

Application for FCC Certification
On behalf of

ZHEJIANG REXENSE TECHNOLOGY CO., LTD.

Product Name: 802.15.4 / ZigBee Module

Model No.: REX3SP

Serial No.: 5016A9AF, 50169F26

FCC ID: O46RY12M02

(MPE Calculation)

Prepared For : ZHEJIANG REXENSE TECHNOLOGY CO., LTD.
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Report No. : ACI-F12139
Date of Test : Aug. 21, 2012
Date of Report : Aug. 22, 2012

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TEST REPORT FOR FCC CERTIFICATE

Applicant : ZHEJIANG REXENSE TECHNOLOGY CO., LTD.
Manufacturer : ZHEJIANG REXENSE TECHNOLOGY CO., LTD.
EUT Description : 802.15.4 / ZigBee Module
(A) Model No. : REX3SP
(B) Serial No. : 5016A9AF, 50169F26
(C) Test Voltage : DC 3.3V

Test Procedure Used:

FCC OET Bulletin 65 August 1997

The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC OET Bulletin 65.

The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report also shows that the EUT (M/N: REX3SP, S/N: 5016A9AF, 50169F26), which was tested on Aug. 21, 2012 is technically compliance with the FCC limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Aug. 21, 2012 Date of Report : Aug. 22, 2012

Producer : Kathy Wang
KATHY WANG / Assistant

Review : Dio Yang
DIO YANG / Assistant Manager

 For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : Sammy Chen
Authorized Signature EMC SAMMY CHEN / Deputy Manager

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test

Description : 802.15.4 / ZigBee Module

Type of EUT ☒ Production ☐ Pre-product ☐ Pro-type

Model Number : REX3SP

Note 1 : The REX3SP has 2 types of antenna:
one is the PCB antenna on board, the other
is the external SMA antenna.

Serial Number : 5016A9AF (PCB antenna type),
50169F26 (SMA antenna type)

Note 2 : The only difference of above 2 samples is using PCB
antenna or SMA antenna, so we select 1 sample to
perform the RF conducted test.

Radio Tech : IEEE 802.15.4 (ZigBee®)

Freq. Band : 2405 MHz - 2475 MHz
Total 15 Channels in 5 MHz Separation

Tested Freq. : 2405 MHz (Channel 11)
2440 MHz (Channel 18)
2475 MHz (Channel 25)

Antenna Gain : 2.0 dBi (for both PCB antenna and SMA antenna)

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1.2 Description of Test Facility

Site Description (Semi-Anechoic Chamber) : Sept. 17, 1998 file on
Apr 29, 2009 Renewed
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046, USA

Name of Firm : Audix Technology (Shanghai) Co., Ltd.

Site Location : 3 F 34 Bldg 680 Guiping Rd.,
Caohejing Hi-Tech Park,
Shanghai 200233, China

FCC registration Number : 91789

Accredited by NVLAP, Lab Code : 200371-0

1.3 Measurement Uncertainty

Output Power Expanded Uncertainty : U = 0.30 dB

2 SUMMARY OF STANDARDS AND RESULTS

2.1 Applicable Standard

FCC OET Bulletin 65:1997

2.2 Specification Limits

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
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/150	30
1500-100,000	--	--	1.0	30

f = frequency in MHz

*Plane-wave equivalent power density

NOTE: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

The limit value 1.0mW/cm² is available for this EUT.

2.3 MPE Calculation Method

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

$$R = [PG/(4 \pi S)]^{0.5}$$

where: S = power density (in appropriate units, e.g. mW/ cm²)

P = power input to the antenna (in appropriate units, e.g., mW)

(the measured power value see Report: F12088 Section 5.6)

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

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

2.4 Calculated Result

2.4.1 Radio Frequency Radiation Exposure Evaluation

Frequency	Output Power to Antenna	Antenna Gain		Power Density	Limit
(MHz)	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(mW/cm ²)
2405	65.16	2.0	1.585	0.02055	1.0
2440	69.34	2.0	1.585	0.02187	1.0
2475	72.44	2.0	1.585	0.02284	1.0

Separation distance R= 20cm.

Frequency	Output Power to Antenna	Antenna Gain		Limit	Distance
(MHz)	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(cm)
2405	65.16	2.0	1.585	1.0	2.87
2440	69.34	2.0	1.585	1.0	2.96
2475	72.44	2.0	1.585	1.0	3.02

The antenna used for this transmitter must be installed to provide a separation distance of at least 3.02cm from all persons.