	Report No: <b>R3196</b> Issue No: <b>1</b>	FCC ID: X09-DOOR-1001 IC: 8906A-DOOR1001	
	Test No: <b>T4610</b>	<b>Test Report</b>	Page: 1 of 52



**dB Technology**

( Cambridge Ltd. )

EMC  
Testing

EMC  
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## REPORT ON ELECTROMAGNETIC COMPATIBILITY TESTS

Performed at:  
**TWENTY PENCE TEST SITE**

**Twenty Pence Road,  
Cottenham,  
Cambridge  
U.K.  
CB24 8PS**

on

**Sureflap Ltd**

**Sureflap**

dated


**18th February 2013**


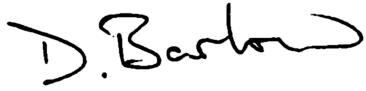
### Document History

Issue	Date	Affected page(s)	Description of modifications	Revised by	Approved by
1	18/02/13		Initial release		

Based on report template:  
v090319

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Equipment Under Test (EUT):	Sureflap
Test Commissioned by:	Sureflap Ltd 7 The Irwin Centre Scotland Road Dry Drayton Cambridgeshire CB23 8AR
Representative:	Nick Hill
Test Started:	24th January 2013
Test Completed:	5th February 2013
Test Engineer:	Peter Barlow
Date of Report:	18th February 2013
Written by: <u>                    Dave Smith                    </u>	Checked by: <u>                    Derek Barlow                    </u>
Signature: 	Signature: 
Date: <u>                    18th February 2013                    </u>	Date: <u>                    18th February 2013                    </u>

**dB Technology can only report on the specific unit(s) tested at its site. The responsibility for extrapolating this data to a product line lies solely with the manufacturer.**

## Test Standards Applied

<b>CFR 47</b>	<i>Code of Federal Regulations: Pt 15 Subpart C - Radio Frequency Devices - Intentional Radiators</i>
<b>RSS-210 Issue 8</b>	<i>Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment</i>

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## Emissions Test Results Summary

### CFR 47

**PASS**

Test	Port	Method	Limit	PASS/FAIL	Notes
Conducted Emissions	ac power	ANSI C63.4:2003	15.207	N/A	#1
Radiated Emissions		ANSI C63.4:2003	15.209	PASS	

specs\_fccv100412


- #1 This test was not applicable because the EUT was powered by an internal battery and has no means of connection to an ac power source.

### RSS-210

**PASS**


Test	Port	Method	Limit	PASS/FAIL	Notes
Radiated Spurious Emissions	enclosure	ANSI C63.4:2003	RSS_GEN Tables 5&6	PASS	

specs\_canadav111211

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## 1 EUT Details

### 1.1 General

The EUT was pet flap with an RFID detector system. The EUT generates a magnetic field at one of two nominal frequencies: 126kHz or 133kHz. The driver output is set to one of two levels: 80V or 120V. Four samples were provided to constantly generate all four combinations of carrier level and frequency. A fifth sample was provided which continuously performed the normal read cycle which involves sequentially transmitting at all of the frequency/level combinations. A sixth sample was provide with carrier not powered (it's normal operating mode until the optical sensor detects the presence of a pet).

The EUT is powered from an internal battery and has no connecting cables.

The EUT was considered an intentional radiator under the rules of CFR 47 part 15 subpart C. The general limits for intentional radiators (section 15.209) were applied. The carrier frequencies do not fall within restricted bands of section 15.205.


**The EUT was found to comply with the general emissions limits of FCC CFR47 Part 15.209.**

For Canada the rules of RSS-210 were applied. The general limits for Licence-exempt apparatus were applied (Tables 5 and 6 of RSS-GEN Issue 2). These limits are identical to the limits applied for FCC testing.

**The EUT was found to comply with the general emissions limits of RSS-210**

Details of the EUT and associated peripherals used during the tests are listed below. Figure 1 shows the interconnections between the EUT and peripherals.

Item	Manufacturer	Model	Description	Serial No:	Notes
1	Sureflap Ltd	Sureflap	EUT sample A set at 126kHz, 120V		
2	Sureflap Ltd	Sureflap	EUT sample B set at 126kHz, 80V		
3	Sureflap Ltd	Sureflap	EUT sample C set at 132.8kHz, 120V		
4	Sureflap Ltd	Sureflap	EUT sample D set at 132.8kHz, 80V		
5	Sureflap Ltd	Sureflap	EUT sample E continously cycle through read modes		
6	Sureflap Ltd	Sureflap	EUT sample F normal operating mode waiting for cat to approach - not transmitting		

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## 1.2 Modifications to EUT and Peripherals


Details of any modifications that were required to achieve compliance are listed below. The modification numbers are referred to in the results sections as appropriate.

Mod No:	Details	Implemented for
0	Original unit	
1	C40 changed from 100pF to 47pF.	Radiated Emissions

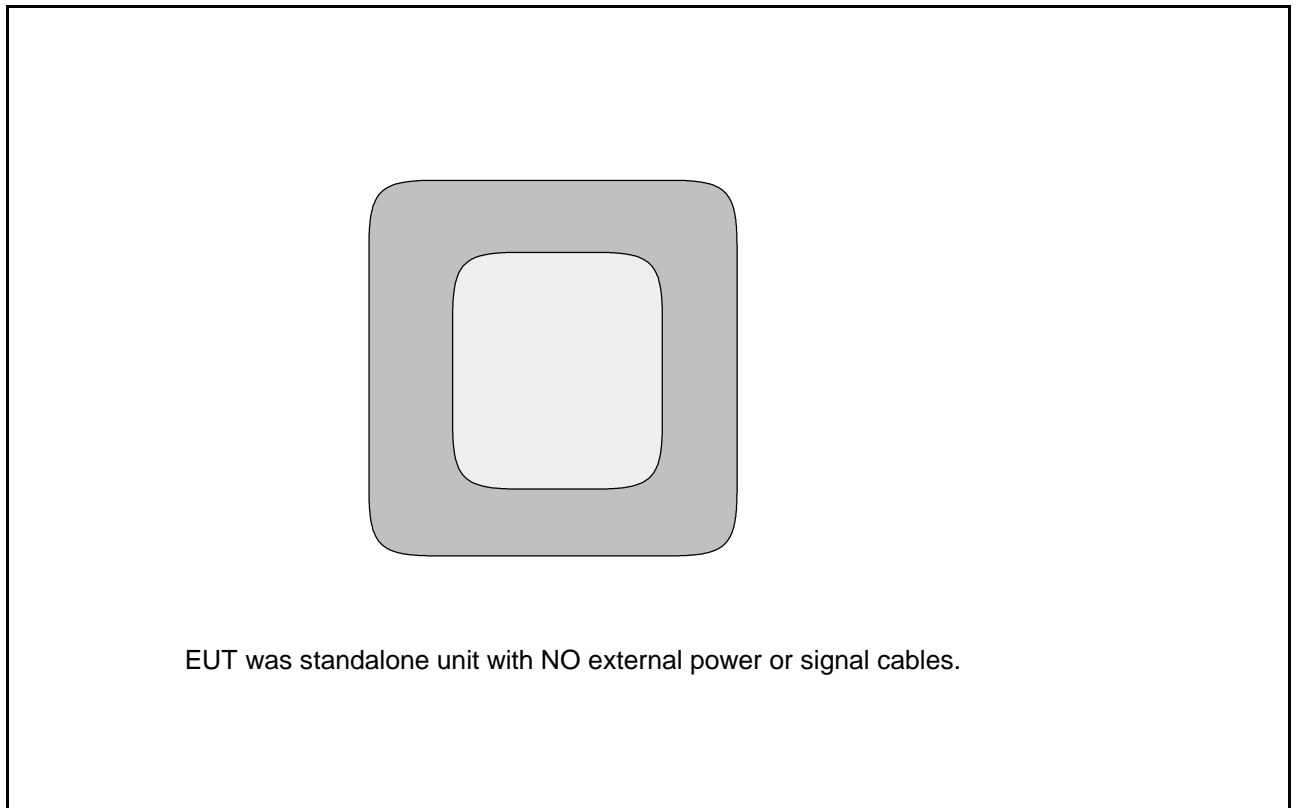
## 1.3 EUT Operating Modes

The EUT was tested in the following operating mode or modes. Generally, operating modes are chosen that will exercise the functions of the EUT as fully as possible and in a manner likely to produce maximum emission levels or susceptibility. Individual test result sheets reference the operating mode of the EUT.


Operating Mode	Details
1	Transmitting constantly at a fixed frequency and level. Normally the carrier is only activated when a cat enters the cat flap and so special test firmware was used to provide a constant transmission.
2	Running test firmware which continuously cycles through the normal read cycle, turning the RF on and off at the normal frequencies and levels. This mode was used to check that no transients occurred when turning the RF on and off.
3	Normal operating mode - waiting for cat to approach. not transmitting.

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**Figure 1 General Arrangement of EUT**





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**Photograph 1 Radiated Emissions - below 30MHz**



**Photograph 2 Radiated Emissions - above 30MHz**

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## 2 Test Equipment

The test equipment used during the tests was one or more of the items listed below. Individual test result sheets indicate which items were used.

Ref No:	Details	Serial Number	Cal Date	Cal Period
A24	Chase X-wing Bilog CBL6144 26MHz-3GHz	27590	30/10/2012	1 year
A5	Chase Bilog CBL6111A	1760	30/10/2012	1 year
A9	EMCO 6502 Loop	2139	14/12/2012	1 year
R4	R&S ESVS10	421872	17/12/2012	1 year
R8	Agilent E7405A Spectrum Analyser	MY44212494	24/09/2012	1 year
R9	Agilent E7405A Spectrum Analyser	MY45110758	19/11/2012	1 year

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### 3 Test Methods

#### 3.1 Radiated Emissions below 30MHz

This section describes the general method of performing this test. The specific method used and any deviations from this general method are listed in the appropriate results section.

Initial scans are performed in a semi-anechoic screened room at a distance of 3m. Scans are performed over the frequency range specified in the test standard with a loop antenna both co-axially and orthogonally orientated with respect to the EUT. During these scans the EUT and peripherals are rotated through 360°. Bench top EUTs are placed on a non-conducting bench at a height of 0.8m above the ground plane. Floor standing EUTs are placed 0.1m above the ground plane. The results of the scans are shown in the plots included at the end of the report.

Significant emissions identified by the scans are measured on an open area test site at the appropriate test distance using a CISPR16 quasi-peak receiver. Maximised readings are obtained by rotating the EUT through 360° with the antenna at a height of 1m. Measurements are made with the antenna both coaxially and orthogonally orientated with respect to the EUT and the results tabulated.

Tabulated results are obtained by adding the raw reading from the receiver (in dBuV) to the appropriate correction factors for the antenna and cables to give a reading in dBuV/m. For example:

Frequency	Receiver reading	Correction Factor	Final level
126kHz	75.8 dBuV	8.0 dB/m	83.8 dBuV/m

$$\text{Final reading} = 75.8 + 8.0 = 83.8.$$

#### 3.2 Radiated Emissions above 30MHz

This section describes the general method of performing this test. The specific method used and any deviations from this general method are listed in the appropriate results section.

Initial scans are performed in a semi-anechoic screened room at a distance of 3m. Scans are performed over the frequency range specified in the test standard with the antenna both horizontally and vertically polarised. During these scans the EUT and peripherals are rotated through 360°. Bench top EUTs are placed on a non-conducting bench at a height of 0.8m above the ground plane. Floor standing EUTs are placed 0.1m above the ground plane. The results of the scans are shown in the plots included at the end of the report.

Significant emissions identified by the scans are measured on an open area test site at the appropriate test distance using a CISPR16 quasi-peak receiver. Maximised readings are obtained by rotating the EUT through 360° and adjusting the height of the antenna from 1m to 4m. Measurements are made with the antenna both horizontally and vertically polarised and the results tabulated.


Tabulated results are obtained by adding the raw reading from the receiver (in dBuV) to the appropriate correction factors for the antenna and cables to give a reading in dBuV/m. For example:

Frequency	Receiver reading	Correction Factor	Final level
160MHz	5.9 dBuV	12.6 dB/m	16.4 dBuV/m

$$\text{Final reading} = 5.9 + 12.6 = 16.4$$

### 4 Test Results

The following sections contain tabulated test results. Plots of various scans are included at the back of this section.


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#### 4.1 Radiated Emissions Results - Carrier

Factor Set 1: A9_HI_V_09C - - CBL015_11A	1 m cable
Factor Set 2: - - - -	
Factor Set 3: - - - -	
Test Equipment: R9 A9 CSET005	

##### Radiated Emissions

Company: <b>Sureflap Ltd</b>		Product: <b>Sureflap</b>											
Date: <b>29/01/2013</b>		Test Eng: <b>Peter Barlow</b>											
Ports:													
Test: <b>ANSI C63.4:2003</b>		using limits of <b>15.209</b>											
Ports: enclosure													
Test: <b>ANSI C63.4:2003</b>		using limits of <b>RSS GEN</b>											
Plot	Op Mode	Mod State	Dist m	Fact Set	Freq. MHz	Ant Pol	Rec. Level dBuV	Corr'n Factor dB/m	Corr'n Factor dB	Total Level dBuV/m	Limit 15.209 dBuV/m	Margin 15.209 dB	Notes
		Sample A											
1	1	1	10	1	0.126	F	83.0	8.0		90.9	99.5	8.5	A
1	1	1	10	1	0.126	E	78.5	8.0		86.5	99.5	13.0	A
		Sample B:											
4	1	1	10	1	0.126	F	79.1	8.0		87.0	99.5	12.4	B
4	1	1	10	1	0.126	E	74.8	8.0		82.8	99.5	16.7	B
		Sample C											
7	1	1	10	1	0.133	F	82.5	8.0		90.5	99.0	8.5	C
7	1	1	10	1	0.133	E	77.9	8.0		85.9	99.0	13.1	C
		Sample D											
10	1	1	10	1	0.133	F	78.5	8.0		86.5	99.0	12.5	D
10	1	1	10	1	0.133	E	73.9	8.0		81.9	99.0	17.1	D
<b>Results</b>											<b>8.5</b>	<b>dB</b>	
											<b>PASS</b>		
											<b>PASS/FAIL</b>		
Notes	Comments and Observations												
	<p>Results of scans shown in plots 1,4,7 and 10.</p> <p>Limits adjusted using an extrapolation of 50dB/decade. See next page for explanation.</p> <p>Unless indicated, measurements made with 200Hz RBW peak detector. Peak readings may give higher values than the specied quasipeak or average detectors.</p>												


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## 4.2 Radiated Emissions Results - Carrier Extrapolation with Distance

Factor Set 1: A9_HI_V_09C - - CBL015_11A	1 m cable
Factor Set 2: - - - -	
Factor Set 3: - - - -	
Test Equipment: R9 A9 CSET005	

### Radiated Emissions

<i>Company:</i> Sureflap Ltd				<i>Product:</i> Sureflap									
<i>Date:</i> 29/01/2013				<i>Test Eng:</i> Peter Barlow									
<i>Ports:</i>													
<i>Test:</i> ANSI C63.4:2003 using limits of				15.209									
<i>Ports:</i> enclosure													
<i>Test:</i> ANSI C63.4:2003 using limits of				RSS GEN									
Plot	Op Mode	Mod State	Dist m	Fact Set	Freq. MHz	Ant Pol	Rec. Level dBuV	Corr'n Factor dB/m	Corr'n Factor dB	Total Level dB	Extrapolation dB/decade dB	Margin dB/decade dB	Notes
			<b>Sample A:</b>										
			10	1	0.126	F	83.0	8.0		90.9	<b>53.6</b>		qp
			10	1	0.126	E	78.5	8.0		86.4	<b>54.8</b>		qp
			90	1	0.126	F	31.8	8.0		39.8			qp
			90	1	0.126	E	26.2	8.0		34.2			qp
Notes	Comments and Observations												
	<p>The table above shows measurements made on sample A at both 10m and 90m.</p> <p>From the results it can be established that the extrapolation of field strength with distance is between 53.5 and 54.8dB.</p> <p>For the measurements shown on the previous page, a conservative value of 50dB per decade was used to establish limits at a measuring distance of 10m.</p>												


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### 4.3 Radiated Emissions Results - Spurious <30MHz - Sample A

Factor Set 1: A9_HI_V_09C - - CBL015_11A	1 m cable
Factor Set 2: - - - -	
Factor Set 3: - - - -	
Test Equipment: R9 A9 CSET005	

*Radiated Emissions*

<i>Company:</i> Sureflap Ltd		<i>Product:</i> Sureflap											
<i>Date:</i> 29/01/2013		<i>Test Eng:</i> Peter Barlow											
<i>Ports:</i>													
<i>Test:</i> ANSI C63.4:2003		using limits of 15.209											
<i>Ports:</i> enclosure													
<i>Test:</i> ANSI C63.4:2003		using limits of RSS GEN											
Plot	Op Mode	Mod State	Dist m	Fact Set	Freq. MHz	Ant Pol	Rec. Level dBuV	Corr'n Factor dB/m	Corr'n Factor dB	Total Level dBuV/m	Limit 15.209 dBuV/m	Margin 15.209 dB	Notes
2	1	1	3	1	0.252	F	75.4	8.6		83.9	99.6	15.6	
2	1	1	3	1	0.252	E	70.6	8.6		79.2	99.6	20.4	
2	1	1	3	1	0.379	F	66.6	9.0		75.6	96.0	20.4	
2	1	1	3	1	0.379	E	61.6	9.0		70.6	96.0	25.4	
2	1	1	3	1	0.504	F	58.5	9.5		68.0	73.6	5.5	
2	1	1	3	1	0.504	E	53.1	9.5		62.6	73.6	10.9	
2	1	1	3	1	0.630	F	53.2	9.7	2.0	64.9	71.6	6.8	#1
2	1	1	3	1	0.630	E	47.5	9.7	2.0	59.1	71.6	12.5	#1
<b>Results</b>											<b>5.5</b>	<b>dB</b>	
											<b>PASS</b>		
<b>Minimum Margin</b>													
<b>PASS/FAIL</b>													
Notes	Comments and Observations												
#1	<p>Results of scans shown in plot 1 to 3.</p> <p>Sample A. Limits adjusted to measuring distance using a default extrapolation of 40dB decade. In practice, magnetic emissions at these frequencies are likely to drop at a rate closer to 60dB per decade which would give higher margins than those shown above.</p> <p>Unless indicated, measurements made with 9kHz RBW peak detector. Peak readings may give higher values than the specified quasipeak or average detectors.</p> <p>This measurement was made with a 10Hz RBW because of the presence of a high ambient signal. Comparative measurements in a screened room showed that dropping the RBW from 9kHz to 10Hz made no more than 2dB difference. This 2dB is added as a second correction factor.</p>												


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#### 4.4 Radiated Emissions Results - Spurious <30MHz - Sample B

Factor Set 1: A9_HI_V_09C - - CBL015_11A	1 m cable
Factor Set 2: - - - -	
Factor Set 3: - - - -	
Test Equipment: R9 A9 CSET005	

##### Radiated Emissions

Company: Sureflap Ltd		Product: Sureflap											
Date: 29/01/2013		Test Eng: Peter Barlow											
Ports:													
Test: ANSI C63.4:2003		using limits of 15.209											
Ports: enclosure													
Test: ANSI C63.4:2003		using limits of RSS GEN											
Plot	Op Mode	Mod State	Dist m	Fact Set	Freq. MHz	Ant Pol	Rec. Level dBuV	Corr'n Factor dB/m	Corr'n Factor dB	Total Level dBuV/m	Limit 15.209 dBuV/m	Margin 15.209 dB	Notes
5	1	1	3	1	0.252	F	69.1	8.6		77.7	99.6	21.9	
5	1	1	3	1	0.252	E	64.9	8.6		73.5	99.6	26.1	
5	1	1	3	1	0.379	F	65.7	9.0		74.7	96.0	21.3	
5	1	1	3	1	0.379	E	61.2	9.0		70.2	96.0	25.8	
5	1	1	3	1	0.504	F	62.8	9.5		72.3	73.6	1.2	
5	1	1	3	1	0.504	E	57.7	9.5		67.2	73.6	6.3	
5	1	1	3	1	0.630	F	53.9	9.7	2.0	65.6	71.6	6.0	#1
5	1	1	3	1	0.630	E	48.4	9.7	2.0	60.1	71.6	11.5	#1
<b>Results</b>											<b>1.2</b>	<b>dB</b>	
											<b>PASS</b>		
<b>Minimum Margin</b>													
<b>PASS/FAIL</b>													
Notes	Comments and Observations												
#1	<p>Results of scans shown in plots 4 to 6.</p> <p>Sample B. Limits adjusted to measuring distance using a default extrapolation of 40dB decade. In practice, magnetic emissions at these frequencies are likely to drop at a rate closer to 60dB per decade which would give higher margins than those shown above.</p> <p>Unless indicated, measurements made with 9kHz RBW peak detector. Peak readings may give higher values than the specified quasipeak or average detectors.</p> <p>This measurement was made with a 10Hz RBW because of the presence of a high ambient signal. Comparative measurements in a screened room showed that dropping the RBW from 9kHz to 10Hz made no more than 2dB difference. This 2dB is added as a second correction factor.</p>												

	Report No: <b>R3196</b> Issue No: <b>1</b>	FCC ID: X09-DOOR-1001 IC: 8906A-DOOR1001	
	Test No: <b>T4610</b>	<b>Test Report</b>	Page: 15 of 52


#### 4.5 Radiated Emissions Results - Spurious <30MHz - Sample C

Factor Set 1: A9_HI_V_09C - - CBL015_11A	1 m cable
Factor Set 2: - - - -	
Factor Set 3: - - - -	
Test Equipment: R9 A9 CSET005	

##### Radiated Emissions

Company: <b>Sureflap Ltd</b>		Product: <b>Sureflap</b>											
Date: <b>29/01/2013</b>		Test Eng: <b>Peter Barlow</b>											
Ports:													
Test: <b>ANSI C63.4:2003</b>		using limits of <b>15.209</b>											
Ports: enclosure													
Test: <b>ANSI C63.4:2003</b>		using limits of <b>RSS GEN</b>											
Plot	Op Mode	Mod State	Dist m	Fact Set	Freq. MHz	Ant Pol	Rec. Level dBuV	Corr'n Factor dB/m	Corr'n Factor dB	Total Level dBuV/m	Limit 15.209 dBuV/m	Margin 15.209 dB	Notes
8	1	1	3	1	0.266	F	82.4	8.6		91.0	99.1	8.1	
8	1	1	3	1	0.266	E	77.0	8.6		85.6	99.1	13.5	
8	1	1	3	1	0.398	F	73.5	9.1		82.6	95.6	13.0	
8	1	1	3	1	0.398	E	69.1	9.1		78.3	95.6	17.3	
8	1	1	10	1	0.531	F	33.5	9.5	2.0	45.0	<b>52.2</b>	7.2	#1
8	1	1	10	1	0.531	E	28.2	9.5	2.0	39.8	<b>52.2</b>	12.4	#1
8	1	1	3	1	0.665	F	52.1	9.7	2.0	63.8	<b>71.1</b>	7.3	#1
8	1	1	3	1	0.665	E	46.3	9.7	2.0	58.1	<b>71.1</b>	13.1	#1
<b>Results</b>											<b>7.2</b>	<b>dB</b>	
											<b>PASS</b>		
<b>Minimum Margin</b>													
<b>PASS/FAIL</b>													
Notes	Comments and Observations												
#1	<p>Results of scans shown in plots 7 to 9.</p> <p>Sample C. Limits adjusted to measuring distance using a default extrapolation of 40dB decade. In practice, magnetic emissions at these frequencies are likely to drop at a rate closer to 60dB per decade which would give higher margins than those shown above.</p> <p>Unless indicated, measurements made with 9kHz RBW peak detector. Peak readings may give higher values than the specified quasipeak or average detectors.</p> <p>This measurement was made with a 10Hz RBW because of the presence of a high ambient signal. Comparative measurements in a screened room showed that dropping the RBW from 9kHz to 10Hz made no more than 2dB difference. This 2dB is added as a second correction factor.</p>												




	Report No: <b>R3196</b>	FCC ID: X09-DOOR-1001	Page: 16 of 52
	Issue No: <b>1</b>	IC: 8906A-DOOR1001	
	Test No: <b>T4610</b>	<b>Test Report</b>	

#### 4.6 Radiated Emissions Results - Spurious <30MHz - Sample D

Factor Set 1: A9_HI_V_09C - - CBL015_11A	1 m cable
Factor Set 2: - - - -	
Factor Set 3: - - - -	
Test Equipment: R9 A9 CSET005	

*Radiated Emissions*

<i>Company:</i> Sureflap Ltd		<i>Product:</i> Sureflap											
<i>Date:</i> 29/01/2013		<i>Test Eng:</i> Peter Barlow											
<i>Ports:</i>													
<i>Test:</i> ANSI C63.4:2003		using limits of 15.209											
<i>Ports:</i> enclosure													
<i>Test:</i> ANSI C63.4:2003		using limits of RSS GEN											
Plot	Op Mode	Mod State	Dist m	Fact Set	Freq. MHz	Ant Pol	Rec. Level dBuV	Corr'n Factor dB/m	Corr'n Factor dB	Total Level dBuV/m	Limit 15.209 dBuV/m	Margin 15.209 dB	Notes
11	1	1	3	1	0.266	F	76.9	8.6		85.5	99.1	13.6	
11	1	1	3	1	0.266	E	71.8	8.6		80.4	99.1	18.7	
11	1	1	3	1	0.398	F	71.4	9.1		80.5	95.6	15.1	
11	1	1	3	1	0.398	E	66.5	9.1		75.6	95.6	20.0	
11	1	1	10	1	0.531	F	33.2	9.5	2.0	44.7	52.2	7.5	#1
11	1	1	10	1	0.531	E	27.9	9.5	2.0	39.5	52.2	12.7	#1
11	1	1	3	1	0.665	F	47.6	9.7	2.0	59.3	71.1	11.8	#1
11	1	1	3	1	0.665	E	42.5	9.7	2.0	54.2	71.1	16.9	#1
<b>Results</b>											<b>7.5</b>	<b>dB</b>	
											<b>PASS</b>		
<b>Minimum Margin</b>													
<b>PASS/FAIL</b>													
Notes	Comments and Observations												
#1	<p>Results of scans shown in plots 10 to 12.</p> <p>Sample D. Limits adjusted to measuring distance using a default extrapolation of 40dB decade. In practice, magnetic emissions at these frequencies are likely to drop at a rate closer to 60dB per decade which would give higher margins than those shown above.</p> <p>Unless indicated, measurements made with 9kHz RBW peak detector. Peak readings may give higher values than the specified quasipeak or average detectors.</p> <p>This measurement was made with a 10Hz RBW because of the presence of a high ambient signal. Comparative measurements in a screened room showed that dropping the RBW from 9kHz to 10Hz made no more than 2dB difference. This 2dB is added as a second correction factor.</p>												


	Report No: <b>R3196</b> Issue No: <b>1</b>	FCC ID: X09-DOOR-1001 IC: 8906A-DOOR1001	
	Test No: <b>T4610</b>	<b>Test Report</b>	Page: 17 of 52

#### 4.7 Radiated Emissions Results - Spurious >30MHz - Samples A & B

Factor Set 1: A5_FS_10C - - CBL015_11A	1 m cable
Factor Set 2: - - - -	
Factor Set 3: - - - -	
Test Equipment: R4 A5	

*Radiated Emissions*

<i>Company:</i> Sureflap Ltd					<i>Product:</i> Sureflap								
<i>Date:</i> 25/01/2013					<i>Test Eng:</i> Peter Barlow								
<i>Ports:</i>													
<i>Test:</i> ANSI C63.4:2003 using limits of 15.209													
<i>Ports:</i> enclosure													
<i>Test:</i> ANSI C63.4:2003 using limits of RSS GEN													
Plot	Op Mode	Mod State	Dist m	Fact Set	Freq. MHz	Ant Pol	Rec. Level dBuV	Corr'n Factor dB/m	Corr'n Factor dB	Total Level dBuV/m	Limit 15.209 dBuV/m	Margin 15.209 dB	Notes
19	1	1	3	1	111.300	V	10.3	12.7		23.0	43.5	20.5	A
19	1	1	3	1	111.300	H	14.8	12.7		27.5	43.5	16.0	A
19	1	1	3	1	125.780	V	6.8	13.4		20.2	43.5	23.3	A
19	1	1	3	1	125.780	H	12.7	13.4		26.1	43.5	17.4	A
20	1	1	3	1	302.500	V	2.0	16.2		18.2	46.0	27.8	A
20	1	1	3	1	302.500	H	-0.9	16.2		15.3	46.0	30.7	A
20	1	1	3	1	452.300	V	9.2	20.9		30.1	46.0	15.9	A
20	1	1	3	1	452.300	H	1.4	20.9		22.3	46.0	23.7	A
20	1	1	3	1	491.530	V	10.9	22.0		32.9	46.0	13.1	A
20	1	1	3	1	491.530	H	8.1	22.0		30.1	46.0	15.9	A
21	1	1	3	1	110.800	V	11.8	12.7		24.5	43.5	19.0	B
21	1	1	3	1	110.800	H	15.8	12.7		28.5	43.5	15.0	B
21	1	1	3	1	124.800	V	9.6	13.4		23.0	43.5	20.5	B
21	1	1	3	1	124.800	H	10.6	13.4		24.0	43.5	19.5	B
22	1	1	3	1	452.225	V	9.9	20.9		30.8	46.0	15.2	B
22	1	1	3	1	452.225	H	4.5	20.9		25.4	46.0	20.6	B
22	1	1	3	1	491.700	V	12.0	22.0		34.0	46.0	12.0	B
22	1	1	3	1	491.700	H	10.8	22.0		32.8	46.0	13.2	B
<b>Results</b>											<b>Minimum Margin</b>		
											<b>PASS/FAIL</b>		
											<b>12.0</b>	<b>dB</b>	
											<b>PASS</b>		
Notes	Comments and Observations												
	Results of scans shown in plots 19 to 22.												
	Measured on Open Area Test Site using 120kHz QP detector.												


	Report No: <b>R3196</b>	FCC ID: X09-DOOR-1001	
	Issue No: <b>1</b>	IC: 8906A-DOOR1001	
	Test No: <b>T4610</b>	<b>Test Report</b>	Page: 18 of 52

#### 4.8 Radiated Emissions Results - Spurious >30MHz - Samples C & D

Factor Set 1: A5_FS_10C - - CBL015_11A	1 m cable
Factor Set 2: - - - -	
Factor Set 3: - - - -	
Test Equipment: R4 A5	

*Radiated Emissions*

<i>Company:</i> Sureflap Ltd					<i>Product:</i> Sureflap								
<i>Date:</i> 25/01/2013					<i>Test Eng:</i> Peter Barlow								
<i>Ports:</i>													
<i>Test:</i> ANSI C63.4:2003					using limits of				15.209				
<i>Ports:</i> enclosure													
<i>Test:</i> ANSI C63.4:2003					using limits of				RSS GEN				
Plot	Op Mode	Mod State	Dist m	Fact Set	Freq. MHz	Ant Pol	Rec. Level dBuV	Corr'n Factor dB/m	Corr'n Factor dB	Total Level dBuV/m	Limit 15.209 dBuV/m	Margin 15.209 dB	Notes
23	1	1	3	1	110.825	V	16.7	12.7		29.4	43.5	14.1	C
23	1	1	3	1	110.825	H	17.1	12.7		29.8	43.5	13.7	C
23	1	1	3	1	121.960	V	13.3	13.4		26.7	43.5	16.8	C
23	1	1	3	1	121.960	H	14.8	13.4		28.2	43.5	15.3	C
23	1	1	3	1	126.900	V	5.8	13.4		19.2	43.5	24.3	C
23	1	1	3	1	126.900	H	10.3	13.4		23.7	43.5	19.8	C
24	1	1	3	1	304.400	V	1.4	16.2		17.6	46.0	28.4	C
24	1	1	3	1	304.400	H	-1.7	16.2		14.5	46.0	31.5	C
24	1	1	3	1	491.700	V	9.8	22.0		31.8	46.0	14.2	C
24	1	1	3	1	491.700	H	6.8	22.0		28.8	46.0	17.2	C
25	1	1	3	1	115.000	V	15.7	13.1		28.8	43.5	14.7	D
25	1	1	3	1	115.000	H	16.1	13.1		29.2	43.5	14.3	D
26	1	1	3	1	452.300	V	9.2	20.9		30.1	46.0	15.9	D
26	1	1	3	1	452.300	H	2.9	20.9		23.8	46.0	22.2	D
26	1	1	3	1	491.540	V	10.9	22.0		32.9	46.0	13.1	D
26	1	1	3	1	491.540	H	6.7	22.0		28.7	46.0	17.3	D
<b>Results</b>											<b>13.1</b>	<b>dB</b>	
											<b>PASS</b>		
<b>Minimum Margin</b>													
<b>PASS/FAIL</b>													
Notes	Comments and Observations												
	Results of scans shown in plots 23 to 26.												
	Measured on Open Area Test Site using 120kHz QP detector.												

	Report No: <b>R3196</b> Issue No: <b>1</b>	FCC ID: X09-DOOR-1001 IC: 8906A-DOOR1001	
	Test No: <b>T4610</b>	<b>Test Report</b>	Page: 19 of 52

#### 4.9 Radiated Emissions Results - Spurious >30MHz - Samples E & F


Factor Set 1: A5_FS_10C - - CBL015_11A	1 m cable
Factor Set 2: - - - -	
Factor Set 3: - - - -	
Test Equipment: R4 A5	

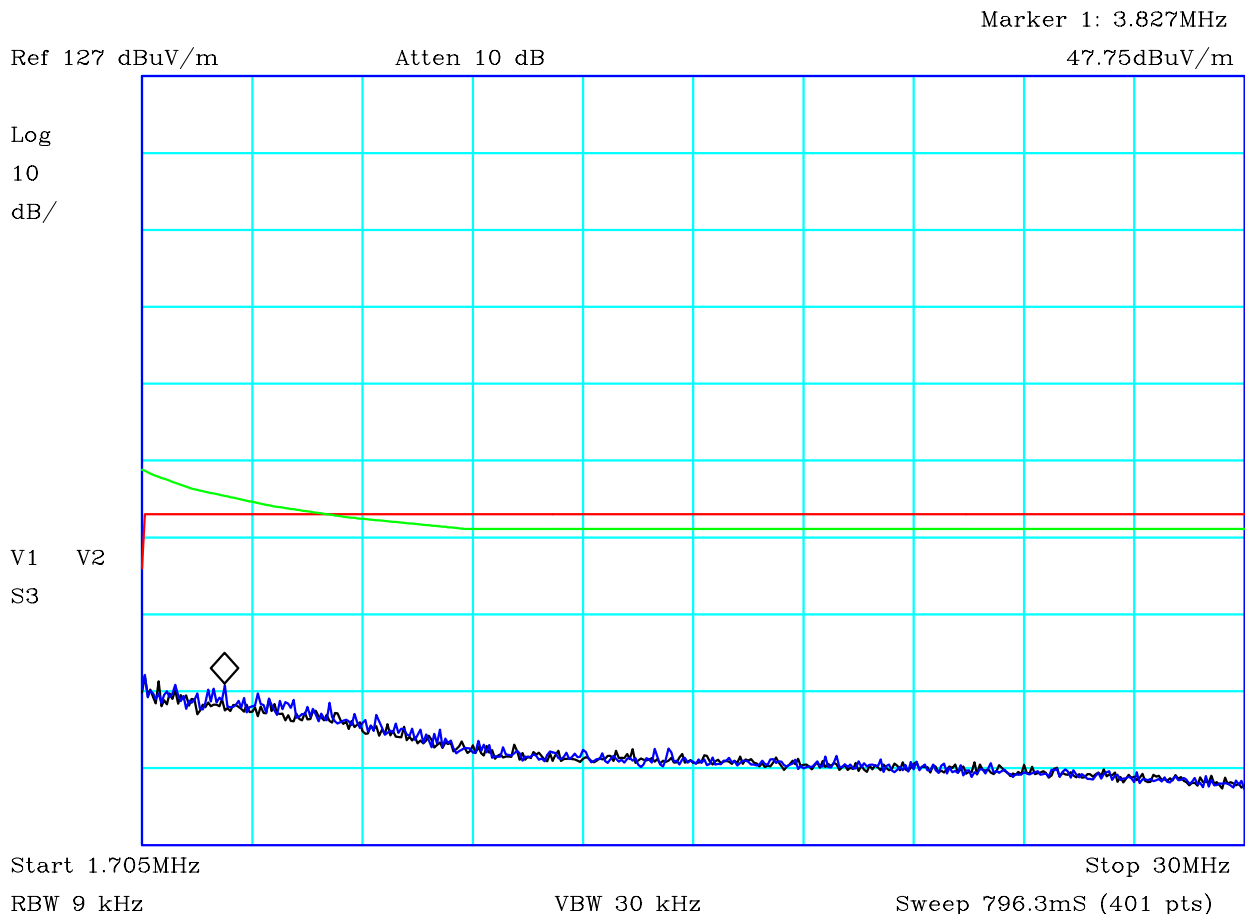
##### Radiated Emissions

<i>Company:</i> Sureflap Ltd		<i>Product:</i> Sureflap											
<i>Date:</i> 25/01/2013		<i>Test Eng:</i> Peter Barlow											
<i>Ports:</i>													
<i>Test:</i> ANSI C63.4:2003		using limits of 15.209											
<i>Ports:</i> enclosure													
<i>Test:</i> ANSI C63.4:2003		using limits of RSS GEN											
Plot	Op Mode	Mod State	Dist m	Fact Set	Freq. MHz	Ant Pol	Rec. Level dBuV	Corr'n Factor dB/m	Corr'n Factor dB	Total Level dBuV/m	Limit 15.209 dBuV/m	Margin 15.209 dB	Notes
27	2	1	3	1	113.100	V	14.5	12.9		27.4	43.5	16.1	E
27	2	1	3	1	113.100	H	16.4	12.9		29.3	43.5	14.2	E
27	2	1	3	1	126.300	V	11.8	13.4		25.2	43.5	18.3	E
27	2	1	3	1	126.300	H	13.6	13.4		27.0	43.5	16.5	E
28	2	1	3	1	298.680	V	1.6	16.2		17.8	46.0	28.2	E
28	2	1	3	1	298.680	H	5.1	16.2		21.3	46.0	24.7	E
28	2	1	3	1	452.230	V	9.1	20.9		30.0	46.0	16.0	E
28	2	1	3	1	452.230	H	4.3	20.9		25.2	46.0	20.8	E
28	2	1	3	1	491.560	V	12.3	22.0		34.3	46.0	11.7	E
28	2	1	3	1	491.560	H	7.1	22.0		29.1	46.0	16.9	E
30	3	1	3	1	298.907	V	2.9	16.2		19.1	46.0	26.9	F
30	3	1	3	1	298.907	H	3.6	16.2		19.8	46.0	26.2	F
<b>Results</b>											<b>11.7</b>	<b>dB</b>	
											<b>PASS</b>		
<b>Minimum Margin</b>													
<b>PASS/FAIL</b>													
Notes	Comments and Observations												
	Results of scans shown in plots 27 to 30.												
	Measured on Open Area Test Site using 120kHz QP detector.												





	Report No: <b>R3196</b>	FCC ID: X09-DOOR-1001	
	Issue No: <b>1</b>	IC: 8906A-DOOR1001	
Test No: <b>T4610</b>	<b>Test Report</b>		Page: 22 of 52



CF1:A9\_HI\_V\_130117 CF2:CBL002\_CBL069\_100809

### PLOT 3 Radiated Emissions - Sample A - 1.705MHz to 30MHz

Company:	Sureflap Ltd	Product:	Sureflap
Date:	24/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(RED)	FCC_subpartC_@3m	Limit2:(GRN)	
Limit3:		Limit4:	

Sample A: 126kHz 120V  
 Black: loop parallel  
 Blue: loop perpendicular

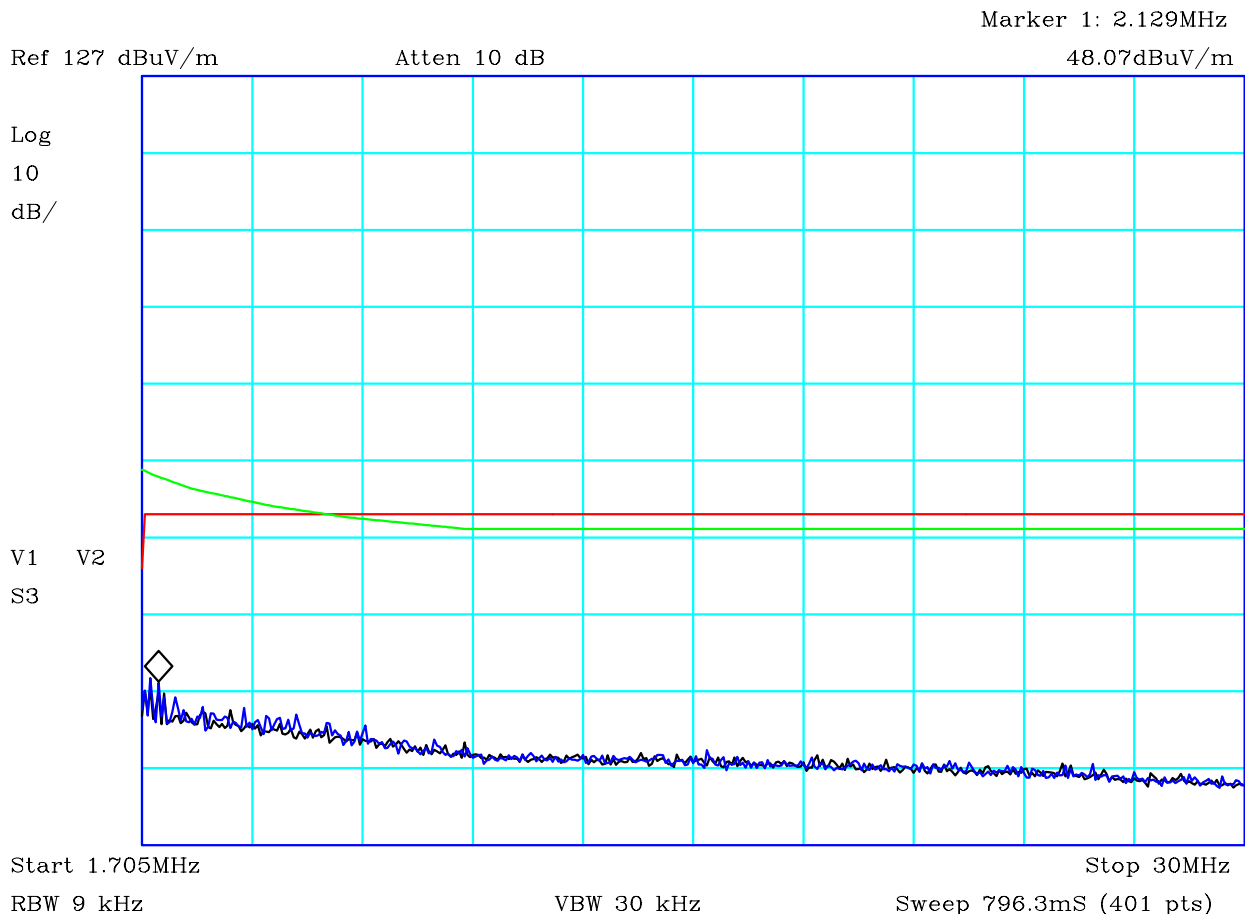
The red limit is the FCC part 15.209 limit extrapolated to 3m using a default 40dB per decade. The green limit can be ignored.

Facility:	Anech_1	Height	1m	Mode:	1
Distance	3m	Polarisation		Modification State:	0
Angle	0-360	File:	H30244A8		









CF1:A9\_HI\_V\_130117 CF2:CBL002\_CBL069\_100809

**PLOT 6 Radiated Emissions - Sample B - 1.705MHz to 30MHz**

Company:	Sureflap Ltd	Product:	Sureflap
Date:	24/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(RED)	FCC_subpartC_@3m	Limit2:(GRN)	
Limit3:		Limit4:	

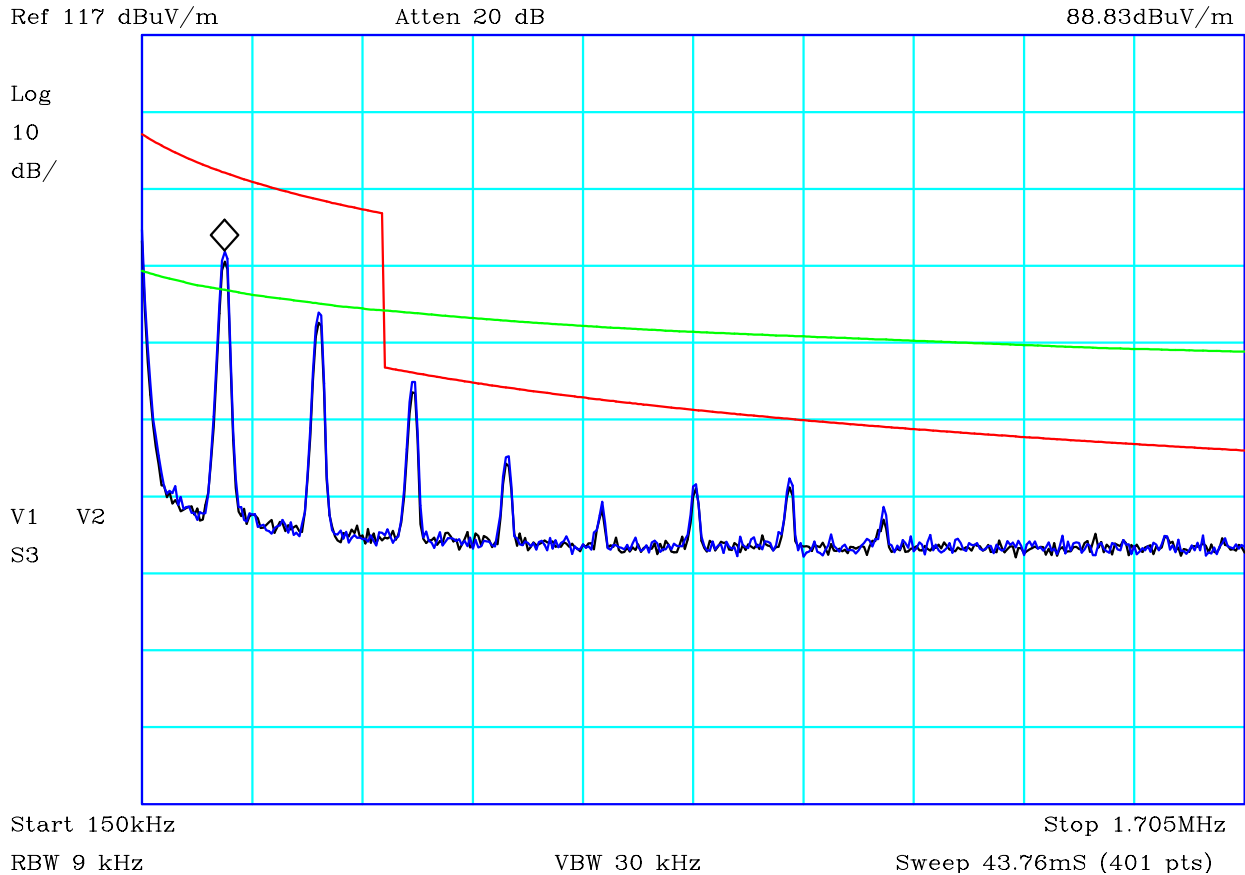
Sample B: 126kHz 80V  
 Black: loop parallel  
 Blue: loop perpendicular

The red limit is the FCC part 15.209 limit extrapolated to 3m using a default 40dB per decade. The green limit can be ignored.

Facility:	Anech_1	Height	1m	Mode:	1
Distance	3m	Polarisation		Modification State:	0
Angle	0-360	File:	H30244B6		



Marker 1: 266.6kHz



CF1:A9\_HI\_V\_130117 CF2:CBL002\_CBL069\_100809

**PLOT 8 Radiated Emissions - Sample C - 150kHz to 1.705MHz**

Company:	Sureflap Ltd	Product:	Sureflap
Date:	05/02/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(RED)	FCC_subpartC_@3m	Limit2:(GRN)	
Limit3:		Limit4:	

Sample C: 133kHz 120V  
 Black: loop parallel  
 Blue: loop perpendicular

The red limit is the FCC part 15.209 limit extrapolated to 3m using a default 40dB per decade. In practice, an extrapolation of closer to 60dB per decade could be expected which would significantly increase the margins. The green limit can be ignored.

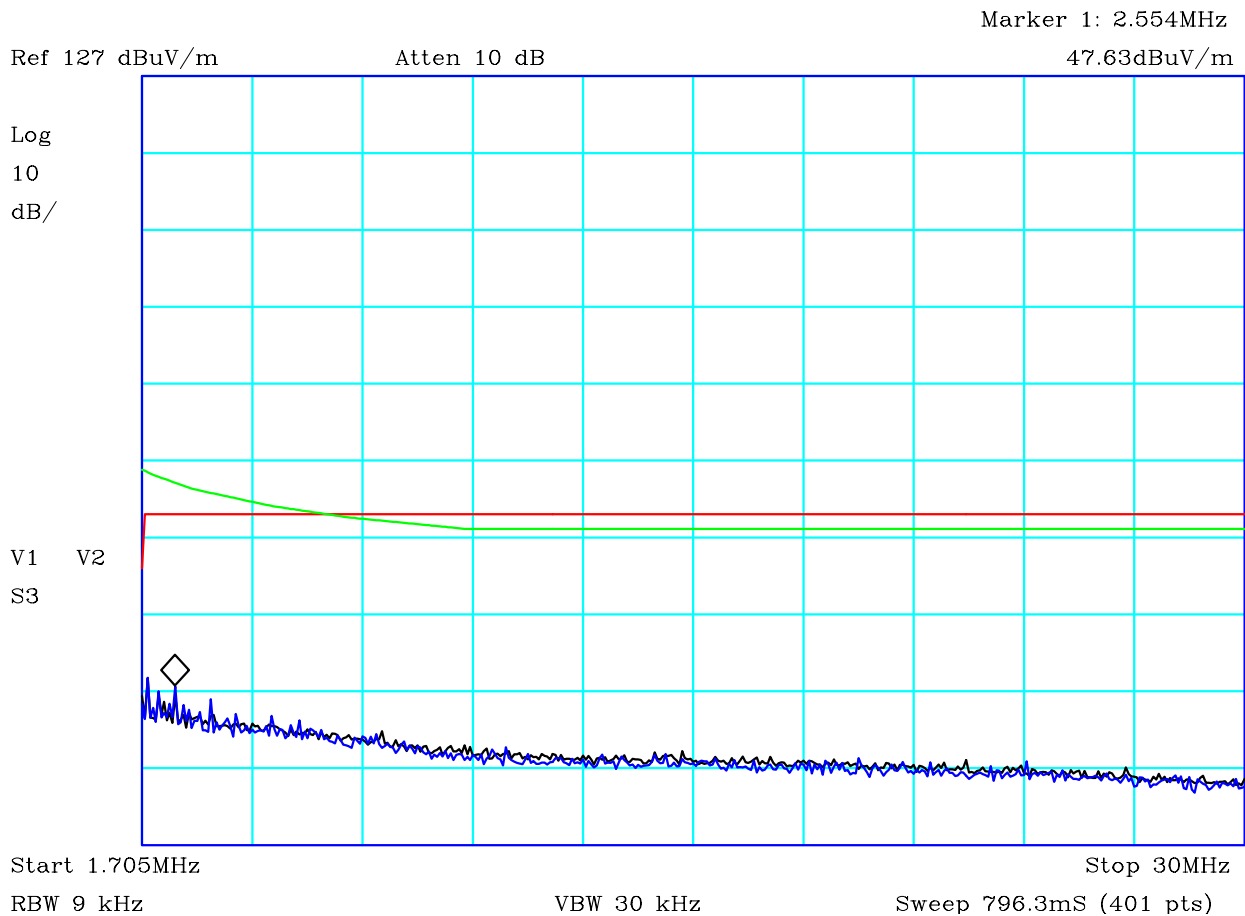
Facility:	Anech_1	Height	1m	Mode:	1
Distance	3m	Polarisation		Modification State:	1
Angle	0-360	File:	H31056DF		











CF1:A9\_HI\_V\_130117    CF2:CBL002\_CBL069\_100809

**PLOT 12 Radiated Emissions - Sample D - 1.705MHz to 30MHz**

Company:	Sureflap Ltd	Product:	Sureflap
Date:	24/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(RED)	FCC_subpartC_@3m	Limit2:(GRN)	
Limit3:		Limit4:	

Sample D: 133kHz 80V  
 Black: loop parallel  
 Blue: loop perpendicular

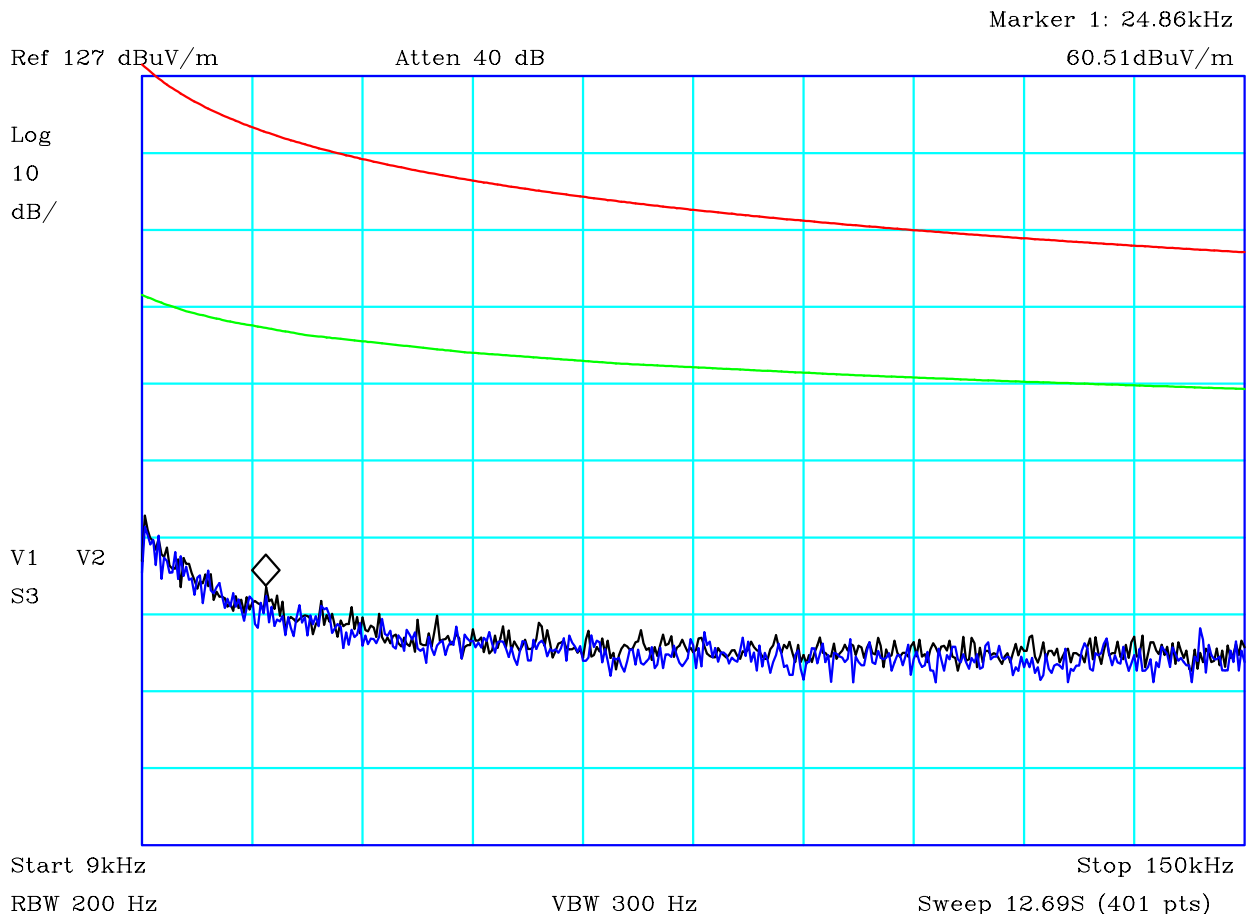
The red limit is the FCC part 15.209 limit extrapolated to 3m using a default 40dB per decade. The green limit can be ignored.

Facility:	Anech_1	Height	1m	Mode:	1
Distance	3m	Polarisation		Modification State:	0
Angle	0-360	File:	H30244F2		









CF1:A9\_HI\_V\_130117    CF2:CBL002\_CBL069\_100809

### PLOT 16 Radiated Emissions - Sample F - 9kHz to 150kHz

Company:	Sureflap Ltd	Product:	Sureflap
Date:	24/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(RED)	FCC_subpartC_@3m	Limit2:(GRN)	
Limit3:		Limit4:	

Sample F: Standard production unit.  
 Black: loop parallel  
 Blue: loop perpendicular

The red limit is the FCC part 15.209 limit extrapolated to 3m using a default 40dB per decade. In practice, an extrapolation of closer to 60dB per decade could be expected which would significantly increase the margins. The green limit can be ignored.

Facility:	Anech_1	Height	1m	Mode:	3
Distance	3m	Polarisation		Modification State:	0
Angle	0-360	File:	H3024540		

Marker 1: 255kHz

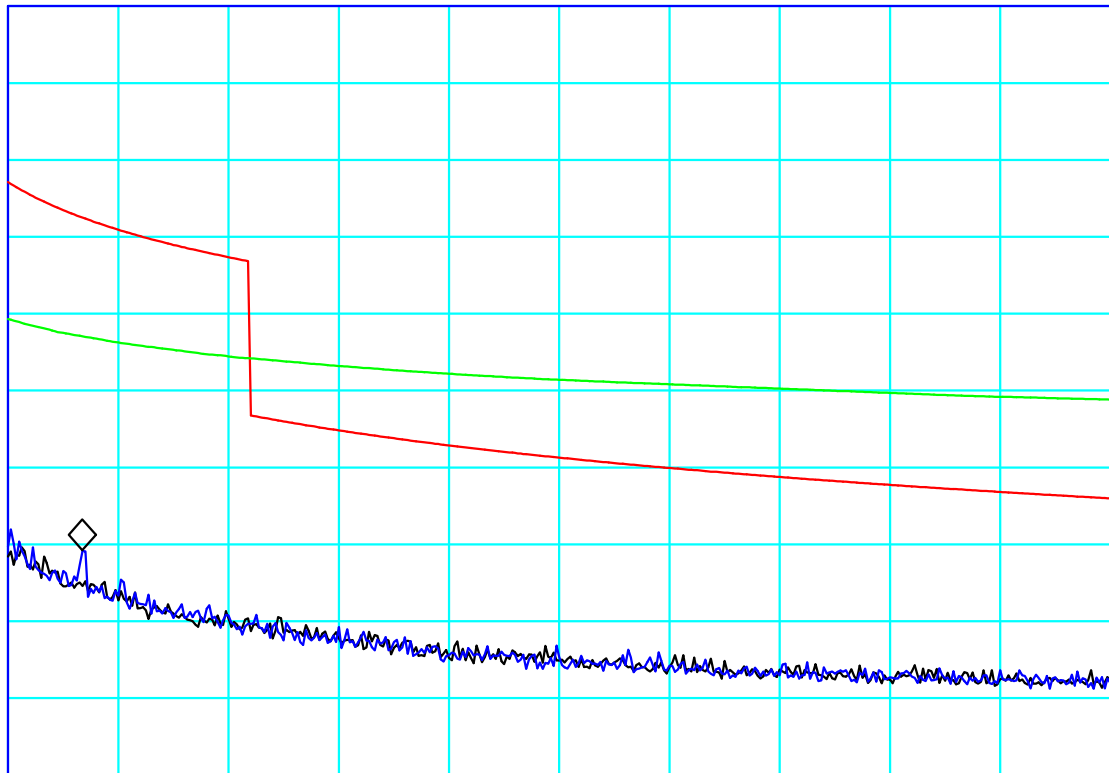
Ref 127 dBuV/m

Atten 10 dB

56.15dBuV/m

Log  
10  
dB/

V1 V2  
S3



Start 150kHz

Stop 1.705MHz

RBW 9 kHz

VBW 30 kHz

Sweep 43.76mS (401 pts)

CF1:A9\_HI\_V\_130117 CF2:CBL002\_CBL069\_100809

**PLOT 17 Radiated Emissions - Sample F - 150kHz to 1.705MHz**

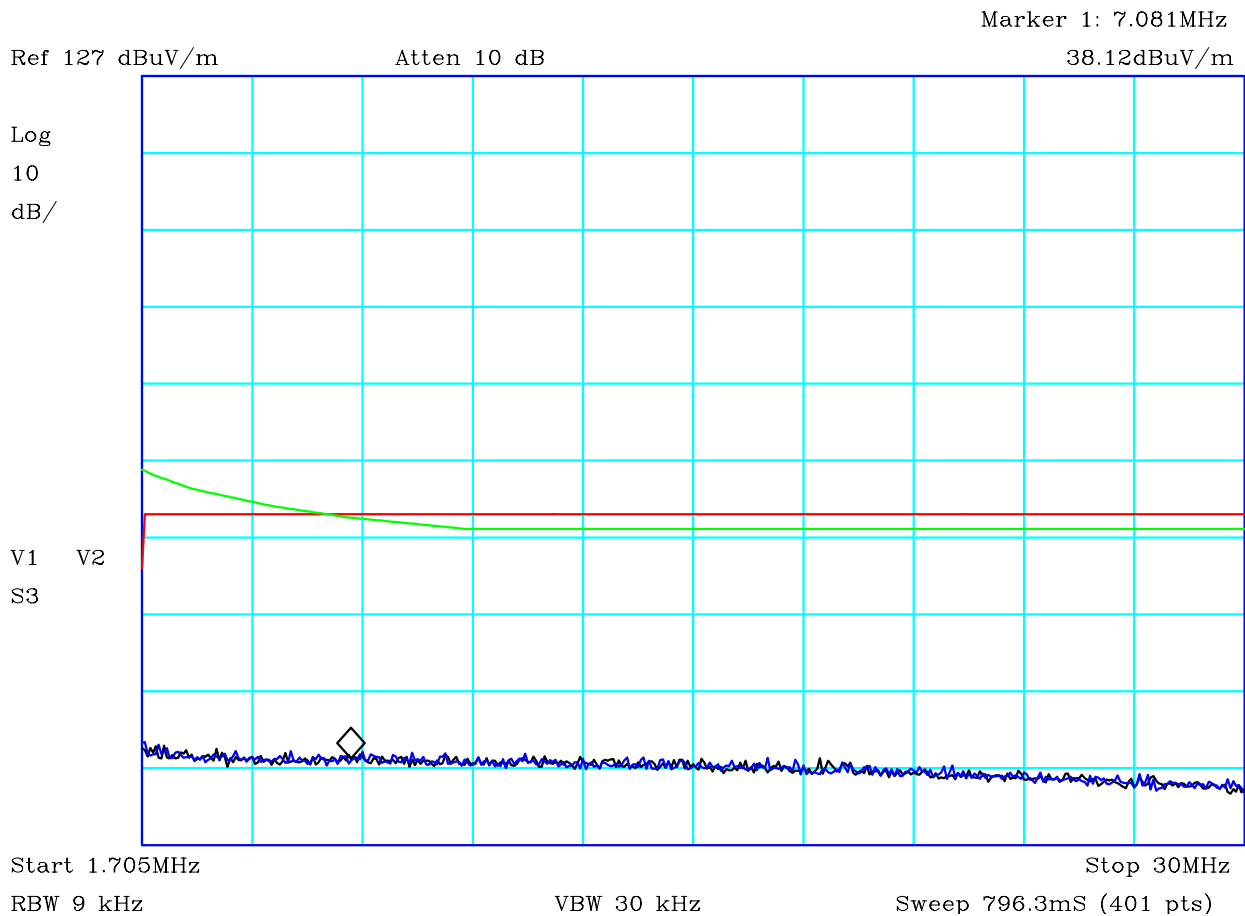
Company:	Sureflap Ltd	Product:	Sureflap
Date:	24/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(RED)	FCC_subpartC_@3m	Limit2:(GRN)	
Limit3:		Limit4:	

Sample F: Standard production unit.  
 Black: loop parallel  
 Blue: loop perpendicular

The red limit is the FCC part 15.209 limit extrapolated to 3m using a default 40dB per decade. In practice, an extrapolation of closer to 60dB per decade could be expected which would significantly increase the margins. The green limit can be ignored.

Facility:	Anech_1	Height	1m	Mode:	3
Distance	3m	Polarisation		Modification State:	1
Angle	0-360	File:	H3024538		





CF1:A9\_HI\_V\_130117    CF2:CBL002\_CBL069\_100809

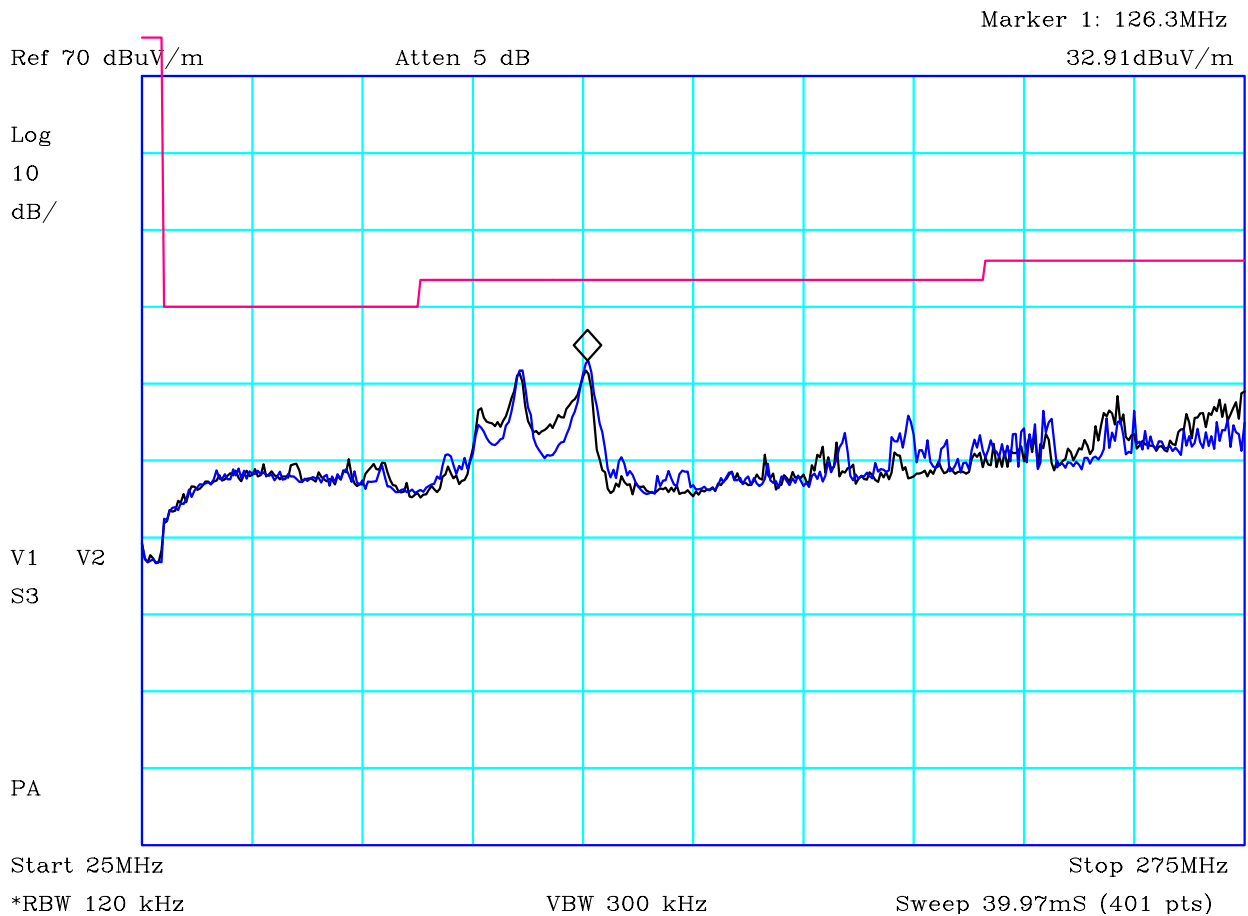
**PLOT 18 Radiated Emissions - Sample F - 1.705MHz to 30MHz**

Company:	Sureflap Ltd	Product:	Sureflap
Date:	24/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(RED)	FCC_subpartC_@3m	Limit2:(GRN)	
Limit3:		Limit4:	

Sample F: Standard production unit.  
 Black: loop parallel  
 Blue: loop perpendicular

The red limit is the FCC part 15.209 limit extrapolated to 3m using a default 40dB per decade. The green limit can be ignored.

Facility:	Anech_1	Height	1m	Mode:	3
Distance	3m	Polarisation		Modification State:	0
Angle	0-360	File:	H3024534		



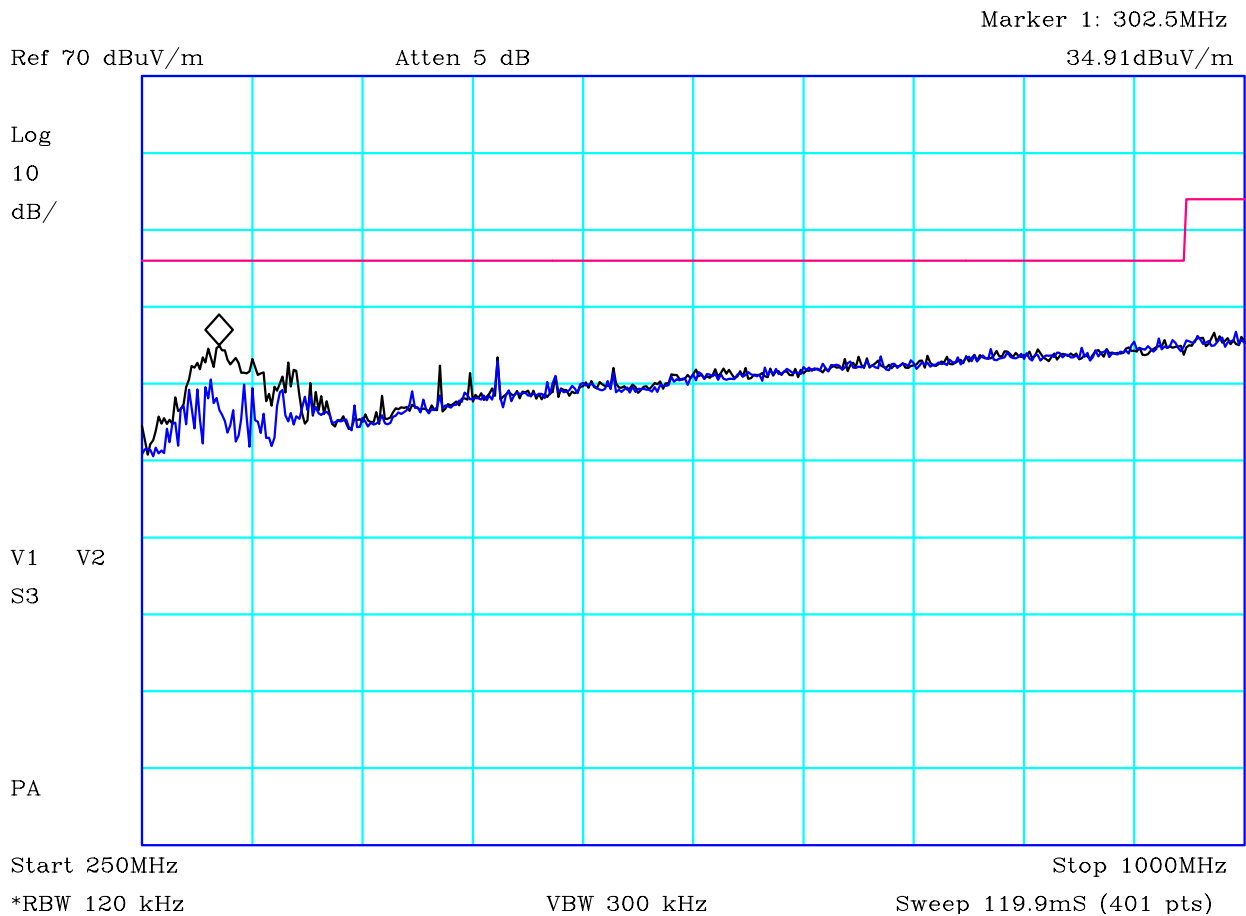
CF1:A15\_120112    CF2:CBL002\_CBL069\_100809

**PLOT 19 Radiated Emissions - Sample A - 25MHz to 275MHz**

Company:	Sureflap Ltd	Product:	Sureflap
Date:	25/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(VIO)	FCC 15.209@3m	Limit2:	
Limit3:		Limit4:	

Black: vertical Blue: horizontal  
Sample A: 126kHz 120V.  
Mod.State: C40 47pF.

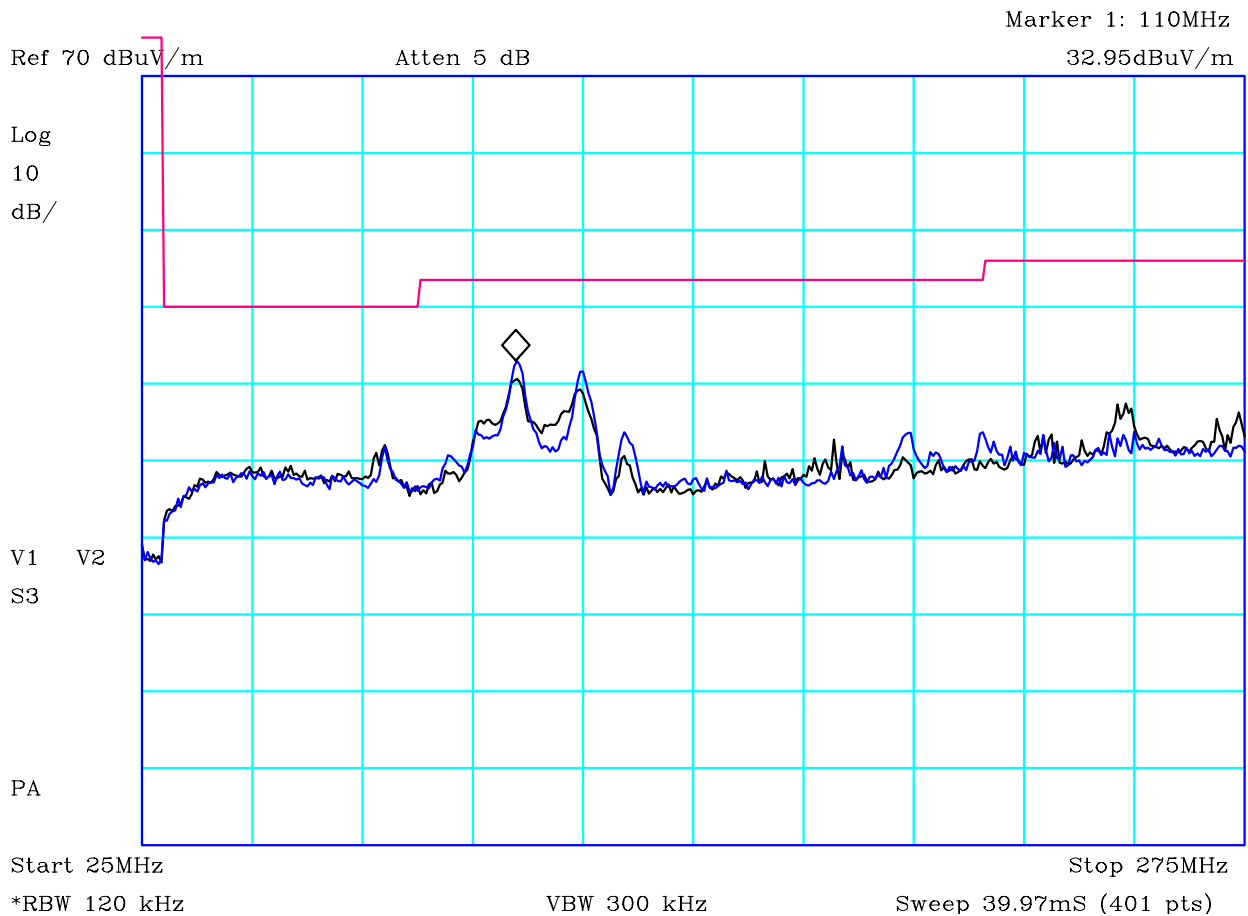
Facility:	Anech_1	Height	1m,1.5m,2m	Mode:	1
Distance	3m	Polarisation		Modification State:	1
Angle	0-360	File:	H302565D		



CF1:A15\_120112    CF2:CBL002\_CBL069\_100809

**PLOT 20 Radiated Emissions - Sample A - 250MHz to 1GHz**

Company:	Sureflap Ltd	Product:	Sureflap
Date:	25/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(VIO)	FCC 15.209@3m	Limit2:	
Limit3:		Limit4:	
Black: vertical Blue: horizontal Sample A: 126kHz 120V. Mod.State: C40 47pF.			
Facility:	Anech_1	Height	1m,1.5m,2m
Distance	3m	Polarisation	
Angle	0-360	File:	H3025665
		Mode:	1
		Modification State:	1



CF1:A15\_120112    CF2:CBL002\_CBL069\_100809

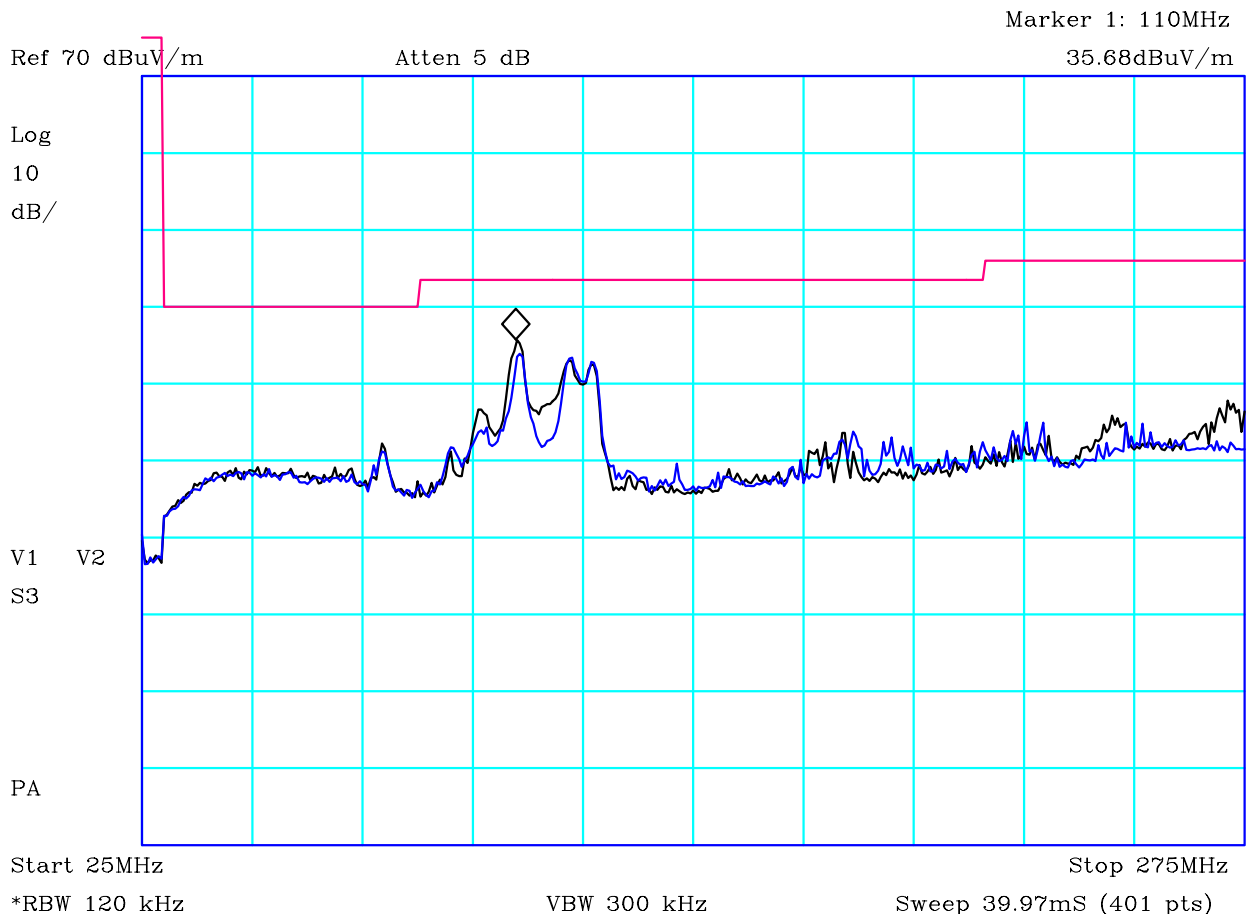
**PLOT 21 Radiated Emissions - Sample B - 25MHz to 275MHz**

Company:	Sureflap Ltd	Product:	Sureflap
Date:	25/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(VIO)	FCC 15.209@3m	Limit2:	
Limit3:		Limit4:	

Black: vertical Blue: horizontal  
Sample B: 126kHz 80V.  
Mod.State: C40 47pF.

Facility:	Anech_1	Height	1m,1.5m,2m	Mode:	1
Distance	3m	Polarisation		Modification State:	1
Angle	0-360	File:	H3025673		





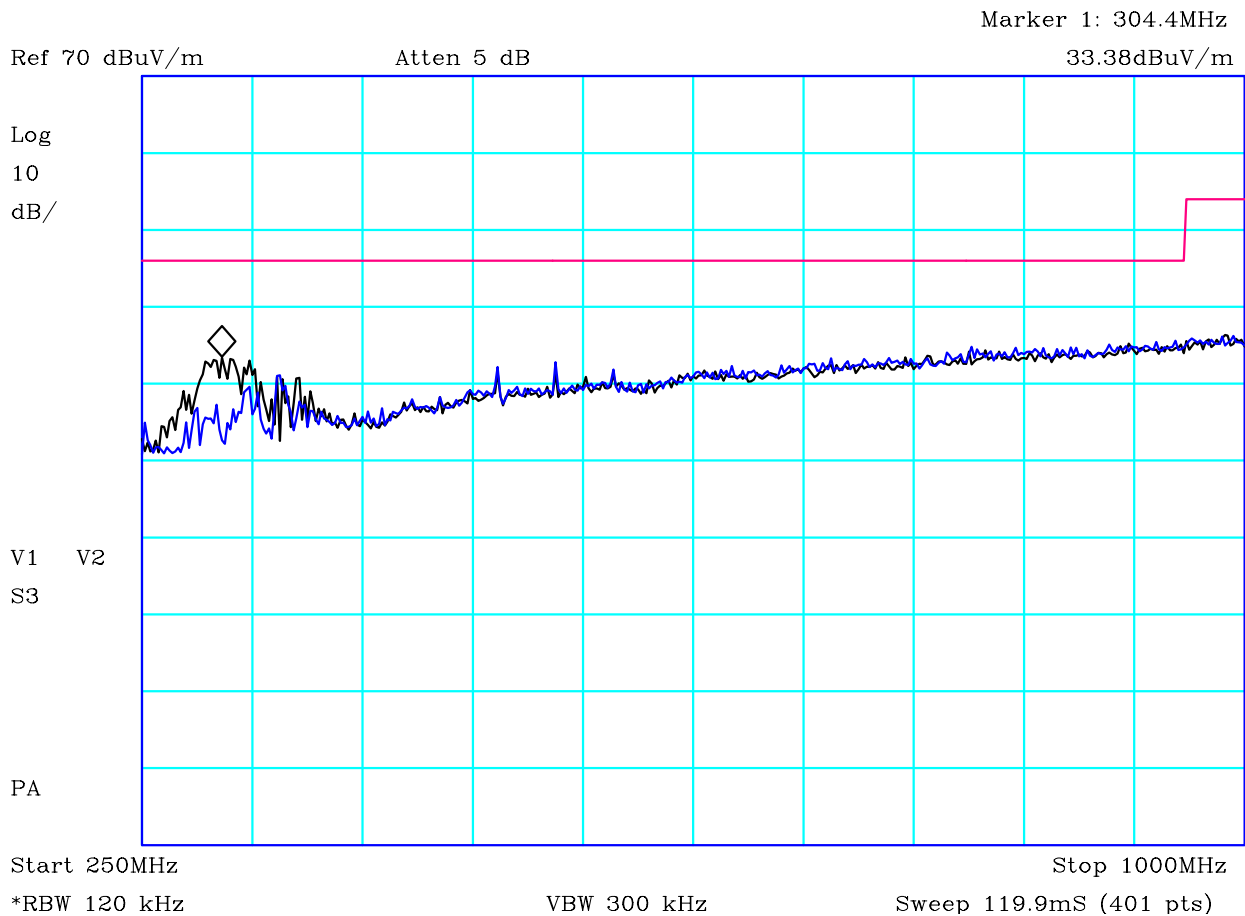
CF1:A15\_120112    CF2:CBL002\_CBL069\_100809

### PLOT 23 Radiated Emissions - Sample C - 25MHz to 275MHz

Company:	Sureflap Ltd	Product:	Sureflap
Date:	25/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(VIO)	FCC 15.209@3m	Limit2:	
Limit3:		Limit4:	

Black: vertical Blue: horizontal  
Sample C: 133kHz 120V.  
Mod.State: C40 47pF.

Facility:	Anech_1	Height	1m,1.5m,2m	Mode:	1
Distance	3m	Polarisation		Modification State:	1
Angle	0-360	File:	H3025686		



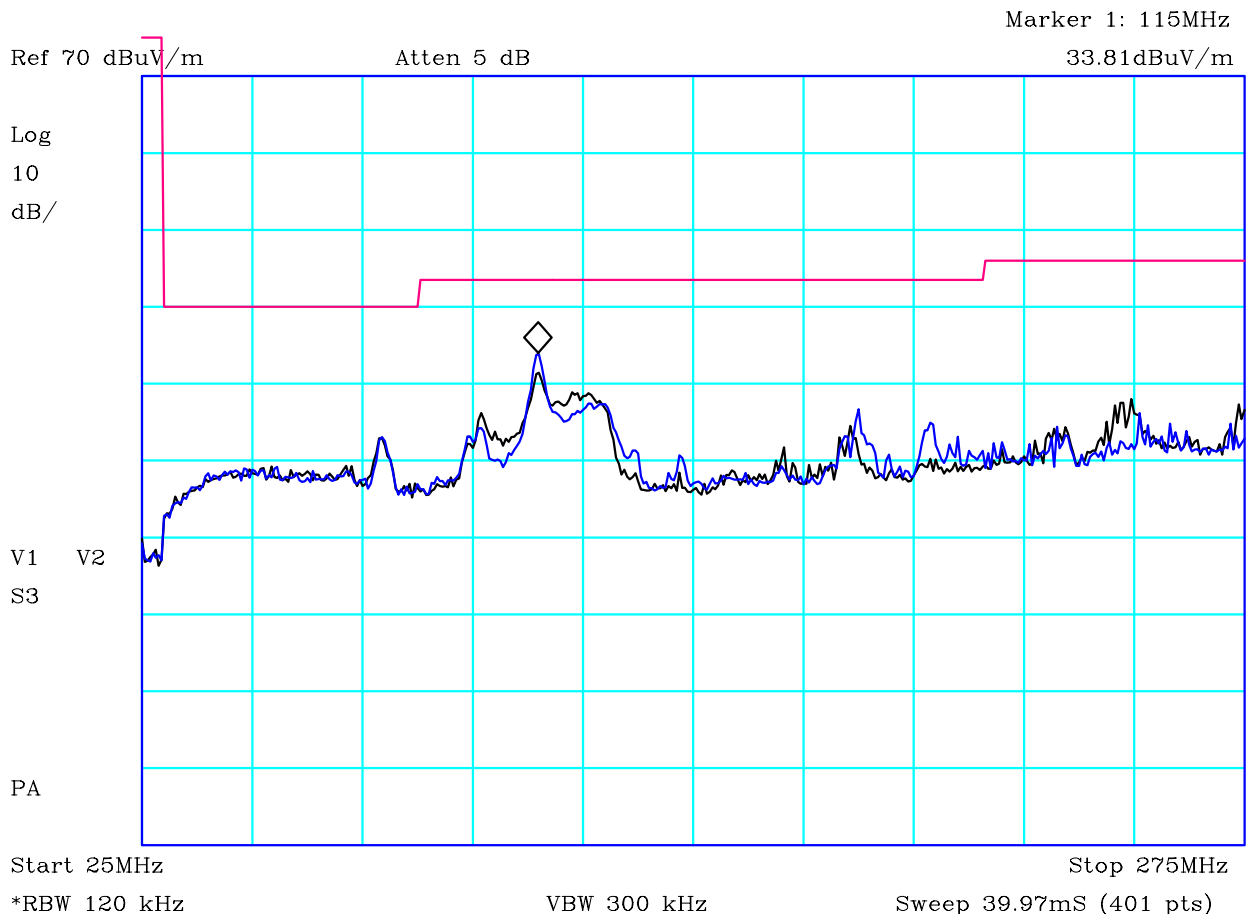
CF1:A15\_120112    CF2:CBL002\_CBL069\_100809

**PLOT 24 Radiated Emissions - Sample C - 250MHz to 1GHz**

Company:	Sureflap Ltd	Product:	Sureflap
Date:	25/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(VIO)	FCC 15.209@3m	Limit2:	
Limit3:		Limit4:	

Black: vertical Blue: horizontal  
Sample C: 133kHz 120V.  
Mod.State: C40 47pF.

Facility:	Anech_1	Height	1m,1.5m,2m	Mode:	1
Distance	3m	Polarisation		Modification State:	1
Angle	0-360	File:	H302568E		



CF1:A15\_120112    CF2:CBL002\_CBL069\_100809

**PLOT 25 Radiated Emissions - Sample D - 25MHz to 275MHz**

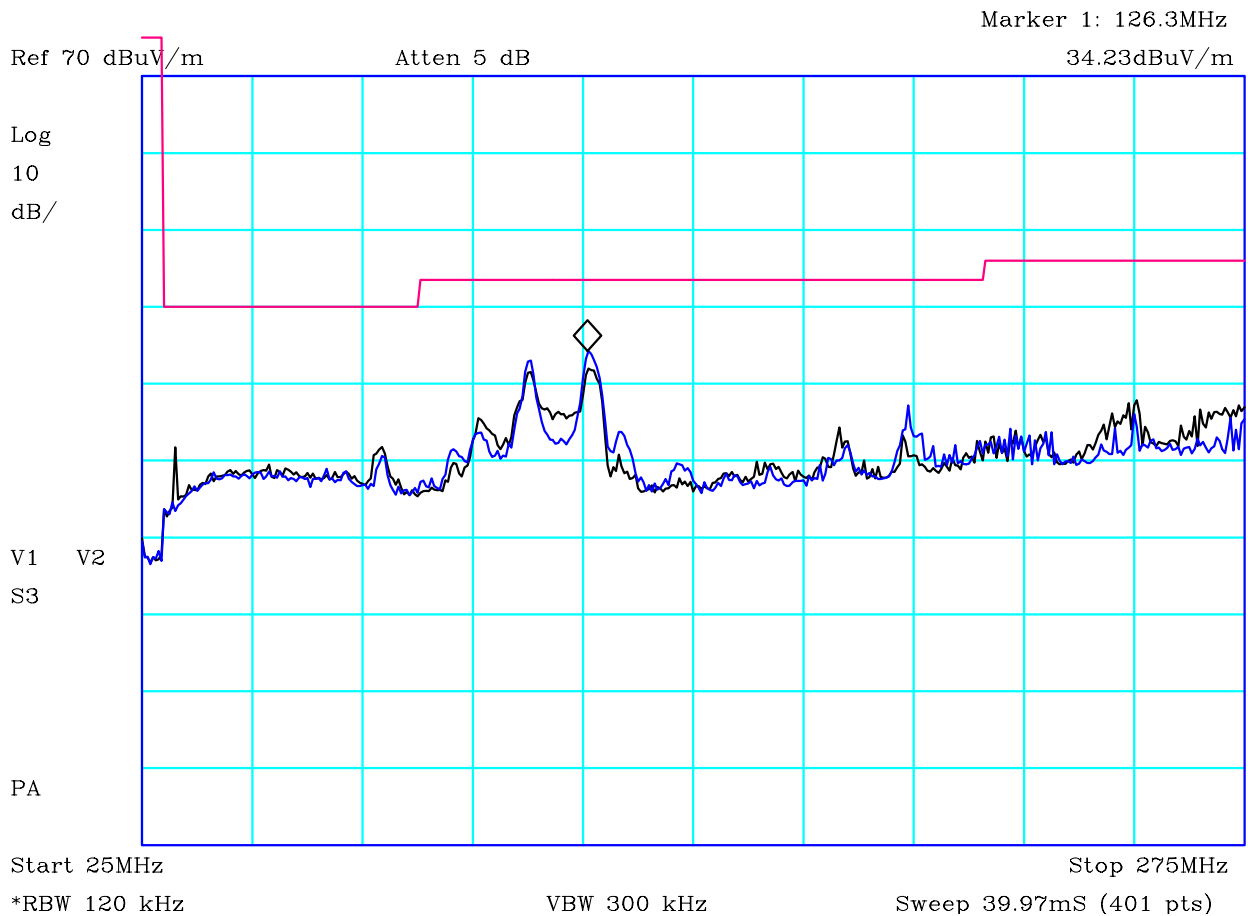
Company:	Sureflap Ltd	Product:	Sureflap
Date:	25/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(VIO)	FCC 15.209@3m	Limit2:	
Limit3:		Limit4:	

Black: vertical Blue: horizontal  
Sample D: 133kHz 80V.  
Mod.State: C40 47pF.

Facility:	Anech_1	Height	1m,1.5m,2m	Mode:	1
Distance	3m	Polarisation		Modification State:	1
Angle	0-360	File:	H3025699		







CF1:A15\_120112    CF2:CBL002\_CBL069\_100809

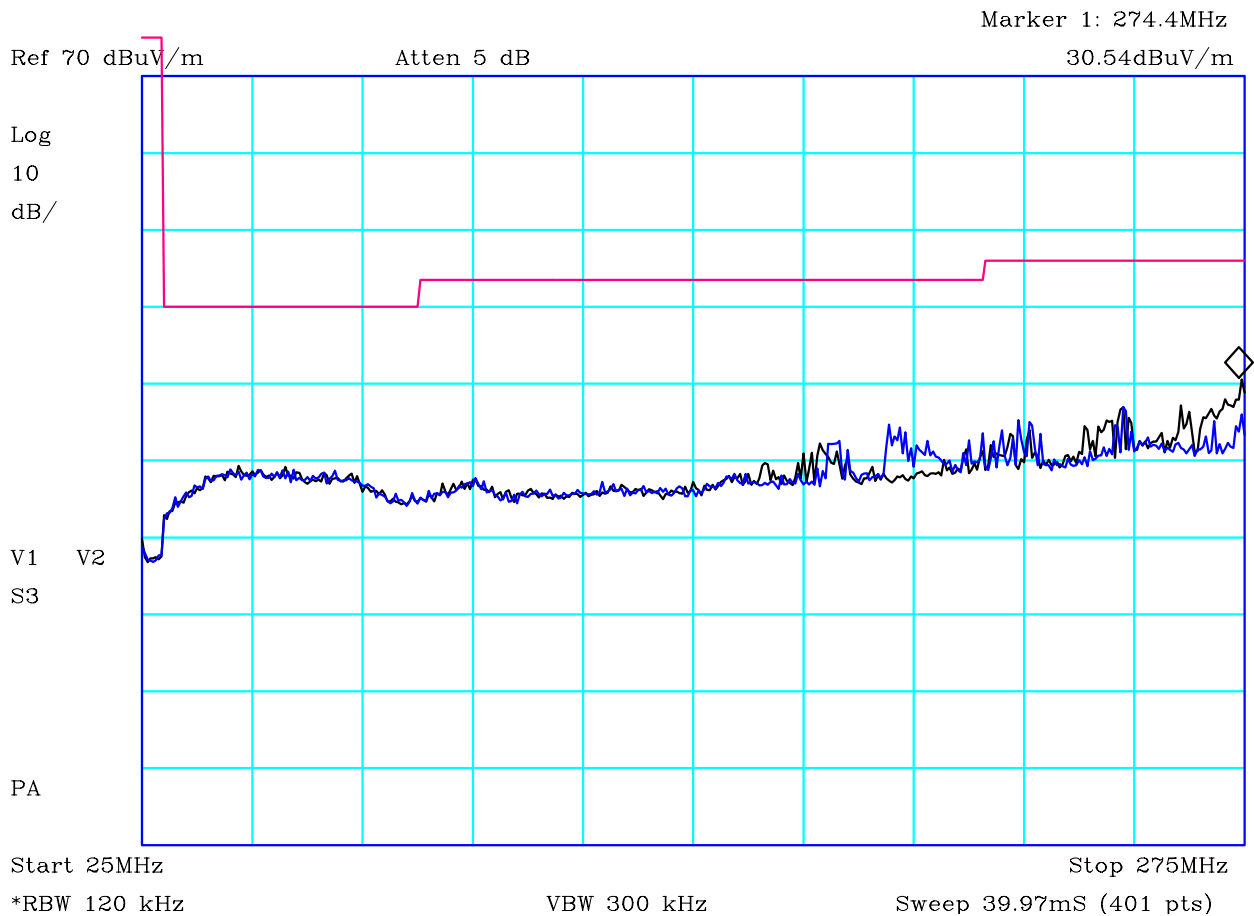
**PLOT 27 Radiated Emissions - Sample E - 25MHz to 275MHz**

Company:	Sureflap Ltd	Product:	Sureflap
Date:	25/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(VIO)	FCC 15.209@3m	Limit2:	
Limit3:		Limit4:	

Black: vertical    Blue: horizontal  
Sample E: Continuously stepping through all read modes.  
Mod.State: C40 47pF.

Facility:	Anech_1	Height	1m,1.5m,2m	Mode:	2
Distance	3m	Polarisation		Modification State:	1
Angle	0-360	File:	H30255F0		





CF1:A15\_120112    CF2:CBL002\_CBL069\_100809

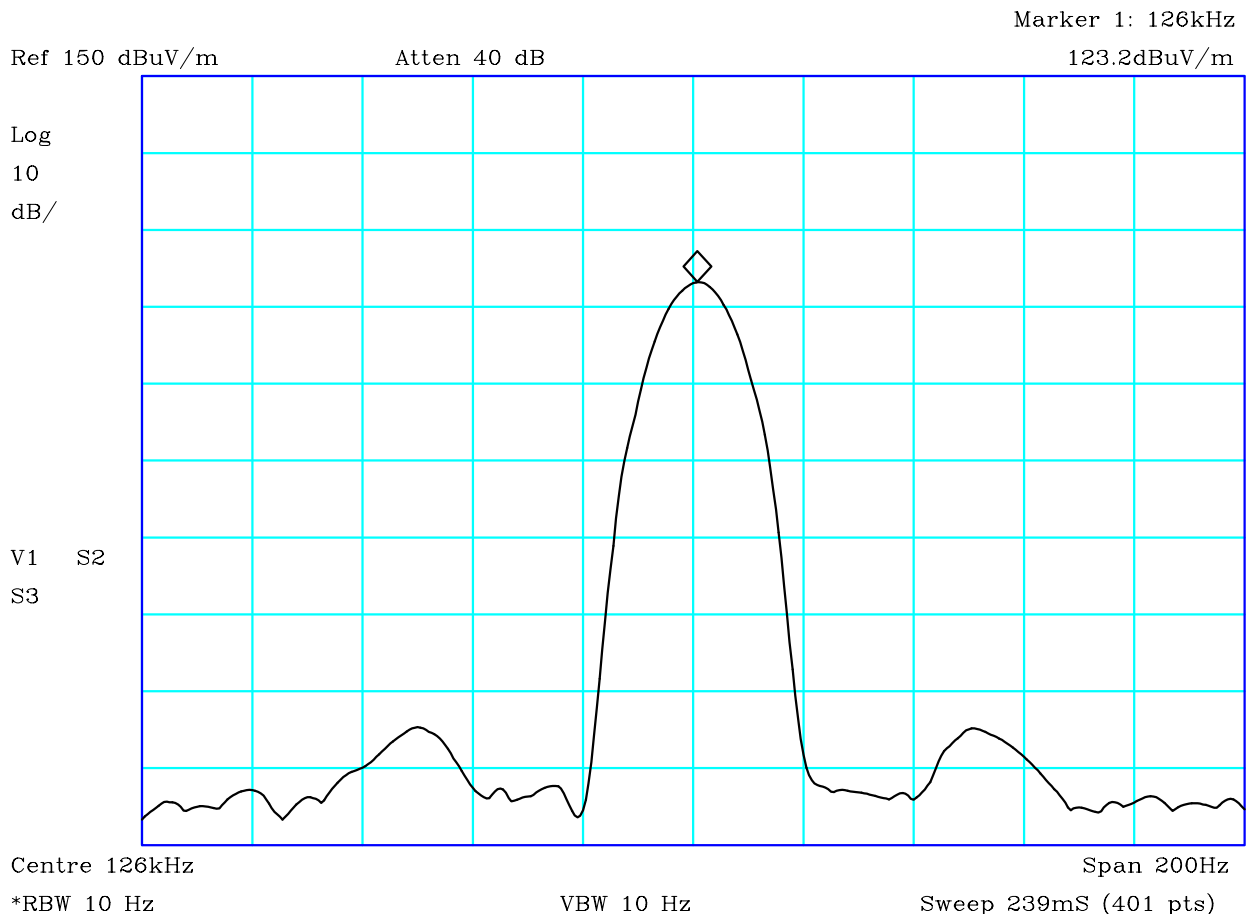
**PLOT 29 Radiated Emissions - Sample F - 25MHz to 275MHz**

Company:	Sureflap Ltd	Product:	Sureflap
Date:	25/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:(VIO)	FCC 15.209@3m	Limit2:	
Limit3:		Limit4:	

Black: vertical    Blue: horizontal  
Sample F: Standard production unit.  
Mod.State: C40 47pF.

Facility:	Anech_1	Height	1m,1.5m,2m	Mode:	3
Distance	3m	Polarisation		Modification State:	1
Angle	0-360	File:	H30256AA		

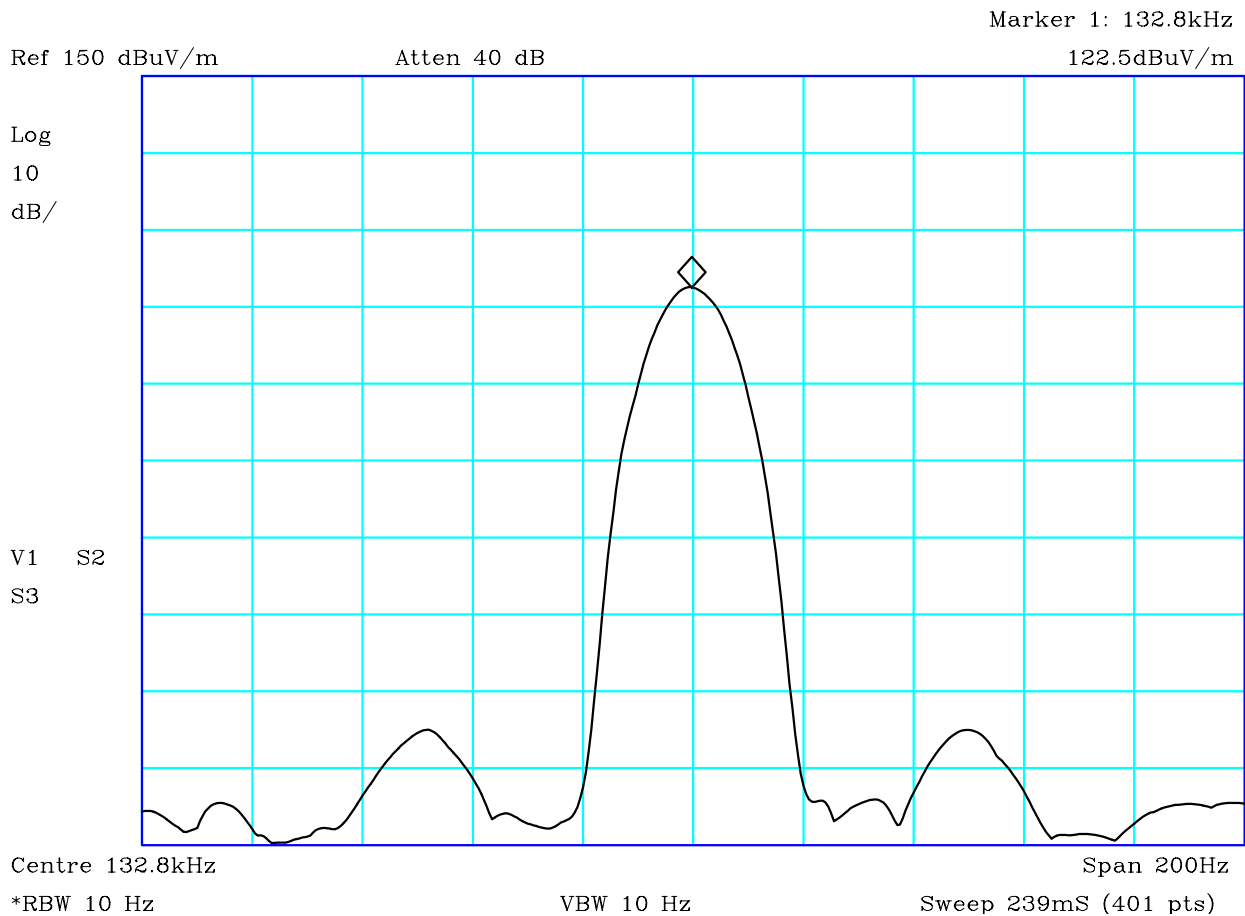




CF1:A9\_HI\_V\_130117 CF2:CBL002\_CBL069\_100809

### PLOT 31 Radiated Emissions - Bandwidth at 126kHz

Company:	Sureflap Ltd	Product:	Sureflap
Date:	24/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:		Limit2:	
Limit3:		Limit4:	
Sample A: 126kHz 120V Bandwidth measured as 29Hz (-30dBc points)			
99% BW 22Hz			
Facility:	Anech_1	Height	1m
Distance	3m	Polarisation	
Angle	0-360	File:	H3024567
		Mode:	1
		Modification State:	0



CF1:A9\_HI\_V\_130117 CF2:CBL002\_CBL069\_100809

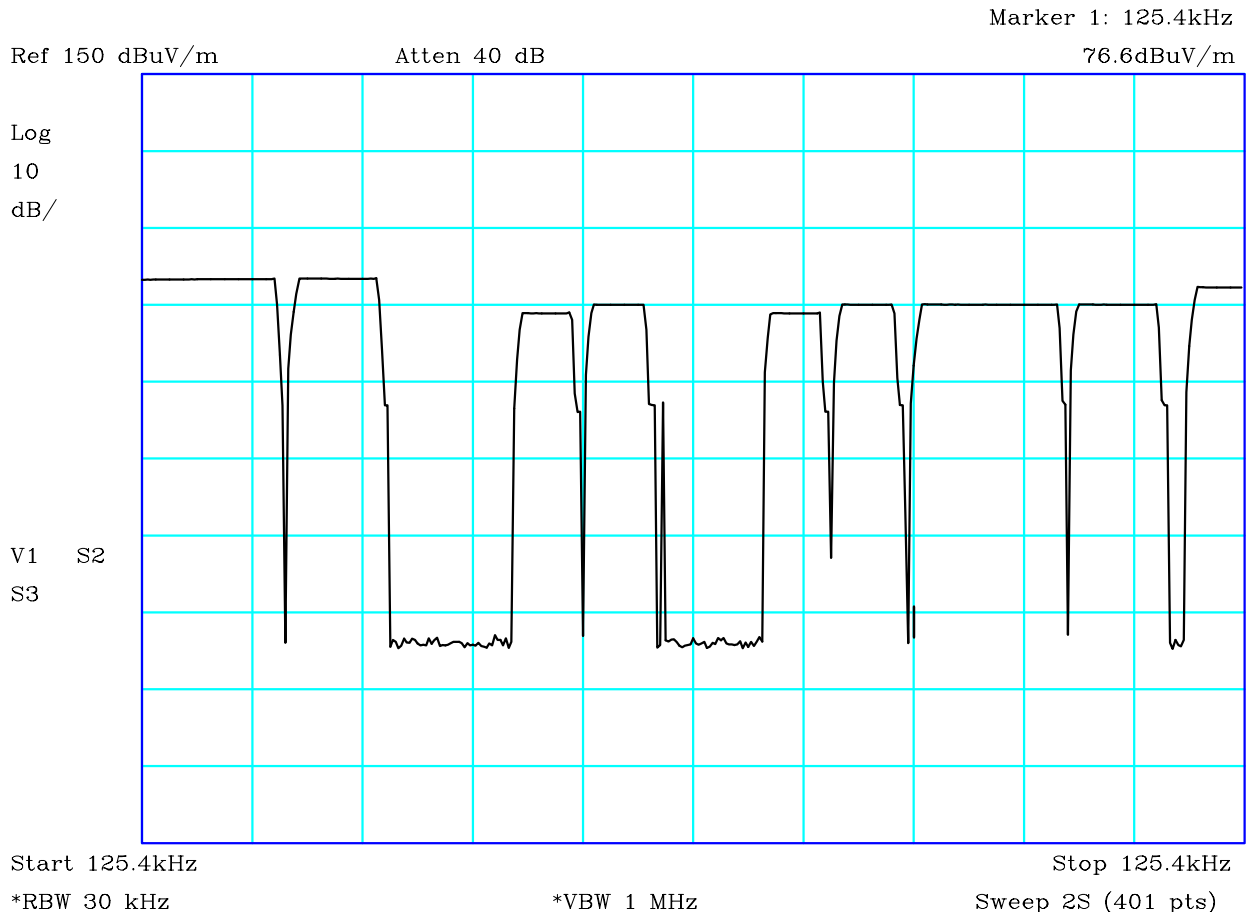
**PLOT 32 Radiated Emissions - Bandwidth at 133kHz**

Company:	Sureflap Ltd	Product:	Sureflap
Date:	24/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:		Limit2:	
Limit3:		Limit4:	

Sample C: 133kHz 120V  
Bandwidth measured as 31Hz (-30dBc points)

99% BW 20Hz

Facility:	Anech_1	Height	1m	Mode:	1
Distance	3m	Polarisation		Modification State:	0
Angle	0-360	File:	H302456D		



CF1:A9\_HI\_V\_130117    CF2:CBL002\_CBL069\_100809

### PLOT 33 Radiated Emissions - Typical Transmission Timing

Company:	Sureflap Ltd	Product:	Sureflap
Date:	24/01/20123	Test Eng:	Peter Barlow
Method:	ANSI C63.4	Method:	
Limit1:		Limit2:	
Limit3:		Limit4:	
Sample E: Continuously stepping through all read modes. Timing.			
Facility:	Anech_1	Height	1m
Distance	3m	Polarisation	
Angle	0-360	File:	H3024589
		Mode:	1
		Modification State:	0