

# Variant FCC RF Test Report

APPLICANT : Lenovo (Shanghai) Electronics Technology Co., Ltd.  
EQUIPMENT : Portable Tablet Computer  
BRAND NAME : lenovo  
MODEL NAME : Lenovo A3300-HV  
MARKETING NAME : Lenovo A3300-HV  
FCC ID : O57A3300HV  
STANDARD : FCC Part 15 Subpart C §15.247  
CLASSIFICATION : (DTS) Digital Transmission System

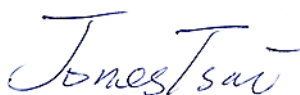
This is a variant report which is only valid together with the original test report. The product was received on Sep. 29, 2014 and testing was completed on Oct. 16, 2014. We, SPORTON INTERNATIONAL (SHENZHEN) INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and the testing has shown the tested sample to be in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (SHENZHEN) INC., the test report shall not be reproduced except in full.



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Reviewed by: Joseph Lin / Supervisor



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Approved by: Jones Tsai / Manager



**SPORTON INTERNATIONAL (SHENZHEN) INC.**

No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District,  
Shenzhen, Guangdong, P.R.C.

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## SUMMARY OF TEST RESULT

| Report Section | FCC Rule  | Description                                        | Limit                 | Result | Remark                              |
|----------------|-----------|----------------------------------------------------|-----------------------|--------|-------------------------------------|
| 3.1            | 15.247(d) | Radiated Band Edges and Radiated Spurious Emission | 15.209(a) & 15.247(d) | Pass   | Under limit 6.63 dB at 2483.530 MHz |
| 3.2            | 15.207    | AC Conducted Emission                              | 15.207(a)             | Pass   | Under limit 11.00 dB at 4.310 MHz   |

## 1 General Description

### 1.1 Applicant

Lenovo (Shanghai) Electronics Technology Co., Ltd.

No. 68 Building, 199 Fenju Road, Wai Gao Qiao FTZ, Shanghai, China

### 1.2 Manufacturer

Lenovo PC HK Limited

23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong

### 1.3 Feature of Equipment Under Test

| Product Feature                 |                                                                                                                           |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Equipment                       | Portable Tablet Computer                                                                                                  |
| Brand Name                      | lenovo                                                                                                                    |
| Model Name                      | Lenovo A3300-HV                                                                                                           |
| Marketing Name                  | Lenovo A3300-HV                                                                                                           |
| FCC ID                          | O57A3300HV                                                                                                                |
| EUT supports Radios application | GSM/GPRS/EGPRS/WCDMA/HSPA/HSPA+(Downlink Only)/WLAN2.4GHz 802.11b/g/n HT20/HT40<br>Bluetooth v3.0 + EDR/Bluetooth v4.0 LE |
| HW Version                      | A977_MB_PCB_V4.0                                                                                                          |
| SW Version                      | A3300HV_A442_01_06_140505_ROW_ENG                                                                                         |
| EUT Stage                       | Pre-Production                                                                                                            |

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

### 1.4 Product Specification of Equipment Under Test

| Product Specification subjective to this standard |                                                                                        |
|---------------------------------------------------|----------------------------------------------------------------------------------------|
| Tx/Rx Channel Frequency Range                     | 2412 MHz ~ 2462 MHz                                                                    |
| Antenna Type                                      | PIFA Antenna                                                                           |
| Type of Modulation                                | 802.11b : DSSS (DBPSK / DQPSK / CCK)<br>802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) |

### 1.5 Modification of EUT

No modifications are made to the EUT during all test items.

## 1.6 Testing Location

|                    |                                                                                                                                                           |         |                      |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------------|
| Test Site          | SPORTON INTERNATIONAL (SHENZHEN) INC.                                                                                                                     |         |                      |
| Test Site Location | No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P.R.C.<br>TEL: +86-755-3320-2398 |         |                      |
| Test Site No.      | Sporton Site No.                                                                                                                                          |         | FCC Registration No. |
|                    | 03CH01-SZ                                                                                                                                                 | CO01-SZ | 831040               |

**Note:** The test site complies with ANSI C63.4 2003 requirement.

## 1.7 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01
- ANSI C63.4-2003

### Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

## 2 Test Configuration of Equipment Under Test

### 2.1 Carrier Frequency Channel

| Frequency Band  | Channel | Freq.<br>(MHz) | Channel | Freq.<br>(MHz) |
|-----------------|---------|----------------|---------|----------------|
| 2400-2483.5 MHz | 1       | 2412           | 7       | 2442           |
|                 | 2       | 2417           | 8       | 2447           |
|                 | 3       | 2422           | 9       | 2452           |
|                 | 4       | 2427           | 10      | 2457           |
|                 | 5       | 2432           | 11      | 2462           |
|                 | 6       | 2437           | -       | -              |

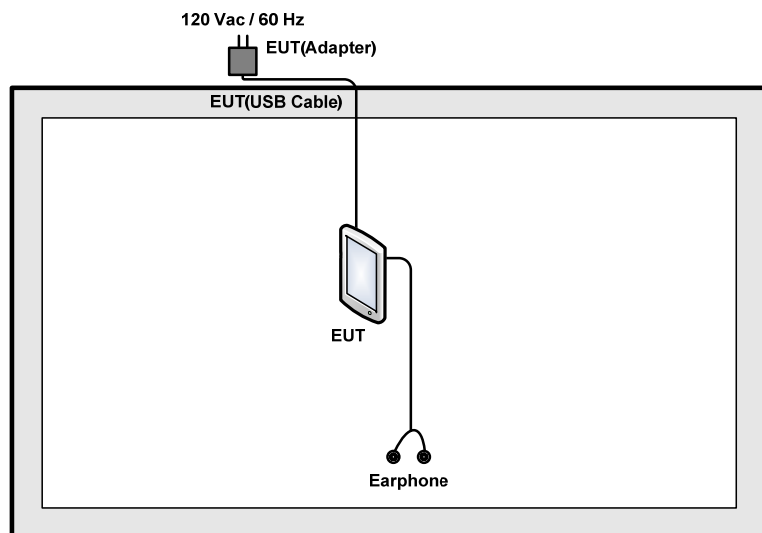
## 2.2 Test Mode

Final results of test modes, data rates and test channels are shown as following table.

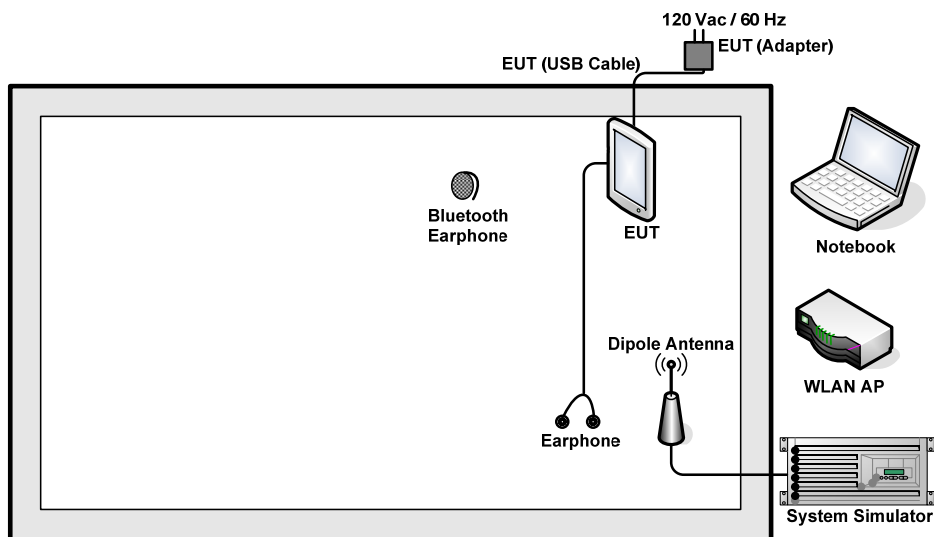
| Test Cases                                                                               |                                                                                                  |         |           |              |
|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------|-----------|--------------|
| Radiated<br>TCs                                                                          | Test Items                                                                                       | Mode    | Data Rate | Test Channel |
|                                                                                          | Radiated Band Edge                                                                               | 802.11g | 6 Mbps    | 11           |
|                                                                                          | Radiated Spurious Emission                                                                       | 802.11g | 6 Mbps    | 11           |
| AC<br>Conducted<br>Emission                                                              | Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link + USB Cable (Charging from Adapter) + Earphone |         |           |              |
| Remark: For Radiated TCs, the tests were performed with earphone, adapter and USB cable. |                                                                                                  |         |           |              |

## 2.3 Connection Diagram of Test System

### <WLAN Tx Mode>



### <AC Conducted Emission Mode>



## 2.4 Support Unit used in test configuration and system

| Item | Equipment          | Trade Name | Model Name | FCC ID     | Data Cable | Power Cord                                                 |
|------|--------------------|------------|------------|------------|------------|------------------------------------------------------------|
| 1.   | System Simulator   | R&S        | CMU 200    | N/A        | N/A        | Unshielded, 1.8 m                                          |
| 2.   | WLAN AP            | D-Link     | DIR-815    | KA2IR815A1 | N/A        | Unshielded, 1.8 m                                          |
| 3.   | Notebook           | Lenovo     | G480       | FCC DoC    | N/A        | AC I/P:<br>Unshielded, 1.2 m<br>DC O/P:<br>Shielded, 1.8 m |
| 4.   | Bluetooth Earphone | Lenovo     | LBH301     | PYAHS-107W | N/A        | N/A                                                        |
| 5.   | Earphone           | Lenovo     | SH100      | N/A        | N/A        | N/A                                                        |

## 2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuous transmit/receive.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

### 3 Test Result

#### 3.1 Radiated Band Edges and Spurious Emission Measurement

##### 3.1.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

| Frequency<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(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                                |

##### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v03r01.
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW=100 kHz for  $f < 1$  GHz;  $VBW \geq RBW$ ; Sweep = auto; Detector function = peak; Trace = max hold;
  - (3) Set RBW = 1 MHz, VBW= 3MHz for  $f \geq 1$  GHz for peak measurement.

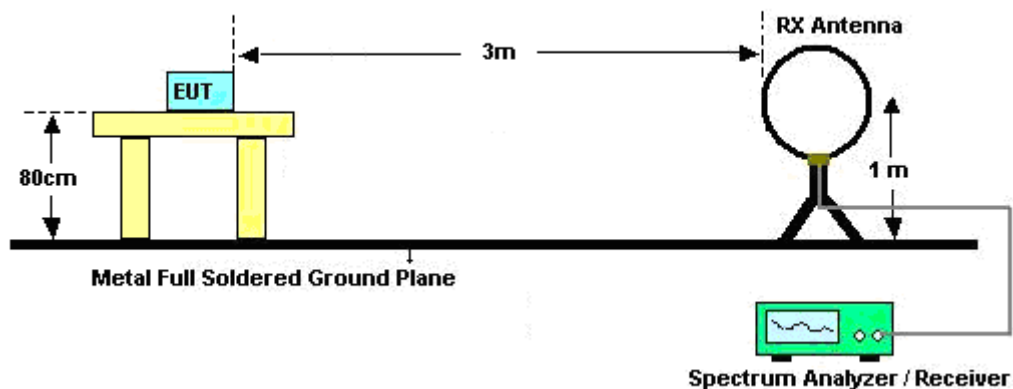
For average measurement:

  - $VBW = 10$  Hz, when duty cycle is no less than 98 percent.
  - $VBW \geq 1/T$ , when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

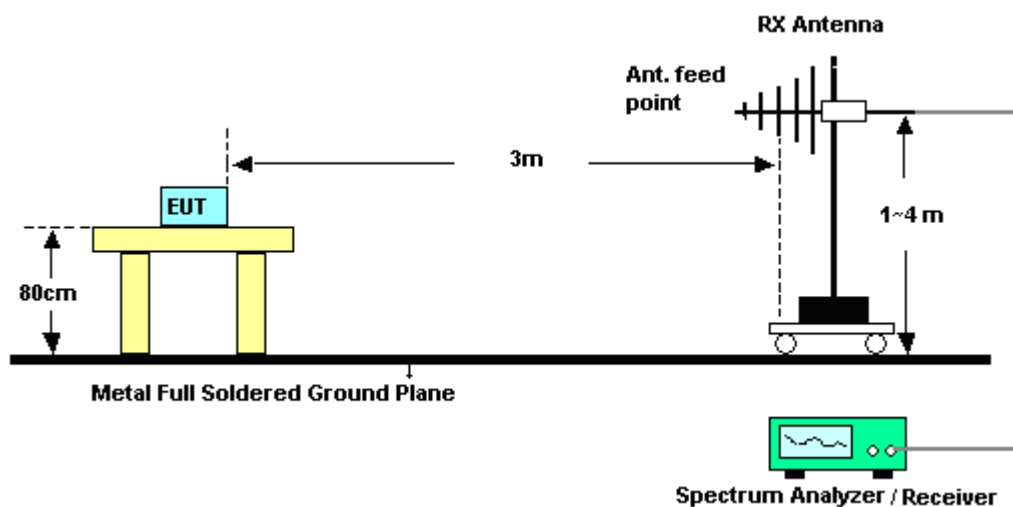
| Band    | Duty Cycle(%) | T(ms) | 1/T(kHz) | VBW Setting |
|---------|---------------|-------|----------|-------------|
| 802.11g | 89.186        | 1.402 | 0.713    | 1kHz        |

### 3.1.4 Test Setup

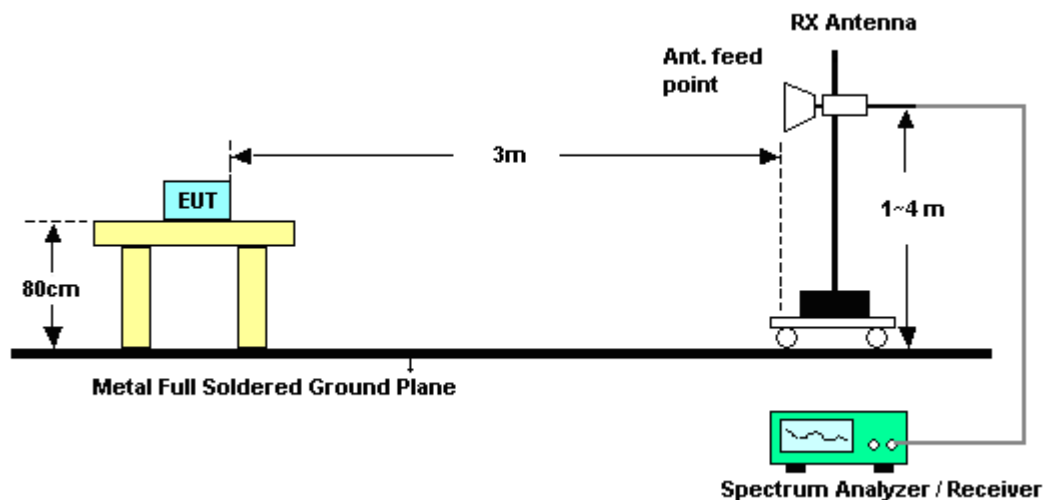
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



### 3.1.5 Test Results of Radiated Spurious Emissions (9kHz ~ 30MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

### 3.1.6 Test Result of Radiated Spurious at Band Edges

|                |         |                     |            |
|----------------|---------|---------------------|------------|
| Test Mode :    | 802.11g | Temperature :       | 23~25°C    |
| Test Band :    | High    | Relative Humidity : | 48~52%     |
| Test Channel : | 11      | Test Engineer :     | Kaer Huang |

| ANTENNA POLARITY : HORIZONTAL |                     |                         |                             |                         |                             |                         |                            |                      |                         |         |
|-------------------------------|---------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| Frequency<br>( MHz )          | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>(dBμV) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
| 2484.52                       | 60.46               | -13.54                  | 74                          | 53.05                   | 27.54                       | 9.5                     | 29.63                      | 118                  | 250                     | Peak    |
| 2483.53                       | 47.37               | -6.63                   | 54                          | 39.96                   | 27.54                       | 9.5                     | 29.63                      | 118                  | 250                     | Average |

| ANTENNA POLARITY : VERTICAL |                     |                         |                             |                         |                             |                         |                            |                      |                         |         |
|-----------------------------|---------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| Frequency<br>( MHz )        | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>(dBμV) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
| 2488.75                     | 56.34               | -17.66                  | 74                          | 48.84                   | 27.6                        | 9.5                     | 29.6                       | 100                  | 275                     | Peak    |
| 2483.5                      | 42.64               | -11.36                  | 54                          | 35.23                   | 27.54                       | 9.5                     | 29.63                      | 100                  | 275                     | Average |

**3.1.7 Test Result of Radiated Spurious Emission (30MHz ~ 10<sup>th</sup> Harmonic)**

|                        |                                                                                                                                                      |                            |            |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------|
| <b>Test Mode :</b>     | 802.11g                                                                                                                                              | <b>Temperature :</b>       | 23~25°C    |
| <b>Test Channel :</b>  | 11                                                                                                                                                   | <b>Relative Humidity :</b> | 48~52%     |
| <b>Test Engineer :</b> | Kaer Huang                                                                                                                                           | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        | 1. 2462 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. |                            |            |

| Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>(dBμV) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
|----------------------|---------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| 129.91               | 24.07               | -19.43                  | 43.5                        | 40.28                   | 12.1                        | 1.63                    | 29.94                      | 200                  | 100                     | Peak    |
| 237.58               | 21.45               | -24.55                  | 46                          | 38.01                   | 11.12                       | 2.25                    | 29.93                      | -                    | -                       | Peak    |
| 491.72               | 22.84               | -23.16                  | 46                          | 32.3                    | 17.16                       | 3.3                     | 29.92                      | -                    | -                       | Peak    |
| 743.92               | 25.96               | -20.04                  | 46                          | 31.3                    | 20.42                       | 4.17                    | 29.93                      | -                    | -                       | Peak    |
| 896.21               | 26.28               | -19.72                  | 46                          | 30.93                   | 20.64                       | 4.65                    | 29.94                      | -                    | -                       | Peak    |
| 989.33               | 27.26               | -26.74                  | 54                          | 30.92                   | 21.27                       | 5.01                    | 29.94                      | -                    | -                       | Peak    |
| 2462                 | 103.11              | -                       | -                           | 95.85                   | 27.48                       | 9.44                    | 29.66                      | 118                  | 250                     | Peak    |
| 2462                 | 94.86               | -                       | -                           | 87.6                    | 27.48                       | 9.44                    | 29.66                      | 118                  | 250                     | Average |
| 4924                 | 43.17               | -30.83                  | 74                          | 45.03                   | 31.46                       | 12.93                   | 46.25                      | 146                  | 347                     | Peak    |
| 7386                 | 42.78               | -31.22                  | 74                          | 38.99                   | 36.08                       | 15.11                   | 47.4                       | 145                  | 274                     | Peak    |

|                        |                                                                                                                                                      |                            |          |
|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------|
| <b>Test Mode :</b>     | 802.11g                                                                                                                                              | <b>Temperature :</b>       | 23~25°C  |
| <b>Test Channel :</b>  | 11                                                                                                                                                   | <b>Relative Humidity :</b> | 48~52%   |
| <b>Test Engineer :</b> | Kaer Huang                                                                                                                                           | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | 1. 2462 MHz is fundamental signal which can be ignored.<br>2. Average measurement was not performed if peak level went lower than the average limit. |                            |          |

| Frequency<br>( MHz ) | Level<br>( dBμV/m ) | Over<br>Limit<br>( dB ) | Limit<br>Line<br>( dBμV/m ) | Read<br>Level<br>(dBμV) | Antenna<br>Factor<br>( dB ) | Cable<br>Loss<br>( dB ) | Preamp<br>Factor<br>( dB ) | Ant<br>Pos<br>( cm ) | Table<br>Pos<br>( deg ) | Remark  |
|----------------------|---------------------|-------------------------|-----------------------------|-------------------------|-----------------------------|-------------------------|----------------------------|----------------------|-------------------------|---------|
| 53.28                | 32.52               | -7.48                   | 40                          | 56.78                   | 4.65                        | 1.02                    | 29.93                      | 100                  | 200                     | Peak    |
| 125.06               | 22.12               | -21.38                  | 43.5                        | 38.45                   | 12                          | 1.61                    | 29.94                      | -                    | -                       | Peak    |
| 240.49               | 21.25               | -24.75                  | 46                          | 37.57                   | 11.35                       | 2.26                    | 29.93                      | -                    | -                       | Peak    |
| 535.37               | 22.94               | -23.06                  | 46                          | 31.69                   | 17.71                       | 3.46                    | 29.92                      | -                    | -                       | Peak    |
| 740.04               | 25.39               | -20.61                  | 46                          | 30.87                   | 20.3                        | 4.15                    | 29.93                      | -                    | -                       | Peak    |
| 890.39               | 26.32               | -19.68                  | 46                          | 31.22                   | 20.4                        | 4.64                    | 29.94                      | -                    | -                       | Peak    |
| 2462                 | 98.4                | -                       | -                           | 91.14                   | 27.48                       | 9.44                    | 29.66                      | 100                  | 275                     | Peak    |
| 2462                 | 89.83               | -                       | -                           | 82.57                   | 27.48                       | 9.44                    | 29.66                      | 100                  | 275                     | Average |
| 4924                 | 41.25               | -32.75                  | 74                          | 47.58                   | 31.46                       | 8.46                    | 46.25                      | 146                  | 347                     | Peak    |
| 7386                 | 41.87               | -32.13                  | 74                          | 43.17                   | 36.08                       | 10.02                   | 47.4                       | 145                  | 274                     | Peak    |

## 3.2 AC Conducted Emission Measurement

### 3.2.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

| Frequency of Emission<br>(MHz) | Conducted Limit (dB $\mu$ V) |           |
|--------------------------------|------------------------------|-----------|
|                                | Quasi-Peak                   | Average   |
| 0.15-0.5                       | 66 to 56*                    | 56 to 46* |
| 0.5-5                          | 56                           | 46        |
| 5-30                           | 60                           | 50        |

\*Decreases with the logarithm of the frequency.

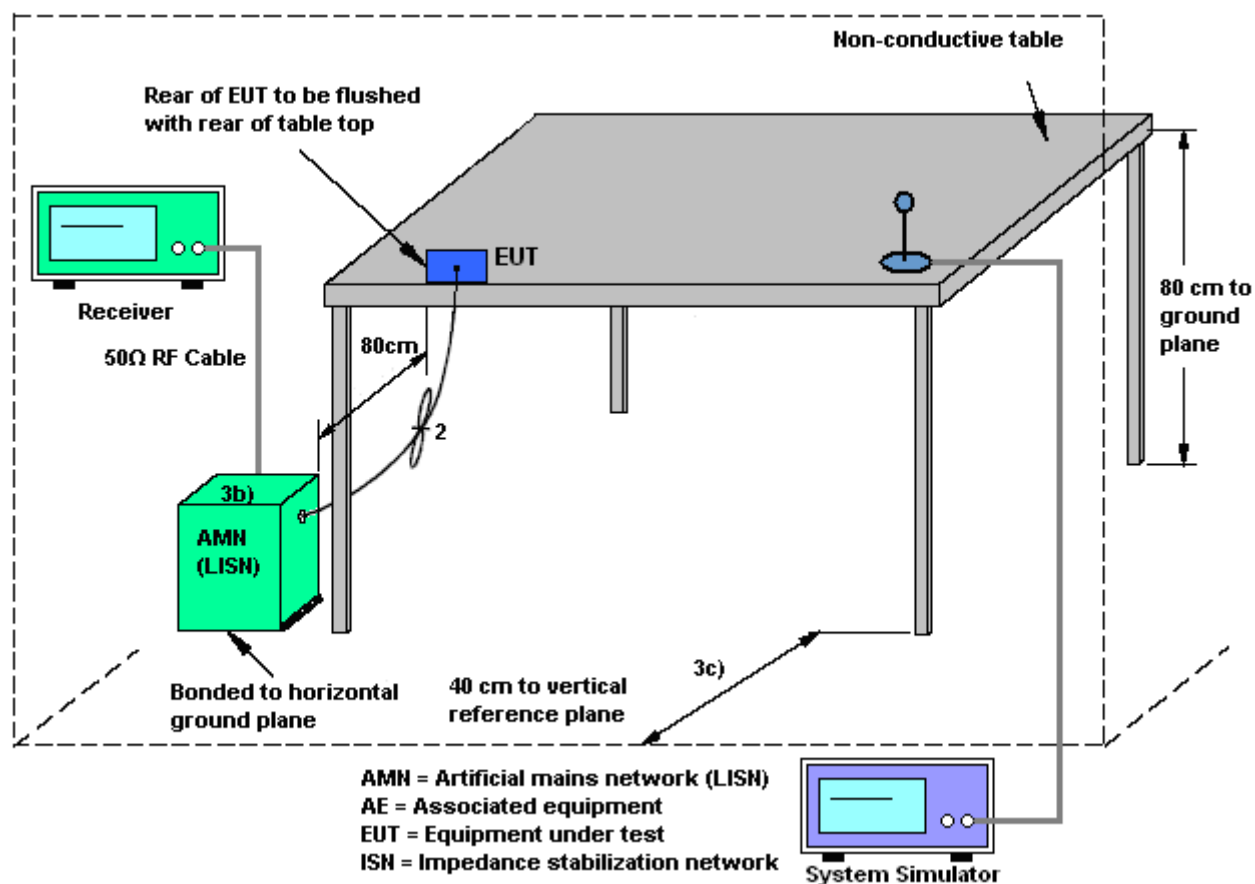
### 3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.2.3 Test Procedures

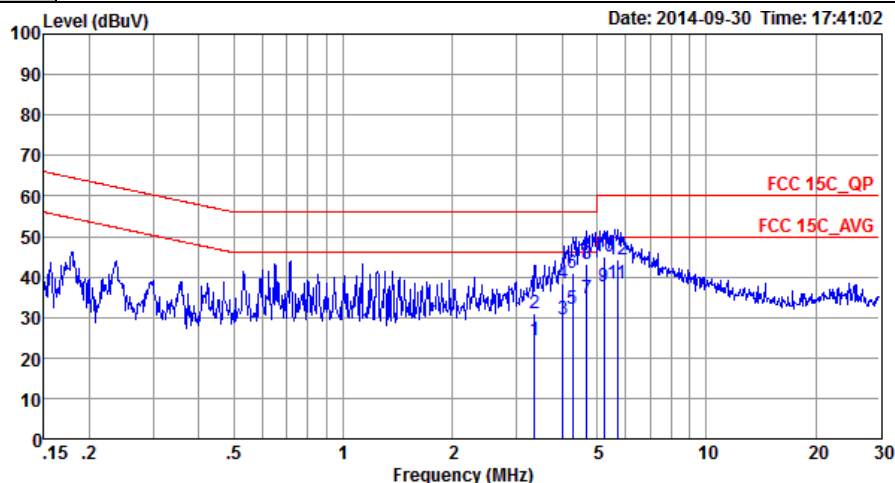
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

### 3.2.4 Test Setup



### 3.2.5 Test Result of AC Conducted Emission

|                 |                                                                                         |                     |        |
|-----------------|-----------------------------------------------------------------------------------------|---------------------|--------|
| Test Mode :     | Mode 1                                                                                  | Temperature :       | 21~22℃ |
| Test Engineer : | Jack Tian                                                                               | Relative Humidity : | 41~42% |
| Test Voltage :  | 120Vac / 60Hz                                                                           | Phase :             | Line   |
| Function Type : | GSM850 Idle + Bluetooth Link + WLAN Link + USB Cable (Charging from Adapter) + Earphone |                     |        |

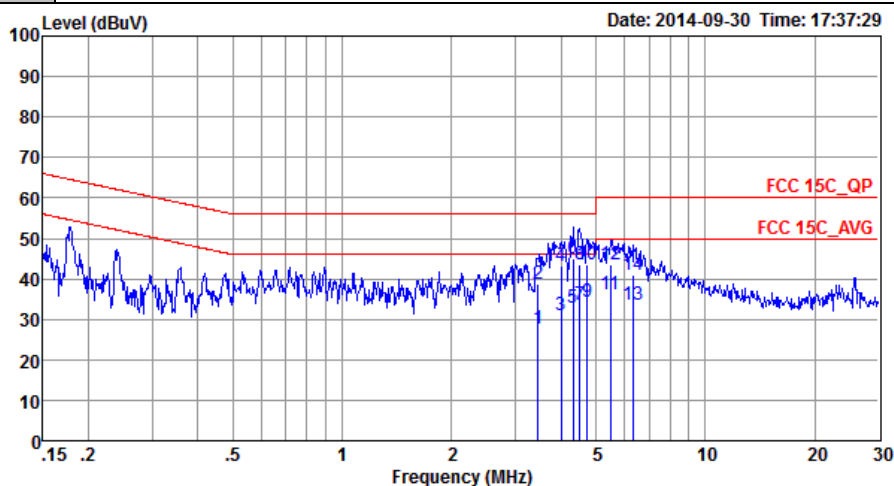


Site : CO01-SZ  
Condition: FCC 15C\_QP LISN\_L\_20140304 LINE

|     | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark  |
|-----|------|-------|------------|------------|------------|-------------|------------|---------|
|     | MHz  | dBuV  | dB         | dBuV       | dBuV       | dB          | dB         |         |
| 1   | 3.36 | 24.35 | -21.65     | 46.00      | 13.80      | 0.33        | 10.22      | Average |
| 2   | 3.36 | 30.85 | -25.15     | 56.00      | 20.30      | 0.33        | 10.22      | QP      |
| 3   | 4.03 | 29.70 | -16.30     | 46.00      | 19.10      | 0.37        | 10.23      | Average |
| 4   | 4.03 | 38.50 | -17.50     | 56.00      | 27.90      | 0.37        | 10.23      | QP      |
| 5   | 4.29 | 32.02 | -13.98     | 46.00      | 21.40      | 0.39        | 10.23      | Average |
| 6   | 4.29 | 41.12 | -14.88     | 56.00      | 30.50      | 0.39        | 10.23      | QP      |
| 7 * | 4.70 | 34.74 | -11.26     | 46.00      | 24.09      | 0.41        | 10.24      | Average |
| 8   | 4.70 | 43.24 | -12.76     | 56.00      | 32.59      | 0.41        | 10.24      | QP      |
| 9   | 5.22 | 37.76 | -12.24     | 50.00      | 27.10      | 0.42        | 10.24      | Average |
| 10  | 5.22 | 45.16 | -14.84     | 60.00      | 34.50      | 0.42        | 10.24      | QP      |
| 11  | 5.68 | 38.36 | -11.64     | 50.00      | 27.71      | 0.40        | 10.25      | Average |
| 12  | 5.68 | 44.46 | -15.54     | 60.00      | 33.81      | 0.40        | 10.25      | QP      |



|                 |                                                                                         |                     |         |
|-----------------|-----------------------------------------------------------------------------------------|---------------------|---------|
| Test Mode :     | Mode 1                                                                                  | Temperature :       | 21~22°C |
| Test Engineer : | Jack Tian                                                                               | Relative Humidity : | 41~42%  |
| Test Voltage :  | 120Vac / 60Hz                                                                           | Phase :             | Neutral |
| Function Type : | GSM850 Idle + Bluetooth Link + WLAN Link + USB Cable (Charging from Adapter) + Earphone |                     |         |



Site : C001-SZ

Condition: FCC 15C\_QP LISN\_N\_20140304 NEUTRAL

|     | Freq | Level | Over Limit | Limit Line | Read Level | LISN Factor | Cable Loss | Remark  |
|-----|------|-------|------------|------------|------------|-------------|------------|---------|
|     | MHz  | dBuV  | dB         | dBuV       | dBuV       | dB          | dB         |         |
| 1   | 3.45 | 27.76 | -18.24     | 46.00      | 17.10      | 0.44        | 10.22      | Average |
| 2   | 3.45 | 38.66 | -17.34     | 56.00      | 28.00      | 0.44        | 10.22      | QP      |
| 3   | 4.01 | 30.99 | -15.01     | 46.00      | 20.30      | 0.46        | 10.23      | Average |
| 4   | 4.01 | 43.29 | -12.71     | 56.00      | 32.60      | 0.46        | 10.23      | QP      |
| 5   | 4.31 | 33.00 | -13.00     | 46.00      | 22.30      | 0.47        | 10.23      | Average |
| 6 * | 4.31 | 45.00 | -11.00     | 56.00      | 34.30      | 0.47        | 10.23      | QP      |
| 7   | 4.50 | 33.71 | -12.29     | 46.00      | 23.00      | 0.48        | 10.23      | Average |
| 8   | 4.50 | 43.71 | -12.29     | 56.00      | 33.00      | 0.48        | 10.23      | QP      |
| 9   | 4.72 | 34.42 | -11.58     | 46.00      | 23.70      | 0.48        | 10.24      | Average |
| 10  | 4.72 | 43.62 | -12.38     | 56.00      | 32.90      | 0.48        | 10.24      | QP      |
| 11  | 5.48 | 36.33 | -13.67     | 50.00      | 25.60      | 0.48        | 10.25      | Average |
| 12  | 5.48 | 43.63 | -16.37     | 60.00      | 32.90      | 0.48        | 10.25      | QP      |
| 13  | 6.35 | 33.52 | -16.48     | 50.00      | 22.80      | 0.45        | 10.27      | Average |
| 14  | 6.35 | 40.82 | -19.18     | 60.00      | 30.10      | 0.45        | 10.27      | QP      |

## 4 List of Measuring Equipment

| Instrument                        | Manufacturer         | Model No. | Serial No.   | Characteristics | Calibration Date | Test Date     | Due Date      | Remark                |
|-----------------------------------|----------------------|-----------|--------------|-----------------|------------------|---------------|---------------|-----------------------|
| ESCIO TEST Receiver               | R&S                  | ESCI      | 100724       | 9kHz~3GHz       | Feb. 21, 2014    | Oct. 16, 2014 | Feb. 20, 2015 | Radiation (03CH01-SZ) |
| Spectrum Analyzer                 | Agilent Technologies | N9038A    | MY52260185   | 20Hz~26.5GHz    | May 26, 2014     | Oct. 16, 2014 | May 25, 2015  | Radiation (03CH01-SZ) |
| Loop Antenna                      | R&S                  | HFH2-Z2   | 100354       | 9kHz~30MHz      | May 09, 2014     | Oct. 16, 2014 | May 08, 2015  | Radiation (03CH01-SZ) |
| Bilog Antenna                     | TESEQ                | CBL 6112D | 23188        | 30MHz~2GHz      | Oct. 26, 2013    | Oct. 16, 2014 | Oct. 25, 2014 | Radiation (03CH01-SZ) |
| Double Ridge Horn Antenna         | ETS Lindgren         | 3117      | 00119436     | 1GHz~18GHz      | Oct. 26, 2013    | Oct. 16, 2014 | Oct. 25, 2014 | Radiation (03CH01-SZ) |
| Double Ridged Horn Antenna        | COM-POWER            | AH-840    | 101073       | 18GHz~40GHz     | Jun. 09, 2014    | Oct. 16, 2014 | Jun. 08, 2015 | Radiation (03CH01-SZ) |
| Amplifier                         | ADVANTEST            | BB525C    | E9007003     | 9kHz~3000MHz    | Feb. 21, 2014    | Oct. 16, 2014 | Feb. 20, 2015 | Radiation (03CH01-SZ) |
| Amplifier                         | Yiai                 | AV3860B   | 04030        | 2GHz~26.5GHz    | May 08, 2014     | Oct. 16, 2014 | May 07, 2015  | Radiation (03CH01-SZ) |
| AC Source(AVR)                    | Chroma               | 61601     | 616010001985 | 100Vac~250Vac   | Mar. 25, 2014    | Oct. 16, 2014 | Mar. 24, 2015 | Radiation (03CH01-SZ) |
| Turn Table                        | EM Electronics       | EM 1000   | N/A          | 0~360 degree    | NCR              | Oct. 16, 2014 | NCR           | Radiation (03CH01-SZ) |
| Antenna Mast                      | EM Electronics       | EM 1000   | N/A          | 1 m~4 m         | NCR              | Oct. 16, 2014 | NCR           | Radiation (03CH01-SZ) |
| ESCIO TEST Receiver               | R&S                  | ESCI      | 100724       | 9kHz~3GHz       | Feb. 21, 2014    | Sep. 30, 2014 | Feb. 20, 2015 | Conduction (CO01-SZ)  |
| AC LISN                           | EMCO                 | 3816/2SH  | 00103912     | 9kHz~30MHz      | Mar. 04, 2014    | Sep. 30, 2014 | Mar. 03, 2015 | Conduction (CO01-SZ)  |
| AC LISN (for auxiliary equipment) | EMCO                 | 3816/2SH  | 00103892     | 9kHz~30MHz      | Mar. 04, 2014    | Sep. 30, 2014 | Mar. 03, 2015 | Conduction (CO01-SZ)  |
| AC Power Source                   | Chroma               | 61602     | 616020000891 | 100Vac~250Vac   | Dec. 17, 2013    | Sep. 30, 2014 | Dec. 16, 2014 | Conduction (CO01-SZ)  |

## 5 Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

|                                                                          |     |
|--------------------------------------------------------------------------|-----|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2U_c(y)$ ) | 2.3 |
|--------------------------------------------------------------------------|-----|

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

|                                                                          |     |
|--------------------------------------------------------------------------|-----|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2U_c(y)$ ) | 3.9 |
|--------------------------------------------------------------------------|-----|



## **Appendix B. Product Equality Declaration**

## Lenovo (Shanghai) Electronics Technology Co., Ltd.

No. 68 Building, 199 Fenju Road, Wai Gao Qiao FTZ , Shanghai , China

Tel: 86-21-50504500-8237

Date: October 17, 2014

### Product Equality Declaration

We, Lenovo (Shanghai) Electronics Technology Co., Ltd., declare on our sole responsibility for product of Lenovo A3300-HV that the difference between the present product and the original product are listed as below, the LCD and WCDMA PA have different supplier:

| number | Part name | Original                                     | Present                                                  |
|--------|-----------|----------------------------------------------|----------------------------------------------------------|
| 1      | LCD       | Trade name: BOE<br>Model name: BA070WS1-100  | Trade name: KingDisplay<br>Model name: KD070D23-39NA-A66 |
| 2      | PA(WCDMA) | Trade name: Skyworks<br>Model name: SKY77758 | Trade name: MURATA<br>Model name: HRPF58723BTB-A         |
|        |           | Trade name: Skyworks<br>Model name: SKY77762 | Trade name: Vanchip<br>Model name: VC5342                |

Should you have any questions or comments regarding this matter, please have my best attention.

Declared by : 

on behalf of Lenovo (Shanghai) Electronics Technology Co., Ltd.