

Programma BTF

Riunione CS e Progetti DA

06/03/2021

BTFEH1 – BTF1 (2 lines)

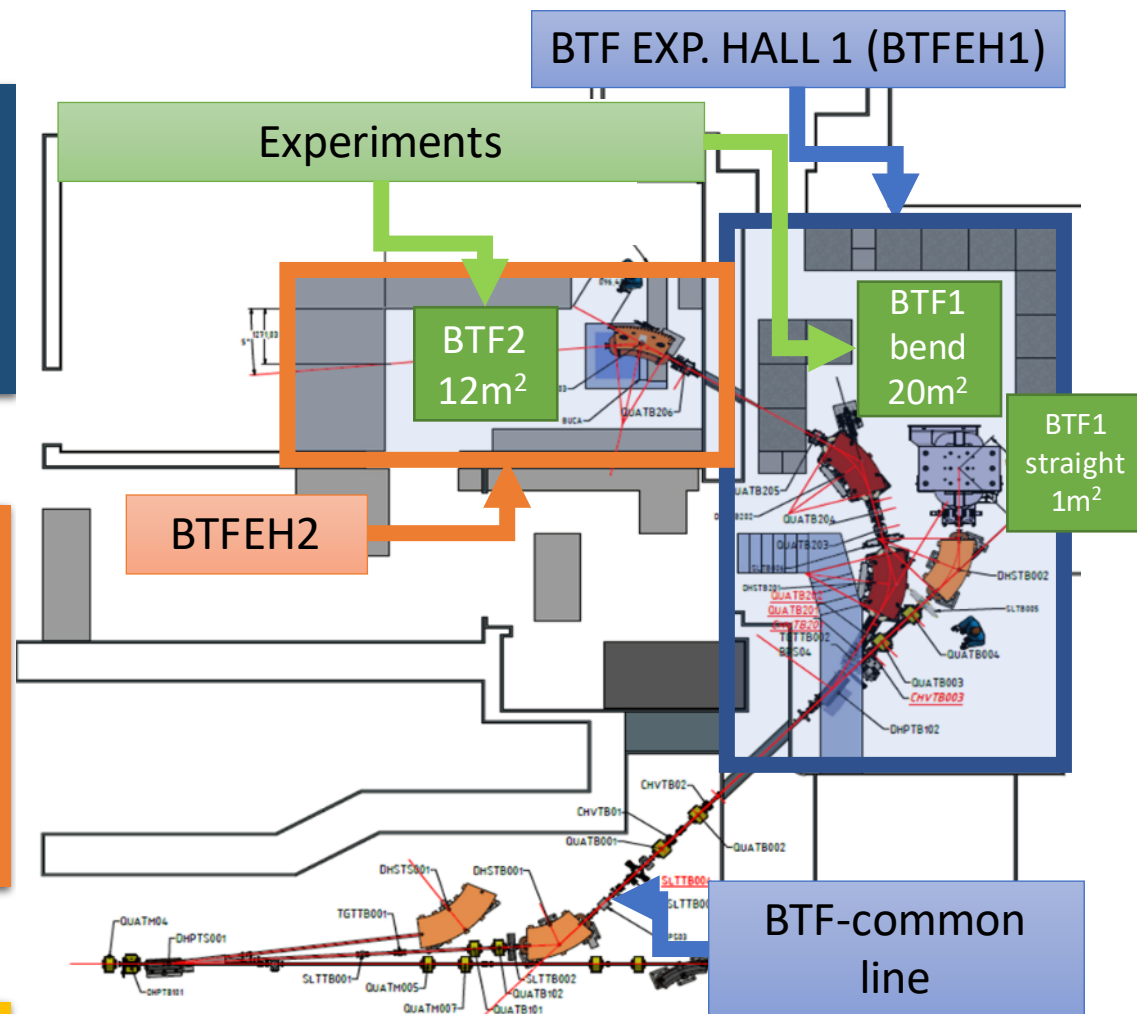
- Hall Operative devoted to ERAD project and PADME experiment, **X17**
- **No foreseen activity for PADME in 2023**
- Involved in internal/opportunistic INFN runs (FISMEL – SPARCULENS - FLASHMOB)
- Upgraded vacuum line BTF1 straight for OTR charge measurement and single shot emittance test with two optical lines

BTFEH2 – BTF2 (1 line)

- Hall operative, external users run period accomplished Apr->July 2022
- Only BTF2 line to external users
 - Intended for weekly based users
 - Only secondary beam
 - Limited performances respect to BTF1
 - Users starts on 20th March 2023
- Involved in EUROLABS Project, started on Autumn 2022

BTFEHs

- Software for automated call on going:
 - Now operational even in debugging



BRIEF ACTIVITIES SUMMARY

What we got from last SciCom (Spring 2022 – Fall 2022) – Internal activities

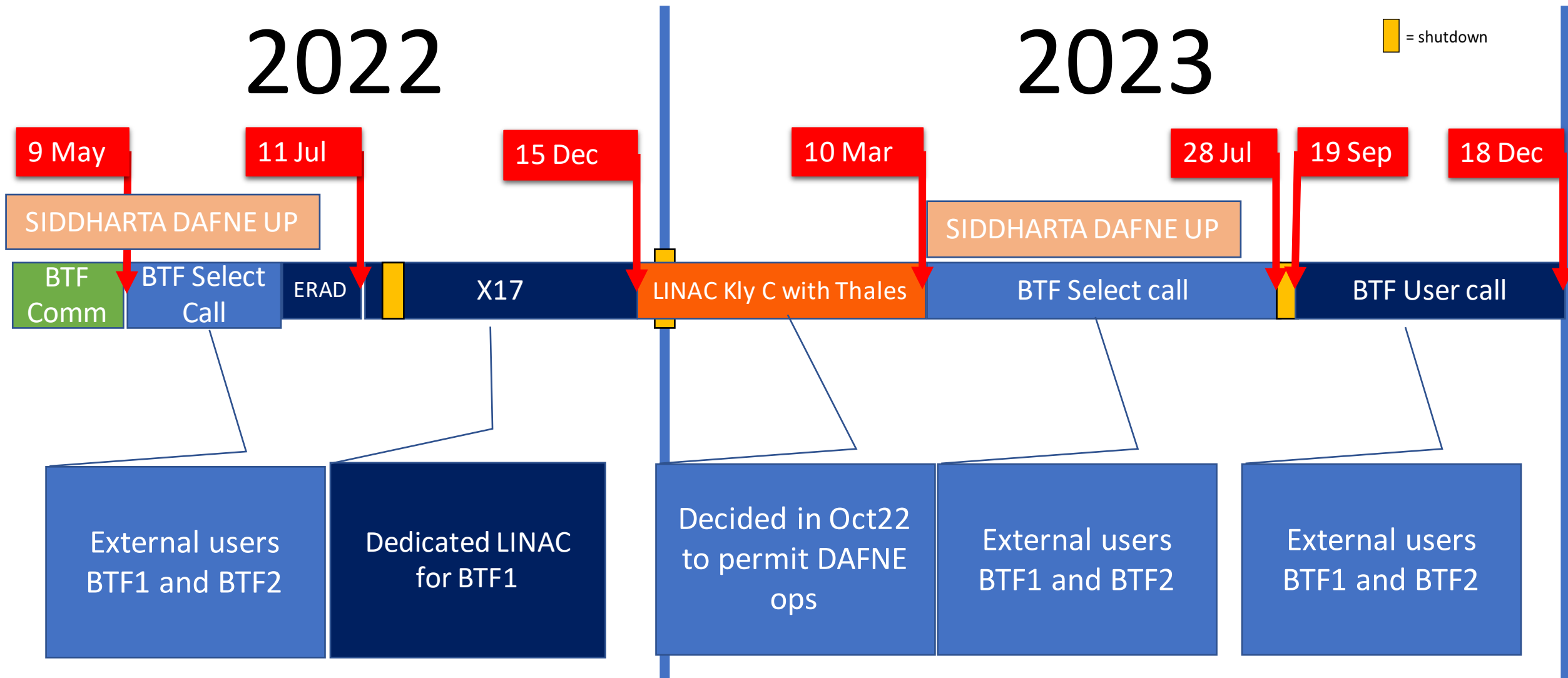
BTFEH2 final commissioning phase	12 Apr -> 19 Apr 2022
LINAC for SIDDHARTA Run	up to Jul 2022
BTF user run on both BTFEH1 and BTFEH2, all of the 3 LINES	up to June 2022 end
ERAD run 3 (good ended project)	Jul 2022
PADME/X17 Trials revamp and preps	Jul 2022
During summer shutdown	
Huge maintenance on LINAC – steering replacement	
Shielding on BTF1-straight increased	
Some Difficulties in restart (burned different pieces) but no delays	
BTF1 for X17 run	28 Sep. -> 21 Dec 2022
KLY C replacement, tanks and vacuum main overhaul	2 Jan. 2023 -> 13 Feb. 2023
Kly C conditioning	13 Feb. 2023 -> Up to now

LNf DUMMY CALENDAR

2022

2023

 = shutdown



BTF Yesterday 2023

✓	→	BTf_calendar 2022 - mod. 13/12/22	380 g?	ven 08/01/23	lun 08/01/24	66%
✓	→	Tech run X17	1 g	ven 08/07/22	ven 22/07/22	100%
✓	→	Shutdown LINAC-BTF	41 g	ven 22/07/22	lun 19/09/22	100%
✓	→	LNF closed	12 g	gio 04/08/22	lun 22/08/22	100%
✓	→	▷ LINAC maintenance	40 g	lun 25/07/22	ven 16/09/22	100%
✓	→	▷ Corrector installation	50 g	lun 11/07/22	ven 16/09/22	100%
✓	→	CHECK and maintenance electrical device and mains	1 g	ven 09/09/22	lun 12/09/22	100%
✓	→	Shielding BTFEH1->DR	21 g	gio 18/08/22	ven 16/09/22	100%
✓	→	▷ Needed DAFNE service on	1 g	lun 12/09/22	lun 12/09/22	100%
✓	→	▷ BTF on	12 g	lun 12/09/22	mar 27/09/22	100%
✓	→	▷ LINAC on	7 g	lun 19/09/22	mar 27/09/22	100%
✓	→	X17 Scient Run	61 g	mer 28/09/22	mer 21/12/22	100%
✓	→	▷ Shutdown LINAC+BTF WINTER 2022	35 g?	lun 09/01/23	ven 24/02/23	100%
✓	→	▷ LINAC Kly C for THALES operation	35 g?	lun 09/01/23	ven 24/02/23	100%
✓	→	overhaul tank ModC	2 g	lun 09/01/23	mar 10/01/23	100%
✓	→	▷ DAFNE NEEDED Service	0 g	mar 10/01/23	mar 10/01/23	100%
✓	→	LINAC-BTF ON for maintenance	1 g	mer 11/01/23	mer 11/01/23	100%
✓	→	RF test set ModC	5 g	mer 11/01/23	mar 17/01/23	100%
✓	→	Test DHPTB101 for BTF inj	3 g	mer 18/01/23	ven 20/01/23	100%
✓	→	LINAC-BTF OFF	0 g	ven 20/01/23	ven 20/01/23	100%
✓	→	▷ DAFNE NEEDED Service	0 g	mer 25/01/23	mer 25/01/23	100%
✓	→	Kly C dismounting	1 g	lun 23/01/23	lun 23/01/23	100%
✓	→	Kly C vacuum port soldering, New SLED cer window installation	3 g	lun 23/01/23	mer 25/01/23	100%
✓	→	Kly C elbow/SLED vacuum upgrade	1 g?	gio 26/01/23	gio 26/01/23	100%
✓	→	▷ New Kly C installation and pumping	7 g?	ven 27/01/23	lun 06/02/23	100%
✓	→	pre-vacuum pumping linac	1 g	ven 27/01/23	ven 27/01/23	100%
✓	→	Ionic pumping on LINAC and elbow C installation	1 g?	lun 30/01/23	lun 30/01/23	100%
✓	→	New Kly C installation	2 g	mar 31/01/23	mer 01/02/23	100%
✓	→	Elbow Vacuum pumping, oil in tank and debubbling	3 g	gio 02/02/23	lun 06/02/23	100%
✓	→	LINAC-BTF ON for maintenance	0 g	mar 07/02/23	mar 07/02/23	100%
✓	→	▷ DAFNE NEEDED Service	0 g?	mar 07/02/23	mar 07/02/23	100%

BTF Now/Next 2023

✓	→	▴ New Kly C installation and pumping	7 g?	ven 27/01/23	lun 06/02/23	100%
✓	→	pre-vacuum pumping linac	1 g	ven 27/01/23	ven 27/01/23	100%
✓	→	Ionic pumping on LINAC and elbow installation	1 g	lun 30/01/23	lun 20/02/23	100%
✓	→	New Kly C installation	2 g	mar 31/01/23	mer 01/02/23	100%
✓	→	Elbow Vacuum pumping, oil in tank and debubbling	3 g	gio 02/02/23	lun 06/02/23	100%
✓	📌	LINAC-BTF ON for maintenance	0 g	mar 07/02/23	mar 07/02/23	100%
✓	📌	▴ DAFNE NEEDED Service	0 g?	mar 07/02/23	mar 07/02/23	100%
✓	📌	LINAC tower on	0 g	mar 07/02/23	mar 07/02/23	100%
✓	📌	DAFNE service HW SW ready	0 g	mar 07/02/23	mar 07/02/23	100%
✓	📌	LINAC Shift on	0 g	mar 07/02/23	mar 07/02/23	100%
✓	→	▴ Kly C SAT	14 g	mar 07/02/23	ven 24/02/23	100%
✓	→	Kly C preliminary test	4 g	mar 07/02/23	ven 10/02/23	100%
✓	→	Mod C tuning and setup for new kly	6 g	ven 10/02/23	lun 20/02/23	100%
✓	📌	power ramp up with THALES	5 g	lun 20/02/23	ven 24/02/23	100%
	→	▴ LINAC START UP	23 g	mar 07/02/23	gio 09/03/23	97%
	→	▴ LINAC UP	23 g	mar 07/02/23	gio 09/03/23	97%
✓	→	LINAC 4 mods conditioning	22 g	mar 07/02/23	mer 08/03/23	100%
	→	LINAC beam on trials	1 g	gio 09/03/23	gio 09/03/23	25%
	→	LINAC ready	0 g	gio 09/03/23	gio 09/03/23	0%
	📌	MAIN RING READY SPRING 2023	0 g	ven 10/03/23	ven 10/03/23	0%
	→	▴ BTF ON SPRING	149 g	lun 09/01/23	gio 03/08/23	21%
	→	▴ BTF1&BTF2 on	54 g	lun 09/01/23	gio 23/03/23	90%
✓	→	PADME detaching vacuum and pumping	14 g	lun 09/01/23	gio 26/01/23	100%
✓	📌	DHPTB101 restore	1 g	lun 09/01/23	lun 09/01/23	100%
	→	BTF start up	10 g	ven 10/03/23	gio 23/03/23	75%
	→	beam time test call start	40 g	ven 10/03/23	gio 04/05/23	
	→	user call open	0 g	ven 10/03/23		
	→	beam time user call start	44 g	lun 05/06/23	gio 03/08/23	
	📌	MAIN RING Shutdown SUMMER 2023	0 g			
	→	LINAC+BTF SHUTDOWN SUMMER 2023	26 g			

Crucial having +1 Beam line scientist

ATTUALMENTE 20 utenti in coda + call aperta

BTF Fall 2023

sione Ac

STRUTTURA ORGANIZZATIVA

Responsabile di
Alessandro

→	▲ LINAC for FALL 2023	36 g	ven 04/08/23	ven 22/09/23	0%
→	Maintenance	30 g	ven 04/08/23	gio 14/09/23	0%
→	Operators shift start	1 g	ven 15/09/23	ven 15/09/23	0%
→	LINAC beam setup	6 g	ven 15/09/23	ven 22/09/23	0%
→	▲ BTF for FALL 2023	121 g	lun 03/07/23	lun 18/12/23	0%
→	▲ BTF1&BTF2 on	10 g	lun 11/09/23	ven 22/09/23	0%
→	BTF start up	10 g	lun 11/09/23	ven 22/09/23	
→	user call open	0 g	lun 03/07/23		
→	beam time user start	61 g	lun 25/09/23	lun 18/12/23	
📌	LINAC+BTF SHUTDOWN WINTER 2023	16 g	lun 18/12/23	lun 08/01/24	0%

Crucial having +1 Beam line scientist

SERVIZIO
LINAC

+BTF

Responsabile:
B. Buonomo

ATTUALMENTE 20 utenti in coda + call aperta

STAFF

Cardelli F.
Di Giovenale D.
Di Giulio C.
Foggetta L.

~2 FTE, per una facility che fa >200d/y

- pesantemente sotto organico
- Previste due persone ma non si sanno tempistiche reali
- Formazione Beam Line Scientist circa 6 mesi per essere autonomo

BTF Booking Software

The screenshot displays the BTF Booking Software interface. The main view is a calendar for March 2023, showing dates from 1 to 31. The calendar is organized by days of the week (Mon to Sat). Several dates are highlighted in yellow, indicating bookings or events. Below the calendar, there are three rows of yellow bars with text: "SUBMITTED - UserBooking - LLMCP- Spadaro Tommaso (BTF | Line2)", "SUBMITTED - UserBooking - FLASHMOB- Quantieri Lina (BTF | Line1)", and "SUBMITTED - UserBooking - Limadou-02- Iuppa Roberto (BTF | Line2)".

On the right side, there is a "Team Creation" table with the following columns: Name, Submitted Questionnaire, Secretariat Approval, and Personnel Approval. The table lists six team members: Fabio, Vincenzo, Daniele, Antonella, Marco, and Tommaso. Each row shows the status of their questionnaire submission and approvals. Fabio, Vincenzo, Daniele, and Antonella have orange clock icons in the "Submitted Questionnaire" column. Marco and Tommaso have green checkmarks in the "Submitted Questionnaire" column. All team members have green checkmarks in the "Secretariat Approval" and "Personnel Approval" columns.

At the top right, there is a section titled "Approve booking request" with an "Approval message" and a "State was Accepted" status. Below this, there is a "Completed States" section with a "Personnel Request Approval" status and an "Approval message" and "State was Accepted" status.

BTF impegni previsti

Servizi richiesti sono per la conduzione degli esperimenti ed upgrade:

- Vuoto:
 - Sistemazione Finale dei cablaggi sensori e pompe vuoto
 - Software di controllo vacuometri consegnato al vuoto
 - Installazioni PADME (1FTE*3d), installazioni utenti non attualmente previste
- Controlli:
 - DCS area BTF (3FTE*1w) per software di gestione facilitata di telecamere e DAQ
 - Storicizzazione dati per EUROLABS
 - Manutenzione macchine e servizi e switch (2FTE*w)
- Meccanica:
 - BTF tuning (2FTE*w) e attività di installazione esperimenti (supporto mobile)
- Magneti
 - Ricerca ed acquisto di un sostituto per PS di DHPTB101
- Operatori per conduzione run BTF

BTF impegni previsti

BTF	
Alimentatore pulsato BTF	150?
alimentatori correttori BTF	36
schede acquisizione spare +detector	50
Sostituzione macchine computing Linac BTF	40
Sistema di backup da concordare con Servizio Controlli	
DAQ	20
impianto linee gas BTF2	20
diamante (simile detector) per alta intensità	20
TOT	186+150?

BTF per i prossimi due anni= +2 tecnologi (art.36 ongoing + PNRR)

LINAC MAINTENANCE next 2 years

SERVIZIO LINAC		kEuro
4 thyatron		120
2 klystron		480
3 alimentatori focalizzatori		15
1 magnete focalizzatore		40
2 cvd+2 monitor di corrente		15
1 sled		150
4 finestre + 4 carichi RF in guida d'onda		80
4 stecche diodi		10
Componenti modulatore e tank		50
2 catodi		25
1 ceramica GUN		70
2 accoppiatori direzionali con arc detector		20
2 booster banda S		30
1 trasformatore per deck gun		10
1 sistemi delay generator 20 canali		30
2 gpib net		10
2 quadropoli		20
20 diodi misura RF		20
Sistema acquisizione segnali linac al posto del multiplexer		40
LLRF: switch attenuatori phase shifter		30
Capacitors positron modulator		30
5 di alimentatori per quadropoli		50
1 pompa raffreddamento tdk (spare) 10 K		10
Chips elettronica attuale o upgrade elettronica controllo modulatori		120
2 tdk spare alimentatore a carica capacitiva dei modulatori		220
Switch luci LED e alimentatori vari dei rack		20
PLC sicurezze Dafne upgrade stima		50
06/03/2023	Tot	1765

SERVIZIO Vuoto per LINAC		kEuro
2 valvole LINAC		
Cablaggi pompe		
30 pompe da vuoto (gun tratti di A B eD)		
2 valvole LINAC		
SERVIZIO fluidi per LINAC		
Torre LINAC nuova		
pompe impianti valvole, (servizio impianti a fluidi)		
5 collettori acqua (impianti a fluido)		5X10???
Servizio meccanica per LINAC		
Piombo modulatore nuovo (servizio meccanica)		??
Servizio Magneti per LINAC BTF		
Alimentatore nuovo pulsato (urgente)		150
2 alimentatori spare UFS ?		50

**Necessita' SERVIZIO LINAC per i prossimi due anni:
+3 tecnici, +1 tecnologo**

Stima costi:

- Costi mantenimento:
 - Parte dei costi di mantenimento per materiale sono stati sostenuti attraverso vari progetti (LinacB TF Upgrade, ERAD 700k, Direzione LNF) dal 2018 al 2022.
 - Sono circa 450kEuro anno
- Costi Consolidamento:
 - Alimentatori HVPS spare: ~220 k TDK
 - Nuova elettronica modulatori: ~160 k hardware National Instruments
- Upgrade:
 - 100k per terminare nuovo modulatore