



**FCC 47 CFR PART 15 SUBPART C
ISED RSS-247 Issue 2**

CERTIFICATION TEST REPORT

For

Wi-Fi PT Camera

MODEL NUMBER: IP4MCB1PROPT

**ADDITIONAL MODEL NUMBER: IP4MCB2PROPT; IP4MCB3PROPT;
IP4MCB4PROPT**

PROJECT NUMBER: 4790693459

REPORT NUMBER: 4790693459-1

FCC ID: 2AV6B-IP4MCBPT

IC: 26035-IP4MCBPT

ISSUE DATE: Jan. 09, 2023

Prepared for

Empowerment Technologies Inc

Prepared by

UL-CCIC COMPANY LIMITED

No. 2, Chengwan Road, Suzhou Industrial Park, People's Republic of China

Tel: + 86-512-6808 6400

Fax: + 86-512-6808 4099

Website: www.ul.com

Form-ULID-008536-9 V2.0

The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V0	01/09/2023	Initial Issue	

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	4
2. TEST METHODOLOGY	6
3. FACILITIES AND ACCREDITATION	6
4. CALIBRATION AND UNCERTAINTY	7
4.1. MEASURING INSTRUMENT CALIBRATION	7
4.2. MEASUREMENT UNCERTAINTY.....	7
5. EQUIPMENT UNDER TEST	8
5.1. DESCRIPTION OF EUT	8
5.2. MAXIMUM OUTPUT POWER	9
5.3. CHANNEL LIST.....	9
5.4. TEST CHANNEL CONFIGURATION.....	10
5.5. THE WORSE CASE POWER SETTING PARAMETER.....	10
5.6. DESCRIPTION OF AVAILABLE ANTENNAS.....	11
5.7. THE WORSE CASE CONFIGURATIONS.....	11
5.8. DESCRIPTION OF TEST SETUP	12
5.9. MEASURING INSTRUMENT AND SOFTWARE USED	13
6. MEASUREMENT METHODS	14
7. ANTENNA PORT TEST RESULTS.....	15
7.1. TEST ENVIRONMENT.....	15
7.2. ON TIME AND DUTY CYCLE.....	16
7.3. 6 dB BANDWIDTH	19
7.4. CONDUCTED POWER	33
7.5. POWER SPECTRAL DENSITY.....	41
7.6. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS	49
7.7. RADIATED TEST RESULTS.....	80
7.7.1. LIMITS AND PROCEDURE	80
7.7.2. RESTRICTED BANDEDGE	86
7.7.3. SPURIOUS EMISSIONS	103
8. AC POWER LINE CONDUCTED EMISSIONS.....	160
9. ANTENNA REQUIREMENTS.....	163

1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Empowerment Technologies Inc
Address: Unit 2, 590 York Road, Niagara on the Lake, ON, Canada L0S 1J0

Manufacturer Information

Company Name: Empowerment Technologies Inc
Address: Unit 2, 590 York Road, Niagara on the Lake, ON, Canada L0S 1J0

EUT Description

Product Name: Wi-Fi PT Camera
Model Name: IP4MCB1PROPT
Additional Model: IP4MCB2PROPT; IP4MCB3PROPT; IP4MCB4PROPT
Number:

Model Difference: Only the main model IP4MCB1PROPT was tested and only the data of this model is shown in this test report. Since Their electrical circuit design, layout, components used and internal wiring are identical, only the model numbers are different.

Sample Number: 5606541

Data of Receipt Sample: Jan. 04, 2023

Date Tested: Jan. 04, 2023~ Jan. 08, 2023

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	PASS
ISED RSS-247 Issue 2	PASS
ISED RSS-GEN Issue 5	PASS

Summary of Test Results			
Clause	Test Items	FCC/IC Rules	Test Results
1	6db DTS Bandwidth and 99% Bandwidth	FCC 15.247 (a) (2) RSS-247 Clause 5.2 (a) RSS-Gen Clause 6.7	Complied
2	Conducted (average)Output Power	FCC 15.247 (b) (3) RSS-247 Clause 5.4 (d) RSS-Gen Clause 6.12	Complied
3	Power Spectral Density	FCC 15.247 (e) RSS-247 Clause 5.2 (b)	Complied
4	Conducted Band edge And Spurious emission	FCC 15.247 (d) RSS-247 Clause 5.5 RSS-GEN Clause 6.13	Complied
5	Radiated Band edges and Spurious emission	FCC 15.247 (d) FCC 15.209 FCC 15.205 RSS-247 Clause 5.5 RSS-GEN Clause 8.9 RSS-GEN Clause 6.13	Complied
6	Conducted Emission Test For AC Power Port	FCC 15.207 RSS-GEN Clause 8.8	Complied
7	Antenna Requirement	FCC 15.203 RSS-GEN Clause 6.8	Complied
Remark: 1) The measurement result for the sample received is <Pass> according to < ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15C, ISSED RSS-GEN ISSUE 5, ISSED RSS-247 ISSUE2> when <Accuracy Method> decision rule is applied.			

Prepared By:

Tom Tang

Tom Tang

Reviewed By:

Leon Wu

Leon Wu

Authorized By:

Chris Zhong

Chris Zhong
EMC&RF Lab Operations Manager

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC KDB 558074 D01 15.247 Meas Guidance v05r02, KDB 414788 D01 Radiated Test Site v01r01, ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15, ISSED RSS-GEN ISSUE 5, ISSED RSS-247 ISSUE 2.

3. FACILITIES AND ACCREDITATION

Accreditation Certificate	A2LA (Certificate No.: 4829.01) UL-CCIC COMPANY LIMITED has been assessed and proved to be in compliance with A2LA. FCC (FCC Designation No.: CN1247) UL-CCIC COMPANY LIMITED has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules. IC (IC Designation No.: 25056; CAB No.:CN0073) UL-CCIC COMPANY LIMITED has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules.
---------------------------	---

Note 1: All tests measurement facilities use to collect the measurement data are located at No. 2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122, People's Republic of China

Note 2: For below 30MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. These measurements below 30MHz had been correlated to measurements performed on an OFS.

Note 3: The test anechoic chamber in UL-CCIC COMPANY LIMITED had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

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

Test Item	Uncertainty
Conduction emission	3.1dB
Radiation Emission test(include Fundamental emission) (9KHz-30MHz)	3.4dB
Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	3.4dB
Radiation Emission test (1GHz to 26GHz)(include Fundamental emission)	3.7dB (1GHz-18Gz)
	4.0dB (18GHz-26.5Gz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

Product Name:	Wi-Fi PT Camera
Model No.:	IP4MCB1PROPT
Operating Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11n(HT40): 2422MHz to 2452MHz
Type of Modulation:	IEEE for 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE for 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n (HT20 and HT40): OFDM (64QAM, 16QAM, QPSK, BPSK)
Channels Step:	Channels with 5MHz step
Test software of EUT:	Secure CRT (manufacturer declare)
Antenna Type	External Antenna
Antenna Gain:	1.43dBi
	Remark: This data is provided by customer and our lab isn't responsible for this data
Test Voltage	AC120V

5.2. MAXIMUM OUTPUT POWER

Number of Transmit Chains (NTX)	IEE Std. 802.11	Channel Number	Max AV Conducted Power (dBm)
1	IEEE 802.11B SISO	1-11[11]	16.45
1	IEEE 802.11G SISO	1-11[11]	14.03
1	IEEE 802.11nHT20	1-11[11]	13.79
1	IEEE 802.11nHT40	3-9[7]	13.80

Remark: Although this EUT looks like it has two antennas, but the only one antenna is working, another is no function just for decoration.

5.3. CHANNEL LIST

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

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
WiFi TX(802.11b)	CH 1, CH 6, CH 11	2412MHz, 2437MHz, 2462MHz
WiFi TX(802.11g)	CH 1, CH 6, CH 11	2412MHz, 2437MHz, 2462MHz
WiFi TX(802.11n HT20)	CH 1, CH 6, CH 11	2412MHz, 2437MHz, 2462MHz
WiFi TX(802.11n HT40)	CH 3, CH 6, CH 9	2422MHz, 2437MHz, 2452MHz

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band							
Test Software		Secure CRT (manufacturer declare)					
Modulation Mode	Transmit Antenna Number	Test Channel					
		NCB: 20MHz			NCB: 40MHz		
		CH 1	CH 6	CH 11	CH 3	CH 6	CH 9
802.11b	1	Default	Default	Default	/		
802.11g	1	Default	Default	Default			
802.11n HT20	1	Default	Default	Default			
802.11n HT40	1	/			Default	Default	Default

Remark: Although this EUT looks like it has two antennas, but the only one antenna is working, another is no function just for decoration.

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1	2400-2483.5	External Antenna	1.43

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	☒ 1TX, 1RX	Antenna1 can be used as transmitting/receiving antenna independently.
IEEE 802.11g	☒ 1TX, 1RX	Antenna1 can be used as transmitting/receiving antenna independently.
IEEE 802.11N (HT20)	☒ 1TX, 1RX	Antenna1 can be used as transmitting/receiving antenna independently.
IEEE 802.11N (HT40)	☒ 1TX, 1RX	Antenna1 can be used as transmitting/receiving antenna independently.

Remark: Although this EUT looks like it has two antennas, but the only one antenna is working, another is no function just for decoration.

5.7. THE WORSE CASE CONFIGURATIONS

For the product, there only one transmission antenna, and worst-case data rates as provided by the client were:

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11n HT20 mode: MCS0
802.11n HT40 mode: MCS0

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Description
1	Laptop	ThinkPad	E590	N/A

I/O PORT

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	USB to TTL	USB	100cm Length	N/A
2	LAN	LAN	LAN	100cm Length	N/A

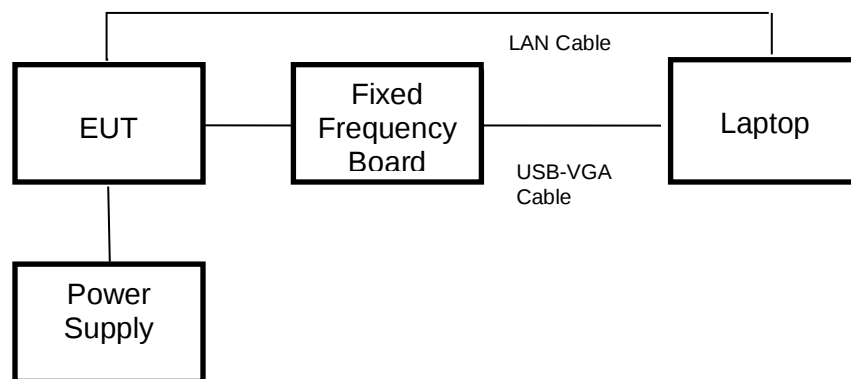
ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
1	N/A	N/A	N/A	N/A

TEST SETUP

The EUT can work in an engineer mode with a software through a table PC.

SETUP DIAGRAM FOR TESTS



Remark: The EUT has been built one SD card during the testing

5.9. MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emissions (Instrument)							
Used	Equipment	Manufacturer	Model No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
☒	EMI Test Receiver	R&S	ESR3	126700	2021-12-04	2022-12-19	2023-12-18
☒	Two-Line V-Network	R&S	ENV216	126701	2021-12-04	2022-12-03	2023-12-02
Software							
Used	Description		Manufacturer		Name	Version	
☒	Test Software for Conducted disturbance		R&S		EMC32	Ver. 9.25	
Radiated Emissions (Instrument)							
Used	Equipment	Manufacturer	Model No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
☒	Spectrum Analyzer	Keysight	N9010B	155727	2021-05-09	2022-04-09	2023-04-08
☒	EMI test receiver	R&S	ESR7	221694	/	2022-05-20	2023-05-19
☒	EMI test receiver	R&S	ESR26	126703	2020-12-05	2022-12-03	2023-12-02
☒	Receiver Antenna (9kHz-30MHz)	Schwarzbeck	FMZB 1513	155456	2018-06-15	2021-06-03	2024-06-02
☒	Receiver Antenna (30MHz-1GHz)	Schwarzbeck	VULB 9163	126704	2019-02-15	2022-01-18	2025-01-17
☒	Receiver Antenna (1GHz-18GHz)	R&S	HF907	126705	2018-01-29	2022-02-28	2025-02-27
☒	Receiver Antenna (18GHz-26.5GHz)	ETS	3160-10	155565	2019-01-05	2021-07-15	2024-07-14
☒	Pre-amplification (To 18GHz)	R&S	SCU-18D	134667	2021-12-04	2022-12-03	2023-12-02
☒	Pre-amplification (To 18GHz)	Tonsend	TAP01018050	224539	/	2022-10-20	2023-10-19
☒	Pre-amplification (To 26.5GHz)	R&S	SCU-26D	135391	2021-12-05	2022-12-03	2023-12-02
☒	Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	1	2021-05-09	2022-04-09	2023-04-08
☒	Highpass Filter	Wainwright	WHKX10-2700-3000-18000-40SS	2	2021-05-09	2022-04-09	2023-04-08
☒	Attenuator	Wainwright	BW-N1-W5+	3	2021-05-09	2022-05-08	2023-05-07
Software							
Used	Description		Manufacturer		Name	Version	
☒	Test Software for Radiated disturbance		Tonscend		JS36-RSE	4.0.0.1	
Other instruments							
Used	Equipment	Manufacturer	Model No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
☒	Spectrum Analyzer	Keysight	N9010B	155368	2021-05-09	2022-04-09	2023-04-08

Form-ULID-008536-9 V2.0

UL-CCIC COMPANY LIMITED

This report shall not be reproduced except in full, without the written approval of UL-CCIC COMPANY LIMITED.

☒	Attenuator	PASTERNAK	PE7087-6	1624	/	2022-05-23	2023-05-22
-------------------------------------	------------	-----------	----------	------	---	------------	------------

6. MEASUREMENT METHODS

No.	Test Item	KDB Name	Section
1	6dB Bandwidth	KDB 558074 D01 15.247 Meas Guidance v05r02	8.2
2	Conducted Output Power	KDB 558074 D01 15.247 Meas Guidance v05r02	8.3.2.2 (Method AVGSA-2)
3	Power Spectral Density	KDB 558074 D01 15.247 Meas Guidance v05r02	8.4 (Method PKPSD)
4	Out-of-band emissions in non-restricted bands	KDB 558074 D01 15.247 Meas Guidance v05r02	8.5
5	Out-of-band emissions in restricted bands	KDB 558074 D01 15.247 Meas Guidance v05r02	8.6
6	Band-edge	KDB 558074 D01 15.247 Meas Guidance v05r02	8.7
7	Conducted Emission Test For AC Power Port	ANSI C63.10-2013	6.2

7. ANTENNA PORT TEST RESULTS

7.1. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests
Relative Humidity	47.2%
Atmospheric Pressure:	102.9kPa
Temperature	23°C

7.2. ON TIME AND DUTY CYCLE

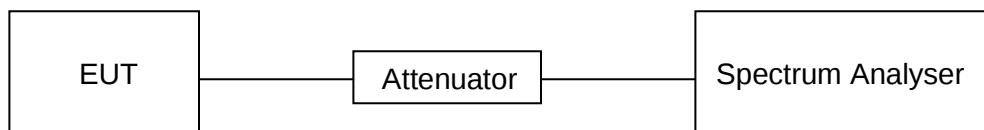
LIMITS

None; for reporting purposes only

PROCEDURE

FCC KDB 558074 Zero-Span Spectrum Analyzer Method

TEST SETUP



RESULTS

Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)	1/T Minimum VBW (KHz)	Final Minimum VBW (KHz)
11B	8.38	8.44	0.993	99.3	N/A(note5)	0.12	0.01(note4)
11G	1.39	1.46	0.952	95.2	0.21	0.72	1
11N HT20	5.09	5.16	0.986	98.6	N/A(note5)	0.20	0.01(note4)
11N HT40	2.47	2.53	0.976	97.6	0.11	0.40	1

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

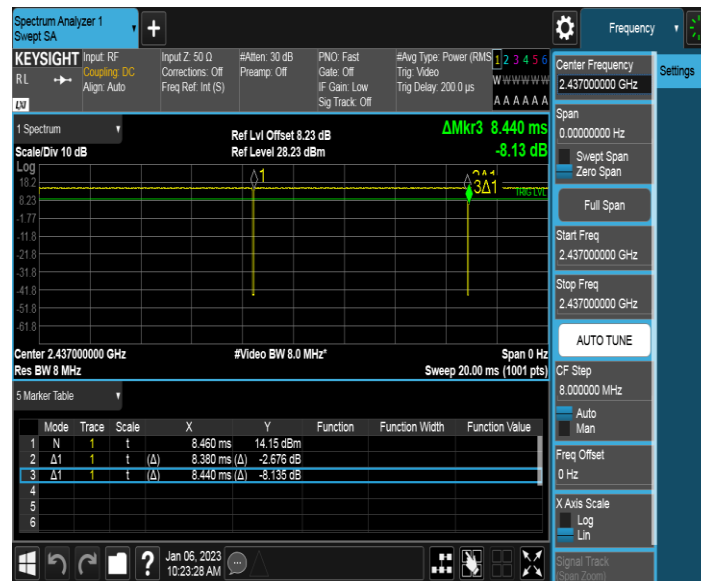
2) Where: x is Duty Cycle(Linear)

3) Where: T is On Time (transmit duration)

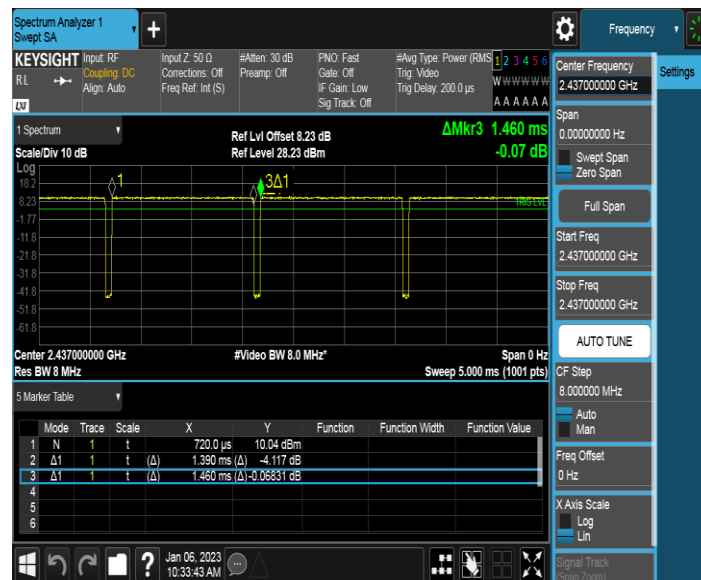
4) The minimum VBW should be 10Hz if the duty cycle is over 98%.

5) There no correct value for the duty cycle is higher than 98%.

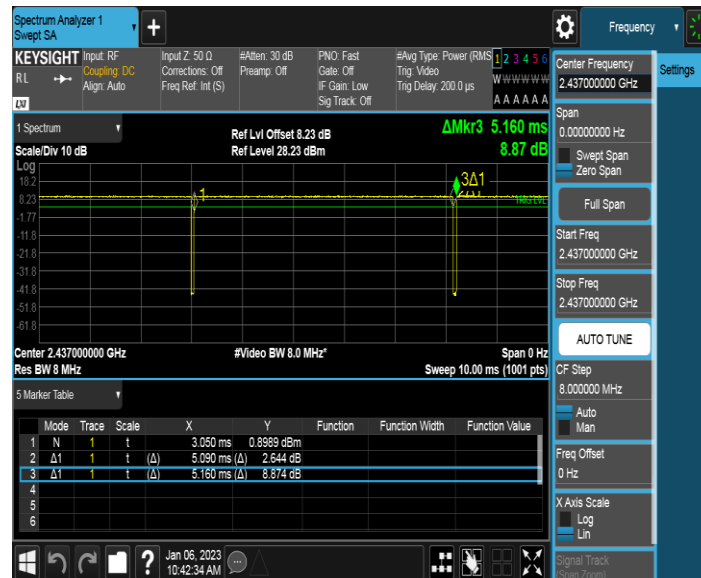
11B ON TIME AND DUTY CYCLE MID CH (WORSE CASE)



11G ON TIME AND DUTY CYCLE MID CH (WORSE CASE)



11N HT20 ON TIME AND DUTY CYCLE MID CH (WORSE CASE)



11N HT40 ON TIME AND DUTY CYCLE MID CH (WORSE CASE)



7.3. 6 dB BANDWIDTH

LIMITS

FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(a)(2)	6dB Bandwidth	$\geq 500\text{KHz}$	2400-2483.5
	99% Occupied Bandwidth	For reporting purposes only.	2400-2483.5

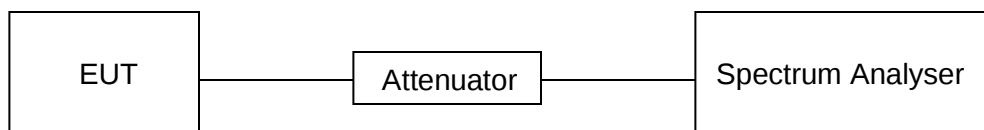
TEST PROCEDURE

Refer to FCC KDB 558074, 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	For 6dB Bandwidth :100K For 99% Occupied Bandwidth :1% to 5% of the occupied bandwidth
VBW	For 6dB Bandwidth : $\geq 3 \times \text{RBW}$ For 99% Occupied Bandwidth : approximately $3 \times \text{RBW}$
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 relative to the maximum level measured in the fundamental emission.

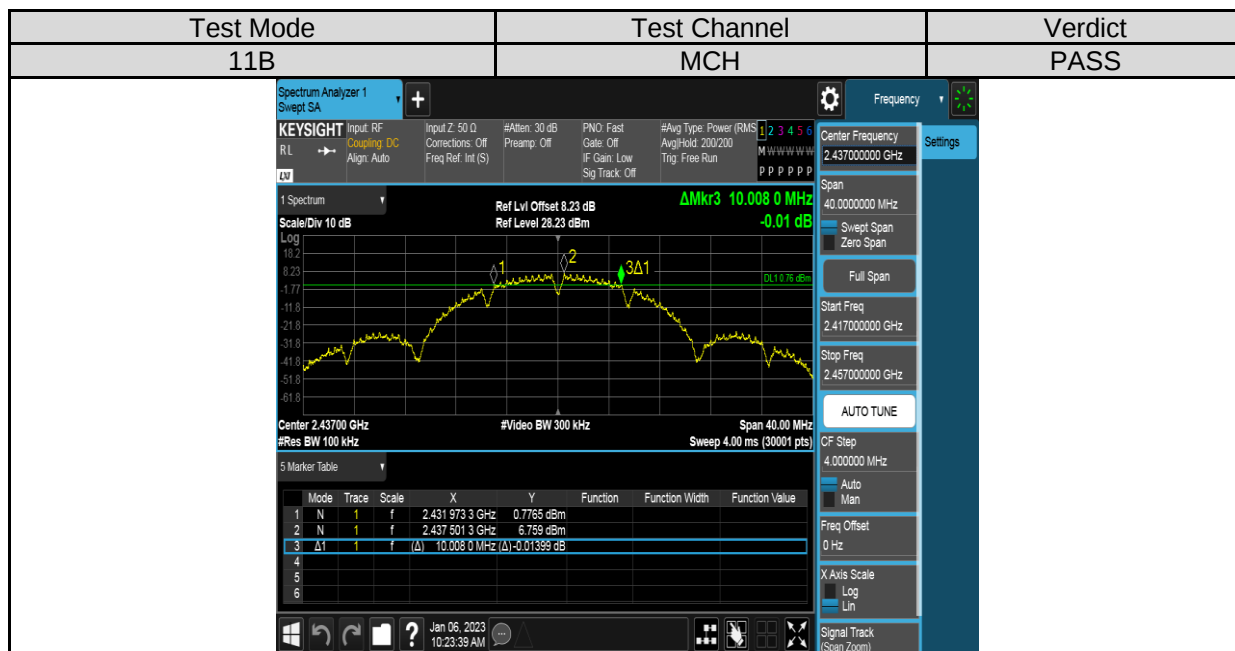
TEST SETUP

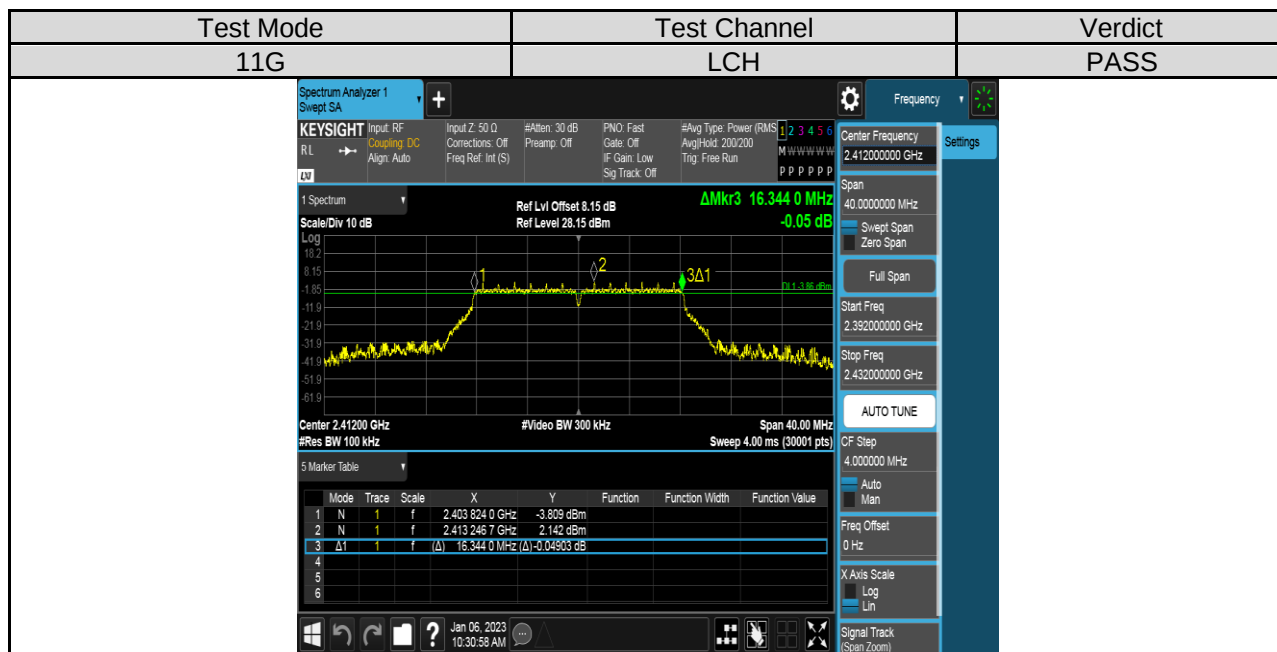
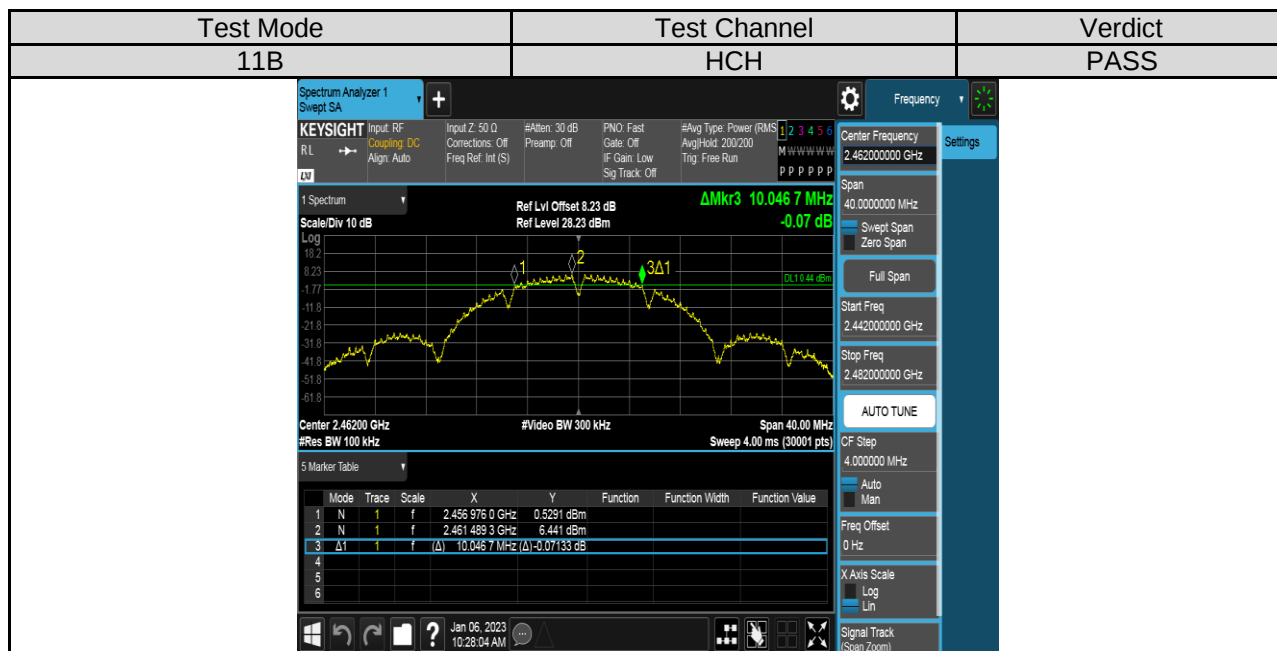


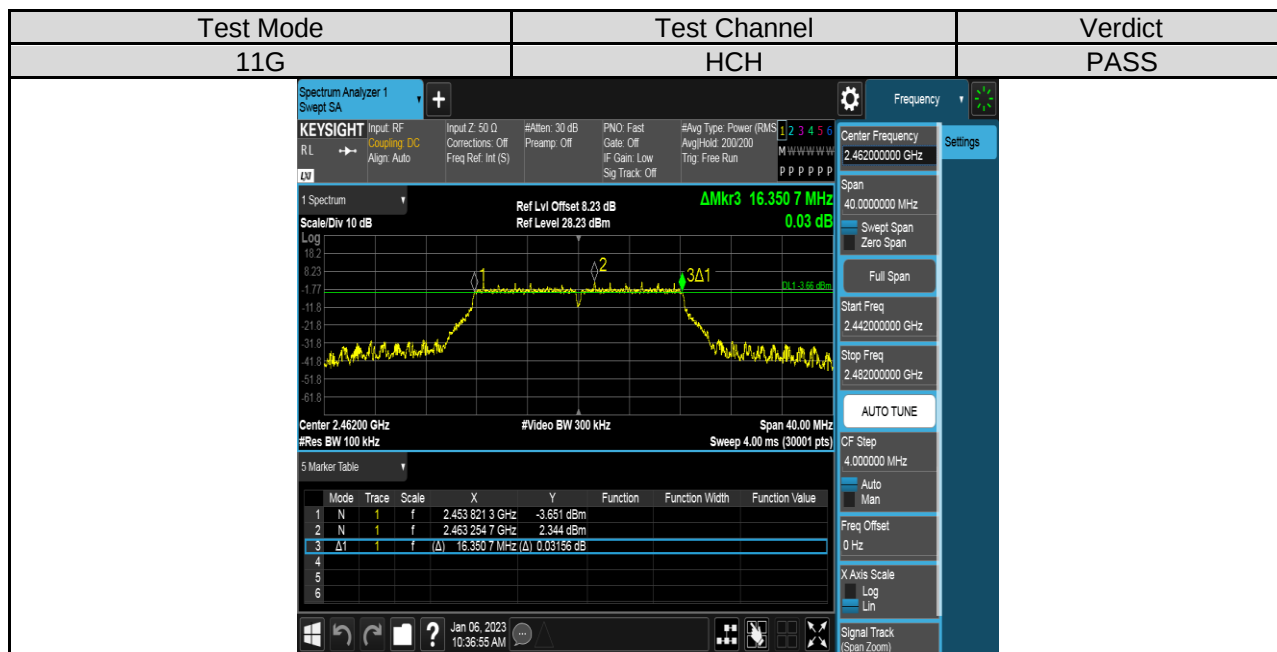
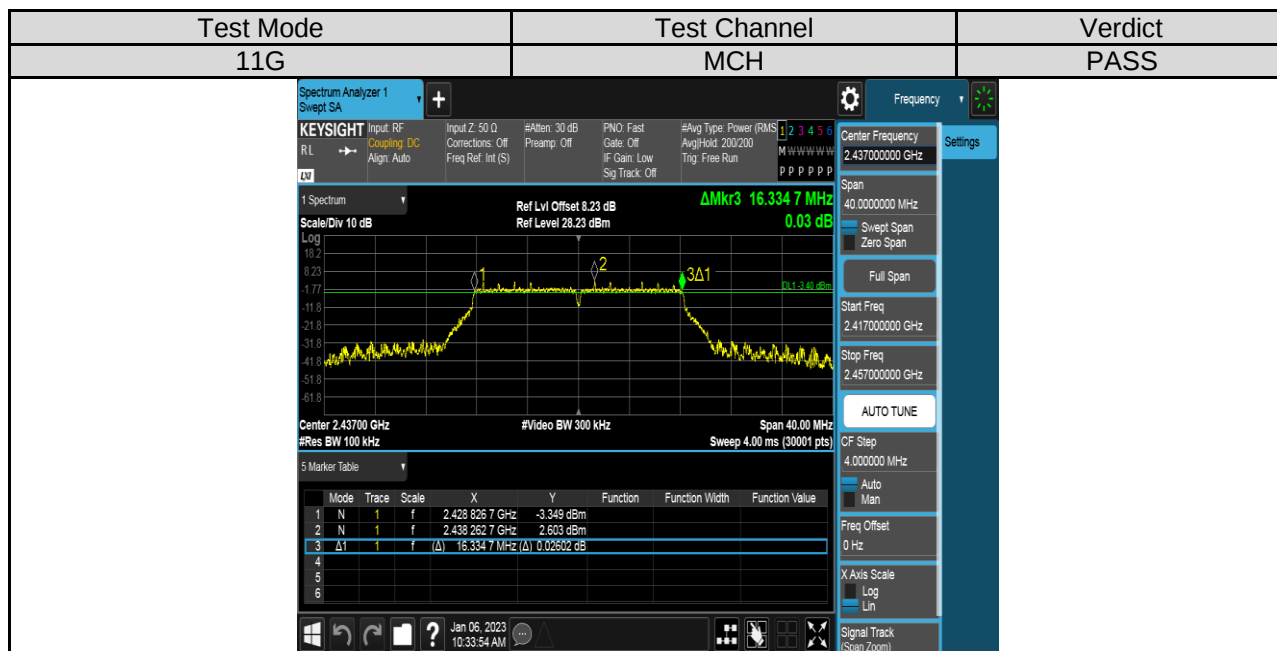
RESULTS

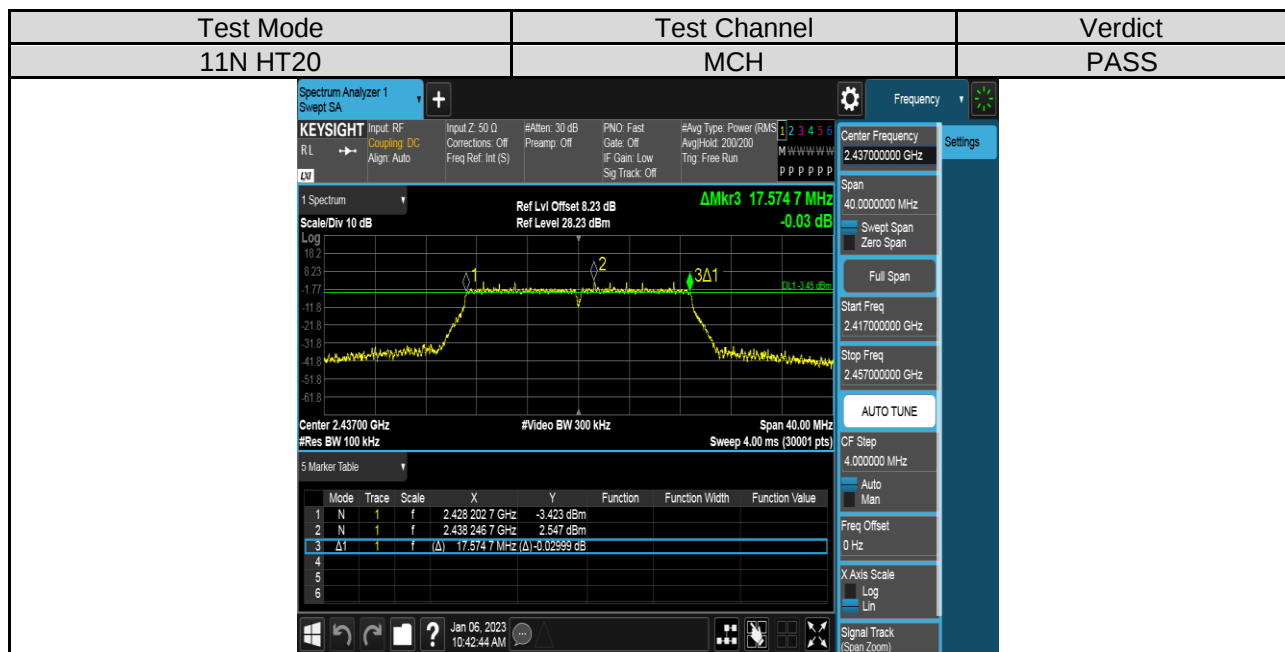
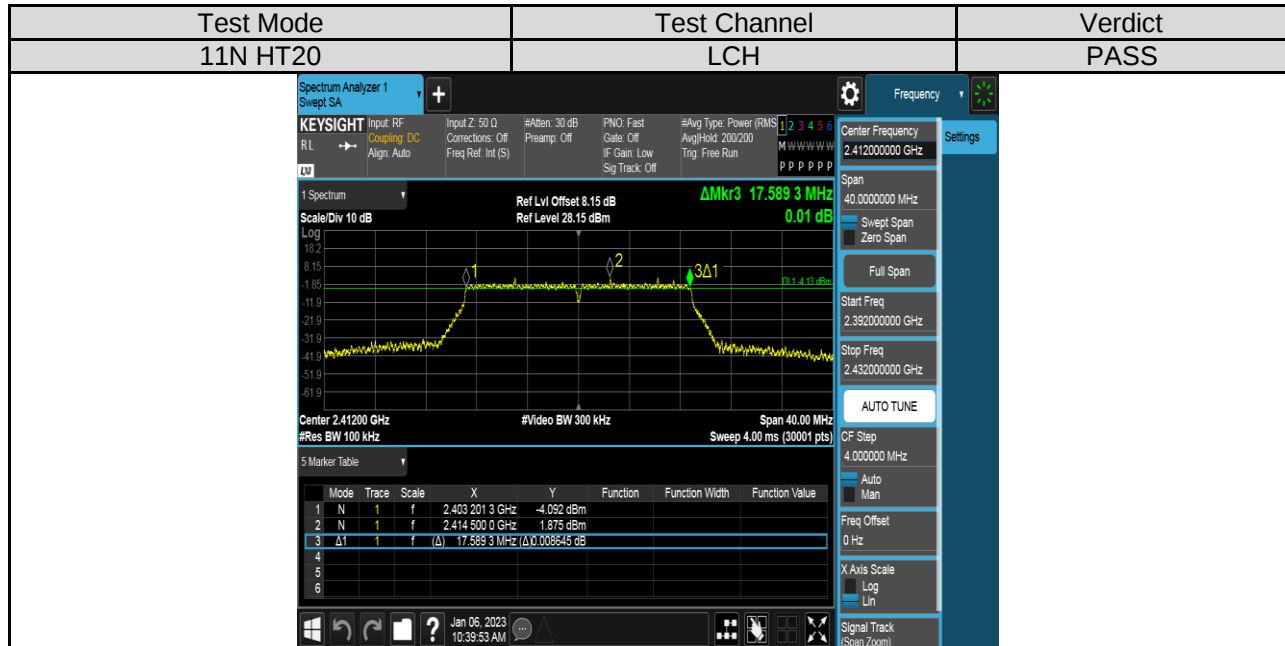
Test Mode	Test Channel	6dB bandwidth (MHz)	99% bandwidth (MHz)_For reporting purposes only.	Result
11B	LCH	10.045	15.231	Pass
	MCH	10.008	15.150	Pass
	HCH	10.047	15.200	Pass
11G	LCH	16.344	16.622	Pass
	MCH	16.335	16.610	Pass
	HCH	16.351	16.619	Pass
11N HT20	LCH	17.589	17.818	Pass
	MCH	17.575	17.813	Pass
	HCH	17.595	17.828	Pass
11N HT40	LCH	36.285	36.451	Pass
	MCH	36.317	36.406	Pass
	HCH	36.323	36.460	Pass

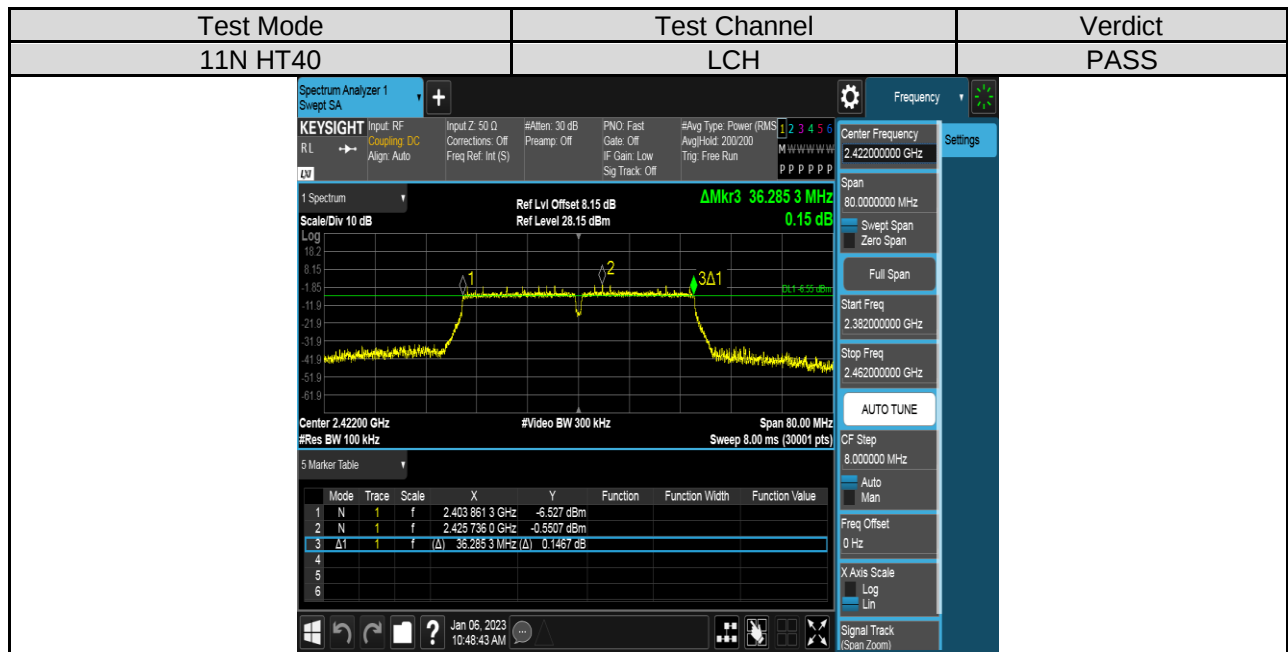
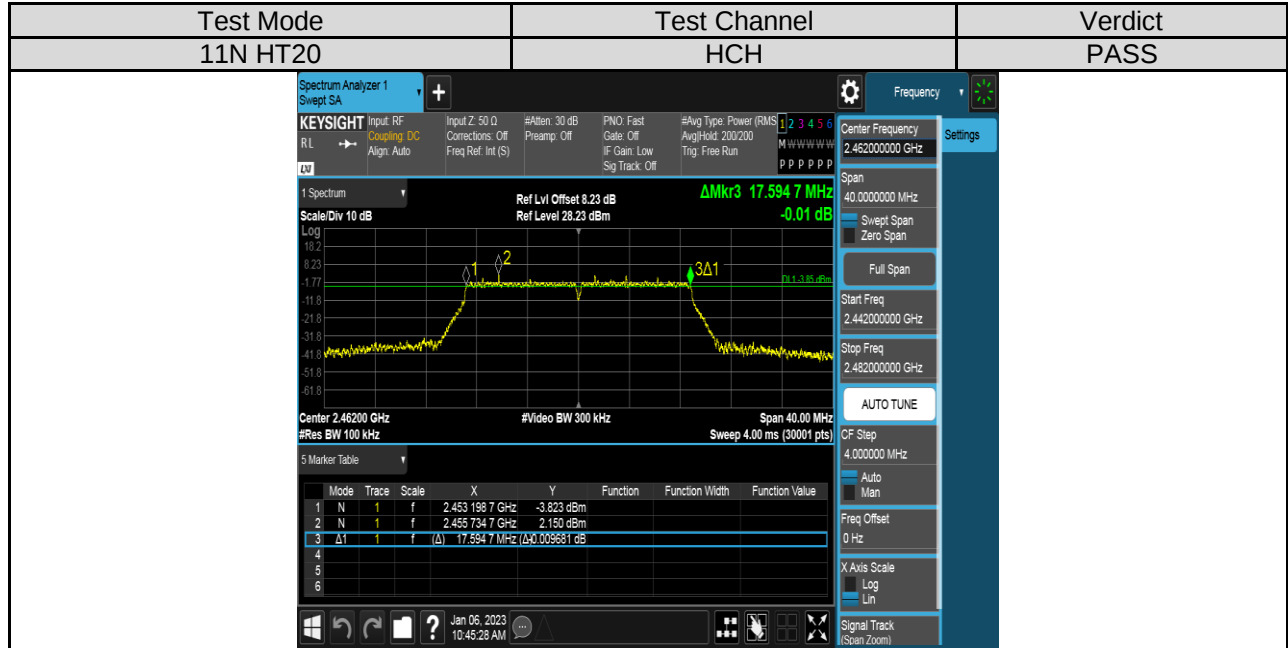
Test Graphs
For 6dB Bandwidth part:

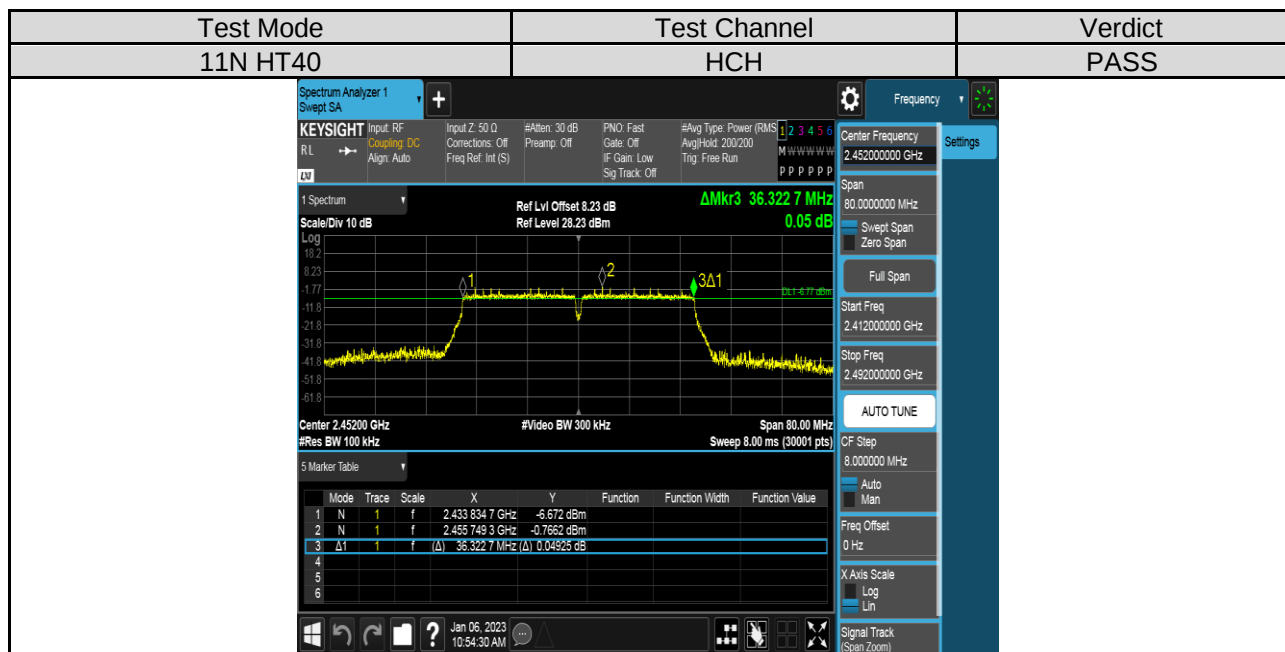
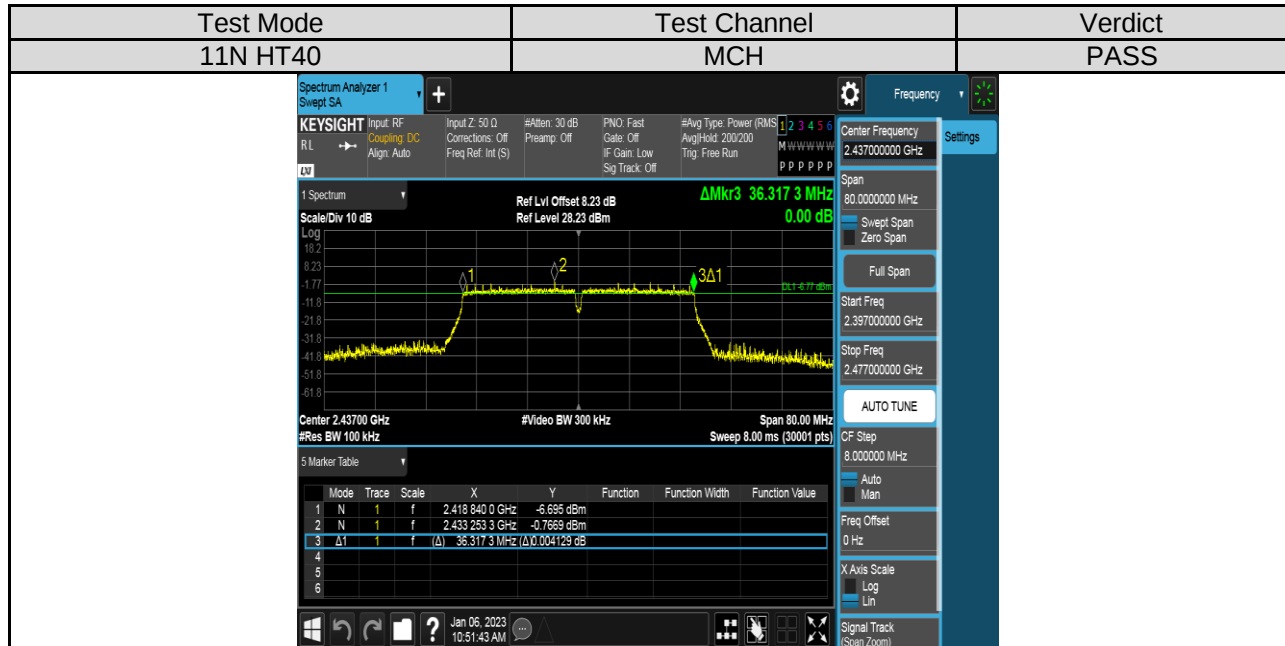




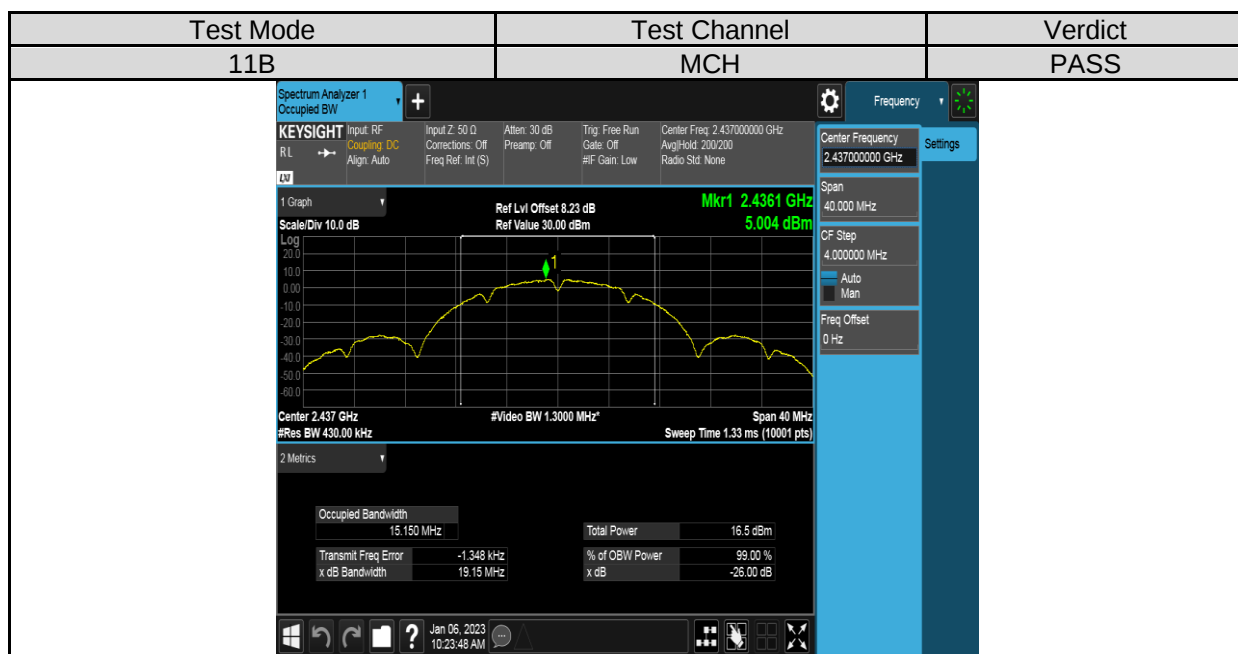
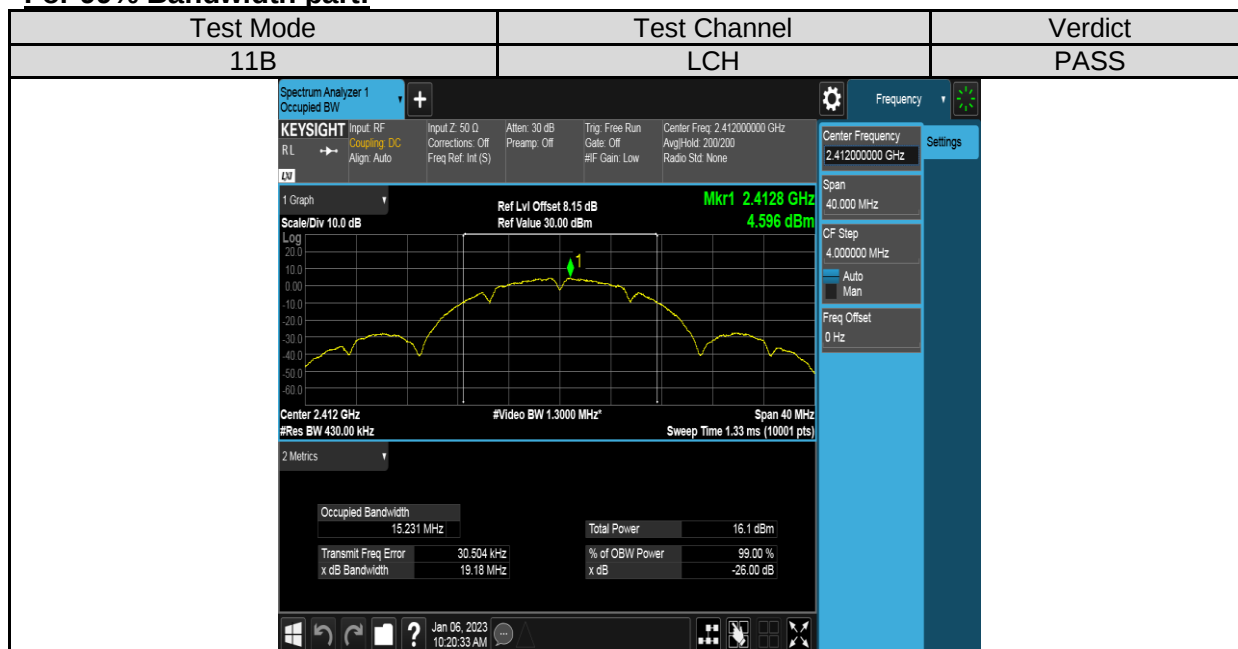


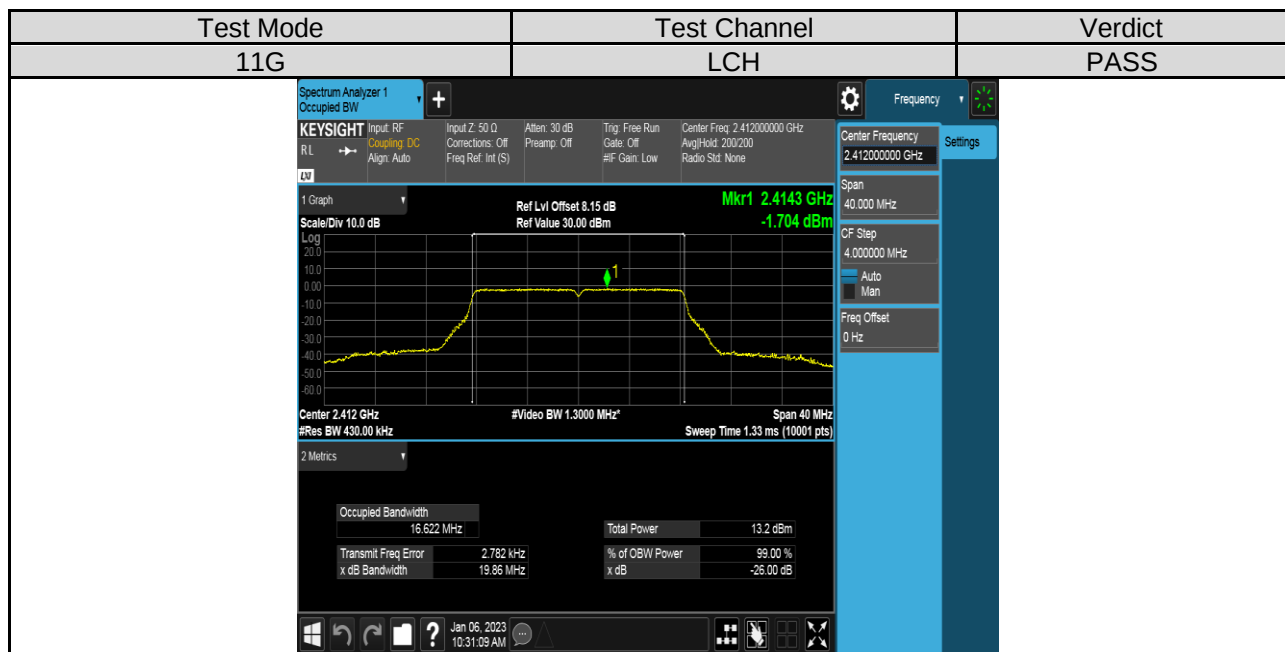
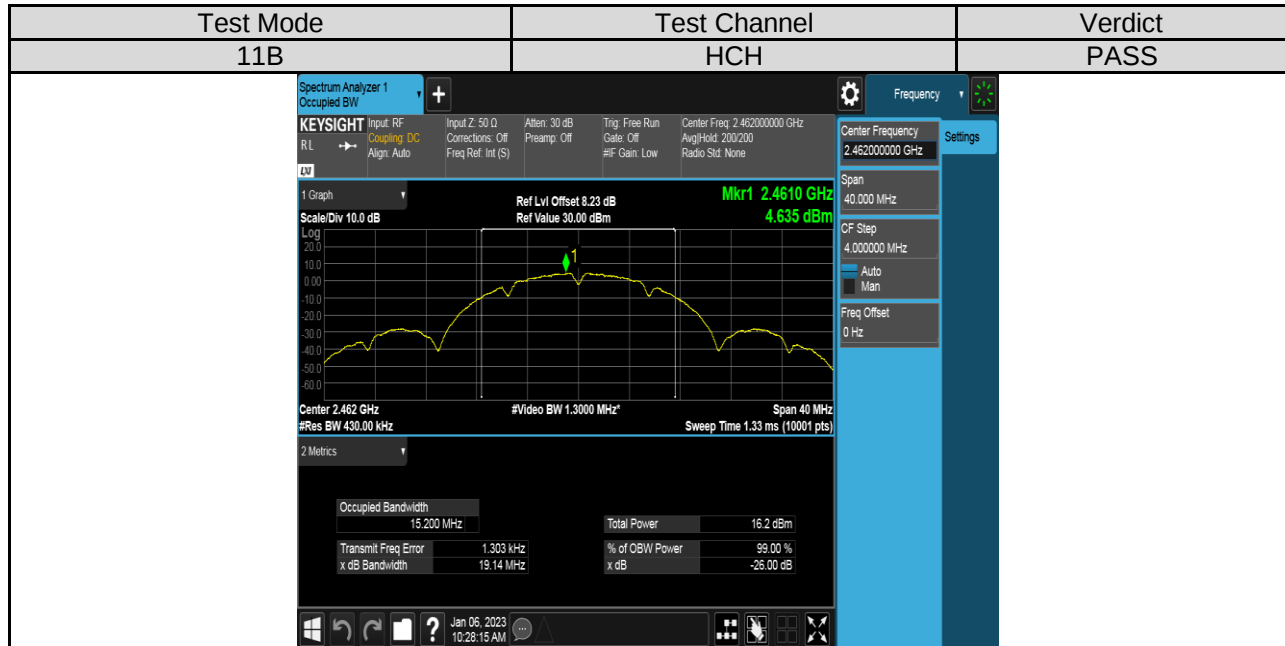


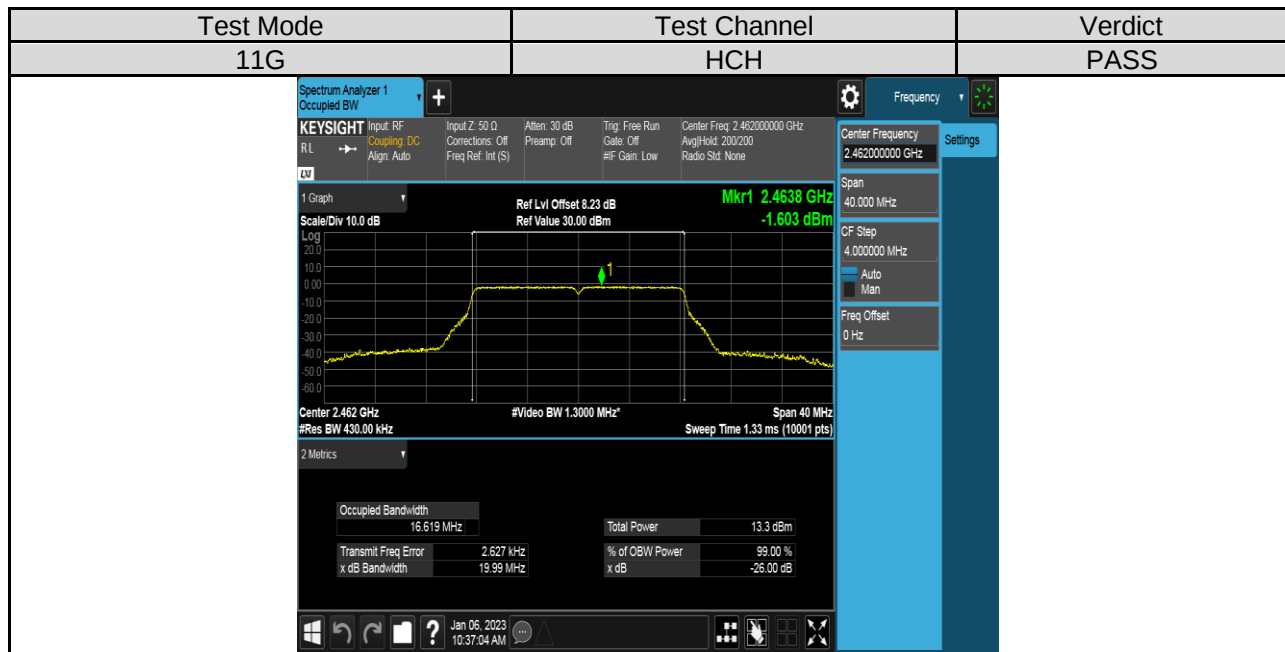
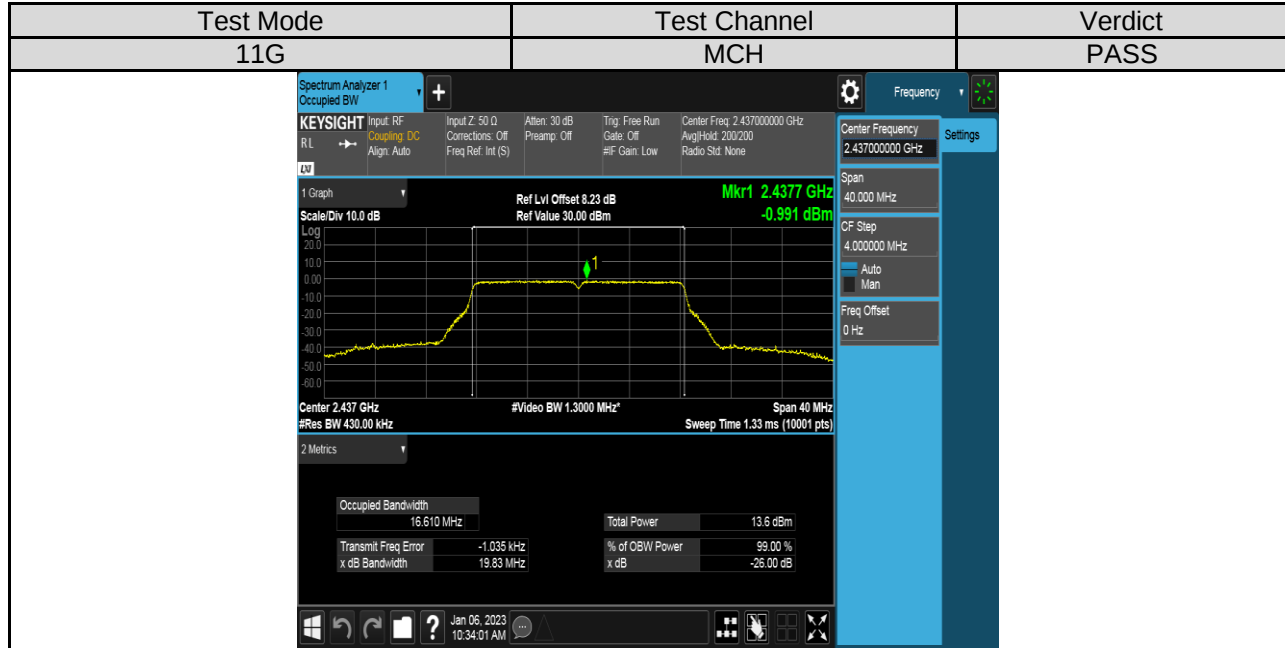


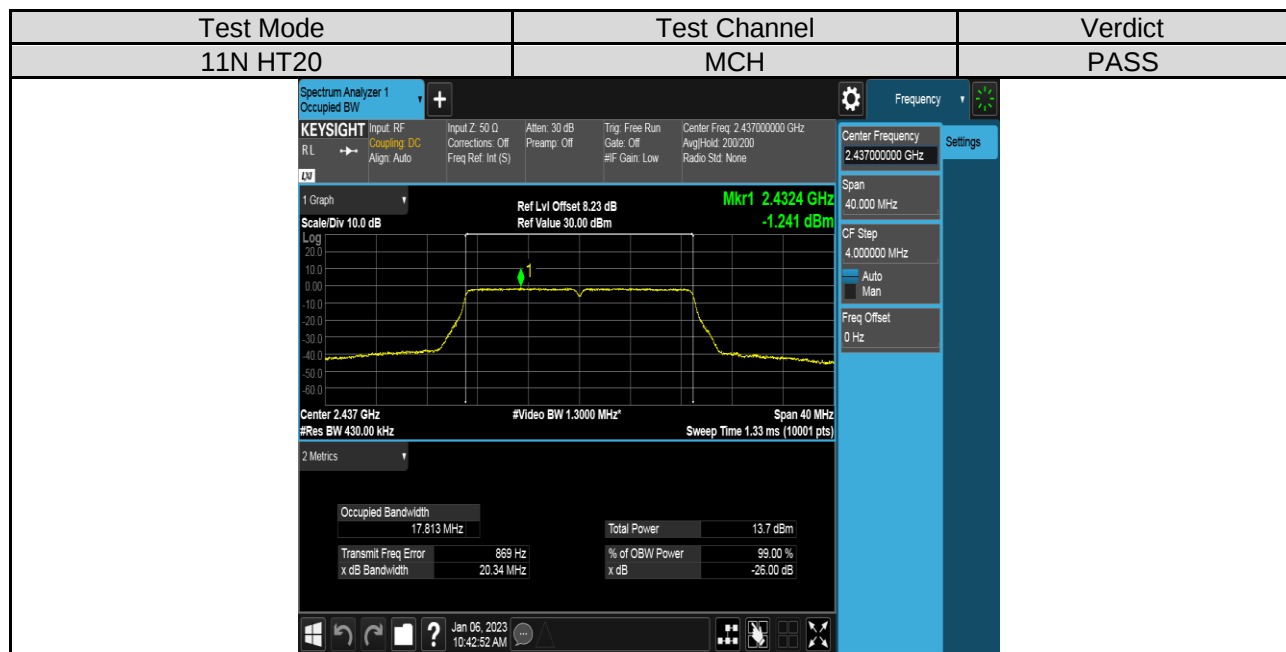
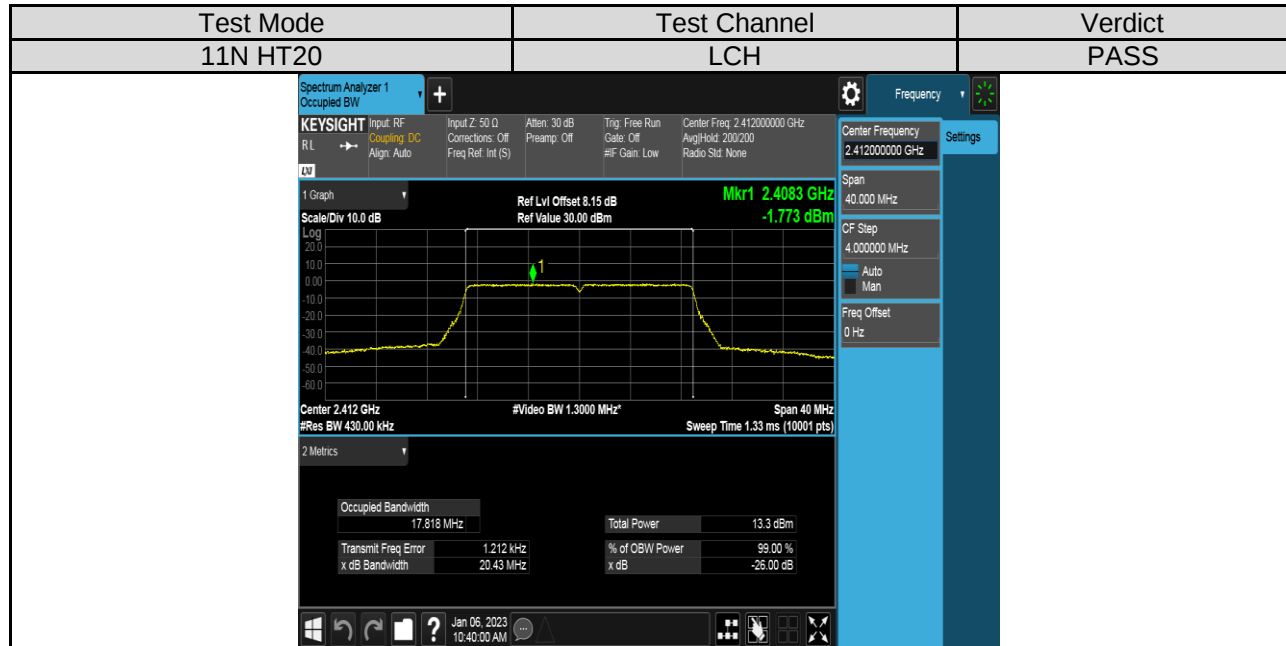


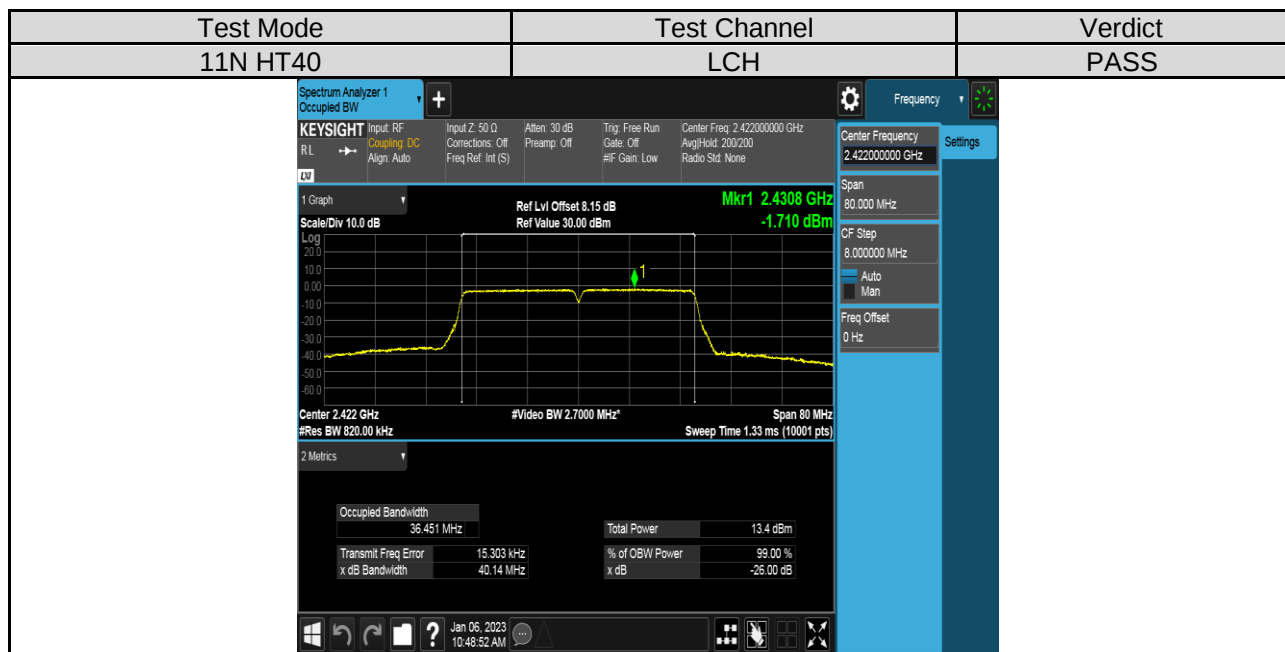
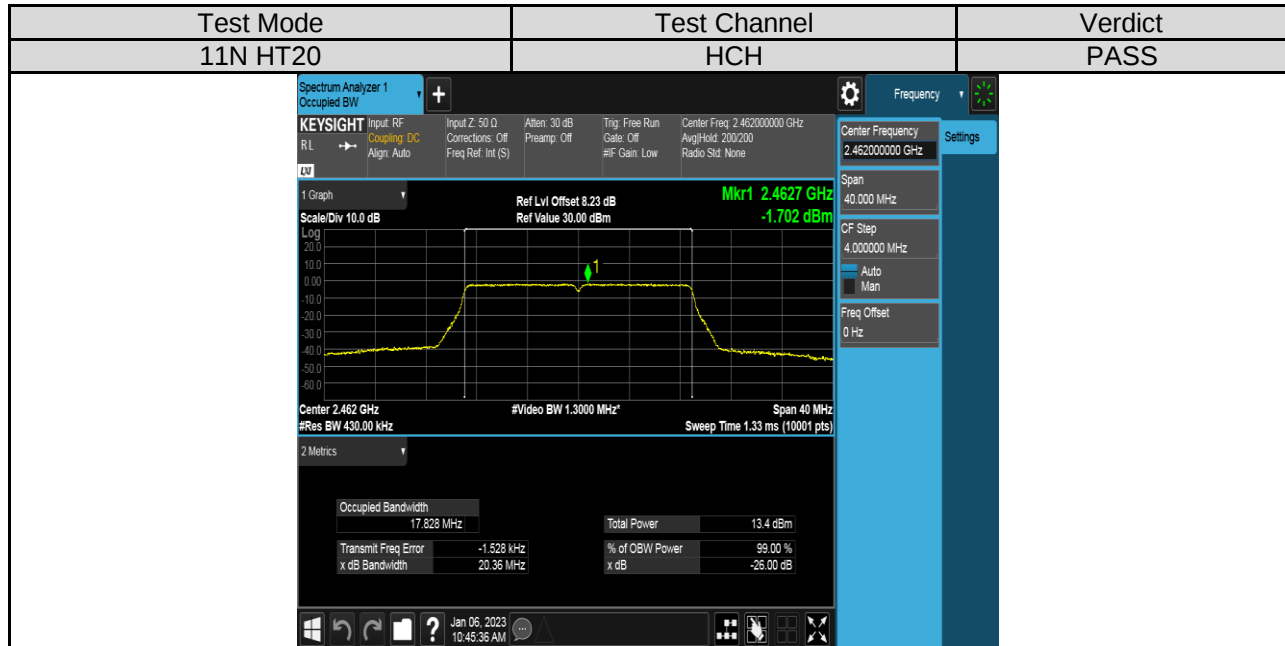
For 99% Bandwidth part:

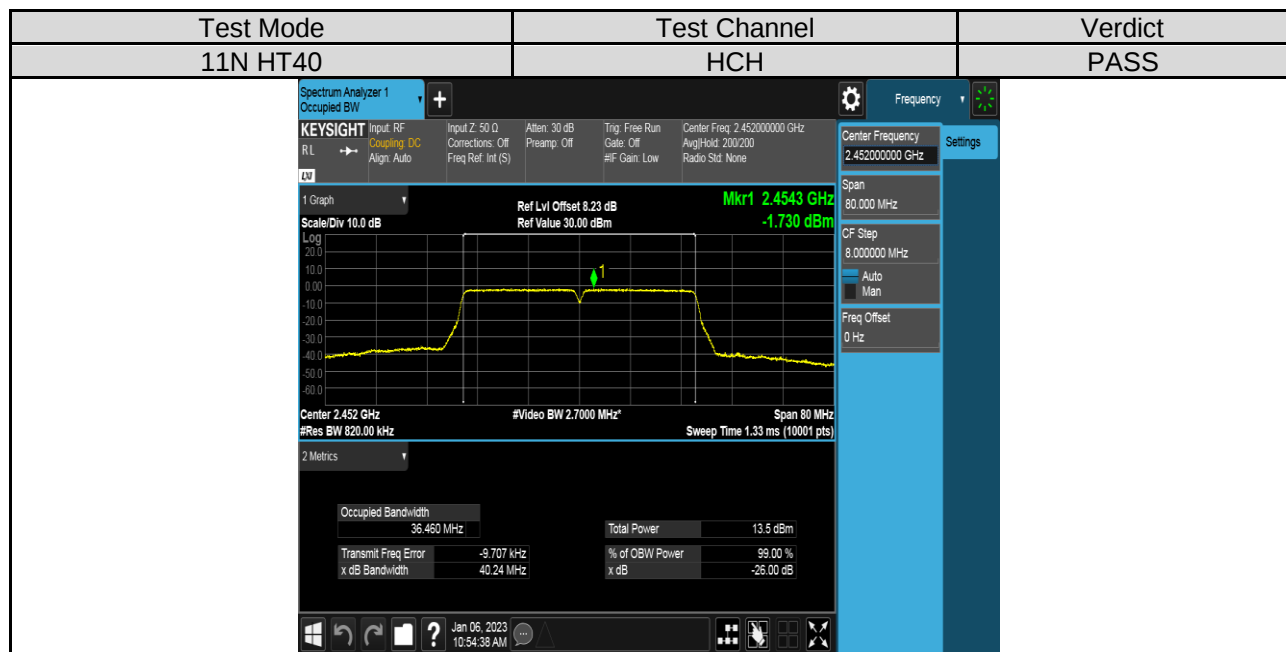
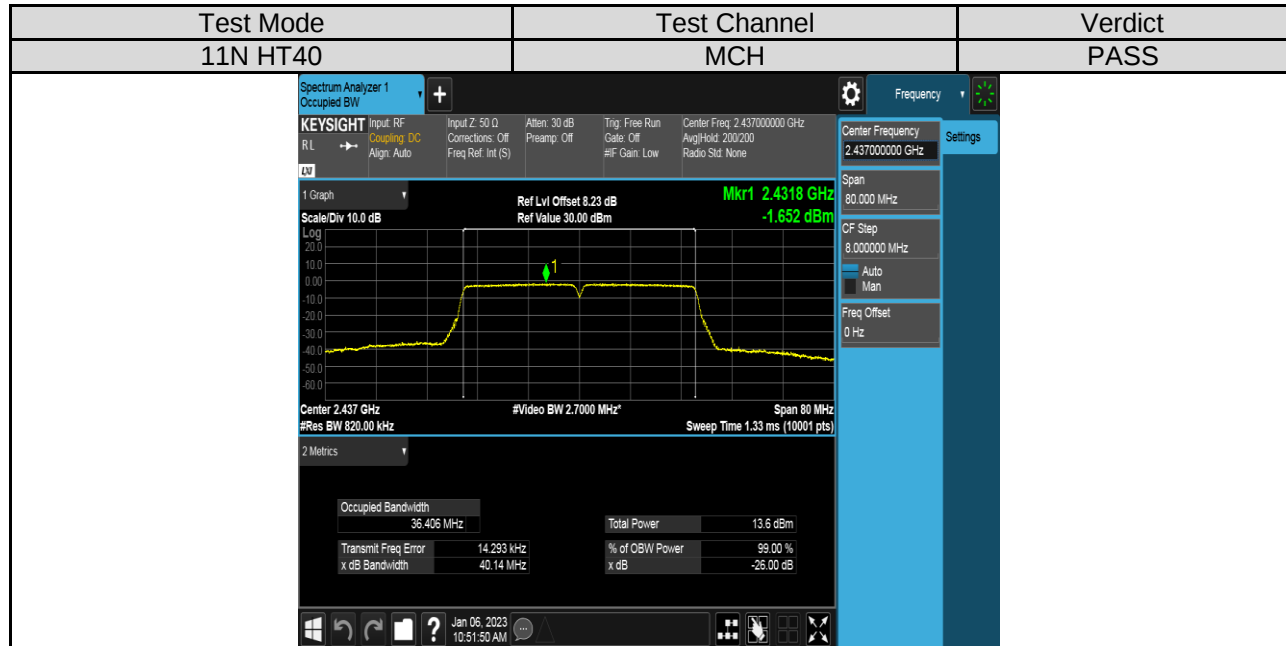












7.4. CONDUCTED POWER

LIMITS

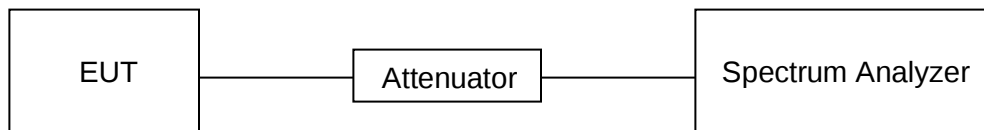
FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(b)(3)	Output Power	1 watt or 30dBm	2400-2483.5

TEST PROCEDURE

Method AVGSA-2 uses trace averaging across ON and OFF times of the EUT transmissions, followed by duty cycle correction. The procedure for this method is as follows:

- Measure the duty cycle D of the transmitter output signal as described in 11.6.
- Set span to at least 1.5 times the OBW.
- Set RBW = 1% to 5% of the OBW, not to exceed 1 MHz.
- Set VBW $\geq [3 \times \text{RBW}]$.
- Number of points in sweep $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\leq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)
- Sweep time = auto.
- Detector = RMS (i.e., power averaging), if available. Otherwise, use the sample detector mode.
- Do not use sweep triggering. Allow the sweep to “free run.”
- Trace average at least 100 traces in power averaging (rms) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the ON and OFF periods of the transmitter.
- Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.
- Add $[10 \log (1 / D)]$, where D is the duty cycle, to the measured power to compute the average power during the actual transmission times (because the measurement represents an average over both the ON and OFF times of the transmission). For example, add $[10 \log (1/0.25)] = 6 \text{ dB}$ if the duty cycle is 25%.

TEST SETUP



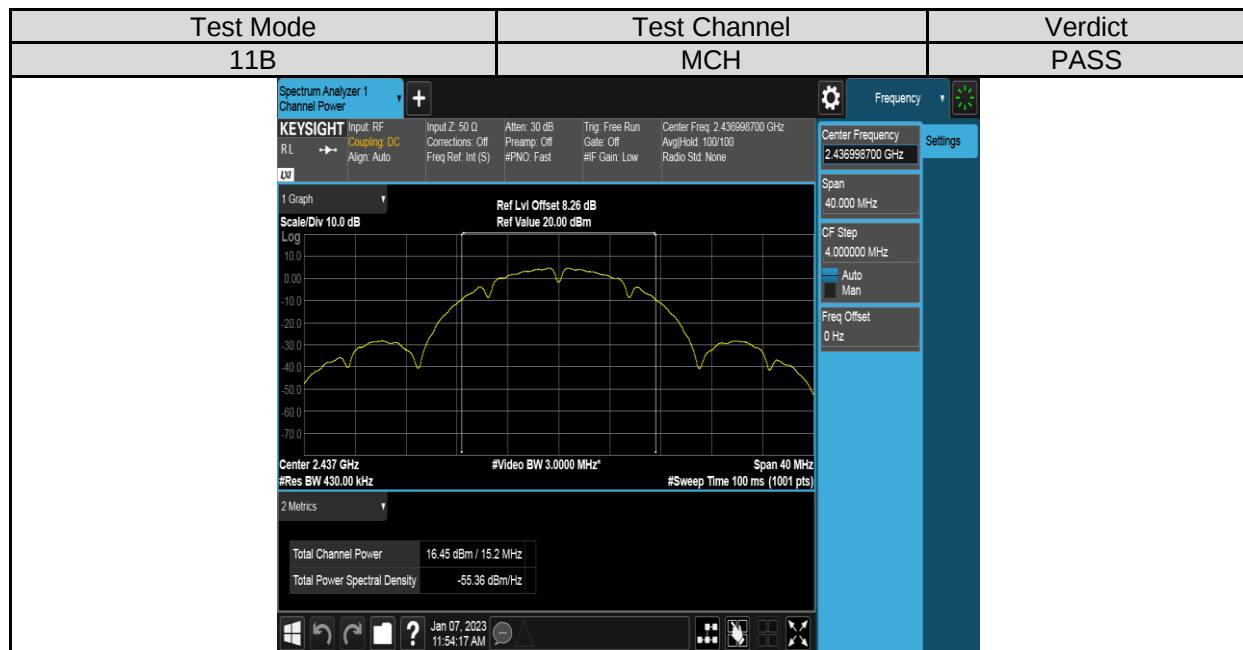
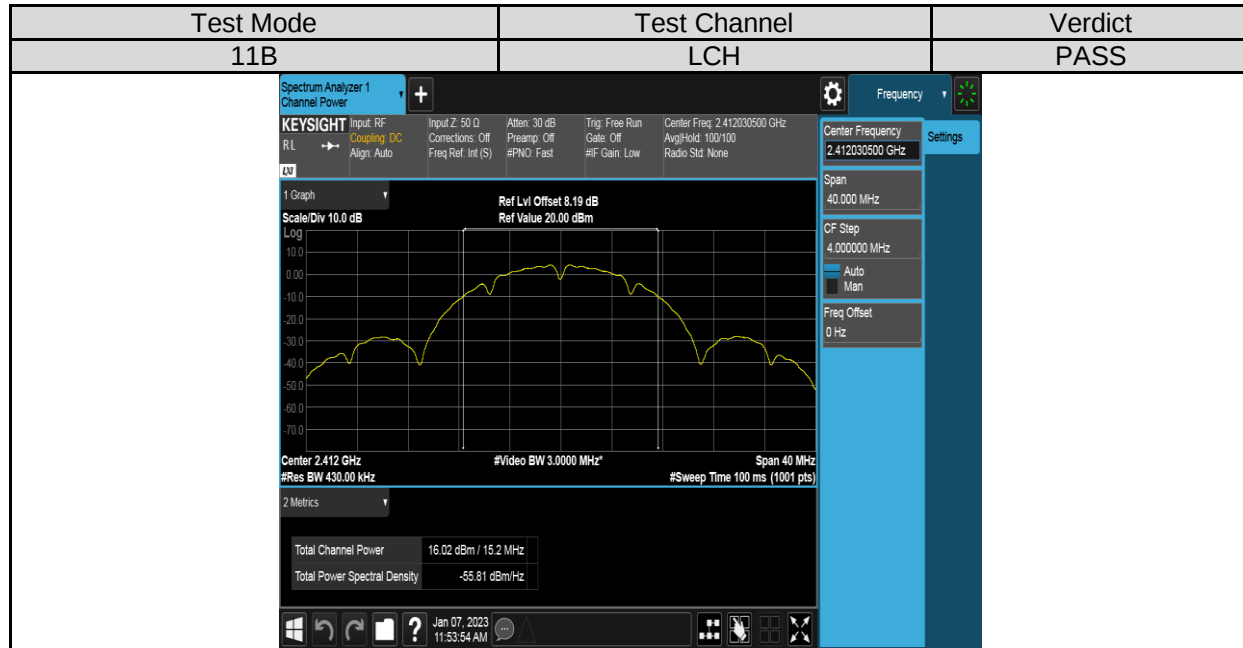
RESULTS

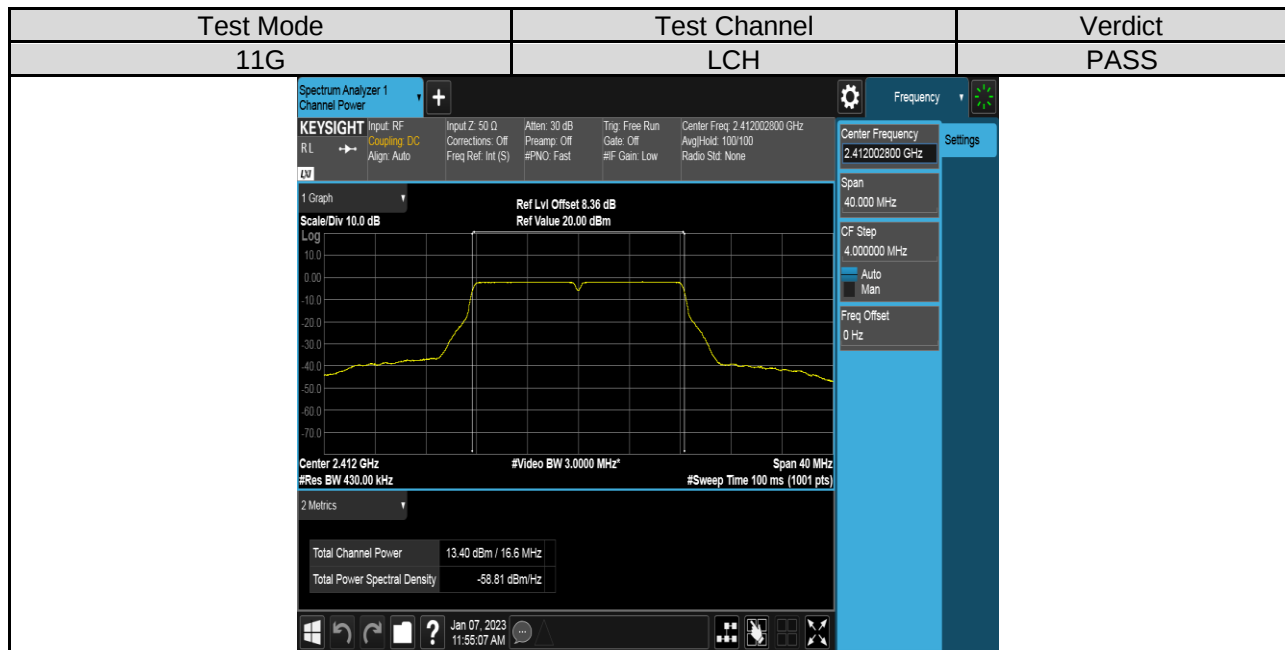
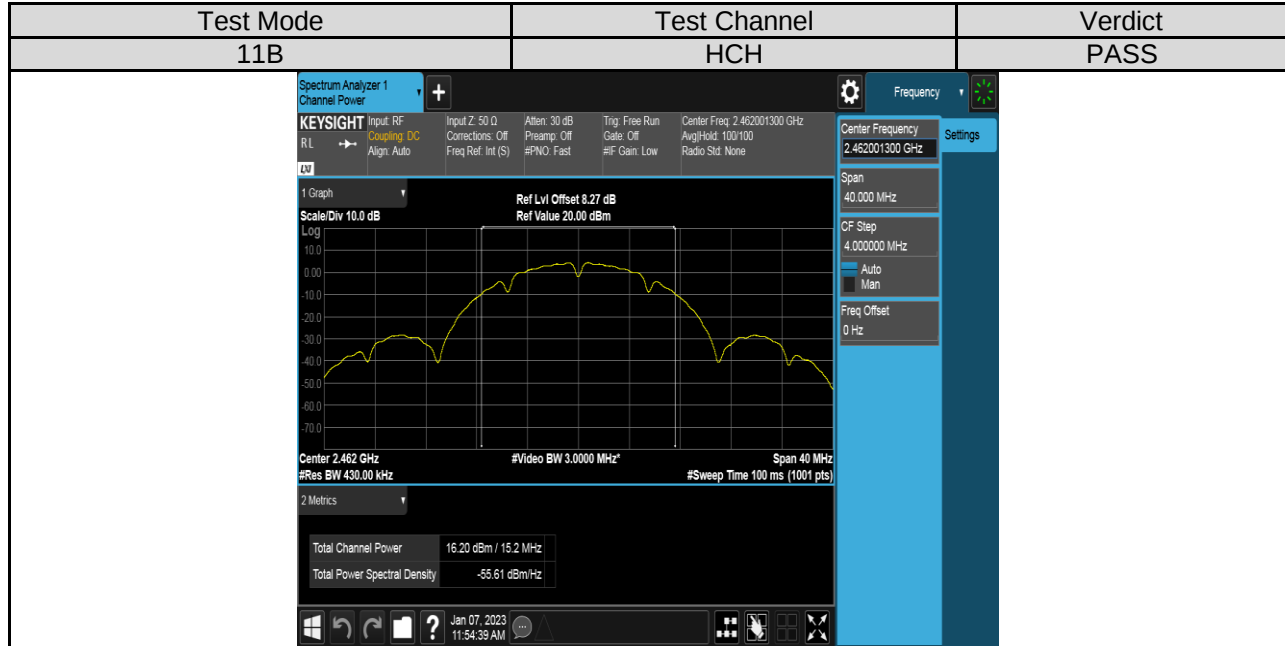
Test Mode	Test Channel	Measurement Output Power (AV)	10log(1/x) Factor	Maximum Conducted Output Power (AV)	Result
		dBm	dB	dBm	
11B	LCH	16.02	0	16.02	Pass
	MCH	16.45	0	16.45	Pass
	HCH	16.20	0	16.20	Pass
11G	LCH	13.40	0.21	13.61	Pass
	MCH	13.82	0.21	14.03	Pass
	HCH	13.55	0.21	13.76	Pass
11N HT20	LCH	13.35	0	13.35	Pass
	MCH	13.79	0	13.79	Pass
	HCH	13.51	0	13.51	Pass
11N HT40	LCH	13.55	0.11	13.66	Pass
	MCH	13.69	0.11	13.80	Pass
	HCH	13.62	0.11	13.73	Pass

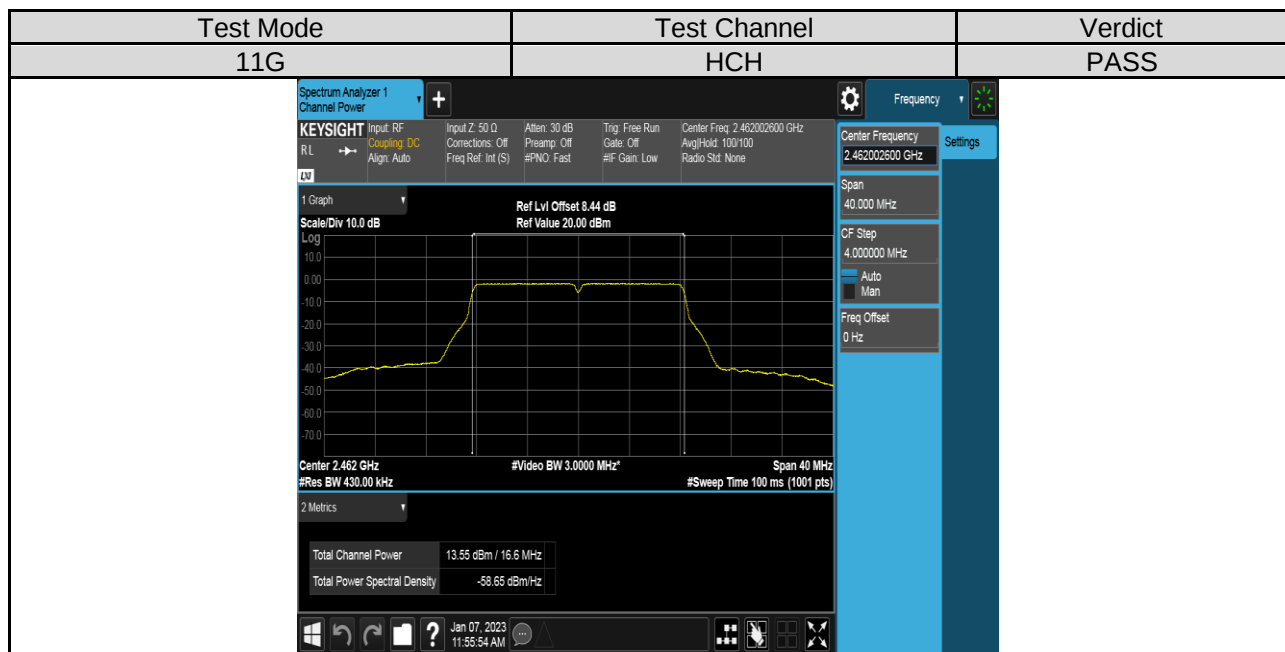
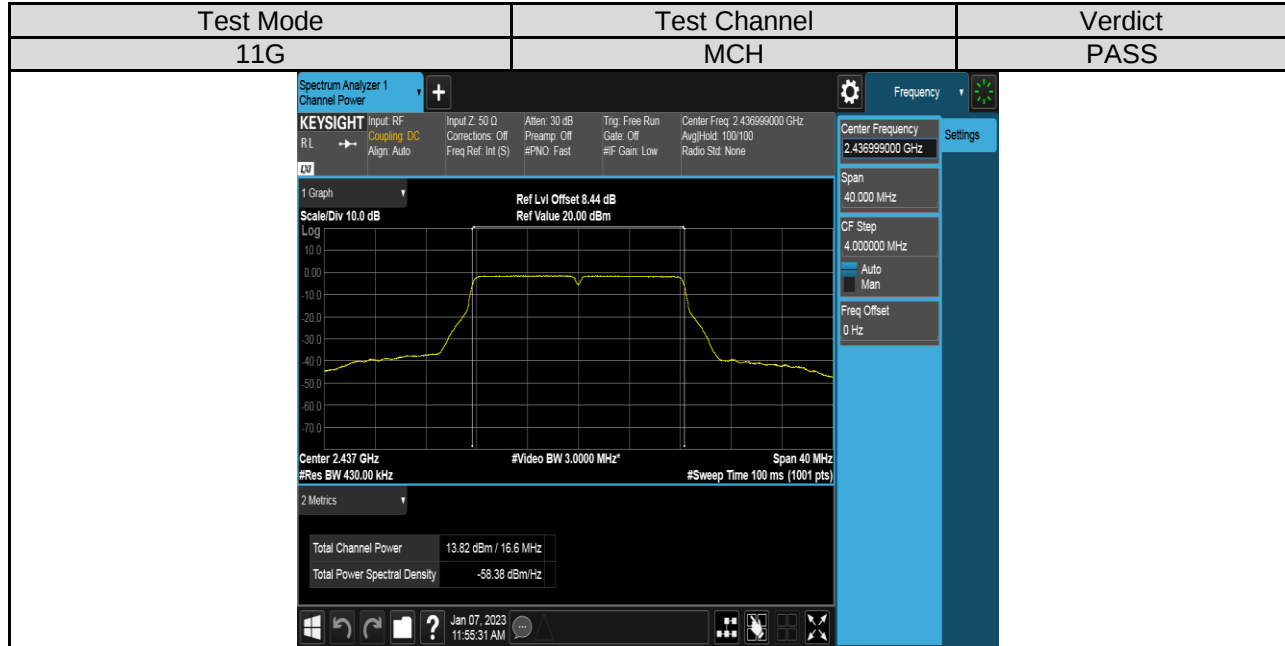
Remark:

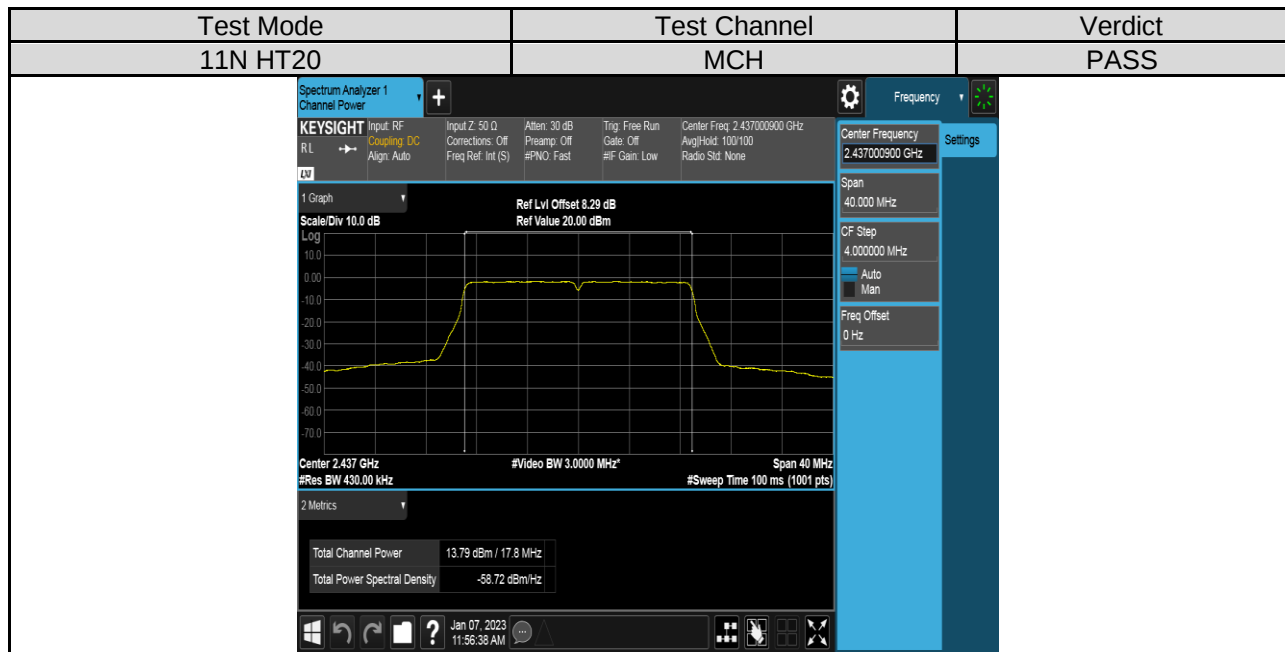
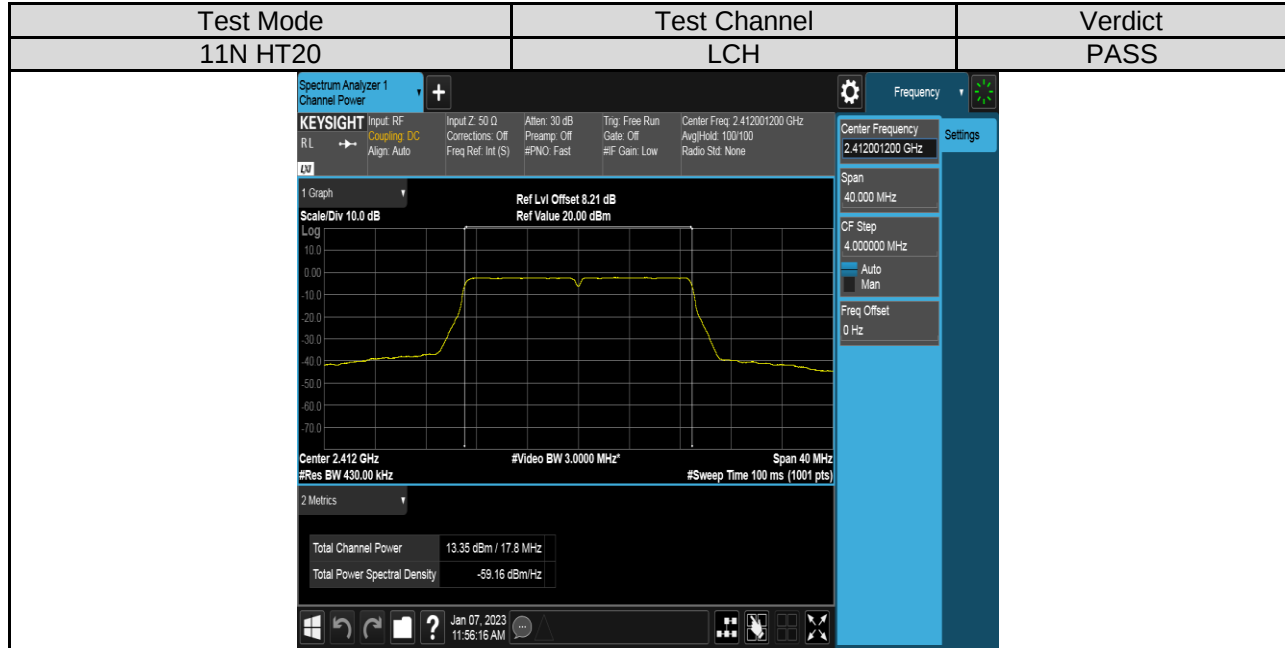
- 1) For all the test results has been adjusted the duty cycle factor.
- 2) For Correction Factor is refer to the result in section 7.2

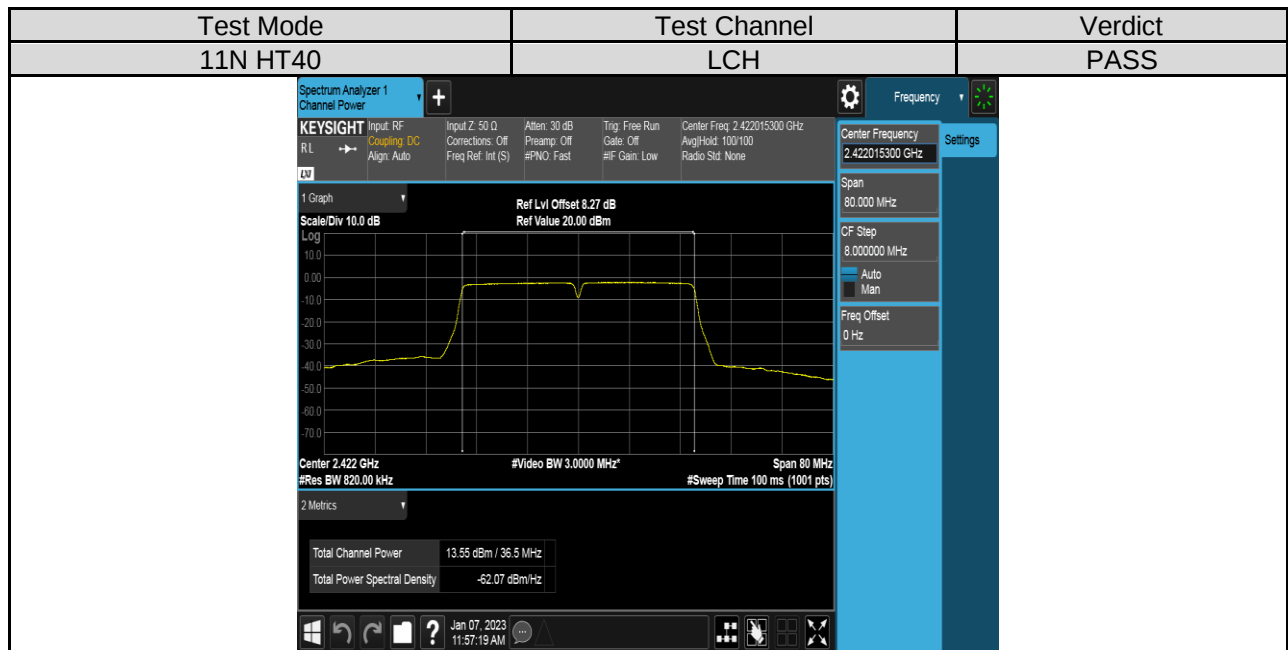
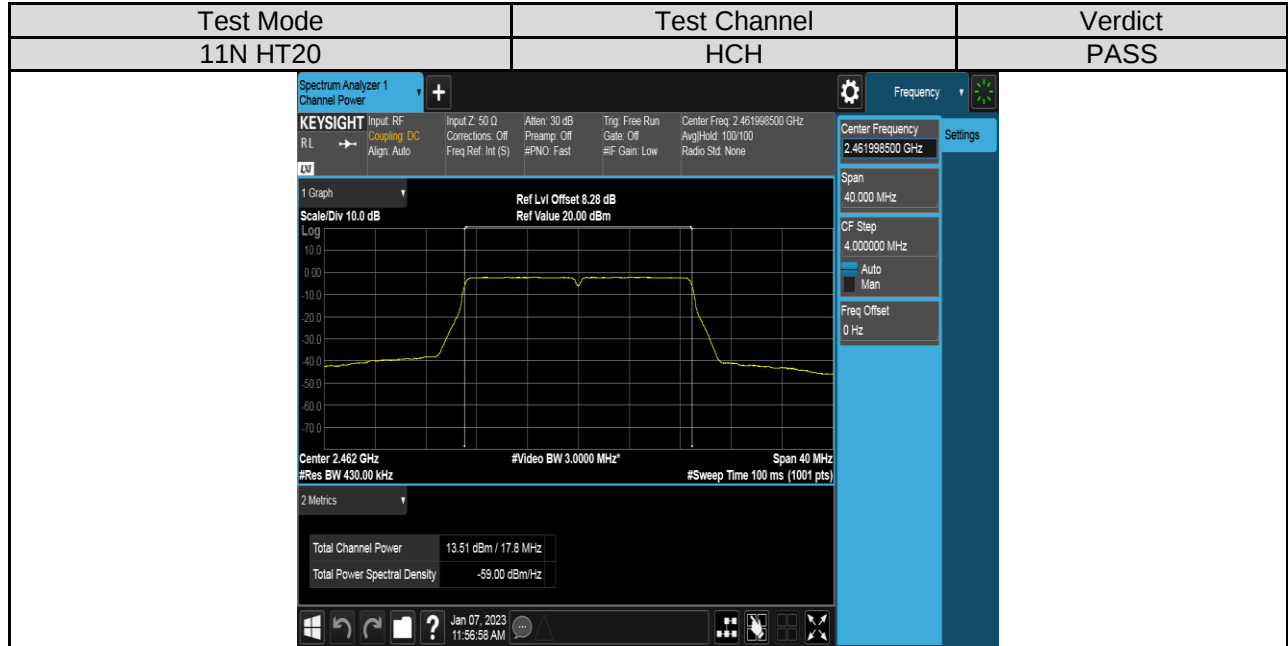
Test Graphs:

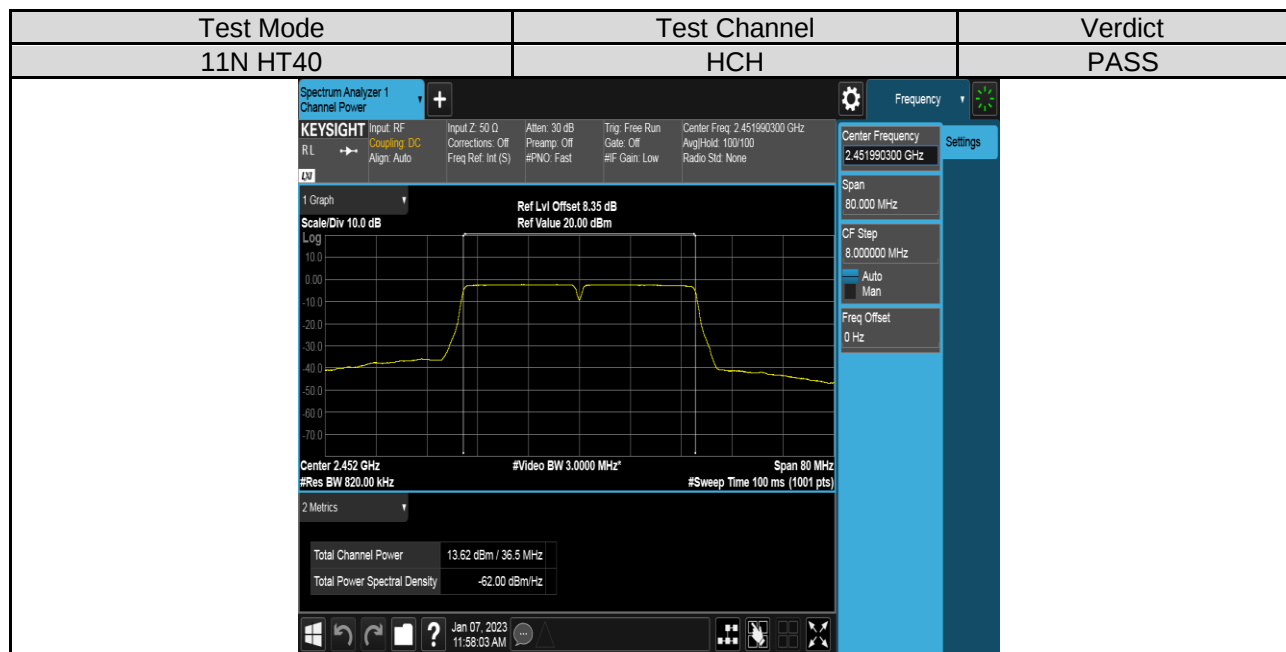
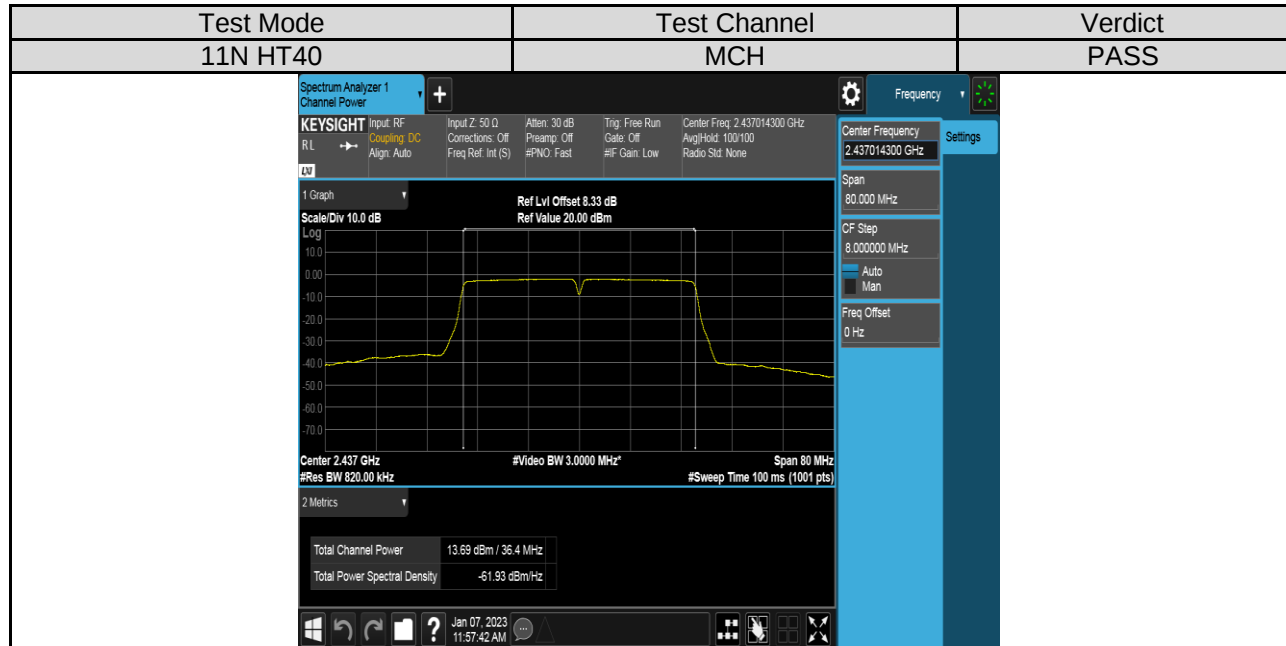












7.5. POWER SPECTRAL DENSITY

LIMITS

FCC Part15 (15.247) Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
FCC §15.247 (e)	Power Spectral Density	8 dBm in any 3 kHz band	2400-2483.5

TEST PROCEDURE

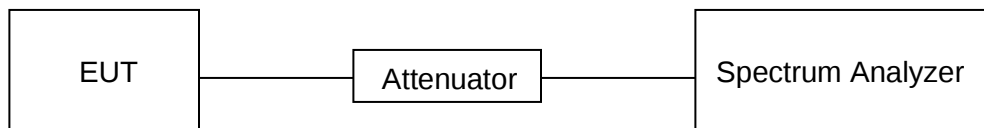
Refer to FCC KDB 558074, connect the UUT to the spectrum analyser and use the following settings:

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	$1.5 \times \text{DTS bandwidth}$
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.

TEST SETUP



RESULTS

Test Mode	Test Channel	Maximum Peak power spectral density (dBm/30kHz)	Result
11B	LCH	1.88	Pass
	MCH	1.76	Pass
	HCH	2.09	Pass
11G	LCH	-2.82	Pass
	MCH	-1.89	Pass
	HCH	-2.34	Pass
11N HT20	LCH	-3.47	Pass
	MCH	-3.25	Pass
	HCH	-3.21	Pass
11N HT40	LCH	-4.87	Pass
	MCH	-6.10	Pass
	HCH	-6.39	Pass

Test Graphs:



