

E8368
Texecom Limited
Prestige DT Detector
June 2007
FCC

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1 Test Information

The results contained within this Test Report only apply to this specific Equipment Under Test.

Test Emissions - Intentional Radiators

Standards CFR 47 Part 15: 2006, Reference (15.207)
CFR 47 Part 15: 2006, Reference (15.209)
ANSI C63.4: 2003

Equipment Under Test (EUT)

Description	Alarm Equipment
Manufacturer	Texecom Limited
Model Name	Prestige DT
Model Number	DTD007-2
PCB Reference	D0436-02.03

EUT Specification

Height	112.5mm
Width	60mm
Depth	40mm
Weight	170g
Voltage	9-16VDC
Current required from above voltage source	12mA
Highest Frequencies used / generated	10.525GHz

Manufacturer Texecom Limited
 Bradwood Court
 St Crispin Way
 Haslingden
 Lancashire
 BB4 4PW

Representative John Harrison

Purchase Order HRD0577

Test Started 18th May 2007

Test Finished 18th June 2007

Test laboratory (conducted emissions part only)

FCC registration number: 434344

Cranage EMC Testing Limited
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Oakley
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Test laboratory (radiated emissions part only)

FCC registration number: 293246

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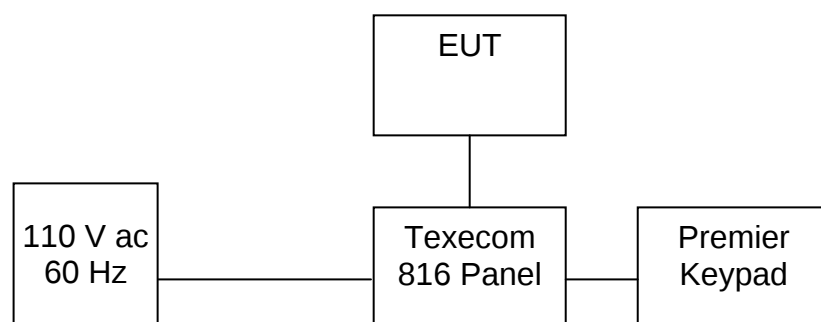
2 Equipment Under Test

2.1 General

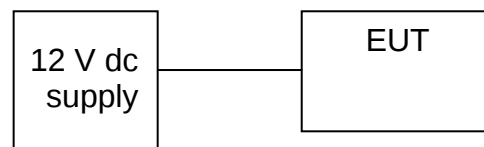
Photographs of the Equipment Under Test (EUT) can be found in Appendix 1.

The EUT was tested as shown in the diagram below. During the conducted emissions testing, the EUT was tested with the EUT in detection mode, alarm & tamper zones active and the FTA port loaded. During the radiated emissions testing, the EUT was powered from a 12V dc supply.

Conducted Emissions Setup (Tested By Cranage EMC Testing Ltd)



Radiated Emissions Setup (Tested by RN Electronics Ltd)



2.2 Peripheral Equipment

Description	Alarm Panel	Keypad Panel
Manufacturer	Texecom	Texecom
Model Name	-	Premier
Model Number	816	-
PCB Serial Number	EOS4137624	PLS4181732

2.3 Cables

No specific cables were used for the purpose of this test.

3 Test Result Summary

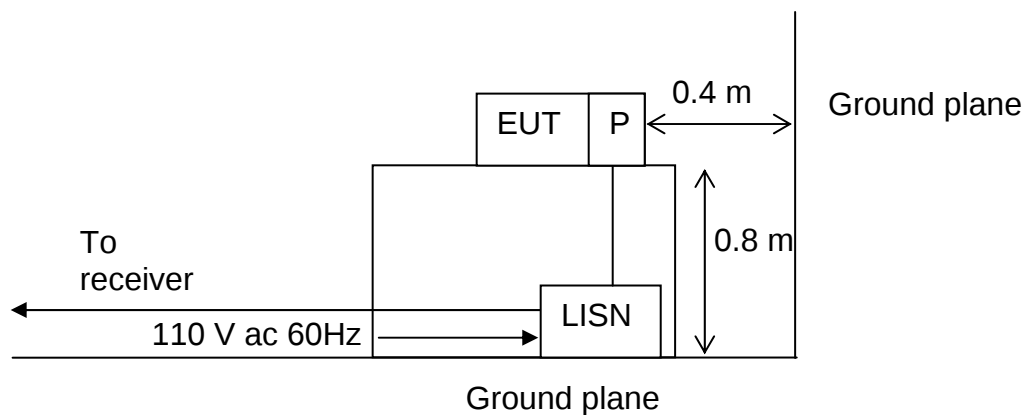
CFR 47 Part 15: 2006 Reference (15.207)	Conducted Emissions	Pass (Class B)
CFR 47 Part 15: 2006 Reference (15.209)	Radiated Emissions	Pass (Class B)

4 Test Set-Up

4.1 Conducted Emissions (Tested by Cranage EMC Testing Ltd)

4.1.1 Physical Set-Up

CFR 47 Part 15: 2006 made reference to the conducted emissions test in ANSI C63.4: 2003. The EUT and test equipment were set up as shown below.



LISN Line Impedance Stabilization Network
P Peripheral Equipment
EUT Equipment under test

The EUT & peripheral equipment were placed on a non-conducting table, 0.8 m above a horizontal ground plane, and 0.4 m from a vertical ground plane. The EUT was connected to the peripheral equipment which was connected to a LISN via a 1 m long mains cable. The peripheral equipment was kept at least 0.8 m away from the LISN. The LISN was powered at 110 V ac 60 Hz mains.

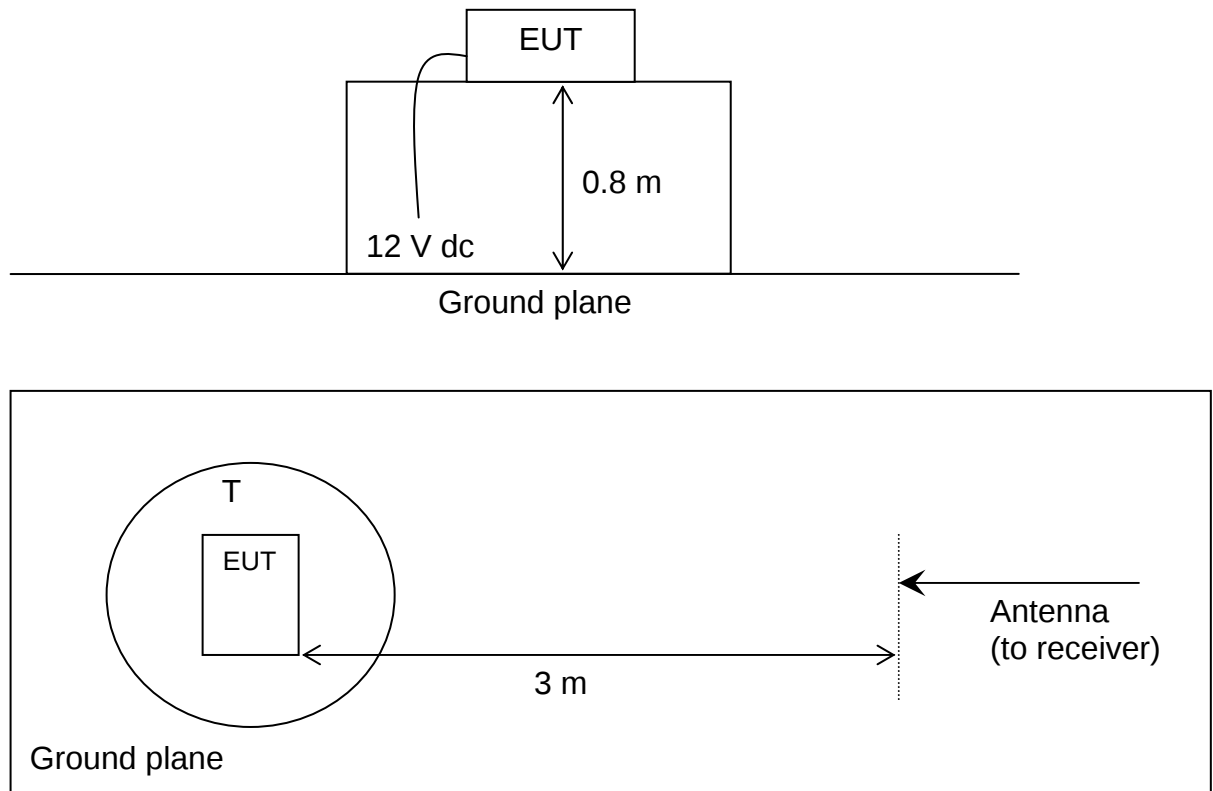
4.1.2 Equipment Used

Description	Make and Model	Serial Number	Asset
Receiver	Rohde & Schwarz ESHS10	834495/012	224
LISN	Rohde & Schwarz ESH3-25	834129/010	225
Attenuator	Mini Circuits NAT 10	-	203
Attenuator	Mini Circuits NAT 10	-	248
Cable	Cranage	-	470
Cable	Cranage	-	471

4.2 Radiated Emissions (Tested by RN Electronics Ltd)

4.2.1 Physical Set-Up

CFR 47 Part 15: 2006 made reference to the conducted emissions test in ANSI C63.4: 2003. The EUT and test equipment were set up as shown below by RN Electronics Limited.



T Turntable

The EUT was placed on a non-conducting table, 0.8 m above a ground plane, 3 m away from the measuring antenna. The EUT was not connected to any peripheral equipment. 12 V dc was supplied to the EUT via a 1 m long cable from a dc supply.

Measurements above 12.4 GHz were measured at a test distance of 1 m.

4.2.2 Equipment Used

Description	Make and Model	Serial Number	Asset
EMI Receiver & RF Filter	Hewlett Packard HP8542E	-	E1
Horn 26-40 GHz	Hughes 45821H-2020	-	E204
1-18 GHz Horn Antenna	Schaffner BHA 9118	-	E268
Harmonic Mixer 6 Piece Set 18- 110GHz	HP 11970	-	E296
Spectrum Analyser	Hewlett Packard HP8593E	-	E3
Broadband Horn Antenna 1.5 - 18 GHz	Q-par WBH218	-	E341
Spectrum Analyser 26.5 GHz	HP 8563E	-	E342
Standard Gain Horn 40-60GHz	Flann 2424-20	-	K1339
Active Loop Antenna	EMCO 6502	-	TMS81
Pre Amplifier 1 - 26 GHz	Agilent 8449B	-	TMS82
Bilog Antenna 30MHz - 2GHz	York EMC CBL6141A	-	TMS933

5 Results

5.1 Conducted Emissions (Tested by Cranage EMC Testing Ltd)

This test took place on 18th June, 2007. The EUT was set up as described in 2.1.

Temperature: 21 °C
Humidity: 57 % rh

The EUT's conducted emissions were measured on its live and neutral lines to the limits specified in CFR 47 Part 15: 2006 Class B.

Quasi-Peak & Average Receiver Bandwidth Settings

Resolution Bandwidth = 10 kHz

The table below contains the ten results with the smallest compliance margins. The actual result print-outs are in Appendix 2. These results were taken by Cranage EMC & Safety Ltd.

Line	Quasi-Peak/ Average	Frequency (MHz)	Amplitude (dB(μV))	Limit (dB(μV))	Margin (dB)
N	QP	0.15	47.64	66	18.36
N	QP	0.17	46.95	64.96	18.01
N	QP	0.325	32.1	59.58	27.48
N	QP	0.335	32.02	59.33	27.31
N	QP	0.345	31.96	59.08	27.12
L	QP	0.15	48.11	66	17.89
L	QP	0.165	47.75	65.21	17.46
L	QP	0.35	34.31	58.96	24.65
L	QP	0.36	34.19	58.73	24.54
L	QP	0.37	34.01	58.50	24.49

The 95 % confidence measurement uncertainty for this test is 3.9 dB. This is the Cranage EMC & Safety measurement uncertainty value for this test.

The EUT was seen to comply with the limits of CFR 47 Part 15: 2006 Section 15.207.

5.2 Radiated Emissions (Tested by RN Electronics Ltd)

This test took place on 18th June, 2007. The EUT was set up as described in 2.1.

Temperature: 21 °C
Humidity: 65 % rh

The EUT's radiated emissions other than those related to the radio portion were measured to the limits specified in CFR 47 Part 15 Subpart B Class B. Fundamental and spurious emissions related to the radio portion were measured to the limits of CFR 47 Part 15 Subpart C Paragraphs 15.245, 15.209, and 15.35 as applicable.

Due to the EUT's operating frequency the emissions were investigated up to the 5th harmonic. The tables below contain the results with the smallest compliance margins after maximization was carried out. To achieve this maximization the equipment was rotated 360° and the antenna scanned 1 – 4 metres in both horizontal and vertical polarizations.

Quasi-Peak Analyser Bandwidth Settings

Resolution Bandwidth = 120 kHz
Video Bandwidth of Receiver = 300 kHz

Average Analyser Bandwidth Settings

Resolution Bandwidth = 1 MHz
Video Bandwidth of Receiver = 3 MHz

All the results presented here are based on the following:-

Final Results = EUT amplitude + Antenna Factor + Cable Factor – Distance Factor

The following results were taken by RN Electronics Ltd.

Fundamental Emissions (Worst Case)

Freq (MHz)	Peak Amp (dBuV/m)	Peak Limit (dBuV/m)	Peak - Margin (dB)	QP Amp (dBuV/m)	QP Limit (dBuV/m)	QP - Margin(dB)
46.753200	37.53	40.0	2.47	25.44	40.0	14.56
47.051550	38.61	40.0	1.39	28.03	40.0	11.97
45.065400	36.72	40.0	3.28	25.38	40.0	14.62
46.045800	38.89	40.0	1.11	27.97	40.0	12.03
50.114850	35.15	40.0	4.85	24.61	40.0	15.39
99.403050	29.80	43.5	13.70	19.80	43.5	23.70
100.335900	29.96	43.5	13.54	19.29	43.5	24.21
130.093650	30.27	43.5	13.23	18.55	43.5	24.95
131.088600	30.55	43.5	12.95	18.97	43.5	24.53

Fundamental Emissions (Worst Case)

Freq (GHz)	Av. Amp (dBuV/m)	Av - Lim1 (dBuV/m)	Margin (dB)
10.522	107.58	128	20.42

Harmonic Emissions (Worst Case)

Freq (GHz)	Av. Amp (dBuV/m)	Av - Lim1 (dBuV/m)	Margin (dB)
21.044	53.50	88	34.5
31.544	64.34	88	23.66

The 95 % confidence measurement uncertainty for this test is 5.2 dB. This is the RN Electronics measurement uncertainty value for this test.

The fundamental and spurious peak emissions were below either the Peak or Average limit respectively.

The EUT was seen to comply with the limits of CFR 47 Part 15: 2006 Section 15.209.

Appendix 1 EUT Photographs



Conducted Emissions (Tested by Cranage EMC Testing Limited)



Radiated Emissions (Tested by RN Electronics Ltd)



EUT (Front Face)



EUT (Rear Face)



EUT (Left Face)



EUT (Top Face)



EUT (Bottom Face)



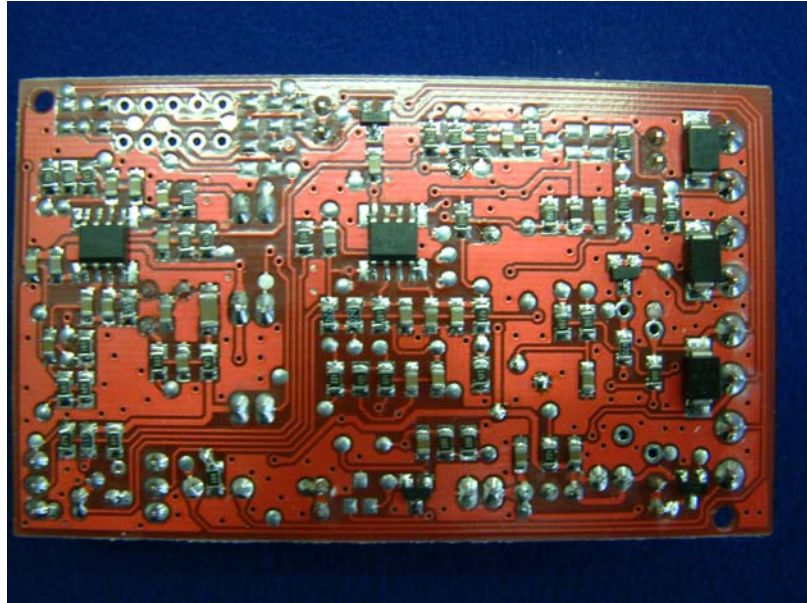
EUT (Right Face)



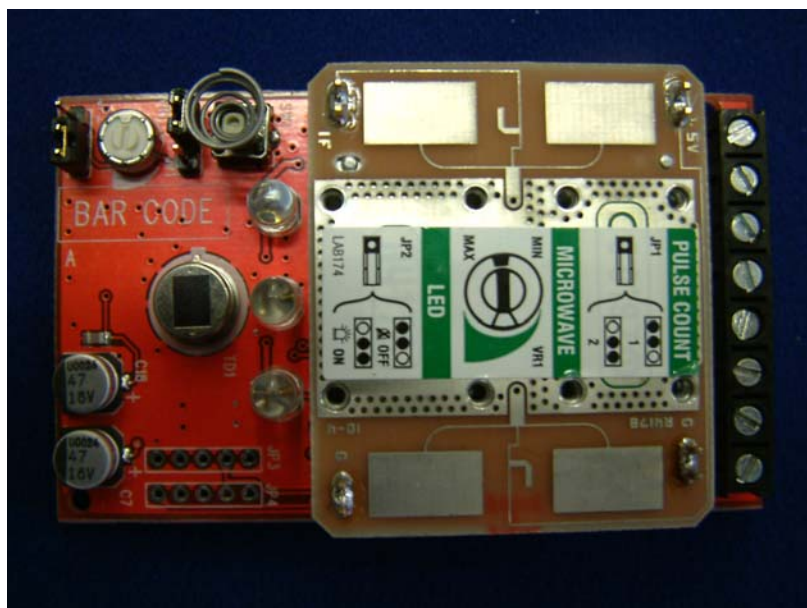
EUT (Front Face Removed – Exploiting Microwave Module)



EUT (Rear Face of Enclosed Prestige DT)



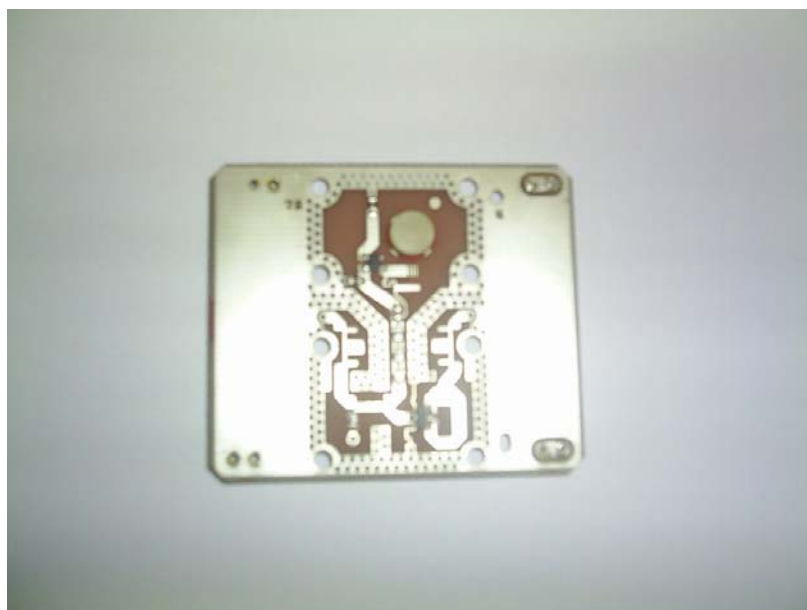
EUT (Rear of Main PCB)



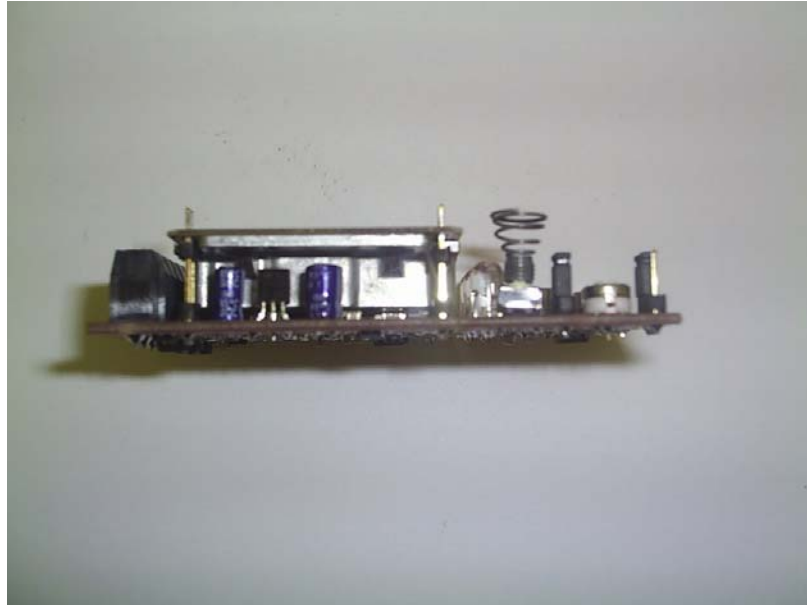
EUT (Front face of PCB's)



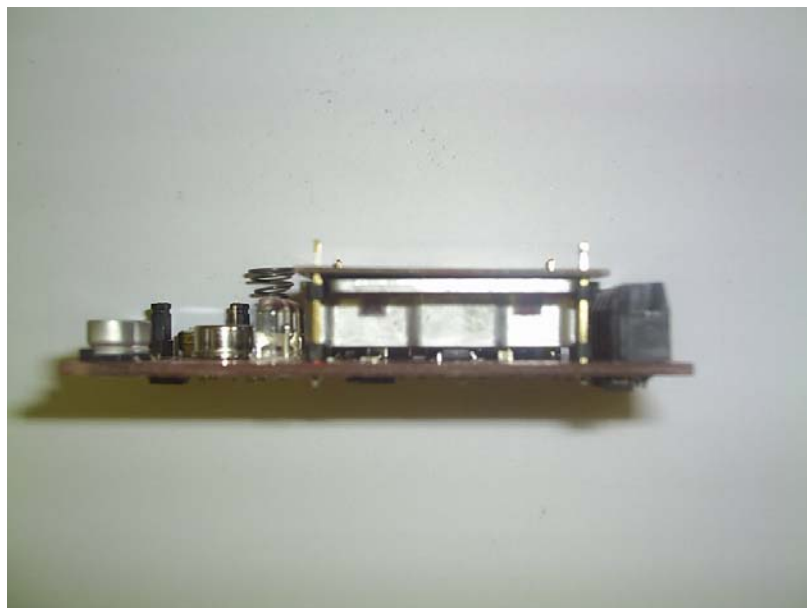
EUT (Front of Main PCB)



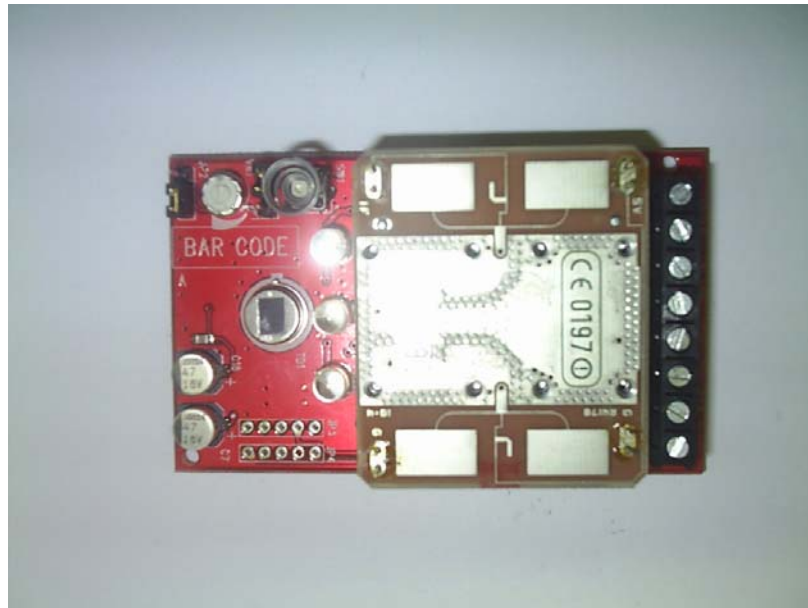
EUT (Underside of Microwave PCB)



EUT (Right side of PCB's)



EUT (Left side of PCB's)



Front face of PCB's