

FCC TEST REPORT

For
Globisens LTD

Mobile Science Cart

Model No.: N/A

Test Report Number : ESTSZ140401235F



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1 GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Globisens LTD
 Address of applicant: 94 Em Hamoshavot Rd., Park Azorim, pob 3318, Petah-Tiqva,
 4970602, ISRAEL

Manufacturer: Globisens LTD
 Address of manufacturer: 94 Em Hamoshavot Rd., Park Azorim, pob 3318, Petah-Tiqva,
 4970602, ISRAEL

General Description of E.U.T

EUT Description: Mobile Science Cart
 Trade Name: N/A
 Model No.: N/A
 Power Supply: AC 110-230V, 50-60Hz
 Test Power Supply: AC 120V, 60Hz


1.2 Test Standards

The following Declaration of Conformity report of EUT is prepared in accordance with


FCC Rules and Regulations Part 15 Subpart B 2008

The objective of the manufacturer is to demonstrate compliance with the described above standards.

Date of Test : May 20 ~ 29, 2014

Prepared by : 
 (Engineer: David He)

Reviewer : 
 (Project Manager: Ronnie Liu)

Approved & Authorized Signer : 
 (Manager: Alex Chen)



1.3 Test Summary

For the EUT described above. The standards used were FCC Part 15 Subpart B for Emissions

Table 1: Tests Carried Out Under FCC Part 15 Subpart B

| Standard | Test Items | Status |
|-----------------------|---------------------------------------|--------|
| FCC Part 15 Subpart B | Conduction Emission, 0.15MHz to 30MHz | √ |
| FCC Part 15 Subpart B | Radiation Emission, 30MHz to 1000MHz | √ |

√ Indicates that the test is applicable
 × Indicates that the test is not applicable

1.4 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2009, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.

The maximum emission levels emanating from the device are compared to the FCC Part 15 Subpart B limits for radiation emissions and the measurement results contained in this test report show that EUT is to be technically compliant with FCC requirements.

1.5 Test Facility

All measurement required was performed at laboratory of SGS-CSTC Standards Technical Services Co., Ltd. at No.1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, China

The test facility is recognized, certified, or accredited by the following organizations:

FCC – Registration No.: 600491

Global United Technology Service Co., Ltd has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 600491

1.6 Test Equipment List and Details

Test equipments list of Global United Technology Service Co., Ltd.

| Equipment | Manufacturer | Model# | Serial # | Data of Cal. | Due Data |
|--------------------------------|------------------------------------|------------------------|----------|---------------|---------------|
| 3m Semi-Anechoic Chamber | ZhongYu Electron | N/A | N/A | Apr.28, 2014 | Apr.27, 2015 |
| EMI Test Receiver | Rohde & Schwarz | ESU26 | GTS203 | Dec. 12, 2013 | Dec. 11, 2014 |
| EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |
| Coaxial cable | GTS | N/A | GTS400 | Mar. 18, 2014 | Mar. 17, 2015 |
| BiConiLog Antenna (26-3000MHz) | SCHWARZBECK MESS- ELEKTRONIK | VULB9163 | GTS204 | Mar. 12, 2014 | Mar. 11, 2015 |
| Pre-amplifier (0.1-1300MHz) | Agilent Technologies | 8447D | SEL0053 | Mar. 18, 2014 | Mar. 17, 2015 |
| Double-ridged horn (1-18GHz) | SCHWARZBECK MESS- ELEKTRONIK | 9120D-829 | GTS205 | Mar. 12, 2014 | Mar. 11, 2015 |
| Pre-amplifier (1-18GHz) | Rohde & Schwarz | AFS42-00101800-25-S-42 | SEL0081 | Mar. 18, 2014 | Mar. 17, 2015 |
| Band filter | Amindeon | 82346 | SEL0094 | Mar. 18, 2014 | Mar. 17, 2015 |
| Shielding Room | Zhong Yu Electron | N/A | GTS206 | N/A | N/A |
| LISN | SCHWARZBECK MESS- ELEKTRONIK | NSLK 8127 | GTS207 | Mar. 18, 2014 | Mar. 17, 2015 |
| ISN | Rohde & Schwarz | ENY221109 | EMC0114 | Mar. 18, 2014 | Mar. 17, 2015 |
| ISN | Rohde & Schwarz | ENY411110 | EMC0115 | Mar. 18, 2014 | Mar. 17, 2015 |
| EMI Test Receiver | Rohde & Schwarz | ESU26 | GTS203 | Mar. 18, 2014 | Mar. 17, 2015 |
| Coaxial Cable | GTS | N/A | GTS400 | Mar. 18, 2014 | Mar. 17, 2015 |
| AC Power Source | EMTEST | ACS500 | GTS218 | Mar. 27, 2014 | Mar. 26, 2015 |
| Power Analyzer | EMTEST | DPA500 | GTS217 | Mar. 27, 2014 | Mar. 26, 2015 |
| CTS3.0 Software | California Instruments | N/A | SEL0087 | N/A | N/A |

2 TEST CONFIGURATION

2.1 Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

2.2 EUT Exercise Software

The EUT exercising program used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The software offered by manufacture, can let the EUT being normal operation.

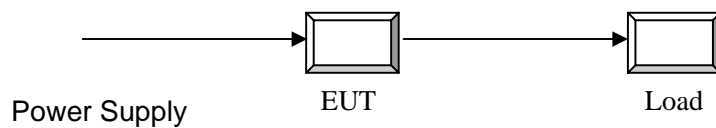
2.3 Special Accessories

As shown in section 2.5, interface cable used for compliance testing is shielded as normally supplied by **Globisens LTD** and its respective support equipment manufacturers.

2.4 Equipment Modifications

The EUT tested was not modified by EST.

2.5 Basic Test Setup Block Diagram



3 DISTURBANCE VOLTAGE AT THE MAINS TERMINALS

3.1 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.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.4 dB.

3.2 Limit of Disturbance Voltage at The Mains Terminals (FCC PART15 Subpart B)

| Frequency Range (MHz) | Limits (dBuV) | |
|-----------------------|----------------|---------|
| | Quasi-Peak | Average |
| 0.150~0.500 | 66~56 | 56~46 |
| 0.500~5.000 | 56 | 46 |
| 5.000~30.00 | 60 | 50 |

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

3.3 EUT Setup

The setup of EUT is according with ANSI C63.4-2009 measurement procedure. The specification used was the FCC Rules and Regulations Part 15 Subpart B limits.

The EUT was placed center and the back edge of the test table.

The AV cables were draped along the test table and bundled to 30-40cm in the middle.

The spacing between the peripherals was 10 cm.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

3.4 Instrument Setup

The test receiver was set with the following configurations:

Test Receiver Setting:

Frequency Range.....150 KHz to 30 MHz
 Detector.....Peak & Quasi-Peak & Average
 Sweep Speed.....Auto
 IF Band Width.....9 KHz

3.5 Test Procedure

During the conducted emission test, the EUT power cord was connected to the auxiliary outlet of the first Artificial Mains.

Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance using all installation combination.

All data was recorded in the peak detection mode. Quasi-peak and Average readings were only performed when an emission was found to be marginal (within -10 dB μ V of specification limits). Quasi-peak readings are distinguished with a "**QP**". Average readings are distinguished with a "**AV**".

3.6 Disturbance Voltage Test Data

| | |
|------------------------------|---------------------|
| Temperature (°C) | 26 |
| Humidity (%RH) | 58 |
| Barometric Pressure (mbar) | 1001.1 |
| EUT | Mobile Science Cart |
| M/N | N/A |
| Operating Mode | ON |
| Test Result | Pass |

Test data see following pages.

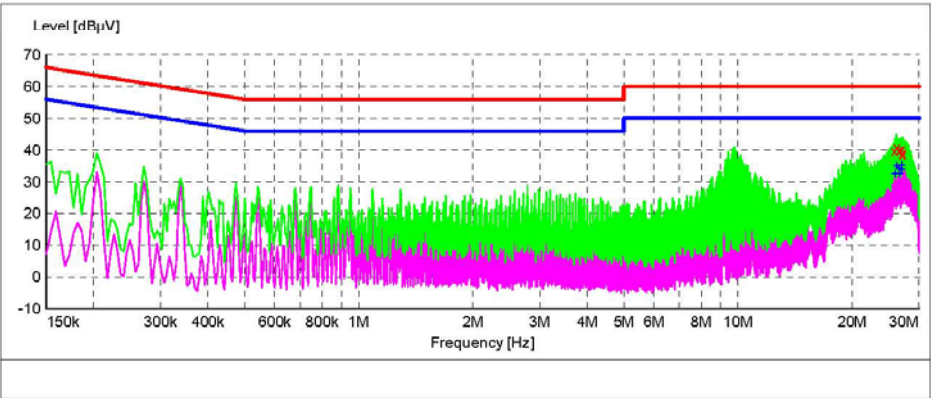
Remark: (1) When PK reading is less than relevant limit 20dB, the QP reading and AV reading will not be recorded.
 (2) Where QP reading is less than relevant AV limit, the AV reading will not be measured

Conducted Emission Test Data

Voltage Mains Test FCC PART 15B

EUT: Mobile Science Cart
Manufacturer: EST
Operating Condition: ON
Test Site: /
Operator: NICE
Test Specification: AC 120/60Hz

SCAN TABLE: "Voltage (9K-30M)FIN"
Short Description: 150K-30M Voltage



| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 25.903500 | 39.80 | 11.1 | 60 | 20.2 | QP | L1 | GND |
| 26.173500 | 40.90 | 11.2 | 60 | 19.1 | QP | L1 | GND |
| 26.740500 | 40.20 | 11.2 | 60 | 19.8 | QP | L1 | GND |
| 27.078000 | 40.20 | 11.2 | 60 | 19.8 | QP | L1 | GND |
| 27.132000 | 38.90 | 11.2 | 60 | 21.1 | QP | L1 | GND |
| 27.199500 | 38.50 | 11.2 | 60 | 21.5 | QP | L1 | GND |

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 25.966500 | 32.60 | 11.2 | 50 | 17.4 | AV | L1 | GND |
| 26.173500 | 35.20 | 11.2 | 50 | 14.8 | AV | L1 | GND |
| 26.511000 | 34.40 | 11.2 | 50 | 15.6 | AV | L1 | GND |
| 26.668500 | 32.70 | 11.2 | 50 | 17.3 | AV | L1 | GND |
| 27.055500 | 35.30 | 11.2 | 50 | 14.7 | AV | L1 | GND |
| 27.078000 | 34.00 | 11.2 | 50 | 16.0 | AV | L1 | GND |

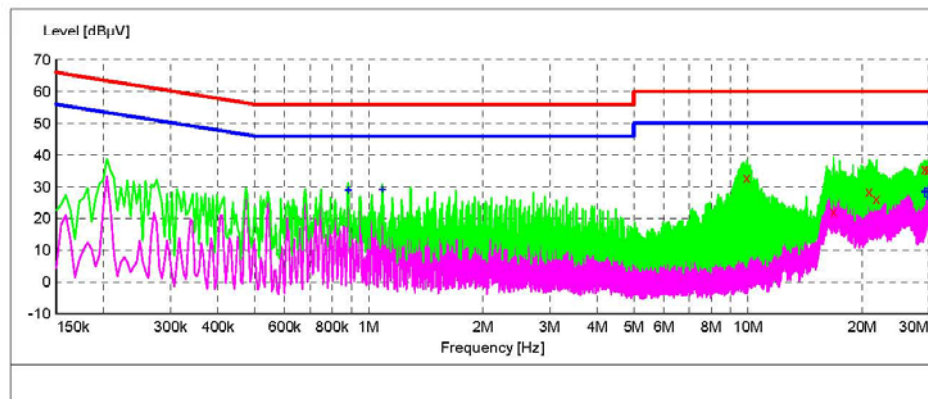
Conducted Emission Test Data

Voltage Mains Test FCC PART 15B

EUT: Mobile Science Cart
 Manufacturer: EST
 Operating Condition: ON
 Test Site: /
 Operator: NICE
 Test Specification: AC 120/60Hz

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 9.915000 | 32.90 | 10.6 | 60 | 27.1 | QP | N | GND |
| 16.845000 | 22.10 | 10.8 | 60 | 37.9 | QP | N | GND |
| 20.827500 | 28.60 | 11.0 | 60 | 31.4 | QP | N | GND |
| 21.817500 | 26.30 | 11.0 | 60 | 33.7 | QP | N | GND |
| 29.323500 | 35.60 | 11.3 | 60 | 24.4 | QP | N | GND |
| 29.737500 | 35.30 | 11.3 | 60 | 24.7 | QP | N | GND |

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.883500 | 29.00 | 10.2 | 46 | 17.0 | AV | N | GND |
| 1.086000 | 29.30 | 10.3 | 46 | 16.7 | AV | N | GND |
| 29.260500 | 28.70 | 11.2 | 50 | 21.3 | AV | N | GND |
| 29.323500 | 28.20 | 11.3 | 50 | 21.8 | AV | N | GND |
| 29.796000 | 26.90 | 11.3 | 50 | 23.1 | AV | N | GND |
| 29.935500 | 29.40 | 11.3 | 50 | 20.6 | AV | N | GND |

4 RADIATED DISTURBANCES

4.1 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.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement is ± 4.0 dB.

4.2 Limit of Radiated Disturbances (Subpart B)

| Frequency (MHz) | Distance (Meters) | Field Strengths Limits (dB μ V/m) |
|-----------------|-------------------|---------------------------------------|
| 30 ~ 88 | 3 | 40 |
| 88 ~216 | 3 | 43.5 |
| 216 ~ 960 | 3 | 46 |
| 960~1000 | 3 | 54 |

Note: (1) The tighter limit shall apply at the edge between two frequency bands.
 (2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

4.3 EUT Setup

The radiated emission tests were performed in the in the 3-meter anechoic chamber, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC Part 15 Subpart B limits.

The EUT was placed on the center of the test table.

Maximum emission emitted from EUT was determined by manipulating the EUT, support equipment, interconnecting cables and varying the mode of operation and the levels in the final result of the test were recorded with the EUT running in the operating mode that maximum emission was emitted.

4.4 Test Receiver Setup

According to FCC Part 15 rule, the frequency was investigated from 30 to 1000 MHz. During the radiated emission test, the test receiver was set with the following configurations:

Test Receiver Setting:

Detector.....Peak & Quasi-Peak
 IF Band Width.....120 KHz
 Frequency Range.....30MHz to 1000MHz
 Turntable Rotated.....0 to 360 degrees

Antenna Position:

Height.....1m to 4m
 Polarity.....Horizontal and Vertical

4.5 Test Procedure

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

All data was recorded in the peak detection mode. Quasi-peak readings performed only when an emission was found to be marginal (within -10 dB μ V of specification limits), and are distinguished with a "QP" in the data table.

4.6 Radiated Emissions Test Result

| | |
|------------------------------|---------------------|
| Temperature (°C) | 26 |
| Humidity (%RH) | 56 |
| Barometric Pressure (mbar) | 1001.1 |
| EUT | Mobile Science Cart |
| M/N | N/A |
| Operating Mode | ON |
| Test Result | Pass |

Test data see following pages.

Remark: (1) When PK reading is less than relevant limit 20dB, the QP reading and AV reading will not be recorded.
(2) Where QP reading is less than relevant AV limit, the AV reading will not be measured

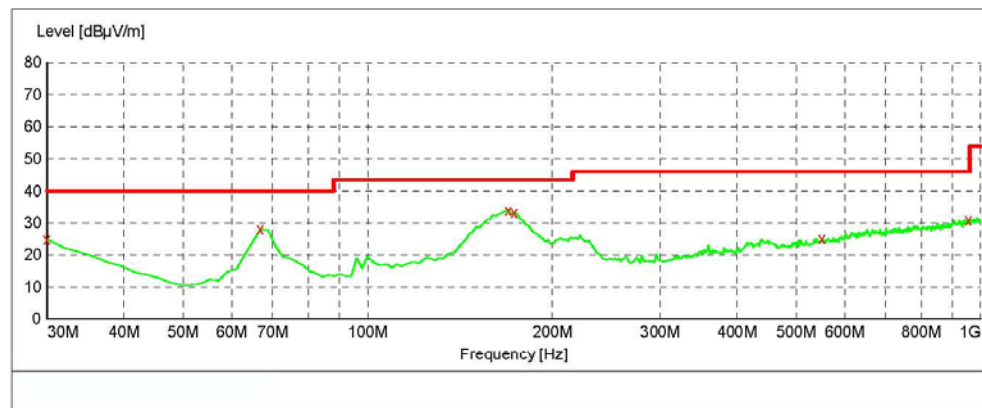
Radiated Emission Test Data

Radiation Emission Test FCC PART 15 B

EUT: Mobile Science Cart
 Manufacturer: EST
 Operating Condition: ON
 Test Site: 3m Chamber
 Operator: NICE
 Test Specification: AC 120V/60Hz

SWEEP TABLE: "test (30M-1G)"

| Short Description: | | Field Strength | | | |
|--------------------|-------------------|----------------|------------|-----------|------------|
| Start | Stop | Detector | Meas. Time | IF Bandw. | Transducer |
| Frequency 30.0 MHz | Frequency 1.0 GHz | MaxPeak | 300.0 ms | 120 kHz | JB1 |



| Frequency MHz | Level dBμV/m | Transd dB | Limit dBμV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 30.000000 | 24.90 | 21.1 | 40.0 | 15.1 | --- | 0.0 | 0.00 | HORIZONTAL |
| 66.860000 | 28.10 | 8.4 | 40.0 | 11.9 | --- | 0.0 | 0.00 | HORIZONTAL |
| 169.680000 | 34.00 | 13.6 | 43.5 | 9.5 | --- | 0.0 | 0.00 | HORIZONTAL |
| 173.560000 | 33.20 | 13.3 | 43.5 | 10.3 | --- | 0.0 | 0.00 | HORIZONTAL |
| 551.860000 | 25.20 | 21.1 | 46.0 | 20.8 | --- | 0.0 | 0.00 | HORIZONTAL |
| 955.380000 | 31.00 | 26.7 | 46.0 | 15.0 | --- | 0.0 | 0.00 | HORIZONTAL |

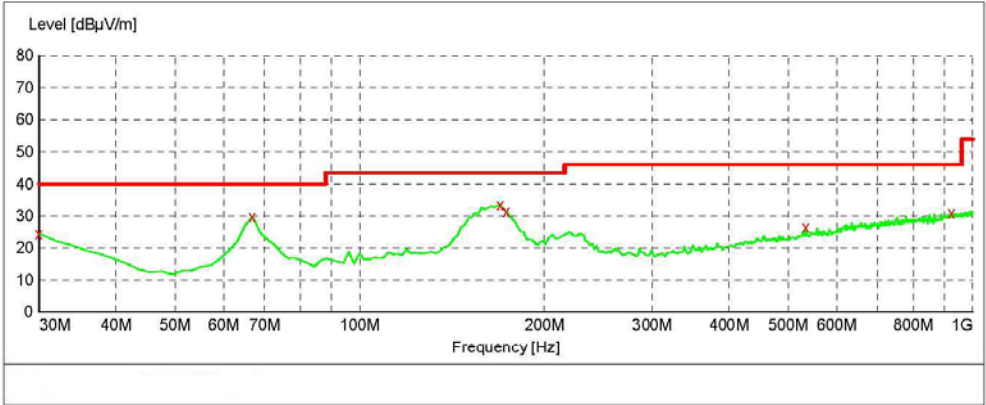
Radiated Emission Test Data

Radiation Emission Test FCC PART 15 B

EUT: Mobile Science Cart
Manufacturer: EST
Operating Condition: ON
Test Site: 3m Chamber
Operator: NICE
Test Specification: AC 120V/60Hz

SWEEP TABLE: "test (30M-1G)"

Short Description: Field Strength
Start Stop Detector Meas. IF Transducer
Frequency Frequency Time Bandw.
30.0 MHz 1.0 GHz MaxPeak 300.0 ms 120 kHz JB1



| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 30.000000 | 24.50 | 21.1 | 40.0 | 15.5 | --- | 0.0 | 0.00 | VERTICAL |
| 66.860000 | 29.80 | 8.4 | 40.0 | 10.2 | --- | 0.0 | 0.00 | VERTICAL |
| 169.680000 | 33.50 | 13.6 | 43.5 | 10.0 | --- | 0.0 | 0.00 | VERTICAL |
| 173.560000 | 31.40 | 13.3 | 43.5 | 12.1 | --- | 0.0 | 0.00 | VERTICAL |
| 534.400000 | 26.50 | 20.6 | 46.0 | 19.5 | --- | 0.0 | 0.00 | VERTICAL |
| 924.340000 | 30.90 | 26.3 | 46.0 | 15.1 | --- | 0.0 | 0.00 | VERTICAL |

APPENDIX A. EUT PHOTOGRAPHS

EUT - Front View



EUT - Back View



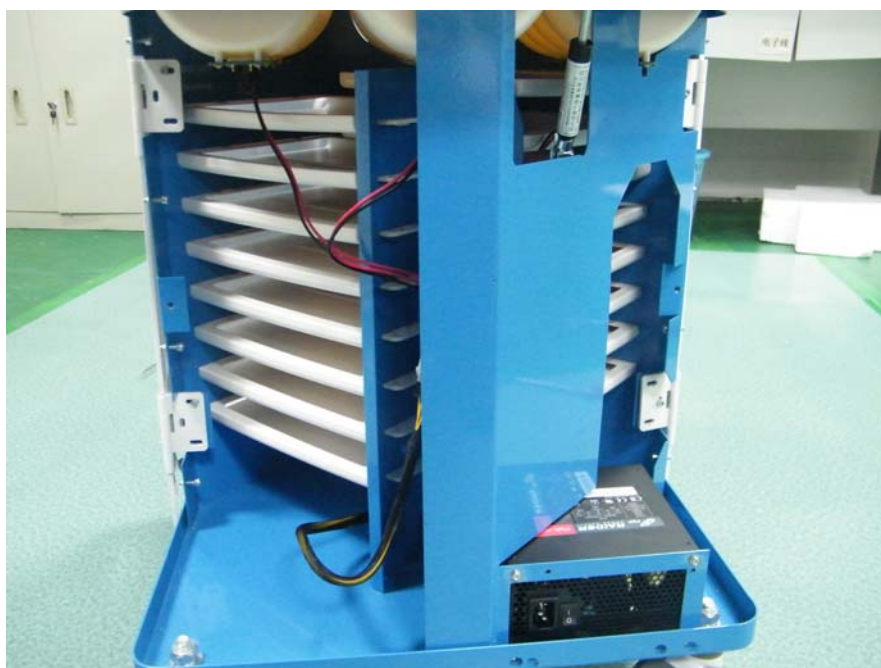
EUT - Inside View



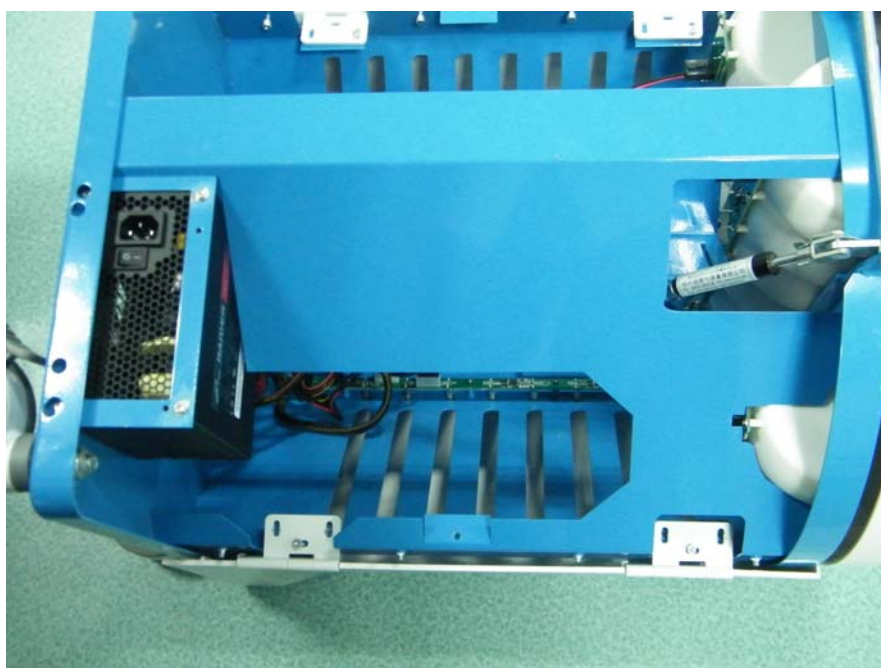
EUT - Inside View



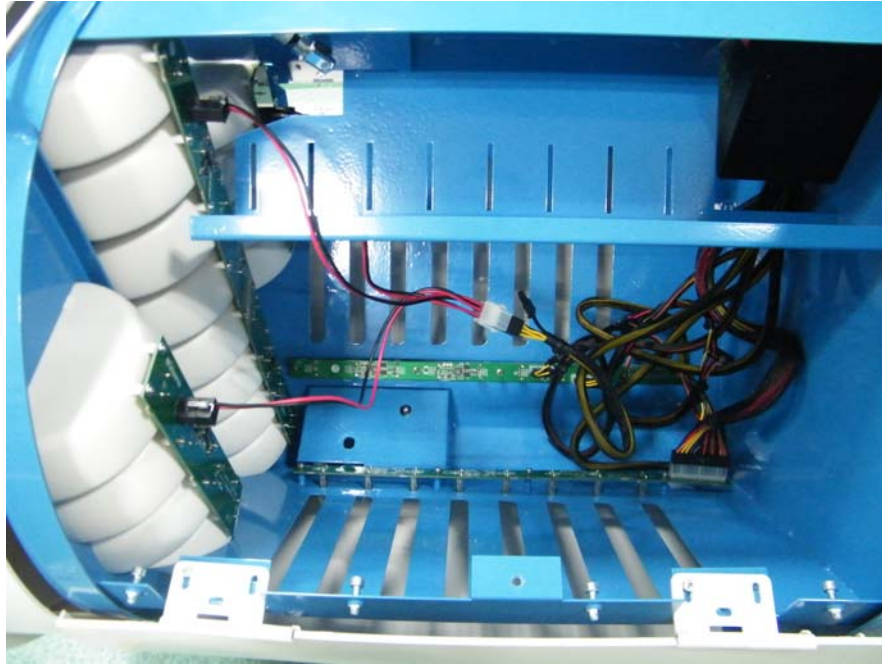
EUT - Inside View



EUT - Inside View



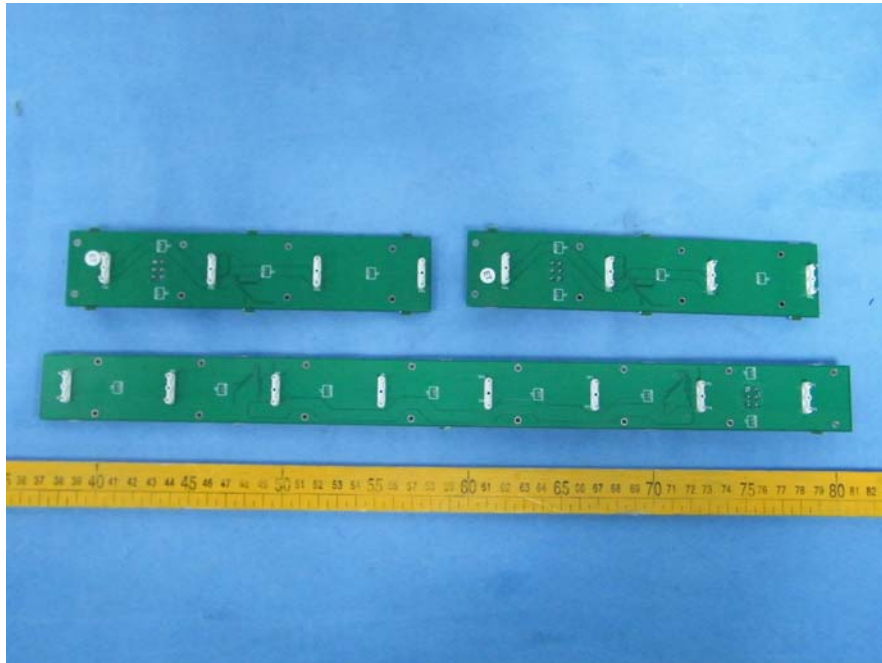
EUT - Inside View



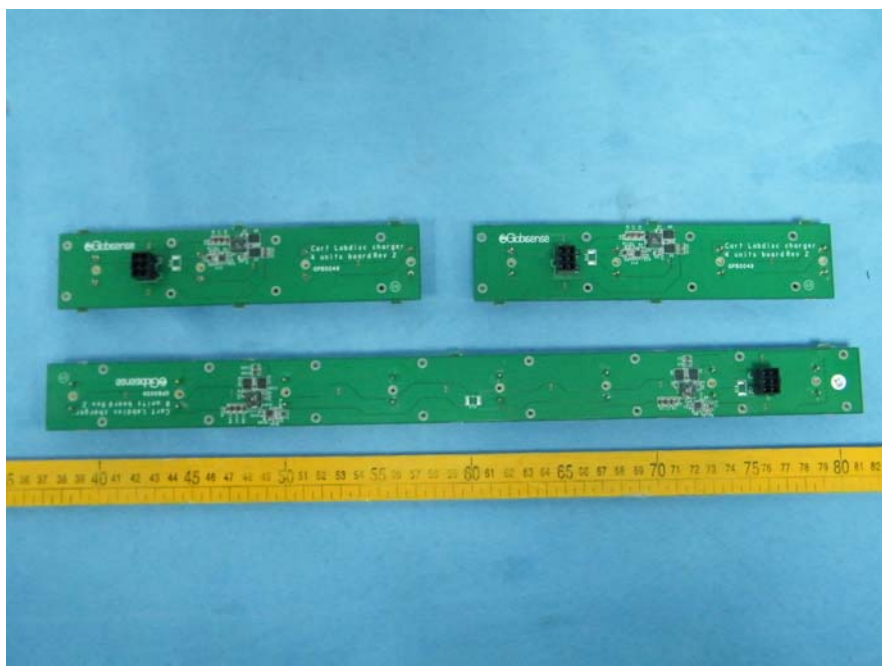
EUT - Inside View



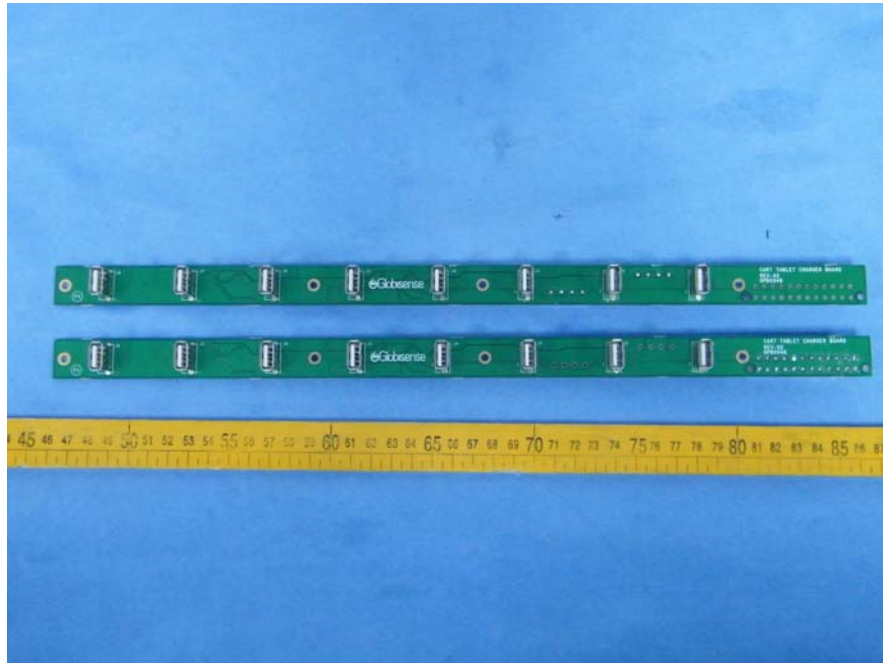
EUT - Inside View



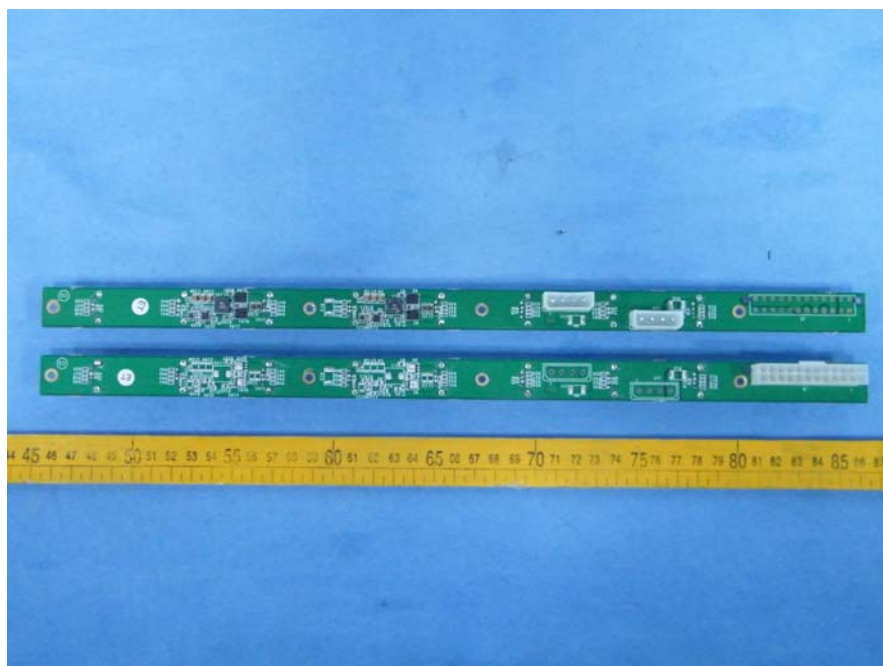
EUT - Inside View



EUT - Inside View



EUT - Inside View



APPENDIX B - TEST SETUP PHOTOGRAPHS

Conducted Emission



Radiated Emission

