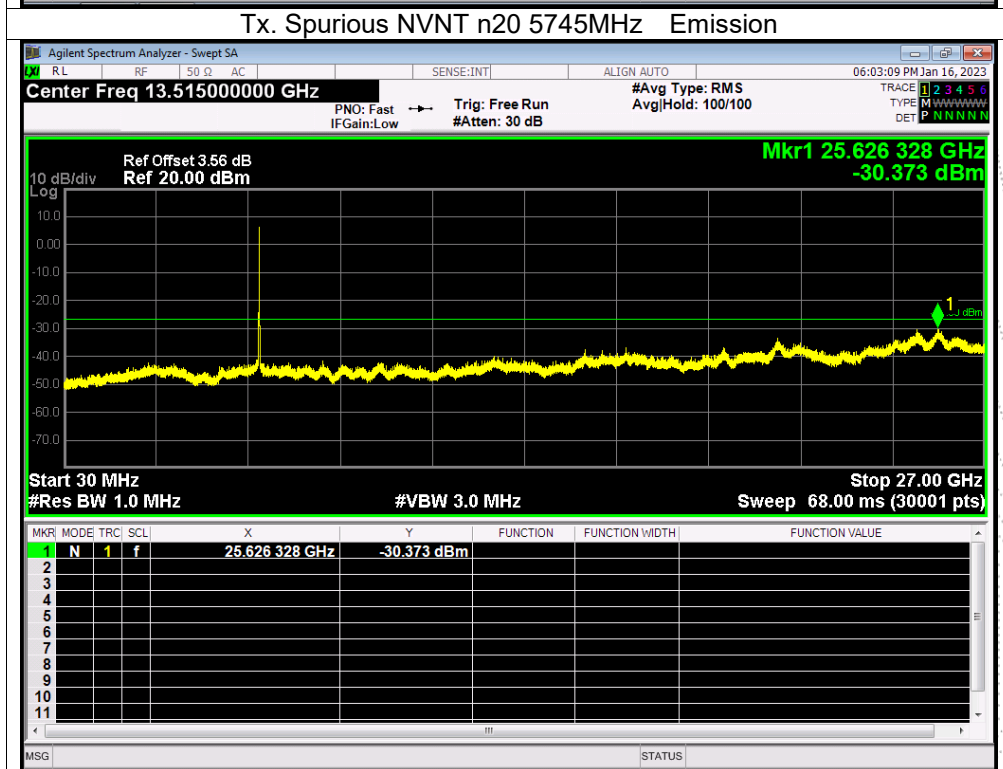
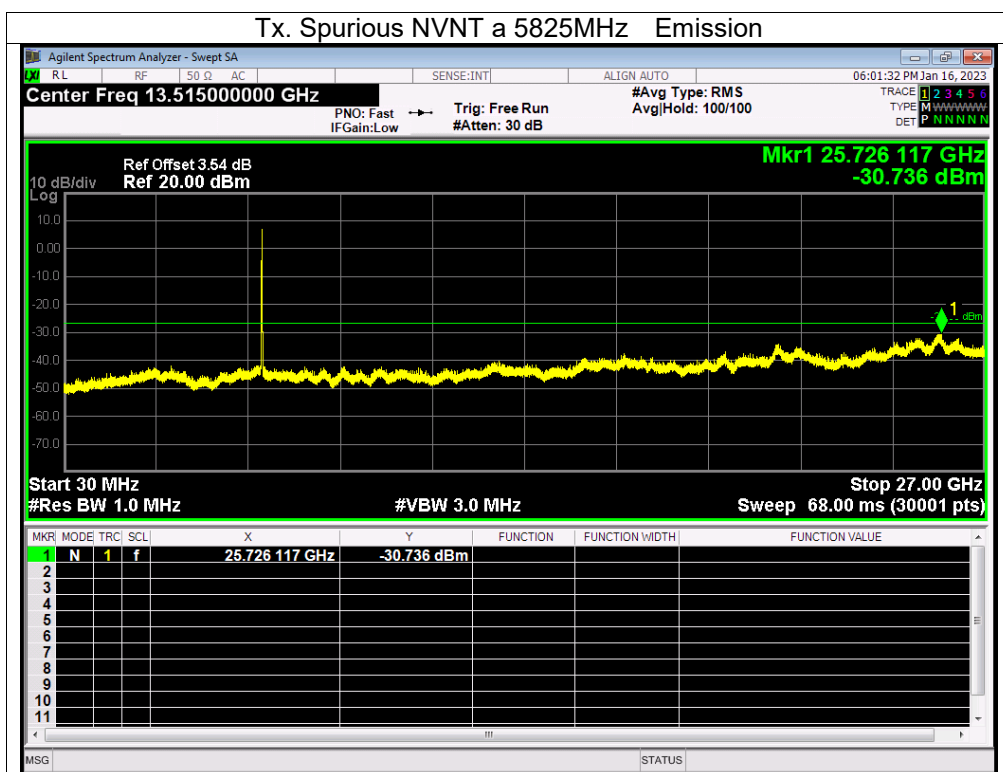
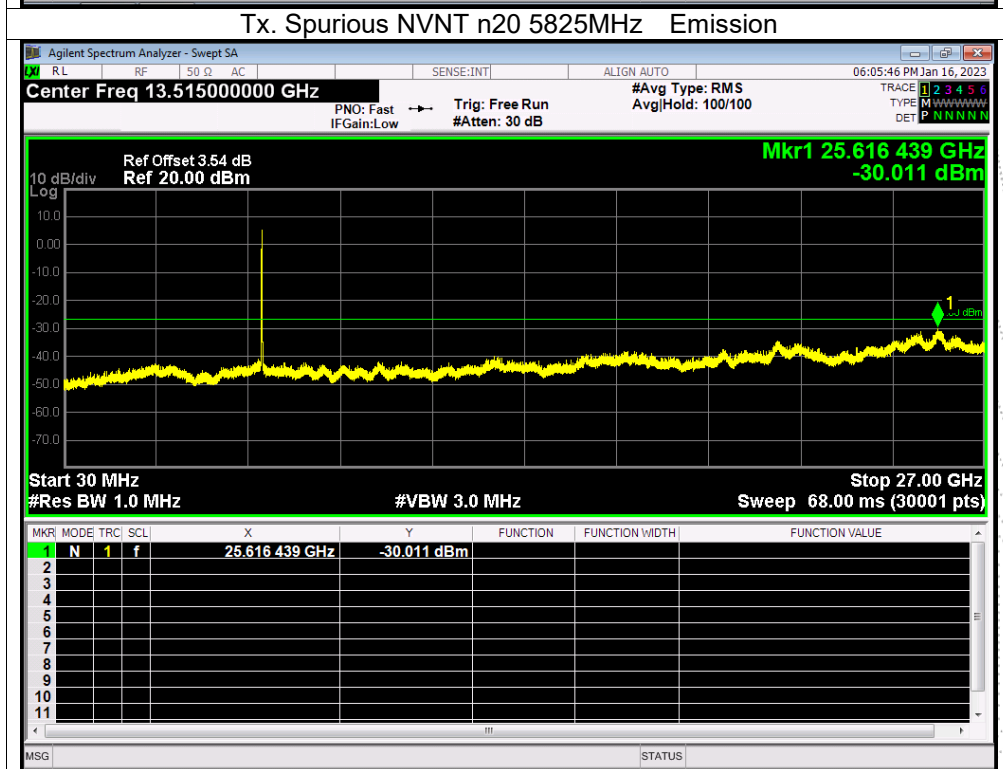
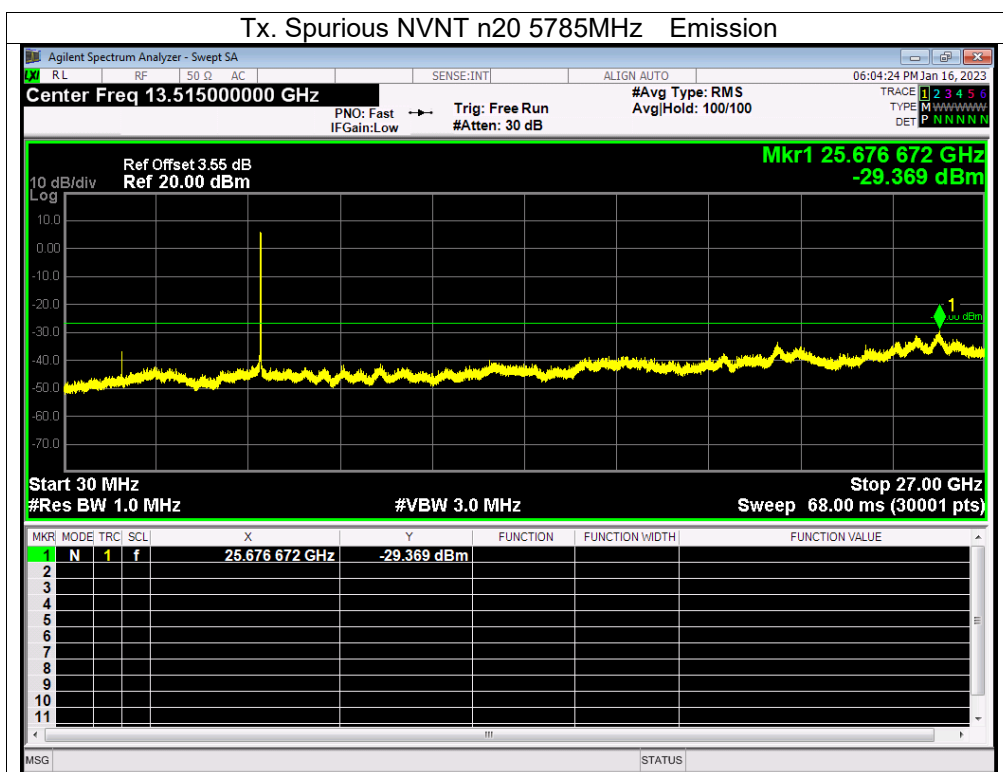
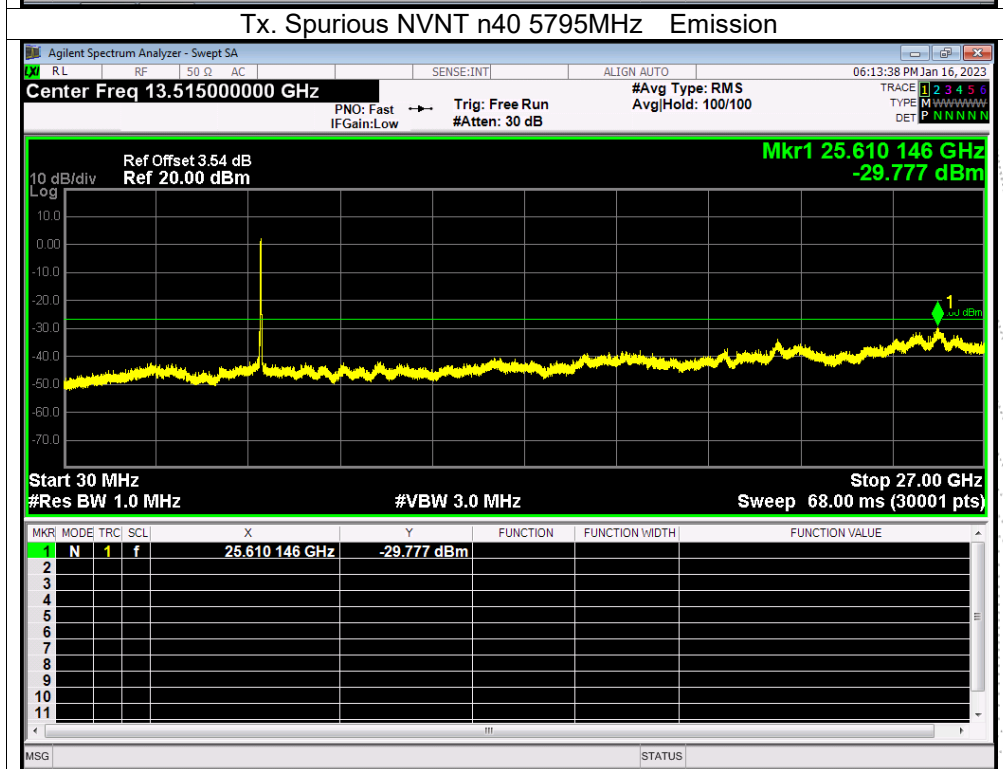
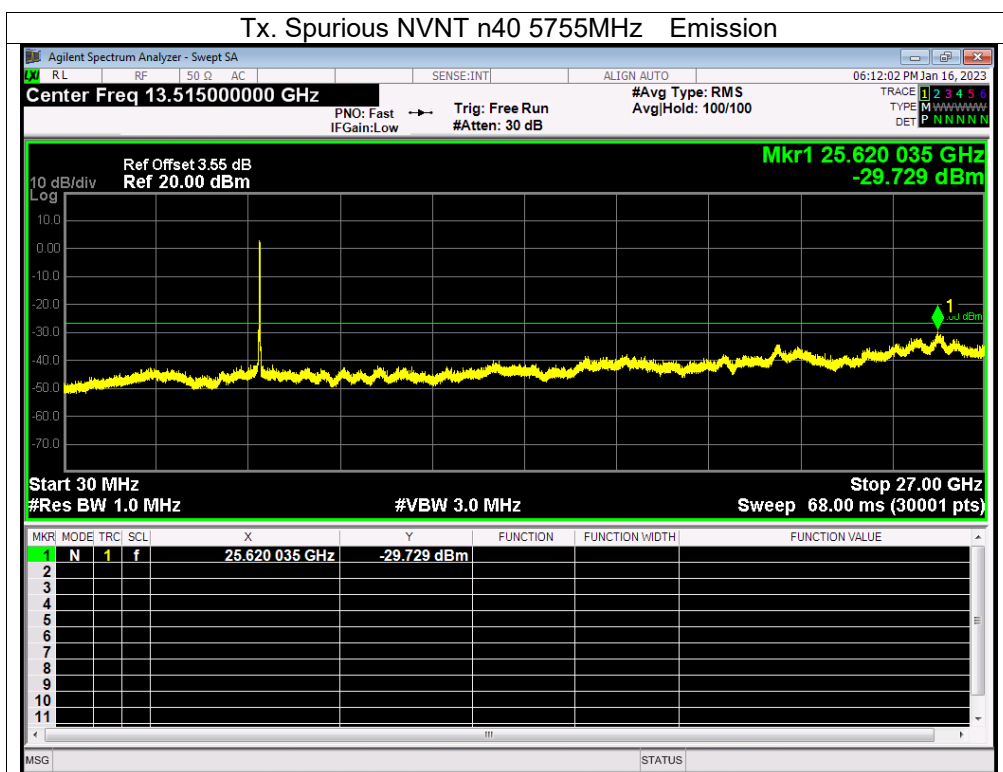
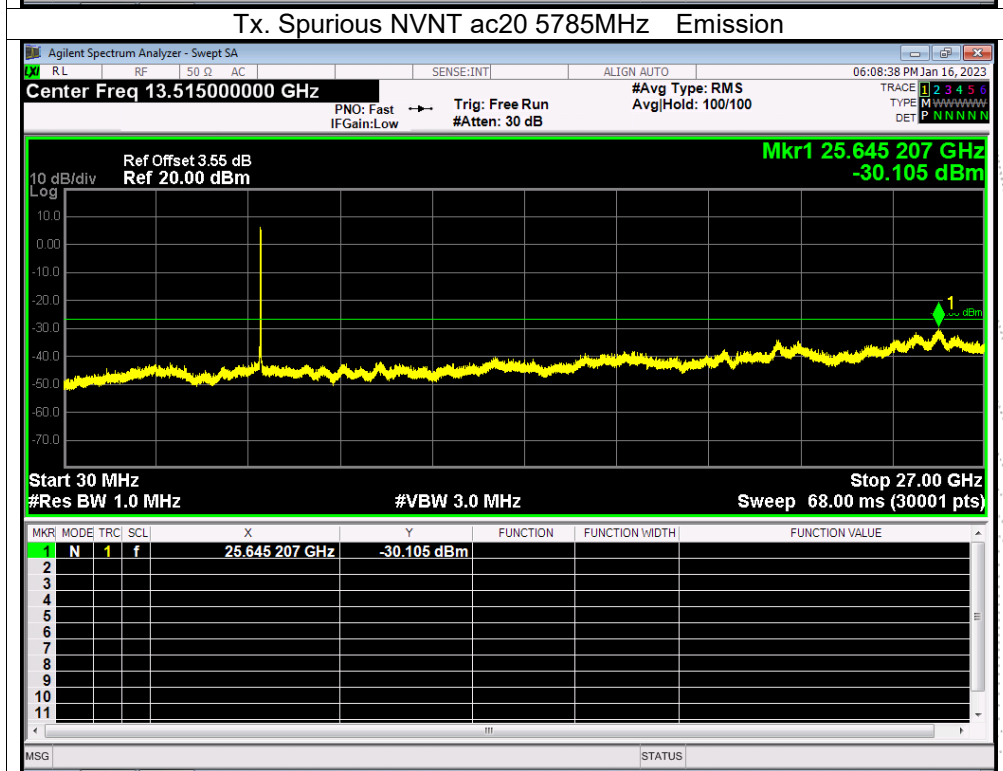
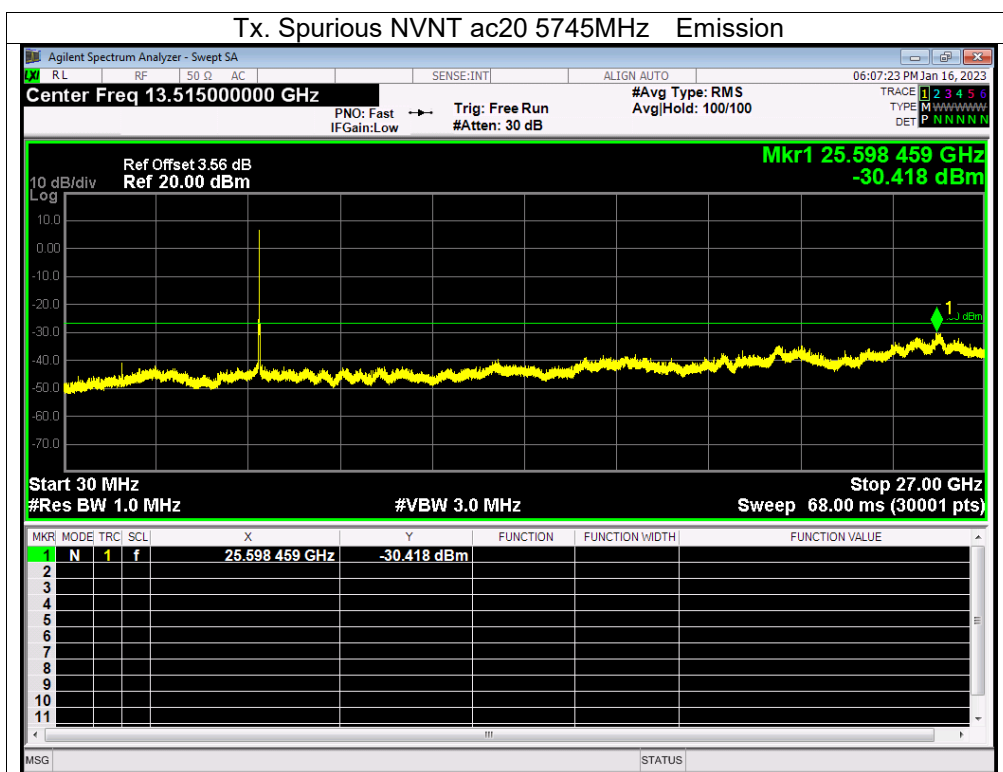
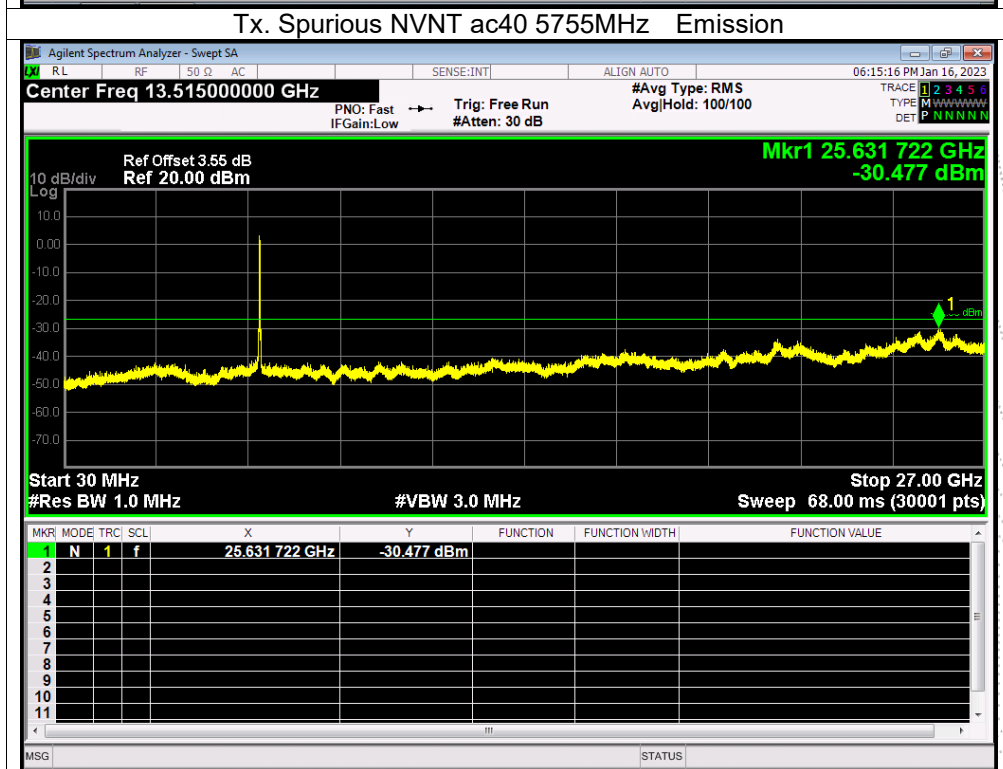
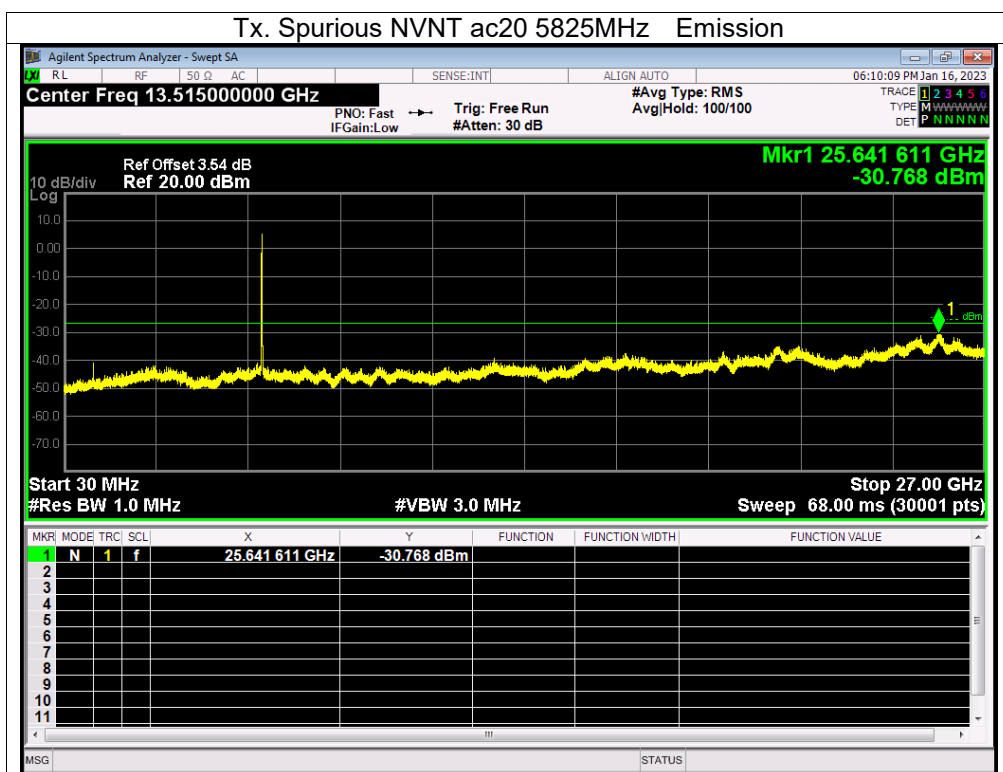


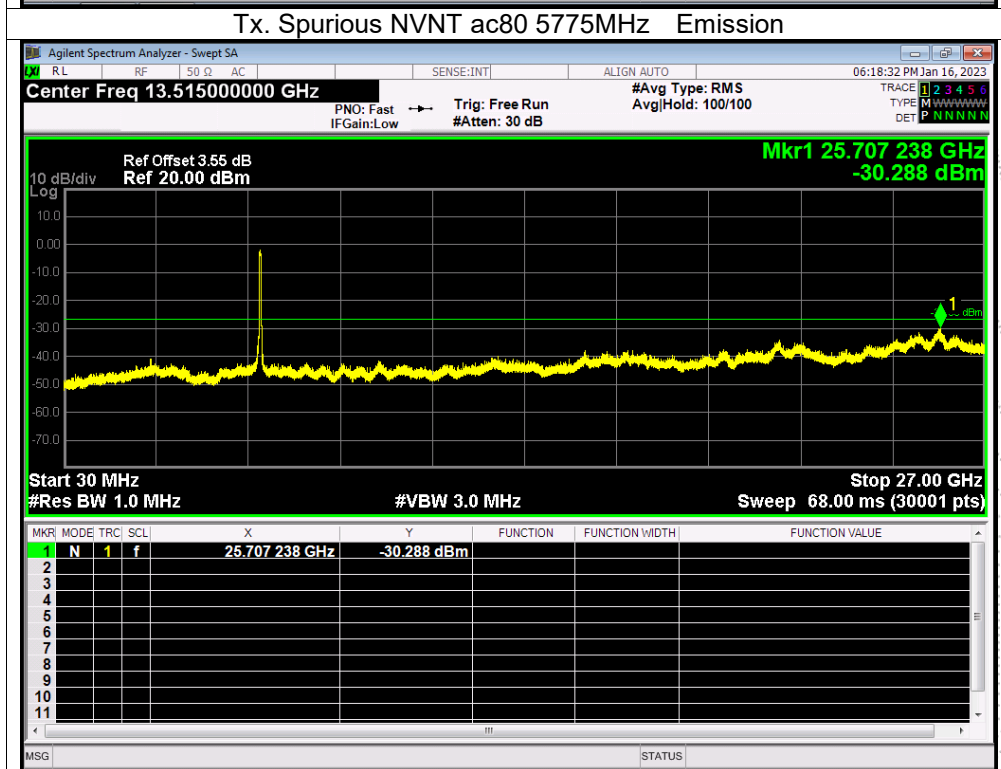
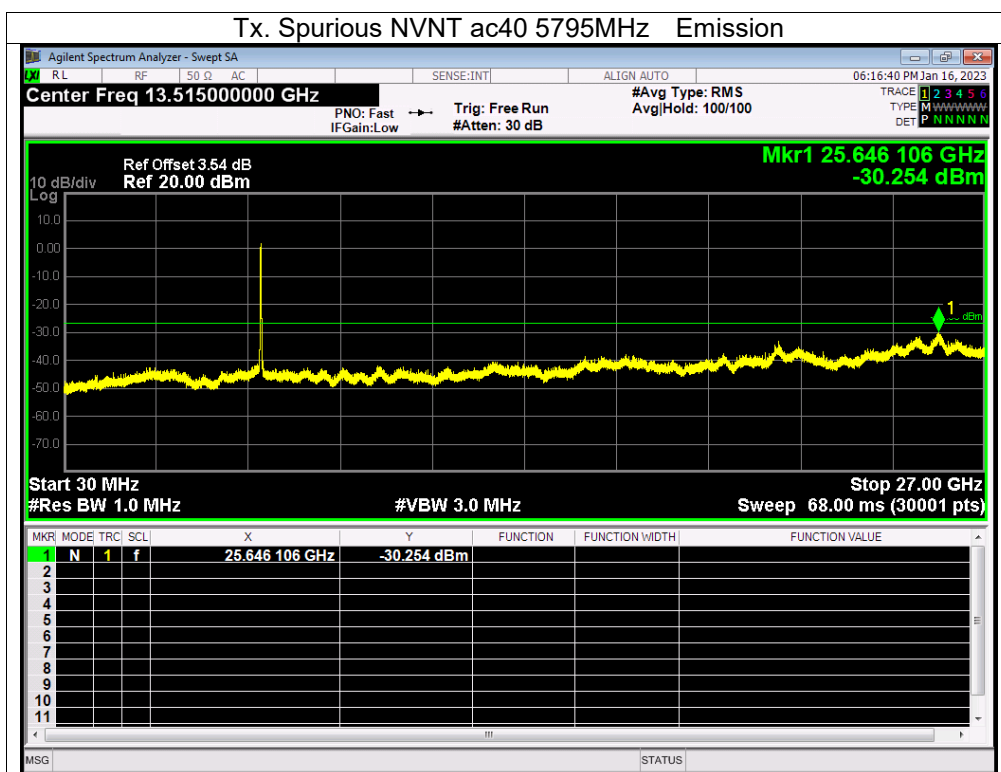












13. Frequency Stability Measurement

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 802.11n specification).
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 :	DC 5V
Test Mode :	TX 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)	5.00	5180.0194	5180	0.0194	3.7470
		V max (V)	5.75	5180.0109	5180	0.0109	2.1062
		V min (V)	4.25	5180.0154	5180	0.0154	2.9785
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)	DC 5V	T (°C)	-20	5180.0044	5180	0.0044	0.8480
		T (°C)	-10	5180.0069	5180	0.0069	1.3359
		T (°C)	0	5180.0023	5180	0.0023	0.4378
		T (°C)	10	5180.0082	5180	0.0082	1.5850
		T (°C)	20	5180.0051	5180	0.0051	0.9805
		T (°C)	30	5180.0073	5180	0.0073	1.4036
		T (°C)	40	5180.0059	5180	0.0059	1.1366
		T (°C)	50	5180.0006	5180	0.0006	0.1143
		T (°C)	60	5180.0102	5180	0.0102	1.9627
		T (°C)	70	5180.0055	5180	0.0055	1.0701
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)	5.00	5200.0005	5200	0.0005	0.0987
		V max (V)	5.75	5200.0000	5200	0.0000	0.0092
		V min (V)	4.25	5200.0071	5200	0.0071	1.3703
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)	DC 5V	T (°C)	-20	5200.01337	5200	0.01337	2.5718
		T (°C)	-10	5200.00647	5200	0.00647	1.2436
		T (°C)	0	5200.01035	5200	0.01035	1.9897
		T (°C)	10	5200.01108	5200	0.01108	2.1298
		T (°C)	20	5200.01141	5200	0.01141	2.1938
		T (°C)	30	5200.00682	5200	0.00682	1.3124
		T (°C)	40	5200.00078	5200	0.00078	0.1496
		T (°C)	50	5200.01352	5200	0.01352	2.5998
		T (°C)	60	5200.00329	5200	0.00329	0.6327
		T (°C)	70	5200.00995	5200	0.00995	1.9143
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)	5.00	5240.0120	5240	0.0120	2.2810
		V max (V)	5.75	5240.0053	5240	0.0053	1.0075
		V min (V)	4.25	5240.0056	5240	0.0056	1.0618
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)	DC 5V	T (°C)	-20	5240.0057	5240	0.0057	1.0799
		T (°C)	-10	5240.0094	5240	0.0094	1.8030
		T (°C)	0	5240.0018	5240	0.0018	0.3448
		T (°C)	10	5240.0078	5240	0.0078	1.4932
		T (°C)	20	5240.0005	5240	0.0005	0.0941
		T (°C)	30	5240.0018	5240	0.0018	0.3527
		T (°C)	40	5240.0098	5240	0.0098	1.8664
		T (°C)	50	5240.0062	5240	0.0062	1.1845
		T (°C)	60	5240.0035	5240	0.0035	0.6773
		T (°C)	70	5240.0051	5240	0.0051	0.9814
Limits				5150-5250 MHz			
Result				Complies			

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 5V
Hrst Mode :	TX Frequency(5745-5825MHz)		

Voltage vs. Frequency Stabilit

TEST CONDITIONS				Reference Frequency: 5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5745.00321	5745	0.00321	0.5584
		V max (V)	5.75	5745.00558	5745	0.00558	0.9707
		V min (V)	4.25	5745.00959	5745	0.00959	1.6697
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)	DC 5V	T (°C)	-20	5745.00912	5745	0.00912	1.5879
		T (°C)	-10	5745.00034	5745	0.00034	0.0589
		T (°C)	0	5745.00656	5745	0.00656	1.1417
		T (°C)	10	5745.01142	5745	0.01142	1.9880
		T (°C)	20	5745.00209	5745	0.00209	0.3636
		T (°C)	30	5745.01033	5745	0.01033	1.7978
		T (°C)	40	5745.00642	5745	0.00642	1.1178
		T (°C)	50	5745.00391	5745	0.00391	0.6802
		T (°C)	60	5745.00616	5745	0.00616	1.0719
		T (°C)	70	5745.00649	5745	0.00649	1.1289
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)	5.00	5785.00255	5785	0.00255	0.4401
		V max (V)	5.75	5785.00222	5785	0.00222	0.3841
		V min (V)	4.25	5785.00436	5785	0.00436	0.7536
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)	DC 5V	T (°C)	-20	5785.00970	5785	0.00970	1.6767
		T (°C)	-10	5785.00506	5785	0.00506	0.8753
		T (°C)	0	5785.00678	5785	0.00678	1.1715
		T (°C)	10	5785.00873	5785	0.00873	1.5093
		T (°C)	20	5785.01135	5785	0.01135	1.9627
		T (°C)	30	5785.00645	5785	0.00645	1.1149
		T (°C)	40	5785.00386	5785	0.00386	0.6673
		T (°C)	50	5785.01120	5785	0.01120	1.9369
		T (°C)	60	5785.00997	5785	0.00997	1.7227
		T (°C)	70	5785.00731	5785	0.00731	1.2632
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)	5.00	5825.01009	5825	0.01009	1.7315
		V max (V)	5.75	5825.01105	5825	0.01105	1.8976
		V min (V)	4.25	5825.00201	5825	0.00201	0.3448
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)	DC 5V	T (°C)	-20	5825.00342	5825	0.00342	0.5865
		T (°C)	-10	5825.00801	5825	0.00801	1.3757
		T (°C)	0	5825.00829	5825	0.00829	1.4240
		T (°C)	10	5825.01266	5825	0.01266	2.1740
		T (°C)	20	5825.01065	5825	0.01065	1.8287
		T (°C)	30	5825.00544	5825	0.00544	0.9332
		T (°C)	40	5825.00014	5825	0.00014	0.0235
		T (°C)	50	5825.00439	5825	0.00439	0.7545
		T (°C)	60	5825.01074	5825	0.01074	1.8437
		T (°C)	70	5825.01156	5825	0.01156	1.9842
Limits				5725-5850 MHz			
Result				Complies			

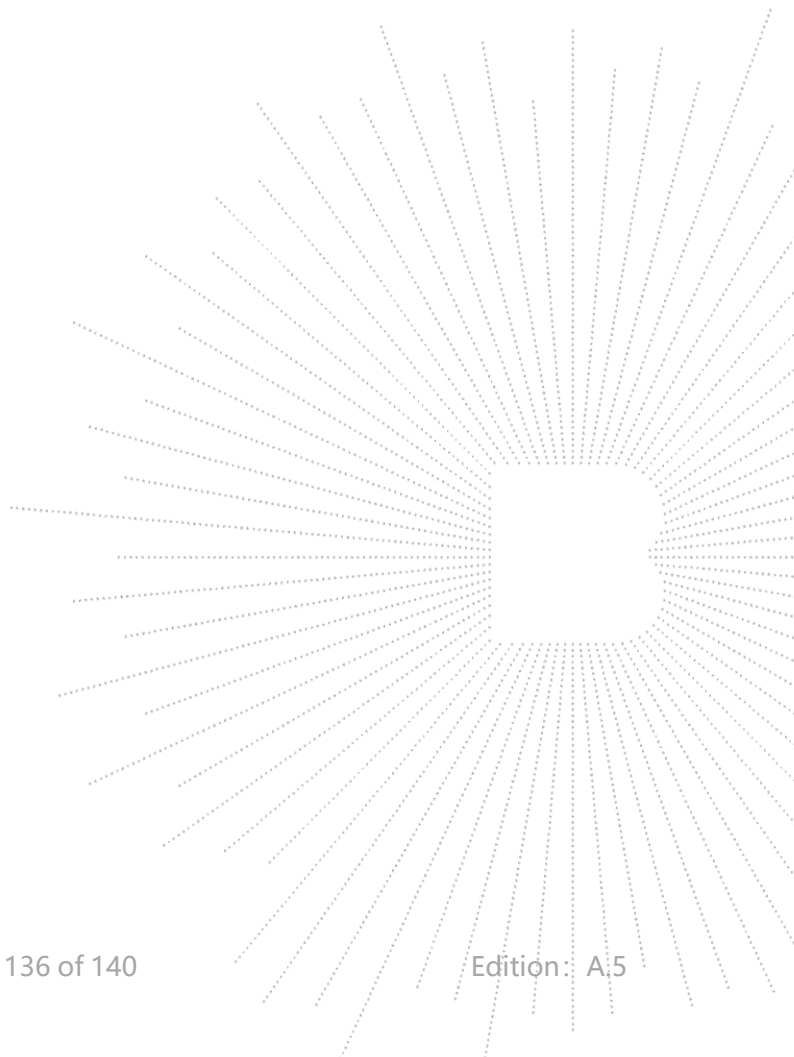
14. Antenna Requirement

14.1 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.

14.2 Test Result

The EUT antenna is Internal antenna (antenna gain: -0.12 dBi). It comply with the standard requirement.

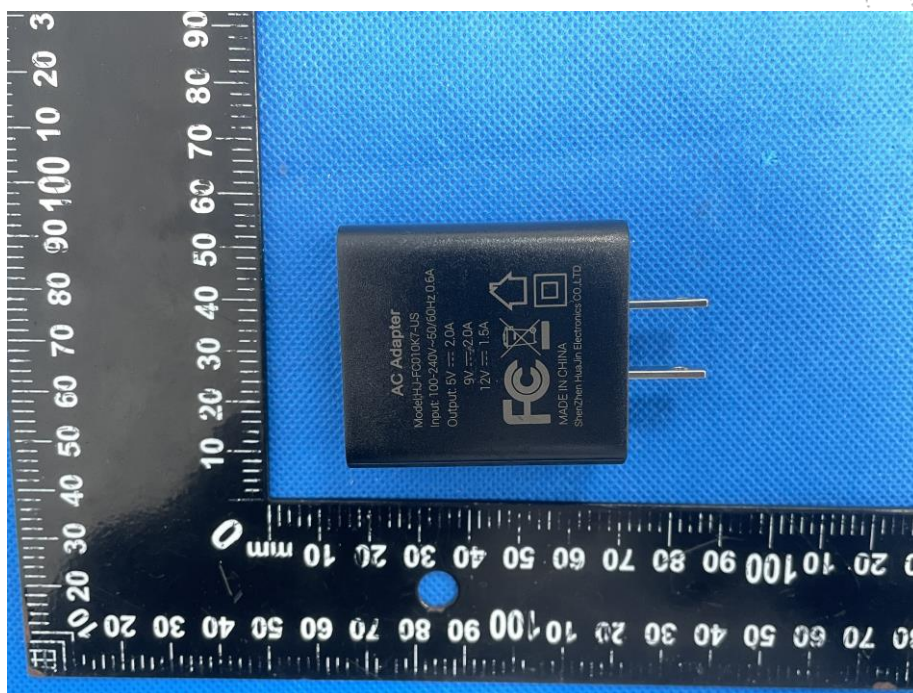


15. EUT Photographs

EUT Photo 1



EUT Photo 2

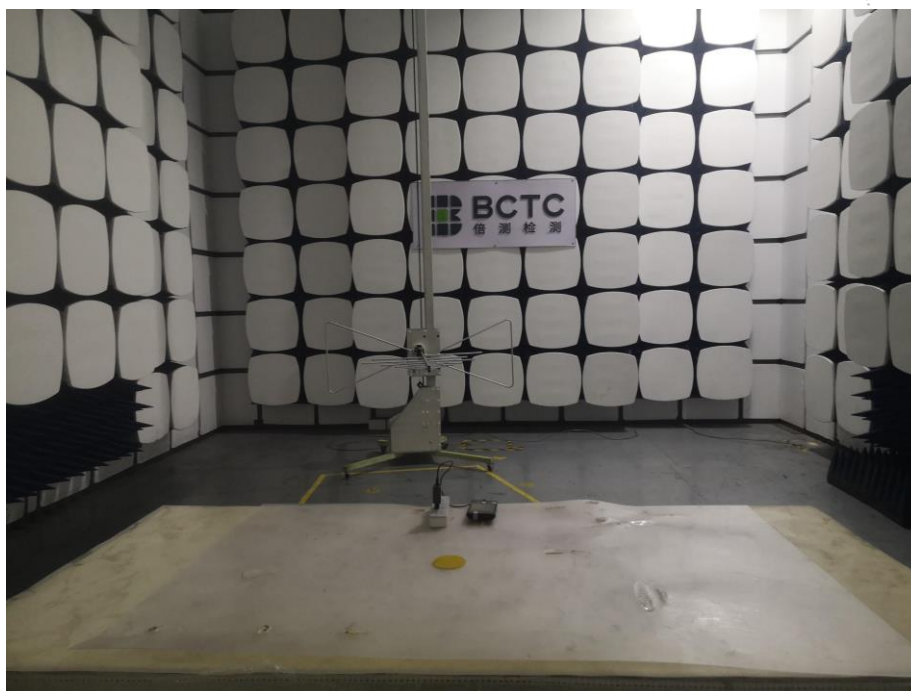


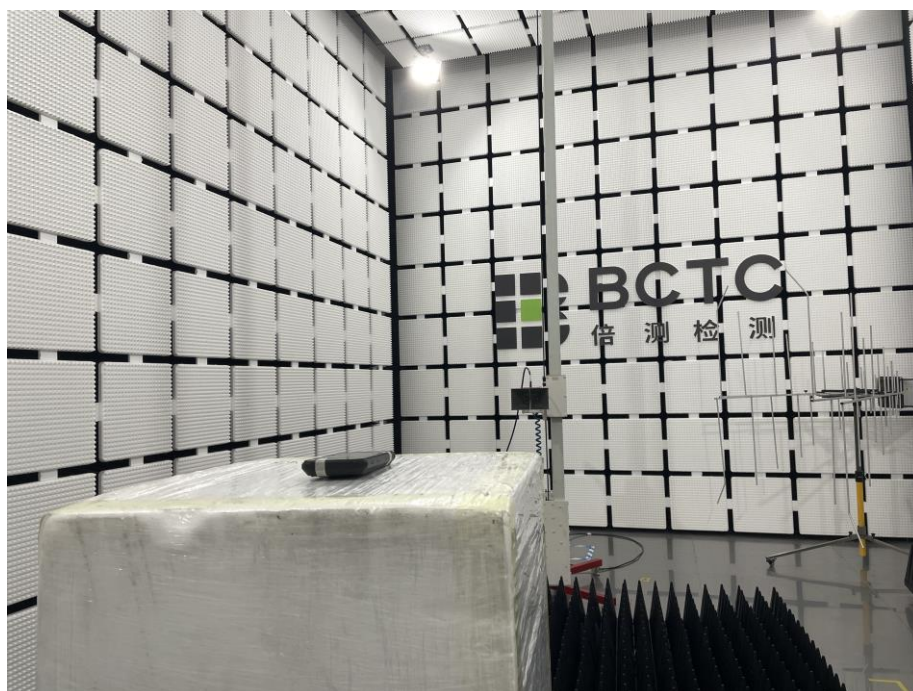
16. EUT Test Setup Photographs

Conducted Measurement 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 test report without CMA mark is only used for scientific research, teaching, enterprise product development and internal quality control purposes.
8. The quality system of our laboratory is in accordance with ISO/IEC17025.
9. 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.

Address:

1-2/F., Building B, Pengzhou Industrial Park, No.158, Fuyuan 1st Road, Zhancheng, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, China

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

***** END *****