

MPE/RF EXPOSURE EVALUATION REPORT



Evaluation of: Digi International ConnectCore i.MX6UL

to

To: FCC CFR 47 Part 15 RF Exposure Requirements

Test Report Serial No.: DIGI79-U2 MPE Rev A

This report supersedes: NONE

Applicant: Digi International Inc.
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Product Function: Embedded ARM Module.

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1. MAXIMUM PERMISSABLE EXPOSURE

Calculations for Maximum Permissible Exposure Levels

$$\text{Power Density} = P_d \text{ (mW/cm}^2\text{)} = \text{EIRP}/(4*\pi*d^2)$$

$$\text{EIRP} = P * G$$

P = Peak output power (mW)

G = Antenna numeric gain (numeric)

d = Separation distance (cm)

$$\text{Numeric Gain} = 10 \wedge (\text{G (dBi)}/10)$$

Because the EUT belongs to the General Population/Uncontrolled Exposure the limit of power density is 1 mW/cm²

These calculations represent worst case in terms of the exposure levels for the device operating in the 5000 MHz band.

Freq. Band (MHz)	Frequency of Calculation (MHz)	Ant Gain (dBi)	Numeric Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Calculated Power Density (mW/cm ²) @ 20cm	Power Density Limit (mW/cm ²)	Min Calculated safe distance for Limit (cm)
4900-5900	5240	5.5	3.55	11.4	13.80	0.010	1.0	1.97

Note: for mobile or fixed location transmitters the minimum separation distance is 20cm, even if calculations indicate the MPE distance to be less.

Specification

Maximum Permissible Exposure Limits

FCC §1.1310 Limit = 1 mW/cm² from 1.310 Table 1 for devices operating in the 5000 MHz band



Specification - Maximum Permissible Exposure Limits

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500	--	--	f/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500	--	--	f/1500	30
1,500-100,000	--	--	1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

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