REPORT ON EXPOSURE TO ELECTROMAGNETIC FIELDS

No. 2011036STO-304

EQUIPMENT

Equipment:	ID scanner
Type/Model:	365id Scanner
Manufacturer:	365id AB
Tested by request of:	365id AB

SUMMARY

Based on the assessment in this statement, the equipment is determined to comply with the following requirements without testing:

CFR 47 §1.1307, §1.1310
RSS-102 Issue 5

Date of issue: November 20, 2020

Tested by: Robert Hietala

Approved by: Björn Utermöhl

Revision History

Test report number	Date	Description	Changes
2011036STO-304	November 20, 2020	First release	--

CONTENTS

Page

1 Client Information 4

2 Equipment 4
2.1 Identification of the equipment 4

3 Test Specifications 5
3.1 Standards 5
3.2 Additions, deviations and exclusions from standards 5

4 Summary 6

5 RF Exposure, single transmitter 7
5.1 Limits 7
5.2 Calculations 8
5.3 Results 8

1 CLIENT INFORMATION

This assessment has been done by request of:

Company	365id AB Slottsmöllan 10 B 302 31 Halmstad Sweden
Name of contact	Anders Nilsson

2 EQUIPMENT

2.1 Identification of the equipment

Equipment:	ID scanner
Type/Model:	365id Scanner
Brand name:	365id
Manufacturer:	365id AB
Transmitter frequency range:	2412 – 2462 MHz
Measured output power to antenna[1]:	+22.2
Declared output power:	+24 dBm (eirp)
Antenna gain[1]:	+1.5 dBi (peak gain)
User separation distance:	20 cm
Exposure conditions:	☐ Controlled environment (occupational) ☒ Uncontrolled environment (general population)

*Reference for measurement: Test report 2011036STO-301

3 TEST SPECIFICATIONS

3.1 Standards

CFR 47: Code of Federal Regulations Title 47: Telecommunications §1.1307, §1.1310
KDB447498 D01 v06

RSS-102: Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands)

3.2 Additions, deviations and exclusions from standards

No additions, deviations or exclusions have been made from standards.

4 SUMMARY

The evaluation has been carried out at the Intertek Semko AB premises in Kista, Sweden.
The results in this report apply only to sample tested:

Test	Result
RF Exposure, single transmitter	PASS
RF Exposure, multiple simultaneous transmitters	NA[1]

1. EUT only has a single transmitter or transmitters can't operate simultaneously

5 RF EXPOSURE, SINGLE TRANSMITTER

Result:	PASS

5.1 Limits

Reference: CFR 47 §1.1310 TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f^2	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) 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^2	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

Reference: RSS-102 – Radio Frequency (RF) Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands) Issue 5

Section 2.5.2,

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

• below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);

• at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $4.49/f^{0.5}$ W (adjusted for tune-up tolerance), where f is in MHz;

• at or above 48 MHz and below 300 MHz and the source-based, time-averagedmaximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);

• at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than $1.31 \times 10^{-2} f^{0.6834}$ W (adjusted for tune-up tolerance), where f is in MHz;

• at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

In these cases, the information contained in the RF exposure technical brief may be limited to information that demonstrates how the e.i.r.p. was derived.

5.2 Calculations

EIRP: $Power\ to\ antenna\ (dBm) + Antenna\ gain\ (dBi) = EIRP\ dBm$
Declared EIRP = +24 dBm
Measured EIRP = +23.7 dBm

Conversion dBm to W:

Conducted: $1\ mW * 10^{\left(Power\frac{dBm}{10}\right)} = 166.0\ mW$

Measured, EIRP: $1\ mW * 10^{\left(EIRP\frac{dBm}{10}\right)} = 234.4\ mW$

Declared, EIRP: $1\ mW * 10^{\left(EIRP\frac{dBm}{10}\right)} = 251.2\ mW$

MPE calculation

A worst-case calculation for power density:

$$S = \frac{dc \times EIRP}{4 \times \pi \times r^2}$$

dc = 1
S = W / m^2
r = 20 cm

5.3 Results

Standard	Reference for limit	Value	Unit	Limit	Result
§1.1310	§1.1310	0.050[1]	mW /cm^2	1[2]	PASS
RSS-102	RSS-102	0.3[1]	W	2.7[2]	PASS

[1] Based on declared EIRP
[2] Worst-case modulation and channel frequency is 802.11b 1 Mbps, 2412 MHz