Maximum Permissible Exposure

FCC ID:	2ARBSEL3007565
APPLICANT:	Hewlett Packard Enterprise
Application Type:	Certification
Product:	LTE Module
Model No.:	EL300_EM75L
Trademark:	Hewlett Packard Enterprise
FCC Rule Part(s):	2.1091
IC Rule Part(s):	RSS 102 issue 5
Test Procedure(s):	447498 D01 v06
Received Date:	August 21, 2018
Test Date:	November 1 ~ December 16, 2018

Reviewed By : Paddy Chen
(Paddy Chen)

Approved By : Chenz Ker
(Chenz Ker)

Testing Laboratory
3261

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 D01v03r05. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date
1808TW5101-U14	1.0	Original Report	2019-01-14

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	LTE Module
Model No.	EL300_EM75L
Trademark	Hewlett Packard Enterprise
Hardware Version Identification Number (HVIN)	1104266
Firmware Version Identification Number (FVIN)	1.08.04
Host Supports Radios Spec.	**WLAN (Contains FCC ID : 2ARBSEL3009260):** 2.4G: 802.11b/g/n-20/n-40 5G: 802.11a/n-20/ac-20/n-40/ac-40/ac-80/ac-160, Band 1,2,3,4 Bluetooth Dual Mode: V2.1+EDR/ V5.0 LE **WLAN (Contains FCC ID : 2ARBSEL300530S):** 2.4G: 802.11b/g/n-20 5G: 802.11a/n-20/n-40, Band 1,2,3,4 Bluetooth Dual Mode: V2.1+EDR/ V4.2 LE **WWAN (Contains FCC ID : 2ARBSEL3007565):** 3G: WCDMA Band 2,4,5 4G: FDD Band 2,4,5,7,12,13,26,30,66; TDD Band 41 4G: CA Band 7,41 **GNSS**

Note: This case is change the following points from the original model, so the C2PC (Radiated Spurious Emission, Conducted Output Power, AC Conducted Emissions) is executed. (Original Report Grant Date: 01/31/2019, FCC ID: 2ARBSEL3007565)

1. Add a host : **HPE EL300 Converged Edge System** Brand : **HPE**, Product : **HSTNS-2162**
2. Change the gain of antenna
3. Remove the LTE Band 48(3550 ~3700MHz) by software from CBE grant , No hardware changes have been made.

1.2. Antenna Description

Antenna Type	Dipole
Antenna M/N	DAM-D6-R-N0-000-04-02
Antenna Gain	Band 2: 2.87dBi, Band 4: 2.55dBi, Band 5: 1.31dBi, Band 7: 2.55dBi Band 12: 0.14dBi, Band 13: 0.88dBi, Band 26: 1.31dBi Band 30: 1.00dBi, Band 41: 2.55dBi, Band 66: 2.55dBi
Type of Modulation	QPSK, 16QAM, 64QAM

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)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	$*900/f^2$	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
0.3-1.4	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/1500	30
1500-100,000	--	--	1.0	30

Note : (1) f= Frequency in MHz , (2) * = Plane-wave equivalent power density

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

Under normal use condition, is at least 20cm away from the body of the user .

So, this device is classified as **Mobile Device**.

2.2. Test Result of RF Exposure Evaluation

FCC ID	2ARBSEL3007565

Band (MHz)	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm2)	Limit (mW/cm2)
WCDMA Band II/ LTE Band 2	1850~1910	24	251.2	2.87	20	0.0968	1
WCDMA Band IV/ LTE Band 4	1710~1755	24	251.2	2.55	20	0.0899	1
WCDMA Band V/ LTE Band 5	824~849	24	251.2	1.31	20	0.0676	0.5493
LTE Band 7	2500~2570	23.8	239.9	2.55	20	0.0858	1
LTE Band 12	699~716	24	251.2	0.14	20	0.0516	0.4660
LTE Band 13	777~787	24	251.2	0.88	20	0.0612	0.5180
LTE Band 26	814~849	24	251.2	1.31	20	0.0676	0.5427
LTE Band 30	2305~2315	23	199.5	1.00	20	0.0500	1
LTE Band 41	2496~2690	23.8	239.9	2.55	20	0.0858	1
LTE Band 66	1710~1780	24	251.2	2.55	20	0.0899	1

Collocation module's FCC ID	**2ARBSEL300530S**

For 2.4 GHz : 802.11b/g/n-20

Frequency Band (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412 ~ 2462	15.5	35.5	2	20	0.0112	1

For 5GHz UNII Band: 802.11a/n-20M/n-40M

Frequency Band (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
5180 ~ 5825	13.5	22.4	2	20	0.0071	1

For Bluetooth Mode

Frequency Band (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2402 ~ 2480	7	5	2	20	0.0016	1

For BLE Mode

Frequency Band (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2402 ~ 2480	6	4	2	20	0.0013	1

Conclusion :

CPD1/LPD1 + CPD2/LPD2 + … + CPDN/LPDN ≦ 1

CPD : Calculation Power Density
LPD : Limit of Power Density

Mode	Power Density	Limit	Conclusion	Result (≦ 1)
WIFI-2.4G	0.0112	1	0.0212	Pass
WIFI-5G	0.0071	1		
BT	0.0016	1		
BLE	0.0013	1		

Collocation module's FCC ID	**2ARBSEL3009260**

For 2.4 GHz : 802.11b/g/n-20/n-40

Frequency Band (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2412 ~ 2462	21	125.9	5	20	0.0792	1

For 5GHz UNII Band: a/n-20/ac-20/n-40/ac-40/ac-80/ac-160

Frequency Band (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
5180 ~ 5825	25	316.2	5	20	0.1989	1

For Bluetooth Mode

Frequency Band (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2402 ~ 2480	11.5	14.1	5	20	0.0089	1

For BLE Mode

Frequency Band (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
2402 ~ 2480	10	10	5	20	0.0063	1

Conclusion :

CPD1/LPD1 + CPD2/LPD2 + … + CPDN/LPDN ≦ 1

CPD : Calculation Power Density
LPD : Limit of Power Density

Mode	Power Density	Limit	Conclusion	Result (≦ 1)
WIFI-2.4G	0.0792	1	0.323	Pass
WIFI-5G	0.1989	1		
BT	0.0089	1		
BLE	0.0036	1		

Conclusion all contains module :

CPD1/LPD1 + CPD2/LPD2 + … + CPDN/LPDN ≦ 1

CPD : Calculation Power Density
LPD : Limit of Power Density

Module (FCC ID)	Power Density	Limit	Conclusion	Result (≦ 1)
2ARBSEL300530S	0.0212	1	0.4349	Pass
2ARBSEL3009260	0.2906	1		
2ARBSEL3007565	0.0676	0.5493		

The End