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RF Exposure Evaluation Report

Product: Wireless button

Trade mark : NICOR

Model/Type reference : PR-BUTTON-W-WH, PR-BUTTON-W-##

(##: Represents the housing color,

WH=white, BK=black, etc.)

Test Model No.: : PR-BUTTON-W-WH

Serial Number : N/A

Report Number : EED32N80882802

FCC ID : 2A3EFPR-BUTTON-W

Date of Issue : Dec. 28, 2021

Test Standards : 47 CFR Part 1.1307

47 CFR Part 2.1093

KDB447498D01 General RF Exposure Guidance v06

Test result : PASS

Prepared for:

NICOR, Inc.

2200 Midtown Place NE, Albuquerque, N.M. 87107 USA

Prepared by:

Centre Testing International Group Co., Ltd. Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China

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Dec. 28, 2021







1 Version

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3 General Information

3.1 Client Information

Applicant:	NICOR, Inc.	
Address of Applicant:	2200 Midtown Place NE, Albuquerque, N.M. 87107 USA	~ ~
Manufacturer:	NICOR, Inc.	(4)
Address of Manufacturer:	2200 Midtown Place NE, Albuquerque, N.M. 87107 USA	(0)
Factory:	NICOR, Inc.	
Address of Factory:	2200 Midtown Place NE, Albuquerque, N.M. 87107 USA	

3.2 General Description of EUT

Product Name:	Wireless button		
Model No.:	PR-BUTTON-W-WH, PR-BUTTON-W-## (##: Represents the housing color, WH=white, BK=black, etc.)		
Test Model No.:	PR-BUTTON-W-WH		
Trade Mark:	NICOR		
Hardware Version:	V0		
Software Version:	V0		
Product Type:	☐ Mobile ☐ Portable ☒ Fix Location		
Frequency Range:	433.92MHz		
Modulation Type:	ООК		
Number of Channels:	1 (declared by the client)		
Antenna Type:	Spring antenna		
Antenna Gain:	3.7dBi		
Power Supply:	DC 12V		
Test voltage:	DC 12V		
Sample Received Date:	Sep. 15, 2021		
Sample tested Date:	Sep. 15, 2021 to Oct. 9, 2021		

Company Name and Address shown on Report, the sample(s) and sample Information was/ were provided by the applicant who should be responsible for the authenticity which CTI hasn't verified.

Model No.: PR-BUTTON-W-HH, PR-BUTTON-W-## (##: Represents the housing color, WH=white, BK=black, etc.)

Only the model PR-BUTTON-W-WH was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance.







3.3 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China Telephone: +86 (0) 755 33683668 Fax:+86 (0) 755 33683385

No tests were sub-contracted. FCC Designation No.: CN1164

3.4 Deviation from Standards





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4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Standard Requirement

According to KDB447498D01 General RF Exposure Guidance v06 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.

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:

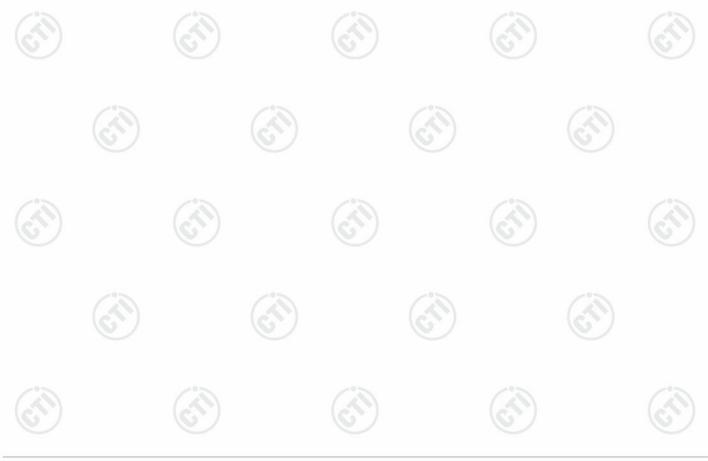
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] $\cdot [\sqrt{f(GHz)}] \le 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

f(GHz) is the RF channel transmit frequency in GHz

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

The result is rounded to one decimal place for comparison

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





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

The worst case (refer to report EED32N80882801) is below:

Antenna polarization: Horizontal			
Frequency (MHz)	Level (dBuV/m)	Polarization	
433.92	86.99	Peak	
433.92	73.74	Average	

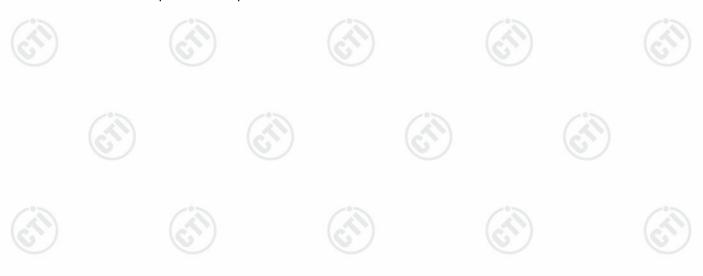
Antenna polarization: Vertical			
Frequency (MHz)	Level (dBuV/m)	Polarization	
433.92	78.16	Peak	
433.92	64.91	Average	

For 433.92MHz wireless:

Field strength = 86.99dBµV/m @3m Ant. gain 3.7dBi; so Ant numeric gain=2.34 So pt={ $[10^{(86.99/20)}/10^6x3]^2/30/2.34$ }x1000mW =0.064mW So $(0.064 \text{mW/5mm})x \sqrt{0.43392 \text{GHz}} = 0.00843$,

0.00843<3.0 for 1-g SAR

So the SAR report is not required.





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PHOTOGRAPHS OF EUT Constructional Details

Refer to Report No. EED32N80882801 for EUT external and internal photos.

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