



FCC RADIO TEST REPORT

FCC ID : B94TNQ296PC
Equipment : Notebook PC
Brand Name : HP
Compliance ID : TPN-Q296
Applicant : HP Inc.
1501 Page Mill Road, Palo Alto CA, 94304, USA
Standard : FCC 47 CFR Part 2, and 90(S)

The product was received on Aug. 22, 2023 and testing was performed from Sep. 18, 2023 to Sep. 18, 2023. We, Sporton International Inc. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the test procedures given in ANSI / TIA-603-E and has been in compliance with the applicable technical standards.

The test results in this partial report apply exclusively to the tested model / sample. Without written approval from Sporton International Inc. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Louis Wu

Approved by: Louis Wu

Sporton International Inc. EMC & Wireless Communications Laboratory

No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)



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Appendix A. Test Results of Conducted Test



History of this test report

Report No.	Version	Description	Issue Date
FG382109-04F	01	Initial issue of report	Oct. 06, 2023
FG382109-04F	02	Revise Product Feature of Equipment Under Test This report is an updated version, replacing the report issued on Oct. 06, 2023.	Oct. 19, 2023



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	§2.1046 §90.635	Conducted Output Power and Effective Radiated Power	Pass	-
-	-	Peak-to-Average Ratio	-	See Note
-	§2.1049 §90.209	Occupied Bandwidth and 26dB Bandwidth	-	See Note
-	§2.1051 §90.691	Emission masks – In-band emissions	-	See Note
-	§2.1051 §90.691	Emission masks – Out of band emissions	-	See Note
-	§2.1055 §90.213	Frequency Stability for Temperature & Voltage	-	See Note
-	§2.1053 §90.691	Field Strength of Spurious Radiation	-	See Note

Remark:

- For host device, Field Strength of Spurious Radiation, Effective Radiated Power and Equivalent Isotropic Radiated Power are verified and complies with the limit in this test report.
- For host device, the Conducted Output Power is no difference after compared to module (Model: FM101-GL)

Conformity Assessment Condition:

The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

Reviewed by: Sheng Kuo

Report Producer: Ming Chen



1 General Description

1.1 Feature of Equipment Under Test

Product Feature	
General Specs	WCDMA/LTE, Bluetooth, Wi-Fi 2.4GHz 802.11b/g/n /ax, Wi-Fi 5GHz 802.11a/n/ac/ax, and Wi-Fi 6GHz 802.11ax
Sample 1	EUT with Vendor 1
Sample 2	EUT with Vendor 2
Integrated WLAN Module	Brand Name: Intel® Wi-Fi 6E AX211 Model Name: AX211NGW FCC ID: PD9AX211NG
Integrated WLAN Module	Brand Name: MediaTek Model Name: MT7921 FCC ID: B94-MT7921S
Integrated WWAN Module	Brand Name: Fibocom Model Name: FM101-GL
Antenna Type	WWAN: PIFA Antenna WLAN: <Ant. 1>: PIFA Antenna <Ant. 2>: PIFA Antenna Bluetooth: PIFA Antenna

WWAN Antenna Information for Host				
Main Antenna	Manufacturer	Vendor 1	Peak gain (dBi)	LTE Band 26 : 1.50
	Part number	DQ6E1LTE100 (MDA-LTE1LTE1-01-001)	Type	PIFA
	Manufacturer	Vendor 2	Peak gain (dBi)	LTE Band 26 : 1.49
	Part number	DQ6915G0200 (81ELA915.G02)	Type	PIFA

Remark: The EUT's information above is declared by manufacturer. Please refer to Disclaimer in report summary.

1.2 Modification of EUT

No modifications made to the EUT during the testing.



1.3 Testing Site

Test Site	Sporton International Inc. EMC & Wireless Communications Laboratory
Test Site Location	No.52, Huaya 1st Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) TEL: +886-3-327-3456 FAX: +886-3-328-4978
Test Site No.	Sporton Site No. TH03-HY
Test Engineer	Cotty Hsu
Temperature (°C)	22.2~23.1
Relative Humidity (%)	51~56

FCC Designation No.: TW1190

1.4 Applied Standards

According to the specifications declared by the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC 47 CFR Part 2, 90
- ♦ ANSI / TIA-603-E
- ♦ ANSI C63.26-2015
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01
- ♦ FCC KDB 412172 D01 Determining ERP and EIRP v01r01
- ♦ Interim Guidance for Equipment Authorization of Devices with Channel Bandwidths Combined Across Two Contiguous Service Rule Allocations OET/Lab/EACB, June 6, 2013

Remark:

1. All the test items were validated and recorded in accordance with the standards without any modification during the testing.
2. The TAF code is not including all the FCC KDB listed without accreditation.



2 Test Configuration of Equipment Under Test

2.1 Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level.

Frequency range investigated for radiated emission is 30 MHz to 9000 MHz.

Conducted Test Cases	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max. Output Power	26	v	v	v	v	v	-	v	v	v			v	v	v
E.R.P.	26	v	v	v	v	v	-	v	v	Max. Power					
Remark	1. The mark "v" means that this configuration is chosen for testing 2. The mark "-" means that this bandwidth is not supported.														

2.2 Frequency List of Low/Middle/High Channels

LTE Band 26 Channel and Frequency List				
BW [MHz]	Channel/Frequency(MHz)	Lowest	Middle	Highest
15	Channel	26765	-	-
	Frequency	821.5	-	-
10	Channel	-	26740	-
	Frequency	-	819	-
5	Channel	26715	26740	26765
	Frequency	816.5	819	821.5
3	Channel	26705	26740	26775
	Frequency	815.5	819	822.5
1.4	Channel	26697	26740	26783
	Frequency	814.7	819	823.3

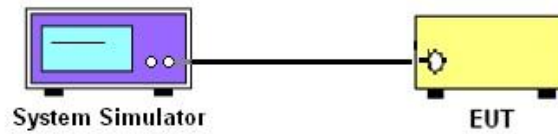
3 Conducted Test Items

3.1 Measuring Instruments

See list of measuring instruments of this test report.

3.1.1 Test Setup

3.1.2 Conducted Output Power



3.1.3 Test Result of Conducted Test

Please refer to Appendix A.



3.2 Conducted Output Power Measurement and ERP Measurement

3.2.1 Description of the Conducted Output Power Measurement and ERP Measurement

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

The output power of mobile transmitters must not exceed 100 Watts for LTE Band 26.

According to KDB 412172 D01 Power Approach,

$EIRP = P_T + G_T - L_C$, where

P_T = transmitter output power in dBm

G_T = gain of the transmitting antenna in dBi

L_C = signal attenuation in the connecting cable between the transmitter and antenna in dB

3.2.2 Test Procedures

1. The transmitter output port was connected to the system simulator.
2. Set EUT at maximum power through system simulator.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Measure and record the power level from the system simulator.



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Radio Communication Analyzer	Anritsu	MT8821C	6262025353	LTE FDD/TDD LTE-2CC DLCA/ULCA	Oct. 13, 2022	Sep. 18, 2023	Oct. 12, 2023	Conducted (TH03-HY)
Coupler	Warison	20dB 25W SMA Directional Coupler	#B	1-18GHz	Jan. 06, 2023	Sep. 18, 2023	Jan. 05, 2024	Conducted (TH03-HY)



Appendix A. Test Results of Conducted Test

Conducted Output Power (Average power)

LTE Band 26 Maximum Average Power [dBm] (GT - LC = 1.5 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
15	1	0	QPSK	23.22	-	-	22.63	0.1832
15	1	37		23.25	-	-		
15	1	74		23.28	-	-		
15	36	0		22.30	-	-		
15	36	20		22.33	-	-		
15	36	39		22.36	-	-		
15	75	0		22.30	-	-		
15	1	0	16-QAM	22.49	-	-	21.90	0.1549
15	1	37		22.55	-	-		
15	1	74		22.53	-	-		
15	36	0		21.31	-	-		
15	36	20		21.30	-	-		
15	36	39		21.38	-	-		
15	75	0		21.29	-	-		
Limit	Power < 100W			Result			Pass	



LTE Band 26 Maximum Average Power [dBm] (GT - LC = 1.5 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
10	1	0	QPSK	-	23.21	-	22.65	0.1841
10	1	25		-	23.26	-		
10	1	49		-	23.30	-		
10	25	0		-	22.35	-		
10	25	12		-	22.34	-		
10	25	25		-	22.30	-		
10	50	0		-	22.31	-		
10	1	0	16-QAM	-	22.47	-	21.94	0.1563
10	1	25		-	22.55	-		
10	1	49		-	22.59	-		
10	25	0		-	21.33	-		
10	25	12		-	21.34	-		
10	25	25		-	21.28	-		
10	50	0		-	21.33	-		
Limit	Power < 100W			Result			Pass	



LTE Band 26 Maximum Average Power [dBm] (GT - LC = 1.5 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
5	1	0	QPSK	23.25	23.19	23.18	22.72	0.1871
5	1	12		23.27	23.21	23.28		
5	1	24		23.32	23.37	23.36		
5	12	0		22.29	22.22	22.27		
5	12	7		22.32	22.22	22.31		
5	12	13		22.38	22.43	22.35		
5	25	0		22.41	22.40	22.34		
5	1	0	16-QAM	22.56	22.59	22.51	22.06	0.1607
5	1	12		22.57	22.55	22.49		
5	1	24		22.62	22.69	22.71		
5	12	0		21.31	21.38	21.34		
5	12	7		21.33	21.41	21.36		
5	12	13		21.40	21.35	21.46		
5	25	0		21.41	21.43	21.47		
Limit	Power < 100W			Result			Pass	



LTE Band 26 Maximum Average Power [dBm] (GT - LC = 1.5 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
3	1	0	QPSK	23.27	23.25	23.29	22.69	0.1858
3	1	8		23.27	23.27	23.34		
3	1	14		23.24	23.14	23.34		
3	8	0		22.29	22.35	22.31		
3	8	4		22.36	22.34	22.39		
3	8	7		22.29	22.39	22.26		
3	15	0		22.32	22.34	22.35		
3	1	0	16-QAM	22.58	22.50	22.53	21.98	0.1578
3	1	8		22.55	22.63	22.51		
3	1	14		22.53	22.62	22.59		
3	8	0		21.36	21.28	21.42		
3	8	4		21.38	21.48	21.47		
3	8	7		21.36	21.32	21.26		
3	15	0		21.35	21.30	21.28		
Limit	Power < 100W			Result			Pass	



LTE Band 26 Maximum Average Power [dBm] (GT - LC = 1.5 dB)								
BW [MHz]	RB Size	RB Offset	Mod	Lowest	Middle	Highest	ERP (dBm)	ERP (W)
1.4	1	0	QPSK	23.22	23.19	23.16	22.71	0.1866
1.4	1	3		23.27	23.35	23.17		
1.4	1	5		23.22	23.32	23.31		
1.4	3	0		23.29	23.25	23.26		
1.4	3	1		23.32	23.25	23.36		
1.4	3	3		23.26	23.23	23.31		
1.4	6	0		22.25	22.19	22.31		
1.4	1	0	16-QAM	22.50	22.60	22.45	21.95	0.1567
1.4	1	3		22.57	22.48	22.56		
1.4	1	5		22.47	22.42	22.43		
1.4	3	0		22.28	22.21	22.28		
1.4	3	1		22.32	22.35	22.32		
1.4	3	3		22.24	22.28	22.31		
1.4	6	0		21.30	21.20	21.29		
Limit	Power < 100W			Result			Pass	

————THE END————