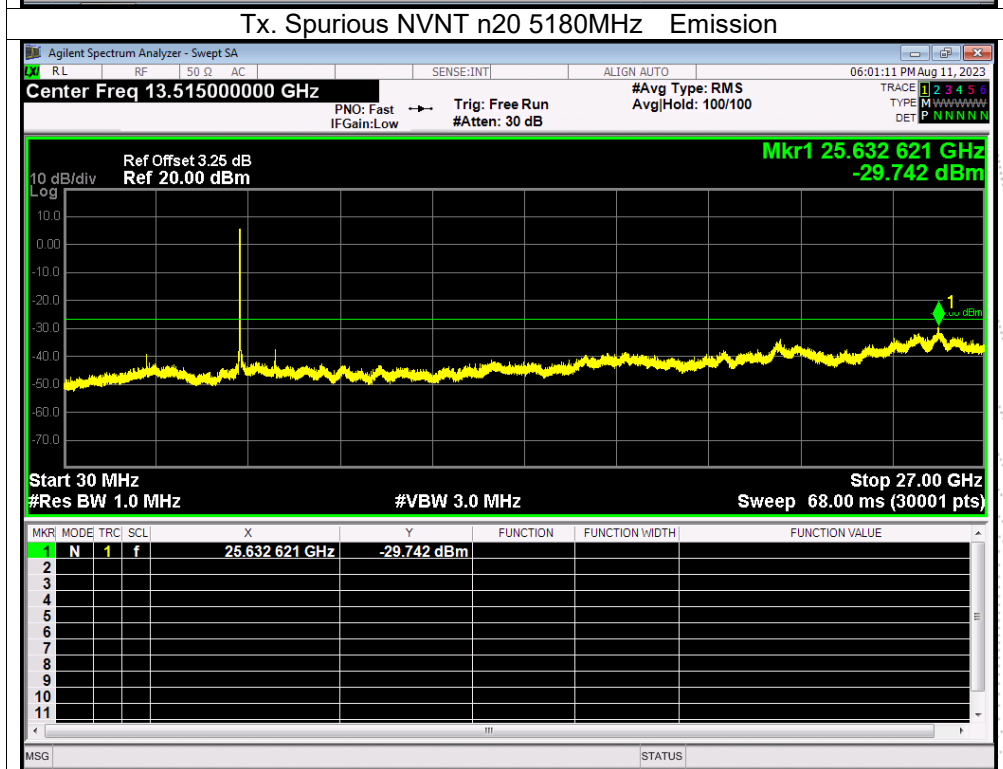
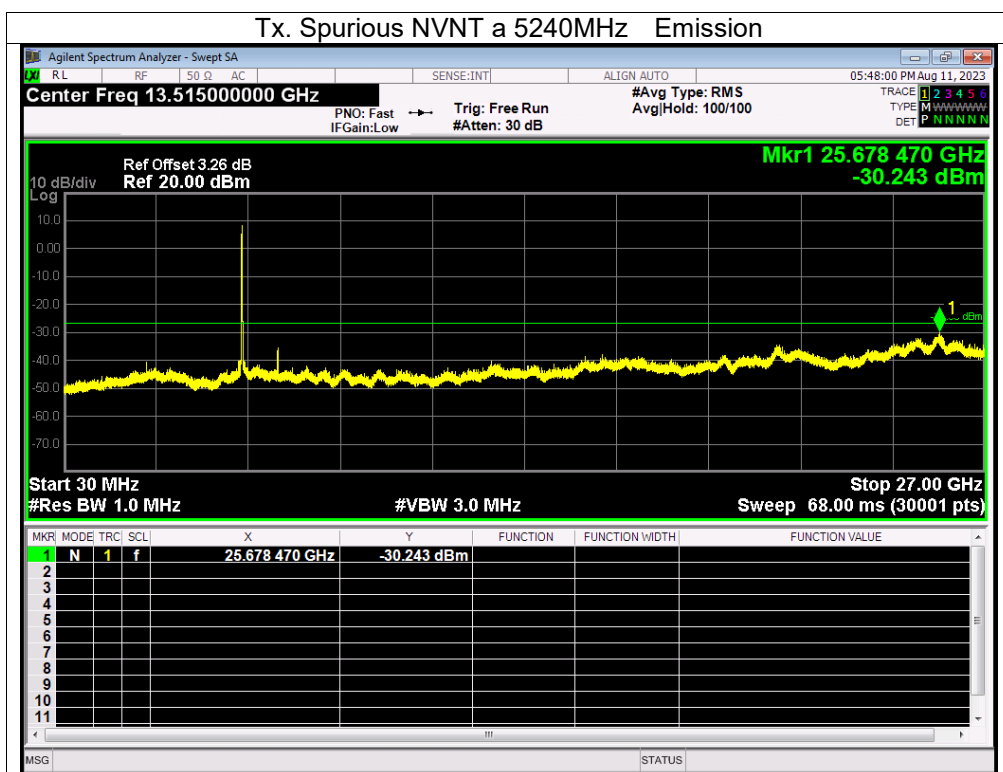
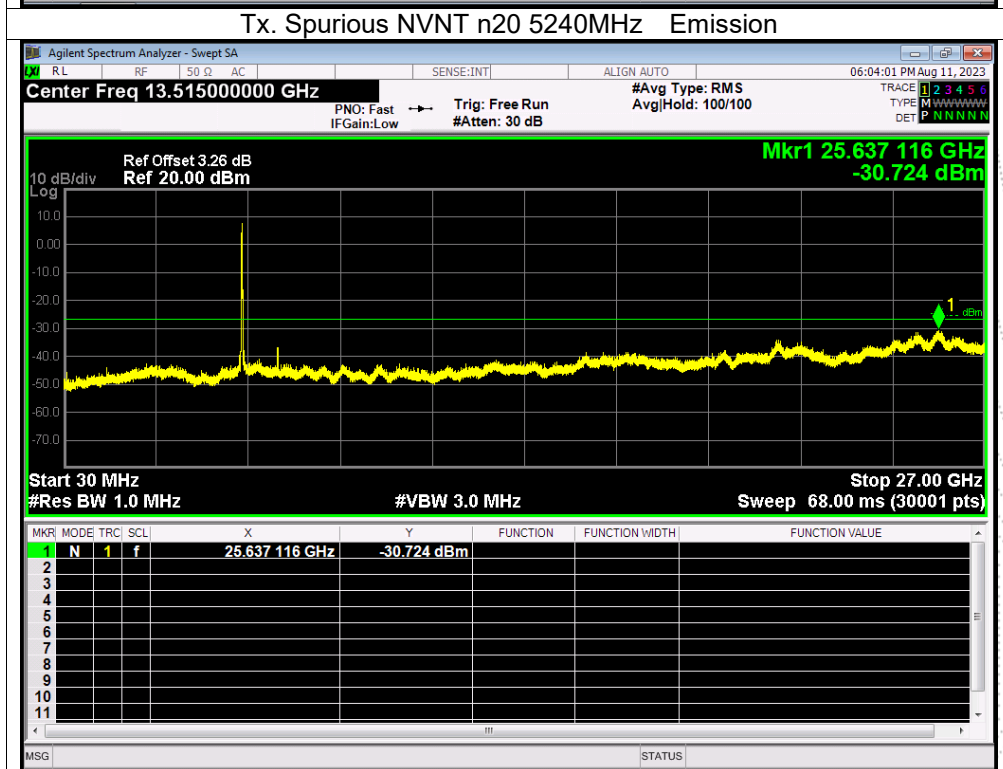
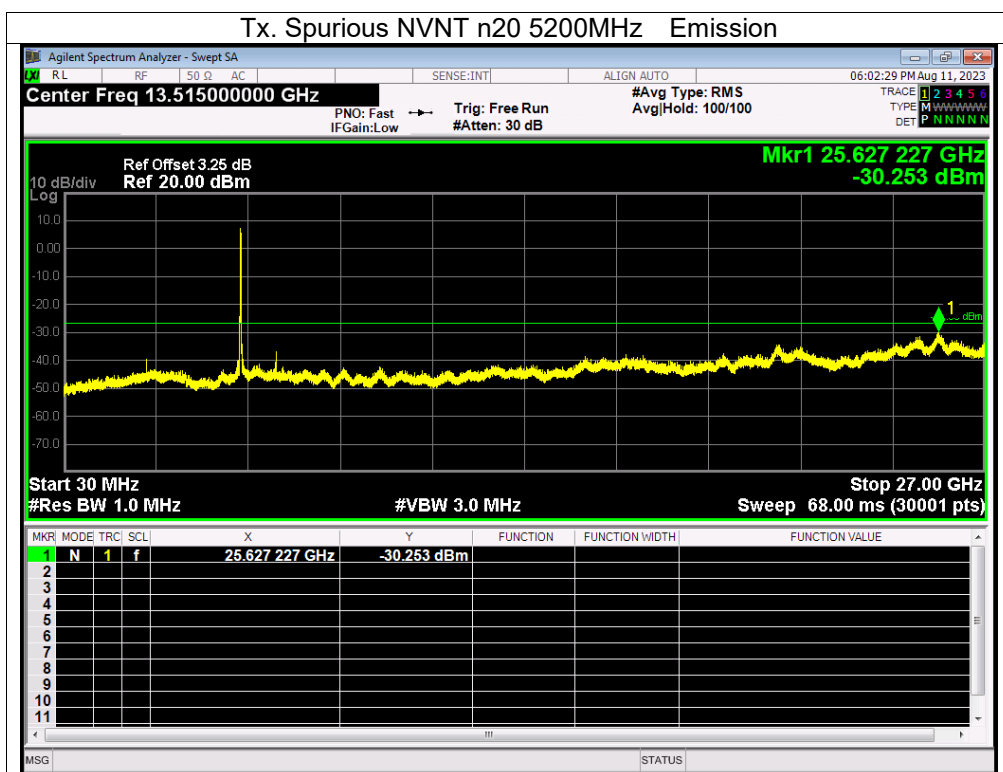
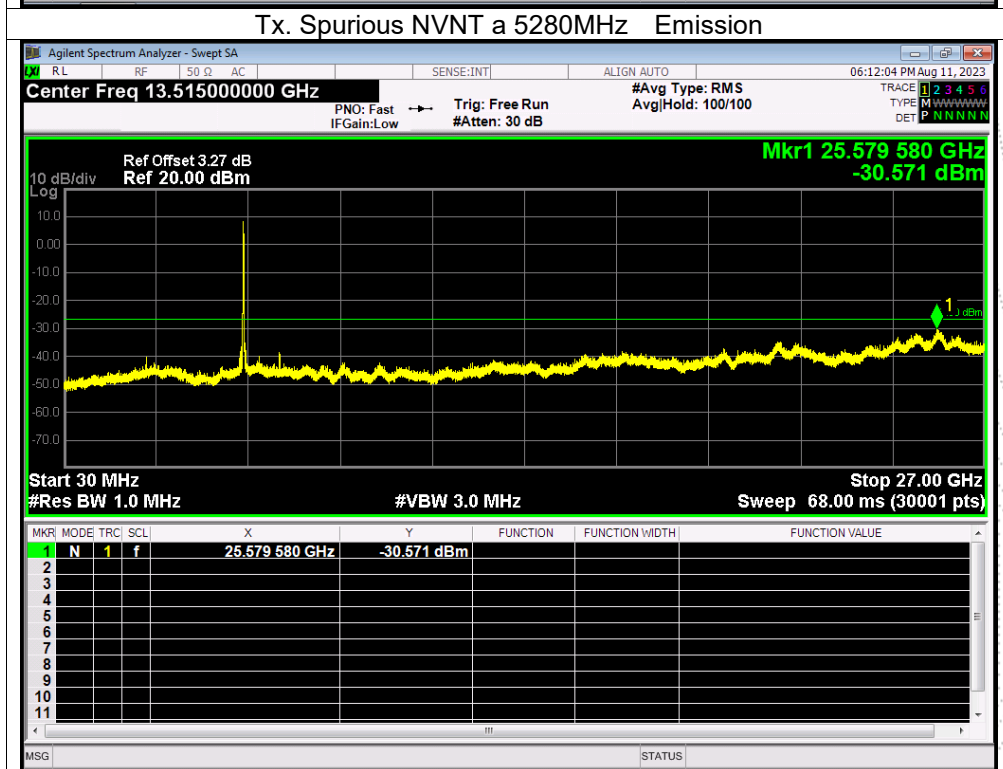
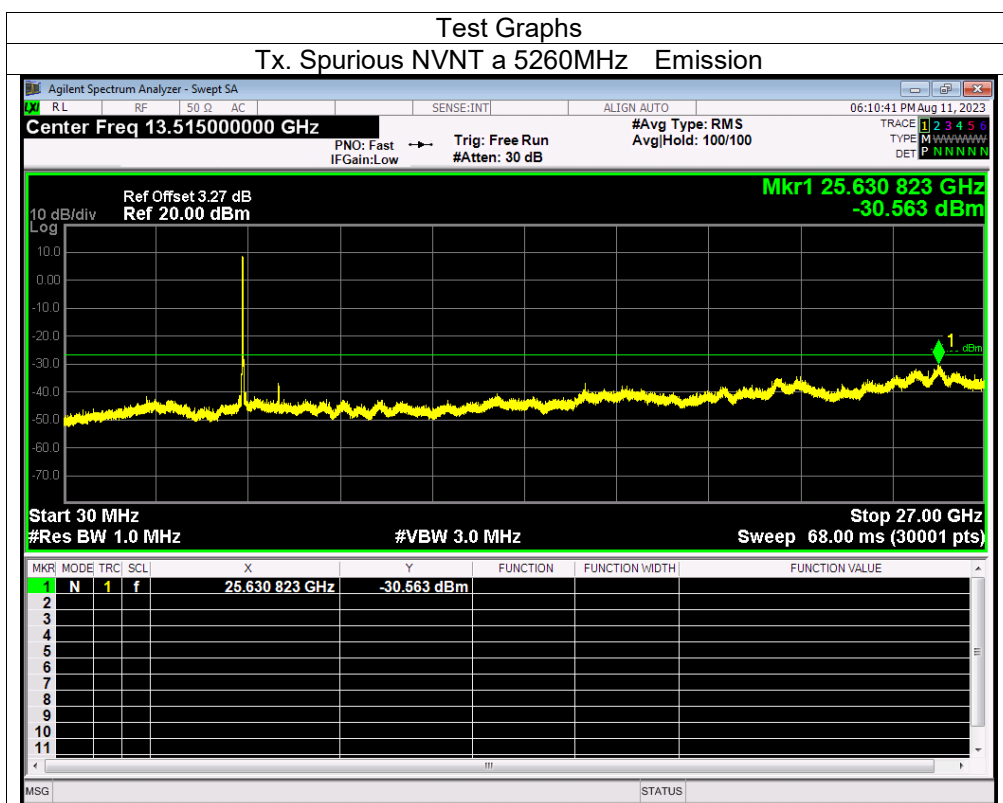
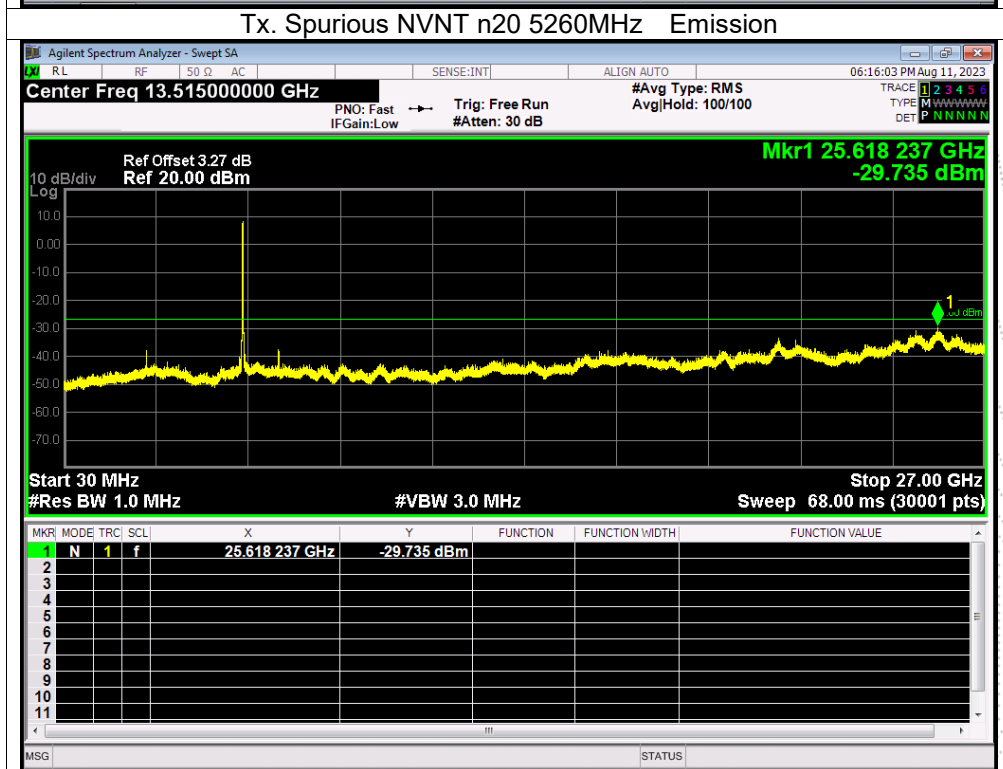
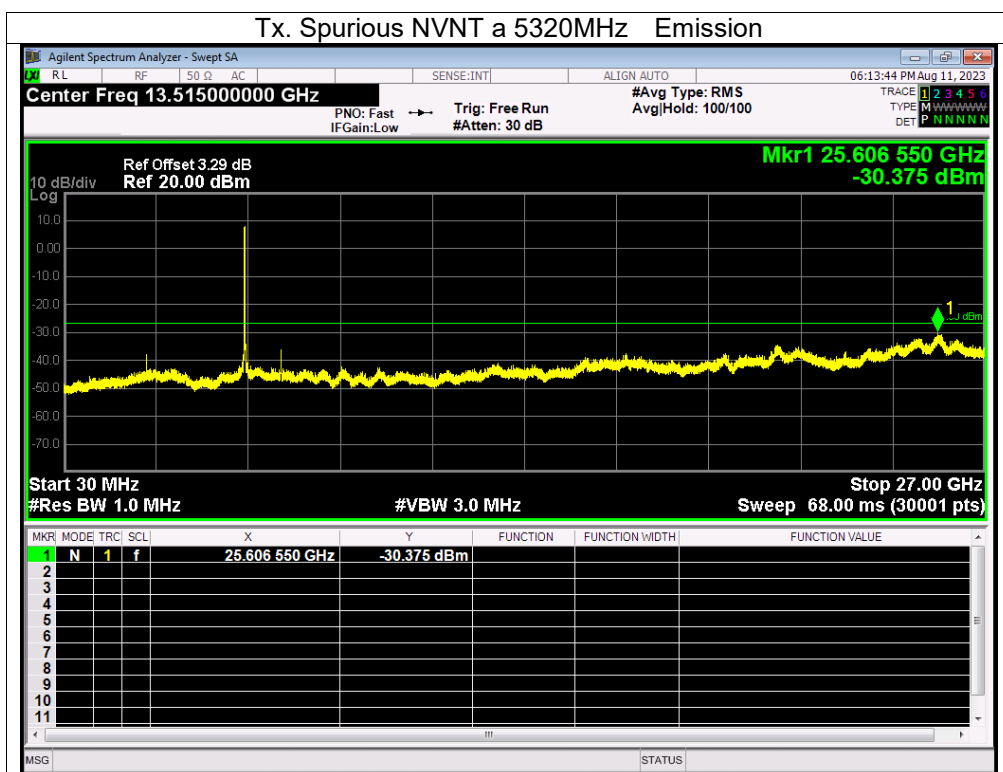
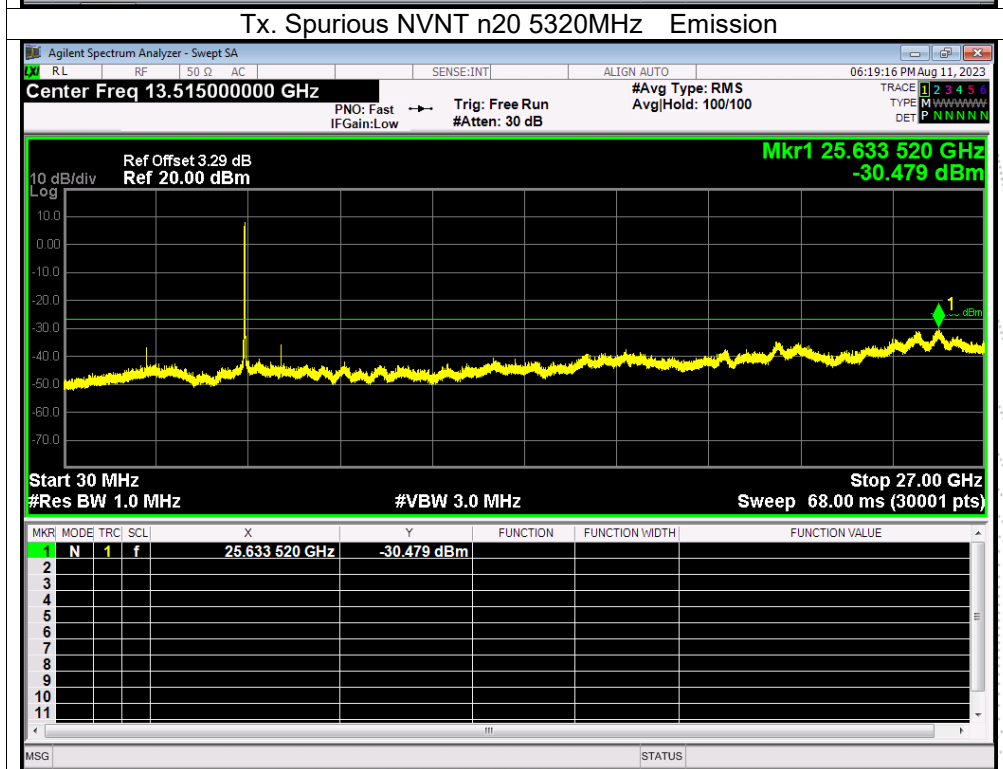
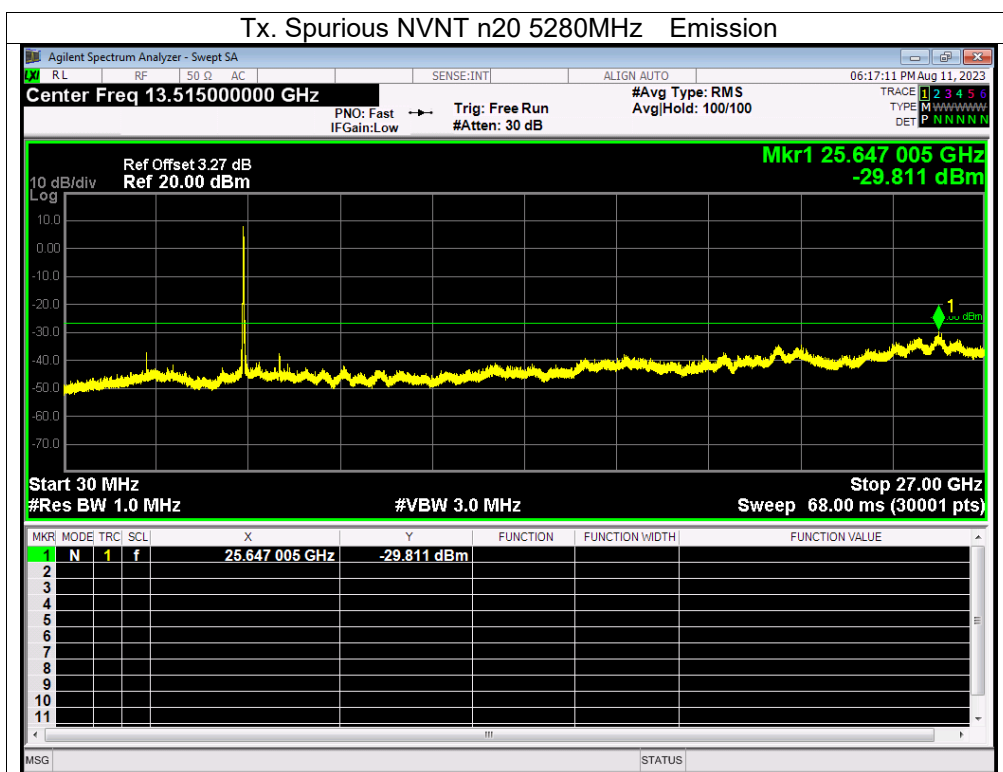


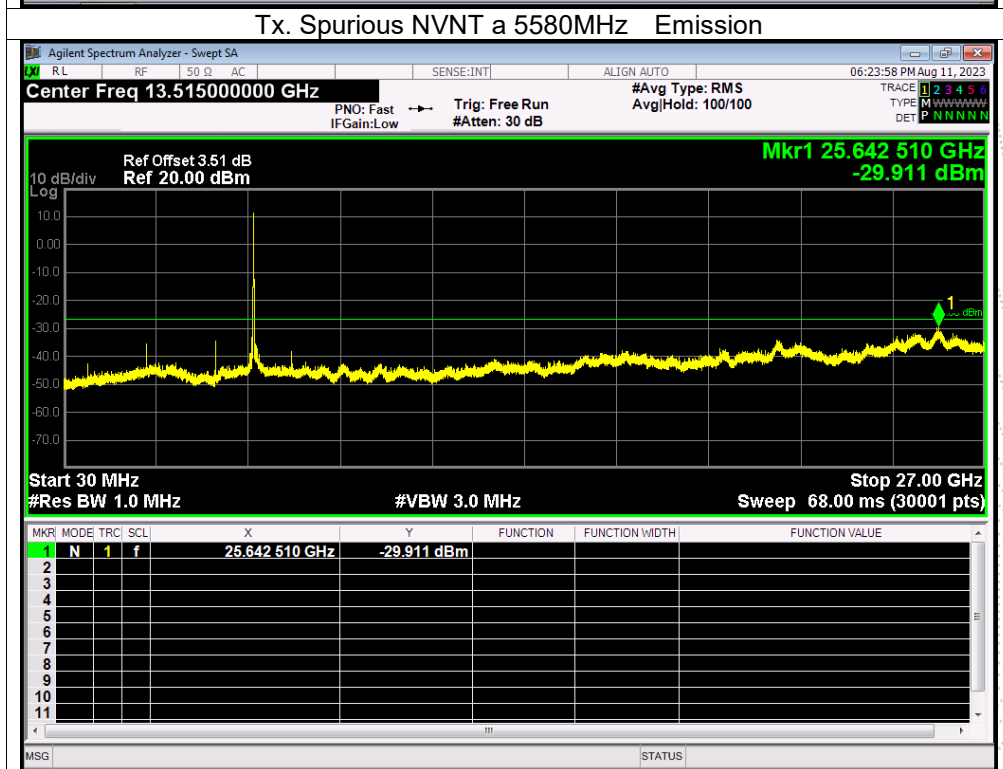
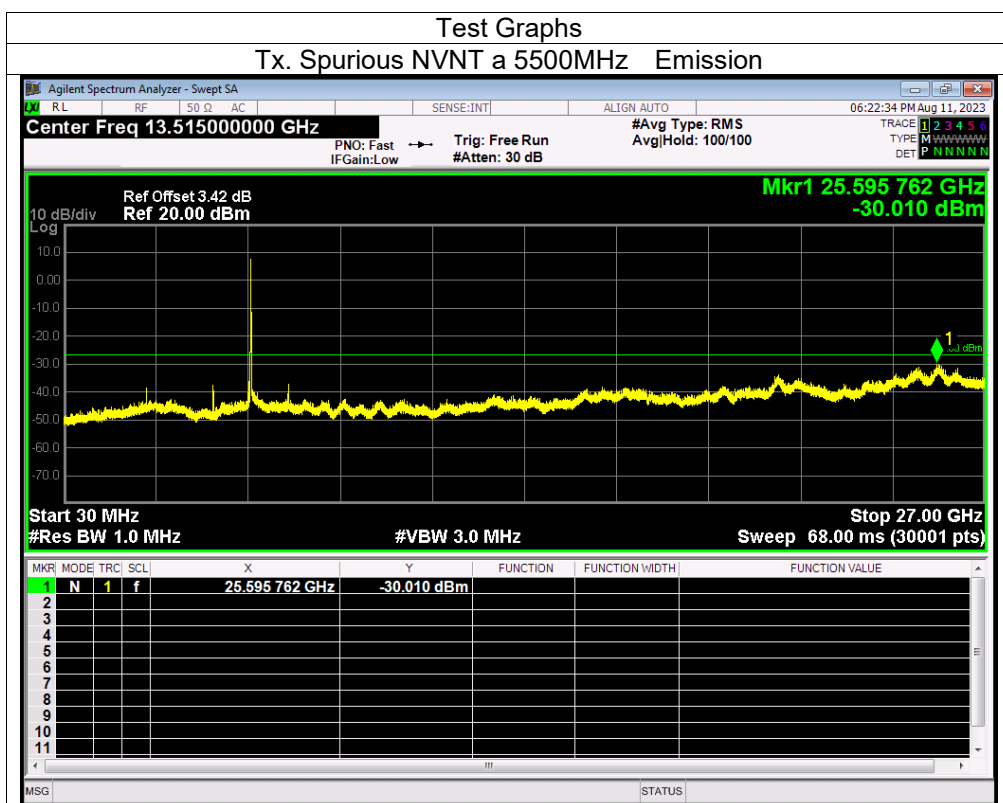


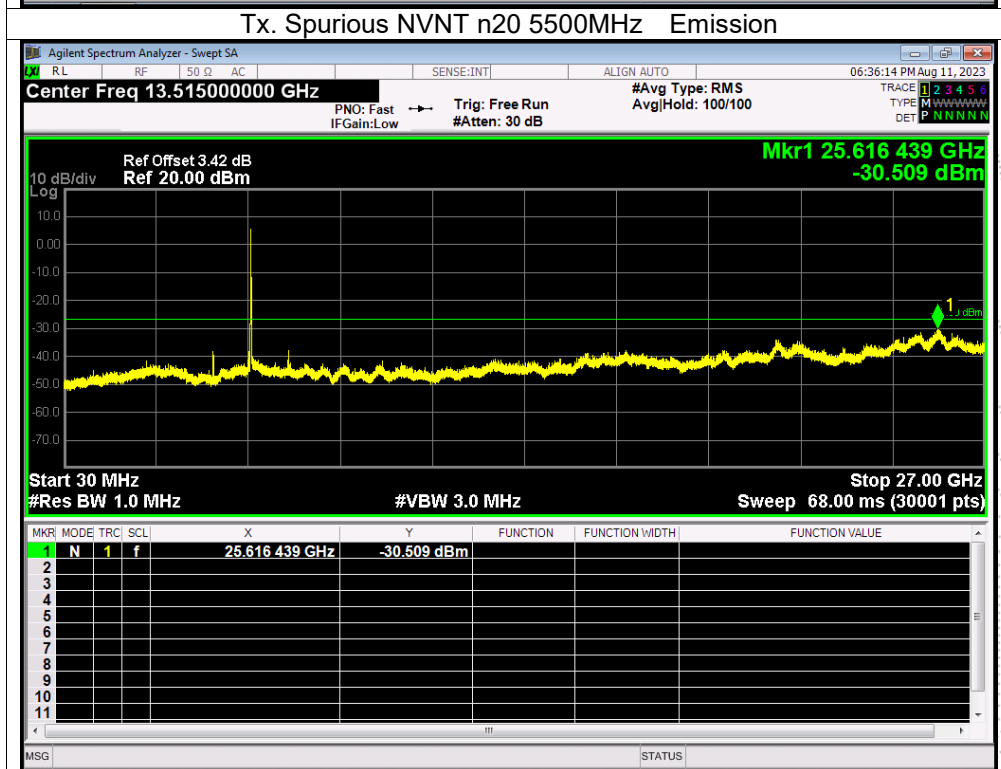
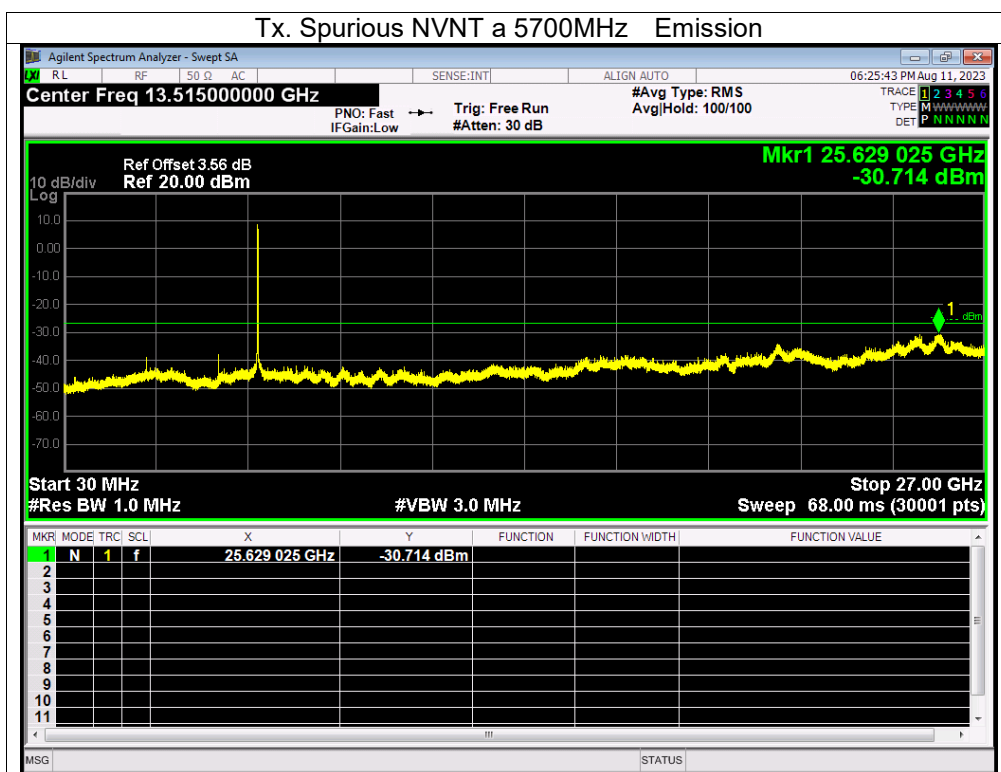


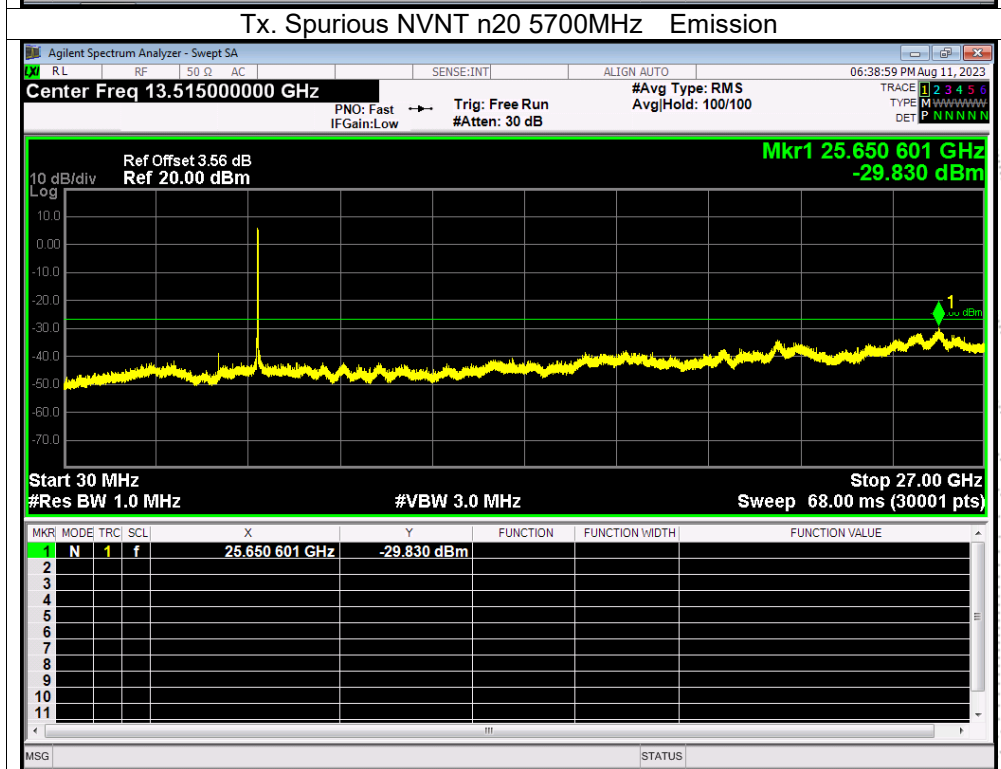
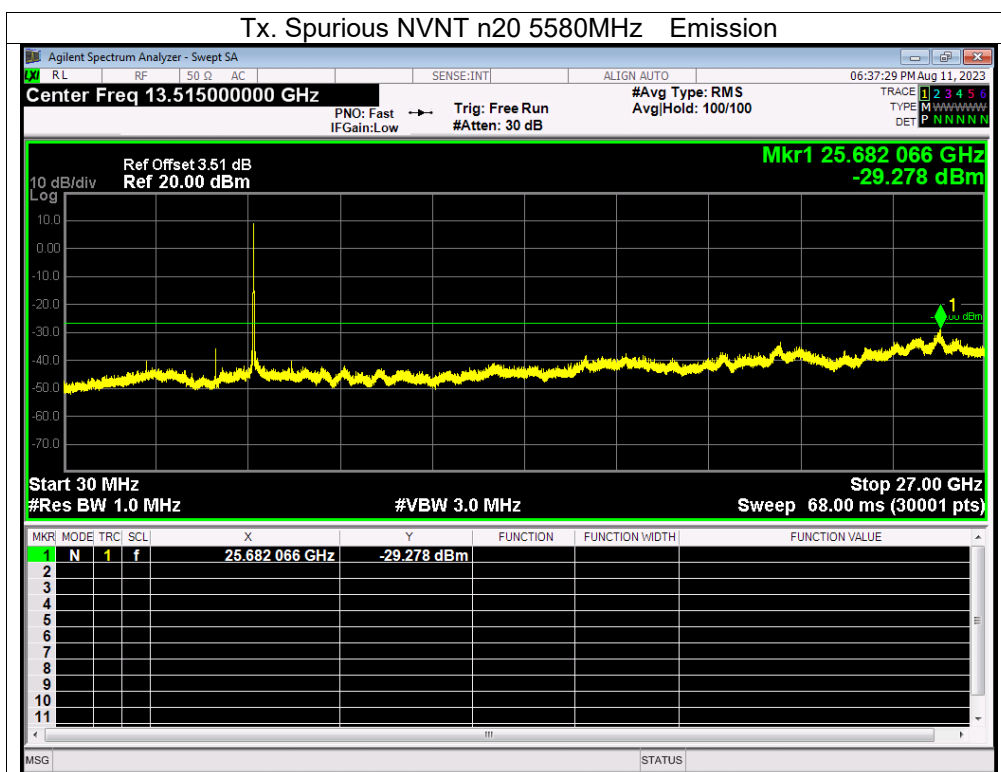


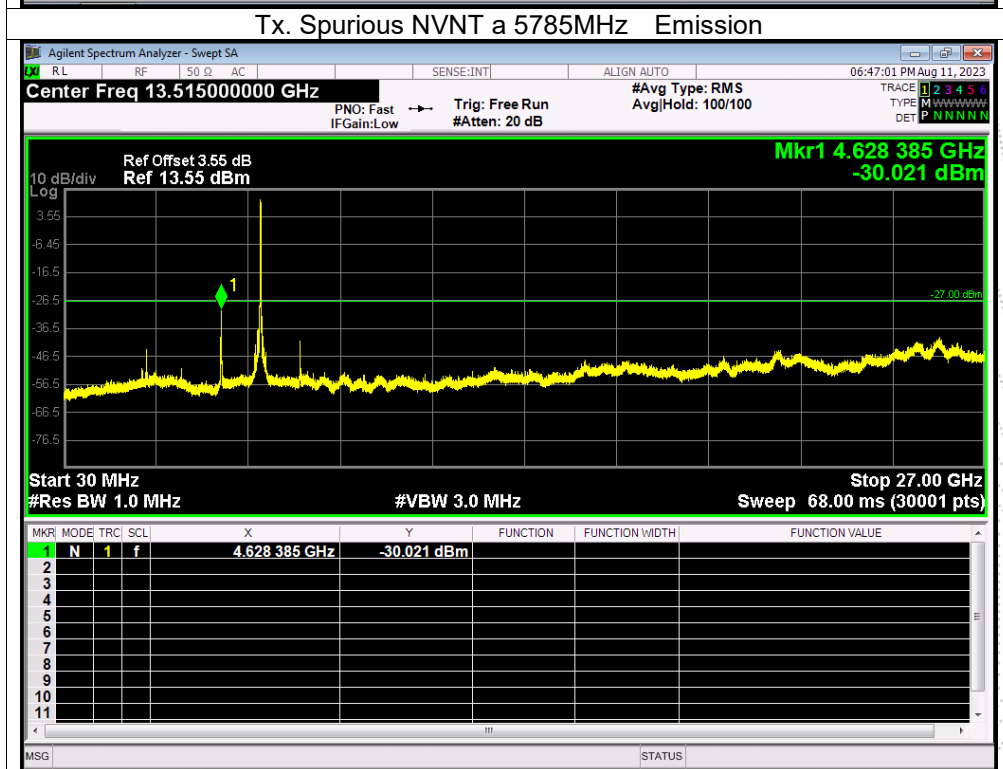
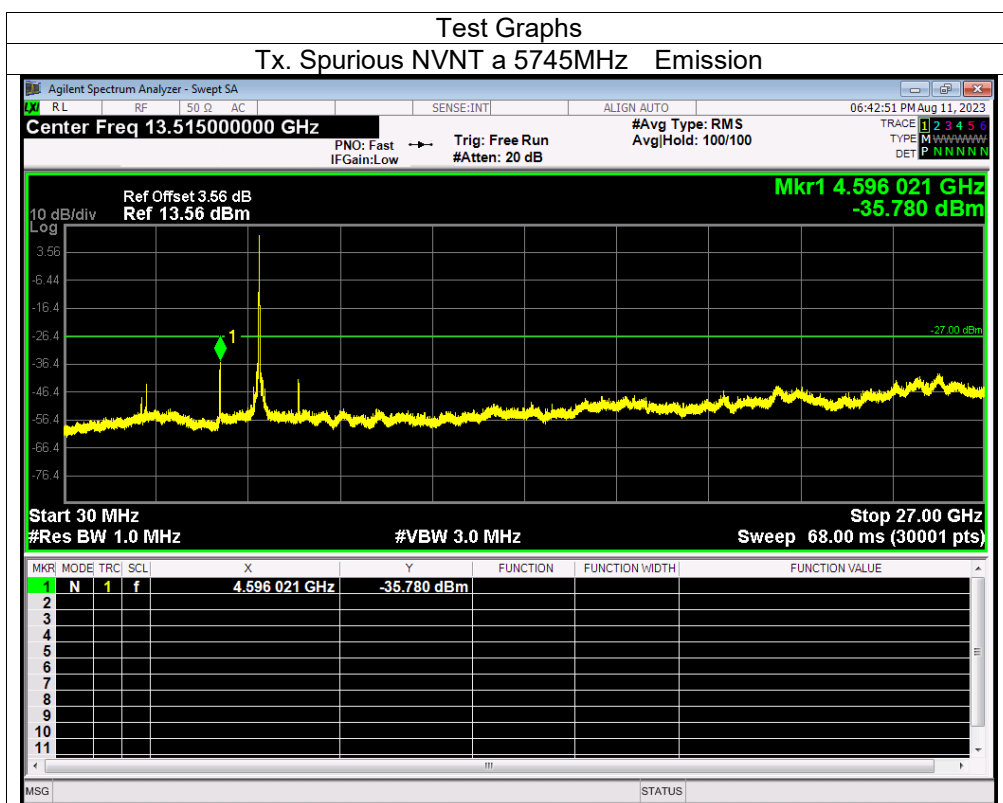


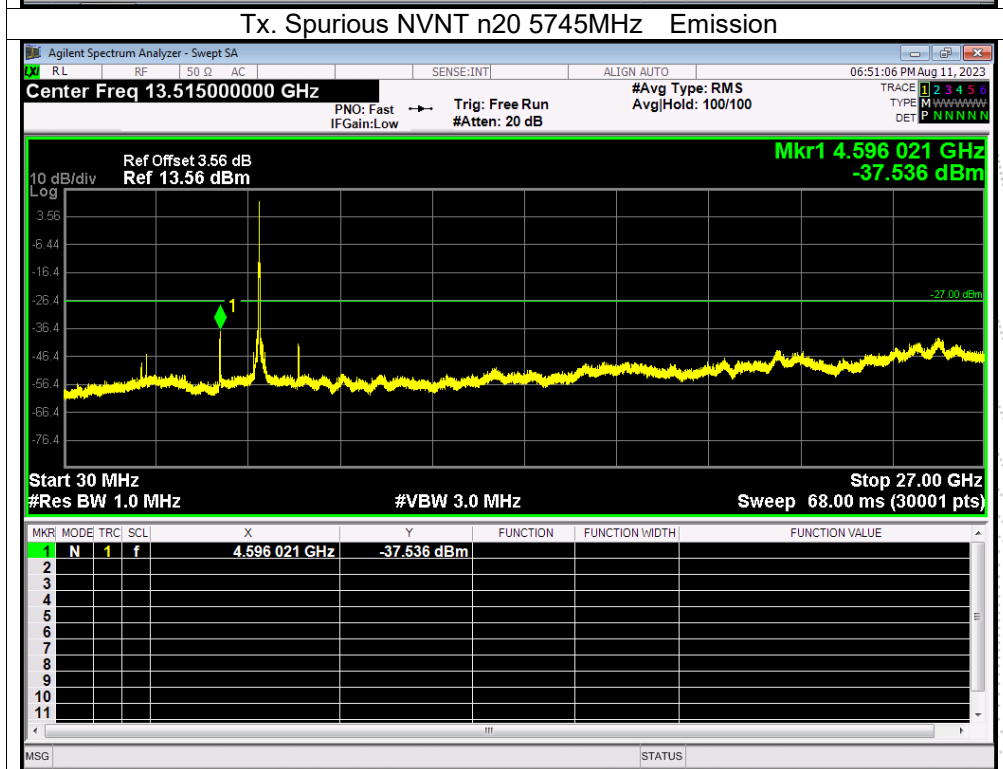
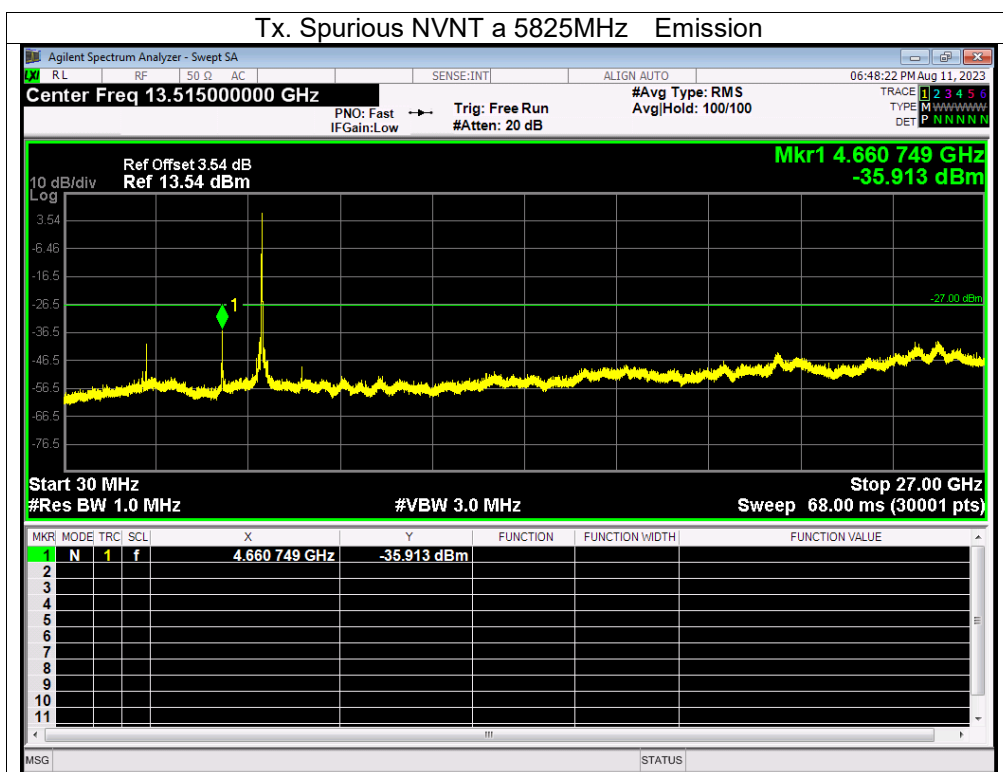


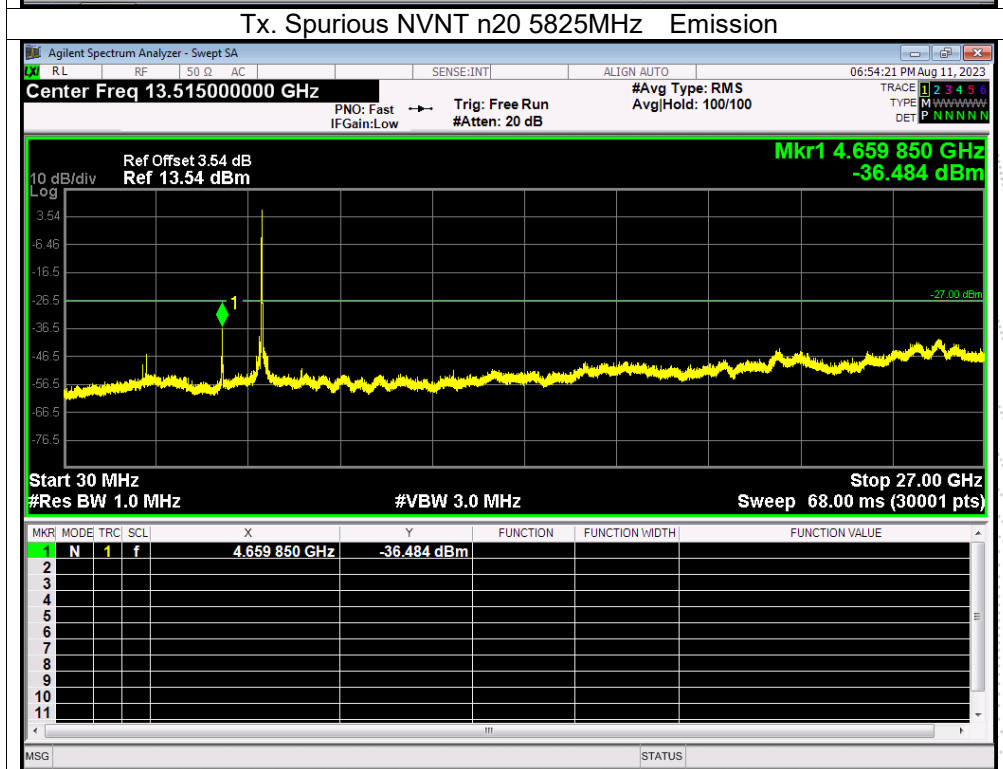
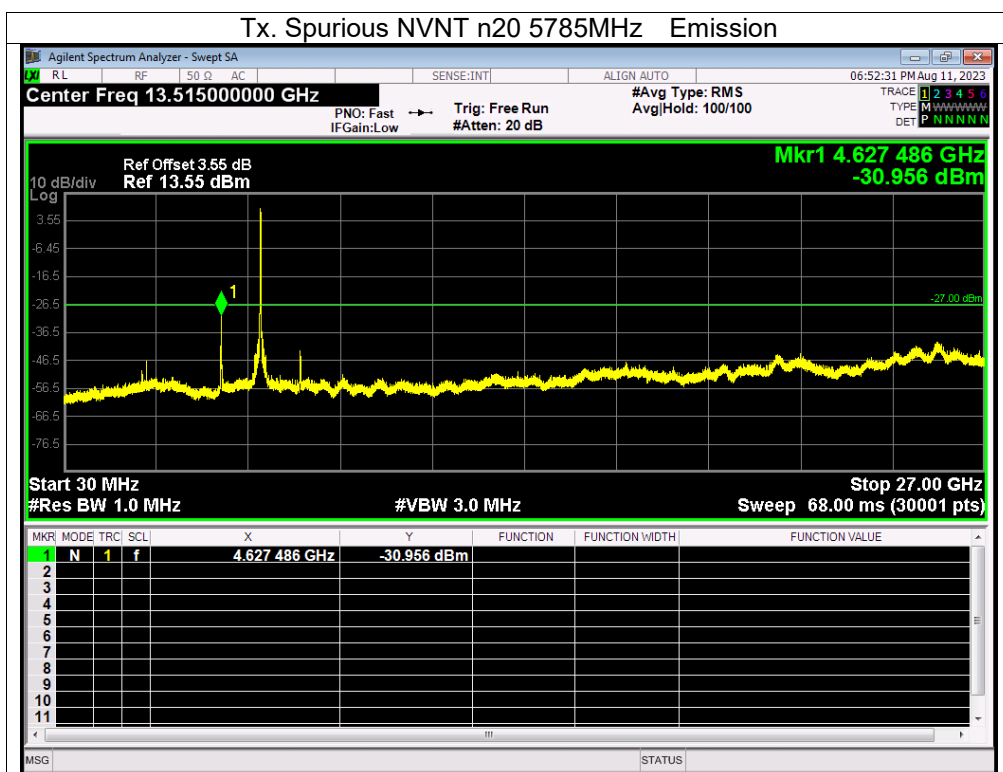












13. Frequency Stability Measurement

13.1 Block Diagram Of Test Setup



13.2 Limit

Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

The transmitter center frequency tolerance shall be ± 20 ppm maximum for the 5 GHz band (IEEE 802.11n specification)..

13.3 Test Procedure

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. EUT have transmitted absence of modulation signal and fixed channelize.
3. Set the spectrum analyzer span to view the entire absence of modulation emissions bandwidth.
4. Set RBW = 10 kHz, VBW = 10 kHz with peak detector and maxhold settings.
5. f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f)/f_c \times 10^6$ ppm and he limit is less than ± 20 ppm (IEEE 802.11nspecification).
6. The test extreme voltage is to change the primary supply voltage from 85 to 115 percent of the nominal value
7. Extreme temperature is $-20^{\circ}\text{C} \sim 70^{\circ}\text{C}$.

13.4 Test Result

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	TX (5.1G) Mode Frequency U-NII-1 (5180-5240MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5180.0210	5180	0.0210	4.0634
		V max (V)	138.00	5180.0201	5180	0.0201	3.8784
		V min (V)	102.00	5180.0122	5180	0.0122	2.3513
Limits				5150-5250 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5180.0065	5180	0.0065	1.2479
		T (°C)	-10	5180.0132	5180	0.0132	2.5461
		T (°C)	0	5180.0069	5180	0.0069	1.3241
		T (°C)	10	5180.0098	5180	0.0098	1.8962
		T (°C)	20	5180.0009	5180	0.0009	0.1834
		T (°C)	30	5180.0109	5180	0.0109	2.1120
		T (°C)	40	5180.0130	5180	0.0130	2.5117
		T (°C)	50	5180.0006	5180	0.0006	0.1205
		T (°C)	60	5180.0008	5180	0.0008	0.1460
		T (°C)	70	5180.0032	5180	0.0032	0.6132
Limits				5150-5250 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5200.0037	5200	0.0037	0.7092
		V max (V)	138.00	5200.0025	5200	0.0025	0.4894
		V min (V)	102.00	5200.0075	5200	0.0075	1.4446
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5200.00901	5200	0.00901	1.7333
		T (°C)	-10	5200.00661	5200	0.00661	1.2716
		T (°C)	0	5200.00566	5200	0.00566	1.0887
		T (°C)	10	5200.00539	5200	0.00539	1.0362
		T (°C)	20	5200.00231	5200	0.00231	0.4443
		T (°C)	30	5200.00359	5200	0.00359	0.6908
		T (°C)	40	5200.01178	5200	0.01178	2.2653
		T (°C)	50	5200.00778	5200	0.00778	1.4955
		T (°C)	60	5200.01330	5200	0.01330	2.5571
		T (°C)	70	5200.00807	5200	0.00807	1.5520
Limits				5150-5250 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5240.0041	5240	0.0041	0.7873
		V max (V)	138.00	5240.0081	5240	0.0081	1.5454
		V min (V)	102.00	5240.0062	5240	0.0062	1.1856
Limits				5150-5250 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5240.0105	5240	0.0105	2.0078
		T (°C)	-10	5240.0124	5240	0.0124	2.3677
		T (°C)	0	5240.0029	5240	0.0029	0.5544
		T (°C)	10	5240.0002	5240	0.0002	0.0438
		T (°C)	20	5240.0028	5240	0.0028	0.5421
		T (°C)	30	5240.0058	5240	0.0058	1.1049
		T (°C)	40	5240.0012	5240	0.0012	0.2228
		T (°C)	50	5240.0016	5240	0.0016	0.3141
		T (°C)	60	5240.0016	5240	0.0016	0.2977
		T (°C)	70	5240.0034	5240	0.0034	0.6499
Limits				5150-5250 MHz			
Result				Complies			

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	TX (5.3G) Mode Frequency U-NII-2A (5260-5320MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5260.0205	5260	0.0205	3.8969
		V max (V)	138.00	5260.0098	5260	0.0098	1.8721
		V min (V)	102.00	5260.0195	5260	0.0195	3.6994
Limits				5260-5320 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5260MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5260.0130	5260	0.0130	2.4670
		T (°C)	-10	5260.0068	5260	0.0068	1.2853
		T (°C)	0	5260.0135	5260	0.0135	2.5753
		T (°C)	10	5260.0133	5260	0.0133	2.5195
		T (°C)	20	5260.0058	5260	0.0058	1.1090
		T (°C)	30	5260.0124	5260	0.0124	2.3533
		T (°C)	40	5260.0040	5260	0.0040	0.7601
		T (°C)	50	5260.0079	5260	0.0079	1.4937
		T (°C)	60	5260.0071	5260	0.0071	1.3572
		T (°C)	70	5260.0044	5260	0.0044	0.8436
Limits				5260-5320 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5280.0082	5280	0.0082	1.5492
		V max (V)	138.00	5280.0097	5280	0.0097	1.8465
		V min (V)	102.00	5280.0049	5280	0.0049	0.9220
Limits				5260-5320 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5280MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5280.01029	5280	0.01029	1.9486
		T (°C)	-10	5280.00292	5280	0.00292	0.5531
		T (°C)	0	5280.01238	5280	0.01238	2.3450
		T (°C)	10	5280.00570	5280	0.00570	1.0797
		T (°C)	20	5280.00826	5280	0.00826	1.5641
		T (°C)	30	5280.01029	5280	0.01029	1.9497
		T (°C)	40	5280.01348	5280	0.01348	2.5522
		T (°C)	50	5280.00743	5280	0.00743	1.4076
		T (°C)	60	5280.00111	5280	0.00111	0.2101
		T (°C)	70	5280.00068	5280	0.00068	0.1295
Limits				5260-5320 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5320.0129	5320	0.0129	2.4226
		V max (V)	138.00	5320.0069	5320	0.0069	1.3053
		V min (V)	102.00	5320.0107	5320	0.0107	2.0170
Limits				5260-5320 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5320MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5320.0061	5320	0.0061	1.1459
		T (°C)	-10	5320.0021	5320	0.0021	0.3907
		T (°C)	0	5320.0009	5320	0.0009	0.1705
		T (°C)	10	5320.0107	5320	0.0107	2.0021
		T (°C)	20	5320.0006	5320	0.0006	0.1158
		T (°C)	30	5320.0015	5320	0.0015	0.2856
		T (°C)	40	5320.0017	5320	0.0017	0.3203
		T (°C)	50	5320.0027	5320	0.0027	0.4985
		T (°C)	60	5320.0120	5320	0.0120	2.2507
		T (°C)	70	5320.0075	5320	0.0075	1.4106
Limits				5260-5320 MHz			
Result				Complies			

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	TX (5.6G) Mode Frequency U-NII-2C (5500-5700MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5500.0126	5500	0.0126	2.2870
		V max (V)	138.00	5500.0192	5500	0.0192	3.4871
		V min (V)	102.00	5500.0114	5500	0.0114	2.0657
Limits				5500-5700 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5500MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5500.0121	5500	0.0121	2.1985
		T (°C)	-10	5500.0113	5500	0.0113	2.0591
		T (°C)	0	5500.0027	5500	0.0027	0.4856
		T (°C)	10	5500.0135	5500	0.0135	2.4561
		T (°C)	20	5500.0050	5500	0.0050	0.9032
		T (°C)	30	5500.0052	5500	0.0052	0.9443
		T (°C)	40	5500.0017	5500	0.0017	0.3129
		T (°C)	50	5500.0126	5500	0.0126	2.2903
		T (°C)	60	5500.0131	5500	0.0131	2.3901
		T (°C)	70	5500.0108	5500	0.0108	1.9571
Limits				5500-5700 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5580MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5580.0114	5580	0.0114	2.0368
		V max (V)	138.00	5580.0119	5580	0.0119	2.1378
		V min (V)	102.00	5580.0098	5580	0.0098	1.7581
Limits				5500-5700 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5580MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5580.00447	5580	0.00447	0.8008
		T (°C)	-10	5580.00958	5580	0.00958	1.7165
		T (°C)	0	5580.00839	5580	0.00839	1.5044
		T (°C)	10	5580.00063	5580	0.00063	0.1137
		T (°C)	20	5580.00101	5580	0.00101	0.1801
		T (°C)	30	5580.00764	5580	0.00764	1.3691
		T (°C)	40	5580.01019	5580	0.01019	1.8257
		T (°C)	50	5580.00588	5580	0.00588	1.0544
		T (°C)	60	5580.00072	5580	0.00072	0.1283
		T (°C)	70	5580.00182	5580	0.00182	0.3260
Limits				5500-5700 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5700.0008	5700	0.0008	0.1465
		V max (V)	138.00	5700.0101	5700	0.0101	1.7776
		V min (V)	102.00	5700.0080	5700	0.0080	1.4074
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5700MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5700.0044	5700	0.0044	0.7803
		T (°C)	-10	5700.0114	5700	0.0114	2.0010
		T (°C)	0	5700.0050	5700	0.0050	0.8821
		T (°C)	10	5700.0087	5700	0.0087	1.5339
		T (°C)	20	5700.0028	5700	0.0028	0.4920
		T (°C)	30	5700.0130	5700	0.0130	2.2766
		T (°C)	40	5700.0065	5700	0.0065	1.1411
		T (°C)	50	5700.0052	5700	0.0052	0.9107
		T (°C)	60	5700.0049	5700	0.0049	0.8536
		T (°C)	70	5700.0082	5700	0.0082	1.4459
Limits				5725-5850 MHz			
Result				Complies			

Temperature:	26 °C	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage:	AC 120V/60Hz
Test Mode:	TX (5.8G) Mode Frequency U-NII-3 (5745-5825MHz)		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5745.01079	5745	0.01079	1.8784
		V max (V)	138.00	5745.00842	5745	0.00842	1.4650
		V min (V)	102.00	5745.00400	5745	0.00400	0.6968
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5745.00500	5745	0.00500	0.8705
		T (°C)	-10	5745.00024	5745	0.00024	0.0425
		T (°C)	0	5745.01275	5745	0.01275	2.2193
		T (°C)	10	5745.01312	5745	0.01312	2.2841
		T (°C)	20	5745.00481	5745	0.00481	0.8376
		T (°C)	30	5745.00320	5745	0.00320	0.5568
		T (°C)	40	5745.00130	5745	0.00130	0.2258
		T (°C)	50	5745.00997	5745	0.00997	1.7347
		T (°C)	60	5745.00601	5745	0.00601	1.0466
		T (°C)	70	5745.00334	5745	0.00334	0.5812
Limits				5725-5850 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5785.00102	5785	0.00102	0.1760
		V max (V)	138.00	5785.00951	5785	0.00951	1.6440
		V min (V)	102.00	5785.00271	5785	0.00271	0.4680
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5785.00312	5785	0.00312	0.5386
		T (°C)	-10	5785.00298	5785	0.00298	0.5151
		T (°C)	0	5785.00821	5785	0.00821	1.4197
		T (°C)	10	5785.00335	5785	0.00335	0.5787
		T (°C)	20	5785.00577	5785	0.00577	0.9981
		T (°C)	30	5785.00963	5785	0.00963	1.6643
		T (°C)	40	5785.00433	5785	0.00433	0.7485
		T (°C)	50	5785.00430	5785	0.00430	0.7435
		T (°C)	60	5785.00727	5785	0.00727	1.2575
		T (°C)	70	5785.01287	5785	0.01287	2.2243
Limits				5725-5850 MHz			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	120.00	5825.00415	5825	0.00415	0.7117
		V max (V)	138.00	5825.00201	5825	0.00201	0.3449
		V min (V)	102.00	5825.00535	5825	0.00535	0.9192
Limits				5725-5850 MHz			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency: 5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	120	T (°C)	-20	5825.00341	5825	0.00341	0.5849
		T (°C)	-10	5825.01349	5825	0.01349	2.3166
		T (°C)	0	5825.00231	5825	0.00231	0.3958
		T (°C)	10	5825.01243	5825	0.01243	2.1333
		T (°C)	20	5825.00196	5825	0.00196	0.3358
		T (°C)	30	5825.00215	5825	0.00215	0.3699
		T (°C)	40	5825.00194	5825	0.00194	0.3323
		T (°C)	50	5825.00011	5825	0.00011	0.0188
		T (°C)	60	5825.00426	5825	0.00426	0.7322
		T (°C)	70	5825.00711	5825	0.00711	1.2205
Limits				5725-5850 MHz			
Result				Complies			

14. Duty Cycle Of Test Signal

14.1 Standard Requirement

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle. All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

14.2 Formula

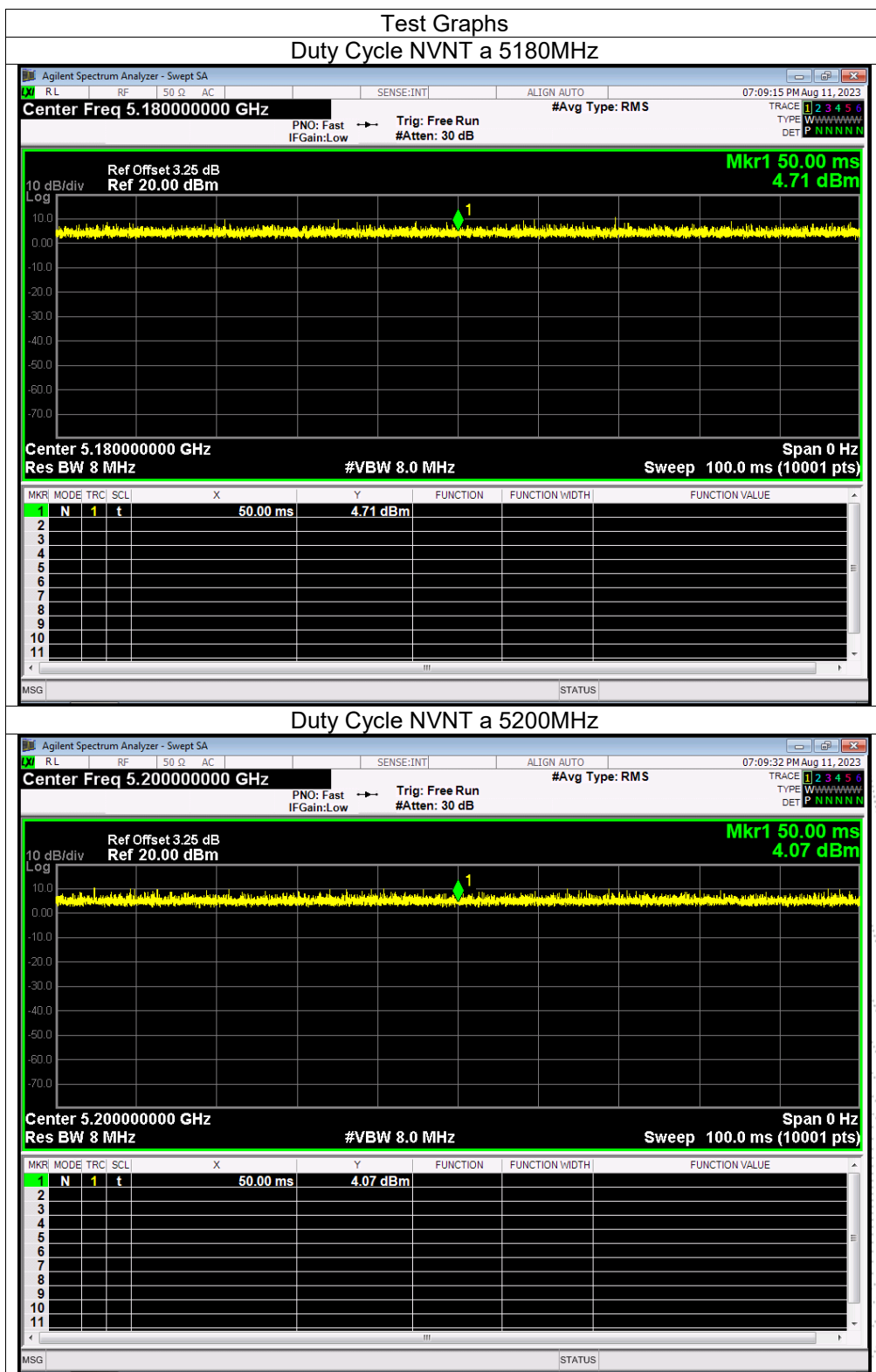
Duty Cycle = $T_{on} / (T_{on} + T_{off})$

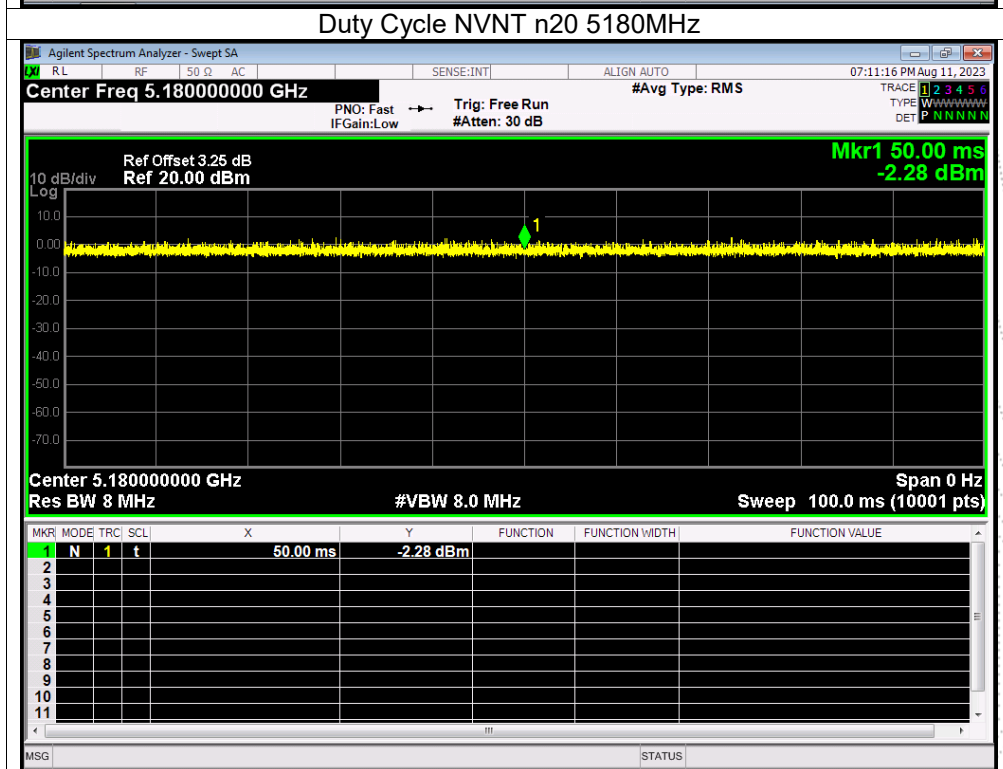
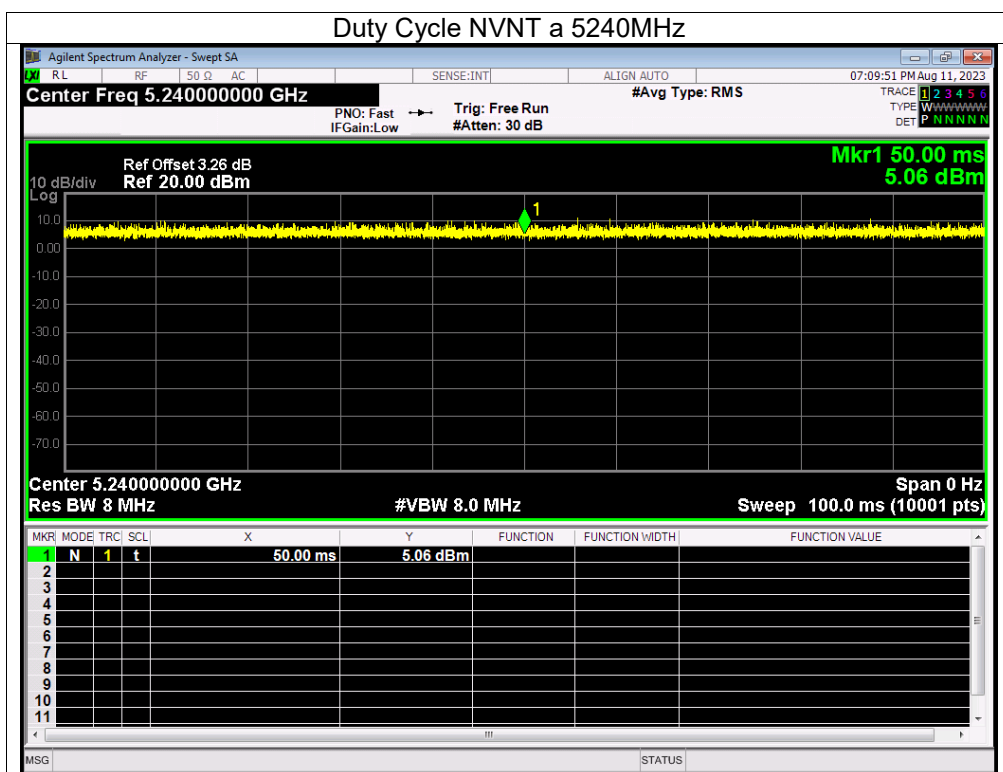
14.3 Test Procedure

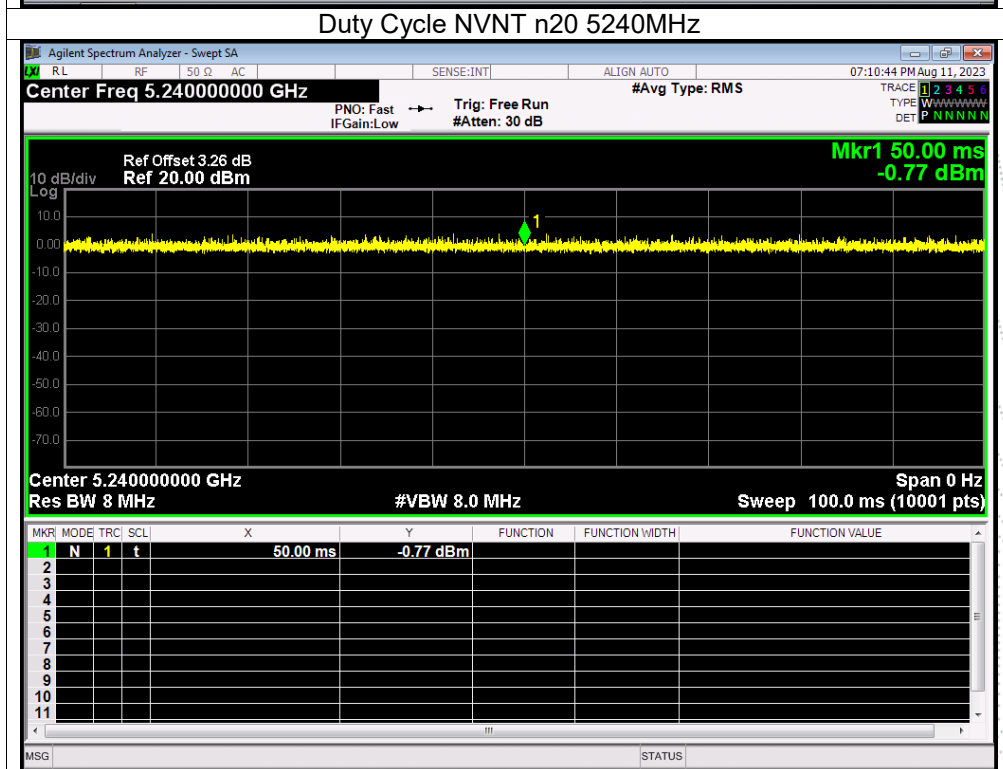
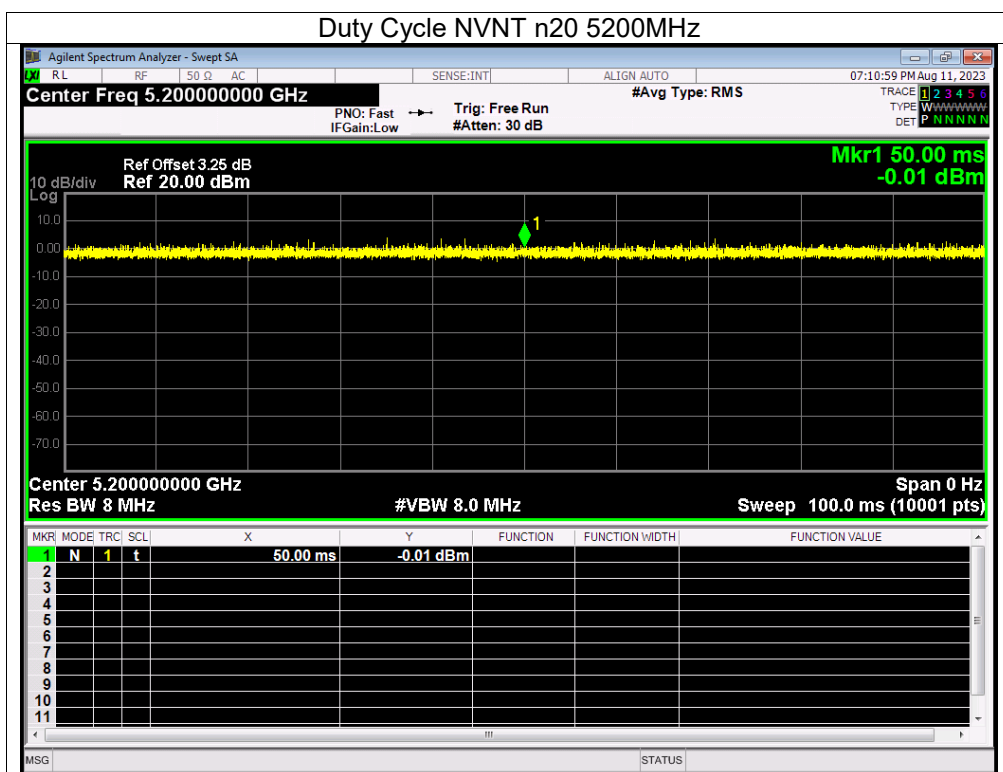
1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

14.4 Test Result

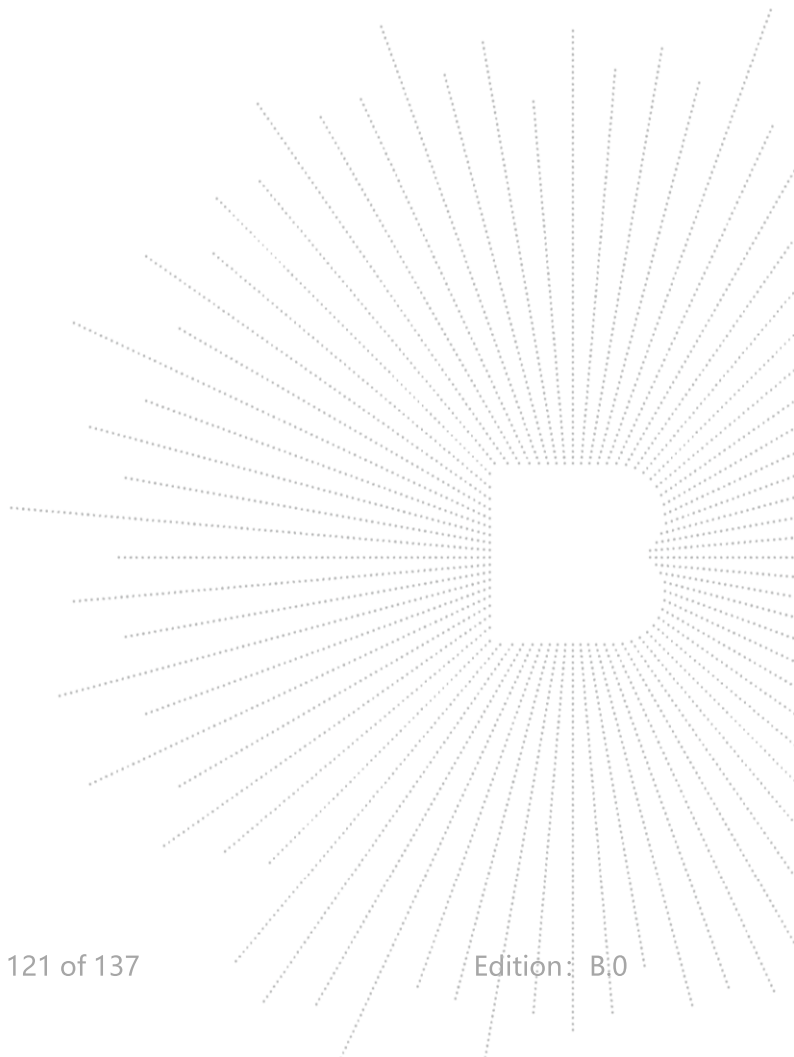
Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5180	100	0	0
NVNT	a	5200	100	0	0
NVNT	a	5240	100	0	0
NVNT	n20	5180	100	0	0
NVNT	n20	5200	100	0	0
NVNT	n20	5240	100	0	0

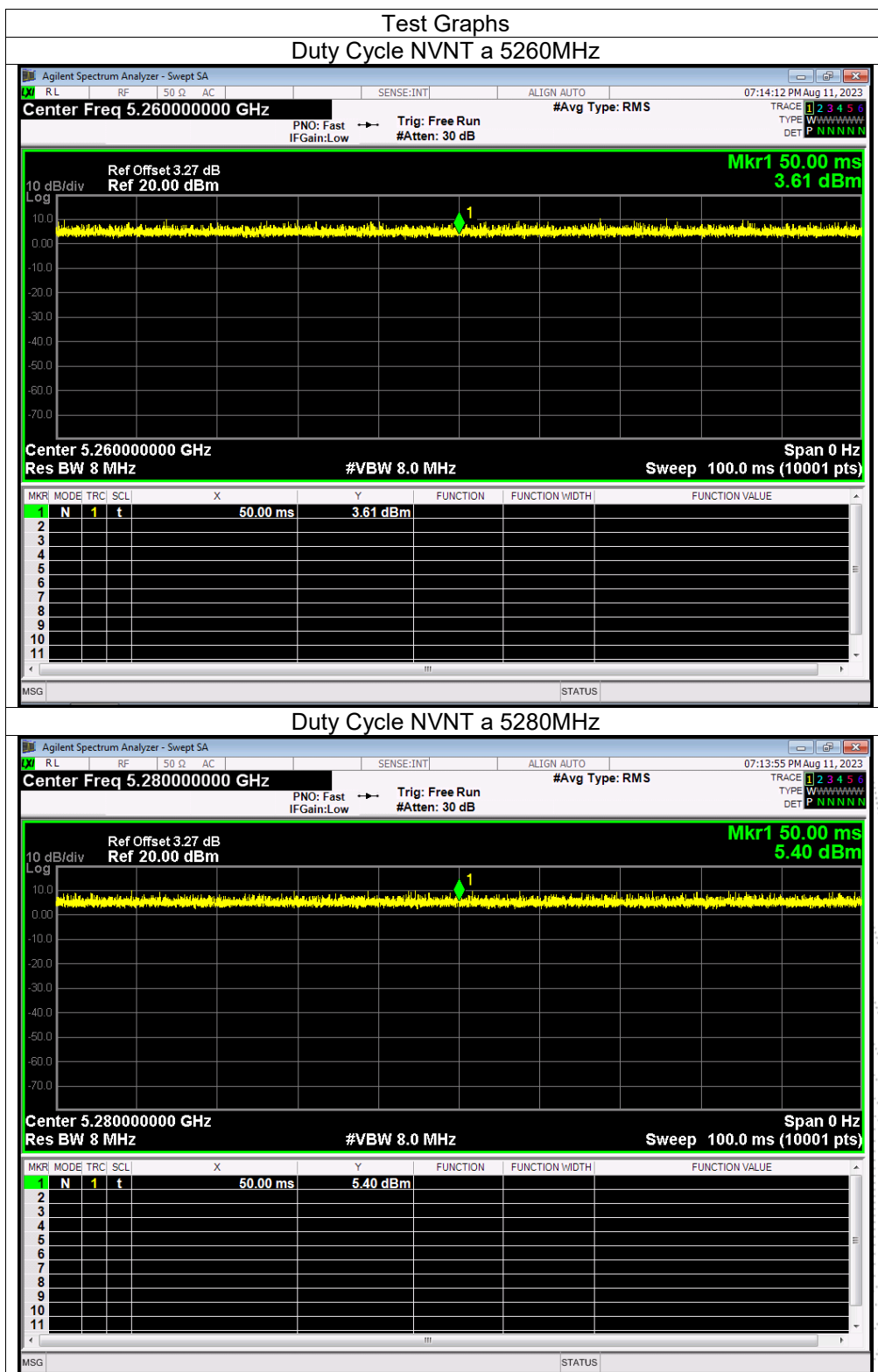


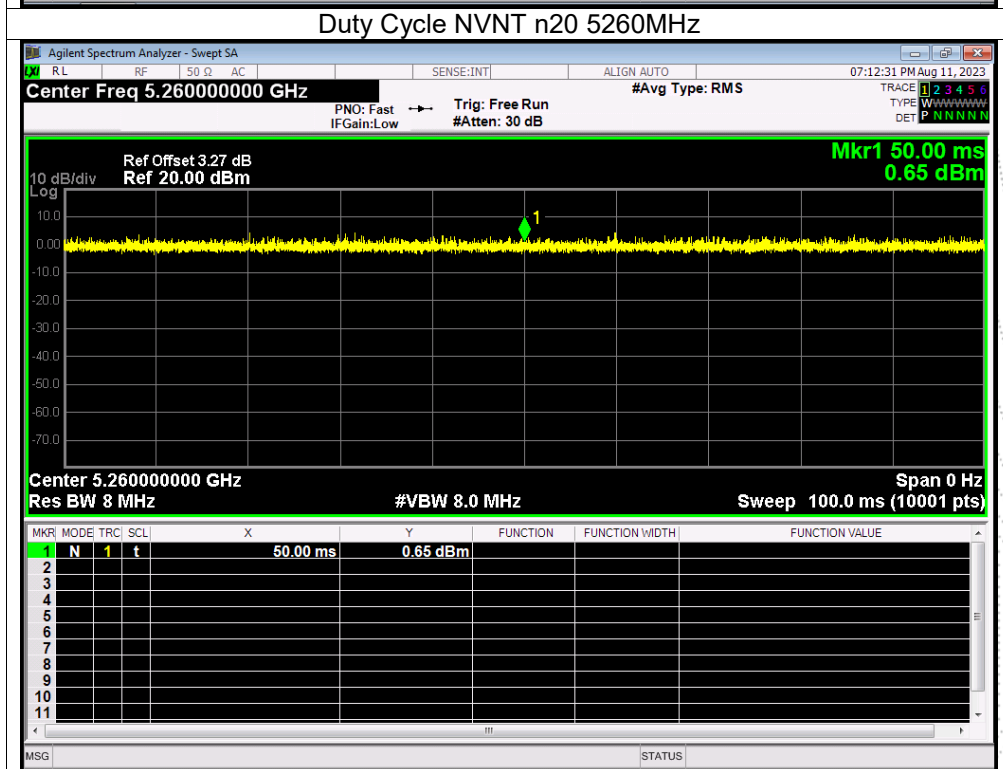
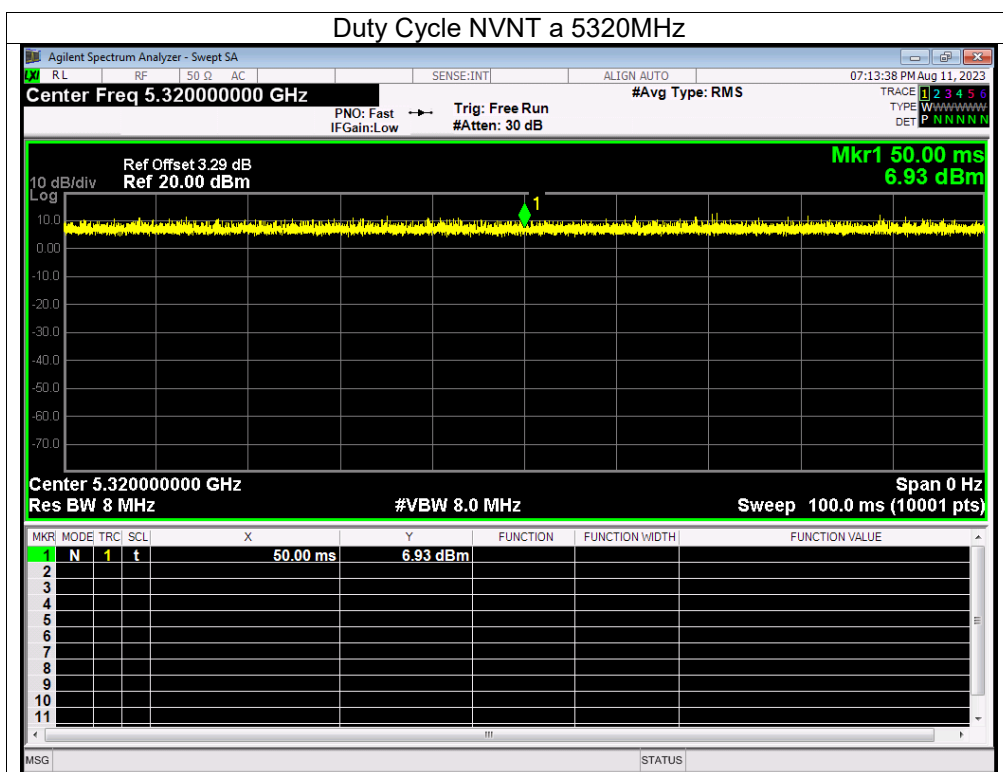


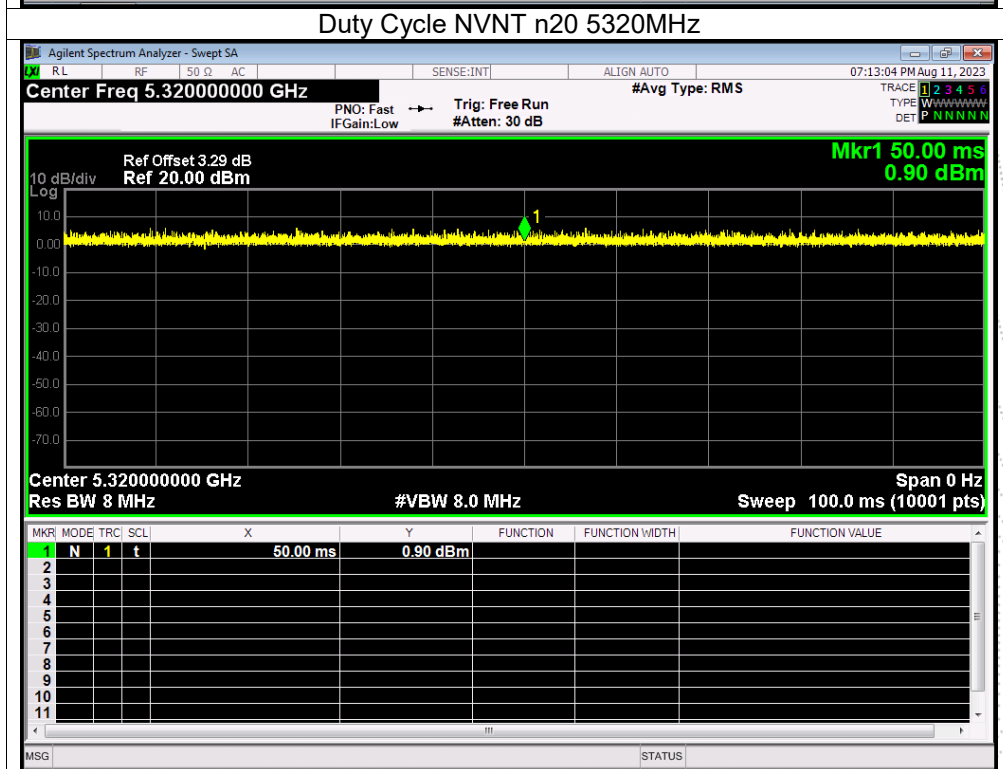
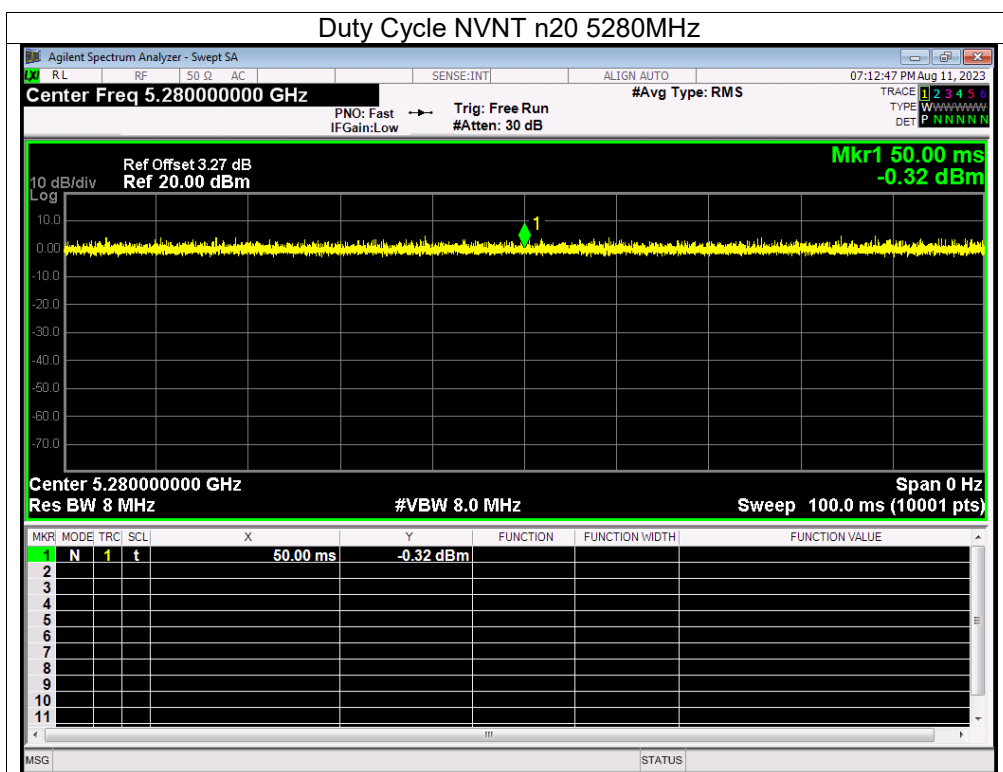


Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5260	100	0	0
NVNT	a	5280	100	0	0
NVNT	a	5320	100	0	0
NVNT	n20	5260	100	0	0
NVNT	n20	5280	100	0	0
NVNT	n20	5320	100	0	0

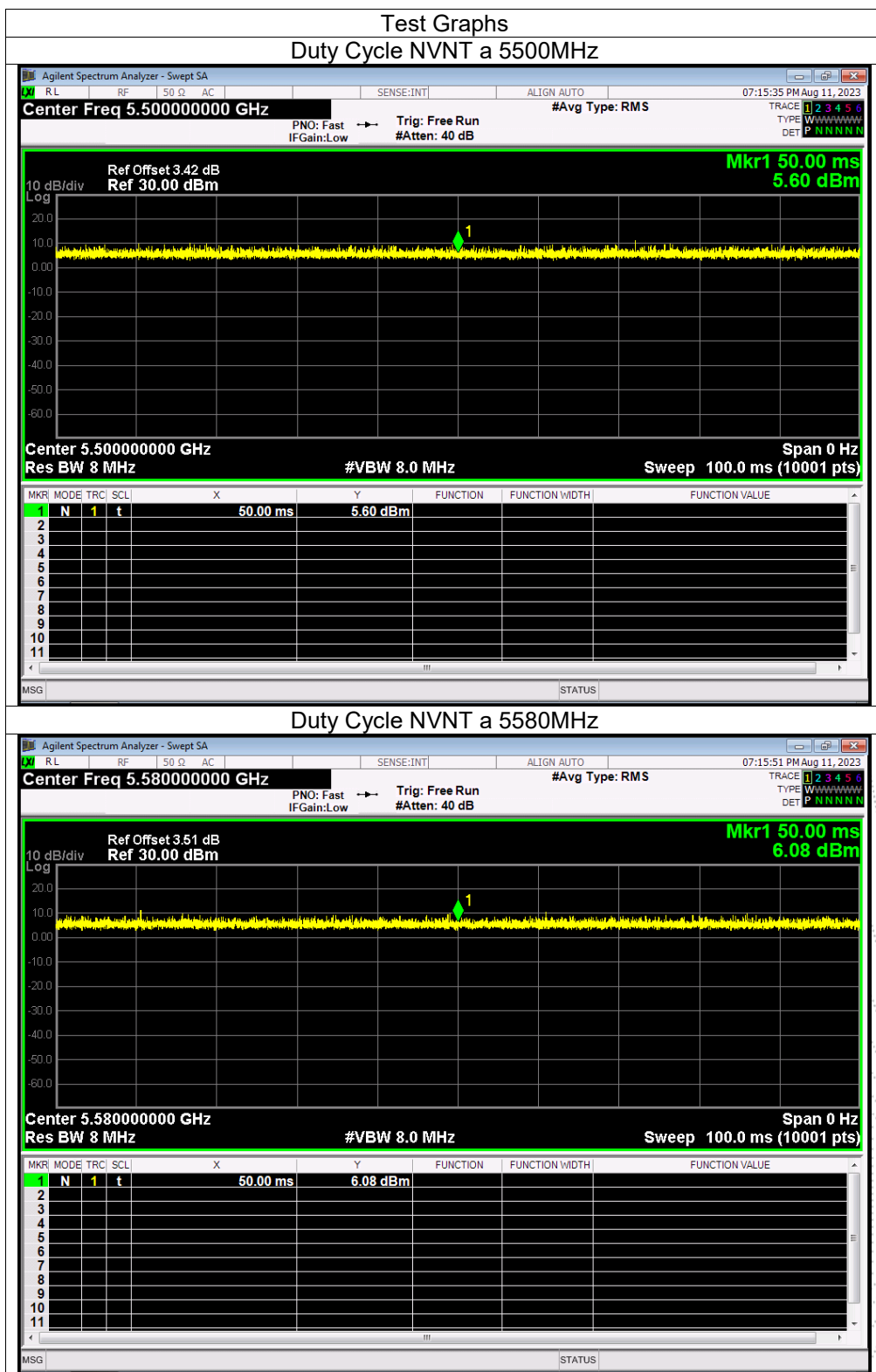


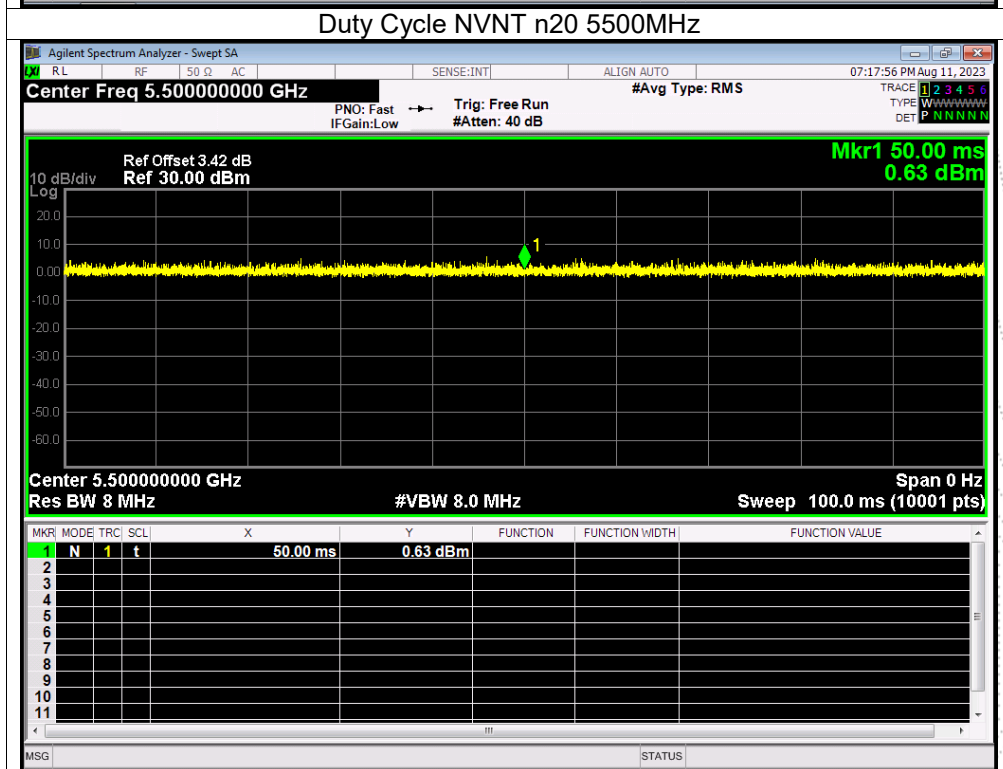
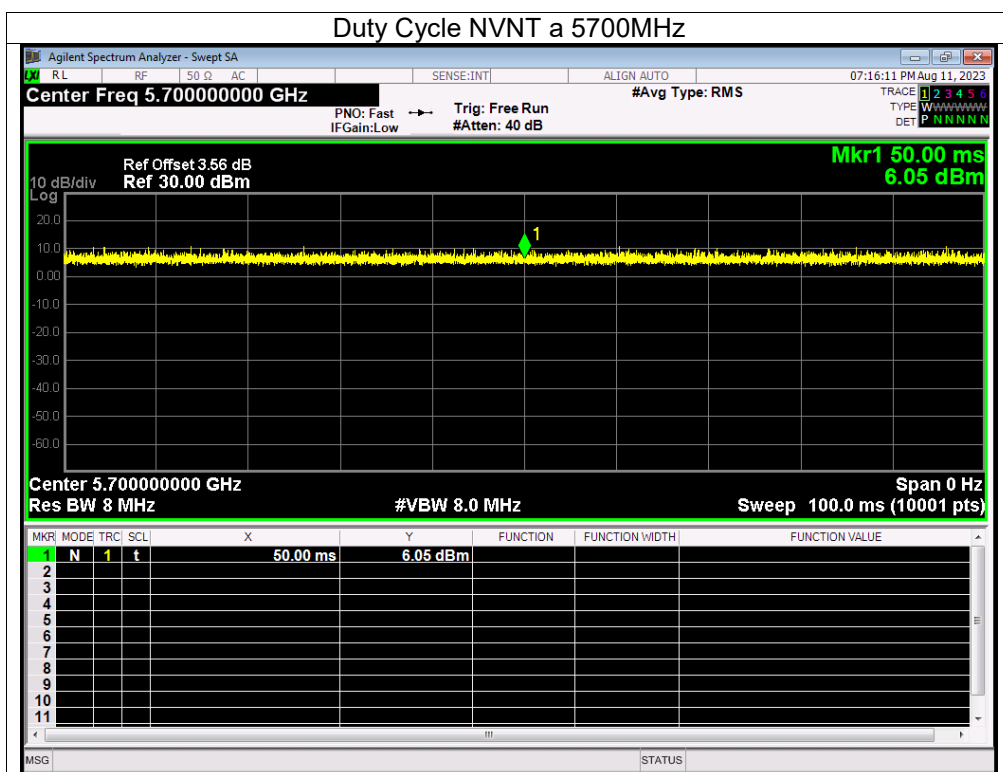


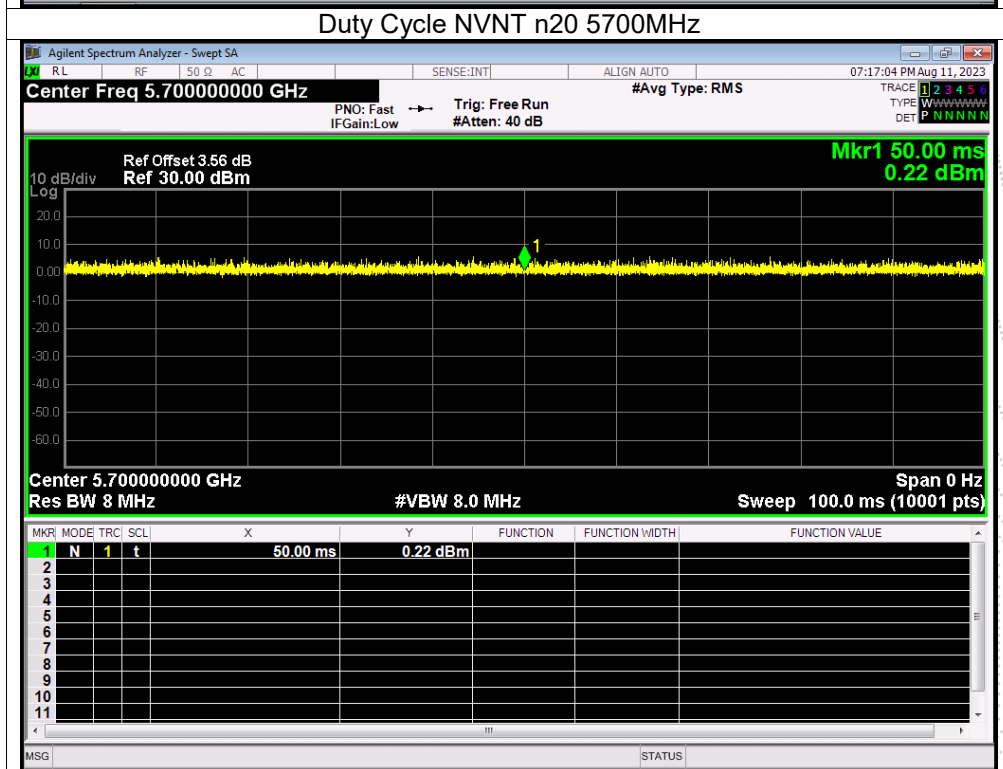
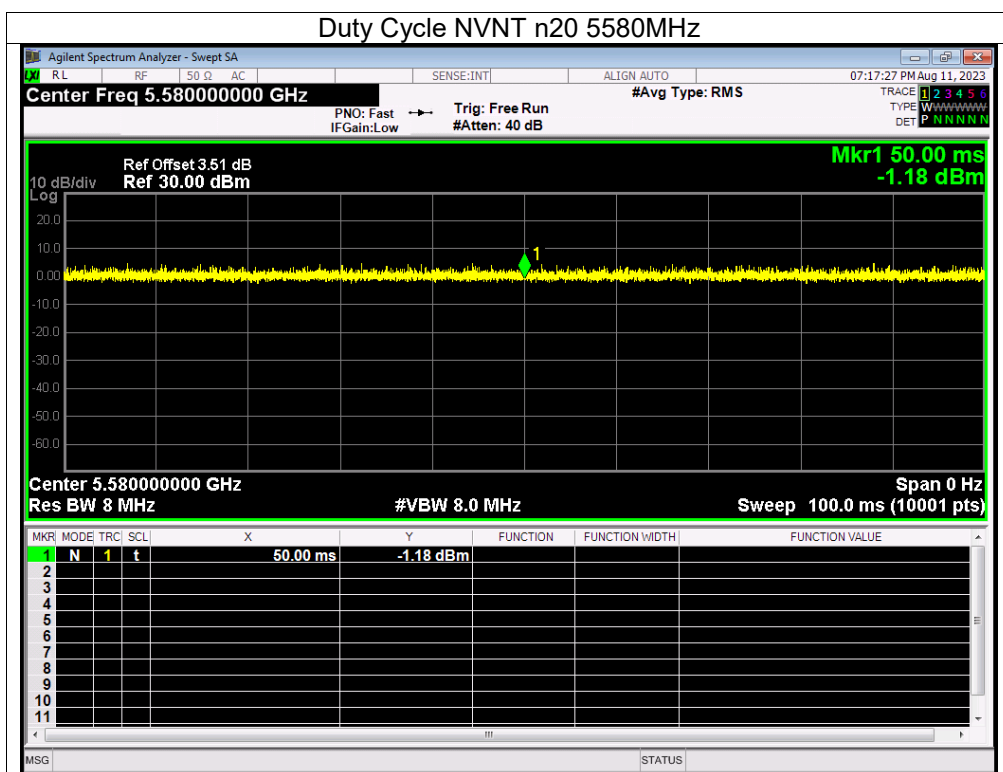




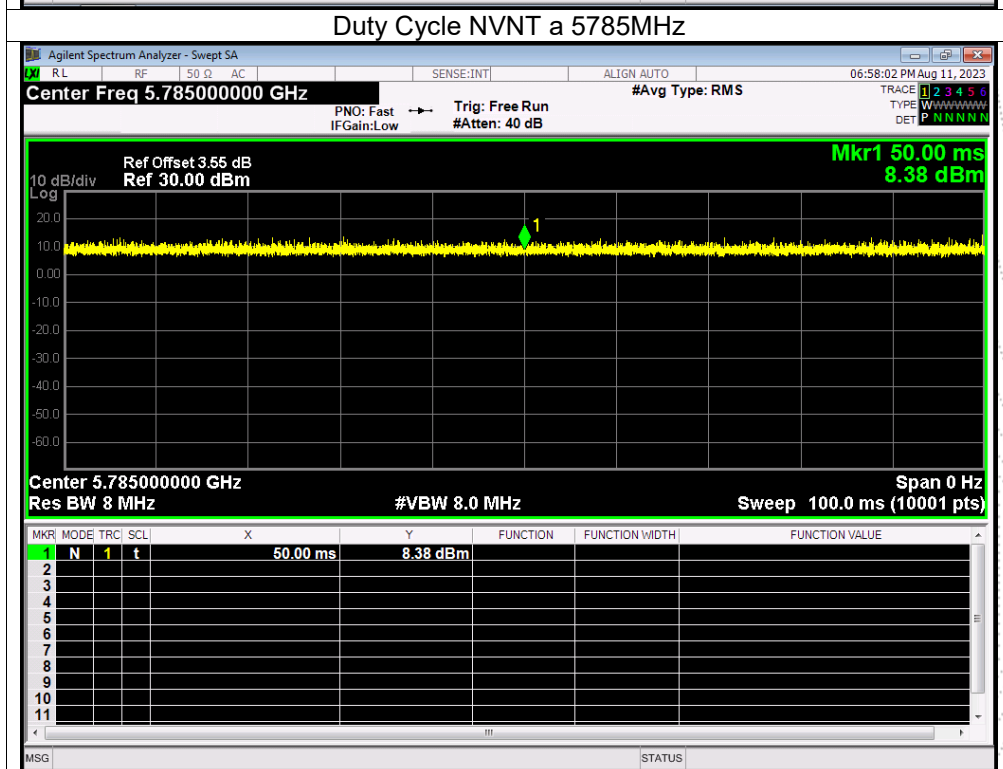
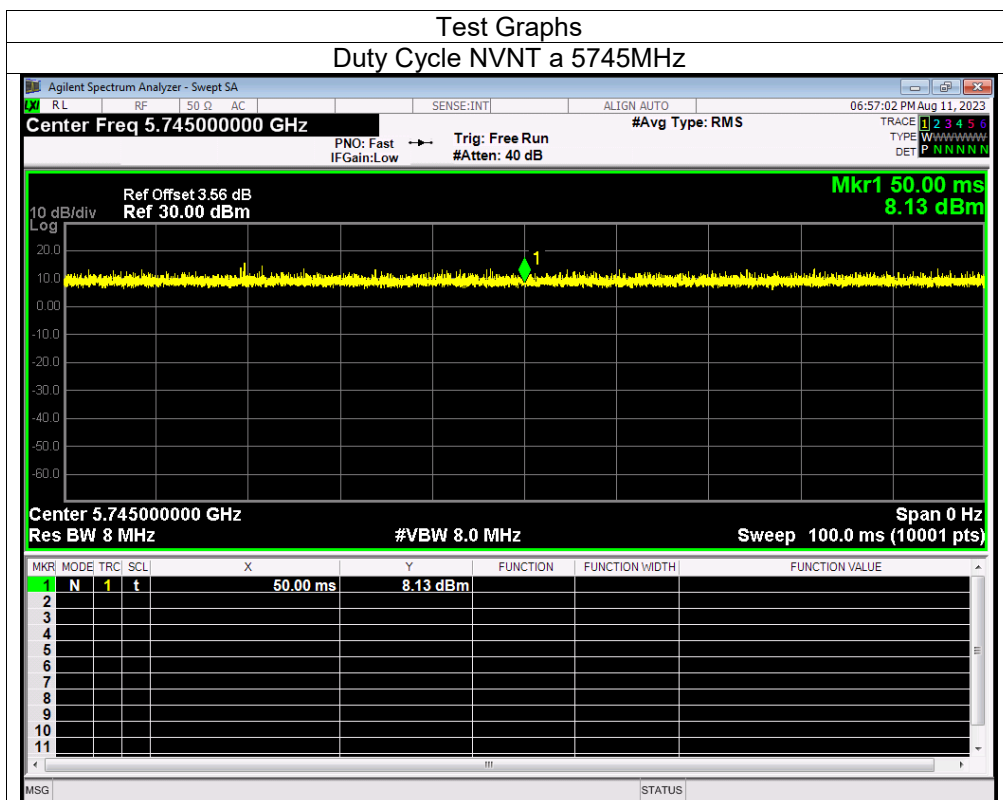
Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5500	100	0	0
NVNT	a	5580	100	0	0
NVNT	a	5700	100	0	0
NVNT	n20	5500	100	0	0
NVNT	n20	5580	100	0	0
NVNT	n20	5700	100	0	0

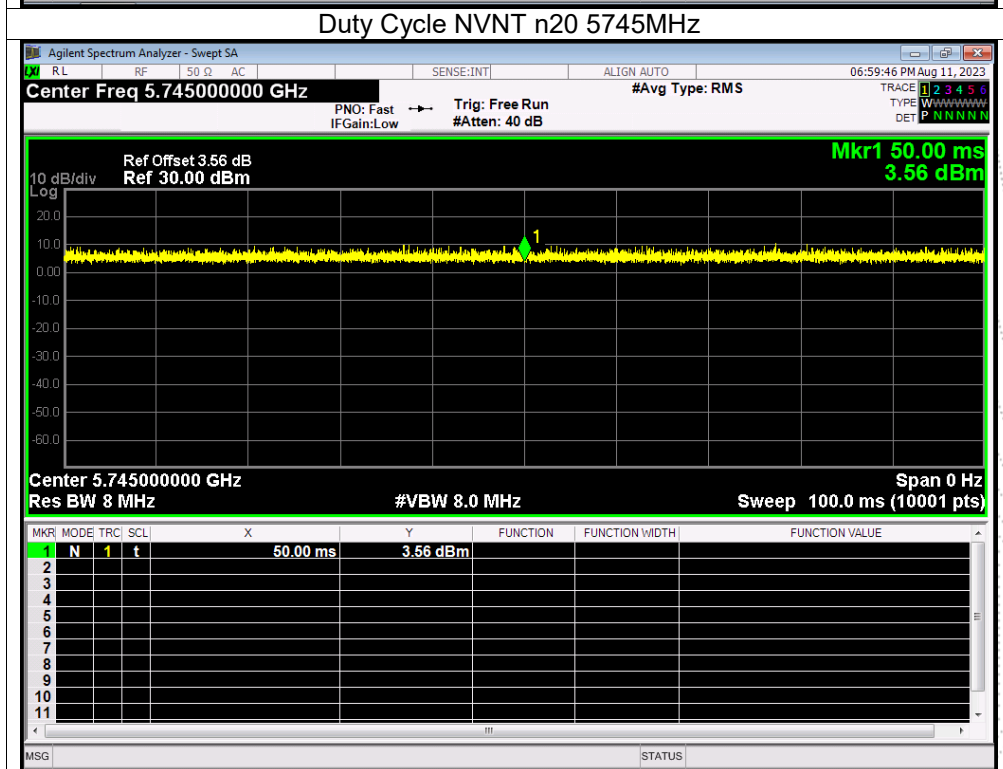
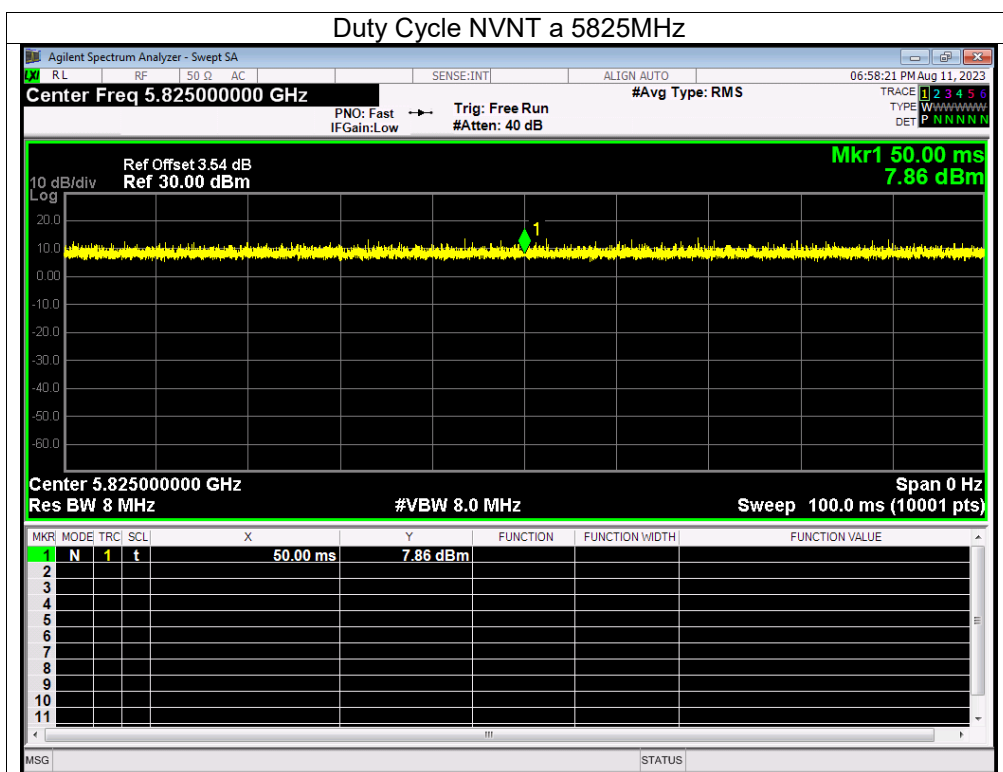


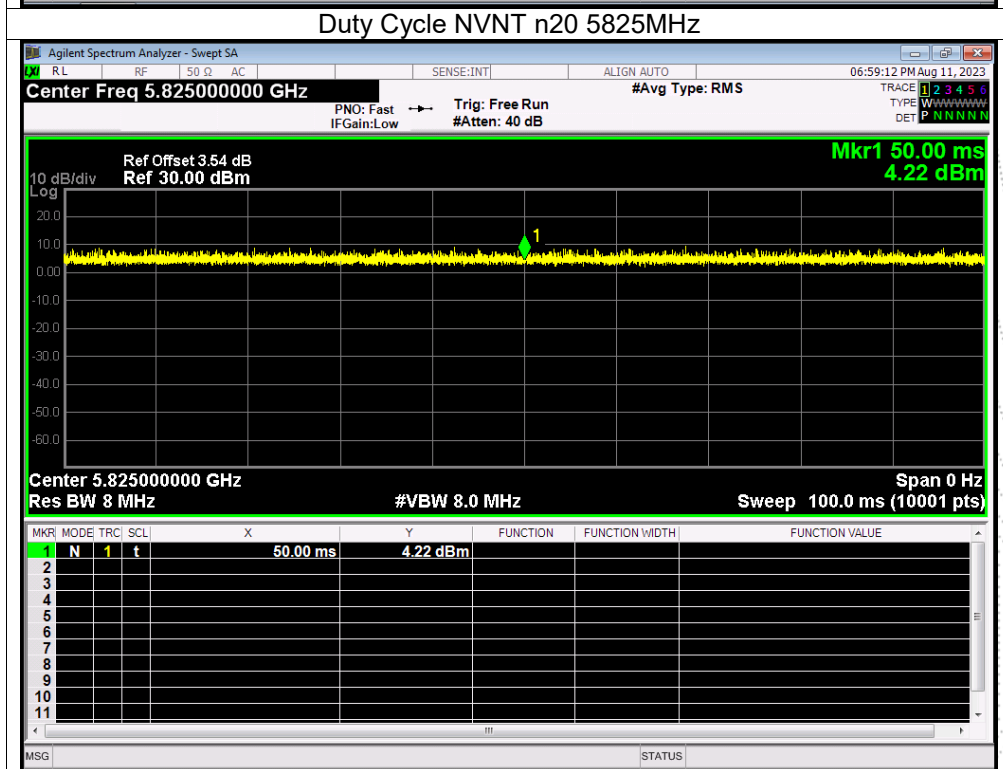
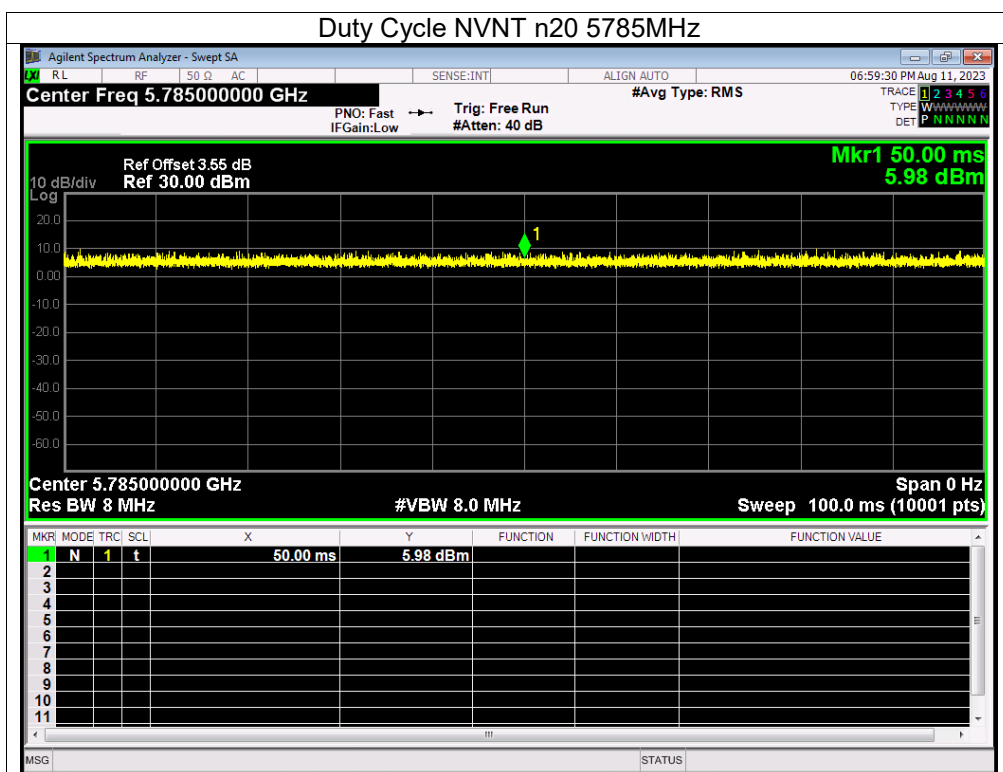




Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)	1/T (kHz)
NVNT	a	5745	100	0	0
NVNT	a	5785	100	0	0
NVNT	a	5825	100	0	0
NVNT	n20	5745	100	0	0
NVNT	n20	5785	100	0	0
NVNT	n20	5825	100	0	0







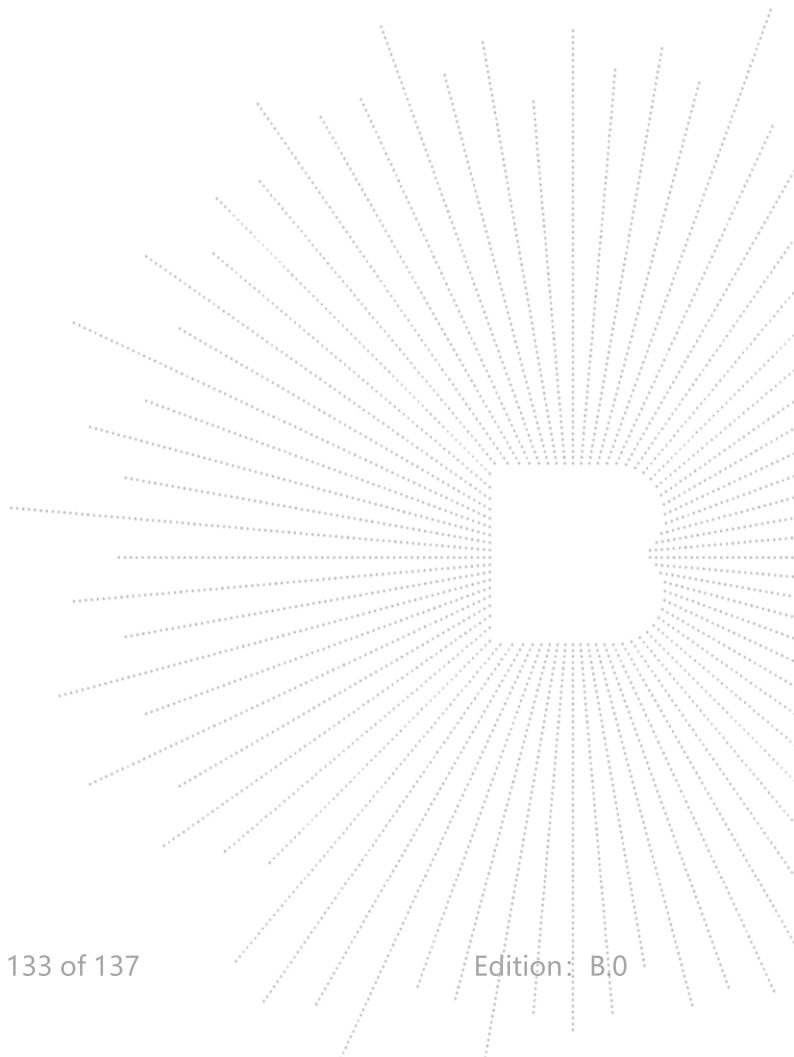
15. Antenna Requirement

15.1 Limit

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

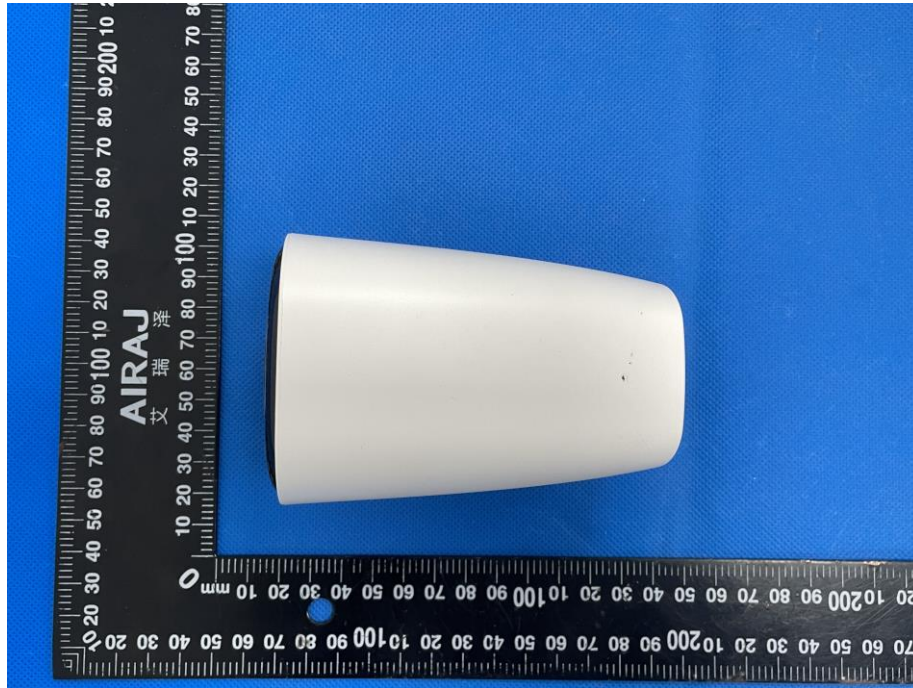
15.2 Test Result

The EUT antenna is Internal antenna (antenna gain: 4.60dBi). It comply with the standard requirement.



16. EUT Photographs

EUT Photo 1



EUT Photo 2



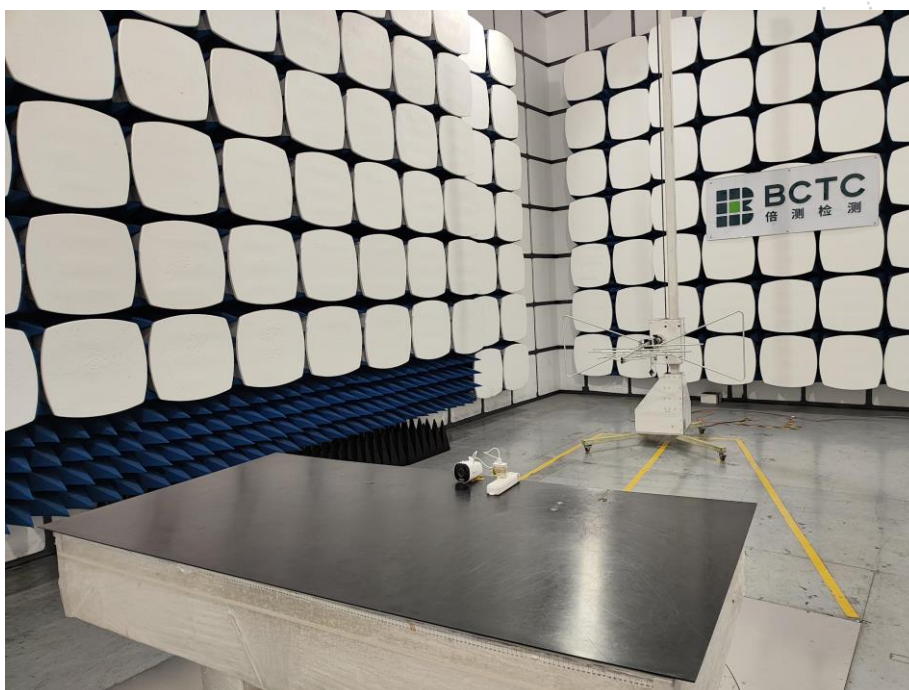
NOTE: Appendix-Photographs Of EUT Constructional Details

17. EUT Test Setup Photographs

Conducted Emissions Photo



Radiated Measurement Photos





STATEMENT

1. The equipment lists are traceable to the national reference standards.
2. The test report can not be partially copied unless prior written approval is issued from our lab.
3. The test report is invalid without the "special seal for inspection and testing".
4. The test report is invalid without the signature of the approver.
5. The test process and test result is only related to the Unit Under Test.
6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.
7. The quality system of our laboratory is in accordance with ISO/IEC17025.
8. If there is any objection to this test report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

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P.C.: 518103

FAX: 0755-33229357

Website: <http://www.chnbctc.com>

E-Mail: bctc@bctc-lab.com.cn

***** END *****