LV7000-3 Ecodesign — Energy-efficiency information

in accordance with Regulation (EU) 2019/1781, United Kingdom Statutory Instrument SI 2021 No. 745 and standard IEC 61800-9-2

Energy-efficiency-related regulations and standards are gradually being intensified around the world.

The Ecodesign Directive is the framework that sets requirements on all energy-related products within the European Union. Regulations made under this Directive set minimum energy efficiency requirements, ensuring that we reduce the energy consumption and environmental impact of our products. The relevant regulation for motors, AC drives and power drive systems is Regulation (EU) 2019/1781. In the United Kingdom, similar requirements are imposed by Statutory Instrument SI 2021 No. 745.

Motors are classified according to their energy efficiency. AC drives and power drive systems are classified according to their power losses. The **IEC 61800-9-2** standard in accordance with Regulation (EU) 2019/1781 and United Kingdom Statutory Instrument SI 2021 No. 745 defines the IE classes for AC drives and also the IES classes for power drive systems (motor and drive combined).

From July 2021, the minimum requirement for non-regenerative AC drives in the European Union (EU) and United Kingdom (UK) is IE2.

The LV7000-3 products already comply with the strictest requirements of the standard for energy efficiency and are classified as IE2.

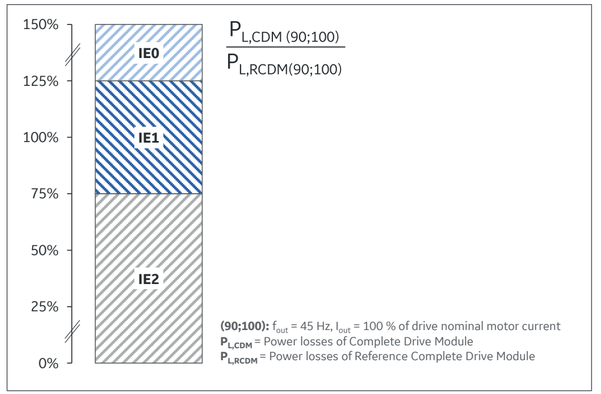
The complete drive module (CDM) IE classification is based on drive losses. This includes EMC filters, braking choppers, and other components.

The drive losses are determined according to IEC 61800-9-2 and is based on factory setting with e.g., default switching etc.

EU Contact:
GE Energy Power Conversion Group SAS
204 Rond-Point du Pont de Sevres, Batiment Citylights
Boulogne-Billancourt IDF, 92100 France

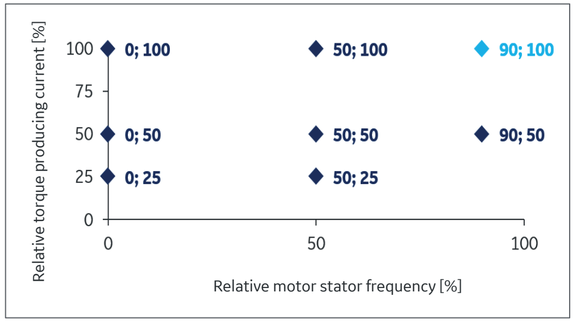
UK Contact:
GE Energy Power Conversion UK Ltd
Boughton Road, Rugby Warwickshire,
CV21 1BU, United Kingdom

IE classes for a CDM



The IE class compares the power losses of the Complete Drive Module (CDM) to the power losses of the "Reference CDM" defined in IEC 61800-9-2.

Required power loss data points



The power losses at the above data points have to be declared.
The IE classification is taken at 90% frequency and 100% torque-producing current.

LV7000-3 Ecodesign — Power Loss Data

Range of rated supply voltage 208V-240V | Nominal frequency: 50Hz, maximum ambient temperature 40°C

Losses relative to rated apparent output power [%]

Frame	Drive Type LV7000-3 XXXX	Rated output current [A]	Apparent output power [kVA]	Rated motor power [kW]	Relative losses [%]									
					Standby	(0;25)	(0;50)	(0;100)	(50;25)	(50;50)	(50;100)	(90;50)	(90;100)	IE class
FR4	0003	3.3	1.3	0.55	3.1%	2.6%	2.8%	3.2%	2.6%	2.9%	3.5%	3.1%	4.0%	IE2
	0004	4.8	1.9	0.75	2.3%	1.9%	2.1%	2.6%	2.0%	2.3%	2.9%	2.4%	3.4%	IE2
	0007	6.6	2.6	1.1	1.5%	1.6%	1.8%	2.3%	1.7%	2.0%	2.7%	2.2%	3.3%	IE2
	0008	7.8	3.1	1.5	1.1%	1.5%	1.7%	2.2%	1.6%	1.9%	2.6%	2.1%	3.3%	IE2
	0011	11	4.4	2.2	0.8%	1.3%	1.6%	2.2%	1.4%	1.7%	2.6%	2.0%	3.2%	IE2
	0012	12.5	5.0	3	0.6%	1.3%	1.5%	2.2%	1.4%	1.7%	2.6%	2.0%	3.3%	IE2
FR5	0017	17	7	4	0.5%	1.3%	1.5%	2.1%	1.3%	1.6%	2.4%	1.8%	2.8%	IE2
	0025	25	10	5.5	0.4%	0.9%	1.2%	2.1%	1.0%	1.3%	2.5%	1.5%	3.2%	IE2
	0031	31	12	7.5	0.3%	0.9%	1.2%	2.3%	1.0%	1.4%	2.7%	1.6%	3.5%	IE2
FR6	0048	48	19	11	0.2%	1.0%	1.3%	2.5%	1.1%	1.6%	3.1%	1.8%	3.9%	IE2
	0061	61	24	15	0.2%	1.0%	1.4%	2.7%	1.1%	1.6%	3.3%	1.9%	4.3%	IE2
FR7	0075	75	30	18.5	0.2%	0.8%	1.1%	2.0%	0.9%	1.2%	2.4%	1.4%	3.0%	IE2
	0088	88	35	22	0.1%	0.8%	1.1%	2.1%	0.9%	1.3%	2.5%	1.5%	3.2%	IE2
	0114	114	45	30	0.1%	0.8%	1.2%	2.3%	0.9%	1.3%	2.8%	1.6%	3.7%	IE2
FR8	0140	140	56	37	0.1%	0.9%	1.2%	2.0%	1.0%	1.3%	2.5%	1.6%	3.4%	IE2
	0170	170	68	45	0.1%	0.8%	1.1%	2.1%	0.9%	1.3%	2.5%	1.5%	3.2%	IE2
	0205	205	82	55	0.1%	0.8%	1.1%	2.2%	0.9%	1.3%	2.6%	1.5%	3.4%	IE2
FR9	0261	261	104	75	0.1%	1.0%	1.3%	2.4%	1.1%	1.4%	2.7%	1.6%	3.2%	IE2
	0300	300	120	90	0.1%	0.9%	1.1%	2.2%	0.9%	1.3%	2.6%	1.5%	3.1%	IE2

Absolute losses [kW]

Frame	Drive Type LV7000-3 XXXX	f_{sw} [kHz]	Absolute losses [kW]								
			Standby [kW]	(0;25) [kW]	(0;50) [kW]	(0;100) [kW]	(50;25) [kW]	(50;50) [kW]	(50;100) [kW]	(90;50) [kW]	(90;100) [kW]
FR4	0003	4	0.017	0.034	0.036	0.042	0.034	0.038	0.047	0.041	0.053
	0004	4	0.017	0.037	0.040	0.049	0.038	0.043	0.055	0.047	0.065
	0007	4	0.017	0.043	0.048	0.061	0.044	0.052	0.071	0.058	0.087
	0008	4	0.017	0.047	0.053	0.070	0.049	0.058	0.082	0.066	0.104
	0011	4	0.017	0.058	0.069	0.095	0.061	0.076	0.112	0.086	0.141
	0012	4	0.017	0.064	0.077	0.108	0.068	0.085	0.129	0.098	0.166
FR5	0017	4	0.019	0.085	0.101	0.141	0.088	0.109	0.161	0.121	0.192
	0025	4	0.019	0.092	0.121	0.213	0.098	0.134	0.252	0.154	0.317
	0031	4	0.019	0.111	0.150	0.280	0.119	0.168	0.334	0.197	0.430
FR6	0048	4	0.020	0.190	0.258	0.483	0.207	0.297	0.588	0.350	0.748
	0061	4	0.024	0.247	0.342	0.660	0.270	0.395	0.808	0.472	1.048
FR7	0075	4	0.030	0.244	0.326	0.589	0.262	0.369	0.708	0.433	0.905
	0088	4	0.030	0.284	0.387	0.724	0.307	0.441	0.876	0.523	1.137
	0114	4	0.030	0.372	0.523	1.036	0.404	0.602	1.268	0.727	1.684
FR8	0140	4	0.053	0.510	0.656	1.118	0.548	0.749	1.391	0.897	1.886
	0170	2	0.053	0.565	0.763	1.407	0.607	0.861	1.678	1.008	2.141
	0205	2	0.053	0.665	0.923	1.784	0.718	1.051	2.150	1.250	2.797
FR9	0261	2	0.072	1.028	1.360	2.478	1.095	1.505	2.837	1.691	3.363
	0300	2	0.072	1.019	1.371	2.605	1.098	1.546	3.050	1.776	3.716

LV7000-3 Ecodesign — Power Loss Data

Range of rated supply voltage 380V-500V | Nominal frequency: 50Hz, maximum ambient temperature 40°C

Losses relative to rated apparent output power [%]

Frame	Drive Type LV7000-3 XXXX	Rated output current [A]	Apparent output power [kVA]	Rated motor power [kW]	Relative losses [%]									
					Standby	(0;25)	(0;50)	(0;100)	(50;25)	(50;50)	(50;100)	(90;50)	(90;100)	IE class
FR4	0003	3.3	2.3	1.1	1.5%	1.5%	1.6%	1.9%	1.5%	1.7%	2.0%	1.8%	2.2%	IE2
	0004	4.3	3.0	1.5	1.1%	1.3%	1.4%	1.7%	1.3%	1.4%	1.8%	1.5%	2.1%	IE2
	0005	5.6	3.9	2.2	0.8%	1.1%	1.2%	1.5%	1.1%	1.3%	1.7%	1.4%	2.0%	IE2
	0007	7.6	5.3	3	0.6%	0.9%	1.1%	1.4%	1.0%	1.2%	1.6%	1.3%	2.0%	IE2
	0009	9	6.2	4	0.4%	0.9%	1.0%	1.4%	0.9%	1.1%	1.6%	1.2%	1.9%	IE2
	0012	12	8.3	5.5	0.3%	0.7%	0.9%	1.4%	0.7%	0.9%	1.6%	1.1%	2.1%	IE2
FR5	0016	16	11	7.5	0.3%	0.7%	0.8%	1.3%	0.7%	0.9%	1.5%	1.0%	1.8%	IE2
	0022	23	16	11	0.2%	0.6%	0.8%	1.4%	0.6%	0.9%	1.6%	1.0%	2.0%	IE2
	0031	31	21	15	0.1%	0.6%	0.8%	1.5%	0.6%	0.9%	1.8%	1.0%	2.2%	IE2
FR6	0038	38	26	18.5	0.1%	0.7%	0.9%	1.6%	0.7%	1.0%	1.9%	1.2%	2.3%	IE2
	0045	45	31	22	0.1%	0.7%	0.9%	1.7%	0.7%	1.0%	2.0%	1.2%	2.5%	IE2
	0061	61	42	30	0.1%	0.7%	0.9%	1.8%	0.7%	1.0%	2.1%	1.2%	2.7%	IE2
FR7	0072	72	50	37	0.1%	0.6%	0.8%	1.4%	0.6%	0.8%	1.6%	1.0%	2.0%	IE2
	0087	87	60	45	0.1%	0.5%	0.7%	1.5%	0.6%	0.8%	1.7%	1.0%	2.1%	IE2
	0105	105	73	55	0.1%	0.5%	0.8%	1.5%	0.6%	0.9%	1.8%	1.0%	2.3%	IE2
FR8	0140	140	97	75	0.1%	0.6%	0.8%	1.4%	0.6%	0.9%	1.6%	1.0%	2.2%	IE2
	0168	170	118	90	0.1%	0.5%	0.6%	1.2%	0.5%	0.7%	1.4%	0.9%	1.8%	IE2
	0205	205	142	110	0.0%	0.5%	0.6%	1.2%	0.5%	0.7%	1.5%	0.9%	1.9%	IE2
FR9	0261	261	181	132	0.1%	0.6%	0.8%	1.4%	0.6%	0.8%	1.6%	0.9%	1.9%	IE2
	0300	300	208	160	0.0%	0.6%	0.8%	1.5%	0.6%	0.8%	1.7%	1.0%	2.0%	IE2
FR10	0385	385	267	200	0.1%	0.6%	0.8%	1.3%	0.6%	0.8%	1.5%	0.9%	1.8%	IE2
	0460	460	319	250	0.1%	0.5%	0.7%	1.4%	0.6%	0.8%	1.6%	0.9%	1.8%	IE2
	0520	520	360	250	0.1%	0.5%	0.7%	1.4%	0.6%	0.8%	1.6%	0.9%	1.9%	IE2
FR11	0590	590	409	315	0.1%	0.6%	0.8%	1.4%	0.6%	0.8%	1.5%	0.9%	1.8%	IE2
	0650	650	450	355	0.1%	0.6%	0.7%	1.4%	0.6%	0.8%	1.6%	0.9%	1.8%	IE2
	0730	730	506	400	0.1%	0.5%	0.7%	1.4%	0.6%	0.8%	1.6%	0.9%	1.9%	IE2
FR12	0820	820	568	450	0.1%	0.6%	0.7%	1.3%	0.6%	0.8%	1.5%	0.9%	1.8%	IE2
	0920	920	637	500	0.1%	0.5%	0.7%	1.4%	0.6%	0.8%	1.6%	0.9%	1.8%	IE2
	1030	1030	714	560	0.1%	0.5%	0.7%	1.4%	0.6%	0.8%	1.6%	0.9%	1.9%	IE2
FR13	1150	1150	797	630	0.1%	0.5%	0.7%	1.3%	0.6%	0.8%	1.5%	0.9%	1.7%	IE2
	1300	1300	901	710	0.1%	0.6%	0.7%	1.4%	0.6%	0.8%	1.6%	0.9%	1.8%	IE2
	1450	1450	1005	800	0.0%	0.5%	0.7%	1.4%	0.6%	0.8%	1.6%	0.9%	1.9%	IE2

Absolute losses [kW]

Frame	Drive Type LV7000-3 XXXX	f_{sw} [kHz]	Absolute losses [kW]								
			Standby [kW]	(0;25) [kW]	(0;50) [kW]	(0;100) [kW]	(50;25) [kW]	(50;50) [kW]	(50;100) [kW]	(90;50) [kW]	(90;100) [kW]
FR4	0003	4	0.017	0.034	0.037	0.043	0.035	0.038	0.046	0.040	0.051
	0004	4	0.017	0.037	0.041	0.049	0.038	0.043	0.054	0.046	0.062
	0005	4	0.017	0.042	0.047	0.059	0.043	0.050	0.066	0.055	0.078
	0007	4	0.017	0.050	0.057	0.075	0.052	0.062	0.087	0.069	0.107
	0009	4	0.017	0.055	0.064	0.086	0.057	0.069	0.099	0.077	0.119
	0012	4	0.017	0.057	0.071	0.115	0.060	0.078	0.137	0.090	0.175
FR5	0016	4	0.019	0.074	0.092	0.148	0.077	0.099	0.167	0.109	0.196
	0022	4	0.019	0.097	0.127	0.223	0.102	0.139	0.256	0.156	0.311
	0031	4	0.019	0.127	0.172	0.327	0.134	0.191	0.380	0.219	0.475
FR6	0038	4	0.020	0.182	0.240	0.426	0.196	0.270	0.501	0.308	0.614
	0045	4	0.020	0.212	0.286	0.526	0.229	0.323	0.624	0.373	0.773
	0061	4	0.020	0.282	0.391	0.750	0.305	0.443	0.895	0.519	1.132
FR7	0072	4	0.030	0.284	0.380	0.688	0.301	0.421	0.796	0.479	0.978
	0087	4	0.030	0.319	0.451	0.879	0.342	0.504	1.027	0.586	1.285
	0105	4	0.030	0.383	0.553	1.117	0.413	0.624	1.321	0.735	1.685
FR8	0140	4	0.053	0.565	0.750	1.328	0.602	0.843	1.599	0.995	2.100
	0168	2	0.053	0.562	0.759	1.400	0.603	0.856	1.666	1.001	2.123
	0205	2	0.053	0.658	0.912	1.760	0.711	1.039	2.120	1.236	2.760
FR9	0261	2	0.072	1.029	1.374	2.547	1.095	1.518	2.903	1.704	3.425
	0300	2	0.072	1.155	1.581	3.074	1.233	1.753	3.510	1.980	4.167
FR10	0385	2	0.144	1.543	2.009	3.531	1.637	2.217	4.043	2.482	4.782
	0460	2	0.144	1.737	2.338	4.366	1.849	2.584	4.967	2.893	5.824
	0520	2	0.144	1.902	2.622	5.116	2.031	2.909	5.832	3.276	6.875
FR11	0590	2	0.216	2.361	3.095	5.525	2.501	3.398	6.246	3.767	7.236
	0650	2	0.216	2.518	3.362	6.208	2.674	3.702	7.030	4.124	8.181
	0730	2	0.216	2.737	3.738	7.198	2.915	4.131	8.164	4.626	9.548
FR12	0820	2	0.288	3.216	4.237	7.624	3.412	4.663	8.651	5.190	10.079
	0920	2	0.288	3.478	4.684	8.776	3.702	5.176	9.979	5.793	11.691
	1030	2	0.288	3.782	5.207	10.164	4.036	5.773	11.575	6.497	13.630
FR13	1150	2	0.360	4.263	5.672	10.314	4.541	6.284	11.806	7.054	13.936
	1300	2	0.360	5.026	6.705	12.368	5.339	7.389	14.027	8.241	16.363
	1450	2	0.360	5.433	7.405	14.212	5.788	8.188	16.145	9.179	18.926

LV7000-3 Ecodesign — Power Loss Data

Range of rated supply voltage 525V-690V | Nominal frequency: 50Hz, maximum ambient temperature 40°C

Losses relative to rated apparent output power [%]

Frame	Drive Type LV7000-3 XXXX	Rated output current [A]	Apparent output power [kVA]	Rated motor power [kW]	Relative losses [%]									
					Standby	(0;25)	(0;50)	(0;100)	(50;25)	(50;50)	(50;100)	(90;50)	(90;100)	IE class
FR6	0004	4.5	5.4	3	0.9%	1.9%	2.0%	2.4%	1.9%	2.1%	2.5%	2.1%	2.6%	IE 2
	0005	5.5	6.6	4	0.6%	1.7%	1.8%	2.2%	1.7%	1.9%	2.2%	1.9%	2.4%	IE 2
	0007	7.5	9	5.5	0.5%	1.3%	1.4%	1.9%	1.3%	1.5%	2.0%	1.5%	2.1%	IE 2
	0010	10	12	7.5	0.3%	1.1%	1.2%	1.7%	1.1%	1.3%	1.8%	1.3%	2.0%	IE 2
	0013	13.5	16	11	0.2%	0.9%	1.1%	1.6%	0.9%	1.2%	1.7%	1.2%	2.0%	IE 2
	0018	18	21.5	15	0.2%	0.8%	1.0%	1.6%	0.8%	1.1%	1.7%	1.2%	2.0%	IE 2
	0022	22	26	18.5	0.1%	0.8%	1.0%	1.6%	0.8%	1.0%	1.7%	1.1%	2.1%	IE 2
	0027	27	32	22	0.1%	0.7%	1.0%	1.7%	0.8%	1.0%	1.8%	1.1%	2.2%	IE 2
	0034	34	41	30	0.1%	0.7%	1.0%	1.8%	0.7%	1.0%	1.9%	1.1%	2.4%	IE 2
FR7	0041	41	49	37	0.2%	0.7%	0.9%	1.6%	0.7%	1.0%	1.7%	1.1%	2.0%	IE 2
	0052	52	62	45	0.1%	0.6%	0.9%	1.7%	0.7%	0.9%	1.9%	1.1%	2.2%	IE 2
FR8	0062	62	74	55	0.1%	0.8%	1.0%	1.6%	0.8%	1.0%	1.7%	1.1%	1.9%	IE 2
	0080	80	96	75	0.1%	0.7%	0.9%	1.6%	0.7%	1.0%	1.8%	1.1%	2.0%	IE 2
	0100	100	120	90	0.1%	0.5%	0.6%	1.1%	0.5%	0.7%	1.2%	0.8%	1.6%	IE 2
FR9	0125	125	149	110	0.1%	0.6%	0.7%	1.1%	0.6%	0.8%	1.2%	0.8%	1.4%	IE 2
	0144	144	172	132	0.1%	0.5%	0.7%	1.1%	0.6%	0.7%	1.3%	0.8%	1.4%	IE 2
	0170	170	203	160	0.1%	0.5%	0.7%	1.1%	0.5%	0.7%	1.3%	0.8%	1.5%	IE 2
	0208	208	249	200	0.1%	0.5%	0.6%	1.2%	0.5%	0.7%	1.4%	0.8%	1.6%	IE 2
FR10	0261	261	312	250	0.1%	0.5%	0.7%	1.2%	0.6%	0.7%	1.3%	0.8%	1.5%	IE 2
	0325	325	388	315	0.1%	0.5%	0.7%	1.2%	0.5%	0.7%	1.3%	0.8%	1.5%	IE 2
	0385	385	460	355	0.0%	0.5%	0.7%	1.2%	0.5%	0.7%	1.4%	0.8%	1.6%	IE 2
	0416	416	497	400	0.0%	0.5%	0.7%	1.3%	0.5%	0.7%	1.4%	0.8%	1.6%	IE 2
FR11	0460	460	550	450	0.1%	0.5%	0.7%	1.2%	0.5%	0.7%	1.3%	0.8%	1.5%	IE 2
	0502	502	600	500	0.0%	0.5%	0.7%	1.2%	0.5%	0.7%	1.3%	0.8%	1.5%	IE 2
	0590	590	705	560	0.0%	0.5%	0.6%	1.2%	0.5%	0.7%	1.3%	0.7%	1.5%	IE 2
FR12	0650	650	777	630	0.1%	0.5%	0.7%	1.2%	0.5%	0.7%	1.3%	0.8%	1.5%	IE 2
	0750	750	896	710	0.0%	0.5%	0.7%	1.3%	0.5%	0.7%	1.4%	0.8%	1.6%	IE 2
	0820	820	980	800	0.0%	0.5%	0.7%	1.3%	0.5%	0.7%	1.4%	0.8%	1.6%	IE 2
FR13	0920	920	1100	900	0.0%	0.5%	0.6%	1.2%	0.5%	0.7%	1.3%	0.7%	1.5%	IE 2

Absolute losses [kW]

Frame	Drive Type LV7000-3 XXXX	f_{sw} [kHz]	Absolute losses [kW]								
			Standby [kW]	(0;25) [kW]	(0;50) [kW]	(0;100) [kW]	(50;25) [kW]	(50;50) [kW]	(50;100) [kW]	(90;50) [kW]	(90;100) [kW]
FR6	0004	4	0.026	0.102	0.110	0.128	0.103	0.112	0.132	0.114	0.138
	0005	4	0.026	0.110	0.119	0.142	0.111	0.122	0.147	0.125	0.155
	0007	4	0.026	0.112	0.128	0.170	0.114	0.131	0.179	0.136	0.192
	0010	4	0.026	0.127	0.149	0.208	0.130	0.153	0.220	0.161	0.241
	0013	4	0.026	0.149	0.179	0.264	0.152	0.186	0.282	0.198	0.317
	0018	4	0.026	0.178	0.220	0.344	0.182	0.230	0.370	0.248	0.428
	0022	4	0.026	0.205	0.258	0.423	0.210	0.271	0.457	0.296	0.541
	0027	4	0.026	0.240	0.310	0.534	0.246	0.326	0.579	0.362	0.700
	0034	4	0.026	0.293	0.389	0.717	0.299	0.410	0.777	0.463	0.963
FR7	0041	4	0.059	0.346	0.447	0.776	0.356	0.473	0.848	0.518	0.990
	0052	4	0.059	0.400	0.548	1.057	0.414	0.586	1.160	0.653	1.385
FR8	0062	4	0.062	0.560	0.718	1.188	0.572	0.749	1.269	0.803	1.433
	0080	4	0.062	0.678	0.895	1.571	0.695	0.939	1.686	1.019	1.941
	0100	2	0.062	0.564	0.740	1.288	0.592	0.810	1.489	0.927	1.873
FR9	0125	2	0.106	0.857	1.059	1.678	0.890	1.132	1.858	1.226	2.120
	0144	2	0.106	0.933	1.176	1.937	0.973	1.264	2.157	1.380	2.488
	0170	2	0.106	1.043	1.347	2.325	1.091	1.455	2.607	1.603	3.044
	0208	2	0.106	1.146	1.565	2.969	1.206	1.708	3.362	1.911	3.994
FR10	0261	2	0.159	1.683	2.167	3.662	1.746	2.311	4.034	2.505	4.603
	0325	2	0.159	1.944	2.590	4.664	2.021	2.765	5.109	2.993	5.769
	0385	2	0.159	2.204	3.020	5.732	2.298	3.238	6.306	3.531	7.185
	0416	2	0.159	2.343	3.255	6.336	2.447	3.496	6.983	3.826	7.989
FR11	0460	2	0.239	2.764	3.632	6.385	2.875	3.886	7.041	4.225	8.034
	0502	2	0.239	2.935	3.911	7.059	3.058	4.196	7.806	4.581	8.957
	0590	2	0.239	3.305	4.526	8.589	3.445	4.840	9.392	5.244	10.558
FR12	0650	2	0.318	3.899	5.203	9.414	4.053	5.552	10.305	6.009	11.628
	0750	2	0.318	4.333	5.923	11.215	4.515	6.343	12.320	6.907	14.005
	0820	2	0.318	4.649	6.455	12.592	4.852	6.928	13.862	7.574	15.831
FR13	0920	2	0.424	5.220	6.987	12.662	5.441	7.494	13.976	8.171	15.969