WALSHIRE LABS

European Union Directive 2004/101/EC
ESA Radiated Emissions Test
For the Battery Life Saver™ Electronic Device

Common Information:

Test Description:	EU Directive 2004/104/EC ESA Radiated Emissions Test
Operating Conditions:	EUT operational and attached to series connected 6 V and 8 V batteries wired in series.
Operator Name:	Peter Walsh, NCE
Comment:	Test Distance 1 m
Test Date:	11. March 2010
Line Voltage / Frequency:	13.7 VDC
EUT Description:	Battery Solutions & Innovations Model BLS-12/24-B
EUT Serial Number:	None

Hardware Setup: EMI radiated\Electric Field Strength - [EMI radiated]

Subrange 1

Frequency Range:	30 MHz - 2 GHz
Receiver:	ESCS 30 [ESCS 30] @ GPIB0 (ADR 16), SN 0, FW 2.30 02.01 02.36, CAL 11/3/2010
Signal Path:	ESCS 30-Chase Broadband BiLog Antenna CBL 6112 Correction Table: Cable 2 (30 - 2000 MHz)
Antenna:	Chase Broadband BiLog Antenna CBL 6112 SN 2579, CAL 11/19/2011 Correction Table (vertical): Chase Broadband BiLog Antenna CBL 6112 Vert 3M Correction Table (horizontal): Chase Broadband BiLog Antenna CBL 6112 Horz 3M
Antenna Tower:	Tower [Sunol Antenna Tower] @ GPIB0 (ADR 8), FW 37, CAL 11/3/2010
Turntable:	Sunol Turntable [Sunol Turntable] @ GPIB0 (ADR 7), FW 37, CAL 11/3/2010

EMI Auto Test Template: EU Vehicle ESA RE

Hardware Setup:	Electric Field Strength
Measurement Type:	Open-Area-Test-Site
Frequency Range:	30 MHz - 1 GHz
Graphics Level Range:	0 dBµV/m - 70 dBµV/m
Preview Measurements:	
Scan Test Template:	EU Vehicle ESA Pre RE
Data Reduction:	
Limit Line #1:	EU Vehicle ESA 1 m QP Limit
Limit Line #2:	EU Vehicle ESA 1 m AVG Limit
Peak Search:	6 dB
Maximum Results:	5
Subrange Maxima:	13
Maxima per Subrange:	2
Arbitrary Acceptance Line	
Maximum Number of Results:	10
Frequency Zoom:	
Zoom Scan Template:	EU Vehicle ESA Pre RE
Maximization Measurements:	
Template for Single Meas.:	EU Vehicle ESA Pre RE
Final Measurements:	
Template for Single Meas.:	EU Vehicle ESA Final RE
Report Settings:	
Report Template:	Report Setup

Calibration and Traceability: All measuring and test equipment are calibrated and are traceable to the National Institute for Standards and Technology (NIST) and Methods.

Compliance Verdict: Pass

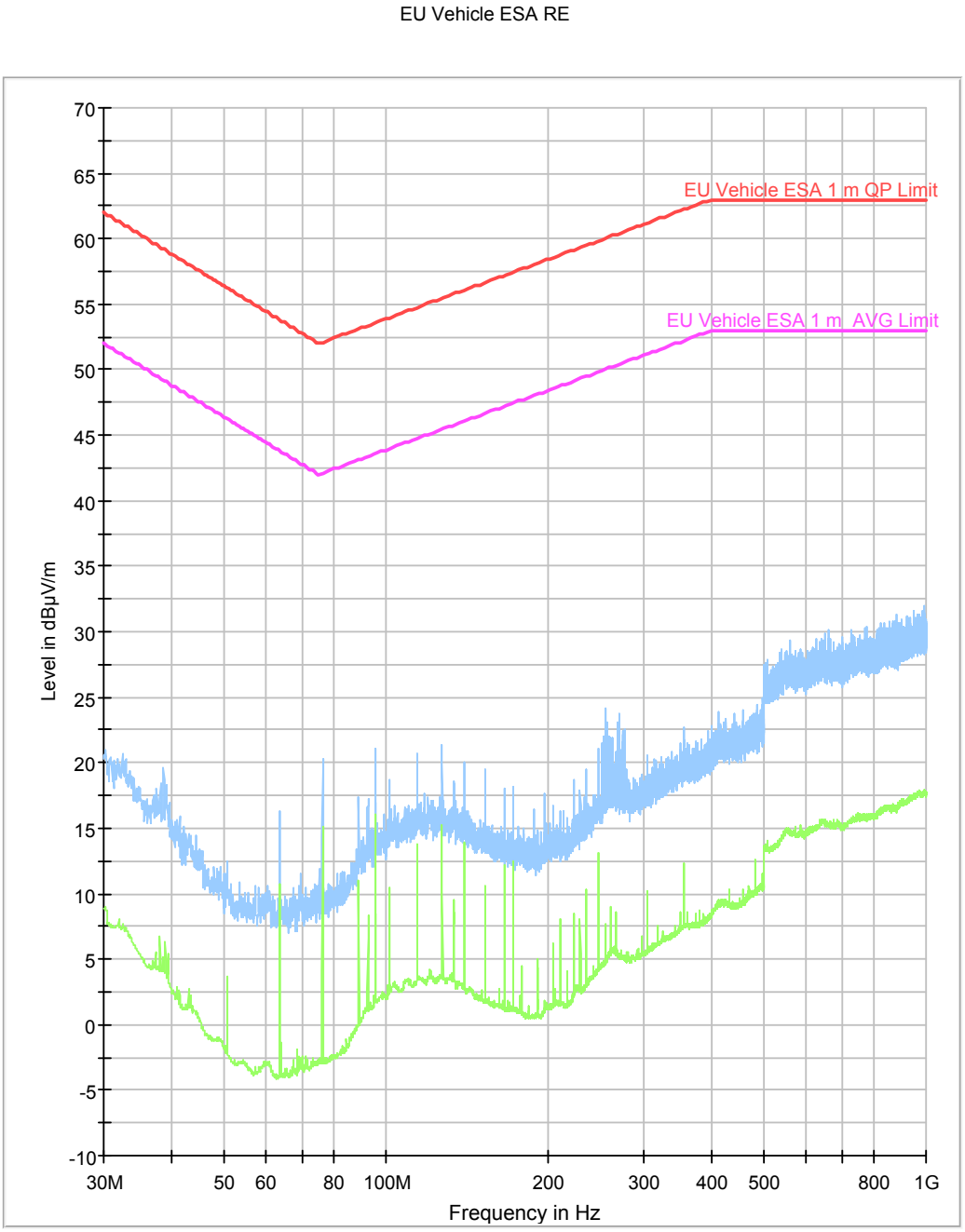

Figure 1 – Narrowband and Broadband Radiated Emissions Plot for an Electronic Subassembly

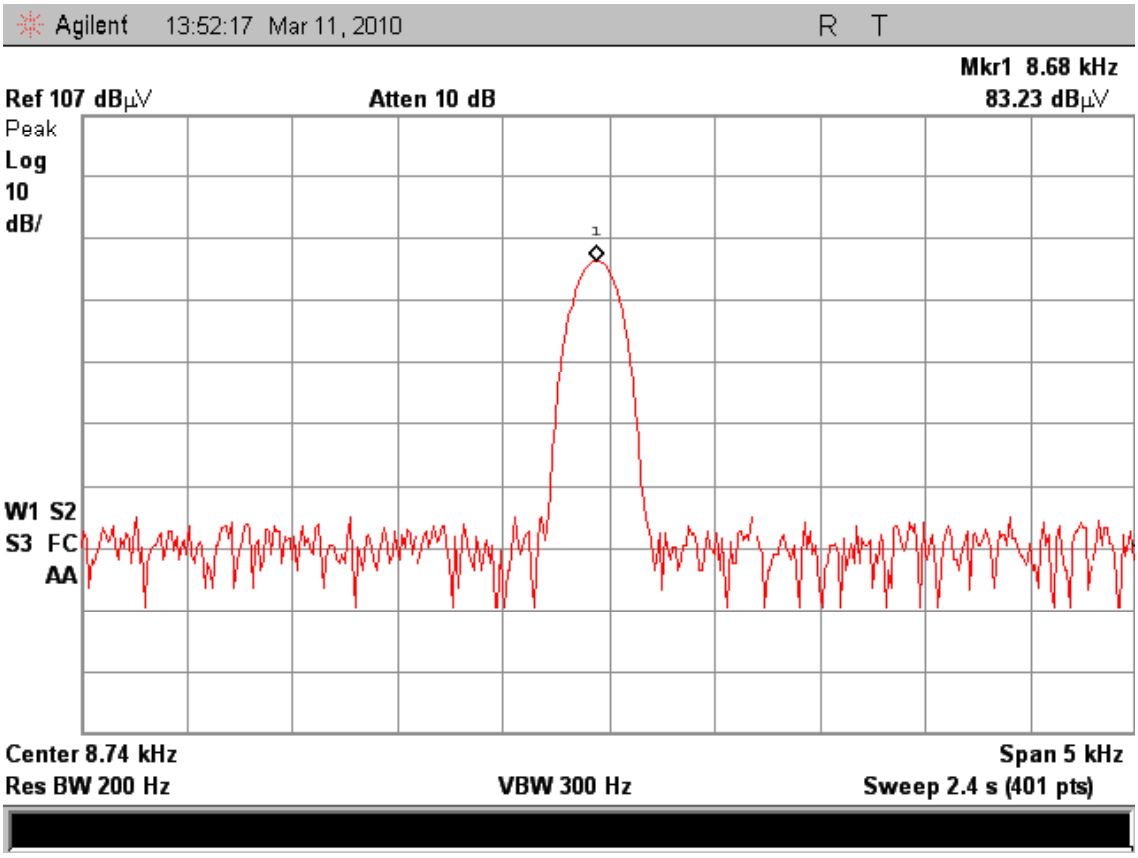

Figure 2 – Fundamental Frequency of the Battery Saver

Notes:

The operating frequency of the Battery Life Saver™ Electronic Device is below 9 kHz. The accepted lower limit of radio frequency is 9 kHz.

Clause 3.2.9 of the EU Directive 2004/104/EC states the following:

Components sold as aftermarket equipment and intended for the installation in motor vehicles need no type approval if they are not related to immunity-related functions (Annex I, 2.1.12). In this case a Declaration of Conformity according to the procedures of Directive 89/336/EEC or 1999/5/EC must be issued. Part of this declaration must be that the ESA fulfils the limits defined in paragraphs 6.5, 6.6, 6.8 and 6.9 of Annex I to this Directive.

This device does not fall within the purview of the EMC directive because it does not operate at a rate fast enough to be considered a radio frequency. Within the context of EU Directive 2004/104/EC, it may be considered as a passive device.

Photo 1 – Radiated Emissions Test Set-up