

### FCC 47 CFR PART 15 SUBPART C

#### **CERTIFICATION TEST REPORT**

For

#### **CONSUMER CAMERA**

**MODEL NUMBER: IPC-TA22CP** 

ADDTIONAL MODEL NUMBER: IPC-TA22CN;IPC-TA22CP-imou; IPC-TA22CN-imou;IPC-TA22C-imou;LC-A2X

**PROJECT NUMBER: 4789644578** 

REPORT NUMBER: 4789644578-4

FCC ID: 2AVYF-IPC-TAX2C

**ISSUE DATE: Nov. 05, 2020** 

Prepared for

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Prepared by

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# **Revision History**

Rev.	Issue Date	Revisions	Revised By
V0	11/05/2020	Initial Issue	



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# 1. ATTESTATION OF TEST RESULTS

**Applicant Information** 

Company Name: Hangzhou Huacheng Network Technology Co., Ltd.

Address: No.2930, Nanhuan Road, Binjiang District, Hangzhou, China

**Manufacturer Information** 

Company Name: Hangzhou Huacheng Network Technology Co., Ltd.

Address: No.2930, Nanhuan Road, Binjiang District, Hangzhou, China

**EUT Description** 

Product Name: CONSUMER CAMERA

Model Name: IPC-TA22CP

Additional No.: IPC-TA22CN;IPC-TA22CP-imou;IPC-TA22CN-imou;

IPC-TA22C-imou;LC-A2X

Sample Number: 3379318

Data of Receipt Sample: Sep. 24, 2020

Date Tested: Sep. 24, 2020~ Nov. 01, 2020

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

<sup>1)</sup> 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

#### **MEASURING INSTRUMENT CALIBRATION** 4.1.

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

#### 4.2. **MEASUREMENT UNCERTAINTY**

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

Test Item	Uncertainty
Conduction emission	3.1dB
Radiation Emission test(include Fundamental emission) (9KHz-30MHz)	3.4dB
Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	3.4dB
Radiation Emission test (1GHz to 26GHz)( include Fundamental emission)	3.9dB (1GHz-18Gz)
Note: This was estaints assured to a sure and a large	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:	CONSUMER CAMERA
Model No.:	IPC-TA22CP
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 software of EUT:	Secure CRT (manufacturer declare)
Antenna Type:	Shrapnel antenna
Antenna Gain:	Antenna1: 2.84 dBi
	Remark: This data is provided by customer and our lab isn't responsible for this data
Adapter	NAME: Power Adapter  MODEL: NBS5B050100VUU  INPUT:100-240V,50/60Hz, 0.2A  OUTPUT:5.0V 1.0A

### Remark:

#### Model No.:

Number:	Name:	Number:	Name:	Number:	Name:
1	IPC-TA22CP	2	IPC-TA22CN	3	IPC-TA22CP-imou
4	IPC-TA22CN-imou	5	IPC-TA22C-imou	6	LC-A2X

Only the main model **IPC-TA22CP** 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 market regions and customers are different.

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# 5.2. MAXIMUM OUTPUT POWER

Number of Transmit Chains (NTX)	IEE Std. 802.11	Channel Number	Max AV Conducted Power (dBm)
1	IEEE 802.11B SISO	1-11[11]	15.32
1	IEEE 802.11G SISO	1-11[11]	10.60
1	IEEE 802.11nHT20	1-11[11]	11.03
1	IEEE 802.11nHT40	3-9[7]	7.04

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

# 5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band							
Test Softw	vare			Secu	reCRT		
	Transmit			Test C	Channel		
Modulation Mode	Antenna		NCB: 20MF	łz	NCB: 40MHz		
Nu Nu	Number	CH 1	CH 6	CH 11	CH 3	CH 6	CH 9
802.11b	1	-6	-6	-6			
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				N/A



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### 5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1	2400-2483.5	Shrapnel antenna	2.84

Test Mode	Transmit and Receive Mode	Description
IEEE 802.11b	⊠1TX, 1RX	Antenna1 can be used as transmitting/receiving antenna independently.
IEEE 802.11g	⊠1TX, 1RX	Antenna1 can be used as transmitting/receiving antenna independently.
IEEE 802.11N (HT20)	⊠1TX, 1RX	Antenna1 can be used as transmitting/receiving antenna independently.
IEEE 802.11N (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 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	AC 120V			
	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	E550c	N/A
2	Fixed Frequency Board	N/A	N/A	Supply by UL Lab

### **I/O PORT**

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
1	USB	USB	USB-VGA	100cm Length (Supply by UL Lab)	N/A

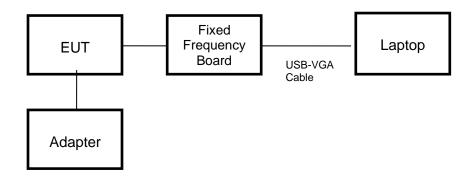
### **ACCESSORY**

Item	Accessory	Brand Name	Model Name	Description
1	Micro SD card	Kingston	32GB	Supply by UL lab

### **TEST SETUP**

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

### **SETUP DIAGRAM FOR TESTS**



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



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# 5.10. MEASURING INSTRUMENT AND SOFTWARE USED

	Conducted Emissions (Instrument)							
Used	Equipment	Manufacturer	Model		Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
$\overline{\checkmark}$	EMI Test Receiver	R&S	ESR	3	126700	2018-12-13	2019-12-12	2020-12-11
$\checkmark$	Two-Line V-Network	R&S	ENV2	16	126701	2018-12-13	2019-12-12	2020-12-11
	Artificial Mains Networks	R&S	ENY8	81	126711	2018-12-13	2019-12-12	2020-12-11
				Soft	ware			
Used	Used Description Manufacturer Name Version							
$\overline{\checkmark}$	Test Software for 0	Conducted distur	bance		R&S	EMC32	Ver. 9.25	
		Ra	diated E	miss	ions (Instrum	ent <b>)</b>		
Used	Equipment	Manufacturer	Model	No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
	Spectrum Analyzer	Keysight	N901	0B	MY57110128	2019-05-29	2020-05-10	2021-05-09
$\overline{\mathbf{V}}$	EMI test receiver	R&S	ESR2	26	1267603	2018-12-13	2019-12-22	2020-12-21
	Receiver Antenna (9kHz-30MHz)	Schwarzbeck	FMZB 1	1513	513-265	N/A	2018-06-15	2021-06-14
	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	2019-01-26	2020-01-26	2021-01-25
	Receiver Antenna (18GHz-26.5GHz)	Schwarzbeck	BBHA9	170	126706	2019-02-06	2020-02-05	2021-02-04
	Pre-amplification (To 1GHz)	R&S	SCU-0	)3D	134666	2019-02-06	2020-02-05	2021-02-04
<b>V</b>	Pre-amplification (To 18GHz)	Compliance Direction System Inc.	PAP-1G	18-50	14140-13467	2019-03-18	2020-02-20	2021-02-19
	Pre-amplification (To 26.5GHz)	R&S	SCU-2	26D	134668	2019-02-06	2020-02-05	2021-02-04
<b>V</b>	Band Reject Filter	Wainwright	WRCJ 2350-24 2483.5-25 4083	400- 533.5-	1	2019-05-29	2020-05-10	2021-05-09
<b>V</b>	Highpass Filter	Wainwright	WHKX 2700-30 18000-4	000-	2	2019-05-29	2020-05-10	2021-05-09
				Soft	ware			
Used	Desci	Description Manufa			turer	Name	Version	
	Test Software for R	adiated disturbar	nce 7	Tonsce	end	JS32	V1.0	
			Oth	er ins	struments			
Used	Equipment	Manufacturer	Model	No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
	Spectrum Analyzer	Keysight	N901	0B	MY57110128	2019-05-29	2020-05-10	2021-05-09
V	Power Meter	Keysight	U2021	XA	MY57110002	2019-06-12	2020-05-10	2021-05-09



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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	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

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# 7. ANTENNA PORT TEST RESULTS

### 7.1. ON TIME AND DUTY CYCLE

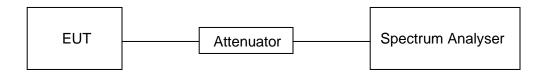
#### **LIMITS**

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	AC 120V

### **RESULTS**

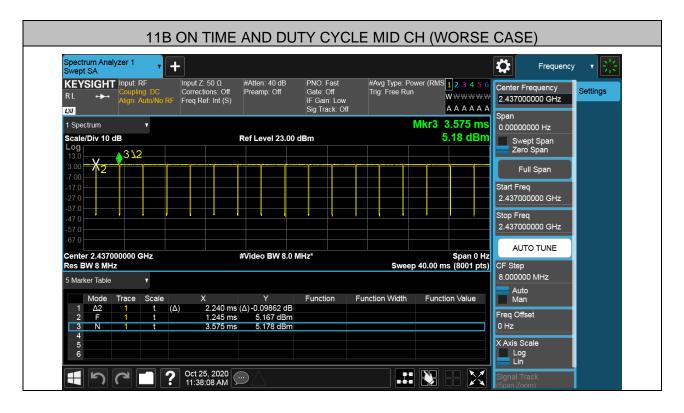
Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)	1/T Minimum VBW (KHz)	Final Minimum VBW (KHz)
11B	2.24	2.33	0.9614	96.14	0.17	0.45	1
11G	0.7106	0.7941	0.8948	89.48	0.48	1.41	2
11N HT20	0.6669	0.7075	0.9426	94.26	0.26	1.50	2
11N HT40	0.339	0.3805	0.8909	89.09	0.50	2.95	3

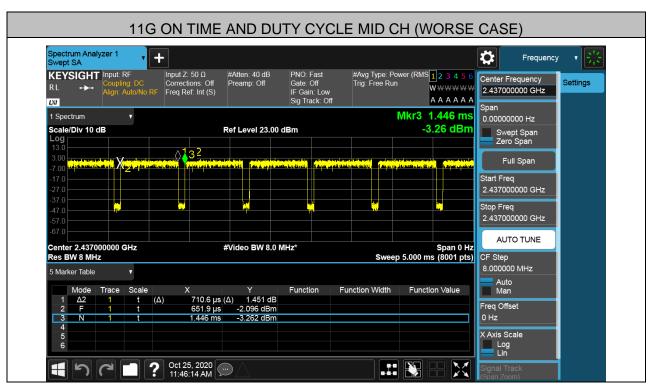
Note: 1) Duty Cycle Correction Factor=10log(1/x).

2) Where: x is Duty Cycle(Linear)

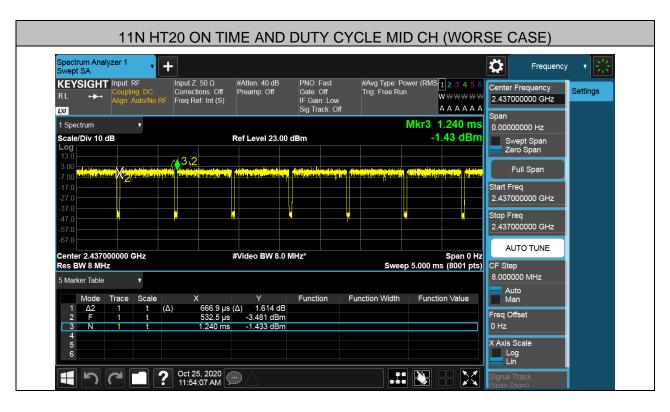
3) Where: T is On Time (transmit duration)

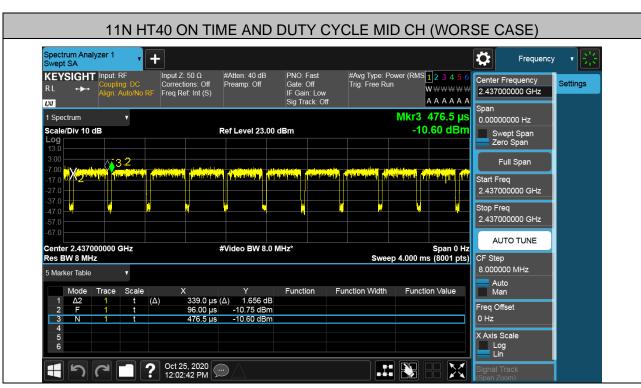












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# 7.2. 6 dB BANDWIDTH

# **LIMITS**

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

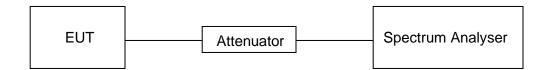
#### **TEST PROCEDURE**

Refer to FCC KDB 558074, connect the UUT to the spectrum analyzer 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 × 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**





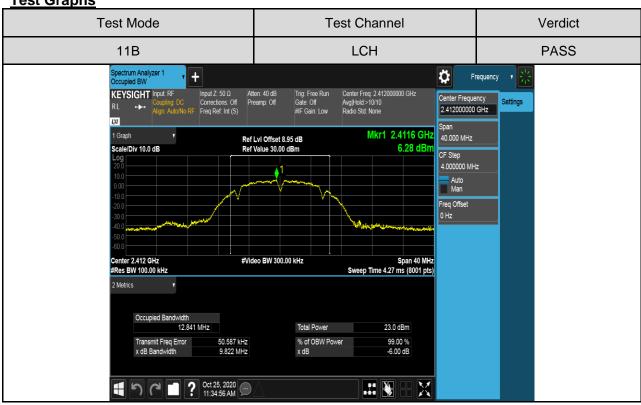
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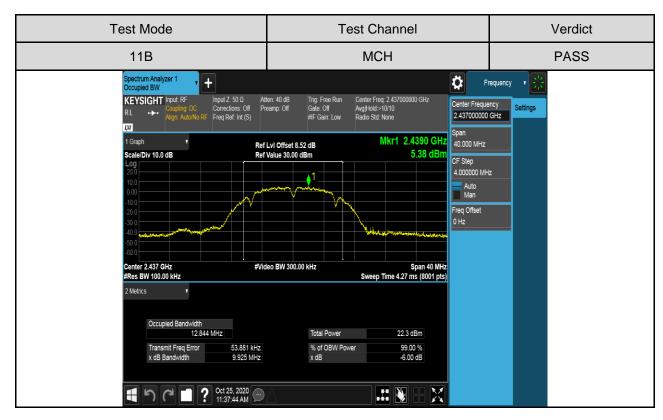
# **RESULTS**

Test Mode	Test Channel	6dB bandwidth (MHz)	Result
	LCH	9.822	Pass
11B SISO	MCH	9.925	Pass
	HCH	9.684	Pass
	LCH	15.36	Pass
11G SISO	MCH	16.33	Pass
	HCH	16.34	Pass
11N HT20	LCH	17.04	Pass
	MCH	17.04	Pass
	HCH	17.03	Pass
11N HT40	LCH	35.49	Pass
	MCH	35.16	Pass
	HCH	35.45	Pass



**Test Graphs** 







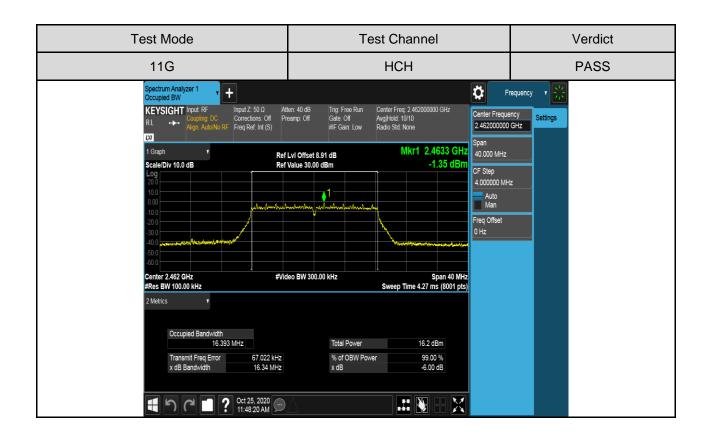
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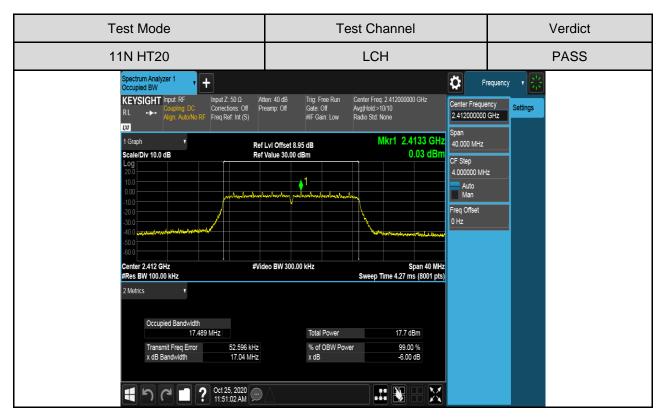


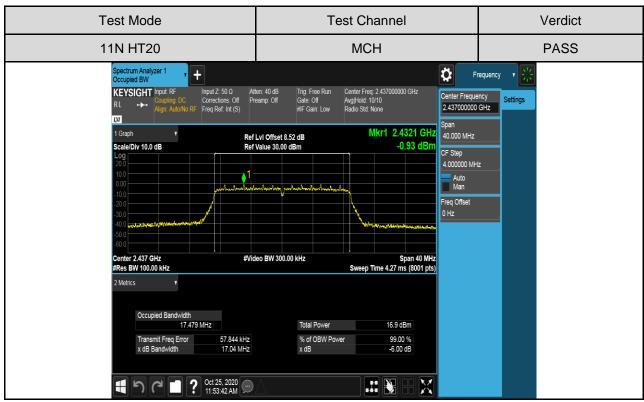


Test Mode Test Channel Verdict **PASS** 11G **MCH** Spectrum Analyzer 1 Occupied BW Ö Frequency Atten: 40 dB Preamp: Off Center Freq: 2.437000000 GHz Avg|Hold:>10/10 Radio Std: None Input Z: 50 Ω Corrections: Off Freq Ref: Int (S) Trig: Free Run Gate: Off #IF Gain: Low KEYSIGHT Input RF Settings 2.437000000 GHz L)XI 1 Graph Ref Lvl Offset 8.52 dB Ref Value 30.00 dBm Mkr1 2.4321 GHz 40.000 MHz -0.73 dBn Scale/Div 10.0 dB CF Step 4.000000 MHz Auto Man Freq Offset 0 Hz Span 40 MHz Sweep Time 4.27 ms (8001 pts) Center 2.437 GHz #Res BW 100.00 kHz #Video BW 300.00 kHz 2 Metrics Occupied Bandwidth 16.348 MHz Total Power 16.8 dBm % of OBW Power 64.301 kHz 16.33 MHz 99.00 % -6.00 dB Transmit Freq Error x dB (C) C (C) Oct 25, 2020 (C) 11:45:51 AM X # 👫

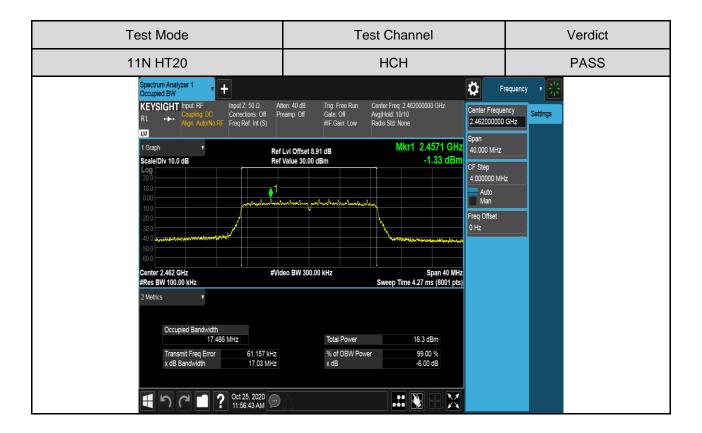


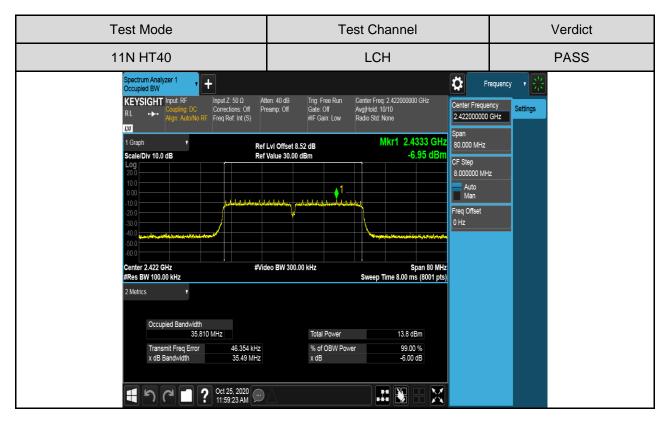




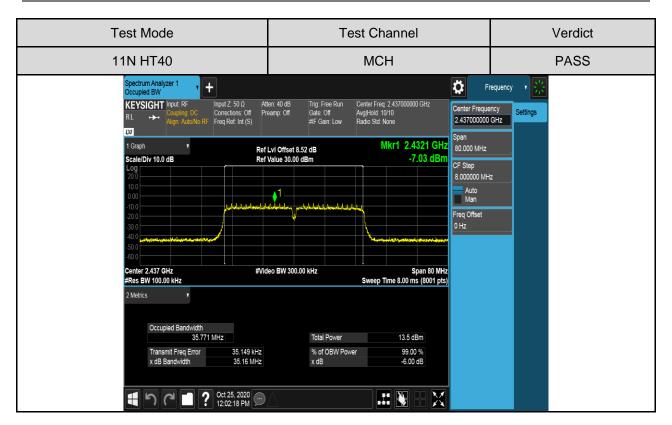


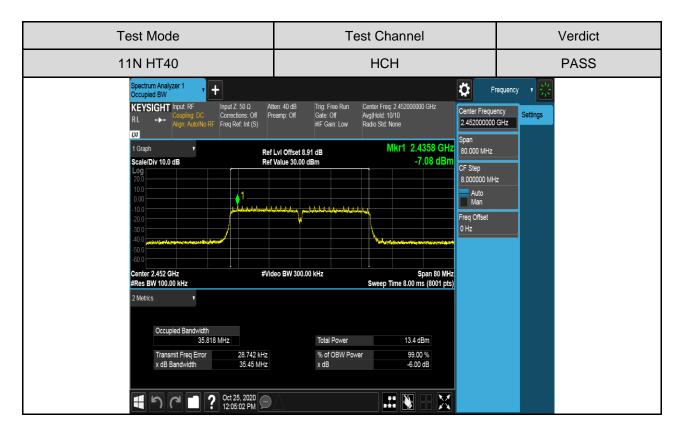














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# 7.3. CONDUCTED POWER

#### **LIMITS**

FCC Part15 (15.247) , Subpart C			
Section Test Item Limit		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.

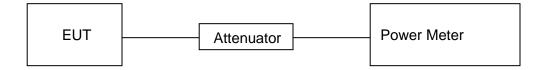
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power sensor.

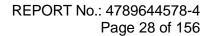
Measure the power of each channel.

Peak Detector use for Peak result.

AVG Detector use for AVG result.

#### **TEST SETUP**







**RESULTS** 

Test Mode Test Channel		Maximum Conducted Output Power (PK)	Maximum Conducted Output Power (AV)	Result
		dBm	dBm	
	LCH	18.35	15.32	Pass
11B	MCH	17.77	14.73	Pass
	HCH	17.24	14.23	Pass
	LCH	18.25	10.60	Pass
11G	MCH	18.03	10.24	Pass
	HCH	17.86	10.00	Pass
	LCH	19.03	11.03	Pass
11N HT20	MCH	18.10	10.15	Pass
	HCH	17.61	9.66	Pass
11N HT40	LCH	N/A	7.04	Pass
	MCH	N/A	6.72	Pass
	HCH	N/A	6.70	Pass



# 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 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.	

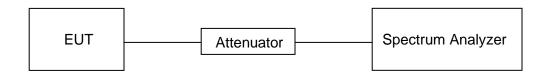
Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

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	AC 120V

### **TEST SETUP**





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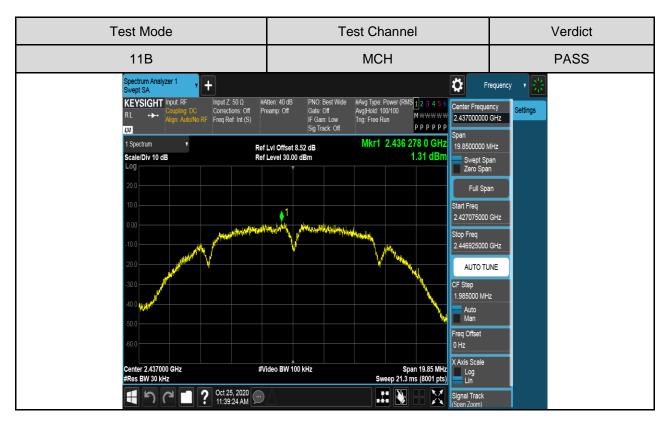
# **RESULTS**

Test Mode	Test Channel	Maximum Peak power spectral density (dBm/30kHz)	Result
	LCH	2.48	Pass
11B	MCH	1.31	Pass
	HCH	1.21	Pass
	LCH	-5.20	Pass
11G	MCH	-5.97	Pass
	HCH	-6.01	Pass
11N HT20	LCH	-5.19	Pass
	MCH	-5.14	Pass
	HCH	-6.21	Pass
	LCH	-11.27	Pass
11N HT40	MCH	-11.51	Pass
	HCH	-11.55	Pass



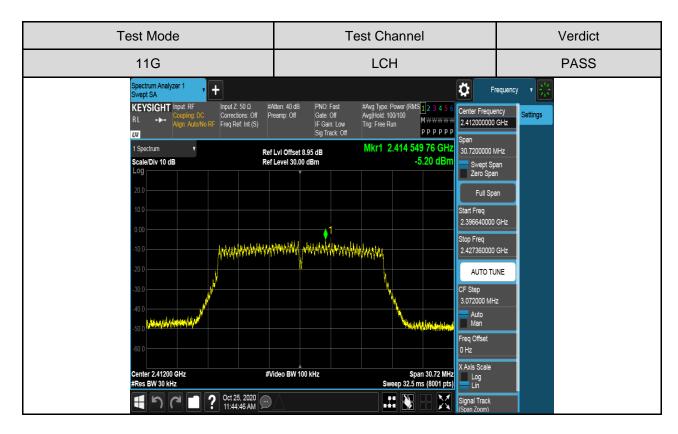
#### **Test Graphs:**





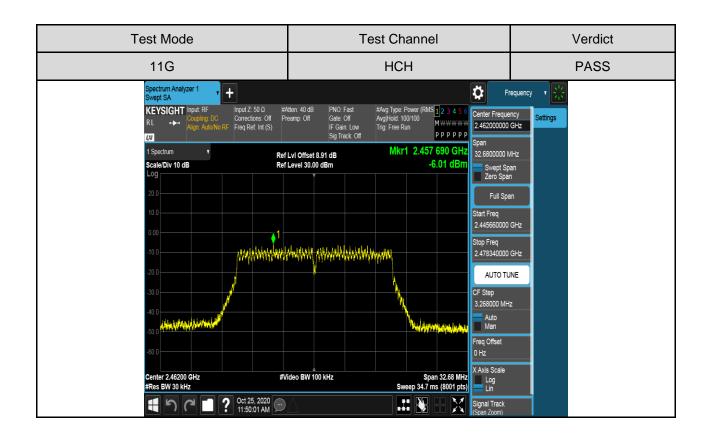




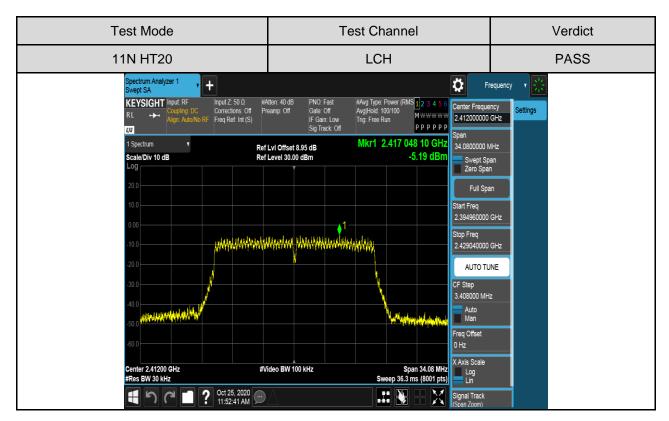


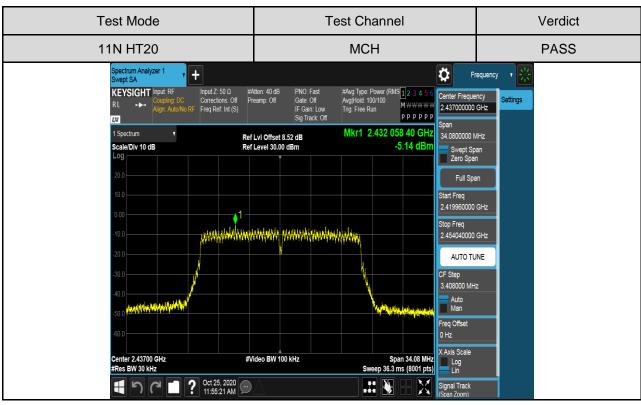


Test Mode Test Channel Verdict **PASS** 11G **MCH** pectrum Analyzer 1 wept SA Ö Frequency Input Z: 50 Ω Corrections: Off Freq Ref: Int (S) PNO: Fast Gate: Off IF Gain: Low Sig Track: Off #Atten: 40 dB Preamp: Off #Avg Type: Power (RMS 1 2 3 4 5 Avg|Hold: 100/100 Trig: Free Run KEYSIGHT Input RF Settings 2.437000000 GHz PPPPPP LXI Mkr1 2.439 547 GHz -5.97 dBm 1 Spectrum Ref Lvl Offset 8.52 dB 32.6600000 MHz Scale/Div 10 dB Swept Span Zero Span Full Span 2.420670000 GHz Stop Freq 2.453330000 GHz AUTO TUNE 3.266000 MHz Auto Man req Offset 0 Hz X Axis Scale Center 2.43700 GHz #Video BW 100 kHz Span 32.66 MHz Log Lin Res BW 30 kHz Sweep 34.7 ms (8001 pts) ? Oct 25, 2020 ... 









AUTO TUNE

3.406000 MHz

Auto
Man

Freq Offset

Span 34.06 MHz

Sweep 36.3 ms (8001 pts)



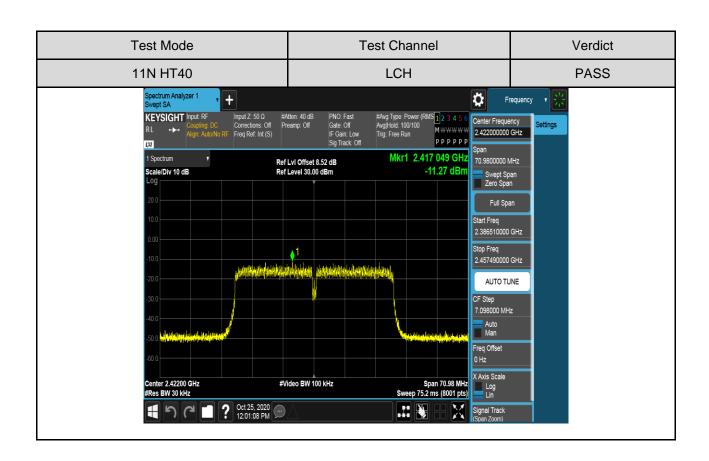
enter 2.46200 GHz

Oct 25, 2020 11:58:21 AM

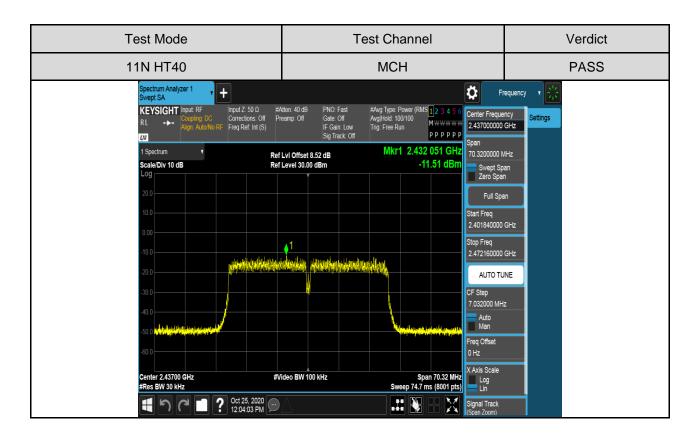
Res BW 30 kHz

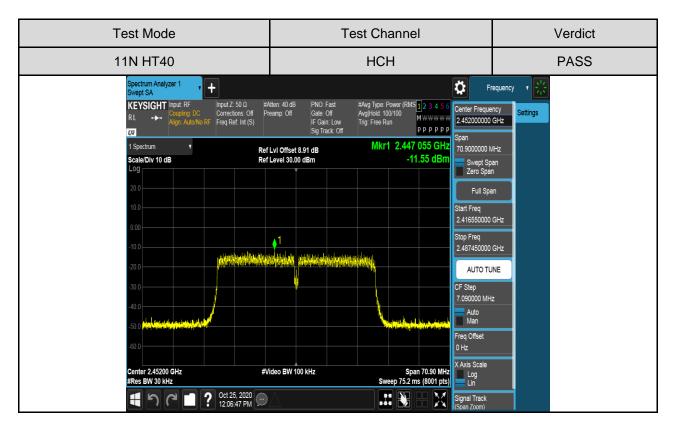
Test Mode **Test Channel** Verdict 11N HT20 **HCH PASS** pectrum Analyzer 1 wept SA Ö Frequency KEYSIGHT Input: RF Center Frequency Gate: Off IF Gain: Low Sig Track: Off Settings Corrections: Off Freq Ref: Int (S) 2.462000000 GHz PPPPPP Mkr1 2.461 442 GH Ref LvI Offset 8.91 dB Ref Level 30.00 dBm 34.0600000 MHz -6.21 dBn Scale/Div 10 dB Full Span Start Freq 2.444970000 GHz Stop Freq 2.479030000 GHz

#Video BW 100 kHz











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	1) For 11B, 11G and 11N HT20 modes: at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power; 2) For 11N HT40 mode: at least 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:

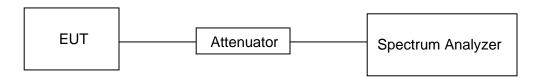
Use the peak marker function to determine the maximum PSD level.

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**





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# **TEST ENVIRONMENT**

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



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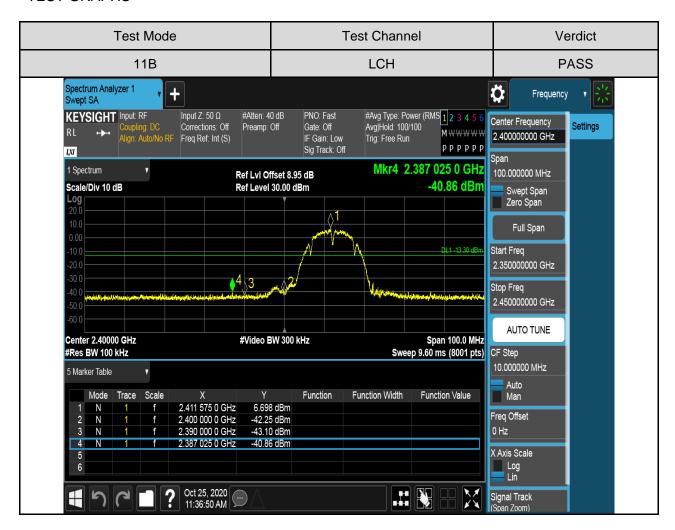
## Part I: Conducted Bandedge

# **RESULTS TABLE**

Test Mode	Test Channel	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Verdict
11B	LCH	6.698	-40.86	-13.30	PASS
IID	HCH	5.019	-40.96	-14.98	PASS
110	LCH	-0.139	-40.53	-20.14	PASS
11G	HCH	-1.316	-40.69	-21.32	PASS
11N HT20	LCH	-0.052	-41.27	-20.05	PASS
TIN HIZU	HCH	-1.338	-40.89	-21.34	PASS
11N HT40	LCH	-7.045	-41.25	-37.05	PASS
11111 1140	HCH	-7.124	-41.41	-37.12	PASS

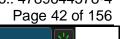


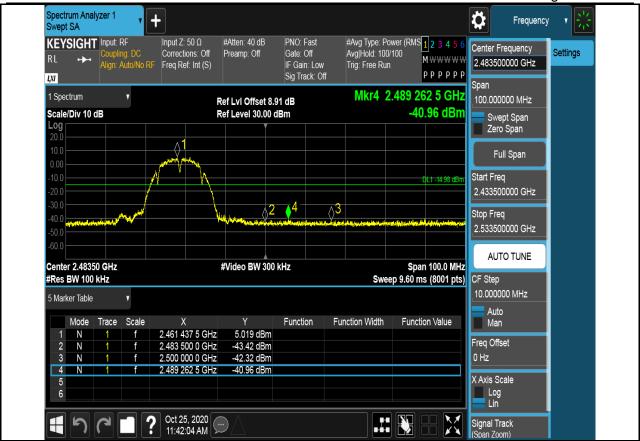
#### **TEST GRAPHS**



Test Mode	Test Channel	Verdict
11B	НСН	PASS







Test Mode	Test Channel	Verdict
11G	LCH	PASS



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Test Mode	Test Channel	Verdict
11G	НСН	PASS



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Test Mode	Test Channel	Verdict
11N HT20	LCH	PASS



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Test Mode	Test Channel	Verdict
11N HT20	НСН	PASS





Test Mode	Test Channel	Verdict
11N HT40	LCH	PASS





Test Mode	Test Channel	Verdict
11N HT40	НСН	PASS



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# Part II :Conducted Emission

Test Result Table

Test Mode	Test Antenna	Channel	Pref(dBm)	Puw(dBm)	Verdict
		LCH	6.61	<limit< td=""><td>PASS</td></limit<>	PASS
	Antenna 1	MCH	5.54	<limit< td=""><td>PASS</td></limit<>	PASS
11B		HCH	4.83	<limit< td=""><td>PASS</td></limit<>	PASS
_		LCH	-0.02	<limit< td=""><td>PASS</td></limit<>	PASS
11G An	Antenna 1	MCH	-0.91	<limit< td=""><td>PASS</td></limit<>	PASS
		HCH	-1.20	<limit< td=""><td>PASS</td></limit<>	PASS
	Antenna 1	LCH	-0.02	<limit< td=""><td>PASS</td></limit<>	PASS
11N HT20		MCH	-0.91	<limit< td=""><td>PASS</td></limit<>	PASS
		HCH	-1.43	<limit< td=""><td>PASS</td></limit<>	PASS
	Antenna 1	LCH	-7.04	<limit< td=""><td>PASS</td></limit<>	PASS
11N HT20		MCH	-7.18	<limit< td=""><td>PASS</td></limit<>	PASS
		HCH	-7.27	<limit< td=""><td>PASS</td></limit<>	PASS



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### **Test Plots**

Test Mode		Channel	Verdict	
	11B	LCH	PASS	

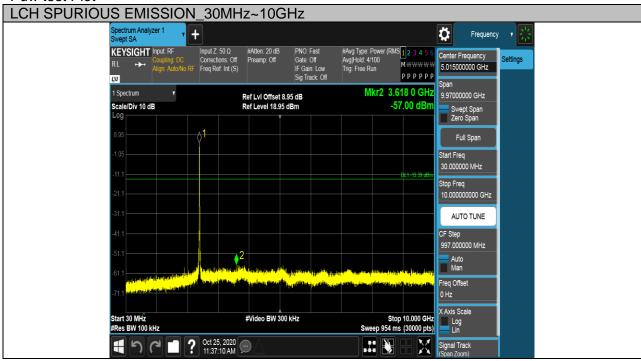
### Pref test Plot

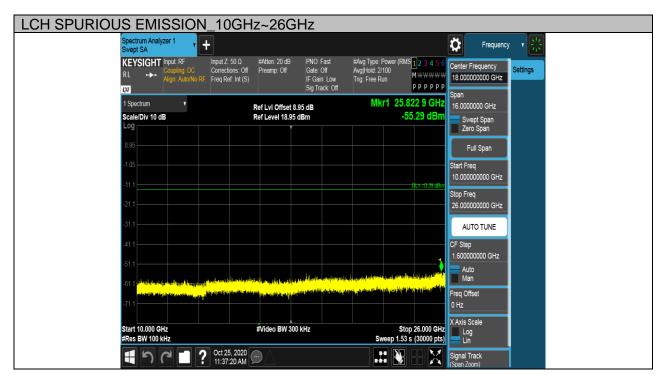




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#### Puw test Plot







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Test Mode	Channel	Verdict
11B	MCH	PASS

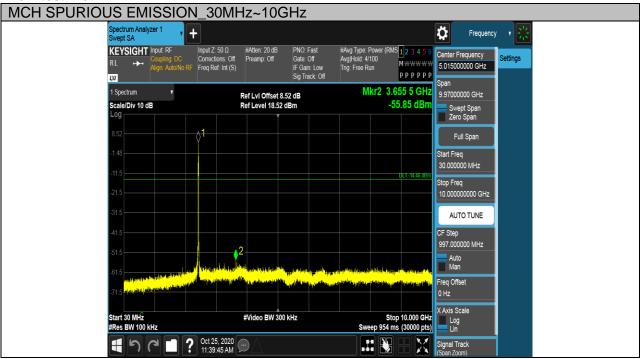
### Pref test Plot

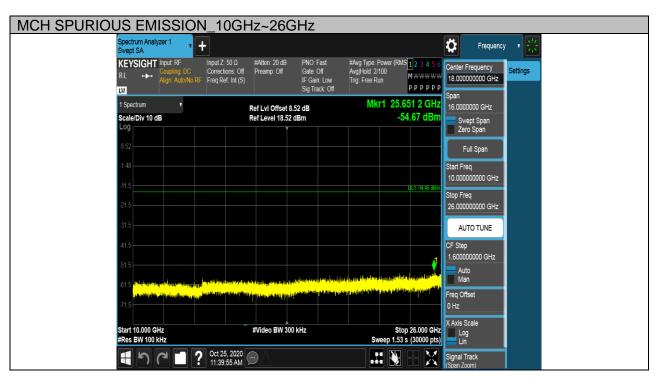




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#### Puw test Plot







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Test Mode	Channel	Verdict
11B	HCH	PASS

### Pref test Plot





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#### Puw test Plot

