FCC 47 CFR PART 15 SUBPART C
ISED RSS 247 ISSUE 2
CERTIFICATION TEST REPORT

For

SMART VACUUM CLEANER

MODEL NUMBER: VS12200AUS

ADDITIONAL MODEL NUMBER: VS12220AUS, VS12230AUS

PROJECT NUMBER: 4789392957

REPORT NUMBER: 4789392957-1

FCC ID: 2ASWB-S12V

IC: 24918-S12V

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Prepared for

Ecovacs Robotics Co Ltd

Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	05/25/2020	Initial Issue	

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name:	Ecovacs Robotics Co Ltd
Address:	No. 108 Shihu Road West, Wuzhong Zone,Suzhou, 215128 P.R.China

Manufacturer Information

Company Name:	Ecovacs Robotics Co Ltd
Address:	No. 108 Shihu Road West, Wuzhong Zone,Suzhou, 215128 P.R.China

Factory Information

Company Name:	Ecovacs Robotics Co Ltd
Address:	No. 108 Shihu Road West, Wuzhong Zone,Suzhou, 215128 P.R.China

EUT Description

Product Name	SMART VACUUM CLEANER
Model Name	VS12200AUS
Additional No.	VS12220AUS, VS12230AUS
Sample Number	2913906
Data of Receipt Sample	Feb. 28, 2020
Date Tested	Mar. 02, 2020~ Mar.26, 2020

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)	Complied
2	Peak Conducted Power	FCC 15.247 (b) (3) RSS-247 Clause 5.4 (e)	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	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	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 8.3	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, ISED RSS-GEN Issue5, ISED RSS-247 Issue2> > when <Accuracy Method> decision rule is applied.			

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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 ISED RSS-GEN ISSUE5 and ISED RSS-247 ISSUE2.

3. FACILITIES AND ACCREDITATION

Test Location	**UL-CCIC Company Limited, EMC&RF Lab**
Address	**No. 2, Chengwan Road, Suzhou Industrial Park, Suzhou 215122 ,China**
Accreditation Certificate	**CNAS (Certificate No.: L2065)** **The Laboratory has been assessed and proved to be in compliance with CNAS, The Certificate Registration Number is L2065.** **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)** **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	3.00dB
Radiation Emission test(include Fundamental emission) (9KHz-30MHz)	3.32dB
Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	3.27dB
Radiation Emission test (1GHz to 26GHz)(include Fundamental emission)	3.80dB (1GHz-18Gz)
	4.11dB (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:	SMART VACUUM CLEANER
Model No.:	VS12200AUS
Operating Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz 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
Test power grade:	NA (manufacturer declare)
Test software of EUT:	EspRFtestTool_2.0 (manufacturer declare)
Antenna Type:	Meandered printed inverted-F antenna
Antenna Gain:	2.3 dBi
	Remark: This data is provided by customer and our lab isn't responsible for this data
Battery	NAME: Rechargeable Li-ion Battery MODEL:A12NA-02 OUTPUT:21.6V DC 2500mAh 54Wh
Adapter	MODEL:YLS0241A-T260070 INPUT:100-240V~50/60Hz 0.8A Max OUTPUT:26V ⎓ 700 mA

Model No.:

Number:	Name:	Number:	Name:	Number:	Name:
1	VS12200AUS	2	VS12220AUS	3	VS12230AUS

Remark: Only the main model **VS12200AUS** 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 name, product color, marketing channel and sale contury.

5.2. MAXIMUM OUTPUT POWER

Number of Transmit Chains (NTX)	IEE Std. 802.11	Channel Number	Max PK Conducted Power (dBm)
1	IEEE 802.11B	1-11[11]	11.50
1	IEEE 802.11G	1-11[11]	15.72
1	IEEE 802.11n HT20	1-11[11]	15.56

5.3. CHANNEL LIST

Channel List for 802.11b/g/n (20 MHz)							
Channel	Frequency (MHz)	Channel	Frequenc y(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		

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

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band							
Test Software		EspRFtestTool_2.0					
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	NA	NA	NA	/		
802.11g	1	NA	NA	NA			
802.11n HT20	1	NA	NA	NA			

Remark: The att in the software is setting 28.

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1	2400-2483.5	Meandered printed inverted-F antenna	2.3

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

For the product, there two transmission antennas, and pre-testing both of them, only the worse data for the antenna is recorded in the report.

Worst-case data rates as provided by the client were:

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

5.8. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests	
Relative Humidity	55 ~ 65%	
Atmospheric Pressure:	101kPa	
Temperature	TN	23 ~ 28°C
Voltage :	VL	N/A
	VN	DC 21.6V
	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	E550c	N/A
2	Fixed Frequency Board	N/A	N/A	Supply by Customer
3	USB Cable	N/A	N/A	Supply by UL Lab(100cm length)

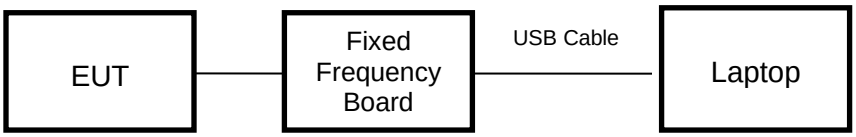
ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
1	Battery	Rechargeable Li-ion Battery	A12NA-02	OUTPUT:21.6V DC 2500mAh 54Wh
2	Adapter	NA	YLS0241A-T260070	INPUT:100-240V~50/60Hz 0.8A Max OUTPUT:26V ⎓ 700 mA

TEST SETUP

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

SETUP DIAGRAM FOR TESTS



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	2018-12-13	2019-12-07	2020-12-06
☑	Two-Line V-Network	R&S	ENV216	126701	2018-12-13	2019-12-07	2020-12-06
☑	Artificial Mains Networks	R&S	ENY81	126711	2018-12-13	2019-12-07	2020-12-06
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	MY57110128	2018-05-30	2019-05-29	2020-05-28
☑	EMI test receiver	R&S	ESR26	1267603	2018-12-13	2019-12-07	2020-12-06
☑	Receiver Antenna (9kHz-30MHz)	Schwarzbeck	FMZB 1513	513-265	2018-06-17	2019-06-16	2022-06-15
☑	Receiver Antenna (30MHz-1GHz)	SunAR RF Motion	JB1	126704	N/A	2019-01-28	2022-01-27
☑	Receiver Antenna (1GHz-18GHz)	R&S	HF907	126705	2018-01-27	2019-01-26	2022-01-26
☑	Receiver Antenna (18GHz-26.5GHz)	Schwarzbeck	BBHA9170	126706	2018-02-07	2019-02-06	2022-02-05
☑	Receiver Antenna (26.5GHz-40GHz)	TOYO	HAP 26-40W	00000012	2018-07-25	2019-07-23	2020-07-22
☑	Pre-amplification (To 18GHz)	Compliance Direction System Inc.	PAP-1G18-50	14140-13467	2019-04-09	2020-02-20	2021-02-19
☑	Pre-amplification (To 26.5GHz)	R&S	SCU-26D	134668	2019-03-18	2020-02-20	2021-02-19
☑	Band Reject Filter	Wainwright	WRCJV8-2350-2400-2483.5-2533.5-40SS	1	2019-02-06	2020-01-23	2021-01-22
☑	Highpass Filter	Wainwright	WHKX10-2700-3000-18000-40SS	2	2019-05-29	2020-01-23	2021-01-22
Software							
Used	Description			Manufacturer	Name	Version	
☑	Test Software for Radiated disturbance			Tonscend	JS32	V1.0	
Other instruments							
Used	Equipment	Manufacturer	Model No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
☑	Spectrum Analyzer	Keysight	N9010B	MY57110128	2018-05-30	2019-05-29	2020-05-28
☑	Power Meter	Keysight	U2021XA	MY57110002	2018-06-13	2019-06-12	2020-06-11

6. MEASUREMENT METHODS

No.	Test Item	KDB Name	Section
1	6dB Bandwidth and 99% Bandwidth	KDB 558074 D01 15.247 Meas Guidance v05r02	8.2
2	Peak Output Power	KDB 558074 D01 15.247 Meas Guidance v05r02	8.3.1.3/8.3.2.3
3	Power Spectral Density	KDB 558074 D01 15.247 Meas Guidance v05r02	8.4
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

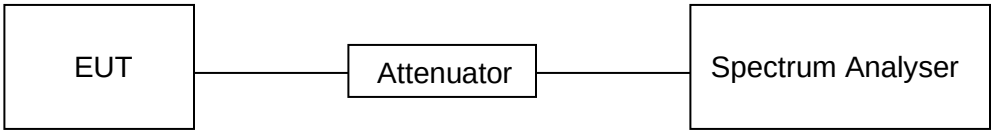
LIMITS

None; for reporting purposes only

PROCEDURE

FCC KDB 558074 Zero-Span Spectrum Analyzer Method

TEST SETUP



TEST ENVIRONMENT

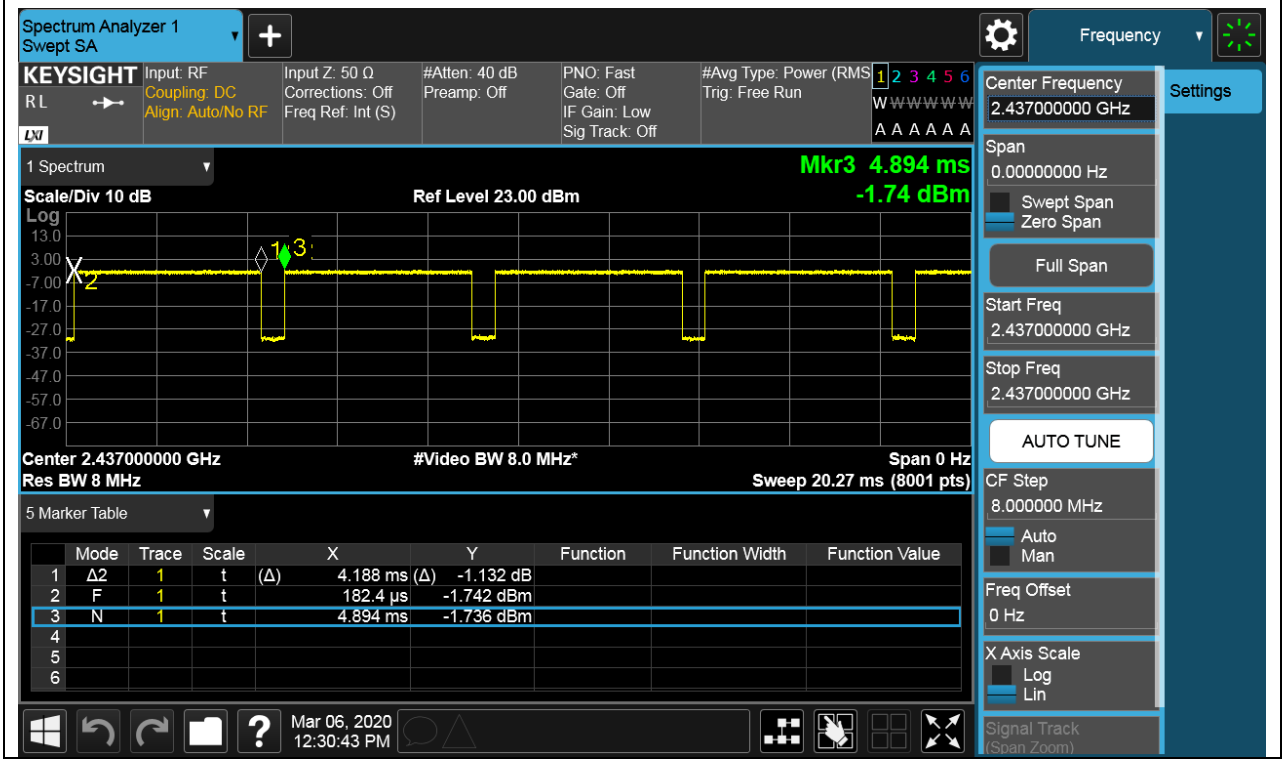
Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 21.6V

RESULTS

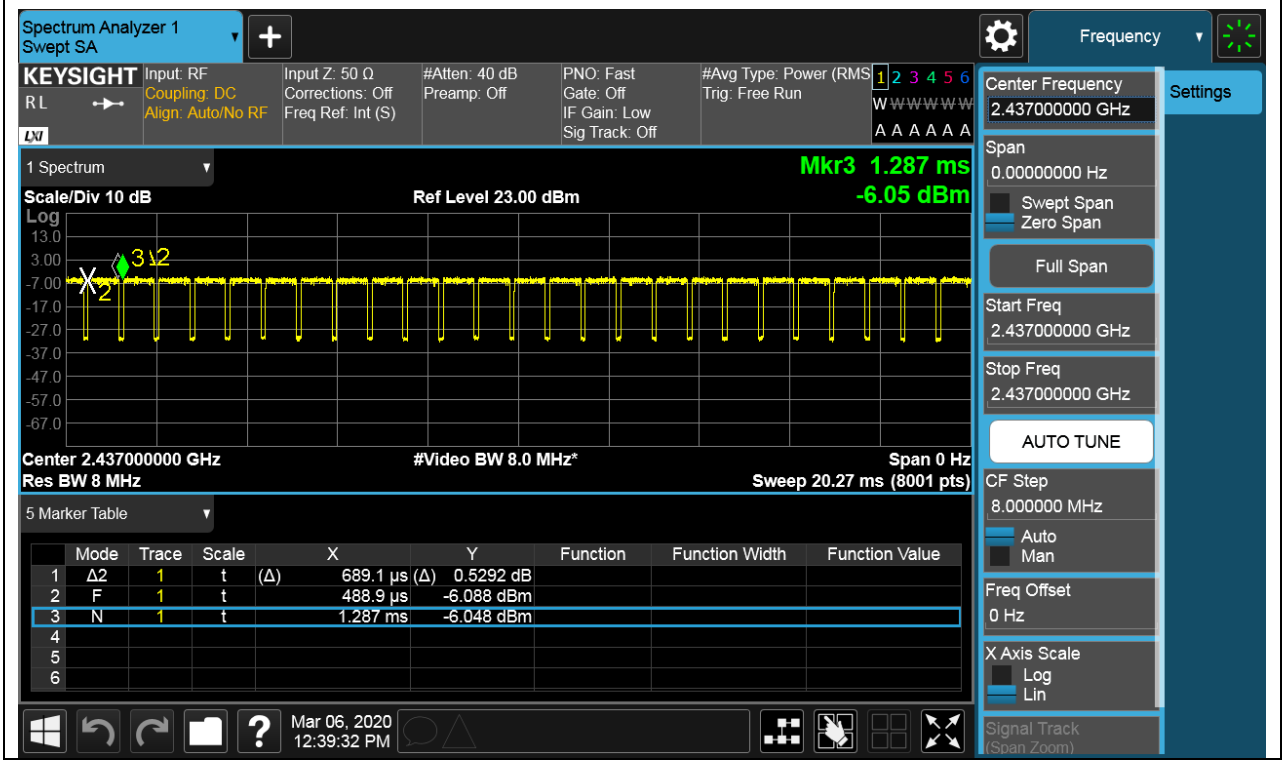
Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)	1/T Minimum VBW (KHz)	Final VBW(kHz)
11B	4.188	4.7116	0.89	89	0.51	0.24	1
11G	0.6891	0.7981	0.86	86	0.66	1.45	2
11N HT20	0.4611	0.5421	0.85	85	0.71	2.17	3

Note: 1) Duty Cycle Correction Factor=10log(1/x).
2) Where: x is Duty Cycle(Linear)
3) Where: T is On Time (transmit duration)

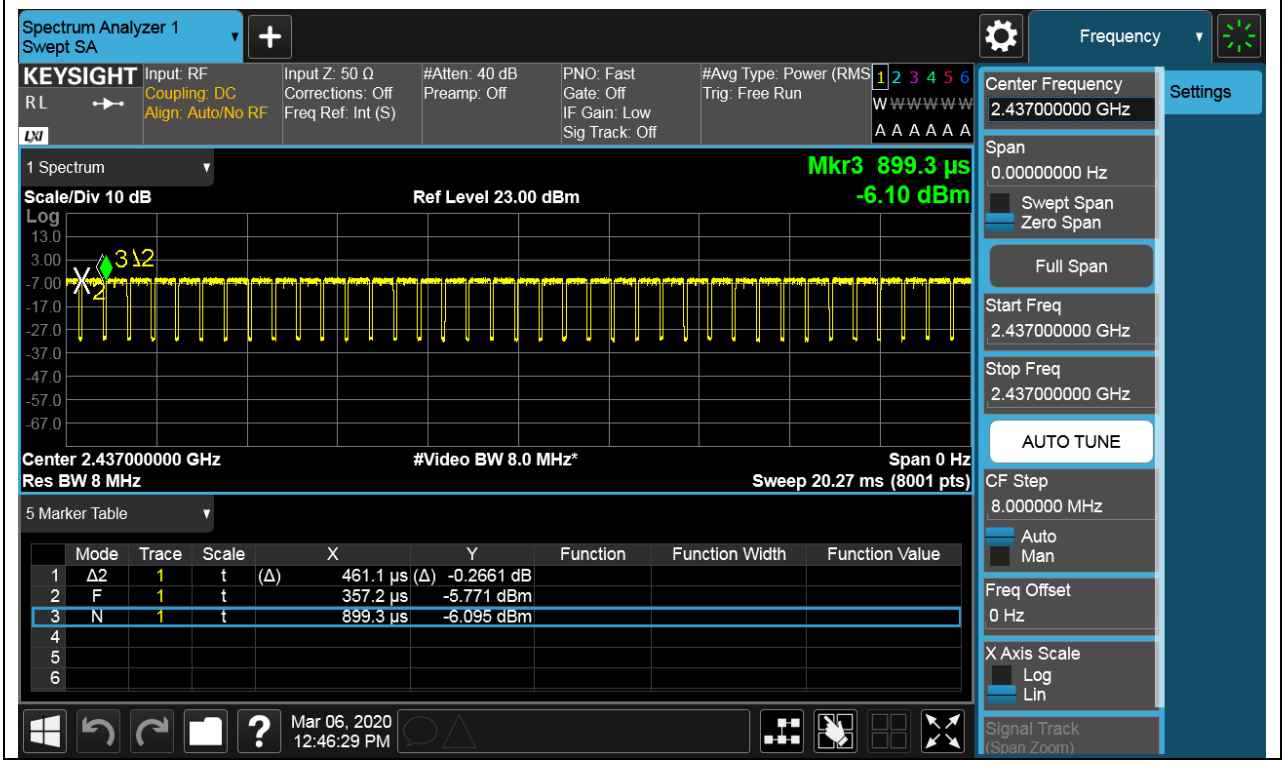
11B ON TIME AND DUTY CYCLE MID CH (WORSE CASE)



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



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



7.2. 6 dB BANDWIDTH AND 99% BANDWIDTH

LIMITS

FCC Part15 (15.247) Subpart C, ISED RSS-247 Issue 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(a)(2)	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 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	For 6dB Bandwidth :100K For 99% Occupied Bandwidth :1% to 5% of the occupied bandwidth
VBW	For 6dB Bandwidth : ≥3 × RBW For 99% Occupied Bandwidth : ≥ 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.

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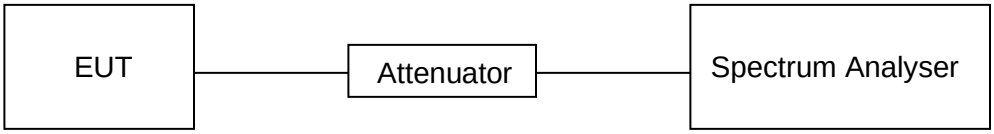
TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 21.6V

TEST SETUP

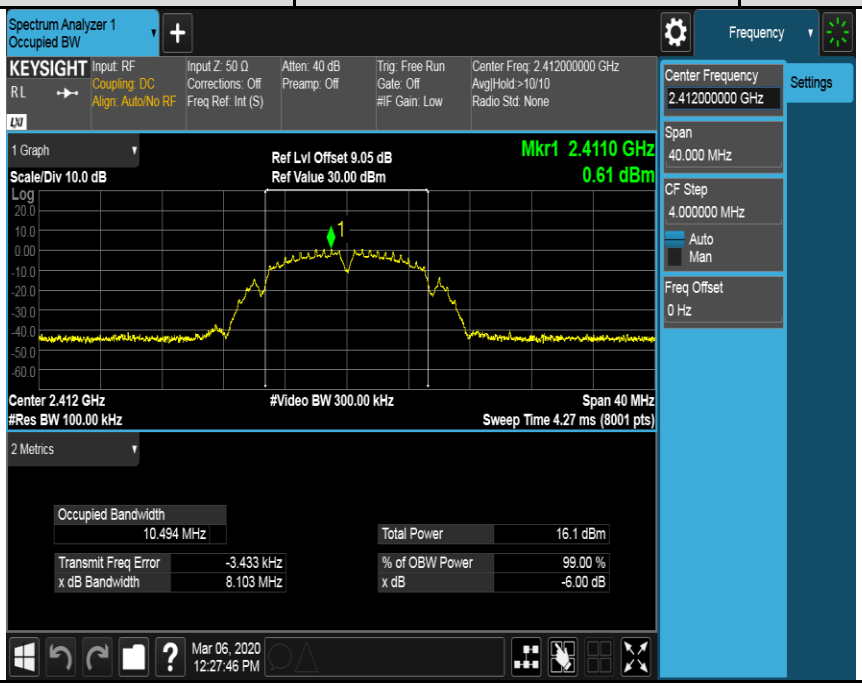


RESULTS TABLE

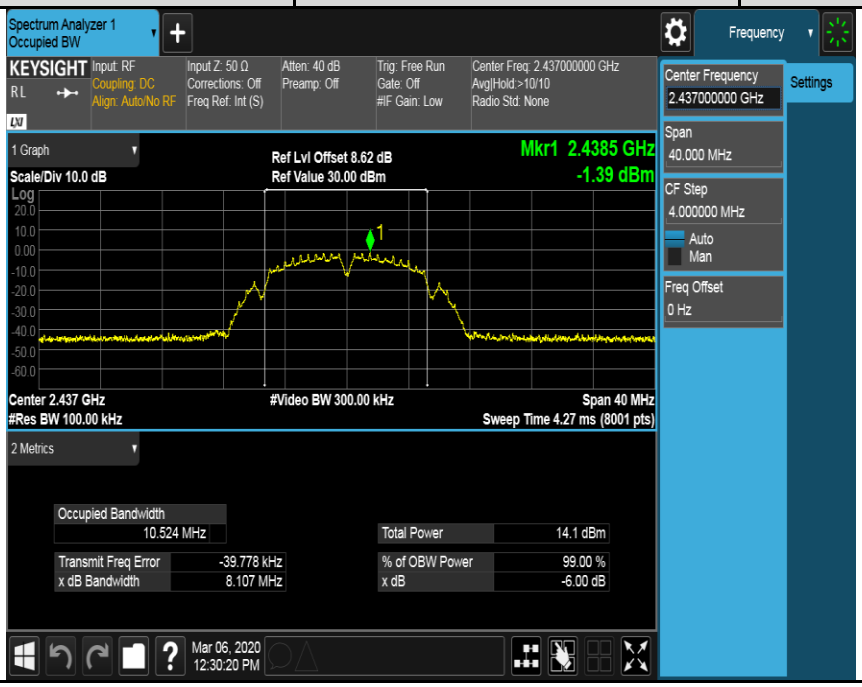
Test Mode	Test Channel	6dB bandwidth(MHz)	99% bandwidth(MHz)	Verdict
11B	LCH	8.103	10.898	PASS
11B	MCH	8.107	11.080	PASS
11B	HCH	8.076	11.292	PASS
11G	LCH	16.27	16.484	PASS
11G	MCH	16.28	16.460	PASS
11G	HCH	16.25	16.508	PASS
11N HT20	LCH	16.06	16.399	PASS
11N HT20	MCH	16.06	16.405	PASS
11N HT20	HCH	16.07	16.426	PASS

Test Graphs
Part I: For 6dB bandwidth

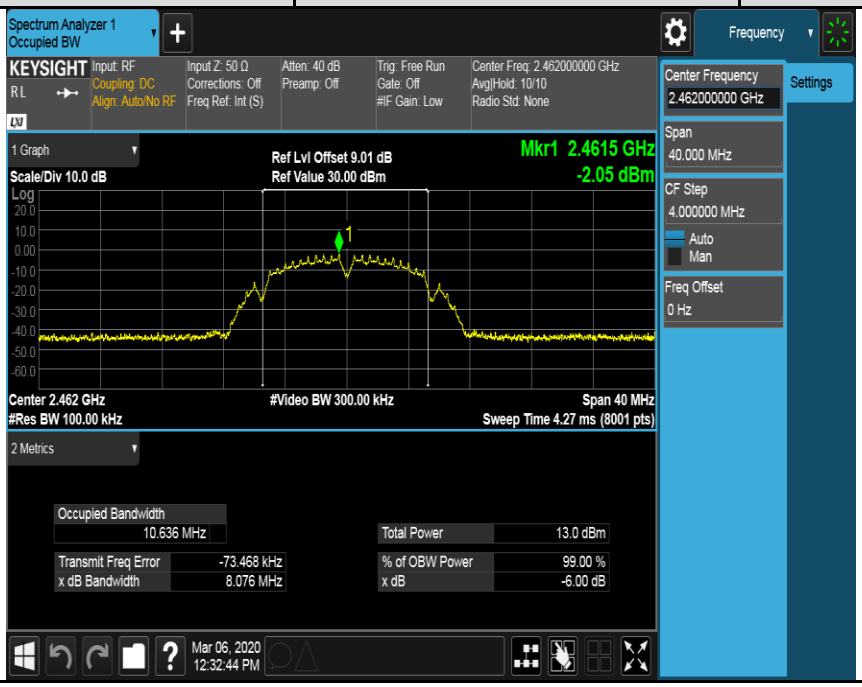
Test Mode	Test Channel	Verdict
11B	LCH	PASS



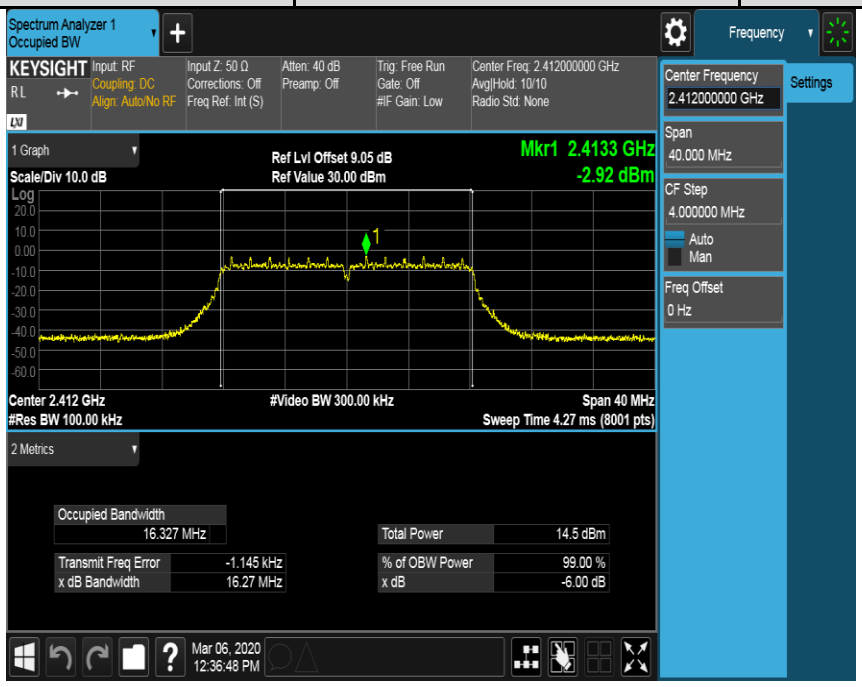
Test Mode	Test Channel	Verdict
11B	MCH	PASS



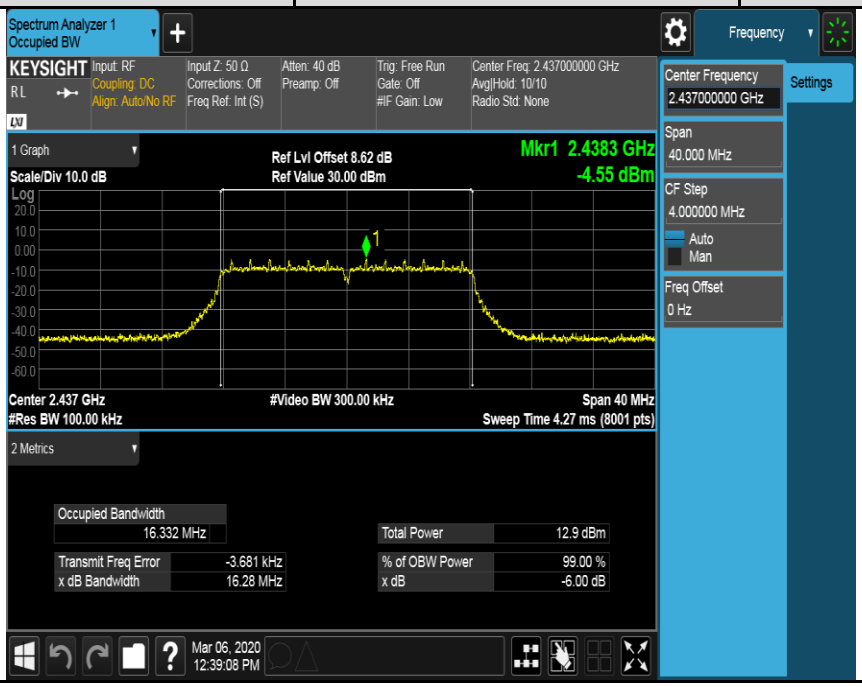
Test Mode	Test Channel	Verdict
11B	HCH	PASS



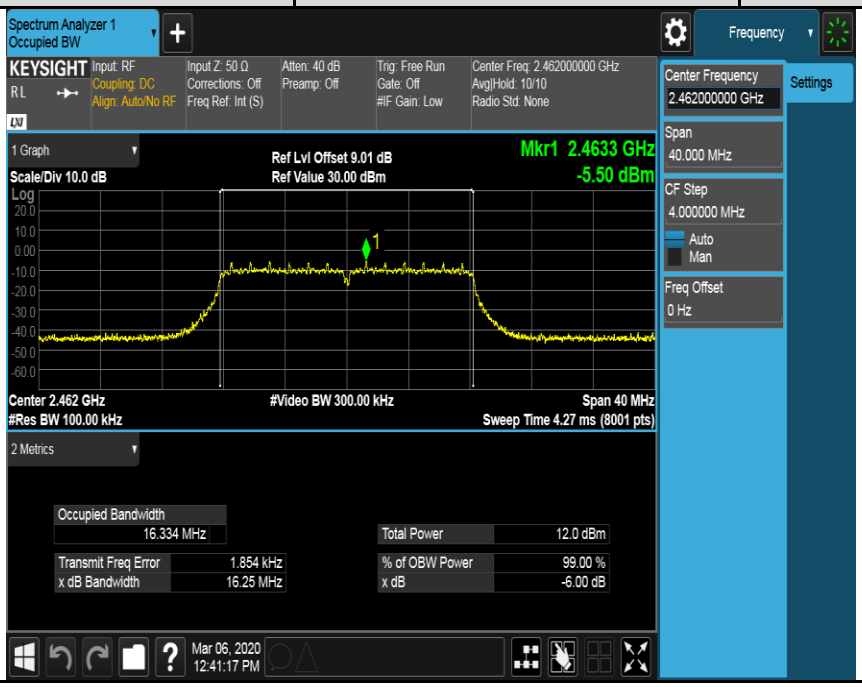
Test Mode	Test Channel	Verdict
11G	LCH	PASS



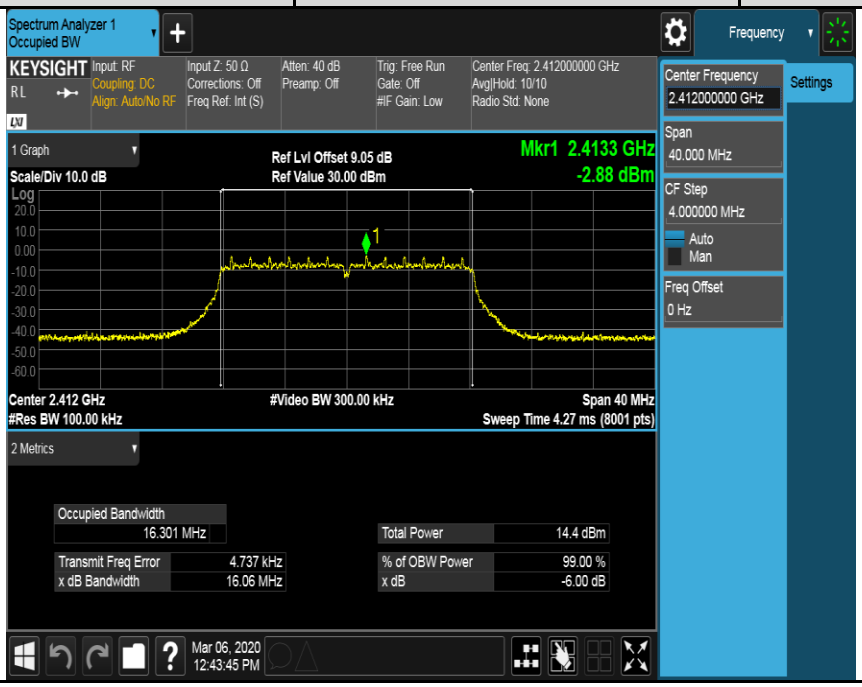
Test Mode	Test Channel	Verdict
11G	MCH	PASS



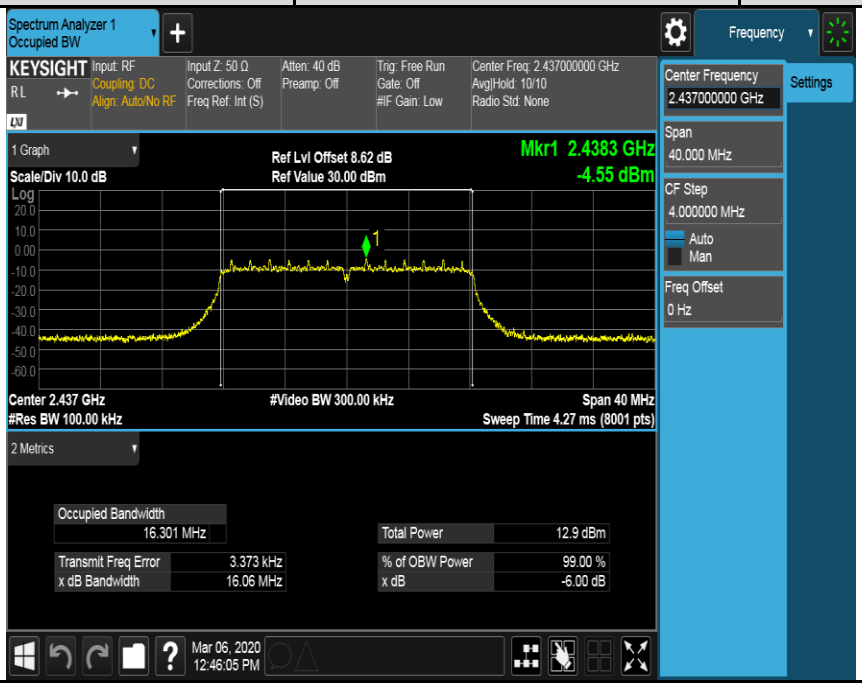
Test Mode	Test Channel	Verdict
11G	HCH	PASS



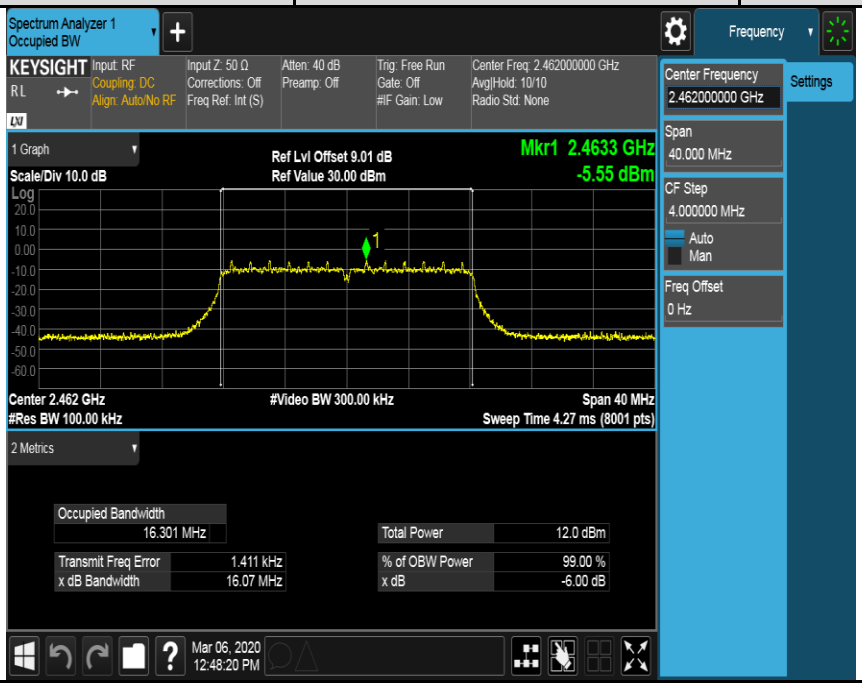
Test Mode	Test Channel	Verdict
11N HT20	LCH	PASS



Test Mode	Test Channel	Verdict
11N HT20	MCH	PASS

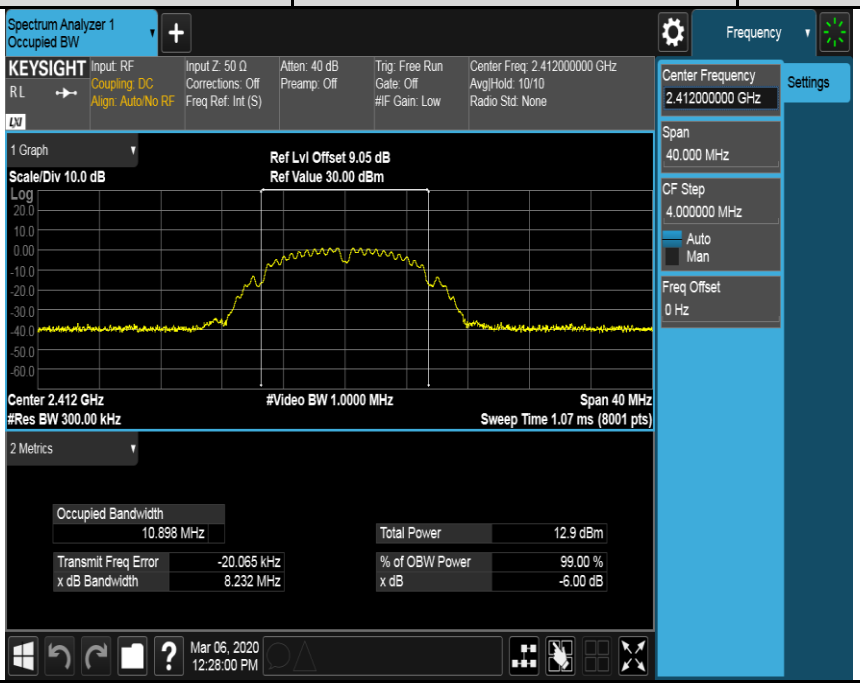


Test Mode	Test Channel	Verdict
11N HT20	HCH	PASS

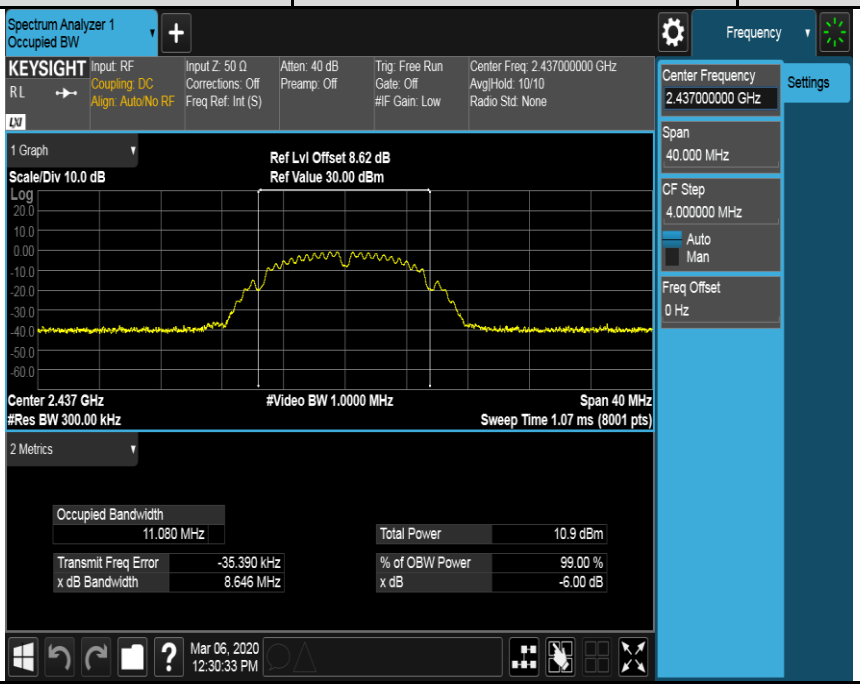


Part II: For 99% bandwidth

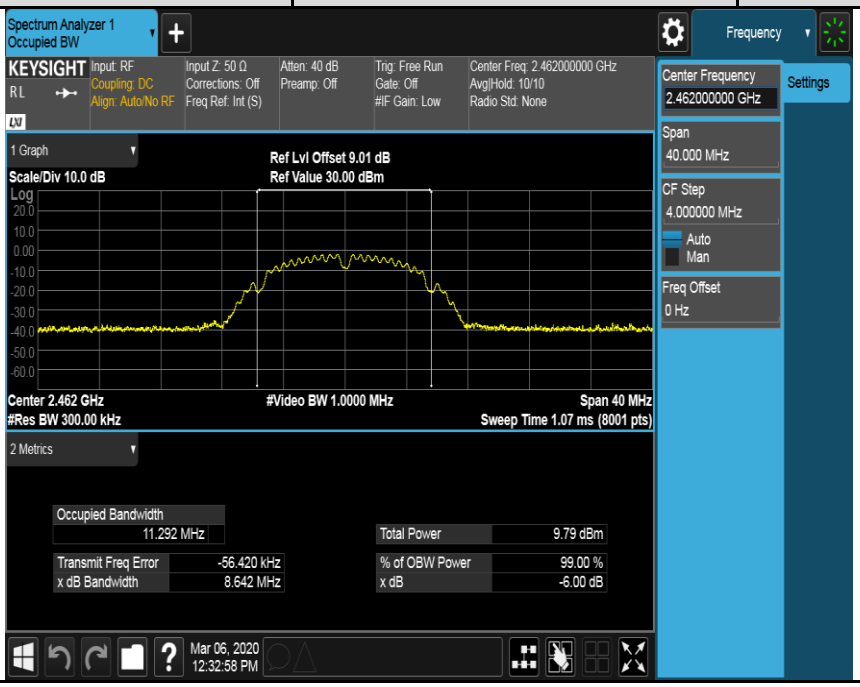
Test Mode	Test Channel	Verdict
11B	LCH	PASS



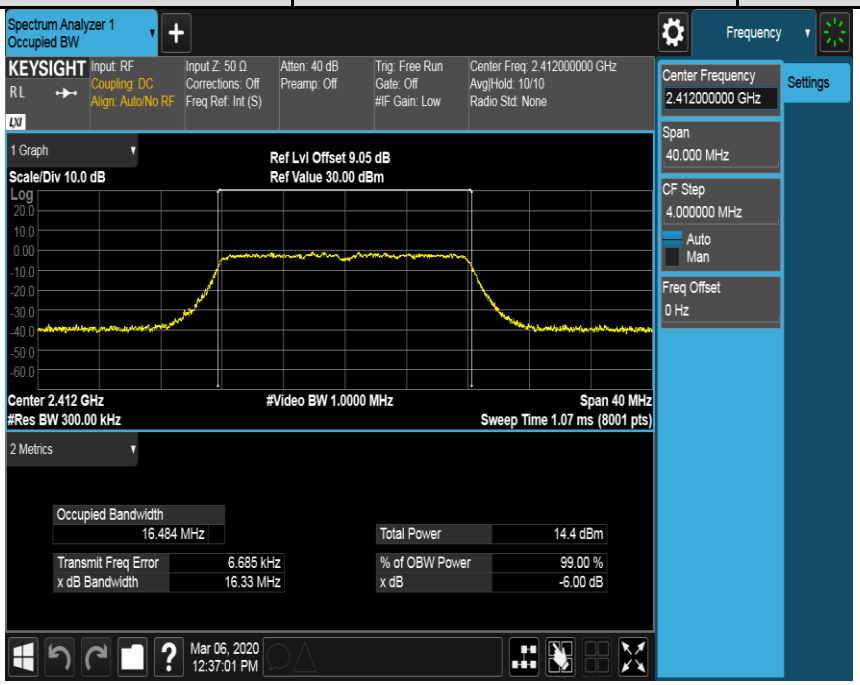
Test Mode	Test Channel	Verdict
11B	MCH	PASS



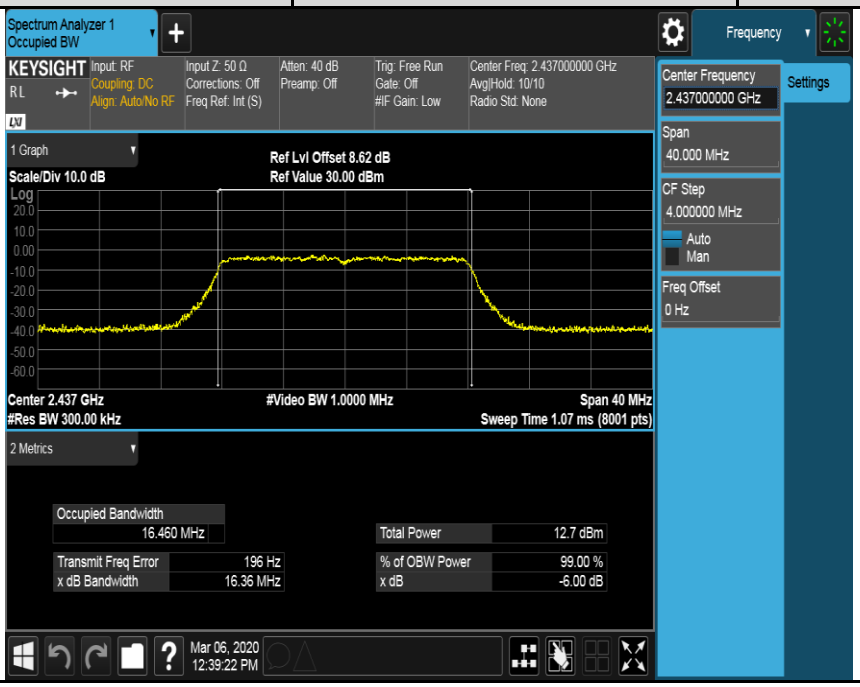
Test Mode	Test Channel	Verdict
11B	HCH	PASS



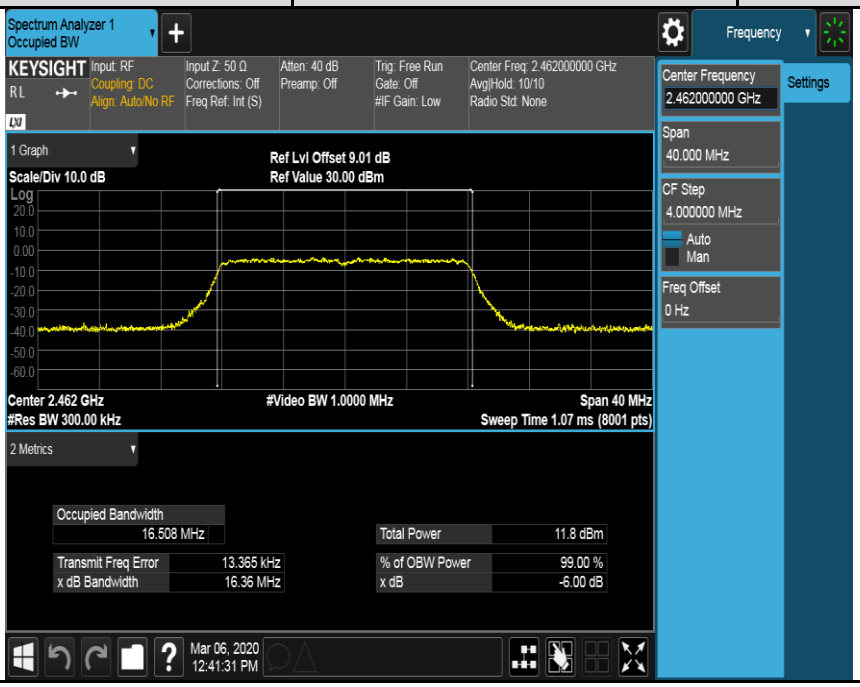
Test Mode	Test Channel	Verdict
11G	LCH	PASS



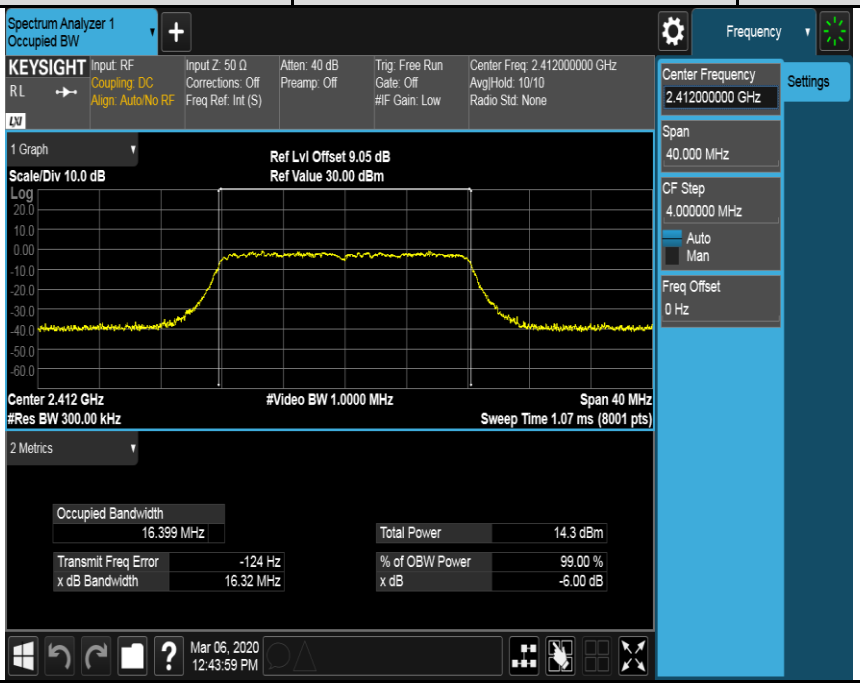
Test Mode	Test Channel	Verdict
11G	MCH	PASS



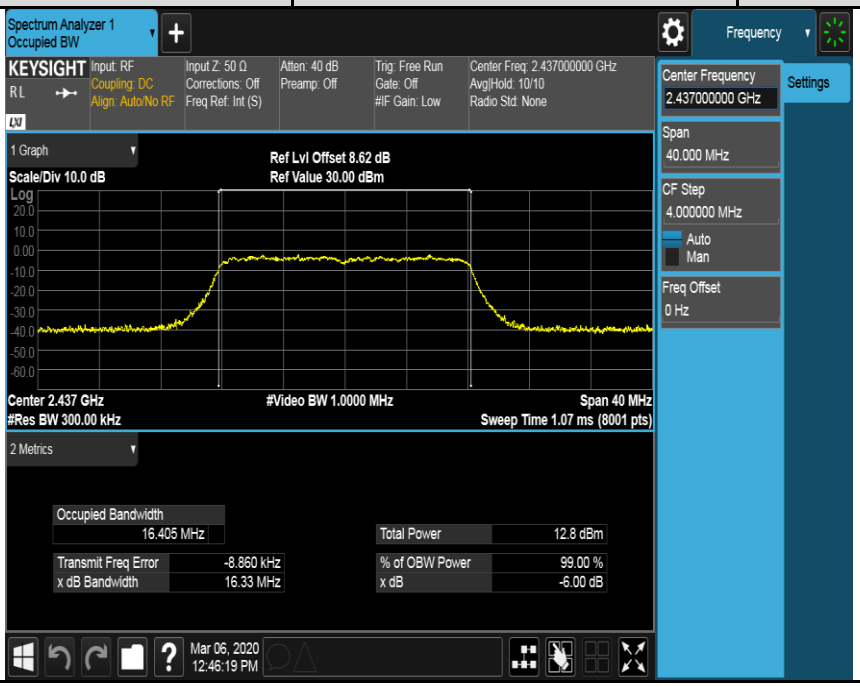
Test Mode	Test Channel	Verdict
11G	HCH	PASS



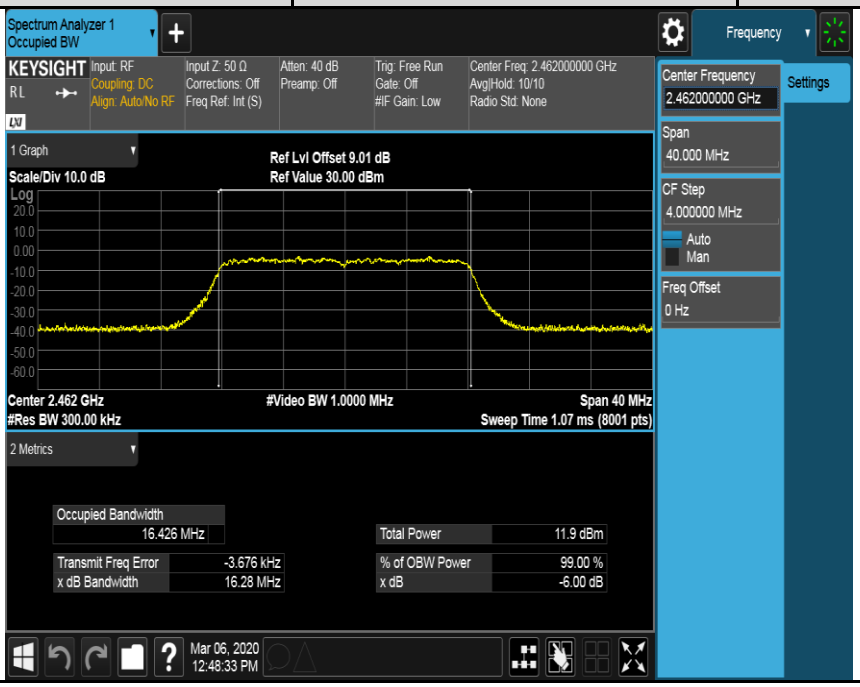
Test Mode	Test Channel	Verdict
11N HT20	LCH	PASS



Test Mode	Test Channel	Verdict
11N HT20	MCH	PASS



Test Mode	Test Channel	Verdict
11N HT20	HCH	PASS



7.3. PEAK CONDUCTED OUTPUT POWER

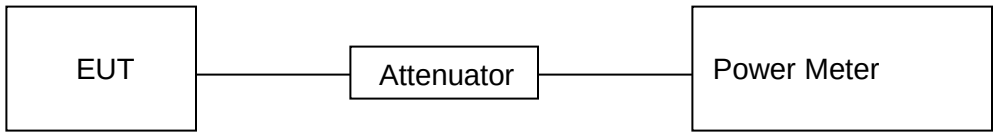
LIMITS

FCC Part15 (15.247) Subpart C, ISED RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC 15.247(b)(3) ISED RSS-247 5.4 (d) RSS-Gen Clause 6.12	Peak 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.
Peak Detector use for Peak result.
AVG Detector use for AVG result.

TEST SETUP



TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 21.6V

RESULTS

Maximum Peak Conducted Output Power(dBm)

Test Mode	Test Channel	Maximum Peak Conducted Output Power(dBm)	EIRP (dBm)	Result
11B	LCH	11.50	13.80	Pass
	MCH	9.65	11.95	Pass
	HCH	8.56	10.86	Pass
11G	LCH	15.72	18.02	Pass
	MCH	14.21	16.51	Pass
	HCH	13.30	15.60	Pass
11N HT20	LCH	15.56	17.86	Pass
	MCH	14.13	16.43	Pass
	HCH	13.25	15.55	Pass

7.4. POWER SPECTRAL DENSITY

LIMITS

FCC Part15 (15.247) Subpart C, ISED RSS-247 ISSUE 2			
Section	Test Item	Limit	Frequency Range (MHz)
FCC §15.247 (e) ISED RSS-247 5.2 (b)	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:

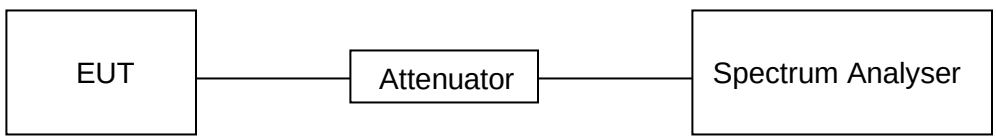
Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	3 kHz ≤ RBW ≤100 kHz
VBW	≥3 × RBW
Span	1.5 x DTS bandwidth
Trace	Max hold
Sweep time	Auto couple.

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 ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 21.6V

TEST SETUP



RESULTS

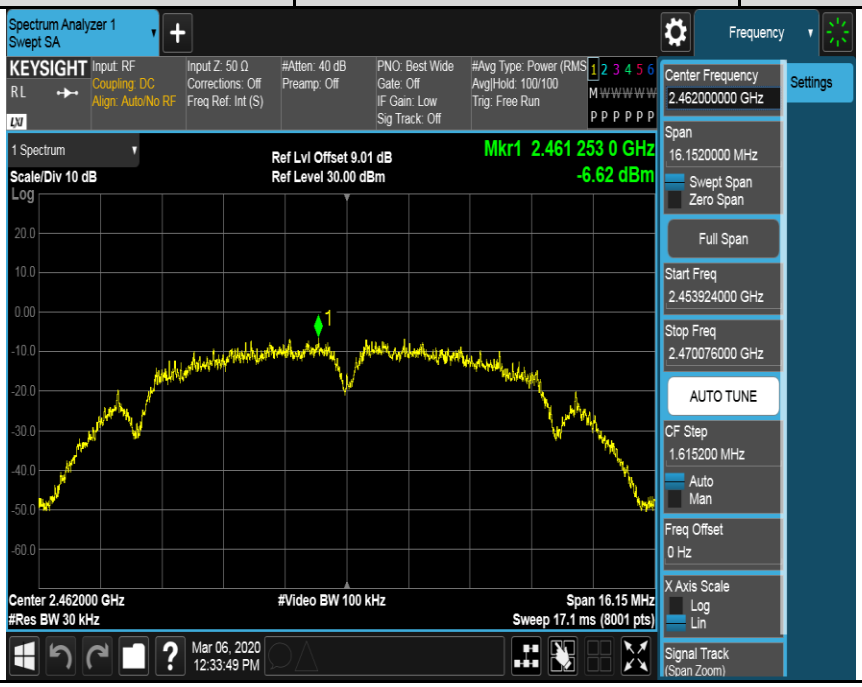
Test Mode	Test Channel	Maximum Peak power spectral density (dBm/30KHz)	Result
11B	LCH	-2.56	Pass
	MCH	-4.78	Pass
	HCH	-6.62	Pass
11G	LCH	-8.11	Pass
	MCH	-9.70	Pass
	HCH	-10.80	Pass
11N HT20	LCH	-8.21	Pass
	MCH	-9.51	Pass
	HCH	-10.55	Pass

Test Graphs:

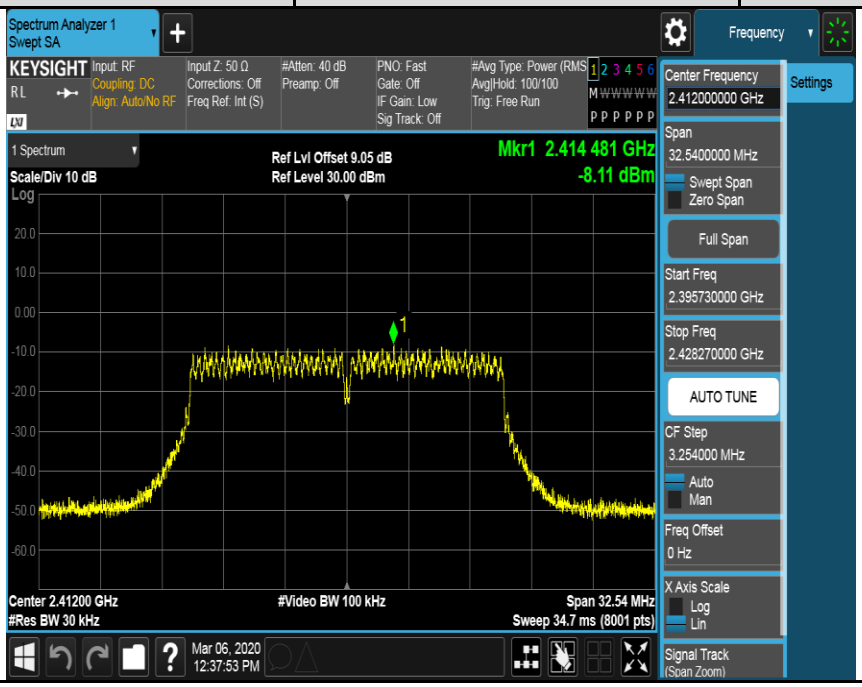
Test Mode	Test Channel	Verdict
11B	LCH	PASS

Test Mode	Test Channel	Verdict
11B	MCH	PASS

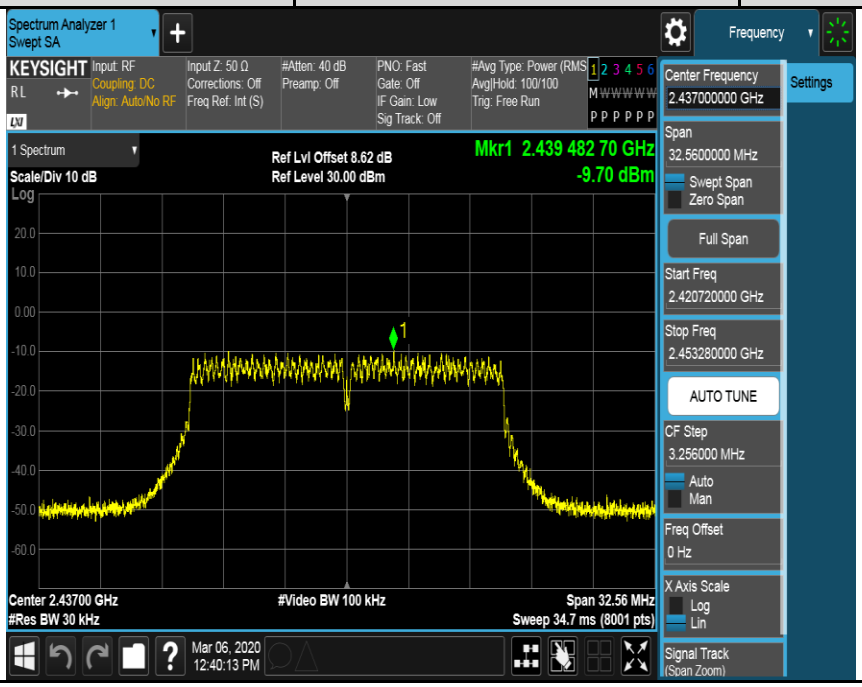
Test Mode	Test Channel	Verdict
11B	HCH	PASS



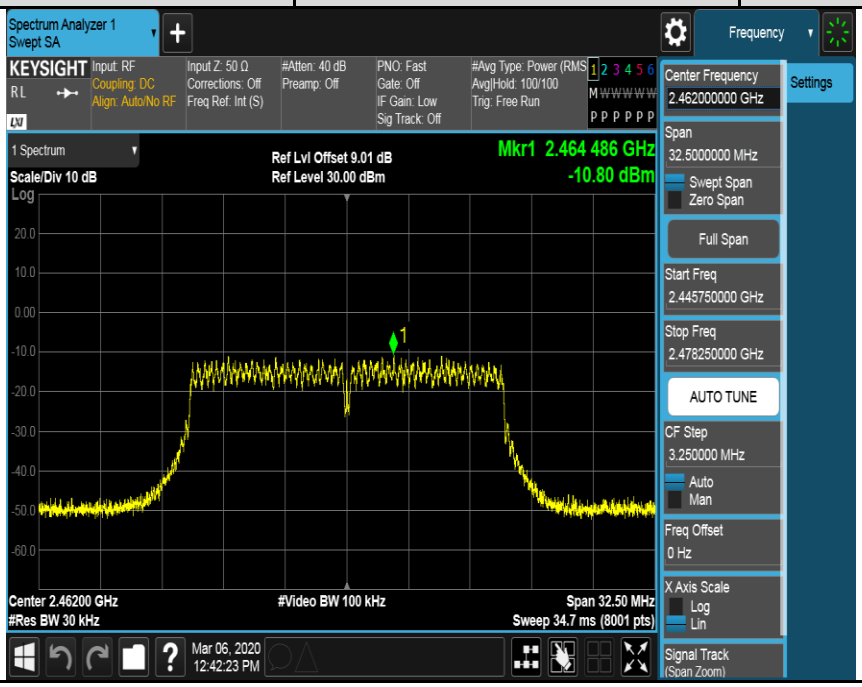
Test Mode	Test Channel	Verdict
11G	LCH	PASS



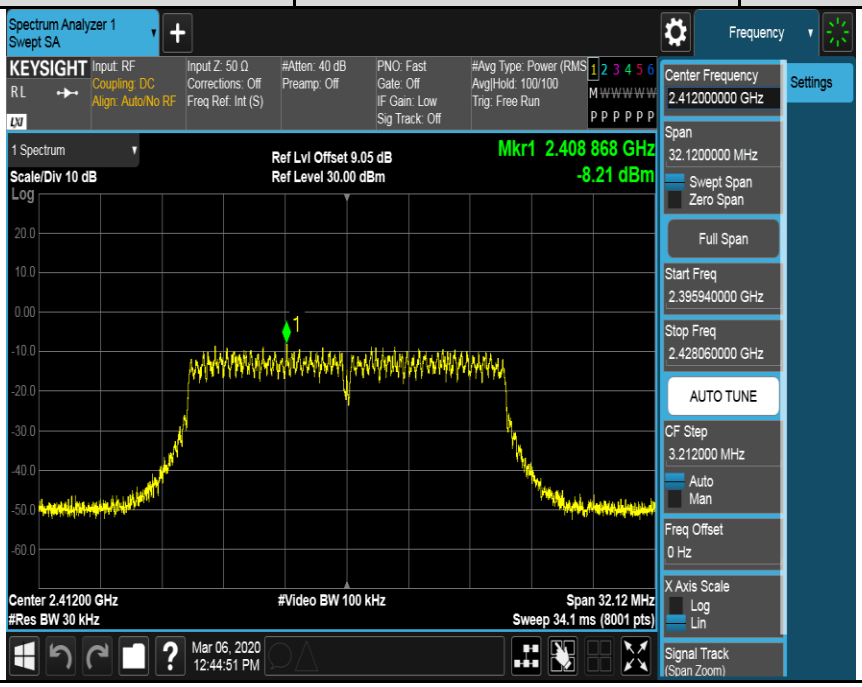
Test Mode	Test Channel	Verdict
11G	MCH	PASS



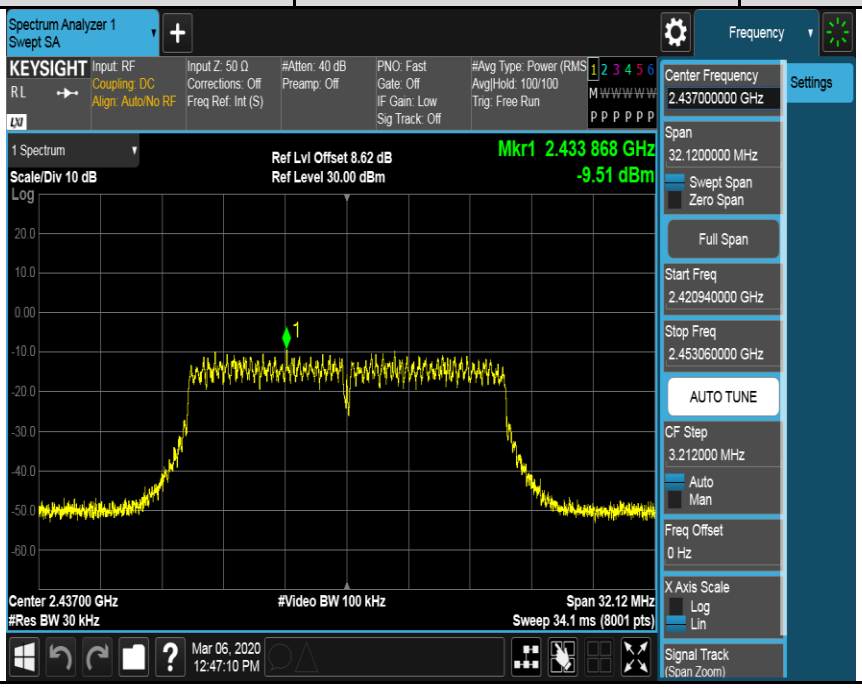
Test Mode	Test Channel	Verdict
11G	HCH	PASS



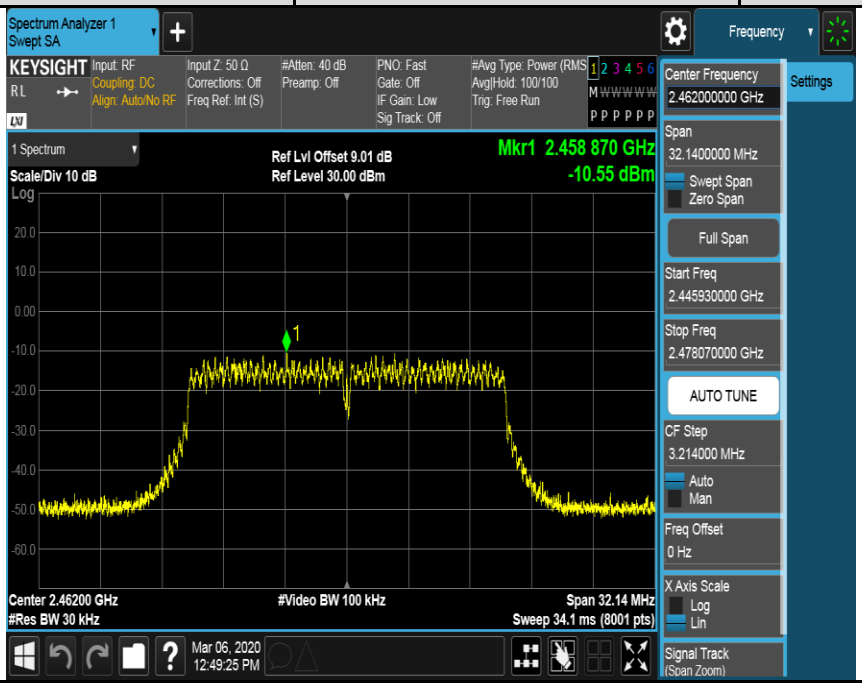
Test Mode	Test Channel	Verdict
11N HT20	LCH	PASS



Test Mode	Test Channel	Verdict
11N HT20	MCH	PASS



Test Mode	Test Channel	Verdict
11N HT20	HCH	PASS



7.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

FCC Part15 (15.247) Subpart C, ISED RSS-247 ISSUE 2		
Section	Test Item	Limit
FCC §15.247 (d) RSS-247 Clause 5.5 RSS-GEN Clause 6.13	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

TEST PROCEDURE

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

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.

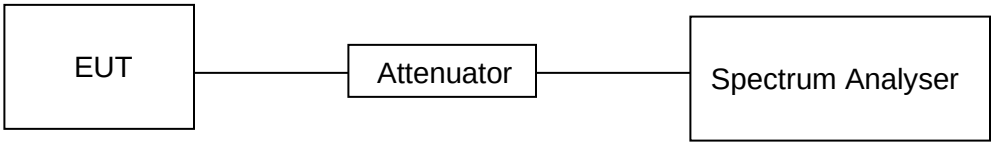
settings:

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	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	DC 21.6V

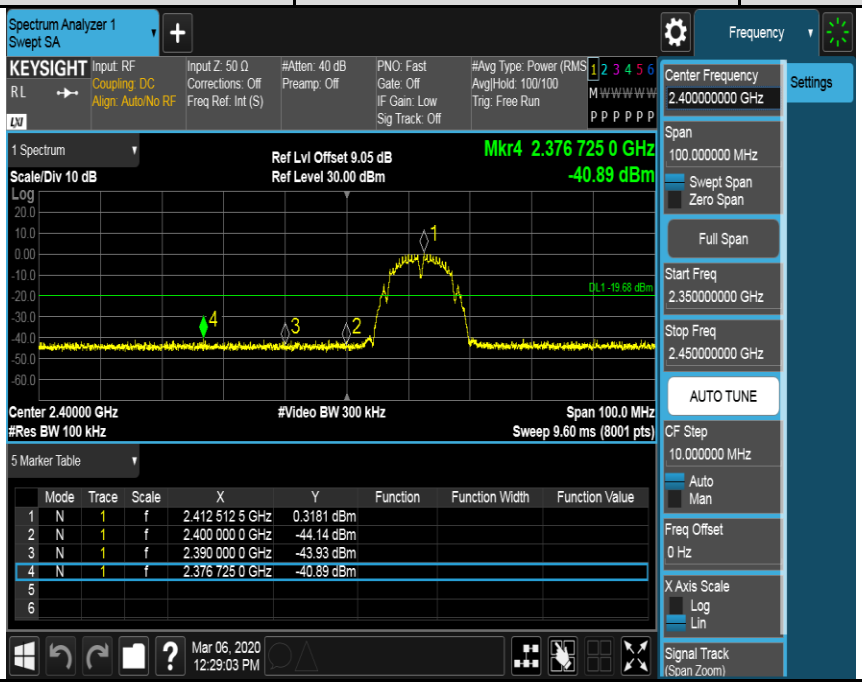
Part I :Conducted Bandedge

RESULTS TABLE

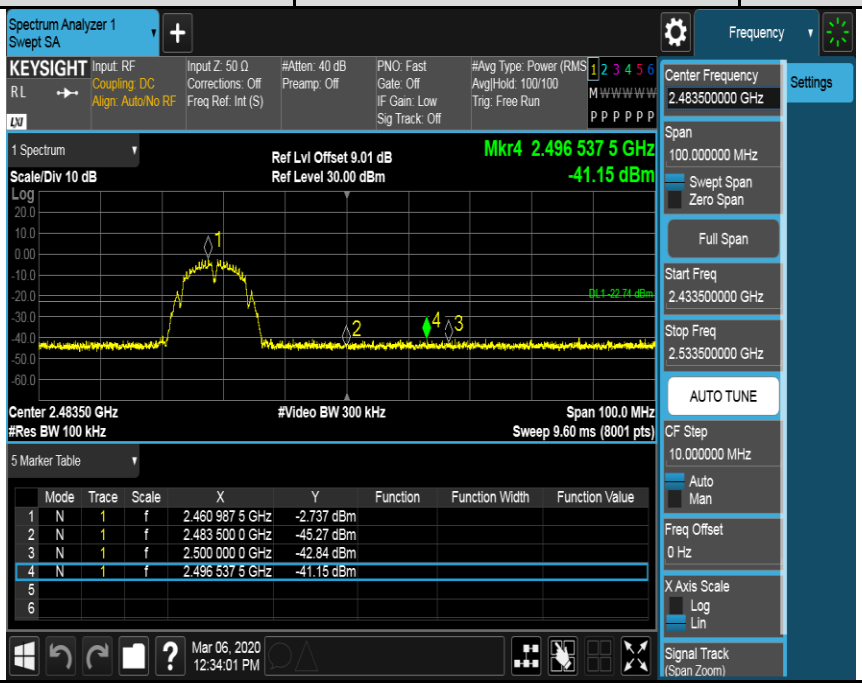
Test Mode	Test Antenna	Test Channel	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Verdict
11B	Antenna 1	LCH	0.318	-40.892	-19.68	PASS
		HCH	-2.737	-41.154	-22.74	PASS
11G	Antenna 1	LCH	-3.196	-39.339	-23.2	PASS
		HCH	-5.445	-41.077	-25.45	PASS
11N HT20	Antenna 1	LCH	-2.904	-41.184	-22.9	PASS
		HCH	-5.501	-40.738	-25.5	PASS

TEST GRAPHS

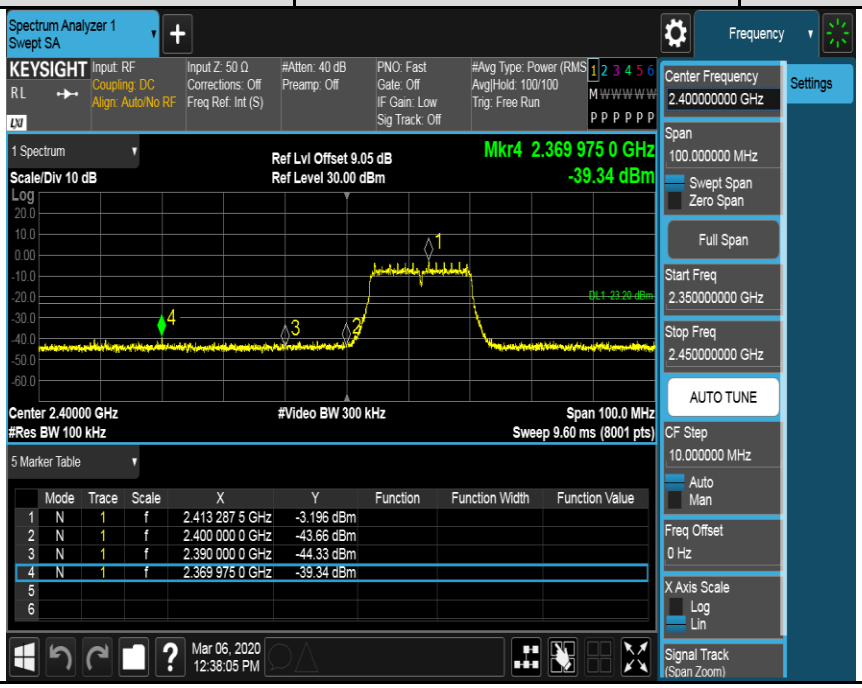
Test Mode	Test Channel	Verdict
11B	LCH	PASS



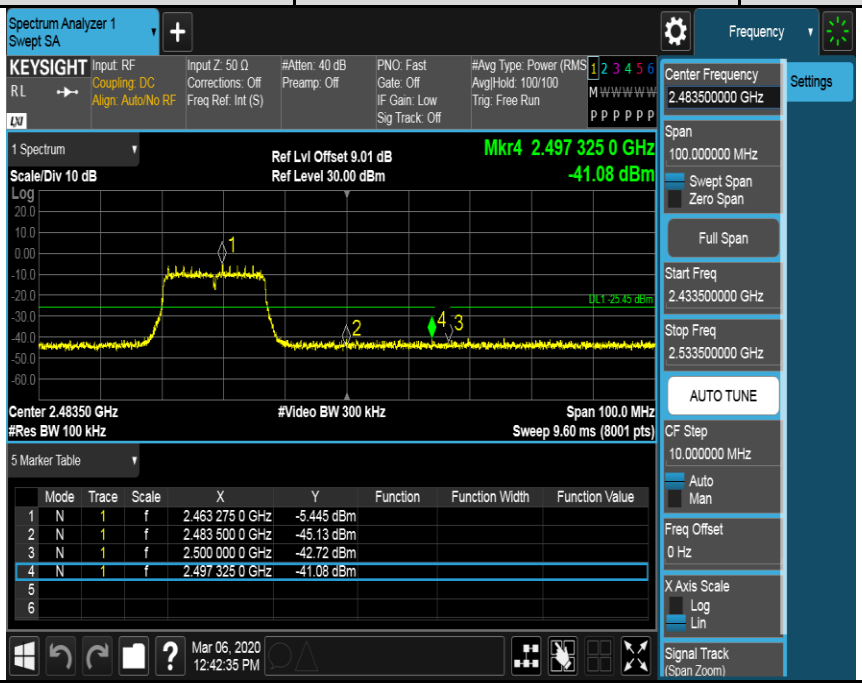
Test Mode	Test Channel	Verdict
11B	HCH	PASS



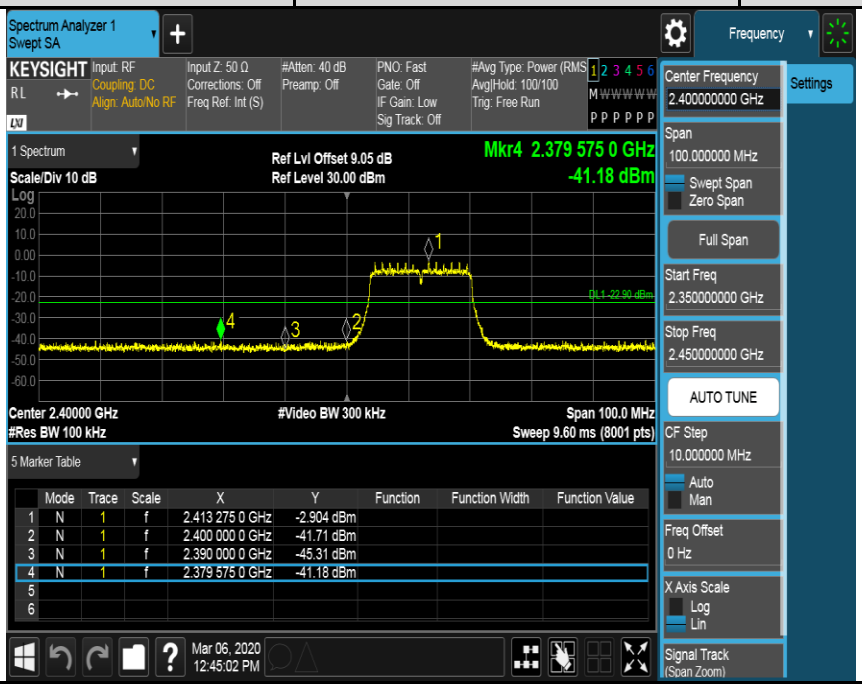
Test Mode	Test Channel	Verdict
11G	LCH	PASS



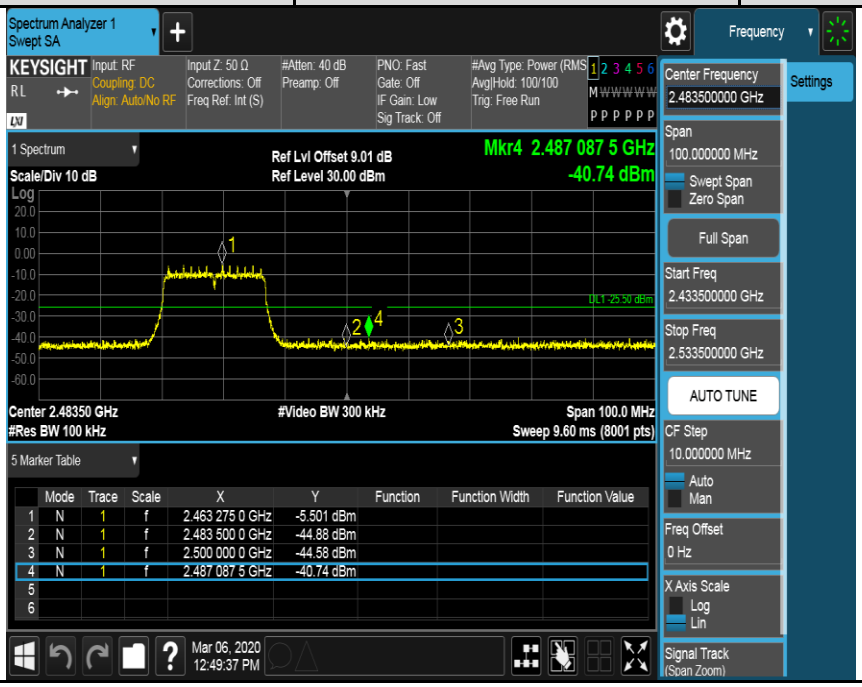
Test Mode	Test Channel	Verdict
11G	HCH	PASS



Test Mode	Test Channel	Verdict
11N HT20	LCH	PASS



Test Mode	Test Channel	Verdict
11N HT20	HCH	PASS



Part II :Conducted Emission

Test Result Table

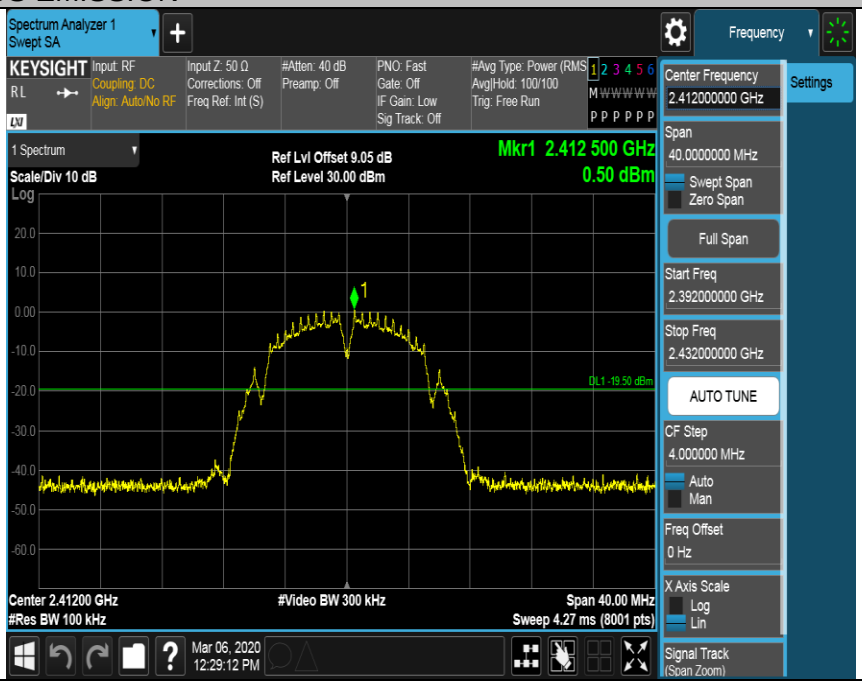
Test Mode	Channel	Pref(dBm)	Puw(dBm)	Verdict
11B	LCH	0.50	<Limit	PASS
	MCH	-1.14	<Limit	PASS
	HCH	-2.18	<Limit	PASS
11G	LCH	-3.15	<Limit	PASS
	MCH	-4.62	<Limit	PASS
	HCH	-5.61	<Limit	PASS
11N HT20	LCH	-3.14	<Limit	PASS
	MCH	-4.87	<Limit	PASS
	HCH	-5.57	<Limit	PASS

Test Plots

Test Mode	Channel	Verdict
11B	LCH	PASS

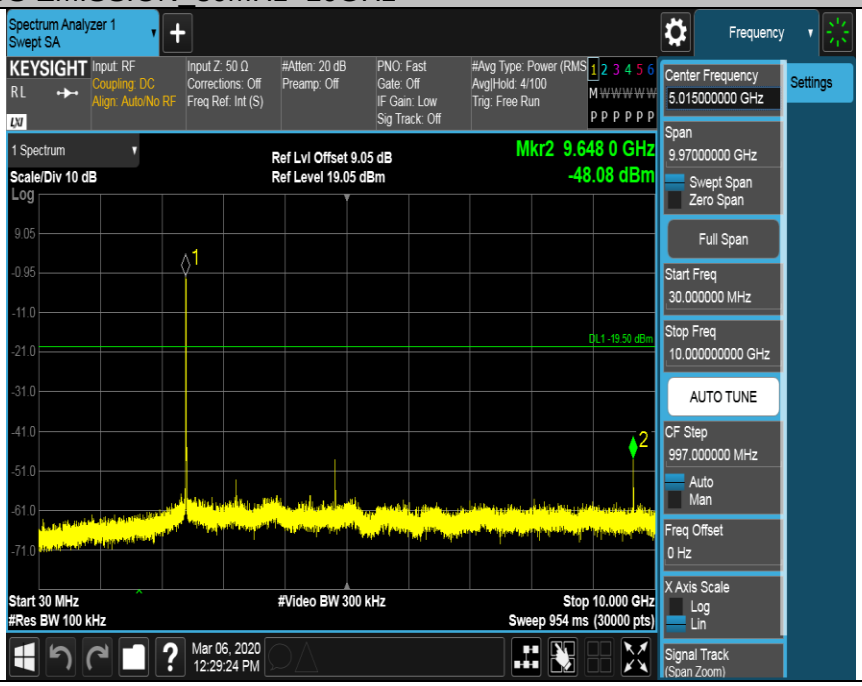
Pref test Plot

LCH SPURIOUS EMISSION

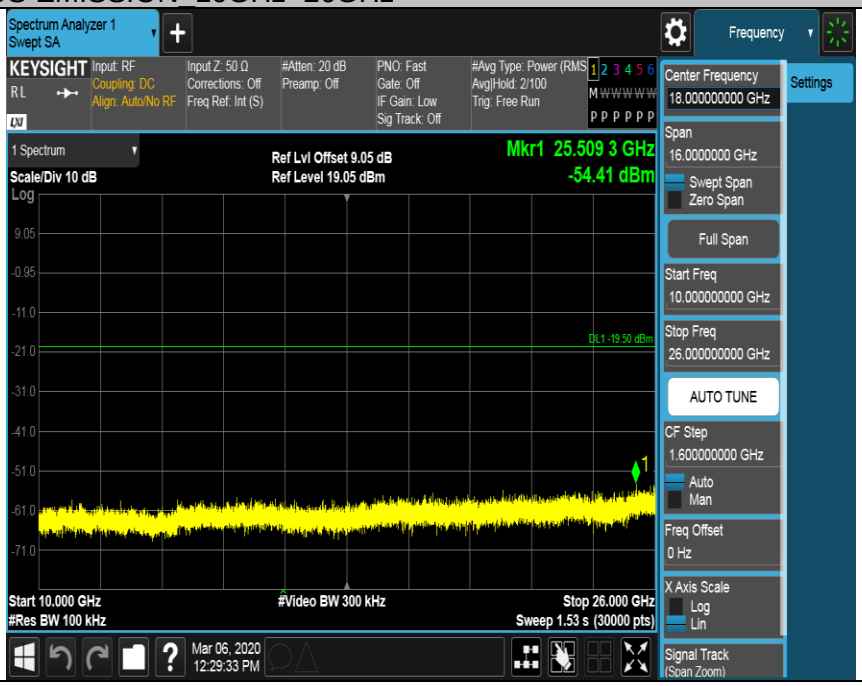


Puw test Plot

LCH SPURIOUS EMISSION_30MHz~10GHz



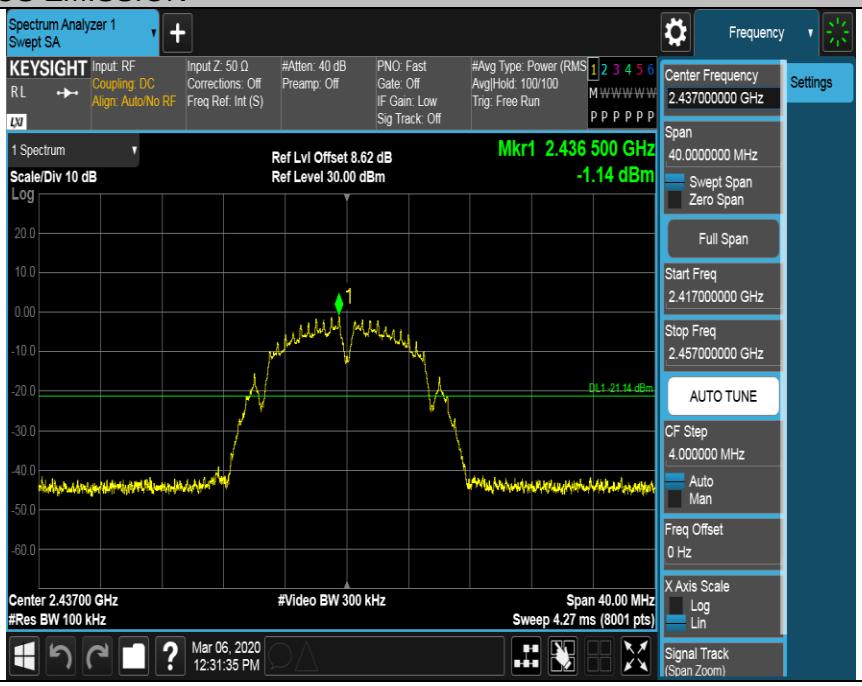
LCH SPURIOUS EMISSION_10GHz~26GHz



Test Mode	Channel	Verdict
11B	MCH	PASS

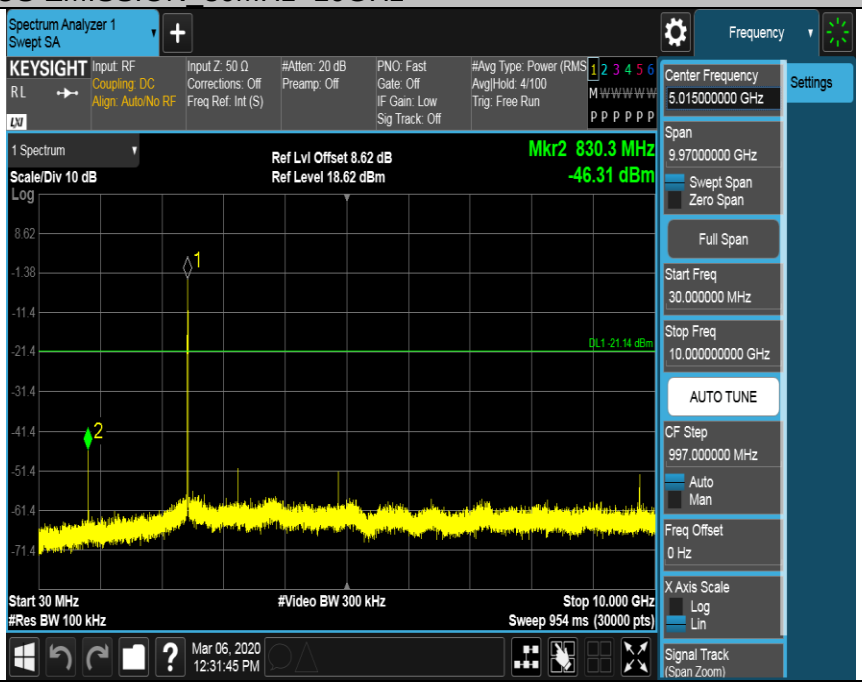
Pref test Plot

MCH SPURIOUS EMISSION

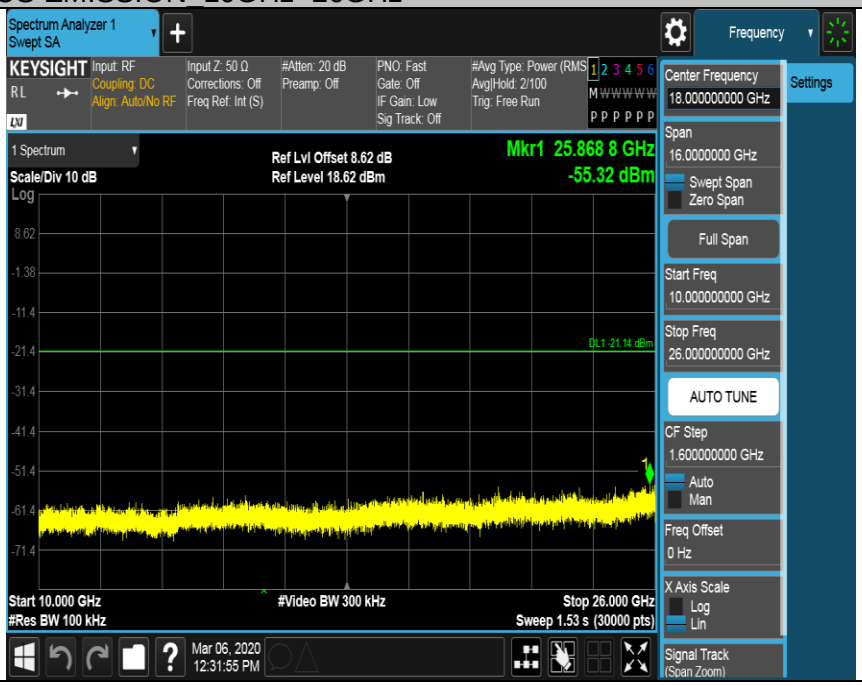


Puw test Plot

MCH SPURIOUS EMISSION_30MHz~10GHz



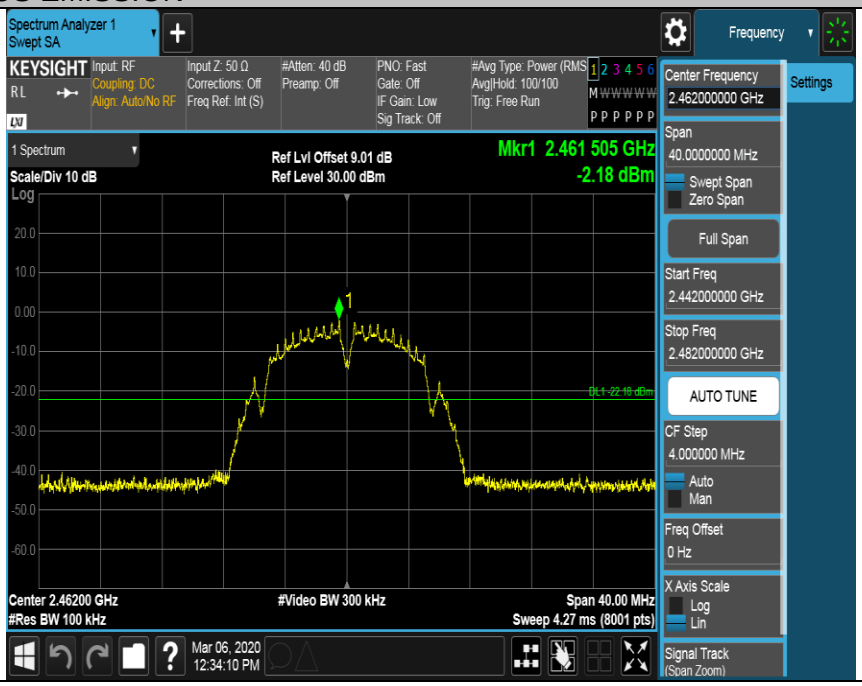
MCH SPURIOUS EMISSION_10GHz~26GHz



Test Mode	Channel	Verdict
11B	HCH	PASS

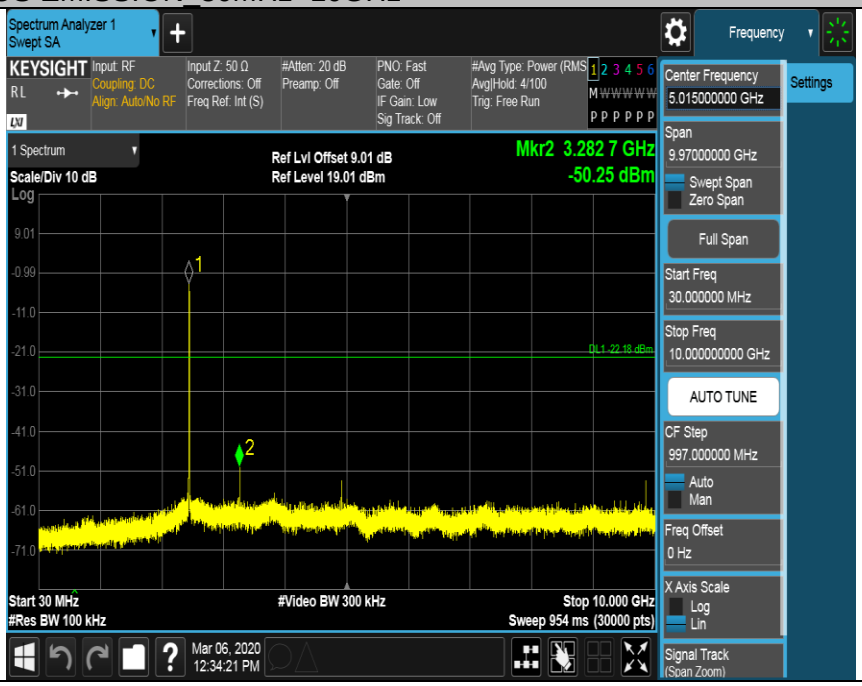
Pref test Plot

HCH SPURIOUS EMISSION

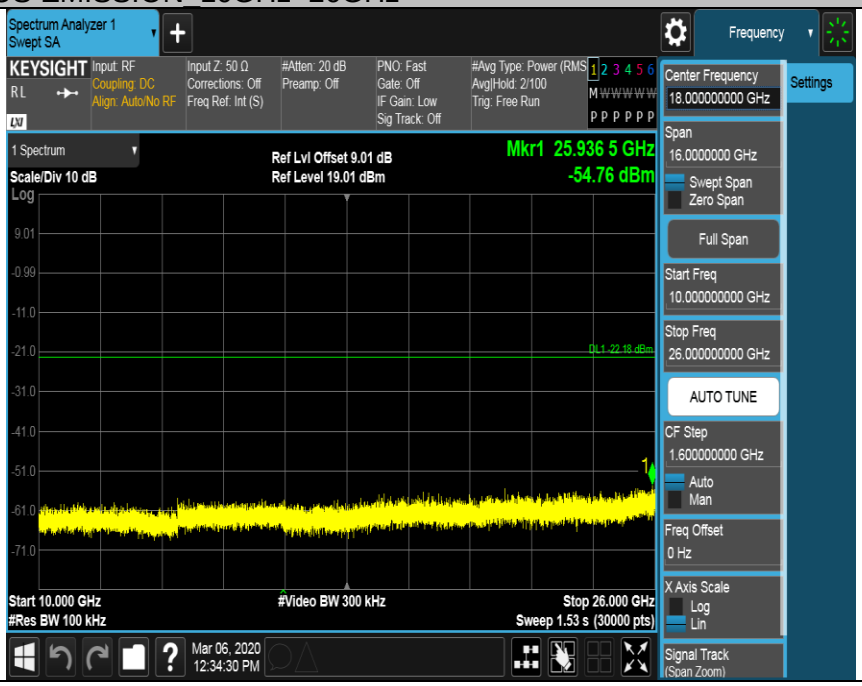


Puw test Plot

HCH SPURIOUS EMISSION_30MHz~10GHz



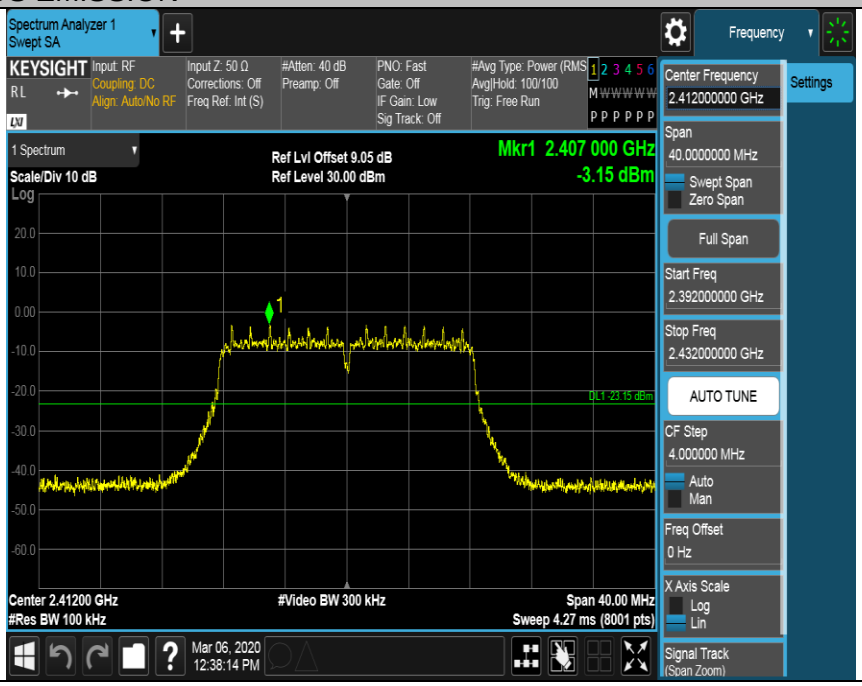
HCH SPURIOUS EMISSION_10GHz~26GHz



Test Mode	Channel	Verdict
11G	LCH	PASS

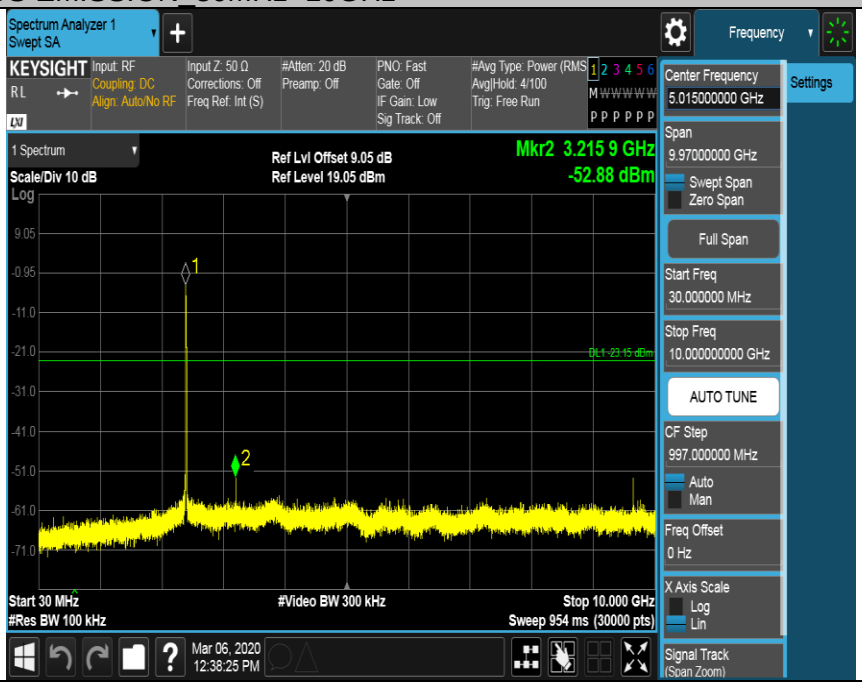
Pref test Plot

LCH SPURIOUS EMISSION

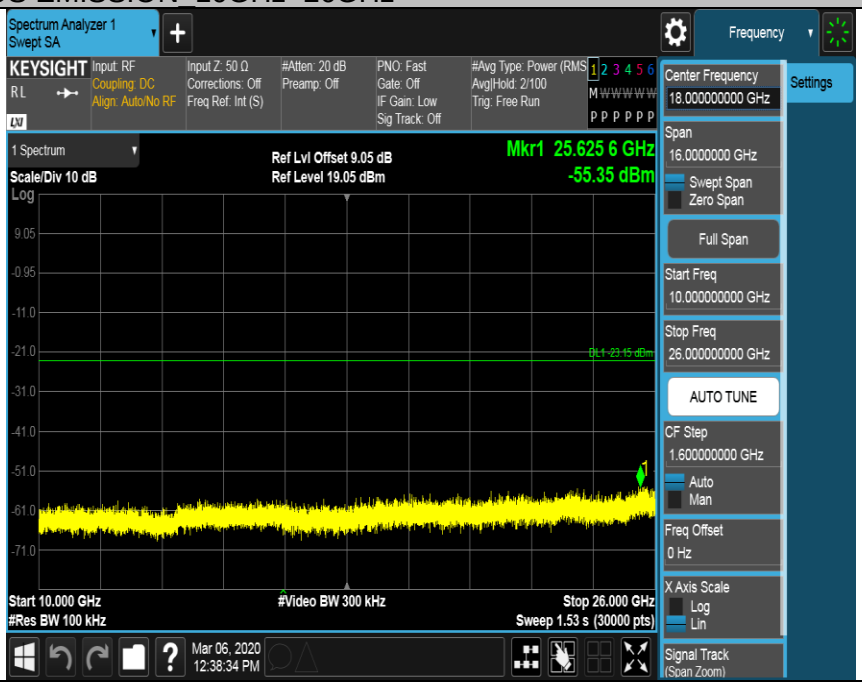


Puw test Plot

LCH SPURIOUS EMISSION_30MHz~10GHz



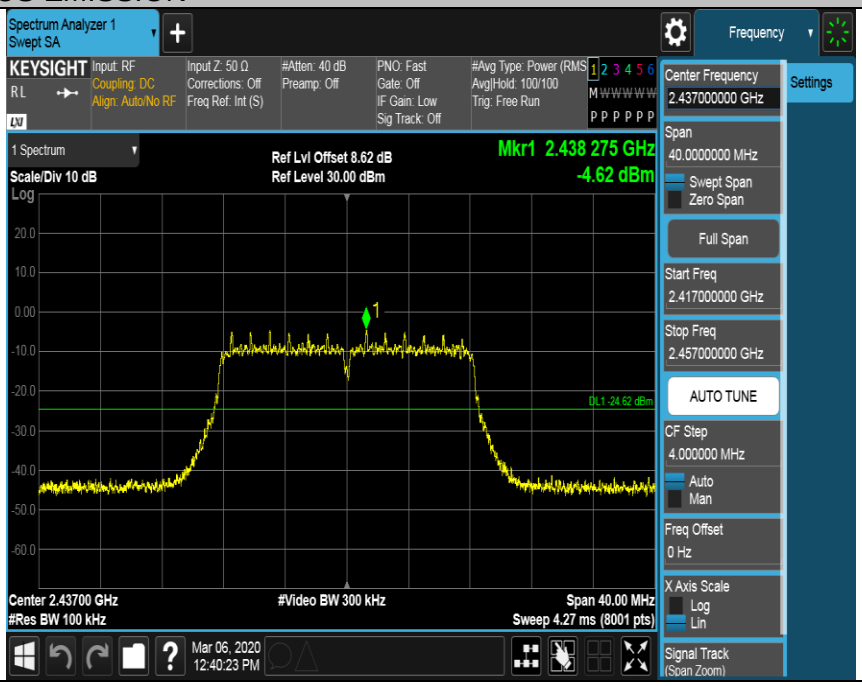
LCH SPURIOUS EMISSION_10GHz~26GHz



Test Mode	Channel	Verdict
11G	MCH	PASS

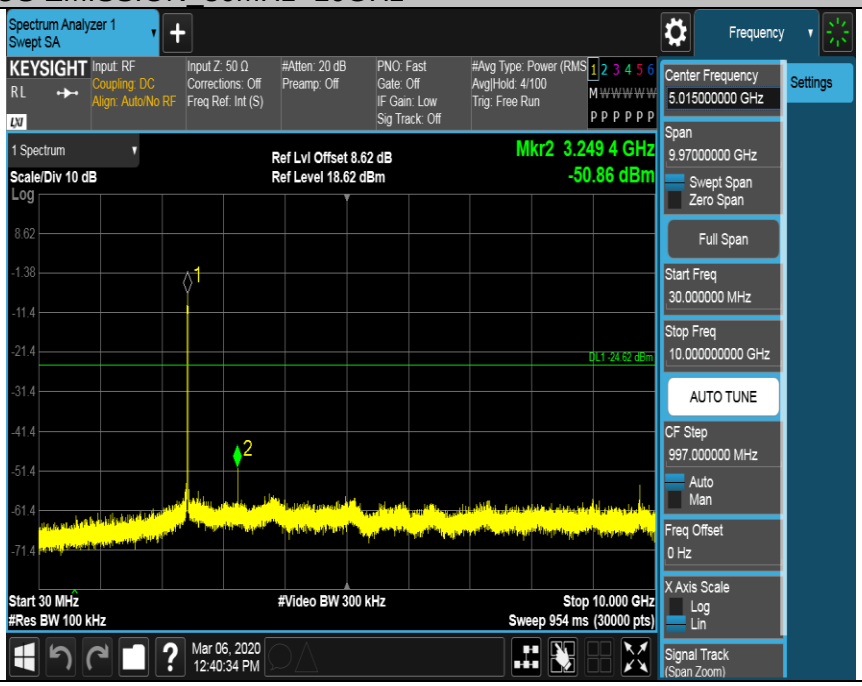
Pref test Plot

MCH SPURIOUS EMISSION

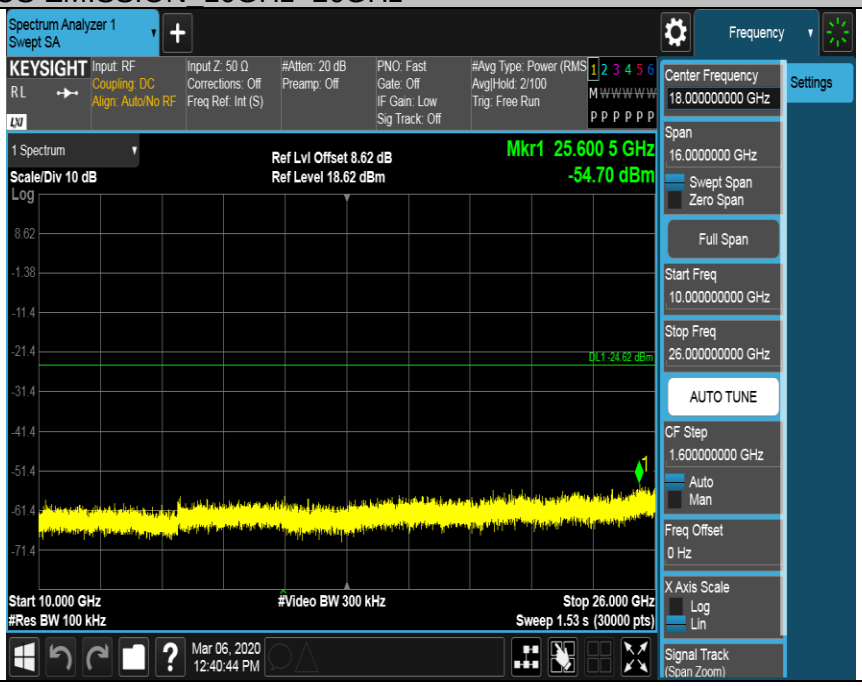


Puw test Plot

MCH SPURIOUS EMISSION_30MHz~10GHz



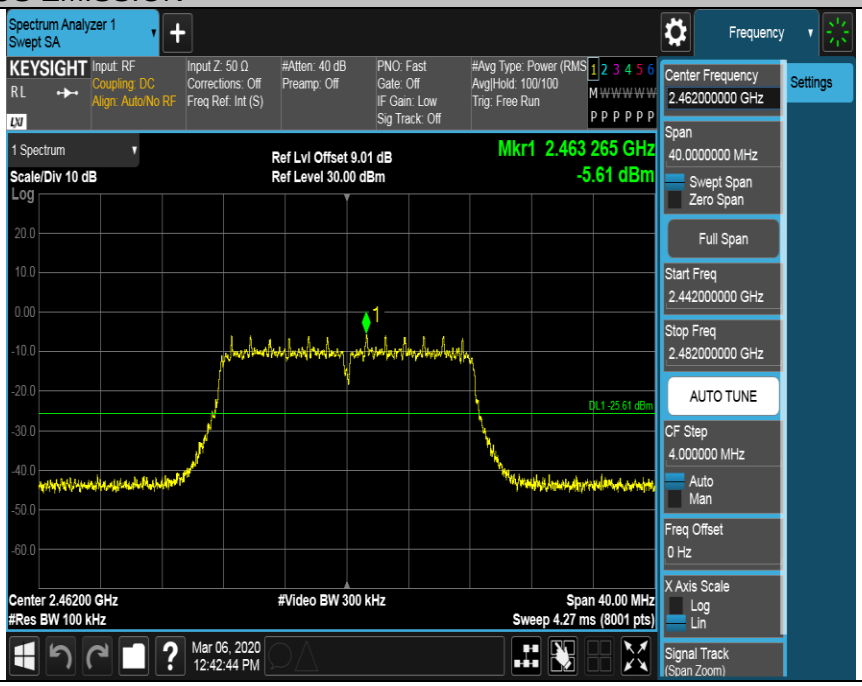
MCH SPURIOUS EMISSION_10GHz~26GHz



Test Mode	Channel	Verdict
11G	HCH	PASS

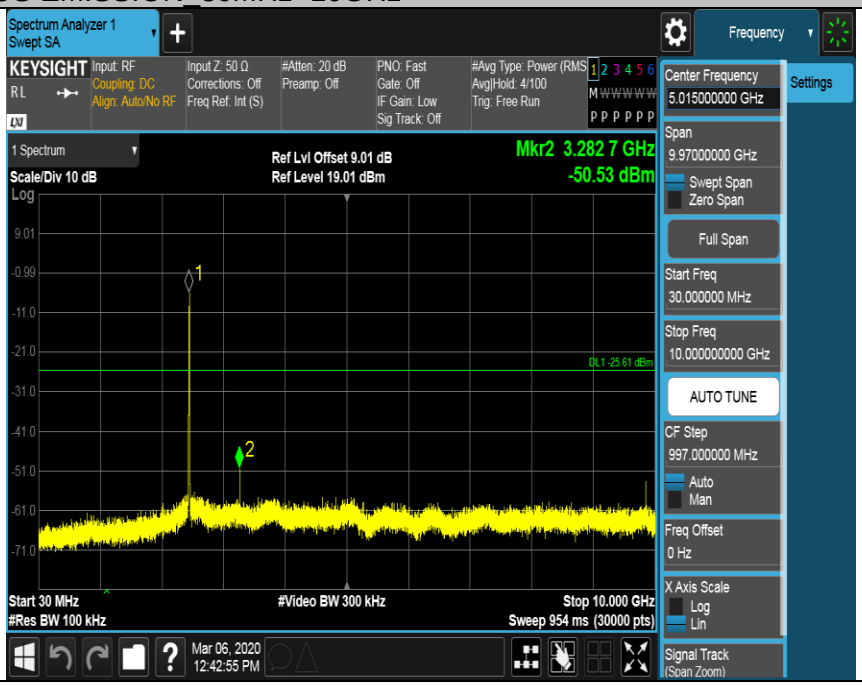
Pref test Plot

HCH SPURIOUS EMISSION

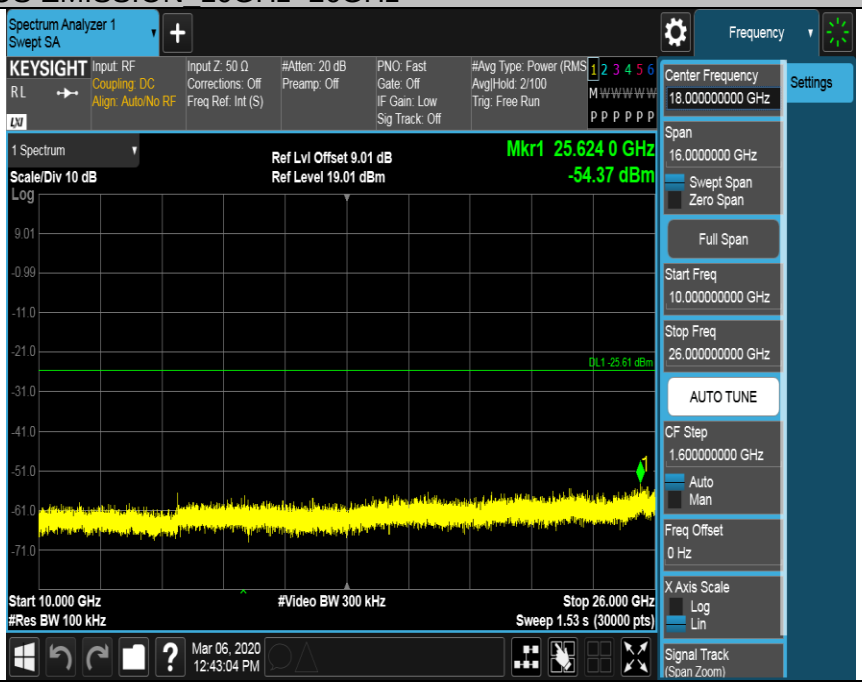


Puw test Plot

HCH SPURIOUS EMISSION_30MHz~10GHz



HCH SPURIOUS EMISSION_10GHz~26GHz



Test Mode	Channel	Verdict
11N HT20	LCH	PASS

Pref test Plot

LCH SPURIOUS EMISSION