

FCC ID: 2AEUP8HABU002
MPE limits for FCC, 1.1310

Mode	Frequency MHz	Duty Cycle %	Power dBm	Antenna		EIRP ¹ dBm	EIRP mW	Distance D cm	PD ² mW/m ²	PD Limit mW/cm ²	Margin dB	2.1091 EIRP		PD/PD Limit
				Gain dBi								Limit mW	Margin dB	
Zwave	908.4	100	-2.33	0.8	-1.53	1	20	0.00014	0.61	36.4				0.00023
FHSS	902.2	100	11.27	3.1	14.4	27	20	0.0054	0.60	20.4				0.00905
BLE	2402	100	8.37	5.8	14.2	26	20	0.0052	1.0	22.8				0.00520
Zigbee	2405	100	17.51	4.8	22.3	170	20	0.034	1.0	14.7				0.03386
Wifi 2.4G	2412	100	13.5	5.8	19.3	85	20	0.017	1.0	17.7				0.01693
Wifi 5G	5180	100	14.0	5.6	19.6	91	20	0.018	1.0	17.4				0.01814
Wifi 5G	5260	100	13.9	5.6	19.5	89	20	0.018	1.0	17.5				0.01773
Wifi 5G	5500	100	13.6	5.6	19.2	83	20	0.017	1.0	17.8				0.01655
Wifi 5G	5745	100	11.9	5.6	17.5	56	20	0.011	1.0	19.5				0.01124
LTE BAND 2 ^{3,4}	1850	100	24.0	3.6	27.6	575	20	0.11	1.00	9.41	4910	9.31		0.11448
LTE BAND 4 ^{3,4}	1710	100	23.0	3.8	26.8	479	20	0.10	1.00	10.21	4910	10.11		0.09522
LTE BAND 5 ^{3,4}	824	100	24.0	1.7	25.7	372	20	0.07	0.55	8.71	2455	8.20		0.13455
LTE BAND 12 ^{3,4}	699	100	24.0	2.8	26.8	479	20	0.10	0.47	6.90	2455	7.10		0.20434
LTE BAND 13 ^{3,4}	777	100	24.0	2.8	26.8	479	20	0.10	0.52	7.36	2455	7.10		0.18382
LTE BAND 26 ^{3,4}	814	100	24.0	1.7	25.7	372	20	0.07	0.54	8.66	2455	8.20		0.13621
GSM850 1 Txslot ^{3,5}	824	12.5	32.31	1.7	24.98	315	20	0.06	0.55	9.43	2455	8.92		0.11397
GSM850 2 Txslot ^{3,5}	824	25	32.11	1.7	27.79	601	20	0.12	0.55	6.62	2455	6.11		0.21769
GSM850 3 Txslot ^{3,5}	824	37.5	31.31	1.7	28.75	750	20	0.15	0.55	5.66	2455	5.15		0.27160
GSM850 4 Txslot ^{3,5}	824	50	30.28	1.7	28.97	789	20	0.16	0.55	5.44	2455	4.93		0.28567
GSM1850 1 Txslot ^{3,6}	1850	12.5	29.76	3.6	24.33	271	20	0.05	1.00	12.68	4910	12.58		0.05391
GSM1850 2 Txslot ^{3,6}	1850	25	29.65	3.6	27.23	528	20	0.11	1.00	9.78	4910	9.68		0.10512
GSM1850 3 Txslot ^{3,6}	1850	37.5	29.51	3.6	28.85	767	20	0.15	1.00	8.16	4910	8.06		0.15267
GSM1850 4 Txslot ^{3,6}	1850	50	29.42	3.6	30.01	1002	20	0.20	1.00	7.00	4910	6.90		0.19939
FCC Co-Location = 0.00023 + 0.00905 + 0.03386 + 0.01814 + 0.28567 = 0.35 <1														

IC: 20271-BHABU002; HVIN: Base Station NA

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

Mode	Frequency MHz	Duty Cycle %	Power dBm	Antenna		EIRP ¹ dBm	EIRP W	Distance D m	PD ² W/m ²	PD Limit W/m ²	Margin dB	exemption		PD/PD Limit
				Gain dBi								limit EIRP W	margin dB	
Zwave	908.4	100	-2.33	0.8	-1.5	0.001	0.2	0.001	2.75	32.94		0.00051	1.377	32.92
FHSS	902.2	100	11.27	3.1	14.4	0.027	0.2	0.05	2.74	17.02		0.01986	1.371	17.00
BLE	2402	100	8.37	5.8	14.2	0.026	0.2	0.05	5.35	20.13		0.00971	2.676	20.11
Zigbee	2405	100	17.51	4.8	22.3	0.170	0.2	0.34	5.36	11.99		0.06323	2.679	11.97
Wifi 2.4G	2412	100	13.5	5.8	19.3	0.085	0.2	0.17	5.37	15.01		0.03156	2.684	14.99
Wifi 5G	5180	100	14.0	5.6	19.6	0.091	0.2	0.181	9.05	16.98		0.02005	4.525	16.96
Wifi 5G	5260	100	13.9	5.6	19.5	0.089	0.2	0.177	9.14	17.12		0.01939	4.573	17.10
Wifi 5G	5500	100	13.6	5.6	19.2	0.083	0.2	0.165	9.43	17.56		0.01756	4.714	17.53
Wifi 5G	5745	100	11.92	5.6	17.5	0.056	0.2	0.112	9.71	19.37		0.01157	4.857	19.34
LTE BAND 2 ^{3,4}	1850	100	24.0	3.6	27.6	0.575	0.2	1.14	4.48	5.92	0.25575	2.239	5.90	
LTE BAND 4 ^{3,4}	1710	100	23.0	3.8	26.8	0.479	0.2	0.95	4.24	6.49	0.22447	2.122	6.47	
LTE BAND 5 ^{3,4}	824	100	24.0	1.7	25.7	0.372	0.2	0.74	2.58	5.42	0.28698	1.288	5.40	
LTE BAND 12 ^{3,4}	699	100	24.0	2.8	26.8	0.479	0.2	0.95	2.30	3.83	0.41369	1.151	3.81	
LTE BAND 13 ^{3,4}	777	100	24.0	2.8	26.8	0.479	0.2	0.95	2.47	4.15	0.38484	1.238	4.13	
LTE BAND 26 ^{3,4}	814	100	24.0	1.7	25.70	0.372	0.2	0.74	2.55	5.39	0.28938	1.278	5.36	
GSM850 1 Txslot ^{3,5}	824	12.5	32.31	1.7	24.98	0.315	0.2	0.63	2.58	6.14	0.24309	1.288	6.12	
GSM850 2 Txslot ^{3,5}	824	25	32.11	1.7	27.79	0.601	0.2	1.20	2.58	3.33	0.46429	1.288	3.31	
GSM850 3 Txslot ^{3,5}	824	37.5	31.31	1.7	28.75	0.750	0.2	1.49	2.58	2.37	0.57927	1.288	2.35	
GSM850 4 Txslot ^{3,5}	824	50	30.28	1.7	28.97	0.789	0.2	1.57	2.58	2.15	0.60928	1.288	2.13	
GSM1850 1 Txslot ^{3,6}	1850	12.5	29.76	3.6	24.33	0.271	0.2	0.54	4.48	9.19	0.12043	2.239	9.17	
GSM1850 2 Txslot ^{3,6}	1850	25	29.65	3.6	27.23	0.528	0.2	1.05	4.48	6.29	0.23483	2.239	6.27	
GSM1850 3 Txslot ^{3,6}	1850	37.5	29.51	3.6	28.85	0.767	0.2	1.53	4.48	4.67	0.34107	2.239	4.65	
GSM1850 4 Txslot ^{3,6}	1850	50	29.42	3.6	30.01	1.002	0.2	1.99	4.48	3.51	0.44543	2.239	3.49	
Canada Co-Location = 0.00051 + 0.01986 + 0.06323 + 0.02005 + 0.60928 = 0.71 <1														

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

²PD = EIRP / (4πr²D²)

³FCC ID: XMR201707BG96 / IC: 10224A-201709BG96

⁴TA Technology Report No. R1706-0199MPE

⁵TA Technology Report No. RXA1706-0199RF01R1

⁶TA Technology Report No. RXA1706-0199RF02R1