



LHC Deliveries Success/Failure Statistics Report 2004-2012 (From 01/01/2004 to 10/07/2012)



LHC Deliveries: Success/Failure Statistics Report

The [Large Hadron Collider \(LHC\)](#) is a particle accelerator and collider located at CERN, near Geneva, Switzerland. Currently under construction, the LHC is scheduled to begin operation in May 2008. The LHC is expected to become the world's largest and highest energy particle accelerator where its four experiments ATLAS, CMS, ALICE and LHCb will study new physics.

[CAEN](#) is one of the main companies responsible for the design and manufacturing of electronics for such experiments.

This report contains the production results as a matter of success/failure functioning of all the [electronics delivered to the LHC experiments](#) that is nowadays reaching the considerable amount of **6215** units. In this report, CAEN shows the statistics related to the Failures, Repairs and Modifications (statistics derived from CAEN database 2004-2012) indicating the total number and the type of interventions carried out on the delivered units. Discerning among **Real failures, No failures, Fine tuning**.

As an ISO 9001:2000 certified company CAEN would like to confirm to CERN and LHC that is committed to deliver top quality products as result of more than 30 years of experience in the field.

The statistics showed that in **4 years** (from 01-01-2004 to 31-12-2007) the total percentage of interventions due to real failures is equal to:

- On **4806** modules delivered we had **6,8** interventions every **100** modules
- On **~16.700.000** installed components we had **14,1** interventions every **million** of components
- On **~52.000.0000** solder joints carried out we had **1,8** interventions every **million** of soldering



Sales Analysis up to 23 July '12

Module	No. of Modules			No. of Sub-Boards		No. of Solder Points		No. of Components	
	2008-2012	2006-2007	2004-2005	Per module	Total	Per module	Total	Per module	Total
WA1676AXAAAA	49	89	76	3	642	4.456	953.584	1.060	226.840
WA3485AXAAAA	2	12		12	168	17.859	250.026	3.482	48.748
WA3485SXAAAA	2	4		8	48	5.418	32.508	1.365	8.190
WA3485XAAAAA	12	22	15	2	98	254	12.446	145	7.105
WA3486SXAAAA	35	36		21	1.491	10.696	759.416	3.767	267.457
WA3486XAAAAA	101	125	8	21	4.914	9.633	2.254.122	3.733	873.522
WE3006XAAAAA	9	27	1	25	925	15.661	579.457	6.230	230.510
WE3009EXAAAA	4	31		49	1.715	16.419	574.665	6.723	235.305
WE3009XAAAAA	72	211	52	49	16.415	16.213	5.431.355	6.645	2.226.075
WE3016EXAAAA	15	13	1	37	1.073	15.747	456.663	6.342	183.918
WE3016XAAAAA	14	99	2	37	4.255	15.541	1.787.215	6.331	728.065
WE3025BXAAAA	72	167		24	5.736	9.820	2.346.980	3.411	815.229
WE3025DXAAAA	16	68		24	2.016	9.666	811.944	3.310	278.040
WE3025XAAAAA	59	6	9	24	1.776	9.771	723.054	3.410	252.340
WE3050DXAAAA	3	27		24	720	9.666	289.980	3.310	99.300
WE3050XAAAAA	4	130	8	24	3.408	9.594	1.362.348	3.301	468.742
WE3100EXAAAA	14	70		24	2.016	9.590	805.560	3.341	280.644
WE3100XAAAAA	7	11	45	24	1.512	9.510	599.130	3.292	207.396
WE3501XAAAAA	10	5		62	930	12.094	181.410	3.895	58.425
WE3501XPAAAA	10	5		62	930	11.319	169.785	3.751	56.265
WE3512XAAAAA	83	43	4	56	7.280	10.150	1.319.500	3.643	473.590
WE3512XPAAAA	19	41	1	56	3.416	10.150	619.150	3.643	222.223
WE3535XPAAAA	41	137	4	54	9.828	19.214	3.496.948	8.490	1.545.180
WE3540XPAAAA	156	59	4	74	16.206	11.542	2.527.698	3.712	812.928
WE3801AXAAAA	6	1	9	6	96	12.143	194.288	3.704	59.264
WE3801XAAAAA	29	27	3	6	354	12.143	716.437	3.704	218.536
WE3802XAAAAA	13	15		22	616	6.619	185.332	2.608	73.024
WE4601XAAAAA			35	36	1.260	12.281	429.835	4.895	171.325
WE4601XBAAAA	84	42	935	36	35.172	11.127	11.805.747	4.654	4.937.894
WE4602XAAAAA	17	128		21	2.688	10.168	1.474.360	3.548	514.460
WE3602XAAAAA	72	82		17	1.394	5.786	891.044	3.112	479.248
WEASY3000MB0	40	181	72	1	253	2.535	742.755	398	116.614
WEASY3000MBB	1	1		1	1	2.535	5.070	398	796
WEASY3000MBS	21	144	4	1	148	2.663	450.047	405	68.445
WEASY4000MB0	4	67	99	1	166	1.308	222.360	207	35.190
WVX1390XAAAA	47	626	47	11	7.920	15.514	11.170.080	1.623	1.168.560
WVX1391XAAAA	9	78		2	174	6.124	532.788	812	70.644
WVX1392XAAAA	4	77		2	162	6.357	514.917	876	70.956
WVX1393XAAAA	6	39		3	135	2.061	92.745	306	13.770
WA1395XAAAAA	42	116		18	2.844	3.891	614.778	1.345	212.510
WA1396XAAAAA	21	58		47	3.713	4.226	333.854	5.442	429.918
WA1520XPEAAA			160	21	3.360	11.235	1.797.600	3.175	508.000
WA877BASE8XX		44	16	71	4.260	14.106	846.360	5.432	325.920
WA877BASE8XX	10		206	103	22.248	19.402	4.190.832	7.620	1.645.920
Total			6215		174.482		65.556.173		21.727.031

Type of interventions

Real failures:	No failures:	Fine tuning (*)
<ul style="list-style-type: none"> ■ Soldering problem <ul style="list-style-type: none"> ▪ Cabling ▪ Bad contacts ■ Component problems <ul style="list-style-type: none"> ▪ Passive ▪ Active 	<ul style="list-style-type: none"> ■ Prototypes ■ No malfunctioning found ■ Unproper use ■ Upgrade Software ■ Upgrade Hardware 	<ul style="list-style-type: none"> ■ Ripple ■ Drift (V e/o I) ■ Calibration ■ Mechanical problems ■ Software Bug Fixing ■ Hardware Bug Fixing ■ Other

() prototypes and pre-series debugging, normally on a limited number of devices*

CAEN Interventions from 01/01/2004 to 31/12/2007

Model	Delivered	Interventions	Real Failures						No Failure					Fine Tuning						
			Total	%	Soldering problems		Component problems		Prototypes	No malfunctioning found	Unproper use	Upgrade Software	Upgrade Hardware	Ripple	Drift e/o I)	Calibration (V	Mechanical problems	Software Bug Fixing	Hardware Bug Fixing	Other
			Real Failure	% Real Failures	Cabling	Bad contacts	Passive components	Active components												
A1676A	165	11	1	1%				1		3		2	1						4	
A3485A	12	4	2	17%		1		1					1			1				
A3485S	4	0	0	0%																
A3485	37	0	0	0%																
A3486S	36	18	1	3%		1						1	16							
A3486	133	66	8	6%		2	3	3					58							
A877-8CH	60	16	7	12%				3	4	8					1					
A877	206	52	21	10%		7	10	4		21	2			7	1					
A3006	28	4	1	4%				1											3	
A3009B	31	32	5	16%		2		3		3	5	1			4			14		
A3009	263	114	38	14%		14	15	9		4	15	11	4		3	1		37	1	
A3016B	14	5	2	14%		1		1		1		2								
A3016	101	47	16	16%		9	1	6		2		2	3					24		
A3025B	167	26	13	8%		3	5	5		1	9	1	1					1		
A3025D	68	2	1	1%		1				1										
A3025	15	1	0	0%									1							
A3050D	27	0	0	0%																
A3050	138	25	6	4%		1	4	1		3	2		1		6			7		
A3100B	70	7	4	6%				2	2				1							
A3100	56	3	1	2%		1									2					
A3501N	5	1	0	0%							1									
A3501P	5	0	0	0%																
A3512N	47	27	9	19%		6	2	1		4	3		10							1
A3512P	42	3	0	0%							3									
A3535P	141	3	1	1%		1					1		1							
A3540P	63	4	0	0%						1	2							1		
A3801A	10	0	0	0%																
A3801	30	0	0	0%																
A3802	15	1	1	7%				1												
A4601F	35	5	1	3%		1							4							
A4601H	977	953	137	14%		2	21	18	96		72	2	11	722	3		1	1		4
A4602	128	22	12	9%			10	1	1		3			7						
A3602	82	5	2	2%			1	1							3					
Crate EASY3000	253	5	2	1%			2				3									
Crate EASY3000B	1	3	0	0%							1	1		1						
Crate EASY3000S	148	18	0	0%													17		1	
Crate EASY4000	166	9	2	1%			1	1			2		5							
VX1390	673	9	2	0%			1	1			2		5							
VX1391	78	7	0	0%							2									
VX1392	77	3	0	0%								3			2					
VX1393	39	0	0	0%								3								
A1520P	160	50	33	21%			3	23	7		1	7			9					
TOTAL	4806	1561	329	6,85%	3	89	91	146	10	148	49	23	842	3	3	36	20	0	92	6

CAEN Interventions from 01/01/2008 to 10/09/2008 (LHC start-up)

			Real Failures						No Failure					Fine Tuning						
			Total	%	Soldering problems		Component problems		Prototypes	No malfunctioning found	Unproper use	Upgrade Software	Upgrade Hardware	Ripple	Drift (V e/o I)	Calibration	Mechanical problems	Software Bug Fixing	Hardware Bug Fixing	Other
Model	Delivered	Interventions	Real Failure	% Real Failures	Cabling	Bad contacts	Passive components	Active components												
A1676A	189	39	24	13%		2	18	4		3	3	6	3							
A3485A	12	5	1	8%	1					1			3							
A3485S	8	0	0	0%																
A3485	47	4	3	6%			2	1		1										
A3486S	67	31	0	0%									31							
A3486	221	128	15	7%		7	6	2		6	1		103			3				
A877-8CH	60	2	1	2%		1				1										
A877	216	11	7	3%		1	4	2		3									1	
A3006	34	15	4	12%		2	1	1		6							4		1	
A3009B	33	9	5	15%			1	4								1				
A3009	313	79	30	10%		23	5	2	1	11	15	2			1	2	5	3	9	
A3016B	27	5	4	15%		2	1	1		1										
A3016	112	25	14	13%		5	3	6		4	1				1			3	1	
A3025B	228	31	15	7%		2	5	8		6	5	4					1			
A3025D	76	7	5	7%		1	2	2												
A3025	69	17	4	6%		1	3				1		12							
A3050D	28	9	2	7%			1	1		1	6									
A3050	142	19	10	7%		3		7		1	2				3	3				
A3100B	78	8	4	5%			3	1			3						1			
A3100	62	0	0	0%																
A3501N	12	12	1	8%		1				1	4		1			5				
A3501P	12	10	1	8%				1		2	1		1			5				
A3512N	124	77	2	2%		1	1			3	13	13	35			11				
A3512P	52	4	2	4%				2		1	1									
A3535P	170	17	15	9%	2		1	12									2			
A3540P	206	38	12	6%		7	3	2		7	10				1		8			
A3801A	10	1	0	0%						1										
A3801	50	5	3	6%		1		2		1	1									
A3802	24	11	3	13%				3		7	1									
A4601F	35	0	0	0%																
A4601H	1.013	128	75	7%	1	16	1	57		39	1	8	2			1			1	
A4602	129	73	18	14%		10	5	3	2	11	2	1	38						1	
A3602	144	52	5	3%	1	1	2	1		11			36							
Crate EASY3000	284	3	3	1%		3														
Crate EASY3000B	1	0	0	0%																
Crate EASY3000S	157	3	1	1%		1				2										
Crate EASY4000	169	0	0	0%																
VX1390	698	133	16	2%		8		8		30	43	7	1		2	3			31	
VX1391	86	6	0	0%						2	3	1								
VX1392	80	13	0	0%						4	2	6	1							
VX1393	44	0	0	0%																
A1520P	160	0	0	0%																
TOTAL	5682	1030	305	5,37%	5	99	68	133	3	167	123	48	267	0	4	32	30	0	6	45



LHC Deliveries

Success/Failure Statistics data after LHC start-up (10 September 2008)

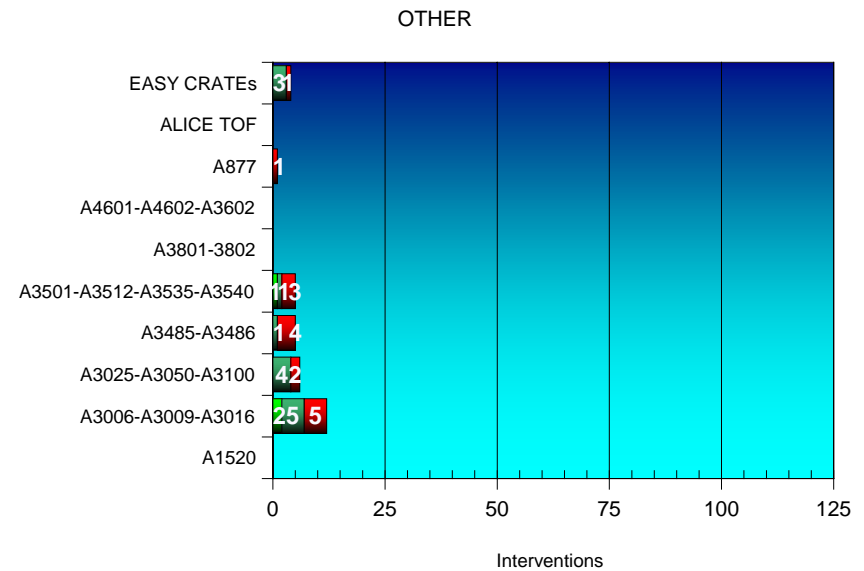
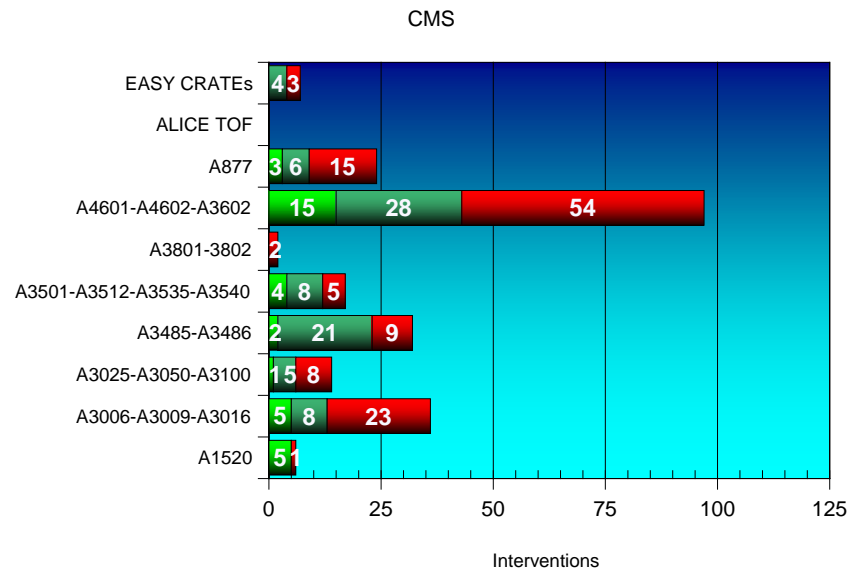
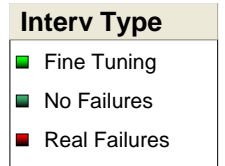
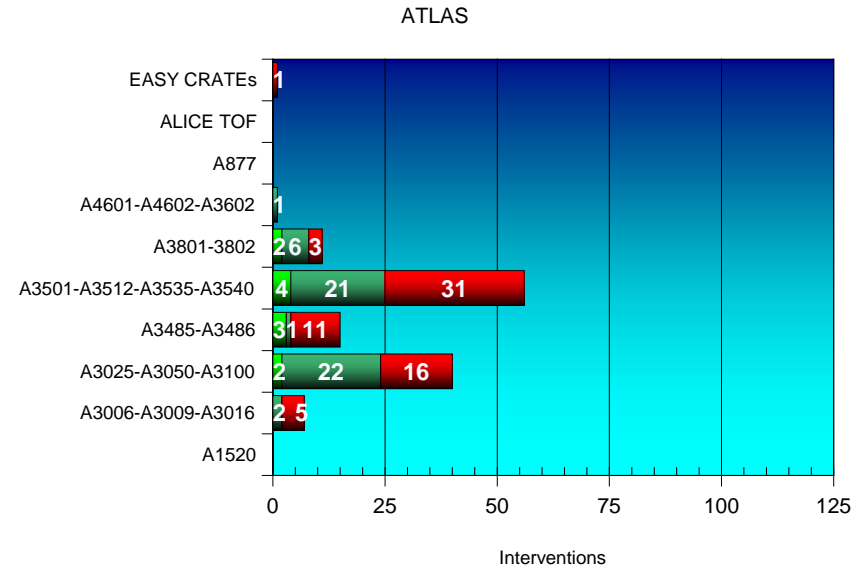
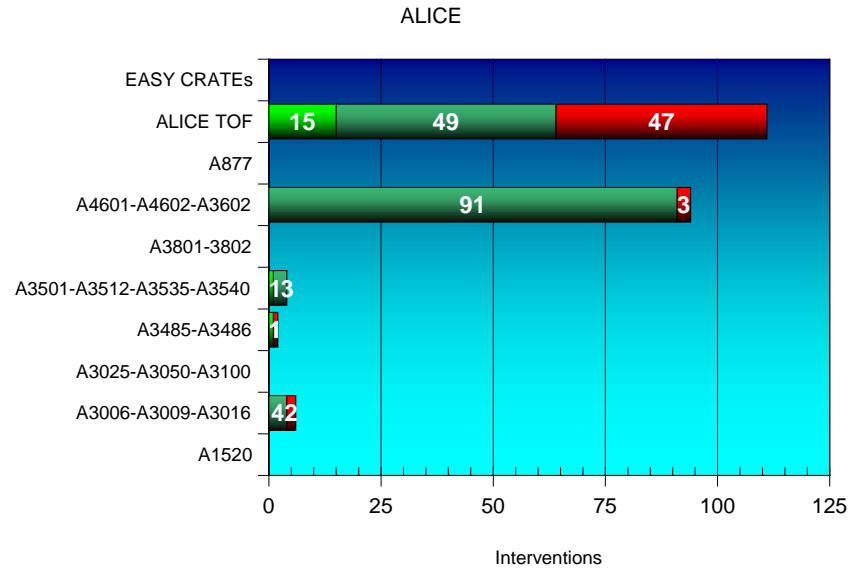


CAEN Interventions - first year after LHC start- up from 10/09/2008 to 10/09/2009

Model	Delivered	Interventions	Real Failures						No Failure					Fine Tuning						
			Total	%	Soldering problems		Component problems		Prototypes	No malfunctioning found	Unproper use	Upgrade Software	Upgrade Hardware	Ripple	Drift (V e/o I)	Calibration	Mechanical problems	Software Bug Fixing	Hardware Bug Fixing	Other
			Real Failure	% Real Failures	Cabling	Bad contacts	Passive components	Active components												
A1676A	206	77	14	7%		1	1	12		3		56	3							1
A3485A	14	1	1	7%				1												
A3485S	8	0	0	0%																
A3485	45	10	6	13%		1		5					1							3
A3486S	70	8	4	6%		3		1					4							
A3486	231	35	14	6%		2	4	8		2	2		14			2				1
A877-8CH	60	6	2	3%				2		3	1									
A877	216	19	14	6%		5	4	5		2					3					
A3006	34	7	6	18%		1	1	4												
A3009B	33	2	0	0%					2	1										
A3009	324	41	23	7%		13	3	7		7	4							1		6
A3016B	29	2	1	3%		1				1										
A3016	114	9	5	4%		4		1		2	1		1							
A3025B	234	33	11	5%		4	2	5		1	3		18							
A3025D	79	3	3	4%		2		1												
A3025	71	12	5	7%			2	3		1	2		4							
A3050D	30	1	1	3%			1													
A3050	142	2	2	1%		1		1												
A3100B	79	3	1	1%				1												2
A3100	62	6	3	5%		2	1						2			1				
A3501N	14	1	0	0%									1							
A3501P	14	1	0	0%						1										
A3512N	126	18	5	4%	1		2	2		4	1	2	1		3	1		1		
A3512P	56	7	5	9%		1		4			2									
A3535P	174	28	14	8%		6	5	3		5	7									2
A3540P	218	27	15	7%		6	2	7	1	7	1				1					2
A3801A	16	1	1	6%				1												
A3801	57	3	1	2%			1				2									
A3802	26	9	3	12%		2	1								2					
A4601F	35	5	0	0%					5											
A4601H	1.057	83	49	5%		13	10	26		6		1	12	1		1	1		3	9
A4602	141	9	5	4%		4		1	1	3										
A3602	154	95	3	2%		1		2												
Crate EASY3000	286	7	4	1%		3	1			2	1									
Crate EASY3000B	1	0	0	0%																
Crate EASY3000S	165	0	0	0%																
Crate EASY4000	170	5	1	1%		1			4											
VX1390	702	21	14	2%		10	2	2		7										
VX1391	87	9	4	5%		1		3												
VX1392	81	13	11	14%		1	1	9		1	1									
VX1393	45	1	1	2%				1												
A1395	154	22	3	2%				3		9			4		6					
A1396	77	45	14	18%			1	13		9			13							9
A1520P	160	6	1	1%				1							4		1			
TOTAL	6097	693	270	4,43%	1	89	46	134	13	81	30	63	169	1	4	16	6	0	5	35

CAEN Interventions - first year after LHC start-up

CAEN Interventions vs Experiment from LHC start-up (10/09/2008) to 10/09/2009

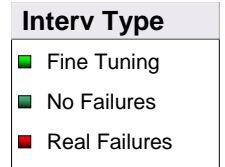
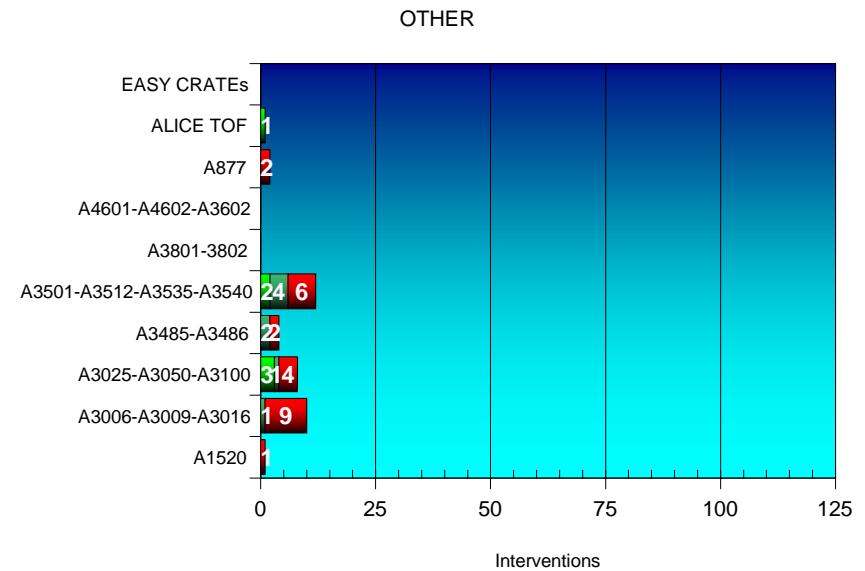
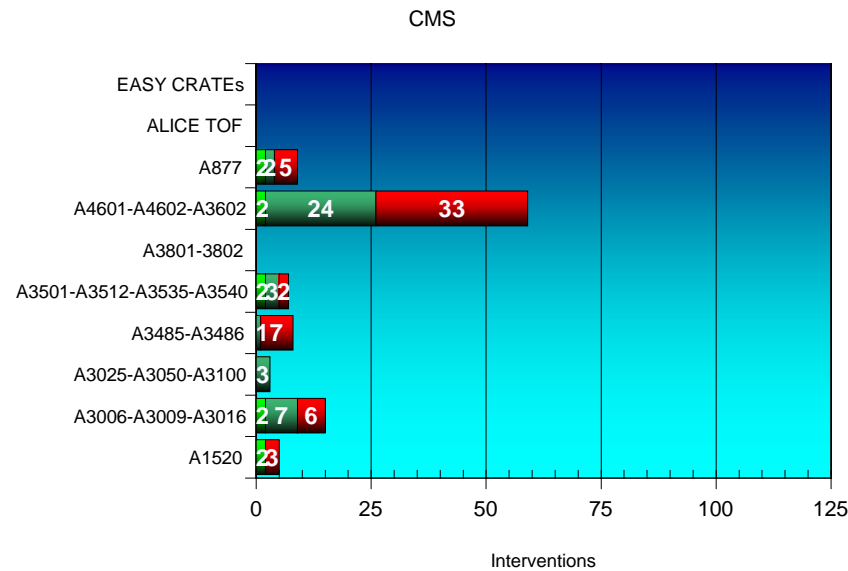
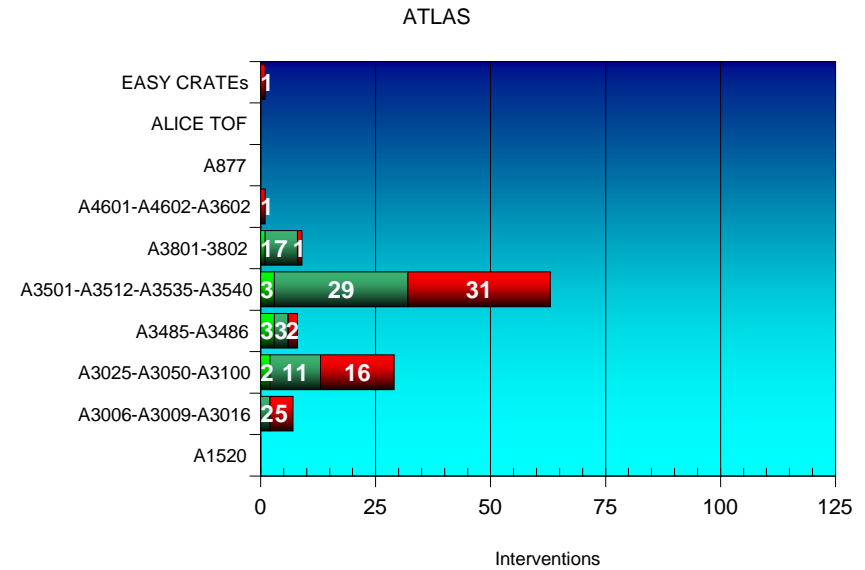
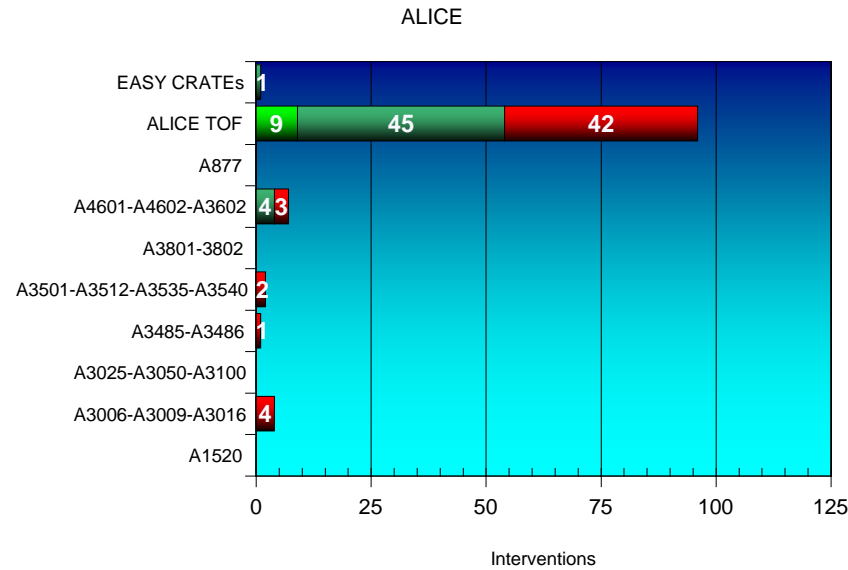


CAEN Interventions - second year after LHC start- up from 11/09/2009 to 10/09/2010

			Real Failures						No Failure					Fine Tuning						
			Total	%	Soldering problems		Component problems		Prototypes	No malfunctioning found	Unproper use	Upgrade Software	Upgrade Hardware	Ripple	Drift (V e/o I)	Calibration	Mechanical problems	Software Bug Fixing	Hardware Bug Fixing	Other
Model	Delivered	Interventions	Real Failure	% Real Failures	Cabling	Bad contacts	Passive components	Active components												
A1676A	209	10	4	2%		1	2	1		1	1	3	1							
A3485A	14	1	1	7%			1													
A3485S	6	0	0	0%																
A3485	49	7	1	2%				1				3							3	
A3486S	70	2	2	3%		1	1													
A3486	233	11	8	3%		1	4	3		2	1									
A877-8CH	60	4	3	5%			3												1	
A877	216	7	4	2%			3	1			1		1							
A3006	35	3	2	6%				2		1										
A3009B	35	6	6	17%		3	2	1												
A3009	329	17	10	3%		5	3	2		4		1			1	1				
A3016B	29	2	2	7%		1		1												
A3016	114	8	4	4%				4					4							
A3025B	235	13	7	3%		1	2	4		3	1		2							
A3025D	84	1	1	1%				1												
A3025	72	3	1	1%		1														
A3050D	30	2	0	0%											1					
A3050	142	2	0	0%							2									
A3100B	84	14	9	11%		1		8											2	
A3100	62	5	2	3%		1	1			2	1				2					
A3501N	14	0	0	0%																
A3501P	14	1	1	7%		1														
A3512N	128	8	3	2%				3		3					1				1	
A3512P	57	10	7	12%			1	6			2								1	
A3535P	182	42	17	9%		3	2	12		4	19				1	1				
A3540P	219	23	13	6%		5	3	5		5	3				1				1	
A3801A	16	0	0	0%																
A3801	57	8	1	2%		1				5	1				1					
A3802	26	1	0	0%						1										
A4601F	35	0	0	0%																
A4601H	1.057	48	29	3%		6	10	13		4	1	12			2					
A4602	145	12	5	3%			4	1			6	1								
A3602	154	7	3	2%		3							4							
Crate EASY3000	288	1	0	0%						1										
Crate EASY3000B	1	0	0	0%																
Crate EASY3000S	168	1	1	1%			1													
Crate EASY4000	170	0	0	0%																
VX1390	704	39	18	3%		1	8	9							7					
VX1391	87	3	2	2%				2												
VX1392	81	4	0	0%						1	3									
VX1393	45	1	0	0%							1									
A1395	158	25	4	3%				4											1	
A1396	79	25	18	23%		1	1	16		20									2	
A1520P	160	6	4	3%			3	1							2					
TOTAL	6153	383	193	3,14%	0	37	55	101	0	62	61	17	16	0	3	9	10	0	0	12

CAEN Interventions - second year after LHC start-up

CAEN Interventions vs Experiment from 11/09/2009 to 10/09/2010



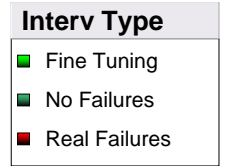
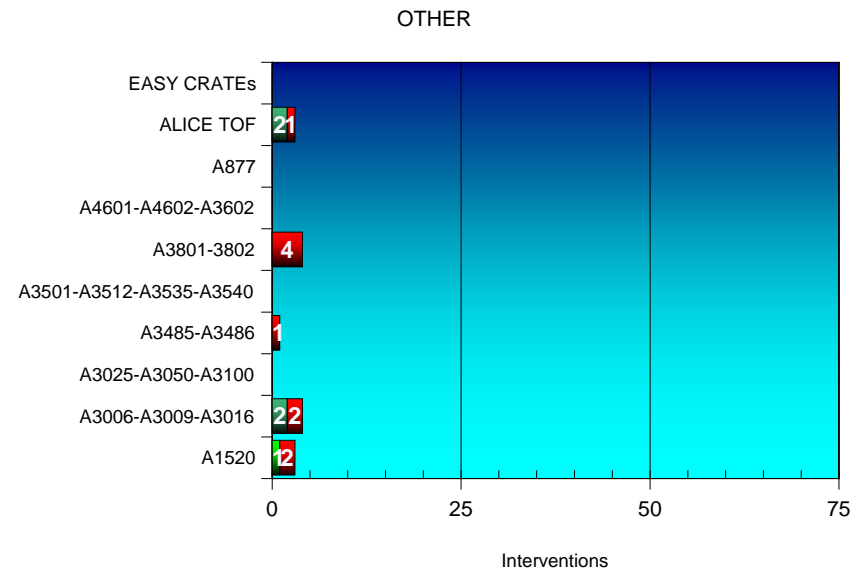
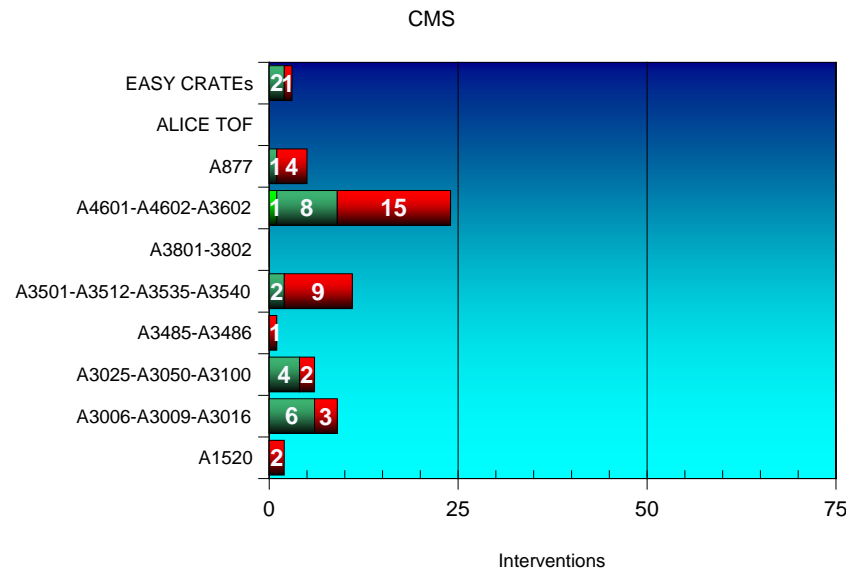
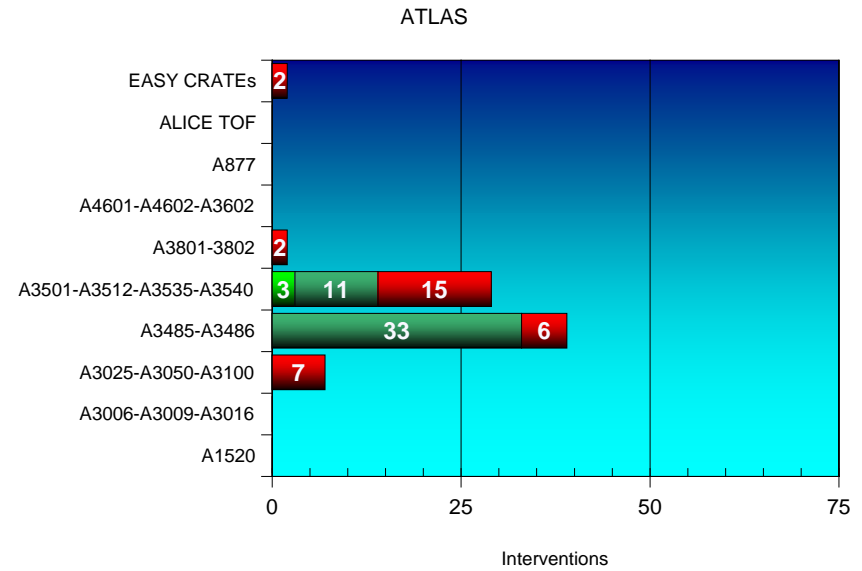
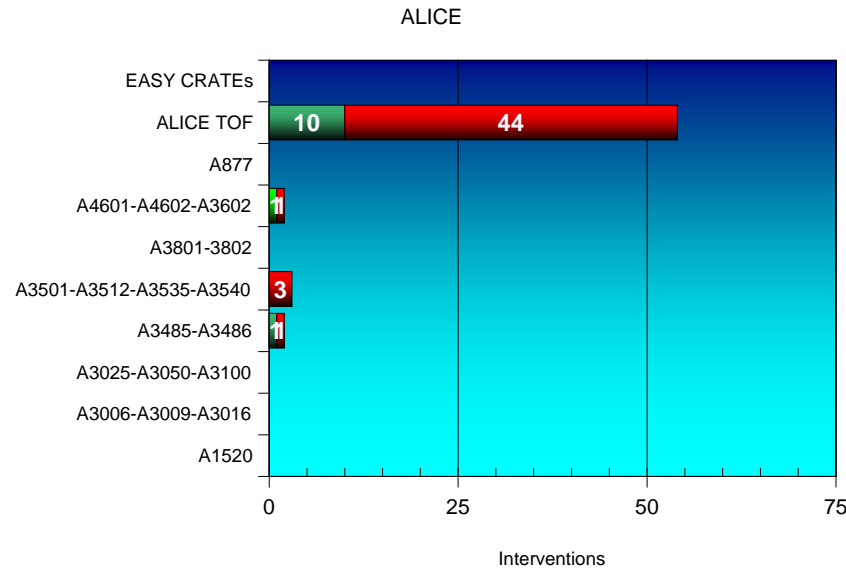
CAEN Interventions - third year after LHC start- up from 11/09/2010 to 10/09/2011

			Real Failures						No Failure					Fine Tuning						
			Total	%	Soldering problems		Component problems		Prototypes	No malfunctioning found	Unproper use	Upgrade Software	Upgrade Hardware	Ripple	Drift (V e/o I)	Calibration	Mechanical problems	Software Bug Fixing	Hardware Bug Fixing	Other
Model	Delivered	Interventions	Real Failure	% Real Failures	Cabling	Bad contacts	Passive components	Active components												
A1676A	211	18	1	0%		1			1	2		14								
A3485A	14	6	2	14%			2				1		3							
A3485S	6	0	0	0%																
A3485	49	33	3	6%		1		2				30								
A3486S	71	0	0	0%																
A3486	234	4	4	2%		2	1	1												
A877-8CH	60	1	1	2%				1												
A877	216	4	3	1%		2	1			1										
A3006	35	0	0	0%																
A3009B	35	3	1	3%			1													
A3009	335	6	2	1%			1	1		1										
A3016B	29	0	0	0%																
A3016	115	4	2	2%			1	1			1									
A3025B	239	7	7	3%				7												
A3025D	84	0	0	0%																
A3025	74	4	2	3%			2													
A3050D	30	0	0	0%						1	1									
A3050	142	2	0	0%						2										
A3100B	84	0	0	0%																
A3100	63	0	0	0%																
A3501N	14	0	0	0%																
A3501P	14	2	2	14%			1	1												
A3512N	130	11	9	7%	1	1		7												
A3512P	61	8	5	8%			1	4		2	1									
A3535P	182	7	6	3%			4	2		1										
A3540P	219	15	5	2%		4		1		5	2								3	
A3801A	16	0	0	0%																
A3801	59	5	5	8%			1	4												
A3802	28	1	1	4%		1														
A4601F	35	0	0	0%																
A4601H	1.061	24	15	1%			6	9		3		5							1	
A4602	145	0	0	0%																
A3602	154	2	1	1%			1								1					
Crate EASY3000	293	5	3	1%		1	2				2									
Crate EASY3000B	2	0	0	0%																
Crate EASY3000S	169	0	0	0%																
Crate EASY4000	170	0	0	0%																
VX1390	720	26	16	2%			1	15			10									
VX1391	87	2	2	2%				2												
VX1392	81	1	0	0%								1								
VX1393	45	1	1	2%				1												
A1395	158	0	0	0%																
A1396	79	27	26	33%		4	1	21		1										
A1520P	160	5	4	3%			2	2							1					
TOTAL	6208	234	129	2,08%	1	18	28	82	1	20	24	16	38	0	1	1	0	0	0	4



CAEN Interventions - third year after LHC start-up

CAEN Interventions vs Experiment from 11/09/2010 to 10/09/2011



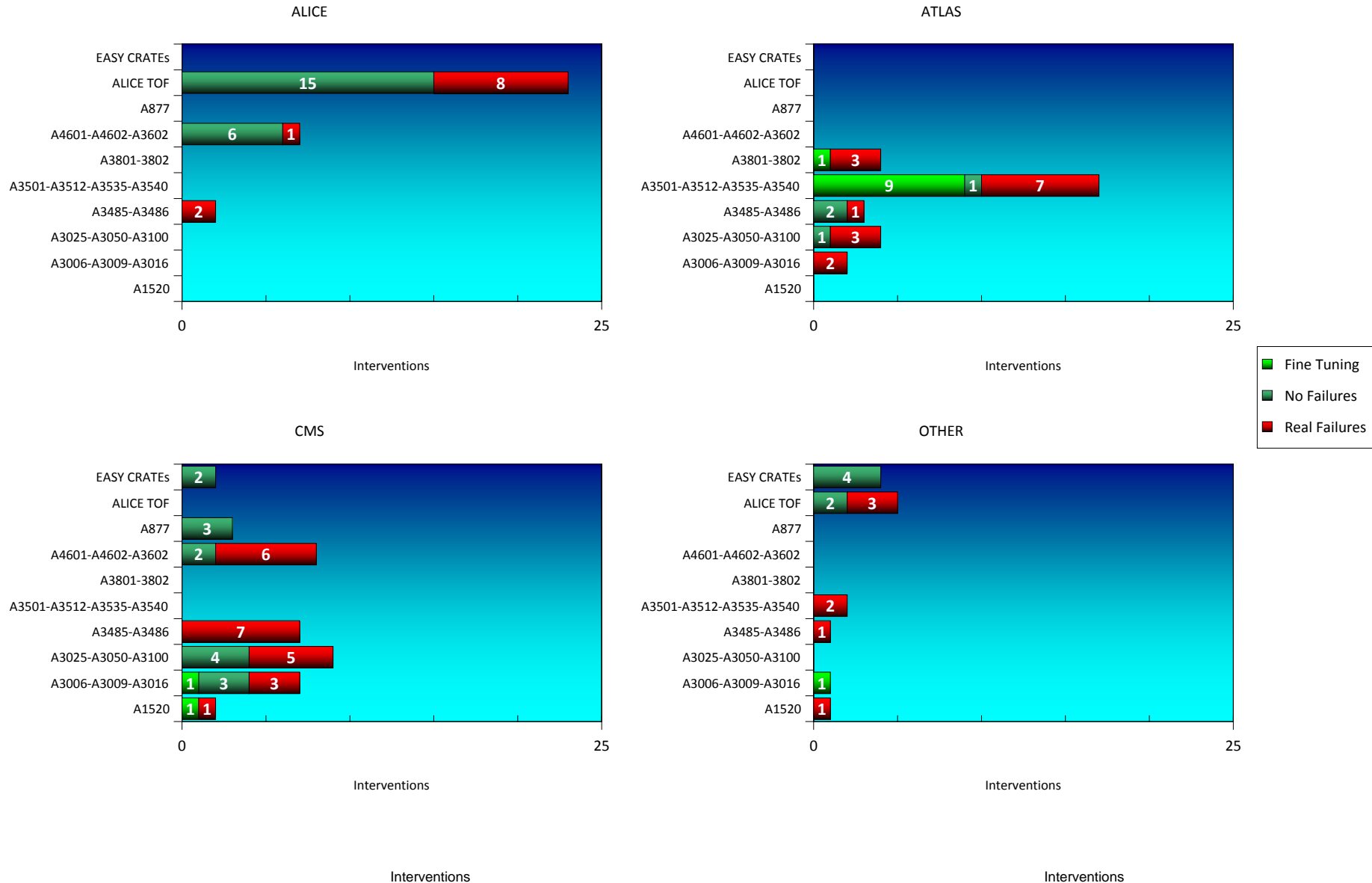
CAEN Interventions - fourth year after LHC start- up from 11/09/2011 to 10/07/2012

			Real Failures						No Failure					Fine Tuning						
			Total	%	Soldering problems		Component problems							Ripple	Drift (V e/o I)	Calibration	Mechanical problems	Software Bug Fixing	Hardware Bug Fixing	Other
Model	Delivered	Interventions	Real Failure	% Real Failures	Cabling	Bad contacts	Passive components	Active components	Prototypes	No malfunctioning found	Unproper use	Upgrade Software	Upgrade Hardware							
A1676A	214	57	3	1%		1	1	1			1		53							
A3485A	14	2	2	14%			1	1												
A3485S	6	0	0	0%																
A3485	49	1	1	2%				1												
A3486S	71	4	4	6%		1	1	2												
A3486	234	6	4	2%		1	2	1		1	1									
A877-8CH	60	1	0	0%						1										
A877	216	2	0	0%						2										
A3006	37	2	1	3%		1				1										
A3009B	35	0	0	0%																
A3009	335	5	2	1%		1	1				1				1	1				
A3016B	29	1	1	3%				1												
A3016	115	2	1	1%		1					1									
A3025B	239	4	3	1%		1	1	1		1										
A3025D	84	0	0	0%																
A3025	74	0	0	0%																
A3050D	30	0	0	0%																
A3050	142	8	5	4%		1	1	3		1	2									
A3100B	84	0	0	0%																
A3100	63	1	0	0%					1											
A3501N	15	0	0	0%																
A3501P	15	0	0	0%																
A3512N	130	0	0	0%																
A3512P	61	2	2	3%			1	1												
A3535P	182	4	4	2%		1	2	1												
A3540P	219	13	3	1%		1	2			1					6				3	
A3801A	16	0	0	0%																
A3801	59	4	3	5%		1		2												
A3802	28	0	0	0%												1				
A4601F	35	0	0	0%																
A4601H	1.061	8	6	1%			3	3			2									
A4602	145	0	0	0%																
A3602	154	7	1	1%		1							6							
Crate EASY3000	293	5	0	0%									5							
Crate EASY3000B	2	1	0	0%						1										
Crate EASY3000S	169	0	0	0%																
Crate EASY4000	170	0	0	0%																
VX1390	720	7	3	0%				3			4									
VX1391	87	3	1	1%				1												
VX1392	81	1	0	0%							1									
VX1393	45	1	1	2%				1												
A1395	158	0	0	0%																
A1396	79	16	6	8%				6		1			9							
A1520P	160	3	2	1%			1	1											1	
TOTAL	6215	171	59	0,95%	0	12	17	30	1	12	11	2	73	0	0	8	1	0	0	4



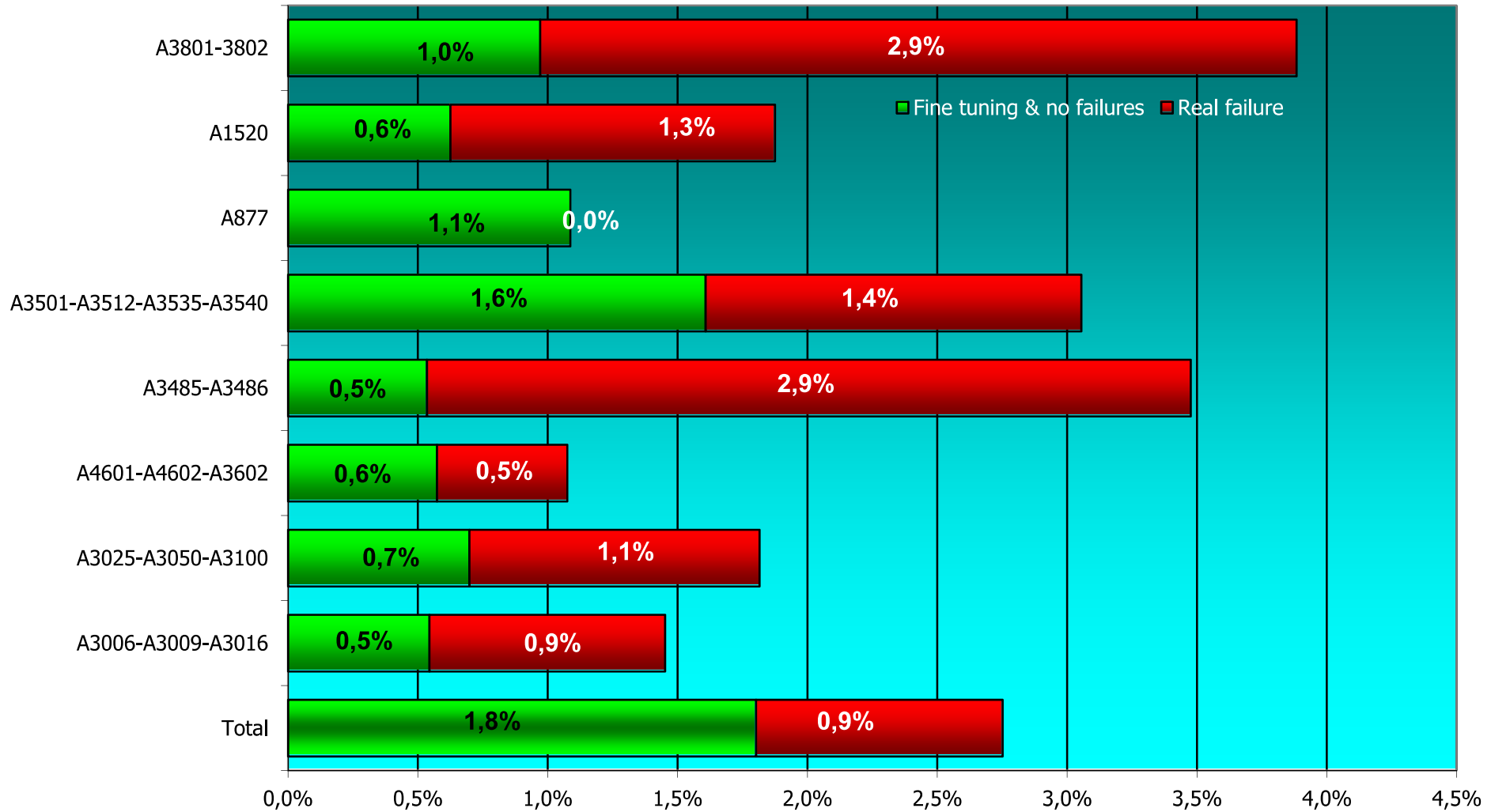
CAEN Interventions - fourth year after LHC start-up

CAEN Interventions vs Experiment from 11/09/2011 to 10/07/2012

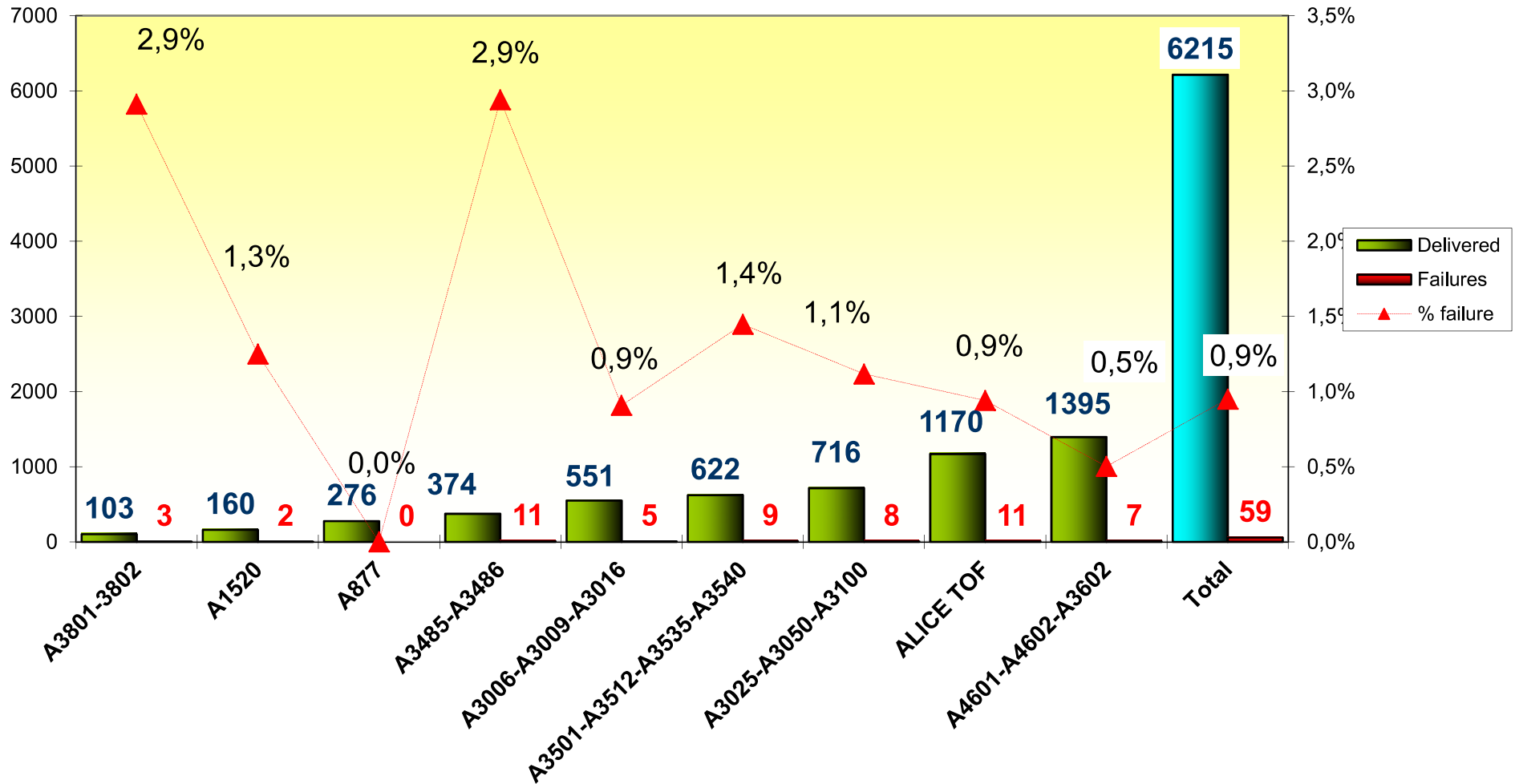


CAEN Interventions - fourth year after LHC start- up from 11/09/2011 to 10/07/2012

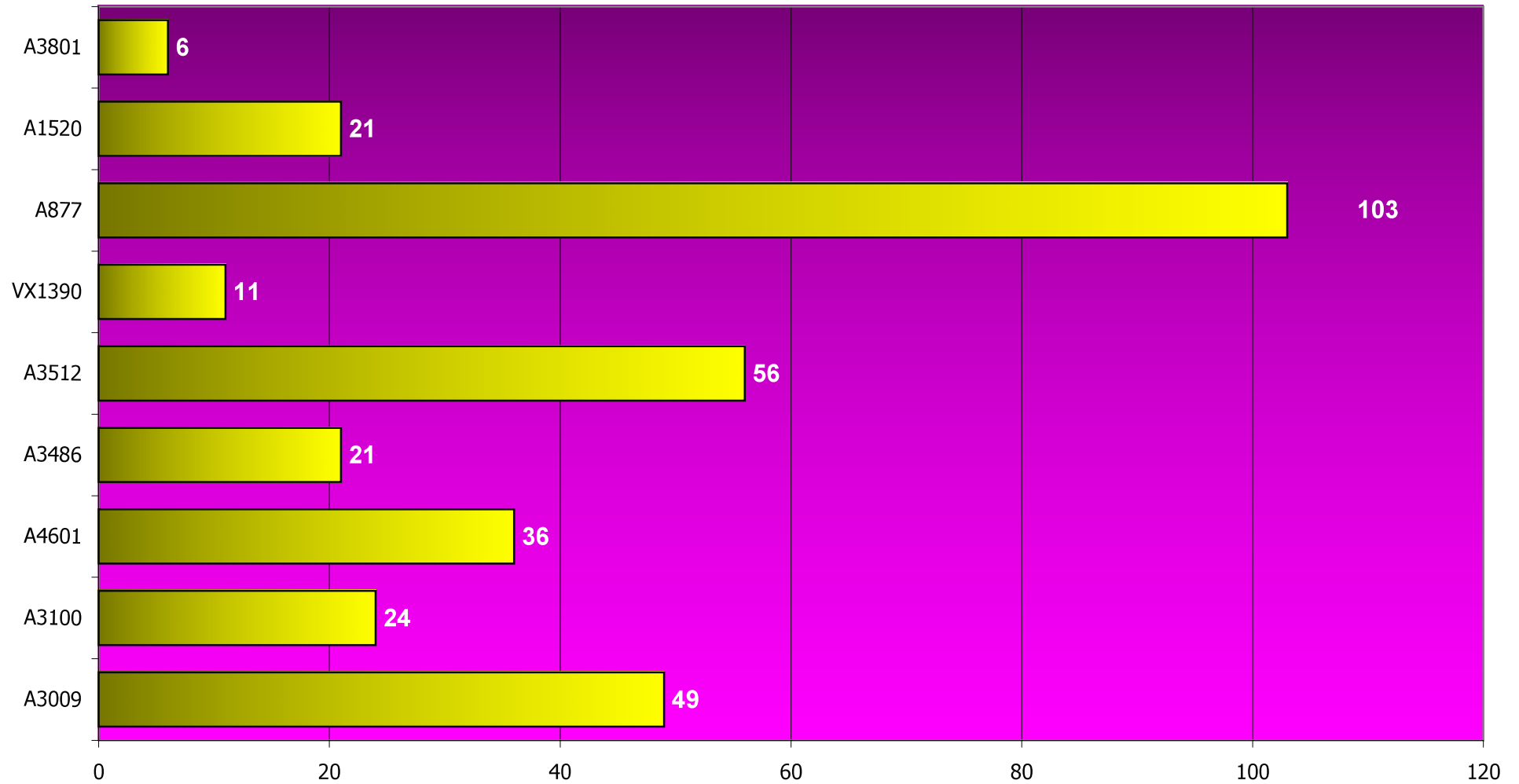
(% wrt delivered)



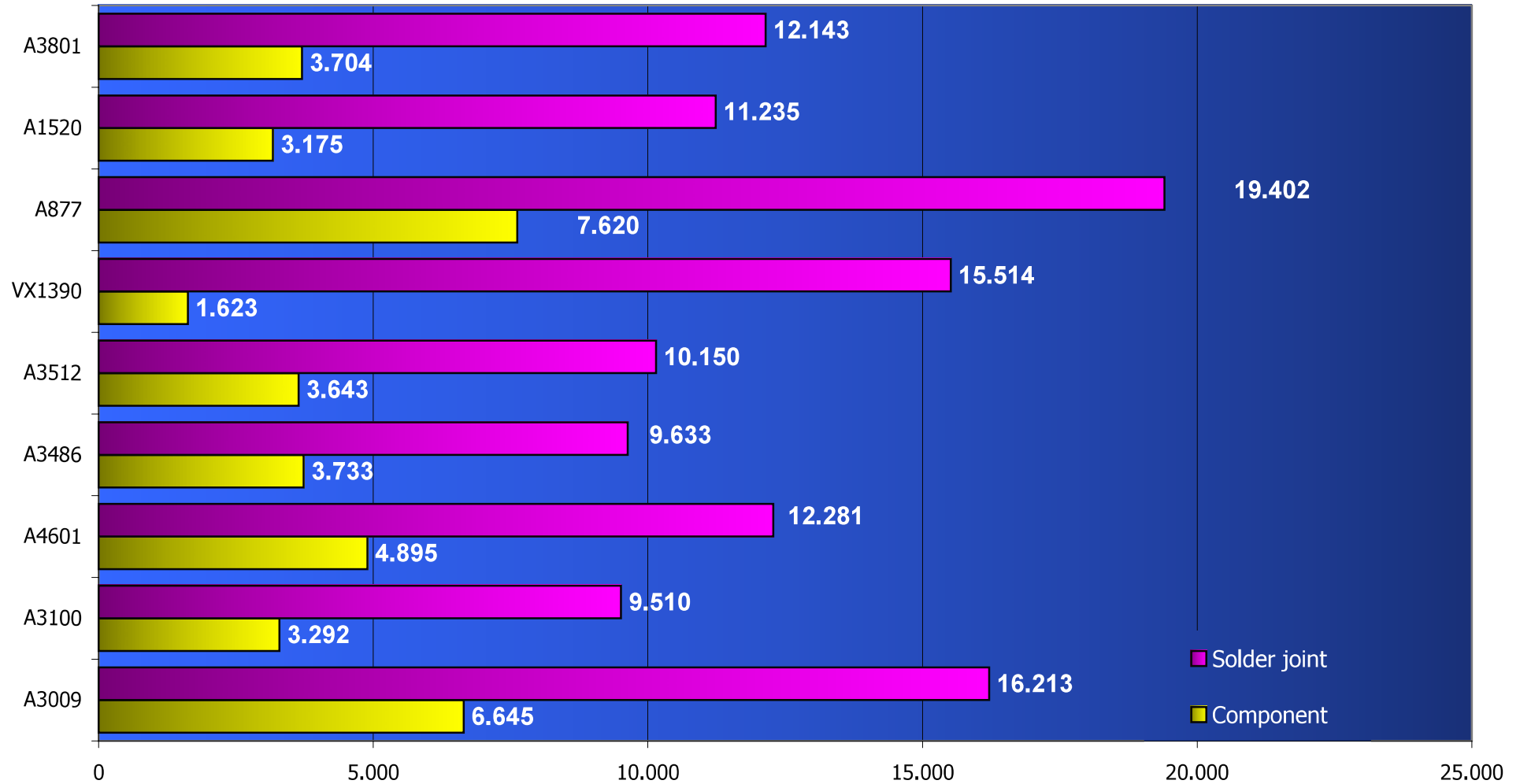
CAEN Interventions - fourth year after LHC start- up from 11/09/2011 to 10/07/2012 Real Failure



Sub assembly quantity (per module)

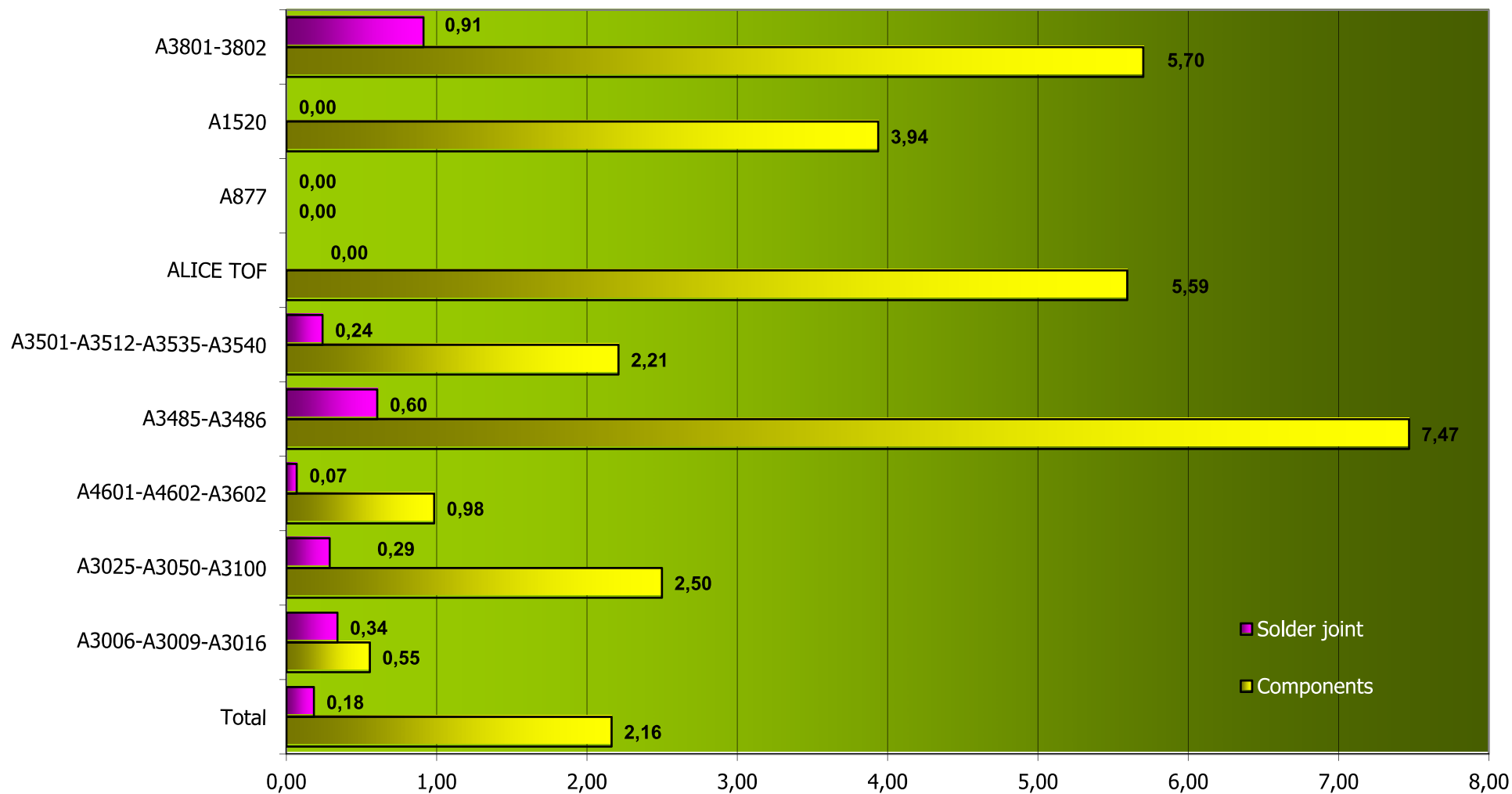


Components and solder joints quantity (per module)



CAEN Interventions - fourth year after LHC start-up from 11/09/2011 to 10/07/2012

Real Failure (ppm)



Intervents distribution (No failures, Fine tuning)

