dB Technology
(Cambridge Ltd.)
EMC Testing | EMC Consultancy | EMC Training

23, Headington Drive,
Cambridge.
CB1 9HE
Tel : 01954 251974 (test site)
or : 01223 241140 (accounts)
Fax : 01954 251907
web : www.dbtechnology.co.uk
email: mail@dbtechnology.co.uk

REPORT ON ELECTROMAGNETIC COMPATIBILITY TESTS

Performed at:
TWENTY PENCE TEST SITE

Twenty Pence Road,
Cottenham,
Cambridge
U.K.
CB24 8PS

on

Syenergy Environics Ltd.

Effect of Radiation Harmonizer Chip on Signal Strength & Functionality of the Device

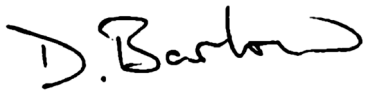
dated

15th December 2010

Document History

Issue	Date	Affected page(s)	Description of modifications	Revised by	Approved by
1	20/12/10		Initial release		
2	03/02/11	All	Clarification of product name and units	DB	PB

Based on report template:
v090319

Equipment Under Test (EUT):	Effect of Radiation Harmonizer Chip on Signal Strength & Functionality of the Device
Test Commissioned by:	Syenergy Environics Ltd. 203 South Extension Plaza-1 389 Masjid Moth NDSE II New Delhi
Representative:	Pranav Poddar
Test Started:	8th December 2010
Test Completed:	8th December 2010
Test Engineer:	Peter Barlow
Date of Report:	15th December 2010
Written by: Peter Barlow	Checked by: DerekBarlow
Signature: 	Signature: 
Date: 15th December 2010	Date: 20th December 2010

dB Technology can only report on the specific unit(s) tested at its site. The responsibility for extrapolating this data to a product line lies solely with the manufacturer.

Test Standards Applied

EN55022:2006 +A1	*Information technology equipment - Radio disturbance characteristics Limits and methods of measurement* *Class B Emissions*

Emissions Test Results Summary

EN55022:2006

Test	Port	Method	Limit	PASS/FAIL	*Notes*
Conducted Emissions	ac power	CISPR22	EN55022 Class B =CISPR22(B)	N/T	#1
Conducted Emissions	telecom *current limits*	CISPR22	EN55022 Class B =CISPR22(B)	N/T	#1
	telecom *voltage limits*	CISPR22	EN55022 Class B =CISPR22(B)	N/T	#1
Radiated Emissions		CISPR22	EN55022 Class B =CISPR22(B)	N/A	#2

specs_ITv090508

#1 N/T = Test not performed.

#2 PASS/FAIL not applicable as the aim of the test was to try and find a measureable difference between the Electromagnetic Field (EMF) strength from a laptop PC with and without the radiation harmoniser chips fitted. **No significant difference was observed.**

Contents

1 The Test Site

The testing was performed at the dB Technology test site in Cambridge UK. The dB Technology test site is an independent test site which performs third party testing primarily to European, North American and Australasian standards. Details of dB Technology can be found on its web site: www.dbtechnology.co.uk/

2 EUT Details

The EUT was a Syenergy Environics Ltd. Radiation Harmonizer chip. The EUT was tested fitted to an off the shelf laptop PC running from battery. Chips were fitted to both the display and the underside of the base unit. The aim of the test was to establish as to whether there was any difference in emissions with and without the chips fitted.

Photograph 1 Placement of Chips

3 Test Equipment

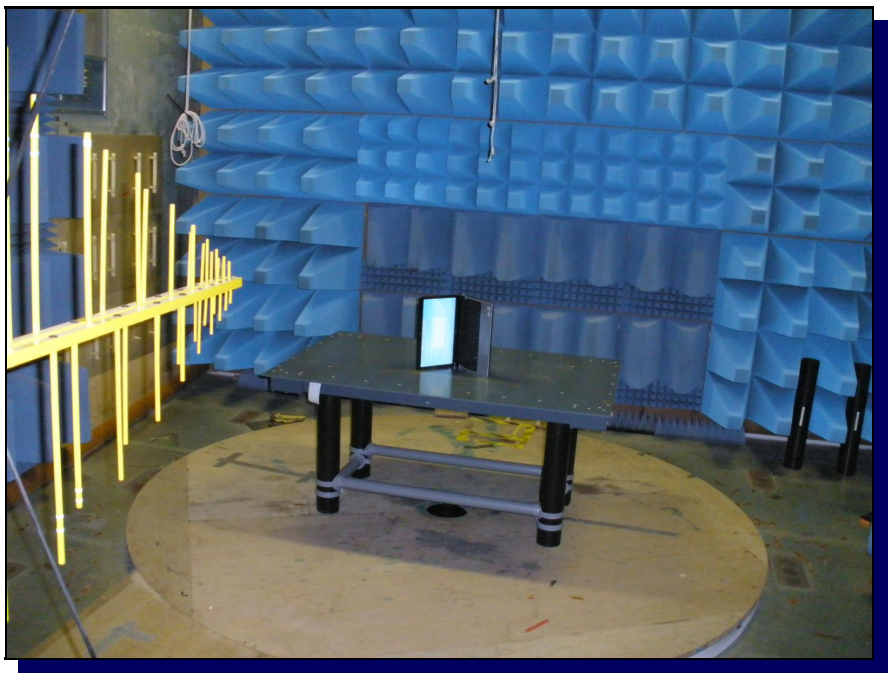
The test equipment used during the tests was one or more of the items listed below. Individual test result sheets indicate which items were used.

Ref No:	Details	Serial Number
A15 R9	Chase X-wing Bilog CBL6140 20MHz-2GHz Agilent E7405A Spectrum Analyser	1047 MY45110758

4 Test Method

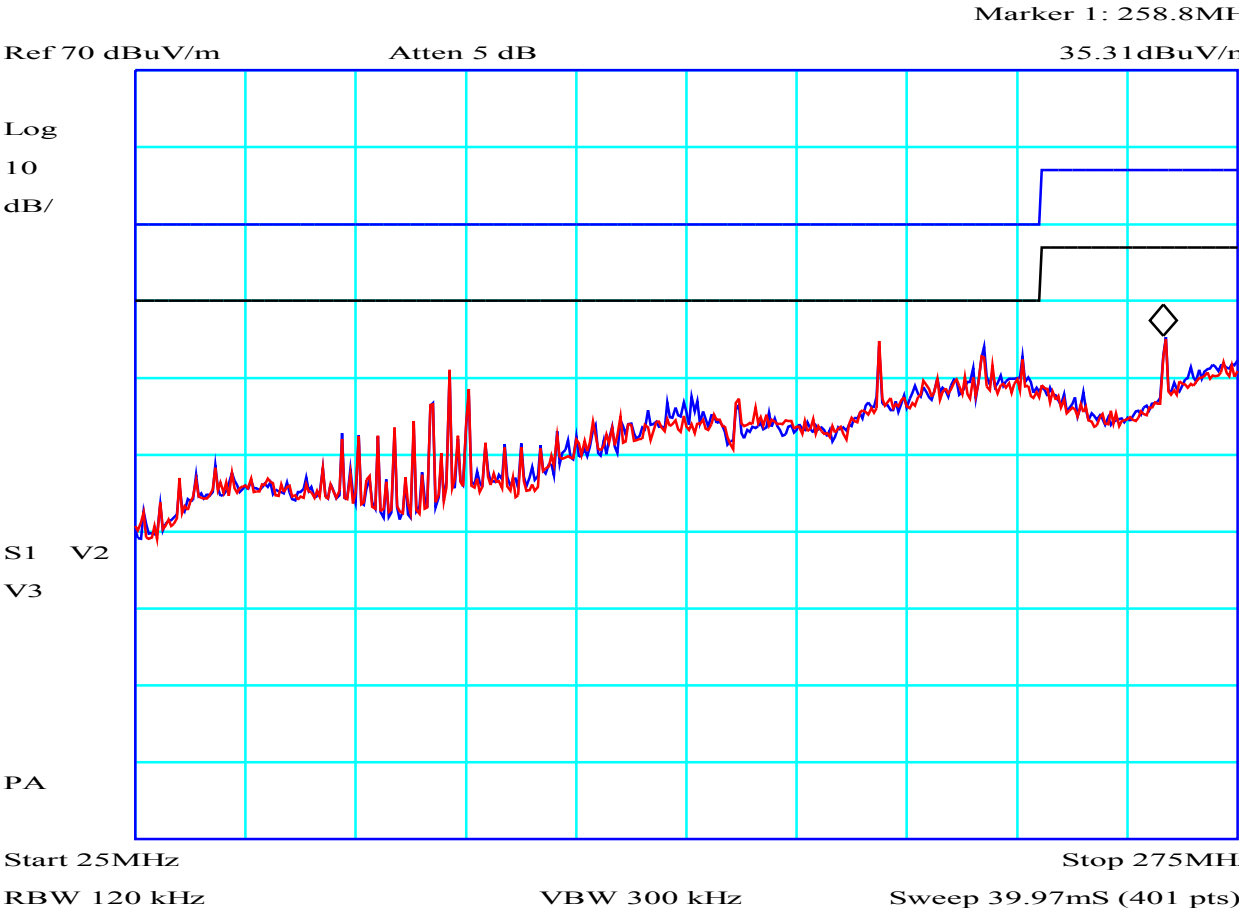
The laptop computer was set up on a plastic test bench 0.8m high which was mounted on a turntable in a semi-anechoic chamber. The emissions were scanned using a spectrum analyser set to peak hold whilst the turntable was rotated through 360 degrees. This was repeated for both vertical and horizontal polarisation of the receive antenna. The Radiation Harmonizer chips were then fitted to the laptop computer and the same set of measurements repeated. These scans were plotted out and the plots are attached at the end of this report.

Photograph 2 The Test Setup



5 Test Results

The Electromagnetic field (EMF) strength was recorded. The following plots show the emissions both with and without the chips fitted. The field strength units are dBuV/m. The levels with and without the chips fitted can be seen to be practically identical. There are always minor variations in level when testing computer systems as the background level of activity varies with time. The differences seen in the plots are within the likely limits of such variations.



CF1:A15_100811 CF2:CBL002_CBL069_100809

PLOT 1 Radiated Emissions - 25MHz to 275MHz - Horizontal Polarisation - Laptop PC with and without two radiation harmoniser chips fitted

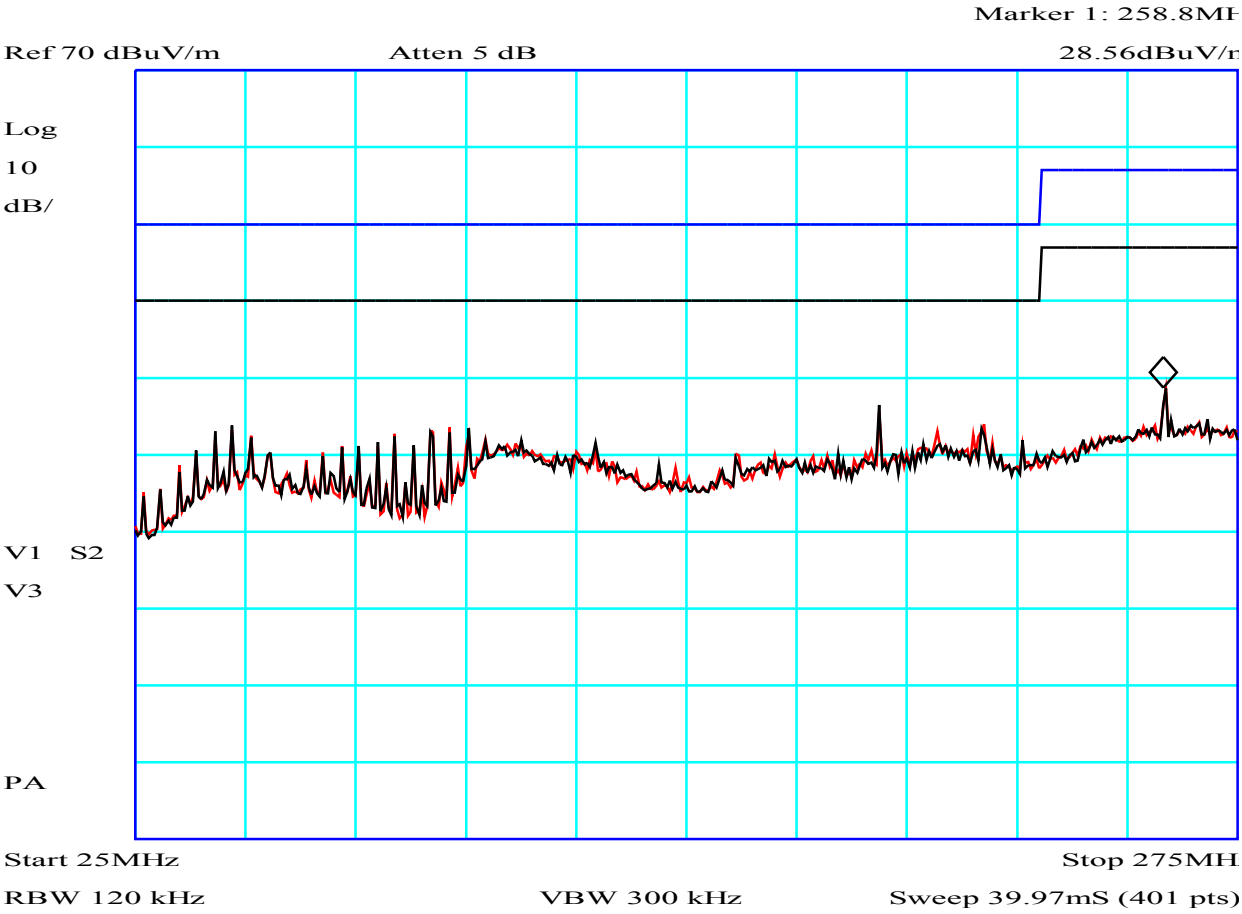
Company:	Syenergy Environics Ltd.	Product:	Radiation harmonizer chip
Date:	08/12/2010	Test Eng:	
Method:		Method:	
Limit1:(BLK)	EN55022(B)@3m	Limit2:(BLU)	EN55022(A)@3m
Limit3:		Limit4:	

Op.Mode: Dell Laptop PC only running desktop and disk defrag.
Setup: No cables.

Blue Trace = Horizontal Standard PC.
Red Trace = Horizontal PC with chip fitted on rear of screen and base of laptop.

There are no significant differences between the two traces.

Facility:	Anech_1	Height	1.5m	Mode:
Distance	3m	Polarisation	V+H	Modification State:
Angle	0-360	File:	H0B0868F	



CF1:A15_100811 CF2:CBL002_CBL069_100809

PLOT 2 Radiated Emissions - 25MHz to 275MHz - Vertical Polarisation - Laptop PC with and without two radiation harmoniser chips fitted

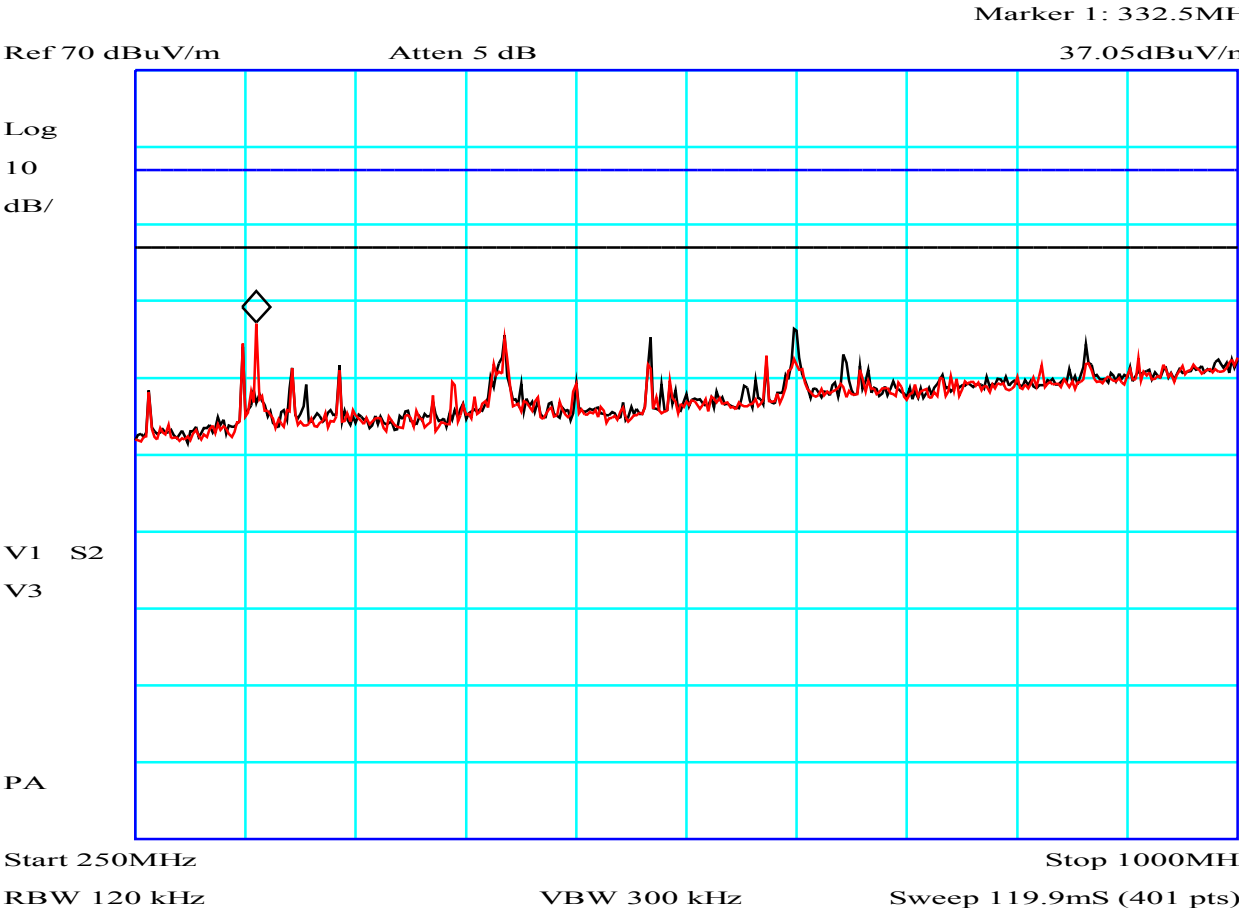
Company:	Syenergy Environics Ltd.	Product:	Radiation harmonizer chip
Date:	08/12/2010	Test Eng:	
Method:		Method:	
Limit1:(BLK)	EN55022(B)@3m	Limit2:(BLU)	EN55022(A)@3m
Limit3:		Limit4:	

Op.Mode: Dell Laptop PC on LHS (configured to reduce position variation when adding or removing chips) only running desktop and disk defrag.
Setup: No cables.

Black Trace = Vertcal Standard PC.
Red Trace = Vertcal PC with chip fitted on rear of screen and base of laptop.

There are no significant differences between the two traces.

Facility:	Anech_1	Height	1.5m	Mode:
Distance	3m	Polarisation	V+H	Modification State:
Angle	0-360	File:	H0B086AB	



CF1:A15_100811 CF2:CBL002_CBL069_100809

PLOT 3 Radiated Emissions - 250MHz to 1GHz - Vertical Polarisation - Laptop PC with and without two radiation harmoniser chips fitted

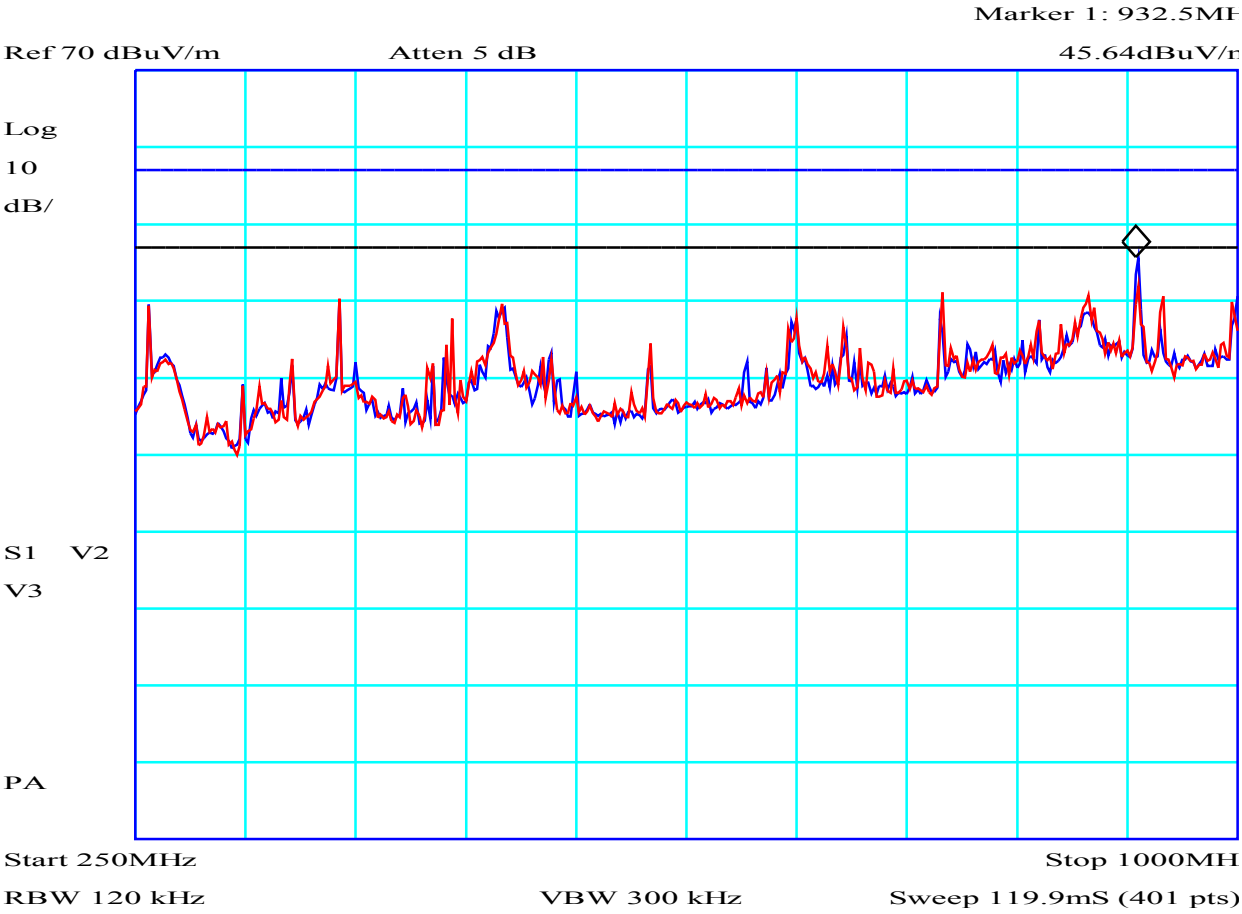
Company:	Syenergy Environics Ltd.	Product:	Radiation harmonizer chip
Date:	08/12/2010	Test Eng:	
Method:		Method:	
Limit1:(BLK)	EN55022(B)@3m	Limit2:(BLU)	EN55022(A)@3m
Limit3:		Limit4:	

Op.Mode: Dell Laptop PC on LHS (configured to reduce position variation when adding or removing chips) only running desktop and disk defrag.
Setup: No cables.

Black Trace = Vertcal Standard PC.
Red Trace = Vertcal PC with chip fitted on rear of screen and base of laptop.

There are no significant differences between the two traces.

Facility:	Anech_1	Height	1.5m	Mode:
Distance	3m	Polarisation	V+H	Modification State:
Angle	0-360	File:	H0B086C0	



CF1:A15_100811 CF2:CBL002_CBL069_100809

PLOT 4 Radiated Emissions - 250MHz to 1GHz - Horizontal Polarisation - Laptop PC with and without two radiation harmoniser chips fitted

Company:	Syenergy Environics Ltd.	Product:	Radiation harmonizer chip
Date:	08/12/2010	Test Eng:	
Method:		Method:	
Limit1:(BLK)	EN55022(B)@3m	Limit2:(BLU)	EN55022(A)@3m
Limit3:		Limit4:	

Op.Mode: Dell Laptop PC on LHS (configured to reduce position variation when adding or removing chips) only running desktop and disk defrag.
Setup: No cables.

Black Trace = Horizontal Standard PC.
Red Trace = Horizontal PC with chip fitted on rear of screen and base of laptop.

There are no significant differences between the two traces.

Facility:	Anech_1	Height	1.5m	Mode:
Distance	3m	Polarisation	V+H	Modification State:
Angle	0-360	File:	H0B086CB	