

Global United Technology Services Co., Ltd.

Report No.: GTS201808000060F04

FCC REPORT

Applicant: Autel Intelligent Tech. Corp., Ltd.

Address of Applicant: 6th - 10th Floor, Bldg. B1, Zhiyuan, Xueyuan Rd., Xili,

> Nanshan, Shenzhen 518055, China Autel Intelligent Tech. Corp., Ltd.

Address of 6th - 10th Floor, Bldg. B1, Zhiyuan, Xueyuan Rd., Xili,

Nanshan, Shenzhen 518055, China Manufacturer/Factory:

Equipment Under Test (EUT)

Manufacturer/Factory:

AUTOMOTIVE DIAGNOSTIC & ANALYSIS SYSTEM Product Name:

Model No.: MaxiPRO MP908. MaxiPRO MP908Pro

Trade Mark: **AUTEL**

FCC ID: WQ8MAXIPROMP908

FCC CFR Title 47 Part 15 Subpart E Section 15.407 **Applicable standards:**

Date of sample receipt: August 06, 2018

Date of Test: August 07-22, 2018

Date of report issued: August 23, 2018

PASS * Test Result:

Authorized Signature:

Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

^{*} In the configuration tested, the EUT complied with the standards specified above.



2 Version

| Version No. | Date | Description |
|-------------|-----------------|-------------|
| 00 | August 23, 2018 | Original |
| | | |
| | | |
| | | |
| | | |

| Prepared By: | Tigor. Che | Date: | August 23, 2018 |
|--------------|------------------|-------|-----------------|
| | Project Engineer | | |
| Check By: | Andy wa | Date: | August 23, 2018 |
| | Reviewer | | |



3 Contents

| | | | Page |
|---|-------|--|------|
| 1 | COV | /ER PAGE | 1 |
| 2 | VER | SION | 2 |
| 3 | | ITENTS | |
| 3 | CON | NIENIS | |
| 4 | TES | T SUMMARY | 4 |
| | 4.1 | MEASUREMENT UNCERTAINTY | 4 |
| 5 | GEN | IERAL INFORMATION | 5 |
| | 5.1 | GENERAL DESCRIPTION OF EUT | 5 |
| | 5.2 | TEST MODE | |
| | 5.3 | DESCRIPTION OF SUPPORT UNITS | |
| | 5.4 | TEST FACILITY | |
| | 5.5 | TEST LOCATION | |
| _ | 5.6 | Additional Instructions T INSTRUMENTS LIST | |
| 6 | IES | I INSTRUMENTS LIST | 9 |
| 7 | TES | T RESULTS AND MEASUREMENT DATA | 11 |
| | 7.1 | ANTENNA REQUIREMENT | |
| | 7.2 | CONDUCTED EMISSIONS | |
| | 7.3 | CONDUCTED PEAK OUTPUT POWER | _ |
| | 7.4 | CHANNEL BANDWIDTH | |
| | 7.5 | POWER SPECTRAL DENSITY | |
| | 7.6 | BAND EDGES | |
| | 7.6.1 | 1 Radiated Emission Method Spurious Emission | |
| | 7.7.1 | | |
| | 7.7. | FREQUENCY STABILITY | |
| 8 | _ | T SETUP PHOTO | |
| - | 0 | | |
| ۵ | FIIT | CONSTRUCTIONAL DETAILS | 40 |



4 Test Summary

| Test Item | Section in CFR 47 | Result |
|----------------------------------|----------------------------|--------|
| Antenna requirement | 15.203 | Pass |
| AC Power Line Conducted Emission | 15.207 | Pass |
| Conducted Peak Output Power | 15.407(a)(3) | Pass |
| Channel Bandwidth | 15.407(e) | Pass |
| Power Spectral Density | 15.407(a)(3) | Pass |
| Band Edge | 15.407(b)(4) | Pass |
| Spurious Emission | 15.205/15.209/15.407(b)(4) | Pass |
| Frequency Stability | 15.407(g) | Pass |

Pass: The EUT complies with the essential requirements in the standard.

Remark: Test according to ANSI C63.10:2013.

4.1 Measurement Uncertainty

| Test Item | Frequency Range | Measurement Uncertainty | Notes | | |
|---|-----------------|-------------------------|-------|--|--|
| Radiated Emission | 9kHz ~ 30MHz | ± 4.34dB | (1) | | |
| Radiated Emission | 30MHz ~ 1000MHz | ± 4.24dB | (1) | | |
| Radiated Emission | 1GHz ~ 40GHz | ± 4.68dB | (1) | | |
| AC Power Line Conducted Emission | 0.15MHz ~ 30MHz | ± 3.45dB | (1) | | |
| Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%. | | | | | |



5 General Information

5.1 General Description of EUT

| Product Name: | AUTOMOTIVE DIAGNOSTIC & ANALYSIS SYSTEM |
|------------------------|--|
| Model No.: | MaxiPRO MP908, MaxiPRO MP908Pro |
| Test Model No: | MaxiPRO MP908 |
| | s are identical in the same PCB layout, interior structure and electrical circuits. nostic software and model name for commercial purpose. |
| Serial No.: | N/A |
| Test sample(s) ID: | GTS201808000060-1 |
| Sample(s) Status: | Engineer sample |
| Hardware version: | N/A |
| Software version: | N/A |
| Operation Frequency: | 802.11a/802.11n(HT20): 5745MHz ~ 5825MHz 802.11n(HT40): 5755MHz ~ 5795MHz |
| Channel numbers: | 802.11a/802.11n(HT20): 5 802.11n(HT40): 2 |
| Channel bandwidth: | 802.11a/802.11n(HT20): 20MHz 802.11n(HT40) :40MHz |
| Modulation technology: | OFDM |
| Antenna Type: | Integral Antenna |
| Antenna gain: | 0.85dBi (declare by manufacturer) |
| Power supply: | Adapter: |
| | Model No.:GME36A-120300FDS |
| | Input: AC 100~240V, 50/60Hz, 1.2A |
| | Output: DC 12.0V, 3.0A |
| | Or DC 3.8V 15000mAh, 57Wh rechargeable Battery |



| | Operation Frequency each of channel @ 5.8G Band | | | | | | |
|---|---|-----|---------|-----|---------|-----|-----------|
| Channel Frequency Channel Frequency Channel Frequency Channel Frequency | | | | | | | Frequency |
| 149 | 5745MHz | 151 | 5755MHz | 153 | 5765MHz | 155 | 5775MHz |
| 157 | 5785MHz | 159 | 5795MHz | 161 | 5805MHz | 163 | 5815MHz |
| 165 | 5825MHz | | | | | | |

Note:

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

| | Frequen | cy (MHz) |
|-----------------|------------------|----------------|
| Test channel | 5.8G | Band |
| | 802.11 a/n(HT20) | 802.11 n(HT40) |
| Lowest channel | 5745 | 5755 |
| Middle channel | 5785 | |
| Highest channel | 5825 | 5795 |



5.2 Test mode

| Transmitting mode | Keep the EUT in continuously transmitting mode |
|-------------------|--|
| | EUT was test with max duty cycle at its maximum power control level. |

Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.

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

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

| Mode | Data rate |
|---------------|-----------|
| 802.11a | 6Mbps |
| 802.11n(HT20) | 6.5Mbps |
| 802.11n(HT40) | 13Mbps |

5.3 Description of Support Units

None.

5.4 Test Facility

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

• FCC —Registration No.:381383

Global United Technology Services Co., Ltd., Shenzhen 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 in files. Registration 381383, January 08, 2018.

• Industry Canada (IC) —Registration No.: 9079A-2

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. Has been

Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, August 15, 2016.

5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone,

Xixiang Road, Baoan District, Shenzhen, Guangdong, China

Tel: 0755-27798480 Fax: 0755-27798960



5.6 Additional Instructions

EUT Fixed Frequency Settings:

| Special test software w | as pre-built-in by manufacturer. | | |
|-------------------------|----------------------------------|-----------------|---------------------|
| Mode | Channel | Frequency (MHz) | Level Set |
| OFDM | CH149 | 5745 | |
| | CH151 | 5755 | |
| | CH155 | 5775 | TV lovel + defectlt |
| | CH157 | 5785 | TX level : default |
| | CH159 | 5795 | |
| | CH165 | 5825 | |



6 Test Instruments list

| Radi | Radiated Emission: | | | | | | |
|------|--|--------------------------------|-----------------------------|------------------|------------------------|----------------------------|--|
| Item | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) | |
| 1 | 3m Semi- Anechoic Chamber | ZhongYu Electron | 9.2(L)*6.2(W)* 6.4(H) | GTS250 | July. 03 2015 | July. 02 2020 | |
| 2 | Control Room | ZhongYu Electron | 6.2(L)*2.5(W)* 2.4(H) | GTS251 | N/A | N/A | |
| 3 | EMI Test Receiver | Rohde & Schwarz | ESU26 | GTS203 | June. 27 2018 | June. 26 2019 | |
| 4 | BiConiLog Antenna | SCHWARZBECK MESS-ELEKTRONIK | VULB9163 | GTS214 | June. 27 2018 | June. 26 2019 | |
| 5 | Double -ridged waveguide horn | SCHWARZBECK MESS-ELEKTRONIK | BBHA 9120 D | GTS208 | June. 27 2018 | June. 26 2019 | |
| 6 | Horn Antenna | ETS-LINDGREN | 3160 | GTS217 | June. 27 2018 | June. 26 2019 | |
| 7 | EMI Test Software | AUDIX | E3 | N/A | N/A | N/A | |
| 8 | Coaxial Cable | GTS | N/A | GTS213 | June. 27 2018 | June. 26 2019 | |
| 9 | Coaxial Cable | GTS | N/A | GTS211 | June. 27 2018 | June. 26 2019 | |
| 10 | Coaxial cable | GTS | N/A | GTS210 | June. 27 2018 | June. 26 2019 | |
| 11 | Coaxial Cable | GTS | N/A | GTS212 | June. 27 2018 | June. 26 2019 | |
| 12 | Amplifier(100kHz-3GHz) | HP | 8347A | GTS204 | June. 27 2018 | June. 26 2019 | |
| 13 | Amplifier(2GHz-20GHz) | HP | 84722A | GTS206 | June. 27 2018 | June. 26 2019 | |
| 14 | Amplifier (18-26GHz) | Rohde & Schwarz | AFS33-18002 650-30-8P-44 | GTS218 | June. 27 2018 | June. 26 2019 | |
| 15 | Band filter | Amindeon | 82346 | GTS219 | June. 27 2018 | June. 26 2019 | |
| 16 | Power Meter | Anritsu | ML2495A | GTS540 | June. 27 2018 | June. 26 2019 | |
| 17 | Power Sensor | Anritsu | MA2411B | GTS541 | June. 27 2018 | June. 26 2019 | |
| 18 | Wideband Radio Communication Tester | Rohde & Schwarz | CMW500 | GTS575 | June. 27 2018 | June. 26 2019 | |
| 19 | Splitter | Agilent | 11636B | GTS237 | June. 27 2018 | June. 26 2019 | |
| 20 | Loop Antenna | ZHINAN | ZN30900A | GTS534 | June. 27 2018 | June. 26 2019 | |



| Cond | Conducted Emission | | | | | | | | |
|------|--------------------------|-----------------------------|----------------------|------------------|------------------------|----------------------------|--|--|--|
| Item | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) | | | |
| 1 | Shielding Room | ZhongYu Electron | 7.3(L)x3.1(W)x2.9(H) | GTS252 | May.16 2014 | May.15 2019 | | | |
| 2 | EMI Test Receiver | R&S | ESCI 7 | GTS552 | June. 27 2018 | June. 26 2019 | | | |
| 3 | Coaxial Switch | ANRITSU CORP | MP59B | GTS225 | June. 27 2018 | June. 26 2019 | | | |
| 4 | Artificial Mains Network | SCHWARZBECK MESS | NSLK8127 | GTS226 | June. 27 2018 | June. 26 2019 | | | |
| 5 | Coaxial Cable | GTS | N/A | GTS227 | N/A | N/A | | | |
| 6 | EMI Test Software | AUDIX | E3 | N/A | N/A | N/A | | | |
| 7 | Thermo meter | KTJ | TA328 | GTS233 | June. 27 2018 | June. 26 2019 | | | |
| 8 | Absorbing clamp | Elektronik- Feinmechanik | MDS21 | GTS229 | June. 27 2018 | June. 26 2019 | | | |

| Cond | Conducted: | | | | | | | | |
|------|--|--------------|------------------|------------|------------------------|----------------------------|--|--|--|
| Item | Test Equipment | Manufacturer | Model No. | Serial No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) | | | |
| 1 | MXA Signal Analyzer | Agilent | N9020A | GTS566 | June. 27 2018 | June. 26 2019 | | | |
| 2 | EMI Test Receiver | R&S | ESCI 7 | GTS552 | June. 27 2018 | June. 26 2019 | | | |
| 3 | Spectrum Analyzer | Agilent | E4440A | GTS533 | June. 27 2018 | June. 26 2019 | | | |
| 4 | MXG vector Signal Generator | Agilent | N5182A | GTS567 | June. 27 2018 | June. 26 2019 | | | |
| 5 | ESG Analog Signal Generator | Agilent | E4428C | GTS568 | June. 27 2018 | June. 26 2019 | | | |
| 6 | USB RF Power Sensor | DARE | RPR3006W | GTS569 | June. 27 2018 | June. 26 2019 | | | |
| 7 | RF Switch Box | Shongyi | RFSW3003328 | GTS571 | June. 27 2018 | June. 26 2019 | | | |
| 8 | EMI Test Receiver | R&S | ESCI 7 | GTS552 | June. 27 2018 | June. 26 2019 | | | |
| 9 | Programmable Constant Temp & Humi Test Chamber | WEWON | WHTH-150L-40-880 | GTS572 | June. 27 2018 | June. 26 2019 | | | |

| Gene | General used equipment: | | | | | | | | |
|------|------------------------------------|-----------|-----------|-------------------------|---------------|----------------------------|--|--|--|
| Item | m Test Equipment Manufacturer | | Model No. | Model No. Inventory No. | | Cal.Due date (mm-dd-yy) | | | |
| 1 | Humidity/ Temperature Indicator | KTJ | TA328 | GTS243 | June. 27 2018 | June. 26 2019 | | | |
| 2 | Barometer | ChangChun | DYM3 | GTS255 | June. 27 2018 | June. 26 2019 | | | |



7 Test results and Measurement Data

7.1 Antenna requirement

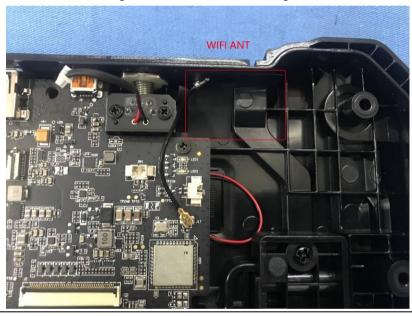
Standard requirement: FCC Part15 C Section 15.203

15.203 requirement:

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

E.U.T Antenna:

The antenna is integral antenna, the best case gain of the main antenna is 0.85dBi





7.2 Conducted Emissions

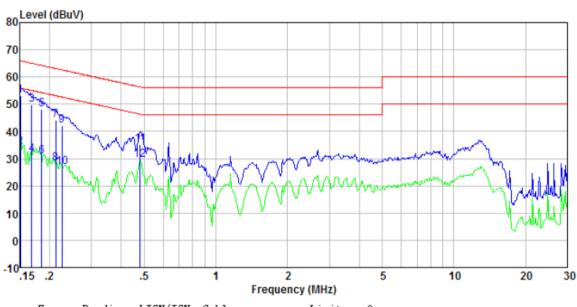
| Test Requirement: | FCC Part15 C Section 15.207 | | | | | |
|-----------------------|---|------------------------------|---------------|------------|---------|-----------|
| Test Method: | ANSI C63.10:2013 | | | | | |
| Test Frequency Range: | 150KHz to 30MHz | | | | | |
| Class / Severity: | Class B | | | | | |
| Receiver setup: | RBW=9KHz | z, VBW=30Kł | Iz, Sweep tin | ne=auto | | |
| Limit: | | | 1_1 | Limit | (dBuV) | |
| | Frequency range (MHz) Quasi-peak Average | | | | | |
| | 0.15-0.5 66 to 56* 56 to 46* 0.5-5 56 46 | | | | | |
| | | | | | | |
| | * D | 5-30 | - 20 | 60 | ; | 50 |
| Test setup: | * Decreases | s with the loga Reference | | rrequency. | | |
| Test procedure: | LISN 40cm 80cm Filter AC power Equipment Test table/Insulation plane Remark E.U.T. Equipment Under Test LISN: Line Impedence Stabilization Network Test table height=0.8m | | | | | |
| · | The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement. | | | | | |
| Test environment: | Temp.: | 25 °C | Humid.: | 52% | Press.: | 1 012mbar |
| Test Instruments: | Refer to section 6.0 for details | | | | | |
| Test mode: | Refer to section 5.2 for details | | | | | |
| Test voltage: | AC120V 60Hz | | | | | |
| Test results: | Pass | | | | | |



Measurement data

Report No.: GTS201808000060F04



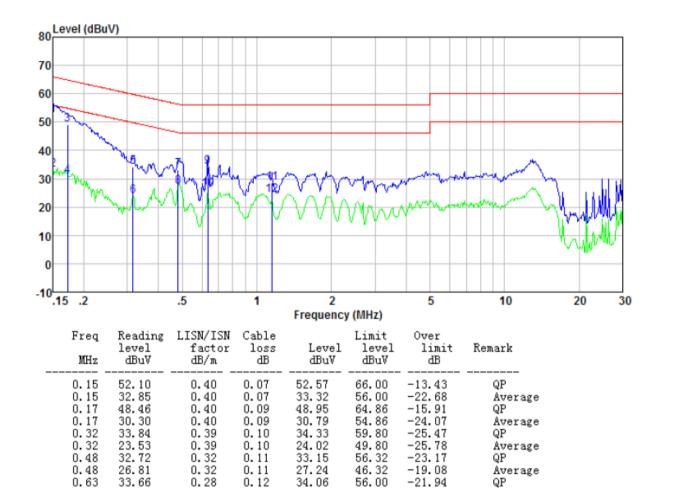


| Freq MHz | Reading level dBuV | LISN/ISN factor dB/m | Cable loss dB | Level dBuV | Limit level dBuV | Over limit dB | Remark |
|-------------|--------------------------|----------------------------|---------------------|---------------|------------------------|---------------------|---------|
| 0.15 | 52.76 | 0.40 | 0.07 | 53.23 | 65.96 | -12.73 | QP |
| 0.15 | 33.83 | 0.40 | 0.07 | 34.30 | 55.96 | -21.66 | Average |
| 0.17 | 49.19 | 0.40 | 0.09 | 49.68 | 65.03 | -15.35 | QP |
| 0.17 | 31.12 | 0.40 | 0.09 | 31.61 | 55.03 | -23.42 | Average |
| 0.19 | 47.46 | 0.40 | 0.10 | 47.96 | 64.24 | -16.28 | QP |
| 0.19 | 30.50 | 0.40 | 0.10 | 31.00 | 54.24 | -23.24 | Average |
| 0.21 | 43.63 | 0.40 | 0.11 | 44.14 | 63.10 | -18.96 | QP |
| 0.21 | 27.60 | 0.40 | 0.11 | 28.11 | 53.10 | -24.99 | Average |
| 0.23 | 41.66 | 0.40 | 0.11 | 42.17 | 62.61 | -20.44 | QP |
| 0.23 | 26.27 | 0.40 | 0.11 | 26.78 | 52.61 | -25.83 | Average |
| 0.48 | 34.65 | 0.32 | 0.11 | 35.08 | 56.32 | -21.24 | QP |
| 0.48 | 29.10 | 0.32 | 0.11 | 29.53 | 46.32 | -16.79 | Average |

Xixiang Road, Baoan District, Shenzhen, Guangdong, China



| | I | I | |
|------------|-----------|--------|---------|
| Test mode: | WiFi mode | Probe: | Neutral |



Notes:

0.63

1.15

1.15

25.91

28.31

23.95

1. An initial pre-scan was performed on the line and neutral lines with peak detector.

0.12

0.16

0.16

2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.

46.00

56.00

46.00

-19.69

-27.33

-21.69

Average

Average

QΡ

3. Final Level = Receiver Read level + LISN Factor + Cable Loss

0.28

0.20

0.20

4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both *limits and measurement with the average detector receiver is unnecessary.*

26.31

28.67

24.31



7.3 Conducted Peak Output Power

| Test Requirement: | FCC Part15 E Section 15.407(a)(3) | | |
|-------------------|--|--|--|
| Test Method: | ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 | | |
| Limit: | 30dBm | | |
| Test setup: | Power Meter E.U.T Non-Conducted Table Ground Reference Plane | | |
| Test Instruments: | Refer to section 6.0 for details | | |
| Test mode: | Refer to section 5.2 for details | | |
| Test results: | Pass | | |

Measurement Data

| Test CH | F | Limit(dBm) | Result | | |
|---------|---------|-------------------------------------|--------|-------|------|
| | 802.11a | 802.11a 802.11n(HT20) 802.11n(HT40) | | | |
| Lowest | 14.73 | 15.44 | 15.49 | | Pass |
| Middle | 14.67 | 15.73 | | 30.00 | |
| Highest | 14.86 | 15.08 | 15.84 | | |

Remark: "---" is not applicable



7.4 Channel Bandwidth

| Test Requirement: | FCC Part15 E Section 15.407(e) | | | |
|-------------------|--|--|--|--|
| Test Method: | ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 | | | |
| Limit: | >500KHz | | | |
| Test setup: | Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane | | | |
| Test Instruments: | Refer to section 6.0 for details | | | |
| Test mode: | Refer to section 5.2 for details | | | |
| Test results: | Pass | | | |

Measurement Data

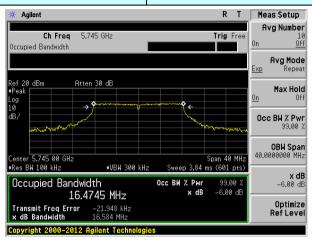
| | 5.8G Band | | | | | | | | |
|---------|-----------|---------------|---------------|-------|--------|--|--|--|--|
| Test | | Limit | Daguit | | | | | | |
| СН | 802.11a | 802.11n(HT20) | 802.11n(HT40) | (KHz) | Result | | | | |
| Lowest | 16.584 | 17.823 | 36.576 | | Pass | | | | |
| Middle | 16.603 | 17.794 | | >500 | | | | | |
| Highest | 16.567 | 17.776 | 36.584 | | | | | | |

Remark: "---" is not applicable

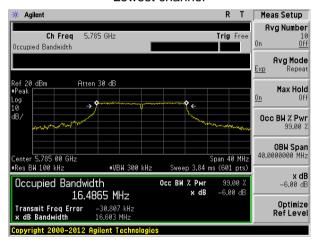


Test plot as follows:

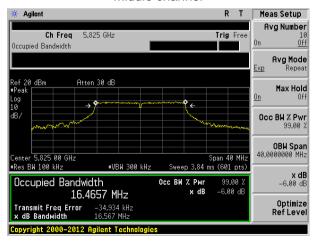
Test mode: 802.11a



Lowest channel



Middle channel

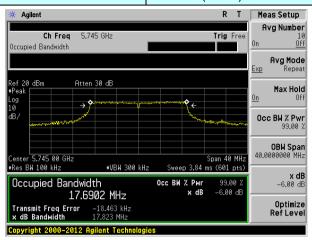


Highest channel

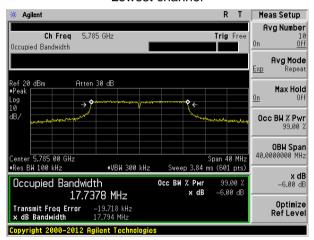


Test mode:

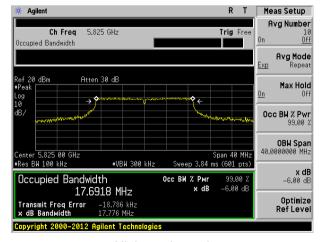
802.11n(HT20) @ 5.8G Band



Lowest channel



Middle channel

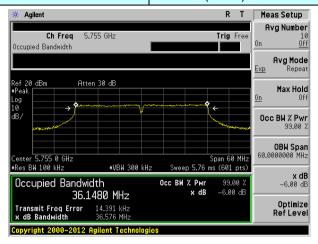


Highest channel

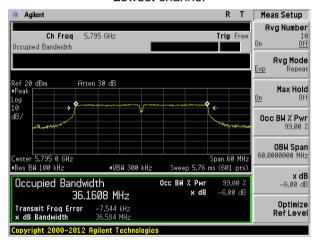


Test mode:

802.11n(HT40) @ 5.8G Band



Lowest channel



Highest channel

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960



7.5 Power Spectral Density

| Test Requirement: | FCC Part15 E Section 15.407(a)(3) | | |
|-------------------|--|--|--|
| Test Method: | ANSI C63.10:2013 and KDB 789033 D02 General U-NII Test Procedures New Rules v02r01 | | |
| Limit: | 30dBm | | |
| Test setup: | Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane | | |
| Test Instruments: | Refer to section 6.0 for details | | |
| Test mode: | Refer to section 5.2 for details | | |
| Test results: | Pass | | |

Measurement Data

| | 5.8G Band | | | | | | | |
|------------|-----------|---------------|---------------|--------------|--------|--|--|--|
| Test CH | Pow | Limit | Result | | | | | |
| | 802.11a | 802.11n(HT20) | 802.11n(HT40) | (dBm/500kHz) | Result | | | |
| Lowest | 3.66 | 6.45 | 1.39 | | | | | |
| Middle | 6.09 | 6.16 | | 30.00 | Pass | | | |
| Highest | 4.28 | 6.96 | 2.88 | | | | | |

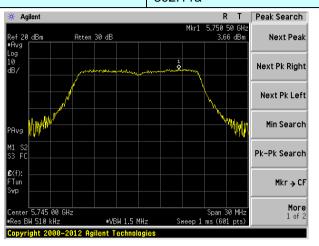
Remark: "---" is not applicable



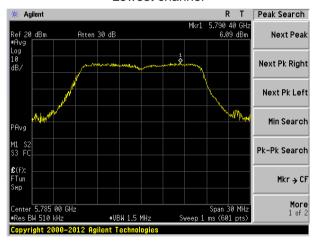
Test plot as follows:

Report No.: GTS201808000060F04

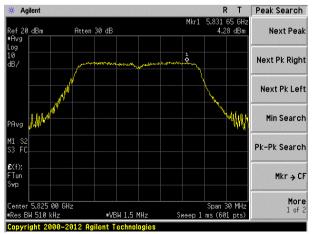
Test mode: 802.11a



Lowest channel



Middle channel

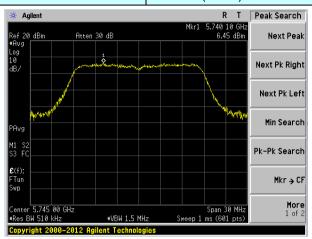


Highest channel

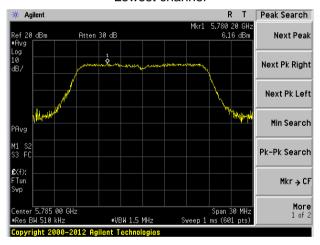


Test mode:

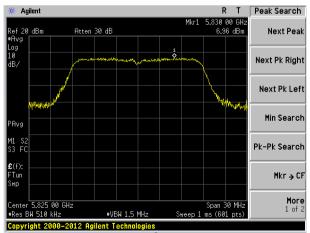
802.11n(HT20) @ 5.8G Band



Lowest channel



Middle channel

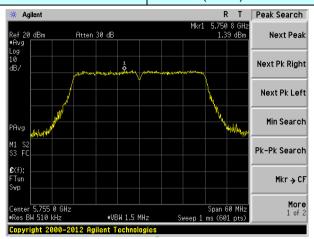


Highest channel

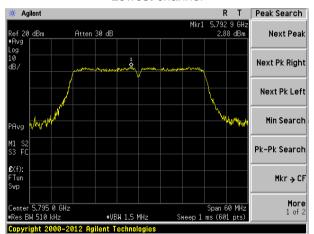


Test mode:

802.11n(HT40) @ 5.8G Band



Lowest channel



Highest channel



7.6 Band edges

7.6.1 Radiated Emission Method

| Test Requirement: | FCC Part15 C Section 15.209 and 15.205 | | | | | | | |
|-----------------------|---|--|--|--|--|--|--|--|
| Test Method: | ANSI C63.10: 2013 | | | | | | | |
| Test Frequency Range: | 9kHz to 40GHz, only worse case is reported | | | | | | | |
| Test site: | Measurement Distance: 3m | | | | | | | |
| Receiver setup: | Frequency Detector RBW VBW Value | | | | | | | |
| | Abana 401 Peak 1MHz 3MHz Peak | | | | | | | |
| | Above 1GHz RMS 1MHz 3MHz RMS | | | | | | | |
| Limit: | All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz 25 MHz above or below the band edge, and from 25 MHz above or belo the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the ban edge increasing linearly to a level of 27 dBm/MHz at the band edge. | | | | | | | |
| Test setup: | Tum Table+ - EUT+ < lm 4m >+ \ <150cm >+ \ Receiver+ Preamplifier+ | | | | | | | |
| Test Procedure: | The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak average method as specified and then reported in a data sheet. The radiation measurements are performed in X, Y, Z axis positioning | | | | | | | |

Global United Technology Services Co., Ltd.

No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone,

Xixiang Road, Baoan District, Shenzhen, Guangdong, China

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960



| Report No : | GTS201808000060F04 |
|-------------|-----------------------|
| recon inc | 1113/UTAUAUUUUUUEUFU4 |

| 1.000.1.10 | | | | | | |
|-------------------|--|--|---------|--|--|-----------|
| | | And found the X axis positioning which it is worse case, only the test | | | | |
| | worst case mode is recorded in the report. | | | | | |
| Test environment: | Temp.: 25 °C Humid.: 52% Press.: 1 012n | | | | | 1 012mbar |
| Test Instruments: | Refer to se | ction 6.0 for | details | | | |
| Test mode: | Refer to section 5.2 for details | | | | | |
| Test results: | Pass | Pass | | | | |

Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 3. The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.
- 4. According to KDB 789033 D02v02r01 section G) 1) d),for measurements above 1000 MHz @3m distance, the limit of field strength is computed as follows:

E[dBuV/m] = EIRP[dBm] + 95.2;

E[dBuV/m] = -27 + 95.2 = 68.2dBuV/m.

E[dBuV/m] = 10 + 95.2 = 105.2dBuV/m.

E[dBuV/m] = 15.6 + 95.2 = 110.8dBuV/m.

E[dBuV/m] = 27 + 95.2 = 122.2dBuV/m



Measurement data:

Remark: The pre-test were performed on lowest, middle and highest frequencies, only the worst case's (lowest and highest frequencies) data was showed.

| Test mode: 802.11a(HT20) Test channel: | | | | | | | Lowest | |
|--|-------------------------|-----------------------------|-----------------------|--------------------------|-------------------|------------------------|-----------------------|--------------|
| Peak value |) : | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5725.00 | 46.74 | 32.53 | 9.83 | 32.29 | 56.81 | 68.20 | -11.39 | Horizontal |
| 5725.00 | 44.36 | 32.53 | 9.83 | 32.29 | 54.43 | 68.20 | -13.77 | Vertical |
| RMS value: | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5725.00 | 34.00 | 32.53 | 9.83 | 32.29 | 44.07 | 54.00 | -9.93 | Horizontal |
| 5725.00 | 32.53 | 32.53 | 9.83 | 32.29 | 42.60 | 54.00 | -11.40 | Vertical |
| Test mode: | | 802.1 | 1a(HT20) | Te | st channel: | st channel: Hi | | |
| Peak value: | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5850.00 | 47.38 | 32.70 | 9.99 | 32.22 | 57.85 | 68.20 | -10.35 | Horizontal |
| 5850.00 | 46.97 | 32.70 | 9.99 | 32.22 | 57.44 | 68.20 | -10.76 | Vertical |
| RMS value: | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5850.00 | 35.03 | 32.70 | 9.99 | 32.22 | 45.50 | 54.00 | -8.50 | Horizontal |
| 5850.00 | 34.75 | 32.70 | 9.99 | 32.22 | 45.22 | 54.00 | -8.78 | Vertical |

Telephone: +86 (0) 755 2779 8480 Fax: +86 (0) 755 2779 8960



| Test mode: | | 802.1 | 1n(HT20) | Te | st channel: | | Lowest | |
|--------------------|-------------------------|-----------------------------|-----------------------|--------------------------|-------------------|------------------------|----------|--------------|
| Peak value | e: | <u>'</u> | | • | | 1 | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Limit | Polarization |
| 5725.00 | 47.88 | 32.53 | 9.83 | 32.29 | 57.95 | 68.20 | -10.25 | Horizontal |
| 5725.00 | 46.62 | 32.53 | 9.83 | 32.29 | 56.69 | 68.20 | -11.51 | Vertical |
| RMS value: | | | | | • | | • | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Limit | Polarization |
| 5725.00 | 33.54 | 32.53 | 9.83 | 32.29 | 43.61 | 54.00 | -10.39 | Horizontal |
| 5725.00 | 35.41 | 32.53 | 9.83 | 32.29 | 45.48 | 54.00 | -8.52 | Vertical |
| Test mode: | | 802.1 | 1n(HT20) | Те | st channel: High | | Highest | |
| Peak value: | | | | | _ | | _ | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | I I imit | Polarization |
| 5850.00 | 46.65 | 32.70 | 9.99 | 32.22 | 57.12 | 68.20 | -11.08 | Horizontal |
| 5850.00 | 44.79 | 32.70 | 9.99 | 32.22 | 55.26 | 68.20 | -12.94 | Vertical |
| RMS value: | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | I Limit | Polarization |
| 5850.00 | 32.74 | 32.70 | 9.99 | 32.22 | 43.21 | 54.00 | -10.79 | Horizontal |
| 5850.00 | 33.83 | 32.70 | 9.99 | 32.22 | 44.30 | 54.00 | -9.70 | Vertical |



| Test mode: | | 802.1 | 1n(HT40) | Te | st channel: | l | _owest | |
|--------------------|-------------------------|-----------------------------|-----------------------|--------------------------|-------------------|------------------------|-----------------------|--------------|
| Peak value |) : | · | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5725.00 | 48.03 | 32.53 | 9.83 | 32.29 | 58.10 | 68.20 | -10.10 | Horizontal |
| 5725.00 | 46.72 | 32.53 | 9.83 | 32.29 | 56.79 | 68.20 | -11.41 | Vertical |
| RMS value: | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5725.00 | 36.34 | 32.53 | 9.83 | 32.29 | 46.41 | 54.00 | -7.59 | Horizontal |
| 5725.00 | 34.86 | 32.53 | 9.83 | 32.29 | 44.93 | 54.00 | -9.07 | Vertical |
| Test mode: | | 802.1 | 1n(HT40) | Te | st channel: | ŀ | Highest | |
| Peak value: | 1 | | | | | | | _ |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| 5850.00 | 47.56 | 32.70 | 9.99 | 32.22 | 57.94 | 68.20 | -10.26 | Horizontal |
| 5850.00 | 48.41 | 32.70 | 9.99 | 32.22 | 58.79 | 68.20 | -9.41 | Vertical |
| RMS value: | | | | | | | | |
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | Polarization |
| | 35.41 | 32.70 | 9.99 | 32.22 | 45.88 | 54.00 | -8.12 | Horizontal |
| 5850.00 | 33.41 | 32.70 | 3.33 | 32.22 | 75.00 | 34.00 | -0.12 | Honzontai |

Remark:

^{1.} Final Level = Receiver Read level + Antenna Factor + Cable Loss - Preamplifier Factor

^{2.} The emission levels of other frequencies are very lower than the limit and not show in test report.

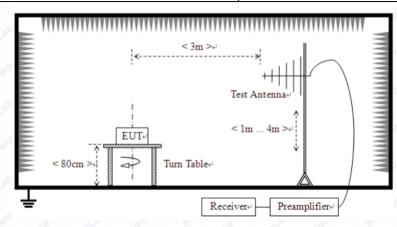


7.7 Spurious Emission

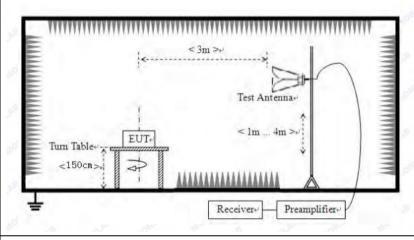
7.7.1 Radiated Emission Method

| Test Requirement: | FCC Part15 C Section 15.209, Part 15E Section 15.407(b)(4) | | | | | | | |
|-----------------------|--|-----------|--------------------------|-----------|-------------------------|-------------------|--|--|
| Test Method: | ANSI C63.10:2013 | 3 | | | | | | |
| Test Frequency Range: | 9kHz to 40GHz | | | | | | | |
| Test site: | Measurement Dist | tance: 3r | m | | | | | |
| Receiver setup: | Frequency | Dete | ctor | RBW | VBW | Value | | |
| | 9kHz-150KHz | Quasi- | | 200Hz | 1kHz | Quasi-peak Value | | |
| | 150kHz-30MHz | Quasi- | -peak | 9kHz | 30kHz | Quasi-peak Value | | |
| | 30MHz-1GHz | Quasi- | | 100KHz | 300KHz | Quasi-peak Value | | |
| | Above 1GHz | Pea | | 1MHz | 3MHz | Peak Value | | |
| | | A\ | V | 1MHz | 3MHz | Average Value | | |
| Limit: | Frequency | Limit | (uV/m) | Value | Measurement Distance | | | |
| | 0.009MHz-0.490 |)MHz | 2400/ | /F(KHz) | QP | 300m | | |
| | 0.490MHz-1.705 | 5MHz | 24000 | /F(KHz) | QP | 300m | | |
| | 1.705MHz-30N | ИHz | ; | 30 | QP | 30m | | |
| | 30MHz-88MH | Ηz | 1 | 00 | QP | | | |
| | 88MHz-216M | Hz | 150 | | QP | 3m | | |
| | 216MHz-960M | 1Hz | 200 | | QP | | | |
| | 960MHz-1GH | Ηz | 500 | | QP | | | |
| | | | | | · · | | | |
| | Frequency | | Limit (dBm/MHz) -27.0 | | Hz) | Remark | | |
| | Above 1GH | | | | , | Peak Value | | |
| Test setup: | Tum Table | ****** | < 3 | Receiver√ | ********** | ier _{e'} | | |
| | For radiated emissions from 30MHz to1GHz | | | | | | | |





For radiated emissions above 1GHz



Test Procedure:

- 1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
- 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or



| Report No.: GTS20180800 | | | | | | | |
|-------------------------|-------------|--|---------------|---------------|-------------|-----------|--|
| | average | method as s | specified and | then reported | d in a data | sheet. | |
| | And fou | 7. The radiation measurements are performed in X, Y, Z axis positioning. And found the X axis positioning which it is worse case, only the test worst case mode is recorded in the report. | | | | | |
| Test environment: | Temp.: | 25 °C | Humid.: | 52% | Press.: | 1 012mbar | |
| Test Instruments: | Refer to se | ection 6.0 for | details | | | | |
| Test mode: | Refer to se | ection 5.2 for | details | | | | |
| Test voltage: | AC120V 6 | AC120V 60Hz | | | | | |
| Test results: | Pass | Pass | | | | | |

Measurement Data:

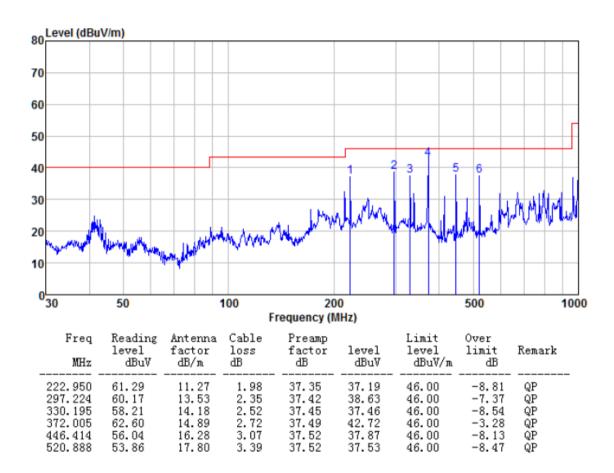
9 kHz ~ 30 MHz

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.



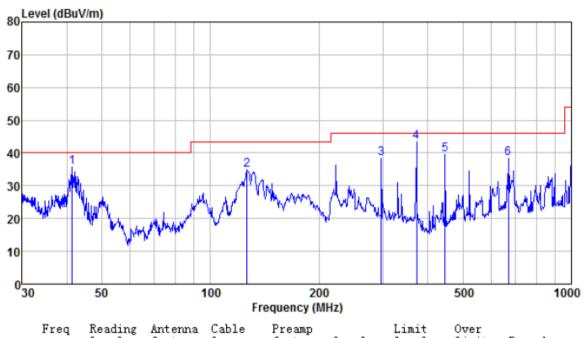
Below 1GHz

| Test mode: | WiFi mode | Probe. | Horizontal |
|---------------|--------------|--------|------------|
| i est illoue. | WII I IIIOUE | FIUDE. | HUHZUHlai |





| Test mode: | WiFi mode | Probe: | Vertical |
|------------|-----------|--------|----------|



| Freq MHz | Reading level dBuV | Antenna factor dB/m | Cable loss dB | Preamp factor dB | level dBuV | Limit level dBuV/m | Over limit dB | Remark | _ |
|-------------------------------|--------------------------|---------------------------|----------------------|-------------------------|-------------------------|--------------------------|-------------------------|----------------|---|
| 41.422 126.329 297.224 | 58.52 61.61 59.92 | 12.22 8.66 13.53 | 0.68 1.41 2.35 | 35.75 36.93 37.42 | 35.67 34.75 38.38 | 40.00 43.50 46.00 | -4.33 -8.75 -7.62 | QP QP QP | _ |
| 372.005 446.414 668.142 | 63.24 57.60 52.53 | 14.89 16.28 19.57 | 2.72 3.07 3.97 | 37.49 37.52 37.60 | 43.36 39.43 38.47 | 46.00 46.00 46.00 | -2.64 -6.57 -7.53 | QP QP QP | |



Above 1GHz:

Report No.: GTS201808000060F04

802.11a(HT20) 5745MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|--------------------|-------------------------|-----------------------------|-----------------------|--------------------------|-------------------|------------------------|-----------------------|--------------|
| 11490.00 | 28.06 | 39.85 | 14.98 | 34.60 | 48.29 | 74.00 | -25.71 | Vertical |
| 17235.00 | 28.25 | 45.51 | 18.98 | 33.95 | 58.79 | 74.00 | -15.21 | Vertical |
| 11490.00 | 29.70 | 39.85 | 14.98 | 34.60 | 49.93 | 74.00 | -24.07 | Horizontal |
| 17235.00 | 29.52 | 45.51 | 18.98 | 33.95 | 60.06 | 74.00 | -13.94 | Horizontal |
| 11490.00 | 22.63 | 39.85 | 14.98 | 34.60 | 42.86 | 54.00 | -11.14 | Vertical |
| 17235.00 | 18.18 | 45.51 | 18.98 | 33.95 | 48.72 | 54.00 | -5.28 | Vertical |
| 11490.00 | 20.21 | 39.85 | 14.98 | 34.60 | 40.44 | 54.00 | -13.56 | Horizontal |
| 17235.00 | 17.16 | 45.51 | 18.98 | 33.95 | 47.70 | 54.00 | -6.30 | Horizontal |

802.11a(HT20) 5785MHz

| | , | | | | | | | |
|--------------------|-------------------------|-----------------------------|-----------------------|--------------------------|-------------------|------------------------|-----------------------|--------------|
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
| 11570.00 | 30.95 | 39.76 | 14.99 | 34.75 | 50.95 | 74.00 | -23.05 | Vertical |
| 17355.00 | 28.94 | 46.19 | 18.98 | 34.45 | 59.66 | 74.00 | -14.34 | Vertical |
| 11570.00 | 28.70 | 39.76 | 14.99 | 34.75 | 48.70 | 74.00 | -25.30 | Horizontal |
| 17355.00 | 28.17 | 46.19 | 18.98 | 34.45 | 58.89 | 74.00 | -15.11 | Horizontal |
| 11570.00 | 21.03 | 39.76 | 14.99 | 34.75 | 41.03 | 54.00 | -12.97 | Vertical |
| 17355.00 | 18.64 | 46.19 | 18.98 | 34.45 | 49.36 | 54.00 | -4.64 | Vertical |
| 11570.00 | 20.57 | 39.76 | 14.99 | 34.75 | 40.57 | 54.00 | -13.43 | Horizontal |
| 17355.00 | 17.48 | 46.19 | 18.98 | 34.45 | 48.20 | 54.00 | -5.80 | Horizontal |

802.11a(HT20) 5825MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|--------------------|-------------------------|-----------------------------|-----------------------|--------------------------|-------------------|------------------------|-----------------------|--------------|
| 11650.00 | 28.67 | 39.61 | 14.99 | 34.86 | 48.41 | 74.00 | -25.59 | Vertical |
| 17475.00 | 30.62 | 46.78 | 18.97 | 34.95 | 61.42 | 74.00 | -12.59 | Vertical |
| 11650.00 | 29.33 | 39.61 | 14.99 | 34.86 | 49.07 | 74.00 | -24.93 | Horizontal |
| 17475.00 | 30.15 | 46.78 | 18.97 | 34.95 | 60.95 | 74.00 | -13.05 | Horizontal |
| 11650.00 | 21.53 | 39.61 | 14.99 | 34.86 | 41.27 | 54.00 | -12.73 | Vertical |
| 17475.00 | 19.00 | 46.78 | 18.97 | 34.95 | 49.80 | 54.00 | -4.20 | Vertical |
| 11650.00 | 21.34 | 39.61 | 14.99 | 34.86 | 41.08 | 54.00 | -12.92 | Horizontal |
| 17475.00 | 17.01 | 46.78 | 18.97 | 34.95 | 47.81 | 54.00 | -6.19 | Horizontal |



802.11n(HT20) 5745MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|--------------------|-------------------------|-----------------------------|-----------------------|--------------------------|-------------------|------------------------|-----------------------|--------------|
| 11490.00 | 28.83 | 39.85 | 14.98 | 34.60 | 49.06 | 74.00 | -24.94 | Vertical |
| 17235.00 | 28.44 | 45.51 | 18.98 | 33.95 | 58.98 | 74.00 | -15.02 | Vertical |
| 11490.00 | 29.56 | 39.85 | 14.98 | 34.60 | 49.79 | 74.00 | -24.21 | Horizontal |
| 17235.00 | 29.30 | 45.51 | 18.98 | 33.95 | 59.84 | 74.00 | -14.16 | Horizontal |
| 11490.00 | 21.13 | 39.85 | 14.98 | 34.60 | 41.36 | 54.00 | -12.64 | Vertical |
| 17235.00 | 17.57 | 45.51 | 18.98 | 33.95 | 48.11 | 54.00 | -5.89 | Vertical |
| 11490.00 | 20.83 | 39.85 | 14.98 | 34.60 | 41.06 | 54.00 | -12.94 | Horizontal |
| 17235.00 | 19.58 | 45.51 | 18.98 | 33.95 | 50.12 | 54.00 | -3.88 | Horizontal |

802.11n(HT20) 5785MHz

| • | , | | | | | | | |
|--------------------|-------------------------|-----------------------------|-----------------------|--------------------------|-------------------|------------------------|-----------------------|--------------|
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
| 11570.00 | 29.06 | 39.76 | 14.99 | 34.75 | 49.06 | 74.00 | -24.94 | Vertical |
| 17355.00 | 28.12 | 46.19 | 18.98 | 34.45 | 58.84 | 74.00 | -15.16 | Vertical |
| 11570.00 | 29.95 | 39.76 | 14.99 | 34.75 | 49.95 | 74.00 | -24.05 | Horizontal |
| 17355.00 | 30.89 | 46.19 | 18.98 | 34.45 | 61.61 | 74.00 | -12.39 | Horizontal |
| 11570.00 | 22.21 | 39.76 | 14.99 | 34.75 | 42.21 | 54.00 | -11.79 | Vertical |
| 17355.00 | 16.82 | 46.19 | 18.98 | 34.45 | 47.54 | 54.00 | -6.46 | Vertical |
| 11570.00 | 21.94 | 39.76 | 14.99 | 34.75 | 41.94 | 54.00 | -12.06 | Horizontal |
| 17355.00 | 18.61 | 46.19 | 18.98 | 34.45 | 49.33 | 54.00 | -4.67 | Horizontal |

802.11n(HT20) 5825MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|--------------------|-------------------------|-----------------------------|-----------------------|--------------------------|-------------------|------------------------|-----------------------|--------------|
| 11650.00 | 29.35 | 39.61 | 14.99 | 34.86 | 49.09 | 74.00 | -24.91 | Vertical |
| 17475.00 | 30.47 | 46.78 | 18.97 | 34.95 | 61.27 | 74.00 | -12.73 | Vertical |
| 11650.00 | 28.84 | 39.61 | 14.99 | 34.86 | 48.58 | 74.00 | -25.42 | Horizontal |
| 17475.00 | 28.32 | 46.78 | 18.97 | 34.95 | 59.12 | 74.00 | -14.88 | Horizontal |
| 11650.00 | 21.28 | 39.61 | 14.99 | 34.86 | 41.02 | 54.00 | -12.98 | Vertical |
| 17475.00 | 17.67 | 46.78 | 18.97 | 34.95 | 48.47 | 54.00 | -6.46 | Vertical |
| 11650.00 | 22.09 | 39.61 | 14.99 | 34.86 | 41.83 | 54.00 | -12.06 | Horizontal |
| 17475.00 | 19.37 | 46.78 | 18.97 | 34.95 | 50.17 | 54.00 | -3.83 | Horizontal |



802.11n(HT40) 5755MHz

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|--------------------|-------------------------|-----------------------------|-----------------------|--------------------------|-------------------|------------------------|-----------------------|--------------|
| 11510.00 | 28.83 | 39.85 | 14.98 | 34.63 | 49.03 | 74.00 | -24.97 | Vertical |
| 17265.00 | 30.47 | 45.51 | 18.98 | 34.09 | 60.87 | 74.00 | -13.13 | Vertical |
| 11510.00 | 28.18 | 39.85 | 14.98 | 34.63 | 48.38 | 74.00 | -25.62 | Horizontal |
| 17265.00 | 30.92 | 45.51 | 18.98 | 34.09 | 61.32 | 74.00 | -12.69 | Horizontal |
| 11510.00 | 20.24 | 39.85 | 14.98 | 34.63 | 40.44 | 54.00 | -13.56 | Vertical |
| 17265.00 | 17.70 | 45.51 | 18.98 | 34.09 | 48.10 | 54.00 | -5.90 | Vertical |
| 11510.00 | 20.69 | 39.85 | 14.98 | 34.63 | 40.89 | 54.00 | -13.11 | Horizontal |
| 17265.00 | 19.44 | 45.51 | 18.98 | 34.09 | 49.84 | 54.00 | -4.16 | Horizontal |

802.11n(HT40) 5795MHz

| | , | | | | | | | |
|--------------------|-------------------------|-----------------------------|-----------------------|--------------------------|-------------------|------------------------|-----------------------|--------------|
| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamp Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
| 11590.00 | 28.80 | 39.71 | 14.99 | 34.78 | 48.72 | 74.00 | -25.28 | Vertical |
| 17385.00 | 30.08 | 46.49 | 18.98 | 34.59 | 60.96 | 74.00 | -13.04 | Vertical |
| 11590.00 | 30.75 | 39.71 | 14.99 | 34.78 | 50.67 | 74.00 | -23.33 | Horizontal |
| 17385.00 | 29.73 | 46.49 | 18.98 | 34.59 | 60.61 | 74.00 | -13.39 | Horizontal |
| 11590.00 | 22.35 | 39.71 | 14.99 | 34.78 | 42.27 | 54.00 | -11.73 | Vertical |
| 17385.00 | 18.00 | 46.49 | 18.98 | 34.59 | 48.88 | 54.00 | -5.12 | Vertical |
| 11590.00 | 21.24 | 39.71 | 14.99 | 34.78 | 41.16 | 54.00 | -12.84 | Horizontal |
| 17385.00 | 18.47 | 46.49 | 18.98 | 34.59 | 49.35 | 54.00 | -4.65 | Horizontal |

Note:

- 1. Measure Level = Reading Level + Factor.
- 2. The test trace is same as the ambient noise (the test frequency range: 18GHz~40GHz), therefore no data appear in the report.
- 3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.



7.8 Frequency stability

| Test Requirement: | FCC Part15 C Section 15.407(g) | | | | | |
|-------------------|---|--|--|--|--|--|
| Test Method: | ANSI C63.10:2013, FCC Part 2.1055 | | | | | |
| Limit: | Manufactures of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified | | | | | |
| Test Procedure: | The EUT was setup to ANSI C63.4, 2003; tested to 2.1055 for compliance to FCC Part 15.407(g) requirements. | | | | | |
| Test setup: | Spectrum analyzer EUT Variable Power Supply Note: Measurement setup for testing on Antenna connector | | | | | |
| Test Instruments: | Refer to section 6.0for details | | | | | |
| Test mode: | Refer to section 5.2 for details | | | | | |
| Test results: | Pass | | | | | |



Measurement data:

Report No.: GTS201808000060F04

| Frequency stability versus Temp. | | | | | | | | |
|----------------------------------|-----------|-----------------|---------------------|-----------------|-----------------|--|--|--|
| | | Pov | wer Supply: DC 3.7V | | | | | |
| Tomp | Operating | 0 minute | 2 minute | 5 minute | 10 minute | | | |
| Temp. (°C) | Frequency | Measured | Measured | Measured | Measured | | | |
| (C) | (MHz) | Frequency (MHz) | Frequency (MHz) | Frequency (MHz) | Frequency (MHz) | | | |
| | 5745 | 5743.0333 | 5744.1556 | 5744.2613 | 5743.3041 | | | |
| -30 | 5785 | 5784.1201 | 5783.3088 | 5783.2664 | 5782.7812 | | | |
| | 5825 | 5823.8526 | 5824.1625 | 5822.2227 | 5822.8056 | | | |
| | 5745 | 5744.7299 | 5743.4057 | 5744.7047 | 5744.6214 | | | |
| -20 | 5785 | 5783.0067 | 5784.1940 | 5784.3845 | 5784.5720 | | | |
| | 5825 | 5824.7684 | 5823.1323 | 5824.7691 | 5824.8299 | | | |
| | 5745 | 5743.8662 | 5743.7967 | 5744.9488 | 5744.9848 | | | |
| -10 | 5785 | 5784.8448 | 5783.7267 | 5784.0480 | 5784.7969 | | | |
| | 5825 | 5824.9480 | 5824.5123 | 5824.9075 | 5824.0742 | | | |
| | 5745 | 5743.3776 | 5743.7060 | 5744.3406 | 5744.9140 | | | |
| 0 | 5785 | 5783.0715 | 5784.6229 | 5784.3416 | 5783.7054 | | | |
| | 5825 | 5823.0033 | 5824.8055 | 5824.8000 | 5824.0733 | | | |
| | 5745 | 5744.5459 | 5743.4945 | 5744.5218 | 5744.5160 | | | |
| 10 | 5785 | 5784.8936 | 5783.0098 | 5784.3532 | 5784.3318 | | | |
| | 5825 | 5823.6037 | 5823.9313 | 5824.1110 | 5824.9953 | | | |
| | 5745 | 5744.9410 | 5744.2743 | 5744.6371 | 5744.9431 | | | |
| 20 | 5785 | 5784.4691 | 5783.6755 | 5784.7238 | 5783.9856 | | | |
| | 5825 | 5824.6210 | 5823.8166 | 5824.8046 | 5824.3259 | | | |
| | 5745 | 5743.8383 | 5743.1869 | 5744.0249 | 5744.8932 | | | |
| 30 | 5785 | 5784.5497 | 5784.6526 | 5783.4290 | 5783.1087 | | | |
| | 5825 | 5823.6334 | 5824.0741 | 5823.7204 | 5823.9118 | | | |
| | 5745 | 5744.2785 | 5744.2952 | 5743.8820 | 5744.2352 | | | |
| 40 | 5785 | 5784.4654 | 5784.2599 | 5784.2623 | 5784.0802 | | | |
| | 5825 | 5824.7652 | 5824.3493 | 5824.2001 | 5824.8649 | | | |
| | 5745 | 5743.8188 | 5744.5067 | 5744.0265 | 5743.7614 | | | |
| 50 | 5785 | 5783.7339 | 5783.2345 | 5784.0107 | 5784.4315 | | | |
| | 5825 | 5823.7479 | 5824.7577 | 5824.0267 | 5824.9885 | | | |

Note: The worst case is FL=5743.0333MHz. FH=5824.0742MHz

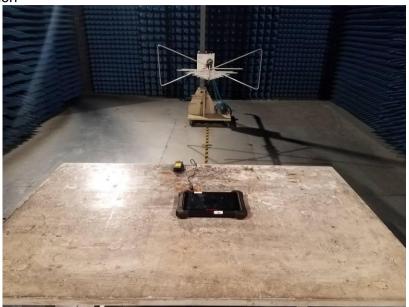
| TVOIC. THE | Note. The worst case is FL=3743.0333Winz, FN=3024.0742Winz | | | | | | | | | |
|------------|--|-----------------|-----------------|-----------------|-----------------|--|--|--|--|--|
| | Frequency stability versus Voltage | | | | | | | | | |
| | Temperature: 25°C | | | | | | | | | |
| Power | Operating | 0 minute | 2 minute | 5 minute | 10 minute | | | | | |
| Supply | Frequency | Measured | Measured | Measured | Measured | | | | | |
| (VDC) | (MHz) | Frequency (MHz) | Frequency (MHz) | Frequency (MHz) | Frequency (MHz) | | | | | |
| | 5745 | 5744.7460 | 5744.3696 | 5744.9550 | 5744.5700 | | | | | |
| 3.3 | 5785 | 5784.2273 | 5784.7881 | 5783.7133 | 5784.6475 | | | | | |
| | 5825 | 5823.6214 | 5824.3046 | 5824.6056 | 5824.8272 | | | | | |
| | 5745 | 5744.4597 | 5744.5155 | 5743.2279 | 5743.8474 | | | | | |
| 3.7 | 5785 | 5783.2630 | 5783.1581 | 5784.5639 | 5783.5271 | | | | | |
| | 5825 | 5823.4312 | 5824.2821 | 5823.8535 | 5824.4484 | | | | | |
| | 5745 | 5743.7509 | 5743.4244 | 5744.6991 | 5744.7393 | | | | | |
| 4.1 | 5785 | 5784.2143 | 5783.0291 | 5784.3245 | 5784.9476 | | | | | |
| | 5825 | 5824.1934 | 5824.8501 | 5824.2599 | 5824.9493 | | | | | |

Note: The worst case is FL=5744.7460MHz, FH=5824.9493MHz



8 Test Setup Photo

Radiated Emission







Conducted Emission



9 EUT Constructional Details

Reference to the test report No. GTS201808000060F01

-----End-----