



RF Exposure Evaluation Declaration

	Report No.: S20241118761701E	80		
	Issue Date: 03-13-20	25		
Applicant:	Wallys Communications Technologies Co.,Ltd			
Address:	Room 2723,Le Jia building,Jia Rui Xiang No.8, Suzhou			
	Industrial Park, Suzhou, P.R			
FCC ID:	2AG7VDR5018S			
Product:	Wireless Router Module			
Model No.:	DR5018S, DR5018S-DB, DR5018S-5G			
Trade Mark:	1			
FCC Rule Part(s):	CFR 47, FCC Part 2.1091 Radio frequency radiation			
	exposure evaluation: mobile devices.			
Item Receipt date:	Nov 21, 2024			
Test Date:	Nov 26 2024 ~ Jan 07, 2025			

Compiled By

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Approved By

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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.

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Revision History

Report No. Version		Description	Issue Date	
S20241118761701E08	Rev. 01	/	03-13-2025	



1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	Wireless Router Module					
Model Name:	DR5018S					
Additional Model:	DR5018S-DB, DR5018S-5G					
		P/N	Radio	Frequency		
	1	DR5018S-5G	5Ghz	1G Ethernet & POE		
	2	DR5018S	2.4Ghz 5Ghz	2.5G+1G Ethernet & POE		
Model Description:	3	DR5018S-DB	2.4Ghz 5Ghz	1G Ethernet & POE		
Model Description.	DR5018S-5G has 5G radio and 1x1G ethernet port and support PD feature					
	DR5018S has 2.4G,5G radio and 1x2.5G+1x1G ethernet ports and all support PD					
	feature					
	DR5018S-DB has 2.4G,5G radio and 1x1G ethernet port and support PD feature					
Trade Mark:	/					
Input Voltage Range:	DC 48V					

Note:

1. There are two types of antennas for the Wireless Router Module(2.4G-WiFi). The antennas are DRA25 and DRA2G5G5D-A-B.

2. There are three types of antennas for the Wireless Router Module(5G-RLAN). The antennas are DR5G15, DR5G17 and DR5G19.

1.2. Product Specification Subjective to this Report

	802.11b/g/n20/ax20: 2412 ~ 2462MHz			
	802.11n40/ax40:2422 ~ 2452MHz			
	For 802.11a/n-HT20/ac-VHT20/ax-HE20:			
	5180~5240MHz, 5260~5320MHz, 5500~5700MHz			
Fraguency Pange:	For 802.11n-HT40/ac-VHT40/ax-HE40:			
Frequency Range.	5190~5230MHz, 5270~5310MHz, 5510~5670MHz			
	For 802.11ac-VHT80/ax-HE80:			
	5210MHz, 5290MHz, 5530MHz, 5610MHz			
	For 802.11ac-VHT160/ax-HE160:			
	5250MHz, 5570MHz			
	802.11b: DSSS			
Type of Modulation:	802.11g/n/ax: OFDM/ OFDMA			
	802.11a/n/ac/ax:			
	OFDM/OFDMA/BPSK/QPSK/DBPSK/DQPSK/16QAM/64QAM/256QAM/1024QA			





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· · · -	2.4G-WiFi:
	Dipole Antenna
Antenna Type.	5G-WiFi:
	Array Antenna
	2.4G-WiFi:
	DRA25 Antenna: Ant1 4.56dBi, Ant2 4.56dBi
	DRA2G5G5D-A-B Antenna: Ant1 4.29dBi, Ant2 4.29dBi
Antenna Gain:	5G-WiFi:
	DR5G15 Antenna: Ant1 15.54dBi, Ant2 15.54dBi
	DR5G17 Antenna: Ant1 17.95dBi, Ant2 17.95dBi
	DR5G19 Antenna: Ant1 19.81dBi, Ant2 19.81dBi



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)

Frequency Range	Electric Field	Magnetic Field	Power Density	Average Time			
(MHz)	Strength (V/m)	Strength (A/m)	(mW/cm ²)	(Minutes)			
(A) Limits for Occupational/ Control Exposures							
300-1500			f/300	6			
1500-100,000	0-100,000		5				
(B) Limits for General Population/ Uncontrolled Exposures							
300-1500		f/1500		6			
1500-100,000			1	30			

Limits for Maximum Permissible Exposure (MPE)

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/cm². 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. For Simultaneous Transmissions Sources Limits



Where:

a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(B) of this section for P_{th} , including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph
(b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.

Pi = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source i at a distance between 0.5 cm and 40 cm (inclusive).

 $P_{th,i}$ = the exemption threshold power (P_{th}) according to paragraph (b)(3)(i)(B) of this section for fixed, mobile, or portable RF source i.

ERP_j = the ERP of fixed, mobile, or portable RF source j.

ERP_{th,j} = exemption threshold ERP for fixed, mobile, or portable RF source j, at a distance of at least $\lambda/2\pi$ according to the applicable formula of paragraph (b)(3)(i)(C) of this section.

Evaluated_k = the maximum reported SAR or MPE of fixed, mobile, or portable RF source k either in the device or at the transmitter site from an existing evaluation at the location of exposure.

Exposure Limit_k = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source k, as applicable from § 1.1310 of this chapter.



Product		Wireless Router Module							
Test Item		RF Expo	RF Exposure Evaluation						
			Maximum			PG			
	Free		Conducted	Antenna			МОГ	MPE	
Mode	Field		Output	Gain		(mW)	(mW/cm ²)	Limits	
	(17	IHZ)	Power	(dBi)	(dBm)			(mW/cm ²)	
			(dBm)						
WiFi	2412	- 2462	17.65	4.56	22.21	166.34	0.008	1.00	
	5150	- 5250	16 19	19.81	35.99	3971.92	0.198	1.00	
RLAN	5725	- 5850	10.10						
	2410	2462	18.38	Directional	25.95	393.55	0.020	1.00	
VVIEI	2412	2412 - 2402		Gain: 7.57					
RLAN	5150	- 5250	10.14	Directional	35.96	3944.57	0.196	1 00	
	5725	- 5850	13.14	Gain: 22.82				1.00	
Simultaneous		_					0.218	1.00	
Transmission		/	/	/	/	/	0.218	1.00	

2.3. Test Result of RF Exposure Evaluation

Remark: 1. MPE use distance is 40cm from manufacturer declaration of user manual.

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

Remark: 3. The simultaneous transmission is WiFi and RLAN emission.

CONCULISON:

The Max Power Density at R (40 cm) = 0.218mW/cm² < 1mW/cm².

So the EUT complies with the requirement.



Statement

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Building G9, China Sensor Network International Innovation Park, No.200, Linghu Avenue, Wuxi, Jiangsu, China (Wuxi Innovation Park Laboratory)

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