


1 TEST REPORT Identification


1.1 Test Description

EMC test

1.2 Document

Document T1303222A Job J12565	Date of document 22/03/2013
The tester Marco Gori	Approval 

1.3 Laboratory

Denomination Celab S.r.l. 	Contacts Tel. +39 0773 665421 Fax +39 0773 417534 E-mail: celab@celab.com Web : www.celab.com
Address Via Maira snc, 04100 Latina Italy	

1.4 Customer

Denomination SVAPOWEB SRLS
Address VIA San Carlo, 29 – 82011 Airola (BN)

1.5 EUT identification

Description / Part number Battery eGo CTwist 1100mAh - **
Serial Number ** _ **
Manufacturer name if different from customer **
Period of testing 22/03/2013 – 22/03/2013
Date of receipt of EUT or Location of EUT for testing 19/03/2013

1.6 Test result

PASS

 All tests are referred to the particular EUT.

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1.8 Document distribution list

Celab S.r.l., Via Maira snc, 04100 Latina

Customer as indicated in 1.4

1.9 Document revision

Release	Description	Date
A	First release of documents	see 1.2

1.10 Document Security Level

Level	Description
Industry	- Document reserved to list of distribution

1.11 Warnings

Reference norms have been used as guide lines, please consult the paragraphs about single tests for further information.

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Results of testing are referred to the particular sample tested.

1.12 Changes to EUT for tests

None

1.13 Support equipments

None

1.14 Purpose of tests

Verify the compliance between the EUT and the standards

1.15 Operative mode of working

As defined by customer

1.16 Configuration and peripherals

Na

1.17 EUT software for testing

Na



1.18 EUT Photo



1.19 Accessories (not tested)

Atomizer



2 TEST

2.1 Test EN 61000-6-1:2007 EMC Immunity Generic Commercial

2.1.1 Test EN 61000-4-2 Electrostatic discharge

2.1.1.1 Scope of testing

The object of this standard is to establish a common and reproducible basis for evaluating the performance of electrical and electronic equipment when subjected to electrostatic discharges.

2.1.1.2 Reference Documents

Standard Used : EN 61000-4-2:2009

Limits : 4kV on contact, 8kV on Air



The reference document are used as standard guideline, refer to procedure for more details.

2.1.1.3 Configuration of EUT during testing

The EUT was setup in accordance with customer's specifications.

2.1.1.4 Procedure

- 1) EUT conditioned, for 4 hours, at standard laboratory environment conditions.
- 2) EUT, Switched ON, in his operative condition, is stimulated with electrostatic discharge in accordance with EN 61000-4-2 specifications.
- 3) During test EUT was tested in accordance with customer's specifications.

Test levels			
Contact discharge		Air discharge	
Level	Testing power level kV	Level	Testing power level kV
1	1	1	2
2	2	2	4
3	4	3	8
X	Special	X	Special




Arrangement of EUT during the test		
HCP and VCP	On reference plane	On place of installation
YES	NO	NO

Test after installation
NO


Num	Description	Discharge level		Pol	N° Disch.	Result
		Direct	Indirect			
1	Left side	--	Contact HCP 1/2/4 kV	+ , -	20	A
2	Right side	--	Contact HCP 1/2/4 kV	+ , -	20	A
3	Front	--	Contact HCP 1/2/4 kV	+ , -	20	A
4	Back	--	Contact HCP 1/2/4 kV	+ , -	20	A
5	Left side	--	Contact VCP 1/2/4 kV	+ , -	20	A
6	Right side	--	Contact VCP 1/2/4 kV	+ , -	20	A
7	Front	--	Contact VCP 1/2/4 kV	+ , -	20	A
8	Back	--	Contact VCP 1/2/4 kV	+ , -	20	A
9	Left side	Contact 1/2/4 kV	--	+ , -	20	A
10	Right side	Contact 1/2/4 kV	--	+ , -	20	A
11	Front	Contact 1/2/4 kV	--	+ , -	20	A
12	Back	Contact 1/2/4 kV	--	+ , -	20	A
13	Left side	Air 2/4/8 kV	--	+ , -	20	A
14	Right side	Air 2/4/8 kV	--	+ , -	20	A
15	Front	Air 2/4/8 kV	--	+ , -	20	A
16	Back	Air 2/4/8 kV	--	+ , -	20	A

Note : Res = X means EUT broken
 HCP = Horizontal Coupling Plane
 VCP = Vertical Coupling Plane

 The quality system used for testing is compliant with EN 17025 standards and to CELAB Quality system.


2.1.1.5 Uncertainty

Confidence level +/-200V for voltage

 *The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$. It provides a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirement.*


2.1.1.6 List of Equipment used

Asset	description	pn	sn	cal doc	cal date	due cal
S051	ESD simulator	HVT-2700	S051	V121112DA	12/11/2012	11/11/2013
S052	ESD Horizontal cou	S052	S052	V1211146A	14/11/2012	11/11/2015
S053	ESD Vertical coupl	S053	S053	V1211145A	14/11/2012	11/11/2015
S157	ESD Cable 1	ESDC1	S157	V1208311A	31/08/2012	30/08/2013
S158	ESD Cable 2	ESDC2	S158	V1208312A	31/08/2012	30/08/2013
S159	ESD Cable 3	ESDC3	S159	V1208313A	31/08/2012	30/08/2013
S160	ESD Cable 4	ESDC4	S160	V1208314A	31/08/2012	30/08/2013

 *This test is issued in accordance with the laboratory quality system. It provide traceability of measurement to recognized national and international standard.*

2.1.1.7 Test environment

Temperature : 22°C +/- 4°C
 Humidity : 60%rH +/- 20%
 Pressure : 800-1100mBar
 Environment : Laboratory

 *Environmental data are registered according to Celab Quality System. Instruments used are defined in internal environment procedures.*

2.1.1.8 Terminology used in testing

EUT Equipment under test
 PASS It means a test passed (note: if flagged together with CST. It means that PASS is related only to checks indicated in 'Test Result' chapter.
 FAIL It means a test Fail
 CST It means that results and interpretation of testing results is responsibility of customer or test complexity requires customer's activities out of laboratory control.
 NA Not available / Not Applicable
 NP Not Performed

2.1.1.9 Pass Condition

Criteria A: No loss of functionality or degrading of performance.

Criteria B: Degrading of performance during the application of disturbance, total recovery of performance, at the stopping of disturbance, without operator action.

Criteria C: Performances recovery only after the operator action

2.1.1.10 Test Result

✓	PASS	FAIL	CST
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The result was A



All tests are referred to the particular EUT.



2.1.2 Test EN 61000-4-3 RF Immunity testing

2.1.2.1 Scope of testing

The object of this standard is to establish a common and reproducible basis for evaluating the performance of electrical and electronic equipment when subjected to radio-frequency electromagnetic fields.

Frequency range	: 0,08 – 1 GHz	1,4 – 2,0 GHz	2,0 – 2,7 GHz
Level of field	: 3 V/m	3 V/m	1 V/m
Modulation	: 80%AM (1KHz)		

2.1.2.2 Reference Documents

Standard Used : EN 61000-4-3:2006 +A1:2008 +A2:2010



The reference document are used as standard guideline, refer to procedure for more details.

2.1.2.3 Configuration of EUT during testing

The EUT was setup in accordance with customer's specifications.

2.1.2.4 Procedure

1. EUT is switched on in the anechoic room in his operative conditions.
2. The test has been performed with horizontal polarization , step frequency 1%, EUT placed on front of antenna,.
3. The test has been performed with substitution method with a isotropic field meter.



The quality system used for testing is compliant with EN 17025 standards and to CELAB Quality system.

2.1.2.5 Uncertainty

Confidence level, for field 2sigma +/-0.5V/m for eut size < 30 cm, +/-1V/m for other EUT




The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$. It provides a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirement.




2.1.2.6 List of Equipment used

Asset	description	pn	sn	cal doc	cal date	due cal
S033	EM radiation meter	EMR-300	C-0020	V1212034A	03/12/2012	02/12/2013
S050	Amplifier RF 50W 5	MINICIRCUIT	NA	V1111088A	08/11/2011	05/11/2013
S054	Software for Testi	Enviromental	**			
S204	Sweep generator 10	6647A	210006	V1211276A	27/11/2012	26/11/2013

 This test is issued in accordance with the laboratory quality system. It provide traceability of measurement to recognized national and international standard.

2.1.2.7 Test environment

Temperature	:	22°C +/- 4°C
Humidity	:	60%rH +/- 20%
Pressure	:	800-1100mBar
Environment	:	Anechoic room

 Environmental data are registered according to Celab Quality System. Instruments used are defined in internal environment procedures.

2.1.2.8 Terminology used in testing

EUT	Equipment under test
PASS	It means a test passed (note: if flagged together with CST. It means that PASS is related only to checks indicated in 'Test Result' chapter.
FAIL	It means a test Fail
CST	It means that results and interpretation of testing results is responsibility of customer or test complexity requires customer's activities out of laboratory control.
NA	Not available / Not Applicable
NP	Not Performed

2.1.2.9 Pass Condition

Criteria A: No loss of functionality or degrading of performance.

Criteria B: Degrading of performance during the application of disturbance, total recovery of performance, at the stopping of disturbance, without operator action.

Criteria C: Performances recovery only after the operator action

2.1.2.10 Test Result

✓	PASS	FAIL	CST
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The result was A

 All tests are referred to the particular EUT.

2.2 Test EN 61000-6-3:2007 +A1:2011 EMC_Emission Generic Commercial

2.2.1 EN 61000-6-3:2007 Radiated emission

2.2.1.1 Scope of testing

These tests determine whether the equipment can meet requirement for EMC European directive.

2.2.1.2 Reference Documents

Standard Used : EN 61000-6-3; CISPR 16-2-3

 *The reference document are used as standard guideline, refer to procedure for more details.*


2.2.1.3 Configuration of EUT during testing

The EUT was setup in accordance with customer's specifications.

2.2.1.4 Procedure


- 1) EUT, in his operative condition, is introduced in anechoic room
- 2) Test antennas are at 3 meters of distance from the EUT
- 3) Biconical antenna is used from 30 MHz to 300 MHz, log periodic antenna is used from 300 MHz to 1 GHz.
- 4) A fast scan of all frequency is done for each antenna , looking for peak of emission (standard level -15dB). For each frequency over limit a slow scan is repeated with a quasi peak meter looking for emission.
- 5) Test is repeated at 4 different directions of EUT at 3 different height of testing antenna (1,2 & 3 mt) , plot given for maximum emission.
- 6) Test is repeated for Vertical And horizontal polarization

Limits for radiated emission : 30 - 230 MHz 40dB uV/m @ 3 m quasi peak
230 - 1000 MHz 47dB uV/m @ 3 m quasi peak

 *The quality system used for testing is compliant with EN 17025 standards and to CELAB Quality system.*


2.2.1.5 Uncertainty

Confidence level 2sigma +/-6,92 dB

 *The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor $k=2$. It provides a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirement.*


2.2.1.6 List of Equipment used

Asset	description	pn	sn	cal doc	cal date	due cal
S753	EMI TEST RECEIVER	ESU26	1302.6005k	V1210128A	12/10/2012	11/10/2013
S028	Antenna Biconical	HP11955A	09604-2418	V1210175A	17/10/2012	16/10/2013
S030	Antenna Log-Period	HP11956A	3234	V1210153A	15/10/2012	14/10/2013
S062	Anechoic room	S062	S062	V1301170A	17/01/2013	16/01/2014
S999	Open Area Test Sit	OATS	S999	T1205147A	14/05/2012	13/05/2013

 This test is issued in accordance with the laboratory quality system. It provide traceability of measurement to recognized national and international standard.

2.2.1.7 Test environment

Temperature	:	22°C +/- 4°C
Humidity	:	60%rH +/- 20%
Pressure	:	800-1100mBar
Environment	:	Laboratory

 Environmental data are registered according to Celab Quality System. Instruments used are defined in internal environment procedures.

2.2.1.8 Terminology used in testing

EUT	Equipment under test
PASS	It means a test passed (note: if flagged together with CST. It means that PASS is related only to checks indicated in 'Test Result' chapter.
FAIL	It means a test Fail
CST	It means that results and interpretation of testing results is responsibility of customer or test complexity requires customer's activities out of laboratory control.
NA	Not available / Not Applicable
NP	Not Performed

2.2.1.9 Pass Condition

The EUT RF emission must be under the limits of standard

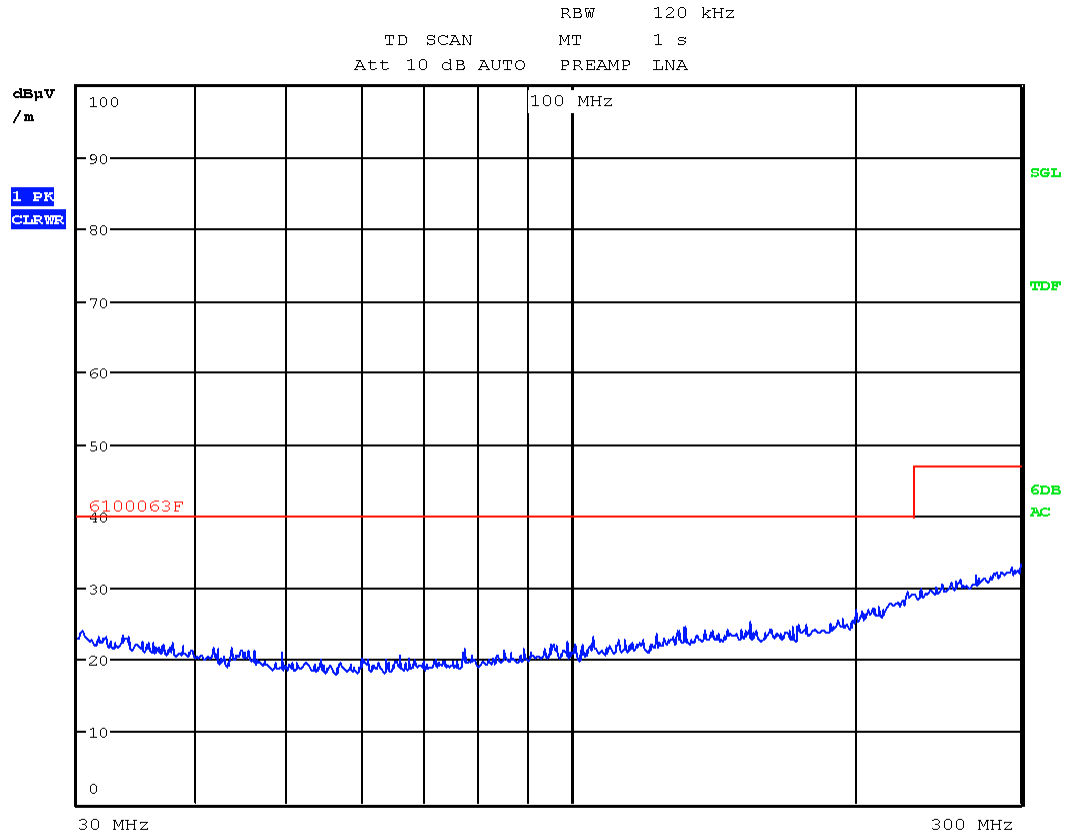
2.2.1.10 Test Result

✓	PASS	FAIL	CST
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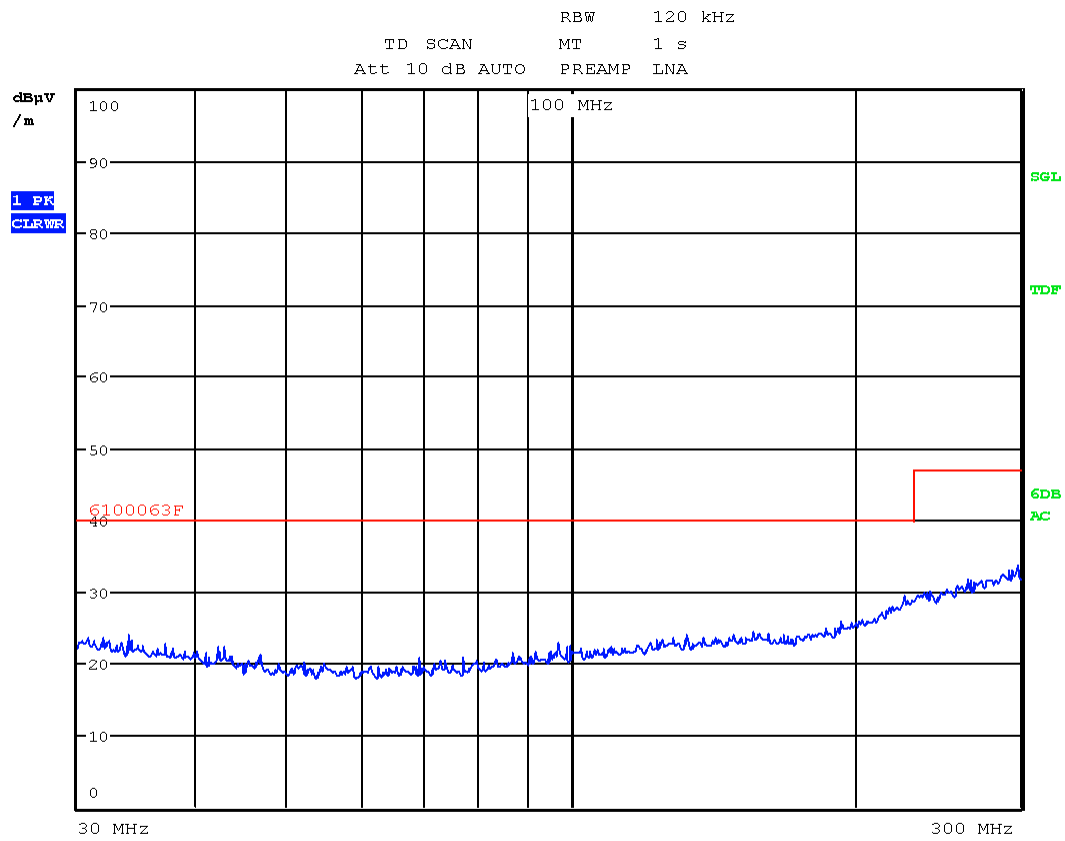
 All tests are referred to the particular EUT.

2.2.1.11 Annex

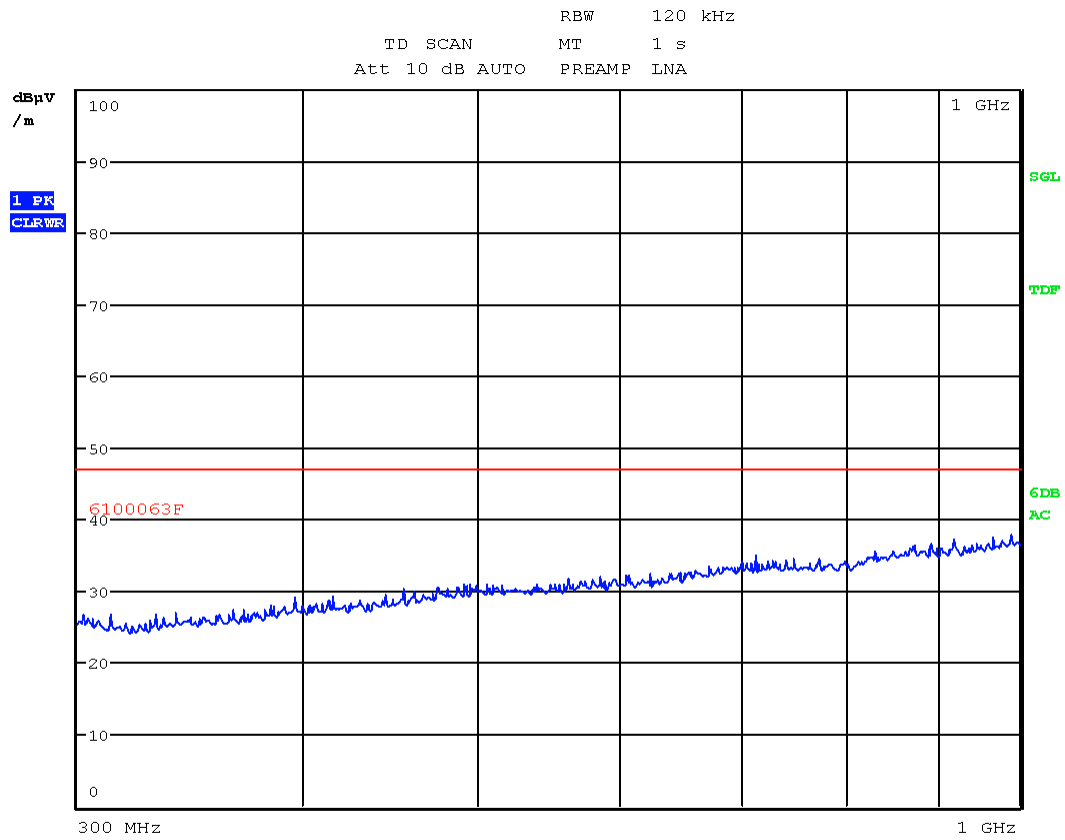
Radiated emission 30 MHz – 300 MHz - Peak detector
Horizontal



Vertical



Radiated emission 300 MHz – 1000 MHz - Peak detector
Horizontal



Vertical

