




FCC RADIO EXPOSURE TEST REPORT

FCC ID : 2AWNEKDE20102
Equipment : Home Entertainment Hub
Brand Name : E1 by Ericsson
Model Name : KDE20102
Applicant : Ericsson AB
21-23 Torshamnsgatan Stockholm, 16480 Sweden
Manufacturer : CyberTAN Technology Inc.
No. 99, Park Avenue III Science-based Industrial Park
Hsinchu Taiwan 308
Standard : 47 CFR Part 2.1091

The product was received on Mar. 27, 2020, and testing was started from Apr. 07, 2020 and completed on May 22, 2020. We, SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in 47 CFR Part 2.1091 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.


Approved by: Sam Chen

SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
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Photographs of EUT v01



History of this test report

Report No.	Version	Description	Issued Date
FA031609	01	Initial issue of report	Aug. 05, 2020
FA031609	02	Changing the support type of bridge function to "Slave without radar detection" from "Master".	Aug. 07, 2020



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
2	-	Exposure evaluation	PASS	-

Declaration of Conformity:

The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.

Comments and Explanations:

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Reviewed by: **Sam Chen**

Report Producer: **Cindy Peng**



1 General Description

1.1 EUT General Information

RF General Information				
Evaluation Mode		Frequency Range (MHz)	Operating Frequency (MHz)	Modulation Type
2.4GHz WLAN		2400-2483.5	2412-2462	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) VHT: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
5GHz WLAN		5150-5250 5725-5850	5180-5240 5745-5825	802.11a/n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Bluetooth		2400-2483.5	2402-2480	BR / EDR: FHSS (GFSK / $\pi/4$ -DQPSK / 8DPSK) LE: GFSK
Zigbee		2400-2483.5	2405-2475	O-QPSK
Evaluation Mode		Uplink Frequency Range (MHz)	Downlink Frequency Range (MHz)	Modulation Type
LTE	Band 2	1850~1910	1930~1990	QPSK, 16QAM, 64QAM
	Band 4	1710~1755	2110~2155	
	Band 5	824~849	869~894	
	Band 7	2500~2570	2620~2690	
	Band 12	698~716	729~746	
	Band 13	777~787	746~756	
	Band 14	788~798	758~768	
	Band 17	704~716	734~746	
	Band 25	1850~1915	1930~1995	
	Band 26	814~849	859~894	
	Band 30	2305~2315	2350~2360	
	Band 38	2570~2620		
	Band 41	2496~2690		
Band 66	1710~1780			

1.2 Table of WWAN Module

The EUT contains a LTE module, the detail information as following.

Brand Name	Model Name	FCC ID	Function
Telit	LN960A16	RI7LN960A16	LTE: Band 2/4/5/7/12/13/14/17/25/26/30/38/41/66



1.3 Table for EUT Supports Functions

Function	Support Type
AP	Master
Mesh	Master
Bridge	Slave without radar detection

1.4 Testing Location

Testing Location		
<input type="checkbox"/>	HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973
<input checked="" type="checkbox"/>	JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

Test site Designation No. TW0006 with FCC.

Test site registered number IC 4086D with Industry Canada.



2 Maximum Permissible Exposure

2.1 Limit of Maximum Permissible Exposure

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	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 Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Method

The MPE was calculated at 29 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$E \text{ (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)

P = RF output power (W)

G = EUT Antenna numeric gain (numeric)

d = Separation distance between radiator and human body (m)

The formula can be changed to

$$Pd = \frac{30 \times P \times G}{377 \times d^2}$$



2.3 Calculated Result and Limit

Exposure Environment: General Population / Uncontrolled Exposure

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)
2.4G;D1D	5.46	27.87	33.33	0.50	33.83	2.41546	29	0.22855	1.00000
5.2G;D1D	6.21	28.34	34.55	0.50	35.05	3.19890	29	0.30269	1.00000
5.8G;D1D	6.11	28.41	34.52	0.50	35.02	3.17687	29	0.30060	1.00000
2.4G;BT-BR	2.70	6.98	9.68	0.50	10.18	0.01042	29	0.00099	1.00000
2.4G;Zigbee	2.80	23.03	25.83	0.50	26.33	0.42954	29	0.08545	1.00000
LTE Band 13	2.60	24.50	27.10	0.00	27.10	0.51286	29	0.04853	0.51967

Simultaneous Transmission Analysis Mode: WLAN 2.4GHz + WLAN 5GHz Band 1 + WLAN 5GHz Band 4 + Bluetooth + Zigbee + LTE

Mode	DG (dBi)	Power (dBm)	EIRP (dBm)	Tolerance (dB)	Tune-up EIRP (dBm)	Tune-up EIRP (W)	Distance (cm)	S (mW/cm ²)	S Limit (mW/cm ²)	Ratio (S/Limit)
2.4G;D1D	5.46	27.87	33.33	0.50	33.83	2.41546	29	0.22855	1.00000	0.22855
5.2G;D1D	6.21	28.27	34.48	0.50	34.98	3.14775	29	0.29784	1.00000	0.29784
5.8G;D1D	6.11	28.03	34.14	0.50	34.64	2.91072	29	0.27541	1.00000	0.27541
2.4G;BT-BR	2.70	6.98	9.68	0.50	10.18	0.01042	29	0.00099	1.00000	0.00099
2.4G;Zigbee	2.80	23.03	25.83	0.50	26.33	0.42954	29	0.04064	1.00000	0.04064
LTE Band 13	2.60	24.50	27.10	0.00	27.10	0.51286	29	0.04853	0.51967	0.09339
									Sum Ratio	0.93682
									Ratio Limit	1

Note: The above antenna gain was declared by manufacturer.

—————THE END—————