# FCC Test Report

| Product Name | ASUS Miracast Dongle                                  |
|--------------|---|
| Model No     | 90XB01F0-BEX000 / 90XB01F0-BEX010 / 90XB01F0-BEX020 / |
|              | 90XB01F0-BEX030 / 90XB01F0-BEX040 / 90XB01F0-BEX050 / |
|              | 90XB01F0-BEX060 / 90XB01F0-BEX070                     |
| FCC ID.      | PPQ-SWS003  |

| Applicant | Lite-On Technology Corp.                        |
|-----------|---|
| Address   | 4F, 90, Chien 1 Road, Chung Ho, New Taipei City |
|           | 235, Taiwan, R.O.C.                             |

| Date of Receipt | Aug. 23, 2013      |
|-----------------|--------------------|
| Issue Date      | Oct. 16, 2013      |
| Report No.      | 138468R-RFUSP28V01 |
| Report Version  | V1.0               |



The test results relate only to the samples tested.

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# Test Report Certification

Issue Date: Oct. 16, 2013 Report No.: 138468R-RFUSP28V01



| Product Name        | ASUS Miracast Dongle  |
|---------------------|---|
| Applicant           | Lite-On Technology Corp.  |
| Address             | 4F, 90, Chien 1 Road, Chung Ho, New Taipei City 235, Taiwan, R.O.C. |
| Manufacturer        | DONG GUAN G-COM COMPUTER CO., LTD.                                  |
| Model No.           | 90XB01F0-BEX000 / 90XB01F0-BEX010 / 90XB01F0-BEX020 /               |
|                     | 90XB01F0-BEX030 / 90XB01F0-BEX040 / 90XB01F0-BEX050 /               |
|                     | 90XB01F0-BEX060 / 90XB01F0-BEX070                                   |
| EUT Rated Voltage   | DC 5V   |
| EUT Test Voltage    | AC 120V/60Hz  |
| Trade Name          | /isus   |
| Applicable Standard | FCC CFR Title 47 Part 15 Subpart C: 2012                            |
|                     | ANSI C63.4: 2003, ANSI C63.10: 2009, KDB 558074                     |
| Test Result         | Complied  |

The test results relate only to the samples tested.

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| Documented By | : | Jinn Chen                            |
|---------------|---|--------------------------------------|
|               |   | (Senior Adm. Specialist / Jinn Chen) |
| Tested By     | : | Andy Lin                             |
|               |   | (Engineer / Andy Lin)                |
| Approved By   | : | Hond                                 |

(Manager / Vincent Lin)

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Attachment 1: EUT Test Photographs

Attachment 2: EUT Detailed Photographs

## 1. GENERAL INFORMATION

## **1.1. EUT Description**

| Product Name       | ASUS Miracast Dongle   |
|--------------------|--|
| Trade Name         | /SUS   |
| Model No.          | 90XB01F0-BEX000 / 90XB01F0-BEX010 / 90XB01F0-BEX020 /          |
|                    | 90XB01F0-BEX030 / 90XB01F0-BEX040 / 90XB01F0-BEX050 /          |
|                    | 90XB01F0-BEX060 / 90XB01F0-BEX070                              |
| FCC ID.            | PPQ-SWS003   |
| Frequency Range    | 802.11b/g/n-20MHz:2412-2462MHz                                 |
|                    | 802.11a/n-20MHz:5745-5825MHz ,802.11n-40MHz:5755-5795MHz       |
| Number of Channels | 802.11b/g/n-20MHz: 11  |
|                    | 802.11a/n-20MHz: 5, n-40MHz: 2                                 |
| Data Speed         | 802.11b: 1-11Mbps, 802.11a/g: 6-54Mbps, 802.11n: up to 150Mbps |
| Channel separation | 802.11b/g/n-20MHz: 5 MHz, 802.11a/n-20MHz: 20MHz               |
|                    | 802.11n-40MHz: 40MHz   |
| Type of Modulation | 802.11b:DSSS, DBPSK, DQPSK, CCK                                |
|                    | 802.11a/g/n: OFDM, BPSK, QPSK, 16QAM, 64QAM                    |
| Antenna Type       | Printed on PCB   |
| Antenna Gain       | Refer to the table "Antenna List"                              |
| Channel Control    | Auto   |
| HDMI Converter     | 1 set  |
| USB Cable          | Non-shielded, 0.3m   |
| Power Adapter      | MFR : DVE, M/N : DSA-5PFK-05-FUS 050100a                       |
|                    | Input : 100-240V~50/60Hz 0.2A                                  |
|                    | Output : +5V==1A   |

#### Antenna List

| No. | Manufacturer | Model Name.          | Peak Gain                |
|-----|--------------|----------------------|--------------------------|
| 1   | LITE-ON      | SWS003C (Main) (Aux) | 3.77 dBi in 2.4GHz       |
|     |              |                      | 3.30 dBi in 5725-5850GHz |

Note: The antenna of EUT is conform to FCC 15.203

802.11b/g/n-20MHz Center Frequency of Each Channel:

| Channel     | Frequency | Channel     | Frequency | Channel     | Frequency | Channel     | Frequency |
|-------------|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| Channel 01: | 2412 MHz  | Channel 02: | 2417 MHz  | Channel 03: | 2422 MHz  | Channel 04: | 2427 MHz  |
| Channel 05: | 2432 MHz  | Channel 06: | 2437 MHz  | Channel 07: | 2442 MHz  | Channel 08: | 2447 MHz  |
| Channel 09: | 2452 MHz  | Channel 10: | 2457 MHz  | Channel 11: | 2462 MHz  |             |           |

802.11a/n-20MHz Center Working Frequency of Each Channel:

Channel Frequency Channel Frequency Channel Frequency Channel Frequency Channel 149: 5745 MHz Channel 153: 5765 MHz Channel 157: 5785 MHz Channel 161: 5805 MHz Channel 165: 5825 MHz

802.11n-40MHz (5G Band) Center Working Frequency of Each Channel:

Channel Frequency Channel Frequency

Channel 151: 5755 MHz Channel 159: 5795 MHz

- 1. This device is an ASUS Miracast Dongle with a built-in 2.4GHz and 5GHz WLAN transceiver.
- 2. The EUT is including eight models for different marketing requirement.
- 3. The different of each model is shown as below:

| Model Number    | Description                  |
|-----------------|------------------------------|
| 90XB01F0-BEX000 | MIRACAST DONGLE/US/HDMI/6IN1 |
| 90XB01F0-BEX010 | MIRACAST DONGLE/AU/HDMI/6IN1 |
| 90XB01F0-BEX020 | MIRACAST DONGLE/TW/HDMI/6IN1 |
| 90XB01F0-BEX030 | MIRACAST DONGLE/EU/HDMI/6IN1 |
| 90XB01F0-BEX040 | MIRACAST DONGLE/UK/HDMI/6IN1 |
| 90XB01F0-BEX050 | MIRACAST DONGLE/CN/HDMI/6IN1 |
| 90XB01F0-BEX060 | MIRACAST DONGLE/JP/HDMI/6IN1 |
| 90XB01F0-BEX070 | MIRACAST DONGLE/CA/HDMI/6IN1 |

- 4. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
- Lowest and highest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps \$\sigma 802.11a/g is 6Mbps \$\sigma 802.11n(20M-BW) is 7.2Mbps and 802.11n(40M-BW) is 150Mbps).
- 6. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11a/b/g/n transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.
- 7. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report

| Test Mode: | Mode 1: Transmit (802.11b 1Mbps)                   |
|------------|--|
|            | Mode 2: Transmit (802.11g 6Mbps)                   |
|            | Mode 3: Transmit - 802.11a 6Mbps                   |
|            | Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) |
|            | Mode 5: Transmit - 802.11n-20BW_7.2Mbps(5G Band)   |
|            | Mode 6: Transmit - 802.11n-40BW_15Mbps(5G Band)    |
|            | Mode 7: Adapter mode                               |

## **1.3.** Tested System Details

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

For Adapter Mode

| Product |         | Manufacturer | Model No. | Serial No.               | Power Cord         |
|---------|---------|--------------|-----------|--------------------------|--------------------|
| (1)     | Monitor | Dell         | ST2320Lf  | CN-OM2NN6 72872-22I-C9WS | Non-shielded, 1.8m |

| Signal Cable Type |            | Signal cable Description |  |
|-------------------|------------|--------------------------|--|
| А                 | HDMI Cable | Non-shielded, 1.2m       |  |

For Transmit mode

| Product |             | Manufacturer | Model No. | Serial No.               | Power Cord         |
|---------|-------------|--------------|-----------|--------------------------|--------------------|
| (1)     | Monitor     | Dell         | ST2320Lf  | CN-OM2NN6 72872-22I-C9WS | Non-shielded, 1.8m |
| (2)     | Notebook PC | DELL         | PPT       | N/A                      | Non-shielded, 0.8m |

|   | Signal Cable Type | Signal cable Description |
|---|-------------------|--------------------------|
| А | HDMI Cable        | Non-shielded, 1.2m       |
| В | USB Cable         | Non-shielded, 0.3m       |

## 1.4. Configuration of Tested System





#### For Transmit mode



## **1.5.** EUT Exercise Software

- (1) Setup the EUT as shown in Section 1.4
- (2) Execute program "ART2-GUI v2.3" on the Notebook PC.
- (3) Configure the test mode, the test channel, and the data rate.
- (4) Start transmits continually.
- (5) Verify that the EUT works properly.

## 1.6. Test Facility

#### Ambient conditions in the laboratory:

| Items                      | Required (IEC 68-1) | Actual   |
|----------------------------|---------------------|----------|
| Temperature (°C)           | 15-35               | 20-35    |
| Humidity (%RH)             | 25-75               | 50-65    |
| Barometric pressure (mbar) | 860-1060            | 950-1000 |

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : <u>http://www.quietek.com/tw/ctg/cts/accreditations.htm</u> The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : <u>http://www.quietek.com/</u>

| Site Description: | File on                                      |
|-------------------|--|
|                   | Federal Communications Commission            |
|                   | FCC Engineering Laboratory                   |
|                   | 7435 Oakland Mills Road                      |
|                   | Columbia, MD 21046                           |
|                   | Registration Number: 92195                   |
|                   |  |
| Site Name:        | Quietek Corporation                          |
| Site Address:     | No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,  |
|                   | Lin-Kou Shiang, Taipei,                      |
|                   | Taiwan, R.O.C.                               |
|                   | TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789 |
|                   | E-Mail : <u>service@quietek.com</u>          |
|                   |  |

FCC Accreditation Number: TW1014

## 2. Conducted Emission

## 2.1. Test Equipment

|   | Equipment                | Manufacturer | Model No. / Serial No. | Last Cal.  | Remark      |
|---|--------------------------|--------------|------------------------|------------|-------------|
| Х | Test Receiver            | R & S        | ESCS 30 / 825442/018   | Sep., 2013 |             |
| Х | Artificial Mains Network | R & S        | ENV4200 / 848411/10    | Feb., 2013 | Peripherals |
| Х | LISN                     | R & S        | ESH3-Z5 / 825562/002   | Feb., 2013 | EUT         |
|   | DC LISN                  | Schwarzbeck  | 8226 / 176             | Mar, 2013  | EUT         |
| Х | Pulse Limiter            | R & S        | ESH3-Z2 / 357.8810.52  | Feb., 2013 |             |
|   | No.1 Shielded Room       |              |                        |            |             |

Note:

- 1. All equipments are calibrated every one year.
- 2. The test instruments marked by "X" are used to measure the final test results.

## 2.2. Test Setup



## 2.3. Limits

| FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit |        |       |  |  |  |
|---|--------|-------|--|--|--|
| Frequency   | Limits |       |  |  |  |
| MHz   | QP     | AVG   |  |  |  |
| 0.15 - 0.50   | 66-56  | 56-46 |  |  |  |
| 0.50-5.0  | 56     | 46    |  |  |  |
| 5.0 - 30  | 60     | 50    |  |  |  |

### 2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2009 on conducted measurement.

Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

### 2.5. Uncertainty

± 2.26 dB

## 2.6. Test Result of Conducted Emission

| Product    | : | ASUS Miracast Dongle    |
|------------|---|-------------------------|
| Test Item  | : | Conducted Emission Test |
| Power Line | : | Line 1                  |
| Test Mode  | : | Mode 7: Adapter mode    |
|            |   |                         |

| Frequency  | Correct | Reading | Measurement | Margin  | Limit  |
|------------|---------|---------|-------------|---------|--------|
|            | Factor  | Level   | Level       |         |        |
| MHz        | dB      | dBuV    | dBuV        | dB      | dBuV   |
| Line 1     |         |         |             |         |        |
| Quasi-Peak |         |         |             |         |        |
| 0.396      | 9.708   | 32.590  | 42.298      | -16.673 | 58.971 |
| 0.654      | 9.719   | 34.030  | 43.749      | -12.251 | 56.000 |
| 1.212      | 9.745   | 24.820  | 34.565      | -21.435 | 56.000 |
| 2.134      | 9.807   | 25.110  | 34.917      | -21.083 | 56.000 |
| 5.240      | 9.830   | 27.520  | 37.350      | -22.650 | 60.000 |
| 11.396     | 9.880   | 28.940  | 38.820      | -21.180 | 60.000 |
|            |         |         |             |         |        |
| Average    |         |         |             |         |        |
| 0.396      | 9.708   | 28.880  | 38.588      | -10.383 | 48.971 |
| 0.654      | 9.719   | 19.950  | 29.669      | -16.331 | 46.000 |
| 1.212      | 9.745   | 17.070  | 26.815      | -19.185 | 46.000 |
| 2.134      | 9.807   | 16.890  | 26.697      | -19.303 | 46.000 |
| 5.240      | 9.830   | 19.650  | 29.480      | -20.520 | 50.000 |
| 11.396     | 9.880   | 19.720  | 29.600      | -20.400 | 50.000 |

Note:

1. All Reading Levels are Quasi-Peak and average value.

2. " " means the worst emission level.

3. Measurement Level = Reading Level + Correct Factor

| Product    | : ASUS Mir  | acast Dongle  |             |         |        |
|------------|-------------|---------------|-------------|---------|--------|
| Test Item  | : Conducted | Emission Test |             |         |        |
| Power Line | : Line 2    |               |             |         |        |
| Test Mode  | : Mode 7: A | dapter mode   |             |         |        |
|            |             | <b>I</b>      |             |         |        |
| Frequency  | Correct     | Reading       | Measurement | Margin  | Limit  |
|            | Factor      | Level         | Level       |         |        |
| MHz        | dB          | dBuV          | dBuV        | dB      | dBuV   |
| Line 2     |             |               |             |         |        |
| Quasi-Peak |             |               |             |         |        |
| 0.392      | 9.687       | 33.660        | 43.347      | -15.739 | 59.086 |
| 0.588      | 9.696       | 24.140        | 33.836      | -22.164 | 56.000 |
| 1.759      | 9.770       | 21.970        | 31.740      | -24.260 | 56.000 |
| 4.158      | 9.810       | 24.450        | 34.260      | -21.740 | 56.000 |
| 6.009      | 9.840       | 23.650        | 33.490      | -26.510 | 60.000 |
| 11.959     | 9.920       | 24.520        | 34.440      | -25.560 | 60.000 |
|            |             |               |             |         |        |
| Average    |             |               |             |         |        |
| 0.392      | 9.687       | 29.600        | 39.287      | -9.799  | 49.086 |
| 0.588      | 9.696       | 15.420        | 25.116      | -20.884 | 46.000 |
| 1.759      | 9.770       | 14.480        | 24.250      | -21.750 | 46.000 |
| 4.158      | 9.810       | 18.010        | 27.820      | -18.180 | 46.000 |
| 6.009      | 9.840       | 16.480        | 26.320      | -23.680 | 50.000 |
| 11.959     | 9.920       | 16.220        | 26.140      | -23.860 | 50.000 |

1. All Reading Levels are Quasi-Peak and average value.

2. "means the worst emission level.

3. Measurement Level = Reading Level + Correct Factor

| Product    | : ASUS Miracast Dongle    |                  |                    |                  |        |  |  |
|------------|---------------------------|------------------|--------------------|------------------|--------|--|--|
| Test Item  | : Conducted Emission Test |                  |                    |                  |        |  |  |
| Power Line | : Line 1                  |                  |                    |                  |        |  |  |
| Test Mode  | : Mode 4: Tr              | ansmit - 802.111 | n-20BW 7.2Mbps(2.4 | 4G Band) (2437MH | [z)    |  |  |
|            |                           |                  | _ 1 \              |                  | ,      |  |  |
| Frequency  | Correct                   | Reading          | Measurement        | Margin           | Limit  |  |  |
|            | Factor                    | Level            | Level              |                  |        |  |  |
| MHz        | dB                        | dBuV             | dBuV               | dB               | dBuV   |  |  |
| Line 1     |                           |                  |                    |                  |        |  |  |
| Quasi-Peak |                           |                  |                    |                  |        |  |  |
| 0.158      | 9.697                     | 35.630           | 45.327             | -20.444          | 65.771 |  |  |
| 0.181      | 9.698                     | 21.310           | 31.008             | -34.106          | 65.114 |  |  |
| 0.271      | 9.702                     | 30.270           | 39.972             | -22.571          | 62.543 |  |  |
| 0.330      | 9.705                     | 22.760           | 32.465             | -28.392          | 60.857 |  |  |
| 0.576      | 9.716                     | 22.990           | 32.706             | -23.294          | 56.000 |  |  |
| 8.068      | 9.860                     | 10.310           | 20.170             | -39.830          | 60.000 |  |  |
|            |                           |                  |                    |                  |        |  |  |
| Average    |                           |                  |                    |                  |        |  |  |
| 0.158      | 9.697                     | 11.580           | 21.277             | -34.494          | 55.771 |  |  |
| 0.181      | 9.698                     | 10.340           | 20.038             | -35.076          | 55.114 |  |  |
| 0.271      | 9.702                     | 18.100           | 27.802             | -24.741          | 52.543 |  |  |
| 0.330      | 9.705                     | 17.800           | 27.505             | -23.352          | 50.857 |  |  |
| 0.576      | 9.716                     | 16.240           | 25.956             | -20.044          | 46.000 |  |  |
| 8.068      | 9.860                     | 4.390            | 14.250             | -35.750          | 50.000 |  |  |

- 4. All Reading Levels are Quasi-Peak and average value.
- 5. "means the worst emission level.
- 6. Measurement Level = Reading Level + Correct Factor

| Product    | : ASUS Miracast Dongle |  |             |         |        |  |  |  |  |  |  |
|------------|------------------------|--|-------------|---------|--------|--|--|--|--|--|--|
| Test Item  | : Conduct              | : Conducted Emission Test                                      |             |         |        |  |  |  |  |  |  |
| Power Line | : Line 2               |  |             |         |        |  |  |  |  |  |  |
| Test Mode  | : Mode 4:              | : Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2437MHz) |             |         |        |  |  |  |  |  |  |
|            |                        |  |             |         |        |  |  |  |  |  |  |
| Frequency  | Correct                | Reading  | Measurement | Margin  | Limit  |  |  |  |  |  |  |
|            | Factor                 | Level  | Level       |         |        |  |  |  |  |  |  |
| MHz        | dB                     | dBuV   | dBuV        | dB      | dBuV   |  |  |  |  |  |  |
| Line 2     |                        |  |             |         |        |  |  |  |  |  |  |
| Quasi-Peak |                        |  |             |         |        |  |  |  |  |  |  |
| 0.193      | 9.678                  | 24.220   | 33.898      | -30.873 | 64.771 |  |  |  |  |  |  |
| 0.236      | 9.680                  | 25.860   | 35.540      | -28.003 | 63.543 |  |  |  |  |  |  |
| 0.283      | 9.682                  | 33.140   | 42.822      | -19.378 | 62.200 |  |  |  |  |  |  |
| 0.420      | 9.689                  | 15.810   | 25.499      | -32.787 | 58.286 |  |  |  |  |  |  |
| 0.869      | 9.719                  | 17.630   | 27.349      | -28.651 | 56.000 |  |  |  |  |  |  |
| 7.849      | 9.860                  | 9.660  | 19.520      | -40.480 | 60.000 |  |  |  |  |  |  |
|            |                        |  |             |         |        |  |  |  |  |  |  |
| Average    |                        |  |             |         |        |  |  |  |  |  |  |
| 0.193      | 9.678                  | 13.110   | 22.788      | -31.983 | 54.771 |  |  |  |  |  |  |
| 0.236      | 9.680                  | 22.330   | 32.010      | -21.533 | 53.543 |  |  |  |  |  |  |
| 0.283      | 9.682                  | 30.840   | 40.522      | -11.678 | 52.200 |  |  |  |  |  |  |
| 0.420      | 9.689                  | 4.880  | 14.569      | -33.717 | 48.286 |  |  |  |  |  |  |
| 0.869      | 9.719                  | 9.820  | 19.539      | -26.461 | 46.000 |  |  |  |  |  |  |
| 7.849      | 9.860                  | 2.700  | 12.560      | -37.440 | 50.000 |  |  |  |  |  |  |

- 4. All Reading Levels are Quasi-Peak and average value.
- 5. "means the worst emission level.
- 6. Measurement Level = Reading Level + Correct Factor

| Product    | : ASUS Miracast Dongle |                  |                  |                |        |  |  |  |  |  |
|------------|------------------------|------------------|------------------|----------------|--------|--|--|--|--|--|
| Test Item  | : Conduct              | ed Emission Test |                  |                |        |  |  |  |  |  |
| Power Line | : Line 1               |                  |                  |                |        |  |  |  |  |  |
| Test Mode  | : Mode 6:              | Transmit - 802.1 | 1n-40BW 15Mbps(5 | G Band) (5755M | Hz)    |  |  |  |  |  |
|            |                        |                  | _ 1 <            | , (            | ,      |  |  |  |  |  |
| Frequency  | Correct                | Reading          | Measurement      | Margin         | Limit  |  |  |  |  |  |
|            | Factor                 | Level            | Level            |                |        |  |  |  |  |  |
| MHz        | dB                     | dBuV             | dBuV             | dB             | dBuV   |  |  |  |  |  |
| Line 1     |                        |                  |                  |                |        |  |  |  |  |  |
| Quasi-Peak |                        |                  |                  |                |        |  |  |  |  |  |
| 0.193      | 9.698                  | 32.900           | 42.598           | -22.173        | 64.771 |  |  |  |  |  |
| 0.220      | 9.700                  | 31.280           | 40.980           | -23.020        | 64.000 |  |  |  |  |  |
| 0.283      | 9.702                  | 32.690           | 42.392           | -19.808        | 62.200 |  |  |  |  |  |
| 0.517      | 9.713                  | 17.010           | 26.723           | -29.277        | 56.000 |  |  |  |  |  |
| 0.591      | 9.716                  | 19.130           | 28.846           | -27.154        | 56.000 |  |  |  |  |  |
| 1.154      | 9.742                  | 15.640           | 25.382           | -30.618        | 56.000 |  |  |  |  |  |
|            |                        |                  |                  |                |        |  |  |  |  |  |
| Average    |                        |                  |                  |                |        |  |  |  |  |  |
| 0.193      | 9.698                  | 16.720           | 26.418           | -28.353        | 54.771 |  |  |  |  |  |
| 0.220      | 9.700                  | 12.360           | 22.060           | -31.940        | 54.000 |  |  |  |  |  |
| 0.283      | 9.702                  | 27.620           | 37.322           | -14.878        | 52.200 |  |  |  |  |  |
| 0.517      | 9.713                  | 11.530           | 21.243           | -24.757        | 46.000 |  |  |  |  |  |
| 0.591      | 9.716                  | 15.260           | 24.976           | -21.024        | 46.000 |  |  |  |  |  |
| 1.154      | 9.742                  | 9.950            | 19.692           | -26.308        | 46.000 |  |  |  |  |  |

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. "means the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor

| Product    | : ASUS Miracast Dongle |                           |                  |                 |        |  |  |  |  |  |  |
|------------|------------------------|---------------------------|------------------|-----------------|--------|--|--|--|--|--|--|
| Test Item  | : Conduct              | : Conducted Emission Test |                  |                 |        |  |  |  |  |  |  |
| Power Line | : Line 2               |                           |                  |                 |        |  |  |  |  |  |  |
| Test Mode  | : Mode 6:              | Transmit - 802.1          | 1n-40BW_15Mbps(5 | G Band) (5755M) | Hz)    |  |  |  |  |  |  |
|            |                        |                           |                  |                 |        |  |  |  |  |  |  |
| Frequency  | Correct                | Reading                   | Measurement      | Margin          | Limit  |  |  |  |  |  |  |
|            | Factor                 | Level                     | Level            |                 |        |  |  |  |  |  |  |
| MHz        | dB                     | dBuV                      | dBuV             | dB              | dBuV   |  |  |  |  |  |  |
| Line 2     |                        |                           |                  |                 |        |  |  |  |  |  |  |
| Quasi-Peak |                        |                           |                  |                 |        |  |  |  |  |  |  |
| 0.193      | 9.678                  | 24.520                    | 34.198           | -30.573         | 64.771 |  |  |  |  |  |  |
| 0.240      | 9.680                  | 25.380                    | 35.060           | -28.369         | 63.429 |  |  |  |  |  |  |
| 0.287      | 9.683                  | 33.100                    | 42.783           | -19.303         | 62.086 |  |  |  |  |  |  |
| 0.560      | 9.695                  | 16.750                    | 26.445           | -29.555         | 56.000 |  |  |  |  |  |  |
| 0.873      | 9.719                  | 16.320                    | 26.039           | -29.961         | 56.000 |  |  |  |  |  |  |
| 2.017      | 9.781                  | 5.970                     | 15.751           | -40.249         | 56.000 |  |  |  |  |  |  |
|            |                        |                           |                  |                 |        |  |  |  |  |  |  |
| Average    |                        |                           |                  |                 |        |  |  |  |  |  |  |
| 0.193      | 9.678                  | 12.610                    | 22.288           | -32.483         | 54.771 |  |  |  |  |  |  |
| 0.240      | 9.680                  | 21.540                    | 31.220           | -22.209         | 53.429 |  |  |  |  |  |  |
| 0.287      | 9.683                  | 30.750                    | 40.433           | -11.653         | 52.086 |  |  |  |  |  |  |
| 0.560      | 9.695                  | 7.650                     | 17.345           | -28.655         | 46.000 |  |  |  |  |  |  |
| 0.873      | 9.719                  | 11.070                    | 20.789           | -25.211         | 46.000 |  |  |  |  |  |  |
| 2.017      | 9.781                  | -0.800                    | 8.981            | -37.019         | 46.000 |  |  |  |  |  |  |

- 1. All Reading Levels are Quasi-Peak and average value.
- 2. "means the worst emission level.
- 3. Measurement Level = Reading Level + Correct Factor

## **3.** Peak Power Output

## **3.1.** Test Equipment

|       | Equipment   | Manufacturer   | Model No./Serial No. | Last Cal. |  |  |  |  |  |
|-------|---|----------------|----------------------|-----------|--|--|--|--|--|
| Х     | Power Meter   | Anritsu        | ML2495A/6K00003357   | May, 2013 |  |  |  |  |  |
| Х     | Power Sensor  | Anritsu        | MA2411B/0738448      | Jun, 2013 |  |  |  |  |  |
| Note: |   |                |                      |           |  |  |  |  |  |
| 1.    | All equipments are calibrated with traceable calibrations. Each calibration is traceable to the |                |                      |           |  |  |  |  |  |
|       | national or internation   | nal standards. |                      |           |  |  |  |  |  |

2. The test instruments marked with "X" are used to measure the final test results.

## 3.2. Test Setup



### 3.3. Limits

The maximum peak power shall be less 1 Watt.

## **3.4.** Test Procedure

The EUT was tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using KDB 558074 section 9.1.3 PKPM1 Peak power meter method.

## 3.5. Uncertainty

 $\pm$  1.27 dB

## **3.6.** Test Result of Peak Power Output

| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | Peak Power Output Data           |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) |

| Channel No.    | Frequency | For d | Average<br>ifferent Da | e Power<br>ata Rate (N | Abps)     | Peak<br>Power | Required | Result |  |
|----------------|-----------|-------|------------------------|------------------------|-----------|---------------|----------|--------|--|
| Channel No (MI | (MHz)     | 1     | 2                      | 5.5                    | 11        | 1             | Limit    |        |  |
|                |           |       | Measur                 | ement Lev              | vel (dBm) |               |          |        |  |
| 01             | 2412      | 15.23 |                        |                        |           | 17.39         | <30dBm   | Pass   |  |
| 06             | 2437      | 15.63 | 15.58                  | 15.47                  | 15.32     | 17.96         | <30dBm   | Pass   |  |
| 11             | 2462      | 14.37 |                        |                        |           | 16.89         | <30dBm   | Pass   |  |

| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | Peak Power Output Data           |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) |

|            |           |                         |       | Peak      |          |          |         |       |       |       |          |        |
|------------|-----------|-------------------------|-------|-----------|----------|----------|---------|-------|-------|-------|----------|--------|
|            | Frequency |                         | F     | For diffe | erent Da | ata Rate | e (Mbps | 5)    |       | Power | Required |        |
| Channel No | (MHz)     | 6                       | 9     | 12        | 18       | 24       | 36      | 48    | 54    | 6     | Limit    | Result |
|            |           | Measurement Level (dBm) |       |           |          |          |         |       |       |       |          |        |
| 01         | 2412      | 15.16                   |       |           |          |          |         |       |       | 23.45 | <30dBm   | Pass   |
| 06         | 2437      | 18.90                   | 18.81 | 18.77     | 18.69    | 18.61    | 18.59   | 18.44 | 18.37 | 25.07 | <30dBm   | Pass   |
| 11         | 2462      | 14.63                   |       |           |          |          |         |       |       | 23.23 | <30dBm   | Pass   |

| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | Peak Power Output Data           |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 3: Transmit - 802.11a 6Mbps |

|            | F                  |       | F     | D . 1 |       |       |       |       |       |       |        |        |
|------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|
| Channel No | Frequency<br>(MHz) | 6     | 9     | 12    | 18    | 24    | 36    | 48    | 54    | 6     | Limit  | Result |
|            |                    |       |       |       |       |       |       |       |       |       |        |        |
| 149        | 5745               | 16.19 |       |       |       |       |       |       |       | 19.66 | <30dBm | Pass   |
| 157        | 5785               | 16.12 | 15.99 | 15.94 | 15.91 | 15.87 | 15.79 | 15.71 | 15.55 | 21.17 | <30dBm | Pass   |
| 165        | 5825               | 16.20 |       |       |       |       |       |       |       | 20.74 | <30dBm | Pass   |

| Product   | : | ASUS Miracast Dongle                               |
|-----------|---|--|
| Test Item | : | Peak Power Output Data                             |
| Test Site | : | No.3 OATS  |
| Test Mode | : | Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) |

|            |           | Average Power |                         |       |          |       |       |       |       |       |        |        |
|------------|-----------|---------------|-------------------------|-------|----------|-------|-------|-------|-------|-------|--------|--------|
|            | Frequency |               | F                       | Power | Required |       |       |       |       |       |        |        |
| Channel No | (MHz)     | 7.2           | 14.4                    | 21.7  | 28.9     | 43.3  | 57.8  | 65    | 72.2  | 7.2   | Limit  | Result |
|            |           |               | Measurement Level (dBm) |       |          |       |       |       |       |       |        |        |
| 01         | 2412      | 14.2          |                         |       |          |       | -     |       |       | 22.55 | <30dBm | Pass   |
| 06         | 2437      | 18.85         | 18.77                   | 18.74 | 18.69    | 18.64 | 18.58 | 18.51 | 18.44 | 25.08 | <30dBm | Pass   |
| 11         | 2462      | 13.25         |                         |       |          |       |       |       |       | 22.65 | <30dBm | Pass   |

| Product   | : | ASUS Miracast Dongle                             |
|-----------|---|--|
| Test Item | : | Peak Power Output Data                           |
| Test Site | : | No.3 OATS  |
| Test Mode | : | Mode 5: Transmit - 802.11n-20BW 7.2Mbps(5G Band) |

|            | Fraguancy |       | F     | or diffe | Average<br>erent Da | e Powe<br>ata Rate | r<br>e (Mbps | 5)    |       | Peak<br>Power | Required |        |
|------------|-----------|-------|-------|----------|---------------------|--------------------|--------------|-------|-------|---------------|----------|--------|
| Channel No | (MHz)     | 7.2   | 14.4  | 21.7     | 28.9                | 43.3               | 57.8         | 65    | 72.2  | 7.2           | Limit    | Result |
|            |           |       |       | M        | easurer             | nent Le            | vel (dB      | sm)   |       |               |          |        |
| 149        | 5745      | 17.02 |       |          |                     |                    |              |       |       | 21.15         | <30dBm   | Pass   |
| 157        | 5785      | 17.05 | 16.87 | 16.84    | 16.77               | 16.71              | 16.68        | 16.51 | 16.44 | 22.24         | <30dBm   | Pass   |
| 165        | 5825      | 17.12 |       |          |                     |                    |              |       |       | 22.08         | <30dBm   | Pass   |

| Product   | : | ASUS Miracast Dongle                            |
|-----------|---|---|
| Test Item | : | Peak Power Output Data                          |
| Test Site | : | No.3 OATS                                       |
| Test Mode | : | Mode 6: Transmit - 802.11n-40BW 15Mbps(5G Band) |

| Channel No | Frequency |       | F     | or diffe | Average<br>erent Da | e Powe<br>ata Rate | r<br>e (Mbps | 5)    |       | Peak<br>Power | Required |        |
|------------|-----------|-------|-------|----------|---------------------|--------------------|--------------|-------|-------|---------------|----------|--------|
|            | (MHz)     | 15    | 30    | 45       | 60                  | 90                 | 120          | 135   | 150   | 15            | Limit    | Result |
|            |           |       |       | Μ        | easurer             | nent Le            | vel (dE      | Bm)   |       |               |          |        |
| 151        | 5755      | 16.23 | 16.14 | 16.01    | 15.88               | 15.79              | 15.7         | 15.61 | 15.57 | 21.13         | <30dBm   | Pass   |
| 159        | 5795      | 16.37 |       |          |                     |                    |              |       |       | 21.75         | <30dBm   | Pass   |

## 4. Radiated Emission

## 4.1. Test Equipment

| Test Site    |   | Equipment         | Manufacturer    | Model No /Serial No            | Last Cal   |
|--------------|---|-------------------|-----------------|--------------------------------|------------|
|              |   | Equipment         | Wanutacturer    | Woder No./Serial No.           | Last Cal.  |
| imesSite # 3 | Х | Loop Antenna      | Teseq           | HLA6120 / 26739                | Jul., 2013 |
|              | Х | Bilog Antenna     | Schaffner Chase | CBL6112B/2673                  | Sep., 2013 |
|              | Х | Horn Antenna      | Schwarzbeck     | BBHA9120D/D305                 | Sep., 2013 |
|              | Х | Horn Antenna      | Schwarzbeck     | BBHA9170/208                   | Jul., 2013 |
|              | Х | Pre-Amplifier     | QTK             | QTK-AMP-03 / 0003              | May, 2013  |
|              | Х | Pre-Amplifier     | QTK             | AP-180C / CHM_0906076          | Sep., 2013 |
|              | Х | Pre-Amplifier     | MITEQ           | AMF-4D-180400-45-6P/<br>925975 | Mar, 2013  |
|              | Х | Spectrum Analyzer | Agilent         | E4407B / US39440758            | May, 2013  |
|              | Х | Test Receiver     | R & S           | ESCS 30/ 825442/018            | Sep., 2013 |
|              | Х | Coaxial Cable     | QuieTek         | QTK-CABLE/ CAB5                | Feb., 2013 |
|              | Χ | Controller        | QuieTek         | QTK-CONTROLLER/ CTRL3          | N/A        |
|              | Χ | Coaxial Switch    | Anritsu         | MP59B/6200265729               | N/A        |

The following test equipment are used during the radiated emission test:

Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

2. The test instruments marked with "X" are used to measure the final test results.

#### 4.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



## 4.3. Limits

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

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

Remarks: E field strength  $(dBuV/m) = 20 \log E$  field strength (uV/m)

#### 4.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2009 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2009 on radiated measurement.

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

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas. The measurement is divided into the Preliminary Measurement and the Final Measurement. The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna. The worst radiated emission is measured in the Open Area Test Site on the Final Measurement.

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

### 4.5. Uncertainty

- ± 3.9 dB above 1GHz
- ± 3.8 dB below 1GHz

### 4.6. Test Result of Radiated Emission

| Product   | : | ASUS Miracast Dongle                       |
|-----------|---|--|
| Test Item | : | Harmonic Radiated Emission Data            |
| Test Site | : | No.3 OATS                                  |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) (2412MHz) |

| Frequency        | Correct | Reading | Measurement | Margin  | Limit  |
|------------------|---------|---------|-------------|---------|--------|
|                  | Factor  | Level   | Level       |         |        |
| MHz              | dB      | dBuV    | dBuV/m      | dB      | dBuV/m |
| Horizontal       |         |         |             |         |        |
| Peak Detector:   |         |         |             |         |        |
| 4824.000         | 6.421   | 41.820  | 48.241      | -25.759 | 74.000 |
| 7236.000         | 10.650  | 45.790  | 56.440      | -17.560 | 74.000 |
| 9648.000         | 13.807  | 38.260  | 52.066      | -21.934 | 74.000 |
| Average          |         |         |             |         |        |
| <b>Detector:</b> |         |         |             |         |        |
| 7236.000         | 10.650  | 39.660  | 50.310      | -3.690  | 54.000 |
| Vertical         |         |         |             |         |        |
| Peak Detector:   |         |         |             |         |        |
| 4824.000         | 6.421   | 41.260  | 47.681      | -26.319 | 74.000 |
| 7236.000         | 11.495  | 44.920  | 56.415      | -17.585 | 74.000 |
| 9648.000         | 13.807  | 39.870  | 53.676      | -20.324 | 74.000 |
| Average          |         |         |             |         |        |
| Detector:        |         |         |             |         |        |
| 7236.000         | 11.495  | 39.250  | 50.745      | -3.255  | 54.000 |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product          | : ASUS Miracast Dongle                        |         |             |         |        |  |  |  |
|------------------|---|---------|-------------|---------|--------|--|--|--|
| Test Item        | : Harmonic Radiated Emission Data             |         |             |         |        |  |  |  |
| Test Site        | : No.3 OATS                                   |         |             |         |        |  |  |  |
| Test Mode        | : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz) |         |             |         |        |  |  |  |
|                  |   |         |             |         |        |  |  |  |
| Frequency        | Correct                                       | Reading | Measurement | Margin  | Limit  |  |  |  |
|                  | Factor  | Level   | Level       |         |        |  |  |  |
| MHz              | dB  | dBuV    | dBuV/m      | dB      | dBuV/m |  |  |  |
| Horizontal       |   |         |             |         |        |  |  |  |
| Peak Detector:   |   |         |             |         |        |  |  |  |
| 4874.000         | 3.038   | 40.150  | 43.187      | -30.813 | 74.000 |  |  |  |
| 7311.000         | 11.795  | 45.720  | 57.514      | -16.486 | 74.000 |  |  |  |
| 9748.000         | 12.635  | 38.260  | 50.895      | -23.105 | 74.000 |  |  |  |
| Average          |   |         |             |         |        |  |  |  |
| <b>Detector:</b> |   |         |             |         |        |  |  |  |
| 7311.000         | 11.795  | 39.180  | 50.974      | -3.026  | 54.000 |  |  |  |
| Vortical         |   |         |             |         |        |  |  |  |
|                  |   |         |             |         |        |  |  |  |
| Peak Detector:   |   |         |             |         |        |  |  |  |
| 4874.000         | 5.812   | 41.230  | 47.041      | -26.959 | 74.000 |  |  |  |
| 7311.000         | 12.630  | 45.290  | 57.919      | -16.081 | 74.000 |  |  |  |
| 9748.000         | 13.126  | 40.260  | 53.386      | -20.614 | 74.000 |  |  |  |
| Average          |   |         |             |         |        |  |  |  |
| <b>Detector:</b> |   |         |             |         |        |  |  |  |
| 7311.000         | 12.630  | 38.300  | 50.929      | -3.071  | 54.000 |  |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product          | : ASUS Miracast Dongle                        |         |             |         |        |  |  |  |  |
|------------------|---|---------|-------------|---------|--------|--|--|--|--|
| Test Item        | : Harmonic Radiated Emission Data             |         |             |         |        |  |  |  |  |
| Test Site        | : No.3 OATS                                   |         |             |         |        |  |  |  |  |
| Test Mode        | : Mode 1: Transmit (802.11b 1Mbps) (2462 MHz) |         |             |         |        |  |  |  |  |
|                  |   |         |             |         |        |  |  |  |  |
| Frequency        | Correct                                       | Reading | Measurement | Margin  | Limit  |  |  |  |  |
|                  | Factor  | Level   | Level       |         |        |  |  |  |  |
| MHz              | dB  | dBuV    | dBuV/m      | dB      | dBuV/m |  |  |  |  |
| Horizontal       |   |         |             |         |        |  |  |  |  |
| Peak Detector:   |   |         |             |         |        |  |  |  |  |
| 4924.000         | 2.858   | 40.050  | 42.907      | -31.093 | 74.000 |  |  |  |  |
| 7386.000         | 13.254  | 43.260  | 56.514      | -17.486 | 74.000 |  |  |  |  |
| 9848.000         | 13.367  | 40.230  | 53.597      | -20.403 | 74.000 |  |  |  |  |
| Average          |   |         |             |         |        |  |  |  |  |
| Detector:        |   |         |             |         |        |  |  |  |  |
| 7386.000         | 12.127  | 37.140  | 49.268      | -4.732  | 54.000 |  |  |  |  |
|                  |   |         |             |         |        |  |  |  |  |
| Vertical         |   |         |             |         |        |  |  |  |  |
| Peak Detector:   |   |         |             |         |        |  |  |  |  |
| 4924.000         | 5.521   | 42.230  | 47.750      | -26.250 | 74.000 |  |  |  |  |
| 7386.000         | 12.127  | 45.290  | 57.418      | -16.582 | 74.000 |  |  |  |  |
| 9848.000         | 12.852  | 40.870  | 53.723      | -20.277 | 74.000 |  |  |  |  |
| Average          |   |         |             |         |        |  |  |  |  |
| <b>Detector:</b> |   |         |             |         |        |  |  |  |  |
| 7386.000         | 13.254  | 37.390  | 50.644      | -3.356  | 54.000 |  |  |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product          | : ASUS Miracast Dongle                       |         |             |         |        |  |  |  |
|------------------|--|---------|-------------|---------|--------|--|--|--|
| Test Item        | : Harmonic Radiated Emission Data            |         |             |         |        |  |  |  |
| Test Site        | : No.3 OATS                                  |         |             |         |        |  |  |  |
| Test Mode        | : Mode 2: Transmit (802.11g 6Mbps) (2412MHz) |         |             |         |        |  |  |  |
|                  |  |         |             |         |        |  |  |  |
| Frequency        | Correct                                      | Reading | Measurement | Margin  | Limit  |  |  |  |
|                  | Factor                                       | Level   | Level       |         |        |  |  |  |
| MHz              | dB   | dBuV    | dBuV/m      | dB      | dBuV/m |  |  |  |
| Horizontal       |  |         |             |         |        |  |  |  |
| Peak Detector:   |  |         |             |         |        |  |  |  |
| 4824.000         | 3.261  | 42.680  | 45.941      | -28.059 | 74.000 |  |  |  |
| 7236.000         | 10.650                                       | 46.470  | 57.120      | -16.880 | 74.000 |  |  |  |
| 9648.000         | 13.337                                       | 38.150  | 51.486      | -22.514 | 74.000 |  |  |  |
| Average          |  |         |             |         |        |  |  |  |
| <b>Detector:</b> |  |         |             |         |        |  |  |  |
| 7236.000         | 10.650                                       | 32.140  | 42.790      | -11.210 | 54.000 |  |  |  |
| Vertical         |  |         |             |         |        |  |  |  |
| Peak Detector:   |  |         |             |         |        |  |  |  |
| 4824 000         | 6 421  | 40 230  | 46 651      | -27 349 | 74 000 |  |  |  |
| 7236.000         | 11 495                                       | 48 680  | 60 175      | -13 825 | 74 000 |  |  |  |
| 9648 000         | 13 807                                       | 38 560  | 52 366      | -21 634 | 74.000 |  |  |  |
| Average          | 15.007                                       | 50.500  | 52.500      | 21.031  | 71.000 |  |  |  |
| Detector:        |  |         |             |         |        |  |  |  |
| 7236.000         | 11.495                                       | 34.010  | 45.505      | -8.495  | 54.000 |  |  |  |
|                  |  |         |             |         | 2      |  |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product          | : ASUS Miracast Dongle                        |         |             |         |        |  |  |  |
|------------------|---|---------|-------------|---------|--------|--|--|--|
| Test Item        | : Harmonic Radiated Emission Data             |         |             |         |        |  |  |  |
| Test Site        | : No.3 OATS                                   |         |             |         |        |  |  |  |
| Test Mode        | : Mode 2: Transmit (802.11g 6Mbps) (2437 MHz) |         |             |         |        |  |  |  |
|                  |   |         |             |         |        |  |  |  |
| Frequency        | Correct                                       | Reading | Measurement | Margin  | Limit  |  |  |  |
|                  | Factor  | Level   | Level       |         |        |  |  |  |
| MHz              | dB  | dBuV    | dBuV/m      | dB      | dBuV/m |  |  |  |
| Horizontal       |   |         |             |         |        |  |  |  |
| Peak Detector:   |   |         |             |         |        |  |  |  |
| 4874.000         | 3.038   | 40.230  | 43.267      | -30.733 | 74.000 |  |  |  |
| 7311.000         | 11.795  | 50.290  | 62.084      | -11.916 | 74.000 |  |  |  |
| 9748.000         | 12.635  | 38.290  | 50.925      | -23.075 | 74.000 |  |  |  |
| Average          |   |         |             |         |        |  |  |  |
| <b>Detector:</b> |   |         |             |         |        |  |  |  |
| 7311.000         | 11.795  | 35.450  | 47.244      | -6.756  | 54.000 |  |  |  |
|                  |   |         |             |         |        |  |  |  |
| Vertical         |   |         |             |         |        |  |  |  |
| Peak Detector:   |   |         |             |         |        |  |  |  |
| 4874.000         | 5.812   | 38.150  | 43.961      | -30.039 | 74.000 |  |  |  |
| 7311.000         | 12.630  | 48.410  | 61.039      | -12.961 | 74.000 |  |  |  |
| 9748.000         | 13.126  | 39.260  | 52.386      | -21.614 | 74.000 |  |  |  |
| Average          |   |         |             |         |        |  |  |  |
| <b>Detector:</b> |   |         |             |         |        |  |  |  |
| 7311.000         | 12.630  | 35.120  | 47.749      | -6.251  | 54.000 |  |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product        | : ASUS Miracast Dongle   |         |             |         |        |  |  |  |
|----------------|--|---------|-------------|---------|--------|--|--|--|
| Test Item      | <ul> <li>Harmonic Radiated Emission Data</li> <li>No.3 OATS</li> </ul> |         |             |         |        |  |  |  |
| Test Site      |  |         |             |         |        |  |  |  |
| Test Mode      | : Mode 2: Transmit (802.11g 6Mbps) (2462 MHz)                          |         |             |         |        |  |  |  |
|                |  |         |             |         |        |  |  |  |
| Frequency      | Correct  | Reading | Measurement | Margin  | Limit  |  |  |  |
|                | Factor   | Level   | Level       |         |        |  |  |  |
| MHz            | dB   | dBuV    | dBuV/m      | dB      | dBuV/m |  |  |  |
| Horizontal     |  |         |             |         |        |  |  |  |
| Peak Detector: |  |         |             |         |        |  |  |  |
| 4924.000       | 2.858  | 39.150  | 42.007      | -31.993 | 74.000 |  |  |  |
| 7386.000       | 12.127   | 46.210  | 58.338      | -15.662 | 74.000 |  |  |  |
| 9848.000       | 12.852   | 38.230  | 51.083      | -22.917 | 74.000 |  |  |  |
| Average        |  |         |             |         |        |  |  |  |
| Detector:      |  |         |             |         |        |  |  |  |
| 7386.000       | 12.127   | 31.150  | 43.278      | -10.722 | 54.000 |  |  |  |
| Vertical       |  |         |             |         |        |  |  |  |
| Peak Detector: |  |         |             |         |        |  |  |  |
| 4924.000       | 5.521  | 39.150  | 44.670      | -29.330 | 74.000 |  |  |  |
| 7386.000       | 13.254   | 46.730  | 59.984      | -14.016 | 74.000 |  |  |  |
| 9848.000       | 13.367   | 38.560  | 51.927      | -22.073 | 74.000 |  |  |  |
| Average        |  |         |             |         |        |  |  |  |
| Detector:      |  |         |             |         |        |  |  |  |
| 7386.000       | 13.254   | 32.150  | 45.404      | -8.596  | 54.000 |  |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product               | : ASUS Miracast Dongle                        |         |             |         |        |  |  |  |
|-----------------------|---|---------|-------------|---------|--------|--|--|--|
| Test Item             | : Harmonic Radiated Emission Data             |         |             |         |        |  |  |  |
| Test Site             | : No.3 OATS                                   |         |             |         |        |  |  |  |
| Test Mode             | : Mode 3: Transmit - 802.11a 6Mbps (5745 MHz) |         |             |         |        |  |  |  |
|                       |   |         |             |         |        |  |  |  |
| Frequency             | Correct                                       | Reading | Measurement | Margin  | Limit  |  |  |  |
|                       | Factor  | Level   | Level       |         |        |  |  |  |
| MHz                   | dB  | dBuV    | dBuV/m      | dB      | dBuV/m |  |  |  |
| Horizontal            |   |         |             |         |        |  |  |  |
| <b>Peak Detector:</b> |   |         |             |         |        |  |  |  |
| 11490.000             | 17.106  | 35.940  | 53.047      | -20.953 | 74.000 |  |  |  |
| Average               |   |         |             |         |        |  |  |  |
| <b>Detector:</b>      |   |         |             |         |        |  |  |  |
|                       |   |         |             |         |        |  |  |  |
|                       |   |         |             |         |        |  |  |  |
| Vertical              |   |         |             |         |        |  |  |  |
| Peak Detector:        |   |         |             |         |        |  |  |  |
| 11490.000             | 18.034  | 35.820  | 53.855      | -20.145 | 74.000 |  |  |  |

#### Average

#### **Detector:**

--

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
| Product          | : ASUS M    | : ASUS Miracast Dongle            |                    |         |        |  |  |
|------------------|-------------|-----------------------------------|--------------------|---------|--------|--|--|
| Test Item        | : Harmon    | : Harmonic Radiated Emission Data |                    |         |        |  |  |
| Test Site        | : No.3 OATS |                                   |                    |         |        |  |  |
| Test Mode        | : Mode 3:   | Transmit - 802.1                  | 1a 6Mbps (5785 MHz | z)      |        |  |  |
|                  |             |                                   |                    |         |        |  |  |
| Frequency        | Correct     | Reading                           | Measurement        | Margin  | Limit  |  |  |
|                  | Factor      | Level                             | Level              |         |        |  |  |
| MHz              | dB          | dBuV                              | dBuV/m             | dB      | dBuV/m |  |  |
| Horizontal       |             |                                   |                    |         |        |  |  |
| Peak Detector:   |             |                                   |                    |         |        |  |  |
| 11570.000        | 16.809      | 35.890                            | 52.699             | -21.301 | 74.000 |  |  |
| Average          |             |                                   |                    |         |        |  |  |
| <b>Detector:</b> |             |                                   |                    |         |        |  |  |
|                  |             |                                   |                    |         |        |  |  |
|                  |             |                                   |                    |         |        |  |  |
| Vertical         |             |                                   |                    |         |        |  |  |
| Peak Detector:   |             |                                   |                    |         |        |  |  |
| 11570.000        | 17.698      | 35.550                            | 53.248             | -20.752 | 74.000 |  |  |

## Average

#### **Detector:**

--

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product          | : ASUS N    | : ASUS Miracast Dongle            |                    |         |        |  |  |
|------------------|-------------|-----------------------------------|--------------------|---------|--------|--|--|
| Test Item        | : Harmon    | : Harmonic Radiated Emission Data |                    |         |        |  |  |
| Test Site        | : No.3 OATS |                                   |                    |         |        |  |  |
| Test Mode        | : Mode 3    | : Transmit - 802.1                | 1a 6Mbps (5825 MHz | z)      |        |  |  |
| Fraguenov        | Correct     | Panding                           | Maguramant         | Morgin  | Limit  |  |  |
| riequency        | Easter      | Level                             | Laval              | Margin  | Linin  |  |  |
|                  | Factor      | Level                             | Level              |         |        |  |  |
| MHz              | dB          | dBuV                              | dBuV/m             | dB      | dBuV/m |  |  |
| Horizontal       |             |                                   |                    |         |        |  |  |
| Peak Detector:   |             |                                   |                    |         |        |  |  |
| 11650.000        | 16.158      | 34.780                            | 50.938             | -23.062 | 74.000 |  |  |
| Average          |             |                                   |                    |         |        |  |  |
| <b>Detector:</b> |             |                                   |                    |         |        |  |  |
|                  |             |                                   |                    |         |        |  |  |
| Vertical         |             |                                   |                    |         |        |  |  |
|                  |             |                                   |                    |         |        |  |  |
| Peak Detector:   |             |                                   |                    |         |        |  |  |
| 11650.000        | 17.274      | 36.490                            | 53.765             | -20.235 | 74.000 |  |  |
|                  |             |                                   |                    |         |        |  |  |

## Average

#### **Detector:**

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product          | : ASUS Miracast Dongle   |         |             |         |        |  |  |
|------------------|--|---------|-------------|---------|--------|--|--|
| Test Item        | : Harmonic Radiated Emission Data                              |         |             |         |        |  |  |
| Test Site        | : No.3 OATS  |         |             |         |        |  |  |
| Test Mode        | : Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2412MHz) |         |             |         |        |  |  |
|                  |  |         |             |         |        |  |  |
| Frequency        | Correct  | Reading | Measurement | Margin  | Limit  |  |  |
|                  | Factor   | Level   | Level       |         |        |  |  |
| MHz              | dB   | dBuV    | dBuV/m      | dB      | dBuV/m |  |  |
| Horizontal       |  |         |             |         |        |  |  |
| Peak Detector:   |  |         |             |         |        |  |  |
| 4824.000         | 3.261  | 41.260  | 44.521      | -29.479 | 74.000 |  |  |
| 7236.000         | 10.650   | 46.170  | 56.820      | -17.180 | 74.000 |  |  |
| 9648.000         | 13.337   | 38.590  | 51.926      | -22.074 | 74.000 |  |  |
| Average          |  |         |             |         |        |  |  |
| <b>Detector:</b> |  |         |             |         |        |  |  |
| 7236.000         | 10.650   | 32.290  | 42.940      | -11.060 | 54.000 |  |  |
|                  |  |         |             |         |        |  |  |
| Vertical         |  |         |             |         |        |  |  |
| Peak Detector:   |  |         |             |         |        |  |  |
| 4824.000         | 6.421  | 39.260  | 45.681      | -28.319 | 74.000 |  |  |
| 7236.000         | 11.495   | 45.890  | 57.385      | -16.615 | 74.000 |  |  |
| 9648.000         | 13.807   | 39.260  | 53.066      | -20.934 | 74.000 |  |  |
| Average          |  |         |             |         |        |  |  |
| <b>Detector:</b> |  |         |             |         |        |  |  |
| 7236.000         | 11.495   | 32.560  | 44.055      | -9.945  | 54.000 |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product          | : ASUS Miracast Dongle            |   |             |             |        |  |  |
|------------------|-----------------------------------|---|-------------|-------------|--------|--|--|
| Test Item        | : Harmonic Radiated Emission Data |   |             |             |        |  |  |
| Test Site        | : No.3 OATS                       |   |             |             |        |  |  |
| Test Mode        | : Mode 4:                         | le 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2437 MHz) |             |             |        |  |  |
|                  |                                   |   |             |             |        |  |  |
| Frequency        | Correct                           | Reading   | Measurement | Margin      | Limit  |  |  |
|                  | Factor                            | Level   | Level       |             |        |  |  |
| MHz              | dB                                | dBuV  | dBuV/m      | dB          | dBuV/m |  |  |
| Horizontal       |                                   |   |             |             |        |  |  |
| Peak Detector:   |                                   |   |             |             |        |  |  |
| 4874.000         | 3.038                             | 40.290  | 43.327      | -30.673     | 74.000 |  |  |
| 7311.000         | 11.795                            | 50.560  | 62.354      | -11.646     | 74.000 |  |  |
| 9748.000         | 12.635                            | 38.520  | 51.155      | -22.845     | 74.000 |  |  |
| Average          |                                   |   |             |             |        |  |  |
| <b>Detector:</b> |                                   |   |             |             |        |  |  |
| 7311.000         | 11.795                            | 34.930  | 46.724      | -7.276      | 54.000 |  |  |
| Vortical         |                                   |   |             |             |        |  |  |
| Paals Datastan   |                                   |   |             |             |        |  |  |
| Peak Delector:   |                                   |   |             | • • • • • • |        |  |  |
| 4874.000         | 5.812                             | 39.500  | 45.311      | -28.689     | 74.000 |  |  |
| 7311.000         | 12.630                            | 48.260  | 60.889      | -13.111     | 74.000 |  |  |
| 9748.000         | 13.126                            | 38.510  | 51.636      | -22.364     | 74.000 |  |  |
| Average          |                                   |   |             |             |        |  |  |
| <b>Detector:</b> |                                   |   |             |             |        |  |  |
| 7311.000         | 12.630                            | 33.590  | 46.219      | -7.781      | 54.000 |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product          | : ASUS Miracast Dongle  |         |             |         |        |  |  |
|------------------|---|---------|-------------|---------|--------|--|--|
| Test Item        | : Harmonic Radiated Emission Data                               |         |             |         |        |  |  |
| Test Site        | : No.3 OATS   |         |             |         |        |  |  |
| Test Mode        | : Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2462 MHz) |         |             |         |        |  |  |
|                  |   |         |             |         |        |  |  |
| Frequency        | Correct   | Reading | Measurement | Margin  | Limit  |  |  |
|                  | Factor  | Level   | Level       |         |        |  |  |
| MHz              | dB  | dBuV    | dBuV/m      | dB      | dBuV/m |  |  |
| Horizontal       |   |         |             |         |        |  |  |
| Peak Detector:   |   |         |             |         |        |  |  |
| 4924.000         | 2.858   | 38.260  | 41.117      | -32.883 | 74.000 |  |  |
| 7386.000         | 12.127  | 44.510  | 56.638      | -17.362 | 74.000 |  |  |
| 9848.000         | 12.852  | 38.230  | 51.083      | -22.917 | 74.000 |  |  |
| Average          |   |         |             |         |        |  |  |
| <b>Detector:</b> |   |         |             |         |        |  |  |
| 7386.000         | 12.127  | 30.890  | 43.018      | -10.982 | 54.000 |  |  |
|                  |   |         |             |         |        |  |  |
| Vertical         |   |         |             |         |        |  |  |
| Peak Detector:   |   |         |             |         |        |  |  |
| 4924.000         | 5.521   | 38.260  | 43.780      | -30.220 | 74.000 |  |  |
| 7386.000         | 13.254  | 45.980  | 59.234      | -14.766 | 74.000 |  |  |
| 9848.000         | 13.367  | 38.230  | 51.597      | -22.403 | 74.000 |  |  |
| Average          |   |         |             |         |        |  |  |
| Detector:        |   |         |             |         |        |  |  |
| 7386.000         | 13.254  | 30.530  | 43.784      | -10.216 | 54.000 |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product          | : ASUS M                          | liracast Dongle  |                   |                 |        |  |
|------------------|-----------------------------------|------------------|-------------------|-----------------|--------|--|
| Test Item        | : Harmonic Radiated Emission Data |                  |                   |                 |        |  |
| Test Site        | : No.3 OATS                       |                  |                   |                 |        |  |
| Test Mode        | : Mode 5:                         | Transmit - 802.1 | 1n-20BW_7.2Mbps(5 | 5G Band) (5745M | IHz)   |  |
|                  |                                   |                  |                   |                 |        |  |
| Frequency        | Correct                           | Reading          | Measurement       | Margin          | Limit  |  |
|                  | Factor                            | Level            | Level             |                 |        |  |
| MHz              | dB                                | dBuV             | dBuV/m            | dB              | dBuV/m |  |
| Horizontal       |                                   |                  |                   |                 |        |  |
| Peak Detector:   |                                   |                  |                   |                 |        |  |
| 11490.000        | 17.106                            | 36.750           | 53.857            | -20.143         | 74.000 |  |
|                  |                                   |                  |                   |                 |        |  |
| Average          |                                   |                  |                   |                 |        |  |
| <b>Detector:</b> |                                   |                  |                   |                 |        |  |
|                  |                                   |                  |                   |                 |        |  |
|                  |                                   |                  |                   |                 |        |  |
| Vertical         |                                   |                  |                   |                 |        |  |
| Peak Detector:   |                                   |                  |                   |                 |        |  |
| 11490.000        | 18.034                            | 35.850           | 53.885            | -20.115         | 74.000 |  |
|                  |                                   |                  |                   |                 |        |  |

## Average

#### **Detector:**

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product        | : ASUS N                          | Miracast Dongle    |                   |                  |        |  |  |
|----------------|-----------------------------------|--------------------|-------------------|------------------|--------|--|--|
| Test Item      | : Harmonic Radiated Emission Data |                    |                   |                  |        |  |  |
| Test Site      | : No.3 OATS                       |                    |                   |                  |        |  |  |
| Test Mode      | : Mode 5                          | : Transmit - 802.1 | 1n-20BW_7.2Mbps(5 | 5G Band) (5785 N | /Hz)   |  |  |
|                |                                   |                    |                   |                  |        |  |  |
| Frequency      | Correct                           | Reading            | Measurement       | Margin           | Limit  |  |  |
|                | Factor                            | Level              | Level             |                  |        |  |  |
| MHz            | dB                                | dBuV               | dBuV/m            | dB               | dBuV/m |  |  |
| Horizontal     |                                   |                    |                   |                  |        |  |  |
| Peak Detector: |                                   |                    |                   |                  |        |  |  |
| 11570.000      | 16.809                            | 35.750             | 52.559            | -21.441          | 74.000 |  |  |
| Average        |                                   |                    |                   |                  |        |  |  |
| Detector:      |                                   |                    |                   |                  |        |  |  |
|                |                                   |                    |                   |                  |        |  |  |
|                |                                   |                    |                   |                  |        |  |  |
| Vertical       |                                   |                    |                   |                  |        |  |  |
| Peak Detector: |                                   |                    |                   |                  |        |  |  |
| 11570.000      | 17.698                            | 38.800             | 56.498            | -17.502          | 74.000 |  |  |
| Average        |                                   |                    |                   |                  |        |  |  |
| Detector:      |                                   |                    |                   |                  |        |  |  |
| 11570.000      | 17.698                            | 26.240             | 43.938            | -10.062          | 54.000 |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product        | : ASUS Miracast Dongle  |                  |                   |                  |        |  |  |
|----------------|---|------------------|-------------------|------------------|--------|--|--|
| Test Item      | <ul><li>Harmonic Radiated Emission Data</li><li>No.3 OATS</li></ul> |                  |                   |                  |        |  |  |
| Test Site      |   |                  |                   |                  |        |  |  |
| Test Mode      | : Mode 5:   | Transmit - 802.1 | 1n-20BW_7.2Mbps(5 | 5G Band) (5825 N | /Hz)   |  |  |
|                |   |                  |                   |                  |        |  |  |
| Frequency      | Correct   | Reading          | Measurement       | Margin           | Limit  |  |  |
|                | Factor  | Level            | Level             |                  |        |  |  |
| MHz            | dB  | dBuV             | dBuV/m            | dB               | dBuV/m |  |  |
| Horizontal     |   |                  |                   |                  |        |  |  |
| Peak Detector: |   |                  |                   |                  |        |  |  |
| 11650.000      | 16.158  | 37.830           | 53.988            | -20.012          | 74.000 |  |  |
| Average        |   |                  |                   |                  |        |  |  |
| Detector:      |   |                  |                   |                  |        |  |  |
|                |   |                  |                   |                  |        |  |  |
|                |   |                  |                   |                  |        |  |  |
| Vertical       |   |                  |                   |                  |        |  |  |
| Peak Detector: |   |                  |                   |                  |        |  |  |
| 11650.000      | 17.274  | 39.710           | 56.985            | -17.015          | 74.000 |  |  |
| Average        |   |                  |                   |                  |        |  |  |
| Detector:      |   |                  |                   |                  |        |  |  |
| 11650.000      | 17.274  | 27.880           | 45.155            | -8.845           | 54.000 |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product        | : ASUS M    | : ASUS Miracast Dongle |                  |                |        |  |  |
|----------------|-------------|------------------------|------------------|----------------|--------|--|--|
| Test Item      | : Harmon    | ic Radiated Emiss      | sion Data        |                |        |  |  |
| Test Site      | : No.3 OATS |                        |                  |                |        |  |  |
| Test Mode      | : Mode 6:   | Transmit - 802.1       | 1n-40BW_15Mbps(5 | G Band) (5755M | Hz)    |  |  |
|                |             |                        |                  |                |        |  |  |
| Frequency      | Correct     | Reading                | Measurement      | Margin         | Limit  |  |  |
|                | Factor      | Level                  | Level            |                |        |  |  |
| MHz            | dB          | dBuV                   | dBuV/m           | dB             | dBuV/m |  |  |
| Horizontal     |             |                        |                  |                |        |  |  |
| Peak Detector: |             |                        |                  |                |        |  |  |
| 11510.000      | 17.124      | 35.170                 | 52.294           | -21.706        | 74.000 |  |  |
|                |             |                        |                  |                |        |  |  |
| Average        |             |                        |                  |                |        |  |  |
| Detector:      |             |                        |                  |                |        |  |  |
|                |             |                        |                  |                |        |  |  |
|                |             |                        |                  |                |        |  |  |
| Vertical       |             |                        |                  |                |        |  |  |
| Peak Detector: |             |                        |                  |                |        |  |  |
| 11510.000      | 18.081      | 35.810                 | 53.891           | -20.109        | 74.000 |  |  |

## Average

## **Detector:**

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product          | : ASUS N                          | /iracast Dongle  |                  |                 |        |  |  |
|------------------|-----------------------------------|------------------|------------------|-----------------|--------|--|--|
| Test Item        | : Harmonic Radiated Emission Data |                  |                  |                 |        |  |  |
| Test Site        | : No.3 OATS                       |                  |                  |                 |        |  |  |
| Test Mode        | : Mode 6:                         | Transmit - 802.1 | 1n-40BW_15Mbps(5 | G Band) (5795 M | IHz)   |  |  |
|                  |                                   |                  |                  |                 |        |  |  |
| Frequency        | Correct                           | Reading          | Measurement      | Margin          | Limit  |  |  |
|                  | Factor                            | Level            | Level            |                 |        |  |  |
| MHz              | dB                                | dBuV             | dBuV/m           | dB              | dBuV/m |  |  |
| Horizontal       |                                   |                  |                  |                 |        |  |  |
| Peak Detector:   |                                   |                  |                  |                 |        |  |  |
| 11590.000        | 16.701                            | 35.650           | 52.350           | -21.650         | 74.000 |  |  |
| Average          |                                   |                  |                  |                 |        |  |  |
| <b>Detector:</b> |                                   |                  |                  |                 |        |  |  |
|                  |                                   |                  |                  |                 |        |  |  |
|                  |                                   |                  |                  |                 |        |  |  |
| Vertical         |                                   |                  |                  |                 |        |  |  |
| Peak Detector:   |                                   |                  |                  |                 |        |  |  |
| 11590.000        | 17.567                            | 35.260           | 52.826           | -21.174         | 74.000 |  |  |

## Average

**Detector:** 

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.

| Product    | : ASUS Miracast Dongle           |              |             |         |        |  |  |
|------------|----------------------------------|--------------|-------------|---------|--------|--|--|
| Test Item  | : General Radiated Emission Data |              |             |         |        |  |  |
| Test Site  | : No.3 OATS                      |              |             |         |        |  |  |
| Test Mode  | : Mode 7:                        | Adapter mode |             |         |        |  |  |
|            |                                  |              |             |         |        |  |  |
| Frequency  | Correct                          | Reading      | Measurement | Margin  | Limit  |  |  |
|            | Factor                           | Level        | Level       |         |        |  |  |
| MHz        | dB                               | dBuV         | dBuV/m      | dB      | dBuV/m |  |  |
| Horizontal |                                  |              |             |         |        |  |  |
| 148.500    | -10.250                          | 34.367       | 24.117      | -19.383 | 43.500 |  |  |
| 297.000    | -3.641                           | 33.715       | 30.073      | -15.927 | 46.000 |  |  |
| 445.500    | -3.058                           | 29.349       | 26.291      | -19.709 | 46.000 |  |  |
| 594.000    | 3.882                            | 23.182       | 27.064      | -18.936 | 46.000 |  |  |
| 742.500    | 3.340                            | 28.096       | 31.436      | -14.564 | 46.000 |  |  |
| 891.000    | 5.977                            | 24.713       | 30.690      | -15.310 | 46.000 |  |  |
|            |                                  |              |             |         |        |  |  |
| Vertical   |                                  |              |             |         |        |  |  |
| 136.700    | -5.143                           | 29.513       | 24.370      | -19.130 | 43.500 |  |  |
| 297.000    | -7.263                           | 27.836       | 20.573      | -25.427 | 46.000 |  |  |
| 445.000    | -8.012                           | 37.503       | 29.491      | -16.509 | 46.000 |  |  |
| 594.000    | -4.068                           | 32.232       | 28.164      | -17.836 | 46.000 |  |  |
| 742.500    | 0.470                            | 30.566       | 31.036      | -14.964 | 46.000 |  |  |
| 891.000    | 2.285                            | 25.305       | 27.590      | -18.410 | 46.000 |  |  |

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- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.

| Product    | : ASUS Miracast Dongle                        |         |             |         |        |  |  |
|------------|---|---------|-------------|---------|--------|--|--|
| Test Item  | : General Radiated Emission Data              |         |             |         |        |  |  |
| Test Site  | : No.3 OATS                                   |         |             |         |        |  |  |
| Test Mode  | : Mode 1: Transmit (802.11b 1Mbps) (2437 MHz) |         |             |         |        |  |  |
|            |   |         |             |         |        |  |  |
| Frequency  | Correct                                       | Reading | Measurement | Margin  | Limit  |  |  |
|            | Factor  | Level   | Level       |         |        |  |  |
| MHz        | dB  | dBuV    | dBuV/m      | dB      | dBuV/m |  |  |
| Horizontal |   |         |             |         |        |  |  |
| 95.960     | -7.820  | 44.067  | 36.247      | -7.253  | 43.500 |  |  |
| 243.400    | -6.441  | 39.380  | 32.939      | -13.061 | 46.000 |  |  |
| 499.480    | 0.048   | 31.772  | 31.820      | -14.180 | 46.000 |  |  |
| 625.580    | 1.770   | 30.479  | 32.249      | -13.751 | 46.000 |  |  |
| 709.000    | 3.458   | 31.759  | 35.217      | -10.783 | 46.000 |  |  |
| 798.240    | 5.148   | 29.333  | 34.481      | -11.519 | 46.000 |  |  |
|            |   |         |             |         |        |  |  |
| Vertical   |   |         |             |         |        |  |  |
| 202.660    | -7.739  | 40.774  | 33.035      | -10.465 | 43.500 |  |  |
| 371.440    | -2.737  | 27.003  | 24.266      | -21.734 | 46.000 |  |  |
| 499.480    | -0.852  | 37.291  | 36.439      | -9.561  | 46.000 |  |  |
| 800.180    | 2.801   | 30.782  | 33.583      | -12.417 | 46.000 |  |  |
| 924.340    | 5.550   | 25.853  | 31.403      | -14.597 | 46.000 |  |  |
| 968.960    | 8.191   | 25.696  | 33.887      | -20.113 | 54.000 |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.

| Product    | : ASUS Miracast Dongle           |                  |                    |         |        |  |  |  |
|------------|----------------------------------|------------------|--------------------|---------|--------|--|--|--|
| Test Item  | : General Radiated Emission Data |                  |                    |         |        |  |  |  |
| Test Site  | : No.3 OATS                      |                  |                    |         |        |  |  |  |
| Test Mode  | : Mode 2: T                      | Transmit (802.11 | g 6Mbps) (2437 MHz | z)      |        |  |  |  |
|            |                                  |                  |                    |         |        |  |  |  |
| Frequency  | Correct                          | Reading          | Measurement        | Margin  | Limit  |  |  |  |
|            | Factor                           | Level            | Level              |         |        |  |  |  |
| MHz        | dB                               | dBuV             | dBuV/m             | dB      | dBuV/m |  |  |  |
| Horizontal |                                  |                  |                    |         |        |  |  |  |
| 239.520    | -6.851                           | 39.867           | 33.017             | -12.983 | 46.000 |  |  |  |
| 361.740    | -1.549                           | 34.469           | 32.920             | -13.080 | 46.000 |  |  |  |
| 499.480    | 0.048                            | 32.485           | 32.533             | -13.467 | 46.000 |  |  |  |
| 567.380    | 1.664                            | 32.973           | 34.637             | -11.363 | 46.000 |  |  |  |
| 813.760    | 5.098                            | 27.178           | 32.276             | -13.724 | 46.000 |  |  |  |
| 937.920    | 6.406                            | 23.870           | 30.276             | -15.724 | 46.000 |  |  |  |
|            |                                  |                  |                    |         |        |  |  |  |
| Vertical   |                                  |                  |                    |         |        |  |  |  |
| 181.320    | -9.512                           | 40.636           | 31.124             | -12.376 | 43.500 |  |  |  |
| 355.920    | -3.488                           | 34.087           | 30.599             | -15.401 | 46.000 |  |  |  |
| 499.480    | -0.852                           | 34.702           | 33.850             | -12.150 | 46.000 |  |  |  |
| 567.380    | -5.426                           | 32.366           | 26.940             | -19.060 | 46.000 |  |  |  |
| 798.240    | 2.808                            | 31.314           | 34.122             | -11.878 | 46.000 |  |  |  |
| 968.960    | 8.191                            | 25.916           | 34.107             | -19.893 | 54.000 |  |  |  |
|            |                                  |                  |                    |         |        |  |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.

| Product<br>Test Item | <ul> <li>ASUS Miracast Dongle</li> <li>General Radiated Emission Data</li> </ul> |   |             |         |        |  |  |  |
|----------------------|--|---|-------------|---------|--------|--|--|--|
| Test Mode            | : No.3 OF  | <ul> <li>No.3 OATS</li> <li>Mode 3: Transmit - 802.11a 6Mbps (5785MHz)</li> </ul> |             |         |        |  |  |  |
| Frequency            | Correct  | Reading   | Measurement | Margin  | Limit  |  |  |  |
|                      | Factor   | Level   | Level       |         |        |  |  |  |
| MHz                  | dB   | dBuV  | dBuV/m      | dB      | dBuV/m |  |  |  |
| Horizontal           |  |   |             |         |        |  |  |  |
| 95.960               | -7.820   | 45.124  | 37.304      | -6.196  | 43.500 |  |  |  |
| 239.520              | -6.851   | 39.639  | 32.789      | -13.211 | 46.000 |  |  |  |
| 377.260              | -1.115   | 29.649  | 28.534      | -17.466 | 46.000 |  |  |  |
| 499.480              | 0.048  | 33.488  | 33.536      | -12.464 | 46.000 |  |  |  |
| 693.480              | 3.568  | 31.766  | 35.334      | -10.666 | 46.000 |  |  |  |
| 800.180              | 5.141  | 27.407  | 32.548      | -13.452 | 46.000 |  |  |  |
|                      |  |   |             |         |        |  |  |  |
| Vertical             |  |   |             |         |        |  |  |  |
| 123.120              | -3.921   | 35.120  | 31.199      | -12.301 | 43.500 |  |  |  |
| 499.480              | -0.852   | 34.671  | 33.819      | -12.181 | 46.000 |  |  |  |
| 567.380              | -5.426   | 31.273  | 25.847      | -20.153 | 46.000 |  |  |  |
| 693.480              | 2.168  | 35.220  | 37.388      | -8.612  | 46.000 |  |  |  |
| 798.240              | 2.808  | 28.967  | 31.775      | -14.225 | 46.000 |  |  |  |
| 968.960              | 8.191  | 24.118  | 32.309      | -21.691 | 54.000 |  |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.

| Product    | : ASUS Miracast Dongle           |                    |                   |                  |        |  |  |  |
|------------|----------------------------------|--------------------|-------------------|------------------|--------|--|--|--|
| Test Item  | : General Radiated Emission Data |                    |                   |                  |        |  |  |  |
| Test Site  | : No.3 OATS                      |                    |                   |                  |        |  |  |  |
| Test Mode  | : Mode 4                         | : Transmit - 802.1 | 1n-20BW_7.2Mbps(2 | 2.4G Band) (2437 | ' MHz) |  |  |  |
|            |                                  |                    |                   |                  |        |  |  |  |
| Frequency  | Correct                          | Reading            | Measurement       | Margin           | Limit  |  |  |  |
|            | Factor                           | Level              | Level             |                  |        |  |  |  |
| MHz        | dB                               | dBuV               | dBuV/m            | dB               | dBuV/m |  |  |  |
| Horizontal |                                  |                    |                   |                  |        |  |  |  |
| 99.840     | -7.471                           | 43.421             | 35.950            | -7.550           | 43.500 |  |  |  |
| 361.740    | -1.549                           | 33.996             | 32.447            | -13.553          | 46.000 |  |  |  |
| 499.480    | 0.048                            | 33.438             | 33.486            | -12.514          | 46.000 |  |  |  |
| 625.580    | 1.770                            | 29.820             | 31.590            | -14.410          | 46.000 |  |  |  |
| 813.760    | 5.098                            | 26.571             | 31.669            | -14.331          | 46.000 |  |  |  |
| 916.580    | 6.144                            | 22.406             | 28.550            | -17.450          | 46.000 |  |  |  |
|            |                                  |                    |                   |                  |        |  |  |  |
| Vertical   |                                  |                    |                   |                  |        |  |  |  |
| 123.120    | -3.921                           | 37.903             | 33.982            | -9.518           | 43.500 |  |  |  |
| 192.960    | -9.878                           | 40.718             | 30.840            | -12.660          | 43.500 |  |  |  |
| 357.860    | -3.734                           | 34.377             | 30.643            | -15.357          | 46.000 |  |  |  |
| 499.480    | -0.852                           | 37.626             | 36.774            | -9.226           | 46.000 |  |  |  |
| 567.380    | -5.426                           | 31.003             | 25.577            | -20.423          | 46.000 |  |  |  |
| 798.240    | 2.808                            | 29.151             | 31.959            | -14.041          | 46.000 |  |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.

| Product    | : ASUS Miracast Dongle           |                     |                  |                  |        |  |  |  |
|------------|----------------------------------|---------------------|------------------|------------------|--------|--|--|--|
| Test Item  | : General Radiated Emission Data |                     |                  |                  |        |  |  |  |
| Test Site  | : No.3 OATS                      |                     |                  |                  |        |  |  |  |
| Test Mode  | : Mode 5                         | : Transmit - 802.11 | n-20BW_7.2Mbps(5 | 5G Band) (5785 N | /Hz)   |  |  |  |
|            |                                  |                     |                  |                  |        |  |  |  |
| Frequency  | Correct                          | Reading             | Measurement      | Margin           | Limit  |  |  |  |
|            | Factor                           | Level               | Level            |                  |        |  |  |  |
| MHz        | dB                               | dBuV                | dBuV/m           | dB               | dBuV/m |  |  |  |
| Horizontal |                                  |                     |                  |                  |        |  |  |  |
| 148.340    | -10.254                          | 39.543              | 29.289           | -14.211          | 43.500 |  |  |  |
| 297.720    | -3.633                           | 34.681              | 31.049           | -14.951          | 46.000 |  |  |  |
| 499.480    | 0.048                            | 33.602              | 33.650           | -12.350          | 46.000 |  |  |  |
| 693.480    | 3.568                            | 34.437              | 38.005           | -7.995           | 46.000 |  |  |  |
| 798.240    | 5.148                            | 27.749              | 32.897           | -13.103          | 46.000 |  |  |  |
| 968.960    | 6.981                            | 23.849              | 30.830           | -23.170          | 54.000 |  |  |  |
|            |                                  |                     |                  |                  |        |  |  |  |
| Vertical   |                                  |                     |                  |                  |        |  |  |  |
| 179.380    | -8.591                           | 39.448              | 30.857           | -12.643          | 43.500 |  |  |  |
| 371.440    | -2.737                           | 28.010              | 25.273           | -20.727          | 46.000 |  |  |  |
| 499.480    | -0.852                           | 30.226              | 29.374           | -16.626          | 46.000 |  |  |  |
| 693.480    | 2.168                            | 35.237              | 37.405           | -8.595           | 46.000 |  |  |  |
| 800.180    | 2.801                            | 30.405              | 33.206           | -12.794          | 46.000 |  |  |  |
| 968.960    | 8.191                            | 24.808              | 32.999           | -21.001          | 54.000 |  |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.

| Product    | : ASUS Miracast Dongle           |                  |                  |                |        |  |  |  |
|------------|----------------------------------|------------------|------------------|----------------|--------|--|--|--|
| Test Item  | : General Radiated Emission Data |                  |                  |                |        |  |  |  |
| Test Site  | : No.3 OATS                      |                  |                  |                |        |  |  |  |
| Test Mode  | : Mode 6:                        | Transmit - 802.1 | In-40BW_15Mbps(5 | G Band) (5755M | Hz)    |  |  |  |
|            |                                  |                  |                  |                |        |  |  |  |
| Frequency  | Correct                          | Reading          | Measurement      | Margin         | Limit  |  |  |  |
|            | Factor                           | Level            | Level            |                |        |  |  |  |
| MHz        | dB                               | dBuV             | dBuV/m           | dB             | dBuV/m |  |  |  |
| Horizontal |                                  |                  |                  |                |        |  |  |  |
| 97.900     | -7.650                           | 43.873           | 36.222           | -7.278         | 43.500 |  |  |  |
| 239.520    | -6.851                           | 39.154           | 32.304           | -13.696        | 46.000 |  |  |  |
| 499.480    | 0.048                            | 34.160           | 34.208           | -11.792        | 46.000 |  |  |  |
| 693.480    | 3.568                            | 30.148           | 33.716           | -12.284        | 46.000 |  |  |  |
| 798.240    | 5.148                            | 26.100           | 31.248           | -14.752        | 46.000 |  |  |  |
| 937.920    | 6.406                            | 23.565           | 29.971           | -16.029        | 46.000 |  |  |  |
|            |                                  |                  |                  |                |        |  |  |  |
| Vertical   |                                  |                  |                  |                |        |  |  |  |
| 99.840     | -0.021                           | 34.110           | 34.089           | -9.411         | 43.500 |  |  |  |
| 206.540    | -7.705                           | 39.299           | 31.594           | -11.906        | 43.500 |  |  |  |
| 499.480    | -0.852                           | 34.442           | 33.590           | -12.410        | 46.000 |  |  |  |
| 567.380    | -5.426                           | 32.557           | 27.131           | -18.869        | 46.000 |  |  |  |
| 798.240    | 2.808                            | 27.079           | 29.887           | -16.113        | 46.000 |  |  |  |
| 968.960    | 8.191                            | 23.703           | 31.894           | -22.106        | 54.000 |  |  |  |

- 1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. Measurement Level = Reading Level + Correct Factor.
- 5. Correct Factor = Antenna factor + Cable loss Amplifier gain.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.
- 7. The emission levels of other frequencies are very lower than the limit and not show in test report.
- 8. No emission found between lowest internal used/generated frequency to 30MHz.

## 5. **RF** antenna conducted test

## 5.1. Test Equipment

|   | Equipment         | Manufacturer | Model No./Serial No. | Last Cal.  |
|---|-------------------|--------------|----------------------|------------|
| Х | Spectrum Analyzer | R&S          | FSP40 / 100170       | Jun, 2013  |
|   | Spectrum Analyzer | Agilent      | E4407B / US39440758  | Jun, 2013  |
|   | Spectrum Analyzer | Agilent      | N9010A / MY48030495  | Apr., 2013 |

- Note: 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
  - 2. The test instruments marked with "X" are used to measure the final test results.

## 5.2. Test Setup

#### **RF** antenna Conducted Measurement:



# 5.3. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

# 5.4. Test Procedure

The EUT was tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

## 5.5. Uncertainty

The measurement uncertainty Conducted is defined as  $\pm 1.27$ dB

## 5.6. Test Result of RF antenna conducted test

| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | RF antenna conducted test        |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) |

### Channel 01 (2412MHz) 30MHz-25GHz





## Channel 06 (2437MHz) 30MHz -25GHz

## Channel 11 (2462MHz) 30MHz -25GHz



| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | RF Antenna Conducted Spurious    |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) |

### Channel 01 (2412MHz) 30MHz -25GHz





## Channel 06 (2437MHz) 30MHz -25GHz

## Channel 11 (2462MHz) 30MHz -25GHz



| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | RF Antenna Conducted Spurious    |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 3: Transmit - 802.11a 6Mbps |

### Channel 149 (5745MHz) 30MHz -25GHz



### Channel 149 (5745MHz) 25GHz -40GHz





#### Channel 157 (5785MHz) 30MHz -25GHz

## Channel 157 (5785MHz) 25GHz -40GHz





#### Channel 165 (5825MHz) 30MHz -25GHz

## Channel 165 (5825MHz) 25GHz -40GHz



| Product   | : | ASUS Miracast Dongle                               |
|-----------|---|--|
| Test Item | : | RF Antenna Conducted Spurious                      |
| Test Site | : | No.3 OATS  |
| Test Mode | : | Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) |

## Channel 01 (2412MHz) 30MHz -25GHz



## Channel 06 (2437MHz) 30MHz -25GHz



## Channel 11 (2462MHz) 30MHz -25GHz



| Product   | : | ASUS Miracast Dongle                             |
|-----------|---|--|
| Test Item | : | RF Antenna Conducted Spurious                    |
| Test Site | : | No.3 OATS  |
| Test Mode | : | Mode 5: Transmit - 802.11n-20BW_7.2Mbps(5G Band) |

#### Channel 49 (5745MHz) 30MHz -25GHz



### Channel 49 (5745MHz) 25GHz -40GHz





# Channel 157 (5785MHz) 30MHz -25GHz

## Channel 157 (5785MHz) 25GHz -40GHz





# Channel 165 (5825MHz) 30MHz -25GHz

## Channel 165 (5825MHz) 25GHz -40GHz



| Product   | : | ASUS Miracast Dongle                            |
|-----------|---|---|
| Test Item | : | RF Antenna Conducted Spurious                   |
| Test Site | : | No.3 OATS                                       |
| Test Mode | : | Mode 6: Transmit - 802.11n-40BW_15Mbps(5G Band) |

### Channel 151 (5755MHz) 30MHz -25GHz



## Channel 151 (5755MHz) 25GHz -40GHz





# Channel 159 (5795MHz) 30MHz -25GHz

## Channel 159 (5795MHz) 25GHz -40GHz



## 6. Band Edge

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### 6.1. Test Equipment

#### **RF** Conducted Measurement

The following test equipments are used during the band edge tests:

|   | Equipment           | Manufacturer | Model No./Serial No.   | Last Cal.  |  |
|---|---------------------|--------------|------------------------|------------|--|
|   | Spectrum Analyzer   | R&S          | FSP40 / 100170         | Jun, 2013  |  |
|   | Spectrum Analyzer   | Agilent      | E4407B / US39440758    | Jun, 2013  |  |
| Х | Spectrum Analyzer   | Agilent      | N9010A / MY48030495    | Apr., 2013 |  |
|   | 8-WAY Power Divider | JFW          | 50PD-647 / 526770 0916 | Apr., 2013 |  |

Note:

- 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
- 2. The test instruments marked with "X" are used to measure the final test results.

#### **RF Radiated Measurement:**

The following test equipments are used during the band edge tests:

| T 0:4.    |   | E                 | Mana fastanan   |                                | Last Cal   |
|-----------|---|-------------------|-----------------|--------------------------------|------------|
| Test Site |   | Equipment         | Manufacturer    | Model No./Serial No.           | Last Cal.  |
| Site # 3  |   | Bilog Antenna     | Schaffner Chase | CBL6112B/2673                  | Sep., 2013 |
|           | Х | Horn Antenna      | Schwarzbeck     | BBHA9120D/D305                 | Sep., 2013 |
|           |   | Horn Antenna      | Schwarzbeck     | BBHA9170/208                   | Jul., 2013 |
|           |   | Pre-Amplifier     | QTK             | QTK-AMP-03 / 0003              | May, 2013  |
|           | Х | Pre-Amplifier     | QTK             | AP-180C / CHM_0906076          | Sep., 2013 |
|           |   | Pre-Amplifier     | MITEQ           | AMF-4D-180400-45-6P/<br>925975 | Mar, 2013  |
|           | Х | Spectrum Analyzer | Agilent         | E4407B / US39440758            | May, 2013  |
|           |   | Test Receiver     | R & S           | ESCS 30/ 825442/018            | Sep., 2013 |
|           | Х | Coaxial Cable     | QuieTek         | QTK-CABLE/ CAB5                | Feb., 2013 |
|           | Χ | Controller        | QuieTek         | QTK-CONTROLLER/ CTRL3          | N/A        |
|           | Χ | Coaxial Switch    | Anritsu         | MP59B/6200265729               | N/A        |

Note:

1. All instruments are calibrated every one year.

2. The test instruments marked by "X" are used to measure the final test results.

## 6.2. Test Setup

#### **RF** Conducted Measurement



#### **RF Radiated Measurement:**



#### 6.3. Limits

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

## 6.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2009 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2009. on radiated measurement.

### 6.5. Uncertainty

- ± 3.9 dB above 1GHz
- ± 3.8 dB below 1GHz
#### 6.6. **Test Result of Band Edge**

| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge                        |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) |

#### **RF Radiated Measurement (Horizontal):**

| Channel No.  | Frequency | Correct Factor | Reading Level | <b>Emission Level</b> | Peak Limit | Arerage Limit | Dogult |
|--------------|-----------|----------------|---------------|-----------------------|------------|---------------|--------|
|              | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)              | (dBuV/m)   | (dBuV/m)      | Result |
| 01 (Peak)    | 2388.200  | 31.502         | 24.781        | 56.283                | 74.00      | 54.00         | Pass   |
| 01 (Peak)    | 2390.000  | 31.509         | 24.549        | 56.058                | 74.00      | 54.00         | Pass   |
| 01 (Peak)    | 2413.000  | 31.646         | 70.416        | 102.062               |            |               |        |
| 01 (Average) | 2387.200  | 31.498         | 13.286        | 44.784                | 74.00      | 54.00         | Pass   |
| 01 (Average) | 2390.000  | 31.509         | 12.599        | 44.108                | 74.00      | 54.00         | Pass   |
| 01 (Average) | 2411.200  | 31.632         | 66.483        | 98.115                |            |               |        |





#### **Figure Channel 01:**

Horizontal (Average)



Note:1.

- 2. 3.
- 4.
- 5. Measurement Level = Reading Level + Correct Factor.
- The average measurement was not performed when the peak measured data under the limit of average 6. detection.

| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge                        |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) |

#### **RF Radiated Measurement (Vertical):**

| Channel No.  | Frequency | Correct Factor | Reading Level | <b>Emission Level</b> | Peak Limit | Arerage Limit | Degult |
|--------------|-----------|----------------|---------------|-----------------------|------------|---------------|--------|
|              | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)              | (dBuV/m)   | (dBuV/m)      | Result |
| 01 (Peak)    | 2387.400  | 30.927         | 25.430        | 56.357                | 74.00      | 54.00         | Pass   |
| 01 (Peak)    | 2390.000  | 30.915         | 23.845        | 54.760                | 74.00      | 54.00         | Pass   |
| 01 (Peak)    | 2413.000  | 30.956         | 71.610        | 102.566               |            |               |        |
| 01 (Average) | 2387.400  | 30.927         | 13.923        | 44.850                | 74.00      | 54.00         | Pass   |
| 01 (Average) | 2390.000  | 30.915         | 13.067        | 43.982                | 74.00      | 54.00         | Pass   |
| 01 (Average) | 2411.200  | 30.944         | 67.801        | 98.745                |            |               |        |









Vertical (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge                        |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) |

#### **RF Radiated Measurement (Horizontal):**

| Channel No.  | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Arerage Limit | Dogult |
|--------------|-----------|----------------|---------------|----------------|------------|---------------|--------|
|              | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)       | (dBuV/m)   | (dBuV/m)      | Result |
| 11 (Peak)    | 2460.900  | 32.011         | 66.806        | 98.817         |            |               |        |
| 11 (Peak)    | 2483.500  | 32.182         | 24.290        | 56.472         | 74.00      | 54.00         | Pass   |
| 11 (Average) | 2461.300  | 32.014         | 63.035        | 95.049         |            |               |        |
| 11 (Average) | 2483.500  | 32.182         | 12.380        | 44.562         | 74.00      | 54.00         | Pass   |

#### **Figure Channel 11:**

#### Horizontal (Peak)



#### Figure Channel 11:

Horizontal (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge                        |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) |

#### **RF Radiated Measurement (Vertical):**

| Channel No.  | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Arerage Limit | Degult |
|--------------|-----------|----------------|---------------|----------------|------------|---------------|--------|
|              | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)       | (dBuV/m)   | (dBuV/m)      | Result |
| 11 (Peak)    | 2462.900  | 31.296         | 70.441        | 101.737        |            |               |        |
| 11 (Peak)    | 2483.500  | 31.435         | 24.322        | 55.757         | 74.00      | 54.00         | Pass   |
| 11 (Average) | 2461.100  | 31.285         | 66.612        | 97.896         |            |               |        |
| 11 (Average) | 2483.500  | 31.435         | 12.374        | 43.809         | 74.00      | 54.00         | Pass   |





Vertical (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge                        |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) |

#### **RF Radiated Measurement (Horizontal):**

| Channel No.  | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Arerage Limit | Dogult |
|--------------|-----------|----------------|---------------|----------------|------------|---------------|--------|
|              | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)       | (dBuV/m)   | (dBuV/m)      | Result |
| 01 (Peak)    | 2390.000  | 31.509         | 40.170        | 71.679         | 74.00      | 54.00         | Pass   |
| 01 (Peak)    | 2414.800  | 31.660         | 73.563        | 105.223        |            |               |        |
| 01 (Average) | 2390.000  | 31.509         | 18.878        | 50.387         | 74.00      | 54.00         | Pass   |
| 01 (Average) | 2416.800  | 31.675         | 61.536        | 93.211         |            |               |        |





Horizontal (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge                        |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) |

#### **RF Radiated Measurement (Vertical):**

| Channel No.  | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Arerage Limit | Dogult |
|--------------|-----------|----------------|---------------|----------------|------------|---------------|--------|
|              | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)       | (dBuV/m)   | (dBuV/m)      | Result |
| 01 (Peak)    | 2390.000  | 30.915         | 42.050        | 72.965         | 74.00      | 54.00         | Pass   |
| 01 (Peak)    | 2415.400  | 30.972         | 74.929        | 105.901        |            |               |        |
| 01 (Average) | 2390.000  | 30.915         | 19.961        | 50.876         | 74.00      | 54.00         | Pass   |
| 01 (Average) | 2416.600  | 30.981         | 62.742        | 93.723         |            |               |        |



#### **Figure Channel 01:**

Vertical (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge                        |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) |

#### **RF Radiated Measurement (Horizontal):**

|              | Frequency | Correct Factor | Reading Level | <b>Emission Level</b> | Peak Limit | Arerage Limit | Dogult |
|--------------|-----------|----------------|---------------|-----------------------|------------|---------------|--------|
| Channel No.  | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)              | (dBuV/m)   | (dBuV/m)      | Result |
| 11 (Peak)    | 2465.300  | 32.044         | 73.512        | 105.556               |            |               |        |
| 11 (Peak)    | 2483.500  | 32.182         | 41.148        | 73.330                | 74.00      | 54.00         | Pass   |
| 11 (Peak)    | 2483.900  | 32.185         | 41.704        | 73.889                | 74.00      | 54.00         | Pass   |
| 11 (Average) | 2467.500  | 32.061         | 61.159        | 93.220                |            |               |        |
| 11 (Average) | 2483.500  | 32.182         | 19.466        | 51.648                | 74.00      | 54.00         | Pass   |





Horizontal (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

# QuieTer

| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge                        |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) |

#### **RF Radiated Measurement (Vertical):**

| Channel No.  | Frequency | Correct Factor | Reading Level | <b>Emission Level</b> | Peak Limit | Arerage Limit | Dogult |
|--------------|-----------|----------------|---------------|-----------------------|------------|---------------|--------|
|              | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)              | (dBuV/m)   | (dBuV/m)      | Result |
| 11 (Peak)    | 2465.300  | 31.313         | 74.101        | 105.414               |            |               | -      |
| 11 (Peak)    | 2483.500  | 31.435         | 41.647        | 73.082                | 74.00      | 54.00         | Pass   |
| 11 (Peak)    | 2483.900  | 31.438         | 41.799        | 73.237                | 74.00      | 54.00         | Pass   |
| 11 (Average) | 2467.900  | 31.330         | 61.780        | 93.110                |            |               |        |
| 11 (Average) | 2483.500  | 31.435         | 19.887        | 51.322                | 74.00      | 54.00         | Pass   |





Vertical (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product   | : | ASUS Miracast Dongle                               |
|-----------|---|--|
| Test Item | : | Band Edge  |
| Test Site | : | No.3 OATS  |
| Test Mode | : | Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) |

#### **RF Radiated Measurement (Horizontal):**

| Channel No.  | Frequency | Correct Factor | Reading Level | <b>Emission Level</b> | Peak Limit | Arerage Limit | Dogult |
|--------------|-----------|----------------|---------------|-----------------------|------------|---------------|--------|
|              | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)              | (dBuV/m)   | (dBuV/m)      | Result |
| 01 (Peak)    | 2389.800  | 31.508         | 42.090        | 73.598                | 74.00      | 54.00         | Pass   |
| 01 (Peak)    | 2390.000  | 31.509         | 39.391        | 70.900                | 74.00      | 54.00         | Pass   |
| 01 (Peak)    | 2415.600  | 31.665         | 72.901        | 104.567               |            |               |        |
| 01 (Average) | 2390.000  | 31.509         | 20.985        | 52.494                | 74.00      | 54.00         | Pass   |
| 01 (Average) | 2417.000  | 31.676         | 61.050        | 92.727                |            |               |        |





Horizontal (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product   | : | ASUS Miracast Dongle                               |
|-----------|---|--|
| Test Item | : | Band Edge  |
| Test Site | : | No.3 OATS  |
| Test Mode | : | Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) |

#### **RF Radiated Measurement (Vertical):**

| Channel No.  | Frequency | Correct Factor | Reading Level | <b>Emission Level</b> | Peak Limit | Arerage Limit | Dogult |
|--------------|-----------|----------------|---------------|-----------------------|------------|---------------|--------|
|              | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)              | (dBuV/m)   | (dBuV/m)      | Result |
| 01 (Peak)    | 2390.000  | 30.915         | 43.012        | 73.927                | 74.00      | 54.00         | Pass   |
| 01 (Peak)    | 2417.800  | 30.989         | 74.408        | 105.397               |            |               |        |
| 01 (Average) | 2390.000  | 30.915         | 21.903        | 52.818                | 74.00      | 54.00         | Pass   |
| 01 (Average) | 2416.800  | 30.982         | 62.054        | 93.036                |            |               |        |





Vertical (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product   | : | ASUS Miracast Dongle                               |
|-----------|---|--|
| Test Item | : | Band Edge  |
| Test Site | : | No.3 OATS  |
| Test Mode | : | Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) |

#### **RF Radiated Measurement (Horizontal):**

| Channal Ma   | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Arerage Limit | Docult |
|--------------|-----------|----------------|---------------|----------------|------------|---------------|--------|
| Channel No.  | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)       | (dBuV/m)   | (dBuV/m)      | Result |
| 11 (Peak)    | 2464.900  | 32.042         | 72.302        | 104.343        |            |               |        |
| 11 (Peak)    | 2483.500  | 32.182         | 40.973        | 73.155         | 74.00      | 54.00         | Pass   |
| 11 (Peak)    | 2485.100  | 32.194         | 41.777        | 73.971         | 74.00      | 54.00         | Pass   |
| 11 (Average) | 2467.700  | 32.063         | 59.905        | 91.967         |            |               |        |
| 11 (Average) | 2483.500  | 32.182         | 19.486        | 51.668         | 74.00      | 54.00         | Pass   |





Horizontal (Average)



- 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.
- 3. Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection. Note:

| Product   | : | ASUS Miracast Dongle                               |
|-----------|---|--|
| Test Item | : | Band Edge  |
| Test Site | : | No.3 OATS  |
| Test Mode | : | Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) |

#### **RF Radiated Measurement (Vertical):**

| Channel Ma   | Frequency | Correct Factor | Reading Level | Emission Level | Peak Limit | Arerage Limit | Regult |
|--------------|-----------|----------------|---------------|----------------|------------|---------------|--------|
| Channel No.  | (MHz)     | (dB)           | (dBuV)        | (dBuV/m)       | (dBuV/m)   | (dBuV/m)      | Result |
| 11 (Peak)    | 2467.500  | 31.327         | 71.820        | 103.147        |            |               |        |
| 11 (Peak)    | 2483.500  | 31.435         | 39.317        | 70.752         | 74.00      | 54.00         | Pass   |
| 11 (Peak)    | 2483.900  | 31.438         | 41.672        | 73.110         | 74.00      | 54.00         | Pass   |
| 11 (Average) | 2468.300  | 31.333         | 59.722        | 91.055         |            |               |        |
| 11 (Average) | 2483.500  | 31.435         | 18.988        | 50.423         | 74.00      | 54.00         | Pass   |





Vertical (Average)



Note:1. All readings above 1GHz are performed with peak and/or average measurements as necessary. 2. Peak measurements: RBW = 1MHz, VBW = 3 MHz, Sweep: Auto.

- Average measurements: RBW = 1MHz, VBW = 10 Hz, Sweep: Auto.
- 4. "\*", means this data is the worst emission level.
- 5. Measurement Level = Reading Level + Correct Factor.
- 6. The average measurement was not performed when the peak measured data under the limit of average detection.

| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge                        |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 3: Transmit - 802.11a 6Mbps |

| Test Frequency | Measurement Level | Limit         | Result |
|----------------|-------------------|---------------|--------|
| (MHz)          | $\Delta$ (dB)     | $\Delta$ (dB) |        |
| 5745           | 32.52             | >20           | PASS   |

| Agilent S   | ipectru  | m Ana                 | alyzer - Swe    | pt SA              |             |                     |                    |           |                            |                                    |                                  |                                      |
|---|--|-----------------------|-----------------|--------------------|-------------|---------------------|--------------------|-----------|----------------------------|------------------------------------|----------------------------------|--------------------------------------|
| Cente   | ər Fr  | <sub>RF</sub><br>eq ( | 50 Ω<br>5.72500 | AC 0000 GH         | z           | SEP                 |                    | Avg T     | ALIGN AUTO<br>ype: Log-Pwr | 02:12:03 A<br>TRAC                 | M Sep 05, 2013<br>CE 1 2 3 4 5 6 | Frequency                            |
| 10 dB/  | PNO: Fast Trg: Free Run<br>IFGain:Low #Atten: 30 dB Mkr2 5.725 0 GHz<br>-31.27 dBm |                       |                 |                    |             |                     |                    | Auto Tune |                            |                                    |                                  |                                      |
| Log<br>10.0 -<br>0.00 -   |  |                       |                 |                    |             |                     |                    | 1<br>1    | hatalala la la la          |                                    |                                  | Center Freq<br>5.725000000 GHz       |
| -20.0 =<br>-30.0<br>-40.0   |  | _                     |                 |                    |             |                     | 2<br>Aradinationsh |           |                            | Towned and the state of the second | -18.75 dBm                       | <b>Start Freq</b><br>5.675000000 GHz |
| -50.0   | malantas   |                       |                 | umassontrinderi    | nnellenuhut |                     |                    |           |                            |                                    | 11mandetat                       | <b>Stop Freq</b><br>5.775000000 GHz  |
| Cente<br>#Res   | r 5.7<br>BW 1  | 250<br>100            | 0 GHz<br>kHz    |                    | #VB\        | N 1.0 MHz           | 2                  |           | #Sweep                     | Span 1<br>500 ms (                 | 00.0 MHz<br>1001 pts)            | CF Step<br>10.000000 MHz             |
| Mile         Mile           1         N           2         N           3 |  |                       |                 | 5.738 7<br>5.725 ( | GHz<br>)GHz | 1.25 dE<br>31.27 dE |                    |           | FUNCTION WIDTH             |                                    |                                  | Freq Offset<br>0 Hz                  |
| MSG   |  |                       |                 |                    |             |                     |                    |           | STATU                      | S                                  |                                  | L                                    |

| Product   | : | ASUS Miracast Dongle             |
|-----------|---|----------------------------------|
| Test Item | : | Band Edge                        |
| Test Site | : | No.3 OATS                        |
| Test Mode | : | Mode 3: Transmit - 802.11a 6Mbps |

| Test Frequency | Measurement Level | Limit         | Result |
|----------------|-------------------|---------------|--------|
| (MHz)          | $\Delta$ (dB)     | $\Delta$ (dB) |        |
| 5825           | 42.32             | >20           | PASS   |

| Agilent Spectrum Analyzer -   | Swept SA                          |                        |   |   |                                    |
|---|-----------------------------------|------------------------|---|---|------------------------------------|
| Center Freq 5.850   | οΩ AC 000000 GHz                  | SENSE:INT              | ALIGN AUTO<br>Avg Type: Log-Pwr   | 03:05:24 AM Sep 05, 2013<br>TRACE 1 2 3 4 5 6 | Frequency                          |
| 10 dB/div Ref 20.0  | PNO: Fast<br>IFGain:Low<br>0 dBm  | #Atten: 30 dB          | MI  | r2 5.850 0 GHz<br>-39.74 dBm                  | Auto Tune                          |
| 10.0  | Land Marting Participation of the |                        |   |   | Center Freq<br>5.85000000 GHz      |
| -10.0<br>-20.0<br>-30.0<br>-40.0  |                                   | 2-2-2-2-               |   | -17.42 dBm                                    | Start Freq<br>5.80000000 GHz       |
| -50.0<br>-60.0<br>-70.0   |                                   |                        | The contraction of the second | annon an  | <b>Stop Freq</b><br>5.90000000 GHz |
| Center 5.85000 GHz<br>#Res BW 100 kHz   | 2<br>#V                           | BW 1.0 MHz             | #Sweep  | Span 100.0 MHz<br>500 ms (1001 pts)           | CF Step<br>10.000000 MHz           |
| MAR         Mable         TRC         SLL           1         N         1         f           2         N         1         f           3         -         -         -           4         -         -         -           5         -         -         -           6         -         -         -           7         -         -         -           9         -         -         -           10         -         -         -           11         -         -         - | 5.830 0 GHz<br>5.850 0 GHz        | 2.58 dBm<br>-39.74 dBm |   |   | Freq Offset                        |

| : | ASUS Miracast Dongle                             |
|---|--|
| : | Band Edge  |
| : | No.3 OATS  |
| : | Mode 5: Transmit - 802.11n-20BW_7.2Mbps(5G Band) |
|   | :  |

| Test Frequency | Measurement Level | Limit         | Result |
|----------------|-------------------|---------------|--------|
| (MHz)          | $\Delta$ (dB)     | $\Delta$ (dB) |        |
| 5745           | 28.73             | >20           | PASS   |

| MR         N         I         F         SO Q         AC         Sense INT         ALIGNAUTO         D033305AM sep05,2013         Frequency           Center Freq 5.72500000 GHz         Trig: Free Run<br>IFGain:Low         Avg Type: Log-Pwr         TRACE [1 2 3 4 5         Frequency           Mkr2 5.725 0 GHz         Trig: Free Run<br>IFGain:Low         Mkr2 5.725 0 GHz         Genter Free         Auto Tune           10 dB/div         Ref 20.00 dBm         -26.19 dBm         -26.19 dBm         -26.500000 GHz           10.0         -30.0         -30.0         -37.45 dBm         -37.45 dBm         -37.45 dBm           -20.0         -37.0         -37.45 dBm         -37.45 dBm         -37.5500 GHz         Start Free           Frequency         -37.45 dBm         -37.45 dBm         -37.5500 GHz         -37.5500 GHz         -37.5700 GHz         -37.45 dBm         -37.5700 GHz         -37.7500 GHz         -37.7500 GHz         -37.45 dBm         -37.45 dBm         -37.75000 GHz         -37.45 dBm         -37.57.50 GHz         -25.4 dBm         -37.57.50 GHz         -36.19 dBm         -37.45 dBm         -37.45 dBm         -37.45 dBm         -37.45 dBm         -37.45 dBm         -37.45 dBm         -37. | Agilent Spect                                 | rum Analyzer - S         | iwept SA                   |                        |                |                          |                            |                                 |                                      |
|--|---|--------------------------|----------------------------|------------------------|----------------|--------------------------|----------------------------|---------------------------------|--------------------------------------|
| Pho: Fast         Thig. Free Adit         Mkr2 5.725 0 GHz         Auto Tune           10 dB/div         Ref 20.00 dBm         -26.19 dBm         -26.19 dBm         Center Free           10 dB/div         Ref 20.00 dBm         -26.19 dBm         -26.19 dBm         Center Free           10 dB/div         Ref 20.00 dBm         -26.19 dBm         -26.19 dBm         Center Free           10 dB/div         -20 d         -17.45 dBm         -26.19 dBm         Start Free           20 d         -20 d         -17.45 dBm         -26.19 dBm         -26.19 dBm         Start Free           30 d         -20 d         -27 d         -17.45 dBm         -26.19 dBm                          | Center F                                      | RF   50<br>req 5.7250    | Ω AC 000000 GHz            | SENSE:                 | INT Avg Type   | ALIGN AUTO<br>e: Log-Pwr | 03:33:05 A                 | M Sep 05, 2013<br>E 1 2 3 4 5 6 | Frequency                            |
| 100       1  | 10 dB/div                                     | Ref 20.00                | PNO: Fast<br>IFGain:Lov    | #Atten: 30 dl          | B              | Mk                       | r2 5.72<br>-26.            | 5 0 GHz<br>19 dBm               | Auto Tune                            |
| 20.0   |   |                          |                            |                        | - Andrew State | 1<br>statedwinder        |                            |                                 | Center Freq<br>5.725000000 GHz       |
| Stop Free           60.0   | -20.0<br>-30.0<br>-40.0                       |                          |                            | 2<br>NHAN W HAPPART    |                |                          | Nager of the second second | -17.45 dBm                      | Start Freq<br>5.675000000 GHz        |
| Center 5.72500 GHz         Span 100.0 MHz         CF Step<br>10.000000 MHz           #Res BW 100 kHz         #VBW 1.0 MHz         #Sweep 500 ms (1001 pts)         Auto           1         N         1         f         5.743 7 GHz         2.54 dBm         Auto         Mar           2         N         1         f         5.725 0 GHz         -26.19 dBm         Function         Function value         Freq Offse           4         6  | -50.0<br>-60.0<br>-70.0                       | ng yaa ayaa galaa hadhad | - manunan miller har har   |                        |                |                          |                            |                                 | <b>Stop Freq</b><br>5.775000000 GHz  |
| I         N         I         F         5.743 7 GHz         2.54 dBm           2         N         1         f         5.725 0 GHz         -26.19 dBm         Freq Offse           3         -         -         -         -         -         -           4         -         -         -         -         -         0 H:           5         -         -         -         -         -         0 H:           6         -         -         -         -         -         -         0 H:  | Center 5.<br>#Res BW                          | 72500 GHz<br>100 kHz     | #V                         | BW 1.0 MHz             |                | #Sweep                   | Span 1<br>500 ms (         | 00.0 MHz<br>(1001 pts)          | CF Step<br>10.000000 MHz<br>Auto Man |
| 8         9         10         11           11         12         12         12  | 1         N           2         N           3 |                          | 6.743 7 GHz<br>6.725 0 GHz | 2.54 dBm<br>-26.19 dBm |                |                          |                            |                                 | Freq Offset<br>0 Hz                  |

| Product   | : | ASUS Miracast Dongle                             |
|-----------|---|--|
| Test Item | : | Band Edge  |
| Test Site | : | No.3 OATS  |
| Test Mode | : | Mode 5: Transmit - 802.11n-20BW_7.2Mbps(5G Band) |

| Test Frequency | Measurement Level | Limit         | Result |
|----------------|-------------------|---------------|--------|
| (MHz)          | $\Delta$ (dB)     | $\Delta$ (dB) |        |
| 5825           | 35.53             | >20           | PASS   |

| Agilent Spect  | rum Analyzer              | - Swept SA            |                         |   |        |             |                          |                    |                                 |                                      |
|--|---------------------------|-----------------------|-------------------------|---|--------|-------------|--------------------------|--------------------|---------------------------------|--------------------------------------|
| Center F   | <sup>RF</sup><br>req 5.85 | 50Ω AC<br>0000000 GH  | z                       | SEN   | BE:INT | Avg Typ     | ALIGN AUTO<br>e: Log-Pwr | 04:22:25 A<br>TRAC | M Sep 05, 2013<br>E 1 2 3 4 5 6 | Frequency                            |
| 10 dB/div  | Ref 20.                   | Pr<br>IFC<br>00 dBm   | 10: Fast  ⊊<br>Gain:Low | Atten: 30   | dB     |             | Mł                       | (r2 5.85)<br>-31.  | D 0 GHz<br>14 dBm               | Auto Tune                            |
| 10.0   |                           | 1<br>مەلىلىم لىمم لىر | wholey                  |   |        |             |                          |                    |                                 | Center Freq<br>5.85000000 GHz        |
| -20.0<br>-30.0 http://www.and.org  | Window Walnut and         |                       | Verporting              | the free state of the state of | 2      | Thullough . |                          |                    | -15.61 dBm                      | Start Freq<br>5.80000000 GHz         |
| -50.0<br>-60.0<br>-70.0  |                           |                       |                         |   |        |             | halony a phyloden of     | nohis-listua-shore | an an an Anna State State       | <b>Stop Freq</b><br>5.90000000 GHz   |
| Center 5.<br>#Res BW   | 85000 GH<br>100 kHz       | łz                    | #VBV                    | V 1.0 MHz   |        |             | #Sweep                   | Span 1<br>500 ms ( | 00.0 MHz<br>1001 pts)           | CF Step<br>10.000000 MHz<br>Auto Man |
| Altr         Adds           1         N         1           2         N         1           3         4         5           6         7         8           9         10         11           12         12         12 |                           | 5.820 (<br>5.850 (    | D GHz                   | 4.39 dB<br>-31.14 dB  |        |             | etatu                    | FUNCTIO            |                                 | Freq Offset<br>0 Hz                  |

| Product   | : | ASUS Miracast Dongle                            |
|-----------|---|---|
| Test Item | : | Band Edge                                       |
| Test Site | : | No.3 OATS                                       |
| Test Mode | : | Mode 6: Transmit - 802.11n-40BW_15Mbps(5G Band) |

| Test Frequency | Measurement Level | Limit         | Result |
|----------------|-------------------|---------------|--------|
| (MHz)          | $\Delta$ (dB)     | $\Delta$ (dB) |        |
| 5755           | 25.22             | >20           | PASS   |

| Agilent Spectrum Analyzer - S  | iwept SA                     |                               |                                 |   |                                      |
|--|------------------------------|-------------------------------|---------------------------------|---|--------------------------------------|
| Center Freq 5.7250   | Ω AC<br>000000 GHz           | SENSE:INT                     | ALIGN AUTO<br>Avg Type: Log-Pwr | 05:01:59 AM Sep 05, 2013<br>TRACE 1 2 3 4 5 6 | Frequency                            |
| 10 dB/div Ref 20.00  | PN0: Fast C<br>IFGain:Low    | #Atten: 30 dB                 | Mki                             | r2 5.725 00 GHz<br>-25.31 dBm                 | Auto Tune                            |
| 10.0<br>0.00   |                              | ىلى                           | 1<br>Linder Sharling production | 4u  | Center Freq<br>5.725000000 GHz       |
| -20.0  | an eribere fraerierer        | 2<br>Martin and Martin Martin |                                 | -20.09 dBm                                    | Start Freq<br>5.65000000 GHz         |
| -50.0<br>-60.0   | and many charter and         |                               |                                 |   | <b>Stop Freq</b><br>5.80000000 GHz   |
| Center 5.72500 GHz<br>#Res BW 100 kHz  | #VB                          | W 1.0 MHz                     | #Sweep                          | Span 150.0 MHz<br>500 ms (1001 pts)           | CF Step<br>15.000000 MHz<br>Auto Man |
| No.7 adds:         THC SLL           1         N         1           2         N         1           3         -         -           4         -         -           5         -         -           6         -         -           7         -         -           8         -         -           9         -         -           11         -         -           12         -         - | 5.750 05 GHz<br>5.725 00 GHz | -0.09 dBm<br>-25.31 dBm       |                                 |   | Freq Offset                          |

| Product   | : | ASUS Miracast Dongle                            |
|-----------|---|---|
| Test Item | : | Band Edge                                       |
| Test Site | : | No.3 OATS                                       |
| Test Mode | : | Mode 6: Transmit - 802.11n-40BW_15Mbps(5G Band) |

| Test Frequency | Measurement Level | Limit         | Result |
|----------------|-------------------|---------------|--------|
| (MHz)          | $\Delta$ (dB)     | $\Delta$ (dB) |        |
| 5795           | 42.71             | >20           | PASS   |

| Agilent Spectrum Analyzer - Swept   | SA   |  |
|---|--|--|
| ⊠ RL RF 50Ω<br>Center Freq 5.850000   | AC SENSE:II  | ALIGN AUTO 05:39:22 AM Sep 05, 2013<br>Avg Type: Log-Pwr TRACE 12 3 4 5 6<br>Trequency |
| 10 dB/div Ref 20.00 dB  | PNO: Fast C This Free Ru<br>IFGain:Low #Atten: 30 dB | Mkr2 5.850 00 GHz<br>-42.35 dBm  |
| 10.0<br>0.00<br>-10.0   | artay  | Center Free<br>5.85000000 GH   |
| -20.0   | 22   | 19.64 dBm<br>Start Free<br>5.775000000 GH  |
| -50.0   |  | Stop Fred<br>5.925000000 GH  |
| Center 5.85000 GHz<br>#Res BW 100 kHz   | #VBW 1.0 MHz   | Span 150.0 MHz<br>#Sweep 500 ms (1001 pts)<br>EINCTION EINCTION                        |
| I         N         I         F           2         N         1         f           3         -         -         -           4         -         -         -           5         -         -         -           6         -         -         -           7         -         -         -           9         -         -         -           10         -         -         -           11         -         -         - | 5.790 00 GHz 0.36 dBm<br>5.850 00 GHz -42.35 dBm     | FreqOffse  |

### 7. Occupied Bandwidth

### 7.1. Test Equipment

|   | Equipment         | Manufacturer | Model No./Serial No. | Last Cal.  |
|---|-------------------|--------------|----------------------|------------|
|   | Spectrum Analyzer | R&S          | FSP40 / 100170       | Jun, 2013  |
|   | Spectrum Analyzer | Agilent      | E4407B / US39440758  | Jun, 2013  |
| Х | Spectrum Analyzer | Agilent      | N9010A / MY48030495  | Apr., 2013 |

#### Note:

- 1. All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.
- 2. The test instruments marked with "X" are used to measure the final test results.

### 7.2. Test Setup



### 7.3. Limits

The minimum bandwidth shall be at least 500 kHz.

### 7.4. Test Procedure

The EUT was setup according to ANSI C63.10, 2009; tested according to DTS test procedure of KDB558074 for compliance to FCC 47CFR 15.247 requirements.

### 7.5. Uncertainty

 $\pm$  150Hz

## 7.6. Test Result of Occupied Bandwidth

| Product   | : | ASUS Miracast Dongle                       |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data                    |
| Test Site | : | No.3 OATS                                  |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) (2412MHz) |

| Channel No. | Frequency<br>(MHz) | Measurement Level<br>(kHz) | Required Limit<br>(kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 1           | 2412.00            | 10200                      | >500                    | Pass   |

### Figure Channel 1:

| Agiler                                     | nt Spe         | ectrun      | n An        | alyzer - Swe    | ept SA                           |                         |                                 |                |           |                         |                         |   |                                     |
|--|----------------|-------------|-------------|-----------------|----------------------------------|-------------------------|---------------------------------|----------------|-----------|-------------------------|-------------------------|---|-------------------------------------|
| Cer  | nter           | Fre         | RF<br>Paq 2 | 50 Ω<br>2.41200 | AC<br>00000 GH                   | Iz                      | SE                              |                | Avg Typ   | ALIGNAUTO<br>e: Log-Pwr | 11:45:03P<br>TRA(<br>TY | M Sep 04, 2013<br>CE 1 2 3 4 5 6<br>PE M 44404444 | Frequency                           |
| 10 d                                       | B/div          |             | Ref         | f 20.00 (       | dBm                              | 10: Fast 🕞<br>Sain:Low  | #Atten: 3                       | 0 dB           |           | Mkr                     | 2 2.406<br>-4.          | 90 GHz<br>32 dBm                                  | Auto Tune                           |
| Log<br>10.0<br>0.00<br>-10.0               |                |             | -           |                 |                                  | - Nert                  | 2. marala                       | 1              | 3<br>//4  |                         |                         | 2.36 dBm  | Center Freq<br>2.412000000 GHz      |
| -20.0<br>-30.0<br>-40.0                    |                |             | +           | myre            | Margar M                         | and the second          |                                 |                |           | Con man                 | May and                 |   | Start Freq<br>2.387000000 GHz       |
| -50.0<br>-60.0<br>-70.0                    | )              | m           | Xay P       | <u>,u y</u>     | Y                                |                         |                                 |                |           |                         | Varbo                   | mmakanyleh  | <b>Stop Freq</b><br>2.437000000 GHz |
| Cen<br>#Re                                 | nter :<br>s Bl | 2.41<br>W 1 | 120<br>00   | 0 GHz<br>kHz    | ×                                | #VBV                    | √ 300 kHz                       | :<br>Fur       | NCTION FU | Sweep                   | Span 5<br>4.80 ms (     | 0.00 MHz<br>(1001 pts)                            | CF Step<br>5.000000 MHz<br>Auto Man |
| 1<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10 |                |             | f<br>f      |                 | 2.411 00<br>2.406 90<br>2.417 10 | ) GHz<br>) GHz<br>) GHz | 3.64 dl<br>-4.32 dl<br>-3.89 dl | 3m<br>Bm<br>Bm |           |                         |                         |   | Freq Offset<br>0 Hz                 |
| 11<br>12<br>MSG                            |                |             |             |                 |                                  |                         |                                 |                |           | STATU                   | s                       |   |                                     |

| Product   | : | ASUS Miracast Dongle                       |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data                    |
| Test Site | : | No.3 OATS                                  |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) (2437MHz) |

| Channel No. | Frequency<br>(MHz) | Measurement Level<br>(kHz) | Required Limit<br>(kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 6           | 2437.00            | 10200                      | >500                    | Pass   |

### Figure Channel 6:

| Agiler  | nt Spe     | ctrur       | n An        | alyzer - Swe        | ept SA                                  |                         |                                 |                    |            |                         |                     |                                  |  |
|---|------------|-------------|-------------|---------------------|---|-------------------------|---------------------------------|--------------------|------------|-------------------------|---------------------|----------------------------------|--|
| Cer   | ter        | Fre         | RF<br>Paq 2 | 50 Ω<br>2.43700     | AC 0000 GH                              | -lz                     |                                 | NSE:INT            | Avg Typ    | ALIGNAUTO<br>e: Log-Pwr | 12:01:40 A<br>TRAC  | M Sep 05, 2013<br>E 1 2 3 4 5 6  | Frequency                                  |
| 10 d  | B/div      |             | Ref         | f 20.00 (           |   | NO: Fast G<br>Sain:Low  | #Atten: 3                       | e Kun<br>0 dB      |            | Mkr                     | 2 2.431<br>-3       | 90 GHz<br>42 dBm                 | Auto Tune                                  |
| Log<br>10.0<br>0.00<br>-10.0                    |            |             | -           |                     |   |                         | 2 anny                          | 1<br>V             | 3          |                         |                     | -1.30 dBm                        | Center Freq<br>2.437000000 GHz             |
| -20.0<br>-30.0<br>-40.0                         |            |             | +           | hord for            | , mary of Mar                           | and a man               |                                 |                    | - N.       | mon                     | duy sug             |                                  | Start Freq<br>2.412000000 GHz              |
| -50.0<br>-60.0<br>-70.0                         | war        | ment        | -nut        | <i>₽</i> <b>√</b> ¥ |   |                         |                                 |                    |            |                         | V "hom              | a Magana bandu                   | <b>Stop Freq</b><br>2.462000000 GHz        |
| Cen<br>#Re                                      | s B        | 2.43<br>N 1 | )70<br>00   | 0 GHz<br>kHz        | X                                       | #VB\                    | N 300 kHz                       | :<br>FUN           | ICTION FUI | Sweep                   | Span 5<br>4.80 ms ( | 0.00 MHz<br>1001 pts)<br>N VALUE | CF Step<br>5.000000 MHz<br><u>Auto</u> Man |
| 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10 | N<br>N<br> |             |             |                     | <u>2.438 50</u><br>2.431 90<br>2.442 11 | 0 GHz<br>0 GHz<br>0 GHz | 4.69 Gi<br>-3.42 di<br>-2.96 di | 3m<br>3m<br>8m<br> |            |                         |                     |                                  | Freq Offset<br>0 Hz                        |
| 11<br>12<br>MSG                                 |            |             |             |                     |   |                         |                                 |                    |            | STATU                   | s                   |                                  |  |

| Product   | : | ASUS Miracast Dongle                       |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data                    |
| Test Site | : | No.3 OATS                                  |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) (2462MHz) |
| Test Mode | : | Mode 1: Transmit (802.11b 1Mbps) (2462MHz  |

| Channel No. | Frequency<br>(MHz) | Measurement Level<br>(kHz) | Required Limit<br>(kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 11          | 2462.00            | 10200                      | >500                    | Pass   |

### Figure Channel 11:

| Agiler                               | nt Spec       | etrum        | Anal        | vzer - Sw      | ept SA                        |                            |                                 |                |        |                           |                     |                                     |                                     |
|--------------------------------------|---------------|--------------|-------------|----------------|-------------------------------|----------------------------|---------------------------------|----------------|--------|---------------------------|---------------------|-------------------------------------|-------------------------------------|
| Cen                                  | L<br>Iter     | Fre          | RF<br>q 2   | 50 Ω<br>.46200 | AC  <br>00000 GI              | Hz                         | SE                              | ISE:INT        | Avg T  | ALIGNAUTO<br>ype: Log-Pwr | 12:18:32 A<br>TRA   | M Sep 05, 2013<br>CE 1 2 3 4 5 6    | Frequency                           |
| 10 d                                 | Dídiu         | 2            | Dof         | 20.00          | F<br>IF                       | PNO: Fast C<br>Gain:Low    | #Atten: 3                       | eRun<br>)dB    |        | Mk                        | r2 2.456<br>-3.     | 90 GHz                              | Auto Tune                           |
| 10.0<br>10.0<br>0.00<br>-10.0        |               |              |             | 20.00 (        |                               |                            | 2 min                           | 1<br><br>/     | 3      |                           |                     | -0.98 dBm                           | Center Freq<br>2.462000000 GHz      |
| -20.0<br>-30.0<br>-40.0              |               |              |             | M)4            | harrow w                      | and the second             |                                 |                | Y      | he was                    | They may            |                                     | Start Freq<br>2.437000000 GHz       |
| -50.0<br>-60.0<br>-70.0              | ~~~           | P. B. M.     | لعمليسو     | ₩<br>V         | V                             |                            |                                 |                |        | V                         | - V tore            | and the second second second second | <b>Stop Freq</b><br>2.487000000 GHz |
| Cen<br>#Re                           | ter 2<br>s BV | 2.46<br>N 10 | 200<br>00 k | GHz<br>Hz      | ×                             | #VB                        | W 300 kHz                       | FU             | NCTION | Sweep                     | Span 5<br>4.80 ms ( | 60.00 MHz<br>(1001 pts)<br>IN VALUE | CF Step<br>5.000000 MHz<br>Auto Man |
| 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8 | N<br>N<br>N   | 1<br>1       | f<br>f      |                | 2.461 (<br>2.456 )<br>2.467 1 | 50 GHz<br>30 GHz<br>10 GHz | 5.02 df<br>-3.09 df<br>-2.76 df | 3m<br>3m<br>3m |        |                           |                     |                                     | Freq Offset<br>0 Hz                 |
| 9<br>10<br>11<br>12<br>MSG           | 6             |              |             |                |                               |                            |                                 |                |        | STATU                     | s                   |                                     |                                     |

| Product   | : | ASUS Miracast Dongle                       |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data                    |
| Test Site | : | No.3 OATS                                  |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) (2412MHz) |

| Channel No. | Frequency<br>(MHz) | Measurement Level<br>(kHz) | Required Limit<br>(kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 1           | 2412.00            | 16450                      | >500                    | Pass   |

### Figure Channel 1:

| Agilent Spect   | rum Ana     | ilyzer - Swe         | pt SA                            |                         |                                 |                    |          |                         |                     |                       |  |
|---|-------------|----------------------|----------------------------------|-------------------------|---------------------------------|--------------------|----------|-------------------------|---------------------|-----------------------|--|
| Center F  | RF<br>req 2 | 50 Ω<br>2.41200      | AC<br>0000 GH                    | lz                      | SEI                             |                    | Avg Typ  | ALIGNAUTO<br>e: Log-Pwr | 12:38:52 A<br>TRA   | M Sep 05, 2013        | Frequency                                  |
| 10 dB/div   | Ref         | 20.00 d              | PN<br>IFG                        | 10: Fast ⊆<br>Jain:Low  | #Atten: 3                       | 0 dB               |          | Mkr                     | 2 2.403<br>-4.      | 80 GHz<br>60 dBm      | Auto Tune                                  |
| Log<br>10.0<br>0.00<br>-10.0                                      |             |                      |                                  | 2 Junth                 | and the standing                | y and hand barrow  | 1        |                         |                     | -4.23 dBm             | Center Freq<br>2.412000000 GHz             |
| -20.0   | ar-uplar    | in the particular of | 254400antallar                   |                         |                                 |                    |          | a from the second       | mmulmuba            | WWW ALL WALL          | Start Freq<br>2.387000000 GHz              |
| -50.0<br>-60.0<br>-70.0   |             |                      |                                  |                         |                                 |                    |          |                         |                     |                       | <b>Stop Freq</b><br>2.437000000 GHz        |
| Center 2.<br>#Res BW  | 4120<br>100 | 0 GHz<br>kHz         | ×                                | #VB                     | N 300 kHz                       | FUN                | CTION FU | Sweep                   | Span 5<br>4.80 ms ( | 0.00 MHz<br>1001 pts) | CF Step<br>5.000000 MHz<br><u>Auto</u> Man |
| 1 N<br>2 N<br>3 N<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11<br>12 |             |                      | 2.417 00<br>2.403 80<br>2.420 25 | ) GHz<br>) GHz<br>5 GHz | 1.77 di<br>-4.60 di<br>-4.96 di | 3m<br>3m<br>3m<br> |          |                         |                     |                       | Freq Offset<br>0 Hz                        |
| MSG   |             |                      |                                  |                         |                                 |                    |          | STATUS                  | 6                   |                       |  |

| Product   | : | ASUS Miracast Dongle                       |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data                    |
| Test Site | : | No.3 OATS                                  |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) (2437MHz) |

| Channel No. | Frequency<br>(MHz) | Measurement Level<br>(kHz) | Required Limit<br>(kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 6           | 2437.00            | 16400                      | >500                    | Pass   |

### Figure Channel 6:

| Agilent Spect   | trum Analyzer - S       | wept SA                          |                             |                                 |   |           |                         |                     |                                 |  |
|---|-------------------------|----------------------------------|-----------------------------|---------------------------------|---|-----------|-------------------------|---------------------|---------------------------------|--|
| Center F  | RF 50 f                 | Ω AC<br>2000000 GF               | lz                          |                                 | SE:INT                                    | Avg Typ   | ALIGNAUTO<br>e: Log-Pwr | 12:57:37 A          | M Sep 05, 2013<br>E 1 2 3 4 5 6 | Frequency                                  |
| 10 dB/div   | Ref 20.00               | PN<br>IFG                        | IO: Fast C⊾<br>Jain:Low     | j Trig: Free<br>#Atten: 30      | Run<br>dB                                 |           | Mkr                     | 2 2.428<br>-3.5     | 80 GHz<br>35 dBm                | Auto Tune                                  |
| 10.0<br>0.00<br>-10.0                                 |                         |                                  | 2<br>Jaylian                | an glover the second            | pandan dan dan dan dan dan dan dan dan da |           |                         |                     | - <del>3.25 dDm</del>           | Center Freq<br>2.437000000 GHz             |
| -20.0<br>-30.0<br>-40.0                               | Winderson               | Walasahawanan                    |                             |                                 |   |           | W. W. way Market        | on Million why      | hull trans                      | Start Freq<br>2.412000000 GHz              |
| -50.0<br>-60.0<br>-70.0                               |                         |                                  |                             |                                 |   |           |                         |                     |                                 | <b>Stop Freq</b><br>2.462000000 GHz        |
| Center 2<br>#Res BW                                   | .43700 GHz<br>/ 100 kHz | ×                                | #VBW                        | / 300 kHz                       | FUI                                       | NCTION FU | Sweep                   | Span 5<br>4.80 ms ( | 0.00 MHz<br>1001 pts)<br>NVALUE | CF Step<br>5.000000 MHz<br><u>Auto</u> Man |
| 1 N<br>2 N<br>3 N<br>4<br>5<br>6<br>7<br>8<br>9<br>10 | 1 f<br>1 f<br>1 f<br>   | 2.442 00<br>2.428 80<br>2.445 20 | ) GHz<br>) GHz<br>) GHz<br> | 2.75 dB<br>-3.35 dB<br>-3.25 dB |   |           |                         |                     |                                 | Freq Offset<br>0 Hz                        |
| 11<br>12<br>MSG                                       |                         |                                  |                             |                                 |   |           | STATU                   | 5                   |                                 |  |

| Product   | : | ASUS Miracast Dongle                       |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data                    |
| Test Site | : | No.3 OATS                                  |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) (2462MHz) |
| Test Mode | : | Mode 2: Transmit (802.11g 6Mbps) (2462MHz  |

| Channel No. | Frequency<br>(MHz) | Measurement Level<br>(kHz) | Required Limit<br>(kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 11          | 2462.00            | 16400                      | >500                    | Pass   |

### Figure Channel 11:

| Agilen                            | nt Spe        | ctrum       | n Ana         | ılyzer - Swo | ept SA                 |  |                          |                |                              |                |          |        |       |   |                  |                               |        |                                      |
|-----------------------------------|---------------|-------------|---------------|--------------|------------------------|--|--------------------------|----------------|------------------------------|----------------|----------|--------|-------|---|------------------|-------------------------------|--------|--------------------------------------|
| LXI R                             | L             | -           | RF            | 50 Ω         | AC                     |  |                          |                | SE                           | NSE:INT        |          | Aug    | Type  |   | 01:15:04         | AM Sep 05, 2013               | 3      | Frequency                            |
| Cen                               | iter          | Fre         | q 2           | 2.46200      | 10000                  | PN<br>IFG  | Z<br>10: Fast<br>ain:Lov | Ţ              | Trig: Fre<br>#Atten: 3       | e Run<br>0 dB  |          | Avg    | Type  | . Log-r wi  | т                | VPE MWWWWW<br>DET P N N N N I | N<br>N |                                      |
| 10 d                              | B/div         | . 1         | Ref           | 20.00 (      | dBm                    |  |                          |                |                              |                |          |        |       | Mkr   | 2 2.453<br>-3    | 80 GHz<br>.75 dBm             |        | Auto Tune                            |
| Log<br>10.0<br>0.00<br>-10.0      |               |             |               |              |                        |  | <b>2</b>                 | and the second | - described                  | weather        | nan hand | )1<br> | 3     |   |                  | -3.31 uBn                     |        | Center Freq<br>2.462000000 GHz       |
| -20.0<br>-30.0<br>-40.0           | under         | In-Jura     | putgelt       | mound        | Yourster               | the state of the s | and a second             |                |                              |                |          |        | 70.98 | M. M. March Mar | at the start way | hum destination               |        | <b>Start Freq</b><br>2.437000000 GHz |
| -50.0<br>-60.0<br>-70.0           |               |             |               |              |                        |  |                          |                |                              |                |          |        |       |   |                  |                               |        | <b>Stop Freq</b><br>2.487000000 GHz  |
| Cen<br>#Re                        | ter :<br>s B\ | 2.46<br>N 1 | 620<br>00     | 0 GHz<br>kHz |                        |  | #V                       | BW             | 300 kHz                      | :              |          |        |       | Sweep   | Span<br>4.80 ms  | 50.00 MHz<br>(1001 pts        |        | CF Step<br>5.000000 MHz              |
| MKF<br>1<br>2<br>3<br>4<br>5<br>6 | N<br>N<br>N   | 1<br>1<br>1 | SCI<br>f<br>f |              | ×<br>2.4<br>2.4<br>2.4 | 467 00<br>453 80<br>470 20   | ) GHz<br>) GHz<br>) GHz  |                | 2.69 d<br>-3.75 d<br>-3.41 d | Bm<br>Bm<br>Bm | FUNC     |        | FUN   | CTION WIDTH   | FUNCT            | ION VALUE                     |        | Freq Offset<br>0 Hz                  |
| 7<br>8<br>9<br>10<br>11<br>12     |               |             |               |              |                        |  |                          |                |                              |                |          |        |       |   |                  |                               |        |                                      |
| MSG                               |               |             |               |              |                        |  |                          |                |                              |                |          |        |       | STATUS  | 5                |                               |        |                                      |

| Product   | : | ASUS Miracast Dongle                       |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data                    |
| Test Site | : | No.3 OATS                                  |
| Test Mode | : | Mode 3: Transmit - 802.11a 6Mbps (5745MHz) |
|           |   |  |

| Channel No. | Frequency<br>(MHz) | Measurement Level<br>(kHz) | Required Limit<br>(kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 149         | 5745.00            | 16400                      | >500                    | Pass   |

### Figure Channel 149:

| Agilent Spectrum Analyzer - Swept SA   |  |   |  |
|--|--|---|--|
| XX RL RF 50Ω AC<br>Center Freq 5.745000000 GHz   | SENSE:INT Avg Ty   | ALIGN AUTO 02:10:55 AM Sep 05, 2013<br>rpe: Log-Pwr TRACE 1 2 3 4 5 6<br>TYPE MULTARIUM | Frequency                                  |
| PNO: Fa<br>IFGain:L<br>10 dB/div Ref 20.00 dBm   | ow #Atten: 30 dB   | Mkr2 5.736 80 GHz<br>-5.16 dBm  | Auto Tune                                  |
| 10.0<br>0.00<br>-10.0  | 2 1<br>Just manager for the section of | 3   | Center Freq<br>5.745000000 GHz             |
| -20.0<br>-30.0<br>-40.0  |  | weighang harrid and the cases are fully and the same                                    | Start Freq<br>5.720000000 GHz              |
| -50.0<br>-60.0<br>-70.0  |  |   | <b>Stop Freq</b><br>5.770000000 GHz        |
| Center 5.74500 GHz<br>#Res BW 100 kHz #  | VBW 300 kHz  | Span 50.00 MHz<br>Sweep 4.80 ms (1001 pts)<br>unction width                             | CF Step<br>5.000000 MHz<br><u>Auto</u> Man |
| 1         N         1         f         5.740 00 GH;           2         N         1         f         5.736 80 GH;           3         N         1         f         5.753 20 GH;           4 | z 1.48 dBm<br>z -5.16 dBm<br>z -6.62 dBm   |   | Freq Offset<br>0 Hz                        |
| 8         9           9         10           11         11           12         12   |  |   |  |

| Product   | : | ASUS Miracast Dongle                       |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data                    |
| Test Site | : | No.3 OATS                                  |
| Test Mode | : | Mode 3: Transmit - 802.11a 6Mbps (5785MHz) |

| Channel No. | Frequency<br>(MHz) | Measurement Level<br>(kHz) | Required Limit<br>(kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 157         | 5785.00            | 16150                      | >500                    | Pass   |

### Figure Channel 157:

| Agilent Spectrum Analyzer - Swept  | SA  |   |   |  |                                     |
|--|---|---|---|--|-------------------------------------|
| X RL RF 50 Ω A<br>Center Freq 5.7850000  | NC SI                         | ENSE:INT Avg Type                       | ALIGNAUTO 02:38:<br>E: Log-Pwr  | 11 AM Sep 05, 2013<br>RACE 1 2 3 4 5 6 | Frequency                           |
| 10 dB/div Ref 20.00 dB   | IFGain:Low #Atten: 3  | 30 dB                                   | Mkr2 5.77   | 6 80 GHz<br>4.29 dBm                   | Auto Tune                           |
| 10.0<br>0.00<br>-10.0  | 2<br>between setund men   | 3                                       |   | - <del></del>                          | Center Freq<br>5.785000000 GHz      |
| -20.0<br>-30.0<br>-40.0 quellow Marine Ma | Nyrat's antalog.  |   | and a second of the second of | adres will want the same               | Start Freq<br>5.760000000 GHz       |
| -50.0  |   |   |   |  | <b>Stop Freq</b><br>5.810000000 GHz |
| Center 5.78500 GHz<br>#Res BW 100 kHz  | #VBW 300 kH   | 2                                       | Spar<br>Sweep 4.80 m  | n 50.00 MHz<br>s (1001 pts)            | CF Step<br>5.000000 MHz<br>Auto Man |
| Airf         All of         St.1           1         N         1         f           2         N         1         f           3         N         1         f           4         -         -         -           6         -         -         -           7         -         -         -           9         -         -         -   | 5.780 00 GHz 2.97 c<br>5.776 80 GHz 4.29 c<br>5.792 95 GHz 3.98 c | IBM |   |  | Freq Offset<br>0 Hz                 |
| 10<br>11<br>12<br>MSG  |   |   | STATUS  |  |                                     |

| Product   | : | ASUS Miracast Dongle                       |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data                    |
| Test Site | : | No.3 OATS                                  |
| Test Mode | : | Mode 3: Transmit - 802.11a 6Mbps (5825MHz) |

| Channel No. | Frequency<br>(MHz) | Measurement Level<br>(kHz) | Required Limit<br>(kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 165         | 5825.00            | 16400                      | >500                    | Pass   |

### Figure Channel 165:

| Agilent Spectrum Analyzer - Sw   | vept SA                                      |                                   |               |                               |                     |                                 |   |
|--|--|-----------------------------------|---------------|-------------------------------|---------------------|---------------------------------|---|
| Center Freq 5.8250   | 2 AC 00000 GHz                               |                                   | Avg Type      | ALIGNAUTO<br><b>: Log-Pwr</b> | 03:04:16 A          | M Sep 05, 2013<br>E 1 2 3 4 5 6 | Frequency   |
| 10 dB/div Ref 20.00  | PNO: Fast G<br>IFGain:Low                    | #Atten: 30 dB                     |               | Mkr                           | 2 5.816<br>-4.0     | 80 GHz<br>67 dBm                | Auto Tune   |
| 10.0<br>0.00<br>-10.0  | 2  | and the second and the second     | 1 3           |                               |                     | -3.67 dBm                       | Center Freq<br>5.825000000 GHz                    |
| -20.0<br>-30.0<br>-40.0 walny many and menon   | MANT <sup>ECONOMICALIAN</sup>                |                                   | <u>بل</u> مبر | anorthered Ala                | white in have       | Should has vely                 | Start Freq<br>5.80000000 GHz                      |
| -50.0  |  |                                   |               |                               |                     |                                 | <b>Stop Freq</b><br>5.85000000 GHz                |
| Center 5.82500 GHz<br>#Res BW 100 kHz  | #VB\   | V 300 kHz                         | FUNCTION FUN  | Sweep                         | Span 5<br>4.80 ms ( | 0.00 MHz<br>1001 pts)<br>NVALUE | <b>CF Step</b><br>5.000000 MHz<br><u>Auto</u> Man |
| 1         N         1         T           2         N         1         f           3         N         1         f           4         -         -         -           5         -         -         -           6         -         -         -           7         -         -         -           9         -         -         -           10         -         -         - | 5.810 00 GHz<br>5.816 00 GHz<br>5.833 20 GHz | 2.33 dBm<br>4.67 dBm<br>-5.67 dBm |               |                               |                     |                                 | Freq Offset<br>0 Hz                               |
| 12<br>MSG  |  | 121                               |               | STATUS                        |                     |                                 |   |

| Product   | : | ASUS Miracast Dongle   |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data                                      |
| Test Site | : | No.3 OATS  |
| Test Mode | : | Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2412MHz) |

| Channel No. | Frequency<br>(MHz) | Measurement Level<br>(kHz) | Required Limit<br>(kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 1           | 2412.00            | 17650                      | >500                    | Pass   |

### Figure Channel 1:

| Agile  | nt Sne     | etrun       | n Ana     | ulvzer - Sw     | ent SA       |                  |                  |                         |                |                   |              |                     |                         |  |
|--|------------|-------------|-----------|-----------------|--------------|------------------|------------------|-------------------------|----------------|-------------------|--------------|---------------------|-------------------------|--|
| UXIR<br>Cer                                      | L<br>Iter  | Fre         | RF        | 50 Ω<br>2.41200 | AC 00000     | GHz              |                  | SE                      | NSE:INT        | Avg Ty            | ALIGNAUTO    | 01:32:04 A<br>TRA   | M Sep 05, 2013          | Frequency                                  |
|  |            |             |           |                 |              | PNO:<br>IFGai    | ∶Fast ⊂<br>n:Low | Trig: Free<br>#Atten: 3 | e Run<br>) dB  |                   | Mkı          | 2 2.403             |                         | Auto Tune                                  |
| 10 d<br>Log<br>10.0<br>0.00<br>-10.0             | B/div      | /           | Ref       | 20.00           |              |                  | 2<br>martinaliza | bootsolonte             | -alisat-mile   | 1<br>manual and a | 3            | -0.                 | -5.33 dBm               | Center Freq<br>2.412000000 GHz             |
| -20.0<br>-30.0<br>-40.0                          | www        | WINE        | eren a    | WIGHINN         | Jour Journan | فمحطمكمعم        |                  |                         |                |                   | Mundan water | - Marilla aller     | WWW WWWW                | Start Freq<br>2.387000000 GHz              |
| -50.0<br>-60.0<br>-70.0                          |            |             |           |                 |              |                  |                  |                         |                |                   |              |                     |                         | <b>Stop Freq</b><br>2.437000000 GHz        |
| Cer<br>#Re                                       | nter<br>sB | 2.41<br>W 1 | 120<br>00 | 0 GHz<br>kHz    | ×            | 5 75 0           | #VBW             | / 300 kHz               | FU             | NCTION            | Sweep        | Span 5<br>4.80 ms ( | 50.00 MHz<br>(1001 pts) | CF Step<br>5.000000 MHz<br><u>Auto</u> Man |
| 2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11 | N<br>N     | 1           | f         |                 | 2.41         | 3 20 G<br>0 85 G |                  | -6.02 dl<br>-7.00 dl    | 3m<br>3m<br>3m |                   |              |                     |                         | Freq Offset<br>0 Hz                        |
| MSG  |            |             | 8         |                 |              |                  |                  |                         |                |                   | STATU        | s                   |                         |  |

| Product   | : | ASUS Miracast Dongle   |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data                                      |
| Test Site | : | No.3 OATS  |
| Test Mode | : | Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2437MHz) |

| Channel No. | Frequency<br>(MHz) | Measurement Level<br>(kHz) | Required Limit<br>(kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 6           | 2437.00            | 17400                      | >500                    | Pass   |

### Figure Channel 6:

| Agilent Spectrum Analyzer - Swept SA  |                                 |                         |   |                                     |
|---|---------------------------------|-------------------------|---|-------------------------------------|
| LX/RL RF 50Ω AC   | SENSE: INT                      | ALIGNAUTO               | 01:44:13 AM Sep 05, 2013                        | Frequency                           |
| Center Freq 2.437000000 GHz<br>PNO: Fast<br>IFGain:Low  | Trig: Free Run<br>#Atten: 30 dB | Avg Type: Log-Pwr       | TRACE 1 2 3 4 5 6<br>TYPE MWWWWW<br>DET P NNNNN | Frequency                           |
| 10 dB/div Ref 20.00 dBm   |                                 | Mkr                     | 2 2.428 45 GHz<br>-0.26 dBm                     | Auto Tune                           |
| Log<br>10.0<br>0.00<br>-10.0  | onther the short of the         | Notwinder 3             | 0.37 dBm  | Center Freq<br>2.437000000 GHz      |
| -20.0<br>-30.0<br>-40.0   |                                 |                         | an adjourned and the                            | Start Freq<br>2.412000000 GHz       |
| -50.0   |                                 |                         |   | <b>Stop Freq</b><br>2.462000000 GHz |
| Center 2.43700 GHz<br>#Res BW 100 kHz #VBW  | 300 kHz                         | Sweep                   | Span 50.00 MHz<br>4.80 ms (1001 pts)            | <b>CF Step</b><br>5.000000 MHz      |
| MKR         MODE         TRC         SCL         X           1         N         1         f         2.438 25 GHz   | 6.37 dBm                        | FUNCTION FUNCTION WIDTH | FUNCTION VALUE                                  | <u>Auto</u> Man                     |
| 2         N         1         f         2.428         45         GHz         3         N         1         f         2.445         85         GHz         4         4         5         6         6         6         6         6         7 <th7< th=""> <th7< th=""> <th7< th="" th7<=""></th7<></th7<></th7<> | -0.26 dBm<br>-1.04 dBm          |                         |   | Freq Offset<br>0 Hz                 |
| 7<br>8<br>9<br>10<br>11   |                                 |                         |   |                                     |
| 12  |                                 | STATUS                  |   |                                     |

| Product   | : | ASUS Miracast Dongle   |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data                                      |
| Test Site | : | No.3 OATS  |
| Test Mode | : | Mode 4: Transmit - 802.11n-20BW_7.2Mbps(2.4G Band) (2462MHz) |

| Channel No. | Frequency<br>(MHz) | Measurement Level<br>(kHz) | Required Limit<br>(kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 11          | 2462.00            | 17650                      | >500                    | Pass   |

### Figure Channel 11:

| Agilen                       | nt Spe           | ctrun       | n Ana       | alyzer - Sw  | ept SA                 |                         |                           |            |                                   |                |          |              |                |               |                 |              |                      |     |                              |    |
|------------------------------|------------------|-------------|-------------|--------------|------------------------|-------------------------|---------------------------|------------|-----------------------------------|----------------|----------|--------------|----------------|---------------|-----------------|--------------|----------------------|-----|------------------------------|----|
| LXI R                        | L                | -           | RF          | 50 Ω         | AC AC                  |                         |                           |            | SE                                | INSE:IN        | T        | A            | /              |               | 01:56:3         | 7 AM         | Sep 05, 2013         |     | Frequency                    | ٦  |
| Cen                          | iter             | Fre         | ad 7        | 2.46200      | 00000                  | PN<br>IFG               | Z<br>10: Fast<br>iain:Lov | , <b>-</b> | Trig: Fre<br>#Atten: 3            | e Run<br>10 dB |          | Avg          | ype.           | LOG-PWI       |                 | TYPE         | P N N N N N          |     |                              | _  |
| 10 di                        | B/div            | ,           | Ref         | 20.00        | dBm                    |                         |                           |            |                                   |                |          |              |                | Mkı           | 2 2.45<br>-{    | 3 2<br>5.0   | 20 GHz<br>7 dBm      |     | Auto Tun                     | e  |
| Log<br>10.0<br>0.00<br>-10.0 |                  |             |             |              |                        |                         | 2 month                   | y lund     | boologeleaster                    | Junthy         | Thalland | 1<br>holingh | ¢ <sup>3</sup> |               |                 |              | -4.78 dBm            | 2   | Center Fre<br>2.462000000 G⊢ | q  |
| -20.0<br>-30.0<br>-40.0      |                  | 1 MAIN      | pm Aler     | angulari     | Antoniation            | A Card                  |                           |            |                                   |                |          | ~            | -              | wh-where have | antraber        | laght        | Angle Urbue          | 2   | Start Fre<br>.437000000 G⊢   | q  |
| -50.0<br>-60.0<br>-70.0      |                  |             |             |              |                        |                         |                           |            |                                   |                |          |              |                |               |                 |              |                      | 2   | Stop Fre<br>.487000000 G⊦    | q  |
| Cen<br>#Re                   | ter :<br>s Bl    | 2.46<br>N 1 | 620<br>00   | 0 GHz<br>kHz |                        |                         | #V                        | ΒW         | 300 kHz                           | 2              |          |              |                | Sweep         | Span<br>4.80 ms | n 50<br>s (1 | 0.00 MHz<br>001 pts) |     | CF Ste<br>5.000000 MH        | p  |
| MKE<br>1<br>2<br>3           | N<br>N<br>N<br>N | 1<br>1<br>1 | f<br>f<br>f |              | ×<br>2.4<br>2.4<br>2.4 | 67 00<br>53 20<br>70 85 | ) GHz<br>) GHz<br>5 GHz   |            | Y<br>1.22 d<br>-5.07 d<br>-6.28 d | Bm<br>Bm<br>Bm | FUNC     | TION         | FUN            | CTION WIDTH   | FUNC            | TION         | VALUE                | Aut | Enter Offse                  | et |
| 4<br>5<br>7<br>8<br>9<br>10  |                  |             |             |              |                        |                         |                           |            |                                   |                |          |              |                |               |                 |              |                      |     | 0 H                          | Iz |
| 12<br>MSG                    | 0                |             | 5           |              |                        |                         |                           |            |                                   |                |          |              |                | STATU         | s               | _            |                      |     |                              |    |

| Product   | : | ASUS Miracast Dongle                                       |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data                                    |
| Test Site | : | No.3 OATS  |
| Test Mode | : | Mode 5: Transmit - 802.11n-20BW 7.2Mbps(5G Band) (5745MHz) |

| Channel No. | Frequency<br>(MHz) | Measurement Level<br>(kHz) | Required Limit<br>(kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 149         | 5745.00            | 16900                      | >500                    | Pass   |

### Figure Channel 149:

| Agilent Spectrum Analyzer - Swept SA  |                        |                                 |  |                                |
|---|------------------------|---------------------------------|--|--------------------------------|
| X RL RF 50Ω AC<br>Center Freq 5.745000000 GHz   | SENSE:INT              | ALIGN AUTO<br>Avg Type: Log-Pwr | 03:31:57 AM Sep 05, 2013<br>TRACE 1 2 3 4 5 6  | Frequency                      |
| PNO: Fast G<br>IFGain:Low   | #Atten: 30 dB          | Mkr                             | 2 5.736 40 GHz   | Auto Tune                      |
| 10 dB/div Ref 20.00 dBm   | 1 1                    | 1 1                             | -4.16 dBm  |                                |
| 10.0<br>0.00  | protect marker for     | 13                              | -3:40 dBm  | Center Freq<br>5.745000000 GHz |
| -20.0   |                        | h manyanaly                     | White on .   | Start Fren                     |
| -30.0   |                        |                                 | and the work of the party of th | 5.720000000 GHz                |
| -50.0   |                        |                                 |  | Stop Freq                      |
| -70.0   |                        |                                 |  | 5.770000000 GHz                |
| Center 5.74500 GHz<br>#Res BW 100 kHz #VBV  | √ 300 kHz              | Sweep                           | Span 50.00 MHz<br>4.80 ms (1001 pts)   | <b>CF Step</b><br>5.000000 MHz |
| MKR MODE TRC SCL X<br>1 N 1 f 5.748 75 GHz  | Y FUN<br>2.60 dBm      | ECTION FUNCTION WIDTH           | FUNCTION VALUE   | <u>Auto</u> Man                |
| 2         N         1         f         5.736 40 GHz           3         N         1         f         5.753 30 GHz           4 | -4.16 dBm<br>-3.57 dBm |                                 |  | Freq Offset<br>0 Hz            |
| 7<br>8<br>9   |                        |                                 |  |                                |
|   |                        |                                 |  |                                |
| MSG   |                        | STATUS                          | 5  |                                |

| Product   | : | ASUS Miracast Dongle                                       |
|-----------|---|--|
| Test Item | : | Occupied Bandwidth Data                                    |
| Test Site | : | No.3 OATS  |
| Test Mode | : | Mode 5: Transmit - 802.11n-20BW_7.2Mbps(5G Band) (5785MHz) |

| Channel No. | Frequency<br>(MHz) | Measurement Level<br>(kHz) | Required Limit<br>(kHz) | Result |
|-------------|--------------------|----------------------------|-------------------------|--------|
| 157         | 5785.00            | 16750                      | >500                    | Pass   |

### Figure Channel 157:

| Agilent Spectrum Analyzer - Swept SA  |   |   |   |            |                           |                     |   |                                     |
|---|---|---|---|------------|---------------------------|---------------------|---|-------------------------------------|
| Center F  | RF 50 Ω<br>Freq 5.78500   | AC 00000 GHz  |   | EINT AVG T | ALIGNAUTO<br>ype: Log-Pwr | 03:56:58 AI<br>TRAC | E 1 2 3 4 5 6   | Frequency                           |
| PRO: Fast   |   |   |   |            |                           |                     |   | Auto Tune                           |
| 10.0<br>0.00  |   | 2   | A- A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A- | 1.1.1.1.A  | 3                         |                     | 1.61.dBm  | Center Freq<br>5.785000000 GHz      |
| -20.0<br>-30.0  | an with the Multi and   | and the second |   |            | Way Bagging And           | PM-MANUMAL          | When the state of | Start Freq<br>5.760000000 GHz       |
| -50.0<br>-60.0<br>-70.0   |   |   |   |            |                           |                     |   | <b>Stop Freq</b><br>5.810000000 GHz |
| Center 5.78500 GHz Span 50.00 MHz<br>#Res BW 100 kHz #VBW 300 kHz Sweep 4.80 ms (1001 pts)  |   |   |   |            |                           |                     |   | CF Step<br>5.000000 MHz<br>Auto Man |
| 1         N           2         N           3         N           4         5           6         7           8         9           10         11           12         12 | I         f           1         f           1         f           1         f | 5.780 00 GHz<br>5.776 20 GHz<br>5.792 95 GHz  | 4.39 dBr<br>-2.71 dBn<br>-2.01 dBr      |            |                           |                     |   | Freq Offset<br>0 Hz                 |