FCC Test Report

Report No.: AGC08326161101FE06

FCC ID	:	2AKZSM-1200S
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Wireless USB Adapter
BRAND NAME	:	N/A
MODEL NAME	:	M-1200S
CLIENT	:	Shenzhen Xunman Technology Co., Ltd.
DATE OF ISSUE	:	Feb. 08, 2017
STANDARD(S) **TEST PROCEDURE(S)**	:	FCC Part 15.407 KDB 789033 D02
REPORT VERSION	:	V1.0

***A**ttestation of **G**lobal **C**ompliance (Shenzhen) Co., Ltd*

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Feb. 08, 2017	Valid	Original Report

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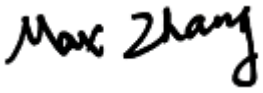
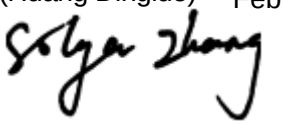
1. VERIFICATION OF CONFORMITY

Applicant	Shenzhen Xunman Technology Co., Ltd.
Address	2/F., #3 Building, New Development Zone, Baishixia, Fuyong St., Baoan Dist., Shenzhen, China.
Manufacturer	Shenzhen Xunman Technology Co., Ltd.
Address	2/F., #3 Building, New Development Zone, Baishixia, Fuyong St., Baoan Dist., Shenzhen, China.
Product Designation	Wireless USB Adapter
Brand Name	N/A
Test Model	M-1200S
Date of test	Jan. 01, 2017~Jan. 25, 2017
Deviation	None
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-BGN/RF

We hereby certify that:
The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with requirement of FCC Part 15 Rules requirement.

Tested by 
Max Zhang(Zhang Yi) Jan. 25, 2017

Reviewed by 
Rock Huang(Huang Dinglue) Feb. 08, 2017

Approved by 
Solger Zhang(Zhang Hongyi) Feb. 08, 2017
Authorized Officer

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

The EUT is designed as “client”. It is designed by way of utilizing the OFDM technology to achieve the system operation.

A major technical description of EUT is described as following

Operation Frequency	5150 GHz～5250GHz;5725 GHz～5825GHz
Output Power	IEEE 802.11a20:10.54Bm IEEE 802.11n(40):10.08dBm; IEEE802.11n(20):12.70Bm IEEE802.11ac(20):12.47dBm IEEE802.11ac(40):10.51Bm EEE802.11ac(80):8.28dBm
Modulation	BPSK, QPSK, 16QAM, 64QAM, 128QAM, 256QAM,OFDM
Number of channels	15
Hardware Version	V1.0
Software Version	V1.0
Antenna Designation	PCB Antenna
Number of transmit chain	2(802.11a/b/g used antenna 0, 802.11n/ac used two antennas)
Antenna Gain	2dBi
Power Supply	DC 5V

2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency	Frequency Band	Channel Number	Frequency
5150 GHz～5250GHz	36	5180 MHz	5725 GHz～5850GHz	149	5745 MHz
	38	5190 MHz		151	5755 MHz
	40	5200 MHz		153	5765 MHz
	42	5210 MHz		155	5775MHz
	44	5220 MHz		157	5785 MHz
	46	5230 MHz		159	5795 MHz
	48	5240 MHz		161	5805 MHz
				165	5825MHz

Note: For 20MHZ bandwidth system use Channel 36,40,44,48,149,153,157,161,165; For 40MHZ bandwidth system use Channel 38,46,151,159; For 80MHZ bandwidth system use Channel 42,155

2.3. RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AKZSM-1200S** filing to comply with the FCC Part 15 requirements.

2.4. TEST METHODOLOGY

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10 (2013).
Radiated testing was performed at an antenna to EUT distance 3 meters.
Others testing (listed at item 5.3) was performed according to the procedures in FCC Part 15.407 rules KDB 789033

2.5. SPECIAL ACCESSORIES

Refer to section 5.2.

2.6. EQUIPMENT MODIFICATIONS

Not available for this EUT intended for grant.

3. MEASUREMENT UNCERTAINTY

Conducted measurement: +/- 3.18dB
Radiated measurement: +/- 3.91dB

4. DESCRIPTION OF TEST MODES

Mode	Available channel	Tested channel	Modulation	Date rate(Mbps)
802.11a/n20/ac20	36,40,44,48,149,153,157,161,165	36,48, 149, 165	OFDM	6/6.5
802.11n40/ac40	38,46,151,159	38,46, 151,159	OFDM	13.5
802.11ac80	42,155	42,155	OFDM	13.5

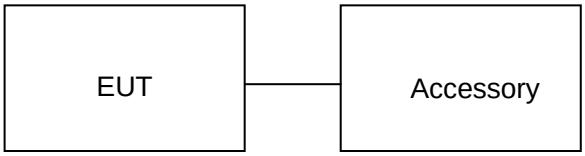
Note:

1. The EUT has been set to operate continuously on tested channel individually, and the EUT is operating at its maximum duty cycle>or equal 98%
2. All modes under which configure applicable have been tested and the worst mode test data recording in the test report, if no other mode data.
3. 11a: SISO Mode; 11nHT20/11nHT40/11acVHT20/11acVHT40/11acVHT80: MIMO Mode.

5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure:



5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Wireless USB Adapter	M-1200S	2AKZSM-1200S	EUT

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.407	6dB Bandwidth	Compliant
§15.407	Maximum conducted output power	Compliant
§15.407	Conducted Spurious Emission	Compliant
§15.407	Maximum Conducted Output Power Density	Compliant
§15.209	Radiated Emission	Compliant
§15.407	Band Edges	Compliant
§15.207	Line Conduction Emission	Compliant

6. TEST FACILITY

Site	Dongguan Precise Testing Service Co., Ltd.
Location	Building D, Baoding Technology Park,Guangming Road2, Dongcheng District, Dongguan, Guangdong, China.
FCC Registration No.	371540
Description	The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2014.

ALL TEST EQUIPMENT LIST

Radiated Emission Test Site					
Name of Equipment	**Manufacturer**	**Model Number**	**Serial Number**	**Last Calibration**	**Due Calibration**
EMI Test Receiver	Rohde & Schwarz	ESCI	101417	July 4, 2016	July 3, 2017
Trilog Broadband Antenna (25M-1GHz)	SCHWARZBECK	VULB9160	9160-3355	July 4, 2016	July 3, 2017
Signal Amplifier	SCHWARZBECK	BBV 9475	9745-0013	July 4, 2016	July 3, 2017
RF Cable	SCHWARZBECK	AK9515E	96221	July 4, 2016	July 3, 2017
3m Anechoic Chamber	CHENGYU	966	PTS-001	June 6, 2016	June 5, 2017
MULTI-DEVICE Positioning Controller	Max-Full	MF-7802	MF780208339	N/A	N/A
Active loop antenna (9K-30MHz)	Schwarzbeck	FMZB1519	1519-038	June 6, 2016	June 5, 2017
Spectrum analyzer	Agilent	E4407B	MY46185649	June 6, 2016	June 5, 2017
Power Sensor	Agilent	U2021XA	MY55050474	June 6, 2016	June 5, 2017
Horn Antenna (1G-18GHz)	SCHWARZBECK	BBHA9120D	9120D-1246	June 6, 2016	June 5, 2017
Horn Ant (18G-40GHz)	Schwarzbeck	BBHA 9170	9170-181	June 6, 2016	June 5, 2017

Conducted Emission Test Site					
Name of Equipment	**Manufacturer**	**Model Number**	**Serial Number**	**Last Calibration**	**Due Calibration**
EMI Test Receiver	- Rohde & Schwarz	ESCI	101417	July 4, 2016	July 3, 2017
Artificial Mains Network	Narda	L2-16B	000WX31025	July 8, 2016	July 7, 2017
Artificial Mains Network (AUX)	Narda	L2-16B	000WX31026	July 8, 2016	July 7, 2017
RF Cable	SCHWARZBECK	AK9515E	96222	July 4, 2016	July 3, 2017
Shielded Room	CHENGYU	843	PTS-002	June 6,2016	June 5,2017

7. MAXIMUM CONDUCTED OUTPUT POWER

7.1. MEASUREMENT PROCEDURE

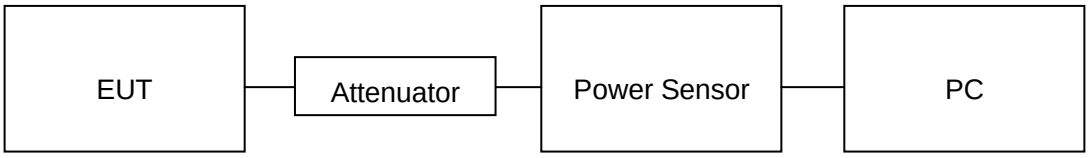
For average power test:

1. Connect EUT RF output port to power sensor through an RF attenuator.
2. Connect the power sensor to the PC.
3. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
4. Record the maximum power from the software.

Note：The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

7.2. TEST SET-UP

AVERAGE POWER SETUP



7.3. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION				
Frequency (MHz)	**Average Power Chain 0(dBm)**	**Average Power Chain 1(dBm)**	**Applicable Limits (dBm)**	**Pass or Fail**
5180	10.35	9.86	24	Pass
5240	10.54	9.99	24	Pass
5745	8.23	7.95	30	Pass
5825	8.86	8.25	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11N20 MODULATION					
Frequency (MHz)	**Average Power Chain 0(dBm)**	**Average Power Chain 1(dBm)**	**Average Power Total(dBm)**	**Applicable Limits (dBm)**	**Pass or Fail**
5180	9.75	9.62	12.70	24	Pass
5240	9.35	8.89	12.14	24	Pass
5745	8.64	8.47	11.57	30	Pass
5825	8.94	8.42	11.70	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11N40 MODULATION					
Frequency (MHz)	**Average Power Chain 0(dBm)**	**Average Power Chain 1(dBm)**	**Average Power Total(dBm)**	**Applicable Limits (dBm)**	**Pass or Fail**
5190	7.14	6.94	10.05	24	Pass
5230	7.28	6.85	10.08	24	Pass
5755	6.31	5.95	9.14	30	Pass
5795	6.25	5.98	9.13	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11AC20 MODULATION					
Frequency (MHz)	**Average Power Chain 0(dBm)**	**Average Power Chain 1(dBm)**	**Average Power Total(dBm)**	**Applicable Limits (dBm)**	**Pass or Fail**
5180	9.68	9.22	12.47	24	Pass
5240	8.88	8.37	11.64	24	Pass
5745	8.76	8.55	11.67	30	Pass
5825	8.69	8.51	11.61	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11AC40 MODULATION					
Frequency (MHz)	**Average Power Chain 0(dBm)**	**Average Power Chain 1(dBm)**	**Average Power Total(dBm)**	**Applicable Limits (dBm)**	**Pass or Fail**
5190	7.75	7.24	10.51	24	Pass
5230	7.61	7.15	10.40	24	Pass
5755	6.42	6.11	9.28	30	Pass
5795	6.32	5.88	9.12	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11AC80 MODULATION					
Frequency (MHz)	**Average Power Chain 0(dBm)**	**Average Power Chain 1(dBm)**	**Average Power Total(dBm)**	**Applicable Limits (dBm)**	**Pass or Fail**
5210	5.42	5.12	8.28	24	Pass
5775	4.62	4.09	7.37	30	Pass

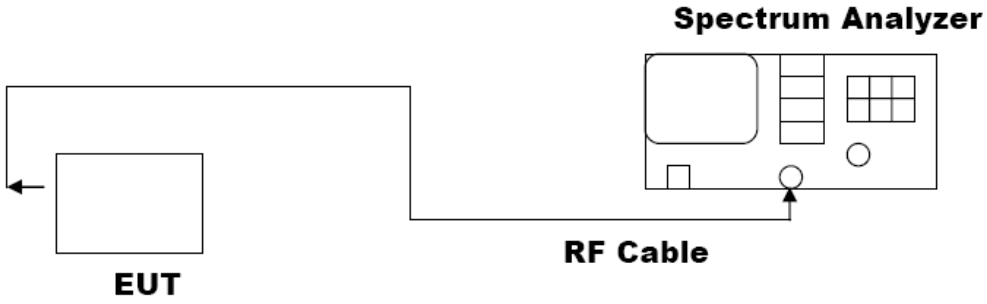
8. 6dB BANDWIDTH

8.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on operation frequency individually.
3. Set RBW = 100kHz.
4. Set the VBW ⩾3*RBW. Detector = Peak. Trace mode = max hold.
5. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.

Note: The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

8.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



8.3. LIMITS AND MEASUREMENT RESULTS

LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
>500KHZ	5745MHz	16.36	PASS
	5825MHz	16.38	PASS

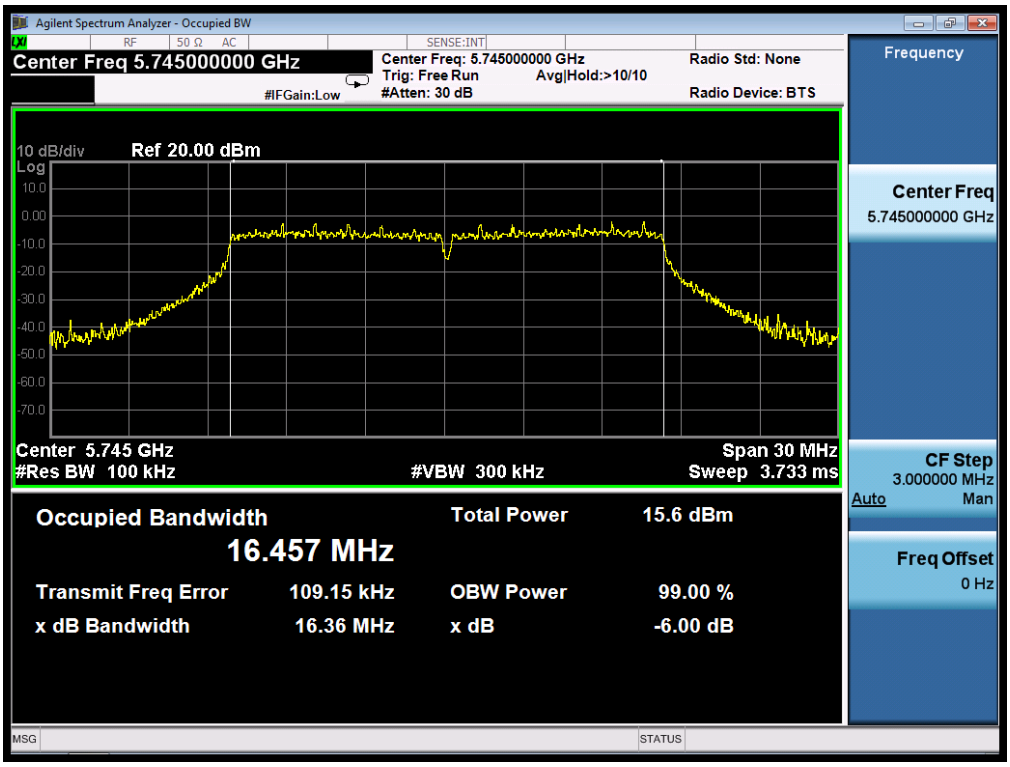
LIMITS AND MEASUREMENT RESULT FOR 802.11N20/40 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
>500KHZ	5745MHz	17.59	PASS
	5825MHz	17.54	PASS
	5755MHz	36.12	PASS
	5795MHz	36.33	PASS

LIMITS AND MEASUREMENT RESULT FOR 802.11AC20/40/80 MODULATION			
Applicable Limits	Applicable Limits		
	Test Data (MHz)		Criteria
>500KHZ	5745MHz	17.55	PASS
	5825MHz	17.55	PASS
	5755MHz	36.31	PASS
	5795MHz	36.32	PASS
	5775MHz	75.11	PASS

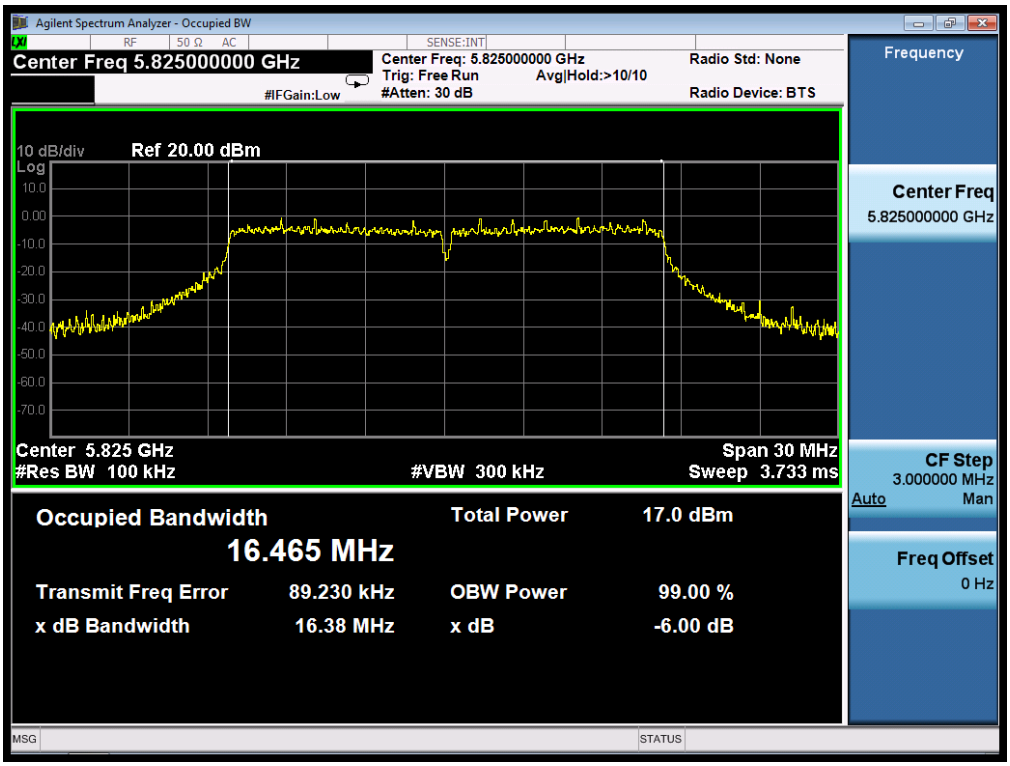
Note: Above is the worst mode data.

802.11a20 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5745MHz

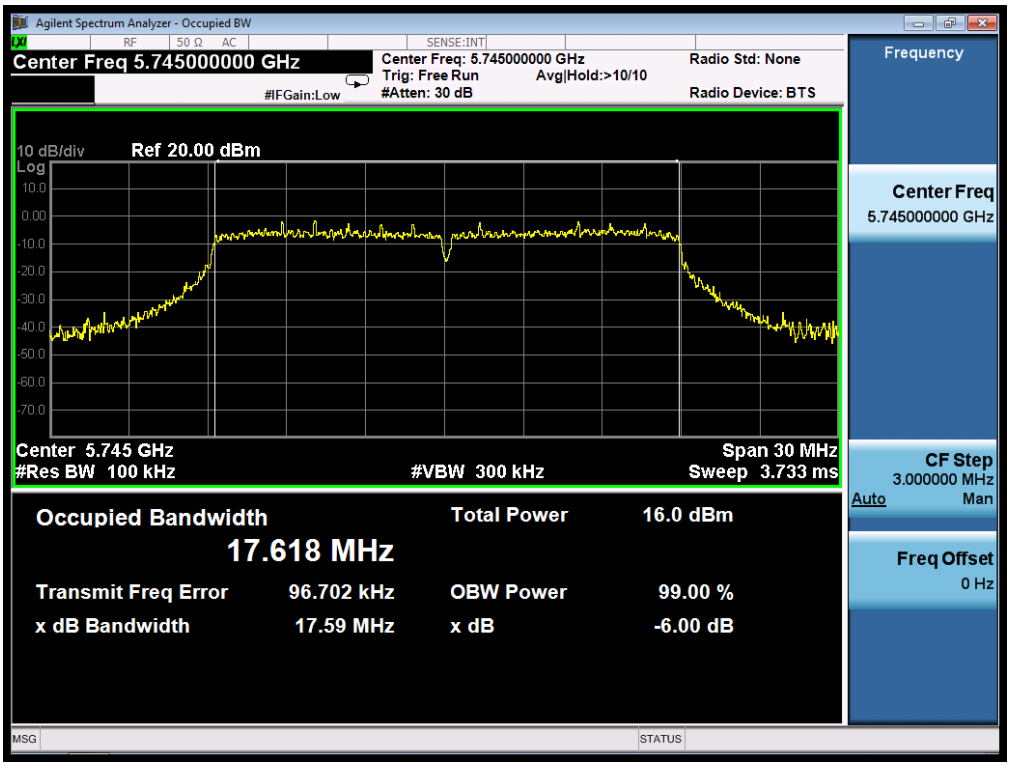


TEST PLOT OF BANDWIDTH FOR 5825MHz

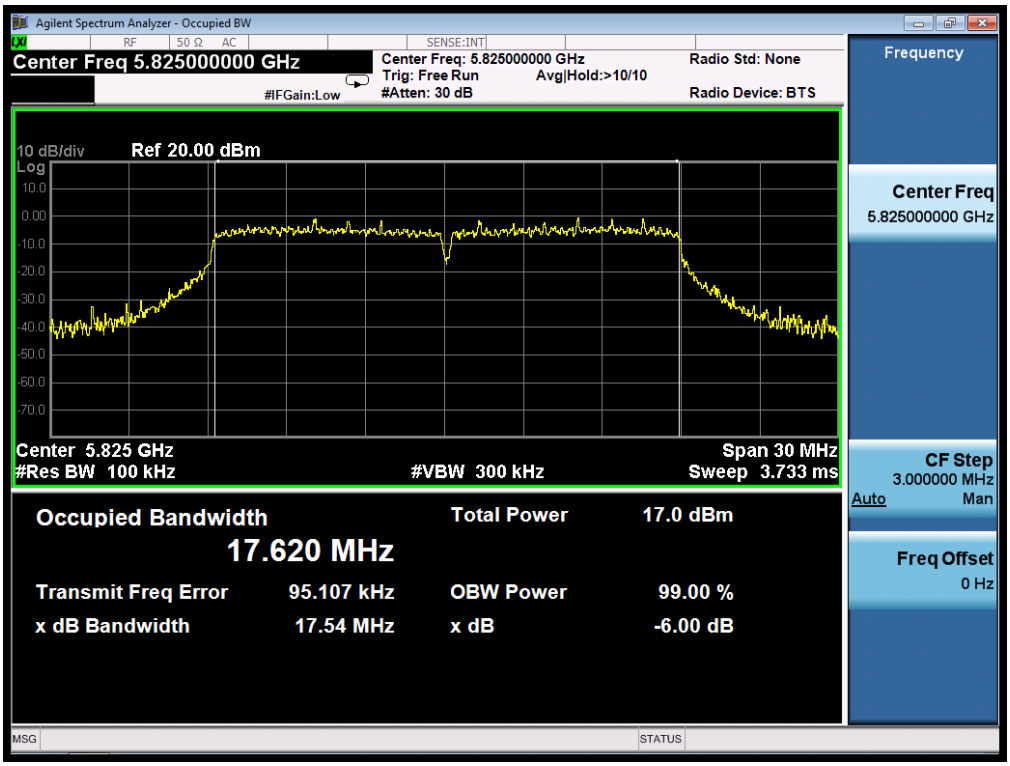


802.11n20 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5745MHz

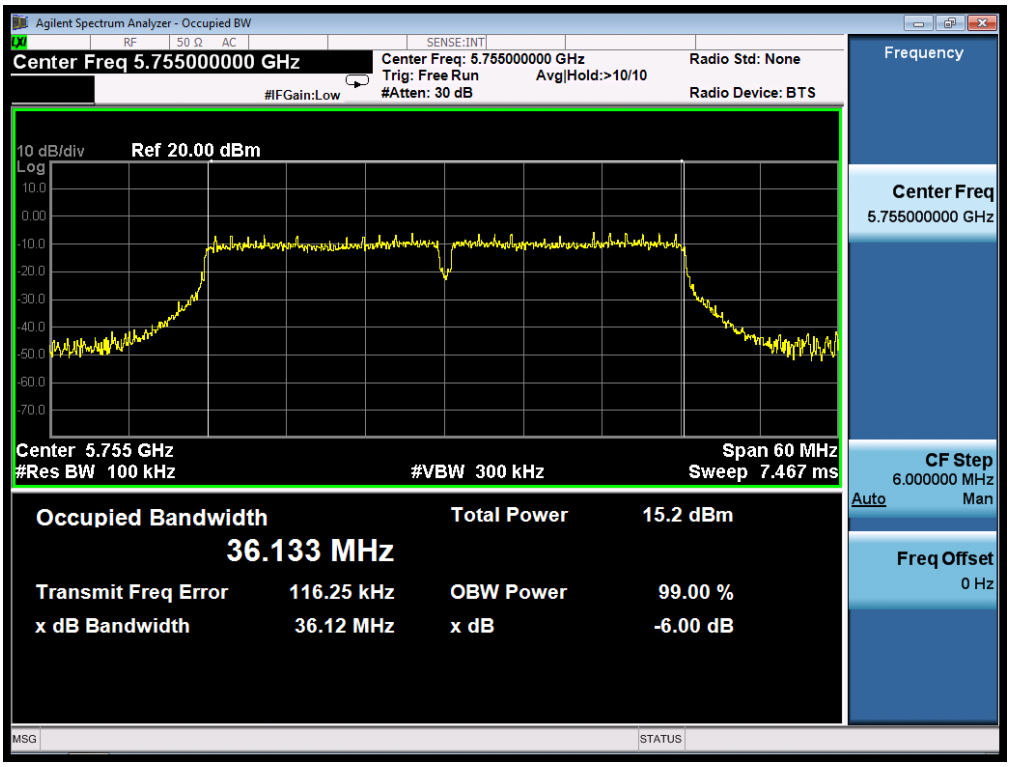


TEST PLOT OF BANDWIDTH FOR 5825MHz

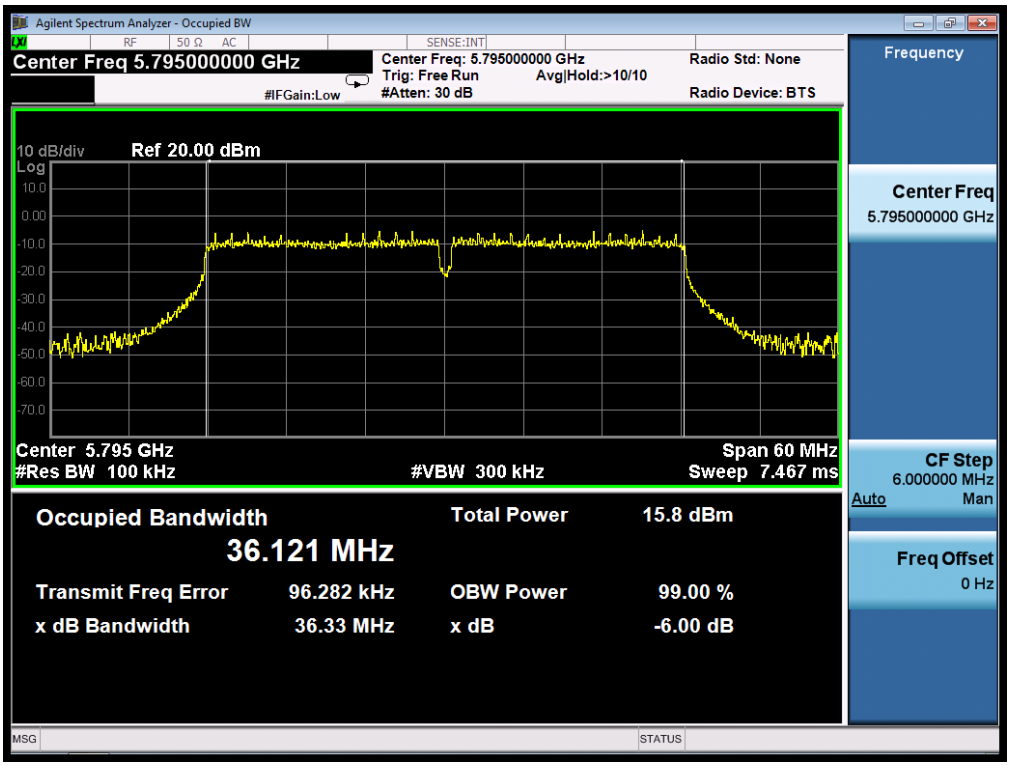


802.11n40 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5755MHz

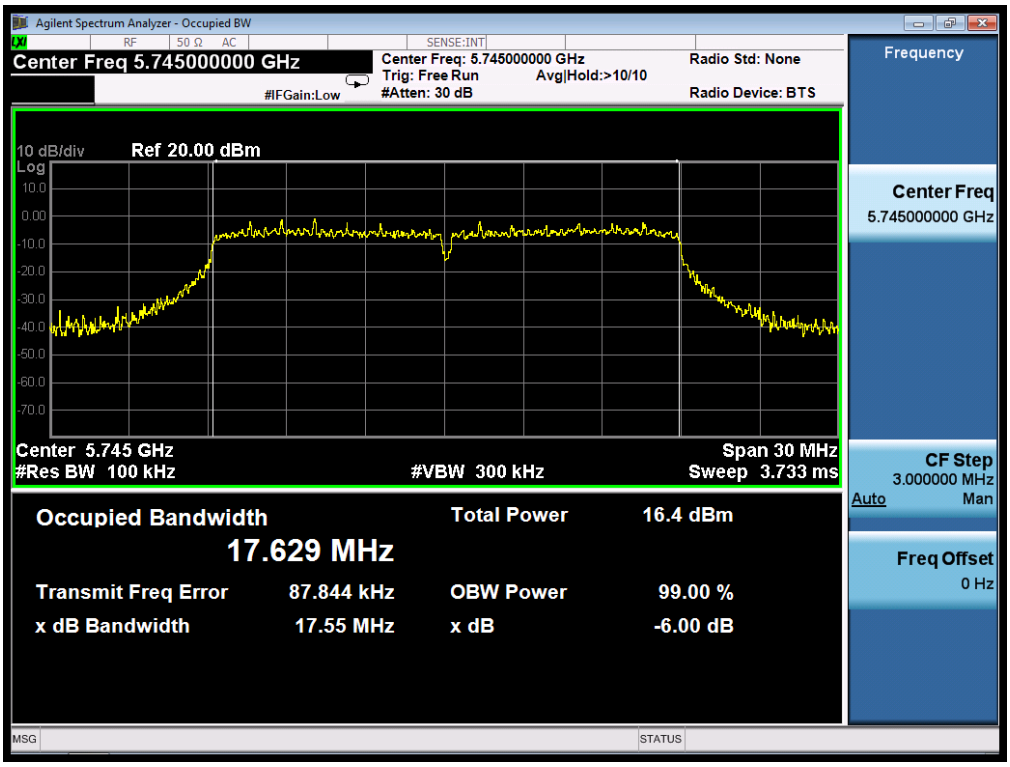


TEST PLOT OF BANDWIDTH FOR 5795MHz

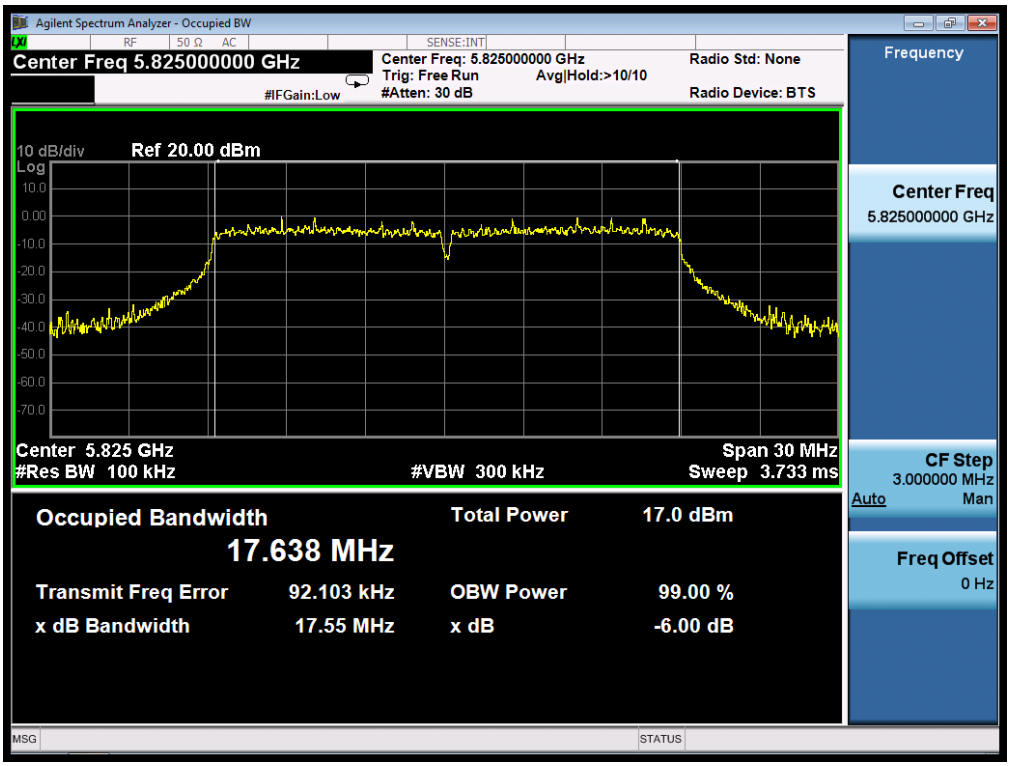


802.11ac20 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5745MHz

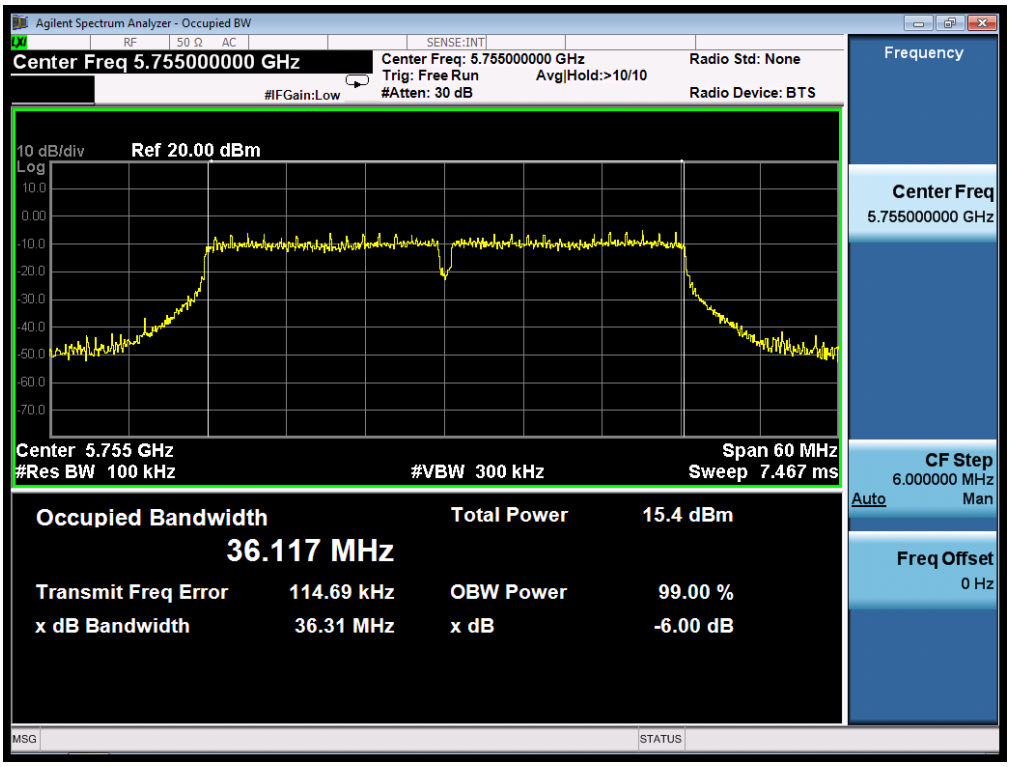


TEST PLOT OF BANDWIDTH FOR 5825MHz

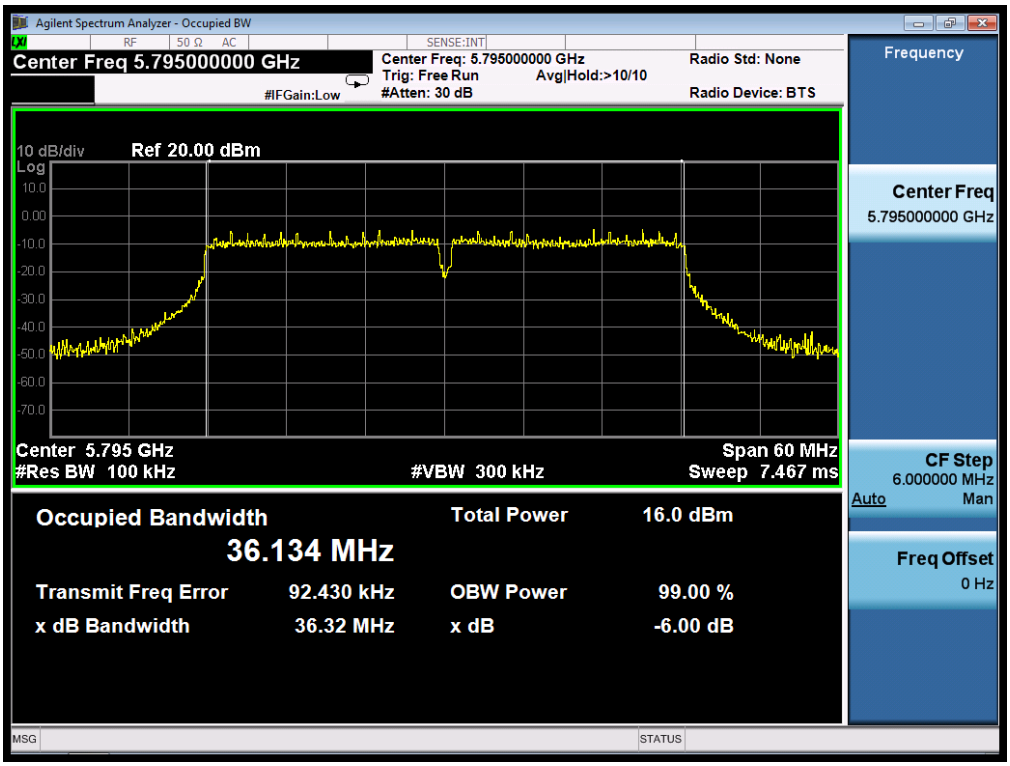


802.11ac40 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5755MHz

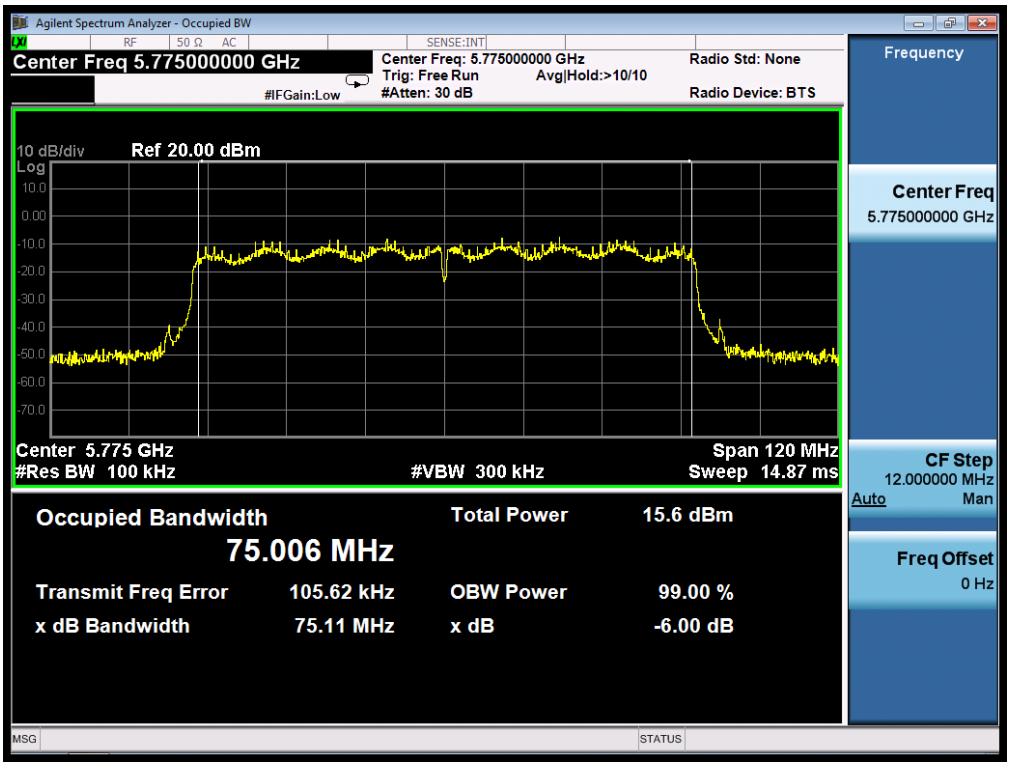


TEST PLOT OF BANDWIDTH FOR 5795MHz



802.11ac80 TEST RESULT

TEST PLOT OF BANDWIDTH FOR 5775MHz



9. MAXIMUM CONDUCTED OUTPUT PEAK POWER SPECTRAL DENSITY

9.1 MEASUREMENT PROCEDURE

Refer to KDB 789033 section F

9.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

Refer To Section 8.2.

9.3 MEASUREMENT EQUIPMENT USED

Refer To Section 6.

9.4 LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT FOR 802.11A20 MODULATION					
BAND 1					
BW	**Frequency (MHz)**	**Power density Chain 0 (dBm/MHz)**	**Power density Chain 1 (dBm/MHz)**	**Applicable Limits (dBm)**	**Pass or Fail**
20MHz	5180	1.02	0.82	11	Pass
40MHz	5240	1.25	0.87	11	Pass
BAND 4					
BW	**Frequency (MHz)**	**Power density Chain 0 (dBm/500kHz)**	**Power density Chain 1 (dBm/500kHz)**	**Applicable Limits (dBm)**	**Pass or Fail**
20MHz	5745	0.86	0.64	30	Pass
40MHz	5825	0.74	0.34	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11N20/40 MODULATION						
BAND 1						
BW	**Frequency (MHz)**	**Power density Chain 0 (dBm/MHz)**	**Power density Chain 1 (dBm/MHz)**	**Power density Total (dBm/MHz)**	**Applicable Limits (dBm)**	**Pass or Fail**
20MHz	5180	-1.41	-1.12	1.75	11	Pass
	5240	-1.35	-1.05	1.81	11	Pass
40MHz	5190	-4.58	-5.05	-1.80	11	Pass
	5230	-4.61	-5.11	-1.84	11	Pass

BAND 4						
BW	**Frequency (MHz)**	**Power density Chain 0 (dBm/500kHz)**	**Power density Chain 1 (dBm/500kHz)**	**Power density Total (dBm/500kHz)**	**Applicable Limits (dBm)**	**Pass or Fail**
20MHz	5745	-3.34	-3.10	-0.21	30	Pass
	5825	-3.64	-3.21	-0.41	30	Pass
40MHz	5755	-7.21	-7.18	-4.18	30	Pass
	5795	-7.31	-7.15	-4.22	30	Pass

LIMITS AND MEASUREMENT RESULT FOR 802.11AC20/40/80 MODULATION						
BAND 1						
BW	**Frequency (MHz)**	**Power density Chain 0 (dBm/MHz)**	**Power density Chain 1 (dBm/MHz)**	**Power density Total (dBm/MHz)**	**Applicable Limits (dBm)**	**Pass or Fail**
20MHz	5180	-2.34	-2.76	0.47	11	Pass
	5240	-2.25	-2.85	0.47	11	Pass
40MHz	5190	-5.34	-5.78	-2.54	11	Pass
	5230	-5.15	-5.84	-2.47	11	Pass
80MHz	5210	-8.35	-8.12	-5.22	11	Pass
BAND 4						
BW	**Frequency (MHz)**	**Power density Chain 0 (dBm/500kHz)**	**Power density Chain 1 (dBm/500kHz)**	**Power density Total (dBm/500kHz)**	**Applicable Limits (dBm)**	**Pass or Fail**
20MHz	5745	-3.87	-4.41	-1.12	30	Pass
	5825	-3.73	-4.25	-0.97	30	Pass
40MHz	5755	-7.87	-8.17	-5.01	30	Pass
	5795	-7.91	-8.31	-5.10	30	Pass
80MHz	5775	-9.15	-9.42	-6.27	30	Pass

10. CONDUCTED SPURIOUS EMISSION

10.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to KDB 789033 for compliance to FCC 47CFR 15.407 requirements.

10.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 8.2.

10.3. MEASUREMENT EQUIPMENT USED

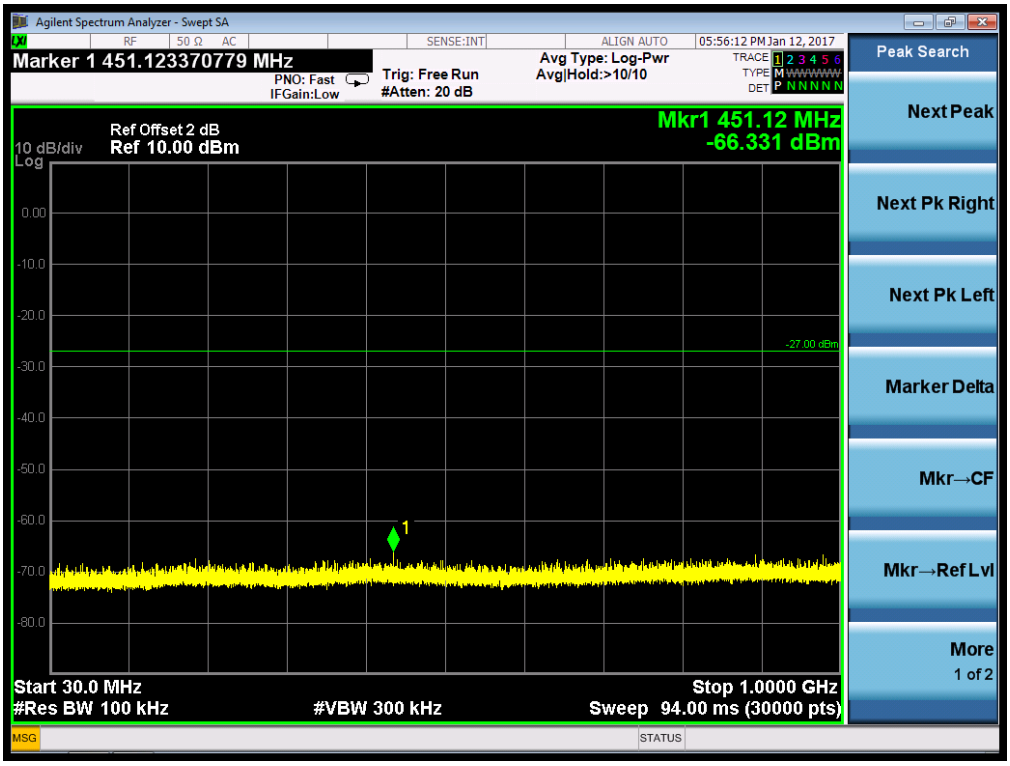
The same as described in section 6.

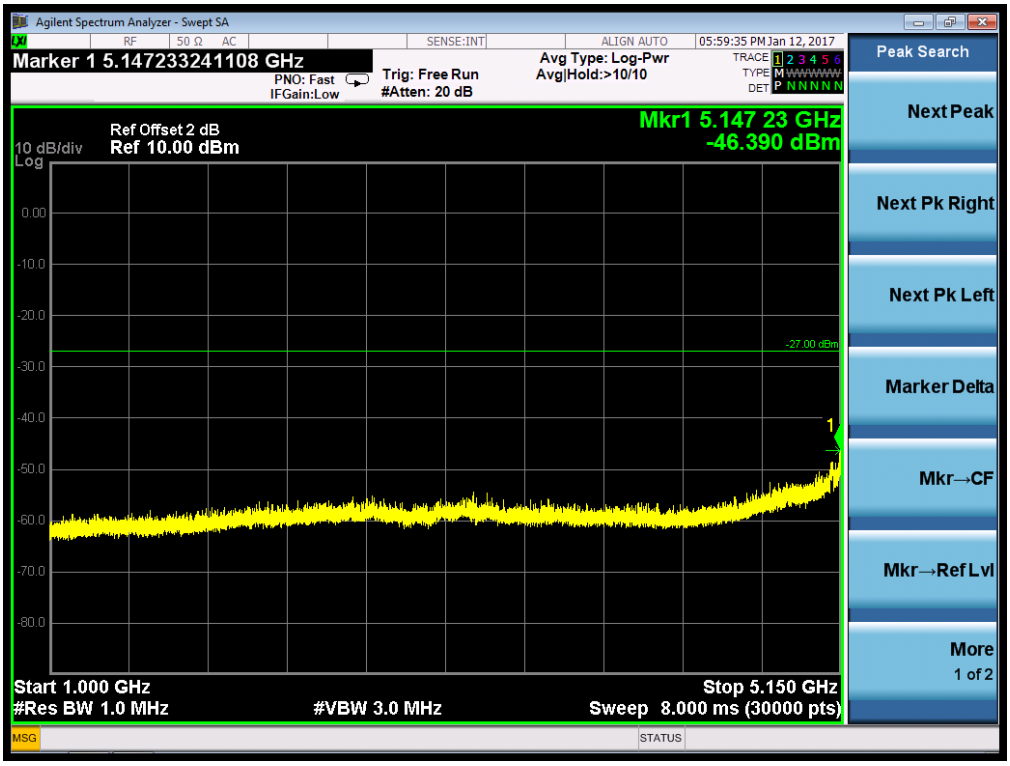
10.4. LIMITS AND MEASUREMENT RESULT

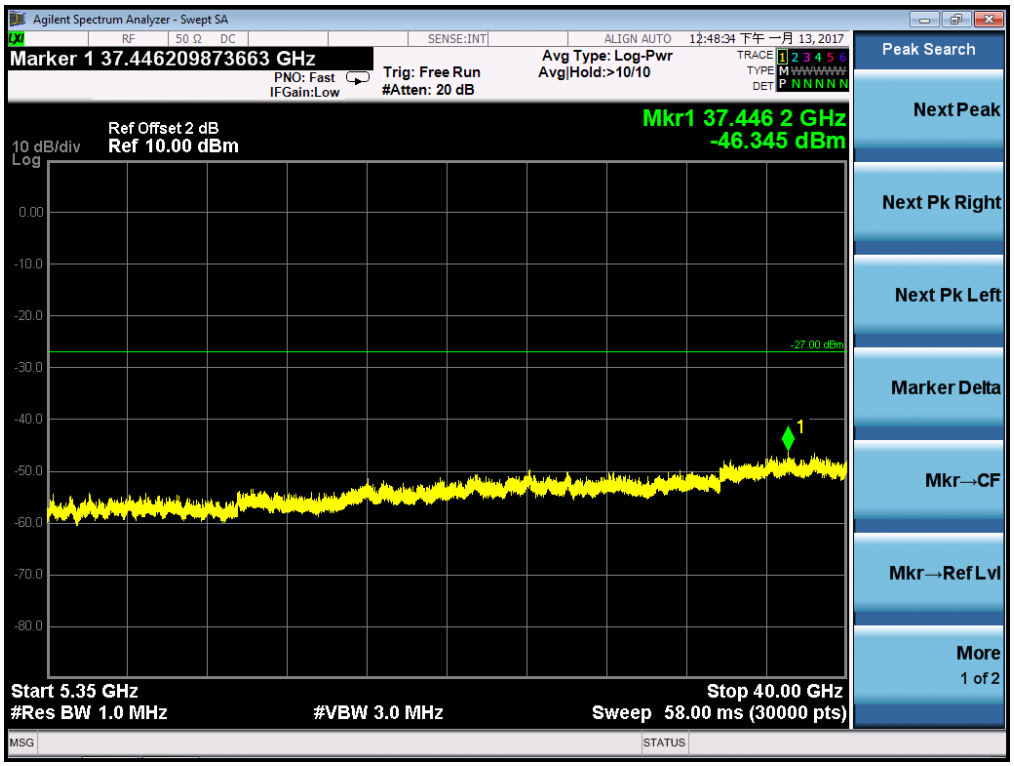
LIMITS AND MEASUREMENT RESULT		
Applicable Limits	**Measurement Result**	
	Test channel	**Criteria**
27dBm	5150MHz-5250MHz	PASS
17dBm within 5715-5725MHz and 5850-5860MHz 27dBm outside 5715-5860MHz	5725MHz-5825MHz	PASS

FOR 802.11A20 MODULATION

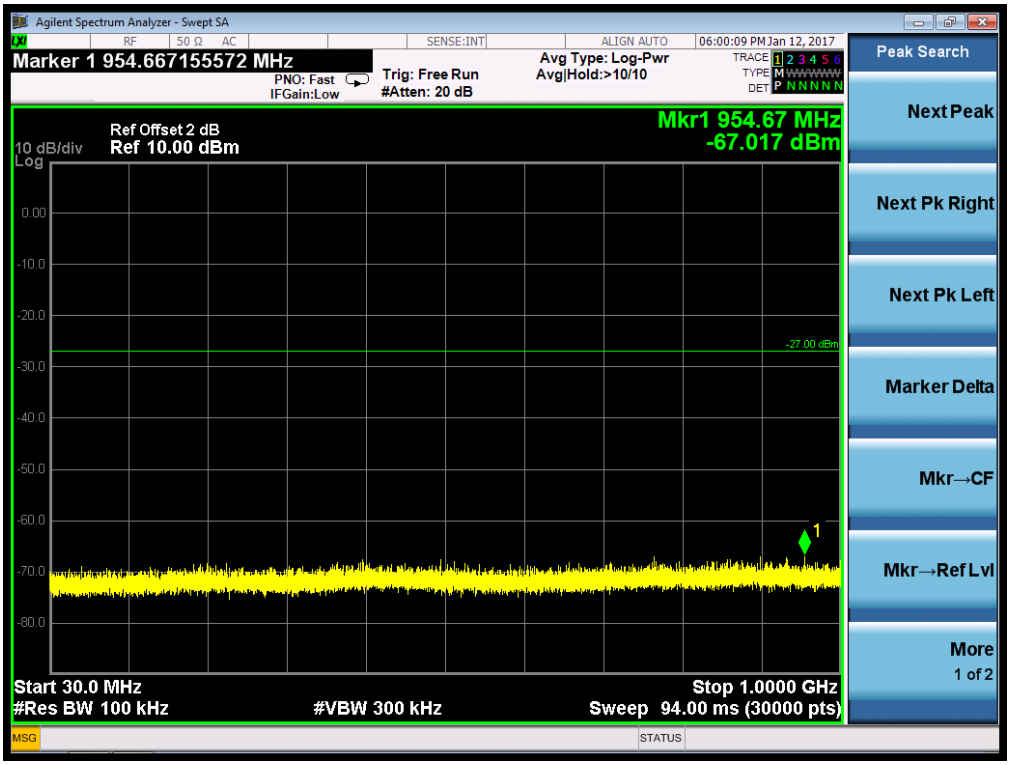
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5180MHz

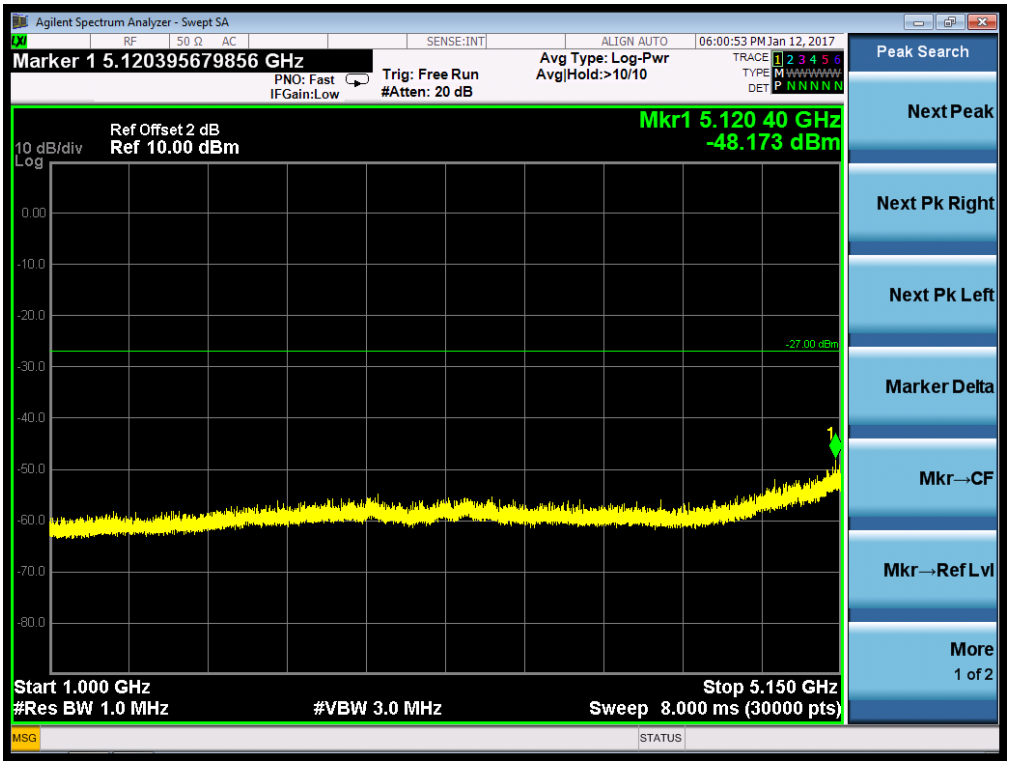


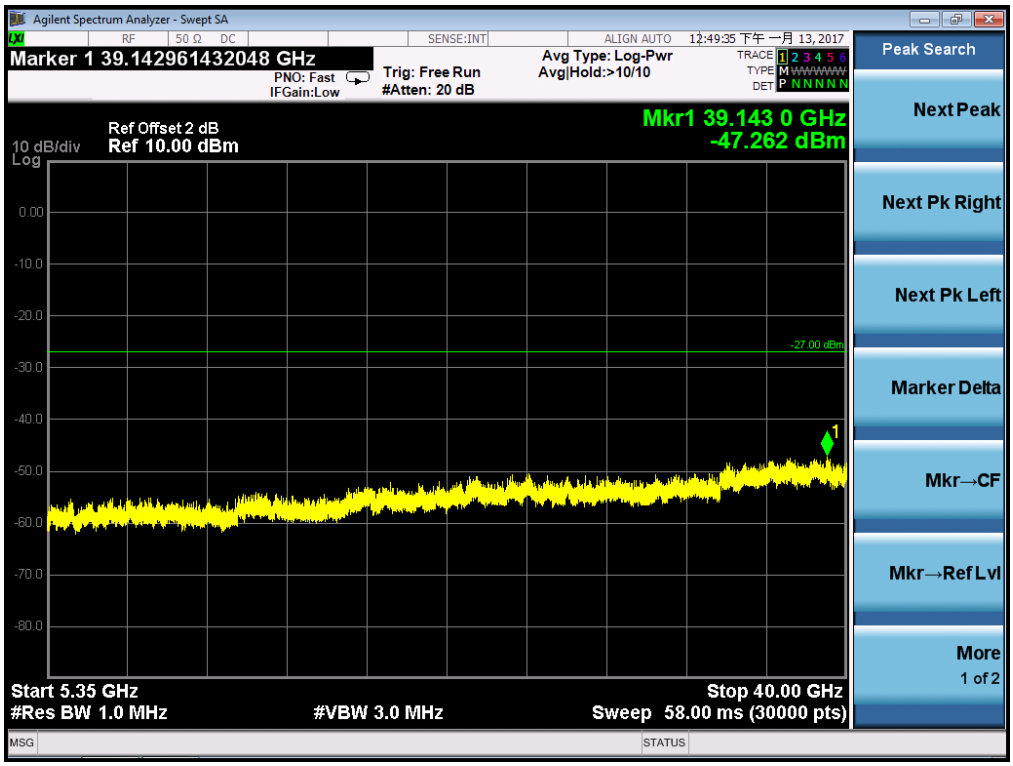




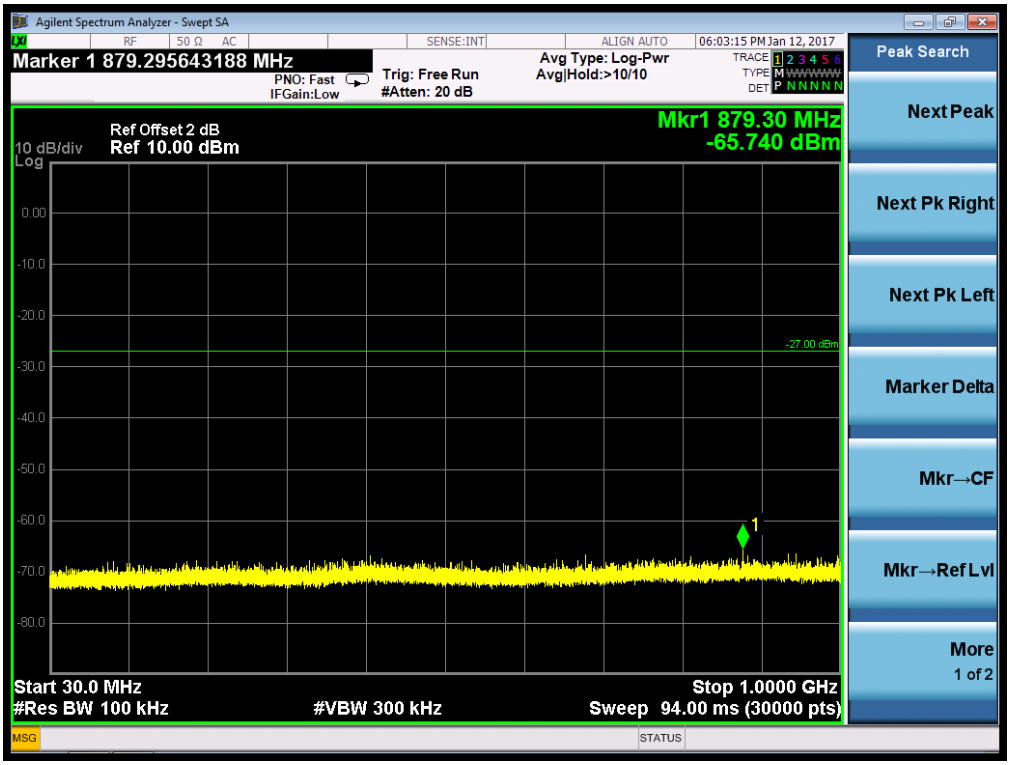
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5240MHz

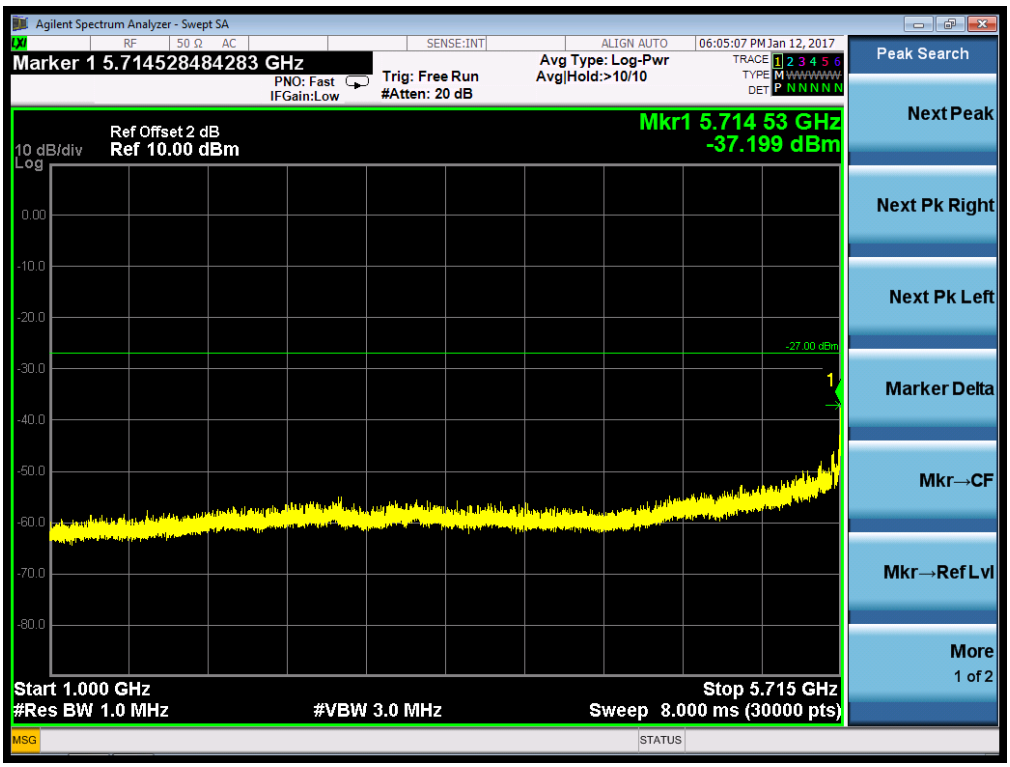


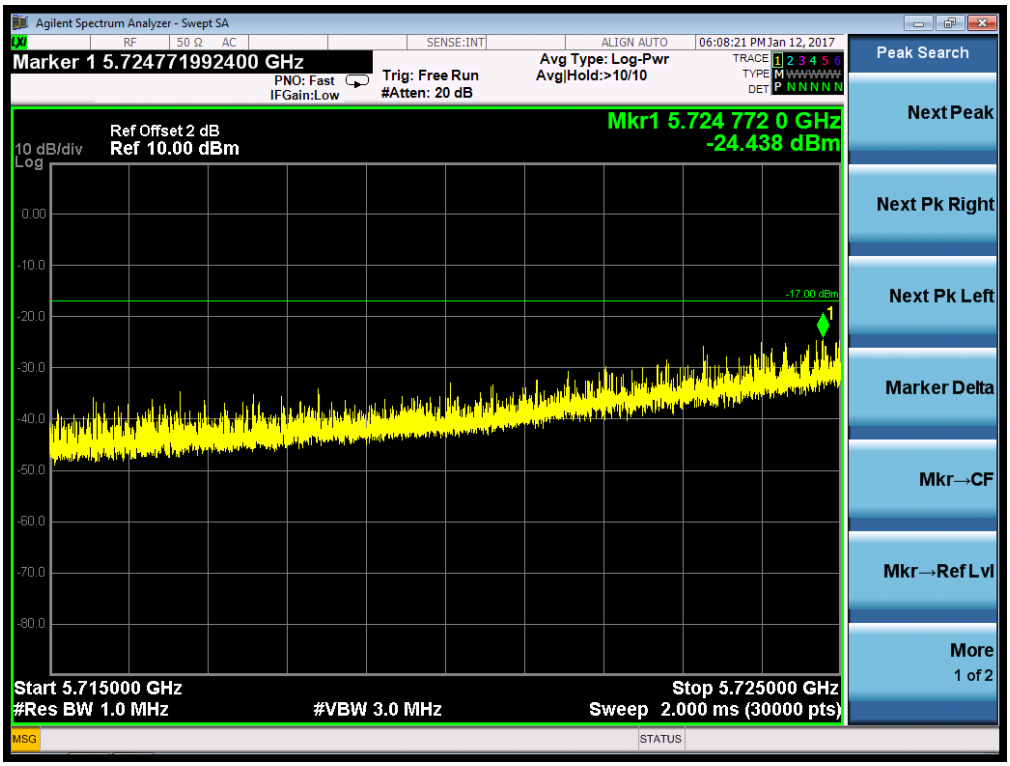

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
06:00:53 PM Jan 12, 2017
Marker 1 5.120395679856 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Ref Offset 2 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 5.120 40 GHz
-48.173 dBm
0.00
-10.0
-20.0
-27.00 dBm
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Start 1.000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.150 GHz
Sweep 8.000 ms (30000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

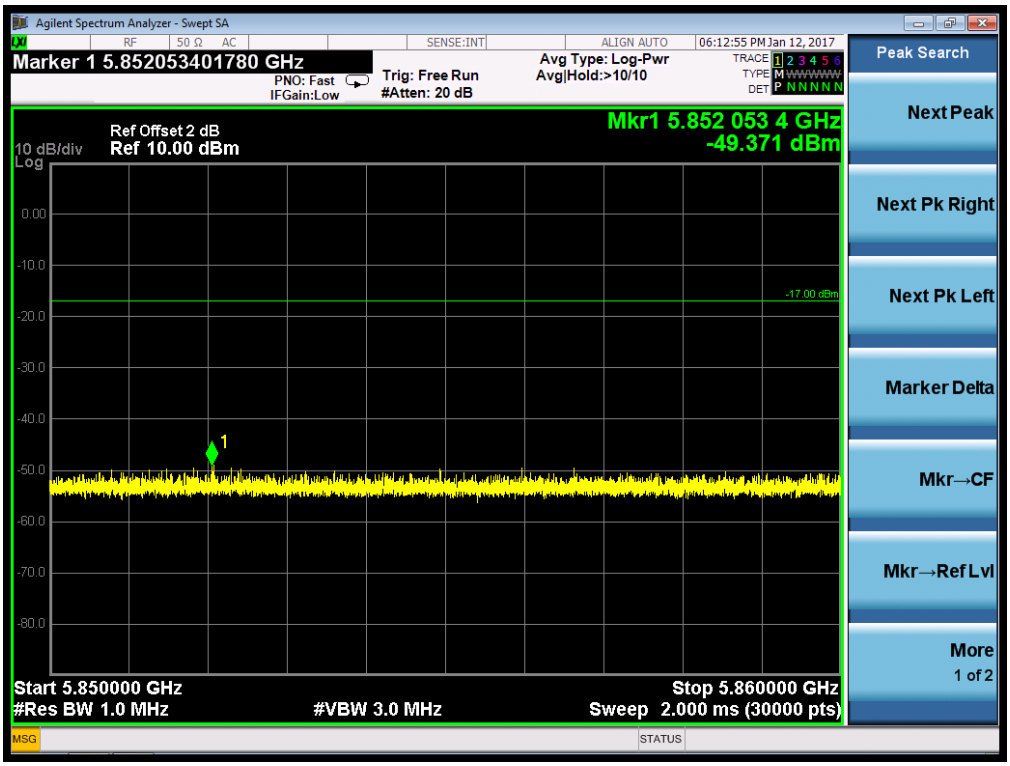

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN AUTO
12:49:35 下午 一月 13, 2017
Marker 1 39.142961432048 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Ref Offset 2 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 39.143 0 GHz
-47.262 dBm
0.00
-10.0
-20.0
-27.00 dBm
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Start 5.35 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 40.00 GHz
Sweep 58.00 ms (30000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

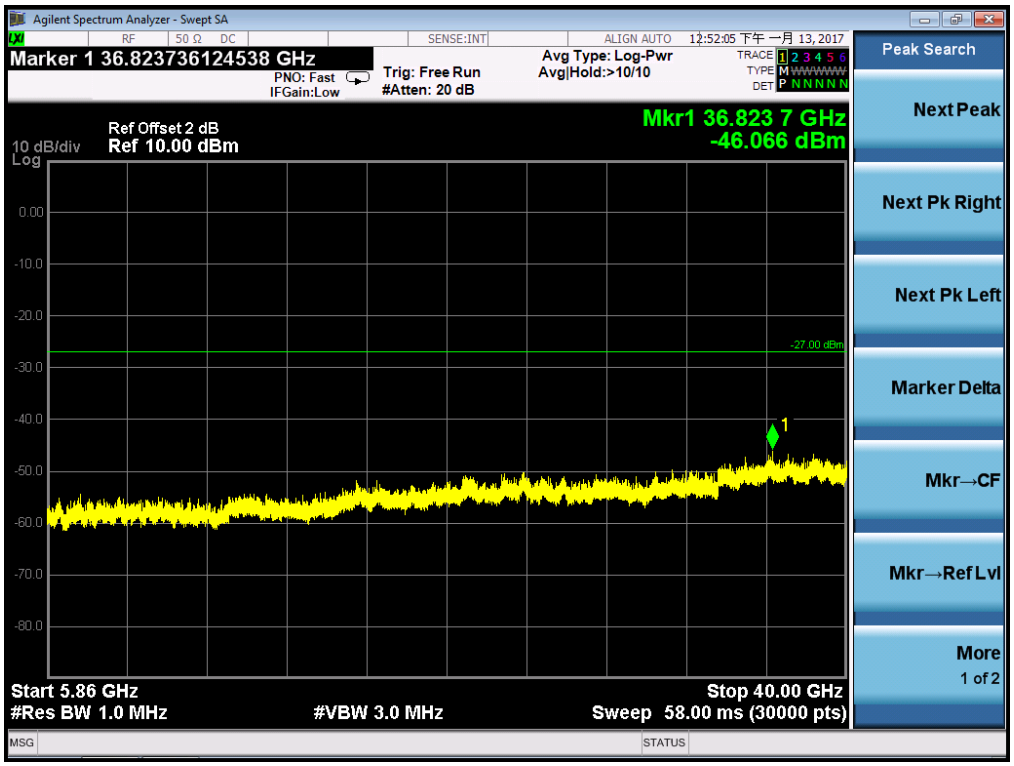
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5745MHz



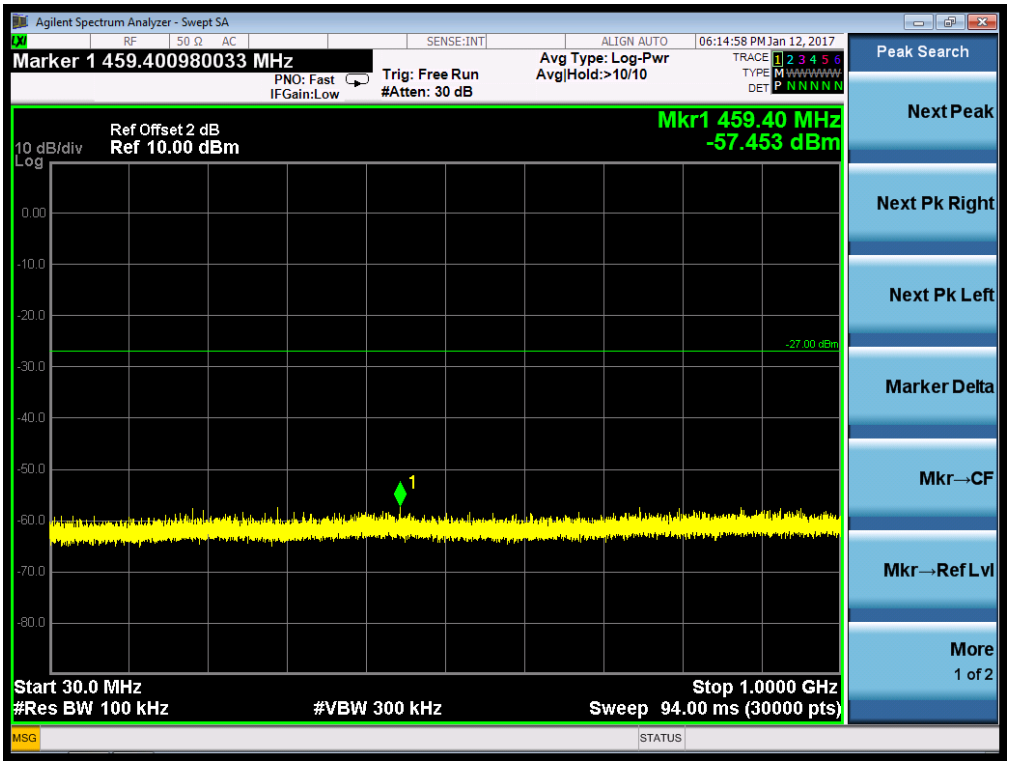


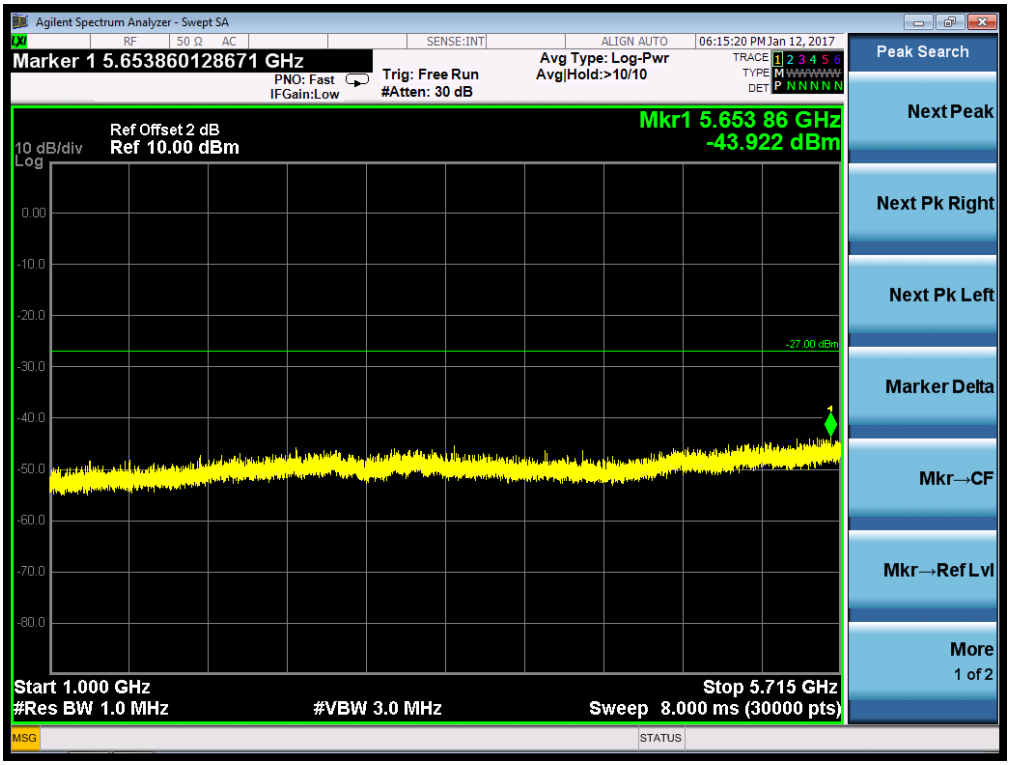

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
06:08:21 PM Jan 12, 2017
Marker 1 5.724771992400 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 2 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 5.724 772 0 GHz
-24.438 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-17.00 dBm
1
Start 5.715000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.725000 GHz
Sweep 2.000 ms (30000 pts)
MSG
STATUS

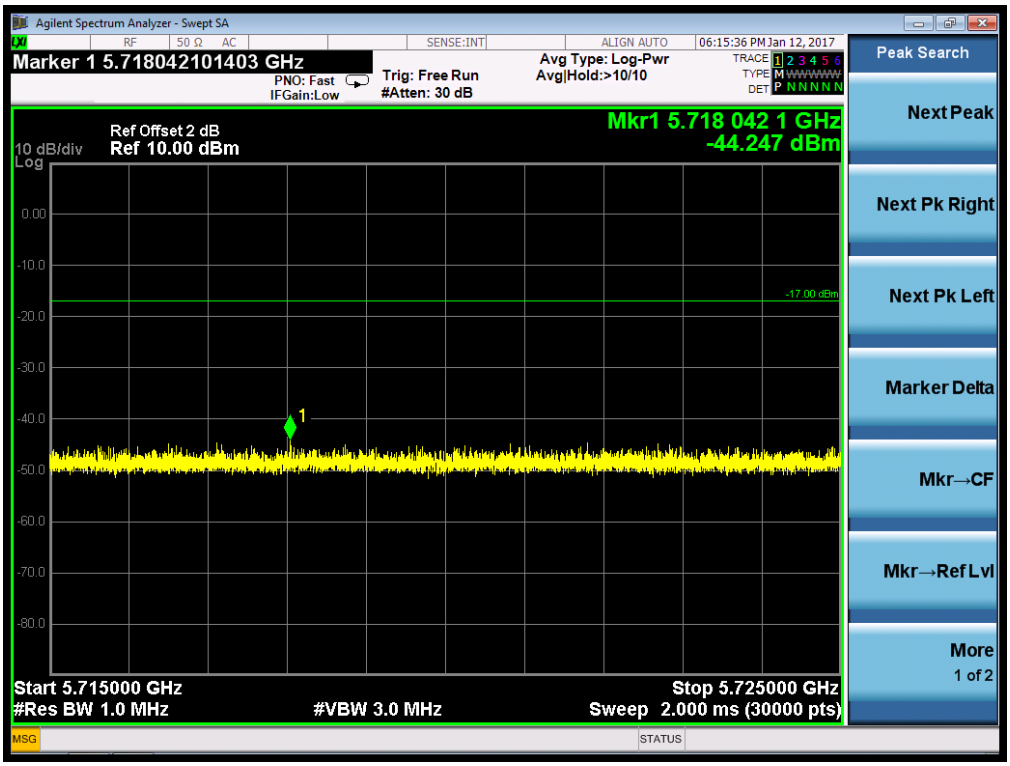

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
06:12:55 PM Jan 12, 2017
Marker 1 5.852053401780 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 2 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 5.852 053 4 GHz
-49.371 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-17.00 dBm
1
Start 5.850000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.860000 GHz
Sweep 2.000 ms (30000 pts)
MSG
STATUS

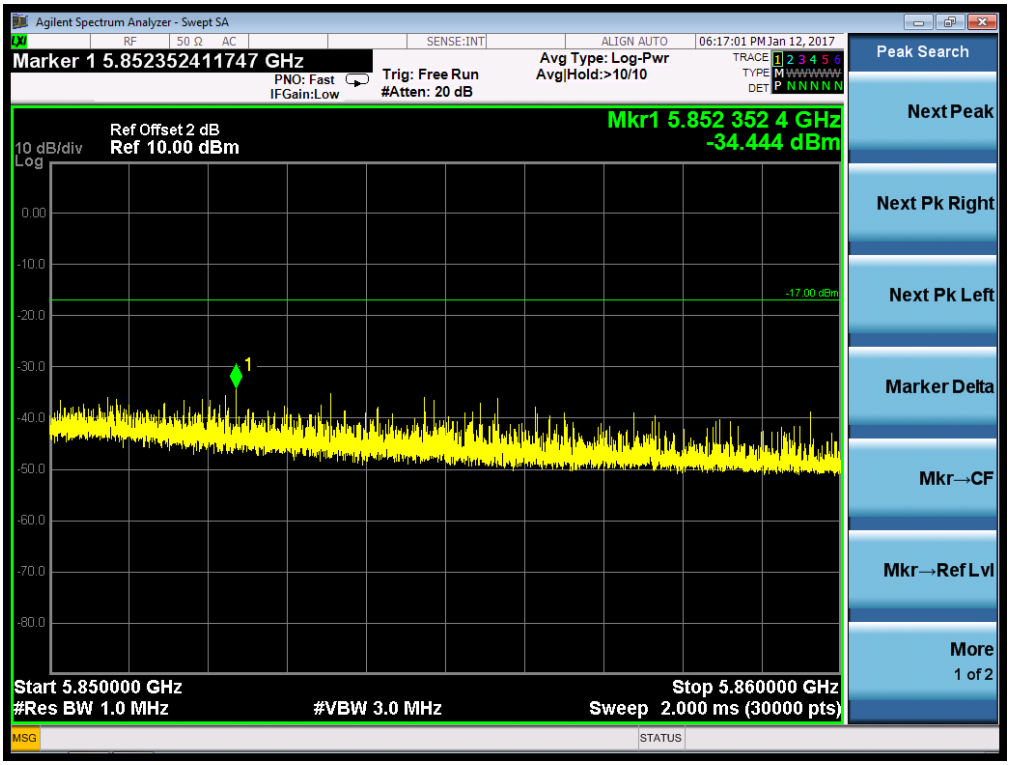


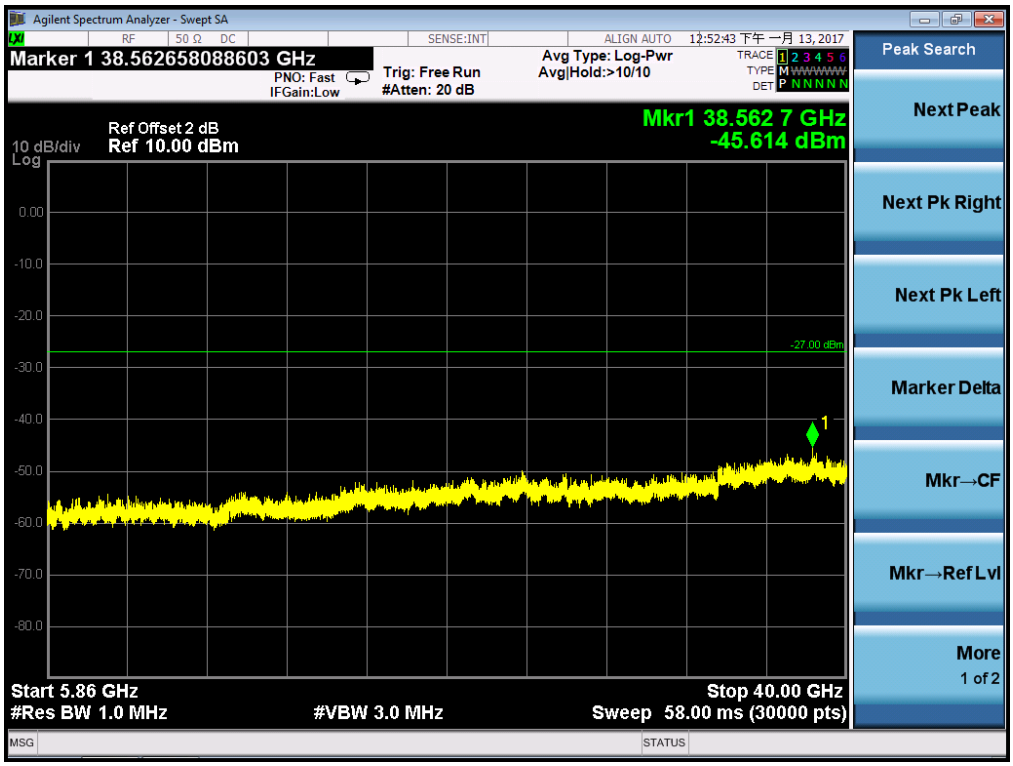
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5825MHz




Agilent Spectrum Analyzer - Swept SA
Marker 1 5.653860128671 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
06:15:20 PM Jan 12, 2017
Ref Offset 2 dB
10 dB/div
Ref 10.00 dBm
Mkr1 5.653 86 GHz
-43.922 dBm
-27.00 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.715 GHz
Sweep 8.000 ms (30000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

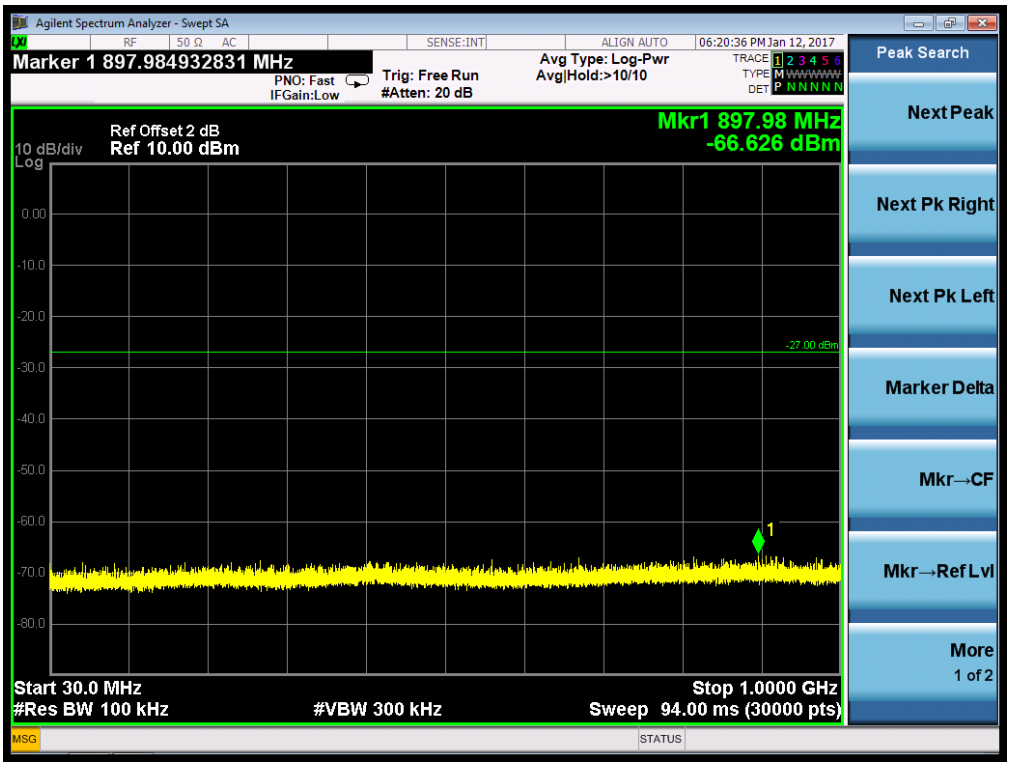

Agilent Spectrum Analyzer - Swept SA
Marker 1 5.718042101403 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
06:15:36 PM Jan 12, 2017
Ref Offset 2 dB
10 dB/div
Ref 10.00 dBm
Mkr1 5.718 042 1 GHz
-44.247 dBm
-17.00 dBm
Start 5.715000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.725000 GHz
Sweep 2.000 ms (30000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

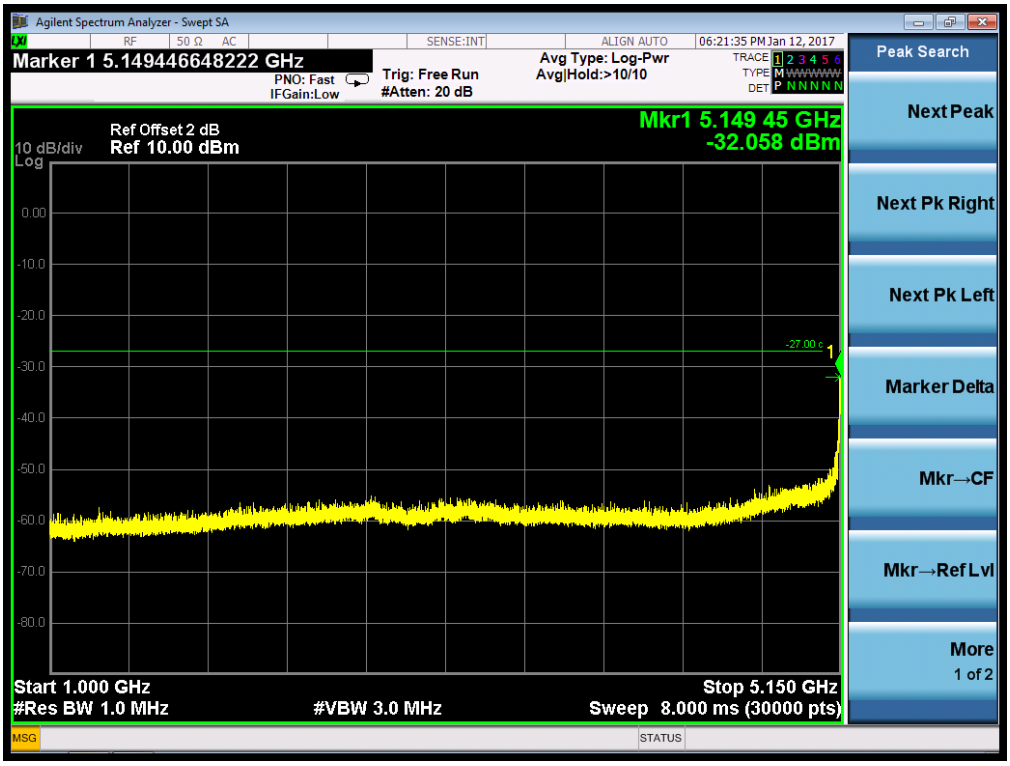

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
06:17:01 PM Jan 12, 2017
Marker 1 5.852352411747 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Ref Offset 2 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 5.852 352 4 GHz
-34.444 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-17.00 dBm
1
Start 5.850000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.860000 GHz
Sweep 2.000 ms (30000 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

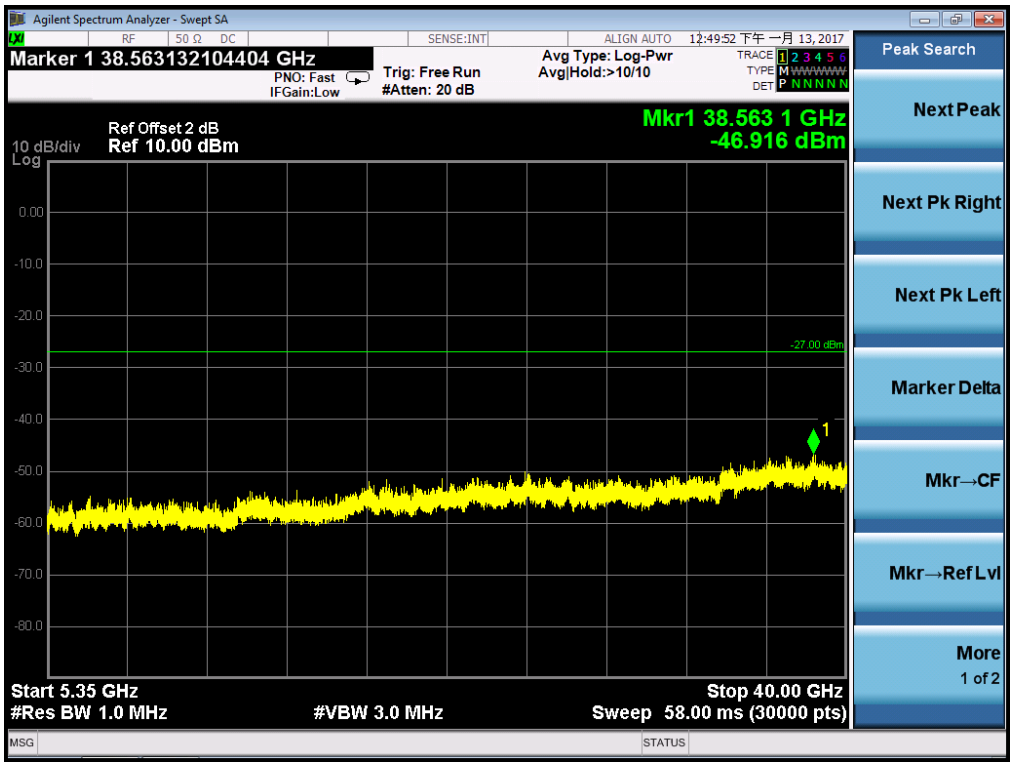

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN AUTO
12:52:43 下午 一月 13, 2017
Marker 1 38.562658088603 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Ref Offset 2 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 38.562 7 GHz
-45.614 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-27.00 dBm
1
Start 5.86 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 40.00 GHz
Sweep 58.00 ms (30000 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

FOR 802.11N40 MODULATION

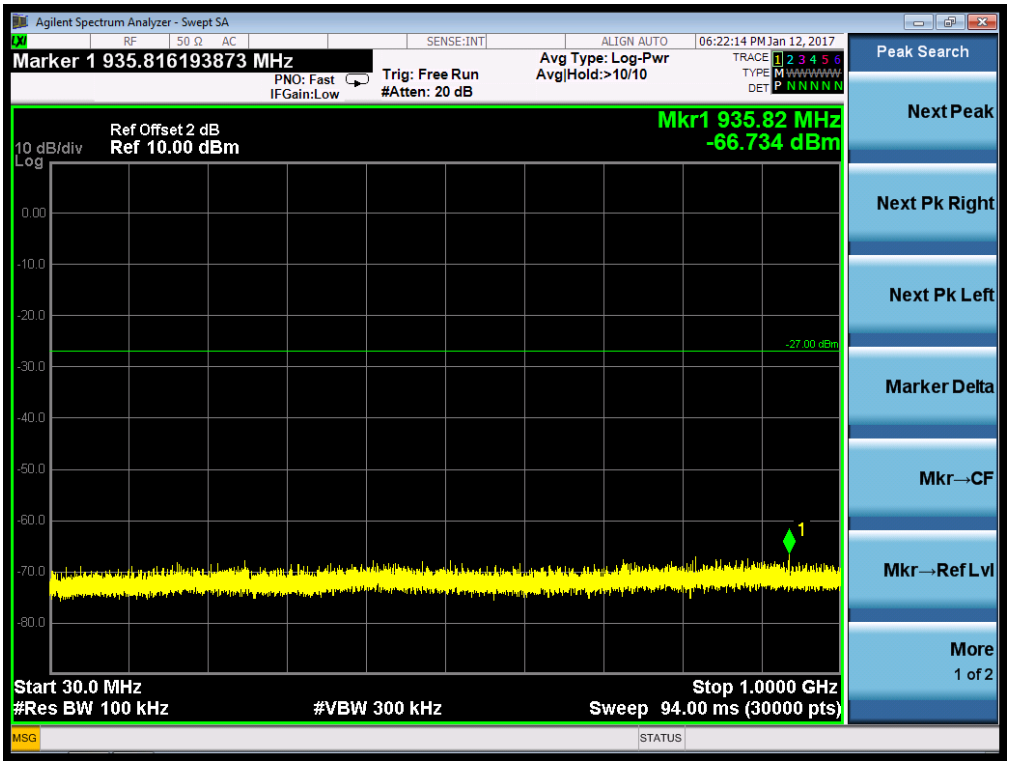
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5190MHz

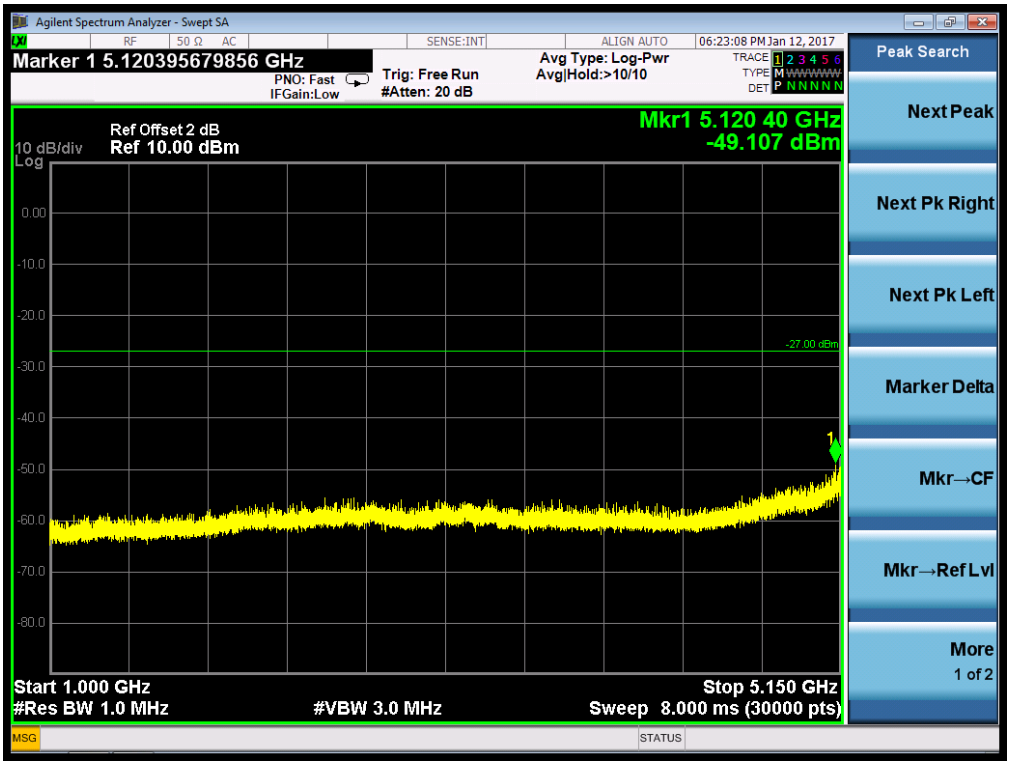


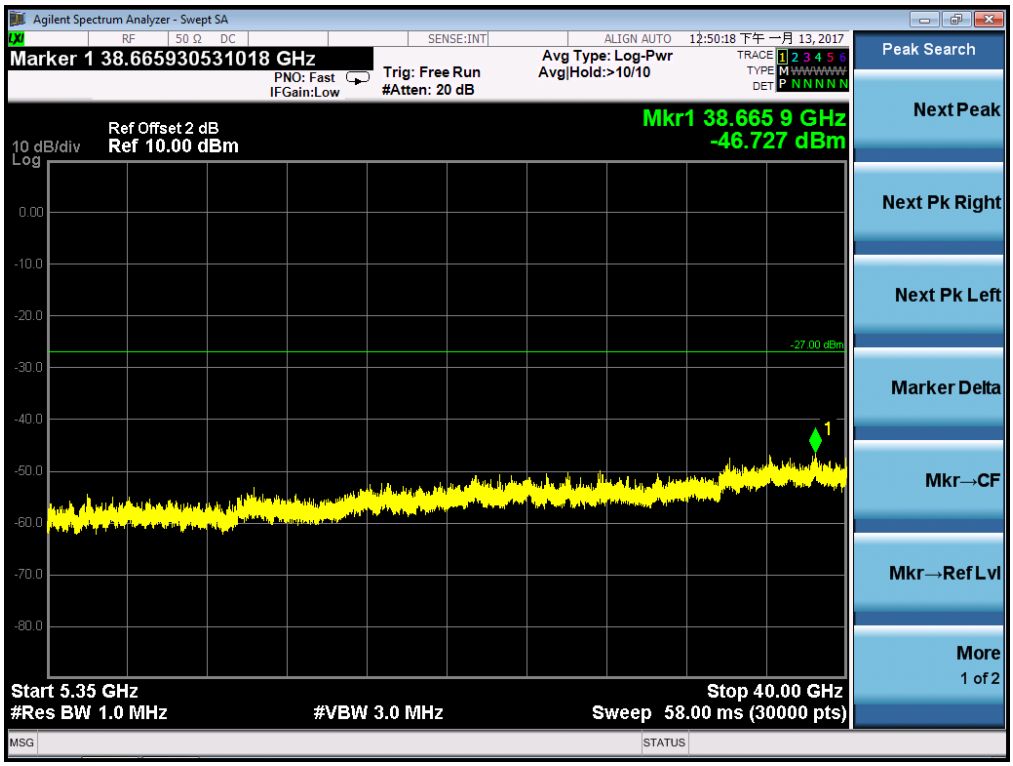




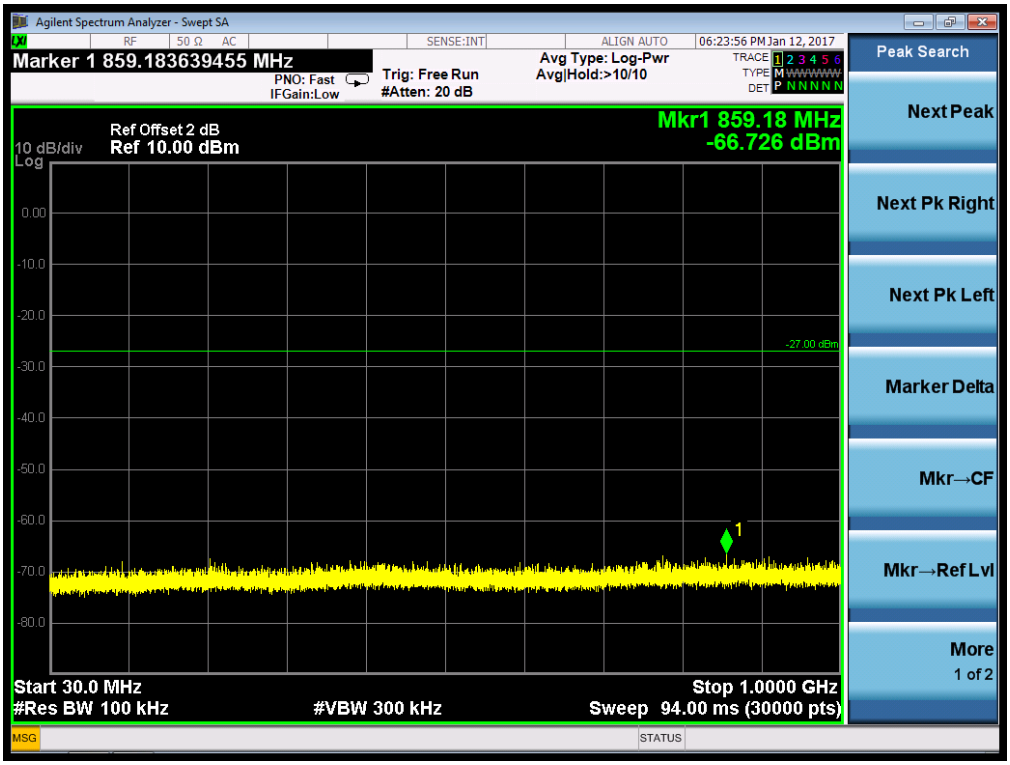
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5230MHz

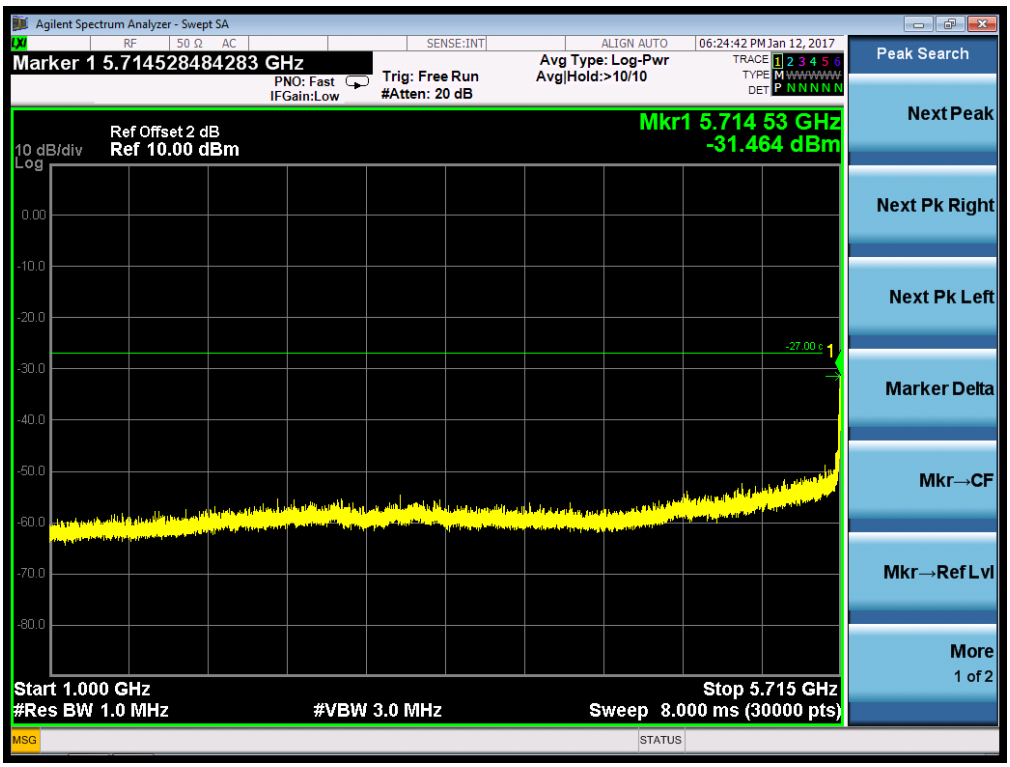


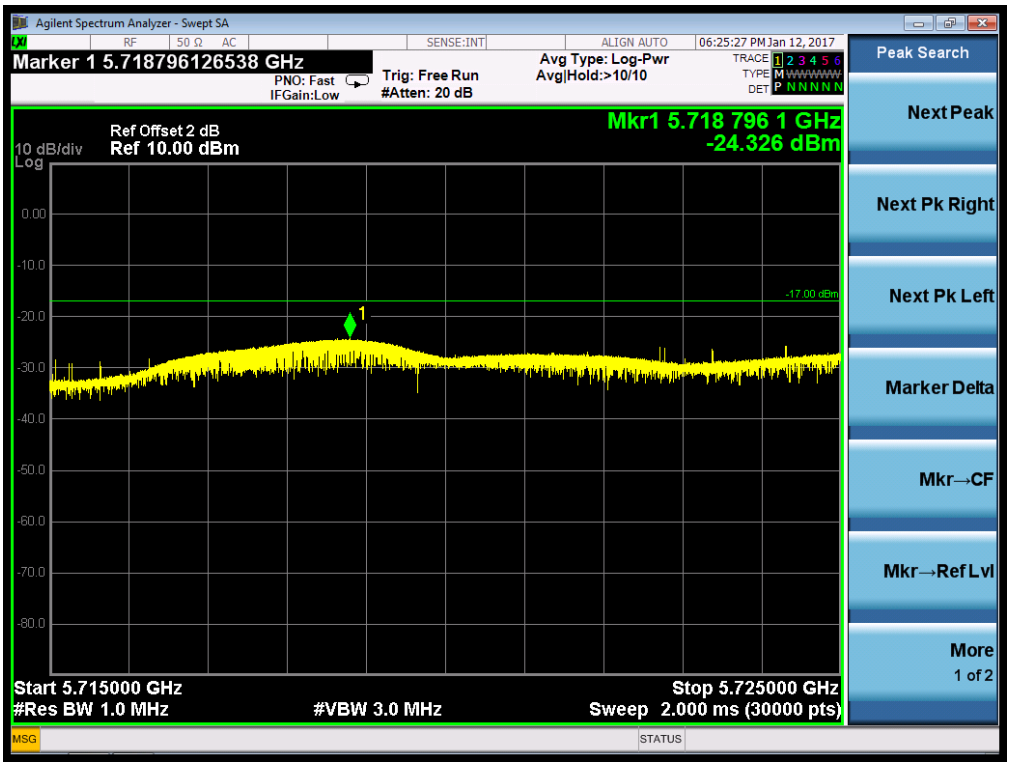

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
06:23:08 PM Jan 12, 2017
Marker 1 5.120395679856 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Ref Offset 2 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 5.120 40 GHz
-49.107 dBm
0.00
-10.0
-20.0
-27.00 dBm
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Start 1.000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.150 GHz
Sweep 8.000 ms (30000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

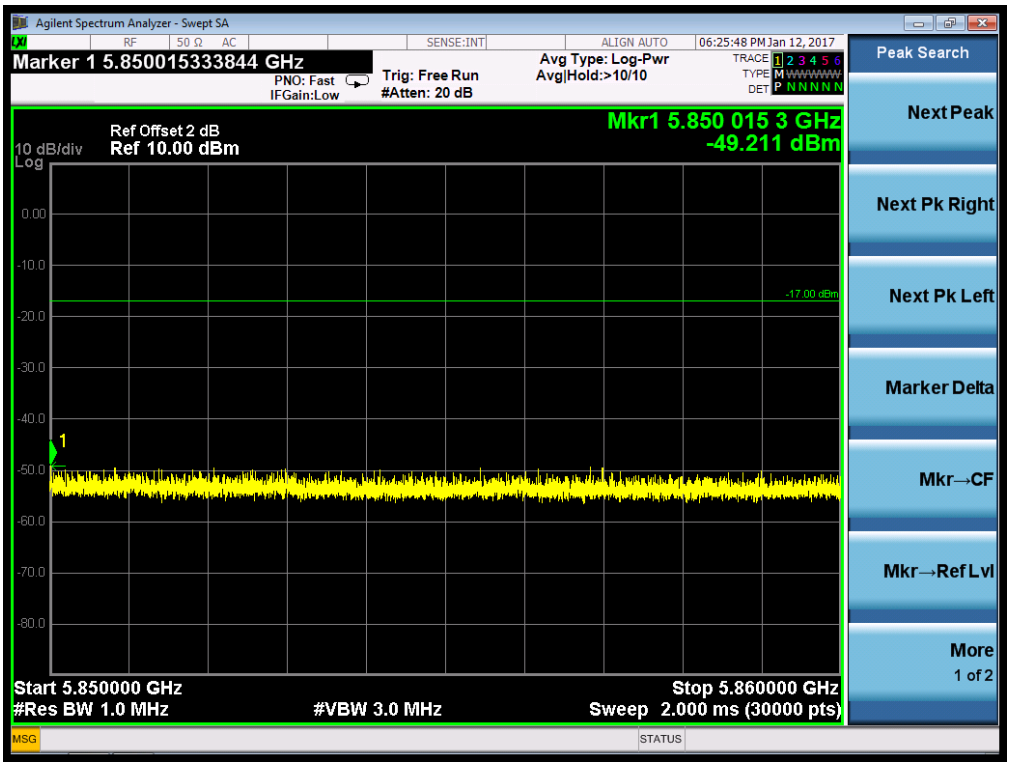

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN AUTO
12:50:18 下午 一月 13, 2017
Marker 1 38.665930531018 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Ref Offset 2 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 38.665 9 GHz
-46.727 dBm
0.00
-10.0
-20.0
-27.00 dBm
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Start 5.35 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 40.00 GHz
Sweep 58.00 ms (30000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
STATUS

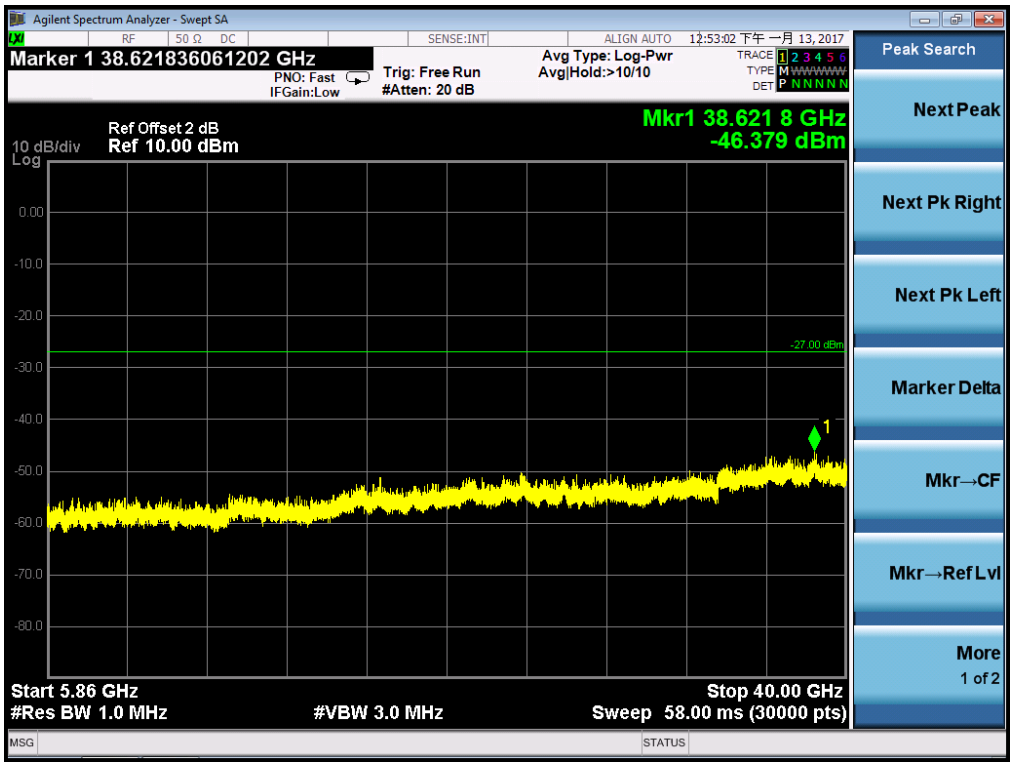
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5755MHz



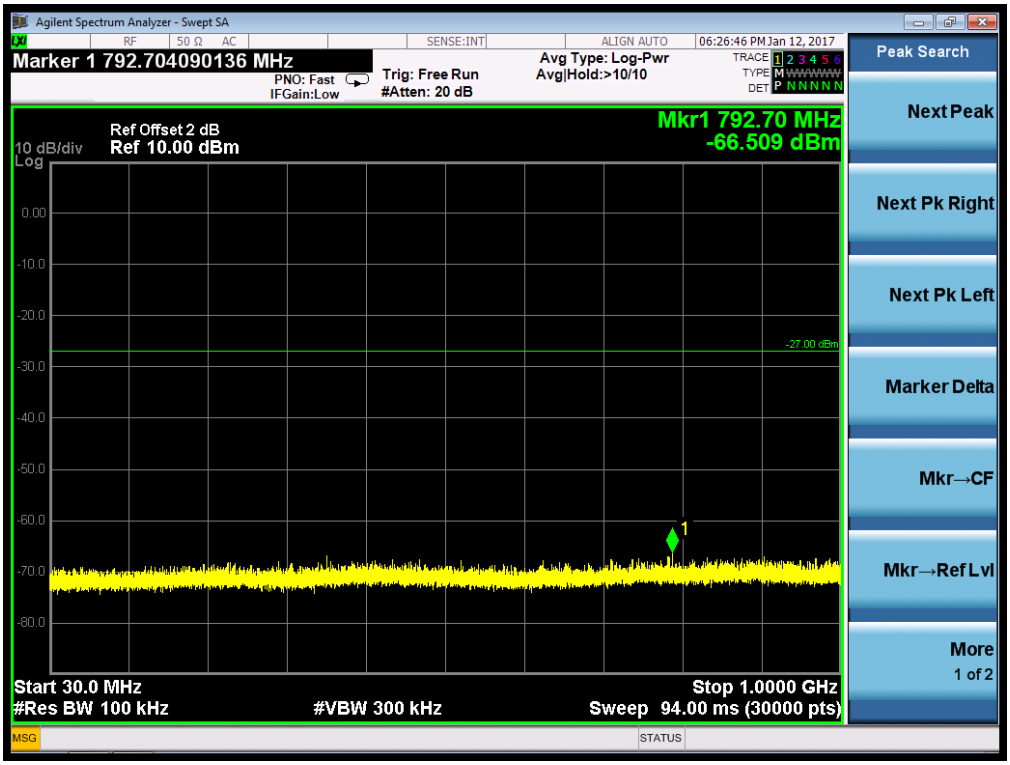


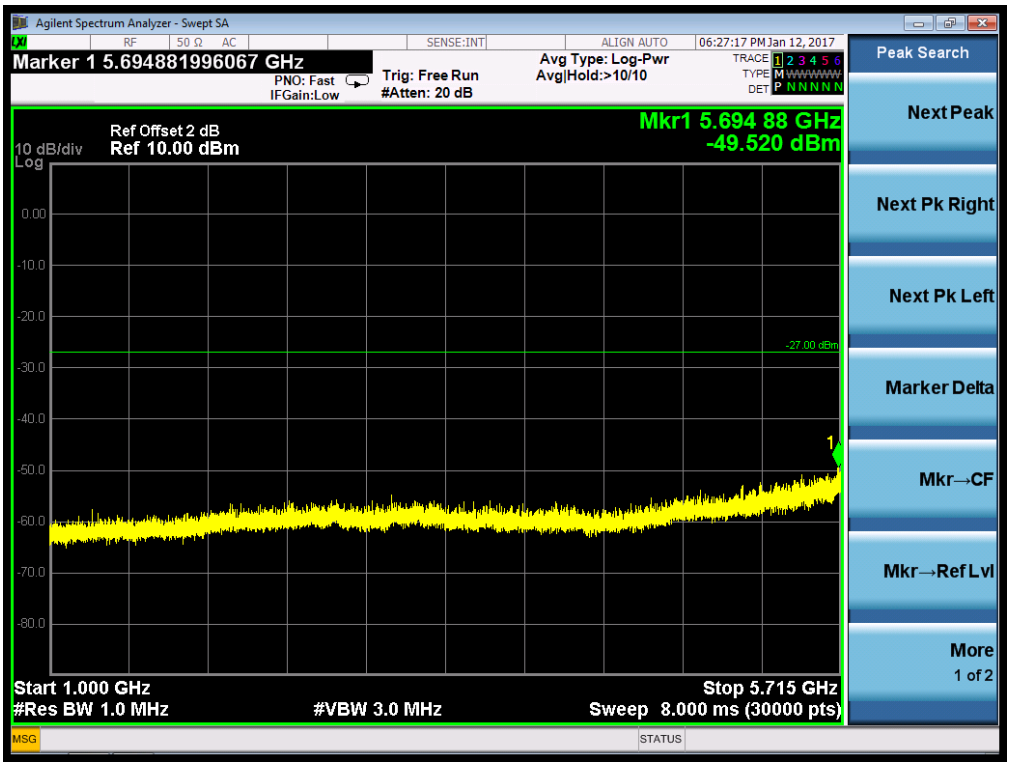

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
06:25:27 PM Jan 12, 2017
Marker 1 5.718796126538 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Ref Offset 2 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 5.718 796 1 GHz
-24.326 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-17.00 dBm
1
Start 5.715000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.725000 GHz
Sweep 2.000 ms (30000 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

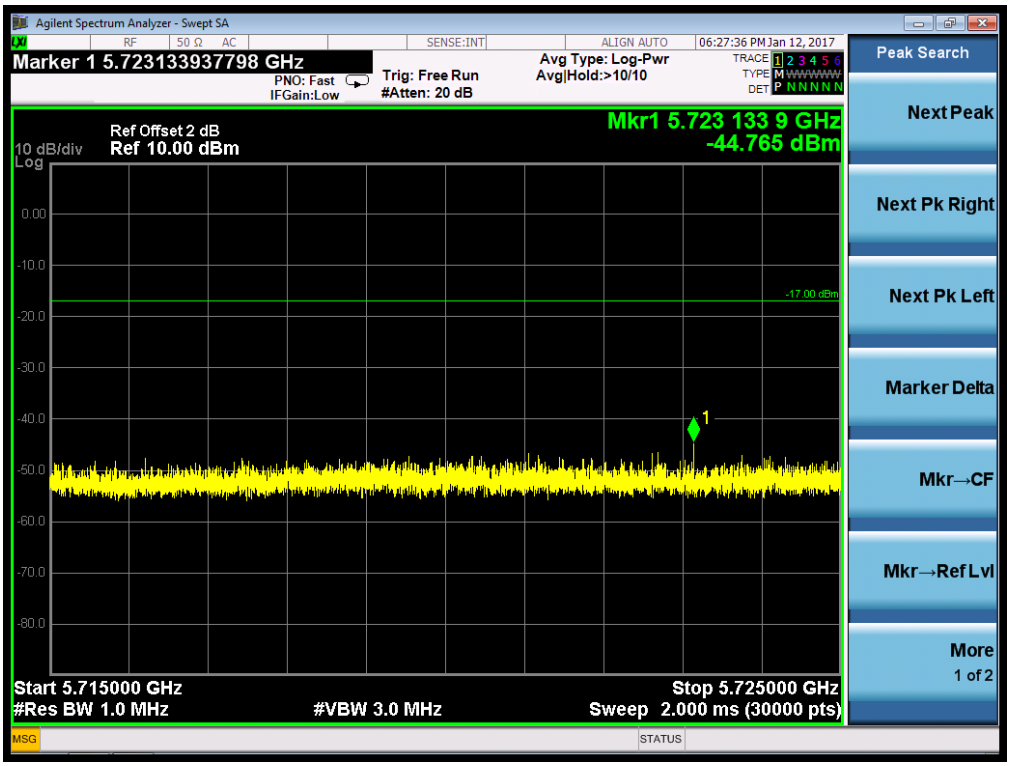

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
06:25:48 PM Jan 12, 2017
Marker 1 5.850015333844 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Ref Offset 2 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 5.850 015 3 GHz
-49.211 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-17.00 dBm
1
Start 5.850000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.860000 GHz
Sweep 2.000 ms (30000 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

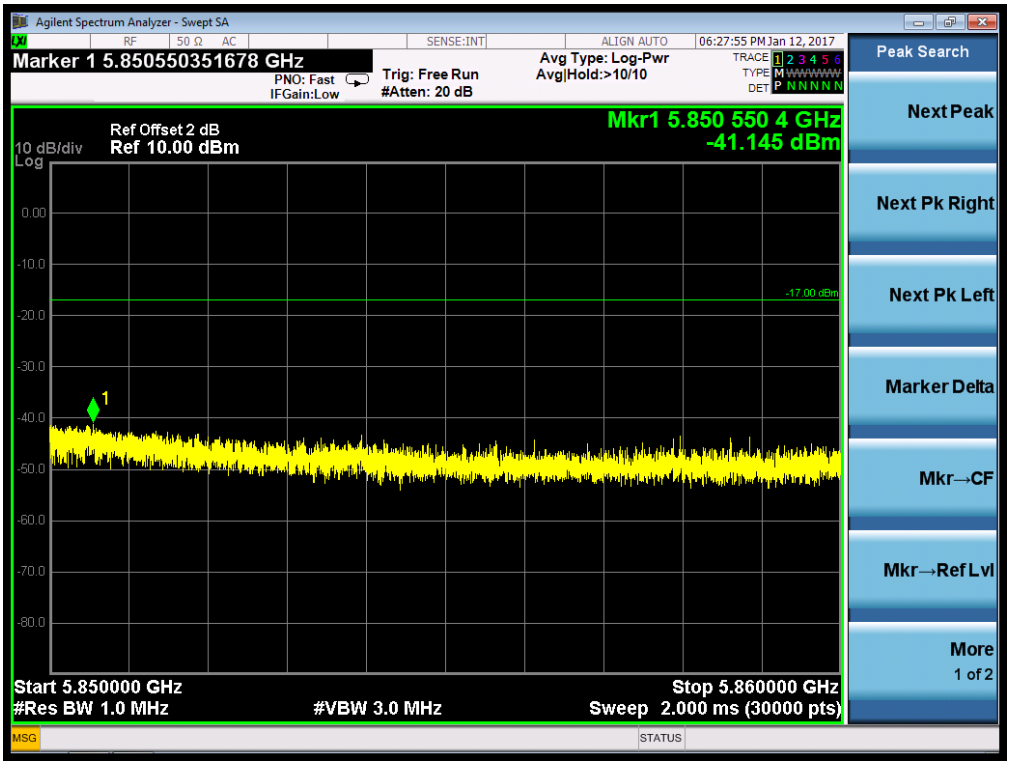


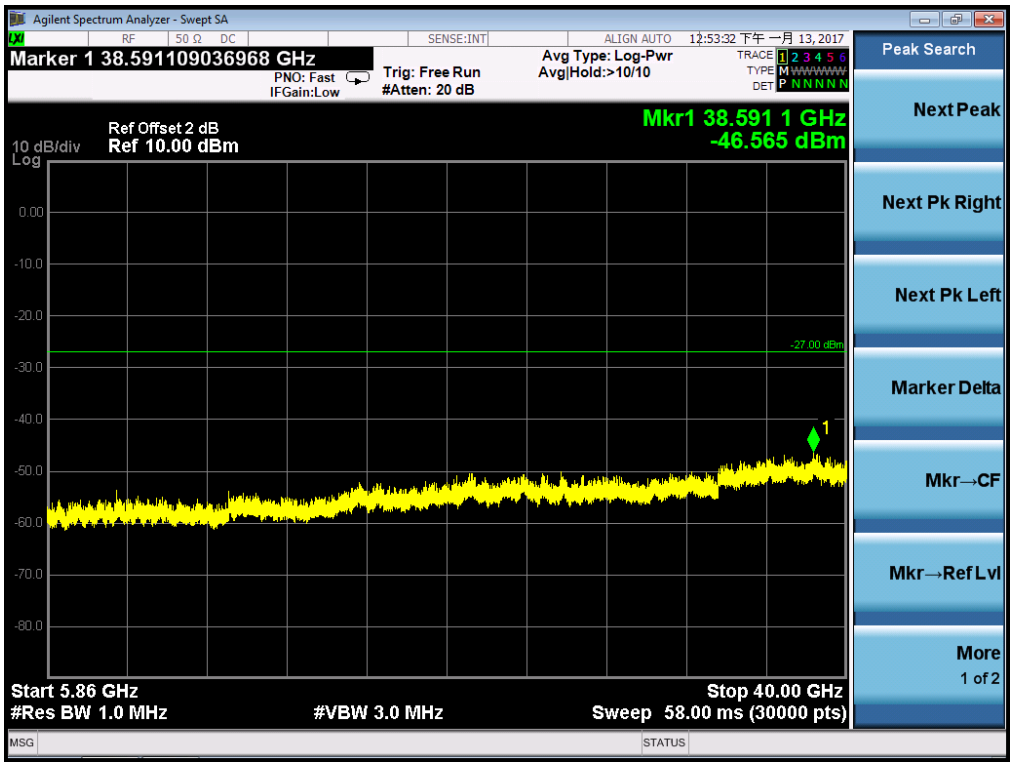
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5795M




Agilent Spectrum Analyzer - Swept SA
Marker 1 5.694881996067 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
06:27:17 PM Jan 12, 2017
Ref Offset 2 dB
10 dB/div
Ref 10.00 dBm
Mkr1 5.694 88 GHz
-49.520 dBm
-27.00 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.715 GHz
Sweep 8.000 ms (30000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

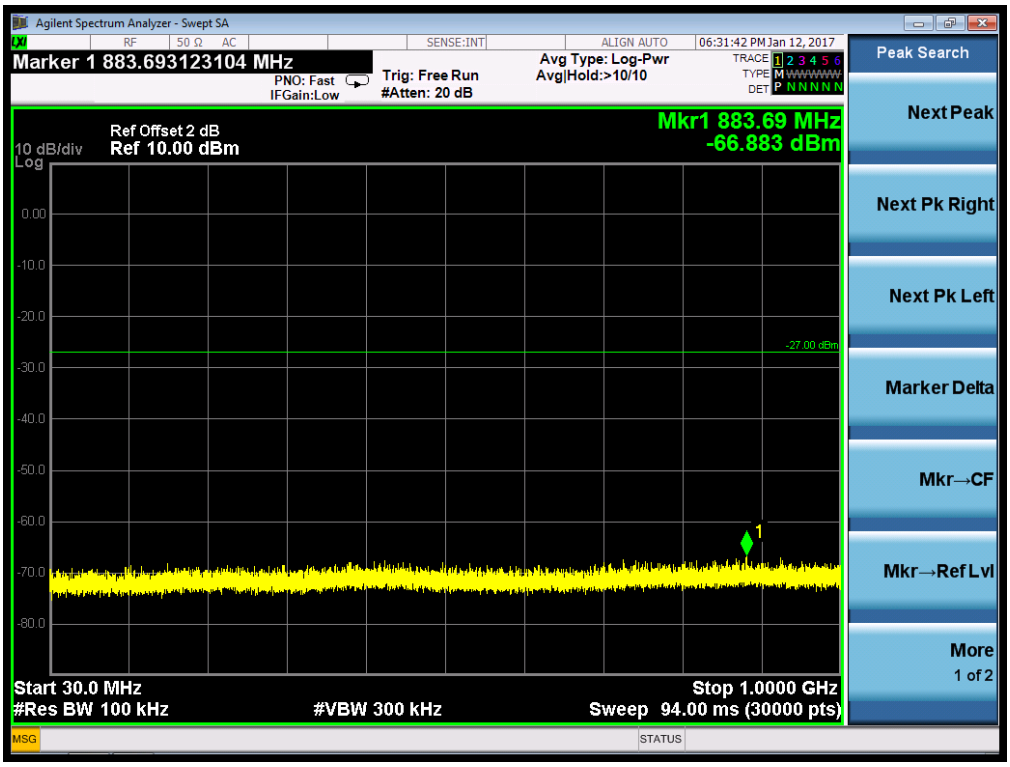

Agilent Spectrum Analyzer - Swept SA
Marker 1 5.723133937798 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
06:27:36 PM Jan 12, 2017
Ref Offset 2 dB
10 dB/div
Ref 10.00 dBm
Mkr1 5.723 133 9 GHz
-44.765 dBm
-17.00 dBm
Start 5.715000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.725000 GHz
Sweep 2.000 ms (30000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

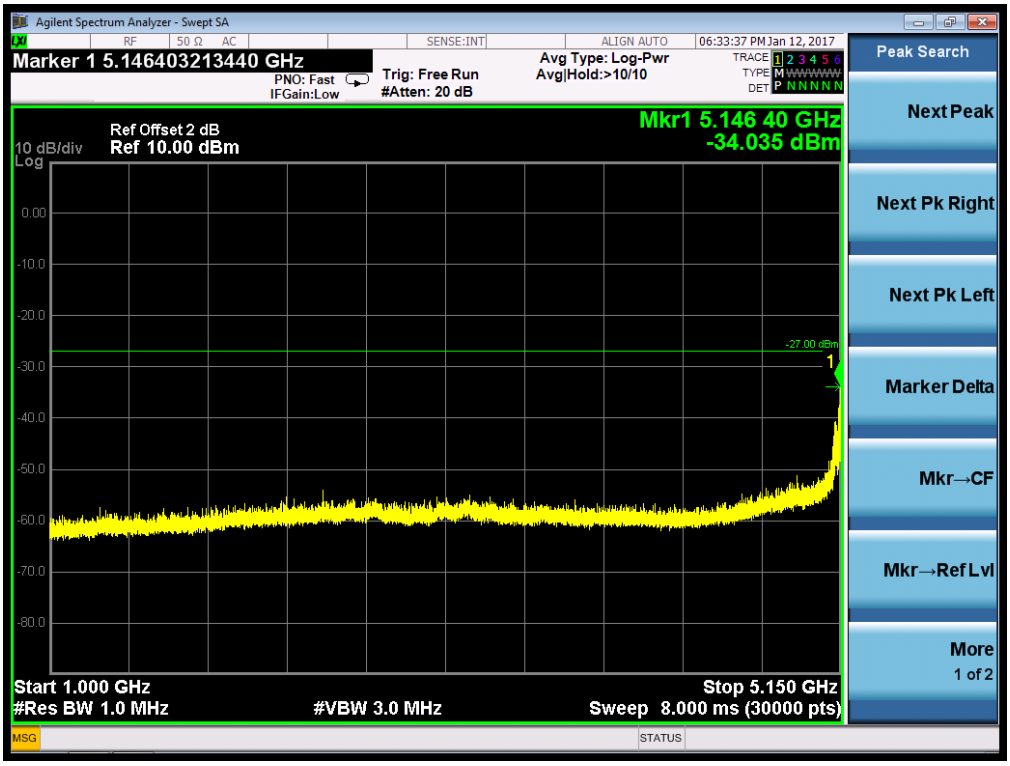

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
06:27:55 PM Jan 12, 2017
Marker 1 5.850550351678 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Ref Offset 2 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 5.850 550 4 GHz
-41.145 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-17.00 dBm
1
Start 5.850000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.860000 GHz
Sweep 2.000 ms (30000 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

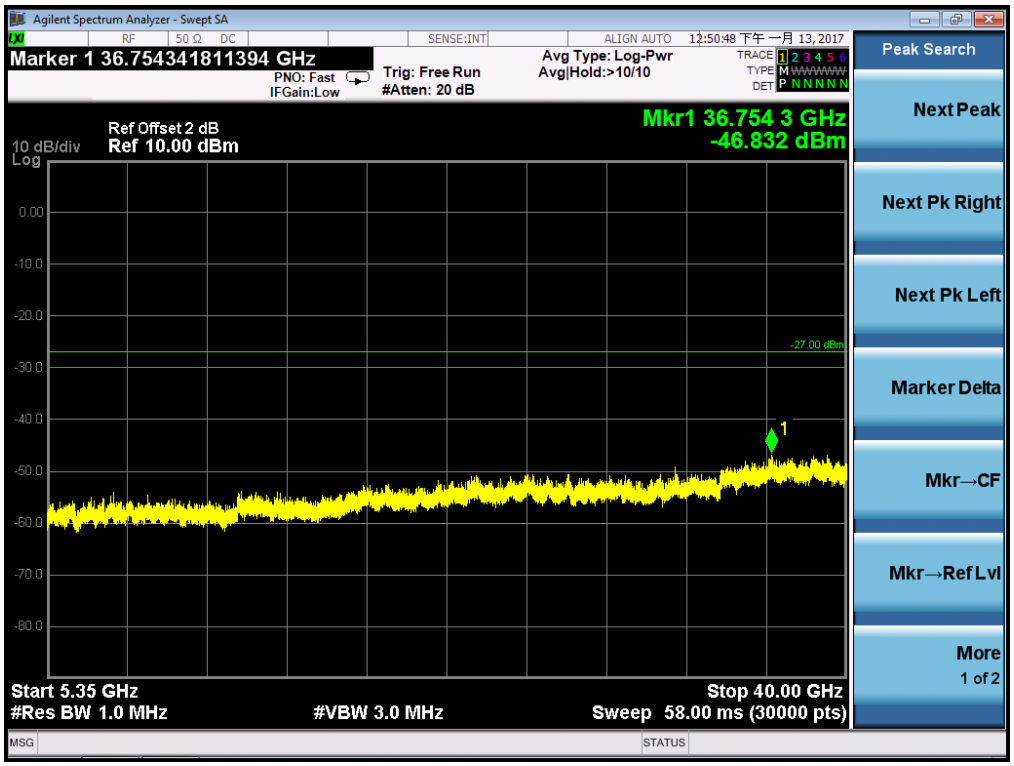

Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN AUTO
12:53:32 下午 一月 13, 2017
Marker 1 38.591109036968 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Ref Offset 2 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 38.591 1 GHz
-46.565 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-27.00 dBm
1
Start 5.86 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 40.00 GHz
Sweep 58.00 ms (30000 pts)
MSG
STATUS
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2

FOR 802.11AC80 MODULATION

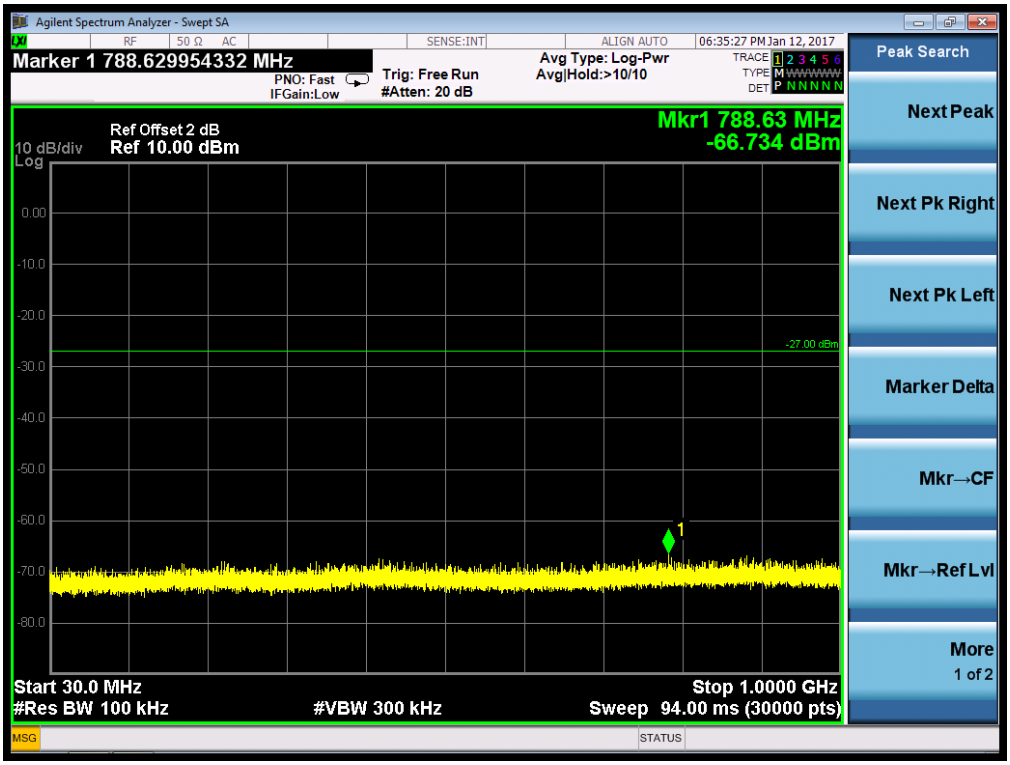
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5210MHz

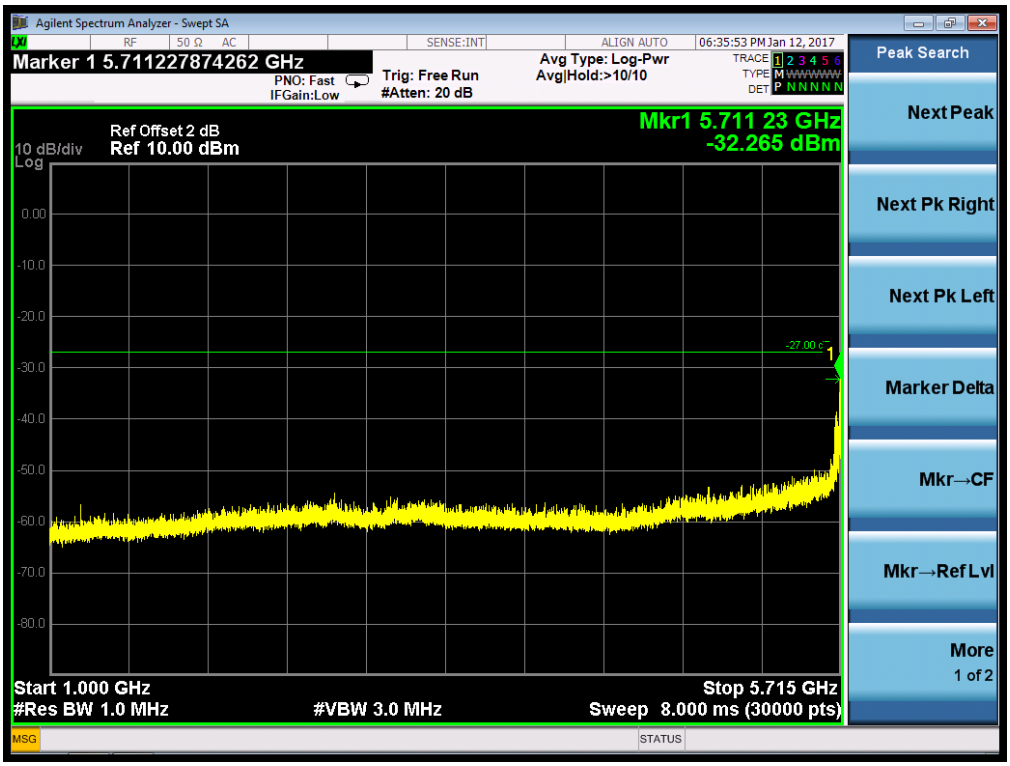


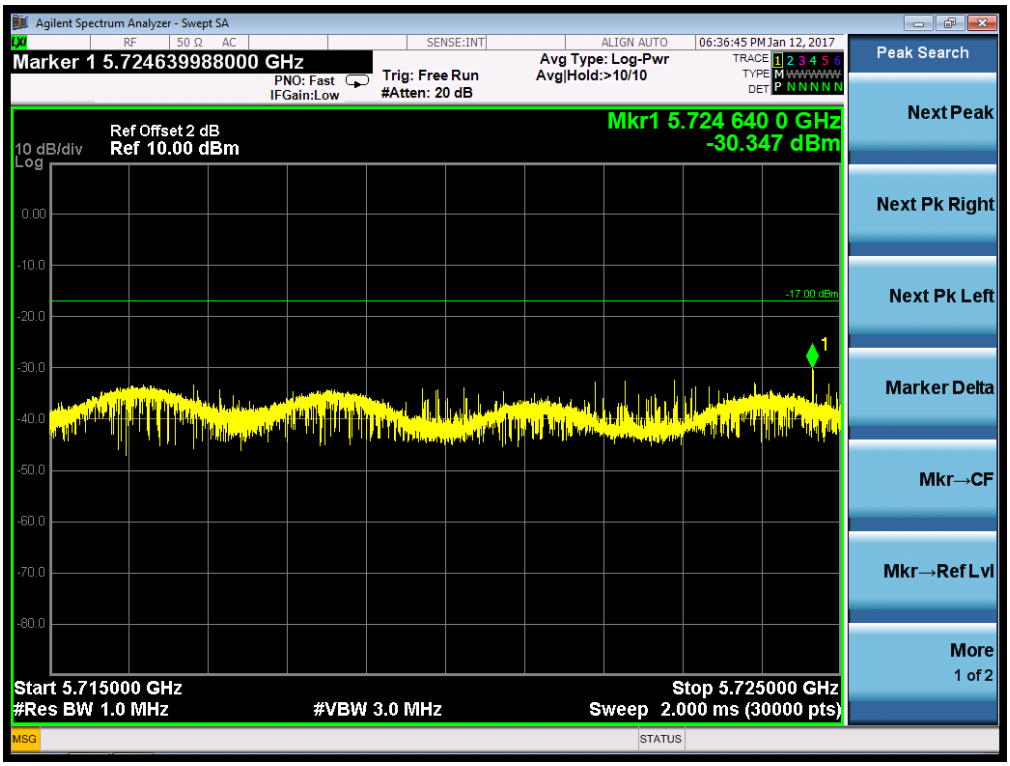


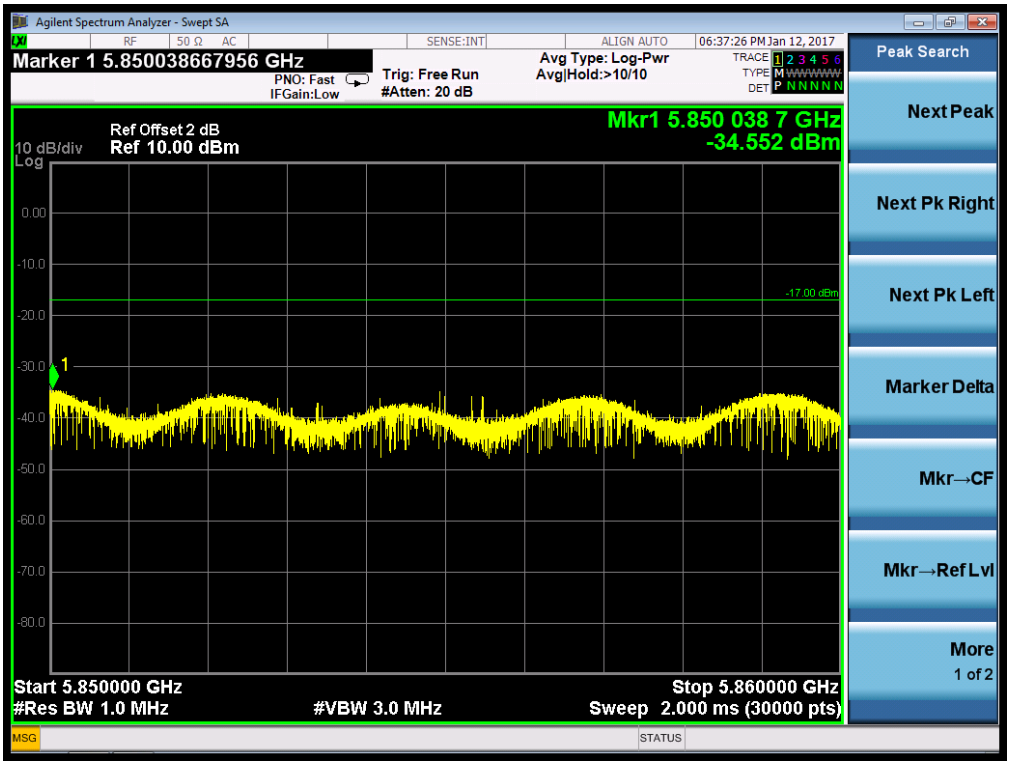


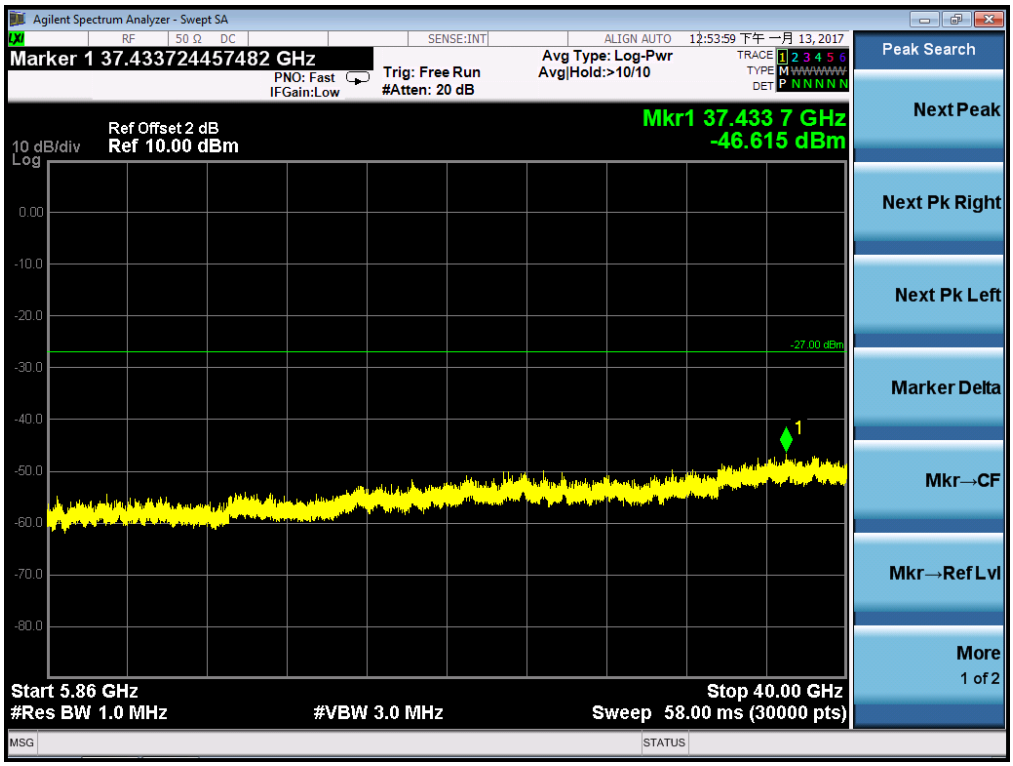
TEST PLOT OF OUT OF BAND EMISSIONS FOR MODULATION IN 5775MHz




Agilent Spectrum Analyzer - Swept SA
Marker 1 5.711227874262 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
06:35:53 PM Jan 12, 2017
Ref Offset 2 dB
10 dB/div
Ref 10.00 dBm
Mkr1 5.711 23 GHz
-32.265 dBm
-27.00 dBm
Start 1.000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.715 GHz
Sweep 8.000 ms (30000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
Marker 1 5.724639988000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
06:36:45 PM Jan 12, 2017
Ref Offset 2 dB
10 dB/div
Ref 10.00 dBm
Mkr1 5.724 640 0 GHz
-30.347 dBm
-17.00 dBm
Start 5.715000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.725000 GHz
Sweep 2.000 ms (30000 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω AC
SENSE:INT
ALIGN AUTO
06:37:26 PM Jan 12, 2017
Marker 1 5.850038667956 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 2 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 5.850 038 7 GHz
-34.552 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-17.00 dBm
1
Start 5.850000 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 5.860000 GHz
Sweep 2.000 ms (30000 pts)
MSG
STATUS


Agilent Spectrum Analyzer - Swept SA
RF 50 Ω DC
SENSE:INT
ALIGN AUTO
12:53:59 下午 一月 13, 2017
Marker 1 37.433724457482 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>10/10
TRACE 1 2 3 4 5 6
TYPE M WWWWW
DET P N N N N N
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Ref Offset 2 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 37.433 7 GHz
-46.615 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
-27.00 dBm
1
Start 5.86 GHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 40.00 GHz
Sweep 58.00 ms (30000 pts)
MSG
STATUS

Note: All the 20MHz bandwidth modulation had been tested, the 802.11a20 was the worst case and record in his test report. All the 40MHz bandwidth modulation had been tested, the 802.11N40 was the worst case and record in his test report.

Two transmit chains had been tested, the chain 0 was the worst case and record in the test report.

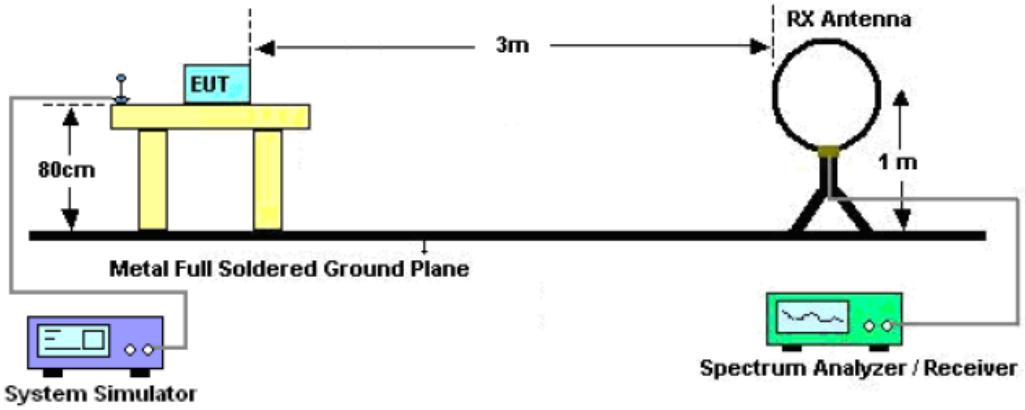
11. RADIATED EMISSION

11.1. MEASUREMENT PROCEDURE

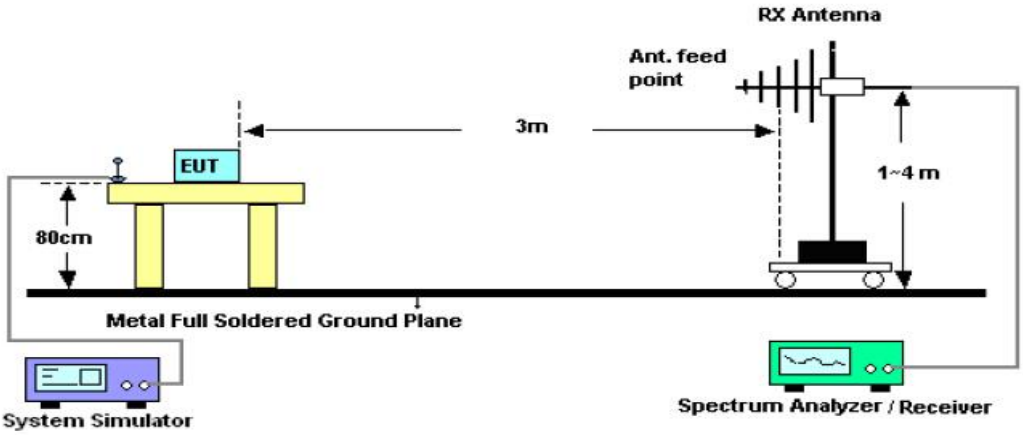
1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case

11.2. TEST SETUP

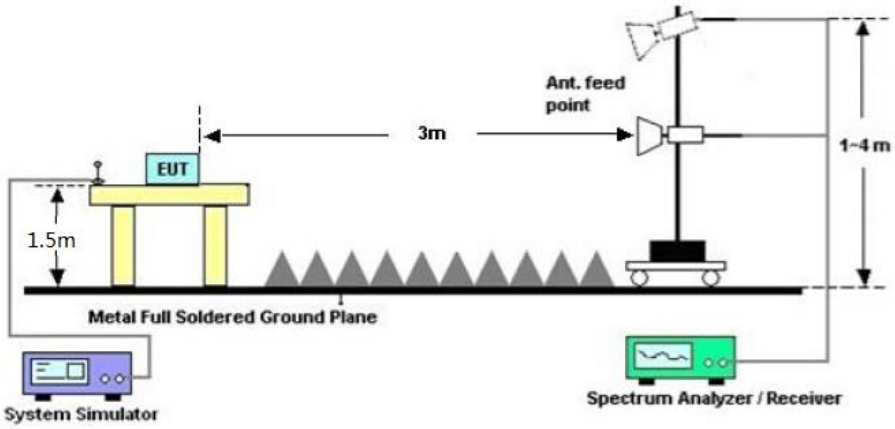
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



11.3. LIMITS AND MEASUREMENT RESULT

15.209(a) Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Note: All modes were tested For restricted band radiated emission,
the test records reported below are the worst result compared to other modes.

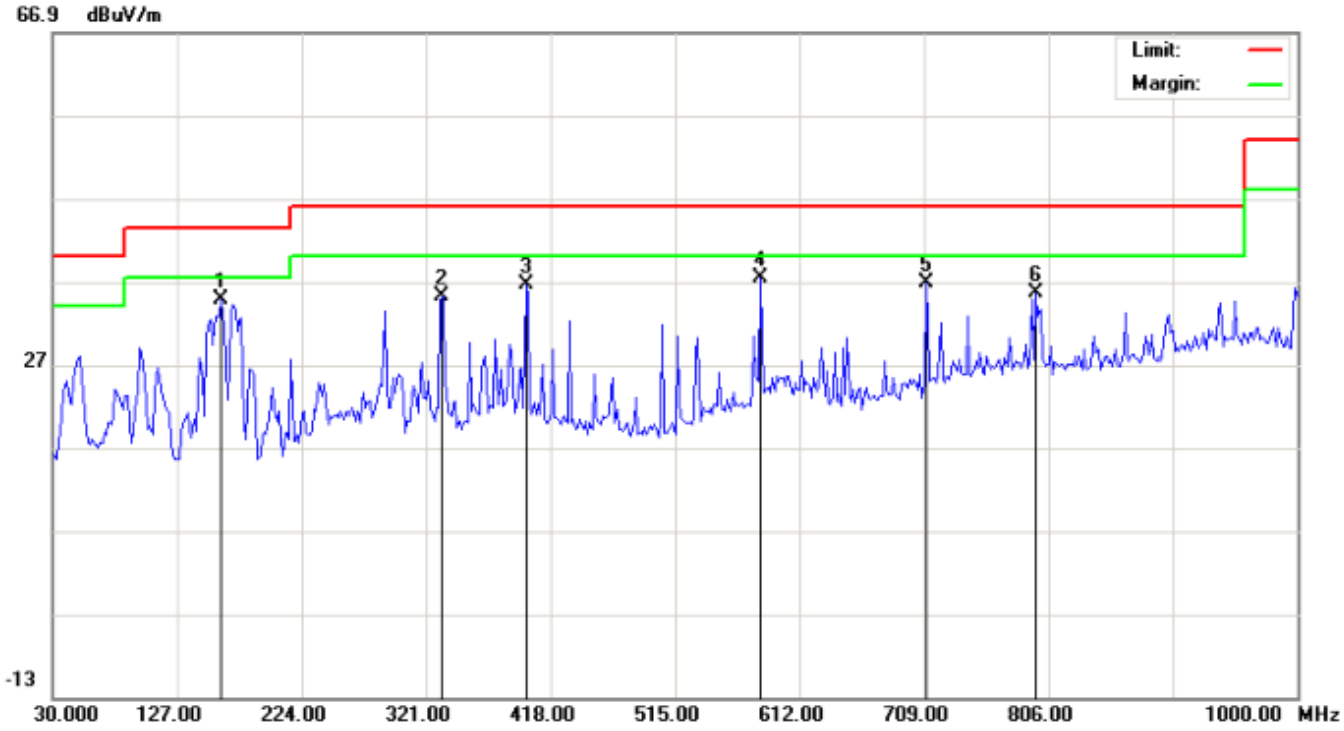
11.4. TEST RESULT

RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

RADIATED EMISSION BELOW 1GHZ

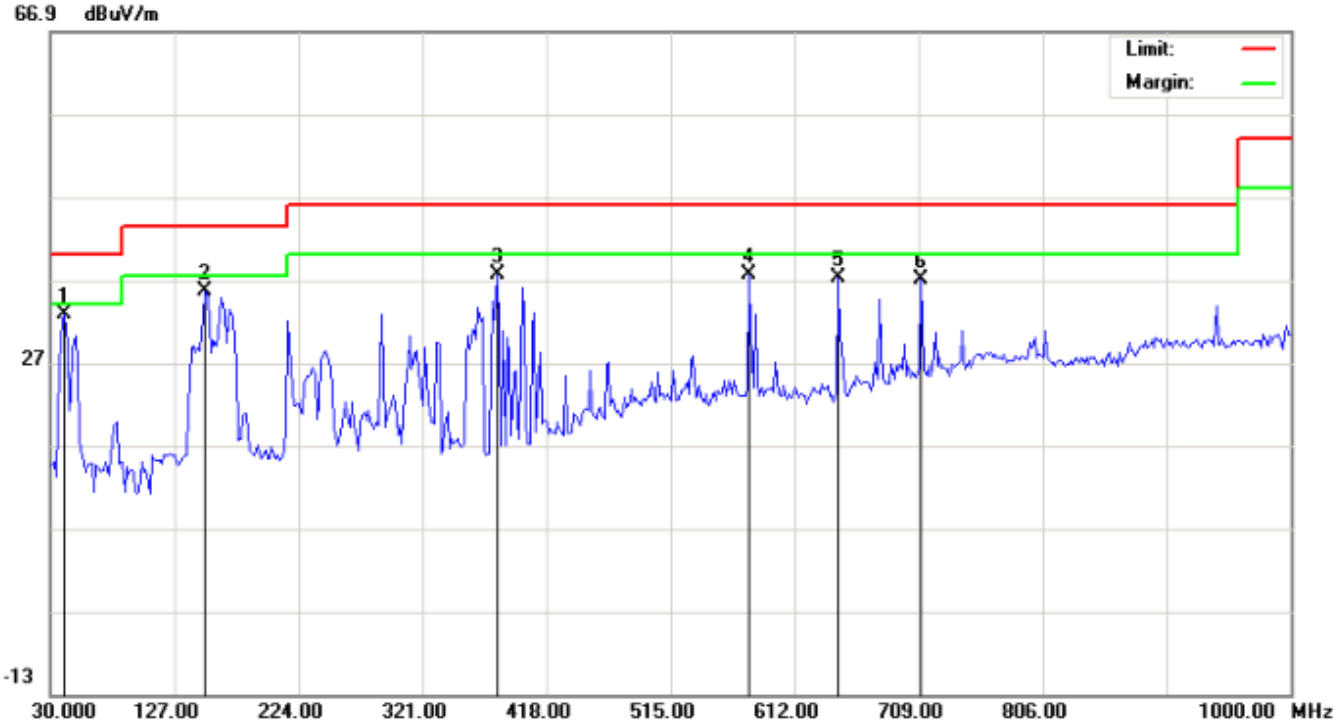
EUT	Wireless USB Adapter	**Model Name**	M-1200S
Temperature	25°C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	802.11a20 5180MHz	**Antenna**	Horizontal



No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		160.9500	24.36	10.37	34.73	43.50	-8.77	peak			
2		333.9332	17.54	17.67	35.21	46.00	-10.79	peak			
3		398.6000	17.60	19.06	36.66	46.00	-9.34	peak			
4	*	581.2833	14.13	23.26	37.39	46.00	-8.61	peak			
5		710.6167	11.31	25.50	36.81	46.00	-9.19	peak			
6		796.3000	8.43	27.27	35.70	46.00	-10.30	peak			

RESULT: PASS

EUT	Wireless USB Adapter	Model Name	M-1200S
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Vertical



No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	41.3167	23.96	8.81	32.77	40.00	-7.23	peak			
2		151.2500	20.39	15.27	35.66	43.50	-7.84	peak			
3		379.2000	18.63	18.93	37.56	46.00	-8.44	peak			
4		576.4333	15.06	22.61	37.67	46.00	-8.33	peak			
5		645.9500	13.40	23.76	37.16	46.00	-8.84	peak			
6		710.6167	11.41	25.50	36.91	46.00	-9.09	peak			

RESULT: PASS

Note: All test channels had been tested. The 802.11a20 at 5180MHz is the worst case and recorded in the test report.

Factor = Antenna Factor + Cable loss - Amplifier gain, Margin= Limit-Level.

The “Factor” value can be calculated automatically by software of measurement system.

RADIATED EMISSION ABOVE 1GHZ

EUT	Wireless USB Adapter	**Model Name**	M-1200S
Temperature	25°C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	802.11a20 5180MHz	**Antenna**	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10360.120	42.07	9.14	51.21	74	-22.79	peak
10360.120	34.16	9.14	43.3	54	-10.7	AVG
15540.180	39.81	10.22	50.03	74	-23.97	peak
15540.180	33.81	10.22	44.03	54	-9.97	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10360.120	40.62	9.14	49.76	74	-24.24	peak
10360.120	34.62	9.14	43.76	54	-10.24	AVG
15540.180	38.75	10.22	48.97	74	-25.03	peak
15540.180	35.41	10.22	45.63	54	-8.37	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Wireless USB Adapter	**Model Name**	M-1200S
Temperature	25°C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	802.11a20 5240MHz	**Antenna**	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10480.120	42.55	9.27	51.82	74	-22.18	peak
10480.120	34.91	9.27	44.18	54	-9.82	AVG
15720.180	37.83	10.38	48.21	74	-25.79	peak
15720.180	33.04	10.38	43.42	54	-10.58	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
10480.120	41.62	9.27	50.89	74	-23.11	peak
10480.120	35.66	9.27	44.93	54	-9.07	AVG
15720.180	39.24	10.38	49.62	74	-24.38	peak
15720.180	31.93	10.38	42.31	54	-11.69	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Wireless USB Adapter	**Model Name**	M-1200S
Temperature	25°C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	802.11a20 5745MHz	**Antenna**	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11490.120	42.77	9.42	52.19	74	-21.81	peak
11490.120	33.91	9.42	43.33	54	-10.67	AVG
17235.180	40.15	10.51	50.66	74	-23.34	peak
17235.180	35.32	10.51	45.83	54	-8.17	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11490.120	41.68	9.42	51.1	74	-22.9	peak
11490.120	35.98	9.42	45.4	54	-8.6	AVG
17235.180	40.49	10.51	51	74	-23	peak
17235.180	32.95	10.51	43.46	54	-10.54	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Wireless USB Adapter	**Model Name**	M-1200S
Temperature	25°C	**Relative Humidity**	55.4%
Pressure	960hPa	**Test Voltage**	Normal Voltage
Test Mode	802.11a20 5825MHz	**Antenna**	Horizontal/Vertical

RADIATED EMISSION ABOVE 1GHZ–Horizontal

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11650.120	40.34	9.62	49.96	74	-24.04	peak
11650.120	32.96	9.62	42.58	54	-11.42	AVG
17475.180	38.64	10.75	49.39	74	-24.61	peak
17475.180	30.65	10.75	41.4	54	-12.6	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RADIATED EMISSION ABOVE 1GHZ–Vertical

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Value Type
11650.120	38.32	9.62	47.94	74	-26.06	peak
11650.120	35.25	9.62	44.87	54	-9.13	AVG
17475.180	38.25	10.75	49	74	-25	peak
17475.180	31.91	10.75	42.66	54	-11.34	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

Note: All the case had been tested. The 802.11a modulation is the worst case and recorded in the test report. Other frequencies radiation emission from 1GHz to 40GHz at least have 20dB margin and not recorded in the test report.

Factor = Antenna Factor + Cable loss - Amplifier gain, Margin= Limit-Level.

The “Factor” value can be calculated automatically by software of measurement system.

12. BAND EDGE EMISSION

12.1. MEASUREMENT PROCEDURE

1. The EUT operates at transmitting mode. The operate channel is tested to verify the largest transmission and spurious emissions power at the continuous transmission mode.

2. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission: (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

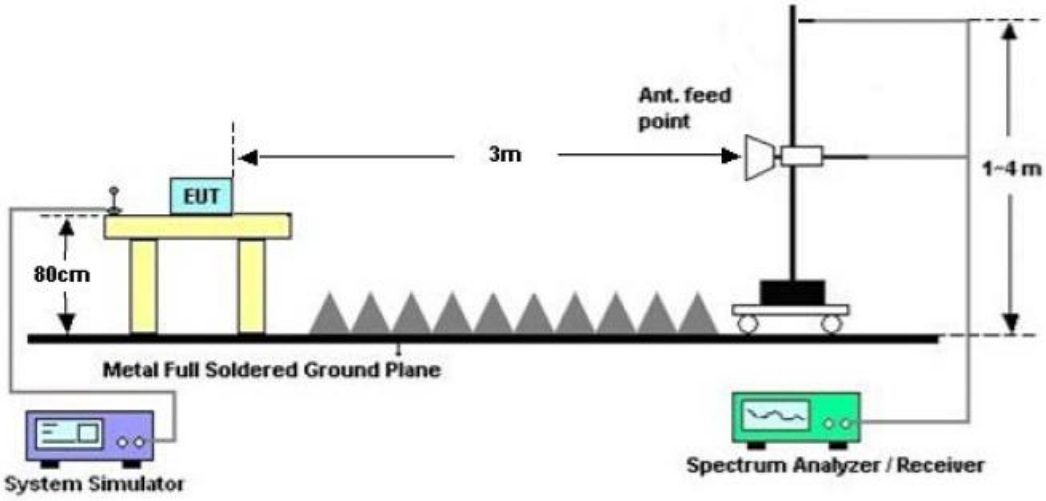
(b) AVERAGE: RBW=1MHz ; VBW=1/on time(1KHz) / Sweep=AUTO

3. Other procedures refer to clause 11.2.

Note:

1. Factor=Antenna Factor + Cable loss - Amplifier gain. Field Strength=Factor + Reading level
2. The factor had been edited in the “Input Correction” of the Spectrum Analyzer. So the Amplitude of test plots is equal to Reading level plus the Factor in dB. Use the A dB(μV) to represent the Amplitude. Use the F dB(μV/m) to represent the Field Strength. So A=F.
3. Only the data of band edge emission at the restricted band 4.5GHz-5.15GHz record in the report. Other restricted band 5.35GHz-5.46GHz and 7.25GHz-7.77GHz were considered as ambient noise. No recording in the test report.

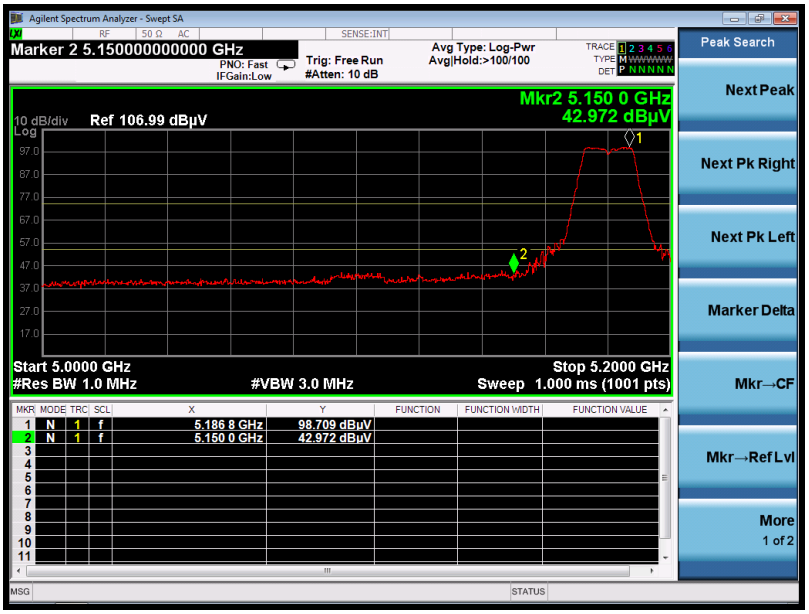
12.2. TEST SET-UP



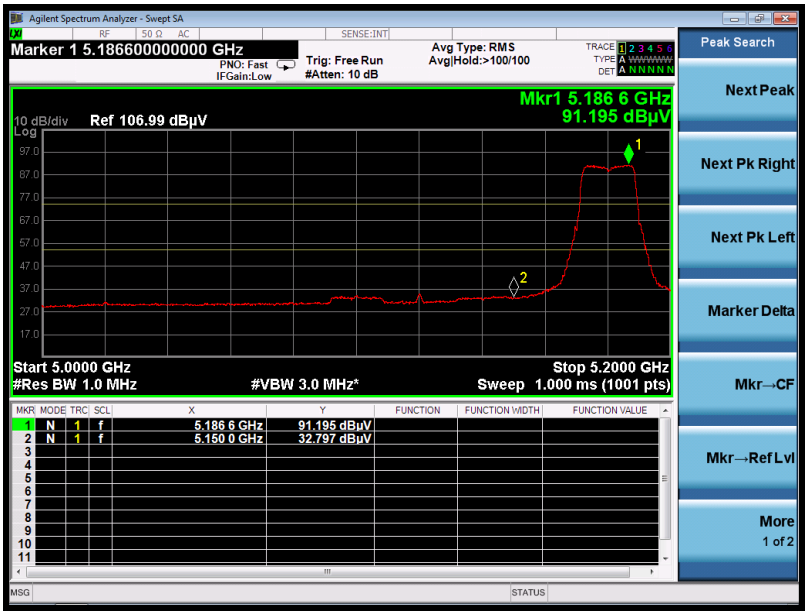
12.3. TEST RESULT

EUT	Wireless USB Adapter	Model Name	M-1200S
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Horizontal

PK Value

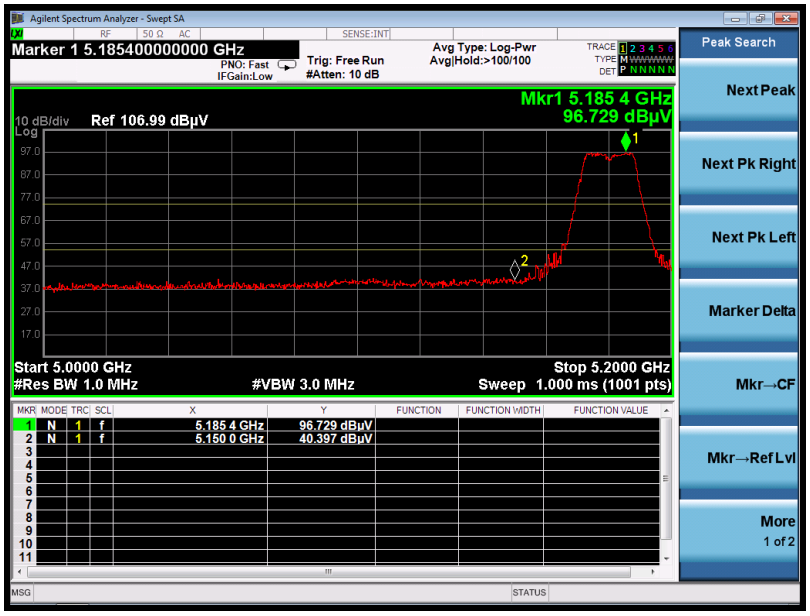


AV Value

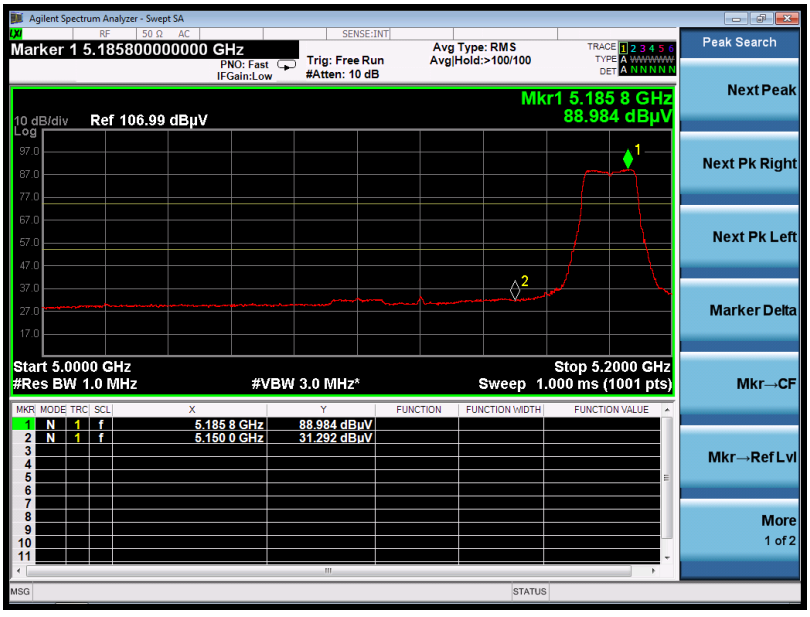


EUT	Wireless USB Adapter	Model Name	M-1200S
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11a20 5180MHz	Antenna	Vertical

PK Value

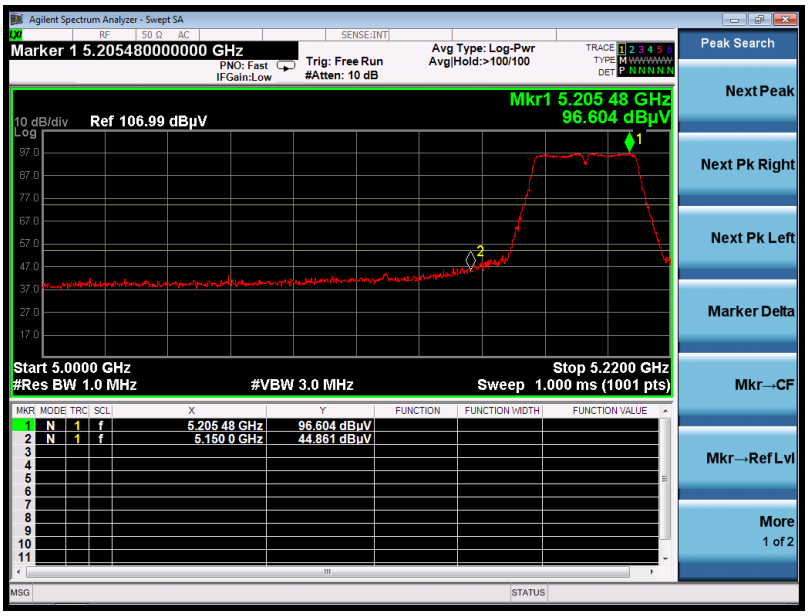


AV Value

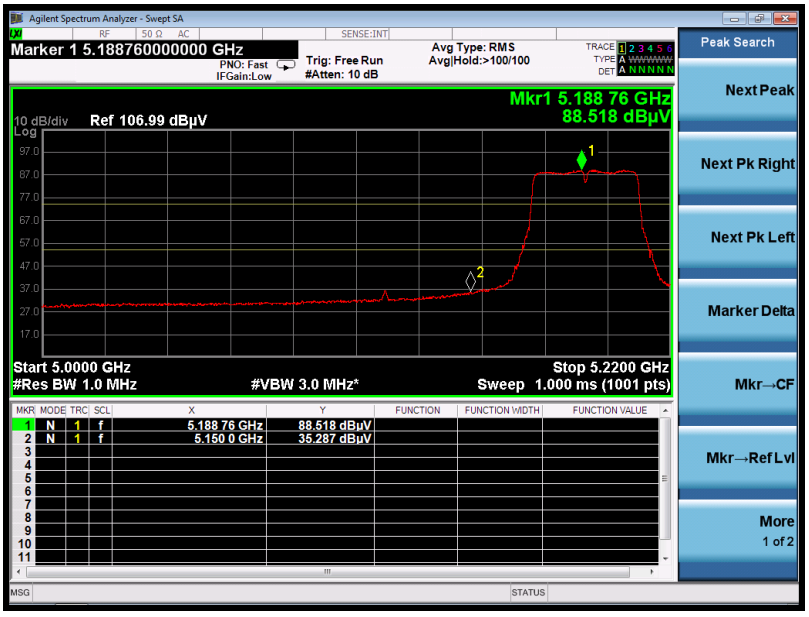


EUT	Wireless USB Adapter	Model Name	M-1200S
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n40 5190MHz	Antenna	Horizontal

PK Value

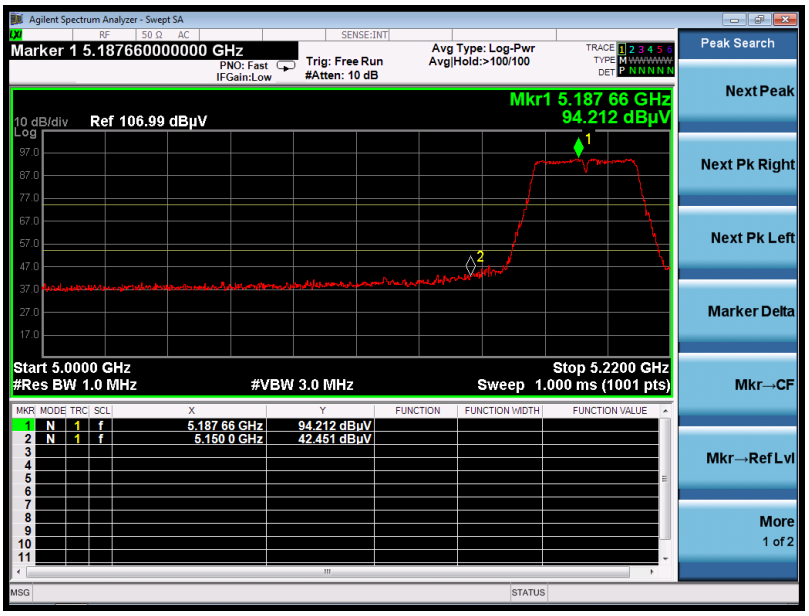


AV Value

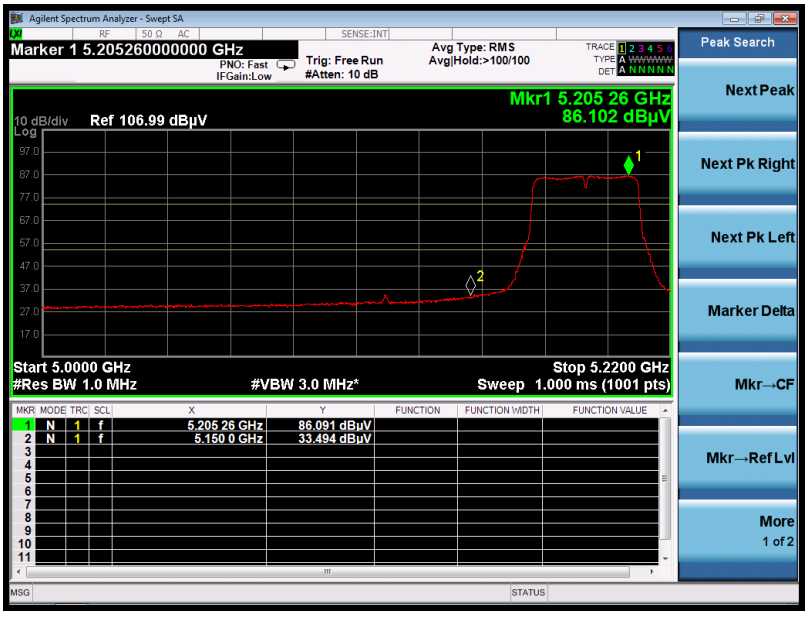


EUT	Wireless USB Adapter	Model Name	M-1200S
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11n40 5190MHz	Antenna	Vertical

PK Value

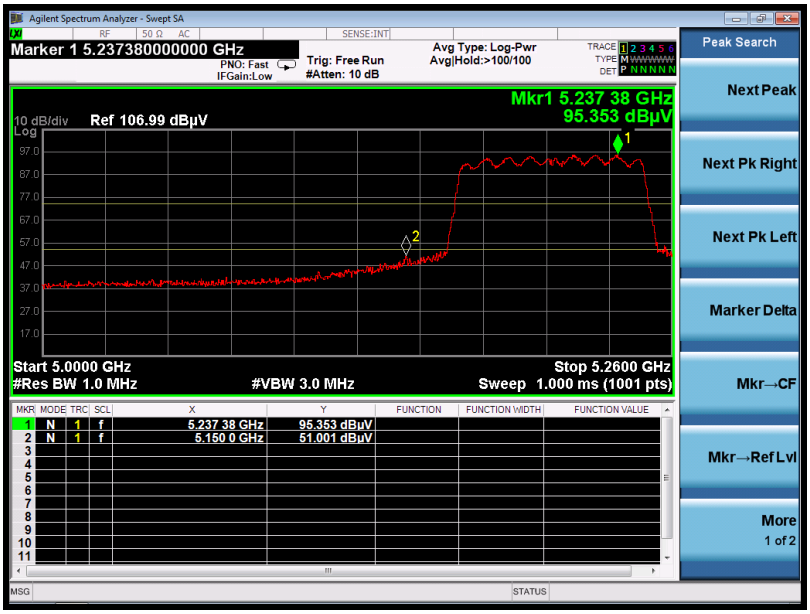


AV Value

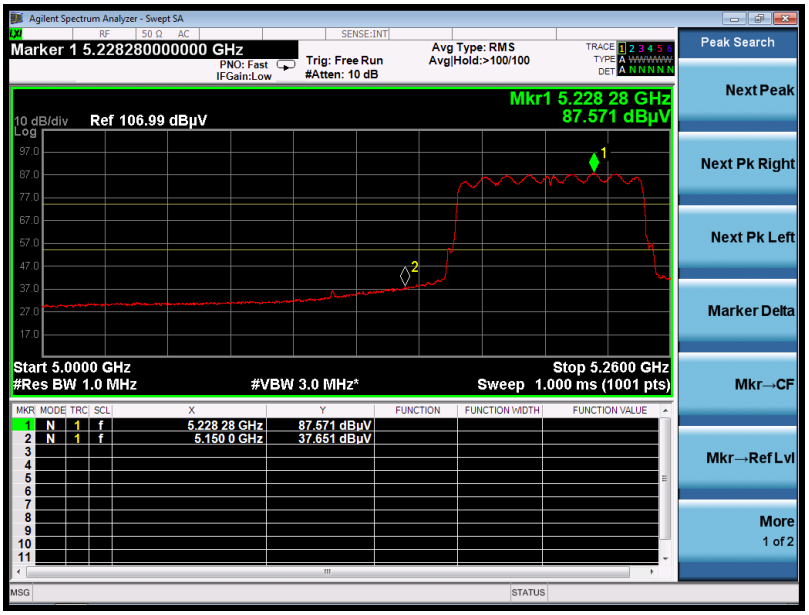


EUT	Wireless USB Adapter	Model Name	M-1200S
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11ac80 5210MHz	Antenna	Horizontal

PK Value

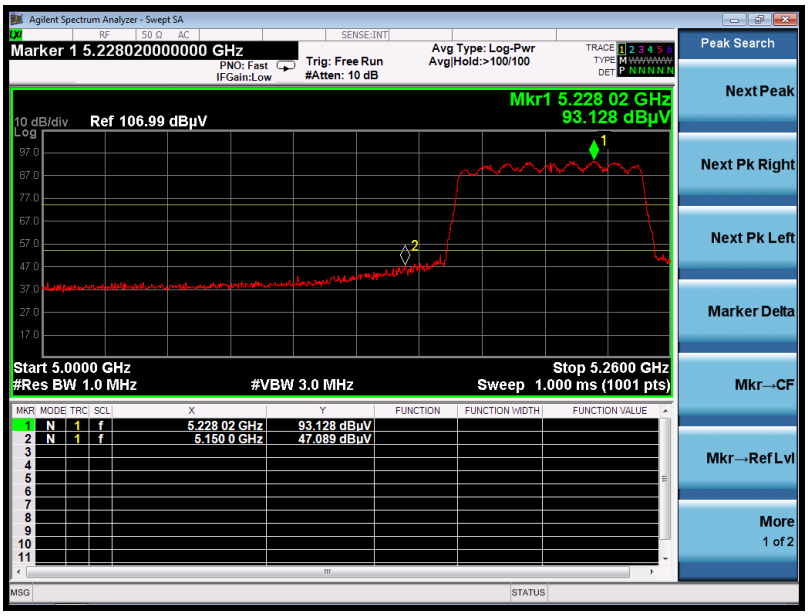


AV Value

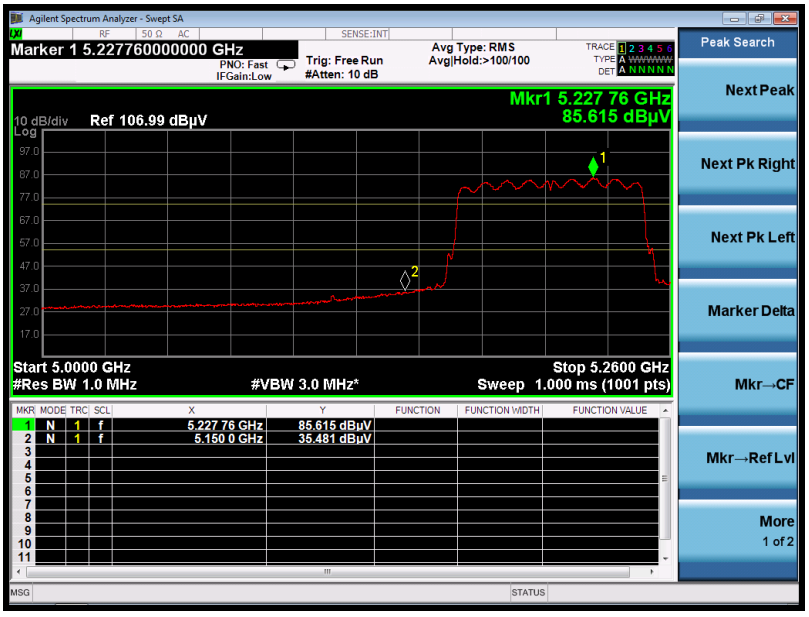


EUT	Wireless USB Adapter	Model Name	M-1200S
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	802.11ac80 5210MHz	Antenna	Vertical

PK Value



AV Value



RESULT: PASS

Note: All the bandwidth modulation had been tested, the 802.11a20 5180MHz/802.11n40 5190MHz/ 802.11ac80 5210MHz was the worst case and record in his test report.

13. FCC LINE CONDUCTED EMISSION TEST

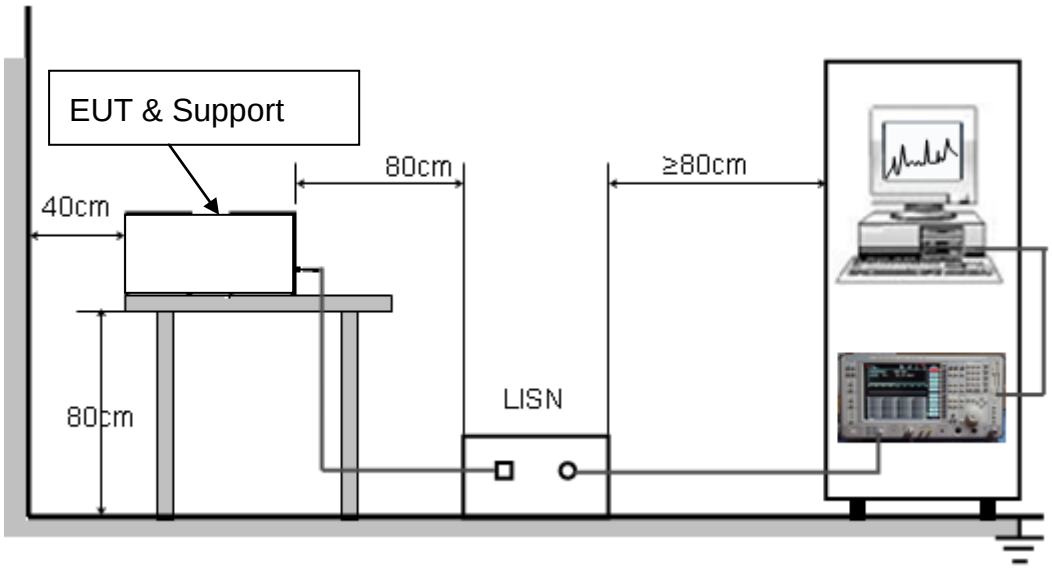
13.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50MHz.

13.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



13.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. All support equipments received AC120V/60Hz power from a LISN, if any.
5. The EUT received charging voltage by adapter which received 120V/60Hzpower by a LISN.
6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

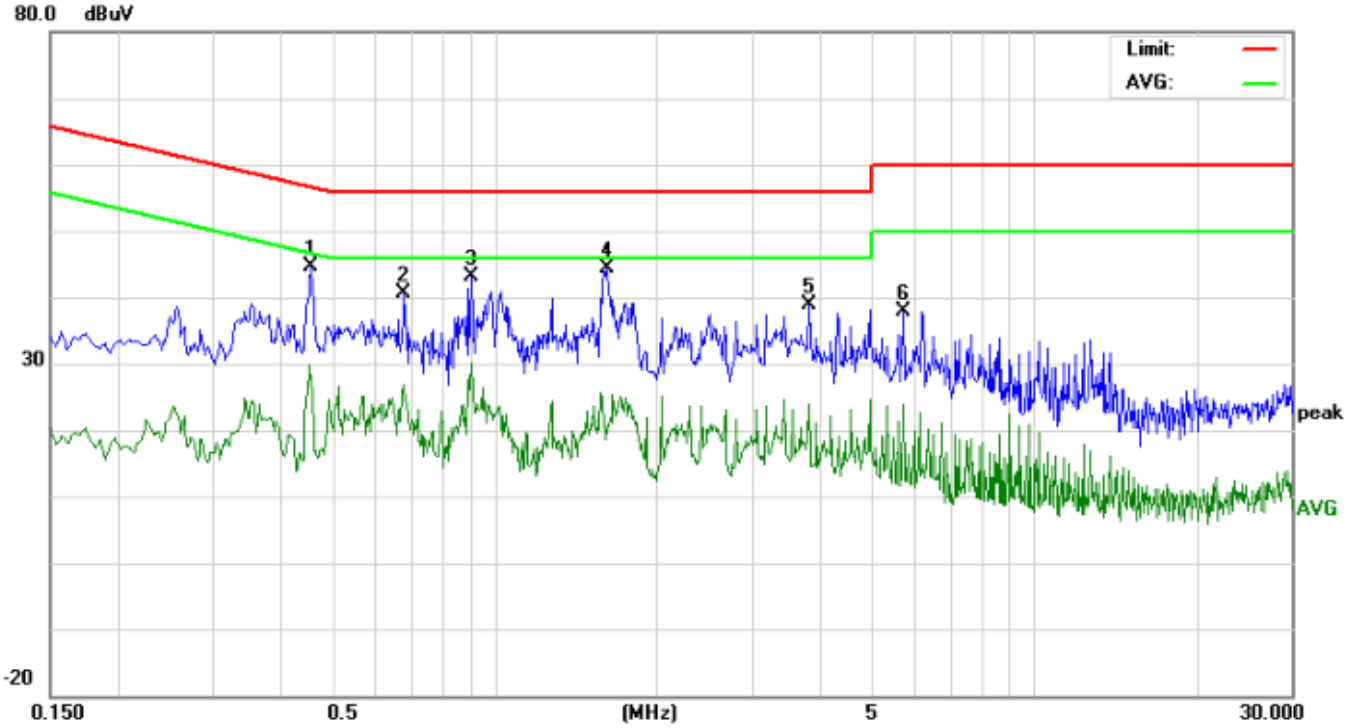
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less –2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
3. The test data of the worst case condition(s) was reported on the Summary Data page.

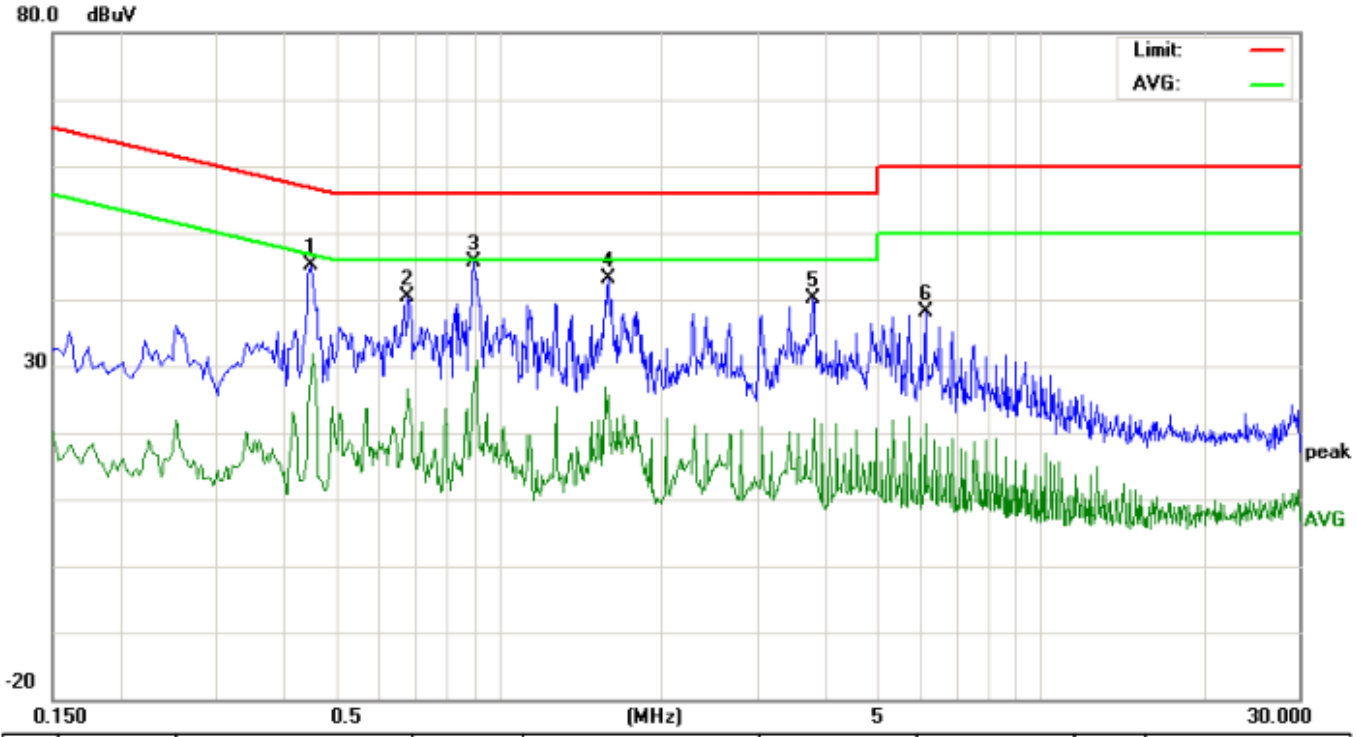
13.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

LINE CONDUCTED EMISSION TEST-L



No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.4580	34.23		16.91	10.37	44.60		27.28	56.73	46.73	-12.13	-19.45	P	
2	0.6820	30.29		16.65	10.34	40.63		26.99	56.00	46.00	-15.37	-19.01	P	
3	0.9060	32.66		19.60	10.41	43.07		30.01	56.00	46.00	-12.93	-15.99	P	
4	1.6259	34.06		10.22	10.34	44.40		20.56	56.00	46.00	-11.60	-25.44	P	
5	3.8260	28.36		13.43	10.46	38.82		23.89	56.00	46.00	-17.18	-22.11	P	
6	5.7378	27.68		13.67	10.26	37.94		23.93	60.00	50.00	-22.06	-26.07	P	

LINE CONDUCTED EMISSION TEST-N



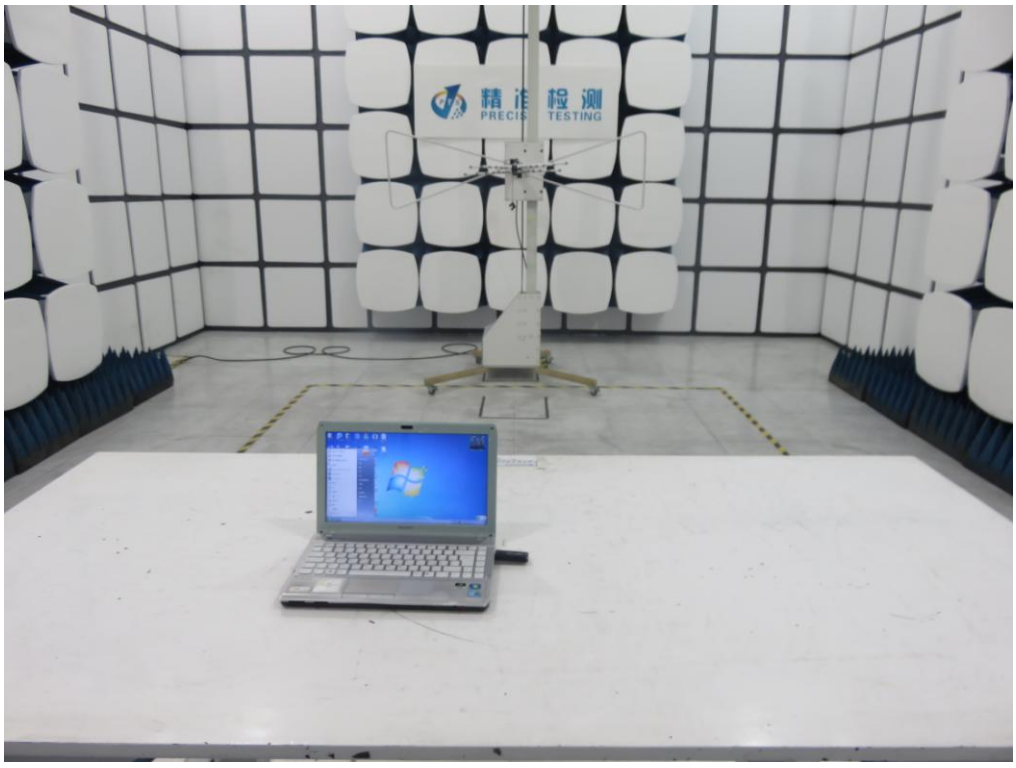
No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.4500	34.72		19.12	10.37	45.09		29.49	56.87	46.87	-11.78	-17.38	P	
2	0.6820	30.02		16.32	10.34	40.36		26.66	56.00	46.00	-15.64	-19.34	P	
3	0.9020	35.19		15.73	10.41	45.60		26.14	56.00	46.00	-10.40	-19.86	P	
4	1.5940	32.65		15.21	10.35	43.00		25.56	56.00	46.00	-13.00	-20.44	P	
5	3.8180	29.72		5.84	10.46	40.18		16.30	56.00	46.00	-15.82	-29.70	P	
6	6.1219	27.85		11.08	10.28	38.13		21.36	60.00	50.00	-21.87	-28.64	P	

RESULT: PASS

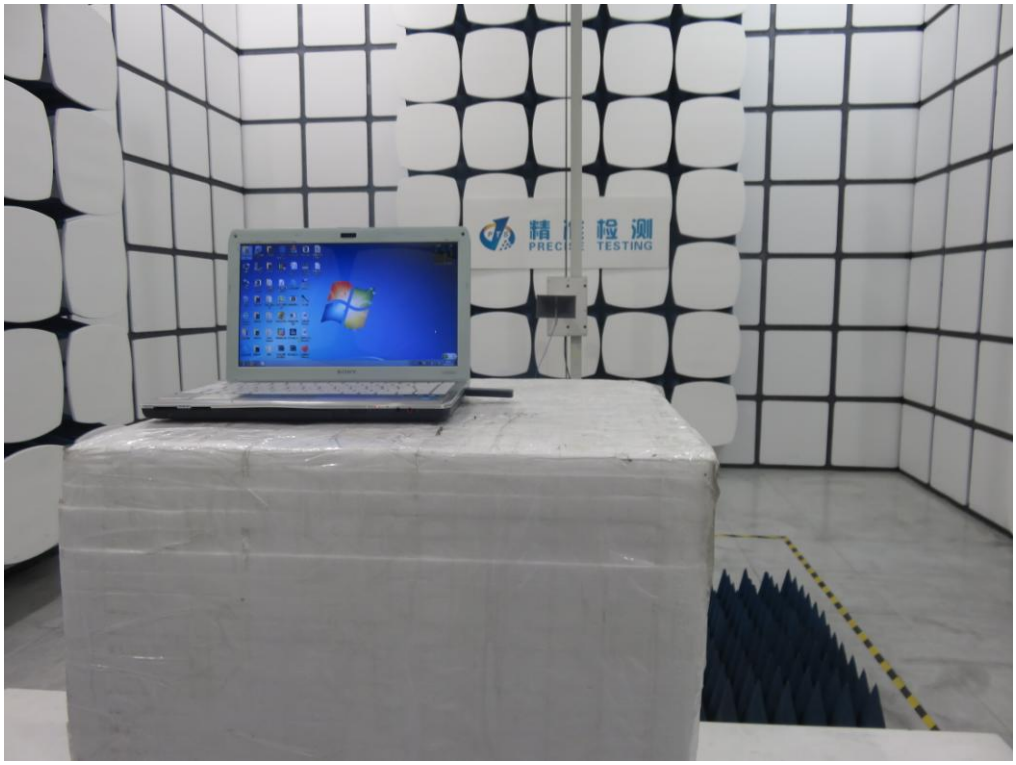
APPENDIX A: PHOTOGRAPHS OF TEST SETUP

FCC LINE CONDUCTED EMISSION TEST SETUP

FCC RADIATED EMISSION TEST SETUP BELOW 1GHZ



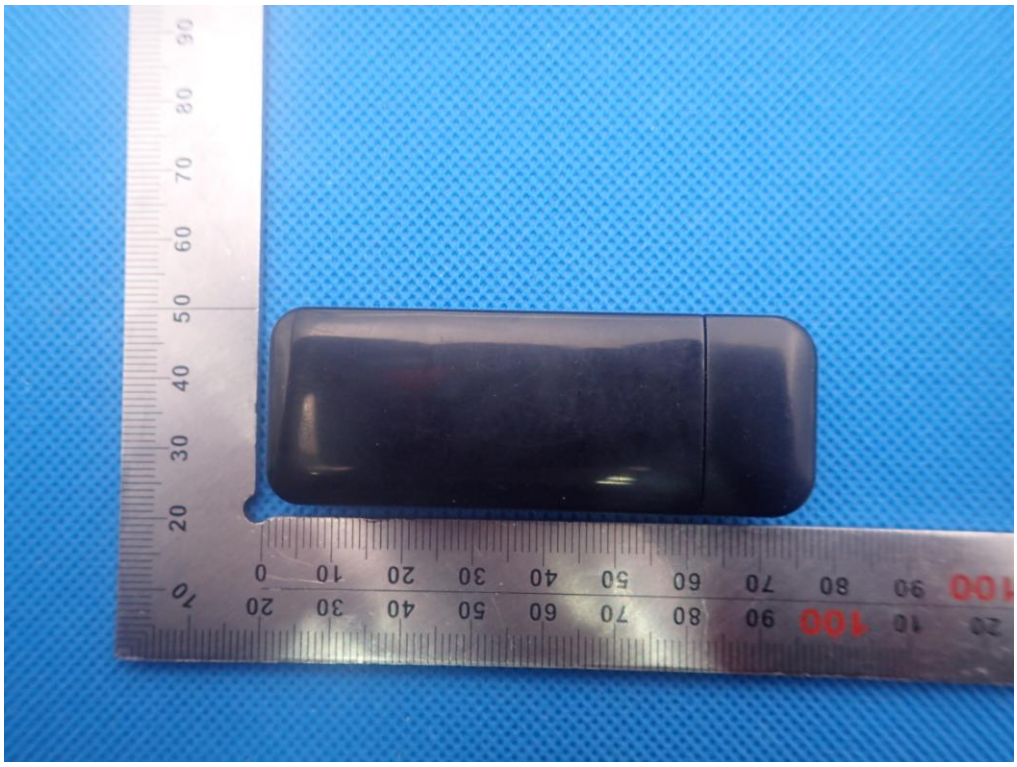
FCC RADIATED EMISSION TEST SETUP ABOVE 1GHZ



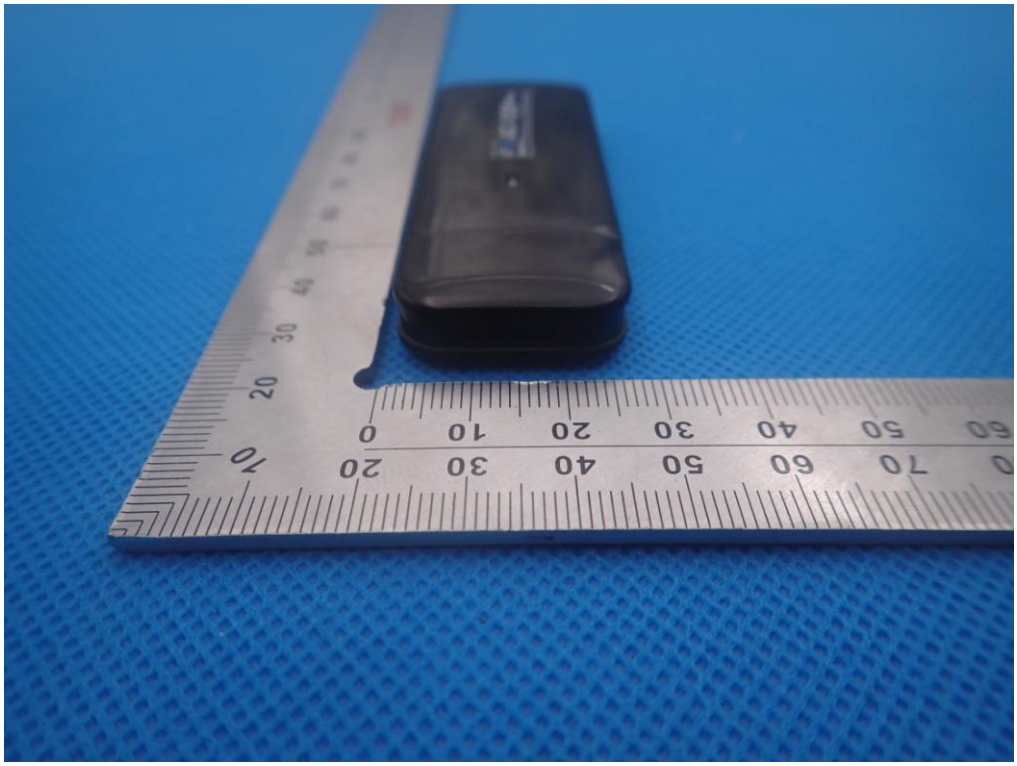
APPENDIX B: PHOTOGRAPHS OF EUT

TOP VIEW OF EUT

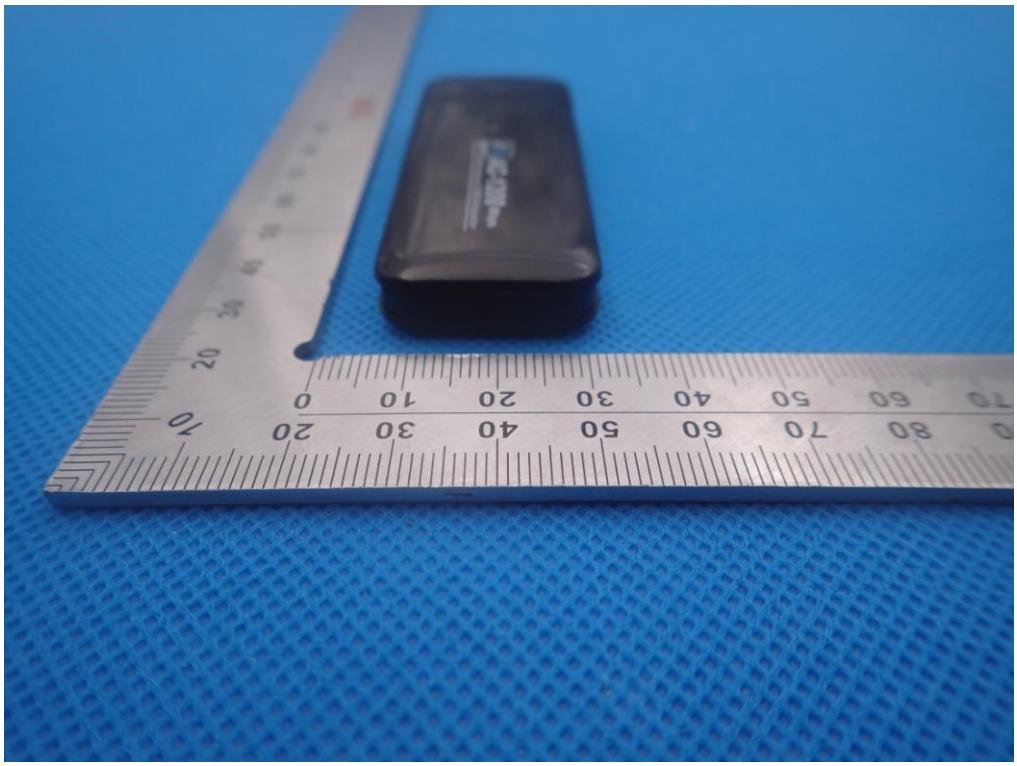
BOTTOM VIEW OF EUT



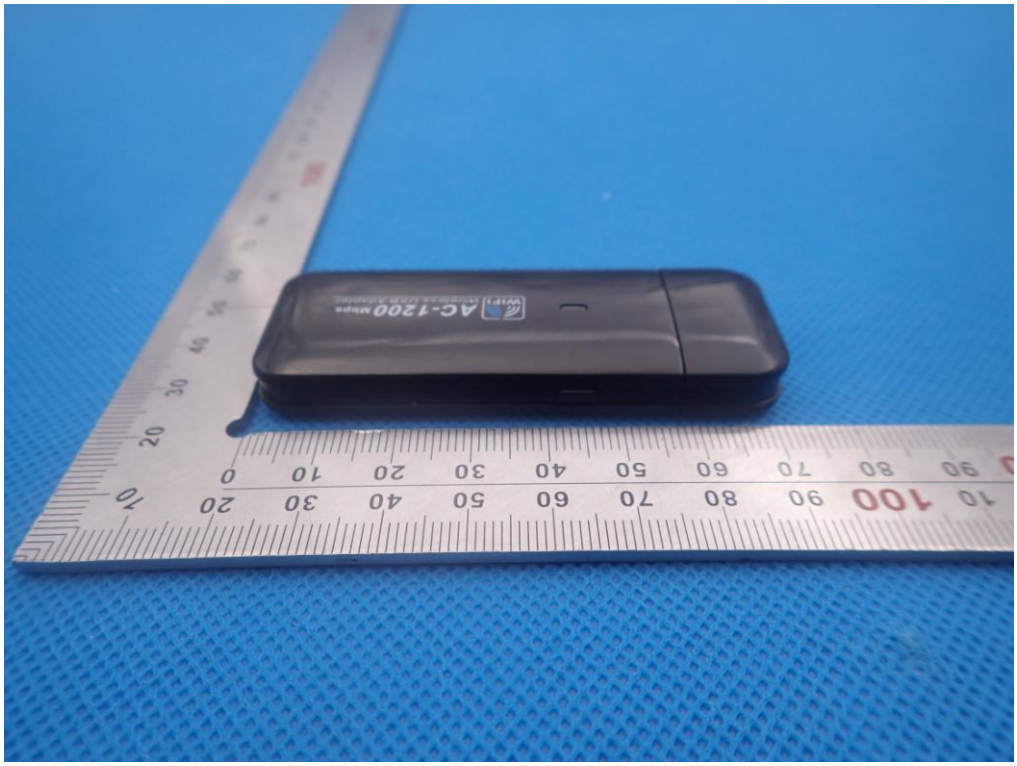
FRONT VIEW OF EUT



BACK VIEW OF EUT



LEFT VIEW OF EUT

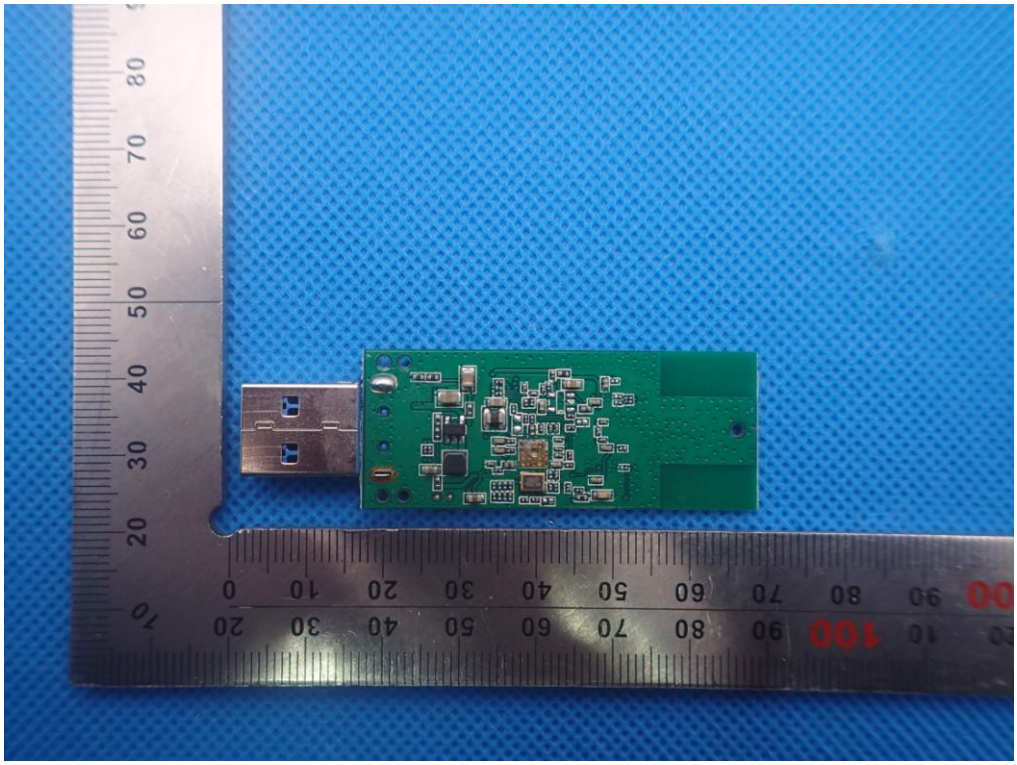


RIGHT VIEW OF EUT

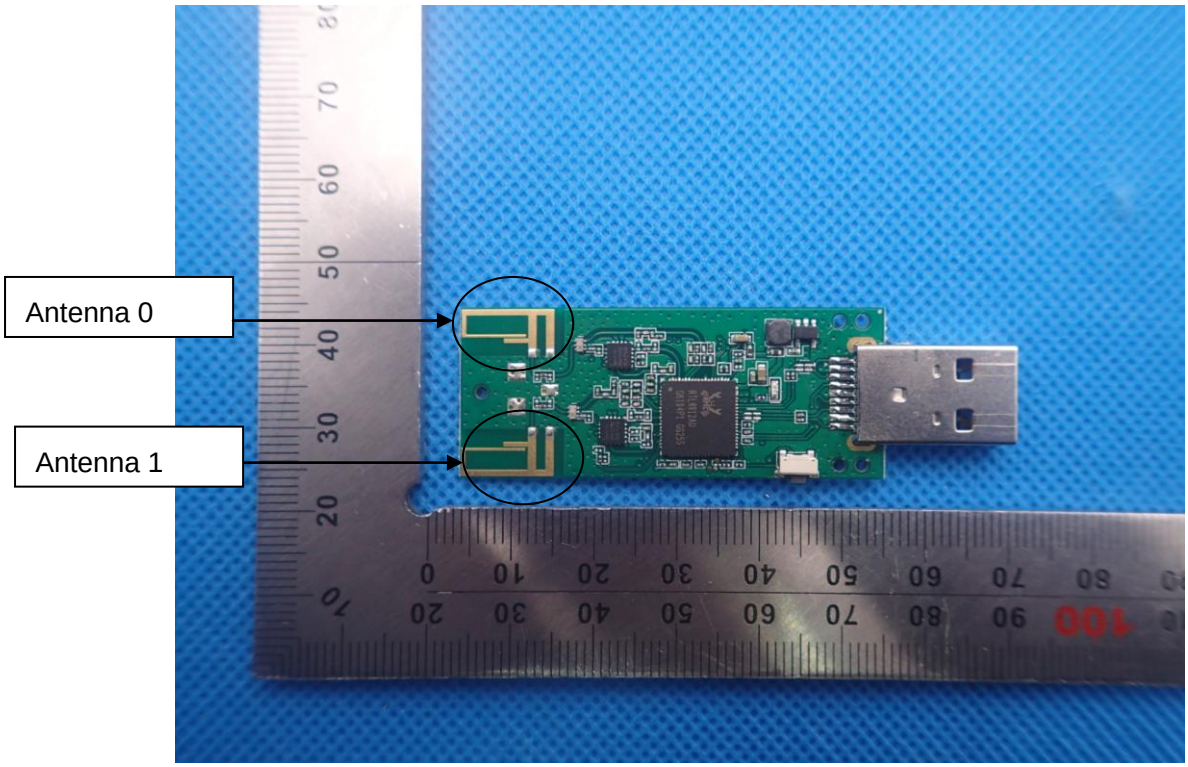
OPEN VIEW OF EUT-1

OPEN VIEW OF EUT-1

INTERNAL VIEW OF EUT-1



INTERNAL VIEW OF EUT-2



----END OF REPORT----