



FCC and IC TEST REPORT

for

KADENCE DESIGNS LLC

Transmitter

Model Number: T 2.2

Prepared for : KADENCE DESIGNS LLC

Address : P.O.Box 2359, Thompson Falls, MT 59873

Prepared By : NS Technology Co., Ltd.

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Report Number : NSE-F10085216

Date of Test : Jul. 30, 2010

Date of Report : Aug. 15, 2010





Applicant:	KADENCE DESIGNS LLC							
Address:	P.O.Box 2359,Thompson Falls,MT 59873							
Manufacturer:	Celewave Electronics(shenzhen) Co.,Ltd							
Address:	No 1-2 building,No 2 Industry District, Shang Heng lang Huaxing Road, Dalang Street,Baoan District, Shenzhen City,China							
E.U.T:	Transmitter							
Model Number:	T 2.2							
Report Number:	NSE-F10085216							
Trade Name:	Lightspeaker™							
Operating Frequency:	2412~2464MHz							
Date of Receipt:	Jul.17, 2010	Date of Test:	Aug. 9, 2010					
Test Specification:	RSS-210 Issue 7 2007 47 CFR FCC Part 2 Subpart J, section 2.1091							
Test Result:	The equipment under test was found to be compliance with the requirements of the standards applied.							
Issue Date: Aug. 15, 2010								
Tested by:	Reviewed by:	Approved by:						
Jade	Iceman Hu	Steven Lee						
Jade/ Engineer	Iceman Hu / Supervisor	Steven Lee / Manager						
Other Aspects:	None.							
Abbreviations: <i>OK/P=passed</i> <i>fail/F=failed</i> <i>n.a/N=not applicable</i> <i>E.U.T=equipment under tested</i>								
<i>This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval of NS Technology Co., Ltd.</i>								



Maximum Permissible Exposure

1 Applicable Standard

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2m normally can be maintained between the user and the device.

(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 Times 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
1500-100000			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 Times 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
1500-100000			1.0	30

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

2 MPE Calculation Method

$$E \text{ (V/m)} = (30 \cdot P \cdot G)^{0.5} / d \quad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = E^2 / 377$$

E = Electric Field (V/m)

P = Peak 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

$$Pd = (30 \cdot P \cdot G) / (377 \cdot d^2)$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.



3 Calculated Result and Limit

Mode	CH	Output power (dBm)	Output power (mW)	Antenna Gain (dBi)	MPE estimation result (mW/cm ²) at 20cm	Limit of MPE Estimation (mW/cm ²)	Test result
Antenna1	CH1:2412MHz	15.42	34.83	1.1	0.0028	1	Compiles
	CH2:2438MHz	15.09	32.28	1.1	0.0026	1	Compiles
	CH3:2464MHz	15.11	32.43	1.1	0.0026	1	Compiles
Antenna2	CH1:2412MHz	15.34	34.20	1.1	0.0027	1	Compiles
	CH2:2438MHz	15.13	32.58	1.1	0.0026	1	Compiles
	CH3:2464MHz	14.97	31.41	1.1	0.0025	1	Compiles

