

# RF Exposure Evaluation declaration

Product Name : Module for DLB5000 Radios

Model No. : DLB5000 Module-19dBi,  
DLB5000 Module-23dBi,  
DLB5000 Module

FCC ID : UB8-DLB5000

Applicant : DELIBERANT LLC

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The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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## 1. RF Exposure Evaluation

### 1.1. 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 <sup>2</sup> )	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula:  $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>

$P_{out}$  = 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

$P_d$  is the limit of MPE, 1 mW/cm<sup>2</sup>. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

## 1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18°C and 78% RH.

## 1.3. Test Result of RF Exposure Evaluation

Product	:	Module for DLB5000 Radios
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmitter by 802.11b (19 dBi Antenna)

### Antenna Gain:

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 19 dBi or 79.43 in linear scale.

### Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	RF Exposure Distance (cm)
01	2412.00	244.9063	39.355477
06	2437.00	239.8833	38.949795
11	2462.00	239.8833	38.949795

Product	:	Module for DLB5000 Radios
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-3
Test Mode	:	Mode 1: Transmitter by 802.11b (4.5 dBi Antenna)

## Antenna Gain:

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 4.5 dBi or 2.82 in linear scale.

## Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	RF Exposure Distance (cm)
01	2412.00	244.9063	7.4131908
06	2437.00	239.8833	7.3367747
11	2462.00	239.8833	7.3367747

Product	:	Module for DLB5000 Radios
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-3
Test Mode	:	Mode 2: Transmitter by 802.11g (19 dBi Antenna)

## Antenna Gain:

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 19 dBi or 79.43 in linear scale.

## Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	RF Exposure Distance (cm)
01	2412.00	319.1538	44.926768
06	2437.00	312.6079	44.463657
11	2462.00	258.2260	40.411519

Product	:	Module for DLB5000 Radios
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-3
Test Mode	:	Mode 2: Transmitter by 802.11g (4.5 dBi Antenna)

## Antenna Gain:

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 4.5 dBi or 2.82 in linear scale.

## Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	RF Exposure Distance (cm)
01	2412.00	319.1538	8.4626266
06	2437.00	312.6079	8.3753927
11	2462.00	258.2260	7.6121122

Product	:	Module for DLB5000 Radios
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-3
Test Mode	:	Mode 3: Transmitter by 802.11a (23 dBi Antenna)

## Antenna Gain:

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 23 dBi or 199.53 in linear scale.

## Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	RF Exposure Distance (cm)
01	5745.00	244.9063	62.374228
03	5785.00	211.8361	58.010309
05	5825.00	209.4112	57.677334

Product	:	Module for DLB5000 Radios
Test Item	:	RF Exposure Evaluation
Test Site	:	AC-3
Test Mode	:	Mode 3: Transmitter by 802.11a (7 dBi Antenna)

## Antenna Gain:

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 7 dBi or 5.01 in linear scale.

## Output Power Into Antenna & RF Exposure Evaluation Distance:

Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	RF Exposure Distance (cm)
01	5745.00	244.9063	9.8856489
03	5785.00	211.8361	9.1940144
05	5825.00	209.4112	9.1412415