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TEST REPORT

Report No. CTC20220995E02

FCC ID-----: 2AC88-GLMG21A01

IC-----: 24230-GLMG21A01

Applicant-----: HONGKONG UCLOUDLINK NETWORK TECHNOLOGY

LIMITED

Address...... Suite 603, 6/F, Laws Commercial Plaza, 788 Cheung Sha Wan

Road, Kowloon, Hong Kong

Manufacturer-----: HONGKONG UCLOUDLINK NETWORK TECHNOLOGY

LIMITED

Address...... Suite 603, 6/F, Laws Commercial Plaza, 788 Cheung Sha Wan

Road, Kowloon, Hong Kong

Product Name 4G Wireless Data Terminal

Trade Mark-----: GlocalMe

Model/Type reference······: GLMG21A01

Listed Model(s) · · · · /

Standard FCC CFR Title 47 Part 15 Subpart C Section 15.247

RSS 247 Issue 2

Date of receipt of test sample...: May. 18, 2022

Date of testing...... May. 19, 2022 to Jun. 10, 2022

Date of issue...... Jun. 11, 2022

Result..... PASS

Compiled by:

(Printed name+signature) Terry Su

Supervised by:

(Printed name+signature) Eric Zhang

Approved by:

(Printed name+signature) Totti Zhao

Testing Laboratory Name.....: CTC Laboratories, Inc.

Address...... 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park,

Shenzhen, Guangdong, China

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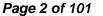
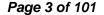




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1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

FCC Rules Part 15.247: Operation within the bands of 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz.

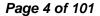
RSS 247 Issue 2: Standard Specifications for Frequency Hopping Systems (FHSs) and Digital Transmission Systems (DTSs) Operating in the Bands 902-928MHz, 2400-2483.5MHz and 5725-5850MHz.

ANSI C63.10-2013: American National Standard for Testing Unlicensed Wireless Devices.

1.2. Report version

Revised No.	Date of issue	Description
01	Jun. 11, 2022	Original

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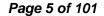


1.3. Test Description

FCC Part 15 Subpart C (15.247) / RSS 247 Issue 2						
Test Item	Standard	Section	Decult	Test		
rest item	FCC	IC	IC Result			
Antenna Requirement	15.203	/	Pass	Alicia Liu		
Conducted Emission	15.207	RSS-Gen 8.8	Pass	Eva Feng		
Radiated Band Edge and Spurious Emissions	15.205&15.209& 15.247(d)	RSS 247 5.5	Pass	Alicia Liu		
Conducted Band Edge and Spurious Emissions	15.247(d)	RSS 247 5.5	Pass	Alicia Liu		
6dB Bandwidth	15.247(a)(2)	RSS 247 5.2 (a)	Pass	Alicia Liu		
Conducted Max Output Power	15.247(b)(3)	RSS 247 5.4 (d)	Pass	Alicia Liu		
Power Spectral Density	15.247(e)	RSS 247 5.2 (b)	Pass	Alicia Liu		
Transmitter Radiated Spurious	15.209&15.247(d)	RSS 247 5.5& RSS-Gen 8.9	Pass	Alicia Liu		

Note: The measurement uncertainty is not included in the test result.

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1.4. Test Facility

CTC Laboratories, Inc.

Add: 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

Laboratory accreditation

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

CNAS-Lab Code: L5365

CTC Laboratories, Inc. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation. Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 4340.01

CTC Laboratories, Inc. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025:2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

Industry Canada (Registration No.: 9783A, CAB Identifier: CN0029)

CTC Laboratories, Inc. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Jan, 2016.

FCC (Registration No.: 951311, Designation Number CN1208)

CTC Laboratories, Inc. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained inour files. Registration 951311, Aug 26, 2017.

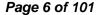
1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01" Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the CTC Laboratories, Inc. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Below is the best measurement capability for CTC Laboratories, Inc.

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Test Items Measurement Uncertainty Notes Transmitter power conducted 0.42 dB (1) 2.14 dB Transmitter power Radiated (1) Conducted spurious emissions 9kHz~40GHz 1.60 dB (1) Radiated spurious emissions 9kHz~40GHz 2.20 dB (1) Conducted Emissions 9kHz~30MHz 3.08 dB (1) Radiated Emissions 30~1000MHz 4.51 dB (1) Radiated Emissions 1~18GHz 5.84 dB (1) Radiated Emissions 18~40GHz 6.12 dB (1) Occupied Bandwidth (1)

Note (1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

1.6. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	21°C ~ 27°C
Relative Humidity:	40% ~ 60%
Air Pressure:	101kPa





2. GENERAL INFORMATION

2.1. Client Information

Applicant:	HONGKONG UCLOUDLINK NETWORK TECHNOLOGY LIMITED
Address:	Suite 603, 6/F, Laws Commercial Plaza, 788 Cheung Sha Wan Road, Kowloon, Hong Kong
Manufacturer:	HONGKONG UCLOUDLINK NETWORK TECHNOLOGY LIMITED
Address:	Suite 603, 6/F, Laws Commercial Plaza, 788 Cheung Sha Wan Road, Kowloon, Hong Kong
Factory:	Shenzhen uCloudlink Network Technology Co., Ltd.
Address:	3rd Floor, A part of Building 1, Shenzhen Software Industry Base, Nanshan District Xuefu Road, 518057 Shenzhen City, Guangdong, China

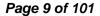




2.2. General Description of EUT

Product Name:	4G Wireless Data Terminal				
Trade Mark:	GlocalMe				
Model/Type reference:	GLMG21A01				
Listed Model(s):	/				
Power supply:	5Vdc/2A from USB Cable 3.85Vdc from 3900mAh Li-ion Battery				
Hardware version:	G40_MB_VB				
Software version: G40_TSV0.0.000.000.220426					
WIFI 802.11b/ g/ n(HT20)	WIFI 802.11b/ g/ n(HT20)/ n(HT40)				
Modulation:	802.11b: DSSS(CCK, DQPSK, DBPSK) 802.11g/n: OFDM(BPSK, QPSK, 16QAM, 64QAM)				
Operation frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz				
Channel number:	802.11b/g/n(HT20):11channels 802.11n(HT40):7channels				
Channel separation:	5MHz				
Antenna type:	Internal Antenna				
Antenna gain:	1.20dBi Max				

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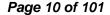


2.3. Accessory Equipment information

Equipment Information					
Name	Model	S/N	Manufacturer		
Notebook	ThinkBook 14G3 ACL	MP246QDR	Lenovo		
/	/	/	/		
Cable Information					
Name	Shielded Type	Ferrite Core	Length		
Type-C Cable	With	Without	1M		
Test Software Information					
Name	Versions	/	/		
QRCT3.exe	V3.0.54.0	/	/		

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2.4. Operation state

Operation Frequency List: The EUT has been tested under typical operating condition. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting and receiving mode for testing.

Operation Frequency List:

Channel	Frequency (MHz)
01	2412
02	2417
03	2422
04	2427
05	2432
06	2437
07	2442
08	2447
09	2452
10	2457
11	2462

Note: CH 01~CH 11 for 802.11b/g/n(HT20), CH 03~CH 09 for 802.11n(HT40)

Data Rated

Preliminary tests were performed in different data rate, and found which the below bit rate is worst case mode, so only show data which it is a worst case mode.

Mode	Data rate (worst mode)	
802.11b	1Mbps	
802.11g	6Mbps	
802.11n(HT20)	HT-MCS0	
802.11n(HT40)	HT-MCS0	

Test mode

For RF test items:

The engineering test program was provided and enabled to make EUT continuous transmit.

For AC power line conducted emissions:

The EUT was set to connect with the WLAN AP under large package sizes transmission.

For Radiated spurious emissions test item:

The engineering test program was provided and enabled to make EUT continuous transmit. The EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data Recorded in the report.

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2.5. Measurement Instruments List

Tonsce	Tonscend JS0806-2 Test system						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until		
1	Spectrum Analyzer	KEYSIGHT	N9020A	100231	Dec. 23, 2022		
2	Spectrum Analyzer	Rohde & Schwarz	FUV40-N	101331	Mar. 15, 2023		
3	MXG Vector Signal Generator	Agilent	N5182A	MY47420864	Dec. 23, 2022		
4	Signal Generator	Agilent	E8257D	MY46521908	Dec. 23, 2022		
5	Power Sensor	Agilent	U2021XA	MY5365004	Mar. 15, 2023		
6	Power Sensor	Agilent	U2021XA	MY5365006	Mar. 15, 2023		
7	High and low temperature box	ESPEC	MT3035	N/A	Mar. 15, 2023		
8	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	102414	Dec. 23, 2022		
9	300328 v2.2.2 test system	TONSCEND	v2.6	/	1		

Radiated emission(3m chamber 2)						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until	
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-1013	Jan. 12, 2023	
2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-647	Dec. 23, 2022	
3	Spectrum Analyzer	R&S	FSU26	100105	Dec. 23, 2022	
4	Spectrum Analyzer	R&S	FSV40-N	101331	Mar. 15, 2023	
5	Pre-Amplifier	SONOMA	310	186194	Dec. 23, 2022	
6	Low Noise Pre-Amplifier	EMCI	EMC051835	980075	Dec. 23, 2022	
7	Test Receiver	R&S	ESCI7	100967	Dec. 23, 2022	

Radiated emission(3m chamber 3)						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until	
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-759	Nov. 09, 2022	
2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-647	Dec. 23, 2022	
3	Test Receiver	Keysight	N9038A	MY56400071	Dec. 23, 2022	
4	Broadband Premplifier	SCHWARZBECK	BBV9743B	259	Dec. 23, 2022	
5	Mirowave Broadband Amplifier	SCHWARZBECK	BBV9718C	111	Dec. 23, 2022	

Condu	Conducted Emission											
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until							
1	LISN	R&S	ENV216	101112	Dec. 23, 2022							
2	LISN	R&S	ENV216	101113	Dec. 23, 2022							
3	EMI Test Receiver	R&S	ESCS30	100353	Dec. 23, 2022							

Note:1. The Cal. Interval was one year.

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^{2.} The cable loss has calculated in test result which connection between each test instruments.



3. TEST ITEM AND RESULTS

3.1. Conducted Emission

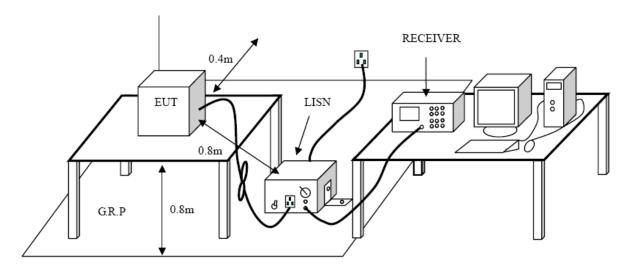
Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.207/ RSS - Gen 8.8:

Fraguenov rango (MHz)	Limit (d	BuV)
Frequency range (MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

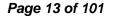
^{*} Decreases with the logarithm of the frequency.

Test Configuration



Test Procedure

- 1. The EUT was setup according to ANSI C63.10:2013 requirements.
- 2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
- 3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
- 4. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
- 5. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
- 6. Conducted Emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
- 7. During the above scans, the emissions were maximized by cable manipulation.

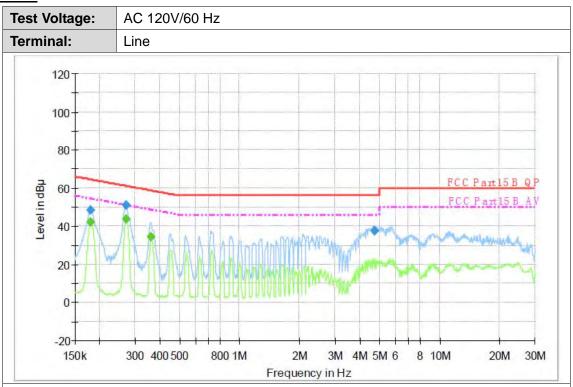




Test Mode:

Please refer to the clause 2.4.

Test Results



Final Measurement Detector 1

	Frequency (MHz)	QuasiPeak (dBμ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
1	0.180960	48.6	1000.00	9.000	On	L1	9.7	15.8	64.4	
	0.270820	50.9	1000.00	9.000	On	L1	9.7	10.2	61.1	
	4.758680	37.5	1000.00	9.000	On	L1	9.7	18.5	56.0	

Final Measurement Detector 2

	Frequency (MHz)	Average (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
Γ	0.180960	42.1	1000.00	9.000	On	L1	9.7	12.3	54.4	
Γ	0.270820	43.8	1000.00	9.000	On	L1	9.7	7.3	51.1	
	0.362440	34.4	1000.00	9.000	On	L1	9.7	14.3	48.7	

Emission Level= Read Level+ Correct Factor

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20M 30M



Test Voltage: AC 120V/60 Hz Terminal: Neutral 120 100 80 Level in dBµ 60 40 20 0

Final Measurement Detector 1

300 400 500

800 1M

150k

Frequency (MHz)	QuasiPeak (dBμ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.180960	49.0	1000.00	9.000	On	N	10.0	15.4	64.4	
0.269740	51.1	1000.00	9.000	On	N	10.0	10.0	61.1	
4.758680	41.0	1000.00	9.000	On	N	10.0	15.0	56.0	

Frequency in Hz

3M 4M 5M 6

8 10M

Final Measurement Detector 2

Frequency (MHz)	Average (dBµ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµ V)	Comment
0.180240	43.0	1000.00	9.000	On	N	10.0	11.5	54.5	
0.270820	44.1	1000.00	9.000	On	N	10.0	7.1	51.1	
0.362440	34.9	1000.00	9.000	On	N	10.0	13.8	48.7	

Emission Level= Read Level+ Correct Factor



3.2. Radiated Emission

Limit

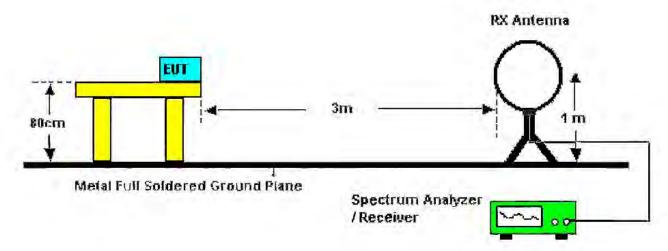
FCC CFR Title 47 Part 15 Subpart C Section 15.209/ RSS - Gen 8.9:

Frequency	Limit (dBuV/m @3m)	Value
30 MHz ~ 88 MHz	40.00	Quasi-peak
88 MHz ~ 216 MHz	43.50	Quasi-peak
216 MHz ~ 960 MHz	46.00	Quasi-peak
960 MHz ~ 1 GHz	54.00	Quasi-peak
Above 1 GHz	54.00	Average
Above I GHZ	74.00	Peak

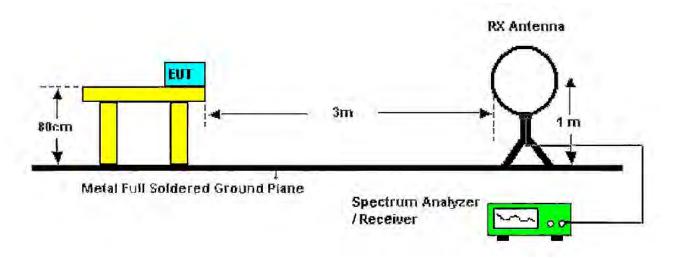
Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level (dBuV/m)=20log Emission Level (uV/m).

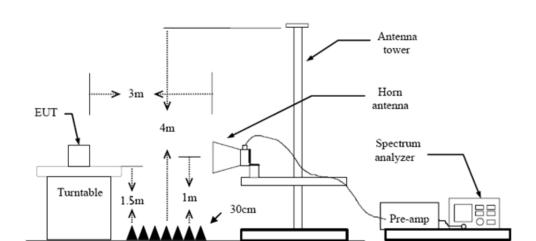
Test Configuration



Below 30MHz Test Setup



Below 1000MHz Test Setup



Above 1GHz Test Setup

Test Procedure

- The EUT was setup and tested according to ANSI C63.10:2013
- 2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
- 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
- 4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
- 5. Set to the maximum power setting and enable the EUT transmit continuously.
- 6. Use the following spectrum analyzer settings
- (1) Span shall wide enough to fully capture the emission being measured;
- (2) Below 1 GHz:

RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;

If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

(3) From 1 GHz to 10th harmonic:

RBW=1MHz, VBW=3MHz Peak detector for Peak value.

RBW=1MHz, VBW=3MHz RMS detector for Average value.

Test Mode

Please refer to the clause 2.4.

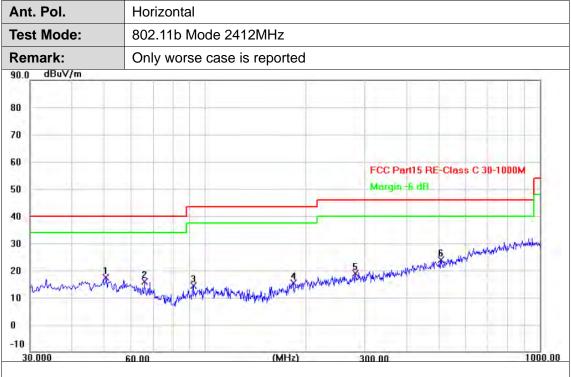
Test Result

9 KHz~30 MHz

From 9 KHz to 30 MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	50.6933	31.69	-14.42	17.27	40.00	-22.73	QP
2	65.8900	33.35	-17.42	15.93	40.00	-24.07	QP
3	92.4033	31.96	-17.63	14.33	43.50	-29.17	QP
4	183.5833	33.10	-17.69	15.41	43.50	-28.09	QP
5	281.2300	32.84	-13.96	18.88	46.00	-27.12	QP
6 *	507.5633	32.95	-9.00	23.95	46.00	-22.05	QP

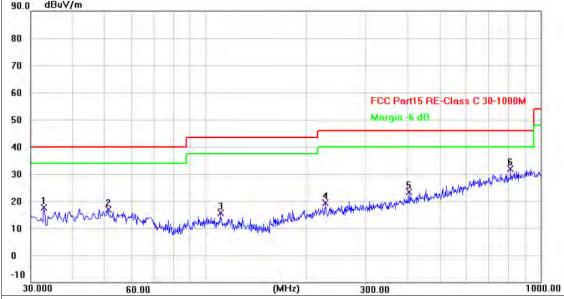
Remarks:

- 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- 2.Margin value = Level -Limit value



Ant. Pol. Vertical **Test Mode:** 802.11b Mode 2412MHz Remark: Only worse case is reported 90.0 dBuV/m

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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	32.9100	33.62	-16.04	17.58	40.00	-22.42	QP
2	51.0167	31.27	-14.47	16.80	40.00	-23.20	QP
3	110.8333	32.30	-16.56	15.74	43.50	-27.76	QP
4	227.8800	34.76	-15.28	19.48	46.00	-26.52	QP
5	405.7133	34.33	-10.95	23.38	46.00	-22.62	QP
6 *	813.1133	35.76	-3.92	31.84	46.00	-14.16	QP

Remarks:

- 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- 2.Margin value = Level -Limit value



Adobe 1GHz

		Horizo	ontai							
Mode:		TX 80	802.11b Mode 2412MHz							
ark:					ssion wh	ich more	than 10) dB below	the	
dBuV/m									1	
							FCC	Part15 C - Above	1G PK	
							FCC	Past 15 C - Above	16 AV	
	2									
	1									
	*									
	ark:	dBuV/m	Mo represented BuW/m	Mo report for prescribed lin	No report for the emis prescribed limit.	No report for the emission wh prescribed limit.	Mo report for the emission which more prescribed limit.	No report for the emission which more than 10 prescribed limit. dBuV/m	No report for the emission which more than 10 dB below prescribed limit. Buv/m FCC Part15 C - Above	

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4823.965	2.20	27.94	30.14	54.00	-23.86	AVG
2	4824.262	2.20	39.25	41.45	74.00	-32.55	peak

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value

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26000.00 MHz



Ant. Pol. Vertical TX 802.11b Mode 2412MHz **Test Mode:** No report for the emission which more than 10 dB below the Remark: prescribed limit. 110.0 dBuV/m FCC Part15 C - Above 1G PK 60 FCC Part15 C - Above 16 AV 10.0

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4823.429	2.20	39.06	41.26	74.00	-32.74	peak
2	4824.041	2.20	28.24	30.44	54.00	-23.56	AVG

18500.00

Remarks:

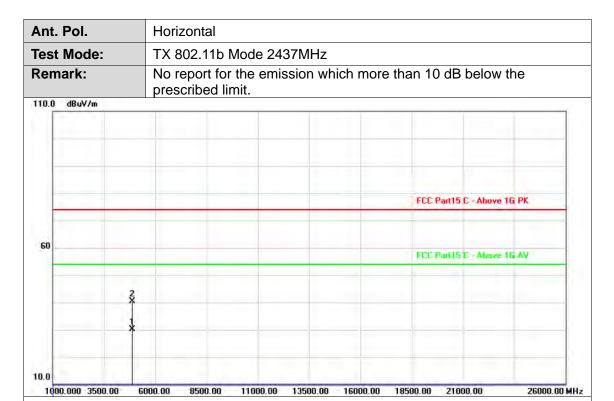
1000.000 3500.00

8500.00

11000.00

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor



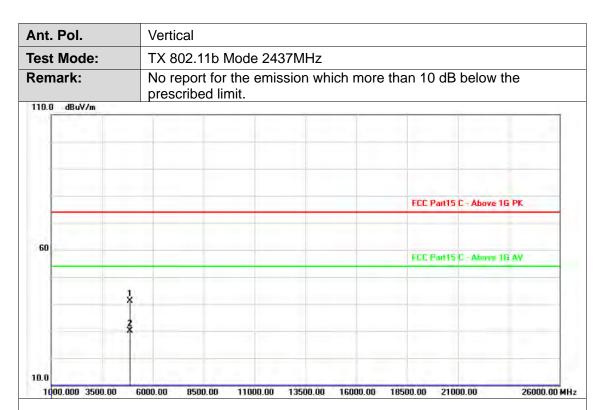


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4873.697	2.30	27.84	30.14	54.00	-23.86	AVG
2	4874.309	2.30	38.14	40.44	74.00	-33.56	peak

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor



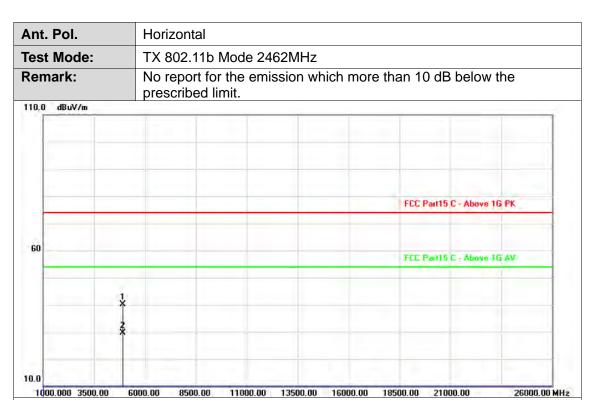


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4873.440	2.30	38.90	41.20	74.00	-32.80	peak
2	4873.789	2.30	27.91	30.21	54.00	-23.79	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor



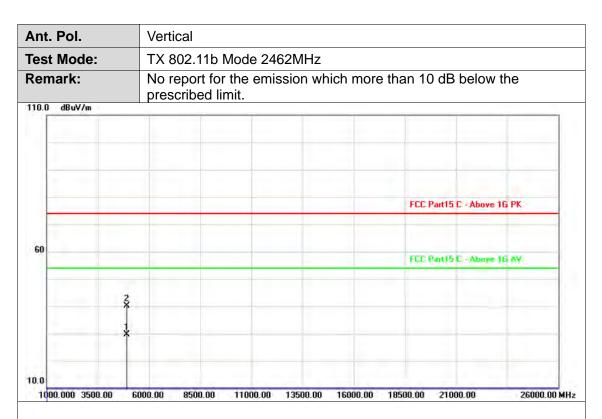


No.	Frequency (MHz)			Level (dBuV/m)		Margin (dB)	Detector
1	4923.562	2.41	37.76	40.17	74.00	-33.83	peak
2	4923.663	2.41	27.14	29.55	54.00	-24.45	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor





No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4923.448	2.41	27.14	29.55	54.00	-24.45	AVG
2	4923.940	2.41	37.71	40.12	74.00	-33.88	peak

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor



Ant. Pol. Horizontal **Test Mode:** TX 802.11g Mode 2412MHz No report for the emission which more than 10 dB below the Remark: prescribed limit. 110.0 dBuV/m FCC Part15 C - Above 1G PK FCC Part15 C - Above 16 AV

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4823.966	2.20	38.83	41.03	74.00	-32.97	peak
2	4824.136	2.20	28.24	30.44	54.00	-23.56	AVG

13500.00

16000.00

18500.00

21000.00

26000.00 MHz

Remarks:

1000.000 3500.00

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

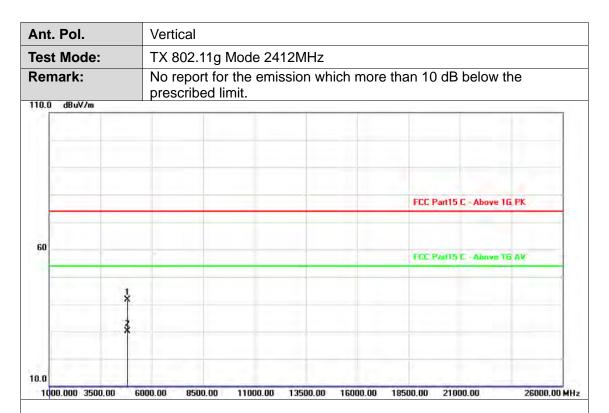
2.Margin value = Level -Limit value

6000.00

8500.00

11000.00



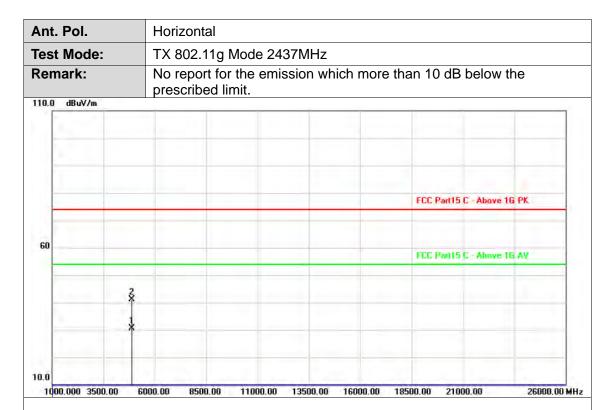


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4824.245	2.20	39.35	41.55	74.00	-32.45	peak
2	4824.312	2.20	28.05	30.25	54.00	-23.75	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor



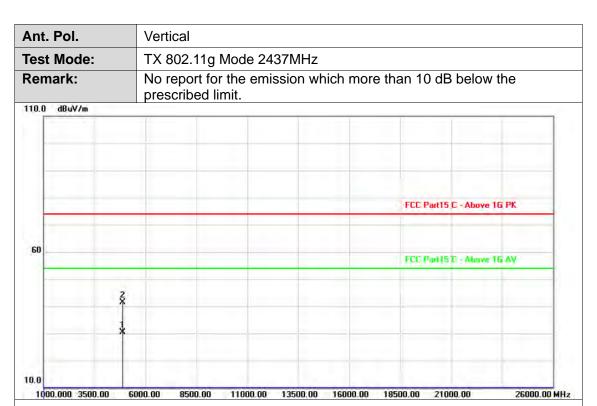


1	No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)		Limit (dBuV/m)	Margin (dB)	Detector
	1	4873.966	2.30	28.24	30.54	54.00	-23.46	AVG
	2	4874.626	2.30	38.85	41.15	74.00	-32.85	peak

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor



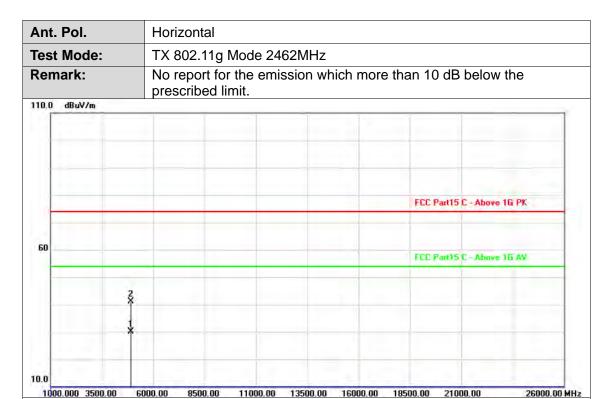


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4873.795	2.30	28.11	30.41	54.00	-23.59	AVG
2	4873.909	2.30	39.17	41.47	74.00	-32.53	peak

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor



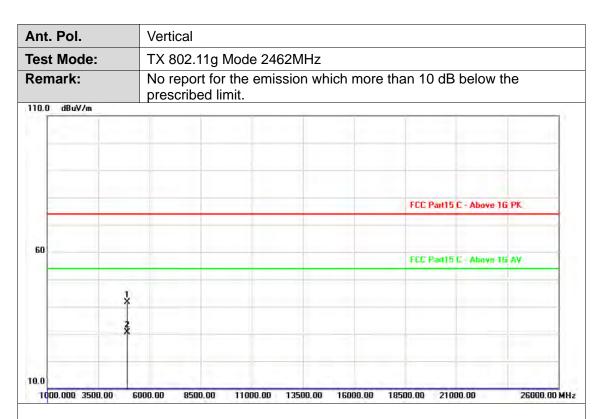


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)		Limit (dBuV/m)	Margin (dB)	Detector
1	4924.023	2.41	27.73	30.14	54.00	-23.86	AVG
2	4924.031	2.41	38.62	41.03	74.00	-32.97	peak

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor





ı	No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
	1	4923.747	2.41	39.13	41.54	74.00	-32.46	peak
	2	4924.153	2.41	28.11	30.52	54.00	-23.48	AVG

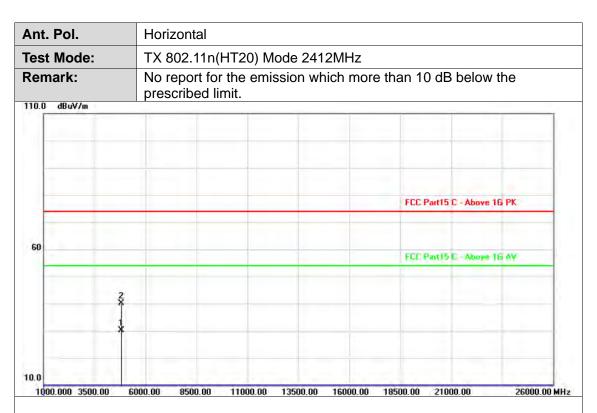
Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value

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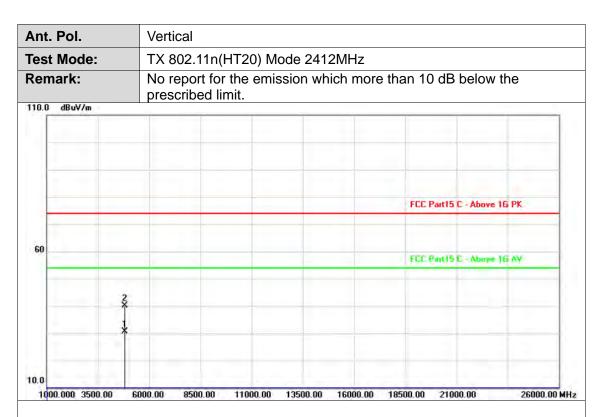


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4823.763	2.20	27.94	30.14	54.00	-23.86	AVG
2	4823.856	2.20	37.95	40.15	74.00	-33.85	peak

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

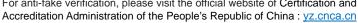




No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)		Limit (dBuV/m)	Margin (dB)	Detector
1	4823.545	2.20	28.42	30.62	54.00	-23.38	AVG
2	4823.746	2.20	37.95	40.15	74.00	-33.85	peak

Remarks:

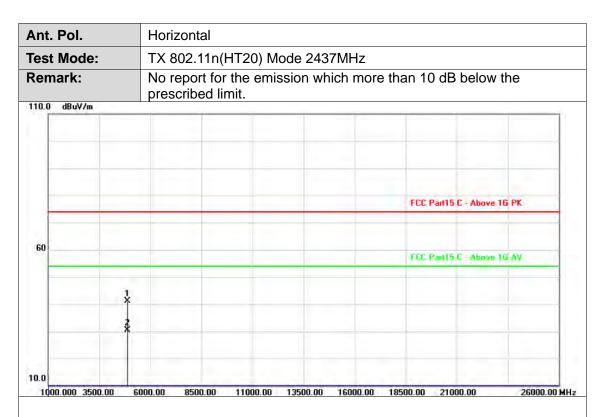
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor









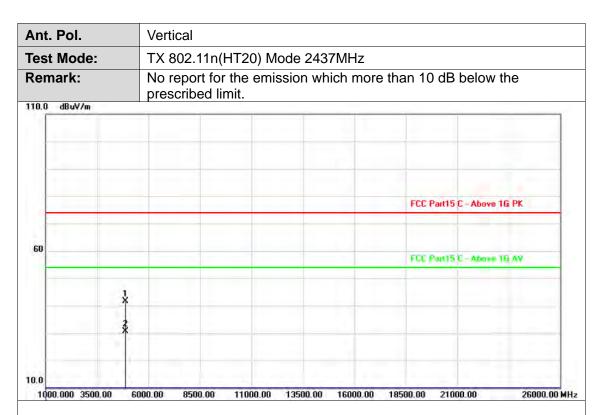


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4873.668	2.30	38.73	41.03	74.00	-32.97	peak
2	4874.663	2.30	28.11	30.41	54.00	-23.59	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor





No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4874.441	2.30	39.44	41.74	74.00	-32.26	peak
2	4874.755	2.30	28.26	30.56	54.00	-23.44	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

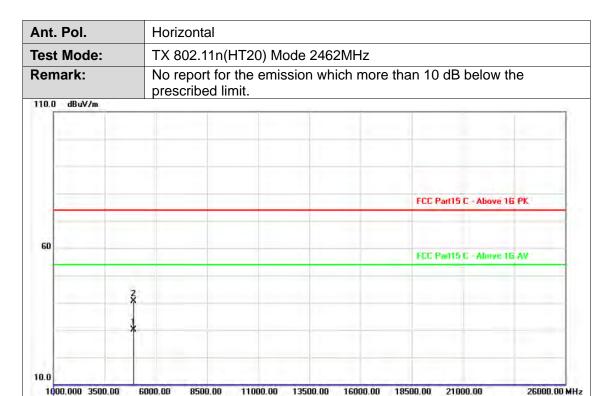
2.Margin value = Level -Limit value

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No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4923.633	2.41	27.73	30.14	54.00	-23.86	AVG
2	4924.032	2.41	38.21	40.62	74.00	-33.38	peak

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor



Test Mode: TX 802.11n(HT20) Mode 2462MHz

Remark: No report for the emission which more than 10 dB below the prescribed limit.

110.0 dBuV/m

FCC Part15 C - Above 16 PK

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4924.023	2.41	28.03	30.44	54.00	-23.56	AVG
2	4924.102	2.41	39.21	41.62	74.00	-32.38	peak

11000.00 13500.00 16000.00 18500.00 21000.00

Remarks:

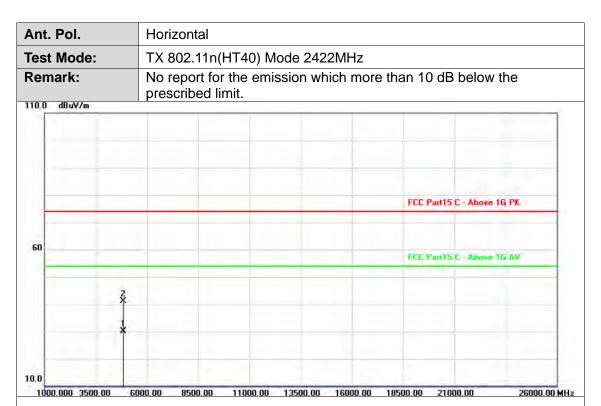
1000.000 3500.00

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value

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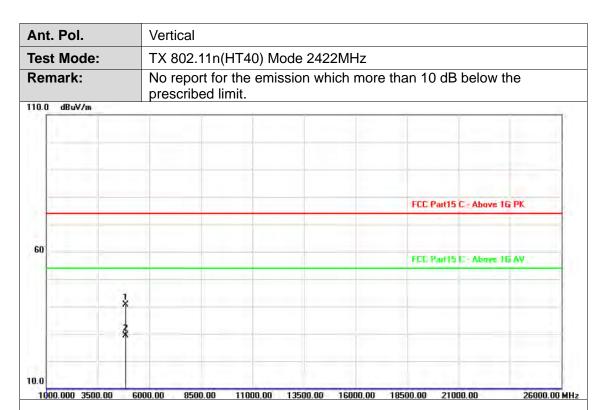


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4843.661	2.24	27.82	30.06	54.00	-23.94	AVG
2	4843.892	2.24	38.79	41.03	74.00	-32.97	peak

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor



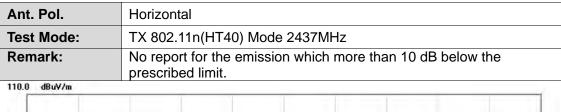


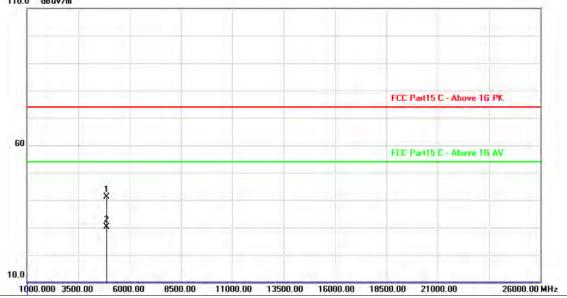
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)		Limit (dBuV/m)	Margin (dB)	Detector
1	4843.682	2.24	38.28	40.52	74.00	-33.48	peak
2	4844.026	2.24	27.20	29.44	54.00	-24.56	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor



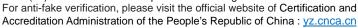




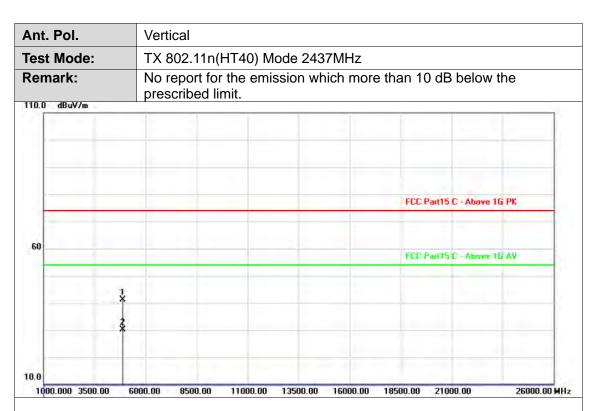
No.	Frequency (MHz)			Level (dBuV/m)	Limit (dBuV/m)		Detector
1	4873.667	2.30	38.73	41.03	74.00	-32.97	peak
2	4873.962	2.30	27.72	30.02	54.00	-23.98	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor





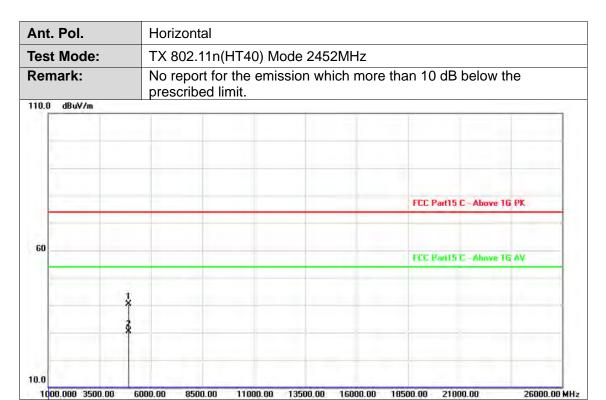


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4874.230	2.30	38.81	41.11	74.00	-32.89	peak
2	4874.556	2.30	27.91	30.21	54.00	-23.79	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor





No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4903.668	2.36	37.94	40.30	74.00	-33.70	peak
2	4903.756	2.36	28.08	30.44	54.00	-23.56	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value

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26000.00 MHz



Ant. Pol. Vertical **Test Mode:** TX 802.11n(HT40) Mode 2452MHz No report for the emission which more than 10 dB below the Remark: prescribed limit. 110.0 dBuV/m FCC Part15 C - Above 16 PK 60 FCC Part 15 C - Above 16 AV

No.	Frequency (MHz)		Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	4903.884	2.36	28.26	30.62	54.00	-23.38	AVG
2	4904.341	2.36	38.47	40.83	74.00	-33.17	peak

Remarks:

10.0

1000.000 3500.00

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value

8500.00

11000.00



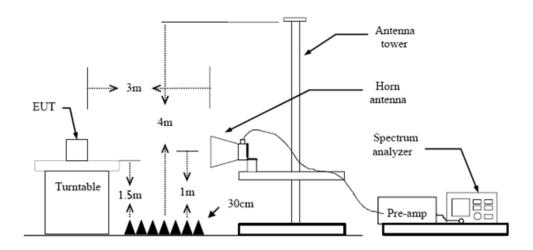
3.3. Band Edge Emissions (Radiated)

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (d)/ RSS 247 5.5:

Restricted Frequency Band	(dBuV/m)(at 3m)				
(MHz)	Peak	Average			
2310 ~2390	74	54			
2483.5 ~2500	74	54			

Test Configuration



Test Procedure

- 1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
- 2. The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level.
- 3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
- 4. The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.
- 5. The receiver set as follow:
 - RBW=1MHz, VBW=3MHz Peak detector for Peak value.
 - RBW=1MHz, VBW see note 1 with Peak Detector for Average Value.
 - Note 1: For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause 3.7 Duty Cycle.
 - 2: Duty Cycle> 98%, VBW=10Hz.

Test Mode

Please refer to the clause 2.4.

Test Results





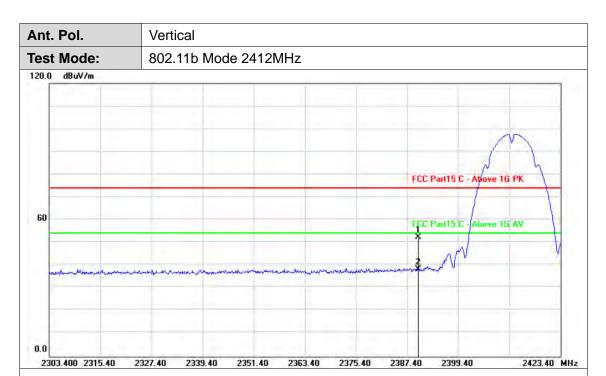


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	2390.000	30.84	22.81	53.65	74.00	-20.35	peak
2	2390.000	30.84	5.64	36.48	54.00	-17.52	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor





No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	2390.000	30.84	21.61	52.45	74.00	-21.55	peak
2	2390.000	30.84	7.30	38.14	54.00	-15.86	AVG

Remarks:

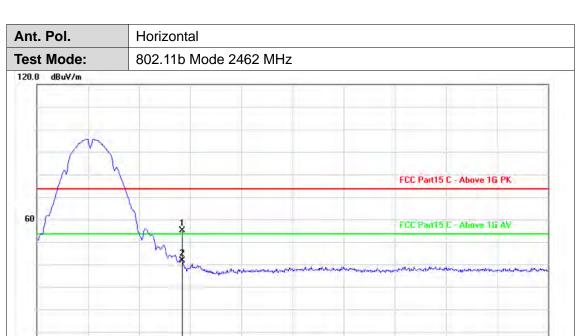
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value

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2569.40 MHz





No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	2483.500	31.24	24.41	55.65	74.00	-18.35	peak
2	2483.500	31.24	11.08	42.32	54.00	-11.68	AVG

Remarks:

2449.400 2461.40

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value

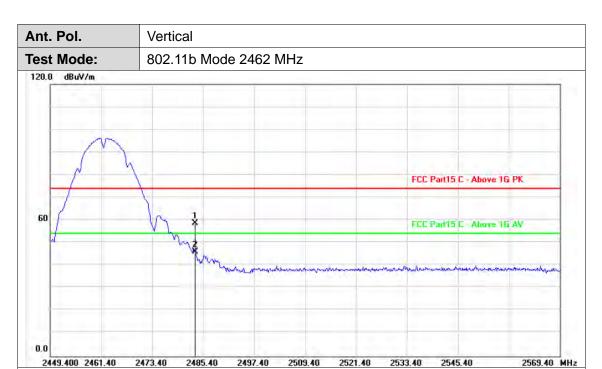
2473.40

2485.40

2497.40

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No.	Frequency (MHz)			Level (dBuV/m)		Margin (dB)	Detector
1	2483.500	31.24	27.40	58.64	74.00	-15.36	peak
2	2483.500	31.24	14.81	46.05	54.00	-7.95	AVG

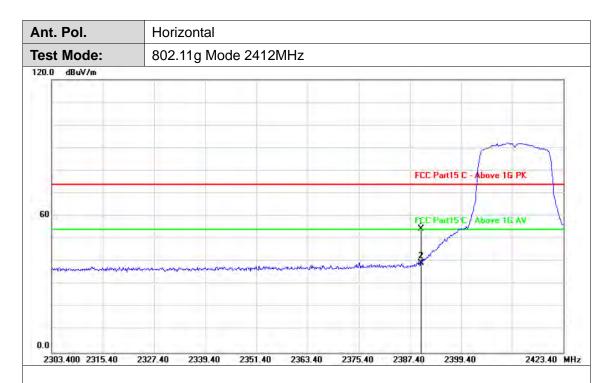
Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value

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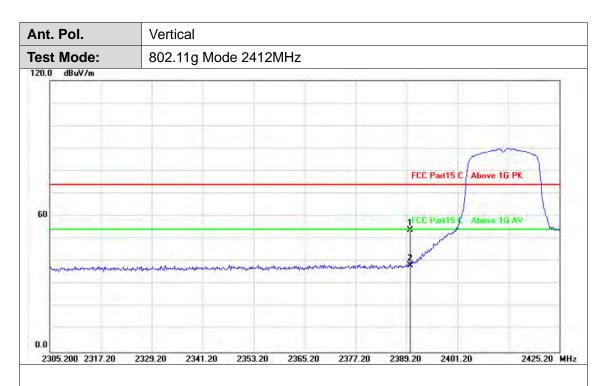


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	2390.000	30.84	23.69	54.53	74.00	-19.47	peak
2	2390.000	30.84	8.67	39.51	54.00	-14.49	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor





No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	2390.000	30.84	22.90	53.74	74.00	-20.26	peak
2	2390.000	30.84	7.39	38.23	54.00	-15.77	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value

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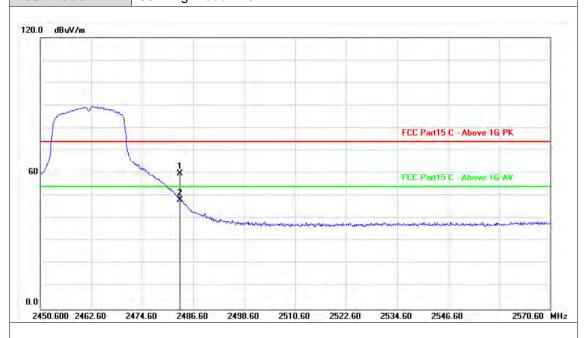
Accreditation Administration of the People's Republic of China: yz.cnca.cn



Ant. Pol. Horizontal

Test Mode: 802.11g Mode 2462MHz

Report No.: CTC20220995E02

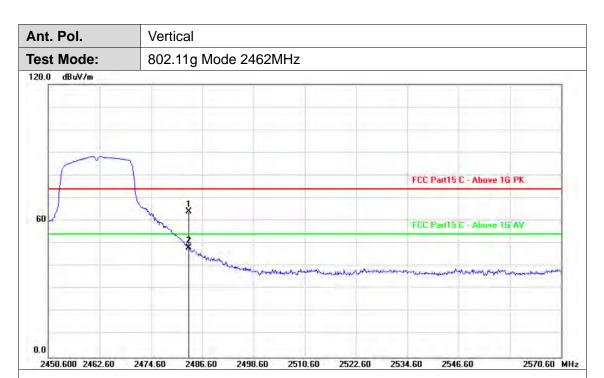


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	2483.500	31.24	28.61	59.85	74.00	-14.15	peak
2	2483.500	31.24	17.04	48.28	54.00	-5.72	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor





No.	Frequency (MHz)		Reading (dBuV)				Detector
1	2483.500	31.24	32.90	64.14	74.00	-9.86	peak
2	2483.500	31.24	16.78	48.02	54.00	-5.98	AVG

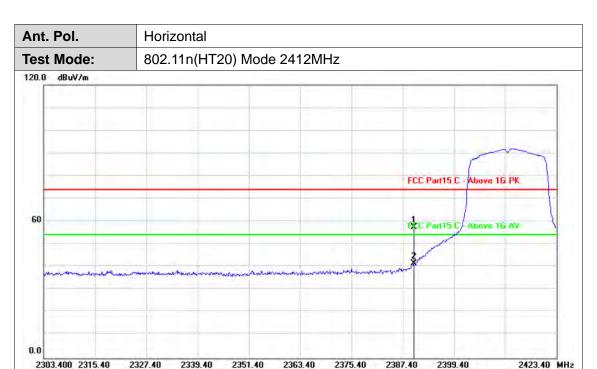
Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value

For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China: yz.cnca.cn





No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	2390.000	30.84	26.72	57.56	74.00	-16.44	peak
2	2390.000	30.84	10.72	41.56	54.00	-12.44	AVG

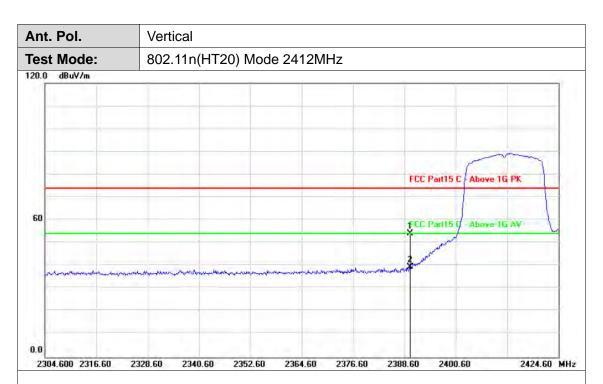
Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value

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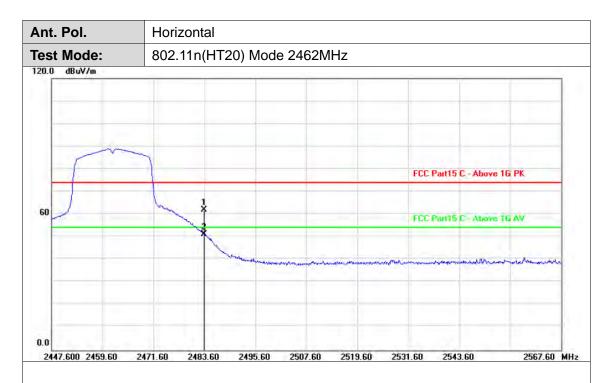


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	2390.000	30.84	23.27	54.11	74.00	-19.89	peak
2	2390.000	30.84	8.65	39.49	54.00	-14.51	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor





No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	2483.500	31.24	30.68	61.92	74.00	-12.08	peak
2	2483.500	31.24	19.89	51.13	54.00	-2.87	AVG

Remarks:

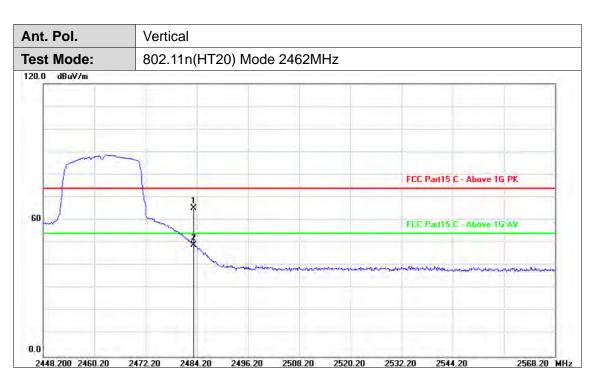
1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value

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No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	2483.500	31.24	33.90	65.14	74.00	-8.86	peak
2	2483.500	31.24	17.93	49.17	54.00	-4.83	AVG

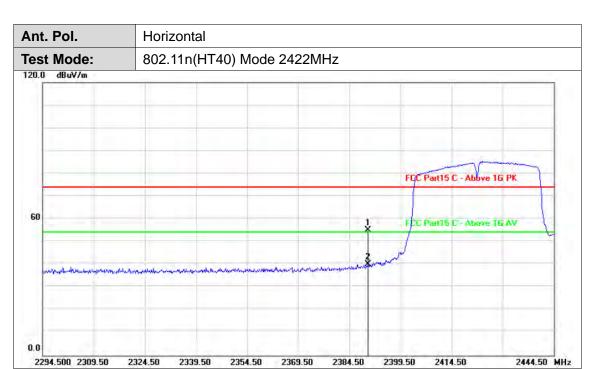
Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value

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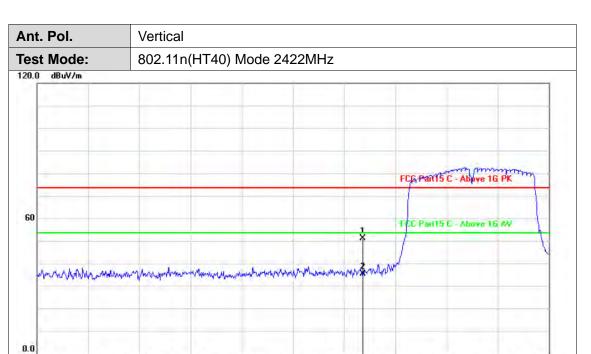
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	2390.000	30.84	24.23	55.07	74.00	-18.93	peak
2	2390.000	30.84	9.19	40.03	54.00	-13.97	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2444.50 MHz





No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
1	2390.000	30.84	20.78	51.62	74.00	-22.38	peak
2	2390.000	30.84	5.45	36.29	54.00	-17.71	AVG

2339.50 2354.50 2369.50 2384.50 2399.50 2414.50

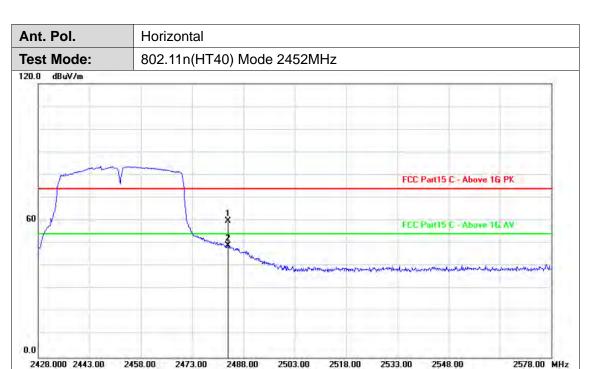
Remarks:

2294.500 2309.50

2324.50

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor



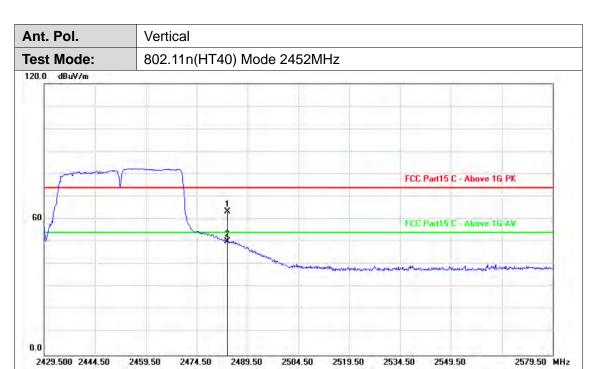


	No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)		Margin (dB)	Detector
	1	2483.500	31.24	28.50	59.74	74.00	-14.26	peak
Γ	2	2483.500	31.24	17.88	49.12	54.00	-4.88	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor





No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2483.500	31.24	32.27	63.51	74.00	-10.49	peak
2	2483.500	31.24	18.93	50.17	54.00	-3.83	AVG

Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

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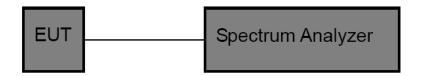


3.4. Band edge and Spurious Emissions (Conducted)

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (d):In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

Test Configuration



Test Procedure

- 1. The transmitter output was connected to the spectrum analyzer through an attenuator, the path loss was compensated to the results for each measurement.
- 2. Set to the maximum power setting and enable the EUT transmit continuously
- 3. Use the following spectrum analyzer settings: RBW = 100 kHz, VBW ≥ RBW, scan up through 10th harmonic. Sweep = auto, Detector function = peak, Trace = max hold
- 4. Measure and record the results in the test report.

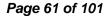
Test Mode

Please refer to the clause 2.4.

Test Results

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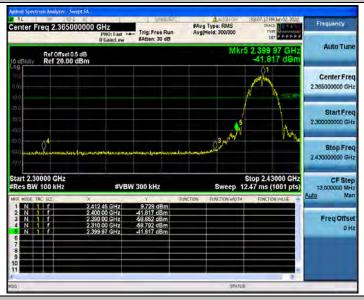


(1) Band edge Conducted Test

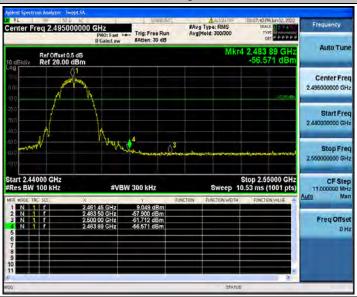
Test Mode	Test Frequency	Ref Level[dBm]	Result[dBm]	Limit[dBm]	Verdict
802.11b	2412	9.73	-41.82	<=-10.27	PASS
602.110	2462	9.05	-56.57	<=-10.95	PASS
902.11.4	2412	6.51	-25.81	<=-13.49	PASS
802.11g	2462	7.02	-38.05	<=-12.98	PASS
902 44 ₅ /UT20\	2412	6.28	-26.33	<=-13.72	PASS
802.11n(HT20)	2462	6.93	-34.98	<=-13.07	PASS
802.11n(HT40)	2422	2.63	-31.39	<=-17.38	PASS
	2452	2.99	-36.73	<=-17.01	PASS

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802.11b_Low_2412



802.11b_High_2462



802.11g_Low_2412



CTC Laboratories, Inc.





802.11g_High_2462

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802.11n(HT20)_Low_2412



802.11n(HT20)_High_2462



802.11n(HT40)_Low_2422





802.11n(HT40)_High_2452





(2) Conducted Spurious Emissions Test

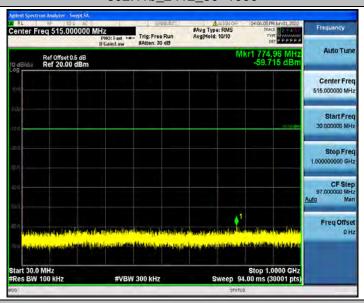
Test Mode	Test Frequency	Freq Range [Mhz]	Ref Level [dBm]	Result [dBm]	Limit [dBm]	Verdict
802.11b	2412	Reference	9.82	9.82		PASS
		30~1000	9.82	-59.72	<=-10.18	PASS
		1000~26500	9.82	-45.69	<=-10.18	PASS
	2437	Reference	9.35	9.35		PASS
		30~1000	9.35	-60.16	<=-10.65	PASS
		1000~26500	9.35	-45.61	<=-10.65	PASS
	2462	Reference	9.55	9.55		PASS
		30~1000	9.55	-60.10	<=-10.45	PASS
		1000~26500	9.55	-45.80	<=-10.45	PASS
802.11g	2412	Reference	6.69	6.69		PASS
		30~1000	6.69	-60.10	<=-13.31	PASS
		1000~26500	6.69	-46.09	<=-13.31	PASS
	2437	Reference	6.58	6.58		PASS
		30~1000	6.58	-58.83	<=-13.42	PASS
		1000~26500	6.58	-46.40	<=-13.42	PASS
	2462	Reference	6.34	6.34		PASS
		30~1000	6.34	-59.96	<=-13.66	PASS
		1000~26500	6.34	-46.22	<=-13.66	PASS
802.11n(HT20)	2412	Reference	6.04	6.04		PASS
		30~1000	6.04	-59.67	<=-13.96	PASS
		1000~26500	6.04	-45.95	<=-13.96	PASS
	2437	Reference	5.94	5.94		PASS
		30~1000	5.94	-60.08	<=-14.06	PASS
		1000~26500	5.94	-46.46	<=-14.06	PASS
	2462	Reference	6.59	6.59		PASS
		30~1000	6.59	-59.20	<=-13.41	PASS
		1000~26500	6.59	-46.17	<=-13.41	PASS
802.11n(HT40)	2422	Reference	2.71	2.71		PASS
		30~1000	2.71	-60.29	<=-17.29	PASS
		1000~26500	2.71	-45.63	<=-17.29	PASS
	2437	Reference	2.54	2.54		PASS
		30~1000	2.54	-60.18	<=-17.46	PASS
		1000~26500	2.54	-46.68	<=-17.46	PASS
	2452	Reference	2.52	2.52		PASS
		30~1000	2.52	-60.30	<=-17.48	PASS
		1000~26500	2.52	-45.68	<=-17.48	PASS



802.11b_2412_0~Reference



802.11b_2412_30~1000



802.11b_2412_1000~26500



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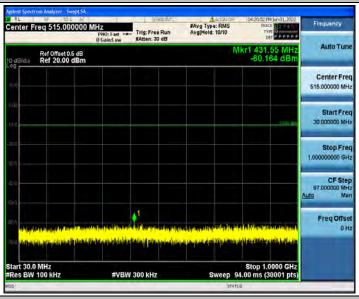


802.11b_2437_0~Reference

Report No.: CTC20220995E02



802.11b_2437_30~1000



802.11b_2437_1000~26500



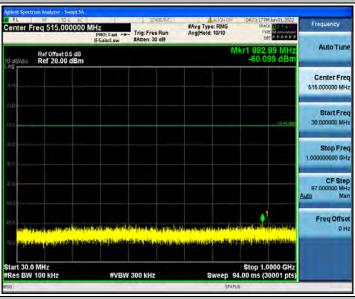
802.11b_2462_0~Reference

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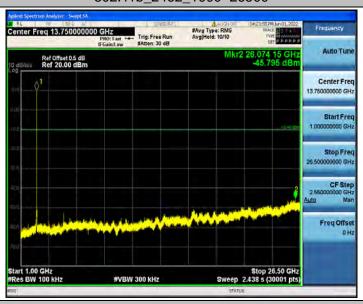
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802.11b_2462_30~1000



802.11b_2462_1000~26500

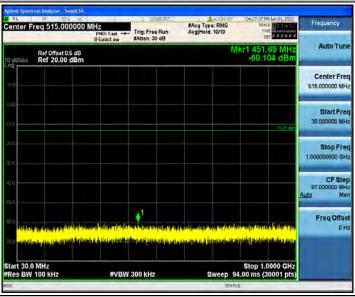


802.11g_2412_0~Reference

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802.11g_2412_30~1000



802.11g_2412_1000~26500

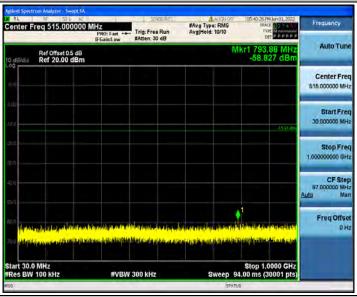


802.11g_2437_0~Reference

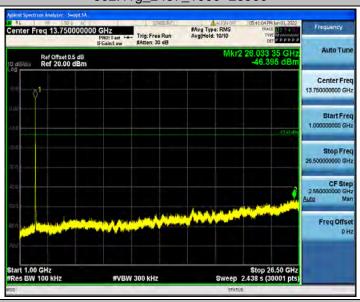
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802.11g_2437_30~1000



802.11g_2437_1000~26500

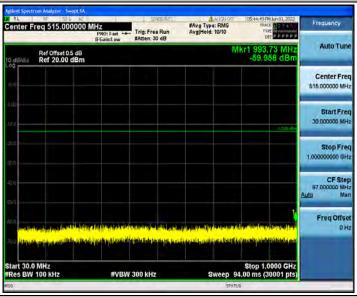


802.11g_2462_0~Reference

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802.11g_2462_30~1000

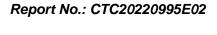


802.11g_2462_1000~26500



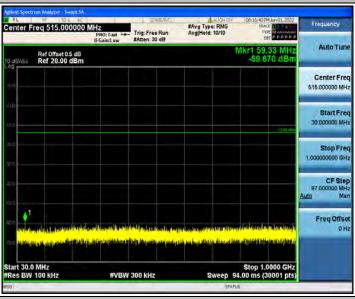
802.11n(HT20)_2412_0~Reference

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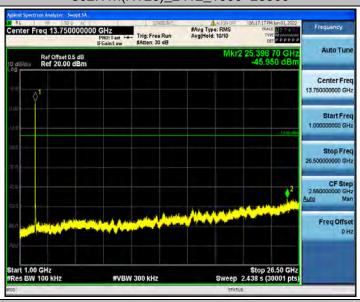




802.11n(HT20)_2412_30~1000



802.11n(HT20)_2412_1000~26500

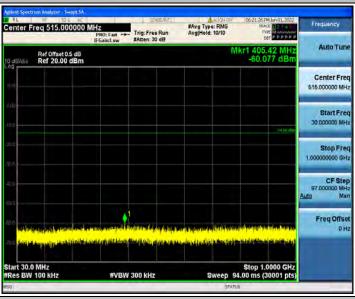


802.11n(HT20)_2437_0~Reference

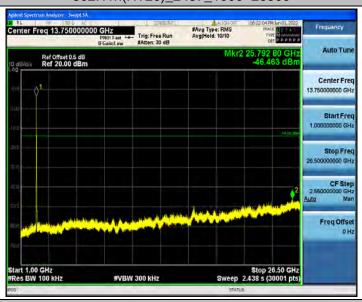




802.11n(HT20)_2437_30~1000



802.11n(HT20)_2437_1000~26500

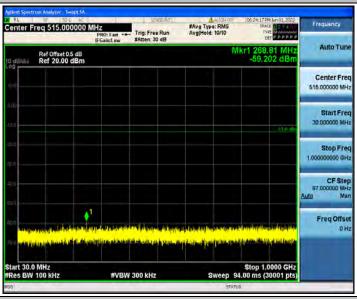


802.11n(HT20)_2462_0~Reference

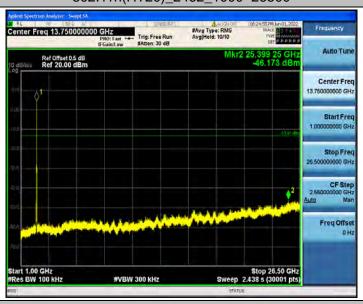




802.11n(HT20)_2462_30~1000



802.11n(HT20)_2462_1000~26500



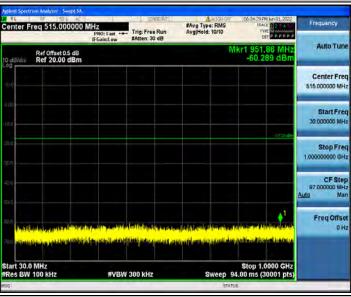
802.11n(HT40)_2422_0~Reference







802.11n(HT40)_2422_30~1000



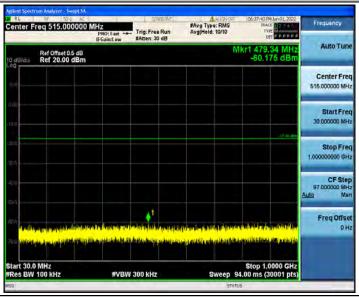
802.11n(HT40)_2422_1000~26500



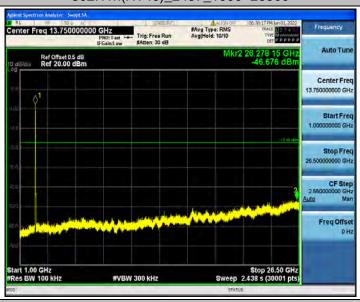
802.11n(HT40)_2437_0~Reference



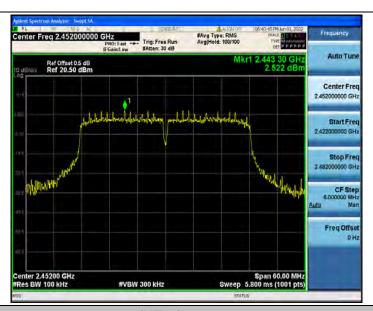
802.11n(HT40)_2437_30~1000



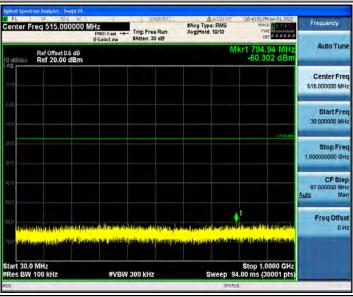
802.11n(HT40)_2437_1000~26500



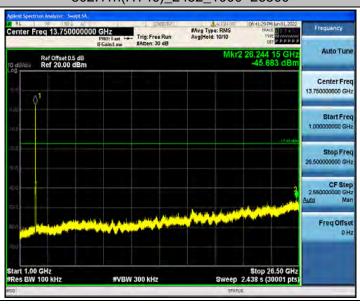
802.11n(HT40)_2452_0~Reference



802.11n(HT40)_2452_30~1000



802.11n(HT40)_2452_1000~26500





3.5. DTS Bandwidth

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(2)/ RSS-247 5.2 a:

Test Item	Limit	Frequency Range(MHz)
DTS Bandwidth	>=500 KHz (6dB bandwidth)	2400~2483.5

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Test Configuration



Test Procedure

- 5. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- 6. DTS Spectrum Setting:
 - (1) Set RBW = 100 kHz.
 - (2) Set the video bandwidth (VBW) ≥ 3 RBW.
 - (3) Detector = Peak.
 - (4) Trace mode = Max hold.
 - (5) Sweep = Auto couple.
 - OCB Spectrum Setting:
 - (1) Set RBW = $1\% \sim 5\%$ occupied bandwidth.
 - (2) Set the video bandwidth (VBW) ≥ 3 RBW.
 - (3) Detector = Peak.
 - (4) Trace mode = Max hold.
 - (5) Sweep = Auto couple.

NOTE: The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

Test Mode

Please refer to the clause 2.4.







Test Results

Test Mode	Channel	DTS BW [MHz]	OCB [MHz]	Limit [MHz]	Verdict
	2412	8.160	12.993	>=0.5	PASS
802.11b	2437	8.640	13.005	>=0.5	PASS
	2462	8.640	13.079	>=0.5	PASS
	2412	16.400	17.315	>=0.5	PASS
802.11g	2437	16.480	17.379	>=0.5	PASS
	2462	16.400	17.390	>=0.5	PASS
802.11n(HT20)	2412	17.440	18.249	>=0.5	PASS
	2437	17.640	18.417	>=0.5	PASS
	2462	17.640	18.278	>=0.5	PASS
802.11n(HT40)	2422	35.280	36.214	>=0.5	PASS
	2437	35.280	36.266	>=0.5	PASS
	2452	35.280	36.354	>=0.5	PASS



DTS Bandwidth

802.11b_2412



802.11b_2437



802.11b_2462







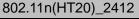




802.11g_2462









802.11n(HT20)_2437



802.11n(HT20)_2462









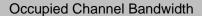
802.11n(HT40)_2437



802.11n(HT40)_2452







802.11b_2412



802.11b_2437



802.11b_2462

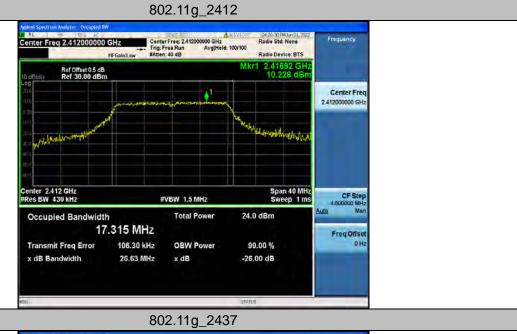


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802.11g_2462

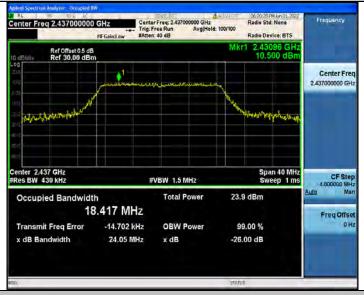








802.11n(HT20)_2437



802.11n(HT20)_2462





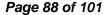


802.11n(HT40)_2437



802.11n(HT40)_2452







3.6. Peak Output Power

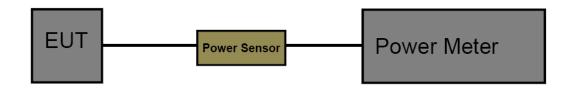
Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (b)(3)/ RSS-247 5.4:

Section Test Item		Limit	Frequency Range(MHz)	
CFR 47 FCC 15.247(b)(3)	Maximum conducted output power	1 Watt or 30dBm	2400~2483.5	
ISED RSS-247 5.4 d	EIRP	4 Watt or 36dBm	2400~2483.5	

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Test Configuration



Test Procedure

- 1. The maximum conducted output power may be measured using a broadband Peak RF power meter.
- 2. Peak power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor.
- The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.
- Record the measurement data.

Test Mode

Please refer to the clause 2.3

Test Result



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Test Mode	Channel	Conducted Result [dBm]	E.I.R.P Result [dBm]	FCC Limit [dBm]	RSS Limit [dBm]	Verdict
	2412	18.46	19.66	<=30	<=36	PASS
802.11b	2437	18.19	19.39	<=30	<=36	PASS
	2462	18.30	19.50	<=30	<=36	PASS
802.11g	2412	16.83	18.03	<=30	<=36	PASS
	2437	16.86	18.06	<=30	<=36	PASS
	2462	16.10	17.30	<=30	<=36	PASS
	2412	16.32	17.52	<=30	<=36	PASS
802.11n(HT20)	2437	16.81	18.01	<=30	<=36	PASS
	2462	16.01	17.21	<=30	<=36	PASS
802.11n(HT40)	2422	16.45	17.65	<=30	<=36	PASS
	2437	16.71	17.91	<=30	<=36	PASS
	2452	16.64	17.84	<=30	<=36	PASS

Note: Test results increased RF cable loss by 0.5dB.

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3.7. Power Spectral Density

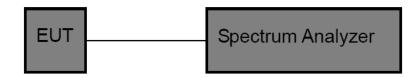
Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (e)/ RSS-247 5.2 b:

Test Item	Limit	Frequency Range(MHz)	
Power Spectral Density	8dBm(in any 3 kHz)	2400~2483.5	

Report No.: CTC20220995E02

Test Configuration



Test Procedure

- 1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- 2. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v05r02.
- Spectrum Setting:

Set analyzer center frequency to DTS channel center frequency.

Set the span to 1.5 times the DTS bandwidth.

Set the RBW to: 3 kHz Set the VBW to: 10 kHz

Detector: PK Sweep time: Auto

Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

Test Mode

Please refer to the clause 2.3

For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China: yz.cnca.cn





Test Result

Test Mode	Channel	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
	2412	-3.83	<=8	PASS
802.11b	2437	-4.64	<=8	PASS
	2462	-4.58	<=8	PASS
802.11g	2412	-7.97	<=8	PASS
	2437	-6.50	<=8	PASS
	2462	-7.95	<=8	PASS
802.11n(HT20)	2412	-8.06	<=8	PASS
	2437	-7.54	<=8	PASS
	2462	-7.79	<=8	PASS
802.11n(HT40)	2422	-11.79	<=8	PASS
	2437	-12.14	<=8	PASS
	2452	-11.71	<=8	PASS

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Accreditation Administration of the People's Republic of China: <u>yz.cnca.cn</u>

802.11b_2412



802.11b 2437



802.11b_2462



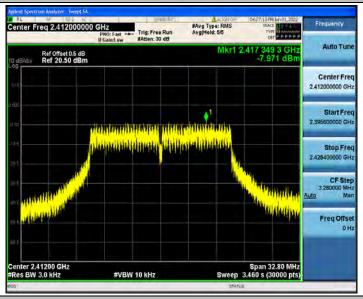
CTC Laboratories, Inc.

中国国家认证认可监督管理委员会

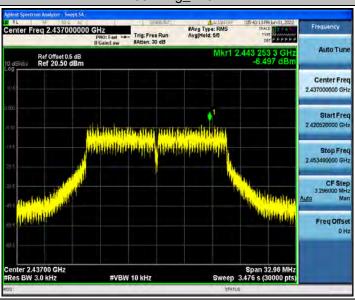


802.11g_2412

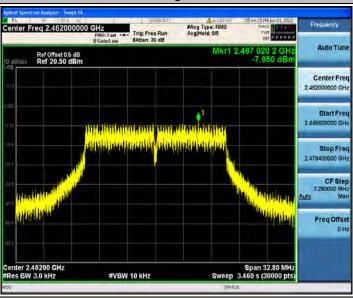
Report No.: CTC20220995E02



802.11g_2437



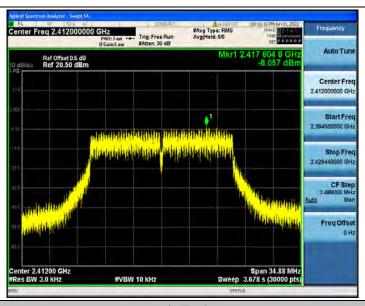
802.11g_2462



802.11n(HT20)_2412

CTC Laboratories, Inc. 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

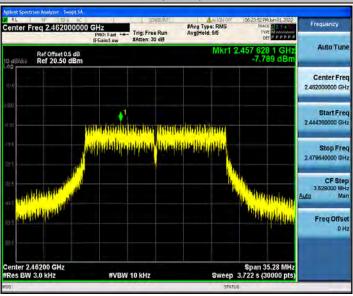
Tel.: (86)755-27521059 Fax: (86)755-27521011 Http://www.sz-ctc.org.cn



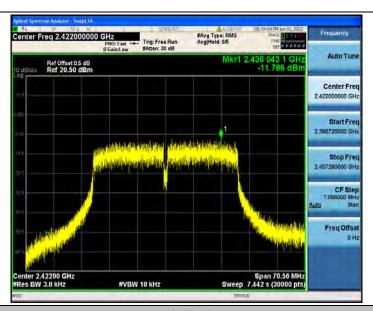
802.11n(HT20)_2437



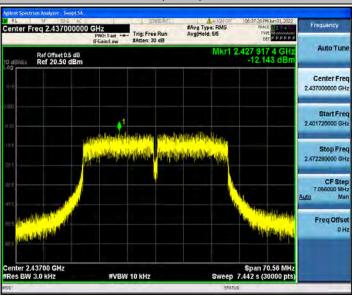
802.11n(HT20)_2462



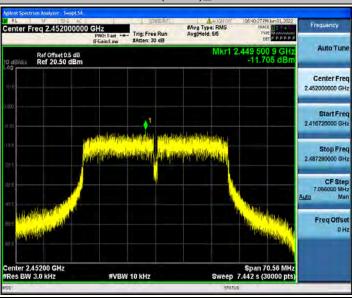
802.11n(HT40)_2422



802.11n(HT40)_2437



802.11n(HT40)_2452





3.8. Duty Cycle

Limit

None, for report purposes only.

Test Configuration



Test Procedure

- 1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- 2. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v05r02.
- 3. Spectrum Setting:

Set analyzer center frequency to DTS channel center frequency.

Set the span to 0Hz Set the RBW to 10MHz Set the VBW to 10MHz

Detector: peak Sweep time: auto

Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

Test Mode

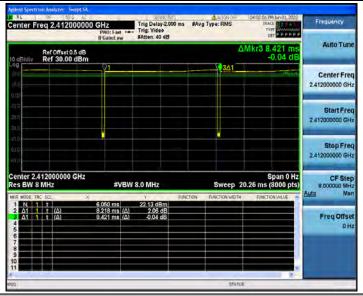
Please refer to the clause 2.3

Test Result

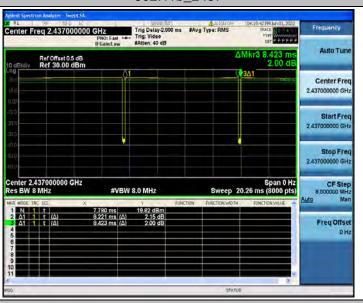
Test Mode	Channel	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)
	2412	8.22	8.42	97.62	0.122	1
802.11b	2437	8.22	8.42	97.62	0.122	1
	2462	8.22	8.42	97.62	0.122	1
	2412	1.36	1.56	87.18	0.735	1
802.11g	2437	1.36	1.56	87.18	0.735	1
	2462	1.36	1.56	87.18	0.735	1
	2412	1.27	1.47	86.39	0.787	1
802.11n(HT20)	2437	1.27	1.47	86.39	0.787	1
	2462	1.27	1.47	86.39	0.787	1
802.11n(HT40)	2422	0.63	0.83	75.90	1.587	2
	2437	0.63	0.84	75.00	1.587	2
	2452	0.63	0.83	75.90	1.587	2



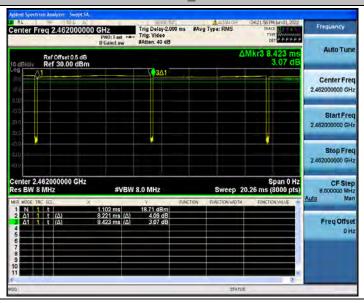
802.11b_2412



802.11b_2437



802.11b_2462

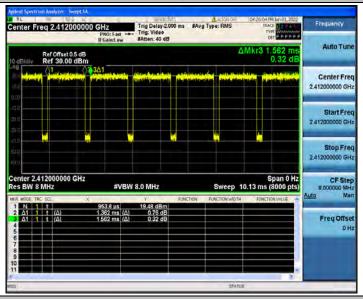


CTC Laboratories, Inc.

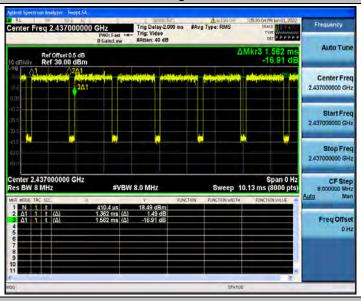
FM 中国国家认证认可监督管理委员会



802.11g_2412



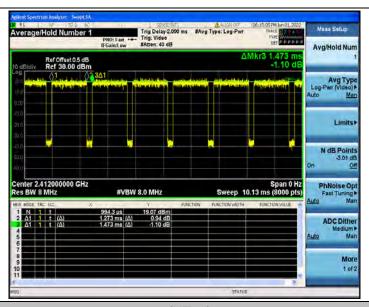
802.11g_2437



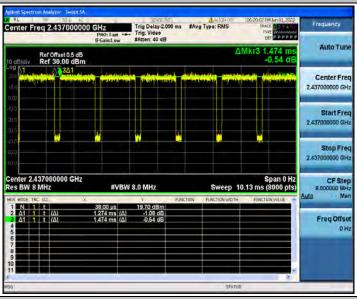
802.11g_2462



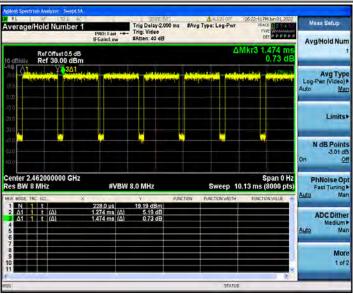
802.11n(HT20)_2412



802.11n(HT20)_2437

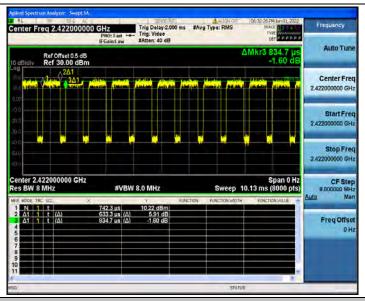


802.11n(HT20)_2462

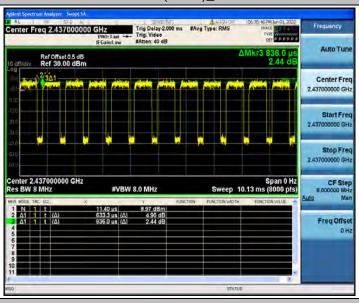


802.11n(HT40)_2422

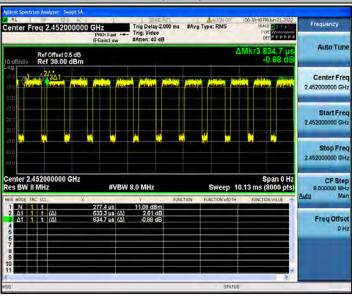


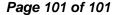


802.11n(HT40)_2437



802.11n(HT40)_2452







3.9. Antenna requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C Section 15.203:

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 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.

FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):

(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.

Test Result

The directional gain of the antenna less than 6dBi, please refer to the EUT internal photographs antenna photo.



