

FCC PART 15B


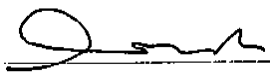
TEST REPORT

For

**Beijing BOE Display Technology Co., Ltd.**

No.118 in Jinghaiyi Road, BDA, Beijing, China

**FCC ID: A58GVC3200LED**

|  |                                |
|--|--------------------------------|
| <b>Report Type:</b><br>Original Report   | <b>Product Type:</b><br>LED TV |
| <b>Test Engineer:</b> Jone Lv   |                                |
| <b>Report Number:</b> R1BJ111114005-00A  |                                |
| <b>Report Date:</b> 2012-02-20   |                                |
| Lisa Zhu    |                                |
| <b>Reviewed By:</b> EMC Engineer   |                                |
| <b>Test Laboratory:</b> Bay Area Compliance Laboratories Corp. (Shenzhen)<br>6/F, the 3rd Phase of WanLi Industrial Building,<br>ShiHua Road, FuTian Free Trade Zone<br>Shenzhen, Guangdong, China<br>Tel: +86-755-33320018<br>Fax: +86-755-33320008<br><a href="http://www.baclcorp.com.cn">www.baclcorp.com.cn</a> |                                |

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\* This report contains data that are not covered by the NVLAP accreditation and are marked with an asterisk "★" (Rev.2)

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## GENERAL INFORMATION

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### Product Description for Equipment under Test (EUT)

The *Beijing BOE Display Technology Co., Ltd.*'s product, model number: *GVC3200LED* (FCC ID: *A58GVC3200LED*) (the "EUT") in this report is an *LED TV*, which was measured approximately: 74.97 cm (L) x 21.96 cm (W) x 52.0 cm (H), rated input voltage: AC 120V/60Hz.

*All measurement and test data in this report was gathered from production sample serial number: 1111145 (Assigned by BACL, Shenzhen). The EUT was received on 2011-11-14.*

### Objective

This report is prepared on behalf of *Beijing BOE Display Technology Co., Ltd.* in accordance with Part 2, Subpart J, Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine compliance with FCC Part 15B, Class B.

### Related Submittal(s)/Grant(s)

No Related Submittal(s)/Grant(s)

### Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>.

## SYSTEM TEST CONFIGURATION

### Justification

The system was configured for testing in a typical fashion (as normally used by a typical user). To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Test Mode   | Pre-Scan  | Worse Case       |
|---|---|------------------|
| <b>D-SUB:</b> 800*600 (56Hz/60Hz/72Hz/75Hz/80Hz)<br>1024*768 (60Hz/75Hz/85Hz)<br>1280*768 (60Hz/75Hz/85Hz)<br>1280*1024 (60Hz/75Hz/85Hz)<br>1360*768 (60Hz)<br>1366*768 (60Hz)<br>1440*900 (60Hz)<br>1600*1200 (60Hz)<br>1680*1050 (60Hz)<br>1920*1080 (60Hz) | <b>D-SUB:</b> 800*600 (80Hz)<br>1024*768 (85Hz)<br>1280*768 (85Hz)<br>1280*1024 (85Hz)<br>1360*768 (60Hz)<br>1366*768 (60Hz)<br>1440*900 (60Hz)<br>1600*1200 (60Hz)<br>1680*1050 (60Hz)<br>1920*1080 (60Hz) | 1920*1080 (60Hz) |
| <b>HDMI:</b> 480i; 480P; 576i; 576P; 720P; 1080i; 1080P   | <b>HDMI:</b> 480i; 480P; 576i; 576P; 720P; 1080i; 1080P   | 1080P            |

### EUT Exercise Software

"H" Pattern Software

### Equipment Modifications

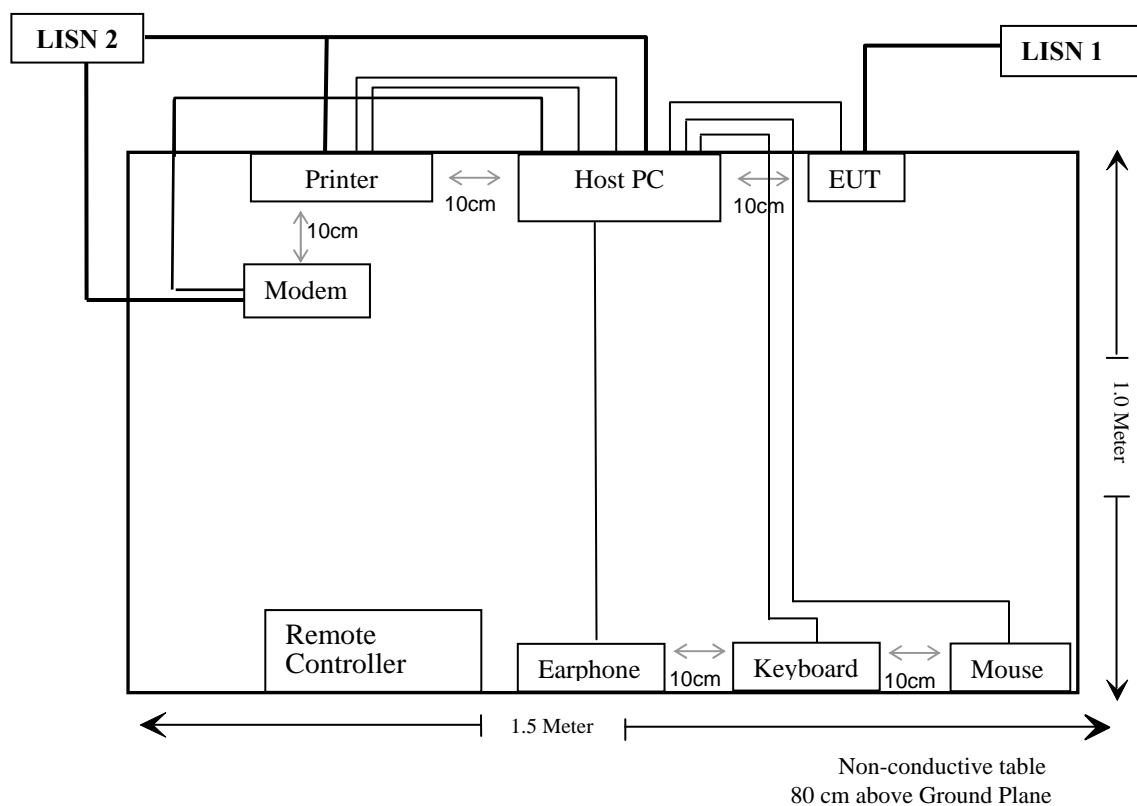
No modification was made to the EUT.

### Local Support Equipment List and Details

| Manufacturer | Description | Model    | Serial Number        |
|--------------|-------------|----------|----------------------|
| DELL         | Host PC     | 1#       | N/A                  |
| DELL         | Keyboard 1# | L100     | CNORH656658907BL04TY |
| DELL         | Mouse 1#    | MOC5UO   | G1B0096D             |
| HP           | Printer     | C3941A   | JPTVOB2337           |
| SAST         | Modem       | AEM-2100 | 0293                 |

**External I/O Cable**

| Cable Description                  | Length (m) | From     | To      |
|------------------------------------|------------|----------|---------|
| Shielded Detachable Keyboard Cable | 1.5        | Keyboard | Host PC |
| Shielded Detachable Mouse Cable    | 1.5        | Mouse    | Host PC |
| Shielded Detachable Printer Cable  | 1.2        | Printer  | Host PC |
| Shielded Detachable Serial Cable   | 1.2        | Modem    | Host PC |
| Shielded Detachable VGA Cable      | 1.5        | Host PC  | EUT     |
| Unshielded Undetachable AC Cable   | 1.5        | EUT      | LISN    |

**Block Diagram of Test Setup**

## SUMMARY OF TEST RESULTS

| FCC Rules | Description of Test         | Results    |
|-----------|-----------------------------|------------|
| §15.107   | AC Line Conducted Emissions | Compliance |
| §15.109   | Radiated Emissions          | Compliance |

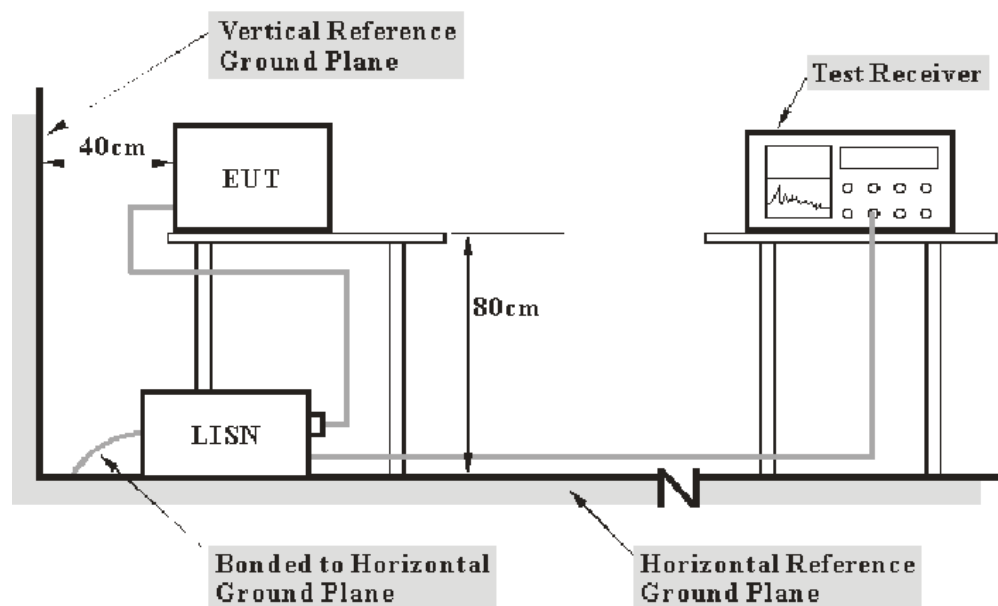
## FCC §15.107 – AC LINE CONDUCTED EMISSIONS

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on CISPR 16-4-2, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 2.4 dB.(k=2, 95% level of confidence)

### EUT Setup



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

The setup of EUT is according with per ANSI C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.107 Class B limits.

The EUT was connected to a 120 VAC/60 Hz power source.

## EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

| <u>Frequency Range</u> | <u>IF B/W</u> |
|------------------------|---------------|
| 150 kHz – 30 MHz       | 9 kHz         |

## Test Procedure

During the conducted emission test, the EUT was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

## Test Equipment List and Details

| Manufacturer    | Description       | Model   | Serial Number | Calibration Date | Calibration Due Date |
|-----------------|-------------------|---------|---------------|------------------|----------------------|
| Rohde & Schwarz | EMI Test Receiver | ESCS30  | 830245/006    | 2011-03-03       | 2012-03-02           |
| Rohde & Schwarz | L.I.S.N.1         | ESH2-Z5 | 892107/021    | 2011-03-09       | 2012-03-08           |

\* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

## Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.107, with the worst margin reading of:

**Running (D-SUB 1920 1080 60Hz): 2.27 dB at 0.195 MHz on Line**

**(HDMI 1080P): 3.33 dB at 8.005 MHz on Neutral**

## Test Data

### Environmental Conditions

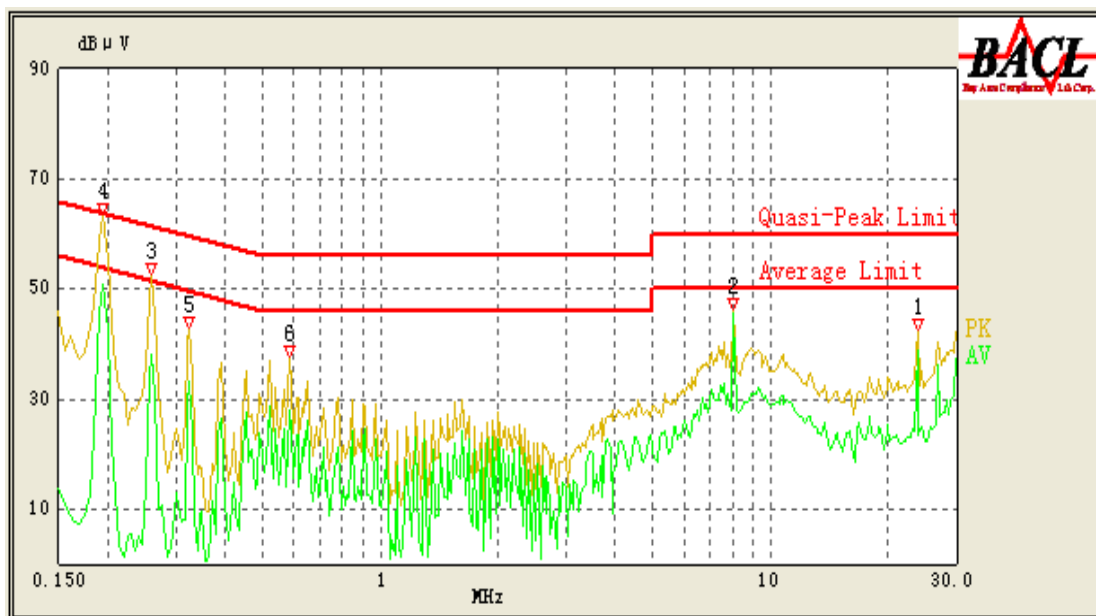
|                    |           |
|--------------------|-----------|
| Temperature:       | 25 °C     |
| Relative Humidity: | 48 %      |
| ATM Pressure:      | 100.0 kPa |

*The testing was performed by Jone Lv on 2011-10-29.*

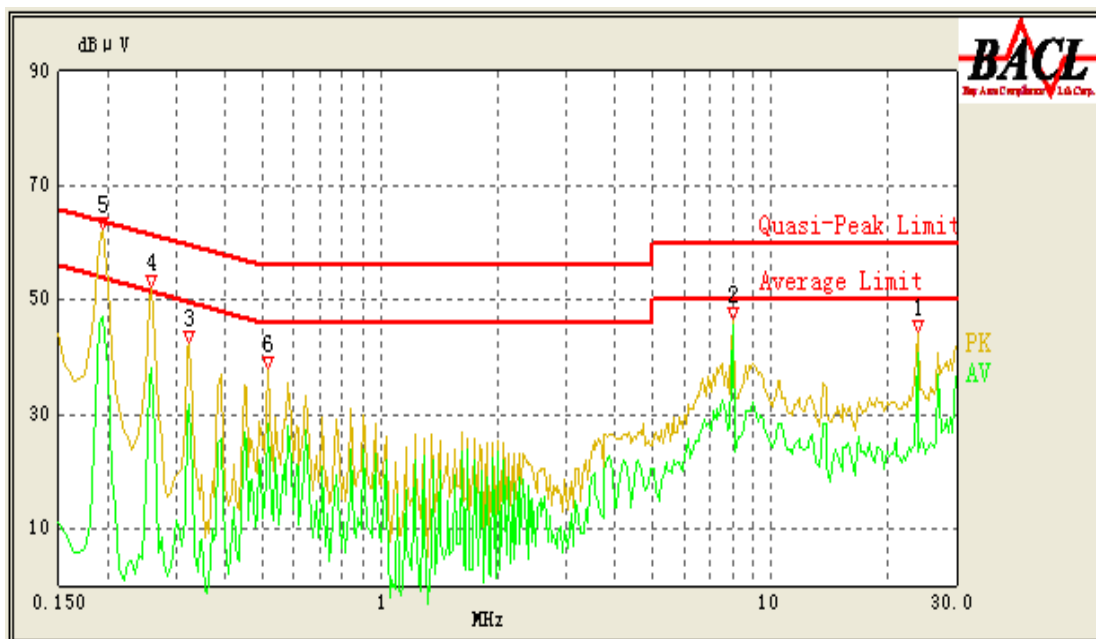


Test mode: Running (D-SUB 1920 1080 60Hz) (worse case)

120 V, 60 Hz, Line:



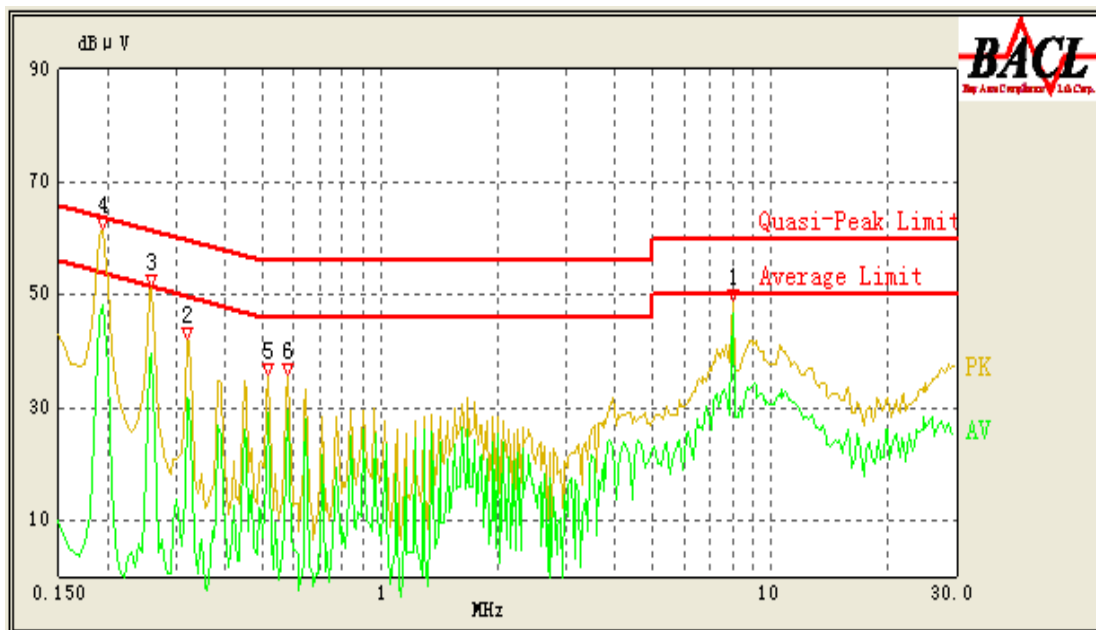
| Conducted Emissions |                         |                        | FCC Part 15.107 Class B |             |                      |
|---------------------|-------------------------|------------------------|-------------------------|-------------|----------------------|
| Frequency (MHz)     | Corrected Result (dBμV) | Correction Factor (dB) | Limit (dBμV)            | Margin (dB) | Remark (PK/ QP/Ave.) |
| 0.195               | 62.44                   | 1.10                   | 64.71                   | 2.27        | QP                   |
| 0.195               | 50.92                   | 1.10                   | 54.71                   | 3.79        | Ave.                 |
| 8.005               | 45.66                   | 1.10                   | 50.00                   | 4.34        | Ave.                 |
| 0.260               | 51.86                   | 1.10                   | 62.86                   | 11.00       | QP                   |
| 23.920              | 38.70                   | 1.10                   | 50.00                   | 11.30       | Ave.                 |
| 0.260               | 38.16                   | 1.10                   | 52.86                   | 14.70       | Ave.                 |
| 8.005               | 45.04                   | 1.10                   | 60.00                   | 14.96       | QP                   |
| 0.325               | 33.03                   | 1.10                   | 51.00                   | 17.97       | Ave.                 |
| 0.585               | 27.80                   | 1.10                   | 46.00                   | 18.20       | Ave.                 |
| 0.325               | 41.27                   | 1.10                   | 61.00                   | 19.73       | QP                   |
| 23.920              | 39.77                   | 1.10                   | 60.00                   | 20.23       | QP                   |
| 0.585               | 33.95                   | 1.10                   | 56.00                   | 22.05       | QP                   |

**120 V, 60 Hz, Neutral:**

| Conducted Emissions |                         |                        | FCC Part 15.107 Class B |             |                      |
|---------------------|-------------------------|------------------------|-------------------------|-------------|----------------------|
| Frequency (MHz)     | Corrected Result (dBμV) | Correction Factor (dB) | Limit (dBμV)            | Margin (dB) | Remark (PK/ QP/Ave.) |
| 0.195               | 61.19                   | 1.10                   | 64.71                   | 3.52        | QP                   |
| 8.005               | 45.74                   | 1.10                   | 50.00                   | 4.26        | Ave.                 |
| 0.195               | 47.21                   | 1.10                   | 54.71                   | 7.50        | Ave.                 |
| 23.920              | 40.82                   | 1.10                   | 50.00                   | 9.18        | Ave.                 |
| 0.260               | 50.87                   | 1.10                   | 62.86                   | 11.99       | QP                   |
| 8.005               | 45.24                   | 1.10                   | 60.00                   | 14.76       | QP                   |
| 0.260               | 38.08                   | 1.10                   | 52.86                   | 14.78       | Ave.                 |
| 0.515               | 28.31                   | 1.10                   | 46.00                   | 17.69       | Ave.                 |
| 23.920              | 41.57                   | 1.10                   | 60.00                   | 18.43       | QP                   |
| 0.325               | 31.57                   | 1.10                   | 51.00                   | 19.43       | Ave.                 |
| 0.325               | 40.39                   | 1.10                   | 61.00                   | 20.61       | QP                   |
| 0.515               | 35.33                   | 1.10                   | 56.00                   | 20.67       | QP                   |

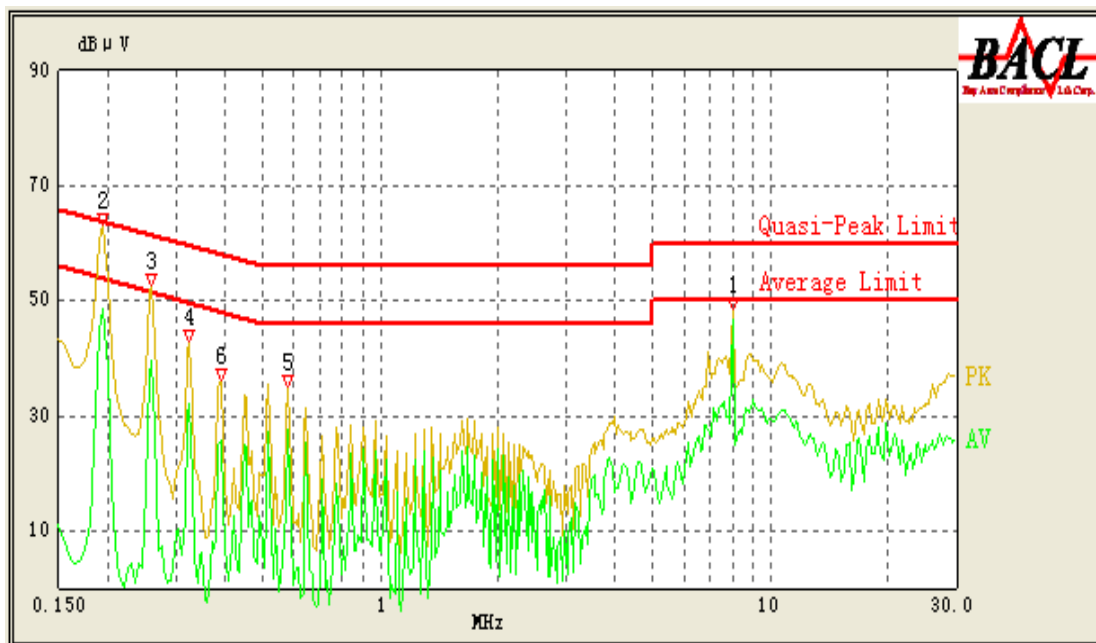
Test mode: HDMI 1080P (worse case)

120 V, 60 Hz, Line:



| Conducted Emissions |                         |                        | FCC Part 15.107 Class B |             |                      |
|---------------------|-------------------------|------------------------|-------------------------|-------------|----------------------|
| Frequency (MHz)     | Corrected Result (dBμV) | Correction Factor (dB) | Limit (dBμV)            | Margin (dB) | Remark (PK/ QP/Ave.) |
| 8.005               | 46.51                   | 1.10                   | 50.00                   | 3.49        | Ave.                 |
| 0.195               | 60.71                   | 1.10                   | 64.71                   | 4.00        | QP                   |
| 0.195               | 48.12                   | 1.10                   | 54.71                   | 6.59        | Ave.                 |
| 0.260               | 50.13                   | 1.10                   | 62.86                   | 12.73       | QP                   |
| 8.005               | 46.94                   | 1.10                   | 60.00                   | 13.06       | QP                   |
| 0.260               | 39.46                   | 1.10                   | 52.86                   | 13.40       | Ave.                 |
| 0.580               | 29.40                   | 1.10                   | 46.00                   | 16.60       | Ave.                 |
| 0.515               | 29.07                   | 1.10                   | 46.00                   | 16.93       | Ave.                 |
| 0.320               | 31.75                   | 1.10                   | 51.14                   | 19.39       | Ave.                 |
| 0.320               | 39.97                   | 1.10                   | 61.14                   | 21.17       | QP                   |
| 0.580               | 34.77                   | 1.10                   | 56.00                   | 21.23       | QP                   |
| 0.515               | 34.41                   | 1.10                   | 56.00                   | 21.59       | QP                   |

120 V, 60 Hz, Neutral:



| Conducted Emissions |                         |                        | FCC Part 15.107 Class B |             |                      |
|---------------------|-------------------------|------------------------|-------------------------|-------------|----------------------|
| Frequency (MHz)     | Corrected Result (dBμV) | Correction Factor (dB) | Limit (dBμV)            | Margin (dB) | Remark (PK/ QP/Ave.) |
| 8.005               | 46.67                   | 1.10                   | 50.00                   | 3.33        | Ave.                 |
| 0.195               | 61.33                   | 1.10                   | 64.71                   | 3.38        | QP                   |
| 0.195               | 48.46                   | 1.10                   | 54.71                   | 6.25        | Ave.                 |
| 0.260               | 50.91                   | 1.10                   | 62.86                   | 11.95       | QP                   |
| 0.260               | 39.74                   | 1.10                   | 52.86                   | 13.12       | Ave.                 |
| 8.005               | 46.28                   | 1.10                   | 60.00                   | 13.72       | QP                   |
| 0.580               | 27.74                   | 1.10                   | 46.00                   | 18.26       | Ave.                 |
| 0.325               | 32.01                   | 1.10                   | 51.00                   | 18.99       | Ave.                 |
| 0.325               | 40.43                   | 1.10                   | 61.00                   | 20.57       | QP                   |
| 0.580               | 34.17                   | 1.10                   | 56.00                   | 21.83       | QP                   |
| 0.390               | 25.85                   | 1.10                   | 49.14                   | 23.29       | Ave.                 |
| 0.390               | 32.36                   | 1.10                   | 59.14                   | 26.78       | QP                   |

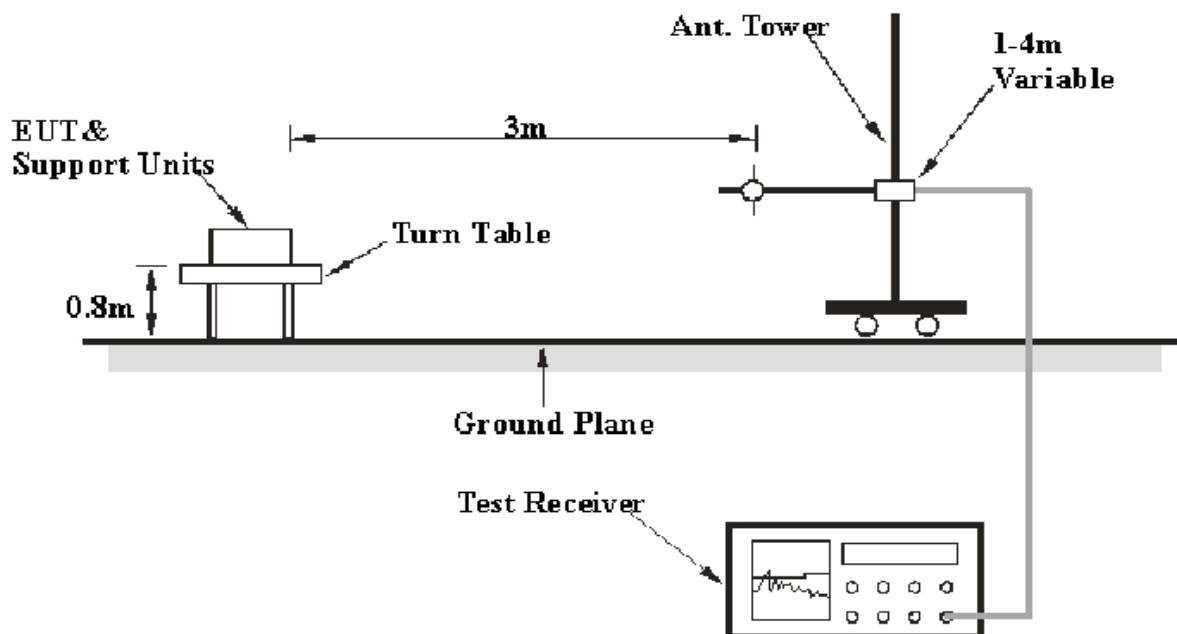
## FCC §15.109 - RADIATED EMISSIONS

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 4.0 dB. ( $k=2$ , 95% level of confidence)

### EUT Setup



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC Part 15.109, Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The EUT connected to a 120 VAC/60 Hz power source.

## EMI Test Receiver Setup

According to FCC 15.33 requirements, the system was measured from 30 MHz to 2 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

| <i>Frequency Range</i> | <i>RBW</i> | <i>Video B/W</i> | <i>Detector</i> |
|------------------------|------------|------------------|-----------------|
| 30MHz – 1000 MHz       | 100 kHz    | 300 kHz          | QP              |
| 1000 MHz – 2 GHz       | 1 MHz      | 3 MHz            | PK              |
| 1000 MHz – 2 GHz       | 1 MHz      | 10 Hz            | Ave.            |

## Test Procedure

For the radiated emissions test, the EUT was connected to AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

## Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

## Test Equipment List and Details

| Manufacturer    | Description       | Model    | Serial Number | Calibration Date | Calibration Due Date |
|-----------------|-------------------|----------|---------------|------------------|----------------------|
| HP              | Amplifier         | HP8447D  | 2944A09795    | 2011-08-02       | 2012-08-01           |
| Rohde & Schwarz | EMI Test Receiver | ESCI     | 100035        | 2011-11-11       | 2012-11-10           |
| Sunol Sciences  | Broadband Antenna | JB1      | A040904-1     | 2011-03-11       | 2012-03-10           |
| Mini-circuits   | Pre-Amplifier     | ZVA-213+ | T-E27H        | 2011-03-08       | 2012-03-07           |
| Sunol Sciences  | Horn Antenna      | DRH-118  | A052604       | 2011-05-05       | 2012-05-04           |
| Rohde & Schwarz | Signal Analyzer   | FSIQ 26  | 609358        | 2011-07-08       | 2012-07-07           |

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp (Shenzhen). attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

## Test Results Summary

According to the data in the following table, the EUT complied with the FCC §15.109 Class B, with the worst margin reading of:

### D-SUB 1920 1080 60Hz (worse case):

**Below 1 GHz: 2.50 dB at 40.6700 MHz in the Vertical polarization**

**Above 1 GHz: 5.65 dB at 1764.260 MHz in the Horizontal polarization**

### HDMI 1080P (worse case):

**Below 1 GHz: 3.37 dB at 147.3700 MHz in the Vertical polarization**

**Above 1 GHz: 3.93 dB at 1837.820 MHz in the Vertical polarization**

## Test Data

### Environmental Conditions

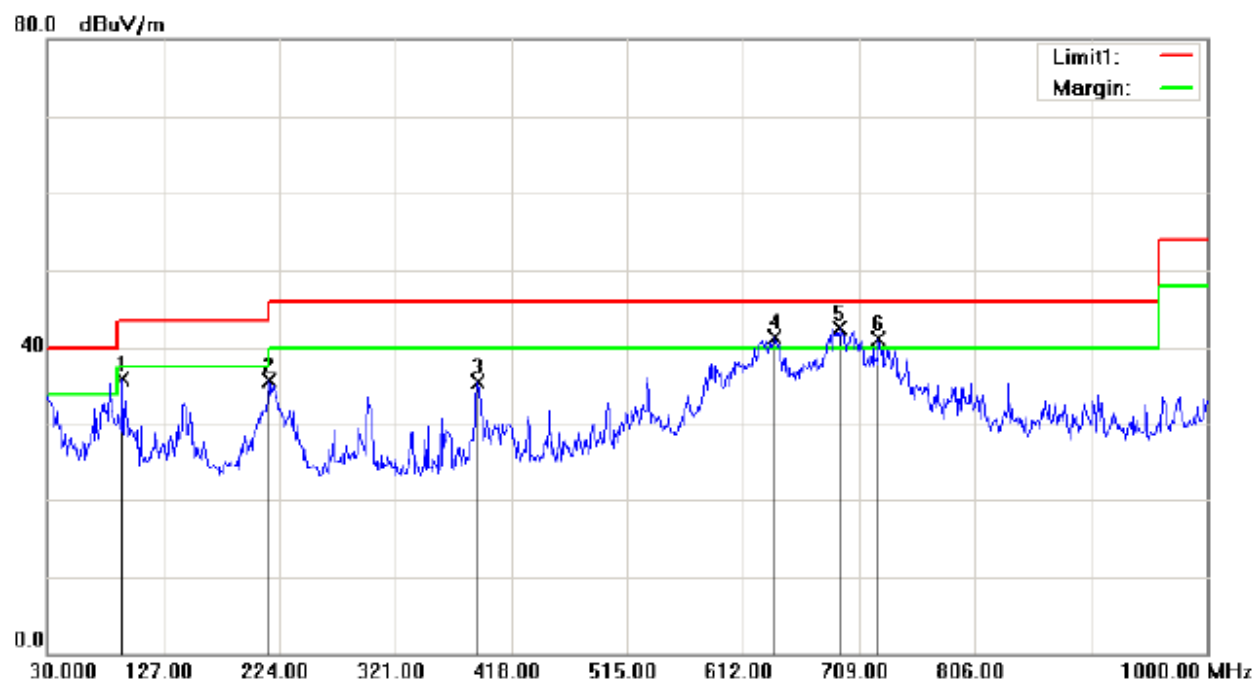
|                           |           |
|---------------------------|-----------|
| <b>Temperature:</b>       | 25 °C     |
| <b>Relative Humidity:</b> | 48 %      |
| <b>ATM Pressure:</b>      | 100.0 kPa |

*The testing was performed by Jone lv on 2011-12-29.*

Test mode: Running (D-SUB 1920 1080 60Hz) (worse case)

### 1) Below 1 GHz:

Horizontal:



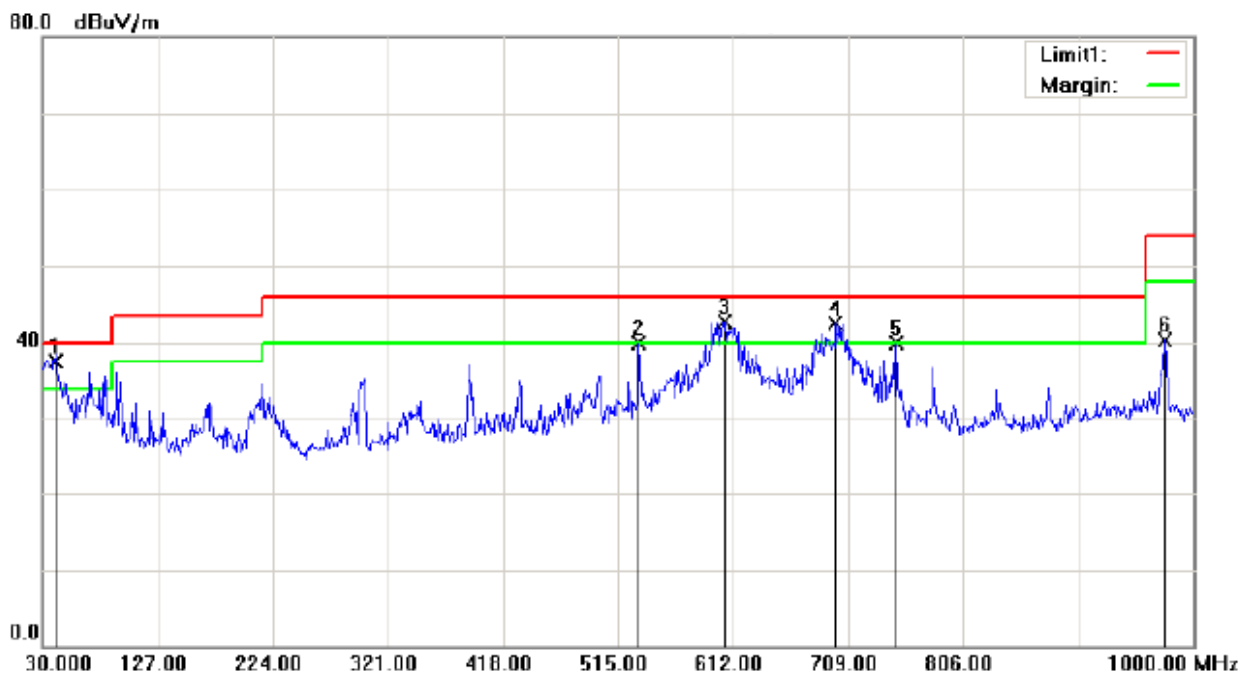
| Frequency (MHz) | Corrected Amplitude (dBuV/m) | Corrected Factor (dB) | Limit (dBuV/m) | Margin (dB) |
|-----------------|------------------------------|-----------------------|----------------|-------------|
| 692.5100        | 42.41                        | 2.68                  | 46.00          | 3.59*       |
| 638.1900        | 41.35                        | 1.76                  | 46.00          | 4.65        |
| 725.4900        | 41.05                        | 2.96                  | 46.00          | 4.95        |
| 93.0500         | 35.91                        | -10.97                | 43.50          | 7.59        |
| 215.2700        | 35.70                        | -7.88                 | 43.50          | 7.80        |
| 389.8700        | 35.52                        | -2.86                 | 46.00          | 10.48       |

\*Within measurement uncertainty!

\*\* Limit 1(Red line): FCC Limit

Margin (Green line): 6 dB below of FCC limit.



**Vertical:**

| Frequency (MHz) | Corrected Amplitude (dB $\mu$ V/m) | Corrected Factor (dB) | Limit (dB $\mu$ V/m) | Margin (dB) |
|-----------------|------------------------------------|-----------------------|----------------------|-------------|
| 40.6700         | 37.50                              | -6.01                 | 40.00                | 2.50*       |
| 605.2100        | 42.77                              | 0.70                  | 46.00                | 3.23*       |
| 698.3300        | 42.52                              | 2.84                  | 46.00                | 3.48*       |
| 749.7400        | 39.96                              | 2.94                  | 46.00                | 6.04        |
| 532.4600        | 39.89                              | -0.16                 | 46.00                | 6.11        |
| 975.7500        | 40.38                              | 6.09                  | 54.00                | 13.62       |

\*Within measurement uncertainty!

\*\* Limit 1(Red line): FCC Limit

Margin (Green line): 6 dB below of FCC limit.

**2) Above 1 GHz:****Horizontal:**

| Frequency (MHz) | Detector (PK/QP/Ave.) | Corrected Factor (dB) | Corrected Amplitude (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|-----------------|-----------------------|-----------------------|------------------------------|----------------|-------------|
| 1764.260        | Ave.                  | 14.73                 | 48.35                        | 54.00          | 5.65        |
| 1658.680        | Ave.                  | 14.12                 | 46.28                        | 54.00          | 7.72        |
| 1238.270        | Ave.                  | 13.42                 | 45.59                        | 54.00          | 8.41        |
| 1362.270        | PK                    | 13.40                 | 65.53                        | 74.00          | 8.47        |
| 1764.260        | PK                    | 14.73                 | 64.89                        | 74.00          | 9.11        |
| 1453.680        | Ave.                  | 13.44                 | 44.50                        | 54.00          | 9.50        |
| 1121.640        | Ave.                  | 13.27                 | 44.48                        | 54.00          | 9.52        |
| 1362.270        | Ave.                  | 13.40                 | 44.45                        | 54.00          | 9.55        |
| 1121.640        | PK                    | 13.27                 | 63.69                        | 74.00          | 10.31       |
| 1658.680        | PK                    | 14.12                 | 63.07                        | 74.00          | 10.93       |
| 1238.270        | PK                    | 13.42                 | 63.04                        | 74.00          | 10.96       |
| 1453.680        | PK                    | 13.44                 | 62.72                        | 74.00          | 11.28       |

**Vertical:**

| Frequency (MHz) | Detector (PK/QP/Ave.) | Corrected Factor (dB) | Corrected Amplitude (dBμV/m) | Limit (dBμV/m) | Margin (dB) |
|-----------------|-----------------------|-----------------------|------------------------------|----------------|-------------|
| 1364.930        | Ave.                  | 13.39                 | 45.54                        | 54.00          | 8.46        |
| 1043.260        | Ave.                  | 13.10                 | 45.29                        | 54.00          | 8.71        |
| 1533.600        | Ave.                  | 13.59                 | 44.86                        | 54.00          | 9.14        |
| 1141.590        | Ave.                  | 13.31                 | 44.60                        | 54.00          | 9.40        |
| 1235.630        | Ave.                  | 13.43                 | 44.50                        | 54.00          | 9.50        |
| 1628.400        | Ave.                  | 13.95                 | 44.38                        | 54.00          | 9.62        |
| 1533.600        | PK                    | 13.59                 | 63.98                        | 74.00          | 10.02       |
| 1628.400        | PK                    | 13.95                 | 63.62                        | 74.00          | 10.38       |
| 1043.260        | PK                    | 13.10                 | 63.44                        | 74.00          | 10.56       |
| 1141.590        | PK                    | 13.31                 | 63.04                        | 74.00          | 10.96       |
| 1364.930        | PK                    | 13.39                 | 62.72                        | 74.00          | 11.28       |
| 1235.630        | PK                    | 13.43                 | 60.02                        | 74.00          | 13.98       |

Test mode: HDMI 1080P (worse case)

### 1) Below 1 GHz:

Horizontal:



| Frequency (MHz) | Corrected Amplitude (dB $\mu$ V/m) | Corrected Factor (dB) | Limit (dB $\mu$ V/m) | Margin (dB) |
|-----------------|------------------------------------|-----------------------|----------------------|-------------|
| 718.7000        | 41.79                              | 2.89                  | 46                   | 4.21        |
| 297.7200        | 36.83                              | -4.94                 | 46                   | 9.17        |
| 507.2400        | 36.77                              | -0.60                 | 46                   | 9.23        |
| 370.4700        | 35.35                              | -3.10                 | 46                   | 10.65       |
| 222.0600        | 34.01                              | -7.65                 | 46                   | 11.99       |
| 962.1700        | 40.66                              | 6.66                  | 54                   | 13.34       |

\* Limit 1 (Red line): FCC Limit

Margin (Green line): 6 dB below of FCC limit.

**Vertical:**

| Frequency (MHz) | Corrected Amplitude (dBμV/m) | Corrected Factor (dB) | Limit (dBμV/m) | Margin (dB) |
|-----------------|------------------------------|-----------------------|----------------|-------------|
| 147.3700        | 40.13                        | -6.54                 | 43.50          | 3.37*       |
| 626.5500        | 42.59                        | 1.38                  | 46.00          | 3.41*       |
| 36.7900         | 36.50                        | -3.05                 | 40.00          | 3.50*       |
| 715.7900        | 42.40                        | 2.90                  | 46.00          | 3.60*       |
| 389.8700        | 41.78                        | -2.86                 | 46.00          | 4.22        |
| 975.7500        | 43.46                        | 6.09                  | 54.00          | 10.54       |

\*Within measurement uncertainty!

\*\* Limit 1(Red line): FCC Limit

Margin (Green line): 6 dB below of FCC limit.

**2) Above 1 GHz:****Horizontal:**

| Frequency (MHz) | Detector (PK/QP/Ave.) | Corrected Factor (dB) | Corrected Amplitude (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Margin (dB) |
|-----------------|-----------------------|-----------------------|------------------------------------|----------------------|-------------|
| 1566.220        | Ave.                  | 13.69                 | 49.96                              | 54.00                | 4.04        |
| 1834.480        | Ave.                  | 14.97                 | 49.15                              | 54.00                | 4.85        |
| 1336.470        | Ave.                  | 13.40                 | 48.82                              | 54.00                | 5.18        |
| 1466.590        | Ave.                  | 13.47                 | 47.09                              | 54.00                | 6.91        |
| 1048.620        | Ave.                  | 13.11                 | 46.29                              | 54.00                | 7.71        |
| 1566.220        | PK                    | 13.69                 | 65.88                              | 74.00                | 8.12        |
| 1126.380        | Ave.                  | 13.28                 | 45.65                              | 54.00                | 8.35        |
| 1834.480        | PK                    | 14.97                 | 65.08                              | 74.00                | 8.92        |
| 1126.380        | PK                    | 13.28                 | 64.77                              | 74.00                | 9.23        |
| 1048.620        | PK                    | 13.11                 | 63.45                              | 74.00                | 10.55       |
| 1466.590        | PK                    | 13.47                 | 62.57                              | 74.00                | 11.43       |
| 1336.470        | PK                    | 13.40                 | 62.32                              | 74.00                | 11.68       |

**Vertical:**

| Frequency (MHz) | Detector (PK/QP/Ave.) | Corrected Factor (dB) | Corrected Amplitude (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Margin (dB) |
|-----------------|-----------------------|-----------------------|------------------------------------|----------------------|-------------|
| 1837.820        | Ave.                  | 14.96                 | 50.07                              | 54.00                | 3.93*       |
| 1556.410        | Ave.                  | 13.65                 | 49.94                              | 54.00                | 4.06        |
| 1083.620        | Ave.                  | 13.18                 | 48.44                              | 54.00                | 5.56        |
| 1426.840        | Ave.                  | 13.42                 | 48.07                              | 54.00                | 5.93        |
| 1343.590        | Ave.                  | 13.40                 | 47.58                              | 54.00                | 6.42        |
| 1556.410        | PK                    | 13.65                 | 67.26                              | 74.00                | 6.74        |
| 1126.490        | Ave.                  | 13.28                 | 47.14                              | 54.00                | 6.86        |
| 1083.620        | PK                    | 13.18                 | 66.78                              | 74.00                | 7.22        |
| 1126.490        | PK                    | 13.28                 | 65.44                              | 74.00                | 8.56        |
| 1343.590        | PK                    | 13.40                 | 65.26                              | 74.00                | 8.74        |
| 1837.820        | PK                    | 14.96                 | 63.89                              | 74.00                | 10.11       |
| 1426.840        | PK                    | 13.42                 | 63.61                              | 74.00                | 10.39       |

\*Within measurement uncertainty!

**\*\*\*\*\* END OF REPORT \*\*\*\*\***