RF Exposure Evaluation Declaration

Report No.: S20240809492601E02
Issue Date: 09-14-2024

Applicant:	Jiangsu Shushi Technology Co., Ltd.
Address:	NO.9 Nanxu Road,RunZhou District,Zhenjiang, Jiangsu,China
FCC ID:	2BAGQ-3RSM0147Z
Product:	Smart Soil Moisture Sensor
Model No.:	3RSM0147Z
Trade Mark:	ThirdReality
FCC Rule Part(s):	CFR 47, FCC Part 2.1091 Radio frequency radiation exposure evaluation: mobile devices.
Item Receipt date:	Aug. 12, 2024
Test Date:	Aug. 15 ~ Aug. 30, 2024

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FANGGUANG INSPECTION & TESTING CO.,LTD. APPROVED(02)

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 558074 D01. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date
S20240809492601E02	Rev. 01	/	09-14-2024

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	Smart Soil Moisture Sensor
Test Model:	3RSM0147Z
Trade Mark:	ThirdReality
Input Voltage Range:	DC 1.5V (1*AA)
Zigbee Version:	3.0
Software Version:	V1.00.19
Hardware Version:	V1.6

1.2. Product Specification Subjective to this Report

Frequency Range	2405-2480 MHz
Number of Channels	Zigbee: 16
Channel Spacing	Zigbee: 5MHz
Antenna Type:	Ceramic antenna
Antenna Gain	2.8dBi
Type of Modulation	Zigbee: O-QPSK

2. RF Exposure Evaluation

2.1. Limits

According to FCC 1.1310: 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)

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 (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	f/1500	6
1500-100,000	--	--	1	30

f= Frequency in MHz

Calculation Formula: $Pd = (Pout*G)/(4*pi*r^2)$

Where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

Pd is the limit of MPE, $1mW/cm^2$. 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 r where the MPE limit is reached.

2.2. Test Result of RF Exposure Evaluation

Product	Smart Soil Moisture Sensor
Test Item	RF Exposure Evaluation

Mode	Frequency (MHz)	Maximum Conducted OutputPower (dBm)	Antenna Gain (dBi)	PG		MPE (mW/cm^2)	MPE Limits (mW/cm^2)
				(dBm)	(mW)		
Zigbee	2405~2480	10.80	2.8	13.60	22.91	0.013	1.00

Remark: 1. MPE use distance is 20cm from manufacturer declaration of user manual.

Remark: 2.Use the maximum gain of all bands when evaluating

CONCULISON:

The Max Power Density at R (20 cm) = 0.013mW/cm^2 < 1mW/cm^2.

So the EUT complies with the requirement.

The End