

FCC 47 CFR PART 15 SUBPART C CERTIFICATION TEST REPORT

For

Face Recognition Terminal

MODEL NUMBER: DHI-ASI7223X-A-V1-T1

ADDITIONAL MODEL NUMBER:
DH-ASI7223X-A-V1-T1, ASI7223X-A-V1-T1, DHI-ASI7223X-A-T1,
DH-ASI7223X-A-T1, ASI7223X-A-T1, DHI-ASI7223X-A, ASI7223X-A

PROJECT NUMBER: 4789708082

REPORT NUMBER: 4789708082-1

FCC ID: SVN-ASI7223X-T1

ISSUE DATE: Feb. 26, 2021

Prepared for

Zhejiang Dahua Vision Technology Co., Ltd.

Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
V0	02/26/2021	Initial Issue	



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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Zhejiang Dahua Vision Technology Co., Ltd. Address: No.1199, Bin'an road, Binjiang District, Hangzhou,

P.R.China.

Manufacturer Information

Company Name: Zhejiang Dahua Vision Technology Co., Ltd. Address: No.1199, Bin'an road, Binjiang District, Hangzhou,

P.R.China.

EUT Description

Product Name Face Recognition Terminal Model Name DHI-ASI7223X-A-V1-T1

Additional No. DH-ASI7223X-A-V1-T1, ASI7223X-A-V1-T1,

DHI-ASI7223X-A-T1, DH-ASI7223X-A-T1, ASI7223X-A-T1,

DHI-ASI7223X-A, DH-ASI7223X-A, ASI7223X-A

Sample Number 3473457

Data of Receipt Sample Dec. 10, 2020

Date Tested Dec. 10, 2020 ~ Feb. 20, 2021

APPLICABLE STANDARDS

STANDARD TEST RESULTS

CFR 47 Part 15 Subpart C PASS



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	Summary of Test Results						
Clause	Test Items	FCC Rules	Test Results				
1	6db DTS Bandwidth	FCC 15.247 (a) (2)	Complied				
2	Conducted Power	FCC 15.247 (b) (3)	Complied				
3	Power Spectral Density	FCC 15.247 (e)	Complied				
4	Conducted Band edge And Spurious emission	FCC 15.247 (d)	Complied				
5	Radiated Band edges and Spurious emission	FCC 15.247 (d) FCC 15.209 FCC 15.205	Complied				
6	Conducted Emission Test For AC Power Port	FCC 15.207	Complied				
7	Antenna Requirement	FCC 15.203	Complied				

Remark:

Prepared By: Jason Yang	Reviewed By: Tom Tang		
Jason Yang Engineer	Tom Tang Engineer Project Associate		
Authorized By:			
Chris Zhong			
Chris Zhong Laboratory Leader			

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> 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.

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) 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.
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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.



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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)	3.3dB
Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	3.3dB
Radiation Emission test (1GHz to 26GHz)(include Fundamental emission)	3.9dB (1GHz-18Gz)
(10112 to 200112)(morado i directical cimbolori)	4.2dB (18GHz-26.5Gz)

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



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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

Product Name:	Face Recognition Terminal
Model No.:	DHI-ASI7223X-A-V1-T1
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
Sample Type:	Fixed production
Test power grade:	N/A
Test software of EUT:	Secure CRT (manufacturer declare)
Antenna Type:	Patch Antenna
Antenna Gain:	6.09 dBi
Power Supply:	AC120

Remark:

Model No.:

No.:	Name:	No.:	Name:	No.:	
1	DHI-ASI7223X-A-V1-T1	2	DH-ASI7223X-A-V1-T1	3	ASI7223X-A-V1-T1
4	DHI-ASI7223X-A-T1	5	DH-ASI7223X-A-T1	7	ASI7223X-A-T1
7	DHI-ASI7223X-A	8	DH-ASI7223X-A	9	ASI7223X-A

Only the main model DHI-ASI7213X-V1-T1 was tested and only the data of this model is shown in this test report. Since Their technical construction including circuit diagram, PCB Layout, components and component layout, all electrical construction and mechanical construction are identical, only the Lens/trademark/ or the name of the models are different.



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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	1-11[11]	14.76
1	IEEE 802.11G	1-11[11]	12.19
1	IEEE 802.11nHT20	1-11[11]	11.68
1	IEEE 802.11nHT40	3-9[7]	11.13

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		

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



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5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel (MHz)
	LCH :CH01 2412
IEEE 802.11B	MCH: CH06 2437
	HCH: CH11 2462
	LCH :CH01 2412
IEEE 802.11G	MCH: CH06 2437
	HCH: CH11 2462
	LCH :CH01 2412
IEEE 802.11n HT20	MCH: CH06 2437
	HCH: CH11 2462
	LCH :CH03 2422
IEEE 802.11n HT40	MCH: CH06 2437
	HCH: CH09 2452

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band								
Test Software Secur				reCRT				
	Transmit			Test C	Channel			
Modulation Mode	Antenna		NCB: 20MF	łz	١	NCB: 40MHz	Z	
Mode	Number	CH 1	CH 6	CH 11	CH 3	CH 6	CH 9	
802.11b	1	N/A	N/A	N/A				
802.11g	1	N/A	N/A	N/A	/			
802.11n HT20	1	N/A	N/A	N/A				
802.11n HT40	1		/ N/A N/A N/A					



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5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1	2400-2483.5	Patch Antenna	6.09

Test Mode Transmit an Receive Mod		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.

5.7. THE WORSE CASE CONFIGURATIONS

For WIFI module, the 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 802.11n HT40 mode: MCS0



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5.8. TEST ENVIRONMENT

Environment Parameter	Selected Values During Tests				
Relative Humidity	55 ~ 65%				
Atmospheric Pressure:	1025Pa				
Temperature	TN	23 ~ 28°C			
	VL	N/A			
Voltage :	VN	DC 12V			
	VH	N/A			

Note: VL= Lower Extreme Test Voltage

VN= Nominal Voltage

VH= Upper Extreme Test Voltage

TN= Normal Temperature

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5.9. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Item	Equipment	Brand Name	Model Name	Description
1	Laptop	ThinkPad	E590	N/A
2	Fixed Frequency Board	N/A	N/A	Supply by UL Lab
3	Mouse	N/A	N/A	N/A
4	Headset	Logitech	H111	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
3	TRS	TRS	TRS	100cm Length	Audio In
4	TRS	TRS	TRS	100cm Length	Audio Out
5	Card Reader	TRS	TRS	100cm Length	Con1
6	Alarm	TRS	TRS	100cm Length	Con2
7	Lock	TRS	TRS	100cm Length	Con2
8	Open Button	TRS	TRS	100cm Length	Con2
9	Alarm	TRS	TRS	100cm Length	Con3
10	Block	TRS	TRS	100cm Length	Con3
11	Open Button	TRS	TRS	100cm Length	Con3

ACCESSORY

No.	Accessory	Brand Name	Model Name	Description
1	DC Adapter	HONOTO	ADS-65HI-12N-1 12048E	INPUT:100-240V~50/60Hz 1.5A Max OUTPUT:12.0V=4.0A

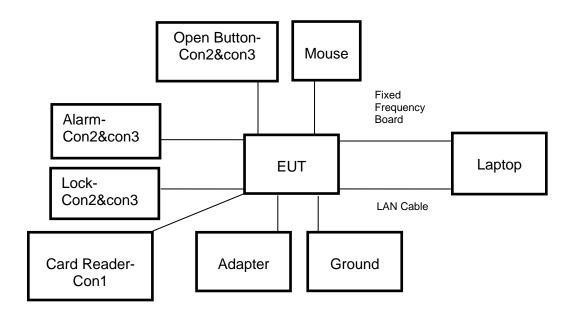


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TEST SETUP

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

SETUP DIAGRAM FOR TESTS





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5.10. MEASURING INSTRUMENT AND SOFTWARE USED

	Conducted Emissions (Instrument)								
		<u> </u>	laucieu	LIIIIS					
Used	Equipment	Manufacturer	Mode		Serial No.	Upper Last Cal.	Last Cal.	Next Cal.	
$\overline{\checkmark}$	EMI Test Receiver	R&S	ESI	R3	126700	2019-12-12	2020-12-11	2021-12-10	
\checkmark	Two-Line V-Network	R&S	ENV	216	126701	2019-12-12	2020-12-11	2021-12-10	
V	Artificial Mains Networks	R&S	ENY	⁄81	126711	2019-12-12	2020-12-11	2021-12-10	
	Software								
Used	Des	scription		Ma	nufacturer	Name	Version		
\checkmark	Test Software for 0	Conducted distur	bance		R&S	EMC32	Ver. 9.25		
		Ra	diated	Emiss	ions (Instrun	nent)			
Used	Equipment	Manufacturer	Mode	l No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.	
$\overline{\checkmark}$	Spectrum Analyzer	Keysight	N90 ⁻	10B	MY57110128	2019-05-29	2020-05-28	2021-05-27	
$\overline{\checkmark}$	EMI test receiver	R&S	ESF	R26	1267603	2019-12-22	2020-12-21	2021-12-20	
V	Receiver Antenna (9kHz-30MHz)	Schwarzbeck	FMZB	1513	513-265	2019-06-16	2020-06-15	2021-06-14	
V	Receiver Antenna (30MHz-1GHz)	SunAR RF Motion	JB	31	126704	N/A	2019-01-28	2022-01-27	
V	Receiver Antenna (1GHz-18GHz)	R&S	HF907		126705	2020-01-26	2021-01-25	2022-01-24	
V	Receiver Antenna (18GHz-26.5GHz)	Schwarzbeck	BBHA9170		126706	2020-02-05	2021-02-04	2022-02-03	
V	Receiver Antenna (26.5GHz-40GHz)	TOYO	HAP 26-40W		00000012	2019-07-23	2020-07-22	2021-07-21	
V	Pre-amplification (To 1GHz)	R&S	SCU-	-03D	134666	2020-02-05	2021-02-04	2022-02-03	
V	Pre-amplification (To 18GHz)	Compliance Direction System Inc.	PAP-10	§18-50	14140-13467	2019-03-18	2020-03-17	2021-03-16	
V	Pre-amplification (To 26.5GHz)	R&S	SCU-	-26D	134668	2020-02-05	2021-02-04	2022-02-03	
V	Band Reject Filter	Wainwright	WRC 2350-2 2483.5-2 408	2400- 2533.5- SS	1	2019-05-29	2020-05-28	2021-05-27	
V	Highpass Filter	Wainwright	WHKX10- 2700-3000- 18000-40SS		2	2019-05-29	2020-05-28	2021-05-27	
Software									
Used	Used Description Manufacturer Name Version								
✓ Test Software for Radiated disturbance					end	JS32	V1.0		
			Otl	her ins	truments				
Used	Equipment	Manufacturer	Model No.		Serial No.	Upper Last Cal.	Last Cal.	Next Cal.	
V	Spectrum Analyzer	Keysight	N90 ⁻	10B	MY57110128	2019-05-29	2020-05-28	2021-05-27	
V	Power Meter	Keysight	U202	1XA	MY57110002		2020-06-11	2021-06-10	



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6. MEASUREMENT METHODS

No.	Test Item	KDB Name	Section
1	6dB Bandwidth	KDB 558074 D01 15.247 Meas Guidance v05r02	8.2
2	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



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7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

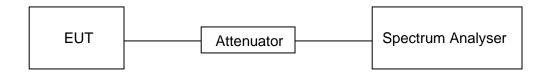
LIMITS

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 12V

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	12.41	12.51	0.9920	99.20%	0.03	0.08	1
11G	2.063	2.201	0.9373	93.73%	0.28	0.48	1
802.11n HT20	1.919	2.057	0.9329	93.29%	0.30	0.52	1
802.11n HT40	0.9435	1.045	0.9029	90.29%	0.44	1.06	2

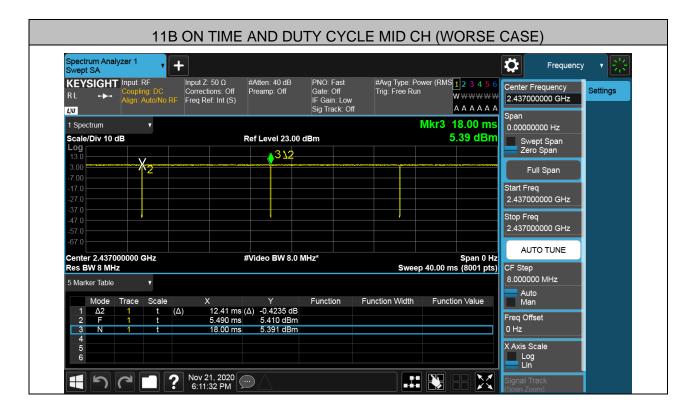
Note: 1) Duty Cycle Correction Factor=10log(1/x).

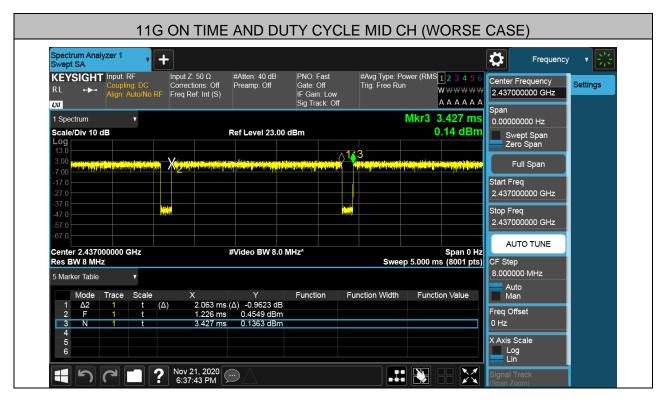
2) Where: x is Duty Cycle(Linear)

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



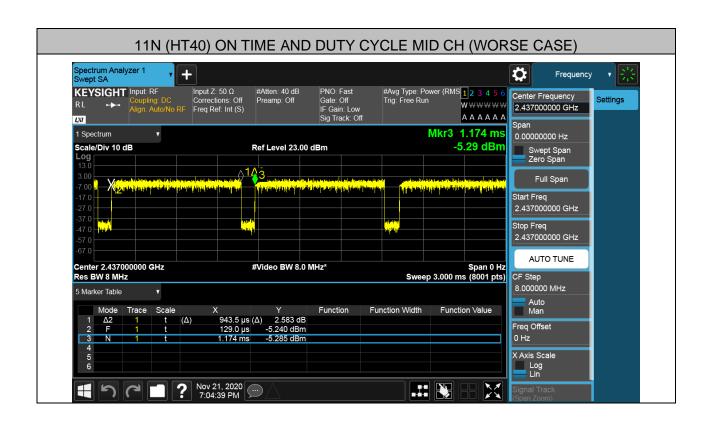
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11N (HT20) ON TIME AND DUTY CYCLE MID CH (WORSE CASE) Spectrum Analyzer 1 Swept SA Ö Input Z: 50 Ω Corrections: Off Freq Ref: Int (S) KEYSIGHT Input: RF #Atten: 40 dB PNO: Fast Gate: Off #Avg Type: Power (RMS 1 2 3 4 5 6 Trig: Free Run Center Frequency Settings Preamp: Off wwwwww 2.437000000 GHz IF Gain: Low Sig Track: Off A A A A A ĻXI Mkr3 3.536 ms 0.00000000 Hz -0.95 dBm Scale/Div 10 dB Ref Level 23.00 dBm Swept Span Zero Span Full Span Start Freq 2.437000000 GHz 2.437000000 GHz AUTO TUNE Center 2.437000000 GHz Res BW 8 MHz #Video BW 8.0 MHz* Span 0 Hz Sweep 5.000 ms (8001 pts) CF Step 8.000000 MHz 5 Marker Table Auto Man Mode Scale Function Width Function Value 1.919 ms (Δ) -2.941 dB 1.479 ms -0.4519 dBm 3.536 ms -0.9506 dBm Δ2 F **(Δ)** Freq Offset X Axis Scale Log Lin Nov 21, 2020 6:49:50 PM 4 ?



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7.2. 6 dB BANDWIDTH

LIMITS

FCC Part15 (15.247) Subpart C						
Section	Limit	Frequency Range (MHz)				
FCC 15.247(a)(2)	6dB Bandwidth	>= 500KHz	2400-2483.5			

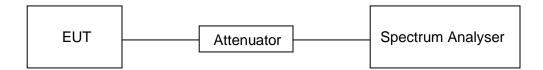
TEST PROCEDURE

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 6 dB Bandwidth :100K	
VBW	For 6dB Bandwidth : ≥3 x 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



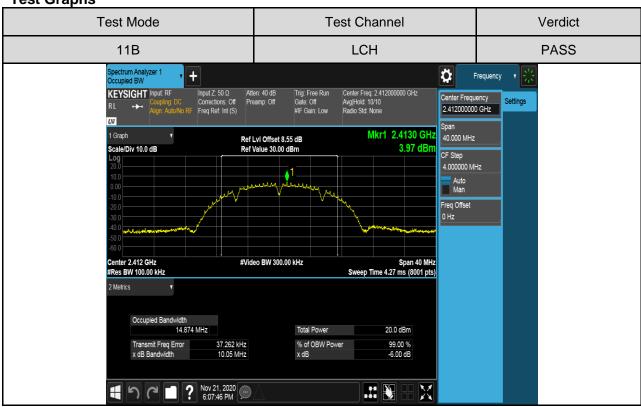


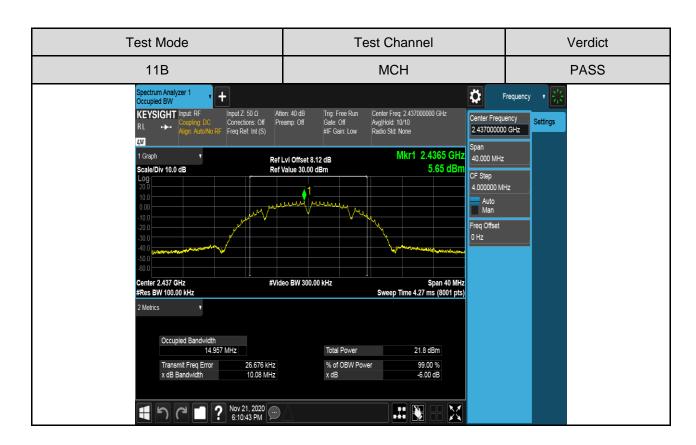
RESULTS

Test Mode	Test Channel	6dB bandwidth (MHz)	Result
	LCH	10.05	Pass
11B	MCH	10.08	Pass
	HCH	10.09	Pass
	LCH	16.34	Pass
11G	MCH	16.32	Pass
	HCH	16.06	Pass
	LCH	17.31	Pass
11N HT20	MCH	17.32	Pass
	HCH	16.43	Pass
11N HT40	LCH	35.34	Pass
	MCH	35.16	Pass
	HCH	35.46	Pass

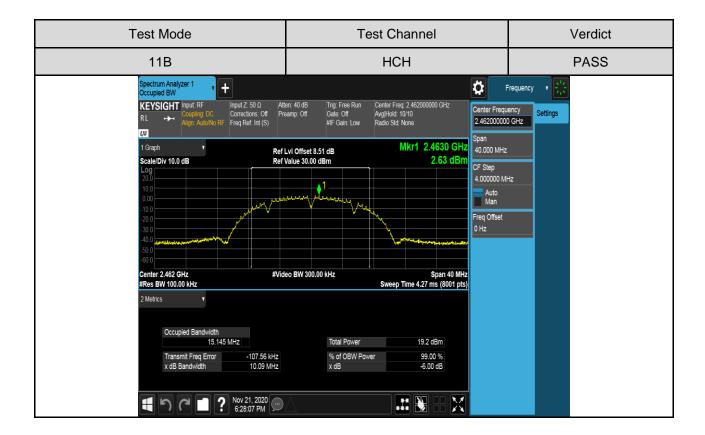


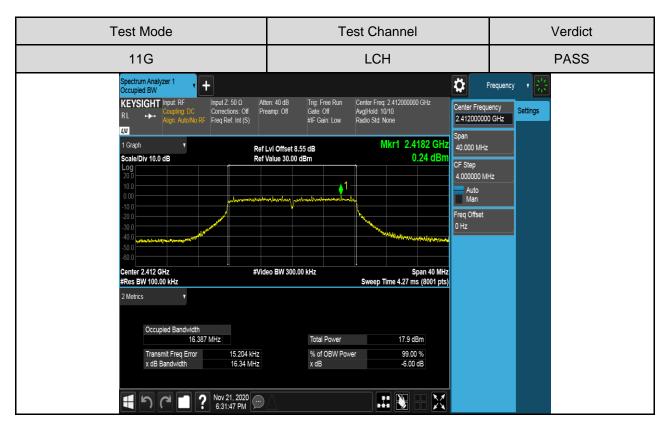
Test Graphs



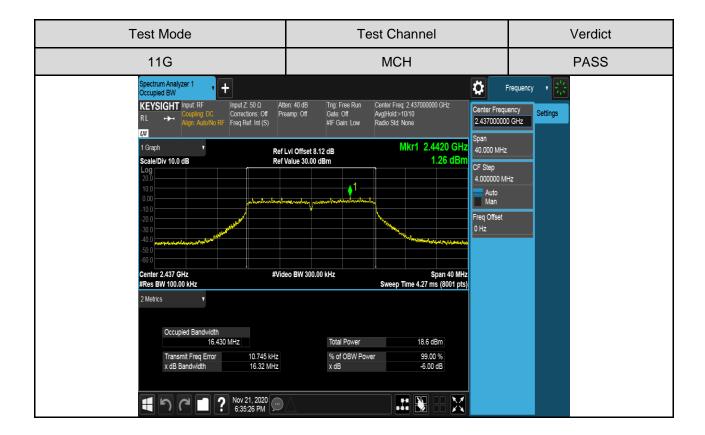


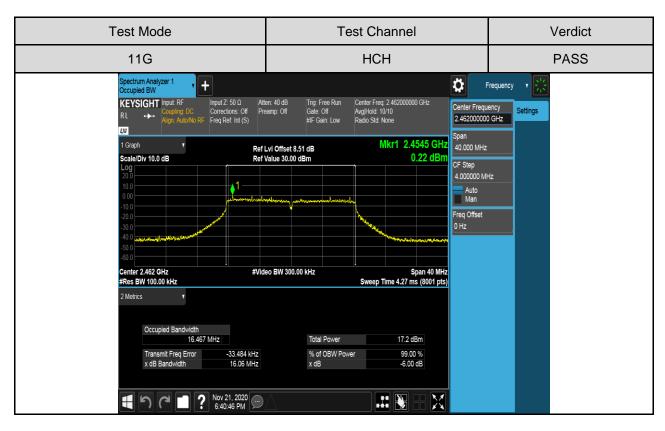








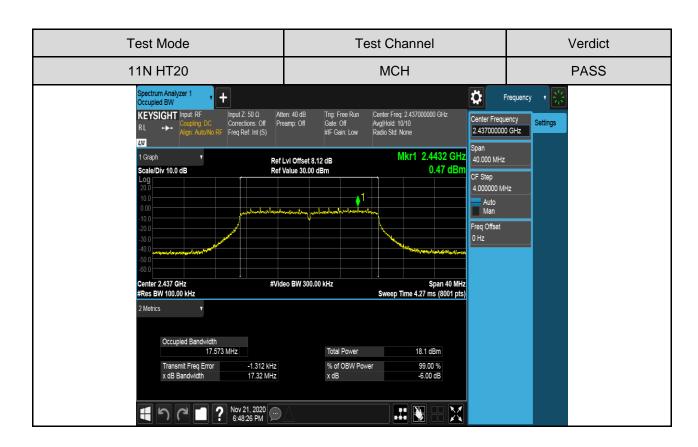




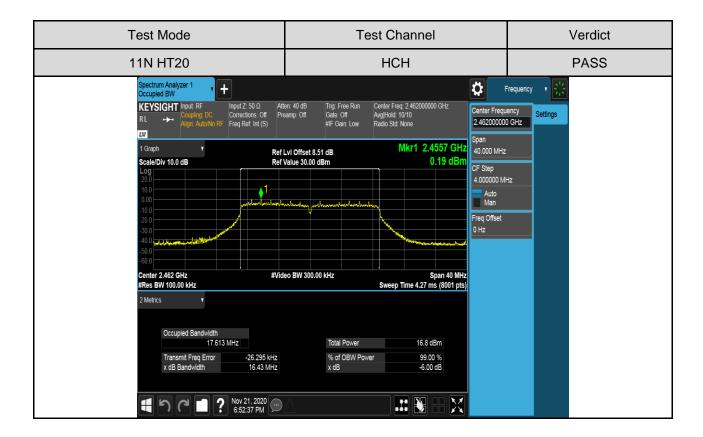


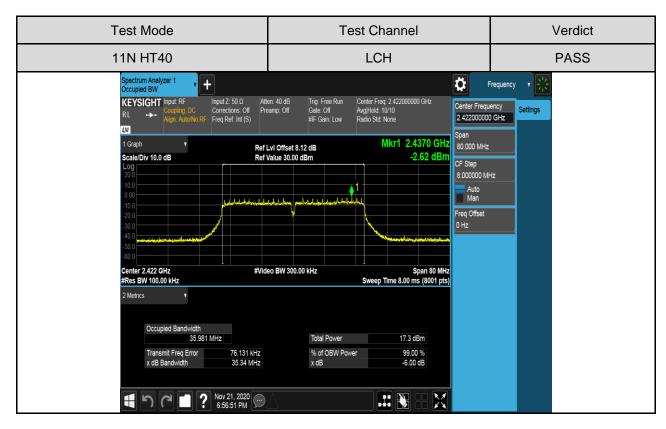
Test Mode **Test Channel** Verdict 11N HT20 **LCH PASS** Spectrum Analyzer 1 Occupied BW Ö + Frequency Atten: 40 dB Preamp: Off Input Z: 50 Ω Center Freq: 2.412000000 GHz KEYSIGHT Input RF Settings 2.412000000 GHz



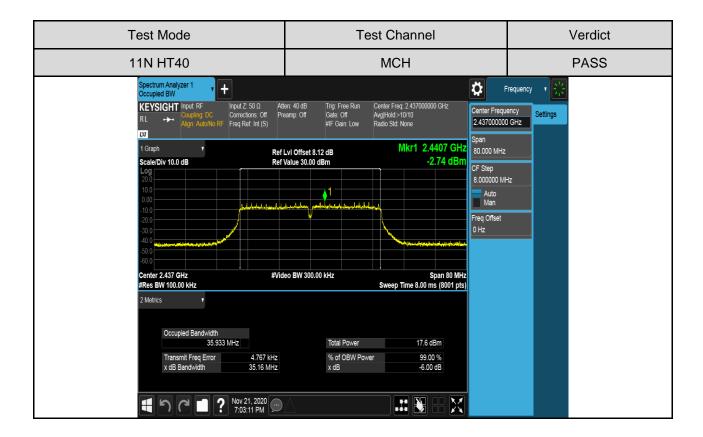


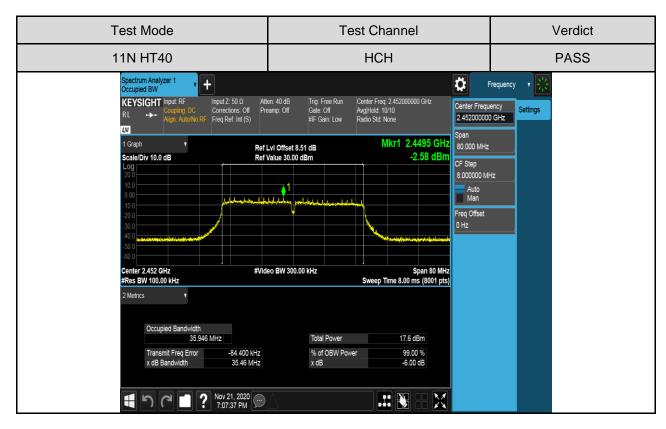












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7.3. CONDUCTED OUTPUT POWER

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

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.

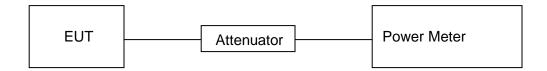
Peak Detector use for Peak result.

AVG Detector use for AVG result.

TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 12V

TEST SETUP





RESULTS

Test Mode	Test Channel	Maximum Conducted Output Power (AV)	LIMIT
100011110410	1 000 0114111101	dBm	dBm
	LCH	13.43	30
11B	MCH	14.76	30
	HCH	13.05	30
	LCH	11.78	30
11G	MCH	12.19	30
	HCH	10.91	30
11n HT20	LCH	11.27	30
	MCH	11.68	30
	HCH	10.45	30
11n HT40	LCH	10.79	30
	MCH	11.13	30
	HCH	11.10	30

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7.4. 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/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.	

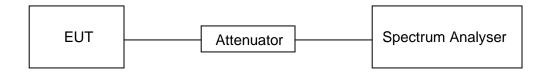
Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

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

TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 12V

TEST SETUP



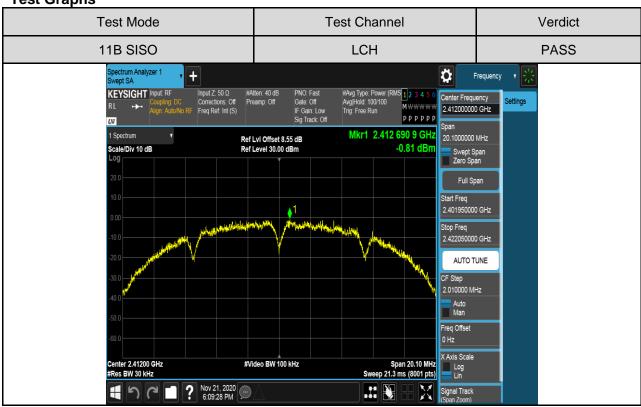


RESULTS

Test Mode	Test Channel	Maximum Peak power spectral density (dBm/30kHz)	Result
	LCH	-0.81	Pass
11B	MCH	1.53	Pass
	HCH	-1.22	Pass
	LCH	-4.10	Pass
11G	MCH	-3.68	Pass
	HCH	-4.93	Pass
	LCH	-4.49	Pass
11n HT20	MCH	-3.81	Pass
	HCH	-4.80	Pass
11n HT40	LCH	-7.22	Pass
	MCH	-7.78	Pass
	HCH	-7.49	Pass

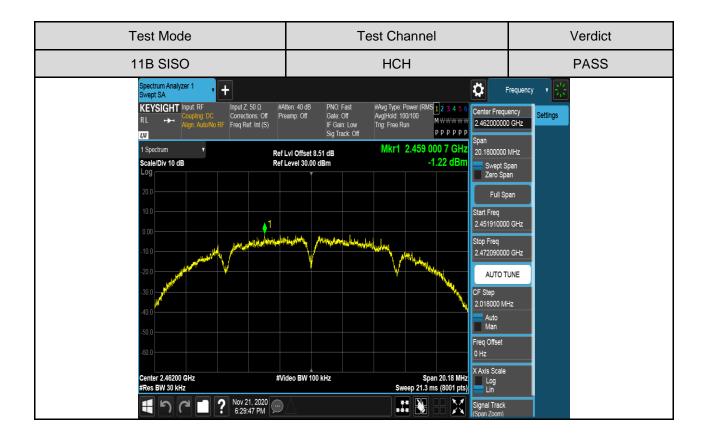


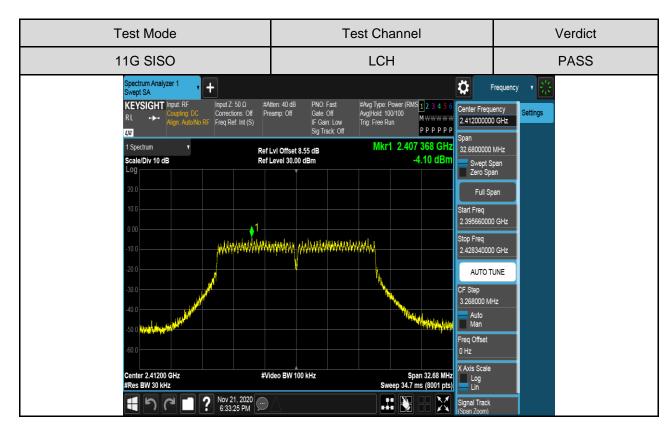
Test Graphs



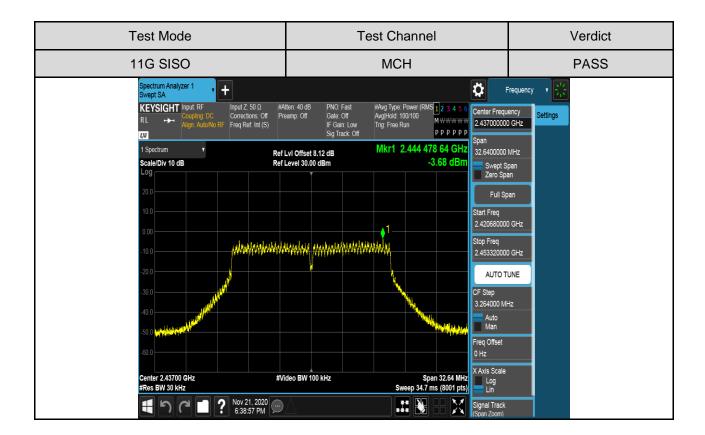


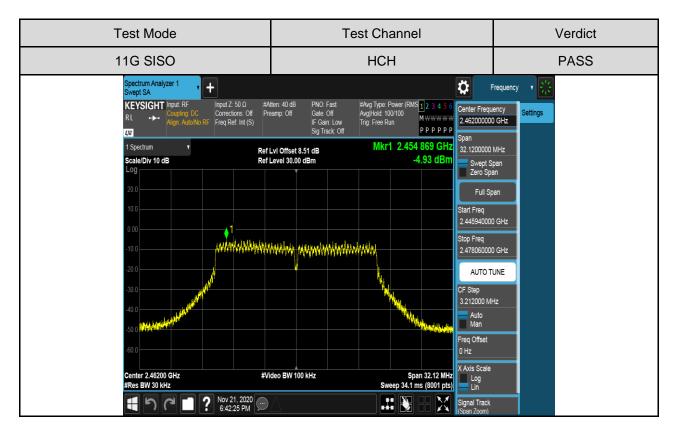






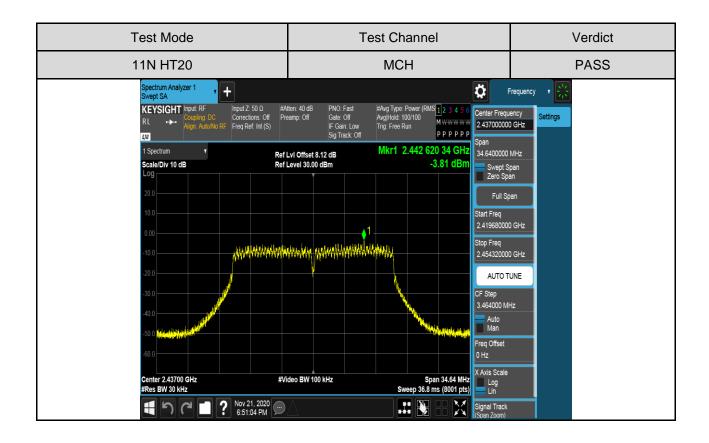




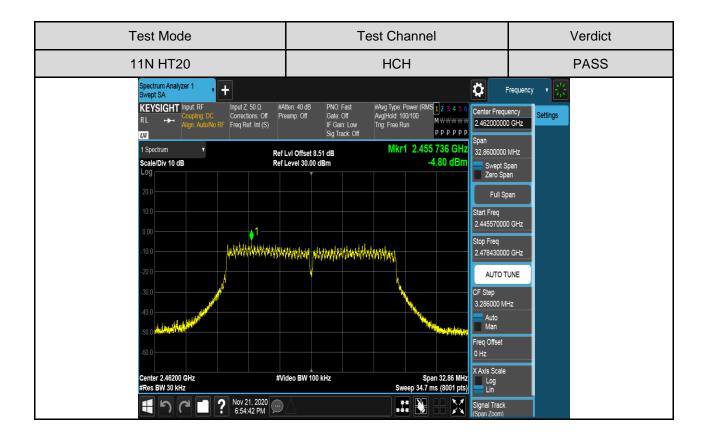


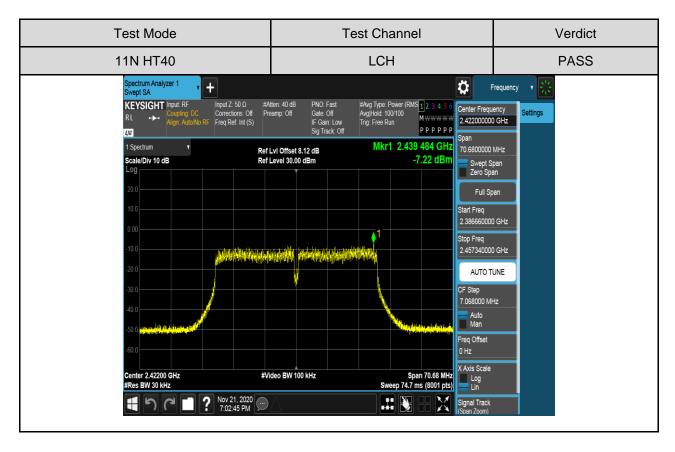


Test Mode **Test Channel** Verdict 11N HT20 **LCH PASS** pectrum Analyzer 1 wept SA Ö + Frequency Input Z: 50 Ω #Atten: 40 dB KEYSIGHT Input RF Corrections: Off Freq Ref: Int (S) Gate: Off IF Gain: Low Settings 2.412000000 GHz PPPPPP ĻXI Mkr1 2.418 868 GHz Ref LvI Offset 8.55 dB Ref Level 30.00 dBm 34.6200000 MHz -4.49 dBm Scale/Div 10 dB Swept Span Zero Span Full Span Start Freq 2.394690000 GHz Stop Freq 2.429310000 GHz AUTO TUNE 3.462000 MHz Auto Man Freq Offset Center 2.41200 GHz #Video BW 100 kHz Span 34.62 MHz Sweep 36.8 ms (8001 pts) 196 Nov 21, 2020 6:46:25 PM # 3

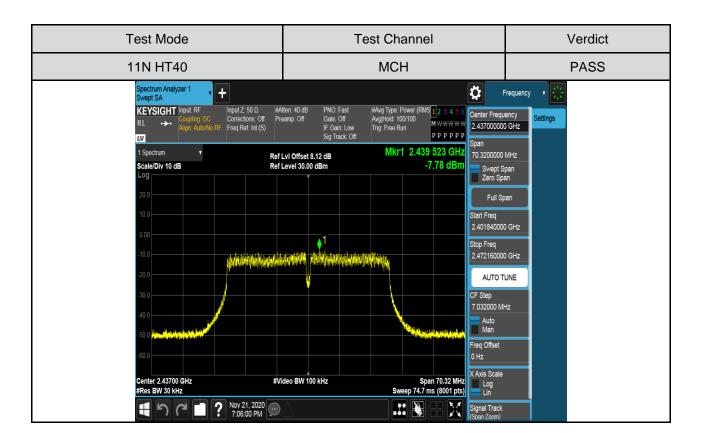


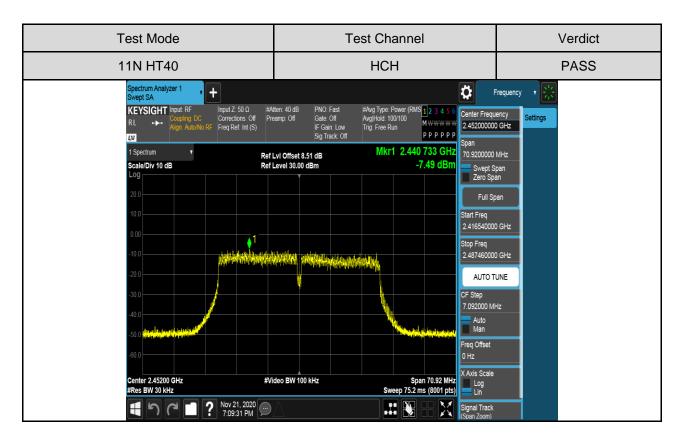














7.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

FCC Part15 (15.247), Subpart C			
Section Test Item Limit			
FCC §15.247 (d) Conducted Bandedge and 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

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.

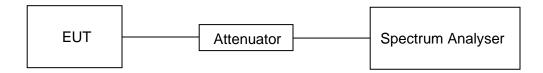
settings:

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

12090	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





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TEST ENVIRONMENT

Temperature	22°C	Relative Humidity	56%
Atmosphere Pressure	101kPa	Test Voltage	DC 12V

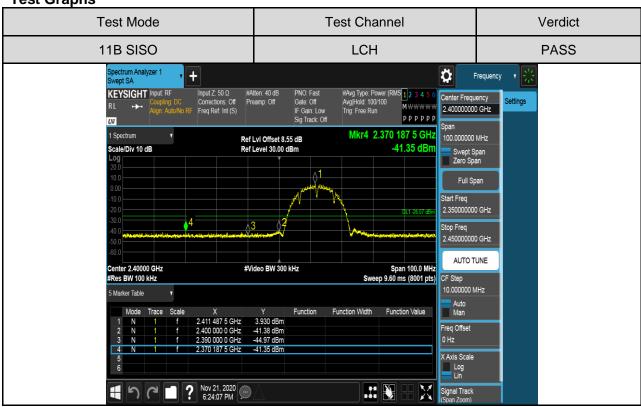
Part I : Conducted Bandedge

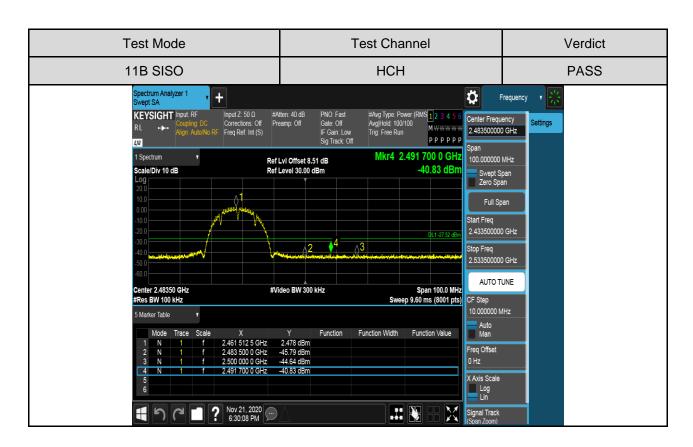
RESULTS TABLE

Test Mode	Test Channel	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	3.930	-41.35	-26.07	PASS
ПБ	HCH	2.478	-40.83	-27.52	PASS
11G	LCH	0.4861	-41.86	-29.51	PASS
116	HCH	-0.4044	-41.60	-30.40	PASS
11N HT20	LCH	-0.09974	-41.82	-30.10	PASS
111111120	HCH	0.1714	-41.10	-29.83	PASS
11N HT40	LCH	-2.791	-42.32	-32.79	PASS
11111 11140	HCH	-2.626	-41.28	-32.63	PASS

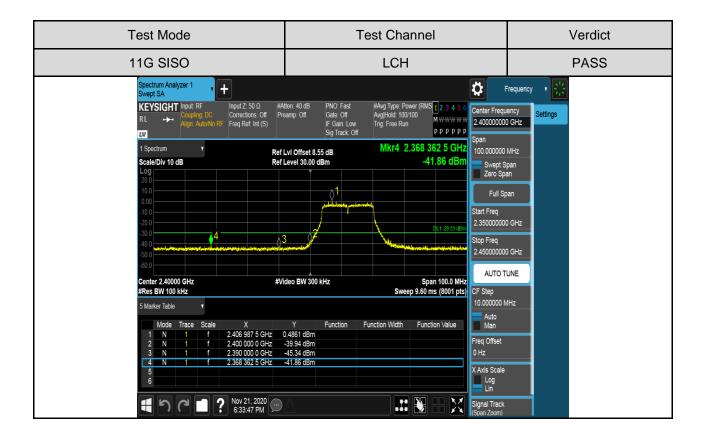


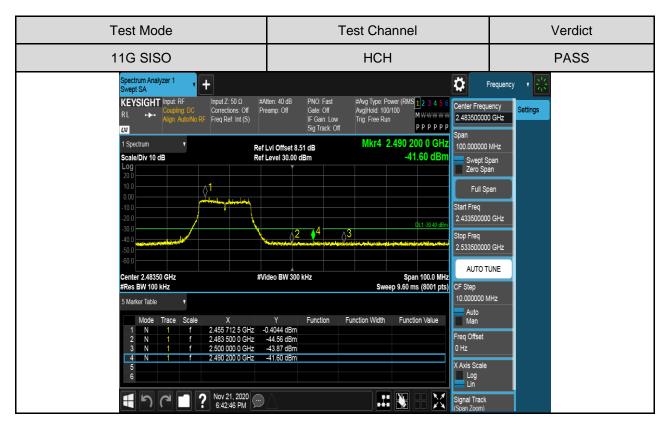
Test Graphs





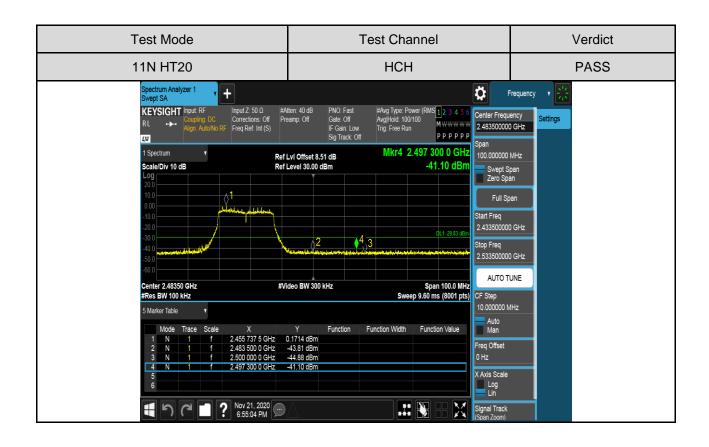




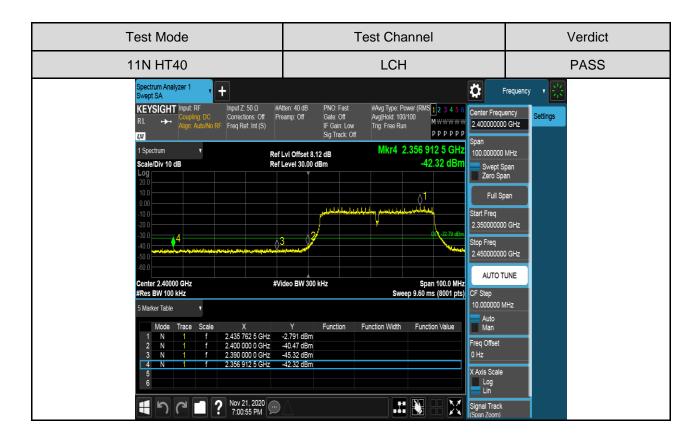


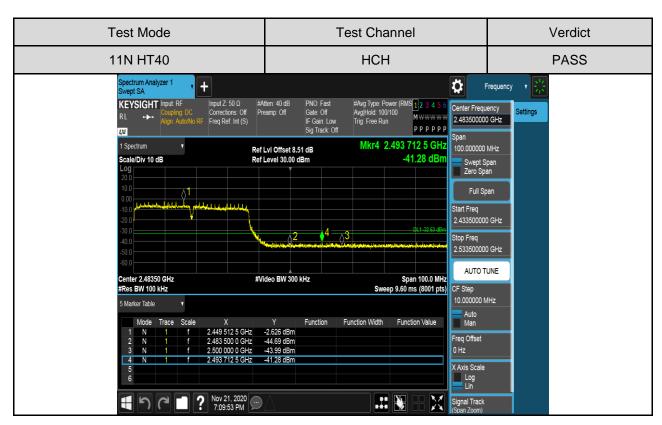


Test Mode **Test Channel** Verdict **LCH PASS** 11N HT20 pectrum Analyzer 1 wept SA Ö + Frequency Input Z: 50 Ω KEYSIGHT Input RF #Atten: 40 dB Corrections: Off Freq Ref: Int (S) Gate: Off IF Gain: Low Settings 2.400000000 GHz PPPPPP ĻXI Mkr4 2.370 000 0 GHz Ref LvI Offset 8.55 dB Ref Level 30.00 dBm 100.000000 MHz -41.82 dBm Scale/Div 10 dB Swept Span Zero Span Start Freq 2.350000000 GHz Stop Freq 2.450000000 GHz AUTO TUNE Span 100.0 MHz Sweep 9.60 ms (8001 pts) enter 2.40000 GHz #Video BW 300 kHz #Res BW 100 kHz 10.000000 MHz Auto Man Function Width Function Value 2.418 275 0 GHz -0.09974 dBm 2.400 000 0 GHz -40.26 dBm 2.390 000 0 GHz -43.65 dBm req Offset X Axis Scale Log Lin ? Nov 21, 2020 6:46:47 PM X 4761 # 🐧 Signal Track (Span Zoom)











Part II : Conducted Emission

Test Result Table

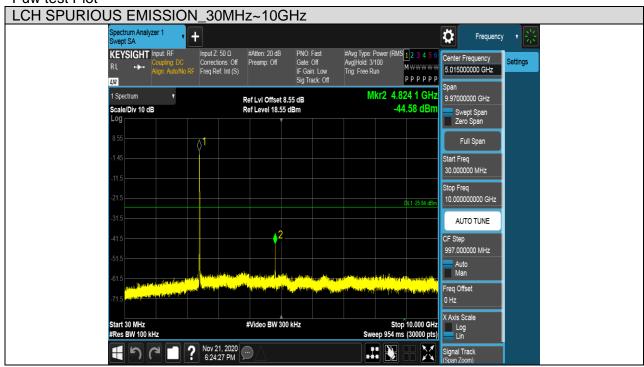
Test Mode	Channel	Pref(dBm)	Puw(dBm)	Verdict
	LCH	4.16	<limit< td=""><td>PASS</td></limit<>	PASS
11B	MCH	5.56	<limit< td=""><td>PASS</td></limit<>	PASS
	HCH	2.87	<limit< td=""><td>PASS</td></limit<>	PASS
	LCH	0.65	<limit< td=""><td>PASS</td></limit<>	PASS
11G	MCH	0.89	<limit< td=""><td>PASS</td></limit<>	PASS
	HCH	0.15	<limit< td=""><td>PASS</td></limit<>	PASS
	LCH	-0.09	<limit< td=""><td>PASS</td></limit<>	PASS
11N HT20	MCH	0.39	<limit< td=""><td>PASS</td></limit<>	PASS
	HCH	-0.02	<limit< td=""><td>PASS</td></limit<>	PASS
	LCH	-2.65	<limit< td=""><td>PASS</td></limit<>	PASS
11N HT40	MCH	-2.65	<limit< td=""><td>PASS</td></limit<>	PASS
	HCH	-2.55	<limit< td=""><td>PASS</td></limit<>	PASS

Test Plots

Test Mode	Channel	Verdict
11B	LCH	PASS









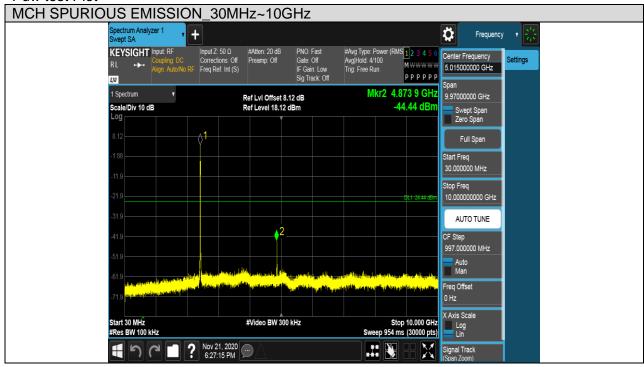


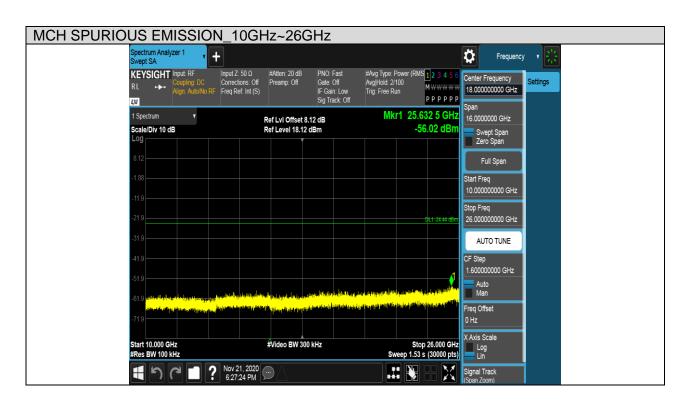
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Test Mode	Channel	Verdict
11B	MCH	PASS









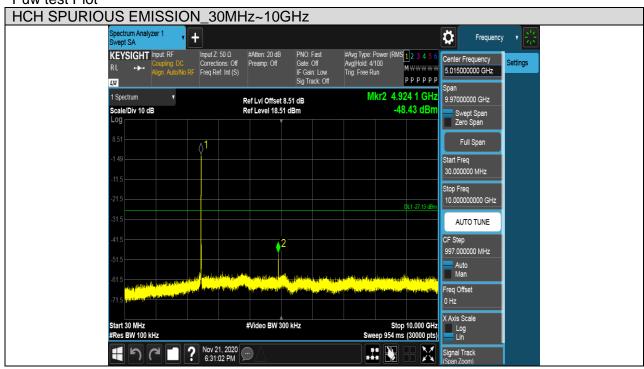


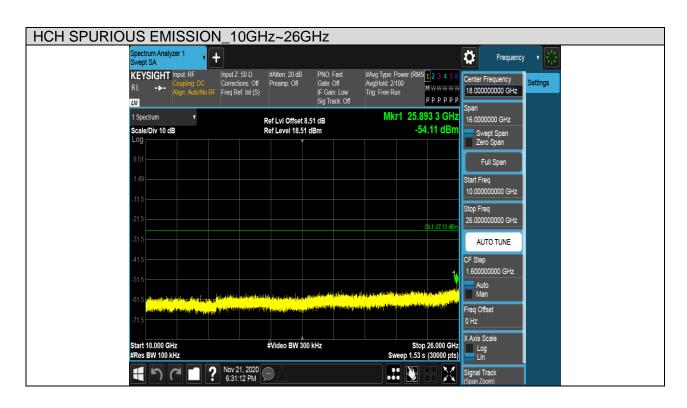
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Test Mode	Channel	Verdict
11B	HCH	PASS





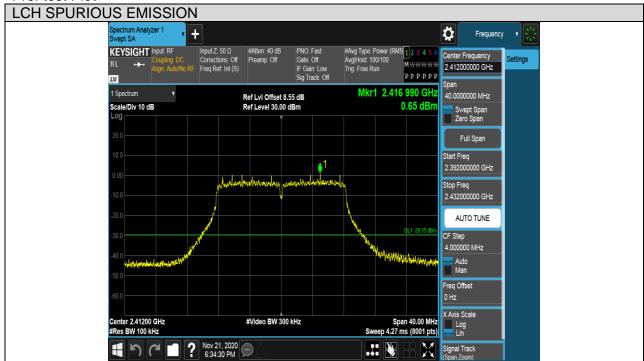




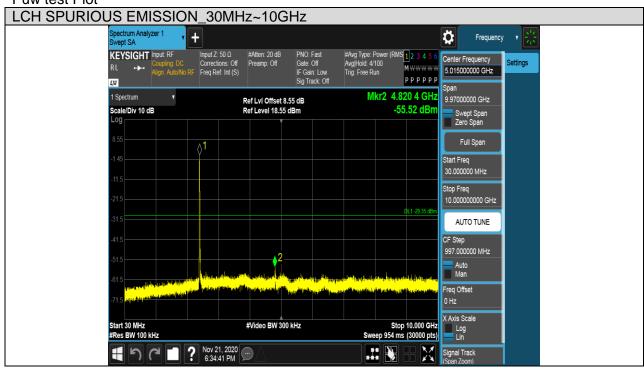


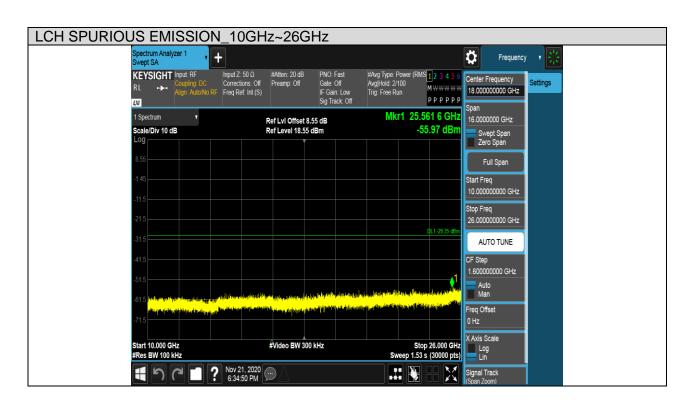
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Test Mode	Channel	Verdict
11G	LCH	PASS











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Test Mode Channel Verdict
11G MCH PASS

