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Global Product Certification
EMC-EMF Safety Approvals

FCC RF Exposure Report

Electric Vehicle (EV) Fast Charger

Model:
TRI93-50-07-US
FCC ID: 2AFHX-TRI935001US

Performed
for
Tritium Pty Ltd

Report Number
M150805

Issue Date: 3 May 2016

Contents

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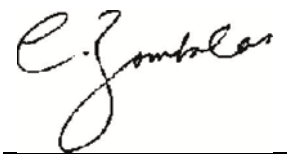
FCC RF Exposure Evaluation Report,
Electric Vehicle (EV) Fast Charger **Model:** TRI93-50-07-US

Report Number: M150805

Test Sample:	Electric Vehicle (EV) Fast Charger
Model Number:	TRI93-50-07-US
FCC ID:	2AFHX-TRI935001US
Manufacturer:	Tritium Pty Ltd
Tested for:	Tritium Pty Ltd
Address:	16 Cavendish Road, Coorparoo, QLD 4151 Australia
Phone:	+61 7 3129 4389
Contact:	James Kennedy
Email	james@tritium.com.au
Test Standard/s:	**FCC KDB 447498 D01 General RF Exposure Guidance v06** Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies. **FCC Title 47, Part 2.1091, Part 1.1310**
Result of Test:	**The calculated power density at 20cm for the RFID and the 3G Modules are below the Power Density limit in FCC Title 47, Part 1.1310**
Test Date:	7th December 2015

Test Engineer: **Emad Mansour**



Authorised Signatory: **Chris Zombolas**
Technical Director
EMC Technologies Pty Ltd

1 INTRODUCTION

This report shows the Maximum permissible exposure level from the Electric Vehicle (EV) Fast Charger, Model No. TRI93-50-07-US, evaluated in accordance with the Federal Communications Commission (FCC) regulations as detailed in KDB 447498 D01 clause 7.1 and 7.2,

The test sample was provided by the Client. The conclusion herein is based on the information provided by the client.

2 EXPOSURE EVALUATION FOR MOBILE DEVICE

A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons.

Radio frequency radiation exposure evaluation for mobile devices as defined by (47 CFR §2.1091).

3 GENERAL INFORMATION

(Information supplied by the Client)

The Equipment Under Test (EUT) was identified as follows:

Host:	Electric Vehicle (EV) Fast Charger
Model Number:	TRI93-50-07-US
Serial Number:	25252
Wireless Radio (RFID):	13.56 MHz
Wireless Radio (3G)	850 MHz and 1900 MHz

4 MAXIMUM PERMISSIBLE EXPOSURE (MPE) LIMITS

The criteria listed in table 1 shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation

Table 1:

Frequency range(MHz)	Electric field strength(V/m)	Magnetic field strength(A/m)	Power density(mW/cm^2)	Averaging time(minutes)
A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1	30

f = frequency in MHz
* = Plane-wave equivalent power density

5 RF EXPOSURE EVALUATION

The MPE was evaluated at 20 cm to show compliance with the power density listed in table 1,

The following formula was used to calculate the power density

$$S = \frac{P * G}{4\pi R^2}$$

Where

(S): Power density (mW/cm^2)
(P): Output power at antenna terminal (mW)
(G): Gain (ratio)
(R): Minimum test separation distance (20 cm)

The EIRP for the RFID calculated using below formula

$$EIRP = \frac{E^2 * r^2}{30}$$

Where
(E): Measured electric field
(r): Distance from the measuring antenna to the radiated surface

The electric field measured at 10m was 40.7 dBµV/m (refer to report M150804-1 issued by EMC Technologies)

Substituting the value of the measured electric field at 10m in pervious equation, the calculated EIRP will equal -44 dBm (0.00004 mW). Technology

5.1 STANDALONE POWER DENSITY CALCULATION

Radio Module	Technology	Frequency (MHz)	Antenna Gain (ratio)*	Maximum power (mW)	Power density at 20 cm mW/cm^2	Limit mW/cm^2	$\frac{Power\ density}{limit}$
PXS8	3G	850	1.6	251	0.08	0.57	0.14
	3G	1900	1.6	251	0.08	1	0.08
SL8090	3G	850	1.6	251	0.08	0.57	0.14
	3G	1900	1.6	251	0.08	1	0.08
TRI93-50-01-US	RFID	13.56	-	0.00004	0.00	0.97	0.00

(*) Antenna Gain assumed to be 2.1 dBi

5.2 SIMULTANEOUS TRANSMISSION EVALUATION

Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated power density is ≤ 1.0.

The sum of highest MPE ratio (worst case) for PXS8, SL8090 and RFID module is

$$\sum \frac{Power\ density}{limit} = 0.14 + 0.14 + 0 = 0.28 < 1$$

6 CONCLUSION

The accumulated power density at 20cm for the RFID and the 3G Modules is below the Power Density limit in FCC Title 47, Part 1.1310