



MPE Test Report

Report No.: ZEK-ESH-P21062600B-3

FCC ID: 2AFGR-DS3

Product: Microinverter

Test Model: DS3-H, DS3, DS3-L, DS3-S

Received Date: Jun.25, 2021

Test Date: Jul.1 to Jul.29, 2021

Issued Date: Aug.10, 2021

Applicant: ALTENERGY POWER SYSTEM INC.

Address: No. 1 Yatai Road, Jiaxing, 314050, Zhejiang Province, P. R. China

Manufacturer: ALTENERGY POWER SYSTEM INC.

Address: No. 1 Yatai Road, Jiaxing, 314050, Zhejiang Province, P. R. China

Issued By: BUREAU VERITAS ADT (Shanghai) Corporation

Lab Address: No. 829, Xinzhuang Road, Shanghai, P.R.China (201612)

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Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 General Information	5
2.1 General Description of EUT	5
3 RF Exposure	6
3.1 Limits For Maximum Permissible Exposure (MPE).....	6
3.2 MPE Calculation Formula	6
3.3 MPE Calculation Formula	6
3.4 Calculation Result of Maximum Permissible Exposure.....	7



Release Control Record

Issue No.	Description	Date Issued
ZEK-ESH-P21062600B-3	Original release	Aug.10, 2021

1 Certificate of Conformity

Product: Microinverter

Brand: APsystems

Test Model: DS3-H, DS3, DS3-L, DS3-S

Applicant: ALTENERGY POWER SYSTEM INC.

Test Date: Jul.1 to Jul.29, 2021

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

The above equipment has been tested by **BUREAU VERITAS ADT (Shanghai) Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :

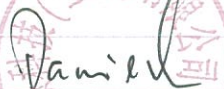

Yuan ZHANG

, Date:

Aug.10, 2021

Project Engineer

Approved by :


Daniel SUN
EMC Lab Manager

, Date:

Aug.10, 2021

2 General Information

2.1 General Description of EUT

802.15.4:

Product	Microinverter
Brand	APsystems
Test Model	DS3-H, DS3, DS3-L, DS3-S
Power Rating	60Vdc max
Modulation Type	O-QPSK
Modulation Technology	DSSS
Operating Frequency	2405MHz to 2480MHz
Number of Channel	16
Antenna Type	External antenna
Antenna Connector	--
Antenna Gain	Ant1:2dBi
Product SW/HW version	V3/NA
Radio SW/HW version	V1.0/NA
Test SW version	smartRF studio 7
RF power setting in Test SW	NA

Note:

1. For more details, please refer to the User's manual of the EUT.
2. All models have same wireless module. After evaluation, we choose model DS3-H to perform all test item.

3 RF Exposure

3.1 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)
Limits For General Population / Uncontrolled Exposure				
300-1,500	-	-	F/1500	30
1,500-100,000	-	-	1.0	30

F = Frequency in MHz

3.2 MPE Calculation Formula

Power density (S) is calculated according to the formula:

$$S = PG / (4\pi R^2)$$

Where S = power density in mW/cm²

P = transmit power in mW

G = numeric gain of transmit antenna (numeric gain=Log-1(dB antenna gain/10))

R = distance (cm)

3.3 MPE Calculation Formula

The antenna of this product, under normal use condition, is at least 20cm from the body of the user. So the device is classified as Mobile Device.

3.4 Calculation Result of Maximum Permissible Exposure

802.15.4:

Frequency Band (MHz)	Max. Conducted output power(dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2405-2480	6.95	2.0	20	0.001562969	1

Conclusion:

The calculation result of MPE is less than the limit.

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