

EXHIBIT 1. RF EXPOSURE REQUIRMENTS [§§ 15.247(i), 1.1310 & 2.1091]

§ 1.1310: The criteria listed in the following table shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in 1.1307(b).

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f ²)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

Note 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

Note 2: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

1.1. Method of Measurements

Calculation Method of Power Density/RF Safety Distance:

$$S = \frac{PG}{4\pi \cdot r^2} = \frac{EIRP}{4\pi \cdot r^2}$$

Where,

P: power input to the antenna in mW

EIRP: Equivalent (effective) isotropic radiated power.

S: power density mW/cm²

G: numeric gain of antenna relative to isotropic radiator

r: distance to centre of radiation in cm

1.2. RF Evaluation

Pursuant to FCC KDB 447498 D01 General RF Exposure Guidance v06, Section 7.2:

Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneously transmitting antennas incorporated in a host device is ≤ 1.0 , according to calculated/estimated, numerically modeled, or measured field strengths or power density.

The EUT consisted of a BLE Module and a certified Telit Communications S.p.A. Data Terminal Module (FCC ID: RI7ME310G1W1, IC: 5131A-ME310G1W1). The Telit Data Terminal Module basic operation modes are eMTC and NB-IoT, these modes cannot transmit simultaneous. The table below is a summary of the calculated MPE ratios for co-location at an evaluation distance of 20 cm.

Source	Maximum MPE Ratio
BLE module	0.003
Telit Communications S.p.A. data terminal module	0.817

The sum of the MPE ratios from all sources = $0.003 + 0.817 = 0.820 < 1$. Thus, in compliant with general population/uncontrolled exposure MPE limit.

For detailed MPE ratio calculation for BLE Module and Telit Communications S.p.A. Data Terminal Module, refer to the following tables.

Calculated MPE Ratio for EUT with 4.0 dBi Antenna						
Frequency (MHz)	EUT EIRP (dBm)	EUT EIRP (mW)	Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)	MPE Ratio
2402	11.40	13.804	20	0.003	1.0	0.003

Calculated MPE Ratio for Telit Data Terminal Module Operating in NB-IoT and eMTC Modes									
Operating Mode	Band	¹ Maximum Conducted Output Power (dBm)	² Antenna Gain (dBi)	Max. E.I.R.P. (dBm)	Max. E.I.R.P. (mW)	Evaluation Distance (cm)	Power Density (mW/cm ²)	¹ MPE Limit (mW/cm ²)	MPE Ratio
NB-IoT	2	21.59	11.0	32.59	1815.52	20	0.361	1.00	0.361
	4	21.56	8.0	29.56	903.65	20	0.180	1.00	0.180
	5	21.01	9.1	30.11	1025.65	20	0.204	0.55	0.371
	12	21.04	8.6	29.64	920.45	20	0.183	0.47	0.390
	13	21.11	8.9	30.01	1002.31	20	0.199	0.52	0.383
	25	21.52	11.0	32.52	1786.49	20	0.355	1.00	0.355
	26	21.01	9.0	30.01	1002.31	20	0.199	0.54	0.369
	66	21.27	8.0	29.27	845.28	20	0.168	1.00	0.168
	71	21.52	8.4	29.92	981.75	20	0.195	0.44	0.444
	85	21.13	8.6	29.73	939.72	20	0.187	0.47	0.398
eMTC	2	21.99	11.0	32.99	1990.67	20	0.396	1.00	0.396
	4	21.86	8.0	29.86	968.28	20	0.193	1.00	0.193
	5	21.40	9.1	30.50	1122.02	20	0.223	0.55	0.406
	12	21.97	8.6	30.57	1140.25	20	0.227	0.47	0.483
	13	21.39	8.9	30.29	1069.05	20	0.213	0.52	0.409
	25	21.66	11.0	32.66	1845.02	20	0.367	1.00	0.367
	26	21.33	9.0	30.33	1078.95	20	0.215	0.54	0.397
	66	21.99	8.0	29.99	997.70	20	0.198	1.00	0.198
	85	21.76	8.6	30.36	1086.43	20	0.216	0.47	0.460
¹ Data derived from Telit Communications S.p.A. Data Terminal Module MPE test report, Test Report No. 50315831 003 (FCC ID: RI7ME310G1W1, IC: 5131A-ME310G1W1). ² Maximum permitted antenna gain.									

Calculated MPE Ratio for Telit Data Terminal Module Operating in NB-IoT and eMTC Modes									
Operating Mode	Band	¹ Maximum Conducted Output Power (dBm)	² Antenna Gain (dBi)	Max. E.I.R.P. (dBm)	Max. E.I.R.P. (mW)	Evaluation Distance (cm)	Power Density (mW/cm ²)	¹ MPE Limit (mW/cm ²)	MPE Ratio
NB-IoT	2	21.59	11.0	32.59	1815.52	20	0.361	1.00	0.361
	4	21.56	8.0	29.56	903.65	20	0.180	1.00	0.180
	5	21.01	9.1	30.11	1025.65	20	0.204	0.55	0.371
	12	21.04	8.6	29.64	920.45	20	0.183	0.47	0.390
	13	21.11	8.9	30.01	1002.31	20	0.199	0.52	0.383
	25	21.52	11.0	32.52	1786.49	20	0.355	1.00	0.355
	26	21.01	9.0	30.01	1002.31	20	0.199	0.54	0.369
	66	21.27	8.0	29.27	845.28	20	0.168	1.00	0.168
	71	21.52	8.4	29.92	981.75	20	0.195	0.44	0.444
	85	21.13	8.6	29.73	939.72	20	0.187	0.47	0.398
	Private Network	20.84	8.9	29.74	941.89	20	0.187	0.52	0.360
eMTC	2	21.97	11.0	32.97	1981.53	20	0.394	1.00	0.394
	4	21.86	8.0	29.86	968.28	20	0.193	1.00	0.193
	5	21.40	9.1	30.50	1122.02	20	0.223	0.55	0.406
	12	21.44	8.6	30.04	1009.25	20	0.201	0.47	0.427
	13	21.21	8.9	30.11	1025.65	20	0.204	0.52	0.392
	25	21.66	11.0	32.66	1845.02	20	0.367	1.00	0.367
	26	21.33	9.0	30.33	1078.95	20	0.215	0.54	0.397
	66	21.66	8.0	29.66	924.70	20	0.184	1.00	0.184
	85	21.76	8.6	30.36	1086.43	20	0.216	0.47	0.460

¹ Data derived from Telit Communications S.p.A. Data Terminal Module MPE test report, Test Report No. 50315831 008 (FCC ID: RI7ME310G1W1).

² Maximum permitted antenna gain.

Calculated MPE Ratio for Telit Data Terminal Module Operating in LTE Band 8_39D Private Network in NB-IoT Configuration									
Operating Mode	Band	Frequency (MHz)	¹ Max Conducted EUT Power (dBm)	² Maximum Antenna Gain (dBi)	Averaged Max EUT EIRP (mW)	Evaluation Distance (cm)	Power Density (mW/cm ²)	¹ MPE Limit (mW/cm ²)	MPE Ratio
NB-IoT	8_39D 897.5-900.5 MHz	897.5	22	11.9	2454.709	20	0.488	0.598	0.817

¹ Data derived from Telit Communications S.p.A. Data Terminal Module MPE test report, Test Report No. 1M2105280059-03.R17 (FCC ID: RI7ME310G1W1).

² Maximum permitted antenna gain.