



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

For Antenna 1:

Temperature	27.1°C	Humidity	79%
Test Engineer	Ron Huang	Configurations	QPSK, 20M / Average / Port 1+Port 2

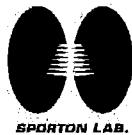
Frequency(MHz)	Port 1 (TX1) Spurious Level (dBm)	Port 2 (TX2) Spurious Level (dBm)	Total Spurious Level (dBm)	Limit (dBm)	Margin (dB)
5180	-49.22	-46.82	-42.85	-41.25	1.60
5200	-50.81	-51.57	-46.16	-41.25	4.91
5240	-63.73	-57.22	-54.34	-41.25	13.09

Temperature	27.1°C	Humidity	79%
Test Engineer	Ron Huang	Configurations	QPSK, 20M / Peak / Port 1+Port 2

Frequency(MHz)	Port 1 (TX1) Spurious Level (dBm)	Port 2 (TX2) Spurious Level (dBm)	Total Spurious Level (dBm)	Limit (dBm)	Margin (dB)
5180	-38.12	-34.04	-30.61	-21.25	9.36
5200	-37.19	-37.22	-32.19	-21.25	10.94
5240	-50.63	-38.94	-36.66	-21.25	15.41

Temperature	27.1°C	Humidity	79%
Test Engineer	Ron Huang	Configurations	QPSK, 80M / Average / Port 1+Port 2

Frequency(MHz)	Port 1 (TX1) Spurious Level (dBm)	Port 2 (TX2) Spurious Level (dBm)	Total Spurious Level (dBm)	Limit (dBm)	Margin (dB)
5190	-44.32	-50.56	-41.39	-41.25	0.14
5200	-44.00	-52.95	-41.48	-41.25	0.23
5210	-43.99	-52.22	-41.38	-41.25	0.13



Temperature	27.1°C	Humidity	79%
Test Engineer	Ron Huang	Configurations	QPSK, 80M / Peak / Port 1+Port 2

Frequency(MHz)	Port 1 (Tx1) Spurious Level (dBm)	Port 2 (Tx2) Spurious Level (dBm)	Total Spurious Level (dBm)	Limit(dBm)	Margin(dB)
5190	-30.11	-36.10	-27.13	-21.25	5.88
5200	-32.02	-42.20	-29.62	-21.25	8.37
5210	-30.28	-40.96	-27.92	-21.25	6.67

Temperature	27.1°C	Humidity	79%
Test Engineer	Ron Huang	Configurations	QPSK, 20M / Peak / Port 1+Port 2

Frequency(MHz)	Port 1 (Tx1) Spurious Level (dBm)	Port 2 (Tx2) Spurious Level (dBm)	Total Spurious Level (dBm)	Limit(dBm)	Margin(dB)
5745	-30.84	-34.44	-27.27	-27.00	0.27
5785	-31.24	-33.38	-27.17	-27.00	0.17
5825	-32.95	-31.31	-27.04	-27.00	0.04

Temperature	27.1°C	Humidity	79%
Test Engineer	Ron Huang	Configurations	QPSK, 80M / Peak / Port 1+Port 2

Frequency(MHz)	Port 1 (Tx1) Spurious Level (dBm)	Port 2 (Tx2) Spurious Level (dBm)	Total Spurious Level (dBm)	Limit(dBm)	Margin(dB)
5745	-32.80	-31.59	-27.14	-27.00	0.14
5785	-33.73	-31.18	-27.26	-27.00	0.26
5825	-32.48	-32.33	-27.39	-27.00	0.39



## For Antenna 2:

Temperature	27.1°C	Humidity	79%
Test Engineer	Ron Huang	Configurations	QPSK, 20M / Average / Port 1+Port 2

Frequency(MHz)	Port 1 (PX1) Spurious Level (dBm)	Port 2 (PX2) Spurious Level (dBm)	Total Spurious Level (dBm)	Limit(dBm)	Margin(dB)
5180	-66.75	-66.02	-41.36	-41.25	0.11
5200	-65.42	-68.07	-41.54	-41.25	0.29
5240	-65.40	-67.69	-41.39	-41.25	0.14

Temperature	27.1°C	Humidity	79%
Test Engineer	Ron Huang	Configurations	QPSK, 20M / Peak / Port 1+Port 2

Frequency(MHz)	Port 1 (PX1) Spurious Level (dBm)	Port 2 (PX2) Spurious Level (dBm)	Total Spurious Level (dBm)	Limit(dBm)	Margin(dB)
5180	-58.20	-52.57	-29.52	-21.25	8.27
5200	-53.90	-55.98	-29.81	-21.25	8.56
5240	-52.67	-55.57	-28.87	-21.25	7.62

Temperature	27.1°C	Humidity	79%
Test Engineer	Ron Huang	Configurations	QPSK, 80M / Average / Port 1+Port 2

Frequency(MHz)	Port 1 (PX1) Spurious Level (dBm)	Port 2 (PX2) Spurious Level (dBm)	Total Spurious Level (dBm)	Limit(dBm)	Margin(dB)
5200	-65.40	-68.86	-41.78	-41.25	0.53
5210	-65.23	-68.09	-41.42	-41.25	0.17



Temperature	27.1°C	Humidity	79%
Test Engineer	Ron Huang	Configurations	QPSK, 80M / Peak / Port 1 + Port 2

Frequency(MHz)	Port 1 (TX1) Spurious Level (dBm)	Port 2 (TX2) Spurious Level (dBm)	Total Spurious Level (dBm)	Limit(dBm)	Margin(dB)
5200	-53.62	-57.50	-30.13	-21.25	8.88
5210	-53.36	-57.62	-29.98	-21.25	8.73

Temperature	27.1°C	Humidity	79%
Test Engineer	Ron Huang	Configurations	QPSK, 20M / Peak / Port 1 + Port 2

Frequency(MHz)	Port 1 (TX1) Spurious Level (dBm)	Port 2 (TX2) Spurious Level (dBm)	Total Spurious Level (dBm)	Limit(dBm)	Margin(dB)
5745	-50.93	-54.29	-27.28	-27.00	0.28
5785	-50.34	-54.91	-27.04	-27.00	0.04
5825	-51.17	-53.51	-27.17	-27.00	0.17

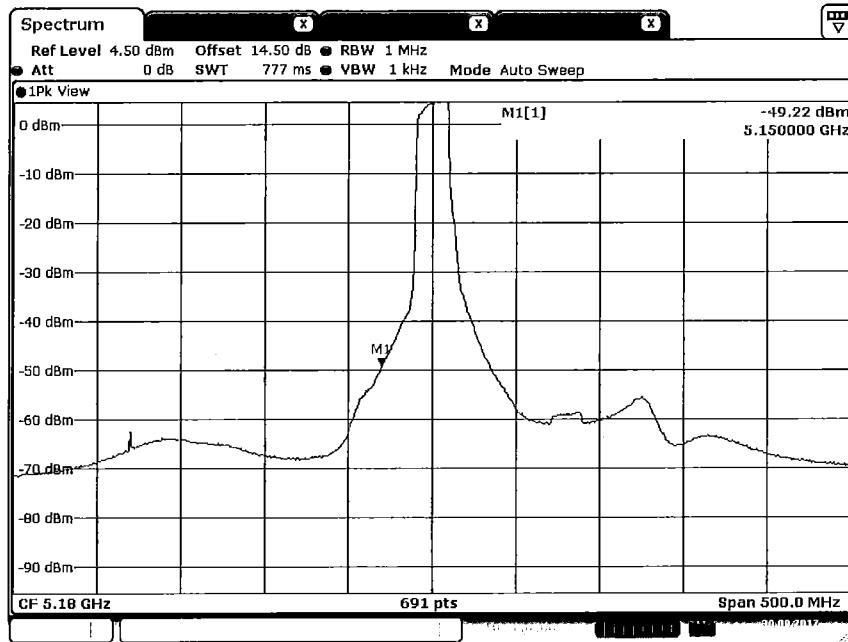
Temperature	27.1°C	Humidity	79%
Test Engineer	Ron Huang	Configurations	QPSK, 80M / Peak / Port 1 + Port 2

Frequency(MHz)	Port 1 (TX1) Spurious Level (dBm)	Port 2 (TX2) Spurious Level (dBm)	Total Spurious Level (dBm)	Limit(dBm)	Margin(dB)
5745	-50.61	-54.43	-27.10	-27.00	0.10
5785	-50.86	-54.41	-27.27	-27.00	0.27
5825	-51.64	-53.52	-27.47	-27.00	0.47



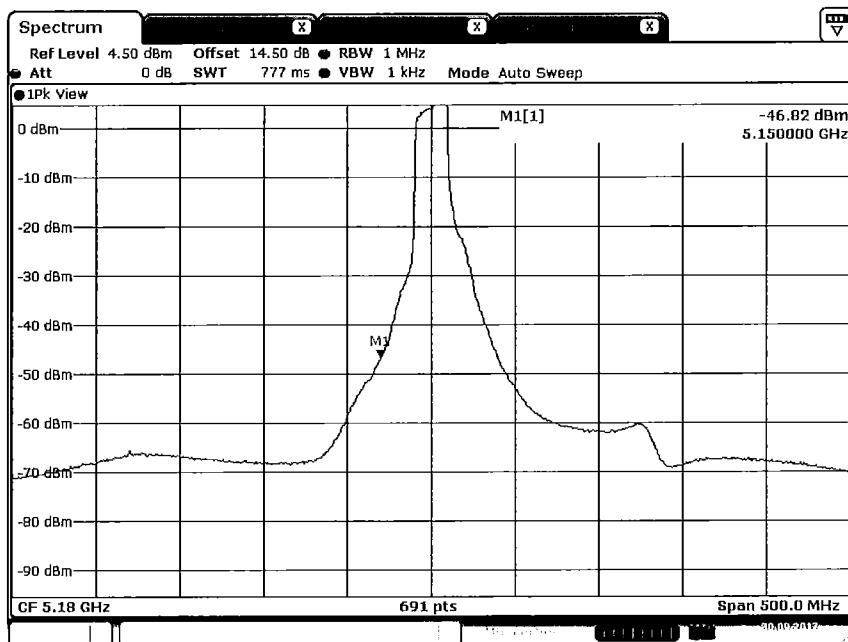
## For Antenna 1:

## Plot on Configuration QPSK, 20M / 5180 MHz / Average / Port 1 (TX1)



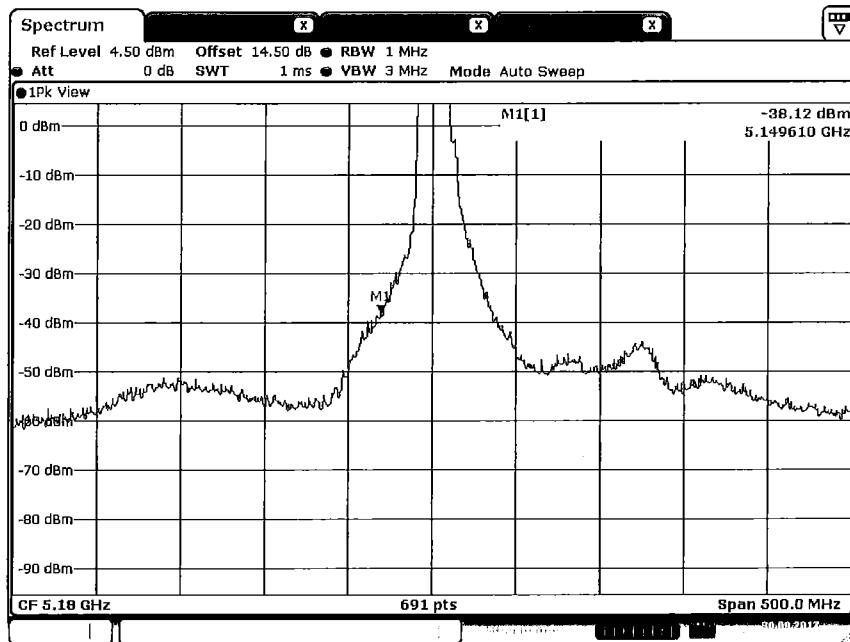
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## Plot on Configuration QPSK, 20M / 5180 MHz / Average / Port 2 (TX2)

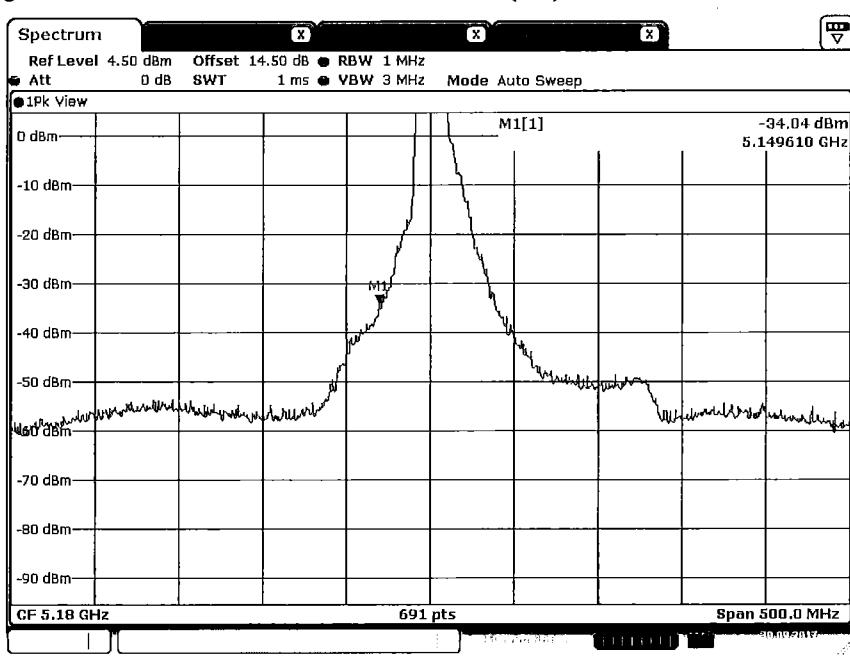


Date: 30 SEP 2017 00:17:41

### Plot on Configuration QPSK, 20M / 5180 MHz / Peak / Port 1 (TX1)

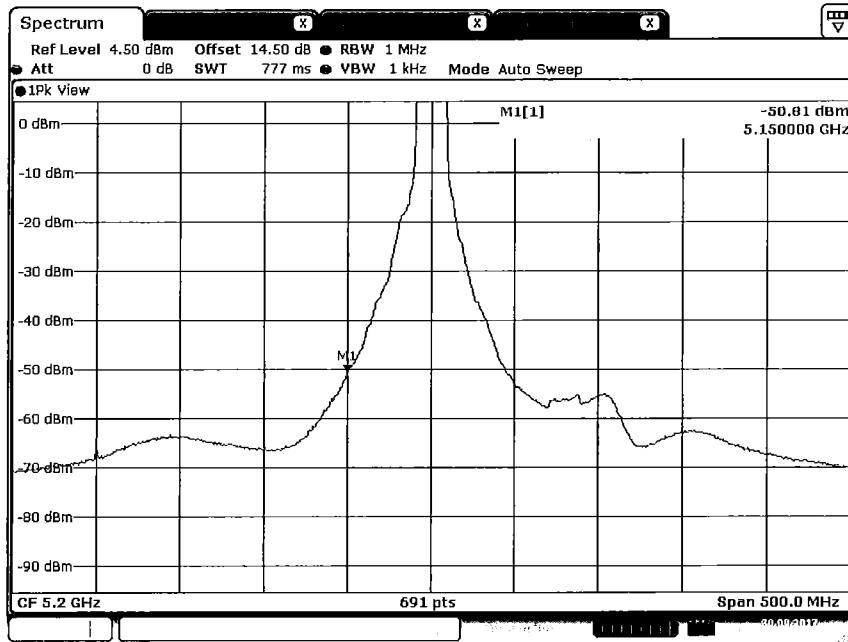


### Plot on Configuration QPSK, 20M / 5180 MHz / Peak / Port 2 (TX2)



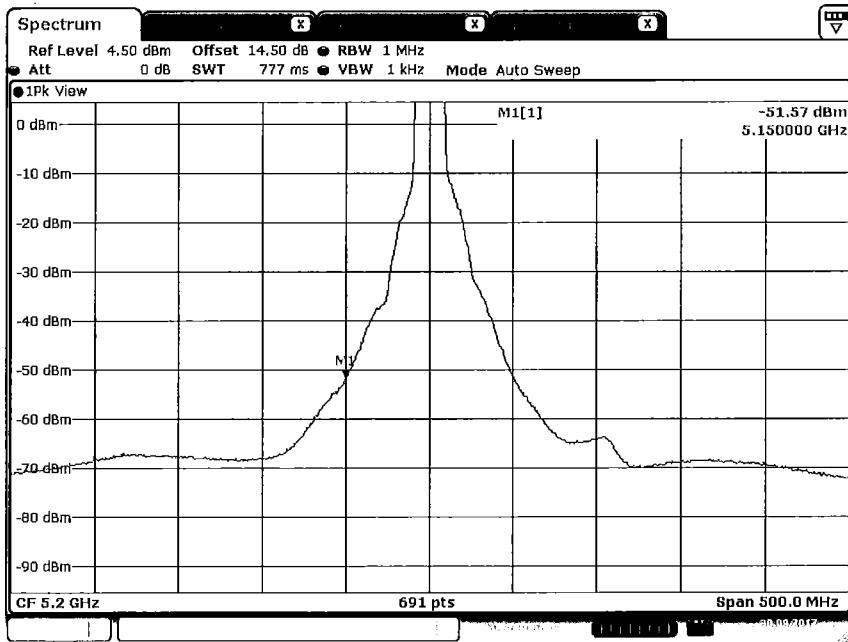


## Plot on Configuration QPSK, 20M / 5200 MHz / Average / Port 1 (TX1)



Date: 30 SEP 2017 002427

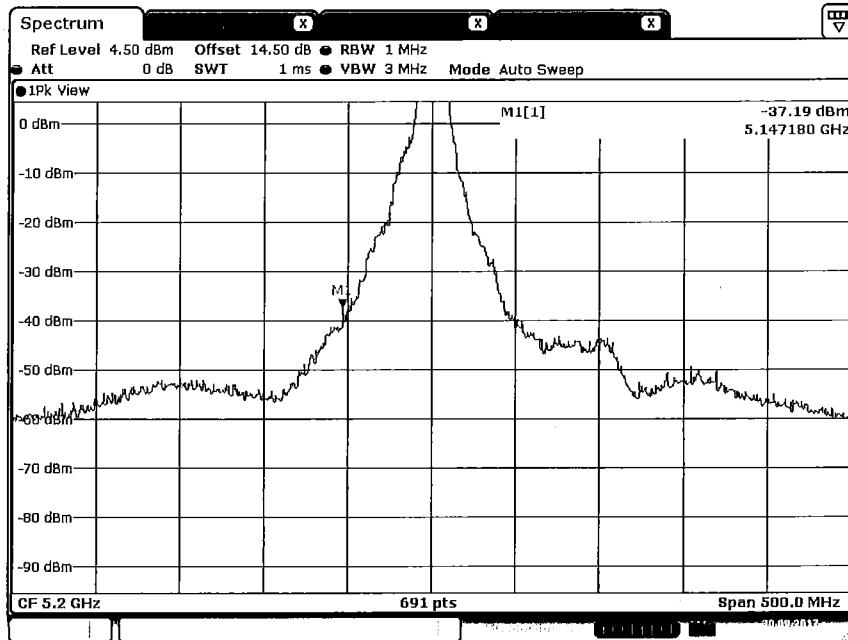
## Plot on Configuration QPSK, 20M / 5200 MHz / Average / Port 2 (TX2)



Date: 30 SEP 2017 002529

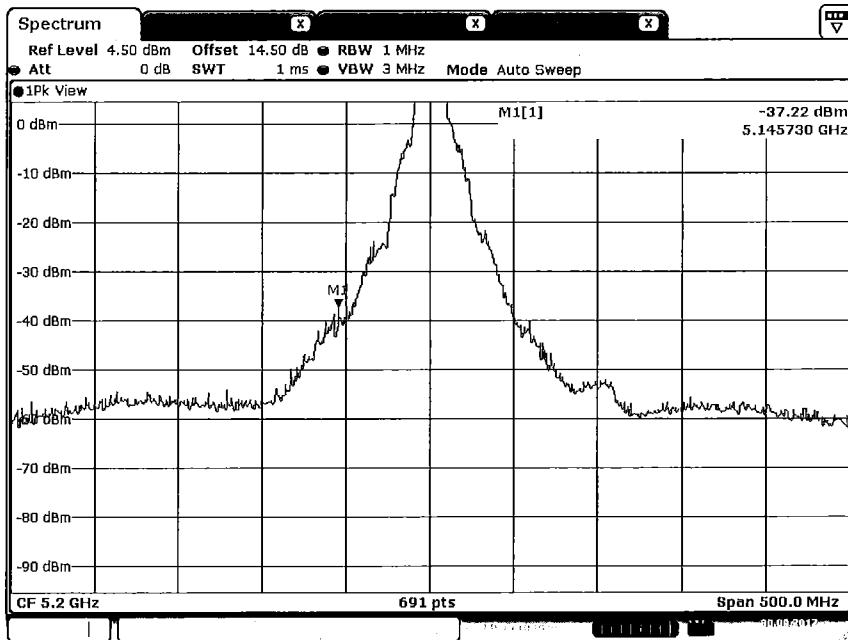


## Plot on Configuration QPSK, 20M / 5200 MHz / Peak / Port 1 (TX1)

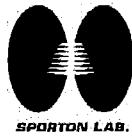


Date: 30 SEP 2017 00:38:21

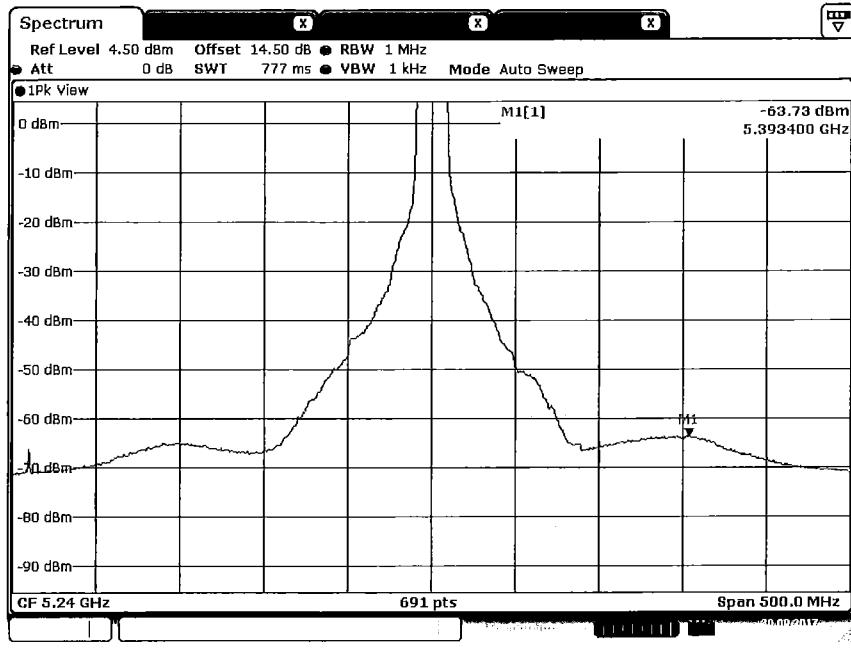
## Plot on Configuration QPSK, 20M / 5200 MHz / Peak / Port 2 (TX2)



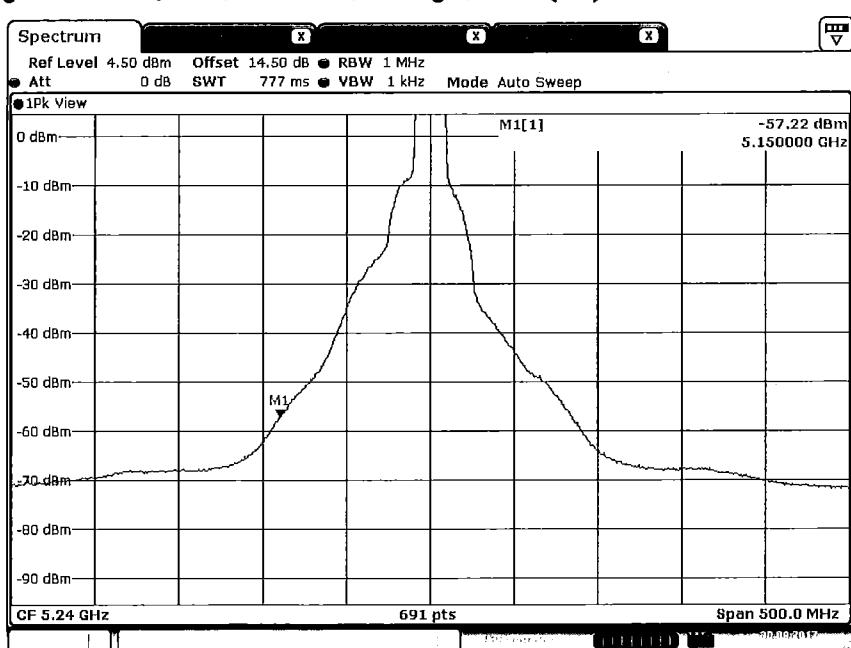
Date: 30 SEP 2017 00:36:27



## Plot on Configuration QPSK, 20M / 5240 MHz / Average / Port 1 (TX1)

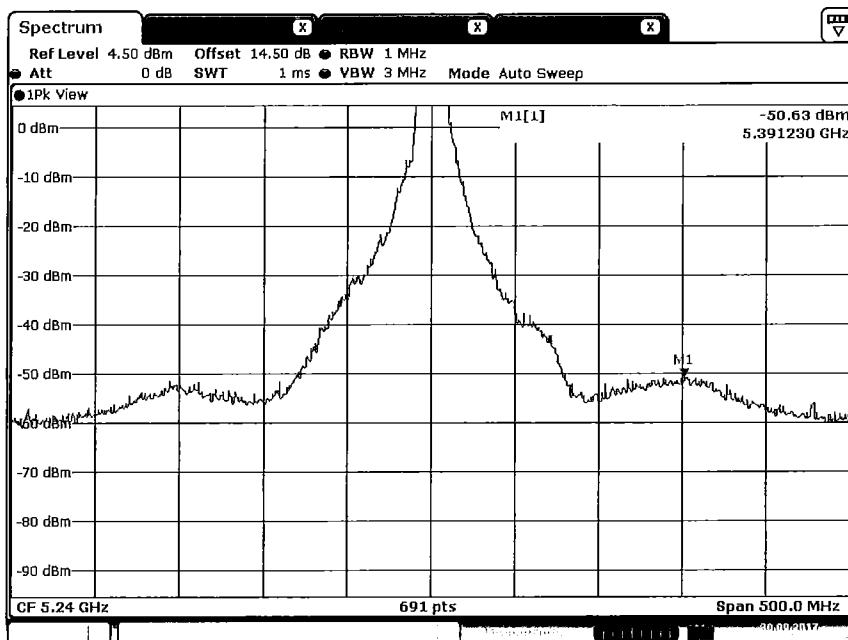


## Plot on Configuration QPSK, 20M / 5240 MHz / Average / Port 2 (TX2)



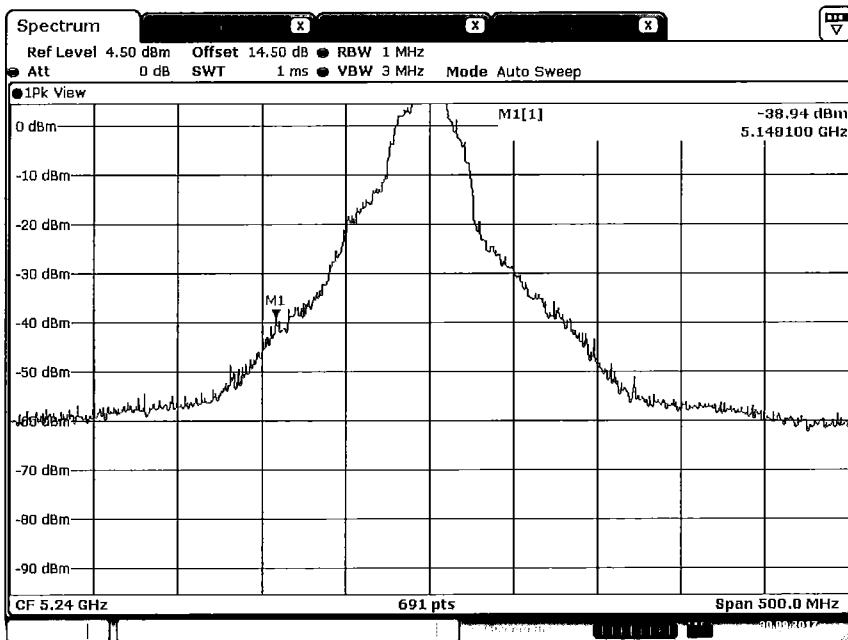


## Plot on Configuration QPSK, 20M / 5240 MHz / Peak / Port 1 (TX1)



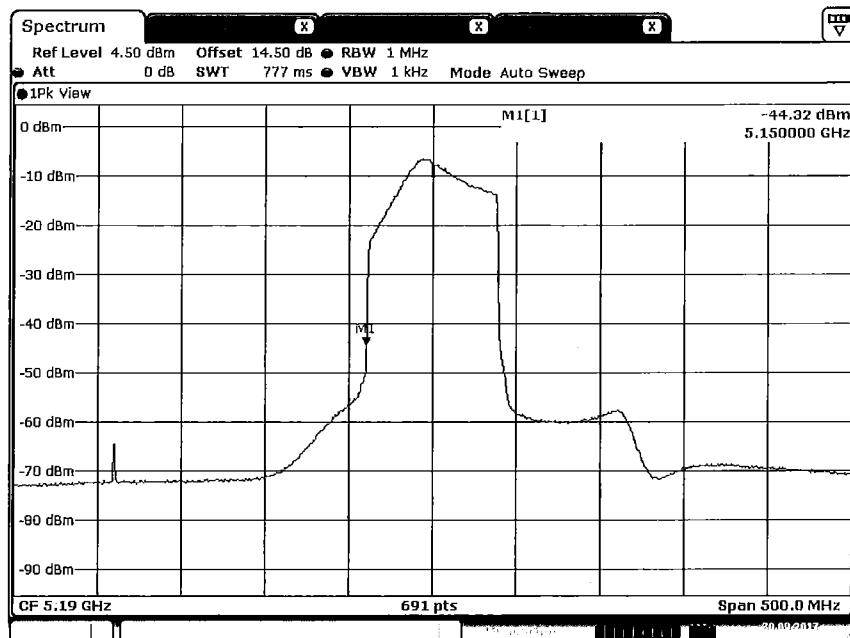
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## Plot on Configuration QPSK, 20M / 5240 MHz / Peak / Port 2 (TX2)

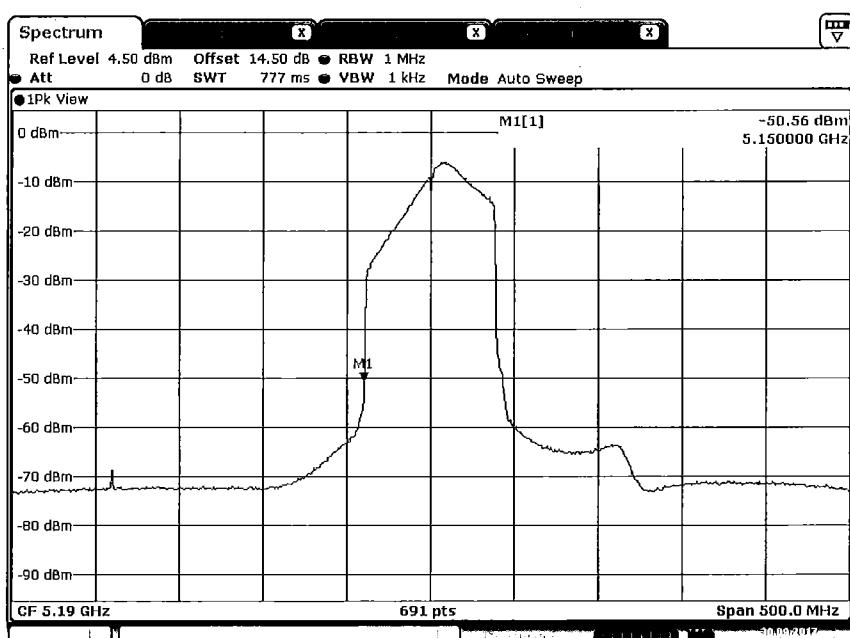


Date: 30 SEP 2017 00:35:05

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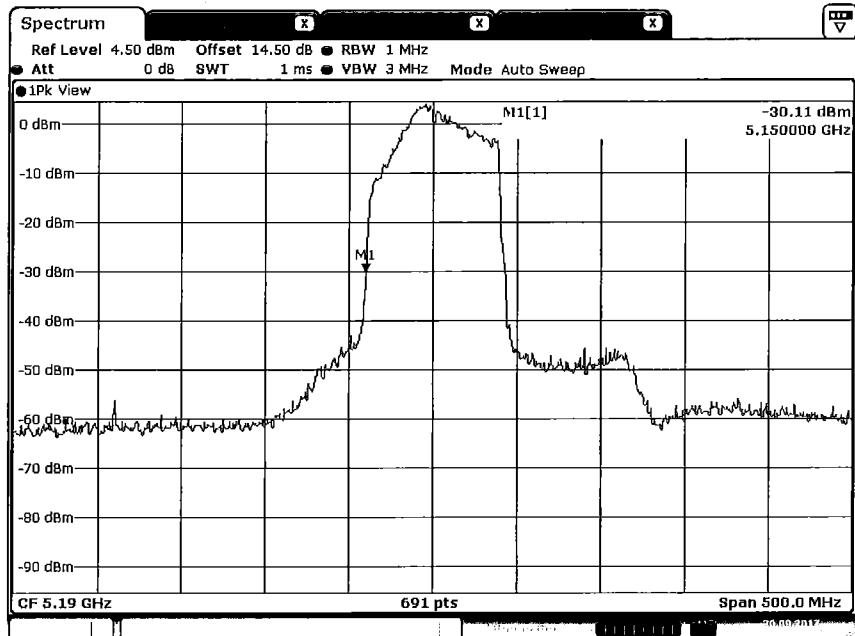


### Plot on Configuration QPSK, 80M / 5190 MHz / Average / Port 2 (TX2)



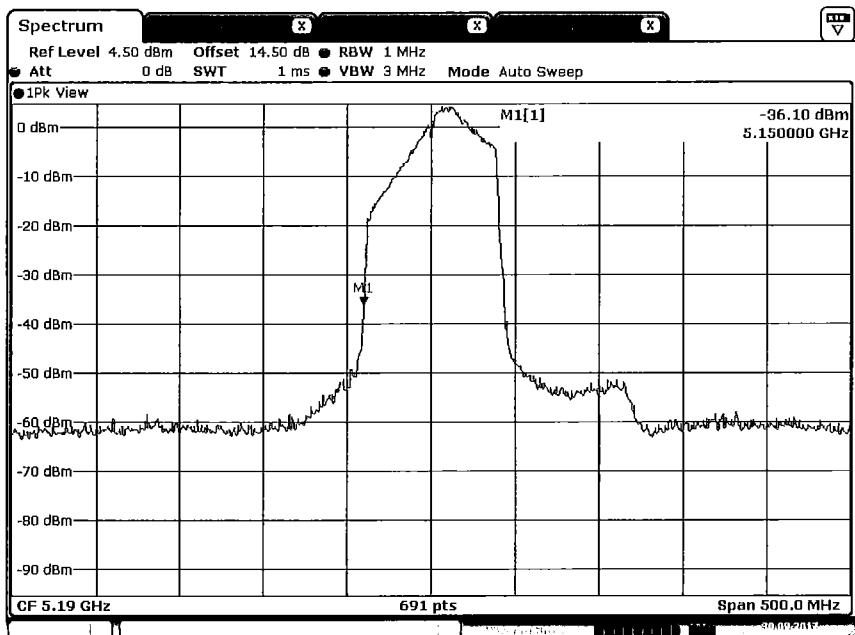


## Plot on Configuration QPSK, 80M / 5190 MHz / Peak / Port 1 (TX1)



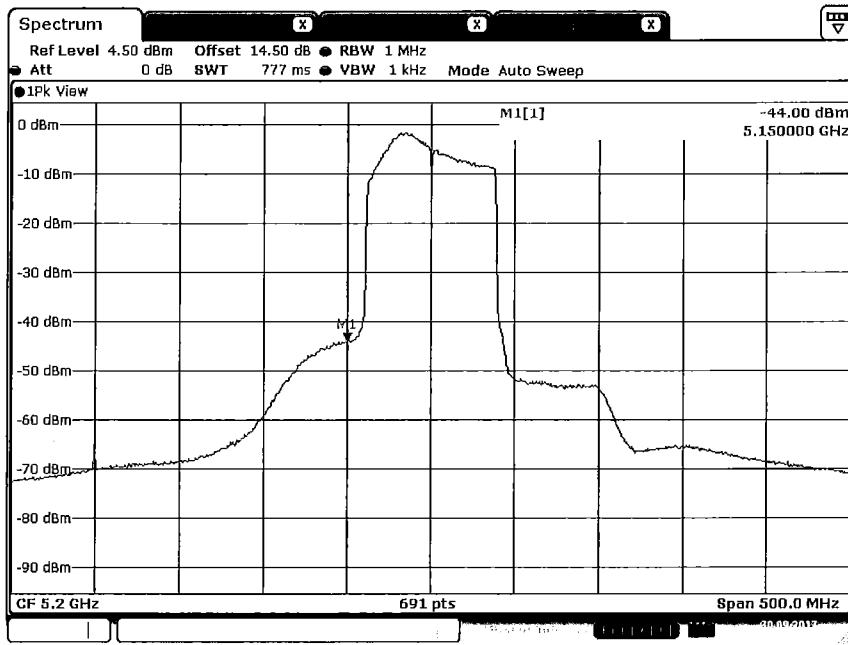
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## Plot on Configuration QPSK, 80M / 5190 MHz / Peak / Port 2 (TX2)



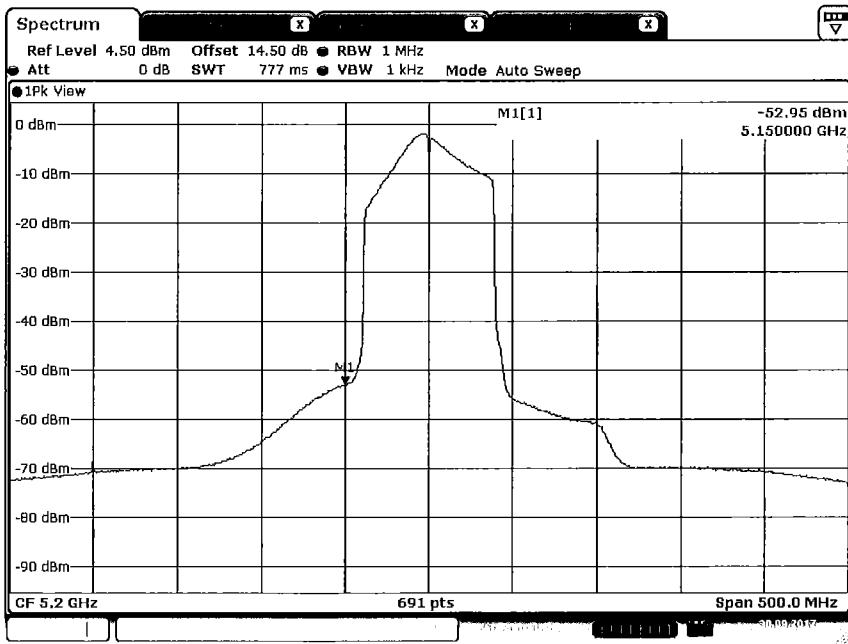
Date: 30 SEP 2017 10:25:52

## Plot on Configuration QPSK, 80M / 5200 MHz / Average / Port 1 (TX1)



Date: 30 SEP 2017 09:50:19

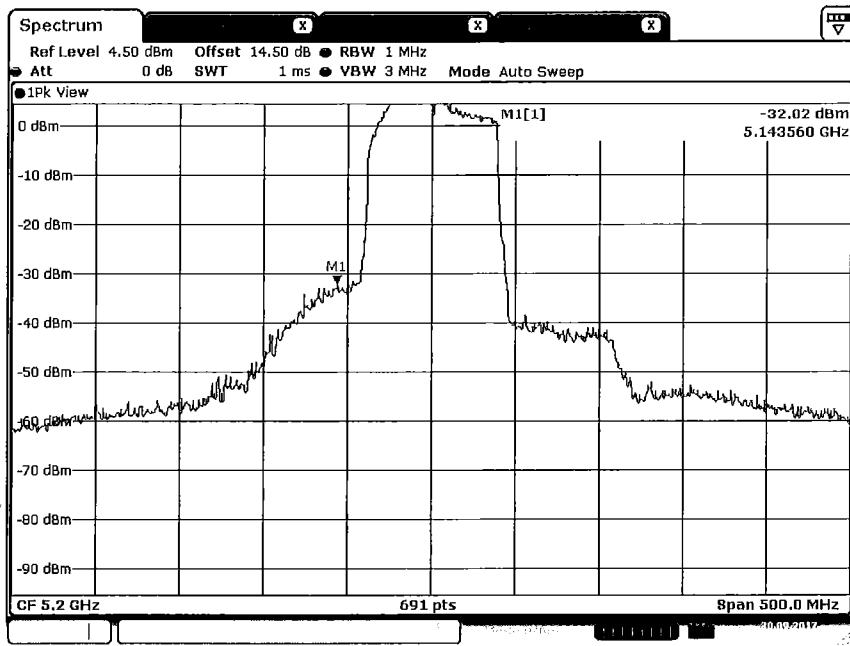
## Plot on Configuration QPSK, 80M / 5200 MHz / Average / Port 2 (TX2)



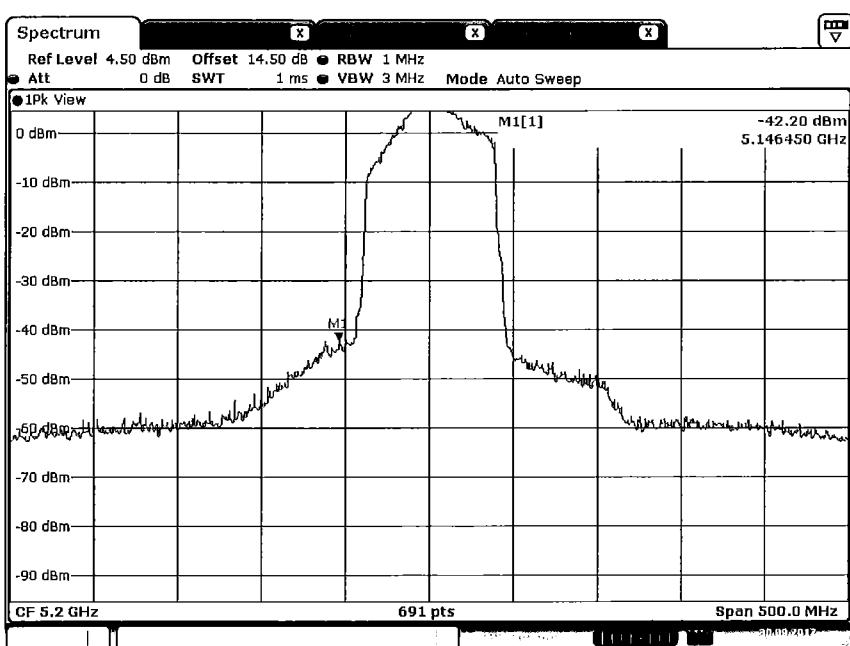
Date: 30 SEP 2017 09:53:57



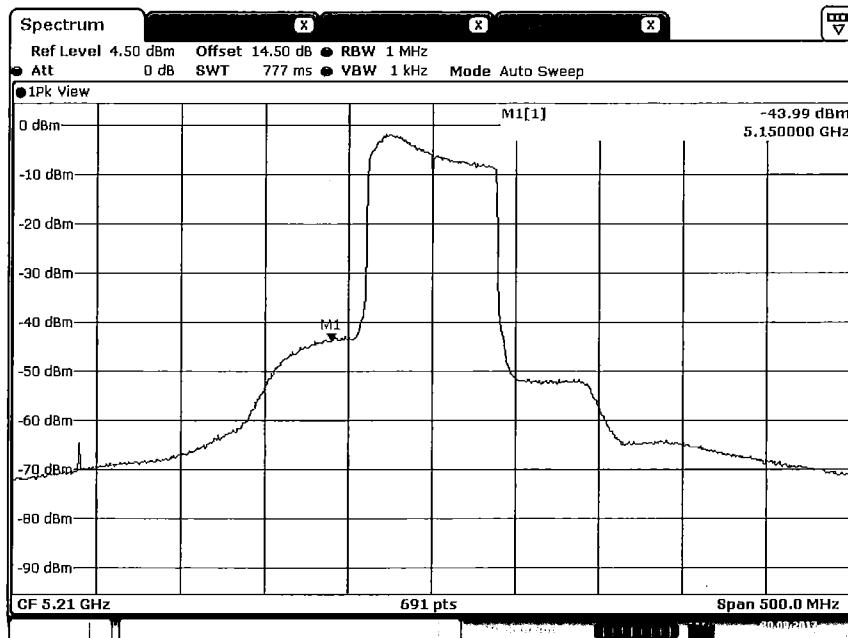
## Plot on Configuration QPSK, 80M / 5200 MHz / Peak / Port 1 (TX1)



## Plot on Configuration QPSK, 80M / 5200 MHz / Peak / Port 2 (TX2)

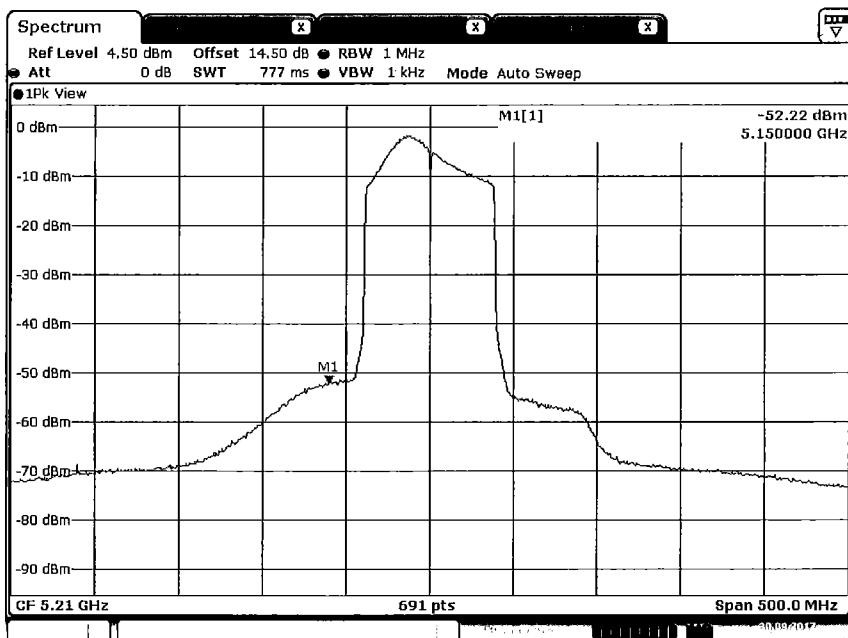


**Plot on Configuration QPSK, 80M / 5210 MHz / Average / Port 1 (TX1)**



Date: 30 SEP 2017 10:11:05

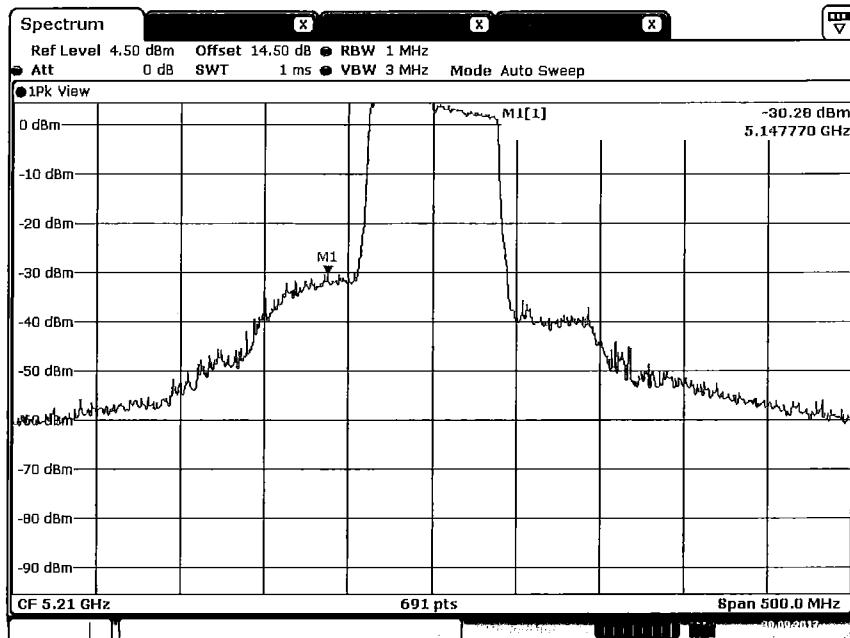
**Plot on Configuration QPSK, 80M / 5210 MHz / Average / Port 2 (TX2)**



Date: 30 SEP 2017 10:09:48

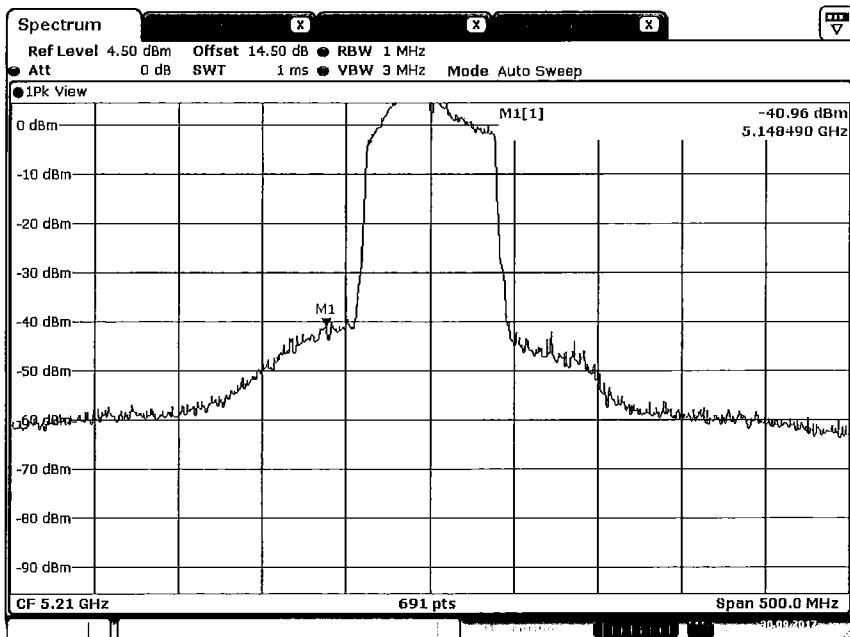


## Plot on Configuration QPSK, 80M / 5210 MHz / Peak / Port 1 (TX1)



Date: 30 SEP 2017 10:13:50

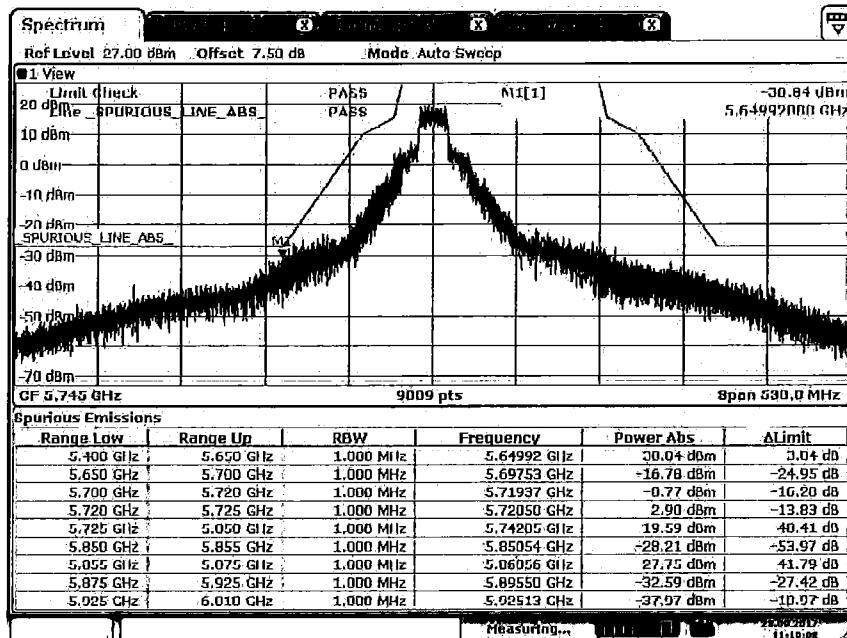
## Plot on Configuration QPSK, 80M / 5210 MHz / Peak / Port 2 (TX2)



Date: 30 SEP 2017 10:15:24

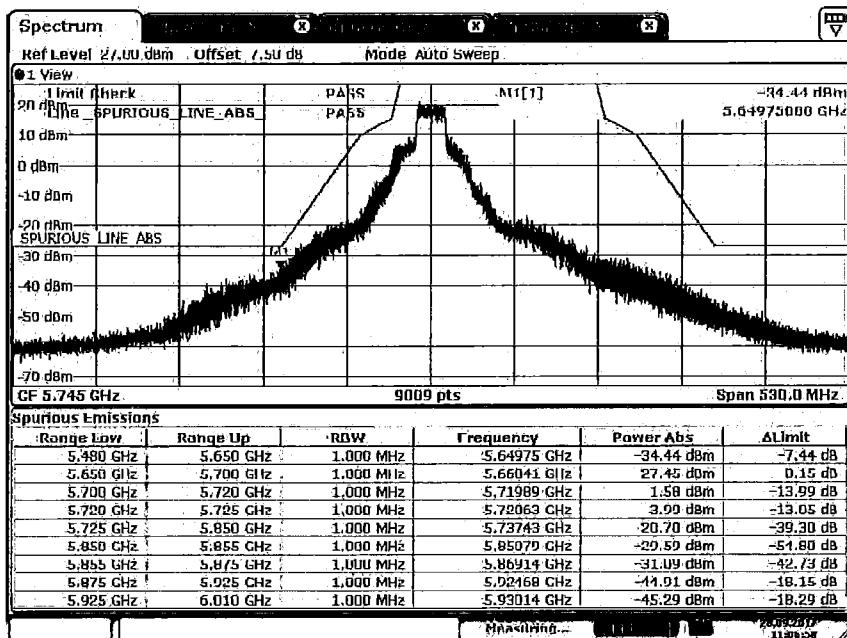


## Plot on Configuration QPSK, 20M / 5745 MHz / Peak / Port 1 (TX1)



Date: 28-SEP-2017 11:10:08

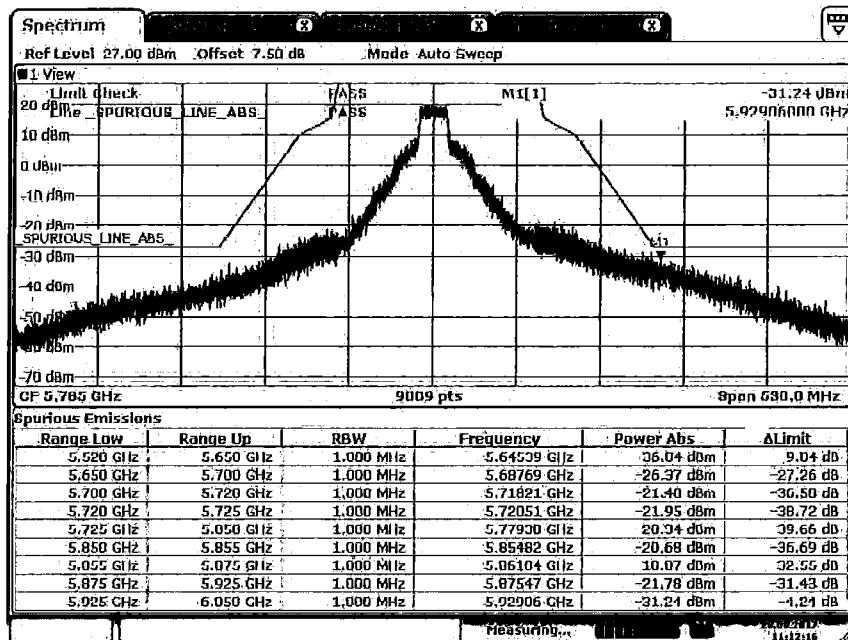
## Plot on Configuration QPSK, 20M / 5745 MHz / Peak / Port 2 (TX2)



Date: 28-SEP-2017 11:06:58

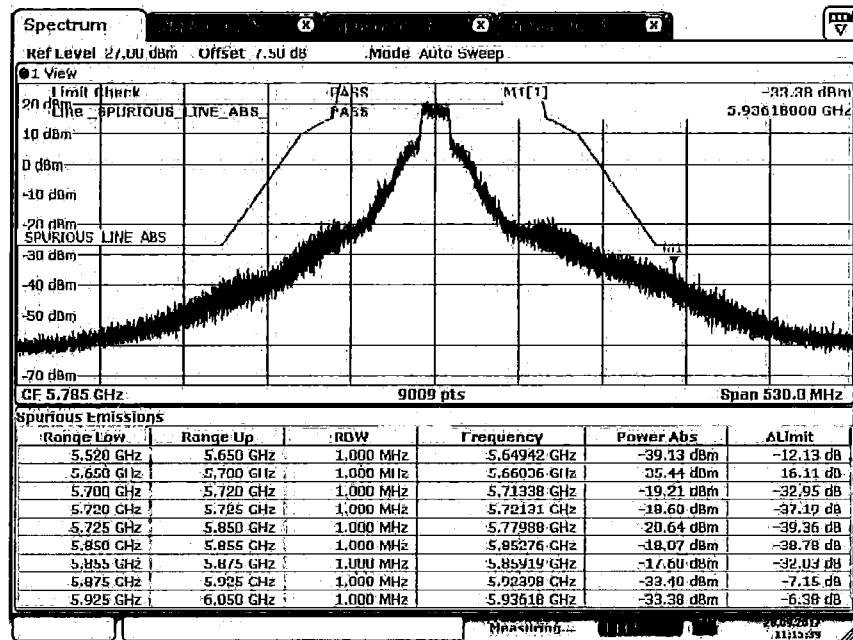


## Plot on Configuration QPSK, 20M / 5785 MHz / Peak / Port 1 (TX1)



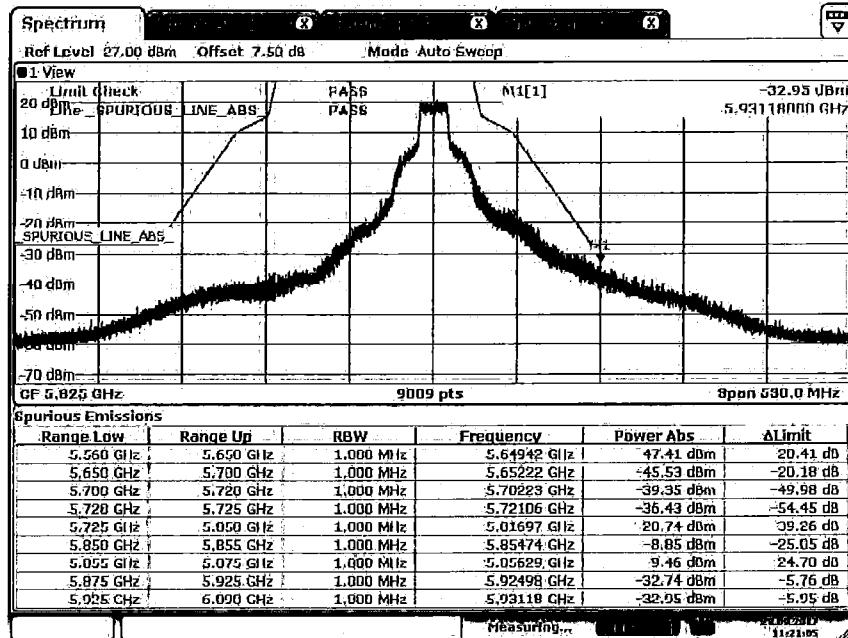
Date: 28.SEP.2017 11:12:17

## Plot on Configuration QPSK, 20M / 5785 MHz / Peak / Port 2 (TX2)

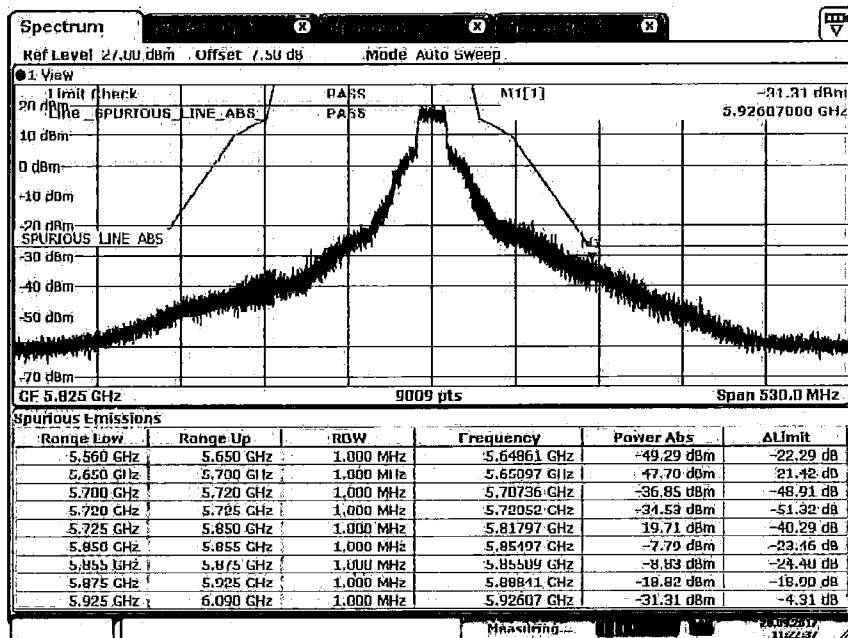


Date: 28.SEP.2017 11:13:09

### Plot on Configuration QPSK, 20M / 5825 MHz / Peak / Port 1 (Tx1)

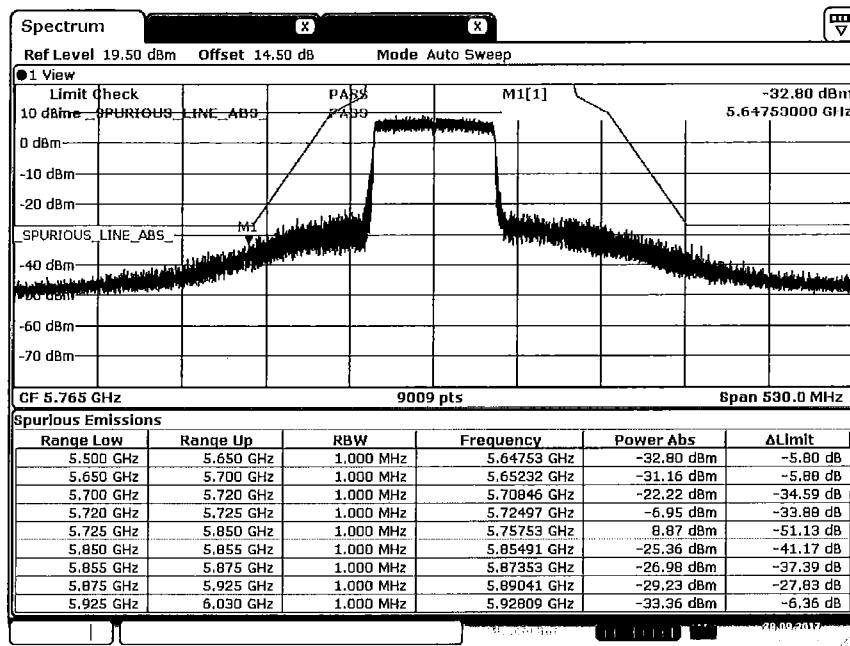


### Plot on Configuration QPSK, 20M / 5825 MHz / Peak / Port 2 (Tx2)

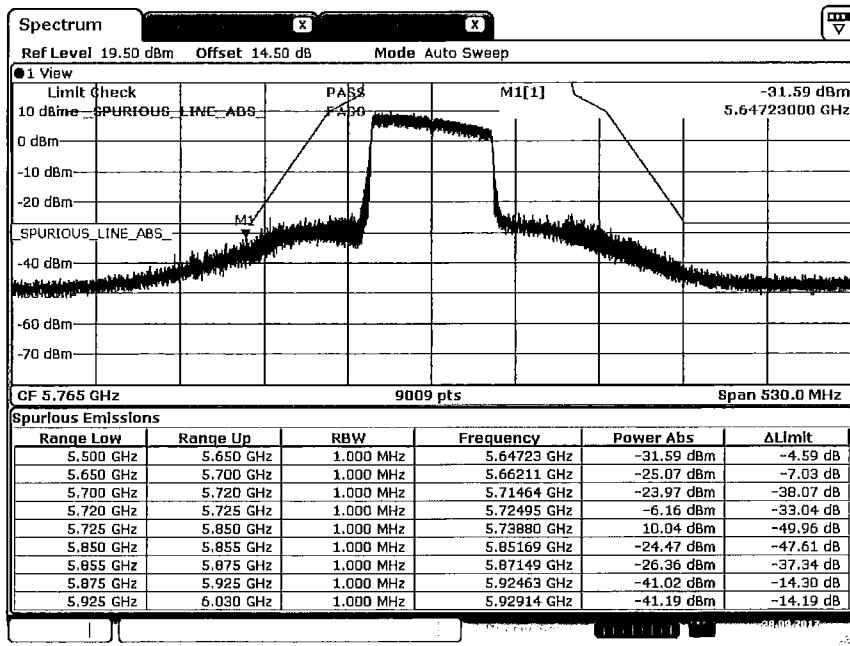




## Plot on Configuration QPSK, 80M / 5765 MHz / Peak / Port 1 (TX1)

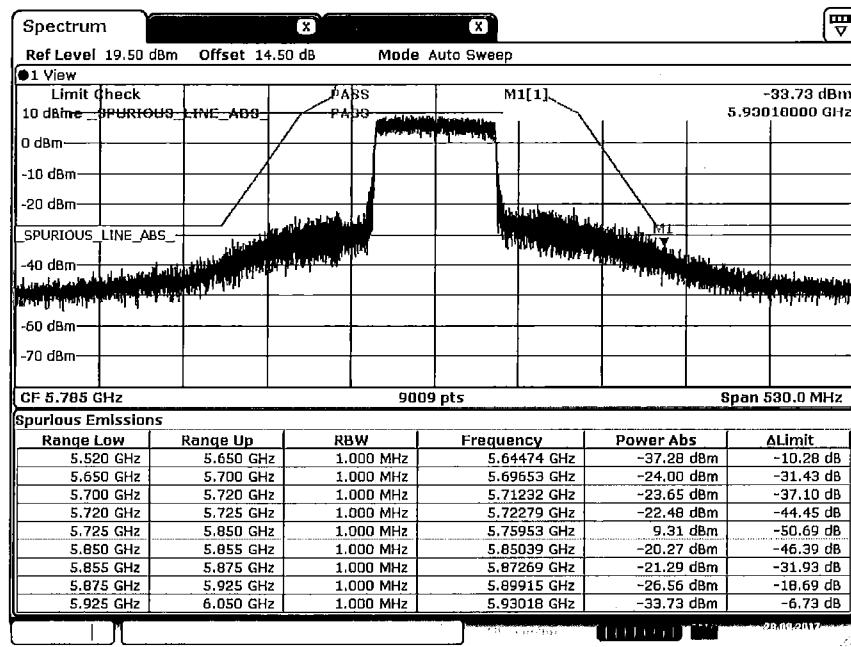


## Plot on Configuration QPSK, 80M / 5765 MHz / Peak / Port 2 (TX2)

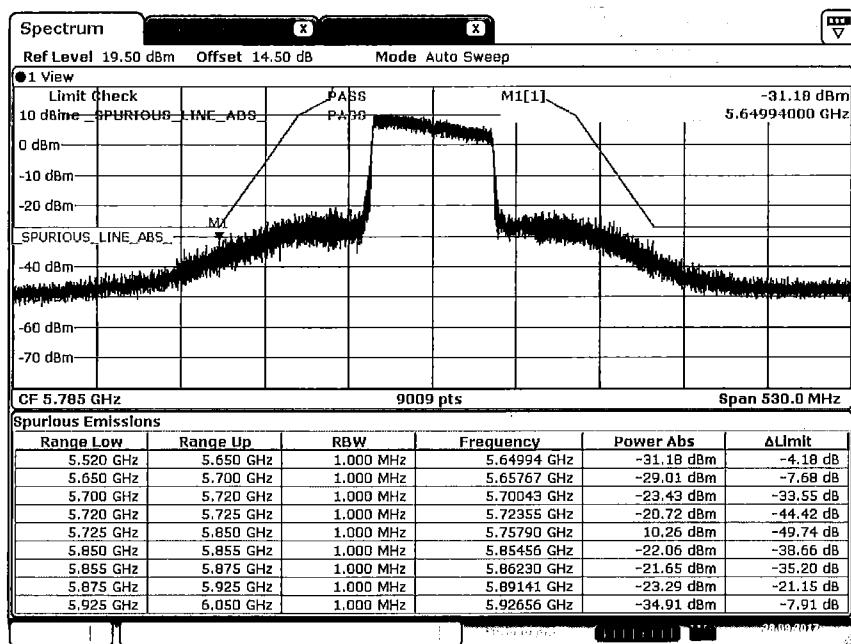




## Plot on Configuration QPSK, 80M / 5785 MHz / Peak / Port 1 (TX1)

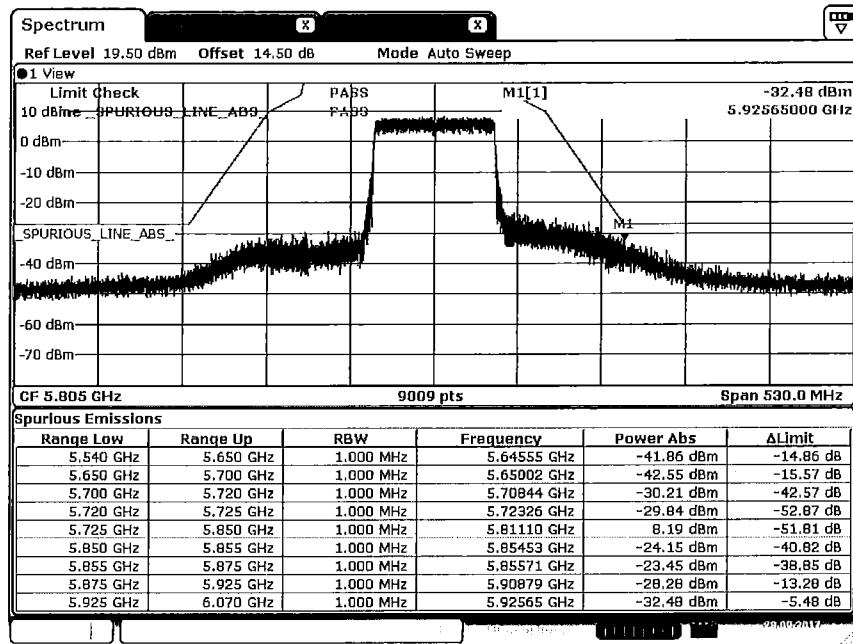


## Plot on Configuration QPSK, 80M / 5785 MHz / Peak / Port 2 (TX2)



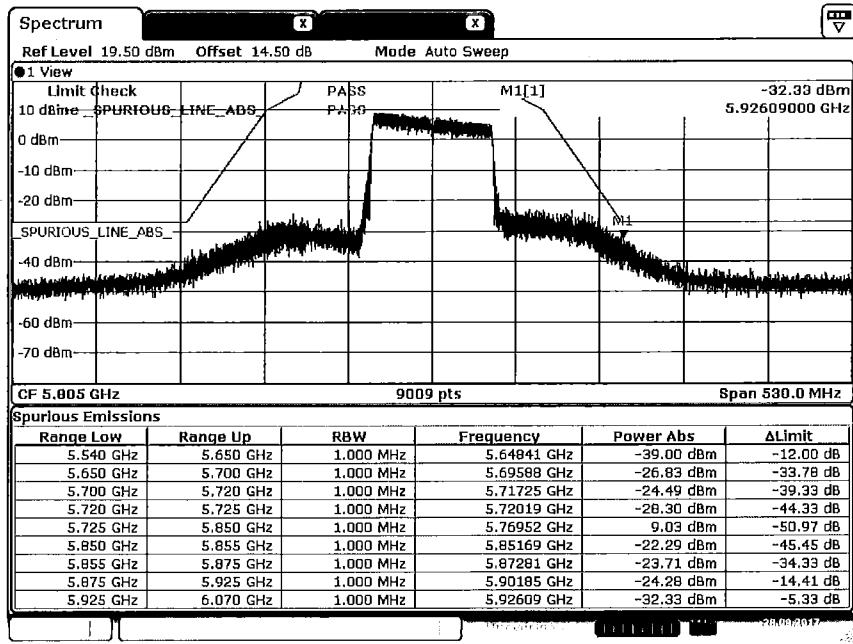


## Plot on Configuration QPSK, 80M / 5805 MHz / Peak / Port 1 (TX1)

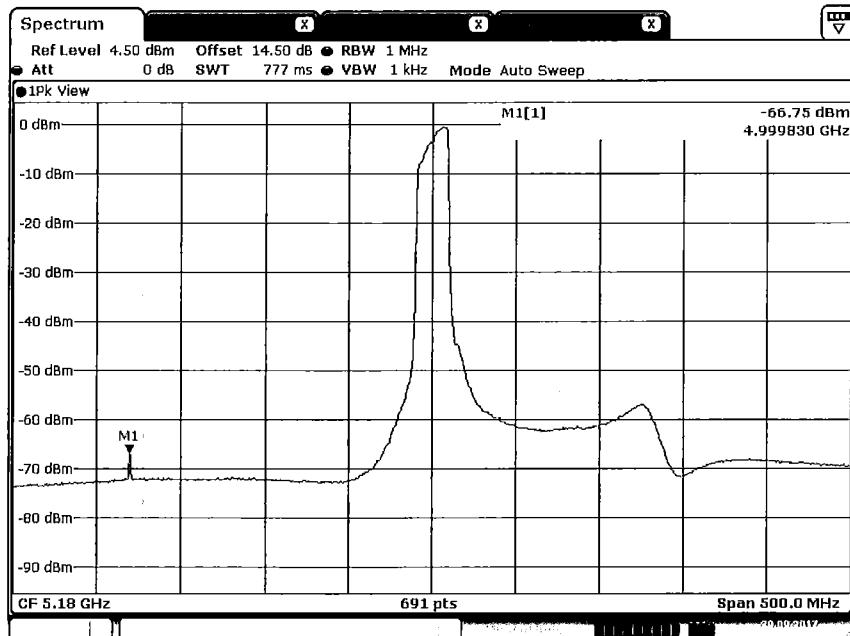


Date: 28 SEP 2017 16:45:21

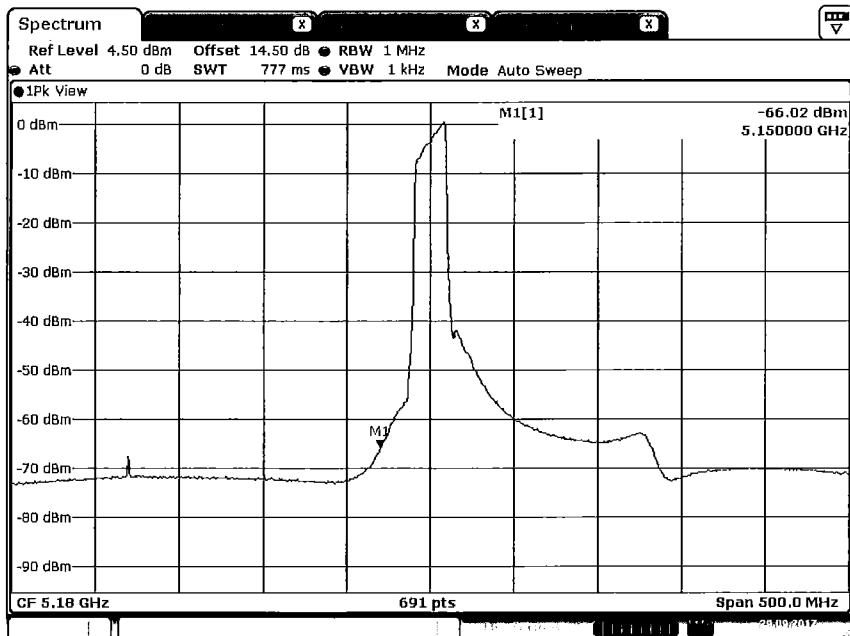
## Plot on Configuration QPSK, 80M / 5805 MHz / Peak / Port 2 (TX2)



Date: 28 SEP 2017 16:47:19

**For Antenna 2:****Plot on Configuration QPSK, 20M / 5180 MHz / Average / Port 1 (TX1)**

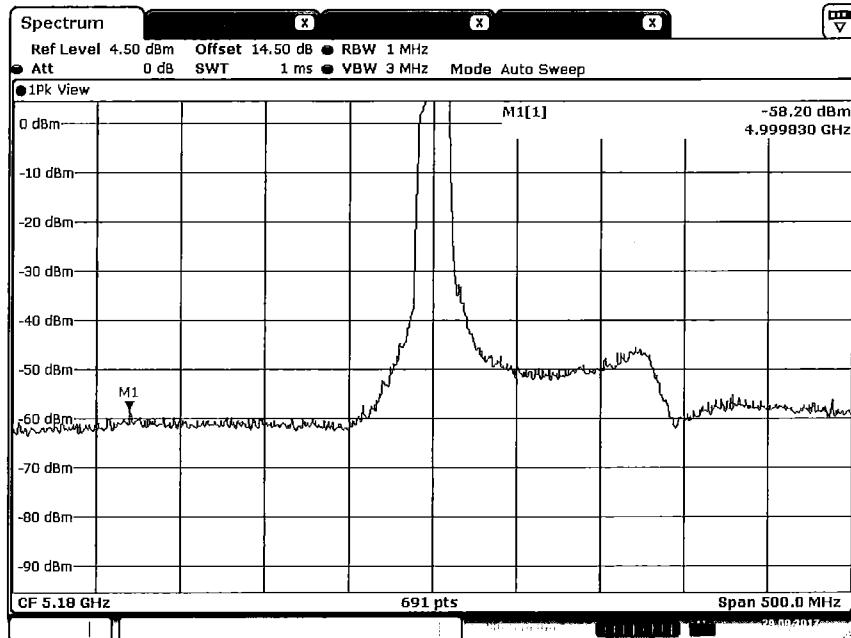
Date: 29 SEP 2017 14:41:58

**Plot on Configuration QPSK, 20M / 5180 MHz / Average / Port 2 (TX2)**

Date: 29 SEP 2017 14:40:37

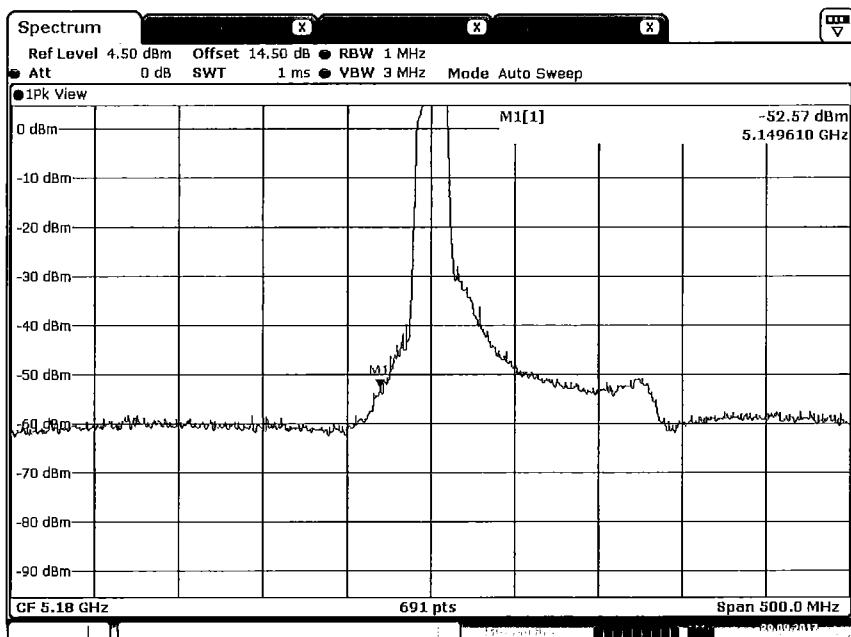


## Plot on Configuration QPSK, 20M / 5180 MHz / Peak / Port 1 (TX1)



Date: 29 SEP 2017 14:44:40

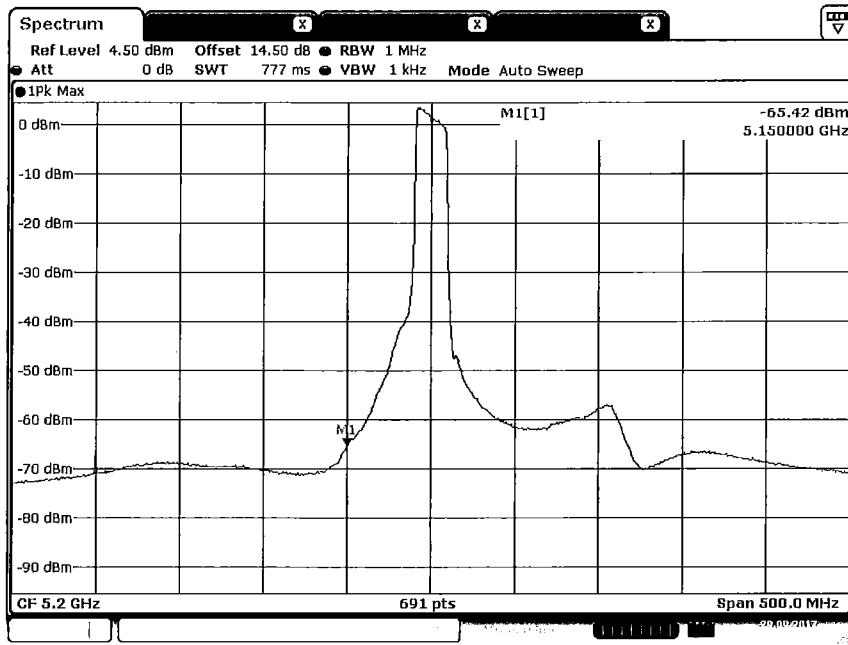
## Plot on Configuration QPSK, 20M / 5180 MHz / Peak / Port 2 (TX2)



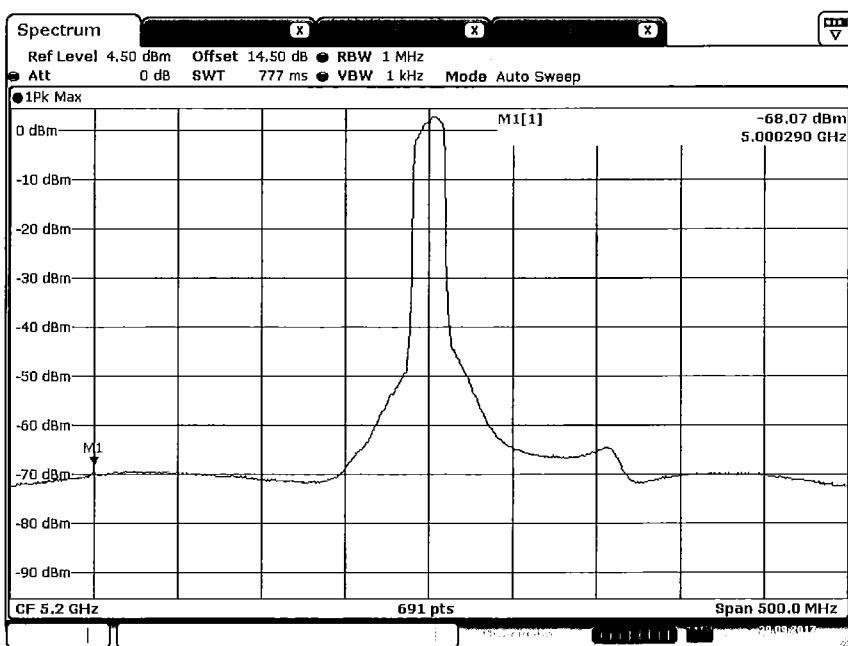
Date: 29 SEP 2017 14:45:44



## Plot on Configuration QPSK, 20M / 5200 MHz / Average / Port 1 (TX1)

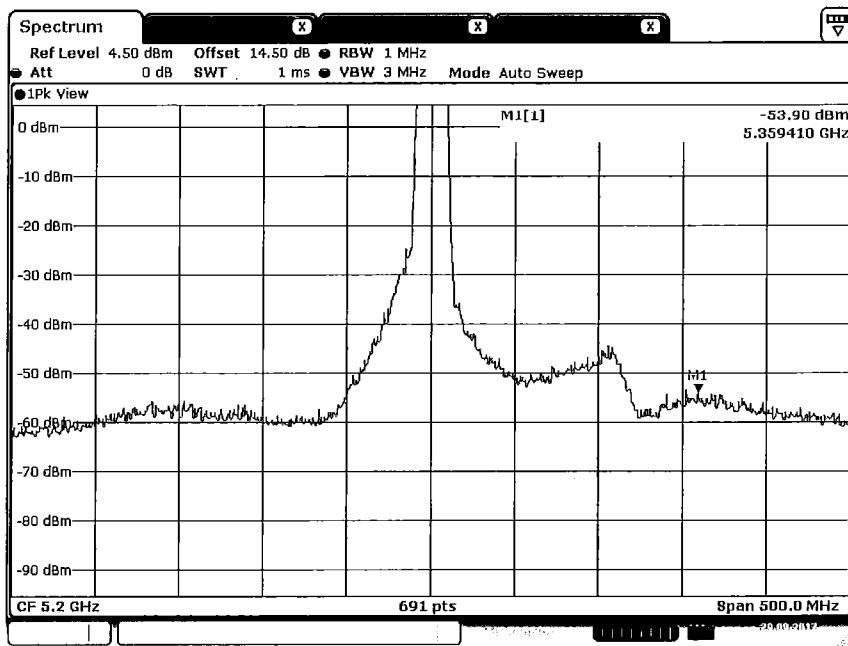


## Plot on Configuration QPSK, 20M / 5200 MHz / Average / Port 2 (TX2)

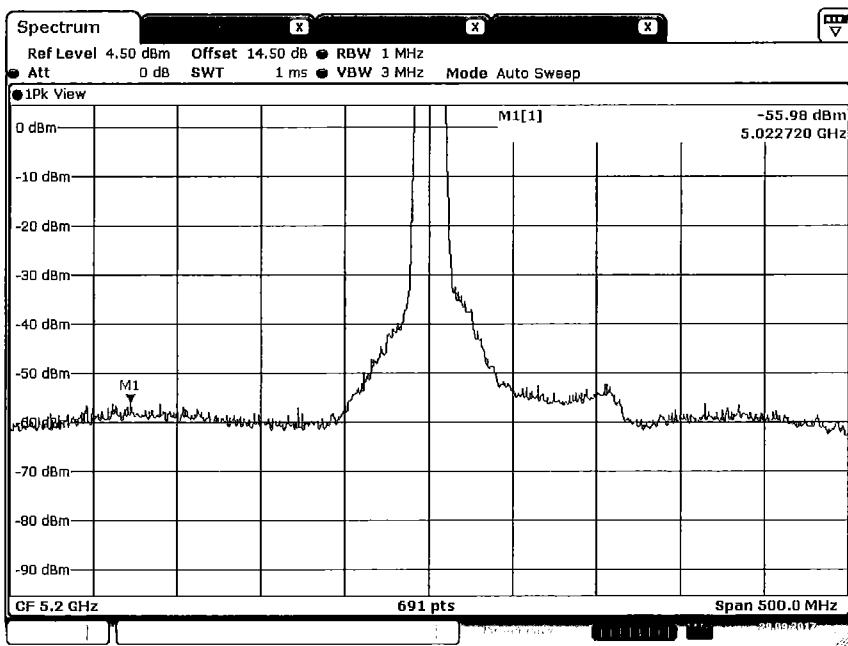




## Plot on Configuration QPSK, 20M / 5200 MHz / Peak / Port 1 (TX1)

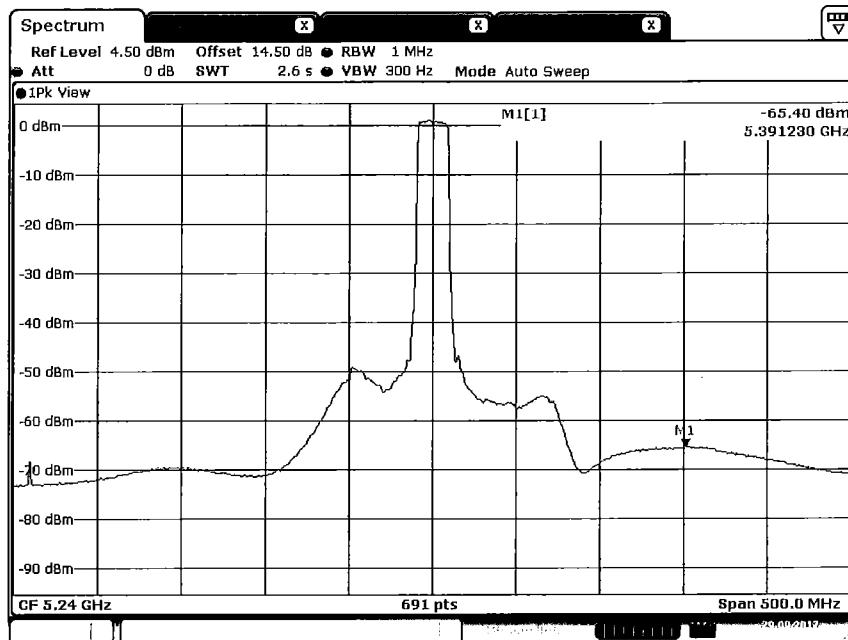


## Plot on Configuration QPSK, 20M / 5200 MHz / Peak / Port 2 (TX2)

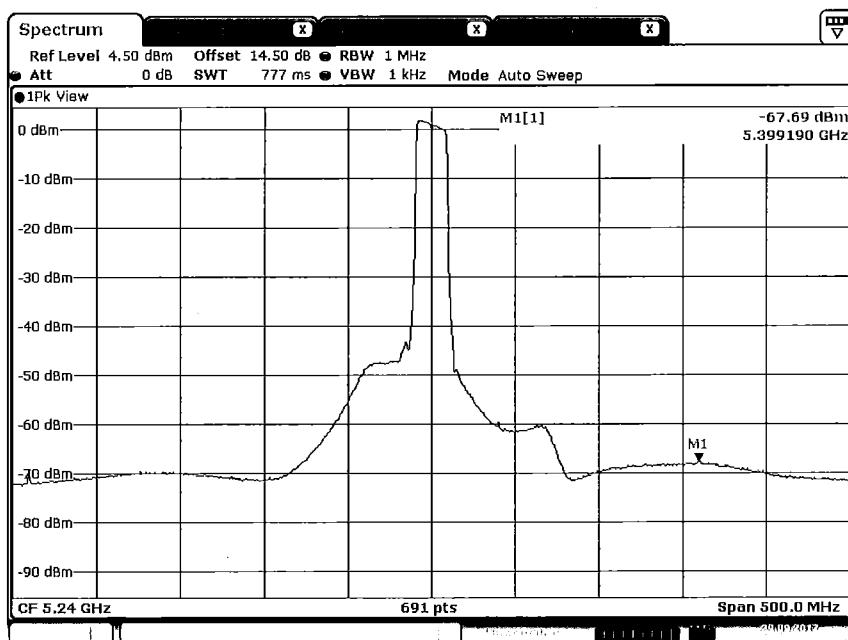


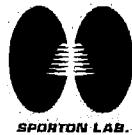


## Plot on Configuration QPSK, 20M / 5240 MHz / Average / Port 1 (TX1)

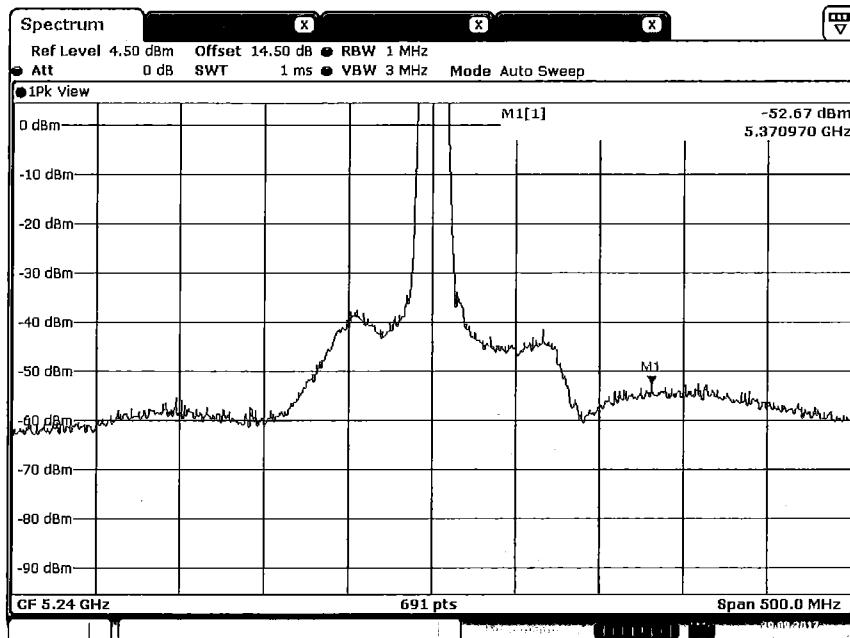


## Plot on Configuration QPSK, 20M / 5240 MHz / Average / Port 2 (TX2)

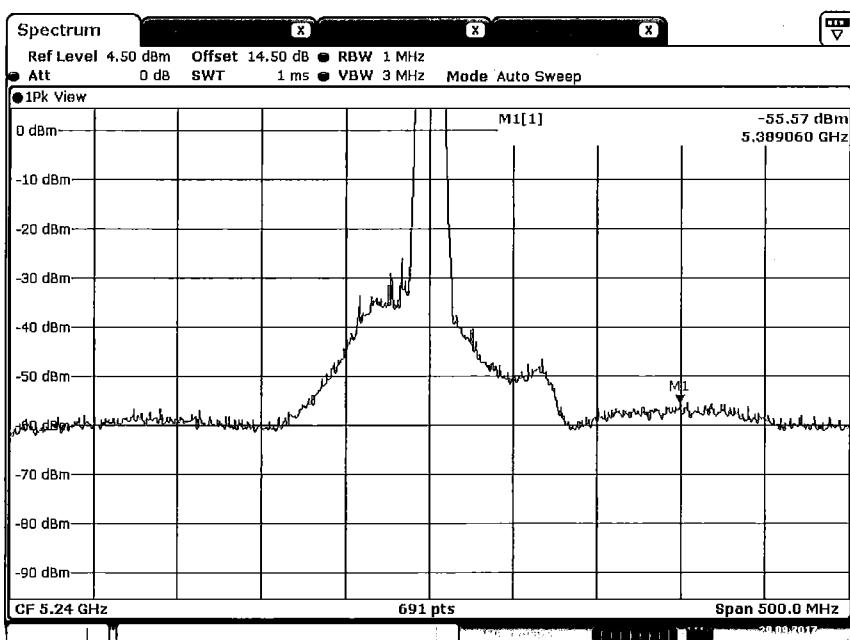




## Plot on Configuration QPSK, 20M / 5240 MHz / Peak / Port 1 (TX1)

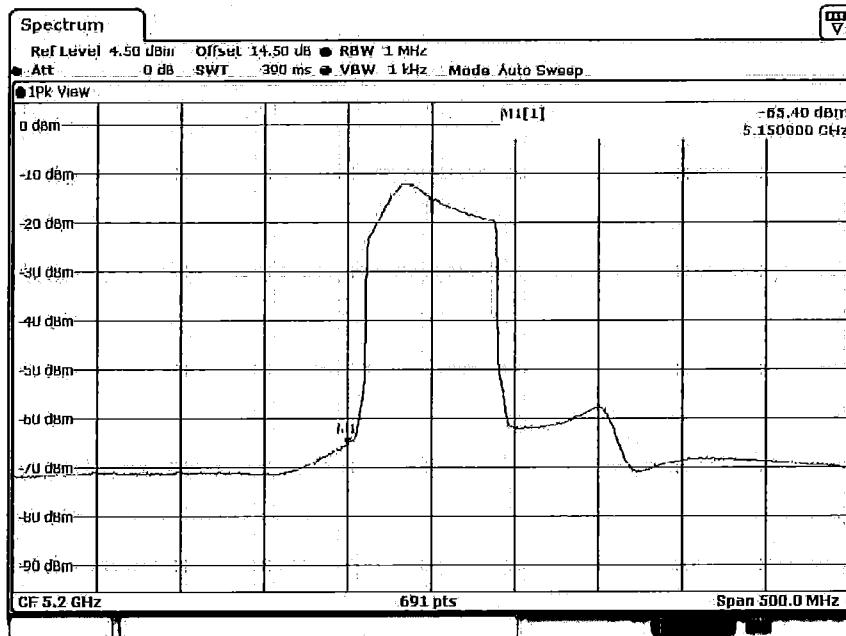


## Plot on Configuration QPSK, 20M / 5240 MHz / Peak / Port 2 (TX2)

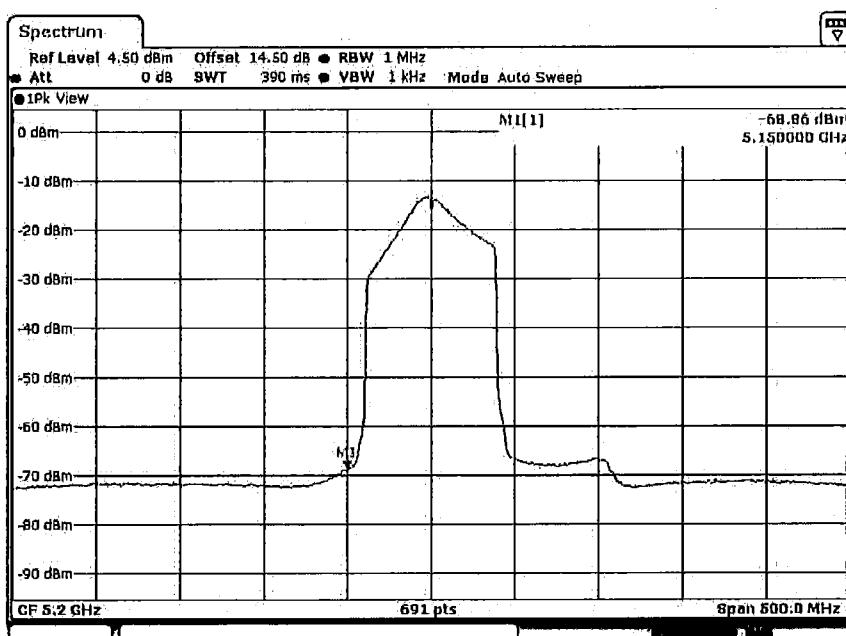




## Plot on Configuration QPSK, 80M / 5200 MHz / Average / Port 1 (TX1)

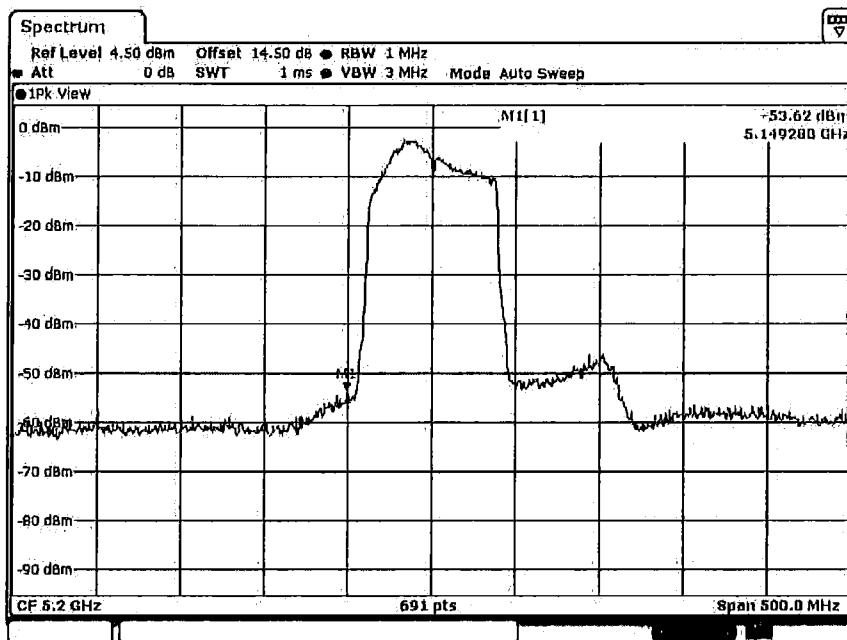


## Plot on Configuration QPSK, 80M / 5200 MHz / Average / Port 2 (TX2)



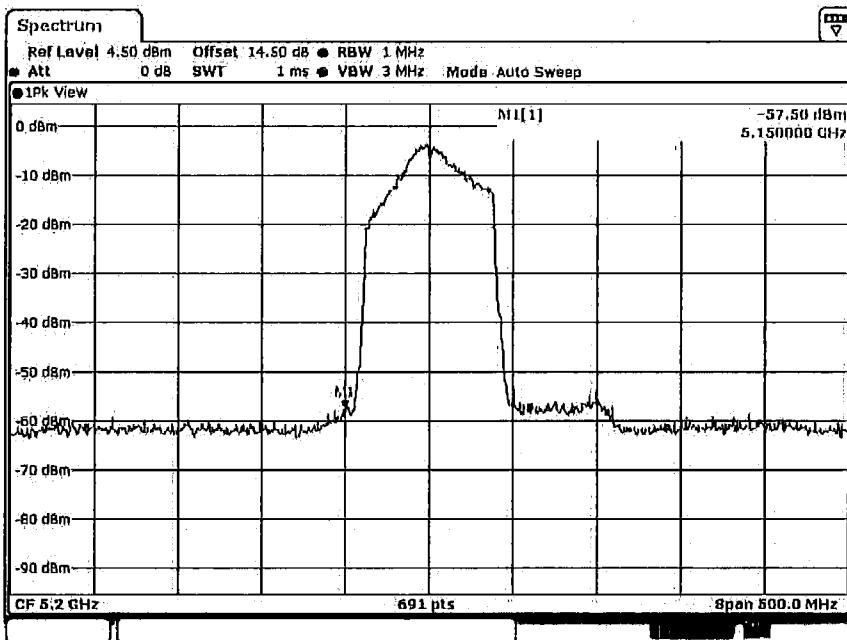


## Plot on Configuration QPSK, 80M / 5200 MHz / Peak / Port 1 (TX1)



Date: 2.OCT.2017 23:11:56

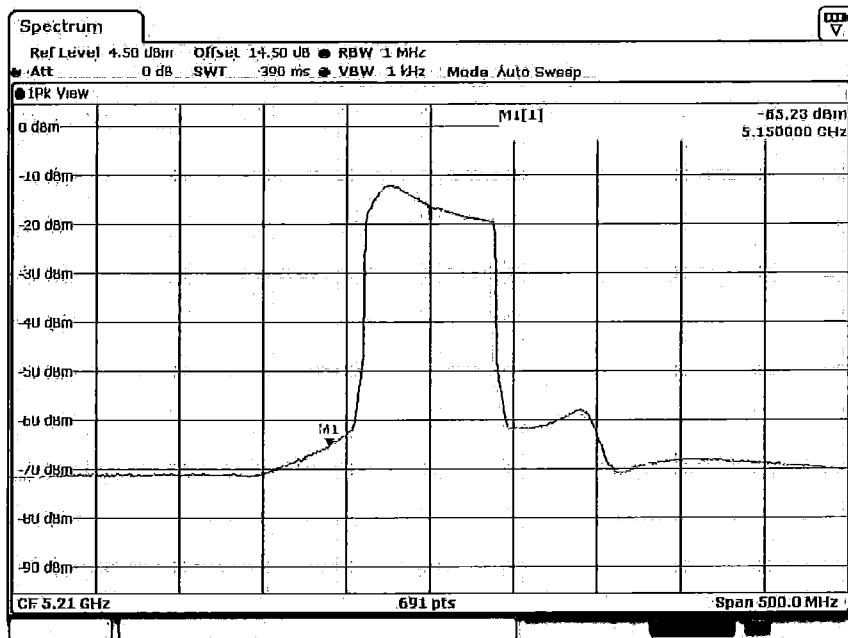
## Plot on Configuration QPSK, 80M / 5200 MHz / Peak / Port 2 (TX2)



Date: 2.OCT.2017 23:11:17

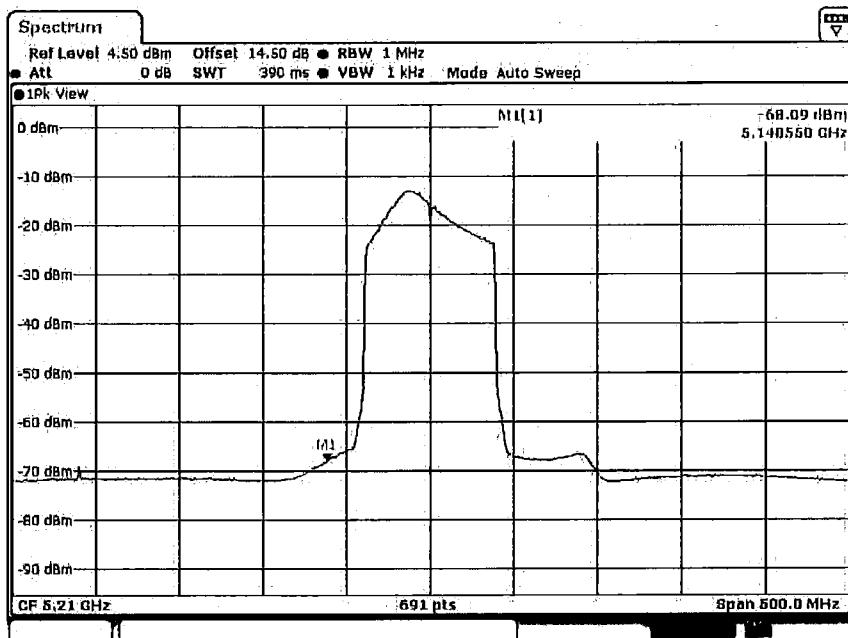


## Plot on Configuration QPSK, 80M / 5210 MHz / Average / Port 1 (TX1)



Date: 2.OCT.2017 23:16:55

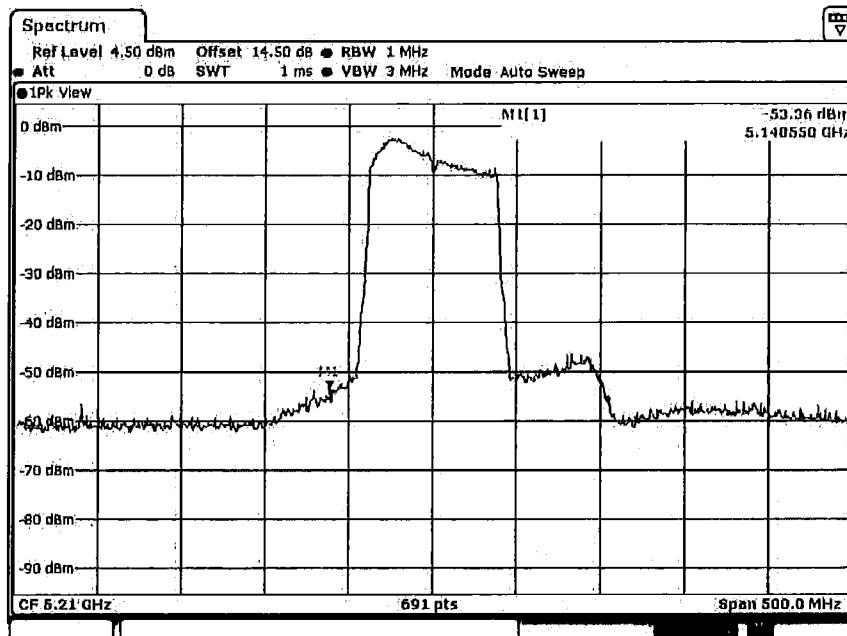
## Plot on Configuration QPSK, 80M / 5210 MHz / Average / Port 2 (TX2)



Date: 2.OCT.2017 23:18:29

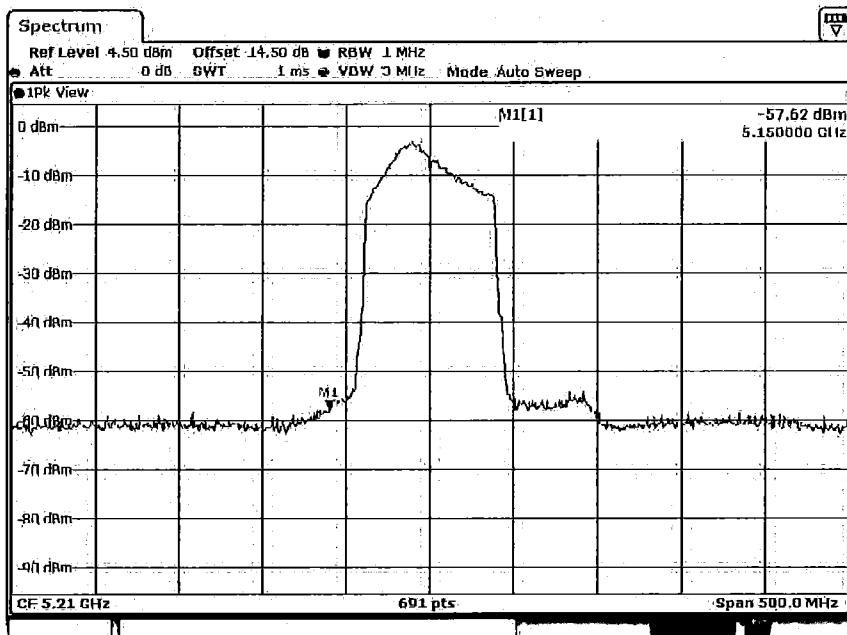


## Plot on Configuration QPSK, 80M / 5210 MHz / Peak / Port 1 (TX1)



Date: 2.OCT.2017 23:17:18

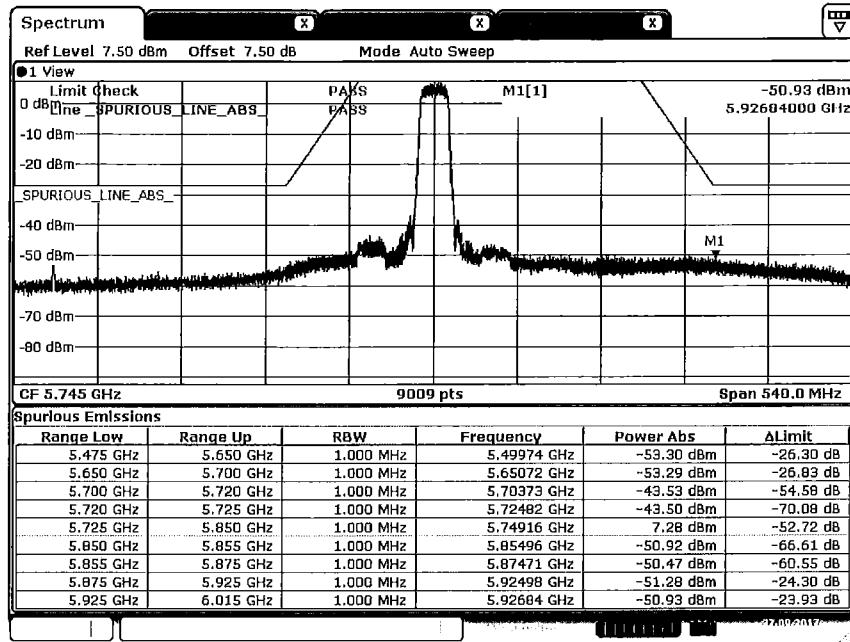
## Plot on Configuration QPSK, 80M / 5210 MHz / Peak / Port 2 (TX2)



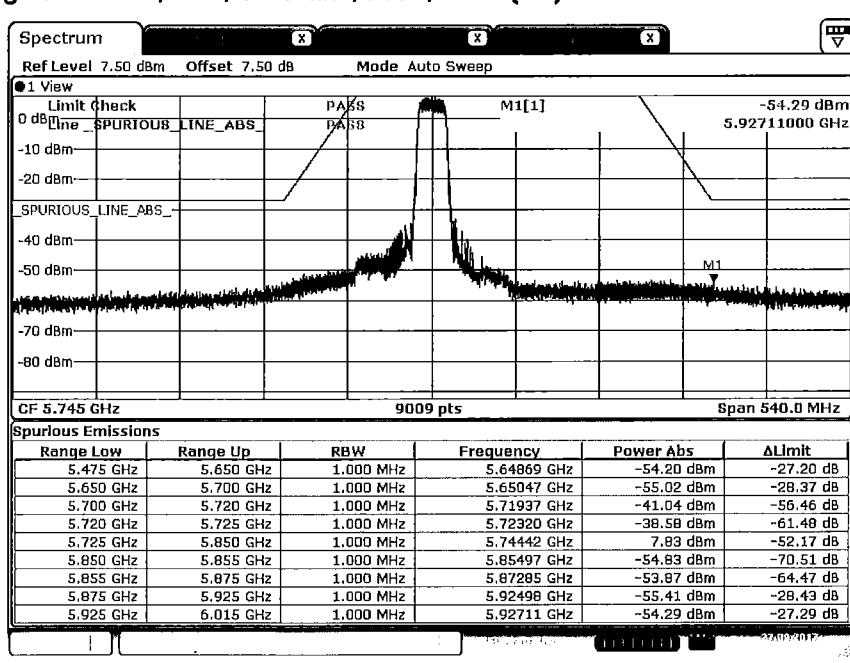
Date: 2.OCT.2017 23:15:43



## Plot on Configuration QPSK, 20M / 5745 MHz / Peak / Port 1 (TX1)

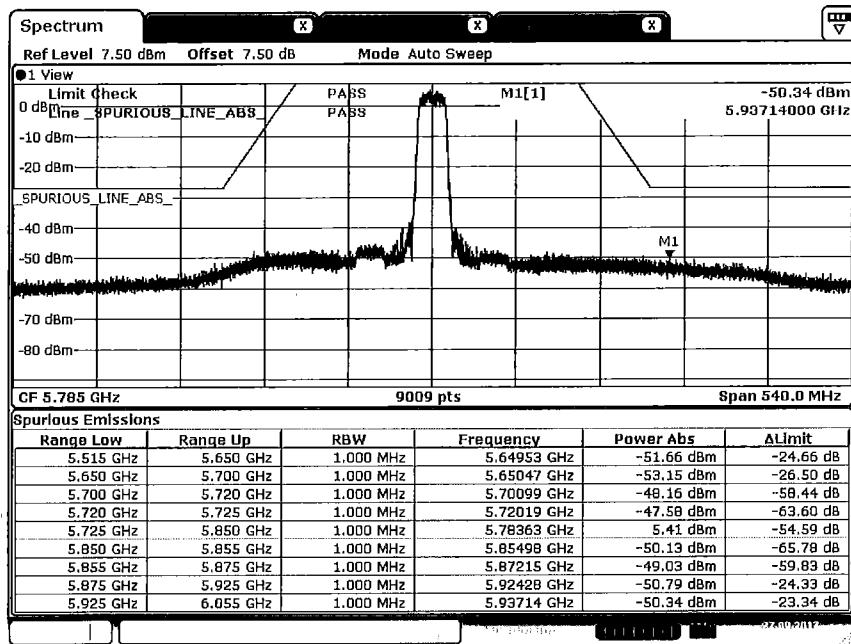


## Plot on Configuration QPSK, 20M / 5745 MHz / Peak / Port 2 (TX2)



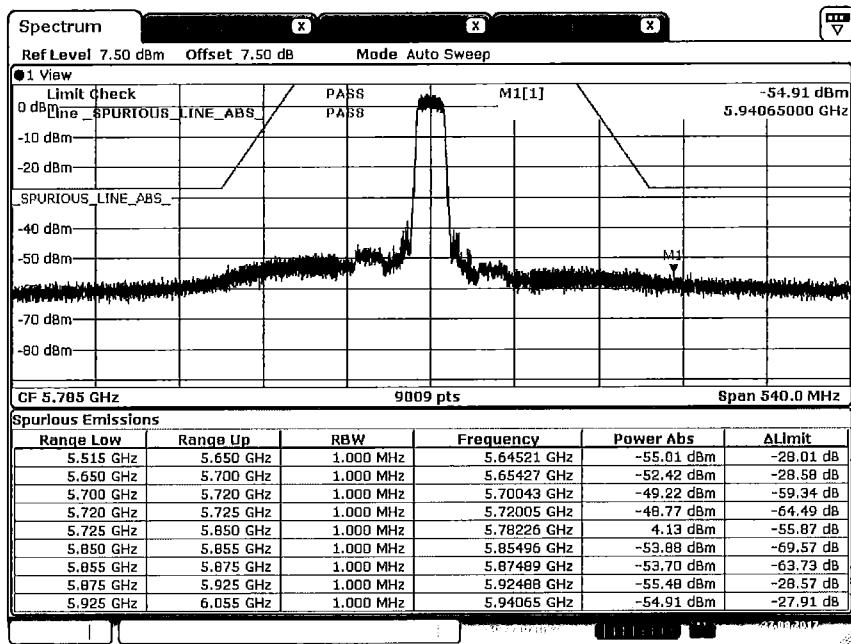


## Plot on Configuration QPSK, 20M / 5785 MHz / Peak / Port 1 (TX1)



Date: 27 SEP 2017 23:48:32

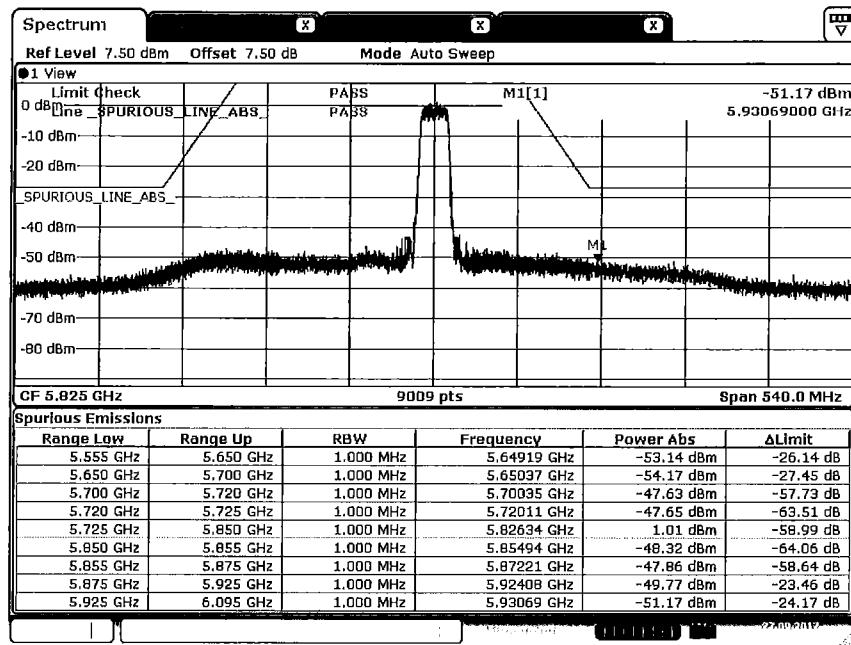
## Plot on Configuration QPSK, 20M / 5785 MHz / Peak / Port 2 (TX2)



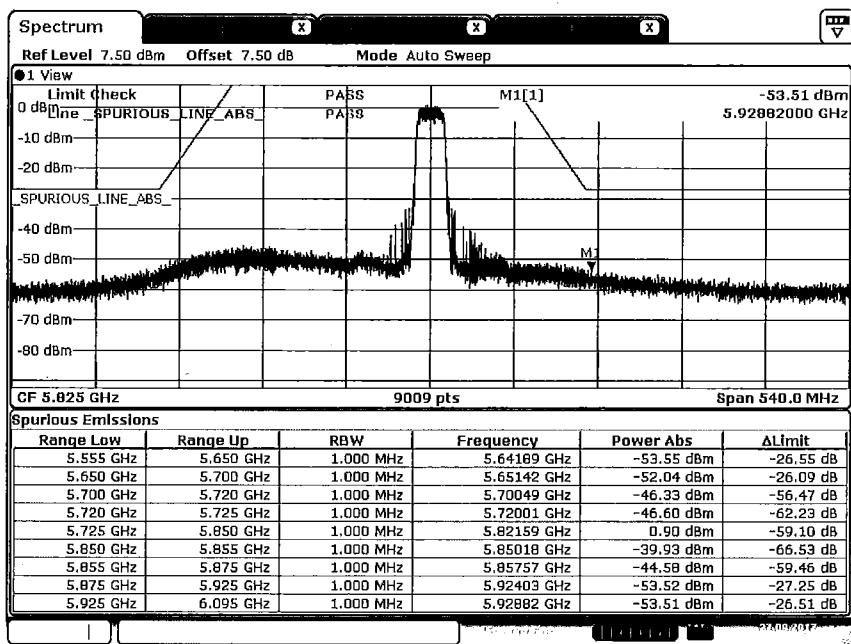
Date: 27 SEP 2017 23:45:48



## Plot on Configuration QPSK, 20M / 5825 MHz / Peak / Port 1 (TX1)

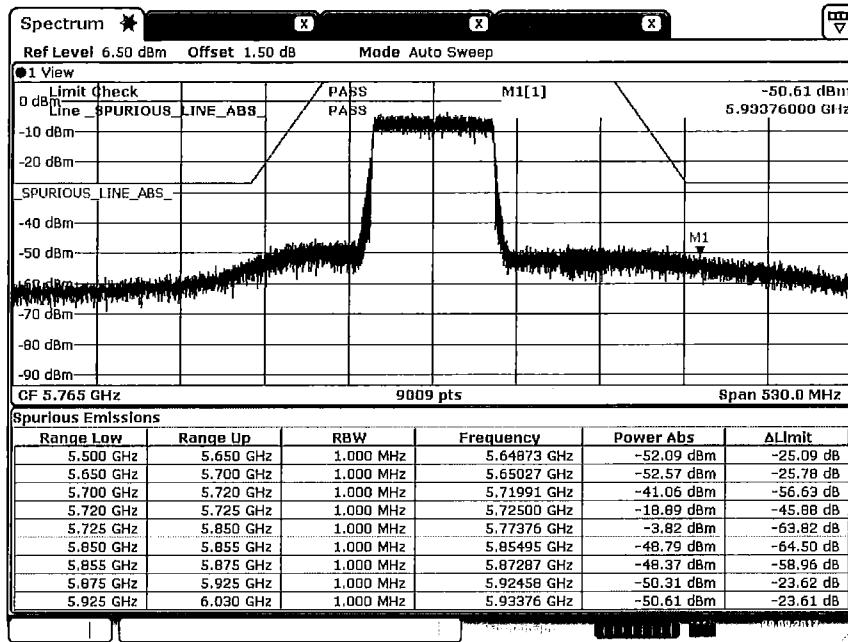


## Plot on Configuration QPSK, 20M / 5825 MHz / Peak / Port 2 (TX2)



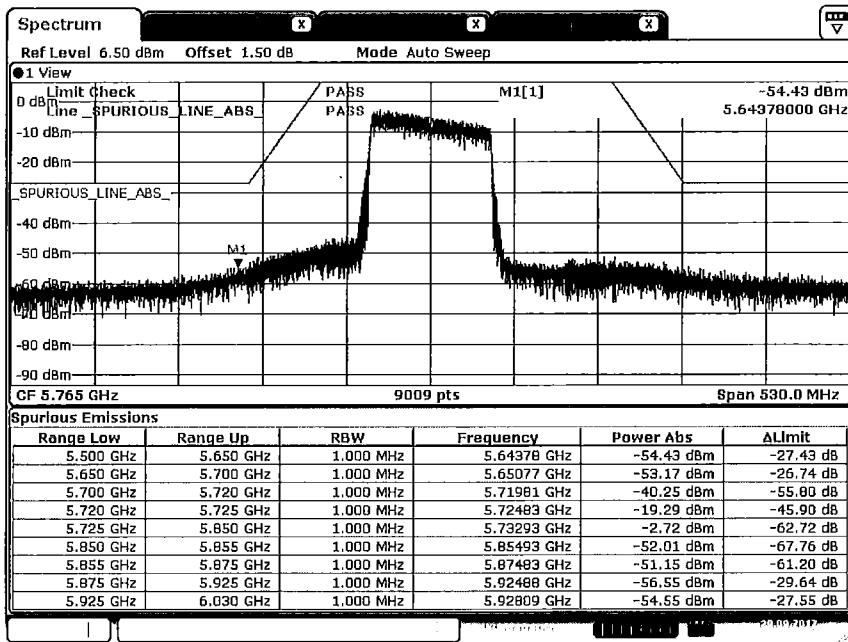


## Plot on Configuration QPSK, 80M / 5765 MHz / Peak / Port 1 (TX1)



Date: 29 SEP 2017 09:21:10

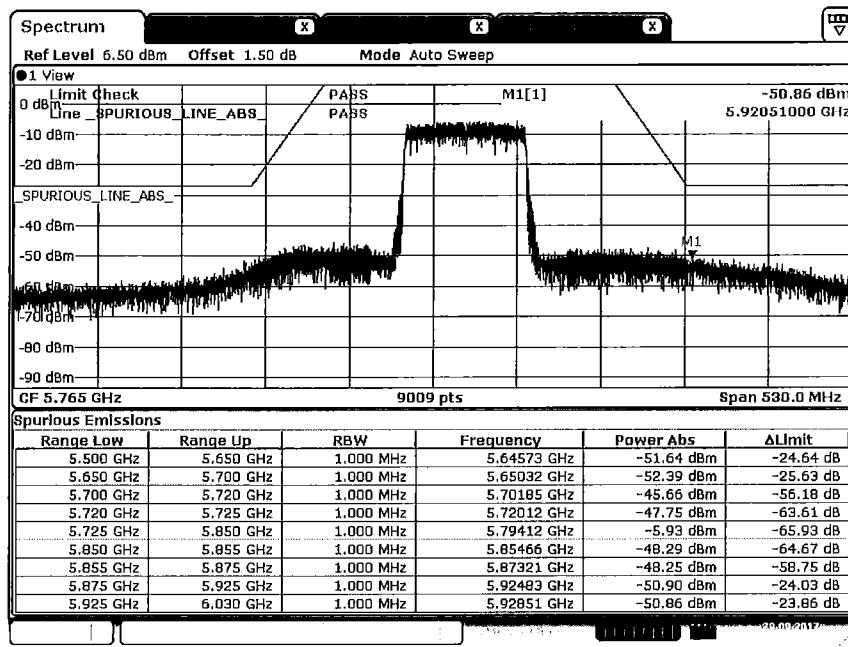
## Plot on Configuration QPSK, 80M / 5765 MHz / Peak / Port 2 (TX2)



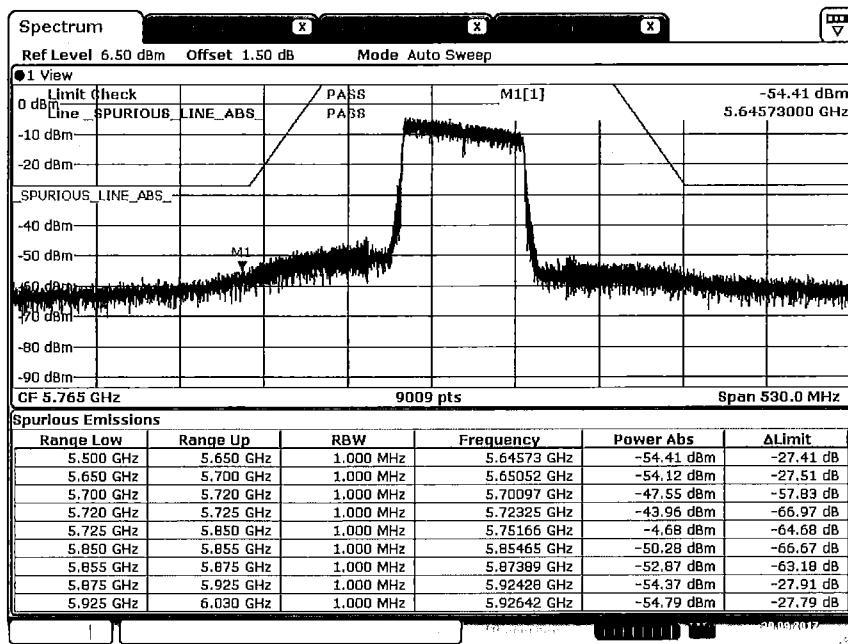
Date: 29 SEP 2017 09:23:19



## Plot on Configuration QPSK, 80M / 5785 MHz / Peak / Port 1 (TX1)

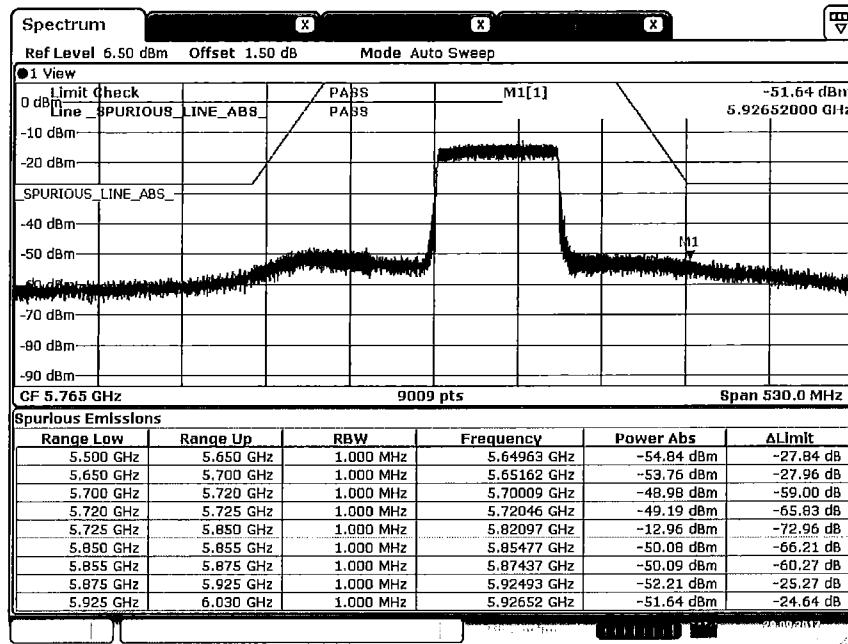


## Plot on Configuration QPSK, 80M / 5785 MHz / Peak / Port 2 (TX2)

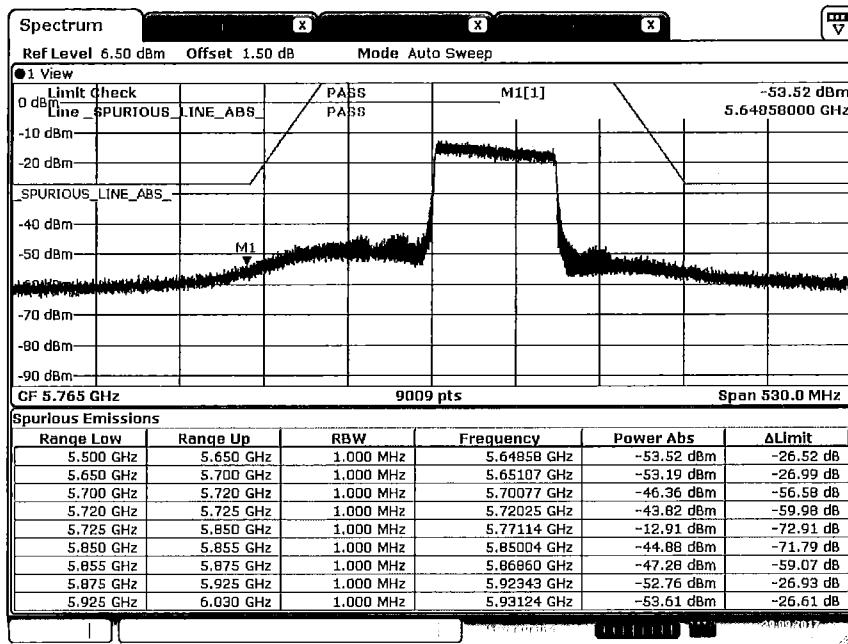




## Plot on Configuration QPSK, 80M / 5805 MHz / Peak / Port 1 (TX1)



## Plot on Configuration QPSK, 80M / 5805 MHz / Peak / Port 2 (TX2)



## 4.8. Frequency Stability Measurement

### 4.8.1. Limit

In-band emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be  $\pm 20$  ppm maximum for the 5 GHz band (IEEE 802.11n specification).

### 4.8.2. Measuring Instruments and Setting

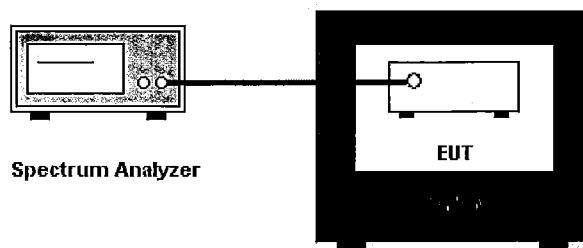
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

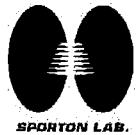
Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	Entire absence of modulation emissions bandwidth
RBW	10 kHz
VBW	10 kHz
Sweep Time	Auto

### 4.8.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. fc is declaring of channel frequency. Then the frequency error formula is  $(fc-f)/fc \times 10^6$  ppm and the limit is less than  $\pm 20$  ppm (IEEE 802.11n specification).
6. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
7. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
8. Extreme temperature is -40°C~70°C.

### 4.8.4. Test Setup Layout





#### 4.8.5. Test Deviation

There is no deviation with the original standard.

#### 4.8.6. EUT Operation during Test

The EUT was programmed to be in continuously un-modulation transmitting mode.

**4.8.7. Test Result of Frequency Stability**

Temperature	27.1°C	Humidity	79%
Test Engineer	Ron Huang	Test Date	Sep. 27, 2017~Oct. 16, 2017

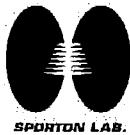
Mode: 20 M / Port 2

**Voltage vs. Frequency Stability**

Voltage (V)	Measurement Frequency (MHz)			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5200.0097	5200.0088	5200.0082	5200.0081
110.00	5200.0087	5200.0084	5200.0075	5200.0065
93.50	5200.0080	5200.0078	5200.0073	5200.0064
Max. Deviation (MHz)	0.0097	0.0088	0.0082	0.0081
Max. Deviation (ppm)	1.86	1.69	1.57	1.55
Result	Complies			

**Temperature vs. Frequency Stability**

Temperature (°C)	Measurement Frequency (MHz)			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5200.0725	5200.0716	5200.0711	5200.0702
-30	5200.0644	5200.0638	5200.0637	5200.0636
-20	5200.0563	5200.0561	5200.0560	5200.0550
-10	5200.0569	5200.0561	5200.0552	5200.0549
0	5200.0582	5200.0577	5200.0567	5200.0565
10	5200.0591	5200.0584	5200.0578	5200.0574
20	5200.0087	5200.0082	5200.0077	5200.0070
30	5200.0086	5200.0081	5200.0076	5200.0066
40	5200.0076	5200.0072	5200.0069	5200.0060
50	5200.0075	5200.0071	5200.0062	5200.0052
60	5200.0060	5200.0051	5200.0041	5200.0033
70	5200.0056	5200.0055	5200.0054	5200.0044
Max. Deviation (MHz)	0.0725	0.0716	0.0711	0.0702
Max. Deviation (ppm)	13.94	13.77	13.67	13.50
Result	Complies			

**Voltage vs. Frequency Stability**

Voltage (V)	Measurement Frequency (MHz)			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5785.0091	5785.0085	5785.0084	5785.0081
110.00	5785.0087	5785.0081	5785.0079	5785.0073
93.50	5785.0079	5785.0078	5785.0075	5785.0071
Max. Deviation (MHz)	0.0091	0.0085	0.0084	0.0081
Max. Deviation (ppm)	1.57	1.47	1.45	1.40
Result	Complies			

**Temperature vs. Frequency Stability**

Temperature (°C)	Measurement Frequency (MHz)			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5785.0748	5785.0744	5785.0738	5785.0735
-30	5785.0653	5785.0648	5785.0645	5785.0639
-20	5785.0568	5785.0562	5785.0557	5785.0554
-10	5785.0572	5785.0566	5785.0562	5785.0557
0	5785.0584	5785.0577	5785.0576	5785.0566
10	5785.0591	5785.0583	5785.0580	5785.0579
20	5785.0087	5785.0080	5785.0071	5785.0066
30	5785.0086	5785.0082	5785.0074	5785.0065
40	5785.0080	5785.0074	5785.0067	5785.0062
50	5785.0081	5785.0080	5785.0072	5785.0070
60	5785.0070	5785.0060	5785.0059	5785.0058
70	5785.0063	5785.0060	5785.0059	5785.0049
Max. Deviation (MHz)	0.0748	0.0744	0.0738	0.0735
Max. Deviation (ppm)	12.93	12.86	12.76	12.71
Result	Complies			

**Mode: 80M / Port 2****Voltage vs. Frequency Stability**

Voltage (V)	Measurement Frequency (MHz)			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5210.0093	5210.0089	5210.0082	5210.0076
110.00	5210.0087	5210.0077	5210.0071	5210.0070
93.50	5210.0080	5210.0079	5210.0071	5210.0061
Max. Deviation (MHz)	0.0093	0.0089	0.0082	0.0076
Max. Deviation (ppm)	1.78	1.70	1.57	1.45
Result	Complies			

**Temperature vs. Frequency Stability**

Temperature (°C)	Measurement Frequency (MHz)			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5210.0737	5210.0736	5210.0733	5210.0725
-30	5210.0654	5210.0653	5210.0650	5210.0640
-20	5210.0561	5210.0552	5210.0543	5210.0540
-10	5210.0562	5210.0561	5210.0559	5210.0553
0	5210.0577	5210.0568	5210.0562	5210.0553
10	5210.0591	5210.0583	5210.0574	5210.0566
20	5210.0087	5210.0079	5210.0077	5210.0073
30	5210.0086	5210.0080	5210.0075	5210.0073
40	5210.0074	5210.0071	5210.0063	5210.0057
50	5210.0068	5210.0066	5210.0059	5210.0049
60	5210.0081	5210.0072	5210.0070	5210.0067
70	5210.0056	5210.0051	5210.0049	5210.0044
Max. Deviation (MHz)	0.0737	0.0736	0.0733	0.0725
Max. Deviation (ppm)	14.15	14.13	14.07	13.92
Result	Complies			

**Voltage vs. Frequency Stability**

Voltage (V)	Measurement Frequency (MHz)			
	0 Minute	2 Minute	5 Minute	10 Minute
126.50	5765.0089	5765.0079	5765.0074	5765.0068
110.00	5765.0087	5765.0079	5765.0076	5765.0074
93.50	5765.0085	5765.0078	5765.0069	5765.0066
Max. Deviation (MHz)	0.0089	0.0079	0.0076	0.0074
Max. Deviation (ppm)	1.54	1.37	1.31	1.28
Result	Complies			

**Temperature vs. Frequency Stability**

Temperature (°C)	Measurement Frequency (MHz)			
	0 Minute	2 Minute	5 Minute	10 Minute
-40	5765.0748	5765.0740	5765.0732	5765.0724
-30	5765.0662	5765.0657	5765.0655	5765.0645
-20	5765.0568	5765.0558	5765.0556	5765.0553
-10	5765.0578	5765.0568	5765.0566	5765.0558
0	5765.0589	5765.0579	5765.0571	5765.0566
10	5765.0591	5765.0582	5765.0581	5765.0578
20	5765.0087	5765.0086	5765.0076	5765.0070
30	5765.0086	5765.0083	5765.0073	5765.0064
40	5765.0082	5765.0072	5765.0071	5765.0065
50	5765.0071	5765.0061	5765.0058	5765.0050
60	5765.0083	5765.0077	5765.0073	5765.0068
70	5765.0072	5765.0068	5765.0065	5765.0063
Max. Deviation (MHz)	0.0748	0.0740	0.0732	0.0724
Max. Deviation (ppm)	12.97	12.84	12.70	12.56
Result	Complies			



## 4.9. Antenna Requirements

### 4.9.1. Limit

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

### 4.9.2. Antenna Connector Construction

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



## 5. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
LISN	Schwarzbeck	NSLK 8127	8127650	9kHz ~ 30MHz	Nov. 23, 2016	Nov. 22, 2017	Conduction (CO02-CB)
LISN	Schwarzbeck	NSLK 8127	8127478	9kHz ~ 30MHz	Nov. 15, 2016	Nov. 14, 2017	Conduction (CO02-CB)
EMI Receiver	Agilent	N9038A	MY52260140	9kHz ~ 8.4GHz	Jan. 16, 2017	Jan. 15, 2018	Conduction (CO02-CB)
COND Cable	Woken	Cable	01	0.15MHz ~ 30MHz	Nov. 30, 2016	Nov. 29, 2017	Conduction (CO02-CB)
Software	Audix	E3	6.120210n	-	N.C.R.	N.C.R.	Conduction (CO02-CB)
Pulse Limiter	Schwarzbeck	VTSD 9561F	9561-F073	9kHz ~ 30MHz	Oct. 03, 2017	Oct. 02, 2018	Conduction (CO02-CB)
Loop Antenna	Teseq	HLA 6120	24155	9kHz - 30 MHz	Mar. 16, 2016*	Mar. 15, 2018*	Radiation (03CH01-CB)
BILOG ANTENNA with 6dB Attenuator	TESEQ & EMCI	CBL6112D & N-6-06	37880 & AT-N0609	20MHz ~ 2GHz	Aug. 30, 2017	Aug. 29, 2018	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz ~ 18GHz	Nov. 10, 2016	Nov. 09, 2017	Radiation (03CH01-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Jul. 05, 2017	Jul. 04, 2018	Radiation (03CH01-CB)
Pre-Amplifier	EMCI	EMC330N	980332	20MHz ~ 3GHz	May 02, 2017	May 01, 2018	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Jan. 16, 2017	Jan. 15, 2018	Radiation (03CH01-CB)
Pre-Amplifier	MITEQ	TTA1840-35-HG	1864479	18GHz ~ 40GHz	Jul. 10, 2017	Jul. 09, 2018	Radiation (03CH01-CB)
Spectrum Analyzer	R&S	FSP40	100056	9kHz ~ 40GHz	Nov. 22, 2016	Nov. 21, 2017	Radiation (03CH01-CB)
EMI Test	R&S	ESCS	100355	9kHz ~ 2.75GHz	May 06, 2017	May 05, 2018	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-16+17	N/A	30 MHz ~ 1 GHz	Oct. 24, 2016	Oct. 23, 2017	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Oct. 23, 2017	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-16+17	N/A	1 GHz ~ 18 GHz	Oct. 24, 2016	Oct. 23, 2017	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#1	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Oct. 23, 2017	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-40G#2	N/A	18GHz ~ 40 GHz	Oct. 24, 2016	Oct. 23, 2017	Radiation (03CH01-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	Dec. 26, 2016	Dec. 25, 2017	Conducted (TH01-CB)
Temp. and Humidity Chamber	Gaint Force	GTH-408-40-CP-AR	MAA1410-011	-40~100 degree	Sep. 15, 2017	Sep. 14, 2018	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-6	1 GHz – 26.5 GHz	Oct. 24, 2016	Oct. 23, 2017	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-7	1 GHz – 26.5 GHz	Oct. 24, 2016	Oct. 23, 2017	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-8	1 GHz – 26.5 GHz	Oct. 24, 2016	Oct. 23, 2017	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-9	1 GHz – 26.5 GHz	Oct. 24, 2016	Oct. 23, 2017	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 26.5 GHz	Oct. 24, 2016	Oct. 23, 2017	Conducted (TH01-CB)
Power Sensor	Agilent	U2021XA	MY53410001	50MHz~18GHz	Nov. 22, 2016	Nov. 21, 2017	Conducted (TH01-CB)

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

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

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



## 6. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.2 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	3.6 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	3.7 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	3.5 dB	Confidence levels of 95%
Conducted Emission	1.7 dB	Confidence levels of 95%
Output Power Measurement	1.33 dB	Confidence levels of 95%
Power Density Measurement	1.27 dB	Confidence levels of 95%
Bandwidth Measurement	$9.74 \times 10^{-8}$	Confidence levels of 95%
Frequency Stability	$6.06 \times 10^{-8}$	Confidence levels of 95%