RF Exposure Evaluation Report

Applicant:	SPE SMARTICO, LLC
Address of Applicant:	82G, Oleksandra Polya Avenue, Dnipro, Ukraine, 49000

Equipment Under Test (EUT)

Product Name:	Smartico Industrial Sensor LoRaWAN
Model No.:	IS-LR
Trade mark:	Smartico
FCC ID:	2AURW-SISLR02
Applicable standards:	FCC CFR Title 47 Part 2 Subpart J Section 2.1091
Date of sample receipt:	07 Jan., 2021
Date of Test:	05 Mar., to 21 May, 2021
Date of report issue:	10 Jun., 2021
Test Result:	PASS*

Authorized Signature:

Bruce Zhang
Laboratory Manager

2 Version

Version No.	Date	Description
00	*24 May, 2021*	*Original*
01	*10 Jun., 2021*	*Update FCC ID*

Tested by: Mike.ou ***Date:*** *10 Jun., 2021*

Test Engineer

Reviewed by: Winner Zhang ***Date:*** *10 Jun., 2021*

Project Engineer

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4 General Information

4.1 Client Information

Applicant:	SPE SMARTICO, LLC
Address:	82G, Oleksandra Polya Avenue, Dnipro, Ukraine, 49000
Manufacturer/Factory:	SPE SMARTICO, LLC
Address:	82G, Oleksandra Polya Avenue, Dnipro, Ukraine, 49000

4.2 General Description of E.U.T.

Product Name:	Smartico Industrial Sensor LoRaWAN
Model No.:	IS-LR
Operation Frequency:	Hopping 902.3MHz~914.9MHz DTS : 903.0MHz~914.2MHz
Modulation type:	Lora
Antenna Type:	Internal antenna External antenna
Antenna gain:	Internal antenna: 1.6dBi External antenna: 5.0dBi
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

4.3 Operating Modes

Operating mode	Detail description
Lora mode	Keep the EUT in continuously transmitting in Lora mode

4.4 Additions to, deviations, or exclusions from the method

No

4.5 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Designation No.: CN1211**

JianYan Testing Group Shenzhen Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

- **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of JianYan Testing Group Shenzhen Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

4.6 Laboratory Location

JianYan Testing Group Shenzhen Co., Ltd.
Address: No.101, Building 8, Innovation Wisdom Port, No.155 Hongtian Road, Huangpu Community, Xinqiao Street, Bao'an District, Shenzhen, Guangdong, People's Republic of China.
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

5 Technical Requirements Specification in FCC CFR Title 47 Part 2.1091

5.1 Limits

The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3–3.0	614	1.63	*(100)	6
3.0–30	1842/f	4.89/f	*($900/f^2$)	6
30–300	61.4	0.163	1.0	6
300–1500			f/300	6
1500–100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*($180/f^2$)	30
30–300	27.5	0.073	0.2	30
300–1500			f/1500	30
1500–100,000			1.0	30

5.2 Test Procedure

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = \frac{P \times G}{4 \times \pi \times R^2}$$

Where:

S = power density

P = power input to the antenna

G = numeric gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the centre of radiation of the antenna

5.3 Result

Frequency (MHz)	Maximum Output power (dBm)	Maximum Output power (mW)	Antenna Gain (dBi)	Antenna Gain (numeric)	Distance (cm)	Result (mW/cm^2)	Limits for General Population/ Uncontrolled Exposure (mW/cm^2)
Hopping: 902.3MHz~914.9MHz							
914.9	14.11	25.76	1.6	1.45	20.00	0.0074	0.61
914.9	14.11	25.76	5.0	3.16	20.00	0.0162	0.61
DTS: 903.0MHz~914.2MHz							
914.2	14.13	25.88	1.6	1.45	20.00	0.0074	0.61
914.2	14.13	25.88	5.0	3.16	20.00	0.0163	0.61

Note:
1. Maximum Output power refer to the FCC ID: 2AURW-LORARF
2. Just the worst case(Maximum Output powe and Highest antenna gain) mode was shown in report.

5.4 Conclusion

The device is exempt from the RF exposure evaluation.

------End of report------