**Report No: GTSE10090022802**

# FCC REPORT

| | |
|---|---|
| **Applicant:** | Topstar Overseas Electronics Co., Ltd. |
| **Address of Applicant:** | 4-7/F, Building B, ChengChengFa Industrial Zone, Shenzhen export Processing Zone, PingShan new District, Shenzhen, China. |

**Equipment Under Test (EUT)**

| | |
|---|---|
| Product Name: | All-In-One PC |
| Model No.: | P81 |
| **FCC ID:** | YVW-P81 |
| **Standards:** | FCC CFR Title 47 Part 15 Subpart B:2009 |
| **Date of Receipt:** | 08 Oct., 2010 |
| **Date of Test:** | 08-22 Oct., 2010 |
| **Date of Issue:** | 22 Oct., 2010 |
| **Test Result :** | PASS * |

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

# 2 Contents

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# 3 Test Summary

| Test Item | Section in CFR 47 | Result |
|---|---|---|
| Conducted Emission | Part15.107 | Passed |
| Readiated Emissions | Part15.109 | Passed |

*Passed: The EUT complies with the essential requirements in the standard.*

# 4 General Information

## 4.1 Client Information

| | |
|---|---|
| Applicant: | Topstar Overseas Electronics Co., Ltd. |
| Address of Applicant: | 4-7/F, Building B, ChengChengFa Industrial Zone, Shenzhen export Processing Zone, PingShan new District, Shenzhen, China. |
| Manufacturer/ Factory: | Topstar Overseas Electronics Co., Ltd. |
| Address of Manufacturer/ Factory: | 4-7/F, Building B, ChengChengFa Industrial Zone, Shenzhen export Processing Zone, PingShan new District, Shenzhen, China. |

## 4.2 General Description of E.U.T.

| | |
|---|---|
| Product Name: | All-In-One PC |
| Model No.: | P81 |
| Power supply: | Input: AC 100-240V, 2A, 50-60Hz<br>Output: DC 19V 3.42A |

## 4.3 Test environment and test mode

| | |
|---|---|
| **Operating Environment:** | |
| Temperature: | 24.0 °C |
| Humidity: | 52 % RH |
| Atmospheric Pressure: | 1008 mbar |
| **Test mode:** | |
| Operation mode | Keep the EUT in operation mode with full load. |

## 4.4 Test Facility

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

● **FCC —Registration No.: 600491**

Global United Technology Service Co., Ltd., Shenzhen EMC Laboratory has been registered and fuly described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in out files. Registration 600491, July 20, 2010.

● **Industry Canada (IC)**

The 3m Semi-anechoic chamber of Global United Technology Service Co., Ltd. Has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-1.

## 4.5 Test Location

| All tests were performed at: |
|---|
| Global United Technology Service Co., Ltd.<br>Address: 2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China<br>Tel: 0755-27798480<br>Fax: 0755-27798960 |

## 4.6 Description of Support Units

The EUT was tested independently.

## 4.7 Deviation from Standards

Bionic, logic period and horn antenna were used instead of dipole antenna.
Semi-anechoic Chamber was used as alternation of open air test sites, and all test suites were performed with radiated method in it.

## 4.8 Abnormalities from Standard Conditions

None.

## 4.9 Other Information Requested by the Customer

None.

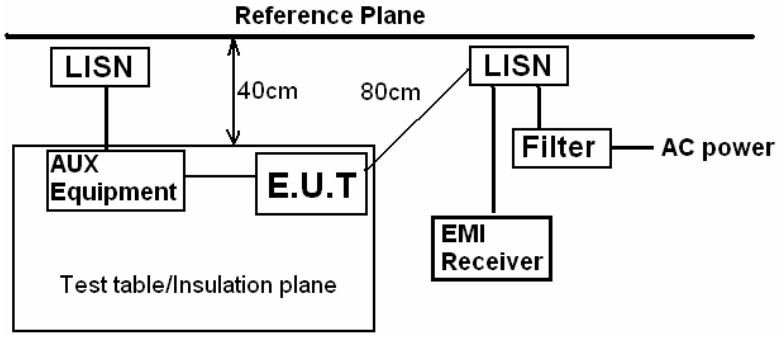
## 4.10 Test Instruments list:

| Radiated Emission | | | | | | |
|---|---|---|---|---|---|---|
| **Item** | **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal.Date (dd-mm-yy)** | **Cal.Due date (dd-mm-yy)** |
| **Item** | **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal.Date (dd-mm-yy)** | **Cal.Due date (dd-mm-yy)** |
| 1 | 3m Semi- Anechoic Chamber | ZhongYu Electron | 9.2(L)*6.2(W)* 6.4(H) | GTS201 | Mar. 30 2010 | Mar. 30 2011 |
| 2 | Control Room | ZhongYu Electron | 6.2(L)*2.5(W)* 2.4(H) | GTS202 | N/A | N/A |
| 3 | EMI Test Receiver | Rohde & Schwarz | ESU26 | GTS203 | Sep. 10 2010 | Sep. 10 2011 |
| 4 | BiConiLog Antenna | SCHWARZBECK MESS-ELEKTRONIK | VULB9163 | GTS204 | Sep. 10 2010 | Sep. 10 2011 |
| 5 | Double -ridged waveguide horn | SCHWARZBECK MESS-ELEKTRONIK | 9120D-829 | GTS205 | June 30 2010 | June 30 2011 |
| 6 | EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |
| 7 | Coaxial Cable | GTS | N/A | GTS400 | Apr. 01 2010 | Apr. 01 2011 |
| 8 | Coaxial Cable | GTS | N/A | GTS401 | Apr. 01 2010 | Apr. 01 2011 |
| 9 | Coaxial cable | GTS | N/A | GTS402 | Apr. 01 2010 | Apr. 01 2011 |
| 10 | Coaxial Cable | GTS | N/A | GTS407 | Apr. 01 2010 | Apr. 01 2011 |
| 11 | Coaxial Cable | GTS | N/A | GTS408 | Apr. 01 2010 | Apr. 01 2011 |
| 12 | Amplifier(10KHz-5GHz) | Sonnoma Instrument | 305-1052 | GTS210 | Aug. 03 2010 | Aug. 03 2011 |
| 13 | Amplifier(2GHz-20GHz) | HP | 8349B | GTS231 | Aug. 03 2010 | Aug. 03 2011 |

| Conducted Emission | | | | | | |
|---|---|---|---|---|---|---|
| **Item** | **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal.Date (dd-mm-yy)** | **Cal.Due date (dd-mm-yy)** |
| 1 | Shielding Room | ZhongYu Electron | 7.0(L)x3.0(W)x3.0(H) | GTS206 | Apr. 10 2010 | Apr. 10 2011 |
| 2 | EMI Test Receiver | Rohde & Schwarz | ESCS30 | GTS208 | Sep. 14 2010 | Sep. 14 2011 |
| 3 | 10dB Pulse Limita | Rohde & Schwarz | N/A | GTS209 | Sep. 14 2010 | Sep. 14 2011 |
| 4 | LISN | SCHWARZBECK MESS-ELEKTRONIK | NSLK 8127 | GTS207 | Apr. 14 2010 | Apr. 14 2011 |
| 5 | Coaxial Cable | GTS | N/A | GTS406 | Apr. 01 2010 | Apr. 01 2011 |
| 6 | EMI Test Software | AUDIX | E3 | N/A | N/A | N/A |

# 5 Test results and Measurement Data

## 5.1 Conducted Emissions

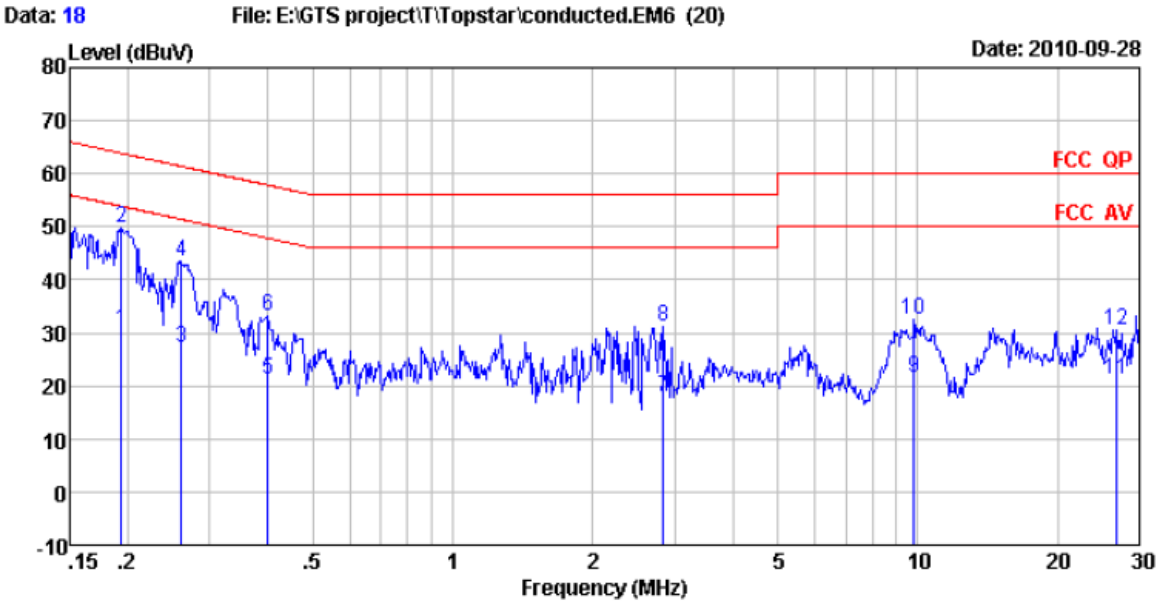
| | |
|---|---|
| Test Requirement: | FCC Part15 B Section 15.107 |
| Test Method: | ANSI C63.4: 2003 |
| Test Frequency Range: | 150KHz to 30MHz |
| Class / Severity: | Class B |
| Receiver setup: | RBW=9KHz, VBW=30KHz |
| Limit: | Frequency range (MHz) / Limit (dBuV): Quasi-peak / Average<br>0.15-0.5: 66 to 56* / 56 to 46*<br>0.5-5: 56 / 46<br>5-30: 60 / 50<br>* Decreases with the logarithm of the frequency. |
| Test procedure | The E.U.T and simulators are connected to the main power through a line impedance stabilization network(L.I.S.N.). The provide a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement. |
| Test setup: |  <br>*Remark:*<br>*E.U.T: Equipment Under Test*<br>*LISN: Line Impedence Stabilization Network*<br>*Test table height=0.8m* |
| Test Instruments: | Refer to section 4.7 for details |
| Test mode: | Refer to section 4.3 for details |
| Test results: | Passed |

**Measurement Data**

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

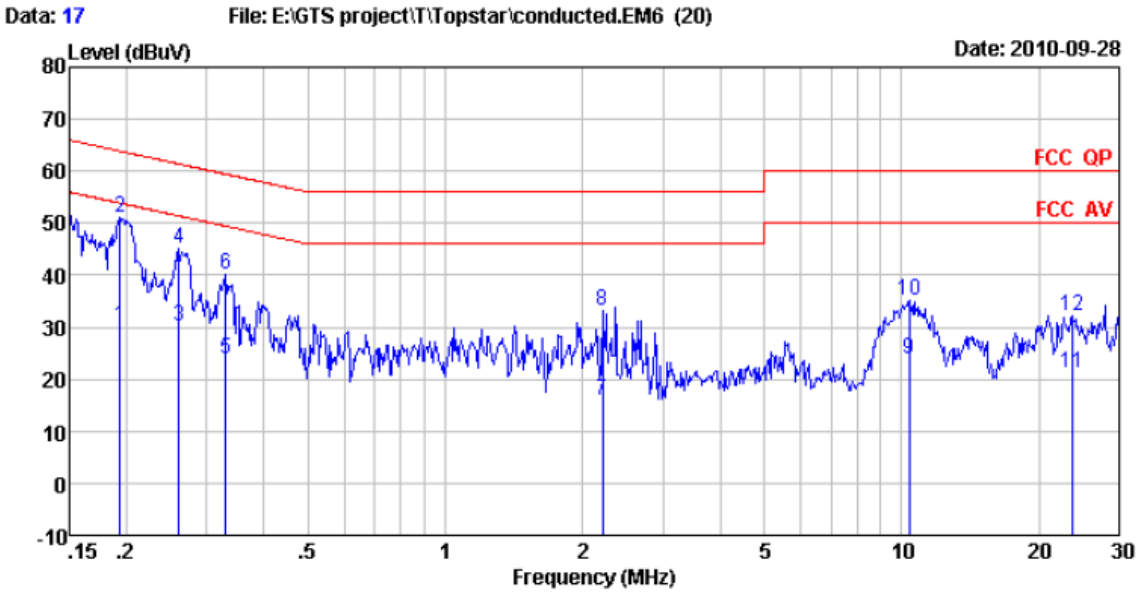
**Live Line:**




Condition : FCC QP LISN LINE
Job No. : 228IT
EUT : All-In-One PC
Test Mode : Operation mode
Test Engineer: Franks

| | Freq | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.193 | 26.70 | 3.66 | 0.01 | 30.37 | 53.89 | -23.52 | Average |
| 2 | 0.193 | 46.00 | 3.66 | 0.01 | 49.67 | 63.89 | -14.22 | QP |
| 3 | 0.260 | 23.40 | 3.63 | 0.01 | 27.04 | 51.42 | -24.38 | Average |
| 4 | 0.260 | 39.83 | 3.63 | 0.01 | 43.47 | 61.42 | -17.95 | QP |
| 5 | 0.400 | 17.50 | 3.58 | 0.01 | 21.09 | 47.86 | -26.77 | Average |
| 6 | 0.400 | 29.73 | 3.58 | 0.01 | 33.32 | 57.86 | -24.54 | QP |
| 7 | 2.839 | 14.50 | 3.36 | 0.19 | 18.05 | 46.00 | -27.95 | Average |
| 8 | 2.839 | 27.48 | 3.36 | 0.19 | 31.03 | 56.00 | -24.97 | QP |
| 9 | 9.809 | 17.80 | 3.22 | 0.40 | 21.42 | 50.00 | -28.58 | Average |
| 10 | 9.809 | 28.92 | 3.22 | 0.40 | 32.54 | 60.00 | -27.46 | QP |
| 11 | 26.841 | 17.80 | 3.11 | 0.45 | 21.36 | 50.00 | -28.64 | Average |
| 12 | 26.841 | 27.04 | 3.11 | 0.45 | 30.60 | 60.00 | -29.40 | QP |

**Neutral Line:**




Condition : FCC QP LISN NEUTRAL
Job No. : 228IT
EUT : All-In-One PC
Test Mode : Operation mode
Test Engineer: Franks

| | Freq | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.193 | 26.50 | 3.66 | 0.01 | 30.17 | 53.89 | -23.72 | Average |
| 2 | 0.193 | 47.55 | 3.66 | 0.01 | 51.22 | 63.89 | -12.67 | QP |
| 3 | 0.260 | 26.50 | 3.63 | 0.01 | 30.14 | 51.42 | -21.28 | Average |
| 4 | 0.260 | 41.41 | 3.63 | 0.01 | 45.05 | 61.42 | -16.37 | QP |
| 5 | 0.330 | 20.10 | 3.60 | 0.01 | 23.71 | 49.44 | -25.73 | Average |
| 6 | 0.330 | 36.61 | 3.60 | 0.01 | 40.22 | 59.44 | -19.22 | QP |
| 7 | 2.213 | 12.40 | 3.39 | 0.13 | 15.92 | 46.00 | -30.08 | Average |
| 8 | 2.213 | 29.49 | 3.39 | 0.13 | 33.01 | 56.00 | -22.99 | QP |
| 9 | 10.397 | 20.10 | 3.22 | 0.40 | 23.72 | 50.00 | -26.28 | Average |
| 10 | 10.397 | 31.51 | 3.22 | 0.40 | 35.13 | 60.00 | -24.87 | QP |
| 11 | 23.636 | 17.50 | 3.13 | 0.45 | 21.08 | 50.00 | -28.92 | Average |
| 12 | 23.636 | 28.45 | 3.13 | 0.45 | 32.03 | 60.00 | -27.97 | QP |

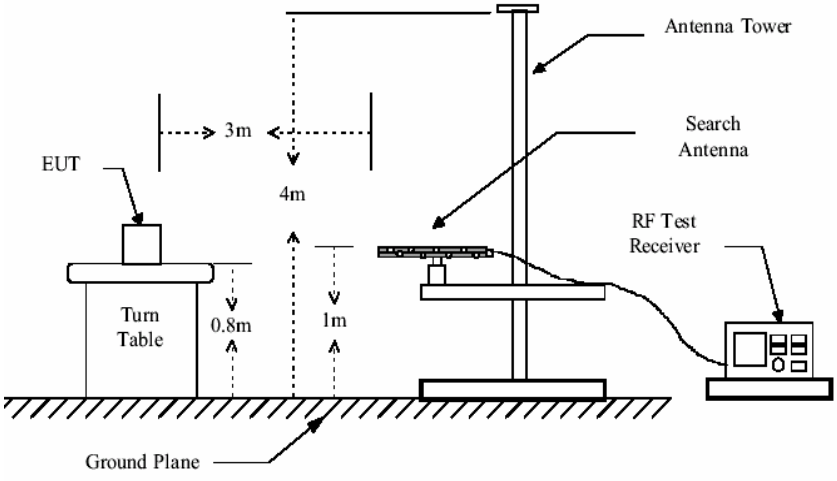
*Notes:*

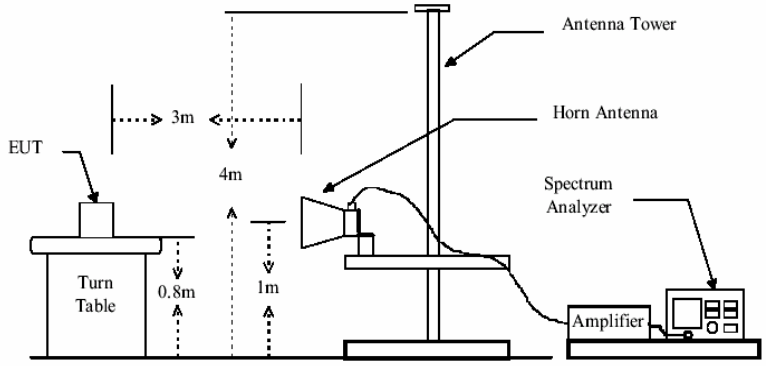
*1. The following Quasi-Peak and Average measurements were performed on the EUT:*

*2. Final Test Level =Receiver Reading + LISN Factor + Cable Loss.*

## 5.2 Radiated Emission

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 B Section 15.109</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.4: 2003</td></tr>
<tr><td>Test Frequency Range:</td><td>30MHz to 1000MHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m (Semi-Anechoic Chamber)</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>100KHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
</table>
</td></tr>
<tr><td>Limit:</td><td>
<table>
<tr><th>Frequency</th><th>Limit (dBuV/m @3m)</th><th>Remark</th></tr>
<tr><td>30MHz-88MHz</td><td>40.0</td><td>Quasi-peak Value</td></tr>
<tr><td>88MHz-216MHz</td><td>43.5</td><td>Quasi-peak Value</td></tr>
<tr><td>216MHz-960MHz</td><td>46.0</td><td>Quasi-peak Value</td></tr>
<tr><td>960MHz-1GHz</td><td>54.0</td><td>Quasi-peak Value</td></tr>
</table>
</td></tr>
<tr><td>Test Procedure:</td><td>a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.<br>b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.<br>c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.<br>d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.<br>e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.<br>f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</td></tr>
<tr><td>Test setup:</td><td>Below 1GHz</td></tr>
</table>

<table>
<tr><td></td><td> 

<br>Above 1GHz<br>

</td></tr>
<tr><td>Test Instruments:</td><td>Refer to section 4.7 for details</td></tr>
<tr><td>Test mode:</td><td>Refer to section 4.3 for details</td></tr>
<tr><td>Test results:</td><td>Passed</td></tr>
</table>

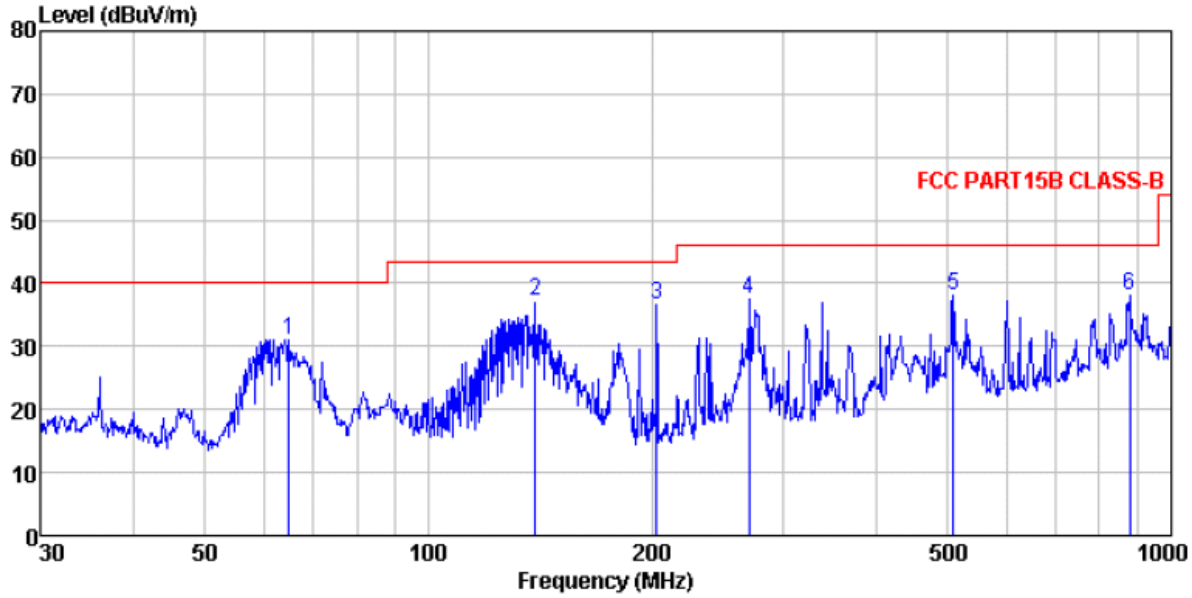
*Note:*
*The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:*

*Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor*

**Measurement Data**

## Below 1GHz

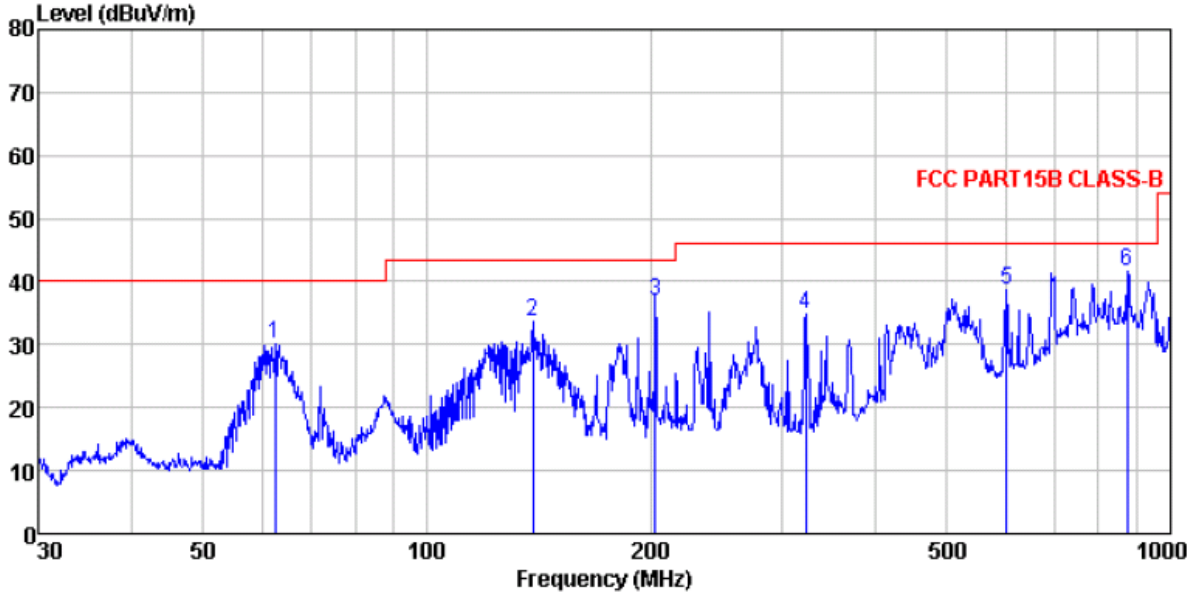
Vertical:




Site : 3m chamber
Condition : FCC PART15B CLASS-B 3m VULB9163-S VERTICAL
Job No. : 228IT
EUT : All-In-One PC
Test Mode : Operation mode
Test Engineer: William

| | Freq | ReadAntenna Level | Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 64.89 | 44.15 | 11.89 | 0.77 | 25.70 | 31.11 | 40.00 | -8.89 | QP |
| 2 | 139.10 | 51.49 | 9.86 | 1.45 | 25.64 | 37.16 | 43.50 | -6.34 | QP |
| 3 | 202.81 | 48.58 | 11.90 | 1.78 | 25.62 | 36.64 | 43.50 | -6.86 | QP |
| 4 | 270.37 | 45.11 | 15.85 | 2.00 | 25.59 | 37.37 | 46.00 | -8.63 | QP |
| 5 | 508.26 | 41.92 | 19.35 | 2.43 | 25.55 | 38.15 | 46.00 | -7.85 | QP |
| 6 | 878.32 | 36.11 | 24.12 | 3.29 | 25.51 | 38.01 | 46.00 | -7.99 | QP |

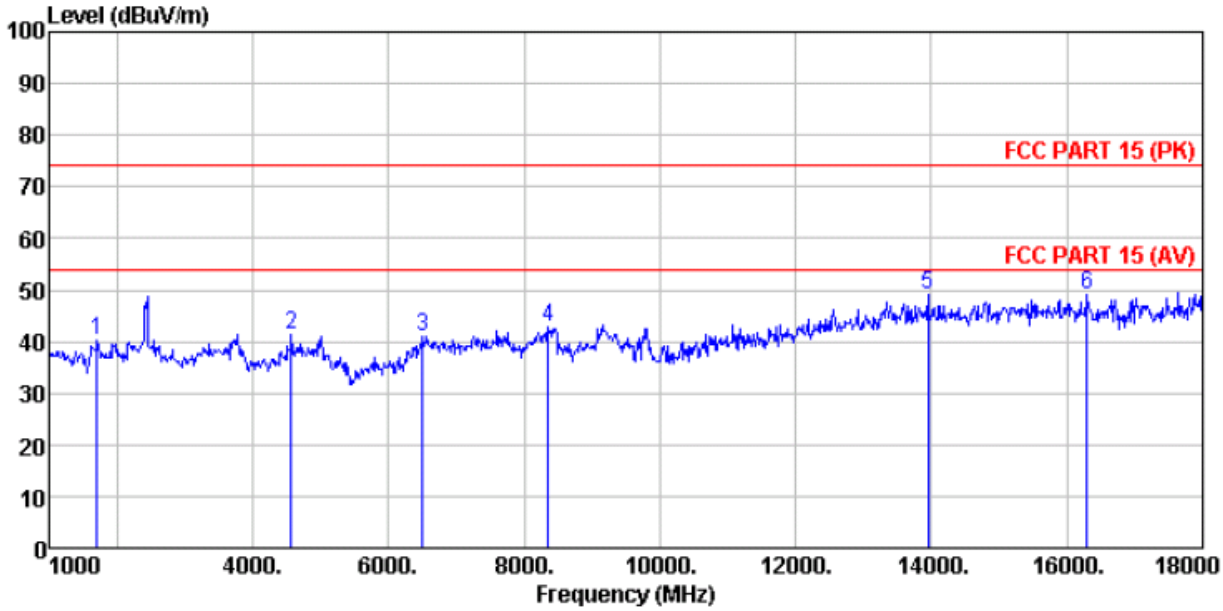
Horizontal:




Site : 3m chamber
Condition : FCC PART15B CLASS-B 3m VULB9163-S HORIZONTAL
Job No. : 228IT
EUT : All-In-One PC
Test Mode : Operation mode
Test Engineer: William

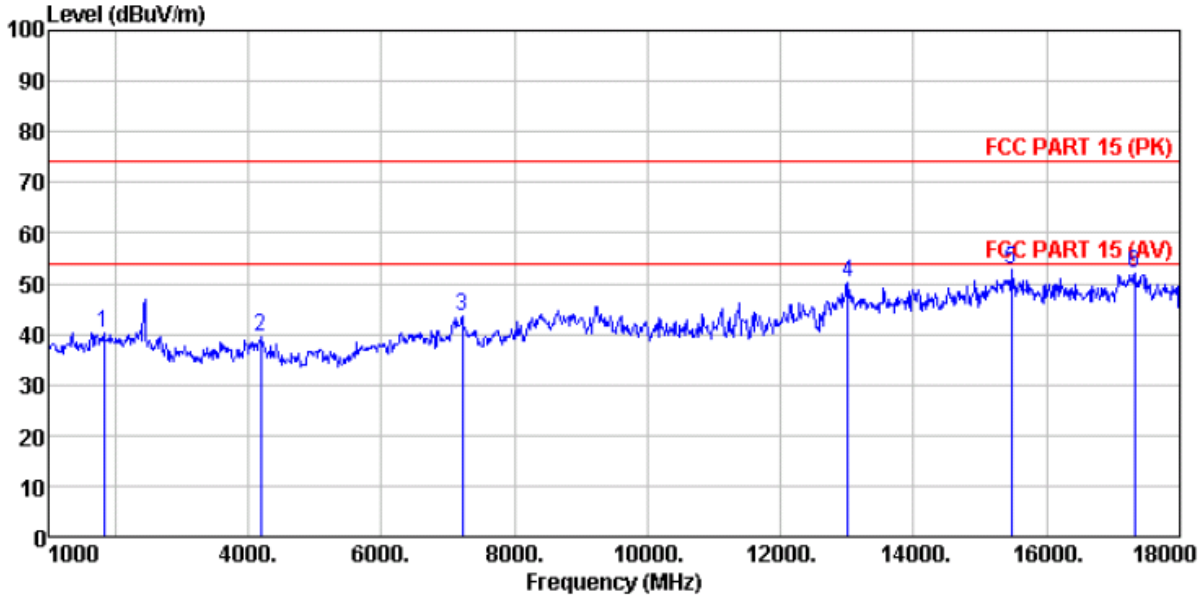
| | Freq | Read Level | Antenna Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 62.43 | 45.15 | 9.84 | 0.74 | 25.70 | 30.03 | 40.00 | -9.97 | QP |
| 2 | 138.87 | 47.26 | 10.47 | 1.45 | 25.64 | 33.54 | 43.50 | -9.96 | QP |
| 3 | 202.81 | 49.36 | 11.50 | 1.78 | 25.62 | 37.02 | 43.50 | -6.48 | QP |
| 4 | 323.32 | 43.95 | 14.42 | 2.12 | 25.58 | 34.91 | 46.00 | -11.09 | QP |
| 5 | 601.43 | 37.89 | 23.54 | 2.69 | 25.54 | 38.58 | 46.00 | -7.42 | QP |
| 6 | 875.25 | 34.67 | 29.06 | 3.28 | 25.51 | 41.50 | 46.00 | -4.50 | QP |

## Above 1GHz




Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) VERTICAL
Job No. : 228IT
EUT : All-In-One PC
Test Mode : Operation mode
Test Engineer: Duke

| | Freq | ReadAntenna Level | Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 1714.00 | 40.65 | 25.00 | 2.59 | 28.13 | 40.11 | 74.00 | -33.89 | Peak |
| 2 | 4570.00 | 29.44 | 31.47 | 4.92 | 24.44 | 41.39 | 74.00 | -32.61 | Peak |
| 3 | 6508.00 | 25.83 | 33.68 | 6.50 | 25.00 | 41.01 | 74.00 | -32.99 | Peak |
| 4 | 8361.00 | 26.37 | 36.45 | 7.50 | 27.56 | 42.76 | 74.00 | -31.24 | Peak |
| 5 | 13954.00 | 20.24 | 41.76 | 11.27 | 24.09 | 49.18 | 74.00 | -24.82 | Peak |
| 6 | 16300.00 | 20.64 | 39.21 | 14.35 | 25.19 | 49.01 | 74.00 | -24.99 | Peak |




Site : 3m chamber
Condition : FCC PART 15 (PK) 3m BBHA9120D ANT(>1GHZ) HORIZONTAL
Job No. : 228IT
EUT : All-In-One PC
Test Mode : Operation mode
Test Engineer: Duke

| | Freq | ReadAntenna Level | Factor | Cable Loss | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 1833.00 | 41.80 | 25.45 | 2.66 | 29.57 | 40.34 | 74.00 | -33.66 | Peak |
| 2 | 4196.00 | 30.52 | 30.22 | 4.47 | 25.91 | 39.30 | 74.00 | -34.70 | Peak |
| 3 | 7222.00 | 26.80 | 36.19 | 6.87 | 26.41 | 43.45 | 74.00 | -30.55 | Peak |
| 4 | 13019.00 | 23.93 | 39.43 | 10.83 | 23.90 | 50.29 | 74.00 | -23.71 | Peak |
| 5 | 15467.00 | 24.85 | 38.75 | 13.82 | 24.82 | 52.60 | 74.00 | -21.40 | Peak |
| 6 | 17320.00 | 17.32 | 45.86 | 14.63 | 25.91 | 51.90 | 74.00 | -22.10 | Peak |

Remark:

The peak emission value are met the average limit, so it only shows the peak value.