


**CENTER FOR TESTING AND EUROPEAN CERTIFICATION LTD**

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**LABORATORY FOR TESTING OF MACHINERY, EQUIPMENT AND DEVICES**

Certificate of accreditation № 101 ЛИ / 22.11.2019, valid until: 26.11.2022  
Issued by EA BAS, in accordance with the requirements of BDS EN ISO/IEC 17025:2018



## TEST REPORT

№ 2emc-20-248/28.02.2020

**OBJECT TO BE TESTED:** Electric and electronic equipment, appliances, devices  
Machine for direct printing on cotton Flatdog white Smart, Model- FlatDog Smart Evolution  
*(name of object to be tested, type, model, quantity,  
type – portable, fixed, for walling in and other)*

**APPLICANT FOR TEST:** " Studio Grif " Ltd., Bulgaria, Plovdiv, 136 Maritsa Str., ZIP 4000  
Tel.: +359 887 629 283, e-mail: contact@flatdog.eu ;  
Application № 248 / 20.01.2020  
*(name of the firm – applicant, address, telephone, number and date of the test application)*

**METHOD OF TEST :**

BDS EN 55016-2-1:2014 Specification for radio disturbance and immunity measuring apparatus and methods –  
Part 2-1: Methods of measurement of disturbances and immunity - Conducted disturbance measurements  
BDS EN 61000-4-2:2009 Electromagnetic compatibility (EMC)  
Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test  
BDS EN 61000-4-8:2010 Electromagnetic compatibility (EMC) –  
Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test  
BDS EN 61000-4-11:2006+A1:2017 Electromagnetic compatibility (EMC)  
Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations  
immunity tests  
*(number and name of the standards)*

**DATE OF ACCEPTANCE IN THE TEST LABORATORY:** 12.02.2020

**CODE OF THE OBJECT:** 00006 ;  
*(identification number)*

**YEAR OF PRODUCTION :** 2020

**MANUFACTURER:** " Studio Grif " Ltd., Bulgaria, Plovdiv, 136 Maritsa Str., ZIP 4000  
Tel.: +359 887 629 283, e-mail: contact@flatdog.eu ;  
*(firm, trade mark, address)*

**DECLARED TECHNICAL DATA:** Rated voltage: 220 VAC  
Rated frequency: 50-60 Hz  
Rated current: 3 A

**TECHNICAL REQUIREMENTS:**

BDS EN 61000-6-2:2006 Electromagnetic compatibility (EMC)  
Part 6-2: Generic standards - Immunity for industrial environments  
BDS EN 61000-6-4:2007+A1:2011 Electromagnetic compatibility (EMC)  
Part 6-4: Generic standards - Emission standard for industrial environments

**DATE OF TEST PERFORMANCE:** 12.02.2020

**HEAD OF THE LABORATORY** .....

/ T. Hristov /





## Copy of identification table and/or photo of tested object



**FLATDOG.eu** тел. 0887 629 283  
email: contact@flatdog.eu  
web: www.flatdog.eu

Производител: Студио Гриф ООД  
България, 4000 Пловдив,  
бул. Марица 136  
Модел: Flatdog Smart Evolution  
Сериен номер: 00006  
Дата на производство: 01.2020  
Номер на елсхема: GRIFPRN7  
Напрежение/честота: 220 V, 50 Hz, монофазен  
Максимален товар: 3A  
Максимален ток  
на късо съединение: 6000 A  
Тегло: 120 кг.





## I. Emission of Radio disturbance characteristics for industrial environments

### 1. Mains terminal disturbance voltage

BDS EN 61000-6-4, cl. 4 – Conditions during testing

BDS EN 61000-6-4, cl. 7 – Emission requirements – Table 1

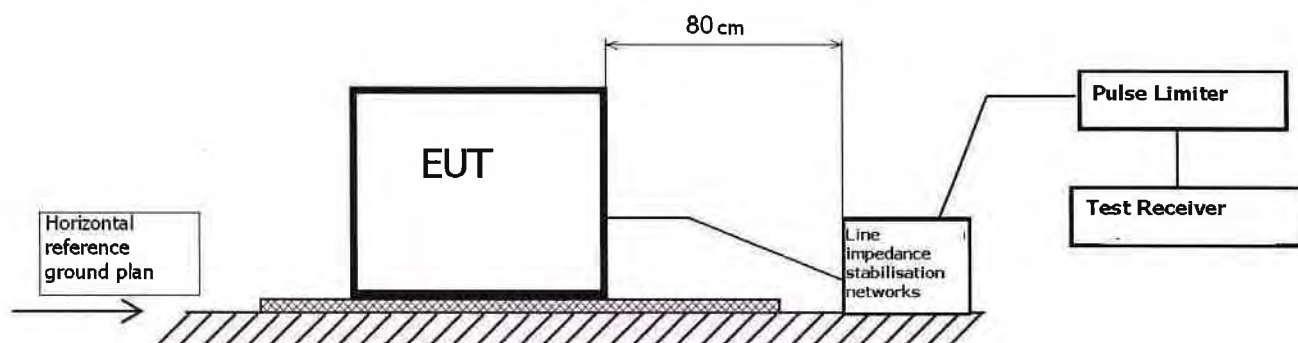
BDS EN 55016-2-1, cl. 6 – General measurement requirements and conditions

Testing was performed in normal operation mode  $U=230V$ ;

BDS EN 55016-2-1, cl. 7 — Measurement of disturbances conducted along leads

Ambient temperature: 25 °C; Relative Humidity: 40 %.

Measurement uncertainty: 2,75 dB( $\mu V$ )



*The results showed in present test report concern tested sample only*

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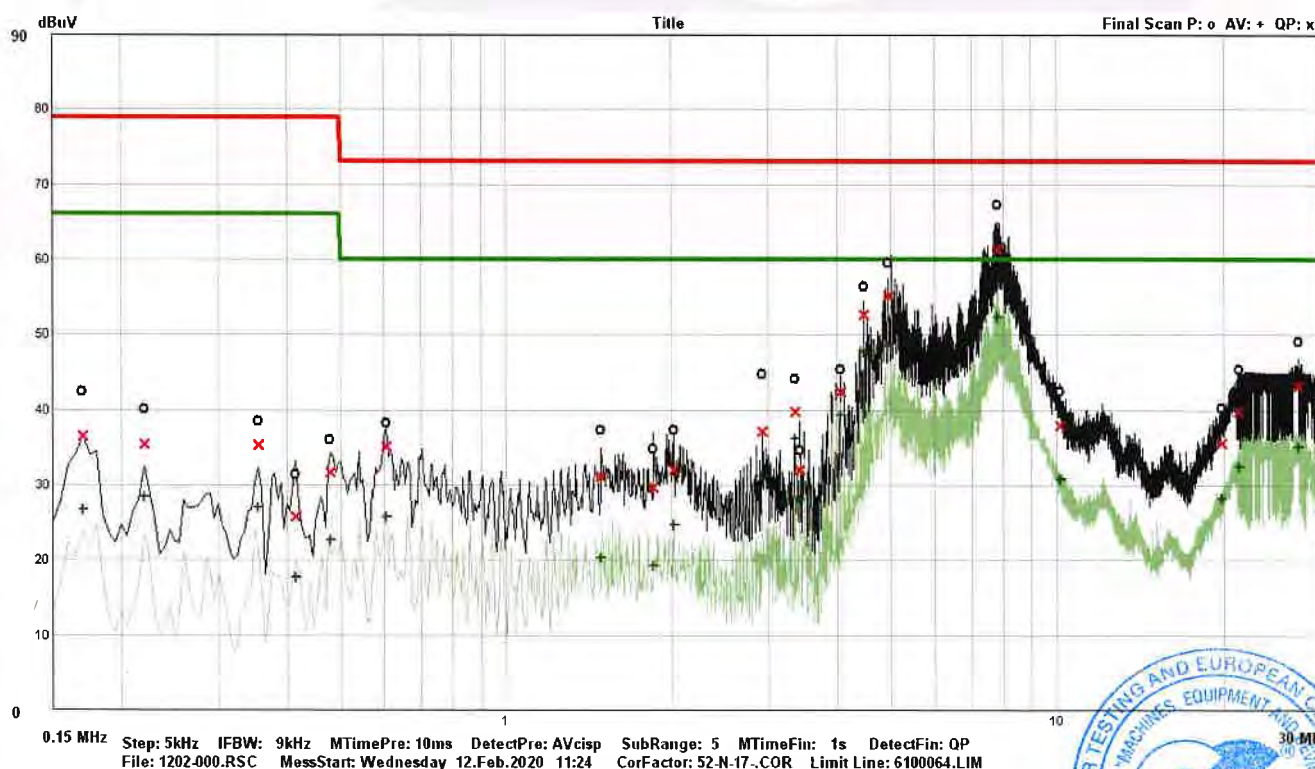
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**I. Emission of Radio disturbance characteristics for industrial environments**

RESULTS OF MEASUREMENT:

Frequency	Terminal disturbance voltages, mains line - N					
	Quasi peak - QP			Average - AV		
	Measuring	Margin	Limit	Measuring	Margin	Limit
MHz	dB(μV)	dB(μV)	dB(μV)	dB(μV)	dB(μV)	dB(μV)
0,170	36,59	42,41	79,00	26,80	39,20	66,00
0,220	35,46	43,54	79,00	28,43	37,57	66,00
0,355	35,33	43,67	79,00	27,09	38,91	66,00
0,415	25,84	53,16	79,00	17,73	48,27	66,00
0,480	31,70	47,30	79,00	22,68	43,32	66,00
0,605	35,12	37,88	73,00	25,85	34,15	60,00
1,490	31,02	41,98	73,00	20,29	39,71	60,00
1,855	29,63	43,37	73,00	19,28	40,72	60,00
2,020	32,00	41,00	73,00	24,72	35,28	60,00
2,925	37,18	35,82	73,00	31,32	28,68	60,00
3,345	39,74	33,26	73,00	36,19	23,81	60,00
3,415	31,97	41,03	73,00	28,14	31,86	60,00
4,040	42,44	30,56	73,00	39,31	20,69	60,00
4,460	52,65	20,35	73,00	47,78	12,22	60,00
4,940	55,24	17,76	73,00	48,42	11,58	60,00
7,815	61,40	11,60	73,00	52,45	7,55	60,00
10,135	37,99	35,01	73,00	30,76	29,24	60,00
19,870	35,58	37,42	73,00	28,35	31,65	60,00
21,380	39,78	33,22	73,00	32,56	27,44	60,00
27,370	43,22	29,78	73,00	35,18	24,82	60,00

Drawing of terminal disturbance voltages, mains line – N



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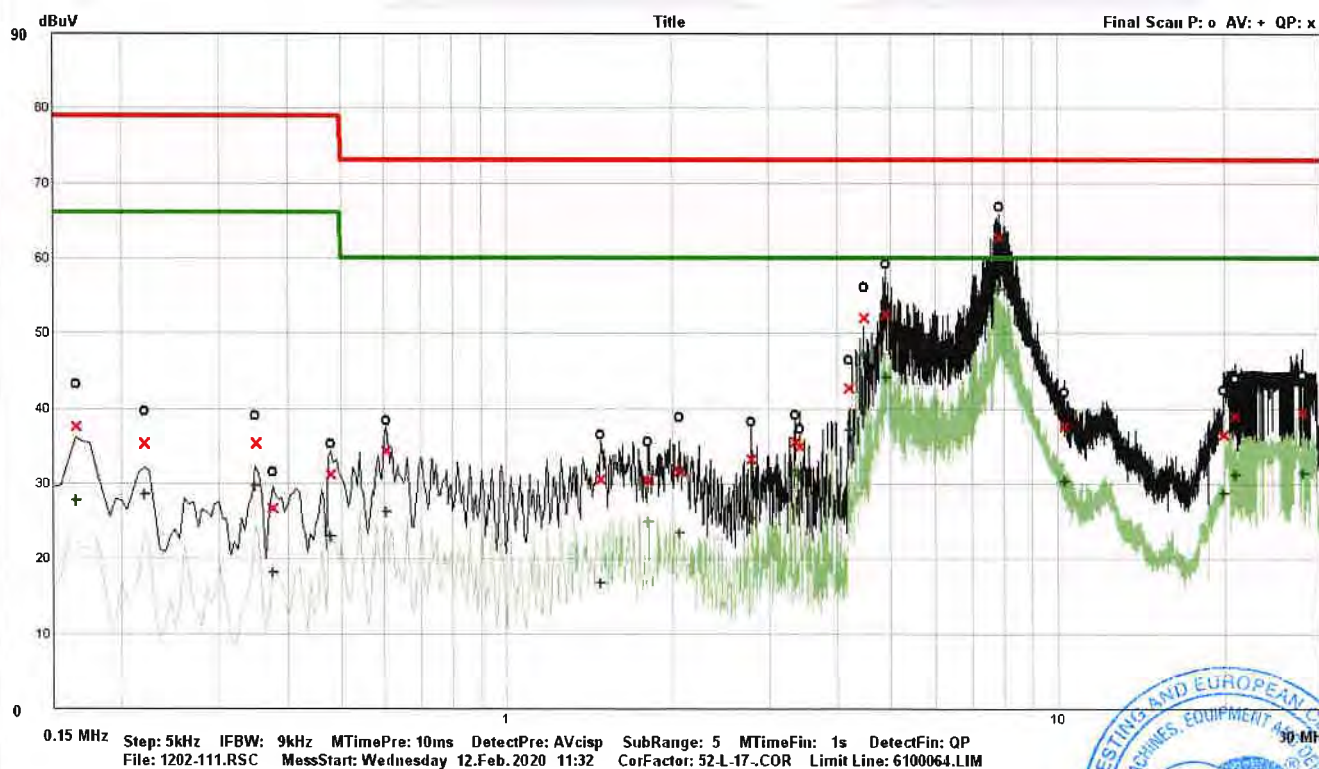
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BDS EN 61000-6-4:2007+A1:2011

Test report: № 2emc-20-248/28.02.2020

Frequency	Terminal disturbance voltages, mains line – L					
	Quasi peak - QP			Average - AV		
	Measuring	Margin	Limit	Measuring	Margin	Limit
MHz	dB(μV)	dB(μV)	dB(μV)	dB(μV)	dB(μV)	dB(μV)
0,165	37,67	41,33	79,00	27,72	38,28	66,00
0,220	35,29	43,71	79,00	28,57	37,43	66,00
0,350	35,33	43,67	79,00	29,69	36,31	66,00
0,375	26,70	52,30	79,00	18,15	47,85	66,00
0,480	31,19	47,81	79,00	23,08	42,92	66,00
0,605	34,28	38,72	73,00	26,31	33,69	60,00
1,480	30,68	42,32	73,00	16,80	43,20	60,00
1,810	30,51	42,49	73,00	24,93	35,07	60,00
2,060	31,68	41,32	73,00	23,50	36,50	60,00
2,790	33,32	39,68	73,00	25,34	34,66	60,00
3,345	35,62	37,38	73,00	31,67	28,33	60,00
3,415	34,91	38,09	73,00	31,13	28,87	60,00
4,180	42,71	30,29	73,00	37,16	22,84	60,00
4,460	52,13	20,87	73,00	47,33	12,67	60,00
4,900	52,48	20,52	73,00	44,08	15,92	60,00
7,855	62,79	10,21	73,00	55,79	4,21	60,00
10,300	37,65	35,35	73,00	30,28	29,72	60,00
19,950	36,46	36,54	73,00	28,68	31,32	60,00
20,920	39,04	33,96	73,00	31,20	28,80	60,00
27,800	39,42	33,58	73,00	31,45	28,55	60,00

Drawing of terminal disturbance voltages, mains line – L



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**II. Immunity of Radio disturbance characteristics for industrial environments**

Performance criterion A: The apparatus shall continue to operate as intended during the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Performance criterion B: The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level (or permissible loss of performance) specified by the manufacturer, when the apparatus is used as intended. During the test, degradation of performance is allowed, however. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and from what the user may reasonably expect from the apparatus if used as intended.

Performance criterion C: Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls, or by any operation specified in the instructions for use.

Environment requirements during the test	Ambient temperature	15 to 35 °C
	Relative Humidity	30 to 60 %
	Air pressure	860 to 1060 mbar
Test environment	Ambient temperature	25 °C
	Relative Humidity	40 %
	Air pressure	1010 mbar





**1. IMMUNITY TO ELECTROSTATIC DISCHARGE (ESD)**

BDS EN 61000-6-2, cl. 4 – Performance criteria

BDS EN 61000-4-2, cl. 7 – Test setup

BDS EN 61000-4-2, cl. 7.1.2 – Floor-standing equipment, Figure 6

BDS EN 61000-4-2, cl. 8 – Test procedure

Measurement uncertainty: Tolerance of output voltage:  $\pm 5\%$  ; Tolerance of the first peak of discharge current:  $\pm 15\%$

Deviation of current rise time:  $\pm 25\%$  (0,6ns – 1ns); Current deviation measured at 30ns :  $\pm 30\%$

Current deviation measured at 60ns :  $\pm 30\%$

Time interval between discharges	1 s
Discharge impedance	150 pF
Discharge impedance	330 $\Omega$
Performance Criteria according to cl.1.5 and Table 1 of BDS EN 61000-6-2	Criteria B
Number of discharges	10 positive and 10 negative at the selected points

Discharge location	Type of discharge	Level	Test voltage	Polarity	Result
Buttons and display - <b>O</b>	Air - Direct	1;2;3	2;4;8 kV	+	Criteria A
				-	
Body of EUT - <b>X</b>	Contact - Direct	1;2	2;4 kV	+	Criteria A
				-	
Vertical coupling plane (VCP) - <b>X</b>	Contact - Indirect	1;2	2;4 kV	+	Criteria A
				-	
Horizontal coupling plane (VCP) - <b>X</b>	Contact - Indirect	1;2	2;4 kV	+	Criteria A
				-	



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**2. RATED POWER FREQUENCY MAGNETIC FIELD**

BDS EN 61000-4-8 τ. 7 – Test setup

BDS EN 61000-4-8 τ. 8 – Test procedure

Performance Criteria according to  
Table 1, cl. 1.1 of BDS EN 61000-6-2

Criteria A

Standard inductive coil	Orientation of standard inductive coil	Level	Field strength in the centre for all other inductive coils	Current in the coil (a coil with 10 windings)	Result
1 m x 1 m	X	4	30 A/m	34,48 A	Criteria A
1 m x 1 m	Y	4	30 A/m	34,48 A	Criteria A
1 m x 1 m	Z	4	30 A/m	34,48 A	Criteria A

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### 3. Voltage dips, short interruptions and voltage variations immunity tests

#### 3.1 Voltage dips immunity tests

BDS EN 61000-4-11 τ. 7 – Test setup

BDS EN 61000-4-11 τ. 8 – Test procedure

BDS EN 61000-4-11 τ. 8.2.1 – Testing for each selected combination of test level and duration with a sequence of three dips with intervals of 10 s minimum (between each test event)

Measurement uncertainty: Deviation of output voltage :  $\pm 5\%$

Performance Criteria according to cl.4.2  
and Table 4 of BDS EN 61000-6-2

Criteria B for 0 %  
Criteria C for 40 %  
Criteria C for 70 %

Voltage test levels ( % of rated voltage)	Duration (cycles)	Phase angle synchronization	Result
0 %	1 cycle	0°	Criteria A
40 %	10 cycles	0°	Criteria A
70 %	25 cycles	0°	Criteria A

#### 3.2 Short interruptions immunity tests

BDS EN 61000-4-11 τ. 7 – Test setup

BDS EN 61000-4-11 τ. 8 – Test procedure

BDS EN 61000-4-11 τ. 8.2.1 – Testing for each selected combination of test level and duration with a sequence of three interruptions with intervals of 10 s minimum (between each test event)

Measurement uncertainty: Deviation of output voltage :  $\pm 5\%$

Performance Criteria according to cl.4.3  
and Table 4 of BDS EN 61000-6-2

Criteria C

Voltage test levels ( % of rated voltage)	Duration (cycles)	Phase angle synchronization	Result
0 %	250 cycles	0°	Criteria C

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**USED TECHNICAL EQUIPMENTS:**

	<b>Appliance</b>	<b>Type</b>	<b>Manufacturer</b>	<b>Identity №</b>	<b>Last calibration date</b>
1.	Digital multimeter	UNIGOR 390	LEM Austria	PI 3288	20.03.2017
2.	Thermometer-higrometer	177-H1	TESTO Germany	01320300/902	17.04.2018
3.	EMI – receiver 9 kHz ÷ 1000 MHz	SCR 3501	Schaffner Electrotest GmbH, Germany	522	21.08.2017
4.	Line impedance stabilisation networks	NNB 52	TESEQ Switzerland	26326	15.08.2017
5.	ESD - Generator	NSG438	TESEQ Switzerland	988	12.04.2018
6.	Power Quality Analyzer	435	Fluke Netherlands	DM 9881064	20.10.2017
7.	Voltage Generator	GL 01-16-230	Neosvet Bulgaria	0001	-

**TEST PERFORMER: 1.** .....

/ D. Chavalinov /



**2.** .....

/ T. Hristov /

**HEAD OF THE LABORATORY :** .....

/ T. Hristov /

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