



Product Service

**Choose certainty.
Add value.**

Report On

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

FCC ID: XO9-IMPD00003
IC: 8906A-IMPD000003

Document 75938838 Report 15 Issue 3

December 2017



Product Service

TÜV SÜD Product Service, Octagon House, Concorde Way, Segensworth North,
Fareham, Hampshire, United Kingdom, PO15 5RL
Tel: +44 (0) 1489 558100. Website: www.tuv-sud.co.uk

REPORT ON

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

Document 75938838 Report 15 Issue 3

December 2017

PREPARED FOR

SureFlap Ltd
7 The Irwin Centre
Dry Drayton
Cambridge
CB23 8AR
United Kingdom

PREPARED BY

A handwritten signature in black ink, appearing to read 'Simon Bennett'.

Simon Bennett
Chief Engineer - Technical Solutions

APPROVED BY

A handwritten signature in black ink, appearing to read 'Ryan Henley'.

Ryan Henley
Authorised Signatory

DATED

01 December 2017

This report has been up-issued to Issue 3 to clients address



Product Service

CONTENTS

Section	Page No
1	REPORT SUMMARY 3
1.1	Introduction 4
1.2	Regional Requirements 5
1.3	Product Information 6
1.3.1	Technical Description 6
1.3.2	Supported Features 6
1.3.3	Antennas 6
2	TEST DETAILS 7
2.1	Test Result Details 8
2.1.1	Configuration 1 – RFID 125 kHz 8
2.1.2	Configuration 2 – RFID 133 kHz 9
3	DISCLAIMERS AND COPYRIGHT 10
3.1	Disclaimers and Copyright 11



Product Service

SECTION 1

REPORT SUMMARY

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



Product Service

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



Product Service

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



Product Service

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.



Product Service

SECTION 2

TEST DETAILS



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



Product Service

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.



Product Service

SECTION 3

DISCLAIMERS AND COPYRIGHT



Product Service

3.1 DISCLAIMERS AND COPYRIGHT

This report relates only to the actual item/items tested.

This report must not be reproduced, except in its entirety, without the written permission of
TÜV SÜD Product Service

© 2017 TÜV SÜD Product Service



Product Service

ANNEX A

REGIONAL REQUIREMENTS



Product Service

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



Product Service

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