

Total Exposure Ratio (TER)

FCC ID: 2A3V8SG25

FCC ID: XPYUBX20VA01

47 CFR 1.1310(e)(1) Maximum Permissible Exposure (MPE) - Limits for General Population/Uncontrolled Exposure

BAND	Mode	Frequency (f) MHz	Power (P) dBm	Antenna Gain (G) dBi	Duty Cycle (D) %	EIRP ¹ dBm	EIRP mW	R cm	Power Density ² (PD) mW/cm ²	Power Density Limit mW/cm ²	Margin dB	Exposure Ratio (ER)
eFDD 2	NB-IoT	1850	24.27	4.40	100.0	28.67	736	20	0.146	1.00	8.34	0.15
eFDD 4	NB-IoT	1710	24.70	4.40	100.0	29.10	813	20	0.162	1.00	7.91	0.16
eFDD 5	NB-IoT	824	24.34	2.60	100.0	26.94	494	20	0.098	0.55	7.47	0.18
eFDD 13	NB-IoT	777	24.94	2.60	100.0	27.54	568	20	0.113	0.52	6.62	0.22
eFDD 12	NB-IoT	699	23.70	2.60	100.0	26.30	427	20	0.085	0.47	7.40	0.18
eFDD 66	NB-IoT	1710	25.30	4.40	100.0	29.70	933	20	0.186	1.00	7.31	0.19
eFDD 8	NB-IoT	898	22.82	2.60	100.0	25.42	348	20	0.069	0.60	9.36	0.12
eFDD 85	NB-IoT	698	24.81	2.60	100.0	27.41	551	20	0.110	0.47	6.28	0.23549
850	GSM	824.2	32.25	2.60	12.5	25.82	382	20	0.076	0.55	8.59	0.14
850	EDGE	824.2	28.00	2.60	50.0	27.59	574	20	0.114	0.55	6.82	0.21
1900	GSM	1850.2	29.05	4.40	12.5	24.42	277	20	0.055	1.00	12.59	0.06
1900	EDGE	1850.2	26.89	4.40	50.0	28.28	673	20	0.134	1.00	8.73	0.13
eFDD 2	Cat-M1	1850	22.81	4.40	100.0	27.21	526	20	0.105	1.00	9.80	0.10
eFDD 4	Cat-M1	1710	22.86	4.40	100.0	27.26	532	20	0.106	1.00	9.75	0.11
eFDD 5	Cat-M1	824	22.67	2.60	100.0	25.27	337	20	0.067	0.55	9.14	0.12
eFDD 13	Cat-M1	777	22.86	2.60	100.0	25.46	352	20	0.070	0.52	8.70	0.14
eFDD 12	Cat-M1	699	22.79	2.60	100.0	25.39	346	20	0.069	0.47	8.31	0.15
eFDD 66	Cat-M1	1710	22.74	4.40	100.0	27.14	518	20	0.103	1.00	9.87	0.10
eFDD 25	Cat-M1	1850	22.99	4.40	100.0	27.39	548	20	0.109	1.00	9.62	0.11
eFDD 26	Cat-M1	814	22.83	2.60	100.0	25.43	349	20	0.069	0.54	8.93	0.13
eFDD 8	Cat-M1	898	22.83	2.60	100.0	25.43	349	20	0.069	0.60	9.35	0.12
2400	BLE	2480	5.44	2.2	100.0	7.64	5.81	20	0.0012	1.00	29.37	0.0011554

¹EIRP_{dBm} = P + G+10Log(D/100)

²PD = EIRP_{mW}/(4πR²)

$$\text{TER} = 0.23549 + 0.0011554 = 0.23664 < 1$$

Total Exposure Ratio (TER)

IC: 28021-SG25

IC: 8595A-UBX20VA01

Canada RSS-102 Issue 5 (4. Exposure Limits) Table 4: RF Field Strength Limits for Devices Used by the General Public (Uncontrolled Environment)

BAND	Mode	Frequency (f) MHz	Power (P) dBm	Antenna Gain (G) dBi	Duty Cycle (D) %	EIRP ¹ dBm	EIRP W	R m	Power Density ² (PD) W/m ²	Power Density Limit W/m ²	Margin dB	Exposure Ratio (ER)
eFDD 2	NB-IoT	1850	24.27	4.40	100.0	28.67	0.736	0.2	1.46	4.48	4.9	0.33
eFDD 4	NB-IoT	1710	24.70	4.40	100.0	29.10	0.813	0.2	1.62	4.24	4.2	0.38
eFDD 5	NB-IoT	824	24.34	2.60	100.0	26.94	0.494	0.2	0.98	2.58	4.2	0.38
eFDD 13	NB-IoT	777	24.94	2.60	100.0	27.54	0.568	0.2	1.13	2.47	3.4	0.46
eFDD 12	NB-IoT	699	23.70	2.60	100.0	26.30	0.427	0.2	0.85	2.30	4.3	0.37
eFDD 66	NB-IoT	1710	25.30	4.40	100.0	29.70	0.933	0.2	1.86	4.24	3.6	0.44
eFDD 8	NB-IoT	898	22.82	2.60	100.0	25.42	0.348	0.2	0.69	2.73	6.0	0.25
eFDD 85	NB-IoT	698	24.81	2.60	100.0	27.41	0.551	0.2	1.10	2.30	3.2	0.47654
850	GSM	824.2	32.25	2.60	12.5	25.82	0.382	0.2	0.76	2.58	5.3	0.29
850	EDGE	824.2	28.00	2.60	50.0	27.59	0.574	0.2	1.14	2.58	3.5	0.44
1900	GSM	1850.2	29.05	4.40	12.5	24.42	0.277	0.2	0.55	4.48	9.1	0.12
1900	EDGE	1850.2	26.89	4.40	50.0	28.28	0.673	0.2	1.34	4.48	5.2	0.30
eFDD 2	Cat-M1	1850	22.81	4.40	100.0	27.21	0.526	0.2	1.05	4.48	6.3	0.23
eFDD 4	Cat-M1	1710	22.86	4.40	100.0	27.26	0.532	0.2	1.06	4.24	6.0	0.25
eFDD 5	Cat-M1	824	22.67	2.60	100.0	25.27	0.337	0.2	0.67	2.58	5.9	0.26
eFDD 13	Cat-M1	777	22.86	2.60	100.0	25.46	0.352	0.2	0.70	2.47	5.5	0.28
eFDD 12	Cat-M1	699	22.79	2.60	100.0	25.39	0.346	0.2	0.69	2.30	5.2	0.30
eFDD 66	Cat-M1	1710	22.74	4.40	100.0	27.14	0.518	0.2	1.03	4.24	6.1	0.24
eFDD 25	Cat-M1	1850	22.99	4.40	100.0	27.39	0.548	0.2	1.09	4.48	6.1	0.24
eFDD 26	Cat-M1	814	22.83	2.60	100.0	25.43	0.349	0.2	0.69	2.55	5.7	0.27
eFDD 8	Cat-M1	898	22.83	2.60	100.0	25.43	0.349	0.2	0.69	2.73	5.9	0.25
2400	BLE	2480	5.44	2.20	100.0	7.64	0.00581	0.2	0.012	5.47	26.8	0.0021126

$$^1\text{EIRP}_{\text{dBm}} = P + G + 10\log(D/100)$$

$$^2\text{PD} = \text{EIRP}_{\text{mW}} / (4\pi R^2)$$

$$\text{TER} = 0.47654 + 0.0021126 = 0.47866 < 1$$