

EMC Test Report

Product Name : Nokia Industrial 5G fieldrouter FRRO505c
Model No. : FRRO505c

Applicant : Nokia of America Corp
Address : 3201 Olympus Blvd, Dallas, TX 75019, US

Date of Receipt : April 27, 2026
Test Date : April 28, 2026~ May 04, 2026
Issued Date : July 30, 2026
Report No. : 2640597R.603
Report Template No. : TRF_FCC Part 15 Subpart 15B_EMC_V1.4

The test results presented in this report relate only to the object tested.

This report is not used for social proof in China (or Mainland China) market.

The measurement result is considered in conformance with the requirement if it is within the prescribed limit, it is not necessary to calculate the uncertainty associated with the measurement result.

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Issued Date : July 30, 2026
Report No. : 2640597R.603

Product Name : Nokia Industrial 5G fieldrouter FRRO505c
Applicant : Nokia of America Corp
Address : 3201 Olympus Blvd, Dallas, TX 75019, US
Manufacturer : Shanghai Smawave Technology Co., Ltd
Address : 2/F, Building 8, 1001 North Qinzhou Road, Xuhui District,
Shanghai, China
Model No. : FRRO505c
Brand Name : Nokia
EUT Voltage : 9-36 Vdc
Test Voltage : 120 Vac, 60 Hz
Applicable Standard : FCC CFR Title 47 Part 15 Subpart B: 2024
ANSI C63.4: 2014
Test Result : Complied
DEKRA Testing and Certification (Suzhou) Co., Ltd.
Test Location : No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006,
Jiangsu, China
FCC Designation Number : CN1199

Tested By :



(Tony Guo/Project Engineer)

Approved By :

Star Wang 2026-07-30 15:
00:58

(Star Wang/Manager)

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Document History

Report Number	Date	Description
2640597R.603	July 30, 2026	First release

1 General Information

1.1 EUT Description

Product Name	Nokia Industrial 5G fieldrouter FRRO505c
Model No.	FRRO505c
Brand Name	Nokia
FCC ID	2AVO2FRRO505C

Note 1: The EUT information is from customer declaration.

Note 2: The report is based on DEKRA Report No.2560724R.603.The only change is addition of eSIM component to an existing PCB footprint and replacing the storage component. There are no other hardware change and no PCB change or redesign. Therefore, a retest was performed to assess the impact of this change on FCC compliance.

Component	
Adaptor 1)	M/N: JYH11Z-2400600-BF Input: AC 100-240V, 50/60Hz, 2.7A Output: DC 24.0V, 6.0A 144.0W
Adaptor 2)	M/N: GQ150A-2400600-E1 Input: AC 100-240V, 50/60Hz, 2.0A Output: DC 24.0V, 6.0A 144.0W

Wireless specification	Bluetooth (LE)					
Operating frequency range(s)	2402~2480MHz					
Type of Modulation	GFSK					
PHYs	☒	LE 1M	☒	LE 2M	☒	LE Coded S=2/8
Data Rate	☒	1Mbit/s	☒	2Mbit/s	☒	500/125 Kbit/s
Channel Spacing	2MHz					
Antenna Type	Dipole					
Antenna Gain.....	5.02 dBi					

Wireless specification	Wi-Fi					
Operating frequency range(s)	2400~2483.5MHz					
Type of modulation	802.11b: DSSS-DBPSK, DQPSK, CCK 802.11g/n: OFDM-BPSK, QPSK, 16QAM, 64QAM					

	802.11ax/be: OFDMA -BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024 QAM, 4096QAM Note: The device not support partial RU function.
Channel Spacing	802.11b/g/n/ax/be: 20MHz 802.11n/ax/be: 40MHz
Device category.....	☐ Fixed point-to-point
	☐ Emit multiple directional beams, simultaneously or sequentially
	☒ Other cases
Antenna type	Dipole
Antenna Gain.....	Ant 1&2&3&4: 5.02 dBi

Wireless specification	Wi-Fi
Frequency Range	U-NII-1: 5150 MHz to 5250 MHz
	U-NII-2A: 5250 MHz to 5350 MHz
	U-NII-2C: 5470 MHz to 5725 MHz
	U-NII-3: 5725 MHz to 5850 MHz
Channel Spacing	802.11a/n/ac/ax/be: 20MHz 802.11n/ac/ax/be: 40MHz 802.11ac/ax/be: 80MHz 802.11ac/ax/be: 160MHz
Modulation technology	802.11a/ac: OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM 802.11ax/be: OFDMA -BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM Note: The device not support partial RU function.
DFS Function.....	☒ Master device
	☐ Slave with radar detection
	☐ Slave without radar detection
TPC Function:	☒ Support ☐ Not Support
Antenna Type	Dipole
Antenna Gain.....	Ant 1&2&3&4: 5.06 dBi

Wireless specification	LTE, NR
------------------------------	---------

Support Band(s)	LTE	FDD Band 2/4/5/7/12/13/14/17/25/26/30/66/71 TDD Band 38/41/48/42/43
	NR	FDD NR Band 2/5/7/12/13/14/25/26/30/66/70/71 TDD NR Band 38/41/48/77/78
Uplink.....	Band 2: 1850-1910 MHz Band 4: 1710-1755 MHz Band 5: 824-849 MHz Band 7: 2500-2570 MHz Band 12: 699-716 MHz Band 13: 777-787 MHz Band 14: 788-798 MHz Band 17: 704-716 MHz Band 25: 1850-1915 MHz Band 26: 814-849 MHz Band 30: 2305-2315 MHz Band 66: 1710-1780 MHz Band 70: 1965-1710 MHz Band 71: 663-698 MHz Band 38: 2570-2620 MHz Band 41: 2496-2690 MHz Band 42: 3400-3600 MHz Band 43: 3600-3800 MHz Band 48: 3550-3700 MHz Band 77: 3450-3550 MHz, 3700-3980 MHz Band 78: 3450-3550 MHz, 3700-3800 MHz	
Downlink	Band 2: 1930-1990 MHz Band 4: 2110-2155 MHz Band 5: 869-894 MHz Band 7: 2620-2690 MHz Band 12: 729-746 MHz Band 13: 746-756 MHz Band 14: 758-768 MHz Band 17: 734-746 MHz Band 25: 1930-1995 MHz	

Band 26: 859-894 MHz Band 30: 2350-2360 MHz Band 66: 2110-2200 MHz Band 70: 1995-2020 MHz Band 71: 617-652 MHz Band 38: 2570-2620 MHz Band 41: 2496-2690 MHz Band 42: 3400-3600 MHz Band 43: 3600-3800 MHz Band 48: 3550-3700 MHz Band 77: 3450-3550 MHz, 3700-3980 MHz Band 78: 3450-3550 MHz, 3700-3800 MHz		
SCS and Channel Bandwidth(MHz)	LTE Band 2	1.4 MHz / 3 MHz / 5 MHz / 10 MHz / 15 MHz / 20 MHz
	LTE Band 4	1.4 MHz / 3 MHz / 5 MHz / 10 MHz / 15 MHz / 20 MHz
	LTE Band 5	1.4 MHz / 3 MHz / 5 MHz / 10 MHz
	LTE Band 7	5 MHz / 10 MHz / 15 MHz / 20 MHz
	LTE Band 12	1.4 MHz / 3 MHz / 5 MHz / 10 MHz
	LTE Band 13	5 MHz / 10 MHz
	LTE Band 14	5 MHz / 10 MHz
	LTE Band 17	5 MHz / 10 MHz
	LTE Band 25	1.4 MHz / 3 MHz / 5 MHz / 10 MHz / 15 MHz / 20 MHz
	LTE Band 26	1.4 MHz / 3 MHz / 5 MHz / 10 MHz / 15 MHz
	LTE Band 30	5 MHz / 10 MHz
	LTE Band 38	5 MHz / 10 MHz / 15 MHz / 20 MHz
	LTE Band 41	5 MHz / 10 MHz / 15 MHz / 20 MHz
	LTE Band 42	5 MHz / 10 MHz / 15 MHz / 20 MHz
	LTE Band 43	5 MHz / 10 MHz / 15 MHz / 20 MHz
	LTE Band 48	5 MHz / 10 MHz / 15 MHz / 20 MHz
	LTE Band 66	1.4 MHz / 3 MHz / 5 MHz / 10 MHz / 15 MHz / 20 MHz
	LTE Band 71	5 MHz / 10 MHz / 15 MHz / 20 MHz
	n2_SCS 15kHz	5 MHz / 10 MHz / 15 MHz / 20 MHz / 25 MHz / 30 MHz / 40 MHz

	n5_SCS 15kHz	5 MHz / 10 MHz / 15 MHz / 20 MHz
	n7_SCS 15kHz	5 MHz / 10 MHz / 15 MHz / 20 MHz / 25 MHz / 30 MHz / 40 MHz
	n12_SCS 15kHz	5 MHz / 10 MHz / 15 MHz
	n13_SCS 15kHz	5 MHz / 10 MHz
	n14_SCS 15kHz	5 MHz / 10 MHz
	n25_SCS 15kHz	5 MHz / 10 MHz / 15 MHz / 20 MHz / 25 MHz / 30 MHz / 40 MHz
	N26_SCS 15kHz	5 MHz / 10 MHz / 15 MHz / 20 MHz
	n30_SCS 15kHz	5 MHz / 10 MHz
	n66_SCS 15kHz	5 MHz / 10 MHz / 15 MHz / 20 MHz / 25 MHz / 30 MHz / 40 MHz
	n70_SCS 15kHz	5 MHz / 10 MHz / 15 MHz
	n71_SCS 15kHz	5 MHz / 10 MHz / 15 MHz / 20 MHz
	n38_SCS 30kHz	10 MHz / 15 MHz / 20 MHz / 25 MHz / 30 MHz / 40 MHz
	n41_SCS 30kHz	10 MHz / 15 MHz / 20 MHz / 25 MHz / 30 MHz / 40 MHz / 50 MHz / 60 MHz / 70 MHz / 80 MHz / 90 MHz / 100 MHz
	n48_SCS 30kHz	10 MHz / 15 MHz / 20 MHz / 30 MHz / 40 MHz
	n77_SCS 30kHz	10 MHz / 15 MHz / 20 MHz / 25 MHz / 30 MHz / 40 MHz / 50 MHz / 60 MHz / 70 MHz / 80 MHz / 90 MHz / 100 MHz
	n78_SCS 30kHz	10 MHz / 15 MHz / 20 MHz / 25 MHz / 30 MHz / 40 MHz / 50 MHz / 60 MHz / 70 MHz / 80 MHz / 90 MHz / 100 MHz
LTE UL CA.....	LTE UL CA_2C; LTE UL CA_5B; LTE UL CA_7C; LTE UL CA_38C; LTE UL CA_41C; LTE UL CA_42C; LTE UL CA_43C; LTE UL CA_66B; LTE UL CA_66C; LTE UL CA_2A-4A; LTE UL CA_2A-5A; LTE UL CA_2A-7A; LTE UL CA_2A-12A; LTE UL CA_2A-13A; LTE UL CA_2A-30A; LTE UL CA_2A-66A; LTE UL CA_4A-5A; LTE UL CA_4A-7A; LTE UL CA_4A-12A; LTE UL CA_4A-13A; LTE UL CA_4A-30A; LTE UL CA_5A-7A; LTE UL CA_5A-30A; LTE UL CA_5A-66A; LTE UL CA_12A-30A; LTE UL CA_12A-66A; LTE UL CA_13A-66A; LTE UL CA_14A-30A;	
ENDC	DC_13A_n66A;DC_5A_n2A;DC_14A_n2A;DC_30A_n2A;DC_2A_n5A;	

	DC_30A_n5A;DC_66A_n5A;DC_2A_n12A;DC_66A_n12A;DC_2A_n66A; DC_5A_n66A;DC_12A_n66A;DC_14A_n66A;DC_30A_n66A;DC_12A_n2A; DC_66A_n2A;DC_71A_n2A;DC_12A_n41A;DC_71A_n66A;DC_2A_n71A DC_66A_n71A;DC_66A_n25A;DC_25A_n41A;DC_12A_n78A;DC_13A_n78A DC_25A_n78A;DC_12A_n77A;DC_13A_n77A;DC_14A_n77A;DC_26A_n78A DC_2A_n78A;DC_26A_n41A;DC_2A_n41A;DC_7A_n5A;DC_38A_n78A DC_7A_n71A;DC_41A_n78A;DC_5A_n7A;DC_12A_n7A;DC_66A_n7A DC_13A_n2A; DC_7A_n66A;DC_4A_n78A;DC_20A_n77A DC_5A_n78A;DC_4A_n41A;DC_66A_n38A;DC_2A_n38A;DC_12A_n38A DC_4A_n38A;DC_5A_n38A;DC_66A_n78A;DC_12A_n25A;DC_25A_n77A DC_2A_n77A;DC_71A_n78A;DC_71A_n38A;DC_13A_n7A;DC_5A_n41A DC_66A_n41A;DC_2A_n7A;DC_7A_n2A;DC_5A_n40A;DC_30A_n77A DC_41A_n77A;DC_7A_n78A; DC_66A_n28A;DC_71A_n41A DC_28A_n66A;DC_30A_n12A;DC_2A_n14A;DC_30A_n14A;DC_66A_n14A DC_2A_n30A;DC_5A_n30A;DC_12A_n30A;DC_14A_n30A;DC_66A_n30A DC_71A_n7A;DC_7A_n12A;DC_5A_n77A;DC_66A_n77A;DC_71A_n77A DC_4A_n2A;DC_7A_n25A;DC_71A_n25A;DC_5A_n25A;DC_26A_n25A DC_4A_n7A;DC_13A_n25A;DC_7A_n77A;
NR UL CA	n25A-n41A; n41A-n66A; n41A-n71A ;n7A-n78A ;n5A-n78A n66A-n78A;n7A-n77A;n2A-n77A;n5A-n77A;n66A-n77A n30A-n77A;n71A-n77A;n71A-n78A;n25A-n78A;n38A-n66A n25A-n77A;n25A-n38A;n13A-n77A; n2A-n41A
Type of Modulation	DFT-s-OFDM Pi/2 BPSK DFT-s-OFDM QPSK DFT-s-OFDM 16QAM DFT-s-OFDM 64QAM DFT-s-OFDM 256QAM CP-OFDM QPSK CP-OFDM 16QAM CP-OFDM 64QAM CP-OFDM 256QAM
Antenna Type	Dipole

1.2 Mode of Operation

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

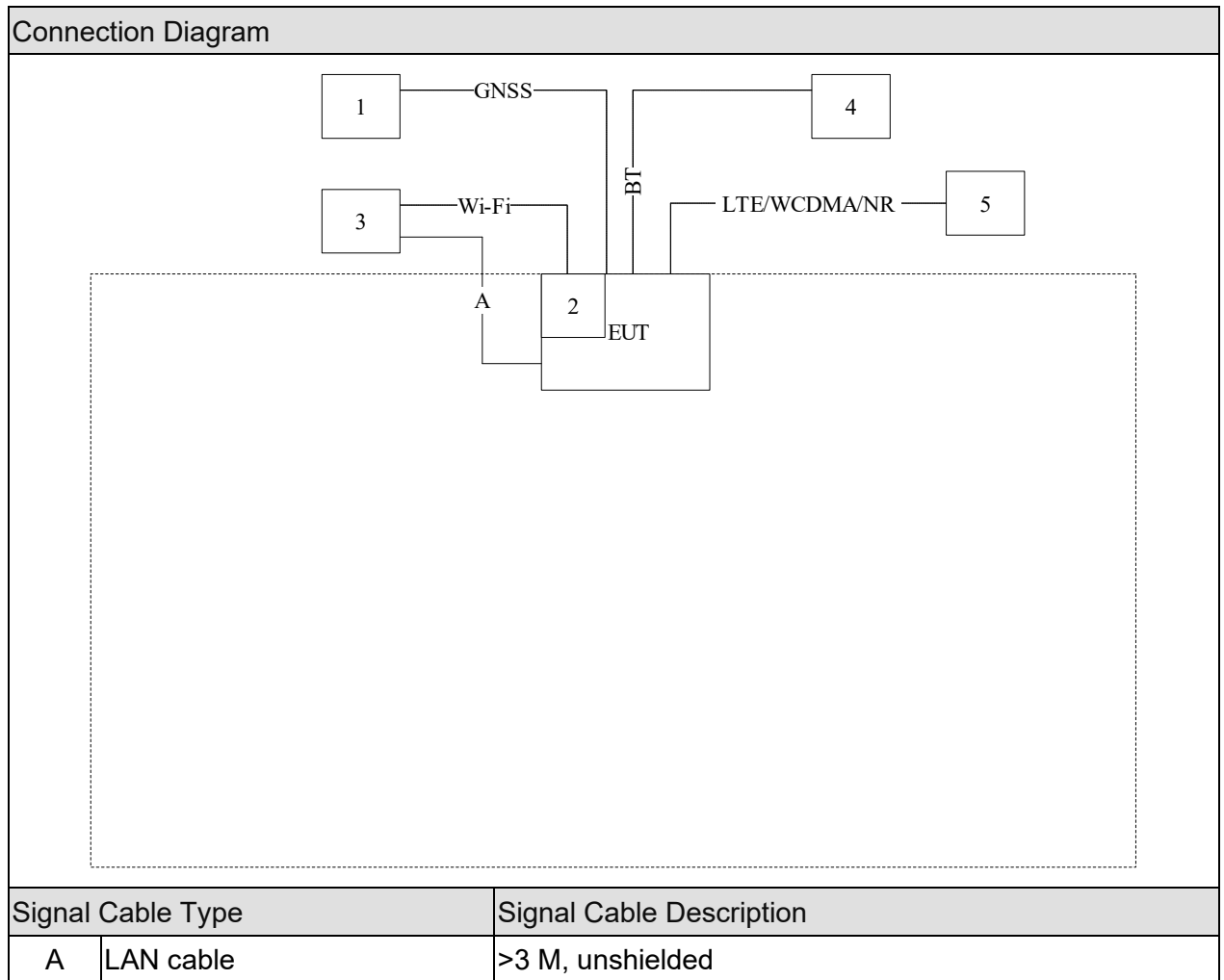
Pre Test Mode	
Emission	Mode 1: Normal mode (ADP: JYH11Z-2400600-BF / Storage : YXSC) Mode 2: Normal mode (ADP: GQ150A-2400600-E1 / Storage: YXSC)
Final Test Mode	
Emission	Mode 1: Normal mode (ADP: JYH11Z-2400600-BF / Storage : YXSC)

1.3 Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Signal Generator	R&S	SMBV100A	N/A	Non-Shielded, 1.8 m
2	SIM card	N/A	N/A	N/A	N/A
3	Notebook computer	Lenovo	T14	N/A	Power by Adaptor
4	Radio Communication Tester	R&S	CMW 270	N/A	Non-Shielded, 1.8 m
5	Radio Communication Tester	R&S	CMW 500	CN-0DJ331-71616-67R-03UN	Non-Shielded, 1.8 m

1.4 Configuration of Tested System



1.5 EUT Exercise Software

1	Set up the EUT and simulators as shown above.
2	Turn on the power of all equipment.
3	Confirm the EUT working normally.
4	Start test.

2 Technical Test

2.1 Summary of Test Result

- ☒ No deviations from the test standards
☐ Deviations from the test standards as below description:

Emission			
Performed Test Item	Normative References	Test Performed	Deviation
Conducted disturbance	FCC CFR Title 47 Part 15 Subpart B: 2024 ANSI C63.4: 2014	Yes	No
Radiated disturbance	FCC CFR Title 47 Part 15 Subpart B: 2024 ANSI C63.4: 2014	Yes	No

2.2 List of Test Equipment

Radio Signal Source						
Instrument	Manufacturer	Model No.	Serial No.	Cali. Date	Cali. Due Date	Used In
Radio Communication Tester	R&S	CMU 200	117088	2026.03.26	2027.03.25	☐
Wireless Connectivity Tester	R&S	CMW 270	102593	2026.01.24	2027.01.23	☒
Radio Communication Tester	R&S	CMW 500	170870	2026.01.24	2027.01.23	☒
Radio Communication Tester	R&S	CMW 500	158243	2026.04.26	2027.04.25	☐
UXM 5G Wireless Test Platform	Keysight	E7515B	MY58120445	2026.03.26	2027.03.25	☐
Radio Communication Analyzer	Anritsu	MT8821C	6261849019	2025.07.25	2026.07.24	☐

Conducted Emission / TR1						
Instrument	Manufacturer	Model No.	Serial No.	Cali. Date	Cali. Due Date	Used In
EMI Test Receiver	R&S	ESR7	102086	2025.11.12	2026.11.11	☒
Two-Line V-Network	R&S	ENV216	101190	2025.11.29	2026.11.28	☒
Two-Line V-Network	R&S	ENV216	101189	2026.04.26	2027.04.25	☒
Two-Line V-Network	R&S	ENV216	102281	2026.01.11	2027.01.10	☐
Two-Line V-Network	R&S	ENV216	101044	2025.09.20	2026.09.19	☒
Pulse Limiter	R&S	ESH3-Z2	102754	2025.07.25	2026.07.24	☒
Coaxial Cable	Huber+Suhner	RG 223	TR1-C1	2026.03.07	2027.03.06	☒
Temperature/Humidity Meter	RTS	RTS-1909	THM-012	2026.04.29	2027.04.28	☒
Software	Quietek	EMI_V3	V3.0.0	N/A	N/A	☒
Shielding room	Quietek	4.9m*4m*3m	TR1	2023.03.04	2028.03.03	☒

Radiated Emission / AC3						
Instrument	Manufacturer	Model No.	Serial No.	Cali. Date	Cali. Due Date	Used In
EMI Test Receiver	R&S	ESR7	101668	2025.12.07	2026.12.06	☒
Bilog Antenna	Teseq GmbH	CBL6112B	2931	2025.05.23	2026.05.22	☐
Bilog Antenna	Teseq GmbH	CBL6112D	27613	2025.08.26	2026.08.25	☒

Radiated Emission / AC3

Instrument	Manufacturer	Model No.	Serial No.	Cali. Date	Cali. Due Date	Used In
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC3-C	2026.01.11	2027.01.10	☒
Temperature/Humidity Meter	RTS	RTS-1909	THM-022	2026.04.29	2027.04.28	☒
Software	Quietek	EMI_V3	V3.0.0	N/A	N/A	☒
Anechoic chamber	Quietek	9m*6m*6m	AC3	2022.01.02	2027.01.01	☒

Radiated Emission / AC5

Instrument	Manufacturer	Model No.	Serial No.	Cali. Date	Cali. Due Date	Used In
EMI Test Receiver	R&S	ESR26	101880	2026.01.24	2027.01.23	☒
Pre-Amplifier	XH	LNA1845	LNA23040284	2026.03.26	2027.03.25	☒
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2025.08.14	2026.08.13	☒
Filter Switch Box	MVE	MSW-F196	C070001S	2026.01.24	2027.01.23	☒
Coaxial Cable	Lair Microwave	LA800-NMNBW M-6.5M	502201001001	2026.01.11	2027.01.10	☒
Coaxial Cable	Lair Microwave	LA800-SWMS WM-0.6M	502201005001	2026.01.11	2027.01.10	☒
Coaxial Cable	Lair Microwave	LA800-NMNBW M-3M	502201002001	2026.01.11	2027.01.10	☒
Coaxial Cable	Lair Microwave	LA800-NMNBW M-1.2M	202201003001	2026.01.11	2027.01.10	☒
MXA Signal Analyzer	Keysight	N9020B	MY60112218	2026.01.18	2027.01.17	☒
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2026.03.01	2027.02.28	☒
Amplifier	Tonscend Technology	TAP01840048	806JSAP0429 06251036	2026.01.24	2027.01.23	☒
Cable	Rosenberger	LA1-C390-200 0	0001	2025.05.23	2026.05.22	☒
Cable	Rosenberger	LA1-C390-300 0	0001	2025.05.23	2026.05.22	☒
Temperature/Humidity Meter	RTS	RTS-1909	THM-024	2025.04.29	2026.04.28	☒
Software	Tonscend	JS32-RE	5.0.0	N/A	N/A	☒
Anechoic chamber	Quietek	9m*6m*6m	AC5	2024.04.21	2028.04.20	☒

2.3 Test Environment

Tests have been performed in a controlled laboratory environment, where the environmental conditions are maintained within the applicable ranges.

Performed Item	Items	Actual
Conducted Emission	Temperature (°C)	23
	Humidity (%RH)	40
	Barometric pressure (mbar)	1012
Radiated Emission (30~1000 MHz)	Temperature (°C)	21
	Humidity (%RH)	39
	Barometric pressure (mbar)	1010
Radiated Emission (1~40 GHz)	Temperature (°C)	23
	Humidity (%RH)	48
	Barometric pressure (mbar)	1016

2.4 Measurement Uncertainty

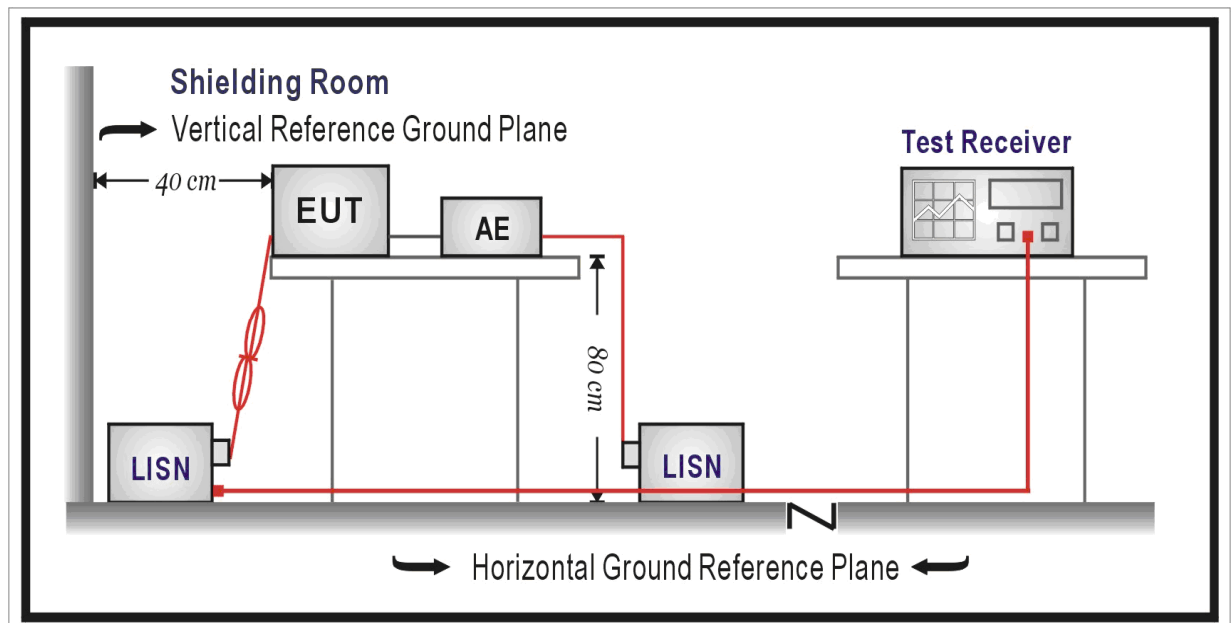
Conducted emissions – AC mains power ports / TR1
The maximum measurement uncertainty is evaluated as: Mains: 150kHz~30MHz: 2.6 dB
Radiated emission / AC3
The maximum measurement uncertainty is evaluated as: Horizontal: 30MHz~200MHz: 4.8 dB 200MHz~1000MHz: 4.2 dB Vertical: 30MHz~200MHz: 5.0 dB 200MHz~1000MHz: 4.4 dB
Radiated emission / AC5
The maximum measurement uncertainty is evaluated as: Horizontal: 1 GHz~18 GHz: 5.2 dB Vertical: 1 GHz~18 GHz: 5.4 dB Horizontal: 18 GHz~40 GHz: 4.7 dB Vertical: 18 GHz~40 GHz: 4.6 dB

3 Conducted disturbance

3.1 Test Specification

According to Standard: FCC Part 15.107: 2024, ANSI C63.4:2014

3.2 Test Setup



3.3 Limit

☒ Limits for conducted disturbance of class A		
Frequency range MHz	Limits dB(μV)	
	Quasi-peak	Average
0.15 to 0.50	79	66
0.50 to 30	73	60
NOTE: The lower limit shall apply at the transition frequency.		

☐ Limits for conducted disturbance of class B		
Frequency range MHz	Limits dB(μV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50
NOTE 1: The lower limit shall apply at the transition frequencies.		
NOTE 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.		

3.4 Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50Ω / 50μH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50Ω / 50μH coupling impedance with 50Ω termination. (Please refer to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed on conducted measurement.

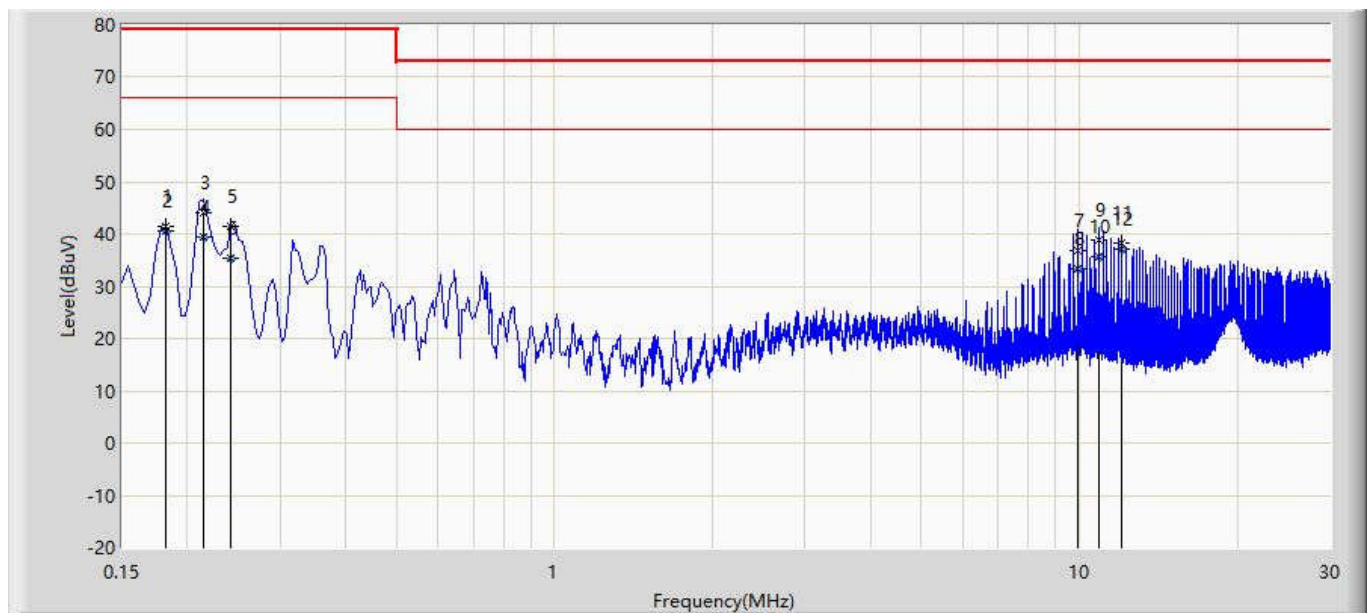
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

3.5 Deviation from Test Standard

No deviation.

3.6 Test Result

Engineer: Zhaogeng Tian	
Site: TR1	Time: 2026/05/04
Limit: FCC_Part 15.107_CE_AC Power_Class A	Margin: 0
Probe: ENV216_101190(0.009-30MHz)-Suz-0238	Polarity: Line
EUT: Nokia Industrial 5G fieldrouter FRRO505c	Power: 120 Vac , 60 Hz
Note: Mode 1	



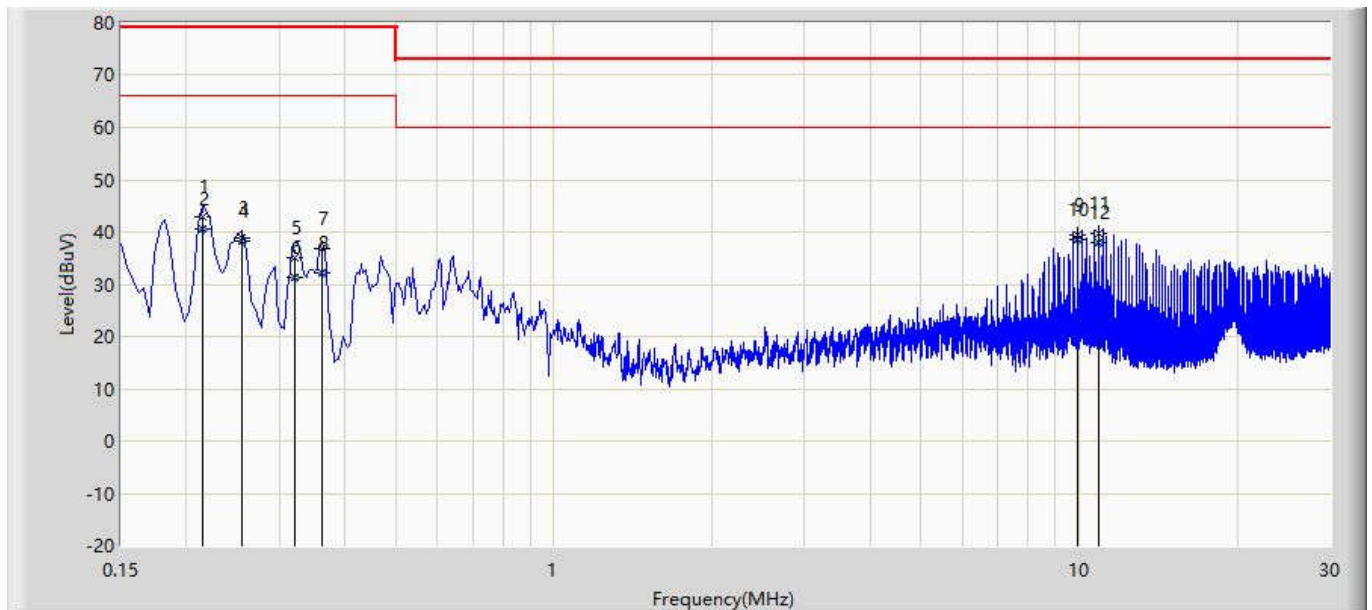
No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.182	41.325	21.732	-37.675	79.000	9.760	9.833	0.000	QP
2		0.182	40.690	21.098	-25.310	66.000	9.760	9.833	0.000	AV
3		0.214	43.917	24.279	-35.083	79.000	9.805	9.834	0.000	QP
4		0.214	39.427	19.788	-26.573	66.000	9.805	9.834	0.000	AV
5		0.242	41.465	21.820	-37.535	79.000	9.810	9.835	0.000	QP
6		0.242	35.442	15.798	-30.558	66.000	9.810	9.835	0.000	AV
7		9.918	36.815	16.820	-36.185	73.000	9.936	10.058	0.000	QP
8		9.918	33.272	13.277	-26.728	60.000	9.936	10.058	0.000	AV
9		10.890	38.749	18.738	-34.251	73.000	9.938	10.073	0.000	QP
10		10.890	35.723	15.712	-24.277	60.000	9.938	10.073	0.000	AV
11		12.054	38.181	18.157	-34.819	73.000	9.936	10.089	0.000	QP
12	*	12.054	37.032	17.008	-22.968	60.000	9.936	10.089	0.000	AV

Note:

1. " * ", means this data is the worst emission level.

2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Engineer: Zhaogeng Tian	
Site: TR1	Time: 2026/05/04
Limit: FCC_Part 15.107_CE_AC Power_Class A	Margin: 0
Probe: ENV216_101190(0.009-30MHz)-Suz-0238	Polarity: Neutral
EUT: Nokia Industrial 5G fieldrouter FRRO505c	Power: 120 Vac , 60 Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Probe (dB)	Cable (dB)	Amp (dB)	Type
1		0.214	42.803	23.354	-36.197	79.000	9.616	9.834	0.000	QP
2		0.214	40.541	21.091	-25.459	66.000	9.616	9.834	0.000	AV
3		0.254	38.852	19.396	-40.148	79.000	9.621	9.835	0.000	QP
4		0.254	38.140	18.684	-27.860	66.000	9.621	9.835	0.000	AV
5		0.322	35.001	15.528	-43.999	79.000	9.635	9.837	0.000	QP
6		0.322	31.311	11.839	-34.689	66.000	9.635	9.837	0.000	AV
7		0.362	36.773	17.289	-42.227	79.000	9.645	9.839	0.000	QP
8		0.362	32.097	12.613	-33.903	66.000	9.645	9.839	0.000	AV
9		9.914	39.380	19.383	-33.620	73.000	9.939	10.058	0.000	QP
10	*	9.914	38.423	18.426	-21.577	60.000	9.939	10.058	0.000	AV
11		10.886	39.770	19.774	-33.230	73.000	9.924	10.073	0.000	QP
12		10.886	38.113	18.116	-21.887	60.000	9.924	10.073	0.000	AV

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

3.7 Test Photograph

Test Mode: Mode 1

Description: Front View of Conducted disturbance Test Setup



Test Mode: Mode 1

Description: Rear View of Conducted disturbance Test Setup



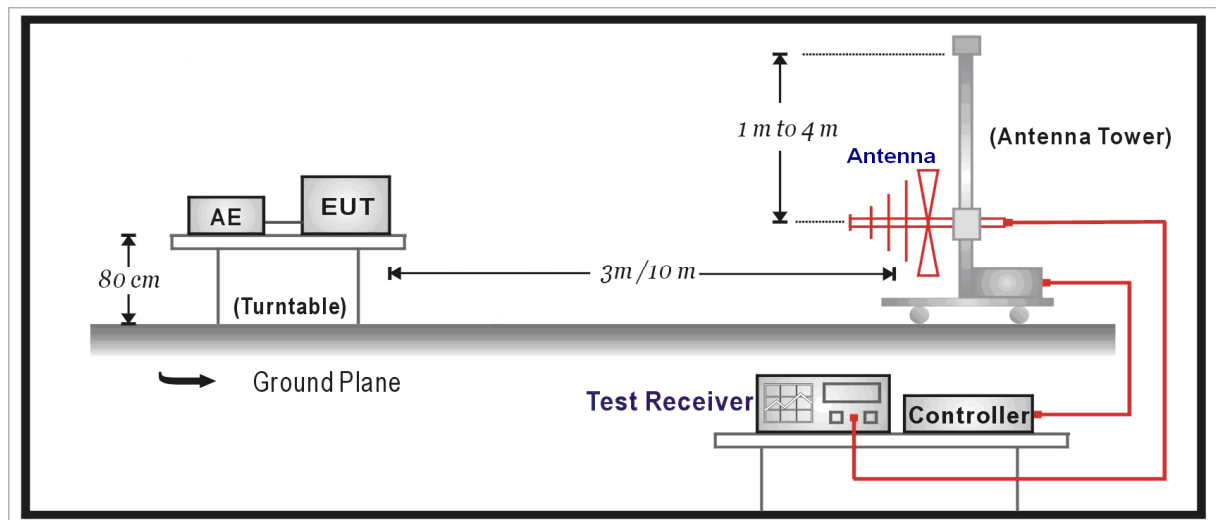
4 Radiated disturbance

4.1 Test Specification

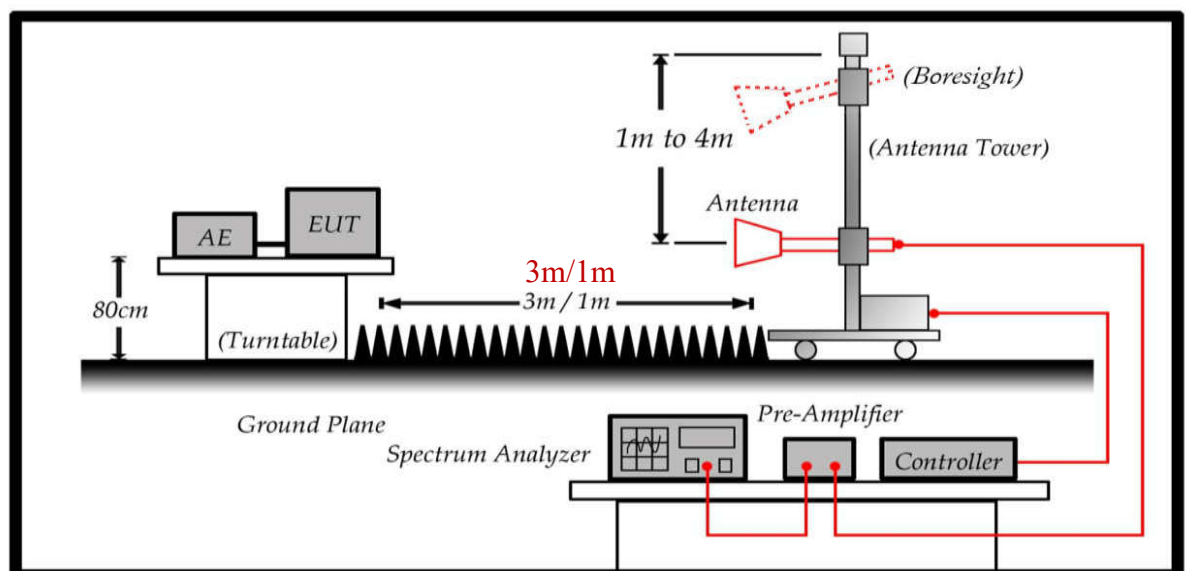
According to Standard: FCC Part 15.109: 2024, ANSI C63.4:2014

4.2 Test Setup

Below 1GHz Test Setup



Above 1GHz Test Setup



4.3 Limit

☒ Limits for Radiated disturbance of CLASS A

Measuring Distance	10m	3m
Frequency of Emission (MHz)	Field Strength(QP) dB(μ V/m)	Field Strength(QP) dB(μ V/m)
30 to 88	39	49
88 to 216	43.5	53.5
216 to 960	46.4	56.4
960 to 1000	49.5	59.5

NOTE: The lower limit shall apply at the transition frequency.

Measuring Distance	10m		3m	
Frequency of Emission (MHz)	Field Strength(PK) dB(μ V/m)	Field Strength(AV) dB(μ V/m)	Field Strength(PK) dB(μ V/m)	Field Strength(AV) dB(μ V/m)
1000 to 18000	70	50	80	60
18000 to 40000	70	50	80	60

☐ Limits for Radiated disturbance of CLASS B

Measuring Distance	10m	3m
Frequency of Emission (MHz)	Field Strength(QP) dB(μ V/m)	Field Strength(QP) dB(μ V/m)
30 to 88	30	40
88 to 216	33.5	43.5
216 to 960	36	46
960 to 1000	44	54

NOTE: The lower limit shall apply at the transition frequency.

Measuring Distance	10m		3m	
Frequency of Emission (MHz)	Field Strength(PK) dB(μ V/m)	Field Strength(AV) dB(μ V/m)	Field Strength(PK) dB(μ V/m)	Field Strength(AV) dB(μ V/m)
1000 to 18000	64	44	74	54
18000 to 40000	64	44	74	54

4.4 Test Procedure

The EUT and its simulators are placed on a turntable which is 0.8 meter above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. The antenna (boresight antenna tower) can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be changed during radiated measurement.

The bandwidth below 1GHz setting on the receiver is 120kHz and above 1GHz is 1MHz.

For an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1000
108 to 500	2000
500 to 1000	5000
Above 1000	5 th harmonic of the highest frequency or 40GHz, whichever is lower

On any frequency or frequencies below or equal to 1000MHz, the radiated limits shown are based on measuring equipment employing a quasi-peak detector function and above 1000MHz, the radiated limits shown are based measuring equipment employing an average detector function.

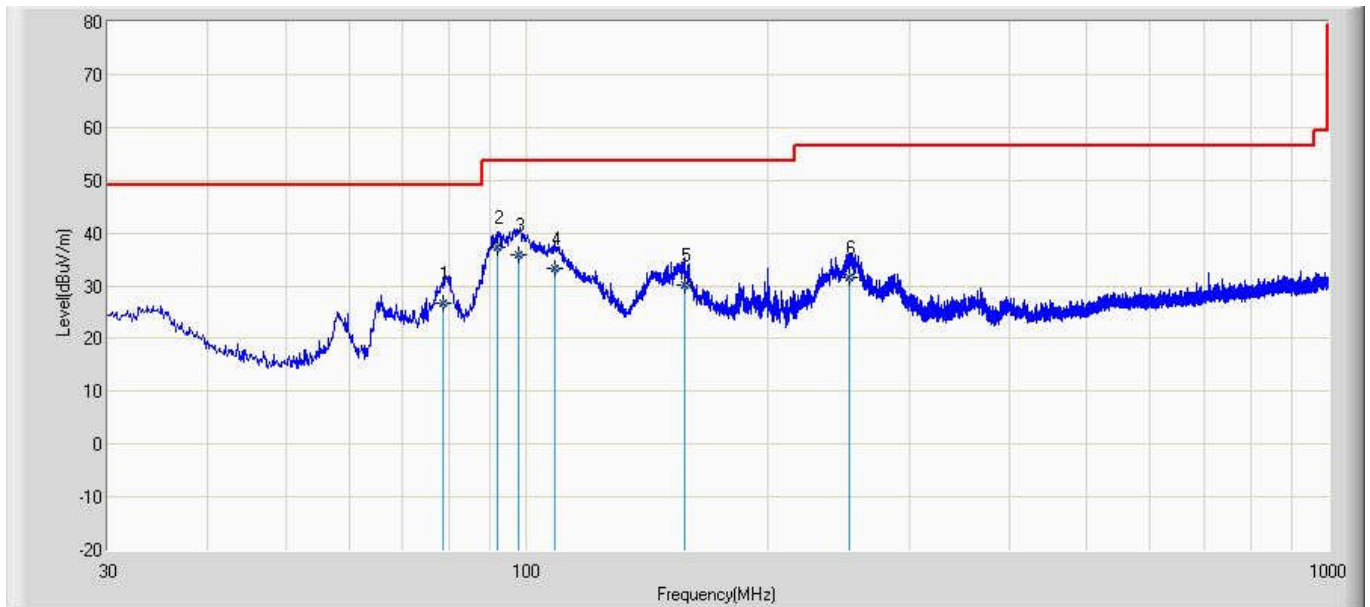
When average radiated emission measurement included emission measurement above 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit.

4.5 Deviation from Test Standard

No deviation.

4.6 Test Result

Engineer: Levi Wang	
Site: AC3	Time: 2026/05/04
Limit: FCC_Part15.109_RE(3m)_ClassA	Margin: 0
Probe: SuZ-0011(30-1000MHz)	Polarity: Horizontal
EUT: Nokia Industrial 5G fieldrouter FRRO505c	Power: 120 Vac, 60 Hz
Note: Mode 1	

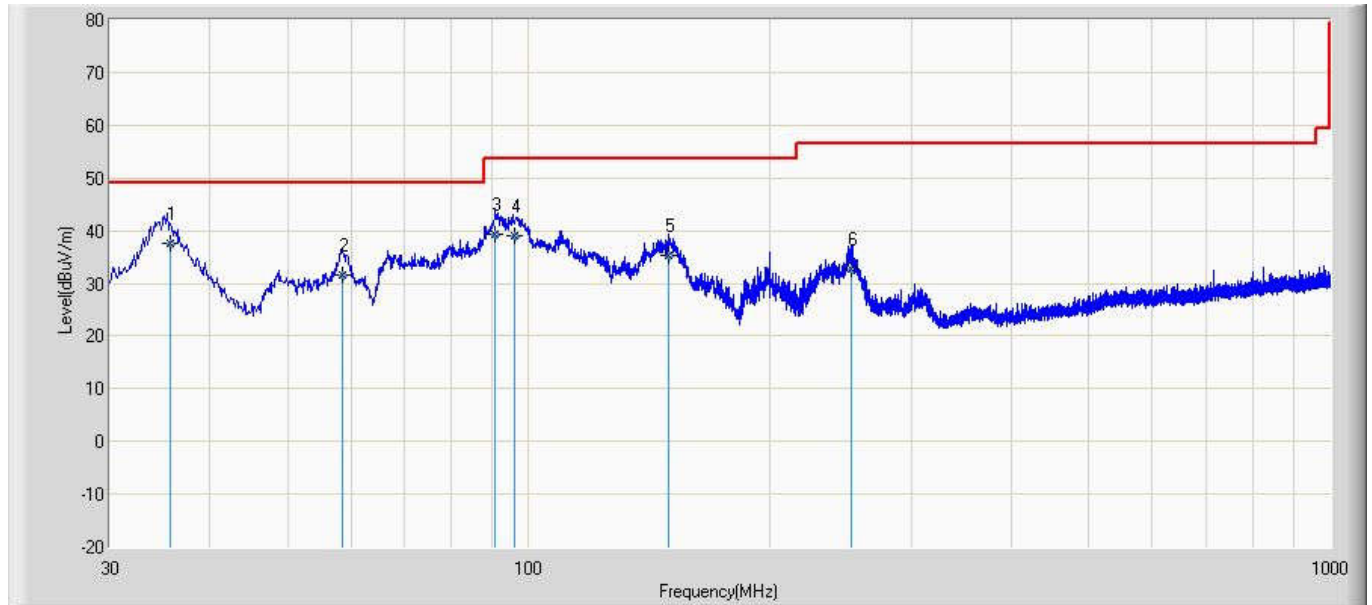


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		78.632	26.755	12.500	-22.245	49.000	7.160	7.095	0.000	117	344	QP
2	*	91.856	37.212	20.200	-16.288	53.500	9.683	7.329	0.000	333	194	QP
3		97.857	35.812	17.600	-17.688	53.500	10.824	7.389	0.000	399	283	QP
4		108.362	33.298	13.900	-20.202	53.500	11.979	7.419	0.000	247	85	QP
5		157.453	30.243	12.600	-23.257	53.500	10.170	7.473	0.000	311	174	QP
6		252.632	31.585	11.400	-24.815	56.400	12.528	7.657	0.000	277	226	QP

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Engineer: Levi Wang	
Site: AC3	Time: 2026/05/04
Limit: FCC_Part15.109_RE(3m)_ClassA	Margin: 0
Probe: SuZ-0011(30-1000MHz)	Polarity: Vertical
EUT: Nokia Industrial 5G fieldrouter FRRO505c	Power: 120 Vac, 60 Hz
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1	*	35.633	37.478	15.300	-11.522	49.000	15.794	6.384	0.000	379	275	QP
2		58.523	31.607	18.300	-17.393	49.000	6.808	6.498	0.000	211	72	QP
3		90.856	39.190	22.400	-14.310	53.500	9.471	7.318	0.000	232	123	QP
4		95.857	39.001	21.140	-14.499	53.500	10.492	7.369	0.000	339	139	QP
5		149.632	35.381	17.500	-18.119	53.500	10.417	7.464	0.000	230	33	QP
6		252.632	32.685	12.500	-23.715	56.400	12.528	7.657	0.000	260	184	QP

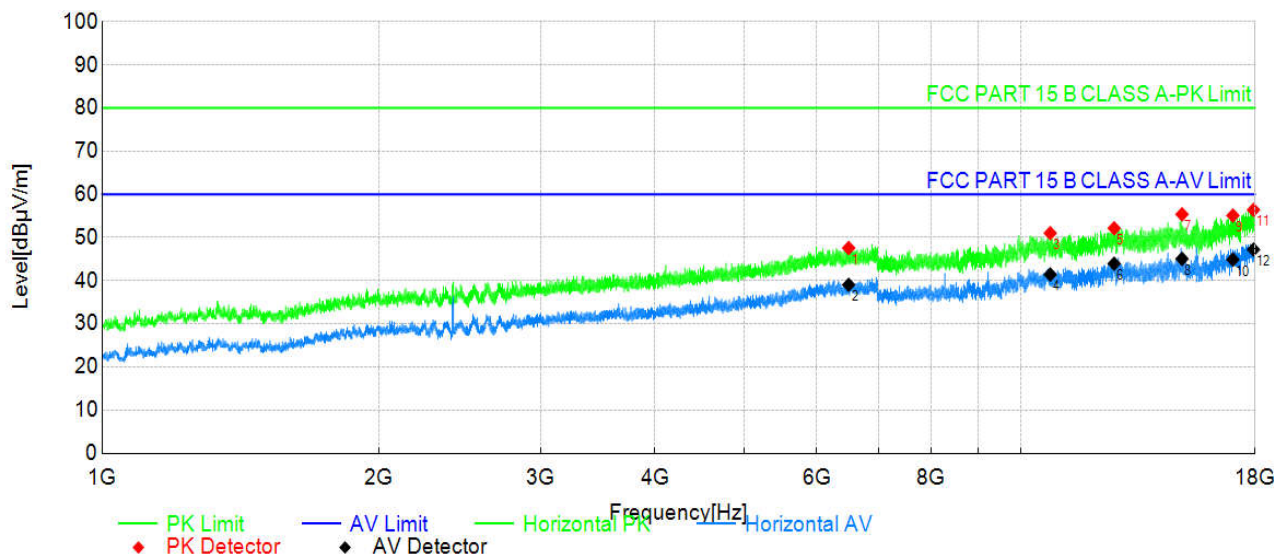
Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Project Information

Test Time:	2026-04-28		
Customer:	Nokia of America Corp	Site:	AC5
EUT:	Nokia Industrial 5G fieldrouter FRRO505c	Engineer:	Jim Fu
Margin:	0	Power:	120 Vac, 60 Hz
Environment:	Temperature: 23 °C; Humidity: 48 %RH; Barometric Pressure: 1016 mbar		
Remark:	Mode 1		

Test Graph



Final Data List

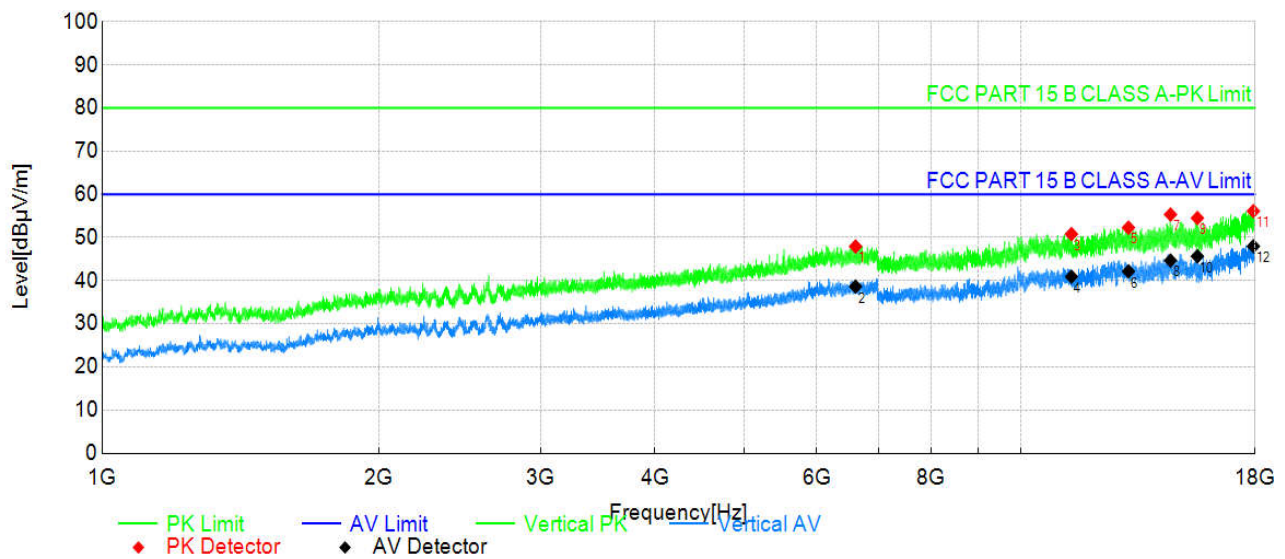
NO.	Freq. [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Over [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	6499.7742	46.73	47.55	0.82	80.00	-32.45	172	255	PK	Horizontal
2	6499.7742	38.19	39.01	0.82	60.00	-20.99	172	255	AV	Horizontal
3	10775.0000	45.22	51.00	5.78	80.00	-29	246	339	PK	Horizontal
4	10775.0000	35.63	41.41	5.78	60.00	-18.59	246	339	AV	Horizontal
5	12647.7419	44.42	52.12	7.70	80.00	-27.88	266	134	PK	Horizontal
6	12647.7419	36.21	43.91	7.70	60.00	-16.09	266	134	AV	Horizontal
7	14993.1935	47.41	55.35	7.94	80.00	-24.65	142	85	PK	Horizontal
8	14993.1935	37.09	45.03	7.94	60.00	-14.97	142	85	AV	Horizontal
9	17033.7419	46.23	55.08	8.85	80.00	-24.92	261	248	PK	Horizontal
10	17033.7419	36.02	44.87	8.85	60.00	-15.13	261	248	AV	Horizontal
11	17933.6452	45.98	56.38	10.40	80.00	-23.62	261	59	PK	Horizontal
12	17933.6452	36.79	47.19	10.40	60.00	-12.81	261	59	AV	Horizontal

Note: (1) Level= Reading+ Factor (2) Over= Level- Limit

Project Information

Test Time:	2026-04-28		
Customer:	Nokia of America Corp	Site:	AC5
EUT:	Nokia Industrial 5G fieldrouter FRRO505c	Engineer:	Jim Fu
Margin:	0	Power:	120 Vac, 60 Hz
Environment:	Temperature: 23 °C; Humidity: 48 %RH; Barometric Pressure: 1016 mbar		
Remark:	Mode 1		

Test Graph



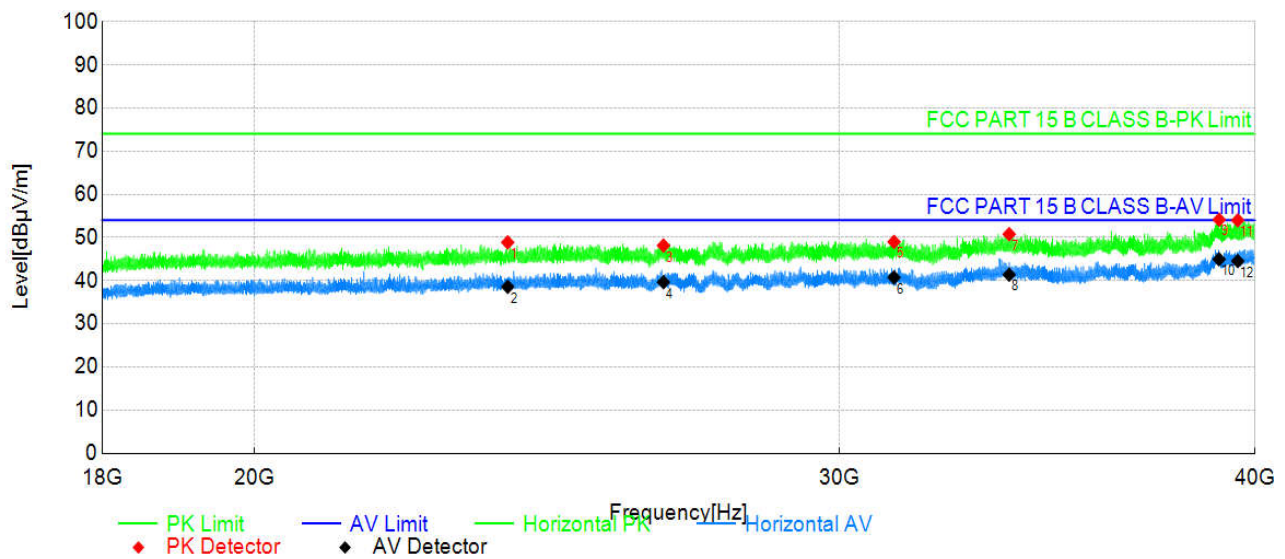
Final Data List

NO.	Freq. [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Over [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	6613.2903	47.15	47.90	0.75	80.00	-32.1	136	306	PK	Vertical
2	6613.2903	37.88	38.63	0.75	60.00	-21.37	136	306	AV	Vertical
3	11362.8710	44.76	50.77	6.01	80.00	-29.23	121	39	PK	Vertical
4	11362.8710	34.90	40.91	6.01	60.00	-19.09	121	39	AV	Vertical
5	13109.4839	44.91	52.27	7.36	80.00	-27.73	112	226	PK	Vertical
6	13109.4839	34.78	42.14	7.36	60.00	-17.86	112	226	AV	Vertical
7	14567.0968	48.02	55.31	7.29	80.00	-24.69	127	323	PK	Vertical
8	14567.0968	37.35	44.64	7.29	60.00	-15.36	127	323	AV	Vertical
9	15582.7097	46.19	54.49	8.30	80.00	-25.51	307	259	PK	Vertical
10	15582.7097	37.33	45.63	8.30	60.00	-14.37	307	259	AV	Vertical
11	17929.2581	45.98	56.10	10.12	80.00	-23.9	152	29	PK	Vertical
12	17929.2581	37.84	47.96	10.12	60.00	-12.04	152	29	AV	Vertical

Note: (1) Level= Reading+ Factor (2) Over= Level- Limit

Project Information			
Test Time:	2026-04-28		
Customer:	Nokia of America Corp	Site:	AC5
EUT:	Nokia Industrial 5G fieldrouter FRRO505c	Engineer:	Jim Fu
Margin:	0	Power:	120 Vac, 60 Hz
Environment:	Temperature: 23 °C; Humidity: 48 %RH; Barometric Pressure: 1016 mbar		
Remark:	Mode 1		

Test Graph



Final Data List

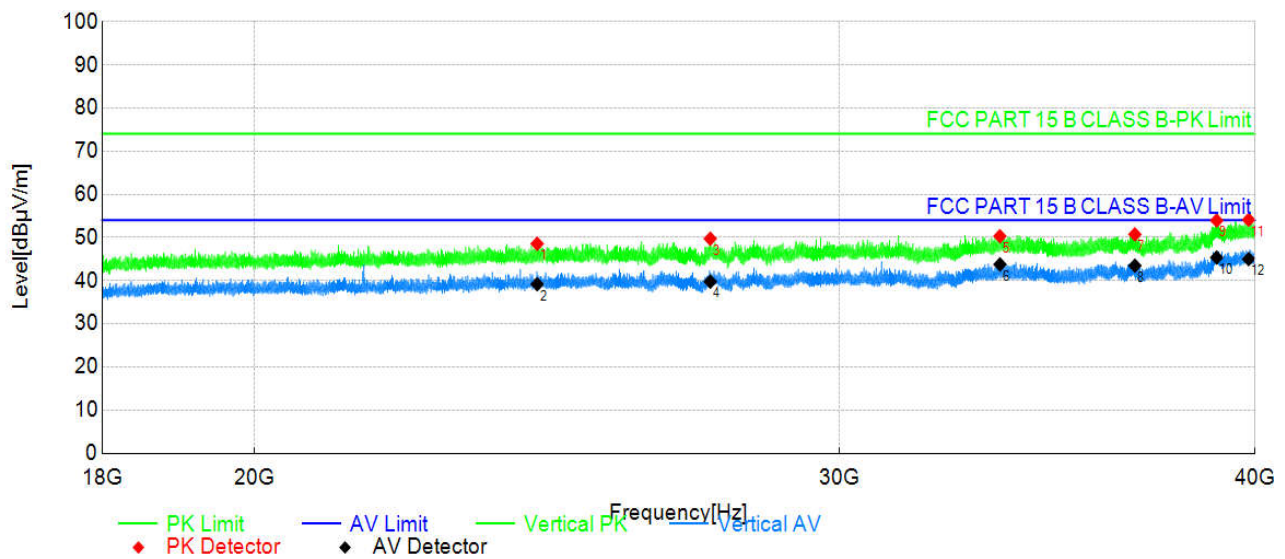
NO.	Freq. [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Over [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	23839.2258	53.31	48.86	-4.45	74.00	-25.14	170	172	PK	Horizontal
2	23839.2258	43.01	38.56	-4.45	54.00	-15.44	170	172	AV	Horizontal
3	26554.4516	51.83	48.13	-3.70	74.00	-25.87	148	264	PK	Horizontal
4	26554.4516	43.33	39.63	-3.70	54.00	-14.37	148	264	AV	Horizontal
5	31152.4516	52.29	48.98	-3.31	74.00	-25.02	248	292	PK	Horizontal
6	31152.4516	44.04	40.73	-3.31	54.00	-13.27	248	292	AV	Horizontal
7	33739.2258	52.56	50.75	-1.81	74.00	-23.25	136	352	PK	Horizontal
8	33739.2258	43.18	41.37	-1.81	54.00	-12.63	136	352	AV	Horizontal
9	39019.9355	55.96	54.12	-1.84	74.00	-19.88	134	309	PK	Horizontal
10	39019.9355	46.78	44.94	-1.84	54.00	-9.06	134	309	AV	Horizontal
11	39526.6452	55.97	53.97	-2.00	74.00	-20.03	249	319	PK	Horizontal
12	39526.6452	46.52	44.52	-2.00	54.00	-9.48	249	319	AV	Horizontal

Note: (1) Level= Reading+ Factor (2) Over= Level- Limit

Project Information

Test Time:	2026-04-28		
Customer:	Nokia of America Corp	Site:	AC5
EUT:	Nokia Industrial 5G fieldrouter FRRO505c	Engineer:	Jim Fu
Margin:	0	Power:	120 Vac, 60 Hz
Environment:	Temperature: 23 °C; Humidity: 48 %RH; Barometric Pressure: 1016 mbar		
Remark:	Mode 1		

Test Graph



Final Data List

NO.	Freq. [MHz]	Reading [dBμV]	Level [dBμV/m]	Factor [dB/m]	Limit [dBμV/m]	Over [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	24330.3226	52.9	48.53	-4.37	74.00	-25.47	114	21	PK	Vertical
2	24330.3226	43.53	39.16	-4.37	54.00	-14.84	114	21	AV	Vertical
3	27428.7742	53.95	49.71	-4.24	74.00	-24.29	272	0	PK	Vertical
4	27428.7742	44.00	39.76	-4.24	54.00	-14.24	272	0	AV	Vertical
5	33524.1935	52.21	50.29	-1.92	74.00	-23.71	145	110	PK	Vertical
6	33524.1935	45.66	43.74	-1.92	54.00	-10.26	145	110	AV	Vertical
7	36808.5806	52.84	50.72	-2.12	74.00	-23.28	172	38	PK	Vertical
8	36808.5806	45.57	43.45	-2.12	54.00	-10.55	172	38	AV	Vertical
9	38954.6452	55.88	53.92	-1.96	74.00	-20.08	203	114	PK	Vertical
10	38954.6452	47.30	45.34	-1.96	54.00	-8.66	203	114	AV	Vertical
11	39827.5484	55.93	54.11	-1.82	74.00	-19.89	147	352	PK	Vertical
12	39827.5484	46.80	44.98	-1.82	54.00	-9.02	147	352	AV	Vertical

Note: (1) Level= Reading+ Factor (2) Over= Level- Limit

4.7 Test Photograph

Test Mode: Mode 1

Description: Front View of Radiated Disturbance Test Setup (Below 1 GHz)



Test Mode: Mode 1

Description: Rear View of Radiated Disturbance Test Setup (Below 1 GHz)



Test Mode: Mode 1

Description: Front View of Radiated Disturbance Test Setup (1-18 GHz)



Test Mode: Mode 1

Description: Rear View of Radiated Disturbance Test Setup (1-18 GHz)



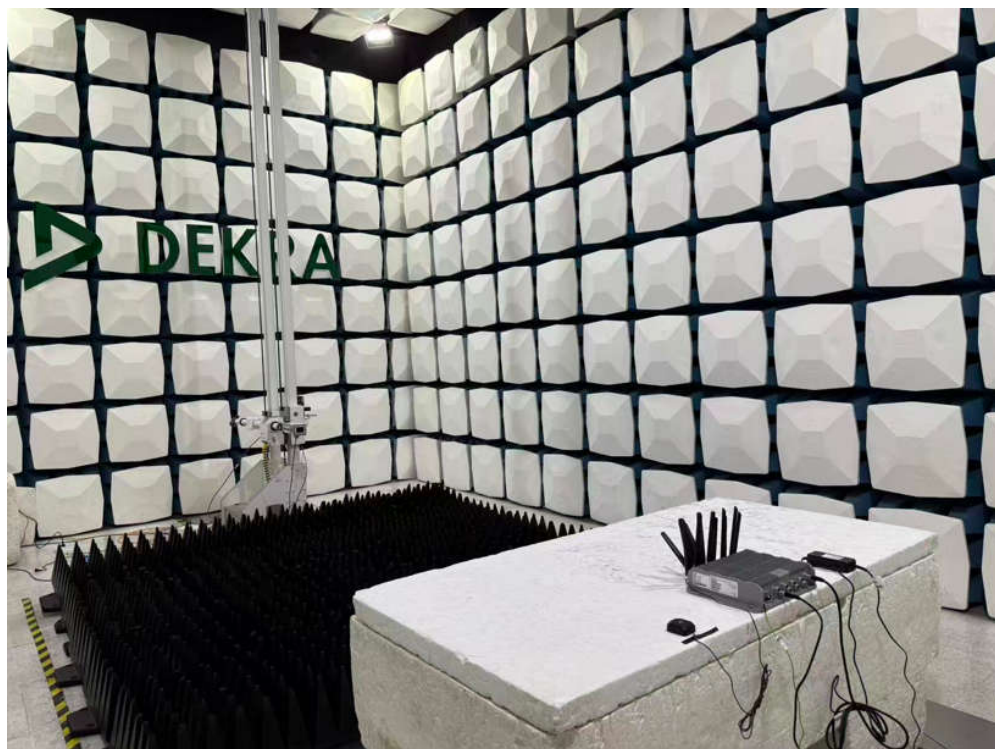
Test Mode: Mode 1

Description: Rear View of Radiated Disturbance Test Setup (18-40 GHz)



Test Mode: Mode 1

Description: Rear View of Radiated Disturbance Test Setup (18-40 GHz)



5 Attachment

EUT Photograph

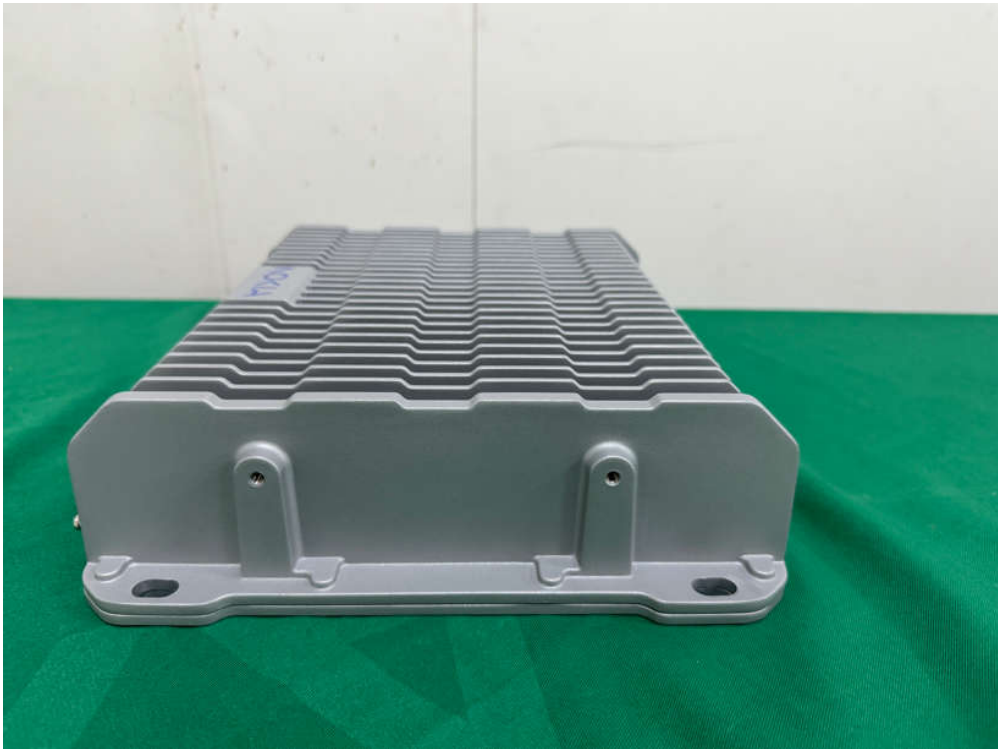
(1) EUT Photo



(2) EUT Photo



(3) EUT Photo



(4) EUT Photo



(5) EUT Photo



(6) EUT Photo



(7) EUT Photo



(8) EUT Photo



(9) EUT Photo



_____ The End _____