LCU Memory with patch 2.2

Memory map of XRAM area for LCU-FM PROM software with patch2.2 ver.29B9 from Dec. 2009:
Red area can be critical for proper detection and repairing the SEU corruption
green area is important for normal LCU operation (tuning macrocommands)
yellow area is not critical at all (mostly not used)

Address	Name of area	Size (bytes)	comments
0x0000 – 0x2791	Program memory with:	10130 bytes	
0x0000 – 0x0006	Start & int0 service	7	
0x0007 – 0x0012	not used	12	Empty
0x0013 – 0x001A	Int1 vector service	8	
0x001B – 0x00A2	Delays proc	136	
0x00A3 – 0x00D1	Not used	47	Contains 00H
0x00D2 – 0x00EE	Memory procedures	29	
0x00EF – 0x0112	CRC	36	Checksum calculation
0x0113 – 0x0147	Memory procedures	53	Modify_XRAM
0x0148 – 0x0151	Memory procedures	10	
0x0152 – 0x0364	Not used	531	Contains 00H
0x0365 – 0x05DD	Tables procedures	633	Copy_safe_to_default, calc_param_addr
0x05DE – 0x06E4	LSU proc	263	tuning_macro, goto_standby
0x06E5 – 0x07C7	Mux proc	227	HK_request (measurements)
0x07C8 – 0x0842	Adc proc	123	HK_request (measurements)
0x0843 – 0x0B6D	supply proc	811	
0x0843 – 0x0882	Test_stage_band proc	64	Tuning_macro,tables_modification, d2_loop, IV_curve,
0x0883 – 0x0893	load_zero_supp proc	17	IV_curve, new_power_int, Tuning_macro, goto_standby
0x0894 – 0x08AC	load_default_sup proc	25	Tuning_macro
0x08AD – 0x0A21	Load & set volt proc	373	Set voltage
0x0A22 – 0x0A33	Clear_all_sup_qu proc	18	After Reset, new_band_on
0x0A34 – 0x0AD0	set_all_st_to_0 proc	157	Emergency, tuning_macro, Goto_standby
0x0AD1 – 0x0B6D	set_all_st_to_def proc	157	Tuning_macro
0x0B6E – 0x0CE5	hardware proc	376	
0x0B6E – 0x0BA0	Check_band proc	51	Tuning_macro
0x0BA1 – 0x0BC5	Set_relays proc	37	Mode changed
0x0BC6 – 0x0C02	Disable_bands proc	61	Not used probably
0x0C03 – 0x0C3E	Set_band_on proc	60	Tuning_macro
0x0C3F – 0x0C4C	Set_band_off proc	14	Tuning_macro, exception
0x0C4D – 0x0C6D	Set_band_relay_off proc	33	Band_off, power_int
0x0C6E – 0x0C94	all_bands_off proc	39	Not used probably
0x0C95 – 0x0CB0	emergency_off proc	28	emergency

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0x0CB1 – 0x0CCB	Reset_latches proc	27	Not used probably
0x0CCC – 0x0CE5	Enable/disable LSU proc	26	Tuning_macro
0x0CE6 – 0x0F23	hsk proc	574	
0x0CE6 – 0x0DE6	Hsk_jump, B0_proc	257	HK_request, B0xx
0x0DE7 – 0x0E57	Hsk_B1xx_proc	113	B1xx
0x0E58 – 0x0F23	Hsk_B2+B3, send_proc	204	B2xx, B3xx
0x0F24 – 0x1649	comm proc	1830	
0x0F24 – 0x1032	Comm_jump proc	271	Commands procedure
0x1033 – 0x1081	Not used	79	Procedures used in DIAGNOSTIC
0x1082 – 0x10B1	standby proc	48	Goto_standby mode
0x10B2 – 0x10D5	normal proc	36	Goto_normal mode
0x10D6 – 0x10ED	diagnostic proc	24	Goto_diagnostic mode
0x10EE – 0x114D	FSW proc	96	Goto_FSW
0x114E – 0x116A	Default to safe proc	29	komF006 procedure
0x116B – 0x1187	Not used	28	Procedures used in DIAGNOSTIC
0x1188 – 0x119E	Reset error proc	29	komF006 procedure
0x119F – 0x11C1	Set main heat proc	35	Set main heater procedure
0x11C2 – 0x12B5	Not used	244	Procedures used in DIAGNOSTIC
0x12B6 – 0x12D0	Set LSU_DELTA_FREQ proc	27	Set LSU_DELTA procedure
0x12D1 – 0x1340	Not used	112	Procedures used in DIAGNOSTIC
0x1341 – 0x13AE	Table modification proc	110	Table modification procedure
0x13AF – 0x13F9	F3xx commands proc	75	Set RAMPAGE, CRC procedure
0x13FA – 0x1418	F3xx commands proc	31	
0x1419 – 0x14CE	macrocommands proc	182	Macro commands procedure
0x14CF – 0x1649	Not used	378	Test proc. remained in DIAGNOST
0x164A – 0x17BA	IVC proc	369	IV curie
0x17BB – 0x1A24	D2 loop proc	618	
0x1A25 – 0x1F8B	TM proc	1383	
0x1F8C – 0x2087	FSW proc	252	
0x2088 – 0x20CC	Start proc	69	
0x20CD – 0x2115	restart proc	73	From failure
0x2116 – 0x212C	Main loop proc	23	Main loop
0x212D – 0x2136	Abort command proc	10	Abort current command
0x2137 – 0x21AA	INT0 service	116	
0x21AB – 0x2228	INT1 service	126	Command service
0x2229 – 0x223F	Raise exception	23	exception
0x2240 – 0x2451	Tables (mux,bias	530	
0x2452 – 0x26F1	IVC tables	672	
0x26F2 – 0x2791	LSU tables	160	
0x2792 – 0x2E59	LSU1 frequency table	1736 bytes	14*31*2 (min/max)= 868 parameters
0x2792 – 0x27CF	LSU1 min	62 bytes	band 1a
0x27D0 – 0x280D	LSU1 min	62 bytes	band 1b
0x280E – 0x284B	LSU1 min	62 bytes	band 2a
0x284C – 0x2889	LSU1 min	62 bytes	band 2b

0x288A – 0x28C7	LSU1 min	62 bytes	band 3a
0x28C8 – 0x2905	LSU1 min	62 bytes	band 3b
0x2906 – 0x2943	LSU1 min	62 bytes	band 4a
0x2944 – 0x2981	LSU1 min	62 bytes	band 4b
0x2982 – 0x29BF	LSU1 min	62 bytes	band 5a
0x29C0 – 0x29FD	LSU1 min	62 bytes	band 5b
0x29FE – 0x2A3B	LSU1 min	62 bytes	band 6a
0x2A3C – 0x2A79	LSU1 min	62 bytes	band 6b
0x2A7A – 0x2AB7	LSU1 min	62 bytes	band 7a
0x2AB8 – 0x2AF5	LSU1 min	62 bytes	band 7b
0x2AF6 – 0x2B33	LSU1 max	62 bytes	band 1a
0x2B34 – 0x2B71	LSU1 max	62 bytes	band 1b
0x2B72 – 0x2BAF	LSU1 max	62 bytes	band 2a
0x2BB0 – 0x2BED	LSU1 max	62 bytes	band 2b
0x2BEE – 0x2C2B	LSU1 max	62 bytes	band 3a
0x2C2C – 0x2C69	LSU1 max	62 bytes	band 3b
0x2C6A – 0x2CA7	LSU1 max	62 bytes	band 4a
0x2CA8 – 0x2CE5	LSU1 max	62 bytes	band 4b
0x2CE6 – 0x2D23	LSU1 max	62 bytes	band 5a
0x2D24 – 0x2D61	LSU1 max	62 bytes	band 5b
0x2D62 – 0x2D9F	LSU1 max	62 bytes	band 6a
0x2DA0 – 0x2DDD	LSU1 max	62 bytes	band 6b
0x2DDE – 0x2E1B	LSU1 max	62 bytes	band 7a
0x2E1C – 0x2E59	LSU1 max	62 bytes	band 7b
0x2E5A – 0x2F39	Default table	224 bytes	After RESET and after every entering NORMAL mode it is copied from SAFE table, otherwise it can be changed by command HL_SET_BIAS in DIAGNOSTIC mode.
0x2E5A – 0x2E69	Default table	16 bytes	band 1a
0x2E6A – 0x2E79	Default table	16 bytes	band 1b
0x2E7A – 0x2E89	Default table	16 bytes	band 2a
0x2E8A – 0x2E99	Default table	16 bytes	band 2b
0x2E9A – 0x2EA9	Default table	16 bytes	band 3a
0x2EAA – 0x2EB9	Default table	16 bytes	band 3b
0x2EBA – 0x2EC9	Default table	16 bytes	band 4a
0x2ECA – 0x2ED9	Default table	16 bytes	band 4b
0x2EDA – 0x2EE9	Default table	16 bytes	band 5a
0x2EEA – 0x2EF9	Default table	16 bytes	band 5b
0x2EFA – 0x2F09	Default table	16 bytes	band 6a
0x2F0A – 0x2F19	Default table	16 bytes	band 6b
0x2F1A – 0x2F29	Default table	16 bytes	band 7a
0x2F2A – 0x2F39	Default table	16 bytes	band 7b
0x2F3A – 0x3019	SAFE table	224 bytes	5*8 + 9*7 = 103 parameters plus 9 words of **0x0800** (for unused M3)
0x2F3A – 0x2F49	safe table	16 bytes	band 1a
0x2F4A – 0x2F59	safe table	16 bytes	band 1b

0x2F5A – 0x2F69	safe table	16 bytes	band 2a
0x2F6A – 0x2F79	safe table	16 bytes	band 2b
0x2F7A – 0x2F89	safe table	16 bytes	band 3a
0x2F8A – 0x2F99	safe table	16 bytes	band 3b
0x2F9A – 0x2FA9	safe table	16 bytes	band 4a
0x2FAA – 0x2FB9	safe table	16 bytes	band 4b
0x2FBA – 0x2FC9	safe table	16 bytes	band 5a
0x2FCA – 0x2FD9	safe table	16 bytes	band 5b
0x2FDA – 0x2FE9	safe table	16 bytes	band 6a
0x2FEA – 0x2FF9	safe table	16 bytes	band 6b
0x2FFA – 0x3009	safe table	16 bytes	band 7a
0x300A – 0x3019	safe table	16 bytes	band 7b
0x301A – 0x31D9	RED table	448 bytes	(5*8+9*7)*2 = 206 params plus 9*2 words of **0x0800** (for unused M3)
0x301A – 0x3029	red min	16 bytes	band 1a
0x302A – 0x3039	red min	16 bytes	band 1b
0x303A – 0x3049	red min	16 bytes	band 2a
0x304A – 0x3059	red min	16 bytes	band 2b
0x305A – 0x3069	red min	16 bytes	band 3a
0x306A – 0x3079	red min	16 bytes	band 3b
0x307A – 0x3089	red min	16 bytes	band 4a
0x308A – 0x3099	red min	16 bytes	band 4b
0x309A – 0x30A9	red min	16 bytes	band 5a
0x30AA – 0x30B9	red min	16 bytes	band 5b
0x30BA – 0x30C9	red min	16 bytes	band 6a
0x30CA – 0x30D9	red min	16 bytes	band 6b
0x30DA – 0x30E9	red min	16 bytes	band 7a
0x30EA – 0x30F9	red min	16 bytes	band 7b
0x30FA – 0x3109	red max	16 bytes	band 1a
0x310A – 0x3119	red max	16 bytes	band 1b
0x311A – 0x3129	red max	16 bytes	band 2a
0x312A – 0x3139	red max	16 bytes	band 2b
0x313A – 0x3149	red max	16 bytes	band 3a
0x314A – 0x3159	red max	16 bytes	band 3b
0x315A – 0x3169	red max	16 bytes	band 4a
0x316A – 0x3179	red max	16 bytes	band 4b
0x317A – 0x3189	red max	16 bytes	band 5a
0x318A – 0x3199	red max	16 bytes	band 5b
0x319A – 0x31A9	red max	16 bytes	band 6a
0x31AA – 0x31B9	red max	16 bytes	band 6b
0x31BA – 0x31C9	red max	16 bytes	band 7a
0x31CA – 0x31D9	red max	16 bytes	band 7b
0x31DA – 0x36C5	BLUE table	1260 bytes	(5*7+9*6)+(5*6+9*5)+14*31 = 598 params plus 9*2 words of **0x0800** (for unused M3) and plus 14 words **0x0000** (for empty D2max)

0x31DA – 0x31E7	blue min	14 bytes	band 1a
0x31E8 – 0x31F5	blue min	14 bytes	band 1b
0x31F6 – 0x3203	blue min	14 bytes	band 2a
0x3204 – 0x3211	blue min	14 bytes	band 2b
0x3212 – 0x321F	blue min	14 bytes	band 3a
0x3220 – 0x322D	blue min	14 bytes	band 3b
0x322E – 0x323B	blue min	14 bytes	band 4a
0x323C – 0x3249	blue min	14 bytes	band 4b
0x324A – 0x3257	blue min	14 bytes	band 5a
0x3258 – 0x3265	blue min	14 bytes	band 5b
0x3266 – 0x3273	blue min	14 bytes	band 6a
0x3274 – 0x3281	blue min	14 bytes	band 6b
0x3282 – 0x328F	blue min	14 bytes	band 7a
0x3290 – 0x329D	blue min	14 bytes	band 7b
0x329E – 0x32AB	blue max	14 bytes	band 1a
0x32AC – 0x32B9	blue max	14 bytes	band 1b
0x32BA – 0x32C7	blue max	14 bytes	band 2a
0x32C8 – 0x32D5	blue max	14 bytes	band 2b
0x32D6 – 0x32E3	blue max	14 bytes	band 3a
0x32E4 – 0x32F1	blue max	14 bytes	band 3b
0x32F2 – 0x32FF	blue max	14 bytes	band 4a
0x3300 – 0x330D	blue max	14 bytes	band 4b
0x330E – 0x331B	blue max	14 bytes	band 5a
0x331C – 0x3329	blue max	14 bytes	band 5b
0x332A – 0x3337	blue max	14 bytes	band 6a
0x3338 – 0x3345	blue max	14 bytes	band 6b
0x3346 – 0x3353	blue max	14 bytes	band 7a
0x3354 – 0x3361	blue max	14 bytes	band 7b
0x3362 – 0x339F	blue max D2	62 bytes	band 1a * 31
0x33A0 – 0x33DD	blue max D2	62 bytes	band 1b * 31
0x33DE – 0x341B	blue max D2	62 bytes	band 2a * 31
0x341C – 0x3459	blue max D2	62 bytes	band 2b * 31
0x345A – 0x3497	blue max D2	62 bytes	band 3a * 31
0x3498 – 0x34D5	blue max D2	62 bytes	band 3b * 31
0x34D6 – 0x3513	blue max D2	62 bytes	band 4a * 31
0x3514 – 0x3551	blue max D2	62 bytes	band 4b * 31
0x3552 – 0x358F	blue max D2	62 bytes	band 5a * 31
0x3590 – 0x35CD	blue max D2	62 bytes	band 5b * 31
0x35CE – 0x360B	blue max D2	62 bytes	band 6a * 31
0x360C – 0x3649	blue max D2	62 bytes	band 6b * 31
0x364A – 0x3687	blue max D2	62 bytes	band 7a * 31
0x3688 – 0x36C5	blue max D2	62 bytes	band 7b * 31
0x36C6 – 0x3A29	LSU2 power table	868 bytes	14*31 = 434 parameters
0x36C6 – 0x3703	Lsu power table	62 bytes	band 1a * 31
0x3704 – 0x3741	Lsu power table	62 bytes	band 1b * 31

0x3742 – 0x377F	Lsu power table	62 bytes	band 2a * 31
0x3780 – 0x37BD	Lsu power table	62 bytes	band 2b * 31
0x37BE – 0x37FB	Lsu power table	62 bytes	band 3a * 31
0x37FC – 0x3839	Lsu power table	62 bytes	band 3b * 31
0x383A – 0x3877	Lsu power table	62 bytes	band 4a * 31
0x3878 – 0x38B5	Lsu power table	62 bytes	band 4b * 31
0x38B6 – 0x38F3	Lsu power table	62 bytes	band 5a * 31
0x38F4 – 0x3931	Lsu power table	62 bytes	band 5b * 31
0x3932 – 0x396F	Lsu power table	62 bytes	band 6a * 31
0x3970 – 0x39AD	Lsu power table	62 bytes	band 6b * 31
0x39AE – 0x39EB	Lsu power table	62 bytes	band 7a * 31
0x39EC – 0x3A29	Lsu power table	62 bytes	band 7b * 31
0x3A2A – 0x6B29	GREEN table	12544 bytes	(5*7+9*6)*32*2 = 5696 parameters plus 9*32*2 words of **0x0800** (for unused M3)
0x3A2A – 0x3BE9	green min	448 bytes	band 1a * 7*32
0x3BEA – 0x3DA9	green min	448 bytes	band 1b * 7*32
0x3DAA – 0x3F69	green min	448 bytes	band 2a * 7*32
0x3F6A – 0x4129	green min	448 bytes	band 2b * 7*32
0x412A – 0x42E9	green min	448 bytes	band 3a * 7*32
0x42EA – 0x44A9	green min	448 bytes	band 3b * 7*32
0x44AA – 0x4669	green min	448 bytes	band 4a * 7*32
0x466A – 0x4829	green min	448 bytes	band 4b * 7*32
0x482A – 0x49E9	green min	448 bytes	band 5a * 7*32
0x49EA – 0x4BA9	green min	448 bytes	band 5b * 7*32
0x4BAA – 0x4D69	green min	448 bytes	band 6a * 7*32
0x4D6A – 0x4F29	green min	448 bytes	band 6b * 7*32
0x4F2A – 0x50E9	green min	448 bytes	band 7a * 7*32
0x50EA – 0x52A9	green min	448 bytes	band 7b * 7*32
0x52AA – 0x5469	green max	448 bytes	band 1a * 7*32
0x546A – 0x5629	green max	448 bytes	band 1b * 7*32
0x562A – 0x57E9	green max	448 bytes	band 2a * 7*32
0x57EA – 0x59A9	green max	448 bytes	band 2b * 7*32
0x59AA – 0x5B69	green max	448 bytes	band 3a * 7*32
0x5B6A – 0x5D29	green max	448 bytes	band 3b * 7*32
0x5D2A – 0x5EE9	green max	448 bytes	band 4a * 7*32
0x5EEA – 0x60A9	green max	448 bytes	band 4b * 7*32
0x60AA – 0x6269	green max	448 bytes	band 5a * 7*32
0x626A – 0x6429	green max	448 bytes	band 5b * 7*32
0x642A – 0x65E9	green max	448 bytes	band 6a * 7*32
0x65EA – 0x67A9	green max	448 bytes	band 6b * 7*32
0x67AA – 0x6969	green max	448 bytes	band 7a * 7*32
0x696A – 0x6B29	green max	448 bytes	band 7b * 7*32
0x6B2A – 0x79F7	patch area memory buffer	3790 bytes	
0x6B2A – 0x6B41	Dissipative mode	24 bytes	
0x6B42 – 0x6B61	New power int	32 bytes	

0x6B62 - 0x79ED	Not used	3724 bytes	
0x79EE - 0x79F7	Jump to 0000	10 bytes	

The XRAM area for calculation checksum includes addresses: 0x0000 – 0x79F7

The rest of the 32kB memory contains:

0x79F8 - 0x79FF	Not used	8 bytes	
0x7A00 - 0x7AFF	variables	256 bytes	
0x7B00 - 0x7BFF	TM data	256 bytes	
0x7C00 - 0x7CFF	HSK data	256 bytes	
0x7D00 - 0x7DFF	Commands buffer	256 bytes	
0x7E00 - 0x7FFF	Not used	512 bytes	