



Exhibit: RF Exposure – FCC/ISED


FCC/ISED RF exposure evaluation of the
System in accordance with FCC 1.1310 & RSS-102

COMMERCIAL-IN-CONFIDENCE

FCC: Q8SSAFFIREEVOM & 2AU49-DA16200MC

IC: 4652A-SAFFIREEVOM & 25650-DA16200MC

Report File #: 7169011562B-000

Client	Dormakaba	
Product	Saffire LX Deadbolt & Saffire Evo LX Deadbolt	
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 LX Deadbolt & Saffire Evo LX Deadbolt	
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:	-40.60 (dBm)
Maximum peak output power at antenna input terminal:	8.70964E-05 (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)
FCC Margin of compliance:	-77.5 (dB)
This equates to	1.73273E-07 W/m²
RSS-102 Issue 6 limit	1 W (eirp)
RSS-102 Margin of compliance	-70.6 (dB)
Note: This device does not exceed the 60 / f (GHz) in mW limit as per FCC KDB 447498 2(a)(i), so it is allowable to be used in portable exposure conditions with no restrictions on host platforms	

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

MPE Calculation (BlueTooth™):

<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:	-15.00 (dBm)
Maximum peak output power at antenna input terminal:	0.031622777 (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:	2400 (MHz)
FCC MPE limit for uncontrolled exposure at prediction frequency:	1 (mW/cm²)
Power density at prediction frequency:	0.000006 (mW/cm²)
Margin of compliance:	-52.0 (dB)
This equates to	6.29115E-05 W/m²
RSS-102 Issue 6 limit	5.347759415 W/m²
FCC Percentage of limit	0.00063%
RSS-102 Percentage of limit	0.00118%
Note: This device does not exceed the 60 / f (GHz) in mW limit as per FCC KDB 447498 2(a)(i), so it is allowable to be used in portable exposure conditions with no restrictions on host platforms	

Client	Dormakaba	 Canada
Product	Saffire LX Deadbolt & Saffire Evo LX Deadbolt	
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):	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:	0.020311 (mW/cm²)
Margin of compliance:	-16.9 (dB)
This equates to	0.203109457 W/m²
RSS-102 Issue 6 limit	5.423649309 W/m²
FCC Percentage of limit	2.03109%
RSS-102 Percentage of limit	3.74489%

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.