

### FCC 47 CFR PART 15 SUBPART C

### **CERTIFICATION TEST REPORT**

For

### **Wi-Fi Indoor Monitor**

**MODEL NUMBER: DHI-VTH5241DW-S2** 

ADDITIONAL MODEL NUMBER: VTH5241DW-S2; DHI-VTH5241D-S2; VTH5241D-S2

**PROJECT NUMBER: 4788923491** 

REPORT NUMBER: 4788923491-1

FCC ID: SVNVTH5241DW-S2

**ISSUE DATE: Sep. 15, 2019** 

Prepared for

Zhejiang Dahua Vision Technology Co., Ltd.

Prepared by

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Page 2 of 127

## **Revision History**

Rev.	Issue Date	Revisions	Revised By
V0	9/15/2019	Initial Issue	



## **TABLE OF CONTENTS**

1.	. AT	TESTATION OF TEST RESULTS	4
2.	. TE	ST METHODOLOGY	6
3.	. FA	CILITIES AND ACCREDITATION	6
4.	. CA	LIBRATION AND UNCERTAINTY	7
	4.1.	MEASURING INSTRUMENT CALIBRATION	7
	4.2.	MEASUREMENT UNCERTAINTY	7
5.	. EQ	UIPMENT UNDER TEST	8
	5.1.	DESCRIPTION OF EUT	8
	5.2.	MAXIMUM OUTPUT POWER	9
	5.3.	CHANNEL LIST	9
	5.4.	TEST CHANNEL CONFIGURATION	10
	5.5.	THE WORSE CASE POWER SETTING PARAMETER	10
	5.6.	DESCRIPTION OF AVAILABLE ANTENNAS	11
	5.7.	THE WORSE CASE CONFIGURATIONS	11
	5.8.	TEST ENVIRONMENT	12
	5.9.	DESCRIPTION OF TEST SETUP	13
	5.10.	MEASURING INSTRUMENT AND SOFTWARE USED	14
6.	. ME	ASUREMENT METHODS	16
7.	. AN	TENNA PORT TEST RESULTS	17
	7.1.	ON TIME AND DUTY CYCLE	17
	7.2.	6 dB BANDWIDTH	20
	7.3.	PEAK CONDUCTED OUTPUT POWER	28
	7.4.	POWER SPECTRAL DENSITY	30
	7.5.	CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS	38
	7.6.		
	7.6 7.6		
		.3. RESTRICTED BANDEDGE	75
	7.6	.4. SPURIOUS EMISSIONS	92
8.	. AC	POWER LINE CONDUCTED EMISSIONS	124
^	A N I	TENNA DECUIDEMENTO	107



Page 4 of 127

## 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.

**Factory Information** 

Company Name: ZHEJIANG DAHUA VISION TECHNOLOGY CO.,LTD

Address: No.1199, Bin'an road, Binjiang District, Hangzhou,

P.R.China.

Company Name: ZHEJIANG DAHUA ZHILIAN CO.,LTD.

Address: No.28, Dongqiao Road, Dongzhou Street, Fuyang District,

Hangzhou, P.R. China.

**EUT Description** 

Product Name Wi-Fi Indoor Monitor
Model Name DHI-VTH5241DW-S2

Additional No. VTH5241DW-S2; DHI-VTH5241D-S2; VTH5241D-S2

Sample Number 2511625

Data of Receipt Sample May 31, 2019

Date Tested May 31, 2019 ~ Sep. 14, 2019

**APPLICABLE STANDARDS** 

STANDARD TEST RESULTS

CFR 47 Part 15 Subpart C PASS



Page 5 of 127

	Summary of Test Results					
Clause	Test Items	FCC/IC Rules	Test Results			
1	6db DTS Bandwidth	FCC 15.247 (a) (2)	Complied			
2	Peak 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:  Tom Tang	Reviewed By: Char's Zhong
Tom Tang Engineer Project Associate	Chris Zhong Senior Project Engineer
Authorized By: Scholl Zhang	
Scholl Zhang 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.



Page 6 of 127

### 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.



Page 7 of 127

## 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)	3.31dB
Radiation Emission test(include Fundamental emission) (30MHz-1GHz)	3.31dB
Radiation Emission test (1GHz to 26GHz)( include Fundamental emission)	3.83dB (1GHz-18Gz)
Note: This was estaints assessed as a series of the series	4.13dB (18GHz-26.5Gz)

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



Page 8 of 127

## 5. EQUIPMENT UNDER TEST

## 5.1. DESCRIPTION OF EUT

Product Name:	Wi-Fi Indoor Monitor
Model No.:	DHI-VTH5241DW-S2
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:	44 (manufacturer declare)
Test software of EUT:	Secure CRT (manufacturer declare)
Antenna Type:	Meander Antenna
Antenna Gain:	3.16 dBi

### Remark:

### Model No.:

Number:	Name:	Number:	Name:	Number:	Name:
1	DHI-VTH5241DW-S2	2	VTH5241DW-S2	3	DHI-VTH5241D-S2
4	VTH5241D-S2				

Only the main model **DHI-VTH5241DW-S2** 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 and selling area are different.



Page 9 of 127

## **5.2. MAXIMUM OUTPUT POWER**

Number of Transmit Chains (NTX)	IEE Std. 802.11	Channel Number	Max PK Conducted Power-Antenna1 (dBm)
1	IEEE 802.11B	1-11[11]	18.92
1	IEEE 802.11G	1-11[11]	18.53
1	IEEE 802.11nHT20	1-11[11]	18.54
1	IEEE 802.11nHT40	3-9[7]	18.06

## 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)							
Ch	hannel	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		



Page 10 of 127

## 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 Softw	vare			Secu	reCRT			
	Transmit		Test Channel					
Modulation Mode	Antenna	NCB: 20MHz			NCB: 40MHz			
Mode	Number	CH 1	CH 6	CH 11	CH 3	CH 6	CH 9	
802.11b	1	40	40	40			•	
802.11g	1	40 40 40 /						
802.11n HT20	1	40 40 40						
802.11n HT40	1		/		40	40	40	



Page 11 of 127

### 5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1	2400-2483.5	Meander Antenna	3.16

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

### 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



Page 12 of 127

#### 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

Page 13 of 127

### 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	N/A N/A		N/A	N/A	N/A

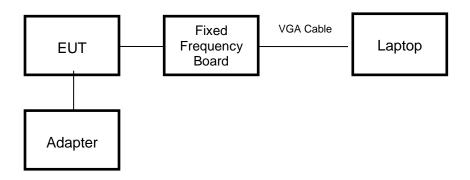
### **ACCESSORY**

Item	Accessory	Brand Name	Model Name	Description	
1	SD Card	Kingston	32GB	Supply by UL Lab	
2	VGA Cable	N/A	N/A	100cm Length (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**





Page 14 of 127

## 5.10. MEASURING INSTRUMENT AND SOFTWARE USED

Conducted Emissions (Instrument)										
Used	Equipment	Manufacturer	Model No.		Serial No.	Cal.	Last Cal.	Next Cal.		
$\overline{\mathbf{V}}$	EMI Test Receiver	R&S	ES	R3	126700	2017-12-14	2018-12-13	2019-12-12		
$\overline{\mathbf{V}}$	Two-Line V-Network	R&S	ENV	216	126701	2017-12-14	2018-12-13	2019-12-12		
<b>V</b>	Artificial Mains Networks	R&S	EN	/81	126711	2017-12-14	2018-12-13	2019-12-12		
	Software									
Used	Des	cription		Ма	nufacturer	Name	Version			
V	Test Software for 0	Conducted distur	bance		R&S	EMC32	Ver. 9.25			
•		Ra	diated	Emiss	ions (Instrur	nent <b>)</b>				
Used	Equipment	Manufacturer	Mode	l No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.		
$\overline{\checkmark}$	Spectrum Analyzer	Keysight	N90		MY57110128	2018-05-30	2019-05-29	2020-05-28		
$\overline{\mathbf{A}}$	EMI test receiver	R&S	ESF	R26	1267603	2017-12-14	2018-12-13	2019-12-22		
V	Receiver Antenna (9kHz-30MHz)	Schwarzbeck	FMZB	1513	513-265	2018-06-17	2019-06-16	2020-06-15		
<b>V</b>	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	HF9	907	126705	2018-01-27	2019-01-26	2020-01-26		
V	Receiver Antenna (18GHz-26.5GHz)	Schwarzbeck	BBHA9170		126706	2018-02-07	2019-02-06	2020-02-05		
V	Receiver Antenna (26.5GHz-40GHz)	TOYO	HAP 26	6-40W	00000012	2018-07-25	2019-07-23	2020-07-22		
V	Pre-amplification (To 1GHz)	R&S	SCU-	-03D	134666	2018-02-07	2019-02-06	2020-02-05		
V	Pre-amplification (To 18GHz)	Compliance Direction System Inc.	PAP-10	G18-50	14140-13467	N/A	2019-03-18	2020-03-17		
V	Pre-amplification (To 26.5GHz)	R&S	SCU-	-26D	134668	2018-02-07	2019-02-06	2020-02-05		
<b>V</b>	Band Reject Filter	Wainwright	WRC 2350-2 2483.5-2 408	2400- 2533.5-	1	2018-05-30	2019-05-29	2020-05-28		
<b>V</b>	Highpass Filter	Wainwright	WHK 2700-: 18000-	3000-	2	2018-05-30	2019-05-29	2020-05-28		
				Soft	ware					
Used	Desci	ription	M	lanufac	turer	Name	Version			
V	Test Software for R	adiated disturbar	nce	Tonsce	end	JS32	V1.0			
			Ot	her ins	truments					
Used	Equipment	Manufacturer	Mode	l No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.		
			N9010B							



Page 15 of 127

$\overline{\checkmark}$	Power Meter	Keysight	U2021XA	MY57110002	2018-06-13	2019-06-12	2020-06-11
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Page 16 of 127

# **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

Page 17 of 127

## 7. ANTENNA PORT TEST RESULTS

### 7.1. ON TIME AND DUTY CYCLE

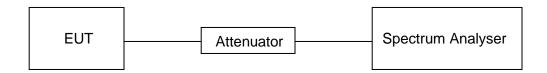
### **LIMITS**

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**

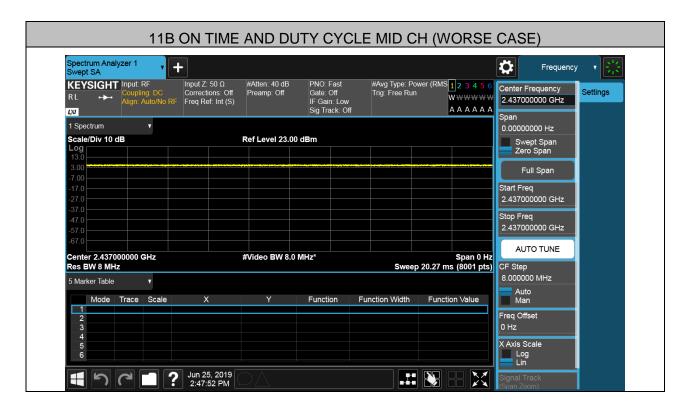
Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)	1/T Minimum VBW (KHz)	Final VBW (Hz)
11B	100	100	1	100	0	0.01	10
11G	100	100	1	100	0	0.01	10
802.11n HT20	100	100	1	100	0	0.01	10
802.11n HT40	100	100	1	100	0	0.01	10

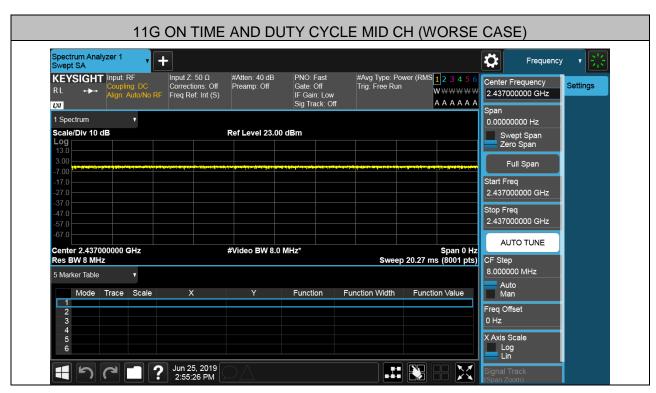
Note: 1) Duty Cycle Correction Factor=10log(1/x).

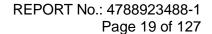
2) Where: x is Duty Cycle(Linear)

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



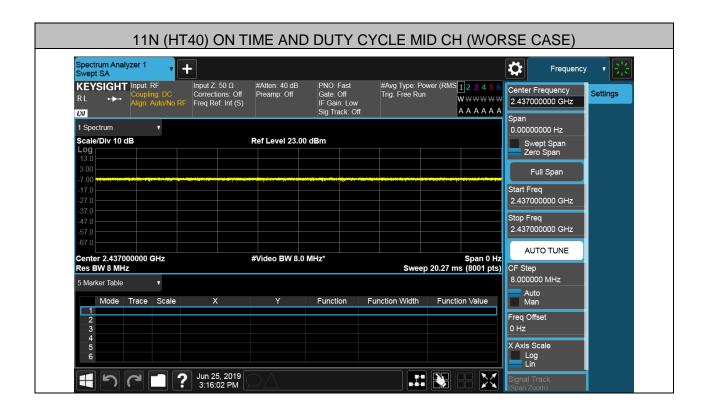








11N (HT20) ON TIME AND DUTY CYCLE MID CH (WORSE CASE) Spectrum Analyzer 1 Swept SA **\*** Input Z: 50 Ω Corrections: Off Freq Ref: Int (S) KEYSIGHT Input: RF #Atten: 40 dB Preamp: Off PNO: Fast Gate: Off #Avg Type: Power (RMS 1 2 3 4 5 6 Trig: Free Run Center Frequency Settings **w** www w w 2.437000000 GHz IF Gain: Low Sig Track: Off A A A A A LXI 1 Spectrum 0.00000000 Hz Scale/Div 10 dB Ref Level 23.00 dBm Swept Span Zero Span Full Span Start Freq 2.437000000 GHz Stop Freq 2.437000000 GHz AUTO TUNE Span 0 Hz Sweep 20.27 ms (8001 pts) Center 2.437000000 GHz Res BW 8 MHz #Video BW 8.0 MHz\* CF Step 8.000000 MHz 5 Marker Table Auto Man Trace Scale Function Function Width Function Value Frea Offset 0 Hz 3 4 5 6 X Axis Scale Log Lin ? Jun 25, 2019 3:05:31 PM 



Page 20 of 127

### 7.2. 6 dB BANDWIDTH

### **LIMITS**

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

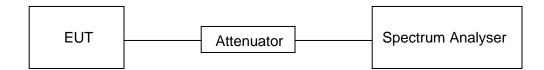
### **TEST PROCEDURE**

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 × 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**





Page 21 of 127

## **RESULTS**

Test Mode	Test Antenna	Test Channel	6dB bandwidth (MHz)	Result
		LCH	10.06	Pass
11B	Antenna 1	MCH	10.06	Pass
		HCH	10.06	Pass
	Antenna 1	LCH	16.58	Pass
11G		MCH	16.57	Pass
		HCH	16.58	Pass
		LCH	17.62	Pass
11N HT20	Antenna 1	MCH	17.77	Pass
		HCH	17.80	Pass
11N HT40	Antenna 1	LCH	36.37	Pass
		MCH	36.34	Pass
		HCH	36.34	Pass



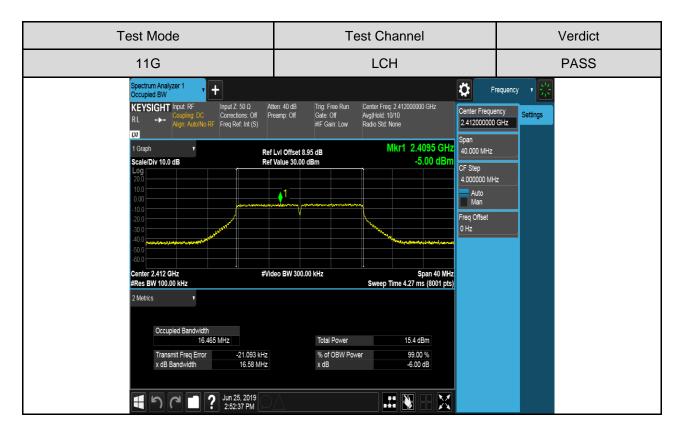
### **Test Graphs**





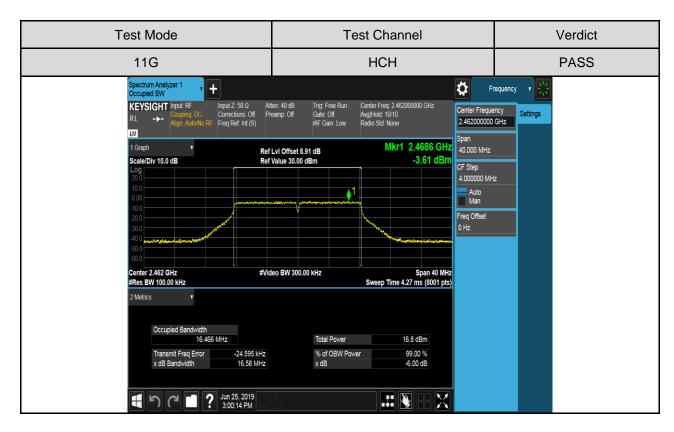




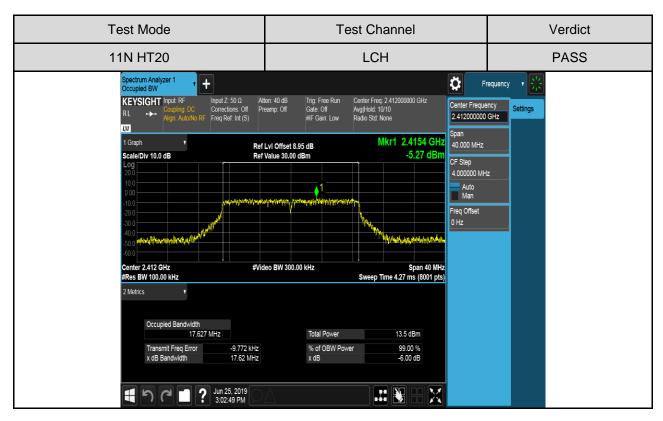


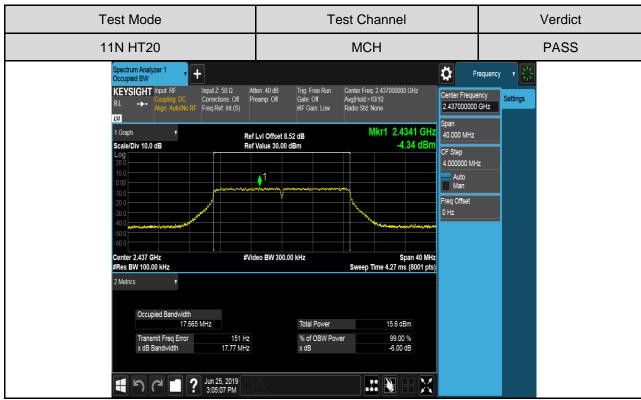




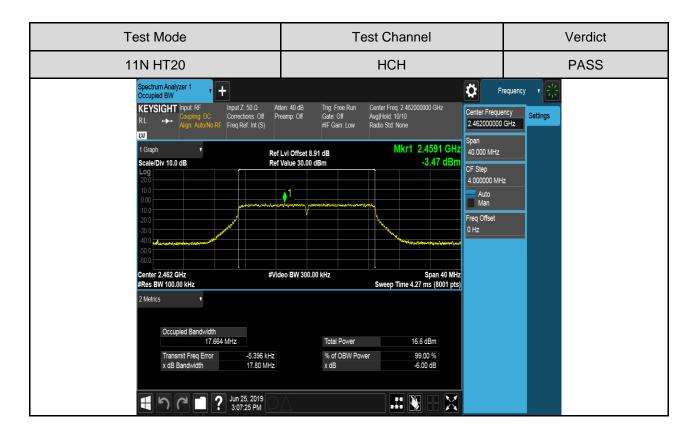


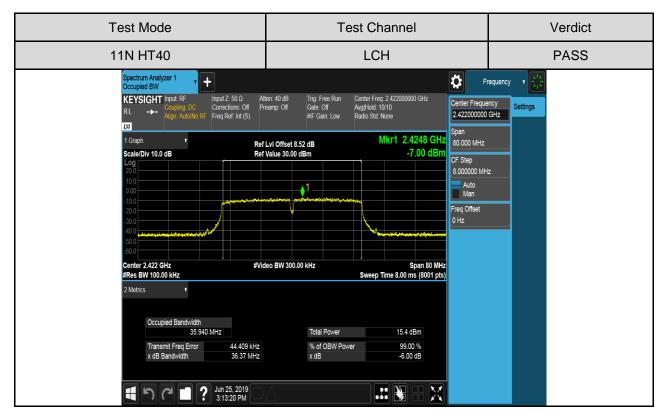




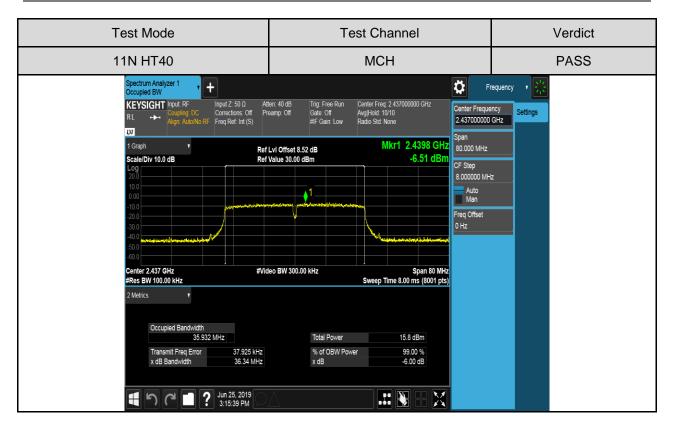














Page 28 of 127

### 7.3. PEAK CONDUCTED OUTPUT POWER

### **LIMITS**

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	
FCC 15.247(b)(3)	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.

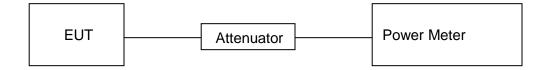
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power sensor.

Measure the power of each channel.

Peak Detector use for Peak result.

AVG Detector use for AVG result.

### **TEST SETUP**





Page 29 of 127

### **RESULTS**

Maximum Peak Conducted Output Power(dBm)

Test Mode	Test Antenna	Test Channel	Maximum Peak Conducted Output Power(dBm)	EIRP (dBm)	Result
		LCH	17.44	20.60	Pass
11B	Antenna 1	MCH	17.83	20.99	Pass
		HCH	18.92	22.08	Pass
	Antenna 1	LCH	17.11	20.27	Pass
11G		MCH	17.47	20.63	Pass
		HCH	18.53	21.69	Pass
11N HT20	Antenna 1	LCH	17.15	20.31	Pass
		MCH	17.49	20.65	Pass
		HCH	18.54	21.70	Pass
11N HT40	Antenna 1	LCH	16.83	19.99	Pass
		MCH	17.25	20.41	Pass
		HCH	18.06	21.22	Pass

Page 30 of 127

### 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.

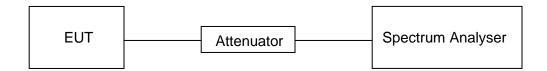
Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

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**

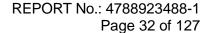




Page 31 of 127

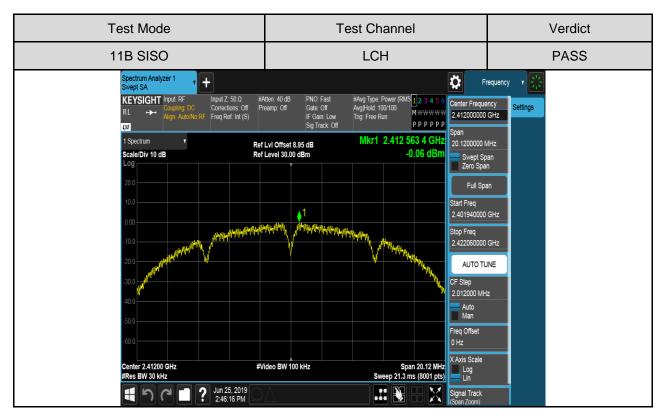
## **RESULTS**

Test Mode	Test Antenna	Test Channel	Maximum Peak power spectral density (dBm/3kHz)	Result
		LCH	-0.06	Pass
11B	Antenna 1	MCH	0.25	Pass
		HCH	1.39	Pass
	Antenna 1	LCH	-7.62	Pass
11G		MCH	-7.22	Pass
		HCH	-6.19	Pass
11N HT20	Antenna 1	LCH	-7.33	Pass
		MCH	-6.98	Pass
		HCH	-5.78	Pass
11N HT40	Antenna 1	LCH	-9.46	Pass
		MCH	-8.59	Pass
		HCH	-9.87	Pass





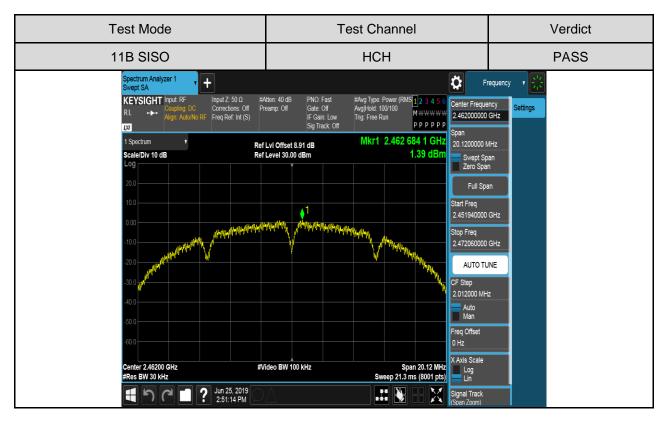
### Test Graphs:

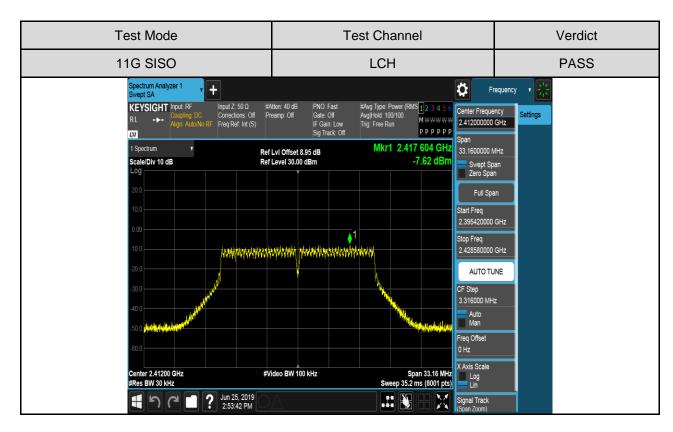




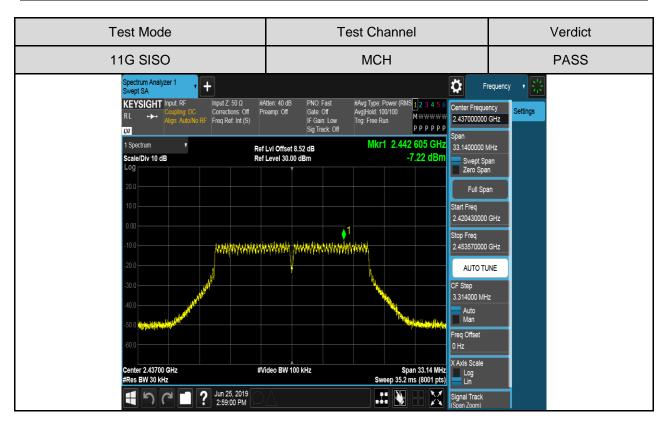


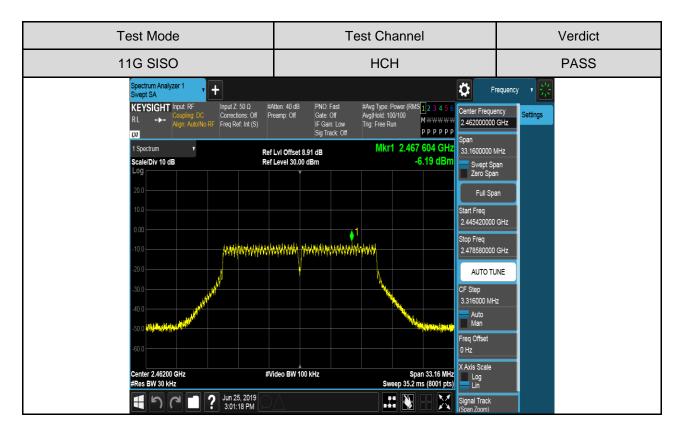
Page 33 of 127





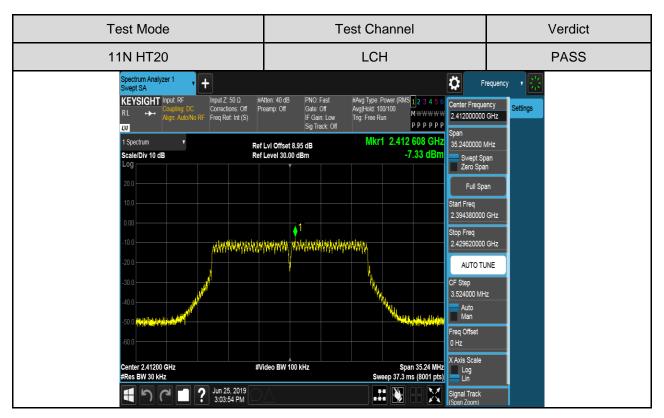


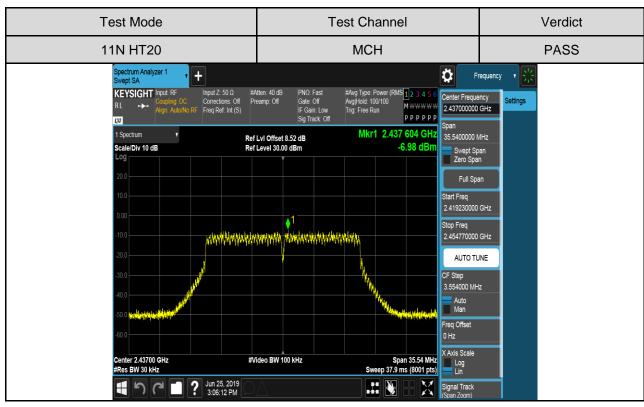










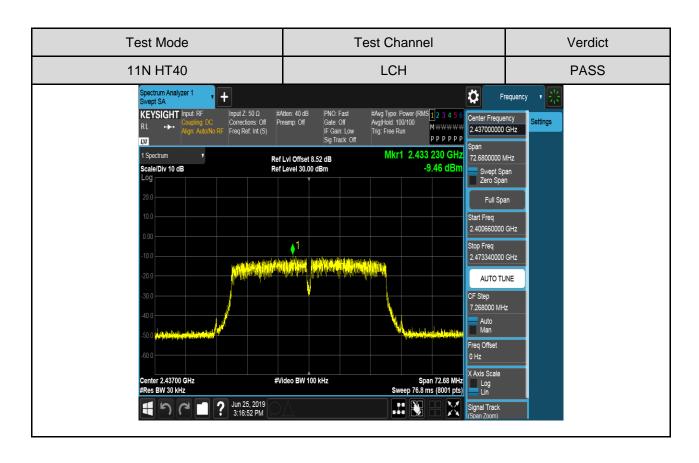




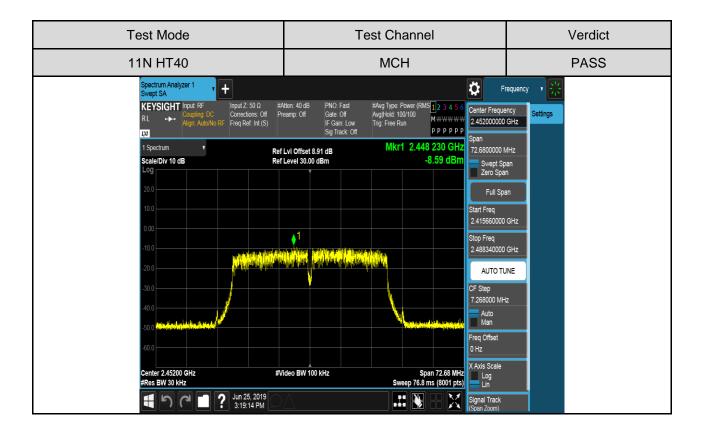
Test Mode **Test Channel** Verdict 11N HT20 **HCH PASS** Spectrum Analyzer 1 Swept SA Ö Frequency KEYSIGHT Input RF Center Frequency Gate: Off IF Gain: Low Sig Track: Off Settings Corrections: Off Freq Ref: Int (S) 2.462000000 GHz PPPPPP Mkr1 2.462 600 75 GHz Ref Lvi Offset 8.91 dB Ref Level 30.00 dBm 35.6000000 MHz -5.78 dBn Scale/Div 10 dB Full Span Start Freq 2.444200000 GHz Stop Freq 2.479800000 GHz AUTO TUNE 3.560000 MHz Auto Man nter 2.46200 GHz #Video BW 100 kHz Span 35.60 MHz Res BW 30 kHz Sweep 37.9 ms (8001 pts)

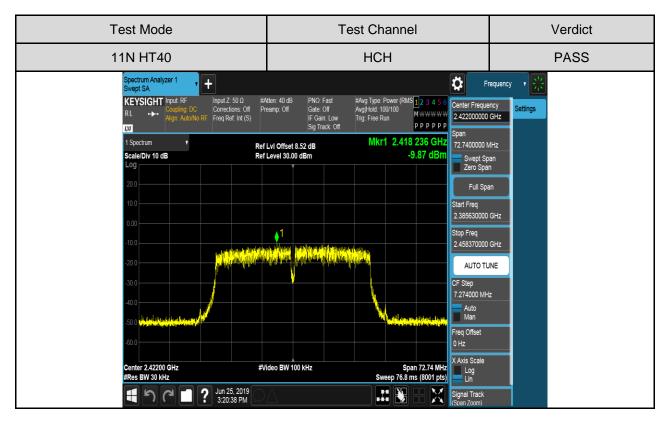
**?** Jun 25, 2019 3:08:30 PM

5 6











## 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  Conducted 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**





Page 39 of 127

# **TEST ENVIRONMENT**

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



Page 40 of 127

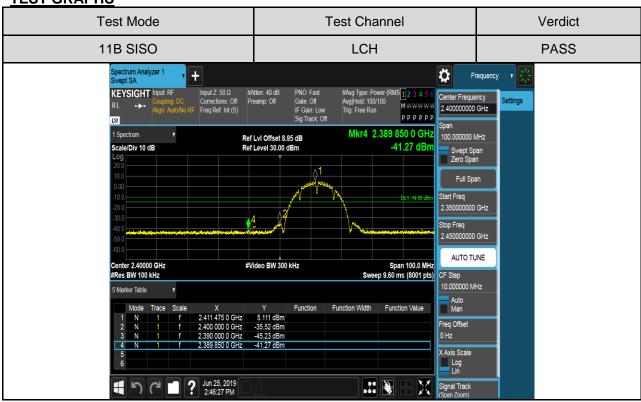
# Part I: Conducted Bandedge

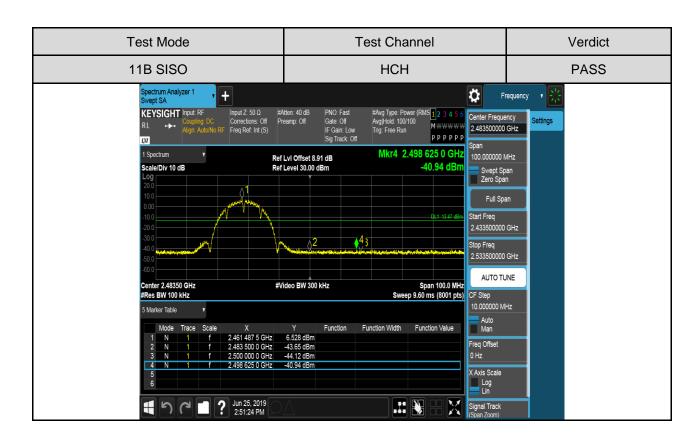
# **RESULTS TABLE**

Test Mode	Test Antenna	Test Channel	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Verdict
11B	Antenna 1	LCH	5.111	-41.270	-14.89	PASS
IID	Antenna i	HCH	6.528	-40.937	-13.47	PASS
110	Antenna 1	LCH	-4.934	-41.548	-24.93	PASS
11G	Antenna i	HCH	-3.482	-40.740	-23.48	PASS
11N HT20	Antenna 1	LCH	-5.055	-41.207	-25.06	PASS
I IIN HIZU	Antenna i	HCH	-3.401	-41.252	-23.4	PASS
11N HT40	Antonio	LCH	-6.918	-41.865	-26.92	PASS
111N H140	Antenna 1	HCH	-5.779	-41.479	-25.78	PASS

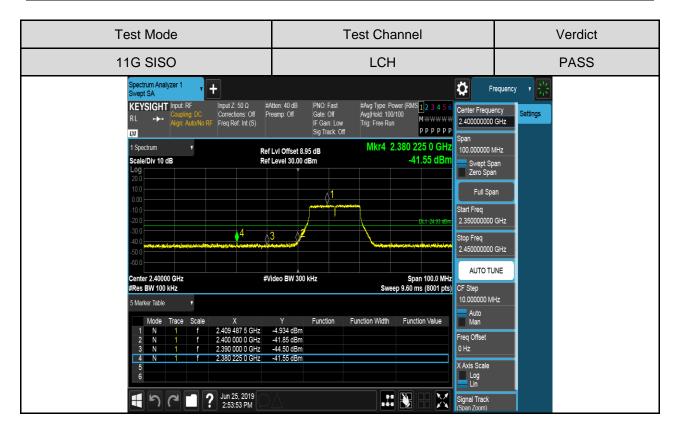


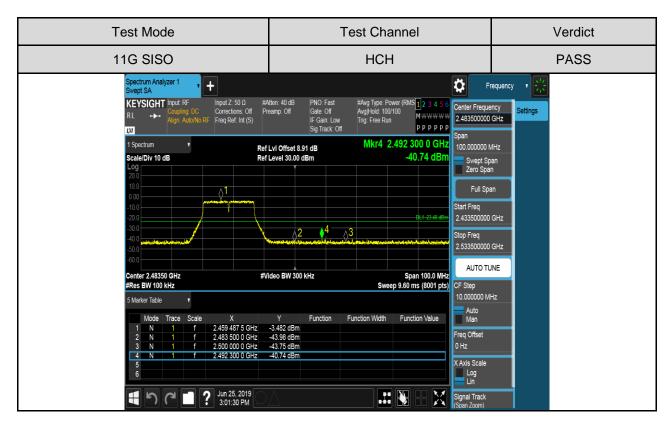
#### **TEST GRAPHS**



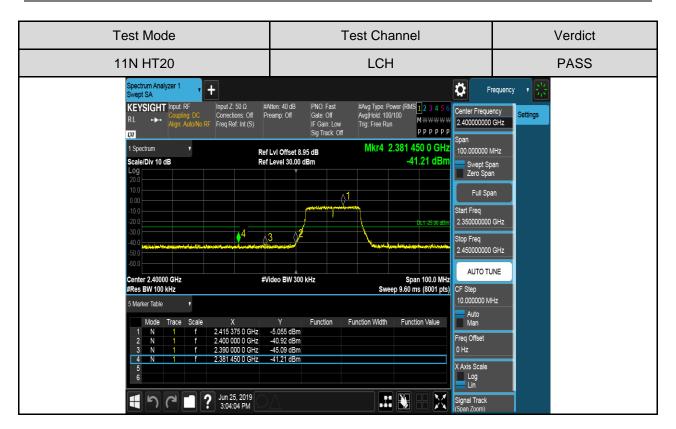


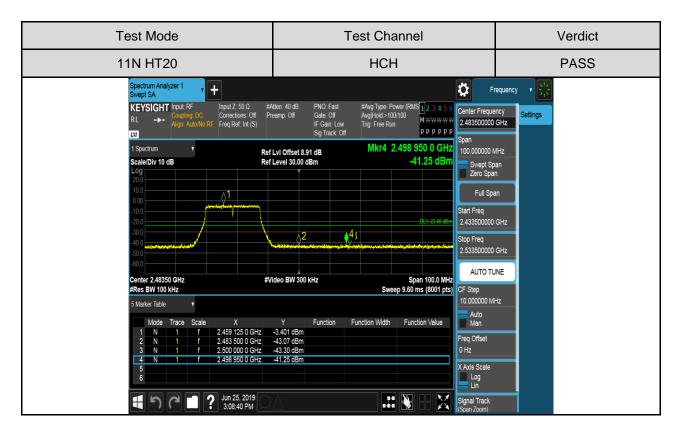






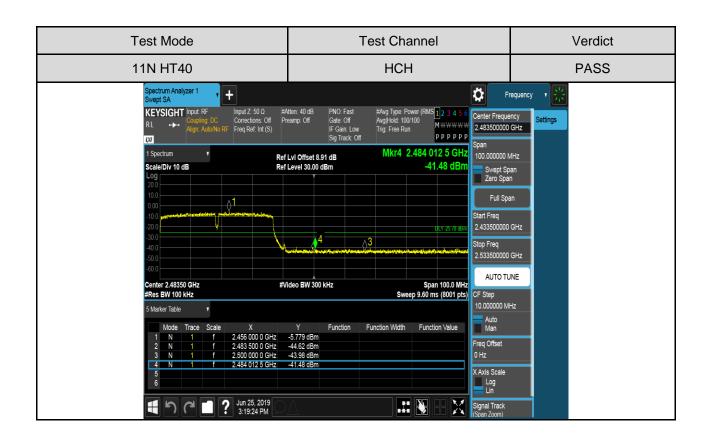








**Test Channel** Test Mode Verdict LCH **PASS** 11N HT40 pectrum Analyzer 1 wept SA Ö Frequency KEYSIGHT Input RF Center Frequency Settings M₩₩₩₩ 2.400000000 GHz PPPPPP Mkr4 2.371 512 5 GHz Ref LvI Offset 8.52 dB Ref Level 30.00 dBm 100.000000 MHz -41.86 dB Scale/Div 10 dB Swept Span Zero Span Full Span Start Freq 2.350000000 GHz Stop Freq 2.450000000 GHz AUTO TUNE enter 2.40000 GHz #Video BW 300 kHz Span 100.0 MH Res BW 100 kHz Sweep 9.60 ms (8001 pts) Auto Man Function Function Width Function Value 2.424 775 0 GHz 2.400 000 0 GHz 2.390 000 0 GHz -6.918 dBm -42.81 dBm -44.43 dBm Freq Offset X Axis Scale Log Lin Jun 25, 2019 3:14:37 PM # 🐉 Signal Track (Span Zoom)





Page 45 of 127

# Part II :Conducted Emission

Test Result Table

Test Mode	Test Antenna	Channel	Pref(dBm)	Puw(dBm)	Verdict
			5.01	<limit< td=""><td>PASS</td></limit<>	PASS
11B	Antenna 1	MCH	5.31	<limit< td=""><td>PASS</td></limit<>	PASS
		HCH	6.45	<limit< td=""><td>PASS</td></limit<>	PASS
		LCH	-5.01	<limit< td=""><td>PASS</td></limit<>	PASS
11G	Antenna 1	MCH	-4.58	<limit< td=""><td>PASS</td></limit<>	PASS
		HCH	-3.54	<limit< td=""><td>PASS</td></limit<>	PASS
		LCH	-4.95	<limit< td=""><td>PASS</td></limit<>	PASS
11N HT20	Antenna 1	MCH	-4.47	<limit< td=""><td>PASS</td></limit<>	PASS
		HCH	-3.38	<limit< td=""><td>PASS</td></limit<>	PASS
		LCH	-6.91	<limit< td=""><td>PASS</td></limit<>	PASS
11N HT40	Antenna 1	MCH	-6.41	<limit< td=""><td>PASS</td></limit<>	PASS
		HCH	-5.67	<limit< td=""><td>PASS</td></limit<>	PASS



Page 46 of 127

### **Test Plots**

Test Mode	Channel	Verdict
11B	LCH	PASS

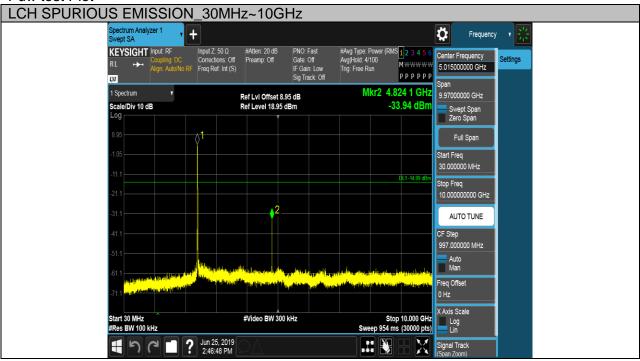
## Pref test Plot

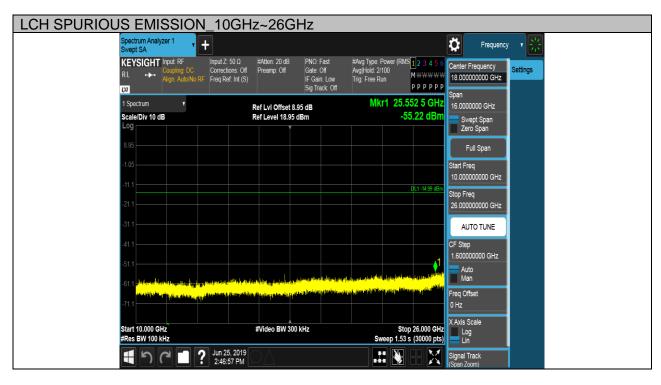




Page 47 of 127

#### Puw test Plot







Page 48 of 127

Test Mode	Channel	Verdict
11B	MCH	PASS

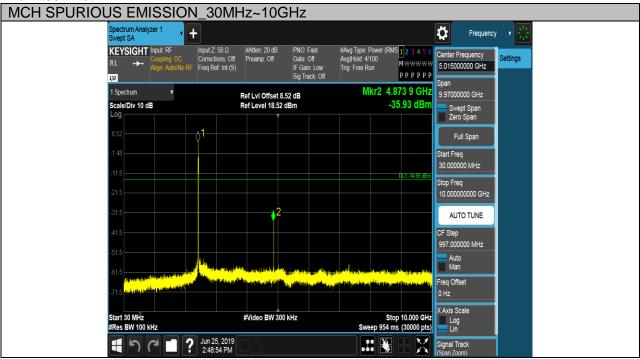
# Pref test Plot

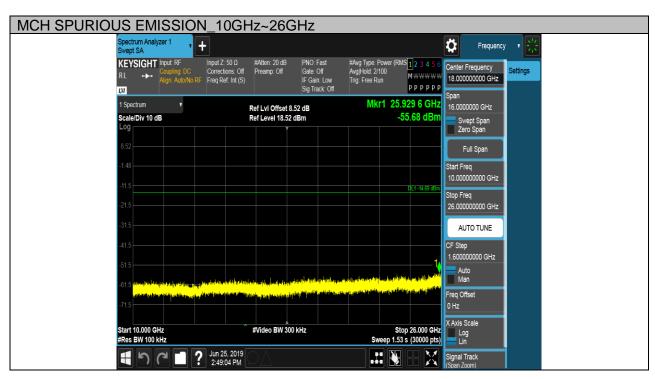




Page 49 of 127

#### Puw test Plot







Page 50 of 127

Test Mode	Channel	Verdict
11B	HCH	PASS

### Pref test Plot

