

Manufacturer: Topcon Positioning Systems, Inc.

FCC: WR4-CL20

Name: Oscar Frau

Title: Project handler

Signature: 

MPE limits (§1.1310)

	Mode	Frequency	Duty Cycle	Power	Antenna	EIRP ¹	EIRP	Distance	PD ²	PD Limit ³	Margin	2.1091 EIRP	2.1091 EIRP	Worst PD/PD values to be considered	
					Gain ^{7,9}							Limit ⁴	Margin		PD/PD Limit
LARA-R204	LTE eFDD13 ^{5,6,7}	777	100	24	1	25,00	316,2	20	0,063	0,518	9,16	652	3,15	0,12145	
LARA-R204	LTE eFDD4 ^{5,6,7}	1710	100	24	2,5	26,50	446,7	20	0,089	1,00	10,51	1260	4,50		0,08886
CL20	WIFI 2.4GHz ^{8,9}	2412	100	21,5	3	24,50	281,8	20	0,056	1,00	12,51	1260	6,50	0,05607	0,05607
Co-Location = 0,12145 + 0,05607 = 0,2 < 1															

¹EIRP = (Power dBm + Antenna Gain dBi) + 10 x Log (Duty Cycle % / 100)

²PD = EIRP / (4πx²D²)

³CFR 47 Part 1, §1.1310(e), table 1 (General Population/Uncontrolled Exposure)

⁴CFR 47 Part 1, §1.1307 (b)(3)(i)

⁵See FCC ID: XPY1EIQN2NN, IC: 8595A-1EIQN2NN, HVIN: LARA-R204

⁶See 7layers GmbH, Assessment Reference: MDE_UBLOX_1603_MPEa, Conducted output power values bases on "Tune-up" information provided by manufacturer at page 9 section 3.2.2

⁷Tekfun FX-W06-113G-150-IPEX antenna

⁸FCC ID: WR4-CL20, IC: 6050B-CL20, HVIN: CL20

⁹From the original filing FCC ID: XPYLILYW1

§2.1091 EIRP Limit
§1.1307 (b)(3)(i)(C) exemption limit

RF Source	Threshold						Threshold	Threshold	Threshold		
Frequency	f	R	λ	λ/2π	R/(λ/2π)	ERP	EIRP	EIRP	EIRP	Margin	
MHz	MHz	m	m	m		W	W	mW	mW	dB	
300-1500	777	0,20	0,386	0,0614	3,25	0,39782	0,652	652	316	3,15	
1500-100000	1710	0,20	0,175	0,0279	7,2	0,768	1,260	1260	446,7	4,50	
	2412	0,20	0,124	0,0198	10,1	0,768	1,260	1260	281,8	6,50	

§2.1091 EIRP Limit
§1.1307 (b)(3)(i)(B) exemption limit

0.3 GHz ≤ f < 1.5 GHz (20 cm < d ≤ 40 cm)							
f	ERP _{20cm}	Pth = ERP _{20cm}	Pth = EIRP _{20cm}	EIRP	Margin		
GHz	mW	mW	mW	mW	dB		
0,777	1585	1585	2600	316,2	9,15		
f	ERP _{20cm}	Pth = ERP _{20cm}	Pth = EIRP _{20cm}	EIRP	Margin		
GHz	mW	mW	mW	mW	dB		
1,710	3060	3060	5018	446,7	10,51		
2,412	3060	3060	5018	281,8	12,51		