

RADIO TEST REPORT

According to the standard(s):

FCC part 15 (02/2006)

Equipment under test:

Remote control for Sensor Espio-pool alarm
ref TEL-007-M

FCC ID: UQJ - 070



Company:

MG International

Diffusion: Mr CHAUSSIN

(Company: MG International)

Number of pages: 16 including 3 annexes

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NAME OF THE EQUIPMENT UNDER TEST (E.U.T.) : Remote control for Sensor Espio-pool alarm
ref TEL-007-M

Serial number : None

Part number : None

Software Version : None

MANUFACTURER'S NAME : MG International

APPLICANT'S ADDRESS:

Company : MG International

Adress : Zone Industrielle Athelia II
Avenue de la Sariette
13600 LA CIOTAT
FRANCE

Person(s) present during the tests : Nobody

Responsible : Mr CHAUSSIN

DATE(S) OF TESTS : March, the 3rd and the 5th of 2007

TESTS LOCATION(S) : EMITECH Grand Sud laboratory in Vendargues (34)
Open area test site in Salinelles (30)
FCC Registration Number: 812719

TESTS SUPERVISOR(S) : None

TESTS OPERATOR(S) : Régis GONZALEZ

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1. INTRODUCTION

This document submits the results of Radio tests performed on the equipment Remote control for Sensor Espio-pool alarm ref TEL-007-M (denominated hereafter E.U.T.: equipment under test) according to document(s) listed below.

2. REFERENCE DOCUMENT(S)

FCC Part 15 (02/2006)	Code of Federal Regulations Title 47 – Telecommunications Chapter 1 – Federal Communications Commission Part 15 – Radio frequency devices Subpart C – Intentional Radiators
ANSI C 63.4 (03)	American National Standard for Methods of measurement of Radio-Noise from low-voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

3. EQUIPMENT UNDER TEST CONFIGURATION

Equipment under test (E.U.T.) general description: Remote control for detector of immersion type Sensor Espio for swimming-pool

Equipment control procedure during immunity tests: N.A. emission test only

Susceptibility criteria during a continuous disturbance: N.A. emission test only

Susceptibility criteria during a transitory disturbance: N.A. emission test only

Cycle and operating mode during emission tests: Permanent no modulated emission excepted for bandwidth measurement

Equipment modifications applied during tests: No

N.A.: Not applicable

4. EQUIPMENT CHARACTERISTIC

FCC ID: UQJ-070

ITU emission code: 42K0F1D

Utilization: Remote control for Swimming-pool alarm system

Antenna type: Integrated wire antenna

Operating frequency: 433.245 MHz

Number of channels: 1

Channel spacing: Not concerned

Frequency generation: ☐ SAW Resonator ☐ Crystal ☒ Synthesizer

Modulation: ☐ Amplitude (pulsed modulated device) ☐ Digital ☒ Frequency ☐ Phase

Power source: 1 x CR2032 (3 V)

5. EQUIPMENT UNDER TEST CONFIGURATION SCHEME

Equipment is set out on a wooden table at 0.8 m of the ground plane (see Photographs in annex 1).

6. SUMMARY OF TEST RESULTS

Tests designation or section	Results satisfying?	Comments
15.33 Frequency range of radiated measurement	-	Considered
15.35 Measurement detector functions and bandwidths	-	Considered
15.203 Antenna requirement	YES	Nota 1
15.205 Restricted bands of operation	YES	
15.209 Radiated emission limits, general requirements	YES	Considered
15.231 Periodic operation in the band 40.66 – 40.70 MHz and above 70 MHz		
a) Transmission requirements	YES	Nota 2
b) Radiated emission	YES	Nota 3
c) Occupied bandwidth	YES	Nota 4
d) Frequency tolerance	N.A.	E.U.T. does not transmit in the band 40.60 – 40.70 MHz
e) Periodic alternate field strength measurement	N.A.	Requirements of a) is used

N.P.: Not Performed.

N.A.: Not Applicable.

Sample submitted to the tests complies with the regulations of the standard FCC part 15 (02/2006) according to limits specified in this tests report.

Nota 1: Internal antenna without connector

Nota 2: Manually operated transmitter with a duration less than 5s (see Photograph(s) in annex 3).

Nota 3: Calculation of field strength limit of fundamental (433.245 MHz):
 $41.6667 \text{ (F)} - 7083.3333 = 10\,968 \text{ } \mu\text{V/m} = 80.8 \text{ dB}\mu\text{V/m}$

Nota 4: The bandwidth of the emission at 20 dBc is 41.30kHz (see Graph(s) in annex 2), less than 0.25 % of the center frequency (1083 kHz)

7. RADIATED ELECTRIC FIELD MEASUREMENT

Standard: FCC part 15 (02/2006)

Test method: ANSI C 63.4:2003

Measurement on open area test site:

Test configuration: For each measured frequency, receiving antenna height varies between 1 m and 4 m, E.U.T. is set on a turntable in order to find the highest level.

Frequency band	Initial position (0°)	Resolution bandwidth	Measuring distance	Detection mode	E.U.T. height
30MHz-1GHz	0° is the front side	120kHz	3m	Peak	80cm
> 1GHz	0° is the front side	1 MHz	3m	Peak	80cm

Test method deviation: No

Test equipment list:

CATEGORY	BRAND	MODEL NUMBER	N° EMITECH
Horn antenna	Emco	RGA-60 (3115)	1053
Log-periodic antenna	Rohde & Schwarz	HL223	3126
OATS	Emitech	Salinelles	3482
Preamplifier	Microwave	C005180F-4B1	2165
Spectrum analyzer	Agilent Technologies	E7405A	2161

Results: See Board(s) below (only highest levels are recorded)

HORIZONTAL POLARIZATION

Frequency (MHz)	Azimut (degrees)	Antenna Height (cm)	Measure (dB μ V/m) without DCF	Duty Cycle Factor (*) (dB)	Standard limit (dB μ V/m)	Comments
Fundamental 433.24	190	100	63.80	0	80.80	C
866.49	190	100	26.50	0	60.80	C
1299.74	320	100	29.80	0	60.80	C
1732.98	170	116	37.50	0	60.80	C
2166.23	0	124	38.90	0	60.80	C
2599.47	0	103	50.40	0	60.80	C
3032.72	30	140	43.70	0	60.80	C
3465.96	30	122	46.30	0	60.80	C
3899.21	30	138	48.10	0	60.80	C
4332.45	30	153	45.60	0	54.00 (**)	C

C: Compliant

NC: Not Compliant

VERTICAL POLARIZATION

Frequency (MHz)	Azimut (degrees)	Antenna Height (cm)	Measure (dB μ V/m) without DCF	Duty Cycle Factor (*) (dB)	Standard limit (dB μ V/m)	Comments
Fundamental 433.24	110	290	75.30	0	80.80	C
866.49	0	200	45.50	0	60.80	C
1299.74	120	100	41.80	0	60.80	C
1732.98	170	100	50.50	0	60.80	C
2166.23	111	135	41.90	0	60.80	C
2599.47	105	100	59.60	0	60.80	C
3032.72	105	142	48.70	0	60.80	C
3465.96	105	128	47.30	0	60.80	C
3899.21	105	151	54.10	0	60.80	C
4332.45	170	140	45.60	0	54.00 (**)	C

C: Compliant

NC: Not Compliant

(*) Duty Cycle correction Factor is 0 dB

(**) Restricted band of operation (15.205)

□□□ End of report – 3 annexes to be forwarded □□□

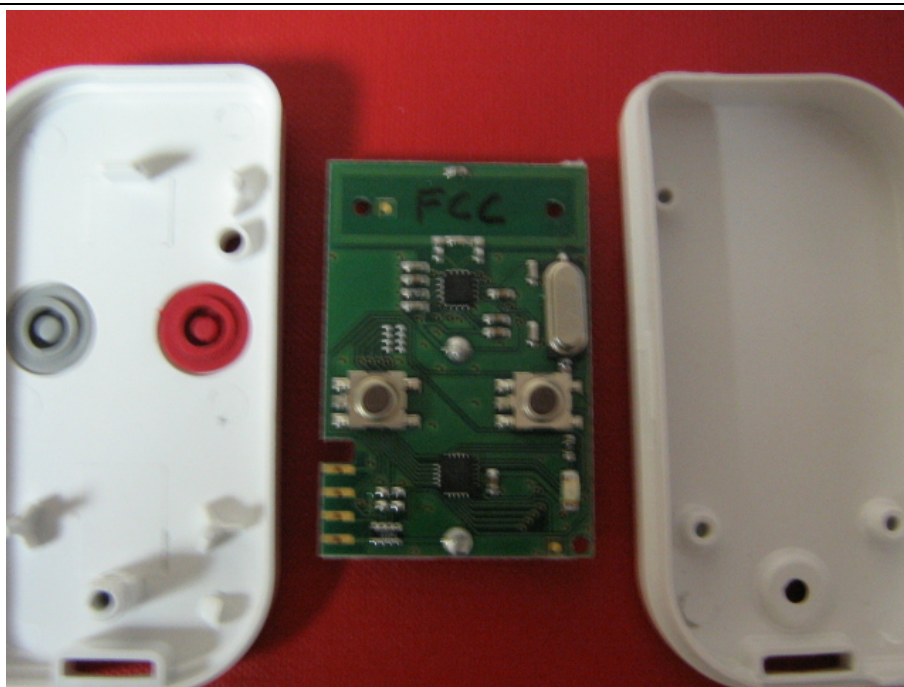
ANNEX 1: PHOTOGRAPH(S)

EQUIPEMENT UNDER TEST (E.U.T.) PHOTOGRAPH(S)

Remote control for Sensor Espio-pool alarm
ref TEL-007-M

E.U.T.	
	

E.U.T. Photograph(s)
(internal view)



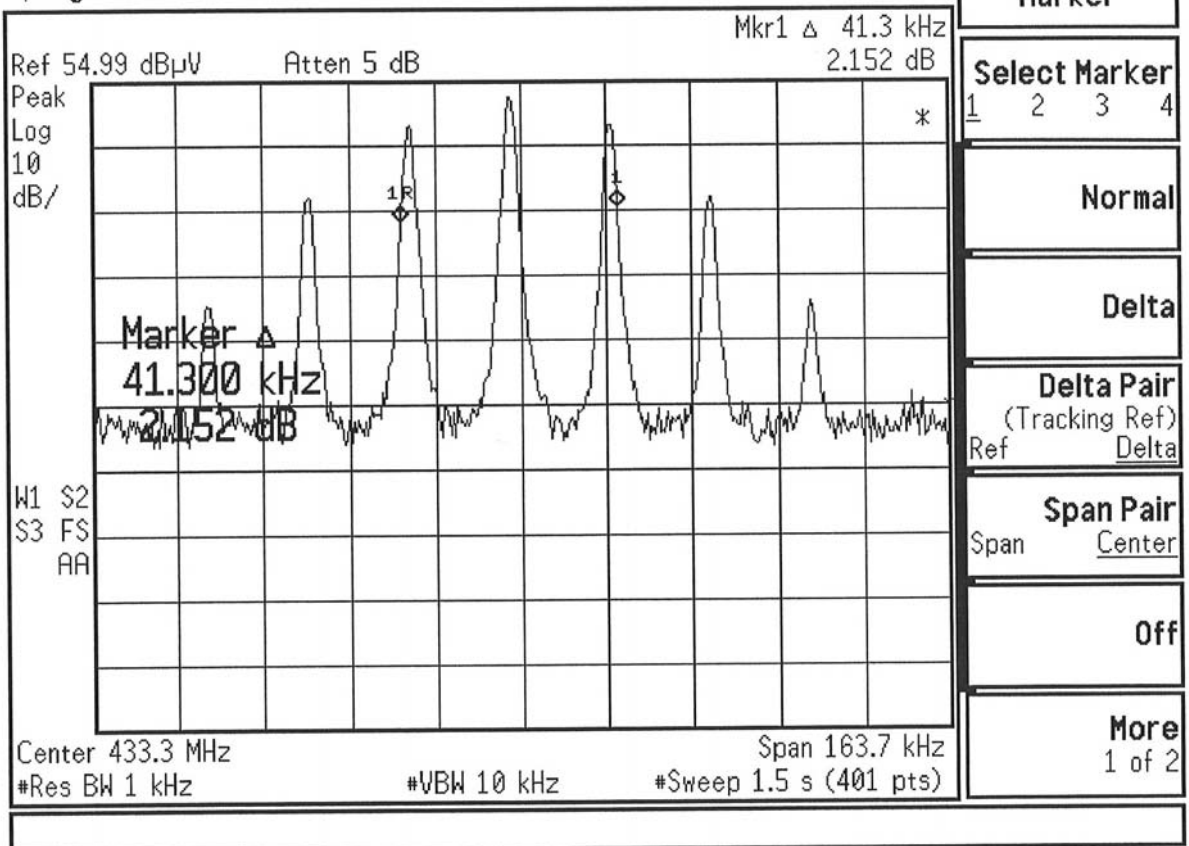
Radiated electric
emission
(measurement in
OATS)



ANNEX 2:

EMISSION BANDWIDTH

* Agilent 16:18:30 Mar 5, 2007



ANNEX 3:

MANUALLY OPERATED

TRANSMISSION

DURATION

