RF Exposure Evaluation declaration

Product Name	:	Savari DSRC unit
Model No.	:	S-50
FCC ID.	:	2AADT-SAV-S50

Applicant : Savari INC.

Address : Suite 131 2005 De La Cruz Blvd, #128, Santa Clara. CA 95050

Date of Receipt	:	2014/12/03
Date of Declaration	:	2015/04/22
Report No.	:	14C0219R-RF-US-Exp
Report Version	:	V1.0

Testing Laboratory
3024

1. RF Exposure Evaluation

1.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission formula: $Pd = (Pout*G)/(4*pi*r^2)$

Where

Pd = power density in mW/cm^2

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

R = distance between observation point and center of the radiator in cm

Pd id the limit of MPE, 1 mW/cm^2. If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

1.2. Test Procedure

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

The temperature and related humidity: 18℃ and 78% RH.

1.3. Test Result of RF Exposure Evaluation

Product	Savari DSRC unit
Test Mode	Transmit
Test Condition	RF Exposure Evaluation

Antenna Gain

Antenna Gain: The maximum Gain measured in fully anechoic chamber is -2.5dBi or 0.56 in linear scale.

Output Power into Antenna & RF Exposure Evaluation Distance:

IEEE 802.11p (BW=10MHz) ANT 0			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
172	5860	231.7395	0.02582
174	5870	237.1374	0.02642
176	5880	232.2737	0.02588
178	5890	228.0342	0.02540
180	5900	95.4993	0.01064
182	5910	92.0450	0.01025
184	5920	172.9816	0.01927

IEEE 802.11p (BW=20MHz) ANT 0			
Channel	Channel Frequency (MHz)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm^2)
175	5875	97.2747	0.01084
181	5905	93.7562	0.01045

The power density Pd (4th column) at a distance of 20 cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm^2.