ISRAEL TESTING LABORATORIES
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FCC/IC RF Exposure Report

1. Product information

FCC ID	2A6MX13EA2A6MX
Product	RFID Interrogator
Model No.	Reader 1.1
Power supply	230V AC (via PoE supplied 54V DC)
Antenna type	Integral
Antenna gain	5.5 dBi
Assigned frequency range	902 – 928 MHz
Operating frequency range	902.5 – 927.5 MHz
Transmit power (conducted)	29.2dBm
Modulation bandwidth	N/A (CW)
Bit rate	N/A (CW)
RF Exposure considerations	A worst-case test separation distance of 30 cm

2. Evaluation Method and Limit

FCC, Part 1, Subpart I, Section 1.1310(e)(1), RSS 102, Issue 5, Section 2.5.2 (table 4 requirements) KDB447498 D01 V06 (October 23, 2015)

According to KDB447498 D01 General RF Exposure Guidance v06 Section 4.3.1, the standalone SAR test exclusion considerations are: “Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition, listed below, is satisfied.

The minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander (see 5) of section 4.1)."

For MPE evaluation we take the following E.U.T values:

1. Max. power (conducted)=29.2 dBm=831.7mW=0.83W
2. Antenna gain=5.5 dBi=3.5 numeric
3. EIRP = Max power+ Antenna gain = 29.2+5.5= 34.7dBm

4. Minimum distance from human body: 30cm=0.3m
5. The power density was calculated using the following formula: $S = \frac{P_t G_t}{4\pi R^2}$

S: Power density (FCC: mW/cm^2; IC: W/m^2)
P_t: Conducted Transmitted Power (FCC: mW; IC: W)
G_t: Antenna Gain (numeric)
R: Distance from Transmitter (FCC: cm; IC: m)

a) FCC Test Limit

Limits for General Population/Uncontrolled Exposure:

Frequency range (MHz)	Power density (mW/cm^2)	Averaging time (min)
300-1,500	≤f/1500	< 30

b) IC Test Limit

Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

Frequency Range (MHz)	Electric Field (V/m rms)	Magnetic Field (A/m rms)	Power Density (W/m^2)	Reference Period (minutes)
0.003-10^{21}	83	90	-	Instantaneous*
0.1-10	-	0.73/ f	-	6**
1.1-10	87/ $f^{0.5}$	-	-	6**
10-20	27.46	0.0728	2	6
20-48	58.07/ $f^{0.25}$	0.1540/ $f^{0.25}$	8.944/ $f^{0.5}$	6
48-300	22.06	0.05852	1.291	6
300-6000	3.142 $f^{0.3417}$	0.008335 $f^{0.3417}$	0.02619$f^{0.6834}$	6
6000-15000	61.4	0.163	10	6
15000-150000	61.4	0.163	10	616000/ $f^{1.2}$
150000-300000	0.158 $f^{0.5}$	4.21 x 10^{-4} $f^{0.5}$	6.67 x 10^{-5} f	616000/ $f^{1.2}$

Note: f is frequency in MHz.
*Based on nerve stimulation (NS).
** Based on specific absorption rate (SAR).

3. Test Results

Frequency (MHz)	FCC calculation (mW/cm ^{2})	FCC limit (mW/cm ^{2})	Verdict
915.0	$S = \frac{P_t G_t}{4\pi R^2}$ = [831.7*3.5]/ [4*3.16*(30^2)]=0.25	≤f/1500(915/1500)= ≤0.61	Pass

Frequency (MHz)	IC calculation (W/m ^{2})	ISED limit (W/m ^{2})	Verdict
915.0	$S = \frac{P_t G_t}{4\pi R^2}$ = [0.83*3.5]/ [4*3.16*(0.3^2)]=2.55	≤0.02619*$f^{0.6834}$= ≤2.76	Pass

Figure 1 Test Results

4. Conclusion

The measurement results comply with the Limit per FCC, Part 1, Subpart I, Section 1.1310(e)(1), RSS 102, Issue 5, Section 2.5.2(table 4 requirements) KDB447498 D01 V06 (October 23, 2015)

End of Report