

RF Exposure Report

Report No.: SA160112E05D

FCC ID: 2AD8UFW2IADPM01

Test Model: FW2IADPM01

Received Date: July 17, 2018

Test Date: Aug. 06, 2018

Issued Date: Sep. 06, 2018

Applicant: Nokia Solutions and Networks

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Hsin Chu Laboratory

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Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300,
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Release Control Record

Issue No.	Description	Date Issued
SA160112E05D	Original release.	Sep. 06, 2018

1 Certificate of Conformity

Product: Nokia FW2IA LTE Module

Brand: Nokia

Test Model: FW2IADPM01

Test Sample S/N: EB181010957

Hardware Version: X23

Sample Status: MASS-PRODUCTION

Applicant: Nokia Solutions and Networks

Test Date: Aug. 06, 2018

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 EMC characteristics under the conditions specified in this report.

Prepared by :  , **Date:** Sep. 06, 2018

Claire Kuan / Specialist

Approved by :  , **Date:** Sep. 06, 2018

May Chen / Manager

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

$$P_d = (P_{out} * G) / (4 * \pi * r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 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 station and installations by professional service personnel.

2.4 Antenna Gain

The antennas provided to the EUT, please refer to the following table:

Antenna Spec.					
Antenna No	Brand	Model	Antenna Type	Gain(dBi)	Frequency (GHz)
LTE Ant1(Main)	Nokia	FW2IADPM01	Slot Antenna	6.03	1.7~2.7
Antenna No	Brand	Model	Antenna Type	Gain(dBi)	Frequency (GHz)
LTE Ant2(Aux)	Nokia	FW2IADPM01	Slot Antenna	4.64	1.7~2.7

Cable Spec.				
Brand	Model	Connector Type	Cable Loss(dB)	Cable Length (mm)
NA	NA	Right angle MMCX Plug	peak gain included	287

2.5 Calculation Result

Calculation for Maximum EIRP

SC mode (Data was copied from the original test report, Report No.: SA160112E05A)

Frequency Band (MHz)	EIRP Power (mW)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2112.5-2177.5	912.011	20	0.1814	1

MC mode

For LTE Band 66(Channel Bandwidth: 10MHz+15MHz GAP 15MHz)

Operation Mode	Evaluation Frequency (MHz)	Max EIRP Power (mW)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
LTE Band 66	2135+2162.5	774.46	20	0.15407	1

For LTE Band 66 (Channel Bandwidth: 10MHz+15MHz GAP 20MHz)

Operation Mode	Evaluation Frequency (MHz)	Max EIRP Power (mW)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
LTE Band 66	2130+2162.5	785.24	20	0.15622	1

For LTE Band 66 (Channel Bandwidth: 20MHz+20MHz GAP 20MHz)

Operation Mode	Evaluation Frequency (MHz)	Max EIRP Power (mW)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
LTE Band 66	2125+2165	831.76	20	0.16547	1

For LTE Band 66 (Channel Bandwidth: 20MHz+20MHz Contiguous)

Operation Mode	Evaluation Frequency (MHz)	Max EIRP Power (mW)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
LTE Band 66	2120+2140	853.1	20	0.16972	1

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 66	0.2	0.2

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