



Test Report No.: RF160712N001-3



## TEST REPORT

|           |                                                       |
|-----------|-------------------------------------------------------|
| Applicant | Harman International Industries, Incorporated         |
| Address   | 8500 Balboa Blvd, Northridge, CA 91329, UNITED STATES |

|                                     |                                                       |
|-------------------------------------|-------------------------------------------------------|
| Manufacturer or Supplier            | Harman International Industries, Incorporated         |
| Address                             | 8500 Balboa Blvd, Northridge, CA 91329, UNITED STATES |
| Product Name                        | JBL Google Cast Speaker                               |
| Brand Name                          | JBL                                                   |
| Model                               | JBL PLAYLIST                                          |
| Additional Model & Model Difference | N/A                                                   |
| Date of tests                       | Aug. 01, 2016 ~ Sep. 01, 2016                         |

The tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 15, Subpart E, Section 15.407**

**CONCLUSION: The submitted sample was found to COMPLY with the test requirement**

|                                                                                     |                                                                                                             |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| Tested by Breeze Jiang<br>Project Engineer / EMC Department                         | Approved by Glyn He<br>Supervisor/ EMC Department                                                           |
|  | <br>Date: Sep. 05, 2016 |

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## TABLE OF CONTENTS

|                                                                     |           |
|---------------------------------------------------------------------|-----------|
| <b>RELEASE CONTROL RECORD .....</b>                                 | <b>4</b>  |
| <b>1. SUMMARY OF TEST RESULTS.....</b>                              | <b>5</b>  |
| 1.1 MEASUREMENT UNCERTAINTY .....                                   | 5         |
| <b>2. GENERAL INFORMATION .....</b>                                 | <b>6</b>  |
| 2.1 GENERAL DESCRIPTION OF EUT.....                                 | 6         |
| 2.2 DESCRIPTION OF TEST MODES.....                                  | 7         |
| 2.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL .....       | 10        |
| 2.3 DUTY CYCLE OF TEST SIGNAL .....                                 | 12        |
| 2.4 DESCRIPTION OF SUPPORT UNITS.....                               | 13        |
| 2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS.....                   | 13        |
| <b>3. TEST TYPES AND RESULTS.....</b>                               | <b>14</b> |
| 3.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT .....                | 14        |
| 3.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT.....     | 14        |
| 3.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS ..... | 15        |
| 3.1.3 TEST INSTRUMENTS.....                                         | 16        |
| 3.1.4 TEST PROCEDURES .....                                         | 17        |
| 3.1.5 DEVIATION FROM TEST STANDARD .....                            | 17        |
| 3.1.6 TEST SETUP.....                                               | 18        |
| 3.1.7 EUT OPERATING CONDITION .....                                 | 18        |
| 3.1.8 TEST RESULTS .....                                            | 19        |
| 3.2 CONDUCTED EMISSION MEASUREMENT .....                            | 58        |
| 3.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT .....                | 58        |
| 3.2.2 TEST INSTRUMENTS.....                                         | 58        |
| 3.2.3 TEST PROCEDURES .....                                         | 59        |
| 3.2.4 DEVIATION FROM TEST STANDARD .....                            | 59        |
| 3.2.5 TEST SETUP.....                                               | 59        |
| 3.2.6 EUT OPERATING CONDITIONS.....                                 | 59        |
| 3.2.7 TEST RESULTS .....                                            | 60        |
| 3.3 TRANSMIT POWER MEASUREMENT .....                                | 62        |



## Test Report No.: RF160712N001-3

|       |                                                                                             |    |
|-------|---------------------------------------------------------------------------------------------|----|
| 3.3.1 | LIMITS OF TRANSMIT POWER MEASUREMENT .....                                                  | 62 |
| 3.3.2 | TEST SETUP .....                                                                            | 62 |
| 3.3.3 | TEST INSTRUMENTS.....                                                                       | 63 |
| 3.3.4 | TEST PROCEDURE .....                                                                        | 63 |
| 3.3.5 | DEVIATION FROM TEST STANDARD .....                                                          | 64 |
| 3.3.6 | EUT OPERATING CONDITIONS .....                                                              | 64 |
| 3.3.7 | TEST RESULTS .....                                                                          | 65 |
| 3.4   | PEAK POWER SPECTRAL DENSITY MEASUREMENT .....                                               | 75 |
| 3.4.1 | LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT .....                                     | 75 |
| 3.4.2 | TEST SETUP .....                                                                            | 75 |
| 3.4.3 | TEST INSTRUMENTS.....                                                                       | 75 |
| 3.4.4 | TEST PROCEDURES .....                                                                       | 75 |
| 3.4.5 | DEVIATION FROM TEST STANDARD .....                                                          | 76 |
| 3.4.6 | EUT OPERATING CONDITIONS .....                                                              | 76 |
| 3.4.7 | TEST RESULTS .....                                                                          | 77 |
| 3.5   | FREQUENCY STABILITY .....                                                                   | 84 |
| 3.5.1 | LIMITS OF FREQUENCY STABILITY MEASUREMENT .....                                             | 84 |
| 3.5.2 | TEST SETUP .....                                                                            | 84 |
| 3.5.3 | TEST INSTRUMENTS.....                                                                       | 84 |
| 3.5.4 | TEST PROCEDURE .....                                                                        | 85 |
| 3.5.5 | DEVIATION FROM TEST STANDARD .....                                                          | 85 |
| 3.5.6 | EUT OPERATING CONDITION .....                                                               | 85 |
| 3.5.7 | TEST RESULTS .....                                                                          | 86 |
| 4.    | PHOTOGRAPHS OF THE TEST CONFIGURATION.....                                                  | 87 |
| 5.    | APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT<br>BY THE LAB ..... | 88 |



**BUREAU  
VERITAS**

Test Report No.: RF160712N001-3

## RELEASE CONTROL RECORD

| ISSUE NO.      | REASON FOR CHANGE | DATE ISSUED   |
|----------------|-------------------|---------------|
| RF160712N001-3 | Original release. | Sep. 05, 2016 |



## 1. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407 UNDER NEW RULE) |                                            |        |                                |
|--------------------------------------------------------------------------|--------------------------------------------|--------|--------------------------------|
| STANDARD SECTION                                                         | TEST TYPE                                  | RESULT | REMARK                         |
| 15.407(b)(6)                                                             | AC Power Conducted Emissions               | PASS   | Meet the requirement of limit. |
| 15.407(b)<br>(1/2/3/4/6)                                                 | Radiated Emissions & Band Edge Measurement | PASS   | Meet the requirement of limit. |
| 15.407(a)(1/2/3)                                                         | Max Average Transmit Power                 | PASS   | Meet the requirement of limit. |
| 15.407(a)(1/2/3)                                                         | Peak Power Spectral Density                | PASS   | Meet the requirement of limit. |
| 15.407(g)                                                                | Frequency Stability                        | PASS   | Meet the requirement of limit. |
| 15.203                                                                   | Antenna Requirement                        | PASS   | No antenna connector is used   |

### 1.1 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     | UNCERTAINTY |
|---------------------|---------------|-------------|
| Conducted emissions | 9kHz~30MHz    | 2.70dB      |
| Radiated emissions  | 9KHz ~ 30MHz  | 2.90dB      |
|                     | 30MHz ~ 1GMHz | 3.83dB      |
|                     | 1GHz ~ 18GHz  | 4.93dB      |
|                     | 18GHz ~ 40GHz | 4.80dB      |

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .



## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

|                               |                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>PRODUCT NAME</b>           | JBL Google Cast Speaker                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>MODEL NO.</b>              | JBL PLAYLIST                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>FCC ID</b>                 | APIJBLPLAYLIST                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>POWER SUPPLY</b>           | AC 120V 60Hz                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>MODULATION TYPE</b>        | 254QAM, 64QAM, 16QAM, QPSK, BPSK                                                                                                                                                                                                                                                                                                                                                                              |
| <b>MODULATION TECHNOLOGY</b>  | OFDM                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>TRANSFER RATE</b>          | 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps<br>802.11n: up to 300.0Mbps<br>802.11ac 80: up to 433.3Mbps                                                                                                                                                                                                                                                                                         |
| <b>OPERATING FREQUENCY</b>    | 5180 ~ 5240MHz, 5260 ~ 5320MHz<br>5500 ~ 5700MHz, 5745 ~ 5825MHz                                                                                                                                                                                                                                                                                                                                              |
| <b>NUMBER OF CHANNEL</b>      | 5180 ~ 5240MHz: 4 for 802.11a, 802.11n (20MHz)<br>2 for 802.11n (40MHz),<br>1 for 802.11ac 80MHz<br>5260 ~ 5320MHz: 4 for 802.11a, 802.11n (20MHz)<br>2 for 802.11n (40MHz),<br>1 for 802.11ac 80MHz<br>5500 ~ 5700MHz: 11 for 802.11a, 802.11n (20MHz)<br>5 for 802.11n (40MHz),<br>2 for 802.11ac 80MHz<br>5745 ~ 5825MHz: 5 for 802.11a, 802.11n (20MHz)<br>2 for 802.11n (40MHz),<br>1 for 802.11ac 80MHz |
| <b>CONDUCTED OUTPUT POWER</b> | 18.86 dBm for 5180 ~ 5240MHz (Maximum AVG Power)<br>18.86 dBm for 5260 ~ 5320MHz (Maximum AVG Power)<br>19.14 dBm for 5500 ~ 5700MHz (Maximum AVG Power)<br>18.93 dBm for 5745 ~ 5825MHz (Maximum AVG Power)                                                                                                                                                                                                  |
| <b>ANTENNA TYPE</b>           | 5180 ~ 5240MHz: FPCB antenna with 3.22dBi gain<br>5260 ~ 5320MHz: FPCB antenna with 3.57dBi gain<br>5500 ~ 5700MHz: FPCB antenna with 3.85dBi gain<br>5745 ~ 5825MHz: FPCB antenna with 3.32dBi gain                                                                                                                                                                                                          |
| <b>I/O PORTS</b>              | Refer to user's manual                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>CABLE SUPPLIED</b>         | AC Line: Unshielded, Detachable, 1.50m                                                                                                                                                                                                                                                                                                                                                                        |



**Test Report No.: RF160712N001-3**

**NOTE:**

1. The EUT incorporates a SIMO function. Physically, the EUT provides 1 completed transmitter and 1 receiver.

| MODULATION MODE  | TX FUNCTION |
|------------------|-------------|
| 802.11a          | 1TX/1RX     |
| 802.11n (20MHz)  | 1TX/1RX     |
| 802.11n (40MHz)  | 1TX/1RX     |
| 802.11ac (80MHz) | 1TX/1RX     |

2. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
3. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
4. Please refer to the EUT photo document (Reference No.: 160712N001) for detailed product photo.

**2.2 DESCRIPTION OF TEST MODES****FOR 5150 ~ 5250MHz**

3 channels are provided for 802.11a, 802.11n (20MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 36      | 5180 MHz  | 40      | 5200 MHz  |
| 48      | 5240 MHz  |         |           |

2 channels are provided for 802.11n (40MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 38      | 5190 MHz  | 46      | 5230 MHz  |

1 channel is provided for 802.11ac (80MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 42      | 5210MHz   |         |           |

**FOR 5250 ~ 5350MHz**

3 channels are provided for 802.11a, 802.11n (20MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 52      | 5260 MHz  | 60      | 5300 MHz  |
| 64      | 5320 MHz  |         |           |

2 channels are provided for 802.11n (40MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 54      | 5270 MHz  | 62      | 5310 MHz  |

1 channel is provided for 802.11ac (80MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 58      | 5290MHz   |         |           |



**FOR 5470 ~ 5725MHz**

3 channels are provided for 802.11a, 802.11n (20MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 100     | 5500 MHz  | 116     | 5580 MHz  |
| 140     | 5700 MHz  |         |           |

3 channels are provided for 802.11n (40MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 102     | 5510 MHz  | 110     | 5550 MHz  |
| 134     | 5670 MHz  |         |           |

1 channel is provided for 802.11ac (80MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 106     | 5530MHz   |         |           |

**FOR 5725 ~ 5850MHz**

3 channels are provided for 802.11a, 802.11n (20MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 149     | 5745MHz   | 157     | 5785MHz   |
| 165     | 5825MHz   | --      | --        |

2 channels are provided for 802.11n (40MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 151     | 5755MHz   | 159     | 5795MHz   |

1 channel is provided for 802.11ac (80MHz):

| CHANNEL | FREQUENCY | CHANNEL | FREQUENCY |
|---------|-----------|---------|-----------|
| 155     | 5775MHz   |         |           |



## 2.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

| EUT<br>CONFIGURE<br>MODE | APPLICABLE TO |       |     |      | DESCRIPTION                           |
|--------------------------|---------------|-------|-----|------|---------------------------------------|
|                          | RE $\geq$ 1G  | RE<1G | PLC | APCM |                                       |
| -                        | √             | √     | √   | √    | Powered by AC 120V with wifi(5G) link |

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz **RE<1G**: Radiated Emission below 1GHz  
**PLC**: Power Line Conducted Emission **APCM**: Antenna Port Conducted Measurement

**NOTE:**

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.

**NOTE:** "-" means no effect.

**RADIATED EMISSION TEST (ABOVE 1GHz):**

- ☒ 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<br>CONFIGURE<br>MODE | MODE            | FREQ. BAND<br>(MHz) | AVAILABLE<br>CHANNEL | TESTED<br>CHANNEL | MODULATION<br>TECHNOLOGY | MODULATION<br>TYPE | DATA<br>RATE<br>(Mbps) |
|--------------------------|-----------------|---------------------|----------------------|-------------------|--------------------------|--------------------|------------------------|
| -                        | 802.11a         | 5180-5240           | 36 to 48             | 36, 40, 48        | OFDM                     | BPSK               | 6.0                    |
| -                        | 802.11n (20MHz) |                     | 36 to 48             | 36, 40, 48        | OFDM                     | BPSK               | 6.5                    |
| -                        | 802.11n (40MHz) |                     | 38 to 46             | 38, 46            | OFDM                     | BPSK               | 13.5                   |
|                          | 802.11ac 80MHz  |                     | 42                   | 42                | OFDM                     | BPSK               | V0                     |
| -                        | 802.11a         | 5260-5320           | 52 to 64             | 52, 60, 64        | OFDM                     | BPSK               | 6.0                    |
| -                        | 802.11n (20MHz) |                     | 52 to 64             | 52, 60, 64        | OFDM                     | BPSK               | MCS0                   |
| -                        | 802.11n (40MHz) |                     | 54 to 62             | 54, 62            | OFDM                     | BPSK               | MCS0                   |
|                          | 802.11ac 80MHz  |                     | 58                   | 58                | OFDM                     | BPSK               | V0                     |
| -                        | 802.11a         | 5500-5700           | 100 to 140           | 100, 116, 140     | OFDM                     | BPSK               | 6.0                    |
| -                        | 802.11n (20MHz) |                     | 100 to 140           | 100, 116, 140     | OFDM                     | BPSK               | MCS0                   |
| -                        | 802.11n (40MHz) |                     | 102 to 134           | 102, 118, 134     | OFDM                     | BPSK               | MCS0                   |
|                          | 802.11ac 80MHz  |                     | 106                  | 106               | OFDM                     | BPSK               | V0                     |
| -                        | 802.11a         | 5725-5825           | 149 to 165           | 149, 157, 165     | OFDM                     | BPSK               | 6.0                    |
| -                        | 802.11n (20MHz) |                     | 149 to 165           | 149, 157, 165     | OFDM                     | BPSK               | MCS0                   |
| -                        | 802.11n (40MHz) |                     | 151 to 159           | 151, 159          | OFDM                     | BPSK               | MCS0                   |
|                          | 802.11ac 80MHz  |                     | 155                  | 155               | OFDM                     | BPSK               | V0                     |

**RADIATED EMISSION TEST (BELOW 1GHz):**

- ☒ 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<br>CONFIGURE<br>MODE | MODE    | FREQ. BAND<br>(MHz)    | AVAILABLE<br>CHANNEL   | TESTED<br>CHANNEL | MODULATION<br>TECHNOLOGY | MODULATION<br>TYPE | DATA<br>RATE<br>(Mbps) |
|--------------------------|---------|------------------------|------------------------|-------------------|--------------------------|--------------------|------------------------|
| -                        | 802.11a | 5180-5240<br>5725-5850 | 36 to 48<br>149 to 165 | 36                | OFDM                     | BPSK               | 6.0                    |

**POWER LINE CONDUCTED EMISSION TEST:**

- ☒ 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. BAND (MHz)       | AVAILABLE CHANNEL      | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|--------------------|---------|------------------------|------------------------|----------------|-----------------------|-----------------|------------------|
| -                  | 802.11a | 5180-5240<br>5725-5850 | 36 to 48<br>149 to 165 | 36             | OFDM                  | BPSK            | 6.0              |

**ANTENNA PORT CONDUCTED MEASUREMENT:**

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ 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. BAND (MHz) | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE | DATA RATE (Mbps) |
|--------------------|-----------------|------------------|-------------------|----------------|-----------------------|-----------------|------------------|
| -                  | 802.11a         | 5180-5240        | 36 to 48          | 36, 40, 48     | OFDM                  | BPSK            | 6.0              |
| -                  | 802.11n (20MHz) |                  | 36 to 48          | 36, 40, 48     | OFDM                  | BPSK            | 6.5              |
| -                  | 802.11n (40MHz) |                  | 38 to 46          | 38, 46         | OFDM                  | BPSK            | 13.5             |
| -                  | 802.11ac 80MHz  |                  | 42                | 42             | OFDM                  | BPSK            | V0               |
| -                  | 802.11a         | 5260-5320        | 52 to 64          | 52, 60, 64     | OFDM                  | BPSK            | 6.0              |
| -                  | 802.11n (20MHz) |                  | 52 to 64          | 52, 60, 64     | OFDM                  | BPSK            | MCS0             |
| -                  | 802.11n (40MHz) |                  | 54 to 62          | 54, 62         | OFDM                  | BPSK            | MCS0             |
| -                  | 802.11ac 80MHz  |                  | 58                | 58             | OFDM                  | BPSK            | V0               |
| -                  | 802.11a         | 5500-5700        | 100 to 140        | 100, 116, 140  | OFDM                  | BPSK            | 6.0              |
| -                  | 802.11n (20MHz) |                  | 100 to 140        | 100, 116, 140  | OFDM                  | BPSK            | MCS0             |
| -                  | 802.11n (40MHz) |                  | 102 to 134        | 102, 110, 134  | OFDM                  | BPSK            | MCS0             |
| -                  | 802.11ac 80MHz  |                  | 106               | 106            | OFDM                  | BPSK            | V0               |
| -                  | 802.11a         | 5725-5825        | 149 to 165        | 149, 157, 165  | OFDM                  | BPSK            | 6.0              |
| -                  | 802.11n (20MHz) |                  | 149 to 165        | 149, 157, 165  | OFDM                  | BPSK            | MCS0             |
| -                  | 802.11n (40MHz) |                  | 151 to 159        | 151, 159       | OFDM                  | BPSK            | MCS0             |
| -                  | 802.11ac 80MHz  |                  | 155               | 155            | OFDM                  | BPSK            | V0               |

**TEST CONDITION:**

| APPLICABLE TO | ENVIRONMENTAL CONDITIONS | INPUT POWER  | TESTED BY    |
|---------------|--------------------------|--------------|--------------|
| RE<1G         | 25deg. C, 51%RH          | AC 120V 60Hz | Eric Fang    |
| RE≥1G         | 25deg. C, 51%RH          | AC 120V 60Hz | Eric Fang    |
| PLC           | 20deg. C, 56%RH          | AC 120V 60Hz | Breeze Jiang |
| APCM          | 20deg. C, 55%RH          | AC 120V 60Hz | Breeze Jiang |



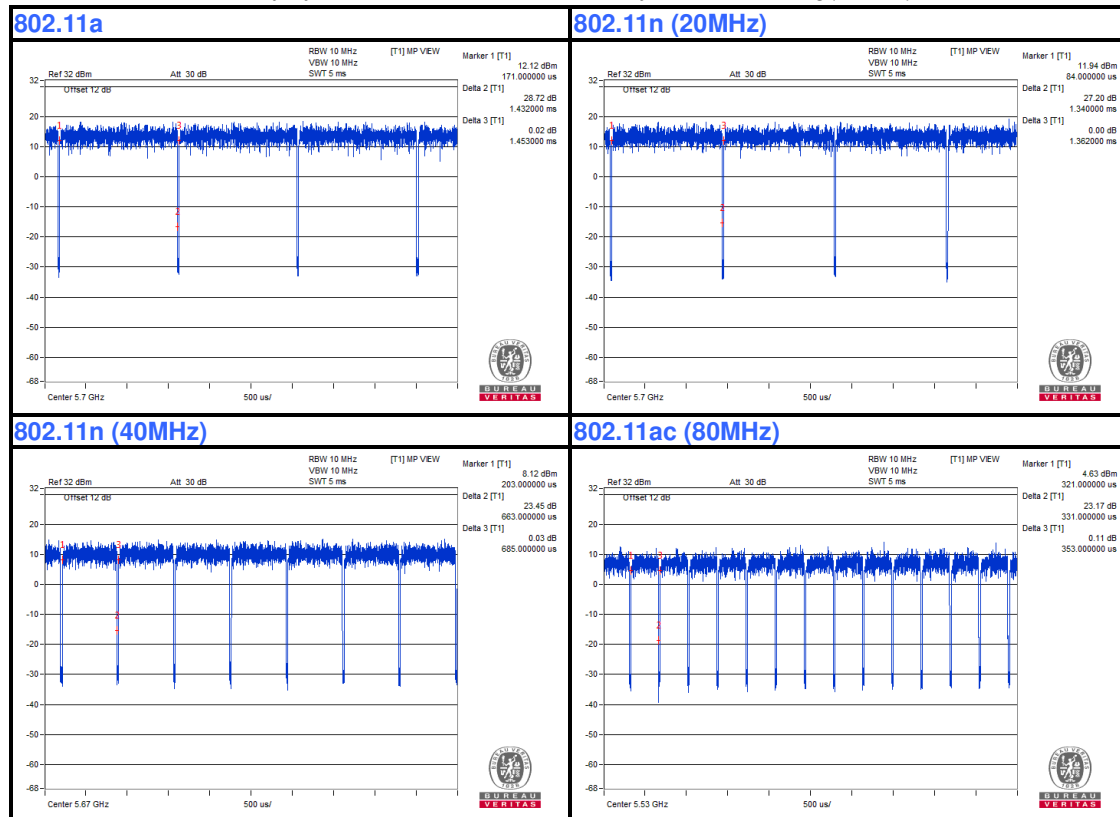
## 2.3 DUTY CYCLE OF TEST SIGNAL

**802.11a:** Duty cycle =  $1.432/1.453 = 0.99$ , Duty factor =  $10 * \log(1/0.99) = 0.044$

**802.11n (20MHz):** Duty cycle =  $1.34/1.362 = 0.98$ , Duty factor =  $10 * \log(1/0.98) = 0.088$

**802.11n (40MHz):** Duty cycle =  $0.663/0.685 = 0.97$ , Duty factor =  $10 * \log(1/0.97) = 0.13$

**802.11ac (80MHz):** Duty cycle =  $0.331/0.353 = 0.94$ , Duty factor =  $10 * \log(1/0.94) = 0.27$





## 2.4 DESCRIPTION OF SUPPORT UNITS

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

| NO. | PRODUCT | BRAND | MODEL NO. | SERIAL NO. | FCC ID |
|-----|---------|-------|-----------|------------|--------|
| 1   | N/A     | N/A   | N/A       | N/A        | N/A    |

| NO. | DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|-----|----------------------------------------|
| 1   | N/A                                    |

## 2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

**FCC Part 15, Subpart E (15.407)**

**789033 D02 General UNII Test Procedures New Rules v01r03**

**ANSI C63.10-2013**

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



### 3. TEST TYPES AND RESULTS

#### 3.1 RADIATED EMISSION AND BANDEDGE MEASUREMENT

##### 3.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

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

| FREQUENCIES<br>(MHz) | FIELD STRENGTH<br>(microvolts/meter) | MEASUREMENT DISTANCE<br>(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 1000MHz, 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 30dB under any condition of modulation.



### 3.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

| APPLICABLE TO                                            | LIMIT                |                                 |
|----------------------------------------------------------|----------------------|---------------------------------|
| 789033 D02 General UNII Test Procedures New Rules v01r03 | FIELD STRENGTH AT 3m |                                 |
|                                                          | PK: 74 (dBμV/m)      | AV: 54 (dBμV/m)                 |
| APPLICABLE TO                                            | EIRP LIMIT           | EQUIVALENT FIELD STRENGTH AT 3m |
| 15.407(b)(1)                                             | PK: -27 (dBm/MHz)    | PK: 68.2 (dBμV/m)               |
| 15.407(b)(2)                                             |                      |                                 |
| 15.407(b)(3)                                             |                      |                                 |
| 15.407(b)(4)                                             | Note                 | Note                            |

**NOTE:** For transmitters operating in the 5.725-5.85 GHz band:

15.407(b)(4)(i) 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 at 25 MHz above or below the band edge, and from 25 MHz above or below 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 band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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

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



### 3.1.3 TEST INSTRUMENTS

| Equipment                    | Manufacturer  | Model No.                | Serial No.  | Last Cal.   | Next Cal.   |
|------------------------------|---------------|--------------------------|-------------|-------------|-------------|
| EMI Test Receiver            | Rohde&Schwarz | ESR7                     | 101494      | Apr. 05,16  | Apr. 04,17  |
| Signal and Spectrum Analyzer | Rohde&Schwarz | FSV7                     | 102331      | Nov. 09,15  | Nov. 08,16  |
| Bilog Antenna                | Teseq         | CBL 6111D                | 30643       | Jul. 14, 16 | Jul. 13, 17 |
| Horn Antenna (1GHz -18GHz)   | ETS -Lindgren | 3117                     | 00062558    | May 18,16   | May 17,17   |
| GPS Generator+ Antenna       | TOJOIN        | GNSS-5000A               | E1-010119   | Aug. 08, 16 | Aug. 07, 17 |
| 3m Semi-anechoic Chamber     | ETS-LINDGREN  | 9m*6m*6m                 | NSEMC003    | Mar. 12,16  | Mar. 11,18  |
| Test Software                | ADT           | ADT_Radiated_V7.6.15.9.2 | N/A         | N/A         | N/A         |
| Horn Antenna                 | SCHWARZBECK   | BBHA 9170                | BBHA9170242 | Mar. 12,16  | Mar. 11,17  |
| Amplifier (9kHz-1GHz)        | SONOMA        | 310D                     | 186955      | Mar. 04,16  | Mar. 03, 17 |
| Pre-Amplifier(1-18G)         | HP            | 8449B                    | 3008A00409  | Apr. 25,16  | Apr. 24,17  |
| Pre-Amplifier (18GHz-40GHz)  | EMCI          | EMC 184045               | 980102      | Nov. 20,15  | Nov. 19,16  |
| Test Software                | ADT           | ADT_Radiated_V7.6.15.9.2 | N/A         | N/A         | N/A         |
| BLUETOOTH TESTER             | Rohde&Schwarz | CBT32                    | 100811      | Aug. 08,16  | Aug. 07,17  |

**NOTE:**

1. The test was performed in 966 Chamber.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
3. The FCC Site Registration No. is 494399.





### 3.1.4 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic chamber. 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 antenna is a broadband antenna, and its 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.
- 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 Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. 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 average method as specified and then reported in a data sheet.

**NOTE:**

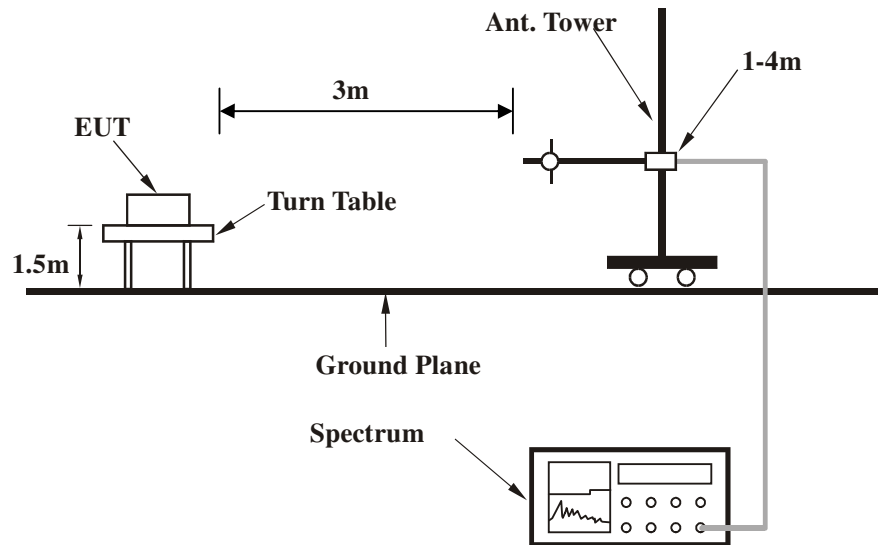
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution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

### 3.1.5 DEVIATION FROM TEST STANDARD

No deviation.



### 3.1.6 TEST SETUP



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

### 3.1.7 EUT OPERATING CONDITION

- Set the EUT under full load condition and placed them on a testing table.
- Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the EUT in full functions.



**BUREAU  
VERITAS**

**Test Report No.: RF160712N001-3**

### 3.1.8 TEST RESULTS

#### BELOW 1GHz WORST-CASE DATA

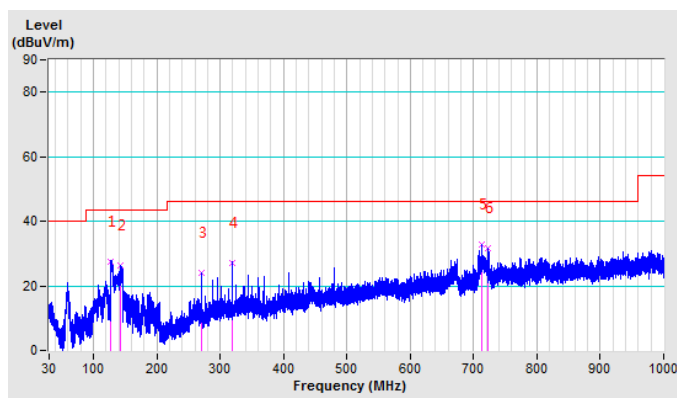
##### 802.11a

|                        |               |                              |                 |
|------------------------|---------------|------------------------------|-----------------|
| <b>CHANNEL</b>         | TX Channel 36 | <b>DETECTOR<br/>FUNCTION</b> | Quasi-Peak (QP) |
| <b>FREQUENCY RANGE</b> | 30MHz ~ 1GHz  |                              |                 |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                           |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|---------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(cm) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 127.82         | 27.50                         | 43.50             | -16.00         | 200                       | 0                          | 45.03                  | -17.53                         |
| 2                                                   | 143.07         | 26.34                         | 43.50             | -17.16         | 200                       | 0                          | 44.14                  | -17.80                         |
| 3                                                   | 270.32         | 23.99                         | 46.00             | -22.01         | 200                       | 0                          | 38.50                  | -14.51                         |
| 4                                                   | 319.45         | 27.11                         | 46.00             | -18.89         | 200                       | 0                          | 41.02                  | -13.91                         |
| 5                                                   | 712.70         | 32.65                         | 46.00             | -13.35         | 200                       | 0                          | 35.55                  | -2.90                          |
| 6                                                   | 723.22         | 31.57                         | 46.00             | -14.43         | 200                       | 0                          | 33.91                  | -2.34                          |

#### REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.





BUREAU  
VERITAS

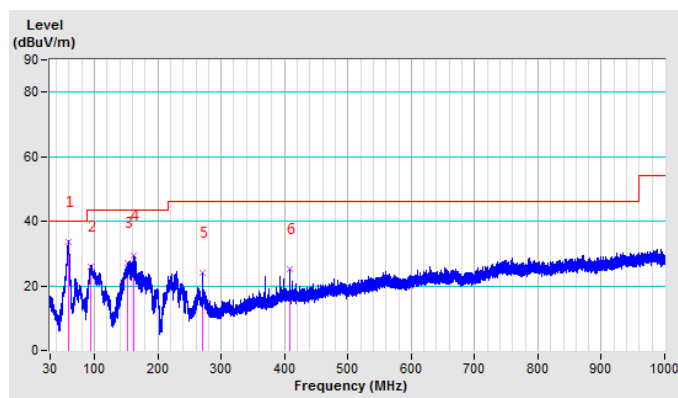
Test Report No.: RF160712N001-3

|                 |               |                      |                 |
|-----------------|---------------|----------------------|-----------------|
| CHANNEL         | TX Channel 36 | DETECTOR<br>FUNCTION | Quasi-Peak (QP) |
| FREQUENCY RANGE | 30MHz ~ 1GHz  |                      |                 |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|---------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                               | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                 | 59.13          | 33.70                         | 40.00             | -6.30          | 200                      | 0                          | 58.37                  | -24.67                         |
| 2                                                 | 94.38          | 25.87                         | 43.50             | -17.63         | 200                      | 0                          | 45.38                  | -19.51                         |
| 3                                                 | 151.98         | 26.96                         | 43.50             | -16.54         | 200                      | 0                          | 44.09                  | -17.13                         |
| 4                                                 | 161.92         | 29.26                         | 43.50             | -14.24         | 200                      | 0                          | 47.03                  | -17.77                         |
| 5                                                 | 270.32         | 23.91                         | 46.00             | -22.09         | 200                      | 0                          | 38.42                  | -14.51                         |
| 6                                                 | 407.97         | 25.23                         | 46.00             | -20.77         | 200                      | 0                          | 34.57                  | -9.34                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.





Band 1 (5150-5250MHz):

ABOVE 1GHz DATA

802.11a

|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 36 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5150.00        | 51.6 PK                       | 68.2              | -16.6          | 2.03 H                   | 278                        | 43.37                  | 8.27                           |
| 2                                                   | *5180.00       | 99.7 PK                       |                   |                | 2.03 H                   | 278                        | 91.38                  | 8.32                           |
| 3                                                   | *5180.00       | 89.5 AV                       |                   |                | 2.03 H                   | 278                        | 81.17                  | 8.32                           |
| 4                                                   | #10360.00      | 54.6 PK                       | 74.0              | -19.4          | 1.56 H                   | 302                        | 35.43                  | 19.21                          |
| 5                                                   | #10360.00      | 40.4 AV                       | 54.0              | -13.6          | 1.56 H                   | 302                        | 21.15                  | 19.21                          |
| 6                                                   | 15540.00       | 59.7 PK                       | 74.0              | -14.3          | 1.95 H                   | 48                         | 38.23                  | 21.45                          |
| 7                                                   | 15540.00       | 44.9 AV                       | 54.0              | -9.1           | 1.95 H                   | 48                         | 23.48                  | 21.45                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5150.00        | 46.9 PK                       | 68.3              | -21.3          | 1.49 V                   | 253                        | 38.67                  | 8.27                           |
| 2                                                   | *5180.00       | 96.7 PK                       |                   |                | 1.49 V                   | 253                        | 88.42                  | 8.32                           |
| 3                                                   | *5180.00       | 85.7 AV                       |                   |                | 1.49 V                   | 253                        | 77.36                  | 8.32                           |
| 4                                                   | #10360.00      | 54.6 PK                       | 74.0              | -19.4          | 1.63 V                   | 274                        | 35.34                  | 19.21                          |
| 5                                                   | #10360.00      | 40.6 AV                       | 54.0              | -13.4          | 1.63 V                   | 274                        | 21.35                  | 19.21                          |
| 6                                                   | 15540.00       | 59.5 PK                       | 74.0              | -14.5          | 1.00 V                   | 259                        | 38.04                  | 21.45                          |
| 7                                                   | 15540.00       | 44.6 AV                       | 54.0              | -9.4           | 1.00 V                   | 259                        | 23.11                  | 21.45                          |

## REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 40 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5200.00       | 100.7 PK                      |                   |                | 1.95 H                   | 274                        | 92.40                  | 8.34                           |
| 2                                                   | *5200.00       | 89.3 AV                       |                   |                | 1.95 H                   | 274                        | 80.97                  | 8.34                           |
| 3                                                   | #10400.00      | 53.6 PK                       | 74.0              | -20.4          | 1.49 H                   | 153                        | 34.30                  | 19.31                          |
| 4                                                   | #10400.00      | 40.6 AV                       | 54.0              | -13.4          | 1.49 H                   | 153                        | 21.26                  | 19.31                          |
| 5                                                   | 15600.00       | 59.6 PK                       | 74.0              | -14.4          | 1.95 H                   | 302                        | 38.04                  | 21.59                          |
| 6                                                   | 15600.00       | 43.5 AV                       | 54.0              | -10.5          | 1.95 H                   | 302                        | 21.92                  | 21.59                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5200.00       | 96.8 PK                       |                   |                | 1.96 V                   | 237                        | 88.49                  | 8.34                           |
| 2                                                   | *5200.00       | 85.2 AV                       |                   |                | 1.96 V                   | 237                        | 76.87                  | 8.34                           |
| 3                                                   | #10400.00      | 54.9 PK                       | 74.0              | -19.1          | 1.65 V                   | 291                        | 35.54                  | 19.31                          |
| 4                                                   | #10400.00      | 40.9 AV                       | 54.0              | -13.1          | 1.65 V                   | 291                        | 21.63                  | 19.31                          |
| 5                                                   | 15600.00       | 58.8 PK                       | 74.0              | -15.2          | 1.64 V                   | 185                        | 37.20                  | 21.59                          |
| 6                                                   | 15600.00       | 44.3 AV                       | 54.0              | -9.7           | 1.64 V                   | 185                        | 22.72                  | 21.59                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 48 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5240.00       | 99.7 PK                       |                   |                | 1.00 H                   | 285                        | 91.34                  | 8.40                           |
| 2                                                   | *5240.00       | 88.8 AV                       |                   |                | 1.00 H                   | 285                        | 80.35                  | 8.40                           |
| 3                                                   | #10480.00      | 53.7 PK                       | 74.0              | -20.3          | 4.00 H                   | 274                        | 34.19                  | 19.50                          |
| 4                                                   | #10480.00      | 40.6 AV                       | 54.0              | -13.4          | 4.00 H                   | 274                        | 21.07                  | 19.50                          |
| 5                                                   | 15720.00       | 59.5 PK                       | 74.0              | -14.5          | 1.85 H                   | 234                        | 37.59                  | 21.87                          |
| 6                                                   | 15720.00       | 43.6 AV                       | 54.0              | -10.4          | 1.85 H                   | 234                        | 21.71                  | 21.87                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5240.00       | 90.8 PK                       |                   |                | 1.66 V                   | 169                        | 82.41                  | 8.40                           |
| 2                                                   | *5240.00       | 79.9 AV                       |                   |                | 1.66 V                   | 169                        | 71.54                  | 8.40                           |
| 3                                                   | #10480.00      | 53.6 PK                       | 74.0              | -20.4          | 1.85 V                   | 233                        | 34.05                  | 19.50                          |
| 4                                                   | #10480.00      | 41.5 AV                       | 54.0              | -12.5          | 1.85 V                   | 233                        | 22.01                  | 19.50                          |
| 5                                                   | 15720.00       | 58.6 PK                       | 74.0              | -15.4          | 1.95 V                   | 253                        | 36.77                  | 21.87                          |
| 6                                                   | 15720.00       | 44.6 AV                       | 54.0              | -9.4           | 1.95 V                   | 253                        | 22.75                  | 21.87                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



Test Report No.: RF160712N001-3

802.11n (20MHz)

|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 36 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5150.00        | 52.6 PK                       | 68.2              | -15.6          | 1.94 H                   | 278                        | 44.37                  | 8.27                           |
| 2                                                   | *5180.00       | 99.4 PK                       |                   |                | 1.94 H                   | 278                        | 91.10                  | 8.32                           |
| 3                                                   | *5180.00       | 89.1 AV                       |                   |                | 1.94 H                   | 278                        | 80.78                  | 8.32                           |
| 4                                                   | #10360.00      | 55.0 PK                       | 74.0              | -19.0          | 1.56 H                   | 201                        | 35.81                  | 19.21                          |
| 5                                                   | #10360.00      | 41.7 AV                       | 54.0              | -12.3          | 1.56 H                   | 201                        | 22.44                  | 19.21                          |
| 6                                                   | 15540.00       | 58.5 PK                       | 74.0              | -15.5          | 2.35 H                   | 121                        | 37.02                  | 21.45                          |
| 7                                                   | 15540.00       | 45.1 AV                       | 54.0              | -8.9           | 2.35 H                   | 121                        | 23.61                  | 21.45                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5150.00        | 47.4 PK                       | 68.2              | -20.8          | 1.22 V                   | 251                        | 39.09                  | 8.27                           |
| 2                                                   | *5180.00       | 95.5 PK                       |                   |                | 1.22 V                   | 251                        | 87.13                  | 8.32                           |
| 3                                                   | *5180.00       | 84.6 AV                       |                   |                | 1.22 V                   | 251                        | 76.30                  | 8.32                           |
| 4                                                   | #10360.00      | 55.0 PK                       | 74.0              | -19.0          | 1.85 V                   | 226                        | 35.81                  | 19.21                          |
| 5                                                   | #10360.00      | 40.1 AV                       | 54.0              | -13.9          | 1.85 V                   | 226                        | 20.89                  | 19.21                          |
| 6                                                   | 15540.00       | 60.5 PK                       | 74.0              | -13.5          | 2.78 V                   | 261                        | 39.07                  | 21.45                          |
| 7                                                   | 15540.00       | 44.9 AV                       | 54.0              | -9.1           | 2.78 V                   | 261                        | 23.46                  | 21.45                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.





|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 40 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5200.00       | 100.1 PK                      |                   |                | 1.65 H                   | 230                        | 91.73                  | 8.34                           |
| 2                                                   | *5200.00       | 88.5 AV                       |                   |                | 1.65 H                   | 230                        | 80.16                  | 8.34                           |
| 3                                                   | #10400.00      | 53.7 PK                       | 74.0              | -20.3          | 1.25 H                   | 239                        | 34.35                  | 19.31                          |
| 4                                                   | #10400.00      | 40.5 AV                       | 54.0              | -13.5          | 1.25 H                   | 239                        | 21.21                  | 19.31                          |
| 5                                                   | 15600.00       | 58.5 PK                       | 74.0              | -15.5          | 2.36 H                   | 120                        | 36.87                  | 21.59                          |
| 6                                                   | 15600.00       | 43.6 AV                       | 54.0              | -10.4          | 2.36 H                   | 120                        | 21.99                  | 21.59                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5200.00       | 95.4 PK                       |                   |                | 1.00 V                   | 238                        | 87.02                  | 8.34                           |
| 2                                                   | *5200.00       | 84.0 AV                       |                   |                | 1.00 V                   | 238                        | 75.61                  | 8.34                           |
| 3                                                   | #10400.00      | 54.9 PK                       | 74.0              | -19.1          | 1.68 V                   | 246                        | 35.58                  | 19.31                          |
| 4                                                   | #10400.00      | 40.9 AV                       | 54.0              | -13.1          | 1.68 V                   | 246                        | 21.59                  | 19.31                          |
| 5                                                   | 15600.00       | 58.6 PK                       | 74.0              | -15.4          | 1.47 V                   | 256                        | 37.05                  | 21.59                          |
| 6                                                   | 15600.00       | 44.6 AV                       | 54.0              | -9.4           | 1.47 V                   | 256                        | 22.99                  | 21.59                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                        |               |                              |              |
|------------------------|---------------|------------------------------|--------------|
| <b>CHANNEL</b>         | TX Channel 48 | <b>DETECTOR<br/>FUNCTION</b> | Peak (PK)    |
| <b>FREQUENCY RANGE</b> | 1GHz ~ 40GHz  |                              | Average (AV) |

| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                        |                                        |                           |                        |                                   |                                     |                                 |                                         |
|----------------------------------------------------------------|------------------------|----------------------------------------|---------------------------|------------------------|-----------------------------------|-------------------------------------|---------------------------------|-----------------------------------------|
| <b>NO.</b>                                                     | <b>FREQ.<br/>(MHz)</b> | <b>EMISSION<br/>LEVEL<br/>(dBuV/m)</b> | <b>LIMIT<br/>(dBuV/m)</b> | <b>MARGIN<br/>(dB)</b> | <b>ANTENNA<br/>HEIGHT<br/>(m)</b> | <b>TABLE<br/>ANGLE<br/>(Degree)</b> | <b>RAW<br/>VALUE<br/>(dBuV)</b> | <b>CORRECTION<br/>FACTOR<br/>(dB/m)</b> |
| 1                                                              | *5240.00               | 96.5 PK                                |                           |                        | 1.49 H                            | 247                                 | 88.08                           | 8.40                                    |
| 2                                                              | *5240.00               | 85.2 AV                                |                           |                        | 1.49 H                            | 247                                 | 76.79                           | 8.40                                    |
| 3                                                              | #10480.00              | 53.6 PK                                | 74.0                      | -20.4                  | 2.16 H                            | 201                                 | 34.11                           | 19.50                                   |
| 4                                                              | #10480.00              | 40.6 AV                                | 54.0                      | -13.4                  | 2.16 H                            | 201                                 | 21.08                           | 19.50                                   |
| 5                                                              | 15720.00               | 58.6 PK                                | 74.0                      | -15.4                  | 1.69 H                            | 248                                 | 36.77                           | 21.87                                   |
| 6                                                              | 15720.00               | 44.7 AV                                | 54.0                      | -9.3                   | 1.69 H                            | 248                                 | 22.78                           | 21.87                                   |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>   |                        |                                        |                           |                        |                                   |                                     |                                 |                                         |
| <b>NO.</b>                                                     | <b>FREQ.<br/>(MHz)</b> | <b>EMISSION<br/>LEVEL<br/>(dBuV/m)</b> | <b>LIMIT<br/>(dBuV/m)</b> | <b>MARGIN<br/>(dB)</b> | <b>ANTENNA<br/>HEIGHT<br/>(m)</b> | <b>TABLE<br/>ANGLE<br/>(Degree)</b> | <b>RAW<br/>VALUE<br/>(dBuV)</b> | <b>CORRECTION<br/>FACTOR<br/>(dB/m)</b> |
| 1                                                              | *5240.00               | 90.6 PK                                |                           |                        | 1.36 V                            | 248                                 | 82.15                           | 8.40                                    |
| 2                                                              | *5240.00               | 79.9 AV                                |                           |                        | 1.36 V                            | 248                                 | 71.45                           | 8.40                                    |
| 3                                                              | #10480.00              | 53.2 PK                                | 74.0                      | -20.8                  | 1.96 V                            | 235                                 | 33.72                           | 19.50                                   |
| 4                                                              | #10480.00              | 41.3 AV                                | 54.0                      | -12.7                  | 1.96 V                            | 235                                 | 21.80                           | 19.50                                   |
| 5                                                              | 15720.00               | 58.2 PK                                | 74.0                      | -15.8                  | 1.54 V                            | 231                                 | 36.37                           | 21.87                                   |
| 6                                                              | 15720.00               | 44.3 AV                                | 54.0                      | -9.7                   | 1.54 V                            | 231                                 | 22.45                           | 21.87                                   |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



802.11n (40MHz)

|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 38 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5150.00        | 60.4 PK                       | 68.2              | -7.8           | 1.00 H                   | 200                        | 52.13                  | 8.27                           |
| 2                                                   | *5190.00       | 96.9 PK                       |                   |                | 1.00 H                   | 200                        | 88.59                  | 8.33                           |
| 3                                                   | *5190.00       | 85.0 AV                       |                   |                | 1.00 H                   | 200                        | 76.64                  | 8.33                           |
| 4                                                   | #10380.00      | 55.6 PK                       | 74.0              | -18.4          | 1.63 H                   | 275                        | 36.35                  | 19.26                          |
| 5                                                   | #10380.00      | 40.5 AV                       | 54.0              | -13.5          | 1.63 H                   | 275                        | 21.26                  | 19.26                          |
| 6                                                   | 15570.00       | 59.6 PK                       | 74.0              | -14.4          | 1.68 H                   | 201                        | 38.12                  | 21.52                          |
| 7                                                   | 15570.00       | 43.6 AV                       | 54.0              | -10.4          | 1.68 H                   | 201                        | 22.07                  | 21.52                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5150.00        | 54.6 PK                       | 68.2              | -13.6          | 1.64 V                   | 285                        | 46.29                  | 8.27                           |
| 2                                                   | *5190.00       | 92.8 PK                       |                   |                | 1.64 V                   | 285                        | 84.47                  | 8.33                           |
| 3                                                   | *5190.00       | 80.9 AV                       |                   |                | 1.64 V                   | 285                        | 72.57                  | 8.33                           |
| 4                                                   | #10380.00      | 53.3 PK                       | 74.0              | -20.7          | 1.29 V                   | 286                        | 33.99                  | 19.26                          |
| 5                                                   | #10380.00      | 41.3 AV                       | 54.0              | -12.7          | 1.29 V                   | 286                        | 22.00                  | 19.26                          |
| 6                                                   | 15570.00       | 60.5 PK                       | 74.0              | -13.5          | 1.94 V                   | 254                        | 39.02                  | 21.52                          |
| 7                                                   | 15570.00       | 44.6 AV                       | 54.0              | -9.4           | 1.94 V                   | 254                        | 23.07                  | 21.52                          |

## REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



**BUREAU  
VERITAS**

**Test Report No.: RF160712N001-3**

|                        |               |                              |              |
|------------------------|---------------|------------------------------|--------------|
| <b>CHANNEL</b>         | TX Channel 46 | <b>DETECTOR<br/>FUNCTION</b> | Peak (PK)    |
| <b>FREQUENCY RANGE</b> | 1GHz ~ 40GHz  |                              | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5230.00       | 96.4 PK                       |                   |                | 1.64 H                   | 258                        | 87.97                  | 8.39                           |
| 2                                                   | *5230.00       | 83.9 AV                       |                   |                | 1.64 H                   | 258                        | 75.55                  | 8.39                           |
| 3                                                   | #10460.00      | 55.9 PK                       | 74.0              | -18.1          | 1.58 H                   | 246                        | 36.47                  | 19.46                          |
| 4                                                   | #10460.00      | 41.3 AV                       | 54.0              | -12.7          | 1.58 H                   | 246                        | 21.79                  | 19.46                          |
| 5                                                   | 15690.00       | 60.5 PK                       | 74.0              | -13.5          | 1.52 H                   | 324                        | 38.74                  | 21.80                          |
| 6                                                   | 15690.00       | 45.7 AV                       | 54.0              | -8.3           | 1.52 H                   | 324                        | 23.87                  | 21.80                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5230.00       | 88.2 PK                       |                   |                | 1.16 V                   | 255                        | 79.78                  | 8.39                           |
| 2                                                   | *5230.00       | 76.4 AV                       |                   |                | 1.16 V                   | 255                        | 68.00                  | 8.39                           |
| 3                                                   | #10460.00      | 53.3 PK                       | 74.0              | -20.7          | 1.65 V                   | 210                        | 33.80                  | 19.46                          |
| 4                                                   | #10460.00      | 41.3 AV                       | 54.0              | -12.7          | 1.65 V                   | 210                        | 21.79                  | 19.46                          |
| 5                                                   | 15690.00       | 60.5 PK                       | 74.0              | -13.5          | 2.13 V                   | 150                        | 38.70                  | 21.80                          |
| 6                                                   | 15690.00       | 45.6 AV                       | 54.0              | -8.4           | 2.13 V                   | 150                        | 23.81                  | 21.80                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



## 802.11ac (80MHz)

|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 42 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5150.00        | 67.2 PK                       | 68.2              | -1.0           | 1.01 H                   | 235                        | 58.93                  | 8.27                           |
| 2                                                   | *5210.00       | 93.6 PK                       |                   |                | 1.01 H                   | 235                        | 85.26                  | 8.35                           |
| 3                                                   | *5210.00       | 80.3 AV                       |                   |                | 1.01 H                   | 235                        | 71.92                  | 8.35                           |
| 4                                                   | #10420.00      | 53.7 PK                       | 74.0              | -20.3          | 1.52 H                   | 235                        | 34.32                  | 19.35                          |
| 5                                                   | #10420.00      | 39.6 AV                       | 54.0              | -14.4          | 1.52 H                   | 235                        | 20.26                  | 19.35                          |
| 6                                                   | 15630.00       | 60.0 PK                       | 74.0              | -14.0          | 1.85 H                   | 295                        | 38.36                  | 21.66                          |
| 7                                                   | 15630.00       | 44.6 AV                       | 54.0              | -9.4           | 1.85 H                   | 295                        | 22.95                  | 21.66                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5150.00        | 57.9 PK                       | 68.2              | -10.3          | 1.94 V                   | 263                        | 49.64                  | 8.27                           |
| 2                                                   | *5210.00       | 88.6 PK                       |                   |                | 1.94 V                   | 263                        | 80.29                  | 8.35                           |
| 3                                                   | *5210.00       | 75.9 AV                       |                   |                | 1.94 V                   | 263                        | 67.57                  | 8.35                           |
| 4                                                   | #10420.00      | 55.8 PK                       | 74.0              | -18.2          | 1.74 V                   | 253                        | 36.49                  | 19.35                          |
| 5                                                   | #10420.00      | 41.8 AV                       | 54.0              | -12.2          | 1.74 V                   | 253                        | 22.45                  | 19.35                          |
| 6                                                   | 15630.00       | 58.7 PK                       | 74.0              | -15.3          | 1.85 V                   | 224                        | 37.08                  | 21.66                          |
| 7                                                   | 15630.00       | 45.8 AV                       | 54.0              | -8.2           | 1.85 V                   | 224                        | 24.15                  | 21.66                          |

## REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



Band 2 (5250-5350MHz):

ABOVE 1GHz DATA

802.11a

|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 52 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5260.00       | 95.7 PK                       |                   |                | 1.17 H                   | 218                        | 87.22                  | 8.44                           |
| 2                                                   | *5260.00       | 84.8 AV                       |                   |                | 1.17 H                   | 218                        | 76.37                  | 8.44                           |
| 3                                                   | #10520.00      | 55.7 PK                       | 74.0              | -18.3          | 1.67 H                   | 285                        | 36.11                  | 19.56                          |
| 4                                                   | #10520.00      | 42.5 AV                       | 54.0              | -11.5          | 1.67 H                   | 285                        | 22.95                  | 19.56                          |
| 5                                                   | 15780.00       | 58.4 PK                       | 74.0              | -15.6          | 2.14 H                   | 230                        | 36.40                  | 22.02                          |
| 6                                                   | 15780.00       | 44.9 AV                       | 54.0              | -9.1           | 2.14 H                   | 230                        | 22.83                  | 22.02                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5260.00       | 91.2 PK                       |                   |                | 1.16 V                   | 230                        | 82.72                  | 8.44                           |
| 2                                                   | *5260.00       | 79.4 AV                       |                   |                | 1.16 V                   | 230                        | 70.93                  | 8.44                           |
| 3                                                   | #10520.00      | 54.8 PK                       | 74.0              | -19.2          | 1.15 V                   | 278                        | 35.24                  | 19.56                          |
| 4                                                   | #10520.00      | 40.5 AV                       | 54.0              | -13.5          | 1.15 V                   | 278                        | 20.95                  | 19.56                          |
| 5                                                   | 15780.00       | 60.8 PK                       | 74.0              | -13.2          | 1.49 V                   | 281                        | 38.82                  | 22.02                          |
| 6                                                   | 15780.00       | 44.5 AV                       | 54.0              | -9.5           | 1.49 V                   | 281                        | 22.49                  | 22.02                          |

## REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 60 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5300.00       | 99.3 PK                       |                   |                | 1.63 H                   | 270                        | 90.84                  | 8.46                           |
| 2                                                   | *5300.00       | 87.6 AV                       |                   |                | 1.63 H                   | 270                        | 79.15                  | 8.46                           |
| 3                                                   | #10600.00      | 55.2 PK                       | 74.0              | -18.8          | 1.94 H                   | 352                        | 35.58                  | 19.58                          |
| 4                                                   | #10600.00      | 42.0 AV                       | 54.0              | -12.0          | 1.94 H                   | 352                        | 22.45                  | 19.58                          |
| 5                                                   | 15900.00       | 60.4 PK                       | 74.0              | -13.6          | 2.16 H                   | 185                        | 38.21                  | 22.16                          |
| 6                                                   | 15900.00       | 44.6 AV                       | 54.0              | -9.4           | 2.16 H                   | 185                        | 22.42                  | 22.16                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5300.00       | 90.9 PK                       |                   |                | 2.00 V                   | 158                        | 82.41                  | 8.46                           |
| 2                                                   | *5300.00       | 79.6 AV                       |                   |                | 2.00 V                   | 158                        | 71.17                  | 8.46                           |
| 3                                                   | #10600.00      | 54.6 PK                       | 74.0              | -19.4          | 1.84 V                   | 241                        | 35.06                  | 19.58                          |
| 4                                                   | #10600.00      | 41.1 AV                       | 54.0              | -12.9          | 1.84 V                   | 241                        | 21.50                  | 19.58                          |
| 5                                                   | 15900.00       | 59.7 PK                       | 74.0              | -14.3          | 1.57 V                   | 248                        | 37.51                  | 22.16                          |
| 6                                                   | 15900.00       | 45.6 AV                       | 54.0              | -8.4           | 1.57 V                   | 248                        | 23.45                  | 22.16                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                        |               |                              |              |
|------------------------|---------------|------------------------------|--------------|
| <b>CHANNEL</b>         | TX Channel 64 | <b>DETECTOR<br/>FUNCTION</b> | Peak (PK)    |
| <b>FREQUENCY RANGE</b> | 1GHz ~ 40GHz  |                              | Average (AV) |

| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                        |                                        |                           |                        |                                   |                                     |                                 |                                         |
|----------------------------------------------------------------|------------------------|----------------------------------------|---------------------------|------------------------|-----------------------------------|-------------------------------------|---------------------------------|-----------------------------------------|
| <b>NO.</b>                                                     | <b>FREQ.<br/>(MHz)</b> | <b>EMISSION<br/>LEVEL<br/>(dBuV/m)</b> | <b>LIMIT<br/>(dBuV/m)</b> | <b>MARGIN<br/>(dB)</b> | <b>ANTENNA<br/>HEIGHT<br/>(m)</b> | <b>TABLE<br/>ANGLE<br/>(Degree)</b> | <b>RAW<br/>VALUE<br/>(dBuV)</b> | <b>CORRECTION<br/>FACTOR<br/>(dB/m)</b> |
| 1                                                              | *5320.00               | 98.2 PK                                |                           |                        | 1.00 H                            | 185                                 | 89.67                           | 8.52                                    |
| 2                                                              | *5320.00               | 87.7 AV                                |                           |                        | 1.00 H                            | 185                                 | 79.15                           | 8.52                                    |
| 3                                                              | 5350.00                | 48.5 PK                                | 68.2                      | -19.7                  | 1.00 H                            | 185                                 | 39.93                           | 8.57                                    |
| 4                                                              | 10640.00               | 55.9 PK                                | 74.0                      | -18.1                  | 1.84 H                            | 263                                 | 36.25                           | 19.62                                   |
| 5                                                              | 10640.00               | 42.5 AV                                | 54.0                      | -11.5                  | 1.84 H                            | 263                                 | 22.89                           | 19.62                                   |
| 6                                                              | 15960.00               | 59.3 PK                                | 74.0                      | -14.7                  | 1.65 H                            | 274                                 | 36.88                           | 22.44                                   |
| 7                                                              | 15960.00               | 45.0 AV                                | 54.0                      | -9.0                   | 1.65 H                            | 274                                 | 22.51                           | 22.44                                   |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>   |                        |                                        |                           |                        |                                   |                                     |                                 |                                         |
| <b>NO.</b>                                                     | <b>FREQ.<br/>(MHz)</b> | <b>EMISSION<br/>LEVEL<br/>(dBuV/m)</b> | <b>LIMIT<br/>(dBuV/m)</b> | <b>MARGIN<br/>(dB)</b> | <b>ANTENNA<br/>HEIGHT<br/>(m)</b> | <b>TABLE<br/>ANGLE<br/>(Degree)</b> | <b>RAW<br/>VALUE<br/>(dBuV)</b> | <b>CORRECTION<br/>FACTOR<br/>(dB/m)</b> |
| 1                                                              | *5320.00               | 96.7 PK                                |                           |                        | 1.00 V                            | 256                                 | 88.13                           | 8.52                                    |
| 2                                                              | *5320.00               | 86.2 AV                                |                           |                        | 1.00 V                            | 256                                 | 77.68                           | 8.52                                    |
| 3                                                              | 5350.00                | 47.8 PK                                | 68.2                      | -20.4                  | 1.00 V                            | 256                                 | 39.27                           | 8.57                                    |
| 4                                                              | 10640.00               | 55.2 PK                                | 74.0                      | -18.8                  | 1.56 V                            | 298                                 | 35.62                           | 19.62                                   |
| 5                                                              | 10640.00               | 41.6 AV                                | 54.0                      | -12.4                  | 1.56 V                            | 298                                 | 22.00                           | 19.62                                   |
| 6                                                              | 15960.00               | 60.6 PK                                | 74.0                      | -13.4                  | 1.98 V                            | 248                                 | 38.14                           | 22.44                                   |
| 7                                                              | 15960.00               | 45.6 AV                                | 54.0                      | -8.4                   | 1.98 V                            | 248                                 | 23.19                           | 22.44                                   |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* " : Fundamental frequency.





## 802.11n (20MHz)

|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 52 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5260.00       | 101.9 PK                      |                   |                | 1.56 H                   | 295                        | 93.43                  | 8.44                           |
| 2                                                   | *5260.00       | 91.0 AV                       |                   |                | 1.56 H                   | 295                        | 82.52                  | 8.44                           |
| 3                                                   | #10520.00      | 51.5 PK                       | 74.0              | -22.5          | 1.85 H                   | 263                        | 31.96                  | 19.56                          |
| 4                                                   | #10520.00      | 41.5 AV                       | 54.0              | -12.5          | 1.85 H                   | 263                        | 21.95                  | 19.56                          |
| 5                                                   | 15780.00       | 60.3 PK                       | 74.0              | -13.7          | 1.65 H                   | 254                        | 38.31                  | 22.02                          |
| 6                                                   | 15780.00       | 46.4 AV                       | 54.0              | -7.6           | 1.65 H                   | 254                        | 24.36                  | 22.02                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5260.00       | 100.6 PK                      |                   |                | 1.53 V                   | 270                        | 92.16                  | 8.44                           |
| 2                                                   | *5260.00       | 89.7 AV                       |                   |                | 1.53 V                   | 270                        | 81.28                  | 8.44                           |
| 3                                                   | #10520.00      | 53.3 PK                       | 74.0              | -20.7          | 1.54 V                   | 271                        | 33.71                  | 19.56                          |
| 4                                                   | #10520.00      | 42.3 AV                       | 54.0              | -11.7          | 1.54 V                   | 271                        | 22.74                  | 19.56                          |
| 5                                                   | 15780.00       | 59.3 PK                       | 74.0              | -14.7          | 1.69 V                   | 253                        | 37.30                  | 22.02                          |
| 6                                                   | 15780.00       | 47.3 AV                       | 54.0              | -6.7           | 1.69 V                   | 253                        | 25.23                  | 22.02                          |

## REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 60 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5300.00       | 102.3 PK                      |                   |                | 2.10 H                   | 185                        | 93.84                  | 8.46                           |
| 2                                                   | *5300.00       | 91.4 AV                       |                   |                | 2.10 H                   | 185                        | 82.93                  | 8.46                           |
| 3                                                   | #10600.00      | 52.9 PK                       | 74.0              | -21.1          | 1.14 H                   | 278                        | 33.30                  | 19.58                          |
| 4                                                   | #10600.00      | 41.6 AV                       | 54.0              | -12.4          | 1.14 H                   | 278                        | 22.00                  | 19.58                          |
| 5                                                   | 15900.00       | 60.3 PK                       | 74.0              | -13.7          | 1.42 H                   | 263                        | 38.16                  | 22.16                          |
| 6                                                   | 15900.00       | 45.6 AV                       | 54.0              | -8.4           | 1.42 H                   | 263                        | 23.45                  | 22.16                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5300.00       | 101.7 PK                      |                   |                | 1.49 V                   | 278                        | 93.24                  | 8.46                           |
| 2                                                   | *5300.00       | 90.0 AV                       |                   |                | 1.49 V                   | 278                        | 81.53                  | 8.46                           |
| 3                                                   | #10600.00      | 52.6 PK                       | 74.0              | -21.4          | 1.98 V                   | 203                        | 33.06                  | 19.58                          |
| 4                                                   | #10600.00      | 41.5 AV                       | 54.0              | -12.5          | 1.98 V                   | 203                        | 21.92                  | 19.58                          |
| 5                                                   | 15900.00       | 59.8 PK                       | 74.0              | -14.2          | 1.69 V                   | 245                        | 37.68                  | 22.16                          |
| 6                                                   | 15900.00       | 45.8 AV                       | 54.0              | -8.2           | 1.69 V                   | 245                        | 23.64                  | 22.16                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                        |               |                              |              |
|------------------------|---------------|------------------------------|--------------|
| <b>CHANNEL</b>         | TX Channel 64 | <b>DETECTOR<br/>FUNCTION</b> | Peak (PK)    |
| <b>FREQUENCY RANGE</b> | 1GHz ~ 40GHz  |                              | Average (AV) |

| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                        |                                        |                           |                        |                                   |                                     |                                 |                                         |
|----------------------------------------------------------------|------------------------|----------------------------------------|---------------------------|------------------------|-----------------------------------|-------------------------------------|---------------------------------|-----------------------------------------|
| <b>NO.</b>                                                     | <b>FREQ.<br/>(MHz)</b> | <b>EMISSION<br/>LEVEL<br/>(dBuV/m)</b> | <b>LIMIT<br/>(dBuV/m)</b> | <b>MARGIN<br/>(dB)</b> | <b>ANTENNA<br/>HEIGHT<br/>(m)</b> | <b>TABLE<br/>ANGLE<br/>(Degree)</b> | <b>RAW<br/>VALUE<br/>(dBuV)</b> | <b>CORRECTION<br/>FACTOR<br/>(dB/m)</b> |
| 1                                                              | *5320.00               | 103.1 PK                               |                           |                        | 1.89 H                            | 263                                 | 94.61                           | 8.52                                    |
| 2                                                              | *5320.00               | 92.2 AV                                |                           |                        | 1.89 H                            | 263                                 | 83.63                           | 8.52                                    |
| 3                                                              | 5350.00                | 56.5 PK                                | 68.2                      | -11.7                  | 1.94 H                            | 258                                 | 47.92                           | 8.57                                    |
| 4                                                              | 10640.00               | 51.5 PK                                | 74.0                      | -22.5                  | 1.50 H                            | 184                                 | 31.85                           | 19.62                                   |
| 5                                                              | 10640.00               | 43.0 AV                                | 54.0                      | -11.0                  | 1.50 H                            | 184                                 | 23.33                           | 19.62                                   |
| 6                                                              | 15960.00               | 60.3 PK                                | 74.0                      | -13.7                  | 1.87 H                            | 270                                 | 37.88                           | 22.44                                   |
| 7                                                              | 15960.00               | 47.5 AV                                | 54.0                      | -6.5                   | 1.87 H                            | 270                                 | 25.07                           | 22.44                                   |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>   |                        |                                        |                           |                        |                                   |                                     |                                 |                                         |
| <b>NO.</b>                                                     | <b>FREQ.<br/>(MHz)</b> | <b>EMISSION<br/>LEVEL<br/>(dBuV/m)</b> | <b>LIMIT<br/>(dBuV/m)</b> | <b>MARGIN<br/>(dB)</b> | <b>ANTENNA<br/>HEIGHT<br/>(m)</b> | <b>TABLE<br/>ANGLE<br/>(Degree)</b> | <b>RAW<br/>VALUE<br/>(dBuV)</b> | <b>CORRECTION<br/>FACTOR<br/>(dB/m)</b> |
| 1                                                              | *5320.00               | 100.1 PK                               |                           |                        | 1.15 V                            | 278                                 | 91.57                           | 8.52                                    |
| 2                                                              | *5320.00               | 89.4 AV                                |                           |                        | 1.15 V                            | 278                                 | 80.85                           | 8.52                                    |
| 3                                                              | 5350.00                | 52.8 PK                                | 68.2                      | -15.4                  | 1.15 V                            | 278                                 | 44.24                           | 8.57                                    |
| 4                                                              | 10640.00               | 52.1 PK                                | 74.0                      | -21.9                  | 1.59 V                            | 234                                 | 32.52                           | 19.62                                   |
| 5                                                              | 10640.00               | 41.9 AV                                | 54.0                      | -12.1                  | 1.59 V                            | 234                                 | 22.26                           | 19.62                                   |
| 6                                                              | 15960.00               | 58.5 PK                                | 74.0                      | -15.5                  | 1.48 V                            | 274                                 | 36.02                           | 22.44                                   |
| 7                                                              | 15960.00               | 46.5 AV                                | 54.0                      | -7.5                   | 1.48 V                            | 274                                 | 24.08                           | 22.44                                   |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* " : Fundamental frequency.



## 802.11n (40MHz)

|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 54 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5270.00       | 100.6 PK                      |                   |                | 1.87 H                   | 263                        | 92.14                  | 8.45                           |
| 2                                                   | *5270.00       | 88.2 AV                       |                   |                | 1.87 H                   | 263                        | 79.78                  | 8.45                           |
| 3                                                   | #10540.00      | 51.5 PK                       | 74.0              | -22.5          | 1.92 H                   | 271                        | 31.91                  | 19.57                          |
| 4                                                   | #10540.00      | 43.0 AV                       | 54.0              | -11.0          | 1.92 H                   | 271                        | 23.39                  | 19.57                          |
| 5                                                   | 15810.00       | 59.6 PK                       | 74.0              | -14.4          | 1.62 H                   | 221                        | 37.55                  | 22.09                          |
| 6                                                   | 15810.00       | 47.6 AV                       | 54.0              | -6.4           | 1.62 H                   | 221                        | 25.51                  | 22.09                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5270.00       | 98.0 PK                       |                   |                | 1.96 V                   | 254                        | 89.54                  | 8.45                           |
| 2                                                   | *5270.00       | 85.5 AV                       |                   |                | 1.96 V                   | 254                        | 77.03                  | 8.45                           |
| 3                                                   | #10540.00      | 51.6 PK                       | 74.0              | -22.4          | 2.14 V                   | 260                        | 32.07                  | 19.57                          |
| 4                                                   | #10540.00      | 42.5 AV                       | 54.0              | -11.5          | 2.14 V                   | 260                        | 22.93                  | 19.57                          |
| 5                                                   | 15810.00       | 60.5 PK                       | 74.0              | -13.5          | 1.96 V                   | 263                        | 38.42                  | 22.09                          |
| 6                                                   | 15810.00       | 47.6 AV                       | 54.0              | -6.4           | 1.96 V                   | 263                        | 25.53                  | 22.09                          |

## REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



**BUREAU  
VERITAS**

**Test Report No.: RF160712N001-3**

|                        |               |                              |              |
|------------------------|---------------|------------------------------|--------------|
| <b>CHANNEL</b>         | TX Channel 62 | <b>DETECTOR<br/>FUNCTION</b> | Peak (PK)    |
| <b>FREQUENCY RANGE</b> | 1GHz ~ 40GHz  |                              | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5310.00       | 100.1 PK                      |                   |                | 1.95 H                   | 87                         | 91.62                  | 8.51                           |
| 2                                                   | *5310.00       | 87.8 AV                       |                   |                | 1.95 H                   | 87                         | 79.27                  | 8.51                           |
| 3                                                   | 5350.00        | 63.9 PK                       | 68.2              | -4.3           | 1.95 H                   | 87                         | 55.28                  | 8.57                           |
| 4                                                   | 10620.00       | 58.4 PK                       | 74.0              | -15.6          | 2.00 H                   | 133                        | 38.80                  | 19.61                          |
| 5                                                   | 10620.00       | 47.0 AV                       | 54.0              | -7.0           | 2.00 H                   | 133                        | 27.38                  | 19.61                          |
| 6                                                   | 15930.00       | 62.6 PK                       | 74.0              | -11.4          | 1.47 H                   | 148                        | 40.18                  | 22.37                          |
| 7                                                   | 15930.00       | 47.6 AV                       | 54.0              | -6.4           | 1.47 H                   | 148                        | 25.21                  | 22.37                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5310.00       | 98.3 PK                       |                   |                | 1.84 V                   | 238                        | 89.77                  | 8.51                           |
| 2                                                   | *5310.00       | 86.2 AV                       |                   |                | 1.84 V                   | 238                        | 77.65                  | 8.51                           |
| 3                                                   | 5350.00        | 62.9 PK                       | 68.2              | -5.3           | 1.84 V                   | 238                        | 54.34                  | 8.57                           |
| 4                                                   | 10620.00       | 52.8 PK                       | 74.0              | -21.2          | 1.00 V                   | 306                        | 33.16                  | 19.61                          |
| 5                                                   | 10620.00       | 42.0 AV                       | 54.0              | -12.0          | 1.00 V                   | 306                        | 22.34                  | 19.61                          |
| 6                                                   | 15930.00       | 59.4 PK                       | 74.0              | -14.6          | 1.49 V                   | 263                        | 37.05                  | 22.37                          |
| 7                                                   | 15930.00       | 46.8 AV                       | 54.0              | -7.2           | 1.49 V                   | 263                        | 24.44                  | 22.37                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* " : Fundamental frequency.



## 802.11ac 80MHz

|                 |               |                      |              |
|-----------------|---------------|----------------------|--------------|
| CHANNEL         | TX Channel 58 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz  |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5290.00       | 97.1 PK                       |                   |                | 1.56 H                   | 203                        | 88.58                  | 8.49                           |
| 2                                                   | *5290.00       | 83.6 AV                       |                   |                | 1.56 H                   | 203                        | 75.10                  | 8.49                           |
| 3                                                   | 5350.00        | 65.5 PK                       | 68.2              | -2.7           | 1.56 H                   | 203                        | 56.92                  | 8.57                           |
| 4                                                   | #10580.00      | 52.5 PK                       | 74.0              | -21.5          | 2.16 H                   | 265                        | 32.89                  | 19.59                          |
| 5                                                   | #10580.00      | 41.0 AV                       | 54.0              | -13.0          | 2.16 H                   | 265                        | 21.41                  | 19.59                          |
| 6                                                   | 15870.00       | 60.5 PK                       | 74.0              | -13.5          | 1.74 H                   | 296                        | 38.29                  | 22.23                          |
| 7                                                   | 15870.00       | 47.3 AV                       | 54.0              | -6.7           | 1.74 H                   | 296                        | 25.02                  | 22.23                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5290.00       | 94.4 PK                       |                   |                | 1.63 V                   | 243                        | 85.91                  | 8.49                           |
| 2                                                   | *5290.00       | 81.6 AV                       |                   |                | 1.63 V                   | 243                        | 73.13                  | 8.49                           |
| 3                                                   | 5350.00        | 63.8 PK                       | 68.2              | -4.4           | 1.63 V                   | 243                        | 55.22                  | 8.57                           |
| 4                                                   | #10580.00      | 52.7 PK                       | 74.0              | -21.3          | 1.84 V                   | 263                        | 33.15                  | 19.59                          |
| 5                                                   | #10580.00      | 42.0 AV                       | 54.0              | -12.0          | 1.84 V                   | 263                        | 22.36                  | 19.59                          |
| 6                                                   | 15870.00       | 58.6 PK                       | 74.0              | -15.4          | 2.00 V                   | 184                        | 36.41                  | 22.23                          |
| 7                                                   | 15870.00       | 46.6 AV                       | 54.0              | -7.4           | 2.00 V                   | 184                        | 24.39                  | 22.23                          |

## REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



Band 3 (5470-5725MHz):

ABOVE 1GHz DATA

802.11a

|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 100 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5460.00        | 50.5 PK                       | 74.0              | -23.5          | 1.50 H                   | 0                          | 41.80                  | 8.74                           |
| 2                                                   | 5460.00        | 38.9 AV                       | 54.0              | -15.1          | 1.50 H                   | 0                          | 30.12                  | 8.74                           |
| 3                                                   | #5470.00       | 56.1 PK                       | 68.2              | -12.1          | 1.50 H                   | 0                          | 47.30                  | 8.75                           |
| 4                                                   | *5500.00       | 102.6 PK                      |                   |                | 1.50 H                   | 0                          | 93.82                  | 8.80                           |
| 5                                                   | *5500.00       | 91.2 AV                       |                   |                | 1.50 H                   | 0                          | 82.35                  | 8.80                           |
| 6                                                   | 11000.00       | 52.6 PK                       | 74.0              | -21.4          | 1.94 H                   | 78                         | 32.80                  | 19.80                          |
| 7                                                   | 11000.00       | 41.7 AV                       | 54.0              | -12.3          | 1.94 H                   | 78                         | 21.87                  | 19.80                          |
| 8                                                   | #16500.00      | 59.3 PK                       | 74.0              | -14.7          | 1.98 H                   | 230                        | 37.75                  | 21.57                          |
| 9                                                   | #16500.00      | 46.3 AV                       | 54.0              | -7.7           | 1.98 H                   | 230                        | 24.68                  | 21.57                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5460.00        | 50.4 PK                       | 74.0              | -23.6          | 1.56 V                   | 285                        | 41.70                  | 8.74                           |
| 2                                                   | 5460.00        | 39.3 AV                       | 54.0              | -14.7          | 1.56 V                   | 285                        | 30.58                  | 8.74                           |
| 3                                                   | #5470.00       | 57.8 PK                       | 68.2              | -10.4          | 1.56 V                   | 285                        | 49.06                  | 8.75                           |
| 4                                                   | *5500.00       | 102.7 PK                      |                   |                | 1.56 V                   | 285                        | 93.88                  | 8.80                           |
| 5                                                   | *5500.00       | 92.1 AV                       |                   |                | 1.56 V                   | 285                        | 83.26                  | 8.80                           |
| 6                                                   | 11000.00       | 53.1 PK                       | 74.0              | -20.9          | 1.63 V                   | 281                        | 33.34                  | 19.80                          |
| 7                                                   | 11000.00       | 43.6 AV                       | 54.0              | -10.4          | 1.63 V                   | 281                        | 23.82                  | 19.80                          |
| 8                                                   | #16500.00      | 60.3 PK                       | 74.0              | -13.7          | 1.95 V                   | 284                        | 38.75                  | 21.57                          |
| 9                                                   | #16500.00      | 46.9 AV                       | 54.0              | -7.1           | 1.95 V                   | 284                        | 25.32                  | 21.57                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



**BUREAU  
VERITAS**

**Test Report No.: RF160712N001-3**

|                        |                |                              |              |
|------------------------|----------------|------------------------------|--------------|
| <b>CHANNEL</b>         | TX Channel 116 | <b>DETECTOR<br/>FUNCTION</b> | Peak (PK)    |
| <b>FREQUENCY RANGE</b> | 1GHz ~ 40GHz   |                              | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5580.00       | 105.8 PK                      |                   |                | 2.10 H                   | 167                        | 96.54                  | 9.21                           |
| 2                                                   | *5580.00       | 94.6 AV                       |                   |                | 2.10 H                   | 167                        | 85.35                  | 9.21                           |
| 3                                                   | 11160.00       | 53.9 PK                       | 74.0              | -20.1          | 1.54 H                   | 255                        | 34.63                  | 19.27                          |
| 4                                                   | 11160.00       | 41.6 AV                       | 54.0              | -12.4          | 1.54 H                   | 255                        | 22.31                  | 19.27                          |
| 5                                                   | #16740.00      | 59.8 PK                       | 74.0              | -14.2          | 1.94 H                   | 282                        | 37.25                  | 22.57                          |
| 6                                                   | #16740.00      | 47.6 AV                       | 54.0              | -6.4           | 1.94 H                   | 282                        | 25.06                  | 22.57                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5580.00       | 99.2 PK                       |                   |                | 1.65 V                   | 132                        | 90.03                  | 9.21                           |
| 2                                                   | *5580.00       | 87.7 AV                       |                   |                | 1.65 V                   | 132                        | 78.47                  | 9.21                           |
| 3                                                   | 11160.00       | 54.6 PK                       | 74.0              | -19.4          | 1.84 V                   | 95                         | 35.35                  | 19.27                          |
| 4                                                   | 11160.00       | 42.3 AV                       | 54.0              | -11.7          | 1.84 V                   | 95                         | 23.03                  | 19.27                          |
| 5                                                   | #16740.00      | 58.4 PK                       | 74.0              | -15.6          | 1.84 V                   | 221                        | 35.85                  | 22.57                          |
| 6                                                   | #16740.00      | 48.0 AV                       | 54.0              | -6.0           | 1.84 V                   | 221                        | 25.41                  | 22.57                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.





|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 140 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5700.00       | 106.8 PK                      |                   |                | 1.85 H                   | 263                        | 96.97                  | 9.83                           |
| 2                                                   | *5700.00       | 95.5 AV                       |                   |                | 1.85 H                   | 263                        | 85.64                  | 9.83                           |
| 3                                                   | #5725.00       | 58.1 PK                       | 68.2              | -10.1          | 1.85 H                   | 263                        | 48.13                  | 9.96                           |
| 4                                                   | 11400.00       | 52.8 PK                       | 74.0              | -21.2          | 2.41 H                   | 195                        | 34.36                  | 18.48                          |
| 5                                                   | 11400.00       | 41.7 AV                       | 54.0              | -12.3          | 2.41 H                   | 195                        | 23.17                  | 18.48                          |
| 6                                                   | #17100.00      | 58.4 PK                       | 74.0              | -15.6          | 1.49 H                   | 235                        | 34.64                  | 23.78                          |
| 7                                                   | #17100.00      | 47.4 AV                       | 54.0              | -6.6           | 1.49 H                   | 235                        | 23.58                  | 23.78                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5700.00       | 98.9 PK                       |                   |                | 1.26 V                   | 247                        | 89.10                  | 9.83                           |
| 2                                                   | *5700.00       | 87.9 AV                       |                   |                | 1.26 V                   | 247                        | 78.05                  | 9.83                           |
| 3                                                   | #5725.00       | 53.4 PK                       | 68.2              | -14.8          | 1.26 V                   | 247                        | 43.46                  | 9.96                           |
| 4                                                   | 11400.00       | 52.1 PK                       | 74.0              | -21.9          | 1.96 V                   | 235                        | 33.66                  | 18.48                          |
| 5                                                   | 11400.00       | 42.0 AV                       | 54.0              | -12.0          | 1.96 V                   | 235                        | 23.48                  | 18.48                          |
| 6                                                   | #17100.00      | 59.6 PK                       | 74.0              | -14.4          | 1.57 V                   | 234                        | 35.84                  | 23.78                          |
| 7                                                   | #17100.00      | 47.7 AV                       | 54.0              | -6.3           | 1.57 V                   | 234                        | 23.87                  | 23.78                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



## 802.11n (20MHz)

|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 100 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5460.00        | 49.7 PK                       | 74.0              | -24.3          | 1.86 H                   | 293                        | 40.96                  | 8.74                           |
| 2                                                   | 5460.00        | 38.1 AV                       | 54.0              | -15.9          | 1.86 H                   | 293                        | 29.37                  | 8.74                           |
| 3                                                   | #5470.00       | 54.4 PK                       | 68.2              | -13.8          | 1.86 H                   | 293                        | 45.67                  | 8.75                           |
| 4                                                   | *5500.00       | 101.5 PK                      |                   |                | 1.86 H                   | 293                        | 92.71                  | 8.80                           |
| 5                                                   | *5500.00       | 89.9 AV                       |                   |                | 1.86 H                   | 293                        | 81.11                  | 8.80                           |
| 6                                                   | 11000.00       | 52.3 PK                       | 74.0              | -21.7          | 1.65 H                   | 289                        | 32.53                  | 19.80                          |
| 7                                                   | 11000.00       | 42.2 AV                       | 54.0              | -11.8          | 1.65 H                   | 289                        | 22.36                  | 19.80                          |
| 8                                                   | #16500.00      | 60.3 PK                       | 74.0              | -13.7          | 1.75 H                   | 296                        | 38.75                  | 21.57                          |
| 9                                                   | #16500.00      | 48.6 AV                       | 54.0              | -5.4           | 1.75 H                   | 296                        | 27.05                  | 21.57                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5460.00        | 49.8 PK                       | 74.0              | -24.2          | 1.68 V                   | 325                        | 41.10                  | 8.74                           |
| 2                                                   | 5460.00        | 38.2 AV                       | 54.0              | -15.8          | 1.68 V                   | 325                        | 29.49                  | 8.74                           |
| 3                                                   | #5470.00       | 53.9 PK                       | 68.2              | -14.3          | 1.68 V                   | 325                        | 45.15                  | 8.75                           |
| 4                                                   | *5500.00       | 102.1 PK                      |                   |                | 1.68 V                   | 325                        | 93.29                  | 8.80                           |
| 5                                                   | *5500.00       | 90.7 AV                       |                   |                | 1.68 V                   | 325                        | 81.87                  | 8.80                           |
| 6                                                   | 11000.00       | 51.7 PK                       | 74.0              | -22.3          | 1.54 V                   | 223                        | 31.88                  | 19.80                          |
| 7                                                   | 11000.00       | 40.3 AV                       | 54.0              | -13.7          | 1.54 V                   | 223                        | 20.50                  | 19.80                          |
| 8                                                   | #16500.00      | 58.4 PK                       | 74.0              | -15.6          | 1.60 V                   | 285                        | 36.84                  | 21.57                          |
| 9                                                   | #16500.00      | 46.9 AV                       | 54.0              | -7.1           | 1.60 V                   | 285                        | 25.33                  | 21.57                          |

## REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                        |                |                              |              |
|------------------------|----------------|------------------------------|--------------|
| <b>CHANNEL</b>         | TX Channel 116 | <b>DETECTOR<br/>FUNCTION</b> | Peak (PK)    |
| <b>FREQUENCY RANGE</b> | 1GHz ~ 40GHz   |                              | Average (AV) |

| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                        |                                        |                           |                        |                                   |                                     |                                 |                                         |
|----------------------------------------------------------------|------------------------|----------------------------------------|---------------------------|------------------------|-----------------------------------|-------------------------------------|---------------------------------|-----------------------------------------|
| <b>NO.</b>                                                     | <b>FREQ.<br/>(MHz)</b> | <b>EMISSION<br/>LEVEL<br/>(dBuV/m)</b> | <b>LIMIT<br/>(dBuV/m)</b> | <b>MARGIN<br/>(dB)</b> | <b>ANTENNA<br/>HEIGHT<br/>(m)</b> | <b>TABLE<br/>ANGLE<br/>(Degree)</b> | <b>RAW<br/>VALUE<br/>(dBuV)</b> | <b>CORRECTION<br/>FACTOR<br/>(dB/m)</b> |
| 1                                                              | *5580.00               | 103.2 PK                               |                           |                        | 1.98 H                            | 186                                 | 94.02                           | 9.21                                    |
| 2                                                              | *5580.00               | 92.3 AV                                |                           |                        | 1.98 H                            | 186                                 | 83.04                           | 9.21                                    |
| 3                                                              | 11160.00               | 52.2 PK                                | 74.0                      | -21.8                  | 1.54 H                            | 205                                 | 32.94                           | 19.27                                   |
| 4                                                              | 11160.00               | 42.6 AV                                | 54.0                      | -11.4                  | 1.54 H                            | 205                                 | 23.32                           | 19.27                                   |
| 5                                                              | #16740.00              | 60.6 PK                                | 74.0                      | -13.4                  | 1.77 H                            | 321                                 | 38.01                           | 22.57                                   |
| 6                                                              | #16740.00              | 47.3 AV                                | 54.0                      | -6.7                   | 1.77 H                            | 321                                 | 24.75                           | 22.57                                   |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>   |                        |                                        |                           |                        |                                   |                                     |                                 |                                         |
| <b>NO.</b>                                                     | <b>FREQ.<br/>(MHz)</b> | <b>EMISSION<br/>LEVEL<br/>(dBuV/m)</b> | <b>LIMIT<br/>(dBuV/m)</b> | <b>MARGIN<br/>(dB)</b> | <b>ANTENNA<br/>HEIGHT<br/>(m)</b> | <b>TABLE<br/>ANGLE<br/>(Degree)</b> | <b>RAW<br/>VALUE<br/>(dBuV)</b> | <b>CORRECTION<br/>FACTOR<br/>(dB/m)</b> |
| 1                                                              | *5580.00               | 98.0 PK                                |                           |                        | 1.69 V                            | 247                                 | 88.83                           | 9.21                                    |
| 2                                                              | *5580.00               | 87.2 AV                                |                           |                        | 1.69 V                            | 247                                 | 77.96                           | 9.21                                    |
| 3                                                              | 11160.00               | 51.7 PK                                | 74.0                      | -22.3                  | 1.54 V                            | 148                                 | 32.38                           | 19.27                                   |
| 4                                                              | 11160.00               | 42.5 AV                                | 54.0                      | -11.5                  | 1.54 V                            | 148                                 | 23.24                           | 19.27                                   |
| 5                                                              | #16740.00              | 59.5 PK                                | 74.0                      | -14.5                  | 1.98 V                            | 201                                 | 36.90                           | 22.57                                   |
| 6                                                              | #16740.00              | 46.9 AV                                | 54.0                      | -7.1                   | 1.98 V                            | 201                                 | 24.30                           | 22.57                                   |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 140 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5700.00       | 106.0 PK                      |                   |                | 1.88 H                   | 263                        | 96.12                  | 9.83                           |
| 2                                                   | *5700.00       | 94.4 AV                       |                   |                | 1.88 H                   | 263                        | 84.58                  | 9.83                           |
| 3                                                   | #5725.00       | 57.6 PK                       | 68.2              | -10.6          | 1.88 H                   | 263                        | 47.67                  | 9.96                           |
| 4                                                   | 11400.00       | 52.8 PK                       | 74.0              | -21.2          | 1.96 H                   | 248                        | 34.33                  | 18.48                          |
| 5                                                   | 11400.00       | 42.0 AV                       | 54.0              | -12.0          | 1.96 H                   | 248                        | 23.47                  | 18.48                          |
| 6                                                   | #17100.00      | 58.5 PK                       | 74.0              | -15.5          | 1.85 H                   | 230                        | 34.69                  | 23.78                          |
| 7                                                   | #17100.00      | 46.2 AV                       | 54.0              | -7.8           | 1.85 H                   | 230                        | 22.44                  | 23.78                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5700.00       | 99.7 PK                       |                   |                | 1.80 V                   | 78                         | 89.88                  | 9.83                           |
| 2                                                   | *5700.00       | 88.7 AV                       |                   |                | 1.80 V                   | 78                         | 78.83                  | 9.83                           |
| 3                                                   | #5725.00       | 54.0 PK                       | 68.2              | -14.2          | 1.80 V                   | 78                         | 44.05                  | 9.96                           |
| 4                                                   | 11400.00       | 51.5 PK                       | 74.0              | -22.5          | 1.85 V                   | 236                        | 33.00                  | 18.48                          |
| 5                                                   | 11400.00       | 42.7 AV                       | 54.0              | -11.3          | 1.85 V                   | 236                        | 24.17                  | 18.48                          |
| 6                                                   | #17100.00      | 59.4 PK                       | 74.0              | -14.6          | 2.05 V                   | 165                        | 35.62                  | 23.78                          |
| 7                                                   | #17100.00      | 48.3 AV                       | 54.0              | -5.7           | 2.05 V                   | 165                        | 24.54                  | 23.78                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



802.11n (40MHz)

|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 102 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5460.00        | 55.1 PK                       | 74.0              | -18.9          | 1.25 H                   | 301                        | 46.36                  | 8.74                           |
| 2                                                   | 5460.00        | 42.0 AV                       | 54.0              | -12.0          | 1.25 H                   | 301                        | 33.21                  | 8.74                           |
| 3                                                   | #5470.00       | 61.3 PK                       | 68.2              | -6.9           | 1.25 H                   | 301                        | 52.50                  | 8.75                           |
| 4                                                   | *5510.00       | 98.7 PK                       |                   |                | 1.25 H                   | 301                        | 89.80                  | 8.85                           |
| 5                                                   | *5510.00       | 87.0 AV                       |                   |                | 1.25 H                   | 301                        | 78.17                  | 8.85                           |
| 6                                                   | 11020.00       | 54.8 PK                       | 74.0              | -19.2          | 1.09 H                   | 235                        | 35.06                  | 19.74                          |
| 7                                                   | 11020.00       | 43.2 AV                       | 54.0              | -10.8          | 1.09 H                   | 235                        | 23.41                  | 19.74                          |
| 8                                                   | #16530.00      | 58.7 PK                       | 74.0              | -15.3          | 1.85 H                   | 89                         | 37.03                  | 21.69                          |
| 9                                                   | #16530.00      | 47.3 AV                       | 54.0              | -6.7           | 1.85 H                   | 89                         | 25.61                  | 21.69                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5460.00        | 55.7 PK                       | 74.0              | -18.3          | 1.00 V                   | 0                          | 47.00                  | 8.74                           |
| 2                                                   | 5460.00        | 41.4 AV                       | 54.0              | -12.6          | 1.00 V                   | 0                          | 32.67                  | 8.74                           |
| 3                                                   | #5470.00       | 59.5 PK                       | 68.2              | -8.7           | 1.00 V                   | 0                          | 50.76                  | 8.75                           |
| 4                                                   | *5510.00       | 99.2 PK                       |                   |                | 1.00 V                   | 0                          | 90.31                  | 8.85                           |
| 5                                                   | *5510.00       | 87.2 AV                       |                   |                | 1.00 V                   | 0                          | 78.33                  | 8.85                           |
| 6                                                   | 11020.00       | 51.3 PK                       | 74.0              | -22.7          | 1.59 V                   | 216                        | 31.52                  | 19.74                          |
| 7                                                   | 11020.00       | 42.5 AV                       | 54.0              | -11.5          | 1.59 V                   | 216                        | 22.77                  | 19.74                          |
| 8                                                   | #16530.00      | 59.3 PK                       | 74.0              | -14.7          | 1.84 V                   | 276                        | 37.61                  | 21.69                          |
| 9                                                   | #16530.00      | 48.2 AV                       | 54.0              | -5.8           | 1.84 V                   | 276                        | 26.51                  | 21.69                          |

## REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 110 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5550.00       | 102.1 PK                      |                   |                | 1.16 H                   | 258                        | 92.78                  | 9.27                           |
| 2                                                   | *5550.00       | 89.5 AV                       |                   |                | 1.16 H                   | 258                        | 80.25                  | 9.27                           |
| 3                                                   | 11100.00       | 52.1 PK                       | 74.0              | -21.9          | 1.59 H                   | 276                        | 32.93                  | 19.21                          |
| 4                                                   | 11100.00       | 42.4 AV                       | 54.0              | -11.6          | 1.59 H                   | 276                        | 23.15                  | 19.21                          |
| 5                                                   | #16650.00      | 58.6 PK                       | 74.0              | -15.4          | 1.93 H                   | 185                        | 35.86                  | 22.69                          |
| 6                                                   | #16650.00      | 46.4 AV                       | 54.0              | -7.6           | 1.93 H                   | 185                        | 23.68                  | 22.69                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5550.00       | 99.9 PK                       |                   |                | 1.47 V                   | 263                        | 90.64                  | 9.27                           |
| 2                                                   | *5550.00       | 87.8 AV                       |                   |                | 1.47 V                   | 263                        | 78.48                  | 9.27                           |
| 3                                                   | 11100.00       | 54.6 PK                       | 74.0              | -19.4          | 1.48 V                   | 98                         | 35.41                  | 19.21                          |
| 4                                                   | 11100.00       | 41.5 AV                       | 54.0              | -12.5          | 1.48 V                   | 98                         | 22.29                  | 19.21                          |
| 5                                                   | #16650.00      | 59.3 PK                       | 74.0              | -14.7          | 1.85 V                   | 302                        | 36.61                  | 22.69                          |
| 6                                                   | #16650.00      | 47.6 AV                       | 54.0              | -6.4           | 1.85 V                   | 302                        | 24.87                  | 22.69                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 134 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5670.00       | 102.7 PK                      |                   |                | 1.00 H                   | 327                        | 92.97                  | 9.68                           |
| 2                                                   | *5670.00       | 90.5 AV                       |                   |                | 1.00 H                   | 327                        | 80.84                  | 9.68                           |
| 3                                                   | #5725.00       | 58.3 PK                       | 68.2              | -9.9           | 1.00 H                   | 327                        | 48.29                  | 9.96                           |
| 4                                                   | 11340.00       | 53.0 PK                       | 74.0              | -21.0          | 1.70 H                   | 128                        | 34.31                  | 18.69                          |
| 5                                                   | 11340.00       | 42.3 AV                       | 54.0              | -11.7          | 1.70 H                   | 128                        | 23.61                  | 18.69                          |
| 6                                                   | #17010.00      | 59.3 PK                       | 74.0              | -14.7          | 1.85 H                   | 263                        | 35.68                  | 23.66                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5670.00       | 95.9 PK                       |                   |                | 1.95 V                   | 230                        | 86.18                  | 9.68                           |
| 2                                                   | *5670.00       | 84.5 AV                       |                   |                | 1.95 V                   | 230                        | 74.85                  | 9.68                           |
| 3                                                   | #5725.00       | 54.2 PK                       | 68.2              | -14.0          | 1.95 V                   | 230                        | 44.28                  | 9.96                           |
| 4                                                   | 11340.00       | 51.9 PK                       | 74.0              | -22.2          | 1.85 V                   | 326                        | 33.16                  | 18.69                          |
| 5                                                   | 11340.00       | 41.9 AV                       | 54.0              | -12.1          | 1.85 V                   | 326                        | 23.21                  | 18.69                          |
| 6                                                   | #17010.00      | 60.3 PK                       | 74.0              | -13.7          | 1.93 V                   | 224                        | 36.65                  | 23.66                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



Test Report No.: RF160712N001-3

# 802.11ac 80MHz

|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 106 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5670.00       | 102.7 PK                      |                   |                | 1.00 H                   | 327                        | 92.97                  | 9.68                           |
| 2                                                   | *5670.00       | 90.5 AV                       |                   |                | 1.00 H                   | 327                        | 80.84                  | 9.68                           |
| 3                                                   | #5725.00       | 58.3 PK                       | 68.2              | -9.9           | 1.00 H                   | 327                        | 48.29                  | 9.96                           |
| 4                                                   | 11340.00       | 53.0 PK                       | 74.0              | -21.0          | 1.70 H                   | 128                        | 34.31                  | 18.69                          |
| 5                                                   | 11340.00       | 42.3 AV                       | 54.0              | -11.7          | 1.70 H                   | 128                        | 23.61                  | 18.69                          |
| 6                                                   | #17010.00      | 59.3 PK                       | 74.0              | -14.7          | 1.85 H                   | 263                        | 35.68                  | 23.66                          |
| 7                                                   | #17010.00      | 47.6 AV                       | 54.0              | -6.4           | 1.85 H                   | 263                        | 23.95                  | 23.66                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5670.00       | 95.9 PK                       |                   |                | 1.95 V                   | 230                        | 86.18                  | 9.68                           |
| 2                                                   | *5670.00       | 84.5 AV                       |                   |                | 1.95 V                   | 230                        | 74.85                  | 9.68                           |
| 3                                                   | #5725.00       | 54.2 PK                       | 68.2              | -14.0          | 1.95 V                   | 230                        | 44.28                  | 9.96                           |
| 4                                                   | 11340.00       | 51.9 PK                       | 74.0              | -22.1          | 1.85 V                   | 326                        | 33.16                  | 18.69                          |
| 5                                                   | 11340.00       | 41.9 AV                       | 54.0              | -12.1          | 1.85 V                   | 326                        | 23.21                  | 18.69                          |
| 6                                                   | #17010.00      | 60.3 PK                       | 74.0              | -13.7          | 1.93 V                   | 224                        | 36.65                  | 23.66                          |
| 7                                                   | #17010.00      | 47.8 AV                       | 54.0              | -6.2           | 1.93 V                   | 224                        | 24.14                  | 23.66                          |

## REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.





Band 4 (5725-5850MHz):

ABOVE 1GHz DATA

802.11a

|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 149 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5715.00        | 58.6 PK                       | 68.2              | -9.6           | 1.56 H                   | 273                        | 48.69                  | 9.91                           |
| 2                                                   | 5725.00        | 74.8 PK                       | 78.2              | -3.4           | 1.56 H                   | 273                        | 64.89                  | 9.91                           |
| 3                                                   | *5745.00       | 100.8 PK                      |                   |                | 1.56 H                   | 273                        | 90.73                  | 10.06                          |
| 4                                                   | *5745.00       | 89.2 AV                       |                   |                | 1.56 H                   | 273                        | 79.09                  | 10.06                          |
| 5                                                   | 11490.00       | 53.1 PK                       | 74.0              | -21.1          | 1.85 H                   | 236                        | 34.86                  | 18.19                          |
| 6                                                   | 11490.00       | 39.3 AV                       | 54.0              | -14.7          | 1.85 H                   | 236                        | 21.06                  | 18.19                          |
| 7                                                   | #17235.00      | 60.8 PK                       | 74.0              | -13.2          | 1.50 H                   | 254                        | 36.81                  | 23.96                          |
| 8                                                   | #17235.00      | 47.7 AV                       | 54.0              | -6.3           | 1.50 H                   | 254                        | 23.69                  | 23.96                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5715.00        | 46.3 PK                       | 68.2              | -21.9          | 1.00 V                   | 231                        | 36.39                  | 9.91                           |
| 2                                                   | 5725.00        | 62.8 PK                       | 78.2              | -15.4          | 1.00 V                   | 231                        | 52.89                  | 9.91                           |
| 3                                                   | *5745.00       | 97.4 PK                       |                   |                | 1.00 V                   | 231                        | 87.34                  | 10.06                          |
| 4                                                   | *5745.00       | 85.9 AV                       |                   |                | 1.00 V                   | 231                        | 75.84                  | 10.06                          |
| 5                                                   | 11490.00       | 53.6 PK                       | 74.0              | -20.4          | 1.14 V                   | 230                        | 35.41                  | 18.19                          |
| 6                                                   | 11490.00       | 39.1 AV                       | 54.0              | -15.1          | 1.14 V                   | 230                        | 20.91                  | 18.19                          |
| 7                                                   | #17235.00      | 60.4 PK                       | 74.0              | -13.6          | 1.64 V                   | 208                        | 36.44                  | 23.96                          |
| 8                                                   | #17235.00      | 48.7 AV                       | 54.0              | -5.3           | 1.64 V                   | 208                        | 24.74                  | 23.96                          |

## REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                        |                |                              |              |
|------------------------|----------------|------------------------------|--------------|
| <b>CHANNEL</b>         | TX Channel 157 | <b>DETECTOR<br/>FUNCTION</b> | Peak (PK)    |
| <b>FREQUENCY RANGE</b> | 1GHz ~ 40GHz   |                              | Average (AV) |

| <b>ANTENNA POLARITY &amp; TEST DISTANCE: HORIZONTAL AT 3 M</b> |                |                               |                   |                |                          |                            |                        |                                |
|----------------------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                            | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                              | *5785.00       | 102.6 PK                      |                   |                | 2.05 H                   | 324                        | 92.28                  | 10.27                          |
| 2                                                              | *5785.00       | 90.8 AV                       |                   |                | 2.05 H                   | 324                        | 80.52                  | 10.27                          |
| 3                                                              | 11570.00       | 54.0 PK                       | 74.0              | -20.0          | 1.96 H                   | 230                        | 35.71                  | 18.25                          |
| 4                                                              | 11570.00       | 39.5 AV                       | 54.0              | -14.5          | 1.96 H                   | 230                        | 21.28                  | 18.25                          |
| 5                                                              | #17355.00      | 60.2 PK                       | 74.0              | -13.8          | 1.85 H                   | 264                        | 36.11                  | 24.12                          |
| 6                                                              | #17355.00      | 48.0 AV                       | 54.0              | -6.0           | 1.85 H                   | 264                        | 23.89                  | 24.12                          |
| <b>ANTENNA POLARITY &amp; TEST DISTANCE: VERTICAL AT 3 M</b>   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                            | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                              | *5785.00       | 99.9 PK                       |                   |                | 2.36 V                   | 102                        | 89.60                  | 10.27                          |
| 2                                                              | *5785.00       | 87.0 AV                       |                   |                | 2.36 V                   | 102                        | 76.75                  | 10.27                          |
| 3                                                              | 11570.00       | 54.5 PK                       | 74.0              | -19.5          | 1.74 V                   | 301                        | 36.24                  | 18.25                          |
| 4                                                              | 11570.00       | 39.5 AV                       | 54.0              | -14.5          | 1.74 V                   | 301                        | 21.20                  | 18.25                          |
| 5                                                              | #17355.00      | 60.9 PK                       | 74.0              | -13.1          | 1.84 V                   | 219                        | 36.82                  | 24.12                          |
| 6                                                              | #17355.00      | 48.0 AV                       | 54.0              | -6.0           | 1.84 V                   | 219                        | 23.86                  | 24.12                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 165 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5825.00       | 100.3 PK                      |                   |                | 1.74 H                   | 203                        | 89.82                  | 10.48                          |
| 2                                                   | *5825.00       | 88.9 AV                       |                   |                | 1.74 H                   | 203                        | 78.42                  | 10.48                          |
| 3                                                   | 5850.00        | 54.3 PK                       | 78.2              | -23.9          | 1.74 H                   | 203                        | 43.69                  | 10.61                          |
| 4                                                   | 5860.00        | 48.0 PK                       | 68.2              | -20.2          | 1.74 H                   | 203                        | 37.39                  | 10.61                          |
| 5                                                   | 11650.00       | 54.8 PK                       | 74.0              | -19.2          | 1.54 H                   | 237                        | 36.45                  | 18.35                          |
| 6                                                   | 11650.00       | 40.6 AV                       | 54.0              | -13.4          | 1.54 H                   | 237                        | 22.25                  | 18.35                          |
| 7                                                   | #17475.00      | 59.2 PK                       | 74.0              | -14.8          | 1.64 H                   | 302                        | 34.92                  | 24.28                          |
| 8                                                   | #17475.00      | 48.6 AV                       | 54.0              | -5.4           | 1.64 H                   | 302                        | 24.32                  | 24.28                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5825.00       | 95.2 PK                       |                   |                | 1.95 V                   | 325                        | 84.72                  | 10.48                          |
| 2                                                   | *5825.00       | 84.7 AV                       |                   |                | 1.95 V                   | 325                        | 74.22                  | 10.48                          |
| 3                                                   | 5850.00        | 48.5 PK                       | 78.2              | -29.7          | 1.95 V                   | 325                        | 37.89                  | 10.61                          |
| 4                                                   | 5860.00        | 47.5 PK                       | 68.2              | -20.7          | 1.95 V                   | 325                        | 36.89                  | 10.61                          |
| 5                                                   | 11650.00       | 53.5 PK                       | 74.0              | -20.5          | 1.58 V                   | 360                        | 35.15                  | 18.35                          |
| 6                                                   | 11650.00       | 39.6 AV                       | 54.0              | -14.4          | 1.58 V                   | 360                        | 21.25                  | 18.35                          |
| 7                                                   | #17475.00      | 61.7 PK                       | 74.0              | -12.3          | 1.62 V                   | 238                        | 37.42                  | 24.28                          |
| 8                                                   | #17475.00      | 47.3 AV                       | 54.0              | -6.7           | 1.62 V                   | 238                        | 23.02                  | 24.28                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



## 802.11n (20MHz)

|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 149 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5715.00        | 57.5 PK                       | 68.2              | -10.7          | 1.95 H                   | 230                        | 47.59                  | 9.91                           |
| 2                                                   | 5725.00        | 74.3 PK                       | 78.2              | -3.9           | 1.95 H                   | 230                        | 64.39                  | 9.91                           |
| 3                                                   | *5745.00       | 100.5 PK                      |                   |                | 1.95 H                   | 230                        | 90.44                  | 10.06                          |
| 4                                                   | *5745.00       | 89.4 AV                       |                   |                | 1.95 H                   | 230                        | 79.34                  | 10.06                          |
| 5                                                   | 11490.00       | 54.6 PK                       | 74.0              | -19.4          | 1.95 H                   | 263                        | 36.41                  | 18.19                          |
| 6                                                   | 11490.00       | 40.4 AV                       | 54.0              | -13.6          | 1.95 H                   | 263                        | 22.21                  | 18.19                          |
| 7                                                   | #17235.00      | 61.5 PK                       | 74.0              | -12.5          | 1.52 H                   | 79                         | 37.54                  | 23.96                          |
| 8                                                   | #17235.00      | 46.3 AV                       | 54.0              | -7.7           | 1.52 H                   | 79                         | 22.34                  | 23.96                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5715.00        | 47.6 PK                       | 68.2              | -20.6          | 1.56 V                   | 203                        | 37.69                  | 9.91                           |
| 2                                                   | 5725.00        | 61.9 PK                       | 78.2              | -16.3          | 1.56 V                   | 203                        | 51.99                  | 9.91                           |
| 3                                                   | *5745.00       | 92.6 PK                       |                   |                | 1.56 V                   | 203                        | 82.54                  | 10.06                          |
| 4                                                   | *5745.00       | 82.4 AV                       |                   |                | 1.56 V                   | 203                        | 72.34                  | 10.06                          |
| 5                                                   | 11490.00       | 54.7 PK                       | 74.0              | -19.3          | 2.05 V                   | 302                        | 36.51                  | 18.19                          |
| 6                                                   | 11490.00       | 39.3 AV                       | 54.0              | -14.7          | 2.05 V                   | 302                        | 21.11                  | 18.19                          |
| 7                                                   | #17235.00      | 61.5 PK                       | 74.0              | -12.5          | 1.98 V                   | 270                        | 37.54                  | 23.96                          |
| 8                                                   | #17235.00      | 47.6 AV                       | 54.0              | -6.4           | 1.98 V                   | 270                        | 23.64                  | 23.96                          |

## REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 157 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5785.00       | 101.4 PK                      |                   |                | 1.69 H                   | 274                        | 91.14                  | 10.27                          |
| 2                                                   | *5785.00       | 89.6 AV                       |                   |                | 1.69 H                   | 274                        | 79.36                  | 10.27                          |
| 3                                                   | 11570.00       | 53.6 PK                       | 74.0              | -20.4          | 1.53 H                   | 248                        | 35.37                  | 18.25                          |
| 4                                                   | 11570.00       | 41.5 AV                       | 54.0              | -12.5          | 1.53 H                   | 248                        | 23.27                  | 18.25                          |
| 5                                                   | #17355.00      | 61.4 PK                       | 74.0              | -12.6          | 1.63 H                   | 202                        | 37.23                  | 24.12                          |
| 6                                                   | #17355.00      | 46.5 AV                       | 54.0              | -7.5           | 1.63 H                   | 202                        | 22.39                  | 24.12                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5785.00       | 96.9 PK                       |                   |                | 1.85 V                   | 234                        | 86.65                  | 10.27                          |
| 2                                                   | *5785.00       | 85.6 AV                       |                   |                | 1.85 V                   | 234                        | 75.29                  | 10.27                          |
| 3                                                   | 11570.00       | 55.3 PK                       | 74.0              | -18.7          | 1.85 V                   | 248                        | 37.07                  | 18.25                          |
| 4                                                   | 11570.00       | 40.0 AV                       | 54.0              | -14.0          | 1.85 V                   | 248                        | 21.76                  | 18.25                          |
| 5                                                   | #17355.00      | 60.4 PK                       | 74.0              | -13.6          | 1.95 V                   | 215                        | 36.25                  | 24.12                          |
| 6                                                   | #17355.00      | 46.6 AV                       | 54.0              | -7.4           | 1.95 V                   | 215                        | 22.51                  | 24.12                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



**BUREAU  
VERITAS**

**Test Report No.: RF160712N001-3**

|                        |                |                              |              |
|------------------------|----------------|------------------------------|--------------|
| <b>CHANNEL</b>         | TX Channel 165 | <b>DETECTOR<br/>FUNCTION</b> | Peak (PK)    |
| <b>FREQUENCY RANGE</b> | 1GHz ~ 40GHz   |                              | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5825.00       | 99.4 PK                       |                   |                | 2.36 H                   | 100                        | 88.92                  | 10.48                          |
| 2                                                   | *5825.00       | 88.2 AV                       |                   |                | 2.36 H                   | 100                        | 77.72                  | 10.48                          |
| 3                                                   | 5850.00        | 55.4 PK                       | 78.2              | -22.8          | 2.56 H                   | 100                        | 44.79                  | 10.61                          |
| 4                                                   | 5860.00        | 47.9 PK                       | 68.2              | -20.3          | 2.56 H                   | 100                        | 37.29                  | 10.61                          |
| 5                                                   | 11650.00       | 51.8 PK                       | 74.0              | -22.2          | 2.03 H                   | 221                        | 33.45                  | 18.35                          |
| 6                                                   | 11650.00       | 38.5 AV                       | 54.0              | -15.5          | 2.03 H                   | 221                        | 20.15                  | 18.35                          |
| 7                                                   | #17475.00      | 60.9 PK                       | 74.0              | -13.1          | 1.96 H                   | 253                        | 36.62                  | 24.28                          |
| 8                                                   | #17475.00      | 46.5 AV                       | 54.0              | -7.5           | 1.96 H                   | 253                        | 22.22                  | 24.28                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5825.00       | 95.4 PK                       |                   |                | 1.96 V                   | 249                        | 84.92                  | 10.48                          |
| 2                                                   | *5825.00       | 89.0 AV                       |                   |                | 1.96 V                   | 249                        | 78.52                  | 10.48                          |
| 3                                                   | 5850.00        | 49.6 PK                       | 78.2              | -28.6          | 1.96 V                   | 249                        | 38.99                  | 10.61                          |
| 4                                                   | 5860.00        | 47.6 PK                       | 68.2              | -20.6          | 1.96 V                   | 249                        | 36.99                  | 10.61                          |
| 5                                                   | 11650.00       | 51.5 PK                       | 74.0              | -22.5          | 1.47 V                   | 253                        | 33.15                  | 18.35                          |
| 6                                                   | 11650.00       | 39.2 AV                       | 54.0              | -14.8          | 1.47 V                   | 253                        | 20.85                  | 18.35                          |
| 7                                                   | #17475.00      | 58.5 PK                       | 74.0              | -15.5          | 1.85 V                   | 152                        | 34.22                  | 24.28                          |
| 8                                                   | #17475.00      | 45.5 AV                       | 54.0              | -8.5           | 1.85 V                   | 152                        | 21.22                  | 24.28                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



## 802.11n (40MHz)

|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 151 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5715.00        | 64.7 PK                       | 68.2              | -3.5           | 1.84 H                   | 296                        | 54.79                  | 9.91                           |
| 2                                                   | 5725.00        | 70.5 PK                       | 78.2              | -7.7           | 1.84 H                   | 296                        | 60.59                  | 9.91                           |
| 3                                                   | *5755.00       | 98.3 PK                       |                   |                | 1.84 H                   | 296                        | 88.18                  | 10.12                          |
| 4                                                   | *5755.00       | 86.2 AV                       |                   |                | 1.84 H                   | 296                        | 76.08                  | 10.12                          |
| 5                                                   | 11510.00       | 53.6 PK                       | 74.0              | -20.4          | 1.69 H                   | 284                        | 35.43                  | 18.17                          |
| 6                                                   | 11510.00       | 41.6 AV                       | 54.0              | -12.4          | 1.69 H                   | 284                        | 23.43                  | 18.17                          |
| 7                                                   | #17265.00      | 60.4 PK                       | 74.0              | -13.6          | 1.48 H                   | 263                        | 36.40                  | 24.00                          |
| 8                                                   | #17265.00      | 48.3 AV                       | 54.0              | -5.7           | 1.48 H                   | 263                        | 24.30                  | 24.00                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5715.00        | 53.6 PK                       | 68.2              | -14.6          | 2.63 V                   | 153                        | 43.69                  | 9.91                           |
| 2                                                   | 5725.00        | 58.6 PK                       | 78.2              | -19.6          | 2.63 V                   | 153                        | 48.69                  | 9.91                           |
| 3                                                   | *5755.00       | 93.3 PK                       |                   |                | 2.63 V                   | 153                        | 83.18                  | 10.12                          |
| 4                                                   | *5755.00       | 82.3 AV                       |                   |                | 2.63 V                   | 153                        | 72.18                  | 10.12                          |
| 5                                                   | 11510.00       | 53.3 PK                       | 74.0              | -20.7          | 2.63 V                   | 148                        | 35.13                  | 18.17                          |
| 6                                                   | 11510.00       | 38.4 AV                       | 54.0              | -15.6          | 2.63 V                   | 148                        | 20.23                  | 18.17                          |
| 7                                                   | #17265.00      | 58.4 PK                       | 74.0              | -15.6          | 1.85 V                   | 203                        | 34.40                  | 24.00                          |
| 8                                                   | #17265.00      | 47.6 AV                       | 54.0              | -6.4           | 1.85 V                   | 203                        | 23.60                  | 24.00                          |

## REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 159 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5795.00       | 98.9 PK                       |                   |                | 1.10 H                   | 125                        | 88.58                  | 10.32                          |
| 2                                                   | *5795.00       | 86.8 AV                       |                   |                | 1.10 H                   | 125                        | 76.48                  | 10.32                          |
| 3                                                   | 5850.00        | 55.6 PK                       | 78.2              | -22.6          | 1.10 H                   | 125                        | 44.99                  | 10.61                          |
| 4                                                   | 5860.00        | 49.0 PK                       | 68.2              | -19.2          | 1.10 H                   | 125                        | 38.39                  | 10.61                          |
| 5                                                   | 11590.00       | 54.9 PK                       | 74.0              | -19.2          | 1.56 H                   | 254                        | 36.63                  | 18.27                          |
| 6                                                   | 11590.00       | 38.4 AV                       | 54.0              | -15.6          | 1.56 H                   | 254                        | 20.13                  | 18.27                          |
| 7                                                   | #17385.00      | 60.8 PK                       | 74.0              | -13.2          | 1.20 H                   | 306                        | 36.65                  | 24.15                          |
| 8                                                   | #17385.00      | 46.5 AV                       | 54.0              | -7.5           | 1.20 H                   | 306                        | 22.35                  | 24.15                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | *5795.00       | 94.2 PK                       |                   |                | 2.63 V                   | 215                        | 83.88                  | 10.32                          |
| 2                                                   | *5795.00       | 82.6 AV                       |                   |                | 2.63 V                   | 215                        | 72.28                  | 10.32                          |
| 3                                                   | 5850.00        | 48.3 PK                       | 78.2              | -29.9          | 2.63 V                   | 215                        | 37.69                  | 10.61                          |
| 4                                                   | 5860.00        | 47.1 PK                       | 68.2              | -21.1          | 2.63 V                   | 215                        | 36.49                  | 10.61                          |
| 5                                                   | 11590.00       | 53.6 PK                       | 74.0              | -20.4          | 1.74 V                   | 202                        | 35.33                  | 18.27                          |
| 6                                                   | 11590.00       | 39.9 AV                       | 54.0              | -14.1          | 1.74 V                   | 202                        | 21.63                  | 18.27                          |
| 7                                                   | #17385.00      | 59.2 PK                       | 74.0              | -14.8          | 1.65 V                   | 230                        | 35.05                  | 24.15                          |
| 8                                                   | #17385.00      | 45.8 AV                       | 54.0              | -8.2           | 1.65 V                   | 230                        | 21.65                  | 24.15                          |

**REMARKS:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.





## 802.11ac 80MHz

|                 |                |                      |              |
|-----------------|----------------|----------------------|--------------|
| CHANNEL         | TX Channel 155 | DETECTOR<br>FUNCTION | Peak (PK)    |
| FREQUENCY RANGE | 1GHz ~ 40GHz   |                      | Average (AV) |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |                |                               |                   |                |                          |                            |                        |                                |
|-----------------------------------------------------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5715.00        | 65.5 PK                       | 68.2              | -2.7           | 1.95 H                   | 140                        | 55.59                  | 9.91                           |
| 2                                                   | 5725.00        | 70.6 PK                       | 78.2              | -7.6           | 1.95 H                   | 140                        | 60.69                  | 9.91                           |
| 3                                                   | *5775.00       | 94.8 PK                       |                   |                | 1.95 H                   | 140                        | 84.58                  | 10.22                          |
| 4                                                   | *5775.00       | 81.5 AV                       |                   |                | 1.95 H                   | 140                        | 71.28                  | 10.22                          |
| 5                                                   | 5850.00        | 68.5 PK                       | 78.2              | -9.7           | 1.95 H                   | 140                        | 57.89                  | 10.61                          |
| 6                                                   | 5860.00        | 62.8 PK                       | 68.2              | -5.4           | 1.95 H                   | 140                        | 52.19                  | 10.61                          |
| 7                                                   | 11550.00       | 52.1 PK                       | 74.0              | -21.9          | 2.15 H                   | 302                        | 33.88                  | 18.22                          |
| 8                                                   | 11550.00       | 38.0 AV                       | 54.0              | -16.0          | 2.15 H                   | 302                        | 19.78                  | 18.22                          |
| 9                                                   | #17325.00      | 58.5 PK                       | 74.0              | -15.5          | 1.69 H                   | 300                        | 34.42                  | 24.08                          |
| 10                                                  | #17325.00      | 47.3 AV                       | 54.0              | -6.7           | 1.69 H                   | 300                        | 23.22                  | 24.08                          |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |                |                               |                   |                |                          |                            |                        |                                |
| NO.                                                 | FREQ.<br>(MHz) | EMISSION<br>LEVEL<br>(dBuV/m) | LIMIT<br>(dBuV/m) | MARGIN<br>(dB) | ANTENNA<br>HEIGHT<br>(m) | TABLE<br>ANGLE<br>(Degree) | RAW<br>VALUE<br>(dBuV) | CORRECTION<br>FACTOR<br>(dB/m) |
| 1                                                   | 5715.00        | 60.8 PK                       | 68.2              | -7.4           | 1.62 V                   | 208                        | 50.89                  | 9.91                           |
| 2                                                   | 5725.00        | 61.3 PK                       | 78.2              | -16.9          | 1.62 V                   | 208                        | 51.39                  | 9.91                           |
| 3                                                   | *5775.00       | 90.8 PK                       |                   |                | 1.62 V                   | 208                        | 80.58                  | 10.22                          |
| 4                                                   | *5775.00       | 77.5 AV                       |                   |                | 1.62 V                   | 208                        | 67.28                  | 10.22                          |
| 5                                                   | 5850.00        | 64.9 PK                       | 78.2              | -13.3          | 1.62 V                   | 208                        | 54.29                  | 10.61                          |
| 6                                                   | 5860.00        | 63.6 PK                       | 68.2              | -4.6           | 1.62 V                   | 208                        | 52.99                  | 10.61                          |
| 7                                                   | 11550.00       | 54.0 PK                       | 74.0              | -20.0          | 1.65 V                   | 201                        | 35.78                  | 18.22                          |
| 8                                                   | 11550.00       | 41.3 AV                       | 54.0              | -12.7          | 1.65 V                   | 201                        | 23.08                  | 18.22                          |
| 9                                                   | #17325.00      | 60.3 PK                       | 74.0              | -13.7          | 1.49 V                   | 284                        | 36.22                  | 24.08                          |
| 10                                                  | #17325.00      | 48.3 AV                       | 54.0              | -5.7           | 1.49 V                   | 284                        | 24.22                  | 24.08                          |

## REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. " \* ": Fundamental frequency.
6. " # ": The radiated frequency is out of the restricted band.



## 3.2 CONDUCTED EMISSION MEASUREMENT

### 3.2.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

| FREQUENCY OF EMISSION (MHz) | CONDUCTED LIMIT (dB $\mu$ V) |          |
|-----------------------------|------------------------------|----------|
|                             | Quasi-peak                   | Average  |
| 0.15 ~ 0.5                  | 66 to 56                     | 56 to 46 |
| 0.5 ~ 5                     | 56                           | 46       |
| 5 ~ 30                      | 60                           | 50       |

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
  2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.
  3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

### 3.2.2 TEST INSTRUMENTS

| Equipment                | Manufacturer  | Model No.       | Serial No.  | Last Cal.  | Next Cal.  |
|--------------------------|---------------|-----------------|-------------|------------|------------|
| EMI Test Receiver        | Rohde&Schwarz | ESR7            | 101588      | Jan. 22,16 | Jan. 21,17 |
| Artificial Mains Network | Rohde&Schwarz | ENV216          | 101173      | Mar. 04,16 | Mar. 03,17 |
| Artificial Mains Network | Rohde&Schwarz | ESH3-Z5         | 100317      | Apr. 05,16 | Apr. 04,17 |
| Voltage probe            | SCHWARZBEC K  | TK 9421         | TK 9421-176 | Jan. 08,16 | Jan. 07,17 |
| Test software            | ADT           | ADT_Conc_V7.3.7 | N/A         | N/A        | N/A        |

- NOTE:**
1. The test was performed in shielded room 553.
  2. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.



### 3.2.3 TEST PROCEDURES

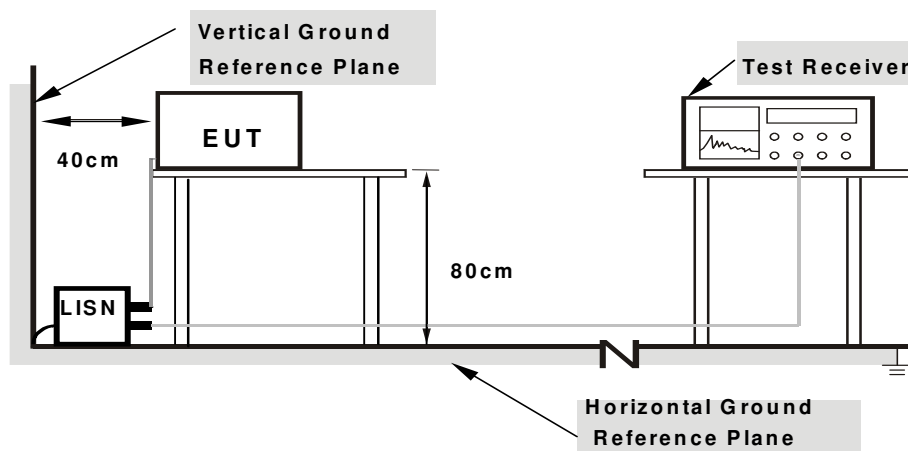
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

**NOTE:** All modes of operation were investigated and the worst-case emissions are reported.

### 3.2.4 DEVIATION FROM TEST STANDARD

No deviation.

### 3.2.5 TEST SETUP



**Note:** 1.Support units were connected to second LISN.  
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80  
from other units and other metal planes

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

### 3.2.6 EUT OPERATING CONDITIONS

Same as 3.1.6



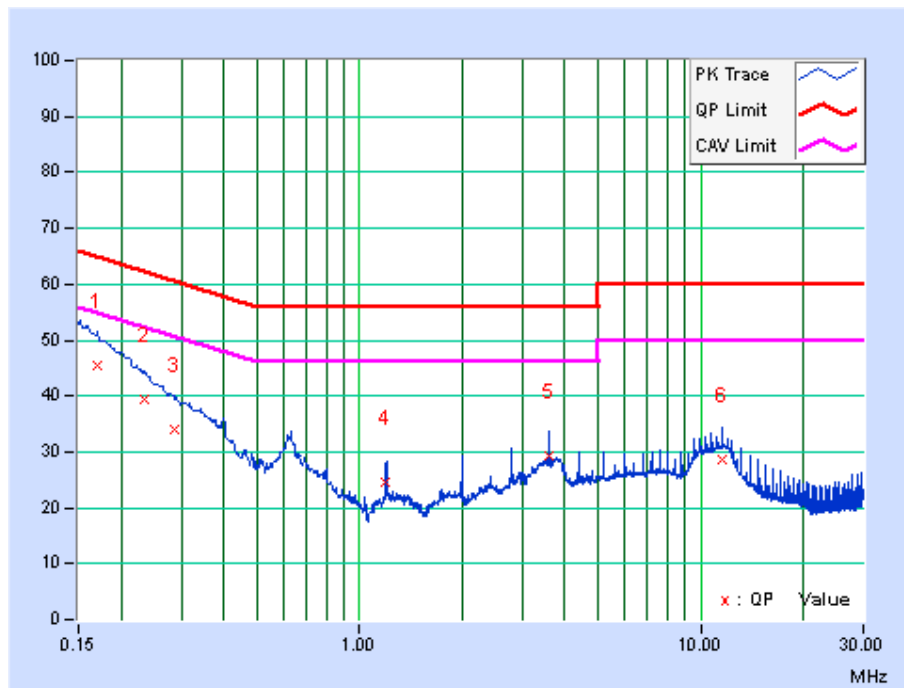
## 3.2.7 TEST RESULTS

## CONDUCTED WORST-CASE DATA: 802.11a

|       |      |               |      |
|-------|------|---------------|------|
| PHASE | Line | 6dB BANDWIDTH | 9kHz |
|-------|------|---------------|------|

| No | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value |       | Emission Level |       | Limit     |       | Margin |        |
|----|----------------|-------------------------|---------------|-------|----------------|-------|-----------|-------|--------|--------|
|    |                |                         | [dB (uV)]     |       | [dB (uV)]      |       | [dB (uV)] |       | (dB)   |        |
|    |                |                         | Q.P.          | AV.   | Q.P.           | AV.   | Q.P.      | AV.   | Q.P.   | AV.    |
| 1  | 0.17025        | 10.04                   | 35.53         | 15.56 | 45.57          | 25.60 | 64.95     | 54.95 | -19.38 | -29.35 |
| 2  | 0.23290        | 10.05                   | 29.34         | 11.08 | 39.39          | 21.13 | 62.35     | 52.35 | -22.95 | -31.21 |
| 3  | 0.28541        | 10.07                   | 23.92         | 8.49  | 33.99          | 18.56 | 60.66     | 50.66 | -26.67 | -32.10 |
| 4  | 1.19706        | 10.14                   | 14.56         | 12.92 | 24.70          | 23.06 | 56.00     | 46.00 | -31.30 | -22.94 |
| 5  | 3.59250        | 10.15                   | 19.22         | 15.55 | 29.37          | 25.70 | 56.00     | 46.00 | -26.63 | -20.30 |
| 6  | 11.58450       | 10.18                   | 18.50         | 13.40 | 28.68          | 23.58 | 60.00     | 50.00 | -31.32 | -26.42 |

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. The emission levels of other frequencies were very low against the limit.
  3. Margin value = Emission level - Limit value
  4. Correction factor = Insertion loss + Cable loss
  5. Emission Level = Correction Factor + Reading Value.

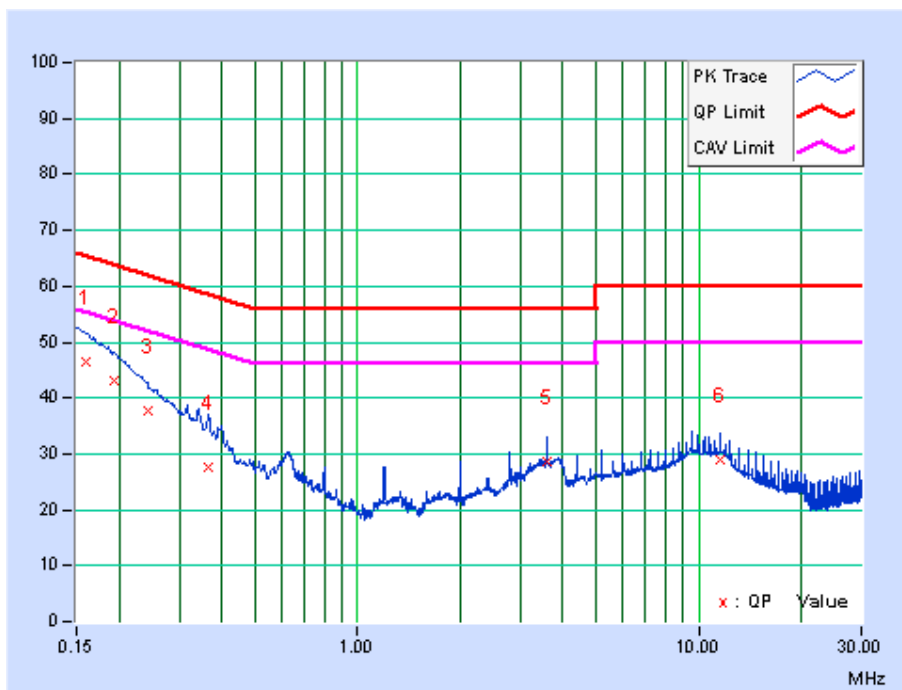




|       |         |               |      |
|-------|---------|---------------|------|
| PHASE | Neutral | 6dB BANDWIDTH | 9kHz |
|-------|---------|---------------|------|

| No | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value |       | Emission Level |       | Limit     |       | Margin |        |
|----|----------------|-------------------------|---------------|-------|----------------|-------|-----------|-------|--------|--------|
|    |                |                         | [dB (uV)]     |       | [dB (uV)]      |       | [dB (uV)] |       | (dB)   |        |
|    |                |                         | Q.P.          | AV.   | Q.P.           | AV.   | Q.P.      | AV.   | Q.P.   | AV.    |
| 1  | 0.15900        | 9.84                    | 36.69         | 16.54 | 46.53          | 26.38 | 65.52     | 55.52 | -18.99 | -29.14 |
| 2  | 0.19258        | 9.84                    | 33.21         | 13.77 | 43.05          | 23.61 | 63.92     | 53.92 | -20.87 | -30.31 |
| 3  | 0.24167        | 9.84                    | 27.71         | 10.85 | 37.55          | 20.69 | 62.04     | 52.04 | -24.49 | -31.35 |
| 4  | 0.36581        | 9.84                    | 17.76         | 4.85  | 27.60          | 14.69 | 58.60     | 48.60 | -31.00 | -33.91 |
| 5  | 3.59250        | 9.90                    | 18.58         | 14.26 | 28.48          | 24.16 | 56.00     | 46.00 | -27.52 | -21.84 |
| 6  | 11.58450       | 10.11                   | 18.74         | 13.82 | 28.85          | 23.93 | 60.00     | 50.00 | -31.15 | -26.07 |

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
  2. The emission levels of other frequencies were very low against the limit.
  3. Margin value = Emission level - Limit value
  4. Correction factor = Insertion loss + Cable loss
  5. Emission Level = Correction Factor + Reading Value.





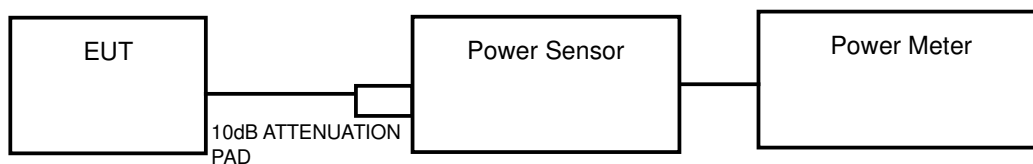
### 3.3 TRANSMIT POWER MEASUREMENT

#### 3.3.1 LIMITS OF TRANSMIT POWER MEASUREMENT

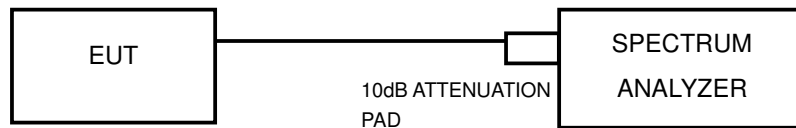
| Operation Band | EUT Category |                                   | LIMIT                                                                                                                       |
|----------------|--------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| U-NII-1        |              | Outdoor Access Point              | 1 Watt (30 dBm)<br>(Max. e.i.r.p $\leq$ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon) |
|                |              | Fixed point-to-point Access Point | 1 Watt (30 dBm)                                                                                                             |
|                |              | Indoor Access Point               | 1 Watt (30 dBm)                                                                                                             |
|                | √            | Mobile and Portable client device | 250mW (24 dBm)                                                                                                              |
| U-NII-2A       | √            |                                   | 250mW(24dBm) or 11 dBm+10LogB*                                                                                              |
| U-NII-2C       | √            |                                   | 250mW(24dBm) or 11 dBm+10LogB*                                                                                              |
| U-NII-3        | √            |                                   | 1 Watt (30 dBm)                                                                                                             |

**NOTE:** 1. Where B is the 26dB emission bandwidth in MHz.

#### 3.3.2 TEST SETUP



#### FOR 6/26dB BANDWIDTH





## 3.3.3 TEST INSTRUMENTS

| Equipment                        | Manufacturer    | Model No. | Serial No. | Last Cal.   | Next Cal.   |
|----------------------------------|-----------------|-----------|------------|-------------|-------------|
| Power Sensor                     | Keysight        | U2021XA   | MY55060016 | May 04,16   | May 03,17   |
| Power Sensor                     | Keysight        | U2021XA   | MY55060018 | May 04,16   | May 03,17   |
| Digital Multimeter               | FLUKE           | 15B       | A1220010DG | Oct. 12, 15 | Oct.11, 16  |
| Humid & Temp Programmable Tester | Haida           | HD-2257   | 110807201  | Sep.07,15   | Sep. 06,16  |
| Oscilloscope                     | Agilent         | DSO9254A  | MY51260160 | Nov. 28,15  | Nov. 27,16  |
| Signal Analyzer                  | Rohde & Schwarz | FSV7      | 102331     | Nov. 09,15  | Nov. 08,16  |
| Signal Generator                 | Agilent         | N5183A    | MY50140980 | Nov. 09,15  | Nov. 08,16  |
| Agile Signal Generator           | Agilent         | 8645A     | Agilent    | Aug.08, 16  | Aug.07, 17  |
| ESG Vector Signal Generator      | Agilent         | E4438C    | MY49072505 | Apr. 22, 16 | Apr. 21, 17 |
| BLUETOOTH TESTER                 | Rohde&Schwarz   | CBT32     | 100811     | Aug.08, 16  | Aug.07, 17  |

**NOTE:**

1. The test was performed in RF Oven room.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

## 3.3.4 TEST PROCEDURE

**FOR AVERAGE POWER MEASUREMENT**

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

**FOR 26dB BANDWIDTH**

- 1) Set RBW = approximately 1% of the emission bandwidth.
- 2) Set the VBW > RBW.
- 3) Detector = RMS.
- 4) Trace mode = max hold.
- 5) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.



#### **FOR 6dB BANDWIDTH**

- 1) Set RBW = 100 kHz.
- 2) Set the video bandwidth (VBW)  $\geq 3$  RBW.
- 3) Detector = Peak.
- 4) Trace mode = max hold.
- 5) Sweep = auto couple.
- 6) Allow the trace to stabilize.
- 7) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

#### **3.3.5 DEVIATION FROM TEST STANDARD**

No deviation.

#### **3.3.6 EUT OPERATING CONDITIONS**

The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.





Test Report No.: RF160712N001-3

### 3.3.7 TEST RESULTS

#### OUTPUT POWER:

802.11a

| Channel Number | FREQ. (MHz) | AVG. CONDUCTED POWER (dBm) | LIMIT (dBm) | PASS /FAIL |
|----------------|-------------|----------------------------|-------------|------------|
| 36             | 5180        | 18.34                      | 24.00       | PASS       |
| 40             | 5200        | 18.64                      | 24.00       | PASS       |
| 48             | 5240        | 18.56                      | 24.00       | PASS       |
| 52             | 5260        | 18.39                      | 24.00       | PASS       |
| 60             | 5300        | 18.62                      | 24.00       | PASS       |
| 64             | 5320        | 18.75                      | 24.00       | PASS       |
| 100            | 5500        | 19.02                      | 24.00       | PASS       |
| 116            | 5580        | 18.98                      | 24.00       | PASS       |
| 140            | 5700        | 19.11                      | 24.00       | PASS       |
| 149            | 5745        | 18.56                      | 30.00       | PASS       |
| 157            | 5785        | 18.84                      | 30.00       | PASS       |
| 165            | 5825        | 18.93                      | 30.00       | PASS       |

For Band 2~Band 3: Limit =  $11\text{dBm} + 10\log(26\text{ BW}) = 11 + 10\log(20.05) = 24.02\text{dBm} > 24\text{dBm}$

**802.11n (20MHz)**

| Channel Number | FREQ. (MHz) | AVG. CONDUCTED POWER (dBm) | LIMIT (dBm) | PASS /FAIL |
|----------------|-------------|----------------------------|-------------|------------|
| 36             | 5180        | 18.64                      | 24.00       | PASS       |
| 40             | 5200        | 18.55                      | 24.00       | PASS       |
| 48             | 5240        | 18.76                      | 24.00       | PASS       |
| 52             | 5260        | 18.68                      | 24.00       | PASS       |
| 60             | 5300        | 18.69                      | 24.00       | PASS       |
| 64             | 5320        | <b>18.86</b>               | 24.00       | PASS       |
| 100            | 5500        | 19.08                      | 24.00       | PASS       |
| 116            | 5580        | <b>19.14</b>               | 24.00       | PASS       |
| 140            | 5700        | 19.06                      | 24.00       | PASS       |
| 149            | 5745        | 18.62                      | 30.00       | PASS       |
| 157            | 5785        | 18.78                      | 30.00       | PASS       |
| 165            | 5825        | 18.92                      | 30.00       | PASS       |

**For Band 2~Band 3: Limit = 11dBm+10log(26 BW)=11+10log(20.05)=24.02dBm > 24dBm**

**802.11n (40MHz)**

| Channel Number | FREQ. (MHz) | AVG. CONDUCTED POWER (dBm) | LIMIT (dBm) | PASS /FAIL |
|----------------|-------------|----------------------------|-------------|------------|
| 38             | 5190        | 18.74                      | 24.00       | PASS       |
| 46             | 5230        | 18.65                      | 24.00       | PASS       |
| 54             | 5270        | 18.59                      | 24.00       | PASS       |
| 62             | 5310        | 18.83                      | 24.00       | PASS       |
| 102            | 5510        | 19.02                      | 24.00       | PASS       |
| 110            | 5550        | 18.96                      | 24.00       | PASS       |
| 134            | 5670        | 19.07                      | 24.00       | PASS       |
| 151            | 5755        | 18.66                      | 30.00       | PASS       |
| 159            | 5795        | 18.73                      | 30.00       | PASS       |

**802.11ac (80MHz)**

| Channel Number | FREQ. (MHz) | AVG. CONDUCTED POWER (dBm) | LIMIT (dBm) | PASS /FAIL |
|----------------|-------------|----------------------------|-------------|------------|
| 42             | 5210        | <b>18.86</b>               | 24.00       | PASS       |
| 58             | 5290        | 18.75                      | 24.00       | PASS       |
| 106            | 5530        | 18.90                      | 24.00       | PASS       |
| 155            | 5775        | 18.85                      | 30.00       | PASS       |



## 26dB BANDWIDTH:

### 802.11a

| Channel Number | Freq. (MHz) | 26dB DOWN BANDWIDTH (MHz) | PASS /FAIL |
|----------------|-------------|---------------------------|------------|
| 36             | 5180        | 20.26                     | PASS       |
| 40             | 5200        | 20.07                     | PASS       |
| 48             | 5240        | 20.20                     | PASS       |
| 52             | 5260        | 20.24                     | PASS       |
| 60             | 5300        | 20.19                     | PASS       |
| 64             | 5320        | 20.17                     | PASS       |
| 100            | 5500        | 20.29                     | PASS       |
| 116            | 5580        | 20.05                     | PASS       |
| 140            | 5700        | 20.17                     | PASS       |

### 802.11n (20MHz)

| Channel Number | Freq. (MHz) | 26dB DOWN BANDWIDTH (MHz) | PASS /FAIL |
|----------------|-------------|---------------------------|------------|
| 36             | 5180        | 20.44                     | PASS       |
| 40             | 5200        | 20.49                     | PASS       |
| 48             | 5240        | 20.31                     | PASS       |
| 52             | 5260        | 20.35                     | PASS       |
| 60             | 5300        | 20.49                     | PASS       |
| 64             | 5320        | 20.45                     | PASS       |
| 100            | 5500        | 20.35                     | PASS       |
| 116            | 5580        | 20.47                     | PASS       |
| 140            | 5700        | 20.40                     | PASS       |

**802.11n (40MHz)**

| Channel Number | Freq. (MHz) | 26dB DOWN BANDWIDTH (MHz) | PASS /FAIL |
|----------------|-------------|---------------------------|------------|
| 38             | 5190        | 41.65                     | PASS       |
| 46             | 5230        | 41.90                     | PASS       |
| 54             | 5270        | 41.68                     | PASS       |
| 62             | 5310        | 41.68                     | PASS       |
| 102            | 5510        | 41.82                     | PASS       |
| 110            | 5550        | 42.03                     | PASS       |
| 134            | 5670        | 57.43                     | PASS       |

**802.11ac (80MHz)**

| Channel Number | Freq. (MHz) | 26dB DOWN BANDWIDTH (MHz) | PASS /FAIL |
|----------------|-------------|---------------------------|------------|
| 42             | 5210        | 155.48                    | PASS       |
| 58             | 5290        | 151.15                    | PASS       |
| 106            | 5530        | 159.02                    | PASS       |

**6dB BANDWIDTH For 5725-5850MHz****802.11a**

| Channel Number | Freq. (MHz) | 6dB DOWN BANDWIDTH (MHz) | PASS /FAIL |
|----------------|-------------|--------------------------|------------|
| 149            | 5745        | 16.36                    | PASS       |
| 157            | 5785        | 16.40                    | PASS       |
| 165            | 5825        | 16.41                    | PASS       |

**802.11n (20M)**

| Channel Number | Freq. (MHz) | 6dB DOWN BANDWIDTH (MHz) | PASS /FAIL |
|----------------|-------------|--------------------------|------------|
| 149            | 5745        | 17.36                    | PASS       |
| 157            | 5785        | 17.37                    | PASS       |
| 165            | 5825        | 17.60                    | PASS       |

**802.11n (40M)**

| Channel Number | Freq. (MHz) | 6dB DOWN BANDWIDTH (MHz) | PASS /FAIL |
|----------------|-------------|--------------------------|------------|
| 151            | 5755        | 35.58                    | PASS       |
| 159            | 5795        | 35.36                    | PASS       |

**802.11ac (80MHz)**

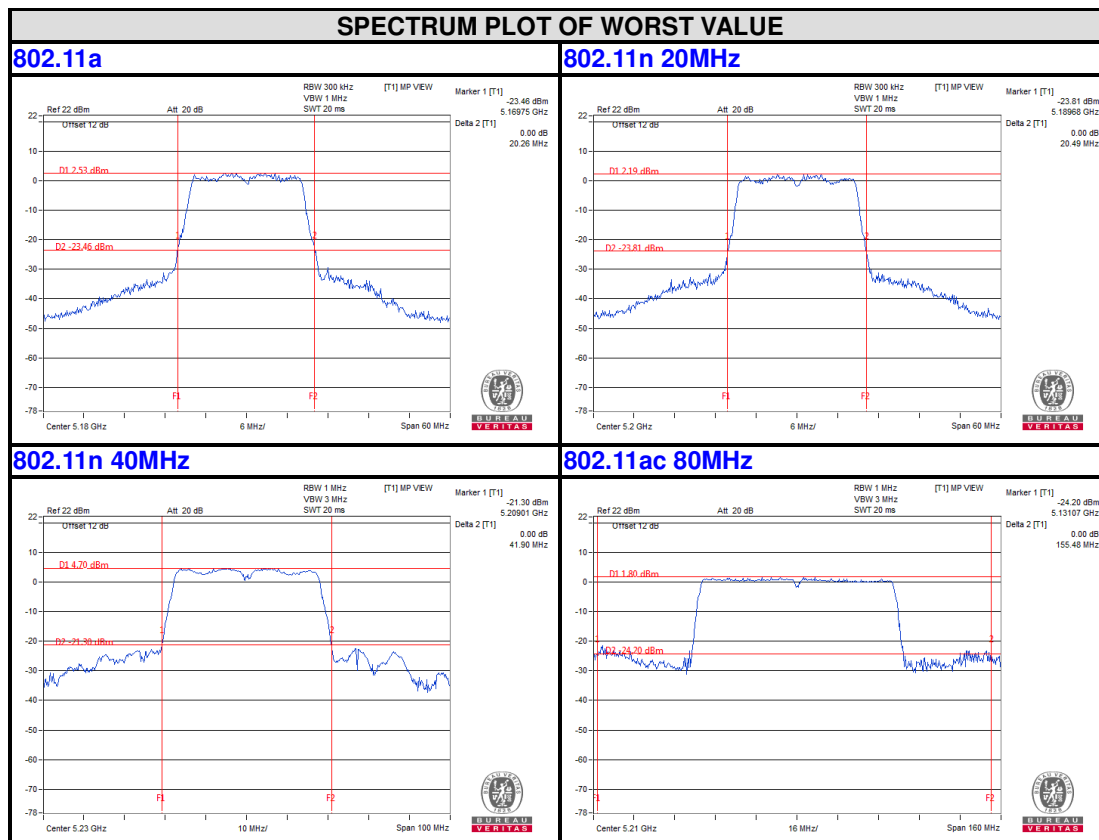
| Channel Number | Freq. (MHz) | 6dB DOWN BANDWIDTH (MHz) | PASS /FAIL |
|----------------|-------------|--------------------------|------------|
| 155            | 5775        | 76.27                    | PASS       |



BUREAU  
VERITAS

Test Report No.: RF160712N001-3

26dB bandwidth Test Plot  
For 5150-5250MHz worst plot



Bureau Veritas Shenzhen Co., Ltd.  
Dongguan Branch

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Town, Dongguan City,  
Guangdong 523942, China

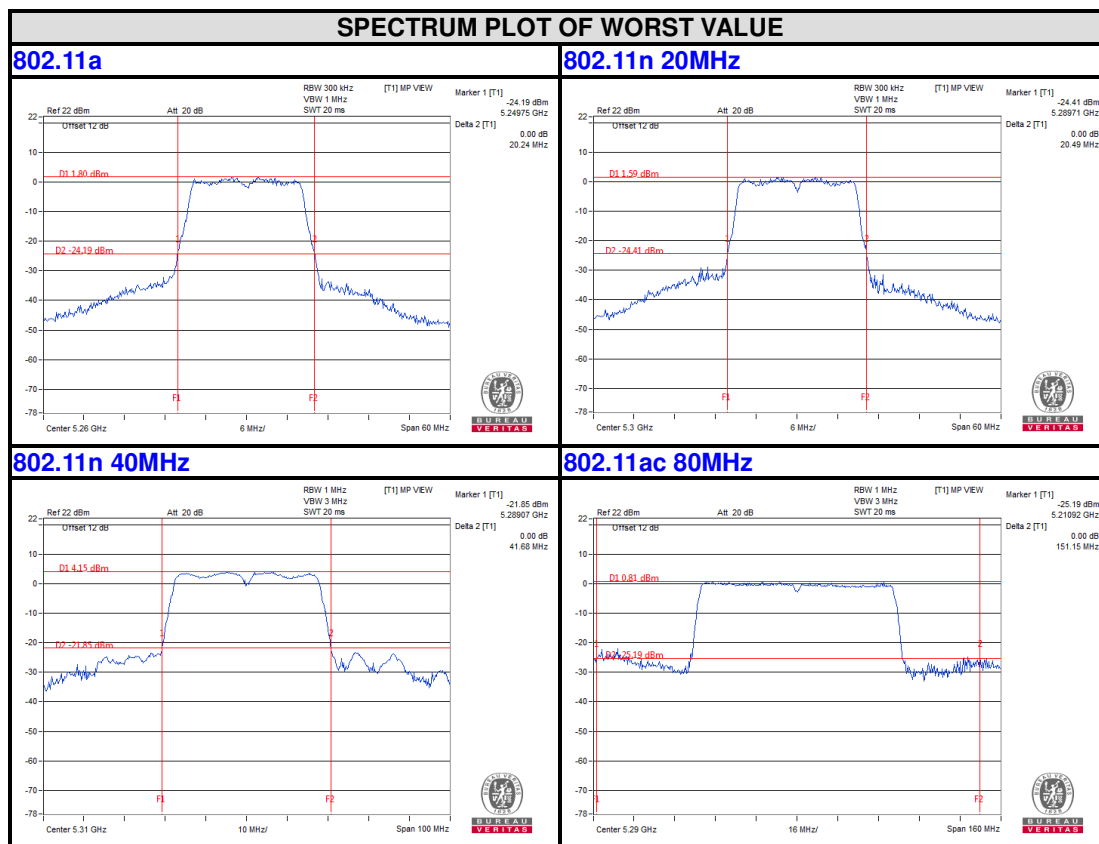
Tel: +86 769 8593 5656  
Fax: +86 769 8593 1080  
Email: [customerservice.dg@cn.bureauveritas.com](mailto:customerservice.dg@cn.bureauveritas.com)



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Test Report No.: RF160712N001-3

For 5250-5350MHz



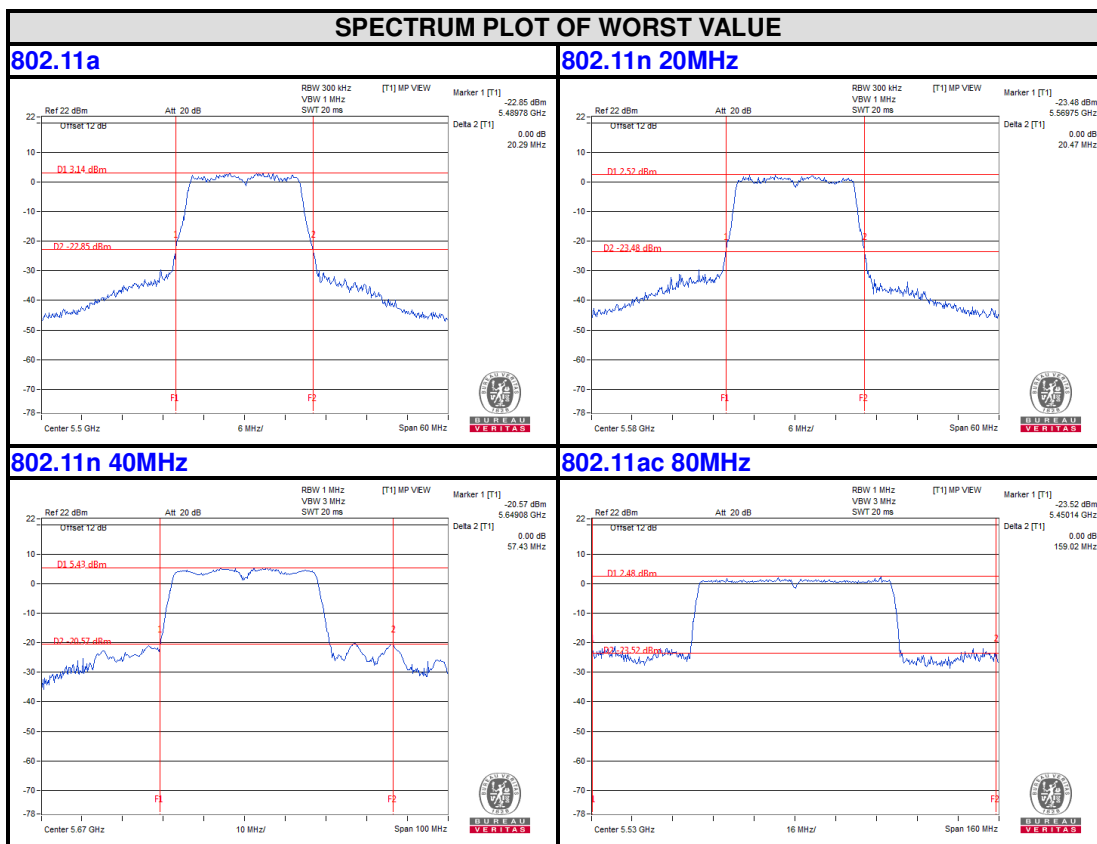




BUREAU  
VERITAS

Test Report No.: RF160712N001-3

For 5470-5725MHz



Bureau Veritas Shenzhen Co., Ltd.  
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Town, Dongguan City,  
Guangdong 523942, China

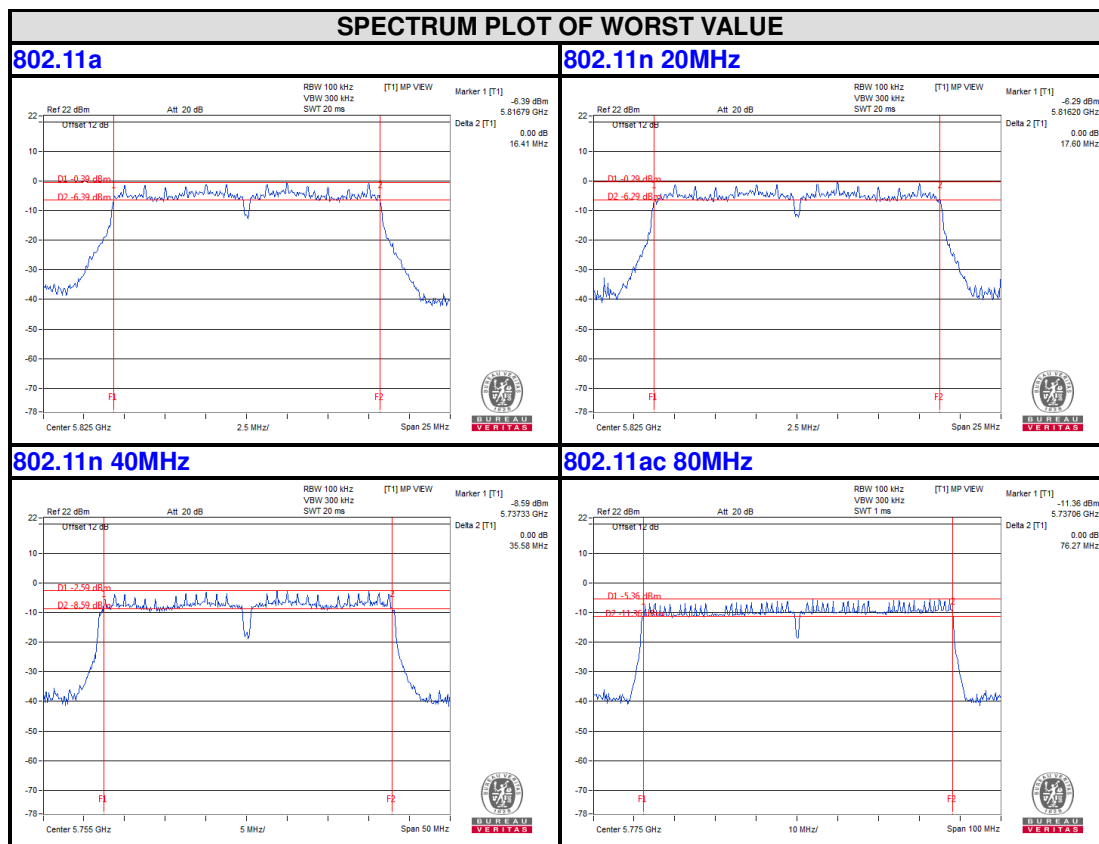
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VERITAS

Test Report No.: RF160712N001-3

### 6dB BANDWIDTH For 5725-5850MHz



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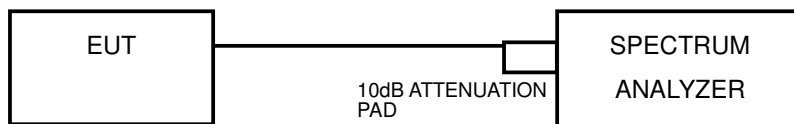


### 3.4 PEAK POWER SPECTRAL DENSITY MEASUREMENT

#### 3.4.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT

| Operation Band | EUT Category |                                   | LIMIT         |
|----------------|--------------|-----------------------------------|---------------|
| U-NII-1        |              | Outdoor Access Point              | 17dBm/ MHz    |
|                |              | Fixed point-to-point Access Point |               |
|                |              | Indoor Access Point               |               |
|                | √            | Mobile and Portable client device | 11dBm/ MHz    |
| U-NII-2A       | √            |                                   | 11dBm/ MHz    |
| U-NII-2C       | √            |                                   | 11dBm/ MHz    |
| U-NII-3        | √            |                                   | 30dBm/ 500kHz |

#### 3.4.2 TEST SETUP



#### 3.4.3 TEST INSTRUMENTS

Refer to section 3.3.3 to get information of above instrument.

#### 3.4.4 TEST PROCEDURES

##### For U-NII-1, U-NII-2A, U-NII-2C band:

Using method SA-2

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 1MHz, Set VBW =3 MHz, Detector = RMS
- 3) Set Channel power measure = 1MHz
- 4) Sweep time = auto, trigger set to "free run".
- 5) Trace average at least 100 traces in power averaging mode.
- 6) Record the max value and add 10 log (1/duty cycle)



**For U-NII-3 band:**

Using method SA-2

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 300 kHz, Set VBW = 1 MHz, Detector = RMS
- 3) Set Channel power measure = 1MHz
- 4) Sweep time = auto, trigger set to "free run".
- 5) Trace average at least 100 traces in power averaging mode.
- 6) Record the max value and add 10 log (1/duty cycle)

**3.4.5 DEVIATION FROM TEST STANDARD**

No deviation.

**3.4.6 EUT OPERATING CONDITIONS**

Same as 3.3.6



Test Report No.: RF160712N001-3

### 3.4.7 TEST RESULTS

For U-NII-1, U-NII-2A & U-NII-2C, For U-NII-3:  
802.11a

| Channel Number | Frequency (MHz) | RF Power Level in 1MHz BW (dBm)   | Total power density (mW)          | MAX. Limit (dBm)      | PASS / FAIL |
|----------------|-----------------|-----------------------------------|-----------------------------------|-----------------------|-------------|
| 36             | 5180            | -1.50                             | 0.6577                            | 11.00                 | PASS        |
| 40             | 5200            | -1.90                             | 0.5754                            | 11.00                 | PASS        |
| 48             | 5240            | -2.19                             | 0.5559                            | 11.00                 | PASS        |
| 52             | 5260            | -2.39                             | 0.5248                            | 11.00                 | PASS        |
| 60             | 5300            | -2.58                             | 0.5176                            | 11.00                 | PASS        |
| 64             | 5320            | -2.49                             | 0.5105                            | 11.00                 | PASS        |
| 100            | 5500            | -1.10                             | 0.7762                            | 11.00                 | PASS        |
| 116            | 5580            | -1.84                             | 0.6577                            | 11.00                 | PASS        |
| 140            | 5700            | -1.37                             | 0.7295                            | 11.00                 | PASS        |
| Channel Number | Frequency (MHz) | RF Power Level in 300kHz BW (dBm) | RF Power Level in 500kHz BW (dBm) | MAX. Limit (dBm/500k) | PASS / FAIL |
| 149            | 5745            | -9.50                             | -7.28                             | 30.00                 | PASS        |
| 157            | 5785            | -9.78                             | -7.56                             | 30.00                 | PASS        |
| 165            | 5825            | -10.44                            | -8.22                             | 30.00                 | PASS        |



802.11n (20MHz)

| Channel Number | Frequency (MHz) | RF Power Level in 1MHz BW (dBm)   | Total power density (mW)          | MAX. Limit (dBm)      | PASS / FAIL |
|----------------|-----------------|-----------------------------------|-----------------------------------|-----------------------|-------------|
| 36             | 5180            | -2.05                             | 0.6237                            | 11.00                 | PASS        |
| 40             | 5200            | -2.23                             | 0.5984                            | 11.00                 | PASS        |
| 48             | 5240            | -2.71                             | 0.5358                            | 11.00                 | PASS        |
| 52             | 5260            | -2.71                             | 0.5358                            | 11.00                 | PASS        |
| 60             | 5300            | -2.94                             | 0.5082                            | 11.00                 | PASS        |
| 64             | 5320            | -2.88                             | 0.5152                            | 11.00                 | PASS        |
| 100            | 5500            | -1.49                             | 0.7096                            | 11.00                 | PASS        |
| 116            | 5580            | -2.05                             | 0.6237                            | 11.00                 | PASS        |
| 140            | 5700            | -1.84                             | 0.6546                            | 11.00                 | PASS        |
| Channel Number | Frequency (MHz) | RF Power Level in 300kHz BW (dBm) | RF Power Level in 500kHz BW (dBm) | MAX. Limit (dBm/500k) | PASS / FAIL |
| 149            | 5745            | -10.10                            | -7.88                             | 30.00                 | PASS        |
| 157            | 5785            | -10.25                            | -8.03                             | 30.00                 | PASS        |
| 165            | 5825            | -10.67                            | -8.45                             | 30.00                 | PASS        |

**802.11n (40MHz)**

| Channel Number | Frequency (MHz) | RF Power Level in 1MHz BW (dBm)   | Total power density (mW)          | MAX. Limit (dBm)      | PASS / FAIL |
|----------------|-----------------|-----------------------------------|-----------------------------------|-----------------------|-------------|
| 38             | 5190            | -5.02                             | 0.3148                            | 11.00                 | PASS        |
| 46             | 5230            | -5.66                             | 0.2716                            | 11.00                 | PASS        |
| 54             | 5270            | -6.02                             | 0.2500                            | 11.00                 | PASS        |
| 62             | 5310            | -6.05                             | 0.2483                            | 11.00                 | PASS        |
| 102            | 5510            | -4.67                             | 0.3412                            | 11.00                 | PASS        |
| 110            | 5550            | -5.19                             | 0.3027                            | 11.00                 | PASS        |
| 134            | 5670            | -4.88                             | 0.3251                            | 11.00                 | PASS        |
| Channel Number | Frequency (MHz) | RF Power Level in 300kHz BW (dBm) | RF Power Level in 500kHz BW (dBm) | MAX. Limit (dBm/500k) | PASS / FAIL |
| 151            | 5755            | -13.09                            | -10.87                            | 30.00                 | PASS        |
| 159            | 5795            | -13.21                            | -10.99                            | 30.00                 | PASS        |

**802.11ac (80MHz)**

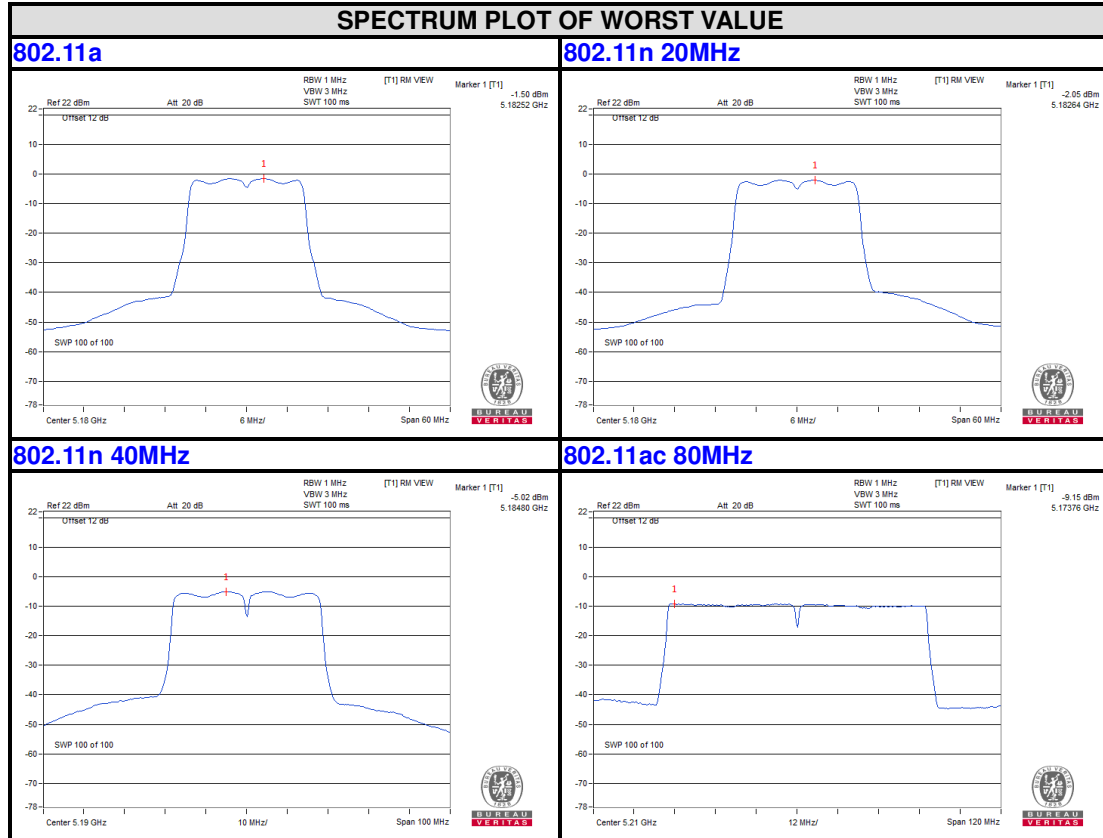
| Channel Number | Frequency (MHz) | RF Power Level in 1MHz BW (dBm)   | Total power density (mW)          | MAX. Limit (dBm)      | PASS / FAIL |
|----------------|-----------------|-----------------------------------|-----------------------------------|-----------------------|-------------|
| 42             | 5210            | -9.15                             | 0.1216                            | 11.00                 | PASS        |
| 58             | 5290            | -9.52                             | 0.1117                            | 11.00                 | PASS        |
| 106            | 5530            | -8.75                             | 0.1334                            | 11.00                 | PASS        |
| Channel Number | Frequency (MHz) | RF Power Level in 300kHz BW (dBm) | RF Power Level in 500kHz BW (dBm) | MAX. Limit (dBm/500k) | PASS / FAIL |
| 155            | 5775            | -16.74                            | -14.52                            | 30.00                 | PASS        |



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PSD Test Plot  
BAND 1  
5150-5250MHz



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Dongguan Branch

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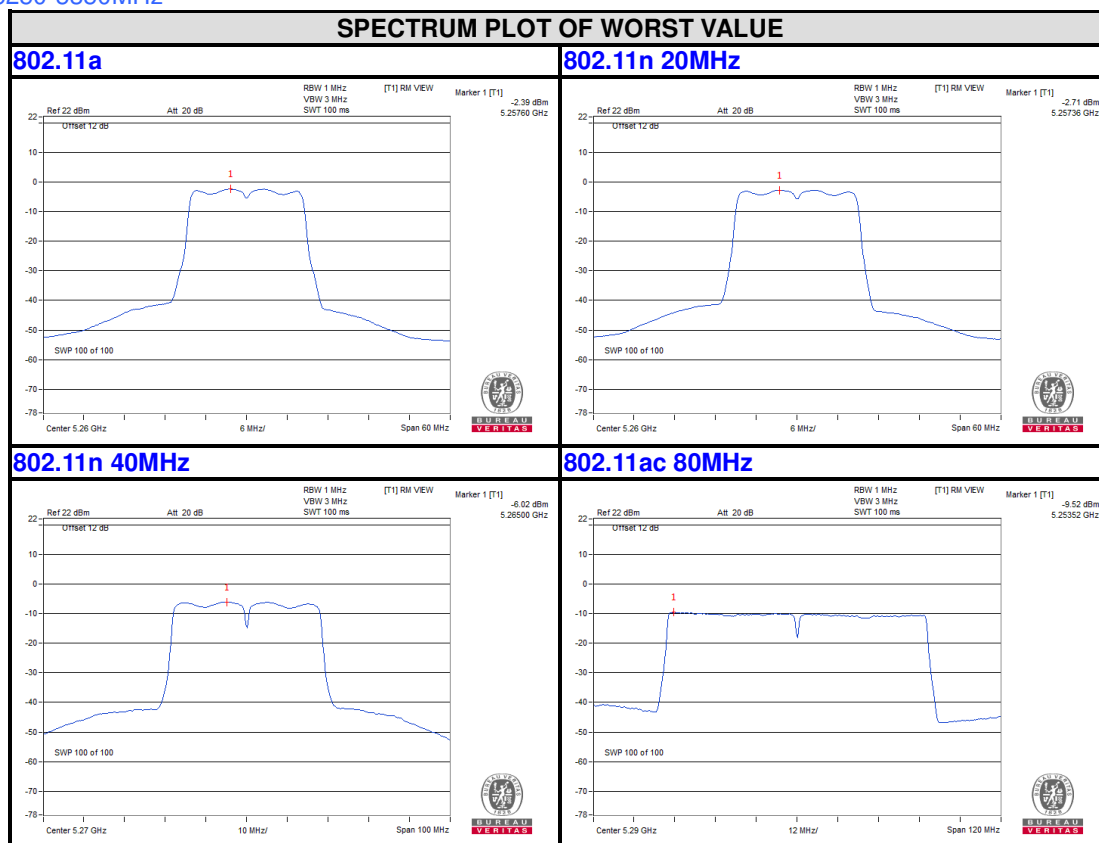




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BAND 2  
5250-5350MHz



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Guangdong 523942, China

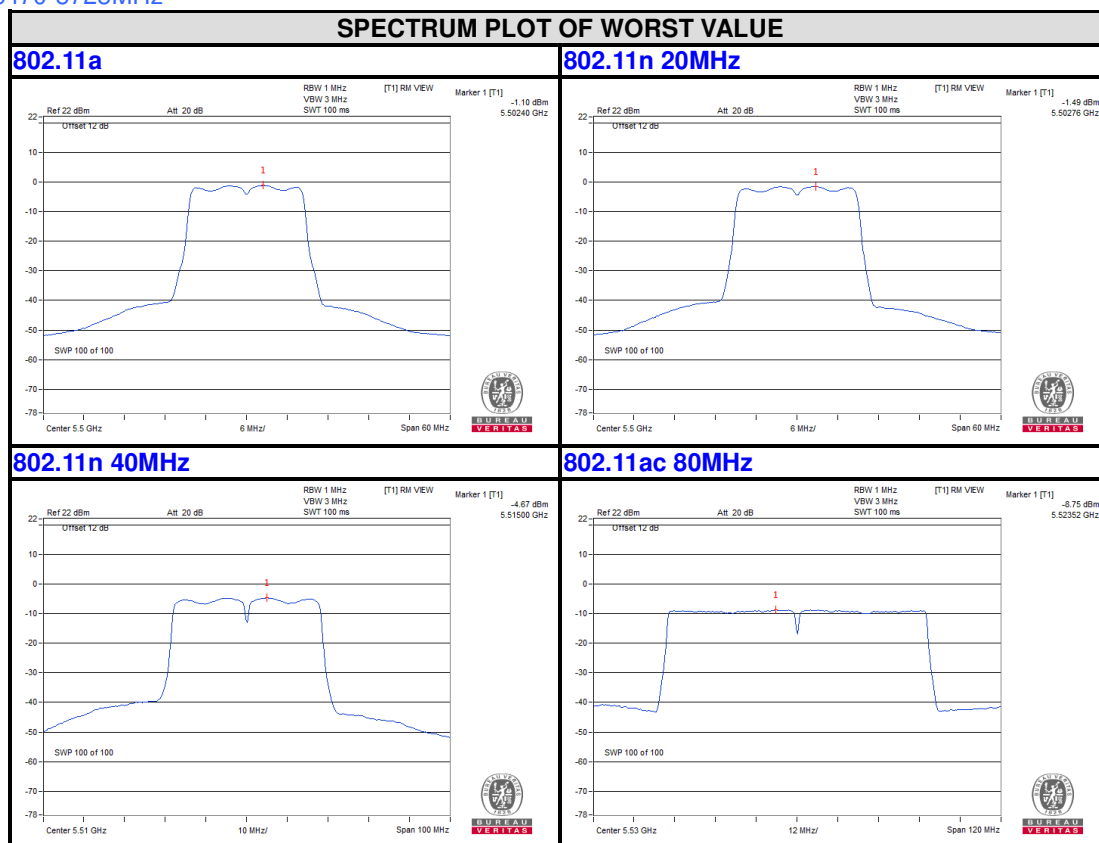
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BAND 3  
5470-5725MHz



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Guangdong 523942, China

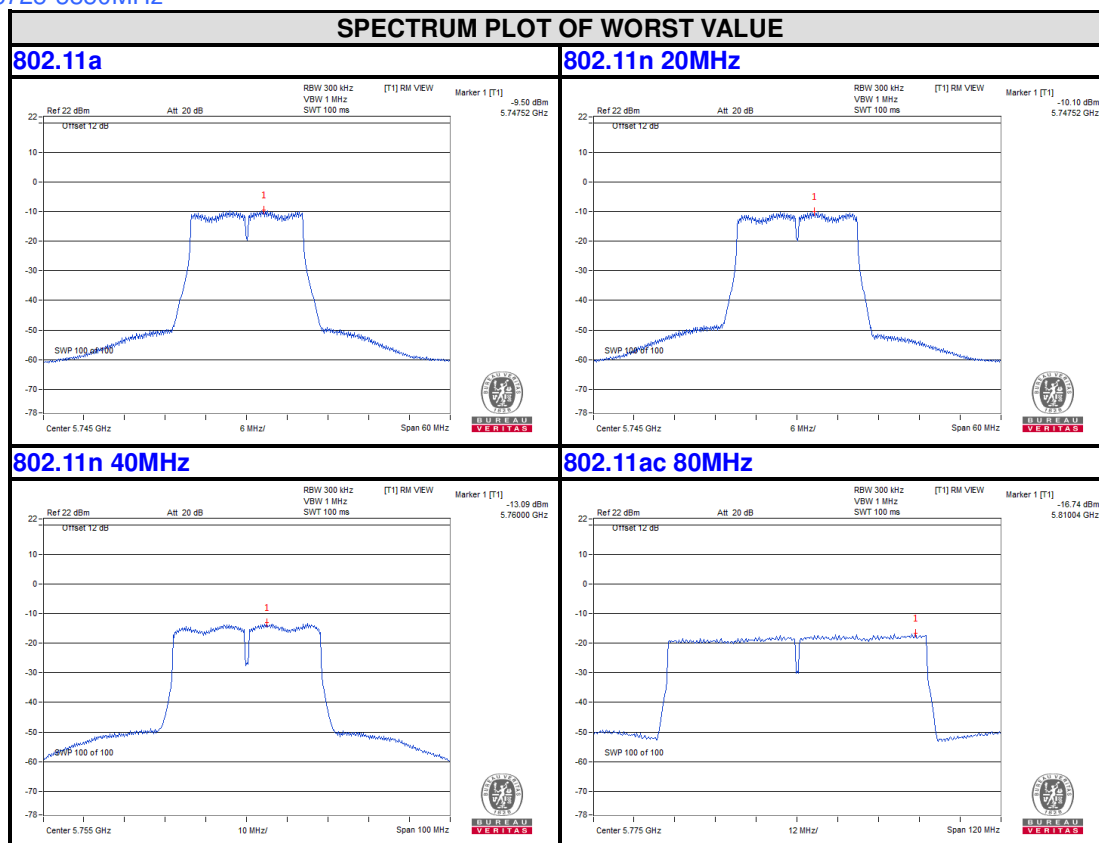
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BAND4  
5725-5850MHz



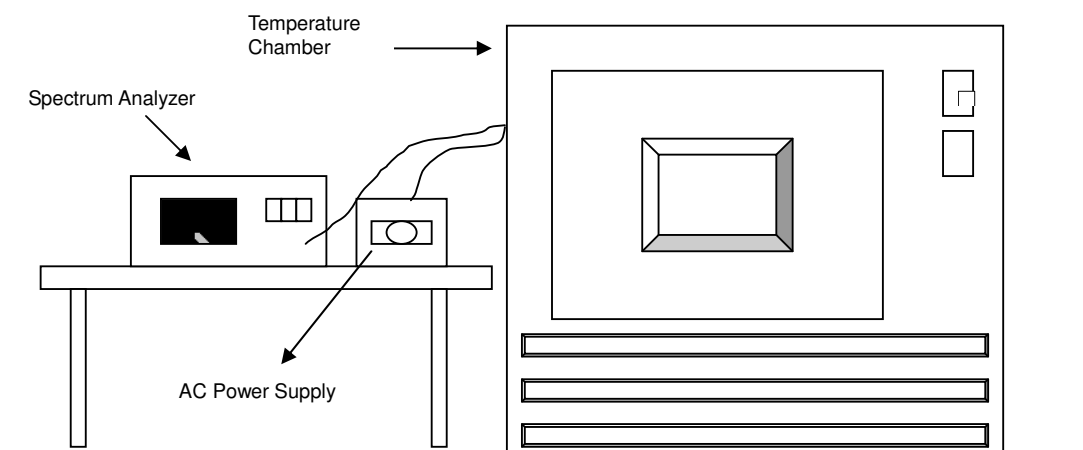


### **3.5 FREQUENCY STABILITY**

#### **3.5.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT**

The frequency of the carrier signal shall be maintained within band of operation.

#### **3.5.2 TEST SETUP**



#### **3.5.3 TEST INSTRUMENTS**

Refer to section 3.3.3 to get information of above instrument.



#### 3.5.4 TEST PROCEDURE

- a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- b. Turn the EUT on and couple its output to a spectrum analyzer.
- c. Turn the EUT off and set the chamber to the highest temperature specified.
- d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

#### 3.5.5 DEVIATION FROM TEST STANDARD

No deviation.

#### 3.5.6 EUT OPERATING CONDITION

Set the EUT transmit at un-modulation mode to test frequency stability.

**3.5.7 TEST RESULTS**

| FREQUENCY STABILITY VERSUS TEMP. |                          |                                |                    |                                |                    |                                |                    |                                |                    |
|----------------------------------|--------------------------|--------------------------------|--------------------|--------------------------------|--------------------|--------------------------------|--------------------|--------------------------------|--------------------|
| OPERATING FREQUENCY: 5180MHz     |                          |                                |                    |                                |                    |                                |                    |                                |                    |
| TEMP.<br>(°C)                    | POWER<br>SUPPLY<br>(Vac) | 0 MINUTE                       |                    | 2 MINUTE                       |                    | 5 MINUTE                       |                    | 10 MINUTE                      |                    |
|                                  |                          | Measured<br>Frequency<br>(MHz) | Frequency<br>Drift | Measured<br>Frequency<br>(MHz) | Frequency<br>Drift | Measured<br>Frequency<br>(MHz) | Frequency<br>Drift | Measured<br>Frequency<br>(MHz) | Frequency<br>Drift |
| 50                               | 120                      | 5179.9836                      | -0.00032           | 5179.9814                      | -0.00036           | 5179.9823                      | -0.00034           | 5179.9794                      | -0.00040           |
| 40                               | 120                      | 5180.0175                      | 0.00034            | 5180.0187                      | 0.00036            | 5180.0155                      | 0.00030            | 5180.0179                      | 0.00035            |
| 30                               | 120                      | 5180.0062                      | 0.00012            | 5180.0059                      | 0.00011            | 5180.0058                      | 0.00011            | 5180.0097                      | 0.00019            |
| 20                               | 120                      | 5180.0205                      | 0.00040            | 5180.0214                      | 0.00041            | 5180.0226                      | 0.00044            | 5180.0251                      | 0.00048            |
| 10                               | 120                      | 5180.0119                      | 0.00023            | 5180.0102                      | 0.00020            | 5180.0125                      | 0.00024            | 5180.0124                      | 0.00024            |
| 0                                | 120                      | 5180.0151                      | 0.00029            | 5180.0118                      | 0.00023            | 5180.0141                      | 0.00027            | 5180.0144                      | 0.00028            |
| -10                              | 120                      | 5179.9893                      | -0.00021           | 5179.9885                      | -0.00022           | 5179.987                       | -0.00025           | 5179.9886                      | -0.00022           |
| -20                              | 120                      | 5180.0215                      | 0.00042            | 5180.0192                      | 0.00037            | 5180.0232                      | 0.00045            | 5180.0224                      | 0.00043            |
| -30                              | 120                      | 5179.992                       | -0.00015           | 5179.9943                      | -0.00011           | 5179.9898                      | -0.00020           | 5179.9949                      | -0.00010           |

| FREQUENCY STABILITY VERSUS TEMP. |                          |                                |                    |                                |                    |                                |                    |                                |                    |
|----------------------------------|--------------------------|--------------------------------|--------------------|--------------------------------|--------------------|--------------------------------|--------------------|--------------------------------|--------------------|
| OPERATING FREQUENCY: 5180MHz     |                          |                                |                    |                                |                    |                                |                    |                                |                    |
| TEMP.<br>(°C)                    | POWER<br>SUPPLY<br>(Vac) | 0 MINUTE                       |                    | 2 MINUTE                       |                    | 5 MINUTE                       |                    | 10 MINUTE                      |                    |
|                                  |                          | Measured<br>Frequency<br>(MHz) | Frequency<br>Drift | Measured<br>Frequency<br>(MHz) | Frequency<br>Drift | Measured<br>Frequency<br>(MHz) | Frequency<br>Drift | Measured<br>Frequency<br>(MHz) | Frequency<br>Drift |
| 20                               | 138                      | 5180.0211                      | 0.00041            | 5180.022                       | 0.00042            | 5180.0218                      | 0.00042            | 5180.0244                      | 0.00047            |
|                                  | 120                      | 5180.0205                      | 0.00040            | 5180.0214                      | 0.00041            | 5180.0226                      | 0.00044            | 5180.0251                      | 0.00048            |
|                                  | 102                      | 5180.0199                      | 0.00038            | 5180.0214                      | 0.00041            | 5180.0217                      | 0.00042            | 5180.0259                      | 0.00050            |



Test Report No.: RF160712N001-3

#### 4. PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



Test Report No.: RF160712N001-3

## **5. APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB**

No modifications were made to the EUT by the lab during the test.

**---END---**