






FCC AND ISED CERTIFICATION TEST REPORT

Applicant:	Guangzhou Shirui Electronics Co.,Ltd	
Address:	192 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District, Guangzhou, China	
Manufacturer:	Guangzhou Shirui Electronics Co.,Ltd	
Address:	192 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District, Guangzhou, China	
Product Description:	Interactive Intelligent Panel	
Brand Name:	NA	
Tested Model:	CH65GC, CH75GC	
FCC ID:	2AFG6-CHXXGC	
IC:	22166-CHXXGC	
Report No.:	JCF240923023-009	
Received Date:	Sep. 18, 2024	
Tested Date:	Sep. 18, 2024 - Oct. 25, 2024	
Issued Date:	Oct. 25, 2024	
Test Standards:	FCC Rules and Regulations Part 15 Subpart C, RSS-247 Issue 3 August 2023	
Test Procedure:	ANSI C63.10:2013, RSS-Gen Issue 5 A2, Feb. 2021	
Test Result:	Pass	
Prepared By:	 <u>Kennys Zhang/Engineer</u>	
	Date:	Oct 25, 2024
Reviewed By:	 <u>Roger Li/Engineer</u>	
	Date:	Oct 25, 2024
Approved By:	 <u>Talent Zhang/Engineer</u>	
	Date:	Oct. 25, 2024

Note: The test results in this report apply exclusively to the tested model / sample. Without written approval of Guangzhou Jingce Testing Technology Co., Ltd. the test report shall not be reproduced except in full.

Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Oct. 25, 2024	Original Report	/

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1. Test Report Declare

Applicant:	Guangzhou Shirui Electronics Co.,Ltd
Address:	192 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China
Manufacturer:	Guangzhou Shirui Electronics Co.,Ltd
Address:	192 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China
Product Name:	Interactive Intelligent Panel
Brand Name:	NA
Model Name:	CH65GC, CH75GC
Difference Description:	Compare with CH65GC, CH75GC only the appearance, size ,LCD panel ,T-CON board and power main board are different, others completely the same.

We Declare:

The equipment described above is tested by Guangzhou Jingce Testing Technology Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Guangzhou Jingce Testing Technology Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests except as provided information by clients.

2. Summary of Test Results

Summary of Test Results			
Clause	Test Items	FCC/ISED Rules	Test Results
1	6dB Bandwidth and 99 % Occupied Bandwidth	FCC Part 15.247 (a) (2) RSS-247 Clause 5.2 (a) ISED RSS-Gen Clause 6.7	Pass
2	Peak Conducted Output Power	FCC Part 15.247 (b) (3) RSS-247 Clause 5.4 (d)	Pass
3	Power Spectral Density	FCC Part 15.247 (e) RSS-247 Clause 5.2 (b)	Pass
4	Conducted Bandedge and Spurious Emission	FCC Part 15.247 (d) RSS-247 Clause 5.5	Pass
5	Radiated Bandedge and Spurious Emission	FCC Part 15.247 (d) FCC Part 15.209 FCC Part 15.205 RSS-247 Clause 5.5 RSS-GEN Clause 8.9	Pass
6	Conducted Emission Test For AC Power Port	FCC Part 15.207 RSS-GEN Clause 8.8	Pass
7	Antenna Requirement	FCC Part 15.203 RSS-GEN Clause 6.8	Pass

Note: All models' RF hardware and software, including modules, crystal oscillator, antenna, function exactly the same. According to the pretest results, the differences between the models only affect the results of the Radiated Emission (30MHz-40GHz) and Power Line Conducted Emissions. Therefore, in addition to the two test projects, the test results of two models (CH65GC, CH75GC) were recorded, and the test results of the remaining projects were only recorded for the worst model, CH65GC.

3. Test Laboratory

Guangzhou Jingce Testing Technology Co., Ltd.

Add.: No.10, Hefeng No.1 street, Huangpu District, Guangzhou, Guangdong, People's Republic of China

Association for Laboratory Accreditation(A2LA). Certificate Number: 6594.03

FCC Designation Number: CN1381. Test Firm Registration Number: 486550

IC Test Firm Registration Number: 31808

Conformity Assessment Body identifier: CN0173

4. Equipment Under Test

4.1. Description of EUT

EUT Name:	Interactive Intelligent Panel
Model Number:	CH65GC, CH75GC
EUT Function Description:	Please refer to user manual of this device
Power Supply:	100-240V~ 50/60Hz 3.5A
Hardware Version:	N/A
Software Version:	N/A
Radio Specification:	IEEE802.11b/g/n/ax
Operation Frequency:	IEEE 802.11b: 2412MHz—2462MHz IEEE 802.11g: 2412MHz—2462MHz IEEE 802.11n HT20: 2412MHz—2462MHz IEEE 802.11n HT40: 2422MHz—2452MHz IEEE 802.11ax HE20: 2412MHz—2462MHz IEEE 802.11ax HE40: 2422MHz—2452MHz
Modulation:	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n (HT20/40): OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax (HE20/40): OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)
Data Rate:	IEEE 802.11b: 1, 2, 5.5, 11 Mbps IEEE 802.11g: 6, 9, 12, 18, 24, 36, 48, 54 Mbps IEEE 802.11n HT20: 7.2, 14.4, 21.7, 28.9, 43.3, 57.8, 65.0, 72.2 Mbps IEEE 802.11n HT40: 15, 30, 45, 60, 90, 120, 135, 150 Mbps IEEE 802.11ax HE20: 8.6, 17.2, 25.8, 34.4, 51.6, 68.8, 77.4, 86, 103.2, 114.7, 129, 143.4Mbps IEEE 802.11ax HE40: 17.2, 34.4, 51.6, 68.8, 103.2, 137.6, 154.9, 172.1, 206.5, 229.4, 258.1, 286.8Mbps
Antenna Type:	SMA Antenna, MAX. Gain: 4.06 dBi

Note 1: EUT is the ab. of equipment under test.

Note 2: The antenna gain is declared by the customer and the laboratory is not responsible for the accuracy of the antenna gain.

4.2. Channel List

Channel List for 802.11b/g/n/ax (20 MHz)							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	4	2427	7	2442	10	2457
2	2417	5	2432	8	2447	11	2462
3	2422	6	2437	9	2452	/	/

Channel List for 802.11n/ax (40 MHz)					
Channel	Frequency (MHz)	Channel	Frequency(MHz)	Channel	Frequency (MHz)
3	2422	6	2437	9	2452
4	2427	7	2442	/	/
5	2432	8	2447	/	/

4.3. Test Channel Configuration

Tested mode, channel and rand data rate information			
Mode	Data rate (Mbps) (see Note)	Channel	Frequency (MHz)
802.11b	1	Low: CH1	2412
	1	Middle: CH6	2437
	1	High: CH11	2462
802.11g	6 MHz	Low: CH1	2412
	6 MHz	Middle: CH6	2437
	6 MHz	High: CH11	2462
802.11n HT20	MCS 0	Low: CH1	2412
	MCS 0	Middle: CH6	2437
	MCS 0	High: CH11	2462
802.11n HT40	MCS 0	Low: CH3	2422
	MCS 0	Middle: CH6	2437
	MCS 0	High: CH9	2452
802.11ax HE20	MCS 0	Low: CH1	2412
	MCS 0	Middle: CH6	2437
	MCS 0	High: CH11	2462
802.11ax HE40	MCS 0	Low: CH3	2422
	MCS 0	Middle: CH6	2437
	MCS 0	High: CH9	2452

Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.

4.4. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25 °C
Humidity range:	40-75%
Pressure range:	86-106 kPa

4.5. Description of Available Antennas

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band			
Test Software		MobaXterm	
Modulation Mode	Transmit Antenna Number	Test Software Setting Value	
		Channel	ANT1
802.11b	1	CH1	14
		CH6	14
		CH11	14
802.11g	1	CH1	14
		CH6	14
		CH11	14

802.11HT20	1	CH1	11
		CH6	11
		CH11	11
802.11n HT40	1	CH3	13
		CH6	13
		CH9	13
802.11ax HE20	1	CH1	11
		CH6	11
		CH11	11
802.11ax HE40	1	CH3	12
		CH6	12
		CH9	12

4.6. Description of Available Antennas

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	<input checked="" type="checkbox"/> 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
IEEE 802.11g	<input checked="" type="checkbox"/> 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
IEEE 802.11n HT20	<input checked="" type="checkbox"/> 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
IEEE 802.11n HT40	<input checked="" type="checkbox"/> 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
IEEE 802.11ax HE20	<input checked="" type="checkbox"/> 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
IEEE 802.11ax HE40	<input checked="" type="checkbox"/> 1TX, 1RX	ANT 1 can be used as transmitting/receiving antenna.
Note: 1. Only 802.11n HT20/HT40, Only 802.11ax HE20/HE40 support MIMO mode 2. WLAN 2.4 GHz & WLAN 5G can't transmit simultaneously. (declared by client)		

5. Description of Test Setup

5.1. Accessory

Description of Accessories	Manufacturer	Model Number	Description	Remark
/	/	/	/	/

5.2. Support Equipment

Equipment	Brand Name	Model Name	P/N
PC	Lenovo	T480	/

5.3. Test Setup

The EUT can work in Fixed Frequency mode.

5.4. Setup Diagram for Tests



6. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty
AC Power Conduction emission	1.37 dB
All Radiated emissions	5.4dB
Conducted emissions	3.09 dB
Occupied Channel Bandwidth	1.1%
Conducted Output power	0.82dB
Power Spectral Density	0.82dB

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of $k = 2$.

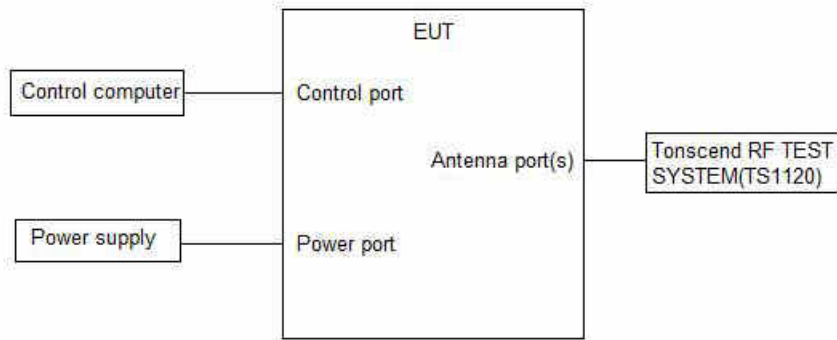
7. Measuring Instrument and Software Used

TS Test System						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
<input checked="" type="checkbox"/>	Spectrum Analyzer	Keysight	N9030B	MY56320512	Aug. 22, 2024	Aug. 21, 2025
<input checked="" type="checkbox"/>	Vector Signal Generator	Keysight	N5182B	MY57300334	Aug. 22, 2024	Aug. 21, 2025
<input checked="" type="checkbox"/>	Signal Generator	Keysight	N5171B	MY57280639	Aug. 22, 2024	Aug. 21, 2025
<input checked="" type="checkbox"/>	DC POWER	Keysight	E342A	MY59020356	Aug. 29, 2024	Aug. 28, 2025
<input checked="" type="checkbox"/>	Incubator thermometer	GWS	EL-02JA	21107288	Aug. 15, 2024	Aug. 14, 2025
<input checked="" type="checkbox"/>	Control unit(Power sensor)	Tonscend	JS0806-2	/	Aug. 23, 2024	Aug. 22, 2025
<input checked="" type="checkbox"/>	Spectrum Analyzer	Keysight	N9020B	MY60112206	Sep. 11, 2024	Sep. 10, 2025
<input checked="" type="checkbox"/>	Control unit(Power sensor)	Tonscend	JS0806-2	21H8060465	Aug. 22, 2024	Aug. 21, 2025
<input checked="" type="checkbox"/>	Spectrum Analyzer	Keysight	N9020B	MY60112811	Aug. 23, 2024	Aug. 22, 2025
<input checked="" type="checkbox"/>	Signal Generator	Keysight	N5173B	MY62220145	Aug. 23, 2024	Aug. 22, 2025
<input checked="" type="checkbox"/>	Vector Signal Generator	Keysight	N5182B	MY61252859	Aug. 22, 2024	Aug. 21, 2025
<input checked="" type="checkbox"/>	DC POWER	Keysight	E3642A	MY40005294	Aug. 30, 2024	Aug. 29, 2025
<input checked="" type="checkbox"/>	Control	Tonscend	JS0806-2	24F80620865	Aug. 23, 2024	Aug. 22, 2025

	unit(Power sensor)					
Software						
Used	Description	Manufacturer	Name	Version		
<input checked="" type="checkbox"/>	Test software	Tonscend	JS1120-3	V3.3.10		
RSE Test System						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
<input checked="" type="checkbox"/>	EMI Receiver	R&S	ESR26	101424	Sep. 14, 2024	Sep. 13, 2025
<input checked="" type="checkbox"/>	Hybrid Antenna	Schwarzbeck	VULB9163	01416	May. 22, 2024	May. 21, 2025
<input checked="" type="checkbox"/>	Horn Antenna 1	Schwarzbeck	BBHA 9120 D	02910	Sep. 11, 2024	Sep. 10, 2025
<input checked="" type="checkbox"/>	Horn Antenna 2	ETS	BBHA 9170	1090	Sep. 11, 2024	Sep. 10, 2025
<input checked="" type="checkbox"/>	loop-antenna	Schwarzbeck	FMZB 1513-60	00030	Jan. 14,2024	Jan. 13, 2025
<input checked="" type="checkbox"/>	Test path	/	Path2: WIFI-2.4G 1-3GHz	/	Aug. 23, 2024	Aug. 22, 2025
<input checked="" type="checkbox"/>	Test path	/	Path7: ALL PASS 1-18GHz	/	Aug. 23, 2024	Aug. 22, 2025
<input checked="" type="checkbox"/>	Test path	/	Path9: 3GHz High PASS 3-18GHz	/	Aug. 23, 2024	Aug. 22, 2025
<input checked="" type="checkbox"/>	Test path	/	Path16: 30MHz-1GHz ALL PASS NO AMP	/	Aug. 23, 2024	Aug. 22, 2025
<input checked="" type="checkbox"/>	Signal Pre-Amplifier	ETS	3116C-PA	00217677	Sep. 06, 2024	Sep. 05, 2025
<input checked="" type="checkbox"/>	3m Fully-anechoic Chamber	YIHENG	9m*6m*6m	001	Sep. 05, 2023	Sep. 04, 2026
Software						
Used	Description	Manufacturer	Name	Version		
<input checked="" type="checkbox"/>	Test software	Tonscend	TS+	V5.0.0.0		
Conducted Emission Test For AC Power Port						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
<input checked="" type="checkbox"/>	LISN	R&S	ENV216	102509	Aug. 22, 2024	Aug. 21, 2025
<input checked="" type="checkbox"/>	EMI Receiver	R&S	ESR	102154	Aug. 22, 2024	Aug. 21, 2025
Software						
Used	Description	Manufacturer	Name	Version		
<input checked="" type="checkbox"/>	Test software	EZ	EZ-EMC	EMEC-3A1		
Other Instrument						
Used	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due. Date
<input checked="" type="checkbox"/>	Temperature & Humidity	Temperature	HTC-1	/	Sep. 04, 2024	Sep. 03, 2025

8. On Time and Duty Cycle

8.1. Block diagram of test setup



8.2. Limits

None; for reporting purposes only

8.3. Procedure

KDB 558074 Zero-Span Spectrum Analyzer Method

8.4. Results

Test Mode	Ant.	Freq. (MHz)	Transmission Duration (ms)	Transmission Period (ms)	Duty Cycle (%)
11B	Ant1	2412	8.23	8.75	94.06
		2437	8.23	8.75	94.06
		2462	8.22	8.75	93.94
11G	Ant1	2412	1.37	1.89	72.49
		2437	1.36	1.89	71.96
		2462	0.17	0.70	24.29
11N20SISO	Ant1	2412	1.27	1.80	70.56
		2437	1.28	1.81	70.72
		2462	1.28	1.81	70.72
11N40SISO	Ant1	2422	0.64	1.16	55.17
		2437	0.64	1.16	55.17
		2452	0.64	1.16	55.17
11AX20SISO	Ant1	2412	1.00	1.53	65.36
		2437	1.00	1.53	65.36
		2462	1.00	1.53	65.36
11AX40SISO	Ant1	2422	0.53	1.05	50.48
		2437	0.53	1.06	50.00
		2452	0.53	1.06	50.00

Note: Duty Cycle Correction Factor = $10\log(1/x)$.

Where: x is Duty Cycle (Linear)

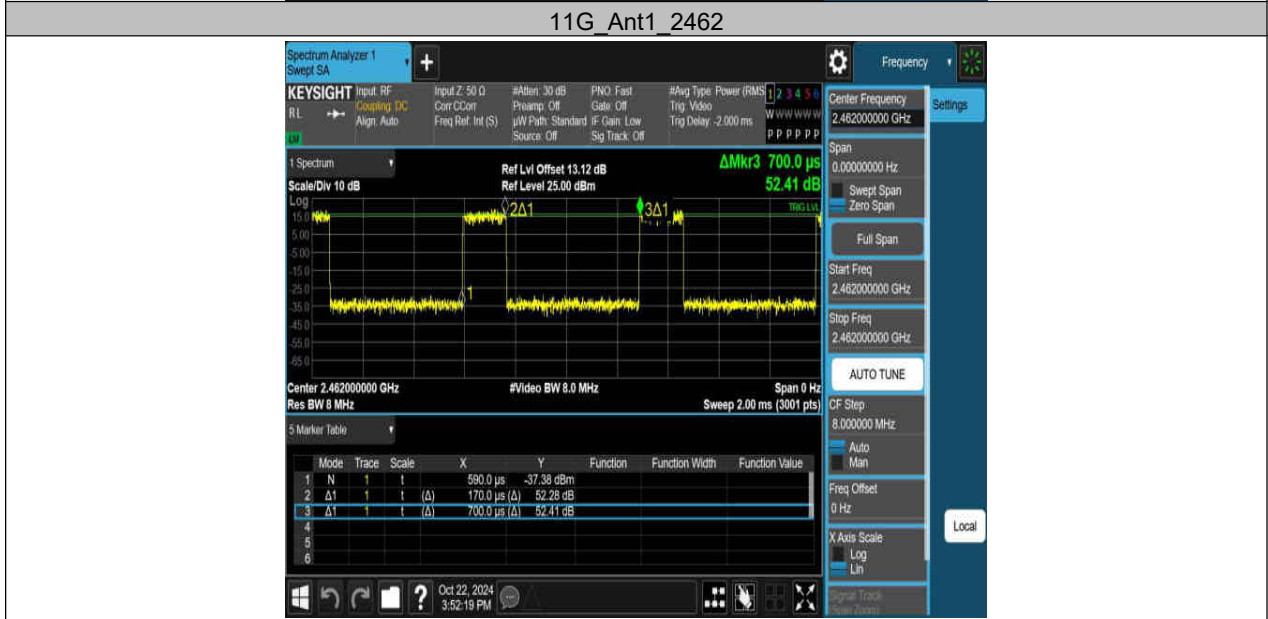
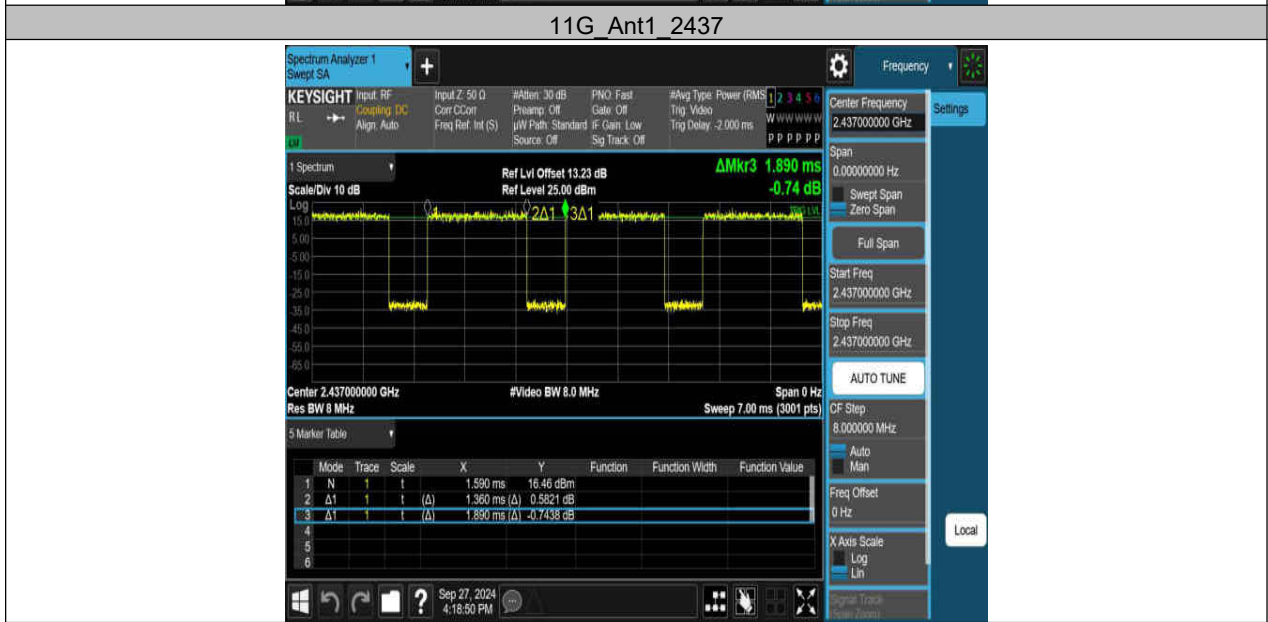
Where: T is On Time

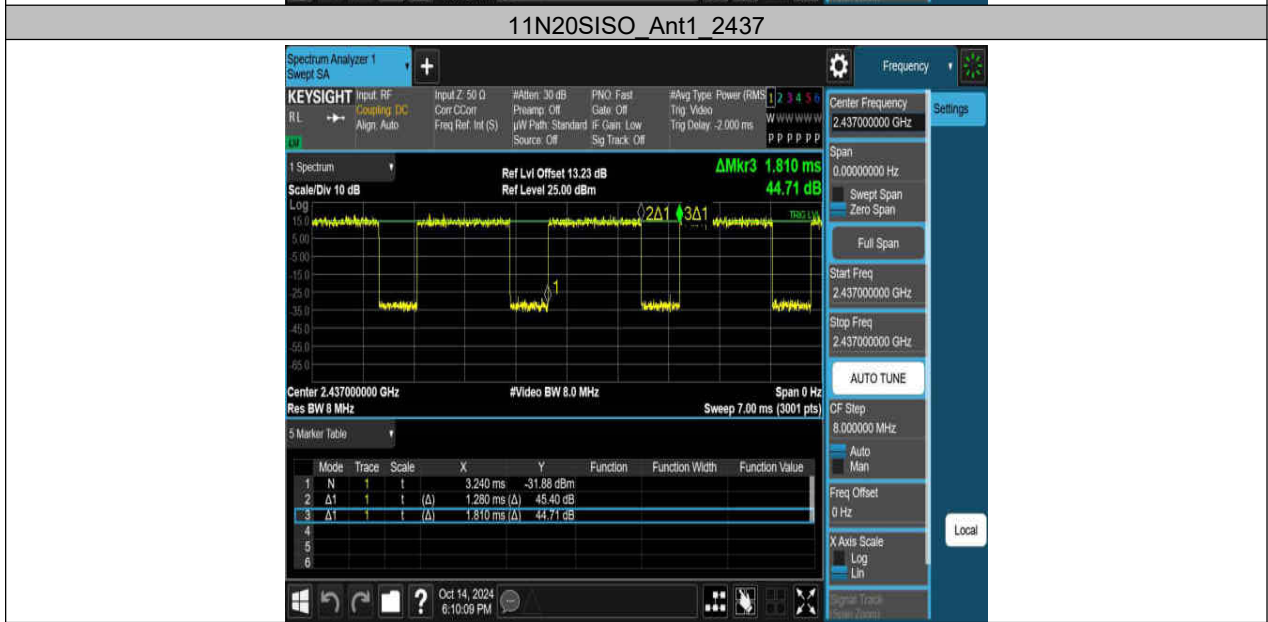
If that calculated VBW is not available on the analyzer, then the next higher value should be used.

For mode 11b, the duty cycle is greater than 98 %, so it can set VBW to 10 Hz.

8.5. Original test data









11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



11AX20SISO_Ant1_2412



11AX20SISO Ant1 2437



11AX20SISO Ant1 2462



11AX40SISO Ant1 2422



11AX40SISO Ant1_2437



11AX40SISO Ant1_2452



9. 6 dB DTS Bandwidth and 99 % Occupied Bandwidth

9.1. Block diagram of test setup

Same as section 8.1

9.2. Limits

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 3			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(a)(2) ISED RSS-247 5.2 (a)	6 dB Bandwidth	≥ 500 kHz	2400-2483.5
ISED RSS-Gen Clause 6.7	99 % Occupied Bandwidth	For reporting purposes only.	2400-2483.5

9.3. Test Procedure

Connect the UUT to the spectrum analyzer and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6 dB Bandwidth :100 kHz For 99 % Occupied Bandwidth :1 % to 5 % of the occupied bandwidth
VBW	For 6 dB Bandwidth: ≥ 3 × RBW For 99 % Occupied Bandwidth : ≥ 3×RBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB and 99 % relative to the maximum level measured in the fundamental emission.

9.4. Results

6dB bandwidth:

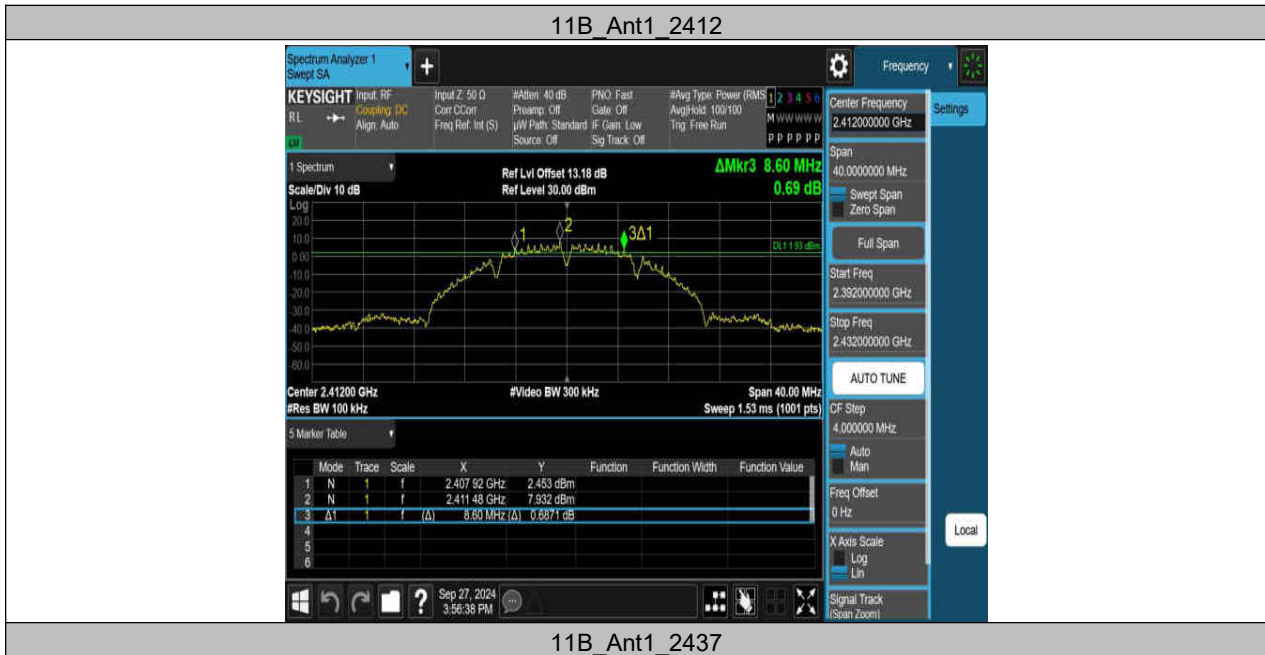
Test Mode	Ant.	Freq. (MHz)	DTS BW (MHz)	FL (MHz)	FH (MHz)	Limit (MHz)	Verdict
11B	Ant1	2412	8.600	2407.920	2416.520	0.5	PASS
		2437	9.080	2432.440	2441.520	0.5	PASS
		2462	9.560	2456.960	2466.520	0.5	PASS
11G	Ant1	2412	15.440	2404.440	2419.880	0.5	PASS
		2437	15.440	2429.080	2444.520	0.5	PASS
		2462	15.560	2454.200	2469.760	0.5	PASS
11N20SISO	Ant1	2412	16.000	2403.480	2419.480	0.5	PASS
		2437	12.320	2430.680	2443.000	0.5	PASS
		2462	15.400	2454.440	2469.840	0.5	PASS
11N40SISO	Ant1	2422	32.720	2405.520	2438.240	0.5	PASS
		2437	32.560	2420.760	2453.320	0.5	PASS
		2452	28.880	2435.680	2464.560	0.5	PASS
11AX20SISO	Ant1	2412	16.960	2404.120	2421.080	0.5	PASS
		2437	16.080	2428.400	2444.480	0.5	PASS
		2462	18.000	2452.800	2470.800	0.5	PASS
11AX40SISO	Ant1	2422	33.920	2404.400	2438.320	0.5	PASS
		2437	35.600	2418.920	2454.520	0.5	PASS
		2452	33.520	2433.520	2467.040	0.5	PASS

99 % bandwidth:

Test Mode	Ant.	Channel Freq. (MHz)	OCB (MHz)	FL (MHz)	FH (MHz)	Limit (MHz)	Verdict
11B	Ant1	2412	15.108	2404.4777	2419.5857	---	---
		2437	15.119	2429.4917	2444.6107	---	---
		2462	15.186	2454.4430	2469.6290	---	---
11G	Ant1	2412	17.288	2403.2623	2420.5503	---	---
		2437	17.176	2428.3456	2445.5216	---	---
		2462	17.335	2453.2384	2470.5734	---	---
11N20SISO	Ant1	2412	18.356	2402.7888	2421.1448	---	---
		2437	18.376	2427.8134	2446.1894	---	---
		2462	18.428	2452.7383	2471.1663	---	---
11N40SISO	Ant1	2422	36.443	2403.7137	2440.1567	---	---
		2437	36.442	2418.6915	2455.1335	---	---
		2452	36.500	2433.6950	2470.1950	---	---
11AX20SISO	Ant1	2412	19.113	2402.3875	2421.5005	---	---
		2437	19.176	2427.3357	2446.5117	---	---
		2462	19.214	2452.3781	2471.5921	---	---
11AX40SISO	Ant1	2422	37.954	2402.9346	2440.8886	---	---
		2437	37.834	2418.0387	2455.8727	---	---
		2452	37.795	2433.0606	2470.8556	---	---

9.5. Original test data

6dB bandwidth:





11B Ant1 2462



11G Ant1 2412



11G Ant1 2437



11G_Ant1_2462



11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



11N20SISO_Ant1_2462



11N40SISO_Ant1_2422



11N40SISO_Ant1_2437



11N40SISO_Ant1_2452



11AX20SISO_Ant1_2412



11AX20SISO_Ant1_2437



11AX20SISO Ant1 2462



11AX40SISO Ant1 2422



11AX40SISO Ant1 2437



99 % bandwidth:





11B Ant1 2462



11G Ant1 2412



11G Ant1 2437



11G_Ant1_2462



11N20SISO_Ant1_2412



11N20SISO_Ant1_2437





11N40SISO_Ant1_2452



11AX20SISO_Ant1_2412



11AX20SISO_Ant1_2437





11AX40SISO_Ant1_2452



10. Conducted Output Power

10.1. Block diagram of test setup

Same as section 8.1

10.2. Limits

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 3			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC 15.247(b)(3) ISED RSS-247 5.4 (d)	Peak Output Power	1 watt or 30 dBm	2400-2483.5

10.3. Test Procedure

Place the EUT on the table and set it in the transmitting mode.

Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power sensor.

Measure peak power each channel.

Peak Detector use for Peak result.

AVG Detector use for AVG result.

10.4. Results

Test Mode	Ant.	Freq. (MHz)	Peak Power (dBm)	Conducted Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Verdict
11B	Ant1	2412	18.94	≤30.00	23.00	≤36.00	PASS
		2437	19.50	≤30.00	23.56	≤36.00	PASS
		2462	19.17	≤30.00	23.23	≤36.00	PASS
11G	Ant1	2412	19.81	≤30.00	23.87	≤36.00	PASS
		2437	20.68	≤30.00	24.74	≤36.00	PASS
		2462	19.95	≤30.00	24.01	≤36.00	PASS
11N20SISO	Ant1	2412	16.47	≤30.00	20.53	≤36.00	PASS
		2437	16.48	≤30.00	20.54	≤36.00	PASS
		2462	16.57	≤30.00	20.63	≤36.00	PASS
11N40SISO	Ant1	2422	18.40	≤30.00	22.46	≤36.00	PASS
		2437	19.33	≤30.00	23.39	≤36.00	PASS
		2452	18.72	≤30.00	22.78	≤36.00	PASS
11AX20SISO	Ant1	2412	16.92	≤30.00	20.98	≤36.00	PASS
		2437	17.56	≤30.00	21.62	≤36.00	PASS
		2462	17.20	≤30.00	21.26	≤36.00	PASS
11AX40SISO	Ant1	2422	17.94	≤30.00	22.00	≤36.00	PASS
		2437	18.82	≤30.00	22.88	≤36.00	PASS
		2452	18.36	≤30.00	22.42	≤36.00	PASS

11. Power Spectral Density

11.1. Block diagram of test setup

Same as section 8.1

11.2. Limits

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 3			
Section	Test Item	Limit	Frequency Range (MHz)
CFR 47 FCC §15.247 (e) ISED RSS-247 5.2 (b)	Power Spectral Density	8 dBm/3 kHz	2400-2483.5

11.3. Test Procedure

Connect the UUT to the spectrum analyzer and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
VBW	$\geq 3 \times \text{RBW}$
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

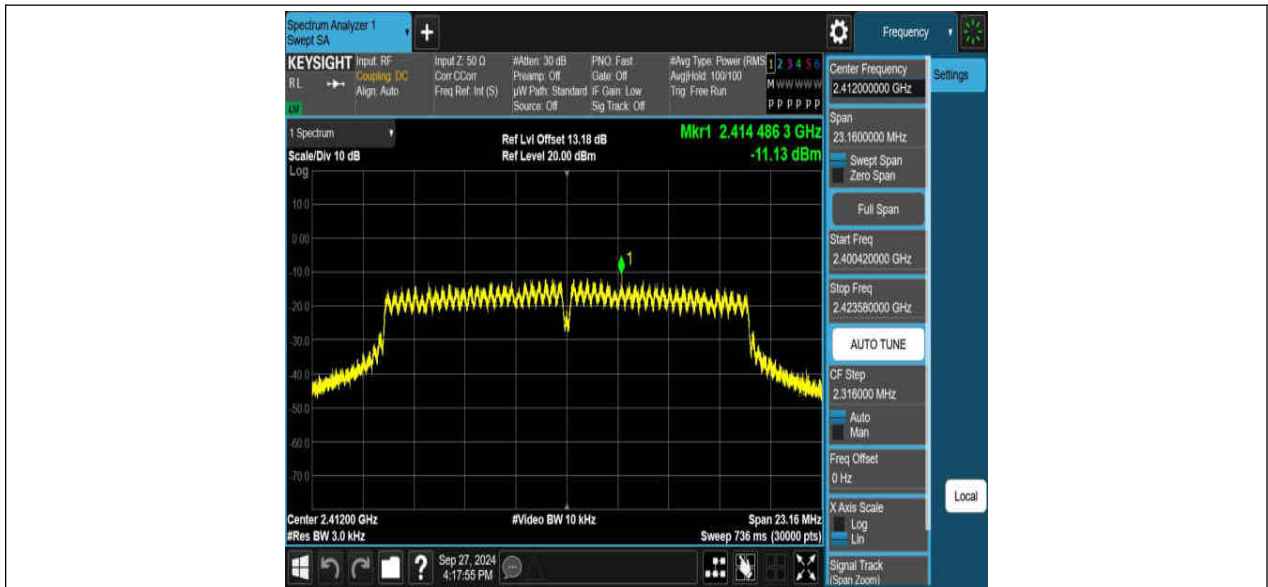
If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

11.4. Results

Test Mode	Ant.	Freq. (MHz)	Result (dBm/3-100kHz)	Limit (dBm/3kHz)	Verdict
11B	Ant1	2412	-5.07	≤ 8.00	PASS
		2437	-5.79	≤ 8.00	PASS
		2462	-6.06	≤ 8.00	PASS
11G	Ant1	2412	-11.13	≤ 8.00	PASS
		2437	-11.04	≤ 8.00	PASS
		2462	-11.20	≤ 8.00	PASS
11N20SISO	Ant1	2412	-14.06	≤ 8.00	PASS
		2437	-14.30	≤ 8.00	PASS
		2462	-14.86	≤ 8.00	PASS
11N40SISO	Ant1	2422	-15.66	≤ 8.00	PASS
		2437	-14.30	≤ 8.00	PASS
		2452	-14.46	≤ 8.00	PASS
11AX20SISO	Ant1	2412	-15.18	≤ 8.00	PASS
		2437	-13.22	≤ 8.00	PASS
		2462	-15.27	≤ 8.00	PASS
11AX40SISO	Ant1	2422	-16.67	≤ 8.00	PASS
		2437	-16.56	≤ 8.00	PASS
		2452	-16.89	≤ 8.00	PASS

11.5. Original test data

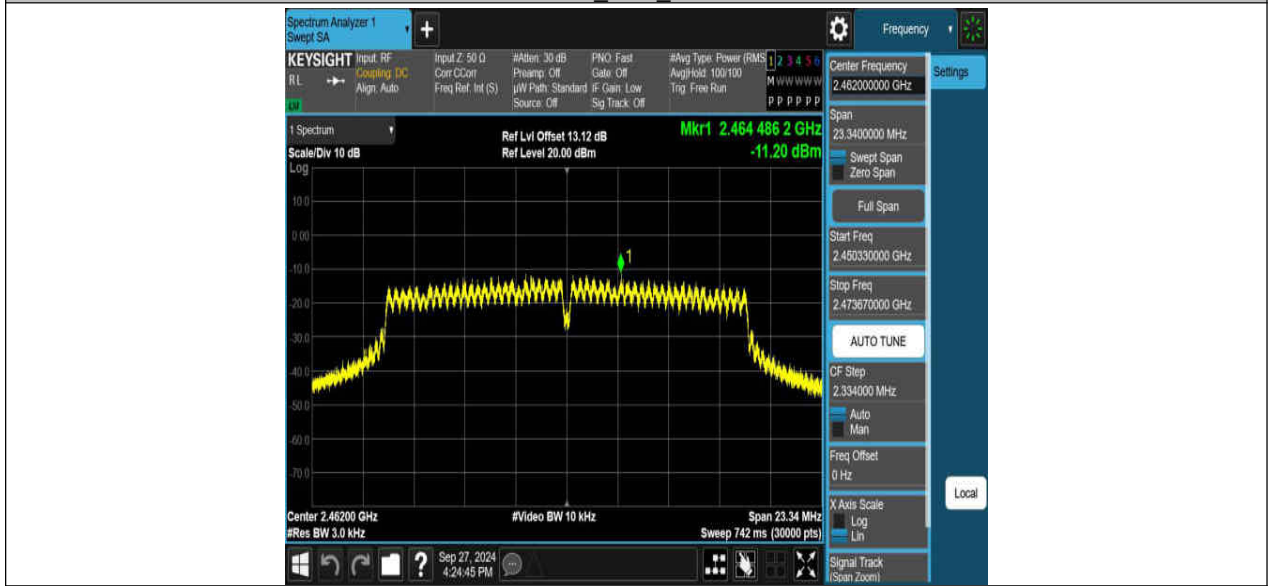




11G_Ant1_2437



11G_Ant1_2462



11N20SISO_Ant1_2412



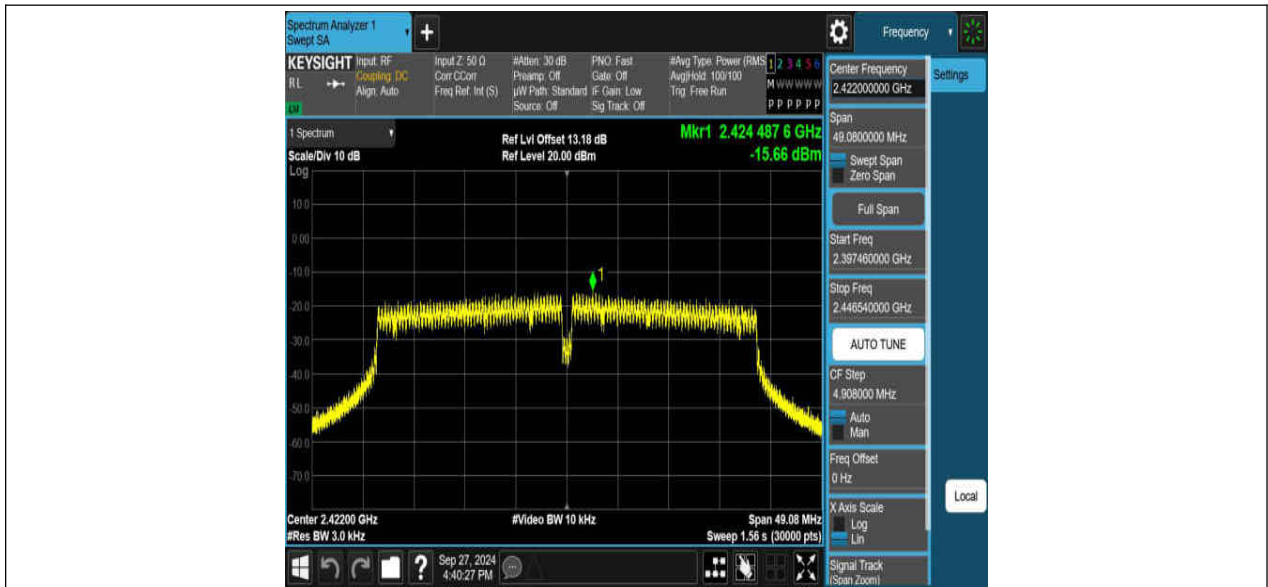
11N20SISO_Ant1_2437



11N20SISO_Ant1_2462



11N40SISO_Ant1_2422



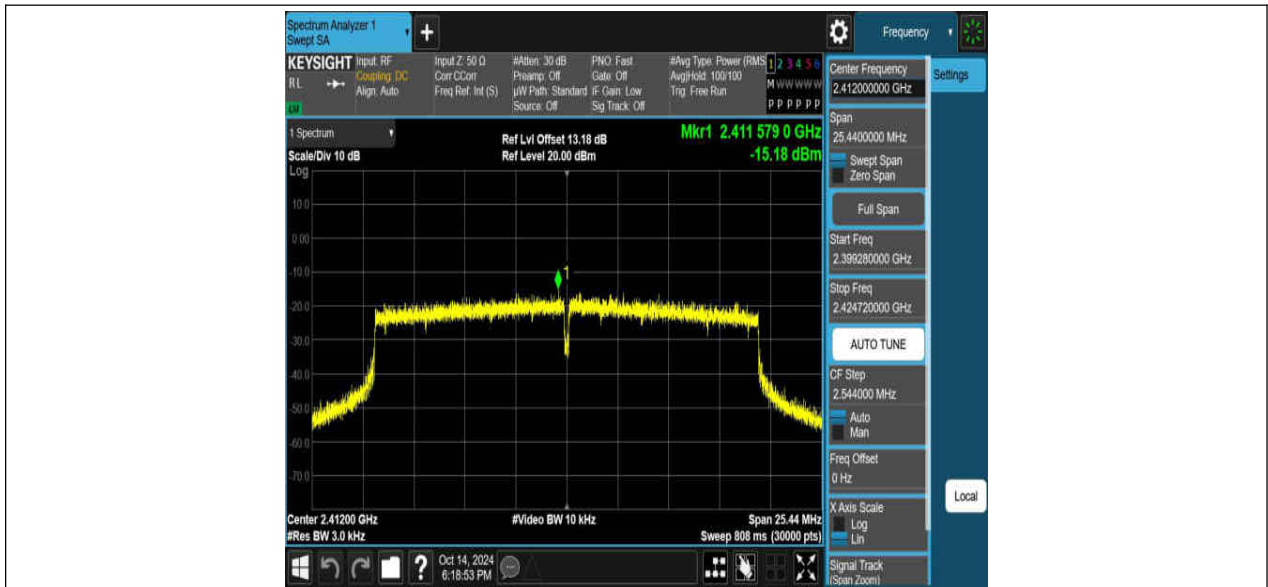
11N40SISO_Ant1_2437



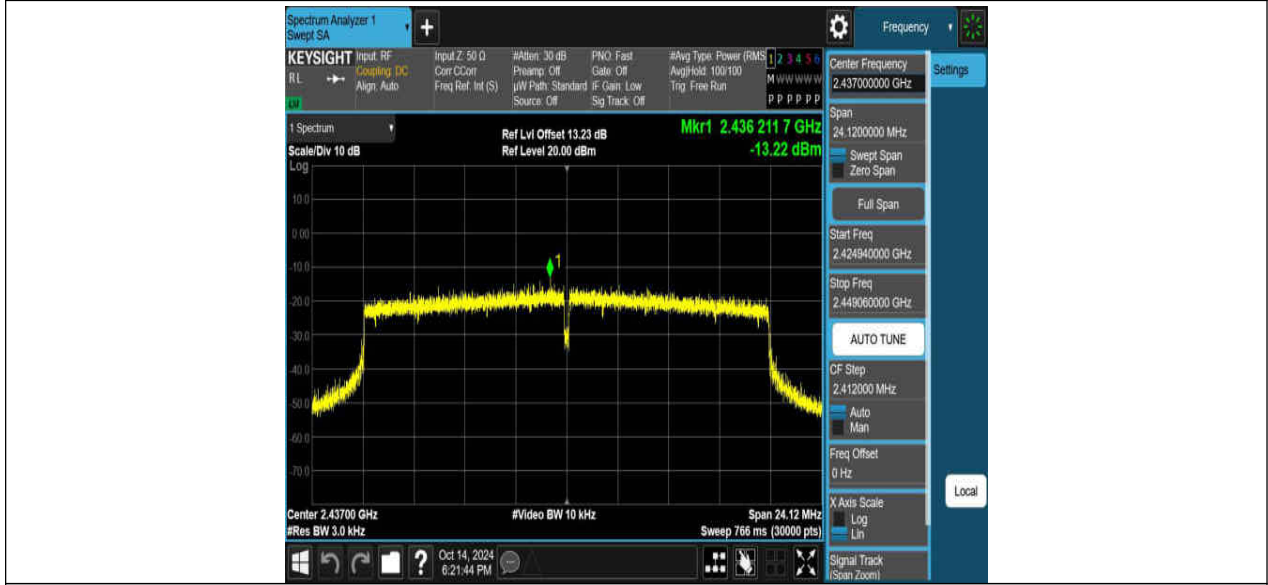
11N40SISO_Ant1_2452



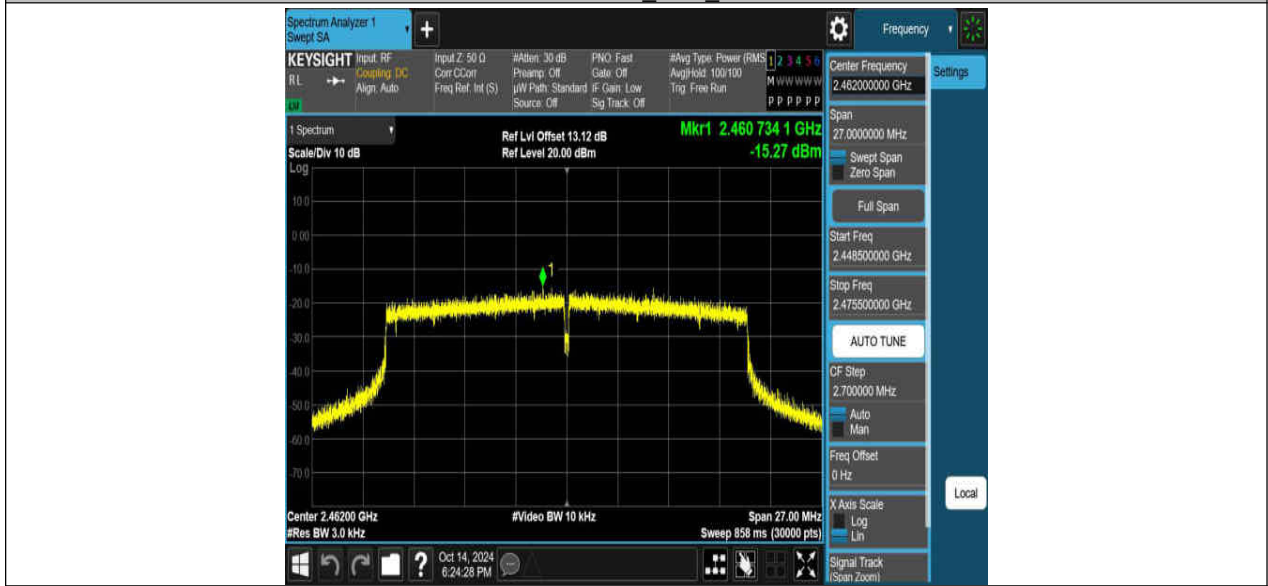
11AX20SISO_Ant1_2412



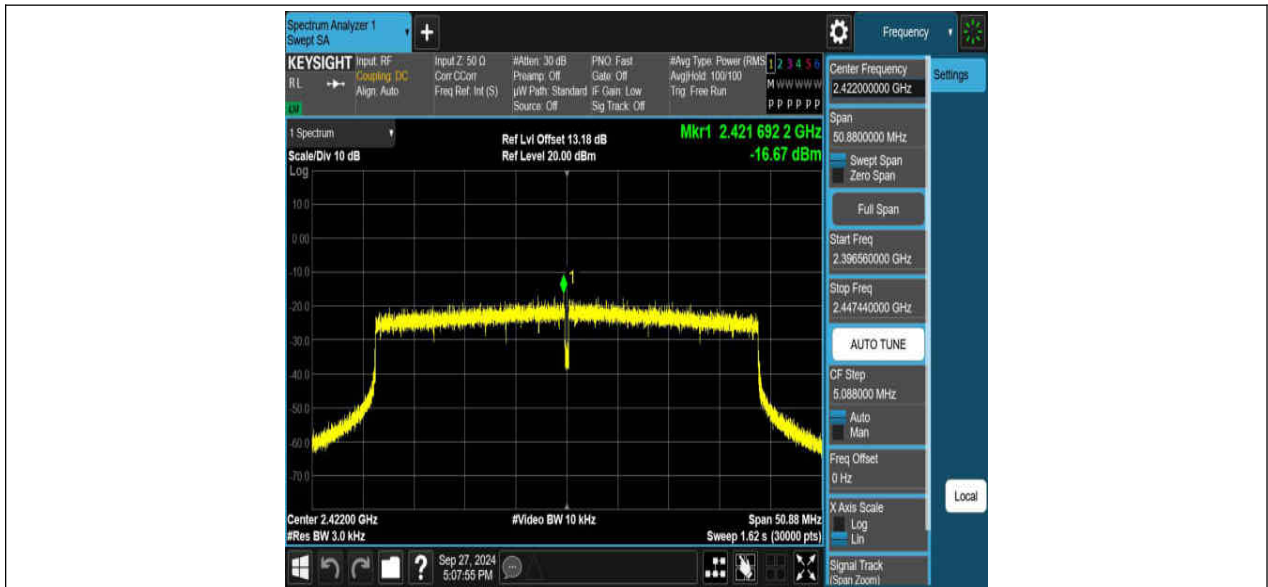
11AX20SISO Ant1_2437



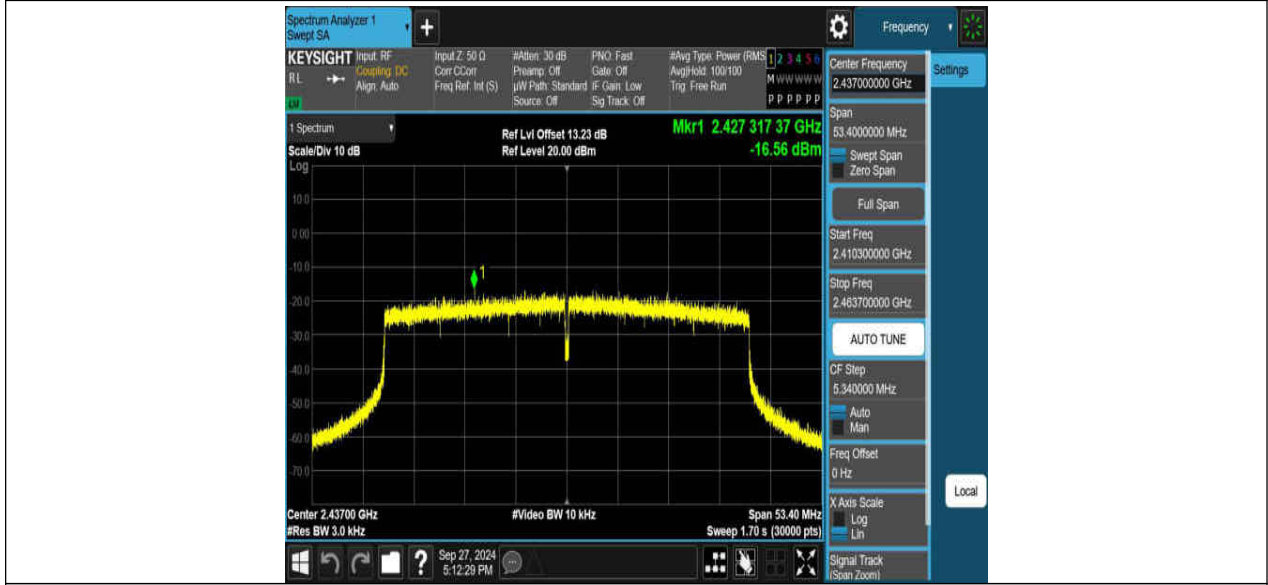
11AX20SISO Ant1_2462



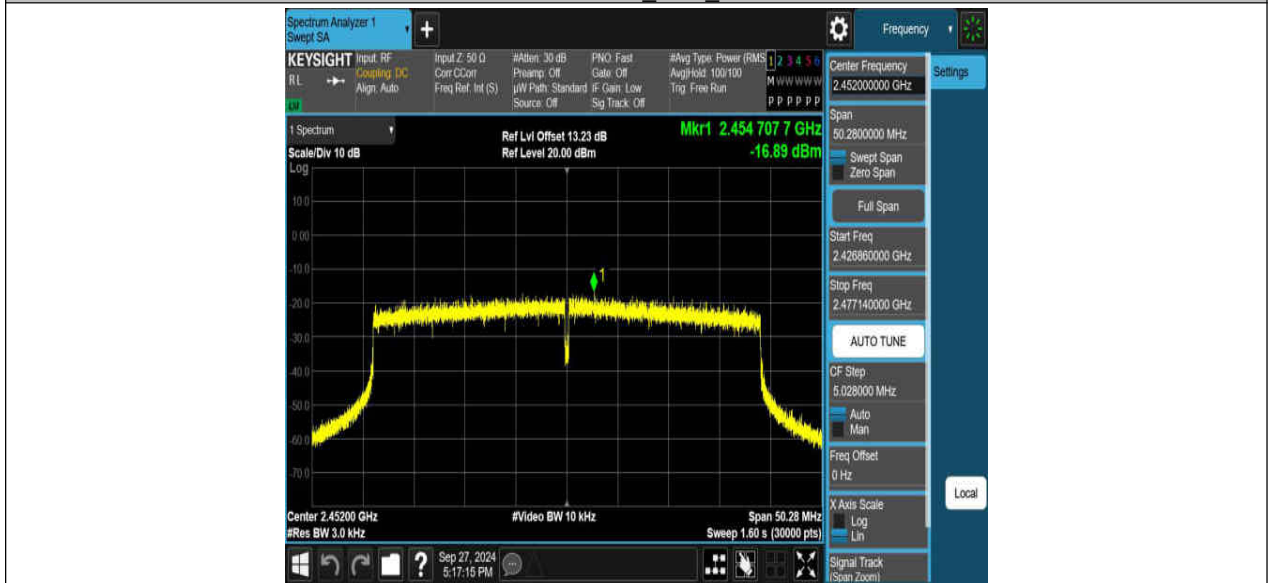
11AX40SISO Ant1_2422



11AX40SISO Ant1 2437



11AX40SISO Ant1 2452



12. Conducted Band edge and Spurious Emissions

12.1. Block diagram of test setup

Same as section 8.1

12.2. Limits

CFR 47 FCC Part15 (15.247) Subpart C ISED RSS-247 ISSUE 3		
Section	Test Item	Limit
CFR 47 FCC §15.247 (d) ISED RSS-247 5.5	Conducted Bandedge and Spurious Emissions	at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

12.3. Test Procedure

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

Connect the UUT to the spectrum analyzer and use the following settings:

Use the peak marker function to determine the maximum PSD level.

Span	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100 kHz
VBW	$\geq 3 \times \text{RBW}$
measurement points	$\geq \text{span}/\text{RBW}$
Trace	Max hold
Sweep time	Auto couple.

Use the peak marker function to determine the maximum amplitude level.

12.4. Test result

Test Mode	Ant.	Ch Name	Freq. (MHz)	Ref Level (dBm)	Result (dBm)	Limit (dBm)	Verdict
11B	Ant1	Low	2412	7.01	-33.55	≤ -12.99	PASS
		High	2462	8.02	-43.64	≤ -11.98	PASS
11G	Ant1	Low	2412	2.21	-28.32	≤ -17.79	PASS
		High	2462	-0.34	-43.09	≤ -20.34	PASS
11N20SISO	Ant1	Low	2412	-2.33	-32.54	≤ -22.33	PASS
		High	2462	-0.95	-46.13	≤ -20.95	PASS
11N40SISO	Ant1	Low	2422	-3.25	-35.25	≤ -23.25	PASS
		High	2452	-1.18	-42.29	≤ -21.18	PASS
11AX20SISO	Ant1	Low	2412	-1.51	-31.51	≤ -21.51	PASS
		High	2462	-1.01	-45.36	≤ -21.01	PASS
11AX40SISO	Ant1	Low	2422	-2.43	-34.25	≤ -22.43	PASS
		High	2452	-1.88	-44.81	≤ -21.88	PASS

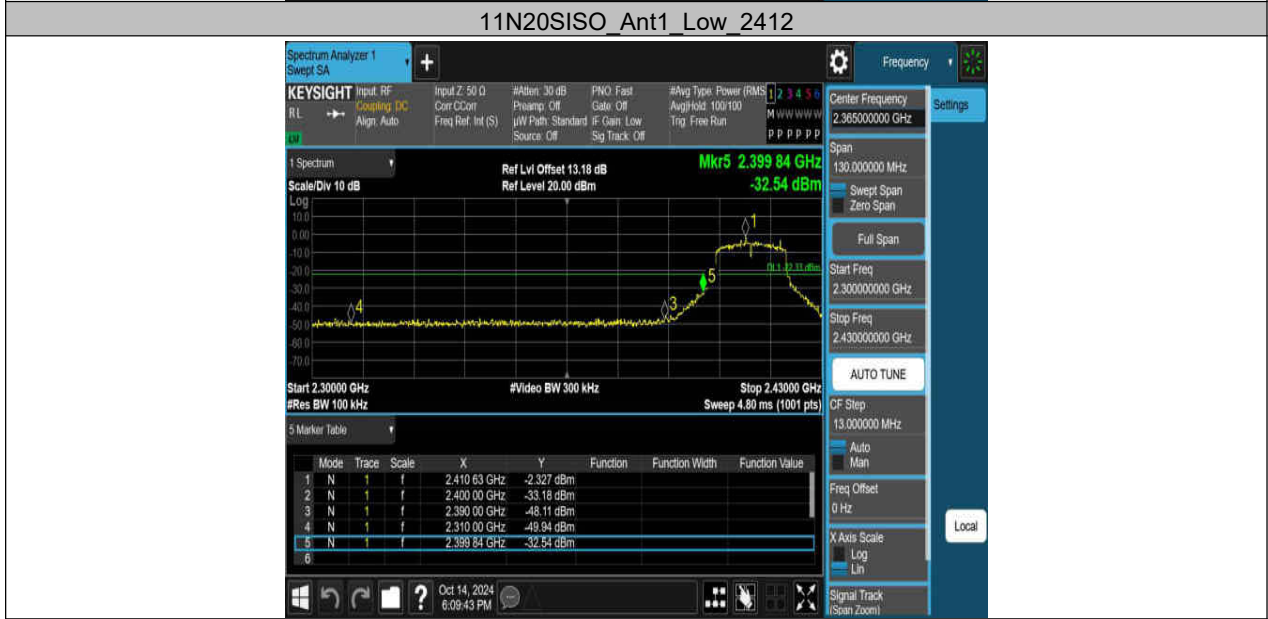
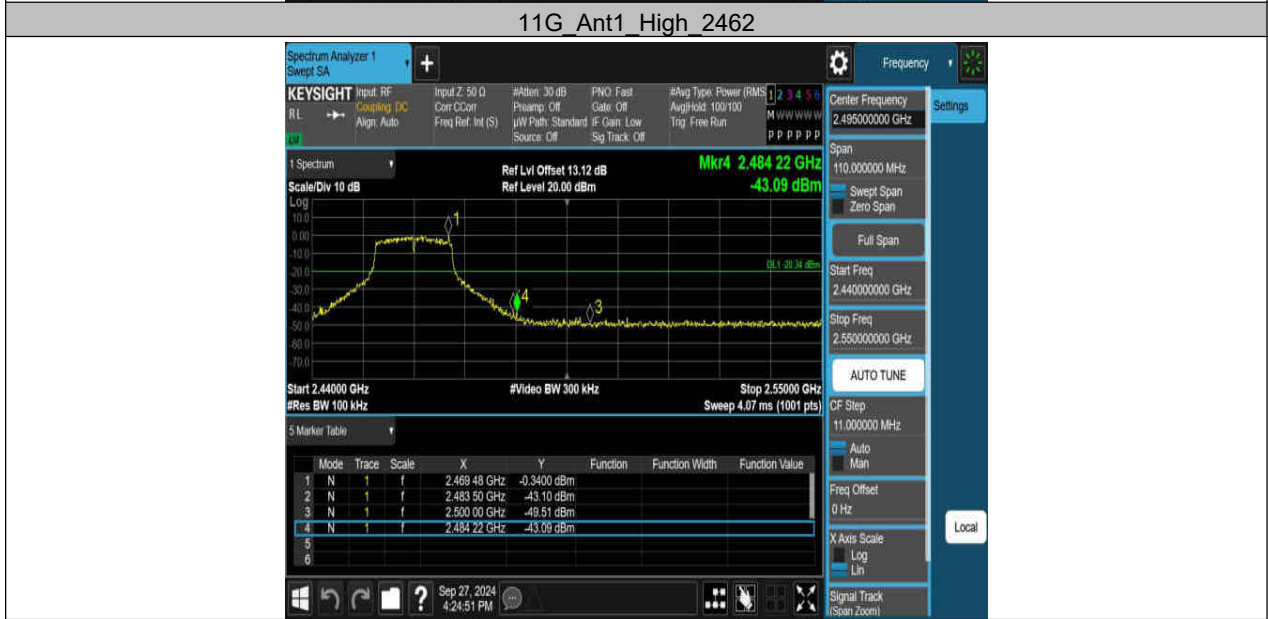
Test Mode	Ant.	Freq. (MHz)	Freq Range (Mhz)	Ref Level (dBm)	Result (dBm)	Limit (dBm)	Verdict
11B	Ant1	2412	Reference	5.36	5.36	---	PASS
			30~1000	5.36	-56.46	≤-14.64	PASS
			1000~26500	5.36	-42.29	≤-14.64	PASS
		2437	Reference	6.20	6.20	---	PASS
			30~1000	6.20	-57.08	≤-13.8	PASS
			1000~26500	6.20	-41.24	≤-13.8	PASS
		2462	Reference	4.97	4.97	---	PASS
			30~1000	4.97	-58.38	≤-15.03	PASS
			1000~26500	4.97	-41.12	≤-15.03	PASS
11G	Ant1	2412	Reference	-1.43	-1.43	---	PASS
			30~1000	-1.43	-58.37	≤-21.43	PASS
			1000~26500	-1.43	-48.28	≤-21.43	PASS
		2437	Reference	1.45	1.45	---	PASS
			30~1000	1.45	-58.76	≤-18.55	PASS
			1000~26500	1.45	-46.86	≤-18.55	PASS
		2462	Reference	1.50	1.50	---	PASS
			30~1000	1.50	-59.13	≤-18.5	PASS
			1000~26500	1.50	-47.37	≤-18.5	PASS
11N20SISO	Ant1	2412	Reference	-0.19	-0.19	---	PASS
			30~1000	-0.19	-59.09	≤-20.19	PASS
			1000~26500	-0.19	-49.05	≤-20.19	PASS
		2437	Reference	-4.17	-4.17	---	PASS
			30~1000	-4.17	-58.51	≤-24.17	PASS
			1000~26500	-4.17	-49.18	≤-24.17	PASS
		2462	Reference	-4.51	-4.51	---	PASS
			30~1000	-4.51	-58.48	≤-24.51	PASS
			1000~26500	-4.51	-49.76	≤-24.51	PASS
11N40SISO	Ant1	2422	Reference	-4.26	-4.26	---	PASS
			30~1000	-4.26	-59.09	≤-24.26	PASS
			1000~26500	-4.26	-49.64	≤-24.26	PASS
		2437	Reference	-0.84	-0.84	---	PASS
			30~1000	-0.84	-58.54	≤-20.84	PASS
			1000~26500	-0.84	-47.86	≤-20.84	PASS
		2452	Reference	-2.63	-2.63	---	PASS
			30~1000	-2.63	-58.62	≤-22.63	PASS
			1000~26500	-2.63	-48.62	≤-22.63	PASS
11AX20SISO	Ant1	2412	Reference	-3.80	-3.80	---	PASS
			30~1000	-3.80	-58.96	≤-23.8	PASS
			1000~26500	-3.80	-49.58	≤-23.8	PASS
		2437	Reference	-4.81	-4.81	---	PASS
			30~1000	-4.81	-59.05	≤-24.81	PASS
			1000~26500	-4.81	-49.46	≤-24.81	PASS
		2462	Reference	-4.75	-4.75	---	PASS
			30~1000	-4.75	-58.76	≤-24.75	PASS
			1000~26500	-4.75	-49.12	≤-24.75	PASS
11AX40SISO	Ant1	2422	Reference	-2.68	-2.68	---	PASS
			30~1000	-2.68	-58.91	≤-22.68	PASS
			1000~26500	-2.68	-50.02	≤-22.68	PASS
		2437	Reference	-3.06	-3.06	---	PASS
			30~1000	-3.06	-58.81	≤-23.06	PASS
			1000~26500	-3.06	-48.6	≤-23.06	PASS
		2452	Reference	-3.69	-3.69	---	PASS

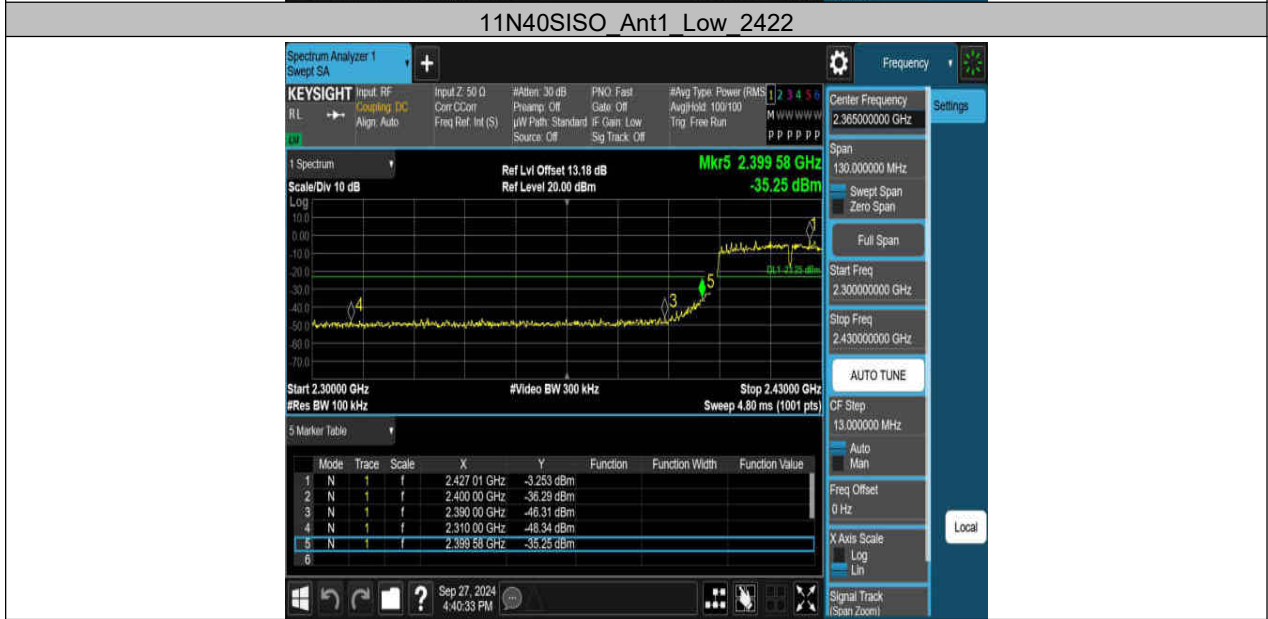
		30~1000	-3.69	-58.81	≤-23.69	PASS
		1000~26500	-3.69	-49.24	≤-23.69	PASS

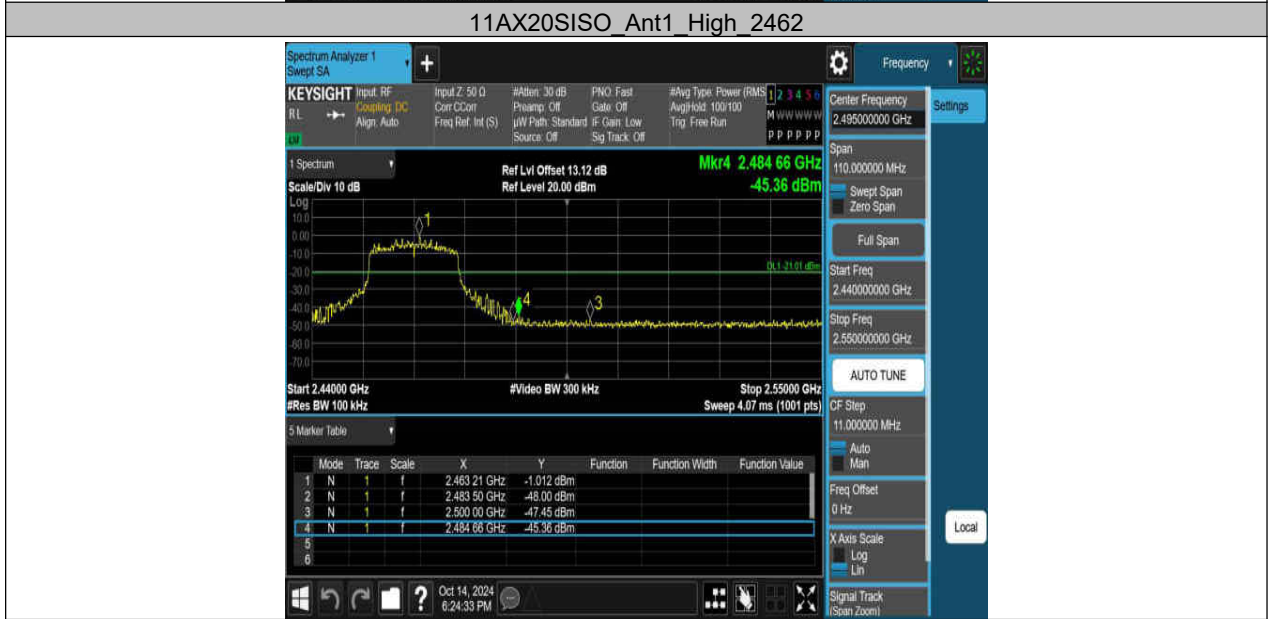
12.5. Original test data

Band edge:



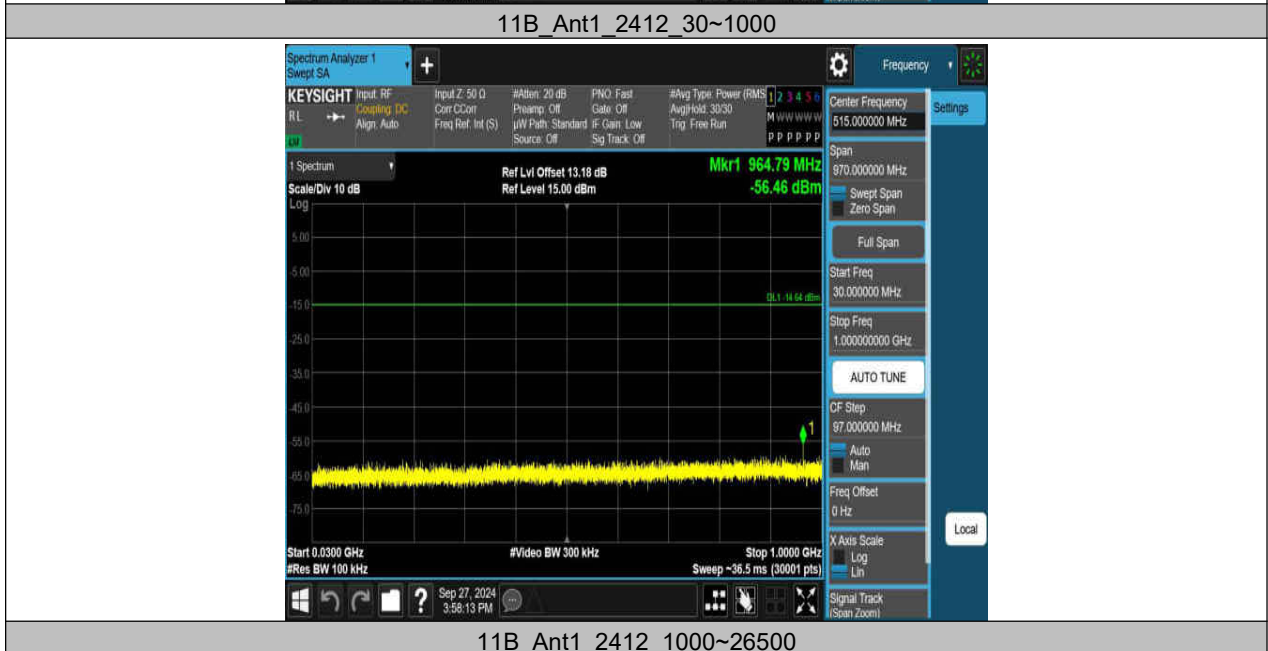
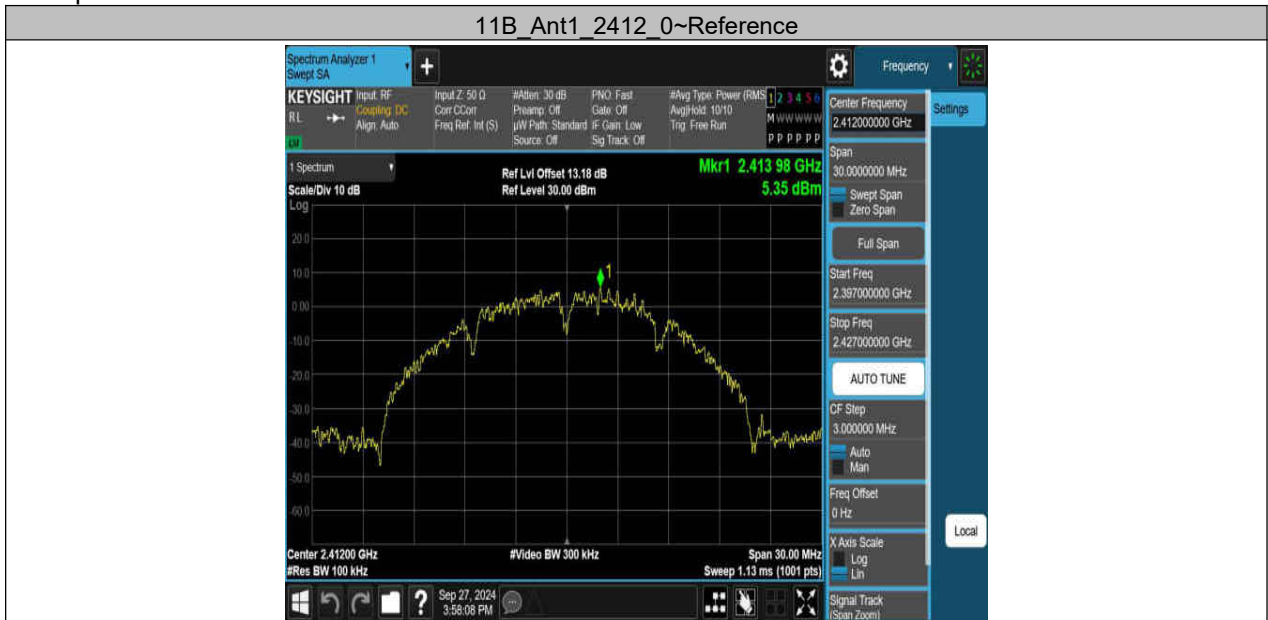








Spurious Emission:





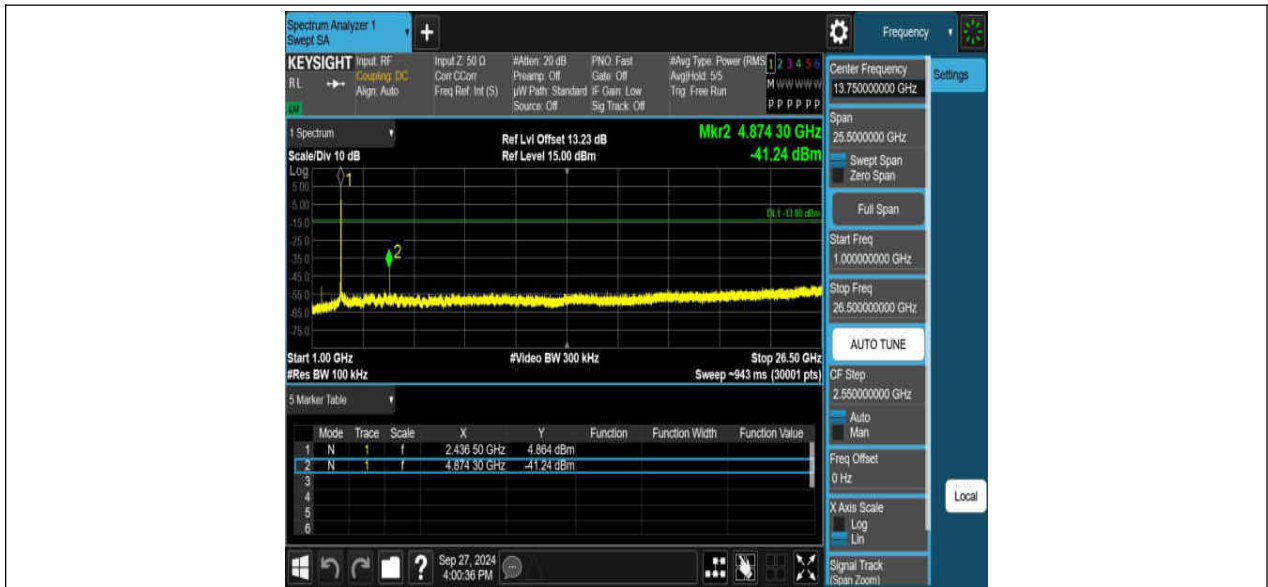
11B_Ant1_2437_0~Reference



11B_Ant1_2437_30~1000



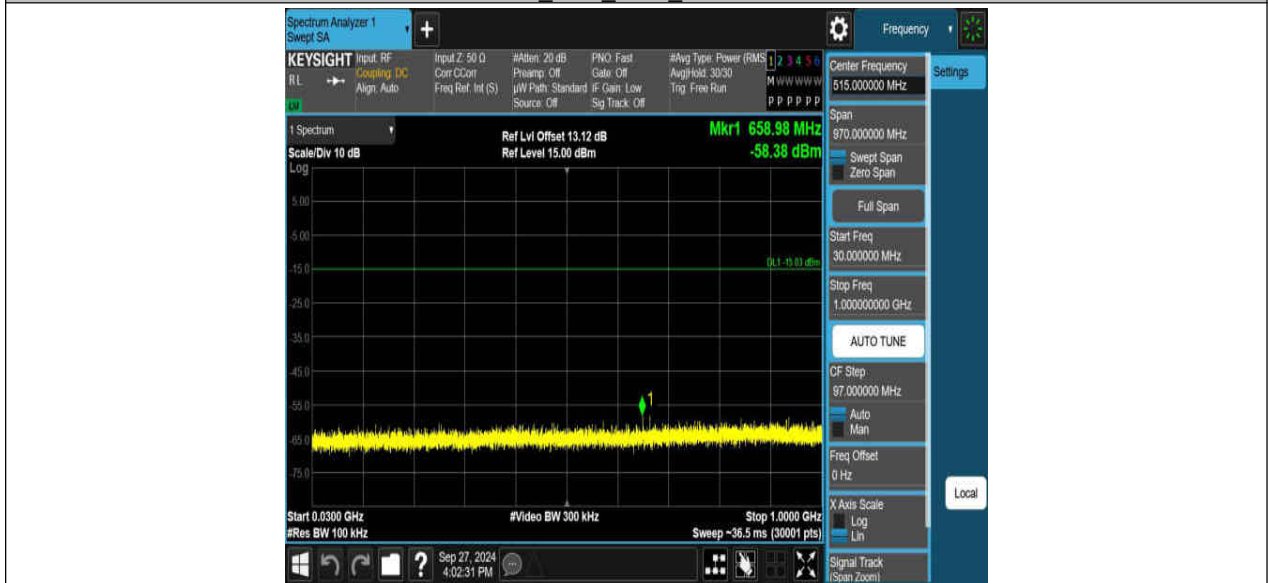
11B_Ant1_2437_1000~26500



11B_Ant1_2462_0~Reference



11B_Ant1_2462_30~1000



11B_Ant1_2462_1000~26500



11G_Ant1_2412_0-Reference



11G_Ant1_2412_30-1000



11G_Ant1_2412_1000-26500