

CL-10 3G

MPE limits for FCC, 1.1310

													2.1091 EIRP	2.1091 EIRP	
	Mode	Frequency MHz	Duty Cycle %	Power dBm	Antenna		EIRP ⁹ dBm	EIRP mW	Distance D cm	PD ¹⁰ mW/cm^2	PD Limit mW/cm^2	Margin dB	Limit mW	Margin dB	PD/PD Limit
					Gain dBi										
SARA-U201	GSM ^{1,2,3,4}	824.2	50	33.5	3.42	33.9	2460	20	0.489	0.549	0.50	2455	-0.01	0.89076	
SARA-U201	EDGE ^{1,2,3,4}	824.2	50	29	3.42	29.4	873	20	0.174	0.549	5.00	2455	4.49	0.31605	
SARA-U201	WCDMA ^{1,3,4}	826.4	100	25	3.42	28.4	695	20	0.138	0.551	6.00	2455	5.48	0.25098	
SARA-U201	GSM ^{1,2,3,4}	1850.2	50	31.5	1.51	30.0	1000	20	0.199	1.00	7.01	4910	6.91	0.19893	
SARA-U201	EDGE ^{1,2,3,4}	1850.2	50	28	1.51	26.5	447	20	0.089	1.00	10.51	4910	10.41	0.08886	
SARA-U201	WCDMA ^{1,3,4}	1852.4	100	25	1.51	26.5	448	20	0.089	1.00	10.50	4910	10.40	0.08907	
LILY-W132	WIFI 2.4GHz ^{5,7}	2412	100	21.5	3	24.5	282	20	0.056	1.608	14.58	N/A	N/A	0.03487	
BlueMod+S42	BLE ^{6,8}	2402	100	4.6	2	6.6	4.6	20	0.001	1.00	30.41	N/A	N/A	0.00091	
FCC Co-Location =		0.89076	+	0.03487	+	0.00091	=	0.92653	< 1						

MPE limits for Innovation, Science and Economic Development Canada, RSS-102 Issue 5

	Mode	Frequency MHz	Duty Cycle %	Power dBm	Antenna		EIRP ⁹ dBm	EIRP W	Distance D m	PD ¹⁰ W/m^2	PD Limit W/m^2	Margin dB	RSS 102	RSS 102	PD/PD Limit
					Gain dBi								\$2.5.2 Lim. W	Marg. dB	
SARA-U201	GSM ^{1,2,3,4}	824.2	50	33.5	3.42	33.9	2.460	0.2	4.89	2.58	-2.79	1.289	-2.81	1.89998	
SARA-U201	EDGE ^{1,2,3,4}	824.2	50	29.0	3.42	29.4	0.873	0.2	1.74	2.58	1.71	1.289	1.69	0.67414	
SARA-U201	WCDMA ^{1,3,4}	826.4	100	25.0	3.42	28.4	0.695	0.2	1.38	2.58	2.71	1.291	2.69	0.53578	
SARA-U201	GSM ^{1,2,3,4}	1850.2	50	31.5	1.51	30.0	1.000	0.2	1.99	4.48	3.52	2.239	3.50	0.44437	
SARA-U201	EDGE ^{1,2,3,4}	1850.2	50	28.0	1.51	26.5	0.447	0.2	0.89	4.48	7.02	2.239	7.00	0.19849	
SARA-U201	WCDMA ^{1,3,4}	1852.4	100	25.0	1.51	26.5	0.448	0.2	0.89	4.48	7.02	2.241	6.99	0.19880	
LILY-W132	WIFI 2.4GHz ^{5,7}	2412	100	21.5	3	24.5	0.282	0.2	0.56	5.37	9.81	2.684	9.79	0.10449	
BlueMod+S42	BLE ^{6,8}	2412	100	4.6	2	6.6	0.005	0.2	0.01	5.37	27.71	2.684	27.69	0.00169	
Canada Co-Location =		1.89998	+	0.10449	+	0.00169	=	2.00616	< 1						

EIRP limits for FCC and Innovation, Science and Economic Development Canada (\$24.132, \$24.232 / RSS 132 \$5.4, RSS 133 \$6.4)

		Antenna							
		Frequency MHz	Power dBm	Gain dBi	EIRP ¹¹ dBm	EIRP W	EIRP Limit W	EIRP Margin dB	
SARA-U201	GSM ^{1,2,3,4}	824.2	33.50	3.42	36.92	4.920	11.5	3.69	
SARA-U201	EDGE ^{1,2,3,4}	824.2	29.00	3.42	32.42	1.746	11.5	8.19	
SARA-U201	WCDMA ^{1,3,4}	826.4	25.00	3.42	28.42	0.695	11.5	12.2	
SARA-U201	GSM ^{1,2,3,4}	1850.2	31.50	1.51	33.01	2.000	2.0	0.00	
SARA-U201	EDGE ^{1,2,3,4}	1850.2	28.00	1.51	29.51	0.893	2.0	3.50	
SARA-U201	WCDMA ^{1,3,4}	1852.4	25.00	1.51	26.51	0.448	2.0	6.50	

¹FCC ID: XPY1CGM5NNN, IC: 8595A-1CGM5NNN, HVIN: SARA-U201²GSM multi-slot class 12, 50% duty cycle³CETECOM GmbH, T E S T R E P O R T, No.: 16-1-0111601T02a-C1, Declared maximum conducted output power and Max. positive tolerance according to manufacturer at page 11 section 4.2.1.1 and page 12 section 4.2.2.1⁴SARA-G3 and SARA-U2 series System Integration Manual UBX-13000995 - R27
Declaration of conformity gain of the system antenna(s) at page 182 section 4.2.2⁵FCC ID: XPYLILYW1, 8595A-LILYW1, LILY-W132⁶FCC ID: RFRMS42, 4957A-MS42, BlueMod+S42⁷LILY-W1 series Data Sheet UBX-15000203 - R04

at page 28 section 7.2 Approved antennas

⁸BlueMod+S42 Hardware User Guide 1V0301303 Rev.6 – 2017-06-07

at page 44 section 5.6.3 Antenna-Gain and Radiation Pattern and page 58 section 8.3.4 Antenna peak Gain

⁹EIRP = (Power dBm + Antenna Gain dBi) + 10 x Log (Duty Cycle % / 100)¹⁰PD = EIRP / (4πr²)¹¹EIRP = Power dBm + Antenna Gain dBi