MPE Exhibit
For
Freescale Semiconductor Mode 1323XMRB

FCC ID: RUN1323X-MRB
IC: 6744A-1323XMRB

1.0 INTRODUCTION

1.1 PURPOSE

This Maximum Permissive Exposure report demonstrates compliance with FCC CFR 47 1.1310, 2.1091 and RSS-102 Issue 4, RF Exposure evaluation for Model 1323xMRB
which are categorized as "mobile". The mobile classification applies when 20 cm or greater separation distance is maintained between the end user and all transmission antennas.
The user documentation available to consumers indicates that the Module and antenna must not be used closer than 20 cm to head or body.

1.2 ANTENNA SPECIFICATIONS

The Model 1323xMRB have the following antenna gain specifications:

- 5 dbi Antenna Integral antenna

2.0 RF EXPOSURE LIMITS AND EQUATIONS

In compliance with FCC CFR 47 1.1310, the criteria listed in the table below shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1303 (b).

Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mw/cm2)	Average Time (minutes)
(A) Limits for Occupational/Control Exposures (f=frequency)				
30-300	61.4	0.2	1.0	6.0
300-1500	-	-	f/300	6.0
1500-100,000	-	-	5.0	6.0
(B) Limits for General Population/Uncontrolled Exposure (f=frequency)				
30-300	27.5	0.1	0.2	30.0
300-1500	-	-	f/1500	30.0
1500-100,000	-	-	1.0	30.0

Friis Transmission Formula:

$Pd = (Pout * G) / (4\pi R^2)$
Where,
Pd = power density (mW/cm^2)
Pout = output power to antenna (mW)
G = gain of antenna in linear scale
R = distance between observation point and center of the radiator (cm)

The resulted power density at a distance of 20cm can be calculated as follows:
$Power\ Density = (EIRP * Duty\ cycle) / (4\pi R^2)$

3.0 MPE FIGURE

For the purposes of this report worst case MPE value is provided for highest gain antenna

3.1 CALCULATION OF WORST CASE MPE FIGURE

Maximum EIRP = Conducted power + Antenna gain = 3.68 (dbm) + 5.0 dbi = 8.68 dBm or 7.379 mW
Transmitter Duty Cycle = 32.62 % duty cycle
S (power density) = (EIRP * Duty Cycle) / (4πR²) = (7.379 mW *.3262)/ (4π* 20²) = 0.000479 mW/cm²

S (power density) = 0.0047887 W/m²

The table below contains MPE Values for all measured channels

Freq. MHz	Conducted EUT Power (dBm)	Ant. Gain	TX Duty cycle %	EIRP (dBm)	EIRP (mW)	Duty cycle corrected Source based EIRP (mw)	Power Density (s) @ 20 cm mw/cm^2	FCC MPE Limit @ 20 cm mw/cm^2	Power Density (s) @ 20 cm W/M^2	IC MPE Limit @ 20 cm W/m^2
2405	3.440	5.000	32.620	8.440	6.982	2.278	0.000453	1.000	0.0045312	10
2440	3.550	5.000	32.620	8.550	7.161	2.336	0.000465	1.000	0.0046474	10
2480	3.680	5.000	32.620	8.680	7.379	2.407	0.000479	1.000	0.0047887	10

Result
Compliant.

4.0 RSS-102 ISSUE 4, RF EXPOSURE EVALUATION

2.5.1 Exemption from Routine Evaluation Limits – SAR Evaluation
Page 26 of the Product User Manual defines the distance as;

This device must be installed to ensure a separation distance of at least 20 cm (8 inches) from the antenna to a person.

2.5.2 Exemption from Routine Evaluation Limits – RF Exposure Evaluation
The peak power output of the device is 3.68 dBm at 2405 MHz
The maximum antenna gain is 5 dBi
The calculated maximum radiated e.i.r.p. is 8.68 dBm (0.002407 W) which is less than 5 W

Therefore the unit is exempt from RSS-102 Issue 4, routine evaluation limits