

FCC 47 CFR PART 15 SUBPART C

CERTIFICATION TEST REPORT

For

CONSUMER CAMERA

MODEL NUMBER: IPC-B46EN

ADDITIONAL MODEL NUMBER: IPC-B46EP;IPC-K36BP;IPC-K36BP;IPC-K36BP;IPC-K36BN;IPC-K36BP-4M;IPC-K36BN-4M;LC-K36BP;LC-K36BN;LC-K36BP-4M;LC-K36BN-4M;IPC-B46EP-imou;IPC-B46EN-imou

PROJECT NUMBER: 4789551937

REPORT NUMBER: 4789551937-1

FCC ID: 2AVYF-IPC-BX6E1

ISSUE DATE: Jul. 28, 2020

Prepared for

Hangzhou Huacheng Network Technology Co., Ltd.

Prepared by

UL-CCIC COMPANY LIMITED

No. 2, Chengwan Road, Suzhou Industrial Park, People's Republic of China

Tel: +86 512-6808 6400 Fax: +86 512-6808 4099 Website: www.ul.com



Page 2 of 136

Revision History

Rev.	Issue Date	Revisions	Revised By
V0	07/28/2020	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	15
7.	AN	TENNA PORT TEST RESULTS	16
	7.1.	ON TIME AND DUTY CYCLE	16
	7.2.	6 dB BANDWIDTH	19
	7.3.	CONDUCTED OUTPUT POWER	31
	7.4.	POWER SPECTRAL DENSITY	33
	7.5.	CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS	44
		RADIATED TEST RESULTS	
	7.6		
	7.6 7.6	3. RESTRICTED BANDEDGE	
	7.6		
8.	AC	POWER LINE CONDUCTED EMISSIONS	133
9.	ΑN	TENNA REQUIREMENTS	136



Page 4 of 136

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-B46EN

Additional No.: IPC-B46EP;IPC-K36BP;IPC-K36BP;IPC-K36BN;

IPC-K36BP-4M;IPC-K36BN-4M;LC-K36BP;LC-K36BN;LC-K36BP-4M; LC-K36BN-4M;IPC-B46EP-imou;IPC-B46EN-imou

Sample Number: 3177792
Data of Receipt Sample: Jul. 07, 2020

Date Tested: Jul. 07, 2020~ Jul. 27, 2020

APPLICABLE STANDARDS

STANDARD TEST RESULTS

CFR 47 Part 15 Subpart C PASS



Page 5 of 136

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

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.

²⁾ For this product, it has two antennas, antenna1 and antenna2, but the ant1 and ant2 can't transmitter at the same time under all test modes. That's this product not support MIMO function, just support diversity function.



Page 6 of 136

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 15C.

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 136

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)	
(1.5.12 to 255.12)(marado i directional emission)	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 136

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

Product Name:	CONSUMER CAMERA
Model No.:	IPC-B46EN
Operating Frequency:	IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz IEEE 802.11a/n 20MHz:5180MHz to 5240MHz, 5260MHz to 5320MHz, 5500MHz to 5700MHz , 5745MHz to 5825MHz
	Remark: For this test report just for the 2.4GHz part
Type of Modulation:	IEEE for 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE for 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE for 802.11n HT20: OFDM (64QAM, 16QAM, QPSK, BPSK)
Channels Step:	Channels with 5MHz step
Sample Type:	Fixed production
Test power grade:	PCL=45(manufacturer declare)
Test software of EUT:	Secure CRT (manufacturer declare)
Antenna Type:	PCB Antenna
	Ant1&Ant2:1.55 dBi
Antenna Gain:	Remark: This data is provided by customer and our lab isn't responsible for this data
Adapter	MODEL:NBS10B050200VUU INPUT:100-240V,50/60Hz, 0.3A OUTPUT:5.0V 2.0A

Remark:

Model No.:

Number:	Name:	Number:	Name:	Number:	Name:
1	IPC-B46EN	2	IPC-B46EP	3	IPC-K36BP
4	IPC-K36B	5	IPC-K36BP	6	IPC-K36BN
7	IPC-K36BP-4M	8	IPC-K36BN-4M	9	LC-K36BP
10	LC-K36BN	11	LC-K36BP-4M	12	LC-K36BN-4M
13	IPC-B46EP-imou	14	IPC-B46EN-imou		

Only the main model **IPC-B46EN** 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 136

5.2. MAXIMUM OUTPUT POWER

Number of Transmit Chains (NTX)	IEE Std. 802.11	Channel Number	Max AVG Conducted Power (dBm)
2	IEEE 802.11B	1-11[11]	11.73
2	IEEE 802.11G	1-11[11]	12.33
2	IEEE 802.11n HT20	1-11[11]	12.18

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			



Page 10 of 136

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

5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2400 ~ 2483.5MHz Band								
Test Softv		Secure CRT						
	Transmit		Test Channel					
Modulation Mode	tion Antenna		NCB: 20MF	łz	١	NCB: 40MHz		
Mode		CH 1	CH 6	CH 11	CH 3	CH 6	CH 9	
802.11b	2	45	45	45				
802.11g	2	45	45	45]			
802.11n HT20	2	45	45	45				



Page 11 of 136

5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Ant.	Frequency (MHz)	Antenna Type	Antenna Gain (dBi)
1&2	2400-2483.5	PCB Antenna	1.55

Test Mode Transmit and Receive Mode		Description
IEEE 802.11b	⊠1TX, 2RX	Antenna 1 and Antenna2 can both be used as transmitting/receiving antenna.
IEEE 802.11g	⊠1TX, 2RX	Antenna 1 and Antenna2 can both be used as transmitting/receiving antenna.
IEEE 802.11N (HT20)	⊠1TX, 2RX	Antenna 1 and Antenna2 can both be used as transmitting/receiving antenna.

Remark: For this product, it has two antennas, antenna1 and antenna2, but the ant1 and ant2 can't transmitter at the same time under all test modes. That's this product not support MIMO function, just support diversity function.

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



Page 12 of 136

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 136

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

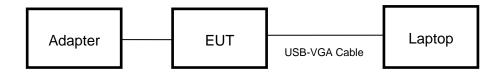
ACCESSORY

Item	Accessory	Brand Name	Model Name	Description
1	NA	NA	NA	NA

TEST SETUP

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

SETUP DIAGRAM FOR TESTS





Page 14 of 136

5.10. MEASURING INSTRUMENT AND SOFTWARE USED

	5.10. MEASURING INSTRUMENT AND SOFTWARE USED Conducted Emissions (Instrument)							
		Cor	nducted	d Emis	sions (Instrur			
Used	Equipment	Manufacturer	Mode	el No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
$\overline{\checkmark}$	EMI Test Receiver	R&S	ESR3		126700	2018-12-13	2019-12-12	2020-12-11
$\overline{\checkmark}$	Two-Line V-Network	R&S	ENV	′216	126701	2018-12-13	2019-12-12	2020-12-11
$\overline{\checkmark}$	Artificial Mains Networks	R&S	EN	Y81	126711	2018-12-13	2019-12-12	2020-12-11
				Soft	ware			
Used	Des	Ма	nufacturer	Name	Version			
	Test Software for 0	Conducted distur	bance		R&S	EMC32	Ver. 9.25	
		Ra	diated	Emiss	ions (Instrum	ent)		
Used	Equipment	Manufacturer	Mode	el No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
$\overline{\mathbf{A}}$	Spectrum Analyzer	Keysight	N90	10B	MY57110128	2019-05-29	2020-05-10	2021-05-09
V	EMI test receiver	R&S	ESF	R26	1267603	2018-12-13	2019-12-22	2020-12-21
	Receiver Antenna (9kHz-30MHz)	Schwarzbeck	FMZB	1513	513-265	N/A	2018-06-15	2021-06-14
	Receiver Antenna (30MHz-1GHz)	SunAR RF Motion	JE	31	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	BBHA9170		126706	2019-02-06	2020-02-05	2021-02-04
\square	Receiver Antenna (26.5GHz-40GHz)	TOYO	HAP 26-40W		00000012	2018-07-25	2019-07-23	2020-07-22
	Pre-amplification (To 1GHz)	R&S	SCU-03D		134666	2019-02-06	2020-02-05	2021-02-04
	Pre-amplification (To 18GHz)	Compliance Direction System Inc.	PAP-10	G18-50	14140-13467	2019-03-18	2020-02-20	2021-02-19
	Pre-amplification (To 26.5GHz)	R&S	SCU	-26D	134668	2019-02-06	2020-02-05	2021-02-04
7	Band Reject Filter	Wainwright	WRCJV8- 2350-2400- 2483.5-2533.5- 40SS		1	2019-05-29	2020-05-10	2021-05-09
V	Highpass Filter	Wainwright	WHKX10- 2700-3000- 18000-40SS		2	2019-05-29	2020-05-10	2021-05-09
	Software							
Used	Used Description Manufacturer Name Version							
V	Test Software for R	adiated disturbar	nce	Tonsce	end	JS32	V1.0	
			Ot	her ins	truments			
Used	Equipment	Manufacturer	Mode	el No.	Serial No.	Upper Last Cal.	Last Cal.	Next Cal.
V	Spectrum Analyzer	Keysight	N90	10B	MY57110128	2019-05-29	2020-05-10	2021-05-09
\checkmark	Power Meter	Keysight	U202	21XA	MY57110002	2019-06-12	2020-05-10	2021-05-09



Page 15 of 136

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 16 of 136

7. ANTENNA PORT TEST RESULTS

7.1. ON TIME AND DUTY CYCLE

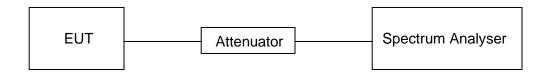
LIMITS

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(DATA FOR ANTENNA 1)

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	12.445	0.9972	99.72%	0.01	0.08	0.1
11G	2.063	2.1029	0.9810	98.10%	0.08	0.48	0.5
802.11n HT20	1.919	1.958	0.9801	98.01%	0.09	0.52	1.0

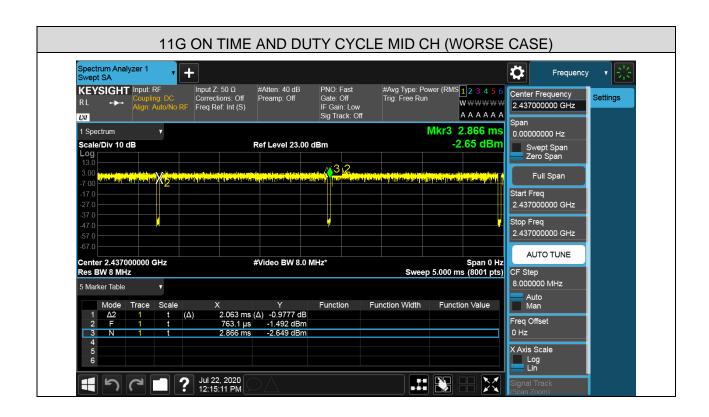
Note: 1) Duty Cycle Correction Factor= $10\log(1/x)$.

- 2) Where: x is Duty Cycle(Linear)
- 3) Where: T is On Time (transmit duration)
- 4) Pre-testing both antennas, all data are the same, so only the data of Ant1 is shown in this report.



?

11B ON TIME AND DUTY CYCLE MID CH (WORSE CASE) + **Ö** Frequency KEYSIGHT Input: RF Input Z: 50 Ω #Atten: 40 dB #Avg Type: Power (RMS 1 2 3 4 5 6 Center Frequency Settings Gate: Off ₩₩₩₩₩ 2.437000000 GHz IF Gain: Low Sig Track: Off A A A A A ĻχI Span Mkr3 18.52 ms 1 Spectrum 0.00000000 Hz 1.82 dBm Ref Level 23.00 dBm Scale/Div 10 dB Swept Span Zero Span <u> 332</u> Full Span Start Freq 2.437000000 GHz Stop Freq 2.437000000 GHz AUTO TUNE Center 2.437000000 GHz #Video BW 8.0 MHz* Span 0 Hz Res BW 8 MHz Sweep 40.00 ms (8001 pts) CF Step 8.000000 MHz Scale Function Width (Δ) 12.41 ms (Δ) -0.1788 dB Freq Offset 1.906 dBm 6.075 ms X Axis Scale Log Lin Jul 22, 2020 12:02:19 PM





11N (HT20) ON TIME AND DUTY CYCLE MID CH (WORSE CASE) Spectrum Analyzer 1 Swept SA **O** 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 6 Trig: Free Run KEYSIGHT Input: RF Center Frequency 2.437000000 GHz Settings **w**₩₩₩₩₩ A A A A A A LXI Mkr3 2.233 ms 1 Spectrum 0.00000000 Hz Scale/Div 10 dB Ref Level 23.00 dBm -1.10 dBm Swept Span Zero Span Full Span Start Freq 2.437000000 GHz Stop Freq 2.437000000 GHz AUTO TUNE Span 0 Hz Sweep 5.000 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 Scale Function Function Width Function Value 1.919 ms (Δ) 3.459 dB 275.0 μs -1.987 dBm Δ2 F (Δ) Freq Offset 2.233 ms -1.103 dBm X Axis Scale Log Lin **?** Jul 22, 2020 12:35:55 PM 500

Page 19 of 136

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	

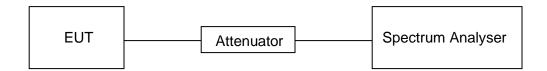
TEST PROCEDURE

Refer to FCC KDB 558074, connect the UUT to the spectrum 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 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





Page 20 of 136

RESULTS

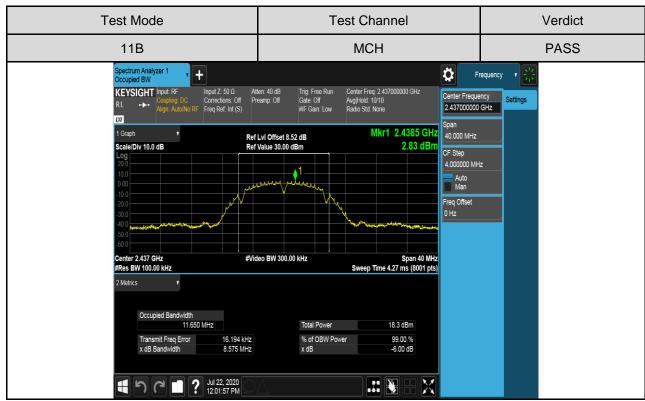
Test Antenna	Test Mode	Test Channel	6dB bandwidth (MHz)	Result
		LCH	9.046	Pass
	11B	MCH	8.575	Pass
		HCH	8.565	Pass
		LCH	15.46	Pass
Antenna 1	11G	MCH	15.74	Pass
		HCH	15.27	Pass
	11n HT20	LCH	16.26	Pass
		MCH	15.75	Pass
		HCH	15.68	Pass
		LCH	9.044	Pass
	11B	MCH	8.075	Pass
		HCH	8.550	Pass
		LCH	15.75	Pass
Antenna 2	11G	MCH	15.74	Pass
		HCH	15.35	Pass
		LCH	15.44	Pass
	11n HT20	MCH	15.03	Pass
		HCH	15.09	Pass



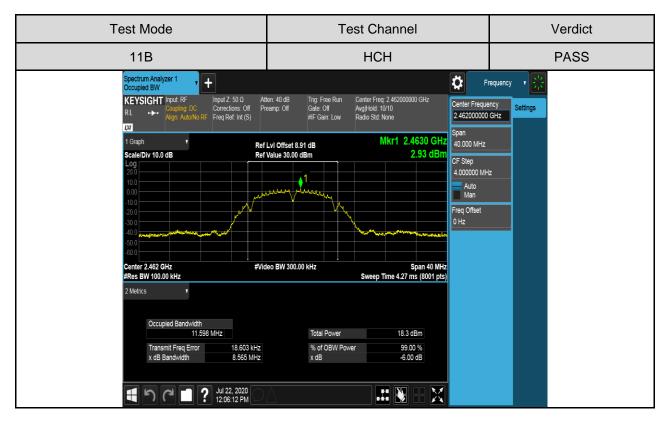
Test Graphs

PART I: ANTENNA 1













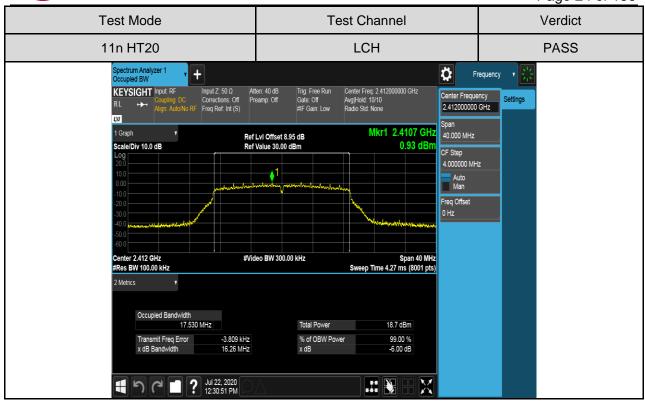
REPORT No.: 4789551937-1 Page 23 of 136







REPORT No.: 4789551937-1 Page 24 of 136







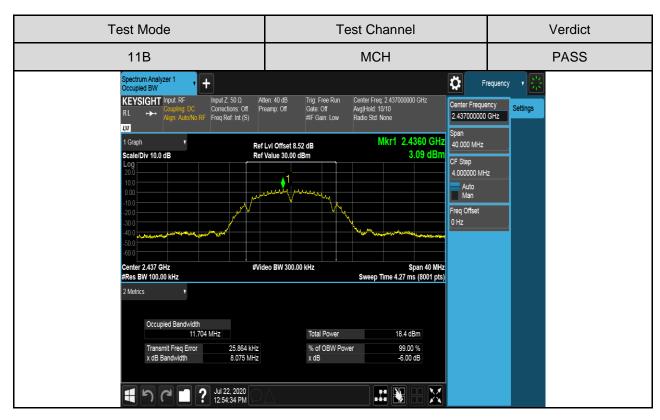
Page 25 of 136





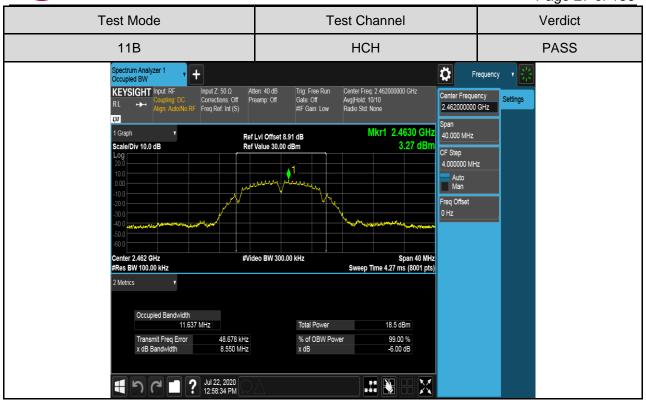
PART II: ANTENNA 2

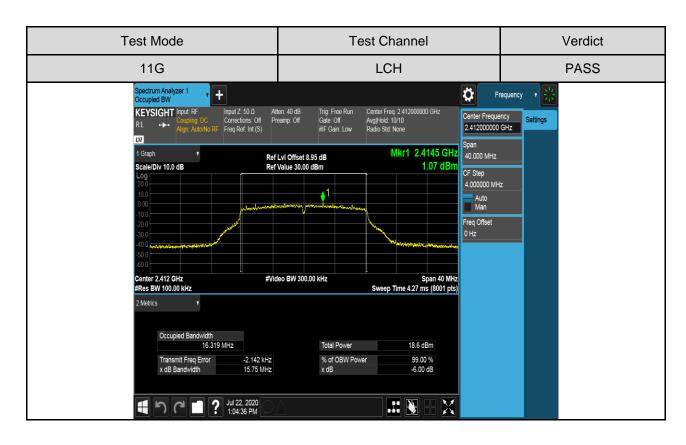






REPORT No.: 4789551937-1 Page 27 of 136







Page 28 of 136

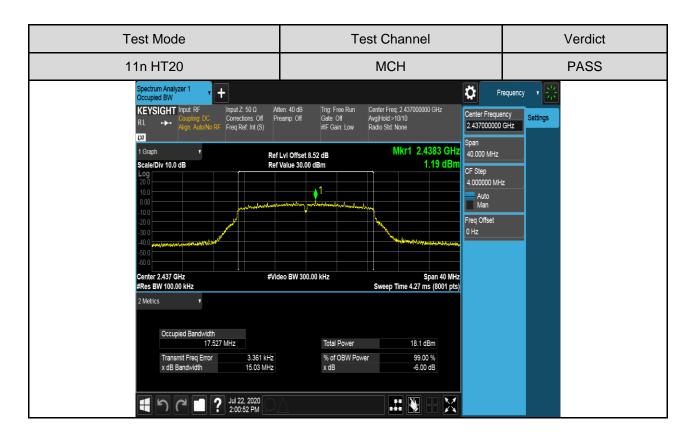






REPORT No.: 4789551937-1 Page 29 of 136







Page 30 of 136



Page 31 of 136

7.3. 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	

Note: For b/g/n HT20 mode the average data is for reference only.

TEST PROCEDURE

Place the EUT on the table and set it in the transmitting mode.

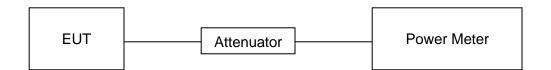
Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power sensor.

Measure the power of each channel.

Peak Detector use for Peak result.

AVG Detector use for AVG result.

TEST SETUP





Page 32 of 136

RESULTS

Test Antenna	Test Mode	Test Channel	Maximum Conducted Output Power (PK)	Maximum Conducted Output Power (AV)	LIMIT
			dBm	dBm	dBm
		LCH	14.46	11.73	30
	11B	MCH	13.92	11.44	30
		HCH	14.01	11.41	30
		LCH	20.24	12.33	30
Antenna 1	11G	MCH	19.79	11.89	30
		HCH	19.61	11.79	30
	11n HT20	LCH	20.10	12.18	30
		MCH	19.56	11.74	30
		HCH	20.66	11.83	30
		LCH	14.28	11.56	30
	11B	MCH	14.00	11.38	30
		HCH	13.90	11.29	30
		LCH	20.15	12.31	30
Antenna 2	11G	MCH	19.60	11.70	30
		HCH	19.64	11.80	30
		LCH	19.90	12.16	30
	11n HT20	MCH	19.38	11.68	30
		HCH	19.45	11.71	30

Remark: For this product, it has two antennas, antenna1 and antenna2, but the ant1 and ant2 can't transmitter at the same time under all test modes. That's this product not support MIMO function, just support diversity function.

Page 33 of 136

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.

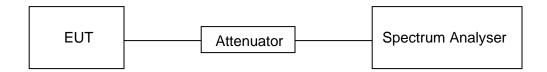
Allow trace to fully stabilize and use the peak marker function to determine the maximum amplitude level within the RBW.

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





Page 34 of 136

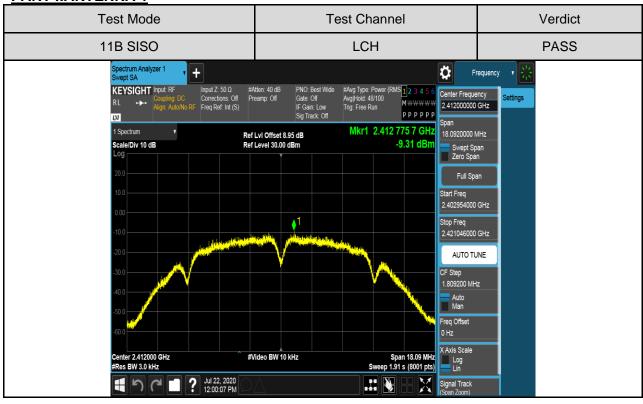
RESULTS

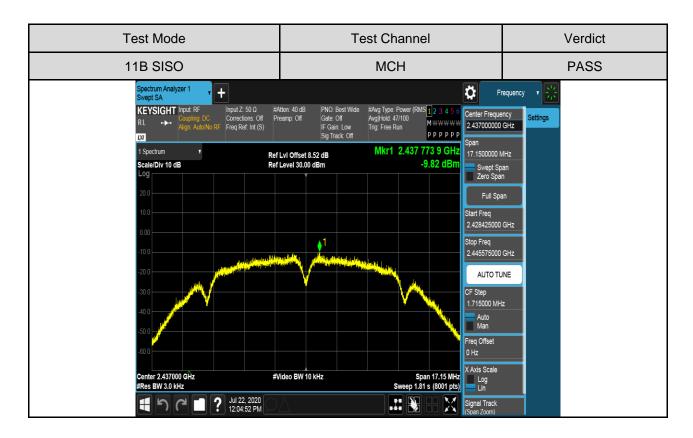
Test Antenna	Test Mode	Test Channel	Maximum Peak power spectral density (dBm/3kHz)	Result
		LCH	-9.31	Pass
	11B	MCH	-9.82	Pass
		HCH	-10.81	Pass
		LCH	-11.58	Pass
Antenna 1	11G	MCH	-12.05	Pass
		HCH	-11.95	Pass
	11n HT20	LCH	-12.02	Pass
		MCH	-12.19	Pass
		HCH	-12.54	Pass
	11B	LCH	-9.73	Pass
		MCH	-10.35	Pass
		HCH	-10.30	Pass
		LCH	-11.42	Pass
Antenna 2	11G	MCH	-11.84	Pass
		HCH	-11.96	Pass
		LCH	-12.55	Pass
	11n HT20	MCH	-11.96	Pass
		HCH	-12.26	Pass

Remark: For this product, it has two antennas, antenna1 and antenna2, but the ant1 and ant2 can't transmitter at the same time under all test modes. That's this product not support MIMO function, just support diversity function.



Test Graphs: PART I:ANTENNA 1







nter 2.462000 GHz

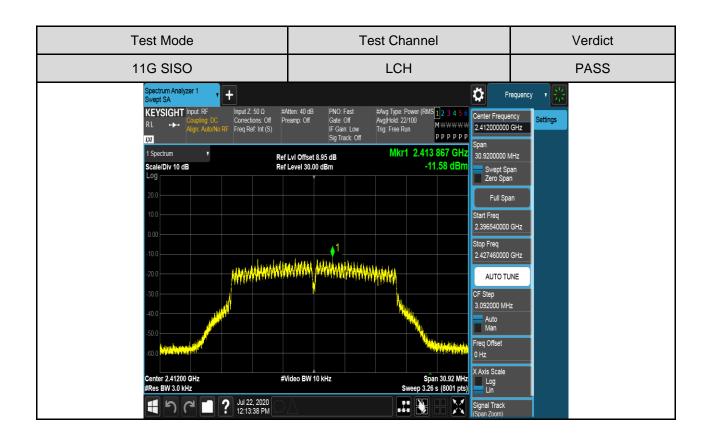
9 Jul 22, 2020 12:09:03 PM

Res BW 3.0 kHz

Test Mode **Test Channel** Verdict 11B SISO **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 2.461 252 7 GHz Ref Lvi Offset 8.91 dB Ref Level 30.00 dBm 17.1300000 MHz -10.81 dBr Scale/Div 10 dB Full Span Start Freq 2.453435000 GHz Stop Freq 2.470565000 GHz AUTO TUNE 1.713000 MHz Auto Man Freq Offset

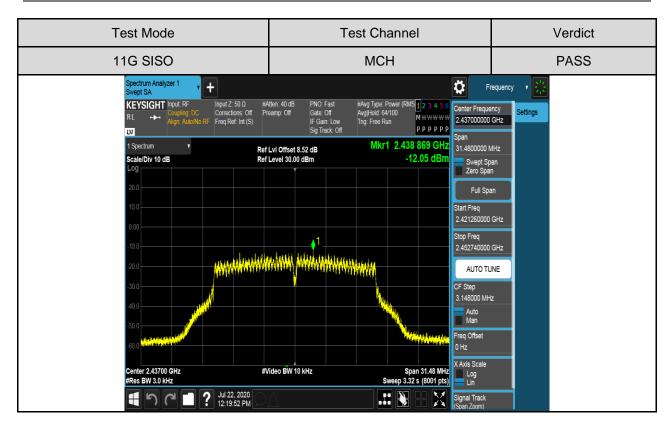
> Span 17.13 MHz Sweep 1.81 s (8001 pts)

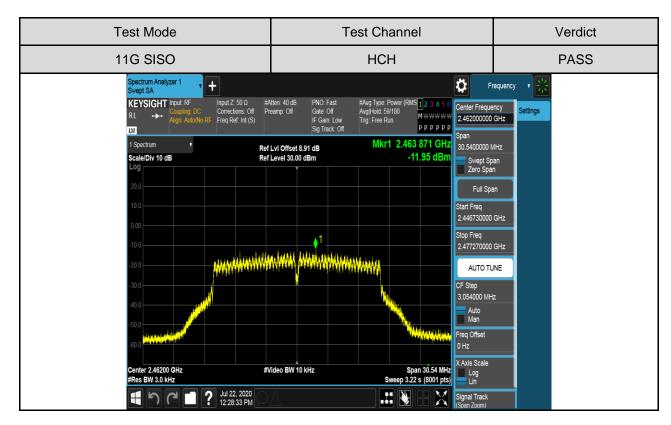
#Video BW 10 kHz



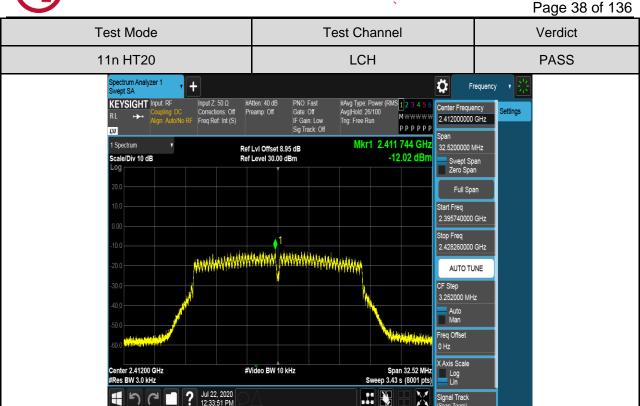


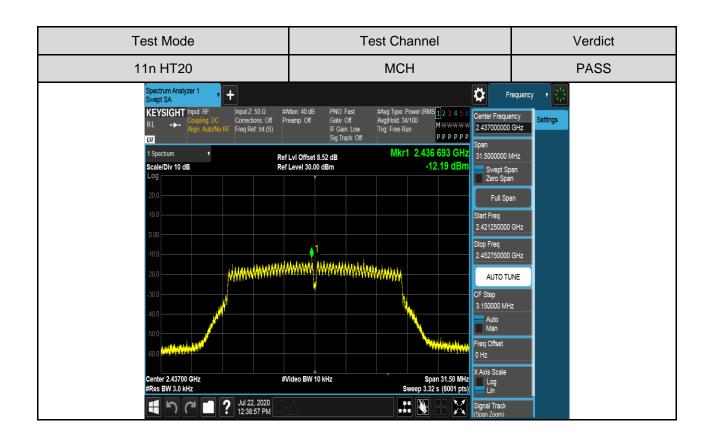
Page 37 of 136





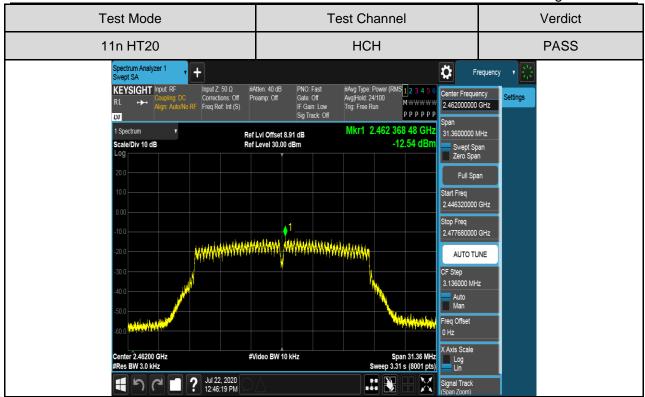








Page 39 of 136



PART I: ANTENNA 2







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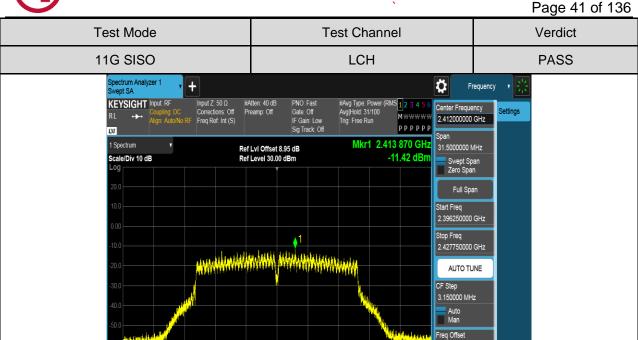


enter 2.41200 GHz

REPORT No.: 4789551937-1

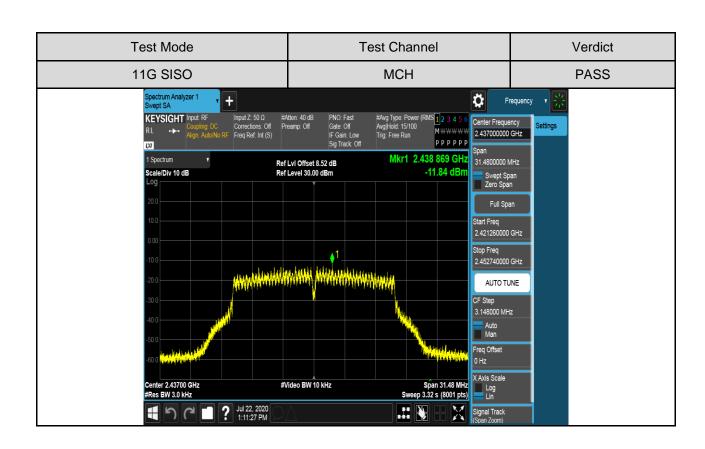
X Axis Scale

Span 31.50 MHz Sweep 3.32 s (8001 pts)



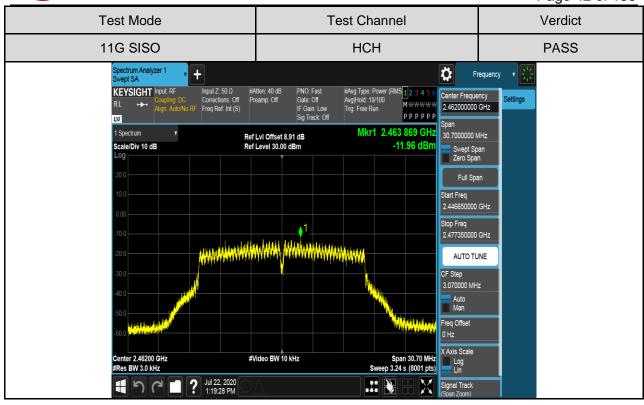
#Video BW 10 kHz

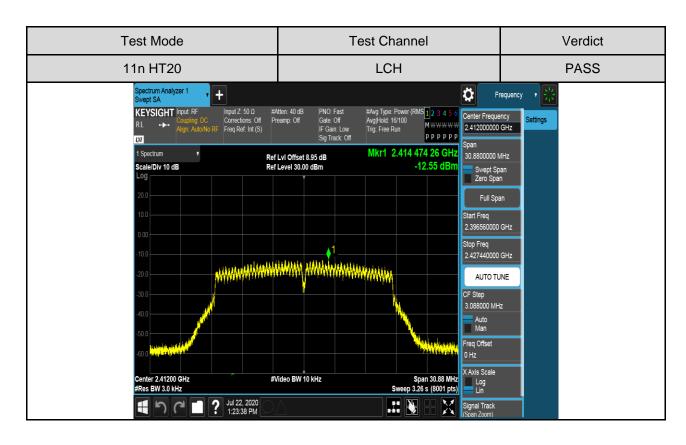
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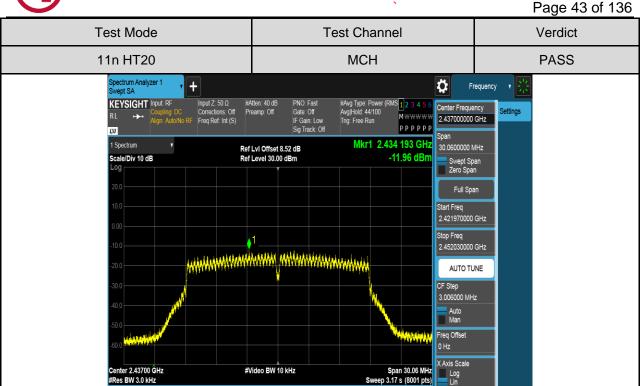


Page 42 of 136





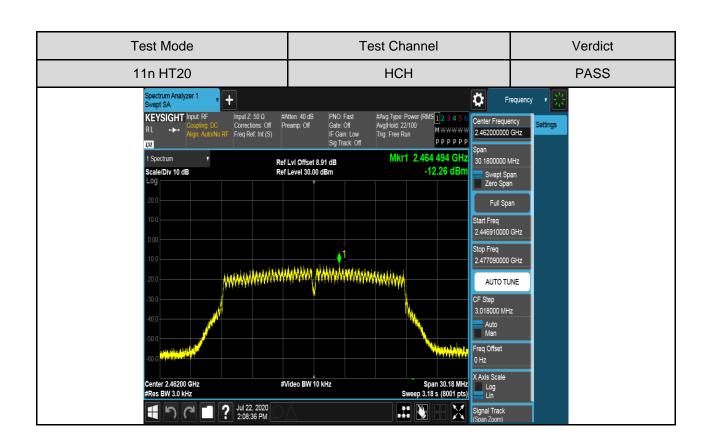




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7.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

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

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.

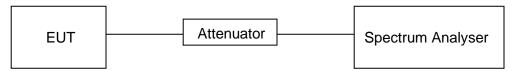
settings:

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





Page 45 of 136

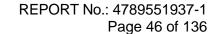
TEST ENVIRONMENT

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

Part I : Conducted Bandedge

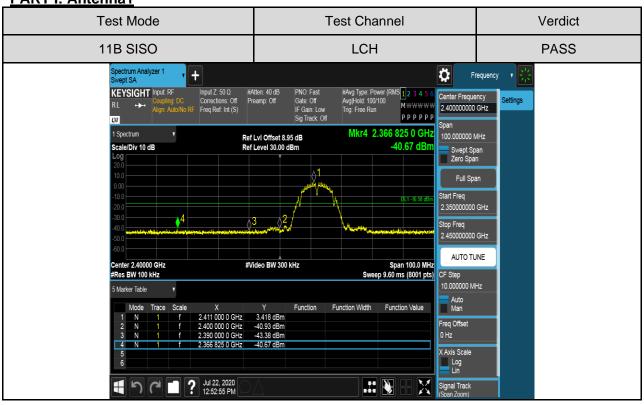
RESULTS TABLE

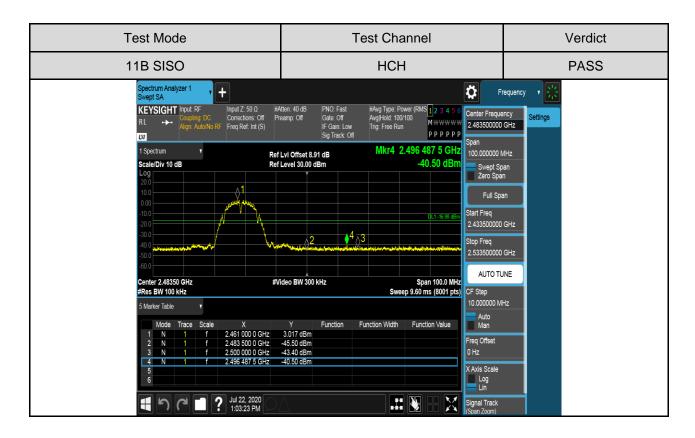
Test Antenna	Test Mode	Test Channel	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit [dBm]	Verdict
	11B	LCH	3.418	-40.668	-16.58	PASS
	ПБ	HCH	3.017	-40.502	-16.98	PASS
Antonno 1	110	LCH	1.560	-40.129	-18.44	PASS
Antenna 1	11G	HCH	0.926	-40.424	-19.07	PASS
	11n HT20	LCH	0.989	-41.394	-19.01	PASS
		HCH	0.902	-40.978	-19.10	PASS
	11B	LCH	3.176	-40.923	-16.82	PASS
		HCH	2.809	-40.796	-17.19	PASS
Antonno	440	LCH	1.423	-40.180	-18.58	PASS
Antenna 2	11G	HCH	0.693	-39.984	-19.31	PASS
	11n UT20	LCH	-0.023	-40.307	-20.02	PASS
	11n HT20	HCH	0.283	-40.615	-19.72	PASS





TEST GRAPHS
PART I: Antenna1





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Test Mode **Test Channel** Verdict 11G SISO LCH **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) 2.400000000 GHz PPPPPP Mkr4 2.387 212 5 GH Ref Lvi Offset 8.95 dB Ref Level 30.00 dBm 100.000000 MHz -40.13 dB Scale/Div 10 dB Full Span Start Freq 2.350000000 GHz Stop Freq 2.450000000 GHz AUTO TUNE #Video BW 300 kHz enter 2.40000 GHz Span 100.0 MH Res BW 100 kHz 10.000000 MHz Auto Man Function Width | Function Value Trace Scale Freq Offset 2.400 000 0 GHz -41.39 dBm -44.13 dBm

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