BMU Cabling

Status of MB and RB cables starting from detector and racks inside UXC55

CMS week - TB – 20.09.2005

Fabio Montecassiano

INFN PD @ EP/CMM

Contents

- Cables status
- Racks status
- User part inside the CMS labels
- Installation of cables
- Conclusion

Cables starting from detector

- all leads and screens shall be earthed on both ends
  THIS IS TO BE APPROVED !!!

		MB										RB							
		MB.LV.mc	MB.LV.fe	MB.HV	MB.OF.ttc-mc	MB.OF.sc	MB.CA.sc	MB.MCA.vetc	MB.CA.tr	MB.CA.ro		RB.LV.fe-8	RB.LV.fe-12	RB.HV	RB.CA.sgn	RB.CA.dcs-6	RB.CA.dcs-9	RB.MCA.t-sens	
	Responsable person	*Willmott*	*Pegoraro*	*Borsato*	*Bellato*	*Bellato*	*Bellato*	*Bellato*	*Odorici*	*Willmott*		*Ranieri*	*Ranieri*	*Ranieri*	*Ranieri*	*Piccolo*	*Piccolo*	*Piccolo*	
	Status of the cable only	*defined*	*defined*	*defined*	*defined*	*defined*	*defined*	*defined*	*defined*	*defined*		*defined*	*defined*	*defined*	*defined*	*defined*	*defined*	*defined*	
	Cable's diameter [mm]	17.35	11.5	16	3	3.2x1.6	5	8.6	7.4			8.4	10.5	8.05	10	6	6.6	9.6	
	min. static bend Radius [mm]	145	92	160	30	25	40	50	29			55	65	50	65	33	38	55	
	min. repeat. bend R (esteem.) [mm]	209	138	192	30	50	60	100	58			101	126	97	120	129	129	120	
	Weight [g/m]	658	245	310	4.2	16		102	64			134	198	76	142	52	67	129	
	Supplier	Novacavi	Intercond	KERPEN	UNIFIBRE	UNIFIBRE	CERN	Novacavi	Dätwyler			Novacavi	Novacavi	Novacavi	Nov./Tecn.	Novacavi	Novacavi	Novacavi	
	Type	P0228_04	#RCF1562/S	SL-V2YCH	B2SM-MUST-01	B2SMTMMTM01	04.21.51.05!	P0885_04 R	UNINET 6702 4p			8R3141	12R3117	4R3142	40R3178	P0869_04-1	P0869_04-2	P0869_04-3	
	Cable description	RS-4w+2w+2t	RS-4w+4w+6w	RS-56w	1 fib/cable	2 fib/cable	RS-1t	MC-5x 1t	CAT6			RS-8w	RS-12w	RS-4w	RST-20p	RST-6p	RST-9p	RST- 6x 1t	
	Dis. power (worst) [W/m]	5	0.6	-	-	-	-	-	-			0.2	0.3	-	-	-	-	-	
	Installation's kind	*PS*	*PS*	*HV*	*Fiber*	*Fiber*	*CU-sgn*	*CU-sgn*	*CU-sgn*			*PS*	*PS*	*HV*	*CU-sgn*	*CU-sgn*	*CU-sgn*	*CU-sgn*	
	From *(Detectors or yoke's boxes)*	yk.PC	MB.SB	yk.JB	MB.MC	MB.MC	MB.MC	MB.MC	MB.MC	MB.MC		RB	RB	RB	RB	RB	RB	RB	
	To *(Towers' crates or PPanels)*	↓ rk's crate:	↓ rk's crate:	↓ rk's crate:	↓ rk's crate:	↓ rk's PP:	↓ rk's crate:	↓ rk's crate:	↓ rk's crate:	↓ rk's crate:		↓ rk's crate:	↓ rk's crate:	↓ ft's PP:	↓ rk's crate:	↓ rk's crate:	↓ rk's crate:	↓ rk's crate:	
	name in 'RACKs LAYOUT'	DT LV	DT LV	DT HV	DT T/R Sec Col	DT Slow Ct PP	DT T/R Sec Col	DT T/R Sec Col	DT T/R Sec Col	DT T/R Sec Col		RPC LV	RPC LV	RPC - HV	RPC LBC	RPC LBC	RPC LBC	lw RPC LV	
	COMMENT				4 groups of L max 1Km extra in rack		RS 485 daisy 2 sect.	Has to follow TR/RO rout.	same cable & connectors									T probe Sect. bundle	
	estim. **x-sect/sector**-w/o connec [cm²]	13.5	6	30.5	0.5	0.5	0.2	0.8	5	5	= **65**	4	1.25	5.5	82.5	2	0.5	1	= **100**
W0	**N. cables on W0**	50	50	136	50	50	56	50	100	100	= 642	62	12	96	944	62	12	62	= 1250
	spares to be installed	0	4	4	24	4	0	0	4		= 40	0	4	4	0	0	0	0	= 8
	Medium length (estim.) [m]	20	20	15.5	~~35~~	30	44x4m+12*25m	32	30	30		20	20	30	20	20	20	24	
	TOT. LENGTH with spares [m]	1000	1080	2170	~~2590~~	1620	480	384	3120	3000	= 15444	1240	320	3000	18880	1240	240	288	= 25208
W±1	**N. cables on W±1**	50	50	136	50	50	56	50	100	100	= 642	62	12	96	944	62	12	62	= 1250
	spares to be installed	0	4	4	24	4	0	0	4		= 40	0	4	4	0	0	0	0	= 8
	Medium length (estim.) [m]	16	16	15.5	~~35~~	27	44x5m+12*30m	32	27	27		15	15	20	15	15	15	22	
	TOT. LENGTH with spares [m]	800	864	2170	~~2590~~	1458	480	384	2808	2700	= 14254	930	240	2000	14160	930	180	264	= 18704
W±2	**N. cables on W±2**	50	50	136	50	50	56	50	100	100	= 642	62	12	96	944	62	12	62	= 1250
	spares to be installed	0	4	4	24	4	0	0	4		= 40	0	4	4	0	0	0	0	= 8
	Medium length (estim.) [m]	16	16	15.5	~~35~~	27	44x5m+12*30m	32	27	27		15	15	20	15	15	15	22	
	TOT. LENGTH with spares [m]	800	864	2170	~~2590~~	1458	480	384	2808	2700	= 14254	930	240	2000	14160	930	180	264	= 18704
ALL 5	**N. cables on all WHEELS**	250	250	680	250	250	280	250	500	500	= 3210	310	60	480	4720	310	60	310	= 6250
	% vs. the total MB+RB+Align %	2.6%	2.6%	7.0%	2.6%	2.6%	2.9%	2.6%	5.1%	5.1%	= **32.9%**	3.2%	0.6%	4.9%	48.4%	3.2%	0.6%	3.2%	= **64.1%**
	MIN. LENGTH *to be installed* [m]	4200	4200	10540	6900	6900	2400	8000	13800	13800	= 70740	4960	960	10560	75520	4960	960	6944	= 104864
	% vs. the total MB+RB+Align %	2.4%	2.4%	5.9%	3.9%	3.9%	1.3%	4.5%	7.8%	7.8%	= 39.7%	2.8%	0.5%	5.9%	42.4%	2.8%	0.5%	3.9%	= 58.9%
	spares to be installed	0	20	20	120	20	0	0	20		= 200	0	20	20	0	0	0	0	= 40
	TOT. LENGTH to buy [m]	4200	4536	10850	~~12950~~	7452	2400	1950	14352	13800	= 72490	4960	1280	11000	75520	4960	960	1500	= 100180

MB Total	RB Total	MB+RB TOTAL
		159 [cm²]
		1892 cables
		48 spares
		40.7 [Km]
		1892 cables
		48 spares
		33 [Km]
		1892 cables
		48 spares
		33 [Km]
		9460 cables
		97.1%
		175.6 [Km]
		98.6%
		240 spares
		173 [Km]

Names Legenda

The **UPPER CASE** initial part follows the CMS' Dbase guidelines.
- LV: power supply
- HV: power supply
- CA: copper signal
- OF: Optical Fiber

The **lower case** ending part comes from the MU local name.

FROM/TO Legenda
- JB: Junction Box
- MB: Muon DT Barrel detector
- MC: MiniCrate
- PC: Patch Connector
- PP: patch panel
- RB: RPC Barrel detector
- SB: Split Board

- ft: foot (or X2 level in W0)
- rk: rack
- yk: yoke

NOTES

* GREEN numbers are released. **We assume that they will not change!**
* ORANGE numbers are good estimation
* RED numbers are pure estimation
* **NOT GREEN CELLS** are DANGEROUS !! ==> SEND ME INFORMATION !

See http://cern.ch/Fabio.Montecassiano/pub_doc/CABLES/cables_detector-towers.pdf for updates.

* CMS GLIMOS says that the cables' color it's VERY IMPORTANT for safety issues.
  We have to buy ***BLUE*** cables or to demonstrate why we can't.
  Anyway, **HV cables** have to be **red**
* ***Spares*** could be installed during the main installation or after, when needed.
  THE RESPONSABLE OF EACH CABLE HAS TO PROPOSE THESE Q.TY ASAP !
  Each responsable person have to check his cables and signal any changes early!

MB+RB+Alig. cables
GRAN TOTAL
9746 cables
+
240 spares
~: **175** [Km]

Procurement for cables starting from detector - 1/2

- **HV cables** (**12**%)
  > **MB** (6%) Fully procured and delivered at CERN.
  > **RB** (6%) Fully procured and delivered at CPE (IT).
- **LV cables** (**8**%).
  > **MB** (4.5%) Fully procured and delivered at CERN.
  > **RB** (3.5%) Fully procured and delivered at CPE (IT).
- **Optical Fibers** (**8**%)
  > **MB** (8%) Two wheels already cut. The rest is ready to be cut at UNIFIBRE (IT).
  > **RB** (0%) *None*.
- **Signal cables** (**71**%)
  > **MB** (21%) Fully procured and delivered at CERN.
  > **RB** (50%) All except TRIGGER cable (43%) was fully procured and delivered at CPE (IT).

About the RPC's TRIGGER cable

The winner of CERN tender was TECNIKABEL (2.328 CHF/M). The ordered was placed in July 05. First **10-15 Km** expected by end of OCTOBER.

We already cut about 3Km for the 2 sectors test. Waiting for their delivery at cern.
About q.ty available to continue the production, today there is a total of about **8 Km** from NOVAVAVI.
Further **6.5 Km** are UNDER STUDY at NOVACAVI because there is a skew time problem.

To complete YB+2 we need about further **12-13 Km** and **15 Km** more for YB+1. Taking in account that ENDCAP is now ready to produce its trigger cable and that it needs a big part of the already available **IT SEEMS THAT THERE IS A REAL PROBLEM ABOUT PROCURAMENT OF THIS CABLE.**

In summary we need about **28 Km** to finish YB+2 and YB+1. By the end of Sept. we should have a total of about **15Km**, by the end of Oct. a total of about **25-30 Km**, both to be shared with ENDCAP.

Procurement for cables starting from detector - 2/2

Cable name	Supplier	Respons. person	% length	TIS (fire tests)	Order statu	Cutting lengths released YB (ready/total + spares)	Cables "ready to be installed"	Weeks[3] for 1 wheels' cables
MB.LV.mc	NOVACAVI	*Willmott*	*2.3*	*accepted*	delivered	+2 (50/50), +1(36/50), others (48/150)	+2 (50/50), +1(36/50), others (6/150)	1 w @ ISR / CIEMAT
MB.LV.fe	INTERCOND	*Pegoraro*	*2.3*	*accepted*	delivered	+2 (50/50), +1(50/50), others (38/150+20)	+2 (50/50), +1(50/50), others (38/150+20)	3 w @ ISR / IHEP
MB.HV	KERPEN	*Borsato*	*6*	*accepted*	delivered	~ 5 wheels but with the old flat radial layout	5 wheels(~640/680+20)	
MB.OF.ttc-mc	UNIFIBRE	*Bellato*	*4*	*accepted*	2 wheels	+2 (50/50+24), +1(50/50+24)	+2 (50/50+24), +1(50/50+24)	3 w @ UNIFIBRE
MB.OF.sc	UNIFIBRE	*Bellato*	*4*	*accepted*	2 wheels	+2 (50/50+4), +1(50/50+4)	+2 (50/50+4), +1(50/50+4)	3 w @ UNIFIBRE
MB.CA.sc	CERN STORE	*Bellato*	*1.5*	*accepted*	delivered	**SHORT**: +2(36/44), +1(36/44), others (21/132) **LONG**: +2(0/12), +1(0/12)	+2(36/44), +1(36/44), others (21/132) 0	2 w @ ISR / IHEP
MB.MCA.veto	NOVACAVI	*Bellato*	*4*	*accepted*	delivered	+2 (8/12), +1(4/12)	+2 (8/12), +1(4/12)	3 w @ ISR / IHEP
MB.CA.tr	DAETWYLER	*Odorici*	*7.8*	*accepted*	delivered	+2 (100/100), +1(100/100), others (45/300)	+2 (100/100), +1(100/100), others (45/300)	6-8 w @ DAETWYLER
MB.CA.ro			*7.8*	*accepted*		+2 (100/100), +1(100/100), others (45/300)	+2 (100/100), +1(100/100), others (45/300)	
RB.LV.fe-8	NOVACAVI	*Ranieri*	*2.8*	*accepted*	delivered	+2 (11/62), others (11/)	*waiting for delivery*	3 w @ CPE
RB.LV.fe-12	NOVACAVI	*Ranieri*	*0.5*			+2 (12/12), others (6/)	*waiting for delivery*	
RB.HV	NOVACAVI	*Ranieri*	*6*	*accepted*	delivered	+2 (15/96), others (19/)	*waiting for delivery*	3 w @ CPE
RB.CA.sgn1	TECNIK./NOV	*Piccolo*	***43***	*accepted*[1]	rdered (July 0	+2 (158/944)	*waiting for delivery*	3 w @ CPE/CAVITE
RB.CA.dcs-6	NOVACAVI	*Piccolo*	*3.2*	*accepted*	delivered	+2 (11/62), others (18/)	*waiting for delivery*	4w @ CPE
RB.CA.dcs-9			*0.6*	*accepted*	delivered	+2 (12/12)	*waiting for delivery*	
RB.MCA.t-sens			*3.2*	*accepted*	delivered	+2 (2/12), others (7/)	*waiting for delivery*	

8 w
(DT tr-ro cables)

REMARKS

1) The winnwer of CERN TENDER for procurament of the RPC's trigger cables (RB.CA.sgn) was TECNIKABEL. 1st batch of 10-15 Km by ebd of Oct. 05 Almost the q.ty needed for 1 wheel was ordered to NAVACAVI.
2) DT fibers need cutting lenghts to be ordered. MB.OF.sc was pre-ordered to get BLUE color - now is ready to be cut.
3) Format is: nr. of **WEEKS** @ **WHERE** / **WHOM**

for updates se http://cern.ch/montecas/pub_doc/CABLES/UXC-status-short.pdf

Manufacturing of cables starting from detector

	YB+2												YB+1												
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
MB.LV.mc	X	X	X	X	X	X	X	X	X	X	X	X	/	/	/	/	/	/	/	/	/	/	/	/	Spares not requested
MB.LV.fe	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Spares to be produced
MB.HV	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Spares to be produced
MB.OF.ttc-mc	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Spares already produced
MB.OF.sc	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Spares already produced
MB.CA.sc	/	/	/	/	/	/	/	/	/	/	/	/													Spares not requested
MB.MCA.veto	X	X	X	X	X	X				X	X		X	X	X	X	X	X							Spares not requested
MB.CA.tr	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	(shared with MB.Ca.ro)
MB.CA.ro	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Spares to be produced
RB.LV.fe-8										X	X														(shared with RB.LV.fe-12)
RB.LV.fe-12	X	X	X	X	X	X	X	X	X	X	X	X													Spares to be produced
RB.HV										X	X														Spares to be produced
RB.CA.sgn										X	X														Spares not requested
RB.CA.dcs-6										X	X														Spares not requested
RB.CA.dcs-9	X	X	X	X	X	X	X	X	X	X	X	X													Spares not requested
RB.MCA.t-sens										X	X														Spares not requested

LEGENDA

/ Sector available partially
X Full sector available
cutting lenghts released
cables delivered BUT "TO BE CHECKED"
cables delivered and "ready to be installed"
Cables installed
not done

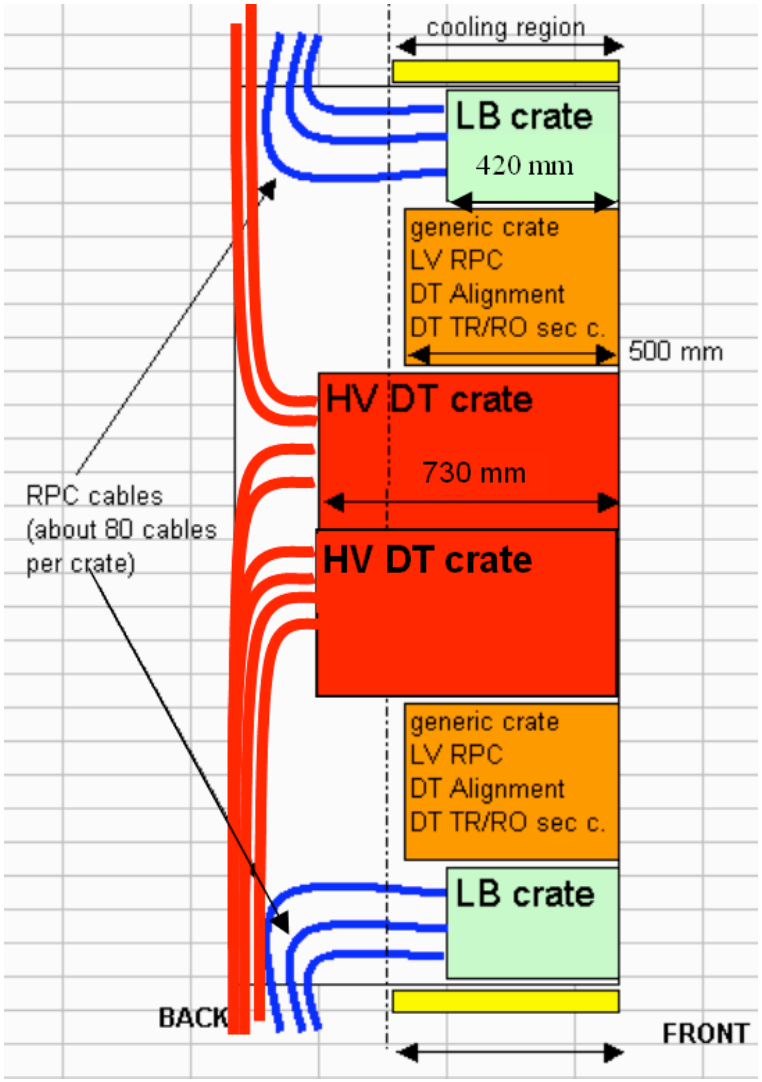
Rack status

- General rack layout
  We have to release the layout in order to let mechanics works on racks to be done on YB+2. Opens issues are
  - Cooling of racks: the case of **DT HV- RPC LBc** rack
  - LV racks: power requirements and nr of AC/DC converters needed.
  - Boxes for fibres protection: they are at ISR and they should be checked
  - HO LV crates. Last month they put a new request asking for a separate crate.
  - Q.ty and position of heat exchangers (should paid by CMS infra.)
  - General layout is to be updated and put inside rack wizard. It takes time to be done...
  - tomorrow's Integration meeting ...
- Cabling of racks
  - Two weeks ago there was an agreement about how to install DT HV cables inside racks. This solve also the cooling of rack open issue.
  - I released an update for LV racks. Now 2 sectors of DT LV cables enter from top of rack and only one from bottom. This applies to all LV racks od external wheels.
- To be procured
  - Cables' supports on front of racks
    We got samples, full production could be done at CIEMAT (about 100 pieces)
    Cost is to be defined.
  - Purchasing of front ladders from CERN Store (about 100 pieces, ~ 7KCHF)

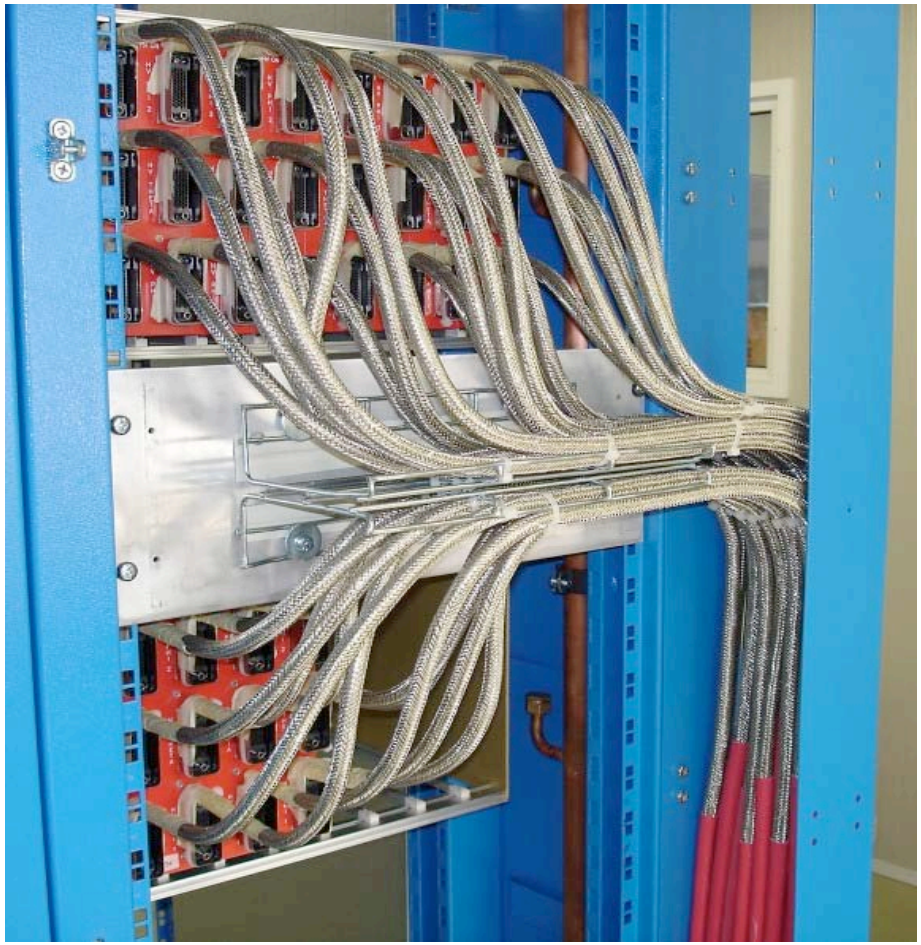
Cooling of racks

LinkBoard VME crate proposal

- The picture shows the last proposal about the Link Board crate from the RPC group. The new proposed depth is 420mm, 80 mm less then the others 'small' crates'.
- The open question is how this small crate will affect the cooling of the others crates inside the same rack, in particular for the CAEN A877 HV DT modules.
- Two HV crates filled with A877 CAEN modules are now installed inside a real working CMS rack at Bld. 904.
  Waiting for the 2 Linkboard crates and a LV CAEN crate in order to test the cooling.



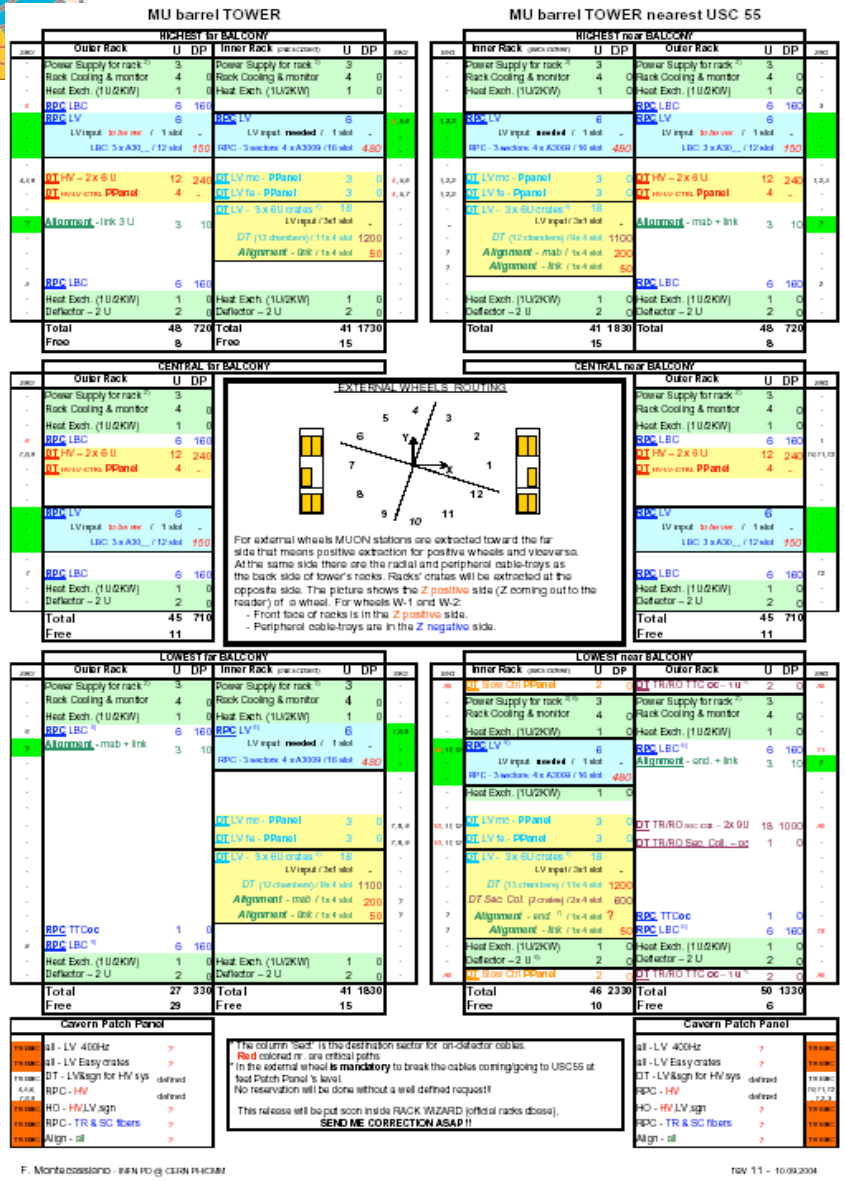
Proposal on how to install DT HV cables inside rack

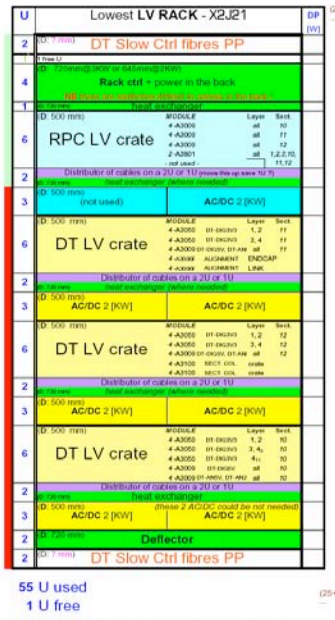


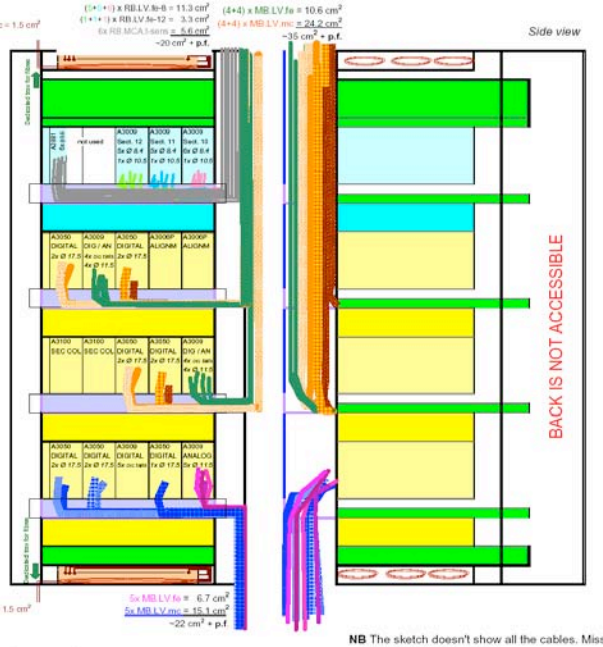
Racks layout to be updated

Generic LV racks

May we avoid 1 AC/DC converter ?





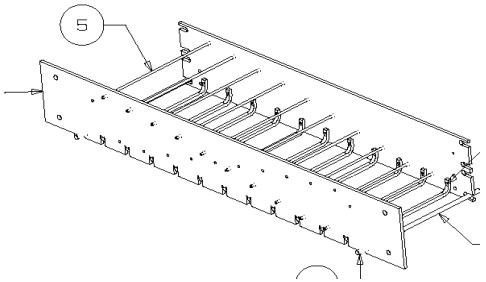


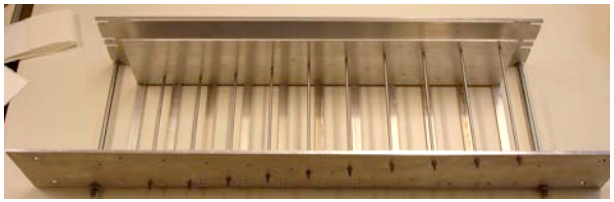
NOTES about extraction of crates and boxes from rack
- D: It's the depth of crate. I assumed this as length that is needed in front of rack in order to extract the crate.
- Front extraction depth limited to 720mm in the lowest balcony (diving board)
- Front extraction depth can be more then 720mm
- STD pieces (Turbine, heat exch. ...) have to be verified !

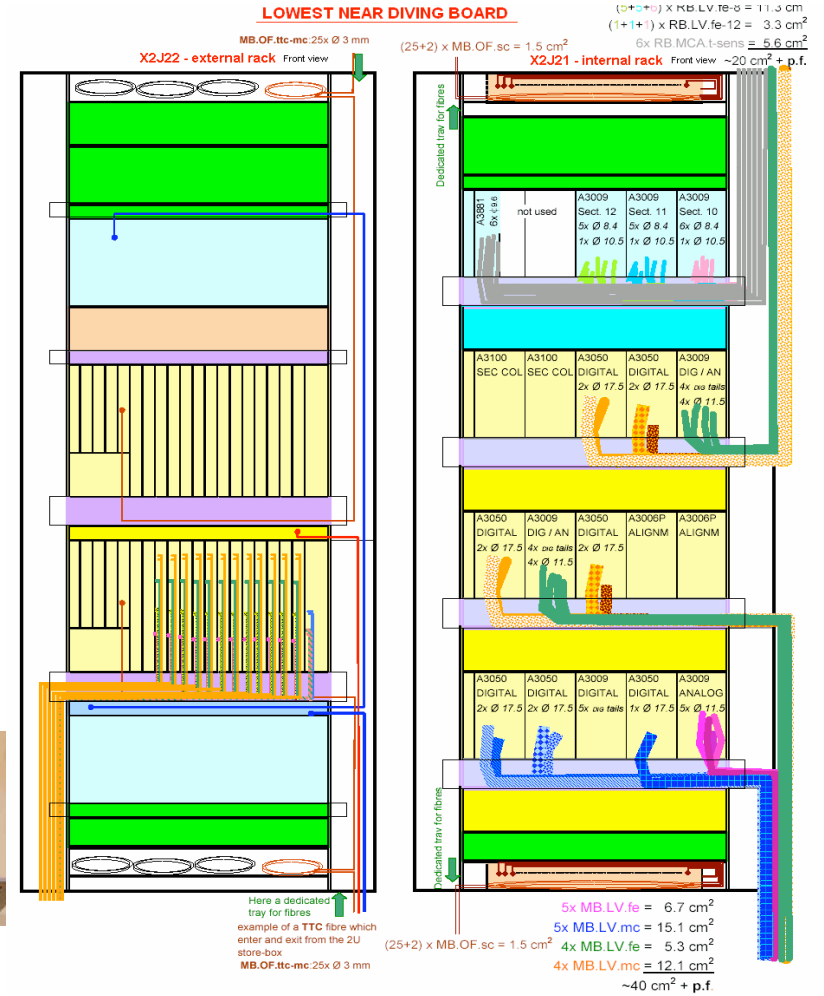
NB The sketch doesn't show all the cables. Missing:
- CRATES control cables
- LV Alignment cables
- AC/DC power and RACK services cables
- Fibres

Cables support in front of rack

- The picture shows the front view of the lowest diving board - near side
- A moke up of these racks was done
- Here you can see how the horizontal support works
- Some pre-production issues have to be solved







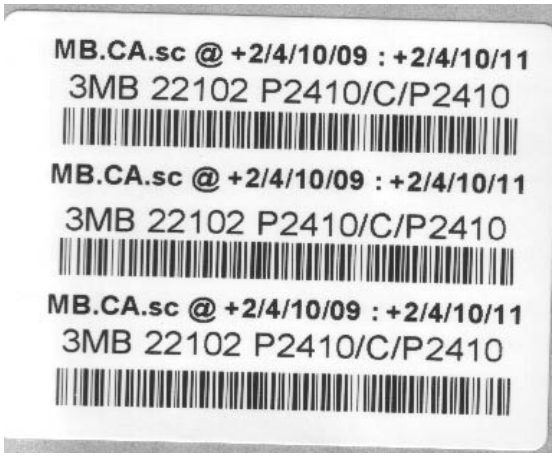
User part inside the CMS labels

In the following I show the labels we are going to use for the others cables. The example is for Sector 10 Layer 1.
Each cable will have 1 of this labels per side.

CABLE	General format	Example
MB.LV.fe	"MB.LV.fe @ W/L/S : RACK"	"MB.LV.fe @ +2/1/10 : X2J21"
MB.HV	"MB.HV @ W/L/S/CON : RACK"	"MB.HV @ +2/1/10/Ph1 : X3J22"
-- For MB.HV there are 2 o 3 cables per DT chamber. CON= 'The','Ph1' and 'Ph2'		
MB.OF.ttc-mc	"MB.OF.ttc-mc @ W/L/S : RACK"	"MB.OF.ttc-mc @ +2/1/10 : X2J22"
MB.OF.sc	"MB.OF.sc @ W/L/S : RACK"	"MB.OF.sc @ +2/1/10 : X2J21"
MB.MCA.veto	"MB.MCA.veto @ W/L/S : RACK"	"MB.MCA.veto @ +2/1/10 : X2J21"
MB.CA.tr	"MB.CA.tr @ W/L/S/CON : RACK"	"MB.CA.tr @ +2/1/10/1 : X2J22"
MB.CA.ro	"MB.CA.ro @ W/L/S/CON : RACK"	"MB.CA.ro @ +2/1/10/1 : X2J22"
-- for both tr and ro we have always 2 cables per DT chamber, so CON='1','2'		

About dimension of labels

MB.LV.fe	STD (3 times the info)
MB.HV	STD (3 times the info)
MB.OF.ttc-mc	small (1 time the info)
MB.OF.sc	small (1 time the info)
MB.CA.sc	small (1 time the info)
MB.MCA.veto	STD (3 times the info)
MB.CA.tr	STD (3 times the info)
MB.CA.ro	STD (3 times the info)



CMS Label contains 3 times the full info

CMS management agreed about the possibility to put **specialized user labels** showing full details concerning racks connectors and whatever needed during commissioning

About installation - 1

- The DT and RPC cables to be installed are subdivided in 16 families for about 10K cables in total distributed over 5 wheels

  http://cern.ch/montecas/pub_doc/CABLES/cables_detector-towers.pdf
- About DT cables, we have at Cern almost all the needed cables needed for YB+2 "ready to be installed" . The 2 sectors test on S10 and S11 of YB+2 began.
- This week should arrive the RPC cables for the same sectors (Source: Davide).
- Taking in account the various constrains and requests, with the 2 sectors test we will try the following sequence of installation

  DT Cables

  - "MB.CA.sc" - slow ctrl daisy chain between chambers (the only PERMANENT cable)
  - STIFF (LV, HV)
  - Copper Signal
  - Fibres

  RPC Cables

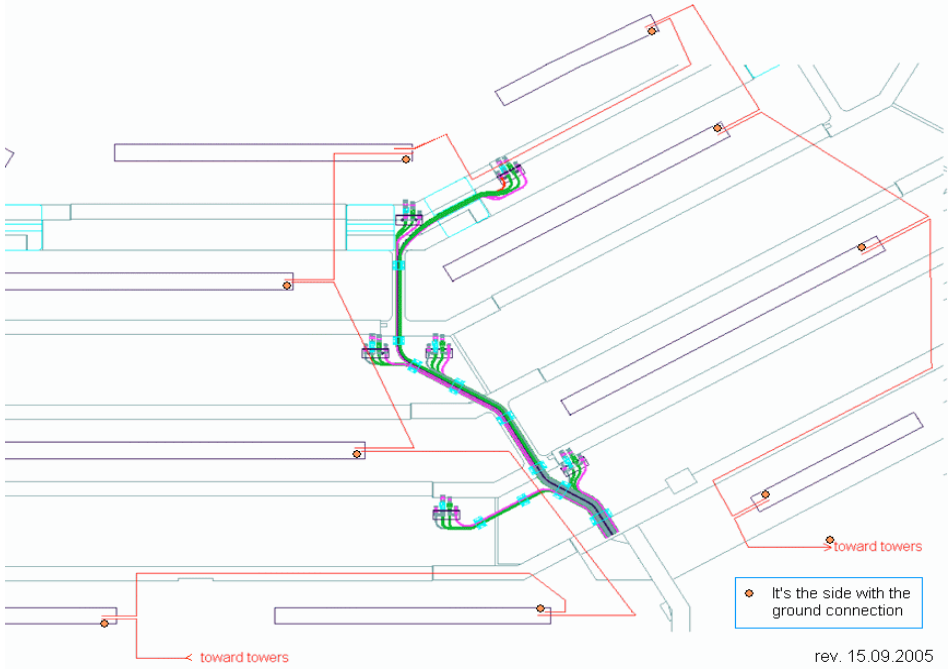
  - STIFF (LV, HV)
  - Copper Signal

  HO Cables

  Alignment cables

About installation - 2

- The target is a complete decoupling among the cables of different subdetectors.
- For each cable, we begin the installation from the detector side, where there are heavy spaces constrains (less of 5cm available between wheels) and we will lay the cables up to racks or patch panels below the towers.
  There a small amount of extra lengths can be stored in dedicate volumes.
- Last week we began the installation of the DT's slow ctrl cable (**MB.CA.sc**) between chambers, the PERMANENT cable in the above sequence.
  These cables run belong the services corner, following the schema



- Domenico followed the work of the IHEP staff wich was able to install about the full YB+2 in few days.

About installation - MB.LV.mc 1

- In the mean time I released the installation information and drawings in order to install "MB.LV.mc" on YB+2 S10 and S11

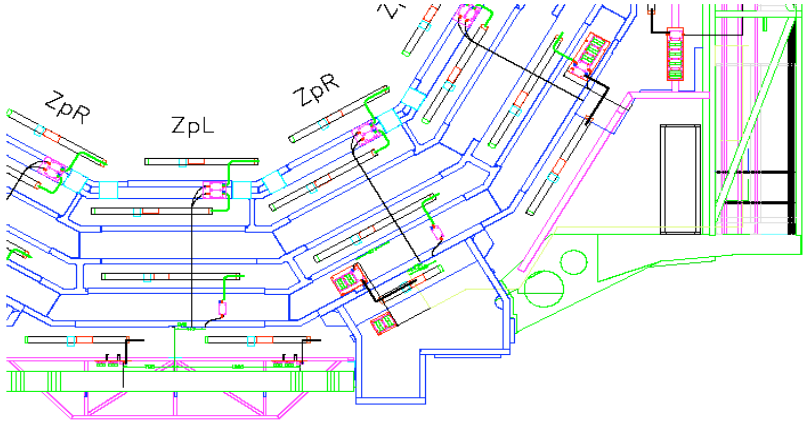
MB.LV.mc_lengths_sk4c-F6.xls

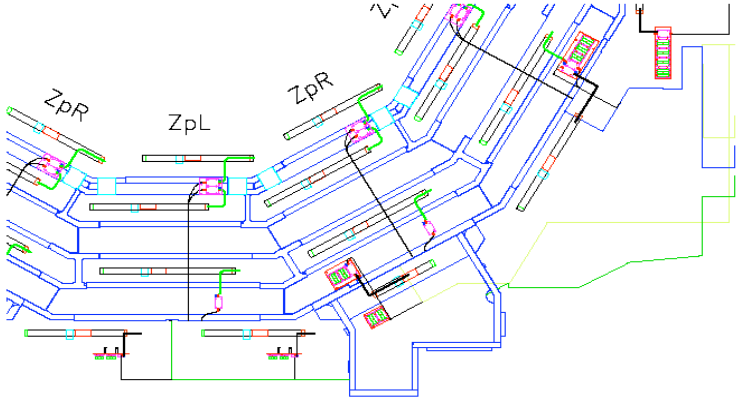
Last update: 10.09.2005

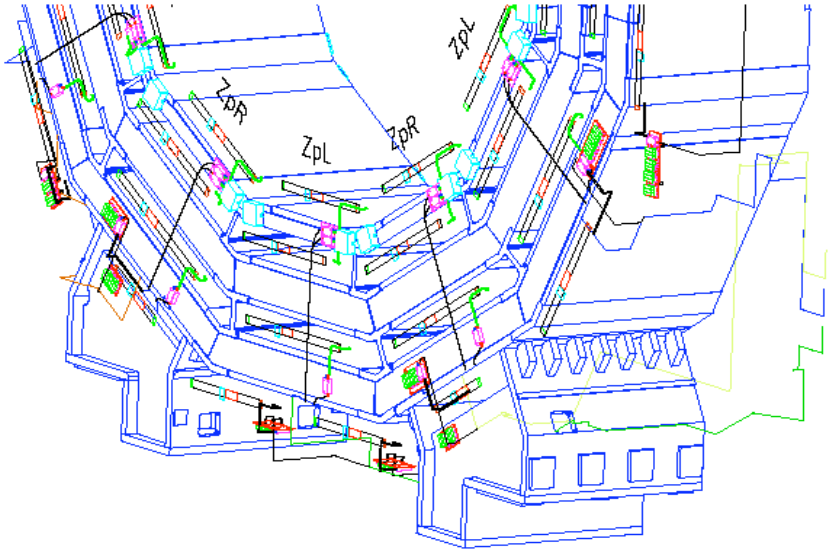
Start		End				Services description			Length components								Total			PROPOSED							USED			Extra L
Dbase granularity		Connector				Chamber	Extrac	Services	Radial Cables-Tray			Periph	Rack/Foot			Connect.	length			CUT Length [m]		Δ	LABEL				LABEL		[m]	rack
/ W / L / S	tmp	Rack	Top/Bot	Fr/Ba	tray	type	side	side	Rad. C-Tray	Δ	(+CT-extra)	Path*	to cross	extra-length	Inside	Inside	[mm]			min	max	Chosen	[m]							(teo) [m]
MB / 2 / 1 / 10		X2J21	Bottom	Front	1	P		ZpL	2650	-240	300	13474	0	1200	1162	300	18846		AC1	18	19	19	1.66	MB.LV.mc	19	MB.LV.mc	19	19		1.4
MB / 2 / 2 / 10		X2J21	Bottom	Front	1	P		ZpL	2530	-240	300	13474	0	1200	1162	300	18726		AC1	18	19	19	1.78	MB.LV.mc	19	MB.LV.mc	19	19		1.5
MB / 2 / 3 / 10		X2J21	Bottom	Front	1	P		ZpL	590	-450	300	13474	0	1200	1162	300	16576		AC1	16	17	17	1.93	MB.LV.mc	17	MB.LV.mc	17	17		1.6
MB / 2 / 4 / 10 9		X2J21	Bottom	Front	1	P			2443	-2119	300	13474	0	1200	1162	300	16760		AC1	16	17	17	1.74	MB.LV.mc	17	MB.LV.mc	17	17		1.4
MB / 2 / 4 / 10 11		X2J21	Bottom	Front	1	P			1670	-4086	300	13474	0	1200	1162	300	14020		AC1	14	15	14	1.48	MB.LV.mc	14	MB.LV.mc	14	14		1.2
MB / 2 / 1 / 11		X2J21	Top	Front	1	P		ZpR	2650	-250	300	11957	0	1200	2071	300	18228		AC2	18	19	19	2.28	MB.LV.mc	19	MB.LV.mc	19	19		2.0
MB / 2 / 2 / 11		X2J21	Top	Front	1	P		ZpR	2550	-240	300	11957	0	1200	2071	300	18138		AC3	18	19	19	2.37	MB.LV.mc	19	MB.LV.mc	19	19		2.1
MB / 2 / 3 / 11		X2J21	Top	Front	1	P		ZpR	560	-470	300	11957	0	1200	2071	300	15918		AC2	15	16	16	1.59	MB.LV.mc	16	MB.LV.mc	16	16		1.3
MB / 2 / 4 / 11		X2J21	Top	Front	1	P			2321	-730	300	11957	0	1200	2071	300	17419		AC4	17	18	18	2.09	MB.LV.mc	18	MB.LV.mc	18	18		1.8
TOT=	9					cables			DELTA MAX=	0.05	[m]																			
																							Cable Name:		MB.LV.mc				

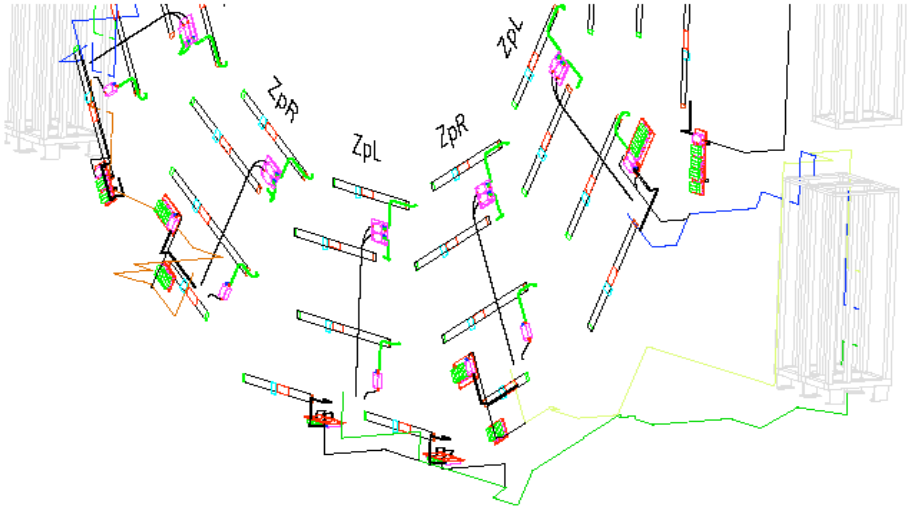
- These cables was already checked and labelled by IHEP staff under the supervision of Martin, which is in charge to organize the installation.
- IHEP staff is ready to install these cables.

About installation - MB.LV.mc 2

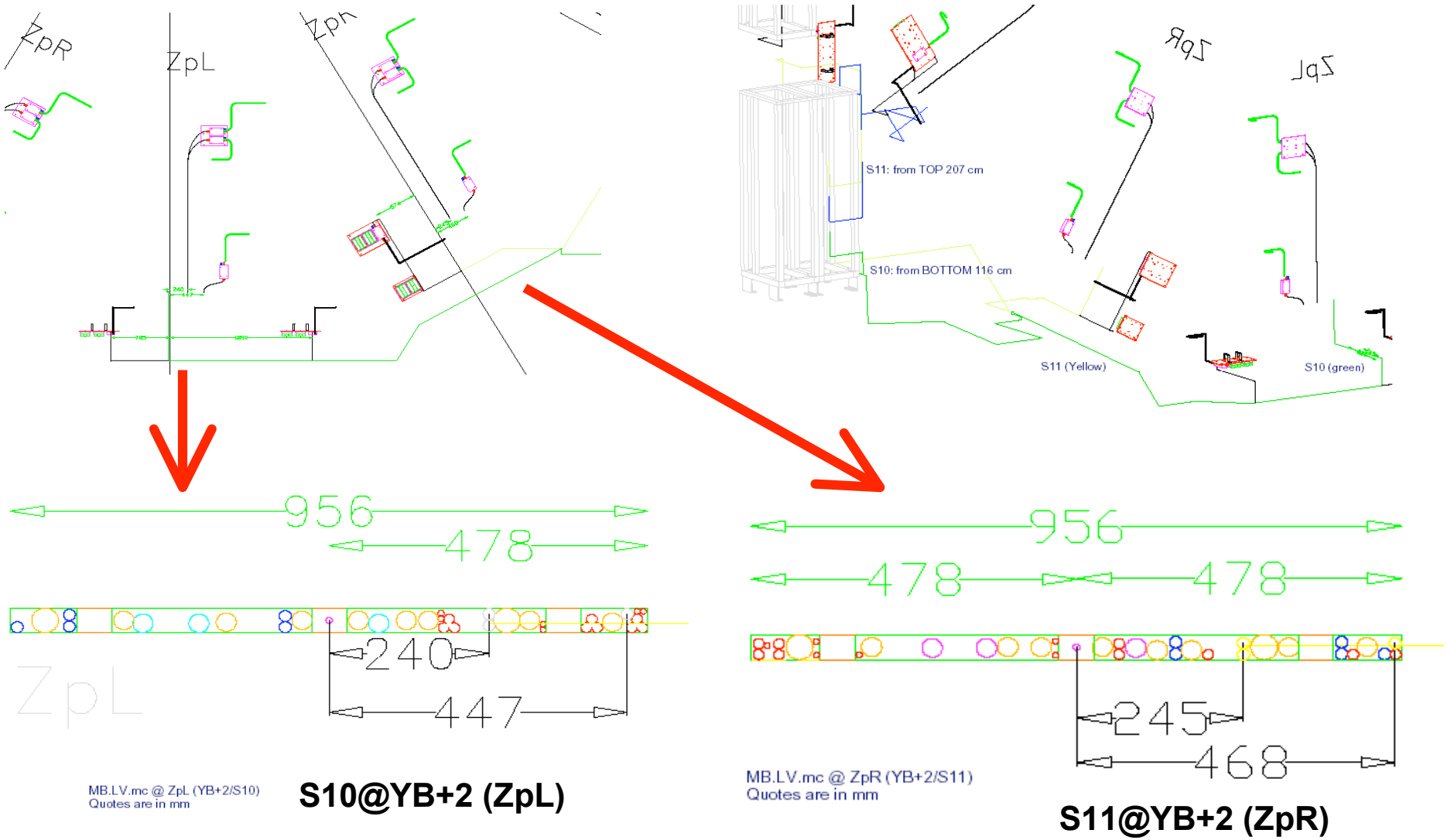








About installation - MB.LV.mc 3



CONCLUSION

- MB procurament was done.
  RB procurament not yet solved concerning the TR RPC cable.
- Cutting lengths was released for more then the 2 sectors test for bothe MB and RB. For MB almost 2 wheels was released.
- Almost all the MB cables neede for the 2 sectors test are at cern. Waiting for RB cables in these days.
- A lot of work is still needed to release the full amount od cutting lenghts, especially for RB.
- Installation of cables began. Not all needed documentation is ready for all cables's families. Once again, a lot of work.
  About RB cables, Davide and Lorenzo could help a lot.
  Anyway the bulk installation should be organized by Martin and Int. Office, we have to clarify this point with them.
- **All this has to be extended to YB0 – which is far to be finalized.**