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# Report On

FCC and Industry Canada Testing of the  
Domo Ltd SOLO4 Bodywire Module  
In accordance with FCC CFR 47 Part 15B and  
Industry Canada ICES-003

COMMERCIAL-IN-CONFIDENCE

FCC ID: XRF-SOLOMTX and IC ID: 8638A-SOLOMTX

Document 75910487 Report 04 Issue 4

July 2011



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**DATED**

07 July 2011

**This report has been up-issued to Issue 4 to amend the FCC specification dates.**

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**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 Industry Canada ICES-003. The sample tested was found to comply with the requirements defined in the applied rules.

Test Engineer(s);

  
J Holcombe



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## **SECTION 1**

### **REPORT SUMMARY**

FCC and Industry Canada Testing of the  
Domo Ltd SOLO4 Bodywire Module  
In accordance with FCC CFR 47 Part 15B and  
Industry Canada ICES-003

## 1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Domo Ltd SOLO4 Bodywire Module to the requirements of FCC CFR 47 Part 15B and Industry Canada ICES-003.

Objective	To perform Electromagnetic Compatibility (EMC) Qualification Approval Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Cobham trading as Domo Ltd
Model Number(s)	SOLO4 - Bodywire Transmitter
Serial Number(s)	008954
Software Version	1.2/1.4 HEX
Hardware Version	3.3
Number of Samples Tested	1
Test Specification/Issue/Date	FCC CFR 47 Part 15B: 2010 Industry Canada ICES-003, Issue 4: 2004
Incoming Release Date	Declaration of Build Status 06 August 2010
Disposal	Held Pending Disposal
Reference Number	Not Applicable
Date	Not Applicable
Order Number	6373
Date	17 July 2010
Start of Test	17 August 2010
Finish of Test	04 February 2011
Name of Engineer(s)	J Holcombe
Related Document(s)	ANSI C63.4 : 2003 CISPR 22: 2006

Testing contained in this test report was performed in accordance with the 2009 version of FCC Part 15B specification, however a full comparison has been done and the results contained in this report are valid for the version listed above.



## 1.2 BRIEF SUMMARY OF RESULTS

A brief summary of results for each configuration, in accordance with FCC CFR 47 Part 15B and Industry Canada ICES-003 is shown below.

Configuration 1 - Body Camera, Battery							
Section	Spec Clause		Test Description	Mode	Mod State	Result	Base Standard
	FCC	IC					
2.1	15.109	7.1	Radiated Emissions (Enclosure Port)	Idle	0	Pass	ANSI C63.4 CISPR 22



### 1.3 DECLARATION OF BUILD STATUS

MAIN EUT	
MANUFACTURING DESCRIPTION	Bodywire Solo TX.
MANUFACTURER	Domo Cobham
TYPE	SOL4 MTX-200250
PART NUMBER	SOL4MTX
SERIAL NUMBER	008954
HARDWARE VERSION	3.3
SOFTWARE VERSION	1.2/1.4 HEX
TRANSMITTER OPERATING RANGE	2.0-2.5GHz
RECEIVER OPERATING RANGE	2.0-2.5GHz
COUNTRY OF ORIGIN	UK
INTERMEDIATE FREQUENCIES	
EMISSION DESIGNATOR(S): (i.e. G1D, GXW)	2M50D7F
MODULATION TYPES: (i.e. GMSK, QPSK)	QPSK/16QAM
HIGHEST INTERNALLY GENERATED FREQUENCY	48 MHz
OUTPUT POWER (W or dBm)	100mW
FCC ID	XRFSOLOMTX
INDUSTRY CANADA ID	8638A-SOLOMTX
TECHNICAL DESCRIPTION (a brief description of the intended use and operation)	Bodywire Module SOL4MTX utilising Bodywire Card D550/551

Signature	Held on file at TÜV SÜD Product Service Ltd
Date	07 June 2011
D of B S Serial No	75910487/01

Note: This document has been prepared to enable manufacturers with no mechanism for producing their own Declaration of Build Status, to declare the build state of the equipment submitted for test.

No responsibility will be accepted by TÜV SÜD Product Service as to the accuracy of the information declared in this document by the manufacturer.



## 1.4 PRODUCT INFORMATION

### 1.4.1 Technical Description

The Equipment Under Test (EUT) was a Domo Ltd SOLO4 - Bodywire Transmitter. A full technical description can be found in the manufacturer's documentation.

### 1.4.2 Test Configuration

#### Configuration 1: Body Camera, Battery

The EUT was configured in accordance with FCC CFR 47 Part 15B and Industry Canada ICES-ICES-003.

### 1.4.3 EUT Cable / Port Identification

Port	Max Cable Length specified	Usage	Type	Screened
DC Power	<3m	Power Cable	DC Lead	No
RS232	<3m	Comms Cable	Serial Lead	No

### 1.4.4 Modes of Operation

Modes of operation of each EUT during testing were as follows:

Mode 1: Idle



## 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, test laboratories or an open test area as appropriate.

The EUT was powered from a 110V AC, 12V DC supply.

FCC Accreditation  
90987 Octagon House, Fareham Test Laboratory

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

## 1.6 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

## 1.7 MODIFICATION RECORD

No modifications were made to the EUT during testing.



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## **SECTION 2**

### **TEST DETAILS**

FCC and Industry Canada Testing of the  
Domo Ltd SOLO4 Bodywire Module  
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Industry Canada ICES-003



## 2.1 RADIATED EMISSIONS (ENCLOSURE PORT)

### 2.1.1 Specification Reference

FCC CFR 47 Part 15B Clause 15.109  
Industry Canada ICES-003, Clause 7.1

### 2.1.2 Equipment Under Test

SOLO4 Bodywire Module, S/N: 008954

### 2.1.3 Date of Test and Modification State

17 August 2010 - Modification State 0  
03 to 04 February 2011 - Modification State 0

### 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 Method and Operating Modes

The test was applied in accordance with the test method requirements of ANSI C63.4.

The test was performed with the EUT in the following configurations and modes of operation:

Configuration 1 - Mode 1

### 2.1.6 Environmental Conditions

	17 August 2010	03 February 2011	04 February 2011
Ambient Temperature	19.8°C	23°C	22°C
Relative Humidity	52%	32%	32%
Atmospheric Pressure	1012mbar	1002mbar	1008mbar

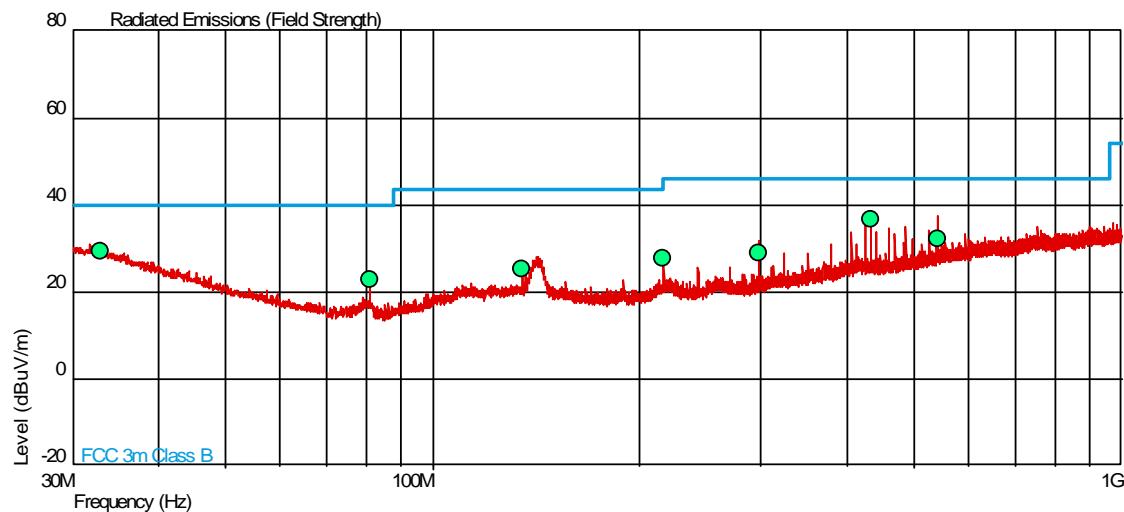


### 2.1.7 Test Results

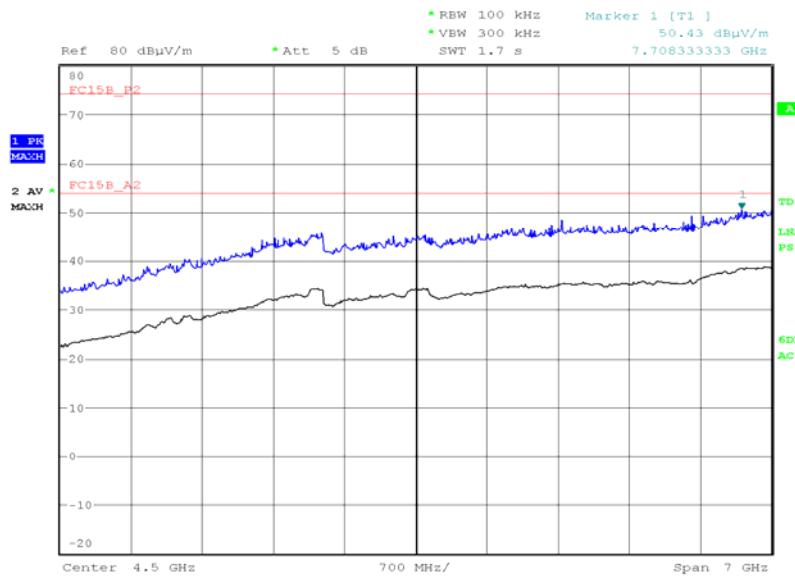
For the period of test the EUT met the requirements of FCC CFR 47 Part 15B and Industry Canada ICES-003 for Radiated Emissions (Enclosure Port).

The test results are shown below.

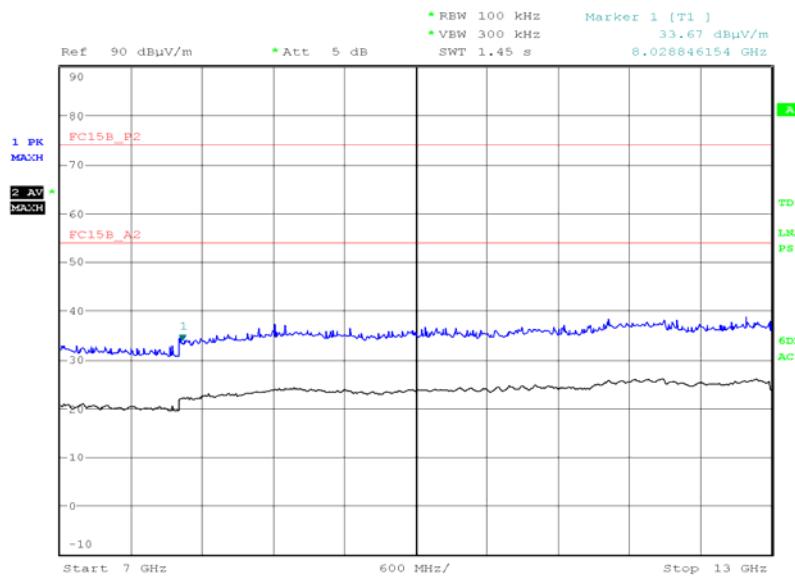
#### Configuration 1 - Mode 1



Frequency (MHz)	QP Level (dB $\mu$ V/m)	QP Level ( $\mu$ V/m)	QP Limit (dB $\mu$ V/m)	QP limit ( $\mu$ V/m)	QP Margin (dB $\mu$ V/m)	QP Margin ( $\mu$ V/m)	Angle (deg)	Height (m)	Polarity
32.910	29.4	29.5	40.0	100	-10.6	-70.5	360	1.00	Horizontal
81.001	23.0	14.1	40.0	100	-17.0	-85.9	0	1.00	Vertical
134.991	25.3	18.4	43.5	150	-18.2	-131.6	360	1.00	Vertical
215.987	27.8	24.5	43.5	150	-15.7	-125.5	6	1.00	Horizontal
296.997	28.9	27.9	46.0	200	-17.1	-172.1	328	1.11	Horizontal
431.996	36.6	67.6	46.0	200	-9.4	-132.4	90	1.00	Horizontal
539.991	32.3	41.2	46.0	200	-13.7	-158.8	285	1.00	Vertical

1GHz to 8GHz

Date: 4.FEB.2011 10:38:06

8GHz to 13GHz

Date: 4.FEB.2011 10:28:34



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## **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
<b>Section 2.1 - Radiated Emissions (Enclosure Port)</b>					
Antenna (Double Ridge Guide, 1GHz-18GHz)	EMCO	3115	235	12	12-Nov-2011
Pre-Amplifier	Phase One	PS04-0085	1532		16-Sep-2010*
Pre-Amplifier	Phase One	PS04-0086	1533	12	15-Sep-2011
Screened Room (5)	Rainford	Rainford	1545	24	27-Jan-2013
Mast Controller	Inn-Co GmbH	CO 1000	1606	-	TU
Turntable/Mast Controller	EMCO	2090	1607	-	TU
Turntable/Mast Controller	EMCO	2090	1610	-	TU
Antenna (Bilog)	Chase	CBL6143	2904	24	4-Dec-2011
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	9-Sep-2011

\* relates to testing completed on the 17 August 2010.

TU – Traceability Unscheduled



### 3.2 MEASUREMENT UNCERTAINTY

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

Test Discipline	Frequency / Parameter	MU
Radiated Emissions, Bilog Antenna, AOATS	30MHz to 1GHz Amplitude	5.2dB*
Radiated Emissions, Horn Antenna, AOATS	1GHz to 40GHz Amplitude	6.3dB*
Conducted Emissions, LISN	150kHz to 30MHz Amplitude	3.2dB*
Conducted Emissions, ISN	150kHz to 30MHz Amplitude	2.1dB
Substitution Antenna, Radiated Field	30MHz to 18GHz Amplitude	2.6dB
Discontinuous Interference	150kHz to 30MHz Amplitude	3.0dB*
Interference Power	30MHz to 300MHz Amplitude	3.0dB*
Radiated E-Field Susceptibility	10MHz to 6GHz Test Amplitude	2.0dB†
Conducted Susceptibility RF	50kHz to 1000MHz Amplitude	3.1dB•
	EM Clamp Method of Test	1.2dB•
	CDN Method of Test	1.1dB•
	BCI Clamp Method of Test	1.2dB•
	Direct Injection Method of Test	—
Conducted Susceptibility LF	DC to 150kHz	1.0%†
Power Frequency Magnetic Field	50Hz/60Hz Amplitude	0.45%
Magnetic Emissions	9kHz to 30MHz Amplitude	3.4dB*
Magnetic Field/Flux iaw EN 50366	10Hz to 400kHz	2.64%
Harmonics and Flicker	The test was applied using proprietary equipment that meets the requirements of EN 61000-3-2 and EN 61000-3-3	—
Mains Voltage Variations and Interrupts	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-11	—
Fast Transient Burst	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-4	—
Electrostatic Discharge	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-2	—
Surge	The test was applied using proprietary equipment that meets the requirements of EN 61000-4-5	—
Vehicle Transients	The test was applied using proprietary equipment that meets the requirements of ISO 7637-1 and 2	—
Compass Safe Distance	Azimuth Accuracy	0.10°

Worst case error for both Time and Frequency measurement 12 parts in  $10^6$ .

\* In accordance with CISPR 16-4-2

† In accordance with UKAS Lab 34

• In accordance with EN61000-4-6: 2009



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## **SECTION 4**

### **ACCREDITATION, DISCLAIMERS AND COPYRIGHT**



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#### 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).

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