

TEST REPORT

of

FCC CFR 47 part 1, 1.1307(b), 1.1310

FCC ID: WA2-ST4290


Equipment Under Test : Tracking Device
Model Name : ST4290L
Variant Model Name(s) : -
Applicant : Suntech International Ltd.
Manufacturer : Suntech International Ltd.
Date of Receipt : 2021.12.08
Date of Test(s) : 2021.12.14 ~ 2022.01.12
Date of Issue : 2022.03.10

In the configuration tested, the EUT complied with the standards specified above. This test report does not assure KOLAS accreditation.

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Tested by:



Murphy KimTechnical
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1. General Information

1.1. Testing Laboratory

SGS Korea Co., Ltd. (Gunpo Laboratory)

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- Designation number: KR0150

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1.2. Details of Applicant

Applicant : Suntech International Ltd.
 Address : A-1705, 1706, Greatvalley, 32, Digital-ro 9-gil, Geumcheon-Gu, Seoul, South Korea, 08512
 Contact Person : Yo-han, Kim
 Phone No. : +82 2 6327 5661

1.3. Details of Manufacturer

Company : Same as applicant
 Address : Same as applicant

1.4. Description of EUT

Kind of Product	Tracking Device
Model Name	ST4290L
Serial Number	147XXXXXXXX(1470000001 ~ 1479999999)
Power Supply	DC 3.6 V
Frequency Range	2 402 MHz ~ 2 480 MHz (Bluetooth Low Energy)
Modulation Technique	GFSK
Number of Channels	40 channels (Bluetooth Low Energy)
Antenna Type	PCB Pattern Antenna
Antenna Gain*	-0.06 dB i

1.5. Test Report Revision

Revision	Report Number	Date of Issue	Description
0	F690501-RF-RTL002879	2022.01.14	Initial
1	F690501-RF-RTL002879-1	2022.03.10	Changed the model name

2. RF Exposure Evaluation

2.1. Environmental evaluation and exposure limit according to FCC CFR 47 part 1, 1.1307(b), 1.1310

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time
(A) Limits for Occupational/Controlled Exposure				
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
300-1 500	-	-	f/300	6
1 500-100 000	-	-	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
<u>300-1 500</u>	-	-	<u>f/1500</u>	<u>30</u>
<u>1 500-100 000</u>	-	-	<u>1.0</u>	<u>30</u>

2.1.1. Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where P_d = power density in mW/cm^2

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

R = distance between observation point and center of the radiator in cm

P_d the limit of MPE, $1 mW/cm^2$. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

2.1.2. Test Result of RF Exposure Evaluation

Test Item : RF Exposure Evaluation Data
 Test Mode : Normal Operation

2.1.3. Output Power into Antenna & RF Exposure Evaluation Distance

Bluetooth Low Energy

- Maximum Tune up Tolerance

Frequency (MHz)	Maximum Average Output Power (dB m)	Antenna Gain (dB i)	Power Density at 20 cm (mW/cm ²)	Limits (mW/cm ²)
2 400 ~ 2 483.5	-4.5	-0.06	0.000 070	1

LTE - Band 2

- Maximum Tune up Tolerance

Frequency Range (MHz)	Maximum Average Output Power (dB m)	Antenna Gain (dB i)	Power Density at 20 cm (mW/cm ²)	Limits (mW/cm ²)
1 850 ~ 1 910	21.5	2.02	0.044 744	1

LTE - Band 4

- Maximum Tune up Tolerance

Frequency Range (MHz)	Maximum Average Output Power (dB m)	Antenna Gain (dB i)	Power Density at 20 cm (mW/cm ²)	Limits (mW/cm ²)
1 710 ~ 1 755	21.5	1.42	0.038 970	1

LTE - Band 5

- Maximum Tune up Tolerance

Frequency Range (MHz)	Maximum Average Output Power (dB m)	Antenna Gain (dB i)	Power Density at 20 cm (mW/cm ²)	Limits (mW/cm ²)
824 ~ 849	21.5	-0.07	0.027 652	0.55

LTE - Band 12

- Maximum Tune up Tolerance

Frequency Range (MHz)	Maximum Average Output Power (dB m)	Antenna Gain (dB i)	Power Density at 20 cm (mW/cm ²)	Limits (mW/cm ²)
699 ~ 716	21.5	-2.13	0.017 208	0.47

LTE - Band 13

- Maximum Tune up Tolerance

Frequency Range (MHz)	Maximum Average Output Power (dB m)	Antenna Gain (dB i)	Power Density at 20 cm (mW/cm ²)	Limits (mW/cm ²)
777 ~ 787	21.5	-0.77	0.023 536	0.52

Note;

- The power density Pd (5th column) at a distance of 20 cm calculated from the friis transmission formula is far below the limit of 1 mW/cm².
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
- This equipment should be installed and operated with minimum 20 cm between the radiator and your body.
- The antenna gain of this transmitter is less than 6 dB i and must not be collocated or operating in conjunction with any other antenna or transmitter unless authorized to do so by the FCC.
- According to KDB 447498 D01 RF Exposure Guidance 4.1.

Simultaneous transmission configuration.

- The EUT do not transmit simultaneously.

- End of the Test Report -