FCC 47 CFR PART 15 SUBPART C
ISED RSS-247 ISSUE 3

TEST REPORT

For

ASOF

MODEL NUMBER: 476148A

ADDITIONAL MODEL NUMBER: 476147A

PROJECT NUMBER: 4790799929

REPORT NUMBER: 4790799929-1

FCC ID: 2AD8UASOFWIFI-01

IC: 109D-ASOFWIFI01

HVIN: 476148A, 476147A

ISSUE DATE: Sep. 07, 2023

Prepared for

FCC: Nokia Solutions and Networks, OY
ISED: Nokia Solutions and Networks

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	09/07/2023	Initial Issue	

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1. APPLICANT INFORMATION

Applicant Information

FCC Company Name:	Nokia Solutions and Networks, OY
FCC Company Address:	2000 W. Lucent Lane Naperville Illinois 60563 United States
ISED Company Name:	Nokia Solutions and Networks
ISED Company Address:	2000 W. Lucent Lane Naperville IL 60563 United States of America

EUT Description

Product Name:	ASOF
Model Name:	476148A
Additional No.:	476147A
Model Difference:	The two models are identical except the power supply unit, the power supply unit of model 476148A is an AC power supply unit, the power supply unit of 476147A is a DC power supply unit.
Sample Number:	5992994
Data of Receipt Sample:	Apr. 17, 2023
Test Date:	Apr. 17, 2023~ Jul. 05, 2023

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
47 CFR Part 15 Subpart C	PASS
ISED RSS-247 Issue 3	PASS
ISED RSS-GEN Issue 5	PASS

Summary of Test Results			
No.	Test Items	FCC&ISED Rules	Test Results
1	6 dB Bandwidth and 99% Occupied Bandwidth	FCC 15.247 (a) (2) RSS-247 Clause 5.2 (a) RSS-Gen Clause 6.7	PASS
2	Conducted Power	FCC 15.247 (b) (3) RSS-247 Clause 5.4 (d) RSS-Gen Clause 6.12	PASS
3	Power Spectral Density	FCC 15.247 (e) RSS-247 Clause 5.2 (b)	PASS
4	Conducted Spurious Emission	FCC 15.247 (d) RSS-247 Clause 5.5 RSS-GEN Clause 6.13	PASS
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 6.13 RSS-GEN Clause 8.9 RSS-GEN Clause 8.10	PASS
6	Conducted Emission Test for AC Power Port	FCC 15.207 RSS-GEN Clause 8.8	PASS
7	Antenna Requirement	FCC 15.203 RSS-GEN Clause 6.8	PASS

Note:
1. The two models are identical except the power supply unit, the power supply unit of model 476148A is an AC power supply unit, the power supply unit of 476147A is a DC power supply unit, both the two models have been test, the result of model 476148A was the worse case and recorded in this report.
2. The measurement result for the sample received is <Pass> according to < ANSI C63.10-2013, FCC 47 CFR Part 2, FCC 47 CFR Part 15C> when <Accuracy Method> decision rule is applied.

Prepared By:

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Tom Tang

Reviewed By:

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Leon Wu

Authorized By:

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EMC&RF Lab Operations Manager

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB 558074 D01 15.247 Meas Guidance v05r02, 414788 D01 Radiated Test Site v01r01, FCC 47 CFR Part 2, FCC 47 CFR Part 15, ANSI C63.10-2013, ISED RSS-247 Issue 3 and ISED RSS-GEN Issue 5.

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 used to collect the measurement data are located at No. 2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122, China.

Note 2: Measurement below 30MHz had been performed in test anechoic chamber and compared 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
Maximum Conduct Output Power	± 1.3dB
DTS Bandwidth	±1.9 %
Maximum Conducted Output Power	± 0.69dB
Maximum Power Spectral Density Level	±1.5 dB
Band-edge Compliance	± 1.9%
Unwanted Emissions in Non-restricted Freq Bands	9kHz-30MHz: ±0.90dB 30MHz-1GHz: ±1.5 dB 1GHz-12.75GHz: ±1.9dB 12.75GHz-26.5GHz: ±2.1dB
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)	3.5dB (1GHz-18GHz)
	3.9dB (18GHz-26.5GHz)
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:	ASOF
Model Name:	476148A
Additional No.:	476147A
Operating Frequency:	IEEE 802.11B/G/N(HT20): 2422MHz to 2462MHz
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): OFDM (64QAM, 16QAM, QPSK, BPSK)
Channels Step:	Channels with 5MHz step
Sample Type:	Fixed production
Test software of EUT:	MobaXterm (manufacturer declare)
Antenna Type:	Rod Antenna
Antenna Gain:	Alternative 1 (Model: F-0Y-55-0013-000-00): 3.03 dBi@2.4GHz, 2.15 dBi@5GHz Manufacturer: Huizhou Speed Wireless Technology Co., Ltd Alternative 2 (Model: W5029RPG): 2.20 dBi@2.4GHz, 4.55 dBi@5GHz Manufacturer: Pulse (Suzhou) Wireless Products Co, Inc.
	Note: 1. The product has only one transmission chain and two antennas are alternative. 2. This data is provided by customer and our lab isn't responsible for this data.
Power Supply:	For Model 476148A: AC 120-240V 50/60Hz For Model 476147A: DC -48V
	Note: The two models are identical except the power supply unit, the power supply unit of model 476148A is an AC power supply unit, the power supply unit of 476147A is a DC power supply unit.

5.2. MAXIMUM OUTPUT POWER

Number of Transmit Chains (NTX)	IEE Std. 802.11	Channel Number	Max AVG Conducted Power [dBm]
1	IEEE 802.11B	3-11[11]	20.99
1	IEEE 802.11G	3-11[11]	16.61
1	IEEE 802.11N HT20	3-11[11]	16.53

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	/	4	2427	7	2442	10	2457
2	/	5	2432	8	2447	11	2462
3	2422	6	2437	9	2452		

Note: The channel 1 & channel 2 are disable for this product.

5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel [MHz]
IEEE 802.11B	CH3 2422; CH7 2442; CH10 2457; CH11 2462
IEEE 802.11G	CH3 2422; CH4 2427; CH7 2442; CH9 2452; CH10 2457; CH11 2462
	CH3 2422; CH4 2427; CH7 2442; CH9 2452; CH10 2457; CH11 2462
	CH3 2422; CH4 2427; CH7 2442; CH9 2452; CH10 2457; CH11 2462
IEEE 802.11N HT20	CH3 2422; CH4 2427; CH7 2442; CH9 2452; CH10 2457; CH11 2462
	CH3 2422; CH4 2427; CH7 2442; CH9 2452; CH10 2457; CH11 2462
	CH3 2422; CH4 2427; CH7 2442; CH9 2452; CH10 2457; CH11 2462

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band							
Test Software		MobaXterm					
Modulation Mode	Transmit Antenna Number	Test Channel					
		NCB: 20MHz					
		CH3	CH4	CH7	CH9	CH10	CH11
802.11B	1	20	20	20	20	20	19
802.11G	1	18	19	19	19	18	16
802.11N HT20	1	18	19	19	19	17	15

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Alternative Ant.	Frequency [MHz]	Antenna Type	Antenna Gain [dBi]
1	2400-2483.5	Rod Antenna	3.03 dBi
2	2400-2483.5	Rod Antenna	2.20 dBi

Note:
1. The product has only one transmission chain and two antennas are provided.
2. This data is provided by customer and our lab isn't responsible for this data.

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.

5.7. THE WORSE CASE CONFIGURATIONS

The product has two models, the two models are identical except the power supply unit, the power supply unit of model 476148A is an AC power supply unit, the power supply unit of 476147A is a DC power supply unit. Both the two models have been test, the result of model 476148A was the worse case and recorded in this report. For ac power line conducted emissions, the test result of model 476147A is recorded in this report as well.
For WIFI module, the 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

5.8. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	55 ~ 65%	
Atmospheric Pressure:	1025Pa	
Temperature	TN	23 ~ 28°C
Voltage:	VL	N/A
	VN	AC 120V
	VH	N/A

Note: VL= Lower Extreme Test Voltage
VN= Nominal Voltage
VH= Upper Extreme Test Voltage
TN= Normal Temperature

5.9. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Description
1	Laptop	ThinkPad	E590	Supplied by UL Lab
2	AC/DC Power Convertor	Chroma	62012P-100-50	Supplied by UL Lab

I/O PORT

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	LAN	LAN	LAN	100cm Length	/
2	Optical	Optical	Optical Fiber	10cm Length	/

ACCESSORY

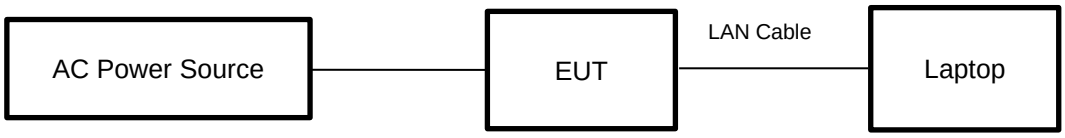
Item	Accessory	Brand Name	Model Name	Description
1	Optical Transceiver	Nokia	472948A.101	/

TEST SETUP

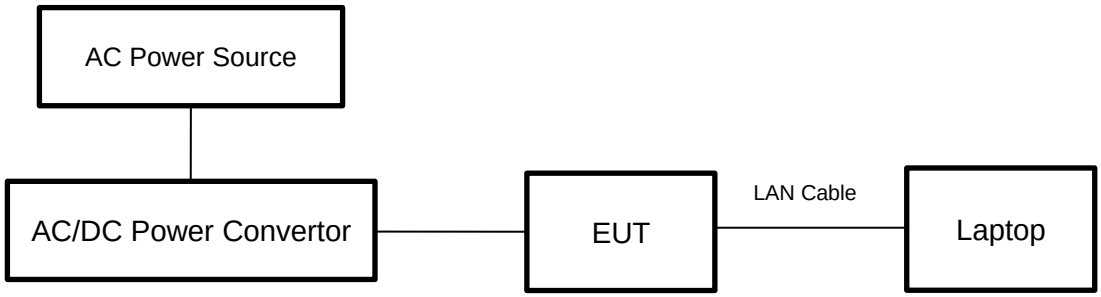
The EUT can work in an engineer mode with a software through a laptop.

SETUP DIAGRAM FOR TESTS

For model 476148A:



For model 476147A:



5.10. 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	2021-12-20	2022-12-19	2023-12-18
☑	Two-Line V-Network	R&S	ENV216	126701	2021-12-04	2022-12-03	2023-12-02
☑	Artificial Mains Networks	R&S	ENY81	126712	2021-10-12	2022-10-09	2023-10-08
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.
☑	EMI test receiver	R&S	ESR7	222993	2022-04-09	2023-04-08	2024-04-07
☑	EMI test receiver	R&S	ESR26	126703	2021-12-04	2022-12-03	2023-12-02
☑	Spectrum Analyzer	R&S	FSV3044	222992	2022-04-09	2023-04-08	2024-04-07
☑	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	2019-01-19	2022-01-18	2025-01-17
☑	Receiver Antenna (1GHz-18GHz)	R&S	HF907	126705	2019-02-29	2022-02-28	2025-02-27
☑	Receiver Antenna (18GHz-26.5GHz)	Schwarzbeck	BBHA9170	126706	2019-02-29	2022-02-28	2025-02-27
☑	Pre-amplification (To 18GHz)	Tonscned	TAP01018050	224539	/	2022-10-20	2023-10-19
☑	Pre-amplification (To 18GHz)	R&S	SCU-18D	134667	2021-12-04	2022-12-03	2023-12-02
☑	Pre-amplification (To 26.5GHz)	R&S	SCU-26D	135391	2021-12-04	2022-12-03	2023-12-02
☑	Band Reject Filter	Wainwright	WRCGV12-2375-2400-2485-2510-40SS	1	2022-05-08	2023-05-07	2024-05-06
☑	High Pass Filter	COM-MW	ZBF13-3-18G-01	2	2022-05-08	2023-05-07	2024-05-06
Software							
Used	Description		Manufacturer	Name	Version		
☑	Test Software for Radiated disturbance		Tonscend	TS+	Ver. 2.5		
☑	Test Software for Radiated disturbance		Chinese-EMC	RE_RSE	Ver. 3.03		
Other instruments							
Used	Equipment	Manufacturer	Model No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
☑	Spectrum Analyzer	Keysight	N9010B	155368	2022-04-09	2023-04-08	2024-04-07
☑	Power Meter	MWT	MW100-RFCB	221694	2022-05-23	2023-04-08	2024-04-07
☑	Attenuator	PASTERNACK	PE7087-6	1624	2022-05-23	2023-05-22	2024-05-21

6. MEASUREMENT METHODS

No.	Test Item	KDB Name	Section
1	6dB Bandwidth and 99% Occupied Bandwidth	KDB 558074 D01 15.247 Meas Guidance v05r02	8.2
2	Output Power	KDB 558074 D01 15.247 Meas Guidance v05r02	8.3.2.3 (Method PM)
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. ON TIME AND DUTY CYCLE

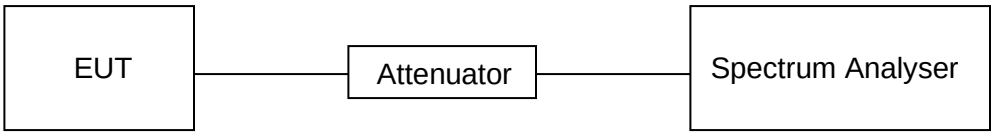
LIMITS

None; for reporting purposes only

PROCEDURE

FCC KDB 558074 Zero-Span Spectrum Analyzer Method

TEST SETUP



TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V

TEST RESULTS TABLE

Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)	1/T Minimum VBW (kHz)	Final VBW (kHz)
11B	100	100	1	100%	0	0.01	0.01
11G	100	100	1	100%	0	0.01	0.01
11N HT20	100	100	1	100%	0	0.01	0.01

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) If the duty cycle is above 98%, the Final VBW is 10Hz.

TEST GRAPHS

11B ON TIME AND DUTY CYCLE 2442MHz (WORSE CASE)


11G ON TIME AND DUTY CYCLE 2442MHz (WORSE CASE)


11N HT20 ON TIME AND DUTY CYCLE 2442MHz (WORSE CASE)


7.1. 6 dB BANDWIDTH AND 99% OCCUPIED BANDWIDTH

LIMITS

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

TEST PROCEDURE

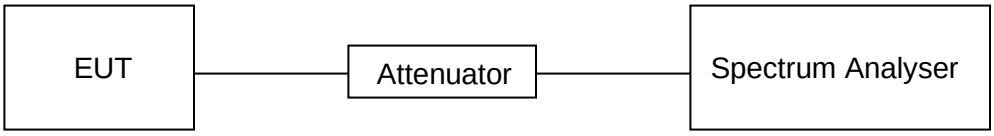
Refer to ANSI C63.10-2013 clause 11.8 for DTS bandwidth and clause 6.9 for Occupied Bandwidth.
Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The centre 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

a) Use the 99 % power bandwidth function of the instrument, allow the trace to stabilize and report the measured bandwidth.

b) 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



TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V

TEST RESULTS TABLE

Test Mode	Test Channel [MHz]	6dB bandwidth [MHz]	99% bandwidth [MHz]	Result
11B	2422	9.0627	14.364	Pass
	2442	7.5587	14.123	Pass
	2457	7.5573	14.023	Pass
	2462	8.5427	14.469	Pass
11G	2422	15.3187	16.478	Pass
	2427	15.7013	16.539	Pass
	2442	16.0573	16.627	Pass
	2452	15.3053	16.592	Pass
	2457	15.0920	16.485	Pass
	2462	15.1293	16.403	Pass
11N HT20	2422	16.6107	17.669	Pass
	2427	16.0893	17.724	Pass
	2442	16.5440	17.813	Pass
	2452	17.2093	17.773	Pass
	2457	15.1067	17.633	Pass
	2462	15.9013	17.579	Pass

TEST GRAPHS

6dB Bandwdith

Test Mode	Test Channel	Verdict
11B	2422 MHz	PASS

Test Mode	Test Channel	Verdict
11B	2442 MHz	PASS

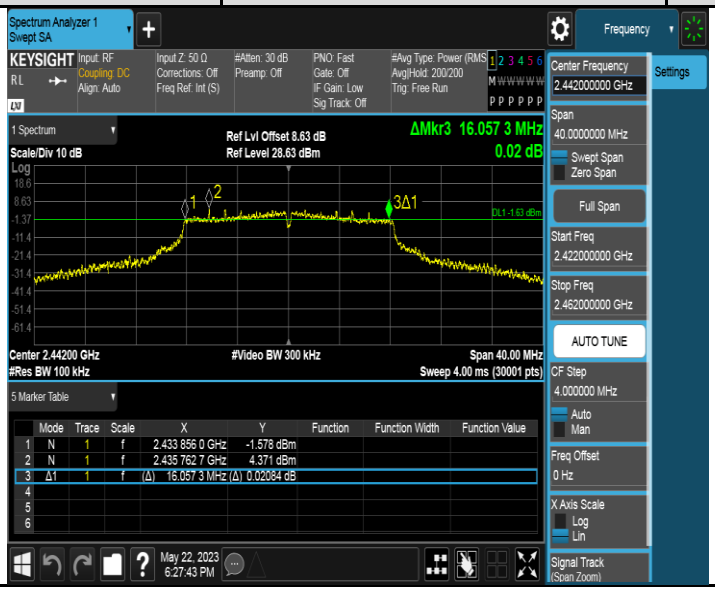
Test Mode	Test Channel	Verdict
11B	2457 MHz	PASS

Test Mode	Test Channel	Verdict
11B	2462 MHz	PASS

Test Mode	Test Channel	Verdict
11G	2422 MHz	PASS

Test Mode	Test Channel	Verdict
11G	2427 MHz	PASS

Test Mode	Test Channel	Verdict
11G	2442 MHz	PASS

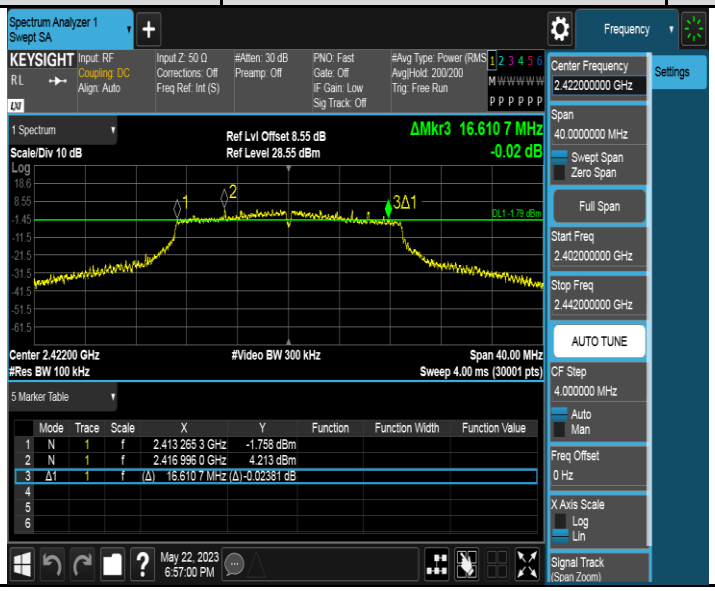


Test Mode	Test Channel	Verdict
11G	2452 MHz	PASS

Test Mode	Test Channel	Verdict
11G	2457 MHz	PASS

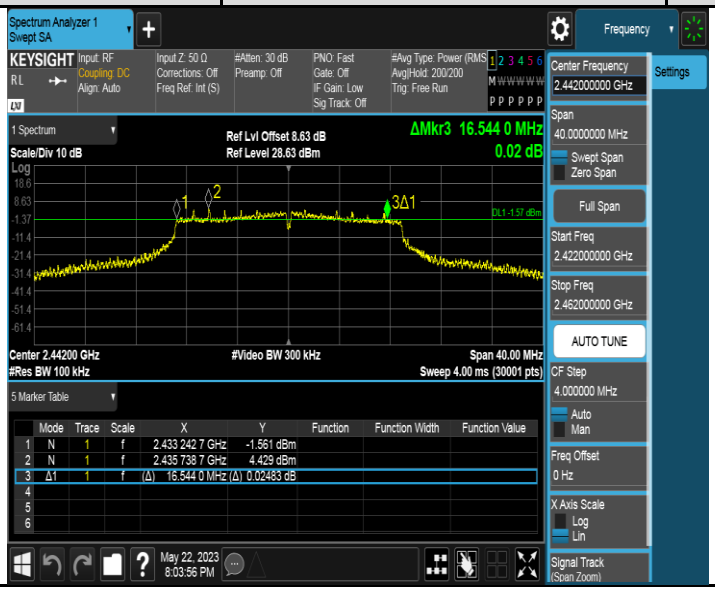
Test Mode	Test Channel	Verdict
11G	2462 MHz	PASS

Test Mode	Test Channel	Verdict
11N HT20	2422 MHz	PASS



Test Mode	Test Channel	Verdict
11N HT20	2427 MHz	PASS

Test Mode	Test Channel	Verdict
11N HT20	2442 MHz	PASS



Test Mode	Test Channel	Verdict
11N HT20	2452 MHz	PASS

Test Mode	Test Channel	Verdict
11N HT20	2457 MHz	PASS

Test Mode	Test Channel	Verdict
11N HT20	2462 MHz	PASS

99% Bandwidth

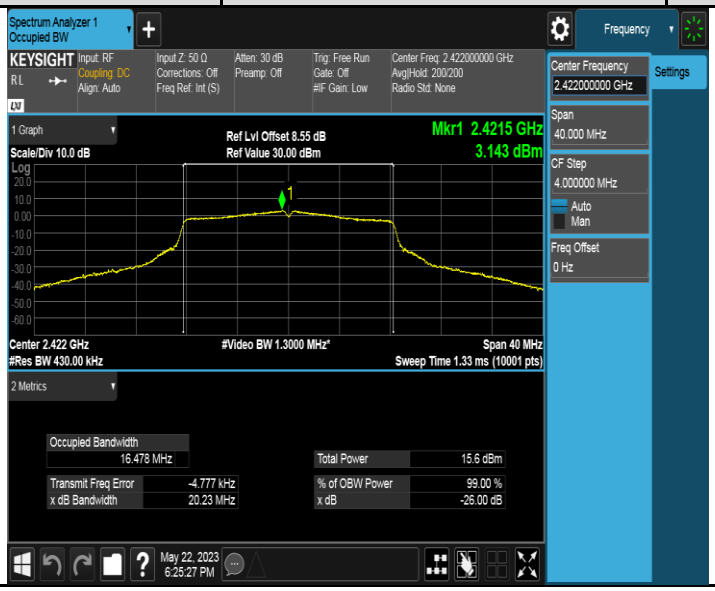
Test Mode	Test Channel	Verdict
11B	2422 MHz	PASS

Test Mode	Test Channel	Verdict
11B	2442 MHz	PASS

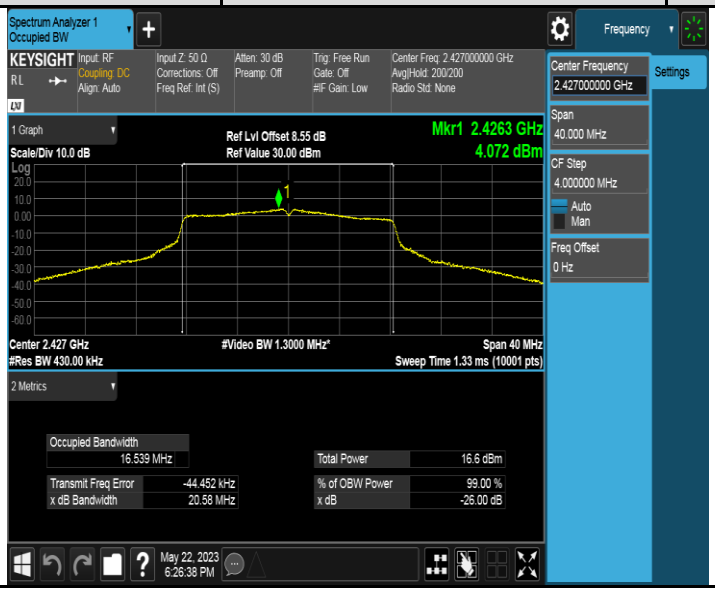
Test Mode	Test Channel	Verdict
11B	2457 MHz	PASS

Test Mode	Test Channel	Verdict
11B	2462 MHz	PASS

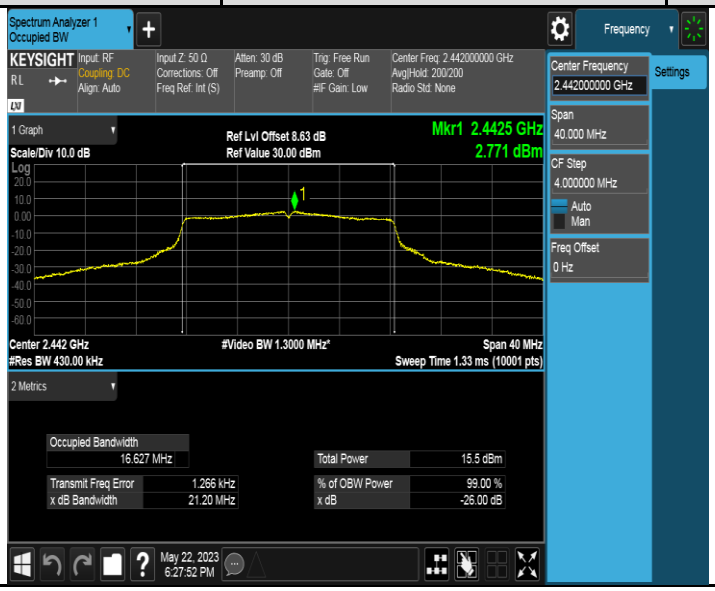
Test Mode	Test Channel	Verdict
11G	2422 MHz	PASS



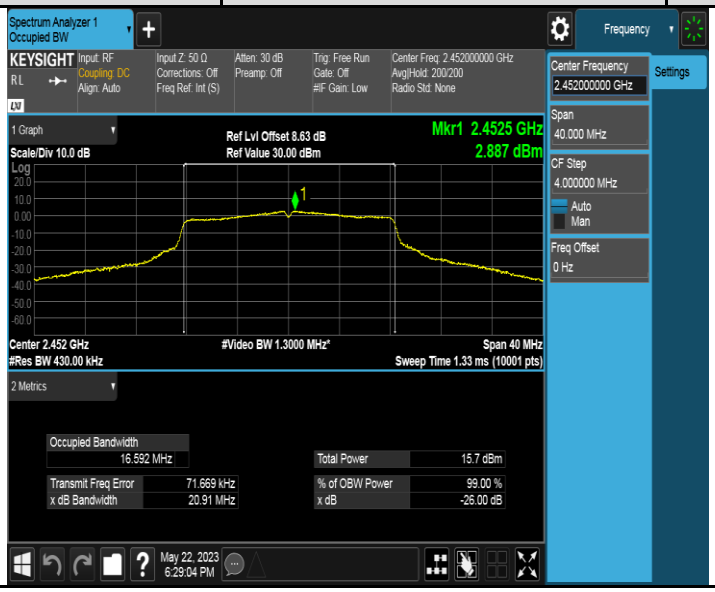
Test Mode	Test Channel	Verdict
11G	2427 MHz	PASS



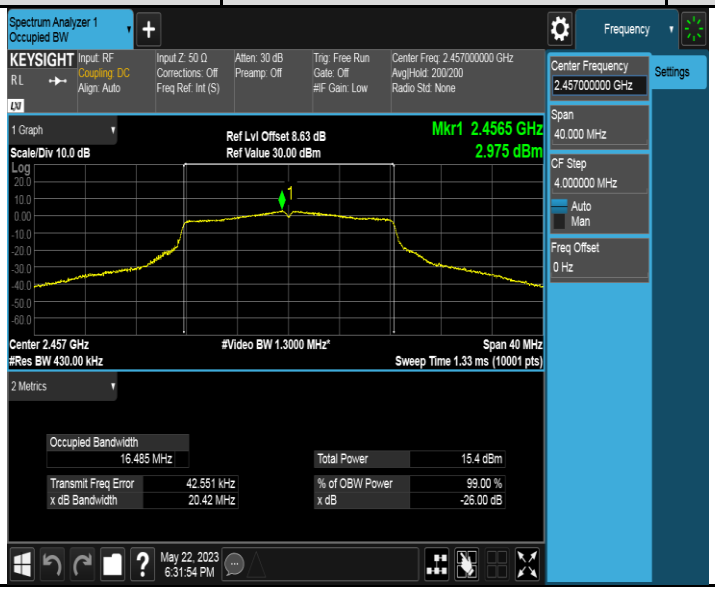
Test Mode	Test Channel	Verdict
11G	2442 MHz	PASS



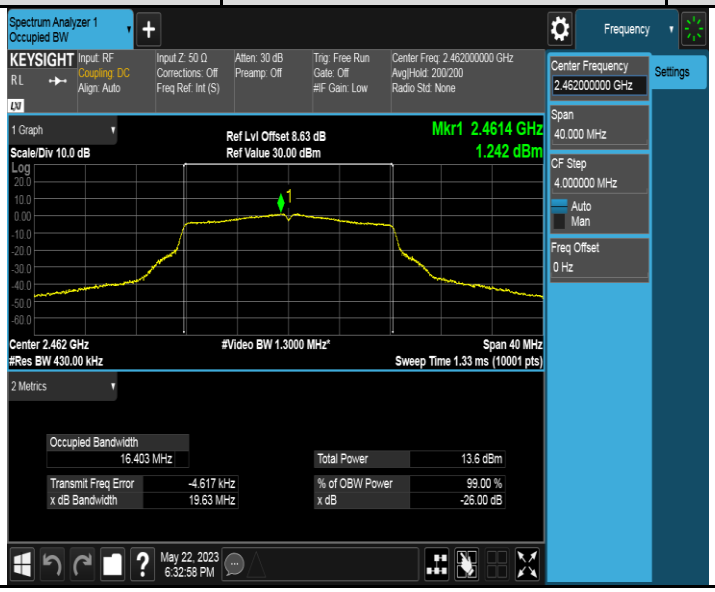
Test Mode	Test Channel	Verdict
11G	2452 MHz	PASS



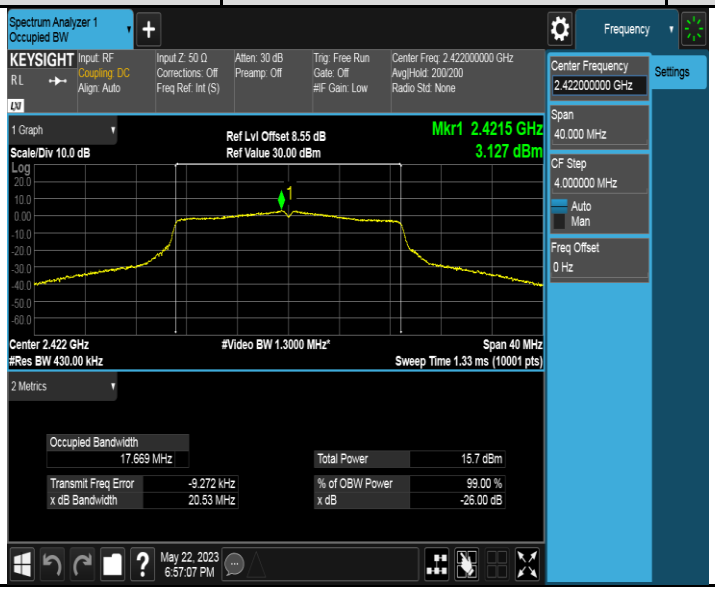
Test Mode	Test Channel	Verdict
11G	2457 MHz	PASS



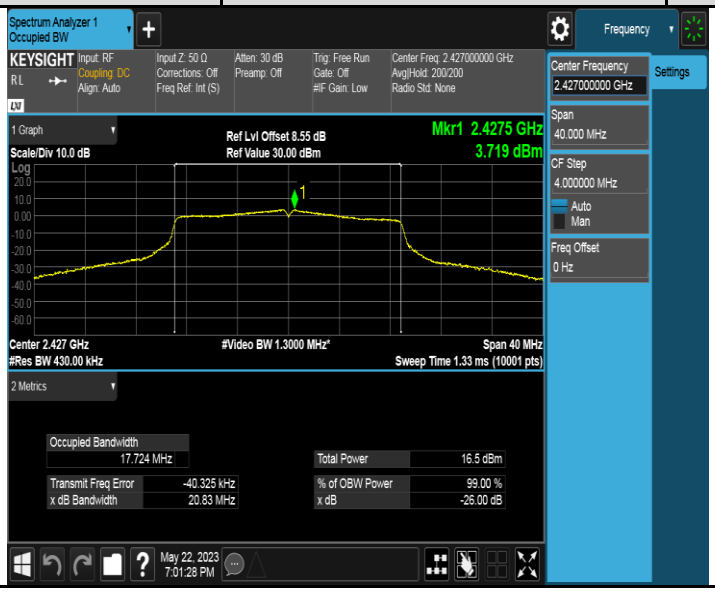
Test Mode	Test Channel	Verdict
11G	2462 MHz	PASS



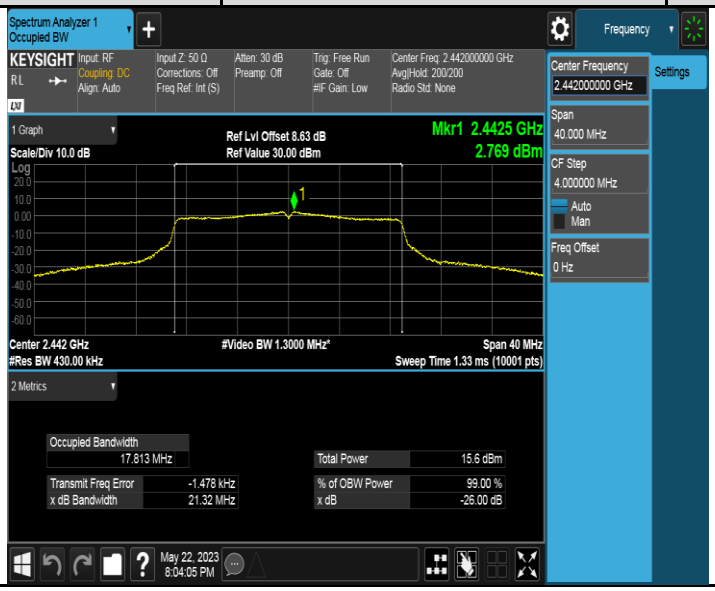
Test Mode	Test Channel	Verdict
11N HT20	2422 MHz	PASS



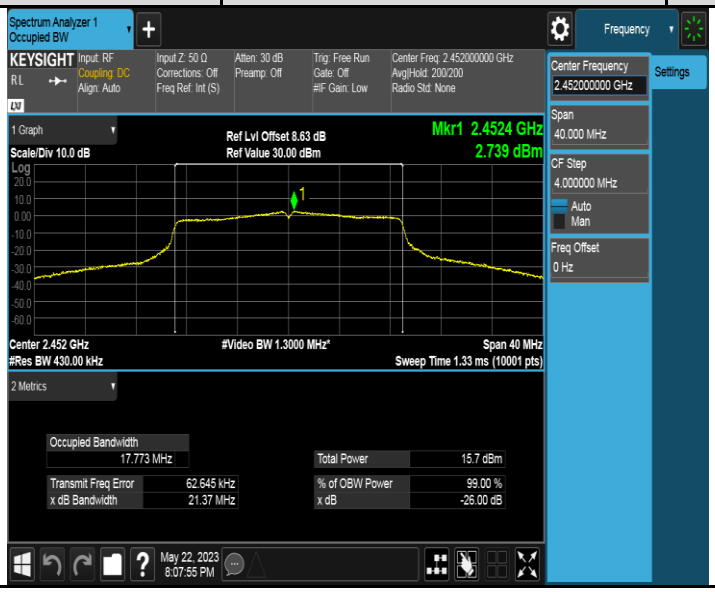
Test Mode	Test Channel	Verdict
11N HT20	2427 MHz	PASS



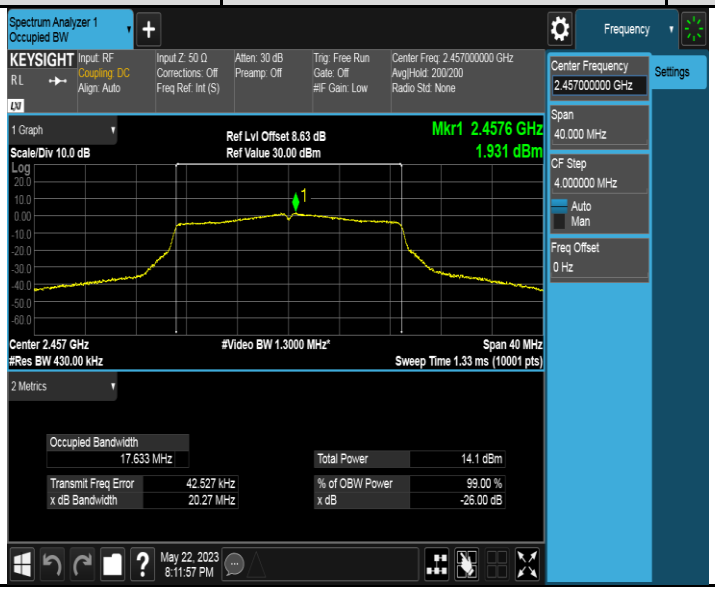
Test Mode	Test Channel	Verdict
11N HT20	2442 MHz	PASS



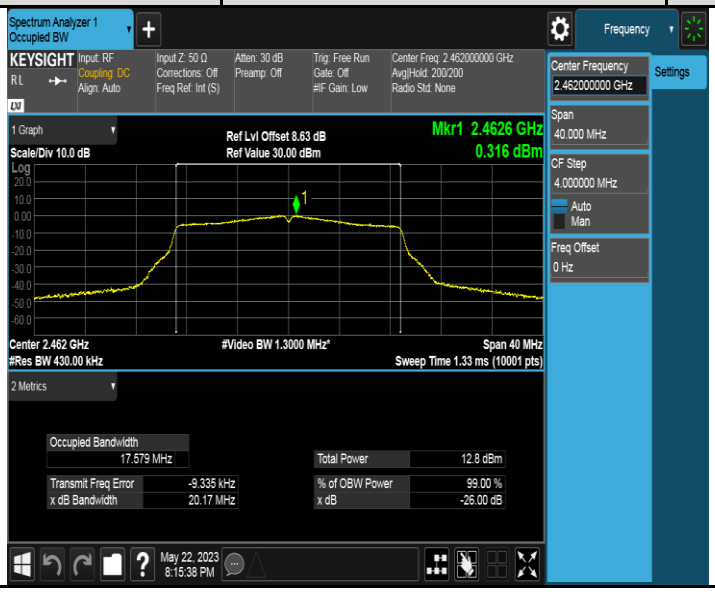
Test Mode	Test Channel	Verdict
11N HT20	2452 MHz	PASS



Test Mode	Test Channel	Verdict
11N HT20	2457 MHz	PASS



Test Mode	Test Channel	Verdict
11N HT20	2462 MHz	PASS



7.2. CONDUCTED OUTPUT POWER

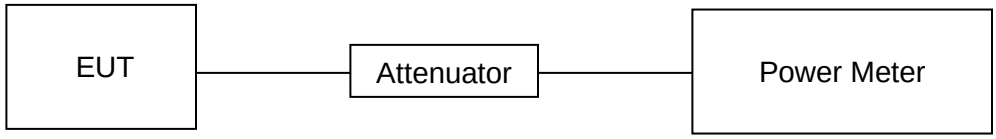
LIMITS

FCC Part15 (15.247), Subpart C			
Section	Test Item	Limit	Frequency Range [MHz]
FCC 15.247(b)(3) ISED RSS-247 5.4 (d) RSS-Gen Clause 6.12	Output Power	1 watt or 30dBm	2400-2483.5

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 the power of each channel.
AVG Detector used for AVG result.

TEST SETUP



TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V

TEST RESULTS TABLE

Test Mode	Test Channel	Measurement Output Power (AV)	10log(1/x) Factor	Maximum Conducted Output Power (AV)	LIMIT
	MHz	dBm	dBm	dBm	dBm
11B	2422	20.94	0	20.94	30
	2442	20.99	0	20.99	30
	2457	19.27	0	19.27	30
	2462	19.23	0	19.23	30
11G	2422	15.75	0	15.75	30
	2427	16.61	0	16.61	30
	2442	15.61	0	15.61	30
	2452	15.71	0	15.71	30
	2457	15.37	0	15.37	30
	2462	13.66	0	13.66	30
11N HT20	2422	15.64	0	15.64	30
	2427	16.53	0	16.53	30
	2442	15.55	0	15.55	30
	2452	15.74	0	15.74	30
	2457	14.11	0	14.11	30
	2462	12.83	0	12.83	30

Note:
1. Maximum Conducted Output Power (AV) = Measurement Output Power (AV) + Duty Factor.
2. The Maximum Conducted Output Power was test by the power meter.
3. Please refer to the section 7.1 for the duty factor.

7.3. POWER SPECTRAL DENSITY

LIMITS

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

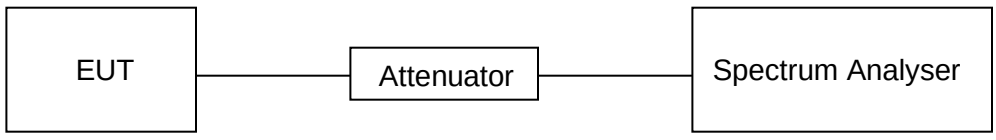
TEST PROCEDURE

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 kHz ≤ RBW ≤100 kHz
VBW	≥3 × 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.

TEST SETUP



TEST ENVIRONMENT

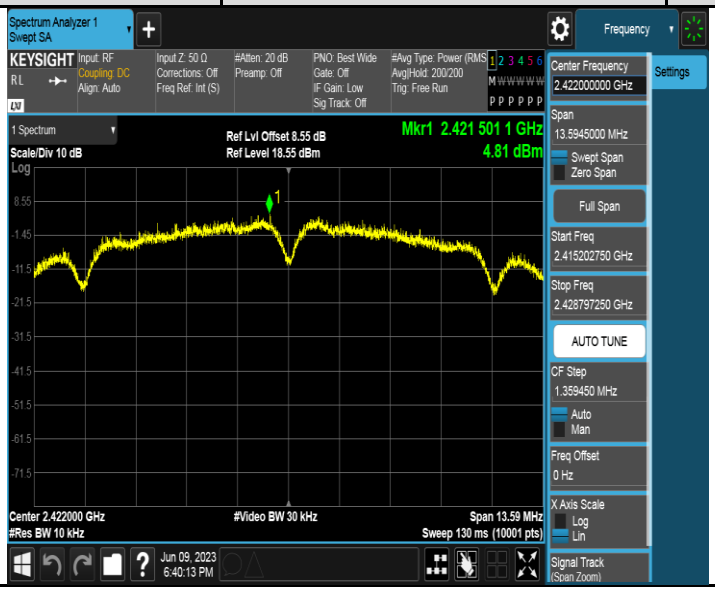
Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V

TEST RESULTS TABLE

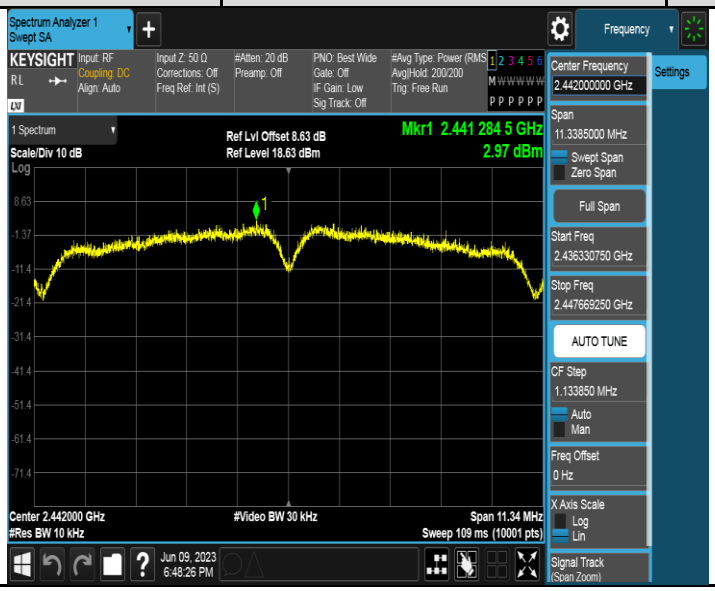
Test Mode	Test Channel [MHz]	Maximum Peak power spectral density [dBm/10kHz]	Result
11B	2422	4.81	Pass
	2442	2.97	Pass
	2457	3.93	Pass
	2462	3.74	Pass
11G	2422	-2.30	Pass
	2427	-1.45	Pass
	2442	-2.68	Pass
	2452	-2.54	Pass
	2457	-2.48	Pass
	2462	-4.04	Pass
11N HT20	2422	-1.73	Pass
	2427	-0.48	Pass
	2442	-2.24	Pass
	2452	-0.66	Pass
	2457	-2.08	Pass
	2462	-3.33	Pass

TEST GRAPHS

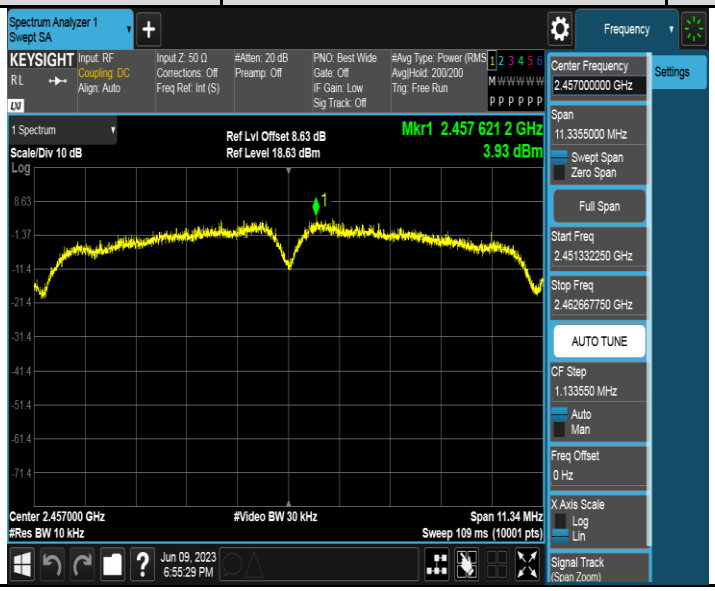
Test Mode	Test Channel	Verdict
11B	2422 MHz	PASS



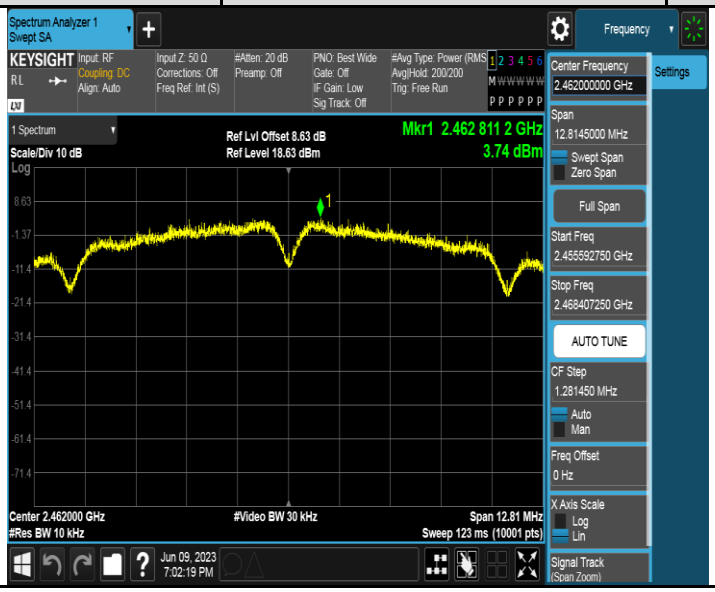
Test Mode	Test Channel	Verdict
11B	2442 MHz	PASS



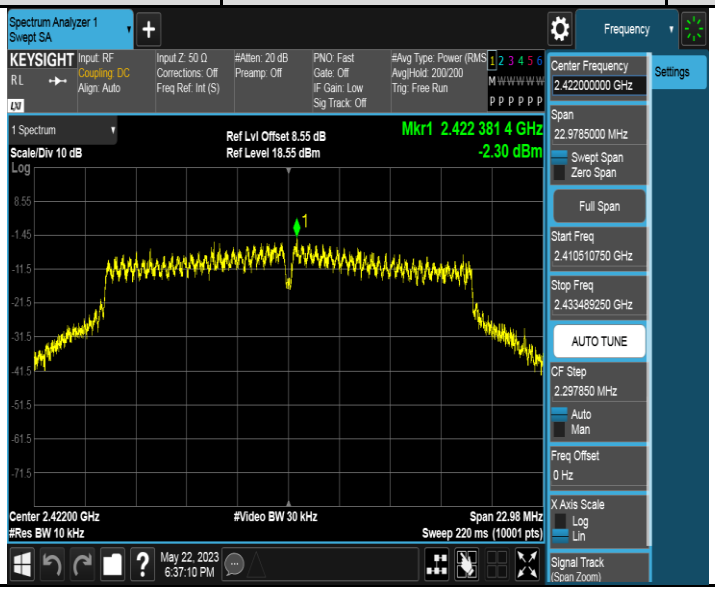
Test Mode	Test Channel	Verdict
11B	2457 MHz	PASS



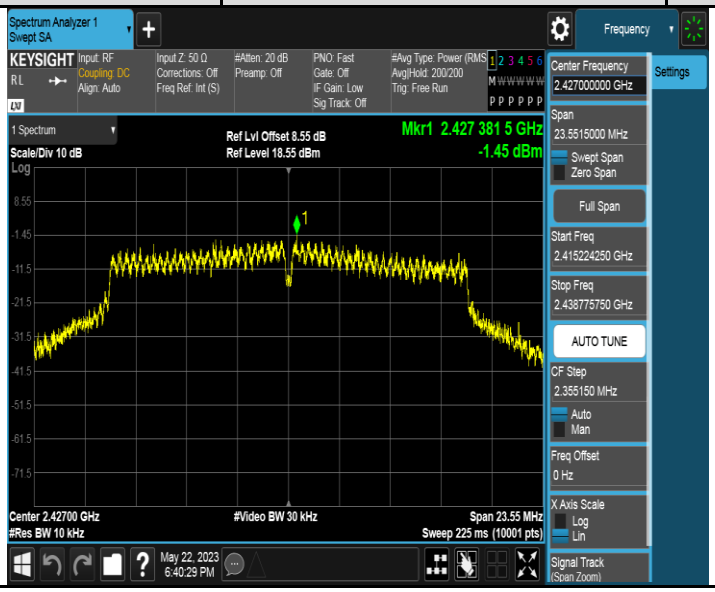
Test Mode	Test Channel	Verdict
11B	2462 MHz	PASS



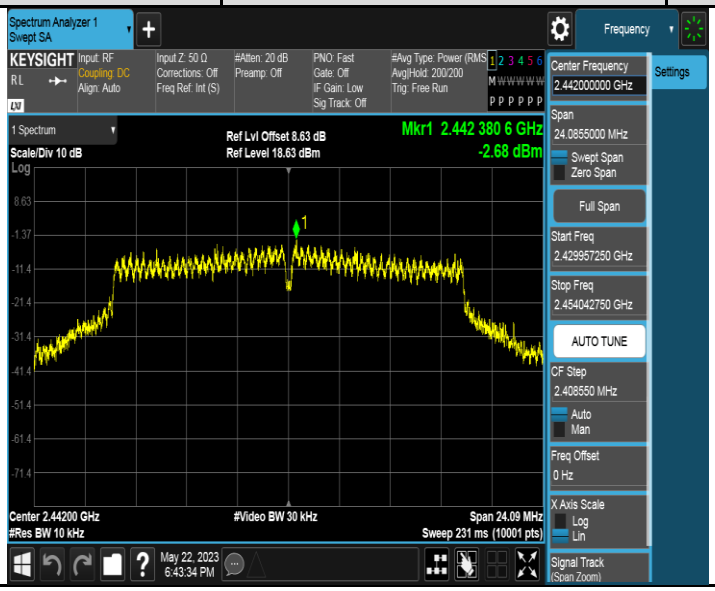
Test Mode	Test Channel	Verdict
11G	2422 MHz	PASS



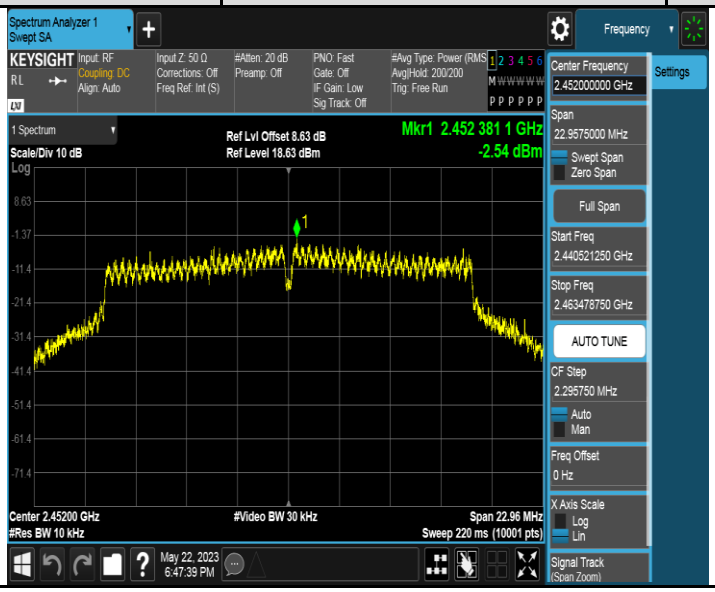
Test Mode	Test Channel	Verdict
11G	2427 MHz	PASS



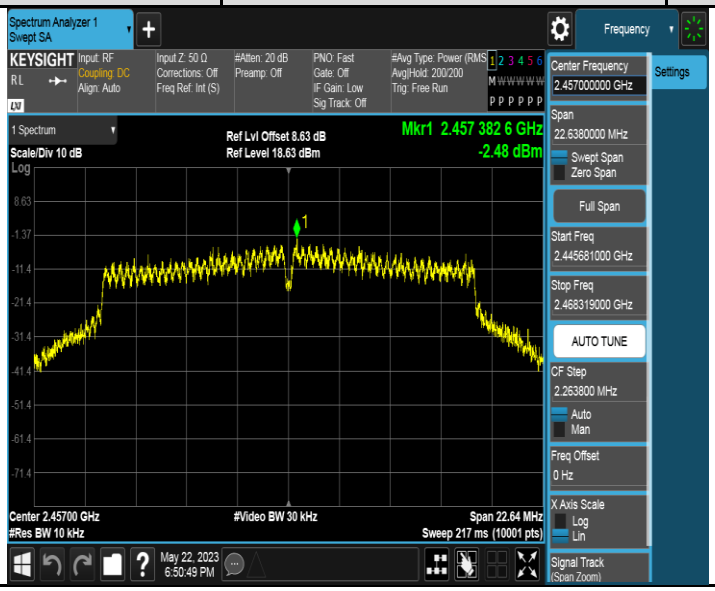
Test Mode	Test Channel	Verdict
11G	2442 MHz	PASS



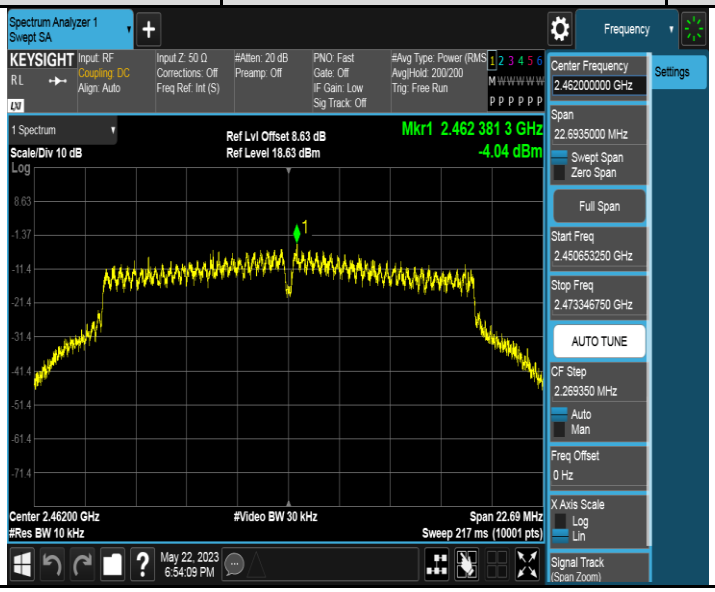
Test Mode	Test Channel	Verdict
11G	2452 MHz	PASS



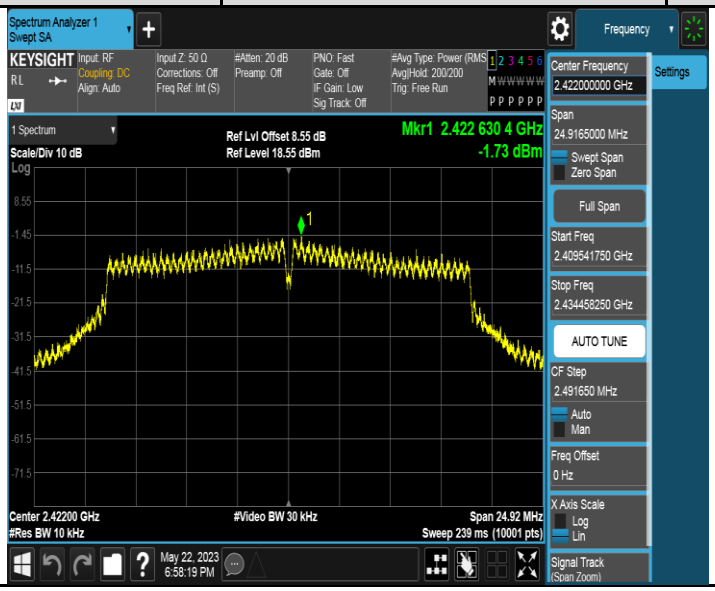
Test Mode	Test Channel	Verdict
11G	2457 MHz	PASS



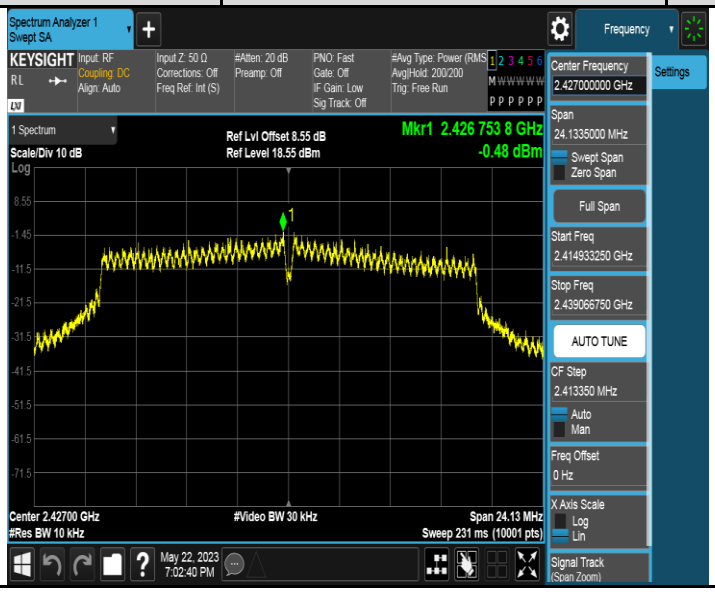
Test Mode	Test Channel	Verdict
11G	2462 MHz	PASS



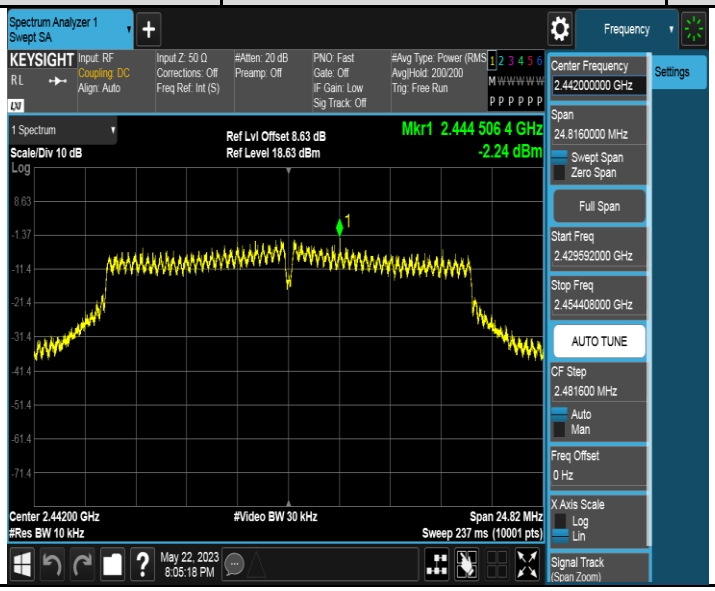
Test Mode	Test Channel	Verdict
11N HT20	2422 MHz	PASS



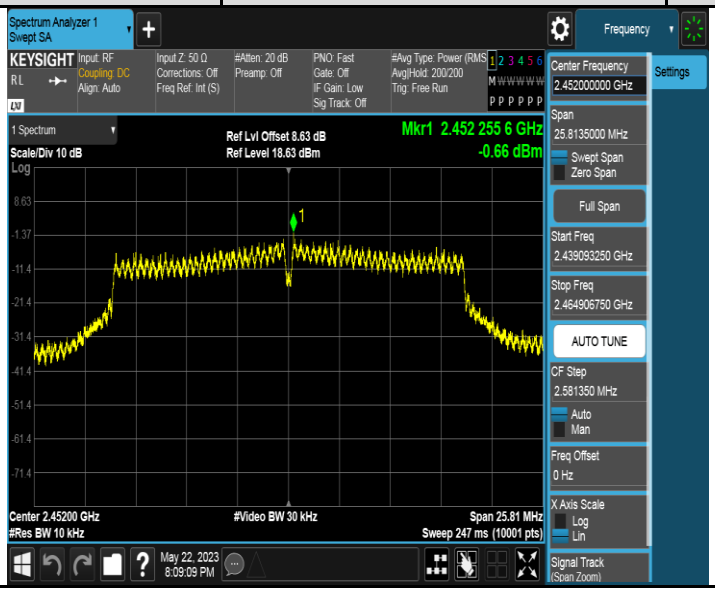
Test Mode	Test Channel	Verdict
11N HT20	2427 MHz	PASS



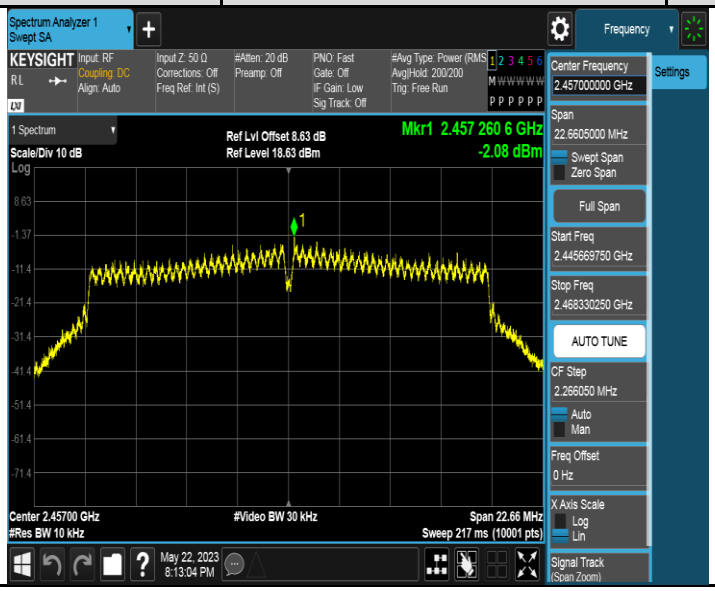
Test Mode	Test Channel	Verdict
11N HT20	2442 MHz	PASS



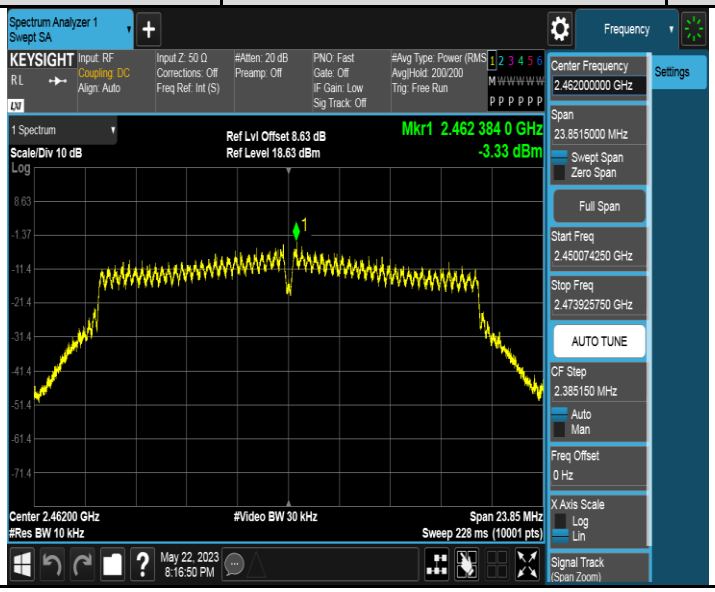
Test Mode	Test Channel	Verdict
11N HT20	2452 MHz	PASS



Test Mode	Test Channel	Verdict
11N HT20	2457 MHz	PASS



Test Mode	Test Channel	Verdict
11N HT20	2462 MHz	PASS



7.4. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC Part15 (15.247), Subpart C		
Section	Test Item	Limit
FCC §15.247 (d) RSS-247 Clause 5.5 RSS-GEN Clause 6.13	Conducted Spurious Emissions	30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

TEST PROCEDURE

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

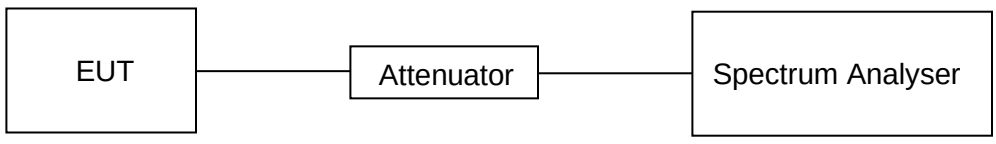
Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	100K
VBW	≥3 × RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

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	100K
VBW	≥3 × RBW
measurement points	≥span/RBW
Trace	Max hold
Sweep time	Auto couple.

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

TEST SETUP



TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	AC 120V

PART 1: REFERENCE LEVEL MEASUREMENT

TEST RESULTS TABLE

Test Mode	Test Channel [MHz]	Result [dBm]
11B	2422	12.29
	2442	10.73
	2457	12.00
	2462	12.04
11G	2422	4.50
	2427	5.65
	2442	4.18
	2452	4.80
	2457	4.25
	2462	2.05
11N HT20	2422	4.15
	2427	5.81
	2442	3.81
	2452	4.84
	2457	2.84
	2462	1.75