



TEST REPORT

Applicant : Bluepad Co., Ltd.
Applicant's Address : 4th Floor, Doosung Bd. 298-21, Gongdan Road, Gunpo-si, Gyeonggi-do, 435-862, Korea
Manufacturer : Bluepad Co., Ltd.
Manufacturer's Address : 4th Floor, Doosung Bd. 298-21, Gongdan Road, Gunpo-si, Gyeonggi-do, 435-862, Korea
EUT
Type of Product : Web Pad
Model : BPV-355
**Buyer Model/
Multi Model** : N/A
Serial Number : Prototype
Test Standards : ANSI C63.4-2009
Rule Parts : FCC Part 15 Subpart B – Unintentional Radiators
Equipment Class : Class B personal computers and peripherals
Test Date(s) : May 10, 2012 ~ May 14, 2012
Test Report : SKTEFC-120523-053
Date of Issue : May 23, 2012
Overall Test Result : Compliance

The above equipment was tested by SK Tech Co., Ltd. For compliance with the requirements set forth in FCC Part 15 Subpart B mentioned above. The test results show the maximum emission levels emanating from the equipment are within the compliance requirements. The test results of this report only apply to the specific sample tested under stated test conditions.

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H.P. Kim /Test Engineer


J.S. Yoon /Technical Manager



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REVISION HISTORY

| Rev. # | Changes of Content | Section Affected | Reviewed by | Date |
|--------|--------------------|------------------|-------------|--------------|
| 0 | Original Release | All | J.S. Yoon | May 23, 2012 |
| | | | | |



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SUMMARY OF TEST RESULT

| EMISSION | | | |
|--|--|---|---------------|
| STANDARD | ITEM | CLASS/SEVERITY | RESULT |
| ANSI C63.4-2009 FCC Part 15 Subpart B | FCC 15.107(a) AC Power line Conducted Emission Test | Meets Class B limits and the minimum passing margin is 8.37 dB at 23.130 MHz | PASS |
| | FCC 15.109(a) Radiated Emission Test | Meets Class B limits and the minimum passing margin is 6.3 dB at 34.63 MHz | PASS |



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1. General

The tests listed in this report have been performed and the results recorded by SK Tech Co., Ltd. in accordance with the procedures stated in each test requirement and specification. As a result, the subject product has been verified to comply with each test specification. The test results relate only to the items tested.

We attest to the accuracy of data. All measurements reported herein were performed by SK TECH Co., Ltd. and were made under Technical Manager's supervision. We assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

2. Facilities and Accreditations

2.1 Facilities

All of the measurements described in this report were performed at SK Tech Co., Ltd

Site I: 820-2, Wolmoon Ri, Wabu-Up, Namyangju-Si, Kyunggi-Do, Korea

Site II: 688-8, Wolmoon Ri, Wabu-Up, Namyangju-Si, Kyunggi-Do, Korea

The test site is constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 16-1-4. It complies with the Normalized Site Attenuation requirements given in ANSI C63.4, and site VSWR requirements specified in CISPR 16-1-4. The measuring equipment conforms to CISPR 16 requirements for Electromagnetic Noise and Field Strength Instrumentation.

2.2 Accreditations

Our testing laboratories are accredited by the following accreditation bodies in accordance with ISO/IEC 17025 for general requirements for the competence of testing and calibration laboratories.

| | | |
|----------------|----------|------------------------------|
| Korea | : | KOLAS No.191 |
| Germany | : | DAKKS DAT-P-076/97-02 |

The laboratories have been also notified to FCC by RRA as a Conformity Assessment Body, and designated to perform compliance testing on equipment subject to Declaration of Conformity (DOC) and Certification under Parts 15 and 18 of the FCC Rules.

Designation number : **KR0007**



2.3 Test and Measurement Instruments Used

• Conducted Disturbance

| Name of Equipment | Type | S/N | Calibrated until |
|---------------------------------|----------|------------|------------------|
| EMI Test Receiver | ESHS10 | 862970/019 | 07.2012 |
| Artificial Mains Network | ESH2-Z5 | 834549/011 | 07.2012 |
| Artificial Mains Network | ESH3-Z5 | 836679/018 | 07.2012 |
| Artificial Mains Network | NNLK8129 | 8129-215 | 03.2013 |
| Impedance Stabilization Network | ISN T8 | 24806 | 02.2013 |

• Radiated Disturbance

| Name of Equipment | Type | S/N | Calibrated until |
|----------------------------------|----------------------------------|------------|------------------|
| EMI Test Receiver | ESPI | 101206 | 07.2012 |
| EMI Test Receiver | ESIB40 | 100277 | 03.2013 |
| Pre-Amplifier (30 MHz ~ 1 GHz) | 8447F | 3113A05153 | 07.2012 |
| Pre-Amplifier (30 MHz ~ 1 GHz) | 8447D | 2944A07994 | 07.2012 |
| Pre-Amplifier (1 GHz ~ 18 GHz) | MLA-100M18-B02-38 | 1539546 | 03.2013 |
| Bilog broadband Antenna | VULB9168 | 9168-230 | 12.2012 |
| Bilog broadband Antenna | JB1 | A060910 | 10.2012 |
| Horn Antenna (1 GHz ~ 18 GHz) | BBHA 9120D | 9120D-816 | 12.2012 |
| Band Reject Filter | WRCGV2400/2483-2375/2505-50/10SS | 5 | 02.2013 |



3. EUT Description

The EUT is a Web Pad. The following information has been supplied by the applicant.

| | |
|-------------|---|
| CPU | Intel Z530, X86 Core |
| OS | Windows 7 Embedded or Windows XP Embedded |
| Display | 9.7" TFT LCD, 1024 x 768 |
| Touch | Resistive |
| Memory | 1 GB(DDR2 SODIMM) |
| Storage | DOM 2 GB ~ 32 GB |
| Network | RJ45, 10/100 1port 802.11 b/g/n, Bluetooth(Option) |
| I/O | USB 2.0 2 Ports, SD/MMC CRT-OUT CDMA/GSM |
| Battery | Li-Polymer 5 ~ 7 hours |
| Dimension | 200 x 278 x 22(23) mm |
| Weight | 1 Kg(Est.) |
| Waterproof | IP54 |
| Temperature | Operating : 0 ~ 40 °C Storage : -20 ~ 60 °C |
| Humidity | 5 ~ 95 % |



4. EUT Operating Conditions

The EUT was powered from the AC mains with 120 V, 60 Hz. The test configuration and mode of operation described in this section were used during all the measurements as the worst case, unless otherwise noted elsewhere in this report.

4.1 EUT Operation Modes

The cable connection was made as shown in the test configuration, and the following functions were simultaneously enabled.

- (a) Using the testing software, read/write the HDD and display "H" characteristic on the screen.
- (b) Play the music, and run the ping tests to the wired external network and also wireless AP.
- (c) The traffic generating software (TfGen v1.00) in the EUT was used for the traffic rate to exceed 10 %.
- (d) The radio link between EUT and Bluetooth Tester was established.

4.2 Ancillary Equipment

The EUT was tested while connected to the following representative configuration of ancillary equipment necessary to exercise the ports during tests.

| # | Equipment | Manufacturer | Model No. | Serial No. |
|---|--------------------|----------------------------------|--------------|-------------|
| 1 | Mouse | DONGGUAN PRIMAX ELECTRONICS LTD. | MO28UOL | 44X4966 |
| 2 | USB Flash Memory | Transcend | JetFlash 500 | N/A |
| 3 | Headset | CAMAC | CMK-500MV | N/A |
| 4 | AP (WLAN) | EFM Networks | ipTIME N5004 | N/A |
| 5 | Bluetooth Tester | TECSOM CO., LTD. | TC-3000B | 3000B630009 |
| 6 | AC/DC Adapter(EUT) | Adapter Technology Co., Ltd. | STD-19034 | N/A |
| 7 | AC/DC Adapter(AP) | Tae Young Electronics | TY-10002 | N/A |



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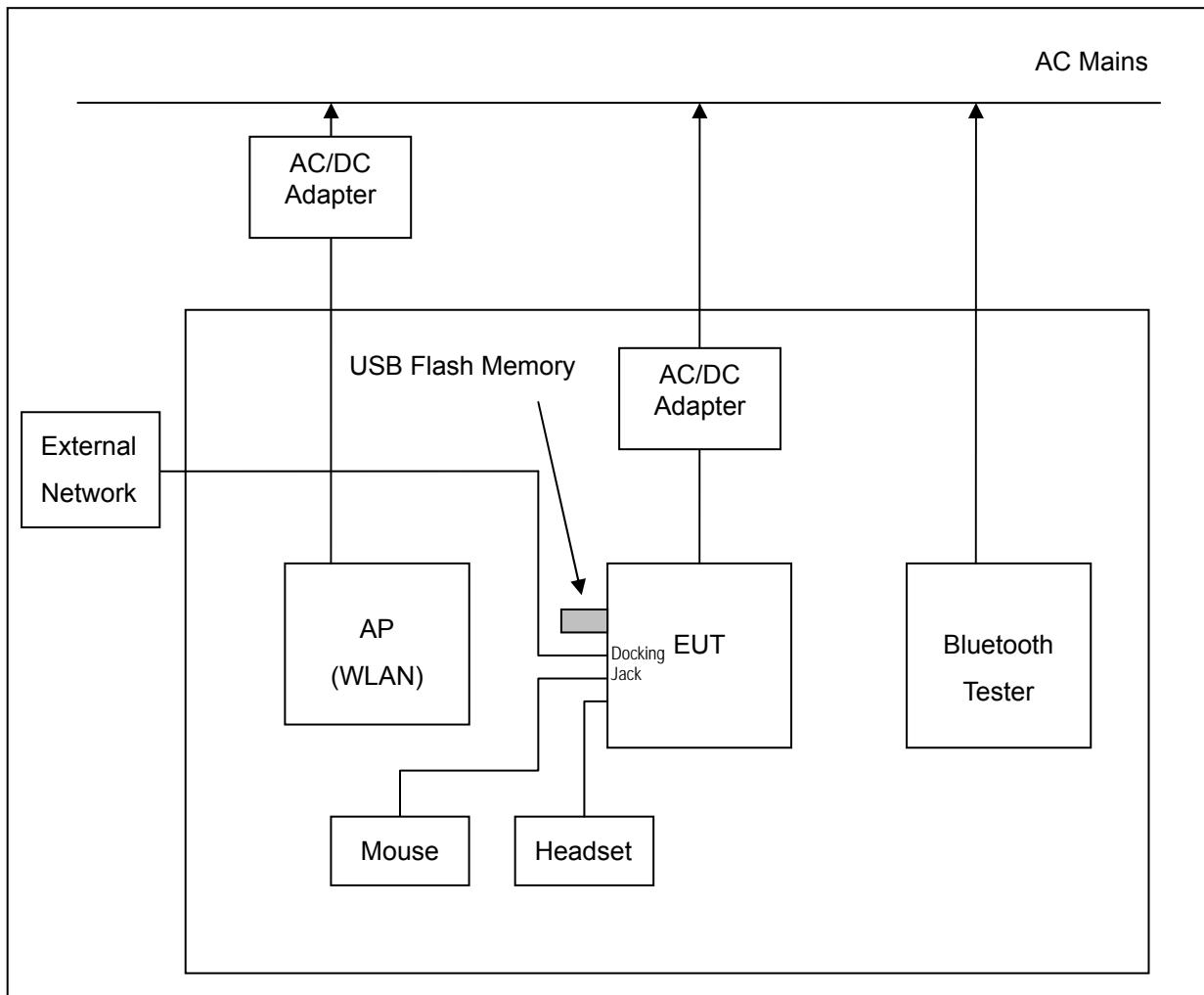
4.3 Interconnection and I/O cables

| # | START | | END | | Cable | |
|---|------------------------|----------------------|---------------------|-----------|-----------|-------------------------|
| | Name | I/O Port | Name | I/O Port | Length(m) | Shielded/ Unshielded |
| 1 | EUT | USB | Mouse | - | 1.8 | Shielded |
| 2 | EUT | USB | USB Flash Memory | - | - | - |
| 3 | EUT | Audio Out | Headset | - | 1.6 | Unshielded |
| 4 | EUT | Docking interface | External Network | RJ 45 | 20.0 | Unshielded |
| 5 | EUT | DC Input | AC/DC Adapter | DC Output | 1.5 | Unshielded |
| 6 | AP (WLAN) | DC Input | AC/DC Adapter | DC Output | - | - |
| 7 | Bluetooth Tester | AC Input | AC Mains | AC Mains | 1.6 | Unshielded |
| 8 | AC/DC Adapter (EUT) | AC Input | AC Mains | AC Mains | 1.6 | Unshielded |
| 9 | AC/DC Adapter (AP) | AC Input | AC Mains | AC Mains | - | - |



4.4 Test Configuration

For the actual test configuration, please refer to the photographs of the test setup.



[System Block Diagram of Test Configuration]



4.5 Uncertainty

1) Radiated disturbances from 30 MHz to 6000 MHz

Expanded Uncertainty

$$U = k \times U_c(x_i) = 2 \times 2.10 = \pm 4.20 \text{ dB (for 30 MHz to 1000 MHz)}$$

$$U = k \times U_c(x_i) = 2 \times 2.53 = \pm 5.06 \text{ dB (for 1000 MHz to 6000 MHz)}$$

The coverage factor $k = 2$ yields approximately a 95 % level of confidence.

2) Conducted disturbance from 150 kHz to 30 MHz using a 50 Ω / 50 μH AMN

Expanded uncertainty

$$U = k \times U_c(x_i) = 2 \times 1.57 = \pm 3.14 \text{ dB}$$

The coverage factor $k = 2$ yields approximately a 95 % level of confidence.

- ※ When the measured emission is positioned within the range of the uncertainty of measurement from the emission limit, the uncertainty of measurement shall be concerned as follow.

Compliance or non-compliance with a disturbance limit shall be determined in the following manner.

If U_{lab} is less than or equal to U_{cispr}

- Compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- Non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

If U_{lab} is greater than U_{cispr}

- Compliance is deemed to occur if no measured disturbance, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit;
- Non-compliance is deemed to occur if any measured disturbance, increased by $(U_{lab} - U_{cispr})$, exceeds the disturbance limit.

- ※ If the measurement value is lower or equal to the limit, the EUT is considered to pass the test.



5. Test Results EMISSION

5.1 Conducted Disturbance at mains terminals

| Result | | PASS |
|---------------|--|-------------|
|---------------|--|-------------|

| | | |
|-------------------------|--------------------|-----------|
| Test Environment | Temperature | 18 °C |
| | Humidity | 41 % R.H. |

| | |
|-----------------------|---|
| Test Procedure | Test method: ANSI C63.4 Limit: FCC Part 15.107(a) |
| | <p>(a) The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 cm in which is located 40 cm away from the vertical wall and 1.5m away from the side wall of the shielded room.</p> <p>(b) Each current-carrying conductor of the EUT power cord was individually connected through a $50\Omega/50\mu\text{H}$ LISN, which is an input transducer to a Spectrum Analyzer or an EMI/Field Intensity Meter, to the input power source.</p> <p>(c) Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.</p> <p>(d) The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment in the system) was then performed over the frequency range of 0.15 MHz to 30 MHz.</p> <p>(e) The measurements were made with the detector set to PEAK amplitude within a bandwidth of 10 kHz or to QUASI-PEAK and AVERAGE within a bandwidth of 9 kHz.</p> |

**Conducted Disturbance Test Data****<Quasi-Peak>**

| Frequency (MHz) | Reading (dB μ V) | Line | C/F (dB) | C/L (dB) | Actual (dB μ V) | Limit (dB μ V) | Margin (dB) |
|--------------------|-------------------------|------|-------------|-------------|------------------------|-----------------------|----------------|
| 0.175 | 47.60 | L | 0.11 | 0.02 | 47.73 | 64.72 | 16.99 |
| 0.235 | 41.36 | L | 0.12 | 0.03 | 41.51 | 62.27 | 20.76 |
| 0.590 | 39.10 | L | 0.12 | 0.05 | 39.27 | 56.00 | 16.73 |
| 0.650 | 35.62 | N | 0.12 | 0.05 | 35.79 | 56.00 | 20.21 |
| 13.420 | 37.84 | N | 0.43 | 0.22 | 38.49 | 60.00 | 21.51 |
| 23.130 | 42.06 | L | 0.84 | 0.25 | 43.15 | 60.00 | 16.85 |

<Average>

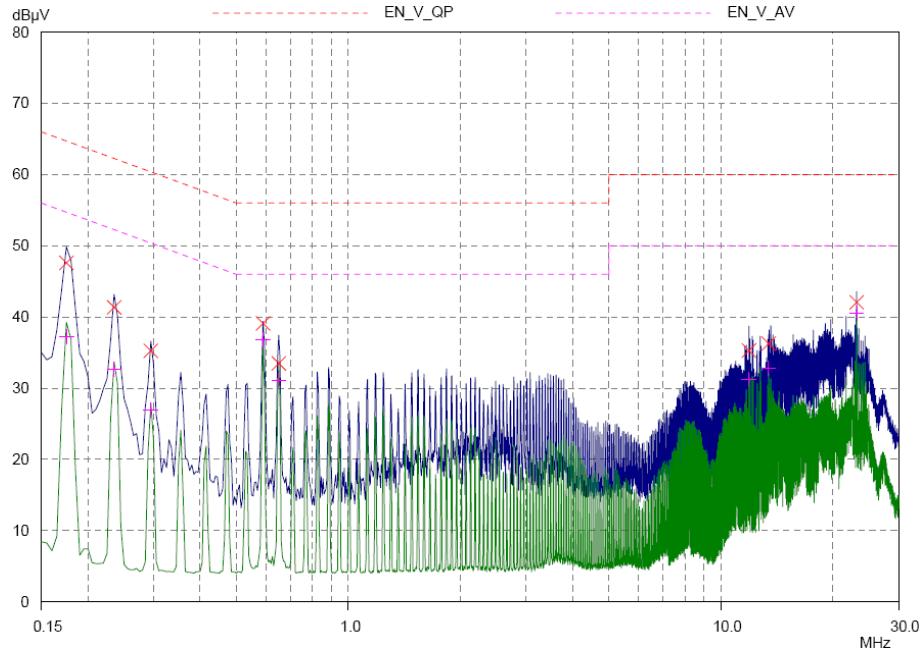
| Frequency (MHz) | Reading (dB μ V) | Line | C/F (dB) | C/L (dB) | Actual (dB μ V) | Limit (dB μ V) | Margin (dB) |
|--------------------|-------------------------|------|-------------|-------------|------------------------|-----------------------|----------------|
| 0.175 | 37.25 | L | 0.11 | 0.02 | 37.38 | 54.72 | 17.34 |
| 0.590 | 36.80 | L | 0.12 | 0.05 | 36.97 | 46.00 | 9.03 |
| 0.650 | 32.91 | N | 0.12 | 0.05 | 33.08 | 46.00 | 12.92 |
| 13.420 | 33.30 | N | 0.43 | 0.22 | 33.95 | 50.00 | 16.05 |
| 23.130 | 40.54 | L | 0.84 | 0.25 | 41.63 | 50.00 | 8.37 |
| 24.350 | 33.90 | N | 0.93 | 0.24 | 35.07 | 50.00 | 14.93 |

► NOTE

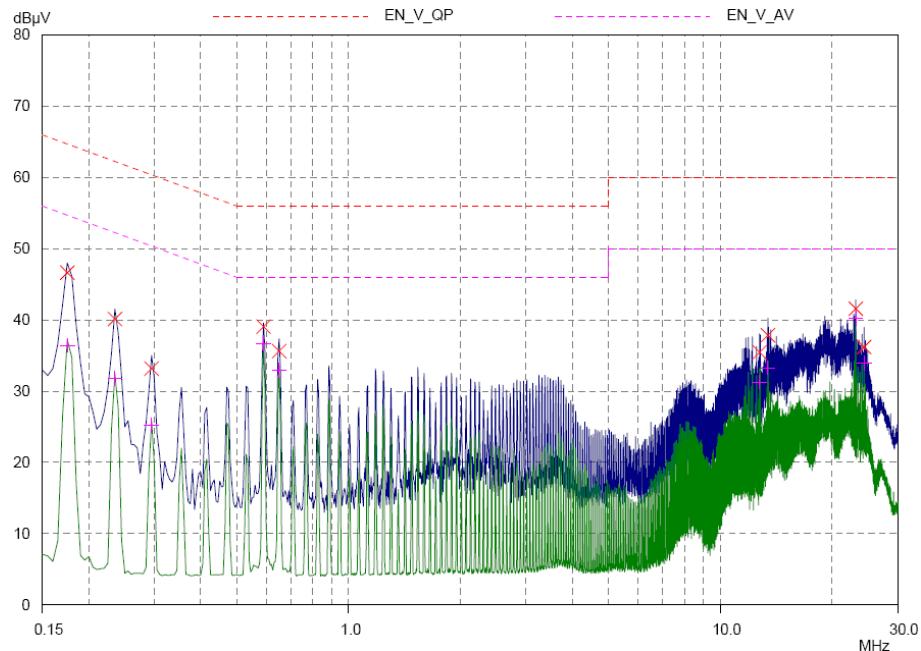
- * C/F = Correction Factor
- * C/L = Cable Loss
- * LINE: L = Line-PE, N = Neutral-PE
- * Margin Calculation
Margin (Q.P) = Limit - Actual
[Actual (Q.P) = Reading (Q.P) + C/F + C/L]



Spectral Diagram, LINE – PE



Spectral Diagram NEUTRAL – PE





5.2 Radiated Disturbance

| Result | | | PASS |
|---------------|--|--|-------------|
|---------------|--|--|-------------|

| Test Environment | Test site | OATS (below 1 GHz) | 3-m anechoic chamber (above 1 GHz) |
|-------------------------|--------------------|-----------------------|---------------------------------------|
| | Temperature | 22 °C | 17 °C |
| | Humidity | 43 % R.H. | 41 % R.H. |

| | |
|-----------------------|---|
| Test Procedure | Test method: ANSI C63.4 |
| | Limit: FCC Part 15.109(a) |
| | (a) The preliminary radiated measurements were performed to determine the frequency producing the maximum emissions in an anechoic chamber. |
| | (b) For the final measurement, each frequency found during preliminary measurements was re-examined and investigated. The test-receiver system was set up to average, peak, and quasi-peak detector function with specified bandwidth. |
| | (c) Bilog broadband antenna was used for the frequency up to 1 GHz, and Horn antenna was used for the frequency above 1 GHz. |
| | (d) Radiated emission measurement for the frequency up to 1 GHz (at OATS) (1) The EUT was placed on the top of the 0.8-meter height with non-metallic table. (2) The receiving antenna was set at a distance of 3 m from the EUT. (3) The EUT was rotated about 360 ° and the receiving antenna was scanned from 1 m up to 4 m in order to capture the maximum emission. |
| | (e) Radiated emission measurement for the frequency above 1 GHz (at Chamber) (1) The EUT was placed on the top of the 0.8-meter height with non-metallic table. (2) The receiving antenna was set at a distance of 3 m from the EUT. (3) The EUT was rotated about 360 ° to capture the maximum emission. |



Radiated Disturbance Test data – below 1 GHz

| Frequency [MHz] | Reading [dB μ V] | Pol. [V/H] | Height [m] | AMP [dB] | AF [dB/m] | CL [dB] | ACTUAL [dB μ V/m] | LIMIT [dB μ V/m] | MARGIN [dB] |
|--------------------|--------------------------|---------------|---------------|-------------|--------------|------------|--------------------------|-------------------------|----------------|
| 34.63 | 50.24 | V | 1.57 | 28.61 | 11.34 | 0.72 | 33.69 | 40.0 | 6.3 |
| 64.49 | 48.69 | V | 1.74 | 28.50 | 11.36 | 0.98 | 32.53 | 40.0 | 7.5 |
| 105.35 | 51.35 | H | 2.83 | 28.39 | 8.58 | 1.27 | 32.81 | 43.5 | 10.7 |
| 187.29 | 47.12 | H | 2.41 | 28.00 | 10.49 | 1.68 | 31.29 | 43.5 | 12.2 |
| 600.01 | 43.58 | V | 1.55 | 29.03 | 19.57 | 3.08 | 37.20 | 46.0 | 8.8 |
| 800.01 | 41.26 | H | 2.97 | 28.80 | 21.87 | 3.57 | 37.90 | 46.0 | 8.1 |

NOTES:

1. All other emissions are non-significant.
2. Measurements using CISPR Quasi-Peak mode.
(Resolution bandwidth: 120 kHz)
3. H = Horizontal, V = Vertical Polarization.
4. AMP, AF and CL stands for Gain of Pre-amplifier, Antenna Factor and Cable loss respectively
5. ACTUAL = Reading - AMP + (AF + CL)
6. MARGIN = LIMIT - ACTUAL
7. Radiated Measurements at 3-meters.

**Radiated Disturbance Test data – above 1 GHz**

| Freq. [MHz] | RBW [kHz] | POL [V/H] | ANT [m] | Angle [°] | READING [dB μ V] | | AMP [dB] | AF [dB/m] | CL [dB] | ACTUAL [dB μ V/m] | | LIMIT [dB μ V/m] | | MARGIN [dB] | |
|----------------|--------------|--------------|------------|--------------|-------------------------|-------|-------------|--------------|------------|--------------------------|-------|-------------------------|------|----------------|------|
| | | | | | PK | AV | | | | PK | AV | PK | AV | PK | AV |
| 1921.9 | 1000 | H | 1.00 | 169 | 58.12 | 43.52 | 40.18 | 25.87 | 5.35 | 49.16 | 34.56 | 74.0 | 54.0 | 24.8 | 19.4 |

Actual [dB μ V/m] = Reading [dB μ V] - AMP gain [dB] + AF [dB/m] + CL [dB]
MARGIN [dB] = Limit [dB μ V/m] - Actual [dB μ V/m]

PK/AV : Peak / Average detector

AMP : Gain of the pre-amplifier

AF : Antenna Factor

CL : Cable loss

NOTES:

1. Radiated Measurements at 3-meters
2. The radiated disturbance was measured from 1 GHz to 6 GHz.



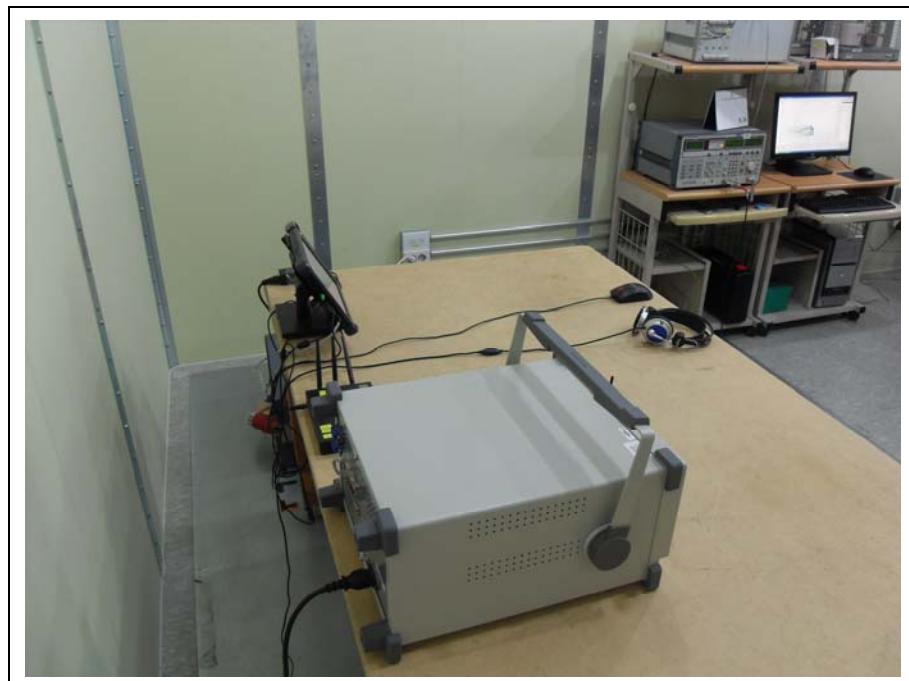
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Appendices

A1: Photograph of test set-Up

A1.1: Conducted Disturbance





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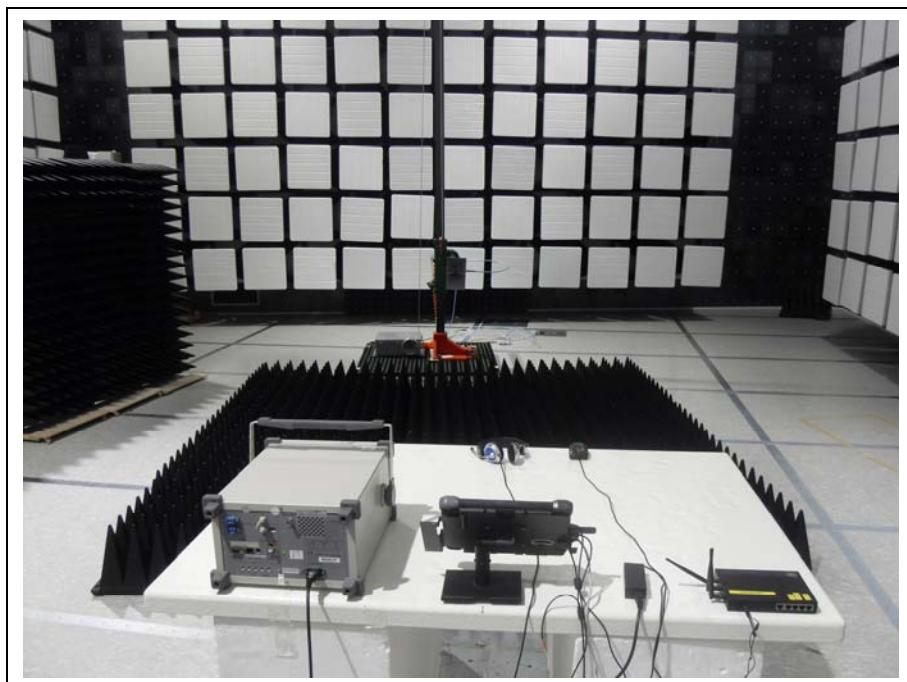
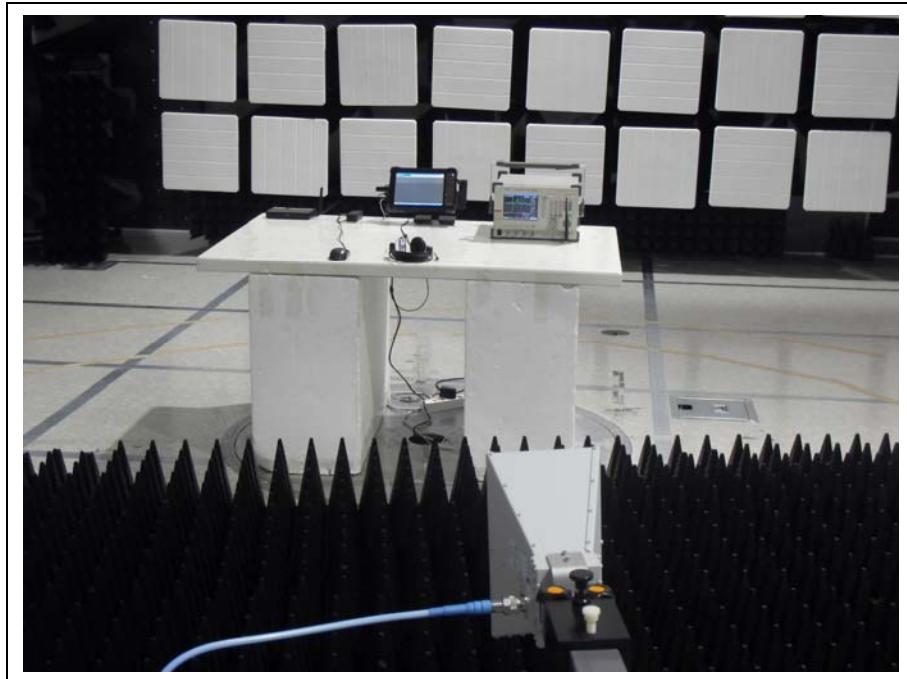
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A1.2: Radiated Disturbance (below 1 GHz)





A1.3: Radiated Disturbance (above 1 GHz)





A2: EUT Photographs

A2.1: <Front>





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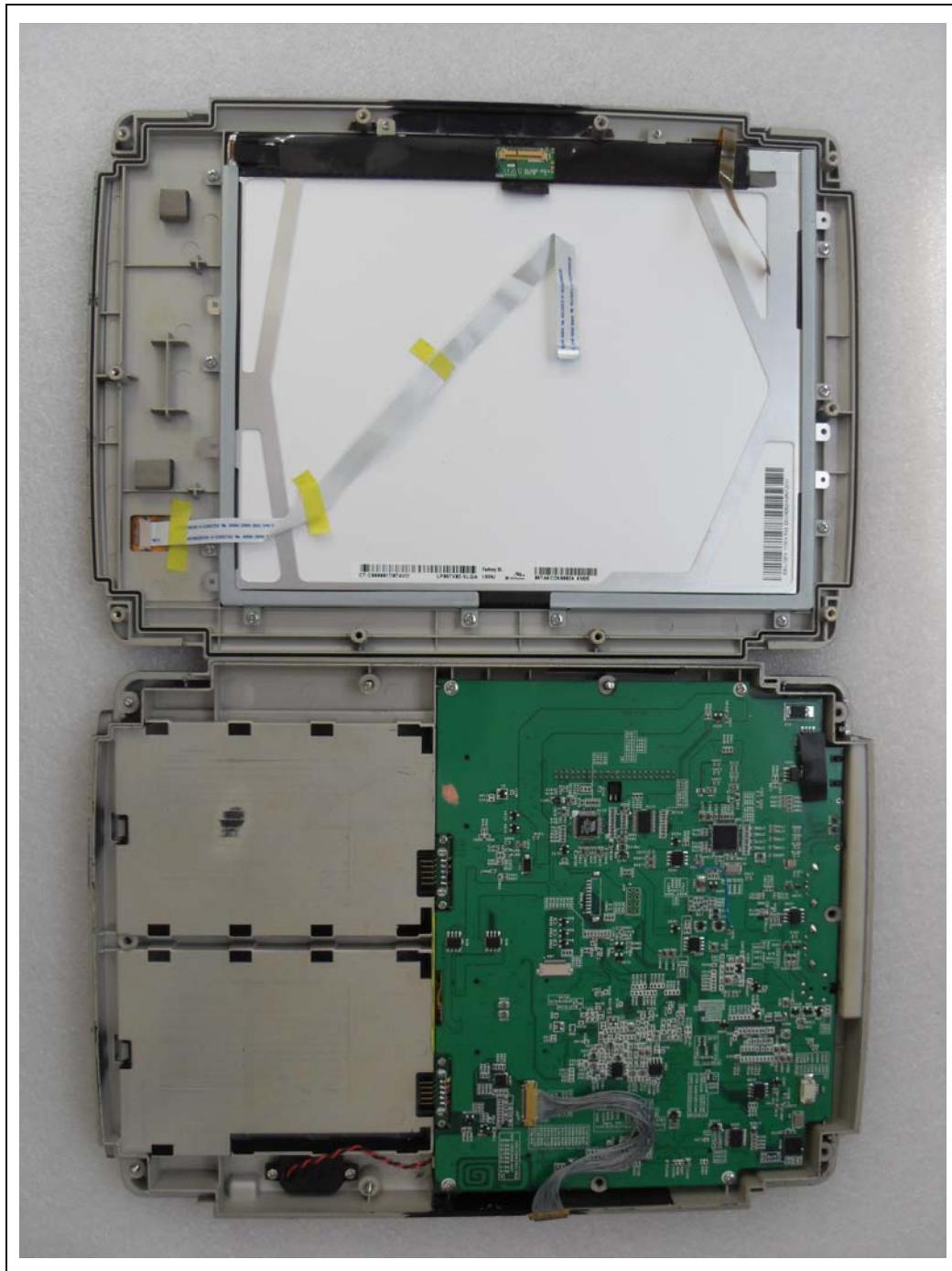
<http://www.skemc.co.kr>

A2.2: <Rear>



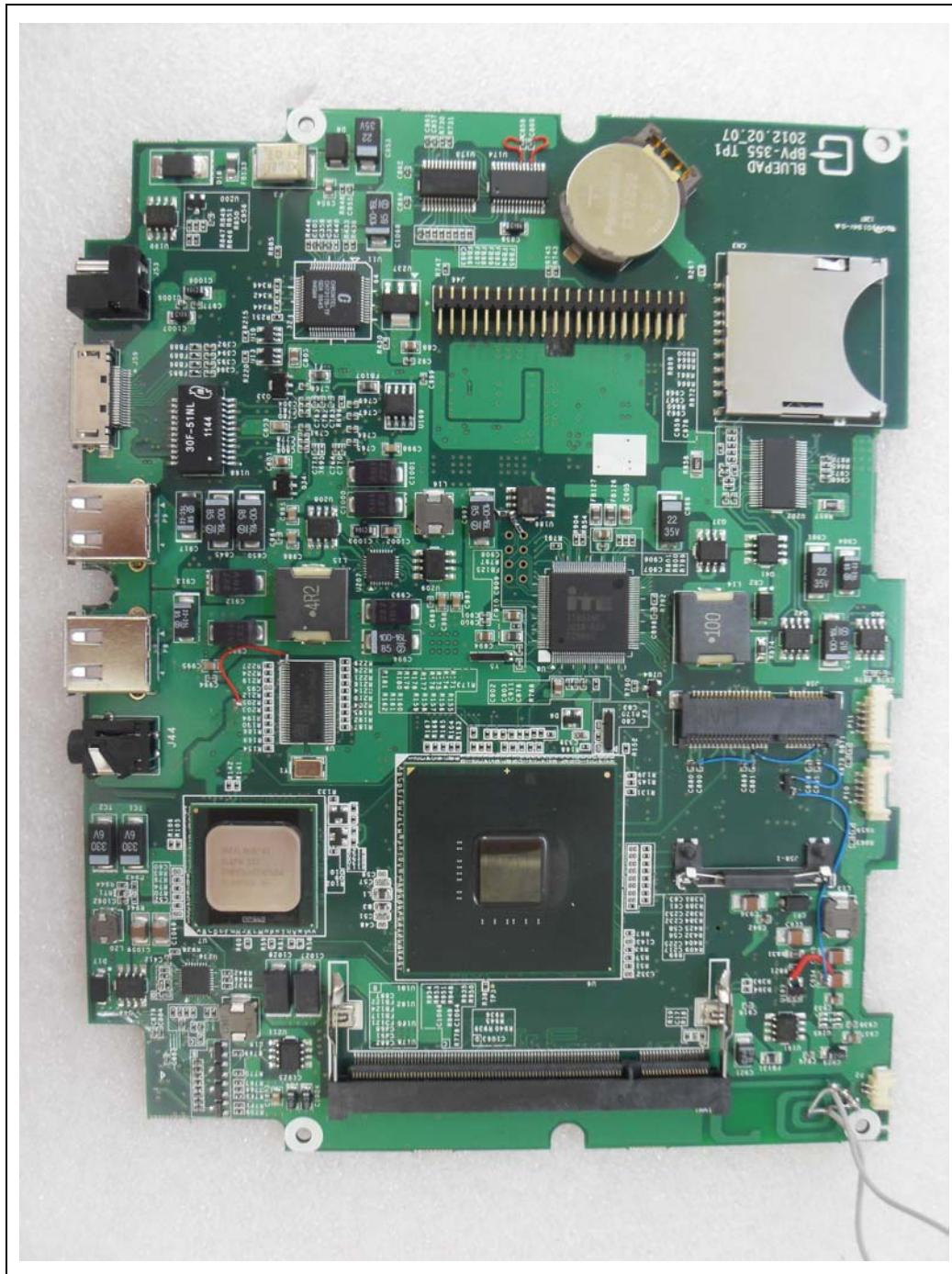


A2.3: <Internal>



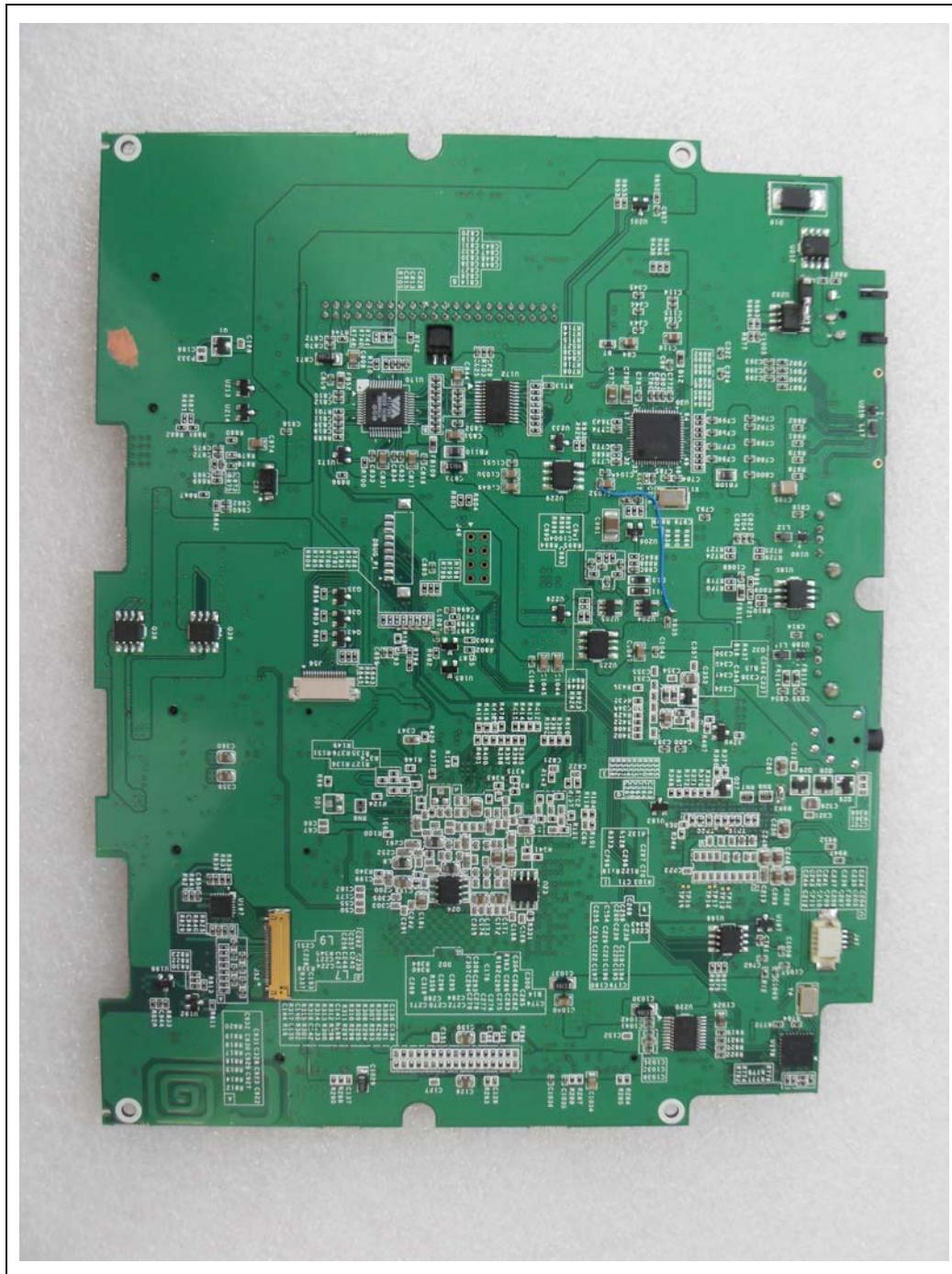


A2.4: <Main Board Front>





A2.5: <Main Board Rear>





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A2.6: <RAM Front>





A2.7: <RAM Rear>





A2.8: <LCD Front>





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A2.9: <LCD Rear>





A2.10: <LCD Board Front>





A2.11: <LCD Board Rear>





A2.12: <DM Storage Front>





A2.13: <DM Storage Rear>





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A2.14: <Battery Front>





A2.15: <Battery Rear>





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A2.16: <WLAN and Bluetooth Front>





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A2.17: <WLAN and Bluetooth Rear>





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A2.18: <Adapter Front>





A2.19: <Adapter Rear>





A2.20: <Drawing of the product label>

