



## Test Report

Prepared for Rivian Automotive LLC

This report presents SAR Exclusion for

### NFC Door Handle (NDH 2.0)

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Approved by

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General Manager

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Report No: J23245-CJPT-TNY-P23120007 RIV-305\_SAR

#### EXCLUSION

This test result relates only to the described test object.

This document shall not be reproduced, except in full, without the written approval of Bureau Veritas Test Lab.

Customer must not use this test report as the product certification of each accreditation body or each national organization.

The test is traceable to national standard or related international standard

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## 1. Test Request Information

**Applicant:** Rivian Automotive LLC

**Address:** 14600 Myford Road Irvine CA 92606

**FCC ID:** 2AW3A-2WWG23NDH

**ISED Canada IC:** 26958-2WWG23NDH

**Product Description:** NFC Door Handle

**PMN:**

**Model/HVIN:** NDH 2.0

**FVIN:**

**HMN:**

**Additional Models:** None

**Date of tests:** 02/03/2023 & 12/03/2023

**FCC Test Firm DN:** Milpitas: 540430; Auburn Hills: US1278 (242530)

**Canada CABID:** Milpitas: US0160 (4842D); Auburn Hills: US0229 (26240)

**Type of Test:** FCC/ISED Certification

**Test Method:** Subparts 1.1307 , 2.1093, 1.1310. KDB 447498 D01 SAR test exclusion

**NOMINAL VOLTAGE:** 13.5V

**MODULATION TYPES:** ASK

**DATA RATES:** 106 kb/s

**OPERATING FREQUENCY:** 13.56MHz

**EUT Power Setting:** DC powered

**ANTENNA TYPE:** Integrated onboard

## 2. Test Laboratory Information

<b>Location of Test Lab:</b>	The radiated and conducted emissions test sites are located at Bureau Veritas 815 N. Opdyke Rd #100, Auburn Hills, MI 48326, Phone: +1-248-836-4700
<b>Key Contact:</b>	Jason Kanakry (General Manager) Jason.Kanakry@BureauVeritas.com Phone: +1-248-836-4747
<b>Laboratory Accreditations:</b>	BUREAU VERITAS CONSUMER PRODUCTS SERVICES, INC is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the coSAR Exclusion of testing and calibration laboratories.
<b>ISO/IEC 17025:2017:</b>	5678.01
<b>FCC Test Site Number:</b>	Milpitas: 540430; Auburn Hills: US1278 (242530)
<b>IC Test Site Number:</b>	Milpitas: US0160 (4842D); Auburn Hills: US0229 (26240)

### 3. RF Exposure

#### 3.1 Classification

The antenna of this product, under normal use condition, is at least 5mm away from the body of the user. So, this device is classified as Portable Device.

#### 3.2 Max Conducted Power and Antenna Information

Band	Antenna Type	Radiated Power (dBm)	Radiated Power (mW)	EIRP (mW)	ERP(mW)	Antenna Gain (dBi)
RFID	Integrated onboard	-32.98	0.0005	5.03501E-07	0.000306902	0

#### 3.3 Calculation for SAR EXCLUSION

Frequency Band (GHz)	Max Power (dBm)	Max power (mW)	Turn-Up Tolerance	Max Power with tune-Up Tolerance (mW)	Antenna Gain (dBi)	Test separation Distance (mm)	Step2: Tolerance(mW*GHz/mm)	Step2*(1/2) (For separation <50mm)	Limit as per 4.3.1(Appendix C) mW
0.0135	-32.98	0.0005035	±1dB	0.0006339	0	50	1.47E-06	9.60E-08	308

Notes:-

Power Level in EIRP(dBm) = E (dBµV/m) + 20log(D) - 104.8; where D is the measurement distance in meters.

#### For SAR Exclusion from KDB 447498 D01 section-4.3.1:

Step 1) [(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, 50 mm)] · [√f(GHz)]

Step 2) {[Power allowed at numeric threshold for 50 mm in step 1)] + [(test separation distance – 50 mm)·(f(MHz)/150)]

Step 3) Step 2 \* ½

### Appendix C

#### *SAR Test Exclusion Thresholds for < 100 MHz and < 200 mm*

Approximate SAR test exclusion power thresholds at selected frequencies and test separation distances are illustrated in the following table. The equation and threshold in 4.3.1 must be applied to determine SAR test exclusion.

MHz	< 50	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	mm
100	237	474	481	487	494	501	507	514	521	527	534	541	547	554	561	567	mW
50	308	617	625	634	643	651	660	669	677	686	695	703	712	721	729	738	
10	474	948	961	975	988	1001	1015	1028	1041	1055	1068	1081	1095	1108	1121	1135	
1	711	1422	1442	1462	1482	1502	1522	1542	1562	1582	1602	1622	1642	1662	1682	1702	
0.1	948	1896	1923	1949	1976	2003	2029	2056	2083	2109	2136	2163	2189	2216	2243	2269	
0.05	1019	2039	2067	2096	2125	2153	2182	2211	2239	2268	2297	2325	2354	2383	2411	2440	
0.01	1185	2370	2403	2437	2470	2503	2537	2570	2603	2637	2670	2703	2737	2770	2803	2837	

### 3.4 Conclusion

The maximum threshold calculations as per 4.3.1 are below the limits specified in Appendix C.

## Document Revisions

Version	Date	Modifier	Changes
1.0	01/11/2024	Abhijit Patibandla	Original
2.0	02/21/2024	Abhijit Patibandla	Updated as per reviewers comments
3.0	03/01/2024	Abhijit Patibandla	Updated as per reviewers comments
4.0	03/05/2024	Abhijit Patibandla	Corrected a typo
5.0	03/18/2024	Abhijit Patibandla	Corrected a typo

End of Report