

## RF Exposure Evaluation declaration

Product Name	RFID Reader
Model No.	BF-IDU01
FCC ID	2AGZY-BFIDU01

Applicant	Balluff GmbH
Address	Schurwaldstrasse 9, Neuhausen a.d.F. 73765, Germany

Date of Receipt	Nov. 18, 2015
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Report No.	15B0332R-RFUSP02V00

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 report 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:  $Pd = (Pout * G) / (4 * \pi * r^2)$

Where

Pd = power density in mW/cm<sup>2</sup>

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

Pd 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 : RFID Reader  
 Test Item : RF Exposure Evaluation  
 Test Site : No.3 OATS

Operation Frequency	902.25 – 927.75MHz
Maximum Conducted output power	27.94dBm
Antenna gain	2.86dBi

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

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
622.3002	0.2392

Power density in column is much lower than the limit (0.6 mW/cm<sup>2</sup>).