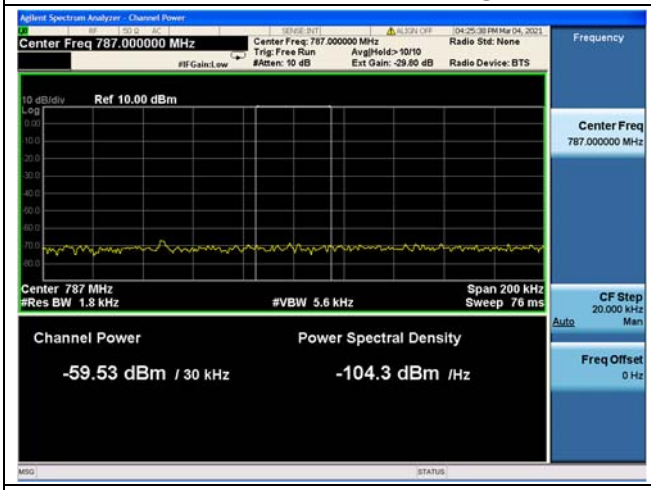
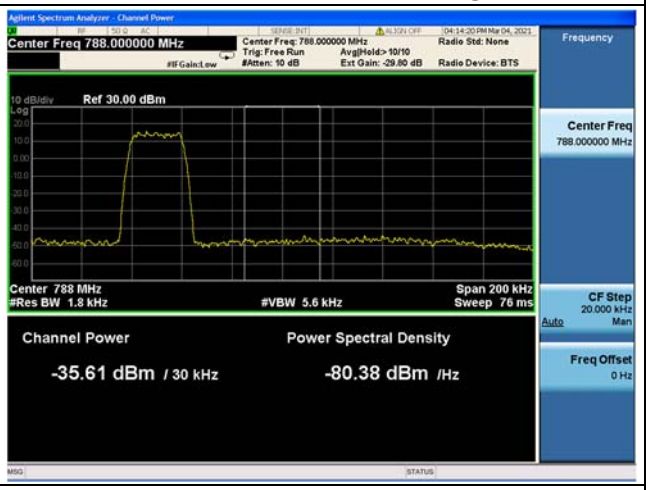
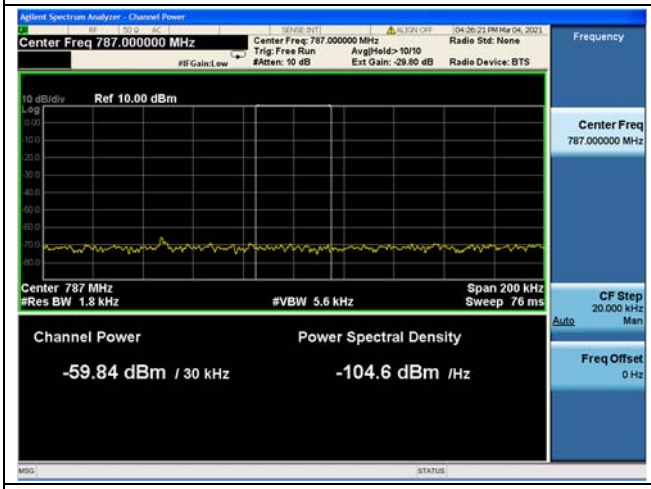
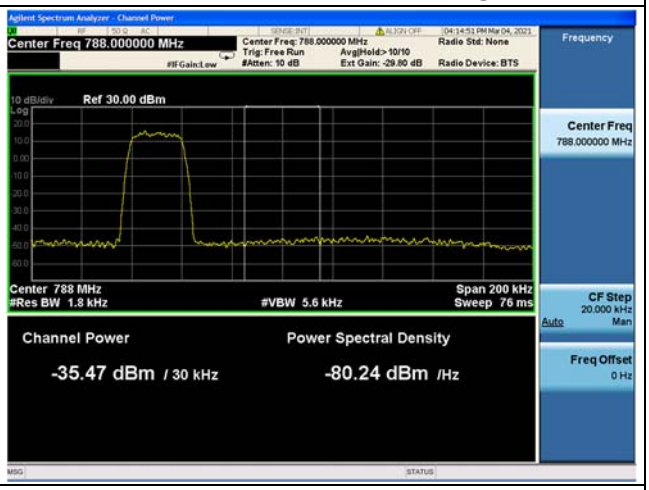
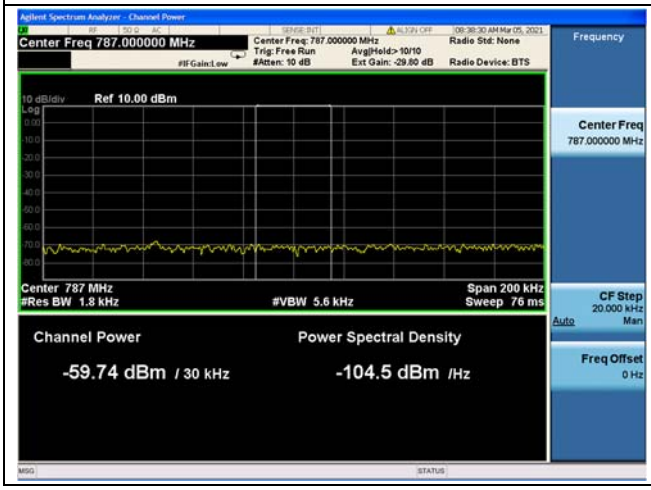
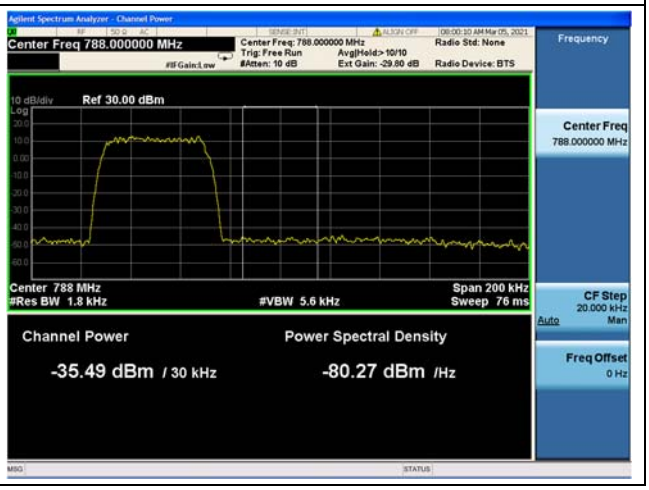
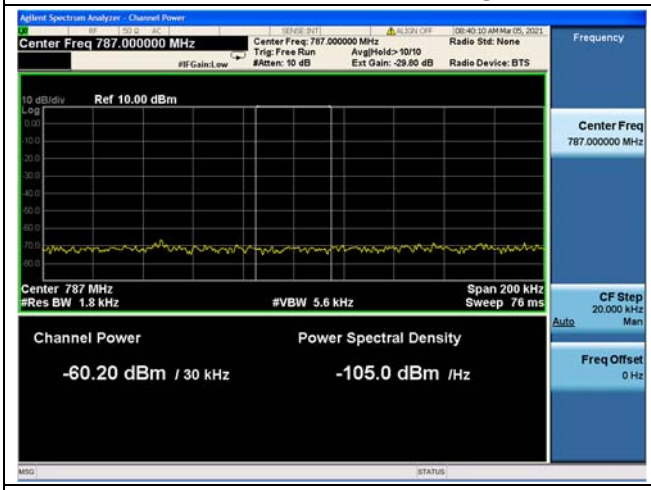
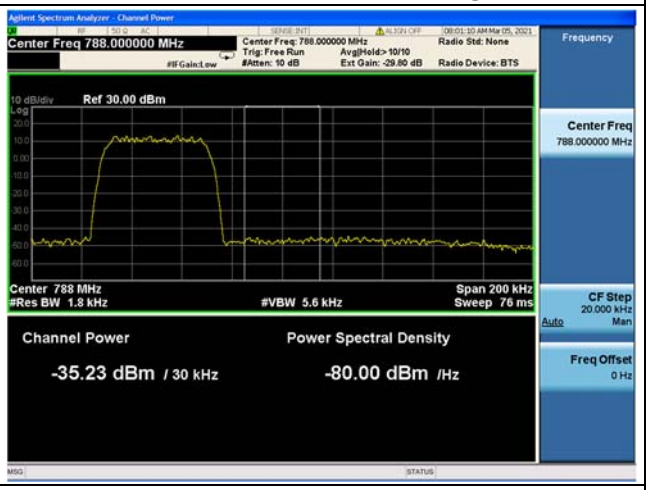
25kHz/64QAM/Lower edge	25kHz/64QAM/Upper edge
	
25kHz/256QAM/Lower edge	**25kHz/256QAM/Upper edge**
	
50kHz/QPSK/Lower edge	**50kHz/QPSK/Upper edge**
	

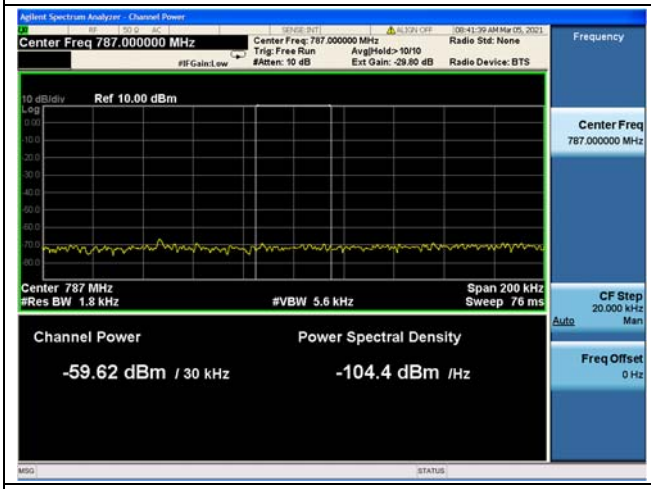
50kHz/16QAM/Lower edge



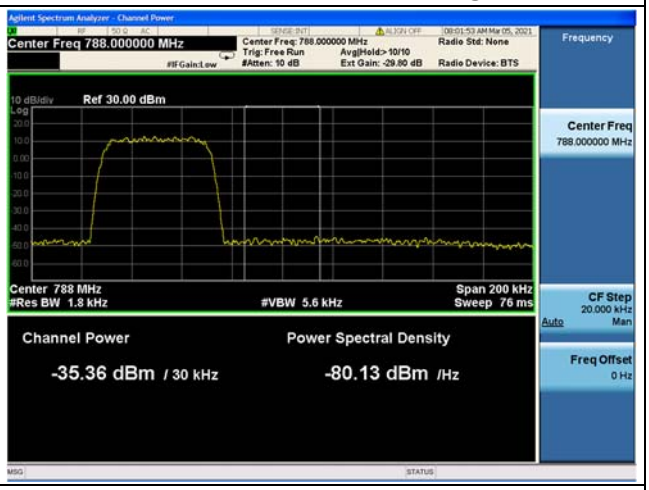
50kHz/16QAM/Upper edge



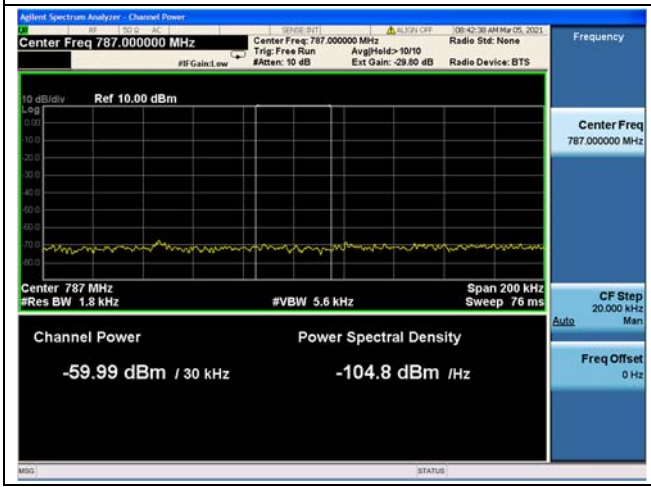
50kHz/64QAM/Lower edge



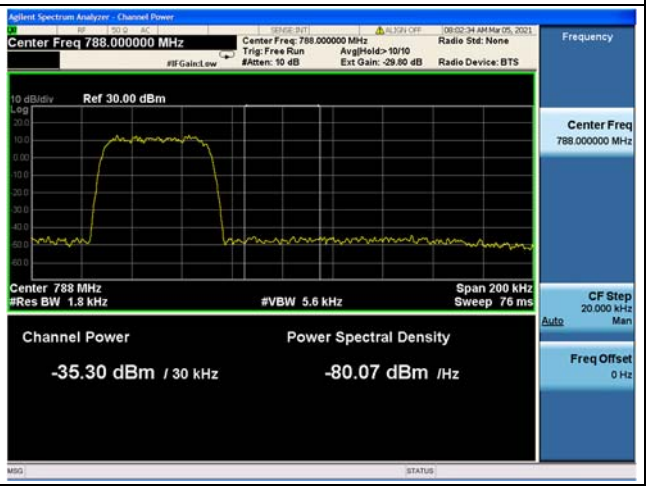
50kHz/64QAM/Upper edge



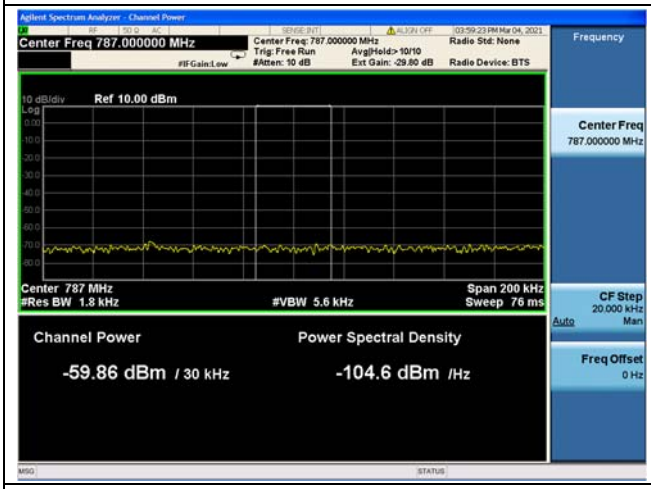
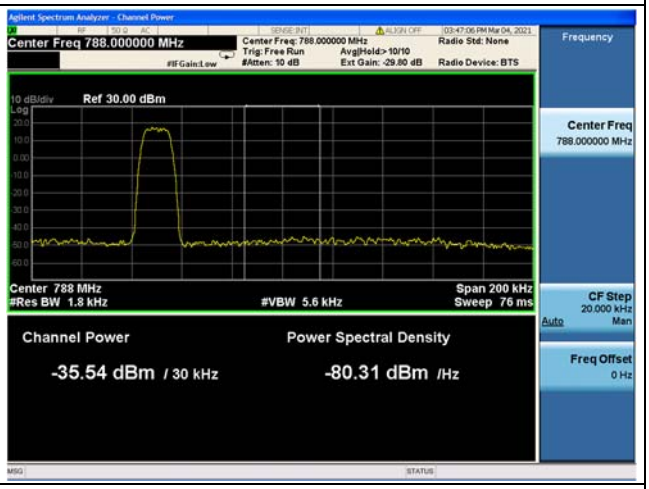
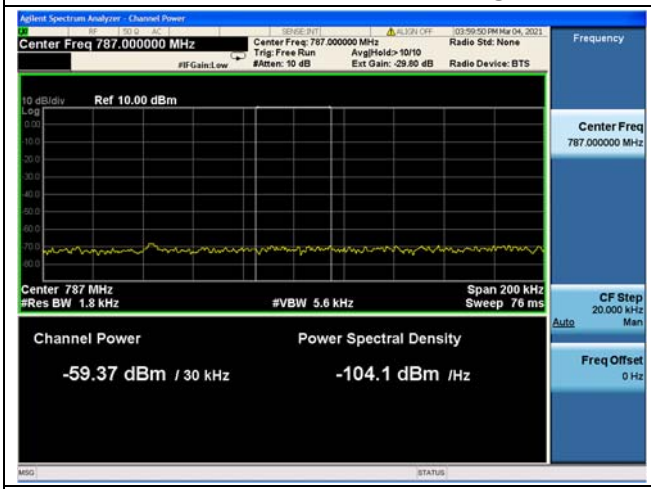
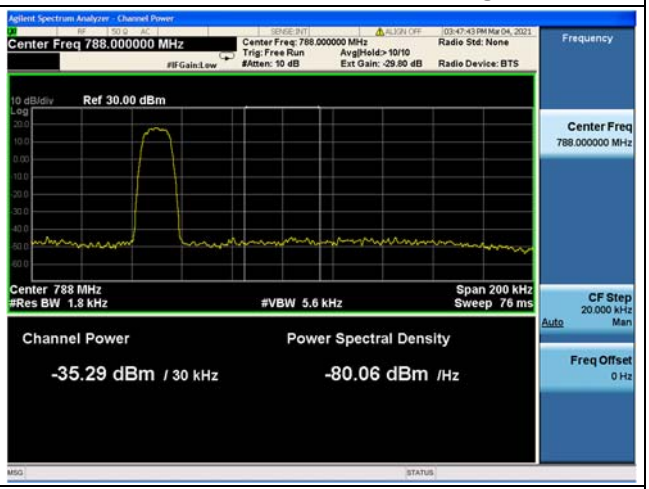
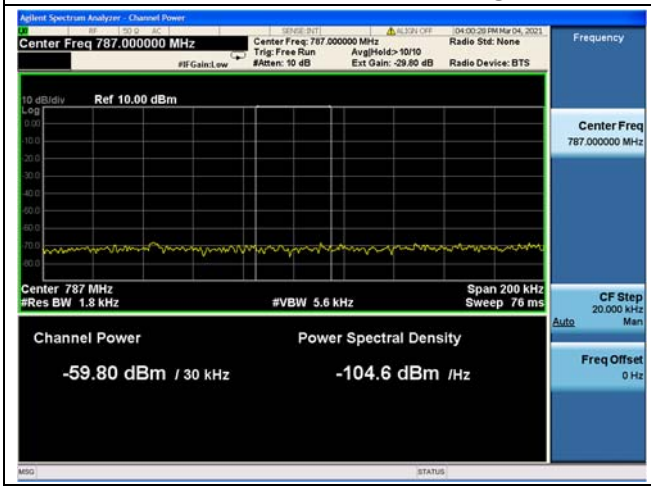
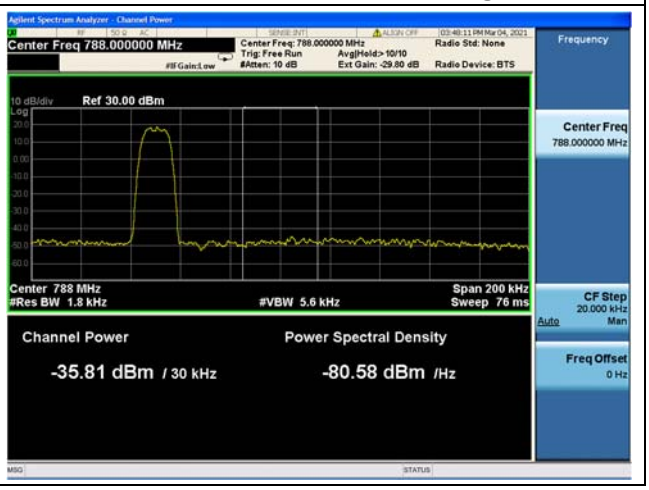
50kHz/256QAM/Lower edge

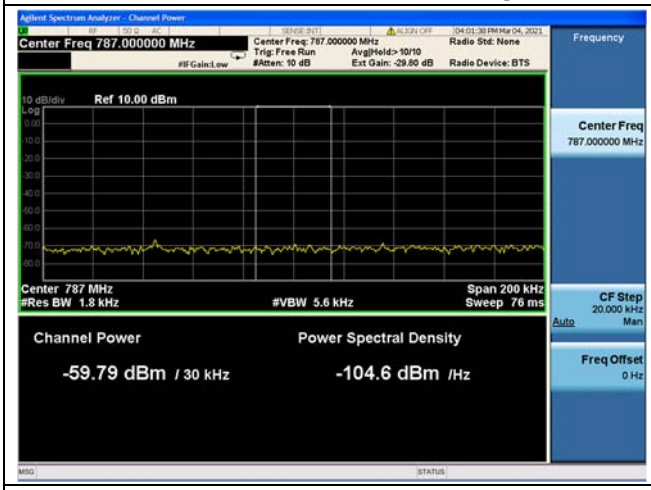
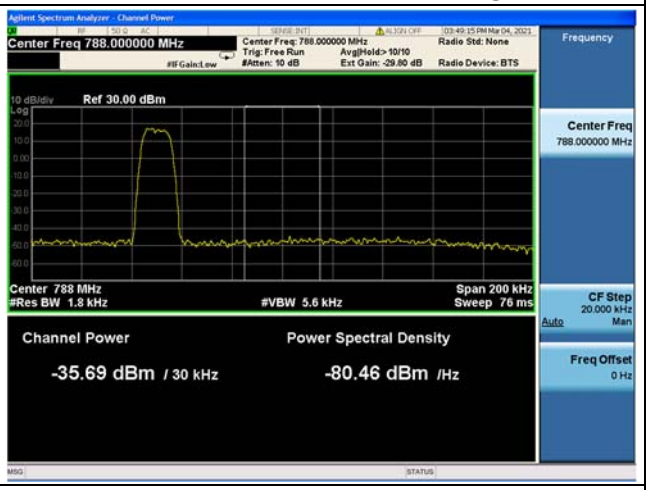
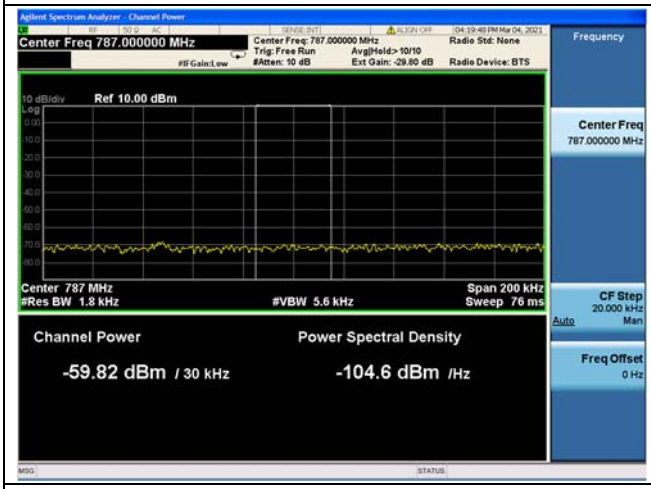
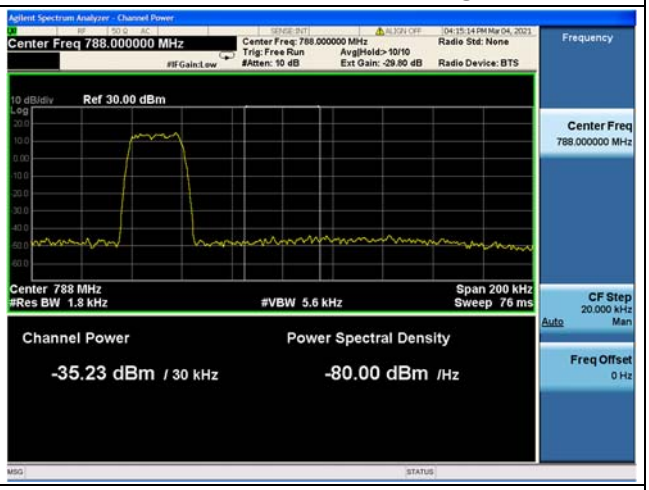
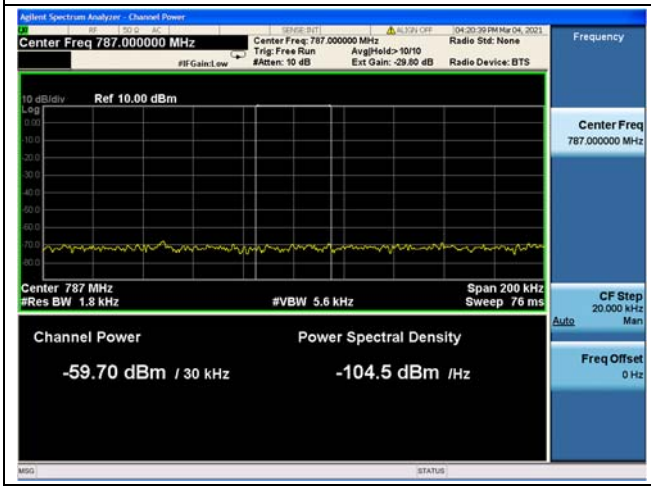
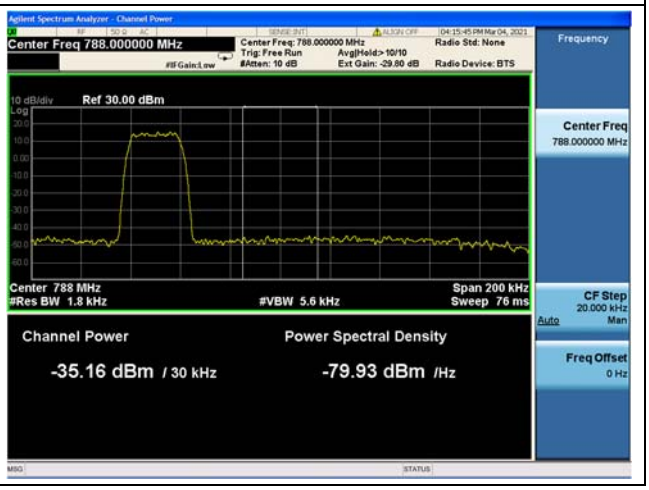


50kHz/256QAM/Upper edge

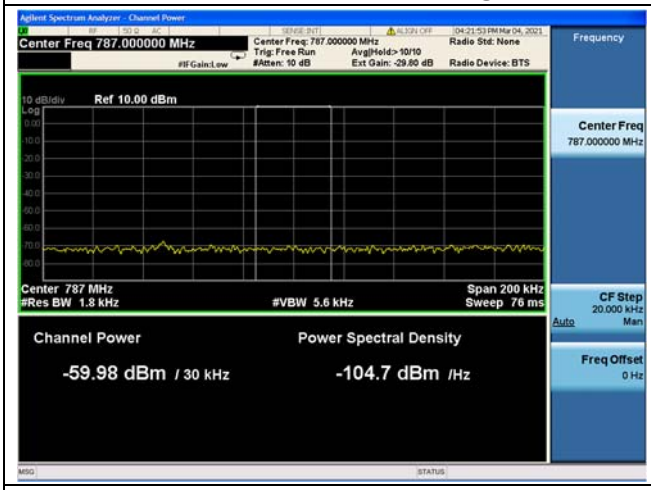


Nominal Frequency: 787.950 MHz Tx Port: Channel V

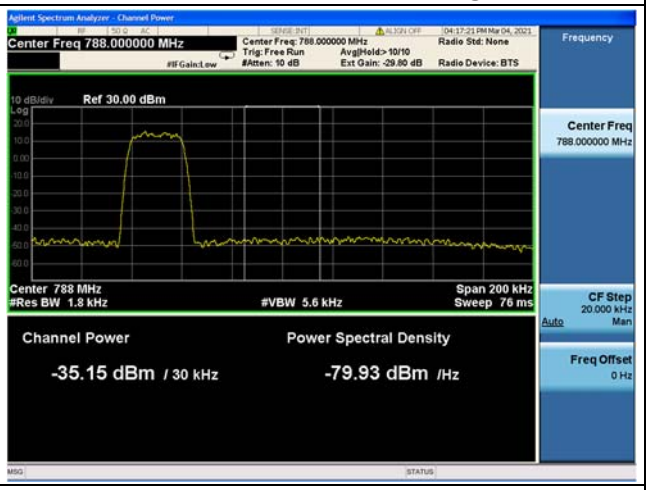
12.5kHz/QPSK/Lower edge	12.5kHz/QPSK/Upper edge
	
12.5kHz/16QAM/Lower edge	**12.5kHz/16QAM/Upper edge**
	
12.5kHz/64QAM/Lower edge	**12.5kHz/64QAM/Upper edge**
	

12.5kHz/256QAM/Lower edge	12.5kHz/256QAM/Upper edge
	
25kHz/QPSK/Lower edge	**25kHz/QPSK/Upper edge**
	
25kHz/16QAM/Lower edge	**25kHz/16QAM/Upper edge**
	

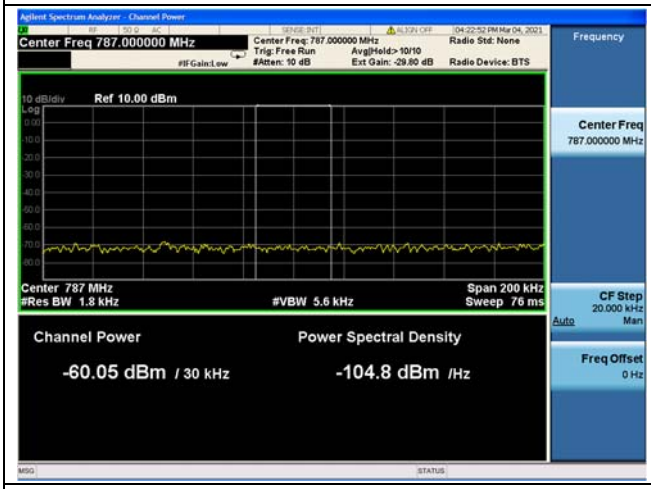
25kHz/64QAM/Lower edge



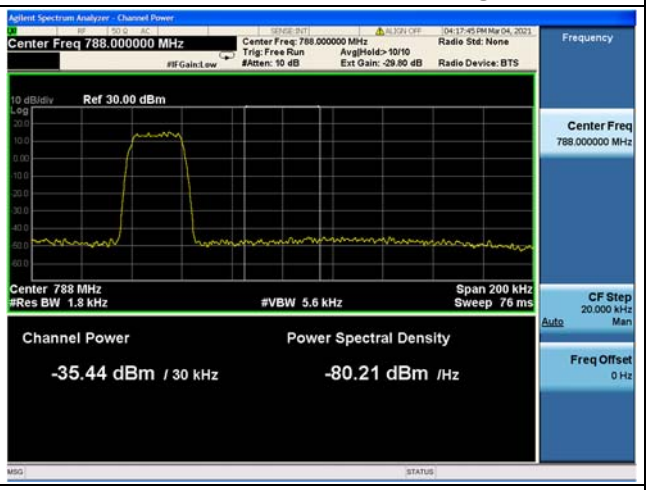
25kHz/64QAM/Upper edge



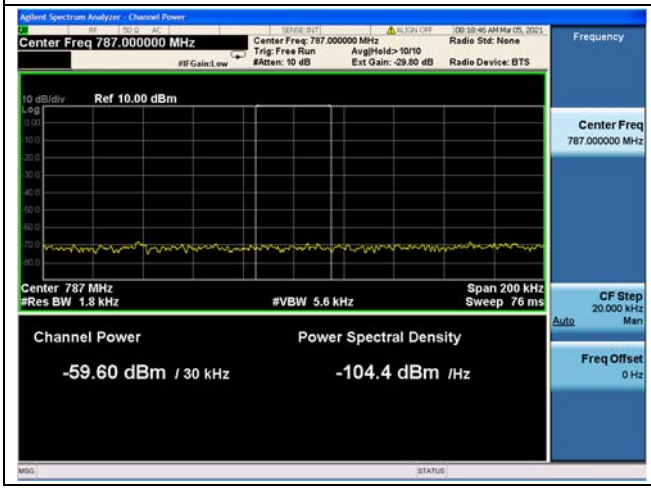
25kHz/256QAM/Lower edge



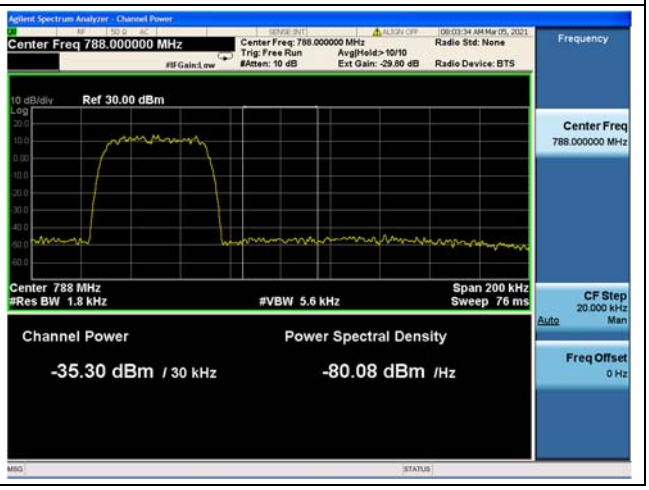
25kHz/256QAM/Upper edge



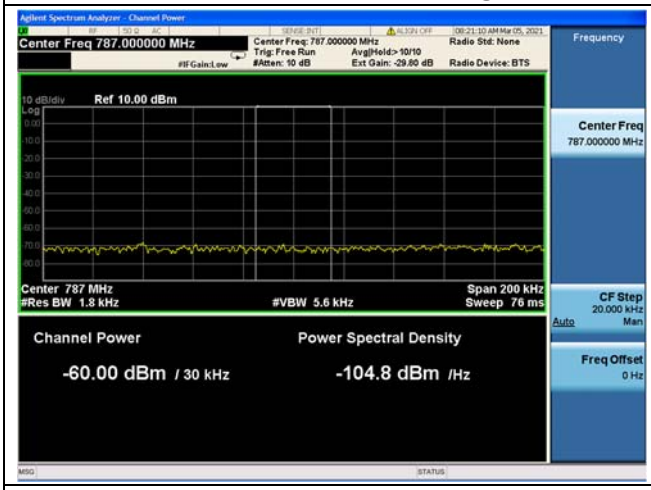
50kHz/QPSK/Lower edge



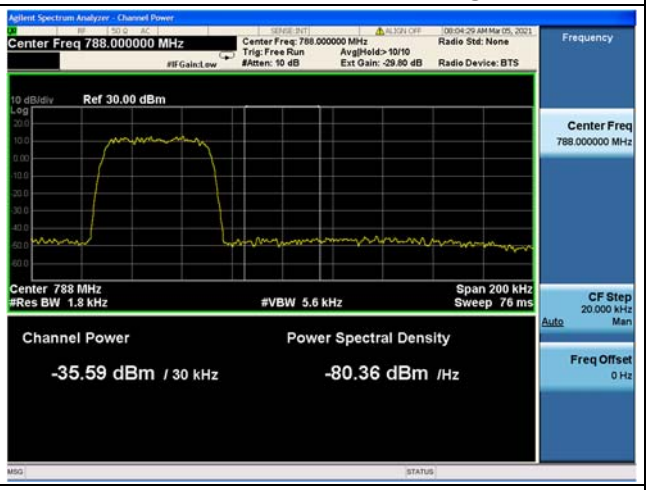
50kHz/QPSK/Upper edge



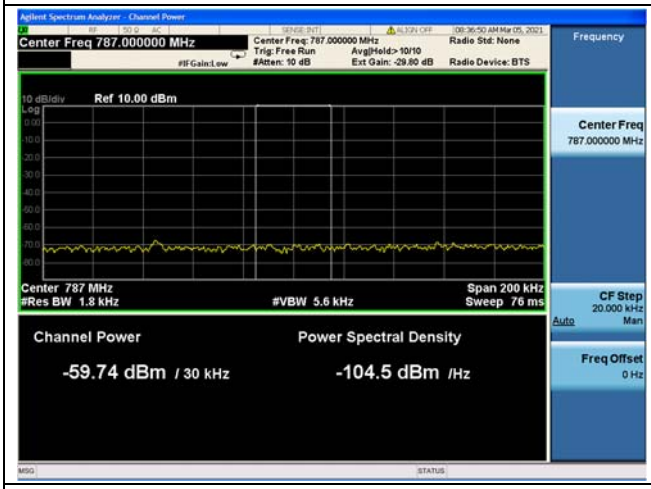
50kHz/16QAM/Lower edge



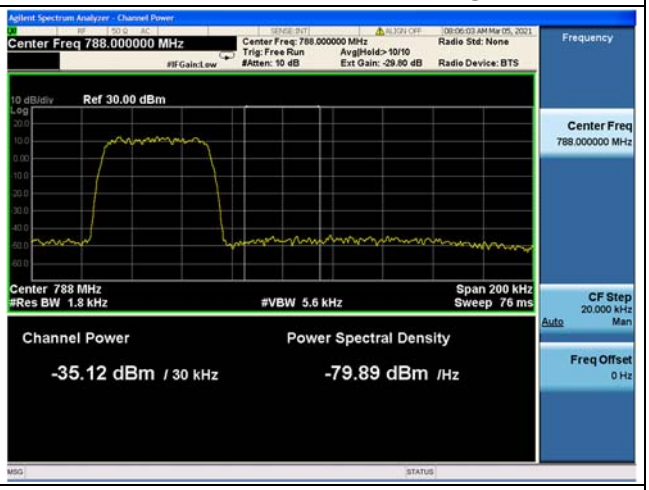
50kHz/16QAM/Upper edge



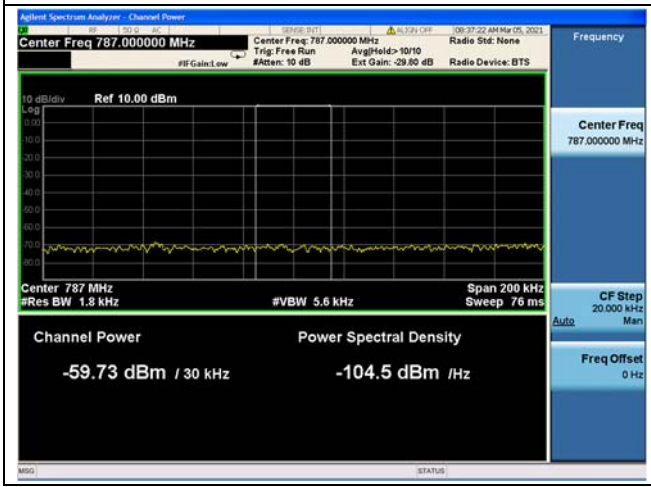
50kHz/64QAM/Lower edge



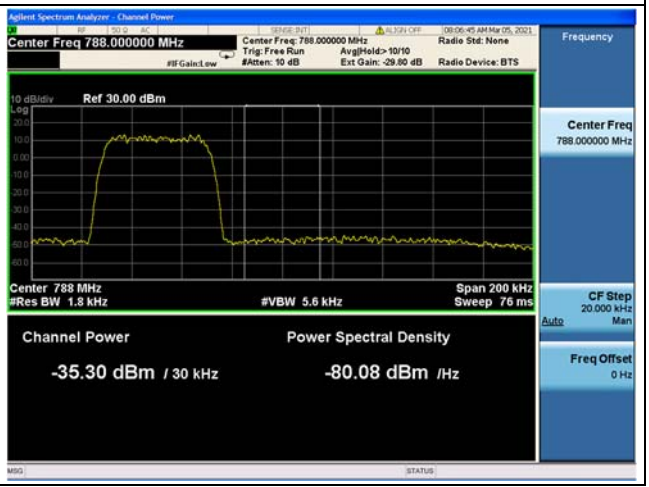
50kHz/64QAM/Upper edge



50kHz/256QAM/Lower edge



50kHz/256QAM/Upper edge



2.4. Radiated Spurious Emissions

2.4.1. Requirement

According to FCC section 2.1053 and section 27.53(c). For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;
(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;
(3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;
(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;
(6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

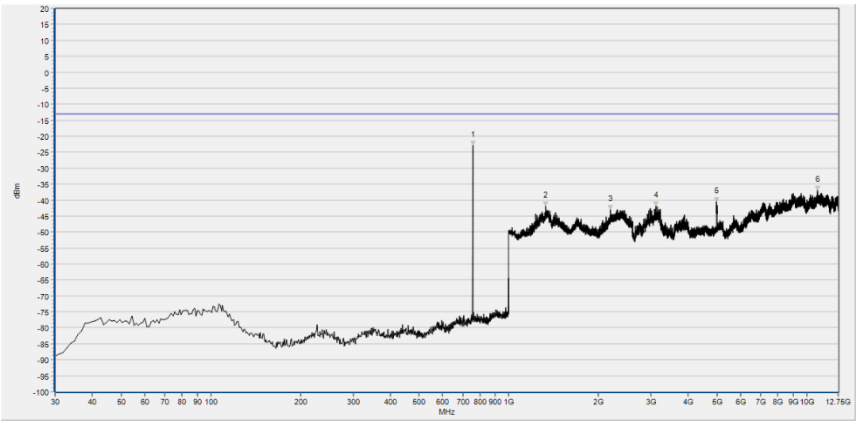
Additional requirement for operations in the 746-758 MHz, 775-788 MHz:

According to FCC section 27.53(f), for operations in the 746-758 MHz, 775-788 MHz, and 805-806 MHz bands, emissions in the band 1559-1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.
This calculated to be -40dBm.

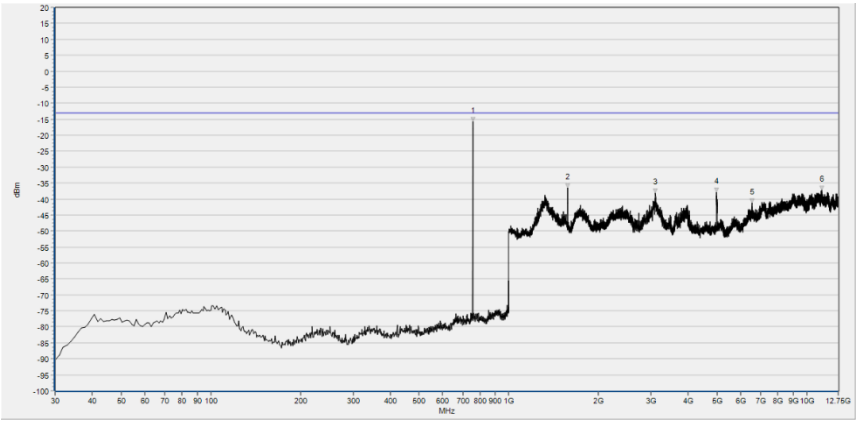
2.4.2. Test Result

Note 1: An Omni 4dBi antenna was attached to the transmitter which was considered to be typical. Testing was carried out at the test site between 1559-1610 MHz using a peak detector with 1 MHz resolution bandwidth using both vertical and horizontal polarizations.
Note 2: No discrete emissions were detected.
Note 3: The power of the EUT transmitting frequency should be ignored.
Note 4: N/A means the frequency is the basic frequency, they are no need to verdict.
Note 5: For measurements below 1GHz the resolution bandwidth is set to 100kHz for peak detection measurements. For measurements above 1GHz (exclude 1559-1610 MHz) the resolution bandwidth is set to 1MHz for peak measurements.
Note 6: All bandwidth and modulation were considered and evaluated respectively by performing full test, only the worst cases were recorded in this test report.
Note 7: The graph is tested with the antenna gain of 4dBi, and the data table is calculated from the antenna gain of 16dBi. The calculation formula: PK (dBm) = DATA(reading value of the graph) + 12dB(Difference of the antenna gain).
Note 8: The tested RSE at 1559 – 1610MHz is limited by test instruments.

Nominal Frequency 757.050MHz, 12.5kHz BW, 256QAM

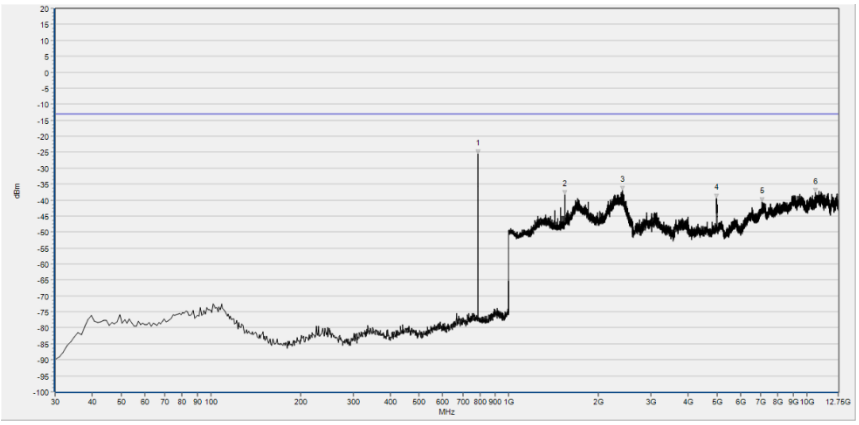


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	757.500	-10.98	-13.00	Horizontal	N/A
2	1332.293	-29.88	-13.00	Horizontal	PASS
3	2188.956	-30.99	-13.00	Horizontal	PASS
4	3114.975	-30.01	-13.00	Horizontal	PASS
5	4977.378	-28.66	-13.00	Horizontal	PASS
6	10880.215	-24.97	-13.00	Horizontal	PASS

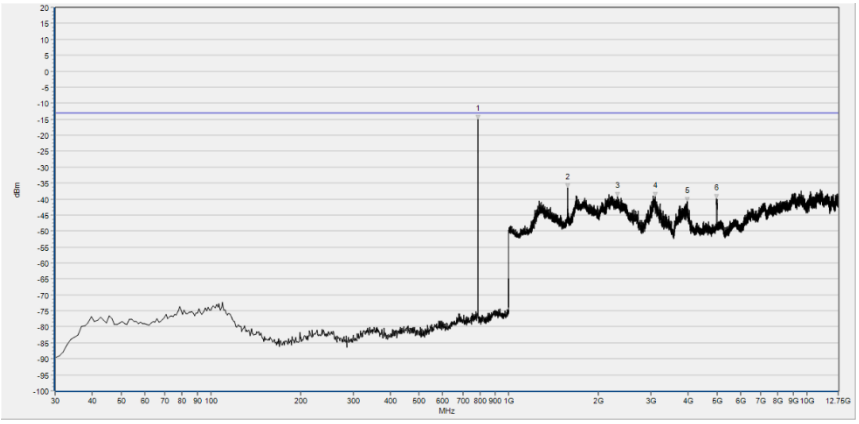


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	757.500	-3.67	-13.00	Vertical	N/A
2	1576.230	-24.46	-13.00	Vertical	PASS
3	3107.592	-26.09	-13.00	Vertical	PASS
4	4982.915	-25.95	-13.00	Vertical	PASS
5	6535.225	-29.13	-13.00	Vertical	PASS
6	11230.915	-25.17	-13.00	Vertical	PASS

Nominal Frequency 787.950MHz, 50kHz BW, 256QAM

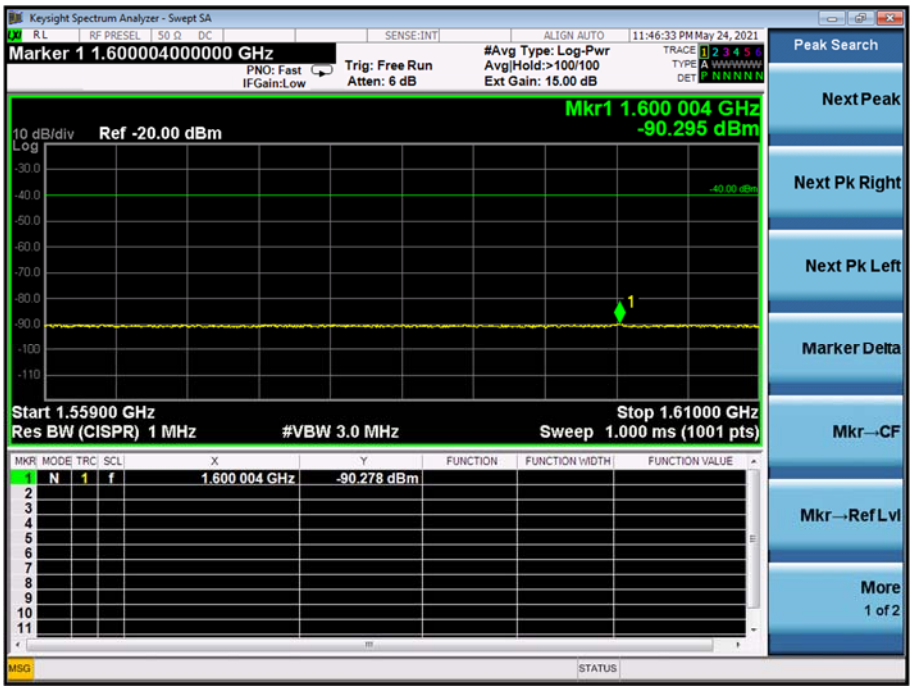


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	787.570	-13.62	-13.00	Horizontal	PASS
2	1541.016	-26.42	-13.00	Horizontal	PASS
3	2411.765	-25.05	-13.00	Horizontal	PASS
4	4977.378	-27.53	-13.00	Horizontal	PASS
5	7090.807	-28.6	-13.00	Horizontal	PASS
6	10680.869	-25.57	-13.00	Horizontal	PASS

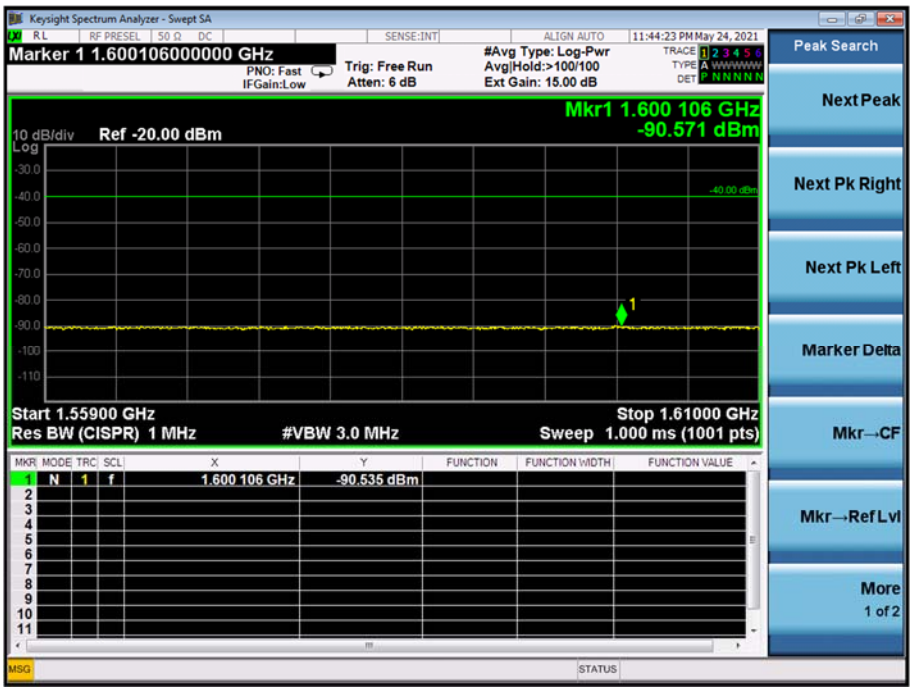


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	787.570	-3.03	-13.00	Vertical	N/A
2	1576.230	-24.43	-13.00	Vertical	PASS
3	2321.489	-27.22	-13.00	Vertical	PASS
4	3103.901	-27.29	-13.00	Vertical	PASS
5	3962.193	-28.68	-13.00	Vertical	PASS
6	4977.378	-27.78	-13.00	Vertical	PASS

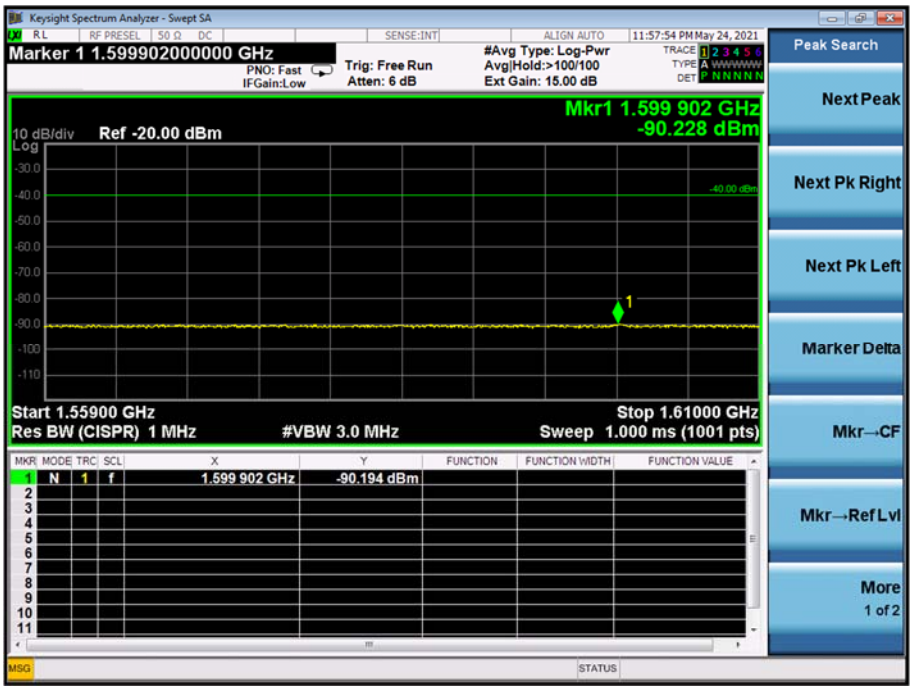
Nominal Frequency 757.050MHz, 1559MHz-1610MHz, 12.5kHz, 256QAM, Horizontal, Peak value = -90.278dBm, Limit = -40dBm



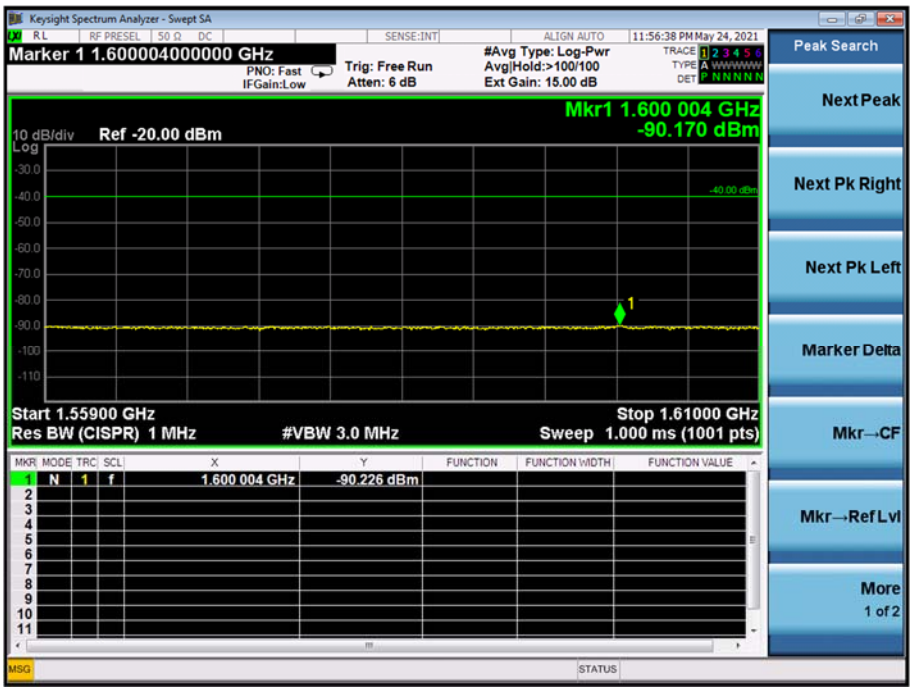
Nominal Frequency 757.050MHz, 1559MHz-1610MHz, 12.5kHz, 256QAM, Vertical, Peak value = -90.535dBm, Limit = -40dBm



Nominal Frequency 787.950MHz, 1559MHz-1610MHz, 50kHz, 256QAM, Horizontal, Peak value = -90.194dBm, Limit = -40dBm



Nominal Frequency 787.950MHz, 1559MHz-1610MHz, 50kHz, 256QAM, Vertical, Peak value = -90.226dBm, Limit = -40dBm



Frequency (MHz)	Antenna	CH BW (kHz)	Modulation	Spurious Span (MHz)	Measured Value (4dBi ANT)	Calculation Value (16dBi ANT)	Limit (dBm)	Verdict
757.050	Horizontal	12.5	256QAM	1559-1610	-90.278dBm	-78.278dBm	-40	Pass
	Vertical	12.5	256QAM	1559-1610	-90.235dBm	-78.235dBm	-40	Pass
787.950	Horizontal	50	256QAM	1559-1610	-90.194dBm	-78.194dBm	-40	Pass
	Vertical	50	256QAM	1559-1610	-90.226dBm	-78.226dBm	-40	Pass

2.5. Frequency Stability

2.5.1. Requirement

According to FCC section 2.1055 and FCC section 27.54, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 2.1055, the test conditions are:

(a) The temperature is varied from -30°C to +50°C at intervals of not more than 10°C.

(b) frequency stability also measured at extreme temperature -40°C and +70°C, which the applicant specified.

2.5.2. Test Results

The nominal, highest and lowest extreme voltages are separately 24VDC, 60VDC and 10.5VDC which are specified by the applicant. The normal temperature here used is 20°C.

The tested results show a maximum frequency deviation of 104Hz which equates to an error of 104Hz / 757.05MHz = 0.137 ppm.

757.050MHz QPSK 12.5kHz Limit =±1ppm					
Voltage	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
NV	24.0	-40	-43	-0.057	PASS
NV		-30	-38	-0.050	
NV		-20	21	0.028	
NV		-10	-12	-0.016	
NV		0	15	0.020	
NV		+10	-18	-0.024	
NV		+20	16	0.021	
NV		+30	25	0.033	
NV		+40	30	0.040	
NV		+50	48	0.063	
NV		+60	-29	-0.038	
NV		+70	53	0.070	
LV	10.5	+20	36	0.048	
HV	60.0	+20	27	0.036	

757.050MHz QPSK 25.0kHz Limit =±1ppm					
Voltage	Power	Temp (°C)	Fre. Dev.	Deviation	Result

	(VDC)		(Hz)	(ppm)	
NV	24.0	-40	-35	-0.044	PASS
NV		-30	45	0.057	
NV		-20	-20	-0.025	
NV		-10	17	0.022	
NV		0	-14	-0.018	
NV		+10	-17	-0.022	
NV		+20	28	0.036	
NV		+30	42	0.053	
NV		+40	68	0.086	
NV		+50	71	0.090	
NV		+60	64	0.081	
NV		+70	69	0.088	
LV	10.5	+20	26	0.033	
HV	60.0	+20	16	0.020	

757.050MHz QPSK 50.0kHz Limit =±1ppm					
Voltage	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
NV	24.0	-40	104	0.137	PASS
NV		-30	-69	-0.091	
NV		-20	-42	-0.055	
NV		-10	33	0.044	
NV		0	10	0.013	
NV		+10	-13	-0.017	
NV		+20	21	0.028	
NV		+30	25	0.033	
NV		+40	-28	-0.037	
NV		+50	43	0.057	
NV		+60	85	0.112	
NV		+70	92	0.122	
LV	10.5	+20	22	0.029	
HV	60.0	+20	48	0.063	

787.950MHz QPSK 12.5kHz Limit =±1ppm					
Voltage	Power (VDC)	Temp (°C)	Fre. Dev. (Hz)	Deviation (ppm)	Result
NV	24.0	-40	-90	-0.114	PASS

NV		-30	72	0.091	
NV		-20	40	0.051	
NV		-10	-23	-0.029	
NV		0	22	0.028	
NV		+10	32	0.041	
NV		+20	17	0.022	
NV		+30	-18	-0.023	
NV		+40	21	0.027	
NV		+50	54	0.069	
NV		+60	79	0.100	
NV		+70	101	0.128	
LV	10.5	+20	29	0.037	
HV	60.0	+20	-31	-0.039	

787.950MHz QPSK 25.0kHz Limit =±1ppm					
Voltage	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
NV	24.0	-40	78	0.099	PASS
NV		-30	62	0.079	
NV		-20	-50	-0.063	
NV		-10	41	0.052	
NV		0	22	0.028	
NV		+10	-20	-0.025	
NV		+20	-22	-0.028	
NV		+30	22	0.028	
NV		+40	-43	-0.055	
NV		+50	51	0.065	
NV		+60	-72	-0.091	
NV		+70	99	0.126	
LV	10.5	+20	29	0.037	
HV	60.0	+20	-31	-0.039	

787.950MHz QPSK 50.0kHz Limit =±1ppm					
Voltage	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
NV	24.0	-40	97	0.123	PASS
NV		-30	-79	-0.100	
NV		-20	73	0.093	

NV		-10	56	0.071	
NV		0	33	0.042	
NV		+10	-27	-0.034	
NV		+20	-31	-0.039	
NV		+30	59	0.075	
NV		+40	62	0.079	
NV		+50	-82	-0.104	
NV		+60	-92	-0.117	
NV		+70	103	0.131	
LV	10.5	+20	29	0.037	
HV	60.0	+20	-31	-0.039	

Annex A Test Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for test performed on the EUT as specified in CISPR 16-1-2:

Test items	Uncertainty
Peak Output Power	±2.22dB
Bandwidth	±5%
Conducted Spurious Emission	±2.77 dB
Radiated Spurious Emissions	±6 dB
Occupied Channel Bandwidth	±5%

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Annex B Testing Laboratory Information

1. Identification of the Responsible Testing Laboratory

Laboratory Name:	Morlab Laboratory of Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China
Telephone:	+86 755 36698555
Facsimile:	+86 755 36698525

2. Identification of the Responsible Testing Location

Name:	Morlab Laboratory of Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL.3, Building A, FeiYang Science Park, No.8 LongChang Road, Block 67, BaoAn District, ShenZhen, GuangDong Province, P. R. China

3. Facilities and Accreditations

All measurement facilities used to collect the measurement data are located at FL.3, Building A, FeiYang Science Park, Block 67, BaoAn District, Shenzhen, 518101 P. R. China. The test site is constructed in conformance with the requirements of ANSI C63.10-2013and CISPR Publication 22; the FCC designation number is CN1192, the test firm registration number is 226174.

4. Test Equipment Utilized

4.1 Conducted Test Equipment

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Power Splitter	NW521	1506A	Weinschel	2020.04.15	2021.04.14
Attenuator 1	(N/A.)	10dB	Resnet	N/A	N/A
Attenuator 2	(N/A.)	3dB	Resnet	N/A	N/A
EXA Signal Analyzer	MY51511149	N9020A	Agilent	2020.07.27	2021.07.26
USB Power Sensor	MY54210011	U2021XA	Agilent	2020.10.23	2021.10.22
System Simulator	6200995016	MT8820C	Anritsu	2020.10.28	2021.10.27
System Simulator	6261830572	MT8821C	Anritsu	2021.02.25	2022.02.24
RF Cable (30MHz-26GHz)	CB01	RF01	Morlab	N/A	N/A
Coaxial Cable	CB02	RF02	Morlab	N/A	N/A
SMA Connector	CN01	RF03	HUBER-SUHNER	N/A	N/A
Temperature Chamber	(N/A)	HUT705P	CHONGQING HANBA EXPERIMENTAL EQUIPMENT CO.,LTD	2021.03.17	2022.03.16
Computer	T430i	Think Pad	Lenovo	N/A	N/A

4.2 Radiated Test Equipment

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal.Due
System Simulator	152038	CMW500	R&S	2020.11.19	2021.11.18
System Simulator	6200995016	MT8820C	Anritsu	2020.10.28	2021.10.27
Receiver	MY54130016	N9038A	Agilent	2020.07.21	2021.07.20
Test Antenna - Bi-Log	9163-519	VULB 9163	Schwarzbeck	2019.05.24	2022.05.23
Test Antenna - Horn	9170C-531	BBHA9170	Schwarzbeck	2019.07.26	2022.07.25
Test Antenna - Horn	01774	BBHA 9120D	Schwarzbeck	2019.07.26	2022.07.25

Coaxial Cable (N male) (9kHz-30MHz)	CB04	EMC04	Morlab	N/A	N/A
Coaxial Cable (N male) (30MHz-26GHz)	CB02	EMC02	Morlab	N/A	N/A
Coaxial Cable (N male) (30MHz-26GHz)	CB03	EMC03	Morlab	N/A	N/A
Coaxial Cable (N male) (30MHz-40GHz)	CB05	EMC05	Morlab	N/A	N/A
1-18GHz pre-Amplifier	61171/61172	S020180L3203	Tonscend	2020.07.21	2021.07.20
18-26.5GHz pre-Amplifier	46732	S10M100L3802	Tonscend	2020.07.21	2021.07.20
26-40GHz pre-Amplifier	56774	S40M400L4002	Tonscend	2020.07.21	2021.07.20
Notch Filter	N/A	WRCGV -LTE B2	Wainwright	2020.07.21	2021.07.20
Notch Filter	N/A	WRCGV -LTE B4	Wainwright	2020.07.21	2021.07.20
Notch Filter	N/A	WRCGV -LTE B5	Wainwright	2020.07.21	2021.07.20

END OF REPORT