MPE TEST REPORT

Applicant	NOKIA Shanghai Bell CO., Ltd.
FCC ID	2ADZRXS2426XA
Product	ONT
Brand	NOKIA
Model	XS-2426X-A
Report No.	R2112A1145-M1
Issue Date	April 2, 2022

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC 47 CFR Part 1 1.1310.** The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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1 Test Laboratory

1.1 Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA technology (shanghai) co., Ltd.**The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein .Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

1.3 Testing Location

Company:	TA Technology (Shanghai) Co., Ltd.
Address:	No.145, Jintang Rd, Tangzhen Industry Park, Pudong Shanghai, China
City:	Shanghai
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1.4 Laboratory Environment

Temperature	Min. = 18°C, Max. = 25 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

2 Description of Equipment under Test

Client Information

Applicant	Nokia ShangHai Bell Co., Ltd.
Applicant address	No. 388, Ningqiao Rd. Pilot Free Trade Zone Shanghai 201206 P.R.China
Manufacturer	Nokia ShangHai Bell Co., Ltd.
Manufacturer address	No. 388, Ningqiao Rd. Pilot Free Trade Zone Shanghai 201206 P.R.China

General Technologies

Model	XS-2426X-A
SN	ALCL00861234
Hardware Version	PEM2.0
Software Version	3FE49864T48612
Date of Testing:	January 21, 2022~ March 17, 2022
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant. 2. All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.	

Information of Configuration:

No.	Name	Model/Code No.	Edition	Serial No. or Quantity
1	EMA-XS-2426X-A	3FE 49691 AAAA	PEM2.0	PEM 2.0
2	Power adapter	HONOR: ADS-40FKJ-12N 12036EPCU	A/0	1PCS
3	Power adapter	FUHUA: UES36WU-120300SPA	A/0	1PCS
4	UPS	Cyber Power: DTC36U12V3-G	A/0	1PCS
5	UPS	PSI: PS36L-P7 and PS36L-EX-2	A/0	1PCS

ONT Mnemonic	Kit Code	EMA Code	Part Description	Power Adapter/UPS	
XS-2426X-A	3FE496 91AA	3FE 49691 AAAA	Wi-Fi GPON RGW, 2xPOTS, 3xGE, 1x10GE, 1x USB, WiFi-6 4x4 + 4x4, Nokia logo	ONT only	ONT only
XS-2426X-A	3FE496 90AA	3FE 49691 AAAA	Wi-Fi GPON RGW, 2xPOTS, 3xGE, 1x10GE, 1x USB, WiFi-6	HONOR: ADS-40FKJ-12N 12036EPCU	FUHUA: UES36WU-12030 0SPA

			4x4 + 4x4, Kit with US plug PS		
XS-2426X-A	3FE496 90AA	3FE 49691 AAAA	Wi-Fi GPON RGW, 2xPOTS, 3xGE, 1x10GE, 1x USB, WiFi-6 4x4 + 4x4, Kit with US plug PS	Cyber Power: DTC36U12V3-G	PSI: PS36L-P7 and PS36L-EX-2
XS-2426X-A	3FE496 90AB	3FE 49691 AAAA	Wi-Fi GPON RGW, 2xPOTS, 3xGE, 1x10GE, 1x USB, WiFi-6 4x4 + 4x4, Canada, US plug	HONOR: ADS-40FKJ-12N 12036EPCU	FUHUA: UES36WU-12030 0SPA
XS-2426X-A	3FE496 90AB	3FE 49691 AAAA	Wi-Fi GPON RGW, 2xPOTS, 3xGE, 1x10GE, 1x USB, WiFi-6 4x4 + 4x4, Canada, US plug	Cyber Power: DTC36U12V3-G	PSI: PS36L-P7 and PS36L-EX-2

NOTE: For KIT code 3FE49229AAAA, UPS equipment customers buy their own.

Auxiliary equipment details

No.	Name	Brand name	Model	ASB code	Valid Until
1	Test Center	Spirent	C1	DE48D0	No Cal. Required
2	OLT	Nokia	7360 ISAM FX-4	7661MC4L3KW965	No Cal. Required
3	PC	DELL	N/A	-	No Cal. Required

Information of Ports

No.	Port name	Number	Shielded or unshielded	Cable type (optic, twisted pair, etc.)	Max. Cable length
1	AC port	1	Unshielded	N/A	N/A
2	POTS	2	Unshielded	Twisted pair	2M
3	GE	3	Unshielded	CAT-5E or above	1.5M
4	10GE	1	shielded	CAT-7 or above	1.5M
5	USB	1	Unshielded	N/A	N/A

3 Maximum Tune up and antenna Gain

The numeric gain (G) of the antenna with a gain specified in dB is determined by
Numeric gain (G)=10^(antenna gain/10)

Band	Maximum Tune up		Antenna Gain (dBi)	Numeric gain
	(dBm)	(mW)		
Wi-Fi 2.4G	29.98	995.405	3.50	2.239
Wi-Fi 5G	29.98	995.405	3.60	2.291

4 Test Result

According to section 1.1310 of FCC 47 CFR Part 1, limits for maximum permissible exposure (MPE) are as following

TABLE 1 – LIMITS FOR MAXIMUN PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm2)	Averaging Time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500	.....	.....	f/300	6
1500-100,000	.....	.....	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500	.....	.....	f/1500	30
1500-100,000	.....	.....	1.0	30

f = frequency in MHz
* = Plane-wave equivalent power density

Note1. Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational / controlled limits apply provided he or she is made aware of the potential for exposure.

Note2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

The maximum permissible exposure for 1500~100,000MHz is 1.0.So

Band	The maximum permissible exposure (mW/cm^2)
Wi-Fi 2.4GHz	1.000
Wi-Fi 5GHz	1.000

RF Exposure Calculations:

The following information provides the minimum separation distance for the highest gain antenna provided. This calculation is based on the conducted power, considering maximum power and antenna gain. The formula shown in KDB 447498 D01 is used in the calculation.

Equation from KDB 447498 D01 General RF Exposure Guidance v06 (10/23/2015) is:

$$S= PG / 4\pi R^2$$

Where: S = power density (in appropriate units, e.g. mW/cm^2)

P = Time-average maximum tune up procedure (in appropriate units, e.g., mW)

G = the numeric gain of the antenna

R = distance to the center of radiation of the antenna (20 cm = limit for MPE)

Band	Antenna Gain (dBi)	Maximum tune up (dBm)	Maximum EIRP (dBm)	PG (mW)	Test Result (mW/cm^2)	Limit Value (mW/cm^2)	The MPE ratio
Wi-Fi 2.4GHz	3.50	29.98	33.48	2228.435	0.443	1.000	**0.443**
Wi-Fi 5GHz	3.60	29.98	33.58	2280.342	0.454	1.000	**0.454**
Note: **R** = 20cm **π**= 3.1416 The MPE ratio = Test Result÷Limit Value							

So the simultaneous transmitting antenna pairs as below:

∑of MPE ratios=Wi-Fi 2.4G Antenna + Wi-Fi 5G Antenna =0.443+ 0.454= 0.897<1

Note: For transmitters, minimum separation distance is 20cm, even if calculations indicate MPE distance is less.

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

ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.