

Shenzhen CTL Testing Technology Co., Ltd.

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Appendix for 15.247

1. Bandwidth

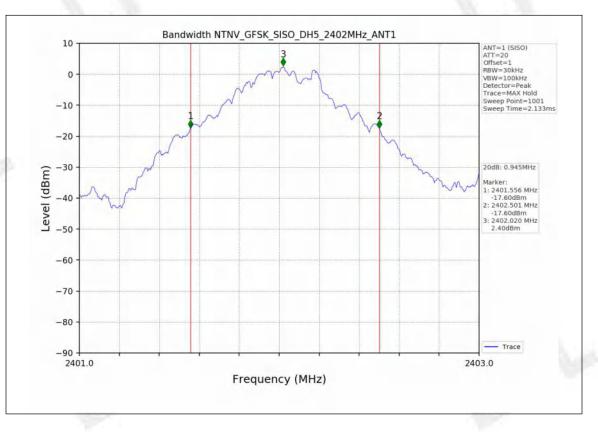
1.1 Test Result

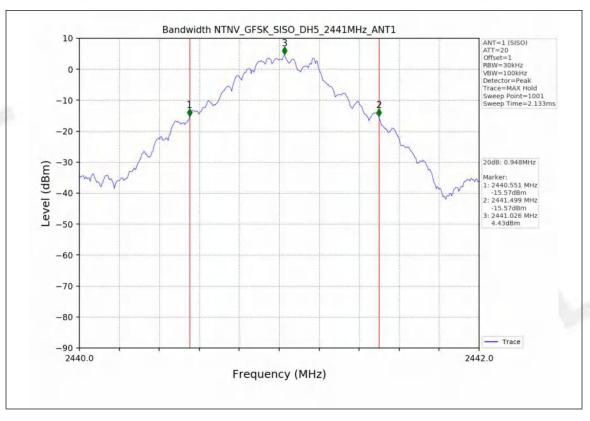
Test Mode	Frequency (MHz)	ТХ Туре	ANT No.	20dB Bandwidth Test Result (MHz)	Verdict
	2402	SISO	1	0.945	PASS
GFSK	2441	SISO	1	0.948	PASS
	2480	SISO	1	0.945	PASS
	2402	SISO	1	1.271	PASS
Pi/4DQPSK	2441	SISO	1	1.228	PASS
	2480	SISO	1	1.237	PASS
	2402	SISO	1	1.263	PASS
8DPSK	2441	SISO	1	1.269	PASS
	2480	SISO	1	1.263	PASS

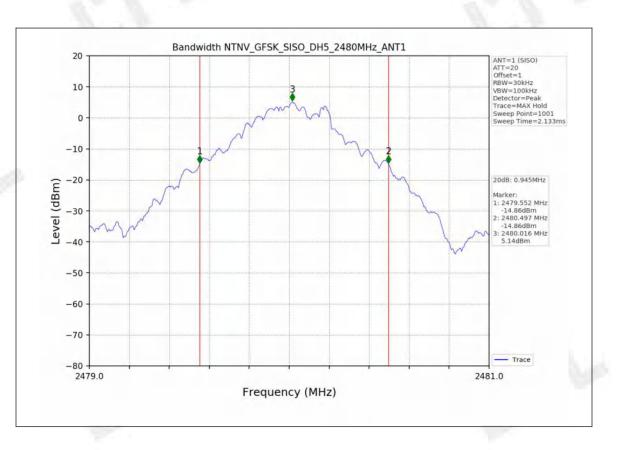
Test Mode	Frequency (MHz)	ТХ Туре	ANT No.		ed Bandwidth sult (MHz)
	2402	SISO	1	0.868	Only for Report Use
GFSK	2441	SISO	1	0.861	Only for Report Use
	2480	SISO	1	0.862	Only for Report Use
1	2402	SISO	1	1.164	Only for Report Use
Pi/4DQPSK	2441	SISO	1	1.164	Only for Report Use
	2480	SISO	1	1.166	Only for Report Use
	2402	SISO	1	1.164	Only for Report Use
8DPSK	2441	SISO	1	1.160	Only for Report Use
	2480	SISO	1	1.160	Only for Report Use

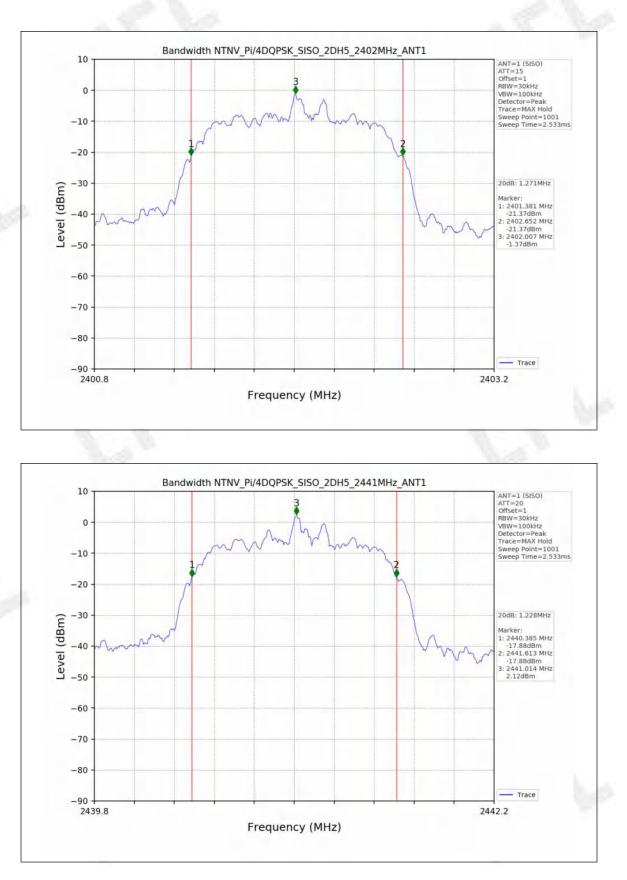
V1.0

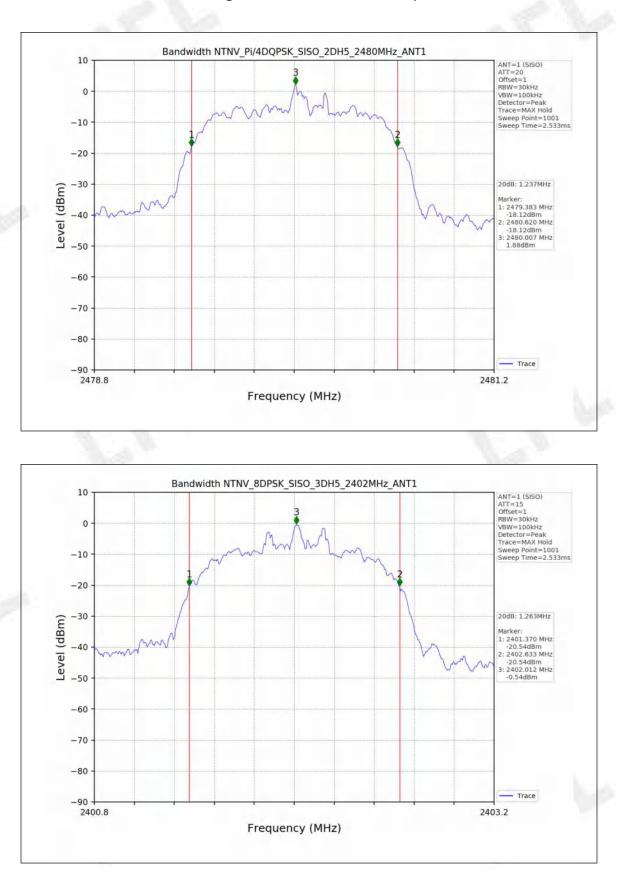
1.2 Test Graph - 20dB Bandwidth

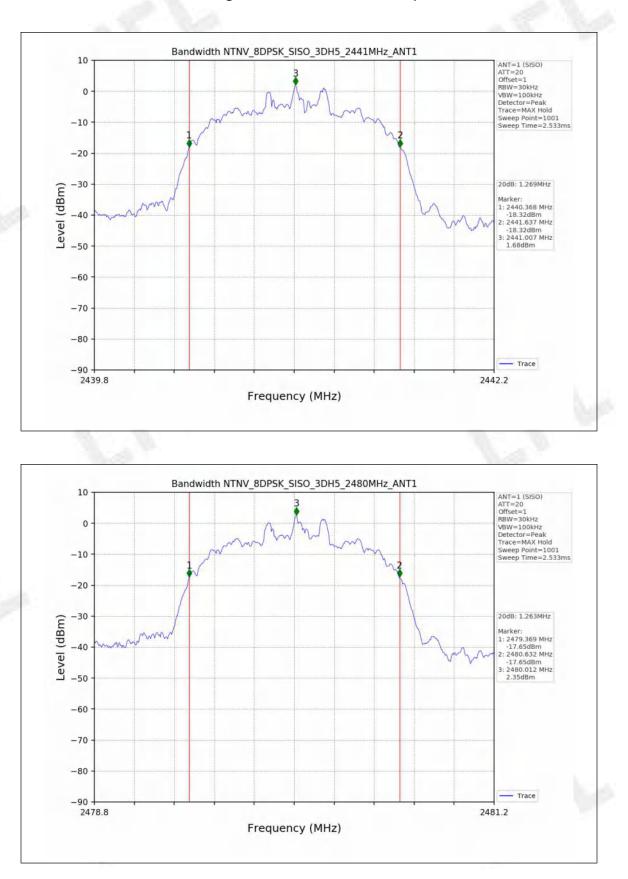






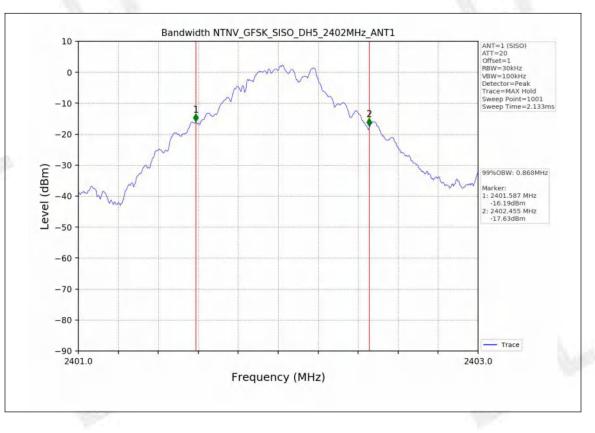


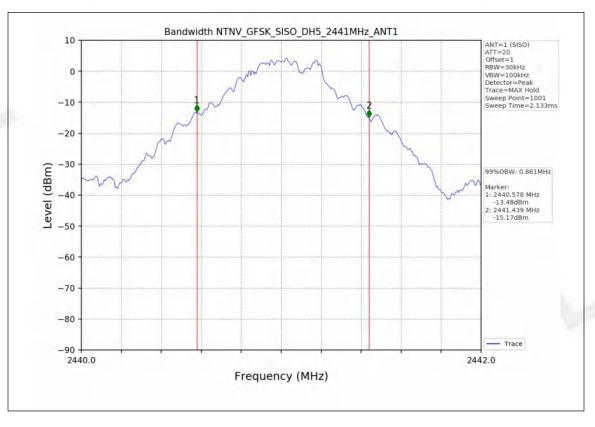




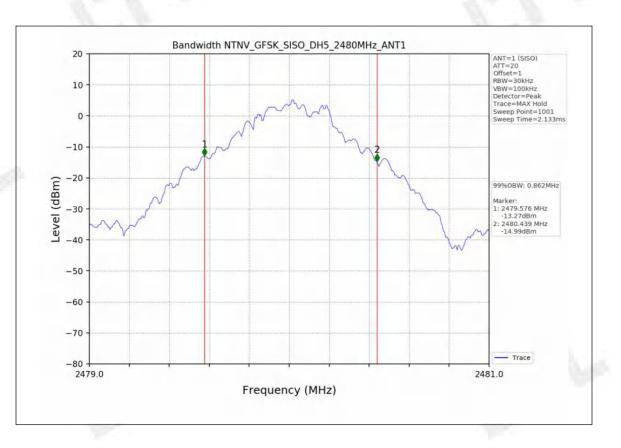
V1.0

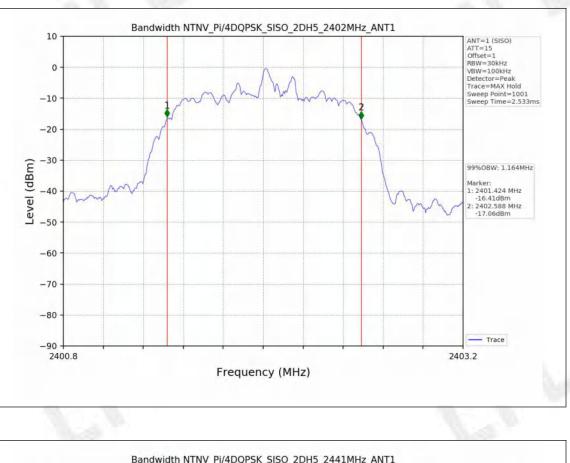
1.3 Test Graph - 99% Occupied Bandwidth

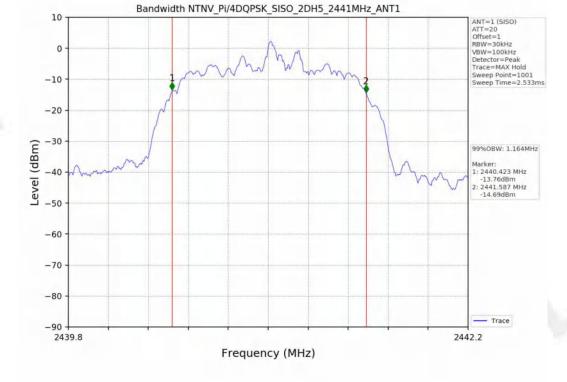




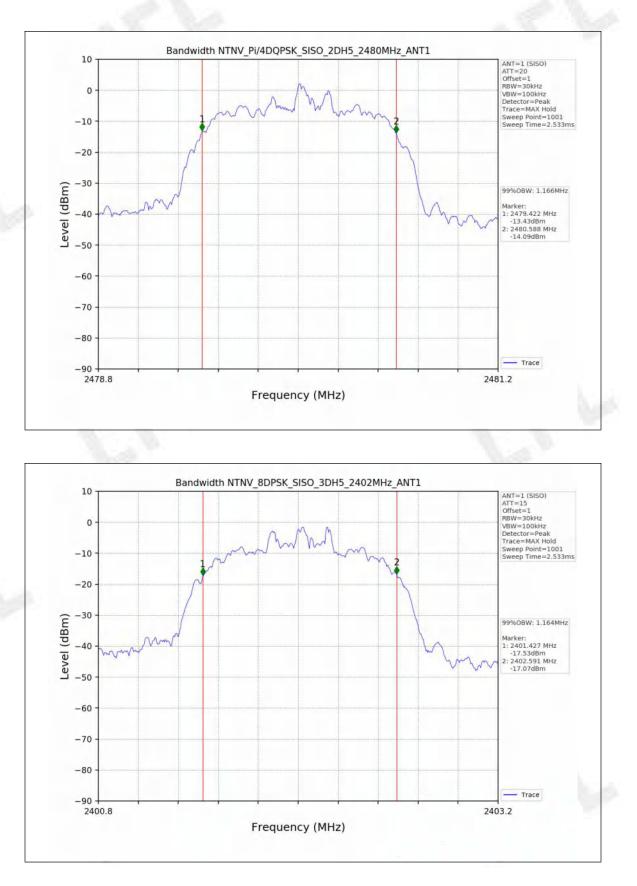
100

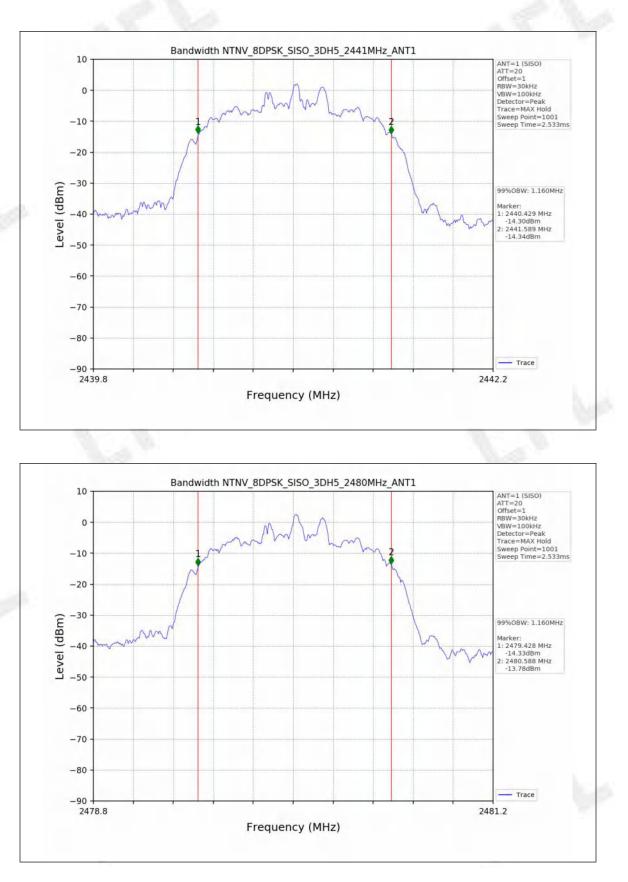






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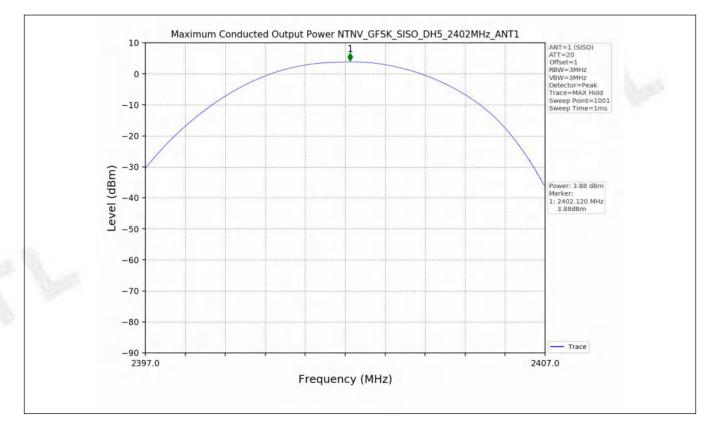


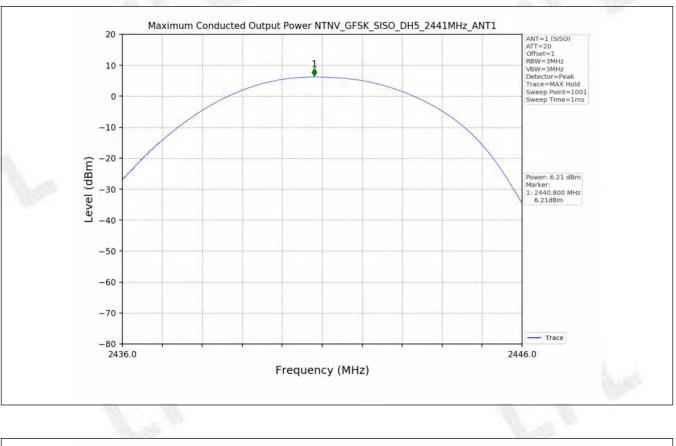
2. Maximum Conducted Output Power

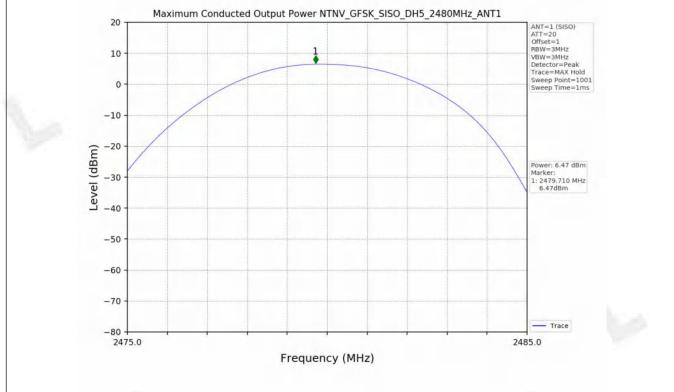
2.1 Test Result

Test Mode	Frequency (MHz)	Тх Туре	Measured Peak Output Power (dBm) Ant 1	Limits (dBm)	Verdict
	2402	SISO	3.88	30	PASS
GFSK	2441	SISO	6.21	30	PASS
	2480	SISO	6.47	30	PASS
	2402	SISO	1.62	20.97	PASS
Pi/4DQPSK	2441	SISO	4.22	20.97	PASS
	2480	SISO	4.58	20.97	PASS
	2402	SISO	2.22	20.97	PASS
8DPSK	2441	SISO	4.74	20.97	PASS
	2480	SISO	5.08	20.97	PASS

2.2 Test Graph





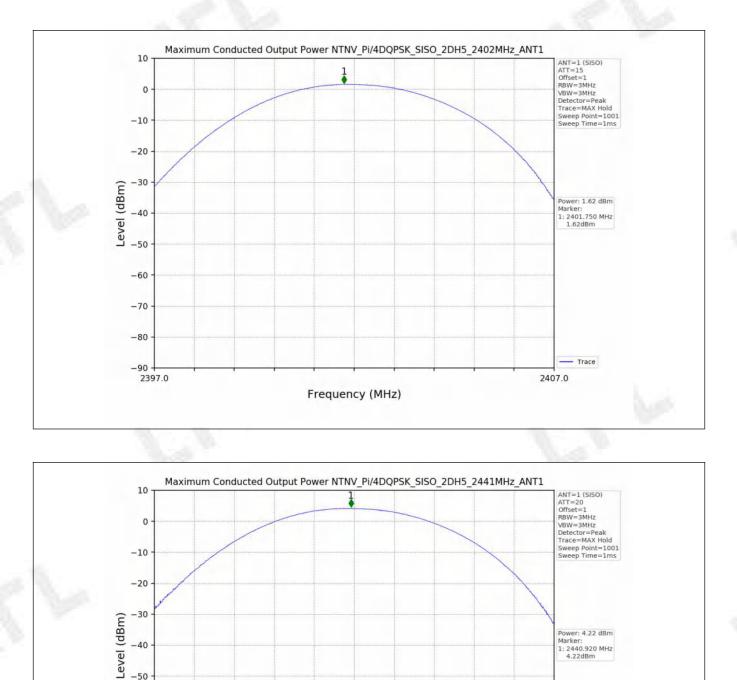


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Power: 4.22 dBm Marker: 1: 2440.920 MHz 4.22dBm

Trace

2446.0



Frequency (MHz)



-40

-50

-60

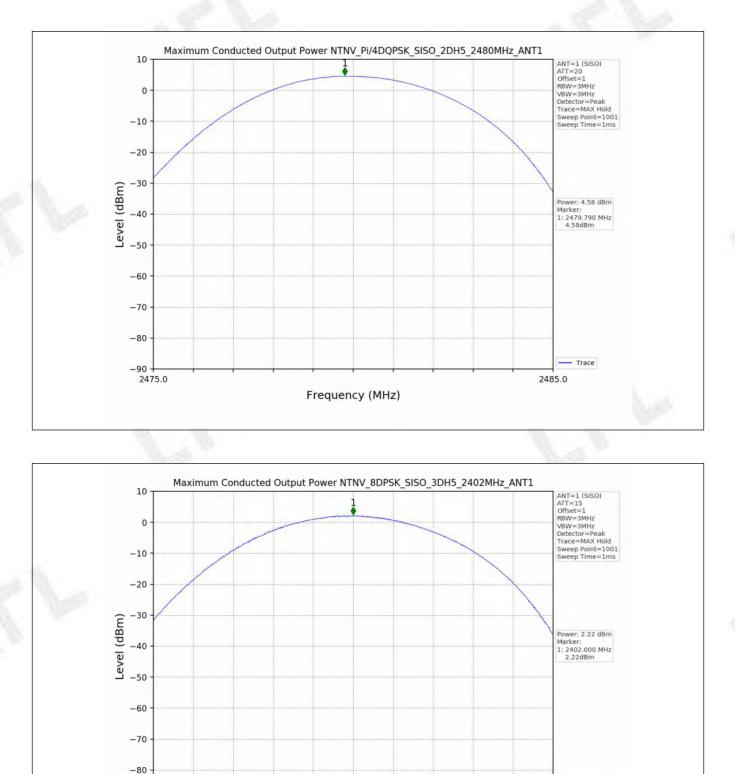
-70

-80

-90 2436.0 Page 15 of 43

Trace

2407.0

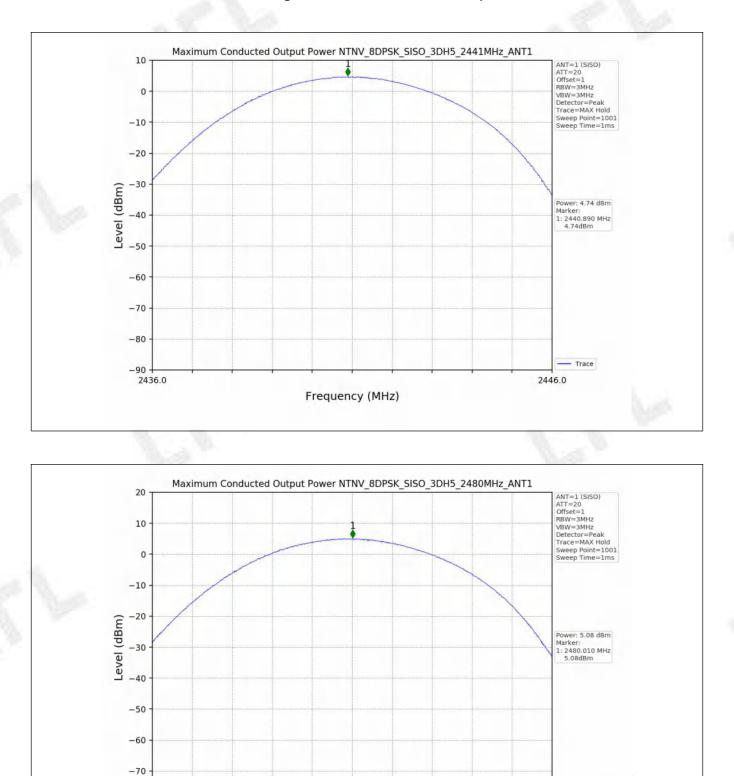


Frequency (MHz)

-90 -2397.0 Page 16 of 43

- Trace

2485.0



Frequency (MHz)

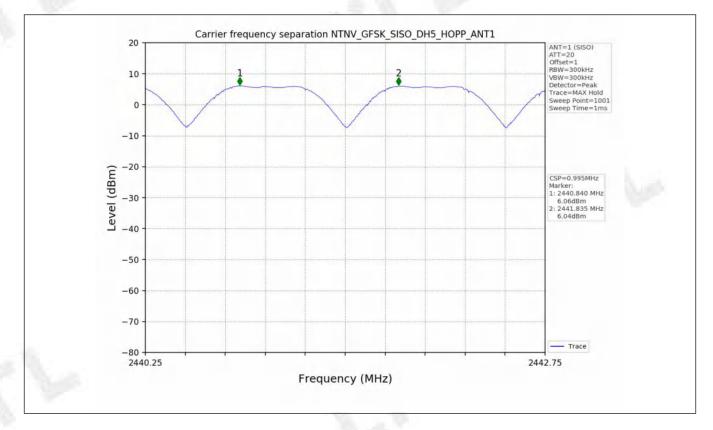
-80

3. Carrier frequency separation

3.1 Test Result

Test Mode	ТХ Туре	ANT No.	Channel Separation (MHz)	20dB Bandwidth (MHz)	Limits (MHz)	Verdict
GFSK	SISO	1	0.995	0.948	≥0.948	PASS
Pi/4DQPSK	SISO	1	1.000	1.271	≥0.847	PASS
8DPSK	SISO	1	0.975	1.269	≥0.846	PASS

3.2 Test Graph



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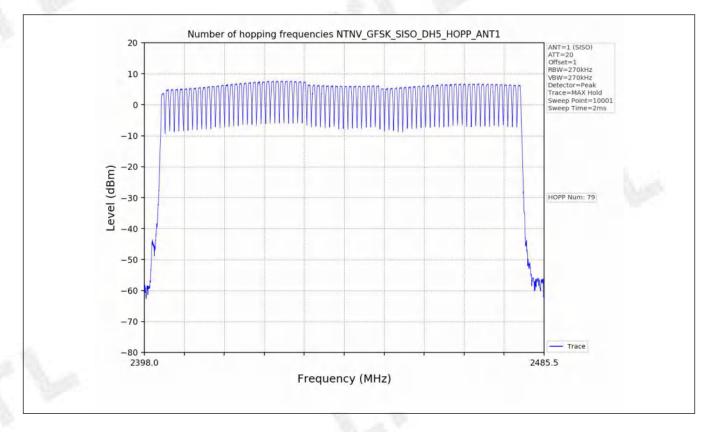


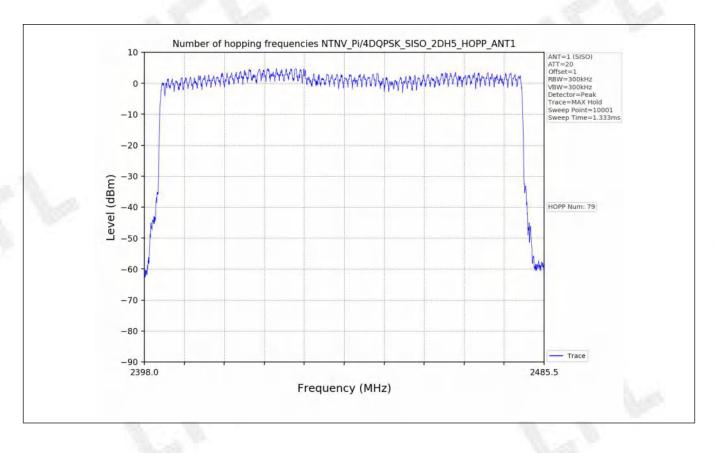
4. Number of hopping frequencies

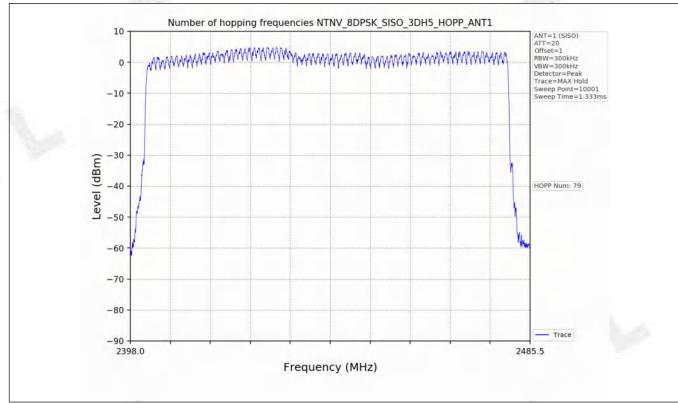
4.1 Test Result

Test Mode	ТХ Туре	ANT No.	Num of Hopping Frequencies	Limits	Verdict
GFSK	SISO	1	79	≥15	PASS
Pi/4DQPSK	SISO	1	79	≥15	PASS
8DPSK	SISO	1	79	≥15	PASS

4.2 Test Graph





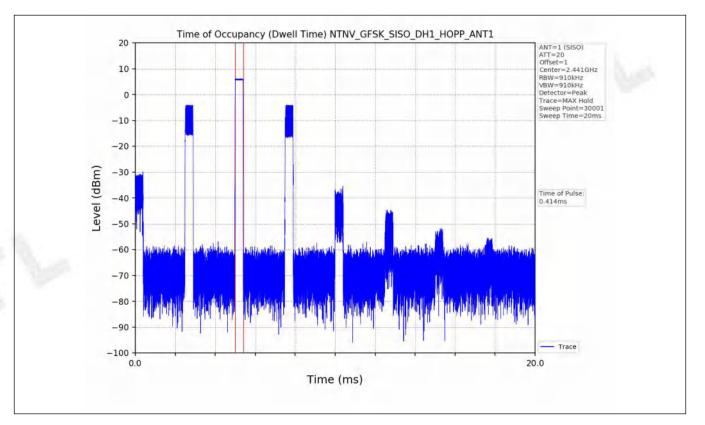


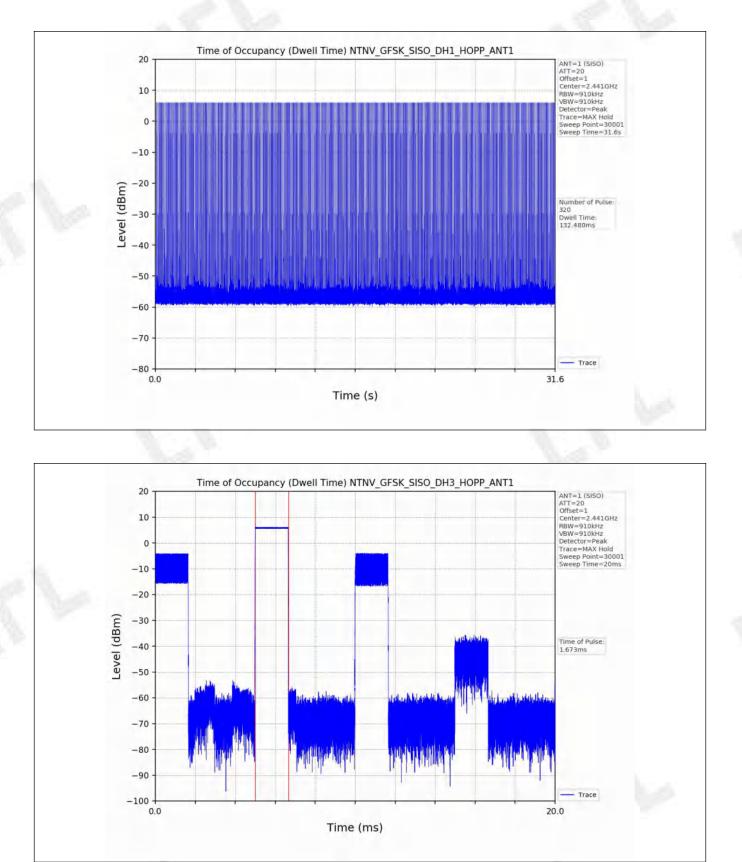
5. Time of Occupancy (Dwell Time)

5.1 Test Result

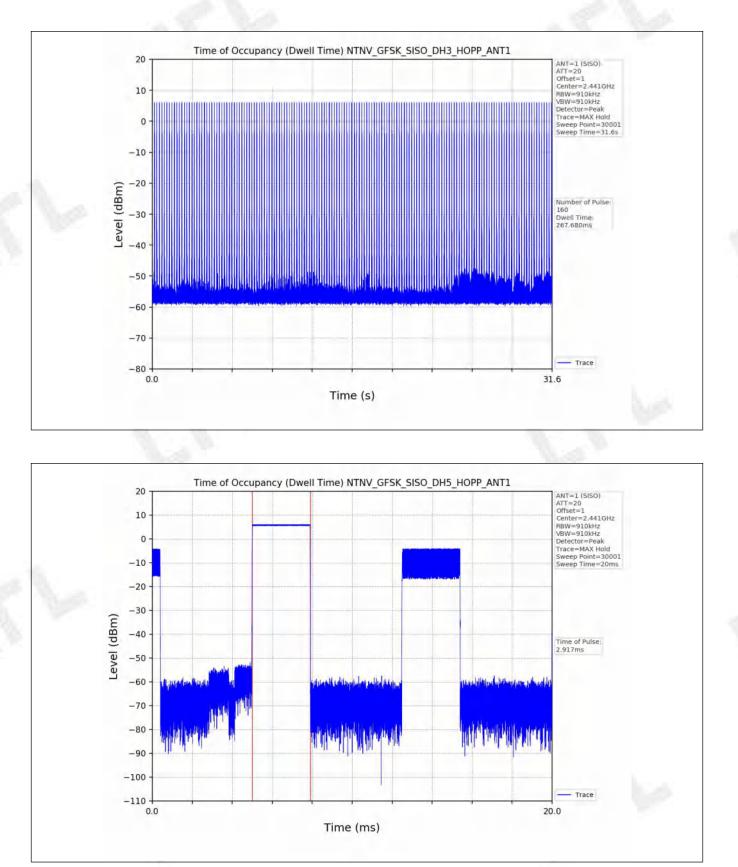
Test Mode	Packet Type	ТХ Туре	ANT No.	Duration of Single Pulse (ms)	Obeservatio	Num of Pulse in Observation Period	Dwell Time (ms)	Limits (ms)	Verdict
	DH1	SISO	1	0.414	31.6	320	132.480	≤400	PASS
GFSK	DH3	SISO	1	1.673	31.6	160	267.680	≤400	PASS
	DH5	SISO	1	2.917	31.6	107	312.119	≤400	PASS
1000	2DH1	SISO	1	0.427	31.6	320	136.640	≤400	PASS
Pi/4DQPSK	2DH3	SISO	1	1.678	31.6	160	268.480	≤400	PASS
	2DH5	SISO	1	2.929	31.6	106	310.474	≤400	PASS
	3DH1	SISO	1	0.427	31.6	320	136.640	≤400	PASS
8DPSK	3DH3	SISO	1	1.677	31.6	160	268.320	≤400	PASS
	3DH5	SISO	1	2.931	31.6	107	313.617	≤400	PASS

5.2 Test Graph

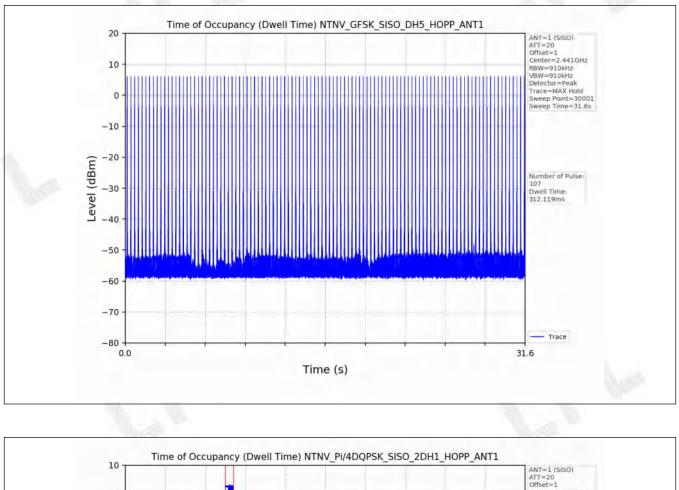


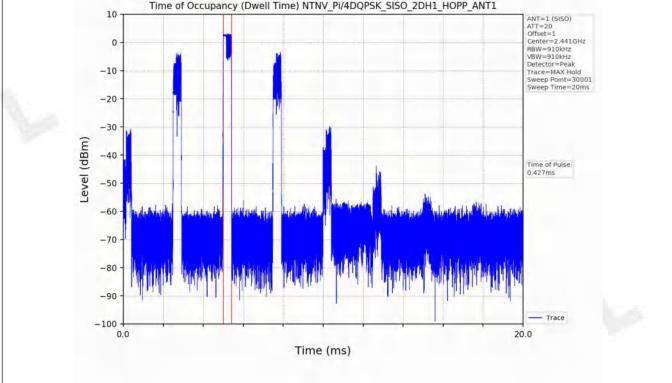


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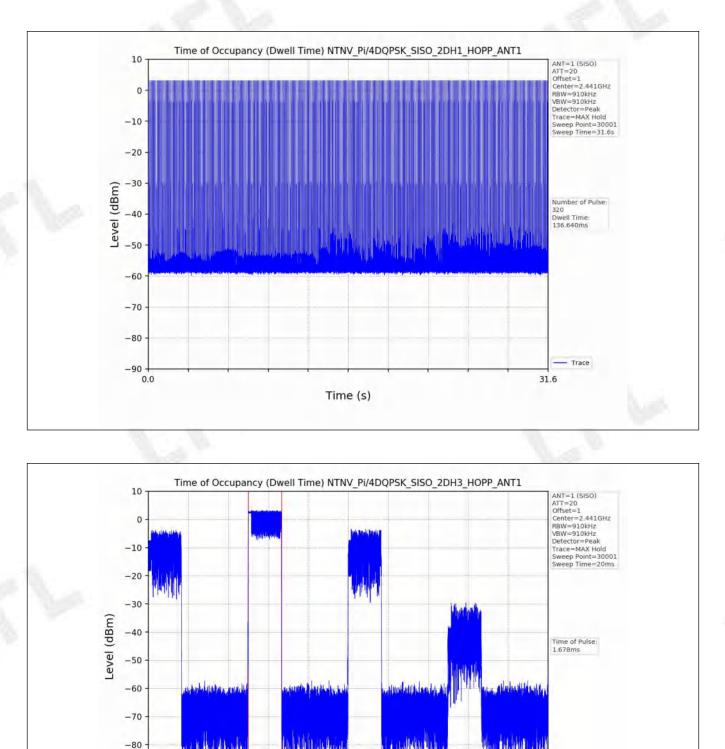




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Trace

20.0

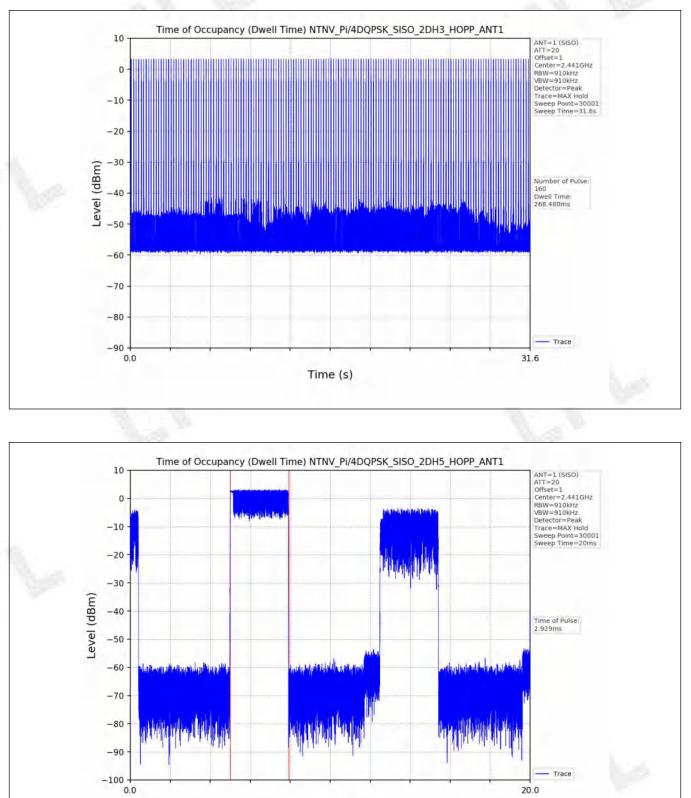


Time (ms)

-90

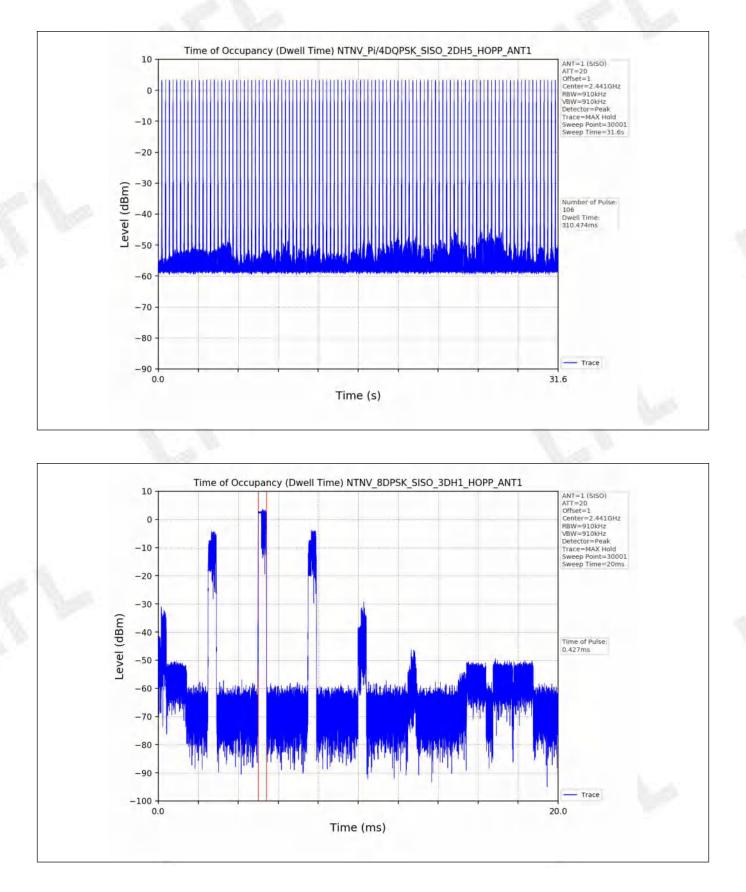
-100 + 0.0

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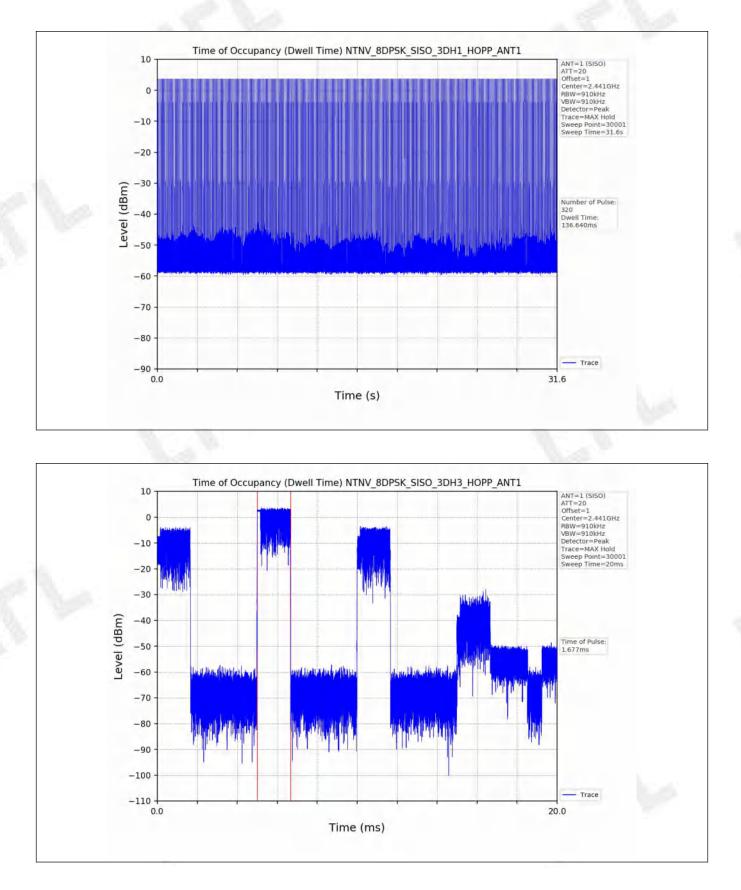


Time (ms)

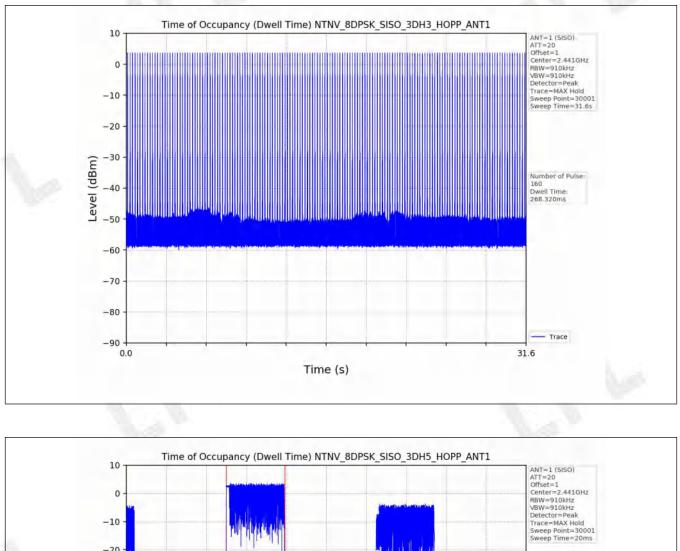
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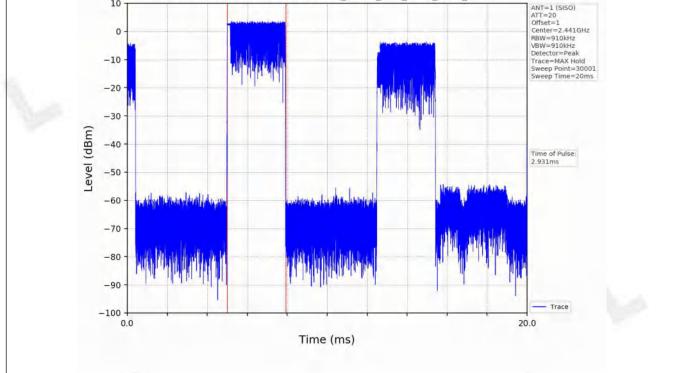


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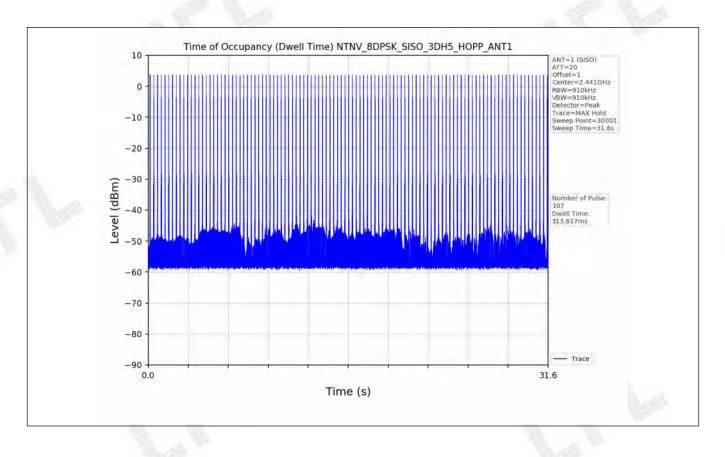


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6. Unwanted Emissions in Non-restricted Frequency Bands

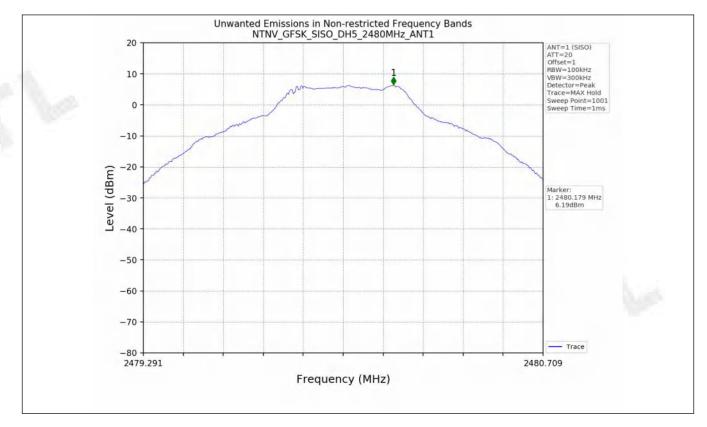
6.1 Test Result

Test Mode	Frequency (MHz)	ТХ Туре	ANT No.	Spurious Conducted Emission (dBm)	Limits (dBm)	Verdict
1	2402	SISO	1	Refer to test graph	-13.81	PASS
GFSK	2441	SISO	1	Refer to test graph	-13.81	PASS
Gron	2480	SISO	1	Refer to test graph	-13.81	PASS
	Hopping	SISO	1	Refer to test graph	-13.81	PASS
	2402	SISO	1	Refer to test graph	-16.97	PASS
	2441	SISO	1	Refer to test graph	-16.97	PASS
Pi/4DQPSK	2480	SISO	1	Refer to test graph	-16.97	PASS
	Hopping	SISO	1	Refer to test graph	-16.97	PASS
	2402	SISO	1	Refer to test graph	-16.90	PASS
8DPSK	2441	SISO	1	Refer to test graph	-16.90	PASS
	2480	SISO	1	Refer to test graph	-16.90	PASS

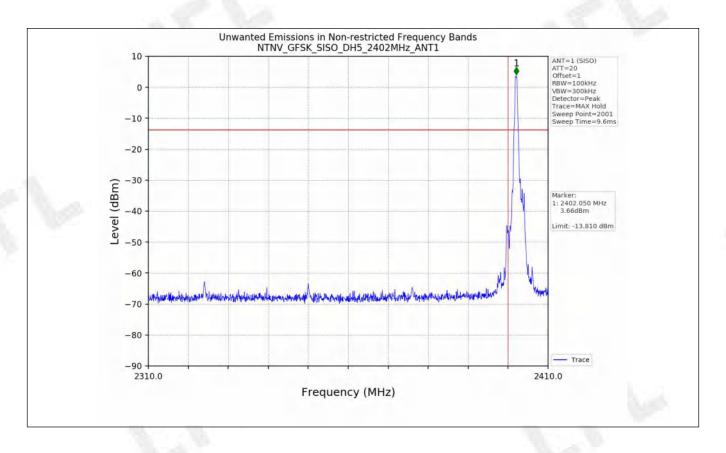
Hopping SISO 1	Refer to test graph	-16.90	PASS
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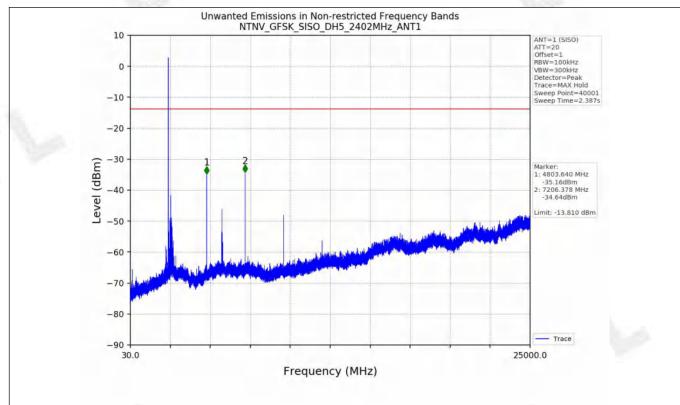
6.2 Test Graph

V1.0

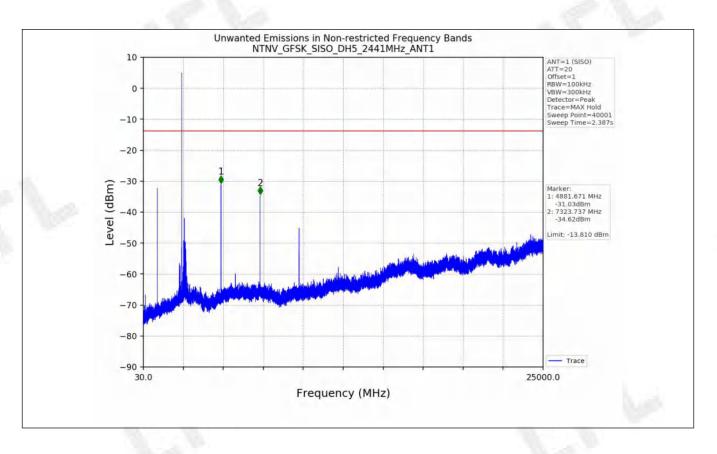


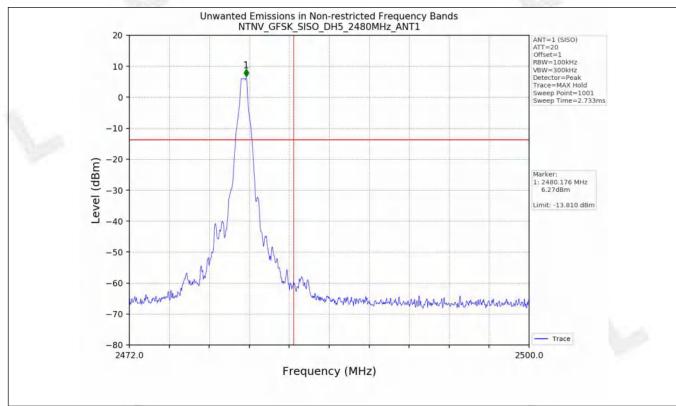
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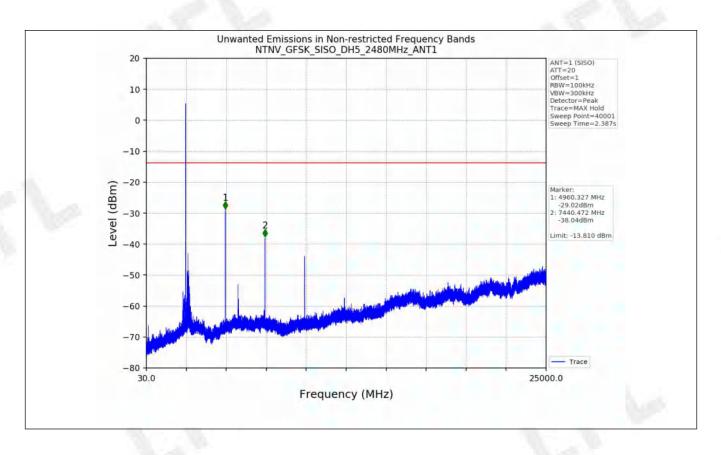


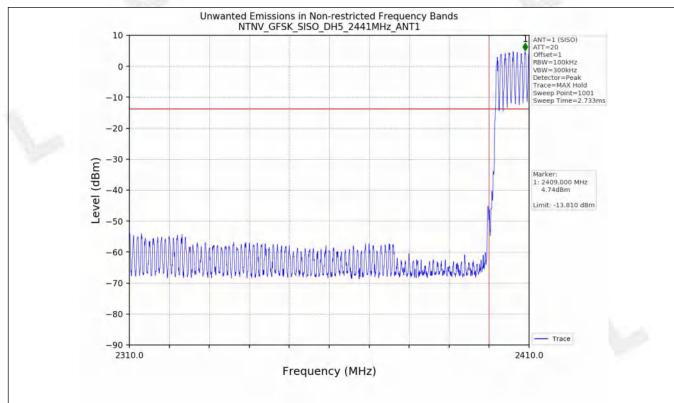
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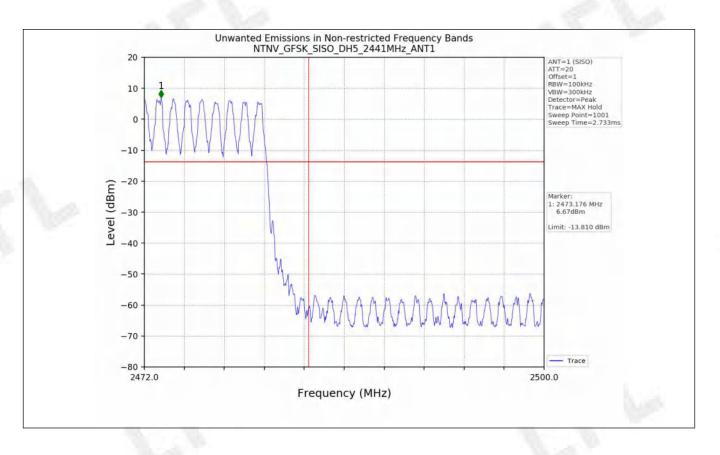


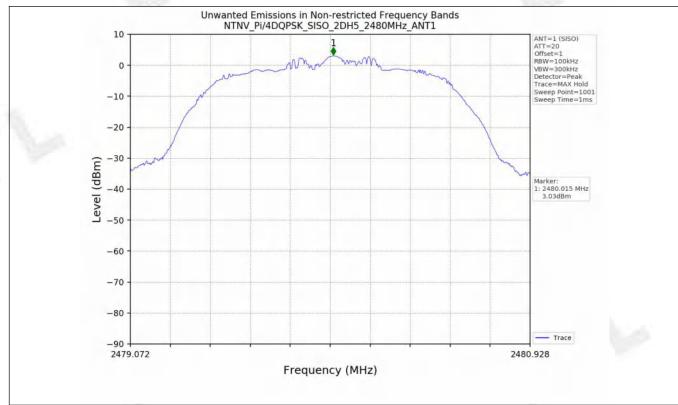
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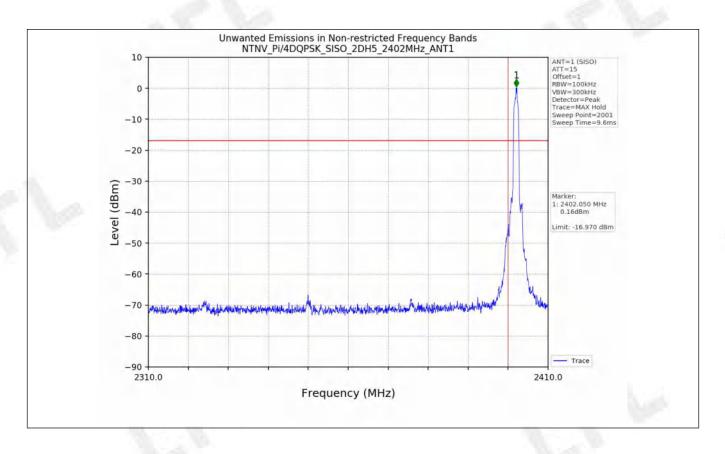


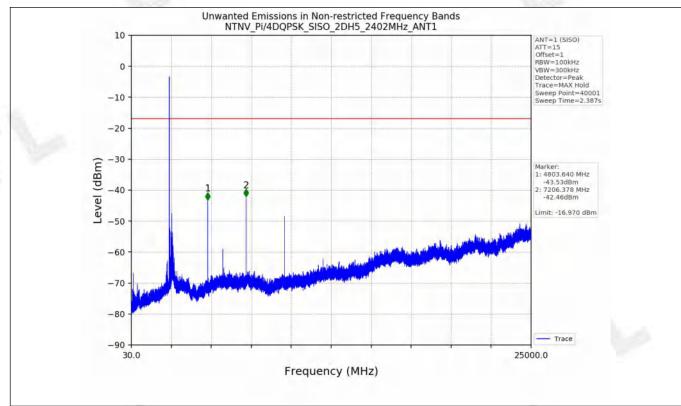
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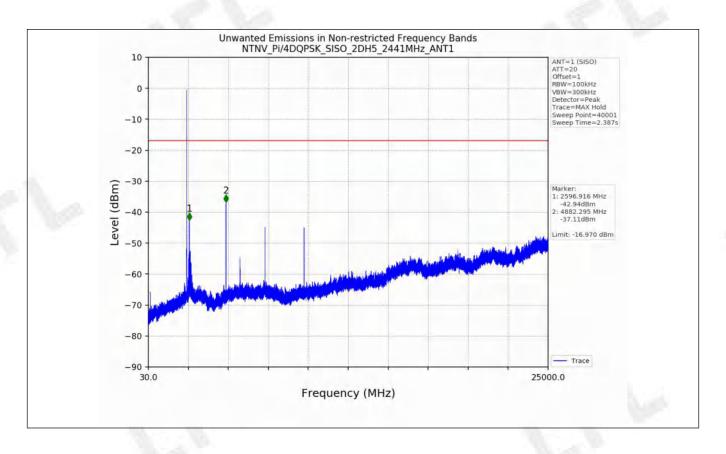


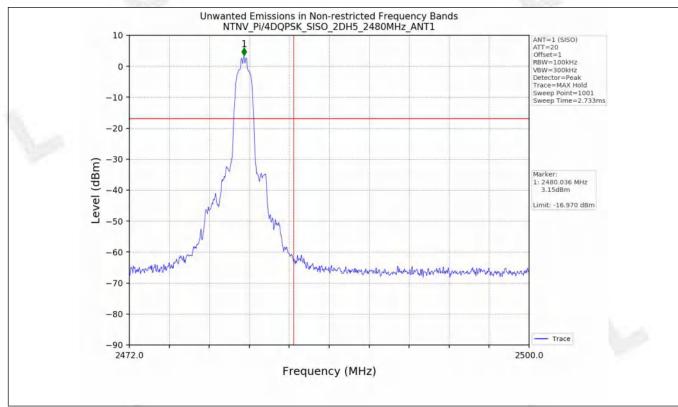
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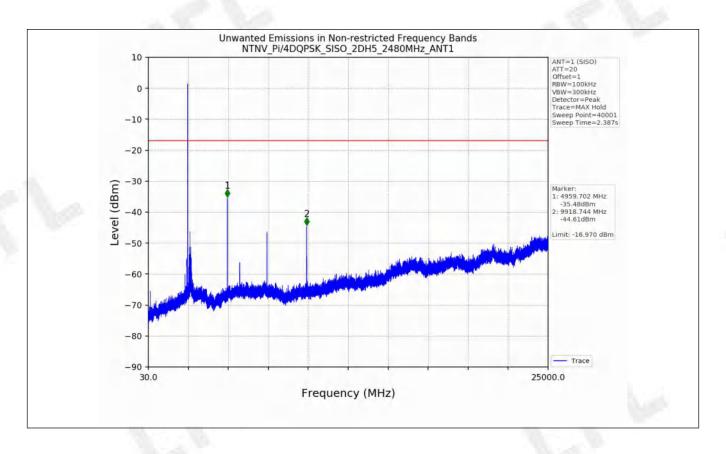


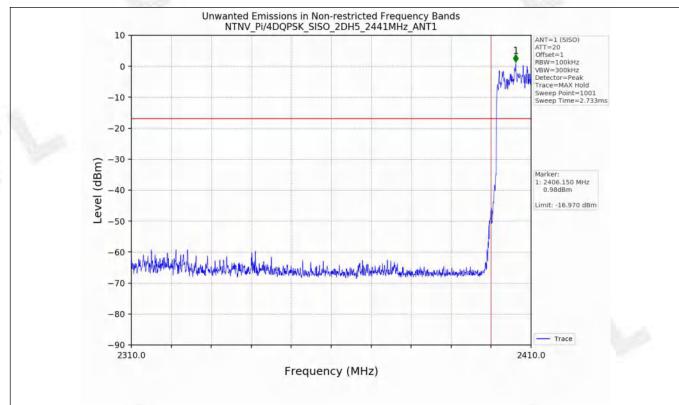
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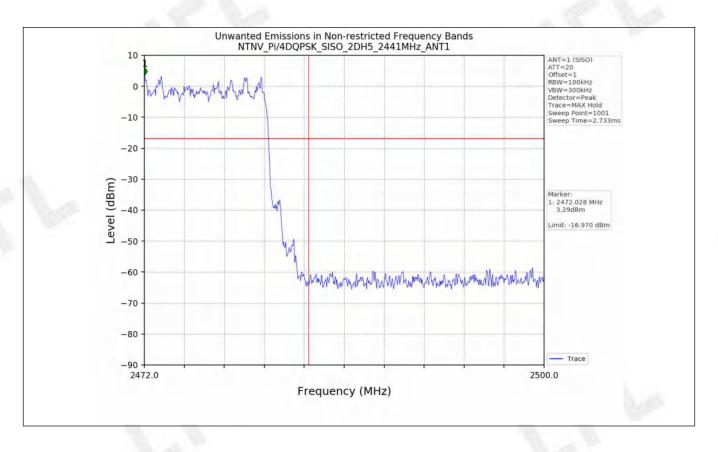


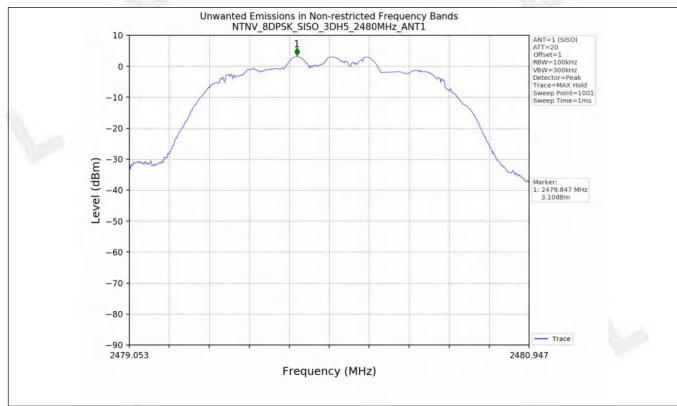
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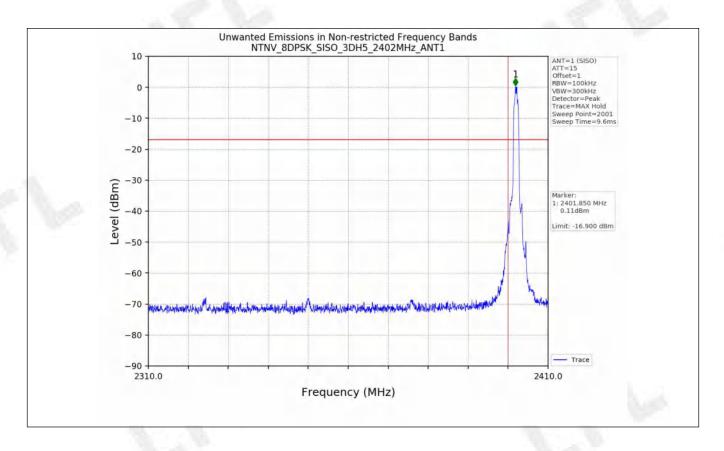


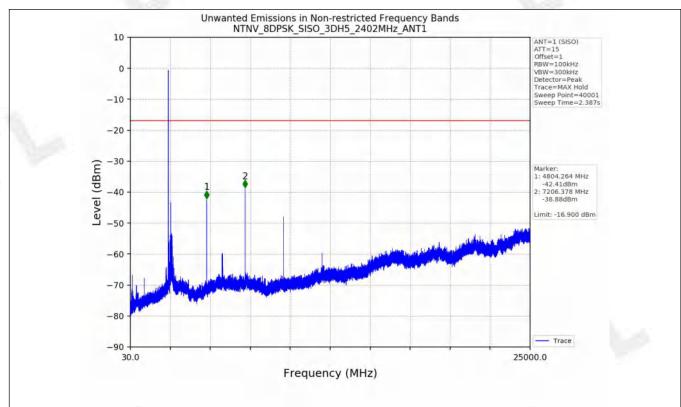
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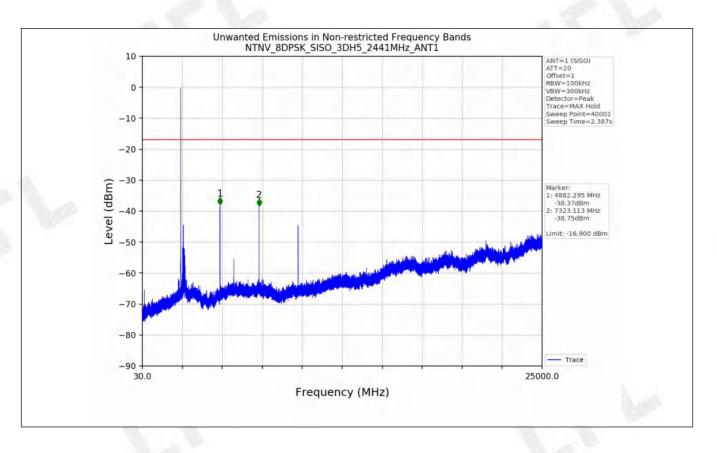


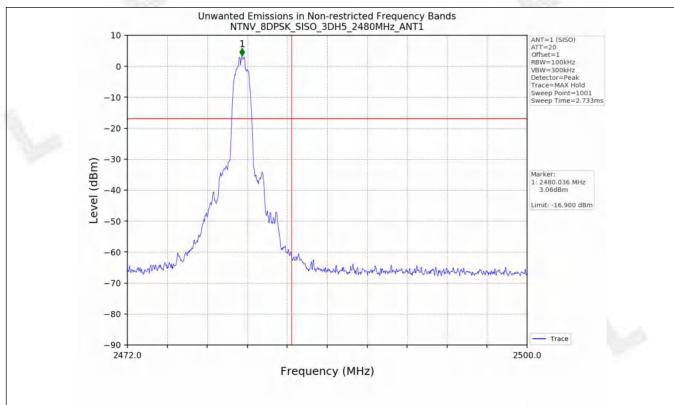
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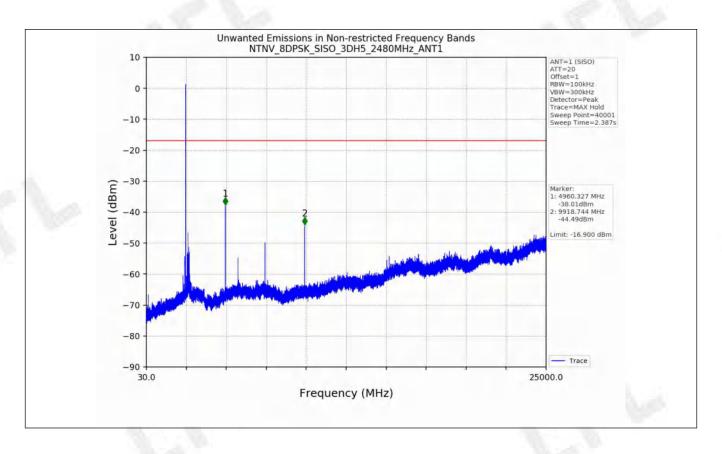
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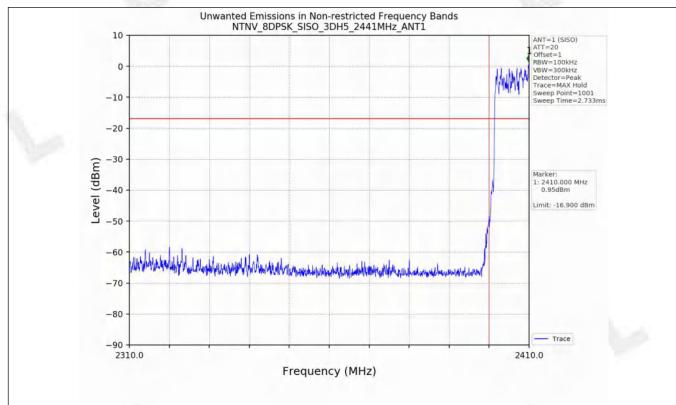




V1.0

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