

Prima Ricerca & Sviluppo Srl soggetta a direzione e coordinamento da parte della Giovanni Maspero & C. S.p.A. – C.I. 02634780130  
Sede legale : 22100 Tavernola (CO) Via Conciliazione, 1 Cod. FISC. e N. R.I. CO 02635860139  
Sede operativa : Laboratori Via Campagna, 92 22020 Faloppio fraz. Gaggino (CO) Tel. +39 03135000.11 Fax +39 031991309

Equipment under test : FERRARI R/C SCALE 1:43 Freq 49,860 MHz  
APPARECCHIO IN PROVA :

Reference standards : 47 CFR Part 15C – Intentional Radiators  
NORME DI RIFERIMENTO :

**Customer:**

*RICHIEDENTE:*

- **Dept. / Firm :** Grani & Partners S.p.a.  
*Ente / Società:*
- **Mr.:** Sig.ra Daniela Dazzo  
*Sig.:*
- **Address:** Via Dell' Artigianato 25 – 41030 Bastiglia (MO)  
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- **Tel. :** +39 059 816411 • **Telefax** +39 059 904509 • **E-mail:** [info@graniepartners.com](mailto:info@graniepartners.com)  
*Telefono :* *Fax :*

**Site of test execution:** Via Campagna, 92 - 22020 Gaggino Faloppio (CO) - Italy  
*Località esecuzione prove:*

**Date of test samples receipt:** 06/11/06 **Date of start test:** 06/11/06  
*Data ricevimento campioni:* *Data inizio prove:*

**Date of end test:** 06/11/06  
*Data fine prove:*

**Witness to the test:**  
*Presenti alle prove:*

**Signature of the engineers:**  
*Firma esecutore prove:*

**Signature of the Laboratory Director:**  
*Firma Direttore Laboratori:*

Nobody / Nessuno

Andrea Bortolotti

Roberto Furfari

The test results recorded in this Test Report are exclusively referred to the tested samples.

*I risultati del presente rapporto di prova si riferiscono esclusivamente al campione sottoposto a prova.*

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## **1. TECHNICAL INFORMATION OF EQUIPMENT UNDER TEST (EUT)**

### **1.1 Identification**

Brand name: GRANI & PARTNERS S.P.A.  
Manufacturer: GRANI & PARTNERS S.P.A.  
Equipment : GAME  
Model name or No. : FERRARI R/C SCALE 1:43 Freq 49,860 MHz  
FCC ID: UR6FERRARIRC-49M  
Serial number : Not present  
Country of manufacturer: ITALY

### **1.2 Technical data**

FCC class: Intentional radiators, Class B  
Supply voltage: 2x1.5V (LR6, AA)  
Maximum internal frequency generated by EUT 49,860 MHz  
Typical usage : GAME  
EUT single or system: Single

### 1.3 Transmitter technical data

#### TRANSMITTER

- Working Frequency : 49,860 MHz
- Frequency Range of Operation : 49,820 ÷ 49,900 MHz
- Antenna type : Stilo

### 1.4 Modifications incorporated in E.U.T.

The following items are the modifications introduced in the equipment under test :

- None

### 1.5 Ports identification

This section contains descriptions of all signal ports and AC/DC power input/output ports, the length and the type of the cable provided by manufacturer needed for the tests.

Moreover it is specified if the ports are ever or optionally connected.

Port		Description	Connection
1	Enclosure	Plastic surface	By screws
2	AC power input/output ports	Line not present	*****
3	DC power input/output ports	Battery 2x1.5 size AAA	Internal Battery support
4	Signals ports	Line not present	*****

*Note: During the tests all cables must be what provided the manufacturer or the same that used in the real employment of the EUT.*

### 1.6 Auxiliary equipment

No auxiliary equipment

## 2. TEST CONDITIONS

### 2.1 Operating test modes and test conditions

The equipment has been tested according to the operative conditions described in the user/installation manual provided by the manufacturer and by following reference standards :

Reference Standard:

FCC Part 15, Subpart C, Section 15.235

In the following table there are the operating conditions adopted during tests identified by an indicator (#..) at which has been referred the item “Operating condition of the equipment under test” of all technical sheets of the tests (see Section 4)

<b>Operating condition</b>	<b>Description</b>
<b>#1</b>	<i>Continuous transmission</i>

### 2.2 Test overview

Sample tested is the main model of a complete set of 49,860 MHz RF transmitters.

The appliance is classified as “*intentional radiator*” in conformity to FCC Part 15 Sub. A §15.201, and it is subject to “*Certification*” procedure.

The application is mainly used for game system.

It is possible to declare that the appliance it is subject to additional requirements stated in §15.235

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### 3. REFERENCE STANDARD FOR PERFORMED TESTS

Reference standard :	Title :
<b>FCC Part 15 part A</b>	Code of Regulations Part 15 (Radio Frequency Devices), Subpart A (General) of the Federal Communication Commission (FCC)
<b>FCC Part 15 part C</b>	Code of Regulations Part 15 (Radio Frequency Devices), Subpart C (Intentional Radiators) of the Federal Communication Commission (FCC)
<b>ANSI C63.4</b>	American National Standard for Methods of Measuring of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz – 40 GHz

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## 4. Summary of test results

### 4.1 Tests

	Port	Phenomena	Operating condition <sup>1</sup>	Result
1	Enclosure	Radiated emission	#1	Within the limit

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<sup>1</sup> Ref. Tab. of Section 2

## **4.2 Emission limits**

### **Acc. to §15.235 for intentional radiator operated within the frequency 49,860 MHz**

Section 15.235 Operation within the band 49.82 - 49.90 MHz

(a) The field strength of any emission within this band shall not exceed 10,000 microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in Section 15.35 for limiting peak emissions apply.

(b) The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209.

(c) For a home -built intentional radiator, as defined in Section 15.23(a), operating within the band 49.82-49.90 MHz, the following standards may be employed:

- (1) The RF carrier and modulation products shall be maintained within the band 49.82-49.90 MHz.
- (2) The total input power to the device measured at the battery or the power line terminals shall not exceed 100 milliwatts under any condition of modulation.
- (3) The antenna shall be a single element, one meter or less in length, permanently mounted on the enclosure containing the device.
- (4) Emissions outside of this band shall be attenuated at least 20 dB below the level of the unmodulated carrier.
- (5) The regulations contained in Section 15.23 of this Part apply to intentional radiators constructed under the provisions of this paragraph.
- (d) Cordless telephones are not permitted to operate under the provisions of this Section.



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**According to §15.209 all the other emission of the appliance shall not exceed the following levels:**

Section 15.209 Radiated emission limits, general requirements.

(a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency	Field Strength (microvolts/meter)	Measurement Distance (MHz) (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100 **	3
88 - 216	150 **	3
216 - 960	200 **	3
Above 960	500	3

\*\* Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

## **5. TEST RESULTS**

Radiated Spurious Emission and Field Strength Limits (Fundamental).....10

### TEST 1.

## RADIATED SPURIUS EMISSION AND FIELD STRENGTH LIMITS (FUNDAMENTAL)

### REFERENCE DOCUMENT

FCC PART 15 subpart C

- **TEST LOCATION:** Semi-anechoic chamber
- **TEST EQUIPMENT USED FOR TEST:** EMI receiver Rohde & Schwarz Mod. ESMI  
Chase Antenna Mod. CBL 6111 A
- **TESTED PORT:** Enclosure
- **EMISSION LIMITS:** Acc. to Section 15.209 + 15.227  
of reference document
- **UNCERTAINTY OF MEASURE:** Combined uncertainty =  $\pm 1.75$  dB  
Total uncertainty = (k=2)  $\pm 3.5$  dB

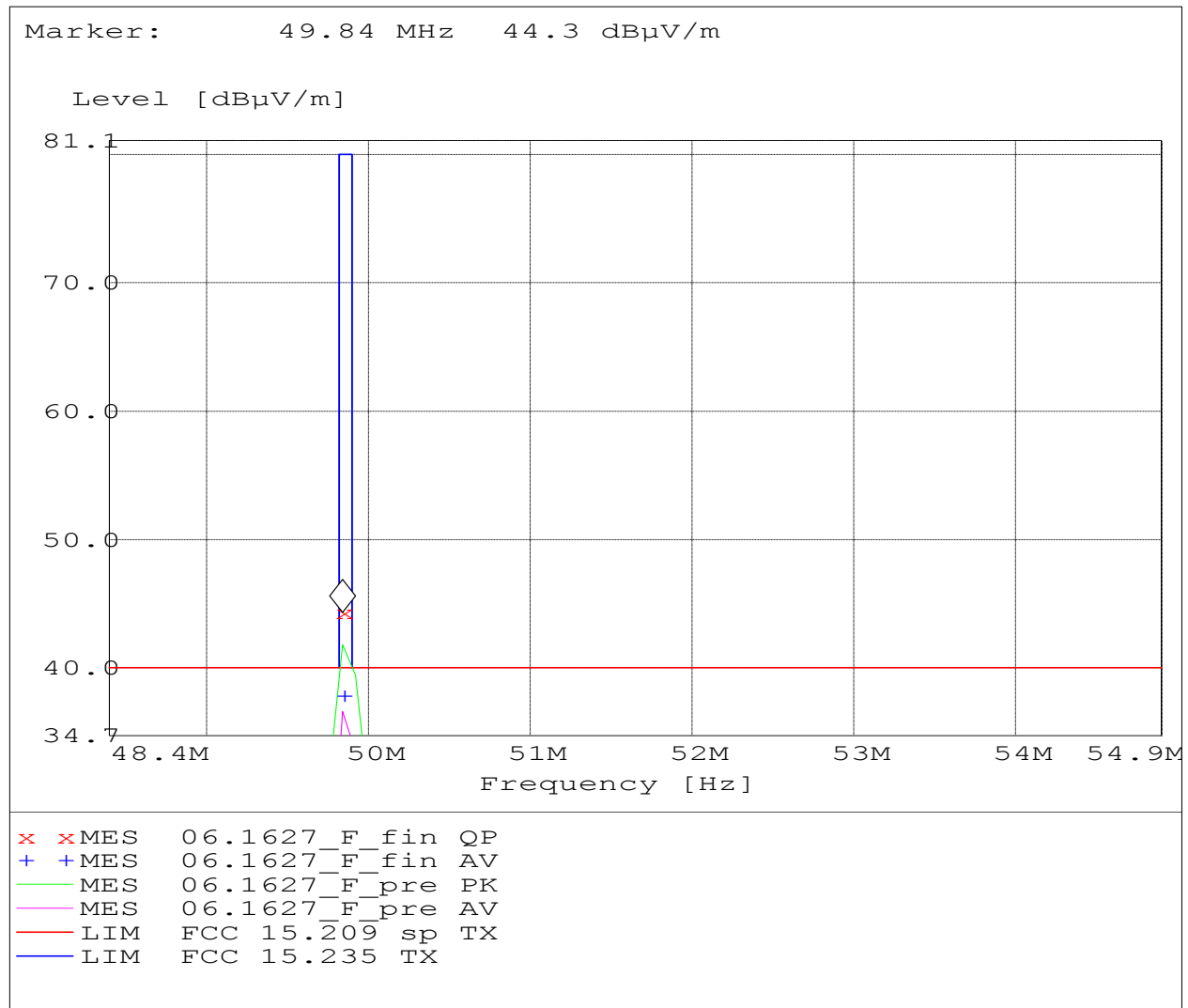
TEST CONDITIONS:		MEASURED
Ambient temperature :	15 - 35 °C	24 $\pm$ 3 °C
Ambient humidity :	25 - 75 %rH	40 $\pm$ 5 %rH
Pressure :	85 - 106 kPa (860 mbar - 1060 mbar)	950 $\pm$ 50 mbar
Voltage :	internal battery	Transmitter: Battery 2x1.5 size AAA Receiver (car): Battery 2x1.5V size AA SUM-3/LR6

**OPERATING CONDITION (Rif. Section. 2) : #1**

**RESULT: WITHIN THE LIMIT**

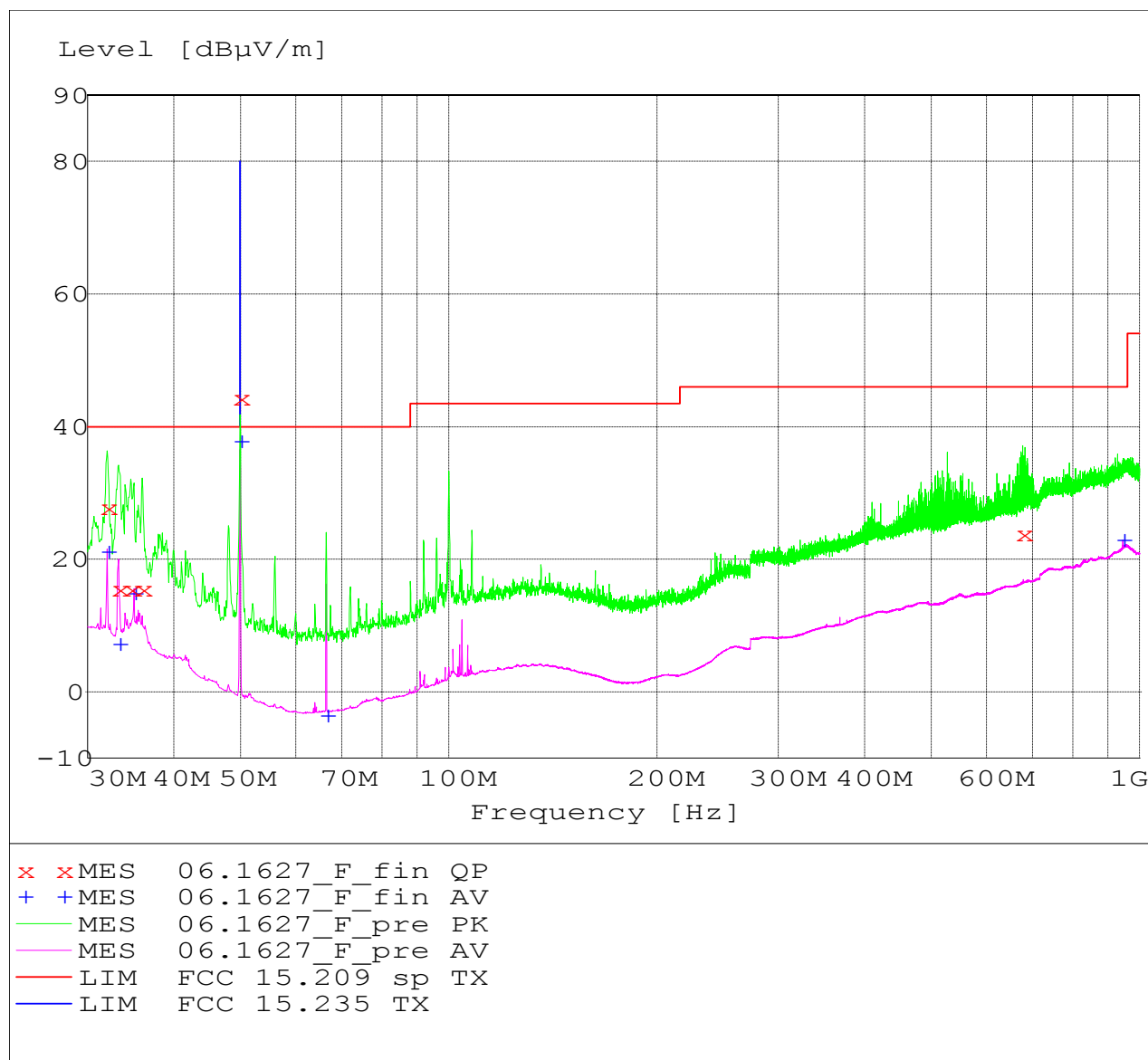
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#### Reference 15.235:



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Reference 15.209:



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### Final measurement in QP detector

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Height cm	Azimuth deg	Polarisation
32.000000	27.80	19.80	40.00	12.20	113.0	90.00	VERTICAL
33.280000	15.60	19.00	40.00	24.40	124.0	0.00	VERTICAL
34.640000	15.60	18.30	40.00	24.40	306.0	91.00	VERTICAL
36.000000	15.50	17.50	40.00	24.50	167.0	269.00	HORIZONTAL
49.840000	44.30	10.30	80.00	35.30	120.0	270.00	HORIZONTAL
677.760000	23.90	25.20	46.00	22.10	159.0	207.00	VERTICAL

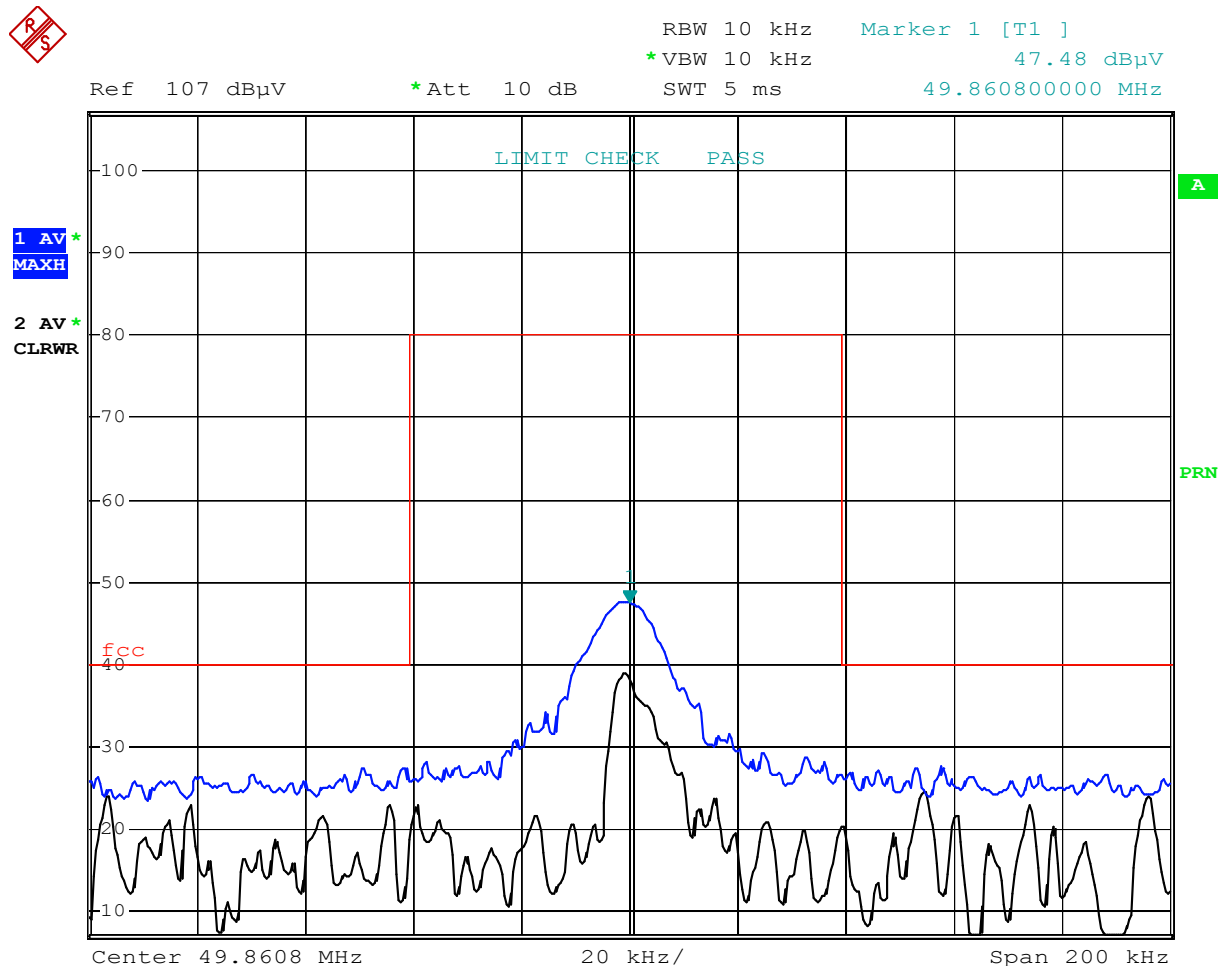
### Final measurement in AV detector

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Height cm	Azimuth deg	Polarisation
32.000000	21.20	19.80	40.00	19.80	125.0	230.00	VERTICAL
33.280000	7.20	19.00	40.00	32.80	100.0	25.00	VERTICAL
35.040000	14.90	18.10	40.00	25.10	175.0	269.00	HORIZONTAL
49.840000	37.80	10.30	80.00	47.20	125.0	269.00	HORIZONTAL
66.480000	-3.60	7.60	40.00	43.60	104.0	51.00	VERTICAL
946.240000	22.90	29.70	46.00	23.10	108.0	359.00	HORIZONTAL

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### Section 15.235 Operation within the band 49.82 - 49.90 MHz

(1) The RF carrier and modulation products shall be maintained within the band 49.82-49.90 MHz.



Date: 24.JAN.2007 10:23:23

- **.RESULT:**  
The EUT is complied with this section

## 6. EUT TECHNICAL DOCUMENTATION

### 6.1 Wiring diagrams

	<i>Document reference (n., edition, date, ...)</i>
<b>WIRING DIAGRAM</b>	No document
<b>PART LIST</b>	No document

### 6.2 Technical manual

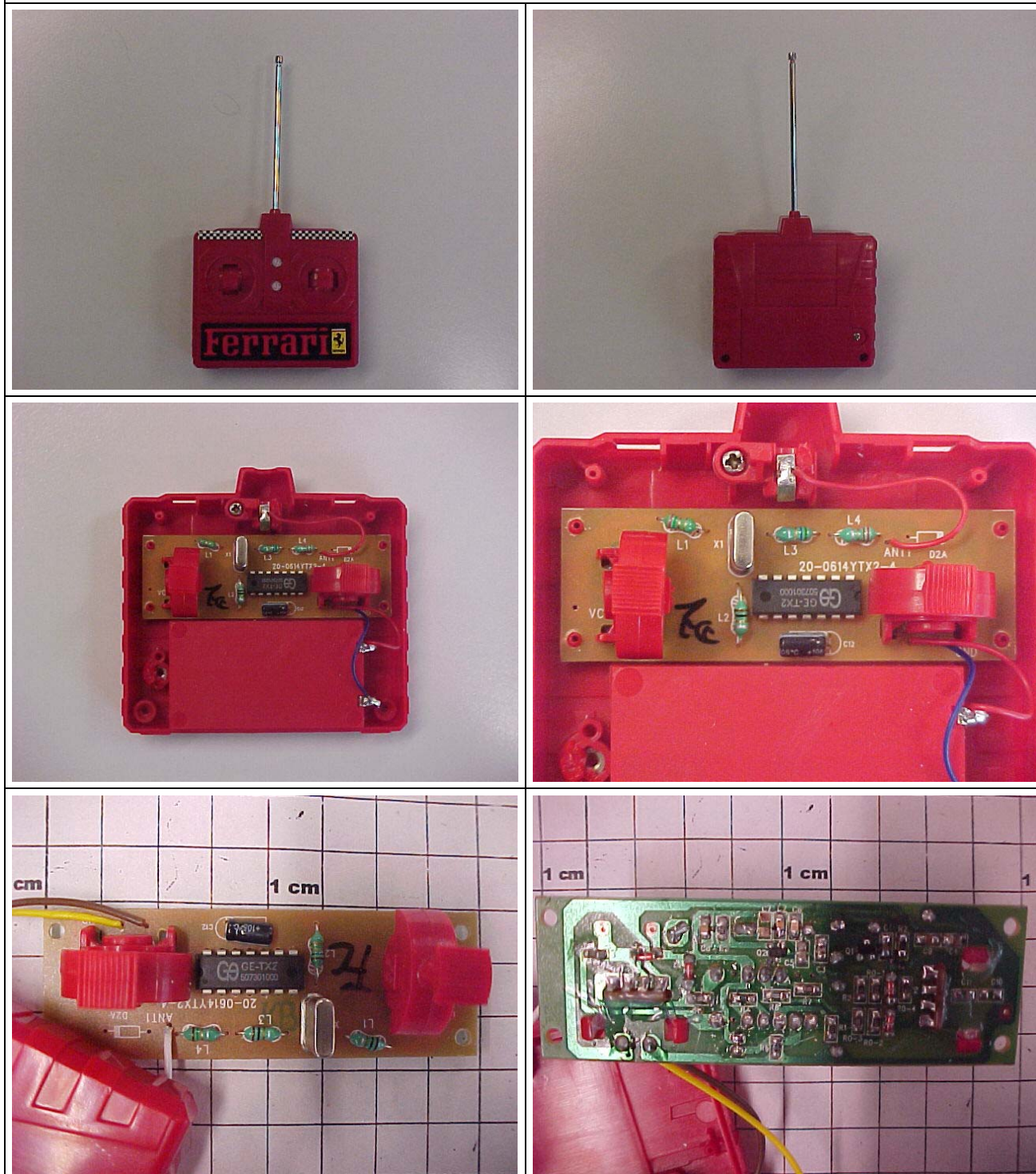
	<i>Document reference (n., edition, date, ...)</i>
<b>TCF</b>	No document



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Photographic documentation

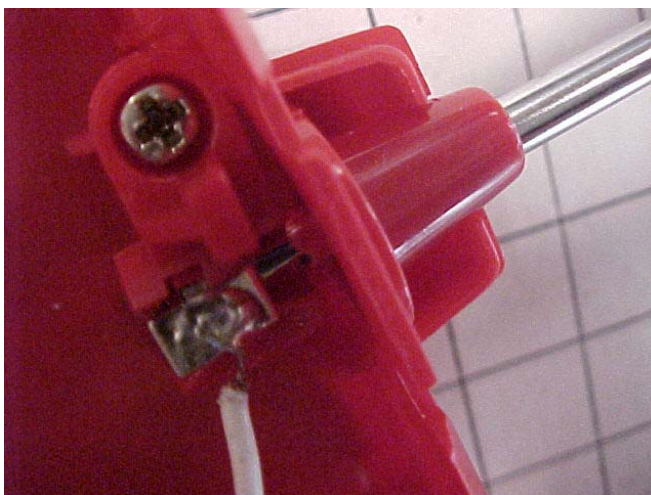
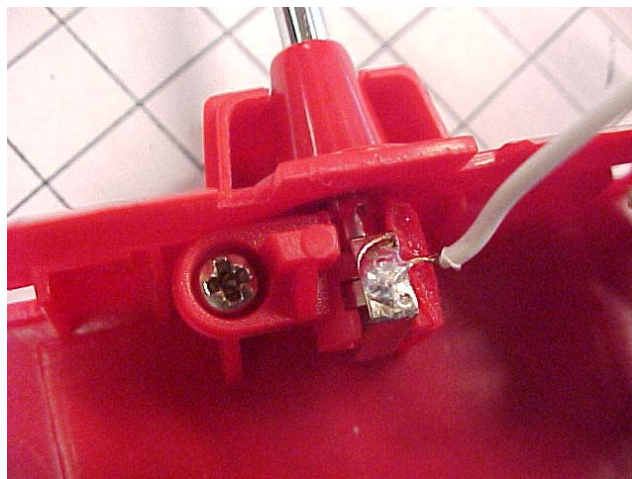
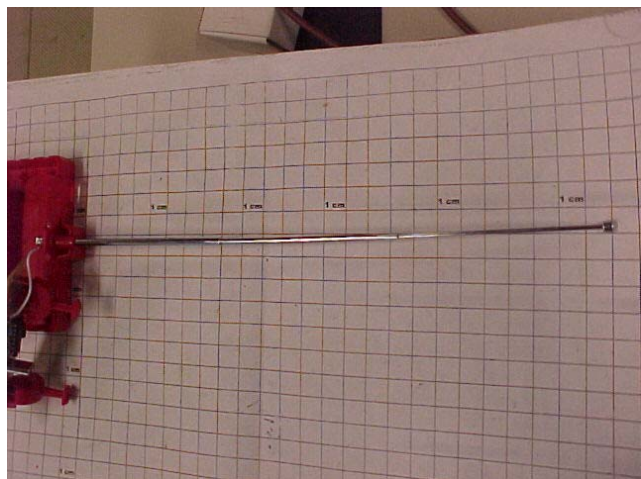
PHOTO N° 1 – EQUIPMENT UNDER TEST IDENTIFICATION





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**PHOTO N° 2 – EQUIPMENT UNDER TEST IDENTIFICATION**



**PHOTO N° 2 – SET-UP RADIATED EMISSION TEST**

