



Test Report No.: W7L-P22030011-1EM03



VARIANT EMC TEST EPORT

| | |
|------------|---|
| Applicant: | Lenovo (Shanghai) Electronics Technology Co., Ltd. |
| Address: | Section 304-305, Building No. 4, # 222, Meiyue Road, China (Shanghai) Pilot Free Trade Zone |

| | |
|---------------------------|---|
| Manufacturer or Supplier: | Lenovo PC HK Limited |
| Address: | 23/F, Lincoln House, Taikoo Place 979 King's Road, Quarry Bay, Hong Kong, China |
| Product: | Portable Tablet Computer |
| Brand Name: | Lenovo |
| Model Name: | TB132FU |
| FCC ID: | O57TB132FU |
| Date of tests: | Mar. 21, 2022 ~ May. 24, 2022 |

The submitted sample of the above equipment has been tested for according to the requirements of the following standards:

- FCC Part 15, Subpart B, Class A
- FCC Part 15, Subpart B, Class B
- ANSI C63.4:2014

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

| | |
|--|--|
| Prepared by Simon Wang Engineer / Mobile Department | Approved by Luke Lu Manager / Mobile Department |
| | |
| Date: May. 24, 2022 | Date: May. 24, 2022 |

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RELEASE CONTROL RECORD

| ISSUE NO. | REASON FOR CHANGE | DATE ISSUED |
|---------------------|--|---------------|
| W7L-P22030011EM03 | Original release | Apr. 06, 2022 |
| W7L-P22030011-1EM03 | Based on the original report W7L-P22030011EM03 add to 2 nd the antenna. | May. 24, 2022 |



1 GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF EUT

| | | |
|--|--|--|
| PRODUCT | Portable Tablet Computer | |
| BRAND NAME | Lenovo | |
| MODEL NAME | TB132FU | |
| NOMINAL VOLTAGE | 3.87Vdc (Li-ion, battery) 10Vdc (adapter) | |
| MODULATION TYPE | BT_LE | GFSK |
| | Bluetooth | GFSK, π/4-DQPSK, 8DPSK |
| | WLAN | DSSS, OFDM, OFDMA |
| | GPS/GNSS/BeiDou | BPSK |
| OPERATING FREQUENCY OPERATING FREQUENCY | Bluetooth/BT_LE | 2402MHz ~ 2480MHz |
| | WLAN | 2412 ~ 2462MHz for 11b/g/n(HT20/40) /ax(HE20/40)/ax(20M RU26/52/106/242) /(40M RU26/52/106/242/484) 5180 ~ 5240MHz, 5260 ~ 5320 MHz, 5500 ~ 5700MHz, 5745 ~ 5825 MHz for 11a/n(HT20)/ n(HT40) / ac(VHT20)/ ac(VHT40) / ac(VHT80) / ax(HE20)/ ax(HE40) /ax(HE80)/ax (20M RU26/52/106/242) /(40M RU26/52/106/242/484)/(80M RU26/52/106/242/484/996) |
| | GPS/GNSS/BeiDou | 1559MHz ~ 1610MHz |
| HW VERSION | Lenovo Tablet TB132FU | |
| SW VERSION | Lenovo TB132FU_RF01_220315 | |
| I/O PORTS | Refer to user's manual | |
| CABLE SUPPLIED | USB cable 1: non-shielded cable, with w/o ferrite core, 1.5 meter USB cable 2: non-shielded cable, with w/o ferrite core, 1.5 meter | |
| ACCESSORY DEVICES | Refer to note as below | |

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

List of Accessory:

| ACCESSORIES | BRAND | MODEL | SPECIFICATION |
|--------------------|--------------------|----------------|--|
| AC Adapter 1 | Chengyang | MC-201 | I/P: 100-240Vac, 0.7A, O/P: 10.0Vdc, 2.0A |
| AC Adapter 2 | Acbel | MC-201 | I/P: 100-240Vac, 0.7A, O/P: 10.0Vdc, 2.0A |
| USB Cable 1 | Jieye | JY-C03-408 | Signal Line, 1.5meter |
| USB Cable 2 | Saibao | SLQ-A195A | Signal Line, 1.5meter |
| Keyboard | Lenovo | KB686U | / |
| Stylus Pen | Lenovo | Lenovo BTP-131 | / |
| Battery 1 | Lenovo/SC UD | L22D2P31 | 3.87VDC,8200 mAh |
| Battery 2 | Lenovo/Su nwoda | L22D2P31 | 3.87VDC,8200 mAh |
| Type C audio line | Saibao | SLQ-A197A | 0.1m |

1.2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: FCC Part 15, Subpart B | | | |
|---|---------------------------------------|------------|-----------|
| Standard Section | Test Item | Result | Test lab* |
| FCC Part 15, Subpart B, Class B ANSI C63.4:2014 | Conducted Test | Compliance | A |
| | Radiated Emission Test (30MHz ~ 1GHz) | Compliance | B |
| | Radiated Emission Test (Above 1GHz) | Compliance | A |

NOTE: Per the change notice provide by manufactory, the difference is added to 2nd the antenna. All the change no effect any RF parameter and pre-scan all band Radiated spurious emissions. Worst case is reflected in the corresponding frequency band of other reports. Therefore all the data are reused from the original report. The report only show the verify test data. More test details please refer to the original report.

*Test Lab Information Reference

Lab A:

BV 7Layers Communications Technology (Shenzhen) Co., Ltd

Lab Address:

No.B102, Dazu Chuangxin Mansion, North of Beihuan Avenue, North Area, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, China

Accredited Test Lab Cert 3939.01

Lab B:

Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch.

Lab Address:

No. 34, Chenwulu Section, Guantai Rd., Houjie Town, Dongguan City, Guangdong 523942, China

Accredited Test Lab Cert 2951.01

1.3 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

| MEASUREMENT | FREQUENCY | UNCERTAINTY |
|---------------------|----------------|---------------------|
| Conducted emissions | 150kHz ~ 30MHz | $\pm 2.70\text{dB}$ |
| Radiated emissions | 30MHz~1GMHz | $\pm 4.98\text{dB}$ |
| | 1GMHz ~6GMHz | $\pm 4.70\text{dB}$ |
| | 6GMHz ~18GMHz | $\pm 4.60\text{dB}$ |
| | 18GMHz ~40GMHz | $\pm 4.12\text{dB}$ |



1.4 DESCRIPTION OF TEST MODES

| Test Mode | Test Condition |
|-------------------------------|--|
| Radiated emission test | |
| 1 | Adapter + GPS RX + USB cable + BT Idle + WIFI Idle (2.4G)+ keyboard + Pen + Front Camera On |
| 2 | Adapter + Glonass RX + USB cable + WIFI Idle (5G) + BT Idle + keyboard + Pen + Back Camera On |
| 3 | tablet PC + bei dou RX + Earphone + BT Idle + WIFI Idle (2.4G) |
| 4 | Adapter + GPS RX + USB cable + BT Idle + WIFI Idle (5G) + MPG4 |
| 5 | USB Link + Data Transmission + GPS RX + BT Idle + WIFI Idle (2.4G) + EUT to Notebook+ USB cable + keyboard + Pen |
| 6 | USB Link + Data Transmission + Glonass RX + BT Idle + WIFI Idle (5G) + EUT to SD+ USB cable + keyboard + Pen |

| Conducted emission test | |
|--------------------------------|--|
| 1 | Adapter + GPS RX + USB cable + WIFI Idle (2.4G) + BT Idle+ keyboard + Pen + Front Camera On + |
| 2 | Adapter + Glonass RX + USB cable + WIFI Idle (5G) + BT Idle + keyboard + Pen + Back Camera On |
| 3 | Adapter + GPS RX + USB cable + BT Idle + WIFI Idle (5G) + MPG4 |
| 4 | USB Link + Data Transmission + GPS RX + BT Idle + WIFI Idle (2.4G) + EUT to Notebook+ USB cable + keyboard + Pen |
| 5 | USB Link + Data Transmission + Glonass RX + BT Idle + WIFI Idle (5G) + EUT to SD+ USB cable + keyboard + Pen |

NOTE:

1. For conducted emission test, mode 1 was the worst case and only this mode was presented in this report.
2. For radiated emission test, test mode 1 was the worst case and only this mode was presented in this report

1.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

For all test

| NO. | PRODUCT | BRAND | MODEL NO. | SERIAL NO. | FCC ID |
|-----|--------------------------------------|---------------|---------------|---------------|--------|
| 1 | Laptop | Lenovo | Thnikpad L440 | R90FTFKP | N/A |
| 2 | USB Cable | MI | N/A | N/A | N/A |
| 3 | GPS Simulator+Antenna | TOJOIN | GNSS-5000A | E1-010-010119 | N/A |
| 4 | Universal radio communication tester | Rohde&Schwarz | CMW500 | N/A | N/A |

| NO. | CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|-----|--|
| 1 | USB Line: Shielded, Detachable 1m; |

2 EMISSION TEST

2.1 CONDUCTED EMISSION MEASUREMENT

2.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

TEST STANDARD: FCC Part 15, Subpart B (Section: 15.107 a CLASS B)

| FREQUENCY OF EMISSION (MHz) | CONDUCTED LIMIT (dB μ V) | |
|-----------------------------|------------------------------|----------|
| | Quasi-peak | Average |
| 0.15 ~ 0.5 | 66 to 56 | 56 to 46 |
| 0.5 ~ 5 | 56 | 46 |
| 5 ~ 30 | 60 | 50 |

TEST STANDARD: FCC Part 15, Subpart B (Section: 15.107 b CLASS A)

| FREQUENCY OF EMISSION (MHz) | CONDUCTED LIMIT (dB μ V) | |
|-----------------------------|------------------------------|---------|
| | Quasi-peak | Average |
| 0.15 ~ 0.5 | 79 | 66 |
| 0.5 ~ 30 | 73 | 60 |

NOTE: 1.The lower limit shall apply at the transition frequencies.

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

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

2.1.2 TEST INSTRUMENTS

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
|---------------------|---------------|-----------|------------|------------|------------|
| EMI Test Receiver | Rohde&Schwarz | ESR3 | 101900 | Feb. 15,22 | Feb. 14,23 |
| EMC32 test software | Rohde&Schwarz | EMC32 | NA | NA | NA |
| LISN network | Rohde&Schwarz | ENV216 | 101922 | Mar. 04,22 | Mar. 03,23 |

NOTE: 1. The test was performed in CE shielded room.

2.1.3 TEST PROCEDURES

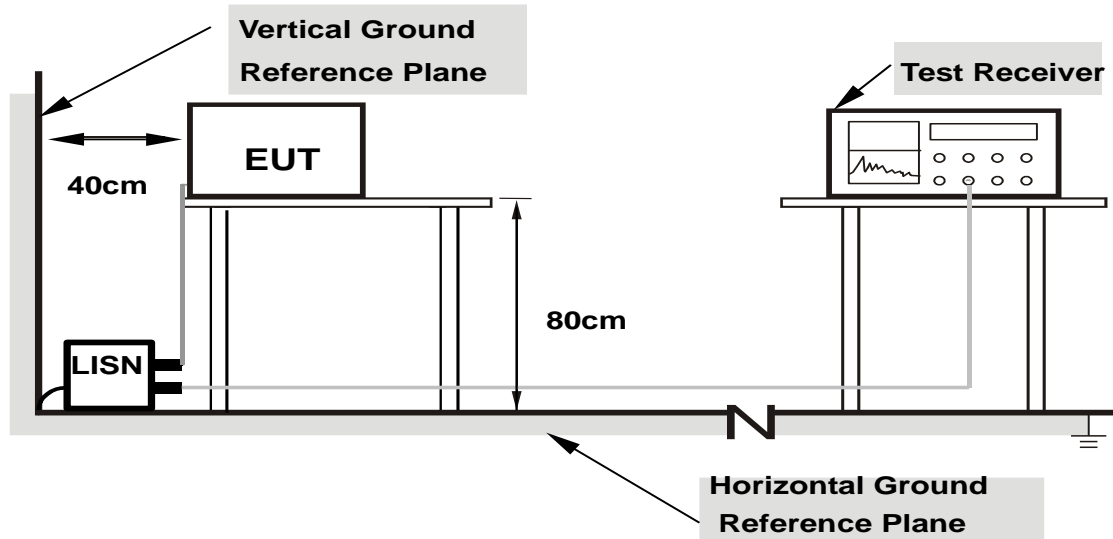
- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150 kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

2.1.4 DEVIATION FROM TEST STANDARD

No deviation.

2.1.5 TEST SETUP



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

For the actual test configuration, please refer to the attached file (Test Setup Photo).

2.1.6 EUT OPERATING CONDITIONS

- a. Turned on the power and connected of all equipment.
- b. EUT was operated according to the use type described in the manufacturer's specifications or the user's manual.



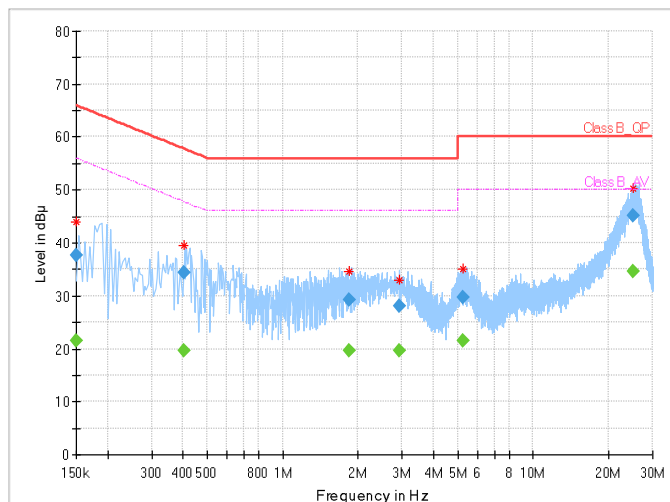
2.1.7 TEST RESULTS

| | | | |
|---------------------------------|----------------------|---|---------------------------------------|
| TEST VOLTAGE | Input 120 Vac, 60 Hz | Detector Function & Resolution Bandwidth | Quasi-Peak (QP) / Average (AV), 9 kHz |
| ENVIRONMENTAL CONDITIONS | 26deg. C, 51%RH | TESTED BY | Carl xie |

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Limit (dBuV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|------|--------|------------|
| 0.150000 | --- | 21.60 | 56.00 | 34.40 | L1 | ON | 9.7 |
| 0.150000 | 37.70 | --- | 66.00 | 28.30 | L1 | ON | 9.7 |
| 0.404000 | --- | 19.62 | 47.77 | 28.15 | L1 | ON | 9.7 |
| 0.404000 | 34.48 | --- | 57.77 | 23.29 | L1 | ON | 9.7 |
| 1.852000 | --- | 19.69 | 46.00 | 26.31 | L1 | ON | 9.7 |
| 1.852000 | 29.23 | --- | 56.00 | 26.77 | L1 | ON | 9.7 |
| 2.920000 | --- | 19.68 | 46.00 | 26.32 | L1 | ON | 9.7 |
| 2.920000 | 28.15 | --- | 56.00 | 27.85 | L1 | ON | 9.7 |
| 5.228000 | --- | 21.63 | 50.00 | 28.37 | L1 | ON | 9.7 |
| 5.228000 | 29.63 | --- | 60.00 | 30.37 | L1 | ON | 9.7 |
| 25.148000 | --- | 34.54 | 50.00 | 15.46 | L1 | ON | 9.8 |
| 25.148000 | 45.16 | --- | 60.00 | 14.84 | L1 | ON | 9.8 |

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Limit value - Emission level
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

Full Spectrum



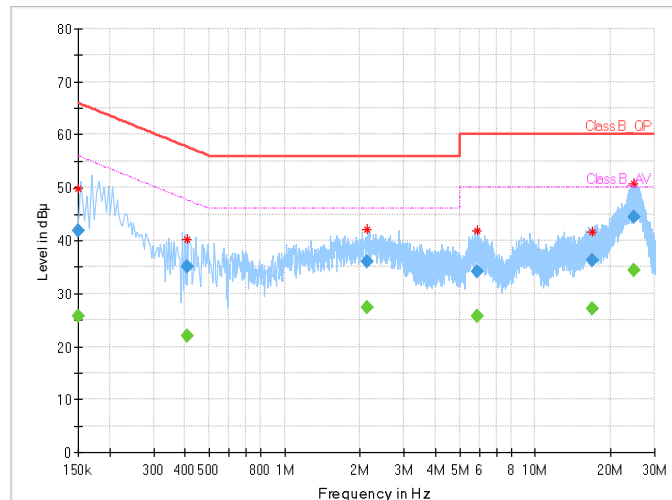


| | | | |
|---------------------------------|----------------------|---|---------------------------------------|
| TEST VOLTAGE | Input 120 Vac, 60 Hz | Detector Function & Resolution Bandwidth | Quasi-Peak (QP) / Average (AV), 9 kHz |
| ENVIRONMENTAL CONDITIONS | 26deg. C, 51%RH | TESTED BY | Carl xie |

| Frequency (MHz) | QuasiPeak (dBuV) | CAverage (dBuV) | Limit (dBuV) | Margin (dB) | Line | Filter | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|------|--------|------------|
| 0.150000 | --- | 25.78 | 56.00 | 30.22 | N | ON | 9.7 |
| 0.150000 | 41.96 | --- | 66.00 | 24.04 | N | ON | 9.7 |
| 0.408000 | --- | 21.92 | 47.69 | 25.77 | N | ON | 9.7 |
| 0.408000 | 35.19 | --- | 57.69 | 22.50 | N | ON | 9.7 |
| 2.128000 | --- | 27.32 | 46.00 | 18.68 | N | ON | 9.8 |
| 2.128000 | 35.98 | --- | 56.00 | 20.02 | N | ON | 9.8 |
| 5.904000 | --- | 25.82 | 50.00 | 24.18 | N | ON | 9.8 |
| 5.904000 | 34.25 | --- | 60.00 | 25.75 | N | ON | 9.8 |
| 16.976000 | --- | 27.20 | 50.00 | 22.80 | N | ON | 9.9 |
| 16.976000 | 36.25 | --- | 60.00 | 23.75 | N | ON | 9.9 |
| 24.704000 | --- | 34.38 | 50.00 | 15.62 | N | ON | 9.9 |
| 24.704000 | 44.45 | --- | 60.00 | 15.55 | N | ON | 9.9 |

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Limit value - Emission level
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.

Full Spectrum



2.2 RADIATED EMISSION MEASUREMENT

2.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

TEST STANDARD: FCC Part 15, Subpart B (Section: 15.109)

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

| Radiated Emissions Limits at 10 meters (dB μ V/m) | | |
|---|----------------------------|-----------------------------|
| Frequencies (MHz) | FCC 15B/ ICES-003, Class A | FCC 15B / ICES-003, Class B |
| 30-88 | 39 | 29.5 |
| 88-216 | 43.5 | 33.1 |
| 216-960 | 46.4 | 35.6 |
| 960-1000 | 49.5 | 43.5 |

| Radiated Emissions Limits at 3 meters (dB μ V/m) | | |
|--|-----------------------------|-----------------------------|
| Frequencies (MHz) | FCC 15B / ICES-003, Class A | FCC 15B / ICES-003, Class B |
| 1000-3000 | Avg: 60 | Avg: 54 |
| 3000+ | Peak: 80 | Peak: 74 |

Frequency Range (For unintentional radiators)

| Highest frequency generated or used in the device or on which the device operates or tunes (MHz) | Upper frequency of measurement range (MHz) |
|--|--|
| Below 1.705 | 30 |
| 1.705-108 | 1000 |
| 108-500 | 2000 |
| 500-1000 | 5000 |
| Above 1000 | 5 th harmonic of the highest frequency or 40GHz, whichever is lower |

- NOTE:**
- The lower limit shall apply at the transition frequencies.
 - Emission level (dB μ V/m) = 20 log Emission level (uV/m).
 - As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.
 - QP detector shall be applied if not specified.

2.2.2 TEST INSTRUMENTS

Frequency range below 1GHz

| Equipment | Manufacturer | Model No. | Serial No. | Next Cal. |
|---------------------------|---------------|----------------------|------------|-------------|
| EMI Test Receiver | Rohde&Schwarz | ESU26 | 100005 | Apr. 16, 23 |
| EMI Test Receiver | Rohde&Schwarz | ESR7 | 101564 | Jan. 18, 23 |
| Trilog-Broadband Antenna | SCHWARZBECK | VULB 9168 | 9168-555 | Jan. 09, 23 |
| Trilog-Broadband Antenna | SCHWARZBECK | VULB 9168 | 9168-554 | Jan. 09, 23 |
| Preamplifier | EMCI | EMC1135 | 980378 | Mar. 12, 23 |
| Preamplifier | EMCI | EMC1135 | 980423 | Mar. 12, 23 |
| 10m Semi-anechoic Chamber | CHANGLING | 21.4m*12.1m*8.8m | NSEMC006 | Oct. 15, 22 |
| Coaxial RF Cable | / | 10m Below 1GHz | C2310084 | Aug. 03, 22 |
| Coaxial RF Cable | / | 10m Below 1GHz | C2310085 | Aug. 03, 22 |
| Test Software | ADT | ADT_Radiated_V8.7.07 | N/A | N/A |

- NOTE:**
1. The calibration interval of the above test instruments is 12 months or 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
 2. The test was performed in Dongguan 10m Semi-anechoic Chamber

Frequency range above 1GHz

| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Next Cal. |
|--------------------------|--------------|-------------|-----------------------------|-------------|-------------|
| 3m Semi-anechoic Chamber | ETS-LINDGREN | 9m*6m*6m | Euroshieldpn-CT0001143-1216 | May. 19, 20 | May. 18, 23 |
| Horn Antenna | ETS-LINDGREN | 3117 | 00168728 | Mar. 06, 22 | Mar. 05, 23 |
| MXE EMI Receiver | KEYSIGHT | N9038A-544 | MY54450026 | Feb. 21, 22 | Feb. 20, 23 |
| Signal Pre-Amplifier | EMSI | EMC 012645B | 980257 | Jun. 03, 21 | Jun. 02, 22 |
| E3 Test Software | E3 | V 9.160323 | N/A | N/A | N/A |

- NOTE:**
1. The calibration interval of the above test instruments is 12 months or 36 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.
 2. The test was performed in 966 Chamber (a 3m Semi-anechoic chamber).

2.2.3 TEST PROCEDURE

<Frequency Range below 1GHz>

The basic test procedure was in accordance with ANSI C63.4:2014 (section 12).

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter semi-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from 1 meter to 4 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.
- 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.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1GHz.

NOTE:

1. The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
3. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier);
4. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB) (if the raw value contains the amplifier).
5. Margin value = Emission level – Limit value.

<Frequency Range above 1GHz>

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter fully-anechoic chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- 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.
- c. The height of antenna 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. The bore sight should be used during the test above 1GHz.
- 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.
- e. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz

NOTE:

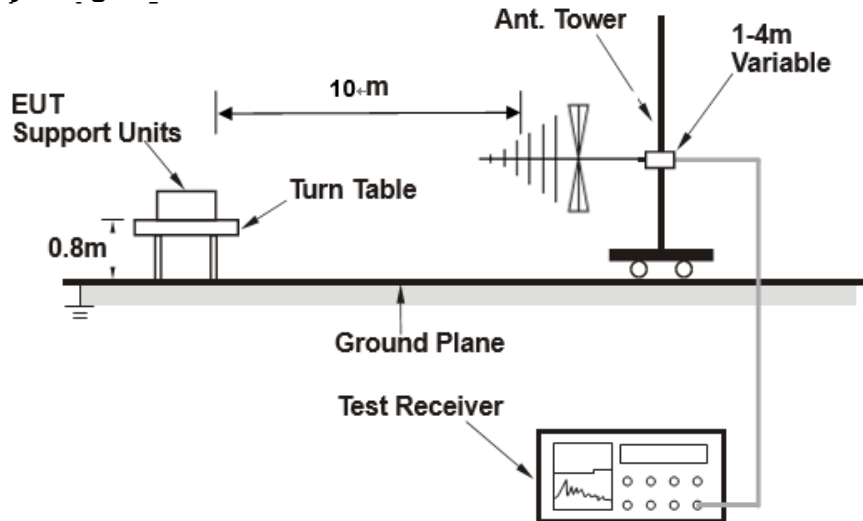
- . The resolution bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- . The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth of test receiver/spectrum analyzer is 1Hz for Average detection (AV) at frequency above 1GHz.
- . For measurement of frequency above 1000 MHz, the EUT was set 3 meters away from the receiver antenna.
- . Emission level(dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
- . Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) (if the raw value not contains the amplifier);
- . Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain(dB) (if the raw value contains the amplifier)
- . Margin value = Emission level – Limit value.

2.2.4 DEVIATION FROM TEST STANDARD

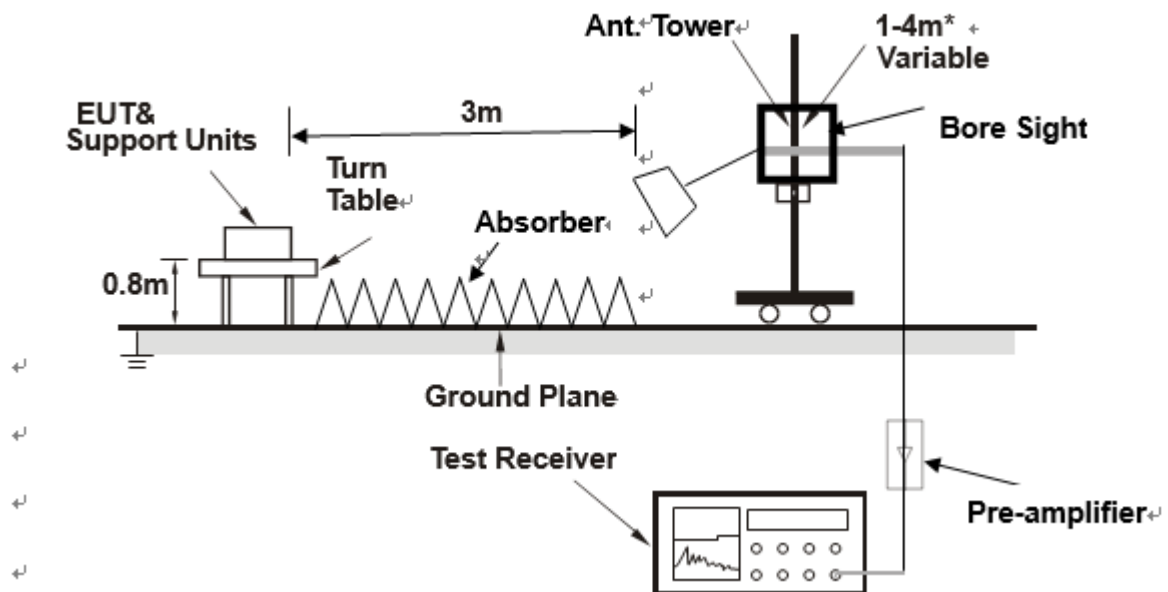
No deviation.

2.2.5 TEST SETUP

<Frequency Range below 1GHz>



<Frequency Range above 1GHz>



Note: Above 1G is a directional antenna

depends on the EUT height and the antenna 3dB bandwidth both, refer to section 7.3 of CISPR 16-2-3.

2.2.6 EUT OPERATING CONDITIONS

Same as item 2.1.6.

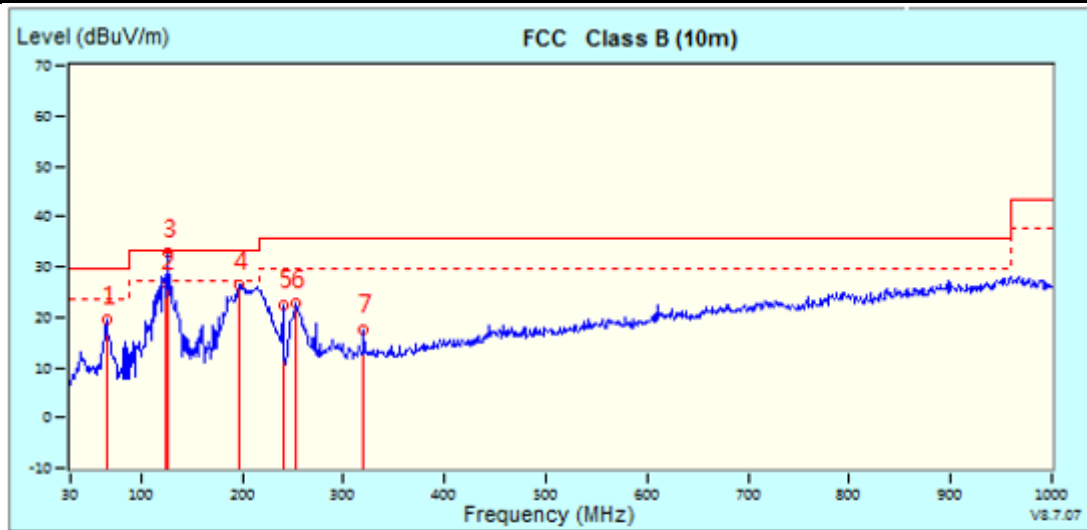


2.2.7 TEST RESULTS

Acceleromete alternative worst case:

| | | | |
|---------------------------------|---|---|---------------------|
| TEST VOLTAGE | Data Transmission Input 120 Vac, 60 Hz | FREQUENCY RANGE | 30-1000 MHz |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 70 %RH | DETECTOR FUNCTION & RESOLUTION BANDWIDTH | Quasi-Peak, 120 kHz |
| TESTED BY | Jace Hu | | |

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 10 M



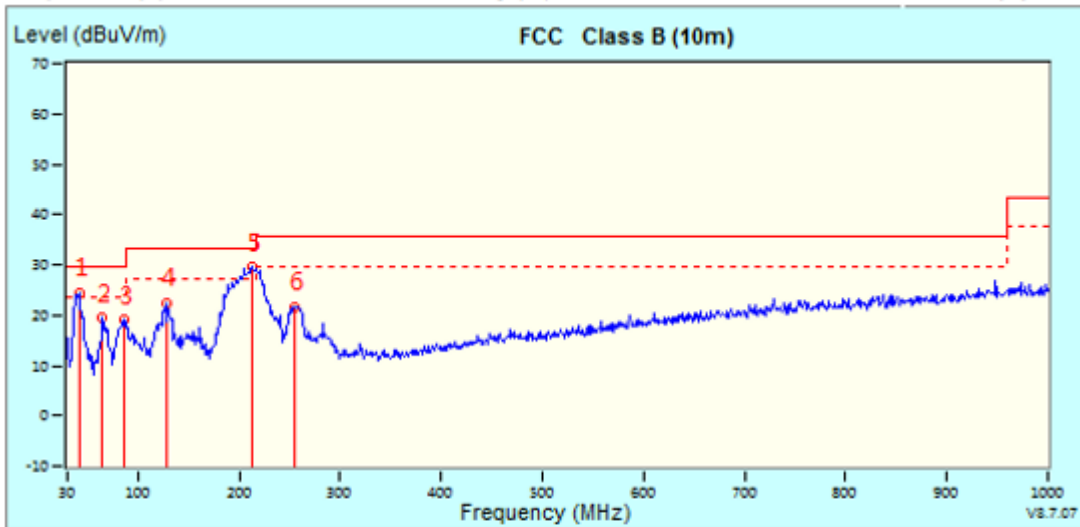
This data is for evaluation purposes only. It cannot be used for EMC approvals unless it contains the approved signature.
If you have any questions regarding the test data, you can write your comments to customerservice.dg@cn.bureauveritas.com

| No. | Frequency MHz | Factor dB/m | Reading dBuV | Emission dBuV/m | Limit dBuV/m | Margin dB | Tower cm | Table deg |
|-----|------------------|----------------|-----------------|--------------------|-----------------|--------------|-------------|--------------|
| 1 | 66.4963 (PK) | -21.80 | 41.15 | 19.35 | 29.50 | -10.15 | 400 | 189 |
| 2 | 125.0000 (QP) | -21.69 | 47.99 | 26.30 | 33.10 | -6.80 | 400 | 206 |
| * | 125.4237 (PK) | -21.65 | 54.31 | 32.66 | 33.10 | -0.44 | 400 | 206 |
| 4 | 197.5675 (PK) | -22.23 | 48.58 | 26.35 | 33.10 | -6.75 | 400 | 144 |
| 5 | 240.0050 (PK) | -21.00 | 43.48 | 22.48 | 35.60 | -13.12 | 400 | 197 |
| 6 | 253.1000 (PK) | -20.55 | 43.29 | 22.74 | 35.60 | -12.86 | 400 | 278 |
| 7 | 320.0300 (PK) | -18.05 | 35.70 | 17.65 | 35.60 | -17.95 | 400 | 43 |



| | | | |
|---------------------------------|---|---|----------------------|
| TEST VOLTAGE | Data Transmission Input 120 Vac, 60 Hz | FREQUENCY RANGE | 30-1000 MHz |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 70% RH | DETECTOR FUNCTION & RESOLUTION BANDWIDTH | Quasi-Peak , 120 kHz |
| TESTED BY | Jace Hu | | |

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 10 M



This data is for evaluation purposes only. It cannot be used for EMC approvals unless it contains the approved signature.
If you have any questions regarding the test data, you can write your comments to customerservice.dg@cn.bureauveritas.com

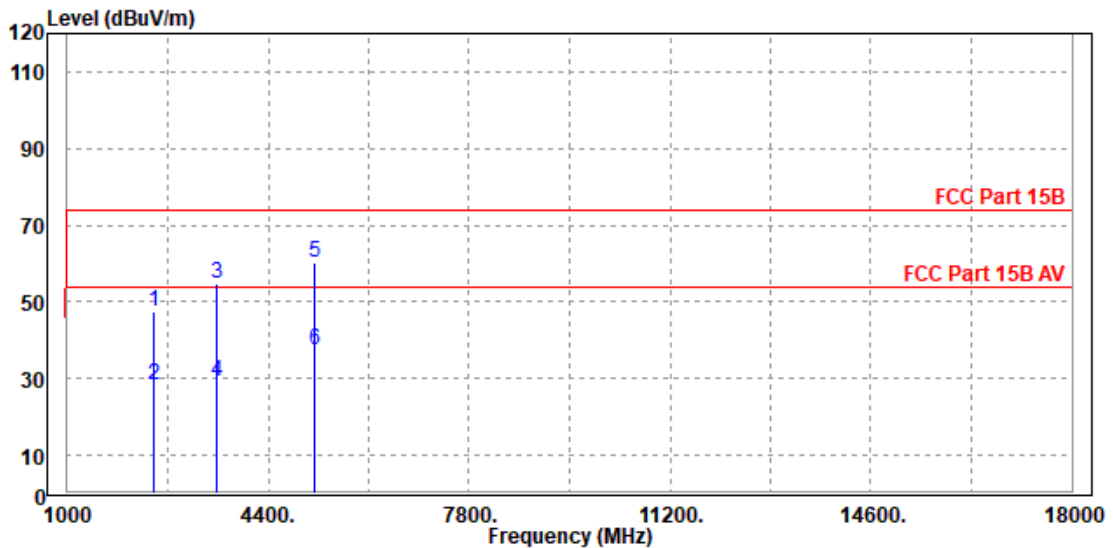
| No. | Frequency MHz | Factor dB/m | Reading dBuV | Emission dBuV/m | Limit dBuV/m | Margin dB | Tower cm | Table deg |
|-----|------------------|----------------|-----------------|--------------------|-----------------|--------------|-------------|--------------|
| 1 | 41.3011 (PK) | -20.85 | 45.36 | 24.51 | 29.50 | -4.99 | 300 | 129 |
| 2 | 65.1158 (PK) | -22.43 | 41.89 | 19.46 | 29.50 | -10.04 | 100 | 358 |
| 3 | 86.1173 (PK) | -25.39 | 44.28 | 18.89 | 29.50 | -10.61 | 300 | 191 |
| 4 | 129.2845 (PK) | -21.44 | 43.83 | 22.39 | 33.10 | -10.71 | 100 | 131 |
| * | 212.7086 (PK) | -22.23 | 51.71 | 29.48 | 33.10 | -3.62 | 100 | 327 |
| 6 | 254.7602 (PK) | -20.42 | 42.06 | 21.64 | 35.60 | -13.96 | 100 | 309 |



| | | | |
|---------------------------------|---|---|---------------------|
| TEST VOLTAGE | Data Transmission Input 120 Vac, 60 Hz | FREQUENCY RANGE | 1-18 GHz |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 70 %RH | DETECTOR FUNCTION & RESOLUTION BANDWIDTH | Peak/Average, 1 MHz |
| TESTED BY | Jace Hu | | |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M | | | | | | | | | | |
|---|-------------------------|-------------------|----------------|-------------|------------------------|-----------------|--------------------|---------------------|----------------------|---------|
| FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | READ LEVEL (dBuV) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA FACTOR (dB /m) | CABLE LOSS (dB) | PREAMP FACTOR (dB) | ANTENNA HEIGHT (cm) | TABLE ANGLE (Degree) | REMARK |
| 2462 | 47.66 | 56.09 | 74 | -26.34 | 31.98 | 5.96 | 46.37 | 200 | 20 | Peak |
| 2462 | 28.1 | 36.53 | 54 | -25.9 | 31.98 | 5.96 | 46.37 | 200 | 20 | Average |
| 3516 | 54.68 | 60.78 | 74 | -19.32 | 33.01 | 7.27 | 46.38 | 200 | 75 | Peak |
| 3516 | 29.36 | 35.46 | 54 | -24.64 | 33.01 | 7.27 | 46.38 | 200 | 75 | Average |
| 5182 | 60.25 | 62.47 | 74 | -13.75 | 34.55 | 9.58 | 46.35 | 200 | 0 | Peak |
| 5182 | 37.19 | 39.41 | 54 | -16.81 | 34.55 | 9.58 | 46.35 | 200 | 0 | Average |

- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 1GHz to 30GHz. For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.
 4. Only emissions significantly above equipment noise floor are reported.

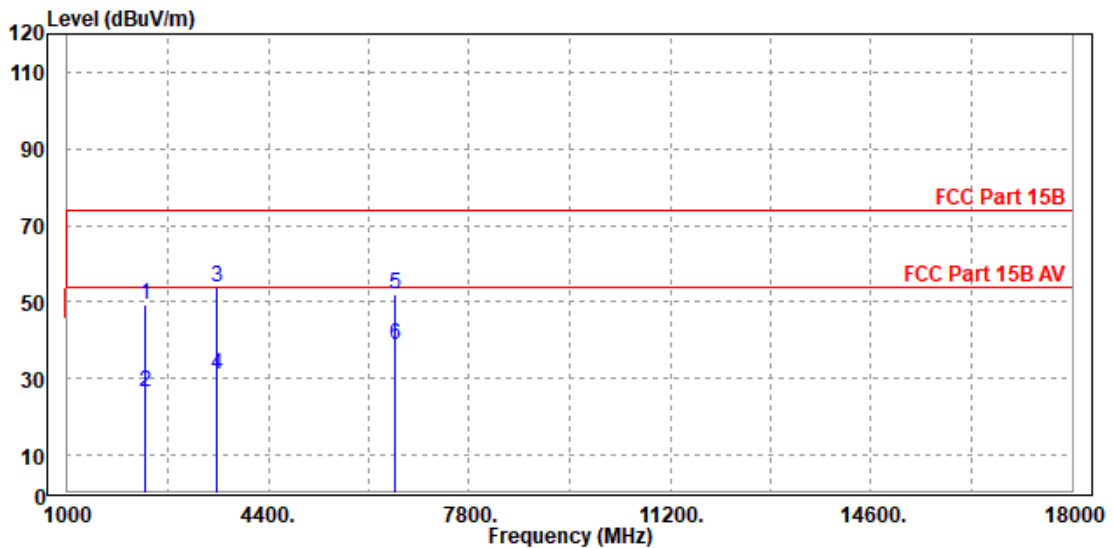




| | | | |
|---------------------------------|---|---|---------------------|
| TEST VOLTAGE | Data Transmission Input 120 Vac, 60 Hz | FREQUENCY RANGE | 1-18 GHz |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 70 %RH | DETECTOR FUNCTION & RESOLUTION BANDWIDTH | Peak/Average, 1 MHz |
| TESTED BY | Jace Hu | | |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M | | | | | | | | | | |
|---|-------------------------|-------------------|----------------|-------------|------------------------|-----------------|--------------------|---------------------|----------------------|---------|
| FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | READ LEVEL (dBuV) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA FACTOR (dB /m) | CABLE LOSS (dB) | PREAMP FACTOR (dB) | ANTENNA HEIGHT (cm) | TABLE ANGLE (Degree) | REMARK |
| 2326 | 49.1 | 57.72 | 74 | -24.9 | 31.98 | 5.77 | 46.37 | 100 | 55 | Peak |
| 2326 | 26.58 | 35.2 | 54 | -27.42 | 31.98 | 5.77 | 46.37 | 100 | 55 | Average |
| 3533 | 54.03 | 60.22 | 74 | -19.97 | 32.92 | 7.27 | 46.38 | 100 | 185 | Peak |
| 3533 | 30.96 | 37.15 | 54 | -23.04 | 32.92 | 7.27 | 46.38 | 100 | 185 | Average |
| 6542 | 51.9 | 49.44 | 74 | -22.1 | 35.83 | 12.59 | 45.96 | 110 | 120 | Peak |
| 6542 | 38.8 | 36.34 | 54 | -15.2 | 35.83 | 12.59 | 45.96 | 110 | 120 | Average |

- REMARKS:**
1. Peak detector quick scan is showed on the graph and final quasi-peak detector data is measured corresponding to relevant limit and recorded in the data table.
 2. Negative sign (-) in the margin column signify levels below the limit.
 3. Frequency range scanned: 1GHz to 30GHz. For frequency above 18GHz, the emission was tested 20db below the limit so the data not recorded in the sheet.
 4. Only emissions significantly above equipment noise floor are reported.





3 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications were made to the EUT by the lab during the test.

---END---