

4 Test environment

Temperature:	T_{nom}	+22 °C during room temperature tests
Relative humidity content:		35 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	V_{nom}	12.0 V DC by external AC/DC adapter

5 Test item

5.1 Technical parameters

Kind of test item	:	FOD Detect System with Radar operating in the 76-77 GHz band
Type identification	:	SDU-600-CR
S/N serial number	:	see below
HW hardware status	:	see below
SW software status	:	see below
Frequency band	:	76.0 GHz - 77.0 GHz
Type of radio transmission	:	linear FMCW
Use of frequency spectrum	:	
Number of channels	:	1
Antenna	:	Front-feed reflector, one for Tx, one for Rx
Power supply	:	12.0 V DC by external AC/DC Adapter
Temperature range	:	-20 °C to +50 °C

Device under test consist of 2 units:

- Sensor (upper unit): Model SDU-600-CR/U, Upper unit, Ver. 6.2, P/N XT0020000061, S/N FX1143000010 including Radar Module, Model SDU-600/UR, Radar Assy, Ver. 6.2, Rev. 02-00, P/N XT0070000009, S/N FX1145000751
- Processor (lower unit): Lower Unit Computer V7, HW Rev. 7.0, P/N XT0030000011, S/N FX1142000139

5.2 Operating conditions

The frequency sweep was stopped at lower / middle / upper frequency for test purpose as required by CFR 47 Part 15.31 (c).

6 Test laboratories sub-contracted

None

7 Summary of measurement results

<input checked="" type="checkbox"/>	No deviations from the technical specifications were ascertained
<input type="checkbox"/>	There were deviations from the technical specifications ascertained

TC Identifier	Description	Verdict	Date	Remark
RF-Testing	CFR 47 Part 15.253	Passed	2013-04-24	partial testing

Test specification clause	Test case	Temperature conditions	Power source voltages	Pass	Fail	NA	NP	Results
§15.253 (d)	Power density	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-/-
§1.1310	MPE Calculation	Nominal and Extreme	Nominal and Extreme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-/-
§2.1049	Occupied bandwidth (99% bandwidth 26 dB bandwidth)	Nominal and Extreme	Nominal and Extreme	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-/-
§15.253 (e)	Field strength of emissions (radiated spurious) > 110 GHz	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.253 (f)	Frequency stability	Nominal	Nominal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-/-

Note: NA = Not Applicable; NP = Not Performed

This test report is in addition to test report no. **XSIRAD_FCC.22853.doc**, issued by:

Hermon Laboratories Ltd.
Harakevet Industrial Zone, Binyamina 30500, Israel
Date of Issue: 08/14/2012

8 RF measurement testing

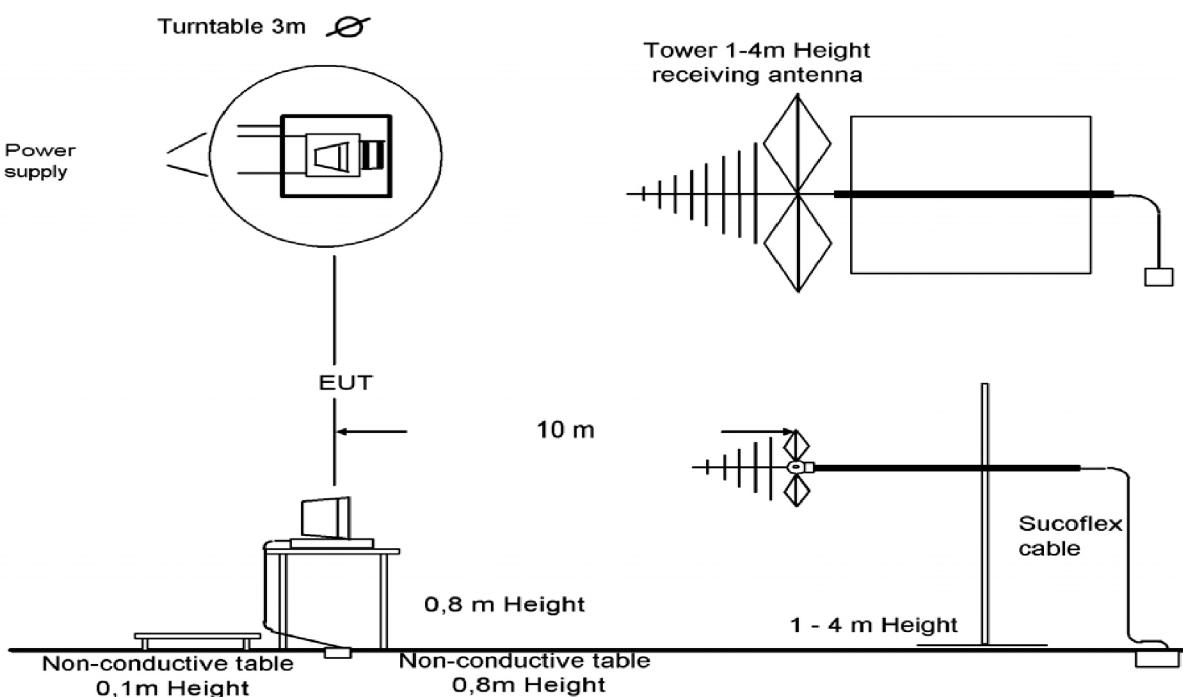
8.1 Description of test setup

8.1.1 Radiated measurements

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 25 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are confirmed with specifications ANSI C63.2-1996 clause 15 and ANSI C63.4-2009 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test setups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received. The wanted and unwanted emissions are received by spectrum analyzers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63.4-2009 clause 4.2.

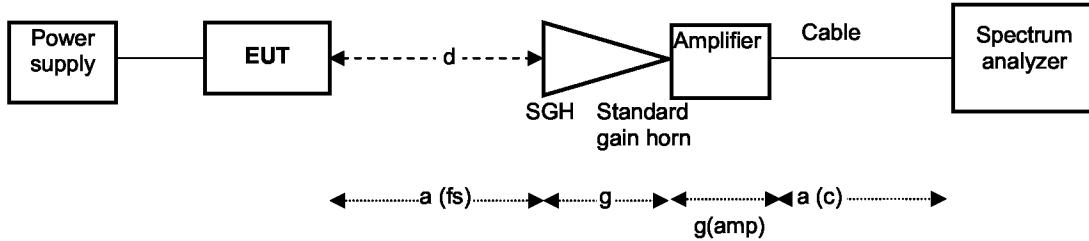
Antennas are confirmed with ANSI C63.2-1996 item 15.

Semi anechoic chamber



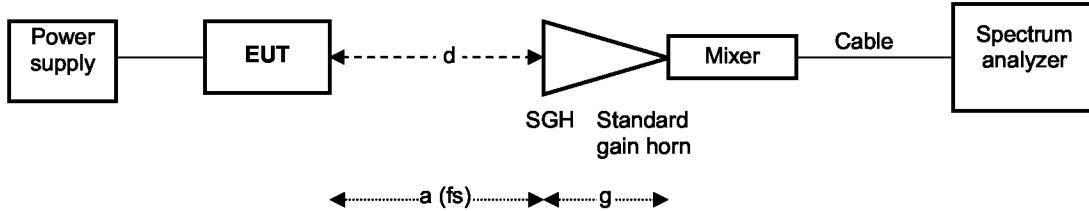
Picture 1: Diagram radiated measurements (Up to 15 GHz)

Test set-up for the measurement of spurious radiation in the frequency range 15 GHz to 50 GHz:



Picture 2: Diagram radiated measurements (15 GHz – 50 GHz)

Test set-up for the measurement of spurious radiation and EIRP in the frequency range 50 GHz to 325 GHz:



Picture 3: Diagram radiated measurements (50 GHz – 325 GHz)

8.1.2 Conducted measurements

Not applicable!

8.1.3 Additional comments

Following test modes were used:

- cw mode, lower frequency (76.020 GHz)
- cw mode, middle frequency (76.500 GHz)
- cw mode, upper frequency (76.980 GHz)

For the requirements being tested in this test report, stopped CW mode was used as required by CFR 47 Part 15.31 (c).