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TESTING
CNAS-L4963

TEST REPORT

Applicant: Card Integrators Corporation
Address: 3625 Serpentine Drive Los Alamitos, CA 90720
United States
Equipment Type: CR-One Connected Reader
Model Name: CR01
Brand Name: CI Solutions
FCC ID: 2BVQZ-CRONE
Test Standard: 47 CFR Part 2.1091-2023
KDB 447498 D04 v01
Sample Arrival Date: N/A
Test Date: N/A
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ISSUED BY:

Shanghai Tejet Communications Technology Co., Ltd. Testing Center



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Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Jul. 13, 2026</u>	<u>Initial Issue</u>

TABLE OF CONTENTS

1	GENERAL INFORMATION	3
1.1	Test Laboratory	3
1.2	Test Location	3
2	PRODUCT INFORMATION	4
2.1	Applicant Information	4
2.2	Manufacturer Information	4
2.3	General Description for Equipment under Test (EUT)	4
2.4	Technical Information	5
3	SUMMARY OF TEST RESULT	6
3.1	Test Standards	6
3.2	Limit Standards	6
4	DEVICE CATEGORY AND LEVELS LIMITS	7
5	ASSESSMENT RESULT	9
5.1	Output Power	9
5.2	Turn-up power	10
5.3	RF Exposure Evaluation Result	11
5.4	Collocated Power Density Calculation	11
5.5	Conclusion	12

1 GENERAL INFORMATION

1.1 Test Laboratory

Name	Shanghai Tejet Communications Technology Co., Ltd. Testing Center
Address	1-2/F., Building 1, No.222, Xuanlan Road, Xuanqiao, Pudong New District, Shanghai, China

1.2 Test Location

Name	Shanghai Tejet Communications Technology Co., Ltd. Testing Center
Location	1-2/F., Building 1, No.222, Xuanlan Road, Xuanqiao, Pudong New District, Shanghai, China
Accreditation Certificate	The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1352. The laboratory is a testing organization accredited by ISED as a accredited testing laboratory. The company number is 29671 and CAB identifier number is CN0142.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Card Integrators Corporation
Address	3625 Serpentine Drive Los Alamitos, CA 90720 United States

2.2 Manufacturer Information

Manufacturer	Card Integrators Corporation
Address	3625 Serpentine Drive Los Alamitos, CA 90720 United States

2.3 General Description for Equipment under Test (EUT)

EUT Name	CR-One Connected Reader
Model Name Under Test	CR01
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	A2
Software Version	20260520d
Dimensions (Approx.)	L: 143 mm* W:115mm* H: 25 mm
Weight (Approx.)	N/A

2.4 Technical Information

Network and Wireless connectivity	LTE-FDD Cat M1 Only: B1/ 2/ 3/ 4/ 5/ 8/ 12/ 13/ 18/ 19/ 20/ 25/ 26/ 27/ 28/ 66/ 85 WiFi 2.4GHz: 802.11b/g/n/ HT20/ HT40 BLE, NFC
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The requirement for the following technical information of the EUT was tested in this report:

Operating Mode	LTE, 2.4G WIFI, Bluetooth, NFC		
Frequency Range	LTE Band 2	TX: 1850 ~ 1910 MHz	RX: 1930 ~ 1990 MHz
	LTE Band 4	TX: 1710 ~ 1755 MHz	RX: 2110 ~ 2155 MHz
	LTE Band 5	TX: 824 ~ 849 MHz	RX: 869 ~ 894 MHz
	LTE Band 12	TX: 699 ~ 716 MHz	RX: 729 ~ 746 MHz
	LTE Band 13	TX: 777 ~ 787 MHz	RX: 746 ~ 756 MHz
	LTE Band 14	TX: 788 ~ 798 MHz	RX: 758 ~ 768 MHz
	LTE Band 25	TX: 1850 ~ 1915 MHz	RX: 1930 ~ 1995 MHz
	LTE Band 26	TX: 814 ~ 849 MHz	RX: 859 ~ 894 MHz
	LTE Band 66	TX: 1710 ~ 1780 MHz	RX: 2110 ~ 2180 MHz
	LTE Band 85	TX: 698 ~ 716 MHz	RX: 728 ~ 746 MHz
	2.4G WIFI	2412 ~ 2462 MHz	
	Bluetooth	2402 ~ 2480 MHz	
	NFC	13.56 MHz	
Antenna Type	WWAN: IFA Antenna WIFI: PCB Antenna Bluetooth: PCB Antenna NFC: Coil Antenna		
Exposure Category	General Population/Uncontrolled Exposure		
Product Type	Mobile Device		

3 SUMMARY OF TEST RESULT

3.1 Test Standards

No.	Identity	Document Title
1	KDB 447498 D04 v01☆	447498 D04 Interim General RF Exposure Guidance v01

3.2 Limit Standards

No.	Identity	Document Title
1	47 CFR Part 2.1091-2023	Radiofrequency radiation exposure evaluation: mobile devices

4 DEVICE CATEGORY AND LEVELS LIMITS

Mobile Devices:

CFR Title 47 §2.1091(b)

For purposes of this section, a mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

FCC KDB 447498 D04 General RF Exposure Guidance v01 Limit

Evaluation of compliance with the exposure limits in § 1.1310 is necessary if the ERP of the device is greater than ERP_{20cm} in Formula (B.1) [repeated from § 2.1091(c)(1) and § 1.1307(b)(1)(i)(B)].

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases} \quad (\text{B.1})$$

If the ERP is not easily obtained, then the available maximum time-averaged power may be used (i. e., without consideration of ERP only if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole.

SAR-based exemptions are constant at separation distances between 20 cm and 40 cm to avoid discontinuities in the threshold when transitioning between SAR-based and MPE-based exemption criteria at 40 cm, considering the importance of reflections.

The SAR-based exemption formula of § 1.1307(b)(3)(i)(B), repeated here as Formula (B.2), applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power or effective radiated power (ERP), whichever is greater, of less than or equal to the threshold P_{th} (mW).

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula (B.2).

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases} \quad (\text{B.2})$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula (B.1). The example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)										
		5	10	15	20	25	30	35	40	45	50
300		39	65	88	110	129	148	166	184	201	217
450		22	44	67	89	112	135	158	180	203	226
835		9	25	44	66	90	116	145	175	207	240
1900		3	12	26	44	66	92	122	157	195	236
2450		3	10	22	38	59	83	111	143	179	219
3600		2	8	18	32	49	71	96	125	158	195
5800		1	6	14	25	40	58	80	106	136	169

According with FCC KDB 447498 D04, Appendix A, Per § 1.1307(b)(3)(i)(A), a single RF source is exempt RF device (from the requirement to show data demonstrating compliance to RF exposure limits, as previously mentioned) if the available maximum time-averaged power is no more than 1 mW, regardless of separation distance.

This exemption applies to all operating configurations and exposure conditions, for the frequency range 100 kHz to 100 GHz, regardless of fixed, mobile, or portable device exposure conditions. This is a standalone exemption, and it cannot be applied in conjunction with any other test exemption.

When maximum available power each individual transmitting antenna within the same time averaging period is ≤ 1 mW, and the nearest parts of the antenna structures of the simultaneously operating transmitters are separated by at least 2 cm.

When the aggregate maximum available power of all transmitting antennas is ≤ 1 mW in the same time-averaging period.

5 ASSESSMENT RESULT

5.1 Output Power

LTE					
Mode	Band 2	Band 4	Band 5	Band 12	Band 13
Tune-up Power (dBm)	22.00	22.00	22.00	22.00	22.00
Antenna Gain (dBi)	1.27	0.90	0.97	-0.81	0.73
Note: This report listed the worst case conducted power value, please refer to RF test report No. R1907A0450-M1V2 for more details.					

LTE					
Mode	Band 14	Band 25	Band 26	Band 66	Band 85
Tune-up Power (dBm)	22.00	22.00	22.00	22.00	22.00
Antenna Gain (dBi)	0.73	1.27	0.97	0.90	-0.81
Note: This report listed the worst case conducted power value, please refer to RF test report No. R1907A0450-M1V2 for more details.					

Bluetooth	
Mode	BLE
Max Tune-up Power (dBm)	10.00
Antenna Gain (dBi)	3.26
Note: This report listed the worst case Tune-up power value, please refer to RF test report No. FA1N0920 for more details.	

WLAN	
Mode	2.4G WIFI
Max Tune-up Power (dBm)	20.50
Antenna Gain (dBi)	3.26
Note: This report listed the worst case Tune-up power value, please refer to RF test report No. FA1N0920 for more details.	

Mode	NFC
Field Strength (dBuV/m)	55.93
ERP (dBm)	-33.33

Note 1: This table listed the worst case power value, please refer to Ti-CC26050358-402 report for more details.

Note 2: Add the appropriate maximum ground reflection factor to the EIRP level (6dB for frequencies≤30MHz, 4.7dB for frequencies between 30MHz and 1000MHz, inclusive and 0dB for frequencies > 1000 MHz).

Note 3: Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:
 $E = \sqrt{EIRP \cdot 30 \cdot \log(D)} + 104.8 + \text{maximum ground reflection factor}$
 where:
 E=electric field strength in dBuV/m
 EIRP =equivalent isotropic radiated power dBm
 D=specified measurement distance in meters

Note 4: When frequencies≤1000MHz, radiated power is ERP.

5.2 Turn-up power

Mode		Conducted Power Range (dBm)		EIRP Range (dBm)		ERP Range (dBm)	
LTE	Band 2	20.00	22.00	21.27	23.27	19.12	21.12
	Band 4	20.00	22.00	20.90	22.90	18.75	20.75
	Band 5	20.00	22.00	/	/	18.82	20.82
	Band 12	20.00	22.00	/	/	17.04	19.04
	Band 13	20.00	22.00	/	/	18.58	20.58
	Band 14	20.00	22.00	/	/	18.58	20.58
	Band 25	20.00	22.00	21.27	23.27	19.12	21.12
	Band 26	20.00	22.00	/	/	18.82	20.82
	Band 66	20.00	22.00	20.90	22.90	18.75	20.75
	Band 85	20.00	22.00	/	/	17.04	19.04
Bluetooth		8.00	10.00	11.26	13.26	9.11	11.11
2.4G WIFI		18.50	20.50	21.76	23.76	19.61	21.61
NFC		/	/	/	/	-34.00	-32.00

Note1: ERP= EIRP -2.15dB.

Note2: According KDB 447498 D04, used the greater of maximum conducted power and ERP to compare with the threshold value Pth.

5.3 RF Exposure Evaluation Result

Evolution mode		f(MHz)	Distance (cm)	Maximum power (dBm)	Maximum power (mW)	Plimit(mW)	P/Plimit	Verdict
LTE	Band 2	1850	20	22.00	158.49	3060.00	0.0518	Pass
	Band 4	1710	20	22.00	158.49	3060.00	0.0518	Pass
	Band 5	824	20	22.00	158.49	1680.96	0.0943	Pass
	Band 12	699	20	22.00	158.49	1425.96	0.1111	Pass
	Band 13	777	20	22.00	158.49	1585.08	0.1000	Pass
	Band 14	788	20	22.00	158.49	1607.52	0.0986	Pass
	Band 25	1850	20	22.00	158.49	3060.00	0.0518	Pass
	Band 26	814	20	22.00	158.49	1660.56	0.0954	Pass
	Band 66	1710	20	22.00	158.49	3060.00	0.0518	Pass
	Band 85	698	20	22.00	158.49	1423.92	0.1113	Pass
Bluetooth		2402	20	11.11	12.91	3060.00	0.0042	Pass
2.4G WIFI		2412	20	21.61	144.88	3060.00	0.0473	Pass
NFC		13.56	20	-32.00	0.001	1.00	0.0010	Pass

5.4 Collocated Power Density Calculation

Evolution mode	Power /Limit	$\Sigma(\text{Power / Limit})$ of WWAN + WLAN	Verdict
Band 85	0.1113	0.1596	Pass
2.4G WIFI	0.0473		
NFC	0.0010		

Evolution mode	Power /Limit	$\Sigma(\text{Power / Limit})$ of WWAN + WLAN	Verdict
Band 85	0.1113	0.1165	Pass
Bluetooth	0.0042		
NFC	0.0010		

Note:

- $\Sigma(\text{Power / Limit})$: This is a summation of [(power for each transmitter/ antenna included in the simultaneous transmission)/ (corresponding Power limit)], for WWAN + 2.4G WIFI + NFC and WWAN + Bluetooth + NFC.
- Both of the WWAN/2.4G WIFI/BT/NFC can transmit simultaneously, the formula of calculated the Power is

$$CP1 / LP1 + CP2 / LP2 + \dots \text{etc.} < 1$$

CP = Calculation power
LP = Limit of power

3. Both of the 2.4GHz WIFI and BT can't transmit simultaneously at same time.
4. The worst-case situation is 0.1596, which is less than "1". This confirmed that the device comply with FCC KDB 447498 D04 Power limit.
5. More power list please refer to RF test report.

5.5 Conclusion

This EUT is deemed to comply with the reference level limits, therefore the basic restrictions are compliant with human exposure limits.

Statement

1. The Testing Center guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
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6. Any objection shall be raised to the Testing Center within 30 days after receiving the report.

--END OF REPORT--