

## TEST REPORT

**Product** : WIFI+BT Module  
**Trade mark** : GSD  
**Model/Type reference** : WCT0SR2311  
**Serial Number** : N/A  
**Report Number** : EED32L00189805  
**FCC ID** : 2AC23-WCT0S  
**Date of Issue** : Feb. 27, 2020  
**Test Standards** : 47 CFR Part 15 Subpart E  
**Test result** : PASS

Prepared for:

**Hui Zhou Gaoshengda Technology Co.,LTD**  
**NO.75 Zhongkai Development Area,Huizhou,Guangdong, China**

Prepared by:

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Date:

Feb. 27, 2020

Check No.: 3096370616



## 2 Version

Version No.	Date	Description
00	Feb. 27, 2020	Original

### 3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15 Subpart C Section 15.203	ANSI C63.10-2013	N/A
AC Power Line Conducted Emission	47 CFR Part 15 Subpart E Section 15.407 (b)(6)	ANSI C63.10-2013	PASS
Conducted Output Power and transmit power control mechanism	47 CFR Part 15 Subpart E Section 15.407 (a)(1)(2)(4)(h)(1)	ANSI C63.10-2013	PASS
26dB emission bandwidth	47 CFR Part 15 Subpart E Section 15.407 (a)(1)(2)	ANSI C63.10-2013	PASS
Peak Power Spectral Density	47 CFR Part 15 Subpart E Section 15.407 (a)(1)(2)(5)	ANSI C63.10-2013	PASS
Peak power excursion	47 CFR Part 15 Subpart E Section 15.407 (a)(6)	ANSI C63.10-2013	N/A
Frequency stability	47 CFR Part 15 Subpart E Section 15.407 (g)	ANSI C63.10-2013	PASS
Conducted Band-edge Measurements	47 CFR Part 15 Subpart E Section 15.407(b)(1)to(6)	ANSI C63.10-2013	PASS
Dynamic Frequency Selection	47 CFR Part 15 Subpart E Section 15.407 (h)	KDB905462 D02	N/A
Operation in the absence of information to the transmit	47 CFR Part 15 Subpart E Section 15.407 (c)	47 CFR Part 15 Subpart E	N/A
Unwanted Emissions that fall Outside of the Restricted Bands	47 CFR Part 15 Subpart E Section 15.407 (b)(1)(2)(3)(5)	ANSI C63.10-2013	PASS
Unwanted Emissions in the Restricted Bands	47 CFR Part 15 Subpart E Section 15.407 (b)(6)(7)(8)	ANSI C63.10-2013	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15 Subpart E Section 15.407 (b)(6)(7)(8)	ANSI C63.10-2013	PASS

**Remark:**

The tested sample(s) and the sample information are provided by the client.

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radiated Frequency.

CH: In this whole report CH means channel.

Volt: In this whole report Volt means Voltage.

Temp: In this whole report Temp means Temperature.

Humid: In this whole report Humid means humidity.

Press: In this whole report Press means Pressure.

N/A: In this whole report not application



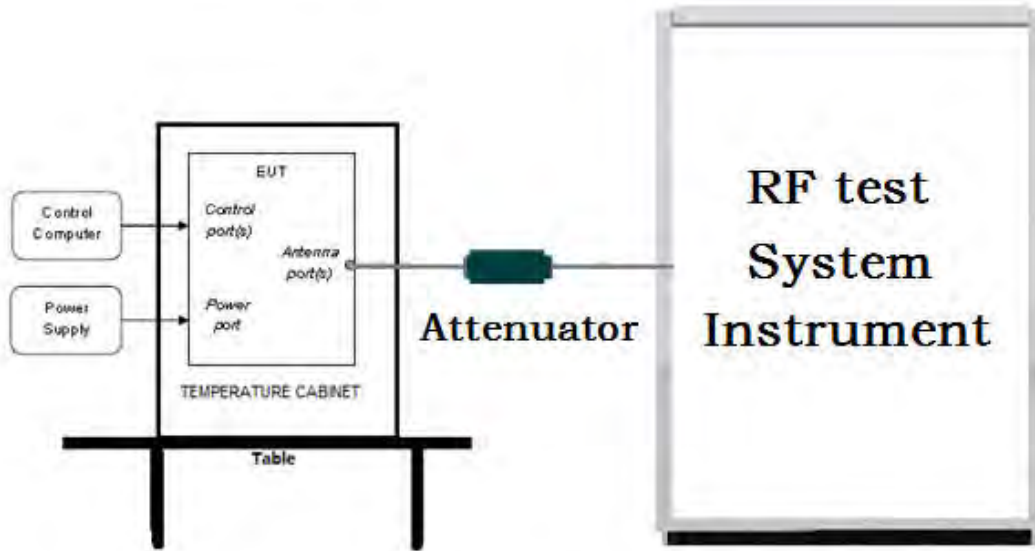
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## 5 Test Requirement

### 5.1 Test setup

#### 5.1.1 For Conducted test setup



#### 5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

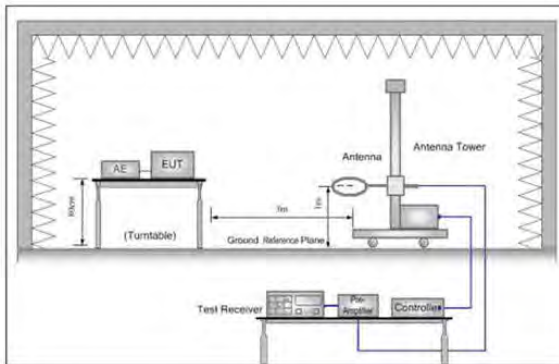


Figure 1. Below 30MHz

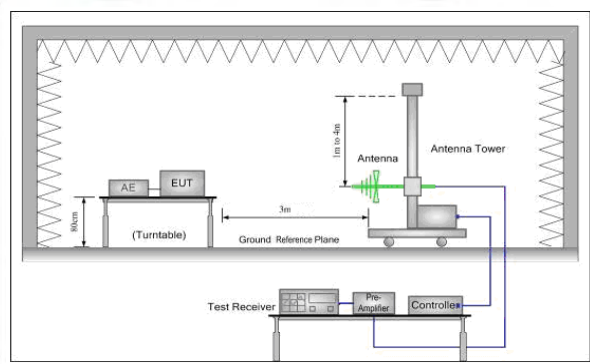


Figure 2. 30MHz to 1GHz

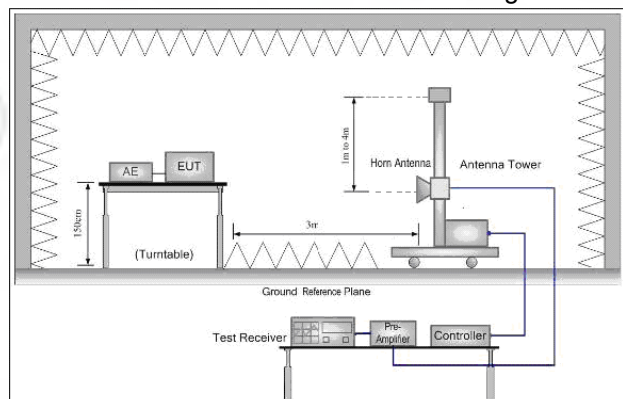
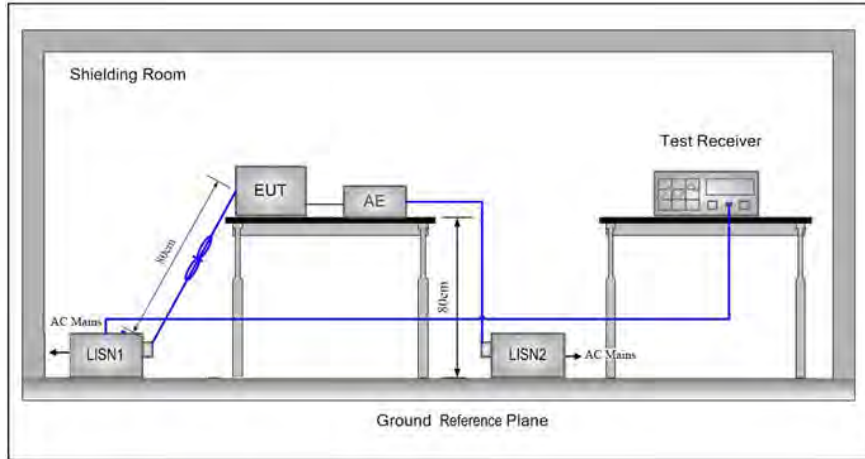


Figure 3. Above 1GHz

**5.1.3 For Conducted Emissions test setup**  
**Conducted Emissions setup**



**5.2 Test Environment**

Operating Environment:	
Temperature:	24.0 °C
Humidity:	55 % RH
Atmospheric Pressure:	1010mbar



### 5.3 Test Condition

Test channel:

Test Mode	Tx/Rx	RF Channel		
		Low(L)	Middle(cm)	High(H)
802.11a/n/ac(HT20)	5150MHz ~5250 MHz	Channel 36	Channel 44	Channel 48
		5180MHz	5220MHz	5240MHz
802.11a/n/ac(HT20)	5250MHz ~5350 MHz	Channel 52	Channel 60	Channel 64
		5260MHz	5300MHz	5320MHz
802.11a/n/ac(HT20)	5470MHz ~5600 MHz	Channel 100	Channel108	Channel116
		5500MHz	5600MHz	5580MHz
802.11a/n/ac(HT20)	5650MHz ~5725 MHz	Channel 132	Channel136	Channel140
		5660MHz	5680MHz	5700MHz
802.11a/n/ac(HT20)	5725MHz ~5850 MHz	Channel 149	Channel157	Channel165
		5745MHz	5785MHz	5825MHz
802.11n/ac(HT40)	5150MHz ~5250 MHz	Channel 38	N/A	Channel 46
		5190MHz	N/A	5230MHz
802.11n/ac(HT40)	5250MHz ~5350 MHz	Channel54	N/A	Channel62
		5270MHz	N/A	5310MHz
802.11n/ac(HT40)	5470MHz ~5600 MHz	Channel 102	N/A	Channel 110
		5510MHz	N/A	5550MHz
802.11n/ac(HT40)	5650MHz ~5725 MHz	Channel 134	N/A	N/A
		5670MHz	N/A	N/A
802.11ac(HT40)	5725MHz ~5850 MHz	Channel 151	N/A	Channel 159
		5755MHz	N/A	5795MHz
802.11ac(HT80)	5150MHz ~5250 MHz	Channel 42	N/A	N/A
		5210MHz	N/A	N/A
802.11ac(HT80)	5250MHz ~5350 MHz	Channel58	N/A	N/A
		5290MHz	N/A	N/A
802.11ac(HT80)	5470MHz ~5600 MHz	Channel 106	N/A	N/A
		5530MHz	N/A	N/A
802.11ac(HT80)	5725MHz ~5850 MHz	Channel 155	N/A	N/A
		5775MHz	N/A	N/A

## 6 General Information

### 6.1 Client Information

Applicant:	Hui Zhou Gaoshengda Technology Co.,LTD
Address of Applicant:	NO.75 Zhongkai Development Area,Huizhou,Guangdong, China
Manufacturer:	Hui Zhou Gaoshengda Technology Co.,LTD
Address of Manufacturer:	NO.75 Zhongkai Development Area,Huizhou,Guangdong, China
Factory:	Hui Zhou Gaoshengda Technology Co.,LTD
Address of Factory:	NO.75 Zhongkai Development Area,Huizhou,Guangdong, China

### 2General Description of EUT

Product Name:	WIFI+BT Module
Model No.(EUT):	WCT0SR2311
Trade Mark:	GSD
EUT Supports Radios application:	IEEE 802.11 a/b/g/n(HT20)(HT40)/ac(VHT20)(VHT40)(VHT80): 2412MHz to 2462MHz, 5150MHz to 5250MHz, 5250 MHz to 5350MHz, 5725MHz to 5850MHz.5500MHz to 5700MHz.
Power Supply:	N/A
Sample Received Date:	Jul. 17, 2019
Sample tested Date:	Jul. 17, 2019 to Sep. 09, 2019



## 6.2 Product Specification subjective to this standard

Operation Frequency:	IEEE 802.11a/n/ac(HT20): 5180MHz ~5240 MHz IEEE 802.11a/n/ac(HT20): 5260MHz ~5320 MHz IEEE 802.11a/n/ac(HT20): 5500MHz ~5700 MHz IEEE802.11a/n/ac(HT20): 5745MHz ~5825 MHz IEEE802.11n/ac(HT40) 5190MHz ~5230 MHz IEEE802.11n/ac(HT40) 5270MHz ~5310 MHz IEEE802.11n/ac(HT40) 5510MHz ~5670 MHz IEEE802.11n/ac(HT40) 5755MHz ~5795 MHz IEEE802.11ac(HT80) 5210 IEEE802.11ac(HT80) 5290 IEEE802.11ac(HT80) 5530 ~ 5610 IEEE802.11ac(HT80) 5775
Channel Numbers:	IEEE 802.11a/n/ac(HT20): 5180MHz ~5240 MHz / 4 channel IEEE 802.11a/n/ac(HT20): 5260MHz ~5320 MHz / 4 channel IEEE 802.11a/n/ac(HT20): 5500MHz ~5700 MHz / 11 channel IEEE802.11a/n/ac(HT20): 5745MHz ~5825 MHz / 5 channel IEEE802.11n/ac(HT40) 5190MHz ~5230 MHz/ 2 channel IEEE802.11n/ac(HT40) 5270MHz ~5310 MHz / 2 channel IEEE802.11n/ac(HT40) 5510MHz ~5670 MHz / 5 channel IEEE802.11n/ac(HT40) 5755MHz ~5795 MHz / 2 channel IEEE802.11ac(HT80) 5210 / 1 channel IEEE802.11ac(HT80) 5290 / 1 channel IEEE802.11ac(HT80) 5530 ~ 5610 / 2 channel IEEE802.11ac(HT80) 5775 /1 channel
Type of Modulation:	DSSS,OFDM
Test Power Grade:	(manufacturer declare)
Test Software of EUT:	Realtek 11ac 8822B USBWLAN MP
Antenna Type and Gain:	PIFA antenna Gain: 2.67 dBi
Test Voltage:	DC 5V

## Operation Frequency each of channel

For 802.11a/n/ac( HT20) Operation in the 5180 ~ 5240 band							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	40	5200MHz	44	5220MHz	48	5240MHz

For 802.11a/n/ac( HT20) Operation in the 5260MHz ~5320 MHz band							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
52	5260MHz	56	5280MHz	60	5300MHz	64	5320MHz

For 802.11a/n/ac( HT20) Operation in the 5745MHz ~5825 MHz band							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
149	5745MHz	153	5765MHz	157	5785MHz	161	5805MHz
165	5825MHz	N/A	N/A	N/A	N/A	N/A	N/A

For 802.11n/ac( HT40) Operation in the 5190MHz ~5230MHz band			
Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz

For 802.11n/ac( HT40) Operation in the 5270MHz ~5310 MHz band			
Channel	Frequency	Channel	Frequency
54	5270MHz	62	5310MHz

For 802.11n/ac( HT40) Operation in the 5755MHz ~5795 MHz band					
Channel	Frequency	Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz	N/A	N/A

For 802.11ac( HT80) Operation in the 5210 MHz band					
Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210MHz	N/A	N/A	N/A	N/A

For 802.11ac( HT80) Operation in the 5290 MHz band					
Channel	Frequency	Channel	Frequency	Channel	Frequency
58	5290MHz	N/A	N/A	N/A	N/A

For 802.11ac( HT80) Operation in the 5775 MHz band					
Channel	Frequency	Channel	Frequency	Channel	Frequency
155	5775MHz	N/A	N/A	N/A	N/A

## 6.4 Description of Support Units

The EUT has been tested independently

## 6.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385

No tests were sub-contracted.

FCC Designation No.: CN1164

## 6.6 Deviation from Standards

None.

## 6.7 Abnormalities from Standard Conditions

None.

## 6.8 Other Information Requested by the Customer

None.

## 6.9 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Radio Frequency	$7.9 \times 10^{-8}$
2	RF power, conducted	0.46dB (30MHz-1GHz)
		0.55dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.5dB (30MHz-1GHz)
		4.8dB (1GHz-12.75GHz)
4	Conduction emission	3.5dB (9kHz to 150kHz)
		3.1dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	3.8%
7	DC power voltages	0.026%



## 7 Equipment List

RF test system					
Equipment	Manufacturer	Mode No.	Serial Number	Cal. Date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Signal Generator	Keysight	E8257D	MY53401106	03-01-2019	02-29-2020
Spectrum Analyzer	Keysight	N9010A	MY54510339	03-01-2019	02-29-2020
Attenuator	HuaXiang	SHX370	15040701	03-01-2019	02-29-2020
Signal Generator	Keysight	N5181A	MY46240094	03-01-2019	02-29-2020
Signal Generator	Keysight	N5182B	MY53051549	03-01-2019	02-29-2020
Temperature/ Humidity Indicator	biaozhi	HM10	1804186	10-12-2018	10-11-2019
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	---	01-09-2019	01-08-2020
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX01CA09 CL12-0395-001	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX01CA08 CL12-0393-001	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX02CA04 CL12-0396-002	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX02CA03 CL12-0394-001	---	01-09-2019	01-08-2020
Communication test set	R&S	CMW500	107929	04-28-2019	04-27-2020
DC Power	Keysight	E3642A	MY54426035	03-01-2019	02-29-2020
PC-1	Lenovo	R4960d	---	03-01-2019	02-29-2020
BT&WI-FI Automatic control	R&S	OSP120	101374	03-01-2019	02-29-2020
RF control unit	JS Tonscend	JS0806-2	15860006	03-01-2019	02-29-2020
RF control unit	JS Tonscend	JS0806-1	15860004	03-01-2019	02-29-2020
RF control unit	JS Tonscend	JS0806-4	158060007	03-01-2019	02-29-2020
BT&WI-FI Automatic test software	JS Tonscend	JSTS1120-2	---	03-01-2019	02-29-2020
high-low temperature test chamber	DongGuangQinZhuo	LK-80GA	QZ20150611 879	03-01-2019	02-29-2020

Conducted disturbance Test					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Receiver	R&S	ESCI	100435	05-20-2019	05-19-2020
Temperature/ Humidity Indicator	Defu	TH128	/	06-14-2019	06-13-2020
Communication test set	Agilent	E5515C	GB47050 534	03-01-2019	02-28-2022
Communication test set	R&S	CMW500	102898	01-18-2019	01-17-2020
LISN	R&S	ENV216	100098	05-08-2019	05-07-2020
LISN	schwarzbeck	NNLK8121	8121-529	05-08-2019	05-07-2020
Voltage Probe	R&S	ESH2-Z3 0299.7810.5 6	100042	06-13-2017	06-12-2020
Current Probe	R&S	EZ-17 816.2063.03	100106	05-20-2019	05-19-2020
ISN	TESEQ	ISN T800	30297	01-16-2019	01-15-2020
Barometer	changchun	DYM3	1188	06-20-2019	06-19-2020

3M Semi/full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
3M Chamber & Accessory Equipment	TDK	SAC-3	---	05-24-2019	05-23-2022
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-401	12-21-2018	12-20-2019
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-618	07-26-2019	07-25-2020
Microwave Preamplifier	Agilent	8449B	3008A02425	07-12-2019	07-11-2020
Microwave Preamplifier	Tonscend	EMC051845 SE	980380	01-16-2019	01-15-2020
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-1869	04-25-2018	04-24-2021
Horn Antenna	ETS-LINDGREN	3117	00057410	06-05-2018	06-04-2021
Double ridge horn antenna	A.H.SYSTEMS	SAS-574	374	06-05-2018	06-04-2021
Pre-amplifier	A.H.SYSTEMS	PAP-1840-60	6041.6042	07-26-2019	07-25-2020
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04-25-2018	04-24-2021
Spectrum Analyzer	R&S	FSP40	100416	04-28-2019	04-27-2020
Receiver	R&S	ESCI	100435	05-20-2019	05-19-2020
Receiver	R&S	ESCI7	100938-003	11-23-2018	11-22-2019
Multi device Controller	maturio	NCD/070/10711112	---	01-09-2019	01-08-2020
Signal Generator	Agilent	E4438C	MY45095744	03-01-2019	02-29-2020
Signal Generator	Keysight	E8257D	MY53401106	03-01-2019	02-29-2020
Temperature/Humidity Indicator	Shanghai qixiang	HM10	1804298	10-12-2018	10-11-2019
Communication test set	Agilent	E5515C	GB47050534	03-01-2019	02-28-2022
Cable line	Fulai(7M)	SF106	5219/6A	01-09-2019	01-08-2020
Cable line	Fulai(6M)	SF106	5220/6A	01-09-2019	01-08-2020
Cable line	Fulai(3M)	SF106	5216/6A	01-09-2019	01-08-2020
Cable line	Fulai(3M)	SF106	5217/6A	01-09-2019	01-08-2020
High-pass filter	Sinoscite	FL3CX03WG18NM12-0398-002	---	01-09-2019	01-08-2020
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX01CA09CL12-0395-001	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX01CA08CL12-0393-001	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX02CA04CL12-0396-002	---	01-09-2019	01-08-2020
band rejection filter	Sinoscite	FL5CX02CA03CL12-0394-001	---	01-09-2019	01-08-2020



3M full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
RSE Automatic test software	JS Tonscend	JS36-RSE	10166	06-19-2019	06-18-2020
Receiver	Keysight	N9038A	MY57290136	03-27-2019	03-26-2020
Spectrum Analyzer	Keysight	N9020B	MY57111112	03-27-2019	03-26-2020
Spectrum Analyzer	Keysight	N9030B	MY57140871	03-27-2019	03-26-2020
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-075	04-25-2018	04-24-2021
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04-25-2018	04-24-2021
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-25-2018	04-24-2021
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-25-2018	04-24-2021
Horn Antenna	Schwarzbeck	BBHA 9170	9170-829	04-25-2018	04-24-2021
Communication Antenna	Schwarzbeck	CLSA 0110L	1014	02-14-2019	02-13-2020
Biconical antenna	Schwarzbeck	VUBA 9117	9117-381	04-25-2018	04-24-2021
Horn Antenna	ETS-LINDGREN	3117	00057407	07-10-2018	07-09-2021
Preamplifier	EMCI	EMC184055SE	980596	05-22-2019	5-21-2020
Communication test set	R&S	CMW500	102898	01-18-2019	01-17-2020
Preamplifier	EMCI	EMC001330	980563	05-08-2019	05-07-2020
Preamplifier	Agilent	8449B	3008A02425	07-12-2019	07-11-2020
Temperature/Humidity Indicator	biaozhi	GM1360	EE1186631	04-30-2019	04-29-2020
Signal Generator	KEYSIGHT	E8257D	MY53401106	03-01-2019	02-29-2020
Fully Anechoic Chamber	TDK	FAC-3	---	01-17-2018	01-16-2021
Filter bank	JS Tonscend	JS0806-F	188060094	04-10-2018	04-09-2021
Cable line	Times	SFT205-NMSM-2.50M	394812-0001	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	01-09-2019	01-08-2020
Cable line	Times	EMC104-NMNM-1000	SN160710	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	01-09-2019	01-08-2020
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	01-09-2019	01-08-2020
Cable line	Times	HF160-KMKM-3.00M	393493-0001	01-09-2019	01-08-2020

## 8 Radio Technical Requirements Specification

### Reference documents for testing:

No.	Identity	Document Title
1	FCC Part15E	Subpart C-Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
3	KDB789033 D02 General UNII Test Procedures New Rules v01	Guidelines for compliance testing of unlicensed national information infrastructure (U-NII) device part 15 subpart E

### Test Results List:

Test Requirement	Test method	Test item	Verdict	Note
Part15E Section 15.407 (a)(1)(2)(4)(h)(1)	KDB789033 / KDB 662911	Duty Cycle	PASS	Appendix A)
Part15E Section 15.407 (a)(1)(2)	KDB789033 D02v01	26dB Occupied Bandwidth	PASS	Appendix B)
Part15E Section 15.407 (a)(1)(2)(4)(h)(1)	KDB789033 D02v01	Conducted Output Power and transmit power control mechanism	PASS	Appendix C)
Part15E Section 15.407 (a)(1)(2)(5)	KDB789033 D02v01	Power Spectral Density	PASS	Appendix D)
Part15E Section 15.407 (b)(1)to(6)	KDB789033 / KDB 662911	Band Edge Measurements	PASS	Appendix E)
Part15E Section 15.407 (g)	KDB789033 D02v01	Frequency stability	PASS	Appendix F)
Part15C Section 15.203	ANSI C63.10	Antenna Requirement	PASS	Appendix G)
Part15E Section 15.407 (c)	Section 15.407	Operation in the absence of information to the transmit	PASS	Appendix H)
Part15E Section 15.407 (b)(6)	ANSI C63.10	AC Power Line Conducted Emission	PASS	Appendix I)
Part15E Section 15.407 (b)(6)(7)(8)	KDB789033 D02v01	Restricted bands around fundamental frequency (Radiated Emission)	PASS	Appendix J)
Part15E Section 15.407 (b)(6)(7)(8)	KDB789033 D02v01	Unwanted Emissions in the Restricted Bands	PASS	Appendix K)
Part15E Section 15.407 (b)(1)(2)(3)(5)	KDB789033 D02v01	Unwanted Emissions that fall Outside of the Restricted Bands	N/A	
Part15E Section 15.407 (h)	KDB 905462 D03	Dynamic Frequency Selection	PASS	Appendix L)

## Appendix A):EUT Duty Cycle

### Directional Antenna Gain

The TX chains are correlated, the antenna gain is equal among the chains.

Employs an antenna that operates simultaneously on multiple directional beams using the same frequency channels. No carrier aggregation techniques.

The directional gains:

Antenna 0 Gain(dBi)	Antenna 0 Gain(dBi)	Correlated Chains Directional Gain(dBi)
3	3	6.01

## Duty Cycle

ANT1			
Test Mode	Channel	Duty Cycle[%]	Verdict
11A	5180	95.88	PASS
11A	5200	95.88	PASS
11A	5240	95.87	PASS
11A	5260	95.87	PASS
11A	5280	95.88	PASS
11A	5320	95.88	PASS
11A	5500	95.88	PASS
11A	5580	95.88	PASS
11A	5700	95.88	PASS
11A	5745	95.88	PASS
11A	5785	95.88	PASS
11A	5825	95.88	PASS
11N20SISO	5180	95.6	PASS
11N20SISO	5200	95.6	PASS
11N20SISO	5240	95.6	PASS
11N20SISO	5260	95.6	PASS
11N20SISO	5280	95.6	PASS
11N20SISO	5320	95.79	PASS
11N20SISO	5500	95.6	PASS
11N20SISO	5580	95.6	PASS
11N20SISO	5700	95.6	PASS
11N20SISO	5745	95.6	PASS
11N20SISO	5785	95.6	PASS
11N20SISO	5825	95.6	PASS
11N40SISO	5190	91.48	PASS
11N40SISO	5230	91.51	PASS
11N40SISO	5270	91.48	PASS



11N40SISO	5310	91.51	PASS
11N40SISO	5510	91.48	PASS
11N40SISO	5550	91.51	PASS
11N40SISO	5670	91.48	PASS
11N40SISO	5755	91.51	PASS
11N40SISO	5795	91.48	PASS
11AC20SISO	5180	95.62	PASS
11AC20SISO	5200	95.61	PASS
11AC20SISO	5240	95.61	PASS
11AC20SISO	5260	95.8	PASS
11AC20SISO	5280	95.61	PASS
11AC20SISO	5320	95.62	PASS
11AC20SISO	5500	95.62	PASS
11AC20SISO	5580	95.61	PASS
11AC20SISO	5700	95.62	PASS
11AC20SISO	5745	95.62	PASS
11AC20SISO	5785	95.61	PASS
11AC20SISO	5825	95.62	PASS
11AC40SISO	5190	91.54	PASS
11AC40SISO	5230	91.54	PASS
11AC40SISO	5270	91.54	PASS
11AC40SISO	5310	91.54	PASS
11AC40SISO	5510	91.54	PASS
11AC40SISO	5550	91.54	PASS
11AC40SISO	5670	91.54	PASS
11AC40SISO	5755	91.54	PASS
11AC40SISO	5795	91.54	PASS
11AC80SISO	5210	84.25	PASS
11AC80SISO	5290	84.14	PASS
11AC80SISO	5530	84.14	PASS
11AC80SISO	5775	84.25	PASS

ANT2			
Test Mode	Channel	Duty Cycle[%]	Verdict
11A	5180	95.88	PASS
11A	5200	95.88	PASS
11A	5240	95.87	PASS
11A	5260	95.88	PASS
11A	5280	95.88	PASS
11A	5320	95.88	PASS
11A	5500	95.88	PASS
11A	5580	95.88	PASS
11A	5700	95.88	PASS
11A	5745	95.87	PASS
11A	5785	95.88	PASS
11A	5825	95.88	PASS
11N20SISO	5180	95.6	PASS
11N20SISO	5200	95.6	PASS
11N20SISO	5240	95.6	PASS
11N20SISO	5260	95.6	PASS
11N20SISO	5280	95.6	PASS
11N20SISO	5320	95.6	PASS
11N20SISO	5500	95.6	PASS
11N20SISO	5580	95.6	PASS
11N20SISO	5700	95.6	PASS
11N20SISO	5745	95.6	PASS
11N20SISO	5785	95.6	PASS
11N20SISO	5825	95.6	PASS
11N40SISO	5190	91.48	PASS
11N40SISO	5230	91.48	PASS
11N40SISO	5270	91.48	PASS
11N40SISO	5310	91.51	PASS
11N40SISO	5510	91.85	PASS
11N40SISO	5550	91.51	PASS
11N40SISO	5670	91.48	PASS
11N40SISO	5755	91.85	PASS
11N40SISO	5795	91.48	PASS
11AC20SISO	5180	95.62	PASS
11AC20SISO	5200	95.62	PASS
11AC20SISO	5240	95.62	PASS

11AC20SISO	5260	95.61	PASS
11AC20SISO	5280	95.61	PASS
11AC20SISO	5320	95.62	PASS
11AC20SISO	5500	95.61	PASS
11AC20SISO	5580	95.62	PASS
11AC20SISO	5700	95.62	PASS
11AC20SISO	5745	95.62	PASS
11AC20SISO	5785	95.62	PASS
11AC20SISO	5825	95.62	PASS
11AC40SISO	5190	91.54	PASS
11AC40SISO	5230	91.54	PASS
11AC40SISO	5270	91.88	PASS
11AC40SISO	5310	91.54	PASS
11AC40SISO	5510	91.54	PASS
11AC40SISO	5550	91.54	PASS
11AC40SISO	5670	91.54	PASS
11AC40SISO	5755	91.54	PASS
11AC40SISO	5795	91.54	PASS
11AC80SISO	5210	84.25	PASS
11AC80SISO	5290	84.25	PASS
11AC80SISO	5530	84.14	PASS
11AC80SISO	5775	84.14	PASS



Duty Cycle Test Graph



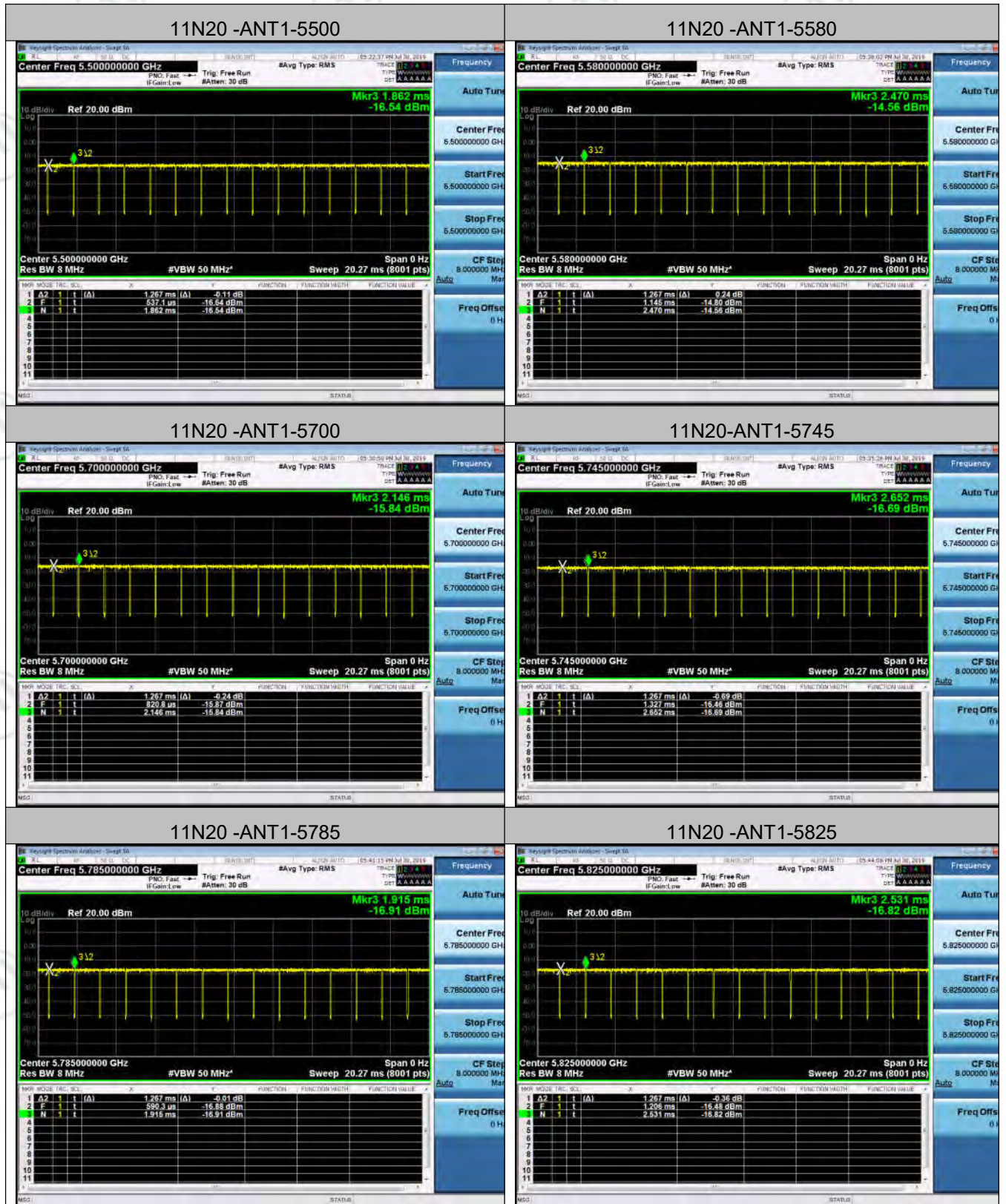




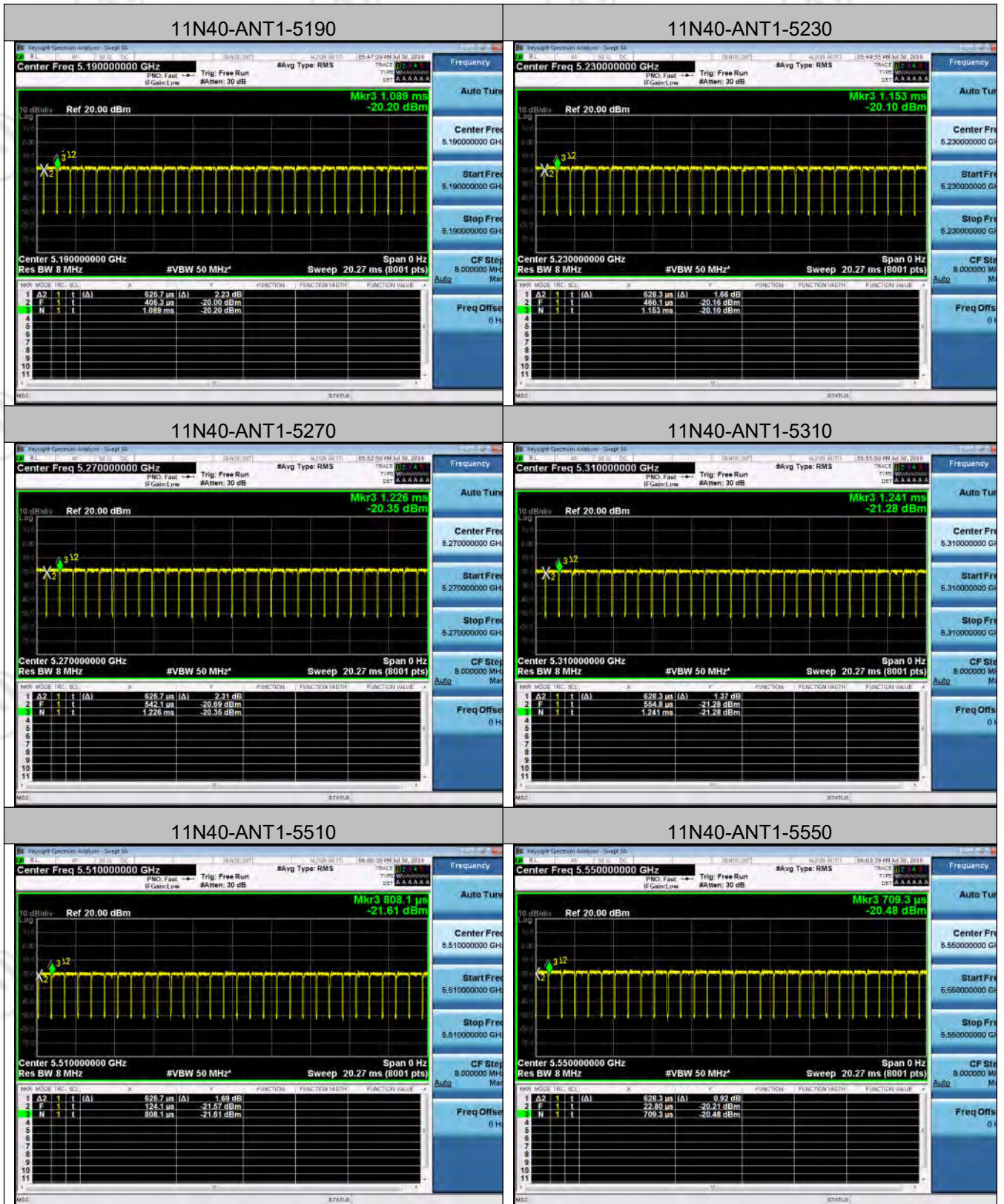




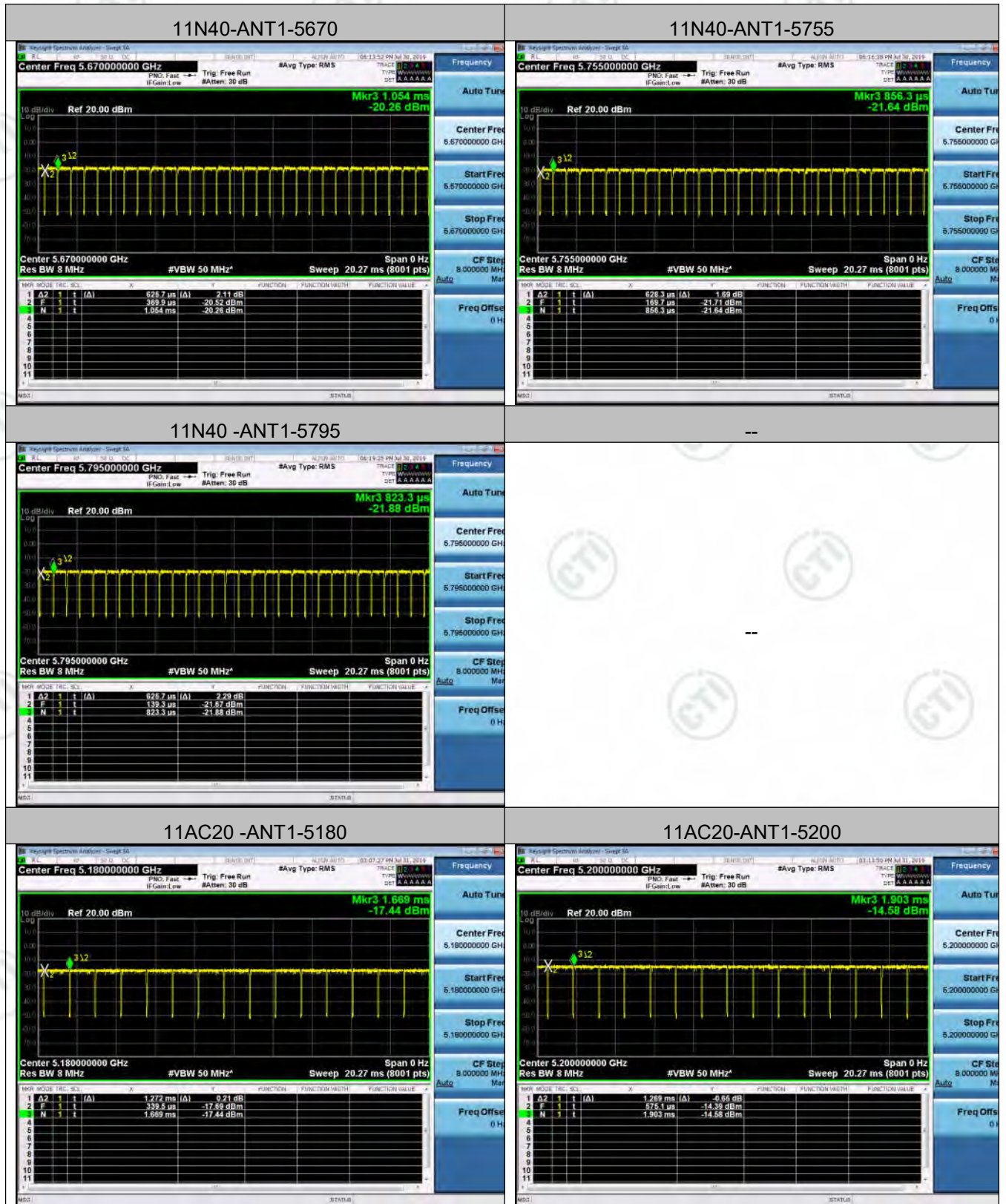




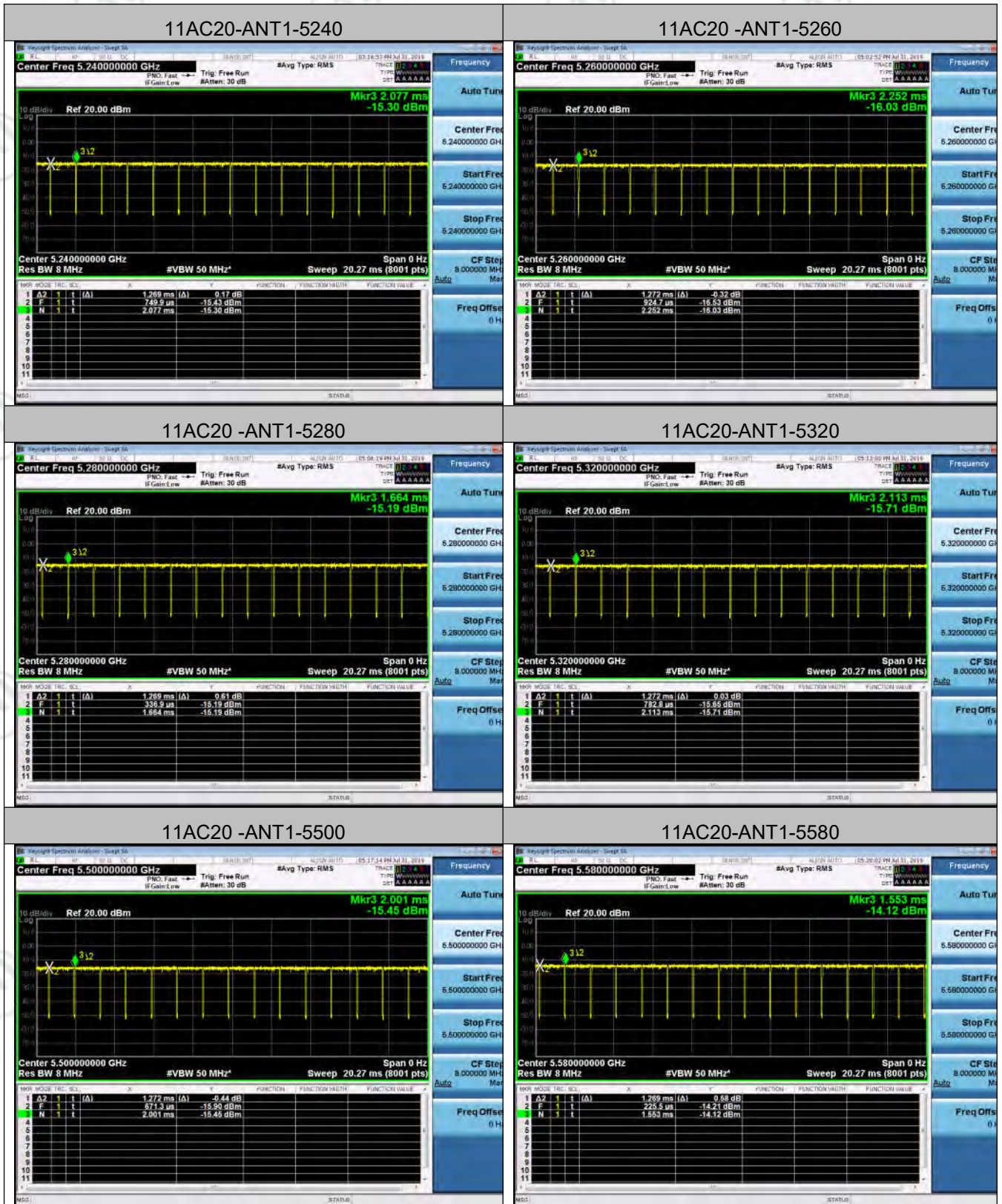




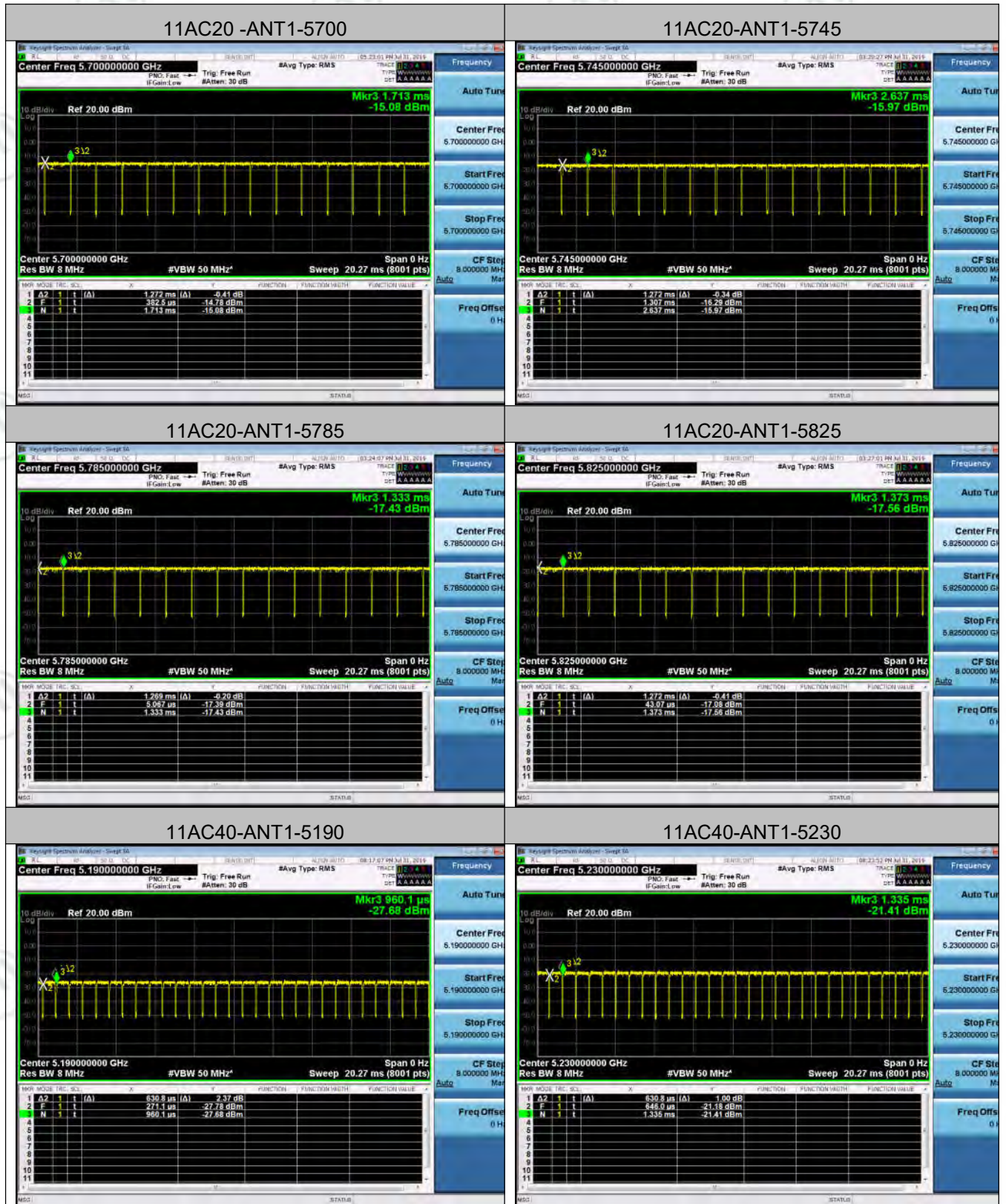




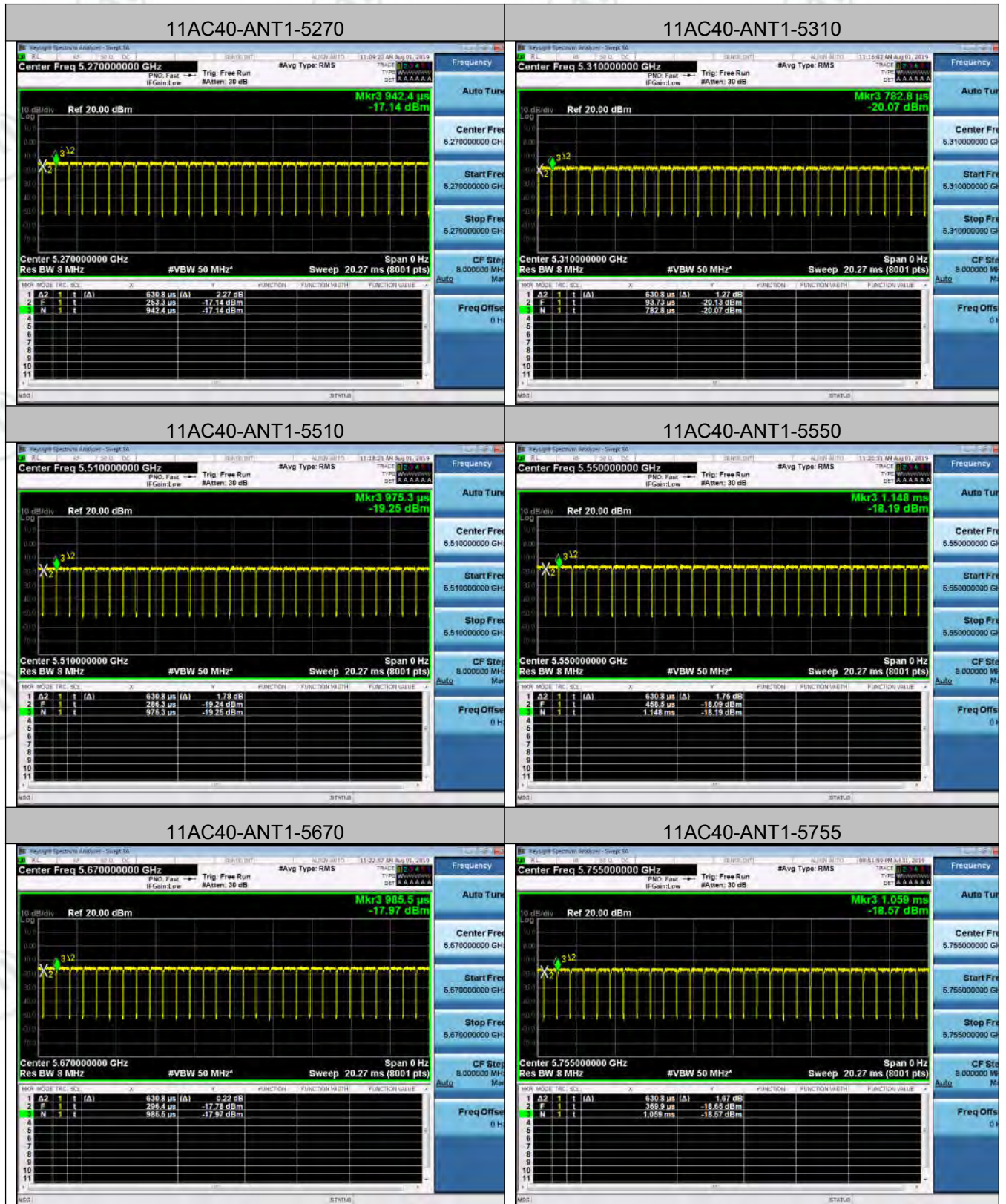




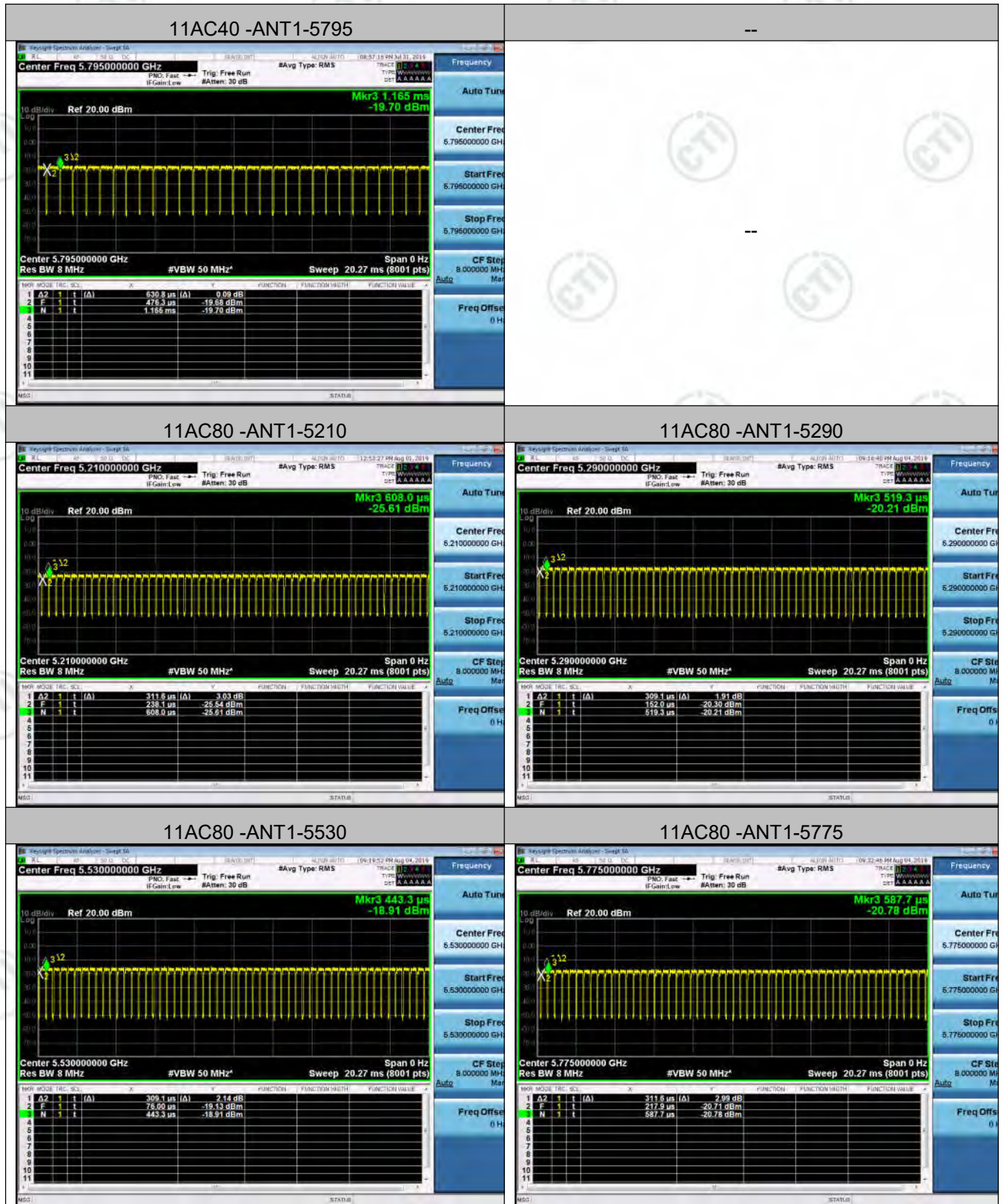












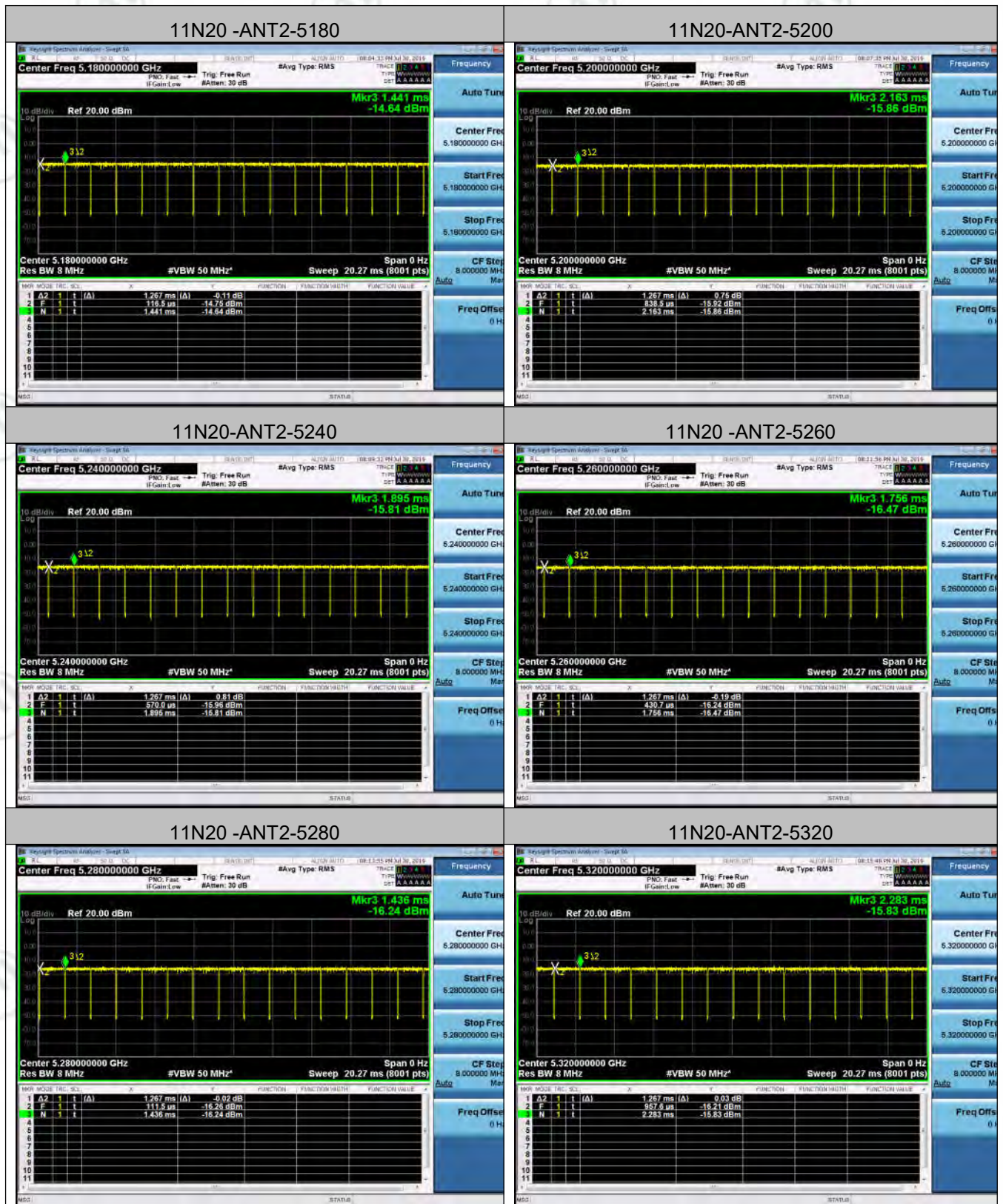




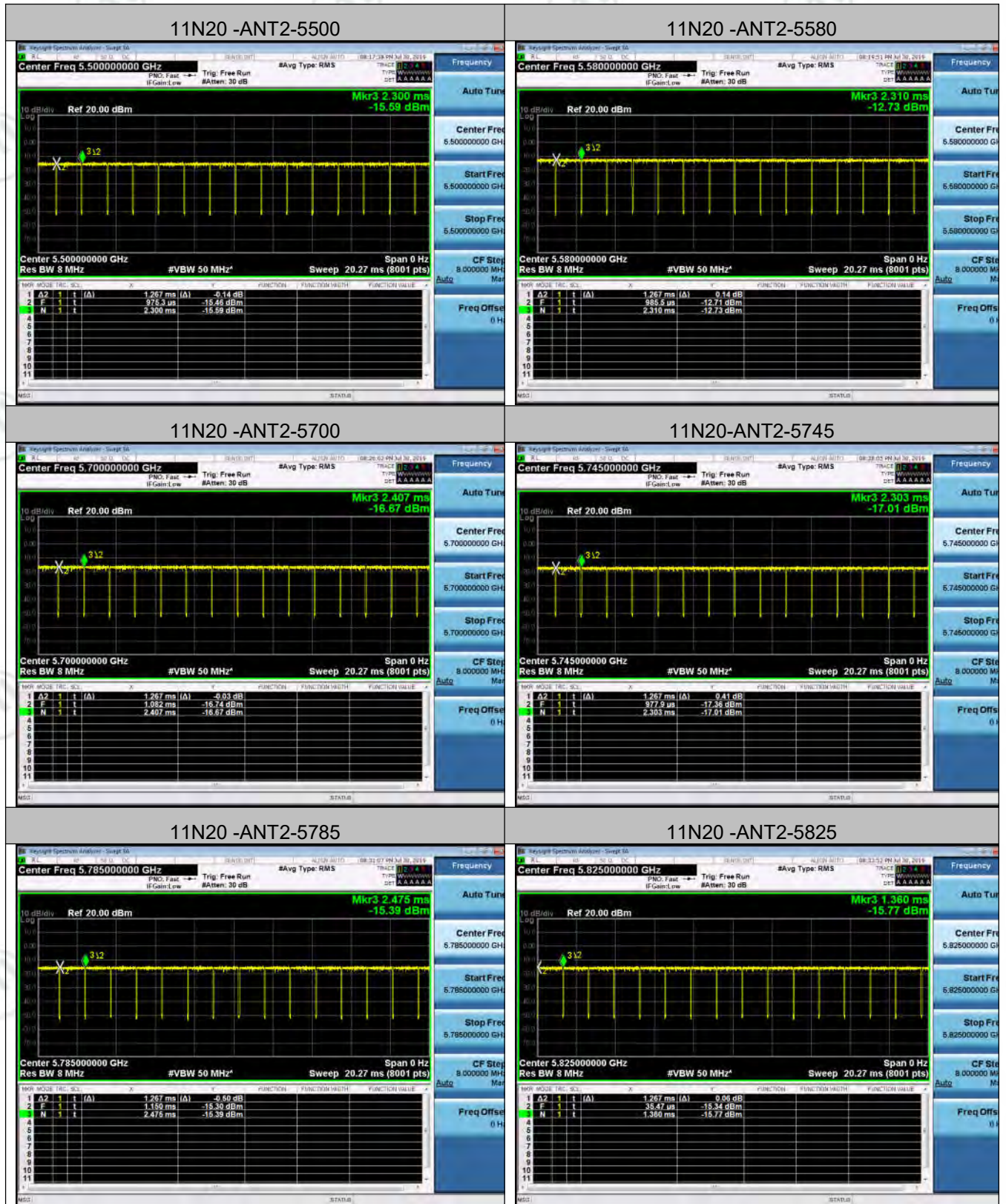




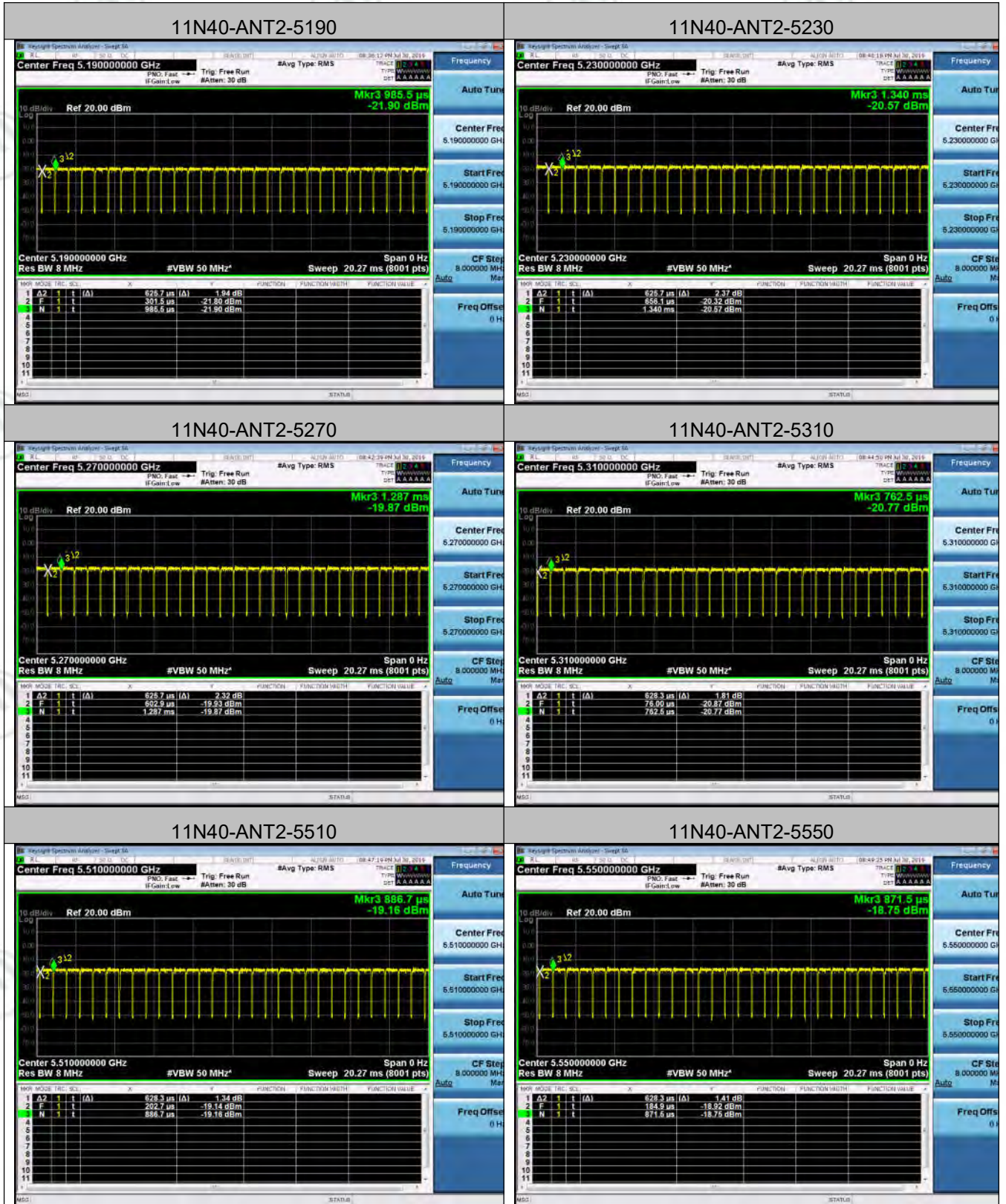




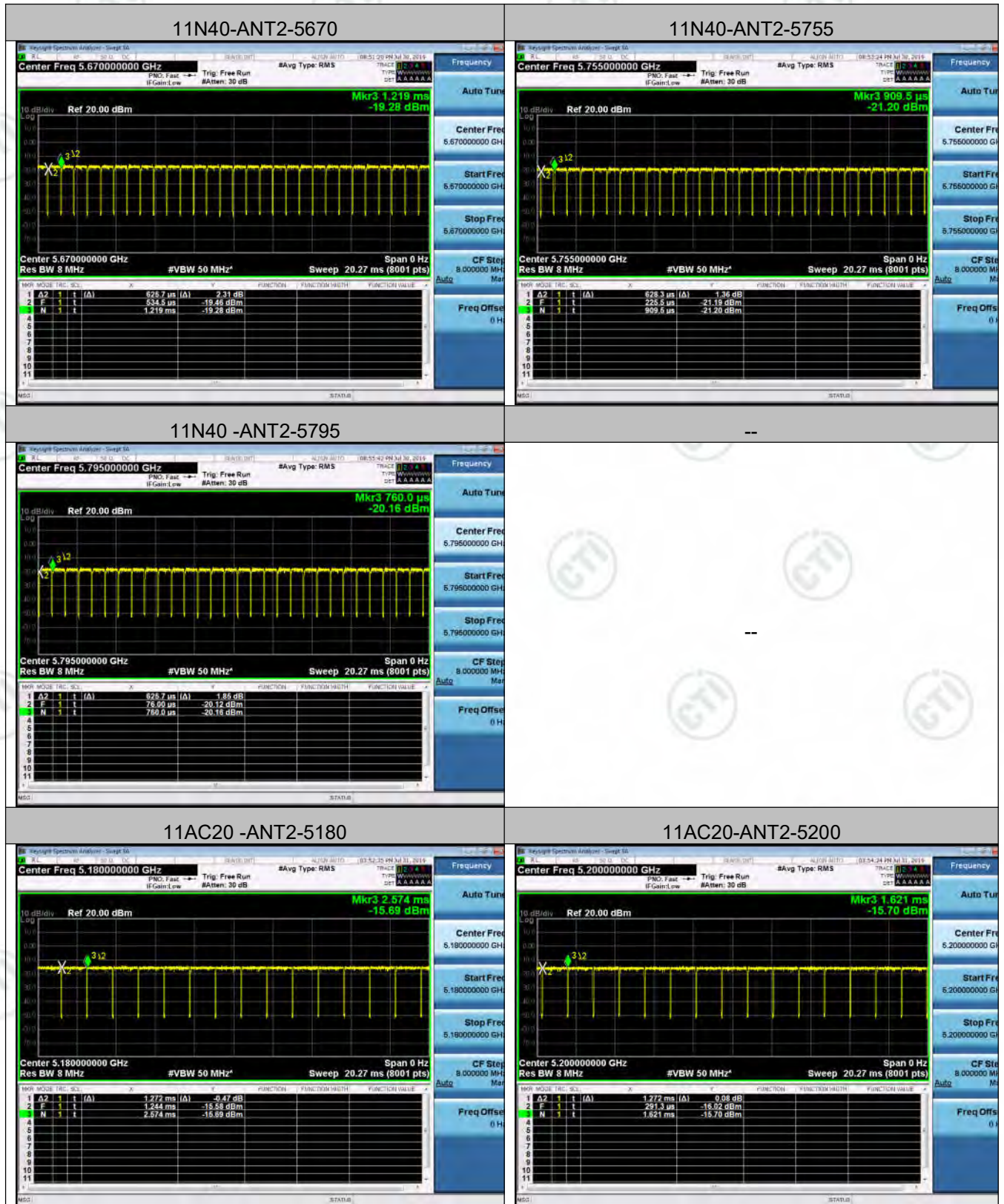




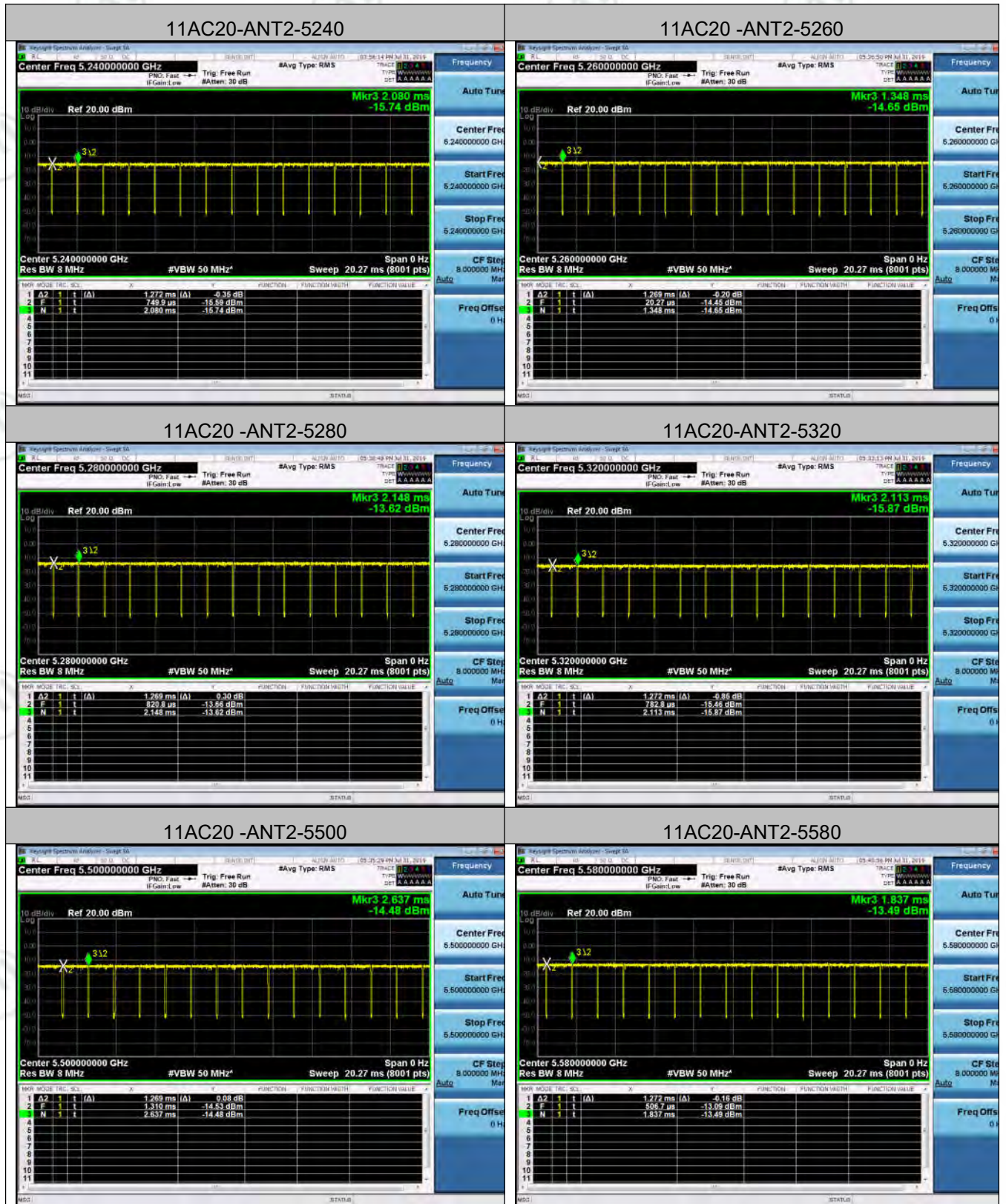




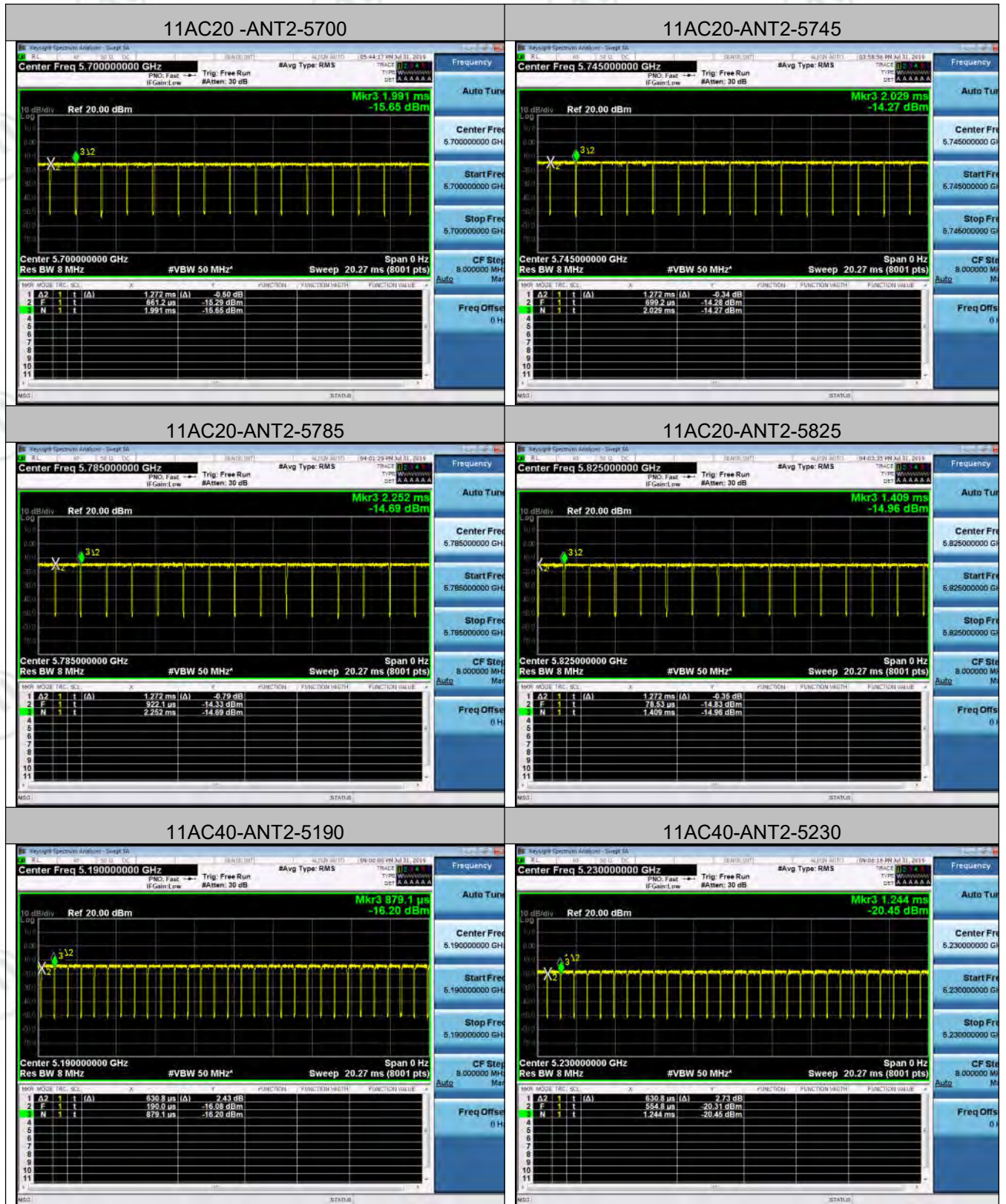




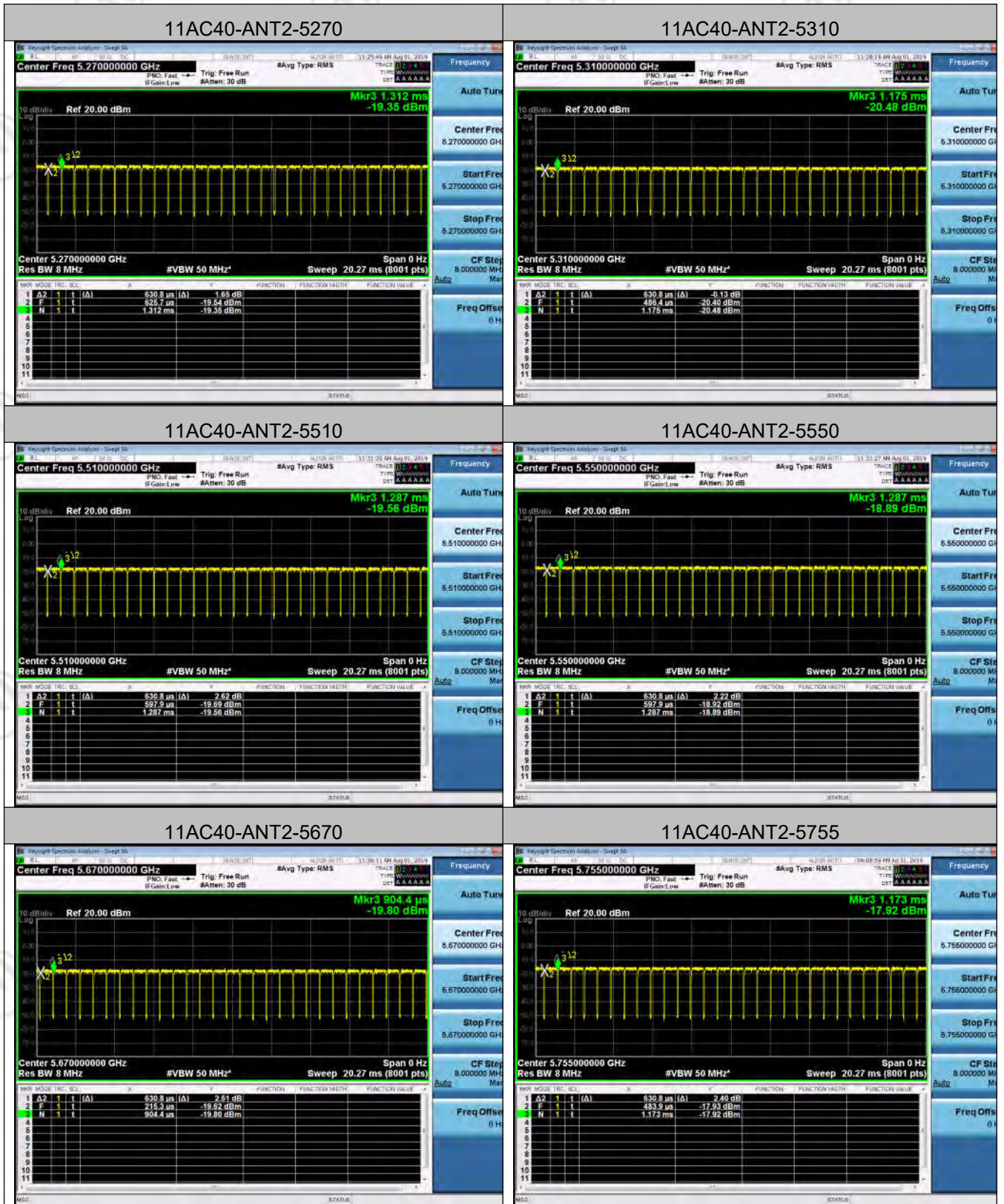




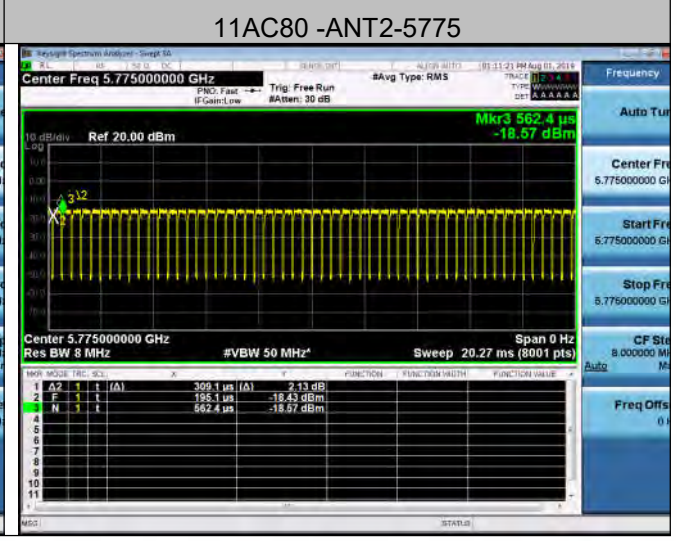
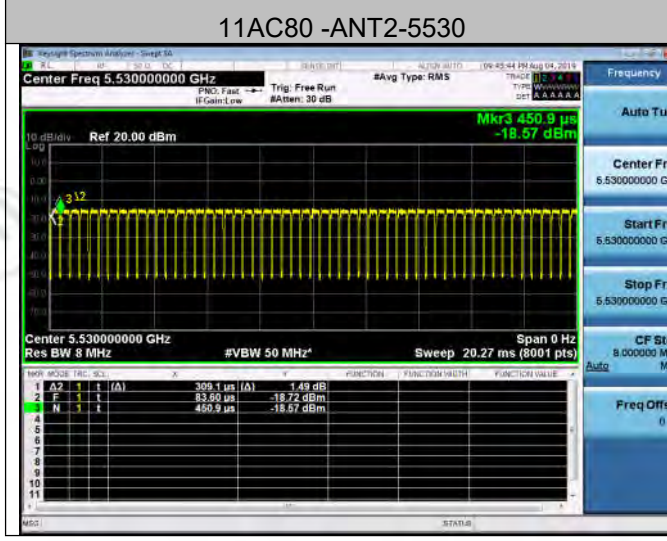
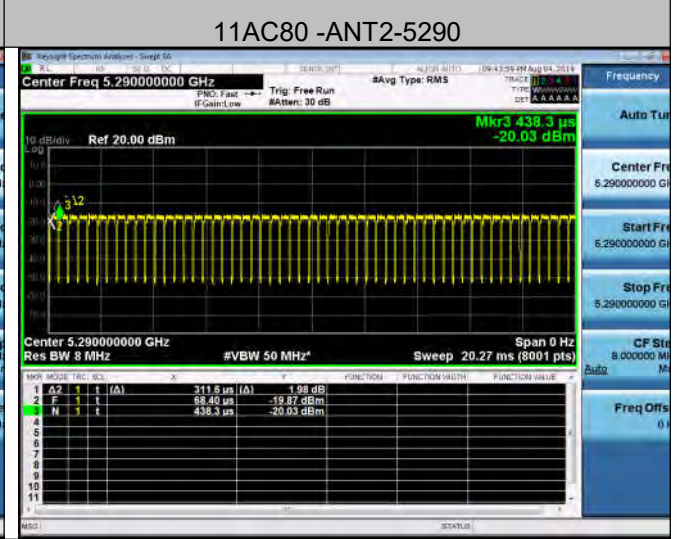
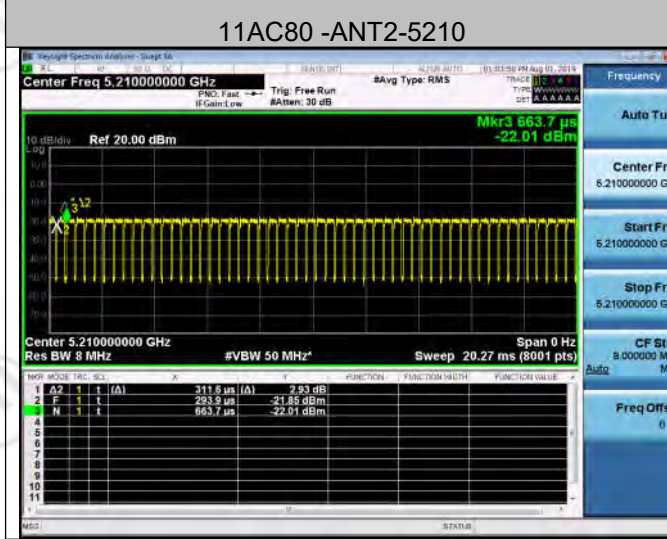
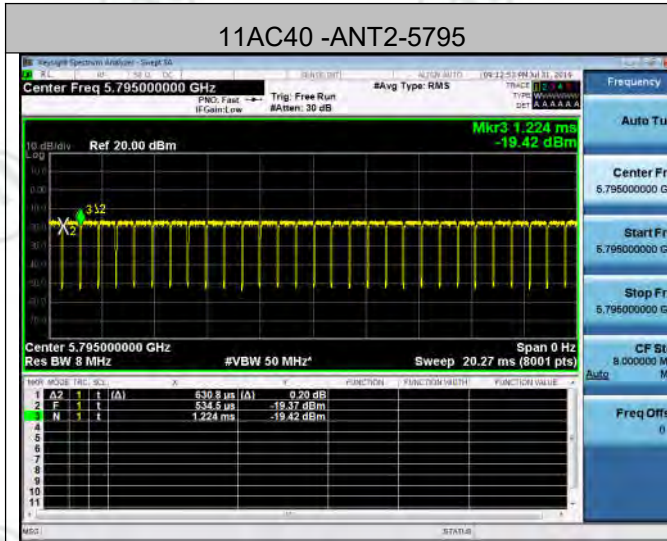














## Appendix B): Emission Bandwidth

Test Limit

**26 dB Bandwidth** : For reporting purposes only.

**6 dB Bandwidth** : Least 500kHz.

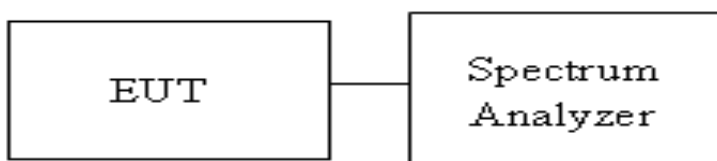
**Occupied Bandwidth(99%)** : For reporting purposes only.

Test Procedure

Test method Refer as KDB 789033 D02, and ANSI C63.10: 2013 clause 6.9.2,

1. The EUT RF output connected to the spectrum analyzer by RF cable.
2. Setting maximum power transmit of EUT
3. UNII-1, UNII-2a and UNII-2c,
  - (1) BW=20MHz : SA set RBW = 300kHz, VBW = 1MHz and Detector = Peak, to measurement 26 dB Bandwidth and 99% Bandwidth
  - (2) BW=40MHz : SA set RBW = 1MHz, VBW = 3MHz and Detector = Peak, to measurement 26 dB Bandwidth and 99% Bandwidth
  - (3) BW=80MHz : SA set RBW = 1MHz, VBW = 3MHz and Detector = Peak, to measurement 26 dB Bandwidth and 99% Bandwidth
4. UNII-3, SA set RBW = 100kHz, VBW = 300kHz and Detector = Peak, to measurement 6 dB Bandwidth and 99% Bandwidth
5. Measure and record the result of 6 dB Bandwidth and 99% Bandwidth. in the test report.

Test Setup



**Result Table**

Test Mode	Antenna	Channel	EBW[MHz]	OBW[MHz]	Verdict
11A	Ant1	5180	20.61	16.600	PASS
11A	Ant2	5180	20.20	16.513	PASS
11A	Ant1	5200	20.34	16.546	PASS
11A	Ant2	5200	20.05	16.487	PASS
11A	Ant1	5240	20.36	16.492	PASS
11A	Ant2	5240	20.69	16.507	PASS
11A	Ant1	5260	20.59	16.514	PASS
11A	Ant2	5260	20.27	16.515	PASS
11A	Ant1	5280	21.29	16.563	PASS
11A	Ant2	5280	20.37	16.522	PASS
11A	Ant1	5320	21.31	16.457	PASS
11A	Ant2	5320	20.49	16.539	PASS
11A	Ant1	5500	20.75	16.521	PASS
11A	Ant2	5500	20.82	16.519	PASS
11A	Ant1	5580	21.08	16.531	PASS
11A	Ant2	5580	20.42	16.478	PASS
11A	Ant1	5700	20.59	16.530	PASS
11A	Ant2	5700	20.18	16.518	PASS
11A	Ant1	5745	16.29	16.650	PASS
11A	Ant2	5745	16.36	16.576	PASS
11A	Ant1	5785	16.27	16.614	PASS
11A	Ant2	5785	16.22	16.654	PASS
11A	Ant1	5825	16.32	16.580	PASS
11A	Ant2	5825	16.30	16.555	PASS



Test Mode	Antenna	Channel	EBW[MHz]	OBW[MHz]	Verdict
11N20SISO	Ant1	5180	21.49	17.669	PASS
11N20SISO	Ant2	5180	21.05	17.665	PASS
11N20SISO	Ant1	5200	20.88	17.649	PASS
11N20SISO	Ant2	5200	20.99	17.608	PASS
11N20SISO	Ant1	5240	21.32	17.602	PASS
11N20SISO	Ant2	5240	20.91	17.603	PASS
11N20SISO	Ant1	5260	21.08	17.654	PASS
11N20SISO	Ant2	5260	20.88	17.608	PASS
11N20SISO	Ant1	5280	21.01	17.669	PASS
11N20SISO	Ant2	5280	20.72	17.646	PASS
11N20SISO	Ant1	5320	21.04	17.681	PASS
11N20SISO	Ant2	5320	21.47	17.645	PASS
11N20SISO	Ant1	5500	20.88	17.641	PASS
11N20SISO	Ant2	5500	20.66	17.635	PASS
11N20SISO	Ant1	5580	21.25	17.656	PASS
11N20SISO	Ant2	5580	20.72	17.589	PASS
11N20SISO	Ant1	5700	21.01	17.643	PASS
11N20SISO	Ant2	5700	21.11	17.660	PASS
11N20SISO	Ant1	5745	17.68	17.726	PASS
11N20SISO	Ant2	5745	17.28	17.689	PASS
11N20SISO	Ant1	5785	17.58	17.806	PASS
11N20SISO	Ant2	5785	16.77	17.709	PASS
11N20SISO	Ant1	5825	17.35	17.792	PASS
11N20SISO	Ant2	5825	17.25	17.680	PASS
11N40SISO	Ant1	5190	41.44	36.332	PASS
11N40SISO	Ant2	5190	43.70	36.203	PASS
11N40SISO	Ant1	5230	43.70	36.338	PASS
11N40SISO	Ant2	5230	43.27	36.301	PASS
11N40SISO	Ant1	5270	43.43	36.250	PASS
11N40SISO	Ant2	5270	43.80	36.272	PASS
11N40SISO	Ant1	5310	43.57	36.341	PASS
11N40SISO	Ant2	5310	43.93	36.269	PASS
11N40SISO	Ant1	5510	44.11	36.301	PASS
11N40SISO	Ant2	5510	43.70	36.302	PASS
11N40SISO	Ant1	5550	43.45	36.313	PASS
11N40SISO	Ant2	5550	43.86	36.328	PASS
11N40SISO	Ant1	5670	43.99	36.370	PASS

11N40SISO	Ant2	5670	43.35	36.349	PASS
11N40SISO	Ant1	5755	36.04	36.649	PASS
11N40SISO	Ant2	5755	36.30	36.519	PASS
11N40SISO	Ant1	5795	36.02	36.607	PASS
11N40SISO	Ant2	5795	35.75	36.566	PASS



Test Mode	Antenna	Channel	EBW[MHz]	OBW[MHz]	Verdict
11AC20SISO	Ant1	5180	21.46	17.714	PASS
11AC20SISO	Ant2	5180	21.19	17.672	PASS
11AC20SISO	Ant1	5200	21.48	17.660	PASS
11AC20SISO	Ant2	5200	20.99	17.670	PASS
11AC20SISO	Ant1	5240	21.49	17.669	PASS
11AC20SISO	Ant2	5240	21.04	17.649	PASS
11AC20SISO	Ant1	5260	21.33	17.666	PASS
11AC20SISO	Ant2	5260	21.35	17.671	PASS
11AC20SISO	Ant1	5280	21.39	17.658	PASS
11AC20SISO	Ant2	5280	21.34	17.665	PASS
11AC20SISO	Ant1	5320	21.81	17.719	PASS
11AC20SISO	Ant2	5320	21.02	17.661	PASS
11AC20SISO	Ant1	5500	20.74	17.700	PASS
11AC20SISO	Ant2	5500	21.12	17.661	PASS
11AC20SISO	Ant1	5580	21.17	17.643	PASS
11AC20SISO	Ant2	5580	21.52	17.593	PASS
11AC20SISO	Ant1	5700	21.48	17.726	PASS
11AC20SISO	Ant2	5700	20.84	17.666	PASS
11AC20SISO	Ant1	5745	16.85	17.805	PASS
11AC20SISO	Ant2	5745	17.58	17.750	PASS
11AC20SISO	Ant1	5785	17.76	17.729	PASS
11AC20SISO	Ant2	5785	17.29	17.714	PASS
11AC20SISO	Ant1	5825	17.73	17.703	PASS
11AC20SISO	Ant2	5825	17.06	17.722	PASS
11AC40SISO	Ant1	5190	43.87	36.284	PASS
11AC40SISO	Ant2	5190	44.00	36.315	PASS
11AC40SISO	Ant1	5230	44.44	36.379	PASS
11AC40SISO	Ant2	5230	43.81	36.302	PASS
11AC40SISO	Ant1	5270	43.77	36.395	PASS
11AC40SISO	Ant2	5270	44.31	36.244	PASS
11AC40SISO	Ant1	5310	44.14	36.294	PASS
11AC40SISO	Ant2	5310	44.22	36.266	PASS
11AC40SISO	Ant1	5510	44.50	36.321	PASS
11AC40SISO	Ant2	5510	43.26	36.223	PASS
11AC40SISO	Ant1	5550	43.08	36.327	PASS
11AC40SISO	Ant2	5550	43.83	36.297	PASS
11AC40SISO	Ant1	5670	44.32	36.238	PASS

11AC40SISO	Ant2	5670	44.44	36.363	PASS
11AC40SISO	Ant1	5755	35.30	36.645	PASS
11AC40SISO	Ant2	5755	35.78	36.500	PASS
11AC40SISO	Ant1	5795	36.27	36.705	PASS
11AC40SISO	Ant2	5795	36.07	36.557	PASS
11AC80SISO	Ant1	5210	82.88	75.999	PASS
11AC80SISO	Ant2	5210	82.05	75.884	PASS
11AC80SISO	Ant1	5290	81.94	75.901	PASS
11AC80SISO	Ant2	5290	80.48	75.917	PASS
11AC80SISO	Ant1	5530	81.47	77.106	PASS
11AC80SISO	Ant2	5530	81.39	76.003	PASS
11AC80SISO	Ant1	5775	75.13	75.835	PASS
11AC80SISO	Ant2	5775	72.63	75.699	PASS



**EBW Test Graph**

