Independent Testing Laboratory
CMC Centro Misure Compatibilità S.r.l.
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Accredited by Ministry of Communications – Notified Body EMC Directive 2004/108/EC n° NB 2044

TEST REPORT nr. R12095601

Federal Communication Commission (FCC)

Test item

Description.....: REMOTE CONTROL
Trademark.....: AUTOMATISMI BENINCA'
Model/Type.....: TO.GO2WVFCC

Test Specification

Standard .....: FCC Rules & Regulations, Title 47 (2011)
Part 15 paragraph(s) : 203, 204,207, 209 and 231

Client's name.....: AUTOMATISMI BENINCA' S.p.A.
Address .....: Via Capitello, 45 - 36066 Sandrigo (VI) – ITALY

Manufacturer's name.: Same as client
Address .....: --

Report

Tested by.....: G. Gandini - *Technician*

Approved by.....: R. Beghetto - *Laboratory Manager*

Date of issue.....: 07.09.12
Contents .....: 20 pages

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1. Summary

Emission: FCC Rules & Regulations, Title 47 (2011)

Test specifications	Environmental Phenomena	Tests sequence	Result
Part 15.203 and 15.204	Antenna Requirement	1	Complies
Part 15.207	Conducted Emission	--	N.A. (+)
Part 15.209 and 15.231	Radiated Emission	2	Complies
Part 15.209 and 15.231	Bandwidth of emission	3	Complies

(+) Apparatus with 12Vdc of power supply from internal battery

The Test Report was given to the Client representatives for necessary documentation of ratification of the tested equipment and it is valid for the FCC certification.

2. Description of Equipment under test (EUT)

Power supply	:	12Vdc from internal battery
Type of equipment	:	☑ Transmitter Unit ☐ Receiver Unit ☐ Fixed station ☑ Portable station ☐ Mobile station
Receiver class	:	--
Working Frequency	:	433,92 MHz
Number of channels	:	--
Channel separation	:	--
Modulation	:	--
Extreme conditions	:	--
Maximum transmitter output power	:	--

2.1 Test Site

Company	:	CMC Centro Misure Compatibilità S.r.l.
Address	:	Via dell'Elettronica, 12/C – 36016 Thiene (VI) – ITALY

3. Testing and sampling

Date of receipt of test item	:	19.06.12
Testing start date	:	19.06.12
Testing end date	:	20.06.12
Samples tested nr.	:	1
Sampling procedure.	:	Equipment used for testing was picked up by the manufacturer, at the end of the production process with random criterion
Internal identification	:	Adhesive label with the product number P120680

4. Operative conditions

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5. Photograph(s) of EUT

6. Equipment list

Id. number	*Manufacturer*	*Model*	*Description*	*Serial number*	*Last calibration*	*Due date calibration*
CMC S108	Emco	3115	Horn antenna	9811-5622	April '10	April '13
CMC S136	Schwarzbeck	VULB 9163	Broadband Antenna	9136-205	May '10	May '13
CMC S164	Rohde & Schwarz	ESU26	EMC interference receiver	100052	January '12	January '13
CMC S129	Rohde & Schwarz	ESPI7	Receiver	836.914/004	January '12	January '13

7. Measurement uncertainty

Test	Expanded Uncertainty	note
Conducted Emission		
(50Ω/50µH AMN) - (9 kHz – 150 kHz)	±3.8 dB	1
(50Ω/50µH AMN) - (150 kHz – 30 MHz)	±3.4 dB	1
(Voltage probe) - (150 kHz – 30 MHz)	±3.0 dB	1
(50Ω/5µH AMN) - (150 kHz – 108 MHz)	±3.2 dB	1
DiscontinuousConducted Emission		
Conducted Emission (50Ω/50µH AMN) - (9 kHz – 150 kHz)	±3.8 dB	1
Conducted Emission (50Ω/50µH AMN) - (150 kHz – 30 MHz)	±3.4 dB	1
Disturbance Power (30 MHz – 300 MHz)	±3.2 dB	1
Radiated Emission		
(0,150 MHz – 30 MHz)	±4.5 dB	1
(30 MHz – 1000 MHz)	±4.8 dB	1
(1 GHz – 6 GHz)	±4.4 dB	1
Electromagnetic field EMF	±18.8 dB	1
Harmonic current emissions test	±2.4 %	1
Voltage fluctuation and flicker test	±6.0 %	1
Insertion loss test	±2.6 %	1
Radiated electromagnetic disturbance test (loop antenna)	±2.5 %	1
Radiated electromagnetic field immunity test	0.9 V/m at 3V/m	1
Pulse modulated radiated electromagnetic field immunity test	0.9 V/m at 3V/m	1
Injected currents immunity test	0.6 V at 3V	1
Bulk current	9 mA at 60 mA	1
Power frequency magnetic field immunity test	0.3 A/m at 3 A/m	1
Electrostatic discharge immunity test		2
Electrical fast transients / burst immunity test		2
Surge immunity test		2
Short interruption immunity test		2
Voltage transient emission test	±5 %	1
Transient immunity test		2

Notes

Note 1:
The expanded uncertainty reported according to EN55016-4-2(2004-10) is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of p = 95%

Note 2:

It has been demonstrated that the used test equipment meets the specified requirements in the standard with at least a 95% confidence, covering factor k = 2.

8. eference documents

Reference no.	*Description*
FCC Rules and Regulation Title 47 part 15 (2011)	--
ANSI C63.4	American National Standard for Methods of Measuring of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz – 40GHz
Internal Procedure PM001 rev. 2.0 (Quality Manual)	Measure Procedure
Internal procedure INC_M rev. 8.1 (Quality Manual)	Measurement uncertainty calculation

9. Deviation from test specification

In agreement with the client, emission tests were performed with peak detector .
At the frequencies where the measures exceed the limit or within 6dB from it, the test was repeated with quasi-peak detector and/or average detector.

10. Test case verdicts

Test case does not apply to the test object..... : N / N.A.

Test item does meet the requirement..... : P / Pass / Complies

Test item does not meet the requirement..... : F / Fail / Does not comply

Test not performed ..... : NE / Not Executed

11. Results

In this clause tests results are reported.

Measurement uncertainty is in accordance with document CMC INC_M rev. 8.1.

11.1 Antenna Requirements

Test configuration and test method

Test site	Laboratory
Auxiliary equipment	See clause 4 of this test report

Environmental conditions

Temperature	20	ºC	Atmospheric pressure	98	kPa	Relative humidity	50	%

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.203 and 15.204
- Internal Procedure PM001
- See clause 4 of this test report

Test Requirements

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.
The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

Test specification

Port: Antenna.

EUT exercising

See clause 4 of this test report

Result

Antenna Type	*External R.F. power amplifier*	*Remarks*	*Results*
Integral antenna	Not Present	--	Complies

Remarks

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Reference documents

See clause 8 of this test report

Result

The requirements are met

11.2 Radiated Emission 30-1000 MHz

Test configuration and test method

Test site: Laboratory
Auxiliary equipment: See clause 4 of this test report

Environmental conditions

Temperature 22 ºC Atmospheric pressure 98 kPa Relative humidity 48 %

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.209 and 15.231a
- Internal Procedure PM001
- See clause 4 of this test report

Test specification

Port: Encosure.

EUT exercising

See clause 4 of this test report

Result

Polarization	Frequency Range (MHz)	Graph(s)	Remarks	Result
Horizontal	30 – 1000	G12095601	--	Complies
Vertical	30 – 1000	G12095602	--	Complies

Frequency (MHz)	*Final Measurement QP level (dBµV/m)*	*Remark*	*Results*
434,000	80,43	Limit: 80,58dBµV/m	Complies

Remarks EUT was tested in 3 orthogonal planes. In results table are reported the worst case.

Reference documents

See clause 8 of this test report

Test equipment used (Id number – see clause 6 of this test report)

CMC S136, CMC S164
Measurement uncertainty: See clause 7 of this test report

Result The requirements are met

11.3 Spurious Emission

Test configuration and test method

Test site: Laboratory
Auxiliary equipment: See clause 4 of this test report

Environmental conditions

Temperature 22 ºC Atmospheric pressure 98 kPa Relative humidity 50 %

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.209 and Part 15.231a
- Internal Procedure PM001
- See clause 4 of this test report

Test specification

Port: Antenna;

EUT exercising

See clause 4 of this test report

Result

Nr. *Harmonics*	*Final Measurement AV level (dBµV/m)*	*AV Limits* *(dBµV/m)*	*Remarks*
III Harmonic	More than 10dB below limit	54,0	--
IV Harmonic	More than 10dB below limit	54,0	--
V Harmonic	More than 10dB below limit	54,0	--
VI Harmonic	More than 10dB below limit	54,0	--
VII Harmonic	More than 10dB below limit	54,0	--
VIII Harmonic	More than 10dB below limit	54,0	--
IX Harmonic	More than 10dB below limit	54,0	--
X Harmonic	More than 10dB below limit	54,0	--
Graphs G12095603 and G12095604			
Measurement Uncertainty: ±4dB			

Remarks EUT was tested in 3 orthogonal planes. In results table are reported the worst case.

Reference documents See clause 8 of this test report

Test equipment used (Id number – see clause 6 of this test report)

CMC S108, CMC S136, CMC S164

Result The requirements are met

11.4 20dB Bandwidth of emission

Test configuration and test method

Test site: Laboratory
Auxiliary equipment: See clause 4 of this test report

Environmental conditions

Temperature	22	ºC	Atmospheric pressure	99	kPa	Relative humidity	50	%

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.209 and 15.231c
- Internal Procedure PM001
- See clause 4 of this test report

Test specification

Port: Enclosure.

EUT exercising

See clause 4 of this test report

Acceptance limits

LIMITS
0.25% of the center frequency

Result

Port	*Bandwidth*	*Graphs*	*Results*
Enclosure	460,819 kHz	G12085606	Complies

Remarks ////////////

Reference documents See clause 8 of this test report

Test equipment used (Id number – see clause 6 of this test report)

CMC S136, CMC S164

Result The requirements are met

11.5 Periodic Operation Characteristics

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 15.231
- Internal Procedure PM001
- See clause 4 of this test report

Test specification

15.231(a) The provisions of this Section are restricted to periodic operation within the band 40.66 - 40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this Section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Continuous transmissions, voice, video and the radio control of toys are not permitted. The prohibition against data transmission does not preclude the use of recognition codes. Those codes are used to identify the sensor that is activated or to identify the particular component as being part of the system.

Result: The requirements are met

Test specification

15.231(a1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

Result: Transmitter ceases immediately after being released. The requirements are met (See graphs G12095610)

Test specification

15.231(a2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.

Result: The EUT does not have automatic transmission.

Test specification

15.231(a3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions, including data, to determine system integrity of transmitters used in security or safety applications are allowed if the total duration of transmissions does not exceed more than two seconds per hour for each transmitter. There is no limit on the number of individual transmissions, provided the total transmission time does not exceed two seconds per hour.

Result: The EUT does not employ periodic transmission.

Test specification

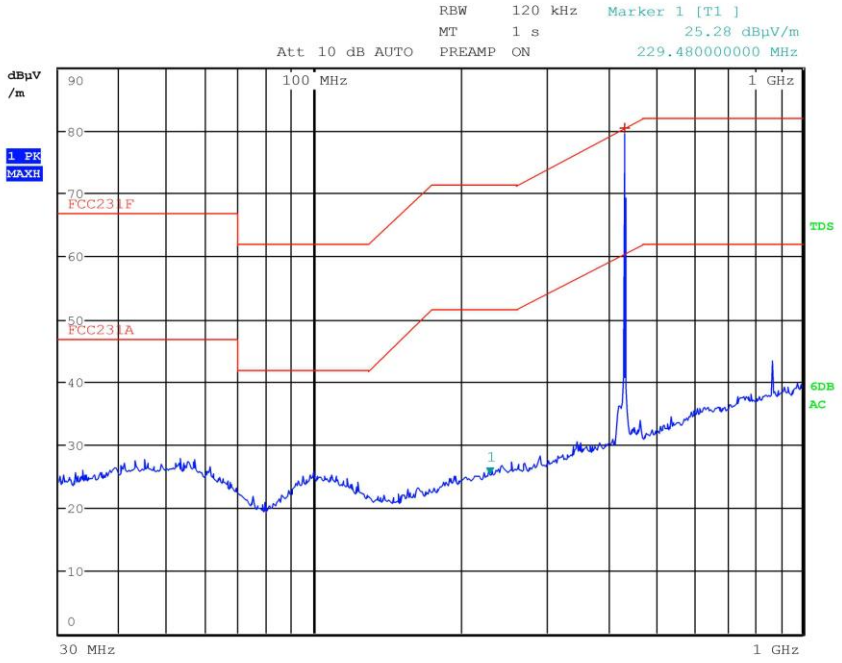
15.231(a4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition.

Result: N.A.

12. Graphs and Tables

G12095601

Meas Type Emission 30-1000MHz
Equipment under Test
Manufacturer
OP Condition In Tx
Operator Gandini 12095601
Test Spec
Horiz



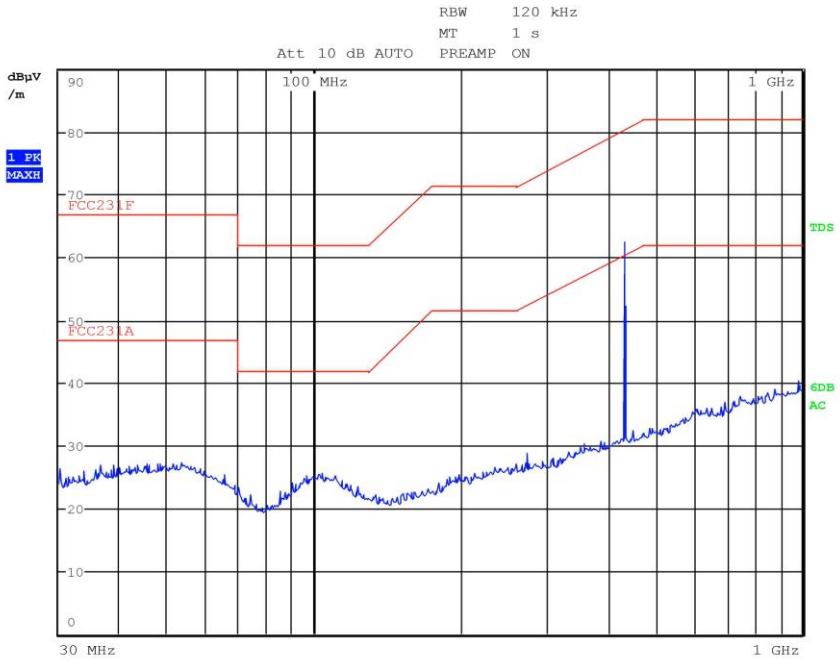
Final Measurement

Meas Time: 1 s
Margin: 6 dB
Subranges: 1

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	434.000000000 MHz	80.43	Quasi Peak	-0.15

G12095602

Meas Type Emission 30-1000MHz
Equipment under Test
Manufacturer
OP Condition In Tx
Operator Gandini 12095602
Test Spec
Vert

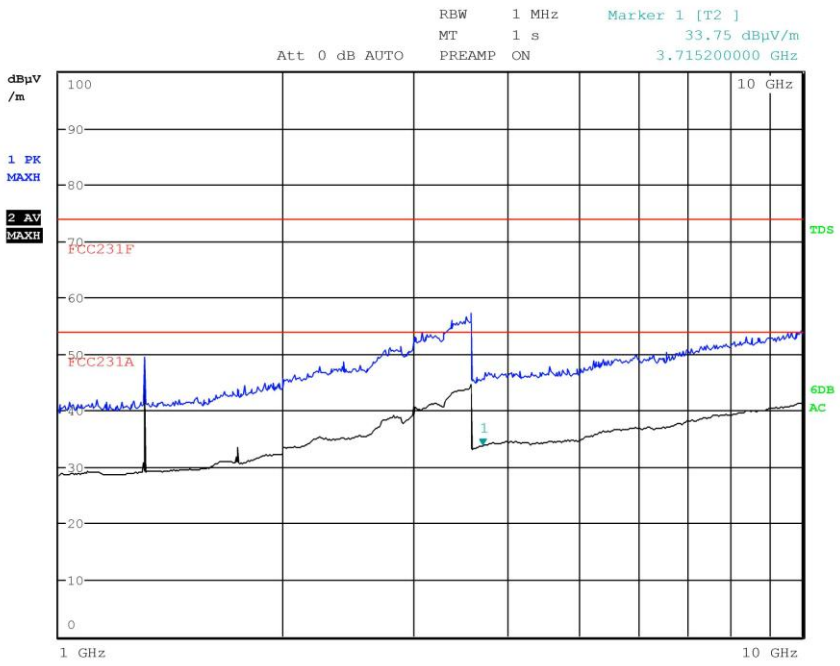


Final Measurement

Meas Time: 1 s
Margin: 6 dB
Subranges: 0

G12095603

Meas Type Emission 1000-10000MHz
Equipment under Test
Manufacturer
OP Condition In Tx
Operator Gandini 12095603
Test Spec
Horiz

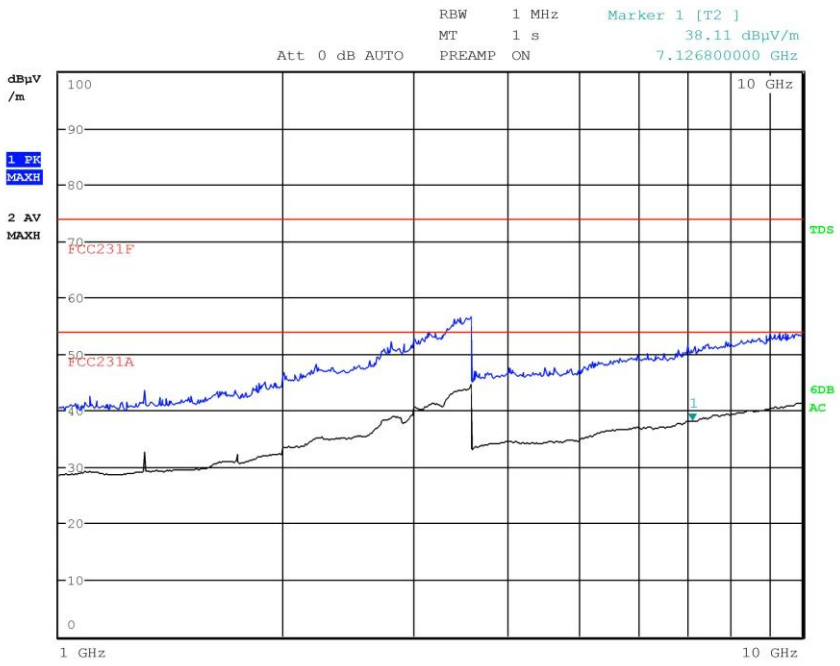


Final Measurement

Meas Time: 1 s
Margin: 6 dB
Subranges: 0

G12095604

Meas Type Emission 1000-10000MHz
Equipment under Test
Manufacturer
OP Condition In Tx
Operator Gandini 12095604
Test Spec
Vert

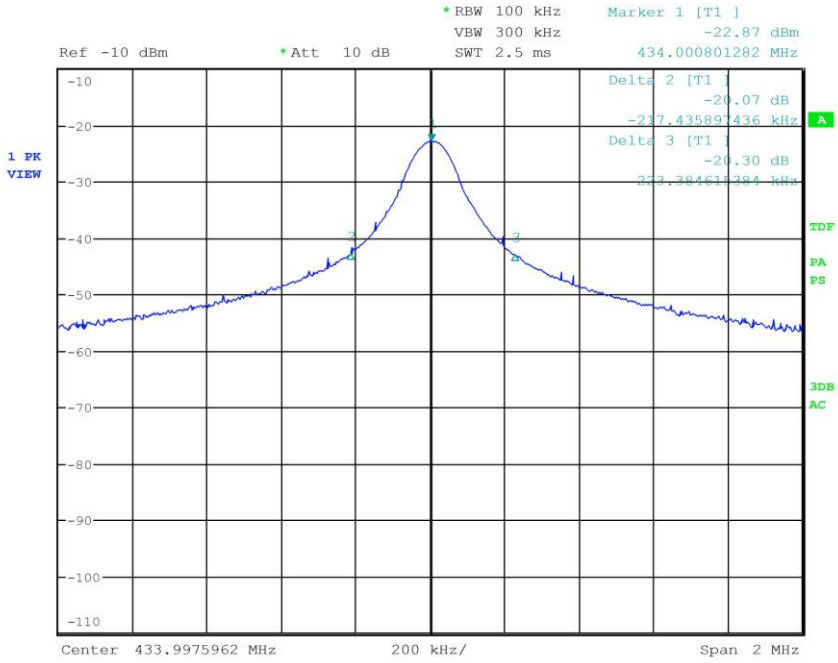


Final Measurement

Meas Time: 1 s
Margin: 6 dB
Subranges: 0

G12095606

Meas Type	Emission
Equipment under Test	
Manufacturer	
OP Condition	
Operator	Gandini 12095606
Test Spec	



G12095610

Meas Type	Emission
Equipment under Test	
Manufacturer	
OP Condition	A regime
Operator	Bertezzolo 12095610
Test Spec