



NFC TEST REPORT

No.I22Z60641-IOT05

for

Hytera Communications Corporation Limited

Poc Mobile Radio

Model Name: MNC360

FCC ID: YAMMNC360

IC number:8913A-MNC360

with

Hardware Version: V1.0.01.000.01

Software Version: V1.0.06.000.01

Issued Date: 2022-05-16

Note:

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The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S.Government.

Test Laboratory:

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REPORT HISTORY

| Report Number | Revision | Description | Issue Date |
|-----------------|----------|-------------------------|------------|
| I22Z60641-IOT05 | Rev.0 | 1 st edition | 2022-05-16 |

Note: the latest revision of the test report supersedes all previous version.





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| | NNEX B: DETAILED TEST RESULTS | |





1. Test Laboratory

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0, and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (ISED#: 24849). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

Location 1: CTTL(huayuan North Road)

Address:

No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China 100191

Location 4: CTTL(BDA) Address:

No.18A, Kangding Street, Beijing Economic-Technology Development Area, Beijing, P. R. China 100176





1.3. <u>Testing Environment</u>

| Normal Temperature: | 15-35°C |
|---------------------------|--------------|
| Extreme Temperature: | -20/+60°C |
| Normal Relative Humidity: | 20-75% |
| Normal Air Pressure | 86Kpa-106Kpa |

1.4. Project data

| Testing Start Date: | 2022-04-25 |
|---------------------|------------|
| Testing End Date: | 2022-05-11 |

1.5. Signature

周 飙

Zhou Bin (Prepared this test report)

32

Zhang Qiang (Reviewed this test report)

Zhu Liang (Approved this test report)





2. Client Information

2.1. Applicant Information

| Company Name: | Hytera Communications Corporation Limited | |
|---------------|--|--|
| Address: | Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, | |
| Address. | Nanshan District, Shenzhen, P.R.C., P 518057 | |
| Contact: | Ruifen.Huang | |
| Telephone: | 18925250460 | |
| Email: | Ruifen.Huang@hytera.com | |

2.2. Manufacturer Information

| Company Name: | Hytera Communications Corporation Limited | |
|---------------|--|--|
| Address: | Hytera Tower, Hi-Tech Industrial Park North, 9108# Beihuan Road, | |
| Address. | Nanshan District, Shenzhen, P.R.C., P 518057 | |
| Contact: | Ruifen.Huang | |
| Telephone: | 18925250460 | |
| Email: | Ruifen.Huang@hytera.com | |





3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

| Description | PoC Mobile Radio |
|------------------------|--|
| Model Name | MNC360 |
| FCC ID | YAMMNC360 |
| IC number | 8913A-MNC360 |
| GSM Frequency bands | 850/900/1800/1900 |
| UMTS Frequency bands | FDD I/ II/ III/ IV/ V/ VIII |
| E-UTRA Frequency bands | FDD 1/2/3/4/5/7/8/12/13/17/20/26/28A/28B |
| | TDD 38/39/40/41 |
| Operating temperature | -20/+60°C |
| Extreme low voltage | 9 V |
| Normal voltage | 13.6 V |
| Extreme high voltage | 25 V |
| | |

3.2. Internal Identification of EUT

| EUT ID* | SN or IMEI | HW Version | SW Version | Receive Date |
|---------|-----------------|----------------|----------------|---------------------|
| UT19aa | 866346040178469 | V1.0.01.000.01 | V1.0.06.000.01 | 2022-04-25 |
| UT22aa | 866346040178493 | V1.0.01.000.01 | V1.0.06.000.01 | 2022-05-09 |

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE

| AE ID* | Description | SN | Remarks |
|--------|------------------|----|---------|
| AE1 | Power Supply | / | / |
| AE2 | DC Power Supply | / | / |
| AE3 | GPS Antenna | / | / |
| AE4 | 2G/3G/4G Antenna | / | / |
| AE5 | Palm microphone | / | / |
| AE6 | NFC Card | / | / |

AE1

| Model | NGSM | |
|--------------|-----------------|--|
| Manufacturer | Rohde & Schwarz | |
| AE2 | | |
| Model | ZUP60-14 | |
| Manufacturer | 1 | |
| AE3 | | |
| Model | DAMA1575AT41 | |





| Manufacturer | ZHANGJIAGANG FREE TRADE ZONE CAIQIN TECHNOLOGY CO.,LTD. |
|--------------|--|
| AE4 | |
| Model | AN1700W01 |
| Manufacturer | 1 |
| AE5 | |
| Model | SM16A1 |
| Manufacturer | Hytera Communications Corporation Limited |

*AE ID: is used to identify the ancillary equipment in the lab internally.

| 3.4. EUT Set-ups | | |
|------------------|---------------------------|---------|
| EUT set-up No. | Combination of EUT and AE | Remarks |
| Set.NFC01 | EUT22aa+AE2+AE6 | / |
| Set.NFC02 | EUT19aa+AE1 | / |

The Transmit State of NFC: the NFC function is on. The EUT will transmit the NFC data and command continuously during the test.

The Transmit state without modulation: The EUT will transmit the CW signal at the operating frequency.





4. <u>Reference Documents</u>

4.1. Documents supplied by applicant

EUT parameters, referring to Annex A for detailed information, are supplied by the client or manufacturer, which are the bases of testing.

4.2. Reference Documents for testing

The following documents listed in this section are referred for testing.

| Reference | Title | Version |
|----------------|---|---------|
| CFR 47 Part 2 | Part 2 — Frequency Allocations and Radio Treaty | 2019 |
| | Matters; General Rules and Regulations. | |
| CFR 47 Part 15 | Part 15 — Radio Frequency Devices. | 2019 |
| | Subpart C — Intentional Radiators. | |
| | § 15.35 Measurement detector functions and | |
| | bandwidths. | |
| | § 15.207 Conducted limits. | |
| | § 15.209 Radiated emission limits, general | |
| | requirements. | |
| | § 15.215 Additional provisions to the general | |
| | radiated emission limitations. | |
| | § 15.225 Operation within the band 13.110– | |
| | 14.010 MHz. | |
| ANSI C63.10 | American National Standard of Procedures for | 2013 |
| | Compliance Testing of Unlicensed Wireless | |
| | Devices | |
| RSS -210 | License-exempt Radio Apparatus (All Frequency | lssue10 |
| | Bands): Category I Equipment | 1350010 |
| | Spectrum Management and | |
| RSS - Gen | Telecommunications - Radio | |
| | Standards Specification | lssue5 |
| | General Requirements and Information for the | |
| | Certification of Radio communication Equipment | |





5. Test Results

5.1. Summary of Test Results

| No | Test Cases | Clause in Regulation | Section in This Report | Verdict |
|-----|---|-------------------------|---------------------------|---------------|
| | Electric Field Strength of | CFR 47 § 15.225(a) | | |
| 1 | Fundamental Emissions | RSS-210 Issue 10 § | | P(Set. NFC01) |
| | | Annex B.6 | B.1 | |
| | Electric Field Strength of | CFR 47 § 15.225(b) | D. I | |
| 2 | Electric Field Strength of Outside the Allocated Bands | CFR 47 § 15.225(c) | | P(Set. NFC01) |
| | Outside the Allocated Bands | RSS-210 lssue9 B.6 | | |
| | | CFR 47 § 15.209 | B.2 | P(Set. NFC01) |
| 3 | Electric Field Radiated | CFR 47 § 15.225(d) | | |
| 3 | Emissions | RSS-Gen Issue 5 § | B.3 | P(Set. NFC01) |
| | | 6.7 | | |
| | Frequency Tolerance | CFR 47 § 15.225(e) | | |
| 4 | | RSS-210 Issue 10 § | B.4 | P(Set. NFC02) |
| | | Annex B.6(b) | | |
| | | CFR 47 § 15.215(c) | | |
| 5 | 20dB Bandwidth | RSS-Gen Issue 5 § | B.5 | P(Set. NFC02) |
| | | 6.7 | | |
| | 00% Occupied Rendwidth | RSS-Gen Issue 5 § | B.6 | |
| 6 | 99% Occupied Bandwidth | 6.7 | D.0 | P(Set. NFC02) |
| The | The measurement is carried out according to ANSI C63.10.See ANNEX B for details. | | | |

Test Conditions:

For this report, all the test cases listed above were tested under normal Temperature, Voltage, humidity and Air Pressure except the Frequency Tolerance test case. The specific conditions of Frequency Tolerance test case are listed in section B.4.3

See Table 3 for terms for result verdict:

| Р | Pass, The EUT complies with the essential requirements in the standard. | |
|----|---|--|
| NP | Not Perform, The test was not performed by CTTL | |
| NA | Not Applicable, The test was not applicable | |
| F | Fail, The EUT does not comply with the essential requirements in the standard | |

Table 1 Terms for result verdict

5.2. Statements

The test cases listed in Section 5.1 of this report for the EUT specified in Section 3 were performed





by CTTL according to the reference documents in Section 4.

The EUT meets all applicable requirements of the regulations and standards in Section 4.2. Disclaimer:

A. After confirmation with the customer, the sample information provided by the customer may affect the validity of the measurement results in this report, and the impact and consequences arising therefrom shall be borne by the customer.

B. The samples in this report are provided by the customer, and the test results are only applicable to the samples received.





6. Test Facilities Utilized

| NO. | NAME | TYPE | SERIES NUMBER | PRODUCER | CAL. DUE DATE | CAL. INTERVAL |
|-----|------------------------|---------------------------|------------------|--------------------|------------------|------------------|
| 1. | Vector Signal Analyzer | FSV40 | 100903 | Rohde & Schwarz | 2022-12-29 | 1 year |
| | | | | Rohde & | | |
| 2. | DC Power Supply | DC Power Supply NGSM 5425 | NGSM 5425 S | | 2022-09-15 | 1 year |
| | | | | | | |
| 3. | Climate chamber | SU-242 | 93008165 | ESPEC | 2023-03-13 | 1 year |
| 4. | Receiver | ESU26 | 100376 | R&S | 2022-09-15 | 1 year |
| 5. | Antenna | VULB9163 | 01176 | Schwarzbeck | 2022-11-15 | 1 year |
| 6. | Horn Antenna | 3117 | 00066577 | ETS-Lindgren | 2025-03-15 | 3 years |
| 7. | Antenna | 3117 | 00139065 | ETS-Lindgren | 2022-09-13 | 1 year |
| 8. | Chamber | FACT3-2.0 | 1285 | ETS-Lindgren | 2023-05-29 | 2 years |





7. Measurement Uncertainty

| Item | Uncertainty |
|--|------------------------|
| Electric Field Strength of Fundamental and | <i>U</i> =1.79 dB, k=2 |
| Outside the Allocated bands | |
| Radiated Emissions(<30MHz) | <i>U</i> =4.49 dB, k=2 |
| Radiated Emissions (30MHz-1GHz) | <i>U</i> =5.73 dB, k=2 |
| Frequency Tolerance | U =77 Hz, k=2 |
| 20dB Bandwidth | <i>U</i> =77 Hz, k=2 |
| 99% Emission Bandwidth | U = 77 Hz, k=2 |





ANNEX A: EUT parameters

/





ANNEX B: Detailed Test Results

B.1. Electric Field Strength of Fundamental and Outside the Allocated bands

B.1.1. Reference

See Clause 4, Clause 5 of ANSI C63.10-2013 generally.

B.1.2. Measurement Methods

The transmitter carrier output levels (E-Field) from the EUT are measured in a semi-anechoic chamber. The EUT is placed on a non-conductive stand of 80cm high, and at a measurement distance of 3m from the receiving antenna. The center of the receiving loop antenna is 1.0 meter above the ground. The E-field is measured with a shielded loop antenna connected to a measurement receiver. Detected E-field was maximized by rotating the EUT through 360° and adjusting the receiving antenna polarizations. The maximization processes were repeated with the EUT positioned respectively in its three orthogonal axes. The measurements were performed with the peak detector and if required, the quasi-peak detector.

The measurement bandwidth is:

| Table B-1: Me | Measurement bandwidth | |
|-----------------------------|-----------------------|--|
| Frequency of Emission (MHz) | RBW/VBW | |
| 12.56-14.56 | 10/30 kHz | |

The E-field measured at 3m is calculated as:

E-field $(dB\mu V/m) = Rx (dB\mu V) + Cable Loss (dB) + AF@3m (dB/m)$

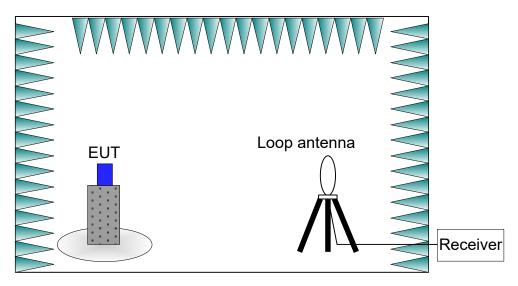


Figure B-1: Measurement Setup

B.1.3. EUT Operating Mode and Test Conditions

The measurement of EUT is carried out under the transmit state of NFC(See 3.4). The EUT is powered by a travel adapter.





During the measurements, the ambient temperature of the electromagnetic anechoic chamber is in the range of 15 ~ 25 $\,^\circ\!{\rm C}$.

B.1.4. Limits

| Table B-2: Limits | | | | |
|--|-------------------------------|------------------------------|--|--|
| Frequency Range (MHz) | E-field Strength Limit @ 30 m | E-field Strength Limit @ 3 m | | |
| Frequency Range (MITZ) | (µV/m) | (dBµV/m) | | |
| 13.560 ± 0.007 | +15,848 | 124 | | |
| 13.410 to 13.553 | +334 | 00 | | |
| 13.567 to 13.710 | +534 | 90 | | |
| 13.110 to 13.410 | +106 | 81 | | |
| 13.710 to 14.010 | +100 | 01 | | |
| Note: Where the limits have been defined at one distance, and a signal level measured at | | | | |
| another, the limits have been extrapolated using the following formula: | | | | |
| Extrapolation(dB) = $40\log_{10}$ (Measurement Distance/Specification Distance) | | | | |

B.1.5. Measurement Results

Measurement results of normal conditions see Figure B-2 for different set-ups of EUT. The results displayed take into account applicable antenna factors and cable losses.

Conclusions: Set.NFC01, PASS.

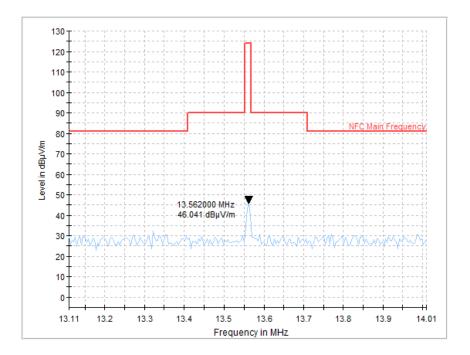


Figure B-2: Measurement results for Electric Field Strength of Fundamental and Outside the Allocated bands

B.1.6. Measurement Uncertainty

Measurement uncertainty: U = 1.79 dB, k=2.





B.2. Electric Field Radiated Emissions (< 30MHz)

B.2.1. Reference

See Clause 6.4 of ANSI C63.10-2013 specifically. See Clause 4 and Clause 5 of ANSI C63.10-2013 generally.

B.2.2. Measurement Methods

The transmitter carrier output levels (E-Field) from the EUT are measured in a semi-anechoic chamber. The EUT is placed on a non-conductive stand of 80cm high, and at a measurement distance of 3m from the receiving antenna. The center of the receiving loop antenna is 1.0 meter above the ground. The E-field is measured with a shielded loop antenna connected to a measurement receiver. Detected E-field was maximized by rotating the EUT through 360° and adjusting the receiving antenna polarizations. The maximization processes were repeated with the EUT positioned respectively in its three orthogonal axes. The measurements were performed with the peak detector and if required, the quasi-peak detector.

The measurement bandwidth is:

| Frequency of Emission (MHz) | RBW/VBW |
|-----------------------------|------------|
| 0.009-0.15 | 100/300 Hz |
| 0.15-30 | 10/30 kHz |

The E-field measured at 3m is calculated as: E-field $(dB\mu V/m) = Rx (dB\mu V) + Cable Loss (dB) + AF@3m (dB/m)$

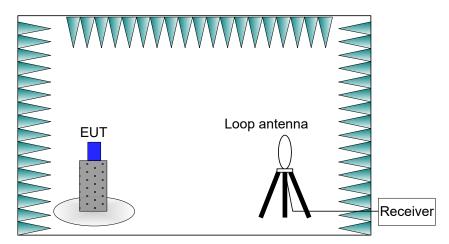


Figure B-3: Measurement Setup

B.2.3. EUT Operating Mode and Test Conditions

The measurement of EUT is carried out under the transmit state of NFC(See 3.4).

The EUT is powered by a travel adapter.

During the measurements, the ambient temperature of the electromagnetic anechoic chamber is





in the range of 15 ~ 25 $^{\circ}$ C.

B.2.4. Limits

| Frequency Range (MHz) | E-field Strength Limit @ 30m (mV/m) | E-field Strength Limit @ 3m (dBµV/m) | |
|--|--|---|--|
| 0.009-0.490 | 2400/F(kHz) | 129-94 | |
| 0.490-1.705 | 24000/F(kHz) | 74-63 | |
| 1.705-30 | 30 | 70 | |
| Note: Where the limits have been defined at one distance, and a signal level measured at | | | |
| another, the limits have been extrapolated using the following formula: | | | |
| Extrapolation(dB) = $40\log_{10}$ (Measurement Distance/Specification Distance) | | | |

B.2.5. Measurement Results

Measurement results of normal conditions see Figure B-4 for different set-ups of EUT. The results displayed take into account applicable antenna factors and cable losses.

Conclusions: Set.NFC01, PASS.

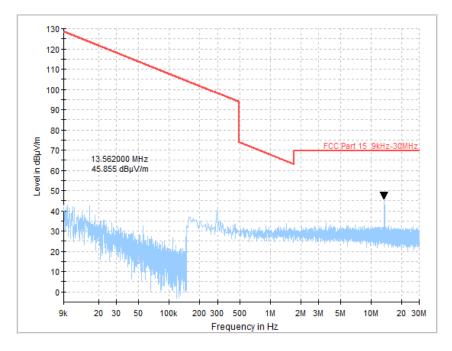


Figure B-4: Measurement results for Electric Field Radiated Emissions (< 30MHz)

B.2.6. Measurement Uncertainty

Measurement uncertainty: U = 1.79 dB, k=2.





B.3. Electric Field Radiated Emissions (≥30MHz)

B.3.1. Reference

See Clause 6.5 of ANSI C63.10-2013 specifically. See Clause 4 and Clause 5 of ANSI C63.10-2013 generally.

B.3.2. Measurement Methods

The electric field radiated emissions from the EUT are measured in a semi-anechoic chamber. The EUT is placed on a non-conductive stand of 80cm high, and at a measurement distance of 10m from the receiving antenna. The receiving antennas connected to a measurement receiver. In order to search for maximum field strength emitted from the EUT, the receiving antenna can be moved between the height of 1.0 m to 4.0 m. Detected E-field was maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna positions for both vertical and horizontal antenna polarizations. The maximization processes were repeated with the EUT positioned respectively in its three orthogonal axes. The measurements were performed with the peak detector and if required, the quasi-peak detector.

The measurement bandwidth is:

| Frequency of Emission (MHz) | RBW/VBW |
|-----------------------------|---------|
| 30-1000 | 120kHz |

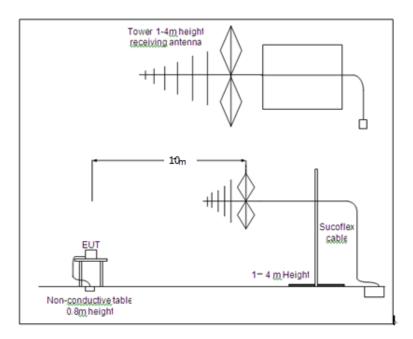


Figure B-5: Measurement Setup

B.3.3. EUT Operating Mode and Test Conditions

The measurement of EUT is carried out under the transmit state of NFC(See 3.4).

The EUT had been connected to a travel adapter.

During the measurements, the ambient temperature of the electromagnetic anechoic chamber is

in the range of $15 \sim 25$ °C.





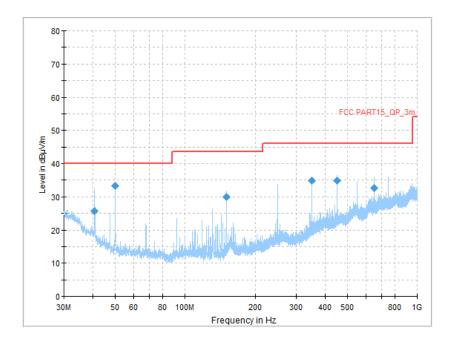
B.3.4. Limits

| Frequency Range (MHz) | E-field Strength Limit @ 3m (mV/m) | E-field Strength Limit @ 3m (dBµV/m) | E-field Strength Limit @ 10m (dBµV/m) |
|--------------------------|--|--|---|
| 30-88 | 100 | 40 | 30 |
| 88-216 | 150 | 43.5 | 33.5 |
| 216-960 | 200 | 46 | 36 |
| 960-1000 | 500 | 54 | 44 |

B.3.5. Measurement Results

Measurement results of normal conditions see Figure B-6 for different set-ups of EUT. The results displayed take into account applicable antenna factors and cable losses.

Conclusions: Set.NFC01, PASS.





B.3.6. Measurement Uncertainty

Measurement uncertainty: U = 1.79 dB, k=2.

B.4. Frequency Tolerance

B.4.1. Reference

See Clause 6.8 of ANSI C63.10-2013 specifically. See Clause 4 and Clause 5 of ANSI C63.10-2013 generally.





B.4.2. Measurement Methods

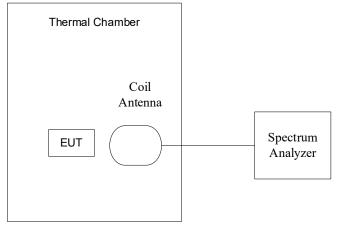


Figure B-7: Measurement Setup

The transmitter output signal was picked up by coil antenna connected to the spectrum analyzer. The center frequency was measured with 30Hz RBW and 1kHz span.

During the test, the EUT was placed in a thermal chamber until thermal balance and lasting appropriate time.

B.4.3. EUT Operating Mode and Test Conditions

The measurement of EUT was carried out under the transmit state of without modulation(See 3.4). EUT had not been connected to a travel adapter. The frequency stability was measured with the different voltage and temperature combinations:

- a) The nominal voltage 13.60V(See 3.1)was used and the temperature was varied from -20 $^{\circ}$ C to +50 $^{\circ}$ C in 10 $^{\circ}$ C increments using an environmental chamber.
- b) The 20℃ was used and the voltages were 11.56V, 13.60V and 15.64V (85% of the normal voltage ,the normal voltage and 115% of the normal voltage .The normal voltage defined in section 3.1).

The details were as following:

| | compensations of voltage and temperature | |
|------------------------|--|---------------|
| Test items | Voltage | Temperature |
| Frequency | | -20 °C |
| stability with respect | | -10 ℃ |
| to ambient | | 0 °C |
| temperature | 40.001 | 10 ℃ |
| | 13.60V | 20 ℃ |
| | | 30 ℃ |
| | | 40 ℃ |
| | | 50 ℃ |
| Frequency stability | 11.56V | |
| when varying supply | 13.60V | 20 ℃ |
| voltage | 15.64V | |

 Table B-3:
 Combinations of Voltage and Temperature





B.4.4. Test Layouts

See B.4.2.

B.4.5. Limits

The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency.

B.4.6. Measurement Results

Measurement results see Table B-4 for different test conditions. **Conclusions:** Set.NFC02, **PASS**.

| Table B-4: Measurement results for Frequency Tolerance | | | | | | | | |
|--|---------|-----------------|-------------|-------------|--------------|--|--|--|
| Temperature | Voltago | Frequency (MHz) | | | | | | |
| remperature | Voltage | Startup | 2 Min Later | 5 Min Later | 10 Min Later | | | |
| -20 ℃ | 13.60V | 13.560810 | 13.560809 | 13.560805 | 13.560807 | | | |
| -10 ℃ | 13.60V | 13.560798 | 13.560791 | 13.560789 | 13.560795 | | | |
| 0 ℃ | 13.60V | 13.560801 | 13.560812 | 13.560820 | 13.560819 | | | |
| 10 ℃ | 13.60V | 13.560879 | 13.560879 | 13.560880 | 13.560879 | | | |
| 20 ℃ | 13.60V | 13.560865 | 13.560860 | 13.560867 | 13.560871 | | | |
| 30 ℃ | 13.60V | 13.560872 | 13.560869 | 13.560868 | 13.560866 | | | |
| 40 ℃ | 13.60V | 13.560875 | 13.560879 | 13.560876 | 13.560875 | | | |
| 50 ℃ | 13.60V | 13.560870 | 13.560871 | 13.560876 | 13.560875 | | | |
| 20 ℃ | 11.56V | 13.560865 | 13.560863 | 13.560863 | 13.560864 | | | |
| 20 ℃ | 15.64V | 13.560810 | 13.560809 | 13.560805 | 13.560807 | | | |

 Table B-4:
 Measurement results for Frequency Tolerance

| Tomporatura | Valtaga | Frequency Error (%) | | | | | | |
|--------------|---------|---------------------|-------------|-------------|--------------|--|--|--|
| Temperature | Voltage | Startup | 2 Min Later | 5 Min Later | 10 Min Later | | | |
| -20 ℃ | 13.60V | 0.006 | 0.006 | 0.006 | 0.006 | | | |
| -10 ℃ | 13.60V | 0.006 | 0.006 | 0.006 | 0.006 | | | |
| 0 °C | 13.60V | 0.006 | 0.006 | 0.006 | 0.006 | | | |
| 10 ℃ | 13.60V | 0.006 | 0.006 | 0.006 | 0.006 | | | |
| 20 ℃ | 13.60V | 0.006 | 0.006 | 0.006 | 0.006 | | | |
| 30 ℃ | 13.60V | 0.006 | 0.006 | 0.006 | 0.006 | | | |
| 40 ℃ | 13.60V | 0.006 | 0.006 | 0.006 | 0.006 | | | |
| 50 ℃ | 13.60V | 0.006 | 0.006 | 0.006 | 0.006 | | | |
| 20 ℃ | 11.56V | 0.006 | 0.006 | 0.006 | 0.006 | | | |
| 20 ℃ | 15.64V | 0.006 | 0.006 | 0.006 | 0.006 | | | |

B.4.7. Measurement Uncertainty

Measurement uncertainty: U =77 Hz, k=2





B.5. 20dB Bandwidth

B.5.1. Reference

See Clause 6.9 of ANSI C63.10-2013 specifically. See Clause 4 and Clause 5 of ANSI C63.10-2013 generally.

B.5.2. Measurement Methods

The transmitter output signal was picked up by coil antenna connected to the spectrum analyzer. The bandwidth of the center frequency was measured with 100Hz RBW, 300Hz VBW and 10kHz span.

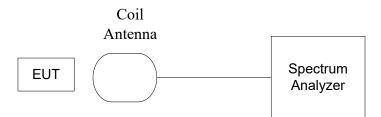


Figure B-8: Measurement Setup

B.5.3. EUT Operating Mode and Test Conditions

The measurement of EUT was carried out under the transmit state of NFC (See 3.4). EUT had not been connected to a travel adapter.

During the measurements, the ambient temperature was in the range of $15 \sim 25$ °C.

B.5.4. Test Layouts

See B.5.2.

B.5.5. Limits

The transmitter output signal was picked up by coil antenna to the spectrum analyzer. The 20dB bandwidth shall be less than 80% of the permitted frequency band. For 13.56 MHz NFC, the permitted frequency band is 14kHz, so the limit is 11.2 kHz.

B.5.6. Measurement Results

Measurement results see Figure B-9. **Conclusions:** Set.NFC02, **PASS**.





| Spe | ectrur | n | ٦ | | | | | | | | | |
|----------|-------------------------------------|------|-------|-------------|-----------|---------------|-------|----------|----------|----------|--------|-----------|
| Re | f Leve | 20. | | | 7.01 dB 😑 | RBW 10 | DO Hz | | | | | ` |
| At | | | 35 c | ib 👄 SWT | 19 ms 👄 | VBW 30 | DO Hz | Mode | Auto FFT | | | |
| | int 100 | /100 | | | | | | | | | | |
| 1Pl | k View | | | | | | | | | | | |
| | | | | | | | | | M1[1] | | | 15.98 dBn |
| 10 d | IBm | | | | | | | | 42 | | 13.560 | 75000 MH: |
| 10 0 | ionn | | | | | | | 4 | M2[1] | | | 5.56 dBn |
| 0 dB | m | | | | | | | | β. | | 13.560 | 88000 MH: |
| | | | | | | | | | S | | | |
| -10 | dBm | | | | | | | - M | 103 | | | |
| 000-0213 | | D1 - | 14.44 | 0 dBm | | | | | <u>A</u> | | | |
| -20 | dBm | | | | | | | | - | | | |
| | | | | | | | | | | | | |
| -30 | dBm— | | | | | | | | ~ | | | |
| | | | | | | | -1 | | | - | | |
| -40 | dBm | | | | ~ | | | | - | | | |
| 1 | . ~ | 1 | ~ | | 1 | | | | | | Nal | |
| -50 | dBm— | | 10 | | - | | | | | | | ~~~~ |
| | ~ | | | | | | | | | | | |
| -60 | dBm— | | | | | | | | | | | |
| 70 | dBm | | | | | | | | | | | |
| -701 | авт— | | | | | | | | | | | |
| | | | | | | | | | | | | |
| CF : | CF 13.56 MHz 1001 pts Span 10.0 kHz | | | | | | | | | | | |
| Marker | | | | | | | | | | | | |
| No | Туре | Ref | Trc | Stimulus | Respo | onse | Fun | ction | | Function | Result | |
| 1 | N1 | | 1 | 13.56075 MH | | 8 dBm | | | | | | |
| 2 | N2 | | 1 | 13.56088 MH | iz 5.5 | 6 dBm | | | | | | |
| 3 | D3 | N1 | 1 | 260.0 H | lz 1 | .26 dB | | | | | | |
| | | 27 | | | | | | <u>`</u> | | | | |

Figure B-9: Measurement results for 20dB Bandwidth

B.5.7. Measurement Uncertainty

Measurement uncertainty: U =77 Hz, k=2.

B.6. 99% Emission Bandwidth

B.6.1. Reference

See RSS-Gen section 6.7

B.6.2. Measurement Methods

The transmitter output signal was picked up by coil antenna to the spectrum analyzer.

The transmitter output signal was picked up by coil antenna connected to the spectrum analyzer. The bandwidth of the center frequency was measured with 100Hz RBW, 300Hz VBW and 10kHz span.

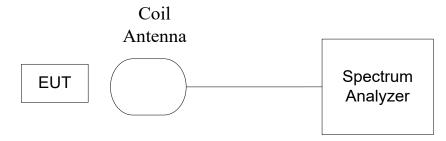


Figure B-10: Measurement Setup





B.6.3. EUT Operating Mode and Test Conditions

The measurement of EUT is carried out under the transmit state of NFC and with modulation (See 3.4).

EUT had been not connected to a travel adapter.

During the measurements, the ambient temperature was in the range of $15 \sim 25$ °C.

B.6.4. Limits

When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth, as calculated or measured.

B.6.5. Measurement Results

| | Table B-5:N | Ieasurements Results |
|-----------------|--------------------|------------------------|
| Test Conditions | | 99% Emission Bandwidth |
| Nominal Voltage | Normal Temperature | 624.375624376 kHz |

Measurement results see Figure B-11.

Conclusions: Set.NFC02, PASS.

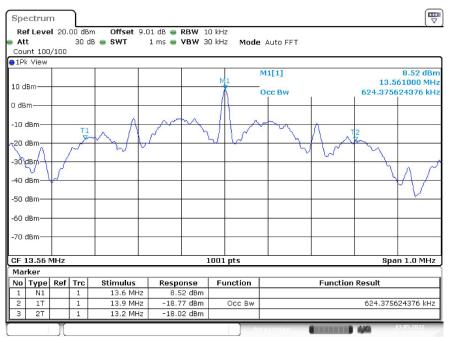


Figure B-11: Measurement results for 99% Emission Bandwidth

B.5.7. Measurement Uncertainty

Measurement uncertainty: U =77 Hz, k=2





ANNEX C: Persons involved in this testing

| Test Item | Tester |
|--|-------------|
| Electric Field Strength of Fundamental and Outside the Allocated bands | Zhao Wenhui |
| Electric Field Radiated Emissions (< 30MHz) | Zhao Wenhui |
| Electric Field Radiated Emissions (≥30MHz) | Zhao Wenhui |
| Frequency Tolerance | Zhou Bin |
| 20dB Bandwidth | Zhou Bin |
| 99% Emission Bandwidth | Zhou Bin |





ANNEX D: Accreditation Certificate



END OF REPORT