

FCC Test Report (Class II Permissive Change)

Product Name	Intel® Dual Band Wireless-AC 8265		
Model No.	8265NGW		
FCC ID.	2ABTU-8265NG		

Applicant	eant RuggON Corporation		
Address	4F, No. 298, Yang Guang St., Neihu Dist., Taipei City, Taiwan		

Date of Receipt	Mar. 11, 2020
Issued Date	Apr. 24, 2020
Report No.	2030301R-RFUSP29V00
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd. Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.



Test Report

Issued Date: Apr. 24, 2020

Report No.: 2030301R-RFUSP29V00



Product Name	Intel® Dual Band Wireless-AC 8265		
Applicant	RuggON Corporation		
Address	4F, No. 298, Yang Guang St., Neihu Dist., Taipei City, Taiwan		
Manufacturer	Intel Mobile Communications		
Model No.	8265NGW		
FCC ID. 2ABTU-8265NG			
EUT Rated Voltage AC 100-240V, 50/60Hz			
EUT Test Voltage	est Voltage AC 120V/60Hz		
Trade Name RuggON			
Applicable Standard FCC CFR Title 47 Part 15 Subpart C			
ANSI C63.4: 2014, ANSI C63.10: 2013			
Test Result Complied			

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		(Engineer / Sam Hsu)
Approved By	:	Stant ?
		(Director / Vincent Lin)



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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Intel® Dual Band Wireless-AC 8265		
Trade Name	RuggON		
Model No.	8265NGW		
FCC ID.	2ABTU-8265NG		
	WLAN: 802.11b/g/n-20: 2412-2472 MHz, 802.11n-40: 2422-2462 MHz		
	802.11a/ n/ac-20: 5180-5320 MHz, 5500-5720 MHz, 5745-5825MHz		
Frequency Range	802.11n/ac-40: 5190-5310 MHz, 5510-5670 MHz, 5755-5795MHz		
	802.11ac-80 MHz: 5210-5290 MHz, 5530-5690 MHz,5775MHz		
	Bluetooth: 2402-2480 MHz		
Channel Number	WLAN: 802.11b/g/n-20: 13CH, 802.11n-40: 9CH		
	802.11a /n/ac-20: 25CH		
	802.11ac-80 MHz: 5CH		
	Bluetooth: V3.0+HS, V2.1+EDR: 79CH, V4.2: 40CH		
Data Rate	WLAN: 802.11b: 1-11Mbps, 802.11a/g: 6-54Mbps, 802.11n: up to 300Mbps		
	802.11ac-80 MHz: up to 866.7 Mbps		
	Bluetooth: 1-3Mbps		
Channel Separation	WLAN: 802.11b/g/n: 5 MHz, 802.11a/n-20 MHz: 20 MHz, 802.11n-40 MHz: 40 MHz		
	802.11ac-80 MHz: 80 MHz		
	Bluetooth: V3.0: 1 MHz; V4.2: 2 MHz		
Type of Modulation	WLAN: 802.11b:DSSS, DBPSK, DQPSK, CCK		
	802.11a/g/n/ac: OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM		
	Bluetooth: V3.0+HS, V2.1+EDR: GFSK(1Mbps) /π/4DQPSK(2Mbps) /		
	8DPSK(3Mbps); V4.2: GFSK(1Mbps)		
Antenna Type	PIFA Antenna		
Channel Control	Auto		
Antenna Gain	Refer to the table "Antenna List"		
Power Adapter	MFR: FSP, M/N: FSP065-RBBN3		
Input: AC 100-240Vac, 1.5A 50-60Hz			
	Output: 19V==3.42A		
	Cable Out: Shielded, 1.5m, with one ferrite core bonded.		
	Power Cable: Shielded, 1.7m		

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	AnJie	AJDQ1J-B0024(Main)	PIFA	Main:
		AJQQ1J-W0003(Aux)		2.94dBi for 2.4 GHz
				3.58dBi for 5150-5250MHz
				3.58dBi for 5250-5350MHz
				2.85dBi for 5470-5725MHz
				3.34dBi for 5725-5850MHz
				Aux:
				2.10dBi for 2.4 GHz
				2.40dBi for 5150-5250MHz
				2.10dBi for 5250-5350MHz
				1.70dBi for 5470-5725MHz
				2.60dBi for 5725-5850MHz

Note: The antenna of EUT is conform to FCC 15.203



1.2. Test Summary

Part 15C Requirement

Requirement – Test Item	
Spurious emissions	Pass

Part 22H,Part 24E,Part 27,Part 90 Requirement

Requirement – Test Item	Result
Spurious emissions	Pass



Note:

- 1. The EUT is an Intel® Dual Band Wireless-AC 8265, contains functions on 2.4G and 5G band WIFI and WWAN with Bluetooth (V4.2 and V3.0+HS, V2.1+EDR) combo card module transceiver.
- 2. These tests were conducted on a sample for the purpose of demonstrating compliance of transmitter with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.
- 3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- 4. This device contains the certified FCC ID: 2ABTU-8265NG and FCC ID: 2ABTU-EM75S, This is a WLAN/BT Combo Card and WWAN Card.
- 5. The consider Co-Location based on KDB 996369 D02 Question 1 and KDB 996369 D04 for Radiated Spurious Emission & SAR testing.
- 6. Since the antenna gain and output power are both smaller than the original certification, the final product complies with the KDB 178919 Section II.B) ERP/EIRP rules.
- 7. The final test results meets all the applicable FCC rules, including FCC Part 15C and Part 22H, Part 24E, Part 27 Part 90.
- 8. This is to request a Class II permissive change for FCC ID: 2ABTU-8265NG, originally granted on 03/28/2018

The major change filed under this application is:

Change

#1: Additional Chassis added, RuggON Corporation, model number: PX501YYYYYY (Y can be any alphanumeric or blank for different marketing)

9. The identification of test sample is PX501.

Test Mode	(1) Select adjacent operating bands.
(Simultaneous Transmit)	Mode 1: LTE B41 (20MBW 2506MHz)+ WiFi 802.11n20 (2462MHz)+GPS
	Mode 2: LTE B7 (20MBW 2510MHz)+Wi-Fi 802.11n40 (2452MHz)+GPS
	Mode 3: WiFi 802.11n20 (2412MHz)+BT EDR 3Mbps (2402MHz)+GPS
	(2) Select higher power channel from each pair of simultaneous transmission
	Mode 4: WCDMA Band V (846.6MHz)+2.4 GHz WLAN(802.11b 2442MHz)+GPS
	Mode 5: LTE Band 14 (10MBW 793MHz)+5 GHz WLAN(802.11a 5200MHz+GPS
	Mode 6: LTE Band 66 (20MBW 1745MHz)+2.4 GHZ BT(1Mbps 2480MHz+GPS



1.4. Tested System Details

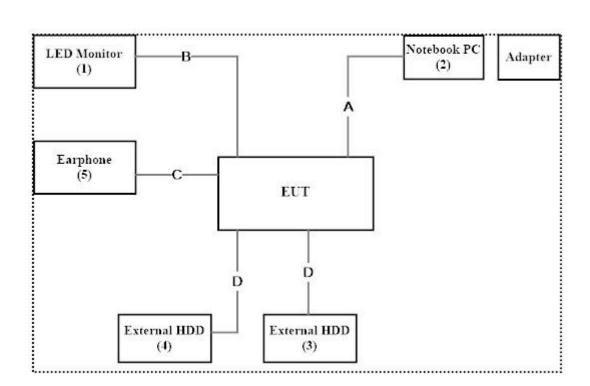
The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

	,,,				
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	LED Monitor	ViewSonic	VX2257-mhd	UFY163502150	Non-shielded, 1.8m
2	Notebook PC	DELL	Latitude 5580	GDZN7H2	Non-shielded, 0.8m
3	External HDD	Transcend	TS1TSJ25H3B	F21786-0125	N/A
4	External HDD	Transcend	TS1TSJ25H3B	F21786-0005	N/A
5	Earphone	RONEVER	MOE241	N/A	N/A

Sign	nal Cable Type	Signal cable Description
A	RS-232 Cable	Non-shielded, 0.6m
В	HDMI Cable	Non-shielded, 1m
C	Earphone Cable	Non-shielded, 1.2m
D	USB Cable	Non-shielded, 0.4m

1.5. Configuration of Tested System

AC Power





1.6. EUT Exercise Software

- (1) Setup the EUT as shown on 1.4
- (2) Execute software "DRTU V11.1813.0-07303" on the EUT.
- (3) The Communication Analyzer (MT8820C) uses in controlling EUT to transmit continuously.
- (4) Configure the test mode, the test channel, and the data rate.
- (5) Start the continuous transmission.
- (6) Verify that the EUT works properly.



1.7. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual
	Temperature (°C)	10~40 °C	20.3 °C
Radiated Emission	Humidity (%RH)	10~90 %	66 %

USA : FCC Registration Number: TW3023

Canada : IC Registration Number: 4075A

Site Description: Accredited by TAF

Accredited Number: 3023

Test Laboratory: DEKRA Testing and Certification Co., Ltd

Address: No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451,

Taiwan, R.O.C.

Phone number: 886-2-8601-3788
Fax number: 886-2-8601-3789
Email address: info.tw@dekra.com

Website: http://www.dekra.com.tw



1.8. List of Test Item and Equipment

For Radiated measurements /Site3/CB8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
X	Test Receiver	R&S	ESR7	101602	2019/12/16	2020/12/15
X	Signal Analyzer	R&S	FSV40	101869	2019/07/04	2020/07/03
X	Loop Antenna	Teseq	HLA6121	37133	2019/10/15	2021/10/14
X	Bilog Antenna	Schaffner Chase	CBL6112B	2916	2020/01/20	2021/01/19
X	Coaxial Cable	DEKRA	L1907-001C	280280.F141.1000D	2019/07/10	2020/07/09
X	Amplifier	EMCI	EMC001330	980254	2019/08/22	2020/08/21
X	Horn Antenna	ETS-LINDGREN	3117	00228113	2019/05/02	2020/05/01
X	Coaxial Cable	DEKRA	L1907-002C	280280.F141.1000D	2019/07/10	2020/07/09
X	Amplifier	EMCI	EMC05820SE	980362	2019/06/26	2020/06/25
X	Amplifier	EMCI	EMC051845SE	980632	2019/08/08	2020/08/07
X	Horn Antenna	Com-Power	AH-1840	101101	2019/10/31	2020/10/30
X	Amplifier + Cable	EMCI	EMC184045SE	980369	2020/04/15	2021/04/14
	Bilog Antenna	Schaffner Chase	CBL6112B	2925	2020/02/20	2021/02/19
	Coaxial Cable	DEKRA	L1907-003C	00100A1B3A120M	2019/07/10	2020/07/09
	Amplifier	EMCI	EMC001330	980255	2019/06/28	2020/06/27
X	Filter	MICRO-TRONICS	BRM50702	G270	2019/08/08	2020/08/07
X	Filter	MICRO-TRONICS	BRM50716	G196	2019/08/08	2020/08/07

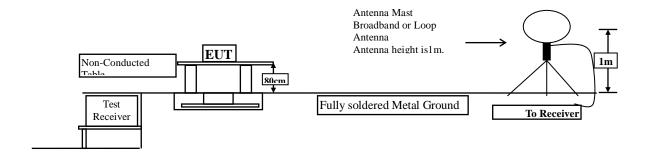
- 1. Loop Antenna is calibrated every two years, the other equipments are calibrated every one year.
- 2. The test instruments marked with "X" are used to measure the final test results.
- 3. Test Software version: DEKRA Test SystemV1.1.



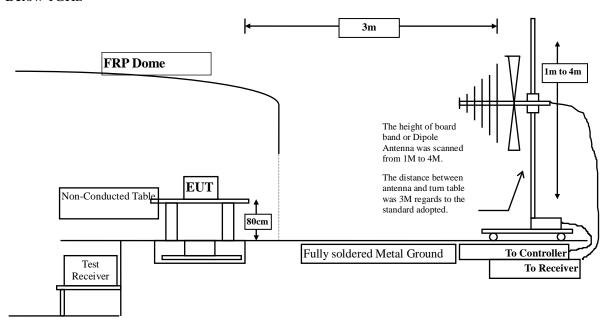
2. Radiated Emission

2.1. Test Setup

Under 30MHz ← 3m

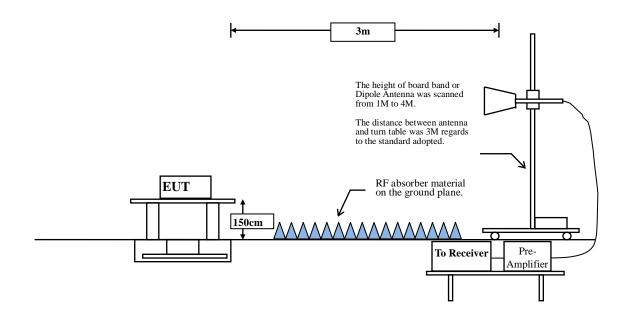


Below 1GHz





Above 1GHz





2.2. Limits

▶ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits								
Frequency MHz	Field strength	Measurement distance						
IVIIIZ	(microvolts/meter)	(meter)						
0.009-0.490	2400/F(kHz)	300						
0.490-1.705	24000/F(kHz)	30						
1.705-30	30	30						
30-88	100	3						
88-216	150	3						
216-960	200	3						
Above 960	500	3						

Remarks:

- 1. RF Voltage $(dBuV) = 20 \log RF Voltage (uV)$
- 2. In the Above Table, the tighter limit applies at the band edges.
- 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

The final test results meets all the applicable FCC rules, including FCC Part 15C and Part 22H, Part 24E, Part 27 Part 90.



2.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, 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.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 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.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

The measurement frequency range form 9kHz - 10th Harmonic of fundamental was investigated.



2.4. Uncertainty

- ± 4.08 dB above 1GHz
- ± 4.22 dB below 1GHz



2.5. Test Result of Radiated Emission

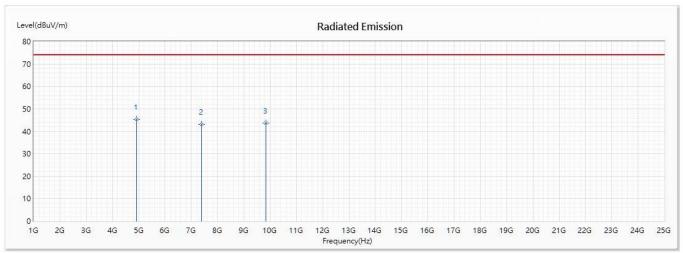
Product : Intel® Dual Band Wireless-AC 8265

Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 1: LTE B41 (20MBW 2506MHz)+ WiFi 802.11n20 (2462MHz)+GPS

Horizontal



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
* 1	4924	45.34	74.00	-28.66	56.58	-11.24	PK
2	7386	43.20	74.00	-30.80	57.30	-14.10	PK
3	9848	43.74	74.00	-30.26	57.18	-13.44	PK

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

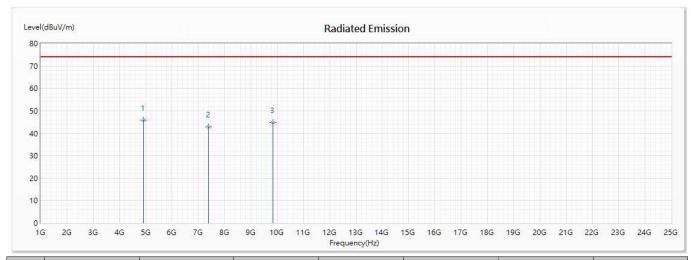


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 1: LTE B41 (20MBW 2506MHz)+ WiFi 802.11n20 (2462MHz)+GPS

Vertical



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
* 1	4924	45.97	74.00	-28.03	57.21	-11.24	PK
2	7386	42.79	74.00	-31.21	56.89	-14.10	PK
3	9848	44.86	74.00	-29.14	58.30	-13.44	PK

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- 2. Measurement Level = Reading Level + Correct Factor.
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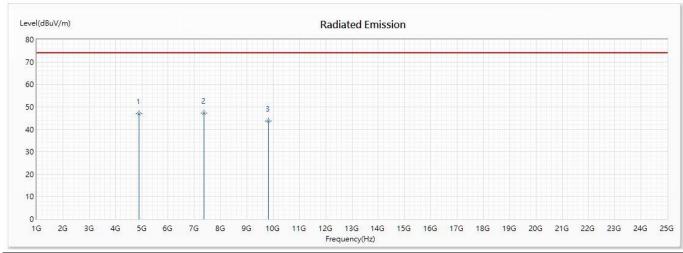


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 2: LTE B7 (20MBW 2510MHz)+Wi-Fi 802.11n40 (2452MHz)+GPS

Horizontal



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
1	4904	46.95	74.00	-27.05	58.39	-11.44	PK
* 2	7356	47.20	74.00	-26.80	61.04	-13.84	PK
3	9808	43.82	74.00	-30.18	56.82	-13.00	PK

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

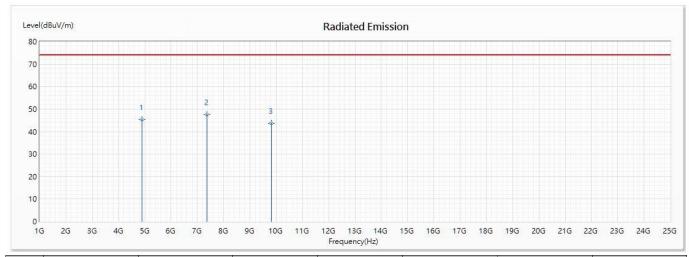


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 2: LTE B7 (20MBW 2510MHz)+Wi-Fi 802.11n40 (2452MHz)+GPS

Vertical



ı	No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
		(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
	1	4904	45.27	74.00	-28.73	56.71	-11.44	PK
×	* 2	7356	47.51	74.00	-26.49	61.35	-13.84	PK
	3	9808	43.74	74.00	-30.26	56.74	-13.00	PK

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
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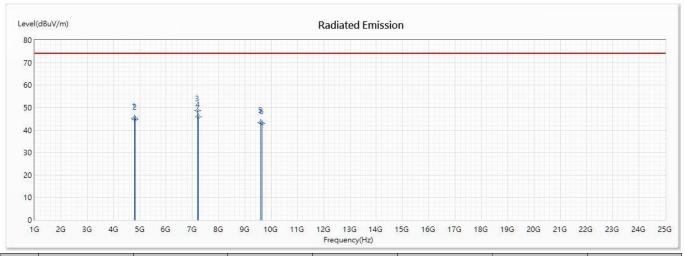


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 3: WiFi 802.11n20 (2412MHz)+BT EDR 3Mbps (2402MHz)+GPS

Horizontal



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
1	4804	45.22	74.00	-28.78	57.37	-12.15	PK
2	4824	44.73	74.00	-29.27	56.72	-11.99	PK
* 3	7206	48.47	74.00	-25.53	61.61	-13.14	PK
4	7236	45.74	74.00	-28.26	58.70	-12.96	PK
5	9608	43.50	74.00	-30.50	56.92	-13.42	PK
6	9648	43.00	74.00	-31.00	56.10	-13.10	PK

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
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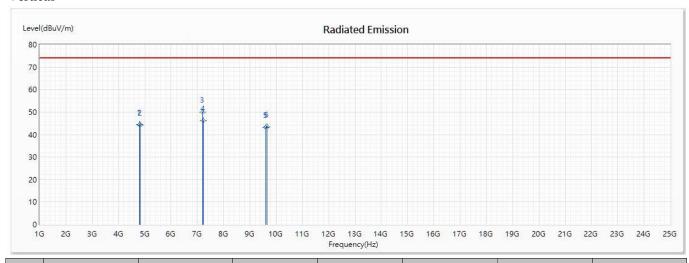


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 3: WiFi 802.11n20 (2412MHz)+BT EDR 3Mbps (2402MHz)+GPS

Vertical



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
1	4804	44.49	74.00	-29.51	56.64	-12.15	PK
2	4824	44.33	74.00	-29.67	56.32	-11.99	PK
* 3	7206	49.96	74.00	-24.04	63.10	-13.14	PK
4	7236	46.12	74.00	-27.88	59.08	-12.96	PK
5	9608	43.25	74.00	-30.75	56.67	-13.42	PK
6	9648	43.38	74.00	-30.62	56.48	-13.10	PK

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
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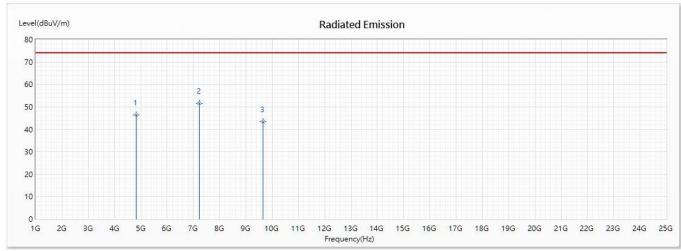


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 4: WCDMA Band V (846.6MHz)+2.4 GHz WLAN(802.11b 2442MHz)+GPS

Horizontal



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
1	4884	46.36	74.00	-27.64	58.35	-11.99	PK
* 2	7326	51.69	74.00	-22.31	64.65	-12.96	PK
3	9768	43.31	74.00	-30.69	56.41	-13.10	PK

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
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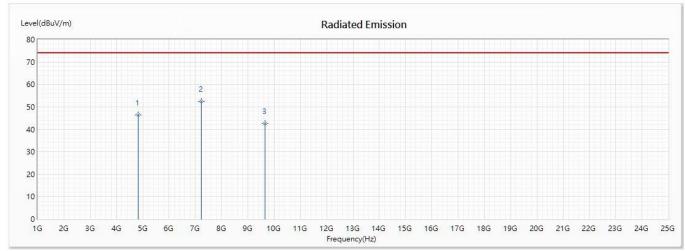


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 4: WCDMA Band V (846.6MHz)+2.4 GHz WLAN(802.11b 2442MHz)+GPS

Vertical



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
1	4884	46.31	74.00	-27.69	58.30	-11.99	PK
* 2	7326	52.38	74.00	-21.62	65.34	-12.96	PK
3	9768	42.58	74.00	-31.42	55.68	-13.10	PK

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

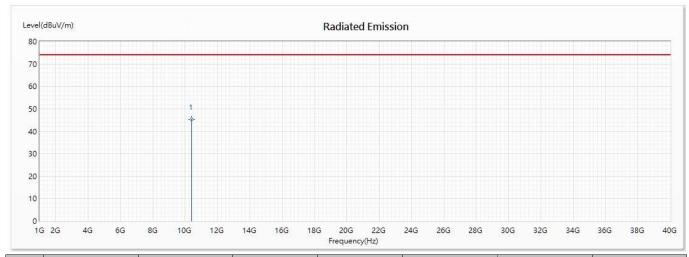


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 5: LTE Band 14 (10MBW 793MHz)+5 GHz WLAN(802.11a 5200MHz+GPS

Horizontal



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
* 1	10400	45.20	74.00	-28.80	57.16	-11.96	PK

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

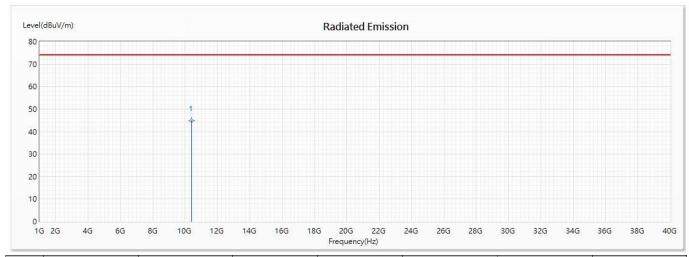


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 5: LTE Band 14 (10MBW 793MHz)+5 GHz WLAN(802.11a 5200MHz+GPS

Vertical



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
* 1	10400	44.91	74.00	-29.09	56.87	-11.96	PK

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

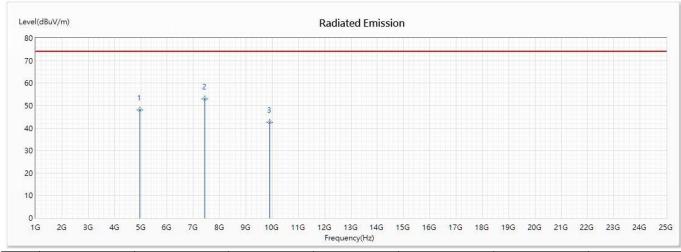


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 6: LTE Band 66 (20MBW 1745MHz)+2.4 GHZ BT(1Mbps 2480MHz+GPS

Horizontal



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
1	4960	48.08	74.00	-25.92	58.97	-10.89	PK
* 2	7440	53.03	74.00	-20.97	67.65	-14.62	PK
3	9920	42.66	74.00	-31.34	56.89	-14.23	PK

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

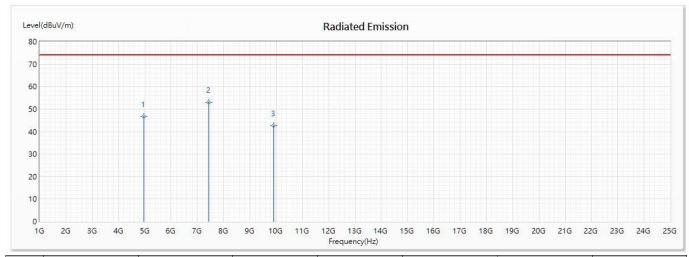


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 6: LTE Band 66 (20MBW 1745MHz)+2.4 GHZ BT(1Mbps 2480MHz+GPS

Vertical



N	١o	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
		(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
	1	4960	46.72	74.00	-27.28	57.61	-10.89	PK
*	2	7440	53.06	74.00	-20.94	67.68	-14.62	PK
	3	9920	42.52	74.00	-31.48	56.75	-14.23	PK

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

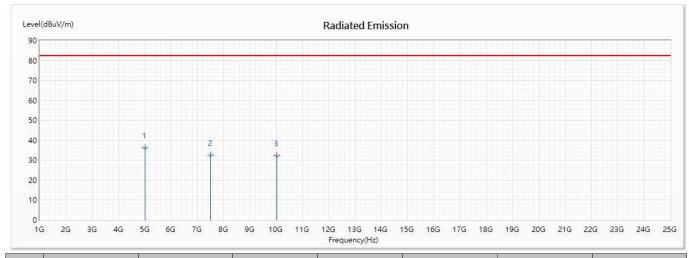


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 1: LTE B41 (20MBW 2506MHz)+ WiFi 802.11n20 (2462MHz)+GPS

Horizontal



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
* 1	5012	36.18	82.23	-46.05	46.76	-10.58	AV
2	7518	32.52	82.23	-49.71	47.81	-15.29	AV
3	10024	32.35	82.23	-49.88	47.10	-14.75	AV

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

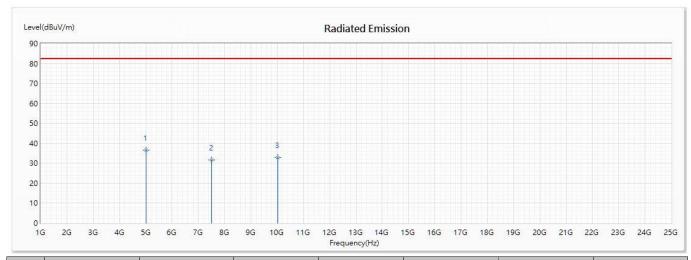


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 1: LTE B41 (20MBW 2506MHz)+ WiFi 802.11n20 (2462MHz)+GPS

Vertical



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
* 1	5012	36.43	82.23	-45.80	47.01	-10.58	AV
2	7518	31.71	82.23	-50.52	47.00	-15.29	AV
3	10024	32.77	82.23	-49.46	47.52	-14.75	AV

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

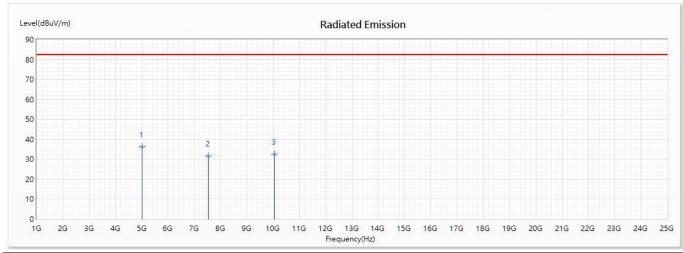


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 2: LTE B7 (20MBW 2510MHz)+Wi-Fi 802.11n40 (2452MHz)+GPS

Horizontal



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
* 1	5020	36.30	82.23	-45.93	46.95	-10.65	AV
2	7530	31.76	82.23	-50.47	47.09	-15.33	AV
3	10040	32.58	82.23	-49.65	47.02	-14.44	AV

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

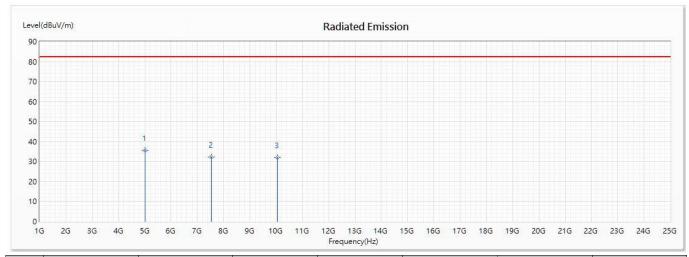


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 2: LTE B7 (20MBW 2510MHz)+Wi-Fi 802.11n40 (2452MHz)+GPS

Vertical



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
* 1	5020	35.51	82.23	-46.72	46.16	-10.65	AV
2	7530	32.16	82.23	-50.07	47.49	-15.33	AV
3	10040	31.89	82.23	-50.34	46.33	-14.44	AV

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

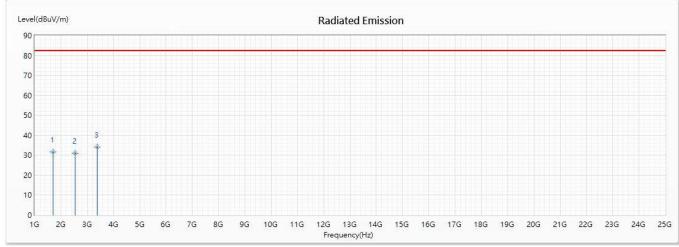


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 4: WCDMA Band V (846.6MHz)+2.4 GHz WLAN(802.11b 2442MHz)+GPS

Horizontal



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
1	1693.2	31.50	82.23	-50.73	50.66	-19.16	AV
2	2539.8	31.09	82.23	-51.14	45.42	-14.33	AV
* 3	3386.4	34.11	82.23	-48.12	47.01	-12.90	AV

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

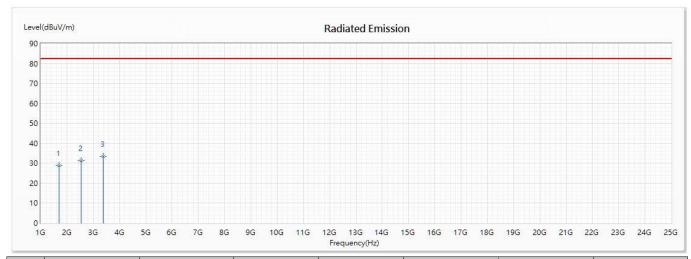


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 4: WCDMA Band V (846.6MHz)+2.4 GHz WLAN(802.11b 2442MHz)+GPS

Vertical



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
1	1693.2	29.00	82.23	-53.23	48.16	-19.16	AV
2	2539.8	31.31	82.23	-50.92	45.64	-14.33	AV
* 3	3386.4	33.56	82.23	-48.67	46.46	-12.90	AV

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

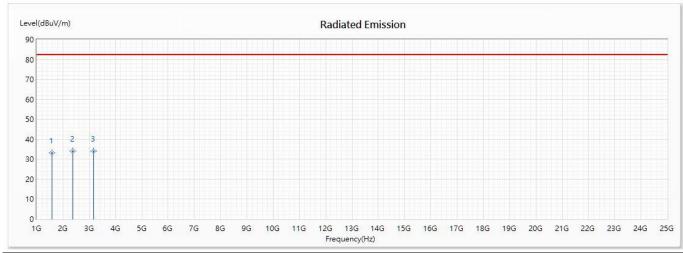


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 5: LTE Band 14 (10MBW 793MHz)+5 GHz WLAN(802.11a 5200MHz+GPS

Horizontal



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
1	1586	33.26	82.23	-48.97	52.41	-19.15	AV
* 2	2379	34.17	82.23	-48.06	49.03	-14.86	AV
3	3172	34.07	82.23	-48.16	47.33	-13.26	AV

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

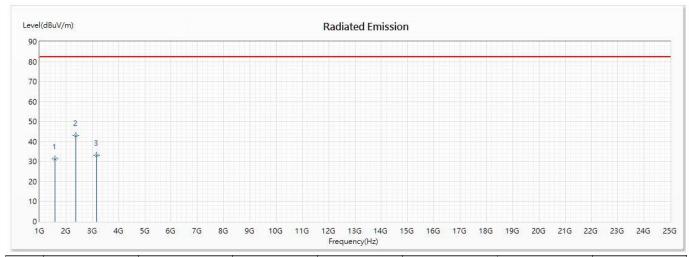


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 5: LTE Band 14 (10MBW 793MHz)+5 GHz WLAN(802.11a 5200MHz+GPS

Vertical



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
1	1586	31.33	82.23	-50.90	50.48	-19.15	AV
* 2	2379	42.96	82.23	-39.27	57.82	-14.86	AV
3	3172	33.03	82.23	-49.20	46.29	-13.26	AV

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

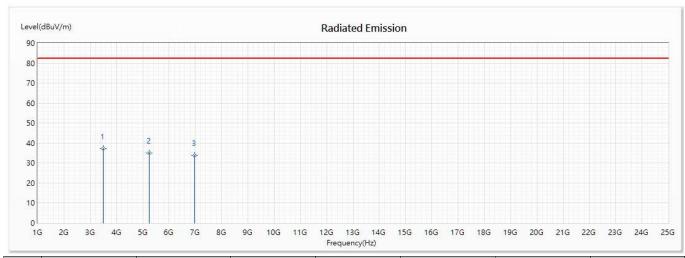


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 6: LTE Band 66 (20MBW 1745MHz)+2.4 GHZ BT(1Mbps 2480MHz+GPS

Horizontal



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
* 1	3490	37.25	82.23	-44.98	49.34	-12.09	AV
2	5235	35.05	82.23	-47.18	47.01	-11.96	AV
3	6980	33.72	82.23	-48.51	47.38	-13.66	AV

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.

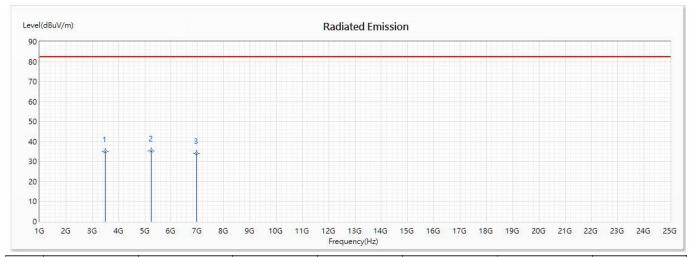


Test Item : Harmonic Radiated Emission

Test Site : No.3 OATS
Test date : 2020/04/23

Test Mode : Mode 6: LTE Band 66 (20MBW 1745MHz)+2.4 GHZ BT(1Mbps 2480MHz+GPS

Vertical



No	Frequency	Emission Level	Limit	Margin	Reading Level	Correct Factor	Detector
	(MHz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(dB/m)	Туре
1	3490	34.98	82.23	-47.25	47.07	-12.09	AV
* 2	5235	35.27	82.23	-46.96	47.23	-11.96	AV
3	6980	33.96	82.23	-48.27	47.62	-13.66	AV

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Measurement Level = Reading Level + Correct Factor.
- 3. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 4. The average measurement was not performed when the peak measured data under the limit of average detection.
- 5. The emission levels of other frequencies are very lower than the limit and not show in test report.



3. EMI Reduction Method During Compliance Testing

No modification was made during testing.