





# NFC TEST REPORT

No.24T04Z102259-001

for

**TCL Communication Ltd.** 

**GSM/UMTS/LTE/NR Mobile phone** 

T702Z

FCC ID: 2ACCJH184

with

Hardware Version: 03

**Software Version: 9L3N** 

Issued Date: 2024-11-12

#### Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of CTTL.

#### **Test Laboratory:**

## CTTL-Telecommunication Technology Labs, CAICT

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

Tel:+86(0)10-62304633-2512, Fax:+86(0)10-62304633-2504

Email: cttl terminals@caict.ac.cn, website: www.caict.ac.cn





# **REPORT HISTORY**

Report Number	Revision	Description	Issue Date
24T04Z102259-001	Rev.0	1 <sup>st</sup> edition	2024-11-12

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





# **CONTENTS**

1.	. Tl	EST LABORATORY	. 4
	1.1.	INTRODUCTION & ACCREDITATION	. 4
	1.2.	TESTING LOCATION	. 4
	1.3.	TESTING ENVIRONMENT	. 5
	1.4.	PROJECT DATA	. 5
	1.5.	SIGNATURE	. 5
2.	. <b>C</b> l	LIENT INFORMATION	. 6
	2.1.	APPLICANT INFORMATION	. 6
	2.2.	MANUFACTURER INFORMATION	. 6
3.	. E0	QUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE)	. 7
	3.1.	ABOUT EUT	. 7
	3.2.	INTERNAL IDENTIFICATION OF EUT	. 7
		INTERNAL IDENTIFICATION OF AE	
	3.4.	EUT SET-UPS	. 8
4.	. R	EFERENCE DOCUMENTS	. 8
	4.1.	DOCUMENTS SUPPLIED BY APPLICANT	. 8
	4.2.	REFERENCE DOCUMENTS FOR TESTING	. 8
5.		EST RESULTS	
		SUMMARY OF TEST RESULTS	
		STATEMENTS	
6.	. Tl	EST FACILITIES UTILIZED	10
7.	. M	EASUREMENT UNCERTAINTY	11
A	NNE	X A: EUT PARAMETERS	12
A	NNE	X B: DETAILED TEST RESULTS	12
A	NNE	X C: PERSONS INVOLVED IN THIS TESTING	26
A	NNE	X D: ACCREDITATION CERTIFICATE	27





## 1. Test Laboratory

## 1.1. Introduction & Accreditation

**Telecommunication Technology Labs, CAICT** is an ISO/IEC 17025:2017 accredited test laboratory under American Association for Laboratory Accreditation (A2LA) with lab code 7049.01, and is also an FCC accredited test laboratory (CN1349), and ISED accredited test laboratory (CAB identifier:CN0066). The detail accreditation scope can be found on A2LA website.

## 1.2. <u>Testing Location</u>

Location 1: CTTL(huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,

P. R. China 100191

Location 2: CTTL(Cui Hu)

Address: CuiHu Cloud Center No.1 Gaolizhang Road, Wenquan

Town, Haidian District, Beijing, China





## 1.3. <u>Testing Environment</u>

Normal Temperature: 15-35°C

Extreme Temperature: -20/+50°C

Normal Relative Humidity: 20-75%

Normal Air Pressure 86Kpa-106Kpa

## 1.4. Project data

Testing Start Date: 2024-10-23 Testing End Date: 2024-11-04

## 1.5. Signature

菌有牛

Miao Qinghua

(Prepared this test report)

Zhou Bin

(Reviewed this test report)

lo "

Pang Shuai

(Approved this test report)





## 2. Client Information

## 2.1. Applicant Information

Company Name: TCL Communication Ltd.

5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Address:

Shatin, NT, Hong Kong

Contact: Ting Wang

Telephone: +86 752 2639091

Email: ting.wang.hz@tcl.com

## 2.2. Manufacturer Information

Company Name: TCL Communication Ltd.

5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park,

Shatin, NT, Hong Kong

Contact: Ting Wang

Telephone: +86 752 2639091

Email: ting.wang.hz@tcl.com





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

## 3.1. About EUT

Description GSM/UMTS/LTE/NR Mobile phone

Model Name T702Z

FCC ID 2ACCJH184 Frequency Band 13.56MHz

GSM Frequency bands 900/1800/1900/850 UMTS Frequency bands FDD I/II/IV/V/VIII

E-UTRA Frequency bands FDD 1/2/3/4/5/7/8/9/12/13/14/17/20/25/26/28A+B/29/30/66/71

TDD 38/39/40/41/42

5G\_NR Frequency bands SA n1/n2/n3/n5/n20/n25/n28/n29/n30/n40/n41/n48/n66/n70n/n71

/n77/n78

NSA n2/n5/n66/n77

Operating temperature -10/+55°C
Extreme low voltage 3.6V
Normal voltage 3.85
Extreme high voltage 4.4V

## 3.2. Internal Identification of EUT

EUT ID*	SN or IMEI	<b>HW Version</b>	SW Version	Date of receipt
UT47a	016605000205797/ 016605000205805	03	9L3N	2024-09-30
UT57a	016605000206217/	03	9L3N	2024-10-18
0157a	016605000206225	03	9L3N	2024-10-16
UT60a	016605000206175/	03	9L3N	2024-10-18
0100a	016605000206183	US	<b>YLJIN</b>	2024-10-10

<sup>\*</sup>EUT ID: is used to identify the test sample in the lab internally.

## 3.3. Internal Identification of AE

AE ID*	Description	Model	Manufacturer
AE1	Battery1	TLp049C9(CAC4900033C9)	FENGHUA
AE2	Battery2	TLp049D7(CAC4900007C7)	VEKEN
AE3	Charger1	1	1
AE4	USB Cable1	CDA0000128C1	JUWEI
AE5	USB Cable2	CDA0000128C2	SHENGHUA
AE6	USB Cable3	CDA0000291C1	JUWEI

<sup>\*</sup>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	UT57a/UT60a + AE1/2 + AE3 + AE4/5 + NFC Card	NFC Charger
Set.NFC02	UT57a/UT60a + AE1/2 + NFC card	NFC
Set.NFC03	UT47a	

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. Reference Documents

## 4.1. <u>Documents supplied by applicant</u>

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 Matters;	2019
	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 Compliance	2013
	Testing of Unlicensed Wireless Devices	





## 5. Test Results

## 5.1. Summary of Test Results

No	Test Cases	Clause in Regulation	Section in This Report	Verdict
1	Electric Field Strength of	CFR 47 § 15.225(a)		P(Set. NFC02)
I	Fundamental Emissions	CFR 47 § 15.225(a)	B.1	P(Set. NPC02)
2	Electric Field Strength of	CFR 47 § 15.225(b)	D. I	D(Sat NECO2)
2	Outside the Allocated Bands	CFR 47 § 15.225(c)		P(Set. NFC02)
3	Electric Field Radiated	CFR 47 § 15.209	B.2	P(Set. NFC01)
3	Emissions	CFR 47 § 15.225(d)	B.3	P(Set. NFC01)
4	Frequency Tolerance	CFR 47 § 15.225(e)	B.4	P(Set. NFC03)
5	20dB Bandwidth	CFR 47 § 15.215(c)	B.5	P(Set. NFC03)
6	Conducted Emissions	CFR 47 § 15.207	B.6	P(Set. NFC01)
7	Antenna Requirement	CFR 47 § 15.203	B.7	P(Set. NFC03)
The	measurement is carried out acco	ording to ANSI C63.10. S	ee <b>ANNEX B</b> for	details.

#### Note:

The device what use a permanently attached antenna were considered sufficient to comply with the provisions of 15.203.

#### **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:

**Table 1 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

## 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.





# 6. Test Facilities Utilized

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER	CAL. DUE DATE	CAL. INTERVAL
1.	Spectrum Analyzer	N9030A	MY49432143	Keysight Technologies	2024-12-16	1 Year
2.	Climatic chamber	WK3-340/70	58226117510010	WEISS	2025-06-16	1 Year
3.	Test Receiver	ESW44	103144	R&S	2024-11-26	1 Year
4.	H-field Antenna	HFH2-Z2	829324/007	R&S	2026-01-04	2 Years
5.	EMI Antenna	VULB 9163	01222	SCHWARZBECK	2025-07-30	1 Year
6.	Test Receiver	ESCI	100344	R&S	2025-04-01	1 Year
7.	LISN	ENV216	101200	R&S	2025-05-16	1 year





# 7. Measurement Uncertainty

Item	Uncertainty
Frequency Tolerance	U =74 Hz, k=2
20dB Bandwidth	<i>U</i> =74 Hz, k=2
Radiated Emissions(9kHz-30MHz)	<i>U</i> =4.92 dB, k=2
Radiated Emissions (30MHz-1GHz)	<i>U</i> =4.72 dB, k=2
Radiated Emissions (>1GHz)	<i>U</i> =4.84 dB, k=2
Conducted emission	U = 3.08  dB, k=2





## **ANNEX A: EUT parameters**

Disclaimer: The antenna gain provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.





## **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:** 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  $(dB\mu V/m) = Rx (dB\mu V) + Cable Loss (dB) + AF@3m (dB/m)$ 

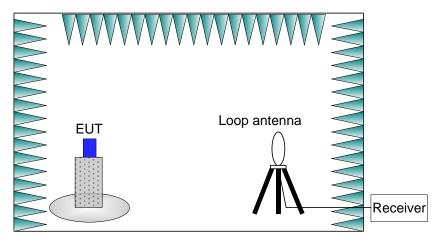


Figure B-1: Measurement Setup

## **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  $\,^{\circ}$ C.





#### B.1.4. Limits

**Table B-2:** Limits

Fraguency Bongo (MHz)	E-field Strength Limit @ 30 m	E-field Strength Limit @ 3 m	
Frequency Range (MHz)	(μ <b>V/m</b> )	(dBµV/m)	
13.560 ± 0.007	+15,848	124	
13.410 to 13.553	+334	90	
13.567 to 13.710	+334	90	
13.110 to 13.410	1106	01	
13.710 to 14.010	+106	81	

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.NFC02, PASS.

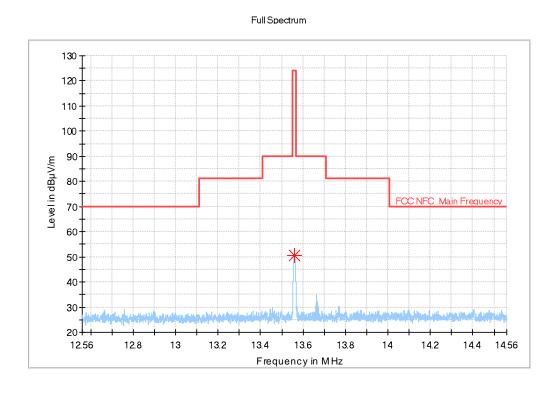


Figure B-2: Measurement results for Electric Field Strength of Fundamental and Outside the Allocated bands

Frequency	MaxPeak	Limit	Margin	Bandwidth	Pol	Azimuth	Corr.	Comment
(MHz)	(dBµV/m)	(dBµV/m)	(dB)	(kHz)		(deg)	(dB/m)	
13.559500	50.74	124.00	73.26		٧	330.0	18.0	





## **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  $(dB\mu V/m) = Rx (dB\mu V) + Cable Loss (dB) + AF@3m (dB/m)$ 

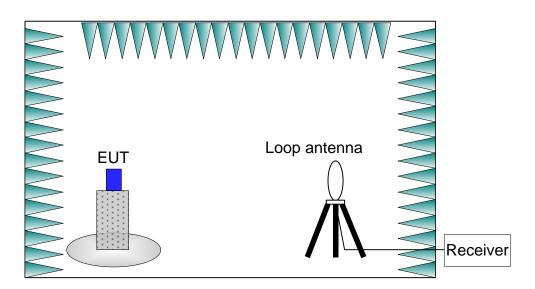


Figure B-3: Measurement Setup

#### **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  $\sim$  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.

Full Spectrum

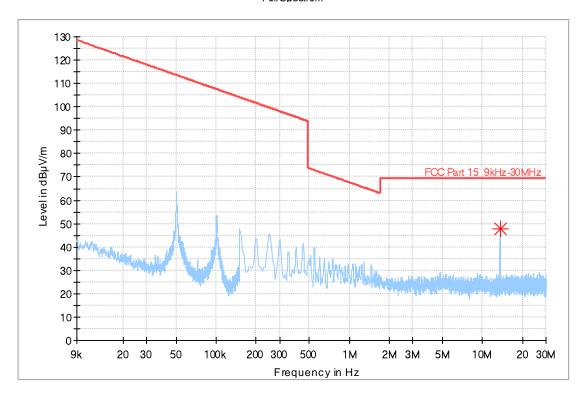


Figure B-4: Measurement results for Electric Field Radiated Emissions (< 30MHz)

Frequency	MaxPeak	Limit	Margin	Bandwidth	Pol	Azimuth	Corr.
(MHz)	(dBµV/m)	(dBµV/m)	(dB)	(kHz)		(deg)	(dB/m)
13.560113	47.88	69.50	21.62		٧	0.0	18.0





## 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

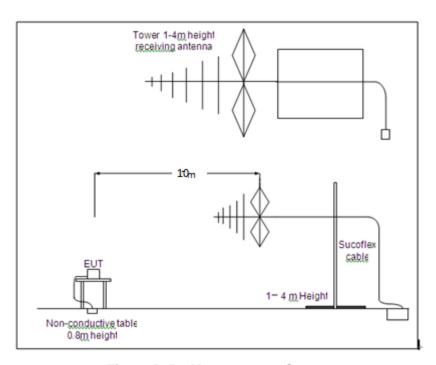


Figure B-5: Measurement Setup

#### **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 ~ 25  $^{\circ}$ 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.

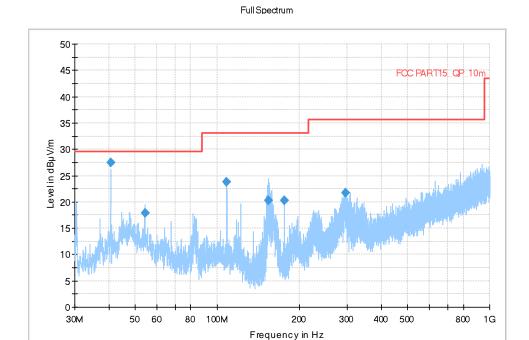


Figure B-6: Measurement results for Electric Field Radiated Emissions (≥30MHz) Final\_Result

54.201500 17.89 29.54 11.65 120.000 101.0 V 256.0									
40.670000 27.46 29.54 2.08 120.000 104.0 V 45.0 54.201500 17.89 29.54 11.65 120.000 101.0 V 256.0	Corr.	Azimuth	Pol	Height	Bandwidth	Margin	Limit	QuasiPeak	Frequency
54.201500 17.89 29.54 11.65 120.000 101.0 V 256.0	(dB/m)	(deg)		(cm)	(kHz)	(dB)	(dBµV/m)	(dBµV/m)	(MHz)
	-11.6	45.0	V	104.0	120.000	2.08	29.54	27.46	40.670000
108.473000 23.79 33.06 9.27 120.000 125.0 V -37.0	-11.0	256.0	V	101.0	120.000	11.65	29.54	17.89	54.201500
	-12.4	-37.0	٧	125.0	120.000	9.27	33.06	23.79	108.473000
154.111500 20.21 33.06 12.85 120.000 121.0 V 1.0	-15.2	1.0	٧	121.0	120.000	12.85	33.06	20.21	154.111500
176.276000 20.31 33.06 12.75 120.000 104.0 V 152.0	-14.1	152.0	٧	104.0	120.000	12.75	33.06	20.31	176.276000
295.925500 21.67 35.56 13.89 120.000 104.0 V 137.0	-8.9	137.0	٧	104.0	120.000	13.89	35.56	21.67	295.925500





## **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**

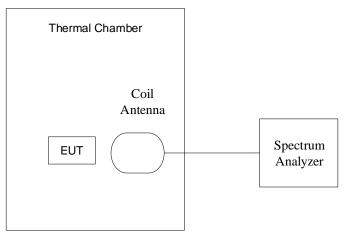


Figure B-7: Measurement Setup

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 3.85V(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°C was used and the voltages were 3.6V, 3.85V and 4.4V (The extreme low voltage ,the normal voltage and the extreme high voltage).

The details were as following:

**Table B-3:** Combinations of Voltage and Temperature

Test items	Voltage	Temperature
		<b>-20</b> ℃
Eroguoney		-10℃
Frequency		0℃
stability with respect to ambient temperature	3.85V	10℃
		20℃
		30℃
		40℃



		50℃
Frequency stability	3.6V	
when varying supply	3.85V	20℃
voltage	4.4V	

## **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.NFC03, PASS.

**Table B-4:** Measurement results for Frequency Tolerance

Tomporatura	Voltago	Frequency (MHz)			
Temperature	Voltage	Startup	2 Min Later	5 Min Later	10 Min Later
<b>-20</b> ℃	3.85V	13.560100962	13.560100962	13.560086538	13.560086538
<b>-10</b> ℃	3.85V	13.560096154	13.560096154	13.560112179	13.560112179
0℃	3.85V	13.560072115	13.560086538	13.560100962	13.560100962
10℃	3.85V	13.560043269	13.560057692	13.560072115	13.560072115
20℃	3.85V	13.560016026	13.560028846	13.560032051	13.560032051
30℃	3.85V	13.560028846	13.560028846	13.560014423	13.560014423
40℃	3.85V	13.559985577	13.559971154	13.559956731	13.559956731
50℃	3.85V	13.559956731	13.559956731	13.559942308	13.559942308
20℃	3.6V	13.559985577	13.560014423	13.560028846	13.560028846
<b>20</b> ℃	4.4V	13.560028846	13.560028846	13.560042369	13.560042369

Tomporatura	Voltage	Frequency Error (%)			
Temperature	Voltage	Startup	2 Min Later	5 Min Later	10 Min Later
-20℃	3.85V	0.001	0.001	0.001	0.001
-10℃	3.85V	0.001	0.001	0.001	0.001
0℃	3.85V	0.001	0.001	0.001	0.001
10℃	3.85V	0.000	0.000	0.001	0.001
20℃	3.85V	0.000	0.000	0.000	0.000
30℃	3.85V	0.000	0.000	0.000	0.000
40℃	3.85V	0.000	0.000	0.000	0.000
50℃	3.85V	0.000	0.000	0.000	0.000
20℃	3.6V	0.000	0.000	0.000	0.000
20℃	4.4V	0.000	0.000	0.000	0.000

## **B.4.7. Measurement Uncertainty**

Measurement uncertainty: U = 74 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 300Hz RBW, 1kHz VBW and 10kHz span.

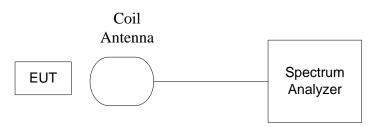


Figure B-8: Measurement Setup

#### **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  $^{\circ}$ C.

## **B.5.4. Test Layouts**

See B.5.2.

## B.5.5. Limits

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.NFC03, PASS.



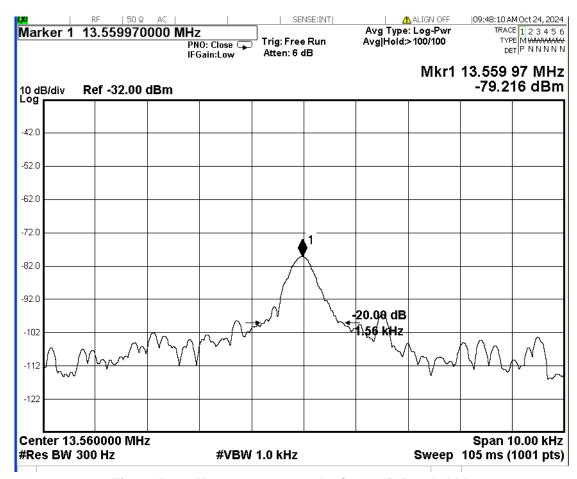


Figure B-9: Measurement results for 20dB Bandwidth

## **B.5.7. Measurement Uncertainty**

Measurement uncertainty: U =74 Hz, k=2





## **B.6. Conducted emission**

#### **B.6.1. Reference**

See Clause 6.2 of ANSI C63.10-2013 specifically.

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

#### **B.6.2. Measurement Methods**

The conducted emissions from the AC port of the EUT are measured in a shielding room. The EUT is connected to a Line Impedance Stabilization Network (LISN). An overview sweep with peak detection was performed. The measurements were performed with a quasi-peak detector and if required, an average detector.

The conducted emission measurements were made with the following detector of the test receiver: Quasi-Peak / Average Detector.

The measurement bandwidth is:

**Table B-5:** Measurement Bandwidth

Frequency of Emission (MHz)	RBW/VBW
0.15-30	9kHz

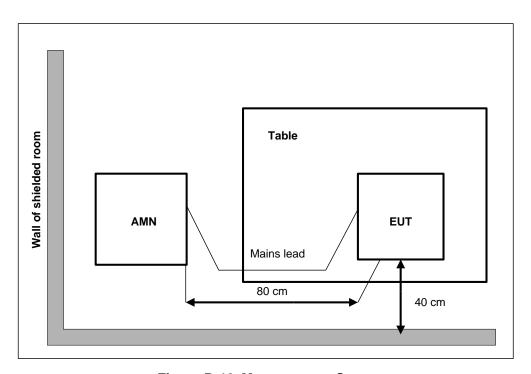


Figure B-10: Measurement Setup

## **B.6.3. EUT Operating Mode and Test Conditions**

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

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

#### B.6.4. Limits

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Average Limit (dBμV)
0.15 to 0.5	66 to 56	56 to 46
0.5 to 5	56	46
5 to 30	60	50





## **B.6.5. Measurement Results**

Measurement results see Figure B-11.

Conclusions: Set.NFC01, PASS.

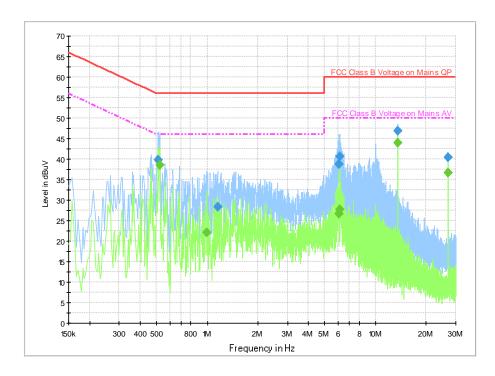


Figure B-11: Measurement results for Conducted Emission

## **Final Result 1**

Frequency	QuasiPeak	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)	Time	(kHz)			(dB)	(dB)	(dBµV)
		(ms)						
0.510000	39.9	2000.0	9.000	On	L1	20.0	16.1	56.0
1.150000	28.3	2000.0	9.000	On	N	19.7	27.7	56.0
6.042000	38.8	2000.0	9.000	On	L1	19.9	21.2	60.0
6.162000	40.5	2000.0	9.000	On	L1	19.9	19.5	60.0
13.562000	46.9	2000.0	9.000	On	N	19.8	13.1	60.0
27.122000	40.4	2000.0	9.000	On	L1	20.1	19.6	60.0

## Final Result 2

Frequency	QuasiPeak	Meas.	Bandwidth	Filter	Line	Corr.	Margin	Limit
(MHz)	(dBµV)	Time	(kHz)			(dB)	(dB)	(dBµV)
		(ms)						
0.522000	38.5	2000.0	9.000	On	L1	20.0	7.5	46.0
0.990000	22.1	2000.0	9.000	On	L1	19.9	23.9	46.0
6.090000	26.7	2000.0	9.000	On	L1	19.9	23.3	50.0
6.162000	27.7	2000.0	9.000	On	L1	19.9	22.3	50.0
13.562000	43.9	2000.0	9.000	On	N	19.8	6.1	50.0
27.122000	36.7	2000.0	9.000	On	L1	20.1	13.3	50.0





## **B.7. Antenna Requirement**

#### **B.7.1 Reference**

See CFR 47 Part 15 § 15.203

## B.7.2. Excerpt from §15.203 of the FCC Rules/Regulations

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

The antenna of the device is permanently attached.

There are no provisions for connection to an external antenna.

#### B.7.3. Results

The unit complies with the requirement of FCC Part 15.203.

Conclusions: Set.NFC03, PASS.





# **ANNEX C: Persons involved in this testing**

Test Item	Tester		
20dB Bandwidth	Miao Qinghua		
Frequency Tolerance	Miao Qinghua		
Electric Field Strength of Fundamental and Outside the Allocated bands	Zhang Tianli		
Electric Field Radiated Emissions (< 30MHz)	Zhang Tianli		
Electric Field Radiated Emissions (≥30MHz)	Zhang Tianli		
Conducted Emissions	Li Pengfei		
Antenna Requirement	Miao Qinghua		





## **ANNEX D: Accreditation Certificate**



\*\*\*END OF REPORT\*\*\*