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Report On

RF Exposure Assessment of the
SureFlap Ltd
Automatic Pet Door, Model: iMPD**

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REPORT ON

RF Exposure Assessment of the
SureFlap Ltd
Automatic Pet Door. Model: IMPD**

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SECTION 1

REPORT SUMMARY

RF Exposure Assessment of the
SureFlap Ltd
Automatic Pet Door. Model: iMPD**



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1.1 INTRODUCTION

The information contained in this report is intended to show verification of the RF Exposure Assessment of the SureFlap Ltd, Automatic Pet Door. Model: iMPD** to the requirements of the applied test specifications.

Objective	To perform RF Exposure Assessment to determine the Equipment Under Test's (EUT's) compliance of the applied rules.
Applicant	SureFlap Ltd
Manufacturer	SureFlap Ltd
Manufacturing Description	Automatic Pet Door
Model Number(s)	iMPD** (** represent the colour variation of the product.)
Test Specification/Issue/Date	EN 62311:2008 CFR 47 Pt1.1310 (2016) Health Canada Safety Code 6 ARPANSA Radiation Protection Series No.3



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1.2 REGIONAL REQUIREMENTS

The table below shows the regional requirements that are referenced in this test report. A full list of the requirements is shown in Annex A.

Report Reference	Regional Requirement
EU	EN 62311:2008
FCC	CFR 47 Pt1.1310 (2016)
IC	Health Canada Safety Code 6
AUS	ARPANSA Radiation Protection Series No.3



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1.3 PRODUCT INFORMATION

1.3.1 Technical Description

The Equipment under test was a SureFlap Ltd, Automatic Pet Door. Model: iMPD**. A full technical description can be found in the manufacturer's documentation.

All reported calculations were carried out on the relevant information supplied for the iMPD** Pet Door to demonstrate compliance with the applied test specification(s). The sample assessed was found to comply with the requirements of the applied rules.

In normal operation, the device does not transmit until triggered. The triggering mechanism is based on sensors in the flap enclosure. Once the sensor is triggered, the RFID switches on and will open the cat flap door providing a valid tag is present in the field. For the majority of time during a day, the RFID is inactive. The operation time of the RFID is limited to the time it takes for an animal to enter the flap enclosure, opening of the flap and then exiting of the enclosure.

1.3.2 Supported Features

The following radio access technologies and frequency bands are supported by the equipment under test.

Radio Access Technology	RFID 125 kHz
	RFID 133 kHz

1.3.3 Antennas

The device incorporates an integral loop antenna.



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SECTION 2

TEST DETAILS



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2.1 TEST RESULT DETAILS

The aim of the assessment report is to evaluate the compliance boundary for a set of given input power(s) according to the basic restrictions (directly or indirectly via compliance with reference levels) related to human exposure to radio frequency electromagnetic fields.

Measurements were performed on the EUT to determine the compliance boundary using a handheld exposure meter.

Measurements were made on the two test frequencies employed by the EUT. Two sets of measurements were made:

- 1) 200 mm distance from each face of the EUT
- 2) Compliance boundary with the strictest limit, (ARPANSA)

Testing was carried out using the most stringent limits based on the regional requirements detailed in Annex A - ARPANSA:

General Public: 4.86 A/m = 6.075 μ T/m

2.1.1 Configuration 1 – RFID 125 kHz

Temperature: 23.6 °C

Humidity: 53.9 %

Compliance Boundary for Each Face – S/N: A019-0142782

EUT Orientation	Measured Field Strength (μ T/m)	Measurement Distance (mm)	Limit (μ T/m)
Front	5.93	97	6.075
Left Side	5.91	41	6.075
Right Side	5.98	39	6.075
Rear	5.95	172	6.075
Top	5.86	40	6.075
Bottom	5.92	59	6.075

200 mm Distance from Each Face – S/N: A019-0142782

EUT Orientation	Measured Field Strength (μ T/m)	Measurement Distance (mm)	Limit (μ T/m)
Front	2.55	200	6.075
Left Side	1.33	200	6.075
Right Side	1.29	200	6.075
Rear	4.69	200	6.075
Top	0.23	200	6.075
Bottom	0.23	200	6.075



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2.1.2 Configuration 2 – RFID 133 kHz

Temperature: 23.6 °C

Humidity: 53.9 %

Compliance Boundary for Each Face – S/N: Not Serialised (75938838-TSR0007)

EUT Orientation	Measured Field Strength ($\mu\text{T/m}$)	Measurement Distance (mm)	Limit ($\mu\text{T/m}$)
Front	5.91	56	6.075
Left Side	6.00	18	6.075
Right Side	5.95	19	6.075
Rear	6.00	130	6.075
Top	6.02	10	6.075
Bottom	6.01	31	6.075

200mm Distance from Each Face – S/N: Not Serialised (75938838-TSR0007)

EUT Orientation	Measured Field Strength ($\mu\text{T/m}$)	Measurement Distance (mm)	Limit ($\mu\text{T/m}$)
Front	1.64	200	6.075
Left Side	0.90	200	6.075
Right Side	0.89	200	6.075
Rear	3.07	200	6.075
Top	1.09	200	6.075
Bottom	1.26	200	6.075

Test Equipment Used

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Exposure Level Tester + Field Sensor	Narda	ELT400	2825	24	26-Jan-2019
Hygrometer	Rotronic	I-1000	3220	12	23-Aug-2017

Summary

The minimum compliance boundary for 125 kHz is 172 mm.

The minimum compliance boundary for 133 kHz is 130 mm.



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SECTION 3

DISCLAIMERS AND COPYRIGHT



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3.1 DISCLAIMERS AND COPYRIGHT

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ANNEX A

REGIONAL REQUIREMENTS



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Frequency Range (MHz)	Power Density (W/m ²)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
0.065 - 1	-	610	1.6/f
1 - 10	-	610/f	1.6/f
10 - 400	10	61	0.162
400 - 2000	f/40	3*f ^{0.5}	0.008*f ^{0.5}
2000 - 300000	50	137	0.36

Table A.1 – EN 62311:2008 Occupational Limits

Frequency Range (MHz)	Power Density (W/m ²)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
0.003 - 0.15	-	87	5
0.15 - 1	-	87	0.73/f
1 - 10	-	87/f ^{0.5}	0.73/f
10 - 400	2	28	0.073
400 - 2000	f/200	1.375*f ^{0.5}	0.0037*f ^{0.5}
2000 - 300000	10	61	0.16

Table A.2 – EN 62311:2008 General Population Limits

Frequency Range (MHz)	S Field (mW/cm ²)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
0 - 0.3	-	-	-
0.3 - 3	100	614	1.63
3 - 30	900/f ²	1842/f	4.89/f
30 - 300	1	61.4	0.163
300 - 1500	f/300	-	-
1500 - 100000	5	-	-

Table A.3 – CFR 47 Pt1.1310 (2016) Occupational Limits

Frequency Range (MHz)	S Field (mW/cm ²)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
0 - 0.3	-	-	-
0.3 - 3	100	614	1.63
3 - 30	180/f ²	824/f	2.19/f
30 - 300	0.2	27.5	0.073
300 - 1500	f/1500	-	-
1500 - 100000	1	-	-

Table A.4 – CFR 47 Pt1.1310 (2016) General Population Limits

Frequency Range (MHz)	Power Density (W/m ²)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
10 - 20	10	61.4	0.163
20 - 48	44.72/f ^{0.5}	129.8/f ^{0.25}	0.3444/f ^{0.25}
48 - 100	6.455	49.33	0.1309
100 - 6000	0.6455*f ^{0.5}	15.60*f ^{0.25}	0.04138*f ^{0.25}
6000 - 150000	50	137	0.364

Table A.5 – Health Canada Safety Code 6 Occupational Limits

Frequency Range (MHz)	Power Density (W/m ²)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
10 - 20	2	27.46	0.0728
20 - 48	8.944/f ^{0.5}	58.07/f ^{0.25}	0.1540/f ^{0.25}
48 - 300	1.291	22.06	0.05852
300 - 6000	0.02619*f ^{0.6834}	3.142*f ^{0.3417}	0.008335*f ^{0.3417}
6000 - 15000	10	61.4	0.163

Table A.6 – Health Canada Safety Code 6 General Population Limits



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Frequency Range (MHz)	Power Density (W/m ²)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
0.1 - 1	-	614	1.63/f
1 - 10	1000/f ²	614	1.63/f
10 - 400	10	61.4	0.163
400 - 2000	f/40	3.07*f ^{0.5}	0.00814*f ^{0.5}
2000 - 300000	50	137	0.364

Table A.7 – ARPANSA Radiation Protection Series No.3 Occupational Limits

Frequency Range (MHz)	Power Density (W/m ²)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)
0.1 - 0.15	-	86.8	4.86
0.15 - 1	-	86.8	0.729/f
1 - 10	-	86.8/f ^{0.5}	0.729/f
10 - 400	2	27.4	0.0729
400 - 2000	f/200	1.37*f ^{0.5}	0.00364*f ^{0.5}
2000 - 300000	10	61.4	0.163

Table A.8 – ARPANSA Radiation Protection Series No.3 General Population Limits