

DE LA RECHERCHE À L'INDUSTRIE



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STATUS OF 6X6X6 m³

LEM PRODUCTION AND QA/QC FOR CRP#1 PROPOSED LEM « CONSERVATIVE » DESIGN TO MAXIMIZE HIGH-VOLTAGE CAPABILITIES

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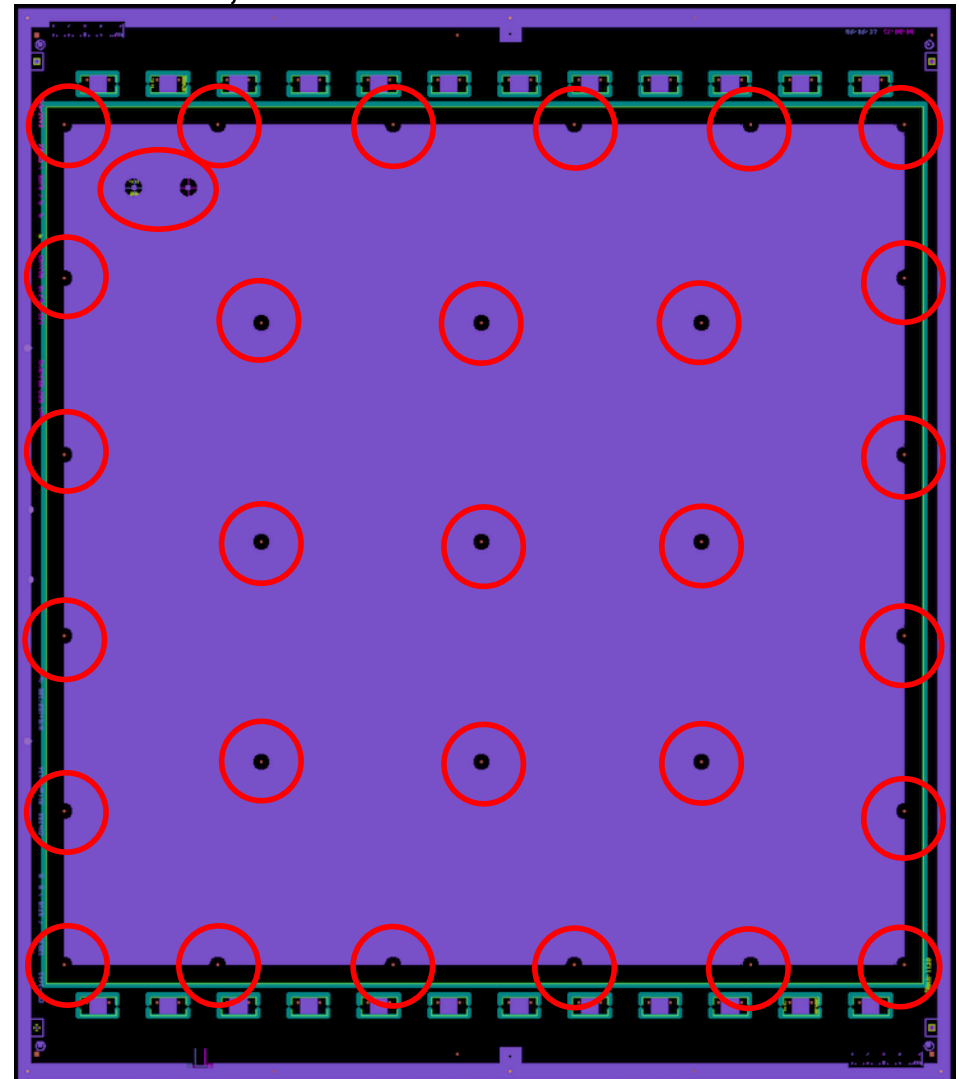
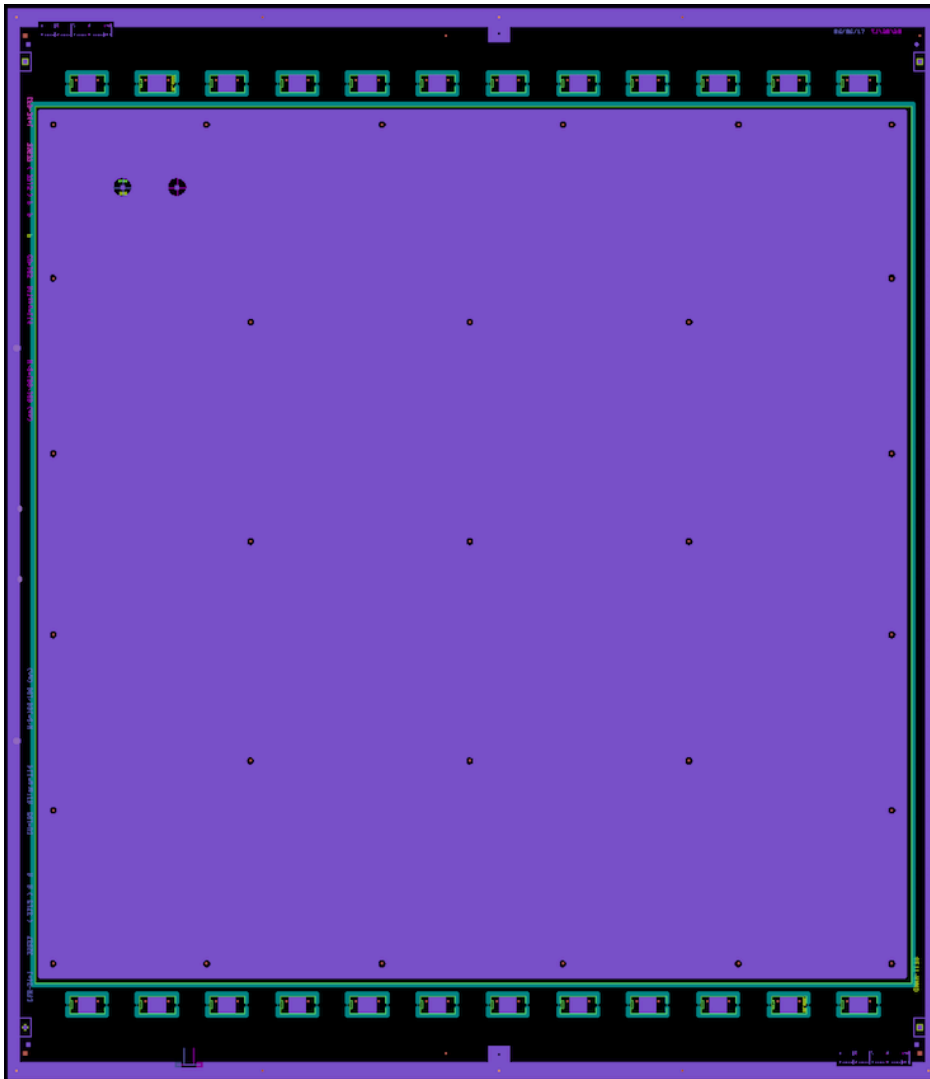


WA105 integration vidyo meeting, october 6th 2017

CFR-34

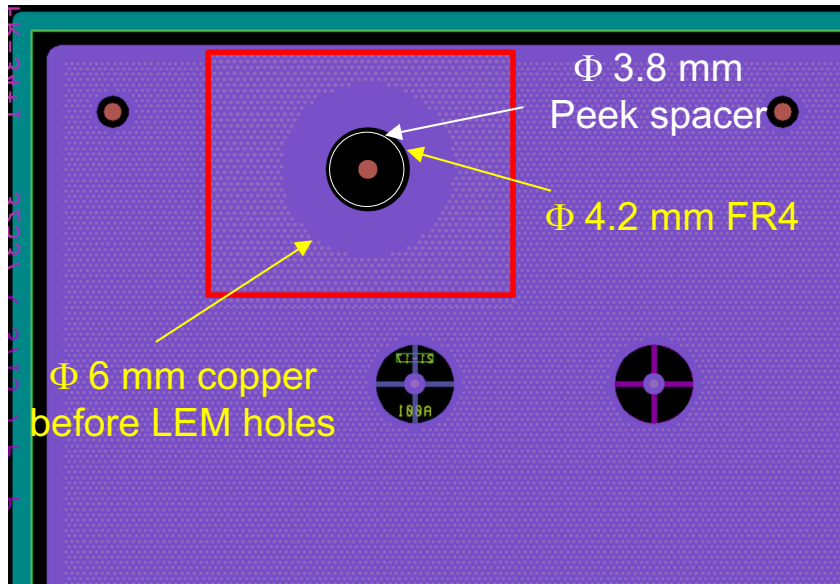
Modified version

Around screw holes, HV connections & LEM borders

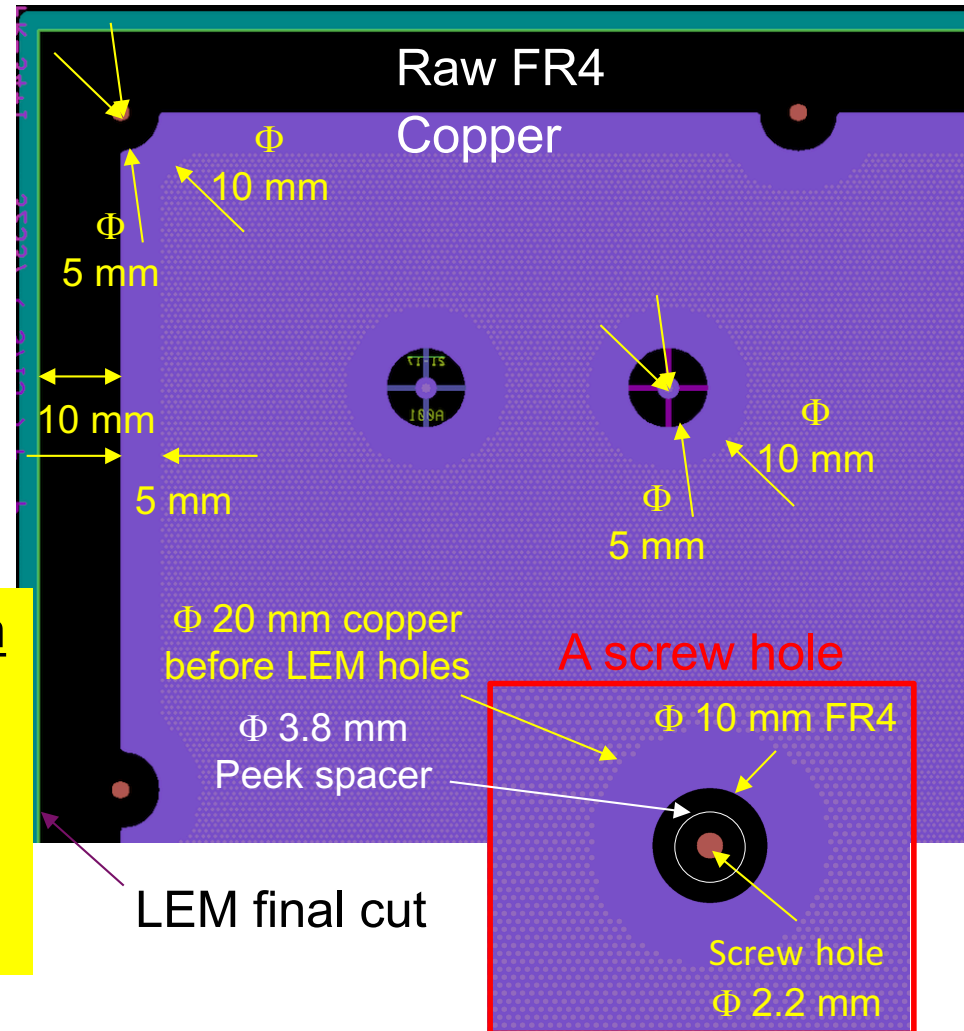


- 2 mm FR4 + 2 mm plain copper borders increased to 5 mm FR4 + 5 mm plain copper
- Same border transitions around screw holes and HV connections

CFR-34 LEM production design



Proposed « conservative » design



Goal of this modified « conservative » design

Is the 3200 V limit (only) due to insulation issues on LEM borders, around screw holes and around the 2 High-voltage connections ?



ELTOS LEM PRODUCTION STATUS AND LEM PRODUCTION SCHEDULE



■ 32 LEMS were delivered, 25 out of them passed the QA/QC tests.

■ Production is paused : a batch of 4-6 LEMS should be delivered soon to complete the CRP#1

CEA contract 4000759184 for the production of 78 LEMs of WA105

A. Delbart (CEA) / R. Pinamonti (CEA)
last update date 06 October 2017 by A. Delbart

Batch#	LEM S/N	shipment to CEA	ELTOS QA/QC	QA/AC at saclay	delivered	qualified	paid	QA/QC comments comments	Commercial comments
0	A001-A002	23 June 2017	26 June 2017	passed (08/04/2017)	2	2	6	A002 needed 2 cleaning-drying-HV QC	6 paid
1	A003-A008	02 August 2017	04 August 2017	6 LEMs OK	6	6	6	A003,A006 A008 needed second cleaning-drying-HV QC	Invoice and paiement issued
2	A009-A014	scheduled 28 august	28 August 2017	5 LEMs OK	5	5		A009 under repair at ELTOS. Global "drop" of "visual" quality A011, A012 needed second cleaning-drying-HV QC	to be delivered : A009
3	A015-A020	11 September 2017	5 LEMs 11/09/2017	planned for 22/09 A015, A016, A017, A019, A020	5	5		"visual quality" is good. A016 needed 2 HV QA/QC	delivered : A015, A016, A017, A019, A020, A022, A023, A024 to be delivered : A018, A021, A025 & A026
4	A021-A026	11 September 2017	3 LEMs 11/09/2017	planned for 22/09 : A022 planned for 29/09 : A023-A024	3	3		"visual quality" is good.	
5	A027-A032	19 September 2017	6 LEMs on 19/09	planned for 29/09 : A027-A030	6	4			
6	A033-A038	19 September 2017	5 LEMs on 19/09		5			A037 : a gold deposit on a border / A038 : a suspicious mark	to be delivered : A033
7	A039-A050	scheduled 29 september						Production PAUSED to deal with 3200 V HV limit	
8	A051-A062	scheduled 13 october							
9	A063-A078	scheduled 27 october							
Total					32	25			

LEM production & QA/QC status

A. Delbart
last update date 11 September 2017

LEM S/N	ELTOS QA/QC	CEA visual inspection before cleaning	CEA visual inspection After cleaning	4500V, I<2 nA	3200V, I<2 nA	Localisation	Comments
				HV in synthetic air	HV in 3,3 bar Argon		
A001	23 June 2017	Passed	Passed	Passed	Passed	Boîte 1 stockage / labo ESP 534	A001 was not polymerized at 160 °C. To polymerized at 180° for test
A002	23 June 2017	Passed	Passed	Passed	Passed	Boîte 1 stockage / labo ESP 534	"dark" deposit. A second cleaning-drying-HV test was needed. Colle sur 1/2 soudure
A003	02 August 2017	Passed	Passed	Passed	passed	mettre en boîte de transport CERN (3)	"dark deposit" cleaned. 2nd Test OK 19/09/2017
A004	02 August 2017	Passed	Passed	4100V / not passed	Passed	en boîte de transport CERN (1)	9 nA increasing current in synthetic air. OK in Argon
A005	02 August 2017	Passed	Passed	passed	Passed	en boîte de transport CERN (1)	
A006	02 August 2017	Passed	Passed	Passed	Passed	en boîte de transport CERN (2)	Same kind of "dark" deposit around Teflon supporting pillar as A002. Cleaned, HV test OK 08/09/2017
A007	02 August 2017	Passed	Passed	passed	Passed	en boîte de transport CERN (1)	
A008	02 August 2017	Passed	Passed	passed	passed	mettre en boîte de transport CERN (3)	"dark deposit" cleaned. 2nd Test OK 19/09/2017
A009	28/08/2017/ Not passed						under repair at ELTOS (a rim is missing- hole filling with epoxy)
A010	28 August 2017	not Passed	Passed	passed	Passed	en boîte de transport CERN (2)	"suspicious" dark zones. Plus de traces après nettoyage
A011	28 August 2017	not Passed	remaining defects	passed	passed (but difficult)	mettre en boîte de transport CERN (3)	a hole is partially filled. Dark stains and partially filled hole suppressed after cleaning. 2 dark spots remain
A012	28 August 2017	Passed	Passed	passed	Passed	mettre en boîte de transport CERN (4)	some dark stains cleaned. A brown zone around a screw hole
A013	28 August 2017	not Passed	Passed	passed	Passed	en boîte de transport CERN (2)	"suspicious" dark zones. A suspicious mark (lack of copper ?) and a brown mark
A014	28 August 2017	not Passed	Passed	passed	Passed	mettre en boîte de transport CERN (4)	some dark stains cleaned. A brown zone around a screw hole
A015	11 September 2017	Passed	20 September 2017	passed	Passed		
A016	11 September 2017	Passed	20 September 2017	passed	Passed		3,3 bar HV not passed the 2nd time BUT passed after pumping again (without dismount)
A017	11 September 2017	Passed	20 September 2017	passed	Passed		
A018				passed	Passed		To be delivered
A019	11 September 2017	Passed	20 September 2017	passed	Passed		
A020	11 September 2017	Passed	20 September 2017	passed	Passed		
A021							To be delivered
A022	11 September 2017	Passed	20 September 2017	passed	Passed		
A023	11 September 2017	Passed		passed	Passed		
A024	11 September 2017	Passed		passed	Passed		
A025	19 september 2017						To be delivered
A026	19 september 2017						To be delivered
A027	19 september 2017			passed	Passed		
A028	19 september 2017			passed	Passed		
A029	19 september 2017			4500V/55 nA	Passed		
A030	19 september 2017						
A031	19 september 2017						
A032	19 september 2017						
A033							To be delivered
A034	19 september 2017						
A035	19 september 2017						
A036	19 september 2017						
A037	19 september 2017						
A038	19 september 2017						
A039-A050	scheduled 29 september	PRODUCTION PAUSED !					
A051-A062	scheduled 13 october						
A063-A078	scheduled 27 october						