

RC-032-PNE-09-101664-1-A

"This report cancels and replaces the test report N° RC-032-PNE-09-101664-1-A Edition 0"

E.M.C Test Report

According to the standard:
FCC PART 15 : 2008

Equipment under test:
Electrostatic remote control training collar EFFITEK


Company:
DYNAVET S.A.S

FCC listed: 910 701

DISTRIBUTION: Mr FOURNIER

(Company: DYNAVET S.A.S.)

Number of pages: 23 with 4 annexes

Ed.	Date	Modified page (s)	Written by		Technical Verification and Quality	
			Name	Visa	Name	Visa
1	29/10/09	3 ; 4	F. LHEUREUX FL		C. FOURCADE 	

Duplication of this document is only permitted for an integral photographic facsimile. It includes the number of pages referenced here above.
This document is the result of testing a specimen or a sample of the product submitted. It does not imply an assessment of the conformity of the whole production to the item tested.

EMITECH C129 Rév.0



TEST CERTIFICATION FOR : FCC Certification

NAME OF THE EQUIPMENT UNDER TEST : Electrostatic remote control training collar EFFITEK

Type : Not communicated

Serial number : 17 (Transmitter)
15 (Receiver)

NAME OF THE MANUFACTURER : DYNAVET S.A.S.

ADDRESS OF THE APPLICANT:

Company : DYNAVET S.A.S.

Address : 51 rue Chappe
63051 CLERMONT FERRANT Cedex 02
FRANCE

Person in charge : Mr FOURNIER

Person present during the test : Mr AZAM

DATE OF TEST : 10/06/2009

TEST LOCATION : Open area test site in Aunainville (28) - FRANCE

TEST OPERATOR : F. LHEUREUX

TABLE OF CONTENTS

1.	<i>INTRODUCTION</i>	4
2.	<i>REFERENCE DOCUMENTS</i>	4
3.	<i>SUMMARY OF TEST RESULTS</i>	5
4.	<i>INTENTIONAL RADIATED EMISSIONS</i>	6
5.	<i>UNINTENTIONAL RADIATED EMISSIONS</i>	8

ANNEX 1: Antennas factors, insertion losses and amplifier values

ANNEX 2: External and internal photographs

ANNEX 3: Test setup photographs

ANNEX 4: Calibration date

1. INTRODUCTION

This document submits the results of Electromagnetic Compatibility tests performed on the equipment «**Electrostatic remote control training collar EFFITEK**» herein referred to as the EUT, according to the documents listed below.

2. REFERENCE DOCUMENTS

FCC Part 15 : 2008:

Code of federal regulations

Title 47- Telecommunication

Chapter 1- Federal Communication Commission

Part 15- Radio frequency devices

Subpart B- Unintentional Radiators

Limits and methods of measurement of radio disturbance

Characteristic of information technology equipment.

ANSI C63.4 : 2003

Methods of Measurement of Radio-Noise Emissions from Low-voltage Electrical and Electronics Equipment in the range of 9 kHz to 40 GHz.

Modification of the equipment during the test: No

3. SUMMARY OF TEST RESULTS

The following table summarizes test results of the EUT.

Designation of test	Test results				Comments
	Pass	Fail	N.A.	N.P.	
Intentional radiated emissions	x				Section 15.249 (a)
Unintentional radiated emissions	x				Section 15.249 (d) and 15.209
Conducted emissions			x		Section 15.207

N.A.: Not Applicable

N.P.: Not Performed

The tested sample "Electrostatic remote control training collar EFFITEK" complies with the requirements of the standard:

- FCC PART 15:2008

According to the limits specified in the present report.

4. INTENTIONAL RADIATED EMISSIONS

Standard: FCC PART 15:2008

Section: 15.249 (a)

Equipment under test arrangement

The equipment under test (EUT) is placed on a non-conductive test table at 0.8 m above the horizontal metal ground plane.

For maximum meter reading at each frequency, the antenna height is adjusted between 1 m and 4 m above the ground plane. A 360 degrees rotation of the EUT is performed in vertical and horizontal polarization. The frequency, azimuth and antenna height are presented in the table on the next page. Only the highest level is recorded.

Frequency range: 902 MHz - 928 MHz

Detection mode: Quasi-peak

Resolution bandwidth: 120 kHz

Measurement distance: 3 meters.

Limit:

94.0 dB μ V/m at 3 meters.

Operating mode during the test:

The transmitter is in permanent transmission without modulation.

Instrumentation test list:

Meter	Nr Emitech	Category	Brand	Type
3106	24/571	Antenna	Schwarzbeck	UHALP 9108
2341	19/018	Antenna mast	HD GmbH	MA 240
2450	35/070	Cable	Cables & Connectiques	HF 12m
2451	35/071	Cable	Cables & Connectiques	HF 2m
2452	35/072	Cable	Cables & Connectiques	HF 13m
2342	19/019	Mast controller	HD GmbH	HD 100
187	16/004	Open site	Emitech	Aunainville
1057	02/045	Receiver	Rohde & Schwarz	ESVP

Results:

FREQUENCY (MHz)	ANTENNA POLARIZATION	ANTENNA HEIGHT (cm)	AZIMUTH (degrees)	MEASUREMENT (dB μ V/m)	LIMIT (dB μ V/m)	MARGIN (dB)
916.010	Vertical	187	13	84.8	94,0	9.2
	Horizontal	109	298	93.1	94,0	0.9

Observation during the test:

The equipment complies with the requirements of the standard FCC PART 15:2008.

5. UNINTENTIONAL RADIATED EMISSIONS

Standard: FCC PART 15:2008

Section: 15.209
15.249 (d)

Equipment under test arrangement:

The equipment under test (EUT) is placed on a non-conductive test table at 0.8 m above the horizontal metal ground plane.

For maximum meter reading at each frequency, the antenna height is adjusted between 1 m and 4 m above the ground plane. A 360 degrees rotation of the EUT is performed in vertical and horizontal polarization. The frequency, azimuth and antenna height are presented in the table on the next pages.

Frequency range: 30 MHz - 9.15 GHz

Detection mode: Quasi-peak (for 30 MHz - 1 GHz)
Average for 1 GHz - 9.15 GHz

Resolution bandwidth: 120 kHz (for 30 MHz - 1 GHz)
1 MHz for 1 GHz - 9.15 GHz

Measurement distance: 3 meters (for 30 MHz - 1 GHz)
3 meters for 1 GHz - 9.15 GHz

Limit: The EUT must satisfy requirements of the section 15.249 (d):

- For harmonic of fundamental frequency: 54 dB μ V/m
- For emission radiated outside of specified frequency band: 44 dB μ V/m or the general radiated emission limit of 15.209

Operating mode during the test:

The transmitter is in permanent transmission without modulation.

The receiver is in standby mode.

Instrumentation test list:

Meter	Nr Emitech	Category	Brand	Type
3106	24/571	Antenna	Schwarzbeck	UHALP 9108
3374	24/604	Antenna	Emco	3115
2341	19/018	Antenna mast	HD GmbH	MA 240
317	24/051	Antenne	Schwarzbeck	Biconique VHA9103
2450	35/070	Cable	Cables & Connectiques	HF 12m
2451	35/071	Cable	Cables & Connectiques	HF 2m
2452	35/072	Cable	Cables & Connectiques	HF 13m
2864	35/241	Cable	Cables & Connectiques	N-SMA
2896	35/273	Cable	Cables & Connectiques	N-13m
1529	18/133	Filtre	Trilithic	Passe haut
4691	18/440	Filtre	Micro-tronics	Passe haut
1097	18/082	High pass filter	Trilithic	6HC1300-2.5-KK
2342	19/019	Mast controller	HD GmbH	HD 100
187	16/004	Open site	Emitech	Aunainville
3229	01/127	Preamplifier	Miteq	AMF-6D-010250-70-7P
1057	02/045	Receiver	Rohde & Schwarz	ESVP
5175	02/121	Spectrum analyser	Rohde & Schwarz	R&S FSP40

Results:**For transmitter**

See table next page.

For receiver

No significant frequency has been found.

Observation during the test:

The equipment complies with the requirements of the standard FCC PART 15:2008.

TEST SITE: Open area test site

TABLE 1

RADIATED EMISSION: Electric field

STANDARD: FCC Part 15 : 2008

TEST DISTANCE: 3 m (for 30 MHz - 1 GHz)
3 m (for 1 GHz - 9.15 GHz)

FREQUENCY (MHz)	POLARITY	ANTENNA HEIGHT (cm)	AZIMUTH (degrees)	MEASUREMENT (dBμV/m)	LIMIT (dBμV/m)	MARGIN (dB)
1832.01	V	136	185	46.2	54	7.8
1832.03	H	102	114	48.4	54	5.6
2748.04	V	188	142	35.3	54	18.7
2747.98	H	205	111	35.5	54	18.5

« □□□ End of report, 4 annexes to be forwarded □□□ »

ANNEX 1:

ANTENNA FACTORS, INSERTION LOSSES AND AMPLIFIER VALUES

BILL OF MATERIAL

The test antenna used for the radiated emission between 30 MHz and 200 MHz is the biconical antenna n°317. Antenna factors are given in table 1.

The test antenna used for the radiated emission between 200 MHz and 1 GHz is the log-periodic antenna n°3106. Antenna factors are given in table 2.

The measuring receiver n°1057 used in the frequency range 30 MHz to 1 GHz has an integrated preamplifier.

The test cable used between 30 MHz and 1 GHz to connect the antennas to the receiver for measurements at a distance of 3 meters has losses given in table 3.

The test antenna used for the radiated emission between 1 GHz and 10 GHz is the horn antenna n°3374. Antenna factors are given in table 4 and 5.

The amplifier n°3229 and its cable used to connect the spectrum analyzer to the test cable has gain values given in the table 6.

The test cable used between 1 GHz and 10 GHz to connect the horn antenna to the amplifier for measurements at a distance of 3 meters has losses given in table 7.

Frequency (MHz)	Antenna factor (dB/m)	Frequency (MHz)	Antenna factor (dB/m)
30	12.5	90	9.5
35	10.4	100	10.0
40	9.3	120	10.9
45	8.9	140	11.1
50	8.4	160	12.9
60	8.5	180	14.1
70	8.5	200	15.8
80	9.2	-	-

TABLE 1 : BICONICAL ANTENNA

Frequency (MHz)	Antenna factor (dB/m)	Frequency (MHz)	Antenna factor (dB/m)
200	23.2	700	20.8
300	14.4	800	21.2
400	16.3	900	21.9
500	17.7	1000	22.5
600	19.3	-	-

TABLE 2 : LOG-PERIODIC ANTENNA

Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)
30	0.8	160	2.0
35	0.9	180	2.2
40	1.0	200	2.3
45	1.1	300	2.8
50	1.1	400	3.3
60	1.2	500	3.7
70	1.3	600	4.0
80	1.4	700	4.3
90	1.5	800	4.7
100	1.6	900	5.0
120	1.7	1000	5.3
140	1.9	-	-

TABLE 3 : TEST CABLE FOR 3M MEASUREMENT INTO 30MHz and 1GHz

Frequency (GHz)	Antenna factor (dB/m)	Frequency (GHz)	Antenna factor (dB/m)
1.0	23.6	6.0	34.4
1.5	25.2	6.5	34.2
2.0	27.5	7.0	35.3
2.5	29.0	7.5	36.7
3.0	29.9	8.0	36.9
3.5	31.1	8.5	37.6
4.0	32.6	9.0	38.0
4.5	32.3	9.5	37.9
5.0	33.5	10.0	38.3
5.5	34.2	-	-

TABLE 4 : HORN ANTENNA 3374 (1 to 18 GHz)

Frequency (GHz)	Gain value (dB)	Frequency (GHz)	Gain value (dB)	Frequency (GHz)	Gain value (dB)
1.0	35.3	7.0	34.7	14	33.6
1.5	35.6	8.0	34.2	15	34.5
2.0	35.9	9.0	33.3	16	33.1
2.5	35.8	10.0	31.9	17	34.2
3.0	35.6	11.0	32.0	18	34.4
4.0	35.5	12.0	32.8	20	33.5
5.0	35.9	13.0	33.1	22	31.6
6.0	35.2	-	-	-	-

TABLE 5 : AMPLIFIER (1 – 26 GHz)

Frequency (GHz)	Loss (dB)	Frequency (GHz)	Loss (dB)
1.0	2.7	4.0	5.7
1.5	3.3	4.5	6.1
2.0	3.9	5	6.6
2.5	4.3	6	7.4
3.0	4.8	8	8.9
3.5	5.2	10	10.5

TABLE 6: TEST CABLE FOR 3 M MEASUREMENT

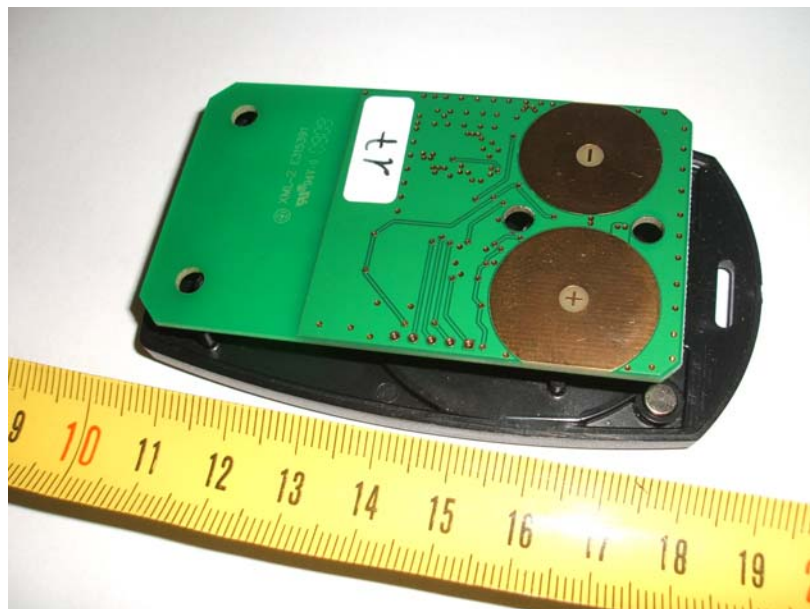
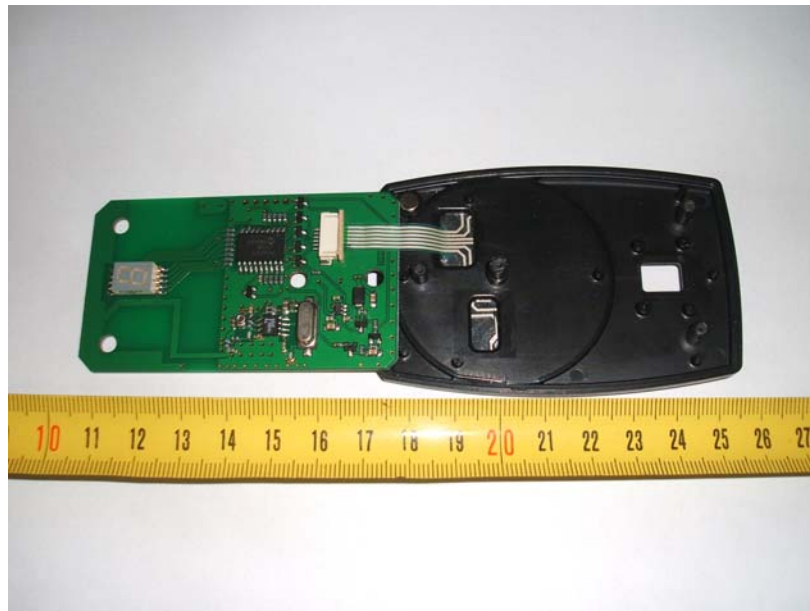
ANNEX 2

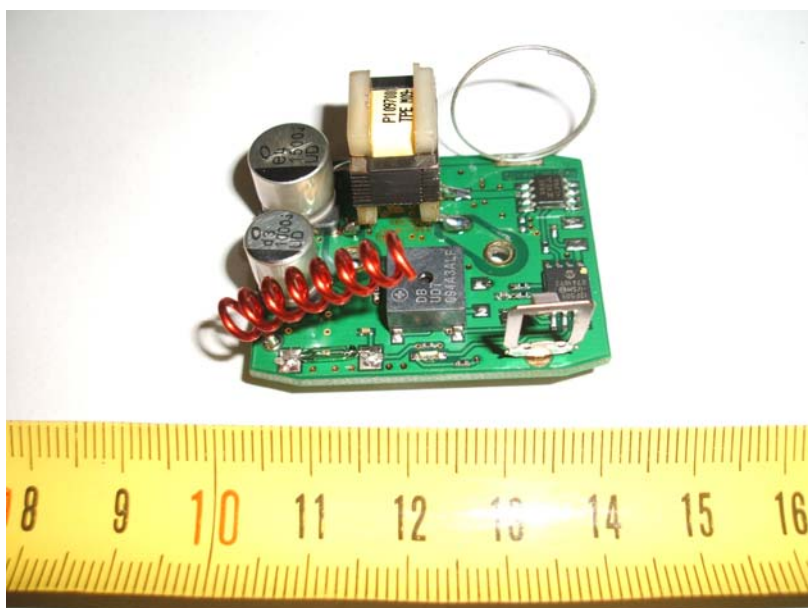
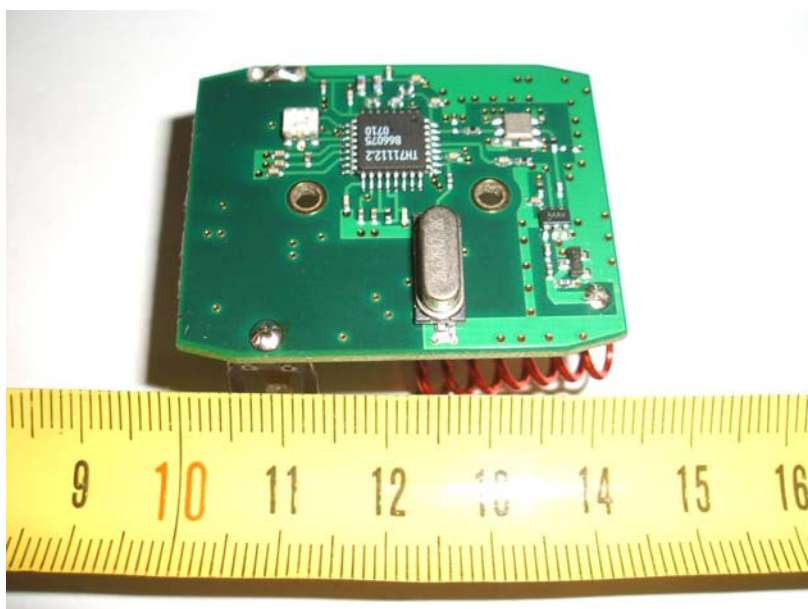
EXTERNAL AND INTERNAL PHOTOGRAPHIES

EQUIPMENT UNDER TEST (EUT) PHOTOGRAPHIES

Electrostatic remote control training collar EFFITEK







ANNEX 3:

TEST SETUP PHOTOGRAPHIES





ANNEX 4:

CALIBRATION DATE

N° EMITECH	LAST CALIBRATION	CALIBRATION DUE DATE
3374	04/03/08	04/03/10
2896	06/01/09	06/01/11
1097	26/02/09	26/02/11
187	18/06/07	18/06/09
5175	17/09/07	17/09/09
3106	09/03/09	09/03/11
317	18/06/07	18/06/09
2450	13/03/09	13/03/11
2451	28/05/08	28/05/10
2452	11/06/08	11/06/10
1529	26/02/09	26/02/11
4691	26/02/09	26/02/11
3229	08/04/09	08/04/10
1057	04/07/07	04/07/09
2864	06/01/09	06/01/11