RF Exposure Evaluation declaration

Product Name : RFID Reader

Model No. : BF-IDU02

FCC ID : 2AGZY-BFIDU02

Applicant : Balluff GmbH

Address : Schurwaldstrasse 9, 73765 Neuhausen a.d.F., Germany

Date of Receipt : Oct. 26, 2016

Date of Declaration : Dec. 06, 2016

Report No. : 16B0008R-RFUSP02V00

Issued Date: Dec. 06, 2016
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Product Name	RFID Reader
Applicant	Balluff GmbH
Address	Schurwaldstrasse 9, 73765 Neuhausen a.d.F., Germany
Manufacturer	Balluff GmbH
Model No.	BF-IDU02
FCC ID.	2AGZY-BFIDU02
EUT Rated Voltage	DC 24V
EUT Test Voltage	DC 24V
Trade Name	BALLUFF
Applicable Standard	FCC 47 CFR 1.1310
Test Result	Complied

Documented By : Genie Chang

(Senior Adm. Specialist / Genie Chang)

Tested By : Kevin Liu

(Engineer / Kevin Liu)

Approved By :

(Director / Vincent Lin)

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^2)	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^2
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 id the limit of MPE, 1 mW/cm^2. 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℃and 78％ RH.

1.3. Test Result of RF Exposure Evaluation

Product : RFID Reader
Test Item : RF Exposure Evaluation

Operation Frequency	902.25-927.75MHz
Maximum Conducted output power	25.58 dBm
Antenna gain	1.35 dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm2)
361.4098626	0.098114

Power density is lower than the limit (0.6 mW/cm2).