

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Telephone: +86 (0) 21 6191 5666

Fax: +86 (0) 21 6191 5678

ee.shanghai@sgs.com

Report No.: SHEM180500348701

Page: 1 of 24

TEST REPORT

Application No.: SHEM1805003487CR
FCC ID 2ADTD-K3B601LE
Applicant: Hangzhou Hikvision Digital Technology Co., Ltd.
Address of Applicant: No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China
Manufacturer: Hangzhou Hikvision Digital Technology Co., Ltd.
Address of Manufacturer: No.555 Qianmo Road, Binjiang District, Hangzhou 310052, China
Factory:
1, Hangzhou Hikvision Technology Co., Ltd.
2, Hangzhou Hikvision Electronics Co., Ltd.
3, Hangzhou Hikvision Digital Technology Co., Ltd.
Address of Factory:
1, No.700, Dongliu Road, Binjiang District, Hangzhou City, Zhejiang, 310052, China
2, No.299, Qiushi Road, Tonglu Economic Development Zone, Tonglu County, Hangzhou, Zhejiang, 310052, China.
3, No. 555 Qianmo Road, Binjiang District, Hangzhou 310052, China

Equipment Under Test (EUT):

EUT Name: Swing Barrier
Model No.: DS-K3B601-L/E, DS-K3B601-R/E, DS-K3B601-M/E, DS-K3B601A-L/E, DS-K3B601A-R/E, DS-K3B601A-M/E, DS-K3B601-L/Em, DS-K3B601-R/Em, DS-K3B601-M/Em, DS-K3B601A-L/Em, DS-K3B601A-R/Em, DS-K3B601-M/Em

☒ Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

Trade mark: HIKVISION

Standard(s) : 47 CFR Part 15, Subpart C 15.209

Date of Receipt: 2018-05-14

Date of Test: 2018-07-19 to 2018-07-21

Date of Issue: 2018-10-08

| | |
|---------------------|--------------|
| Test Result: | Pass* |
|---------------------|--------------|

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



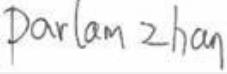
Parlam Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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| Revision Record | | | |
|-----------------|-------------|------------|--------|
| Version | Description | Date | Remark |
| 00 | Original | 2018-10-08 | / |
| | | | |
| | | | |

| | | | |
|--------------------------|--|--|--|
| Authorized for issue by: | | | |
| | |  | |
| | | Vincent Zhu / Project Engineer | |
| | |  | |
| | | Parlam Zhan / Reviewer | |



2 Test Summary

| Radio Spectrum Technical Requirement | | | | |
|--------------------------------------|-------------------------------------|--------|-------------------------------------|--------|
| Item | Standard | Method | Requirement | Result |
| Antenna Requirement | 47 CFR Part 15, Subpart C 15.209 | N/A | 47 CFR Part 15, Subpart C 15.203 | Pass |

| Radio Spectrum Matter Part | | | | |
|---|-------------------------------------|---------------------------------------|---|--------|
| Item | Standard | Method | Requirement | Result |
| Conducted Emissions at AC Power Line (150kHz-30MHz) | 47 CFR Part 15, Subpart C 15.209 | ANSI C63.10 (2013) Section 6.2 | 47 CFR Part 15, Subpart C 15.207 | Pass |
| 20dB Bandwidth | 47 CFR Part 15, Subpart C 15.209 | ANSI C63.10 (2013) Section 6.9 | 47 CFR Part 15, Subpart C 15.215(c) | Pass |
| Radiated Emissions (9kHz-30MHz) | 47 CFR Part 15, Subpart C 15.209 | ANSI C63.10 (2013) Section 6.4&6.5 | 47 CFR Part 15, Subpart C 15.209(c) | Pass |
| Radiated Emissions (30MHz-1GHz) | 47 CFR Part 15, Subpart C 15.209 | ANSI C63.10 (2013) Section 6.4&6.5 | 47 CFR Part 15, Subpart C 15.209(c) | Pass |

Declaration of EUT Family Grouping:

Note: There are series models mentioned in this report, and they are the identical in electrical and electronic characters. Only the model DS-K3B601-L/E was tested since their differences were the software version, their naming and color silk.

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4 General Information

4.1 Details of E.U.T.

Power supply: AC 100~240V 50/60Hz
Test voltage: AC 120V 60Hz
Operation Frequency 125KHz
Modulation Type ASK
Antenna Type Loop Antenna

4.2 Description of Support Units

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

| No. | Item | Measurement Uncertainty |
|-----|---------------------------------|--|
| 1 | Radio Frequency | 7.25 x 10-8 |
| 2 | Timeout | 2s |
| 3 | Duty cycle | 0.37% |
| 4 | Occupied Bandwidth | 3% |
| 5 | RF conducted power | 0.75dB |
| 6 | RF power density | 2.84dB |
| 7 | Conducted Spurious emissions | 0.75dB |
| 8 | RF Radiated power | 4.5dB (Below 1GHz) 4.8dB (Above 1GHz) |
| 9 | Radiated Spurious emission test | 4.2dB (Below 30MHz) 4.4dB (30MHz-1GHz) 4.6dB (1GHz-18GHz) 5.2dB (Above 18GHz) |
| 10 | Temperature test | 1°C |
| 11 | Humidity test | 3% |
| 12 | Supply voltages | 1.5% |
| 13 | Time | 3% |

Note: The measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

No tests were sub-contracted.

4.5 Test Facility

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

- CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- NVLAP (Certificate No. 201034-0)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

- FCC –Designation Number: CN5033**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

Designation Number: CN5033. Test Firm Registration Number: 479755.

- Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1.

- VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



5 Equipment List

| Equipment | Manufacturer | Model No | Inventory No | Cal Date | Cal Due Date |
|--|--------------|--------------------|--------------|------------|--------------|
| Conducted Emission at AC Power Line | | | | | |
| EMI test receiver | R&S | ESR7 | SHEM162-1 | 2017-12-20 | 2018-12-19 |
| LISN | Schwarzbeck | NSLK8127 | SHEM061-1 | 2017-12-20 | 2018-12-19 |
| LISN | EMCO | 3816/2 | SHEM019-1 | 2017-12-20 | 2018-12-19 |
| Pulse limiter | R&S | ESH3-Z2 | SHEM029-1 | 2017-12-20 | 2018-12-19 |
| CE test Cable | / | CE01 | / | 2017-12-26 | 2018-12-25 |
| Conducted Test | | | | | |
| Spectrum Analyzer | R&S | FSP-30 | SHEM002-1 | 2017-12-20 | 2018-12-19 |
| Spectrum Analyzer | Agilent | N9020A | SHEM181-1 | 2018-09-26 | 2019-09-25 |
| Power meter | R&S | NRP | SHEM057-1 | 2017-12-26 | 2018-12-25 |
| Power Sensor | R&S | NRP-Z22 | SHEM136-1 | 2018-07-22 | 2019-07-21 |
| Power Sensor | R&S | NRP-Z91 | SHEM057-2 | 2017-12-26 | 2018-12-25 |
| Signal Generator | R&S | SMR40 | SHEM058-1 | 2018-07-03 | 2019-07-02 |
| Signal Generator | Agilent | N5182A | SHEM182-1 | 2018-09-26 | 2019-09-25 |
| Communication Tester | R&S | CMW270 | SHEM183-1 | 2017-10-22 | 2018-10-21 |
| Switcher | Tonscend | JS0806 | SHEM184-1 | 2018-09-26 | 2019-09-25 |
| Splitter | Anritsu | MA1612A | SHEM185-1 | / | / |
| Coupler | e-meca | 803-S-1 | SHEM186-1 | / | / |
| High-low Temp Cabinet | Suzhou Zhihe | TL-40 | SHEM087-1 | 2018-09-26 | 2019-09-25 |
| AC Power Stabilizer | WOCEN | 6100 | SHEM045-1 | 2017-12-26 | 2018-12-25 |
| DC Power Supply | QJE | QJ30003SII | SHEM046-1 | 2017-12-26 | 2018-12-25 |
| Conducted test Cable | / | RF01, RF 02 | / | 2017-12-26 | 2018-12-25 |
| Radiated Test | | | | | |
| EMI test receiver | R&S | ESU40 | SHEM051-1 | 2017-12-20 | 2018-12-19 |
| Spectrum Analyzer | R&S | FSP-30 | SHEM002-1 | 2017-12-20 | 2018-12-19 |
| Loop Antenna (9kHz-30MHz) | Schwarzbeck | FMZB1519 | SHEM135-1 | 2017-04-10 | 2020-04-09 |
| Antenna (25MHz-2GHz) | Schwarzbeck | VULB9168 | SHEM048-1 | 2017-02-28 | 2020-02-27 |
| Antenna (25MHz-3GHz) | Schwarzbeck | HL562 | SHEM010-1 | 2017-02-28 | 2020-02-27 |
| Horn Antenna (1-8GHz) | Schwarzbeck | HF906 | SHEM009-1 | 2017-10-24 | 2020-10-23 |
| Horn Antenna (1-18GHz) | Schwarzbeck | BBHA9120D | SHEM050-1 | 2017-01-14 | 2020-01-13 |
| Horn Antenna (14-40GHz) | Schwarzbeck | BBHA 9170 | SHEM049-1 | 2017-12-03 | 2020-12-02 |
| Pre-amplifier (9KHz-2GHz) | CLAVIIO | LNA-0001-412010 | SHEM164-1 | 2018-08-22 | 2019-08-21 |
| Pre-amplifier (1-18GHz) | CLAVIIO | BDLNA-0118-352810 | SHEM050-2 | 2018-08-22 | 2019-08-21 |
| High-amplifier (14-40GHz) | Schwarzbeck | 10001 | SHEM049-2 | 2017-12-20 | 2018-12-19 |
| Band filter | LORCH | 9BRX-875/X150-SR | SHEM156-1 | / | / |
| Band filter | LORCH | 13BRX-1950/X500-SR | SHEM083-2 | / | / |
| Band filter | LORCH | 5BRX-2400/X200-SR | SHEM155-1 | / | / |
| Band filter | LORCH | 5BRX-5500/X1000-SR | SHEM157-2 | / | / |
| High pass Filter | Wainwright | WHK3.0/18G-100SS | SHEM157-1 | / | / |
| High pass Filter | Wainwright | WHKS1700-3SS | SHEM157-3 | / | / |
| Semi/Fully Anechoic | ST | 11*6*6M | SHEM078-2 | 2017-07-22 | 2020-07-21 |
| RE test Cable | / | RE01, RE02, RE06 | / | 2017-12-26 | 2018-12-25 |

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

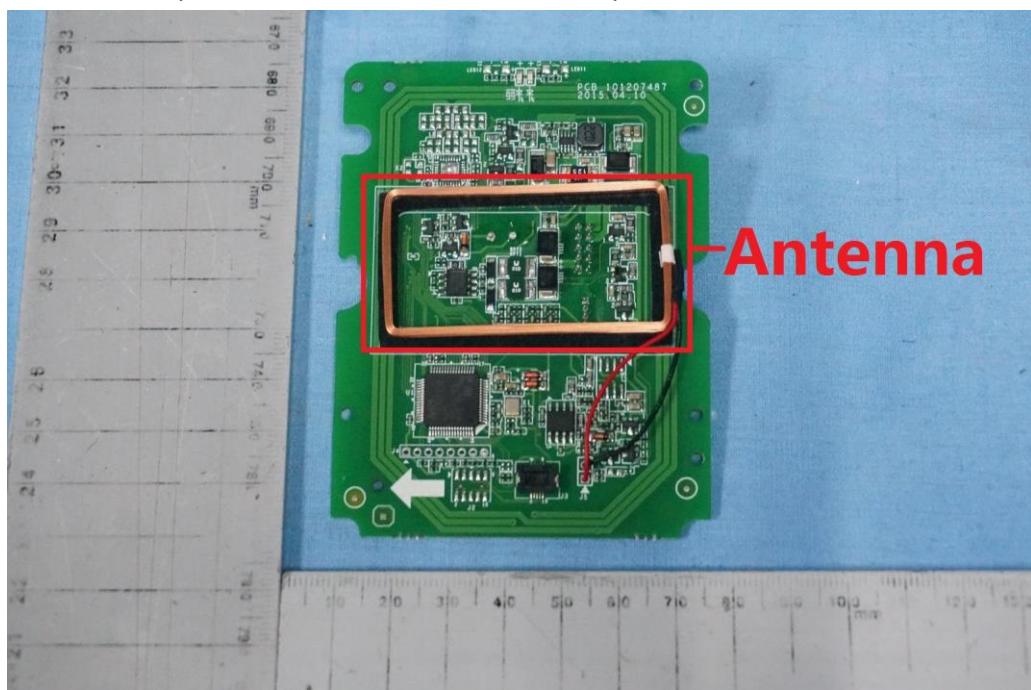
6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is loop antenna and no consideration of replacement.



7 Radio Spectrum Matter Test Results

7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.207

Test Method: ANSI C63.10 (2013) Section 6.2

Limit:

| Frequency of emission(MHz) | Conducted limit(dB μ V) | |
|----------------------------|-----------------------------|-----------|
| | Quasi-peak | Average |
| 0.15-0.5 | 66 to 56* | 56 to 46* |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

*Decreases with the logarithm of the frequency.

7.1.1 E.U.T. Operation

Operating Environment:

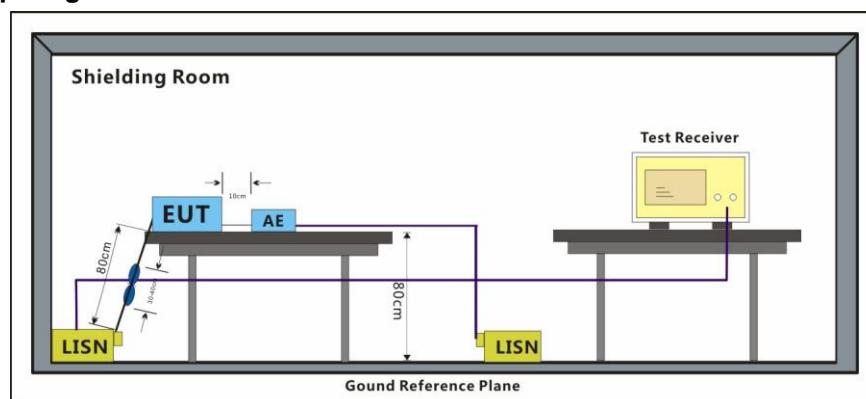
Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1002 mbar

Pre-test mode a:TX mode_Keep the EUT in transmitting with 125KHz module A.

b:TX mode_Keep the EUT in transmitting with 125KHz module B

Final test mode Pre-test for all mode and only record the worst mode a in test report

7.1.2 Test Setup Diagram

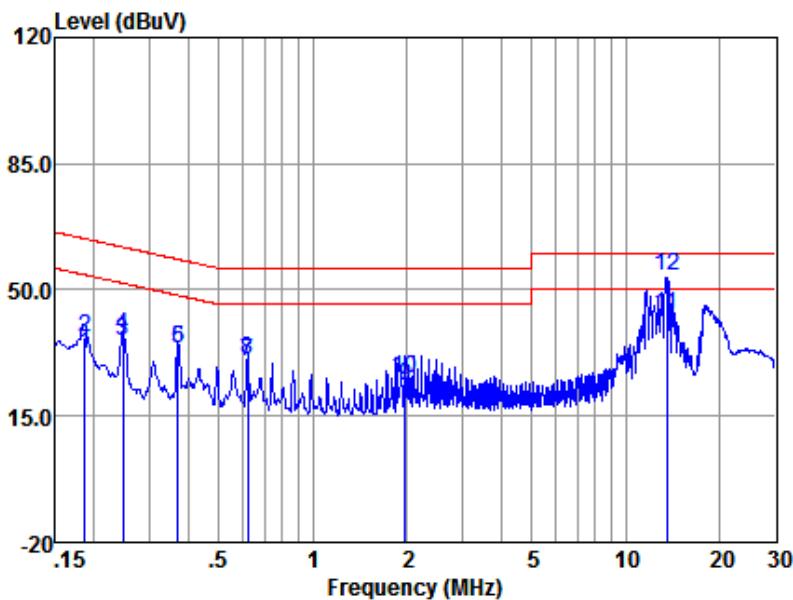


7.1.3 Measurement Procedure and Data

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50 μ H + 50hm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: LISN=Read Level+ Cable Loss+ LISN Factor

Mode:a; Line:Live Line

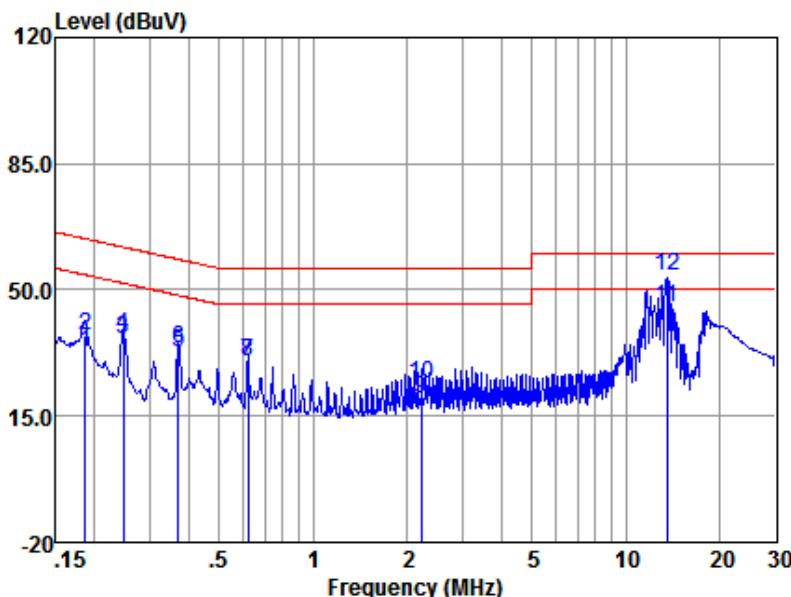


LISN : LINE
EUT/Project No : 3487CR
Test Mode : a

| Freq (MHz) | Read level (dBuV) | LISN Factor (dB) | Cable Loss (dB) | Emission | | Over Limit (dB) | Remark |
|---------------|-------------------------|------------------------|-----------------------|-----------------|-----------------|-----------------------|---------|
| | | | | Level (dBuV) | Limit (dBuV) | | |
| 1 0.19 | 22.22 | 0.11 | 9.81 | 32.14 | 54.20 | -22.06 | Average |
| 2 0.19 | 26.76 | 0.11 | 9.81 | 36.68 | 64.20 | -27.52 | QP |
| 3 0.25 | 25.73 | 0.11 | 9.81 | 35.65 | 51.86 | -16.21 | Average |
| 4 0.25 | 27.17 | 0.11 | 9.81 | 37.09 | 61.86 | -24.77 | QP |
| 5 0.37 | 23.56 | 0.11 | 9.81 | 33.48 | 48.47 | -14.99 | Average |
| 6 0.37 | 23.77 | 0.11 | 9.81 | 33.69 | 58.47 | -24.78 | QP |
| 7 0.62 | 20.33 | 0.11 | 9.82 | 30.26 | 46.00 | -15.74 | Average |
| 8 0.62 | 20.66 | 0.11 | 9.82 | 30.59 | 56.00 | -25.41 | QP |
| 9 1.98 | 13.38 | 0.12 | 9.85 | 23.35 | 46.00 | -22.65 | Average |
| 10 1.98 | 15.38 | 0.12 | 9.85 | 25.35 | 56.00 | -30.65 | QP |
| 11 13.55 | 32.71 | 0.14 | 9.98 | 42.83 | 50.00 | -7.17 | Average |
| 12 13.55 | 43.62 | 0.14 | 9.98 | 53.74 | 60.00 | -6.26 | QP |

Notes: Emission Level = Read Level +LISN Factor + Cable loss

Mode:a; Line:Neutral Line



LISN : NEUTRAL
EUT/Project No : 3487CR
Test Mode : a

| Freq (MHz) | Read level (dBuV) | LISN Factor (dB) | Cable Loss (dB) | Emission | | Over Limit (dB) | Remark |
|---------------|-------------------------|------------------------|-----------------------|-----------------|-----------------|-----------------------|---------|
| | | | | Level (dBuV) | Limit (dBuV) | | |
| 1 0.19 | 22.68 | 0.12 | 9.81 | 32.61 | 54.20 | -21.59 | Average |
| 2 0.19 | 27.43 | 0.12 | 9.81 | 37.36 | 64.20 | -26.84 | QP |
| 3 0.25 | 26.20 | 0.11 | 9.81 | 36.12 | 51.86 | -15.74 | Average |
| 4 0.25 | 27.57 | 0.11 | 9.81 | 37.49 | 61.86 | -24.37 | QP |
| 5 0.37 | 22.97 | 0.11 | 9.81 | 32.89 | 48.47 | -15.58 | Average |
| 6 0.37 | 23.59 | 0.11 | 9.81 | 33.51 | 58.47 | -24.96 | QP |
| 7 0.62 | 20.07 | 0.11 | 9.82 | 30.00 | 46.00 | -16.00 | Average |
| 8 0.62 | 20.22 | 0.11 | 9.82 | 30.15 | 56.00 | -25.85 | QP |
| 9 2.22 | 9.60 | 0.12 | 9.85 | 19.57 | 46.00 | -26.43 | Average |
| 10 2.22 | 13.69 | 0.12 | 9.85 | 23.66 | 56.00 | -32.34 | QP |
| 11 13.55 | 35.01 | 0.16 | 9.98 | 45.15 | 50.00 | -4.85 | Average |
| 12 13.55 | 43.62 | 0.16 | 9.98 | 53.76 | 60.00 | -6.24 | QP |

Notes: Emission Level = Read Level +LISN Factor + Cable loss

7.2 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.215(c)
Test Method: ANSI C63.10 (2013) Section 6.9
Limit: N/A

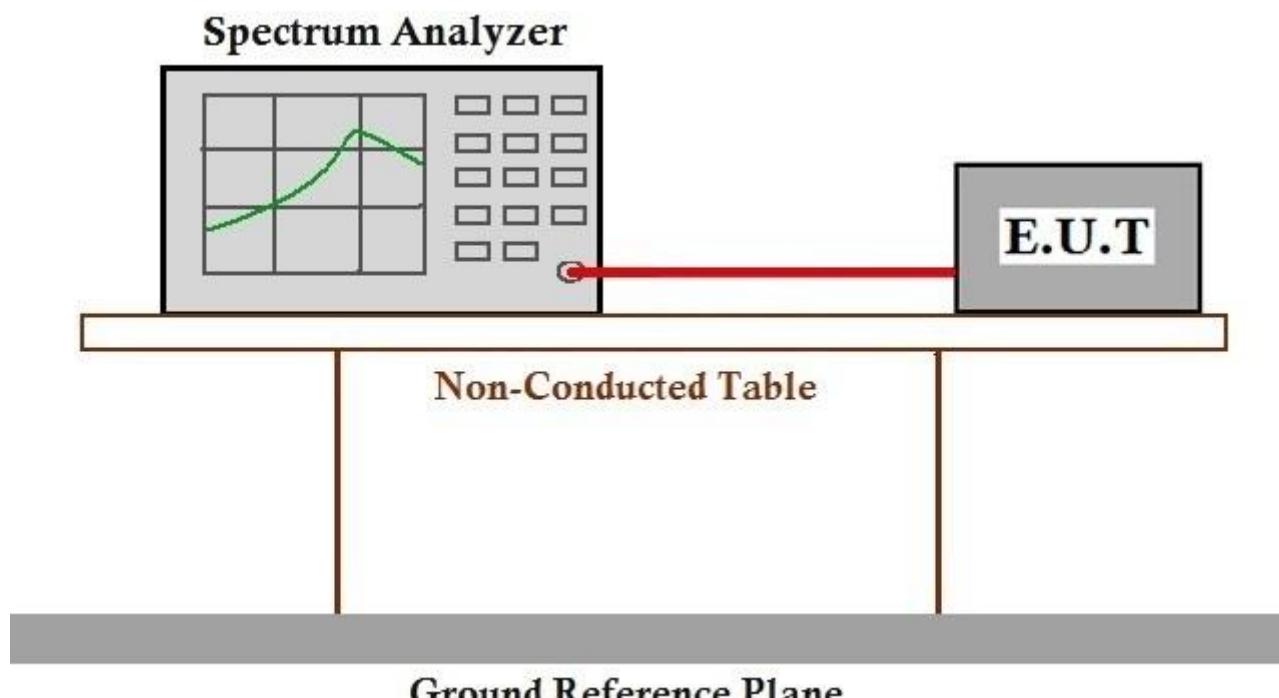
7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar

Test mode a:TX mode_Keep the EUT in transmitting with modulation mode.

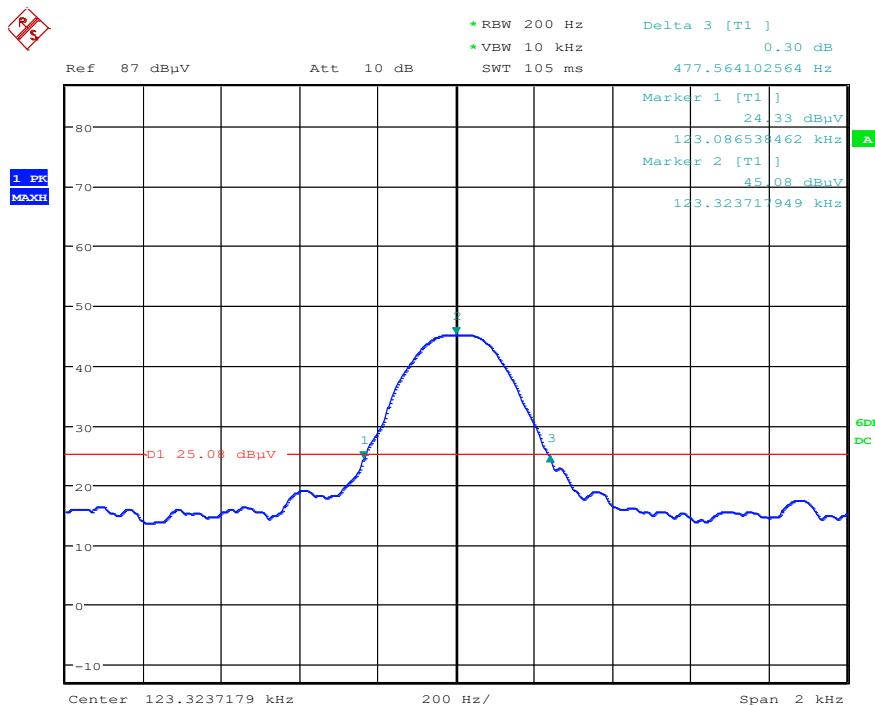
7.2.2 Test Setup Diagram



7.2.3 Measurement Procedure and Data

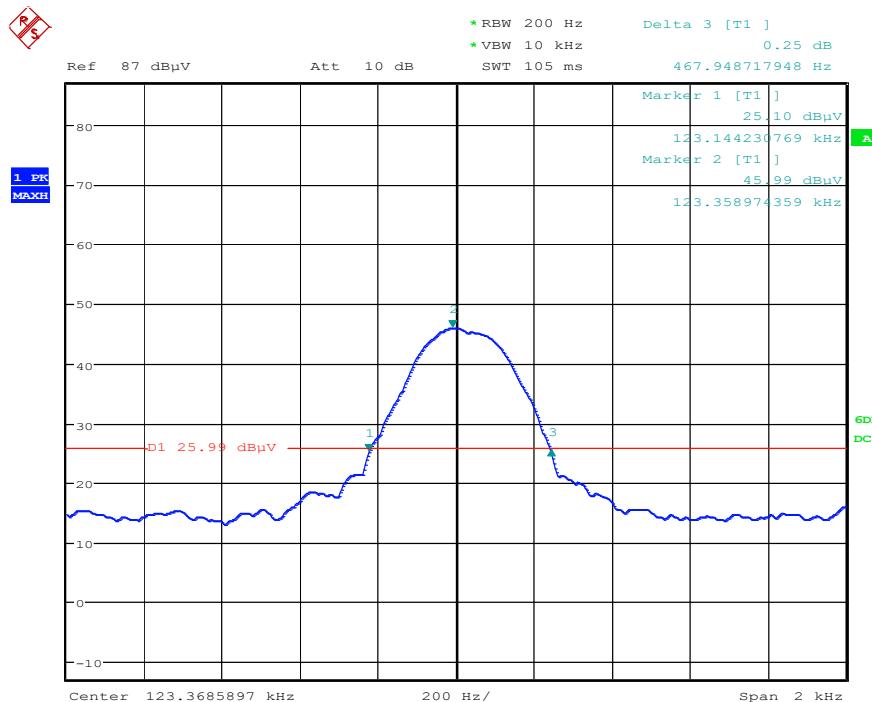
Module 1

| 20dB bandwidth (Hz) | Result |
|---------------------|--------|
| 477.56 | Pass |

Test plot as follows:


Module 2

| 20dB bandwidth (Hz) | Result |
|---------------------|--------|
| 467.95 | Pass |

Test plot as follows:


7.3 Radiated Emissions (9kHz-30MHz)

Test Requirement 47 CFR Part 15, Subpart C 15.209(c)

Test Method: ANSI C63.10 (2013) Section 6.4&6.5

Limit:

| Frequency (MHz) | Field strength (μ V/m) | Measurement distance (m) | Limit ($\text{dB}\mu\text{V}/\text{m}$) | Limit @3m ($\text{dB}\mu\text{V}/\text{m}$) |
|-----------------|-----------------------------|--------------------------|---|---|
| 0.009-0.490 | 2400/F(kHz) | 300 | 48.5 ~ 13.8 | 128.5 ~ 93.8 |
| 0.490-1.705 | 24000/F(kHz) | 30 | 33.8 ~ 23.0 | 73.8 ~ 63.0 |
| 1.705-30 | 30 | 30 | 29.5 | 69.5 |

NOTE:

(1) For test distance other than what is specified, but fulfilling the requirements of section 15.31(f) (2) the field strength is calculated by adding additionally an extrapolation factor of 40dB/decade (inverse linear distance for field strength measurements).

So the Distance Extrapolation Factor in dB is $40 \times \log(D_{\text{TEST}} / D_{\text{SPEC}})$ where D_{TEST} = Test Distance and D_{SPEC} = Specified Distance.

Field strength limit ($\text{dB}\mu\text{V}/\text{m}$)@test distance = Field strength limit ($\text{dB}\mu\text{V}/\text{m}$)@specified distance + Distance Extrapolation Factor

(2) The lower limit shall apply at the transition frequencies.

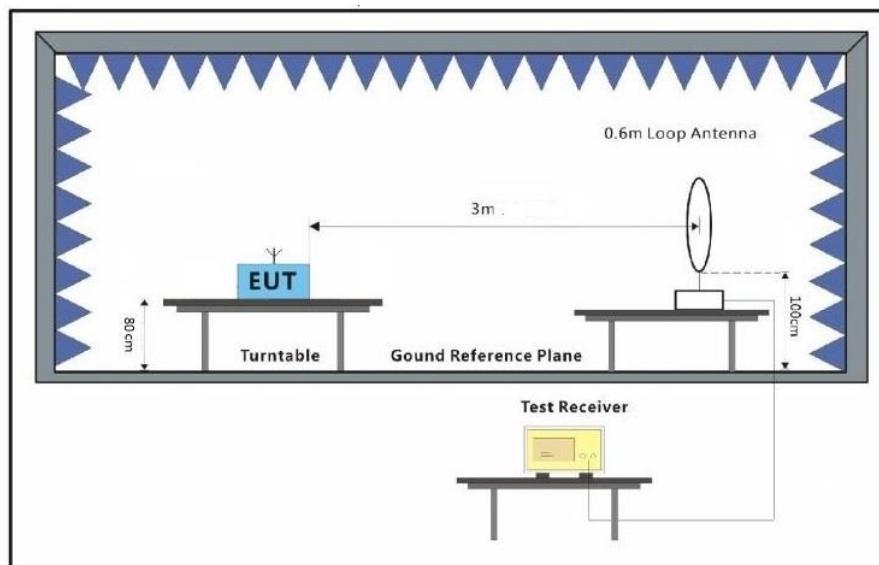
7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar

Test mode a:TX mode_Keep the EUT in transmitting with modulation mode.

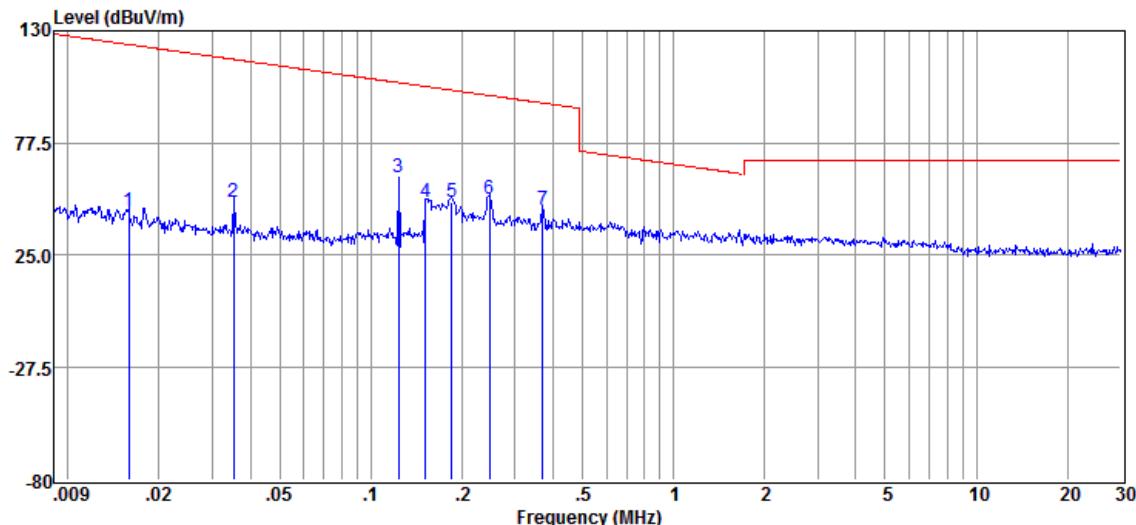
7.3.2 Test Setup Diagram



7.3.3 Measurement Procedure and Data

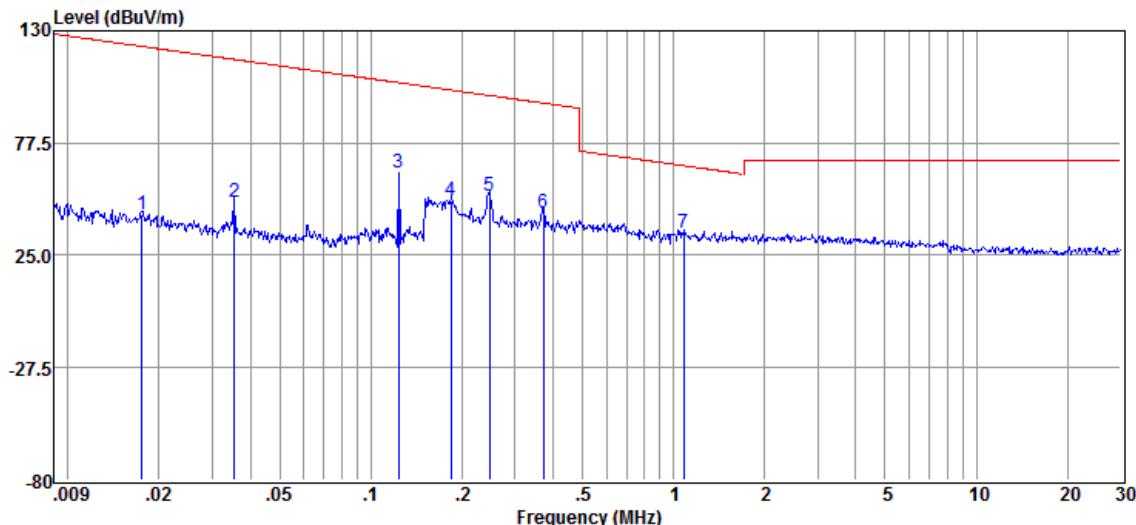
For testing performed with the loop antenna, the center of the loop was positioned 1 m above the ground and positioned with its plane vertical at the specified distance from the EUT. During testing the loop was rotated about its vertical axis for maximum response at each azimuth and also investigated with the loop positioned in the horizontal plane. Only the worst position of vertical was shown in the report.

Module 1



| Item | Freq. | Read Level | Antenna Factor | Cable Loss | Result Level@3m | Result Level@S PEC | Limit Line@SP EC | Over Limit | Detector |
|--------|-------|--------------|----------------|------------|-----------------|--------------------|------------------|------------|----------|
| (Mark) | (MHz) | (dB μ V) | (dB/m) | (dB) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 0.02 | 25.26 | 20.57 | 0.03 | 45.86 | -34.14 | 43.57 | -77.71 | QP |
| 2 | 0.04 | 29.62 | 20.19 | 0.04 | 49.85 | -30.15 | 36.67 | -66.82 | QP |
| 3 | 0.12 | 41.79 | 19.90 | 0.05 | 61.74 | -18.26 | 25.75 | -44.01 | QP |
| 4 | 0.15 | 29.56 | 20.00 | 0.05 | 49.61 | -30.39 | 23.99 | -54.38 | QP |
| 5 | 0.19 | 30.20 | 19.92 | 0.06 | 50.18 | -29.82 | 22.23 | -52.05 | QP |
| 6 | 0.25 | 31.41 | 19.81 | 0.06 | 51.28 | -28.72 | 19.77 | -48.49 | QP |
| 7 | 0.37 | 26.51 | 19.80 | 0.06 | 46.37 | -33.63 | 16.25 | -49.88 | QP |

Module 2



| Item | Freq. | Read Level | Antenna Factor | Cable Loss | Result Level@3m | Result Level@SP EC | Limit Line@S PEC | Over Limit | Detector |
|--------|-------|--------------|----------------|------------|-----------------|--------------------|------------------|------------|----------|
| (Mark) | (MHz) | (dB μ V) | (dB/m) | (dB) | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dB) | |
| 1 | 0.02 | 23.30 | 20.54 | 0.03 | 43.87 | -36.13 | 42.73 | -78.86 | QP |
| 2 | 0.04 | 29.85 | 20.19 | 0.04 | 50.08 | -29.92 | 36.6 | -66.52 | QP |
| 3 | 0.12 | 43.67 | 19.90 | 0.05 | 63.62 | -16.38 | 25.75 | -42.13 | QP |
| 4 | 0.18 | 30.95 | 19.92 | 0.06 | 50.93 | -29.07 | 22.3 | -51.37 | QP |
| 5 | 0.25 | 32.86 | 19.81 | 0.06 | 52.73 | -27.27 | 19.77 | -47.04 | QP |
| 6 | 0.37 | 25.26 | 19.80 | 0.06 | 45.12 | -34.88 | 16.18 | -51.06 | QP |
| 7 | 1.08 | 15.78 | 19.31 | 0.07 | 35.16 | -4.84 | 26.97 | -31.81 | QP |

7.4 Radiated Emissions (30MHz-1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.209(c)

Test Method: ANSI C63.10 (2013) Section 6.4&6.5

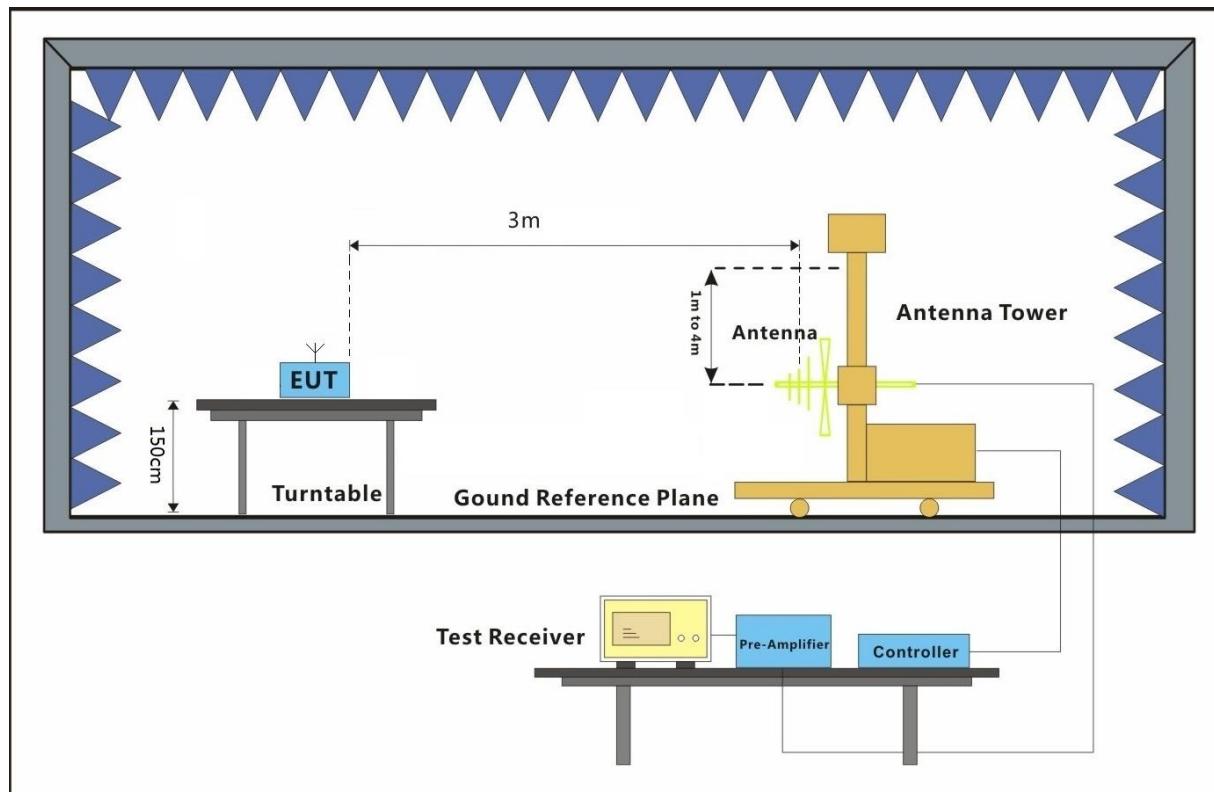
7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 22 °C Humidity: 50 % RH Atmospheric Pressure: 1001 mbar

Test mode a:TX mode_Keep the EUT in transmitting with modulation mode.

7.4.2 Test Setup Diagram



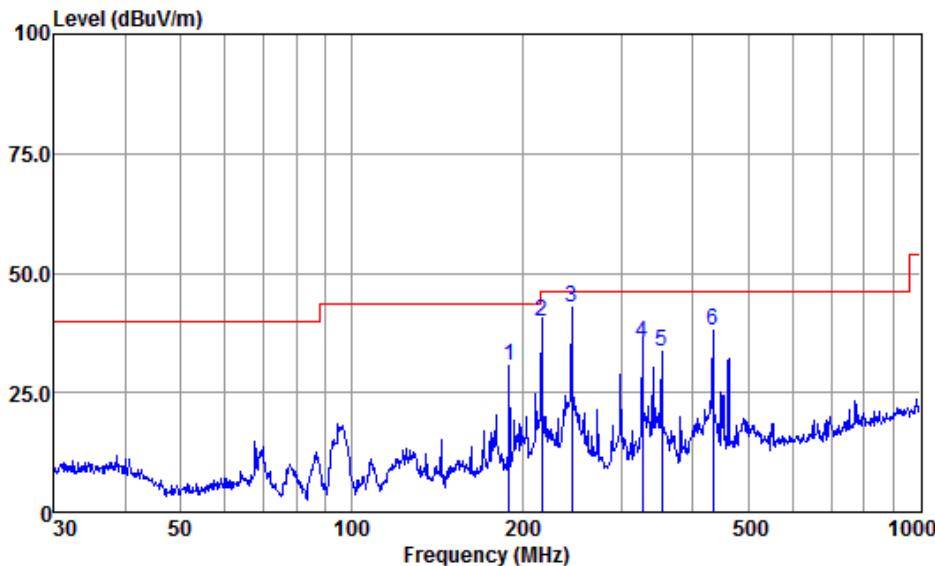
7.4.3 Limit

| Frequency (MHz) | Field strength (μ V/m) | Measurement distance (m) | Limit ($\text{dB}\mu\text{V/m}$) | Limit @3m ($\text{dB}\mu\text{V/m}$) |
|-----------------|-----------------------------|--------------------------|------------------------------------|--|
| 30-88 | 100 | 3 | 40.0 | 40.0 |
| 88-216 | 150 | 3 | 43.5 | 43.5 |
| 216-960 | 200 | 3 | 46.0 | 46.0 |
| 960-1000 | 500 | 3 | 54.0 | 54.0 |

7.4.4 Measurement Procedure and Data

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground for below 1GHz at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



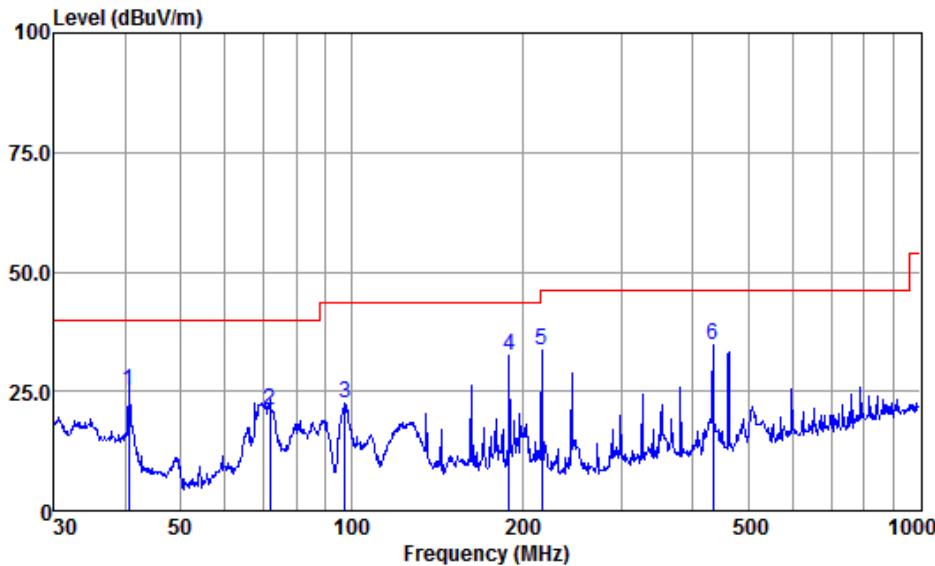
Antenna Polarity :HORIZONTAL

EUT/Project :3487CR

Test mode :a

| Freq | Read | Antenna | Cable | Preamp | Emission | Limit | Over | Remark |
|-------|--------|---------|-------|--------|----------|--------|--------|----------|
| | Level | Factor | Loss | Factor | Level | Line | Limit | |
| ----- | | | | | | | | |
| | MHz | dBuv | dB/m | dB | dB | dBuv/m | dBuv/m | dB |
| 1 | 189.74 | 62.2 | 10.3 | 0.7 | 42.5 | 30.7 | 43.5 | -12.8 QP |
| 2 | 216.78 | 71.4 | 10.2 | 0.7 | 42.5 | 39.8 | 46.0 | -6.2 QP |
| 3 | 244.23 | 73.2 | 11.3 | 0.8 | 42.5 | 42.8 | 46.0 | -3.2 QP |
| 4 | 325.60 | 63.2 | 13.7 | 0.9 | 42.3 | 35.5 | 46.0 | -10.5 QP |
| 5 | 352.94 | 60.6 | 14.3 | 0.9 | 42.2 | 33.6 | 46.0 | -12.4 QP |
| 6 | 434.07 | 63.1 | 15.9 | 1.1 | 42.1 | 38.0 | 46.0 | -8.0 QP |

Note: Emission Level=Read Level+Antenna Factor+Cable loss-Preamp Factor



Antenna Polarity : VERTICAL

EUT/Project : 3487CR

Test mode : a

| Freq | Read | Antenna | Cable | Preamp | Emission | Limit | Over | Remark |
|------|--------|---------|-------|--------|----------|-------|-------|----------|
| | Level | Factor | Loss | Factor | Level | Line | Limit | |
| 1 | 40.56 | 51.6 | 15.9 | 0.2 | 42.6 | 25.1 | 40.0 | -14.9 QP |
| 2 | 72.08 | 52.8 | 10.7 | 0.3 | 42.7 | 21.1 | 40.0 | -18.9 QP |
| 3 | 97.46 | 55.4 | 9.2 | 0.4 | 42.7 | 22.3 | 43.5 | -21.2 QP |
| 4 | 189.74 | 64.1 | 10.3 | 0.7 | 42.5 | 32.6 | 43.5 | -10.9 QP |
| 5 | 216.78 | 65.3 | 10.2 | 0.7 | 42.5 | 33.7 | 46.0 | -12.3 QP |
| 6 | 434.07 | 60.0 | 15.9 | 1.1 | 42.1 | 34.9 | 46.0 | -11.1 QP |

Note: Emission Level = Read Level + Antenna Factor + Cable loss - Preamp Factor



8 Test Setup PhotographsRefer to the

< Test Setup Photos-FCC >

9 EUT Constructional Details

Refer to the < External Photos> & < Internal Photos>.

- End of the Report -