Industrial Internet Innovation Center (Shanghai) Co.,Ltd.

NFC TEST REPORT

PRODUCT	Handheld Wireless Terminal
BRAND	SUNMI
MODEL	T8F1A
APPLICANT	Shanghai Sunmi Technology Co.,Ltd.
FCC ID	2AH25T8F1A
IC	22621-T8F1A
ISSUE DATE	February 28, 2025
STANDARD(S)	FCC CFR47 Part 2, FCC CFR47 Part 15C, ANSI C63.10-2013, RSS-210 Issue 11, RSS-Gen Issue 5

Prepared by: ***Li Liukai*** **Reviewed by:** ***Qin Yabin*** **Approved by:** ***Zhang Min***

CONTENTS

1 Summary of Test Report

1.1 Test Standard (s)

No.	Test Standard(s)	Title
1	FCC CFR47 Part 2	Frequency allocations and radio treaty matters; general rules and regulations
2	FCC CFR47 Part 15C	Radio Frequency Devices-Intentional Radiators
3	ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
4	RSS-210	License-Exempt Radio Apparatus: Category I Equipment
5	RSS-Gen	General Requirements for Compliance of Radio Apparatus
NOTE: According to customer requirements, test and report using the latest version of the standard.		

1.2 Summary of Test Results

No.	Item(s)	Sub-clause of FCC Standard	Sub-clause of IC Standard	Verdicts for Single Item	Detailed Results
1	20 dB bandwidth	2.1049	RSS Gen 6.7	Pass	See section 6.1
2	Frequency Stability	15.225(e)	RSS 210 B.6.b	Pass	See section 6.2
3	Radiated Emission	15.225 (a) (b) (c) (d) and 15.209	RSS 210 B.6.a (i , ii , iii , iv)	Pass	See section 6.3
4	Conducted Emissions	15.207	RSS Gen 8.8	Pass	See section 6.4
5	Occupied bandwidth	N/A	RSS Gen 6.7	Pass	See section 6.5
6	Antenna Requirement	15.203	RSS GEN 6.8	Pass	See Note 2
NOTE: The T8F1A, manufactured by Shanghai Sunmi Technology Co.,Ltd. is a new product for testing. Industrial Internet Innovation Center (Shanghai) Co., Ltd. only performed test cases which identified with Pass/Fail/Inc result in section 1.3. Industrial Internet Innovation Center (Shanghai) Co., Ltd. has verified that the compliance of the tested device specified in section 4 of this test report is successfully evaluated according to the procedure and test methods as defined in type certification requirement listed in section 1 of this test report. Note 2: The EUT has an internal loop antenna for NFC (13.56MHz) function, so this EUT complies with the 15.203/ RSS Gen 6.8 antenna requirements, please refer to the internal photos.					

2 General Information of The Laboratory

2.1 Testing Laboratory

Lab Name	Industrial Internet Innovation Center (Shanghai) Co.,Ltd.
Address	Building 4, No. 766, Jingang Road, Pudong, Shanghai, China
Telephone	021-68866880
FCC Registration No.	708870
FCC Designation No.	CN1364
IC designation No.	10766A
CAB identifier	CN0067

2.2 Laboratory Environmental Requirements

Temperature	15℃~35℃
Relative Humidity	25%RH~75%RH
Atmospheric Pressure	86kPa~106kPa
Supply Voltage	120V/60Hz

2.3 Project Information

Project Manager	Gao Hongning
Test Date	December 13, 2024 to December 19, 2024

3 General Information of The Customer

3.1 Applicant

Company	Shanghai Sunmi Technology Co.,Ltd.
Address	Room 505,No.388,Song Hu Road,Yang Pu District,Shanghai,China
Telephone	8618501703215

3.2 Manufacturer

Company	Shanghai Sunmi Technology Co.,Ltd.
Address	Room 505,No.388,Song Hu Road,Yang Pu District,Shanghai,China
Telephone	8618501703215

3.3 Factory

Company	N/A
Address	N/A

4 General Information of The Product

4.1 Product Description for Equipment under Test (EUT)

Product	Handheld Wireless Terminal
Model	T8F1A
Date of Receipt	December 13, 2024
EUT ID*	S05aa
SN/IMEI	L303E4BL00005
Supported Radio Technology and Bands	BT 5.2 BR/EDR/BLE WLAN 802.11ah WLAN 802.11b,g,n WLAN 802.11a,n,ac GPS/GLONASS/BDS/Galileo NFC
Hardware Version	V00
Software Version	1.00.00.20241113_186_userdebug
Operating Frequency	13.56MHz
Antenna Information	Loop Antenna
Modulation information	ASK
Product Class	1
NOTE1: EUT ID is the internal identification code of the laboratory. NOTE2: Photographs of EUT are shown in ANNEX A of this test report. NOTE3: Samples in the test report are provided by the customer. The test results are only applicable to the samples received by the laboratory.	

4.2 Description for Auxiliary Equipment (AE)

AE ID*	Description	Model	SN/Remark
CA01	Adapter	TPA-141A050200UU01	SHENZHEN TIANYIN ELECTRONICS CO., LTD. OUTPUT: 5V 2A
CB01	Adapter	UC13US	Jiangsu Chenyang Electron Co., Ltd. OUTPUT: 5V 2A
UA01	AC Cable	SSM-A033A	Saibao (Jiangxi) Industry Co., LTD
BA07	Battery	GYPA	HUNAN GAOYUAN BATTERY CO.,LTD. 5000mAh 3.87V
AE1	Type-A Card	N/A	N/A
NOTE: *AE ID is the internal identification code of the laboratory.			

5 Test Configuration Information

5.1 Laboratory Environmental Conditions

5.1.1 Permanent Facilities

Semi-anechoic chamber SAC3-1 (9 m*8m*6.2m) & SAC3-2 (9.8m*6.7m*6.7m)	
Shielding effectiveness	0.014MHz ~1MHz, >60dB; 1MHz~1000MHz, >90dB.
Electrical insulation	> 2MΩ
Ground system resistance	< 4Ω
Normalised site attenuation (NSA)	< ± 4 dB, 3m distance, from 30 to 1000 MHz
Site voltage standing-wave ratio (SVSWR)	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

Shielded room	
Shielding effectiveness	0.014MHz~1MHz, >60dB; 1MHz~1000MHz, >90dB.
Electrical insulation	> 2 MΩ
Ground system resistance	< 4Ω

5.2 Decision of final test mode

The EUT was tested in conjunction with the accessories in Section 4.2. We tested all of the following test modes and selected the worst mode from the test results and recorded them in the report.

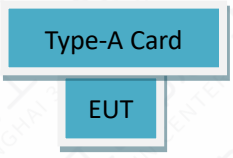
The test configuration modes are as the following:

Test Item	Test setup and operating modes
20 dB bandwidth	Mode 1: TX Mode+ BA07+ AE1
Frequency Stability	Mode 1: TX Mode+ BA07+ AE1
Radiated emission	Mode 1: TX Mode+ BA07+ AE1
Conducted Emissions	Mode 2: TX Mode+ CA01+ UA01+ BA07+ AE1
Occupied bandwidth	Mode 1: TX Mode+ BA07+ AE1
Note: After the verification of Part 15B, CA01 is the worst adapter for testing Conducted Emissions.	

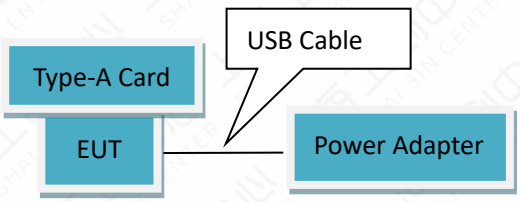
5.3 EUT System Operation

1. Connect the EUT with AE.
2. Setup the EUT according to the standard.
3. TX mode: Enter the NFC card reading mode, place the Type A card on the EUT. The EUT will transmit the NFC command continuously during the test, and will read the information from the Type A Card continuously.

5.4 EUT Connection Diagram of Test System



<Figure 5.4-1> Mode 1



<Figure 5.4-2> Mode 2

5.5 Test Equipment Utilized

No.	Name	Model	S/N	SW Version	HW Version	Manufacturer	Cal. Date	Cal. Interval
1	Test Receiver	ESCI	101235	V5.1-24-3	00	R&S	2024-12-13	1 year
2	Test Receiver	ESU40	100307	00	01	R&S	2024-12-13	1 year
3	Trilog Antenna	VULB9163	01345	N/A	N/A	Schwarzbeck	2024-03-29	1 year
4	2-Line V-Network	ENV216	101380	N/A	N/A	R&S	2024-12-13	1 year
5	EMI Test Software	EMC32 V10.35.02	N/A	N/A	N/A	R&S	N/A	N/A
6	Loop Antenna	AL-130R	121083	N/A	N/A	COM-POWER	2024-08-31	1 year
7	Temperature Box	B-TF-107C	201804107	N/A	N/A	Boyi	2024-06-07	1 year

5.6 Measurement Uncertainty

Item (s)	Uncertainty
20 dB bandwidth	±1.9%
Frequency Stability	±1.9%
Electric Field Strength of Fundamental Emissions	4.92 dB
Electric Field Radiated Emissions (Below 30MHz)	4.92 dB
Electric Field Radiated Emissions (Above 30MHz)	5.66 dB
Conducted Emissions	3.52 dB
Occupied bandwidth	±1.9%
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of *k*=2.	

6 Test Results

6.1 20dB Bandwidth

6.1.1 Measurement Methods

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

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

c. The bandwidth of the center frequency was measured with 200Hz RBW, 500Hz VBW and 14kHz span.

6.1.2 EUT Connection Diagram of Test System

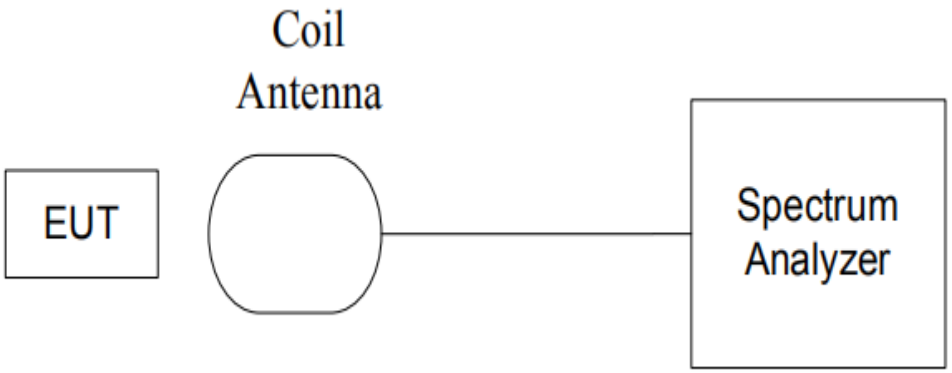


Figure 6.1.2-1 20dB Bandwidth Connection Diagram

6.1.3 Test Condition

The measurement of EUT is carried out under the transmit state of NFC and without modulation.

EUT had been not connected to a travel adapter.

During the measurements, the ambient temperature is in the range of 15~25℃.

6.1.4 Test environmental conditions

Temperature	21.2℃
Relative Humidity	42.6 %RH
Atmospheric Pressure	101.5 kPa

6.1.5 Test Results

Carrier frequency (MHz)	20dB Bandwidth (kHz)	Test Results	Conclusion
13.56	0.962	See Annex A.1-1	Pass

6.2 Frequency Stability

6.2.1 Measurement Methods

The transmitter output single was picked up by coil antenna connected to the frequency counter. 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.

6.2.2 EUT Connection Diagram of Test System

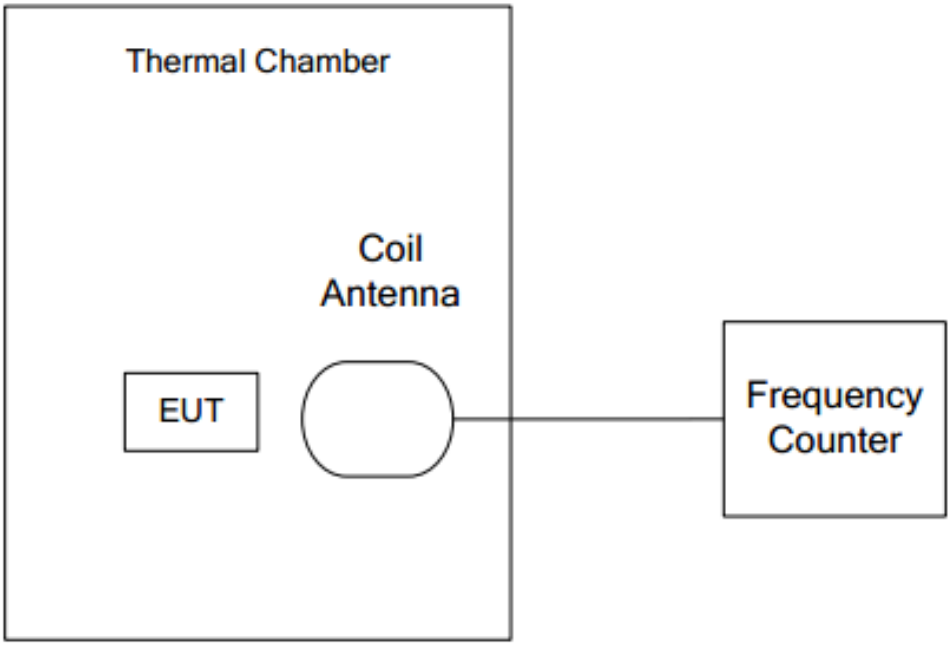


Figure 6.2.2-1 Frequency Stability Connection Diagram

6.2.3 Test Condition

The measurement of EUT is carried out under the transmit state of without modulation, EUT had been not connected to a travel adapter.

Operation Temperature: -20℃、-10℃、0℃、10℃、20℃、25℃、30℃、40℃、50℃

Operation Voltage: Vmin=114V, Vmax=126V, and Tnom=120V.

6.2.4 Limit/Criterion

15.225(e): The frequency tolerance of the carrier signal shall be maintained within +/- 0.01% of the operating frequency.

RSS-210 B.6.b: The frequency tolerance of the carrier signal shall be maintained within ± 100 ppm of the operating frequency.

6.2.5 Test environmental conditions

Temperature	21.2℃
Relative Humidity	42.6 %RH
Atmospheric Pressure	101.5 kPa

6.2.6 Test Results

See Annex A.2-1

6.3 Radiated Emission

6.3.1 Electric Field Strength of Fundamental Emissions

6.3.1.1 Method of Measurement

a. The test set-up was made in accordance to the general provisions of ANSI C63.10-2013.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 antenna is 1 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. Both horizontal and vertical polarizations of the antenna were set during the measurement. 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.

b. The EUT was placed on the axis of X, Y and Z respectively for testing. Only the worst direction data is represented in the report.

c. The measurement bandwidth:

Frequency (MHz)	RBW / VBW
12.56-14.56	10 / 30kHz

6.3.1.2 EUT Connection Diagram of Test System

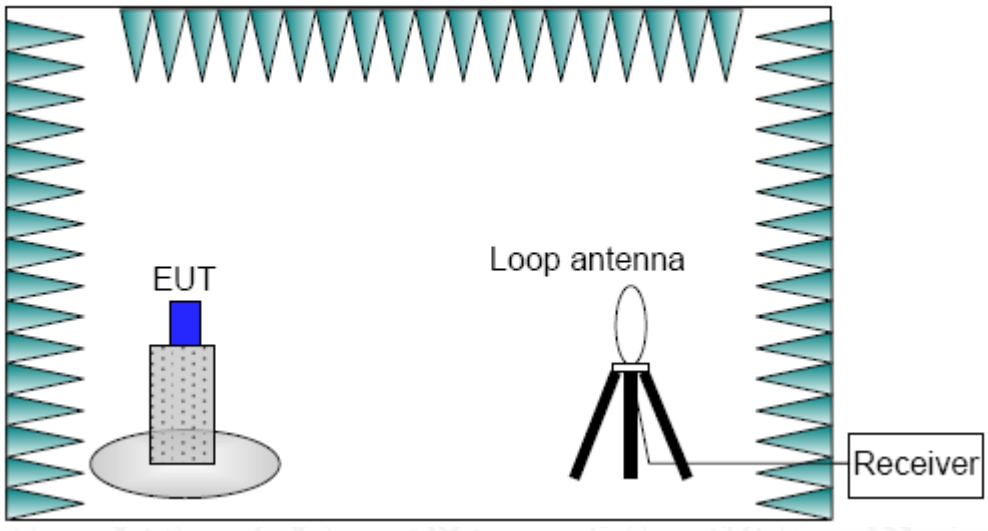


Figure 6.3.1.2-1 Electric Field Strength of Fundamental Emissions Connection Diagram

6.3.1.3 Test Condition

Frequency Range (MHz)	RBW/VBW	Sweep Time (s)
12.56-14.56	10kHz/30kHz	AUTO

6.3.1.4 Limit/Criterion

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

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

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

Frequency Range (MHz)	E-field Strength Limit @30m (uV/m)	E-field Strength Limit @3m (dBuV/m)
13.560 ± 0.007	+15,848	124
13.410 to 13.553 13.567 to 13.710	+334	90
13.110 to 13.410 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) = 40log10(Measurement Distance / Specification Distance)		

6.3.1.5 Test environmental conditions

Temperature	21.2℃
Relative Humidity	42.6 %RH
Atmospheric Pressure	101.5 kPa

6.3.1.6 Test Results

Mode	Frequency (MHz)	Test Results	Verdicts
Mode 1: TX Mode+ BA07+ AE1	13.2-13.9	See Annex A.3-1-1	Pass

NOTE:

a. Abbreviations used in this clause: Pass—P; Fail—F; Not applicable—N/A

b. The result displayed take into account applicable antenna factors and cable losses.

6.3.2 Electric Field Radiated Emissions (Below 30MHz)

6.3.2.1 Method of Measurement

a. 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 3m from the receiving antenna. The center of the receiving antenna is 1 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. Both horizontal and vertical polarizations of the antenna were set during the measurement. 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.

b. The EUT was placed on the axis of X, Y and Z respectively for testing. Only the worst direction data is represented in the report.

c. The measurement bandwidth:

Frequency (MHz)	RBW / VBW
0.009-30	10 / 30kHz

6.3.2.2 EUT Connection Diagram of Test System

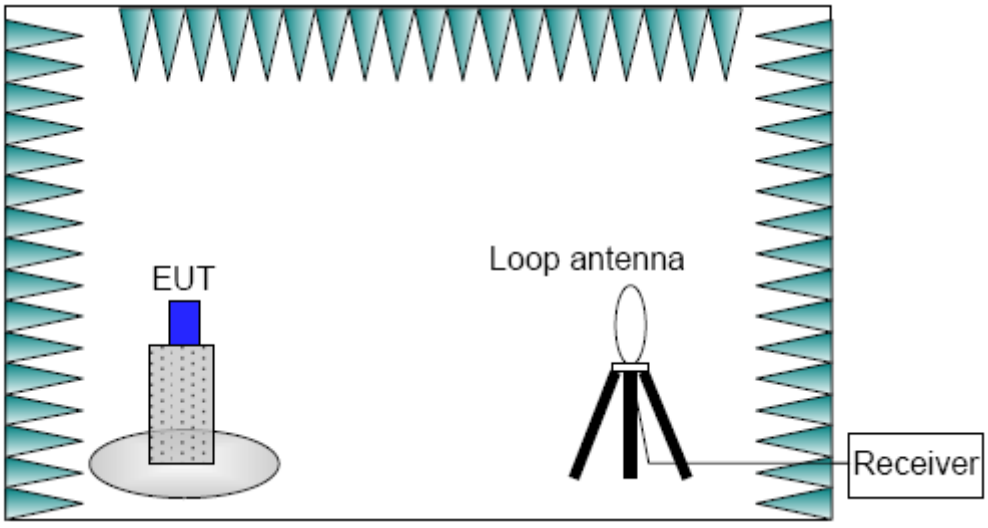


Figure 6.3.2.2-1 Electric Field Radiated Emissions (Below 30MHz) Connection Diagram

6.3.2.3 Test Condition

Frequency Range (MHz)	RBW/VBW	Sweep Time (s)
0.009-30	10kHz/30kHz	AUTO

6.3.2.4 Limit/Criterion

Frequency Range (MHz)	E-field Strength Limit @30m (mV/m)	E-field Strength Limit @3m (dBuV/m)
0.009-0490	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) = 40log10(Measurement Distance / Specification Distance) dBuA/m=dBuV/m / 120π		

6.3.2.5 Test environmental conditions

Temperature	21.2℃
Relative Humidity	42.6 %RH
Atmospheric Pressure	101.5 kPa

6.3.2.6 Test Results

Mode	Frequency (MHz)	Test Results	Verdicts
Mode 1: TX Mode+ BA07+ AE1	0.009-30	See Annex A.3-2-1	Pass
NOTE: a. Abbreviations used in this clause: Pass—P; Fail—F; Not applicable—N/A b. The result displayed take into account applicable antenna factors and cable losses c. dBuV/m and dBuA/m can be converted to each other, so the test data of dBuV/m are reflected in the report			

6.3.3 Electric Field Radiated Emissions (Above 30MHz)

6.3.3.1 Method of Measurement

a. 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 3m from the receiving antenna. The center of the receiving antenna is 1 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. Both horizontal and vertical polarizations of the antenna were set during the measurement. 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.

b. The EUT was placed on the axis of X, Y and Z respectively for testing. Only the worst direction data is represented in the report.

c. The measurement bandwidth:

Frequency (MHz)	RBW / VBW
30-1000	120 kHz / 300kHz

6.3.3.2 EUT Connection Diagram of Test System

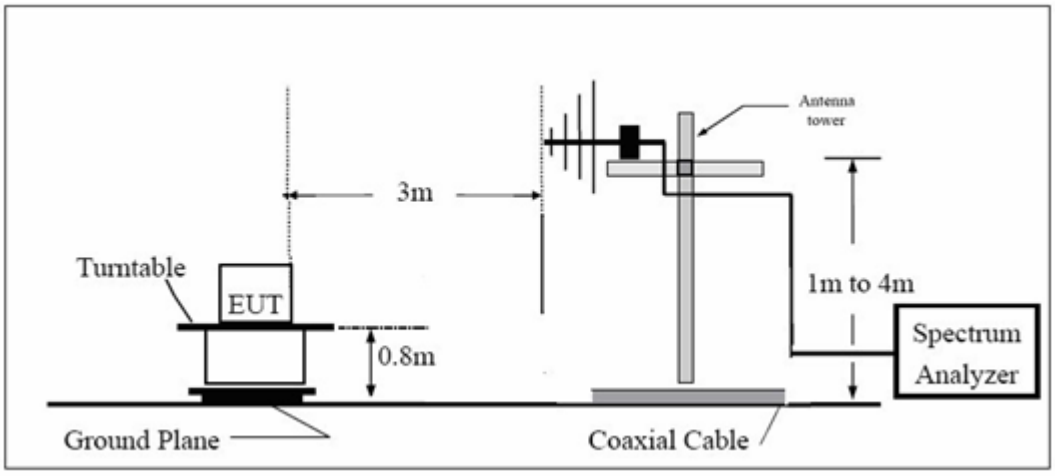


Figure 6.3.3.2-1 Electric Field Radiated Emissions (Above 30MHz) Connection Diagram

6.3.3.3 Test Condition

Frequency Range (MHz)	RBW/VBW	Sweep Time (s)
30-1000	120kHz/300kHz	AUTO

6.3.3.4 Limit/Criterion

Frequency Range (MHz)	Quasi-Peak (dBμV/m)	Peak (dBμV/m)	Average (dBμV/m)
30-88	40	N/A	N/A
88-216	43.5	N/A	N/A
216-960	46	N/A	N/A
Above 960	54	N/A	N/A
Above 1000	N/A	74	54

6.3.3.5 Test environmental conditions

Temperature	21.2℃
Relative Humidity	42.6 %RH
Atmospheric Pressure	101.5 kPa

6.3.3.6 Test Results

Mode	Frequency (MHz)	Test Results	Verdicts
Mode 1: TX Mode+ BA07+ AE1	30-1000	See Annex A.3-3-1	Pass

NOTE:

a. Abbreviations used in this clause: Pass—P; Fail—F; Not applicable—N/A

b. The result displayed take into account applicable antenna factors and cable losses

c. QP detection is used in radiated emissions test, and the Duty Cycle of NFC main frequency signal is 100%.

6.4 Conducted Emissions

6.4.1 Reference

See Clause 6.2 of ANSI C63.10-2013

6.4.2 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. Tested in accordance with the procedures of ANSI C63.10-2013

6.4.3 Test Setup

The measurement bandwidth and Test Condition

Frequency Range (MHz)	RBW	Sweep Time (s)	Test Voltage
0.15-30	9 kHz	AUTO	120V/60Hz

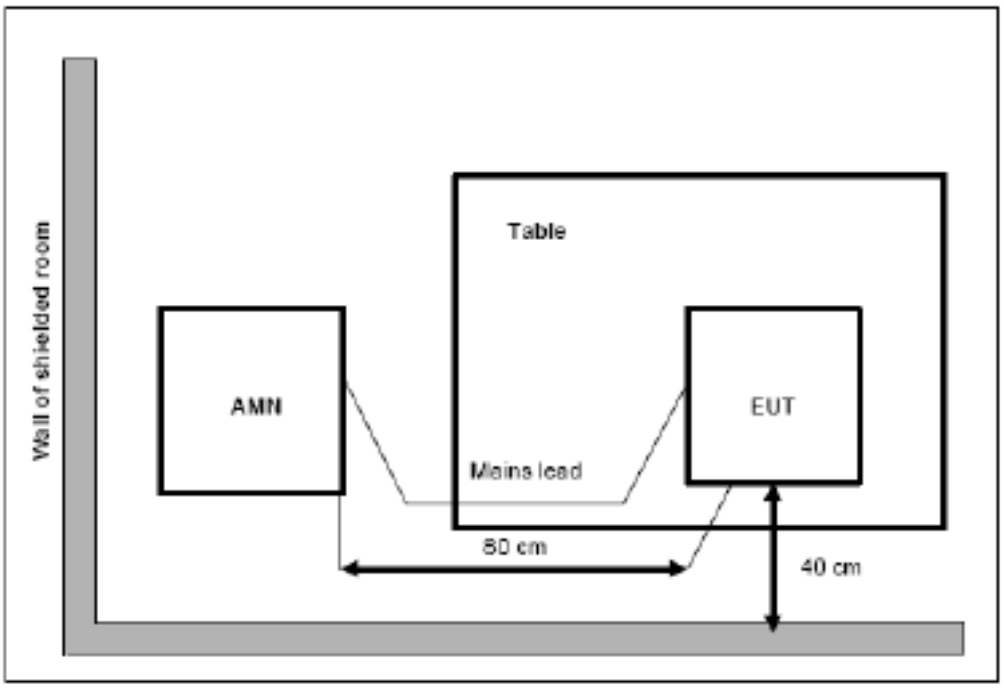


Figure 6.4.3-1 Conducted Emissions Connection Diagram

6.4.4 Limits

Frequency Range (MHz)	Conducted Limit (dBuV)	
	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		

6.4.5 Test environmental conditions

Temperature	20.6℃
Relative Humidity	34.8 %RH
Atmospheric Pressure	100.9 kPa

6.4.6 Measurement Results

Mode	Frequency (MHz)	Test Results	Verdicts
Mode 2: TX Mode+ CA01+ UA01+ BA07+ AE1	0.009-30	See Annex A.4-1	Pass

NOTE:

a. Emission level (quasi-peak or Average peak) =Raw value by receiver + Corr (Insertion loss+ cable loss)

b. The raw value is used to calculate by software which is not shown in the sheet.

c. Margin=limit value – emission level.

d. L1 and N line is all have been tested, the result of them is synthesized in the above data diagram.

e. The frequency over the limits is the NFC main signal frequency.

6.5 Occupied bandwidth

6.5.1 Reference

See Clause 6.7 of RSS-Gen.

6.5.2 Measurement Methods

The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

The following conditions shall be observed for measuring the occupied bandwidth:

- The transmitter shall be operated at its maximum carrier power measured under normal test conditions.
- The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.
- The detector of the spectrum analyzer shall be set to “Sample”. However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or “Max Hold”) may be necessary to determine the occupied / x dB bandwidth if the device is not transmitting continuously.
- The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / x dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in complianced with the above requirement.

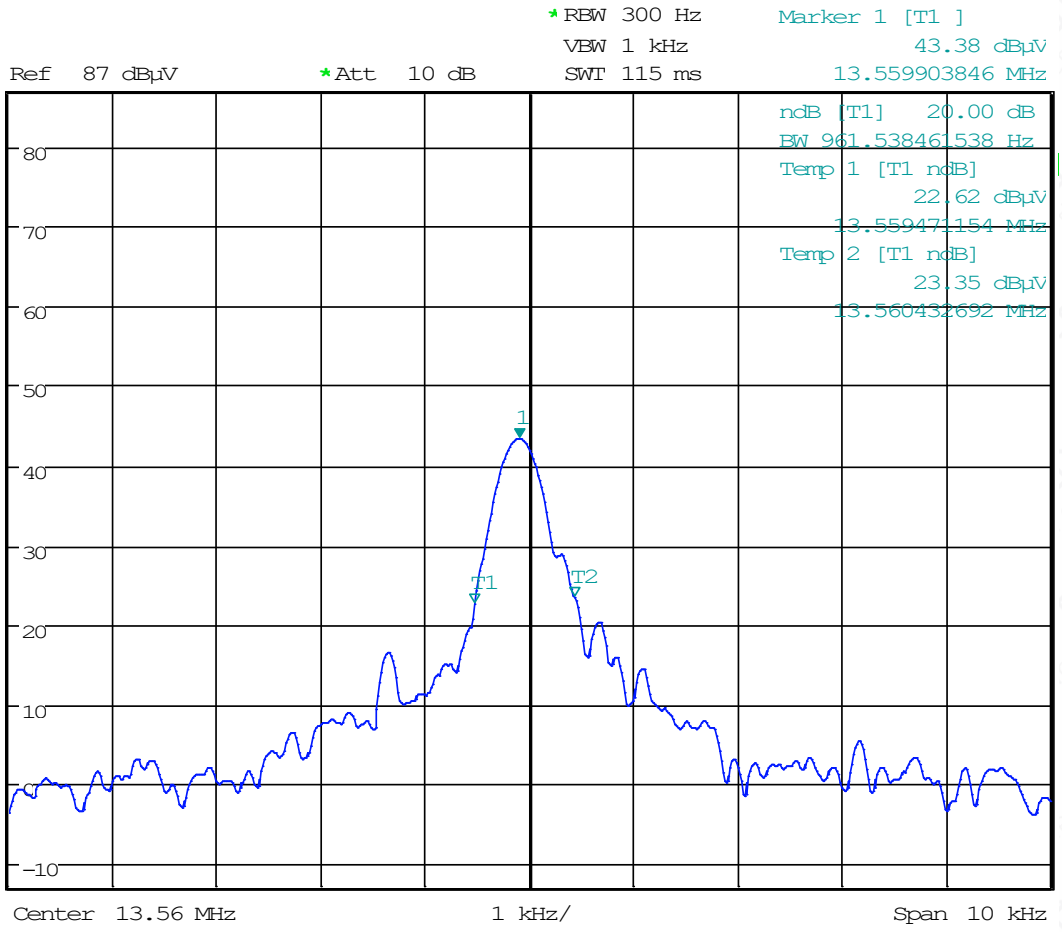
6.5.3 Test environmental conditions

Temperature	21.4℃
Relative Humidity	42.3 %RH
Atmospheric Pressure	100.3 kPa

6.5.4 Measurement Results

See Annex A.5-1

Annex A: Measurement Data



A.1-1 Mode 1 20dB Bandwidth

Temperature	Voltage	Frequency Error (MHz)			
		Startup	2Min Later	5Min Later	10Min Later
-20℃	120V	13.559931	13.559865	13.559496	13.560027
-10℃		13.559942	13.559728	13.559727	13.559417
0℃		13.559909	13.559983	13.559815	13.559829
10℃		13.559887	13.559882	13.559883	13.559673
20℃		13.559879	13.559920	13.559640	13.559558
30℃		13.559821	13.559909	13.559734	13.559669
40℃		13.559902	13.559889	13.559817	13.559872
50℃		13.559991	13.560080	13.559893	13.559660
25℃	114V	13.559882	13.560279	13.559774	13.559683
25℃	126V	13.559929	13.559879	13.559696	13.559749
Temperature	Voltage	Frequency Error (%)			
-20℃	120V	0.000199	0.000288	0.003009	0.000907
-10℃		0.000280	0.001298	0.001305	0.003591
0℃		0.000037	0.000583	0.000656	0.000553
10℃		0.000125	0.000162	0.000155	0.001704
20℃		0.000184	0.000118	0.001947	0.002552
30℃		0.000612	0.000037	0.001254	0.001733
40℃		0.000015	0.000111	0.000642	0.000236
50℃		0.000642	0.001298	0.000081	0.001799
25℃	114V	0.000162	0.002766	0.000959	0.001630
25℃	126V	0.000184	0.000184	0.001534	0.001143
Temperature	Voltage	Frequency Error (ppm)			
-20℃	120V	1.991165	2.876127	30.088709	9.070861
-10℃		2.802380	12.979443	13.053190	35.914709

0℃		0.368734	5.826000	6.563468	5.531013
10℃		1.253696	1.622430	1.548684	17.035519
20℃		1.843671	1.179949	19.469164	25.516405
30℃		6.120987	0.368734	12.536962	17.330506
40℃		0.147494	1.106203	6.415975	2.359899
50℃		6.415975	12.979443	0.811215	17.994228
25℃	114V	1.622430	27.655063	9.587089	16.298050
25℃	126V	1.843671	1.843671	15.339342	11.430759

A.2-1 Mode 1 Frequency Stability

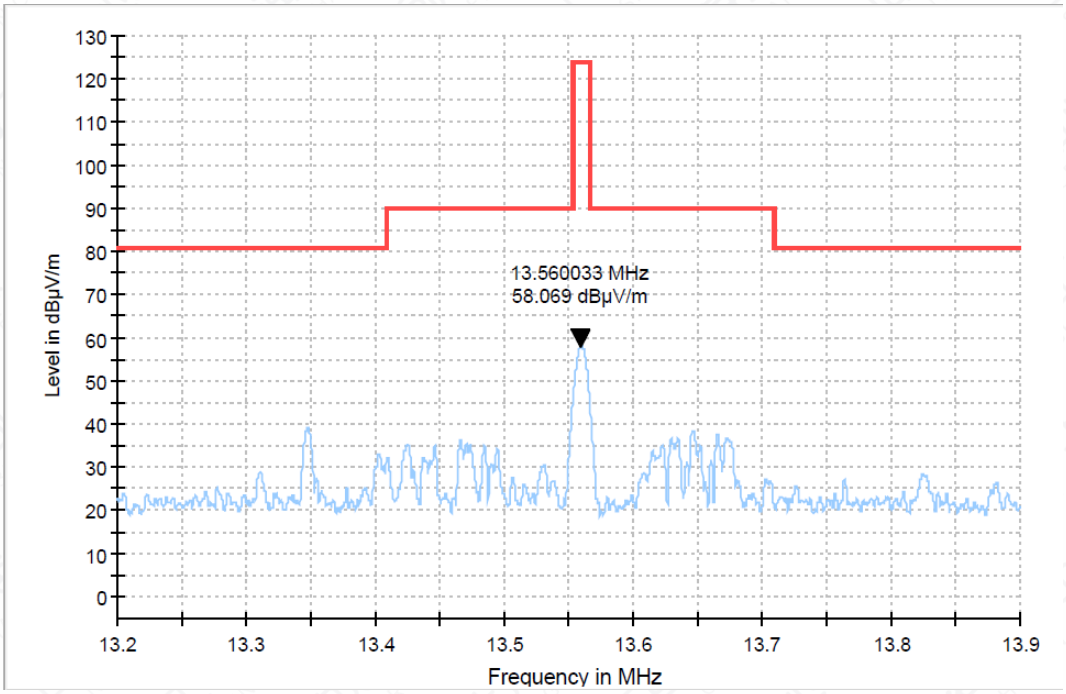


Figure A.3-1-1 Mode 1 Electric Field Strength of Fundamental Emissions

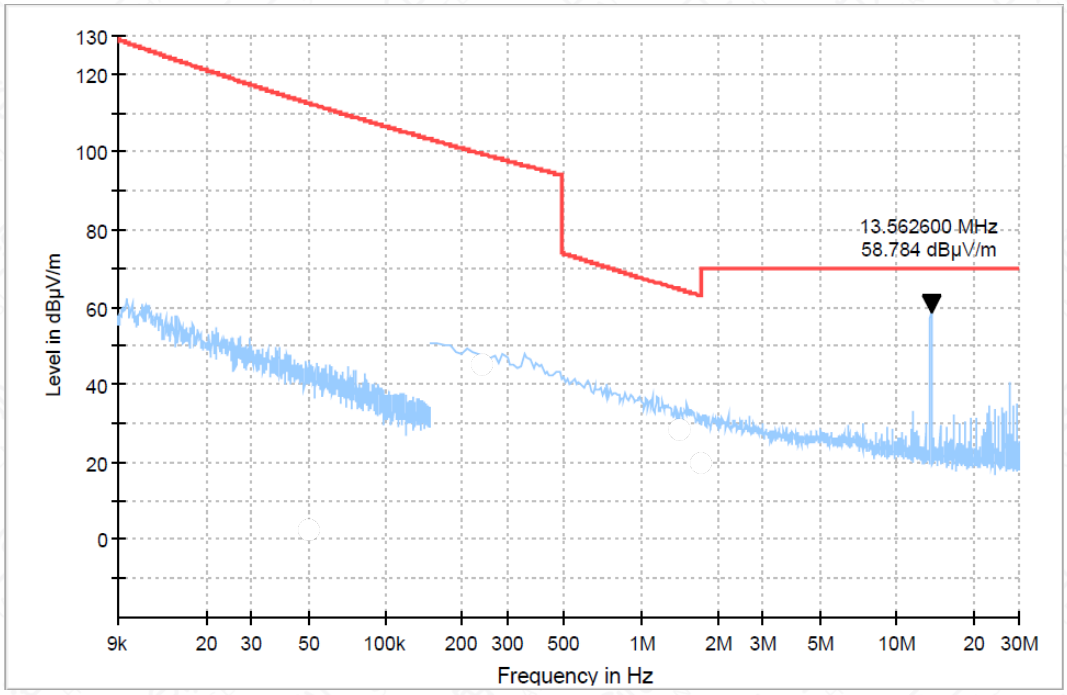


Figure A.3-2-1 Mode 1 Electric Field Radiated Emissions (Below 30MHz)

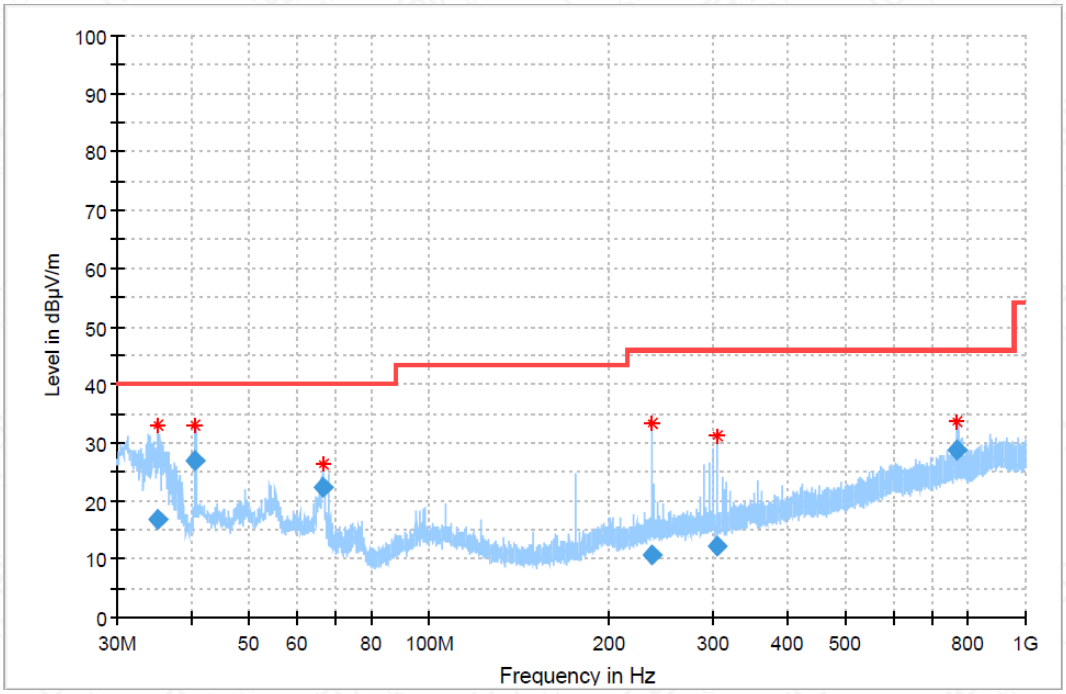


Figure A.3-3-1 Mode 1 Electric Field Radiated Emissions (Above 30MHz)

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)
35.252680	16.94	40.00	23.06	100.0	V	7.0	-15
40.661736	27.06	40.00	12.94	100.0	V	121.0	-13
66.540688	22.42	40.00	17.58	175.0	V	142.0	-14
236.004704	10.75	46.00	35.25	225.0	H	-4.0	-12
304.948544	12.31	46.00	33.69	105.0	H	192.0	-10
768.326461	28.74	46.00	17.26	104.0	V	40.0	-1

Note: Horizontal and vertical polarity is all have been tested, the result of them is synthesized in the above data diagram.

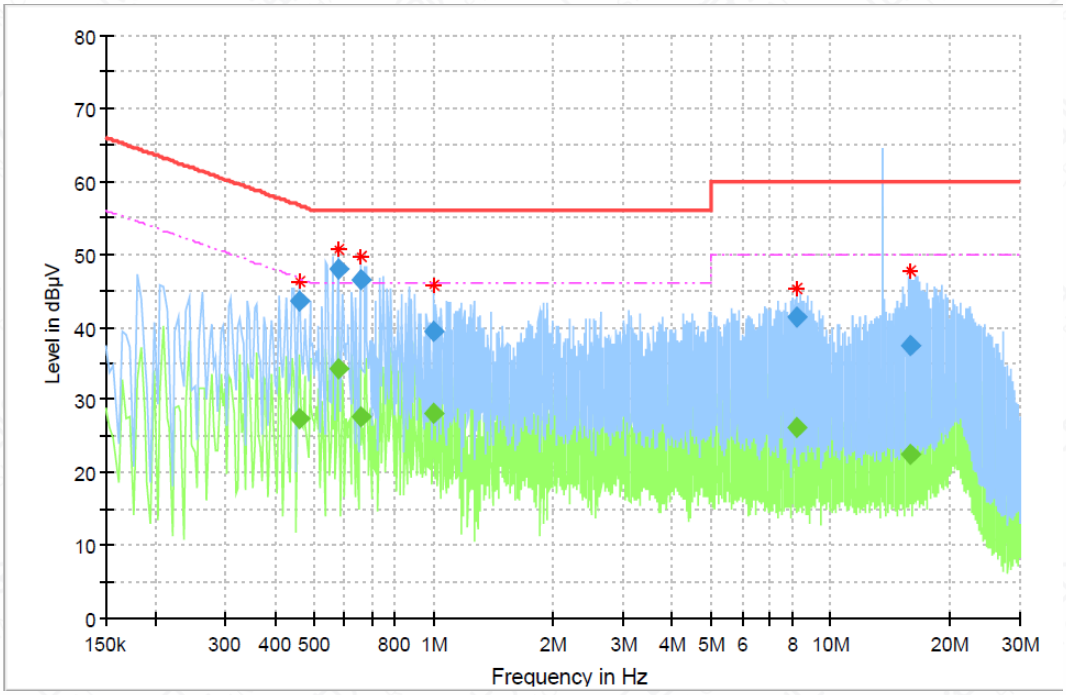


Figure A.4-1 Mode 2 Conducted Emissions

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.459694	---	27.50	46.70	19.20	15000.0	9.000	N	ON	9.9
0.459694	43.54	---	56.70	13.16	15000.0	9.000	N	ON	9.9
0.575363	---	34.19	46.00	11.81	15000.0	9.000	N	ON	9.9
0.575363	48.00	---	56.00	8.00	15000.0	9.000	N	ON	9.9
0.657450	---	27.59	46.00	18.41	15000.0	9.000	N	ON	9.9
0.657450	46.43	---	56.00	9.57	15000.0	9.000	N	ON	9.9
1.000725	---	28.06	46.00	17.94	15000.0	9.000	N	ON	9.8
1.000725	39.35	---	56.00	16.65	15000.0	9.000	N	ON	9.8
8.183381	---	26.23	50.00	23.77	15000.0	9.000	N	ON	9.6
8.183381	41.46	---	60.00	18.54	15000.0	9.000	N	ON	9.6
15.873488	---	22.61	50.00	27.39	15000.0	9.000	N	ON	9.5
15.873488	37.52	---	60.00	22.48	15000.0	9.000	N	ON	9.5

Note:

1. L1 and N line is all have been tested, the result of them is synthesized in the above data diagram.

2. The frequency over the limits is the NFC main signal frequency.

Center Freq. (MHz)	f_L(MHz)	$f_{H(}$MHz)	OBW
13.56	13.5592	13.5606	1.442 kHz

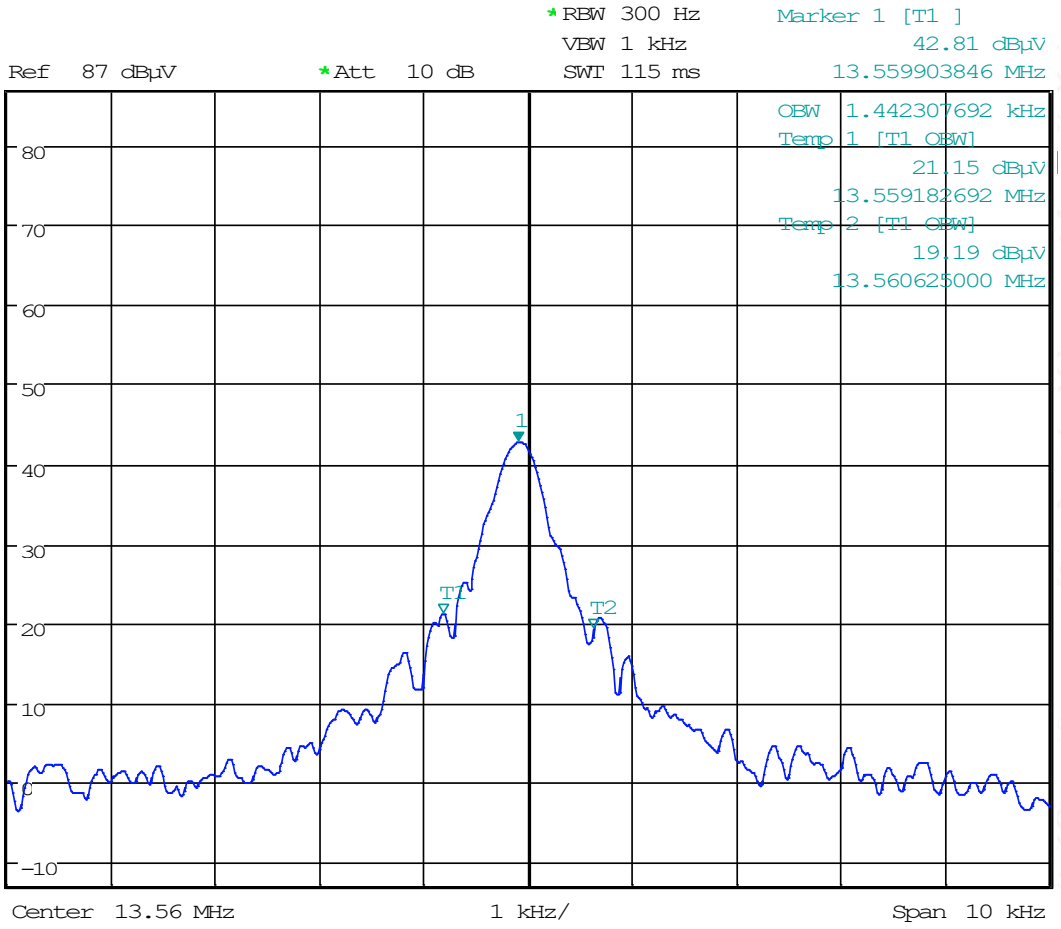


Figure A.5-1 Mode 1 Occupied bandwidth

Annex B: Revised History

Version	Revised Content
V0	Initial

Annex C: Accreditation Certificate

Accredited Laboratory

A2LA has accredited

INDUSTRIAL INTERNET INNOVATION CENTER (SHANGHAI) CO., LTD.

Shanghai, People's Republic of China

for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 20th day of September 2023.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3682.01
Valid to February 28, 2025

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.