

RF Test Data

For

Project No.:	RF251027002-03-001
Client:	Autel Robotics Co., Ltd.
Manufacturer:	Autel Robotics Co., Ltd.
Product Description:	Dragonfish Repeater
Model(s):	DFRP
Test Engineer:	Jason Huang
Test Date:	2025-11-11

Test Summary

Item	Result
Duty Cycle	Pass
Bandwidth	Pass
Maximum Conducted Output Power	Pass
Maximum Power Spectral Density	Pass
Unwanted Emissions In Non-restricted Frequency Bands	Pass
Frequency Error	Pass

1. Duty Cycle

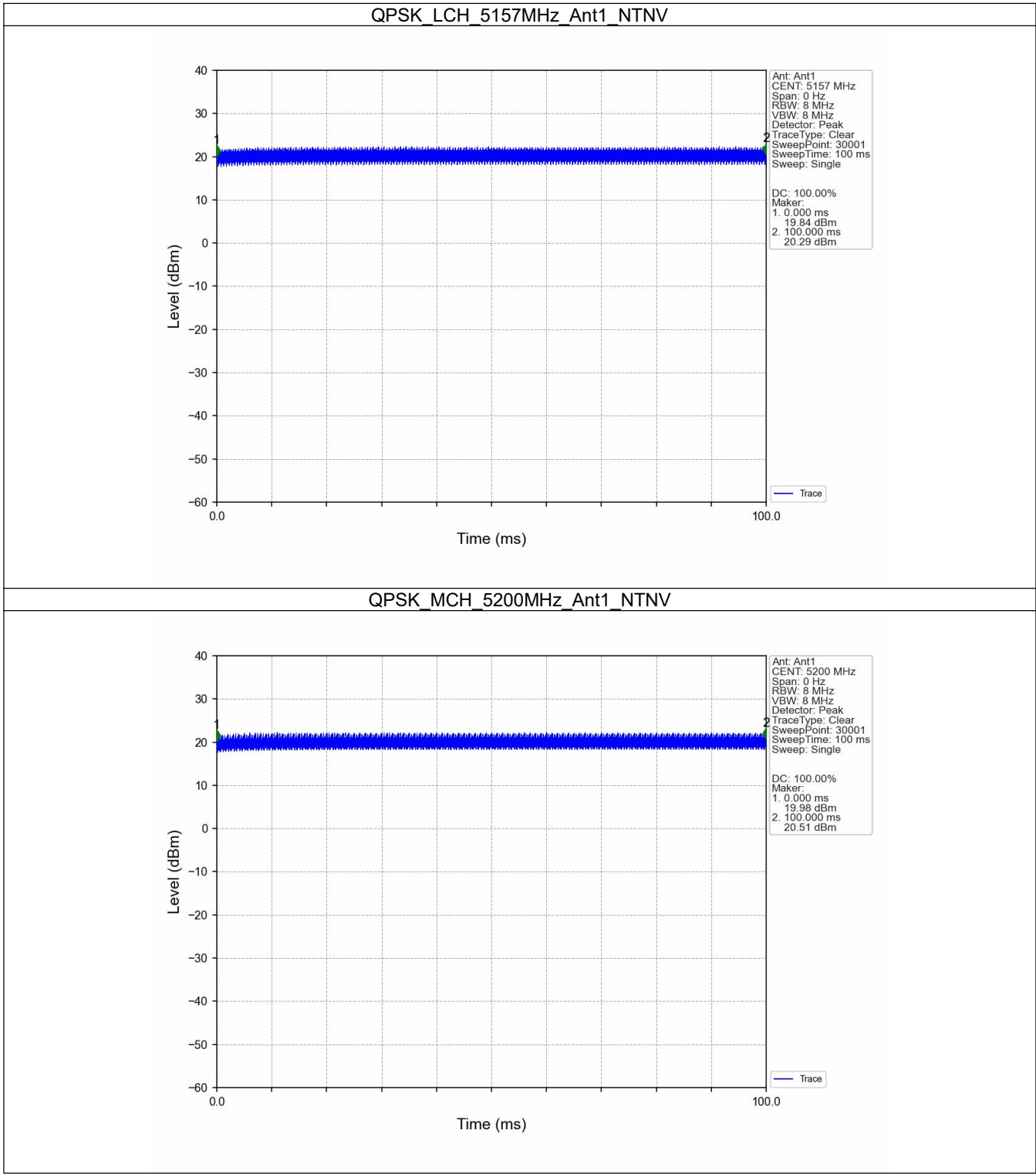
1.1 Test Result

1.1.1 Ant1

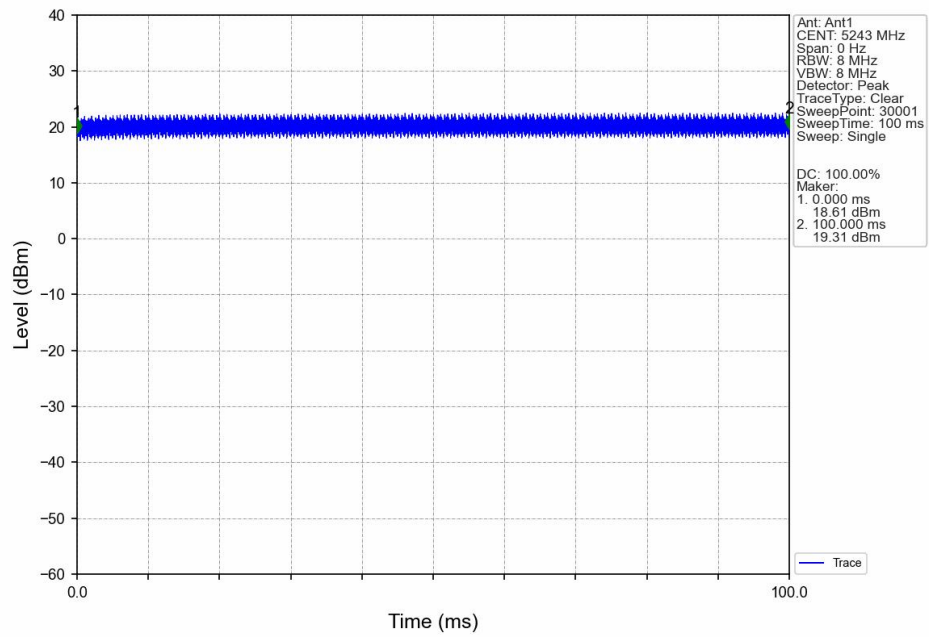
Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
QPSK	MIMO	5157	100.000	100.000	100.00	0.00	0.00
		5200	100.000	100.000	100.00	0.00	0.00
		5243	100.000	100.000	100.00	0.00	0.00
16QAM	MIMO	5157	100.000	100.000	100.00	0.00	0.00
		5200	100.000	100.000	100.00	0.00	0.00
		5243	100.000	100.000	100.00	0.00	0.00

1.2 Test Graph

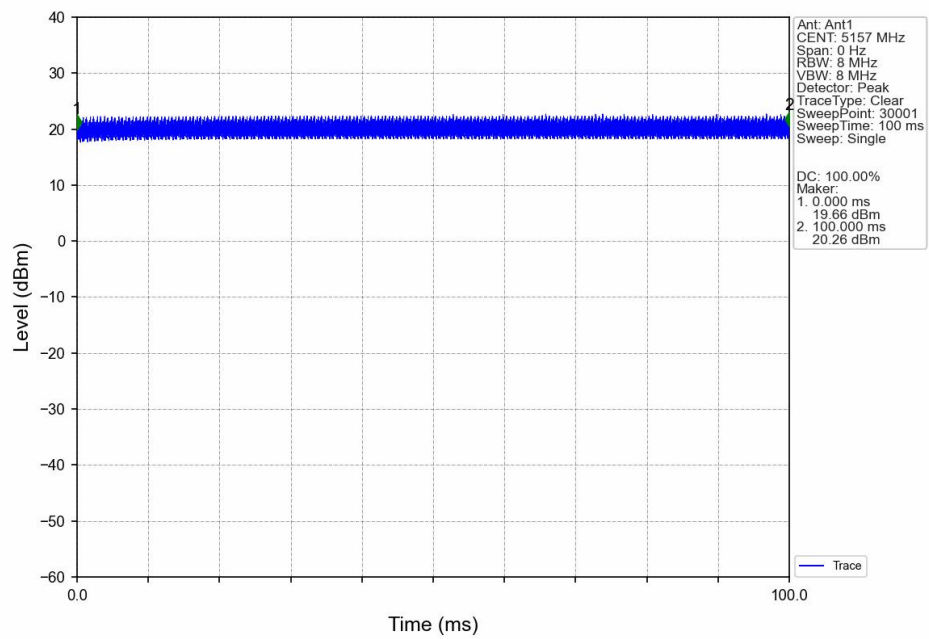
1.2.1 Ant1



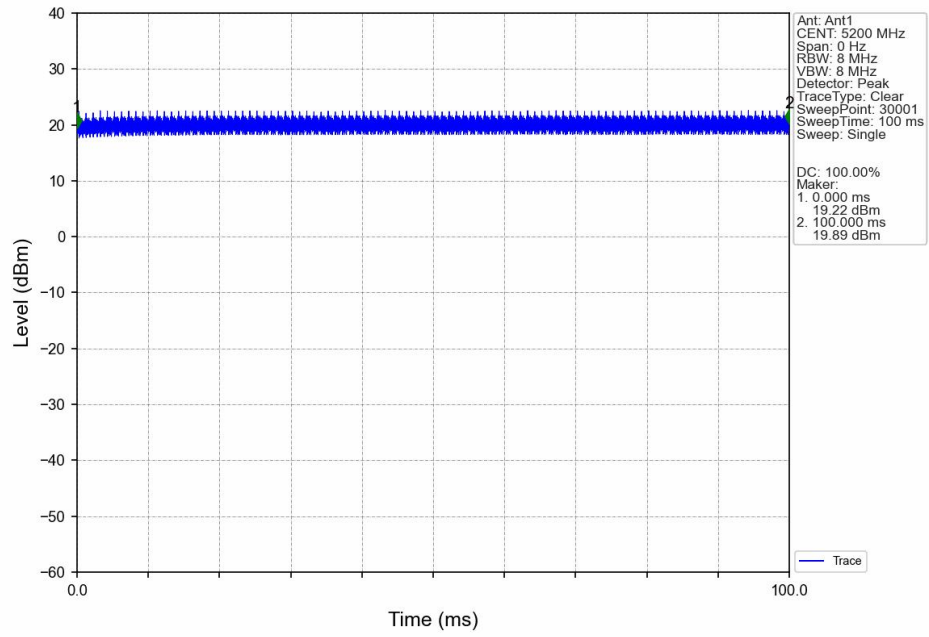
QPSK_HCH_5243MHz_Ant1_NTNV



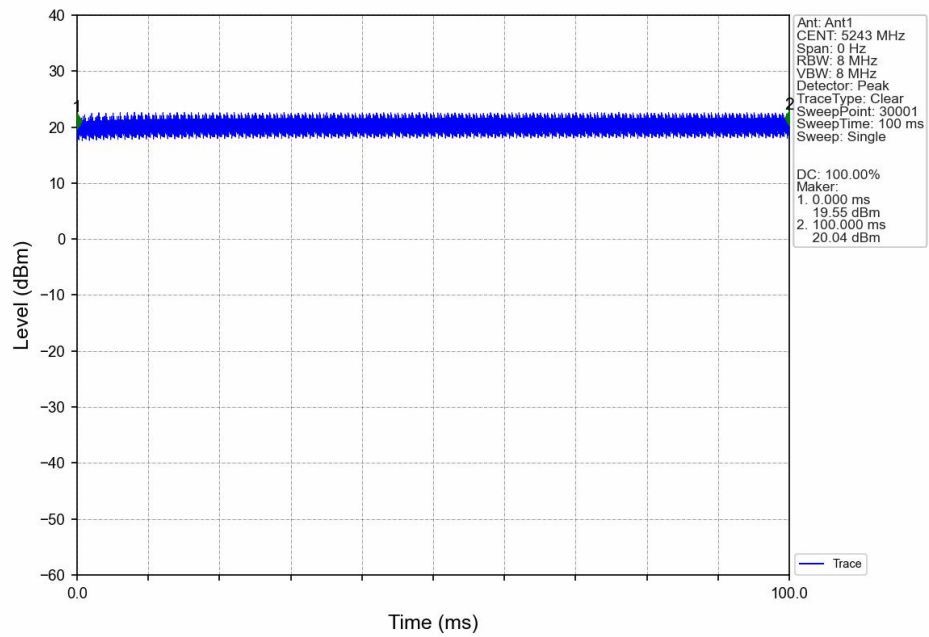
16QAM_LCH_5157MHz_Ant1_NTNV



16QAM_MCH_5200MHz_Ant1_NTNV



16QAM_HCH_5243MHz_Ant1_NTNV



2. Bandwidth

2.1 Test Result

2.1.1 OBW

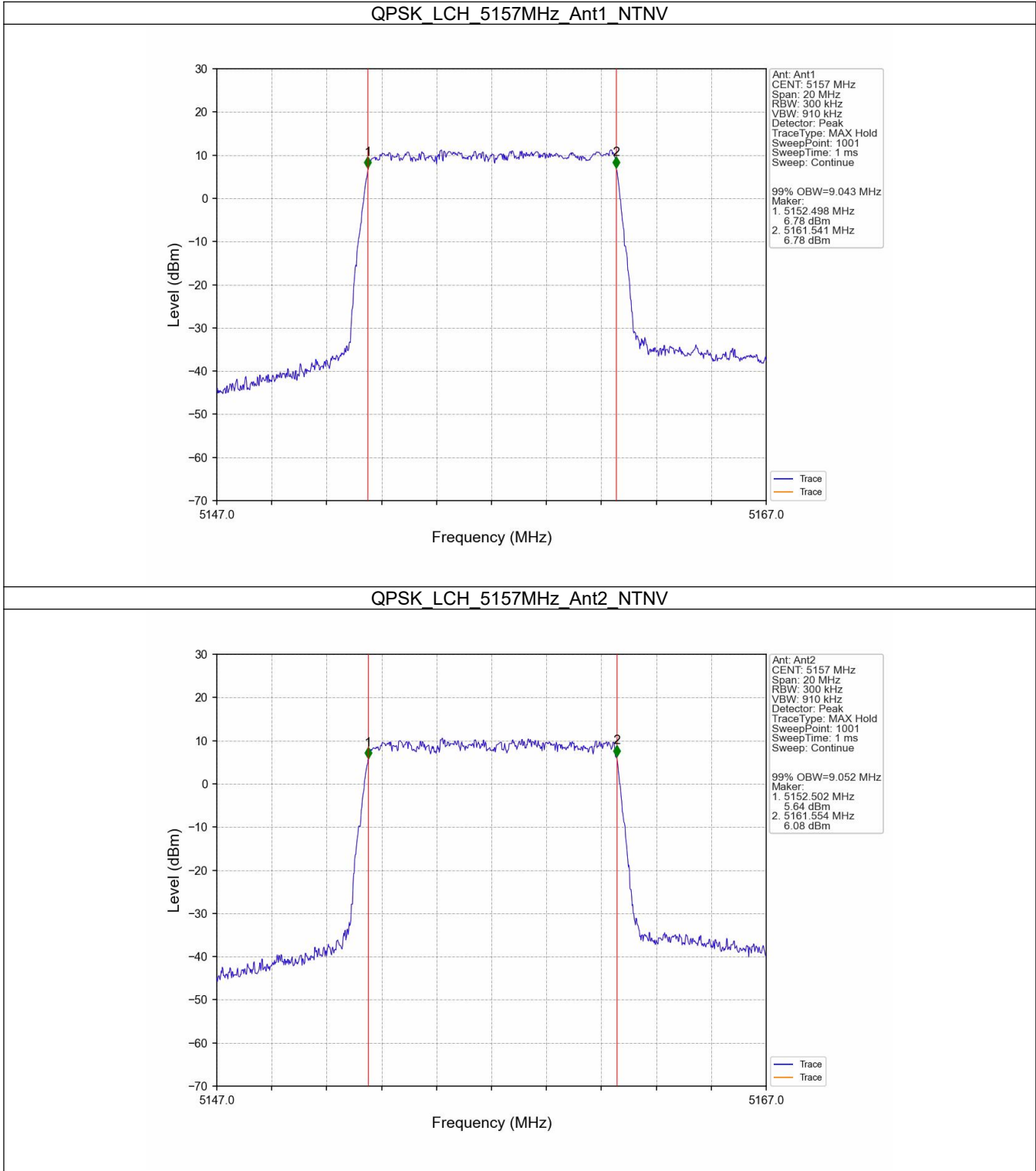
Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
QPSK	MIMO	5157	1	9.043	/	Pass
			2	9.052	/	Pass
		5200	1	9.048	/	Pass
			2	9.043	/	Pass
		5243	1	9.042	/	Pass
			2	9.048	/	Pass
16QAM	MIMO	5157	1	9.047	/	Pass
			2	9.045	/	Pass
		5200	1	9.057	/	Pass
			2	9.053	/	Pass
		5243	1	9.062	/	Pass
			2	9.038	/	Pass

2.1.2 26dB BW

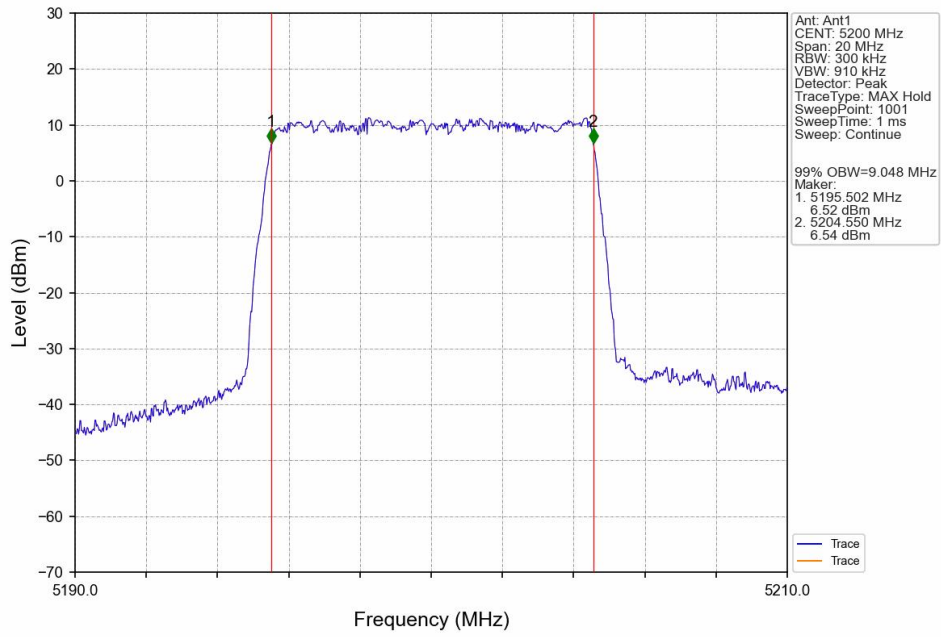
Mode	TX Type	Frequency (MHz)	ANT	26dB Bandwidth (MHz)		Verdict
				Result	Limit	
QPSK	MIMO	5157	1	9.542	/	Pass
			2	9.539	/	Pass
		5200	1	9.565	/	Pass
			2	9.559	/	Pass
		5243	1	9.580	/	Pass
			2	9.572	/	Pass
16QAM	MIMO	5157	1	9.575	/	Pass
			2	9.522	/	Pass
		5200	1	9.557	/	Pass
			2	9.564	/	Pass
		5243	1	9.577	/	Pass
			2	9.596	/	Pass

2.2 Test Graph

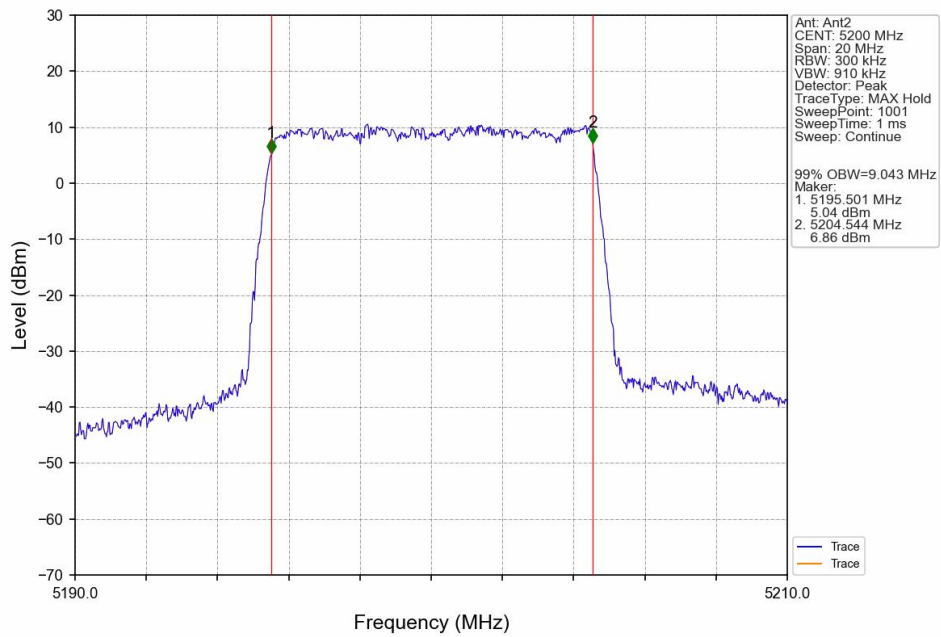
2.2.1 OBW



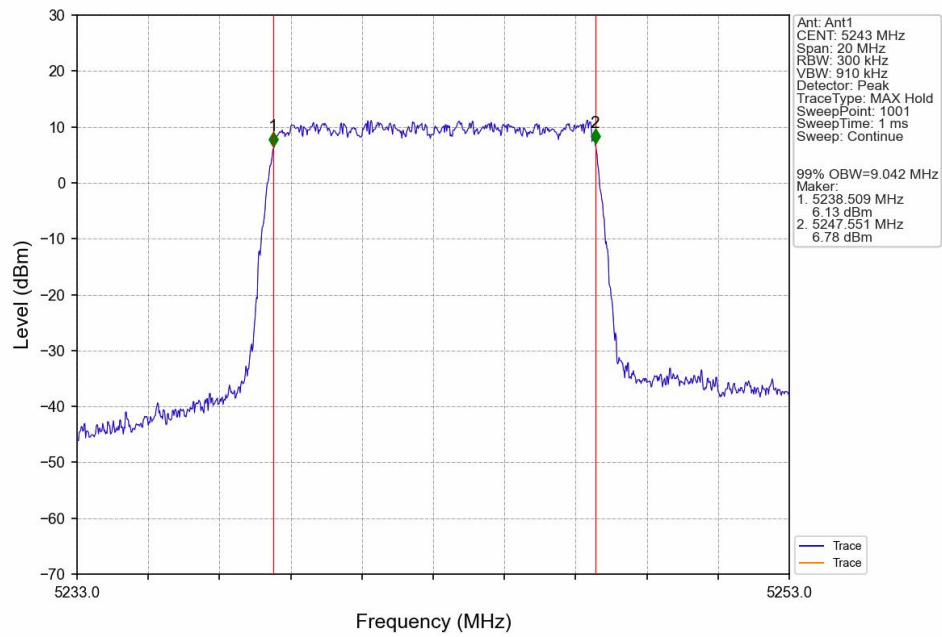
QPSK_MCH_5200MHz_Ant1_NTNV



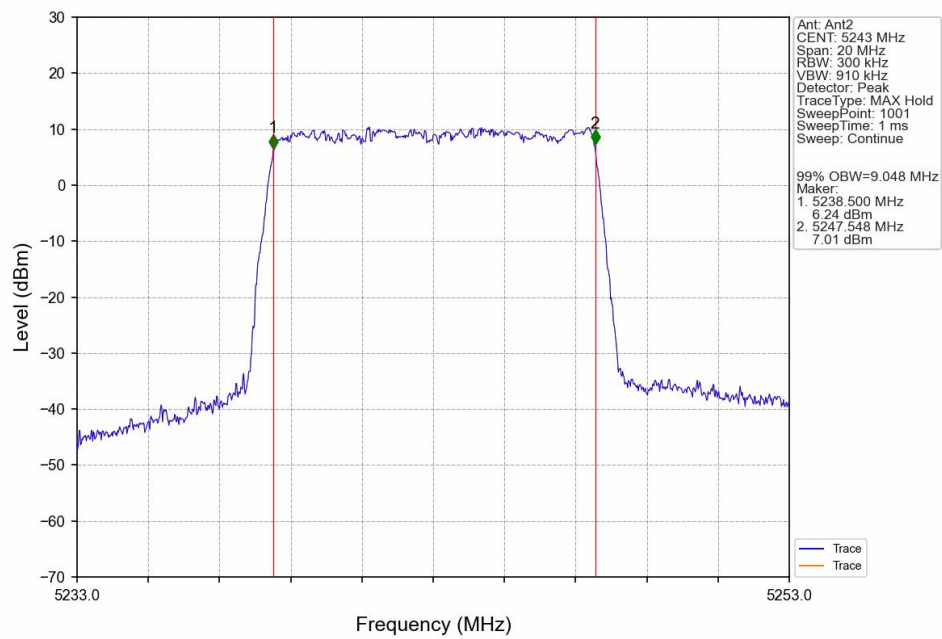
QPSK_MCH_5200MHz_Ant2_NTNV



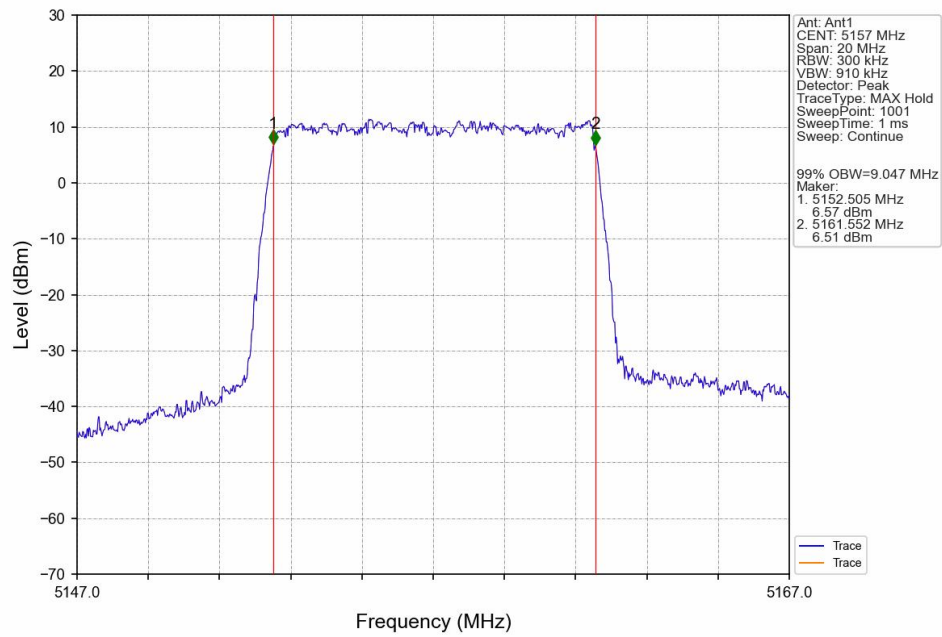
QPSK_HCH_5243MHz_Ant1_NTNV



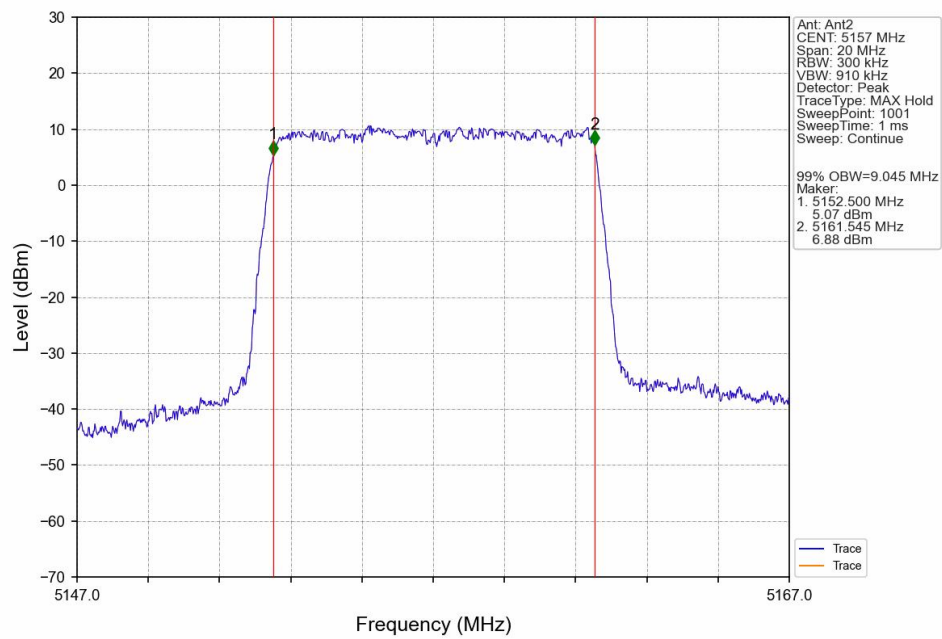
QPSK_HCH_5243MHz_Ant2_NTNV



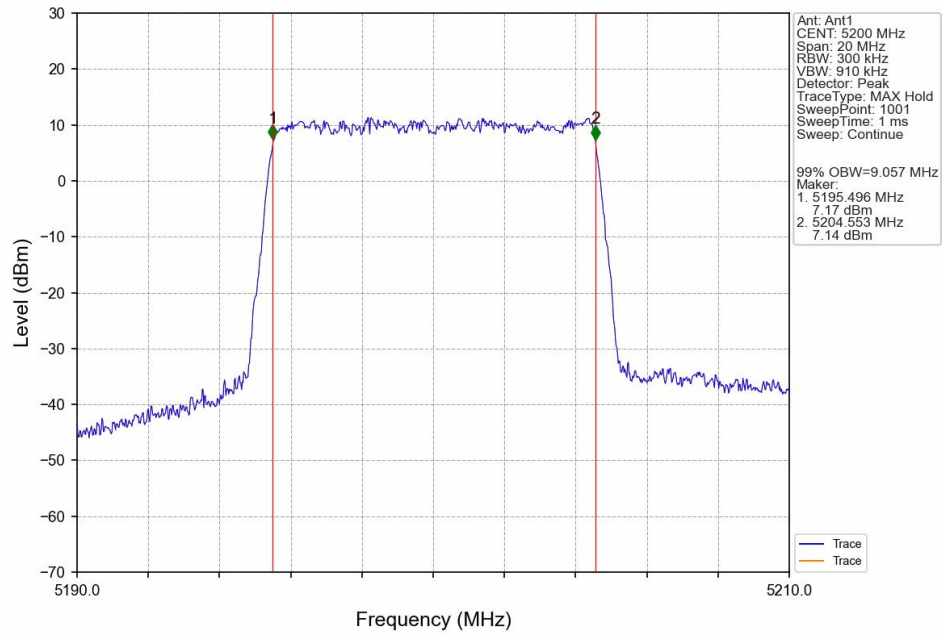
16QAM_LCH_5157MHz_Ant1_NTNV



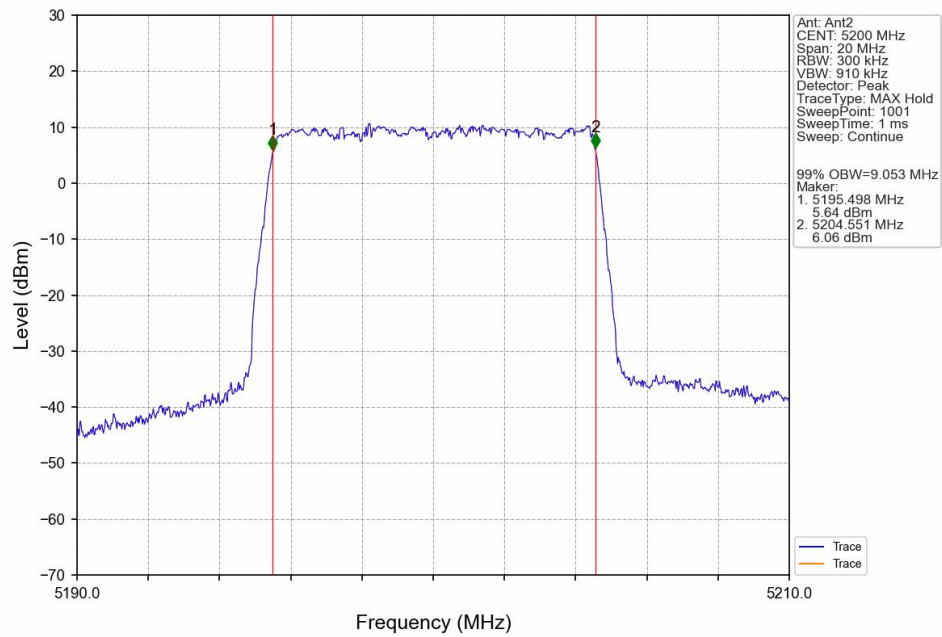
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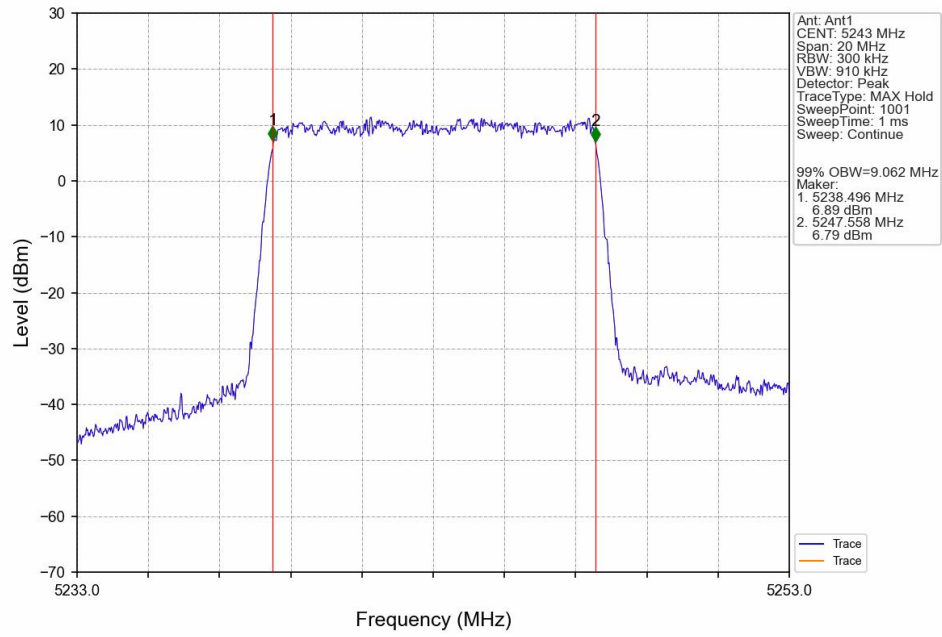
16QAM_MCH_5200MHz_Ant1_NTNV



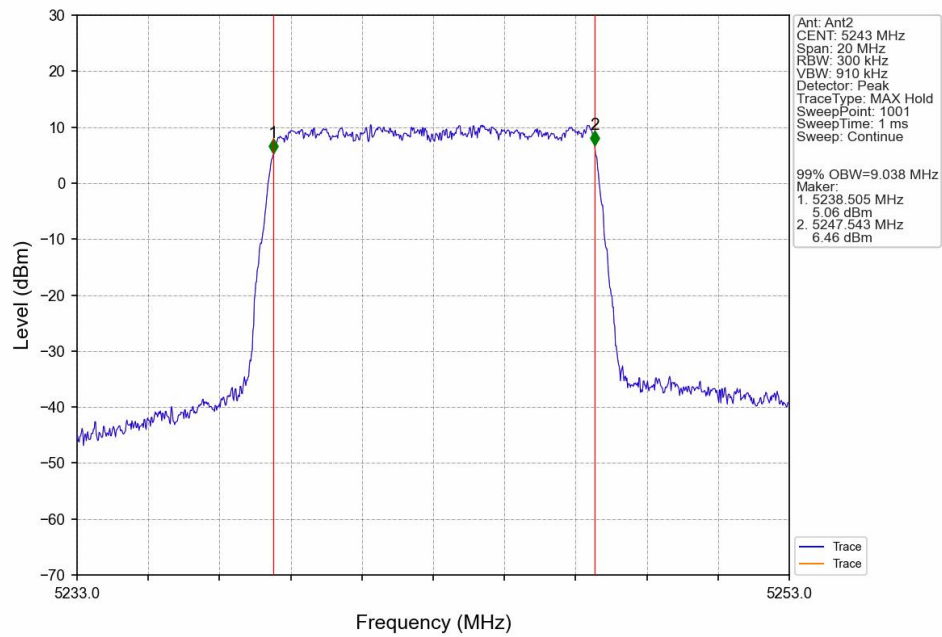
16QAM_MCH_5200MHz_Ant2_NTNV



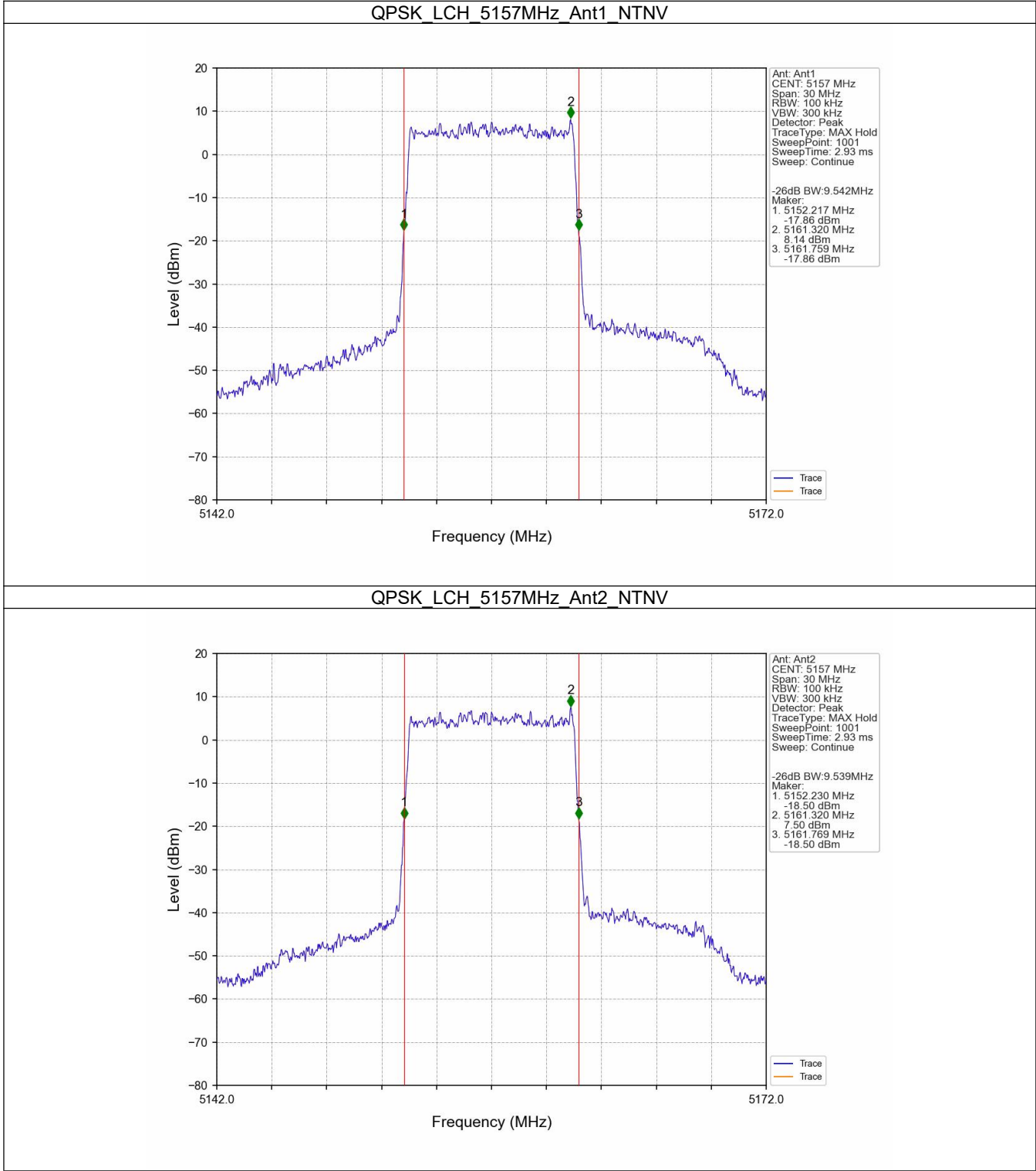
16QAM_HCH_5243MHz_Ant1_NTNV



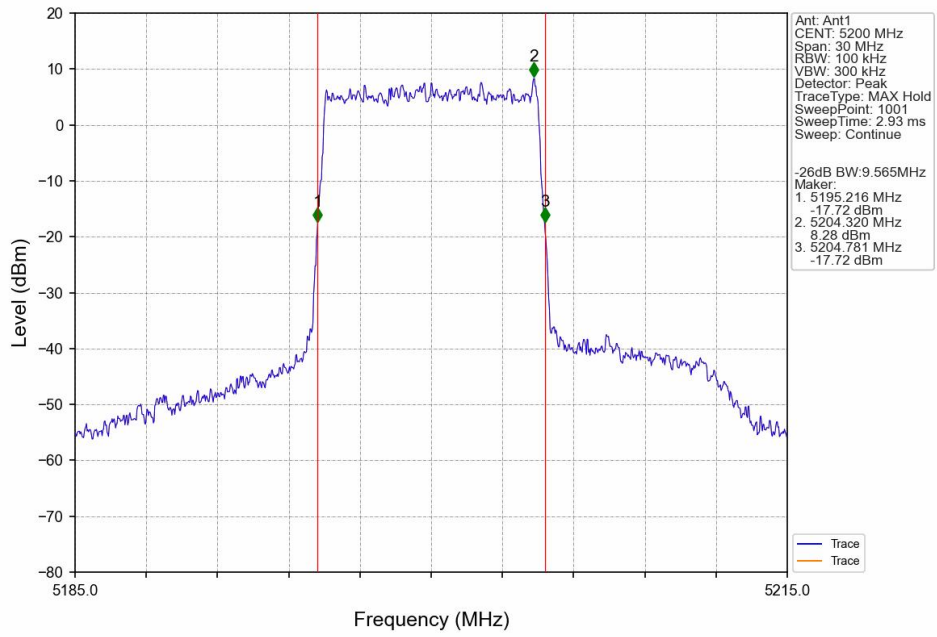
16QAM_HCH_5243MHz_Ant2_NTNV



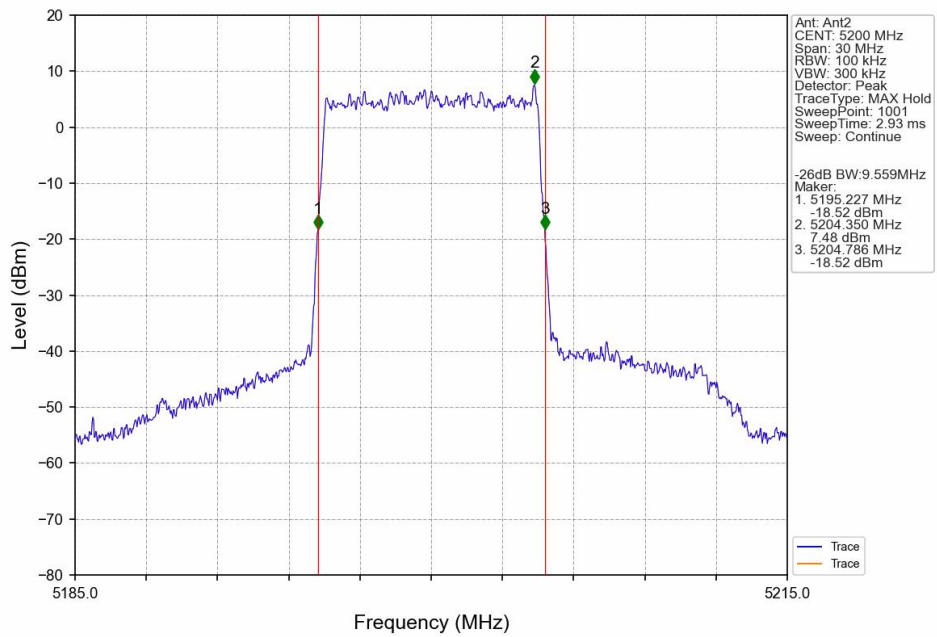
2.2.2 26dB BW



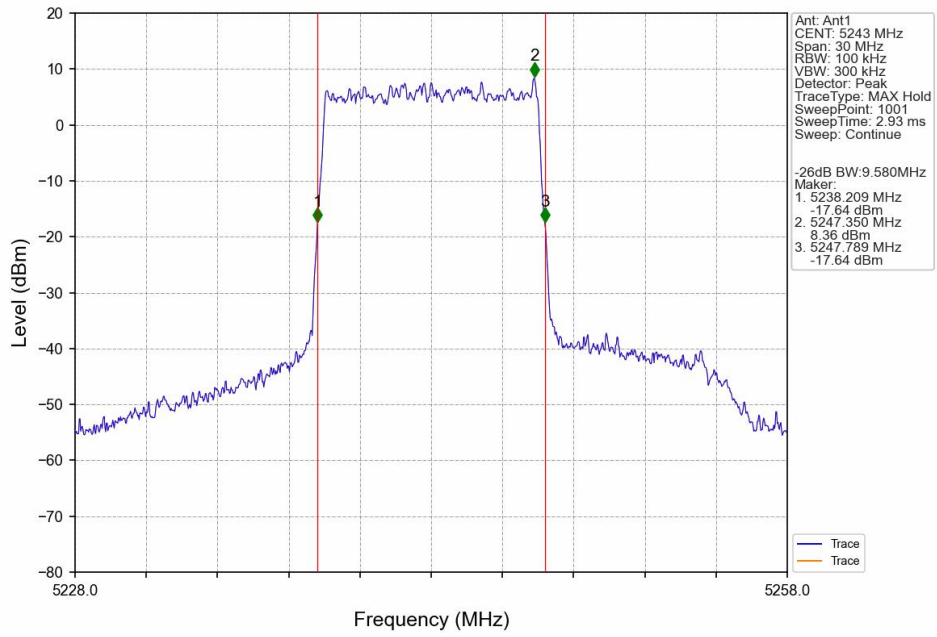
QPSK_MCH_5200MHz_Ant1_NTNV



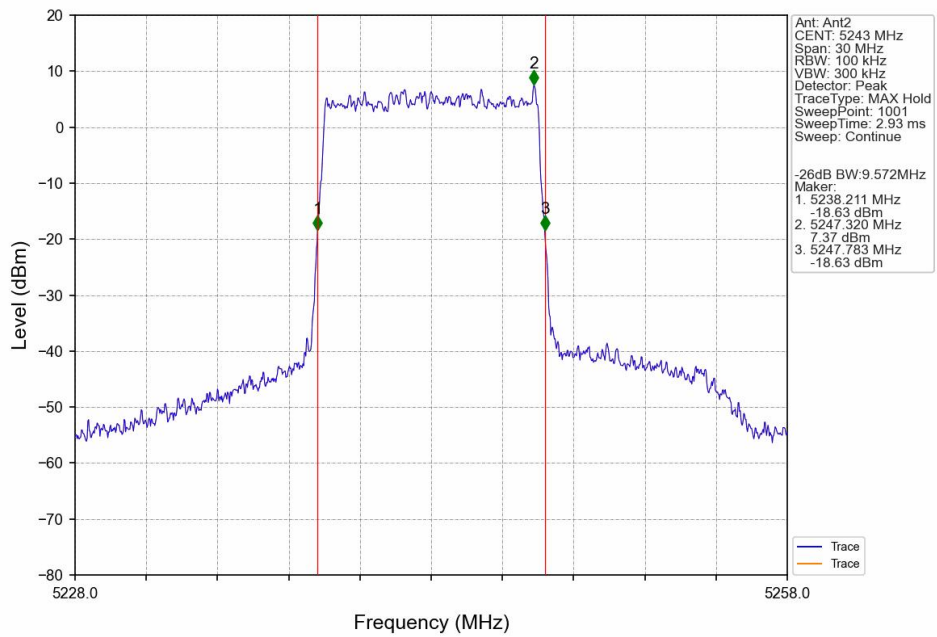
QPSK_MCH_5200MHz_Ant2_NTNV



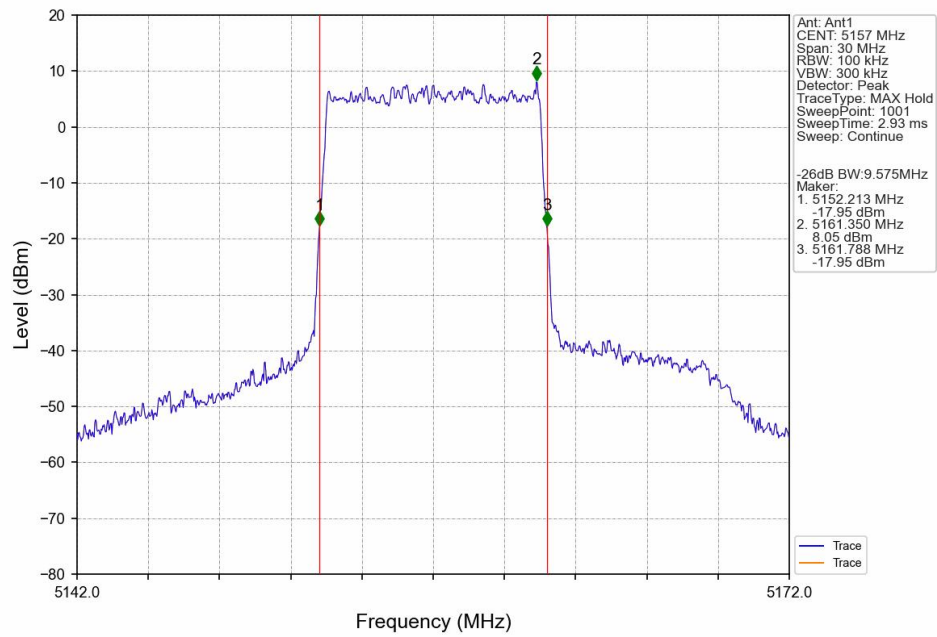
QPSK_HCH_5243MHz_Ant1_NTNV



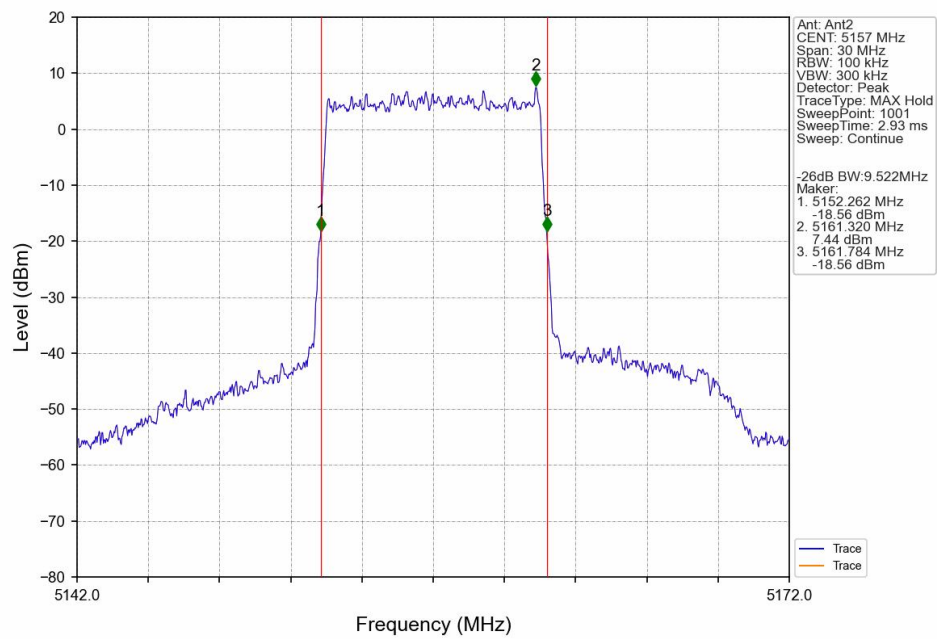
QPSK_HCH_5243MHz_Ant2_NTNV



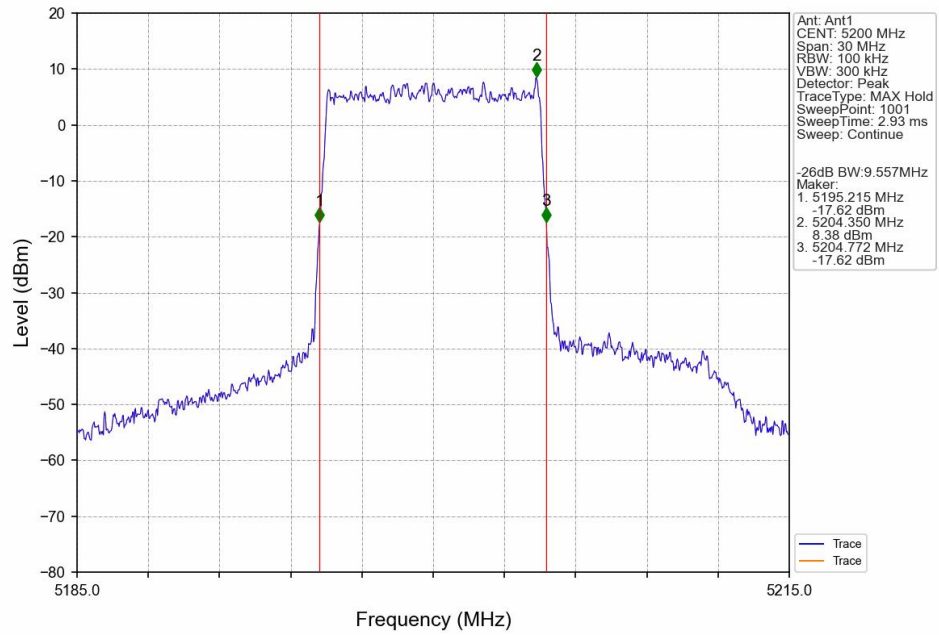
16QAM_LCH_5157MHz_Ant1_NTNV



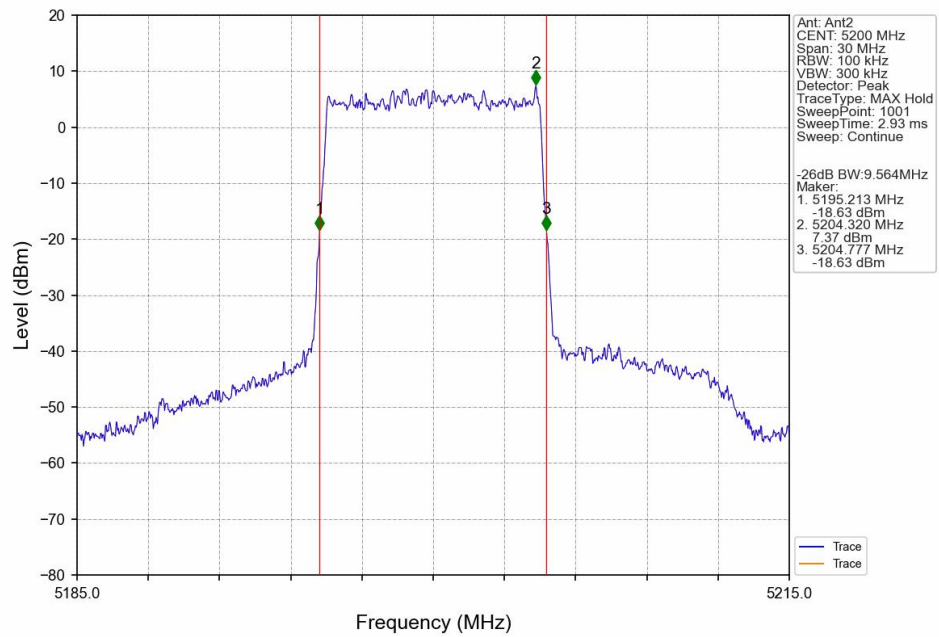
16QAM_LCH_5157MHz_Ant2_NTNV



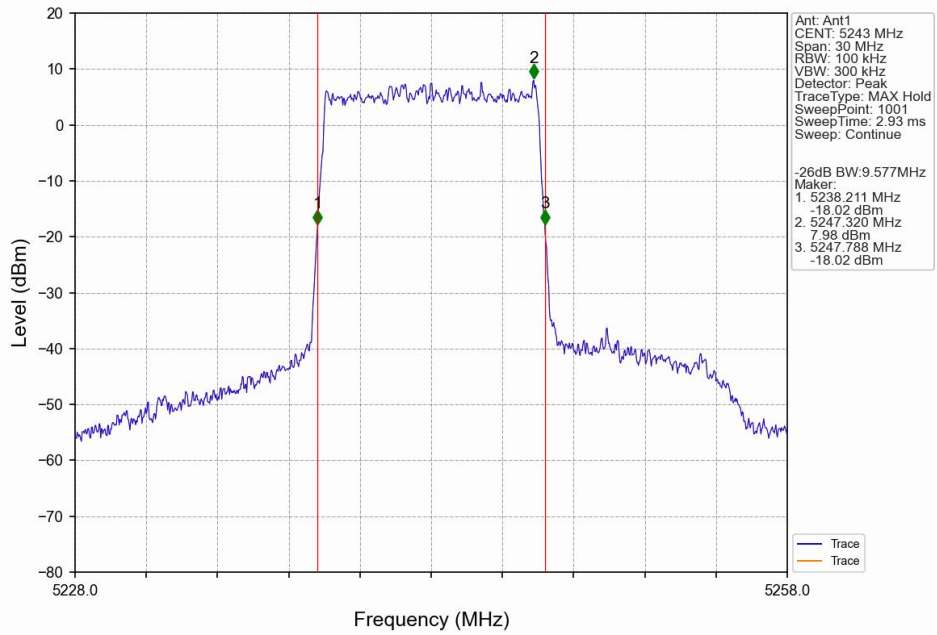
16QAM_MCH_5200MHz_Ant1_NTNV



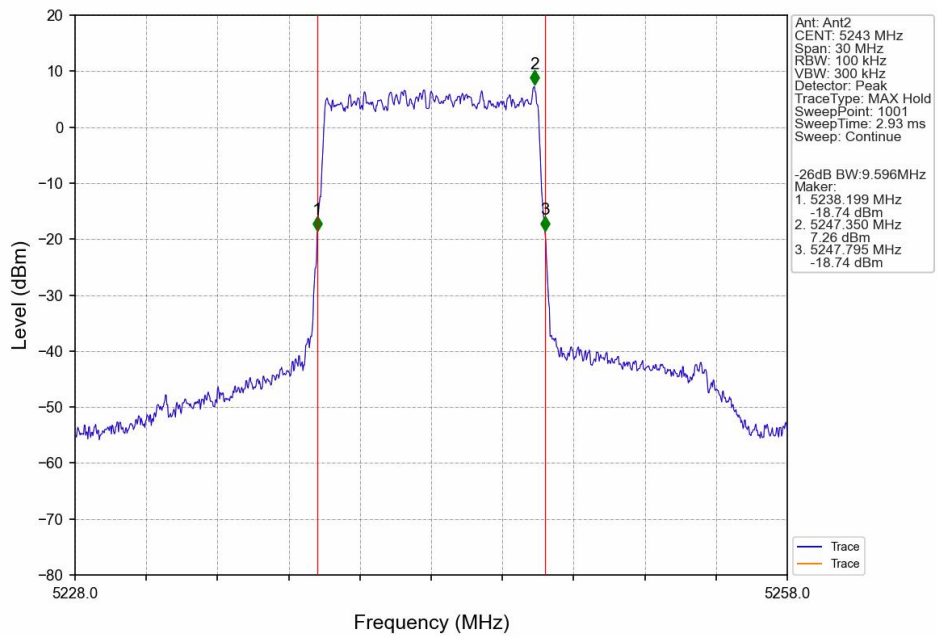
16QAM_MCH_5200MHz_Ant2_NTNV



16QAM_HCH_5243MHz_Ant1_NTNV



16QAM_HCH_5243MHz_Ant2_NTNV



3. Maximum Conducted Output Power

3.1 Test Result

3.1.1 Power

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)				Verdict
			ANT1	ANT2	MIMO	Limit	
QPSK	MIMO	5157	10.70	8.70	12.82	<=18.17	Pass
		5200	10.83	9.25	13.12	<=18.17	Pass
		5243	10.76	9.14	13.04	<=18.17	Pass
16QAM	MIMO	5157	10.67	9.03	12.94	<=18.17	Pass
		5200	10.75	9.22	13.06	<=18.17	Pass
		5243	10.75	9.08	13.01	<=18.17	Pass
Note1: Antenna Gain: Ant1: 8.80dBi; Ant2: 8.80dBi; Note2: Directional Gain: Band1: 11.81dBi							

4. Maximum Power Spectral Density

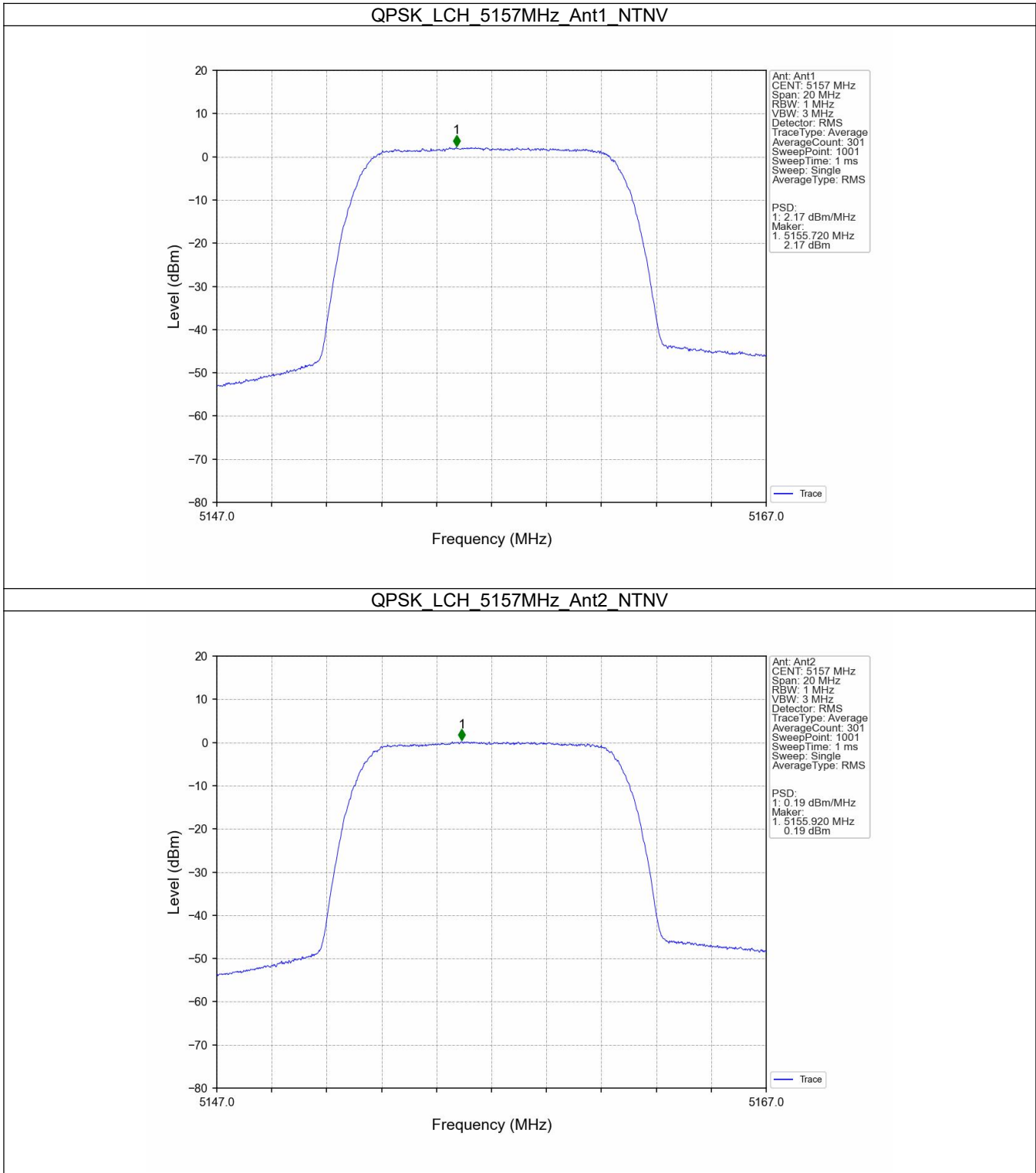
4.1 Test Result

4.1.1 PSD

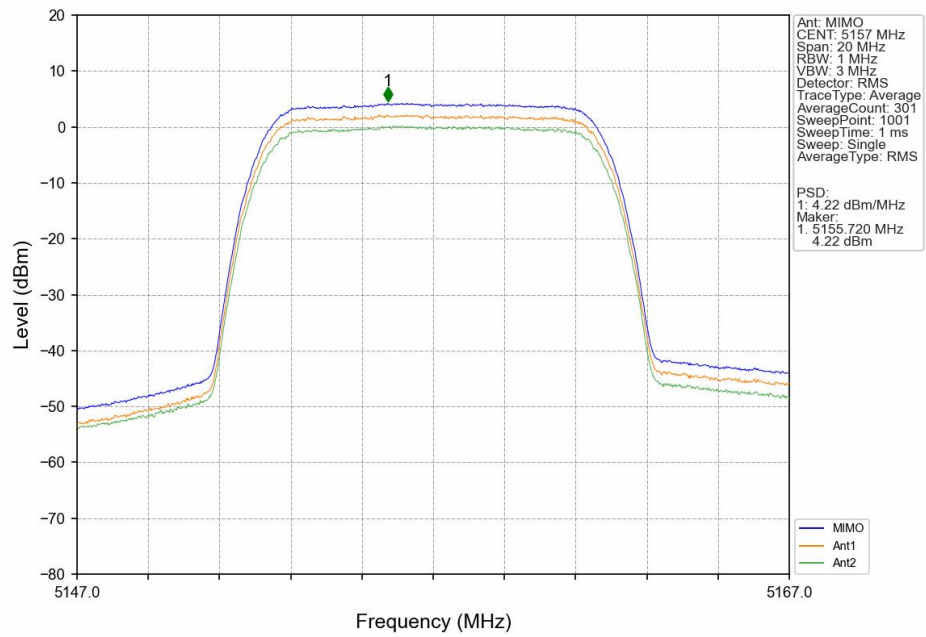
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/MHz)				Verdict
			ANT1	ANT2	MIMO	Limit	
QPSK	MIMO	5157	2.17	0.19	4.22	<=5.19	Pass
		5200	2.34	0.89	4.61	<=5.19	Pass
		5243	2.32	0.76	4.47	<=5.19	Pass
16QAM	MIMO	5157	2.21	0.59	4.46	<=5.19	Pass
		5200	2.34	0.78	4.58	<=5.19	Pass
		5243	2.34	0.69	4.50	<=5.19	Pass
Note1: Antenna Gain: Ant1: 8.80dBi; Ant2: 8.80dBi; Note2: Directional Gain: Band1: 11.81dBi							

4.2 Test Graph

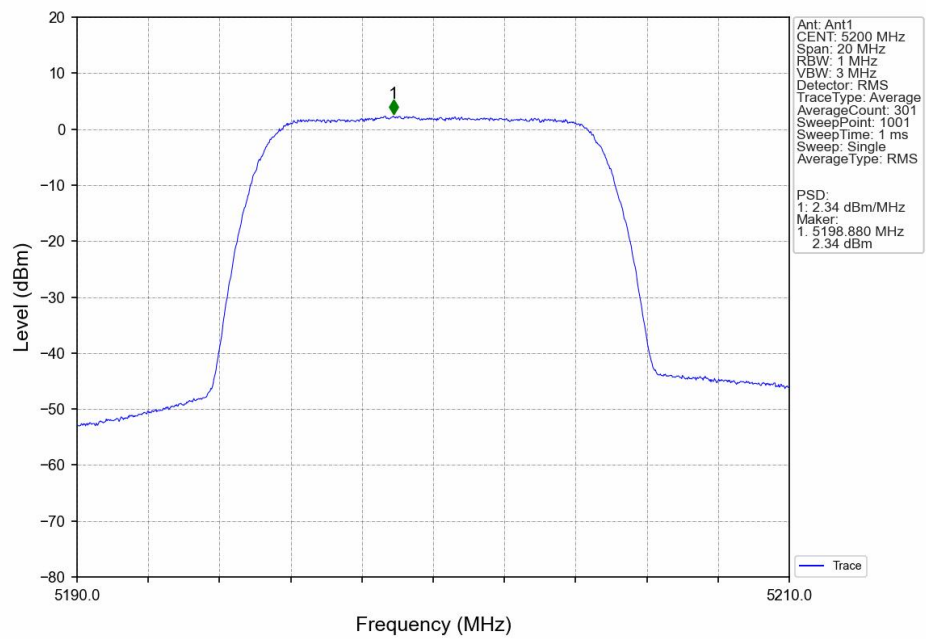
4.2.1 PSD



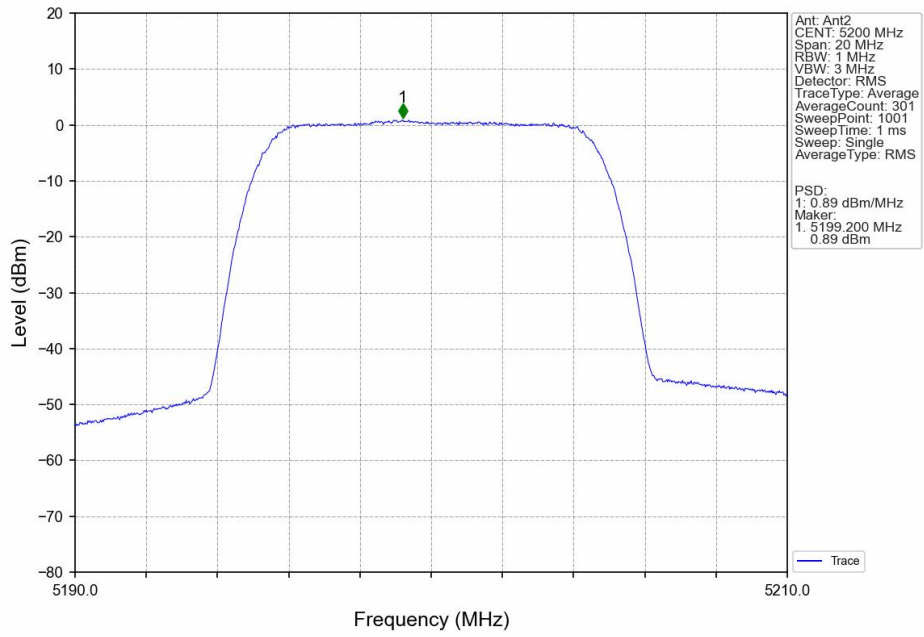
QPSK_LCH_5157MHz_MIMO_NTNV



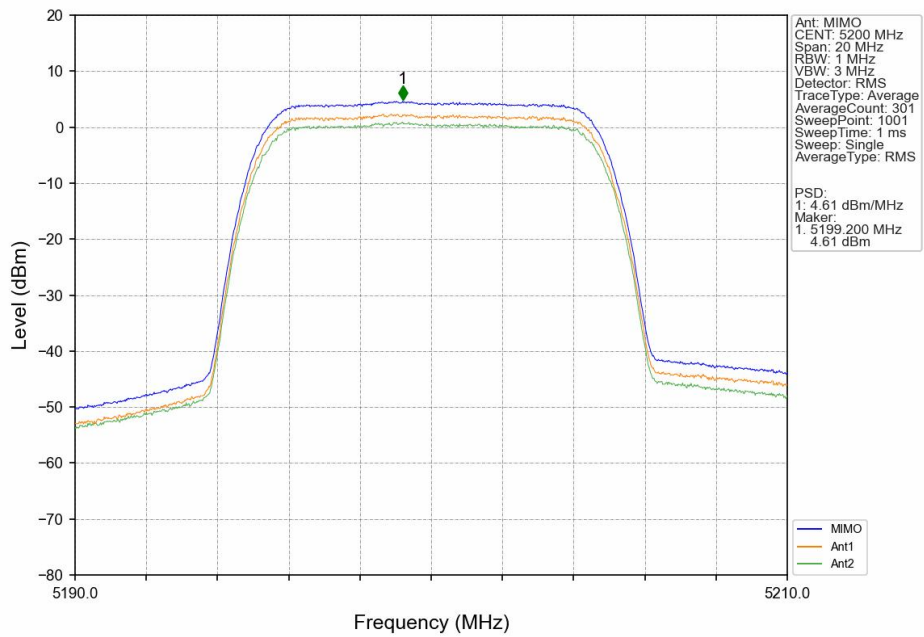
QPSK_MCH_5200MHz_Ant1_NTNV



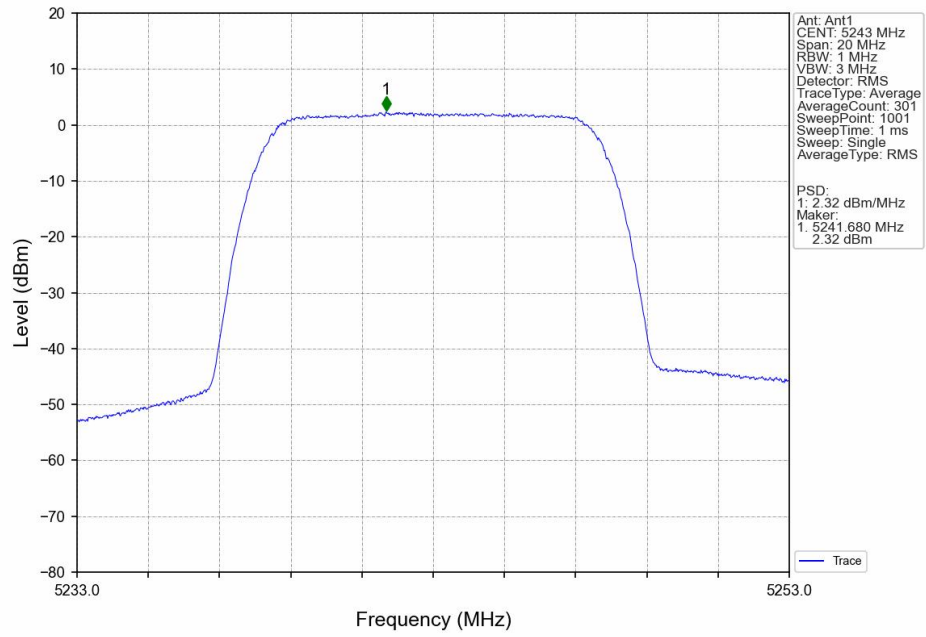
QPSK_MCH_5200MHz_Ant2_NTNV



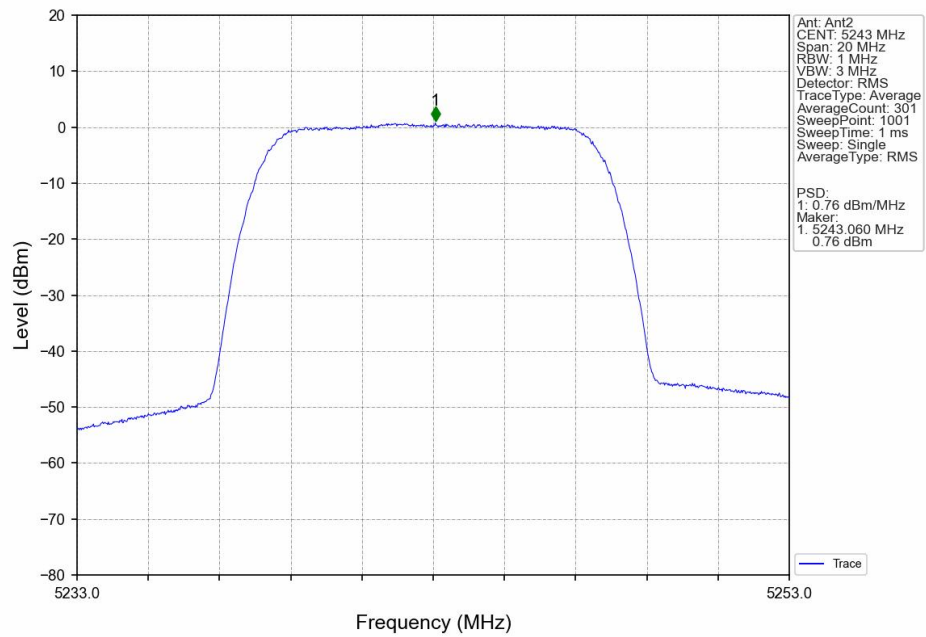
QPSK_MCH_5200MHz_MIMO_NTNV



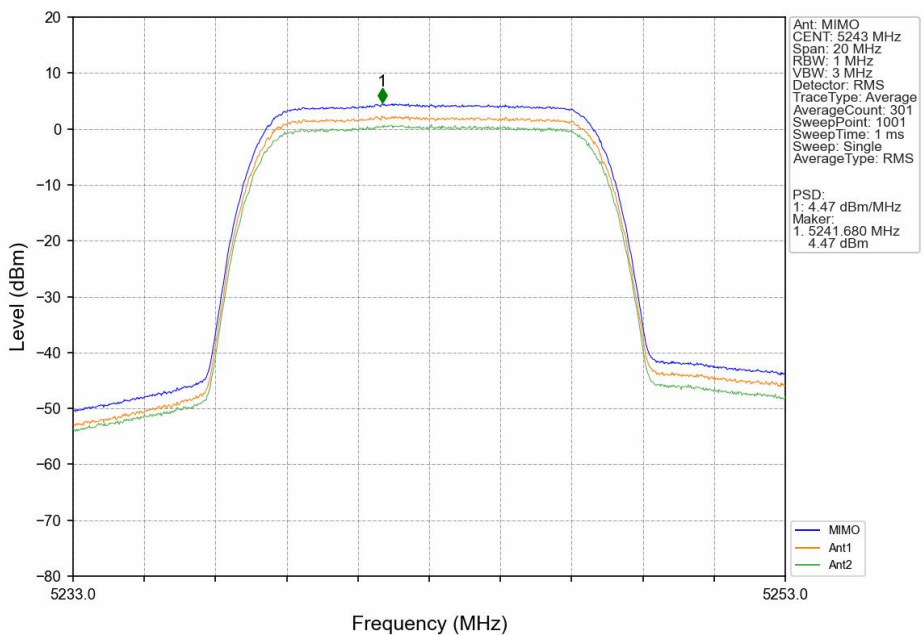
QPSK_HCH_5243MHz_Ant1_NTNV



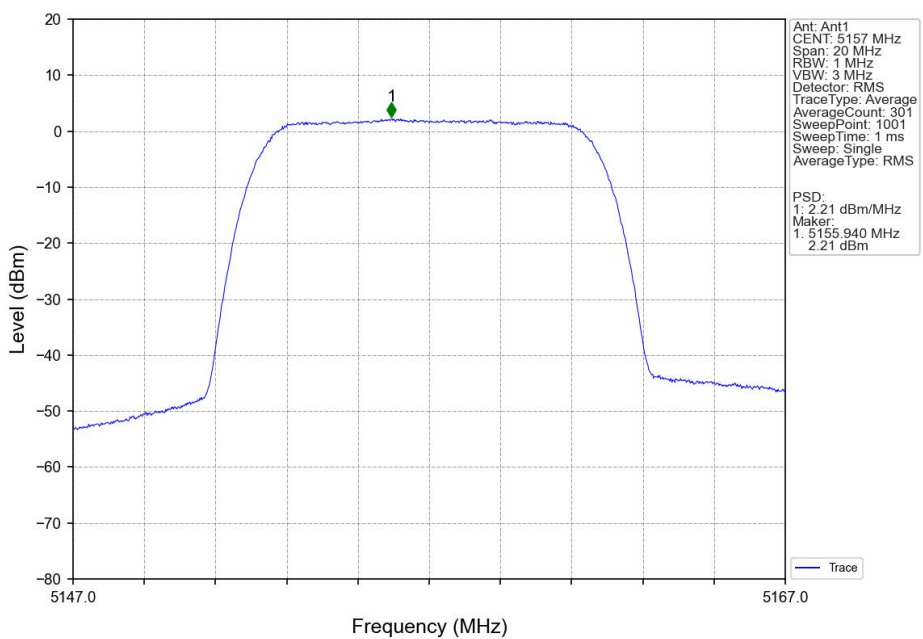
QPSK_HCH_5243MHz_Ant2_NTNV



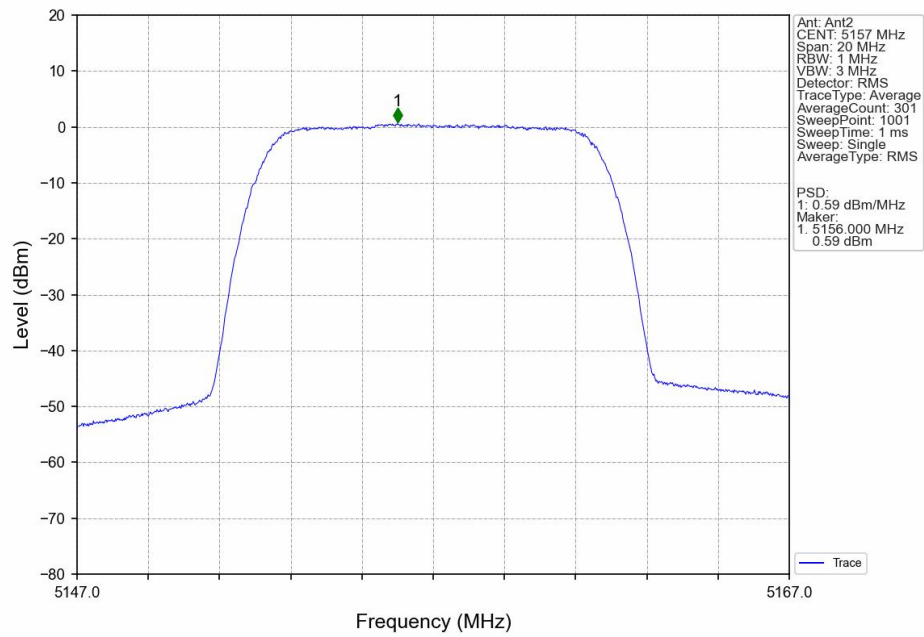
QPSK_HCH_5243MHz_MIMO_NTNV



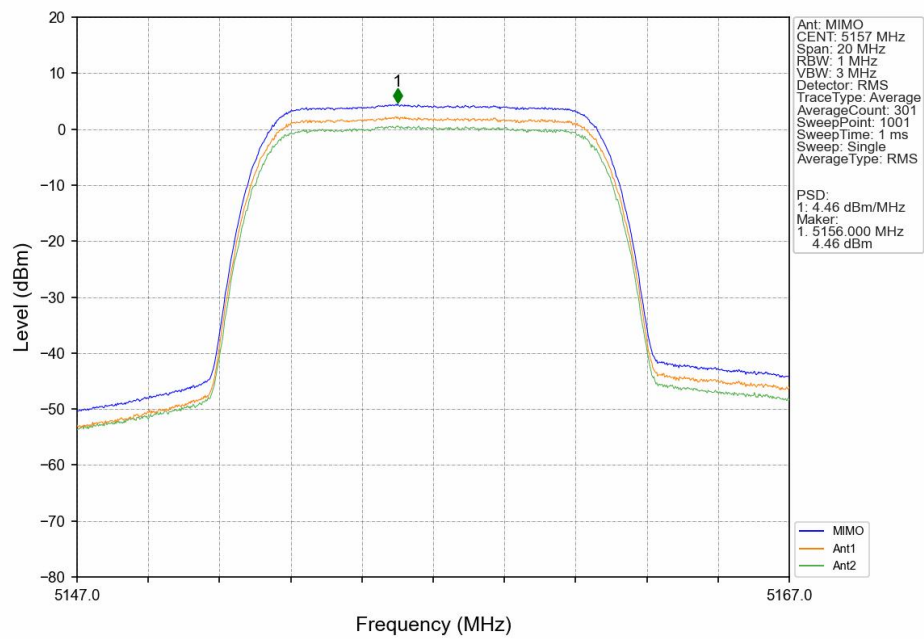
16QAM_LCH_5157MHz_Ant1_NTNV



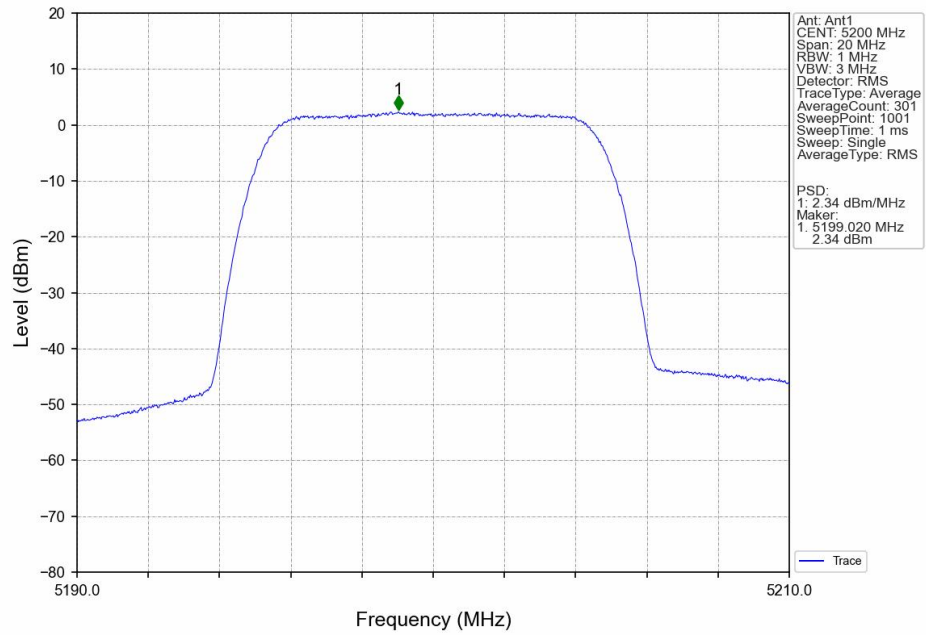
16QAM_LCH_5157MHz_Ant2_NTNV



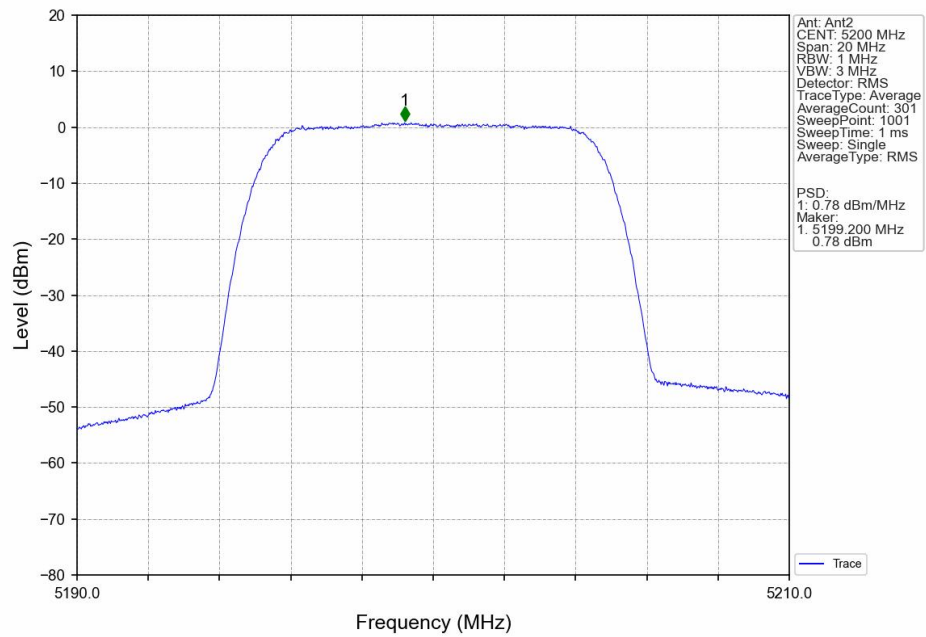
16QAM_LCH_5157MHz_MIMO_NTNV



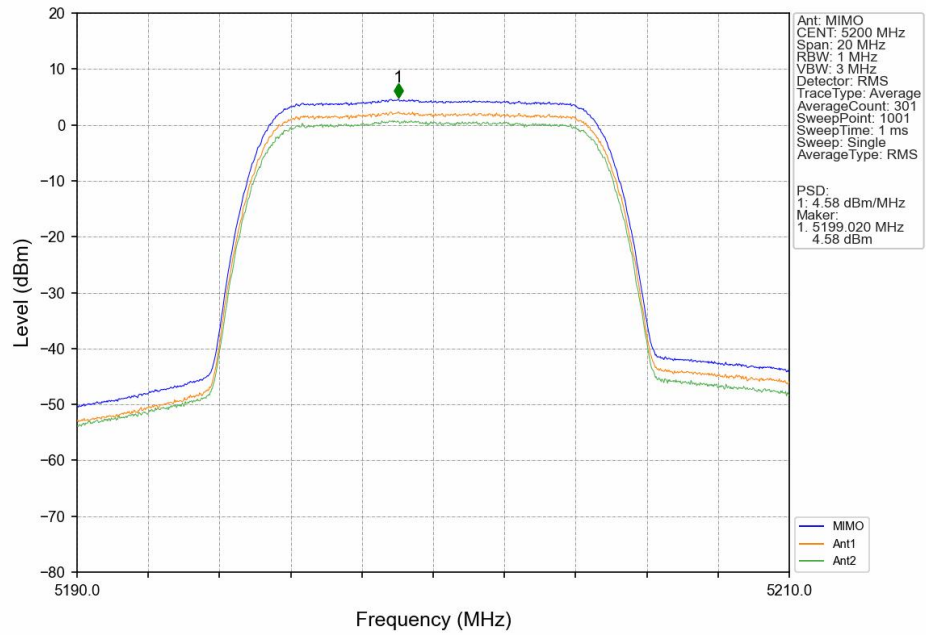
16QAM_MCH_5200MHz_Ant1_NTNV



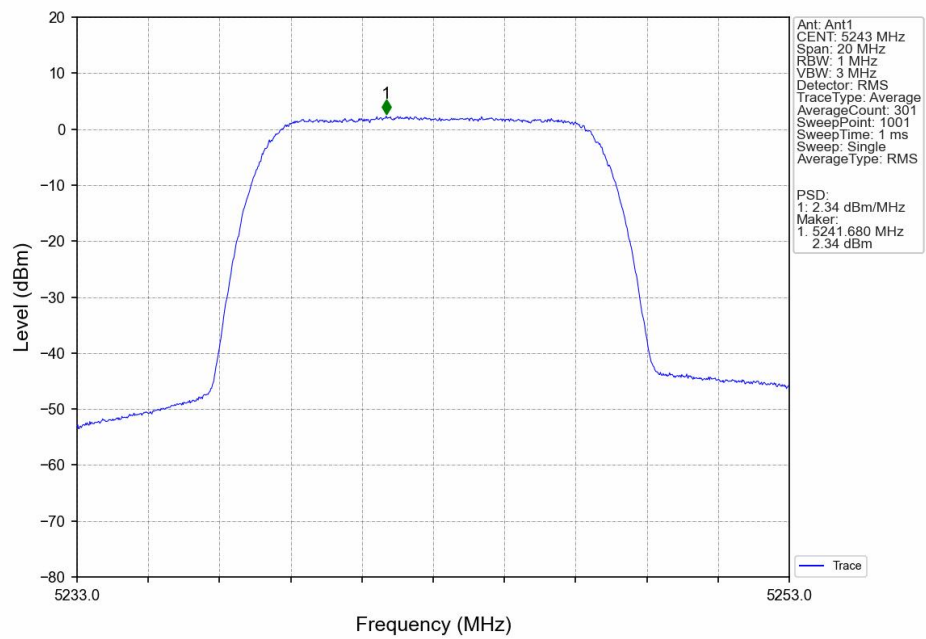
16QAM_MCH_5200MHz_Ant2_NTNV



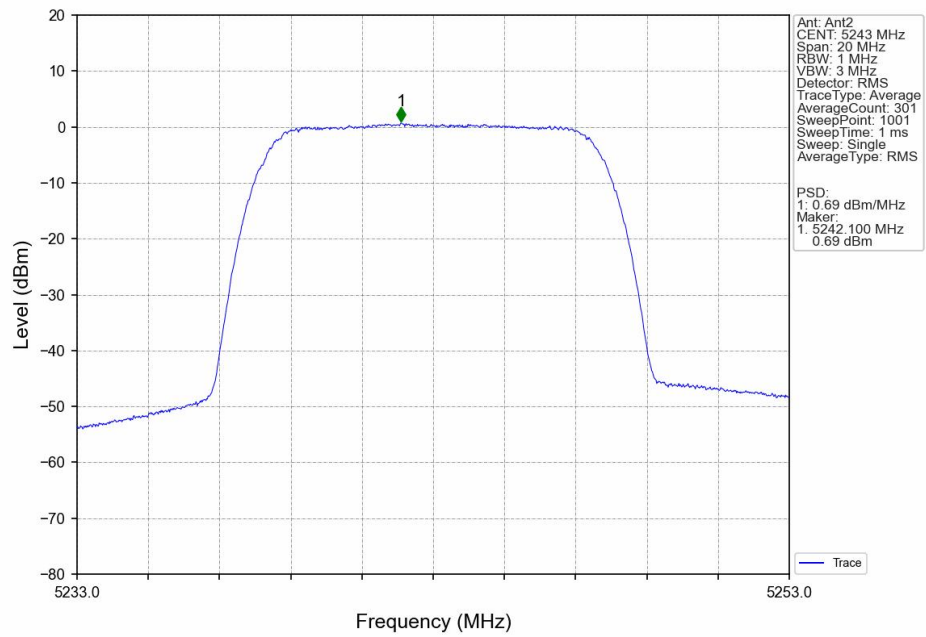
16QAM_MCH_5200MHz_MIMO_NTNV



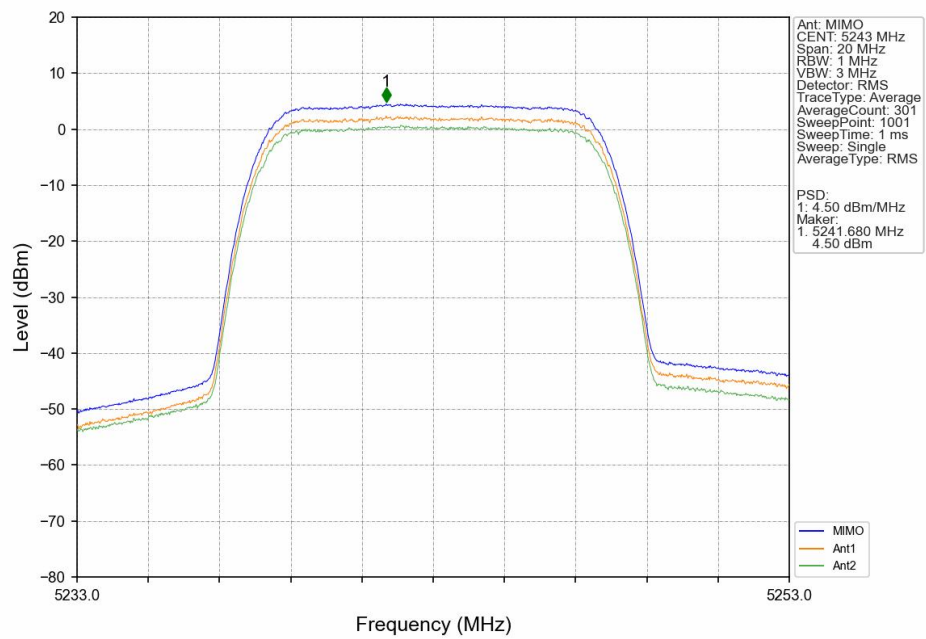
16QAM_HCH_5243MHz_Ant1_NTNV



16QAM_HCH_5243MHz_Ant2_NTNV



16QAM_HCH_5243MHz_MIMO_NTNV



5. Frequency Stability

5.1 Test Result

5.1.1 Ant1

Ant1							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VAC)	Measured Frequency (MHz)	Limit (MHz)	Verdict
QPSK	MIMO	5157	20	102	5157.030	5150 to 5250	Pass
				120	5157.020	5150 to 5250	Pass
				138	5157.010	5150 to 5250	Pass
			-30	120	5157.020	5150 to 5250	Pass
			-20	120	5157.010	5150 to 5250	Pass
			-10	120	5157.010	5150 to 5250	Pass
			0	120	5157.020	5150 to 5250	Pass
			10	120	5157.010	5150 to 5250	Pass
			30	120	5157.000	5150 to 5250	Pass
			40	120	5157.020	5150 to 5250	Pass
			50	120	5157.010	5150 to 5250	Pass
		5200	20	102	5200.020	5150 to 5250	Pass
				120	5200.030	5150 to 5250	Pass
				138	5200.030	5150 to 5250	Pass
			-30	120	5200.020	5150 to 5250	Pass
			-20	120	5200.020	5150 to 5250	Pass
			-10	120	5200.030	5150 to 5250	Pass
			0	120	5200.010	5150 to 5250	Pass
			10	120	5200.000	5150 to 5250	Pass
			30	120	5200.010	5150 to 5250	Pass
			40	120	5200.030	5150 to 5250	Pass
			50	120	5200.020	5150 to 5250	Pass
		5243	20	102	5243.020	5150 to 5250	Pass
				120	5243.010	5150 to 5250	Pass
				138	5243.020	5150 to 5250	Pass
			-30	120	5243.030	5150 to 5250	Pass
			-20	120	5243.010	5150 to 5250	Pass
			-10	120	5243.010	5150 to 5250	Pass
			0	120	5243.010	5150 to 5250	Pass
			10	120	5243.010	5150 to 5250	Pass
			30	120	5243.030	5150 to 5250	Pass
			40	120	5243.030	5150 to 5250	Pass
			50	120	5243.030	5150 to 5250	Pass
16QAM	MIMO	5157	20	102	5157.010	5150 to 5250	Pass
				120	5157.010	5150 to 5250	Pass
				138	5157.010	5150 to 5250	Pass
			-30	120	5157.020	5150 to 5250	Pass
			-20	120	5157.010	5150 to 5250	Pass
			-10	120	5157.020	5150 to 5250	Pass
			0	120	5157.020	5150 to 5250	Pass
			10	120	5157.010	5150 to 5250	Pass
			30	120	5157.020	5150 to 5250	Pass
			40	120	5157.030	5150 to 5250	Pass
			50	120	5157.030	5150 to 5250	Pass
		5200	20	102	5200.010	5150 to 5250	Pass
				120	5200.010	5150 to 5250	Pass

				138	5200.010	5150 to 5250	Pass
			-30	120	5200.020	5150 to 5250	Pass
			-20	120	5200.020	5150 to 5250	Pass
			-10	120	5200.000	5150 to 5250	Pass
			0	120	5200.020	5150 to 5250	Pass
			10	120	5200.020	5150 to 5250	Pass
			30	120	5200.020	5150 to 5250	Pass
			40	120	5200.030	5150 to 5250	Pass
			50	120	5200.030	5150 to 5250	Pass
		5243	20	102	5243.010	5150 to 5250	Pass
				120	5243.030	5150 to 5250	Pass
				138	5243.020	5150 to 5250	Pass
			-30	120	5243.020	5150 to 5250	Pass
			-20	120	5243.010	5150 to 5250	Pass
			-10	120	5243.020	5150 to 5250	Pass
			0	120	5243.030	5150 to 5250	Pass
			10	120	5243.020	5150 to 5250	Pass
			30	120	5243.020	5150 to 5250	Pass
			40	120	5243.020	5150 to 5250	Pass
			50	120	5243.020	5150 to 5250	Pass

6. Form731

6.1 Test Result

6.1.1 Form731

Lower Freq (MHz)	High Freq (MHz)	MAX Power (W)	MAX Power (dBm)
5157	5243	0.0205	13.12