



1 CO-LOCATION

1.1 Transmitter Unwanted Emissions

1.1.1 Transmitter Unwanted Emissions Limit

| Restricted Band Emissions Limit | | | |
|---------------------------------|-----------------------|-------------------------|----------------------|
| Frequency Range (MHz) | Field Strength (uV/m) | Field Strength (dBuV/m) | Measure Distance (m) |
| 0.009~0.490 | 2400/F(kHz) | 48.5 - 13.8 | 300 |
| 0.490~1.705 | 24000/F(kHz) | 33.8 - 23 | 30 |
| 1.705~30.0 | 30 | 29 | 30 |
| 30~88 | 100 | 40 | 3 |
| 88~216 | 150 | 43.5 | 3 |
| 216~960 | 200 | 46 | 3 |
| Above 960 | 500 | 54 | 3 |

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

| Un-restricted Band Emissions Limit | |
|------------------------------------|------------|
| RF output power procedure | Limit (dB) |
| Peak output power procedure | 20 |
| Average output power procedure | 30 |

Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.

Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.

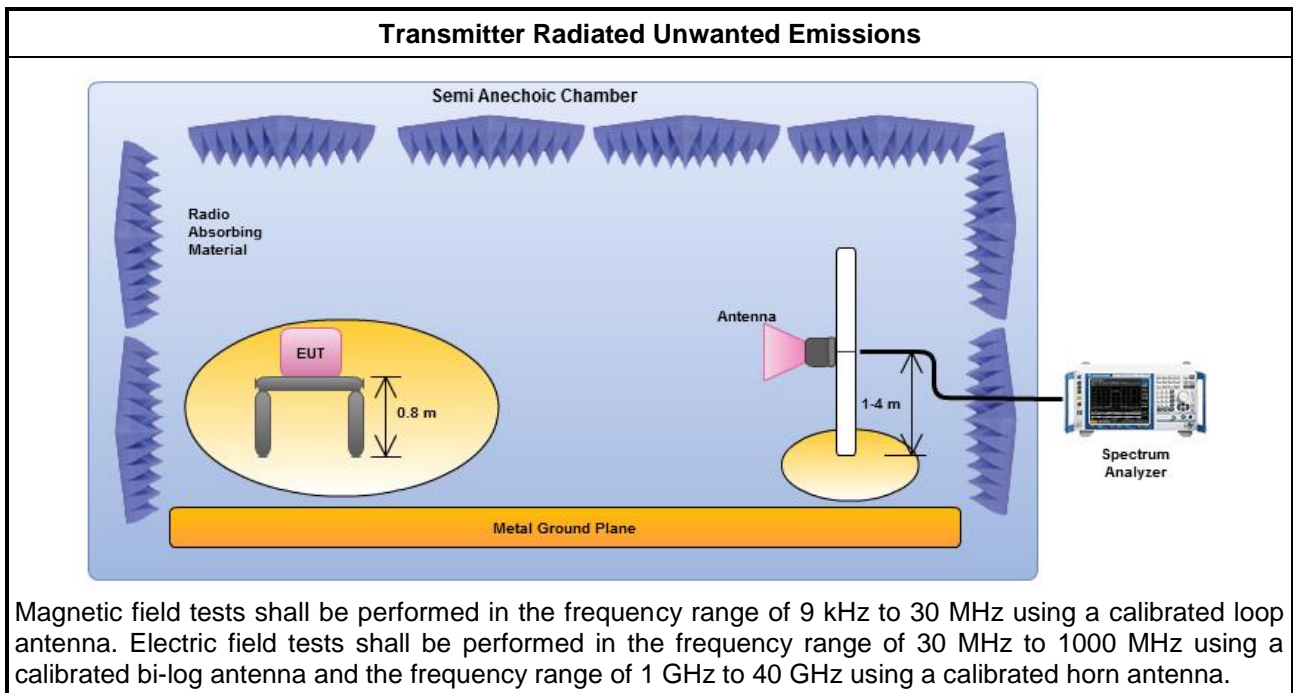
1.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

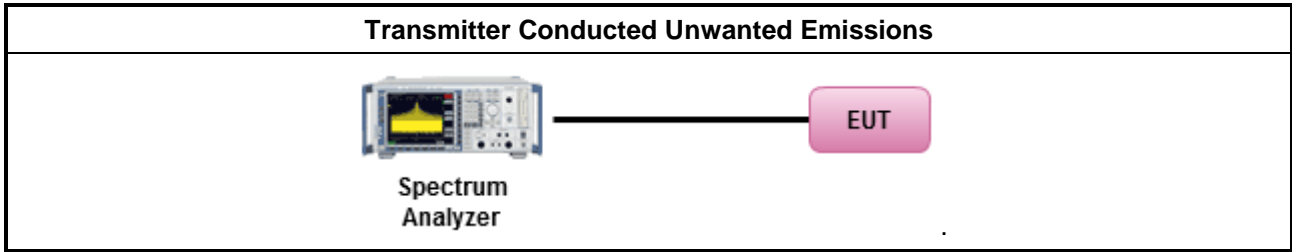
1.1.3 Test Procedures

| Test Method | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements). |
| <input checked="" type="checkbox"/> | For the transmitter unwanted emissions shall be measured using following options below: |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). $VBW \geq 1/T$, where T is pulse time. |
| <input checked="" type="checkbox"/> | Refer as KDB 558074, clause 12.2.3 measurement procedure peak limit. |
| <input checked="" type="checkbox"/> | For radiated measurement, refer as ANSI C63.10, |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1000 MHz. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.6 for radiated emissions from above 1 GHz. |

1.1.4 Test Setup



Note: Test distance is 3m.

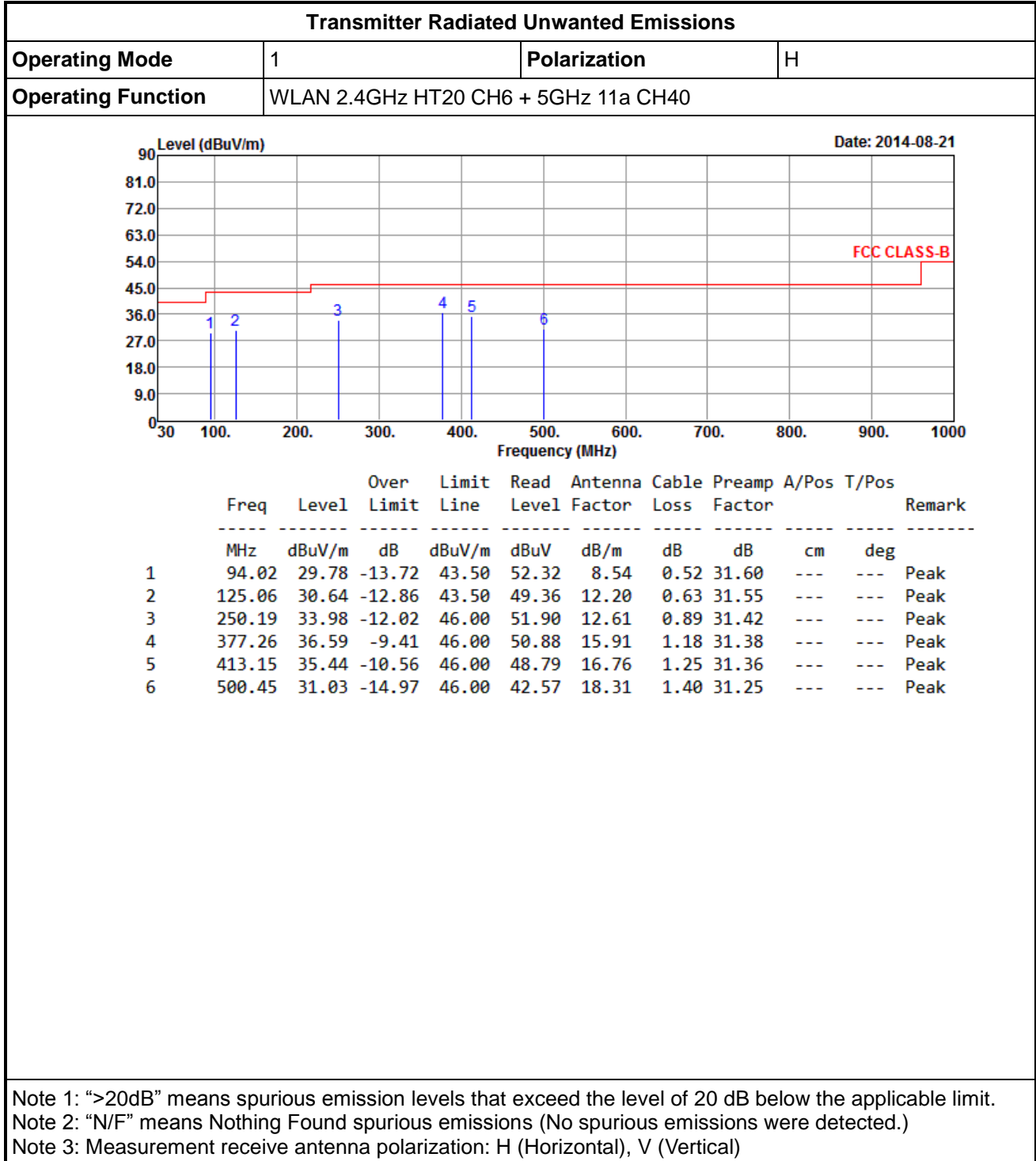


1.1.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.



1.1.6 Results of Radiated Emissions (Below 1GHz)



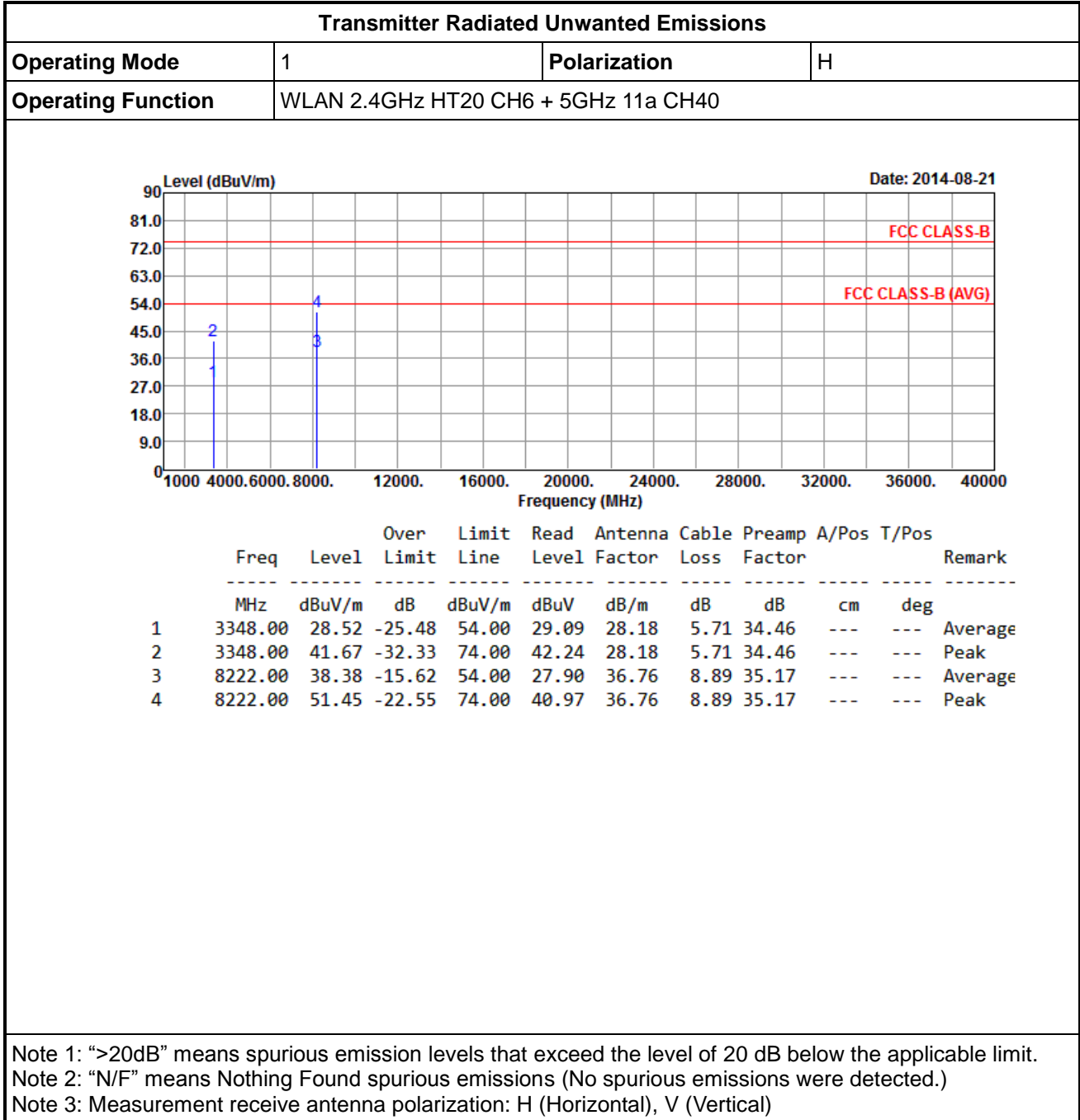


| Transmitter Radiated Unwanted Emissions | | | | | | | | | | | |
|--|--------------------------------------|--------|------------|--------------|------------|----------------|------------|---------------|-------|-------|--------|
| Operating Mode | 1 | | | Polarization | V | | | | | | |
| Operating Function | WLAN 2.4GHz HT20 CH6 + 5GHz 11a CH40 | | | | | | | | | | |
| <p style="text-align: right;">Date: 2014-08-21</p> | | | | | | | | | | | |
| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark |
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | |
| 1 | 32.91 | 34.06 | -5.94 | 40.00 | 51.58 | 13.87 | 0.36 | 31.75 | --- | --- | Peak |
| 2 | 54.25 | 31.72 | -8.28 | 40.00 | 48.52 | 14.50 | 0.41 | 31.71 | --- | --- | Peak |
| 3 | 192.96 | 29.22 | -14.28 | 43.50 | 48.83 | 11.07 | 0.79 | 31.47 | --- | --- | Peak |
| 4 | 250.19 | 27.54 | -18.46 | 46.00 | 45.46 | 12.61 | 0.89 | 31.42 | --- | --- | Peak |
| 5 | 375.32 | 36.87 | -9.13 | 46.00 | 51.21 | 15.86 | 1.18 | 31.38 | --- | --- | Peak |
| 6 | 413.15 | 35.08 | -10.92 | 46.00 | 48.43 | 16.76 | 1.25 | 31.36 | --- | --- | Peak |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)



1.1.7 Results for Radiated Emissions (Above 1GHz)

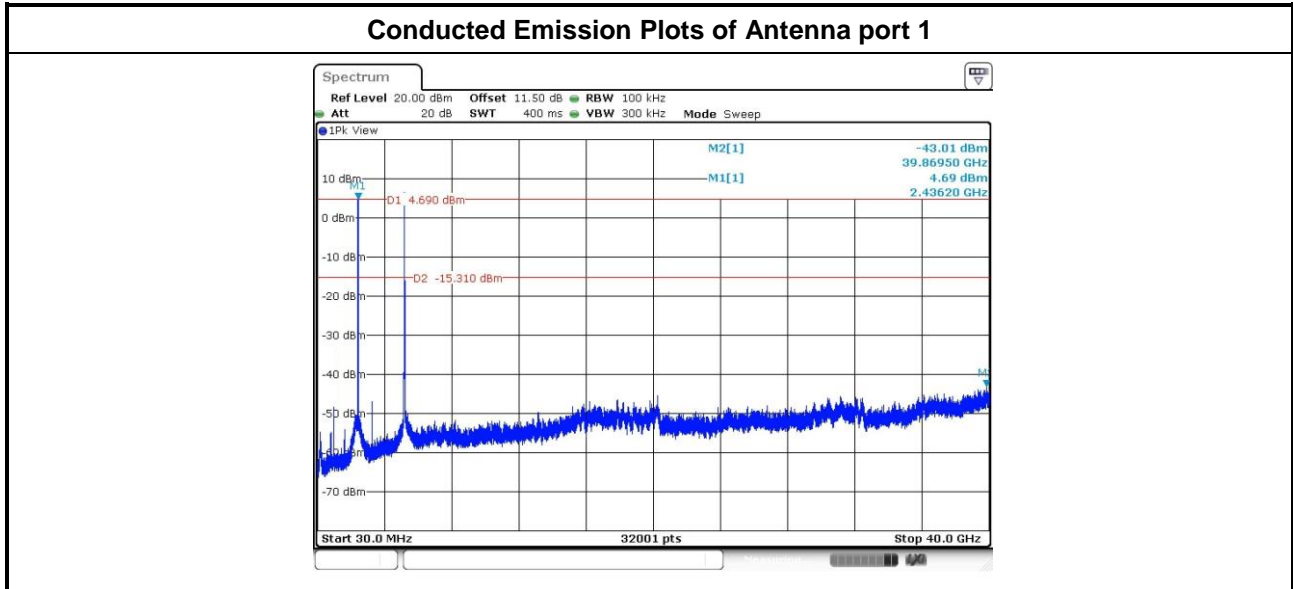




| Transmitter Radiated Unwanted Emissions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--------------------------------------|--------|------------|--------------|------------|----------------|------------|---------------|-------|-------|---------|------|-------|------------|------------|------------|----------------|------------|---------------|-------|-------|--------|--|-----|--------|----|--------|------|------|----|----|----|-----|--|---|---------|-------|--------|-------|-------|-------|------|-------|-----|-----|---------|---|---------|-------|--------|-------|-------|-------|------|-------|-----|-----|------|---|---------|-------|--------|-------|-------|-------|------|-------|-----|-----|---------|---|---------|-------|--------|-------|-------|-------|------|-------|-----|-----|------|
| Operating Mode | 1 | | | Polarization | V | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Operating Function | WLAN 2.4GHz HT20 CH6 + 5GHz 11a CH40 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <div style="text-align: right;">Date: 2014-08-21</div> <table border="1"> <thead> <tr> <th></th> <th>Freq</th> <th>Level</th> <th>Over Limit</th> <th>Limit Line</th> <th>Read Level</th> <th>Antenna Factor</th> <th>Cable Loss</th> <th>Preamp Factor</th> <th>A/Pos</th> <th>T/Pos</th> <th>Remark</th> </tr> <tr> <th></th> <th>MHz</th> <th>dBuV/m</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>dB</th> <th>cm</th> <th>deg</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>3348.00</td> <td>28.94</td> <td>-25.06</td> <td>54.00</td> <td>29.51</td> <td>28.18</td> <td>5.71</td> <td>34.46</td> <td>---</td> <td>---</td> <td>Average</td> </tr> <tr> <td>2</td> <td>3348.00</td> <td>41.89</td> <td>-32.11</td> <td>74.00</td> <td>42.46</td> <td>28.18</td> <td>5.71</td> <td>34.46</td> <td>---</td> <td>---</td> <td>Peak</td> </tr> <tr> <td>3</td> <td>8222.00</td> <td>38.47</td> <td>-15.53</td> <td>54.00</td> <td>27.99</td> <td>36.76</td> <td>8.89</td> <td>35.17</td> <td>---</td> <td>---</td> <td>Average</td> </tr> <tr> <td>4</td> <td>8222.00</td> <td>50.15</td> <td>-23.85</td> <td>74.00</td> <td>39.67</td> <td>36.76</td> <td>8.89</td> <td>35.17</td> <td>---</td> <td>---</td> <td>Peak</td> </tr> </tbody> </table> | | | | | | | | | | | | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark | | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | | 1 | 3348.00 | 28.94 | -25.06 | 54.00 | 29.51 | 28.18 | 5.71 | 34.46 | --- | --- | Average | 2 | 3348.00 | 41.89 | -32.11 | 74.00 | 42.46 | 28.18 | 5.71 | 34.46 | --- | --- | Peak | 3 | 8222.00 | 38.47 | -15.53 | 54.00 | 27.99 | 36.76 | 8.89 | 35.17 | --- | --- | Average | 4 | 8222.00 | 50.15 | -23.85 | 74.00 | 39.67 | 36.76 | 8.89 | 35.17 | --- | --- | Peak |
| | Freq | Level | Over Limit | Limit Line | Read Level | Antenna Factor | Cable Loss | Preamp Factor | A/Pos | T/Pos | Remark | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 3348.00 | 28.94 | -25.06 | 54.00 | 29.51 | 28.18 | 5.71 | 34.46 | --- | --- | Average | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 3348.00 | 41.89 | -32.11 | 74.00 | 42.46 | 28.18 | 5.71 | 34.46 | --- | --- | Peak | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 8222.00 | 38.47 | -15.53 | 54.00 | 27.99 | 36.76 | 8.89 | 35.17 | --- | --- | Average | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 8222.00 | 50.15 | -23.85 | 74.00 | 39.67 | 36.76 | 8.89 | 35.17 | --- | --- | Peak | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit. Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.) Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



1.1.8 Results for Conducted Emissions (30MHz~40GHz)





2 TEST EQUIPMENT AND CALIBRATION DATA

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|---------------|----------------|----------------|-------------|-----------------|------------------|-----------------------|
| Amplifier | HP | 8447D | 2944A08033 | 10kHz ~ 1.3GHz | May 05, 2014 | Radiation (03CH03-HY) |
| Amplifier | Agilent | 8449B | 3008A02373 | 1GHz ~ 26.5GHz | Aug. 28, 2013 | Radiation (03CH03-HY) |
| Spectrum | R&S | FSP40 | 100004 | 9kHz ~ 40GHz | Mar. 27, 2014 | Radiation (03CH03-HY) |
| Bilog Antenna | SCHAFFNER | CBL 6112D | 22237 | 30MHz ~ 1GHz | Sep. 21, 2013 | Radiation (03CH03-HY) |
| Horn Antenna | EMCO | 3115 | 6741 | 1GHz ~ 18GHz | Jun. 11, 2014 | Radiation (03CH03-HY) |
| Horn Antenna | SCHWARZBECK | BBHA9170 | BBHA9170154 | 15GHz ~ 40GHz | Jan. 10, 2014 | Radiation (03CH03-HY) |
| RF Cable-R03m | Jye Bao | RG142 | CB021 | 9kHz ~ 1GHz | Nov. 16, 2013 | Radiation (03CH03-HY) |
| RF Cable-high | SUHNER | SUCOFLEX 106 | 03CH03-HY | 1GHz ~ 40GHz | Dec. 11, 2013 | Radiation (03CH03-HY) |
| Turn Table | EM Electronics | EM Electronics | 060615 | 0 ~ 360 degree | N/A | Radiation (03CH03-HY) |
| Antenna Mast | MF | MF-7802 | MF780208179 | 1 ~ 4 m | N/A | Radiation (03CH03-HY) |

Note: Calibration Interval of instruments listed above is one year.

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|--------------|--------------|-----------|------------|-----------------|------------------|-----------------------|
| Amplifier | EM | EM18G40G | 060604 | 18GHz ~ 40GHz | Oct. 17.2013 | Radiation (03CH03-HY) |
| Loop Antenna | TESEQ | HLA 6120 | 31244 | 9kHz ~ 30MHz | Dec. 02, 2012 | Radiation (03CH03-HY) |

Note: Calibration Interval of instruments listed above is two year.

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|----------------------------|--------------|------------------|-------------|-----------------|------------------|---------------------|
| Spectrum Analyzer | R&S | FSV 40 | 101063 | 9KHz~40GHz | Feb. 17, 2014 | Conducted (TH01-HY) |
| Spectrum Analyzer | Agilent | N9010A | MY53400091 | 9KHz~44GHz | Oct. 07, 2013 | Conducted (TH01-HY) |
| Temp. and Humidity Chamber | Giant Force | GTH-225-20-SP-SD | MAA1112-007 | -20 ~ 100°C | Nov. 21, 2013 | Conducted (TH01-HY) |
| Signal Generator | R&S | SMB100A | 175727 | 10MHz ~ 40GHz | Jan. 07, 2014 | Conducted (TH01-HY) |
| Power Sensor | Anritsu | MA2411B | 1207366 | 300MHz ~ 40GHz | Oct. 24, 2013 | Conducted (TH01-HY) |
| Power Meter | Anritsu | ML2495A | 1241002 | 300MHz ~ 40GHz | Oct. 24, 2013 | Conducted (TH01-HY) |
| AC Power Source | G.W | APS-9102 | EL920581 | AC 0V ~ 300V | Jul. 15, 2014 | Conducted (TH01-HY) |

Note: Calibration Interval of instruments listed above is one year.