

Evaluation Report

Product Name:	LotTrack DisTag G4
Model Name:	DisTag G4
Report No.:	
Applicant:	Intellion AG
Prepared by:	

General

Applied Standard(s):	EN 62479:2010 CFR47 FCC Part 2: Section 2.1093 FCC KDB Publication 447498 v06
Test Result:	complies
Intellion AG, Schuppisstrasse 10, 9016 St. Gallen, Switzerland	Dr. Kai Millarg

Contents

GENERAL	1
Contents	2
Description of EUT	2
Rated Power according to the manufacturer	2
USA Part	3
Limits - USA	3
MPE Calculation Method – USA	3
Evaluation Result	4
Conclusion	4
Europe Part	5
Specification for Evaluation	5
Evaluation Result	5
Conclusion	5

Description of EUT

Product Name:	LotTrack DisTag G4
Model No.:	DisTag G4
Trade Name:	LotTrack DisTag G4
Frequency Range:	919.2 – 920.8 MHz (for USA) 867.2 – 869.85 MHz (for EU) 6.2400 – 6.7392 GHz (for USA, EU)
Working Frequency:	
Power Supply:	Battery, 2 AA Li / SOCl ₂ cells (exchangeable)

Rated Power according to the manufacturer

Frequency (MHz)	Target Power and Tolerance
920.8	max 1 mW
919.2	max 1 mW
6240.0 – 6739.2 GHz	max 0.2 mW

Evaluation of product specific Health Aspects

USA Part

Limits - USA

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
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 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f ²)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	/	/	f/1500	30
1500 – 100,000	/	/	1.0	30

F=frequency in MHz

*=Plane-wave equivalent power density

MPE Calculation Method – USA

Predication of MPE limit at a given distance as described in Equation on page 18 of OET Bulletin 65, Edition 97-01

$$S=PG/4\pi R^2$$

Where:

S=power density

Evaluation of product specific Health Aspects

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

Evaluation Result

Modulation Type	Target Output power	Antenna gain (dBi)	Antenna gain (linear)	MPE (calculated)	MPE (Limit)
GFSK	1 mW	N/A	N/A	0.00318 mW/cm ² (Peak)	0.614 mW/cm ²
UWB	0.02 mW	2.5 dBi	1.8	0.00011 mW/cm ² (Peak)	1.000 mW/cm ²
GFSK + UWB				0.00330 mW/cm ² (Peak)	0.614 mW/cm ²

Remark GFSK: The DisTag G4 has an integrated Antenna. Output power measurements have only been done radiated. See Declaration of no Antenna Specification (Part 15C Devices) and Test Report 24039934-40528-0. Therefore, Antenna Gain (dBi) / Antenna Gain (linear) does not apply.

Conclusion

The device is compliant to the RF Exposure requirements.

Europe Part

Specification for Evaluation

EN 62479 sets force the basic restrictions related to human exposure to electromagnetic fields.

Table A.1 in Annex A of the standard lists example values of SAR-based output power examinations P_{\max} for some cases as described by ICNIRP. An excerpt of the table is shown below.

Guideline	SAR limit, SAR_{\max} [W/kg]	Averaging mass m [g]	P_{\max} [mW]	Exposure tier	Regio of Body
ICNIRP	2	10	20	General population	Head and trunk

Evaluation Result

The antenna power of the EUT according to test report no.: is measured as:

The manufacturer declares the maximum antenna power as:

The maximum antenna power declared is below the low-power exclusion level defined in 4.2 (P_{\max} : 20mW).

Conclusion

The device is compliant to the Health requirements set out in the Radio Equipment Directive.