

# RF Exposure Evaluation Report

Product Name : LeanOrder detectionShelf

Model No. : 01

FCC ID : 2ANAA-LODSHELF01

Applicant : Intellion AG

Address : Schuppisstrasse 10, 9016 St. Gallen, Switzerland

Date of Receipt : Aug 09, 2017

Date of Declaration : Apr 25, 2018

Report No. : 1780164R-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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Issued Date: Apr 25, 2018  
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Product Name	LeanOrder detectionShelf
Applicant	Intellion AG
Address	Schuppisstrasse 10, 9016 St. Gallen, Switzerland
Manufacturer	Intellion AG
Model No.	01
FCC ID.	2ANAA-LODSHELF01
EUT Rated Voltage	DC 9V
EUT Test Voltage	DC 9V
Trade Name	Intellion
Applicable Standard	FCC 47 CFR 1.1310
Test Result	Complied

Documented By :

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Tested By :

*Boris Hsu*

( Engineer / Boris Hsu)

Approved By :

*Vincent Lin*

( 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 <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:  $P_d = (P_{out} * G) / (4 * \pi * r^2)$

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 : LeanOrder detectionShelf  
Test Item : RF Exposure Evaluation

#### RF Exposure :

Operation Frequency	912.80-920.15MHz
Maximum Conducted output power	20.85dBm
Antenna gain	2.85dBi

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

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )
121.6186001	0.0466

Power density is lower than the limit (1 mW/cm<sup>2</sup>).