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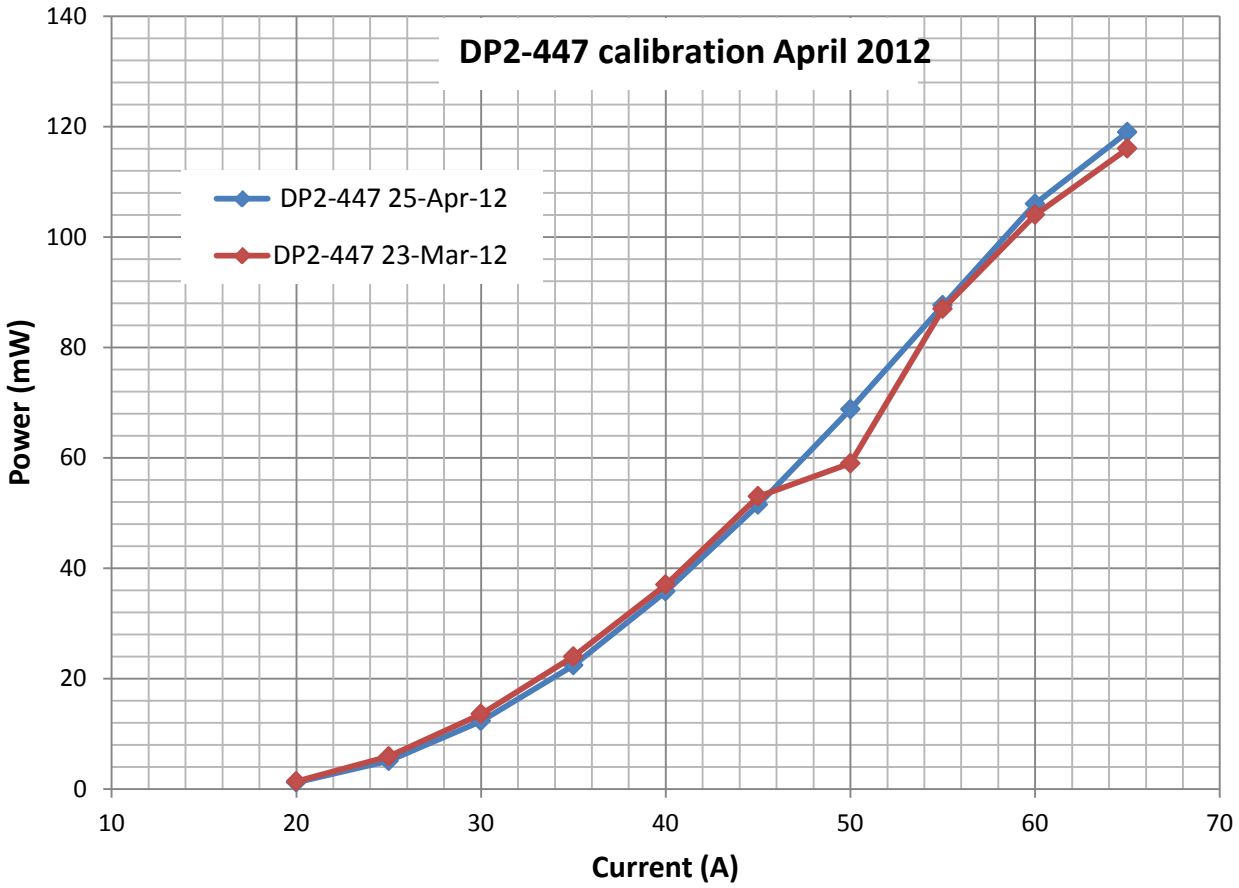
Laser power measurement campaign to understand lasers power level:

Photonics calibration curve :



Working point: 55 A

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Laser power measurement with the current setting for ECAL sequence :

Ti:S1 :	20A, 50% of the internal attenuator.
DP2-447:	55A, no attenuation
Green:	fixed setting (saclay…)

	Power from laser output (1)	Power before the 1x100 switch + 10m fibre (2) , no attenuation	Same as (2) but with remote attenuation 50%	Same as (2) but with remote attenuation 30%
Ti:S 1	40 mW	2 mW	1 mW	0.56 mW
DP2-447	87.6 mW	2 mW	1 mW	0.60 mW
Green	-	0.450 mW	Too low for power meter	-

Before the 1x100 :

IL(TiS) = 13 dB → a bit too high because of no 1x100 switch included

IL(DP2-447) = 16.4 dB → too high, should be consistent with TiS laser.

Remote linear attenuator: OK, power is consistent with the % of attenuation

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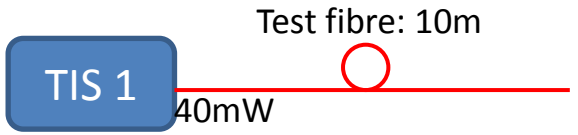
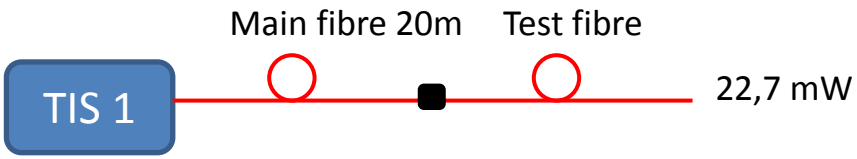
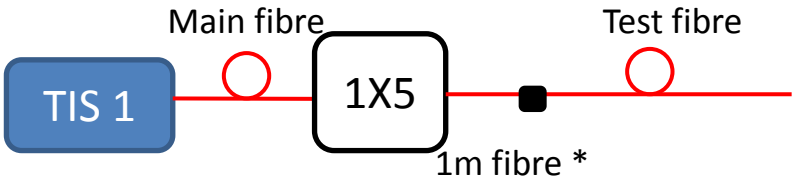
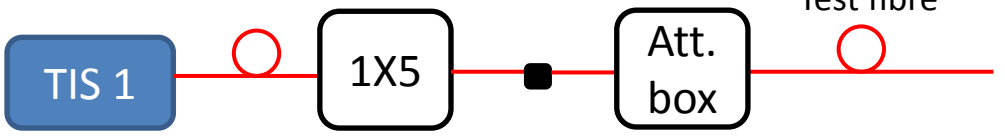
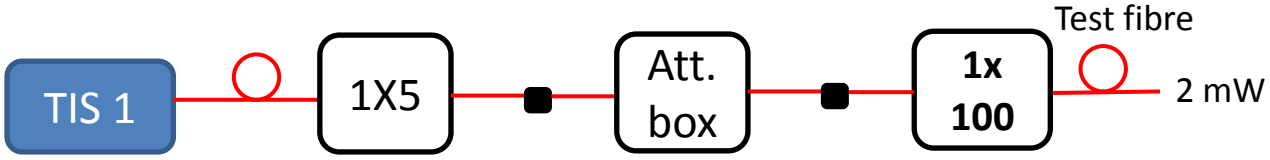
Setup to check TiS laser path	IL (dB)	
1 	1 dB	
2 	2.4 dB	
3 	5 dB	+ 1x5 switch = 2 dB + FC connector = 0.5db = 2.5 dB → OK
4 	8 dB	+ Att. Box = 2.5dB + FC connector = 0.5db = 3dB → OK
5 	**13dB**	**IL(dB) for TiS 1 : OK**

* 1m fibre: 1m fibre + FC connector is there to avoid disconnection from optical switch directly.

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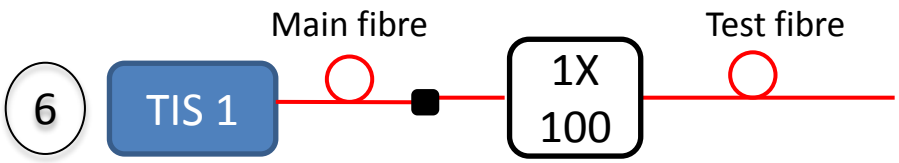
Setup to check TiS laser path	IL (dB)

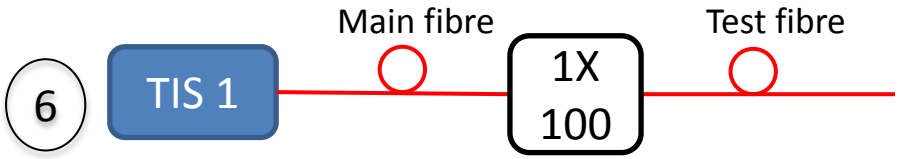
Check the 1x100 switch only keeping the 1m fibre:



11 mW

5.6 dB

Check the 1x100 switch only , with the main tiS fibre directly on the switch:



14 mW

4.55 dB

Compare to 2) : Δ=4.55-2.5= 2 dB
just for the switch. OK here

Photonics:

No improvement the 26 April , same power: cleanning-polishing fibre from the attenuation box and 1x100 switch didn't help.

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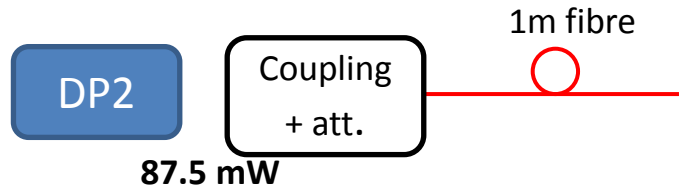
Setup to check DP2 laser path

IL (dB)

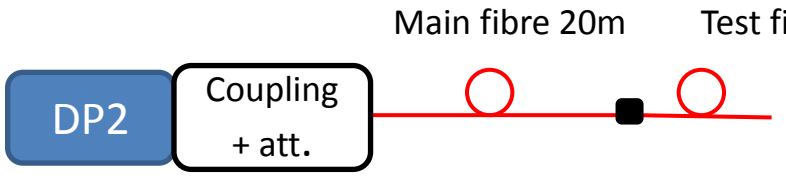
1



61 mW

1.5 dB: coupling of fibre is OK
As well as attenuator.

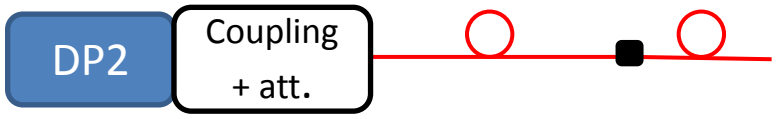
2



27.5 mW

5 dB : too high
→ clean and polish main fibre (bad)

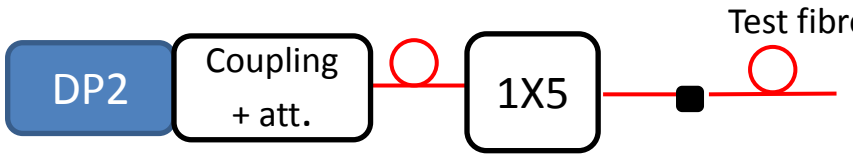
3



48.5 mW

2.56 dB

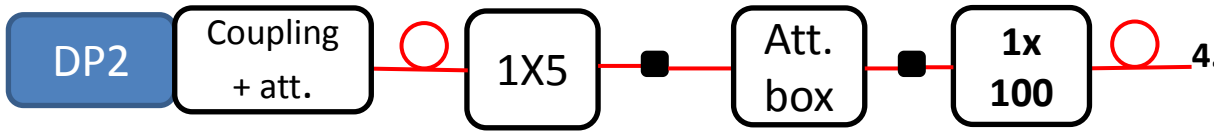
4



28.6 mW

4.85 dB

5



4.9 mW

Ch.1

12.5dB

IL(dB) for DP2 OK

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Results :

1) clean and polish some fibre in the chain: some of them were bad.
2) TiS attenuation was OK: main fibre and full chain OK
3) DP2 attenuation was BAD: main fibre dirty.

DP2-447 amplitude no more visible on the light Checker (too high)

→ Decrease the internal attenuation from 100 to 40%;

→ Wait before decreasing the current at the same time because now useless to have high current;

→ Change the external attenuation