

AT4 wireless S.A.U.TCB
Parque Tecnológico de Andalucía
Severo Ochoa, 2 & 6
29590 Málaga
Spain

Date: October 20th, 2016

RF exposure analysis for the equipment

Model: LE910-SVL

FCC ID: RI7LE910SVL

IC: 5131A-LE910SVL

The device Telit LE910-SVL is a module designed to be installed in other devices. This device is to be used only for fixed and mobile applications. If the final product after integration is intended for portable use, new applications and FCC and IC are required.

The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all the persons and must not be co-located or operating in conjunction with any other antenna or transmitter except as under the conditions described KDB 447498 D01 General RF Exposure Guidance.

MPE exposure limits

The table below is excerpted from Table 1B of 47 CFR 1.1310 titled Limits for Maximum Permissible Exposure (MPE), Limits for General Population/Uncontrolled Exposure:

Frequency Range (MHz)	Power density (mW/cm ²)	Averaging time (minutes)
300 – 1500	f (MHz) /1500	30
1500 – 100.000	1,0	30

The table below is excerpted from RSS-102, Issue 5, 4, titled "Table 4: RF Field Strength Limits for Devices Used by the General Public":

Frequency Range (MHz)	Power density (W/m ²)	Averaging time (minutes)
300 – 6000	$0.02619 \cdot f^{0.6834}$	6

EIRP limits

Frequency Band (MHz)	FCC EIRP limit per §27.50 (W)	IC EIRP limit per RSS-130 and RSS-139 (W)
700	4,92	5,00
1700	1,00	1,00

Using the equation $S = \frac{PG}{4\pi R^2}$ to calculate the exposure to electromagnetic fields

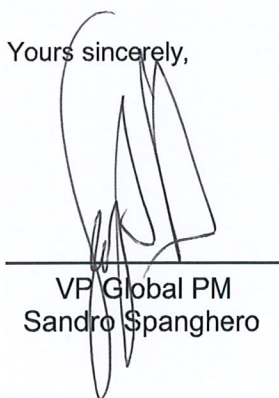
where: S = power density (in appropriate units, e.g. mW/cm²)
P = power input to the antenna (in appropriate units, e.g., mW)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

compliance with FCC/IC MPE and EIRP limits is demonstrated following the calculations shown in the following page:

Band	Operation Mode (worst case)	Frequency (MHz) (Lowest Frequency)	Maximum conducted output power (per tune-up) (dBm)	Duty cycle (%)	FCC MPE limit (mW/cm ²)	IC MPE limit (mW/cm ²)	FCC/IC MPE limit (mW/cm ²)	FCC EIRP limit per §27.50 (W)	IC EIRP limit per RSS-130 and RSS-139 (W)	Evaluation distance for compliance with MPE limits (cm)	Antenna gain to meet FCC/IC MPE limit (dBi)	Antenna gain to meet FCC EIRP limit (dBi)	Antenna gain to meet IC EIRP limit (dBi)	Maximum antenna gain to meet all the limits (dBi)	Maximum antenna gain to meet all the limits per frequency band (dBi)
FDD IV	BW: 1.4 MHz Duty factor: 100%	1710,7	24,00	100,0%	1,000	0,424	0,424	1,00	1,00	20	9,28	6,00	6,00	6,00	Maximum antenna gain for 1700 MHz frequency band: 6,00
	BW: 3 MHz Duty factor: 100%	1711,5	24,00	100,0%	1,000	0,424	0,424	1,00	1,00	20	9,29	6,00	6,00	6,00	
	BW: 5 MHz Duty factor: 100%	1712,5	24,00	100,0%	1,000	0,425	0,425	1,00	1,00	20	9,29	6,00	6,00	6,00	
	BW: 10 MHz Duty factor: 100%	1715,0	24,00	100,0%	1,000	0,425	0,425	1,00	1,00	20	9,29	6,00	6,00	6,00	
	BW: 15 MHz Duty factor: 100%	1717,5	24,00	100,0%	1,000	0,425	0,425	1,00	1,00	20	9,30	6,00	6,00	6,00	
	BW: 20 MHz Duty factor: 100%	1720,0	24,00	100,0%	1,000	0,426	0,426	1,00	1,00	20	9,30	6,00	6,00	6,00	
FDD XIII	BW: 5 MHz Duty factor: 100%	779,5	24,00	100,0%	0,520	0,248	0,248	4,92	5,00	20	6,95	12,91	12,98	6,95	Maximum antenna gain for 700 MHz frequency band: 6,95
	BW: 10 MHz Duty factor: 100%	782,0	24,00	100,0%	0,521	0,249	0,249	4,92	5,00	20	6,96	12,91	12,98	6,96	

Band	Operation Mode (worst case)	Frequency (MHz) (Lowest Frequency)	Maximum conducted output power (per tune-up) (dBm)	Duty cycle (%)	Antenna gain (dBi)	FCC/ISED MPE limit (mW/cm ²)	FCC/ISED EIRP limit (W)	Evaluation distance for compliance with MPE limits (cm)	$S = \frac{PG}{4\pi R^2}$	MPE Ratio (S/MPE limit)
FDD IV	BW: 1.4 MHz Duty factor: 100%	1710,7	24,00	100,0%	6,00	0,42431	1,00	20	0,19894	0,46886
	BW: 3 MHz Duty factor: 100%	1711,5	24,00	100,0%	6,00	0,42445	1,00	20	0,19894	0,46871
	BW: 5 MHz Duty factor: 100%	1712,5	24,00	100,0%	6,00	0,42462	1,00	20	0,19894	0,46852
	BW: 10 MHz Duty factor: 100%	1715,0	24,00	100,0%	6,00	0,42504	1,00	20	0,19894	0,46806
	BW: 15 MHz Duty factor: 100%	1717,5	24,00	100,0%	6,00	0,42547	1,00	20	0,19894	0,46759
	BW: 20 MHz Duty factor: 100%	1720,0	24,00	100,0%	6,00	0,42589	1,00	20	0,19894	0,46713
FDD XIII	BW: 5 MHz Duty factor: 100%	779,5	24,00	100,0%	6,95	0,24797	4,92	20	0,24759	0,99845
	BW: 10 MHz Duty factor: 100%	782,0	24,00	100,0%	6,95	0,24852	4,92	20	0,24759	0,99627

Yours sincerely,



VP Global PM
Sandro Spanghero