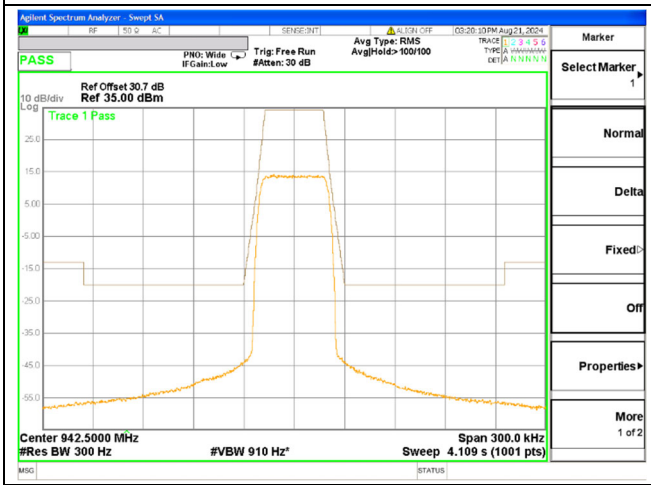
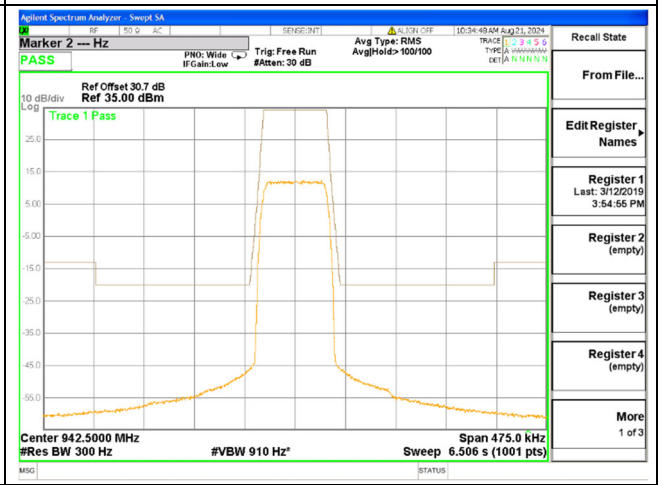
942.5 MHz

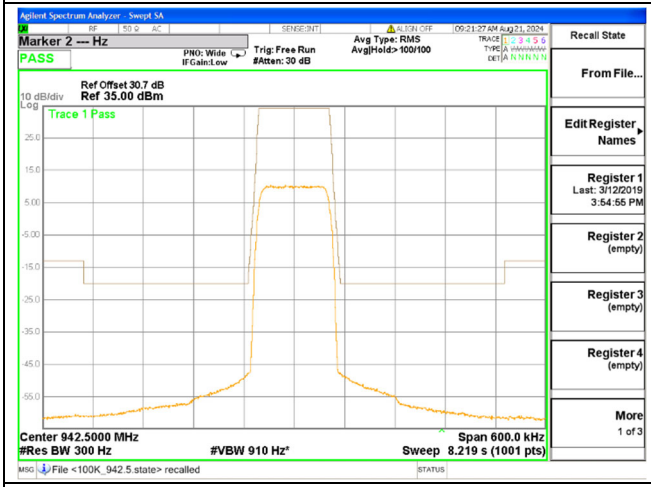
50kHz/QPSK H



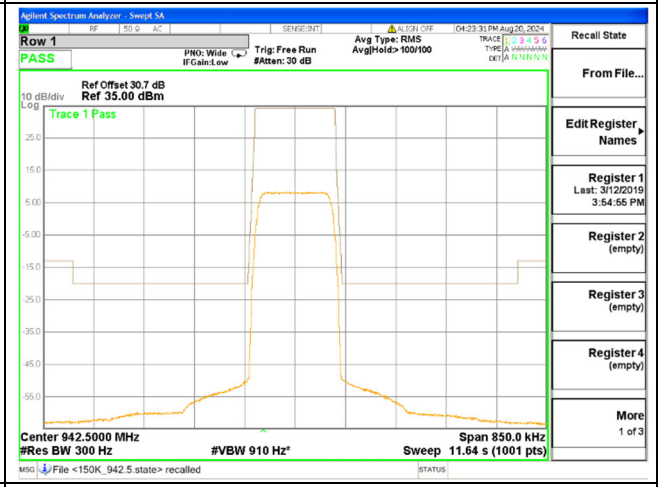
75kHz/QPSK H



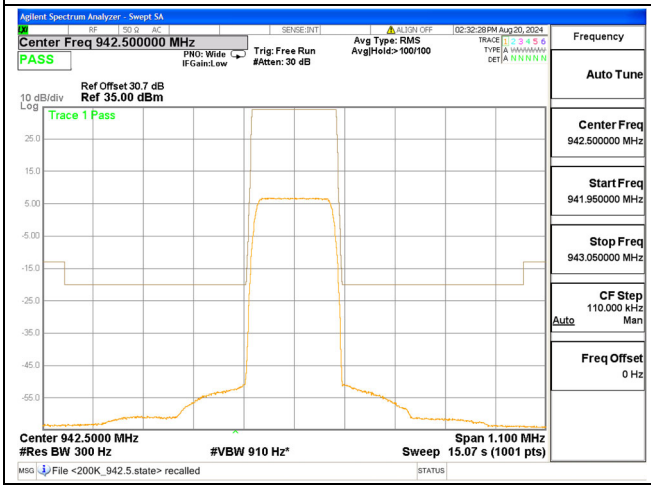
100kHz/QPSK H



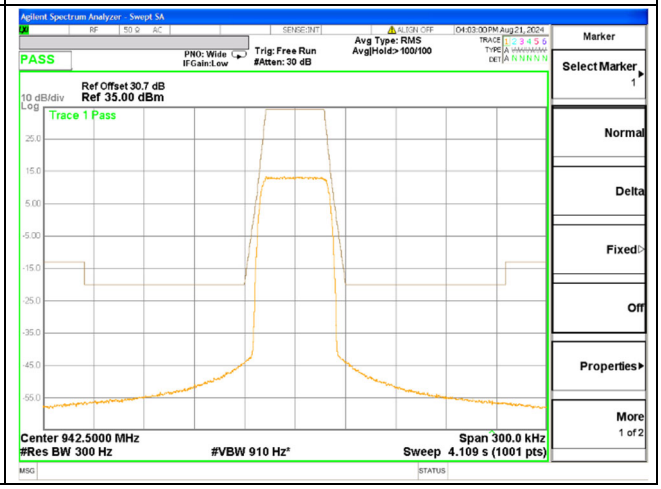
150kHz/QPSK H



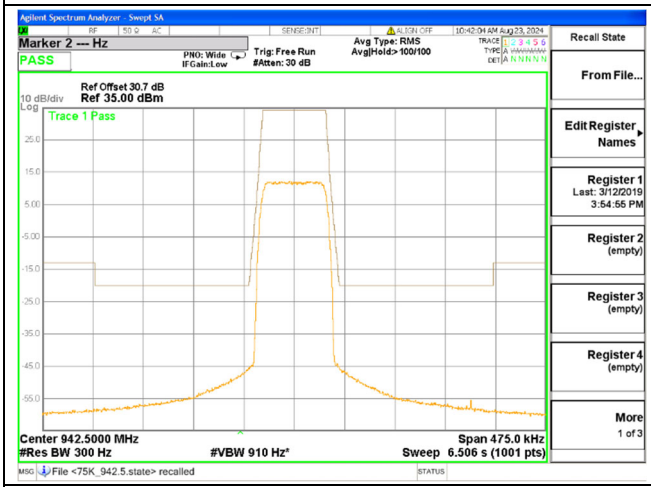
200kHz/QPSK H



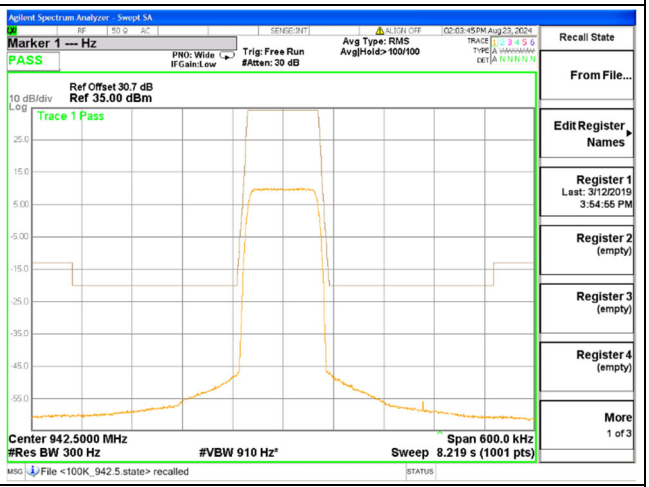
50kHz/QPSK V



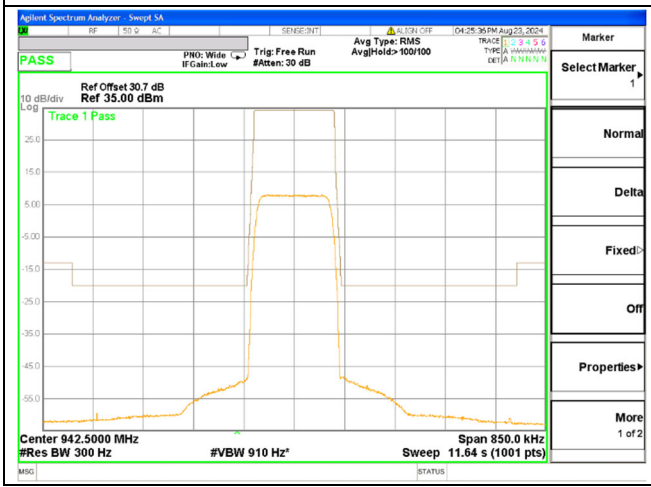
75kHz/QPSK V



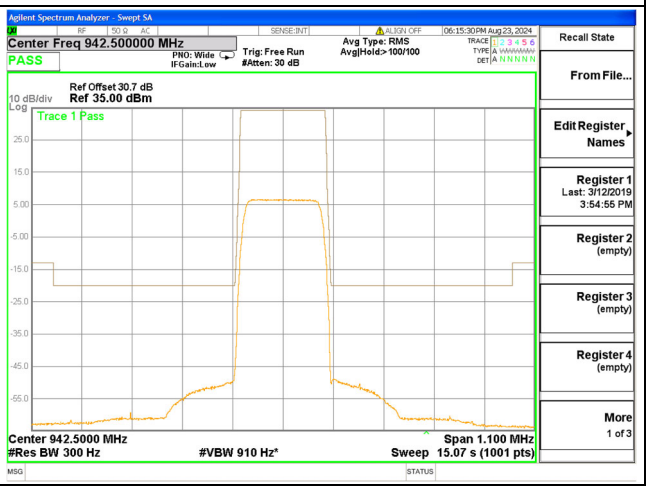
100kHz/QPSK V



150kHz/QPSK V

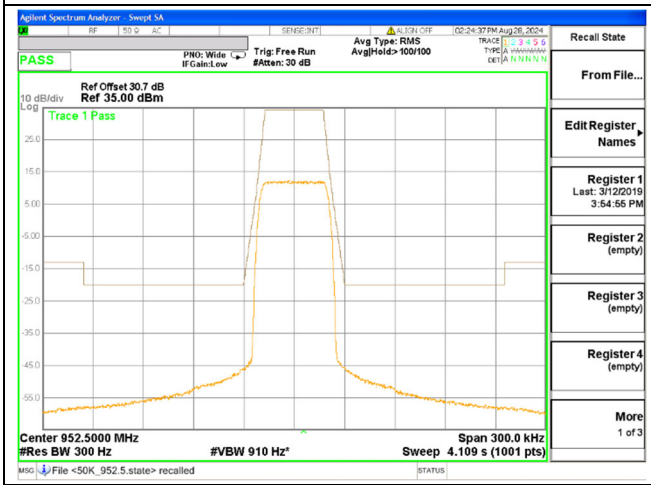


200kHz/QPSK V

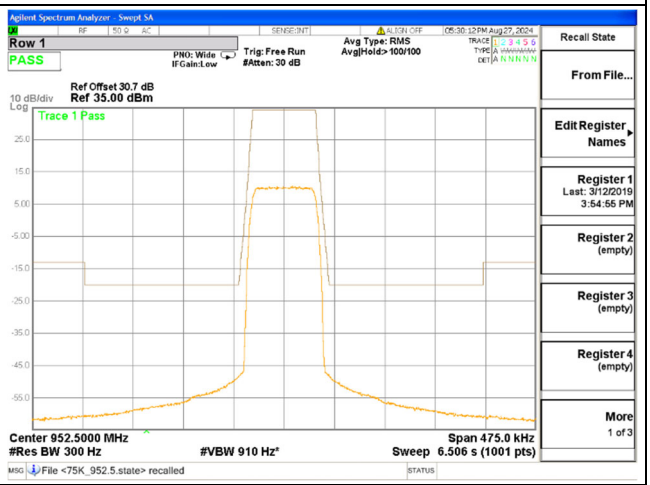


952.5 MHz

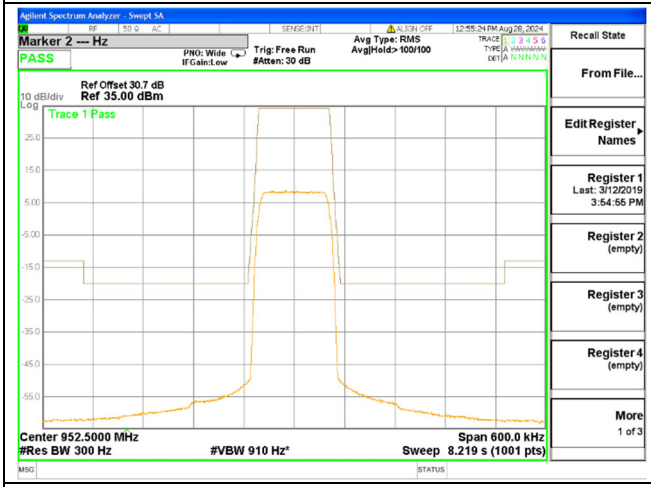
50kHz/QPSK H



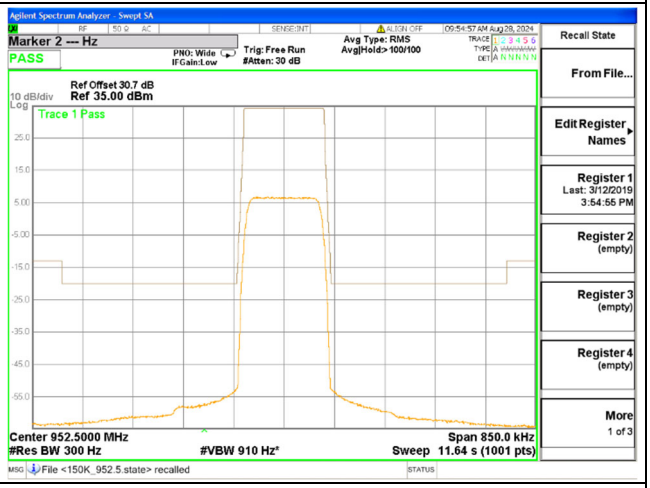
75kHz/QPSK H



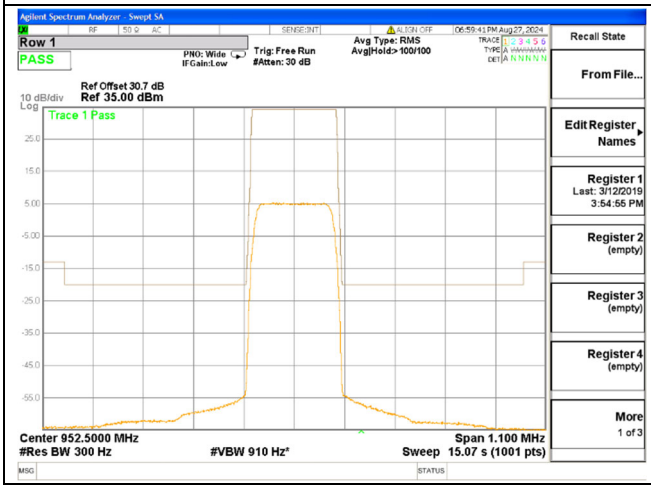
100kHz/QPSK H



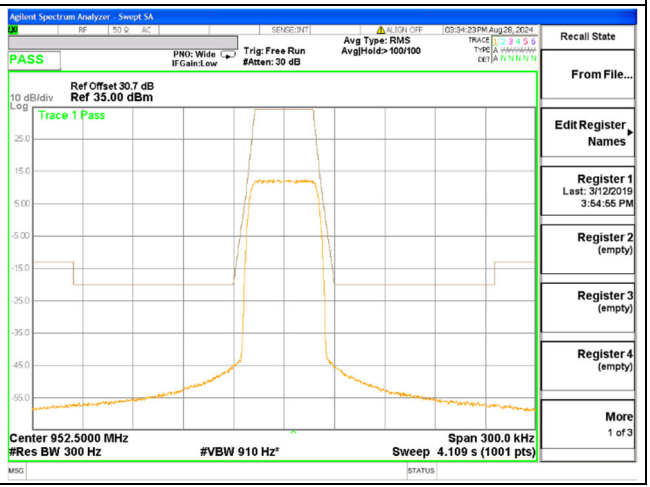
150kHz/QPSK H



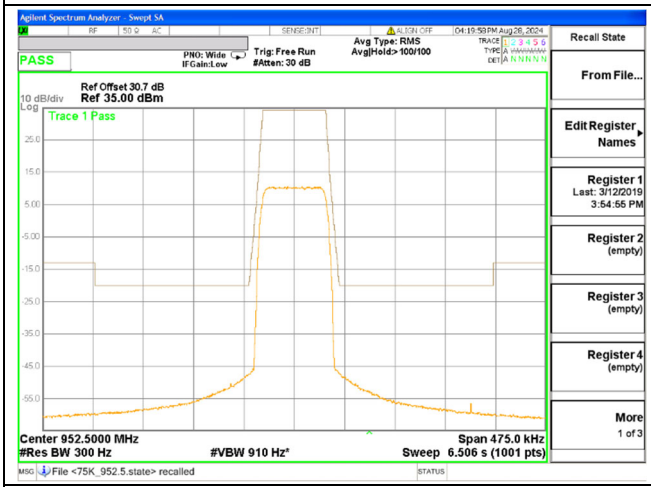
200kHz/QPSK H



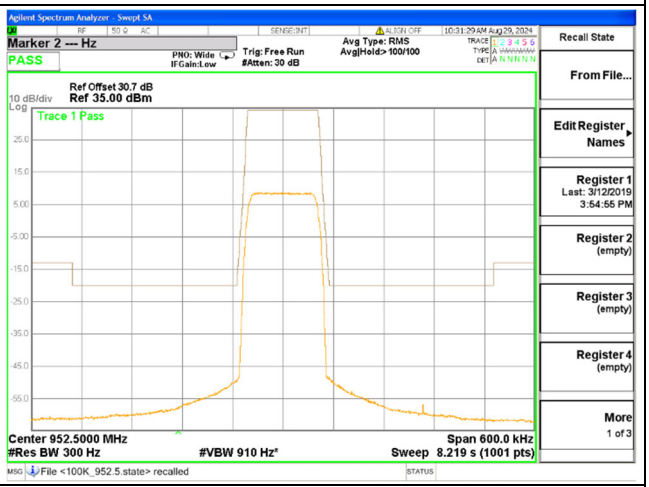
50kHz/QPSK V



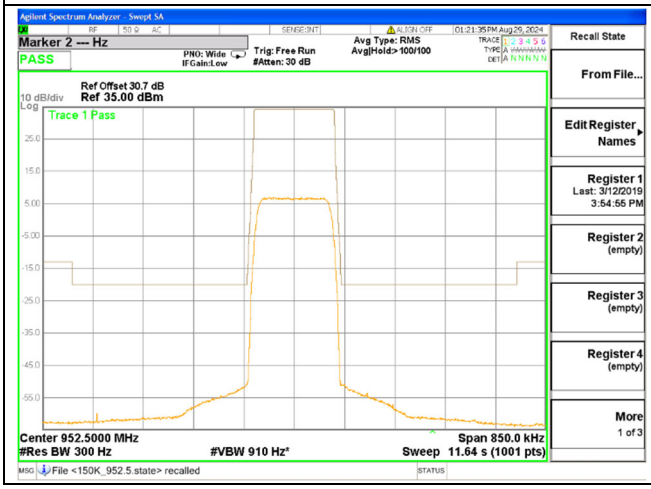
75kHz/QPSK V



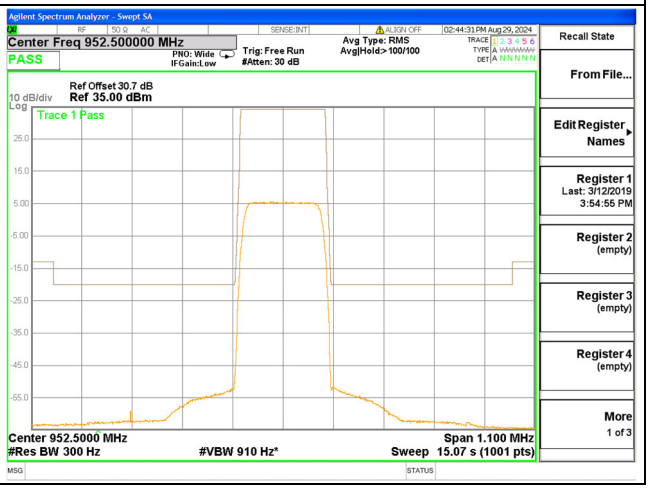
100kHz/QPSK V



150kHz/QPSK V



200kHz/QPSK V



2.4. Radiated Spurious Emissions

2.4.1. Requirement:

According to FCC section 2.1053, 10.111 section

When using transmissions employing digital modulation techniques on the 900 MHz multiple address frequencies with a 12.5 KHz bandwidth, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) in accordance with the following schedule:

(i) On any frequency removed from the center of the authorized bandwidth by a displacement frequency greater than 15 KHz: At least 50 plus 10 log10(P) or 70 decibels, whichever is the lesser attenuation.

When using transmissions employing digital modulation techniques on the 900 MHz multiple address frequencies with a bandwidth greater than 12.5 KHz, the power of any emission must be attenuated below the unmodulated carrier power of the transmitter (P) in accordance with the following schedule:

(ii) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (fd in KHz) of more than 5 KHz up to and including 10 KHz: At least 83 log10 (fd/5) decibels;

2.4.2. Test Result

Note 1: No discrete emissions were detected.

Note 2: The power of the EUT transmitting frequency should be ignored.

Note 3: N/A means the frequency is the basic frequency; they are no need to verdict.

Note 4: For measurements below 1GHz the resolution bandwidth is set to 100kHz for peak detection measurements. For measurements above 1GHz the resolution bandwidth is set to 1MHz for peak measurements.

Note 5: All bandwidth and modulation were considered and evaluated respectively by performing full test, only the worst cases were recorded in this test report.

Note 6: The received power level is the measured power adjusted for measurement antenna gain, connecting cable loss, and any external signal amplification or attenuation used in the test configuration. Mathematically, as in Equation:

$P_R = P_{meas} - G_R + L_C - G_{amp}$

where

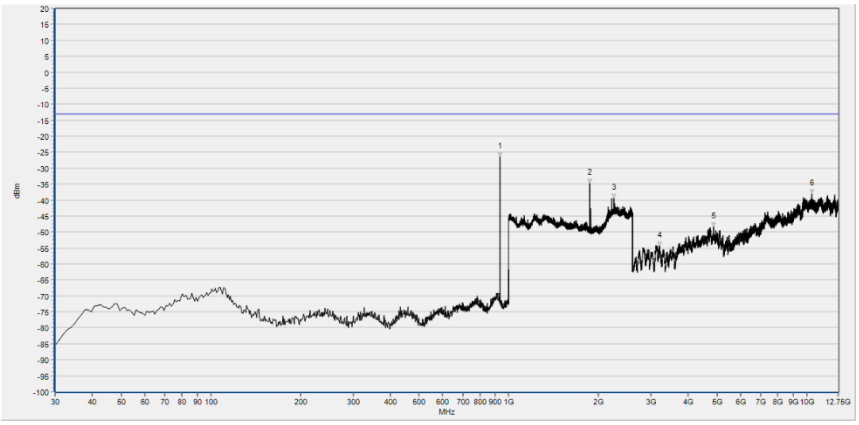
P_{meas} measured power level, in dBm;

G_R gain of the receive (measurement) antenna, in dBi;

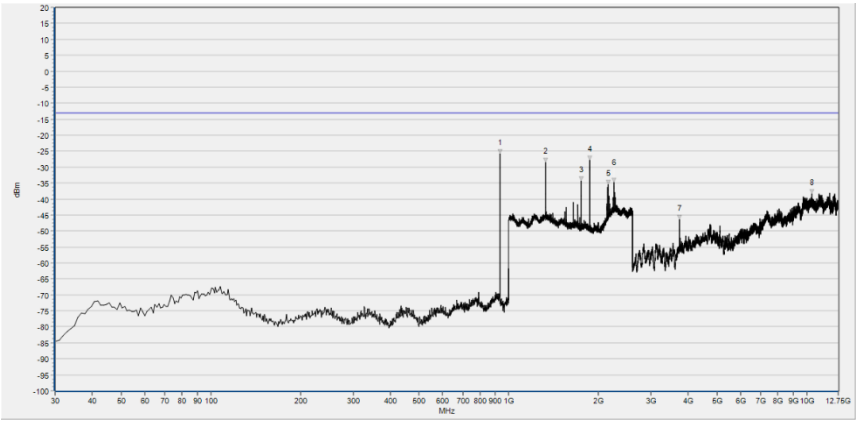
L_C signal loss in the measurement cable, in dB;

G_{amp} value of external amplification, in dB.

Nominal Frequency 933.5MHz, 75kHz BW, 256QAM

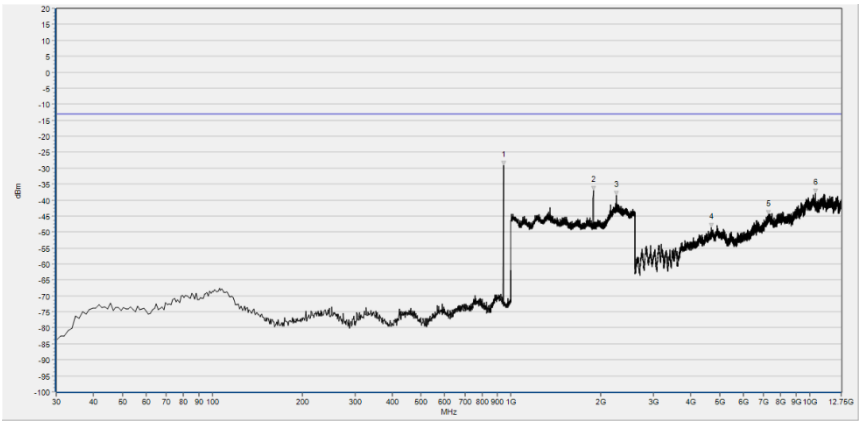


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	933.070	-26.38	-13.00	H	NA
2	1866.907	-34.80	-13.00	H	PASS
3	2254.902	-39.39	-13.00	H	PASS
4	3196.190	-54.46	-13.00	H	PASS
5	4862.939	-48.33	-13.00	H	PASS
6	10378.160	-38.07	-13.00	H	PASS

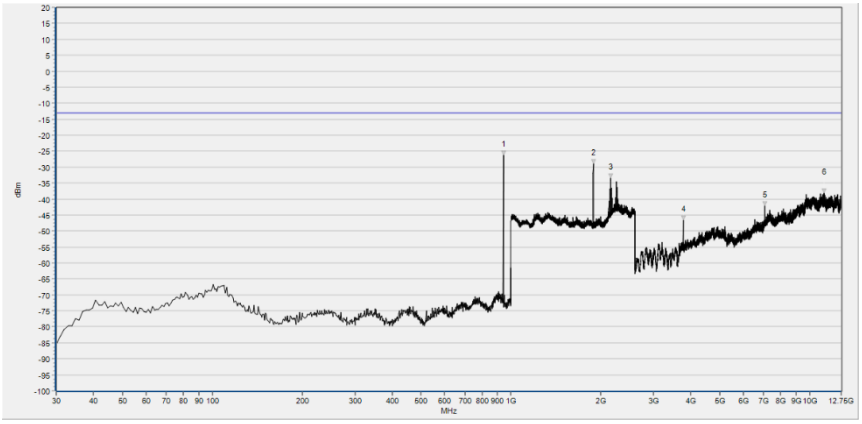


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	933.070	-25.87	-13.00	V	NA
2	1331.012	-28.38	-13.00	V	PASS
3	1749.100	-34.33	-13.00	V	PASS
4	1866.907	-27.84	-13.00	V	PASS
5	2159.504	-35.40	-13.00	V	PASS
6	2256.823	-34.86	-13.00	V	PASS

Nominal Frequency 942.5MHz, 75kHz BW, 256QAM

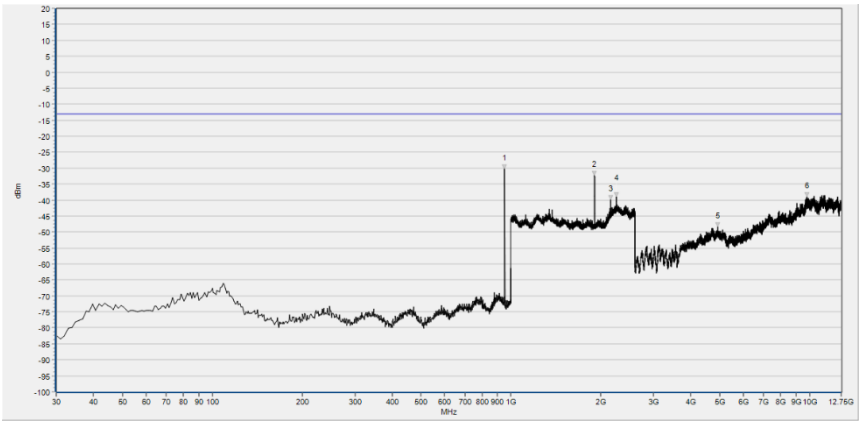


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	942.770	-29.22	-13.00	H	NA
2	1884.834	-36.94	-13.00	H	PASS
3	2256.182	-38.53	-13.00	H	PASS
4	4693.126	-48.52	-13.00	H	PASS
5	7291.999	-44.66	-13.00	H	PASS
6	10437.225	-37.90	-13.00	H	PASS

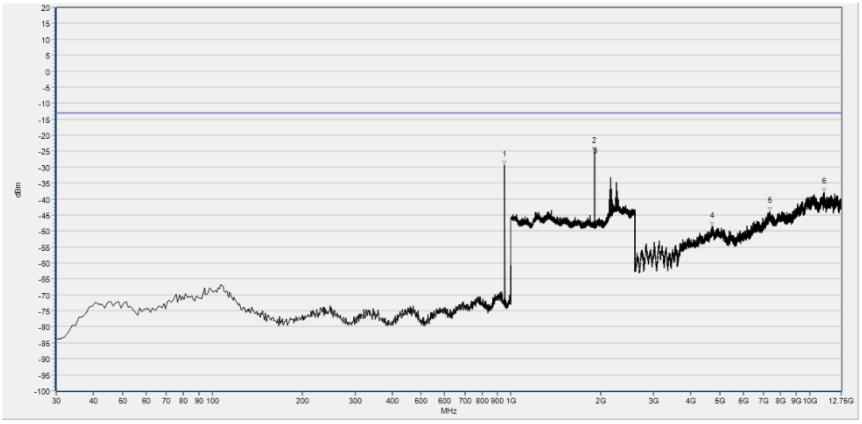


No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	942.770	-26.32	-13.00	V	NA
2	1884.834	-29.00	-13.00	V	PASS
3	2157.583	-33.32	-13.00	V	PASS
4	3770.231	-46.69	-13.00	V	PASS
5	7059.429	-42.12	-13.00	V	PASS
6	11160.775	-38.11	-13.00	V	PASS

Nominal Frequency 952.5MHz, 75kHz BW, 256QAM



No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	952.470	-30.20	-13.00	H	NA
2	1904.682	-32.39	-13.00	H	PASS
3	2156.943	-39.94	-13.00	H	PASS
4	2254.902	-39.03	-13.00	H	PASS
5	4912.775	-48.31	-13.00	H	PASS
6	9813.348	-38.94	-13.00	H	PASS



No.	Fre.(MHz)	PK (dBm)	Limit (dBm)	Antenna	Verdict
1	952.470	-29.30	-13.00	V	NA
2	1904.682	-25.24	-13.00	V	PASS
3	1905.322	-25.58	-13.00	V	PASS
4	4722.659	-48.59	-13.00	V	PASS
5	7371.368	-43.90	-13.00	V	PASS
6	11155.237	-37.79	-13.00	V	PASS

2.5. Frequency Stability

2.5.1. Requirement

According to FCC section 2.1055 and FCC section 101.107 frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. According to FCC section 24.135, the test conditions are:

The frequency stability of the transmitter shall be maintained within ±0.0001 percent (±1 ppm) of the center frequency over a temperature variation of −30 °Celsius to + 50 °Celsius at normal supply voltage, and over a variation in the primary supply voltage of 85 percent to 115 percent of the rated supply voltage at a temperature of 20 °Celsius.

2.5.2. Test Results

933.5MHz 256QAM Limit =Within Authorized Band					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	24.0	+20(Ref)	17	0.018	PASS
100		-40	13	0.014	
100		-30	-23	-0.024	
100		-20	16	0.017	
100		-10	-15	-0.016	
100		0	20	0.021	
100		+10	11	0.012	
100		+20	14	0.015	
100		+30	20	0.021	
100		+40	16	0.017	
100		+50	-11	-0.012	
100		+60	17	0.018	
100		+70	-14	-0.015	
115	27.6	+20	22	0.023	
85	20.4	+20	21	0.022	

942.5MHz 256QAM Limit =Within Authorized Band					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	24.0	+20(Ref)	15	0.016	PASS
100		-40	18	0.019	
100		-30	15	0.016	
100		-20	18	0.019	
100		-10	16	0.017	
100		0	18	0.019	
100		+10	13	0.014	
100		+20	20	**0.021**	
100		+30	14	0.015	
100		+40	-18	-0.019	
100		+50	3	0.003	
100		+60	15	0.016	
100		+70	-9	-0.009	
115	27.6	+20	16	0.017	
85	20.4	+20	-1	-0.001	

952.5MHz 256QAM Limit =Within Authorized Band					
Voltage (%)	**Power (VDC)**	**Temp (°C)**	**Fre. Dev. (Hz)**	**Deviation (ppm)**	**Result**
100	24.0	+20(Ref)	19	0.020	PASS
100		-40	3	0.003	
100		-30	13	0.014	
100		-20	15	0.016	
100		-10	5	0.005	
100		0	20	0.021	
100		+10	19	0.020	
100		+20	22	0.023	
100		+30	23	**0.024**	
100		+40	-13	-0.014	
100		+50	-5	-0.005	
100		+60	17	0.018	
100		+70	19	0.020	
115	27.6	+20	13	0.014	
85	20.4	+20	13	0.014	

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
Output Power	±2.22 dB
Bandwidth	±5%
Conducted Spurious Emission	±2.77 dB
Band Edge	±2.77 dB
Equivalent Isotropic Radiated Power	±2.22 dB
Radiated Spurious Emissions	±6 dB

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

Company Name:	Shenzhen Morlab Communications Technology Co., Ltd.
Laboratory Address:	FL.1-3, 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:	Shenzhen Morlab Communications Technology Co., Ltd.
Address:	FL.1-3, 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	N/A	N/A
Attenuator 1	(N/A.)	30.0dB	Resnet	N/A	N/A
Attenuator 2	(N/A.)	30.0dB	Resnet	N/A	N/A
EXA Signal Analyzer	MY51511149	N9020A	Agilent	2024.06.19	2025.06.18
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	S022177101 00089002	KMT-36LF 1A0	KOMEG	2024.09.11	2025.09.10

4.2 List of Software Used

Description	Manufacturer	Software Version
MORLAB EMCR	MORLAB	V1.2

4.3 Radiated Test Equipment

Equipment Name	Serial No.	Type	Manufacturer	Cal. Date	Cal. Due
Bi-Log Antenna	9163-274	VULB 9163	SCHWARZBECK	2024.06.29	2025.06.28
Horn Antenna	9120D-963	BBHA 9120D	SCHWARZBECK	2024.06.03	2025.06.02
Signal Analyzer	MY56060145	N9020A	Agilent	2024.05.30	2025.05.29
Preamplifier（2GHz-18GHz）	61171.61172	S020180L3203	LUCIX CORP.	2024.05.30	2025.05.29
Preamplifier（10MHz-6GHz）	46732	S10M100L3802	LUCIX CORP.	2024.05.30	2025.05.29
RF Coaxial Cable（DC-18GHz）	MRE001	PE330	Pasternack	2024.05.30	2025.05.29
RF Coaxial Cable（DC-18GHz）	MRE002	CLU18	Pasternack	2024.05.30	2025.05.29

——— END OF REPORT ———