

Radio Test Report

Report No.: STS2401325H01

Issued for

Radisys Corporation

8900 NE Walker Road, Suite# 130, Hillsboro, Oregon, 97006,
USA

Product Name: Home gateway Unit

Brand Name: 

Model Name: PM4165B

Series Model(s): N/A

FCC ID: 2A29YPM4165B

Test Standards: FCC 47CFR §2.1091

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.



TEST REPORT

Applicant's Name.....: Radisys Corporation
 Address: 8900 NE Walker Road, Suite# 130, Hillsboro, Oregon, 97006, USA
Manufacturer's Name.....: Radisys Corporation
 Address: 8900 NE Walker Road, Suite# 130, Hillsboro, Oregon, 97006, USA
 Factory.....: Bowei Technology Co., Ltd
 Address: 2F, Building 2, No. 306 Gushui Road, Haining Economic
 Development Zone, Haining, Jiaxing City, Zhejiang, China.

Product Description

Product Name.....: Home gateway Unit

Brand: **Radisys**

Model Number: PM4165B

Series Model(s).....: N/A

Standards.....: FCC 47CFR §2.1091
447498 D01 Interim General RF Exposure Guidance v06

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Date of Test.....:

Date of receipt of test item.....: 18 Jan. 2024

Date (s) of performance of tests.....: 18 Jan. 2024 ~ 01 Mar. 2024

Date of Issue.....: 01 Mar. 2024

Test Result.....: **Pass**

Testing Engineer :

Aaron Bu

(Aaron Bu)

Technical Manager :

Chris Chen

(Chris Chen)

Authorized Signatory :

Bovey Yang

(Bovey Yang)





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Revision History

Rev.	Issue Date	Report No.	Effect Page	Contents
00	01 Mar. 2024	STS2401325H01	ALL	Initial Issue

1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF THE EUT

Product Name	Home gateway Unit	
Brand	Radisys	
Model Number	PM4165B	
Series Model(s)	N/A	
Model Difference	N/A	
Product Description	The EUT is Home gateway Unit	
	Operation Frequency:	2.4GWLAN: 802.11b/g/n/ax(20MHz): 2412~2472MHz 802.11n/ax(40MHz):2422~2462MHz 5G WLAN 802.11a/n/ac/ax(20MHz): 5180~5700MHz 802.11n/ac/ax(40MHz):5190~5670MHz 802.11ac/ax(80MHz):5210~5610MHz 802.11ac/ax (160MHz):5250~5570MHz 5.8G WLAN 802.11a/n/ac/ax (20MHz): 5745~5825MHz 802.11n /ac/ax(40MHz):5755~5795MHz 802.11ac/ax (80MHz):5775MHz 802.11ac/ax (160MHz):5575MHz
	Modulation Type:	2.4G WLAN 802.11b(DSSS):CCK,DQPSK,DBPSK 802.11g(OFDM):BPSK,QPSK,16-QAM,64-QAM 802.11n(OFDM):BPSK,QPSK,16-QAM,64-QAM8 02.11ax(OFDM, OFDMA): BPSK,QPSK,16-QAM,64-QAM,256-QAM,1024QAM 5G/5.8GWLAN 802.11a(OFDM):BPSK,QPSK,16-QAM,64-QAM 802.11n(OFDM):BPSK,QPSK,16-QAM,64-QAM 802.11ac(OFDM):BPSK,QPSK,16-QAM,64-QAM, 256-QAM 802.11ax(OFDM,OFDMA):BPSK,QPSK,16-QAM, 64-QAM,256-QAM,1024QAM



		2.4G WLAN Antenna 1: 2.81 dBi Antenna 2: 2.81 dBi MIMO : 5.82 dBi 5GWLAN U-NII-1: Antenna 1 gain : 2.85 dBi Antenna 2 gain : 2.85 dBi Antenna 3 gain : 2.85 dBi MIMO : 7.62 dBi U-NII-2A Antenna 1 gain : 2.77 dBi Antenna 2 gain : 2.77 dBi Antenna 3 gain : 2.77 dBi MIMO : 7.54 dBi U-NII-2C Antenna 1 gain : 2.56 dBi Antenna 2 gain : 2.56 dBi Antenna 3 gain : 2.56 dBi MIMO : 7.33 dBi U-NII-3 Antenna 1 gain : 2.78 dBi Antenna 2 gain : 2.78 dBi Antenna 3 gain : 2.78 dBi MIMO : 7.55 dBi
	Antenna Designation:	Internal Antenna
Rating	Input: DC 12 V, 1.5A	
Adapter	Model: RD1201500-C55-153MG Input: 100-240V AC, 50/60Hz,0.6A output: DC 12 V, 1.5A Model: TPA259-18120-US Input: 100-240V AC, 50/60Hz,0.6A output: DC 12 V, 1.5A	
Hardware Version	V1.0	
Software Version	V1.0.08	



1.2 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : 101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01



2. FCC 47CFR §2.1091 REQUIREMENT

2.1 TEST STANDARDS

The limit for Maximum Permissible Exposure (MPE) specified in FCC 1.1310 is followed. The gain of the antennas used in the product is extracted from the Antenna data sheets provided and also the maximum total power input to the antenna is measured. Through the Friis transmission formula and the maximum gain of the antenna, we can calculate the distance, away from the product, where the limit of MPE is reached.

Although the Friis Transmission formula is far field assumption, the calculated result of that is an over-prediction for near field power density. It is taken as worst case to specify the safety range.

2.2 LIMIT

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of the 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)
Limits for Occupational / controlled Exposures			
300 - 1500	--	--	F/300
1500 – 100000	--	--	5.0
Limits for General population / Uncontrolled Exposure			
300 - 1500	--	--	F/1500
1500 – 100000	--	--	1.0

F= Frequency in MHz

Friss Formula

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

Where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

If we know the maximum gain of the antenna and the total output power to the antenna, through calculation, we will know MPE value at distance 20cm.



2.3 TEST RESULT

Turn up

Mode	Detector	Turn up Power
2.4G WIFI	AV	20±1dBm
5G WIFI	AV	23±1dBm

Protocol	Fre. (MHz)	Separation distance (cm)	Max Turn up power (dBm)	ANT Gain (dBi)	Max EIRP (dBm)	Max EIRP (mW)	Power Density (mW/cm ²)	Limit (mW/cm ²)	Ratio	Result
2.4G WIFI	2462	20	21	5.82	26.82	480.8	0.0957	1	0.0957	Pass
5G WIFI	5775	20	24	7.55	31.55	1428.9	0.2843	1	0.2843	Pass

Multiple transmission:

$$2.4G\ WLAN + 5G\ WLAN = 0.0957 + 0.2843 = 0.38 < 1$$

Note: 1. The Maximum power is less than the limit, complies with the exemption requirements.

$$2. ERP = EIRP - 2.15$$

*****END OF THE REPORT*****