RF Exposure Evaluation declaration

Product Name : Tri-band - 5G Business Internet Receiver

Trade Name : Verizon

Model No. : LV65B

FCC ID : NKR-LVPK-65

Applicant : Wistron NeWeb Corporation

Address : 20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan

Date of Receipt : Sep. 06, 2022

Date of Declaration : Oct. 04, 2022

Report No. : 2280830R-RFUSMPEV02-A

Report Version : V1.0

Testing Laboratory
3023

Issued Date: Oct. 04, 2022
Report No.: 2280830R-RFUSMPEV02-A

Product Name	Tri-band - 5G Business Internet Receiver	
Applicant	Wistron NeWeb Corporation	
Address	20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan	
Manufacturer	Wistron NeWeb Corporation	
Model No.	LV65B	
FCC ID	NKR-LVPK-65	
Trade Name	Verizon	
Applicable Standard	KDB 447498 D01 v06	☒ Minimum test separation distance ≥ 20 cm ☐ For low power devices
Test Result	Complied	

Documented By : Jinn Chen
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Tested By : Alan Chen
(Senior Engineer / Alan Chen)

Approved By : Tim Sung
(Manager / Tim Sung)

Revision History

Report No.	Version	Description	Issued Date
2280830R-RFUSMPEV02-A	V1.0	Initial issue of report.	2022-10-04

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Tri-band - 5G Business Internet Receiver
Model No.	LV65B
Trade Name	Verizon
FCC ID	NKR-LVPK-65

For more detailed information please refer to report No.: 2280830R-RFUSBLEV01-A, 2280830R-RFUSWW5V06-A, 2280830R-RFUSWW5V01-A, 2280830R-RFUSWWAV06-A and 2280830R-RFUSWWAV07-A.

Note:

The product both supports the standalone and inter-carrier aggregation mode. After evaluation and comparison, the worst case is investigated in the standalone mode. Therefore, there is only displayed the test result for standalone mode in the test report.

1.2. 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

2. RF Exposure Evaluation

2.1. 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.

2.2. 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				
3.0-30	1842/f	4.89/f	$900/f^2$	6
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
1.34-30	824/f	2.19/f	$180/f^2$	30
300-1500	--	--	F/1500	30
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

Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0

2.3. Test Result of RF Exposure Evaluation

Product Name : Tri-band - 5G Business Internet Receiver
Test Item : RF Exposure Evaluation

Simultaneous Transmission Configurations 1 (with FR1) for both indoor and outdoor installation:

The front side of mmWave Antenna							
Type	EIRP (dBm)	EIRP (mW)	Duty cycle (%)	Distance (cm)	Power Density (mW/cm2)	Total Power Density (mW/cm2)	Limit (mW/cm2)
5G FR2	51.01	126182.75	25	53.34	0.8823139	0.9106	1
5G FR1	30	1000.00	100	53.34	0.0279694		
BLE	10	10.00	100	53.34	0.0002797		

The side of FR1/BT antenna							
Type	EIRP (dBm)	EIRP (mW)	Duty cycle (%)	Distance (cm)	Power Density (mW/cm2)	Total Power Density (mW/cm2)	Limit (mW/cm2)
5G FR1	30	1000.00	100	20	0.1989432	0.2009	1
BLE	10	10.00	100	20	0.0019894		

Note: The E.I.R.P output power is refer to the tune-up procedure provided by the customer.

Simultaneous Transmission Configurations 2 (with LTE) for both indoor and outdoor installation:

The front side of mmWave Antenna							
Type	EIRP (dBm)	EIRP (mW)	Duty cycle (%)	Distance (cm)	Power Density (mW/cm2)	Total Power Density (mW/cm2)	Limit (mW/cm2)
5G FR2	51.01	126182.75	25	53.34	0.8823139	0.9002	1
LTE	28	630.96	100	53.34	0.0176475		
BLE	10	10.00	100	53.34	0.0002797		

The side of LTE/BT antenna							
Type	EIRP (dBm)	EIRP (mW)	Duty cycle (%)	Distance (cm)	Power Density (mW/cm2)	Total Power Density (mW/cm2)	Limit (mW/cm2)
LTE	28	630.96	100	20	0.1255247	0.1275	1
BLE	10	10.00	100	20	0.0019894		

Note: The E.I.R.P output power is refer to the tune-up procedure provided by the customer.