# TEST REPORT

**DT&C Co., Ltd.**
42, Yurim-ro, 154Beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea, 17042
Tel : 031-321-2664, Fax : 031-321-1664

1. Report No : DRTFCC1810-0251
2. Customer
   - Name : My Call Co.,Ltd.
   - Address : 2-10-13 Kotobuki, Taito-ku, Tokyo 111-0042,Japan
3. Use of Report : FCC Original Grant
4. Product Name / Model Name : WIRELESS DEVICES FOR DATA TRANSFER / MCFSCM-1230
   FCC ID : 2ARHF-MCFSCM-1230
5. Test Method Used : ANSI C63.10-2013
   Test Specification : FCC Part 15.231
6. Date of Test : 2018.10.01 ~ 2018.10.16
7. Testing Environment : See appended test report.
8. Test Result : Refer to the attached test result.

| | | |
|---|---|---|
| Affirmation | Tested by<br>Name : JaeHyeok Bang (Signature) | Reviewed by<br>Name : Geunki Son (Signature) |

The test results presented in this test report are limited only to the sample supplied by applicant and the use of this test report is inhibited other than its purpose. This test report shall not be reproduced except in full, without the written approval of DT&C Co., Ltd.

**2018 . 10 . 22 .**

**DT&C Co., Ltd.**

**If this report is required to confirmation of authenticity, please contact to report@dtnc.net**

# Test Report Version

| Test Report No. | Date | Description |
|---|---|---|
| DRTFCC1810-0251 | Oct. 22, 2018 | Initial issue |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

# CONTENTS

**1. General Information ..... 4**
1.1. Testing Laboratory ..... 4
1.2. Testing Environment ..... 4
1.3. Measurement Uncertainty ..... 4
1.4. Description of EUT ..... 5
**2. Information about test items ..... 6**
2.1 Operating mode ..... 6
2.2 Tested frequency ..... 6
2.3 Auxiliary equipment ..... 6
2.4 EMI Suppression Device(s)/Modifications ..... 6
**3. Test Report ..... 7**
3.1 Summary of tests ..... 7
3.2 Transmitter requirements ..... 8
3.2.1 20dB & Occupied bandwidth ..... 8
3.2.2 Automatically deactivate ..... 9
3.2.3 Field strength of fundamental and spurious emissions ..... 10
3.2.4 AC power line conducted emission ..... 13
3.2.5 Antenna requirement ..... 16
**APPENDIX I ..... 17**
**APPENDIX II ..... 18**

# 1. General Information

## 1.1. Testing Laboratory

| DT&C Co., Ltd. | | |
|---|---|---|
| The 3 m test site and conducted measurement facility used to collect the radiated data are located at the 42, Yurim-ro, 154beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea 17042.<br>The test site complies with the requirements of § 2.948 according to ANSI C63.4-2014.<br>**- FCC MRA Accredited Test Firm No. : KR0034**<br>**- IC Test site No. : 5740A-4** | | |
| www.dtnc.net | | |
| Telephone | : | + 82-31-321-2664 |
| FAX | : | + 82-31-321-1664 |

## 1.2. Testing Environment

| Ambient Condition | |
|---|---|
| ▪ Temperature | +23 ℃ ~ +27 ℃ |
| ▪ Relative Humidity | 43 % ~ 47 % |

## 1.3. Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of *k* = 2 to indicate a 95 % level of confidence.

| Test items | Measurement uncertainty |
|---|---|
| AC conducted emission | 2.4 dB (The confidence level is about 95 %, k = 2) |
| Radiated spurious emission (1 GHz Below) | 5.1 dB (The confidence level is about 95 %, k = 2) |
| Radiated spurious emission (1 GHz ~ 18 GHz) | 5.4 dB (The confidence level is about 95 %, k = 2) |

## 1.4. Description of EUT

| | |
|---|---|
| **FCC Equipment Class** | Part 15 Security / Remote Control Transmitter |
| **EUT** | WIRELESS DEVICES FOR DATA TRANSFER |
| **Model Name** | MCFSCM-1230 |
| **Hardware version** | VER 20 |
| **Software version** | VER 10 |
| **Power Supply** | DC 12 V |
| **Frequency Band** | 429.7 MHz |
| **Modulation Type** | GFSK |
| **Antenna type** | External Antenna |

# 2. Information about test items

## 2.1 Operating mode

| | |
|---|---|
| **Operating Mode 1** | This device was tested with continuous TX mode for field strength and 20dB Bandwidth measurements. |
| **Operating Mode 2** | Normal operating mode was used for measurement the deactivation measurement. |

## 2.2 Tested frequency

| Mode | Frequency(MHz) |
|---|---|
| Transmitting mode | 429.7 |
| - | - |

## 2.3 Auxiliary equipment

| Equipment | Model No. | Serial No. | Manufacturer | Note |
|---|---|---|---|---|
| – | - | - | -. | - |

## 2.4 EMI Suppression Device(s)/Modifications

EMI suppression device(s) added and/or modifications made during testing
→ None

# 3. Test Report

## 3.1 Summary of tests

| FCC Part Section(s) | Parameter | Test Condition | Status Note 1 |
|---|---|---|---|
| 15.231(b) | Field strength of fundamental and spurious emissions | Radiated | C Note 3 |
| 15.205<br>15.209 | General Field Strength Limits (Restricted Bands and Radiated Emission Limits) | | C Note 3 |
| 15.231(a) | Deactivation | Conducted | C |
| 15.231(c) | 20dB bandwidth | | C |
| - | Occupied bandwidth | | NA |
| 15.207 | AC Power Line Conducted Emission | AC Line Conducted | C |
| 15.203 | Antenna Requirements | - | C |

Note 1: **C**=Comply **NC**=Not Comply **NT**=Not Tested **NA**=Not Applicable

Note 2: For radiated emission tests below 30 MHz were performed on semi-anechoic chamber which is correlated with OATS.

Note 3: This test item was performed in each axis and the worst case data was reported.

The sample was tested according to the following specification:
ANSI C63.10-2013

## 3.2 Transmitter requirements

### 3.2.1 20dB & Occupied bandwidth

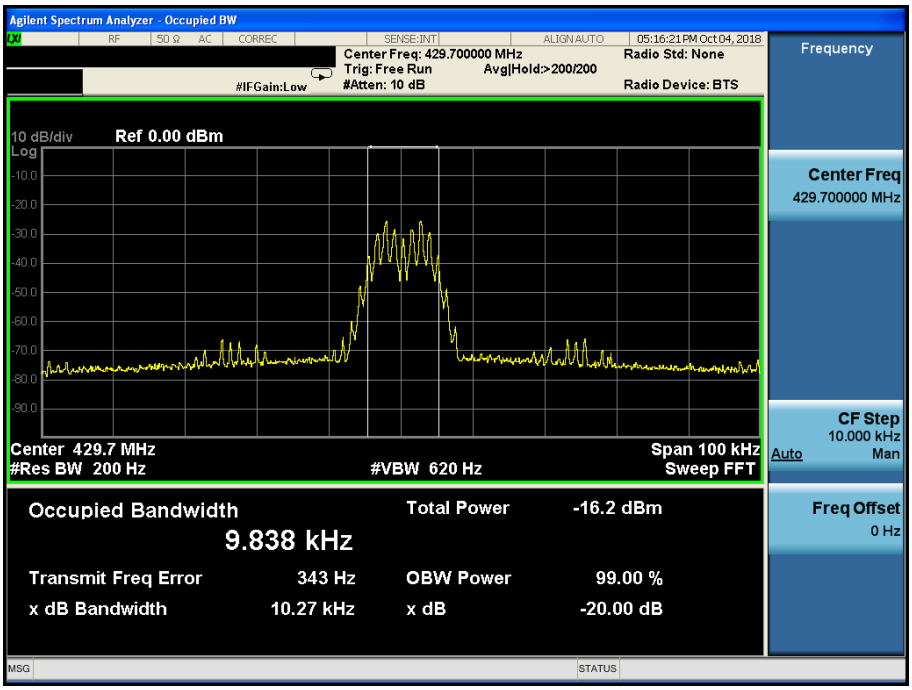
**- Procedure:**

The transmitter output is connected to the Spectrum Analyzer and used following test procedure of **ANIS C63.10-2013.**

RBW: 1% to 5% of the OBW
VBW: Approximately three times the RBW
Detector: Peak
Trace: Max hold
Sweep: Auto couple

**- Measurement Data: Comply**

| Frequency (MHz) | 20dB Bandwidth (kHz) | 99% Bandwidth (kHz) | Limit (kHz) |
|---|---|---|---|
| 429.70 | 10.27 | 9.84 | 1074.25 |

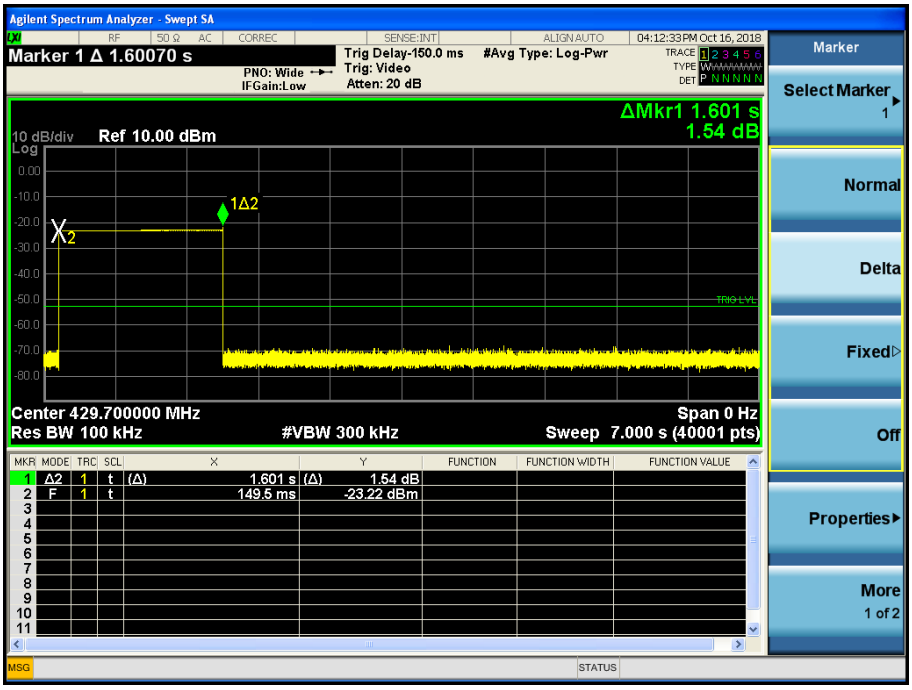



**- Limit: § 15.209(c)**

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

### 3.2.2 Automatically deactivate

**- Measurement Data:**




| One operation time (s) | Limit (s) |
|---|---|
| 1.6 | 5.0 |

**- Limit: § 15.231(a)**

(a) The provisions of this section are restricted to periodic operation within the band 40.66-40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. Data is permitted to be sent with a control signal. The following conditions shall be met to comply with the provisions for this periodic operation:

(1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

(2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

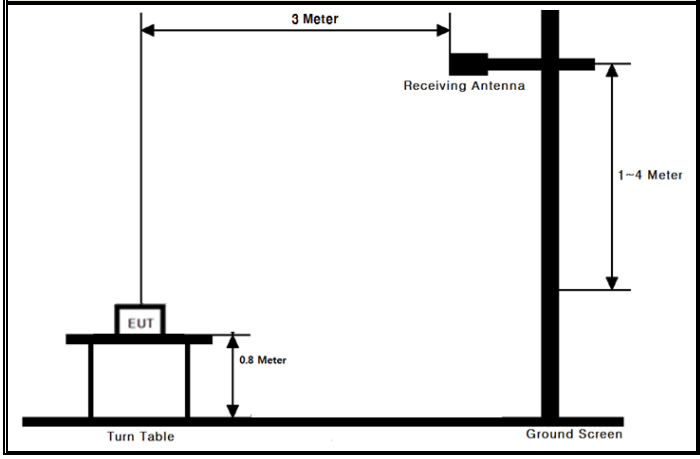
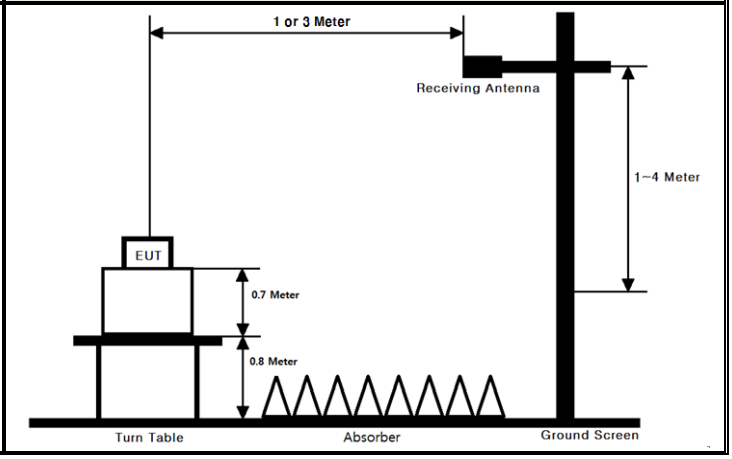
(3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

(4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition

(5) Transmission of set-up information for security systems may exceed the transmission duration limits in paragraphs (a)(1) and (a)(2) of this section, provided such transmissions are under the control of a professional installer and do not exceed ten seconds after a manually operated switch is released or a transmitter is activated automatically. Such set-up information may include data.

### 3.2.3 Field strength of fundamental and spurious emissions

**- Test set up diagrams:**

| Below 1GHz | Above 1GHz |
|---|---|
|  |  |





**- Procedure:**

1. The EUT is placed on a non-conductive table. For emission measurements at or below 1 GHz, the table height is 80 cm. For emission measurements above 1 GHz, the table height is 1.5 m.
2. The table was rotated 360 degrees to determine the position of the highest radiation.
3. During performing radiated emission below 1 GHz, the EUT was set 3 meters away from the interference receiving antenna, which was mounted on the top of a variable-height antenna tower. During performing radiated emission above 1 GHz, the EUT was set 1 or 3 meter away from the interference-receiving antenna.
4. For measurements above 1GHz absorbers are placed on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1 GHz, the absorbers are removed.
5. The antenna is a broadband antenna, and its 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.
6. 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 table was turned from 0 degrees to 360 degrees to find the maximum reading.
7. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
8. If the emission level of the EUT in peak mode was 10 dB 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 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

**Measurement Instrument Setting**

1. Frequency Range Below 1GHz
   RBW = 100 or 120 kHz, VBW = 3 x RBW, Detector = Peak or Quasi Peak
2. Frequency Range Range > 1 GHz
   Peak Measurement
   RBW = 1 MHz, VBW = 3 MHz, Detector = Peak, Sweep time = Auto, Trace mode = Max Hold until the trace stabilizes
   Average Measurement> 1GHz
   RBW = 1MHz, VBW ≥ 1/T, Detector = Peak, Sweep Time = Auto, Trace Mode = Max Hold until the trace stabilizes

**- Limit:**

**§ 15.231(b)**, In addition to the provisions of Section 15.205, the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

| Frequency [MHz] | Field Strength of Fundamental Frequency [uV/m] | Field Strength of Spurious Emissions [uV/m] |
|---|---|---|
| 40.66 ~ 40.70 | 2,250 | 225 |
| 70 ~ 130 | 1,250 | 125 |
| 130 ~ 174 | [1]1,250 to 3,750 | [1]125 to 375 |
| 174 ~ 260 | 3,750 | 375 |
| 260 ~ 470 | [1]3,750 to 12,500 | [1]375 to 1,250 |
| Above 470 | 12,500 | 1,250 |

[1]Linear interpolations

(1) The above field strength limits are specified at a distance of 3 meters. The tighter limits apply at the band edges.

(2) Intentional radiators operating under the provisions of this section shall demonstrate compliance with the limits on the field strength of emissions, as shown in the above table, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector. The specific method of measurement employed shall be specified in the application for equipment authorization. If average emission measurements are employed, the provisions in §15.35 for averaging pulsed emissions and for limiting peak emissions apply. Further, compliance with the provisions of §15.205 shall be demonstrated using the measurement instrumentation specified in that section.

(3) The limits on the field strength of the spurious emissions in the above table are based on the fundamental frequency of the intentional radiator. Spurious emissions shall be attenuated to the average (or, alternatively, CISPR quasi-peak) limits shown in this table or to the general limits shown in §15.209, whichever limit permits a higher field strength.

**§ 15.205(a) and (b)**, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz | MHz | MHz | GHz |
|---|---|---|---|
| 0.009 ~ 0.110 | 16.42 ~ 16.423 | 399.90 ~ 410 | 4.5 ~ 5.15 |
| 0.495 ~ 0.505 | 16.69475 ~ 16.69525 | 608 ~ 614 | 5.35 ~ 5.46 |
| 2.1735 ~ 2.1905 | 16.80425 ~ 16.80475 | 960 ~ 1240 | 7.25 ~ 7.75 |
| 4.125 ~ 4.128 | 25.5 ~ 25.67 | 1300 ~ 1427 | 8.025 ~ 8.5 |
| 4.17725 ~ 4.17775 | 37.5 ~ 38.25 | 1435 ~ 1626.5 | 9.0 ~ 9.2 |
| 4.20725 ~ 4.20775 | 73 ~ 74.6 | 1645.5 ~ 1646.5 | 9.3 ~ 9.5 |
| 6.215 ~ 6.218 | 74.8 ~ 75.2 | 1660 ~ 1710 | 10.6 ~ 12.7 |
| 6.26775 ~ 6.26825 | 108 ~ 121.94 | 1718.8 ~ 1722.2 | 13.25 ~ 13.4 |
| 6.31175 ~ 6.31225 | 123 ~ 138 | 2200 ~ 2300 | 14.47 ~ 14.5 |
| 8.291 ~ 8.294 | 149.9 ~ 150.05 | 2310 ~ 2390 | 15.35 ~ 16.2 |
| 8.362 ~ 8.366 | 156.52475 ~ 156.52525 | 2483.5 ~ 2500 | 17.7 ~ 21.4 |
| 8.37625 ~ 8.38675 | 156.7 ~ 156.9 | 2690 ~ 2900 | 22.01 ~ 23.12 |
| 8.41425 ~ 8.41475 | 162.0125 ~ 167.17 | 3260 ~ 3267 | 23.6 ~ 24.0 |
| 12.29 ~ 12.293 | 167.72 ~ 173.2 | 3332 ~ 3339 | 31.2 ~ 31.8 |
| 12.51975 ~ 12.52025 | 240 ~ 285 | 3345.8 ~ 3358 | 36.43 ~ 36.5 |
| 12.57675 ~ 12.57725 | 322 ~ 335.4 | 3600 ~ 4400 | Above 38.6 |
| 13.36 ~ 13.41 | | | |

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

**§ 15.209(a)**, except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency [MHz] | Field Strength of Fundamental Frequency [uV/m] | Measurement Distance [m] |
|---|---|---|
| 30 ~ 88 | 100 | 3 |
| 88 ~ 216 | 150 | 3 |
| 216 ~ 960 | 200 | 3 |
| Above 960 | 500 | 3 |

** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54 - 72 MHz, 76 - 88 MHz, 174 - 216 MHz or 470 - 806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

**- Measurement Data: Comply**

| Frequency (MHz) | ANT Pol | EUT Position (Axis) | Detector Mode | Reading (dBuV) | T.F (dB/m) | DCCF (dB) | DCF (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|---|
| 30.97 | V | Y | QP | 40.70 | -9.10 | N/A | N/A | 31.60 | 40.00 | 8.40 |
| 33.88 | V | Y | QP | 41.30 | -8.80 | N/A | N/A | 32.50 | 40.00 | 7.50 |
| *429.70 | V | Y | PK | 55.35 | 24.84 | N/A | N/A | 80.19 | 100.68 | 20.49 |
| *429.70 | V | Y | AV | 52.00 | 24.84 | N/A | N/A | 76.84 | 80.68 | 3.84 |
| 3007.97 | H | X | PK | 46.23 | 4.38 | N/A | N/A | 50.61 | 80.68 | 30.07 |
| 3007.88 | H | X | AV | 36.71 | 4.38 | N/A | N/A | 41.09 | 60.68 | 19.59 |
| 3437.61 | V | Z | PK | 47.45 | 3.95 | N/A | N/A | 51.40 | 80.68 | 29.28 |
| 3437.59 | V | Z | AV | 39.34 | 3.95 | N/A | N/A | 43.29 | 60.68 | 17.39 |
| 3867.59 | H | Z | PK | 47.66 | 3.96 | N/A | N/A | 51.62 | 74.00 | 22.38 |
| 3867.30 | H | Z | AV | 41.01 | 3.96 | N/A | N/A | 44.97 | 54.00 | 9.03 |
| 4297.26 | V | Z | PK | 47.56 | 4.67 | N/A | N/A | 52.23 | 74.00 | 21.77 |
| 4297.02 | V | Z | AV | 38.95 | 4.67 | N/A | N/A | 43.62 | 54.00 | 10.38 |

Note 1. The radiated emissions were investigated 9 kHz to 10th harmonic of highest fundamental frequency.
Note 2. * is fundamental frequency.
Note 3. No other spurious and harmonic emissions were reported greater than listed emissions above table.
Note 4. Information of Distance Factor
For finding emissions, the test distance might be reduced from 3 m to 1 m.
In this case, the distance factor (-9.54 dB) is applied to the result.
- Calculation of distance factor = 20 log( applied distance / required distance ) = 20 log( 1 m / 3 m ) = -9.54 dB
When distance factor is “N/A”, the distance is 3 m and distance factor is not applied.

Note 5. Sample calculation
T.F = AF + CL – AG / Field Strength = Reading + T.F + DCCF +DCF
Margin = Limit – Field Strength
Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain
DCCF = Duty Cycle Correction Factor, DCF = Distance Correction Factor

### 3.2.4 AC power line conducted emission

**- Procedure:**

1. The test procedure is performed in a 6.5 m × 3.5 m × 3.5 m (L × W × H) shielded room. The EUT along with its peripherals were placed on a 1.0 m (W) × 1.5 m (L) and 0.8 m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room.
3. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
4. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

**- Measurement Data: Comply** (Refer to the next page.)

**- Limit:**

According to §15.207(a) for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 ㎑ to 30 ㎒, shall not exceed the limits in the following table, as measured using a 50 uH/50 ohm line impedance stabilization network(LISN).

Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequency ranges.

| Frequency Range (MHz) | Conducted Limit (dBuV) | |
|---|---|---|
| | Quasi-Peak | Average |
| 0.15 ~ 0.5 | 66 to 56 * | 56 to 46 * |
| 0.5 ~ 5 | 56 | 46 |
| 5 ~ 30 | 60 | 50 |

* Decreases with the logarithm of the frequency

## AC Line Conducted Emissions (Graph)

# Results of Conducted Emission

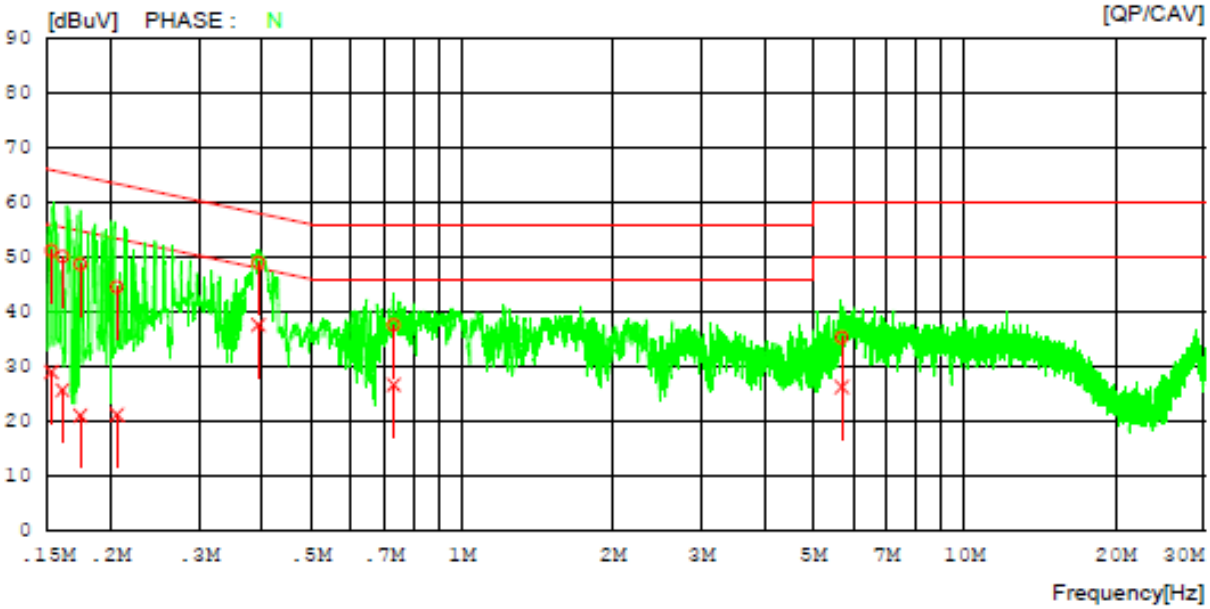
DTNC

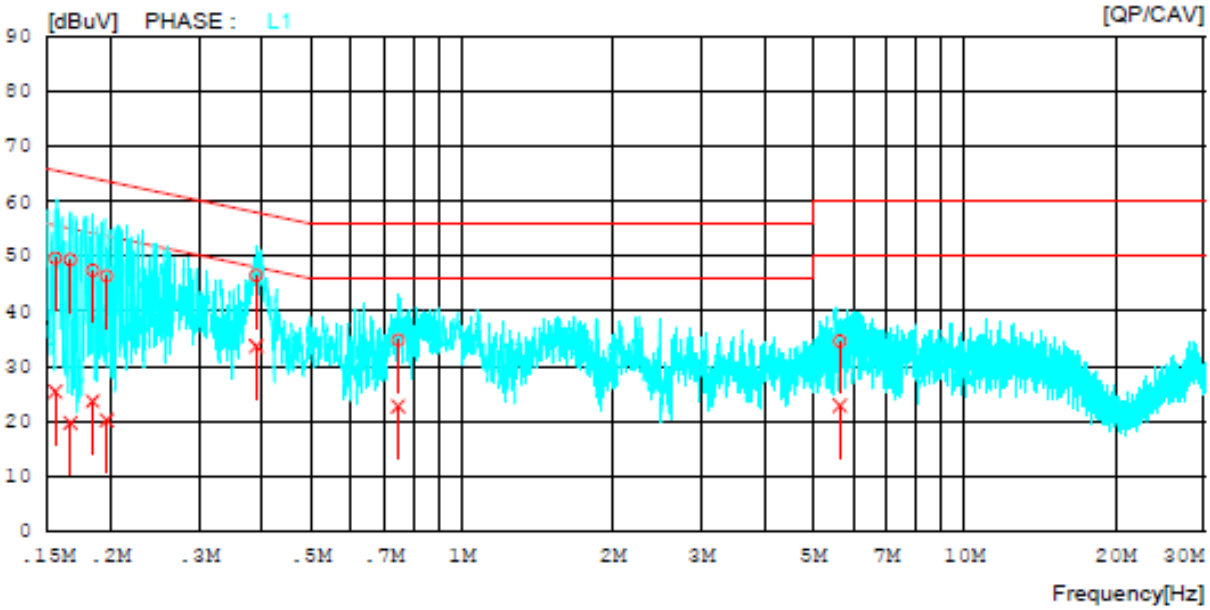
Date 2018-10-05

| | | | |
|---|---|---|---|
| Order No. | | Referrence No. | |
| Model No. | MCFSMC-1230 | Power Supply | 120 V / 60Hz |
| Serial No. | | Temp/Humi. | 25 'C / 45 % |
| Test Condition | 429.7 MHz | Operator | J.H Bang |

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV



## AC Line Conducted Emissions (List)

# Results of Conducted Emission

DTNC Date 2018-10-05

| | | | |
|---|---|---|---|
| Order No. | | Referrence No. | |
| Model No. | MCFSCM-1230 | Power Supply | 120 V / 60Hz |
| Serial No. | | Temp/Humi. | 25 ℃ / 45 % |
| Test Condition | 429.7 MHz | Operator | J.H Bang |

Memo

LIMIT : FCC P15.207 QP
FCC P15.207 AV

| NO | FREQ [MHz] | READING QP [dBuV] | READING CAV [dBuV] | C.FACTOR [dB] | RESULT QP [dBuV] | RESULT CAV [dBuV] | LIMIT QP [dBuV] | LIMIT CAV [dBuV] | MARGIN QP [dBuV] | MARGIN CAV [dBuV] | PHASE |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.15261 | 40.87 | 18.72 | 10.28 | 51.15 | 29.00 | 65.86 | 55.86 | 14.71 | 26.86 | N |
| 2 | 0.16055 | 39.86 | 15.44 | 10.23 | 50.09 | 25.67 | 65.44 | 55.44 | 15.35 | 29.77 | N |
| 3 | 0.17412 | 38.50 | 10.87 | 10.15 | 48.65 | 21.02 | 64.76 | 54.76 | 16.11 | 33.74 | N |
| 4 | 0.20581 | 34.49 | 11.20 | 10.00 | 44.49 | 21.20 | 63.37 | 53.37 | 18.88 | 32.17 | N |
| 5 | 0.39371 | 38.97 | 27.57 | 10.02 | 48.99 | 37.59 | 57.99 | 47.99 | 9.00 | 10.40 | N |
| 6 | 0.73223 | 27.48 | 16.59 | 10.05 | 37.53 | 26.64 | 56.00 | 46.00 | 18.47 | 19.36 | N |
| 7 | 5.70060 | 25.04 | 16.01 | 10.25 | 35.29 | 26.26 | 60.00 | 50.00 | 24.71 | 23.74 | N |
| 8 | 0.15536 | 39.43 | 15.11 | 10.23 | 49.66 | 25.34 | 65.71 | 55.71 | 16.05 | 30.37 | L1 |
| 9 | 0.16646 | 39.21 | 9.46 | 10.17 | 49.38 | 19.63 | 65.14 | 55.14 | 15.76 | 35.51 | L1 |
| 10 | 0.18441 | 37.40 | 13.53 | 10.07 | 47.47 | 23.60 | 64.28 | 54.28 | 16.81 | 30.68 | L1 |
| 11 | 0.19634 | 36.41 | 10.11 | 10.00 | 46.41 | 20.11 | 63.76 | 53.76 | 17.35 | 33.65 | L1 |
| 12 | 0.38983 | 36.54 | 23.67 | 9.99 | 46.53 | 33.66 | 58.07 | 48.07 | 11.54 | 14.41 | L1 |
| 13 | 0.74708 | 24.71 | 12.65 | 10.01 | 34.72 | 22.66 | 56.00 | 46.00 | 21.28 | 23.34 | L1 |
| 14 | 5.65300 | 24.35 | 12.57 | 10.21 | 34.56 | 22.78 | 60.00 | 50.00 | 25.44 | 27.22 | L1 |

### 3.2.5 Antenna requirement

- **According to FCC 47 CFR §15.203:**

An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

**The external antenna is connected to the unique connecter.**

**Therefore this E.U.T Complies with the requirement of §15.203.**

# APPENDIX I

## TEST EQUIPMENT FOR TESTS

| Type | Manufacturer | Model | Cal.Date (yy/mm/dd) | Next.Cal.Date (yy/mm/dd) | S/N |
|---|---|---|---|---|---|
| Spectrum Analyzer | Agilent Technologies | N9020A | 17/12/16 | 18/12/16 | MY50200828 |
| EMI Test Receiver | Rohde Schwarz | ESR7 | 18/02/13 | 19/02/13 | 101061 |
| EMI Test Receiver | Rohde Schwarz | ESCI | 18/03/13 | 19/03/13 | 100364 |
| Spectrum Analyzer | Agilent Technologies | N9020A | 18/07/09 | 19/07/09 | MY46471251 |
| DC Power Supply | Agilent | 66332A | 18/07/02 | 19/07/02 | MY43001172 |
| Loop Antenna | Schwarzbeck | FMZB1513 | 18/01/30 | 20/01/30 | 1513-128 |
| BILOG ANTENNA | Schwarzbeck | VULB 9160 | 18/07/13 | 20/07/13 | 3359 |
| Horn Antenna | ETS-LINDGREN | 3117 | 18/05/10 | 20/05/10 | 00140394 |
| PreAmplifier | TSJ | 8447D | 17/12/26 | 18/12/26 | 2944A07774 |
| PreAmplifier | Agilent | 8449B | 18/07/05 | 19/07/05 | 3008A02108 |
| Signal Generator | Rohde Schwarz | SMBV100A | 17/12/27 | 18/12/27 | 255571 |
| Multimeter | FLUKE | 17B+ | 17/12/26 | 18/12/26 | 36390701WS |
| Thermohygrometer | BODYCOM | BJ5478 | 18/01/03 | 19/01/03 | 120612-1 |
| Thermohygrometer | BODYCOM | BJ5478 | 18/01/03 | 19/01/03 | 120612-2 |
| High-pass filer | Anritsu | MP | 18/07/03 | 19/07/03 | M27756 |
| High-pass filter | Wainwright | WHKX12-935-1000-15000-40SS | 18/07/05 | 19/07/05 | 7 |
| EMI Test Receiver | Rohde Schwarz | ESCI7 | 18/02/12 | 19/02/12 | 100910 |
| LISN | SCHWARZBECK | NNLK 8121 | 18/03/20 | 19/03/20 | 6183 |
| CABLE | Radiall | TESTPRO3 | 18/07/06 | 19/07/06 | M-01 |
| CABLE | HUBER+SUHNER | SUCOFLEX103 | 18/07/06 | 19/07/06 | M-03 |
| CABLE | DTNC | CABLE | 18/07/06 | 19/07/06 | M-04 |
| CABLE | DTNC | CABLE | 18/06/25 | 19/06/25 | RF-08 |
| CABLE | DTNC | CABLE | 18/07/05 | 19/07/05 | RF-82 |

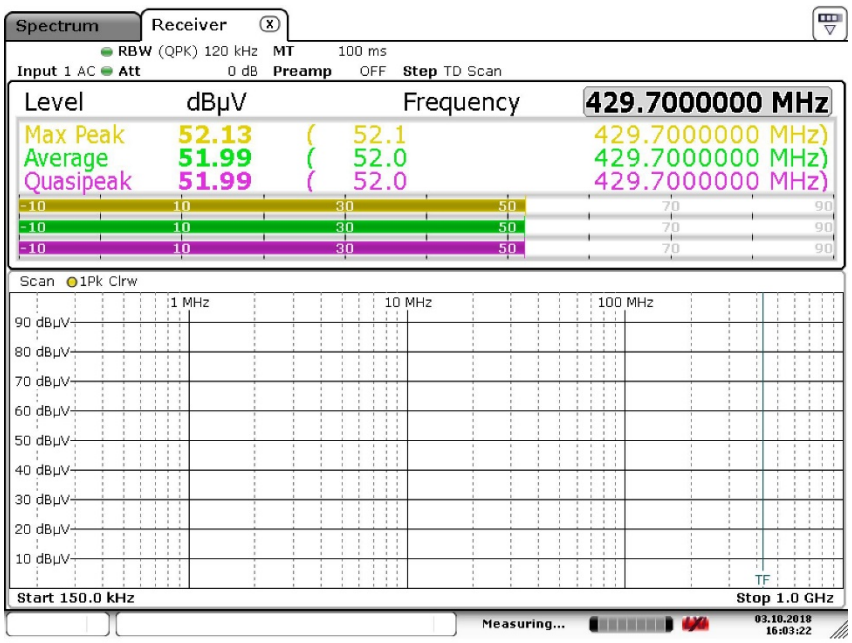
Note 1: The measurement antennas were calibrated in accordance to the requirements of ANSI C63.5-2017.
Note 2: The cable is not a regular calibration item, so it has been calibrated by DT & C itself.

# APPENDIX II

## Worst data plot of radiated test (Reading Value)

## Field strength of fundamental

**Y axis & Ver** **Detector Mode : AV**




Date: 3.OCT.2018 16:03:22

Note: The resolution bandwidth was set enough larger than occupied bandwidth of fundamental.

## Unwanted emissions

**Y axis & Hor** **Detector Mode : AV**

Date: 15.OCT.2018 22:31:44