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

EMC TEST REPORT

PRODUCT	**Multimedia Control System**
BRAND	HAVAL
MODEL	**IN9.0**
APPLICANT	**NOBO AUTOMOTIVE TECHNOLOGIES CO., LTD.**
FCC ID	**2A7V5-IN90-1**
ISSUE DATE	**September 14, 2022**
STANDARD(S)	**FCC Part 15, Subpart B, ANSI C63.4-2014**

Prepared by: ***Li Shuanglin***	**Reviewed by:** ***Qin Yabin***	**Approved by:** ***Liu Long***
Signature	***Signature***	***Signature***

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1 Summary of Test Report

1.1 Test Standard (s)

No.	Test Standard(s)	Title	Version
1	FCC Part 15, Subpart B	Radio frequency devices	2021/10/1
2	ANSI C63.4	Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2014

NOTE:
1. According to customer requirements, test and report using the latest version of the standard.

1.2 Summary of Test Results

No.	Item(s)	Standard(s)	Verdicts for Single Item	Detaied Results
1	Radiated Emission	15.109(a)	Pass	See section 6.1
2	AC Conducted Emission	15.107(a)	N/A	See section 6.2
3	Antenna Power Conduction Limits for Receivers	15.111(a)	Pass	See section 6.3

NOTE:
The IN9.0, manufactured by NOBO AUTOMOTIVE TECHNOLOGIES CO., LTD. is a new product for testing.
There are many configurations in this project. According to " Model Declaration Letter", N03 (Main supply) design covers all complete product functions and complete components. So We mainly tested the high configuration sample N03 (Main supply), while other configuration sample were verified by the laboratory and found that the sample N01 (Secondary supply) was the worst configuration. For other configurations are only based on “Full Testing sample” remove/change related components, interfaces and functions, so we choose the typical sample N01 (Secondary supply) as the main body of the verification test. For the sample N01 (Secondary supply), we tested the worst mode of the high configuration sample N03 (Main supply). In the report, the test data of the worst mode of the high configuration sample N03 and the configuration sample N01 are recorded respectively.
Please refer to the " Model Declaration Letter" document for sample configuration information.
Sample N03 (Main supply) corresponds to the “Full Testing sample” in the document, and sample N01 (Secondary supply) corresponds to “7901105XKM14A” in the document.
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.
In accordance with the requirements of standard FCC Part 15.203, conducted emission is not applicable.
N/A indicates not applicable.

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.	958356
FCC Designation No.	CN1177

2.2 Laboratory Environmental Requirements

Temperature	15℃~35℃
Relative Humidity	25%RH~75%RH
Atmospheric Pressure	86kPa~106kPa
Supply Voltage	DC 12V

2.3 Project Information

Project Manager	Xu Yuting
Test Date	July 27, 2022 to September 14, 2022

3 General Information of The Customer

3.1 Applicant

Company	NOBO AUTOMOTIVE TECHNOLOGIES CO., LTD.
Address	No. 668, Caihong Road, Zhangjiagang Economic and Technological Development Zone, Suzhou , Jiangsu, P.R. China
Telephone	0512-80616208

3.2 Manufacturer

Company	NOBO AUTOMOTIVE TECHNOLOGIES CO., LTD.
Address	No. 668, Caihong Road, Zhangjiagang Economic and Technological Development Zone, Suzhou , Jiangsu, P.R. China
Telephone	0512-80616208

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	Multimedia Control System
Model	IN9.0
Date of Receipt	July 6, 2022
EUT ID*	N03 (Main Supply) / N01 (Secondary Supply)
SN/IMEI	N/A
Supported Radio Technology and Bands	BT5.1 (2402MHz-2480MHz) 2.4G WLAN 802.11b,g,n,ac (2412MHz-2472MHz) 5G WLAN 802.11a,ac,n (5180MHz-5240MHz) 5G WLAN 802.11a,ac,n (5745MHz-5825MHz) GPS (1559MHz-1610MHz) GLONASS (1559MHz-1610MHz) BDS (1559MHz-1610MHz) FM (87.5MHz-108MHz) AM (522kHz-1710kHz)
Hardware Version	AA
Software Version	AA
NOTE1: EUT ID is the internal identification code of the laboratory. NOTE2: Photographs of EUT are shown in ANNEX A of this test report.	

4.2 Description for Auxiliary Equipment (AE)

AE ID*	Description	Model	SN/Remark
EK01	Ethernet converter	N/A	N/A
EX01	Terminal block	N/A	N/A
EY01	Terminal block Cable	N/A	N/A
EN03	Camera	N/A	N/A
EN02	Camera	N/A	N/A
EN03	Camera	N/A	N/A
EO01	Camera Cable	N/A	N/A
EO02	Camera Cable	N/A	N/A
EO03	Camera Cable	N/A	N/A
EA01	Main Screen	N/A	N/A

AE ID*	Description	Model	SN/Remark
ED01	Screen	N/A	N/A
ED02	Screen	N/A	N/A
ED03	Screen	N/A	N/A
EE01	Screen Cable	N/A	N/A
EE02	Screen Cable	N/A	N/A
EE03	Screen Cable	N/A	N/A
EE04	HUD Cable	N/A	N/A
EV02	Screen Cable	N/A	N/A
EG01	HUD	N/A	N/A
EJ01	Shark fin antenna	N/A	N/A
EM03	Ethernet wire cable (1000M)	N/A	N/A
EL01	Ethernet wire cable (100M)	N/A	N/A
UA01	USB 3.0 Cable	N/A	N/A
UB01	USB 2.0 Cable	N/A	N/A
EC01	Power Line	N/A	N/A
EQ01	Horn load	N/A	N/A
ER01	Horn	N/A	N/A
UV02	Cable	N/A	75Ω to 50Ω cable
AE1	Notebook	DELL Latitude E6510	N/A
AE2	DC Battery	6-QW-60(580)-L	N/A
AE3	DC Battery	6-QW-60(580)-L	N/A
AE4	U-disk	Kingston DTSE9 16GB	N/A
AE5	U-disk	Kingston DTSE9 16GB	N/A

NOTE:
*AE ID is the internal identification code of the laboratory.
*The AE is provided by the lab.

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:

N03 (Main Supply):

Test Item	Test setup and operating modes
Radiated emission	30MHz-18GHz frequency range: Mode 1: Full system_100M_LAN Mode Mode 2: Full system_1000M_LAN Mode Mode 3: GNSS receiver (GPS+GLONASS+BDS) Mode Mode 4: FM Mode Mode 5: AM Mode
Antenna Power Conduction Limits for Receiver	Mode 6: FM Mode (Direct connection)+UV02
Note: The worst case of radiated emission for 30MHz-1GHz is Mode 1,4 and for 1GHz -18GHz is Mode 1.	

N01 (Secondary Supply):

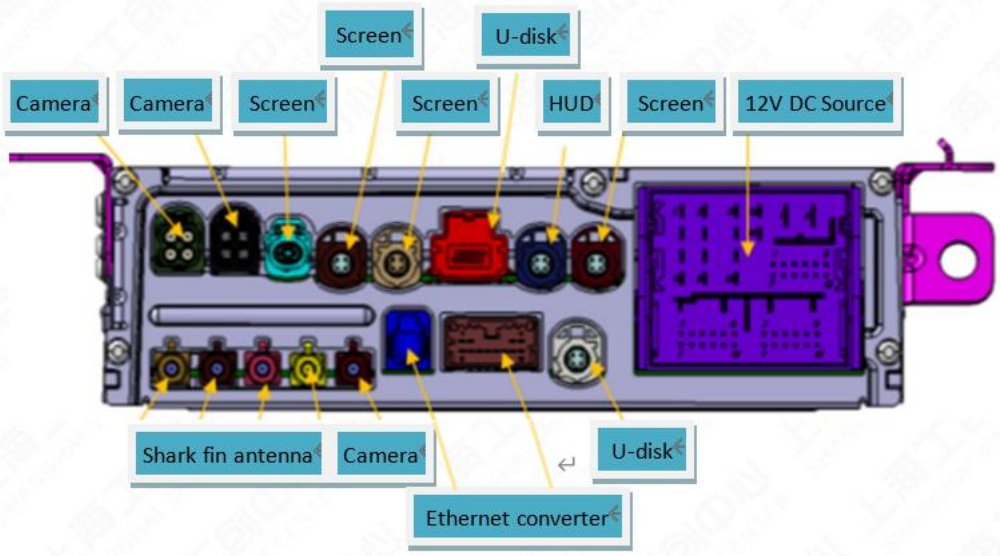
Test Item	Test setup and operating modes
Radiated emission	30MHz-18GHz frequency range: Mode 1: Full system_100M_LAN Mode Mode 4: FM Mode
Antenna Power Conduction Limits for Receiver	Mode 6: FM Mode (Direct connection)+UV02
Note: The worst case of radiated emission for 30MHz-1GHz is Mode 1,4 and for 1GHz -18GHz is Mode 1.	

5.3 EUT System Operation

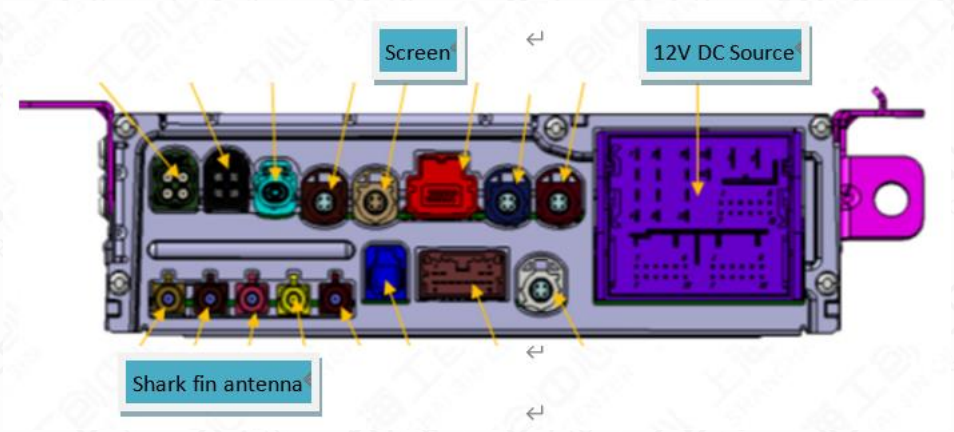
1. Connect the EUT with AE.
2. Start testing and monitoring the function.
3. GNSS/AM mode: EUT and Vector signal generator (SMBV100A) connection is established.
4. FM mode: The signal generator (SMBV100A) emits 1kHz CW FM signal at 98MHz frequency, which is connected to the anechoic chamber through the antenna, EUT receives FM signal through the external shark fin antenna to realize signal connection.
5. Full system: EUT is powered by DC12V and connected to various accessories to maintain working status, Accessories include camera, central control screen, HUD, USB disk for data exchange with EUT, Ethernet converter connected to PC to achieve 100MHz and 1000Mhz data packet loss, etc.
6. FM Mode (Direct connection): The FM port of the EUT is directly connected to the spectrum analyzer (ESCI) through a dedicated 75Ωto 50Ω cable (UV02).

5.4 EUT Connection Diagram of Test System

N03 Sample (Main supply):

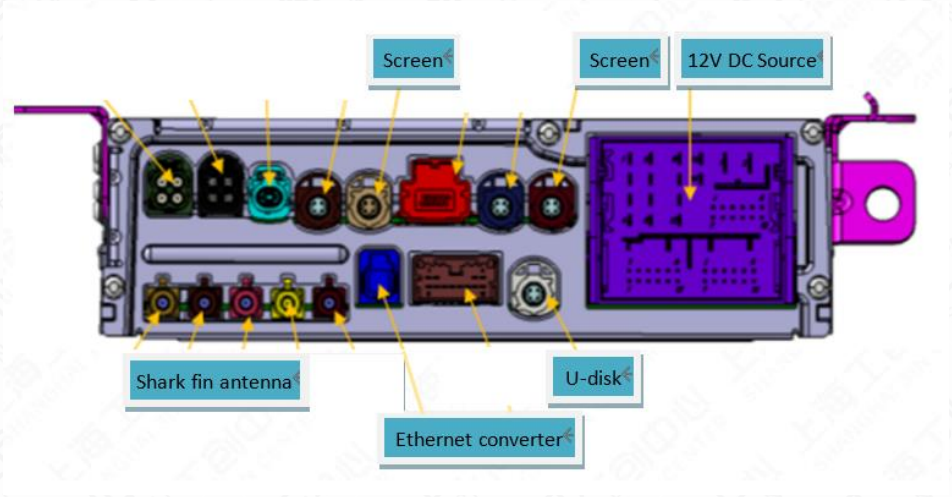


<Figure 5.4-1> Mode 1-2

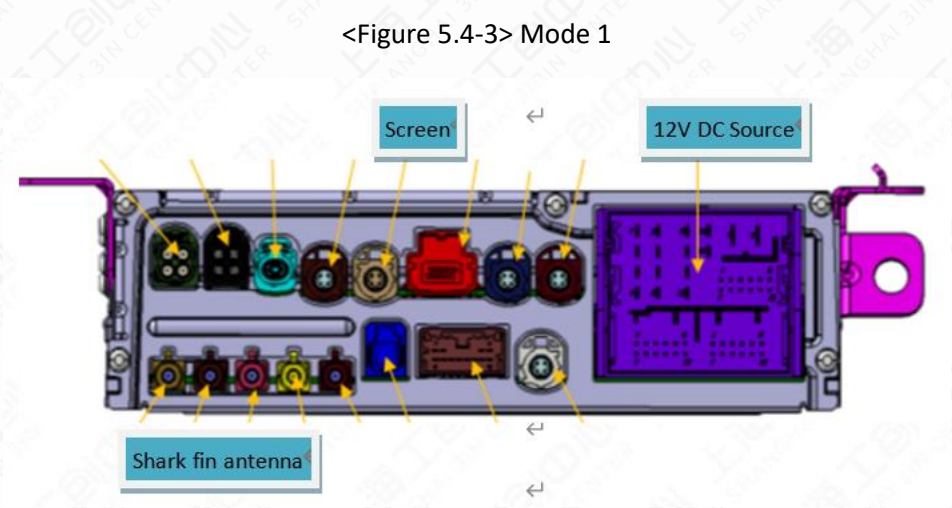


<Figure 5.4-2> Mode 3-6

N01 Sample (Secondary supply):



<Figure 5.4-3> Mode 1



<Figure 5.4-4> Mode 4,6

5.5 Test Equipment Utilized

No.	Name	Model	S/N	Manufacturer	Cal. Date	Cal. Interval
1	Test Receiver	ESU40	100307	R&S	2022-02-23	1 year
2	Trilog Antenna	VULB9163	VULB9163-515	Schwarzbeck	2022-03-11	1 year
3	Double Ridged Guide Antenna	ETS-3117	00135890	ETS	2022-03-09	2 years
4	EMI Test Software	EMC32 V9.15	N/A	R&S	N/A	N/A
5	Signal Generator	SMB 100A	105563	R&S	2021-05-10	1.5 year
6	Vector signal generator	SMBV100A	257904	R&S	2022-02-21	1 year

No.	Name	Model	S/N	Manufacturer	Cal. Date	Cal. Interval
7	Test Receiver	ESCI	101235	R&S	2022-02-23	1 year
8	Steatite Antenna	QMS-00880	24715	R&S	2021-07-20	2 years

5.6 Measurement Uncertainty

Item (s)	Uncertainty
Radiated Emission 30MHz-1000MHz	4.96 dB
Radiated Emission 1000MHz-18000MHz	5.18 dB
Antenna Power Conduction Limits for Receiver (9kHz-30MHz)	0.89 dB
Antenna Power Conduction Limits for Receiver (30MHz-2000MHz)	0.90 dB
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 Radiated Emission

6.1.1 Method of Measurement

a. For 30MHz -1000MHz, the EUT was placed on the top of a rotating 0.8m table above the ground at a semi-anechoic chamber. The distance between the EUT and the received antenna was 3 meters. The table was rotated 360 degree and the received antenna mounted on a variable-height antenna tower was varied from 1m to 4m to find the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement.

b. For 1000MHz -6000MHz, the EUT was placed on the top of a 0.8m table above the ground at a 3m fully anechoic chamber. The maximal emission value was acquired by adjusting the antenna height, The table was rotated 360 degree to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement

c. FM test method:

The signal generator (SMBV100A) emits 1kHz CW FM signal at 98MHz frequency, which is connected to the anechoic chamber through the antenna, EUT receives FM signal through the external shark fin antenna to realize signal connection. For 30MHz -1000MHz, the EUT was placed on the top of a rotating 0.8m table above the ground at a semi-anechoic chamber. The distance between the EUT and the received antenna was 3 meters. The table was rotated 360 degree and the received antenna mounted on a variable-height antenna tower was varied from 1m to 4m to find the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna were set during the measurement.

6.1.2 EUT Connection Diagram of Test System

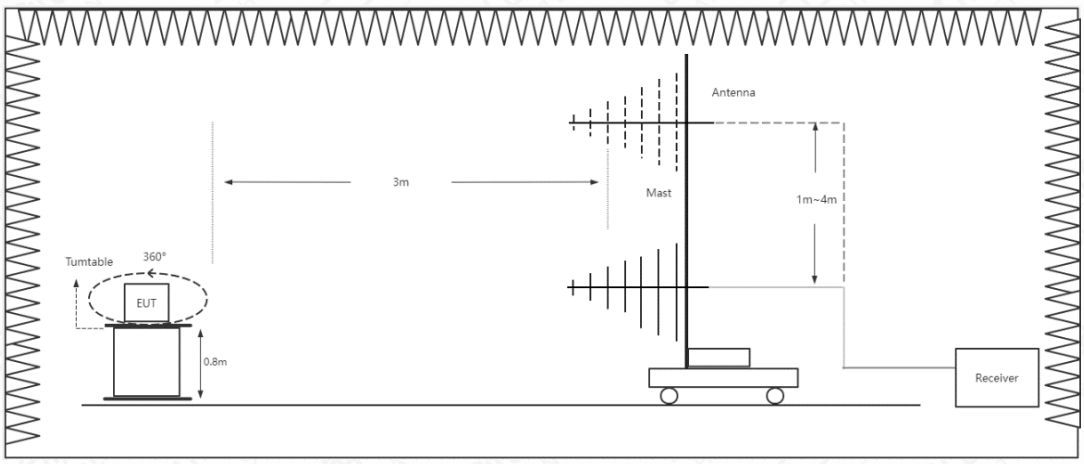


Figure 6.1.2-1 RE 30MHz-1GHz Connection Diagram

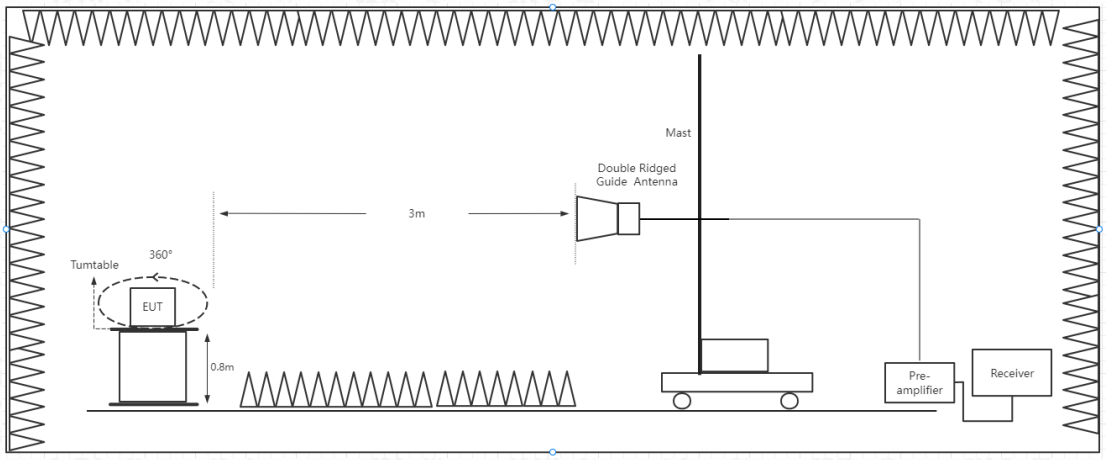


Figure 6.1.2-2 RE Above 1GHz Connection Diagram

6.1.3 Test Condition

Frequency Range (MHz)	RBW/VBW	Sweep Time (s)
30-1000	120kHz/300kHz	AUTO
1000-18000	1MHz/3MHz	AUTO

6.1.4 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

6.1.5 Test environmental conditions

Temperature	23.5℃
Relative Humidity	57.3%RH
Atmospheric Pressure	101.7 kPa

6.1.6 Test Results

For tests above 1GHz, the controller with function Boresight is used to control the lifting and tilting of the horn antenna.

The test data above 18GHz is more than 20dB lower than the limit value, so it is not provided in the report.

N03 Sample (Main supply):

Mode	Frequency (MHz)	Test Results	Verdicts
Mode 1: Full system_100M_LAN Mode	30-1000	See Annex A.1-1	Pass
Mode 4: FM Mode		See Annex A.1-2	Pass
Mode 1: Full system_100M_LAN Mode	1000-18000	See Annex A.1-3 &A.1-4	Pass
NOTE Abbreviations used in this clause: Pass—P; Fail—F; Not applicable—N/A			

N01 Sample (Secondary supply):

Mode	Frequency (MHz)	Test Results	Verdicts
Mode 1: Full system_100M_LAN Mode	30-1000	See Annex A.1-5	Pass
Mode 4: FM Mode		See Annex A.1-6	Pass
Mode 1: Full system_100M_LAN Mode	1000-18000	See Annex A.1-7 &A.1-8	Pass
NOTE Abbreviations used in this clause: Pass—P; Fail—F; Not applicable—N/A			

6.2 Conducted Emission

In accordance with the requirements of standard FCC Part 15.203, conducted emission is not applicable.

6.3 Antenna Power Conduction Limits for Receiver

6.3.1 Method of Measurement

a. The measurement is according to FCC Part 15.111(a).

b. The FM port of the EUT is directly connected to the spectrum analyzer (ESCI) through a dedicated 75Ωto 50Ω cable (UV02), the cable attenuation is 2Db, The path loss was compensated to the results for each measurement.

c. The test was conducted in a shielding chamber.

6.3.2 EUT Connection Diagram of Test System

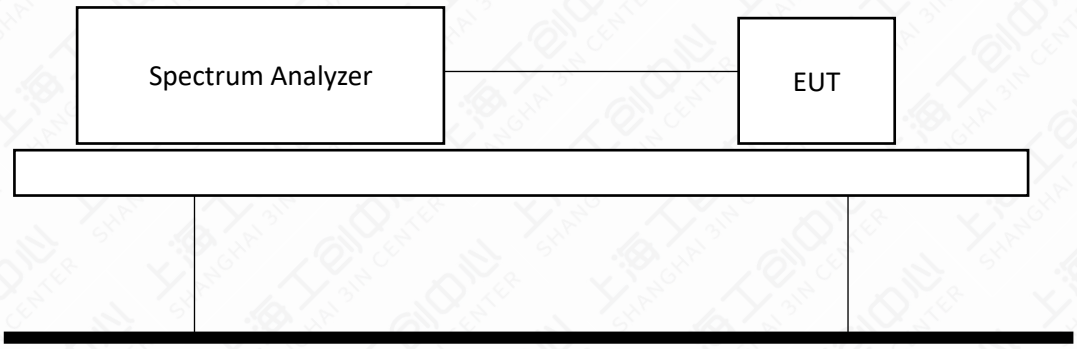


Figure 6.3.2-1 Antenna Power Conduction Limits for Receiver Connection Diagram

6.3.3 Test Condition

Frequency Range (MHz)	RBW/VBW	Sweep Time (s)
0.009-30	9kHz/30kHz	AUTO
30-1000	120kHz/300kHz	AUTO
Above 1G	1MHz/3MHz	AUTO

6.3.4 Limit/Criterion

Standard	Limit (dBm)
FCC 47 Part 15.111(a)	< 2Nw (-57dBm)

6.3.5 Test environmental conditions

Temperature	23.1℃
Relative Humidity	57.5%RH
Atmospheric Pressure	101.7 kPa

6.3.6 Test Results

N03 Sample (Main supply):

Mode	Frequency (MHz)	Test Results	Verdicts
Mode 6: FM Mode (Direct connection)+UV02	0.009-30	See Annex A.2-1	Pass
	30-1000	See Annex A.2-2	
	1000-2000	See Annex A.2-3	
NOTE Abbreviations used in this clause: Pass—P; Fail—F; Not applicable—N/A			

N01 Sample (Secondary supply):

Mode	Frequency (MHz)	Test Results	Verdicts
Mode 6: FM Mode (Direct connection)+UV02	0.009-30	See Annex A.2-4	Pass
	30-1000	See Annex A.2-5	
	1000-2000	See Annex A.2-6	
NOTE Abbreviations used in this clause: Pass—P; Fail—F; Not applicable—N/A			

Annex A: Measurement Data

A.1 Radiated Emission

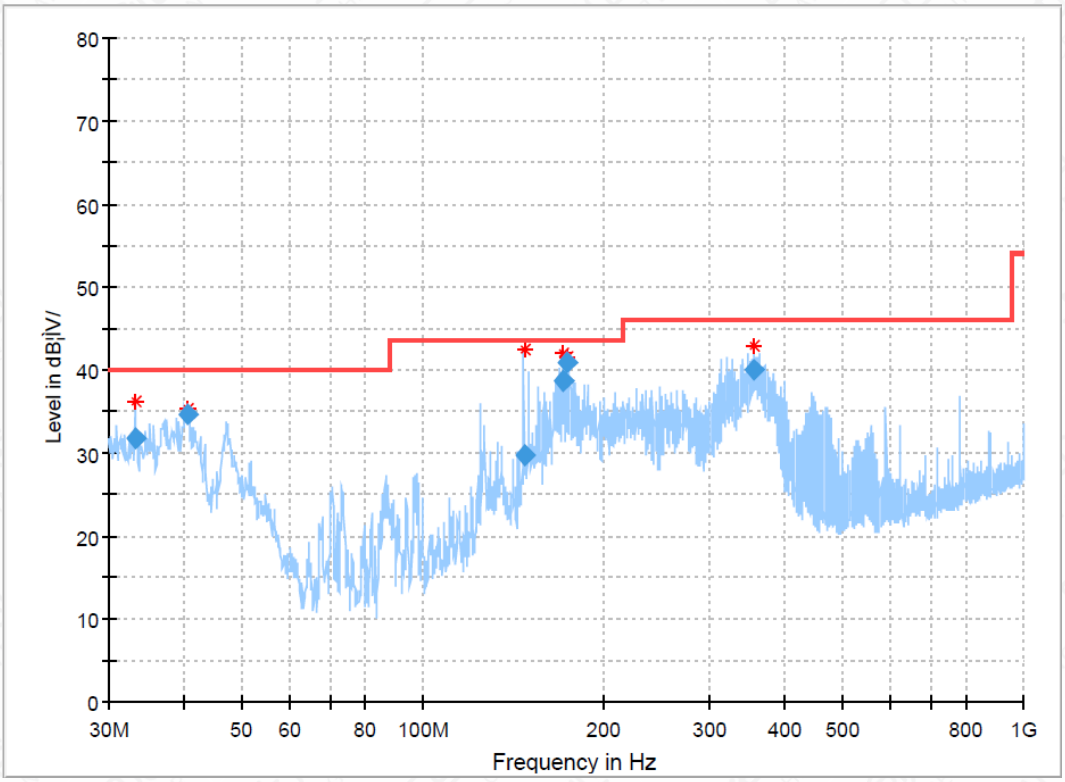


Figure A.1-1 N03 Sample (Main supply)_Mode 1 (30M-1GHz)

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.360240	31.81	40.00	8.19	100.0	V	198.0	-14.9
40.558520	34.60	40.00	5.40	100.0	V	116.0	-12.9
147.462760	29.73	43.50	13.77	200.0	H	74.0	-16.4
171.194640	38.68	43.50	4.82	100.0	H	93.0	-15.3
173.612160	40.98	43.50	2.52	200.0	H	98.0	-15.1
355.436240	39.97	46.00	6.03	100.0	H	338.0	-8.4

Note:

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

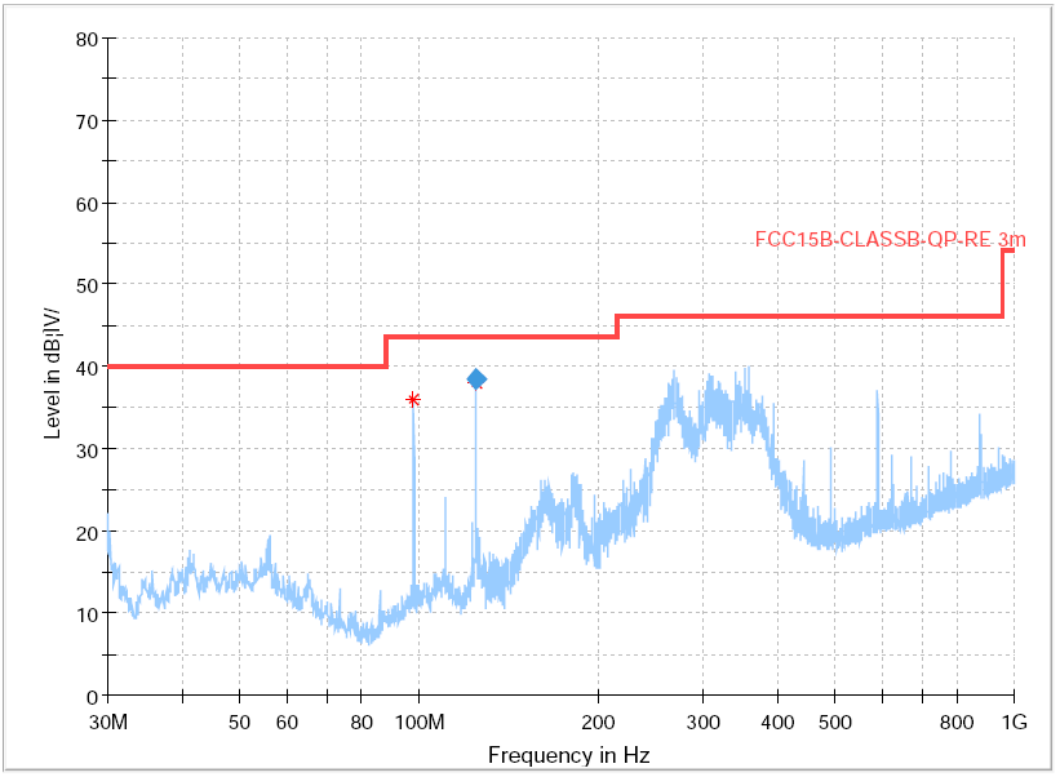


Figure A.1-2 N03 Sample (Main supply)_Mode 4 (30M-1GHz)

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
124.995160	38.49	43.5	5.01	200	H	79.0	-15.5

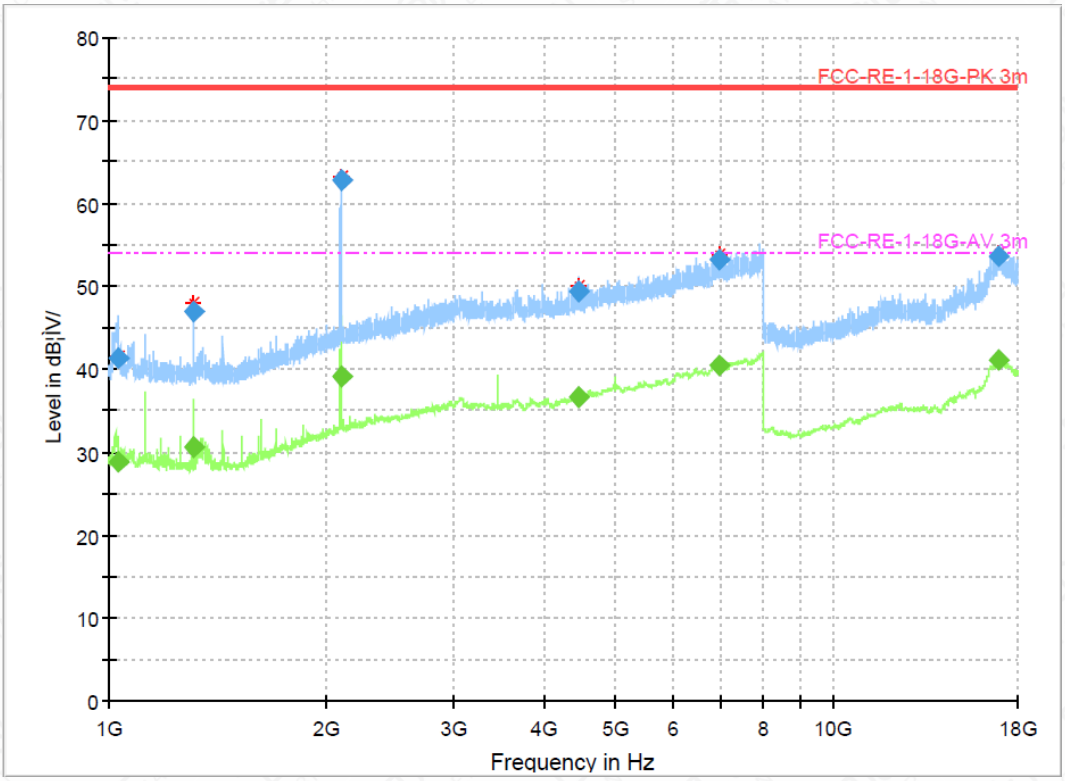


Figure A.1-3 N03 Sample (Main supply)_Mode 1 (1GHz-18GHz)-H

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1028.3100	---	28.72	54.00	25.28	500.0	1000.0	100.0	H	0.0	1.9
1028.3100	41.38	---	74.00	32.62	500.0	1000.0	100.0	H	0.0	1.9
1308.9687	---	30.55	54.00	23.45	500.0	1000.0	215.0	H	256.0	2.0
1308.9687	46.89	---	74.00	27.11	500.0	1000.0	215.0	H	256.0	2.0
2093.2800	62.78	---	74.00	11.22	500.0	1000.0	100.0	H	0.0	7.2
2093.2800	---	39.09	54.00	14.91	500.0	1000.0	100.0	H	0.0	7.2
4445.4187	---	36.75	54.00	17.25	500.0	1000.0	111.0	H	0.0	14.2
4445.4187	49.32	---	74.00	24.68	500.0	1000.0	111.0	H	0.0	14.2
6970.5112	---	40.52	54.00	13.49	500.0	1000.0	185.0	H	1.0	19.7
6970.5112	53.13	---	74.00	20.87	500.0	1000.0	185.0	H	1.0	19.7
16893.286	53.65	---	74.00	20.35	500.0	1000.0	115.0	H	230.0	22.4
16893.286	---	41.07	54.00	12.93	500.0	1000.0	115.0	H	230.0	22.4

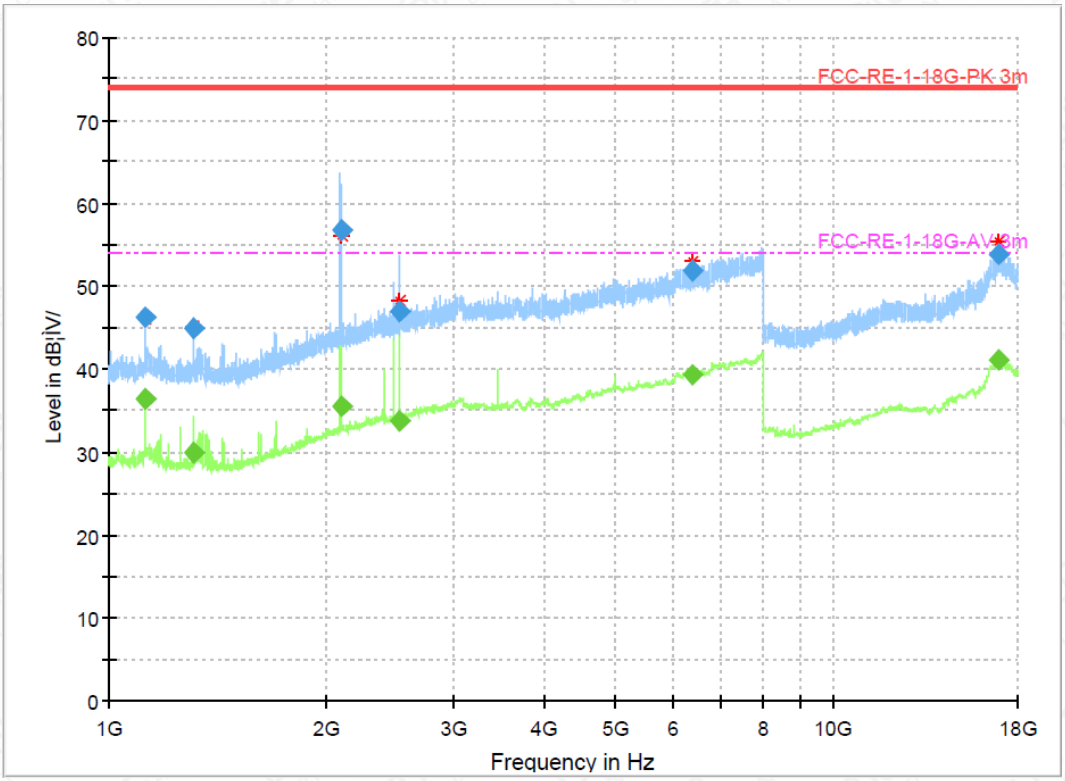


Figure A.1-4 N03 Sample (Main supply)_Mode 1 (1GHz-18GHz)-V

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1125.2300	---	36.45	54.00	17.55	500.0	1000.0	100.0	V	0.0	1.8
1125.2300	46.20	---	74.00	27.80	500.0	1000.0	100.0	V	0.0	1.8
1308.7212	44.91	---	74.00	29.09	500.0	1000.0	103.0	V	222.0	2.0
1308.7212	---	29.84	54.00	24.16	500.0	1000.0	103.0	V	222.0	2.0
2093.4487	---	35.43	54.00	18.57	500.0	1000.0	103.0	V	109.0	7.2
2093.4487	56.76	---	74.00	17.24	500.0	1000.0	103.0	V	109.0	7.2
2522.6925	46.89	---	74.00	27.11	500.0	1000.0	103.0	V	0.0	9.3
2522.6925	---	33.70	54.00	20.30	500.0	1000.0	103.0	V	0.0	9.3
6406.6762	---	39.30	54.00	14.70	500.0	1000.0	103.0	V	258.0	18.3
6406.6762	51.79	---	74.00	22.21	500.0	1000.0	103.0	V	258.0	18.3
16892.431	---	41.14	54.00	12.86	500.0	1000.0	206.0	V	1.0	22.4
16892.431	53.91	---	74.00	20.09	500.0	1000.0	206.0	V	1.0	22.4

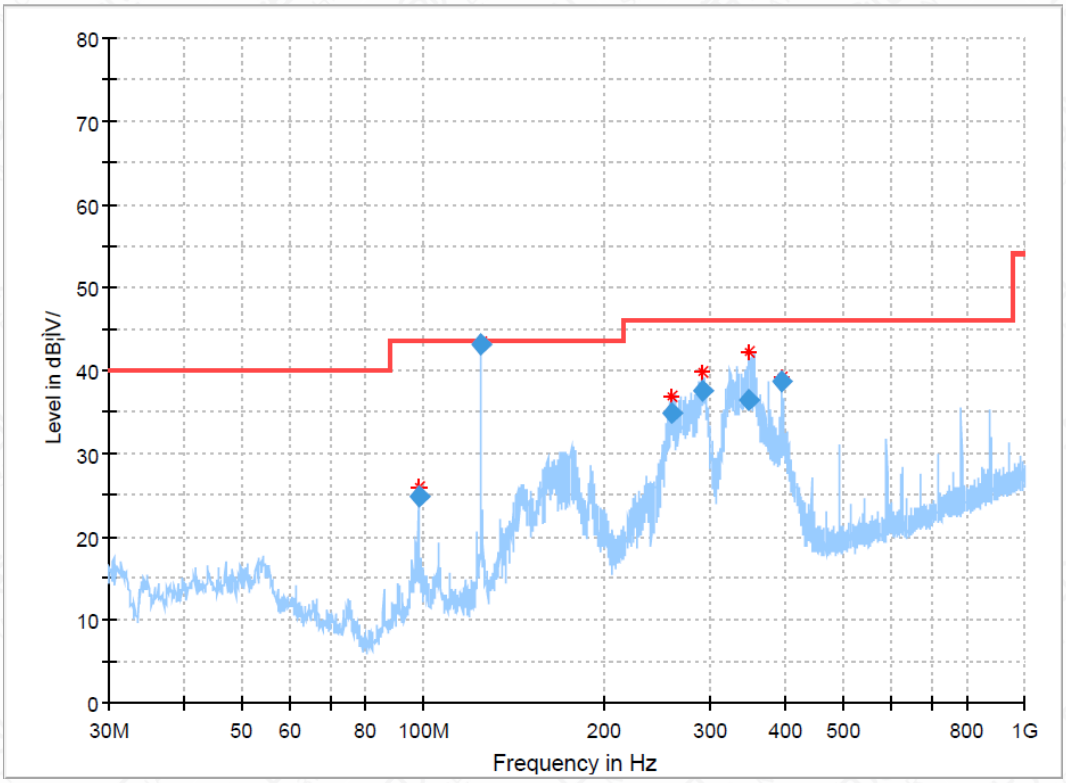


Figure A.1-5 N01 Sample (Secondary supply)_Mode 1 (30M-1GHz)

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
98.309720	24.77	43.50	18.73	200.0	H	359.0	-13.5
124.995520	43.21	43.50	0.29	100.0	V	74.0	-15.5
259.288920	34.78	46.00	11.22	100.0	H	231.0	-10.6
290.864520	37.57	46.00	8.43	100.0	H	328.0	-10.3
347.005640	36.36	46.00	9.64	100.0	H	231.0	-8.7
393.239280	38.58	46.00	7.42	100.0	H	0.0	-7.4

Note:

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

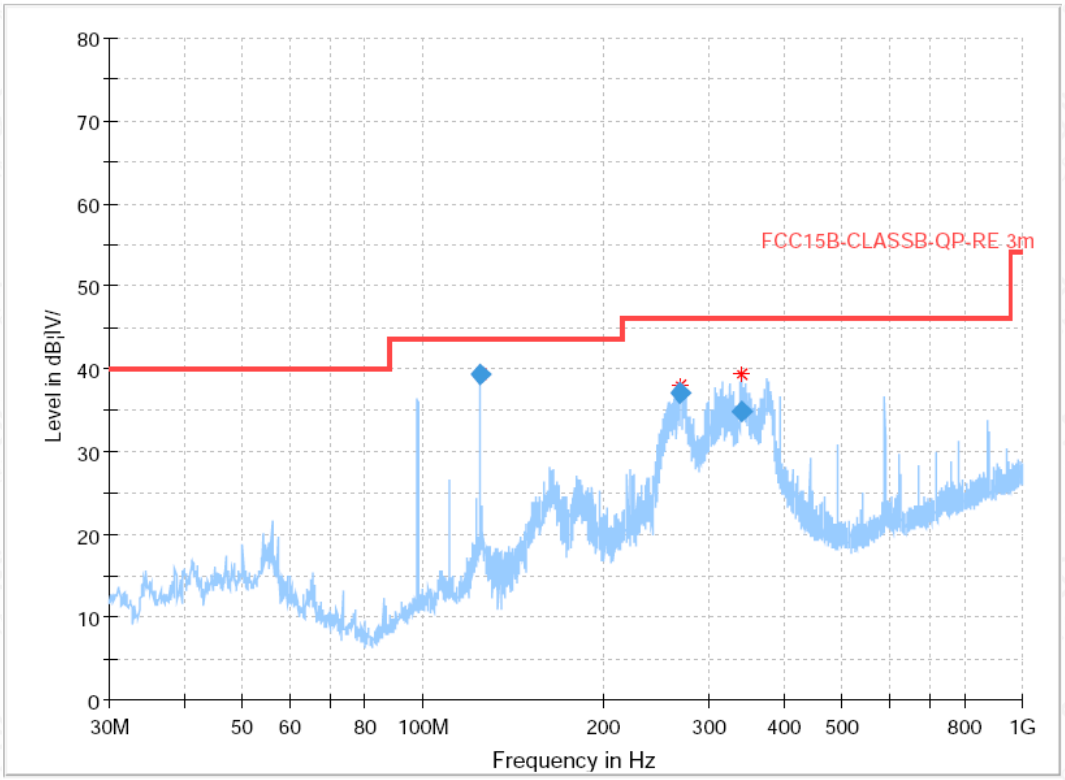


Figure A.1-6 N01 Sample (Secondary supply)_Mode 4 (30M-1GHz)

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
124.997560	39.27	43.50	4.23	100.0	V	84.0	-15.5
268.561320	37.16	46.00	8.84	200.0	H	322.0	-10.6
339.464360	34.75	46.00	11.25	100.0	H	334.0	-8.9

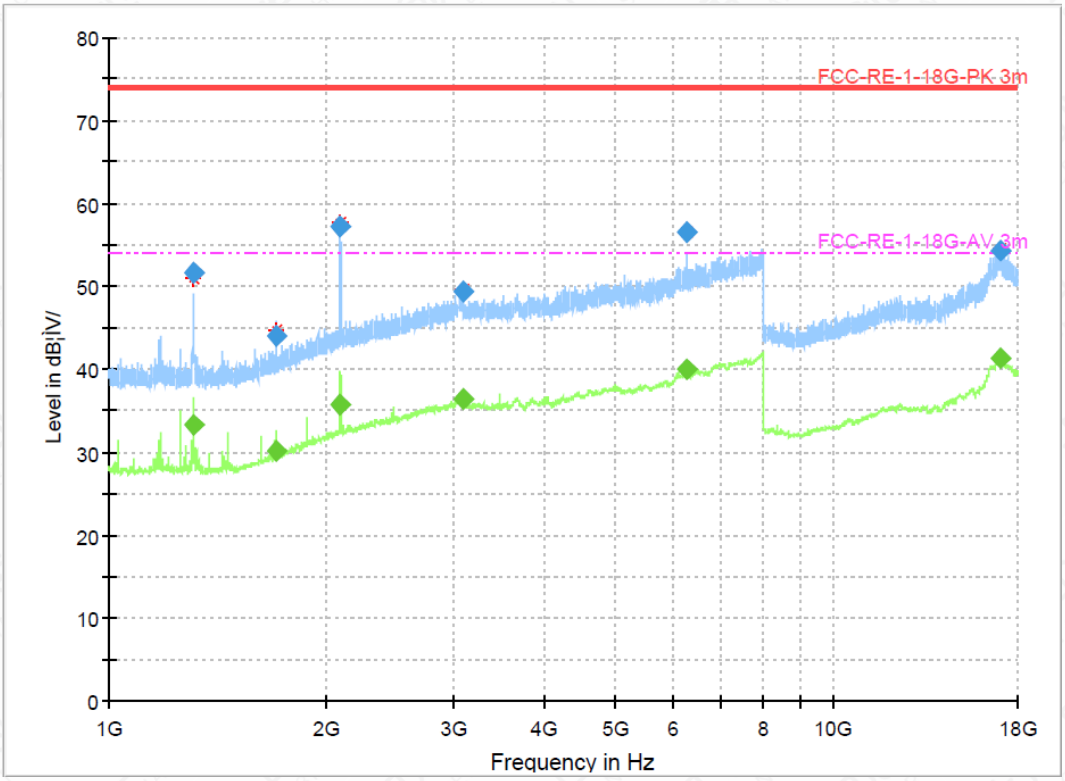


Figure A.1-7 N01 Sample (Secondary supply)_Mode 1 (1GHz-18GHz)-H

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1308.0787	51.58	---	74.00	22.42	500.0	1000.0	185.0	H	1.0	2.0
1308.0787	---	33.33	54.00	20.67	500.0	1000.0	185.0	H	1.0	2.0
1699.5050	43.92	---	74.00	30.08	500.0	1000.0	188.0	H	20.0	4.1
1699.5050	---	30.11	54.00	23.89	500.0	1000.0	188.0	H	20.0	4.1
2091.5262	---	35.65	54.00	18.35	500.0	1000.0	100.0	H	339.0	7.2
2091.5262	57.25	---	74.00	16.75	500.0	1000.0	100.0	H	339.0	7.2
3076.3200	---	36.40	54.00	17.60	500.0	1000.0	215.0	H	332.0	12.7
3076.3200	49.38	---	74.00	24.62	500.0	1000.0	215.0	H	332.0	12.7
6279.0787	56.47	---	74.00	17.53	500.0	1000.0	111.0	H	0.0	18.0
6279.0787	---	39.90	54.00	14.10	500.0	1000.0	111.0	H	0.0	18.0
17029.861	54.40	---	74.00	19.60	500.0	1000.0	200.0	H	245.0	22.6
17029.861	---	41.34	54.00	12.66	500.0	1000.0	200.0	H	245.0	22.6

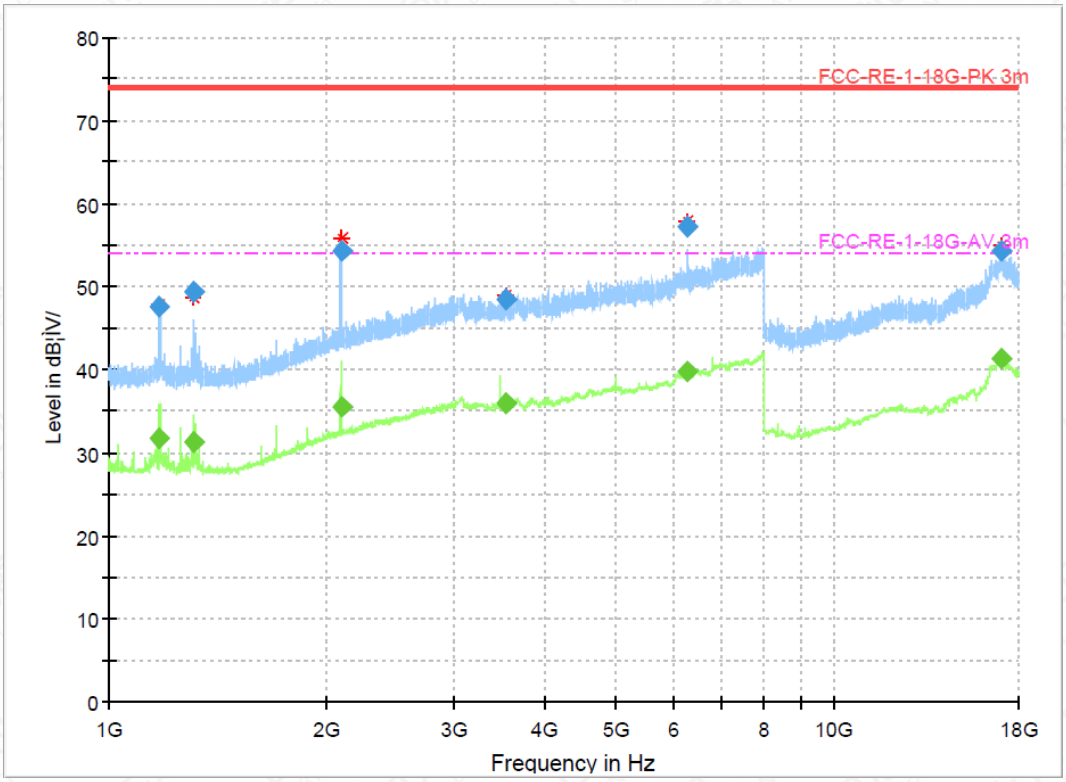
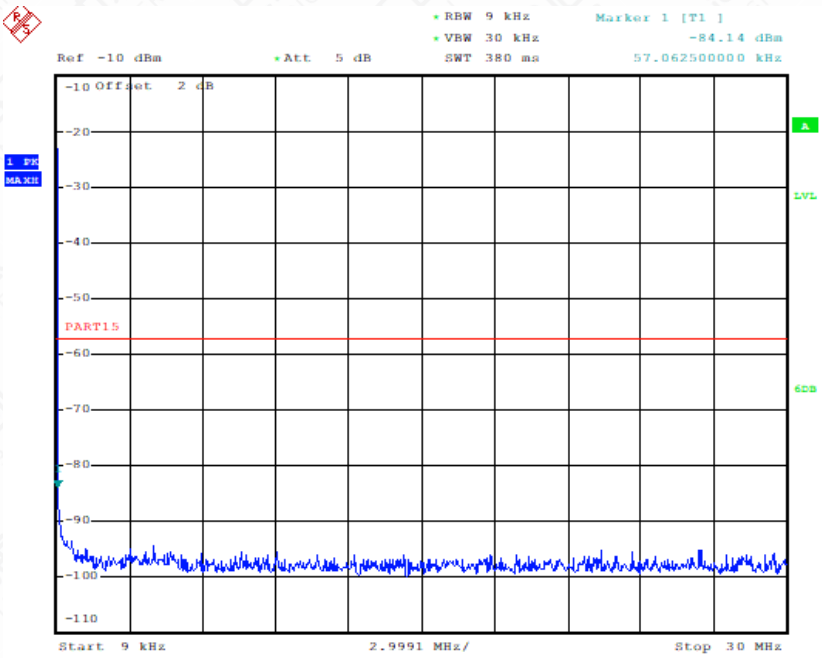


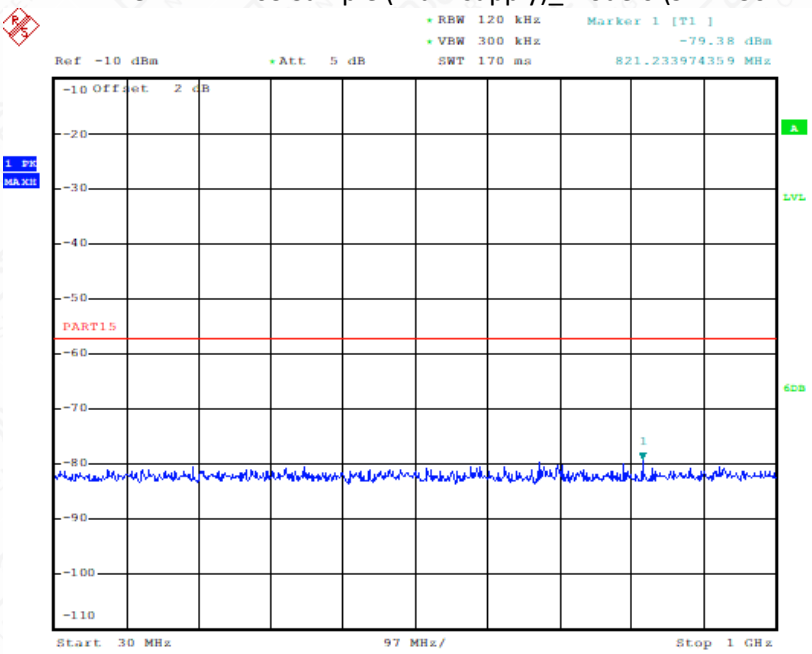
Figure A.1-8 N01 Sample (Secondary supply)_Mode 1 (1GHz-18GHz)-V

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
1175.8825	---	31.62	54.00	22.38	500.0	1000.0	100.0	V	0.0	1.9
1175.8825	47.68	---	74.00	26.32	500.0	1000.0	100.0	V	0.0	1.9
1307.4225	49.29	---	74.00	24.71	500.0	1000.0	100.0	V	332.0	2.0
1307.4225	---	31.32	54.00	22.68	500.0	1000.0	100.0	V	332.0	2.0
2093.0350	54.35	---	74.00	19.65	500.0	1000.0	188.0	V	85.0	7.2
2093.0350	---	35.45	54.00	18.55	500.0	1000.0	188.0	V	85.0	7.2
3536.8112	48.53	---	74.00	25.47	500.0	1000.0	215.0	V	96.0	12.4
3536.8112	---	35.92	54.00	18.08	500.0	1000.0	215.0	V	96.0	12.4
6283.1662	57.26	---	74.00	16.74	500.0	1000.0	115.0	V	195.0	18.0
6283.1662	---	39.85	54.00	14.15	500.0	1000.0	115.0	V	195.0	18.0
17041.491	---	41.39	54.00	12.61	500.0	1000.0	215.0	V	356.0	22.5
17041.491	54.20	---	74.00	19.80	500.0	1000.0	215.0	V	356.0	22.5

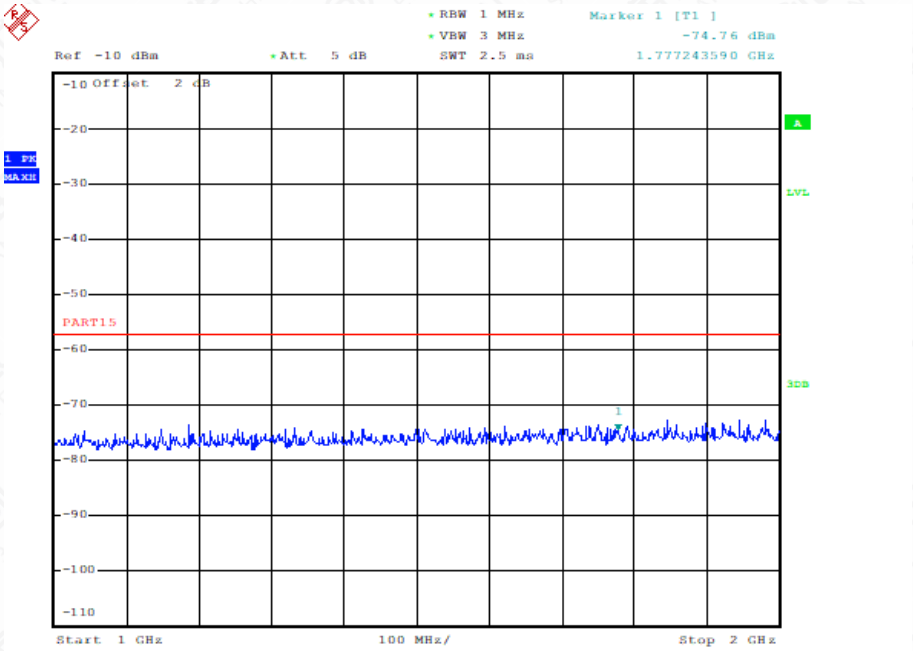
A.2 Antenna Power Conduction Limits for Receiver



Annex A.2-1 N03 Sample (Main supply)_Mode 6 (9kHz-30MHz)



Annex A.2-2 N03 Sample (Main supply)_Mode 6 (30MHz-1GHz)



Annex A.2-3 N03 Sample (Main supply)_Mode 6 (1GHz-2GHz)

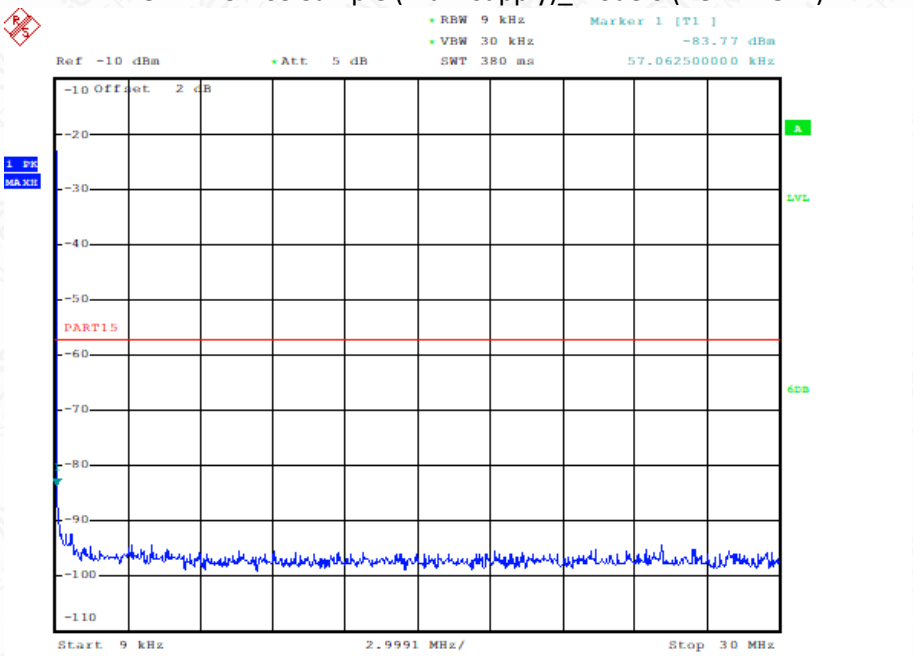


Figure A.2-4 N01 Sample (Secondary supply)_Mode 6 (9kHz-30MHz)

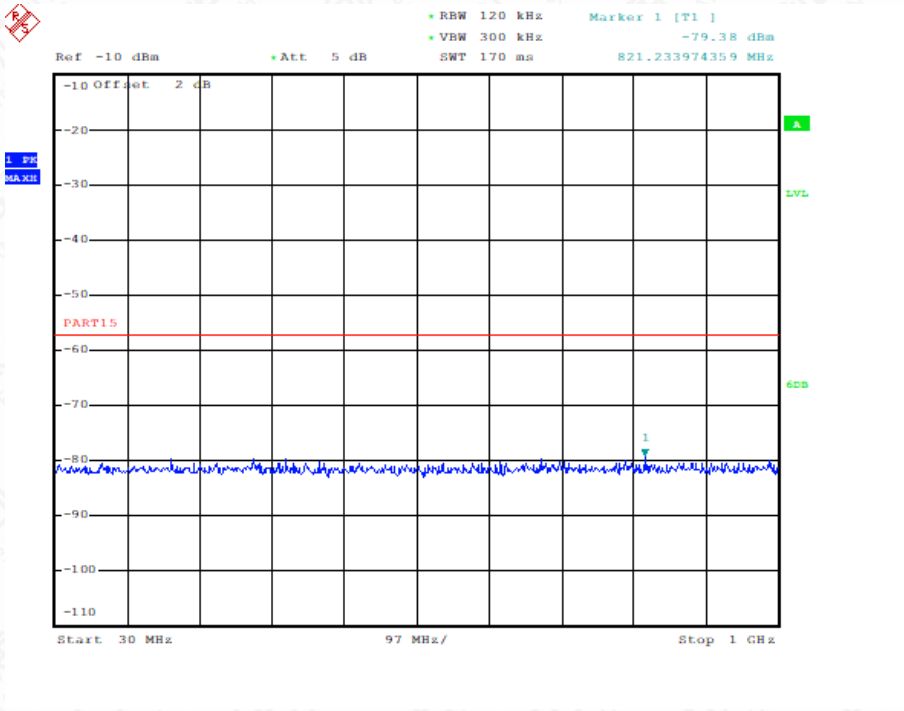


Figure A.2-5 N01 Sample (Secondary supply)_Mode 6 (30MHz-1GHz)

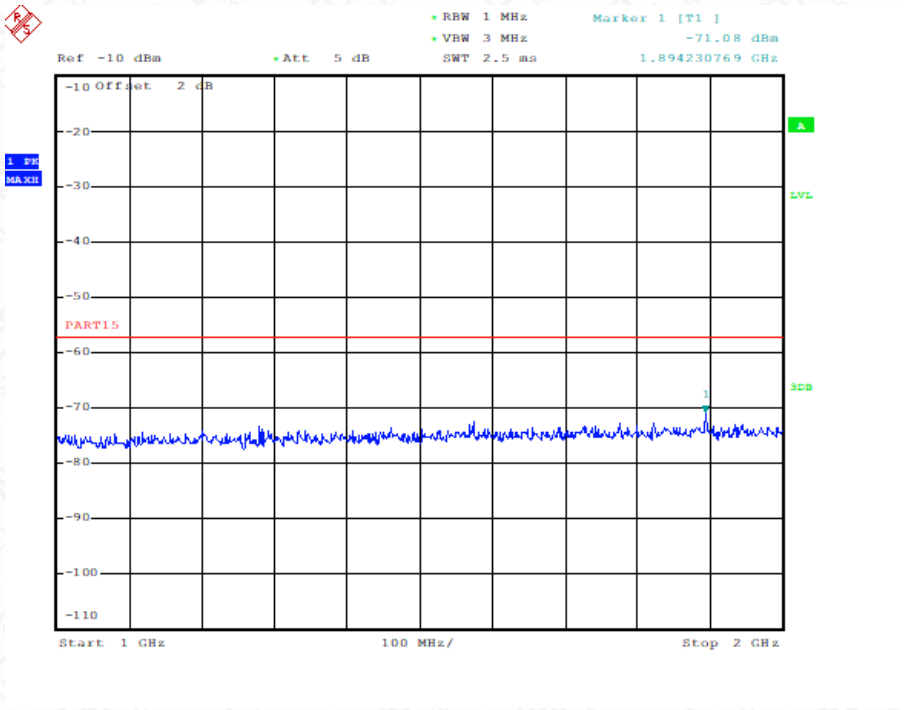


Figure A.2-6 N01 Sample (Secondary supply)_Mode 6 (1GHz-2GHz)

Annex B: Revised History

Version	Revised Content
V00	Initial

Annex C: Accreditation Certificate

ilac-MRA A2LA

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 12th day of April 2021.

Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 3682.01
Valid to February 28, 2023

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