

RF EXPOSURE REPORT



Applicant: Brivo Systems LLC
7700 Old Georgetown Road Suite 300, Bethesda, MD 20814,
United States

Manufacturer: TELE System Communications Pte. Ltd.
5F, No 437, Tao Ying Rd., Taoyuan 33068, Taiwan

Product Name: ACS300 Access Control System

Brand Name: Brivo

Model No.: B-ACS300V2-E, B-ACS300V2-S

Model Difference: 1. Different server: B-ACS300V2-E for ON Air Server,
B-ACS300V2-S for no Server
2. Different enclosures:
Enclosure 1 (white color)
L /W/H: 188.3/190.5/38.6 mm
Enclosure 2 (black color)
L /W/H: 193.8/199.5/66.7 mm

Report Number: TESA2310000587ES

FCC ID O9U-ACS300-2

Date of EUT Received: October 4, 2023

Issue Date: February 27, 2024

Approved By

John Yeh

We hereby certify that:

The above equipment was evaluated by SGS Taiwan Ltd. The evaluation in this report is in compliance with FCC Rule Part §1.1307.

The results of this report relate to the specific sample identified in this report.

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Revision History

Report Number	Revision	Description	Issue Date	Revised By	Remark
TESA2310000587ES	00	Original.	January 11, 2024	Susan Lin	
TESA2310000587ES	01	Update chapter 2.3 and 2.4	February 19, 2024	Susan Lin	*
TESA2310000587ES	02	Add chapter 1.4	February 27, 2024	Susan Lin	*

Note:

- 1、The remark "*" indicates modification of the report upon requests from certification body.
- 2、Variant information of model numbers is provided by the applicant, test results of this report are applicable to the sample EUT(s) received. And are assessed as electrically identical in RF characteristics, therefore, no further assessment required for the variant(s).

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1 DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)

1.1 Product Description

Product Name:	ACS300 Access Control System
Brand Name:	Brivo
Model No.:	B-ACS300V2-E, B-ACS300V2-S
Model Difference:	1. Different server: B-ACS300V2-E for ON Air Server, B-ACS300V2-S for no Server 2. Different enclosures: Enclosure 1 (white color) L /W/H: 188.3/190.5/38.6 mm Enclosure 2 (black color) L /W/H: 193.8/199.5/66.7 mm
Hardware Version:	N/A
Firmware Version:	N/A
EUT Series No.:	3C2330TR0200036
Power Supply:	56Vdc from POE

1.2 Evaluation site

Laboratory		Site Address	FCC Designation number
SGS Taiwan Ltd. Central RF Lab. (TAF code 3702)	☒	No. 134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, 24803, Taiwan.	TW0027
	☐	No. 2, Keji 1st Rd., Guishan Township, Taoyuan County, 333 Taiwan.	TW0028
	☐	1F, No. 8, Alley 15, Lane 120, Sec. 1, Nei Hu Road, Nei Hu District, Taipei City, 222 Taiwan.	TW0029

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1.3 Antenna Information:**BT**

Antenna Type	Freq. (MHz)	Peak Antenna Gain (dBi)
PIFA	2402~2480	1.35

BLE

Antenna Type	Freq. (MHz)	Peak Antenna Gain (dBi)
PIFA	2402~2480	1.35

WLAN 2.4G

Antenna Type	Freq. (MHz)	Peak Antenna Gain (dBi)
PIFA	2412~2472	1.35

Note: Antenna information is provided by the applicant.

1.4 Rated power

Mode	Freq. Range (MHz)	Channels	Modulation Technology	Max Output Power (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Worst Case
BR+EDR	2402-2480	79	GFSK + $\pi/4$ DQPSK + 8DPSK	4.6	1.35	5.95	V
BLE	2402-2480	40	GFSK	3.17	1.35	4.52	
802.11b/g/n_HT20	2412-2462	11	DSSS & OFDM	8.16	1.35	9.51	V
802.11 n_HT40				6.42	1.35	7.77	
Modulation type:		CCK, DQPSK, DBPSK for DSSS					
		64QAM, 16QAM, QPSK, BPSK for OFDM					

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2 DETERMINATION OF MPE EXEMPTION

2.1 Single RF Source

As per §1.1307(b)(3)(i),

- (A) The available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption may not be used in conjunction with other exemption criteria other than those in paragraph (b)(3)(ii)(A) of this section. Medical implant devices may only use this exemption and that in paragraph (b)(3)(ii)(A);
- (B) Or the available maximum time-averaged power or effective radiated power (ERP), whichever is greater, is less than or equal to the threshold P_{th} (mW) described in the following formula. This method shall only be used at separation distances (cm) from 0.5 centimeters to 40 centimeters and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by:

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

Where

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

and

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

d = the separation distance (cm);

Note: when 10-g extremity SAR applies, SAR test exemption may be considered by applying a factor of 2.5 to the SAR-based exemption thresholds.

- (C) Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP 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 (1.64 linear value).

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**Table 1 to § 1.1307(b)(3)(i)(C) –
Single RF Sources Subject to Routine Environmental Evaluation**

RF Source frequency (MHz)			Minimum Distance			Threshold ERP (W)
fL		fH	$\lambda_L / 2\pi$		$\lambda_H / 2\pi$	
0.3	-	1.34	159m	-	35.6m	1920 R ²
1.34	-	30	35.6m	-	1.6m	3450 R ² /f ²
30	-	300	1.6m	-	159mm	3.83 R ²
300	-	1500	159mm	-	31.8mm	0.0128 R ² f
1500	-	100000	31.8mm	-	0.5mm	19.2R ²

R= minimum separation distance in meter

f = frequency in MHz

2.2 Multiple RF Sources

In the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

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2.3 Single RF Source Evaluation Results

Chain 0	Frequency (MHz)	Max. tune-up power (dBm)	Peak gain (dBi)	ERP (dBm)	ERP (W)	Permissible Minimum separation distance ($\lambda/2\pi$) (m)	R = actual Minimum separation distance(m)	ERP _{th} (W)	ERP/ERP _{th}	Simultaneous transmission modes					
										1	2	3	4	5	6
Bluetooth	2480	4.6	1.35	3.8	0.002	0.0193	0.200	0.768	0.003	V					
WiFi 2.4GHz	2462	8.16	1.35	7.36	0.005	0.0194	0.200	0.768	0.007	V					

Note: All the single RF source results (P or ERP) are less than their corresponding threshold (P_{th} or ERP_{th}), so they are exempt from RF exposure testing.

2.4 Multiple RF Sources Evaluation Results

Simultaneous transmission modes	Σ ERP/ERP _{th}	Criteria
1	0.010	1

Note:

1. Σ (ERP/ERP_{th}): This is a summation of [(ERP of RF source / exemption threshold ERP for RF source)].
Considering the collocated transmitters, the aggregated (ERP/ERP_{th}) is smaller than 1, and MPE of collocated transmitters is compliant.

~ End of Report ~

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