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The Netherlands
Chamber of Commerce
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Radio test report
20103371300 - Rev. 1.0

based on:

- FCC part 15; subpart C; section 15.209 and 15.249 (10-1-09 edition)

Wireless Intrusion Motion Detector
GE Security
DD669-U

Contents

This report comprises of three modules. The total number of pages is: 17

Main module

1 Introduction

This report contains the result of tests performed by:

Telefication B.V.
Edisonstraat 12a
6902 PK Zevenaar
The Netherlands

Ordering party:

Company name	:	UTC Fire & Security
Address	:	Kelvinstraat 16
Zipcode	:	6003 DH
City/town	:	Weert
Country	:	The Netherlands
Date of order	:	2 April 2010

2 Product

A sample of the following product was submitted for testing:

Product description	:	Wireless Intrusion Motion Detector
Manufacturer	:	UTC Fire & Security
Trade mark	:	GE Security
Type designation	:	DD669-U
FCC ID	:	YFYDD669-U
Hardware version	:	0947-3a
Serial number	:	1
Software release	:	V3.2

3 Test schedule

Tests were carried out in accordance with the specification detailed in chapter 7 “Summary” of this report.

Tests were carried out at the following location:

- Telefication, Zevenaar (registered as an accredited test laboratory with designation number NL0001 under the US-EU MRA)

The samples of the product were received on:

- 20 April 2010

Tests were carried out on:

- 22 and 23 April 2010

4 Product documentation

For production of this report the following product documentation was used:

Description	Date	Identification
Installation Instructions	--	DD66X Series Duals
DD669AM Schematic	8 Jan. 2008	200 6657, 3 pages
DD666 Schematic	8 Jan. 2008	200 6658, 3 pages
DD 666AM Schematic	8 Jan. 2008	200 6680, 3 pages
DD669 Schematic	8 Jan. 2008	200 6681, 3 pages
DD669AMZ Schematic	8 Jan. 2008	200 6683, 3 pages
DD669Z Schematic	8 Jan. 2008	200 6684, 3 pages
DD66x AM PIR Schematic	28 Mar. 2007	200 6655, 1 page
DD66x PIR Schematic	28 Mar. 2007	200 6661, 1 page
Drawing Assy	9 Jan. 2008	200 6677, 1 page
Product info DD669 PIR	28 Mar. 2007	10 0967 999
Product info DD669-Series	17 Apr. 2007	10 0947 999
Bill Of Materials	19.02.2008	DD666Z
Bill Of Materials	18.02.2008	DD669
Bill Of Materials	18.02.2008	DD666
Bill Of Materials	18.02.2008	DD669AMZ
Bill Of Materials	18.02.2008	DD669AM
Bill Of Materials	19.02.2008	DD666AM

The above-mentioned documentation will be filed at Telefication for a period of 10 years following the issue of this test report.

5 Observations and comments

None

6 Modifications to the sample

No modifications were made to the sample.

7 Summary

The product is intended for use in the following application area(s):

INTENTIONAL RADIATOR OPERATING IN THE FREQUENCY BAND 5725 - 5875 MHz

The sample was tested according to the following specification(s):

FCC part 15; subpart C; section 15.209 and 15.249 (10-1-09 edition)

8 Conclusions

The samples of the product showed **NO NON-COMPLIANCES** to the specifications stated in Chapter 7 of this report.

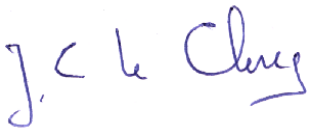
The results of the tests as stated in this report are exclusively applicable to the product item as identified in this test report. Telefication accepts no responsibility for any stated properties of product items in this test report, which are not supported by the tests as specified in Chapter 7 "*Summary*".

All tests are performed by:

name : ing. J.C. le Clercq

function : Test Engineer

signature :



Review of test report by:

name : G.J. Gort

function : Senior Test Engineer

signature :

The above conclusions have been verified by the following signatory:

date : 6 April 2011

name : ing. P.A.J.M. Robben

function : Co-ordinator Test Group

signature :

Test results module

1 General information

1.1 Equipment information

Rated RF output power	n.a., integral antenna
Rated radiated RF power	10 mW
Operating frequency	5787 MHz
FCC ID	YFYDD669-U

2 Emission tests

2.1 Field strength of intentional signal

Compliance standard : FCC part 15, subpart C, section 15.249 (a) & (e)
Method of test : ANSI C63.4-2003, sections 5.5 & 8.2.4
Test results :

Peak field strength of fundamental:

Frequency (MHz)	Test result dBm (eirp)	Pulse Desensitisation Factor (dB)	Test result @ 3 m distance (dBµV/m)	Polarisation	Limit (dBµV/m)
5787	-36.33	40	98.87	V	114
5787	-39.17	40	96.03	H	114

Note: Only peak power was measured. The formula for conversion from power to field strength is: FS (dBµV/m) = EIRP (dBm) + 95.2 dB.

A Pulse Desensitisation Factor has been applied, because the duty cycle is very low.

Average field strength of fundamental:

Frequency (MHz)	Test result @ 3 m distance (dBµV/m)	Polarisation	Limit (dBµV/m)
5787	78.87	V	94
5787	76.03	H	95

The average field strength can be calculated by the following formula:

$FS_{average}$ (dBµV/m) = FS_{peak} (dBµV/m) – 10log (1/x) where x is the duty cycle (in this case 1 %).

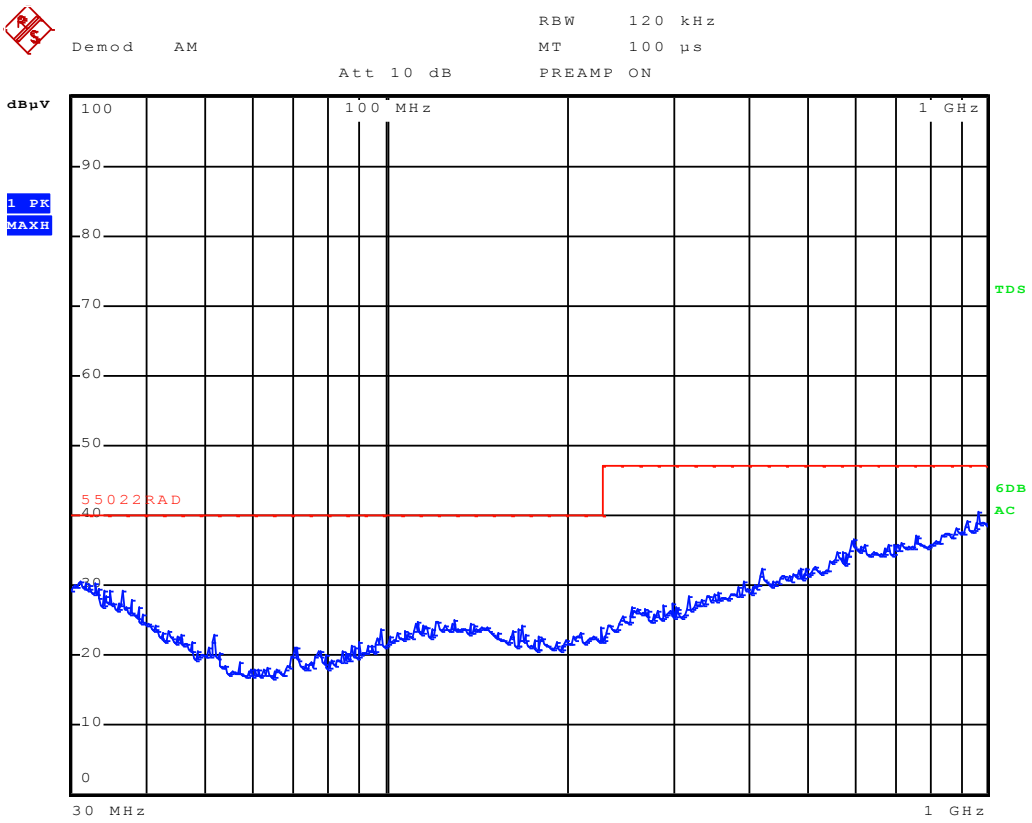
Measurement uncertainty	+4.5/-6.1 dB

Measurement equipment used (item numbers refer to section “used test equipment”	2, 25, 26, 41, 50, 51

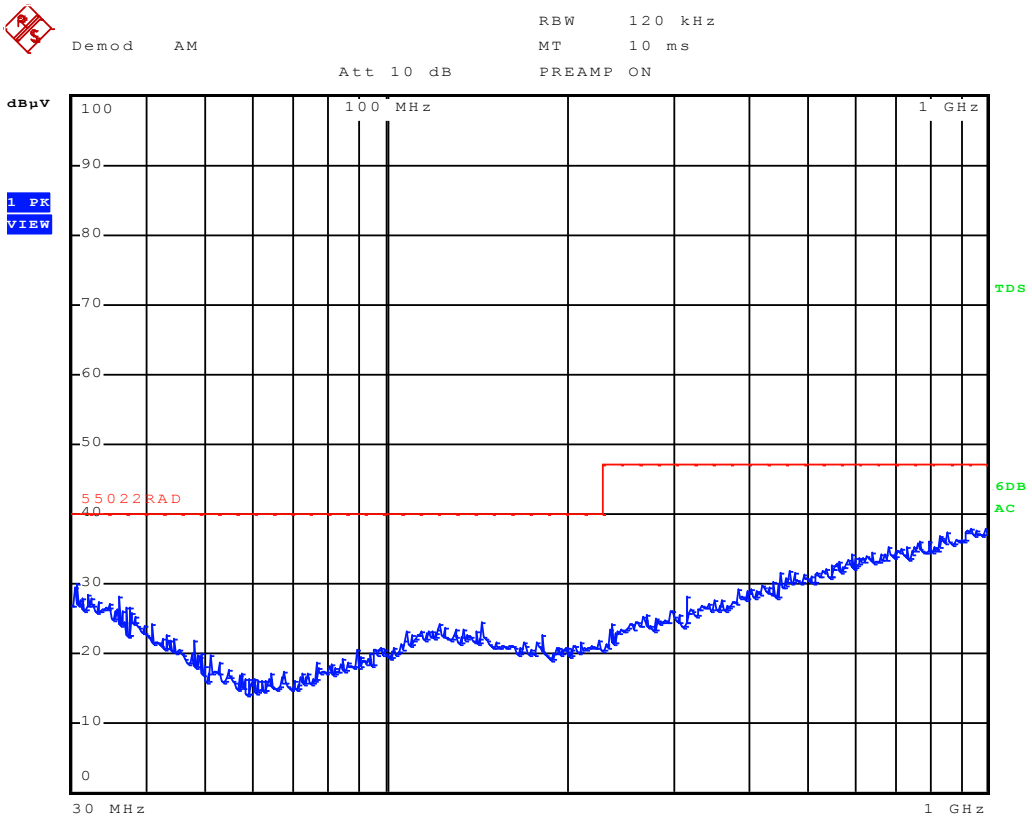
2.2 Field strength of unwanted emissions 30 - 1000 MHz

Compliance standard	:	FCC part 15, subpart C, section 15.205 (a), (b) & (c), 15.209 (a)
Method of test	:	ANSI C63.4-2003, sections 5.5, 8.2.3, 8.2.4 & 8.3.1.2; FCC part 15, subpart A, section 15.31(m), 15.33, 15.35.
EUT condition	:	5787 MHz transmission
Test results	:	

Polarisation: vertical



Polarisation: horizontal



Measurement uncertainty	Vertical polarisation:	
	30 – 200 MHz	5.4 dB
	200 -1000 MHz	4.6 dB
	Horizontal polarisation:	
	30 – 200 MHz	4.5 dB
	200 -1000 MHz	3.6 dB

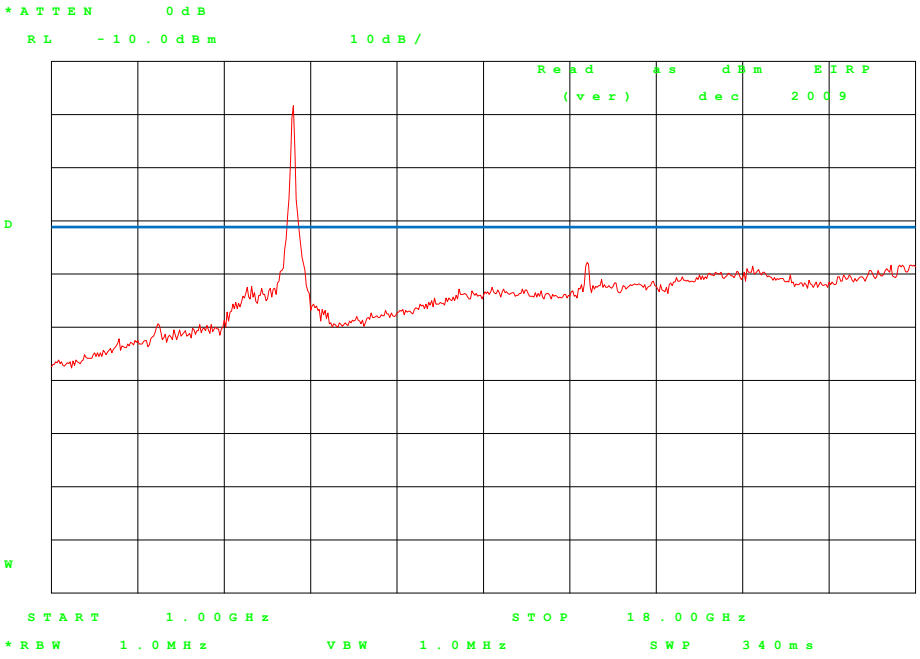
Measurement equipment used (item numbers refer to section “used test equipment”	38, 36, 45, 52, 53

2.3 Field strength of unwanted emissions > 1000 MHz

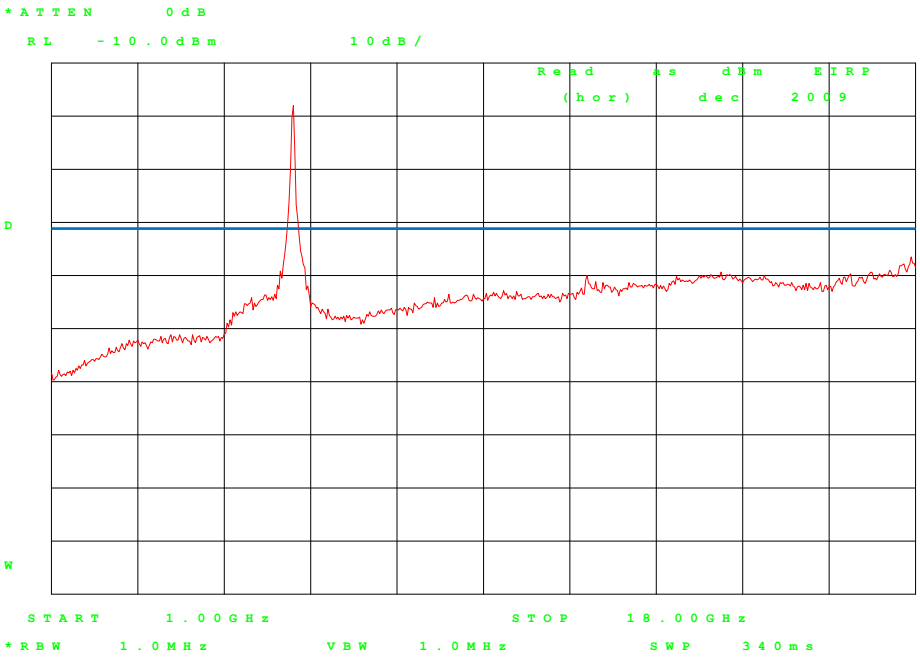
Compliance standard	:	FCC part 15, subpart C, section 15.205 (a), (b) & (c), 15.209 (a) & 15.249 (a) & (e)
Method of test	:	ANSI C63.4-2003, sections 5.5, 8.2.3, 8.2.4 & 8.3.1.2; FCC part 15, subpart A, section 15.31(m), 15.33, 15.35.

Test results :

Polarisation: vertical



Polarisation: horizontal



Peak field strength of harmonics:

Frequency (GHz)	Test result dBm (eirp)	Pulse Desensitisation Factor (dB)	Test result @ 3 m distance (dBµV/m)	Polarisation	Limit (dBµV/m)
11.6	-40.00	14	69.20	V	74
11.6	-43.67	14	65.53	H	74
17.4	--	14	--	V	74
17.4	--	14	--	H	74

Note: Only peak power was measured. The formula for conversion from power to field strength is: FS (dBµV/m) = EIRP (dBm) + 95.2 dB.

A Pulse Desensitisation Factor has been applied, because the duty cycle is very low.

Average field strength of harmonics:

Frequency (GHz)	Test result @ 3 m distance (dBµV/m)	Polarisation	Limit (dBµV/m)
11.6	49.20	V	54
11.6	45.53	H	54
17.4	--	V	54
17.4	--	H	54

The average field strength can be calculated by the following formula:

$FS_{average}$ (dBµV/m) = FS_{peak} (dBµV/m) – 10log (1/x) where x is the duty cycle (in this case 1 %).

In the frequency range 12 - 60 GHz no spurious signals were found.

Measurement uncertainty	+4.5/-6.1 dB

Measurement equipment used (item numbers refer to section “used test equipment”	2, 25, 26, 31, 33, 41, 47, 48, 50, 51

Used test equipment module

Item	Description	Manufacturer	Type	ID
1	Signal generator	Marconi	2042	TE 00030
2	Preamplifier 1 – 26.5 GHz	HP	8449B	TE 00092
3	Preamplifier 1 – 26.5 GHz	HP	8449B	TE 00093
4	Pre-amplifier 10 dB	R & S	ESV-Z3	TE 00097
5	Pre-amplifier 10 dB	R & S	ESV-Z3	TE 00098
6	Spectrum analyser	HP	8562E	TE 00099
7	Microwave amplifier	HP	HP8349A	TE 00124
8	Digital multimeter	HP	34401A	TE 00143
9	Digital multimeter	HP	3438A	TE 00215
10	Step attenuator	HP	8494A	TE 00233
11	Step attenuator	HP	8496A	TE 00234
12	Power sensor	HP	8484A	TE 00245
13	Power meter	HP	435B	TE 00249
14	Power meter	HP	437B	TE 00354
15	Power sensor	HP	8481A	TE 00355
16	Spectrum analyser	HP	8563E	TE 00359
17	Audio analyzer	HP	8903A	TE 00373
18	Signal generator	Marconi	2042	TE 00379
19	Digital thermometer	Fluke	51	TE 00388
20	Step attenuator	HP	8491A	TE 00403
21	Signal generator	HP	8642B	TE 00424
22	Signal generator	Marconi	2042	TE 00427
23	Spectrum analyser	HP	8563E	TE 00481
24	Horn antenna	EMCO	3115	TE 00531
25	Horn antenna	EMCO	3116	TE 00533
26	Biconilog antenna	EMCO	3143	TE 00700
27	Climate chamber	CTS	C-40/350	TE 00741
28	Active loop antenna	R & S	HFH2-Z2	TE 00746
29	Horn antenna	Quinstar	QWH-1900-AA	TE 00747
30	Step attenuator	HP	8491A	TE 00787

Item	Description	Manufacturer	Type	ID
31	Standard gain horn	Flann	20240-25	TE 00818
32	Power supply for amplifier	R & S	HZ-9	TE 00830
33	Power supply	Delta Elektronika	E030-1	TE 00851
34	Semi Anechoic Room	Comtest	--	TE 00861
35	Power supply	Delta Elektronika	MST030-10	TE 00886
36	Biconilog antenna	Chase	CBL6112A	TE 00967
37	Anechoic chamber	Euroshield	RFB-F-100	TE 01064
38	Triple loop antenna	Telefication	--	TE 01066
39	Temp / RH logger	MicroLog	EC 650	TE 01114
40	Broadband resistive power divider	Weinschel	1506A	TE 01120
41	Broadband resistive power divider	Weinschel	1506A	TE 01122
42	Spectrum analyser	R & S	FSP 40	TE 11125
43	EMI test receiver	R & S	ESCI	TE 11128
44	Radio Communication Service Monitor	R & S	CMS54	TE 11129
45	Pre-amplifier	Miteq	JS4-18004000	TE 11131
46	Low noise amplifier	Miteq	AFS42-041001800	TE 11132
47	Antenna tower	Heinrich Deisel	AS 620P	ANEC
48	Turntable	Heinrich Deisel	DS-412	ANEC
49	Turntable controller	Heinrich Deisel	HD-050	ANEC
50	Antenna mast	EMCO	1070	SAR
51	Turn table	EMCO	1060-2M	SAR
52	Near field probe	--	--	--

Revision history

REVISION	DATE	REMARKS
1.0	21 March 2011 revised by A. Ibrahim	- Operating frequency typo correction - Unit added to desensitising factor