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RF Exposure Evaluation Report

Report No. :	CQASZ20190700525E-02
Applicant:	NINGBO LIANDA WINCH CO.,LTD
Address of Applicant:	Yushantou Village,Dongqiao Town,Haishu Dist,Ningbo,China

Equipment Under Test (EUT):

EUT Name:	Wireless remote
Model No.:	VR3.0
Brand Name:	N/A
FCC ID:	2ASYP-LDVR3
Standards:	47 CFR Part 1.1307
	47 CFR Part 2.1093
	KDB447498D01 General RF Exposure Guidance v06
Date of Receipt:	2019-07-02
Date of Test:	2019-07-02 to 2019-07-05
Date of Issue:	2019-07-05
Test Result :	**PASS***

*In the configuration tested, the EUT complied with the standards specified above

Tested By： _____ *Martin Lee*

(Martin Lee)

Reviewed By: _____ *Aaron Ma*

(Aaron Ma)

Approved By: _____

(Jack Ai)

1   Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20190700525E-02	Rev.01	Initial report	2019-07-05

2 Contents

3   General Information

3.1 Client Information

Applicant:	NINGBO LIANDA WINCH CO.,LTD
Address of Applicant:	Yushantou Village,Dongqiao Town,Haishu Dist,Ningbo,China
Manufacturer:	NINGBO LIANDA WINCH CO.,LTD
Address of Manufacturer:	Yushantou Village,Dongqiao Town,Haishu Dist,Ningbo,China

3.2 General Description of EUT

Product Name:	Wireless remote
Model No.:	VR3.0
Trade Mark:	N/A
Hardware Version:	V1.0
Software Version:	V1.0
Sample Type:	Portable production
Operation Frequency:	433.92MHz
Channel Numbers:	1
Modulation Type:	00K
Antenna Type:	Printed antenna
Antenna Gain:	0dBi
Power Supply:	lithium battery: DC3.7V 500mA

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)] · [$\sqrt{f(GHz)}$] ≤ 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 x 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 x d)^2/30 / gt

The worst case (refer to report CQASZ20190700525E-01) is below:

Antenna polarization: Horizontal		
Frequency (MHz)	Level (dBuV/m)	Polarization
433.92	78.74	Peak
433.92	78.60	Average

Antenna polarization: Vertical		
Frequency (MHz)	Level (dBuV/m)	Polarization
433.92	75.90	Peak
433.92	75.76	Average

For 433.92MHz wireless:

Field strength = 78.74dBµV/m @3m

Ant. gain 0dBi; so Ant numeric gain=1.0

So pt={[$10^{(78.74/20)}$/10^6x3]^2/30 /1.0}x1000mW =0.022mW

So (0.022mW/5mm)x √0.43392GHz = 0.003,

0.003<3.0 for 1-g SAR

So the SAR report is not required.