RF Exposure Report

Product Name : Bluetooth Module

Model No. : BT-102

FCC ID : YKH319-BT10200

Applicant : NUMA Electronics Inc.

Address : 3F, No. 5, Wugong 5th Rd., Xinzhuang Dist New Taipei City Taiwan

Date of Receipt : Nov. 07, 2022

Date of Declaration : Feb. 15, 2023

Report No. : 22B0267R-RFUSV17S-A

Report Version : V1.0

Testing Laboratory
3023

Product Name	Bluetooth Module	
Applicant	NUMA Electronics Inc.	
Address	3F, No. 5, Wugong 5th Rd., Xinzhuang Dist New Taipei City Taiwan	
Manufacturer	NUMA Electronics Inc.	
Model No.	BT-102	
FCC ID	YKH319-BT10200	
Trade Name	NUMA	
Applicable Standard	KDB 447498 D01 v06	☒ Minimum test separation distance ≥ 20 cm ☐ For low power devices
Test Result	Complied	

Documented By : Joanne Lin

(Senior Project Specialist / Joanne Lin)

Tested By : Alan Chen

(Senior Engineer / Alan Chen)

Approved By : Tim Sung

(Manager / Tim Sung)

Revision History

Report No.	Version	Description	Issued Date
22B0267R-RFUSV17S-A	V1.0	Initial issue of report.	Feb. 15, 2023

1. General Information

1.1. EUT Description

Product Name	Bluetooth Module
Trade Name	NUMA
Model No.	BT-102
FCC ID	YKH319-BT10200

Note: For more detailed information please refer to report No.: 22B0267R-RFUSBLEV01-A, 22B0267R-RFUSBT2V01-A.

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2. Test Facility

USA	:	FCC Registration Number: TW0033
Canada	:	CAB Identifier Number: TW3023 / Company Number: 26930
Site Description	:	Accredited by TAF Accredited Number: 3023
Test Laboratory	:	DEKRA Testing and Certification Co., Ltd
Address	:	No. 5-22, Ruishukeng Linkou District, New Taipei City, 24451, Taiwan
Performed Location	:	No. 26, Huaya 1st Rd., Guishan Dist.,Taoyuan City 333411, Taiwan, R.O.C.
Phone Number	:	+886-3-275-7255
Fax Number	:	+886-3-327-8031
Email Address	:	info.tw@dekra.com
Website	:	http://www.dekra.com.tw

3. RF Exposure Evaluation

3.1. Standard Applicable

According to KDB 447498 D01 (7.1), A minimum test separation distance ≥ 20 cm is required between the antenna and radiating structures of the device and nearby persons to apply mobile device exposure limits.

3.2. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

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 Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission 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

This equipment which can not transmit signals simultaneously.

3.3. Test Result of RF Exposure Evaluation

Product : Bluetooth Module
Test Item : RF Exposure Evaluation

Band	Frequency (MHz)	Tune-up E.I.R.P (dBm)	Tune-up E.I.R.P (mW)	Power Density at R = 20 cm (mW/cm2)	Limit (mW/cm2)
Bluetooth	2441	5.690	3.707	0.0007	1
Bluetooth LE	2440	5.740	3.750	0.0007	1

Note:

(1) The conducted output power is refer to report No.: 22B0267R-RFUSBLEV01-A, 22B0267R-RFUSBT2V01-A from the DEKRA.

(2) Make sure the measured maximum output power within the including tune-up tolerance Bluetooth 2.39 dBm and Bluetooth LE 2.44 dBm.