

FCC Test Report

(Co-Located)

Report No.: RFBGSN-WTW-P20080589-8

FCC ID: NKS-PA1

Test Model: Trimble Gateway-PA1

Received Date: Aug. 29, 2020

Test Date: Oct. 22, 2020

Issued Date: Nov. 03, 2020

Applicant: PeopleNet Communications Corporation

Address: 4400 Baker Road, Minnetonka Minnesota 55343-8684 United States

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

Lin Kou Laboratories

Lab Address: No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Test Location: No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City

33383, Taiwan

FCC Registration /

788550 / TW0003

Designation Number:





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Release Control Record

| I | Issue No. | Description | Date Issued |
|---|------------------------|------------------|---------------|
| | RFBGSN-WTW-P20080589-8 | Original Release | Nov. 03, 2020 |



1 Certificate of Conformity

Approved by:

Product: Trimble Gateway NA

Brand: Trimble

Test Model: Trimble Gateway-PA1

Sample Status: Engineering Sample

Applicant: PeopleNet Communications Corporation

Test Date: Oct. 22, 2020

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)

47 CFR FCC Part 15, Subpart E (Section 15.407)

ANSI C63.10:2013

FCC Part 22, Subpart H FCC Part 24, Subpart E

FCC Part 27, Subpart C, H, L

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

| Prepared by : | vera mana | , Date: | Nov. 03, 2020 | |
|---------------|-------------------------|---------|---------------|--|
| | Vera Huang / Specialist | | | |
| | 0,10 } /- | | | |

Date:

Nov. 03, 2020

Dylan Chiou / Senior Project Engineer

Vara V

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2 Summary of Test Results

47 CFR FCC Part 15, Subpart C (Section 15.247)
47 CFR FCC Part 15, Subpart E (Section 15.407)
ANSI C63.10:2013
FCC Part 22, Subpart H
FCC Part 24, Subpart E
FCC Part 27, Subpart C, H, L

| FCC Clause | Test Item | Result | Remarks |
|-----------------------------------|---|--------|--|
| 15.205 / 15.209 / 15.247(d) | Radiated Emissions and Band Edge Measurement | Pass | Meet the requirement of limit. Minimum passing margin is -5.14 dB at 2390 MHz. |
| 15.407(b) (1/2/3/4(i/ii)/6) | , , , , , , , , , , , , , , , , , , , | | Meet the requirement of limit. Minimum passing margin is -0.43 dB at 5150 MHz. |
| 2.1053 27.53(h) | Radiated Spurious Emissions | Pass | Meet the requirement of limit. Minimum passing margin is -17.57 dB at 5160.00 MHz. |

Note:

1. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| Measurement | Frequency | Expanded Uncertainty (k=2) (±) |
|--------------------------------|--------------------|--------------------------------|
| | 9 kHz ~ 30 MHz | 3.04 dB |
| Radiated Emissions up to 1 GHz | 30 MHz ~ 200 MHz | 2.93 dB |
| | 200 MHz ~ 1000 MHz | 2.95 dB |
| Radiated Emissions above 1 GHz | 1 GHz ~ 18 GHz | 2.26 dB |
| Radiated Emissions above 1 GHZ | 18 GHz ~ 40 GHz | 1.94 dB |

2.2 Modification Record

There were no modifications required for compliance.



3 General Information

3.1 General Description of EUT

| Product | Trimble Gateway NA | | | | | |
|---------------------|---------------------|---|-----------------------------|---------------------|--|--|
| Brand | Trimble | | | | | |
| Test Model (HVIN) | Trimble Gateway-PA1 | | | | | |
| Status of EUT | Engineerin | ng Sample | | | | |
| Power Supply Rating | 12 Vdc (ad | dapter) | | | | |
| ,,,, | WLAN | CCK DOPSK DRPSK for DSSS | | | | |
| | BT EDR | GFSK, π/4-DQPSK, 8DPSK | | | | |
| Modulation Type | BT LE | GFSK | | | | |
| | WCDMA | BPSK, QPSK | | | | |
| | LTE | QPSK, 16QAM | | | | |
| | WLAN | 2412 ~ 2462 M 5180 ~ 5240 MI 5745 ~ 5825 MI | Hz, 5260 ~ 5320 MHz, 5500 ~ | ~ 5700 MHz, | | |
| | WCDMA | WCDMA II | 1852.4 ~ 1907.6 MHz | | | |
| | | WCDMA IV | 1712.4 ~ 1752.6 MHz | | | |
| | | WCDMA V | 826.4 ~ 846.6 MHz | 4050 7 4000 0 1411 | | |
| | LTE | LTE Band 2 | Channel Bandwidth: 1.4 MHz | 1850.7 ~ 1909.3 MHz | | |
| | | | Channel Bandwidth: 3 MHz | 1851.5 ~ 1908.5 MHz | | |
| | | | Channel Bandwidth: 5 MHz | 1852.5 ~ 1907.5 MHz | | |
| | | | Channel Bandwidth: 10 MHz | 1855.0 ~ 1905.0 MHz | | |
| | | | Channel Bandwidth: 15 MHz | 1857.5 ~ 1902.5 MHz | | |
| | | | Channel Bandwidth: 20 MHz | 1860.0 ~ 1900.0 MHz | | |
| Operating Frequency | | | Channel Bandwidth: 1.4 MHz | 1710.7 ~ 1754.3 MHz | | |
| | | | Channel Bandwidth: 3 MHz | 1711.5 ~ 1753.5 MHz | | |
| | | LTE Band 4 | Channel Bandwidth: 5 MHz | 1712.5 ~ 1752.5 MHz | | |
| | | LIL Dalid 4 | Channel Bandwidth: 10 MHz | 1715.0 ~ 1750.0 MHz | | |
| | | | Channel Bandwidth: 15 MHz | 1717.5 ~ 1747.5 MHz | | |
| | | | Channel Bandwidth: 20 MHz | 1720.0 ~ 1745.0 MHz | | |
| | | | Channel Bandwidth: 1.4 MHz | 699.7 ~ 715.3 MHz | | |
| | | LTE Daniel 40 | Channel Bandwidth: 3 MHz | 700.5 ~ 714.5 MHz | | |
| | | LTE Band 12 | Channel Bandwidth: 5 MHz | 701.5 ~ 713.5 MHz | | |
| | | | Channel Bandwidth: 10 MHz | 704.0 ~ 711.0 MHz | | |
| | BT EDR | 2402 ~ 2480 MI | Hz | • | | |
| | BT LE | 2402 ~ 2480 MI | Hz | | | |



| | 2.4 GHz: |
|-------------------------|--|
| | 11 for 802.11b, 802.11g, 802.11n (HT20) |
| | 5GHz: |
| | 5180 ~ 5240 MHz: |
| | 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) |
| | 2 for 802.11n (HT40), 802.11ac (VHT40) |
| | 1 for 802.11ac (VHT80) |
| | 5260 ~ 5320 MHz: |
| | 4 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) |
| | 2 for 802.11n (HT40), 802.11ac (VHT40) |
| | 1 for 802.11ac (VHT80) |
| Number of Channel | 5500 ~ 5700 MHz: |
| | 11 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) |
| | 5 for 802.11n (HT40), 802.11ac (VHT40) |
| | 2 for 802.11ac (VHT80) |
| | 5745 ~ 5825 MHz: |
| | 5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20) |
| | 2 for 802.11n (HT40), 802.11ac (VHT40) |
| | 1 for 802.11ac (VHT80) |
| | BT EDR: |
| | 79 |
| | BT LE: |
| | 40 |
| Antenna Type | Refer to Note as below |
| Antenna Connector | N/A |
| Accessory Device | N/A |
| Data Cable Supplied | N/A |



Note:

1. The EUT provides one completed transmitter and one receiver.

| Modulation Mode | Tx Function |
|------------------|-------------|
| 802.11b | 1TX |
| 802.11g | 1TX |
| 802.11a | 1TX |
| 802.11n (HT20) | 1TX |
| 802.11n (HT40) | 1TX |
| 802.11ac (VHT20) | 1TX |
| 802.11ac (VHT40) | 1TX |
| 802.11ac (VHT80) | 1TX |

^{*} The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ac mode for VHT20 / VHT40, therefore investigated worst case to representative mode in test report. (Final test mode refer section 3.2.1)

2. The antenna information is listed as below.

| | WWAN Antenna | | | | | | | | |
|------|--------------|---------------|---------------------------------------|--------------------|-------------------|---------|--------|---------------------------|--|
| | | | | Antenna Gain (dBi) | | | | | |
| Ant. | Brand | Model | Antenna Type | WDMA II/LTE 2 | WCDMA IV/LTE 4 | WCDMA V | LTE 12 | Remark | |
| 1 | TAOGLAS | PCS.06.A | SMD Antenna | 3.58 | 3.82 | 0.53 | -0.03 | Internal, Main Antenna | |
| 2 | TAOGLAS | PCS.06.B | SMD Antenna | 3.81 | 4.04 | 0.75 | 0.06 | Internal, Aux. Antenna | |
| 3 | TAOGLAS | MA240.LBI.001 | Adhesive Mount Combination Antenna | 2.51 | 1.93 | 0.94 | 1.6 | External, Main Antenna | |
| 4 | TAOGLAS | MA240.LBI.001 | Adhesive Mount Combination Antenna | 1.77 | 1.2 | 1 | 1.2 | External, Aux. Antenna | |

| WLAN Antenna | | | | | | | | |
|--------------|-----------------|--------------|---------|---------------|----------------|----------------|--|--|
| | | | | Antenna (| Gain (dBi) | | | |
| Brand | Model | Antenna Type | BT/WLAN | WLAN | WLAN | WLAN | | |
| | | | 2.4 GHz | 5.15~5.35 GHz | 5.47~5.725 GHz | 5.725~5.85 GHz | | |
| TAOGLAS | FXP826.07.0120C | FPC Antenna | 0.75 | 1.22 | 3.58 | 3.52 | | |

- 3. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
- 4. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.



3.2 Description of Test Modes

WLAN 2.4GHz:

11 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 1 | 2412 | 7 | 2442 |
| 2 | 2417 | 8 | 2447 |
| 3 | 2422 | 9 | 2452 |
| 4 | 2427 | 10 | 2457 |
| 5 | 2432 | 11 | 2462 |
| 6 | 2437 | | |

WLAN 5GHz:

For 5180 ~ 5240 MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 36 | 5180 | 44 | 5220 |
| 40 | 5200 | 48 | 5240 |

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 38 | 5190 | 46 | 5230 |

1 channel is provided for 802.11ac (VHT80):

| Channel | Frequency (MHz) |
|---------|-----------------|
| 42 | 5210 |

For 5260 ~ 5320 MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 52 | 5260 | 60 | 5300 |
| 56 | 5280 | 64 | 5320 |

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 54 | 5270 | 62 | 5310 |

1 channel is provided for 802.11ac (VHT80):

| Channel | Frequency (MHz) | |
|---------|-----------------|--|
| 58 | 5290 | |



For 5500 ~ 5700 MHz

11 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

| Channel | Frequency (MHz) Channel | | Frequency (MHz) |
|---------|-------------------------|-----|-----------------|
| 100 | 5500 | 124 | 5620 |
| 104 | 5520 | 128 | 5640 |
| 108 | 5540 | 132 | 5660 |
| 112 | 5560 | 136 | 5680 |
| 116 | 5580 | 140 | 5700 |
| 120 | 5600 | | |

5 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 102 | 5510 | 126 | 5630 |
| 110 | 5550 | 134 | 5670 |
| 118 | 5590 | | |

2 channels are provided for 802.11ac (VHT80):

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | |
|---------|-----------------|---------|-----------------|--|
| 106 | 5530 | 122 | 5610 | |

For 5745 ~ 5825 MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | |
|---------|-----------------|---------|-----------------|--|
| 149 | 5745 | 161 | 5805 | |
| 153 | 5765 | 165 | 5825 | |
| 157 | 5785 | | | |

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

| Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|
| 151 | 5755 | 159 | 5795 |

1 channel is provided for 802.11ac (VHT80):

| Channel | Frequency (MHz) |
|---------|-----------------|
| 155 | 5775 |



BT EDR:

79 channels are provided to this EUT:

| Channel | Freq. (MHz) |
|---------|-------------|---------|-------------|---------|-------------|---------|-------------|
| 0 | 2402 | 20 | 2422 | 40 | 2442 | 60 | 2462 |
| 1 | 2403 | 21 | 2423 | 41 | 2443 | 61 | 2463 |
| 2 | 2404 | 22 | 2424 | 42 | 2444 | 62 | 2464 |
| 3 | 2405 | 23 | 2425 | 43 | 2445 | 63 | 2465 |
| 4 | 2406 | 24 | 2426 | 44 | 2446 | 64 | 2466 |
| 5 | 2407 | 25 | 2427 | 45 | 2447 | 65 | 2467 |
| 6 | 2408 | 26 | 2428 | 46 | 2448 | 66 | 2468 |
| 7 | 2409 | 27 | 2429 | 47 | 2449 | 67 | 2469 |
| 8 | 2410 | 28 | 2430 | 48 | 2450 | 68 | 2470 |
| 9 | 2411 | 29 | 2431 | 49 | 2451 | 69 | 2471 |
| 10 | 2412 | 30 | 2432 | 50 | 2452 | 70 | 2472 |
| 11 | 2413 | 31 | 2433 | 51 | 2453 | 71 | 2473 |
| 12 | 2414 | 32 | 2434 | 52 | 2454 | 72 | 2474 |
| 13 | 2415 | 33 | 2435 | 53 | 2455 | 73 | 2475 |
| 14 | 2416 | 34 | 2436 | 54 | 2456 | 74 | 2476 |
| 15 | 2417 | 35 | 2437 | 55 | 2457 | 75 | 2477 |
| 16 | 2418 | 36 | 2438 | 56 | 2458 | 76 | 2478 |
| 17 | 2419 | 37 | 2439 | 57 | 2459 | 77 | 2479 |
| 18 | 2420 | 38 | 2440 | 58 | 2460 | 78 | 2480 |
| 19 | 2421 | 39 | 2441 | 59 | 2461 | | |

BT LE:

40 channels are provided to this EUT:

| Channel | Freq. (MHz) |
|---------|-------------|---------|-------------|---------|-------------|---------|-------------|
| 0 | 2402 | 10 | 2422 | 20 | 2442 | 30 | 2462 |
| 1 | 2404 | 11 | 2424 | 21 | 2444 | 31 | 2464 |
| 2 | 2406 | 12 | 2426 | 22 | 2446 | 32 | 2466 |
| 3 | 2408 | 13 | 2428 | 23 | 2448 | 33 | 2468 |
| 4 | 2410 | 14 | 2430 | 24 | 2450 | 34 | 2470 |
| 5 | 2412 | 15 | 2432 | 25 | 2452 | 35 | 2472 |
| 6 | 2414 | 16 | 2434 | 26 | 2454 | 36 | 2474 |
| 7 | 2416 | 17 | 2436 | 27 | 2456 | 37 | 2476 |
| 8 | 2418 | 18 | 2438 | 28 | 2458 | 38 | 2478 |
| 9 | 2420 | 19 | 2440 | 29 | 2460 | 39 | 2480 |



3.2.1 Test Mode Applicability and Tested Channel Detail

| EUT Configure | Applica | able To | Description | |
|---------------|---------|---------|-------------|--|
| Mode | RE≥1G | RE<1G | Description | |
| - | | V | - | |

Where **RE≥1G:** Radiated Emission above 1 GHz

RE<1G: Radiated Emission below 1 GHz

Note: Radiated Emission and Conducted Out-Band Emission test items chosen the worst maximum power 2.4G and 5G Radio channel.

Radiated Emission Test (Above 1 GHz):

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

| EUT Configure Mode | Mode | Freq. Range (MHz) Available Channel | | Tested Channel | Modulation Technology | |
|--------------------------|-----------------------------|--|------------------------------|----------------|--------------------------|--|
| | 802.11g + LTE Band 4 | 02.11g + LTE Band 4 2412 ~ 2462 \ 1720.0 ~ 1745.0 20 | | 1 + 20050 | OFDM · QPSK | |
| - | 802.11n (HT40) + LTE Band 4 | 5180 ~ 5240 \ 1720.0 ~ 1745.0 | 38 to 46 \ 20050 to 20300 | 38 + 20050 | OFDM · QPSK | |

Radiated Emission Test (Below 1 GHz):

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below.

| EUT Configure Mode | Mode | Freq. Range (MHz) | Available Channel | Tested Channel | Modulation Technology |
|--------------------------|-------------------------|-------------------|-------------------|----------------|--------------------------|
| - | WLAN 2.4G, 802.11g | 2412 ~ 2462 | 1 to 11 | 1 | OFDM |
| - | WLAN 5G, 802.11n (HT40) | 5180 ~ 5240 | 38 to 46 | 38 | OFDM |

Test Condition:

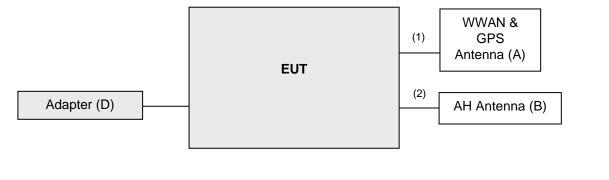
| Applicable To | Environmental Conditions | Input Power | Tested by |
|---------------|--------------------------|----------------|-------------|
| RE≥1G | 25 deg. C, 65 % RH | 120 Vac, 60 Hz | Getaz Yang, |
| RE<1G | 25 deg. C, 65 % RH | 120 Vac, 60 Hz | Getaz Yang |



3.3 Description of Support Units

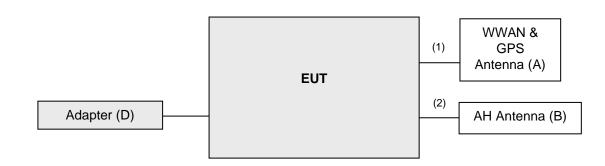
Configuration of System under Test

For WLAN



Remote site

For WWAN



Remote site

Radio Communication
Analyzer (C)



3.4 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Test Standard:

FCC Part 15, Subpart C (15.247)

FCC Part 15, Subpart E (15.407)

FCC 47 CFR Part 2

FCC 47 CFR Part 22

FCC 47 CFR Part 24

FCC 47 CFR Part 27

ANSI 63.26-2015

All test items have been performed and recorded as per the above standards.

References Test Guidance:

KDB 558074 D01 Meas Guidance v05r02 KDB 789033 D02 General UNII Test Procedures New Rules v02r01 KDB 971168 D01 Power Meas License Digital Systems v03r01 ANSI/TIA/EIA-603-E 2016

All test items have been performed as a reference to the above KDB test guidance.



4 Test Types and Results

4.1 Radiated Emission Measurement

4.1.1 Limits of Radiated Emission Measurement

For WLAN & BT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

| Frequencies (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|----------------------|--------------------------------------|----------------------------------|
| 0.009 ~ 0.490 | 2400/F (kHz) | 300 |
| 0.490 ~ 1.705 | 24000/F (kHz) | 30 |
| 1.705 ~ 30.0 | 30 | 30 |
| 30 ~ 88 | 100 | 3 |
| 88 ~ 216 | 150 | 3 |
| 216 ~ 960 | 200 | 3 |
| Above 960 | 500 | 3 |

Note:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level $(dBuV/m) = 20 \log Emission level (uV/m)$.
- 3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.



Limits of Unwanted Emission Out of the Restricted Bands

| Арј | plicab | le To | Limit | | | |
|------------------------------|--------------|---------------------|--------------------------------------|-----------------------|--|--|
| 789033 D02 Gene | eral UN | NII Test Procedures | Field Strength at 3 m | | | |
| New | Rules | v02r01 | PK: 74 (dBμV/m) | AV: 54 (dBμV/m) | | |
| Frequency Band Applicable To | | EIRP Limit | Equivalent Field Strength at 3 m | | | |
| 5150~5250 MHz | 15.407(b)(1) | | | | | |
| 5250~5350 MHz | 15.407(b)(2) | | 15.407(b)(2) PK: -27 (dBm/MHz) | | | |
| 5470~5725 MHz | 15.407(b)(3) | | 15.407(b)(3) | | | |
| | | | PK:-27 (dBm/MHz) *1 | PK: 68.2 (dBµV/m) *1 | | |
| | | 45 407/b\/4\/i\ | PK:10 (dBm/MHz) *2 | PK:105.2 (dBµV/m) *2 | | |
| 5725~5850 MHz | | 15.407(b)(4)(i) | PK:15.6 (dBm/MHz) *3 | PK: 110.8 (dBµV/m) *3 | | |
| | | | PK:27 (dBm/MHz) *4 | PK:122.2 (dBµV/m) *4 | | |
| | | 15.407(b)(4)(ii) | Emission limits in section 15.247(d) | | | |

^{*1} beyond 75 MHz or more above of the band edge.

Note:

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3}$$
 µV/m, where P is the eirp (Watts).

For WCDMA & LTE

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit is equal to -13 dBm.

^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

 $^{^{^{\}star}4}$ from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.



4.1.2 Test Instruments

| Description & Manufacturer | Model No. | Serial No. | Date of Calibration | Due Date of Calibration |
|---|-----------------------|-------------------------------|---------------------|-------------------------|
| Test Receiver Agilent | N9038A | MY51210203 | Mar. 18, 2020 | Mar. 17, 2021 |
| Spectrum Analyzer Agilent | N9010A | MY52220314 | Dec. 12, 2019 | Dec. 11, 2020 |
| Spectrum Analyzer ROHDE & SCHWARZ | FSU43 | 101261 | Apr. 16, 2020 | Apr. 15, 2021 |
| Broadband Horn Antenna SCHWARZBECK | BBHA 9170 | 148 | Nov. 24, 2019 | Nov. 23, 2020 |
| HORN Antenna SCHWARZBECK | BBHA 9120D | 9120D-969 | Nov. 24, 2019 | Nov. 23, 2020 |
| BILOG Antenna SCHWARZBECK | VULB 9168 | 9168-472 | Nov. 08, 2019 | Nov. 07, 2020 |
| Fixed Attenuator WOKEN | MDCS18N-10 | MDCS18N-10-01 | Apr. 14, 2020 | Apr. 13, 2021 |
| Loop Antenna | EM-6879 | 269 | Sep. 17, 2020 | Sep. 16, 2021 |
| Preamplifier EMCI | EMC001340 | 980201 | Oct. 21, 2020 | Oct. 20, 2021 |
| Preamplifier EMCI | EMC 012645 | 980115 | Oct. 07, 2020 | Oct. 06, 2021 |
| Preamplifier EMCI | EMC 184045 | 980116 | Oct. 07, 2020 | Oct. 06, 2021 |
| Preamplifier EMCI | EMC 330H | 980112 | Oct. 07, 2020 | Oct. 06, 2021 |
| Power Meter Anritsu | ML2495A | 1012010 | Sep. 01, 2020 | Aug. 31, 2021 |
| Power Sensor Anritsu | MA2411B | 1315050 | Sep. 01, 2020 | Aug. 31, 2021 |
| RF Coaxial Cable EMCI | EMC104-SM-SM- 8000 | 180409 | Jan. 18, 2020 | Jan. 17, 2021 |
| RF Coaxial Cable HUBER+SUHNNER | SUCOFLEX 104 | EMC104-SM-SM- 1000(140807) | Oct. 07, 2020 | Oct. 06, 2021 |
| RF Coaxial Cable WOKEN | 8D-FB | Cable-Ch10-01 | Oct. 07, 2020 | Oct. 06, 2021 |
| Boresight Antenna Fixture | FBA-01 | FBA-SIP01 | NA | NA |
| Software BV ADT | E3 6.120103 | NA | NA | NA |
| Antenna Tower MF | MFA-440H | NA | NA | NA |
| Turn Table MF | MFT-201SS | NA | NA | NA |
| Antenna Tower &Turn Table Controller MF | MF-7802 | NA | NA | NA |

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Chamber 10.



4.1.3 Test Procedures

For WLAN &BT

For Radiated Emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.

For Radiated Emission above 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna 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.
- d. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detected function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is ≥ 1/T
 (Duty cycle < 98 %) or 10 Hz (Duty cycle ≥ 98 %) for Average detection (AV) at frequency above 1 GHz.
- 4. All modes of operation were investigated and the worst-case emissions are reported.



For WCDMA & LTE

- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The "Read Value" is the spectrum reading the maximum power value.
- b. EIRP = Output power level of S.G TX cable loss + Antenna gain of substitution horn.
- c. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.R.P power - 2.15 dB.

Note:

- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz/3 MHz.
- 2. The emission levels were against the limit of frequency range 9 kHz ~ 30 MHz:

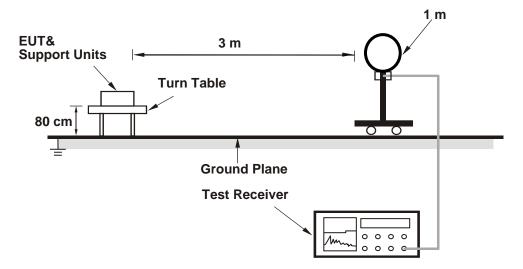
The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

4.1.4 **Deviation from Test Standard** No deviation.

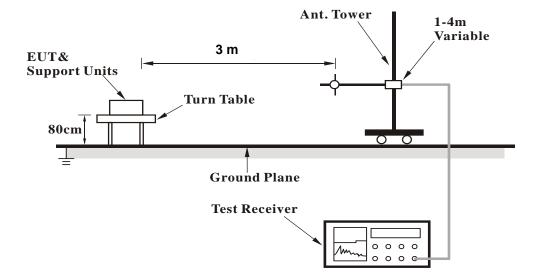


4.1.5 Test Set Up

<Radiated Emission below 30 MHz>

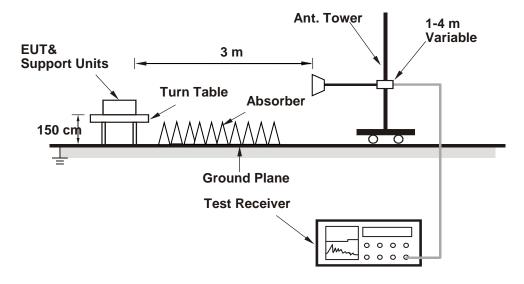


<Radiated Emission 30 MHz to 1 GHz>





<Radiated Emission above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT Operating Conditions

- a. Placed the EUT on a testing table.
- b. Use the software to control the EUT under transmission condition continuously at specific channel frequency.



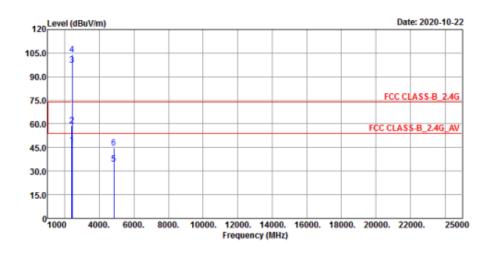
4.1.7 Test Results

Above 1 GHz Data:

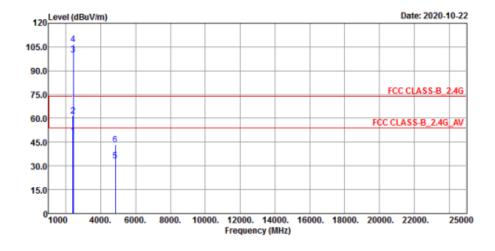
802.11g + LTE Band 4

| EUT Test Condition | | Measurement Detail | | |
|---------------------------|--------------------|--------------------|---------------------------|--|
| Channel | Channel 1 | Frequency Range | 1 GHz ~ 25 GHz | |
| Input Power | 120 Vac, 60 Hz | Detector Function | Peak (PK) Average (AV) | |
| Environmental Conditions | 25 deg. C, 65 % RH | Tested By | Getaz Yang | |

Horizontal



Vertical





| | Antenna Polarity & Test Distance: Horizontal at 3 m | | | | | | | | | |
|--------------------|---|----------------------|------------------|-------------------|--------------|------------------------|-------------------------|---------|--|--|
| Frequency (MHz) | Emission Level (dBuV/m) | Read Level (dBuV) | Factor (dB/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Angle (Degree) | Remark | | |
| 2390 | 46.4 | 52.32 | -5.92 | 54 | -7.6 | 164 | 342 | Average | | |
| 2390 | 59.01 | 64.93 | -5.92 | 74 | -14.99 | 164 | 342 | Peak | | |
| 2412 | 97.44 | 103.39 | -5.95 | | | 164 | 342 | Average | | |
| 2412 | 104.07 | 110.02 | -5.95 | | | 164 | 342 | Peak | | |
| 4824 | 34.64 | 50.26 | -15.62 | 54 | -19.36 | 166 | 201 | Average | | |
| 4824 | 44.78 | 60.4 | -15.62 | 74 | -29.22 | 166 | 201 | Peak | | |
| | | Antenn | a Polarity & | Test Dista | nce: Vertica | l at 3 m | | | | |
| Frequency (MHz) | Emission Level (dBuV/m) | Read Level (dBuV) | Factor (dB/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Angle (Degree) | Remark | | |
| 2390 | 48.86 | 54.78 | -5.92 | 54 | -5.14 | 102 | 4 | Average | | |
| 2390 | 61.34 | 67.26 | -5.92 | 74 | -12.66 | 102 | 4 | Peak | | |
| 2412 | 100.13 | 106.08 | -5.95 | | | 102 | 4 | Average | | |
| 2412 | 106.71 | 112.66 | -5.95 | | | 102 | 4 | Peak | | |
| 4824 | 33.41 | 49.03 | -15.62 | 54 | -20.59 | 177 | 134 | Average | | |
| 4824 | 43.61 | 59.23 | -15.62 | 74 | -30.39 | 177 | 134 | Peak | | |

Remarks:

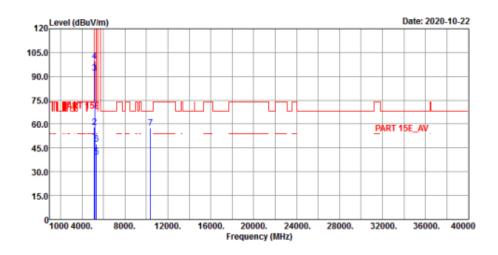
- Emission Level = Read Level + Factor
 Margin value = Emission level Limit value
- 2. 2412 MHz: Fundamental frequency.
- 3. The emission levels of other frequencies were very low against the limit.



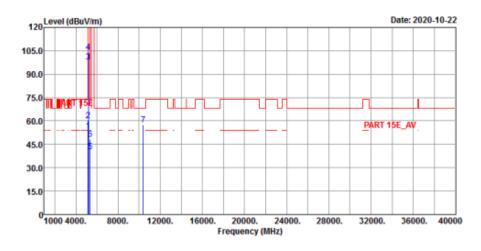
802.11n (HT40) + LTE Band 4

| EUT Test Condition | | Measurement Detail | | |
|---------------------------|--------------------|--------------------|---------------------------|--|
| Channel | Channel 38 | Frequency Range | 1 GHz ~ 40 GHz | |
| Input Power | 120 Vac, 60 Hz | Detector Function | Peak (PK) Average (AV) | |
| Environmental Conditions | 25 deg. C, 65 % RH | Tested By | Getaz Yang | |

Horizontal



Vertical





| | Antenna Polarity & Test Distance: Horizontal at 3 m | | | | | | | | |
|--------------------|---|----------------------|------------------|-------------------|--------------|------------------------|-------------------------|---------|--|
| Frequency (MHz) | Emission Level (dBuV/m) | Read Level (dBuV) | Factor (dB/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Angle (Degree) | Remark | |
| 5150 | 49.35 | 48.93 | 0.42 | 54 | -4.65 | 118 | 98 | Average | |
| 5150 | 57.83 | 57.41 | 0.42 | 74 | -16.17 | 118 | 98 | Peak | |
| 5190 | 92.09 | 91.89 | 0.2 | | | 118 | 98 | Average | |
| 5190 | 99.46 | 99.26 | 0.2 | | | 118 | 98 | Peak | |
| 5350 | 39.46 | 39.13 | 0.33 | 54 | -14.54 | 118 | 98 | Average | |
| 5350 | 47.17 | 46.84 | 0.33 | 74 | -26.83 | 118 | 98 | Peak | |
| *10380 | 57.42 | 59.28 | -1.86 | 68.2 | -10.78 | 155 | 163 | Peak | |
| | | Antenn | a Polarity & | Test Dista | nce: Vertica | l at 3 m | | | |
| Frequency (MHz) | Emission Level (dBuV/m) | Read Level (dBuV) | Factor (dB/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Angle (Degree) | Remark | |
| 5150 | 53.57 | 53.15 | 0.42 | 54 | -0.43 | 255 | 266 | Average | |
| 5150 | 60.35 | 59.93 | 0.42 | 74 | -13.65 | 255 | 266 | Peak | |
| 5190 | 98.06 | 97.86 | 0.2 | | | 255 | 266 | Average | |
| 5190 | 104.24 | 104.04 | 0.2 | | | 255 | 266 | Peak | |
| 5350 | 40.22 | 39.89 | 0.33 | 54 | -13.78 | 255 | 266 | Average | |
| 5350 | 48.16 | 47.83 | 0.33 | 74 | -25.84 | 255 | 266 | Peak | |
| *10380 | 57.57 | 59.43 | -1.86 | 68.2 | -10.63 | 192 | 162 | Peak | |

Remarks:

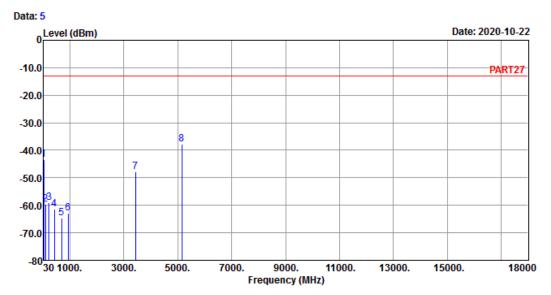
- Emission Level = Read Level + Factor
 Margin value = Emission level Limit value
- 2. 5190 MHz: Fundamental frequency.
- 3. The emission levels of other frequencies were very low against the limit.
- 4. *: Out of Restricted Band



LTE Band 4 + 802.11g



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Site : 966 Chamber 5 Condition: PART27 HORIZONTAL Remak : 11G_TX_CH01+

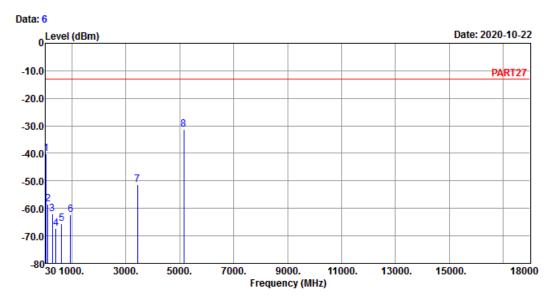
: LTE Band 4 QPSK_20M Link_L-CH

| | | | Read | Limit | | 0ver | |
|------|---------|--------|--------|--------|--------|--------|--------|
| | Freq | Level | Level | Line | Factor | Limit | Remark |
| _ | | | | | | | |
| | MHz | dBm | dBm | dBm | dB | dB | |
| | | | | | | | |
| 1 | 41.64 | -43.32 | -42.91 | -13.00 | -0.41 | -30.32 | Peak |
| 2 | 93.05 | -59.74 | -48.79 | -13.00 | -10.95 | -46.74 | Peak |
| 3 | 228.85 | -59.15 | -52.30 | -13.00 | -6.85 | -46.15 | Peak |
| 4 | 419.94 | -61.47 | -55.68 | -13.00 | -5.79 | -48.47 | Peak |
| 5 | 690.57 | -64.57 | -64.32 | -13.00 | -0.25 | -51.57 | Peak |
| 6 | 931.13 | -63.00 | -64.34 | -13.00 | 1.34 | -50.00 | Peak |
| 7 | 3440.00 | -47.88 | -39.66 | -13.00 | -8.22 | -34.88 | Peak |
| 8 nn | 5160 00 | -37 82 | -35 91 | -13 00 | -1 91 | -24 82 | Peak |





Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Site : 966 Chamber 5 Condition: PART27 VERTICAL Remak : 11G_TX_CH01+

: LTE Band 4 QPSK_20M Link_L-CH

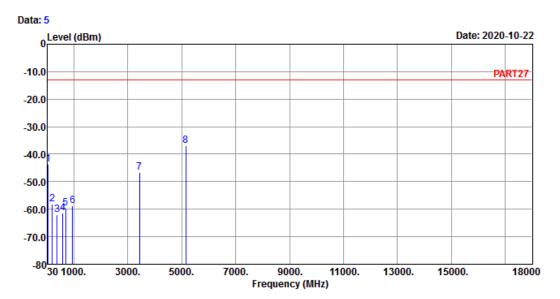
| | Г | 1 1 | | Limit | | 0ver | Damanla |
|------|---------|--------|--------|--------|--------|--------|---------|
| | Freq | revei | revei | Line | Factor | Limit | Kemark |
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 44.55 | -40.13 | -38.14 | -13.00 | -1.99 | -27.13 | Peak |
| 2 | 105.66 | -58.31 | -47.89 | -13.00 | -10.42 | -45.31 | Peak |
| 3 | 269.59 | -62.13 | -55.74 | -13.00 | -6.39 | -49.13 | Peak |
| 4 | 406.36 | -67.25 | -61.36 | -13.00 | -5.89 | -54.25 | Peak |
| 5 | 625.58 | -65.48 | -64.66 | -13.00 | -0.82 | -52.48 | Peak |
| 6 | 960.23 | -62.37 | -64.55 | -13.00 | 2.18 | -49.37 | Peak |
| 7 | 3440.00 | -51.22 | -43.00 | -13.00 | -8.22 | -38.22 | Peak |
| 8 nn | 5160.00 | -31.36 | -29.45 | -13.00 | -1.91 | -18.36 | Peak |



LTE Band 4 + 802.11n (HT40)



Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Site : 966 Chamber 5 Condition: PART27 HORIZONTAL Remak : 11N_HT40_TX_CH38+

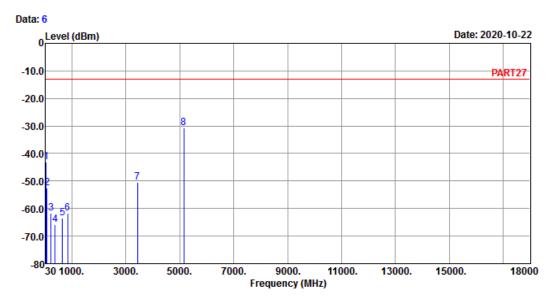
: LTE Band 4 QPSK_20M Link_L-CH

| | | | Read | Limit | | 0ver | |
|------|---------|--------|--------|--------|--------|--------|--------|
| | Freq | Level | Level | Line | Factor | Limit | Remark |
| | | | | | | | |
| | MHz | dBm | dBm | dBm | dB | dB | |
| | | | | | | | |
| 1 | 43.58 | -43.84 | -42.37 | -13.00 | -1.47 | -30.84 | Peak |
| 2 | 207.51 | -58.10 | -50.39 | -13.00 | -7.71 | -45.10 | Peak |
| 3 | 385.02 | -61.99 | -55.96 | -13.00 | -6.03 | -48.99 | Peak |
| 4 | 592.60 | -61.46 | -60.38 | -13.00 | -1.08 | -48.46 | Peak |
| 5 | 690.57 | -59.57 | -59.32 | -13.00 | -0.25 | -46.57 | Peak |
| 6 | 958.29 | -58.78 | -60.89 | -13.00 | 2.11 | -45.78 | Peak |
| 7 | 3440.00 | -46.71 | -38.49 | -13.00 | -8.22 | -33.71 | Peak |
| 8 nn | 5160.00 | -36.79 | -34.88 | -13.00 | -1.91 | -23.79 | Peak |





Bureau Veritas Consumer Products Services Ltd., Taoyuan Branch



Site : 966 Chamber 5 Condition: PART27 VERTICAL Remak : 11N_HT40_TX_CH38+

: LTE Band 4 QPSK_20M Link_L-CH

| | Frea | Level | | Limit Line | Factor | Over Limit | Remark |
|------|---------|--------|--------|---------------|--------|---------------|--------|
| | | | | | | | |
| | MHz | dBm | dBm | dBm | dB | dB | |
| 1 | 44.55 | -43.13 | -41.14 | -13.00 | -1.99 | -30.13 | Peak |
| 2 | 84.32 | -52.50 | -41.53 | -13.00 | -10.97 | -39.50 | Peak |
| 3 | 228.85 | -61.81 | -54.96 | -13.00 | -6.85 | -48.81 | Peak |
| 4 | 379.20 | -65.78 | -59.71 | -13.00 | -6.07 | -52.78 | Peak |
| 5 | 645.95 | -63.61 | -62.74 | -13.00 | -0.87 | -50.61 | Peak |
| 6 | 848.68 | -61.81 | -62.11 | -13.00 | 0.30 | -48.81 | Peak |
| 7 | 3440.00 | -50.43 | -42.21 | -13.00 | -8.22 | -37.43 | Peak |
| 8 pp | 5160.00 | -30.57 | -28.66 | -13.00 | -1.91 | -17.57 | Peak |



9 kHz ~ 30 MHz Data:

The amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required to be report.

30 MHz ~ 1 GHz Worst-Case Data:

WLAN 2.4G

| EUT Test Condition | | Measurement Detail | | | |
|---------------------------|--------------------|--------------------|------------------------------|--|--|
| Channel | Channel 1 | Frequency Range | 30 MHz ~ 1 GHz | | |
| Input Power | 120 Vac, 60 Hz | Detector Function | Peak (PK) Quasi-peak (QP) | | |
| Environmental Conditions | 25 deg. C, 65 % RH | Tested By | Getaz Yang | | |

| | Antenna Polarity & Test Distance: Horizontal at 3 m | | | | | | | |
|--------------------|---|----------------------|------------------|-------------------|-------------|------------------------|-------------------------|--------|
| Frequency (MHz) | Emission Level (dBuV/m) | Read Level (dBuV) | Factor (dB/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Angle (Degree) | Remark |
| 43.58 | 30.99 | 42.91 | -11.92 | 40 | -9.01 | 115 | 268 | QP |
| 136.7 | 27.45 | 39.76 | -12.31 | 43.5 | -16.05 | 100 | 334 | QP |
| 220.12 | 31.69 | 46.72 | -15.03 | 46 | -14.31 | 140 | 259 | QP |
| 346.22 | 34.61 | 44.49 | -9.88 | 46 | -11.39 | 133 | 0 | QP |
| 480.08 | 30.42 | 36.23 | -5.81 | 46 | -15.58 | 111 | 15 | QP |
| 877.78 | 35.5 | 32.73 | 2.77 | 46 | -10.5 | 130 | 111 | QP |
| | Antenna Polarity & Test Distance: Vertical at 3 m | | | | | | | |
| Frequency (MHz) | Emission Level (dBuV/m) | Read Level (dBuV) | Factor (dB/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Angle (Degree) | Remark |
| 46.49 | 30.91 | 42.68 | -11.77 | 40 | -9.09 | 138 | 277 | QP |
| 144.46 | 33.35 | 45.19 | -11.84 | 43.5 | -10.15 | 129 | 308 | QP |
| 376.29 | 32.01 | 40.83 | -8.82 | 46 | -13.99 | 101 | 342 | QP |

46

46

46

-9.69

-6.06

-3.27

115

130

116

192

58

79

QΡ

QΡ

QΡ

Remarks:

500.45

644.98

899.12

Emission Level = Read Level + Factor
 Margin value = Emission level – Limit value

41.75

41.57

39.77

36.31

39.94

42.73

2. The emission levels of other frequencies were very low against the limit

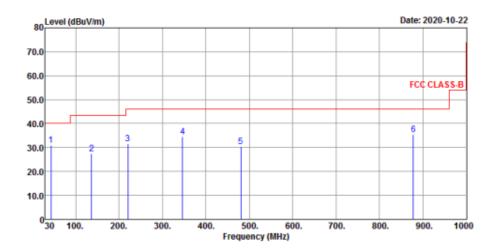
-5.44

-1.63

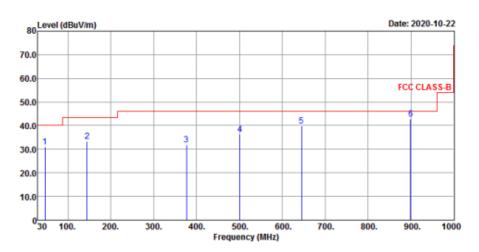
2.96



Horizontal



Vertical





WLAN 5G

| EUT Test Condition | | Measurement Detail | | | |
|---------------------------|--------------------|--------------------|------------------------------|--|--|
| Channel | Channel 38 | Frequency Range | 30 MHz ~ 1 GHz | | |
| Input Power | 120 Vac, 60 Hz | Detector Function | Peak (PK) Quasi-peak (QP) | | |
| Environmental Conditions | 25 deg. C, 65 % RH | Tested By | Getaz Yang | | |

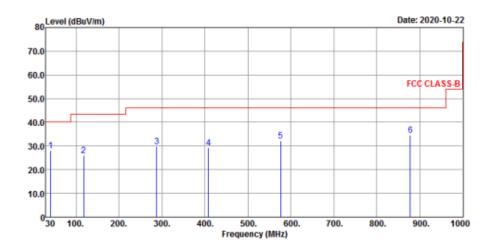
| | Antenna Polarity & Test Distance: Horizontal at 3 m | | | | | | | |
|--------------------|---|----------------------|------------------|-------------------|--------------|------------------------|-------------------------|--------|
| Frequency (MHz) | Emission Level (dBuV/m) | Read Level (dBuV) | Factor (dB/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Angle (Degree) | Remark |
| 40.67 | 27.9 | 39.96 | -12.06 | 40 | -12.1 | 126 | 149 | QP |
| 118.27 | 26.04 | 39.99 | -13.95 | 43.5 | -17.46 | 137 | 276 | QP |
| 288.02 | 29.88 | 41.37 | -11.49 | 46 | -16.12 | 127 | 137 | QP |
| 408.3 | 29.31 | 37.45 | -8.14 | 46 | -16.69 | 132 | 359 | QP |
| 576.11 | 32.2 | 35.74 | -3.54 | 46 | -13.8 | 120 | 276 | QP |
| 877.78 | 34.5 | 31.73 | 2.77 | 46 | -11.5 | 109 | 248 | QP |
| | | Antenn | a Polarity & | Test Dista | nce: Vertica | l at 3 m | | |
| Frequency (MHz) | Emission Level (dBuV/m) | Read Level (dBuV) | Factor (dB/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (cm) | Table Angle (Degree) | Remark |
| 43.58 | 28.82 | 40.74 | -11.92 | 40 | -11.18 | 119 | 347 | QP |
| 113.42 | 33.21 | 47.62 | -14.41 | 43.5 | -10.29 | 133 | 49 | QP |
| 305.48 | 32.36 | 43.33 | -10.97 | 46 | -13.64 | 116 | 289 | QP |
| 499.48 | 36.87 | 42.33 | -5.46 | 46 | -9.13 | 126 | 17 | QP |
| 644.98 | 37.94 | 39.57 | -1.63 | 46 | -8.06 | 109 | 246 | QP |
| 855.47 | 38.58 | 36.07 | 2.51 | 46 | -7.42 | 119 | 147 | QP |

Remarks:

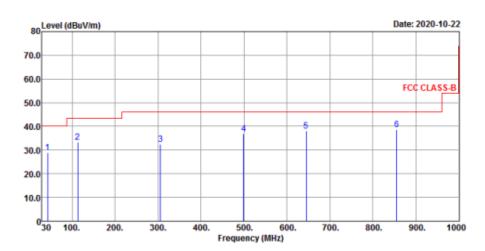
- Emission Level = Read Level + Factor
 Margin value = Emission level Limit value
- 2. The emission levels of other frequencies were very low against the limit



Horizontal



Vertical





| 5 Pictures of Test Arrangements |
|---|
| Please refer to the attached file (Test Setup Photo). |
| |
| |
| |
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Appendix - Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC/RF Lab

Tel: 886-2-26052180 Fax: 886-2-26051924

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232 Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

The address and road map of all our labs can be found in our web site also.

--- END ---