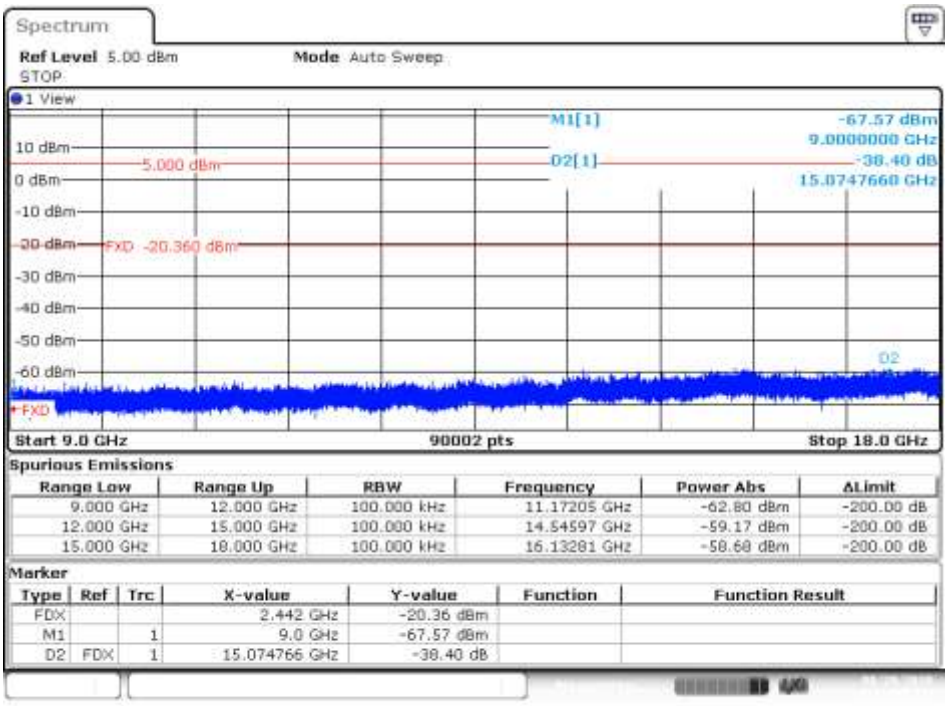
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.45822 GHz	-1.98 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.84496 GHz	-56.09 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.66583 GHz	-55.54 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-20.36 dBm		
M1		1	30.0 MHz	-68.22 dBm		
D2	FDX	1	4.223828 GHz	-35.18 dB		

Date: 29.AUG.2018 15:53:39

Channel 7F - Range 9GHz to 18GHz - Delta Marker Measurement



Spurious Emissions

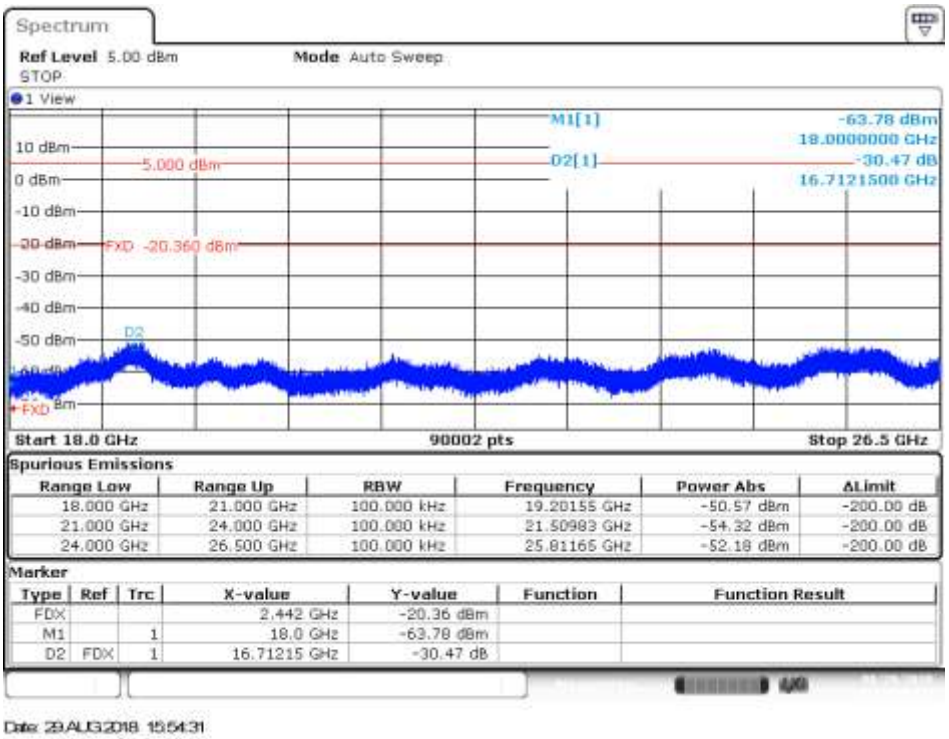
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.17205 GHz	-62.80 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.54597 GHz	-59.17 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	16.13281 GHz	-58.68 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-20.36 dBm		
M1		1	9.0 GHz	-67.57 dBm		
D2	FDX	1	15.074766 GHz	-38.40 dB		

Date: 29.AUG.2018 15:54:05

Channel 7F - Range 18GHz to 26.5GHz - Delta Marker Measurement



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
18.000 GHz	21.000 GHz	100.000 kHz	19.20155 GHz	-50.57 dBm	-200.00 dB
21.000 GHz	24.000 GHz	100.000 kHz	21.50983 GHz	-54.32 dBm	-200.00 dB
24.000 GHz	26.500 GHz	100.000 kHz	25.81165 GHz	-52.18 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.442 GHz	-20.36 dBm		
M1		1	18.0 GHz	-63.78 dBm		
D2	FDX	1	16.71215 GHz	-30.47 dB		

Date: 29.AUG.2018 15:54:31

Annex C. Test Results BLE

C.1 Test Results BLE

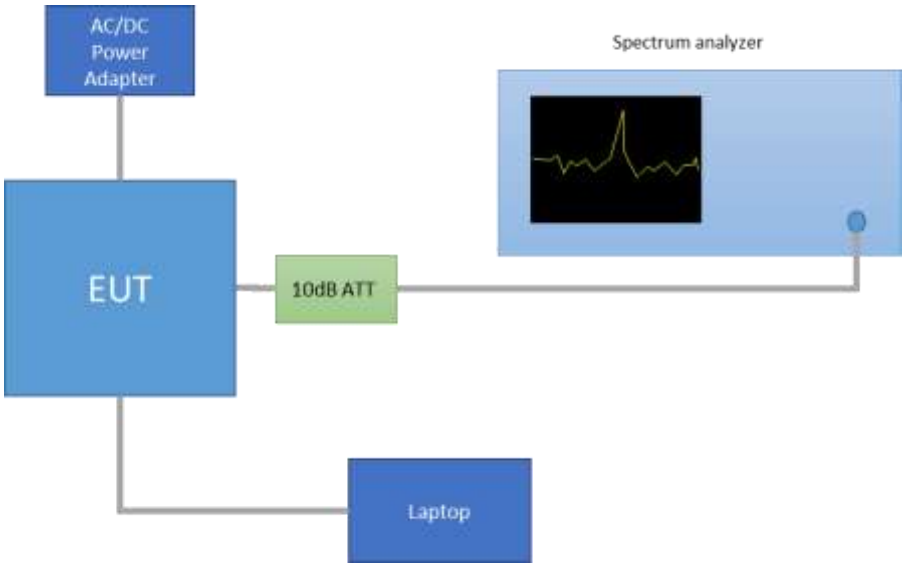
C.1.1 6dB & 99% Bandwidth

Test limits

FCC part	RSS part	Limits
15.247 (a) (2)	RSS-247 Clause 5.2 (a)	Systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test procedure

The setup below was used to measure the 6dB & 99% Bandwidth. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



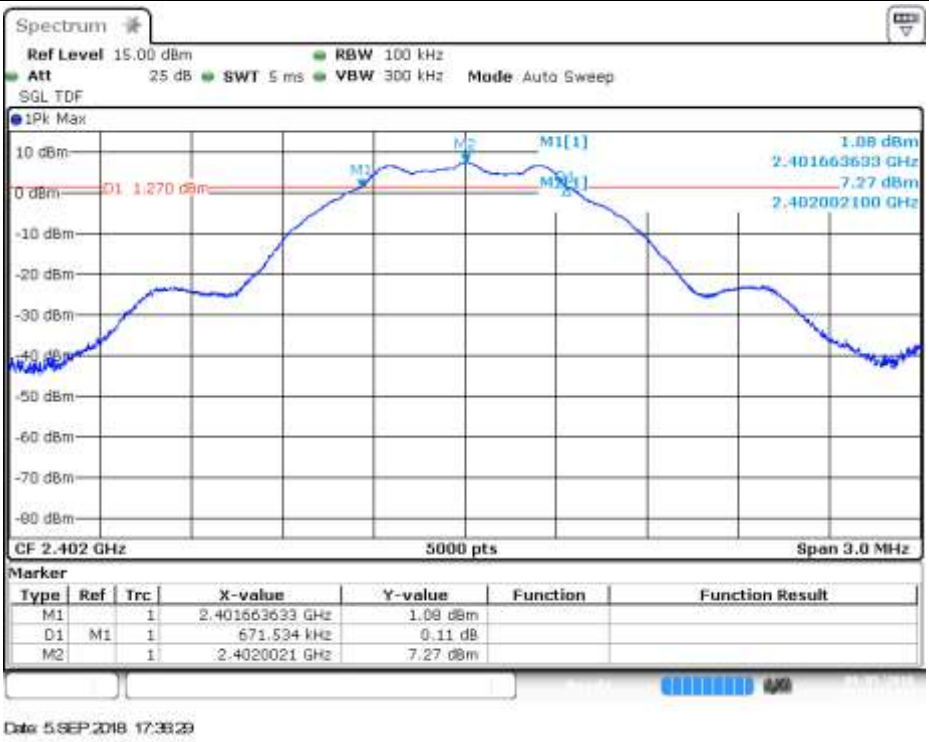
Results tables

Mode	Channel	Frequency [MHz]	6dB BW [MHz]	99% BW [MHz]
BLE	0	2402	0.67	1.16
	19	2440	0.67	1.15
	39	2480	0.68	1.16

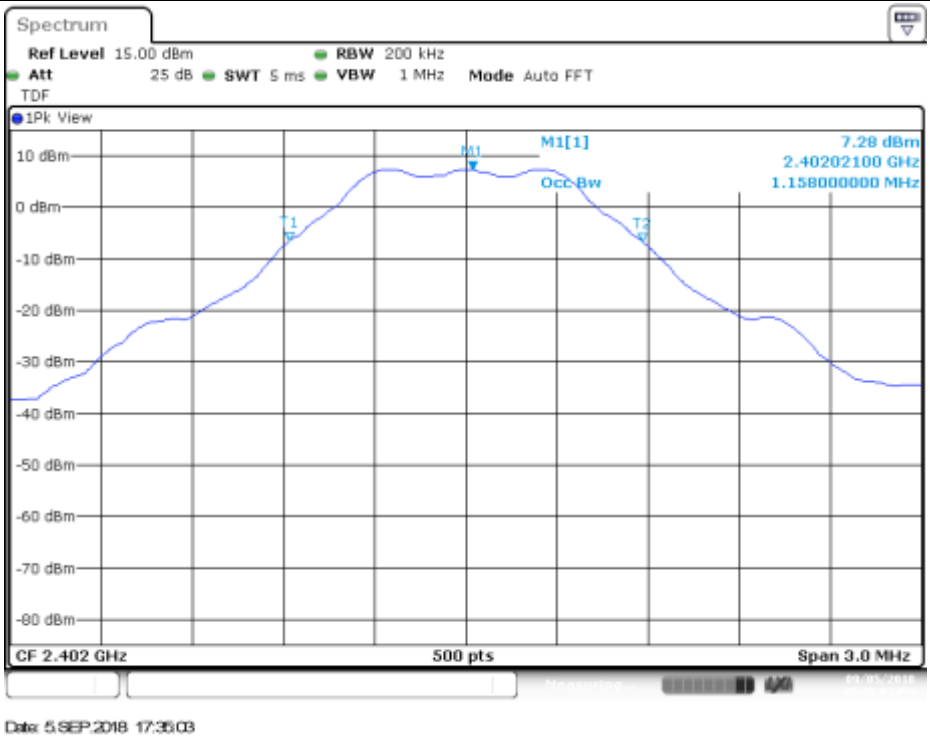
Results screenshot

BLE

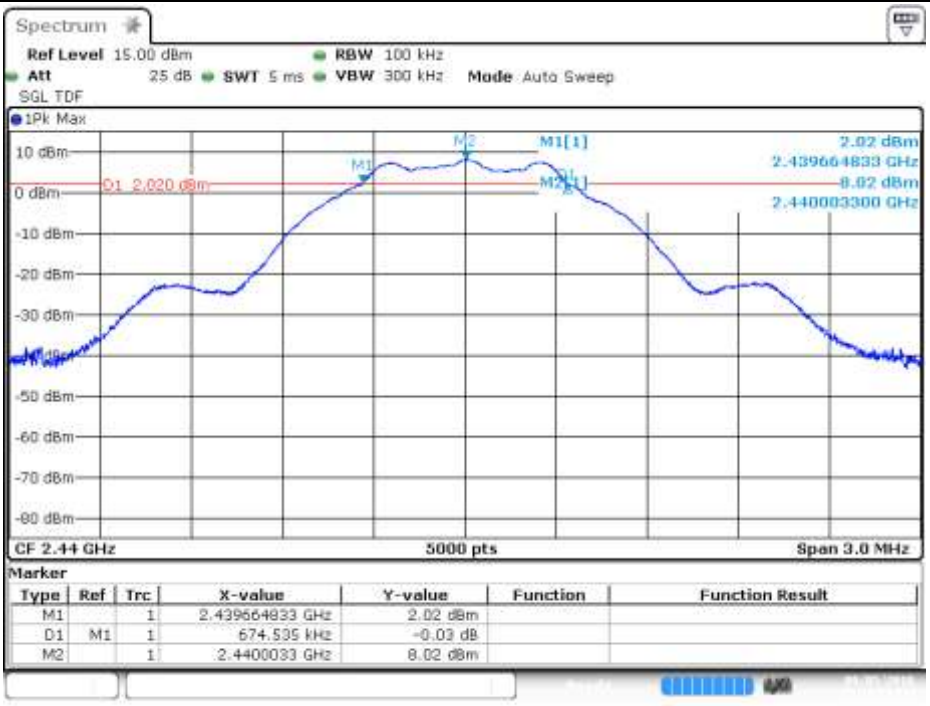
6dB BW – CH0



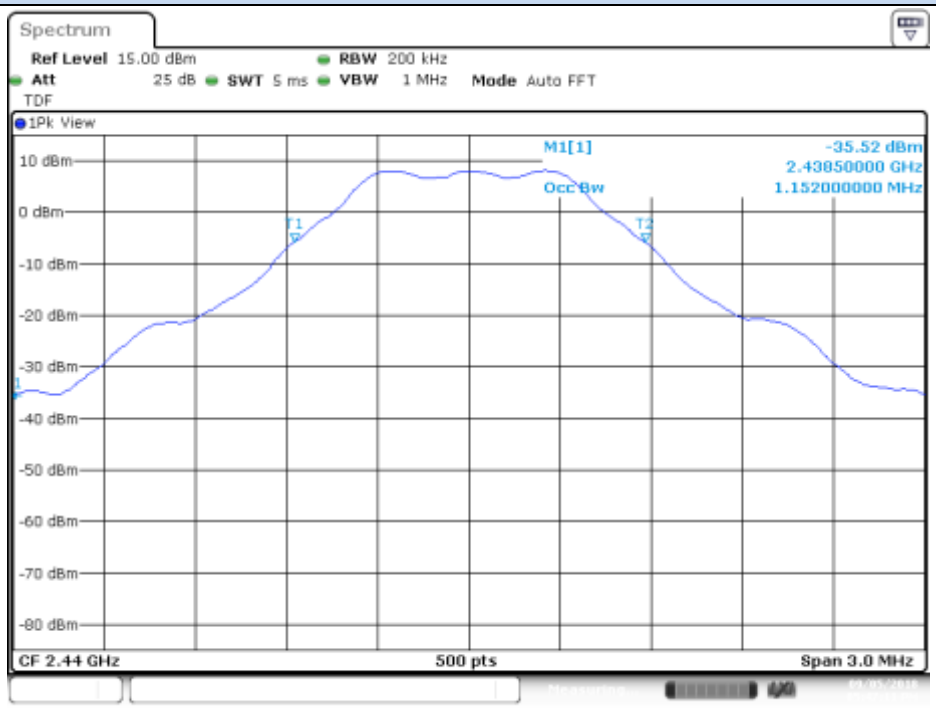
99% BW – CH0



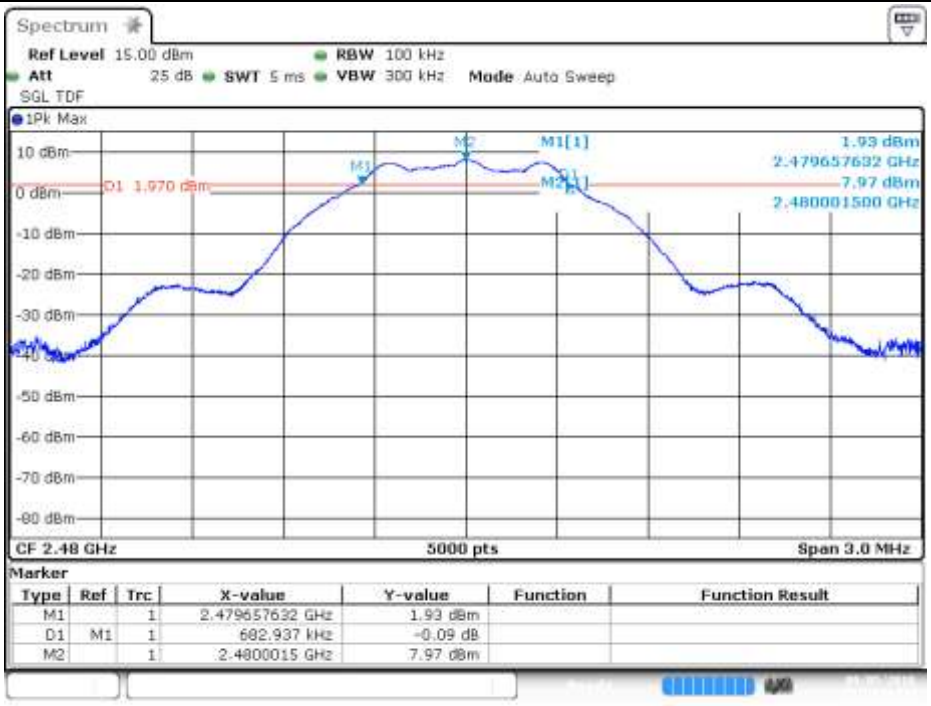
6dB BW – CH19



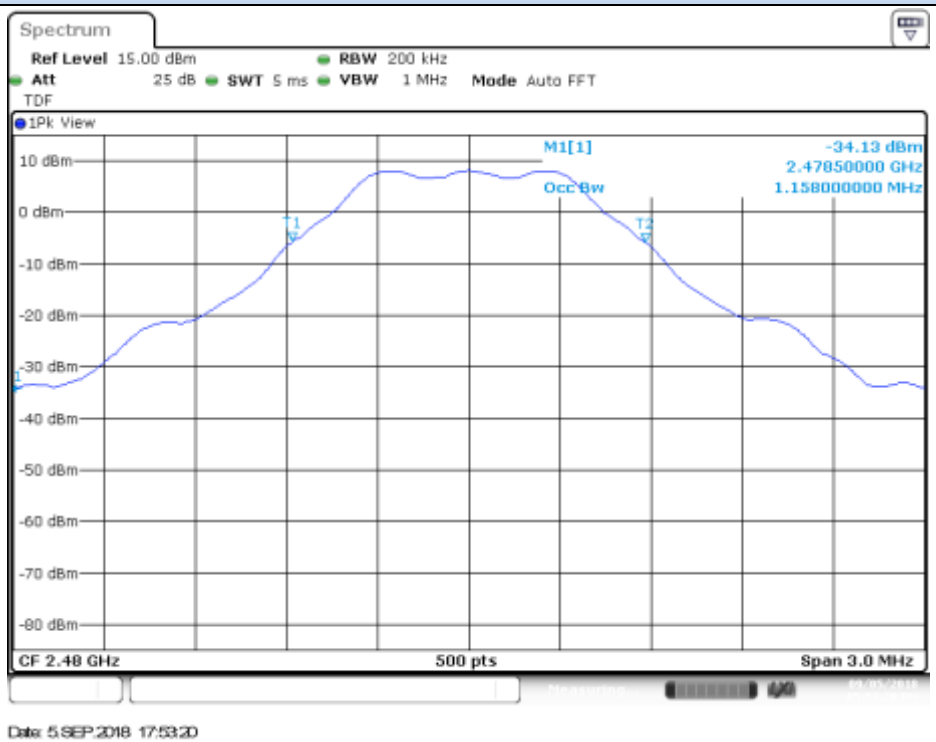
99% BW – CH19



6dB BW – CH39



99% BW – CH39



C.1.2 Maximum Output Power and antenna gain

Test limits

	Limits
FCC Part 15.247 (b) (3)	(b) The maximum peak conducted output power of the intentional radiator shall not exceed the following: (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. (4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi.
RSS-247 Clause 5.4 (d)	For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e). As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode

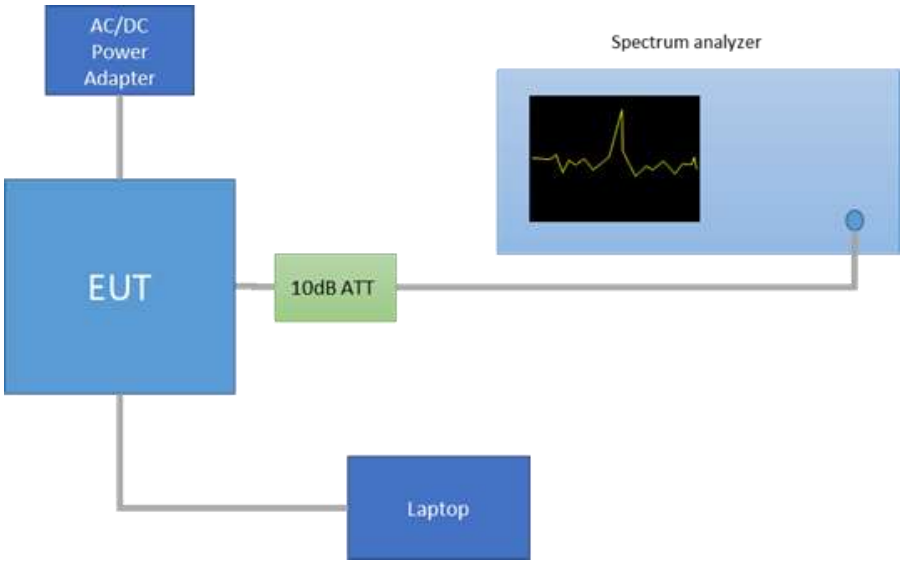
Test procedure:

The Maximum peak conducted output power was measured using the *RBW ≥ DTS bandwidth* method defined in paragraph 8.3.1.1 of FCC KDB 558074 D01 - Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247.

The Maximum conducted average output power was measured using the channel integration method according to Method AVGSA-2, defined in paragraph 11.9.2.2.4 of ANSI C63.10-2013 – American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.
.

The EIRP power (dBm) is calculated by adding the declared maximum antenna gain to the measured conducted power. The declared maximum antenna gain is 3.24dBi.

The setup below was used to measure the maximum conducted output power. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.



Results tables

				Peak Power [dBm]		
Mode	Meas. Duty Cycle [%]	CH	Frequency [MHz]	Measured Conducted Output Power	EIRP	Peak Output Power [mW]
BLE	62	0	2402	7.51	10.75	5.64
		19	2440	8.25	11.49	6.68
		39	2480	8.24	11.48	6.67

Max Value
Min Value

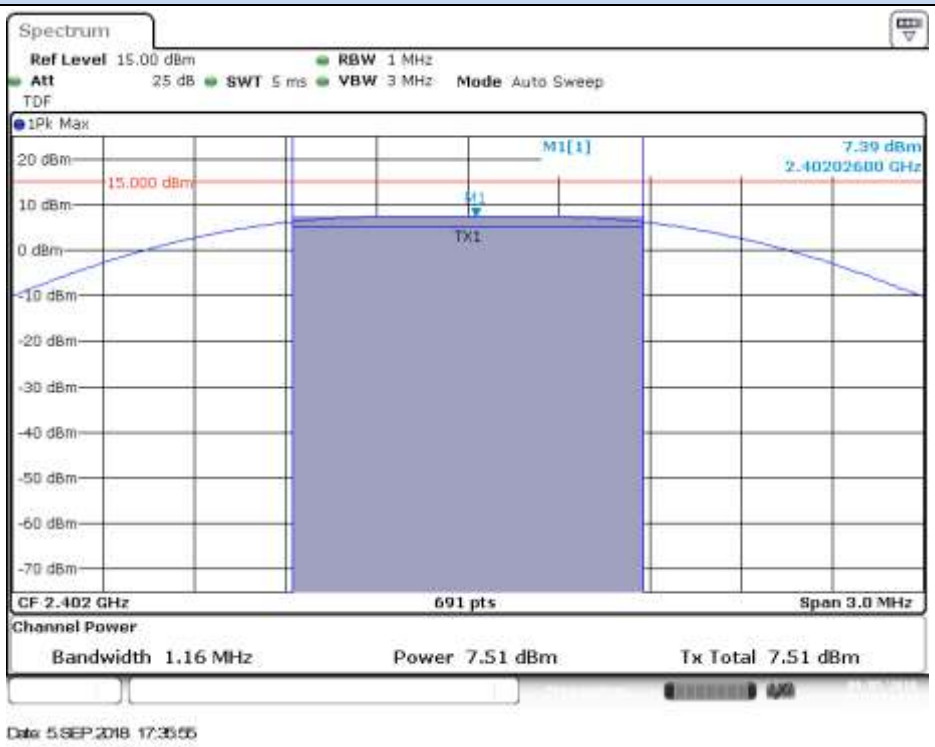
				Average Output Power* [dBm]			
Mode	Meas. Duty Cycle [%]	CH	Frequency [MHz]	Maximum Conducted Output Power	Maximum Conducted Output Power Duty cycle Compensated	EIRP	Average Output Power [mW]
BLE	62	0	2402	5.29	7.37	10.61	5.45
		19	2440	6.04	8.12	11.36	6.48
		39	2480	6.01	8.09	11.33	6.44

* Output Power RMS values are shown for indicative purpose only

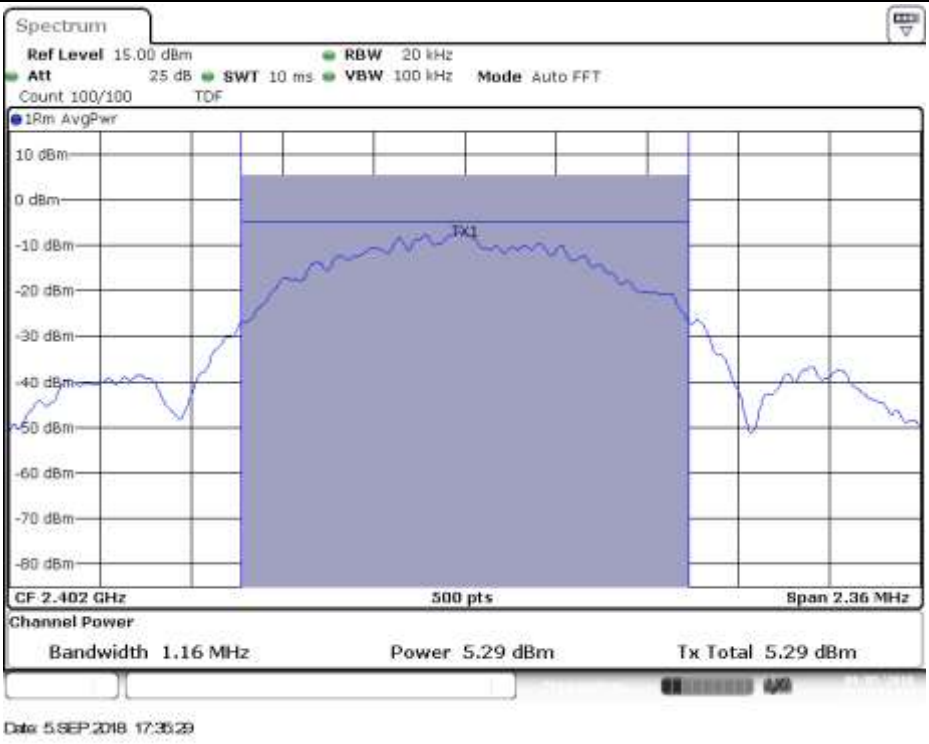
Results screenshot

BLE

Max Power Peak – CH0

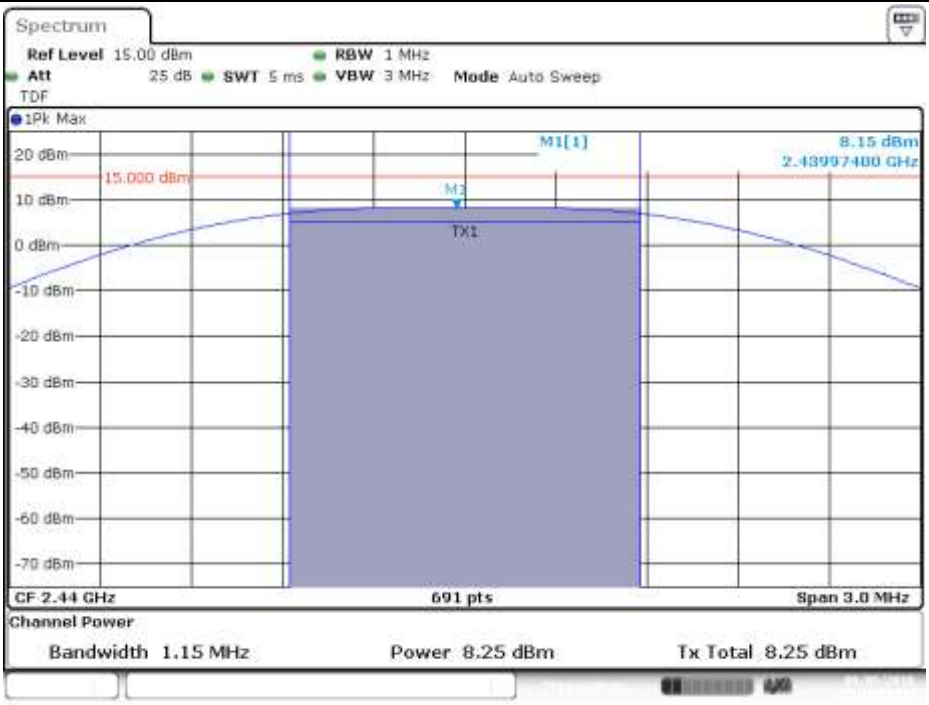


Max Power RMS – CH0

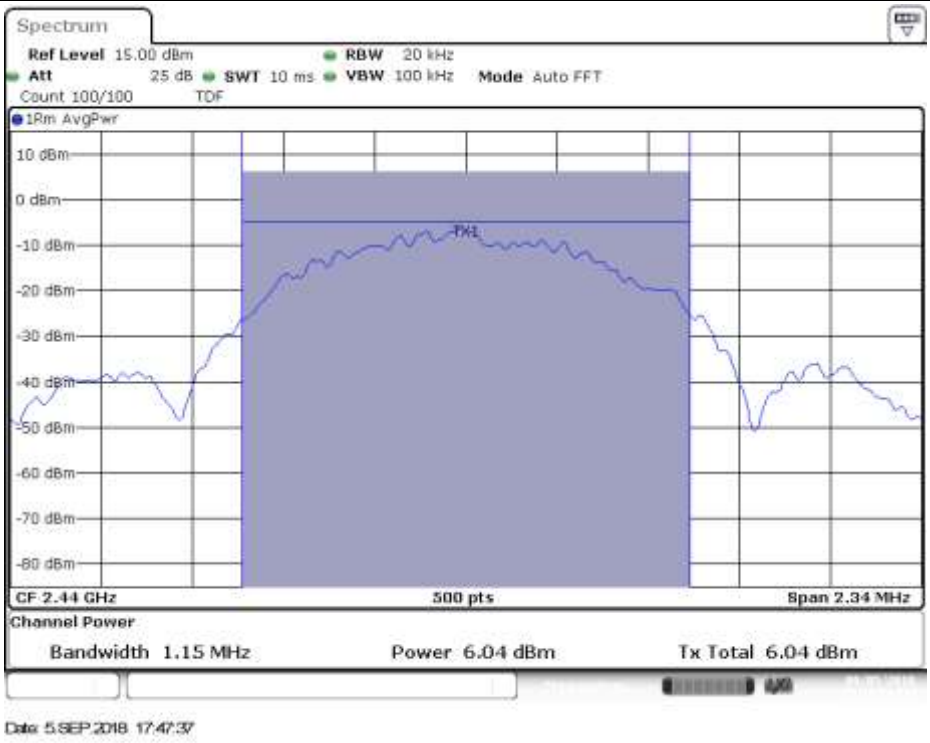


BLE

Max Power Peak – CH19

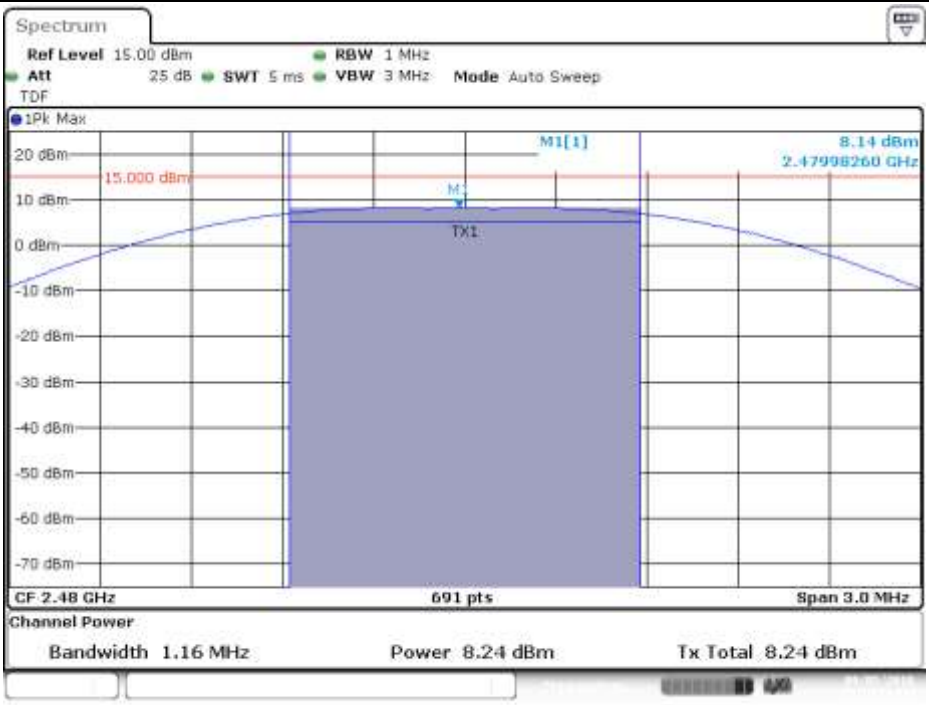


Max Power RMS – CH19

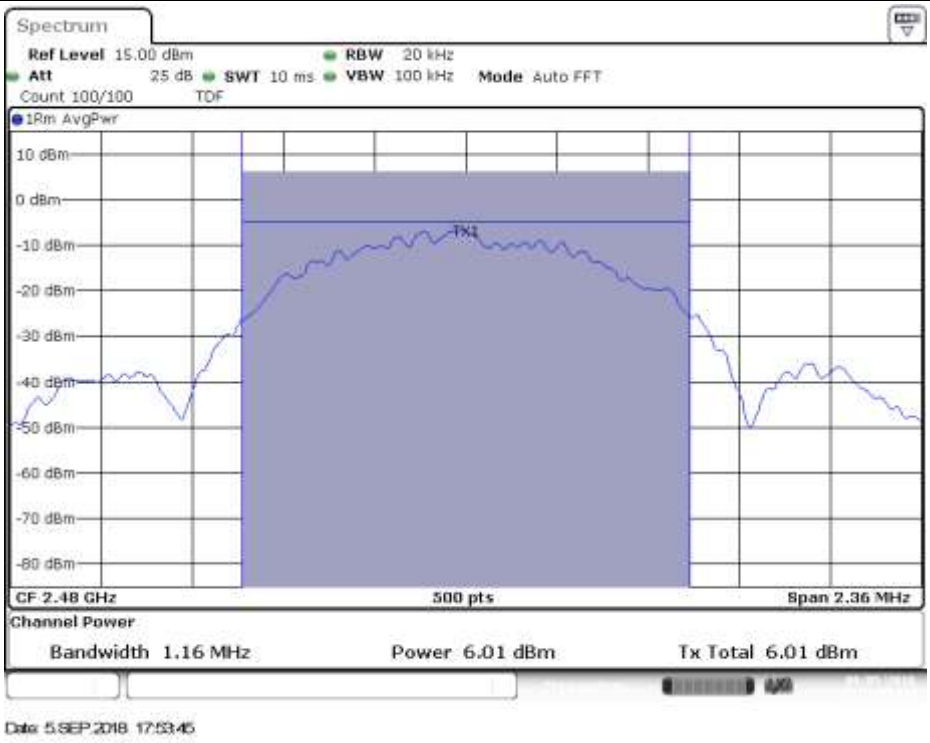


BLE

Max Power Peak – CH39



Max Power RMS – CH39



C.1.3 Power Spectral Density

Test limits

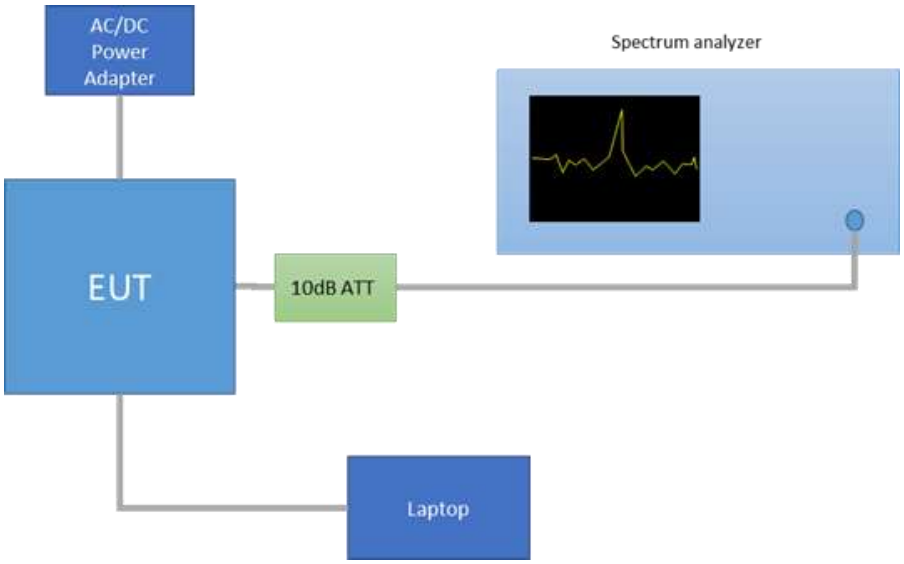
FCC part	RSS part	Limits
15.247 (e)	RSS-247 Clause 5.2 (b)	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test procedure

The maximum peak power spectral density level of the fundamental emission was measured using the method PKPSD, defined in paragraph 11.10.2 of ANSI C63.10-2013 – American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

The setup below was used to measure the power spectral density. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.

The declared maximum antenna gain is 3.24dBi.

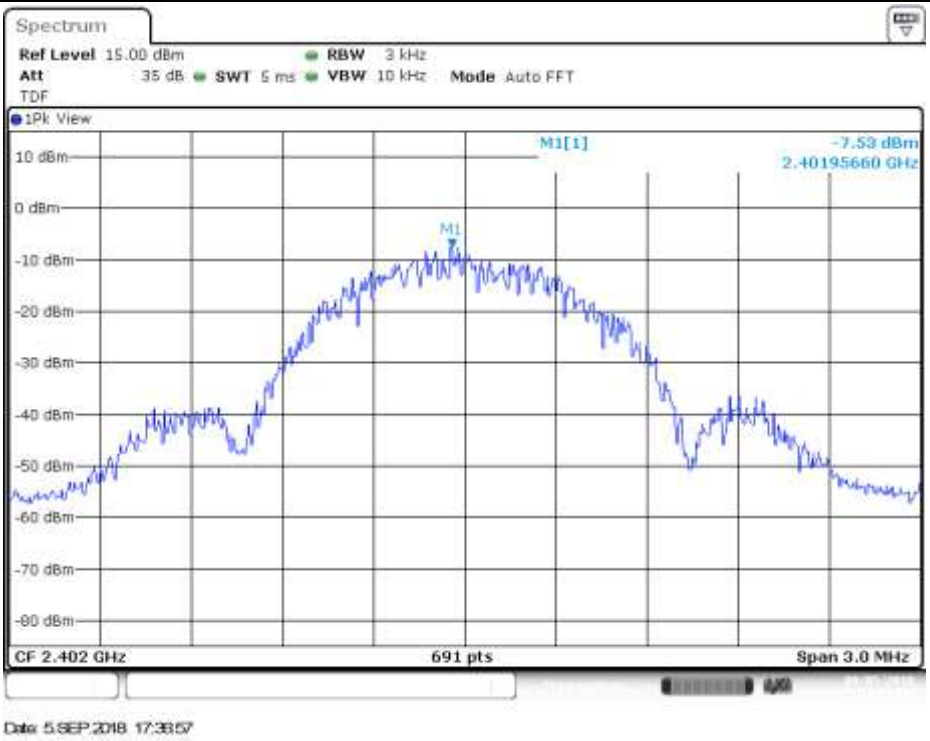


Results tables

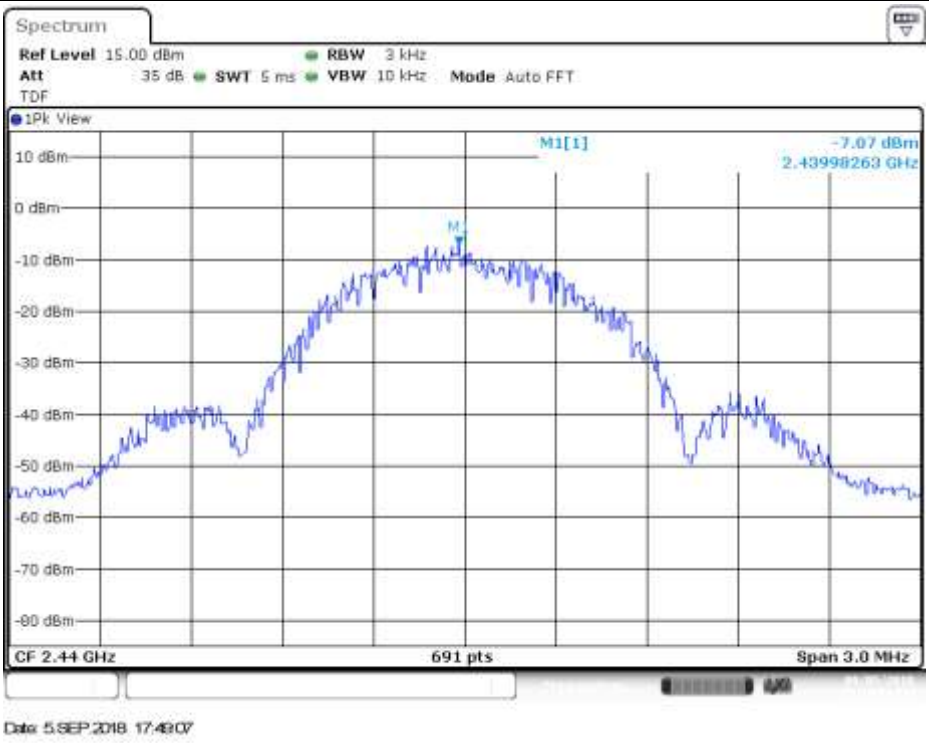
Mode	CH	Frequency [MHz]	PSD Peak [dBm]
BLE	0	2402	-7.53
	19	2440	-7.07
	39	2480	-7.33

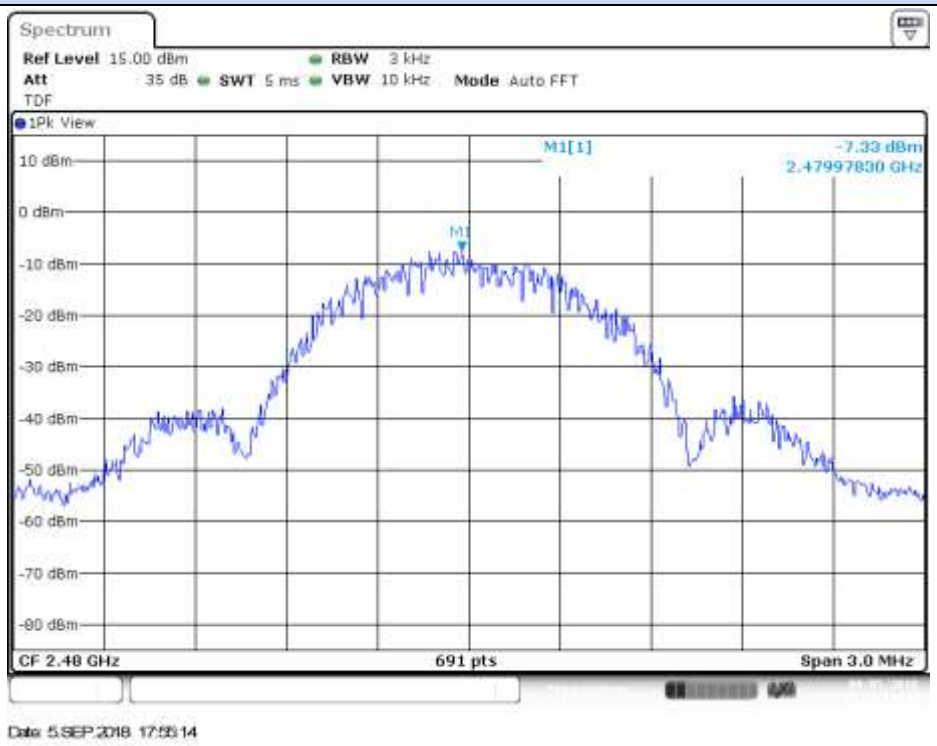
BLE

PSD Peak – CH0



PSD Peak – CH19



PSD Peak – CH39


C.1.4 Out-of-band emission (Conducted)

Test Limits

<table>
<tr><th>FCC part</th><th>RSS part</th><th>Limits</th></tr>
<tr><td>15.247 (d)</td><td>RSS-247
Clause 5.5</td><td>In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.</td></tr>
<tr><td>15.209</td><td>RSS-Gen
Clause 8.9</td><td>Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a):
<table>
<tr><th>Freq Range (MHz)</th><th>Field Stregth (µV/m)</th><th>Field Stregth (dBµV/m)</th><th>Meas. Distance (m)</th></tr>
<tr><td>30-88</td><td>100</td><td>40</td><td>3</td></tr>
<tr><td>88-216</td><td>150</td><td>43.5</td><td>3</td></tr>
<tr><td>216-960</td><td>200</td><td>46</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>54</td><td>3</td></tr>
</table>
The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
For average radiated emission measurements above 1000 MHz, there is also a limit specified when measuring with peak detector function, corresponding to 20 dB above the indicated values in the table.</td></tr>
</table>

Test procedure

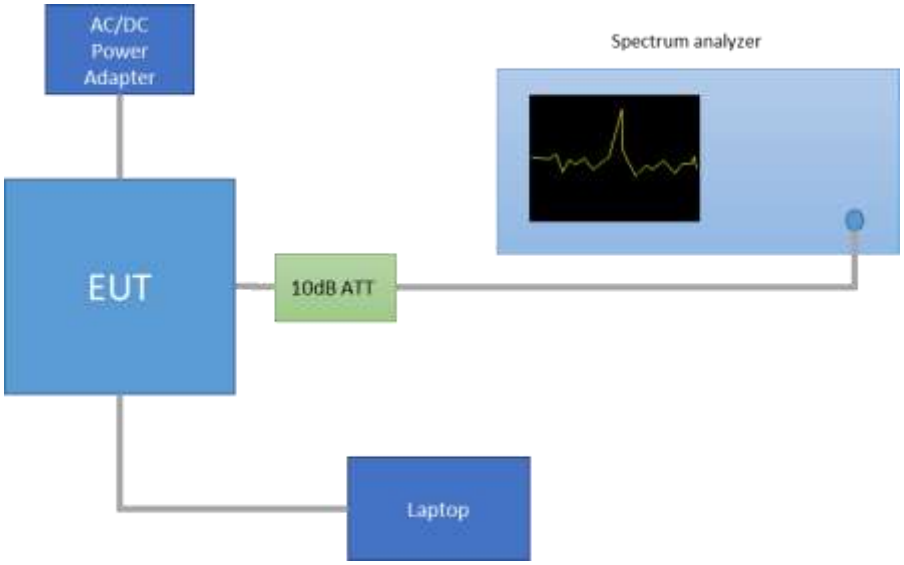
The setup below was used to measure the out-of-band emissions. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.

In case of Band Edge measurements falling in restricted bands, the declared Antenna Gain is also compensated in the graph. The declared maximum antenna gain is 3.24dBi.

For Band Edge measurements falling in restricted bands, the following limits in dBm were applied for the average detector after the conversion from the limits detailed above in dBµV/m, according to FCC 47 CFR part 15 - Subpart C – §15.209(a). The limits in dBm for peak detector are 20dB above the indicated values in the table.

§15.209(a)			Converted values	
Freq Range (MHz)	Distance (m)	Field strength (microvolts/meter)	Field strength (dB microvolts/meter)	Power (dBm)
Above 960	3	500	54.0	-41.2

The setup below was used to measure the out-of-band emissions. The antenna terminal of the EUT is connected to the spectrum through an attenuator, and the spectrum analyzer reading is compensated to include the RF path loss.

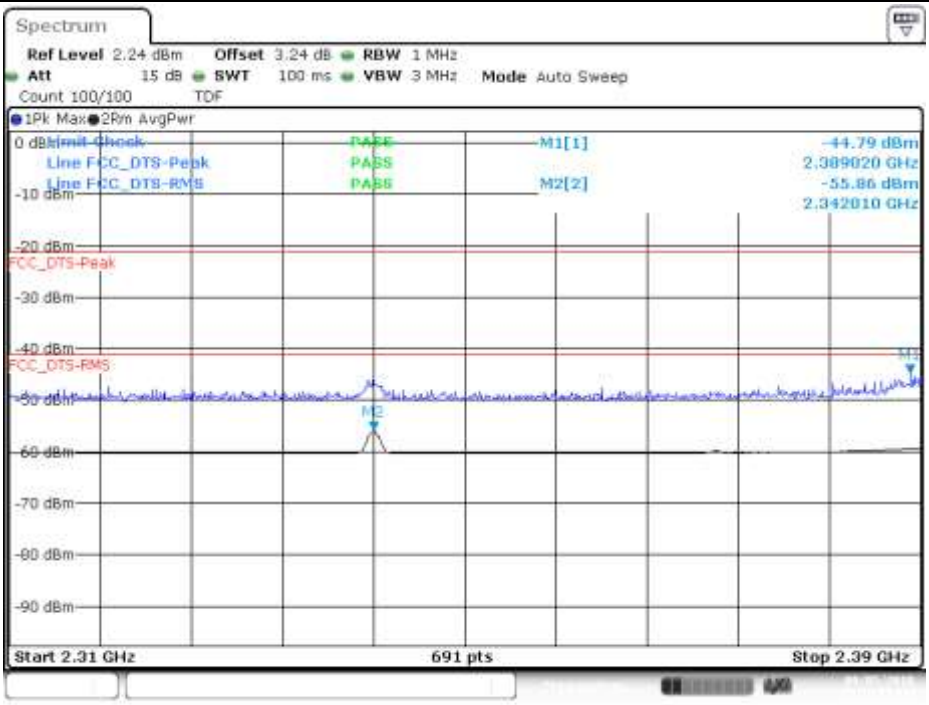


Note: these PSD_{Peak} values are shown just as a reference for the compliance of the Out-of-band Measurements. Thus the RBW used for these measurements was 100kHz.

Mode	CH	Frequency [MHz]	PSD Peak [dBm]
BLE	0	2402	7.31
	19	2440	8.03
	39	2480	7.96

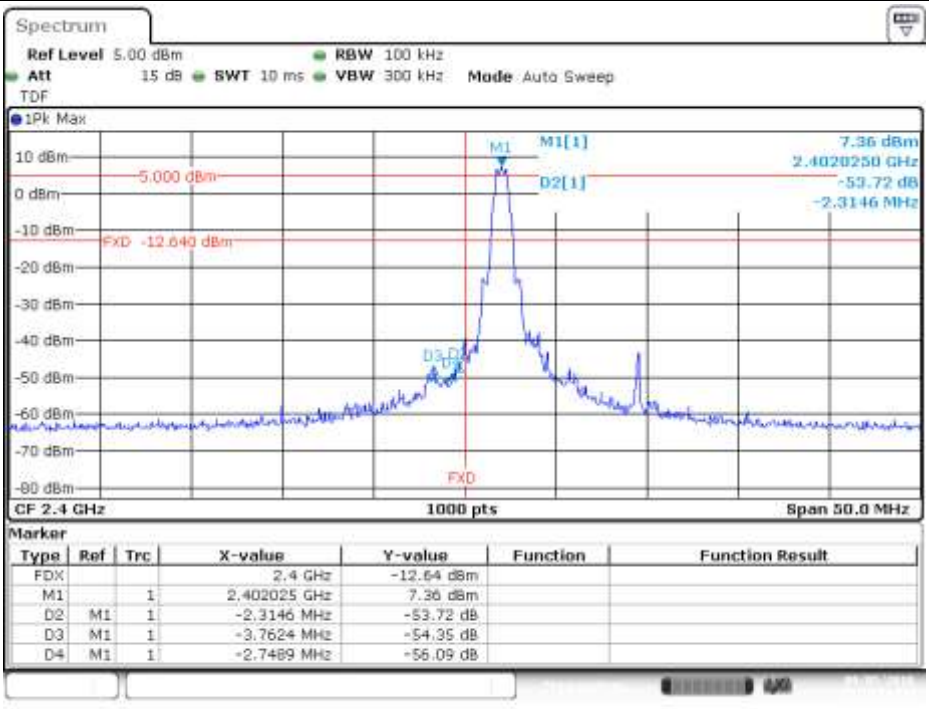
BLE

BE Low Freq Section – CH0



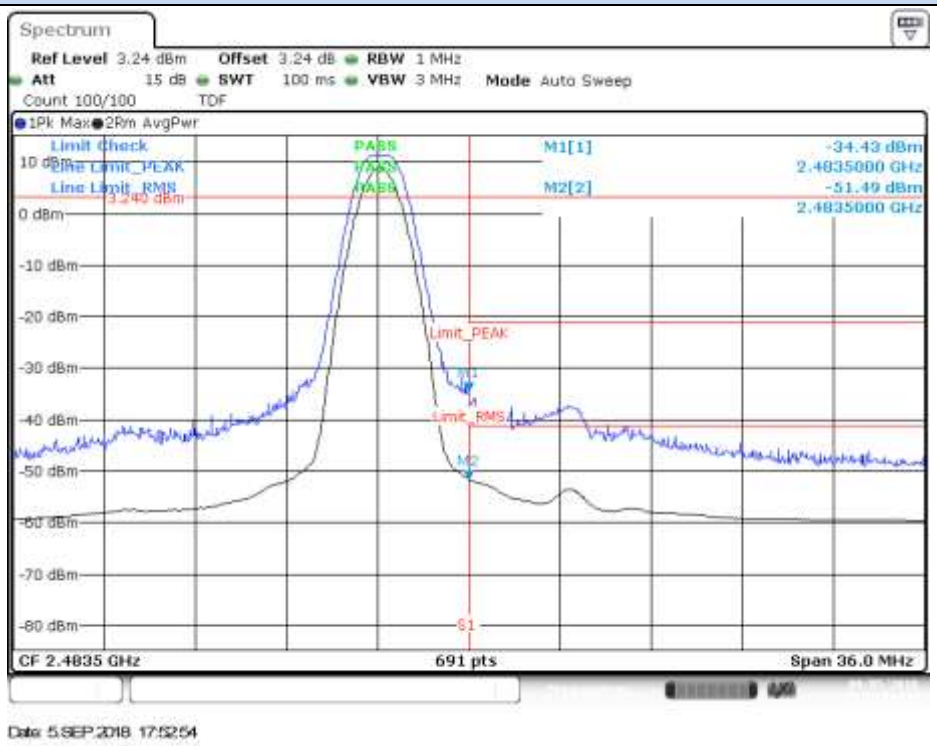
Date: 5.SEP.2018 17:32:55

BE Low (Non Restricted) – CH0



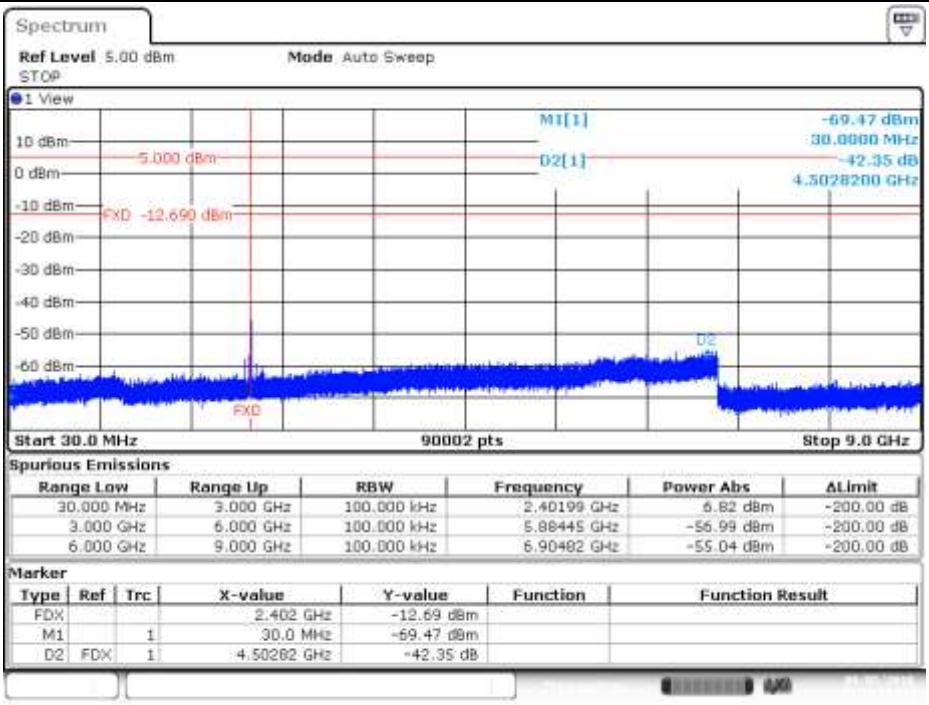
Date: 5.SEP.2018 17:33:58

BE High Freq Section (Restricted) – CH39



BLE, CH0

Cond Spur, 30MHz – 9GHz



Spurious Emissions

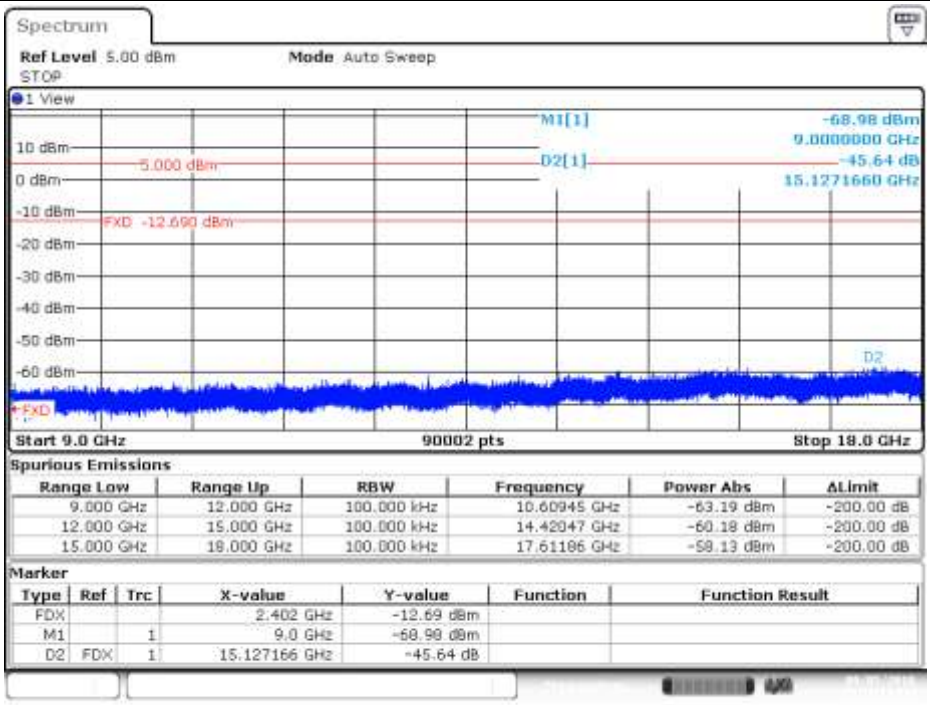
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.40199 GHz	6.82 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.88445 GHz	-56.99 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.90482 GHz	-55.04 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.402 GHz	-12.69 dBm		
M1		1	30.0 MHz	-69.47 dBm		
D2	FDX	1	4.50282 GHz	-42.35 dB		

Date: 5.SEP.2018 17:37:57

Cond Spur, 9GHz – 18GHz



Spurious Emissions

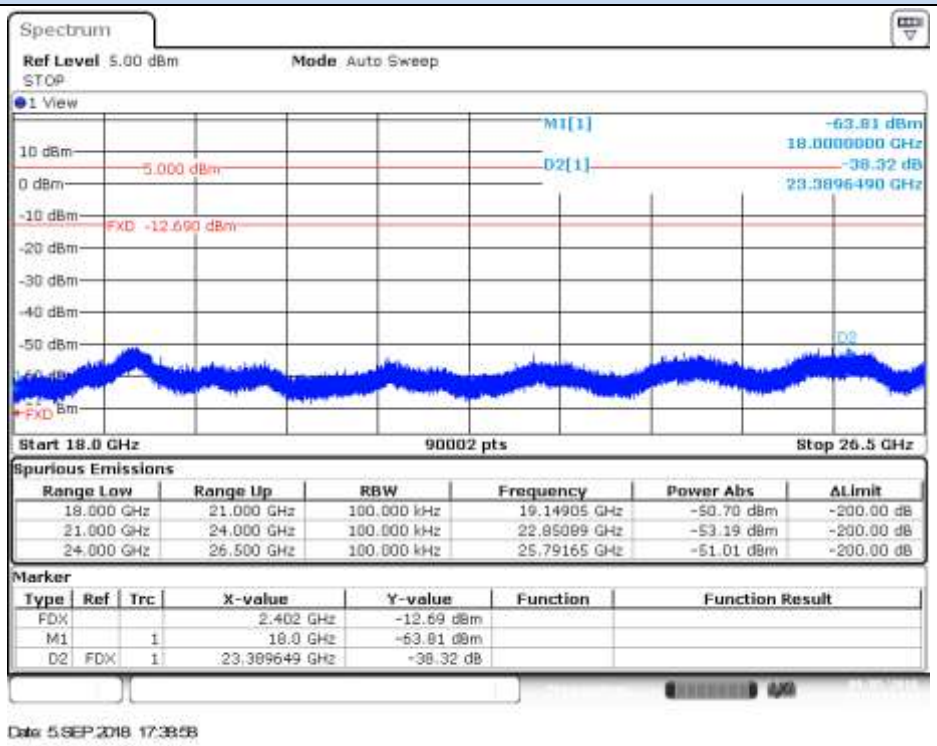
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	10.60945 GHz	-63.19 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.42047 GHz	-60.18 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	17.61186 GHz	-58.13 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.402 GHz	-12.69 dBm		
M1		1	9.0 GHz	-68.98 dBm		
D2	FDX	1	15.127166 GHz	-45.64 dB		

Date: 5.SEP.2018 17:38:27

Cond Spur,18GHz – 26.5GHz



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
18.000 GHz	21.000 GHz	100.000 kHz	19.14905 GHz	-50.70 dBm	-200.00 dB
21.000 GHz	24.000 GHz	100.000 kHz	22.85089 GHz	-53.19 dBm	-200.00 dB
24.000 GHz	26.500 GHz	100.000 kHz	25.79165 GHz	-51.01 dBm	-200.00 dB

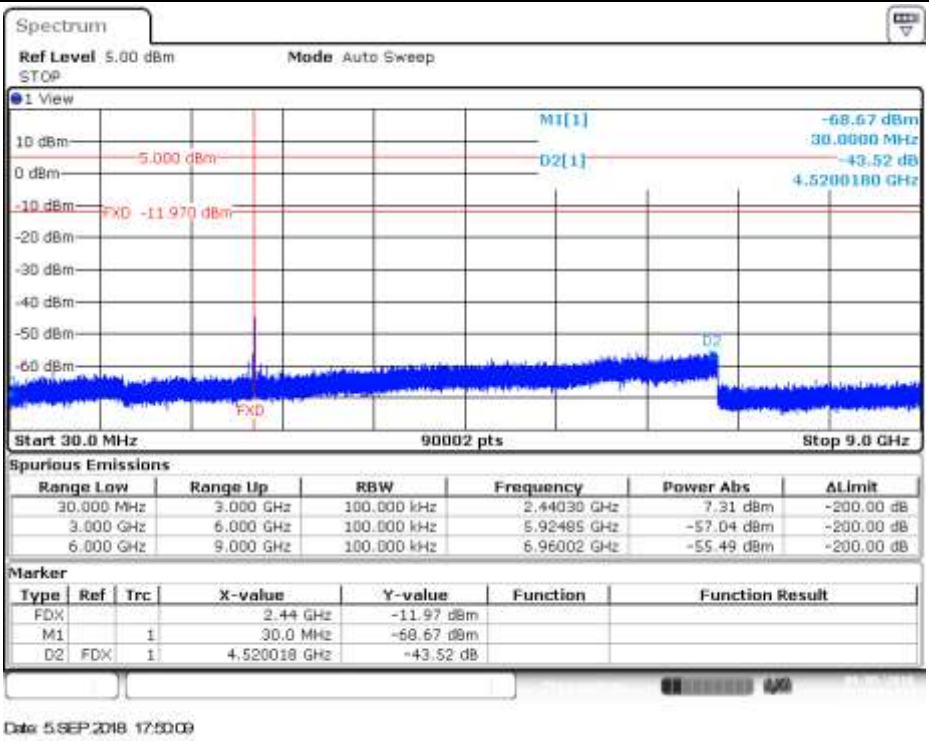
Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.402 GHz	-12.69 dBm		
M1		1	18.0 GHz	-63.81 dBm		
D2	FDX	1	23.389649 GHz	-38.32 dB		

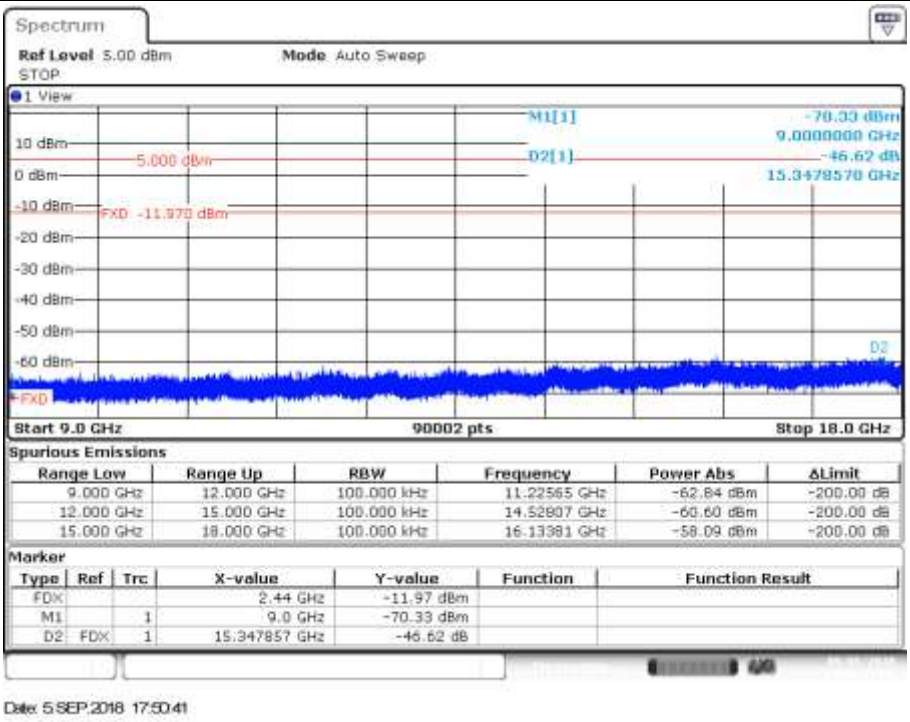
Date: 5.SEP.2018 17:38:58

BLE, CH19

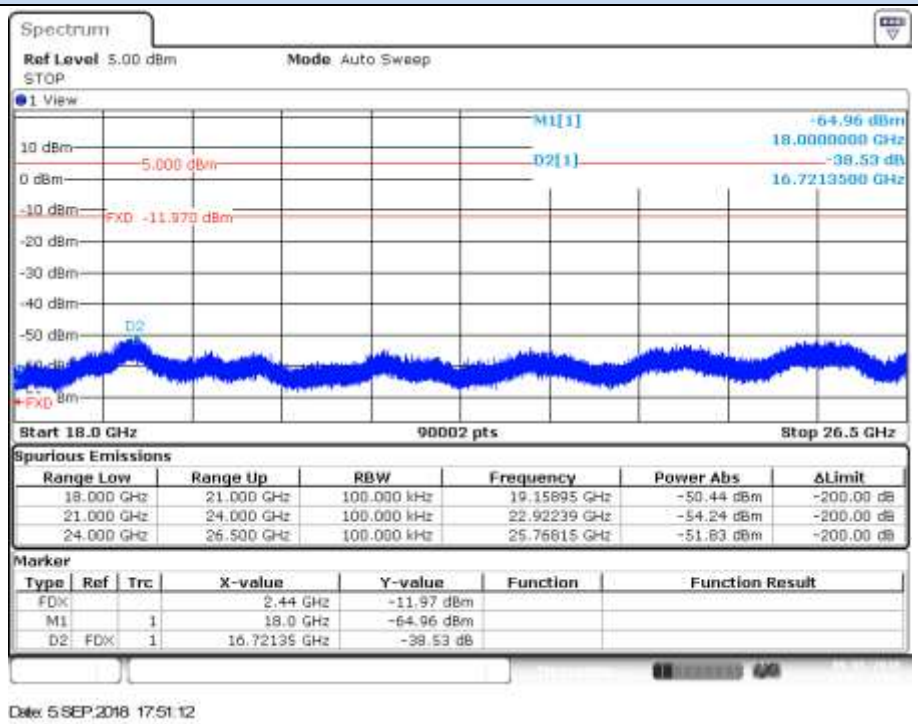
Cond Spur, 30MHz – 9GHz



Cond Spur, 9GHz – 18GHz

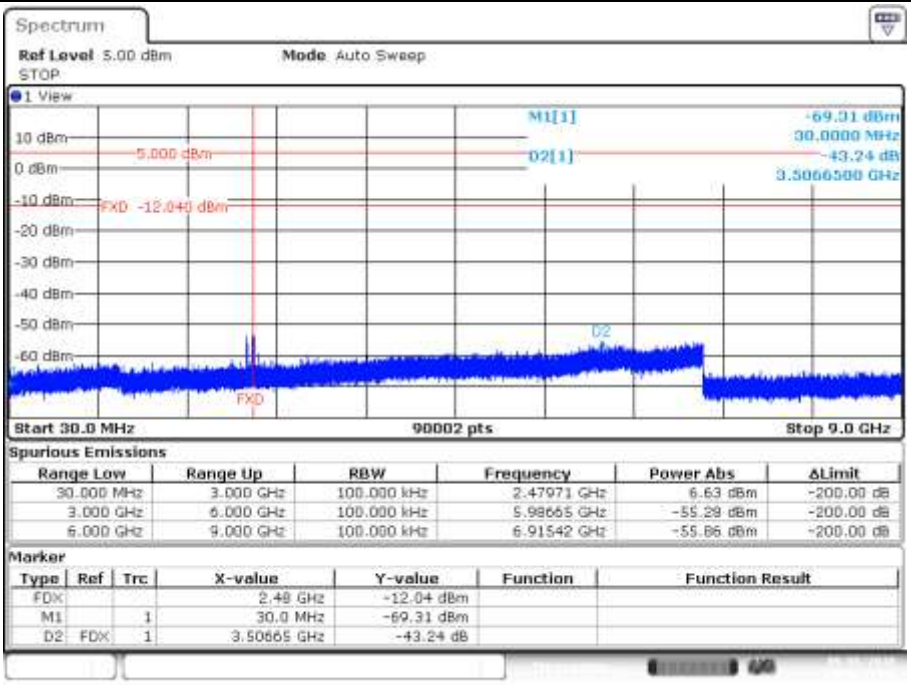


Cond Spur,18GHz – 26.5GHz



BLE, CH39

Cond Spur, 30MHz – 9GHz



Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
30.000 MHz	3.000 GHz	100.000 kHz	2.47971 GHz	6.63 dBm	-200.00 dB
3.000 GHz	6.000 GHz	100.000 kHz	5.98665 GHz	-55.29 dBm	-200.00 dB
6.000 GHz	9.000 GHz	100.000 kHz	6.91542 GHz	-55.86 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.48 GHz	-12.04 dBm		
M1		1	30.0 MHz	-69.31 dBm		
D2	FDX	1	3.50665 GHz	-43.24 dB		

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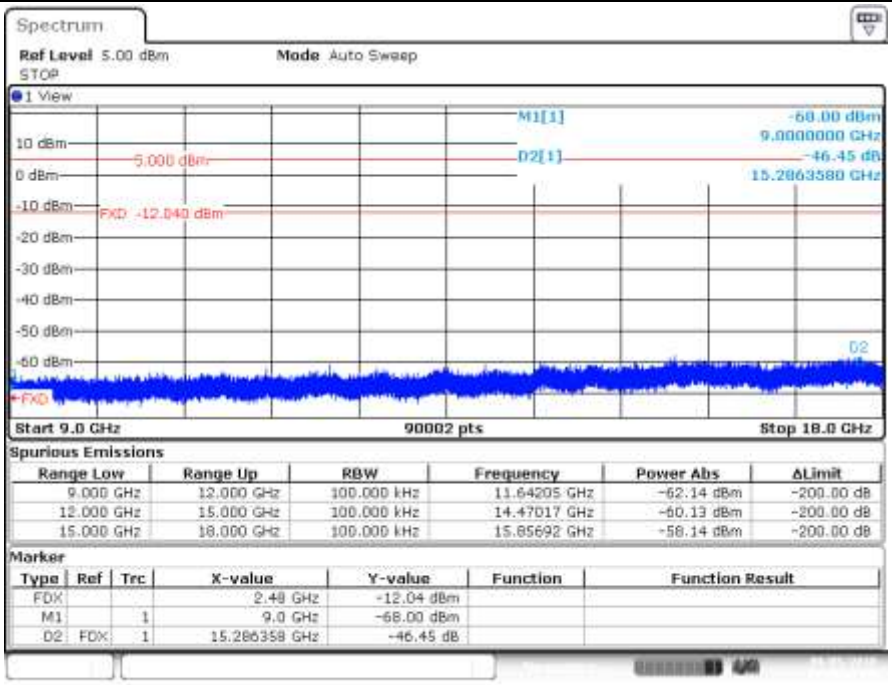
Cond Spur, 9GHz – 18GHz



Spurious Emissions

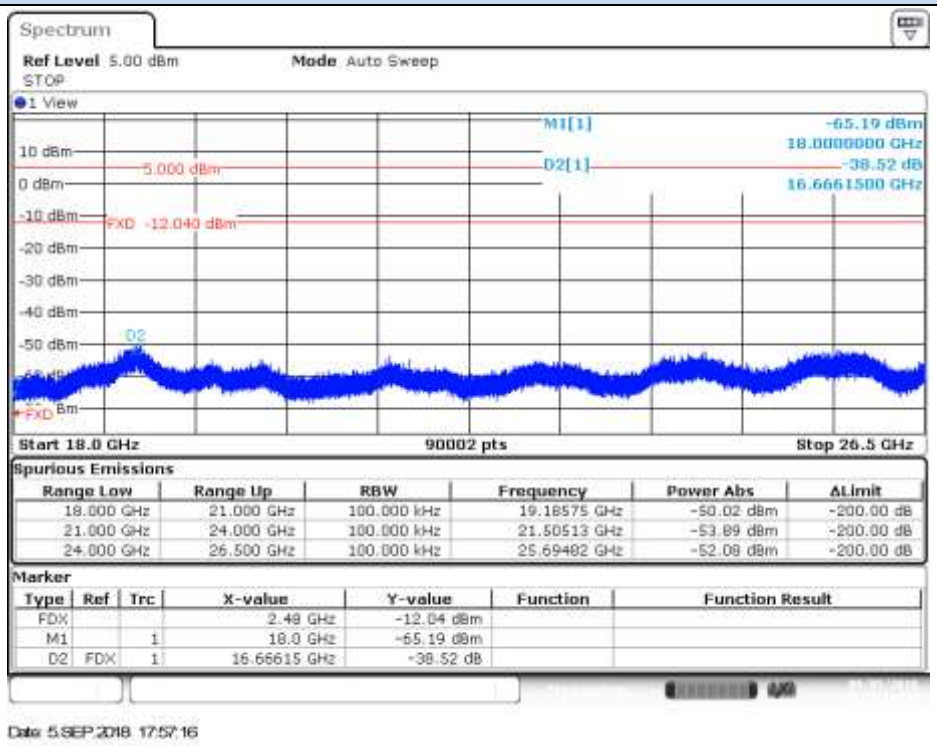
Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
9.000 GHz	12.000 GHz	100.000 kHz	11.64205 GHz	-62.14 dBm	-200.00 dB
12.000 GHz	15.000 GHz	100.000 kHz	14.47017 GHz	-60.13 dBm	-200.00 dB
15.000 GHz	18.000 GHz	100.000 kHz	15.85692 GHz	-58.14 dBm	-200.00 dB

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
FDX			2.48 GHz	-12.04 dBm		
M1		1	9.0 GHz	-68.00 dBm		
D2	FDX	1	15.286358 GHz	-46.45 dB		

Date: 5.SEP.2018 17:58:45

Cond Spur,18GHz – 26.5GHz



C.1.5 Radiated spurious emission

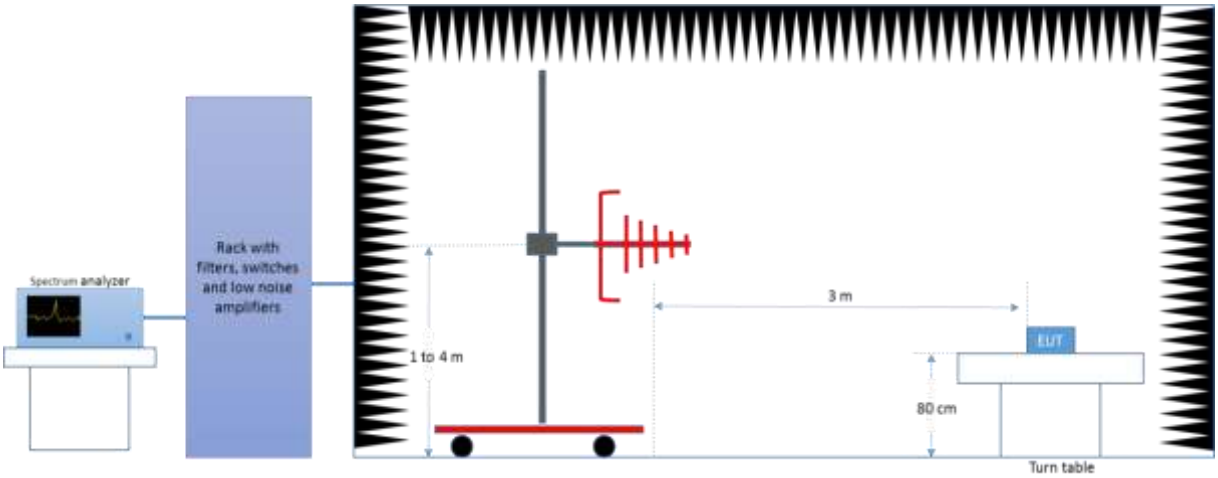
Standards references

<table>
<tr><th>FCC part</th><th>RSS part</th><th>Limits</th></tr>
<tr><td>15.247 (d)
15.209</td><td>RSS-247
Clause 5.5
RSS-Gen
Clause 8.9</td><td>Radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a):
<table>
<tr><th>Freq Range (MHz)</th><th>Field Stregth (µV/m)</th><th>Field Stregth (dBµV/m)</th><th>Meas. Distance (m)</th></tr>
<tr><td>30-88</td><td>100</td><td>40</td><td>3</td></tr>
<tr><td>88-216</td><td>150</td><td>43.5</td><td>3</td></tr>
<tr><td>216-960</td><td>200</td><td>46</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>54</td><td>3</td></tr>
</table>
The emission limits shown in the above table are based on measurements employing CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
For average radiated emission measurements above 1000 MHz, there is also a limit specified when measuring with peak detector function, corresponding to 20 dB above the indicated values in the table.</td></tr>
</table>

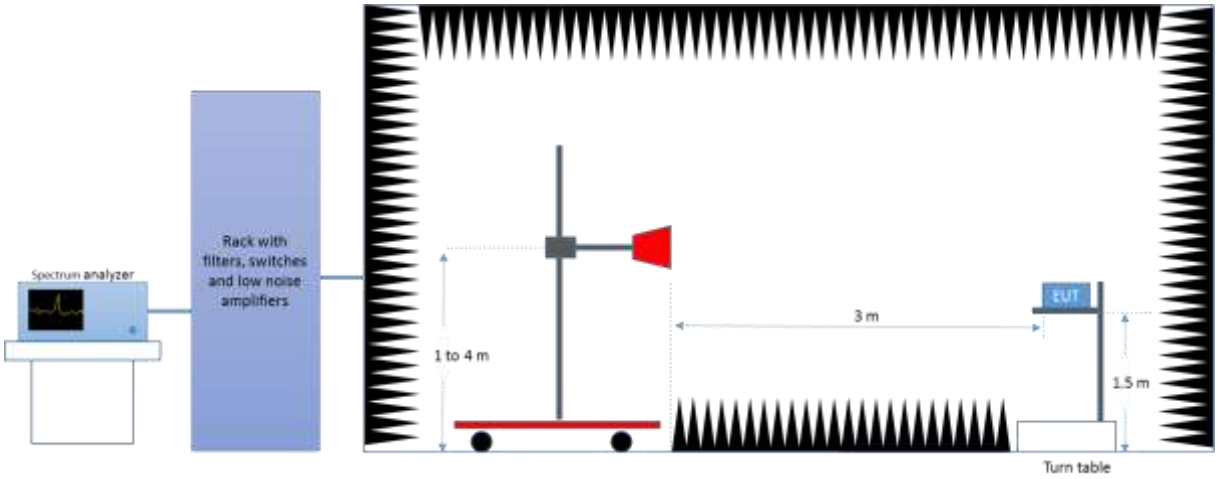
Test procedure

The setups below were used to measure the radiated spurious emissions.
Depending of the frequency range and bands being tested, different antennas and filters were used.
The final measurement is done by varying the antenna height from 1 to 4 meters, the EUT azimuth over 360º and for both Vertical and Horizontal polarizations.
The radiated spurious emissions were measured on the lowest, middle and highest channels.

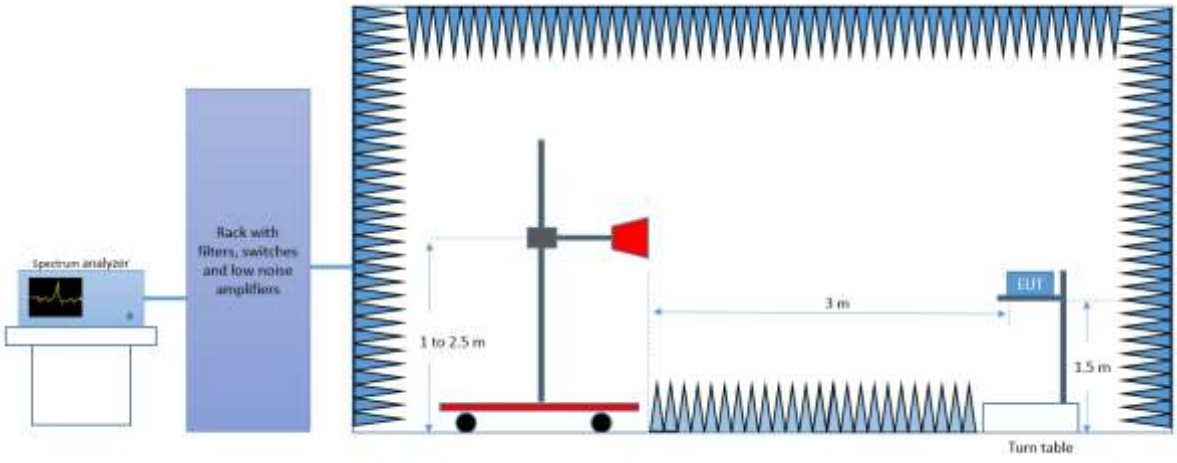
Radiated Setup 30 MHz - 1GHz



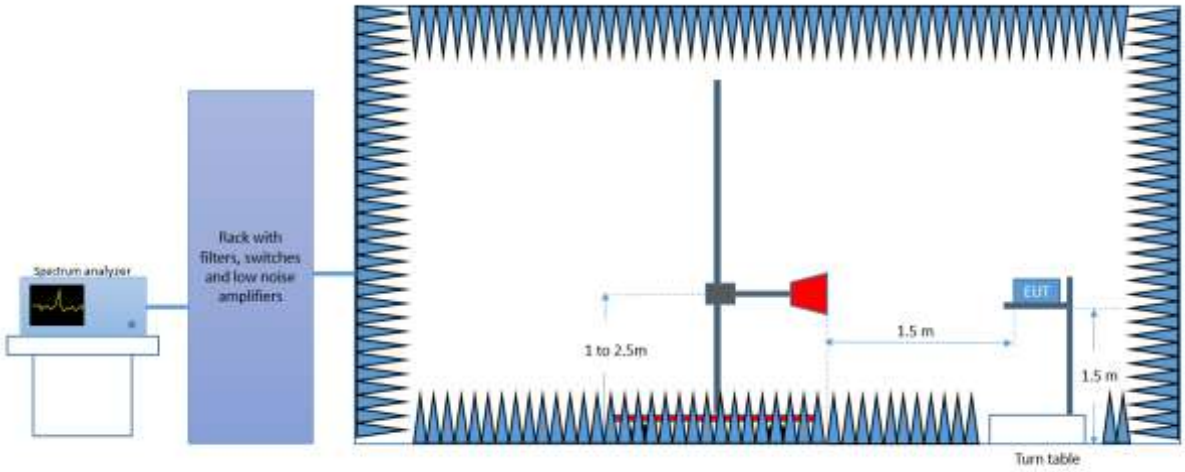
Radiated Setup 1 GHz – 6.4 GHz



Radiated Setup 6.4 GHz – 18 GHz



Radiated Setup 18 GHz – 26.5 GHz



Sample Calculation

The field strength is deduced from the radiated measurement using the following equation:

$$E = 126.8 - 20\log(\lambda) + P - G$$

where

E is the field strength of the emission at the measurement distance, in dBµV/m

P is the power measured at the output of the test antenna, in dBm

λ is the wavelength of the emission under investigation [300/f_{MHz}], in m

G is the gain of the test antenna, in dBi

NOTE – The measured power P includes all applicable instrument correction factors up to the connection to the test

Antenna e.g. cable losses, amplifier gains.

For field strength measurements made at other than the distance at which the applicable limit is specified, the field strength of the emission at the distance specified by the limit is deduced as follows:

$$E_{SpecLimit} = E_{Meas} + 20\log(D_{Meas}/D_{SpecLimit})$$

where

$E_{SpecLimit}$ is the field strength of the emission at the distance specified by the limit, in dBµV/m

E_{Meas} is the field strength of the emission at the measurement distance, in dBµV/m

D_{Meas} is the measurement distance, in m

$D_{SpecLimit}$ is the distance specified by the limit, in m

Test Results

30 MHz – 26.5 GHz, BLE

Radiated Spurious – CH0

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
527.9	31.7	---	46.0	14.3
6124.5	53.2	---	74.0	20.8
6196.5	---	41.0	54.0	13.0
17836.6	59.9	---	74.0	14.1
17748.2	---	48.6	54.0	5.4
20719.6	54.7	---	74.0	19.3
20720.4	---	46.6	54.0	7.4

Radiated Spurious – CH19

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
528.0	30.8	---	46.0	15.2
6289.5	54.8	---	74.0	19.2
6317.0	---	42.1	54.0	11.9
17992.3	60.5	---	74.0	13.5
17733.2	---	48.8	54.0	5.2
20720.0	56.1	---	74.0	17.9
20720.0	---	48.8	54.0	5.2

Radiated Spurious – CH39

Frequency	MaxPeak	Avg	Limit	Margin
MHz	dBuV/m	dBuV/m	dBuV/m	dB
528.0	31.1	---	46.0	14.9
6313.0	55.0	---	74.0	19.0
6317.5	---	42.2	54.0	11.8
17741.4	60.1	---	74.0	13.9
17752.5	---	48.6	54.0	5.4
20722.1	53.6	---	74.0	20.4
20719.6	---	46.5	54.0	7.5