RF Exposure Evaluation Report

Product	:	AI Dash Camera
Trade mark	:	BRIGADE
Model/Type reference	:	DC-204-AI(NA)-C, DC-204-AI(XXXXX), DC-204-AI(XXXXX)-C (Where "X" can represent any character for any associated variant.)
Serial Number	:	N/A
Report Number	:	EED32P80610803
FCC ID	:	R5XDC200AI
Date of Issue	:	Jun. 21, 2023
Test Standards	:	47 CFR Part 1.1307 47 CFR Part 1.1310 447498 D04 Interim General RF Exposure Guidance v01
Test result	:	PASS

Prepared for:

Brigade Electronics Group Plc
Brigade House, The Mills, Station Road, South Darenth,
DA4 9BD, United Kingdom

Prepared by:

Centre Testing International Group Co., Ltd.
Hongwei Industrial Zone, Bao'an 70 District,
Shenzhen, Guangdong, China
TEL: +86-755-3368 3668
FAX: +86-755-3368 3385

Compiled by:	Frazer Li	Reviewed by:	Tom Chen
Approved by:	Aaron Ma	Date:	Jun. 21, 2023

Check No.:5830190423

1 Version

Version No.	Date	Description
00	Jun. 21, 2023	Original

2 Contents

Page

1 COVER PAGE 1

2 VERSION 2

3 CONTENTS 3

4 GENERAL INFORMATION 4

4.1 CLIENT INFORMATION 4
4.2 GENERAL DESCRIPTION OF EUT 4
4.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD 4
4.4 TEST LOCATION 7
4.5 DEVIATION FROM STANDARDS 7
4.6 ABNORMALITIES FROM STANDARD CONDITIONS 7
4.7 OTHER INFORMATION REQUESTED BY THE CUSTOMER 7

5 SAR EVALUATION 8

5.1 RF EXPOSURE COMPLIANCE REQUIREMENT 8
5.1.1 Limits 8
5.1.2 Test Procedure 8
5.1.3 EUT RF Exposure Evaluation 9

3 General Information

3.1 Client Information

Applicant:	Brigade Electronics Group Plc
Address of Applicant:	Brigade House, The Mills, Station Road, South Darenth,DA4 9BD, United Kingdom
Manufacturer:	Brigade Electronics Group Plc
Address of Manufacturer:	Brigade House, The Mills, Station Road, South Darenth,DA4 9BD, United Kingdom

3.2 General Description of EUT

Product Name:	AI Dash Camera
Model No.:	DC-204-AI(NA)-C, DC-204-AI(XXXXX), DC-204-AI(XXXXX)-C (Where "X" can represent any character for any associated variant.)
Model similarities and differences:	The main test model is DC-204-AI(NA)-C and series mode are, DC-204AI(XXXXX), DC-204-AI(XXXXX)-C Where "X" can represent any character for any associated variant. Bespoke models can have reduced electronic component population and cabling, software changes, customized settings or differing equipment connections. The appearance, structure, circuit schematic diagram, PCB layout, etc. are the same for both. The difference of the series models is due to reduced electronic components and cabling, software, customised settings or differing equipment connections.
Trade mark:	BRIGADE
EUT Supports Radios application:	2.4GHz Wi-Fi: IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz LTE: B2,B4,B5,B12,B13,B66,B71

3.3 Product Specification subjective to this standard

Frequency Range:	2.4GHz Wi-Fi: IEEE 802.11b/g/n(HT20): 2412MHz to 2462MHz LTE: B2: 1850-1910MHz, B4: 1710-1755MHz, B5: 824-849MHz, B12: 699-716MHz, B13: 777-787MHz, B66: 1710-1780MHz, B71: 663-698MHz
Modulation Type:	2.4GHz Wi-Fi: IEEE for 802.11b:DSSS(CCK,DQPSK,DBPSK) IEEE for 802.11g:OFDM(64QAM, 16QAM, QPSK, BPSK)

	IEEE for 802.11n(HT20): OFDM (64QAM, 16QAM,QPSK,BPSK) LTE: QPSK,16QAM
Test Power Grade:	Default
Antenna Type (WiFi):	Internal antenna
Antenna Gain (WiFi):	-0.37dBi

Antenna Type (LTE):	Internal antenna
Antenna Gain (LTE):	LTE B2: 1.72dBi, LTE B4: 1.72dBi, LTE B5:0.37dBi, LTE B12: 0.37dBi, LTE B13 :0.37dBi, LTE B66:1.72dBi, LTE B71:0.37dBi
Function (Wi-Fi):	☒ SISO ☐ 2x2 MIMO ☐ 3x3 MIMO ☐ 4x4MIMO
Function (LTE):	☒ SISO ☐ 2x2 MIMO ☐ 3x3 MIMO ☐ 4x4MIMO
Power Supply:	9-36V⎓ 2A
Max Conducted Peak Output Power:	2.4G WiFi:1.99dBm, LTE: B2: 23.84dBm, B4: 23.72dBm, B5: 24.19dBm, B12: 23.74dBm, B13: 23.85dBm, B66: 23.82dBm, B71: 23.47dBm
	The Max Conducted Peak Output Power data refer to the report EED32P80610801,R2007A0434-R1,R2007A0434-R2,R2007A0434-R3. (LTE module's FCC ID:XMR202008EC25AFXD.) and R1907A0408-R1,R1907A0408-R2,R1907A0408-R3 (LTE module's FCC ID:XMR201909EC25AFX.)
Sample Received Date:	Apr. 27, 2023
Sample tested Date:	May. 29, 2023 to Jun. 08, 2023
Remark: 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.	

3.4 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

3.5 Deviation from Standards

None.

3.6 Abnormalities from Standard Conditions

None.

3.7 Other Information Requested by the Customer

None.

4 SAR Evaluation

4.1 RF Exposure Compliance Requirement

4.1.1 Limits

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 Pth (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). Pth is given by Formula

$$P_{\text{th}}\,(\text{mW}) = \begin{cases} ERP_{20\text{ cm}}(d/20\text{ cm})^x & d \le 20\text{ cm} \\ ERP_{20\text{ cm}} & 20\text{ cm} < d \le 40\text{ cm} \end{cases}$$

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 ERP20cm is per Formula (B.1).

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

The 1 mW Blanket Exemption of § 1.1307(b)(3)(i)(A) applies for single fixed, mobile, and portable RF sources with available maximum time-averaged power of no more than 1 mW, regardless of separation distance.

4.1.2 Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.1.3 EUT RF Exposure Evaluation

(1)For Stand alone:

For 2.4G Wi-Fi:

Frequency	Separation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
2412MHz	20	4.92	-0.37	2.40	1.738	≤3060	0.0006	PASS

For LTE:

Frequency	Separation distance (cm)	Max. Conducted Output power (dBm)	Antenna Gain (dBi)	ERP (dBm)	ERP (mW)	Limit (mW)	MPE ratio	Result
844MHz (LTE Band 5)	20	24.19	0.37	22.41	174.181	≤1721.76	0.1012	PASS

Note：

①EIRP=conducted power+antenna gain；

②ERP=EIRP-2.15

③Only the worst case data was recorded in the report.

(2)For Simultaneous Transmission:

As MPE rato (2.4G Wi-Fi+LTE)=0.0006+0.1012=0.1018 < 1, it’s deemed to fulfil the RF exposure requirement.

The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can’t be reproduced except in full.

*** End of Report ***