



Electromagnetic Compatibility

Test of: Tracker Immobiliser

Model Number: TRACKM8 T2002

Applicant: Interactive Projects

Test Type: Type Test for 433MHz receiver compliance

Test Specification: FCC CFR47, parts 15.109 for unintentional radiators.

SGS Serial Number: DUR42760/01/EMC/ST/04

Date of Receipt: 26th November 2004

Date of Test(s): 30th November 2004 to 16th December 2004

Date of Issue: 6th January 2004

Issue Number: 1

This report is issued by the Company subject to its General Conditions of Service available upon request and accessible at www.sgs.com. Attention is drawn to the limitations of liability, indemnification, jurisdictional, representative restrictions of test samples and sample retention policies defined therein.

This report refers only to the sample submitted for test.

This report shall not be reproduced except in full without the written approval of the testing laboratory.

Test Engineer

S. Thompson

Authorised Signatory

A. Reynard
Technical Manager



TEST REPORT

Page 2 of 13

Issue Date: 6th January 2004
SGS Serial Number: DUR42760/1/EMC/ST/04
Issue Number: 1

CONTENTS	Page Number
1. Client Information	3
2. Details Of Test Laboratory	3
3. Equipment Under Test (EUT)	4
3.1 Identification Of EUT	4
4. Test Specification, Methods and Procedures	4
4.1 Test Specification(s)	4
4.2 Purpose Of Test	4
4.3 Methods and Procedures	5
4.3 Methods and Procedures	5
5. Deviations or Exclusions from the Test Specifications	6
6. Operation of the EUT During Testing / Configuration and Peripherals	7
6.1 Operation of EUT during testing.	7
6.2 Configuration and Peripherals	7
7. Test Results	8
7. Test Results	8
7.1 General Comments	8
7.2 Modifications Made to the EUT	8
7.3 Summary of Test Results	9
7.4 Radiated Emissions Test Results	10

1. Client Information

Company Name: Interactive Projects Limited

Address: Lydden House
 Wincombe Business Park
 Shafesbury
 Dorset
 SP7 9QJ

Contact Person: Mr Tim Cowley

Telephone: 0870 380 0531 / 0870 380 0532

Facsimile: 0870 380 0533

2. Details Of Test Laboratory

Company Name: SGS UK Ltd.

UKAS Accreditation Number: 1116

Address: South Industrial Estate,
 Bowburn,
 Co. Durham,
 DH6 5AD.

Contact Persons: Mr Alan Reynard

Telephone: +44 191 377 2000

Facsimile: +44 191 377 2020

3. Equipment Under Test (EUT)

3.1 Identification Of EUT

Model Number:	TRACKM8 T2002
Unique Identifier:	Not Supplied
Description of EUT:	Tracker Immobiliser
Highest Internal Clock Frequencies:	1.6 GHz
Supply Voltage:	12V – 24V
Classification:	B
Accessories Supplied:	None

4. Test Specification, Methods and Procedures

4.1 Test Specification(s)

Specification(s)	Title
FCC CFR 47 : October 2003 Parts 15.109	Code Of Federal Regulations

4.2 Purpose Of Test

To perform the relevant tests and assess the product for compliance with the above specification. Certification to be obtained based on this report and modular approval of the GSM and 433 MHz unintentional radiator.

4.3 Methods and Procedures

The standards listed on the previous page refer to the following tests: -

CFR 47 Clause	Test
15.109	Radiated Emissions



TEST REPORT

Page 6 of 13

Issue Date: 6th January 2004
SGS Serial Number: DUR42760/1/EMC/ST/04
Issue Number: 1

5. Deviations or Exclusions from the Test Specifications

There were no deviations from the test specifications.

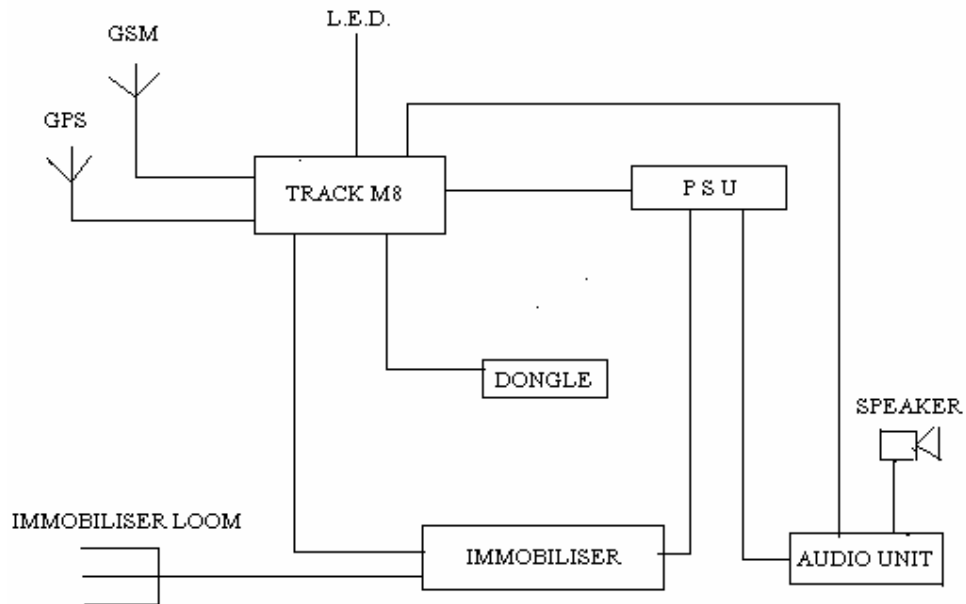
6. Operation of the EUT During Testing / Configuration and Peripherals

6.1 Operation of EUT during testing.

Refer to individual test results sections for details of EUT operation during testing.

6.2 Configuration and Peripherals

The following configuration was used for testing:



The immobiliser loom was terminated open circuit and the PSU (Power Supply Unit) was not part of the EUT.

7. Test Results

7.1 General Comments

The test methods used are referred to in the individual test results sections of this test report.

7.2 Modifications Made to the EUT

No modifications were made to the EUT during the testing process.

However prior to testing a Wurth Elektronik ferrite was placed on the audio cable with 1 turn. The ferrite part number was 74271132.

7.3 Summary of Test Results

CFR 47 Clause	Test	Result
15.109	Radiated Emissions	Complied

Result

In the configuration tested, the EUT complies with the requirements of Clauses 15.109 of CFR 47 : October 2003.

Full details of all tests can be found in the test results section of this report.

7.4 Radiated Emissions Test Results

CFR Clause	15.109
Limits	Class B, 15.109 (a)
Frequency Range	30 MHz – 10 GHz

Operating Mode

The compliance test was performed whilst the EUT was switched on with a supply voltage of 12V. Pre-tests were performed with the supply voltage of 12v and 24 V however no significant difference was observed with the measurements.

Test Results

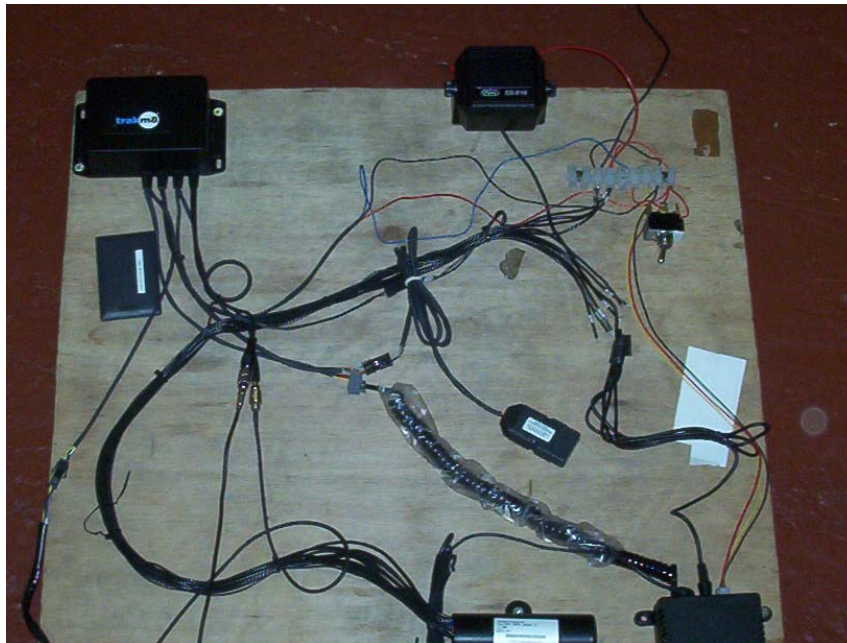
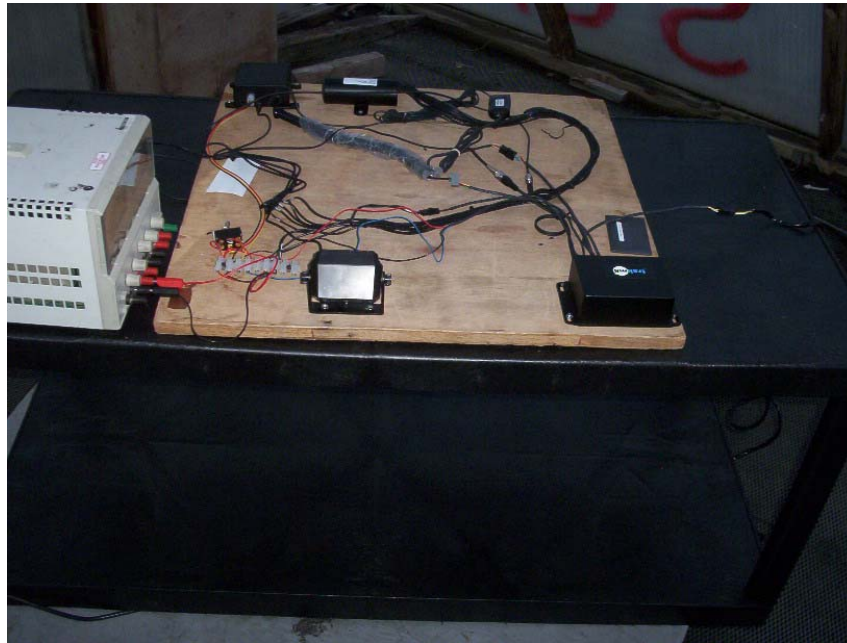
The tables indicate the compliance measurement when the measurements are performed on the open area test site at 3 m for the worst case emissions. Quasi Peak measurements were performed for frequencies below 1 GHz.

No EUT emissions were observed above 1 GHz. Measurements were performed up to 10 GHz.

Worse Case Emissions

Frequency (MHz)	3m Quasi Peak Measurement (dB μ V/m)	3m Limit (dB μ V/m)	Antenna Polarity (H/V)
65.440	17.5	40.0	V
130.914	37.2	43.5	V
161.768	15.8	43.5	V
196.397	42.8	43.5	V
130.930	36.6	43.5	H
163.664	27.8	43.5	H
196.397	40.4	43.5	H
261.869	37.2	46.0	H

Radiated Emissions Test Configuration



Radiated Emissions Environmental Conditions

Power Supply	12V
Temperature	10°C
Relative Humidity	30%
Barometric Pressure	981mb

Radiated Emissions Measurement Uncertainties

Frequency	± 200kHz
Amplitude	± 4.6dB

The uncertainties stated are calculated in accordance with the requirements of UKAS with a confidence level of 95%.

Test Equipment Used

Equipment Type	Model Number	Last Calibration Date	Calibration Interval
Receiver	HP EMC set	15 th August 2004	1 year
Antennas	Chase VBA. 606	22 nd July 2004	1 year
Antennas	EMCO 3146	17 th August 2004	1 year
Pre-amplifier	ZHL 1042J	19 th March 2004	1 year
Antennas	EMCO 6502	4 th August 2004	1 year
Check Equip	CNE	-	-
Antenna	EMCO 3115	20 th July 2004	1 year
Software	Open Site HP85879	-	-
Software	Oats, Oats 2, Oats 3	-	-