Report On

Limited FCC and Industry Canada Testing of the
DEB Group Ltd Universal GMS PCB
In accordance with FCC CFR 47 Part 15B and ICES-003

COMMERCIAL-IN-CONFIDENCE

FCC ID: YPHDEB1135-300
IC: 10648A-1135300

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REPORT ON

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July 2014

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DATED 21 July 2014

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 CFR 47 Part 15B and ICES-003. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

G Lawler

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CONTENTS

Product Service

SECTION 1

REPORT SUMMARY

Limited FCC and Industry Canada Testing of the
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1.1 INTRODUCTION

The information contained in this report is intended to show the verification of Limited FCC and Industry Canada Testing of the DEB Group Ltd Universal GMS PCB to the requirements of FCC CFR 47 Part 15B and ICES-003.

Objective	To perform FCC and Industry Canada Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	DEB Group Ltd
Model Number(s)	YPHDEB1135-200
Serial Number(s)	FCC Sample 3
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 15B (2013) ICES-003 (2012)
Incoming Release Date	Application Form 18 July 2014
Disposal Reference Number Date	Held Pending Disposal Not Applicable Not Applicable
Order Number Date	DIP-1008645 02 July 2014
Start of Test	14 July 2014
Finish of Test	15 July 2014
Name of Engineer(s)	G Lawler
Related Document(s)	ANSI C63.4 (2003)

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1.2 BRIEF SUMMARY OF RESULTS

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

Section	Spec Clause		Test Description	Result	Comments/Base Standard
	FCC	IC			
Idle					
2.1	15.109	6.2	Radiated Emissions	Pass	ANSI C63.4 (2003)

1.3 DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Universal GMS PCB
MANUFACTURER	DEB Int Ltd
PART NUMBER	1135-300
SERIAL NUMBER	FCC Sample 3
HARDWARE VERSION	V1.0
SOFTWARE VERSION	V1.0
TRANSMITTER FREQUENCY OPERATING RANGE (MHz)	905MHz
RECEIVER FREQUENCY OPERATING RANGE (MHz)	905MHz
COUNTRY OF ORIGIN	USA
HIGHEST INTERNALLY GENERATED FREQUENCY	32MHz
OUTPUT POWER (W or dBm)	+20dBm
FCC ID	YPHDEB1135-300
INDUSTRY CANADA ID	10648A-1135300
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	A device for monitoring dispenser activity for the purposes of hand hygiene compliance

Signature **Held on file at TUV SUD**

Date **18/07/2014**

1.4 PRODUCT INFORMATION

1.4.1 Technical Description

The Equipment Under Test (EUT) was a DEB Group Ltd Universal GMS PCB. A full technical description can be found in the manufacturer's documentation.

1.5 TEST CONDITIONS

For all tests the EUT was set up in accordance with the relevant test standard and to represent typical operating conditions. Tests were applied with the EUT situated in a shielded enclosure.

The EUT was powered from a 3.6 V DC supply.

FCC Measurement Facility Registration Number
90987 Octagon House, Fareham Test Laboratory

Industry Canada Company Address Code
IC2932B-1 Octagon House, Fareham Test Laboratory

1.6 DEVIATIONS FROM THE STANDARD

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

1.7 MODIFICATION RECORD

Modification 0 - No modifications were made to the test sample during testing.

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SECTION 2

TEST DETAILS

Limited FCC and Industry Canada Testing of the
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2.1 RADIATED EMISSIONS

2.1.1 Specification Reference

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

2.1.2 Equipment Under Test and Modification State

YPHDEB1135-200 S/N: FCC Sample 3 - Modification State 0

2.1.3 Date of Test

14 July 2014 & 15 July 2014

2.1.4 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.5 Test Procedure

A test environment and testing arrangement meeting the specification of ANSI C63.4 was used during all testing. The Equipment Under Test (EUT) was set upon a non-conducting platform at an elevation of 80 cm above a horizontal reference ground plane.

The horizontal reference ground plane encompasses a turntable which is used to adjust the azimuth of the EUT. An antenna positioner is used to elevate the measuring antenna above the horizontal reference ground plane whereby the antenna elevation is adjustable between 1 m and 4 m.

Exploratory radiated emissions measurements were made by azimuth emissions searches over a range of 0° and 360°. These exploratory radiated emissions measurements were made using a peak detector over a frequency range of 30 MHz to 5 GHz, with the measuring antenna in both vertical and horizontal polarizations.

At least six of the greatest peak emissions, frequency positions were selected from the exploratory radiated emissions measurements for further evaluation as final measuring points.

To ascertain the azimuth and measuring antenna polarization that yields the highest peak emission level, each final measurement frequency was investigated by continuous azimuth emissions searching with the measuring antenna in both vertical and horizontal polarizations. For each final measurement frequency, the respective peak emission azimuth and measuring antenna polarization was used during a measuring antenna elevation search from 1 m to 4 m. Each final measurement frequency was then measured with the EUT azimuth, measuring antenna height and polarization that yielded the greatest peak emission level.

Final measurement points over the frequency range of 30 MHz to 1 GHz were measured using a quasi-peak detector. Final measurement points over the frequency range of 1 GHz and 5 GHz were measured using peak and average methods. Peak measurements were made using a peak detector with 1 MHz resolution and video bandwidths. Average measurements were made using a resolution bandwidth of 1 MHz and a video bandwidth of 10 Hz.

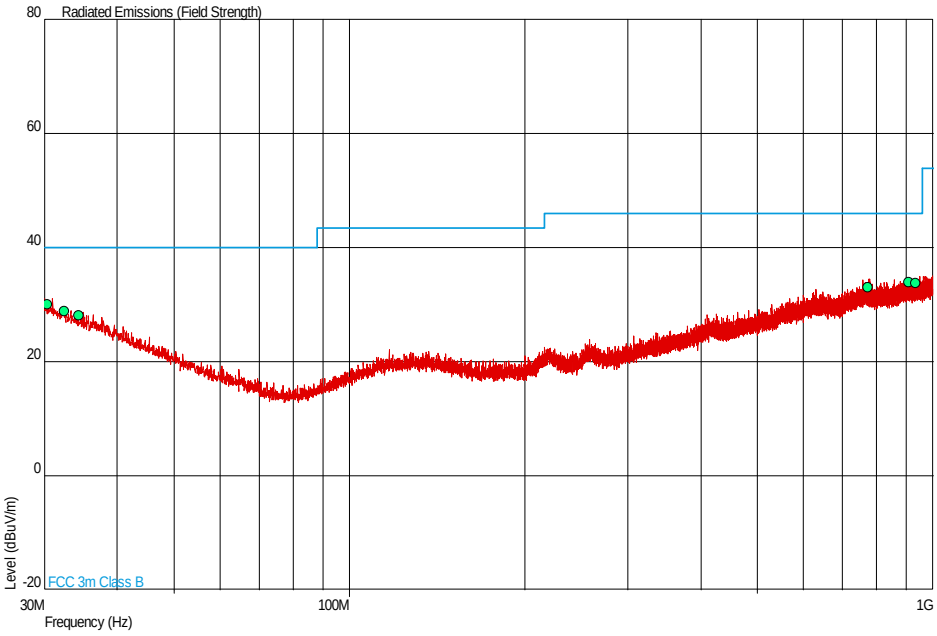
All final measurements were assessed against the Class B emission limits in Clause 15.109 of FCC CFR 47 FCC Part 15B.

2.1.6 Environmental Conditions

Ambient Temperature	19.3 - 20.1°C
Relative Humidity	55.0 - 56.0%

2.1.7 Test Results

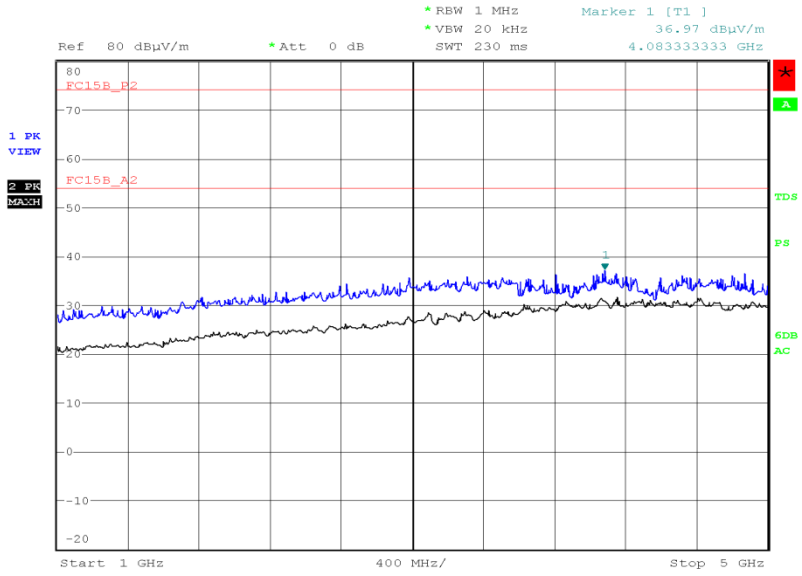
30 MHz to 1 GHz



Frequency (MHz)	QP Level (dBuV/m)	QP Level (uV/m)	QP Limit (dBuV/m)	QP Limit (uV/m)	QP Margin (dBuV/m)	QP Margin (uV/m)	Angle (Deg)	Height (m)	Polarity
30.340	30.0	31.6	40.0	100	-10.0	-68.4	90	1.00	Horizontal
32.425	28.9	27.9	40.0	100	-11.1	-72.1	90	1.00	Vertical
34.317	28.1	25.4	40.0	100	-11.9	-74.6	0	1.00	Vertical
774.281	33.1	45.2	46.0	200	-12.9	-154.8	0	1.00	Vertical
908.820	33.9	49.5	46.0	200	-12.1	-150.5	270	1.00	Vertical
933.895	33.8	49.0	46.0	200	-12.2	-151.0	270	1.00	Horizontal

Product Service

1 GHz to 5 GHz



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No emissions were detected within 10 dB of the limit.

Product Service

SECTION 3

TEST EQUIPMENT USED

3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Section 2.1 - Radiated Emissions					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	234	12	2-May-2015
Screened Room (5)	Rainford	Rainford	1545	24	10-Jan-2015
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Antenna (Bilog)	Chase	CBL6143	2904	24	10-Jun-2015
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	22-Oct-2014
9m RF Cable (N Type)	Rhophase	NPS-2303-9000-NPS	3791	-	TU
Tilt Antenna Mast	maturo Gmbh	TAM 4.0-P	3916	-	TU
Mast Controller	maturo Gmbh	NCD	3917	-	TU
1GHz to 8GHz Low Noise Amplifier	Wright Technologies	APS04-0085	4365	12	1-Oct-2014

TU – Traceability Unscheduled

3.2 MEASUREMENT UNCERTAINTY

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

Test Discipline	MU
Radiated Emissions	30MHz to 1GHz: ± 5.1 dB 1GHz to 40GHz: ± 6.3 dB

Product Service

SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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

Our UKAS Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our UKAS Accreditation.

Results of tests not covered by our UKAS Accreditation Schedule are marked NUA (Not UKAS Accredited).