TEST REPORT

FCC ID: 2AR9L-ME50N Product: LTE Wireless Router Model No.: ME50N Additional Model No.: N/A Trade Mark: NEWLAND Report No.: TCT190103E012 Issued Date: Jan. 25, 2019

Issued for:

FUJIAN NEWLAND COMMUNICATION SCIENCE TECHNOLOGY CO., LTD. Building 1 - 3, Zone B, Fuzhou Software Park, No. 89 Software Avenue, Gulou District, Fuzhou City, Fujian Province, China

Issued By:

Shenzhen Tongce Testing Lab. 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China TEL: +86-755-27673339

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T	CT通测检测 TESTING CENTRE TECHNOLOGY Repor	t No.: TCT190103E012
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1. Test Certification

Product:	LTE Wireless Router		
Model No.:	ME50N		
Additional Model No.:	N/A		
Trade Mark:	NEWLAND		
Applicant: FUJIAN NEWLAND COMMUNICATION SCIENCE TECHNOLOG			
Address:	Building 1 - 3, Zone B, Fuzhou Software Park, No. 89 Software Avenue, Gulou District, Fuzhou City, Fujian Province, China		
Manufacturer:	Shenzhen Tozed Technologies Co., Ltd		
Address:	4F Tianji Building, Tian An Cyber Park, Futian District, Shenzhen, Guangdong, China		
Date of Test:	Jan. 04, 2019 – Jan. 24, 2019		
Applicable Standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247 KDB 558074 D01 15.247 Meas Guidance v05 KDB 662911 D01 Multiple Transmitter Output v02r01		

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:	Brens Xu	Date:	Jan. 24, 2019	
Reviewed By:	Brews Xu Berf Than	_ Date:	Jan. 25, 2019	(S)
Approved By:	Beryl Zhao TomSm	Date:	Jan. 25, 2019	
	Tomsin	-		< C
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2. Test Result Summary

Requirement	CFR 47 Section	Result
Antenna requirement	§15.203/§15.247 (c)	PASS
AC Power Line Conducted Emission	§15.207	PASS
Conducted Peak Output Power	§15.247 (b)(3)	PASS
6dB Emission Bandwidth	§15.247 (a)(2)	PASS
Power Spectral Density	§15.247 (e)	PASS
Band Edge	§15.247(d)	PASS
Spurious Emission	§15.205/§15.209	PASS

Note:

1. PASS: Test item meets the requirement.

2. Fail: Test item does not meet the requirement.

3. N/A: Test case does not apply to the test object.

4. The test result judgment is decided by the limit of test standard.

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3. EUT Description

Product:	LTE Wireless Router
Model No.:	ME50N
Additional Model No.:	N/A
Trade Mark:	NEWLAND
Hardware Version:	TZ7.823.330
Software Version:	ME50N_V1.02
Operation Frequency:	2412MHz~2462MHz (802.11b/802.11g/802.11n(HT20)) 2422MHz~2452MHz (802.11n(HT40))
Channel Separation:	5MHz
Number of Channel:	11 for 802.11b/802.11g/802.11n(HT20) 7 for 802.11n(HT40)
Modulation Technology: (IEEE 802.11b)	Direct Sequence Spread Spectrum (DSSS)
Modulation Technology: (IEEE 802.11g/802.11n)	Orthogonal Frequency Division Multiplexing(OFDM)
Data speed (IEEE 802.11b):	1Mbps, 2Mbps, 5.5Mbps, 11Mbps
Data speed (IEEE 802.11g):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps
Data speed (IEEE 802.11n):	Up to 150Mbps
Antenna Type:	Integral Antenna
Total Antenna Gain:	5dBi
Power Supply:	DC 12V
AC Adapter:	MODEL: KL-AD-120100 INPUT: AC 100-240V~50/60Hz 0.5A Output: DC 12V, 1.0A

N	0	te	e	:

Channel

1

2

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see

802.11b/802.11g/802.11n (HT20)

802.11n (HT40)

Channel	Frequency
The lowest channel	2422MHz
The middle channel	2437MHz
The Highest channel	2452MHz

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Frequency

2457MHz

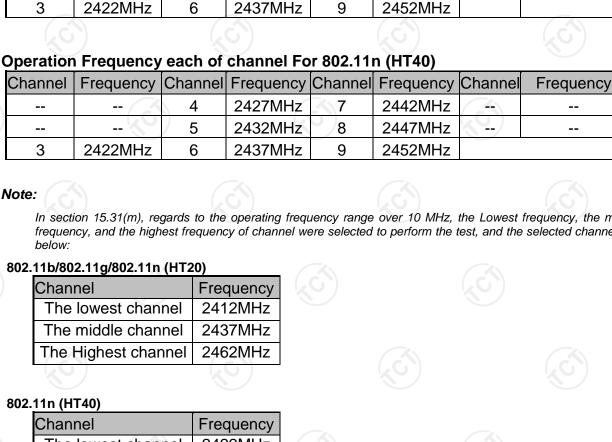
2462MHz

--

Operation Frequency each of channel For 802.11b/g/n(HT20)

4

5



Frequency Channel Frequency Channel Frequency Channel

7

8

2442MHz

2447MHz

10

11

2427MHz

2432MHz

2412MHz

2417MHz

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4. General Information

4.1. Test environment and mode

Operating Environment:

Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar

Test Mode:

Engineering mode:	Keep the EUT in continuous transmitting by select channel and modulations (The
	value of duty cycle is 98.46%)

The sample was placed (0.8m below 1GHz, 1.5m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Per-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	Data rate	
802.11b	1Mbps	
802.11g	6Mbps	
802.11n(H20)	6.5Mbps	
802.11n(H40)	13.5Mbps	

Final Test Mode:

Operation mode:	Keep the EUT in continuous transmitting	
	with modulation	

1. For WIFI function, the engineering test program was provided and enabled to make EUT continuous transmit/receive.

2.According to ANSI C63.10 standards, the test results are both the "worst case" and "worst setup" 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n(H20), 13.5Mbps for 802.11(H40). Duty cycle setting during the transmission is 98.5% with maximum power setting for all modulations.

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4.2. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
Ĩ	1	/		7

Note:

- 1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.
- 3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.

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5. Facilities and Accreditations

5.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC Registration No.: 645098
 Shenzhen Tongce Testing Lab
 The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.
- IC Registration No.: 10668A-1

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

5.2. Location

Shenzhen Tongce Testing Lab

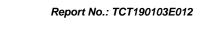
Address: 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

TEL: +86-755-27673339

5.3. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU	
1	Conducted Emission	±2.56dB	
2	RF power, conducted	±0.12dB	
3	Spurious emissions, conducted	±0.11dB	
4	All emissions, radiated(<1G)	±3.92dB	
5	All emissions, radiated(>1G)	±4.28dB	
6	Temperature	±0.1°C	
7	Humidity	±1.0%	



6. Test Results and Measurement Data

6.1. Antenna requirement

Standard requirement:

FCC Part15 C Section 15.203 /247(c)

15.203 requirement:

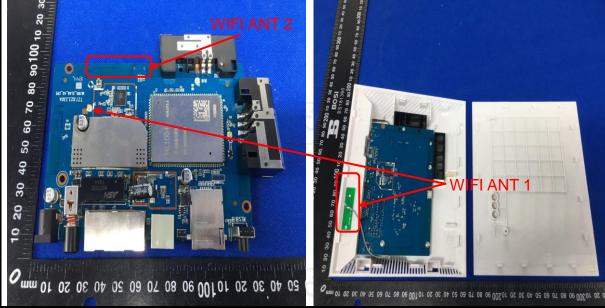
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

E.U.T Antenna:

The WIFI antennas are integral antennas, and the best case gains of the both antennas are 5dBi.



6.2. Conducted Emission

6.2.1. Test Specification

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Test Requirement:	FCC Part15 C Section	15.207					
Test Method:	ANSI C63.10:2013	$\langle G \rangle$	$\langle \mathcal{O} \rangle$				
Frequency Range:	150 kHz to 30 MHz	150 kHz to 30 MHz					
Receiver setup:	RBW=9 kHz, VBW=30	RBW=9 kHz, VBW=30 kHz, Sweep time=auto					
Limits:	Frequency range (MHz) 0.15-0.5 0.5-5 5-30	Limit (0 Quasi-peak 66 to 56* 56 60	dBuV) Average 56 to 46* 46 50				
Test Setup:	40cm E.U.T AC powe Test table/Insulation plane Remark: E.U.T. Equipment Under Test	E.U.T AC power Filter AC power Filter AC power EMI Receiver Remarkc E.U.T: Equipment Under Test LISN: Line Impedence Stabilization Network					
Fest Mode:	transmitting with modu	transmitting with modulation					
Test Procedure:	 The E.U.T and simulators are connected to the power through a line impedance stabilization in (L.I.S.N.). This provides a 500hm/50uH compedance for the measuring equipment. The peripheral devices are also connected to the power through a LISN that provides a 500hm coupling impedance with 500hm termination. 						
Test Result:	PASS						



6.2.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Test Receiver	R&S	ESPI	101402	Jul. 17, 2019
LISN	Schwarzbeck	NSLK 8126	8126453	Sep. 20, 2019
Coax cable (9KHz-30MHz)	тст	CE-05	N/A	Sep. 16, 2019
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

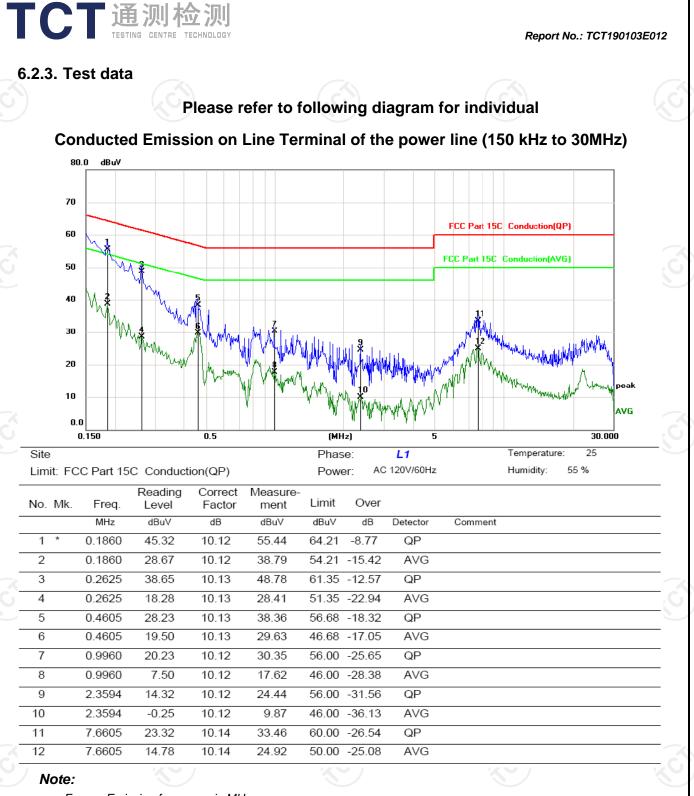
Note: 1. 802.11b/802.11g is SISO, transimitte signal from two antenna is completely uncorrelated.

802.11n(H20)/802.11n(H40) is MIMO, transimitte signal from two antenna is correlated.

2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

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Freq. = Emission frequency in MHz

Reading level $(dB\mu V) = Receiver reading$

Corr. Factor (dB) = Antenna factor + Cable loss

Measurement $(dB\mu V) = Reading level (dB\mu V) + Corr. Factor (dB)$

Limit ($dB\mu V$) = Limit stated in standard

Margin (dB) = Measurement (dB μ V) – Limits (dB μ V)

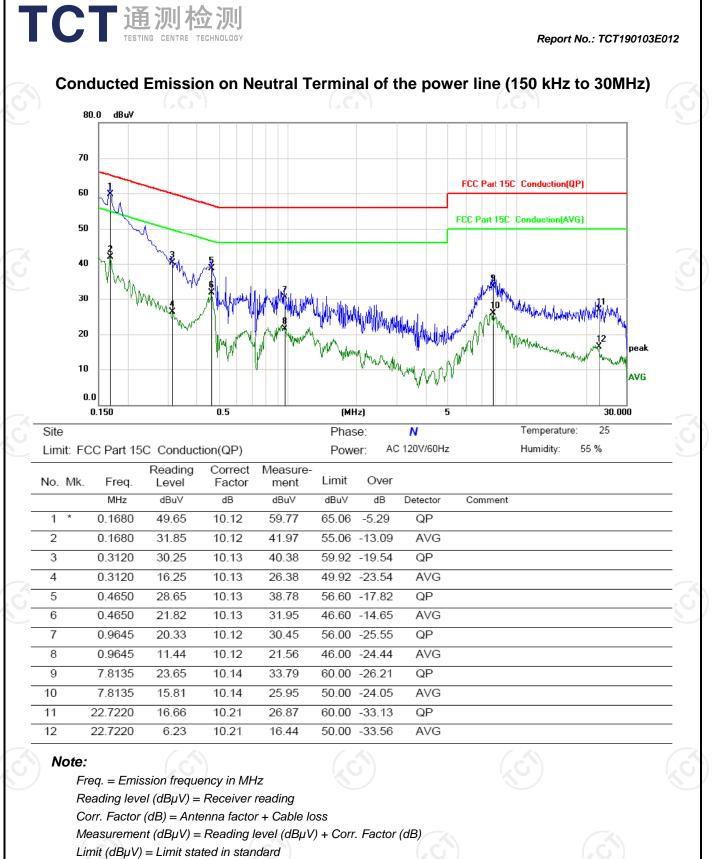
Q.P. =Quasi-Peak

AVG =average

*Any value more than 10dB below limit have not been specifically reported.

* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz

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Margin (dB) = Measurement (dB μ V) – Limits (dB μ V)

Q.P. =Quasi-Peak

AVG =average

*Any value more than 10dB below limit have not been specifically reported.

* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.

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6.3. Maximum Conducted (Average) Output Power

6.3.1. Test Specification

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Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB558074, KDB662911
Limit:	30dBm
Test Setup:	Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	 The testing follows the Measurement Procedure of FCC KDB No. 558074 D01 15.247 Meas Guidance v05. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. Set to the maximum power setting and enable the EUT transmit continuously. Measure the conducted output power and record the results in the test report.
Test Result:	PASS

6.3.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 20, 2019
RF Cable (9KHz-26.5GHz)	ТСТ	RE-06	N/A	Sep. 20, 2019
Antenna Connector	тст	RFC-01	N/A	Sep. 20, 2019

Note: 1.802.11b/802.11g is SISO, transimitte signal from two antenna is completely uncorrelated.

802.11n(H20)/802.11n(H40) is MIMO, transimitte signal from two antenna is correlated.

2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).



6.3.3. Test Data

Configuration IEEE 9	02 11h/ Antonno (Quantanna 1		
Configuration IEEE 8				
Test channel		ucted (Average) wer (dBm)	Limit (dBm)	Result
	Antenna 0	Antenna 1		
Lowest	13.42	12.98	30	PASS
Middle	13.87	12.37	30	PASS
Highest	13.32	11.91	30	PASS
LG.		(\mathcal{G})	(\mathcal{S})	
Configuration IEEE 8	02.11g/ Antenna	0+Antenna 1		

Configuration IEEE 0	ozirig, / antorina e				
Test channel	Maximum Cond Output Po	· • • /	Limit (dBm)	Result	
	Antenna 0	Antenna 1			
Lowest	11.47	11.08	30	PASS	
Middle	11.22	11.32	30	PASS	
Highest	12.09	11.69	30	PASS	

Configuration IEEE 8	02.11n(H20)/	Antenna 0+	Antenna 1		
Test channel		Conducted (A ut Power (dB	• •	Limit (dBm) Result	
	Antenna 0	Antenna 1	Total		
Lowest	11.64	10.23	14.00	30	PASS
Middle	10.94	10.49	13.73	30	PASS
Highest	10.86	10.27	13.59	30	PASS

Configuration IEEE 8	02.11n(H40)/	Antenna 0+	Antenna 1	l	
Test channel		Conducted (A ut Power (dB	• •	Limit (dBm)	Result
	Antenna 0	Antenna 1	Total		
Lowest	9.01	9.28	12.16	30	PASS
Middle	8.01	8.86	11.47	30	PASS
Highest	8.33	8.95	11.66	30	PASS

Note: 802.11b/802.11g is SISO, transimitte signal from two antenna is completely uncorrelated. 802.11n(H20)/802.11n(H40) is MIMO, transimitte signal from two antenna is correlated.

Refer to Appendix A: Test Result of Conducted Test

CT 通测检测 TESTING CENTRE TECHNO .4. Emission Bandw .4.1. Test Specification	vidth
Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB558074
Limit:	>500kHz
Test Setup:	Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	 The testing follows FCC KDB Publication No. 558074 D01 15.247 Meas Guidance v05. Set to the maximum power setting and enable the EUT transmit continuously. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz. Measure and record the results in the test report.
Test Result:	PASS

6.4.2. Test Instruments

	RI	F Test Room	ı	
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 20, 2019
RF Cable (9KHz-26.5GHz)	тст	RE-06	N/A	Sep. 20, 2019
Antenna Connector	тст	RFC-01	N/A	Sep. 20, 2019

Note: 1.802.11b/802.11g is SISO, transimitte signal from two antenna is completely uncorrelated. 802.11n(H20)/802.11n(H40) is MIMO, transimitte signal from two antenna is correlated.

2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

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5. Power Spectral Der	isity	
.5.1. Test Specification		
Test Requirement:	FCC Part15 C Section 15.247 (e)	
Test Method:	KDB558074, KDB662911	
Limit:	The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.	
Test Setup:		
	Spectrum Analyzer EUT	
Test Mode:	Transmitting mode with modulation	
Test Procedure:	 The testing follows Measurement Procedure 10.3 Method AVGPSD of FCC KDB Publication No. 558074 D01 15.247 Meas Guidance v05. The RF output of EUT was connected to the spectru analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. Set to the maximum power setting and enable the EUT transmit continuously. Make the measurement with the spectrum analyzer' resolution bandwidth (RBW): 3 kHz ≤ RBW ≤ 100 kHz. Video bandwidth VBW ≥ 3 x RBW. Set the spa to at least 1.5 times the OBW. Detector = RMS, Sweep time = auto couple. Employ trace averaging (RMS) mode over a minimu of 100 traces. Use the peak marker function to determine the maximum power level. Measure and record the results in the test report. 	s In
Test Result:	PASS	

6.5.2. Test Instruments

		RI	F Test Room	1	
)	Equipment	Manufacturer	Model	Serial Number	Calibration Due
	Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 20, 2019
	RF Cable (9KHz-26.5GHz)	тст	RE-06	N/A	Sep. 20, 2019
	Antenna Connector	тст	RFC-01	N/A	Sep. 20, 2019

Note: 1.802.11b/802.11g is SISO, transimitte signal from two antenna is completely uncorrelated.

802.11n(H20)/802.11n(H40) is MIMO, transimitte signal from two antenna is correlated.

2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

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(dBm/3kHz)

8

8

8

Limit

(dBm/3kHz)

8

8

8

Limit

(dBm/3kHz)

Lowest	-28.54	-30.70	-26.48	8	PASS
Middle	-28.91	-30.86	-26.77	8	PASS
Highest	-28.62	-30.24	-26.34	8	PASS
- 4- · 000 44 - 1000 44		the slowed from	. true and the		

Note: 802.11b/802.11g is SISO, transimitte signal from two antenna is completely uncorrelated. 802.11n(H20)/802.11n(H40) is MIMO, transimitte signal from two antenna is correlated.

Refer to Appendix A: Test Result of Conducted Test

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6.5.3. Test data

Lowest

Middle

Highest

Test channel

Lowest

Middle

Highest

Test channel

Configuration IEEE 80	02.11b/ Antenna	0, Antenna 1		
Test channel		Spectral Density n/3kHz)	Limit	Result
	Antenna 0	Antenna 1	(dBm/3kHz)	
Lowest	-19.66	-22.48	8	PASS
Middle	-20.06	-25.05	8	PASS
Highest	-20.64	-23.21	8	PASS
		$(2G^{*})$	(20)	
Configuration IEEE 80	02.11g/ Antenna	0, Antenna 1		
Test channel		Spectral Density n/3kHz)	Limit	Result

Antenna 1

-24.75

-25.34

-24.26

Total

-19.44

-21.87

-21.64

Total

AVG Power Spectral Density

(dBm/3kHz)

Antenna 1

-23.21

-26.55

-25.34

AVG Power Spectral Density

(dBm/3kHz)

Antenna 1

Antenna 0

-23.59

-22.86

-23.59

Configuration IEEE 802.11n (HT20)/ Antenna 0, Antenna 1

Antenna 0

-21.80

-23.68

-24.06

Antenna 0

Configuration IEEE 802.11n (HT40)/ Antenna 0, Antenna 1

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PASS

PASS

PASS

Result

PASS

PASS

PASS

Result

6.6. Conducted Band Edge and Spurious Emission Measurement

6.6.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074
Limit:	In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).
Test Setup:	
	Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	 The testing follows FCC KDB Publication No. 558074 D01 15.247 Meas Guidance v05. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. Set to the maximum power setting and enable the EUT transmit continuously. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d). Measure and record the results in the test report. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

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6.6.2. Test Instruments

	RI	F Test Room	1	
Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 20, 2019
Spectrum Analyzer	ROHDE&SCH WARZ	FSQ40	200061	Sep. 20, 2019
RF Cable (9KHz-26.5GHz)	тст	RE-06	N/A	Sep. 20, 2019
Antenna Connector	тст	RFC-01	N/A	Sep. 20, 2019

Note: 1. 802.11b/802.11g is SISO, transimitte signal from two antenna is completely uncorrelated.

802.11n(H20)/802.11n(H40) is MIMO, transimitte signal from two antenna is correlated.

2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

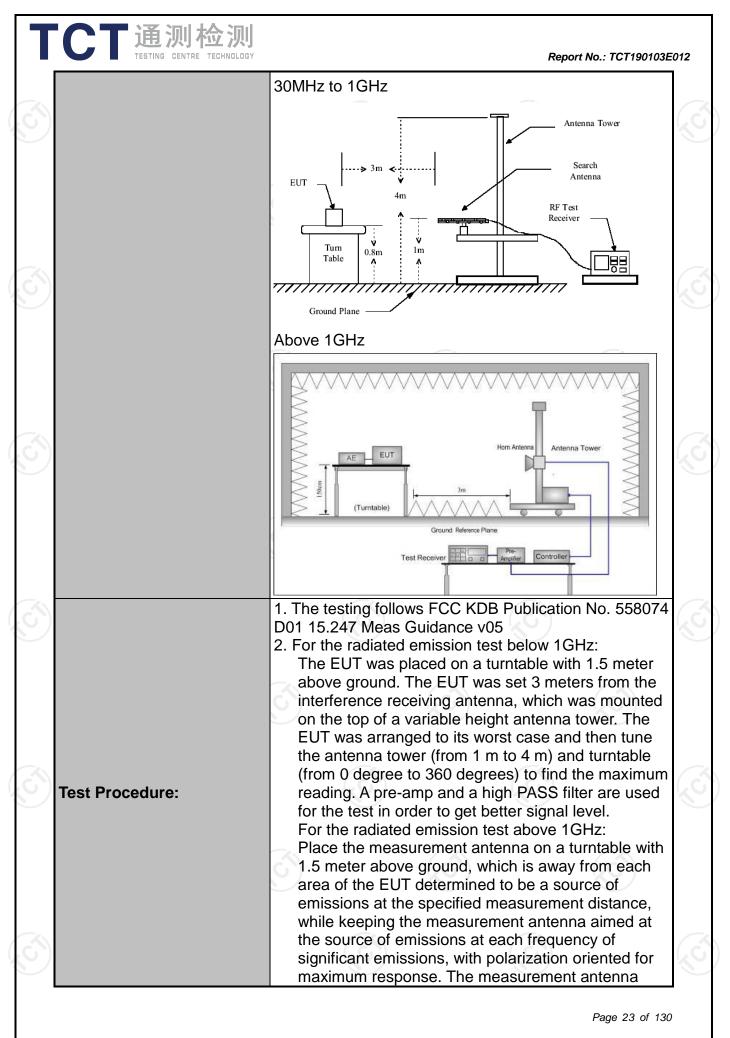
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6.7. Radiated Spurious Emission Measurement

6.7.1. Test Specification

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Test Requirement:	FCC Part15	C Section	15.209			
Test Method:	ANSI C63.10): 2013				
Frequency Range:	9 kHz to 25 (GHz				
Measurement Distance:	3 m					
Antenna Polarization:	Horizontal &	Vertical		(.c)		
Operation mode:	Transmitting	mode wit	h modulat	ion		
	Frequency 9kHz- 150kHz	Detector Quasi-peak		VBW 1kHz	Quas	Remark si-peak Value
Receiver Setup:	150kHz- 30MHz	Quasi-peak	9kHz	30kHz	Quas	si-peak Value
	30MHz-1GHz	Quasi-peak		300KHz		si-peak Value
	Above 1GHz	Peak Peak	1MHz 1MHz	3MHz 10Hz		eak Value erage Value
	Frequen	су	Field Str (microvolts	-	Me	asurement nce (meters)
	0.009-0.4		2400/F(300
	0.490-1.7		24000/F(KHz)		30	
	<u>1.705-30</u> 30-88		30 100		(<u>30</u> 3
	88-216		150		3	
Limit:	216-96		200		3	
	Above 9	60	500			3
		2				
	Frequency		d Strength volts/meter)	Measurer Distan (meter	се	Detector
		_	500	3	0/	Average
	Above 1GHz	2	5000			Peak
Test setup:	EUT	emissions stance = 3m		Pre -Ar	Compute	



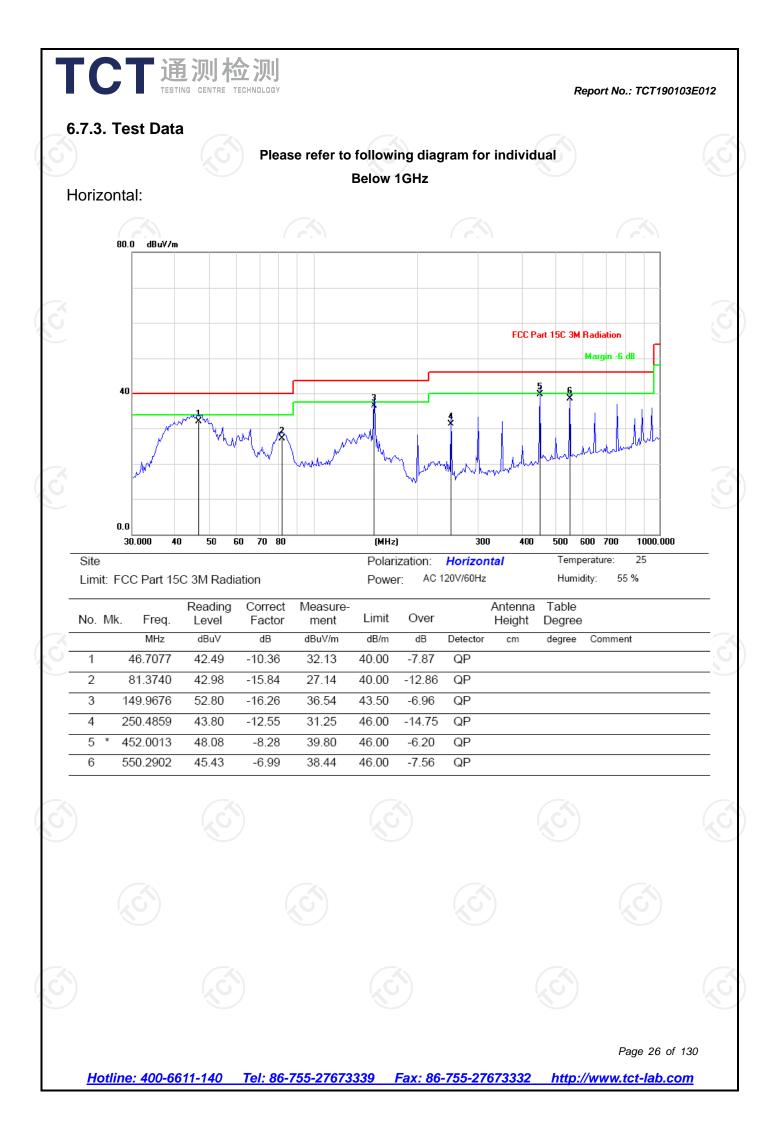
	depend and sta receivir measur maximi antenna restricte above t 3. Correcte Read L 4. For mea of the E lower th level wi measur detecto 5. Use the (1) Spar emis (2) Set	ve to be higher or I ling on the radiation ying aimed at the e og the maximum sig rement antenna ele zes the emissions. a elevation for max ed to a range of hei the ground or refere ed Reading: Antenn evel - Preamp Fact surement below 10 UT measured by the nan the applicable I Il be reported. Othe rement will be repea- r and reported. following spectrum n shall wide enough ssion being measure RBW=100 kHz for f ep = auto; Detecto hold;	ower than the mission sour gnal. The fina- vation shall b The measure imum emission ghts of from ence ground p ina Factor + C tor = Level GHz, If the en- ne peak deter imit, the peak erwise, the en- ated using the analyzer set n to fully capt red; f < 1 GHz; VE	tings: ure the pe that which ement ons shall be 1 m to 4 m plane. able Loss + nission level ctor is 3 dB cemission e quasi-peak tings: ure the	
Test results	 (3) Set for p For ave duty cy when d the min transmi	hold; RBW = 1 MHz, VB eak measurement. rage measuremen cle is no less than uty cycle is less tha imum transmission tter is on and is tra control level for the	t: VBW = 10 98 percent. V an 98 percent duration ove nsmitting at it	Hz, when BW ≥1/T, t where T is er which the ts maximum	<u>.</u>
				(\mathcal{C})	

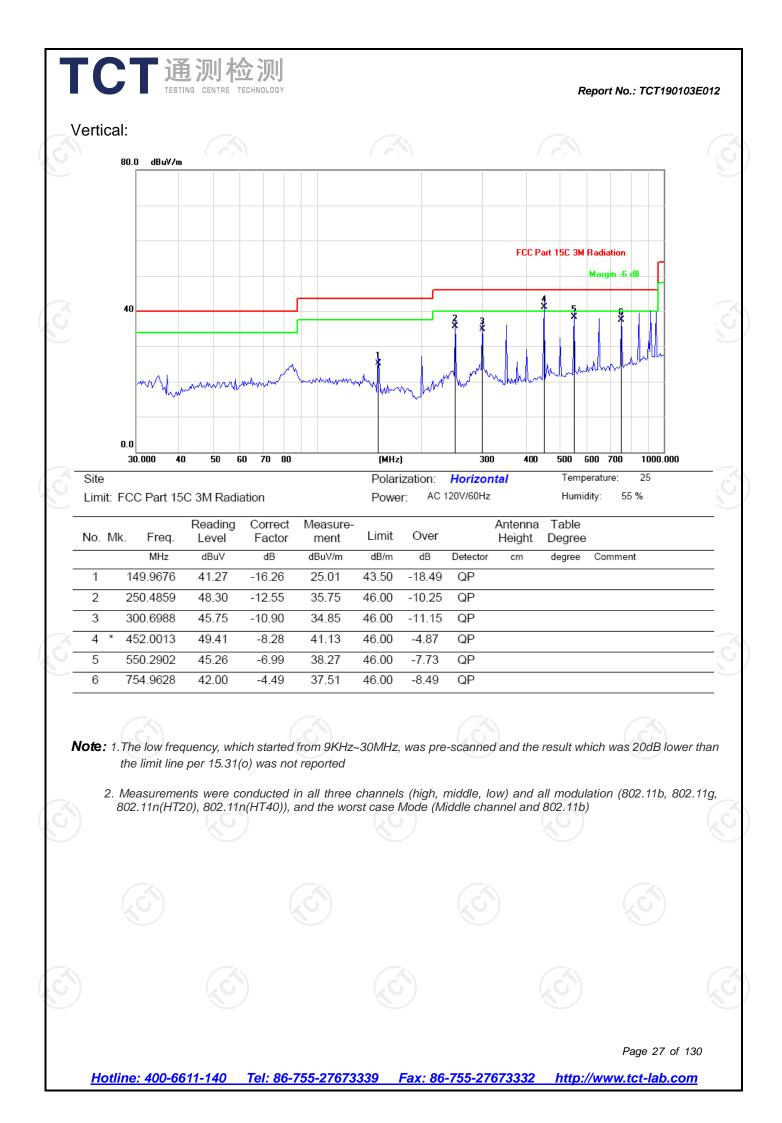
6.7.2. Test Instruments

	Radiated Em	ission Test Sit	te (966)	
Name of Equipment	Manufacturer Model		Serial Number	Calibration Due
Test Receiver	ROHDE&SCHW ARZ	ESIB7	100197	Jul. 17, 2019
Spectrum Analyzer	ROHDE&SCHW ARZ	FSQ40	200061	Sep. 20, 2019
Pre-amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 16, 2019
Pre-amplifier	HP	8447D	2727A05017	Sep. 16, 2019
Loop antenna	ZHINAN	ZN30900A	12024	Oct. 20, 2019
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 02, 2019
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Oct. 20, 2019
Antenna Mast	Keleto	RE-AM	N/A	N/A
Coax cable (9KHz-1GHz)	тст	RE-low-01	S N/A	Sep. 16, 2019
Coax cable (9KHz-40GHz)	тст	RE-high-02	N/A	Sep. 16, 2019
Coax cable (9KHz-1GHz)	тст	RE-low-03	N/A	Sep. 16, 2019
Coax cable (9KHz-40GHz)	ТСТ	RE-high-04	N/A	Sep. 16, 2019
EMI Test Software	Shurple Technology	EZ-EMC	S _{N/A}	N/A

Note: 1. 802.11b/802.11g is SISO, transimitte signal from two antenna is completely uncorrelated. 802.11n(H20)/802.11n(H40) is MIMO, transimitte signal from two antenna is correlated.

2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).





	Те	st Result of Ra	diated Spurio	us at Band edd	bes	
			lation Type: 80		J ee	
			channel: 2412			
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	Correction Factor (dB/m)	Peak Final Emission Level	Peak limit (dBµV/m)	AV limit (dBµV/m
2310	Н	44.28	-4.16	40.12	74.00	54.00
2377.38	Н	47.74	-4.37	43.37	74.00	54.00
2390	Н	52.51	-3.82	48.69	74.00	54.00
2310	V	45.06	-4.26	40.80	74.00	54.00
2377.38	V	53.85	-4.75	49.10	74.00	54.00
2390	V	54.43	-3.46	50.97	74.00	54.00
		Modu	lation Type: 80	2.11b		
		High	channel: 2462	MHz		
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	Correction Factor (dB/m)	Peak Final Emission Level	Peak limit (dBµV/m)	AV limit (dBµV/m
2483.5	Н	51.37	-3.27	48.10	74.00	54.00
2487.09	Н	47.92	-3.19	44.73	74.00	54.00
2500	Н	45.60	-3.52	42.08	74.00	54.00
2483.5	V	54.19	-3.76	50.43	74.00	54.00
2487.09	V	47.53	-3.58	43.95	74.00	54.00
2500	V	42.81	-3.27	39.54	74.00	54.00
	[.C.M		lation Type: 80 channel: 2412	MHz		
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	Correction Factor (dB/m)	Peak Final Emission Level	Peak limit (dBµV/m)	AV limit (dBµV/m
2310	Н	43.26	-4.29	38.97	74.00	54.00
2388.96	Н	50.74	-4.68	46.06	74.00	54.00
2390	Н	53.53	-3.17	50.36	74.00	54.00
2310	V	45.68	-4.62	41.06	74.00	54.00
2388.96	V	49.17	-4.53	44.64	74.00	54.00
2390	V	54.39	-3.94	50.45	74.00	54.00
	(.C.)		lation Type: 80		(.C.)	
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	channel: 2462 Correction Factor	Peak Final Emission	Peak limit (dBµV/m)	AV limit (dBµV/m
· ,	H	,	(dB/m) -3.47	Level	,	· ·
		52.65		49.18	74.00	54.00
2483.5	<u>H</u>	50.38	-3.82	46.56	74.00	54.00
2487.59	Н	46.73	-3.09	43.64	74.00	54.00
2487.59 2500	17	51.84	-3.62 -3.56	48.22	74.00	54.00
2487.59 2500 2483. 5	V	47.00		43.70	74.00	54.00
2487.59 2500 2483.5 2487.59	V	47.26			74.00	E4 00
2487.59 2500 2483. 5		47.26 47.17	-3.35	43.82	74.00	54.00

					Report	No.: TCT1901
			n Type: 802.11			
		Low	channel: 2412			
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	Correction Factor (dB/m)	Peak Final Emission Level	Peak limit (dBµV/m)	AV limit (dBµV/m)
2310	Н	46.08	-4.09	41.99	74.00	54.00
2388.01	Н	53.59	-4.35	49.24	74.00	54.00
2390	Н	54.14	-3.02	51.12	74.00	54.00
2310	V	48.31	-4.28	44.03	74.00	54.00
2388.01	V	54.65	-4.65	50.00	74.00	54.00
2390	V	55.27	-3.82	51.45	74.00	54.00
		Modulatio	n Type: 802.11	n(20MHz)		
		High	channel: 2462	MHz		
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	Correction Factor (dB/m)	Peak Final Emission Level	Peak limit (dBµV/m)	AV limit (dBµV/m)
2483.5	Н	52.84	-3.52	49.32	74.00	54.00
2392.55	Н	51.06	-3.14	47.92	74.00	54.00
2500	Н	47.13	-3.80	43.33	74.00	54.00
0400 E	V	53.90	-3.63	50.27	74.00	54.00
2483. 5	v					
2483.5	V	50.72	-3.27	47.45	74.00	54.00
		50.72 48.38	-3.27 -3.85 n Type: 802.11	44.53	74.00 74.00	54.00 54.00
2392.55 2500	V V	50.72 48.38 Modulatio Low	-3.85 n Type: 802.11 channel: 2422	44.53 n(40MHz) MHz	74.00	54.00
2392.55 2500 Frequency (MHz)	V V Ant. Pol. H/V	50.72 48.38 Modulatio Low Peak reading (dBµV)	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m)	44.53 n(40MHz) MHz Peak Final Emission Level	74.00 Peak limit (dBµV/m)	54.00 AV limit (dBμV/m)
2392.55 2500 Frequency (MHz) 2310	V V Ant. Pol. H/V H	50.72 48.38 Modulatio Low Peak reading (dBµV) 50.25	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m) -4.17	44.53 n(40MHz) MHz Peak Final Emission Level 46.08	74.00 Peak limit (dBµV/m) 74.00	54.00 AV limit (dBµV/m) 54.00
2392.55 2500 Frequency (MHz) 2310 2387.85	V V Ant. Pol. H/V H H	50.72 48.38 Modulatio Low Peak reading (dBµV) 50.25 55.63	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m) -4.17 -4.68	44.53 n(40MHz) MHz Peak Final Emission Level 46.08 50.95	74.00 Peak limit (dBµV/m) 74.00 74.00	54.00 AV limit (dBµV/m) 54.00 54.00
2392.55 2500 Frequency (MHz) 2310 2387.85 2390	V V Ant. Pol. H/V H H H	50.72 48.38 Modulatio Low Peak reading (dBµV) 50.25 55.63 52.19	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m) -4.17 -4.68 -3.17	44.53 n(40MHz) MHz Peak Final Emission Level 46.08 50.95 49.02	74.00 Peak limit (dBµV/m) 74.00 74.00 74.00	54.00 AV limit (dBµV/m) 54.00 54.00 54.00
2392.55 2500 Frequency (MHz) 2310 2387.85 2390 2310	V V Ant. Pol. H/V H H H H V	50.72 48.38 Modulatio Low Peak reading (dBµV) 50.25 55.63 52.19 51.38	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m) -4.17 -4.68 -3.17 -4.52	44.53 n(40MHz) MHz Peak Final Emission Level 46.08 50.95 49.02 46.86	74.00 Peak limit (dBμV/m) 74.00 74.00 74.00 74.00	54.00 AV limit (dBµV/m 54.00 54.00 54.00 54.00
2392.55 2500 Frequency (MHz) 2310 2387.85 2390 2310 2389.98	V V Ant. Pol. H/V H H H H V V V	50.72 48.38 Modulatio Low Peak reading (dBµV) 50.25 55.63 52.19 51.38 50.71	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m) -4.17 -4.68 -3.17 -4.52 -4.70	44.53 n(40MHz) MHz Peak Final Emission Level 46.08 50.95 49.02 46.86 46.01	74.00 Peak limit (dBµV/m) 74.00 74.00 74.00 74.00 74.00	54.00 AV limit (dBµV/m) 54.00 54.00 54.00 54.00 54.00
2392.55 2500 Frequency (MHz) 2310 2387.85 2390 2310	V V Ant. Pol. H/V H H H H V	50.72 48.38 Modulatio Low Peak reading (dBµV) 50.25 55.63 52.19 51.38 50.71 49.52	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m) -4.17 -4.68 -3.17 -4.52 -4.70 -3.26	44.53 n(40MHz) MHz Peak Final Emission Level 46.08 50.95 49.02 46.86 46.01 46.26	74.00 Peak limit (dBμV/m) 74.00 74.00 74.00 74.00	54.00 AV limit (dBµV/m 54.00 54.00 54.00 54.00
2392.55 2500 Frequency (MHz) 2310 2387.85 2390 2310 2389.98	V V Ant. Pol. H/V H H H H V V V	50.72 48.38 Modulatio Low Peak reading (dBµV) 50.25 55.63 52.19 51.38 50.71 49.52 Modulatio	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m) -4.17 -4.68 -3.17 -4.52 -4.70 -3.26 n Type: 802.11	44.53 n(40MHz) MHz Peak Final Emission Level 46.08 50.95 49.02 46.86 46.01 46.26 n(40MHz)	74.00 Peak limit (dBµV/m) 74.00 74.00 74.00 74.00 74.00	54.00 AV limit (dBµV/m 54.00 54.00 54.00 54.00 54.00
2392.55 2500 Frequency (MHz) 2310 2387.85 2390 2310 2389.98	V V Ant. Pol. H/V H H H H V V V	50.72 48.38 Modulatio Low Peak reading (dBµV) 50.25 55.63 52.19 51.38 50.71 49.52 Modulatio	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m) -4.17 -4.68 -3.17 -4.52 -4.70 -3.26 n Type: 802.11 channel: 2452	44.53 n(40MHz) MHz Peak Final Emission Level 46.08 50.95 49.02 46.86 46.01 46.26 n(40MHz) MHz	74.00 Peak limit (dBµV/m) 74.00 74.00 74.00 74.00 74.00	54.00 AV limit (dBµV/m) 54.00 54.00 54.00 54.00 54.00
2392.55 2500 Frequency (MHz) 2310 2387.85 2390 2310 2389.98 2390 2390 Frequency (MHz)	V V Ant. Pol. H/V H H H V V V V V Ant. Pol. H/V	50.72 48.38 Modulatio Low Peak reading (dBµV) 50.25 55.63 52.19 51.38 50.71 49.52 Modulatio High Peak reading (dBµV)	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m) -4.17 -4.68 -3.17 -4.52 -4.70 -3.26 n Type: 802.11 channel: 2452 Correction Factor (dB/m)	44.53 n(40MHz) MHz Peak Final Emission Level 46.08 50.95 49.02 46.86 46.01 46.26 n(40MHz) MHz Peak Final Emission Level	74.00 Peak limit (dBµV/m) 74.00 74.00 74.00 74.00 74.00 74.00	54.00 AV limit (dBµV/m) 54.00 54.00 54.00 54.00 54.00 54.00
2392.55 2500 Frequency (MHz) 2310 2387.85 2390 2310 2389.98 2390 2483.5 2483.5	V V Ant. Pol. H/V H H H V V V V V V Ant. Pol. H/V	50.72 48.38 Modulatio Low Peak reading (dBµV) 50.25 55.63 52.19 51.38 50.71 49.52 Modulatio High Peak reading (dBµV)	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m) -4.17 -4.68 -3.17 -4.52 -4.70 -3.26 n Type: 802.11 channel: 2452 Correction Factor (dB/m) -3.62	44.53 n(40MHz) MHz Peak Final Emission Level 46.08 50.95 49.02 46.86 46.01 46.26 n(40MHz) MHz Peak Final Emission Level 48.84	74.00 Peak limit (dBµV/m) 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00	54.00 AV limit (dBµV/m) 54.00 54.00 54.00 54.00 54.00 54.00 54.00
2392.55 2500 Frequency (MHz) 2310 2387.85 2390 2310 2389.98 2390 2390 2390 2390 2390 2390 2390 2389.98 2390 2390 2390 2390 2390 2385 2493.51	V V Ant. Pol. H/V H H H V V V V V V Ant. Pol. H/V H	50.72 48.38 Modulatio Low Peak reading (dBµV) 50.25 55.63 52.19 51.38 50.71 49.52 Modulatio High Peak reading (dBµV)	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m) -4.17 -4.68 -3.17 -4.52 -4.70 -3.26 n Type: 802.11 channel: 2452 Correction Factor (dB/m) -3.62 -3.57	44.53 n(40MHz) MHz Peak Final Emission Level 46.08 50.95 49.02 46.86 46.01 46.26 n(40MHz) MHz Peak Final Emission Level 48.84 50.57	74.00 Peak limit (dBμV/m) 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00	54.00 AV limit (dBµV/m) 54.00 54.00 54.00 54.00 54.00 54.00 54.00 54.00 54.00
2392.55 2500 Frequency (MHz) 2310 2387.85 2390 2310 2389.98 2390 2483.5 2483.5	V V Ant. Pol. H/V H H H V V V V V V V H H/V H H	50.72 48.38 Modulatio Low Peak reading (dBµV) 50.25 55.63 52.19 51.38 50.71 49.52 Modulatio High Peak reading (dBµV)	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m) -4.17 -4.68 -3.17 -4.52 -4.70 -3.26 n Type: 802.11 channel: 2452 Correction Factor (dB/m) -3.62	44.53 n(40MHz) MHz Peak Final Emission Level 46.08 50.95 49.02 46.86 46.01 46.26 n(40MHz) MHz Peak Final Emission Level 48.84 50.57 46.19	74.00 Peak limit (dBµV/m) 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00	54.00 AV limit (dBµV/m) 54.00 54.00 54.00 54.00 54.00 54.00 54.00
2392.55 2500 Frequency (MHz) 2310 2387.85 2390 2310 2389.98 2390 2390 2390 2390 2390 2390 2390 2389.98 2390 2390 2390 2390 2390 2385 2493.51	V V Ant. Pol. H/V H H H V V V V V V V H H/V H H H V	50.72 48.38 Modulatio Low Peak reading (dBµV) 50.25 55.63 52.19 51.38 50.71 49.52 Modulatio High Peak reading (dBµV) 52.46 54.14	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m) -4.17 -4.68 -3.17 -4.52 -4.70 -3.26 n Type: 802.11 channel: 2452 Correction Factor (dB/m) -3.62 -3.57	44.53 n(40MHz) MHz Peak Final Emission Level 46.08 50.95 49.02 46.86 46.01 46.26 n(40MHz) MHz Peak Final Emission Level 48.84 50.57	74.00 Peak limit (dBμV/m) 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00 74.00	54.00 AV limit (dBµV/m 54.00 54.00 54.00 54.00 54.00 54.00 54.00 54.00 54.00
2392.55 2500 Frequency (MHz) 2310 2387.85 2390 2310 2389.98 2390 2310 2389.98 2390 2390 2310 2483.5 2493.51 2500	V V Ant. Pol. H/V H H H V V V V V V V H H/V H H	50.72 48.38 Modulatio Low Peak reading (dBµV) 50.25 55.63 52.19 51.38 50.71 49.52 Modulatio High Peak reading (dBµV) 52.46 54.14 49.57	-3.85 n Type: 802.11 channel: 2422 Correction Factor (dB/m) -4.17 -4.68 -3.17 -4.52 -4.70 -3.26 n Type: 802.11 channel: 2452 Correction Factor (dB/m) -3.62 -3.57 -3.38	44.53 n(40MHz) MHz Peak Final Emission Level 46.08 50.95 49.02 46.86 46.01 46.26 n(40MHz) MHz Peak Final Emission Level 48.84 50.57 46.19	74.00 Peak limit (dBμV/m) 74.00	54.00 AV limit (dBµV/m 54.00 54.00 54.00 54.00 54.00 54.00 54.00 54.00 54.00 54.00

2. Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

TC	TESTING	测检					Re	port No.: TCT	190103E012
				Above	-				
				odulation T					
			L	ow channe					
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBuV)	Correction Factor (dB/m)	Emissic Peak (dBµV/m)	n Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4824	Н	47.38		0.75	48.13		74	54	-5.87
7236	Н	36.68		9.87	46.55		74	54	-7.45
(H							C	
4824	V	44.82		0.75	45.57		74	54	-8.43
7236	V	35.57		9.87	45.44		74	54	-8.56
	V								
									(
			Μ	iddle chann	el: 2437MF	Ηz			X
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Emissic Peak (dBµV/m)	n Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4874	H	46.90		0.97	47.87		74	54	-6.13
7311	CH	34.03	t _{in} C `	9.83	43.86	\mathcal{O}^{1}	74	54	-10.14
	H								
4874	V	48.71		0.97	49.68		74	54	-4.32
7311	V	39.16		9.83	48.99		74	54	-5.01
· · · ·	V			(, (()
				0					
				ligh channe					
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Emissic Peak (dBµV/m)	n Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4924	СĤ	45.25	RO I	1.18	46.43		74	54	-7.57
7386	H	37.49		10.07	47.56		74	54	-6.44
	Н								
4924	V	47.63		1.18	48.81		74	54	-5.19
7386	V	39.27		10.07	49.34		74	54	-4.66
	V								

Note:

1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss - Pre-amplifier

2. Margin (dB) = Emission Level (Peak) (dBµV/m)-Average limit (dBµV/m)

3. The emission levels of other frequencies are very lower than the limit and not show in test report.

4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency. The highest test frequency is 25GHz.

5. Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

	TESTING	CENTRE TECH	NOLUGY				Re	port No.: TCT	190103E01
			Μ	odulation T	ype: 802.11	lg			
			L	ow channe					
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBuV)	Correction Factor (dB/m)	Emissic Peak (dBµV/m)	n Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4824	Н	45.73		0.75	46.48	(ubµ (/////)	74	54	-7.52
7236	H	34.18		9.87	44.05		74	54	-9.95
	Н								
	.C)				(•		
4824	V	46.27		0.75	47.02		74	54	-6.98
7236	V	35.94		9.87	45.81		74	54	-8.19
	V								
· .		<u></u>			70.		<u></u>		
			М	iddle chann					
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Emissic Peak (dBµV/m)	n Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4874	Н	44.61		0.97	45.58		74	54	-8.42
7311	Н	35.35		9.83	45.18		74	54	-8.82
(СH И		1. C						
				· · · · · · · · · · · · · · · · · · ·	-				
4874	V	47.82		0.97	48.79		74	54	-5.21
7311	V	38.06		9.83	47.89		74	54	-6.11
	V			/	×				
		(\mathbf{G})					(\mathcal{G})		
			F	ligh channe					
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Emissic Peak (dBµV/m)	n Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4924	H	43.39		1.18	44.57		74	54	-9.43
7386	C H	34.50	μ.Ο	10.07	44.57		74	54	-9.43
	H								
4924	V	42.18		1.18	43.36		74	54	-10.64
7386	V	33.35		10.07	43.42		74	54	-10.58
	V			(

1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss - Pre-amplifier

2. Margin (dB) = Emission Level (Peak) (dB μ V/m)-Average limit (dB μ V/m)

3. The emission levels of other frequencies are very lower than the limit and not show in test report.

4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency. The highest test frequency is 25GHz.

5. Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

	- ESTING	CENTRE TECH					Rej	port No.: TCT	190103E012
				lation Type:					
			L	ow channe					
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBuV)	Correction Factor (dB/m)	Emissic Peak (dBµV/m)	n Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4824	Н	44.87		0.75	45.62		74	54	-8.38
7236	Н	35.04		9.87	44.91		74	54	-9.09
	H								
()	.G.)				(()		(\mathbf{G})	
4824	V	44.48		0.75	45.23		74	54	-8.77
7236	V	34.76		9.87	44.63		74	54	-9.37
	V								
		<u></u>			- // .		<u></u>		
			M	iddle chann					(
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Emissic Peak (dBµV/m)	n Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4874	Н	46.53		0.97	47.50		74	54	-6.50
7311	H	35.17		9.83	45.00		74	54	-9.00
(СH		- 1 2 0 1					L C	
				,					
4874	V	44.61		0.97	45.58		74	54	-8.42
7311	V	34.25		9.83	44.08		74	54	-9.92
	V				×				
		(\mathcal{G})			51)		(\mathcal{O})		
			F	ligh channe	el: 2462 MH	z			N N
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Emissic Peak (dBµV/m)	n Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4924	н	43.30		1.18	44.48		74	54	-9.52
7386	С H	33.92	- <u>-</u>	10.07	43.99		74	54	-10.01
	Н								
4924	V	42.83		1.18	44.01		74	54	-9.99
7386	V	33.28		10.07	43.35		74	54	-10.65
	V								

1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss - Pre-amplifier

2. Margin (dB) = Emission Level (Peak) (dB μ V/m)-Average limit (dB μ V/m)

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3. The emission levels of other frequencies are very lower than the limit and not show in test report.

4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency. The highest test frequency is 25GHz.

5. Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

		CENTRE TECHI					Rej	port No.: TCT	190103E012
				lation Type	1	,			
			L	ow channe					
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBuV)	Correction Factor (dB/m)	Emissic Peak (dBµV/m)	n Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4844	Н	42.82		0.75	43.57		74	54	-10.43
7266	Н	33.16		9.87	43.03		74	54	-10.97
	H								
	.G.)				((C)			
4824	V	42.48		0.75	43.23		74	54	-10.77
7236	V	32.74		9.87	42.61		74	54	-11.39
	V								
		<u></u> .			- A.		<u></u>		
			Μ	iddle chanr					(
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Emissic Peak (dBµV/m)	on Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4874	Н	43.90		0.97	44.87		74	54	-9.13
7311	H	33.36		9.83	43.19		74	54	-10.81
(СH		ίχΟ T						
					-				
4874	V	42.53		0.97	43.50		74	54	-10.50
7311	V	32.29		9.83	42.12		74	54	-11.88
	V	Ĭ							
			F	ligh channe	el: 2452 MH	Z			(2
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Emissic Peak (dBµV/m)	n Level AV (dBµV/m)	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4904	Н	43.65		1.18	44.83		74	54	-9.17
7356	C H	33.01		10.07	43.08	\mathcal{O}	74	54	-10.92
	Н					<u> </u>			
4904	V	42.73		1.18	43.91		74	54	-10.09
7356	V	34.16		10.07	44.23		74	54	-9.77
)	V				5]				

1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss - Pre-amplifier

2. Margin (dB) = Emission Level (Peak) (dB μ V/m)-Average limit (dB μ V/m)

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3. The emission levels of other frequencies are very lower than the limit and not show in test report.

4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency. The highest test frequency is 25GHz.

5. Data of measurement shown "----"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

Appendix A: Test Result of Conducted Test

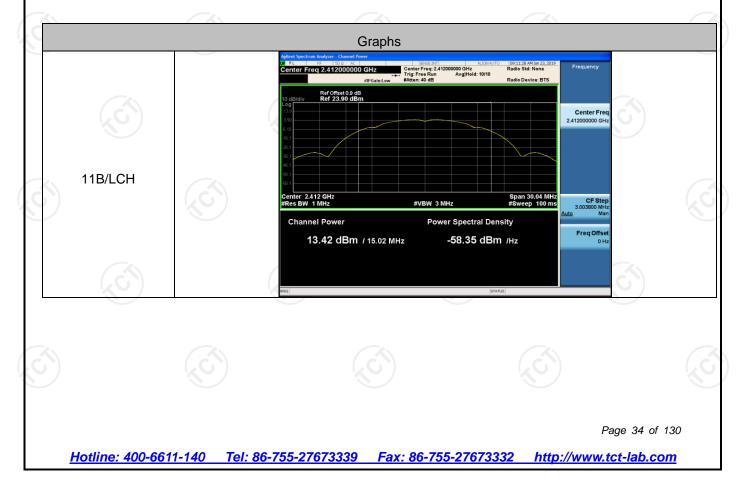
Conducted Average Output Power

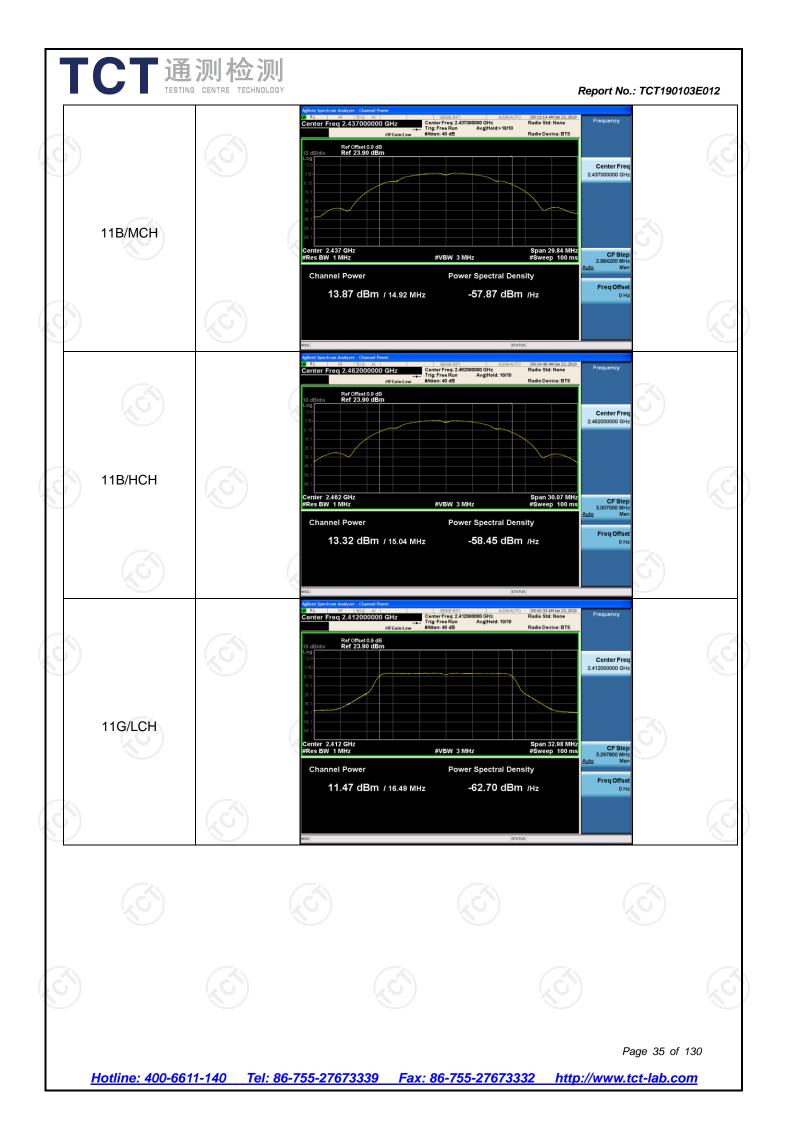
Result Table

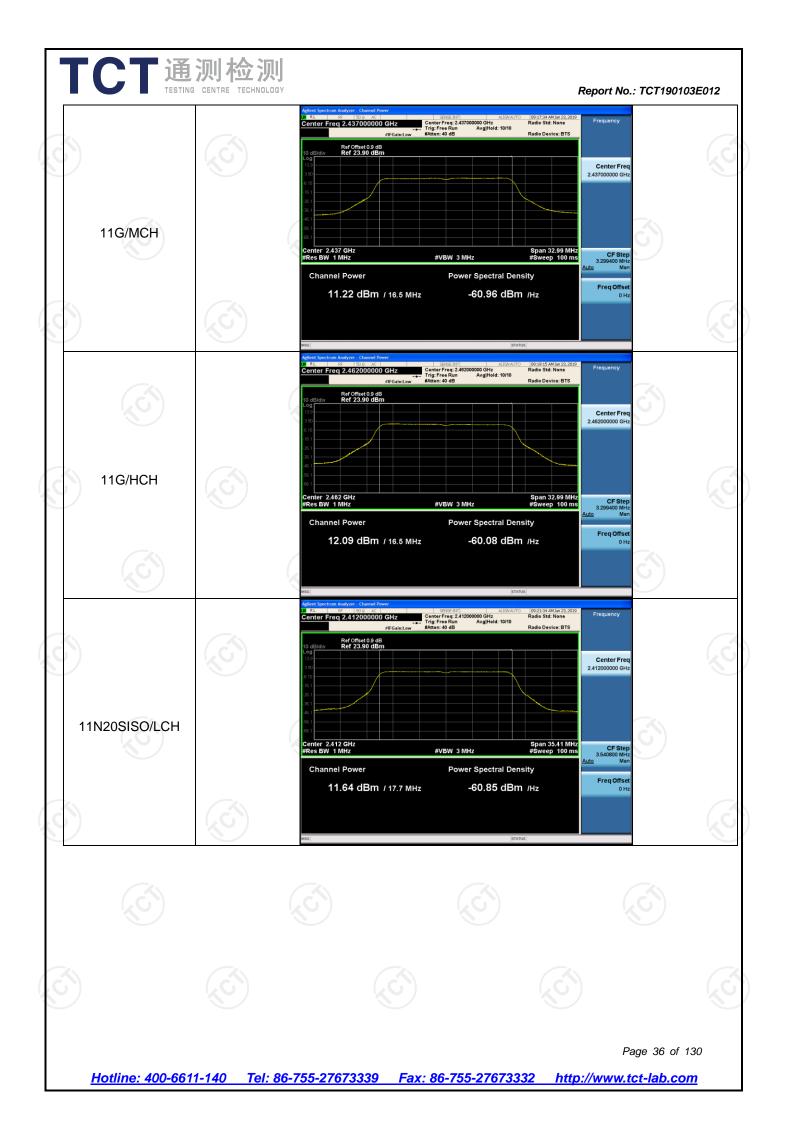
Antenna 0

Mode	Channel	Meas.Level [dBm]	Verdict			
11B	LCH	13.42	PASS			
11B	MCH	13.87	PASS			
11B	НСН	13.32	PASS			
11G	LCH	11.47	PASS			
11G	MCH	11.22	PASS			
11G	нсн	12.09	PASS			
11N20SISO	LCH	11.64	PASS			
11N20SISO	МСН	10.94	PASS			
11N20SISO	НСН	10.86	PASS			
11N40SISO	LCH	9.01	PASS			
11N40SISO	МСН	8.01	PASS			
11N40SISO	НСН	8.33	PASS			

Test Graph











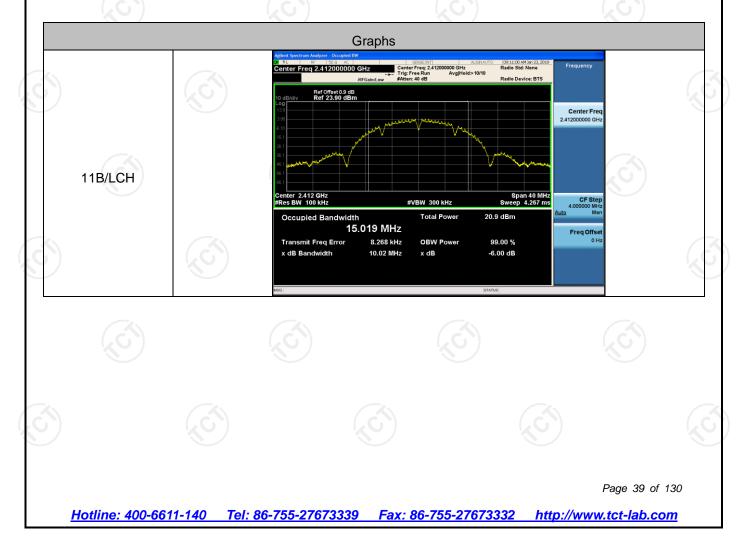


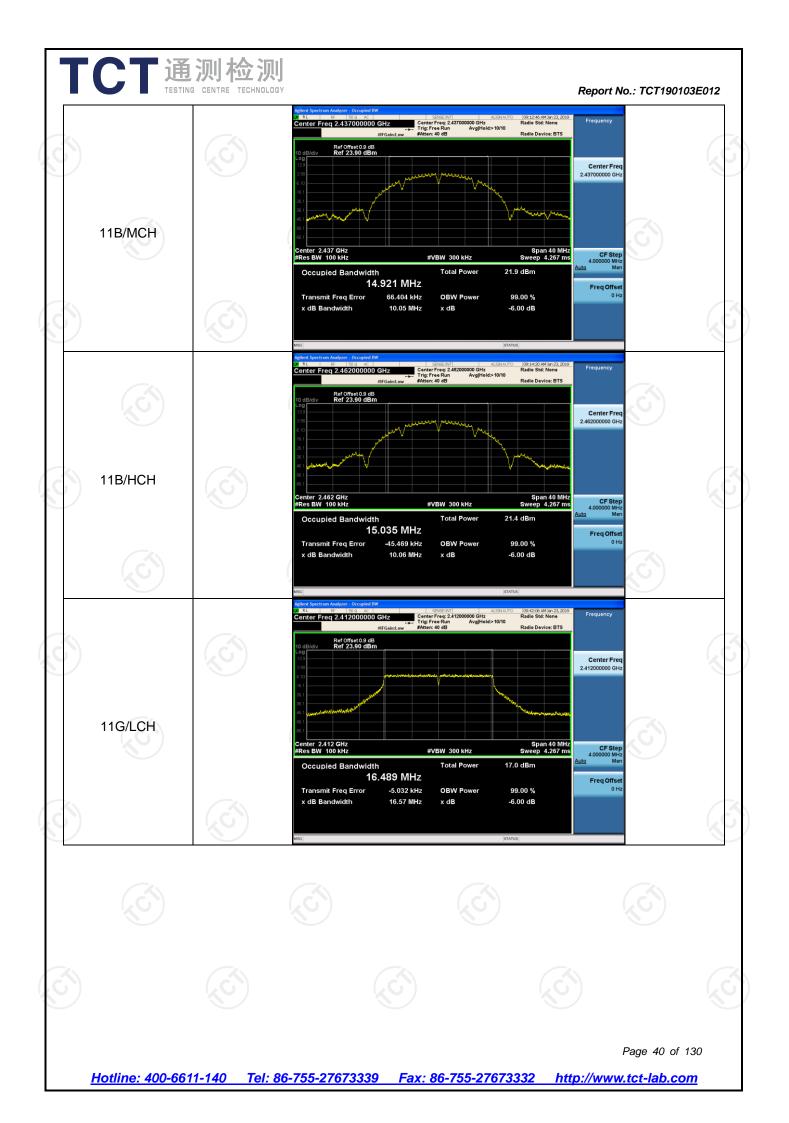
6dB Occupied Bandwidth

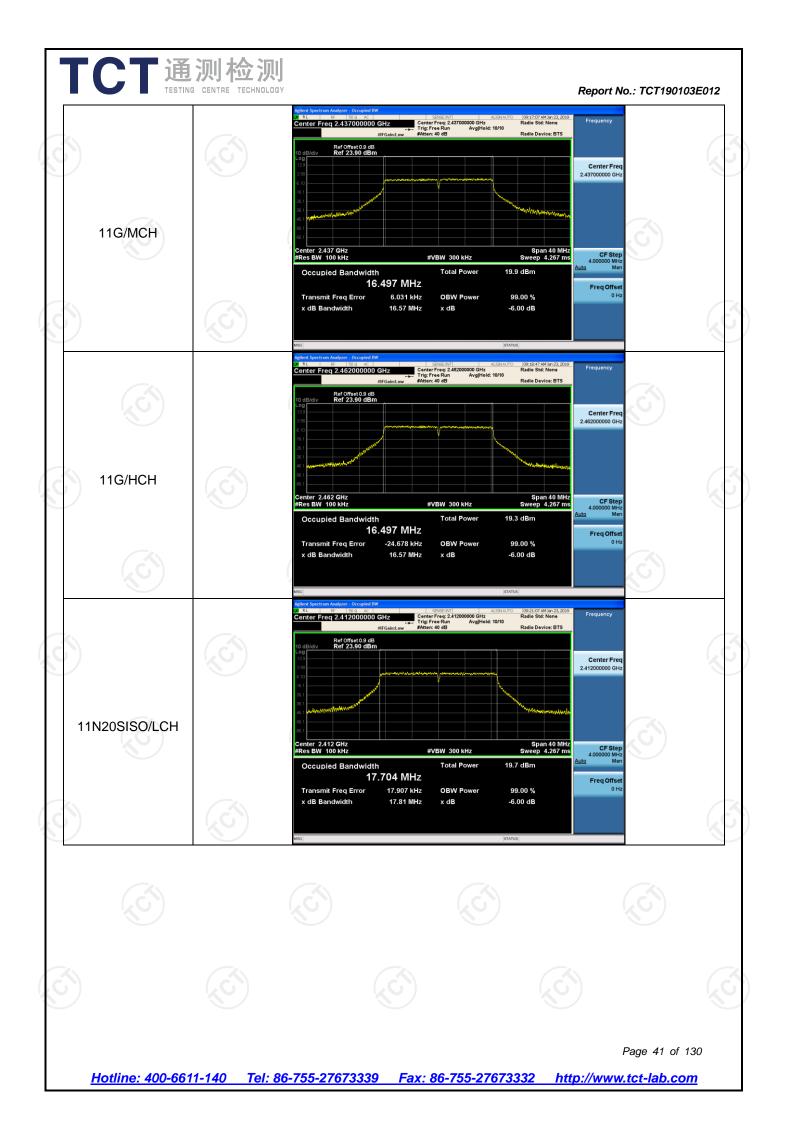
Result Table

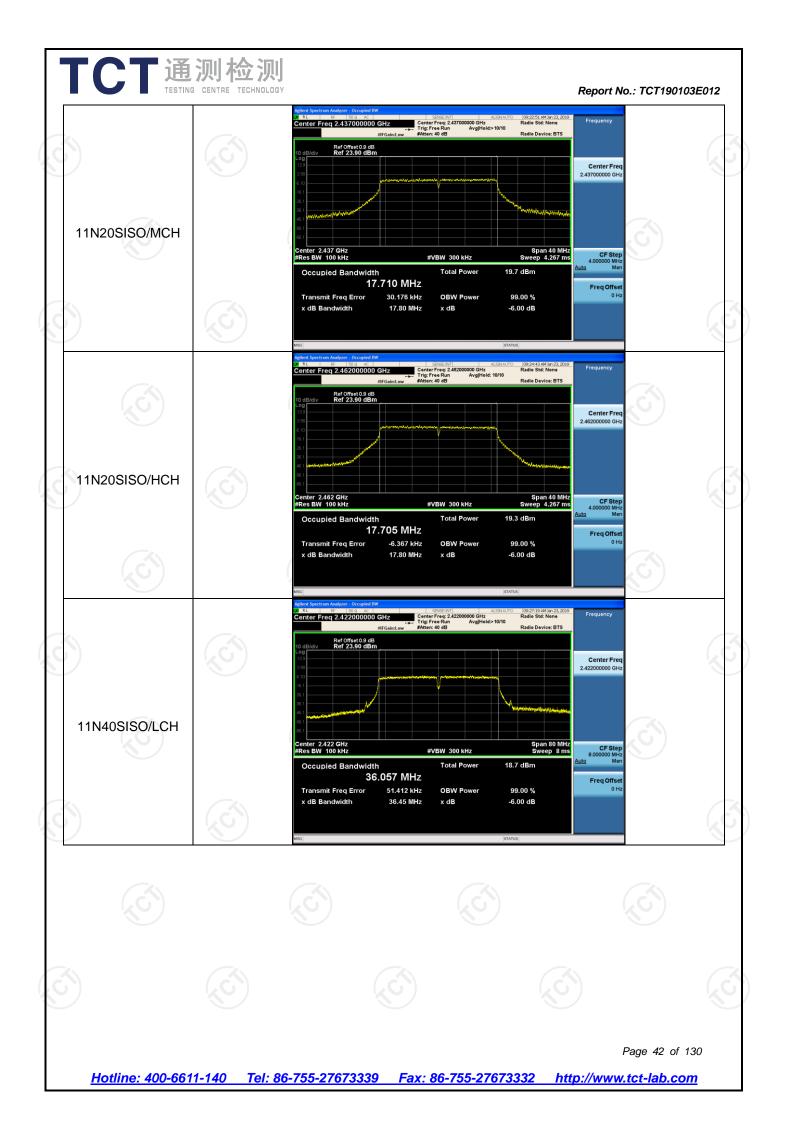
Mode	Channel	6dB Bandwidth [MHz] 10.02	99% OBW [MHz]	Verdict PASS
11B	LCH		15.019	
11B	MCH	10.05	14.921	PASS
11B	HCH	10.06	15.035	PASS
11G	LCH	16.57	16.489	PASS
11G	МСН	16.57	16.497	PASS
11G	HCH	16.57	16.497	PASS
11N20SISO	LCH	17.81	17.704	PASS
11N20SISO	MCH	17.80	17.710	PASS
11N20SISO	HCH	17.80	17.705	PASS
11N40SISO	LCH	36.45	36.057	PASS
11N40SISO	МСН	36.42	36.017	PASS
11N40SISO	НСН	36.37	35.964	PASS

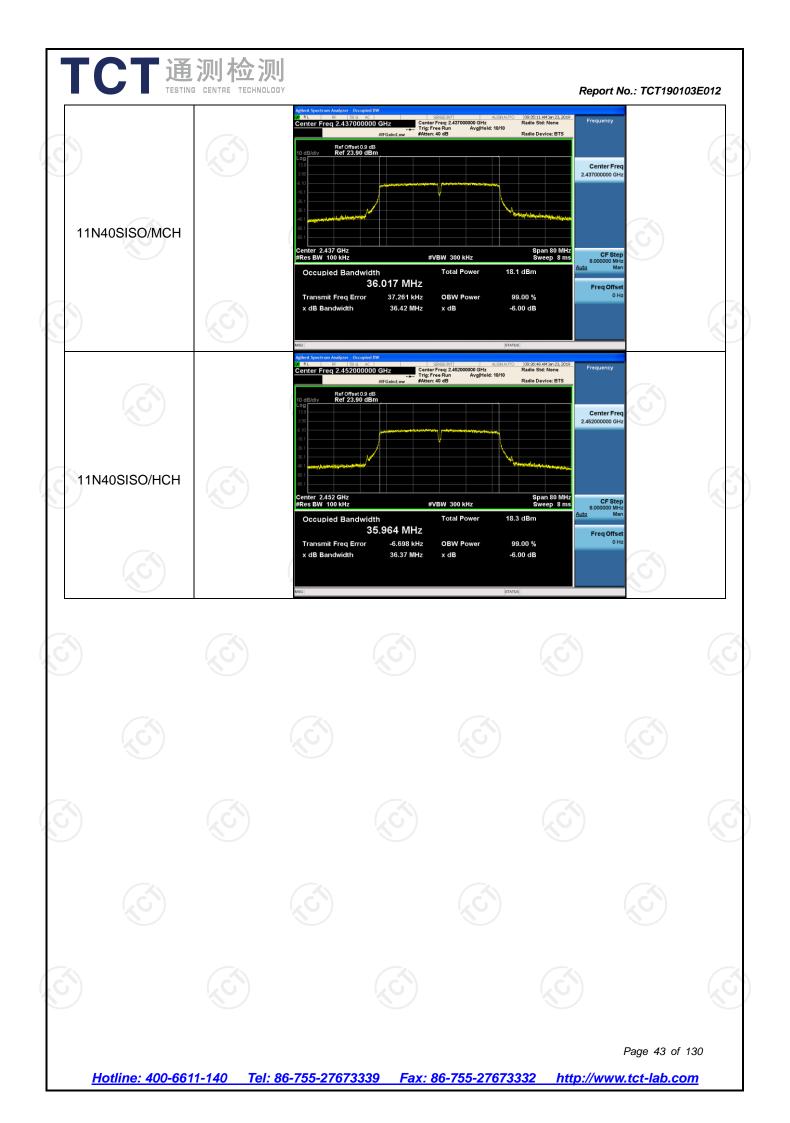
Test Graph







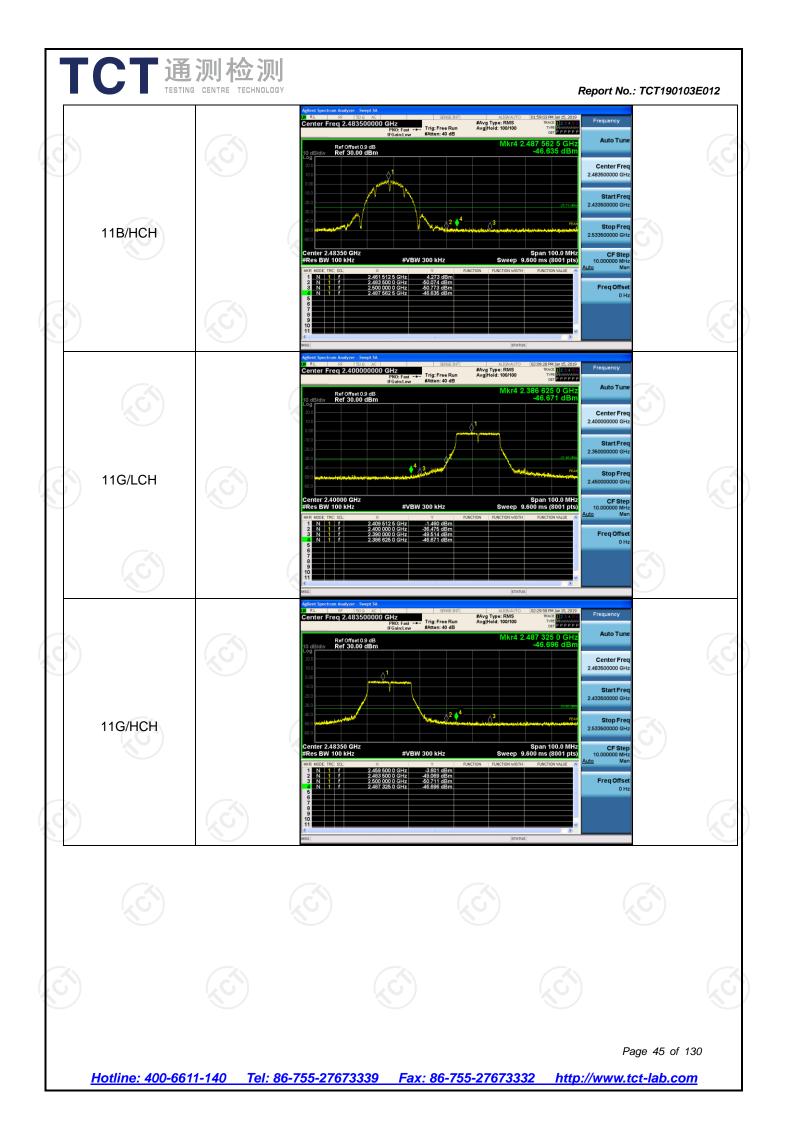


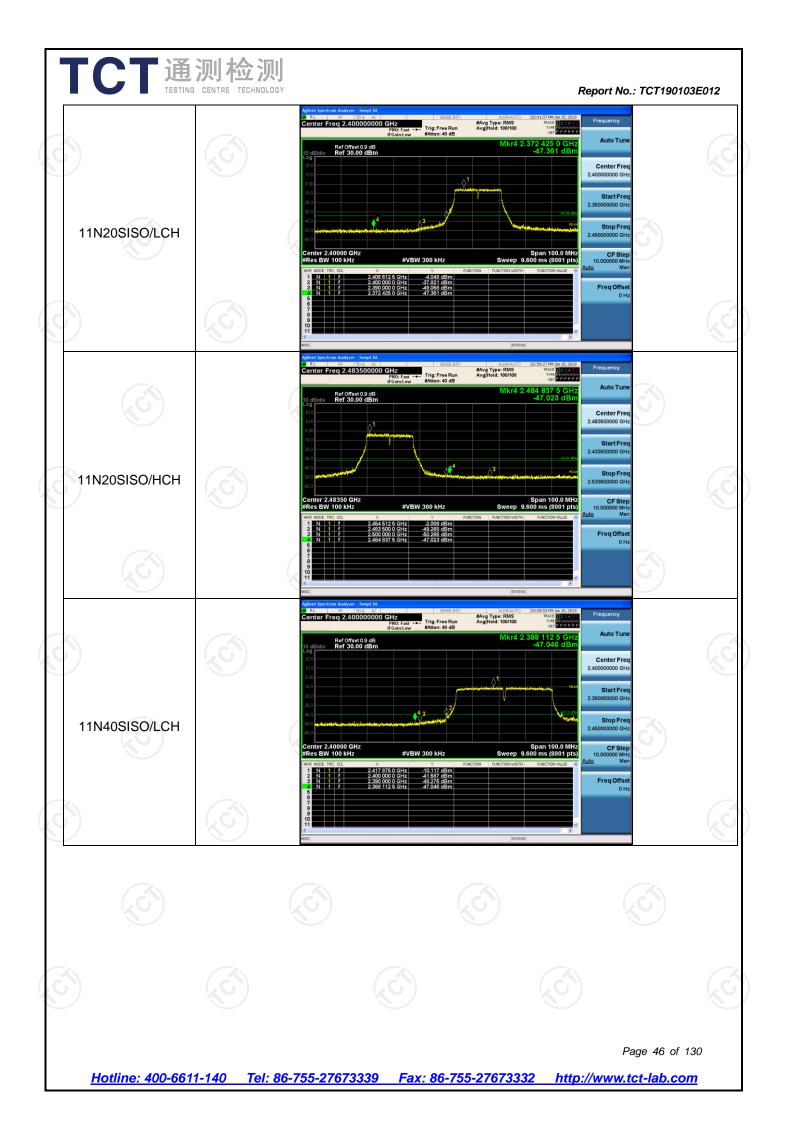


Report No.: TCT190103E012 **Band-edge for RF Conducted Emissions Result Table Max.Spurious Carrier Power** Channel Limit [dBm] Mode Verdict [dBm] Level [dBm] 11B LCH -47.326 PASS 3.775 -26.23 11B HCH PASS 4.273 -46.635 -25.73 11G LCH -1.460 -46.514 -34.46 PASS 11G HCH -3.601 -46.696 -33.60 PASS -47.361 11N20SISO LCH -4.048 -34.05 PASS 11N20SISO HCH -2.009 -47.023 PASS -32.01 11N40SISO LCH -10.117 -47.046 -40.12 PASS 11N40SISO HCH -7.071 -44.883 -37.07 PASS Test Graph Graphs er Freg 2.400000000 GHz #Avg Type: RMS Avg|Hold: 100/100 ast ++- Trig: Free Run #Atten: 40 dB Auto Tu Ref Offset 0.9 dB Ref 30.00 dBm Center Fre Start Fr Stop Fr 11B/LCH 2.450 Span 100.0 MH 600 ms (8001 pt -32.923 dBm -49.876 dBm -47.326 dBm 2.400 000 0 GHz 2.390 000 0 GHz 2.358 137 5 GHz Freq Offse

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RF Conducted Spurious Emissions

3	Result Tab	le				(
	Mode	Channel	Pref [dBm]		Puw [dBm]	Verdict
	11B	LCH	3.543		<limit< td=""><td>PASS</td></limit<>	PASS
	11B	МСН	5.146		<limit< td=""><td>PASS</td></limit<>	PASS
	11B	НСН	4.330	$(\mathbf{x}^{\mathbf{x}})$	<limit< td=""><td>PASS</td></limit<>	PASS
	11G	LCH	-1.251		<limit< td=""><td>PASS</td></limit<>	PASS
	11G	MCH	-0.818		<limit< td=""><td>PASS</td></limit<>	PASS
	11G	НСН	-3.041		<limit< td=""><td>PASS</td></limit<>	PASS
	11N20SISO	LCH	-3.348		<limit< td=""><td>PASS</td></limit<>	PASS
	11N20SISO	МСН	-4.662		<limit< td=""><td>PASS</td></limit<>	PASS
	11N20SISO	нсн	-4.707		<limit< td=""><td>PASS</td></limit<>	PASS
	11N40SISO	LCH	-9.354		<limit< td=""><td>PASS</td></limit<>	PASS
	11N40SISO	MCH	-10.144		<limit< td=""><td>PASS</td></limit<>	PASS
-	11N40SISO	нсн	-10.376		<limit< td=""><td>PASS</td></limit<>	PASS

Test Graph

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