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RF Exposure Evaluation Report

Report No. :	CQASZ20200600600E-02
Applicant:	Netvox Technology Co., Ltd.
Address of Applicant:	No. 21-1, Sec. 1 Chung Hua West Road, Tainan, Taiwan, R.O.C.
Equipment Under Test (EUT):	
Product:	Wireless Module
Model No.:	R100H
Brand Name:	Netvox
FCC ID:	NRH-LR-R100H
Standards:	47 CFR Part 1.1307 47 CFR Part 2.1093 KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2020-06-24
Date of Test:	2020-06-24 to 2020-07-03
Date of Issue:	2020-07-03
Test Result :	**PASS***

Tested By： Tom Chen.

(Tom Chen)

Reviewed By: Sheek Luo

(Sheek Luo)

Approved By:

(Jack Ai)

SHENZHEN HUAXIA TESTING TECHNOLOGY CO.,LTD APPROVED

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1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20200600600E-02	Rev.01	Initial report	2020-07-03

2 Contents

3 General Information

3.1 Client Information

Applicant:	Netvox Technology Co., Ltd.
Address of Applicant:	No. 21-1, Sec. 1 Chung Hua West Road, Tainan, Taiwan, R.O.C.
Manufacturer:	Netvox Technology Co., Ltd. (Xiamen)
Address of Manufacturer:	No.2, Xin Feng 2 Road, Xiamen Torch Hi-Tech Industrial Development Zone, Xiamen City,China

3.2 General Description of EUT

Name:	Wireless Module
Model No.:	R100H
Trade Mark :	Netvox
Hardware Version:	V1.0
Software Version:	V1.0
Frequency Range:	902MHZ ~ 928MHz
Modulation Type:	FSK
Number of Channels:	80 (declared by the client)
Sample Type:	Portable production
Test Software of EUT:	Netvox LoRa FCC Test (manufacturer declare)
Antenna Type:	FPC antenna
Antenna Gain:	0.98dBi
Power Supply:	2 x AAA battery, DC3V

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06

4.3.1. Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

4.1.2 Limits

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation[17]
The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

4.1.3 EUT RF Exposure

eirp = pt x gt = $(E \times d)^2/30$

where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m, ---$10^{((dB\mu V/m)/20)}/10^6$,

d = measurement distance in meters (m)---3m,

So pt = $(E \times d)^2/30$ / gt

The worst case (refer to report CQASZ20200600600E-02) is below:

For Wireless Module:

Field strength = 97.01dBμV/m @3m

Ant. gain 0.98dBi; so Ant numeric gain=1.25

So pt={$[10^{(97.01/20)}/10^6 x3]^2/30$ /1.25}x1000mW =1.203mW

So (1.203mW/5mm)x √0.9275GHz = 0.232

0.232<3.0 for 1-g SAR

So the SAR report is not required.