
FCC Test Report

Report No.: AGC20J120301F1

FCC ID : Y7WPLUMS107
PRODUCT DESIGNATION : Tingle
BRAND NAME : plum
MODEL NAME : S107
CLIENT : CLC Hong Kong Limited
DATE OF ISSUE : Apr.09, 2012
STANDARD(S) : FCC Part 15 Rules
REPORT VERSION : V1.0

Attestation of Global Compliance Co., Ltd.

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1. VERIFICATION OF COMPLIANCE

| | |
|---------------------------|--|
| Applicant: | CLC Hong Kong Limited |
| | 907 Hart Avenue Plaza, 5-9A Hart Avenue, Tsim Sha Tsui, Kowloon, Hong Kong |
| Manufacturer: | CLC Technology Co. Ltd |
| | Room 303, Block 31, Longtang Industrial Zone, Longtang Community Minzhi Street, Bao'an District, Shenzhen, China |
| Product Designation: | Tingle |
| Brand name: | plum |
| Test Model: | S107 |
| FCC ID: | Y7WPLUMS107 |
| Measurement Procedure: | ANSI C63.4: 2003 |
| File Number: | AGC20J120301F1 |
| Date of test: | Apr.01, 2012 to Apr.8, 2012 |
| Deviation: | None |
| Condition of Test Sample: | Normal |

The above equipment was tested by Attestation Of Global Compliance Co., Ltd. for compliance with the requirements set forth in the FCC Rules and Regulations Part 15, the measurement procedure according to ANSI C63.4:2003. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Tested By :



Leo Lee

Apr.09, 2012

Reviewed By :



Forrest Lei

Apr.09, 2012

Approved By:



Solger Zhang

Apr.09, 2012

2. PRODUCT INFORMATION

Housing Type: Plastic

EUT Rating Voltage: DC 3.7V by battery

Adapter Input AC110~240V,50/60Hz,0.15A

Adapter Output DC5.0V,500mA

I/O Port Information (☒Applicable ☐Not Applicable)

| I/O Port of EUT | | | |
|-----------------|------|-------------------|-------------|
| I/O Port Type | Q'TY | Cable | Tested with |
| USB port | 1 | 1.0 m, unshielded | 1 |

****Note:** The USB and the earphone use the same port.

3. TEST FACILITY

| | |
|------------------------------|--|
| Facility | Attestation of Global Compliance Co., Ltd. |
| Location: | 2F, No.2 Building, Huafeng No.1 Technical, Industrial Park, Sanwei, Xixiang, Baoan District, Shenzhen, China |
| Description: | The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2003. |
| Site Filing: | The FCC Registration Number is 259865 |
| Instrument Tolerance: | All measuring equipment is in accord with ANSI C63.4 requirements that meet industry regulatory agency and accreditation agency requirement. |

4. SUPPORT EQUIPMENT LIST

| Device Type | Manufacturer | Model Name | Serial No. | Data Cable | Power Cable |
|-------------|--------------|------------|------------|------------|-----------------|
| PC | DELL | INSPIRON | -- | N/A | 1.5m unshielded |

**Note: All the above equipment/cables were placed in worse case positions to maximize emission signals during emission test.

5. SYSTEM DESCRIPTION

EUT test procedure:

1. Connect EUT and peripheral devices (PC) through USB port.
2. Power on the EUT, use the software to transfer data between EUT and PC.
3. Make sure the EUT operates normally during the test.

6. TEST MODE

USB (connection for data transferring)

Other modes have been tested via the procedure of verification of confirm.

7. SUMMARY OF TEST RESULTS

| FCC Rules | Description Of Test | Result |
|-----------|---------------------|-----------|
| §15.107 | Conduction Emission | Compliant |
| §15.109 | Radiated Emission | Compliant |

8. MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in Measurement” (GUM) published by ISO.

- Uncertainty of Conducted Emission, $U_c = \pm 2.75\text{dB}$
- Uncertainty of Radiated Emission, $U_c = \pm 3.2\text{dB}$

9. FCC LINE CONDUCTED EMISSION TEST

9.1 TEST EQUIPMENT OF LINE CONDUCTED EMISSION TEST

| Description | Manufacturer | Model | Identifier | Cal. Date | Cal. Due |
|-------------------|--------------|--------|------------|------------|------------|
| EMI Test Receiver | H.P. | 8546A | N/A | 06/27/2011 | 06/26/2012 |
| LISN | EMCO | 3825/2 | N/A | 06/27/2011 | 06/26/2012 |

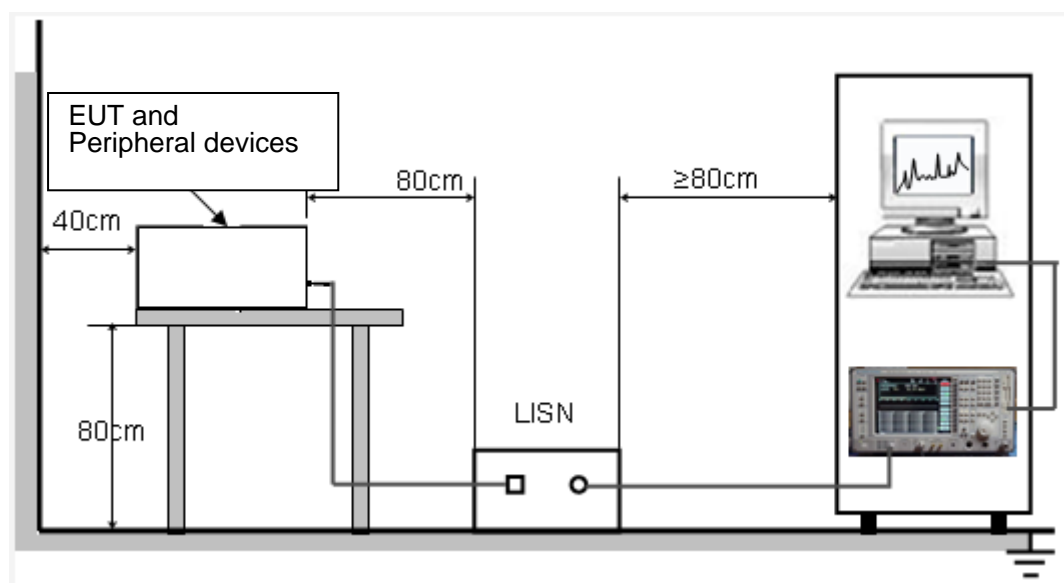
9.2 LIMITS OF LINE CONDUCTED EMISSION TEST

| Frequency | Maximum RF Line Voltage | |
|---------------|-------------------------|----------------|
| | Q.P.(dBuV) | Average(dBuV) |
| 150kHz~500kHz | 66-56 | 56-46 |
| 500kHz~5MHz | 56 | 46 |
| 5MHz~30MHz | 60 | 50 |

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

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

9.3 BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST

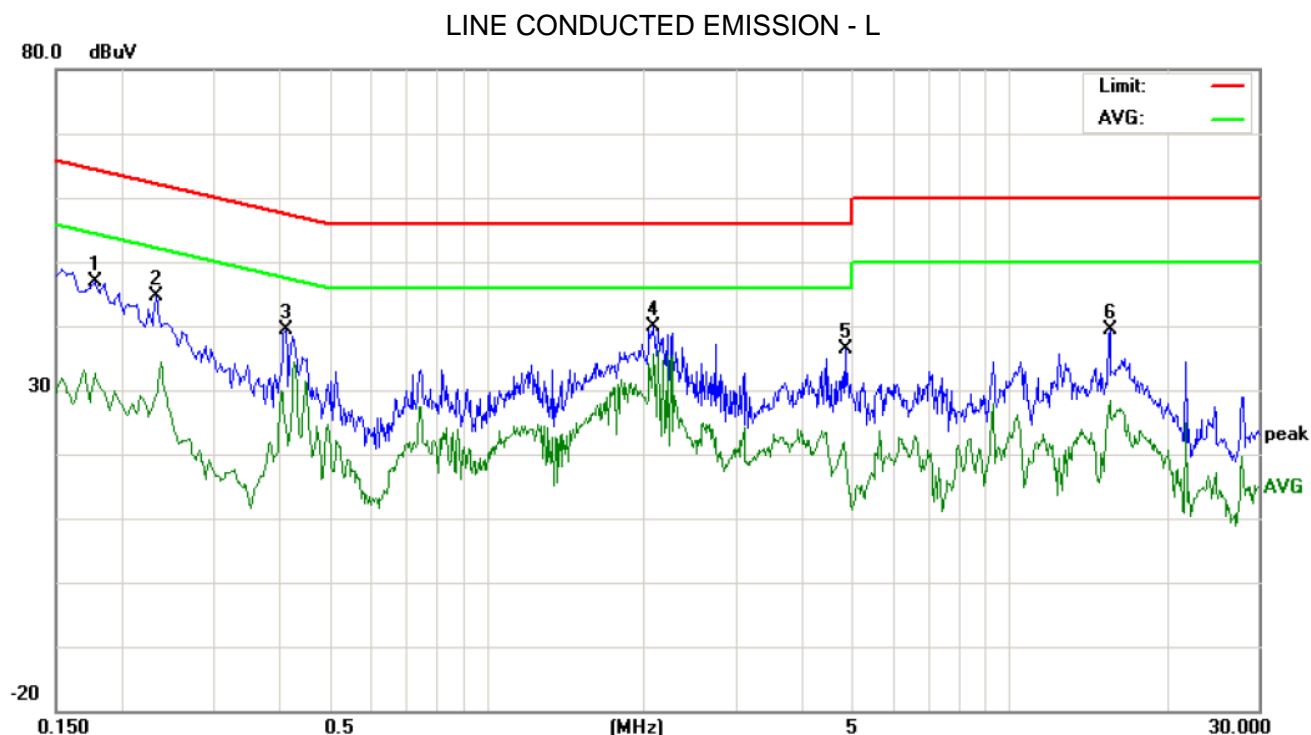


9.4 PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2) Support equipment, if needed, was placed as per ANSI C63.4.
- 3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- 4) The EUT connect to PC which received 120V/60Hz power from a LISN.
- 5) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 6) Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 7) During the above scans, the emissions were maximized by cable manipulation.
- 8) A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions.
- 9) Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.

The test data of the worst case condition(s) was reported on the Summary Data page.

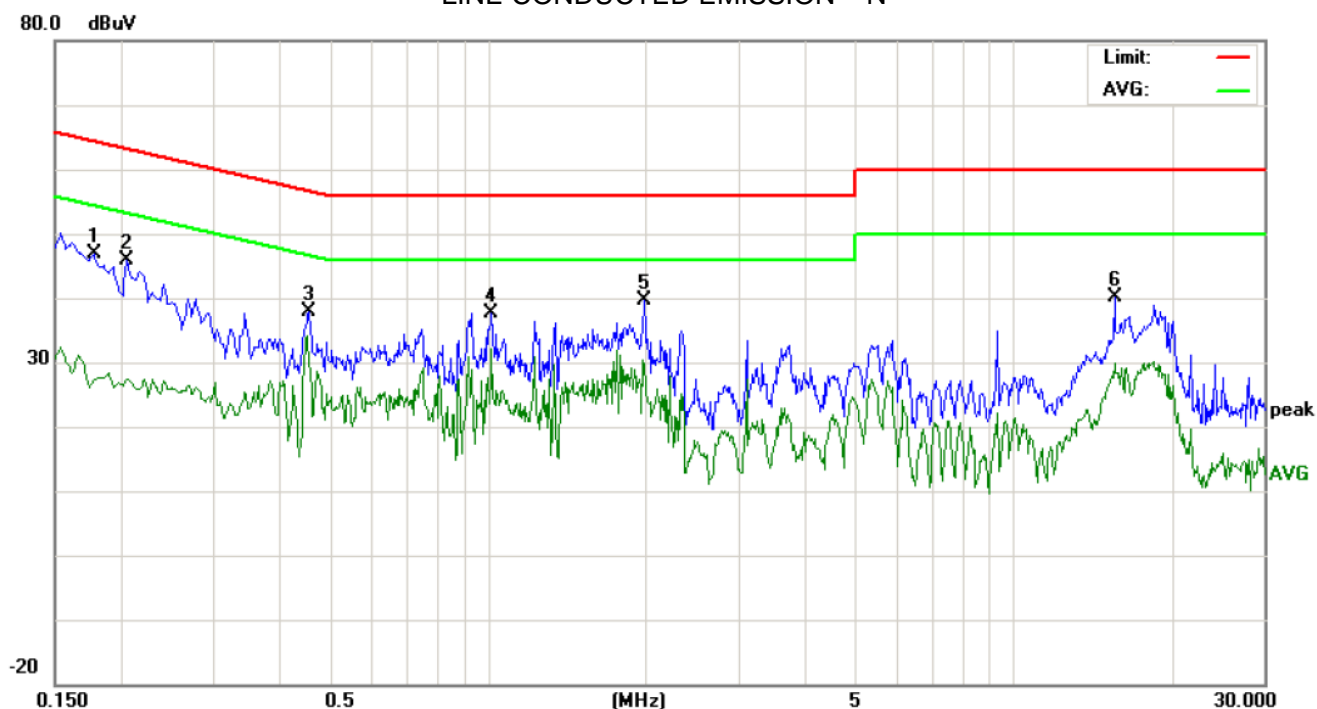
9.5 TEST RESULT OF LINE CONDUCTED EMISSION TEST



Site: Conduction Phase: **L1** Temperature: 26
Limit: FCC Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 60 %
EUT: Tingle
M/N: S107
Mode: USB
Note:

| No. | Freq. (MHz) | Reading_Level (dBuV) | | | Correct Factor dB | Measurement (dBuV) | | | Limit (dBuV) | | Margin (dB) | | P/F | Comment |
|-----|----------------|-------------------------|----|-------|-------------------------|-----------------------|----|-------|-----------------|-------|----------------|--------|-----|---------|
| | | Peak | QP | AVG | | Peak | QP | AVG | QP | AVG | QP | AVG | | |
| 1 | 0.1779 | 36.68 | | 22.44 | 10.19 | 46.87 | | 32.63 | 64.58 | 54.58 | -17.71 | -21.95 | P | |
| 2 | 0.2340 | 34.29 | | 19.16 | 10.25 | 44.54 | | 29.41 | 62.30 | 52.30 | -17.76 | -22.89 | P | |
| 3 | 0.4139 | 29.03 | | 13.19 | 10.34 | 39.37 | | 23.53 | 57.57 | 47.57 | -18.20 | -24.04 | P | |
| 4 | 2.0779 | 29.63 | | 23.81 | 10.25 | 39.88 | | 34.06 | 56.00 | 46.00 | -16.12 | -11.94 | P | |
| 5 | 4.8658 | 26.13 | | 9.17 | 10.23 | 36.36 | | 19.40 | 56.00 | 46.00 | -19.64 | -26.60 | P | |
| 6 | 15.5539 | 29.28 | | 18.22 | 10.11 | 39.39 | | 28.33 | 60.00 | 50.00 | -20.61 | -21.67 | P | |

LINE CONDUCTED EMISSION – N



Site: Conduction

Phase: **N**

Temperature: 26

Limit: FCC Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 60 %

EUT: Tingle

M/N: S107

Mode: USB

Note:

| No. | Freq. (MHz) | Reading_Level (dBuV) | | | Correct Factor dB | Measurement (dBuV) | | | Limit (dBuV) | | Margin (dB) | | P/F | Comment |
|-----|----------------|-------------------------|----|-------|-------------------------|-----------------------|----|-------|-----------------|-------|----------------|--------|-----|---------|
| | | Peak | QP | AVG | | Peak | QP | AVG | QP | AVG | QP | AVG | | |
| 1 | 0.1780 | 36.76 | | 17.13 | 10.19 | 46.95 | | 27.32 | 64.57 | 54.57 | -17.62 | -27.25 | P | |
| 2 | 0.2060 | 35.65 | | 17.27 | 10.22 | 45.87 | | 27.49 | 63.36 | 53.36 | -17.49 | -25.87 | P | |
| 3 | 0.4580 | 27.52 | | 19.31 | 10.37 | 37.89 | | 29.68 | 56.73 | 46.73 | -18.84 | -17.05 | P | |
| 4 | 1.0180 | 27.33 | | 21.69 | 10.37 | 37.70 | | 32.06 | 56.00 | 46.00 | -18.30 | -13.94 | P | |
| 5 | 1.9820 | 29.28 | | 19.71 | 10.23 | 39.51 | | 29.94 | 56.00 | 46.00 | -16.49 | -16.06 | P | |
| 6 | 15.5659 | 29.93 | | 19.69 | 10.11 | 40.04 | | 29.80 | 60.00 | 50.00 | -19.96 | -20.20 | P | |

10. FCC RADIATED EMISSION TEST

10.1 TEST EQUIPMENT OF RADIATED EMISSION

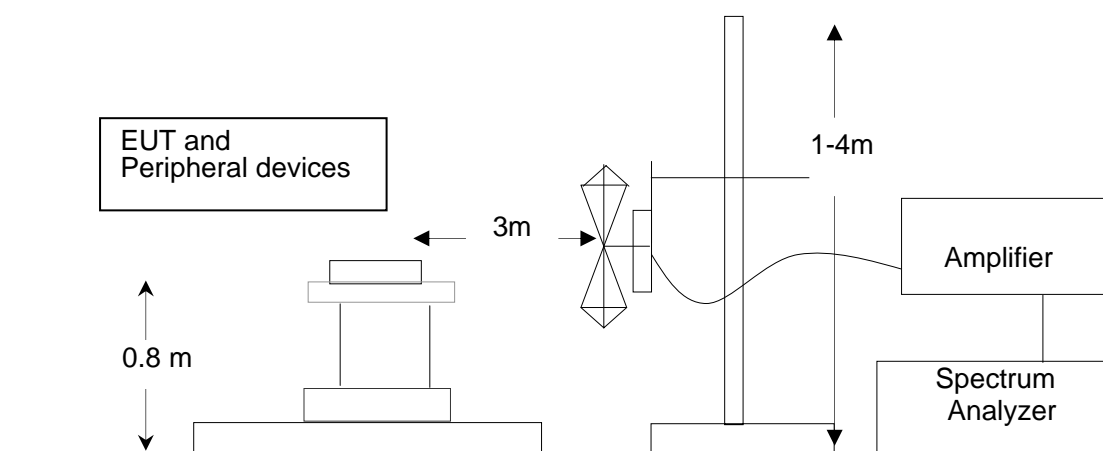
| Description | Manufacturer | Model | Identifier | Cal. Date | Cal. Due |
|---------------------------------|--------------|-------------|-------------|------------|------------|
| PSA SERIES SPECTRUM ANALYZER | AGILENT | E4440A | US41421290 | 06/27/2011 | 06/26/2012 |
| ANTENNA | A.H. | SAS-521-4 | 128 | 06/27/2011 | 06/26/2012 |
| HORN ANTENNA | EM | EM-AH-10180 | N/A | 06/27/2011 | 06/26/2012 |
| AMPLIFIER | EM | EM30180 | 0607030 | 06/27/2011 | 06/26/2012 |
| POSITIONING CONTROLLER | MF | MF-7802 | MF780208147 | 06/27/2011 | 06/26/2012 |

10.2 LIMITS OF RADIATED EMISSION TEST

| Frequency (MHz) | Distance (m) | Maximum Field Strength Limit (dBuV/m/ Q.P.) |
|--------------------|-----------------|--|
| 30~88 | 3 | 40.0 |
| 88~216 | 3 | 43.5 |
| 216~960 | 3 | 46.0 |
| Above 960 | 3 | 54.0 |

**Note: The lower limit shall apply at the transition frequency.

10.3 BLOCK DIAGRAM OF RADIATED EMISSION TEST

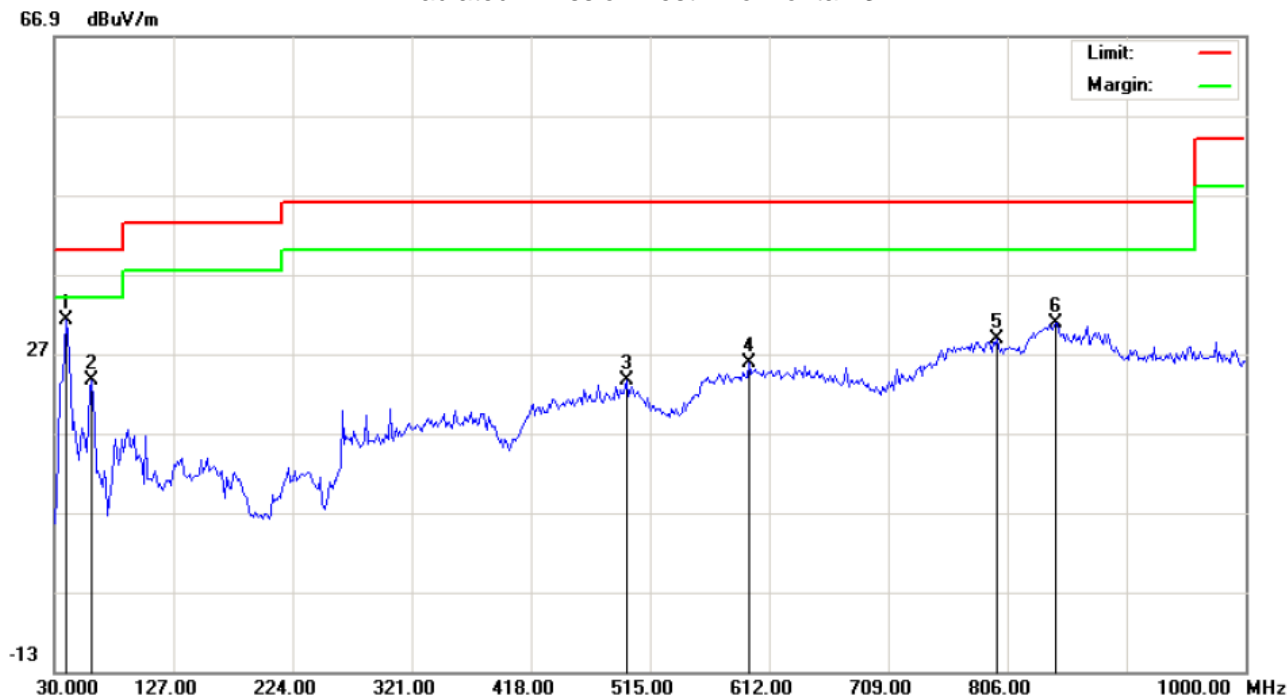


10.4 PROCEDURE OF RADIATED EMISSION TEST

- 1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2) Support equipment, if needed, was placed as per ANSI C63.4.
- 3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- 4) The EUT connect to PC which received 120V/60Hz power from socket under the turntable.
- 5) The antenna was placed at 3 meter away from the EUT as stated in FCC Part 15. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.
- 6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- 7) The test mode(s) were scanned during the test.
- 8) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P./Peak reading is presented.

10.5 TEST RESULT OF RADIATED EMISSION TEST

Radiated Emission Test –Horizontal -3m



Site: site #1

Limit: FCC Class B 3M Radiation

EUT: Tingle

M/N: S107

Mode: USB

Note:

Polarization: *Horizontal*

Power: AC 120V/60Hz

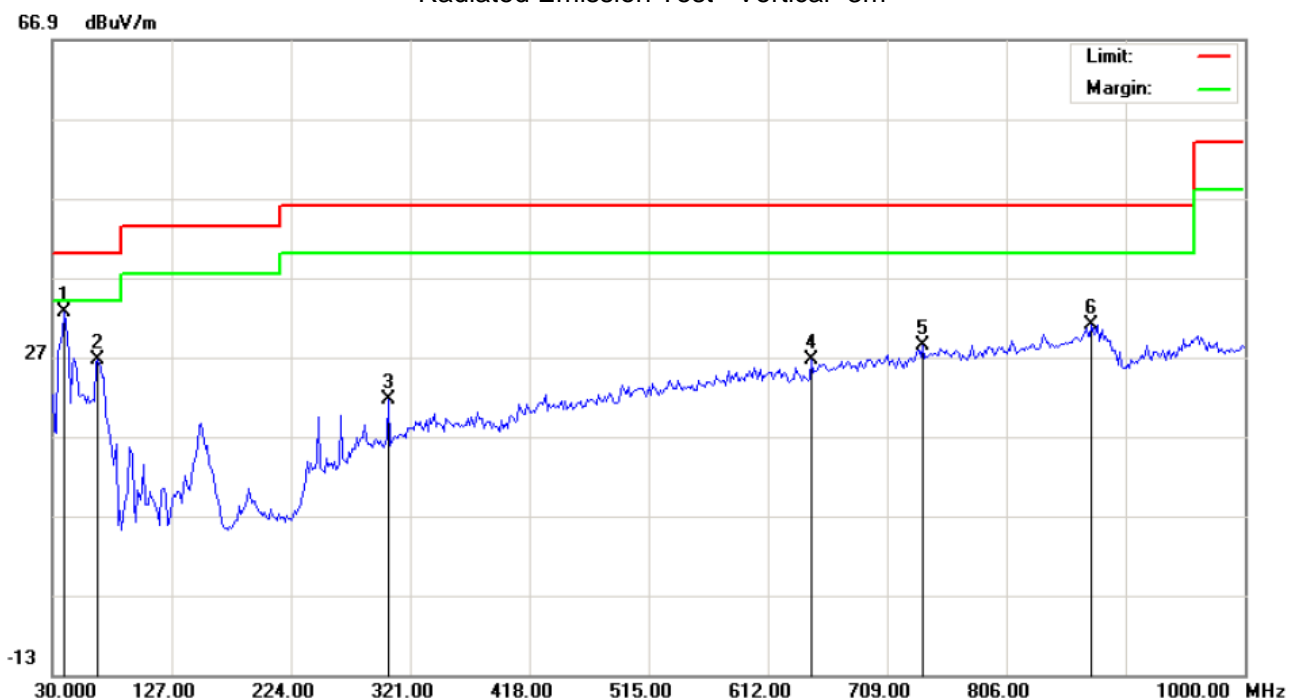
Distance: 3m

Temperature: 26

Humidity: 60 %

| No. | Mk | Freq. | Reading | Factor | Measurement | Limit | Over | Detector | Antenna Height | Table Degree | Comment |
|-----|----|----------|---------|--------|-------------|--------|--------|----------|----------------|--------------|---------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | cm | degree | |
| 1 | * | 39.7000 | 23.29 | 7.98 | 31.27 | 40.00 | -8.73 | peak | | | |
| 2 | | 60.7167 | 19.58 | 4.06 | 23.64 | 40.00 | -16.36 | peak | | | |
| 3 | | 495.6000 | 0.98 | 22.68 | 23.66 | 46.00 | -22.34 | peak | | | |
| 4 | | 595.8333 | 0.92 | 24.87 | 25.79 | 46.00 | -20.21 | peak | | | |
| 5 | | 797.9167 | 0.72 | 28.05 | 28.77 | 46.00 | -17.23 | peak | | | |
| 6 | | 844.8000 | -0.02 | 30.81 | 30.79 | 46.00 | -15.21 | peak | | | |

Radiated Emission Test –Vertical -3m



Site: site #1

Limit: FCC Class B 3M Radiation

EUT: Tingle

M/N: S107

Mode: USB

Note:

Polarization: **Vertical**

Power: AC 120V/60Hz

Distance: 3m

Temperature: 26

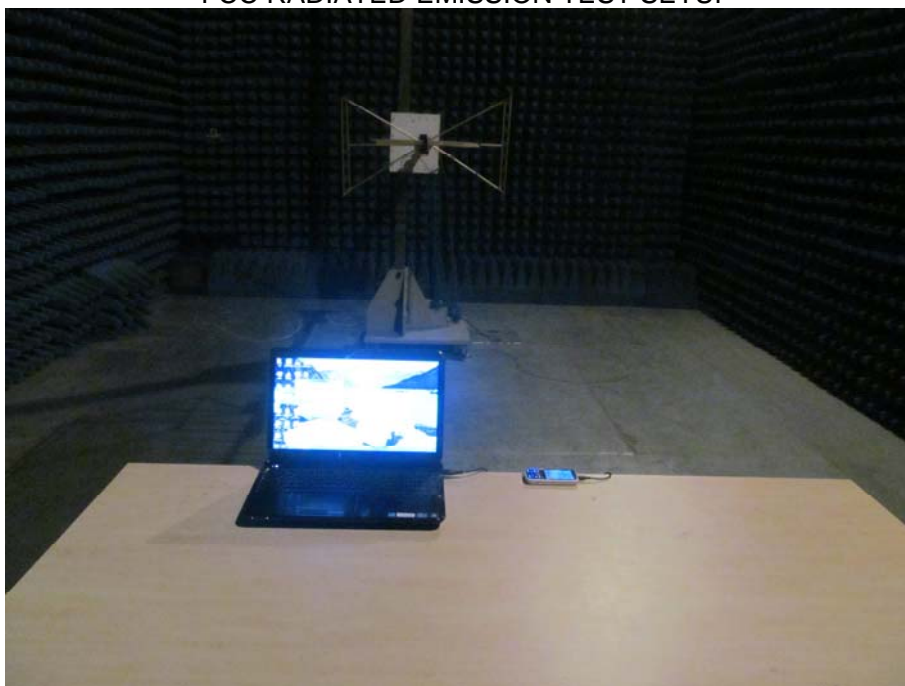
Humidity: 60 %

| No. | Mk | Freq. | Reading | Factor | Measurement | Limit | Over | Detector | Antenna Height | Table Degree | Comment |
|-----|----|----------|---------|--------|-------------|--------|--------|----------|----------------|--------------|---------|
| | | MHz | dBuV | dB/m | dBuV/m | dBuV/m | dB | | cm | degree | |
| 1 | * | 39.7000 | 26.65 | 5.88 | 32.53 | 40.00 | -7.47 | peak | | | |
| 2 | | 67.1833 | 23.35 | 3.21 | 26.56 | 40.00 | -13.44 | peak | | | |
| 3 | | 303.2167 | 4.32 | 17.21 | 21.53 | 46.00 | -24.47 | peak | | | |
| 4 | | 647.5665 | 1.50 | 25.15 | 26.65 | 46.00 | -19.35 | peak | | | |
| 5 | | 738.1000 | 1.02 | 27.34 | 28.36 | 46.00 | -17.64 | peak | | | |
| 6 | | 875.5167 | 0.82 | 30.14 | 30.96 | 46.00 | -15.04 | peak | | | |

APPENDIX 1
PHOTOGRAPHS OF TEST SETUP
FCC LINE CONDUCTED EMISSION TEST SETUP



FCC RADIATED EMISSION TEST SETUP



APPENDIX 2 PHOTOGRAPHS OF EUT

TOP VIEW OF SAMPLE



BOTTOM VIEW OF SAMPLE



LEFT VIEW OF SAMPLE



RIGHT VIEW OF SAMPLE



FRONT VIEW OF SAMPLE



BACK VIEW OF SAMPLE



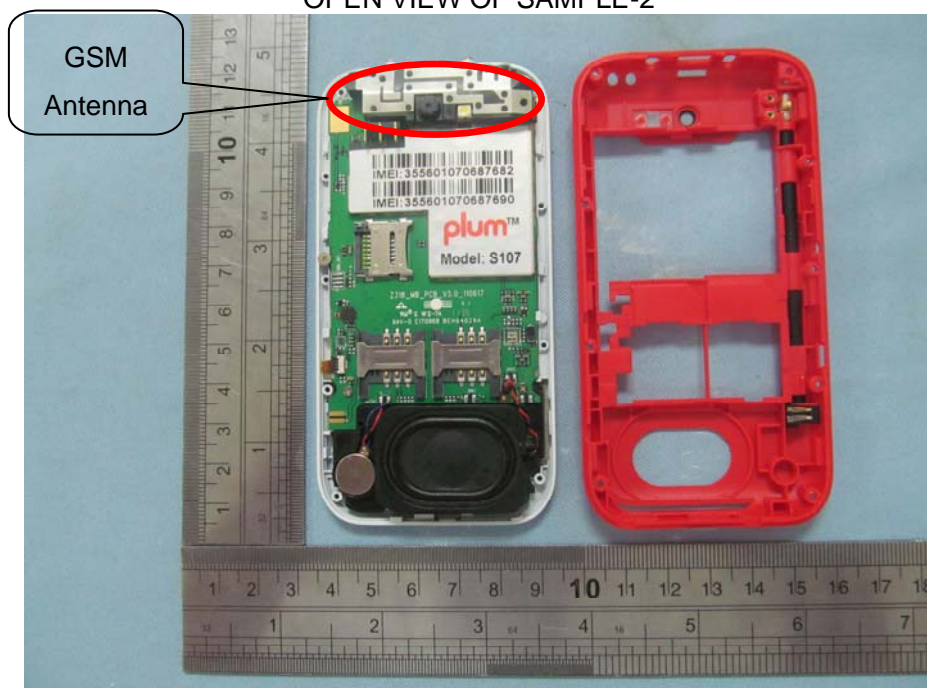
ALL VIEW OF SAMPLE



OPEN VIEW OF SAMPLE-1



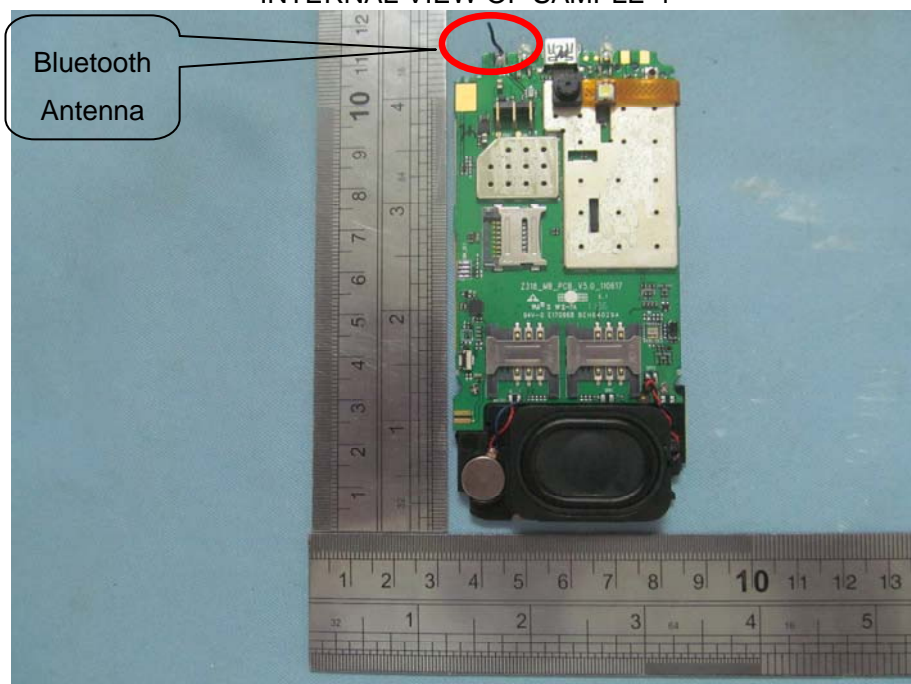
OPEN VIEW OF SAMPLE-2



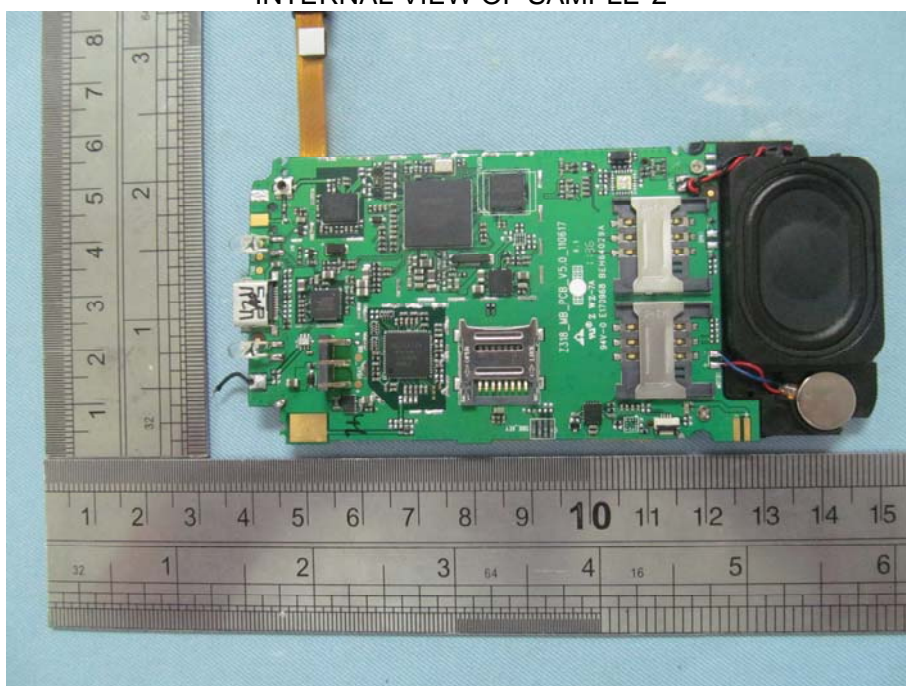
OPEN VIEW OF SAMPLE-3



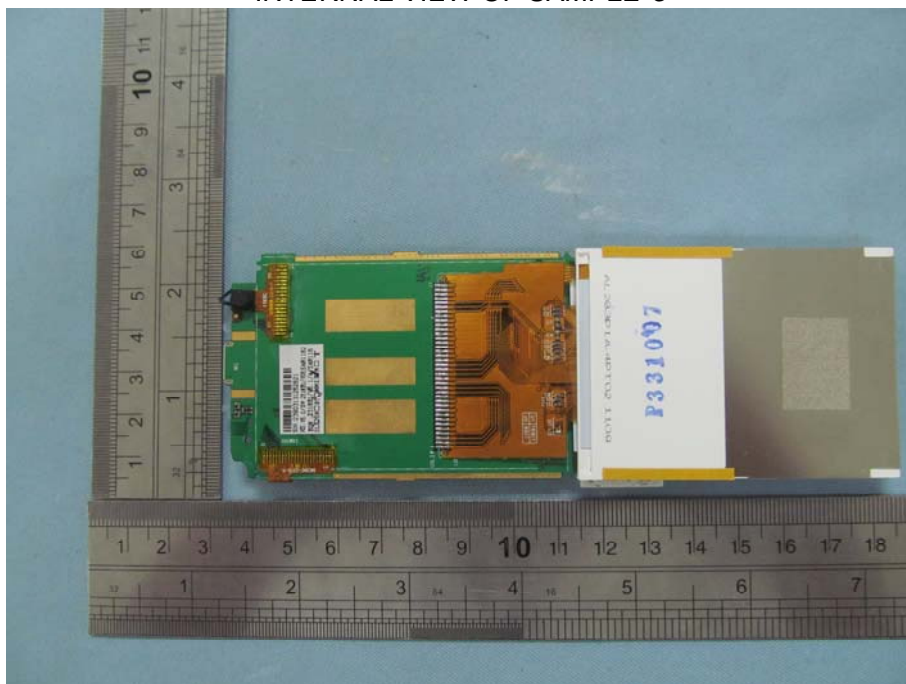
INTERNAL VIEW OF SAMPLE-1



INTERNAL VIEW OF SAMPLE-2



INTERNAL VIEW OF SAMPLE-3



----END OF REPORT----