




Exhibit: RF Exposure – FCC/ISED

FCC/ISED RF exposure evaluation of the
Saffire EVO LX Deadbolt
&
Saffire EVO Interconnected
System in accordance with FCC 1.1310 & RSS-102

COMMERCIAL-IN-CONFIDENCE

FCC: Q8SSAFFIREEVO & 2AU49-DA16200MC
IC: 4652A-SAFFIREEVO & 25650-DA16200MC

Report File #: 7169016122B-001

Client	Dormakaba	
Product	Saffire EVO LX Deadbolt & Saffire EVO Interconnected	
Standard(s)	FCC 1.1310 & RSS-102	

RF Exposure – ISED

The EUT contains an several types of transmitters as depicted in the table below.

Radiofrequency Radiation Exposure Evaluation: Mobile Devices

The power density can be calculate using the formula:

$$P_d = (P_{out} * G) / (4 * \pi * R^2)$$

where,

f = frequency in MHz


P_d = Power density in mW/cm²

P_{out} = Conducted output power to antenna in mW

G = Numeric Antenna Gain


π = 3.1416

R = uncontrolled distance of 20 cm as per normal operation.

Client	Dormakaba	 Canada
Product	Saffire EVO LX Deadbolt & Saffire EVO Interconnected	
Standard(s)	FCC 1.1310 & RSS-102	


MPE Calculation (RFID):

<u>Prediction of MPE limit at a given distance</u>	
Equation from page 18 of OET Bulletin 65, Edition 97-01	
$S = \frac{PG}{4\pi R^2}$	
where:	S = power density P = power input to the antenna G = power gain of the antenna in the direction of interest relative to an isotropic radiator R = distance to the center of radiation of the antenna
Maximum peak output power at antenna input terminal:	-32.80 (dBm)
Maximum peak output power at antenna input terminal:	0.000524807 (mW)
Number of Ports	1
Antenna gain(typical):	0
Antenna gain(total):	0 (dBi)
Maximum antenna gain:	1 (numeric)
Time Averaging:	100 (%)
Prediction distance:	20 (cm)
Prediction frequency:	13.56 (MHz)
FCC MPE limit for uncontrolled exposure at prediction frequency:	0.978933354 (mW/cm²)
Power density at prediction frequency:	0.000000 (mW/cm²)
Margin of compliance:	-69.7 (dB)
This equates to	1.04407E-06 W/m²
RSS-102 Issue 5 limit	0.155568538 W/m²
FCC Percentage of limit	0.00001%
RSS-102 Percentage of limit	0.00067%

Client	Dormakaba	 Canada
Product	Saffire EVO LX Deadbolt & Saffire EVO Interconnected	
Standard(s)	FCC 1.1310 & RSS-102	

MPE Calculation (BlueTooth™):

Prediction of MPE limit at a given distance	
Equation from page 18 of OET Bulletin 65, Edition 97-01	
$S = \frac{PG}{4\pi R^2}$	
where:	S = power density
	P = power input to the antenna
	G = power gain of the antenna in the direction of interest relative to an isotropic radiator
	R = distance to the center of radiation of the antenna
Maximum peak output power at antenna input terminal:	-14.80 (dBm)
Maximum peak output power at antenna input terminal:	0.033113112 (mW)
Number of Ports	1
Antenna gain(typical):	0
Antenna gain(total):	0 (dBi)
Maximum antenna gain:	1 (numeric)
Time Averaging:	100 (%)
Prediction distance:	20 (cm)
Prediction frequency:	2450 (MHz)
FCC MPE limit for uncontrolled exposure at prediction frequency:	1 (mW/cm²)
Power density at prediction frequency:	0.000007 (mW/cm²)
Margin of compliance:	-51.8 (dB)
This equates to	6.58764E-05 W/m²
RSS-102 Issue 5 limit	5.423649309 W/m²
FCC Percentage of limit	0.00066%
RSS-102 Percentage of limit	0.00121%

Client	Dormakaba	 Canada
Product	Saffire EVO LX Deadbolt & Saffire EVO Interconnected	
Standard(s)	FCC 1.1310 & RSS-102	

MPE Calculation (WiFi™):

<u>Prediction of MPE limit at a given distance</u>	
Equation from page 18 of OET Bulletin 65, Edition 97-01	
$S = \frac{PG}{4\pi R^2}$	
where:	S = power density P = power input to the antenna G = power gain of the antenna in the direction of interest relative to an isotropic radiator R = distance to the center of radiation of the antenna
Maximum peak output power at antenna input terminal:	20.09 (dBm)
Maximum peak output power at antenna input terminal:	102.0939484 (mW)
Number of Ports	1
Antenna gain(typical):	0
Antenna gain(total):	2 (dBi)
Maximum antenna gain:	1.584893192 (numeric)
Time Averaging:	100 (%)
Prediction distance:	20 (cm)
Prediction frequency:	2450 (MHz)
FCC MPE limit for uncontrolled exposure at prediction frequency:	1 (mW/cm²)
Power density at prediction frequency:	0.032191 (mW/cm²)
Margin of compliance:	-14.9 (dB)
This equates to	0.321906795 W/m²
RSS-102 Issue 5 limit	5.423649309 W/m²
FCC Percentage of limit	3.21907%
RSS-102 Percentage of limit	5.93524%

Combined, the total of all three RF protocols operating simultaneously is less than 10% of the applicable limit. The device passes the requirement(s) at all applicable frequencies combined.