



JAPAN RADIO TEST REPORT

Applicant : ELECOM CO., LTD.

Address : 2F Kudan First Place, 4-1-28, Kudan Kita, Chiyoda
ward, Tokyo, Japan 102-0073

Equipment : (1) 11ac/an 1733Mbps 11bgn 800Mbps Wireless Giga
Router / Internal antenna model
(2) 11ac/a/n 1733Mbps 4x4, 11b/g/n 800Mbps 4x4,
11ac Mesh Router

Model No. : (1) WRC-2533GST2, WRC-2533GS2
(2) WMC-C2533GST-W

Trade Name : ELECOM

Output Power : 802.11b: 8.03 mW/MHz
802.11g: 7.97 mW/MHz
VHT20: 8.36 mW/MHz
VHT40: 4.16 mW/MHz

Carrier Sense : ☒Yes ☐No

I HEREBY CERTIFY THAT :

The sample was received on Nov. 19, 2019 and the testing was completed on Dec. 07, 2019 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approval by:

Mark Liao / Supervisor

Laboratory Accreditation:

CerpPASS Technology Corporation Test Laboratory



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History of this test report

Report No.	Issue Date	Description
TEMJ1807095	Aug. 29, 2018	Original
TEMJ1911130	Dec. 12, 2019	1. Added product name.: 11ac/a/n 1733Mbps 4x4 11b/g/n 800Mbps 4x4 11ac Mesh Router 2. Added model No.: WMC-C2533GST-W 3.Update the software.



1. Summary of Test Procedure and Test Results

1.1 Applicable Standards

TELEC-T401 (2018-08):

- Item 19 of Article 2

Description	Result
Carrier Sensing Function	Pass
Construction Protection Confirmation	Pass

*The lab has lowered the uncertainty risk of test equipment, environment, and staff technicians according to ISO-IEC17025. Therefore we define test result as compliant when it complies with the standard without further evaluation of test result uncertainty.



2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

Equipment	(1) 11ac/an 1733Mbps 11bgn 800Mbps Wireless Giga Router / Internal antenna model (2) 11ac/a/n 1733Mbps 4x4, 11b/g/n 800Mbps 4x4, 11ac Mesh Router
Model No.	(1) WRC-2533GST2, WRC-2533GS2 (2) WMC-C2533GST-W
Brand Name	ELECOM
Product Description	Please refer to User's Manual.
Connecting I/O Port(s)	Please refer to User's Manual.
Power Rating	ELECOM / ADP33-006 Y3 Input: 100-240V ~ 50/60Hz, 0.6A, 30-40VA Output: 12V, 1.5A
Memo	A1
Frequency Range	802.11b/g/n/ac: 2400MHz-2483.5MHz 802.11a/n/ac: 5150MHz-5250MHz, 5250MHz-5350MHz, 5470MHz-5725MHz
Modulation Type	OFDM, DSSS
Data Rate	2.4G: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS31, HT20/40, MCS0 – MCS9, VHT 20/40 5G: 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS31, HT20/40 802.11ac: MCS0 – MCS9, VHT 20/40/80
Antenna Type	PCB Antenna
Antenna Gain	2.4GHz: ANT 0~3: 2.9dBi 5150MHz-5250MHz: ANT 0~3: 3.7dBi 5250MHz-5350MHz: ANT 0~3: 3.6dBi 5470MHz-5725MHz: ANT 0~3: 3.9dBi

Note: For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.2 The Difference of Model No.

The differences between all model numbers as below:

Model No.	Remark
WRC-2533GST2	The differences between these two model numbers are for marketing purpose, the circuit design and layout are the same.
WRC-2533GS2	
WMC-C2533GST-W	The differences between WRC-2533GST2/WRC-2533GS2 these two model numbers and WMC-C2533GST-W are for software, the circuit design and layout are the same.



2.3 Carrier Frequency of Channels

802.11b / 802.11g / 802.11n HT20 / VHT20

Channel	Frequency(MHz)	Channel	Frequency(MHz)
*01	2412	08	2447
02	2417	09	2452
03	2422	10	2457
04	2427	11	2462
05	2432	12	2465
06	2437	*13	2472
*07	2442	---	---

802.11n HT40 / VHT40

Channel	Frequency(MHz)	Channel	Frequency(MHz)
---	---	08	2447
---	---	09	2452
*03	2422	10	2457
04	2427	*11	2462
05	2432	---	---
06	2437	---	---
*07	2442	---	---

Note: Channels remarked * are selected to perform test.

2.4 Test Mode and Test Software

- a. An executive program, "QA Tool:v0.0.1.71" under Windows OS system was executed to transmit and receive data via WLAN.
- b. The following test modes were performed for the test:

Test Mode	Operating Description
1	802.11b (1Mbps)
2	802.11g (6Mbps)
3	802.11n HT20 (6.5Mbps)
4	802.11n HT40 (13.5Mbps)
5	VHT20 (6.5Mbps)
6	VHT40 (13.5Mbps)

caused "Test Mode 1, 2, 5, 6" generated the worst case, they were reported as the final case.

2.5 Description of Test System

Carrier Sensing				
Equipment	Brand	Model	Length/Type	Power cord/Length/Type
Notebook	ASUS	P2430U	N/A	Adapter / 1.8m / NS
Notebook	DELL	Latitude E5450	N/A	Adapter / 1.8m / NS
Network cable	N/A	N/A	1.2m / NS	N/A



2.6 General Information of Test

Test Site	Cerpass Technology Corporation Test Laboratory Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881	
	FCC	TW1439, TW1079
	IC	4934E-1, 4934E-2
	VCCI	T-2205 for Telecommunication test C-4663 for Conducted emission test R-4218 for Radiated emission test G-10812, G-10813 for radiated disturbance above 1GHz
Test Condition	Normal Voltage : 100 V Extreme Voltage : 90 V and 110 V	

Test Item	Test Site	Finish Date	Environmental Conditions	Tested By
Carrier Sensing	Adaptivity & Receiver Blocking-NK	2019/12/07	21°C / 61%	Dian Chen

2.7 Measurement Uncertainty

Measurement Item	Uncertainty
Output power	±2.106dB
TX Unwanted Emissions Strength	±2.160dB
RX Unwanted Emissions Strength	±2.110dB
Occupied bandwidth	±4.400dB
Spreading Bandwidth	±4.414%
Frequency tolerance	±130.764Hz
Dwell Time	±0.11%



3. Test Equipment and Ancillaries Used for Tests

Test Item	DFS & Carrier Sensing				
Test Site	RFDFS01-NK				
Instrument	Manufacturer	Model No	Serial No	Calibration Date	Valid Date
CAX Signal Analyzer	KEYSIGHT	N9000B	MY57100291	2019/11/06	2020/11/05
MXG Vector Signal Generator	KEYSIGHT	N5182A	MY50141551	2019/10/07	2020/10/06
N7607B Signal Studio	KEYSIGHT	v3.2.0.0	NA	NA	NA
InServiceMonitorUtility	Theda	v10.0.0.0	NA	NA	NA



4. Transmitter Parameters

4.1 Carrier Sensing Function

4.1.1 Test Result and Data

Carrier Sensing-AP mode

VHT40

Test Conditions	Test Frequency	MHz	2422	2442	2462
	Mini. Anetnna Gain	dBi	2.90	2.90	2.90
Voltage	Carrier Level	dBm	-41.99	-42.06	-42.14
Vnom	Result	Good/Fail	Good	Good	Good

Carrier Sensing-Router mode

VHT40

Test Conditions	Test Frequency	MHz	2422	2442	2462
	Mini. Anetnna Gain	dBi	2.90	2.90	2.90
Voltage	Carrier Level	dBm	-41.99	-42.06	-42.14
Vnom	Result	Good/Fail	Good	Good	Good



5. Power Supply Voltage Fluctuation Test

Voltage Fluctuation Test	Normal Voltage	High Voltage + 10% of Normal Voltage	Low Voltage – 10% of Normal Voltage
Input AC Power	100	110	90
Output DC Power	3.320	3.320	3.320
Voltage Variation (%)	-	0.00%	0.00%

Note: Voltage Variation (%)= (Output High or Low Voltage – Output Normal Voltage) / Output Normal Voltage x 100

During the input supply voltage to the EUT from the external power source is varied by +/- 10%, if output voltage had been confirmed that the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than +/-1%. Exempt extremely high and low supply voltage condition tests, EUT only operated in normal voltage to test all regulations.



6. Construction Protection Confirmation

