# FCC REPORT

| | |
|---|---|
| **Applicant:** | PAX Technology Limited |
| **Address of Applicant:** | Room 2416, 24/F., Sun Hung Kai Centre, 30 Harbour Road, Wanchai, Hong Kong |
| **Equipment Under Test (EUT)** | |
| **Product Name:** | Mobile Payment Terminal |
| **Model No.:** | D200 T |
| **Trade mark:** | PAX |
| **FCC ID:** | V5PD200HS |
| **Applicable standards:** | FCC CFR Title 47 Part 15 Subpart C Section 15.225 |
| **Date of sample receipt:** | 22 Sep., 2020 |
| **Date of Test:** | 22 Sep., to 13 Oct., 2020 |
| **Date of report issue:** | 14 Oct., 2020 |
| **Test Result:** | PASS* |

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

Authorized Signature:

Bruce Zhang
Laboratory Manager

## 2 Version

| Version No. | Date | Description |
|---|---|---|
| *00* | *14 Oct., 2020* | *Original* |
| | | |
| | | |
| | | |
| | | |

***Tested by:*** Mike.ou ***Date:*** *14 Oct., 2020*

***Test Engineer***

***Reviewed by:*** Winner Zhang ***Date:*** *14 Oct., 2020*

***Project Engineer***

# 3 Contents

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# 4 Test Summary

| Test Item | Section in CFR 47 | Result |
|---|---|---|
| Antenna requirement | 15.203 | Pass |
| Field strength of the fundamental signal | 15.225 (a) | Pass |
| Spurious emissions | 15.225(d)& 15.209 | Pass |
| 20dB Bandwidth | 15.215(c) | Pass |
| Frequency tolerance | 15.225 (e) | Pass |
| Conducted Emission | 15.207 | Pass |

*Remark:*

1. *Pass: The EUT complies with the essential requirements in the standard.*
2. *The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (provided by the customer).*

| | |
|---|---|
| ***Test Method:*** | *ANSI C63.4-2014*<br>*ANSI C63.10-2013* |

# 5 General Information

## 5.1 Client Information

| | |
|---|---|
| Applicant: | PAX Technology Limited |
| Address: | Room 2416, 24/F., Sun Hung Kai Centre, 30 Harbour Road, Wanchai, Hong Kong |
| Manufacturer: | PAX Computer Technology (Shenzhen) Co., Ltd. |
| Address: | 4/F, No.3 Building, Software Park, Second Central Science-Tech Road, High-Tech industrial Park, Shenzhen, Guangdong, P.R.C. |

## 5.2 General Description of E.U.T.

| | |
|---|---|
| Product Name: | Mobile Payment Terminal |
| Model No.: | D200 T |
| Operation Frequency: | 13.56MHz |
| Channel numbers: | 1 |
| Modulation type: | ASK |
| Antenna Type: | Internal Antenna |
| Power supply: | Rechargeable Li-ion Battery DC3.7V-1900mAh |
| AC adapter: | Adapter(1):<br>Model: HKC0055010-2D<br>Input: AC100-240V, 50/60Hz, 0.2A<br>Output: DC 5.0V, 1000mA<br>Adapter(2):<br>Model: A18A-050100U-US2<br>Input: AC100-240V, 50/60Hz, 0.2A<br>Output: DC 5.0V, 1000mA |
| Test Sample Condition: | The test samples were provided in good working order with no visible defects. |

## 5.3 Test mode

| | | | |
|---|---|---|---|
| Transmitting mode: | Keep the EUT in transmitting mode with modulation | | |
| **Pre-Test Mode:** | | | |
| CCIS has verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows: | | | |
| Axis | X | Y | Z |
| Field Strength(dBuV/m) | 63.69 | 65.32 | 64.58 |
| **Final Test Mode:** | | | |
| According to ANSI C63.4 standards, the test results are both the “worst case” and “worst setup”: Y axis (see the test setup photo). | | | |

## 5.4 Description of Support Units

| Manufacturer | Description | Model | Serial Number | FCC ID/DoC |
|---|---|---|---|---|
| N/A | | | | |

## 5.5 Measurement Uncertainty

| Parameters | Expanded Uncertainty |
|---|---|
| Conducted Emission (9kHz ~ 30MHz) | ±1.60 dB (k=2) |
| Radiated Emission (9kHz ~ 30MHz) | ±3.12 dB (k=2) |
| Radiated Emission (30MHz ~ 1000MHz) | ±4.32 dB (k=2) |

## 5.6 Additions to, deviations, or exclusions from the method

No

## 5.7 Laboratory Facility

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

- **FCC - Designation No.: CN1211**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

## 5.8 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No.110~116, Building B, Jinyuan Business Building, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

## 5.9 Test Instrumentslist

| Radiated Emission: | | | | | |
|---|---|---|---|---|---|
| **Test Equipment** | **Manufacturer** | **Model No.** | **Serial No.** | **Cal.Date (mm-dd-yy)** | **Cal. Due date (mm-dd-yy)** |
| 3m SAC | SAEMC | 9m*6m*6m | 966 | 07-22-2020 | 07-21-2021 |
| BiConiLog Antenna | SCHWARZBECK | VULB9163 | 497 | 03-07-2020 | 03-06-2021 |
| Biconical Antenna | SCHWARZBECK | VUBA9117 | 359 | 06-22-2020 | 06-21-2021 |
| Horn Antenna | SCHWARZBECK | BBHA9120D | 916 | 03-07-2020 | 03-06-2021 |
| Horn Antenna | SCHWARZBECK | BBHA9120D | 1805 | 06-22-2020 | 06-21-2021 |
| Horn Antenna | SCHWARZBECK | BBHA 9170 | BBHA9170582 | 11-18-2019 | 11-17-2020 |
| Loop Antenna | SCHWARZBECK | FMZB 1519 B | 00044 | 03-07-2020 | 03-06-2021 |
| EMI Test Software | AUDIX | E3 | Version: 6.110919b | | |
| Pre-amplifier | HP | 8447D | 2944A09358 | 03-07-2020 | 03-06-2021 |
| Pre-amplifier | CD | PAP-1G18 | 11804 | 03-07-2020 | 03-06-2021 |
| Spectrum analyzer | Rohde & Schwarz | FSP30 | 101454 | 03-07-2020 | 03-06-2021 |
| Spectrum analyzer | Rohde & Schwarz | FSP40 | 100363 | 11-18-2019 | 11-17-2020 |
| EMI Test Receiver | Rohde & Schwarz | ESRP7 | 101070 | 03-07-2020 | 03-06-2021 |
| Signal Generator | Rohde & Schwarz | SMX | 835454/016 | 03-07-2020 | 03-06-2021 |
| Signal Generator | R&S | SMR20 | 1008100050 | 03-07-2020 | 03-06-2021 |
| Cable | ZDECL | Z108-NJ-NJ-81 | 1608458 | 03-07-2020 | 03-06-2021 |
| Cable | MICRO-COAX | MFR64639 | K10742-5 | 03-07-2020 | 03-06-2021 |
| Cable | SUHNER | SUCOFLEX100 | 58193/4PE | 03-07-2020 | 03-06-2021 |

| Conducted Emission: | | | | | |
|---|---|---|---|---|---|
| **Test Equipment** | **Manufacturer** | **Model No.** | **Inventory No.** | **Cal.Date (mm-dd-yy)** | **Cal.Due date (mm-dd-yy)** |
| Shielding Room | ZhongShuo Electron | 11.0(L)x4.0(W)x3.0(H) | CCIS0061 | 07-22-2020 | 07-21-2021 |
| EMI Test Receiver | Rohde & Schwarz | ESCI | CCIS0002 | 03-07-2020 | 03-06-2021 |
| LISN | CHASE | MN2050D | CCIS0074 | 03-07-2020 | 03-06-2021 |
| LISN | Rohde & Schwarz | ESH3-Z5 | 8438621/010 | 07-21-2020 | 07-20-2021 |
| Coaxial Cable | CCIS | N/A | CCIS0086 | 03-07-2020 | 03-06-2021 |
| EMI Test Software | AUDIX | E3 | Version: 6.110919b | | |

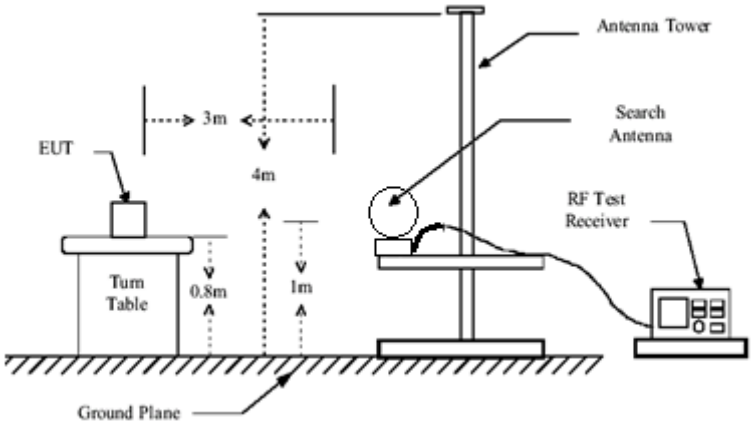
# 6 Test results and Measurement Data

## 6.1 Antenna requirement

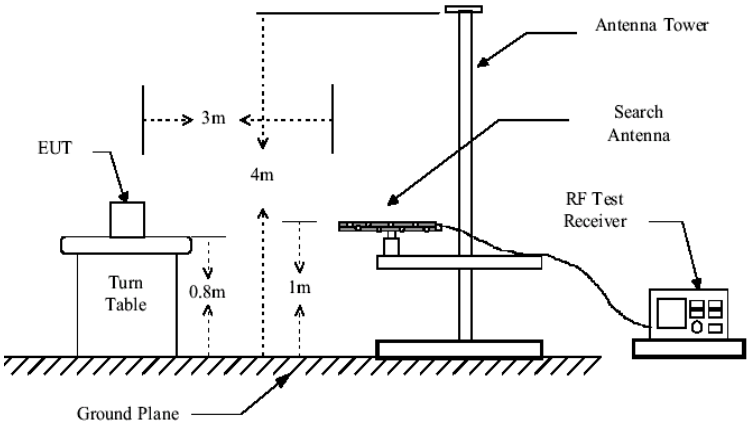
| Standard requirement: | FCC Part15 C Section 15.203 |
|---|---|
| 15.203 requirement:<br>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. | |
| **E.U.T Antenna:** | |
| The EUT make use of an Induction coil antenna. | |

## 6.2 Radiated Emission

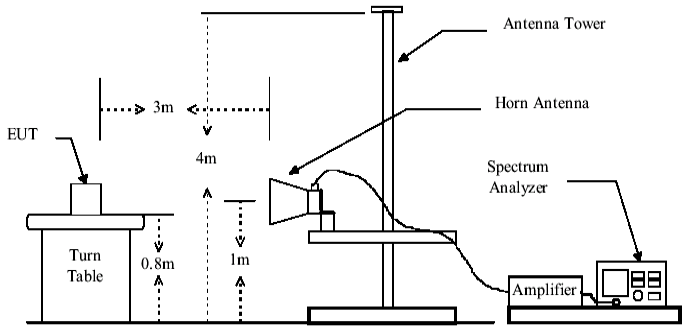
<table>
<tr><td>Test Requirement:</td><td colspan="5">FCC Part15 C Section 15.225(a) and 15.209</td></tr>
<tr><td>TestFrequencyRange:</td><td colspan="5">9 kHz to 1000MHz</td></tr>
<tr><td>Test site:</td><td colspan="5">Measurement Distance: 3m(Semi-Anechoic Chamber)</td></tr>
<tr><td rowspan="6">Receiver setup:</td><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr>
<tr><td>9kHz-150kHz</td><td>Quasi-peak</td><td>200Hz</td><td>600Hz</td><td>Quasi-peak Value</td></tr>
<tr><td>150kHz-30MHz</td><td>Quasi-peak</td><td>9kHz</td><td>30kHz</td><td>Quasi-peak Value</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120kHz</td><td>300KHz</td><td>Quasi-peak Value</td></tr>
<tr><td>Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td rowspan="5">Limit:<br>(Field strength of the fundamental signal)</td><td colspan="2">Frequency</td><td colspan="2">Limit (uV/m @30m)</td><td>Limit (dBuV/m @3m)</td></tr>
<tr><td colspan="2">13.553MHz-13.567MHz</td><td colspan="2">15848</td><td>124.0</td></tr>
<tr><td colspan="2">13.410MHz-13.553MHz & 13.567MHz-13.710MHz</td><td colspan="2">334</td><td>90.5</td></tr>
<tr><td colspan="2">13.110MHz-13.410MHz & 13.710MHz-14.010MHz</td><td colspan="2">106</td><td>80.5</td></tr>
<tr><td colspan="5">Remark:<br>Per FCC part 15.31, when performing measurements at a distance which is closer than specified, the field strength results shall be extrapolated to the specified distance by using the square of an inverse linear distance extrapolation factor (i.e., 40 dB/decade) in conjunction with the slant-range distance defined in §15.3(hh) of this part.</td></tr>
<tr><td rowspan="8">Limit:<br>(Spurious Emissions)</td><td colspan="2">Frequency (MHz)</td><td colspan="2">Limit (uV/m @3m)</td><td>Distance (m)</td></tr>
<tr><td colspan="2">0.009-0.490</td><td colspan="2">2400/F(kHz)</td><td>300</td></tr>
<tr><td colspan="2">0.490-1.705</td><td colspan="2">24000/F(kHz)</td><td>30</td></tr>
<tr><td colspan="2">1.705-30</td><td colspan="2">30</td><td>30</td></tr>
<tr><td colspan="2">30-88</td><td colspan="2">100</td><td>3</td></tr>
<tr><td colspan="2">88-216</td><td colspan="2">150</td><td>3</td></tr>
<tr><td colspan="2">216-960</td><td colspan="2">200</td><td>3</td></tr>
<tr><td colspan="2">Above 1GHz</td><td colspan="2">500</td><td>3</td></tr>
<tr><td>Test Procedure:</td><td colspan="5">a. The EUT was placed on the top of a rotating table 0.8 meters above the groundat a 3 meter semi-anechoic camber. The table was rotated 360 degrees todetermine the position of the highest radiation.<br>b. The EUT was set 3 meters away from the interference-receiving antenna, whichwas mounted on the top of a variable-height antenna tower.<br>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.<br>d. For each suspected emission, the EUT was arranged to its worst case and thenthe antenna was tuned to heights from 1 meter to 4 meters and the rotatabletable was turned from 0 degrees to 360 degrees to find the maximum reading.<br>e. The test-receiver system was set to Peak Detect Function and SpecifiedBandwidth with Maximum Hold Mode.<br>f. If the emission level of the EUT in peak mode was 10dB lower than the limitspecified, then testing could be stopped and the peak values of the EUT wouldbe reported. Otherwise the emissions that did not have 10dB margin would bere-tested one by one using peak, quasi-peak or average method as specified andthen reported in a data sheet.</td></tr>
<tr><td>Test setup:</td><td colspan="5">9kHz-30MHz</td></tr>
</table>




30MHz-1GHz




Above 1GHz

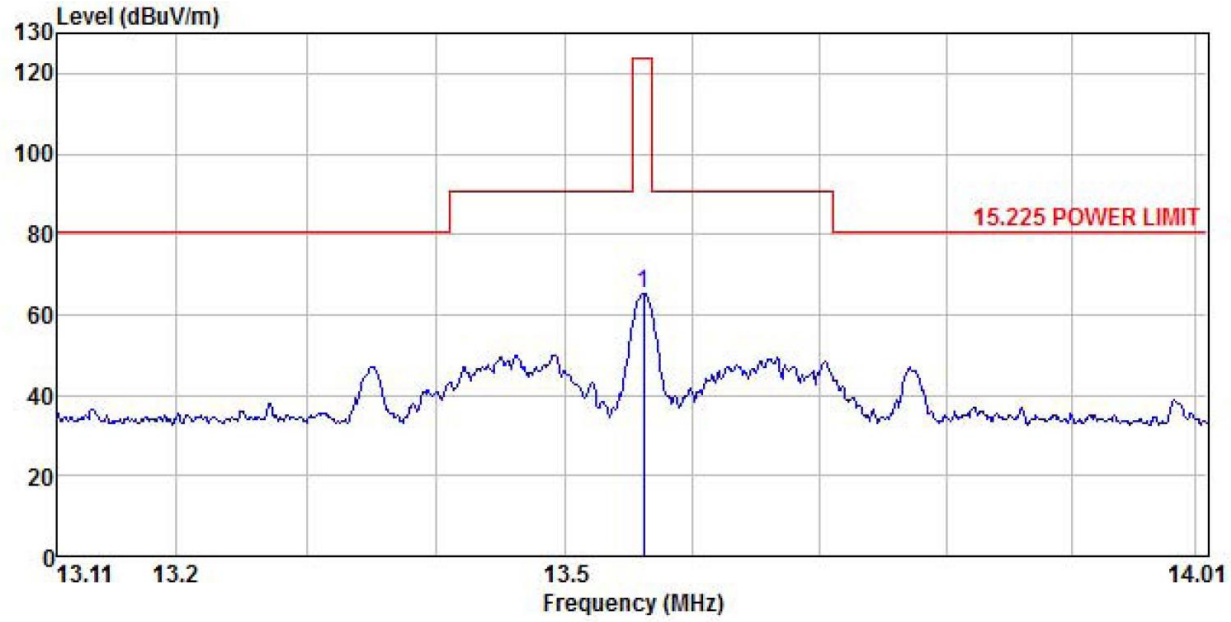



| | |
|---|---|
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Pass |

**Measurement Data:**

**Field Strength of fundamental signal:**

| | | | |
|---|---|---|---|
| **Product Name:** | Mobile Payment Terminal | **Product Model:** | D200 T |
| **Test By:** | Mike | **Test mode:** | NFC Tx mode |
| **Test Voltage:** | AC 120/60Hz | **Environment:** | Temp: 24℃ Huni: 57% |




| | Freq | Read Level | Antenna Factor | Cable Loss | Aux Factor | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 13.562 | 45.32 | 19.59 | 0.41 | 0.00 | 0.00 | 65.32 | 124.00 | -58.68 | |

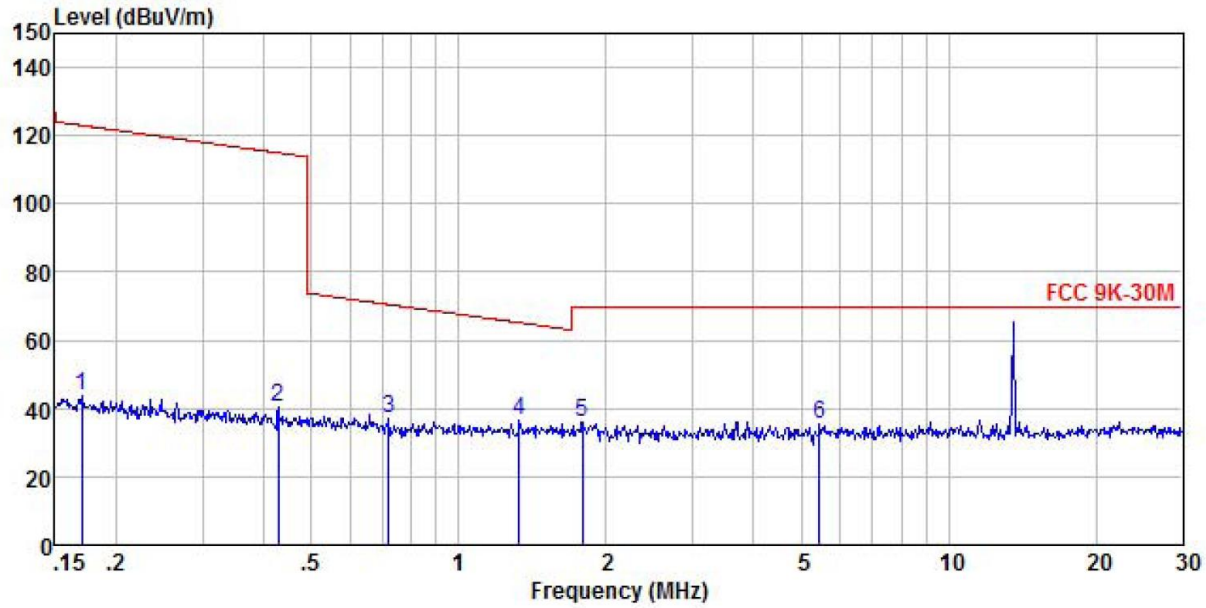
*Remark:*

*1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*

**Spurious Emissions:**

**Test frequency range: 9 kHz- 30 MHz**

| **Product Name:** | Mobile Payment Terminal | **Product Model:** | D200 T |
|---|---|---|---|
| **Test By:** | Mike | **Test mode:** | NCF Tx mode |
| **Test Frequency:** | 150 kHz ~ 30 MHz | **Polarization:** | Vertical |
| **Test Voltage:** | AC 120/60Hz | **Environment:** | Temp: 24℃ Huni: 57% |

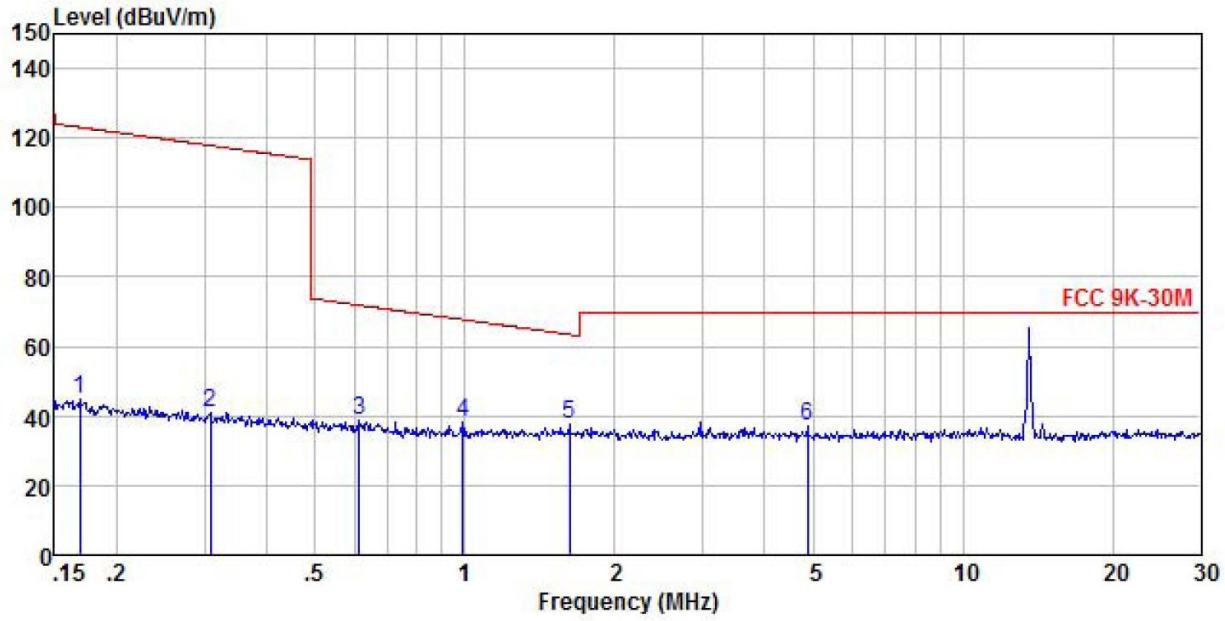



| | Freq | Read Level | Antenna Factor | Cable Loss | Aux Factor | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 0.170 | 23.16 | 20.26 | 0.03 | 0.00 | 0.00 | 43.45 | 122.99 | -79.54 | Peak |
| 2 | 0.428 | 19.36 | 20.72 | 0.07 | 0.00 | 0.00 | 40.15 | 114.97 | -74.82 | Peak |
| 3 | 0.720 | 16.21 | 20.64 | 0.10 | 0.00 | 0.00 | 36.95 | 70.47 | -33.52 | Peak |
| 4 | 1.331 | 15.84 | 20.47 | 0.17 | 0.00 | 0.00 | 36.48 | 65.15 | -28.67 | Peak |
| 5 | 1.790 | 15.18 | 20.45 | 0.17 | 0.00 | 0.00 | 35.80 | 69.50 | -33.70 | Peak |
| 6 | 5.447 | 14.75 | 20.10 | 0.30 | 0.00 | 0.00 | 35.15 | 69.50 | -34.35 | Peak |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of 9 kHz~150 kHz are background noise and very lower than the limit, not show in test report.*

| Product Name: | Mobile Payment Terminal | Product Model: | D200 T |
|---|---|---|---|
| Test By: | Mike | Test mode: | NFC Tx mode |
| Test Frequency: | 150 kHz ~ 30 MHz | Polarization: | Horizontal |
| Test Voltage: | AC 120/60Hz | Environment: | Temp: 24℃ Huni: 57% |



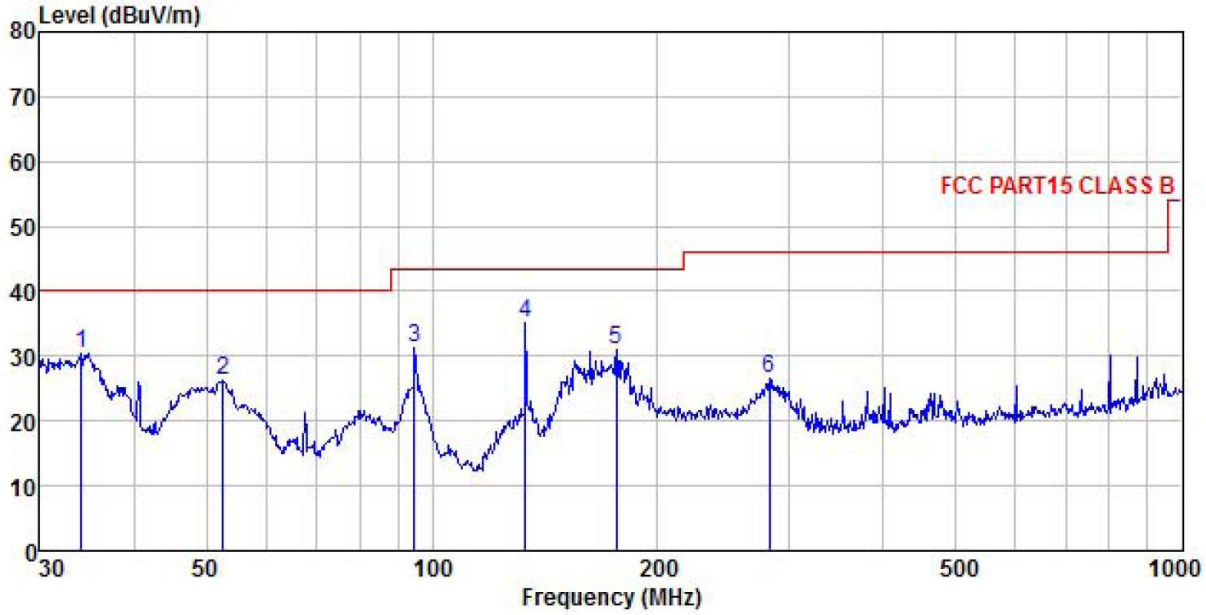

| | Freq | Read Level | Antenna Factor | Cable Loss | Aux Factor | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 0.169 | 24.34 | 20.26 | 0.03 | 0.00 | 0.00 | 44.63 | 123.09 | -78.46 | Peak |
| 2 | 0.308 | 20.29 | 20.56 | 0.06 | 0.00 | 0.00 | 40.91 | 117.83 | -76.92 | Peak |
| 3 | 0.614 | 17.77 | 20.71 | 0.09 | 0.00 | 0.00 | 38.57 | 71.85 | -33.28 | Peak |
| 4 | 0.989 | 17.33 | 20.51 | 0.15 | 0.00 | 0.00 | 37.99 | 67.72 | -29.73 | Peak |
| 5 | 1.619 | 17.20 | 20.46 | 0.17 | 0.00 | 0.00 | 37.83 | 63.45 | -25.62 | Peak |
| 6 | 4.874 | 16.65 | 20.11 | 0.28 | 0.00 | 0.00 | 37.04 | 69.50 | -32.46 | Peak |

*Remark:*

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of 9 kHz~150 kHz are background noise and very lower than the limit, not show in test report.*

**Test frequency range: 30MHz-1000MHz**

| | | | |
|---|---|---|---|
| **Product Name:** | Mobile Payment Terminal | **Product Model:** | D200 T |
| **Test By:** | Mike | **Test mode:** | NFC Tx mode |
| **Test Frequency:** | 30 MHz ~ 1 GHz | **Polarization:** | Vertical |
| **Test Voltage:** | AC 120/60Hz | **Environment:** | Temp: 24℃ Huni: 57% |

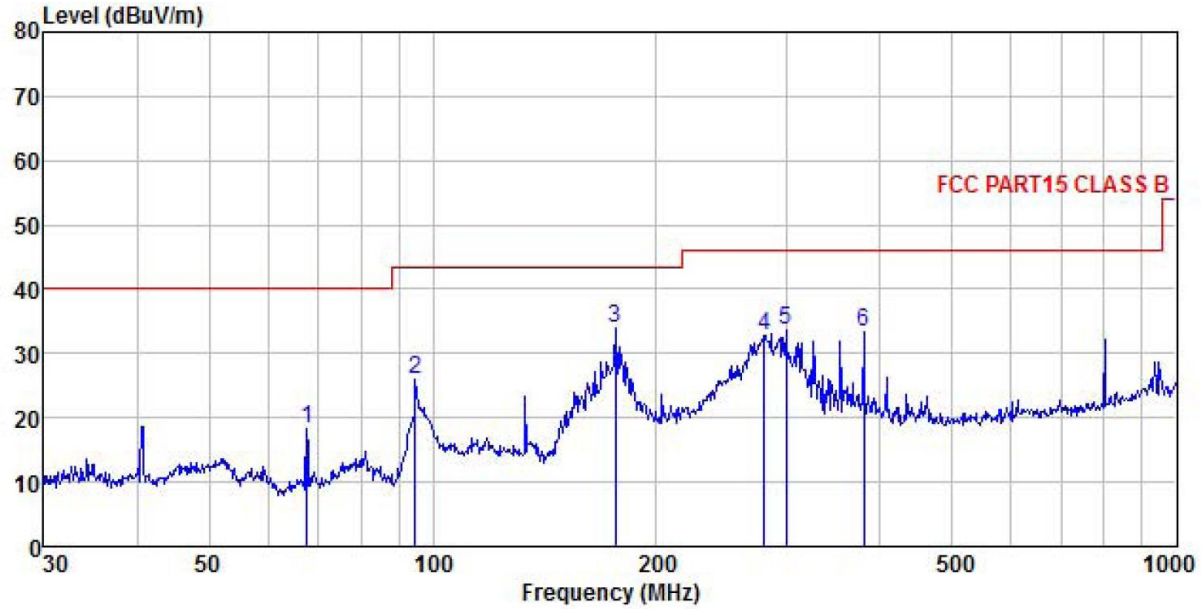



| | Freq | Read Level | Antenna Factor | Cable Loss | Aux Factor | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 34.037 | 47.46 | 12.45 | 0.35 | 0.00 | 29.96 | 30.30 | 40.00 | -9.70 | QP |
| 2 | 52.575 | 43.37 | 12.21 | 0.40 | 0.00 | 29.81 | 26.17 | 40.00 | -13.83 | QP |
| 3 | 94.760 | 50.85 | 9.41 | 0.51 | 0.00 | 29.55 | 31.22 | 43.50 | -12.28 | QP |
| 4 | 133.151 | 50.91 | 12.88 | 0.59 | 0.00 | 29.31 | 35.07 | 43.50 | -8.43 | QP |
| 5 | 176.269 | 42.49 | 16.82 | 0.67 | 0.00 | 29.00 | 30.98 | 43.50 | -12.52 | QP |
| 6 | 281.995 | 35.54 | 18.63 | 0.84 | 0.00 | 28.48 | 26.53 | 46.00 | -19.47 | QP |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

| Product Name: | Mobile Payment Terminal | Product Model: | D200 T |
|---|---|---|---|
| Test By: | Mike | Test mode: | NFC Tx mode |
| Test Frequency: | 30 MHz ~ 1 GHz | Polarization: | Horizontal |
| Test Voltage: | AC 120/60Hz | Environment: | Temp: 24℃ Huni: 57% |

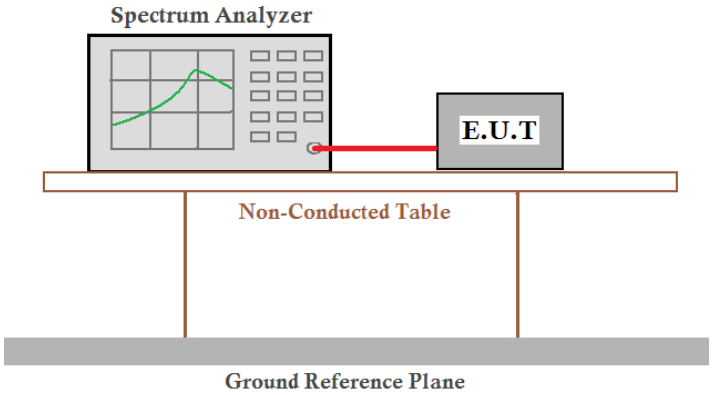



| | Freq | Read Level | Antenna Factor | Cable Loss | Aux Factor | Preamp Factor | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB/m | dB | dB | dB | dBuV/m | dBuV/m | dB | |
| 1 | 67.675 | 37.65 | 9.96 | 0.44 | 0.00 | 29.74 | 18.31 | 40.00 | -21.69 | QP |
| 2 | 94.760 | 45.54 | 9.41 | 0.51 | 0.00 | 29.55 | 25.91 | 43.50 | -17.59 | QP |
| 3 | 176.269 | 45.46 | 16.82 | 0.67 | 0.00 | 29.00 | 33.95 | 43.50 | -9.55 | QP |
| 4 | 279.044 | 41.72 | 18.62 | 0.84 | 0.00 | 28.49 | 32.69 | 46.00 | -13.31 | QP |
| 5 | 298.268 | 42.48 | 18.69 | 0.86 | 0.00 | 28.45 | 33.58 | 46.00 | -12.42 | QP |
| 6 | 379.914 | 42.18 | 18.98 | 0.97 | 0.00 | 28.69 | 33.44 | 46.00 | -12.56 | QP |

*Remark:*

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*

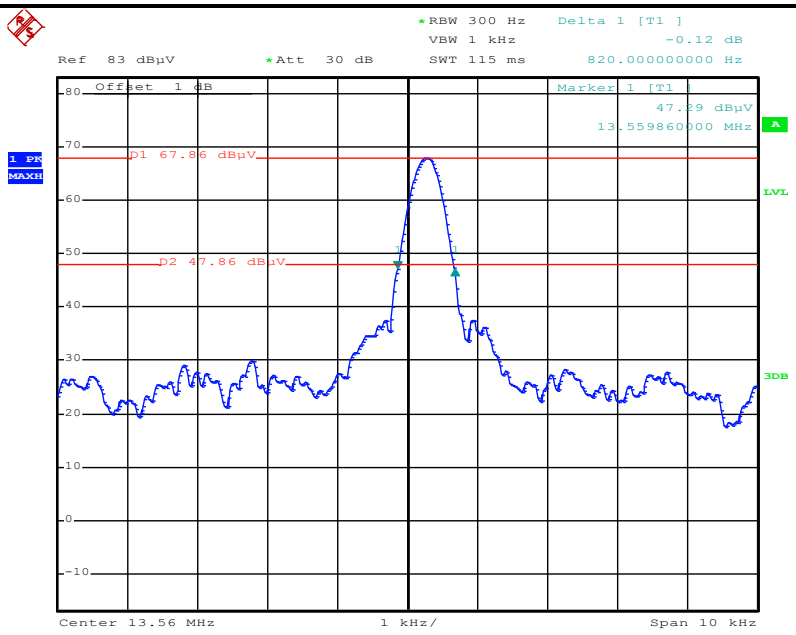
## 6.3 20dB Bandwidth

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.215 (c) |
| Receiver setup: | RBW=300Hz, VBW=1KHz, detector: Peak |
| Limit: | The fundamental emission be kept within at least the central 80% of the permitted band |
| Test Procedure: | 1. According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT.<br>2. Set the EUT to proper test channel.<br>3. Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points.<br>4. Read 20dB bandwidth. |
| Test setup: |  |
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

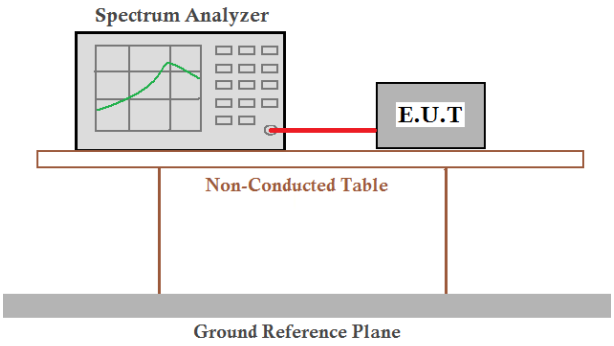
**Measurement Data**

| 20dB bandwidth (kHz) | Limit (kHz) | Results |
|---|---|---|
| 0.820 | 11.2 | Passed |
| *Note: For 13.56MHz, permitted Band is 14 kHz, so the Limit is 11.2 kHz.* | | |

**Test plot as follows:**



## 6.4 Frequency Tolerance

| | |
|---|---|
| Test Requirement: | FCC Part15 C Section 15.225 (e) |
| Receiver setup: | RBW=200Hz, VBW=300Hz, span=14kHz, detector: Peak |
| Limit: | ±0.01% of the operating frequency |
| Test mode: | Transmitting mode |
| Test Procedure: | **Frequency stability V.S. Temperature measurement**<br>1. The equipment under test was powered by a fresh battery.<br>2. RF output was connected to spectrum analyzer via feed through attenuators.<br>3. The EUT was placed inside the temperature chamber.<br>4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20℃ operating frequency as reference frequency.<br>5. Turn EUT off and set the chamber temperature to –20℃. After the temperature stabilized for approximately 30 minutes recorded the frequency.<br>6. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached<br>**Frequency stability V.S. Voltage measurement**<br>1. Set chamber temperature to 25℃. Use a variable DC power source to power the EUT and set the voltage to rated voltage.<br>2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.<br>Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change. |
| Test setup: |  |
| Test Instruments: | Refer to section 5.9 for details |
| Test mode: | Refer to section 5.3 for details |
| Test results: | Passed |

**Measurement Data:**

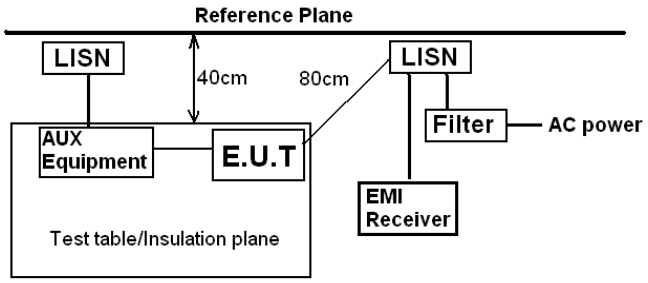
**a) Frequency stability V.S. Temperature measurement**

| Voltage (Vdc) | Temperature (℃) | Frequency Tolerance (MHz) | Frequency Error (%) | Limit (%) | Results |
|---|---|---|---|---|---|
| 3.7 | -20 | 0.078 | 0.0058 | ±0.01 | Pass |
| | -10 | 0.085 | 0.0063 | ±0.01 | Pass |
| | 0 | -0.074 | -0.0055 | ±0.01 | Pass |
| | +10 | 0.079 | 0.0058 | ±0.01 | Pass |
| | +20 | -0.066 | -0.0049 | ±0.01 | Pass |
| | +30 | 0.084 | 0.0062 | ±0.01 | Pass |
| | +40 | 0.067 | 0.0049 | ±0.01 | Pass |
| | +50 | -0.036 | -0.0027 | ±0.01 | Pass |

**b) Frequency stability V.S. Voltage measurement**

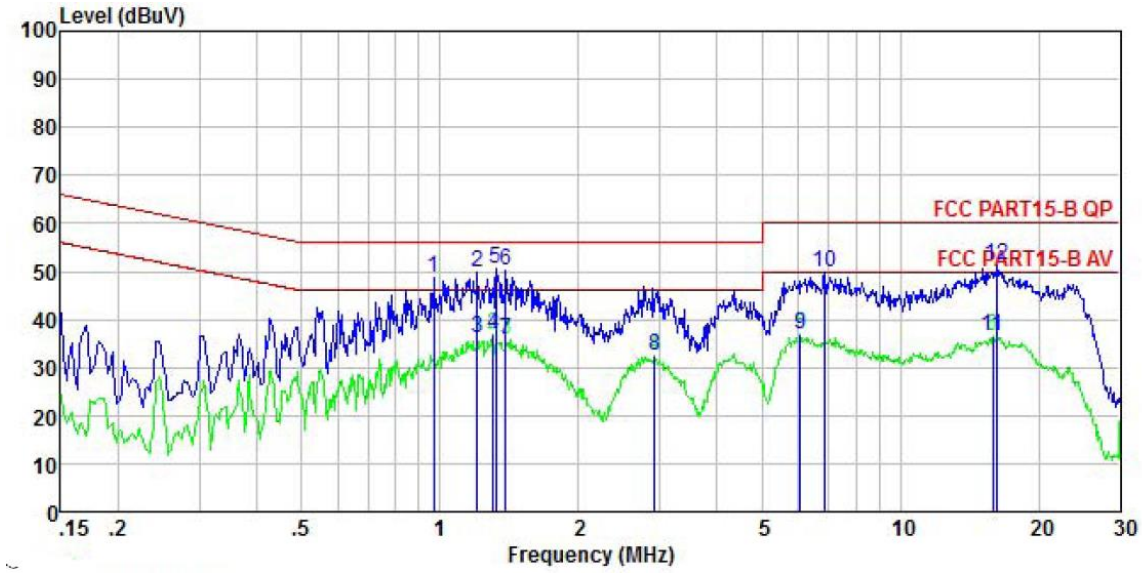
| Temperature (℃) | Voltage (Vdc) | Frequency Tolerance (MHz) | Frequency Error (%) | Limit (%) | Results |
|---|---|---|---|---|---|
| 25.0 | 3.5 | -0.085 | -0.0063 | ±0.01 | Pass |
| | 3.7 | 0.071 | 0.0052 | ±0.01 | Pass |
| | 4.2 | 0.092 | 0.0068 | ±0.01 | Pass |

## 6.5 Conducted Emission

| | | | |
|---|---|---|---|
| Test Requirement: | FCC Part15 B Section 15.207 | | |
| TestFrequencyRange: | 150kHz to 30MHz | | |
| Class / Severity: | Class B | | |
| Receiver setup: | RBW=9kHz, VBW=30kHz | | |
| Limit: | Frequency range (MHz) | Limit (dBµV) | |
| | | Quasi-peak | Average |
| | 0.15-0.5 | 66 to 56* | 56 to 46* |
| | 0.5-5 | 56 | 46 |
| | 0.5-30 | 60 | 50 |
| | * Decreases with the logarithm of the frequency. | | |
| Test setup: |  <br>*Remark:*<br>*E.U.T: Equipment Under Test*<br>*LISN: Line Impedence Stabilization Network*<br>*Test table height=0.8m* | | |
| Test procedure | 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.).It provide a 50ohm/50uH coupling impedance for the measuring equipment.<br>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).<br>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement. | | |
| Test Instruments: | Refer to section 5.9 for details | | |
| Test mode: | Refer to section 5.3 for details | | |
| Test results: | Pass | | |

**Measurement Data:**

| Product name: | Mobile Payment Terminal | Product model: | D200 T |
|---|---|---|---|
| Test by: | Mike | Test mode: | NFC Tx mode |
| Test frequency: | 150 kHz ~ 30 MHz | Phase: | Line |
| Test voltage: | AC 120 V/60 Hz | Environment: | Temp: 22.5℃ Huni: 55% |

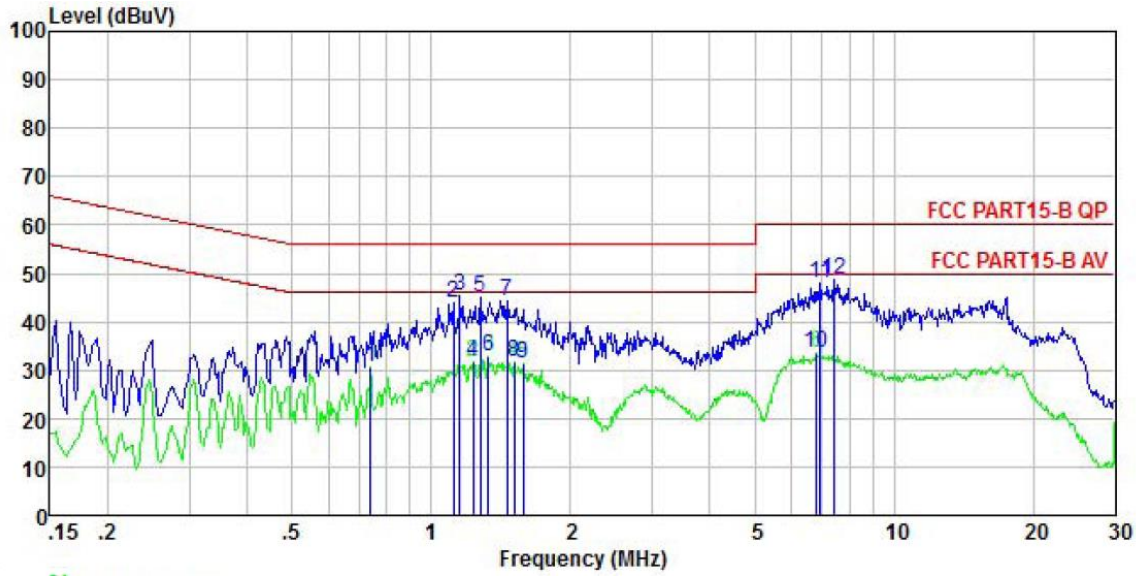



| | Freq | Read Level | LISN Factor | Aux Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.968 | 38.04 | -0.61 | 0.38 | 10.86 | 48.67 | 56.00 | -7.33 | QP |
| 2 | 1.203 | 39.11 | -0.59 | 0.25 | 10.89 | 49.66 | 56.00 | -6.34 | QP |
| 3 | 1.203 | 25.47 | -0.59 | 0.25 | 10.89 | 36.02 | 46.00 | -9.98 | Average |
| 4 | 1.303 | 26.32 | -0.58 | 0.17 | 10.90 | 36.81 | 46.00 | -9.19 | Average |
| 5 | 1.324 | 40.02 | -0.58 | 0.15 | 10.91 | 50.50 | 56.00 | -5.50 | QP |
| 6 | 1.388 | 39.59 | -0.57 | 0.09 | 10.91 | 50.02 | 56.00 | -5.98 | QP |
| 7 | 1.388 | 25.48 | -0.57 | 0.09 | 10.91 | 35.91 | 46.00 | -10.09 | Average |
| 8 | 2.931 | 22.10 | -0.43 | -0.22 | 10.92 | 32.37 | 46.00 | -13.63 | Average |
| 9 | 6.056 | 25.65 | -0.49 | 0.79 | 10.82 | 36.77 | 50.00 | -13.23 | Average |
| 10 | 6.878 | 38.26 | -0.55 | 1.24 | 10.80 | 49.75 | 60.00 | -10.25 | QP |
| 11 | 15.885 | 23.16 | -0.73 | 3.07 | 10.91 | 36.41 | 50.00 | -13.59 | Average |
| 12 | 16.226 | 38.12 | -0.74 | 2.91 | 10.91 | 51.20 | 60.00 | -8.80 | QP |

*Notes:*

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Aux Factor + Cable Loss.*
4. *Pre-scan adapter(1) and adapter(2), found adapter(1) was worse case mode. the report only reflects the worst mode.*

| Product name: | Mobile Payment Terminal | Product model: | D200 T |
|---|---|---|---|
| Test by: | Mike | Test mode: | NFC Tx mode |
| Test frequency: | 150 kHz ~ 30 MHz | Phase: | Neutral |
| Test voltage: | AC 120 V/60 Hz | Environment: | Temp: 22.5℃ Huni: 55% |




| | Freq | Read Level | LISN Factor | Aux Factor | Cable Loss | Level | Limit Line | Over Limit | Remark |
|---|---|---|---|---|---|---|---|---|---|
| | MHz | dBuV | dB | dB | dB | dBuV | dBuV | dB | |
| 1 | 0.739 | 20.33 | -0.65 | 0.05 | 10.79 | 30.52 | 46.00 | -15.48 | Average |
| 2 | 1.117 | 33.65 | -0.68 | 0.09 | 10.88 | 43.94 | 56.00 | -12.06 | QP |
| 3 | 1.153 | 34.91 | -0.69 | 0.10 | 10.89 | 45.21 | 56.00 | -10.79 | QP |
| 4 | 1.229 | 21.29 | -0.69 | 0.11 | 10.90 | 31.61 | 46.00 | -14.39 | Average |
| 5 | 1.276 | 34.66 | -0.69 | 0.11 | 10.90 | 44.98 | 56.00 | -11.02 | QP |
| 6 | 1.331 | 22.35 | -0.69 | 0.12 | 10.91 | 32.69 | 46.00 | -13.31 | Average |
| 7 | 1.456 | 34.00 | -0.70 | 0.13 | 10.92 | 44.35 | 56.00 | -11.65 | QP |
| 8 | 1.511 | 21.51 | -0.70 | 0.13 | 10.92 | 31.86 | 46.00 | -14.14 | Average |
| 9 | 1.577 | 20.90 | -0.70 | 0.14 | 10.93 | 31.27 | 46.00 | -14.73 | Average |
| 10 | 6.805 | 22.69 | -0.74 | 0.82 | 10.80 | 33.57 | 50.00 | -16.43 | Average |
| 11 | 6.914 | 36.91 | -0.74 | 0.83 | 10.80 | 47.80 | 60.00 | -12.20 | QP |
| 12 | 7.407 | 37.57 | -0.76 | 0.93 | 10.82 | 48.56 | 60.00 | -11.44 | QP |

*Notes:*

1. *An initial pre-scan was performed on the line and neutral lines with peak detector.*
2. *Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.*
3. *Final Level =Receiver Read level + LISN Factor + Aux Factor + Cable Loss.*
4. *Pre-scan adapter(1) and adapter(2), found adapter(1) was worse case mode. the report only reflects the worst mode.*

# 8 EUT Constructional Details

Reference to the EUT photos

------End of report------