

## **RADIO FREQUENCY RADIATION EXPOSURE REPORT**

### **Mobiles /Fixed Base Station Maximum Permissible Exposure (MPE)**

OF

**Product Name:** Bluetooth Music Receiver

**Brand Name:** BELKIN

**Model Name:** F8Z492

**Model Different:** N/A

**FCC ID:** K7SF8Z492

**IC:** 3623A-F8Z492

**Report No.:** EF/2009/A0004

**Issue Date:** Oct. 19, 2009

**Prepared for:** Belkin International, Inc.  
501 West Walnut Street, Compton, CA 90220,  
United States

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## VERIFICATION OF COMPLIANCE

**Applicant:** Belkin International, Inc.  
501 West Walnut Street, Compton, CA 90220, United States

**Product Name:** Bluetooth Music Receiver

**Brand Name:** BELKIN

**FCC ID:** K7SF8Z492

**IC:** 3623A-F8Z492

**Model No.:** F8Z492

**Model Difference:** N/A

**File Number:** EF/2009/A0004

**Date of test:** Sep. 15, 2009 ~ Oct. 19, 2009

**Date of EUT Received:** Sep. 15, 2009

**We hereby certify that:**

The above equipment was tested by SGS Taiwan Ltd., Electronics & Communication Laboratory. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in FCC OET Bulletin 65 Supplement C and 47 CFR §2.1091 and RSS102.

The test results of this report relate only to the tested sample identified in this report.

**Test By:**

Sky Wang

**Date**

Oct. 19, 2009

Sky Wang / Asst. Supervisor

**Prepared By:**

Alex Hsieh

**Date**

Oct. 19, 2009

Alex Hsieh / Sr. Engineer

**Approved By:**

Vincent Su

**Date**

Oct. 19, 2009

Vincent Su/Manager

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## Report Version

Version No.	Date	Description
00	Oct. 19, 2009	Initial creation of document

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## 1. GENERAL INFORMATION

### General:

Type Name:	Bluetooth Music Receiver	
Brand Name:	BELKIN	
Model Name:	F8Z492	
Model Difference:	N/A	
Data Cable:	Two provides, Model No.: BRSPMM01, BR35CA01, Supplier: BELKIN	
Power Supply:	5Vdc by AC/DC power adapter	
	Adapter	Model No.: DSA-3RNA-05 FUS 050020, Supplier: DVE

### Bluetooth:

Bluetooth Version:	<input type="checkbox"/> V1.1 (GFSK) <input type="checkbox"/> V1.2 (GFSK) <input type="checkbox"/> V2.0 (GFSK) <input type="checkbox"/> V2.0 + EDR (GFSK + $\pi/4$ -DQPSK + 8DPSK) <input checked="" type="checkbox"/> V2.1 + EDR (GFSK + $\pi/4$ -DQPSK + 8DPSK)
Frequency Range:	2402 – 2480MHz
Channel number:	79 channels max.
Rated Power:	1.72 dBm (Peak)
Modulation type:	Frequency Hopping Spread Spectrum
Antenna Designation:	Chip Antenna / 4dBi.
Type of Emission:	1M27F7D

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## 1.1 Standard Applicable

According to §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a Mobile device, the MPE is required.

According to §1.1310 and §2.1093 RF exposure is calculated.

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm <sup>2</sup> )	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	F/1500	30
1500-15000	/	/	1.0	30

F = frequency in MHz

\* = Plane-wave equipment power density

## 1.2 Maximum Permissible Exposure (MPE) Evaluation

### Bluetooth Power Table

#### EDR mode

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2402.00	0.92	0.00	0.92	0.00124	1
2441.00	1.72	0.00	1.72	0.00149	1
2480.00	1.18	0.00	1.18	0.00131	1

offset: 0.2dB

#### MPE Prediction (Bluetooth)

Prediction of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = PG / 4 \pi R^2$$

Where: S = Power density

P = Power input to antenna

G = Power gain of the antenna in the direction of interest relative to an isotropic radiator

R = Distance to the center of radiation of the antenna

Maximum peak output power at antenna input terminal:	1.72	(dBm)
Maximum peak output power at antenna input terminal:	1.485935642	(mW)
Duty cycle:	77	(%)
Maximum Pav :	1.144170445	(mW)
Antenna gain (typical):	4	(dBi)
Maximum antenna gain:	2.511886432	(numeric)
Prediction distance:	20	(cm)
Prediction frequency:	2441	(MHz)
MPE limit for uncontrolled exposure at prediction	1	(mW/cm <sup>2</sup> )
Power density at predication frequency at 20 (cm)	0.0005721	(mW/cm <sup>2</sup> )

#### Measurement Result

The predicted power density level at 20 cm is 0.0005721 mW/cm<sup>2</sup>. This is below the uncontrolled exposure limit of 1 mW/cm<sup>2</sup> at 2441MHz.

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**EDR mode**

Frequency (MHz)	Reading Power (dBm)	Cable Loss	Output Power (dBm)	Output Power (W)	Limit (W)
2402.00	0.92	0.00	0.92	0.00124	1
2441.00	1.72	0.00	1.72	0.00149	1
2480.00	1.18	0.00	1.18	0.00131	1

*offset: 0.2dB***MPE Prediction (Bluetooth)**

Prediction of MPE limit at a given distance

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*~ End of Report ~*

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