

INT ANTENNA, FCC LIMITS

NOTE ON ANTENNA GAINS:

Antenna gains for the internal antenna are from the antenna supplier's data provided in EXHIBIT 5-4-1. Where a frequency here is not called out in that listing, interpolation between the nearest 2 frequencies is used. Also, the diversity antenna is a receive-only antenna, so all gains are taken from the main antenna column.

CALCS USING INT ANTENNA AGILE FOR < 1GHZ

From CFR47 1.1310(e):
For f=300MHZ to 1500MHZ, FCC MPE LIMIT = f/1500 (mW/cm^2)

Operating Mode	Frequency On Channel	Declared Maximum Conducted Output Power (dBm)	Max positive tolerance according to mfgr. (dB)	Antenna Gain (dBi)	Calculated maximum EIRP (declared+tol+ ant gain) (dBm)	Duty Cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	FCC MPE Limit (mW/cm^2)	MPE Value (mW/cm^2)	Margin to limit: (mW/cm^2)
GSM/GPRS (PK)	824.2	33	0.5	-0.3768	33.12323	50%	2.053	1026	0.5495	0.2042	0.3453
	837	33	0.5	-2.6378	30.8622		1.220	610	0.5580	0.1213	0.4367
	848.8	33	0.5	-2.1850	31.315		1.354	677	0.5659	0.1346	0.4312
GSM/GPRS (Avg. Burst Power)	824.2	33	0.5	-0.3768	33.12323	50%	2.053	1026	0.5495	0.2042	0.3453
	837	33	0.5	-2.6378	30.8622		1.220	610	0.5580	0.1213	0.4367
	848.8	33	0.5	-2.1850	31.315		1.354	677	0.5659	0.1346	0.4312
EDGE (PK)	824.2	27	0.5	-0.3768	27.12323	50%	0.516	258	0.5495	0.0513	0.4982
	837	27	0.5	-2.6378	24.8622		0.306	153	0.5580	0.0305	0.5275
	848.8	27	0.5	-2.1850	25.315		0.340	170	0.5659	0.0338	0.5320
EDGE (Avg. Burst Power)	824.2	27	0.5	-0.3768	27.12323	50%	0.516	258	0.5495	0.0513	0.4982
	837	27	0.5	-2.6378	24.8622		0.306	153	0.5580	0.0305	0.5275
	848.8	27	0.5	-2.1850	25.315		0.340	170	0.5659	0.0338	0.5320
WCDMA FDD Band 5 (RMS-Value)	826.4	24	0.5	-0.4099	24.09006	100%	0.256	256	0.5509	0.0510	0.4999
	836.4	24	0.5	-2.6588	21.84118		0.153	153	0.5576	0.0304	0.5272
	846.6	24	0.5	-2.2697	22.23031		0.167	167	0.5644	0.0332	0.5312
LTE Band 17 (QPSK, #RB=1, RMS-Value)	706.5	23	0.5	-1.2501	22.24986	100%	0.168	168	0.4710	0.0334	0.4376
	710	23	0.5	-1.0919	22.40806		0.174	174	0.4733	0.0346	0.4387
	713.5	23	0.5	-1.2189	22.28107		0.169	169	0.4757	0.0336	0.4420
LTE Band 17 (16QAM,#RB=1,RMS Value)	706.5	22	0.5	-1.2501	21.24986	100%	0.133	133	0.4710	0.0265	0.4445
	710	22	0.5	-1.0919	21.40806		0.138	138	0.4733	0.0275	0.4458
	713.5	22	0.5	-1.2189	21.28107		0.134	134	0.4757	0.0267	0.4489
LTE Band 5 (QPSK, #RB=1,RMS Value)	824.7	23	0.5	-0.3843	23.11571	100%	0.205	205	0.5498	0.0408	0.5090
	836.5	23	0.5	-2.6553	20.84469		0.121	121	0.5577	0.0242	0.5335
	848.3	23	0.5	-2.2041	21.2959		0.135	135	0.5655	0.0268	0.5387
LTE Band 5 (16QAM,#RB=1,RMS Value)	824.7	22	0.5	-0.3843	22.11571	100%	0.163	163	0.5498	0.0324	0.5174
	836.5	22	0.5	-2.6553	19.84469		0.096	96	0.5577	0.0192	0.5385
	848.3	22	0.5	-2.2041	20.2959		0.107	107	0.5655	0.0213	0.5442

CALCS USING INT ANTENNA IN FOR > 1GHZ

From CFR47 1.1310(e):
For f=1500MHZ to 100,000MHZ, FCC MPE LIMIT = 1 mW/cm^2.

Operating Mode	Frequency On Channel	Declared Maximum Conducted Output Power (dBm)	Max positive tolerance according to mfgr. (dB)	Antenna Gain (dBi)	Calculated maximum EIRP (declared+tol+ ant gain) (dBm)	Duty Cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	FCC MPE Limit (mW/cm^2)	MPE Value (mW/cm^2)	Margin to limit: (mW/cm^2)
WCDMA Band 4 (RMS-Value)	1712.4	24.0	0.5	3.5499	28.049922	100%	0.638	638	1.0000	0.1270	0.8730
	1740	24.0	0.5	2.6617	27.161653		0.520	520	1.0000	0.1035	0.8965
	1752.6	24.0	0.5	2.9640	27.464033		0.558	558	1.0000	0.1110	0.8890
LTE Band 4 (QPSK, #RB=1, RMS-Value)	1710.7	23.0	0.5	3.6030	27.102975	100%	0.513	513	1.0000	0.1021	0.8979
	1732.5	23.0	0.5	2.6800	26.179975		0.415	415	1.0000	0.0826	0.9174
	1754.3	23.0	0.5	2.9774	26.477353		0.444	444	1.0000	0.0884	0.9116
LTE Band 4 (16QAM,#RB=1,RMS Value)	1710.7	22.0	0.5	3.6030	26.102975	100%	0.408	408	1.0000	0.0811	0.9189
	1732.5	22.0	0.5	2.6800	25.179975		0.330	330	1.0000	0.0656	0.9344
	1754.3	22.0	0.5	2.9774	25.477353		0.353	353	1.0000	0.0702	0.9298

Operating Mode	Frequency On Channel	Declared Maximum Conducted Output Power (dBm)	Max positive tolerance according to mfgr. (dB)	Antenna Gain (dBi)	Calculated maximum EIRP (declared+tol+ ant gain) (dBm)	Duty Cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	FCC MPE Limit (mW/cm^2)	MPE Value (mW/cm^2)	Margin to limit: (mW/cm^2)
GSM/GPRS (PK-Burst Value)	1850.2	30	0.5	2.2383	32.73831	50%	1.879	939	1.0000	0.1869	0.8131
	1880.0	30	0.5	1.9956	32.49558		1.776	888	1.0000	0.1767	0.8233
	1909.8	30	0.5	1.4586	31.958625		1.570	785	1.0000	0.1562	0.8438
GSM/GPRS (Avg. Burst Power)	1850.2	30	0.5	2.2383	32.73831	50%	1.879	939	1.0000	0.1869	0.8131
	1880.0	30	0.5	1.9956	32.49558		1.776	888	1.0000	0.1767	0.8233
	1909.8	30	0.5	1.4586	31.958625		1.570	785	1.0000	0.1562	0.8438
EDGE (PK-Burst Value)	1850.2	26	0.5	2.2383	28.73831	50%	0.748	374	1.0000	0.0744	0.9256
	1880.0	26	0.5	1.9956	28.49558		0.707	354	1.0000	0.0703	0.9297
	1909.8	26	0.5	1.4586	27.958625		0.625	312	1.0000	0.0622	0.9378
EDGE (Avg. Burst Power)	1850.2	26	0.5	2.2383	28.73831	50%	0.748	374	1.0000	0.0744	0.9256
	1880.0	26	0.5	1.9956	28.49558		0.707	354	1.0000	0.0703	0.9297
	1909.8	26	0.5	1.4586	27.958625		0.625	312	1.0000	0.0622	0.9378
WCDMA FDD Band 2 (RMS-Value)	1852.4	24	0.5	2.2278	26.727772	100%	0.471	471	1.0000	0.0936	0.9064
	1880.0	24	0.5	1.9956	26.49558		0.446	446	1.0000	0.0888	0.9112
	1907.6	24	0.5	1.4732	25.973155		0.396	396	1.0000	0.0787	0.9213
LTE Band 2 (QPSK, #RB=1, RMS-Value)	1850.7	23	0.5	2.2359	25.735917	100%	0.375	375	1.0000	0.0745	0.9255
	1880.0	23	0.5	1.9956	25.49558		0.354	354	1.0000	0.0705	0.9295
	1909.3	23	0.5	1.5014	25.001416		0.316	316	1.0000	0.0629	0.9371
LTE Band 2 (16QAM,#RB=1,RMS Value)	1850.7	22	0.5	2.2359	24.735917	100%	0.298	298	1.0000	0.0592	0.9408
	1880.0	22	0.5	1.9956	24.49558		0.282	282	1.0000	0.0560	0.9440
	1909.3	22	0.5	1.5014	24.001416		0.251	251	1.0000	0.0500	0.9500

INT ANTENNA, ISED LIMITS

NOTE ON ANTENNA GAINS:

Antenna gains for the internal antenna are from the antenna supplier's data provided in EXHIBIT 5-4-1. Where a frequency here is not called out in that listing, interpolation between the nearest 2 frequencies is used. Also, the diversity antenna is a receive-only antenna, so all gains are taken from the main antenna column.

CALCS USING INT ANTENNA AGILE FOR < 1GHZ

From RSS-102 Table 4
For f=300MHz to f=6,000MHz, IC MPE LIMIT = 0.2619*f^0.6834; f in MHz.

Operating Mode	Frequency On Channel	Declared Maximum Conducted Output Power (dBm)	Max positive tolerance according to mfgr. (dB)	Antenna Gain (dBi)	Calculated maximum EIRP (declared+tol+ant gain) (dBm)	Duty Cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	ISED MPE Limit (mW/cm^2)	MPE Value (mW/cm^2)	Margin to limit: (mW/cm^2)
GSM/GPRS (PK)	824.2	33	0.5	-0.3768	33.12323	50%	2.053	1026	0.2576	0.2042	0.0534
	837	33	0.5	-2.6378	30.8622		1.220	610	0.2603	0.1213	0.1390
	848.8	33	0.5	-2.1850	31.315		1.354	677	0.2628	0.1346	0.1282
GSM/GPRS (Avg. Burst Power)	824.2	33	0.5	-0.3768	33.12323	50%	2.053	1026	0.2576	0.2042	0.0534
	837	33	0.5	-2.6378	30.8622		1.220	610	0.2603	0.1213	0.1390
	848.8	33	0.5	-2.1850	31.315		1.354	677	0.2628	0.1346	0.1282
EDGE (PK)	824.2	27	0.5	-0.3768	27.12323	50%	0.516	258	0.2576	0.0513	0.2063
	837	27	0.5	-2.6378	24.8622		0.306	153	0.2603	0.0305	0.2299
	848.8	27	0.5	-2.1850	25.315		0.340	170	0.2628	0.0338	0.2290
EDGE (Avg. Burst Power)	824.2	27	0.5	-0.3768	27.12323	50%	0.516	258	0.2576	0.0513	0.2063
	837	27	0.5	-2.6378	24.8622		0.306	153	0.2603	0.0305	0.2299
	848.8	27	0.5	-2.1850	25.315		0.340	170	0.2628	0.0338	0.2290
WCDMA FDD Band 5 (RMS-Value)	826.4	24	0.5	-0.4099	24.09006	100%	0.256	256	0.2581	0.0510	0.2071
	836.4	24	0.5	-2.6588	21.84118		0.153	153	0.2602	0.0304	0.2298
	846.6	24	0.5	-2.2697	22.23031		0.167	167	0.2624	0.0332	0.2291
LTE Band 17 (QPSK, #RB=1, RMS-Value)	706.5	23	0.5	-1.2501	22.24986	100%	0.168	168	0.2319	0.0334	0.1985
	710	23	0.5	-1.0919	22.40806		0.174	174	0.2326	0.0346	0.1980
	713.5	23	0.5	-1.2189	22.28107		0.169	169	0.2334	0.0336	0.1998
LTE Band 17 (16QAM,#RB=1,RMS Value)	706.5	22	0.5	-1.2501	21.24986	100%	0.133	133	0.2319	0.0265	0.2053
	710	22	0.5	-1.0919	21.40806		0.138	138	0.2326	0.0275	0.2051
	713.5	22	0.5	-1.2189	21.28107		0.134	134	0.2334	0.0267	0.2067
LTE Band 5 (QPSK, #RB=1,RMS Value)	824.7	23	0.5	-0.3843	23.11571	100%	0.205	205	0.2577	0.0408	0.2169
	836.5	23	0.5	-2.6553	20.84469		0.121	121	0.2602	0.0242	0.2361
	848.3	23	0.5	-2.2041	21.2959		0.135	135	0.2627	0.0268	0.2359
LTE Band 5 (16QAM,#RB=1,RMS Value)	824.7	22	0.5	-0.3843	22.11571	100%	0.163	163	0.2577	0.0324	0.2253
	836.5	22	0.5	-2.6553	19.84469		0.096	96	0.2602	0.0192	0.2410
	848.3	22	0.5	-2.2041	20.2959		0.107	107	0.2627	0.0213	0.2414

CALCS USING INT ANTENNA IN FOR > 1GHZ

From RSS-102 Table 4
For f=300MHz to f=6,000MHz, IC MPE LIMIT = 0.2619*f^0.6834; f in MHz.

Operating Mode	Frequency On Channel	Declared Maximum Conducted Output Power (dBm)	Max positive tolerance according to mfgr. (dB)	Antenna Gain (dBi)	Calculated maximum EIRP (declared+tol+ant gain) (dBm)	Duty Cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	ISED MPE Limit (mW/cm^2)	MPE Value (mW/cm^2)	Margin to limit: (mW/cm^2)
WCDMA Band 4 (RMS-Value)	1712.4	24.0	0.5	3.5499	28.049922	100%	0.638	638	0.4246	0.1270	0.2976
	1740	24.0	0.5	2.6617	27.161653		0.520	520	0.4293	0.1035	0.3258
	1752.6	24.0	0.5	2.9640	27.464033		0.558	558	0.4314	0.1110	0.3204
LTE Band 4 (QPSK, #RB=1, RMS-Value)	1710.7	23.0	0.5	3.6030	27.102975	100%	0.513	513	0.4243	0.1021	0.3222
	1732.5	23.0	0.5	2.6800	26.179975		0.415	415	0.4280	0.0826	0.3454
	1754.3	23.0	0.5	2.9774	26.477353		0.444	444	0.4317	0.0884	0.3433
LTE Band 4 (16QAM,#RB=1,RMS Value)	1710.7	22.0	0.5	3.6030	26.102975	100%	0.408	408	0.4243	0.0811	0.3432
	1732.5	22.0	0.5	2.6800	25.179975		0.330	330	0.4280	0.0656	0.3624
	1754.3	22.0	0.5	2.9774	25.477353		0.353	353	0.4317	0.0702	0.3615

Operating Mode	Frequency On Channel	Declared Maximum Conducted Output Power (dBm)	Max positive tolerance according to mfgr. (dB)	Antenna Gain (dBi)	Calculated maximum EIRP (declared+tol+ant gain) (dBm)	Duty Cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	ISED MPE Limit (mW/cm^2)	MPE Value (mW/cm^2)	Margin to limit: (mW/cm^2)
GSM/GPRS (PK-Burst Value)	1850.2	30	0.5	2.23831	32.73831	50%	1.879	939	0.4477	0.1869	0.2608
	1880.0	30	0.5	1.99558	32.49558		1.776	888	0.4526	0.1767	0.2759
	1909.8	30	0.5	1.458625	31.958625		1.570	785	0.4575	0.1562	0.3013
GSM/GPRS (Avg. Burst Power)	1850.2	30	0.5	2.23831	32.73831	50%	1.879	939	0.4477	0.1869	0.2608
	1880.0	30	0.5	1.99558	32.49558		1.776	888	0.4526	0.1767	0.2759
	1909.8	30	0.5	1.458625	31.958625		1.570	785	0.4575	0.1562	0.3013
EDGE (PK-Burst Value)	1850.2	26	0.5	2.23831	28.73831	50%	0.748	374	0.4477	0.0744	0.3733
	1880.0	26	0.5	1.99558	28.49558		0.707	354	0.4526	0.0703	0.3822
	1909.8	26	0.5	1.458625	27.958625		0.625	312	0.4575	0.0622	0.3953
EDGE (Avg. Burst Power)	1850.2	26	0.5	2.23831	28.73831	50%	0.748	374	0.4477	0.0744	0.3733
	1880.0	26	0.5	1.99558	28.49558		0.707	354	0.4526	0.0703	0.3822
	1909.8	26	0.5	1.458625	27.958625		0.625	312	0.4575	0.0622	0.3953
WCDMA FDD Band 2 (RMS-Value)	1852.4	24	0.5	2.227772	26.727772	100%	0.471	471	0.4480	0.0936	0.3544
	1880.0	24	0.5	1.99558	26.49558		0.446	446	0.4526	0.0888	0.3638
	1907.6	24	0.5	1.473155	25.973155		0.396	396	0.4571	0.0787	0.3784
LTE Band 2 (QPSK, #RB=1, RMS-Value)	1850.7	23	0.5	2.235917	25.735917	100%	0.375	375	0.4477	0.0745	0.3732
	1880.0	23	0.5	1.99558	25.49558		0.354	354	0.4526	0.0705	0.3821
	1909.3	23	0.5	1.501416	25.001416		0.316	316	0.4574	0.0629	0.3945
LTE Band 2 (16QAM,#RB=1,RMS Value)	1850.7	22	0.5	2.235917	24.735917	100%	0.298	298	0.4477	0.0592	0.3885
	1880.0	22	0.5	1.99558	24.49558		0.282	282	0.4526	0.0560	0.3966
	1909.3	22	0.5	1.501416	24.001416		0.251	251	0.4574	0.0500	0.4074

EXT ANTENNA, FCC LIMITS

NOTE ON ANTENNA GAINS:

Antenna gains for the external antenna are set to the cellular module manufacture's limits from EXHBIT 5-4-2., which is the manufacturer's Hardware Interface Guide. These are the max values called out to the installer in the Installation Instructions manual (EXHIBIT 7-1).

CALCS USING EXT ANTENNA AGILE FOR < 1GHZ

From CFR47 1.1310(e):
For f=300MHz to 1500MHz, FCC MPE LIMIT = f/1500 (mW/cm^2)

Operating Mode	Frequency On Channel	Declared Maximum Conducted Output Power (dBm)	Max positive tolerance according to mfgr. (dB)	Antenna Gain (dBi)	Calculated maximum EIRP (declared+tol+ant gain) (dBm)	Duty Cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	FCC MPE Limit (mW/cm^2)	MPE Value (mW/cm^2)	Margin to limit: (mW/cm^2)
GSM/GPRS (PK)	824.2	33	0.5	3.2500	36.75	50%	4.732	2366	0.5495	0.4707	0.0788
	837	33	0.5	3.2500	36.75		4.732	2366	0.5580	0.4707	0.0873
	848.8	33	0.5	3.2500	36.75		4.732	2366	0.5659	0.4707	0.0952
GSM/GPRS (Avg. Burst Power)	824.2	33	0.5	3.2500	36.75	50%	4.732	2366	0.5495	0.4707	0.0788
	837	33	0.5	3.2500	36.75		4.732	2366	0.5580	0.4707	0.0873
	848.8	33	0.5	3.2500	36.75		4.732	2366	0.5659	0.4707	0.0952
EDGE (PK)	824.2	27	0.5	3.2500	30.75	50%	1.189	594	0.5495	0.1182	0.4312
	837	27	0.5	3.2500	30.75		1.189	594	0.5580	0.1182	0.4398
	848.8	27	0.5	3.2500	30.75		1.189	594	0.5659	0.1182	0.4476
EDGE (Avg. Burst Power)	824.2	27	0.5	3.2500	30.75	50%	1.189	594	0.5495	0.1182	0.4312
	837	27	0.5	3.2500	30.75		1.189	594	0.5580	0.1182	0.4398
	848.8	27	0.5	3.2500	30.75		1.189	594	0.5659	0.1182	0.4476
WCDMA FDD Band 5 (RMS-Value)	826.4	24	0.5	3.2500	27.75	100%	0.596	596	0.5509	0.1185	0.4324
	836.4	24	0.5	3.2500	27.75		0.596	596	0.5576	0.1185	0.4391
	846.6	24	0.5	3.2500	27.75		0.596	596	0.5644	0.1185	0.4459
LTE Band 17 (QPSK, #RB=1, RMS-Value)	706.5	23	0.5	3.2500	26.75	100%	0.473	473	0.4710	0.0941	0.3769
	710	23	0.5	3.2500	26.75		0.473	473	0.4733	0.0941	0.3792
	713.5	23	0.5	3.2500	26.75		0.473	473	0.4757	0.0941	0.3815
LTE Band 17 (16QAM,#RB=1,RMS Value)	706.5	22	0.5	3.2500	25.75	100%	0.376	376	0.4710	0.0748	0.3962
	710	22	0.5	3.2500	25.75		0.376	376	0.4733	0.0748	0.3986
	713.5	22	0.5	3.2500	25.75		0.376	376	0.4757	0.0748	0.4009
LTE Band 5 (QPSK, #RB=1,RMS Value)	824.7	23	0.5	3.2500	26.75	100%	0.473	473	0.5498	0.0941	0.4557
	836.5	23	0.5	3.2500	26.75		0.473	473	0.5577	0.0941	0.4635
	848.3	23	0.5	3.2500	26.75		0.473	473	0.5655	0.0941	0.4714
LTE Band 5 (16QAM,#RB=1,RMS Value)	824.7	22	0.5	3.2500	25.75	100%	0.376	376	0.5498	0.0748	0.4750
	836.5	22	0.5	3.2500	25.75		0.376	376	0.5577	0.0748	0.4829
	848.3	22	0.5	3.2500	25.75		0.376	376	0.5655	0.0748	0.4908

CALCS USING EXT ANTENNA IN FOR > 1GHZ

From CFR47 1.1310(e):
For f=1500MHz to f=100,000MHz, FCC MPE LIMIT = 1 mW/cm^2.

Operating Mode	Frequency On Channel	Declared Maximum Conducted Output Power (dBm)	Max positive tolerance according to mfgr. (dB)	Antenna Gain (dBi)	Calculated maximum EIRP (declared+tol+ant gain) (dBm)	Duty Cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	FCC MPE Limit (mW/cm^2)	MPE Value (mW/cm^2)	Margin to limit: (mW/cm^2)
WCDMA Band 4 (RMS-Value)	1712.4	24.0	0.5	5.5000	30	100%	1.000	1000	1.0000	0.1989	0.8011
	1740	24.0	0.5	5.5000	30		1.000	1000	1.0000	0.1989	0.8011
	1752.6	24.0	0.5	5.5000	30		1.000	1000	1.0000	0.1989	0.8011
LTE Band 4 (QPSK, #RB=1, RMS-Value)	1710.7	23.0	0.5	5.5000	29	100%	0.794	794	1.0000	0.1580	0.8420
	1732.5	23.0	0.5	5.5000	29		0.794	794	1.0000	0.1580	0.8420
	1754.3	23.0	0.5	5.5000	29		0.794	794	1.0000	0.1580	0.8420
LTE Band 4 (16QAM,#RB=1,RMS Value)	1710.7	22.0	0.5	5.5000	28	100%	0.631	631	1.0000	0.1255	0.8745
	1732.5	22.0	0.5	5.5000	28		0.631	631	1.0000	0.1255	0.8745
	1754.3	22.0	0.5	5.5000	28		0.631	631	1.0000	0.1255	0.8745

Operating Mode	Frequency On Channel	Declared Maximum Conducted Output Power (dBm)	Max positive tolerance according to mfgr. (dB)	Antenna Gain (dBi)	Calculated maximum EIRP (declared+tol+ant gain) (dBm)	Duty Cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	FCC MPE Limit (mW/cm^2)	MPE Value (mW/cm^2)	Margin to limit: (mW/cm^2)
GSM/GPRS (PK-Burst Value)	1850.2	30	0.5	2.51	33.01	50%	2.000	1000	1.0000	0.1989	0.8011
	1880.0	30	0.5	2.51	33.01		2.000	1000	1.0000	0.1989	0.8011
	1909.8	30	0.5	2.51	33.01		2.000	1000	1.0000	0.1989	0.8011
GSM/GPRS (Avg. Burst Power)	1850.2	30	0.5	2.51	33.01	50%	2.000	1000	1.0000	0.1989	0.8011
	1880.0	30	0.5	2.51	33.01		2.000	1000	1.0000	0.1989	0.8011
	1909.8	30	0.5	2.51	33.01		2.000	1000	1.0000	0.1989	0.8011
EDGE (PK-Burst Value)	1850.2	26	0.5	2.51	29.01	50%	0.796	398	1.0000	0.0792	0.9208
	1880.0	26	0.5	2.51	29.01		0.796	398	1.0000	0.0792	0.9208
	1909.8	26	0.5	2.51	29.01		0.796	398	1.0000	0.0792	0.9208
EDGE (Avg. Burst Power)	1850.2	26	0.5	2.51	29.01	50%	0.796	398	1.0000	0.0792	0.9208
	1880.0	26	0.5	2.51	29.01		0.796	398	1.0000	0.0792	0.9208
	1909.8	26	0.5	2.51	29.01		0.796	398	1.0000	0.0792	0.9208
WCDMA FDD Band 2 (RMS-Value)	1852.4	24	0.5	2.51	27.01	100%	0.502	502	1.0000	0.0999	0.9001
	1880.0	24	0.5	2.51	27.01		0.502	502	1.0000	0.0999	0.9001
	1907.6	24	0.5	2.51	27.01		0.502	502	1.0000	0.0999	0.9001
LTE Band 2 (QPSK, #RB=1, RMS-Value)	1850.7	23	0.5	2.51	26.01	100%	0.399	399	1.0000	0.0794	0.9206
	1880.0	23	0.5	2.51	26.01		0.399	399	1.0000	0.0794	0.9206
	1909.3	23	0.5	2.51	26.01		0.399	399	1.0000	0.0794	0.9206
LTE Band 2 (16QAM,#RB=1,RMS Value)	1850.7	22	0.5	2.51	25.01	100%	0.317	317	1.0000	0.0631	0.9369
	1880.0	22	0.5	2.51	25.01		0.317	317	1.0000	0.0631	0.9369
	1909.3	22	0.5	2.51	25.01		0.317	317	1.0000	0.0631	0.9369

EXT ANTENNA, ISED LIMITS

NOTE ON ANTENNA GAINS:

Antenna gains for the external antenna are set to the cellular module manufacture's limits from EXHBIT 5-4-2., which is the manufacturer's Hardware Interface Guide. These are the max values called out to the installer in the

CALCS USING EXT ANTENNA AGILE FOR < 1GHZ

From RSS-102 Table 4
For f=300MHz 6,000MHz, IC MPE LIMIT = 0.2619*f^0.6834; f in MHz.

PC2 FOR CFS8DLPLS8-USR3 / 573F-PLS8USR3

Operating Mode	Frequency On Channel	Declared Maximum Conducted Output Power (dBm)	Max positive tolerance according to mfrg. (dB)	Antenna Gain (dBi)	Calculated maximum EIRP (declared+tol+ant gain) (dBm)	Duty Cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	ISED MPE Limit (mW/cm^2)	MPE Value (mW/cm^2)	Margin to limit: (mW/cm^2)
GSM/GPRS (PK)	824.2	33	0.5	0.6300	34.13	50%	2.588	1294	0.2576	0.2575	0.0001
	837	33	0.5	0.6300	34.13		2.588	1294	0.2603	0.2575	0.0029
	848.8	33	0.5	0.6300	34.13		2.588	1294	0.2628	0.2575	0.0054
GSM/GPRS (Avg. Burst Power)	824.2	33	0.5	0.6300	34.13	50%	2.588	1294	0.2576	0.2575	0.0001
	837	33	0.5	0.6300	34.13		2.588	1294	0.2603	0.2575	0.0029
	848.8	33	0.5	0.6300	34.13		2.588	1294	0.2628	0.2575	0.0054
EDGE (PK)	824.2	27	0.5	0.6300	28.13	50%	0.650	325	0.2576	0.0647	0.1929
	837	27	0.5	0.6300	28.13		0.650	325	0.2603	0.0647	0.1957
	848.8	27	0.5	0.6300	28.13		0.650	325	0.2628	0.0647	0.1982
EDGE (Avg. Burst Power)	824.2	27	0.5	0.6300	28.13	50%	0.650	325	0.2576	0.0647	0.1929
	837	27	0.5	0.6300	28.13		0.650	325	0.2603	0.0647	0.1957
	848.8	27	0.5	0.6300	28.13		0.650	325	0.2628	0.0647	0.1982
WCDMA FDD Band 5 (RMS-Value)	826.4	24	0.5	0.6300	25.13	100%	0.326	326	0.2581	0.0648	0.1933
	836.4	24	0.5	0.6300	25.13		0.326	326	0.2602	0.0648	0.1954
	846.6	24	0.5	0.6300	25.13		0.326	326	0.2624	0.0648	0.1975
LTE Band 17 (QPSK, #RB=1, RMS-Value)	706.5	23	0.5	0.6300	24.13	100%	0.259	259	0.2319	0.0515	0.1804
	710	23	0.5	0.6300	24.13		0.259	259	0.2326	0.0515	0.1811
	713.5	23	0.5	0.6300	24.13		0.259	259	0.2334	0.0515	0.1819
LTE Band 17 (16QAM,#RB=1,RMS Value)	706.5	22	0.5	0.6300	23.13	100%	0.206	206	0.2319	0.0409	0.1910
	710	22	0.5	0.6300	23.13		0.206	206	0.2326	0.0409	0.1917
	713.5	22	0.5	0.6300	23.13		0.206	206	0.2334	0.0409	0.1925
LTE Band 5 (QPSK, #RB=1,RMS Value)	824.7	23	0.5	0.6300	24.13	100%	0.259	259	0.2577	0.0515	0.2062
	836.5	23	0.5	0.6300	24.13		0.259	259	0.2602	0.0515	0.2087
	848.3	23	0.5	0.6300	24.13		0.259	259	0.2627	0.0515	0.2112
LTE Band 5 (16QAM,#RB=1,RMS Value)	824.7	22	0.5	0.6300	23.13	100%	0.206	206	0.2577	0.0409	0.2168
	836.5	22	0.5	0.6300	23.13		0.206	206	0.2602	0.0409	0.2193
	848.3	22	0.5	0.6300	23.13		0.206	206	0.2627	0.0409	0.2218

CALCS USING EXTANTENNA IN FOR > 1GHZ

From RSS-102 Table 4
For f=300MHz to f=6,000MHz, IC MPE LIMIT = 0.2619*f^0.6834; f in MHz.

Operating Mode	Frequency On Channel	Declared Maximum Conducted Output Power (dBm)	Max positive tolerance according to mfrg. (dB)	Antenna Gain (dBi)	Calculated maximum EIRP (declared+tol+ant gain) (dBm)	Duty Cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	ISED MPE Limit (mW/cm^2)	MPE Value (mW/cm^2)	Margin to limit: (mW/cm^2)
WCDMA Band 4 (RMS-Value)	1712.4	24.0	0.5	5.5000	30	100%	1.000	1000	0.4246	0.1989	0.2257
	1740	24.0	0.5	5.5000	30		1.000	1000	0.4293	0.1989	0.2303
	1752.6	24.0	0.5	5.5000	30		1.000	1000	0.4314	0.1989	0.2324
LTE Band 4 (QPSK, #RB=1, RMS-Value)	1710.7	23.0	0.5	5.5000	29	100%	0.794	794	0.4243	0.1580	0.2663
	1732.5	23.0	0.5	5.5000	29		0.794	794	0.4280	0.1580	0.2700
	1754.3	23.0	0.5	5.5000	29		0.794	794	0.4317	0.1580	0.2736
LTE Band 4 (16QAM,#RB=1,RMS Value)	1710.7	22.0	0.5	5.5000	28	100%	0.631	631	0.4243	0.1255	0.2988
	1732.5	22.0	0.5	5.5000	28		0.631	631	0.4280	0.1255	0.3025
	1754.3	22.0	0.5	5.5000	28		0.631	631	0.4317	0.1255	0.3061

Operating Mode	Frequency On Channel	Declared Maximum Conducted Output Power (dBm)	Max positive tolerance according to mfrg. (dB)	Antenna Gain (dBi)	Calculated maximum EIRP (declared+tol+ant gain) (dBm)	Duty Cycle (%)	Declared Maximum EIRP (W)	Equivalent EIRP (maximum EIRP x duty cycle) (mW)	ISED MPE Limit (mW/cm^2)	MPE Value (mW/cm^2)	Margin to limit: (mW/cm^2)
GSM/GPRS (PK-Burst Value)	1850.2	30	0.5	2.51	33.01	50%	2.000	1000	0.4477	0.1989	0.2487
	1880.0	30	0.5	2.51	33.01		2.000	1000	0.4526	0.1989	0.2536
	1909.8	30	0.5	2.51	33.01		2.000	1000	0.4575	0.1989	0.2585
GSM/GPRS (Avg. Burst Power)	1850.2	30	0.5	2.51	33.01	50%	2.000	1000	0.4477	0.1989	0.2487
	1880.0	30	0.5	2.51	33.01		2.000	1000	0.4526	0.1989	0.2536
	1909.8	30	0.5	2.51	33.01		2.000	1000	0.4575	0.1989	0.2585
EDGE (PK-Burst Value)	1850.2	26	0.5	2.51	29.01	50%	0.796	398	0.4477	0.0792	0.3685
	1880.0	26	0.5	2.51	29.01		0.796	398	0.4526	0.0792	0.3734
	1909.8	26	0.5	2.51	29.01		0.796	398	0.4575	0.0792	0.3783
EDGE (Avg. Burst Power)	1850.2	26	0.5	2.51	29.01	50%	0.796	398	0.4477	0.0792	0.3685
	1880.0	26	0.5	2.51	29.01		0.796	398	0.4526	0.0792	0.3734
	1909.8	26	0.5	2.51	29.01		0.796	398	0.4575	0.0792	0.3783
WCDMA FDD Band 2 (RMS-Value)	1852.4	24	0.5	2.51	27.01	100%	0.502	502	0.4480	0.0999	0.3481
	1880.0	24	0.5	2.51	27.01		0.502	502	0.4526	0.0999	0.3526
	1907.6	24	0.5	2.51	27.01		0.502	502	0.4571	0.0999	0.3572
LTE Band 2 (QPSK, #RB=1, RMS-Value)	1850.7	23	0.5	2.51	26.01	100%	0.399	399	0.4477	0.0794	0.3684
	1880.0	23	0.5	2.51	26.01		0.399	399	0.4526	0.0794	0.3732
	1909.3	23	0.5	2.51	26.01		0.399	399	0.4574	0.0794	0.3780
LTE Band 2 (16QAM,#RB=1,RMS Value)	1850.7	22	0.5	2.51	25.01	100%	0.317	317	0.4477	0.0631	0.3847
	1880.0	22	0.5	2.51	25.01		0.317	317	0.4526	0.0631	0.3895
	1909.3	22	0.5	2.51	25.01		0.317	317	0.4574	0.0631	0.3943