RF Exposure Report

C2PC (Class II Permissive Change)

Report No.:	SA170123E07A
FCC ID:	2AD8UFW2PADPM01
Test Model:	FW2PADPM01
Received Date:	Jan. 15, 2019
Test Date:	Feb. 23 ~ Feb. 25, 2019, Apr. 29 ~ May 02, 2019 and Jul. 30 ~ Jul. 31, 2019
Issued Date:	Aug. 01, 2019
Applicant:	Nokia Solutions and Networks, OY
Address:	2000 W. Lucent Lane, City: Naperville, Illinois, United States, 60563
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan, R.O.C.
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
SA170123E07A	Original release.	Aug. 01, 2019

1 Certificate of Conformity

Product:	Nokia FW2P LTE module
Brand:	Nokia
Test Model:	FW2PADPM01
Test Sample S/N:	EB160810030
Hardware Version:	A101
Sample Status:	MASS-PRODUCTION
Applicant:	Nokia Solutions and Networks, OY
Test Date:	Feb. 23 ~ Feb. 25, 2019, Apr. 29 ~ May 02, 2019 and Jul. 30 ~ Jul. 31, 2019
Standards:	FCC Part 2 (Section 2.1091) KDB 447498 D01 GENERAL RF EXPOSURE GUIDANCE V06 IEEE STD C95.1 FCC Part 1 (Section 1.1310)

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Pettie Chen , **Date:** Aug. 01, 2019

Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** Aug. 01, 2019

Bruce Chen / Project Engineer

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (minutes)
(A)Limits For Occupational / Control Exposures				
300-1500	…	…	F/300	6
1500-100,000	…	…	5	6
(B)Limits For General Population / Uncontrolled Exposure				
300-1500	…	…	F/1500	30
1500-100,000	…	…	1.0	30

F = Frequency in MHz

2.2 MPE Calculation Formula

$Pd = (Pout*G) / (4*pi*r^2)$

where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

pi = 3.1416

r = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as fixed device and installations by professional service persionnel.

2.4 Antenna Gain

LTE Band 13

Antenna Spec.	
Gain(dBi)	Frequency (MHz)
6	746~787

2.5 Calculation Result

Calculation for Maximum EIRP

For General Population
LTE Band 13 module (FCC ID: 2AD8UFW2PADPM01)

Frequency Band (MHz)	Max ERP Power (dBm)	Max EIRP Power (dBm)	Max EIRP Power (mW)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
LTE Band 13 (256QAM)	30.03	32.18	1651.962	20	0.329	0.5
Guard Band 751.0MHz	31.75	33.90	2454.709	20	0.488	0.5
In Band 751.0MHz	31.36	33.51	2243.882	20	0.446	0.5

EIRP Power= ERP Power+2.15dBi

For Occupational Population
LTE Band 13 module (FCC ID: 2AD8UFW2PADPM01)

Frequency Band (MHz)	Max ERP Power (dBm)	Max EIRP Power (dBm)	EIRP Power (mW)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
LTE Band 13 (256QAM)	30.03	32.18	1651.962	20	0.329	2.50
Guard Band 751.0MHz	31.75	33.90	2454.709	20	0.488	2.50
In Band 751.0MHz	31.36	33.51	2243.882	20	0.446	2.50

EIRP Power= ERP Power+2.15dBi

3 Brief Summary of results

The wireless device described within this report has been shown to be capable of compliance with the basic restrictions related to human exposure to electromagnetic fields for both General public and Occupational. The calculations shown in this report were made in accordance the procedures specified in the applied test specification(s)

Configuration	Required Compliance Boundary(m)	
	Occupational	General Population
LTE Band 13 (Guard Band/In Band)	0.2	0.2

Note: Compliance Boundaries apply to Guard Band/In Band NB-IoT configuration.

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