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RF Exposure Evaluation Report

Report No.: CQASZ20220300299E -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.: DW2.5K1D
Test Model No.: DW2.5K1D
Brand Name: N/A
FCC ID: 2ASYP-DW25K1D
Standards: 47 CFR Part 1.1307
47 CFR Part 2.1093
KDB447498D01 General RF Exposure Guidance v06
Date of Receipt: 2022-03-02
Date of Test: 2022-03-02 to 2022-03-22
Date of Issue: 2022-03-24
Test Result: **PASS***

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

Tested By: Lewis Zhou
(Lewis Zhou)

Reviewed By: Rock Huang
(Rock Huang)

Approved By: Jack Ai
(Jack Ai)



1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20220300299E -02	Rev.01	Initial report	2022-03-24

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

3.2 General Description of EUT

Product Name:	Wireless remote
Model No.:	DW2.5K1D
Test Model No.:	DW2.5K1D
Trade Mark:	N/A
Software Version:	Ver 1.0
Hardware Version:	Ver 1.2
Sample Type:	☐ Mobile ☒ Portable ☐ Fix Location
Operation Frequency:	315MHz
Channel Numbers:	1
Modulation Type:	FSK
Antenna Type:	PCB antenna
Antenna Gain:	0 dBi
Power Supply:	This test EUT is powered by button batteries.

Note: Using the new battery for testing.

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:

$$\left[\frac{\text{(max. power of channel, including tune-up tolerance, mW)}}{\text{(min. test separation distance, mm)}} \right] \cdot \sqrt{f(\text{GHz})} \leq 3.0 \text{ for 1-g SAR and } \leq 7.5 \text{ for 10-g extremity SAR, where}$$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

Power and distance are rounded to the nearest mW and mm before calculation¹⁷

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

$$e_{irp} = p_t \times g_t = (E \times d)^2 / 30$$

where:

p_t = transmitter output power in watts,

g_t = 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,

$$\text{So } p_t = (E \times d)^2 / 30 / g_t$$

The worst case (refer to report CQASZ20220300299E-01) is below:

Antenna polarization: Horizontal		
Frequency (MHz)	Level (dBuV/m)	Polarization
315	81.63	Peak
315	61.63	Average

Antenna polarization: Vertical		
Frequency (MHz)	Level (dBuV/m)	Polarization
315	69.66	Peak
315	49.66	Average

For 315MHz wireless:

Field strength = 81.63dB μ V/m @3m

Ant. gain -4.46dBi; so Ant numeric gain=1

$$\text{So } p_t = \{ [10^{(81.63/20)/10^6} \times 3]^2 / 30 / 1 \} \times 1000 \text{mW} = 0.0437 \text{mW}$$

$$\text{So } (0.0437 \text{mW} / 5 \text{mm}) \times \sqrt{0.3142 \text{GHz}} = 0.0049,$$

$$0.0049 < 3.0 \text{ for 1-g SAR}$$

So the SAR report is not required.