Flanders' Mechatronics Engineering Centre

Laboratory for Global Reliability of Electronics

Zeedijk 101
B – 8400 OOSTENDE
BELGIUM

Tel.: + 32 (0)59 56 90 39
Fax: + 32 (0)59 56 90 01
e-mail: info@fmec.be
website: http://www.kuleuven.be/remi

Test report FMEC/SE/1408/49

Fonksiyonel Tekstil Ltd

Ecosilver

Note:

This report may be reproduced in full, partial reproduction may only be made with the written consent of the FMEC laboratory.

The results in this report apply only to the sample(s) tested.

Overview

1. CLIENT INFORMATION **3**

2. MATERIAL UNDER TEST **5**

3. TEST SPECIFICATION, METHODS & PROCEDURES **6**

4. TEST RESULTS **7**

4.1. RESULTS 7
Appendix 1: Test Equipment used: 8
Appendix 2: Test configuration Drawings: 9
Appendix 3: Photographs of E.U.T. 11

Test configuration drawings

Figure 1: Shielding effectiveness (dB) 7
Figure 2: Test configuration drawing: IEEE 299 (MIL STD-285) 10

List of Pictures

Picture 1: Test set-up with Log. Per. antenna (200 - 1000 MHz) 11
Picture 2: Test set-up with Horn antenna (1 - 6 GHz) 11

1. Client information

Company name	:	**Fonksiyonel Tekstil Ltd**
Address	:	**Perpa Ticaret Merkezi B Blok Kat 12 No 2054** **P 34384 Okeydani/Istanbul Turkiye**
Contact name	:	**Mr. Methap Yetisgin**
Tel	:	
Fax	:	
VAT	:	**TC 3880624897**
	:	
Order n°	:	**Ordered by mail**
Order date	:	
Samples received	:	**1**
Project description	:	**Ecosilver**
Reference documents FMEC	:	--
Reference document client	:	--
FMEC Operator	:	**Filip Vanhee** **Joke Margodt**
Customer engineer(s)	:	--
Date(s) of test	:	**August 25th 2014**

This test report is issued under the

authority of : dr. ir. D. Pissoort
checked by : dr. ir. D. Pissoort

Signature:

KU LEUVEN kulab
Faculteit Industriële Ingenieurswetenschappen
Campus Oostende (Kulab)
Zeedijk 101 - 8400 Oostende
tel. +32 59 56 90 00

© 2014 FMEC (KU Leuven)
Phone: +32 (0)59 56 90 39 Fax: +32 (0)59 56 90 01

Overview of tests

TEM-t cell	:	☐
H-t cell	:	☐
ASTM D4935 cell	:	☐
TEM cell	:	☐
MIL STD 285 (metal cage)	:	☑
In situ	:	☐
SAE ARP 1705	:	☐
Transfer impedance	:	☐

© 2014 FMEC (KU Leuven)
Phone: +32 (0)59 56 90 39 Fax: +32 (0)59 56 90 01

2. Material Under Test

Description:

Ecosilver

Material samples:

Type and Reference Number	:	Ecosilver
Manufacturer	:	Fonksiyonel Tekstil Ltd

© 2014 FMEC (KU Leuven)
Phone: +32 (0)59 56 90 39 Fax: +32 (0)59 56 90 01

3. Test specification, Methods & Procedures

Procedure and remarks:

This method is based on the (very old and) obsolete MIL STD 285, or the actual IEEE 299 standard for measuring the SE of large enclosures. By building a large metal box, with a window (typical 50 x 50 cm), which can be covered by the material under test, the obtained SE value is nearly only depending on the material under test (with a relative low SE value).
Care must be taken in the low frequency range (below 100 MHz), where the measurement are not correct, due to the "small" size of the enclosure with respect to the wavelength. At the very high frequency end (above a few GHz), errors may occur due to the fixing of the sample on the metal structure of the enclosure (not ensuring continuous conductive contact over the perimeter of the sample).

4. Test results

4.1. Results

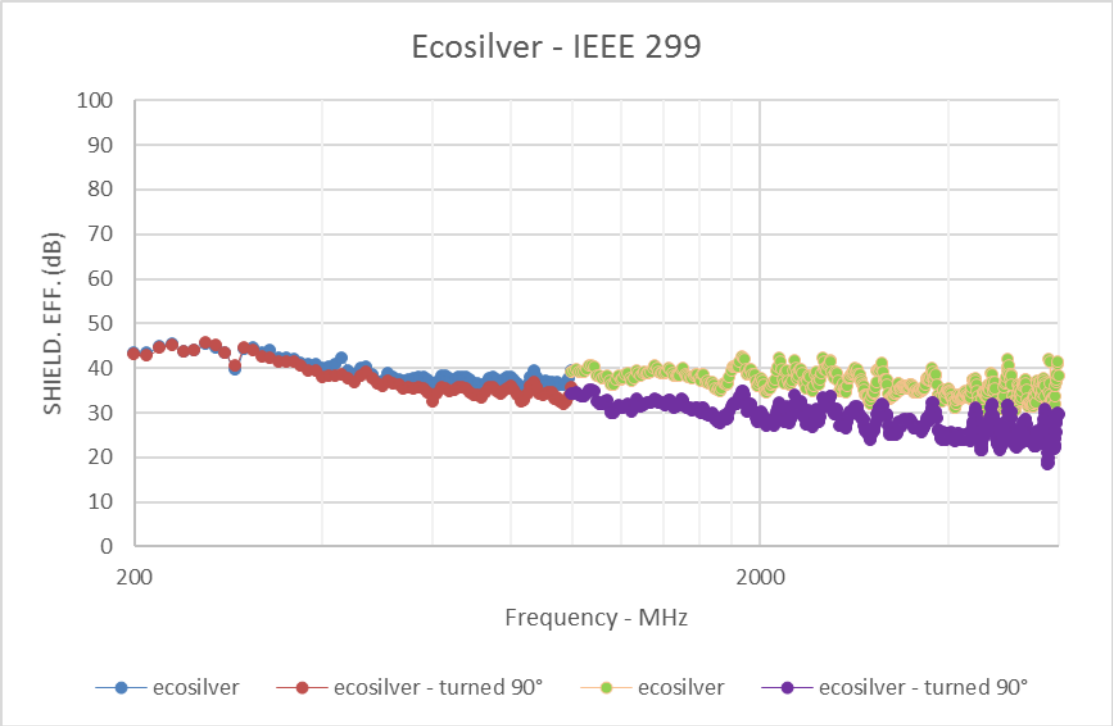

Figure 1: Shielding effectiveness (dB)

Appendix 1: Test Equipment used:

Instrument	Manufacturer	Model
Logperiodic antenna 200 MHz-1GHz	EMCO	
Horn antennas (0.9 – 18 GHz)	SCHWARZBECK	BBHA9120 D1
MIL STD 285 cell (2X2X2 m^3)	FMEC	
Network Analyzer 14 GHz	R&S	ZVB
Log-periodic antenna	EMCO	
Horn antenna	Schwarzbeck	
Software automatic shielding measurements	FMEC	

Appendix 2: Test configuration Drawings:

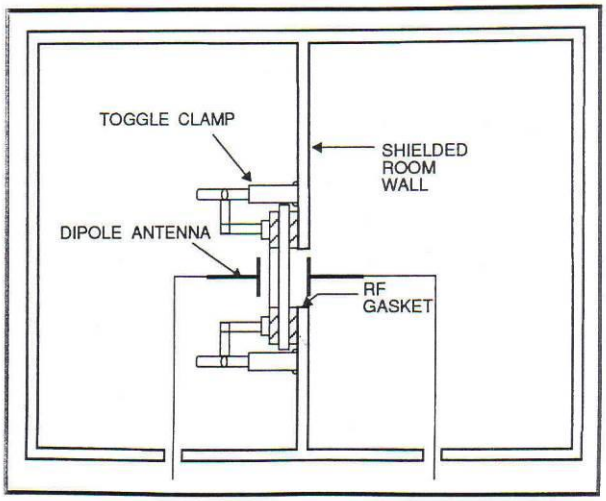

Figure 2: Test configuration drawing: IEEE 299 (MIL STD-285)

Appendix 3: Photographs of E.U.T.

Picture 1: Test set-up with Log. Per. antenna (200 - 1000 MHz)

Picture 2: Test set-up with Horn antenna (1 - 6 GHz)