

FCC and Industry Canada Testing of the
DEB IP Ltd
DebSafe Dispenser, Model: 1135-400
In accordance with FCC 47 CFR Part 15B and
ICES-003

Prepared for: DEB IP Ltd
Denby Hall Way
Denby
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United Kingdom



Product Service

Choose certainty.
Add value.

FCC ID: YPHDEB1135-400
IC: 10648A-1135400

COMMERCIAL-IN-CONFIDENCE

Date: August 2017

Document Number: 75937751-01 | Issue: 01

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Project Management	Steven White	15 August 2017	
Authorised Signatory	Simon Bennett	15 August 2017	

Signatures in this approval box have checked this document in line with the requirements of TÜV SÜD Product Service document control rules.

ENGINEERING STATEMENT

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported testing was carried out on a sample equipment to demonstrate limited compliance with FCC 47 CFR Part 15B and ICES-003. The sample tested was found to comply with the requirements defined in the applied rules.

RESPONSIBLE FOR	NAME	DATE	SIGNATURE
Testing	Graeme Lawler	15 August 2017	

FCC Accreditation
90987 Octagon House, Fareham Test Laboratory

Industry Canada Accreditation
IC2932B-1 Octagon House, Fareham Test Laboratory

EXECUTIVE SUMMARY

A sample of this product was tested and found to be in compliance with FCC 47 CFR Part 15B: 2016 and ICES-003: Issue 6 (2016-01)



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1 Report Summary

1.1 Report Modification Record

Alterations and additions to this report will be issued to the holders of each copy in the form of a complete document.

Issue	Description of Change	Date of Issue
1	First Issue	15 August 2017

Table 1

1.2 Introduction

Applicant	DEB IP Ltd
Manufacturer	DEB IP Ltd
Model Number(s)	1135-400
Serial Number(s)	NASAFE172B006E
Hardware Version(s)	1.0
Software Version(s)	3.0
Number of Samples Tested	1
Test Specification/Issue/Date	FCC 47 CFR Part 15B: 2016 ICES-003: Issue 6 (2016-01)
Order Number	DIP-103093
Date	30-January-2017
Date of Receipt of EUT	31-May-2017
Start of Test	31-May-2017
Finish of Test	31-May-2017
Name of Engineer(s)	Graeme Lawler
Related Document(s)	ANSI C63.4 (2014)



1.3 Brief Summary of Results

A brief summary of the tests carried out in accordance with FCC 47 CFR Part 15B and ICES-003 is shown below.

Section	Specification Clause		Test Description	Result	Comments/Base Standard
	Part 15B	ICES-003			
Configuration: Idle					
2.1	15.109	6.2	Radiated Emissions	Pass	ANSI C63.4

Table 2



1.4 Application Form

EQUIPMENT DESCRIPTION	
Model Name/Number	DebSafe Dispenser
Part Number	1135-400
Hardware Version	1.0
Software Version	3.0
FCC ID (if applicable)	YPHDEB1135-400
Industry Canada ID (if applicable)	10648A-1135400
Technical Description (Please provide a brief description of the intended use of the equipment)	Device that monitors the button pushes on a manual soap dispenser and transmits that information via radio for the purposes of monitoring usage.

INTENTIONAL RADIATORS									
Technology	Frequency Band (MHz)	Conducted Declared Output Power (dBm)	Antenna Gain (dBi)	Supported Bandwidth (s) (MHz)	Modulation Scheme(s)	ITU Emission Designator	Test Channels (MHz)		
							Bottom	Middle	Top
802.15.4	905MHz	+20	0	1.2	OQ-PSK	G2B			

UN-INTENTIONAL RADIATOR	
Highest frequency generated or used in the device or on which the device operates or tunes	905.6 MHz

Power Source			
AC	Single Phase	Three Phase	Nominal Voltage
External DC	Nominal Voltage		Maximum Current
Battery	Nominal Voltage		Battery Operating End Point Voltage
	3.6		2.7
Can EUT transmit whilst being charged?		Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	

EXTREME CONDITIONS					
Maximum temperature	40	°C	Minimum temperature	0	°C



Ancillaries

Please list all ancillaries which will be used with the device.

ANTENNA CHARACTERISTICS

<input type="checkbox"/> Antenna connector		State impedance	Ohm
<input type="checkbox"/> Temporary antenna connector		State impedance	Ohm
<input checked="" type="checkbox"/> Integral antenna	Type	PCB Trace	
<input type="checkbox"/> External antenna	Type		

I hereby declare that the information supplied is correct and complete.

Name: Paul Dodds

Position held: Electronics Development Manager

Date: 03/02/2017

1.5 Product Information

1.5.1 Technical Description

Device that monitors the button pushes on a manual soap dispenser and transmits that information via radio for the purposes of monitoring usage.

1.6 Deviations from the Standard

No deviations from the applicable test standard were made during testing.

1.7 EUT Modification Record

The table below details modifications made to the EUT during the test programme.
The modifications incorporated during each test are recorded on the appropriate test pages.

Modification State	Description of Modification still fitted to EUT	Modification Fitted By	Date Modification Fitted
Serial Number: NASAFE172B006E			
0	As supplied by the customer	Not Applicable	Not Applicable

Table 3

1.8 Test Location

TÜV SÜD Product Service conducted the following tests at our Fareham Test Laboratory.

Test Name	Name of Engineer(s)	Accreditation
Configuration: Idle		
Radiated Emissions	Graeme Lawler	UKAS

Table 4

Office Address:

Octagon House
Concorde Way
Segensworth North
Fareham
Hampshire
PO15 5RL
United Kingdom

2 Test Details

2.1 Radiated Emissions

2.1.1 Specification Reference

FCC 47 CFR Part 15B, Clause 15.109
ICES-003, Clause 6.2

2.1.2 Equipment Under Test and Modification State

1135-400, S/N: NASAFE172B006E - Modification State 0

2.1.3 Date of Test

31-May-2017

2.1.4 Test Method

The test was performed in accordance with ANSI C63.4, clause 8.

2.1.5 Environmental Conditions

Ambient Temperature 20.7 °C
Relative Humidity 55.0 %

2.1.6 Test Results

Idle

Highest frequency generated or used within the EUT: 905.6 MHz
Upper frequency test limit: 5 GHz

Frequency (MHz)	QP Level (dB μ V/m)	QP Limit (dB μ V/m)	QP Margin (dB μ V/m)	Angle(Deg)	Height(m)	Polarity
30.203	30.9	40.0	-9.1	263	1.00	Horizontal
32.496	29.5	40.0	-10.5	188	1.00	Vertical
34.193	28.5	40.0	-11.5	70	1.00	Horizontal
817.949	33.0	46.0	-13.0	132	1.00	Horizontal
864.283	33.5	46.0	-12.5	240	1.00	Vertical
898.941	33.8	46.0	-12.2	239	1.00	Vertical

Table 5 - 30 MHz to 1 GHz

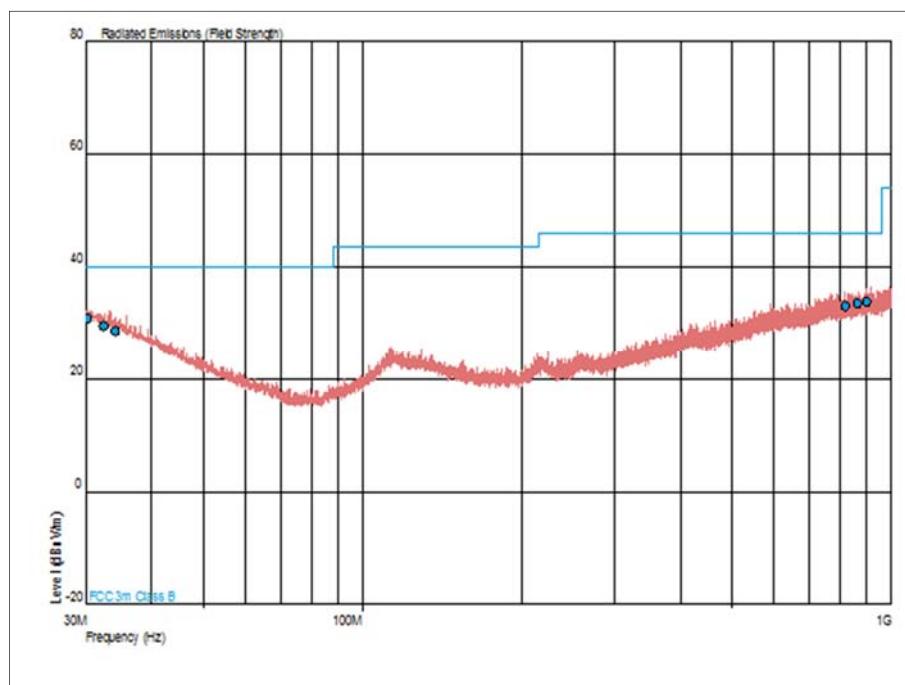


Figure 1 - 30 MHz to 1 GHz - Horizontal and Vertical

Frequency (GHz)	Result (μV/m)		Limit (μV/m)		Margin (μV/m)		Angle (°)	Height (m)	Polarisation
	Peak	Average	Peak	Average	Peak	Average			
*									

Table 6 - 1 GHz to 5 GHz

*No emissions were detected within 10 dB of the limit.

Frequency (GHz)	Result (dB μV/m)		Limit (dB μV/m)		Margin (dB μV/m)		Angle (°)	Height (m)	Polarisation
	Peak	Average	Peak	Average	Peak	Average			
*									

Table 7 - 1 GHz to 5 GHz

*No emissions were detected within 10 dB of the limit.

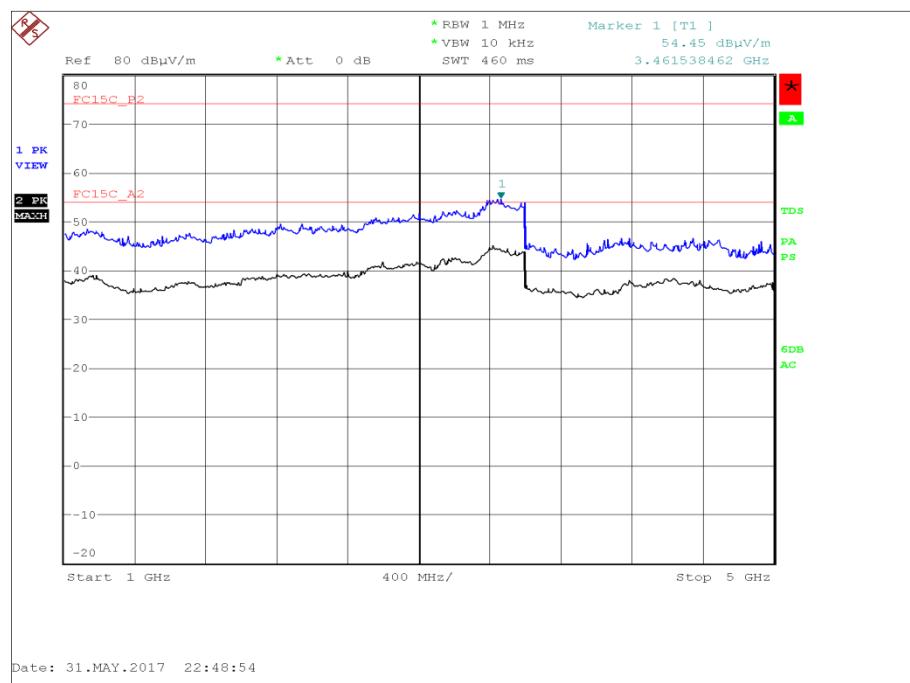


Figure 2 - 1 GHz to 5 GHz - Horizontal and Vertical

FCC 47 CFR Part 15, Limit Clause 15.109

Frequency of Emission (MHz)	Field Strength (μ V/m)
30 to 88	100.0
88 to 216	150.0
216 to 960	200.0
Above 960	500.0

ICES-003, Limit Clause 6.2

Frequency of Emission (MHz)	Quasi-Peak (dB μ V/m)
30 to 88	40.0
88 to 216	43.5
216 to 960	46.0
960 to 1000	54.0

Frequency of Emission (MHz)	Field Strength (dB μ V/m)	
	Linear Average Detector	Peak Detector
Above 1000	54.0	74.0

2.1.7 Test Location and Test Equipment Used

This test was carried out in EMC Chamber 5.

Instrument	Manufacturer	Type No	TE No	Calibration Period (months)	Calibration Due
Screened Room (5)	Rainford	Rainford	1545	36	20-Dec-2017
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Hygrometer	Rotronic	A1	2138	12	02-Feb-2018
Antenna (Bilog)	Chase	CBL6143	2904	24	11-Jun-2017
Comb Generator	Schaffner	RSG1000	3034	-	TU
Cable (N-N, 8m)	Rhophase	NPS-2302-8000-NPS	3248	12	02-May-2018
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	12-Nov-2017
Tilt Antenna Mast	maturo GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	maturo GmbH	NCD	3917	-	TU
Cable (Rx, Km-Km 2m)	Scott Cables	KPS-1501-2000-KPS	4526	6	23-Jul-2017
Double Ridge Broadband Horn Antenna	Schwarzbeck	BBHA 9120 B	4848	12	17-Feb-2018

Table 8

TU - Traceability Unscheduled

3 Measurement Uncertainty

For a 95% confidence level, the measurement uncertainties for defined systems are:

Test Name	Measurement Uncertainty
Radiated Emissions	30 MHz to 1 GHz: ± 5.2 dB 1 GHz to 40 GHz: ± 6.3 dB

Table 9