REPORT: **FCC / IC Radio Frequency (RF) test report**

PRODUCT:

Test item description:	Radio remote control
Trade Mark:	-
Model/Type reference:	DRC-DCR
Serial number:	PROTOTYPE
Customer:	SCANRECO Industrielektronik AB BOX 47144 / Årsta Skolgränd 22 S-100 74 Stockholm Sweden
Contact person:	-
Manufacturer:	SCANRECO Industrielektronik AB BOX 47144 / Årsta Skolgränd 22 S-100 74 Stockholm Sweden

DATE: **15.7.2009**

TESTED BY:

Simo Ojanen ; Test engineer

APPROVED BY:

Petri Juhola ; Test engineer

CONTENTS

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1 LABORATORY INFORMATION

Test Laboratory	Intertek ETL Semko OY EMC Laboratory Koneenkatu 12 / K17 05830 Hyvinkää FINLAND Tel: +358 10 424 6200 Fax: +358 10 424 6201 e-mail: firstname.surname@intertek.com
FCC registration number: **IC file number:**	910391 (January 27, 2003) IC 2042C-1 (May 14, 2003)

2 SUMMARY OF TEST RESULTS

The tests listed in this report have been done to demonstrate compliance to the FCC rules section §15.107, §15.109, §15.247 and IC standard RSS-GEN / RSS-210.

Transmitter measurements

Section in CFR 47	Section in RSS-210	Test	Result
15.247, a 1	A8.1 (2)	Carrier frequency separation	-
15.247, a 1 iii	A8.1 (4)	Number of hopping frequencies	-
15.247, a 1 iii	A8.1 (4)	Time of occupancy	-
15.247, a	A8.1 (1)	20dB bandwidth	-
15.247, b 1	A8.4 (2)	Peak output power	-
15.247, d	A8.5	Band-edge compliance of RF emissions	-
15.247, d	A8.5	Spurious RF conducted emissions	-
15.247, d	A8.5	Spurious radiated emissions	-

Receiver measurements

Section in CFR 47	Section in RSS-GEN	Section in ICES-003	Test	Result
§15.107	7.2.2	5.3	Conducted emissions to AC-power lines	-
§15.109	7.2.3	5.5	Radiated emissions	PASS

PASS Pass
FAIL Fail
X Measured, but there is no applicable performance criteria
- Not done

3 EUT INFORMATION

The EUT and accessories used in the tests are listed below. Later in this report only EUT numbers are used as reference.

	Device	**Type**	**S/N**	**EUT number**
EUT	Radio remote control	DRC-DCR	-	1
Accessories	-	-	-	-

3.1 EUT description

EUT is receiver board operating in the 900MHz ISM frequency band. The system supports only simplex communication.

The EUT was not modified during the tests.

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4 EUT TEST SETUPS

For each test the EUT was exercised to find out the worst case of operation modes and device configuration.

Two different test setups were used: one for conducted measurements, another for radiated measurements. One EUT was equipped with an external antenna connector for conductive measurements.

The test setup photographs are in the document referenced in section 8.

5 APPLICABLE STANDARDS

The tests were performed in guidance of:

CFR 47 Part:

§15.107
§15.109
§15.209
§15.247
ANSI C63.4 (2003)

IC standard:

RSS-GEN, Issue 1
RSS-210, Issue 7
CISPR 22, 2002

Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method" for each test case.

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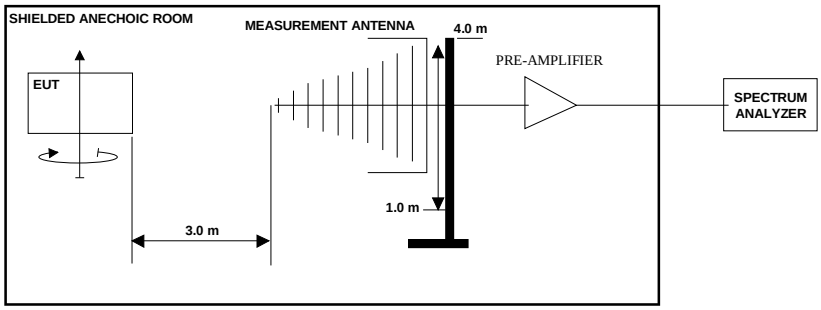
6 RECEIVER RADIATED EMISSION

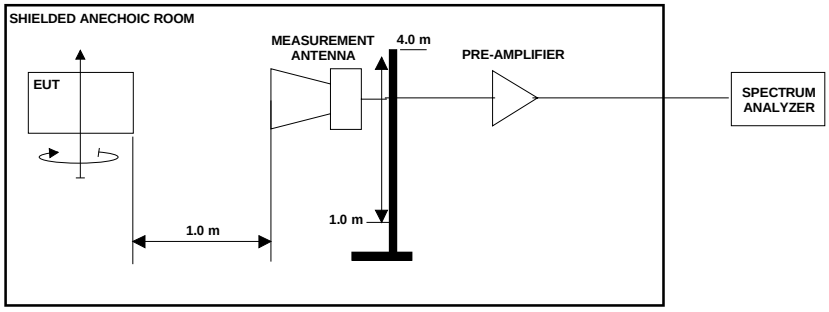
EUT	1		
Accessories	-		
Temp, Humidity, Air Pressure	24 ºC	26 RH%	993 hPa
Date of measurement	May 6, 2009		
FCC rule part	§15.109		
RSS-GEN section	7.2.3		
ICES-003 section	5.5		
Measured by	Simo Ojanen		

6.1 Test setup

The test was done using an automated test system, where a computer controlled the measurement equipments.



Picture 1: Test setup for radiated spurious emissions measurement 30 MHz - 1 GHz frequencies



Picture 2: Test setup for radiated spurious emissions measurement 1 GHz – 12,4 GHz frequencies

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6.2 Test method

1. The emissions were searched and maximized by moving the turntable, changing the measuring antenna polarization and height and manipulating the EUT.
2. Levels of suspicious signals and levels of EUT transmitter harmonics were recorded.
3. The recorded levels were corrected in the automated test system with the measurement antenna factor, cable attenuations and filter attenuation.
4. The corrected values, giving the EUT radiated spurious emission levels as dBµV/m at 3 m distance, are reported.

6.3 EUT operation mode

EUT operation mode	Receiver mode
EUT frequency	Na
EUT TX power level	Na

6.4 Limit

Table 1: Radiated spurious emission limits at measurement distance 3m

Frequency band (MHz)	3m Limit (µV/m)	3m Limit (dBµV/m)	Detector
30 – 88	100	40	QP
88 -216	150	43,5	QP
216 - 960	200	46	QP
960 - 1000	500	54,0	QP
1000 - 12400	500	54,0	AVG
1000 - 12400	5000	74,0	PEAK

As default, all emissions were compared against the general limits. If any emission exceeded that limit, it was further checked, if it was outside the restricted band thus complying with the -20dBc requirement.

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6.5 Results

The measured interference values using Quasi peak and average detectors are shown in the pictures below.

All signals closer than 6 dB to the limit below 1 GHz have been measured using quasi peak or average detector and reported in the table 2, 3 and 4.

Table 2: Radiated emissions using Quasi peak detector

Freq MHz	Measured Value dBuV	Correction Factor dB	Result dBuV/m	Marginal dB	EUT Position	Ant Pol.	Ant height	TT angle
N/A*)								

*)No peaks found

Table 3: Radiated emissions using Peak detector

Freq MHz	Measured Value dBuV	Correction Factor dB	Result dBuV/m	Marginal dB	EUT Position	Ant Pol.	Ant height	TT angle
N/A*)								

*)No peaks found

Table 4: Radiated emissions using Average detector

Freq MHz	Measured Value dBuV	Correction Factor dB	Result dBuV/m	Marginal dB	EUT Position	Ant Pol.	Ant height	TT angle
N/A*)								

*)No peaks found

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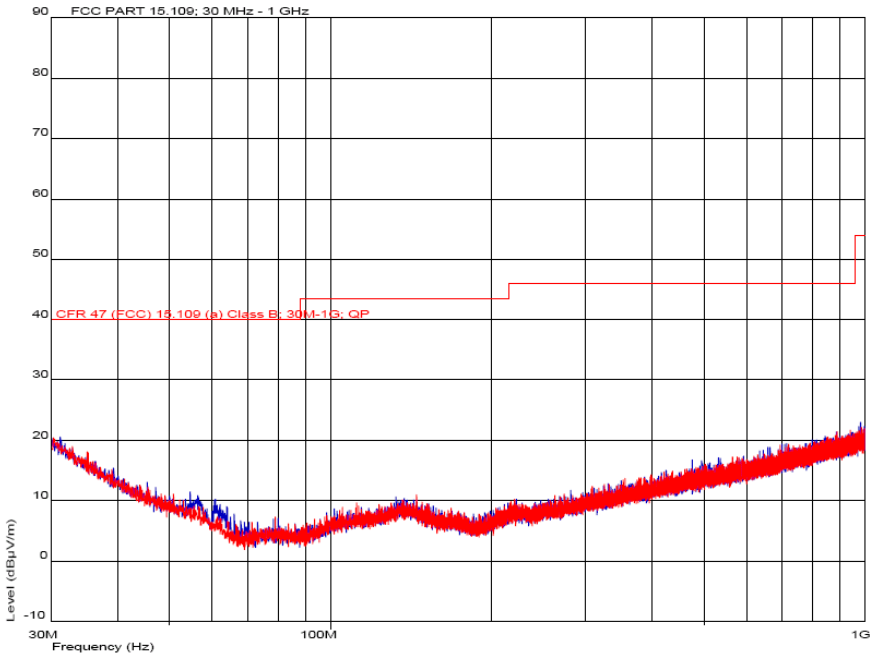
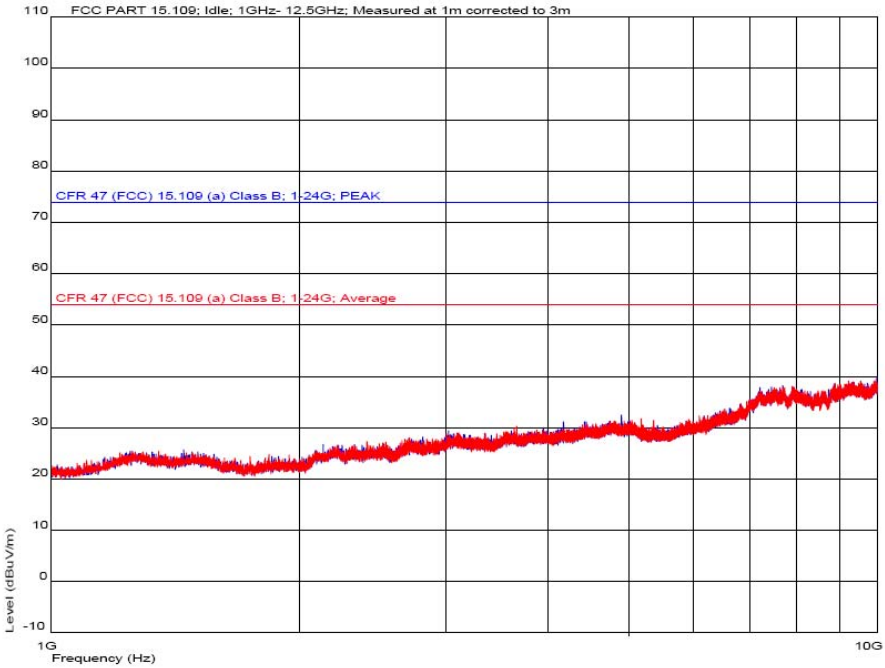


Picture 3: radiated emission results, 30 – 1000 MHz,
Red= horizontal polarization, blue = vertical polarization



Picture 4: radiated emission results, 1 – 10 GHz,
Red= horizontal polarization, blue = vertical polarization

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7 TEST EQUIPMENT

All testing and measurement equipment has been calibrated once a year, except the antennas which are calibrated every two years.

7.1 Radiated measurements

Equipment	Manufacturer	Model
Spectrum Analyzer	Agilent	E7405A
Antenna	Chase	CBL 6141
Antenna	Schwarzbeck	BBHA 9120D
High pass filter	Wainwright Instruments	WHK3.0/18GST
Pre-amplifier	JCA	118-400
Turn table / antenna mast controller	EMCO	2090
Antenna mast	EMCO	2075-2

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8 TEST SETUP PHOTOGRAPHS

Test setup photograph can be found in a separate document

T09-217C-RF_PHOTOS.doc

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