

# FCC Radio Test Report

## FCC ID: R9C-CPH1941

**This report concerns: Original Grant**

**Project No.** : 1909C106  
**Equipment** : Mobile Phone  
**Brand Name** : OPPO  
**Test Model** : CPH1941  
**Series Model** : N/A  
**Applicant** : Guangdong Oppo Mobile Telecommunications Corp., Ltd.  
**Address** : NO. 18 HaiBin Road, WuSha village, Chang An Town,  
DongGuan City,Guangdong,China.  
**Manufacturer** : Guangdong Oppo Mobile Telecommunications Corp., Ltd.  
**Address** : NO. 18 HaiBin Road, WuSha village, Chang An Town,  
DongGuan City,Guangdong,China.  
**Factory** : Guangdong Oppo Mobile Telecommunications Corp., Ltd.  
**Address** : NO. 18 HaiBin Road, WuSha village, Chang An Town,  
DongGuan City,Guangdong,China.  
**Date of Receipt** : Sep. 19, 2019  
**Date of Test** : Sep. 19, 2019 ~ Sep. 25, 2019  
**Issued Date** : Oct. 24, 2019  
**Report Version** : R00  
**Test Sample** : Engineering Sample No.: DG20190920152  
**Standard(s)** : FCC Part 15, Subpart C (15.225)  
ANSI C63.10-2013

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

*Vincent Tan*

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Certificate #5123.02

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**Declaration**

**BTL** represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

**BTL's** reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

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**BTL's** laboratory quality assurance procedures are in compliance with the **ISO/IEC 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

**BTL** is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

**Limitation**

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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**REPORT ISSUED HISTORY**

| Report Version | Description     | Issued Date   |
|----------------|-----------------|---------------|
| R00            | Original Issue. | Oct. 24, 2019 |

## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

| FCC Part15, Subpart C (15.225)          |                                   |                          |          |         |
|-----------------------------------------|-----------------------------------|--------------------------|----------|---------|
| Standard(s) Section                     | Test Item                         | Test Result              | Judgment | Remark  |
| 15.207                                  | AC Power Line Conducted Emissions | APPENDIX A               | PASS     | -----   |
| 15.205(a)<br>15.209(a)<br>15.225(a)-(d) | Radiated Emission                 | APPENDIX B<br>APPENDIX C | PASS     | -----   |
| 15.225(e)                               | Frequency Tolerance               | APPENDIX D               | PASS     | -----   |
| 15.203                                  | Antenna Requirement               | -----                    | PASS     | Note(2) |

Note:

- (1) "N/A" denotes test is not applicable in this test report
- (2) The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.

## 1.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China  
 BTL's Test Firm Registration Number for FCC: 357015  
 BTL's Designation Number for FCC: CN1240

## 1.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

The BTL measurement uncertainty as below table:

### A. AC power line conducted emissions test:

| Test Site | Method | Measurement Frequency Range | U, (dB) |
|-----------|--------|-----------------------------|---------|
| DG-C02    | CISPR  | 150 kHz ~ 30 MHz            | 2.32    |

### B. Radiated emissions test:

| Test Site | Method | Measurement Frequency Range | Ant. H / V | U, (dB) |
|-----------|--------|-----------------------------|------------|---------|
| DG-CB03   | CISPR  | 9kHz ~ 30MHz                | V          | 3.79    |
|           |        | 9kHz ~ 30MHz                | H          | 3.57    |
|           |        | 30MHz ~ 200MHz              | V          | 4.88    |
|           |        | 30MHz ~ 200MHz              | H          | 4.14    |
|           |        | 200MHz ~ 1,000MHz           | V          | 4.62    |
|           |        | 200MHz ~ 1,000MHz           | H          | 4.80    |
|           |        | 1GHz ~ 6GHz                 | -          | 4.58    |
|           |        | 6GHz ~ 18GHz                | -          | 5.18    |
|           |        | 18GHz ~ 26.5GHz             | -          | 3.80    |
|           |        | 26.5GHz ~ 40GHz             | -          | 4.30    |

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

## 1.3 TEST ENVIRONMENT CONDITIONS

| Test Item                         | Temperature     | Humidity | Test Voltage | Tested By    |
|-----------------------------------|-----------------|----------|--------------|--------------|
| AC Power Line Conducted Emissions | 25°C            | 60%      | AC 120V/60Hz | Damon Deng   |
| Radiated Emissions-9K-30MHz       | 25°C            | 60%      | AC 120V/60Hz | Sheldon Ou   |
| Radiated Emissions-30 MHz to 1GHz | 25°C            | 60%      | AC 120V/60Hz | Sheldon Ou   |
| Frequency Tolerance               | Normal, Extreme |          |              | Robin Zhuang |

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Equipment           | Mobile Phone                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Brand Name          | OPPO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Test Model          | CPH1941                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Series Model        | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Model Difference(s) | N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Hardware Version    | 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Software Version    | ColorOS V6.0.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Firmware Version    | TBD                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Operation Frequency | 13.56 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Antenna Type        | Loop Antenna                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Power Source        | <ol style="list-style-type: none"> <li>DC Voltage supplied from AC/DC adapter.<br/> <ol style="list-style-type: none"> <li>Model: OP52KAUH</li> <li>Model: OP52JAUH</li> <li>Model: OP52YAUH</li> </ol> </li> <li>Supplied from Li-ion Polymer battery.<br/> <ol style="list-style-type: none"> <li>Factory / Model: NVT / BLP727 (NA-P727-92)</li> <li>Factory / Model: Desay / BLP727 (DA-P727-923)</li> <li>Factory / Model: Sunwoda / BLP727 (XA-P727-922)</li> <li>Factory / Model: Desay / BLP727 (DD-P727-918)</li> <li>Factory / Model: Desay / BLP727 (DA-P727-931)</li> </ol> </li> <li>Supplied from USB port.</li> </ol> |
| Power Rating        | <ol style="list-style-type: none"> <li>I/P:100-240V~ 50/60Hz 0.4A    O/P:5V --- 2A</li> <li>3.87Vdc, 5000mAh/19.35Wh</li> <li>DC 5V</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

Note:

- For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

## 2.2 DESCRIPTION OF TEST MODES

The test system was pre-tested based on the consideration of all possible combinations of EUT operation mode.

| Pretest Mode | Description      |
|--------------|------------------|
| Mode 1       | TX Mode_13.56MHz |

Following mode(s) was (were) found to be the worst case(s) and selected for the final test.

| AC power line conducted emissions test |                  |
|----------------------------------------|------------------|
| Final Test Mode                        | Description      |
| Mode 1                                 | TX Mode_13.56MHz |

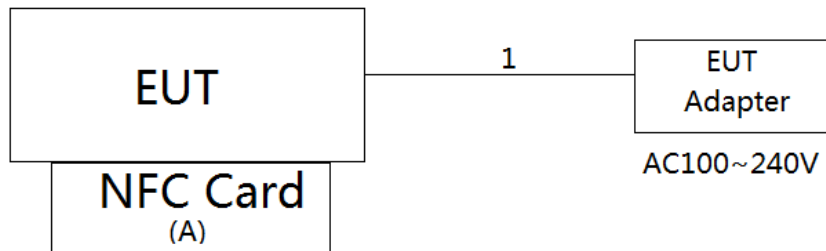
| Radiated emissions test - Below 1GHz |                  |
|--------------------------------------|------------------|
| Final Test Mode                      | Description      |
| Mode 1                               | TX Mode_13.56MHz |

| Conducted test  |                  |
|-----------------|------------------|
| Final Test Mode | Description      |
| Mode 1          | TX Mode_13.56MHz |

Note:

For radiated emissions below 1GHz, all adapters had been pre-tested and in this report only recorded the worst case.

### 2.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



### 2.4 SUPPORT UNITS

| Item | Equipment | Mfr/Brand | Model/Type No. | Series No. |
|------|-----------|-----------|----------------|------------|
| A    | NFC Card  | N/A       | N/A            | N/A        |

| Item | Cable Type | Shielded Type | Ferrite Core | Length |
|------|------------|---------------|--------------|--------|
| 1    | DC Cable   | NO            | NO           | 1m     |

### 3. AC POWER LINE CONDUCTED EMISSIONS TEST

#### 3.1 LIMIT

| Frequency of Emission (MHz) | Limit (dB $\mu$ V) |           |
|-----------------------------|--------------------|-----------|
|                             | Quasi-peak         | Average   |
| 0.15 - 0.50                 | 66 to 56*          | 56 to 46* |
| 0.50 - 5.0                  | 56                 | 46        |
| 5.0 - 30.0                  | 60                 | 50        |

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    |

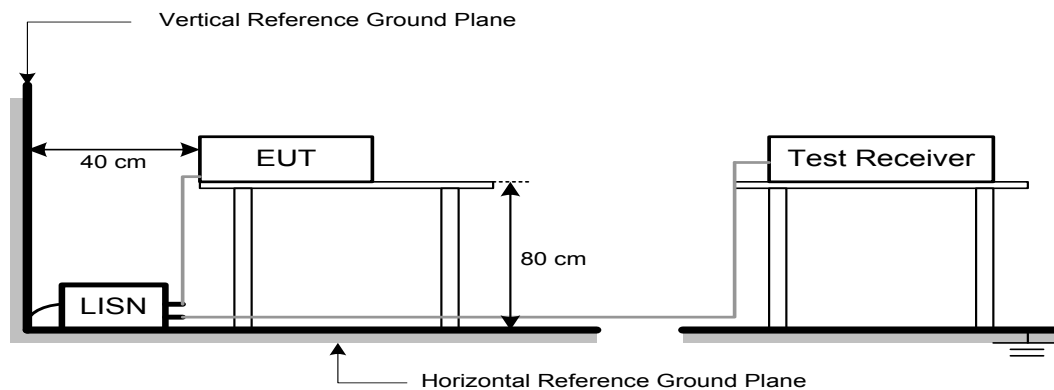
#### 3.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT 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.
- b. 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.
- c. 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.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

#### 3.3 DEVIATION FROM TEST STANDARD

No deviation

### 3.4 TEST SETUP



### 3.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical function (as a customer would normally use it), EUT was programmed to be in continuously transmitting data or hopping on mode.

### 3.6 TEST RESULTS

Please refer to the APPENDIX A.

Remark:

- (1) All readings are QP Mode value unless otherwise stated AVG in column of 'Note'. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform in this case, a "\*" marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150 kHz to 30 MHz.

## 4. RADIATED EMISSION TEST

### 4.1 LIMIT

Clause 15.225(a) the field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30 meters.

Clause 15.225(b) within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.

Clause 15.225(c) within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106 microvolts/meter at 30 meters.

Clause 15.225(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

§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:

LIMITS OF RADIATED EMISSION MEASUREMENT (9 kHz-1000 MHz)

| Frequency<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(meters) |
|--------------------|--------------------------------------|----------------------------------|
| 0.009-0.490        | 2400/F(kHz)                          | 300                              |
| 0.490-1.705        | 24000/F(kHz)                         | 30                               |
| 1.705-30.0         | 30                                   | 30                               |
| 30-88              | 100                                  | 3                                |
| 88-216             | 150                                  | 3                                |
| 216-960            | 200                                  | 3                                |
| Above 960          | 500                                  | 3                                |

Note:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

## **4.2 TEST PROCEDURE**

The test set-up was made in accordance to the general provisions of ANSI C63.10-2013. The Equipment Under Test (EUT) was set up on a non-conductive table in the semi-anechoic chamber. The test was performed at the distance of 3 m between the EUT and the receiving antenna. The radiated emissions measurements were made in a typical installation configuration.

Sweep the whole frequency band through the range from 9 kHz to the 10th harmonic of the carrier, and the emissions less than 20 dB below the permissible value are reported.

During the test, below 30MHz, the center of the loop shall be 1 meters; above 30MHz, the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turntable shall be rotated from 0 to 360 degrees for detecting the maximum of radiated spurious signal level. The measurements shall be repeated with orthogonal polarization of the test antenna. The data of cable loss and antenna factor has been calibrated in full testing frequency range before the testing.

Set the spectrum analyzer in the following:

Below 1GHz (detector: Peak and Quasi-Peak)

RBW=100 kHz / VBW=300 kHz / Sweep=AUTO

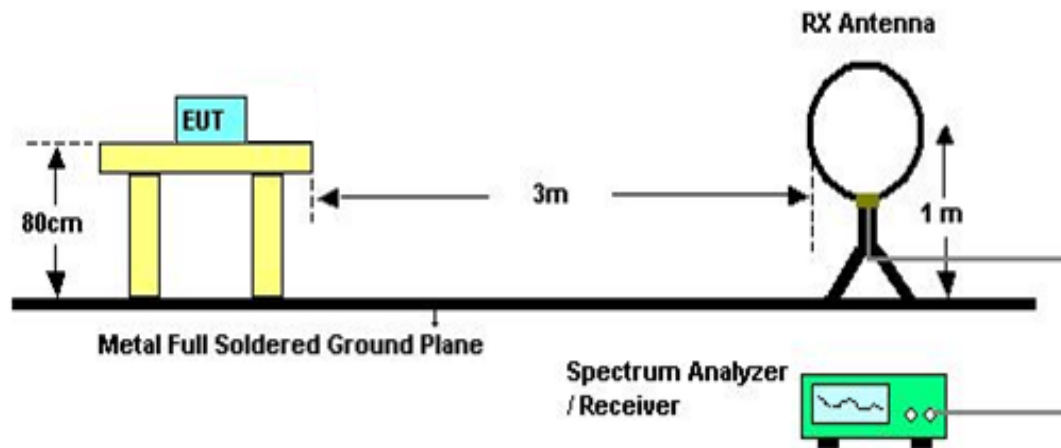
The radiated emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the worst case was recorded.

## **4.3 DEVIATION FROM TEST STANDARD**

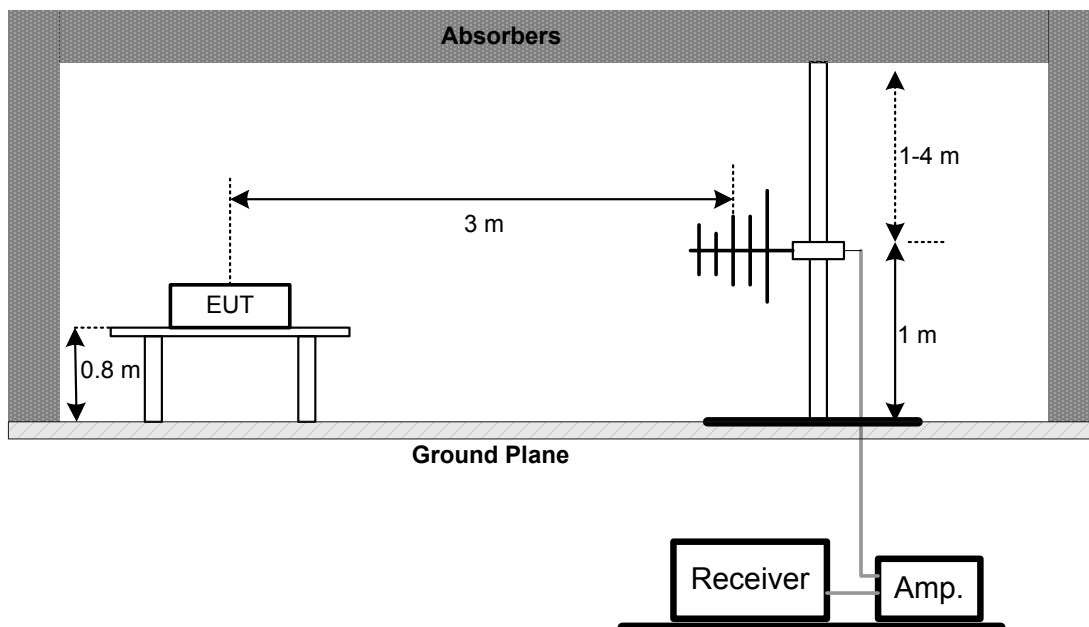
No deviation

## 4.4 TEST SETUP

### 9 kHz-30 MHz



### 30 MHz to 1000 MHz



## 4.5 EUT OPERATING CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

## 4.6 TEST RESULTS - 9 kHz TO 30 MHz

Please refer to the APPENDIX B

Remark:

- (1) Distance extrapolation factor =  $40 \log (\text{specific distance} / \text{test distance})$  (dB).
- (2) Limit line = specific limits (dBuV) + distance extrapolation factor.

## 4.7 TEST RESULTS - 30 MHz TO 1000 MHz

Please refer to the APPENDIX C.

## 5. FREQUENCY TOLERANCE TEST

### 5.1 LIMIT

| FCC Part15 Subpart C |                     |                       |
|----------------------|---------------------|-----------------------|
| Section              | Test Item           | Limit                 |
| 15.225(e)            | Frequency Tolerance | $\pm 0.001\text{MHz}$ |

### 5.2 TEST PROCEDURE

1. The frequency tolerance of the carrier signal shall be maintained within  $\pm 0.01\%$  of the operating frequency over a temperature variation of  $-20$  degrees to  $+ 50$  degrees C at normal supply voltage, and for a variation in the primary supply voltage from  $85\%$  to  $115\%$  of the rated supply voltage at a temperature of  $20$  degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

### 5.3 DEVIATION FROM STANDARD

No deviation.

### 5.4 TEST SETUP

#### Temperature And Humidity Box



### 5.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 3.5 unless otherwise a special operating condition is specified in the follows during the testing.

### 5.6 TEST RESULTS

Please refer to the APPENDIX D.

## 6. MEASUREMENT INSTRUMENTS LIST

| AC Power Line Conducted Emissions |                      |              |                       |            |                  |
|-----------------------------------|----------------------|--------------|-----------------------|------------|------------------|
| Item                              | Kind of Equipment    | Manufacturer | Type No.              | Serial No. | Calibrated until |
| 1                                 | EMI Test Receiver    | R&S          | ESCI                  | 100382     | Mar. 10, 2020    |
| 2                                 | LISN                 | EMCO         | 3816/2                | 52765      | Mar. 10, 2020    |
| 3                                 | TWO-LINE V-NETWORK   | R&S          | ENV216                | 101447     | May. 19, 2020    |
| 4                                 | 50Ω Terminator       | SHX          | TF5-3                 | 15041305   | Mar. 10, 2020    |
| 5                                 | Measurement Software | Farad        | EZ-EMC Ver.NB-03A1-01 | N/A        | N/A              |
| 6                                 | Cable                | N/A          | RG223                 | 12m        | Mar. 12, 2020    |

| Radiated Emissions - 9 kHz to 30 MHz |                      |              |                       |            |                  |
|--------------------------------------|----------------------|--------------|-----------------------|------------|------------------|
| Item                                 | Kind of Equipment    | Manufacturer | Type No.              | Serial No. | Calibrated until |
| 1                                    | Loop Antenna         | EM           | EM-6876-1             | 230        | Jan. 15, 2020    |
| 2                                    | Cable                | N/A          | RG 213/U              | C-102      | May 31, 2020     |
| 3                                    | EMI Test Receiver    | R&S          | ESCI                  | 100895     | Mar. 10, 2020    |
| 4                                    | Measurement Software | Farad        | EZ-EMC Ver.NB-03A1-01 | N/A        | N/A              |

| Radiated Emissions - 30 MHz to 1 GHz |                      |              |                            |             |                  |
|--------------------------------------|----------------------|--------------|----------------------------|-------------|------------------|
| Item                                 | Kind of Equipment    | Manufacturer | Type No.                   | Serial No.  | Calibrated until |
| 1                                    | Antenna              | Schwarzbeck  | VULB9160                   | 9160-3232   | Mar. 09, 2020    |
| 2*                                   | Amplifier            | HP           | 8447D                      | 2944A09673  | Aug. 11, 2021    |
| 3                                    | Receiver             | Agilent      | N9038A                     | MY52130039  | Aug. 03, 2020    |
| 4                                    | Cable                | emci         | LMR-400(30MHz-1GHz)(8m+5m) | N/A         | May 24, 2020     |
| 5                                    | Controller           | CT           | SC100                      | N/A         | N/A              |
| 6                                    | Controller           | MF           | MF-7802                    | MF780208416 | N/A              |
| 7                                    | Measurement Software | Farad        | EZ-EMC Ver.NB-03A1-01      | N/A         | N/A              |

| Frequency Tolerance |                       |              |          |             |                  |
|---------------------|-----------------------|--------------|----------|-------------|------------------|
| Item                | Kind of Equipment     | Manufacturer | Type No. | Serial No.  | Calibrated until |
| 1                   | Spectrum Analyzer     | R&S          | FSP40    | 100185      | Aug. 03, 2020    |
| 2                   | Precision Oven Tester | Bell         | BTH-50C  | 20170306001 | Mar. 10, 2020    |

Remark "N/A" denotes no model name, serial no. or calibration specified.

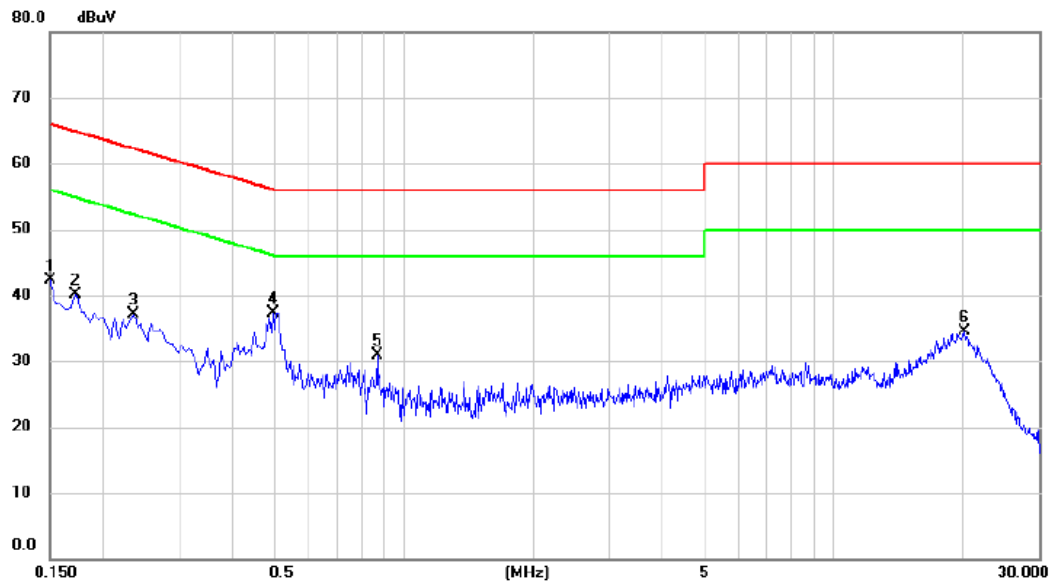
"\*" calibration period of equipment list is three year.

Except \* item, all calibration period of equipment list is one year.

## **APPENDIX A - AC POWER LINE CONDUCTED EMISSIONS**

|           |                  |
|-----------|------------------|
| Test Mode | TX Mode_13.56MHz |
|-----------|------------------|

## Line



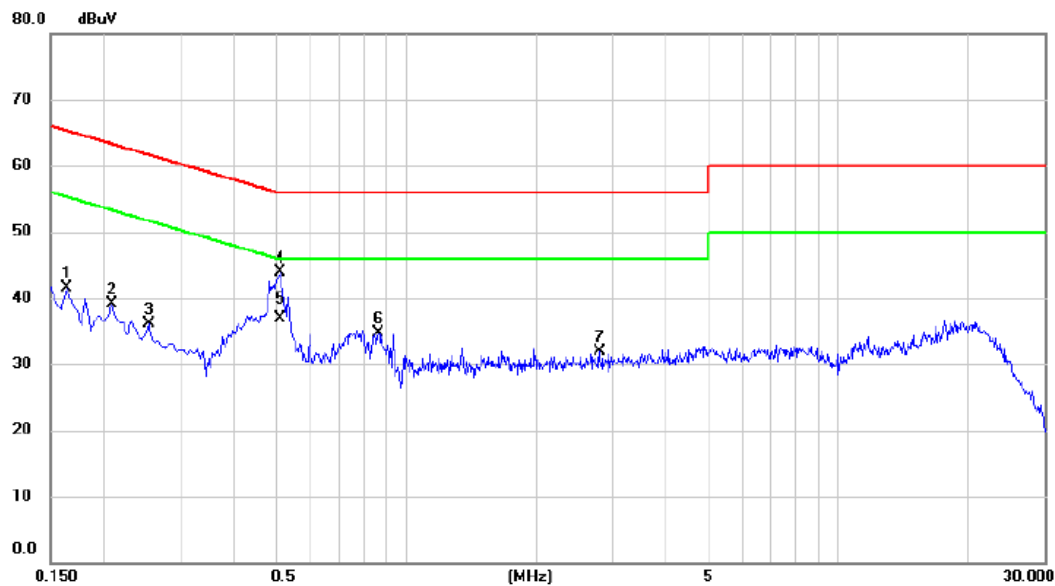
| No. Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Margin<br>dB | Detector | Comment |
|---------|--------------|--------------------------|-------------------------|--------------------------|---------------|--------------|----------|---------|
| 1       | 0.150        | 32.52                    | 9.82                    | 42.34                    | 66.00         | -23.66       | peak     |         |
| 2       | 0.172        | 30.35                    | 9.82                    | 40.17                    | 64.84         | -24.67       | peak     |         |
| 3       | 0.235        | 27.35                    | 9.82                    | 37.17                    | 62.25         | -25.08       | peak     |         |
| 4 *     | 0.496        | 27.52                    | 9.88                    | 37.40                    | 56.06         | -18.66       | peak     |         |
| 5       | 0.866        | 21.02                    | 9.91                    | 30.93                    | 56.00         | -25.07       | peak     |         |
| 6       | 20.108       | 23.32                    | 11.19                   | 34.51                    | 60.00         | -25.49       | peak     |         |

### REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.  
(2) Margin Level = Measurement Value - Limit Value.

|           |                  |
|-----------|------------------|
| Test Mode | TX Mode_13.56MHz |
|-----------|------------------|

## Neutral



| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV | Limit<br>dBuV | Margin<br>dB | Detector | Comment |
|-----|-----|--------------|--------------------------|-------------------------|--------------------------|---------------|--------------|----------|---------|
| 1   |     | 0.164        | 31.56                    | 9.91                    | 41.47                    | 65.28         | -23.81       | peak     |         |
| 2   |     | 0.208        | 29.22                    | 9.90                    | 39.12                    | 63.26         | -24.14       | peak     |         |
| 3   |     | 0.254        | 26.16                    | 9.93                    | 36.09                    | 61.64         | -25.55       | peak     |         |
| 4   |     | 0.510        | 33.86                    | 10.03                   | 43.89                    | 56.00         | -12.11       | peak     |         |
| 5   | *   | 0.510        | 26.86                    | 10.03                   | 36.89                    | 46.00         | -9.11        | AVG      |         |
| 6   |     | 0.861        | 24.66                    | 10.09                   | 34.75                    | 56.00         | -21.25       | peak     |         |
| 7   |     | 2.800        | 21.63                    | 10.24                   | 31.87                    | 56.00         | -24.13       | peak     |         |

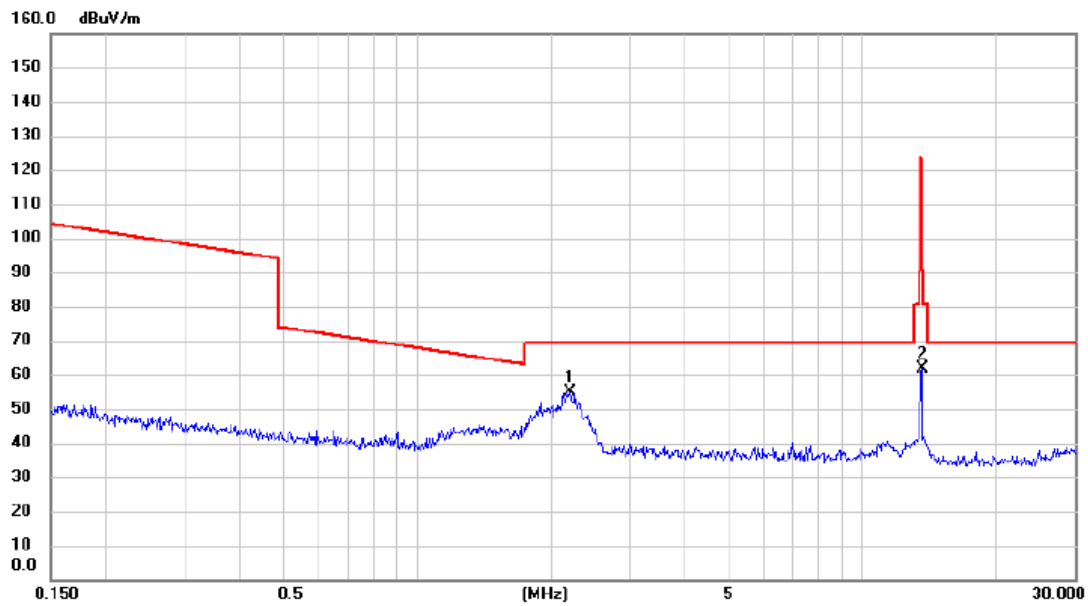
### REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.  
(2) Margin Level = Measurement Value - Limit Value.

## **APPENDIX B - RADIATED EMISSION - 9 KHZ-30 MHZ**

Test Mode TX Mode\_13.56MHz

Ant 0°



| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Margin |          |         |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz    | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   | *   | 2.201  | 43.47         | 11.70          | 55.17       | 69.50  | -14.33 | peak     |         |
| 2   |     | 13.623 | 50.02         | 11.59          | 61.61       | 90.50  | -28.89 | peak     |         |

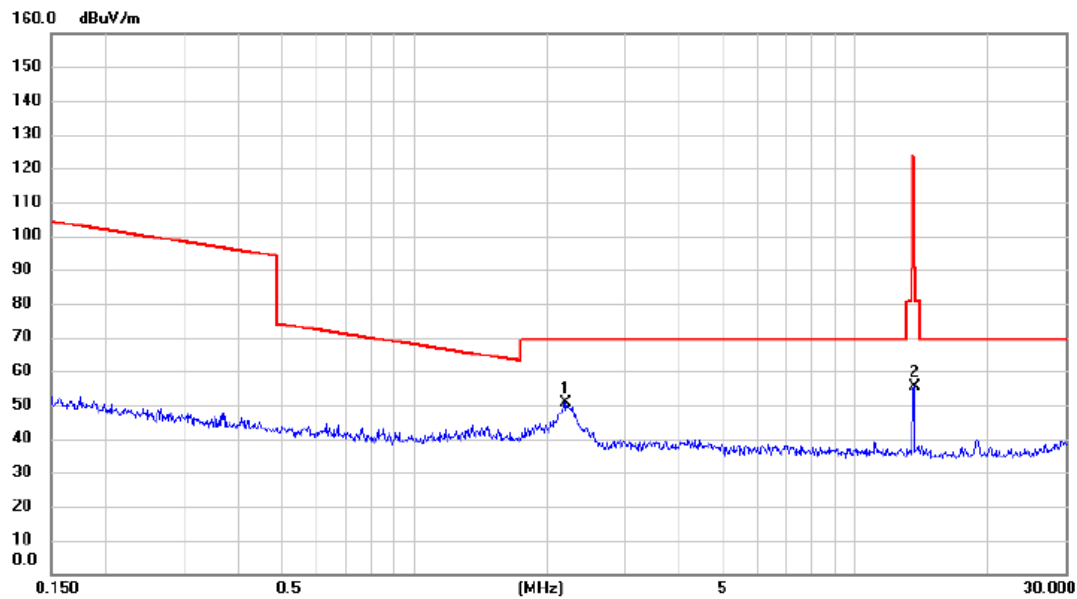
## REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

|           |                  |
|-----------|------------------|
| Test Mode | TX Mode_13.56MHz |
|-----------|------------------|

Ant 90°



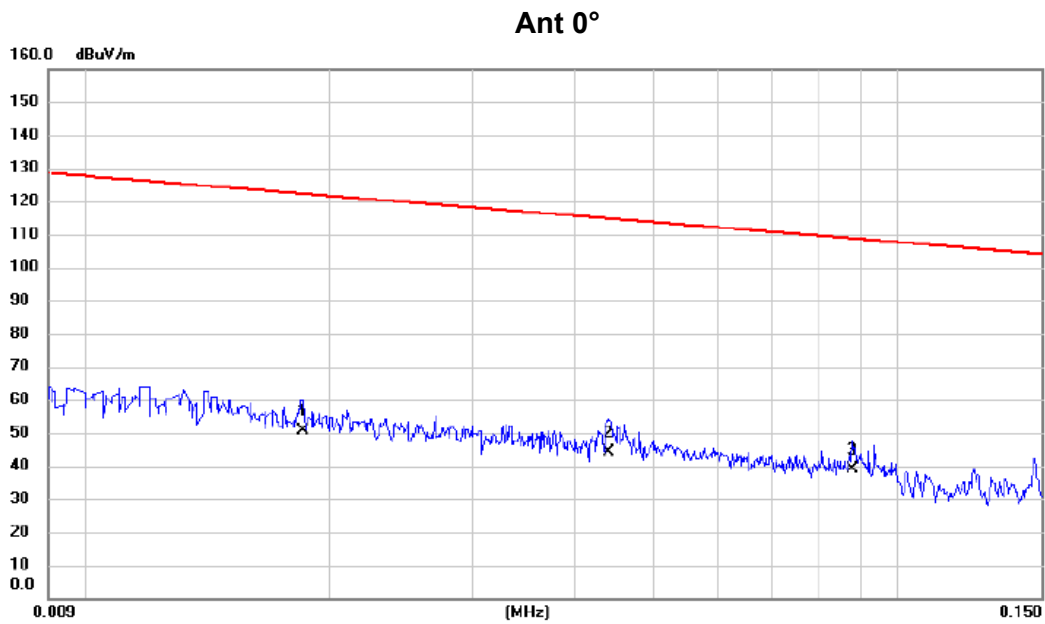
| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit  | Margin |          |         |
|-----|-----|--------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz    | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   | *   | 2.201  | 38.96         | 11.70          | 50.66       | 69.50  | -18.84 | peak     |         |
| 2   |     | 13.623 | 43.90         | 11.59          | 55.49       | 90.50  | -35.01 | peak     |         |

## REMARKS:

(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

|           |                  |
|-----------|------------------|
| Test Mode | TX Mode_13.56MHz |
|-----------|------------------|



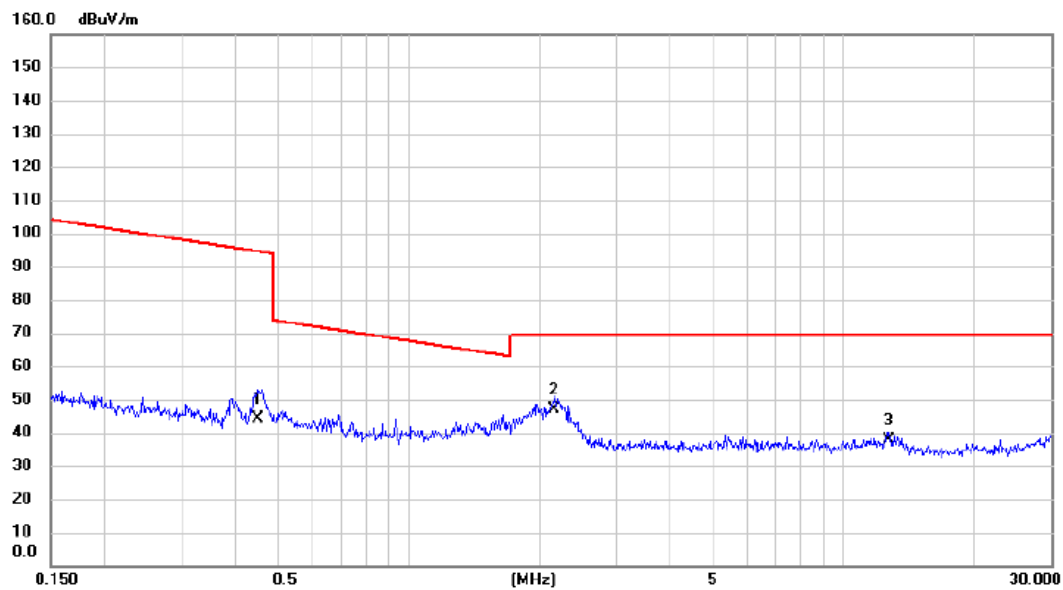
| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit  | Margin |          |         |
|-----|-----|-------|---------------|----------------|--------------|--------|--------|----------|---------|
|     |     | MHz   | dBuV          | dB             | dBuV/m       | dBuV/m | dB     | Detector | Comment |
| 1   |     | 0.018 | 36.20         | 14.27          | 50.47        | 122.26 | -71.79 | AVG      |         |
| 2   |     | 0.044 | 30.30         | 13.91          | 44.21        | 114.74 | -70.53 | AVG      |         |
| 3   | *   | 0.088 | 25.30         | 13.54          | 38.84        | 108.73 | -69.89 | AVG      |         |

## REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

|           |                  |
|-----------|------------------|
| Test Mode | TX Mode_13.56MHz |
|-----------|------------------|

## Ant 0°



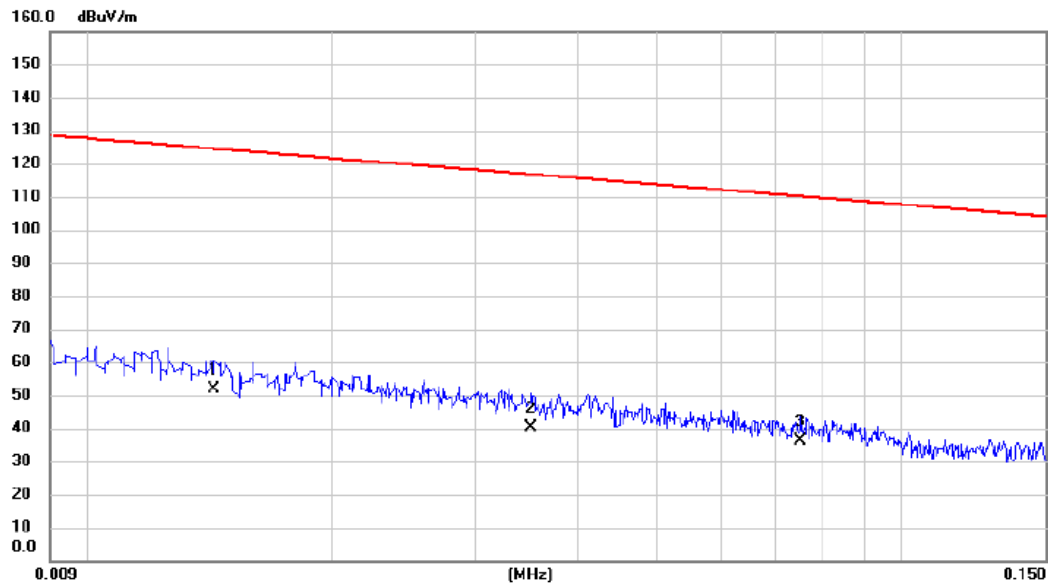
| No. Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | Detector | Comment |
|---------|--------------|--------------------------|-------------------------|----------------------------|-----------------|--------------|----------|---------|
| 1       | 0.452        | 31.20                    | 13.18                   | 44.38                      | 94.51           | -50.13       | AVG      |         |
| 2 *     | 2.167        | 35.20                    | 11.72                   | 46.92                      | 69.54           | -22.62       | QP       |         |
| 3       | 12.716       | 26.10                    | 11.60                   | 37.70                      | 69.54           | -31.84       | QP       |         |

### REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.  
 (2) Margin Level = Measurement Value - Limit Value.

|           |                  |
|-----------|------------------|
| Test Mode | TX Mode_13.56MHz |
|-----------|------------------|

Ant 90°



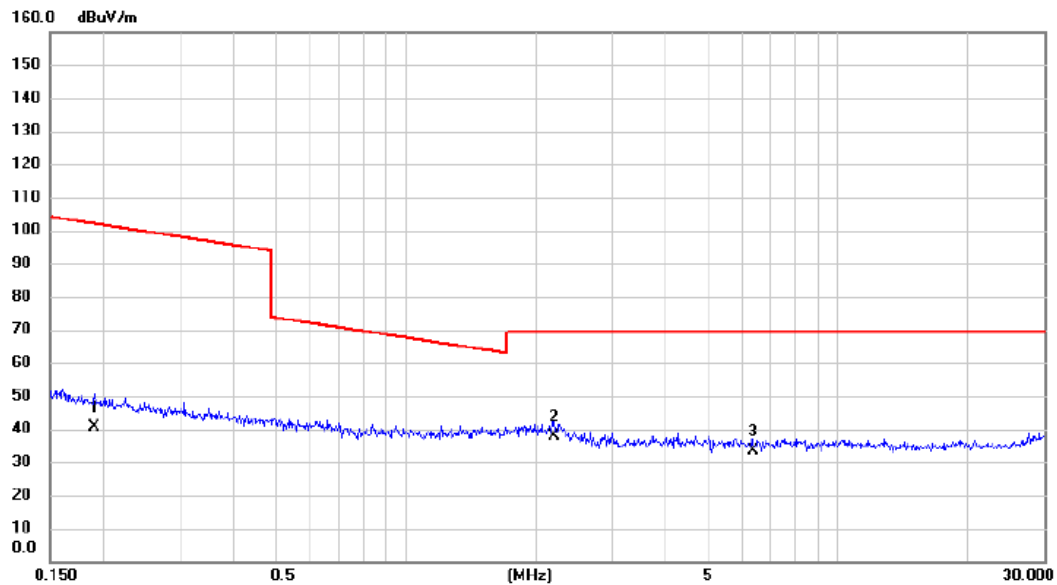
| No. | Mk. | Freq. | Reading Level | Correct Factor | Measure-ment | Limit  | Margin |          |         |
|-----|-----|-------|---------------|----------------|--------------|--------|--------|----------|---------|
|     |     | MHz   | dBuV          | dB             | dBuV/m       | dBuV/m | dB     | Detector | Comment |
| 1   | *   | 0.014 | 36.30         | 15.53          | 51.83        | 124.50 | -72.67 | AVG      |         |
| 2   |     | 0.035 | 26.20         | 13.88          | 40.08        | 116.72 | -76.64 | AVG      |         |
| 3   |     | 0.075 | 22.50         | 13.53          | 36.03        | 110.08 | -74.05 | AVG      |         |

## REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.  
(2) Margin Level = Measurement Value - Limit Value.

|           |         |
|-----------|---------|
| Test Mode | TX Mode |
|-----------|---------|

Ant 90°



| No. Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | Detector | Comment |
|---------|--------------|--------------------------|-------------------------|----------------------------|-----------------|--------------|----------|---------|
| 1       | 0.190        | 27.10                    | 13.60                   | 40.70                      | 102.03          | -61.33       | AVG      |         |
| 2 *     | 2.213        | 26.30                    | 11.69                   | 37.99                      | 69.54           | -31.55       | QP       |         |
| 3       | 6.352        | 22.20                    | 11.07                   | 33.27                      | 69.54           | -36.27       | QP       |         |

## REMARKS:

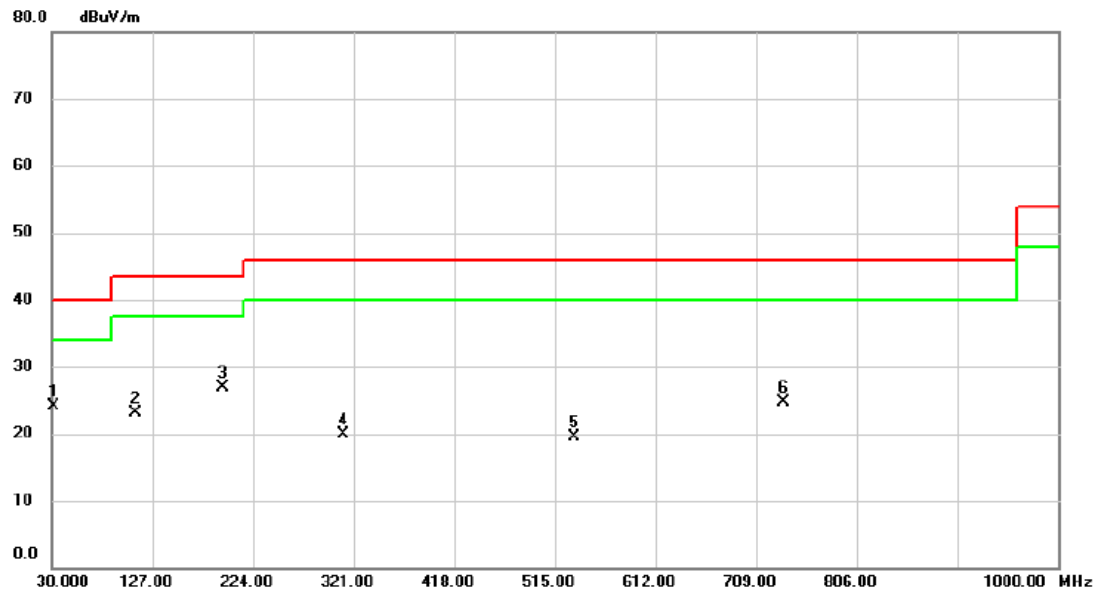
(1) Measurement Value = Reading Level + Correct Factor.

(2) Margin Level = Measurement Value - Limit Value.

## **APPENDIX C - RADIATED EMISSION - 30 MHZ TO 1000 MHZ**

|           |                  |
|-----------|------------------|
| Test Mode | TX Mode_13.56MHz |
|-----------|------------------|

## Vertical



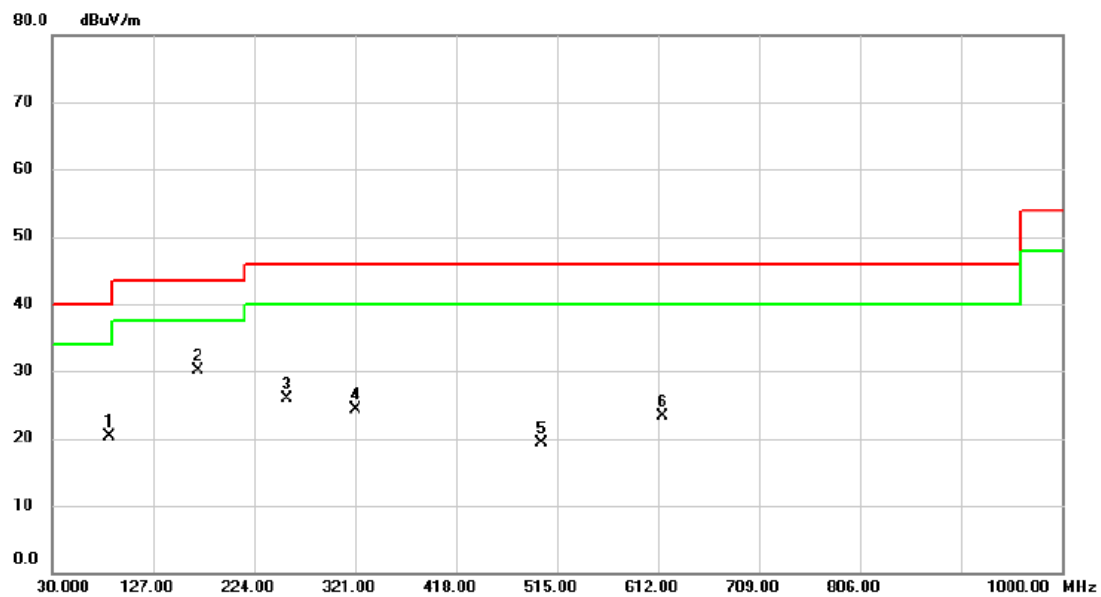
| No. | Mk. | Freq.   | Reading Level | Correct Factor | Measurement | Limit  | Margin |          |         |
|-----|-----|---------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz     | dBuV          | dB             | dBuV/m      | dBuV/m | dB     | Detector | Comment |
| 1   | *   | 31.940  | 37.84         | -13.77         | 24.07       | 40.00  | -15.93 | peak     |         |
| 2   |     | 110.510 | 44.84         | -21.69         | 23.15       | 43.50  | -20.35 | peak     |         |
| 3   |     | 194.900 | 46.10         | -19.27         | 26.83       | 43.50  | -16.67 | peak     |         |
| 4   |     | 311.300 | 34.04         | -14.04         | 20.00       | 46.00  | -26.00 | peak     |         |
| 5   |     | 533.430 | 29.42         | -10.00         | 19.42       | 46.00  | -26.58 | peak     |         |
| 6   |     | 735.190 | 30.20         | -5.57          | 24.63       | 46.00  | -21.37 | peak     |         |

### REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

|           |                  |
|-----------|------------------|
| Test Mode | TX Mode_13.56MHz |
|-----------|------------------|

## Horizontal



| No. | Mk. | Freq.   | Reading Level | Correct Factor | Measurement | Limit  | Margin | Detector | Comment |
|-----|-----|---------|---------------|----------------|-------------|--------|--------|----------|---------|
|     |     | MHz     | dBuV          | dB             | dBuV/m      | dBuV/m | dB     |          |         |
| 1   |     | 85.290  | 42.95         | -22.64         | 20.31       | 40.00  | -19.69 | peak     |         |
| 2   | *   | 170.650 | 50.38         | -20.33         | 30.05       | 43.50  | -13.45 | peak     |         |
| 3   |     | 255.040 | 42.70         | -16.72         | 25.98       | 46.00  | -20.02 | peak     |         |
| 4   |     | 321.000 | 38.18         | -13.86         | 24.32       | 46.00  | -21.68 | peak     |         |
| 5   |     | 499.480 | 29.98         | -10.60         | 19.38       | 46.00  | -26.62 | peak     |         |
| 6   |     | 615.880 | 31.48         | -8.17          | 23.31       | 46.00  | -22.69 | peak     |         |

### REMARKS:

- (1) Measurement Value = Reading Level + Correct Factor.
- (2) Margin Level = Measurement Value - Limit Value.

## APPENDIX D - FREQUENCY TOLERANCE

|           |                  |
|-----------|------------------|
| Test Mode | TX Mode_13.56MHz |
|-----------|------------------|

| Frequency Tolerance Versus Environmental Temperature |                  |             |                 |                       |             |        |
|------------------------------------------------------|------------------|-------------|-----------------|-----------------------|-------------|--------|
|                                                      | Temperature (°C) | Voltage (V) | Frequency (MHz) | Frequency Error (kHz) | Limit (kHz) | Result |
|                                                      | 25               | 3.87        | 13.56           | -                     | -           | -      |
| 0 min                                                | 50               | 3.87        | 13.562          | 2                     | +/- 1.356   | PASS   |
|                                                      | -20              | 3.87        | 13.5605         | 0.5                   | +/- 1.356   | PASS   |
| 2 min                                                | 50               | 3.87        | 13.5605         | 0.5                   | +/- 1.356   | PASS   |
|                                                      | -20              | 3.87        | 13.5603         | 0.3                   | +/- 1.356   | PASS   |
| 5 min                                                | 50               | 3.87        | 13.5606         | 0.6                   | +/- 1.356   | PASS   |
|                                                      | -20              | 3.87        | 13.5597         | -0.3                  | +/- 1.356   | PASS   |
| 10 min                                               | 50               | 3.87        | 13.5604         | 0.4                   | +/- 1.356   | PASS   |
|                                                      | -20              | 3.87        | 13.5595         | -0.5                  | +/- 1.356   | PASS   |

| Frequency Tolerance Versus Input Voltage |             |        |                 |                       |             |        |
|------------------------------------------|-------------|--------|-----------------|-----------------------|-------------|--------|
| Temperature (°C)                         | Voltage (V) |        | Frequency (MHz) | Frequency Error (kHz) | Limit (kHz) | Result |
| 25                                       | V-nom       | 3.87   | 13.56           | -                     | -           | -      |
| 25                                       | V-min       | 3.2895 | 13.5606         | 0.6                   | +/- 1.356   | PASS   |
| 25                                       | V-max       | 4.4505 | 13.5606         | 0.6                   | +/- 1.356   | PASS   |

**End of Test Report**