MEASUREMENT/TECHNICAL REPORT

PRASTEL

FCC ID: ON3MPSDT2

November 3rd, 1999

This report concerns (check one): Original grant __X__ Class II change____

Equipment type: RADIO TRANSMITTER (ex.: computer, printer, modem, etc.)

Deferred grant request per 47 CFR 0.457(d)(1)(ii)? yes _____ no __X__

If yes, defer until: _____
date

Company Name agrees to notify the Commission by _____
date
of the intended date of announcement of the product so that the grant can be issued on that date.

Report prepared by: P.Antonio VELO Giuseppe MECCHIA

TÜV QSL srl
Via Montalenghe 8
10010 Scarmagno (TO)
Italy
Phone : 0125 - 525441 Phone : 0125 – 525440
Fax : 0125 – 525499

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1 GENERAL INFORMATION

1.1 Product Description

EUT is a radio transmitter used with radio receivers of the Multipass and Roll series; furthermore it is provided with a passive transponder (frequency 125 kHz) which permits to operate with a proximity reader used in access control applications.

It has two pushbuttons being capable of activating two different channels on a radio receiver working with the same code and the same operating frequency.

It works on 433.920 MHz frequency regulated by a saw oscillator (radio section) and on 125 kHz (transponder section).
It is provided with a built in antenna and it does not permit a continuous transmission (operation is limited to about two seconds).

The EUT without transponder has been previously approved, reference to our test report RD 99/153 of October 13,1999 – FCC-ID: ON3MPSTP2EB.

1.2 Related Submittal(s)/Grant(s)

None

1.3 Tested System Details

The FCC IDs for all equipment, plus descriptions of all cables used in the tested system (including inserted cards, which have grants) are:

- 1 Configuration for radio transmitter testing (stand alone mode)

Model & Serial No.	FCC ID	Description	Cable Descriptions
MPSDT2 (1) s/n EMC-99-0284	**ON3MPSDT2**	**Transmitter**	**No cables connected**

- 2 Configuration for transponder section testing

Model & Serial No.	FCC ID	Description	Cable Descriptions
MPSDT2 (1) s/n EMC-99-0284	**ON3MPSDT2**	**Transmitter**	**No cables connected**
M/2000 E s/n none	none	Access control unit	Unshielded power cord Unshielded signal cable
Comelit 542024T s/n 408390	none	AC adapter	Unshielded power cord
M PROX s/n 1399	JQ660XX	Proximity reader	Unshielded signal cable

(1) EUT submitted for grant.

1.4 Test Methodology

Radiated testing was performed according to the ANSI C63.4-1992 test procedures . Radiated testing was performed at an antenna to EUT distance of 3 and 30 meters.

1.5 Test Facility

TÜV QSL test site No. 2

The open area test site and conducted measurement facility used to collect the radiated data are located at Via Montalenghe 8, Scarmagno, Italy. This site has been fully described in a report dated March 25, 1997 submitted to your office, and accepted in a letter dated June 13, 1997 (31040/SIT-1300F2).

1.6 Test equipment list:

Test receiver	Rohde & Schwarz ESH3	s/n 881364/012
LISN	Schwarzbeck NNLA8120	s/n 8120399
Active whip antenna	ARA AVW-1/D	s/n 168
Test receiver	Rohde & Schwarz ESVP	s/n 879783/029
Biconical antenna	EMCO 3110	s/n 1735
Log-periodic antenna	EMCO 3146	s/n 3678
Spectrum analyzer	HP 8562A	s/n 3043A05627
Horn antenna	EMCO 3115	s/n 3572

2 PRODUCT LABELING

Figure 2.1 FCC ID Label

Figure 2.2 Location of the Label on EUT

3 SYSTEM TEST CONFIGURATION

3.1 Justification

The EUT was configured for testing in a typical fashion (as a customer would normally use it).

- 1 Configuration for radio transmitter testing (stand alone mode)

It has been tested in stand alone mode; EUT was forced to transmit by pushing alternatively one of the two pushbuttons provided: the continuous light on a led indicate normal operation, flashing light (after two seconds of operation) indicate stop of transmission.

- 2 Configuration for transponder section testing

In order to operate correctly the EUT needs a proximity reader (access control application). For test purpose a typical configuration has been improved; it is composed by:
- a proximity reader (FCC approved),
- an access control unit
- an MPSDT2 (EUT)

The proximity reader is connected to the access control unit by means of the cable provided with it. The MPSDT2 is approched to the proximity reader, removed and approched again to operate (the transponder is not able to transmit continuously)
An evidence of these operations was possible by means of flashing led's on control unit and on proximity reader.

Conducted emission tests have been performed on external control unit AC adapter power line cable.

Test conditions:

- a new battery has been installed
- modulation was fixed (no regulation are permitted by the operator or factory settings)
- during tests EUT has been rotate through the three ortogonal axes to determine which condition produces the highest emission with reference to the limits.

3.2 EUT Exercise Software

The EUT exercise program used during radiated testing was designed to exercise the various system components in a manner similar to a typical use.

- 1 Configuration for radio transmitter testing (stand alone mode)

EUT was forced to transmit by pushing alternatively one of the two pushbuttons provided: the continuous light on a led indicate normal operation, flashing light (after two seconds of operation) indicate stop of transmission.

- 2 Configuration for transponder section testing

The MPSDT2 is approched to the proximity reader, removed and approched again to operate (the transponder is not able to transmit continuously)
An evidence of these operations was possible by means of flashing led's on control unit and on proximity reader.

3.3 Special Accessories

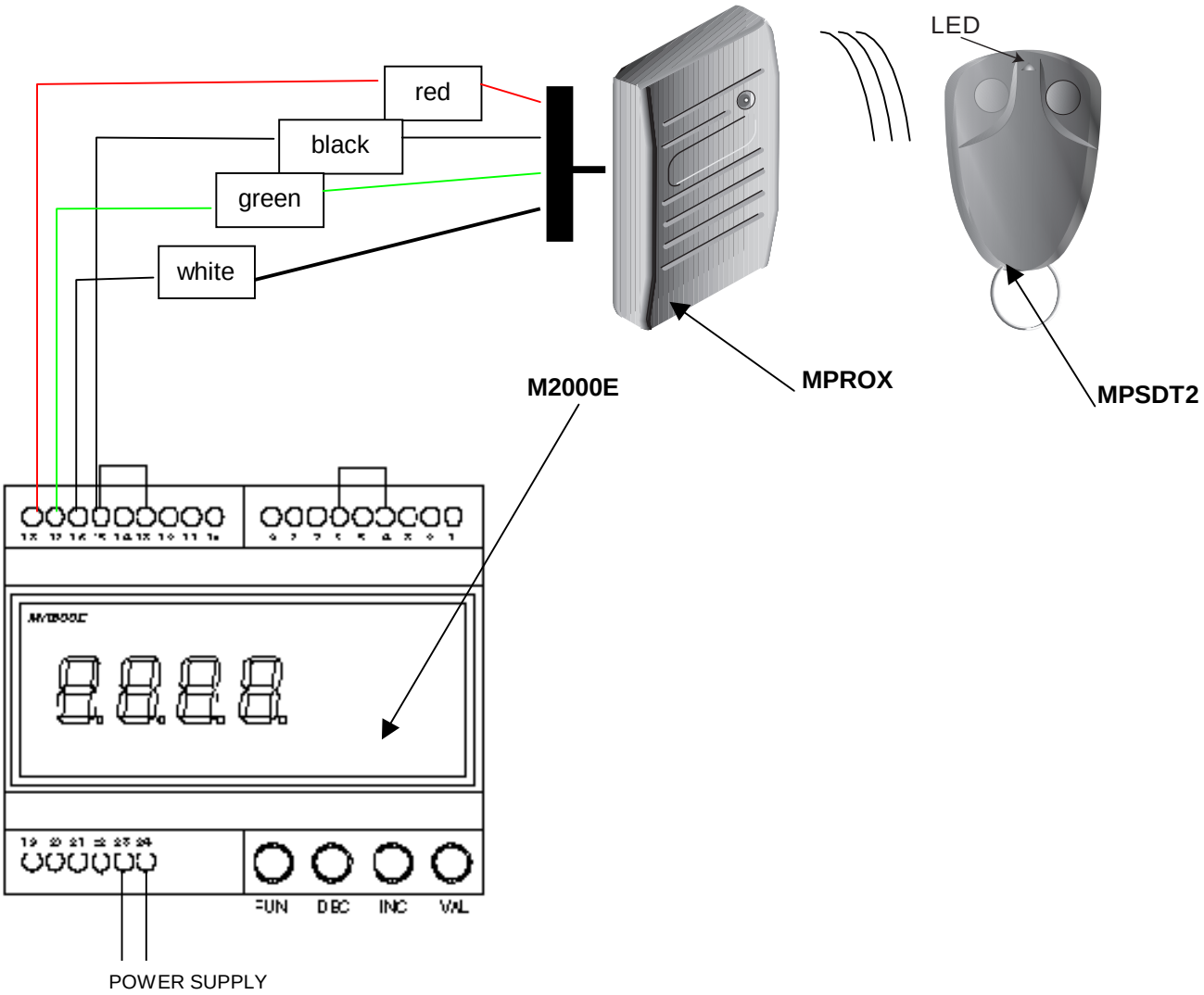
None. EUT is housed in a plastic box.

3.4 Equipment Modifications

To achieve compliance to requested levels, no changes were made during compliance testing.

3.5 Configuration of the Tested System

Figure 3.1 Configuration of the Tested System



4 BLOCK DIAGRAM(S) OF THE EUT

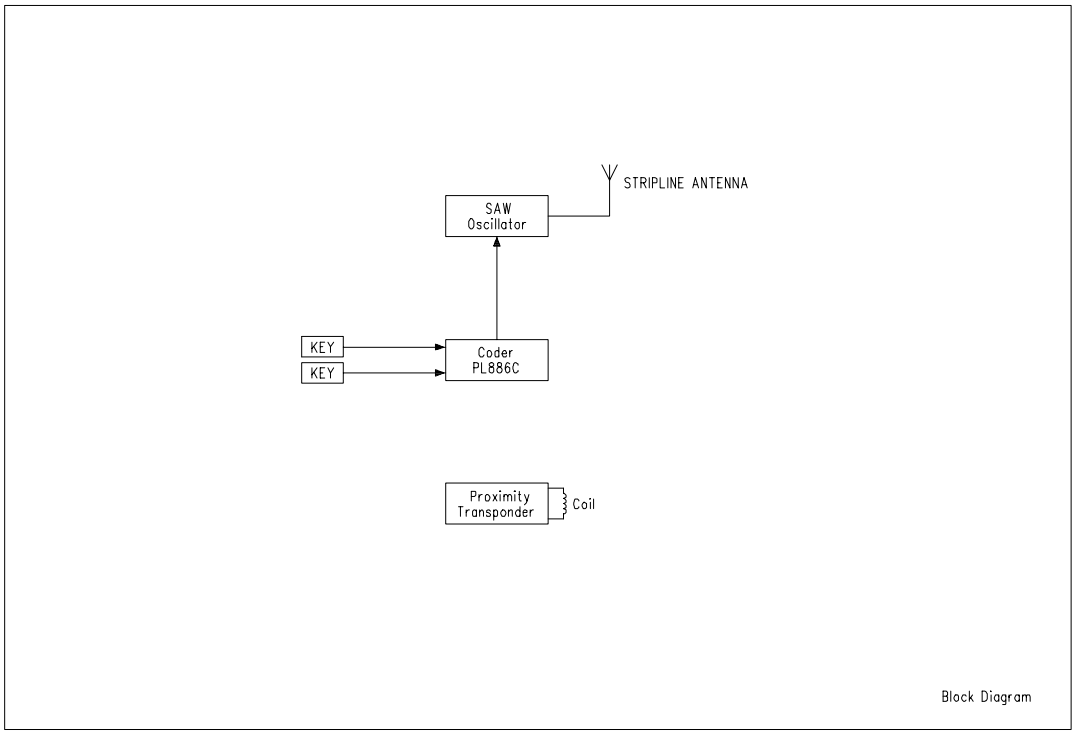
4.1 Block Diagram Description

The Controller Board of the EUT is provided with:

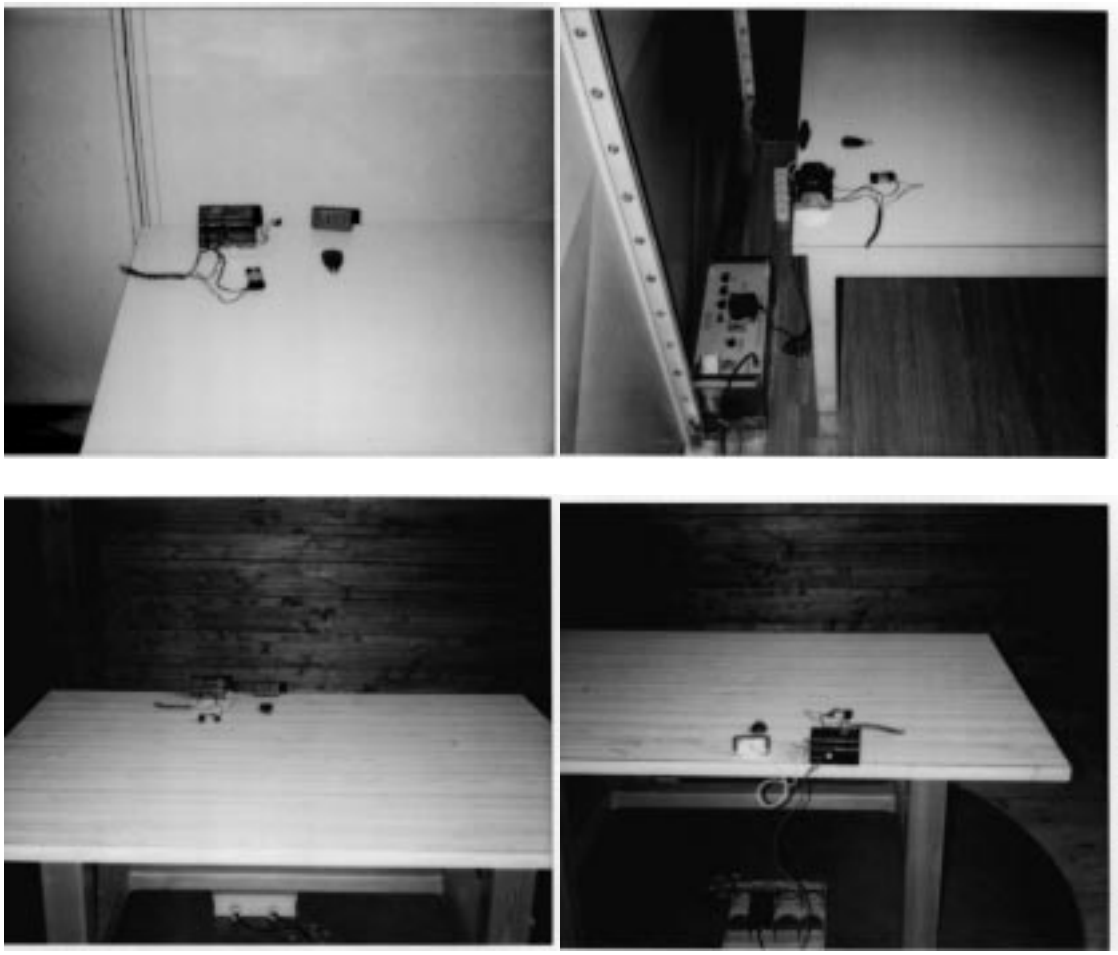
SAW oscillator SAW1= 433.920 MHz

Transponder Nil=125 kHz

Fig. 4.1 - Block Diagram of the EUT



5 CONDUCTED AND RADIATED MEASUREMENT PHOTOS



6 CONDUCTED EMISSION DATA

6.1 Tests of the worst case configuration.

The conducted tests are performed with a receiver in quasi-peak mode.

	Frequency (MHz)	Measured* (dBµV)	Limit (dBµV)
neutral	0.48	38	48
	0.58	37	
	2.8	46	
	11	38	
	16.6	44	
	22.1	38	
line	0.48	37	48
	0.58	36	
	2.8	47	
	11	39	
	16.6	43	
	22.1	39	

* All readings are quasi-peak

Test Personnel:

Tester Signature _____ Date September 29, 1999

Typed/Printed Name Giuseppe MECCHIA .

7 RADIATED EMISSION DATA

7.1 Tests of the worst case configuration

Frequency range:
from the lowest radio frequency generated in the EUT to the 10th hamonic of the highest frequency generated.

- 1 Configuration for radio transmitter testing (stand alone mode)

(according to 15.231)
Frequency range: from 30 MHz to the 10th hamonic of the highest frequency generated in the EUT.

The following data list the significant emission frequencies, measured levels, correction factors (including cable and antenna corrections), the corrected reading, plus the limit. Field strenght calculation is given in paragraph 7.2.

Judgement: Passed by 3.8 dB

Frequency (MHz)	Polarity (V/H)	Receiver* Reading (dBµV)	Correction Factor (dB/m)	Corrected Reading (dBµV/m)	3 Meter Limit (dBµV/m)
433.9	V	56	21	77	80.8
867.8	V	24.2	29.5	53.7	61.9
1301.7	H	33.7	24.4	58.1	61.9
1735.6	V	19.2	25.6	44.8	61.9
2603.4	H	20.8	28.2	49	61.9
3037.3	H	15.2	30.2	45.4	61.9

* below 1 GHz readings are quasi-peak, with an IF bandwidth of 120 kHz, above 1 GHz are peak with an IF bandwidth of 1 MHz.

Bandwidth of emission: requested 0.25% of 433.92 MHz = 1.085 MHz
measured 0.400 MHz

- 2 Configuration for transponder section testing

(according to 15.209)
Frequency range:
from the lowest radio frequency generated in the EUT to 30 MHz.

Judgement: Passed by 13 dB

Frequency (kHz)	Polarity (V/H)	Receiver* Reading (dBµV)	Correction Factor (dB/m)	Corrected Reading (dBµV/m)	30 Meter Limit (dBµV/m)
125.4	V	36.4	-2	34.4	65.6
376.4	V	14.2	-3	11.2	56.1
627.4	V	12.8	-3	9.8	31.6
878.3	V	13.5	-3	10.5	28.7
11000	V	21	-4	17	30

* below 150 kHz readings are quasi-peak, with an IF bandwidth of 200 Hz,
above 150 kHz are quasi-peak, with an IF bandwidth of 9 kHz.

Test Personnel:

Tester Signature _____ Date October 01, 1999

Typed/Printed Name Giuseppe MECCHIA .

7.2 Field Strength Calculation

7.2.1 The field strength is calculated by adding the Antenna and Cable Factor to the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CF

where

FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Attenuation Factor

Assume a receiver reading of 56 dBμV is obtained. The Antenna and Cable Factor of 21 is added, giving a field strength of 77 dBμV/m. The 77 dBμV/m value was mathematically converted to its corresponding level in μV/m.

FS = 56 + 21 = 77 dBμV/m

Level in μV/m = Common Antilogarithm [(77 dBμV/m)/20]= 7080 μV/m

8 PHOTOS OF TESTED EUT

Fig. 8.1 Overall front view
Fig. 8.2 Overall rear view
Fig. 8.3 Rear view with cover removed
Fig. 8.4 Unit partially disassembled
Fig. 8.5 Controller Board - Components side
Fig. 8.6 Controller Board - Foil side

Fig. 8.1 Overall front view

Fig. 8.2 Overall rear view

Fig. 8.3 Rear view with cover removed

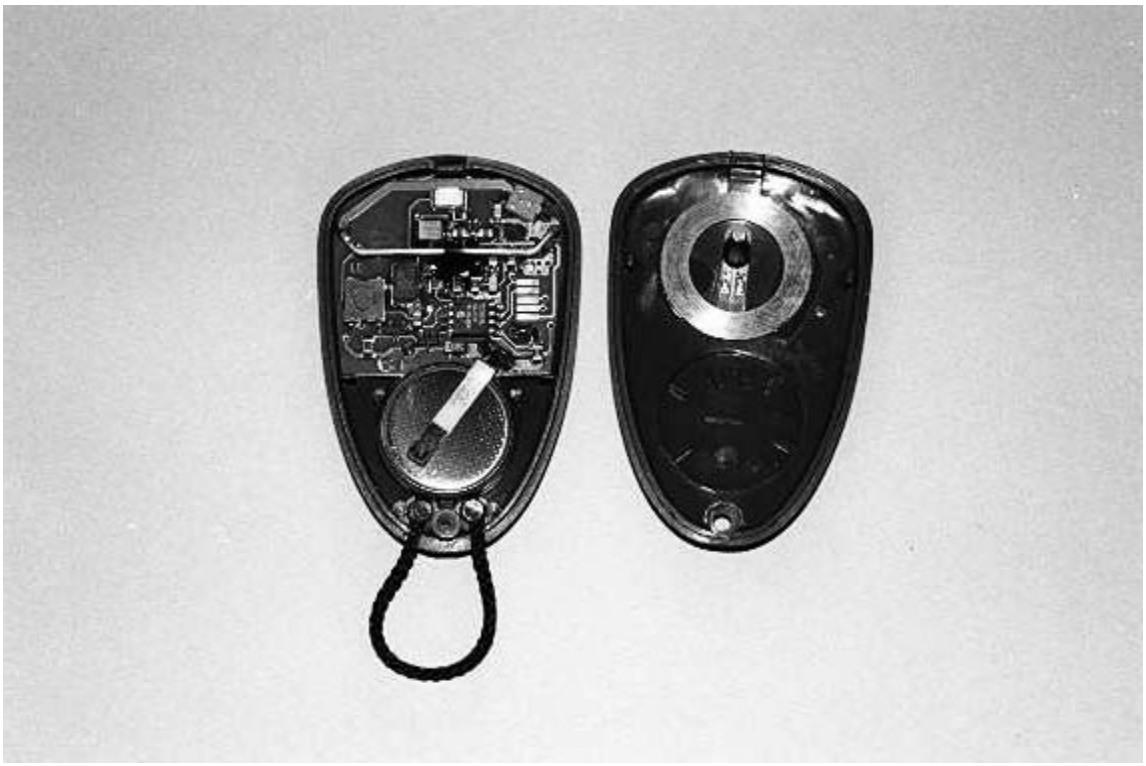


Fig. 8.4 Unit partially disassembled

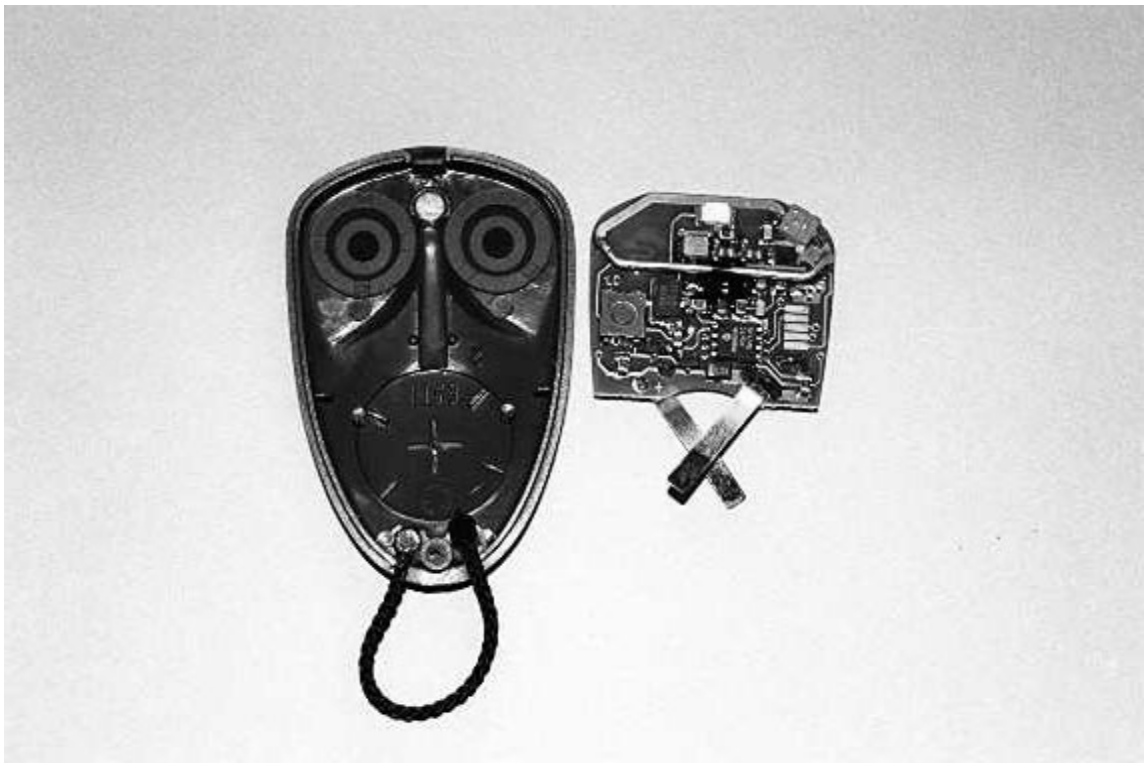


Fig. 8.5 Controller Board - Components side

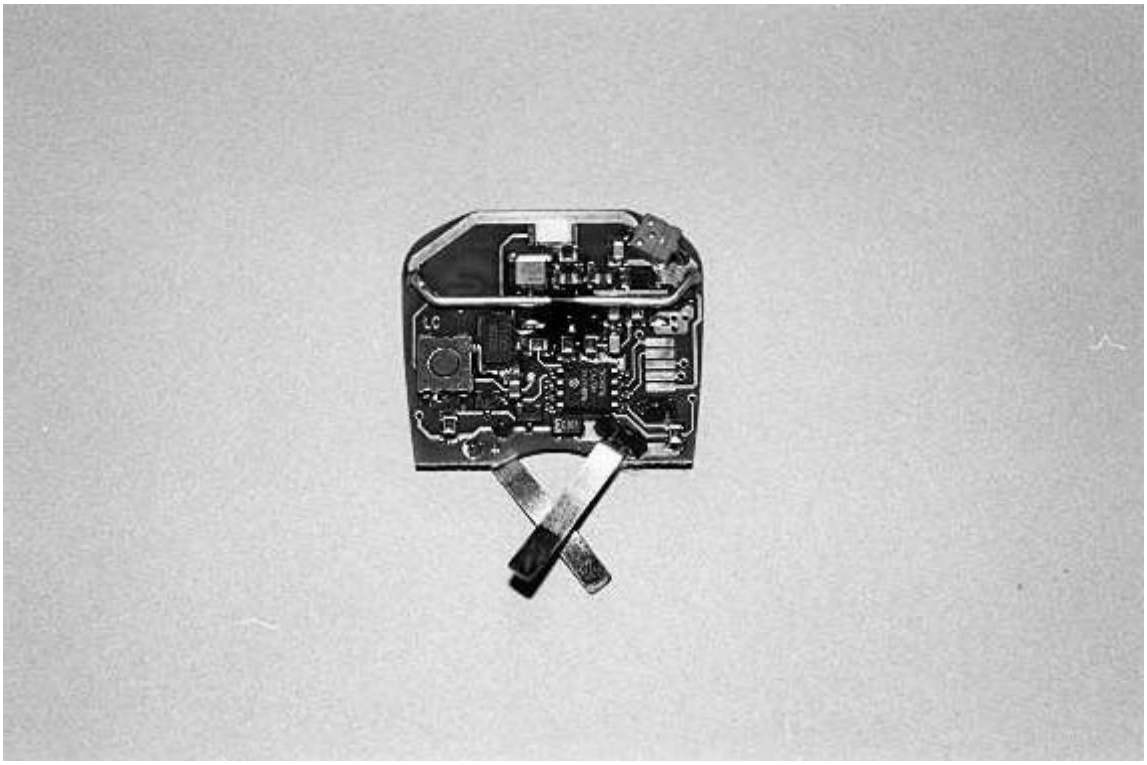
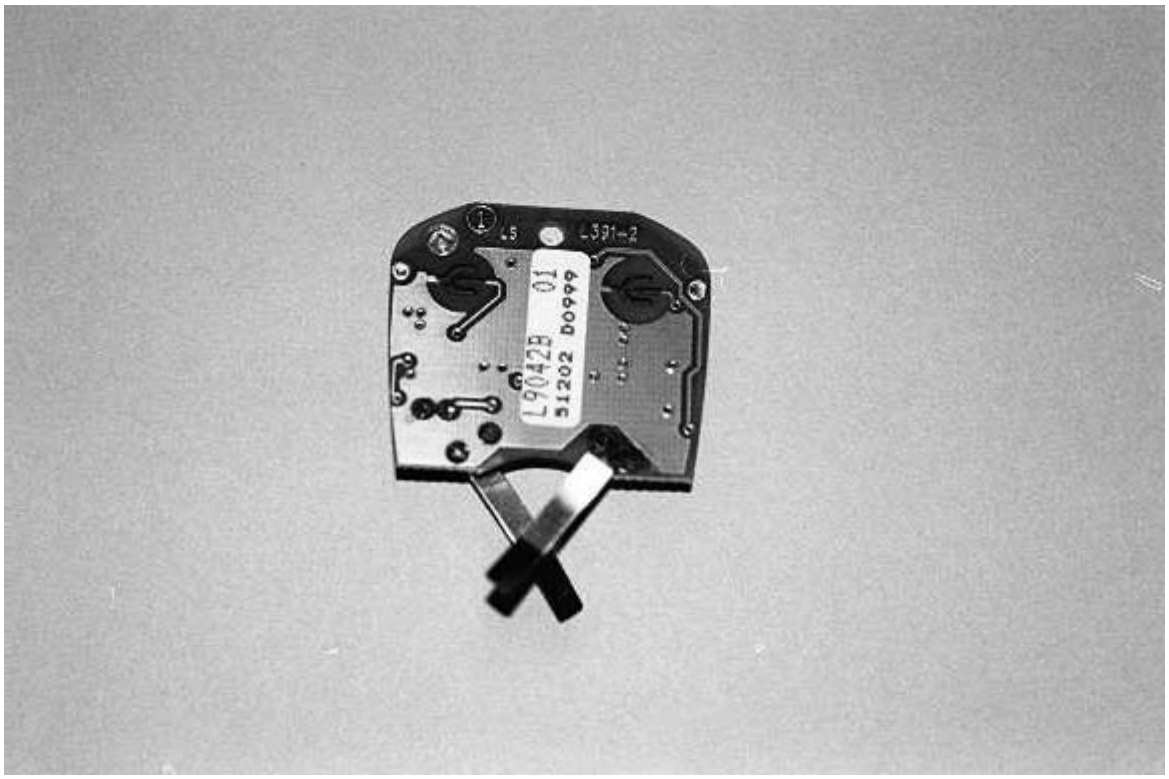


Fig. 8.6 Controller Board - Foil side



User Manual

CAUTION FOR THE USER

Any change or modification of the product is forbidden if not expressly approved by the manufacturer

0. DESCRIPTION

MPSDT2 is a radio transmitter used with radio receivers of the Multipass and Roll series; furthermore it is provided with a passive transponder (frequency 125 kHz) which permits to operate with a proximity reader used in access control applications. It has two pushbuttons being capable to activate two different output channels on a radio receiver working with the same code and the same operating frequency. It can also activate the output of a proximity reader by means of transponder.
It works on 433.920 MHz frequency regulated by a SAW oscillator (radio section) and on 125 kHz frequency (transponder section). It is provided with an integral antenna. It is not possible to transmit continously with MPSDT2.

1. APPLICATIONS

It can be used in remote control applications as door opener and in control access applications.

2. TECHNICAL FEATURES

Transmission frequency	433.92 MHz (radio section) – 125 kHz (transponder section)
Type of code	rolling code
No. Of channels	2 (radio) + 1 (transponder)
Power supply	6V (two 3 V lithium battery)
Power consumption	Negligible when not operating, 15mA for transmission
Duration of transmission	2 sec (radio transmission)
Signalling devices	red LED

PRASTEL S.p.A.
Via del Vetraio, 7 40138 Bologna - ITALIA
Tel. +39.051.602.33.11 Fax. +39.051.53.84.60
http://www.prastel.com e-mail:info@prastel.com

3. HOW TO PROCEED WHEN CHANGING THE BATTERY

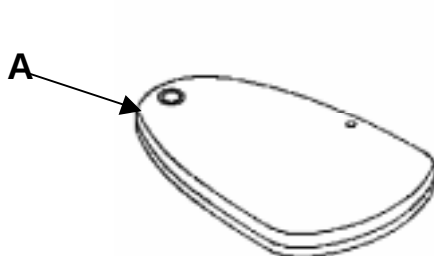


FIG. 1

HOW TO CHANGE THE BATTERIES:

- Loosen screw «A» as shown in Fig. 1.
- Open the remote control.
- Remove the batteries handling them as shown in Fig. 2.
- Fit new batteries taking care of aligning polarity correctly (see Fig. 4).

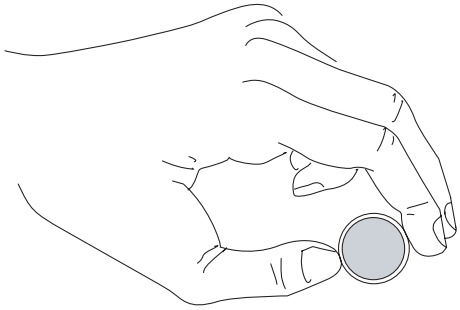


FIG. 2

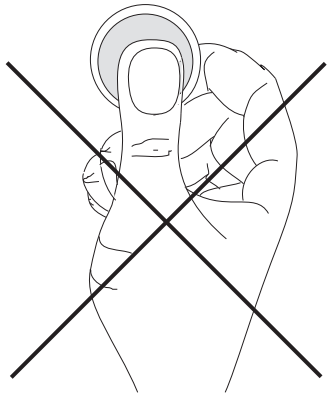


FIG. 2/1

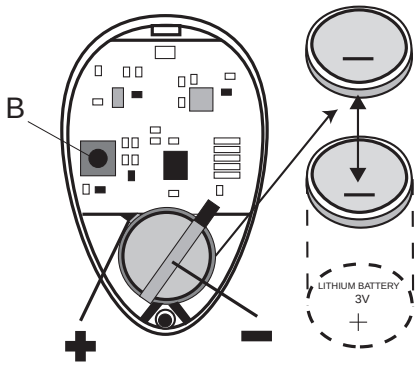


FIG. 4

FCC ID: ON3MPSDT2

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful

interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.