

TEST REPORT

EMC 453/02

Report issued by

GLOBE COMMUNICATIONS S.p.A.
COMPETENT BODY & ACCREDITED
BY MINISTRY OF COMMUNICATIONS
N° 032 - 033 - 036 - 040 - 043 - 050 - 058

CLIENT	ELPRO INNOTEK S.R.L.
ADDRESS	VIA PIAVE 23 31020 S. PIETRO DI FELETTO (TV)
EQUIPMENT TYPE	TRANSMITTER
BRAND NAME	ERONE 024A
MODEL	S2TR2641E4
REFERENCE STANDARD	FCC 47CFR Part 15
TEST RESULT	COMPLIED

The test results relate only to the sampled tested.

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No information regarding the EUT of this test report shall be divulged to other person other than the applicant.

PERFORMED

L. Casiraghi



VERIFIED

M. Maltempi



PAGE NUMBER : 6

ATTACHMENT :
NUMBER

3

DATE : 04/09/X2

04/09/2002

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1. EQUIPMENT UNDER TEST SPECIFICATION

1.1 - E.U.T. Description

- Manufacturer: Elpro Innotek S.r.l.
- Contact person: Ing. Dalle Carbonare
- Model: S2TR2641E4

Technical characteristics

Operating frequency433,05 , 434,790 MHz
 Carrier frequency:.....433,920 MHz
 Rated frequency tolerance:± 75 KHz
 Rated E.R.P.200 µW
 Modulation :AM/ ASK
 Modulating signal frequency:834 bit/sec
 Channel width:.....> 25 KHz
 Power supply:Alkaline battery 12 Vdc
 Dynamic code system.....Keeloq® Hopping code
 N° of code combinations :.....2⁶⁴
 Channel pushbuttons :2 and 4
 Dimensions83 x 47 x 16 mm
 Weight30 g
 Antenna.....Integral

1.2 - Operation of E.U.T. during the test

- Operating mode : In normal operating mode.

1.3 - Environmental test condition

Temperature	Humidity	Pressure
24 °C	49 %	996 hPa

2. TEST EQUIPMENT LIST

TYPE	MANUFACTURER	MODEL	SERIAL NUMBER
EMI TEST RECEIVER	ROHDE & SCHWARZ	ESVS 10	840698/014
BILOG ANTENNA	CHASE	CBL 6111A	1533
SPECTRUM ANALYZER	HEWLETT & PACKARD	8593A	3144U00389
LOG PERIODIC ANTENNA	EMCO	3147	1242
LOG PERIODIC ANTENNA	EMCO	3147	1245
CONTROLLER	DEISEL	HD 100	100/384/96
ANTENNA MAST	DEISEL	MA240	240/384/96
TURNTABLE	DEISEL	DS415	415/381/96

3. SUMMARY OF TESTS RESULTS

3.1 EMISSION TEST:

Port	Type of test	Environmental phenomena	Test specification	Basic standard	Test set-up	Test result	Page
Enclosure	Radiated	Radio interference field strength radiated	30 ÷ 1000 MHz	FCC47CFR Part 15	Attach. n°2	C	5
Enclosure	Radiated	Radio interference field strength radiated	1 ÷ 5 GHz	FCC47CFR Part 15	Attach. n°3	C	5

- C** The Equipment Under Test complied with the test specification limit
NC The Equipment Under Test did not complied with the test specification limit
NA The test is not applicable because:

4. TEST SET-UP

5.1 - Configuration of cables of E.U.T. : not applicable

5. TEST PERFORMED

5.0 - Emission tests:

5.0.1 - Radiated emission 30 MHz – 1GHz

5.0.2 - Radiated emission 1GHz – 5 GHz

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5.0 - EMISSION TESTS:

5.0.1 - RADIO INTERFERENCE FIELD STRENGTH

Test specifications:

Reference Standard : FCC47CFR Part 15

Classification : A

Test method : According to reference standard

Port : Enclosure

Test performed: L. Casiraghi Test date: 04/09/2002

Test equipment list:

Equipment	Model	Manufacturer	Serial n°
Emi test receiver	ESVS 10	Rohde & Schwarz	840698/014
Bilog antenna	CBL 6111A	Chase	1533
Controller	HD 100	Deisel	100/384/96
Antenna Mast	MA240	Deisel	240/384/96
Turntable	DS415	Deisel	415/381/96
Spectrum Analyzer	8593A	Hewlett & Packard	3144U00389
Semi-anechoic chamber	---	Emerson & Cuming	---

Limits:

Frequency	Quasi - peak
30 MHz to 88 MHz	100 μ V/m
88 MHz to 216 MHz	150 μ V/m
216 MHz to 960 MHz	200 μ V/m
Above 960 MHz	500 μ V/m

Test result:

Result	Attach.	Note
C	1	

Note:/

The description of the site of test has represented in attachment 3.

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5.0.2 - RADIO INTERFERENCE FIELD STRENGTH according to FCC Rules, Part 15, Subpart C, Section 15.231 Frequency Band > 30 MHz

Test specifications:

Reference Standard : FCC47CFR Part 15

Classification : /

Test method : According to reference standard

Port : Enclosure

Test performed: L. Casiraghi Test date: 04/09/2002

Test equipment list:

Equipment	Model	Manufacturer	Serial n°
log periodic antenna	3147	Emco	1242
Controller	HD 100	Deisel	100/384/96
Antenna Mast	MA240	Deisel	240/384/96
Turntable	DS415	Deisel	415/381/96
Spectrum Analyzer	8593A	Hewlett & Packard	3144U00389
Semi-anechoic chamber	---	Emerson & Cuming	---

Radiated emissions are measured in the frequency range 1 GHz to 5 GHz. Resolution and video bandwidth of the spectrum analyzer are set to 1 MHz.

Additional measurements are performed at critical frequencies with reduced span. EUT is rotated all around and receiving antenna is raised and lowered to find the maximum levels of emission.

Test result:**

Frequency (MHz)	Detector	Antenna Pol.	RECEIVER (dBμV)	Correction Factor (dB)	Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
433.920000	QPeak	V	66.2	8.9	66.2	80,82	14,82
867.840000	QPeak	V	31.80	17.2	31.80	60,82	29,02
1301,7*	Peak	H	21,6	25,8	47,4	54	6,6
1735,6	Peak	H	20,15	26,3	46,15	60,82	14,67

* frequency inside the restricted bands and follows part 15,209 limits

**No emission detected above noise floor.

Note:/

The description of the site of test has represented in attachment 3.

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6. MEASUREMENT UNCERTAINTY VALUES

<i>TYPE OF TEST</i>	<i>UNCERTAINTY</i>
RADIO INTERFERENCE FIELD STRENGTH	± 4 dB
RADIO INTERFERENCE VOLTAGE CONDUCTED ON MAINS TERMINAL	± 2.59 dB

7. ATTACHMENTS

Attachment n° 1	Number of pages :	1
Attachment n° 2	Number of pages :	1
Attachment n° 3	Number of pages :	1



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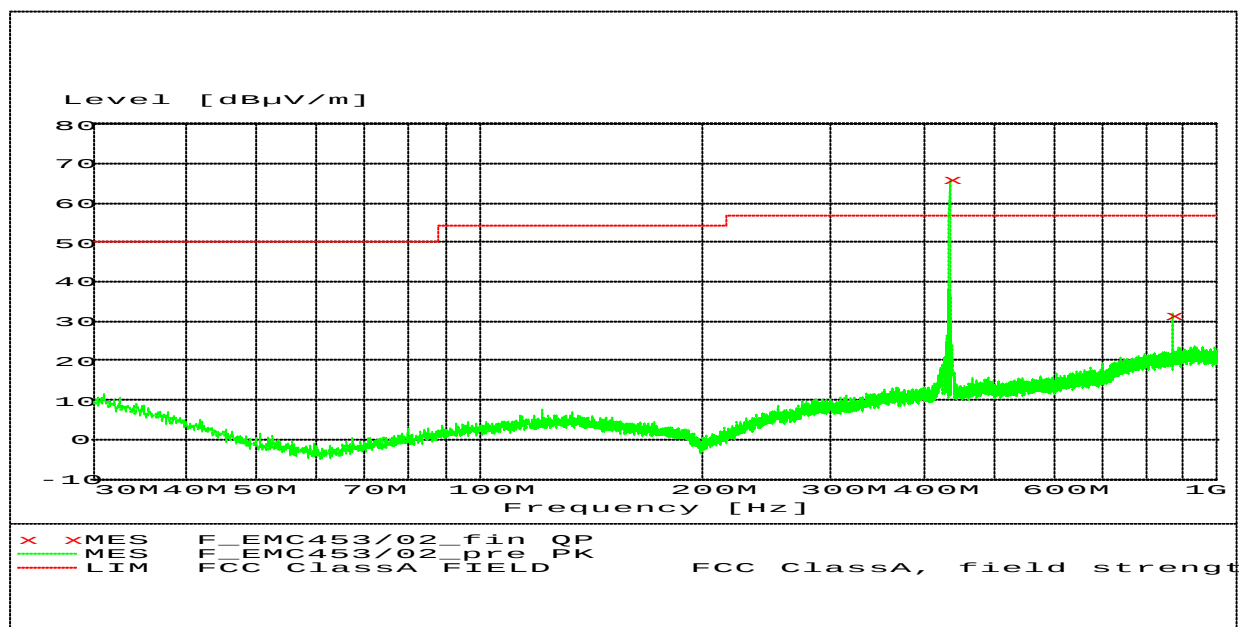


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Radio interference field strength radiated

EUT: Model : S2TR2641E4
Manufacturer: Elpro Innotek
Operating Condition: In normal operating mode
Test Site: Semi anechoic chamber
Operator: L. Casiraghi
Test Specification: CFR 47 Part 15
Comment:
Start of Test: 04/09/02 / 10.25.00

SCAN TABLE: "EN 55022C Field 3m"

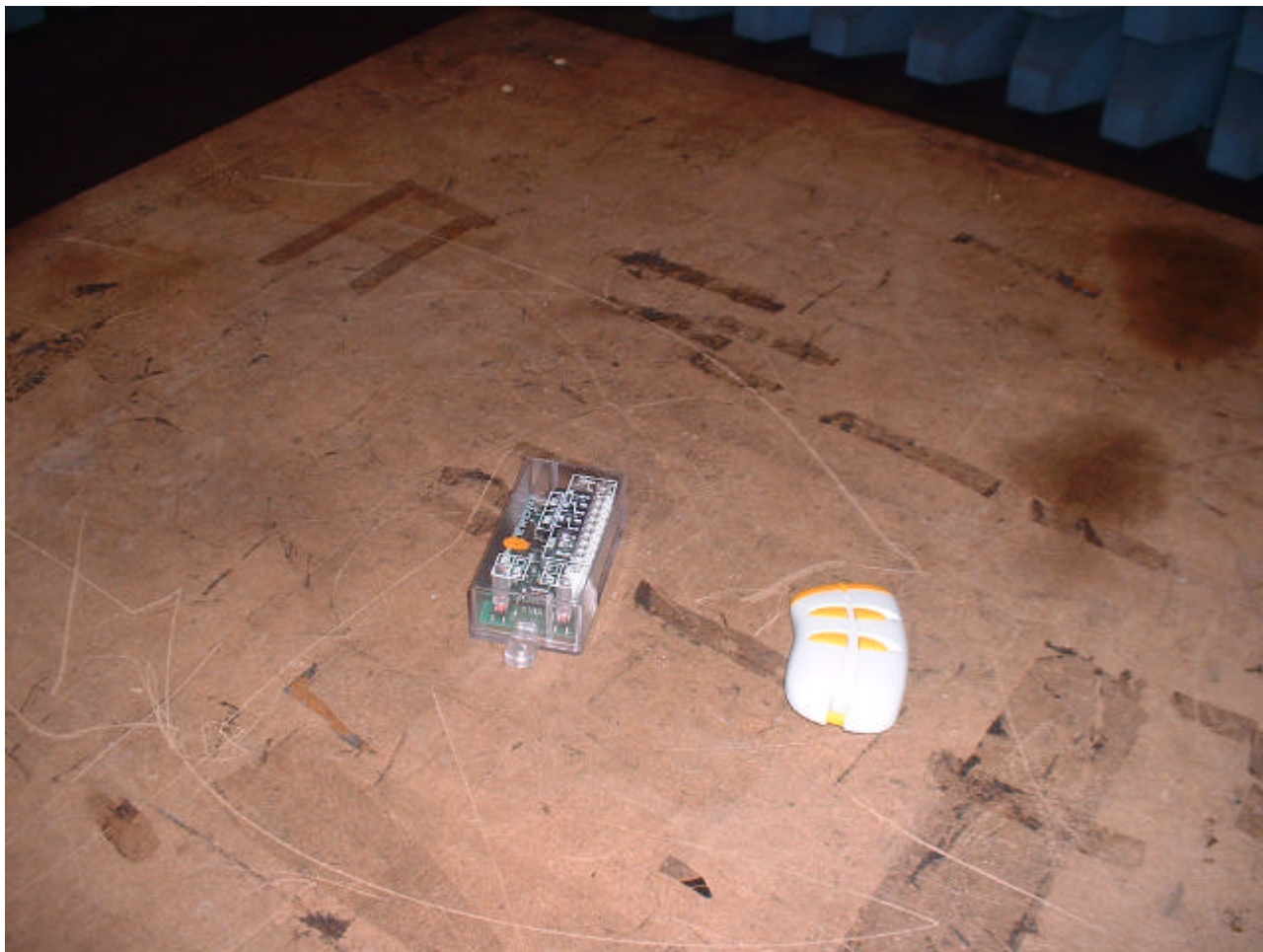
Start	Stop	Step	Detector	Meas.	IF	Transducer
Frequency	Frequency	Width		Time	Bandw.	
30.0 MHz	200.0 MHz	80.0 kHz	MaxPeak	10.0 ms	120 kHz	CBL 6111C Globe 3m H
200.0 MHz	1.0 GHz	80.0 kHz	MaxPeak	10.0 ms	120 kHz	CBL 6111C Globe 3m H



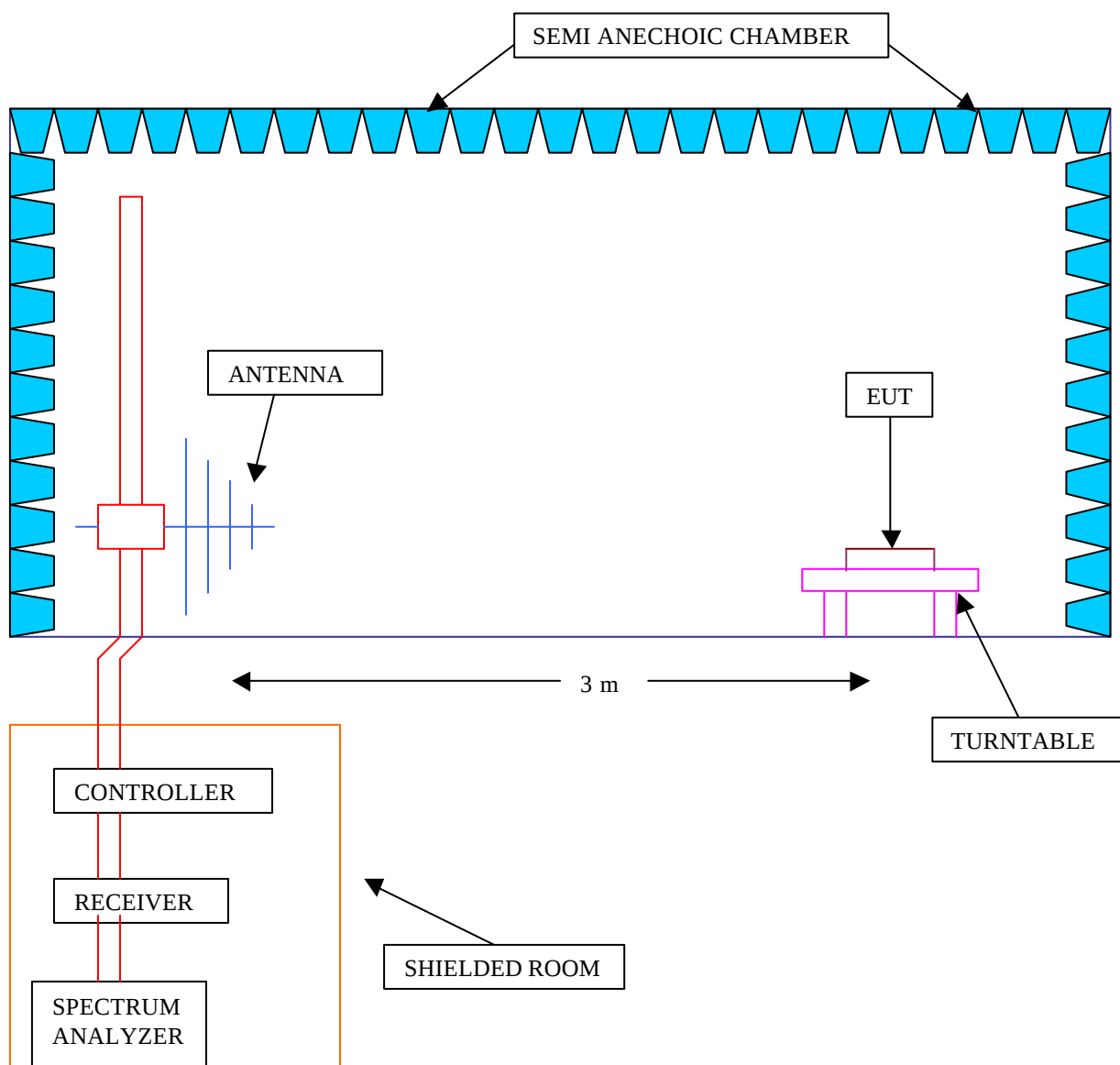
MEASUREMENT RESULT: "F_EMC453/02_fin QP"

04/09/2002 9.33

Frequency	Level	Transd	Limit	Margin	Height	Azimuth	Polarisation
MHz	dBµV/m	dB	dBµV/m	dB	cm	deg	
433.920000	66.20	8.9	37.0	-29.2	229.0	0.00	VERTICAL
867.840000	31.80	17.2	37.0	5.1	194.0	0.00	VERTICAL



6.0.1 – Radio interference field strength radiated



Description of the site of test