

9.4 TEST RESULTS

Environment: 24.5°C/52%RH/101.0kPa
Tested By:Yang Zhaoyun

Voltage:DC 12V
Date: 2022-12-01

The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s

GFSK: Middle Channel (2.441GHz)

DH1	time slot=	0.379	(ms)*	(1600/(2*79))	*	31.6	=	121.28	ms
DH3	time slot=	1.628	(ms)*	(1600/(4*79))	*	31.6	=	260.48	ms
DH5	time slot=	2.869	(ms)*	(1600/(6*79))	*	31.6	=	306.03	ms

π/4-DQPSK: Middle Channel (2.441GHz)

2DH1	time slot=	0.386	(ms)*	(1600/(2*79))	*	31.6	=	123.52	ms
2DH3	time slot=	1.630	(ms)*	(1600/(4*79))	*	31.6	=	260.80	ms
2DH5	time slot=	2.870	(ms)*	(1600/(6*79))	*	31.6	=	306.13	ms

8DPSK: Middle Channel (2.441GHz)

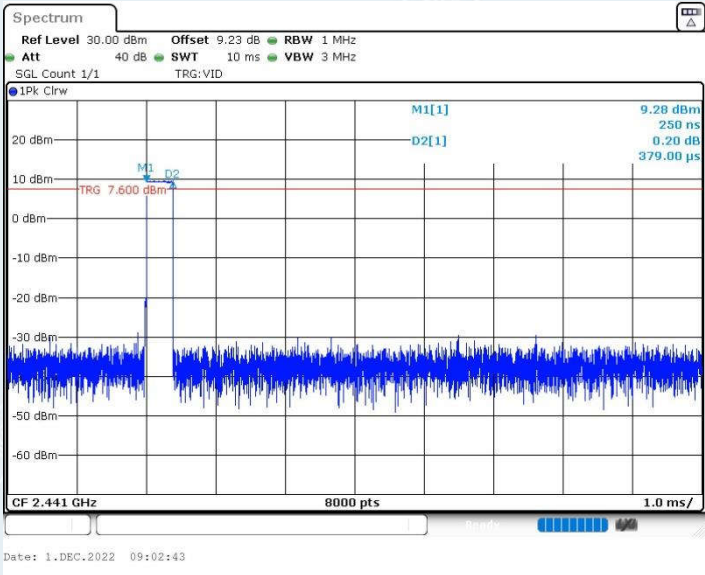
3DH1	time slot=	0.385	(ms)*	(1600/(2*79))	*	31.6	=	123.20	ms
3DH3	time slot=	1.629	(ms)*	(1600/(4*79))	*	31.6	=	260.64	ms
3DH5	time slot=	2.873	(ms)*	(1600/(6*79))	*	31.6	=	306.45	ms

The results are not greater than 0.4 seconds.
The unit does meet the requirements.

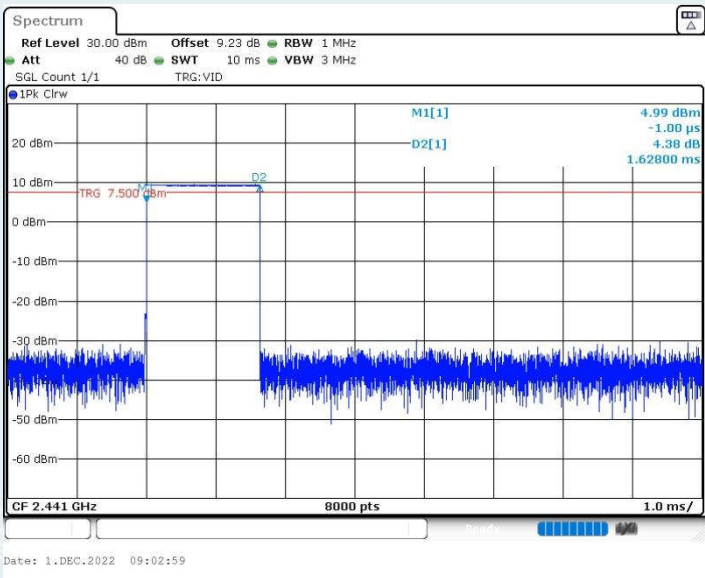
———— The following blanks ————

Please refer the graph as below:

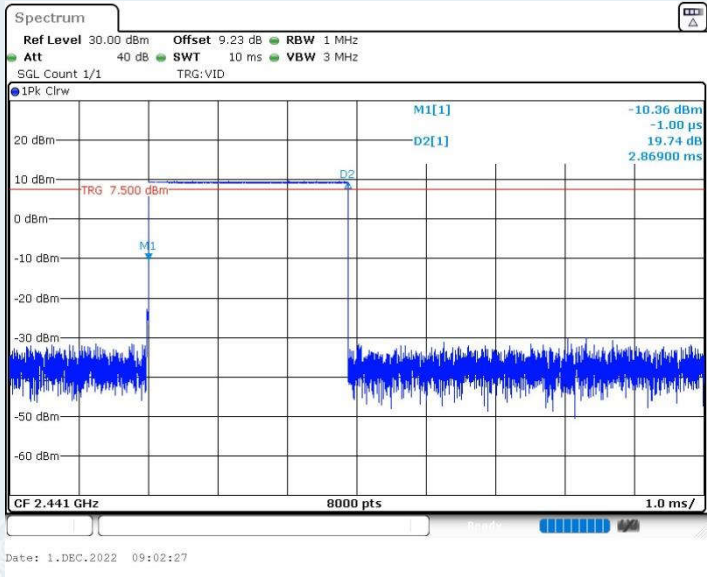
GFSK
Middle Frequency (2.441GHz)
DH1



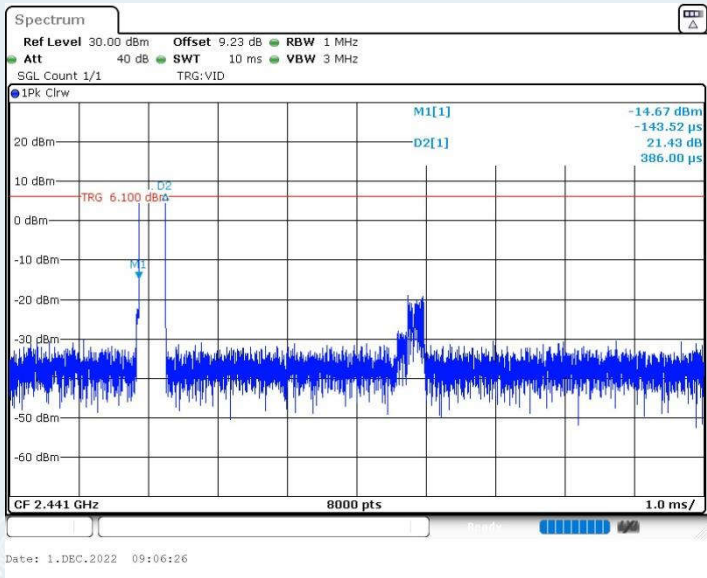
DH3



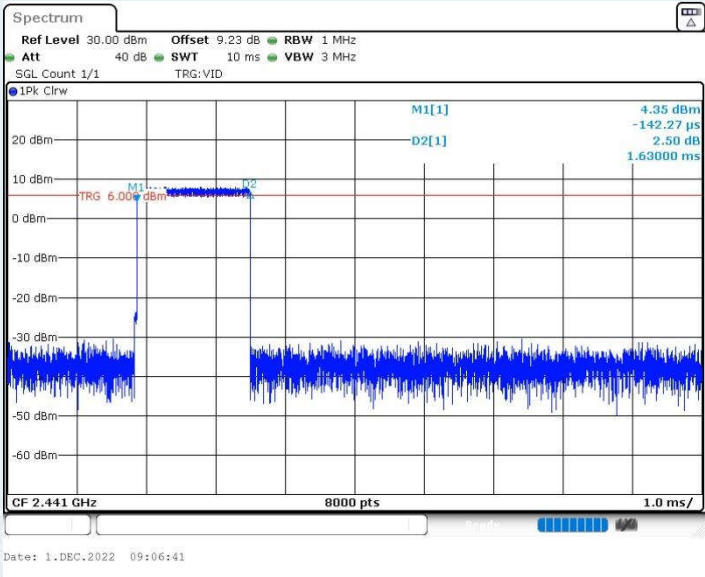
DH5



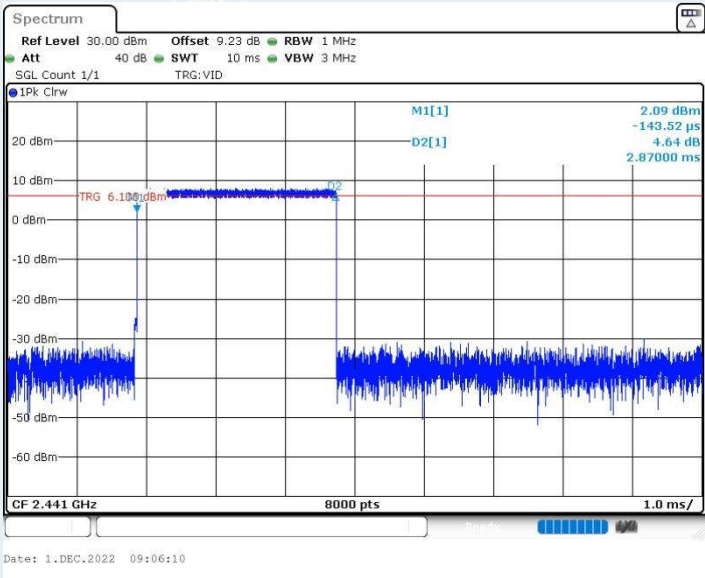
$\pi/4$ -DQPSK
MiddleFrequency (2.441GHz)
2DH1



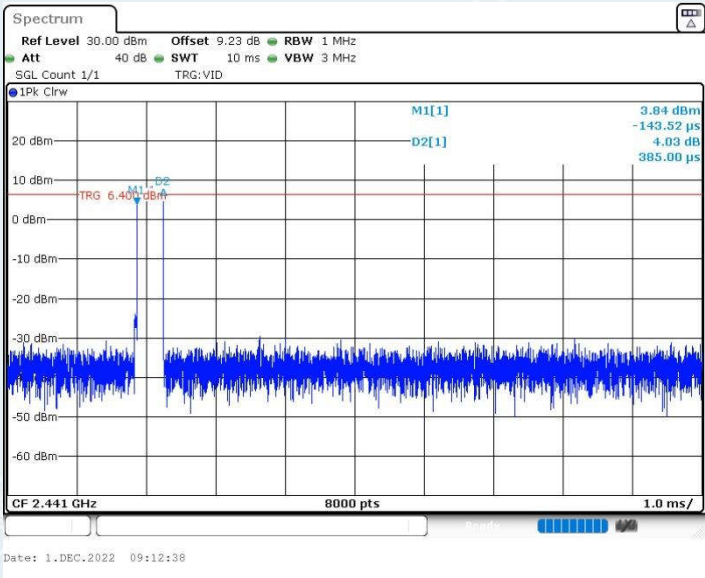
Mid Frequency (2.441GHz)
2DH3



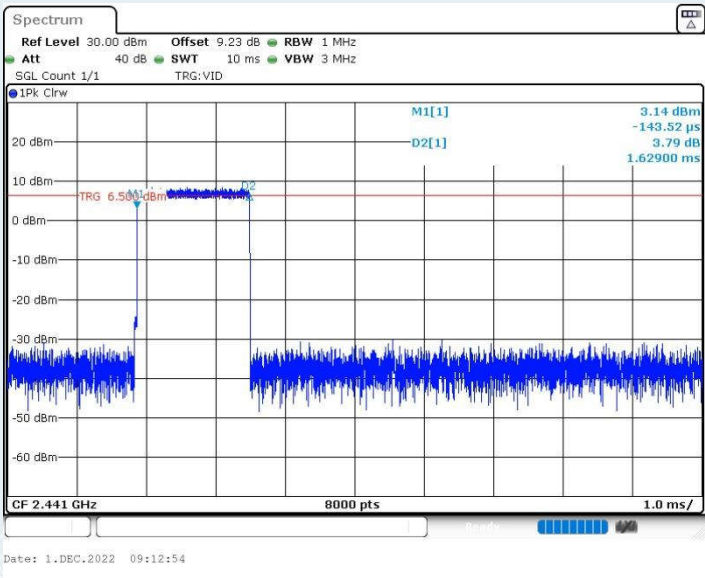
2DH5



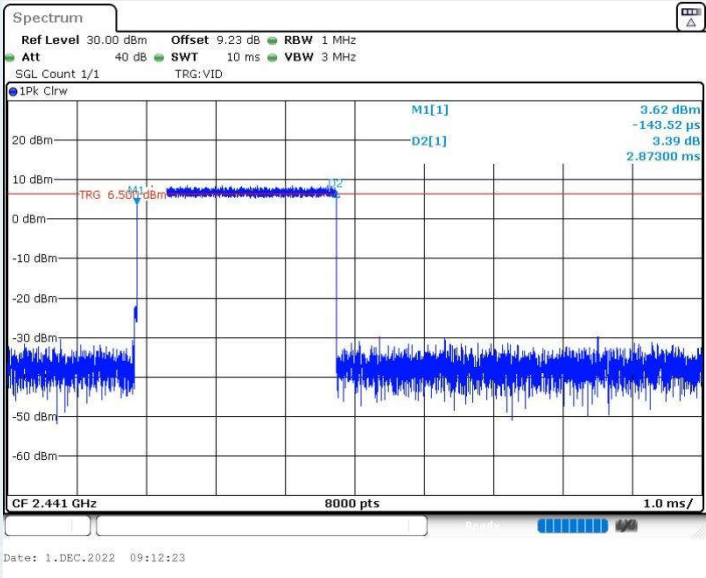
8DPSK
MiddleFrequency (2.441GHz)
3DH1



3DH3



3DH5



———— The following blanks ————

10. MAXIMUM PEAK OUTPUT POWER

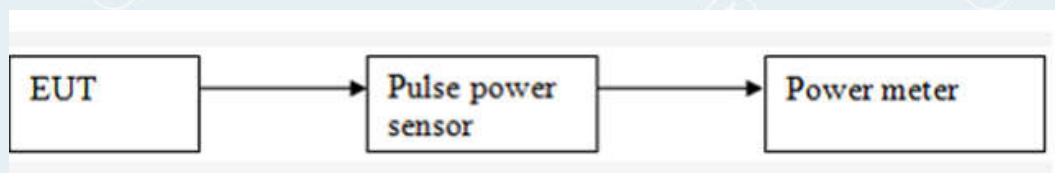
10.1 LIMITS

Regulation 15.247 (b)(1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

10.2 TEST PROCEDURES

- 1) Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the power meter and enable the EUT transmit continuously.
- 2) Keep the EUT in transmitting at lowest, middle and highest channel individually. Record the max value.

10.3 TEST SETUP



———— The following blanks ————

10.4 TEST RESULTS

Environment: 24.5°C/52%RH/101.0kPa
Tested By: Yang Zhaoyun

Voltage: DC 12V
Date: 2022-12-01

DH5

Test Channel	Fundamental Frequency (GHz)	Max Output Power(dBm)	Limit (dBm)	Peak/Average	Pass/Fail
Lowest	2.402	9.53	20.97	Peak	Pass
Middle	2.441	9.78			Pass
Highest	2.480	9.47			Pass

2DH5

Test Channel	Fundamental Frequency (GHz)	Max Output Power(dBm)	Limit (dBm)	Peak/Average	Pass/Fail
Lowest	2.402	8.30	20.97	Peak	Pass
Middle	2.441	8.39			Pass
Highest	2.480	7.82			Pass

3DH5

Test Channel	Fundamental Frequency (GHz)	Max Output Power(dBm)	Limit (dBm)	Peak/Average	Pass/Fail
Lowest	2.402	8.66	20.97	Peak	Pass
Middle	2.441	8.76			Pass
Highest	2.480	8.21			Pass

Test result: The unit does meet the FCC requirements.

11. CONDUCTED BAND EDGES AND SPURIOUS EMISSIONS

11.1 LIMITS

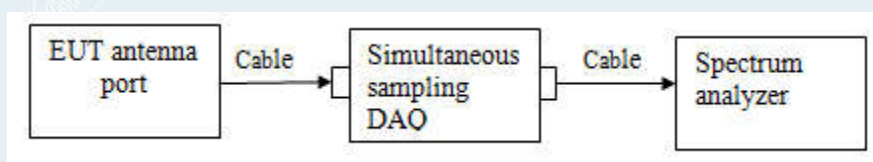
In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30dB instead of 20dB.

11.2 TEST PROCEDURES

Test procedures follow KDB 558074 D01 DTS Measurement Guidance v05r02.

- 1) Remove the antenna from the EUT and then connect a low attenuation cable from the antenna port to the spectrum.
- 2) Set the spectrum analyzer: RBW =100kHz; VBW =300kHz, Frequency range = 30MHz to 26.5GHz; Sweep = auto; Detector Function = Peak. Trace = Max, hold.
- 3) Measure and record the results in the test report.
- 4) The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

11.3 TEST SETUP



11.4 TEST RESULTS

Environment: 24.5°C/52%RH/101.0kPa
Tested By:Yang Zhaoyun

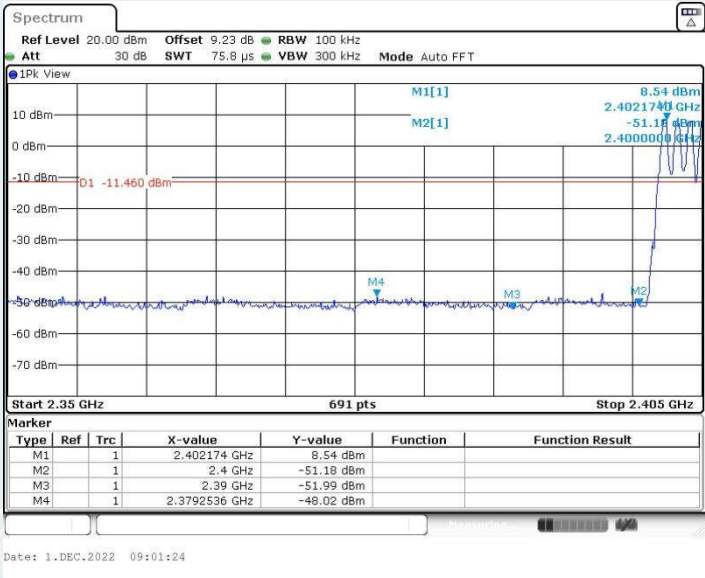
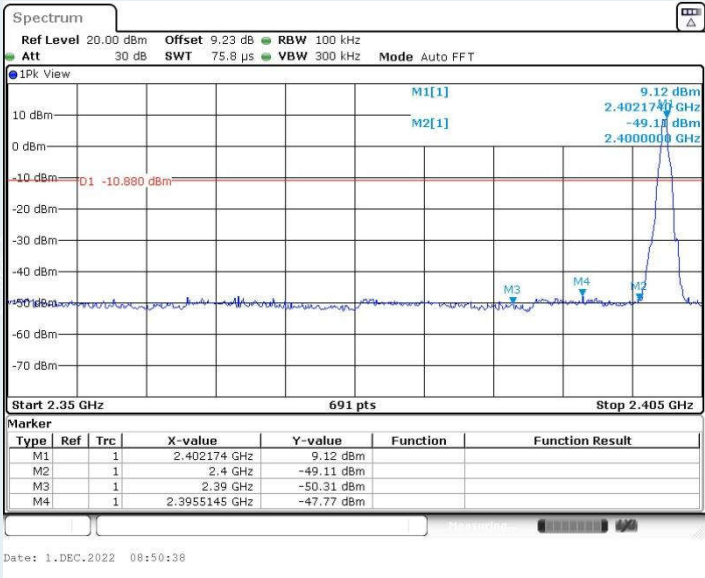
Voltage:DC 12V
Date: 2022-12-01

Test result plot as follows:

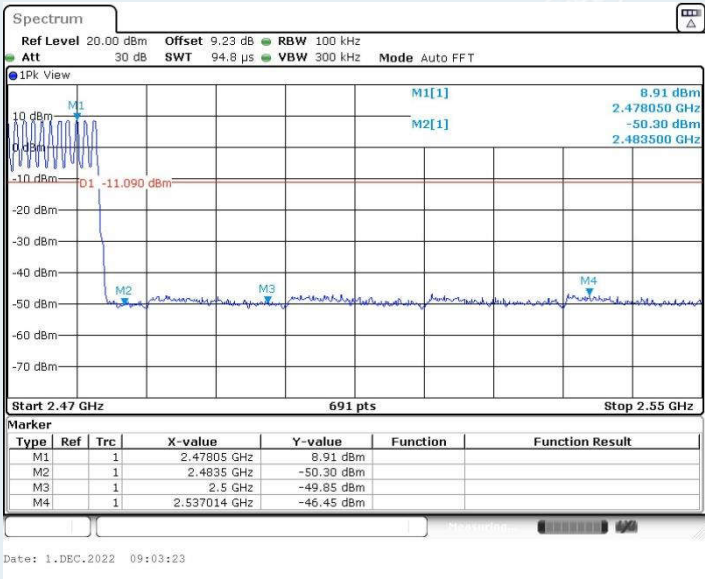
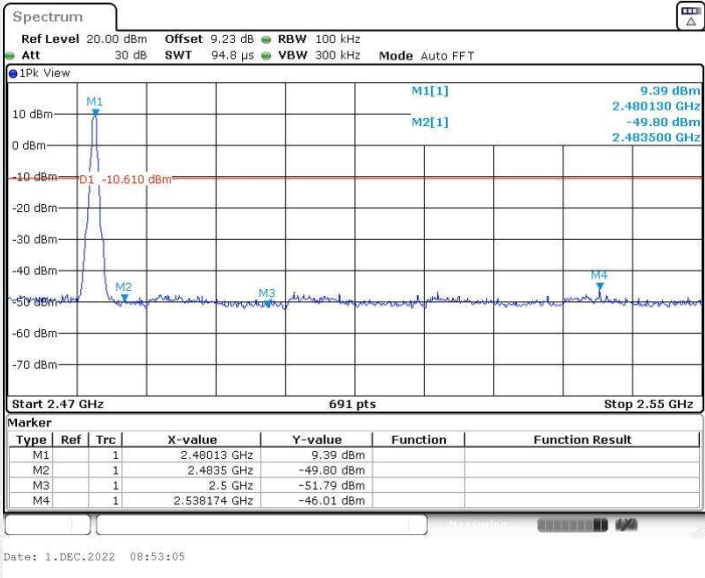
Band Edges

DH5

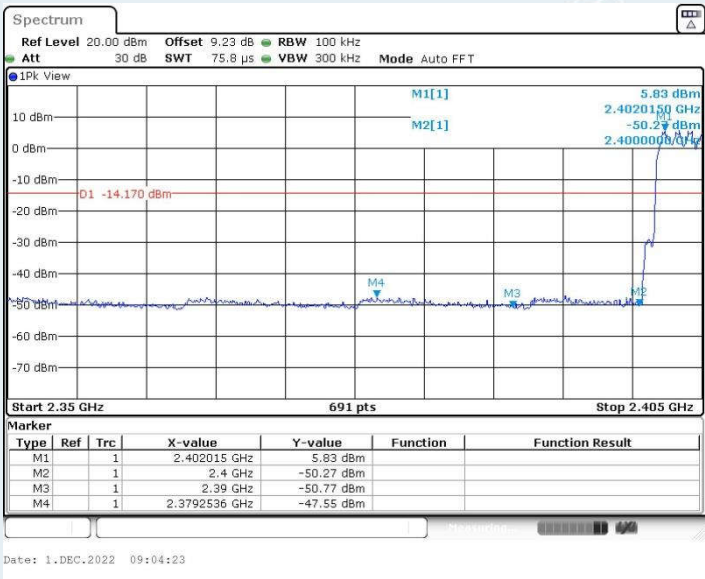
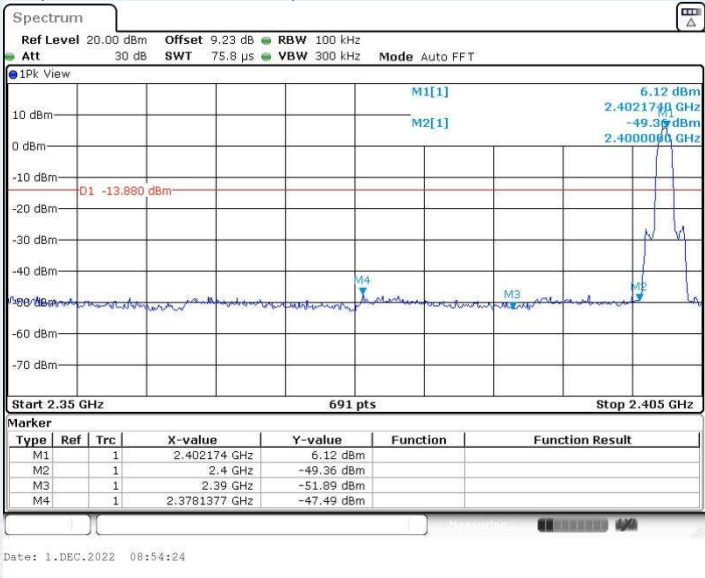
CH Low (2.35GHz ~2.405GHz)



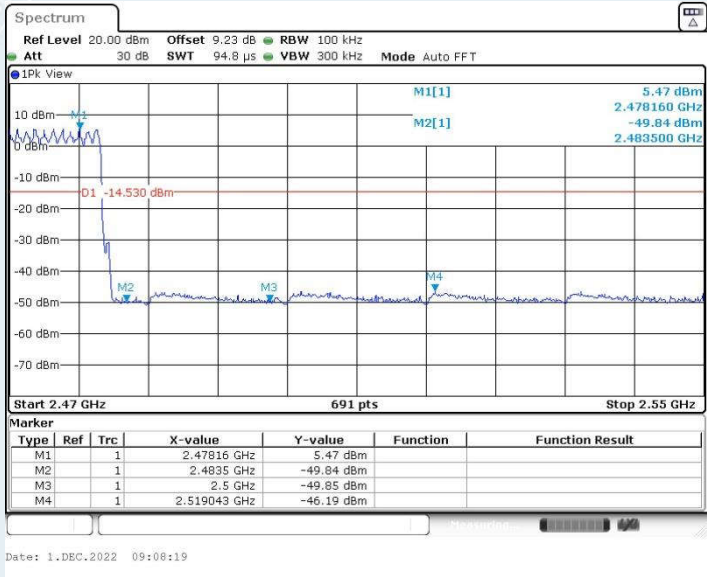
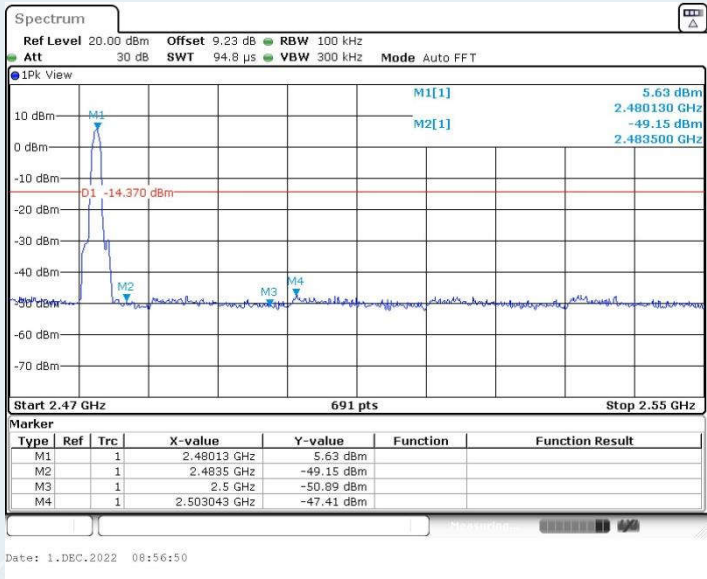
CH High (2.47GHz ~ 2.55GHz)



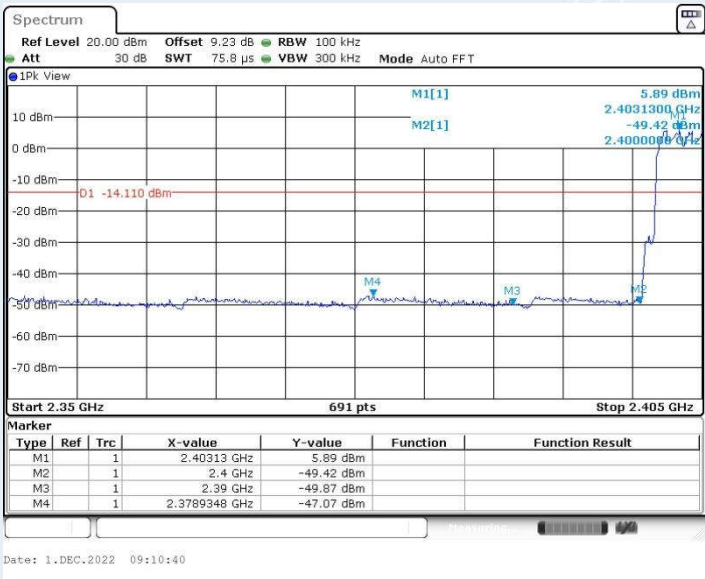
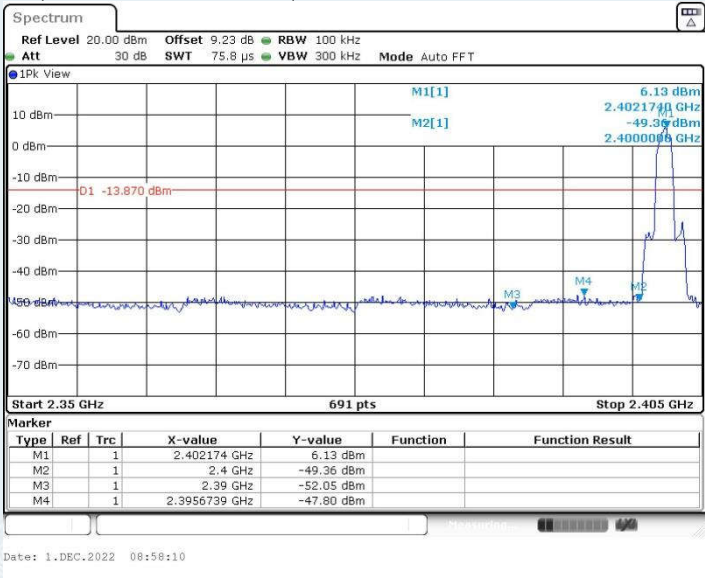
2DH5
CH Low (2.35GHz ~2.405GHz)



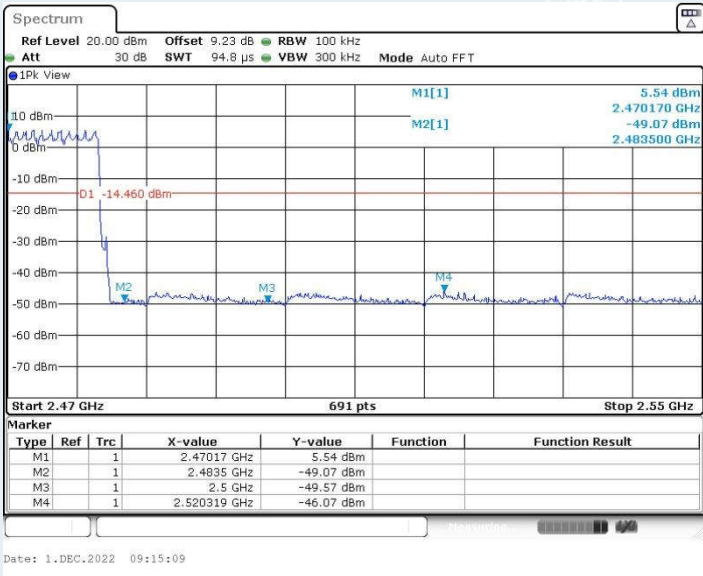
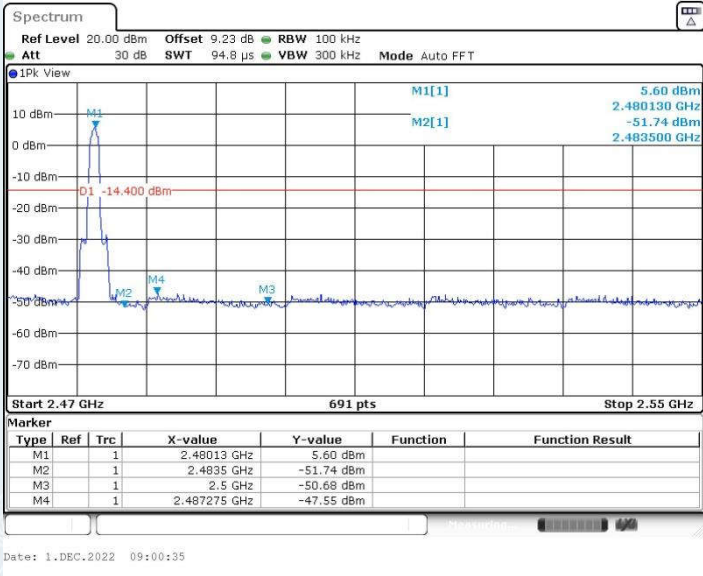
CH High (2.47GHz ~ 2.55GHz)



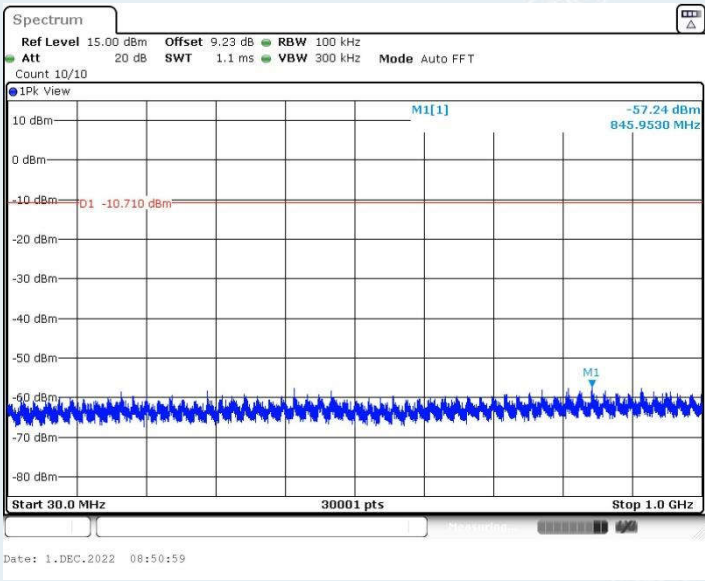
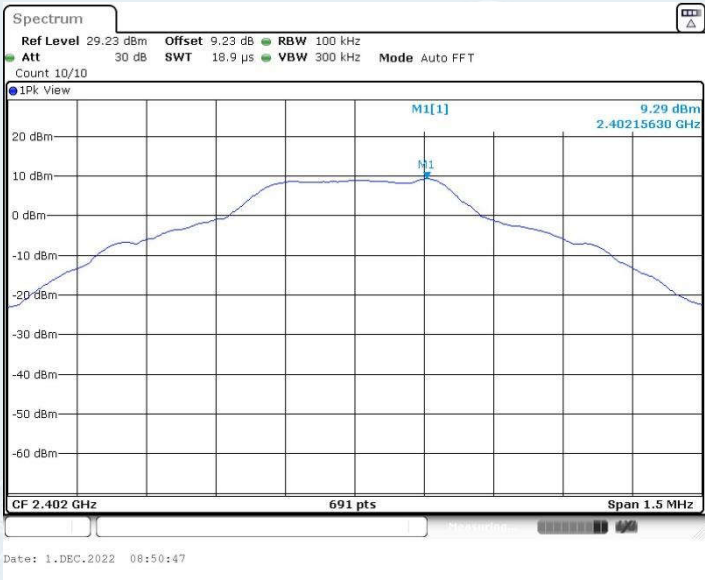
3DH5
CH Low (2.35GHz ~2.405GHz)

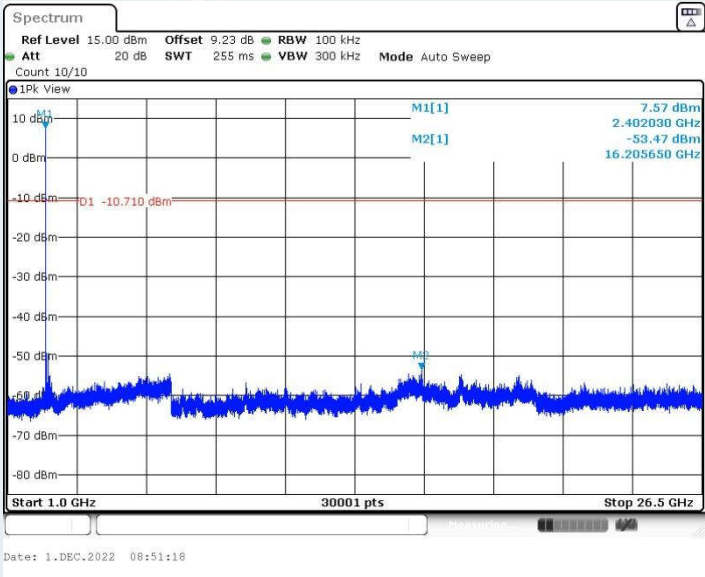


CH High (2.47GHz ~ 2.55GHz)



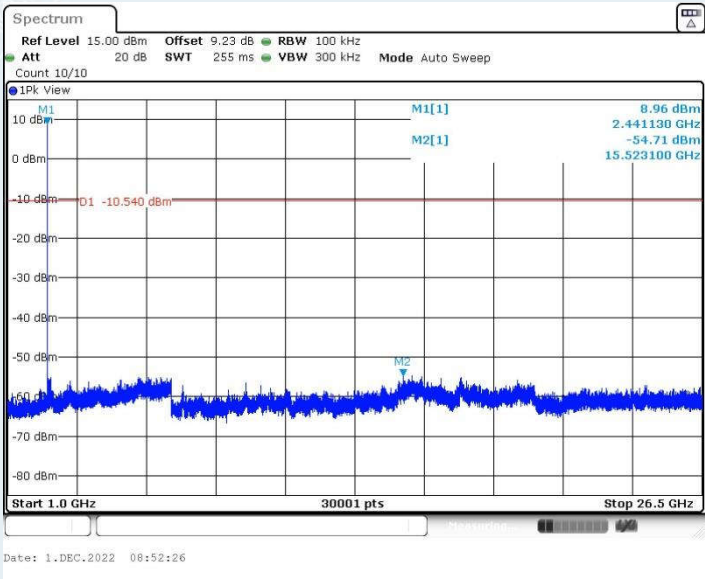
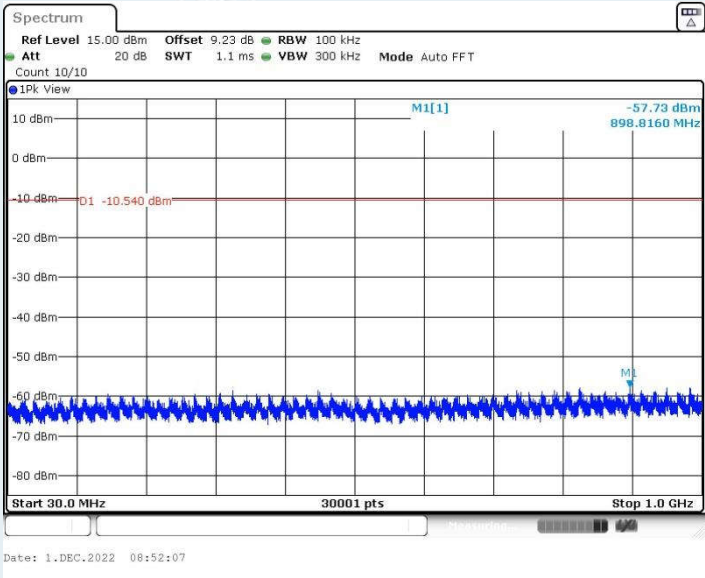
Spurious Emissions
DH5
CH Low



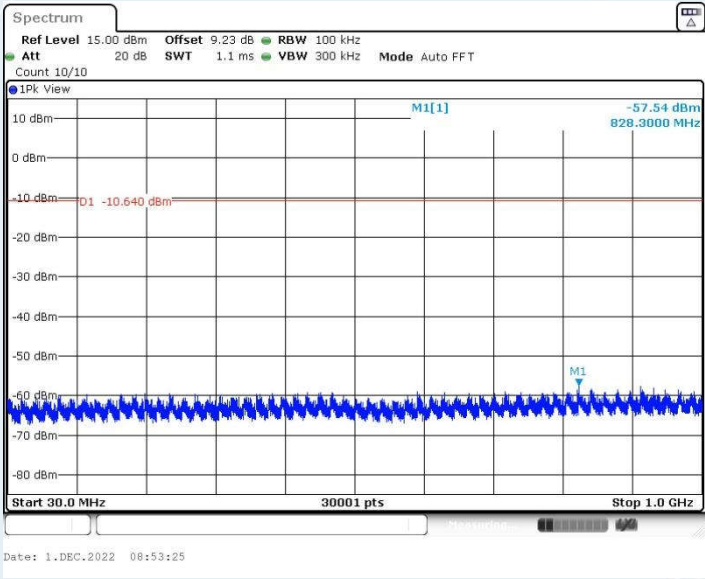


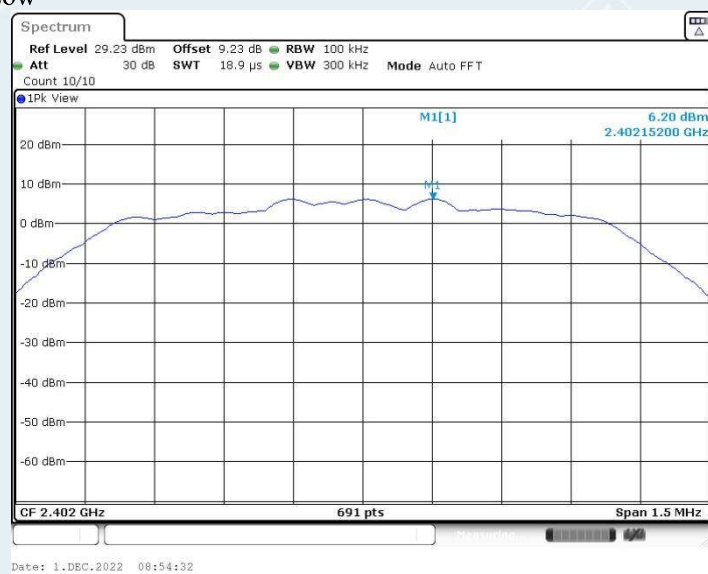
CH Mid

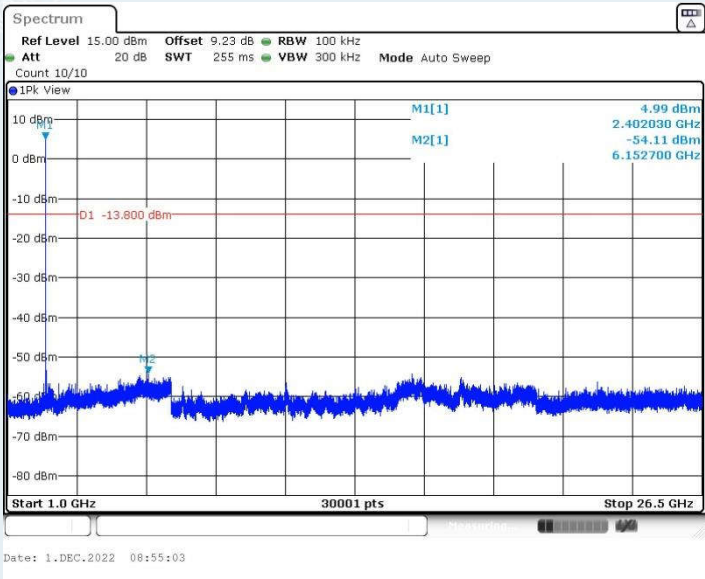
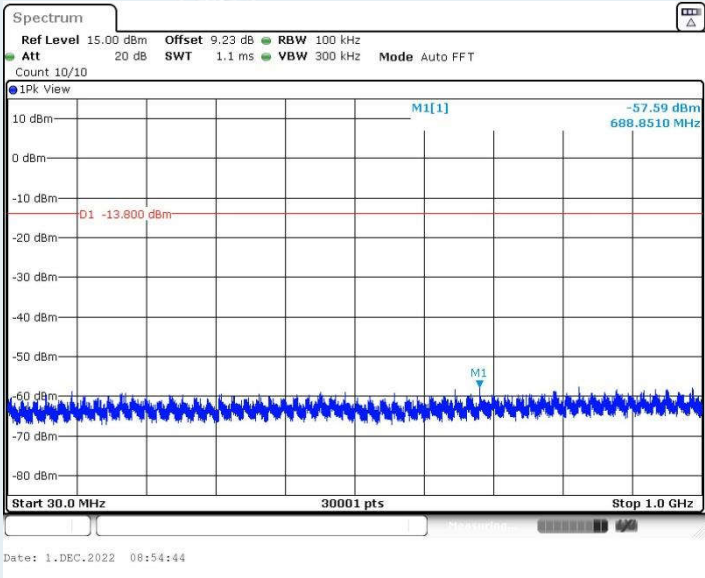




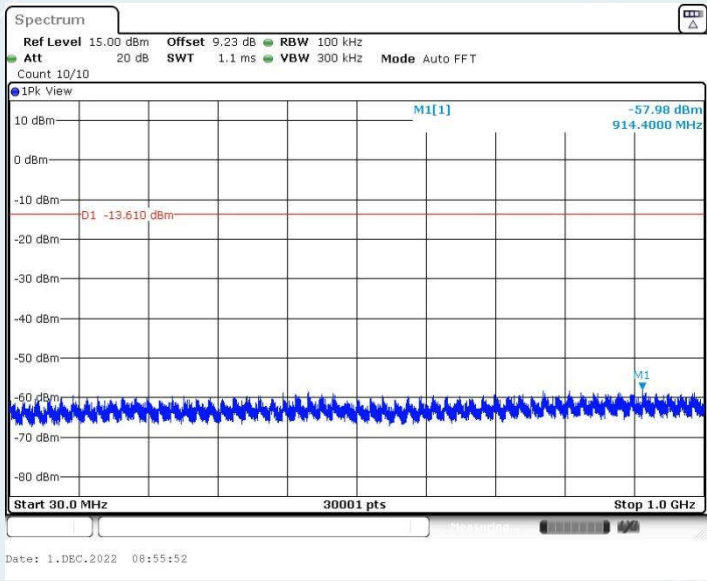
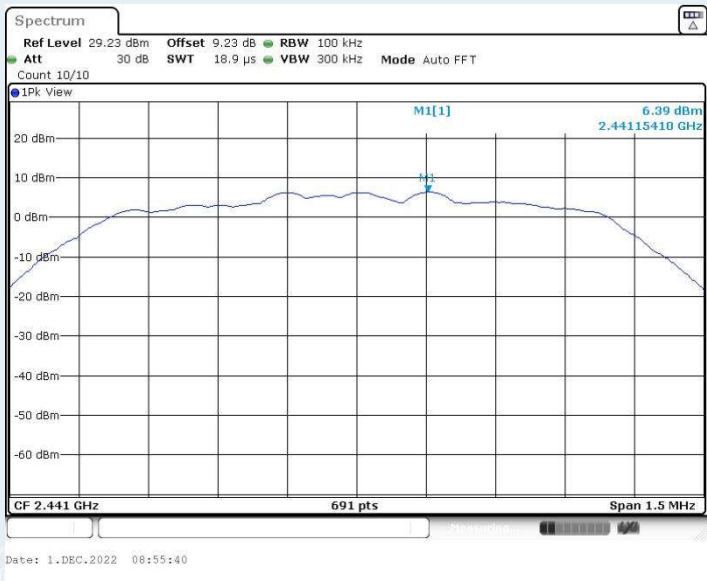
CH High

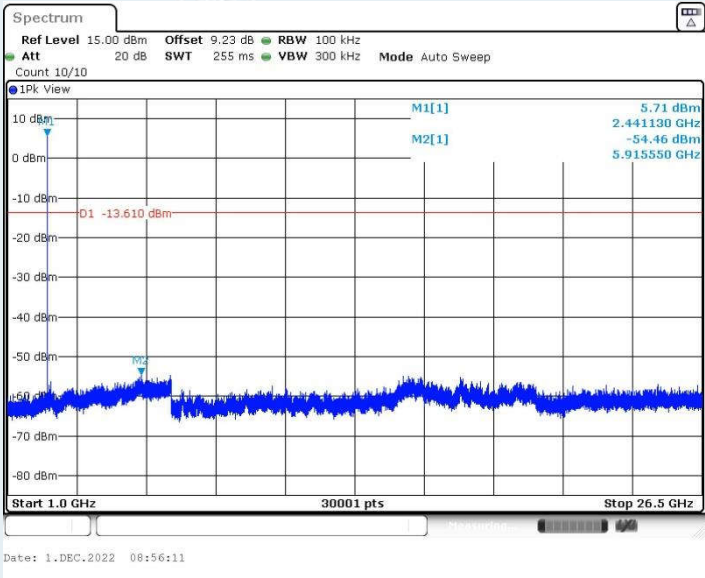




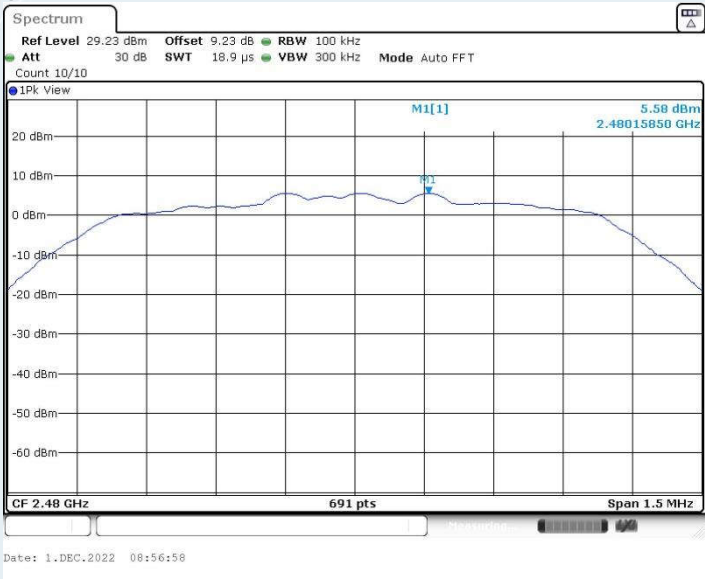


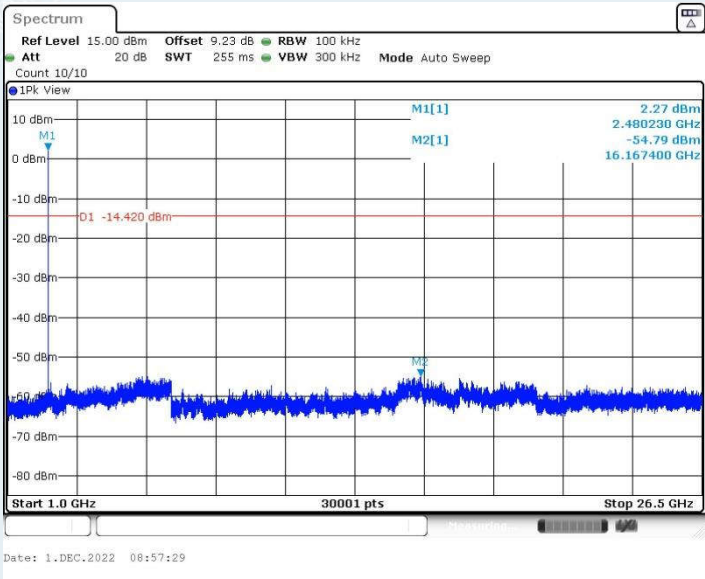
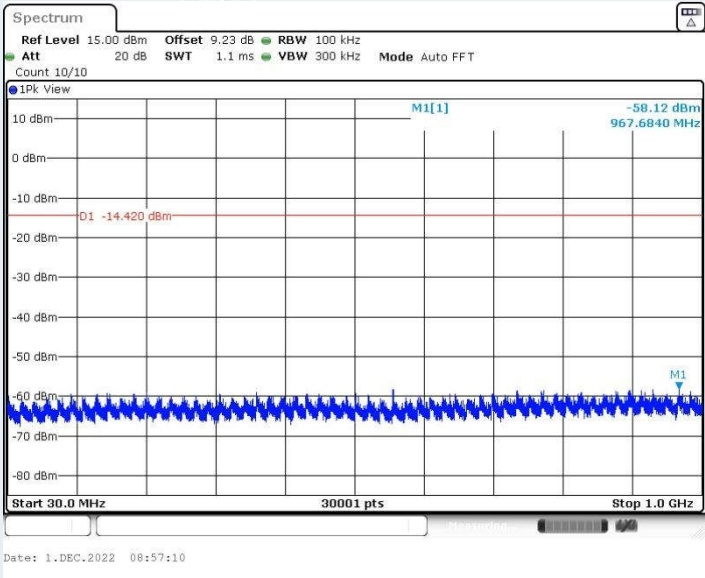
CH Mid



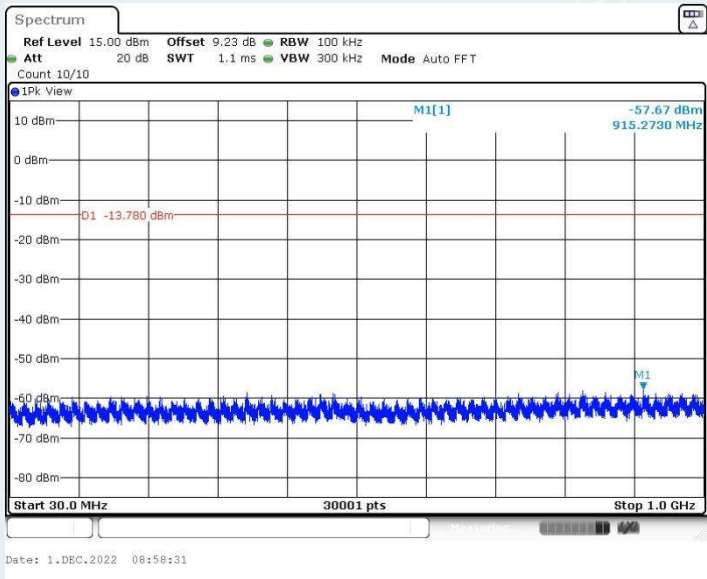
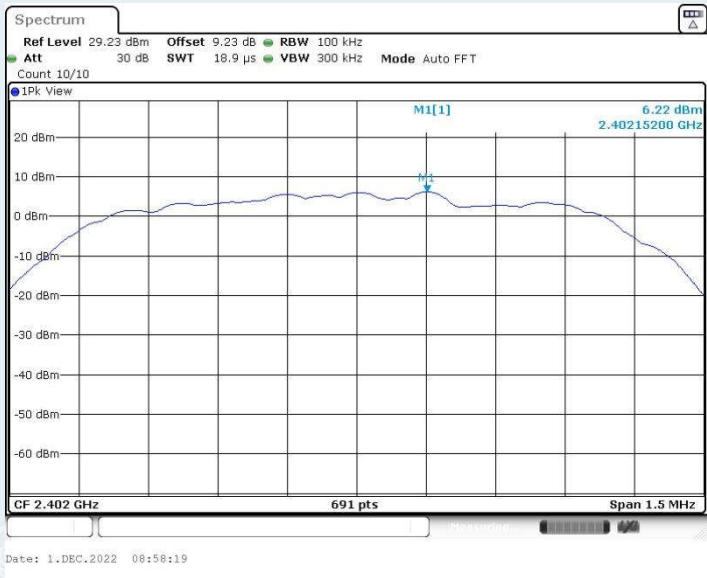


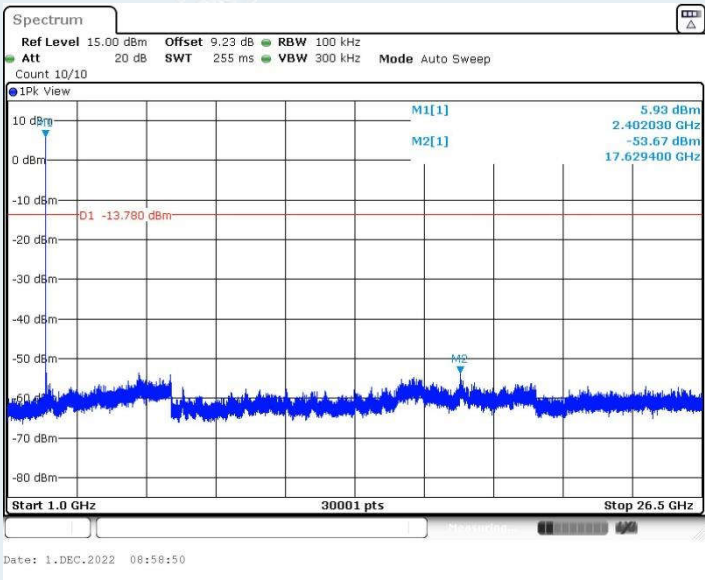
CH High



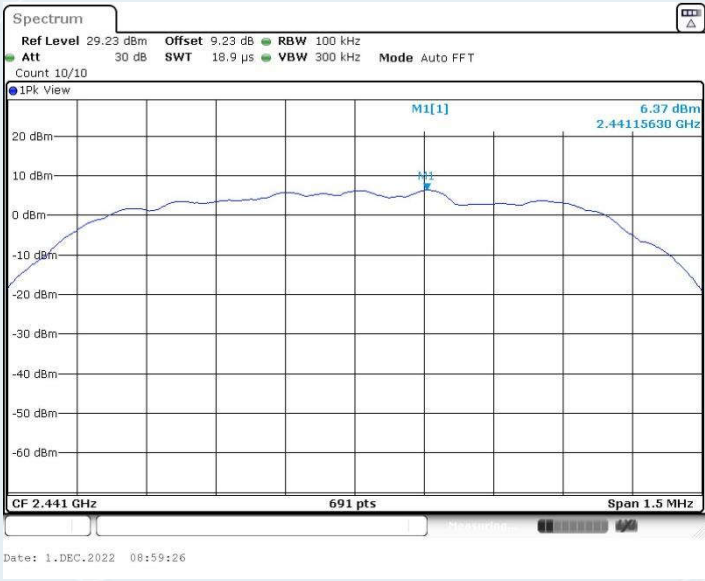


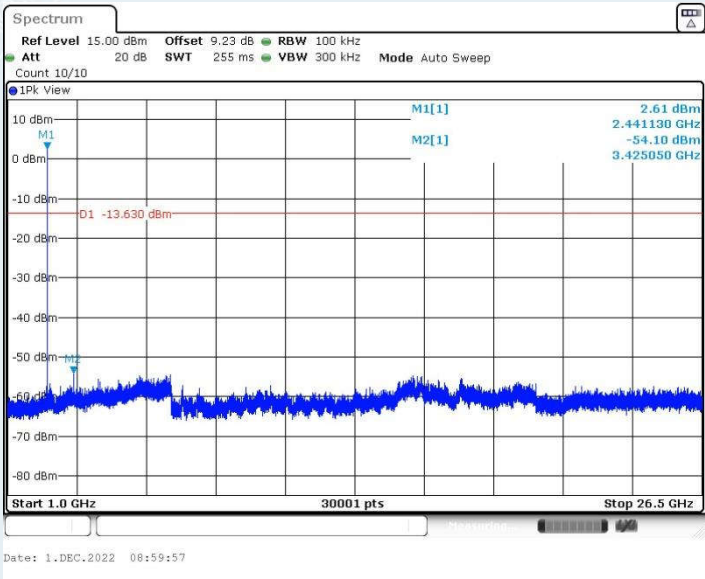
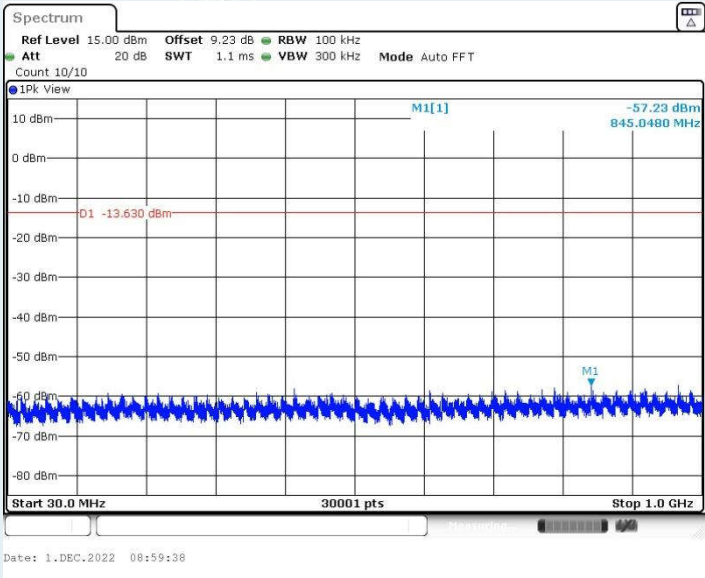
3DH5
CH Low



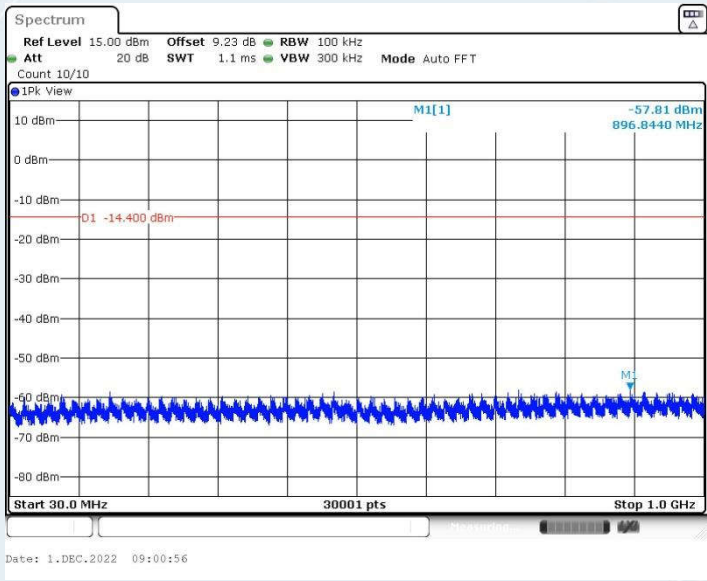
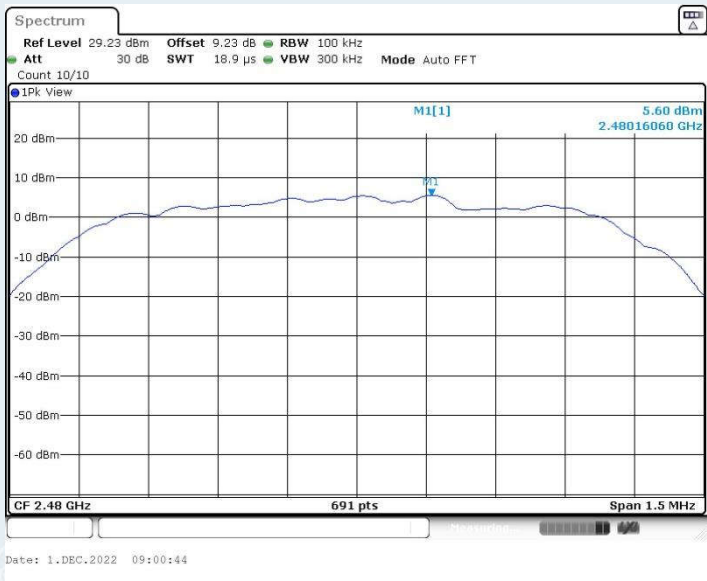


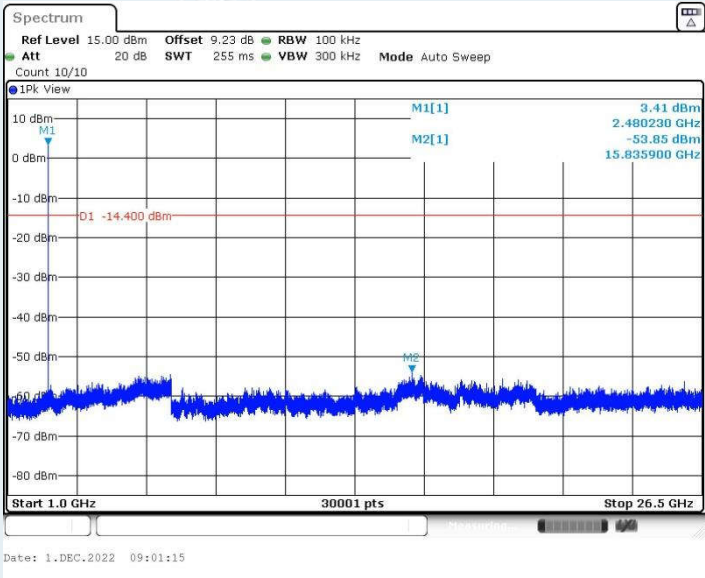
CH Mid





CH High





———— The following blanks ————

12. RADIATED SPURIOUS EMISSIONS

12.1 LIMITS

In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30dB instead of 20dB. Attenuation below the general limits specified in §15.209(a) is not required.

Frequency (MHz)	Quasi-peak(μ V/m)	Measurement distance(m)	Quasi-peak(dB μ V/m)@distance 3m
0.009-0.490	2400/F(kHz)	300	128.5~93.8
0.490-1.705	24000/F(kHz)	30	73.8~63
1.705-30.0	30	30	69.5
30 ~ 88	100	3	40
88~216	150	3	43.5
216 ~ 960	200	3	46
Above 960	500	3	54

NOTE:

- (1) The emission limits for the ranges 9-90kHz and 110-490kHz are based on measurements employing a linear average detector.
- (2) The lower limit shall apply at the transition frequencies.

12.2 TEST PROCEDURES

1) Sequence of testing 9kHz to 30MHz

Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.
- If the EUT is a floor standing device, it is placed on the ground.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

Pre measurement:

- The turntable rotates from 0° to 360°.
- The antenna height is 1.0 meter.
- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

Final measurement:

- Identified emissions during the pre measurement the software maximizes by rotating the turntable position (0° to 360°) and by rotating the elevation axes (0° to 360°).