



VCCI-CISPR 32

TEST REPORT

For

USB Flash Drives

MODEL NUMBER: Carve(CVE)

REPORT NUMBER: 4790467614.1-3-EMC-1

ISSUE DATE: July 6, 2022

Prepared for

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Prepared by

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Revision History

| Rev. | Issue Date | Revisions | Revised By |
|------|------------|---------------|------------|
| V0 | 7/6/2022 | Initial Issue | |



Summary of Test Results

| Emission | | | | | |
|-----------------------|--|----------|--------|--|--|
| Standard | Test Item | Limit | Result | | |
| | Conducted emissions (AC mains power ports) | Clause 5 | Pass | | |
| VCCI-CISPR 32:2016 | Radiated emissions below 1GHz | Clause 5 | Pass | | |
| | Radiated emissions above 1GHz | Clause 5 | Pass | | |

Note:

1. This test is only applicable for devices which can be charged or powered by AC power cable.

*This test report is only published to and used by the applicant, and it is not for evidence purpose in China.

*The measurement result for the sample received is <Pass> according to <VCCI-CISPR 32:2016> when <Accuracy Method> decision rule is applied.



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1. ATTESTATION OF TEST RESULTS

| Applicant Information | | | |
|---------------------------|--|--|--|
| Company Name: Address: | Flashbay Electronics Building2, Jixun Industrial Park, Xinjiao, Dong'ao Village, Shati Town, Huiyang District, Huizhou City, Guangdong Province, P. China | | |
| Manufacturer Information | | | |
| Company Name: | Flashbay Electronics | | |
| Address: | Building2, Jixun Industrial Park, Xinjiao, Dong'ao Village, Shatian Town, Huiyang District, Huizhou City, Guangdong Province, P.R. China | | |
| EUT Information | | | |
| EUT Name: | USB Flash Drives | | |
| Model: | Carve(CVE) | | |
| Brand: | N/A | | |
| Sample Received Date: | June 29, 2022 | | |
| Sample Status: | Normal | | |
| Sample ID: | 5103394 | | |
| Date of Tested: | June 29, 2022 to July 01, 2022 | | |

| APPLICABLE STANDARDS | | | |
|-----------------------|------|--|--|
| STANDARD TEST RESULTS | | | |
| VCCI-CISPR 32:2016 | Pass | | |

Prepared By:

400

Checked By:

Jon

Andy Xiong Engineer Project Associate

Approved By:

Stephen Guo Laboratory Manager

Denny Huang Project Engineer



2. TEST METHODOLOGY

All tests were performed in accordance with the standard VCCI-CISPR 32:2016

3. FACILITIES AND ACCREDITATION

| Accreditation Certificate | A2LA (Certificate No.: 4102.01) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with A2LA. FCC (FCC Recognized No.: CN1187) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. Has been recognized to perform compliance testing on equipment subject to the Commission's Declaration of Conformity (DoC) and Certification rules ISED (Company No.: 21320) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been registered and fully described in a report filed with Industry Canada. The Company Number is 21320. VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Mastherabia No.: 9202 |
|------------------------------|--|
| | Industry Canada. The Company Number is 21320. VCCI (Registration No.: G-20019, R-20004, C-20012 and T-20011) UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch. has been assessed and proved to be in compliance with VCCI, the Membership No. is 3793. |
| | Facility Name: Chamber D, the VCCI registration No. is G-20019 and R-20004 Shielding Room B, the VCCI registration No. is C-20012 and T-20011 |

Note:

All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China.



4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| Test Item | Measurement Frequency Range | к | U(dB) | | |
|---|--------------------------------|---|-------|--|--|
| Conducted emissions (AC mains power ports) | 0.15MHz - 30MHz | 2 | 3.63 | | |
| Radiated emissions below 1GHz | 30MHz -1GHz | 2 | 4.13 | | |
| Radiated emissions above 1GHz | 1GHz - 18GHz | 2 | 5.64 | | |
| Note1: This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of k=2. | | | | | |
| Note 2: According to the standard CISPR 16-4-2, the MU for the Conducted emissions from the | | | | | |
| AC mains power ports using AMN should not exceed 3.8 in range of 9kHz to 150kHz and 3.4 in | | | | | |
| range of 150kHz to 30MHz. We have considered the test results containing the value of Ulab (in | | | | | |
| dB) for the measurement instrumentation actually used for the measurements. | | | | | |

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

| EUT Name | USB Flash Drives |
|--------------------|--|
| Model | Carve(CVE) |
| EUT Classification | Class B |
| Internal Frequency | 120MHz |
| Ratings | DC 5V(From Laptop) |
| Note | Model Carve(CVE) has two different wooden shells, see report photos for details. |

5.2. TEST MODE

| Test Mode | Description |
|-----------|----------------------------------|
| M01 | Connect to laptop(Data transfer) |

5.3. SUPPORT UNITS FOR SYSTEM TEST

The following support units or accessories were used to form a representative test configuration during the tests.

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. | Note |
|------|--------------------------|-----------|------------------------|--|------------|
| E-1 | Laptop | Lenovo | ThinkPad T14s Gen 1 | N/A | UL Support |
| E-2 | AC Adapter for laptop | Lenovo | ADLX65CLGC2A | Input: AC 100- 240V~, 1.7A, 50/60Hz Output: DC 20V 3.25A | UL Support |

The following cables were used to form a representative test configuration during the tests.

| Item | Type of cable | Shielded Type | Ferrite Core | Length |
|------|---------------|---------------|-----------------|--------|
| C-1 | AC cable | Unshielded | without ferrite | 1.5 m |



6. MEASURING EQUIPMENT AND SOFTWARE USED

| Test Equipment of Conducted emissions (AC mains power ports) | | | | | | | |
|--|--------------------|--------|------------|---------------|---------------|--|--|
| Equipment Manufacturer Model No. Serial No. Last Cal. Due Da | | | | | | | |
| EMI Test Receiver | ROHDE & SCHWARZ | ESR3 | 101961 | Oct. 30, 2021 | Oct. 29, 2022 | | |
| Two-Line V- Network | ROHDE & SCHWARZ | ENV216 | 101983 | Oct. 30, 2021 | Oct. 29, 2022 | | |
| Test Software for Conducted Emission | Farad | EZ-EMC | Ver.UL-3A1 | N/A | N/A | | |

| Test Equipment of Radiated emissions below 1GHz | | | | | | | |
|---|--------------|-----------|------------|---------------|---------------|--|--|
| Equipment | Manufacturer | Model No. | Serial No. | Last Cal. | Due Date | | |
| Hybrid Log Periodic Antenna | TDK | HLP-3003C | 130959 | Apr. 24, 2020 | Apr. 23, 2023 | | |
| MXE EMI Receiver | KEYSIGHT | N9038A | MY56400036 | Oct. 31, 2021 | Oct. 30, 2022 | | |
| Amplifier | hp | 8447D | 2944A09099 | Oct. 31, 2021 | Oct. 30, 2022 | | |
| Test Software for Conducted Emission | Farad | EZ-EMC | Ver.UL-3A1 | N/A | N/A | | |

| Test Equipment of Radiated emissions above 1GHz | | | | | | | | |
|---|--------------------|----------------------|-------------------|---------------|---------------|--|--|--|
| Equipment | Manufacturer | Model No. Serial No. | | Last Cal. | Due Date | | | |
| EMI Measurement Receiver | ROHDE & SCHWARZ | ESR26 | 101377 | Oct. 30, 2021 | Oct. 29, 2022 | | | |
| Horn Antenna | TDK | HRN-0118 | 130940 | Jul. 20, 2021 | Jul. 19, 2024 | | | |
| Preamplifier | TDK | PA-02-3 | TRS-308- 00002 | Oct. 31, 2021 | Oct. 30, 2022 | | | |
| Preamplifier | TDK | PA-02-0118 | TRS-305- 00067 | Oct. 30, 2021 | Oct. 29, 2022 | | | |
| Test Software for Conducted Emission | Farad | EZ-EMC | Ver.UL-3A1 | N/A | N/A | | | |

| Other Instrument | | | | | | | |
|--|-------|-----------|----------|---------------|---------------|--|--|
| Equipment Manufacturer Model No. Serial No. Last Cal. Due Da | | | | | | | |
| Temperature humidity probe | OMEGA | ITHX-SD-5 | 18470007 | Nov. 04, 2021 | Nov. 03, 2022 | | |
| Barometer | Yiyi | Baro | N/A | Nov. 15, 2021 | Nov. 14, 2022 | | |

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7. EMISSION TEST

7.1. CONDUCTED EMISSIONS (AC MAINS POWER PORTS)

LIMITS

(a.) Limits of conducted emissions from the AC mains power ports of Class A equipment

| Frequency range MHz | Coupling device | Detector type / bandwidth | Class A voltage limits dB(uV) |
|---------------------------|--------------------|------------------------------|-------------------------------------|
| 0.15 to 0.5 | 0.N.A.N.I | Quesi Beek / 0 kHz | 79 |
| 0.5 to 30 | Aivin | Quasi Peak / 9 kHz | 73 |
| 0.15 to 0.5 | 0.N.N.I | | 66 |
| 0.5 to 30 | Aivin | Average / 9 kHz | 60 |

(b.) Limits of conducted emissions from the AC mains power ports of Class B equipment

| Frequency range MHz | Coupling device | Detector type / bandwidth | Class B voltage limits dB(uV) |
|---------------------------|--------------------|------------------------------|-------------------------------------|
| 0.15 to 0.5 | | | 66 to 56 |
| 0.5 to 5 | AMN | Quasi Peak / 9 kHz | 56 |
| 5 to 30 | | | 60 |
| 0.15 to 0.5 | | | 56 to 46 |
| 0.5 to 5 | AMN | Average / 9 kHz | 46 |
| 5 to 30 | | Average / 3 Kitz | 50 |

(c.) Limits of asymmetric mode conducted emissions of Class A equipment

| Frequency range MHz | Coupling device | Detector type / bandwidth | Class A voltage limits dB(uV) | Class A current limits dB(uA) |
|---------------------------|-----------------|------------------------------|-------------------------------------|-------------------------------------|
| 0.15 -0.5 | ΔΔΝΙ | Quasi Book / 0 kHz | 97 to 87 | n/a |
| 0.5 -30 | | QUASI FEAK / 9 KI12 | 87 | n/a |
| 0.15 -0.5 | ΔΔΝΙ | Average / 0 kHz | 84 to 74 | n/a |
| 0.5 -30 | AAN | Average / 9 KHZ | 74 | n/a |
| 0.15 -0.5 | Current | Quasi Book / 0 kHz | N/A | 53 to 43 |
| 0.5 -30 | Probe | | N/A | 43 |
| 0.15 -0.5 | Current | Average / 0 kHz | N/A | 40 to 30 |
| 0.5 -30 | Probe | Average / 9 KHZ | N/A | 30 |

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(d.) Limits of asymmetric mode conducted emissions of Class B equipment

| Frequency range MHz | Coupling device | Detector type / bandwidth | Class B voltage limits dB(uV) | Class B current limits dB(uA) |
|---------------------------|-----------------|------------------------------|-------------------------------------|-------------------------------------|
| 0.15 -0.5 | ΔΔΝΙ | Quasi Book / 0 kHz | 84 to 74 | n/a |
| 0.5 -30 | AAN | | 74 | n/a |
| 0.15 -0.5 | ΔΔΝΙ | Average / 0 kHz | 74 to 64 | n/a |
| 0.5 -30 | AAN | Average / 9 KHZ | 64 | n/a |
| 0.15 -0.5 | Current | Quasi Book / 0 kHz | n/a | 40 to 30 |
| 0.5 -30 | Probe | QUASI FEAK / 9 KHZ | n/a | 30 |
| 0.15 -0.5 | Current | Avorago / 0 kHz | n/a | 30 to 20 |
| 0.5 -30 | Probe | Average / 9 KHZ | n/a | 20 |

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

| Receiver Parameters | Setting |
|---------------------|----------|
| Attenuation | 10 dB |
| Start Frequency | 0.15 MHz |
| Stop Frequency | 30 MHz |
| IF Bandwidth | 9 kHz |

TEST PROCEDURE

1. The EUT was placed on the top of a rotating table 0.8 meters above the horizontal ground plane and being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment powered from additional LISN(s). The LISN provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

2. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

3. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

4. Cables of hand-operated devices, such as keyboards and mice, shall be placed as for normal used.

5. LISN at least 80 cm from nearest part of EUT chassis.

6. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode.



TEST SETUP



The 0,8 m distance specified between EUT/AE/PSU and AMN/AAN, is applicable only to the EUT being measured. If the device is AE then it shall be ≥0,8 m.

a)Example measurement arrangement for table-top EUT (alternative 1)



The 0,8 m distance specified between EUT/local AE/PSU and AMN/AAN, is applicable only to the EUT being measured. If the device is AE then it shall be ≥0,8 m.

b)Example measurement arrangement for table-top EUT measuring in accordance with C.4.1.6.4

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TEST ENVIRONMENT

| Temperature | 24.2℃ | Relative Humidity | 59% |
|---------------------|--------------|-------------------|-----|
| Atmosphere Pressure | 103kPa | | |

TEST MODE

| Pre-test Mode: | M01 |
|------------------|-----|
| Final Test Mode: | M01 |

Note: The test voltage AC 100V_60Hz come from the AC adapter.



TEST RESULTS





| No. | Frequency | Reading | Correct | Result | Limit | Margin | Remark |
|-----|-----------|---------|---------------|--------|--------|---------------|--------|
| | (MHz) | (dBuV) | (dB) | (dBuV) | (dBuV) | (dB) | |
| 1 | 0.1610 | 35.87 | 9.59 | 45.46 | 65.41 | -19.95 | QP |
| 2 | 0.1610 | 25.20 | 9.59 | 34.79 | 55.41 | -20.62 | AVG |
| 3 | 0.4214 | 29.11 | 9.38 | 38.49 | 57.42 | -18.93 | QP |
| 4 | 0.4214 | 24.01 | 9.38 | 33.39 | 47.42 | -14.03 | AVG |
| 5 | 0.5657 | 28.17 | 9.40 | 37.57 | 56.00 | -18.43 | QP |
| 6 | 0.5657 | 12.57 | 9.40 | 21.97 | 46.00 | -24.03 | AVG |
| 7 | 1.2625 | 25.04 | 9.61 | 34.65 | 56.00 | -21.35 | QP |
| 8 | 1.2625 | 19.30 | 9.61 | 28.91 | 46.00 | -17.09 | AVG |
| 9 | 2.1261 | 25.04 | 9.63 | 34.67 | 56.00 | -21.33 | QP |
| 10 | 2.1261 | 17.79 | 9.63 | 27.42 | 46.00 | -18.58 | AVG |
| 11 | 16.7190 | 27.31 | 9.74 | 37.05 | 60.00 | -22.95 | QP |
| 12 | 16.7190 | 18.90 | 9.74 | 28.64 | 50.00 | -21.36 | AVG |

Remark: Result = Reading +Correct (Insertion Loss + Cable Loss + Attenuator Factor) Margin = Result - Limit

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| No. | Frequency | Reading | Correct | Result | Limit | Margin | Remark |
|-----|-----------|---------|---------------|--------|--------|---------------|--------|
| | (MHz) | (dBuV) | (dB) | (dBuV) | (dBuV) | (dB) | |
| 1 | 0.1539 | 37.70 | 9.50 | 47.20 | 65.79 | -18.59 | QP |
| 2 | 0.1539 | 24.86 | 9.50 | 34.36 | 55.79 | -21.43 | AVG |
| 3 | 0.1807 | 33.25 | 9.55 | 42.80 | 64.45 | -21.65 | QP |
| 4 | 0.1807 | 23.06 | 9.55 | 32.61 | 54.45 | -21.84 | AVG |
| 5 | 0.5611 | 29.87 | 9.50 | 39.37 | 56.00 | -16.63 | QP |
| 6 | 0.5611 | 15.50 | 9.50 | 25.00 | 46.00 | -21.00 | AVG |
| 7 | 0.9840 | 26.13 | 9.51 | 35.64 | 56.00 | -20.36 | QP |
| 8 | 0.9840 | 21.59 | 9.51 | 31.10 | 46.00 | -14.90 | AVG |
| 9 | 6.4239 | 20.45 | 9.16 | 29.61 | 60.00 | -30.39 | QP |
| 10 | 6.4239 | 14.39 | 9.16 | 23.55 | 50.00 | -26.45 | AVG |
| 11 | 17.0242 | 27.87 | 9.68 | 37.55 | 60.00 | -22.45 | QP |
| 12 | 17.0242 | 20.13 | 9.68 | 29.81 | 50.00 | -20.19 | AVG |

Remark: Result = Reading +Correct (Insertion Loss + Cable Loss + Attenuator Factor) Margin = Result - Limit



7.2. RADIATED EMISSIONS BELOW 1GHZ

LIMITS

(a). Limits up to 1 GHz

| | Clas | ss A | Class B | | |
|-----------------|-------------------|--------|---------|--------|--|
| FREQUENCY (MHz) | At 10 m | At 3 m | At 10 m | At 3 m | |
| | dBµV/m dBµV/m dBµ | | dBµV/m | dBµV/m | |
| 30 – 230 | 40 | 50 | 30 | 40 | |
| 230 – 1000 | 47 | 57 | 37 | 47 | |

Note:

(1) The limit for radiated test was performed according to CISPR 32.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBµV/m)=20log Emission level (uV/m).

(4) If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. If the highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz. If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 6 GHz, whichever is less.

TEST PROCEDURE

Below 1 GHz and above 30 MHz

The setting of the spectrum analyzer

| RBW | 120 kHz |
|----------|-------------|
| VBW | 300 kHz |
| Sweep | Auto |
| Detector | Peak and QP |
| Trace | Max hold |

1. 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 was used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

2. The EUT was placed on a turntable with 80 cm above ground.

3. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

4. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

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5. Cables of hand-operated devices, such as keyboards and mice, shall be placed as for normal used.

6. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

7. For measurement below 1 GHz, the initial step in collecting Radiated emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

TEST SETUP



Below 1 GHz and above 30 MHz

TEST ENVIRONMENT

| Temperature | 25.5℃ | Relative Humidity | 63% |
|---------------------|--------------|-------------------|-----|
| Atmosphere Pressure | 101kPa | | |

TEST MODE

| Pre-test Mode: | M01 |
|------------------|-----|
| Final Test Mode: | M01 |

Note: The test voltage AC 100V_60Hz come from the AC adapter.



TEST RESULTS

831.2199

947.6200

5

6

36.78

37.15

| Test | Mod | e: | M01 | | Polarity | : | Horizor | ntal |
|------------|-------|--------------------|--------------|--------------------------|------------------|--------------------------|--------------------|----------------------------|
| Test | Volta | ade: | AC100V | 60Hz | | | | |
| | , one | -90. | 1.01001 | _00112 | | | | |
| 80.0 | dBu\ | //m | | | | | | |
| | | | | | | | | |
| 70 | | | | | | | | |
| | | | | | | | | |
| 60 | | | | | | | | |
| 50 | | | | | | | | |
| 50 | | | [| | | | | |
| 40 | | | | | | | | |
| | | | 3 2 3 | | | | 5 | <u>6</u> |
| 30 | | | NMM NA | | | | × | |
| 20 | | 1 X | NWW | | 4 | | | 10 |
| 20 | 1 | | | which was my | Milling would be | the worker berking about | Manufacture County | And the part of the second |
| 10 | AA . | 1 mg really | | , . A. da. | VIV. | | | |
| | (| | | | | | | |
| 0.0 30. | .0000 | ' 127.0000 224. | 0000 321.000 | 0 418.0000 | 515.0000 612 | .0000 709.0000 | 806.0000 | 1000.000 0 Hz |
| | | | | | | | | |
| N | 0. | Frequency | Reading | Correct | Result | Limit | Margin | Remark |
| | | (MHz) | (dBuV) | (dB / m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | | 120.2100 | 41.43 | -19.85 | 21.58 | 40.00 | -18.42 | QP |
| 2 | 2 | 266.6800 | 48.06 | -18.01 | 30.05 | 47.00 | -16.95 | QP |
| 3 | 3 | 332.6400 | 48.13 | -14.62 | 33.51 | 47.00 | -13.49 | QP |
| 4 | ļ (| 472.3200 | 35.34 | -11.97 | 23.37 | 47.00 | -23.63 | QP |

30.12

32.72

47.00

47.00

-16.88

-14.28

QP

QP

Note: 1. Result = Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor) 2. Margin = Result - Limit

-6.66

-4.43





Note: 1. Result = Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor) 2. Margin = Result - Limit



7.3. RADIATED EMISSIONS ABOVE 1GHZ

LIMITS

(a). Limits above 1 GHz

| | Class A (at 3 | 3 m) dBµV/m | Class B (at 3 m) dBµV/m | | |
|-----------|---------------|-------------|-------------------------|-----|--|
| | Peak | Avg | Peak | Avg | |
| 1000-3000 | 76 | 56 | 70 | 50 | |
| 3000-6000 | 80 | 60 | 74 | 54 | |

Note:

(1) The limit for radiated test was performed according to CISPR 32.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBµV/m)=20log Emission level (uV/m).

(4) If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. If the highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz. If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 6 GHz, whichever is less.

TEST PROCEDURE

Above 1 GHz

Trace

RBW 1 MHz VBW 3 MHz Auto Sweep Peak: Peak Detector AVG: RMS

The setting of the spectrum analyzer

1. 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. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

2. The EUT was placed on a turntable with 80 cm above ground.

Max hold

3. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

4. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

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5. Cables of hand-operated devices, such as keyboards and mice, shall be placed as for normal used.

6. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

7. For measurement above 1 GHz, the peak emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the peak limit. If peak result complies with average limit, average result is deemed to comply with average limit.

9. The average emission measurement will be measured by the RMS detector and must comply with the average limit.

TEST SETUP



TEST ENVIRONMENT

| Temperature | 24.3 ℃ | Relative Humidity | 61% |
|---------------------|---------------|-------------------|-----|
| Atmosphere Pressure | 101kPa | | |

TEST MODE

| Pre-test Mode: | M01 |
|------------------|-----|
| Final Test Mode: | M01 |

Note: The test voltage AC 100V_60Hz come from the AC adapter.



TEST RESULTS



Note: 1. Result = Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor) 2. Margin = Result - Limit



| Test | Test Mode: M01 | | M01 | | Polarity: | Polarity: | | Vertical | |
|------|----------------|---|--------------------|------------|--------------|--------------------------------------|-------------|-----------------------|--|
| Test | t Volta | age: | AC100V_ | _60Hz | | | | | |
| | | • | | | | | | | |
| 87.0 | D dBu | V/m | | | | | | | |
| 77 | | | | | | | | | |
| 67 | | | | | | | | | |
| 57 | | | 3 | | | | | | |
| 47 | | 1 | | ļ | 5 | | | | |
| 37 | | | h makes the sector | hand have | uturn manual | hange from the souther of the public | munipapping | any with the provided | |
| 27 | WARA | aller and the second | | | | | | 8 | |
| 17 | | | | | | | | | |
| 7 | | | | | | | | | |
| -3 | | | | | | | | | |
| -13 | | | | | | | | | |
| 100 | 00.000 | 1500.000 2000 |).000 2500.00 | D 3000.000 | 3500.00 4000 | 0.000 4500.000 | 5000.000 | 6000.000 MHz | |
| N | In | E | Decker | Compat | Damil | T : | Manata | Damaula | |
| N | 10. | (MHz) | (dBuV) | (dB/m) | (dBuV/m) | (dBuV/m) | (dB) | кетагк | |
| | 1 | 1330.000 | 55.00 | -13.50 | 41.50 | 70.00 | -28.50 | peak | |
| | 2 | 1995.000 | 63.65 | -11.07 | 52.58 | 70.00 | -17.42 | peak | |
| | 3 | 1995.000 | 33.90 | -11.07 | 22.83 | 50.00 | -27.17 | AVG | |
| | 4 | 2660.000 | 50.12 | -8.01 | 42.11 | 70.00 | -27.89 | peak | |
| | 5 | 4000.000 | 53.58 | -4.48 | 49.10 | 74.00 | -24.90 | peak | |
| | 6 | 5335.000 | 48.06 | 0.23 | 48.29 | 74.00 | -25.71 | peak | |
| , | 7 | 5995.000 | 57.44 | 1.84 | 59.28 | 74.00 | -14.72 | peak | |
| 1 | 8 | 5995.000 | 23.93 | 1.84 | 25.77 | 54.00 | -28.23 | AVG | |

Note: 1. Result = Reading +Correct (Amplifier Factor + Cable Loss + Antenna Factor) 2. Margin = Result - Limit



APPENDIX: PHOTOGRAPHS OF TEST CONFIGURATION

Conducted emissions (AC mains power ports)





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Radiated emissions below 1GHz













APPENDIX: PHOTOGRAPHS OF THE EUT















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END OF REPORT