

FCC Test Report

Report No.: RF160901D08

FCC ID: GV3M01354-D

Test Model: M01354-D

Received Date: Aug. 25, 2016

Test Date: Aug. 25 ~ Sep. 5, 2016

Issued Date: Sep. 7, 2016

Applicant: ACCO Brands, Inc.

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

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Release Control Record

| Issue No. | Description | Date Issued |
|-------------|-------------------|--------------|
| RF160901D08 | Original release. | Sep. 7, 2016 |

1 Certificate of Conformity

Product: Wireless Presenter Dongle
Brand: Kensington
Test Model: M01354-D
Sample Status: Engineering sample
Applicant: ACCO Brands, Inc.
Test Date: Aug. 25 ~ Sep. 5, 2016
Standards: 47 CFR FCC Part 15, Subpart C (Section 15.249)
ANSI C63.10: 2013

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

Prepared by : Celia Chen , **Date:** Sep. 7, 2016
Celia Chen / Supervisor

Approved by : Rex Lai , **Date:** Sep. 7, 2016
Rex Lai / Assistant Manager

2 Summary of Test Results

| 47 CFR FCC Part 15, Subpart C (SECTION 15.249) | | | |
|--|--|--------|---|
| FCC Clause | Test Item | Result | Remarks |
| 15.207 | AC Power Conducted Emission | PASS | Meet the requirement of limit. Minimum passing margin is -22.69dB at 0.40009MHz. |
| 15.209 15.249 15.249 (d) | Radiated Emission Test Band Edge Measurement Limit: 50dB less than the peak value of fundamental frequency or meet radiated emission limit in section 15.209 | PASS | Meet the requirement of limit. Minimum passing margin is -8.22dB at 2483.50MHz. |

2.1 Measurement Uncertainty

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

| Measurement | Frequency | Expanded Uncertainty (k=2) (\pm) |
|------------------------------------|-----------------|--------------------------------------|
| Conducted Emissions at mains ports | 150kHz ~ 30MHz | 2.78 dB |
| Radiated Emissions up to 1 GHz | 30MHz ~ 1000MHz | 5.32 dB |
| Radiated Emissions above 1 GHz | Above 1GHz | 3.36 dB |

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

| | |
|---------------------|-------------------------------|
| Product | Wireless Presenter Dongle |
| Brand | Kensington |
| Test Model | M01354-D |
| Status of EUT | Engineering sample |
| Power Supply Rating | 5Vdc from host equipment |
| Modulation Type | GFSK |
| Operating Frequency | 2408MHz ~ 2474MHz |
| Number of Channel | 34 |
| Antenna Type | PCB antenna with 3.26dBi gain |
| Antenna Connector | N/A |
| Accessory Device | N/A |
| Data Cable Supplied | N/A |

Note:

1. The EUT is a Wireless Presenter Dongle.
2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Description of Test Modes

34 channels are provided to this EUT:

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

3.2.1 Test Mode Applicability and Tested Channel Detail

| EUT CONFIGURE MODE | APPLICABLE TO | | | DESCRIPTION |
|--------------------|--------------------|-------|-----|-------------|
| | RE [≥] 1G | RE<1G | PLC | |
| - | √ | √ | √ | - |

Where RE[≥]1G: Radiated Emission above 1GHz & Bandedge Measurement
 RE<1G: Radiated Emission below 1GHz
 PLC: Power Line Conducted Emission
 APCM: Antenna Port Conducted Measurement

Radiated Emission Test (Above 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| EUT CONFIGURE MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TYPE |
|--------------------|-------------------|----------------|-----------------|
| - | 1 to 34 | 1, 17, 34 | GFSK |

Radiated Emission Test (Below 1GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| EUT CONFIGURE MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TYPE |
|--------------------|-------------------|----------------|-----------------|
| - | 1 to 34 | 1 | GFSK |

Power Line Conducted Emission Test:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| EUT CONFIGURE MODE | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TYPE |
|--------------------|-------------------|----------------|-----------------|
| - | 1 to 34 | 1 | GFSK |

Test Condition:

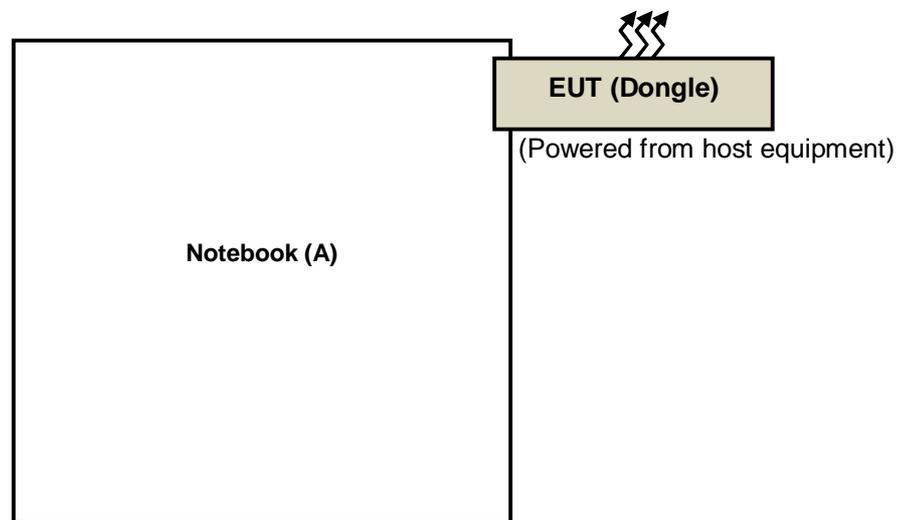
| APPLICABLE TO | ENVIRONMENTAL CONDITIONS | INPUT POWER (System) | TESTED BY |
|--------------------|--------------------------|----------------------|-----------|
| RE [≥] 1G | 28deg. C, 64%RH | 120Vac, 60Hz | Ian Chang |
| RE<1G | 28deg. C, 64%RH | 120Vac, 60Hz | Ian Chang |
| PLC | 30deg. C, 88%RH | 120Vac, 60Hz | Ian Chang |

3.3 Description of Support Units

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

| ID | Product | Brand | Model No. | Serial No. | FCC ID | Remarks |
|----|-------------------|-------|-----------|------------|------------------|-----------------|
| A. | NOTEBOOK COMPUTER | DELL | PP27L | 8SNZ12S | FCC DoC Approved | Provided by Lab |

3.3.1 Configuration of System under Test



3.4 General Description of Applied Standards

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

FCC Part 15, Subpart C (15.249)

ANSI C63.10-2013

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

NOTE: The EUT has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

4 Test Types and Results

4.1 Radiated Emission and Bandedge Measurement

4.1.1 Limits of Radiated Emission and Bandedge Measurement

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following

| Fundamental Frequency | Field Strength of Fundamental (millivolts/meter) | Field Strength of Harmonics (microvolts/meter) |
|-----------------------|--|--|
| 902 ~ 928 MHz | 50 | 500 |
| 2400 ~ 2483.5 MHz | 50 | 500 |
| 5725 ~ 5875 MHz | 50 | 500 |
| 24 ~ 24.25 GHz | 250 | 2500 |

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits as below table, whichever is the lesser attenuation

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

NOTE:

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

4.1.2 Test Instruments

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED DATE | CALIBRATED UNTIL |
|--|----------------------|----------------|-----------------|------------------|
| HP Preamplifier | 8447D | 2432A03504 | Feb. 26, 2016 | Feb. 25, 2017 |
| HP Preamplifier | 8449B | 3008A01201 | Feb. 26, 2016 | Feb. 25, 2017 |
| MITEQ Preamplifier | AMF-6F-260400-33-8P | 892164 | Mar. 01, 2016 | Feb. 28, 2017 |
| Agilent TEST RECEIVER | N9038A | MY51210129 | Feb. 02, 2016 | Feb. 01, 2017 |
| Schwarzbeck Antenna | VULB 9168 | 139 | Jan. 04, 2016 | Jan. 03, 2017 |
| Schwarzbeck Antenna | VHBA 9123 | 480 | May 29, 2015 | May 28, 2017 |
| Schwarzbeck Horn Antenna | BBHA-9170 | 212 | Jan. 08, 2016 | Jan. 07, 2017 |
| Schwarzbeck Horn Antenna | BBHA 9120-D1 | D130 | Jan. 21, 2016 | Jan. 20, 2017 |
| ADT. Turn Table | TT100 | 0306 | NA | NA |
| ADT. Tower | AT100 | 0306 | NA | NA |
| Software | Radiated_V7.6.15.9.4 | NA | NA | NA |
| SUHNER RF cable With 4dB PAD | SF104 | CABLE-CH6 | Aug. 15, 2016 | Aug. 14, 2017 |
| SUHNER RF cable With 3dB PAD | SF102 | Cable-CH8-3.6m | Aug. 15, 2016 | Aug. 14, 2017 |
| KEYSIGHT MIMO Powermeasurement Test set | U2021XA | U2021XA-001 | May 25, 2016 | May 24, 2017 |
| KEYSIGHT Spectrum Analyzer | N9030A | MY54490260 | Jul. 26, 2016 | Jul. 25, 2017 |
| EMCO Horn Antenna | 3115 | 00028257 | Jan. 19, 2016 | Jan. 18, 2017 |
| Highpass filter Wainwright Instruments | WHK 3.1/18G-10SS | SN 8 | NA | NA |
| ROHDE & SCHWARZ Spectrum Analyzer | FSV40 | 101042 | Sep. 23, 2015 | Sep. 22, 2016 |

- NOTE:** 1. The calibration interval of the above test instruments is 12/24 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Chamber No. 6.
4. The Industry Canada Reference No. IC 7450E-6.
5. The FCC Site Registration No. is 447212.

4.1.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

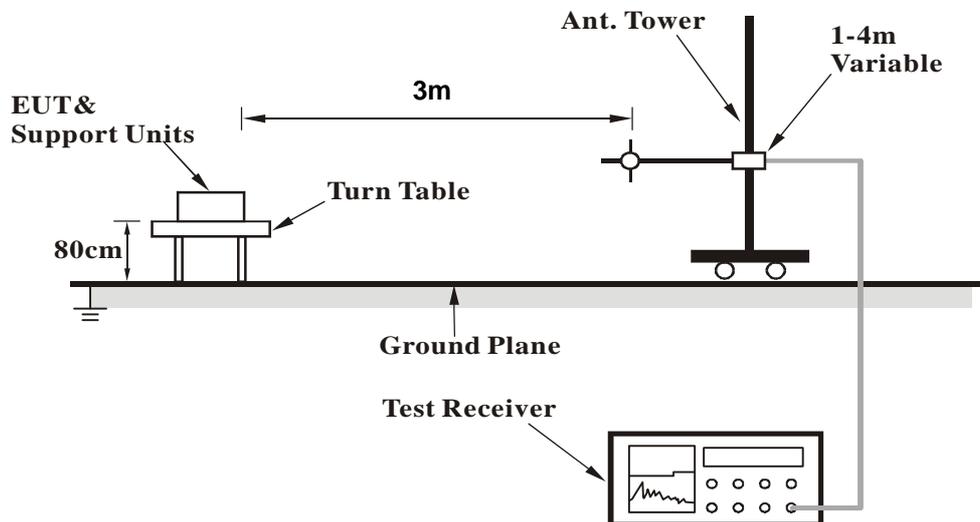
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 Deviation from Test Standard

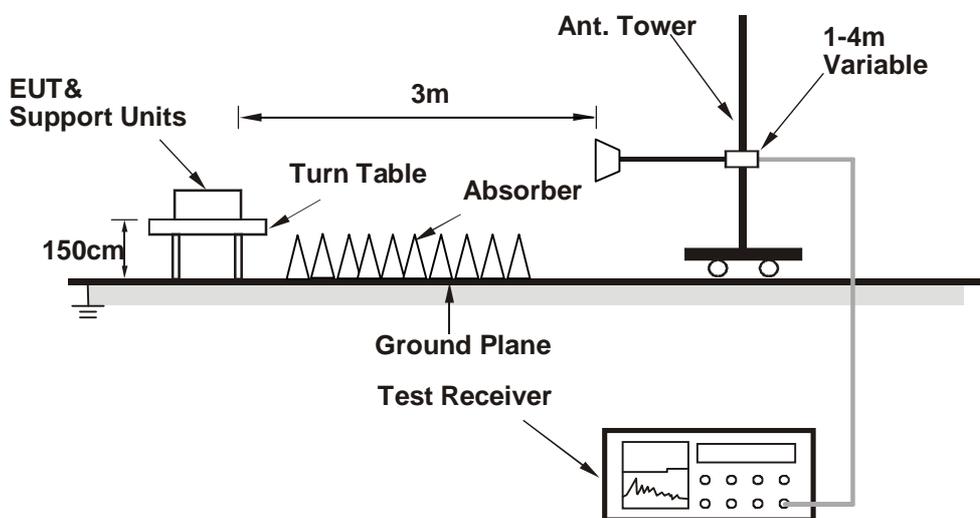
No deviation.

4.1.5 Test Set Up

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



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

4.1.6 EUT Operating Conditions

Set the EUT under transmission condition continuously at specific channel frequency.

4.1.7 Test Results

ABOVE 1GHz DATA

| | | | |
|------------------------|--------------|------------------------------|--------------|
| CHANNEL | TX Channel 1 | DETECTOR FUNCTION | Peak (PK) |
| FREQUENCY RANGE | 1GHz ~ 25GHz | | Average (AV) |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
|-----|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| 1 | 2390.00 | 52.76 PK | 74.00 | -21.24 | 1.44 H | 27 | 52.33 | 0.43 |
| 2 | 2390.00 | 29.81 AV | 54.00 | -24.19 | 1.44 H | 27 | 29.38 | 0.43 |
| 3 | 2400.00 | 50.23 PK | 74.00 | -23.77 | 1.44 H | 27 | 49.75 | 0.48 |
| 4 | 2400.00 | 23.23 AV | 54.00 | -30.77 | 1.44 H | 27 | 22.75 | 0.48 |
| 5 | *2408.00 | 95.92 PK | 114.00 | -18.08 | 1.44 H | 27 | 95.38 | 0.54 |
| 6 | *2408.00 | 70.38 AV | 94.00 | -23.62 | 1.44 H | 27 | 69.84 | 0.54 |
| 7 | 4816.00 | 46.44 PK | 74.00 | -27.56 | 1.56 H | 234 | 39.63 | 6.81 |
| 8 | 4816.00 | 33.34 AV | 54.00 | -20.66 | 1.56 H | 234 | 26.53 | 6.81 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
|-----|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| 1 | 2390.00 | 51.30 PK | 74.00 | -22.70 | 1.04 V | 326 | 50.87 | 0.43 |
| 2 | 2390.00 | 24.98 AV | 54.00 | -29.02 | 1.04 V | 326 | 24.55 | 0.43 |
| 3 | 2400.00 | 48.61 PK | 74.00 | -25.39 | 1.04 V | 326 | 48.13 | 0.48 |
| 4 | 2400.00 | 21.94 AV | 54.00 | -32.06 | 1.04 V | 326 | 21.46 | 0.48 |
| 5 | *2408.00 | 95.33 PK | 114.00 | -18.67 | 1.04 V | 326 | 94.79 | 0.54 |
| 6 | *2408.00 | 69.06 AV | 94.00 | -24.94 | 1.04 V | 326 | 68.52 | 0.54 |
| 7 | 4816.00 | 45.37 PK | 74.00 | -28.63 | 1.52 V | 123 | 38.56 | 6.81 |
| 8 | 4816.00 | 32.28 AV | 54.00 | -21.72 | 1.52 V | 123 | 25.47 | 6.81 |

REMARKS:

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

| | | | |
|------------------------|---------------|------------------------------|--------------|
| CHANNEL | TX Channel 17 | DETECTOR FUNCTION | Peak (PK) |
| FREQUENCY RANGE | 1GHz ~ 25GHz | | Average (AV) |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
|-----|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| 1 | *2440.00 | 95.80 PK | 114.00 | -18.20 | 1.17 H | 21 | 95.08 | 0.72 |
| 2 | *2440.00 | 70.58 AV | 94.00 | -23.42 | 1.17 H | 21 | 69.86 | 0.72 |
| 3 | 4880.00 | 46.50 PK | 74.00 | -27.50 | 1.67 H | 201 | 39.67 | 6.83 |
| 4 | 4880.00 | 33.67 AV | 54.00 | -20.33 | 1.67 H | 201 | 26.84 | 6.83 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
|-----|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| 1 | *2440.00 | 95.14 PK | 114.00 | -18.86 | 1.16 V | 336 | 94.42 | 0.72 |
| 2 | *2440.00 | 69.28 AV | 94.00 | -24.72 | 1.16 V | 336 | 68.56 | 0.72 |
| 3 | 4880.00 | 45.29 PK | 74.00 | -28.71 | 1.44 V | 210 | 38.46 | 6.83 |
| 4 | 4880.00 | 32.01 AV | 54.00 | -21.99 | 1.44 V | 210 | 25.18 | 6.83 |

REMARKS:

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

| | | | |
|------------------------|---------------|------------------------------|--------------|
| CHANNEL | TX Channel 34 | DETECTOR FUNCTION | Peak (PK) |
| FREQUENCY RANGE | 1GHz ~ 25GHz | | Average (AV) |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
|----------|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| 1 | *2474.00 | 95.42 PK | 114.00 | -18.58 | 1.24 H | 18 | 94.49 | 0.93 |
| 2 | *2474.00 | 69.36 AV | 94.00 | -24.64 | 1.24 H | 18 | 68.43 | 0.93 |
| 3 | 2483.50 | 65.78 PK | 74.00 | -8.22 | 1.24 H | 18 | 64.79 | 0.99 |
| 4 | 2483.50 | 38.72 AV | 54.00 | -15.28 | 1.24 H | 18 | 37.73 | 0.99 |
| 5 | 4948.00 | 46.60 PK | 74.00 | -27.40 | 1.38 H | 169 | 39.65 | 6.95 |
| 6 | 4948.00 | 33.80 AV | 54.00 | -20.20 | 1.38 H | 169 | 26.85 | 6.95 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
|-----|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| 1 | *2474.00 | 94.61 PK | 114.00 | -19.39 | 1.00 V | 22 | 93.68 | 0.93 |
| 2 | *2474.00 | 68.82 AV | 94.00 | -25.18 | 1.00 V | 22 | 67.89 | 0.93 |
| 3 | 2483.50 | 63.35 PK | 74.00 | -10.65 | 1.00 V | 21 | 62.36 | 0.99 |
| 4 | 2483.50 | 31.88 AV | 54.00 | -22.12 | 1.00 V | 21 | 30.89 | 0.99 |
| 5 | 4948.00 | 45.74 PK | 74.00 | -28.26 | 1.52 V | 117 | 38.79 | 6.95 |
| 6 | 4948.00 | 32.07 AV | 54.00 | -21.93 | 1.52 V | 117 | 25.12 | 6.95 |

REMARKS:

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

BELOW 1GHz WORST-CASE DATA

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

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
|-----|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| 1 | 30.58 | 27.60 QP | 40.00 | -12.40 | 1.64 H | 275 | 38.96 | -11.36 |
| 2 | 63.51 | 20.77 QP | 40.00 | -19.23 | 2.64 H | 313 | 31.08 | -10.31 |
| 3 | 166.28 | 21.95 QP | 43.50 | -21.55 | 1.87 H | 64 | 31.42 | -9.47 |
| 4 | 232.39 | 35.03 QP | 46.00 | -10.97 | 1.36 H | 104 | 46.41 | -11.38 |
| 5 | 298.79 | 33.31 QP | 46.00 | -12.69 | 2.01 H | 80 | 41.01 | -7.70 |
| 6 | 365.13 | 31.70 QP | 46.00 | -14.30 | 1.74 H | 10 | 38.10 | -6.40 |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

| NO. | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
|-----|----------------|-------------------------------|-------------------|----------------|--------------------------|----------------------------|------------------------|--------------------------------|
| 1 | 65.07 | 20.55 QP | 40.00 | -19.45 | 1.52 V | 334 | 31.13 | -10.58 |
| 2 | 166.28 | 26.02 QP | 43.50 | -17.48 | 1.45 V | 360 | 35.49 | -9.47 |
| 3 | 232.78 | 32.34 QP | 46.00 | -13.66 | 3.02 V | 354 | 43.64 | -11.30 |
| 4 | 298.69 | 24.20 QP | 46.00 | -21.80 | 1.87 V | 354 | 31.91 | -7.71 |
| 5 | 431.58 | 25.72 QP | 46.00 | -20.28 | 1.52 V | 294 | 30.47 | -4.75 |
| 6 | 498.85 | 28.79 QP | 46.00 | -17.21 | 1.19 V | 351 | 32.29 | -3.50 |

REMARKS:

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

4.2 Conducted Emission Measurement

4.2.1 Limits of Conducted Emission Measurement

| Frequency (MHz) | Conducted Limit (dBuV) | |
|-----------------|------------------------|---------|
| | Quasi-peak | Average |
| 0.15 - 0.5 | 66 - 56 | 56 - 46 |
| 0.50 - 5.0 | 56 | 46 |
| 5.0 - 30.0 | 60 | 50 |

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2.2 Test Instruments

| Description & Manufacturer | Model No. | Serial No. | Cal. Date | Cal. Due |
|--|-------------|--------------|---------------|---------------|
| ROHDE & SCHWARZ TEST RECEIVER | ESCS 30 | 100276 | Apr. 12, 2016 | Apr. 11, 2017 |
| ROHDE & SCHWARZ Artificial Mains Network (for EUT) | ENV216 | 101197 | May 04, 2016 | May 03, 2017 |
| LISN With Adapter (for EUT) | AD10 | C10Ada-002 | May 04, 2016 | May 03, 2017 |
| ROHDE & SCHWARZ Artificial Mains Network (for peripherals) | ESH3-Z5 | 100218 | Nov. 25, 2015 | Nov. 24, 2016 |
| SCHWARZBECK Artificial Mains Network (For EUT) | NNLK8129 | 8129229 | May 04, 2016 | May 03, 2017 |
| Software | Cond_V7.3.7 | NA | NA | NA |
| RF cable (JYEBAO) With 10dB PAD | 5D-FB | Cable-C10.01 | Feb. 15, 2016 | Feb. 14, 2017 |
| SUHNER Terminator (For ROHDE & SCHWARZ LISN) | 65BNC-5001 | E1-011484 | May 12, 2016 | May 11, 2017 |
| ROHDE & SCHWARZ Artificial Mains Network (For TV EUT) | ESH3-Z5 | 100220 | Nov. 13, 2015 | Nov. 12, 2016 |
| LISN With Adapter (for TV EUT) | 100220 | N/A | Nov. 13, 2015 | Nov. 12, 2016 |

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

2. The test was performed in Shielded Room No. 10.

3. The VCCI Site Registration No. C-1852.

4.2.3 Test Procedures

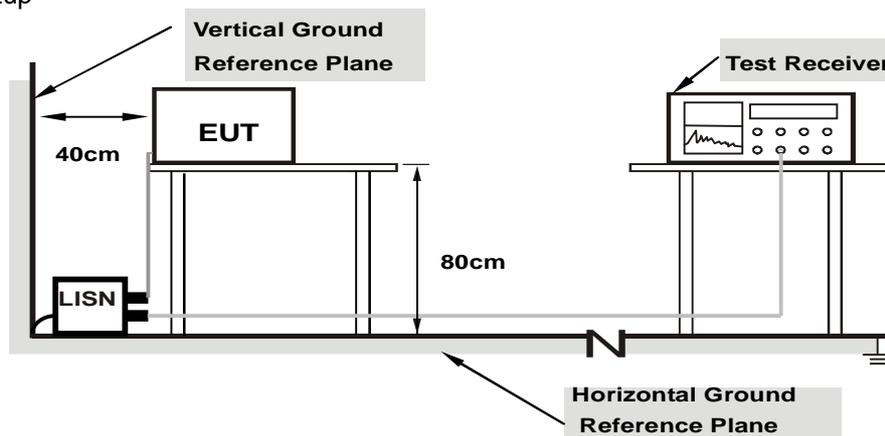
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

NOTE: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

4.2.4 Deviation from Test Standard

No deviation.

4.2.5 Test Setup



Note: 1.Support units were connected to second LISN.

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

4.2.6 EUT Operating Conditions

Same as item 4.1.6.

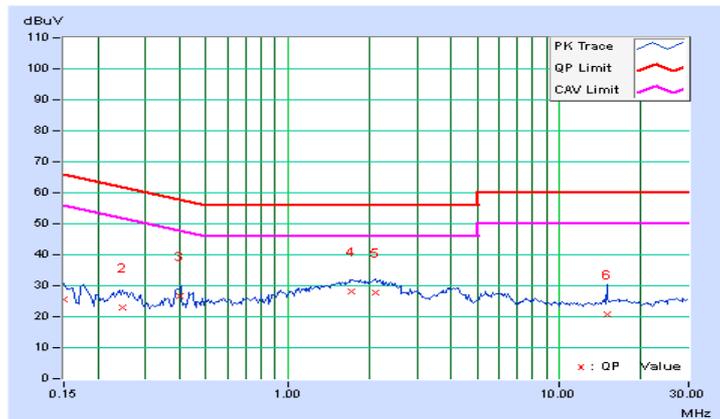
4.2.7 Test Results

| | | | |
|------------------------|----------------|--|--------------------------------------|
| Frequency Range | 150kHz ~ 30MHz | Detector Function & Bandwidth | Quasi-Peak (QP) / Average (AV), 9kHz |
|------------------------|----------------|--|--------------------------------------|

| Phase Of Power : Line (L) | | | | | | | | | | |
|---------------------------|-----------------|------------------------|----------------------|--------------|-----------------------|--------------|--------------|--------------|---------------|---------------|
| No | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) | | Emission Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.15000 | 9.70 | 15.75 | 5.77 | 25.45 | 15.47 | 66.00 | 56.00 | -40.55 | -40.53 |
| 2 | 0.24766 | 9.70 | 13.33 | 7.03 | 23.03 | 16.73 | 61.84 | 51.84 | -38.81 | -35.11 |
| 3 | 0.40009 | 9.69 | 16.99 | 15.47 | 26.68 | 25.16 | 57.85 | 47.85 | -31.17 | -22.69 |
| 4 | 1.72656 | 9.77 | 18.27 | 11.33 | 28.04 | 21.10 | 56.00 | 46.00 | -27.96 | -24.90 |
| 5 | 2.12109 | 9.79 | 18.03 | 10.05 | 27.82 | 19.84 | 56.00 | 46.00 | -28.18 | -26.16 |
| 6 | 15.02344 | 9.94 | 10.67 | 5.17 | 20.61 | 15.11 | 60.00 | 50.00 | -39.39 | -34.89 |

Remarks:

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

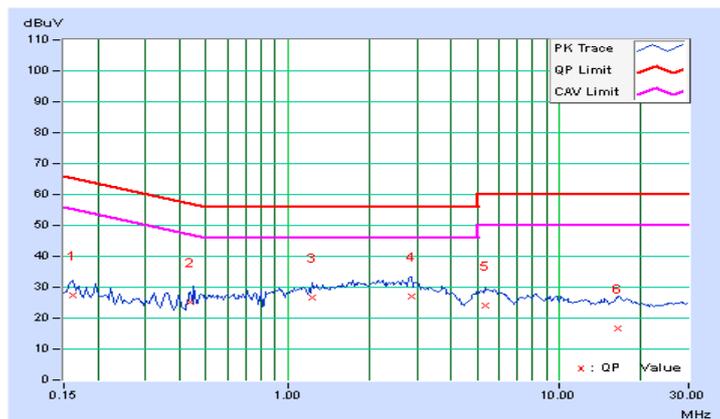


| | | | |
|------------------------|----------------|--|--------------------------------------|
| Frequency Range | 150kHz ~ 30MHz | Detector Function & Bandwidth | Quasi-Peak (QP) / Average (AV), 9kHz |
|------------------------|----------------|--|--------------------------------------|

| Phase Of Power : Neutral (N) | | | | | | | | | | |
|------------------------------|-----------------|------------------------|----------------------|-------|-----------------------|-------|--------------|-------|-------------|--------|
| No | Frequency (MHz) | Correction Factor (dB) | Reading Value (dBuV) | | Emission Level (dBuV) | | Limit (dBuV) | | Margin (dB) | |
| | | | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. | Q.P. | AV. |
| 1 | 0.16172 | 9.70 | 17.89 | 10.87 | 27.59 | 20.57 | 65.38 | 55.38 | -37.79 | -34.81 |
| 2 | 0.44062 | 9.69 | 15.67 | 13.73 | 25.36 | 23.42 | 57.05 | 47.05 | -31.69 | -23.63 |
| 3 | 1.23828 | 9.74 | 16.87 | 10.15 | 26.61 | 19.89 | 56.00 | 46.00 | -29.39 | -26.11 |
| 4 | 2.87109 | 9.81 | 17.07 | 7.93 | 26.88 | 17.74 | 56.00 | 46.00 | -29.12 | -28.26 |
| 5 | 5.35156 | 9.87 | 14.03 | 6.85 | 23.90 | 16.72 | 60.00 | 50.00 | -36.10 | -33.28 |
| 6 | 16.54297 | 9.94 | 6.65 | 0.71 | 16.59 | 10.65 | 60.00 | 50.00 | -43.41 | -39.35 |

Remarks:

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



5 Pictures of Test Arrangements

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

Appendix – Information on the Testing Laboratories

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

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

Linko EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com

Web Site: www.bureauveritas-adt.com

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

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