RPC Ecogas Study - Updates

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Overview

- ECOGAS1: 45% HFO, 50% CO_2, 4% iC_4H_{10}, 1% SF_6

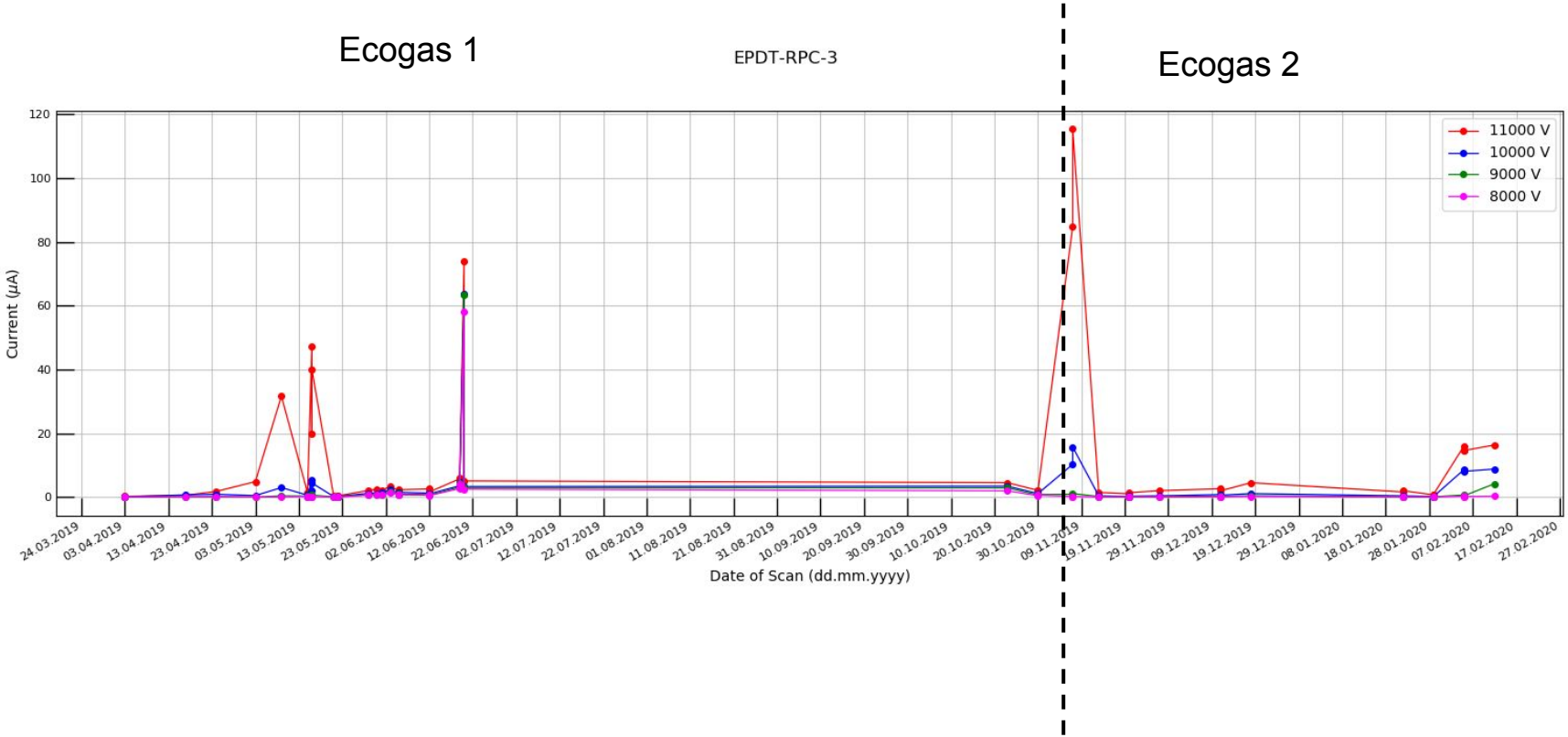
  Analysis: scans - 03 April 2019 to 30 October 2019

- ECOGAS2: 35% HFO, 60% CO_2, 4% iC_4H_{10}, 1% SF_6

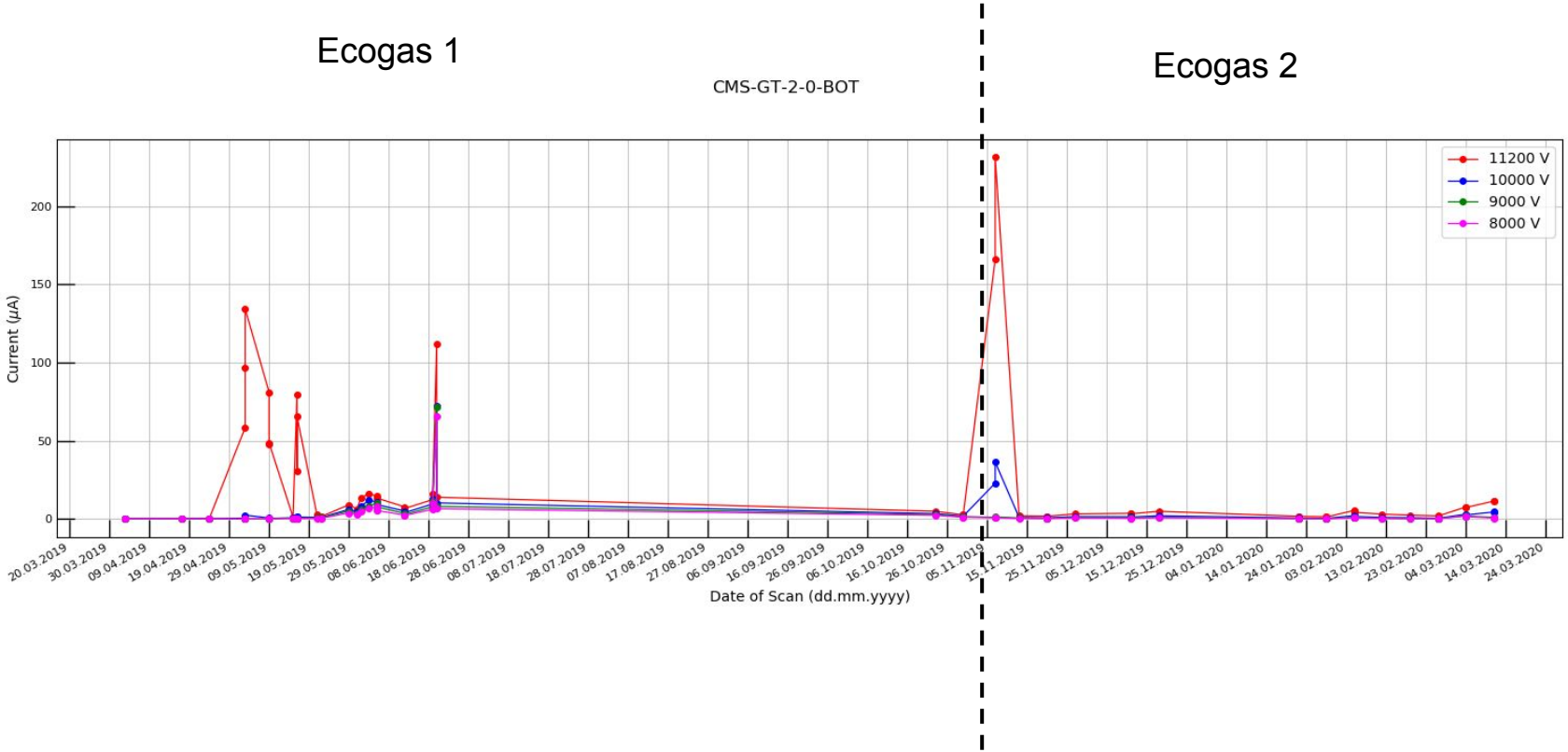
  Analysis: scans- 07 November 2019 to 11 March 2020

- The dark current monitored in all scans of the ecogas study is plotted (7 chambers)
- Data points corresponding to Ecogas1 and Ecogas2 is separated with a bold dotted line
- Atlas chamber was not tested with Ecogas2

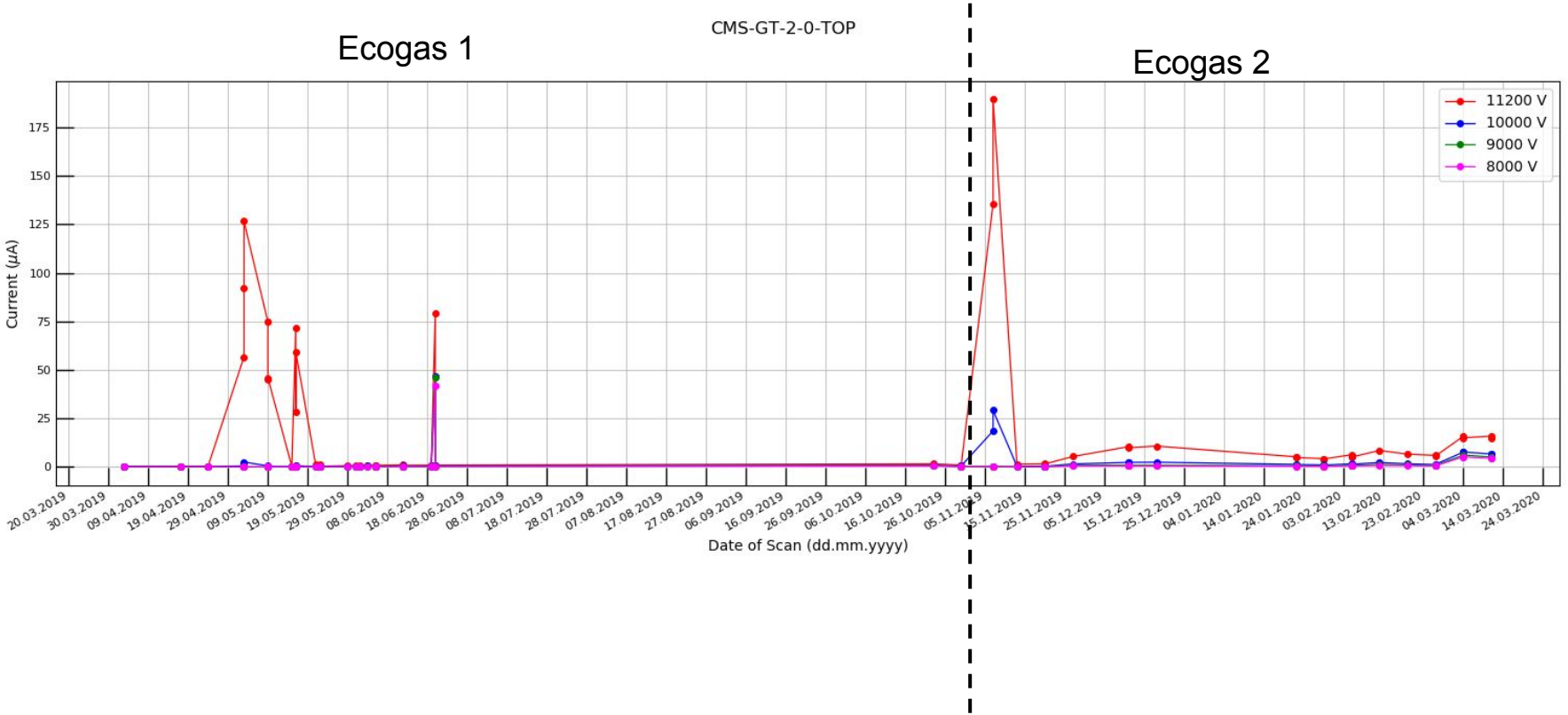
EPDT chamber



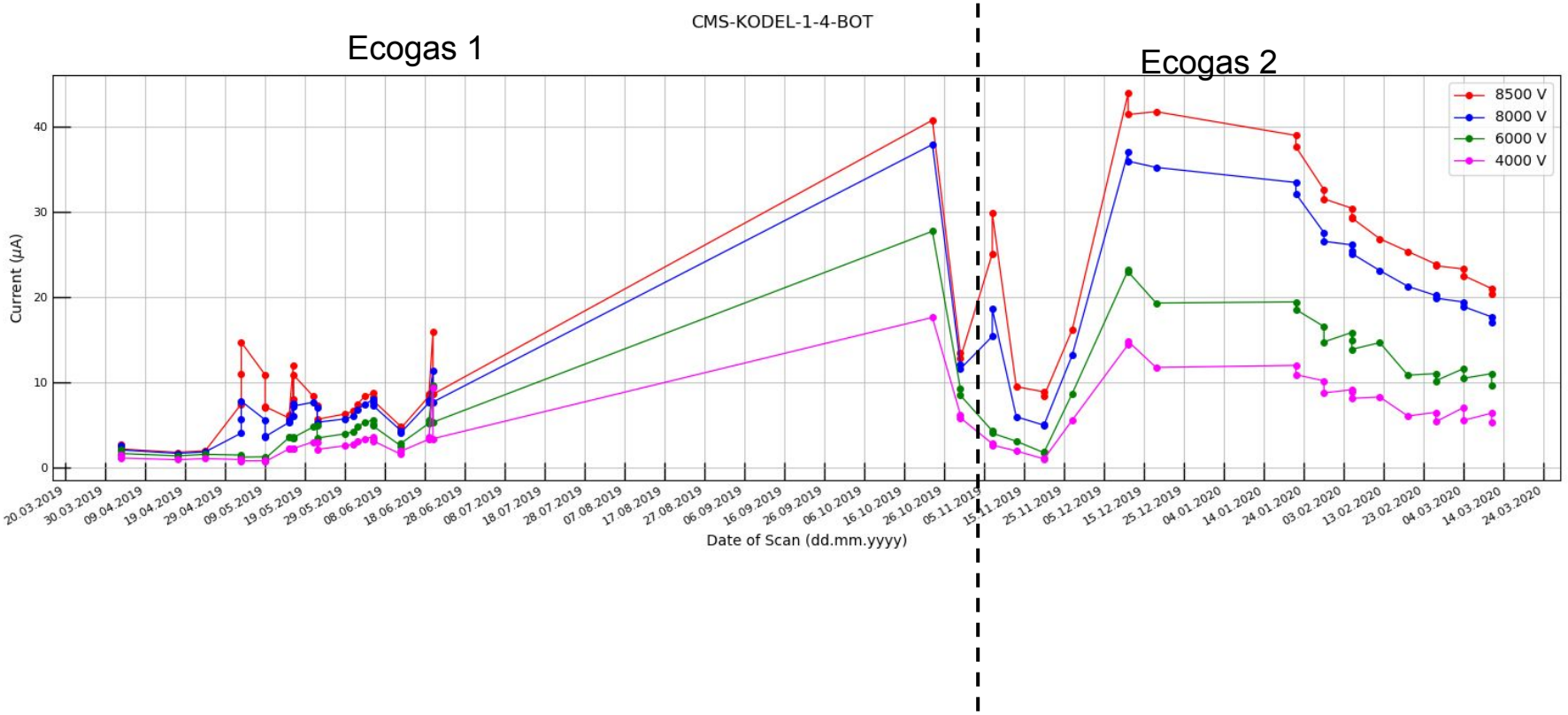
CMS-GT chamber (BOT)



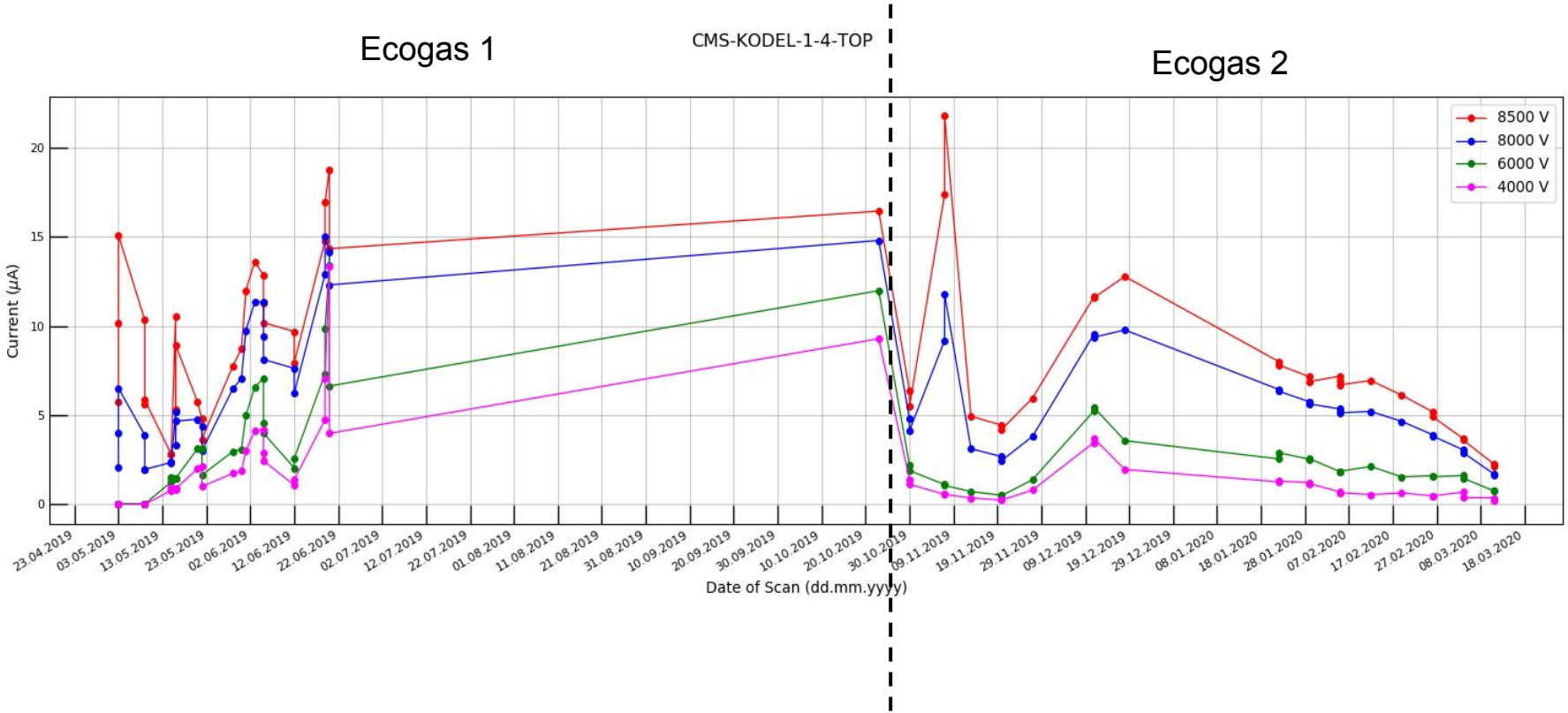
CMS-GT chamber (TOP)



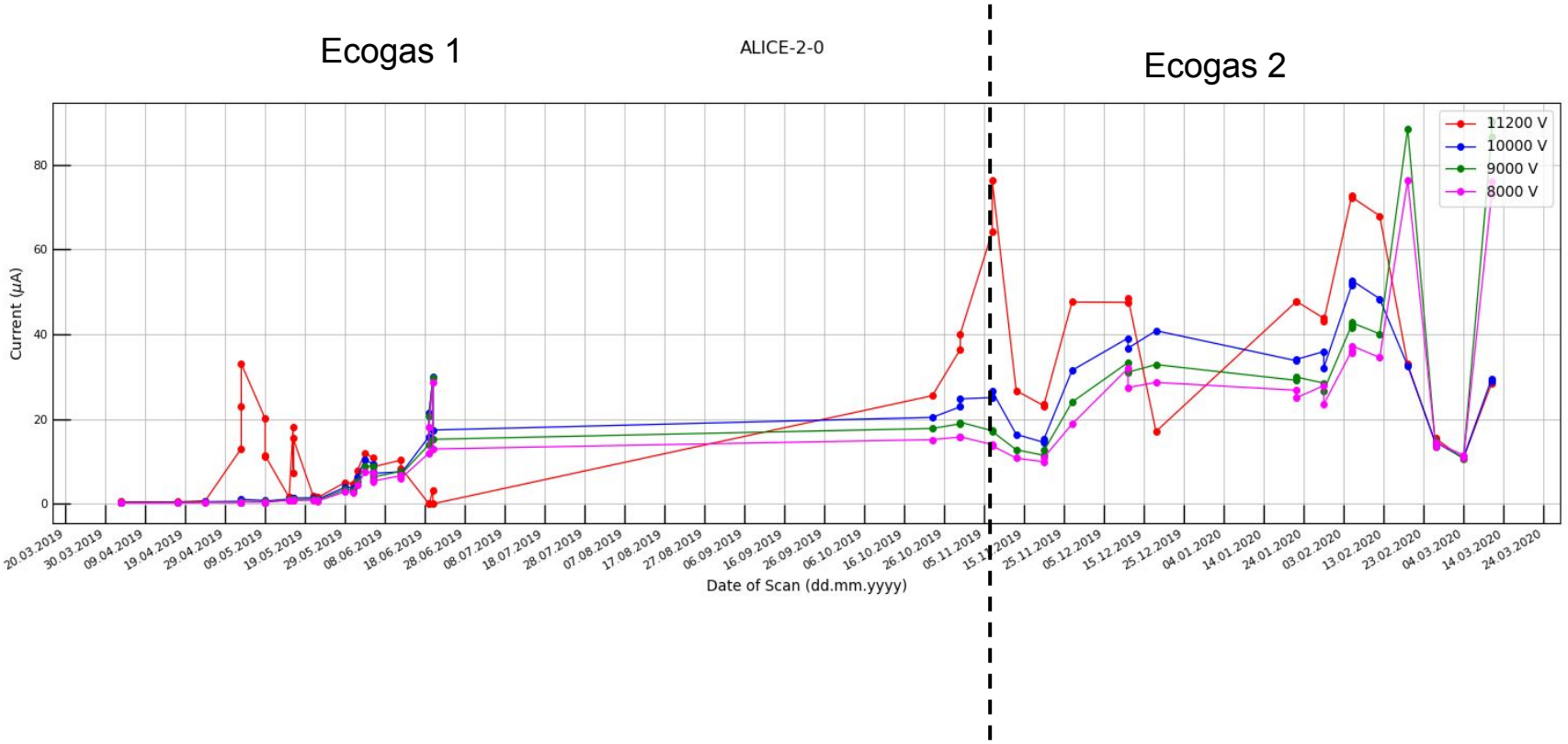
CMS-KODEL chamber (BOT)



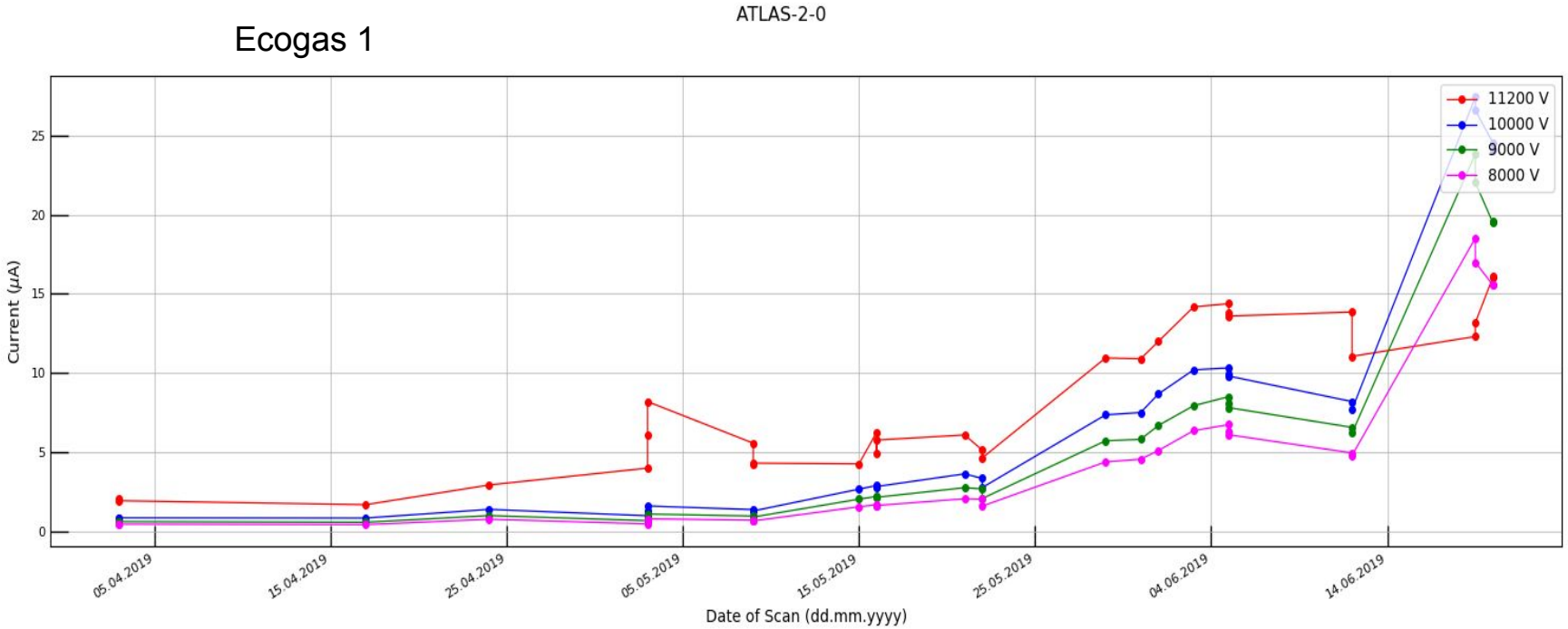
CMS-KODEL chamber (TOP)



ALICE chamber

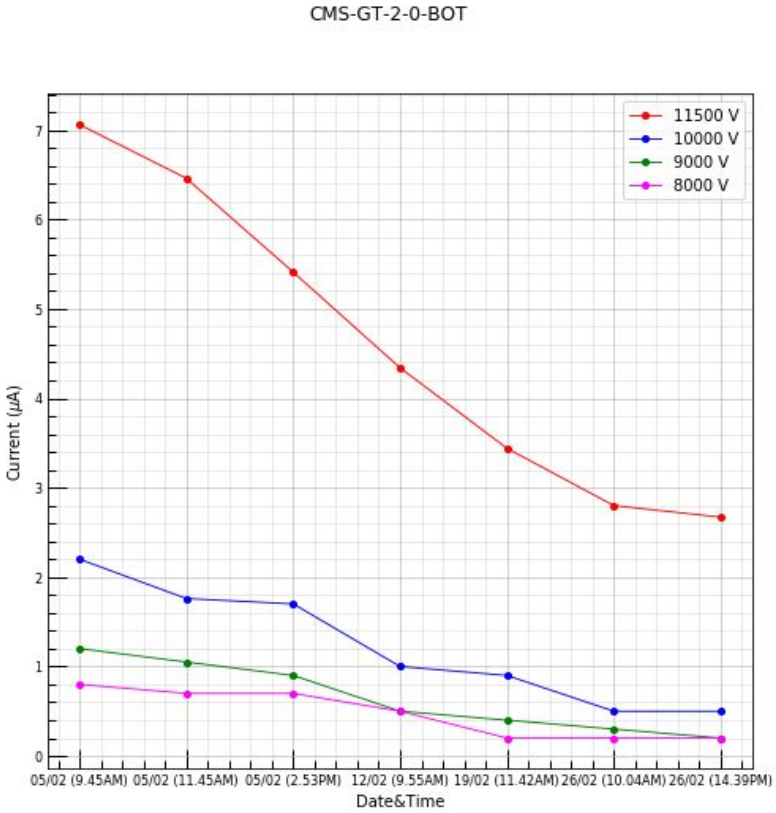


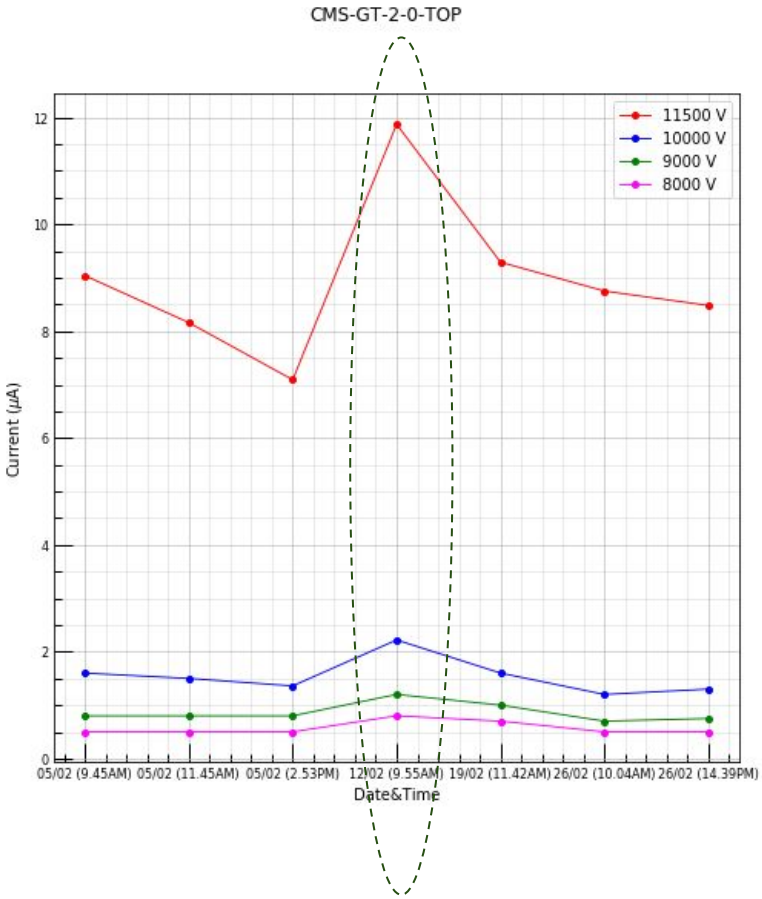
Ecogas 1


ATLAS-2-0
11200 V
10000 V
9000 V
8000 V
Current (μA)
0
5
10
15
20
25
05.04.2019
15.04.2019
25.04.2019
05.05.2019
15.05.2019
25.05.2019
04.06.2019
14.06.2019
Date of Scan (dd.mm.yyyy)

Backup slides

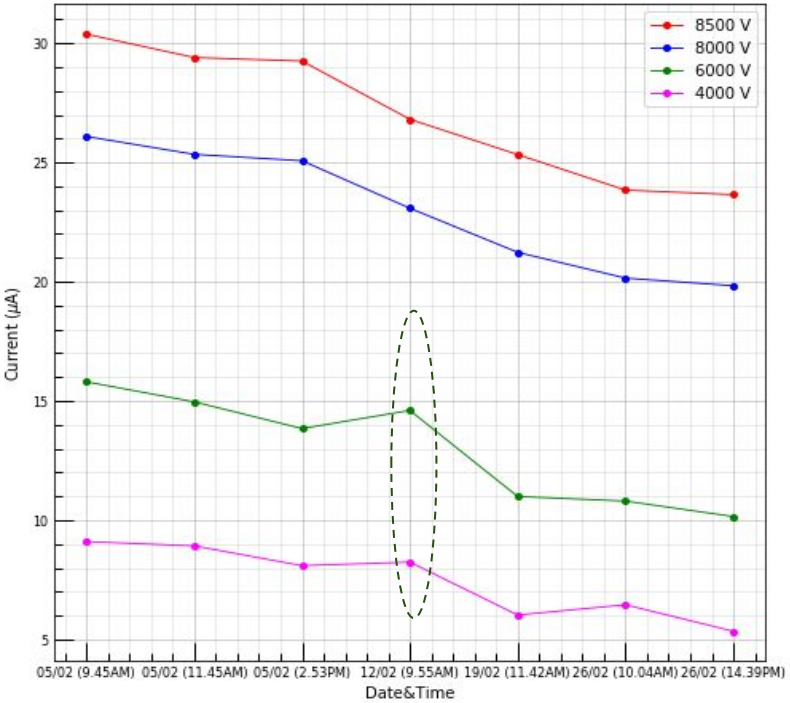
Dark current monitoring summary - February



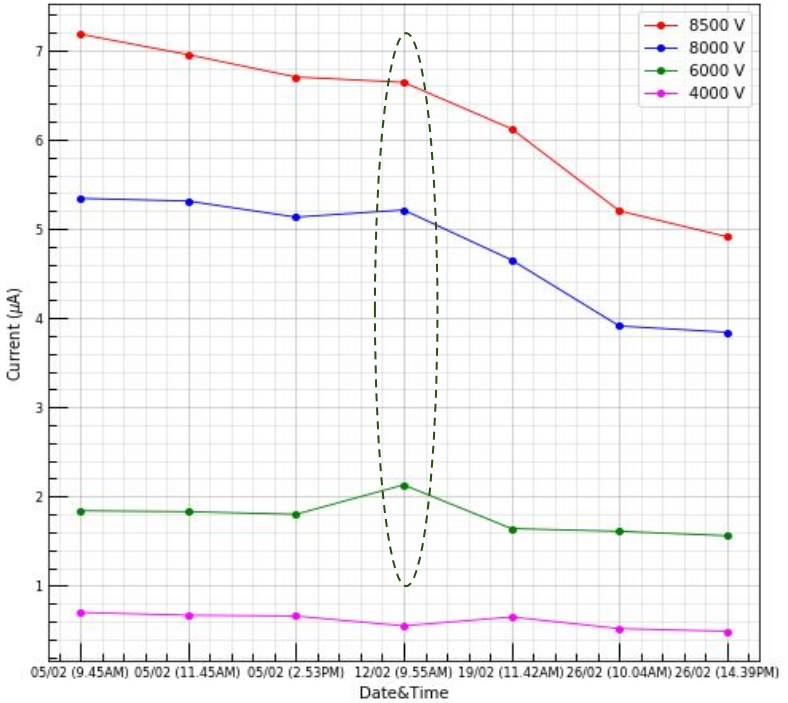


Dark current monitoring summary - February

CMS-KODEL-1-4-BOT

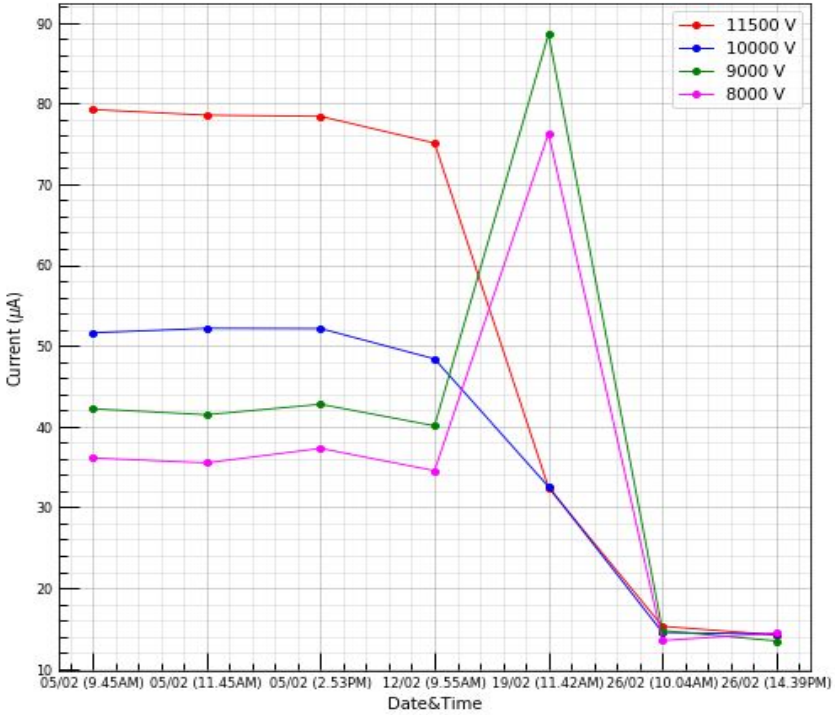


CMS-KODEL-1-4-TOP

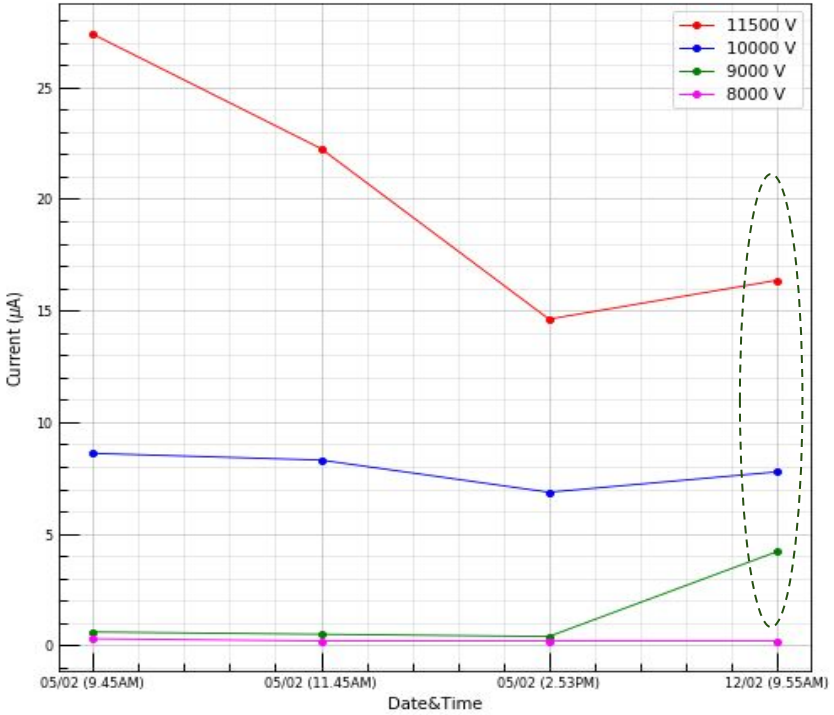


Dark current monitoring summary - February

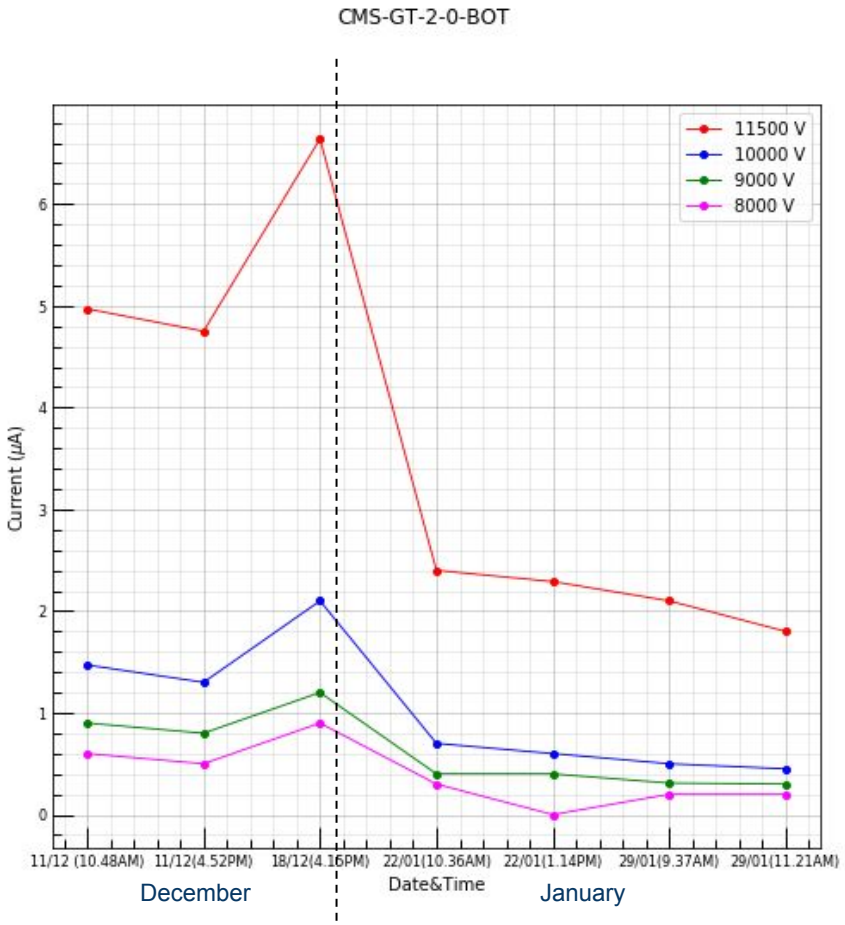
ALICE-2-0

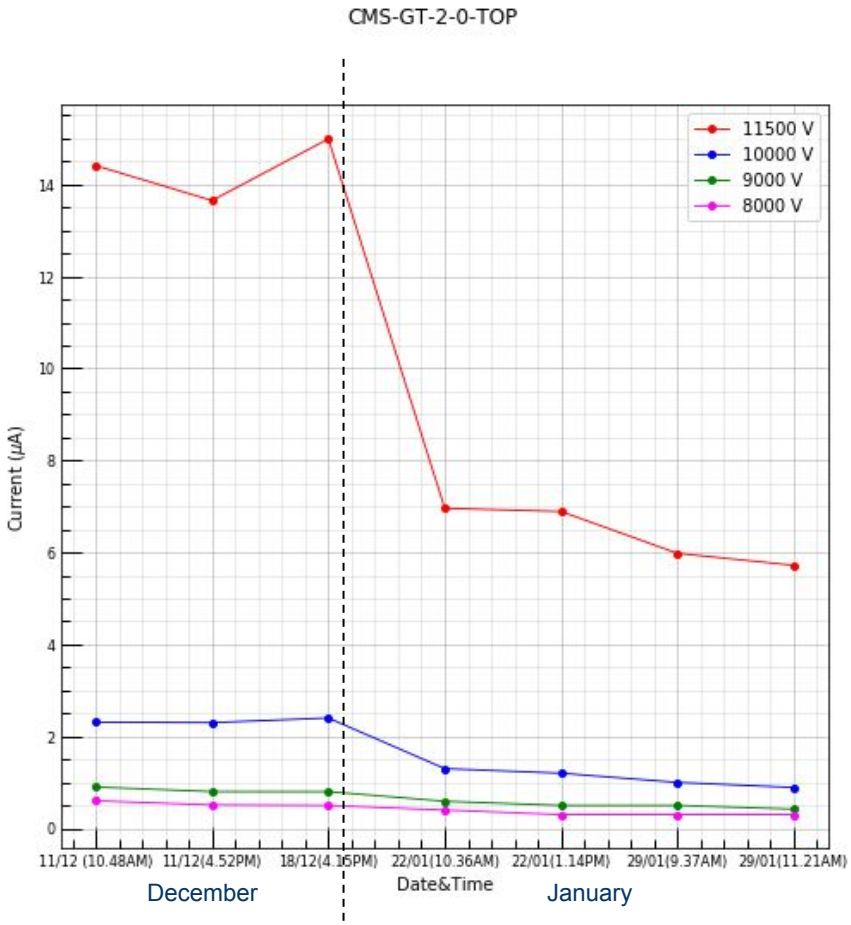


EPDT-RPC-3

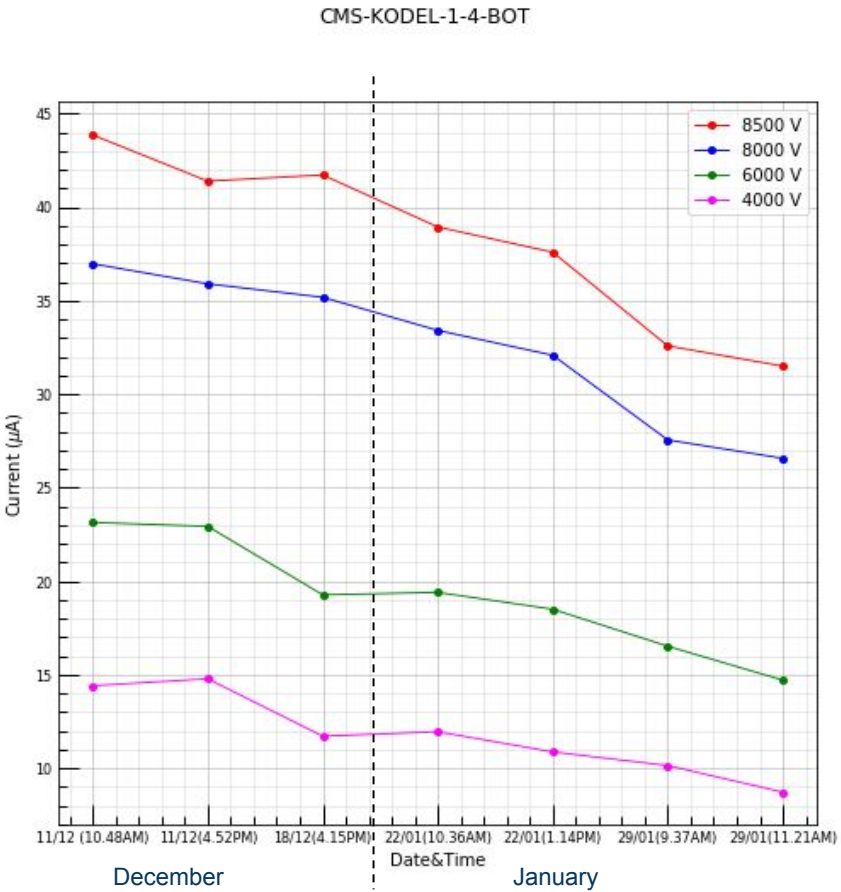


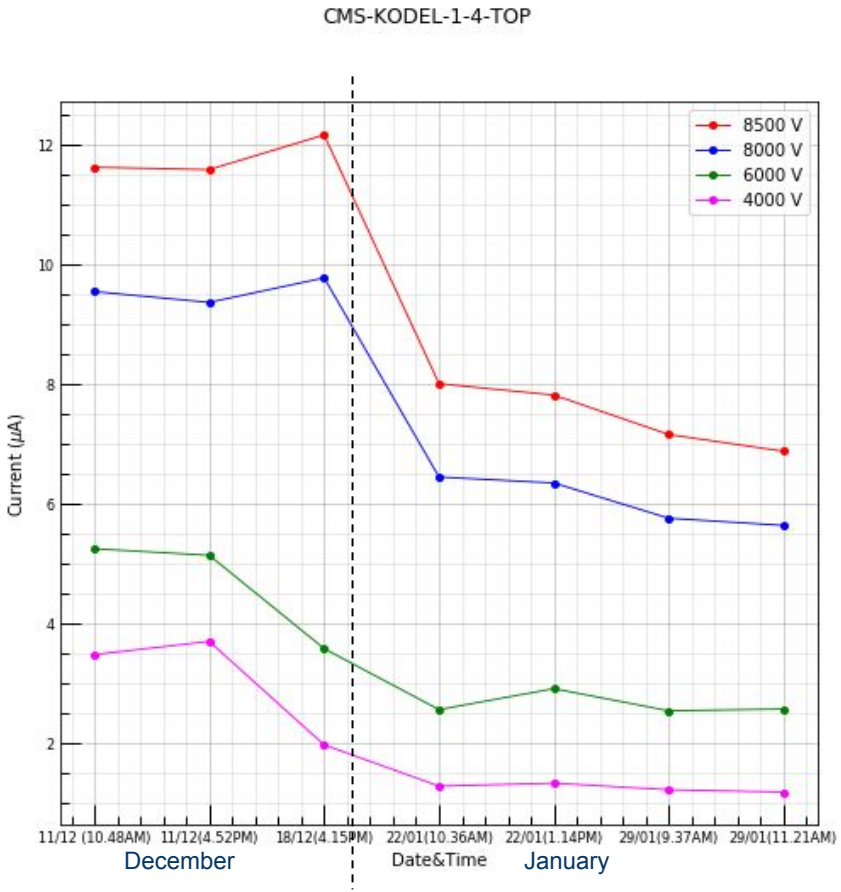
Dark current monitoring summary - December & January



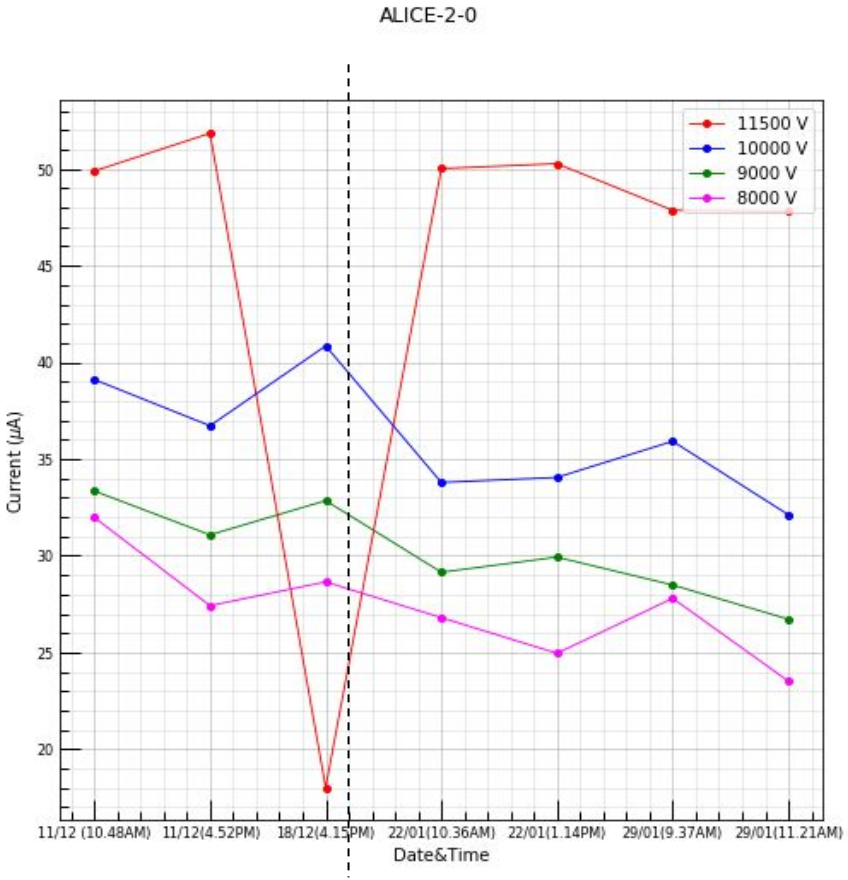


Dark current monitoring summary - December & January

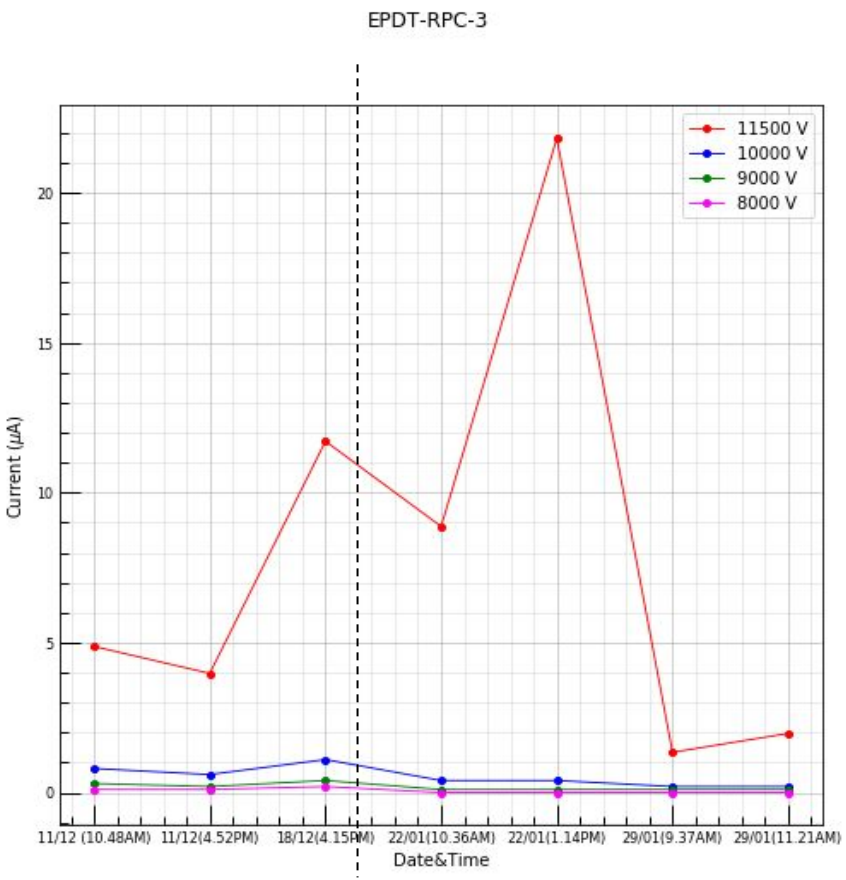




Dark current monitoring summary - December & January

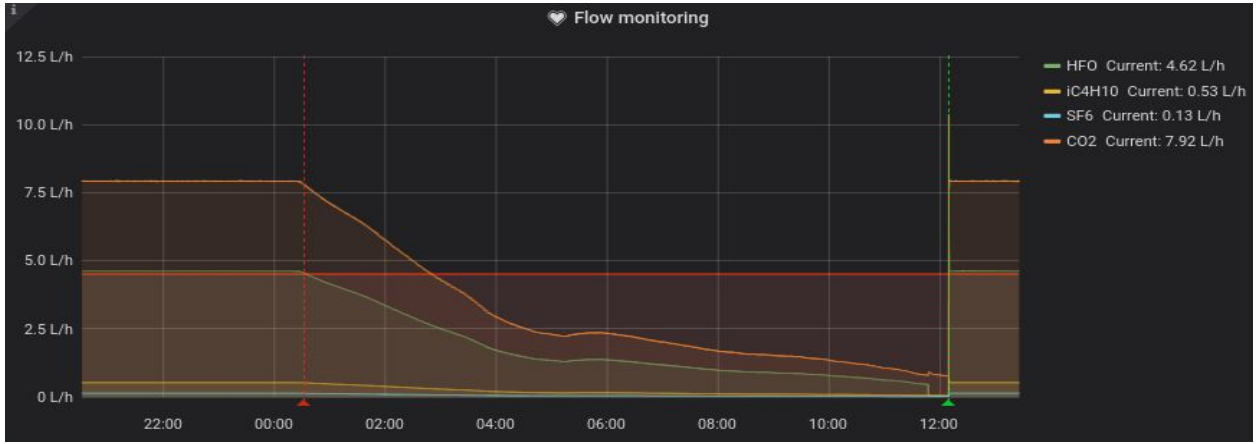


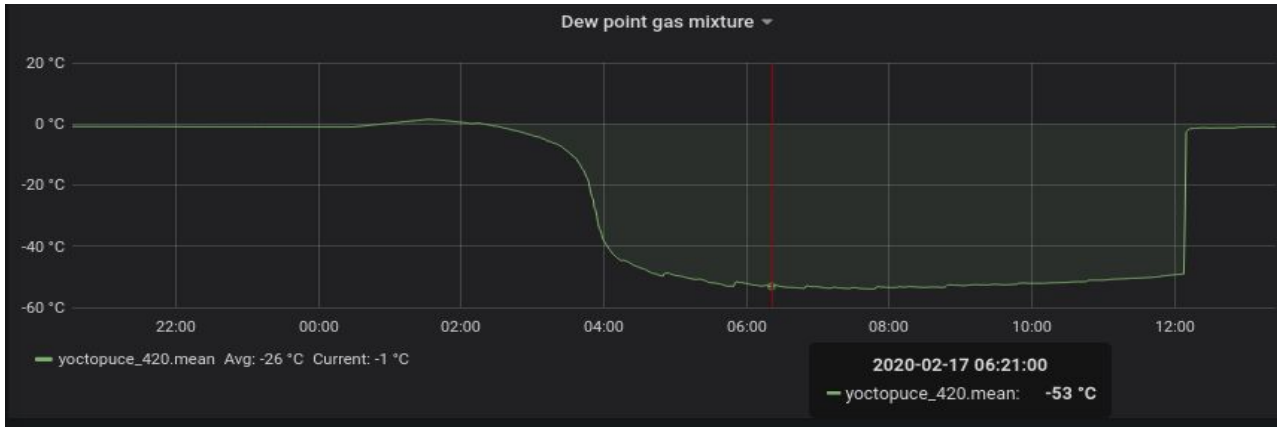
December January



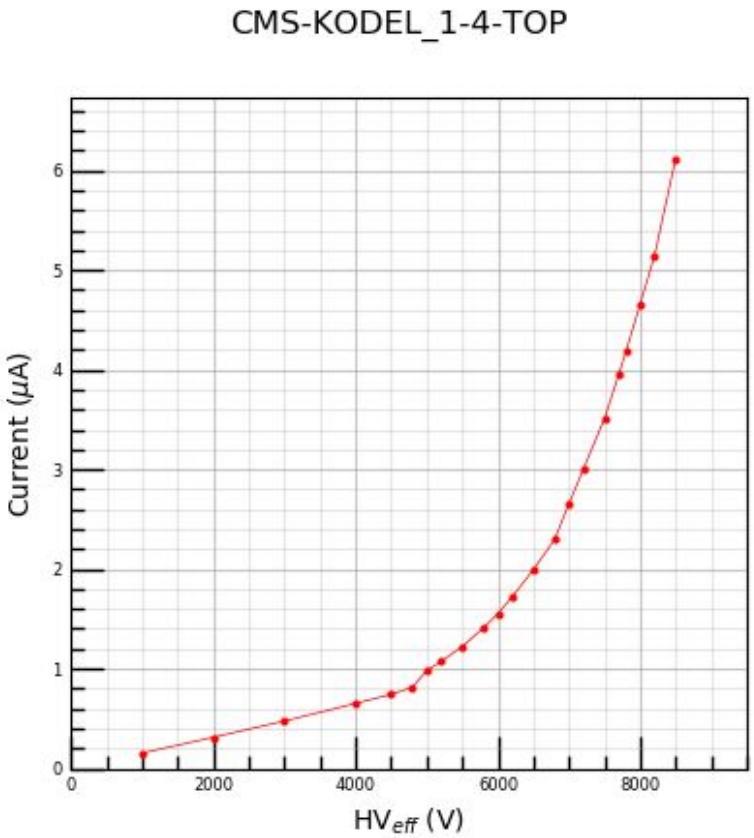
December January

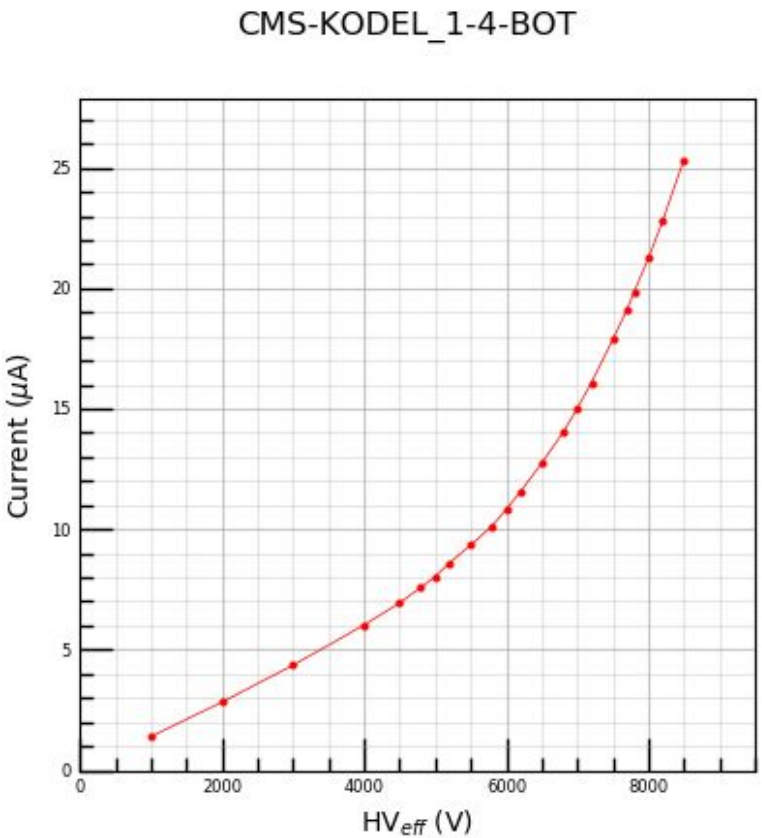
Variation in gas flow and dew point due to insufficient CO_2 supply (17/02/2020)





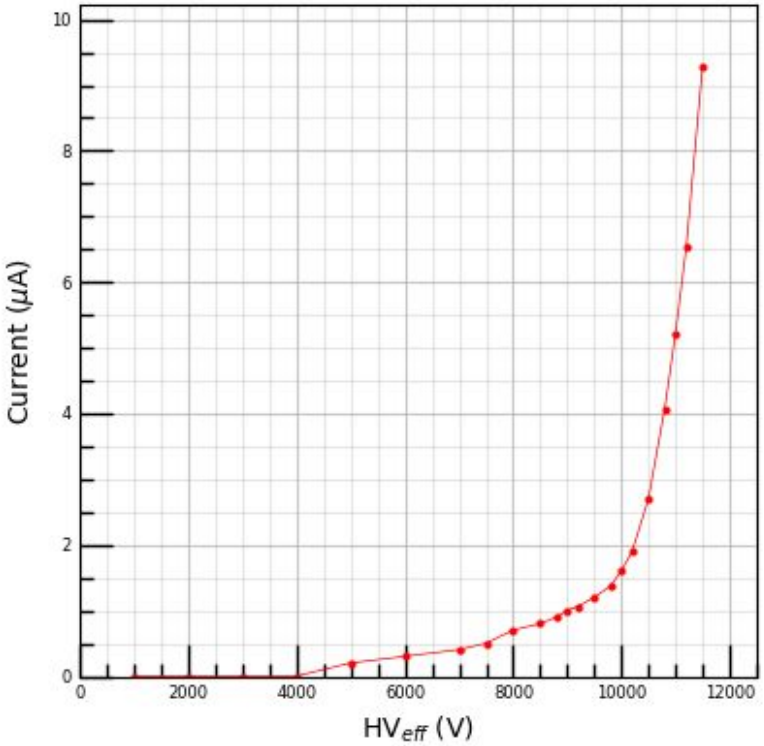
HV Scan Results (19/02/2020)



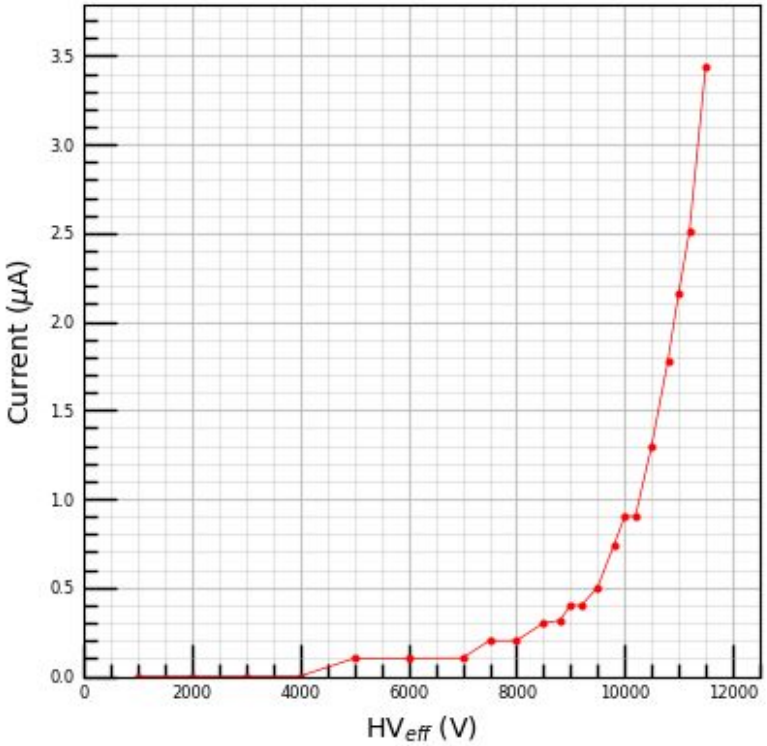


HV Scan Results (19/02/2020)

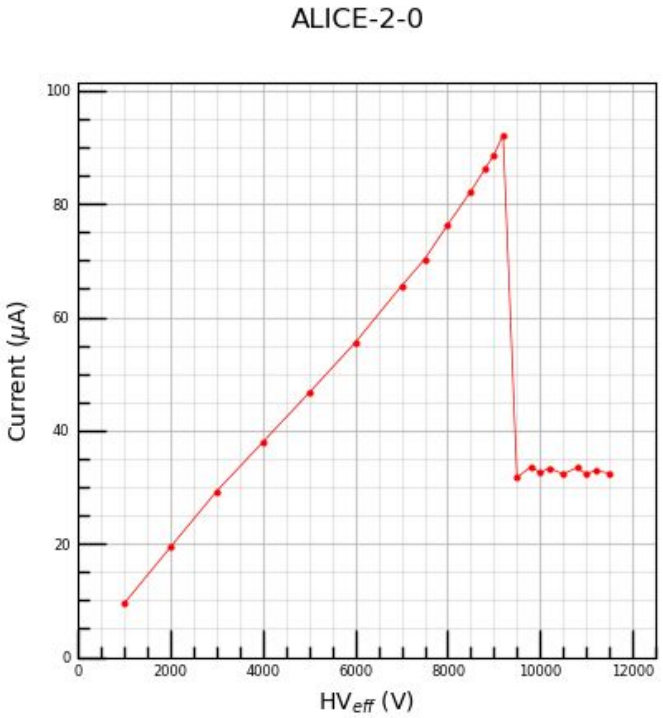
CMS-GT-2-0-TOP



CMS-GT-2-0-BOT



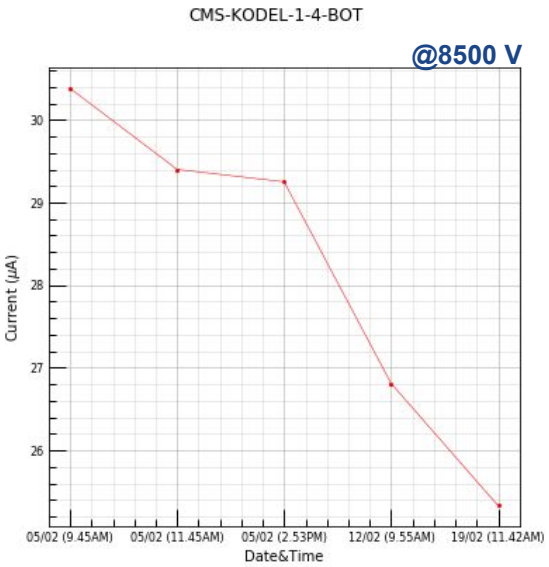
HV Scan Results (19/02/2020)

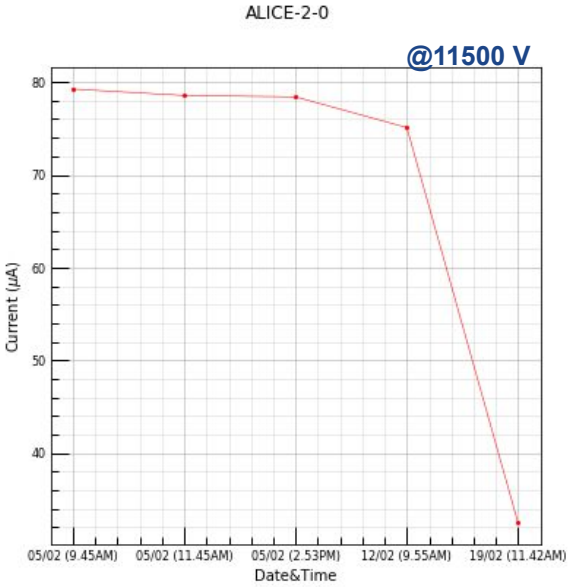


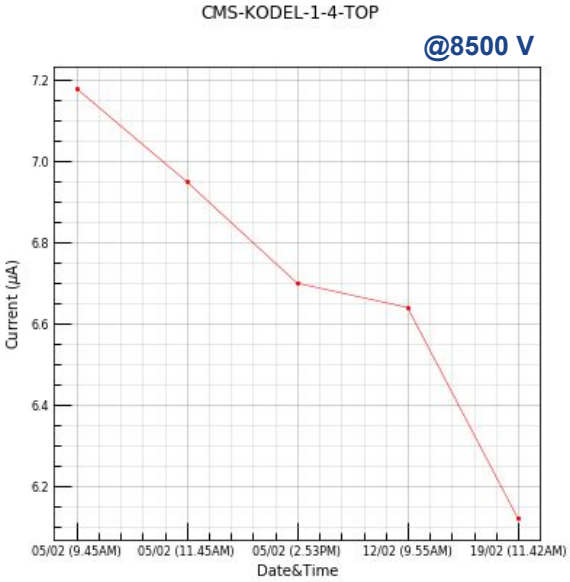
Chamber/Gap	Dark current (μA) (@final HV point)
CMS-GT-2-0-BOT	3.44
CMS-GT-2-0-TOP	9.29
CMS-KODEL-1-4-BOT	25.33
CMS-KODEL-1-4-TOP	6.12
ALICE-2-0	32.44

- **Chamber EPDT3 was removed on wednesday**

Dark current monitoring-summary (February)



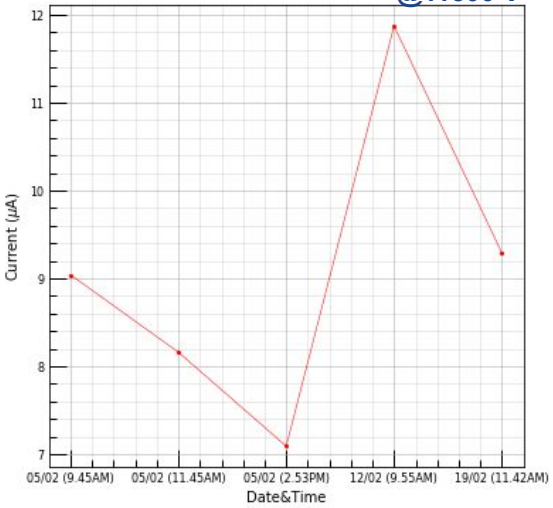




Dark current monitoring-summary (February)

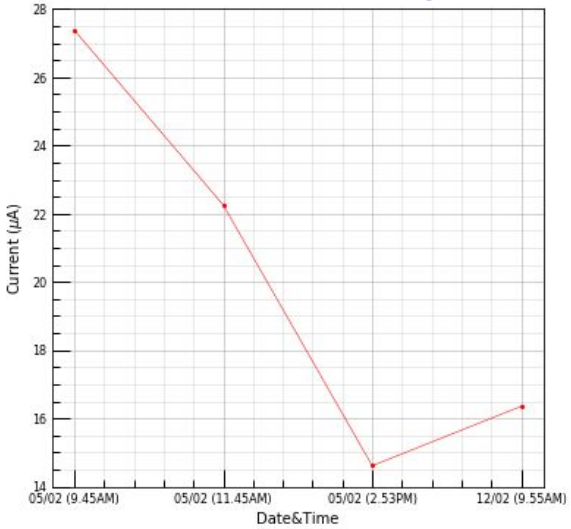
CMS-GT-2-0-TOP

@11500 V



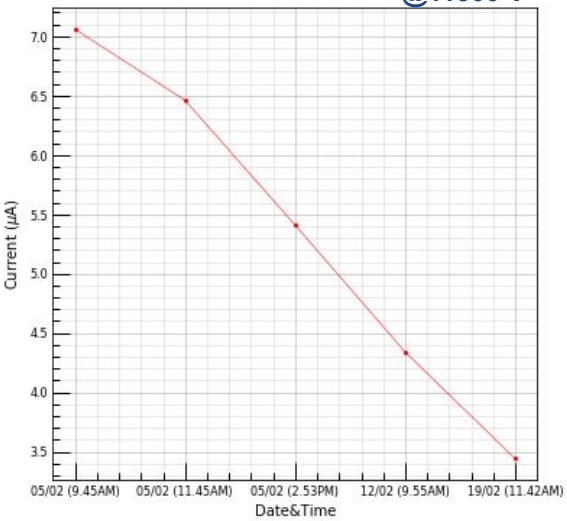
EPDT-RPC-3

@11500 V



CMS-GT-2-0-BOT

@11500 V



Summary

- Total gas flow and dew point decreased due insufficient supply of CO_2
- Dark current monitored during HV scan (19/02/2020) is pretty high for CMS-KODEL_1-4-BOT (25.33 μA) gap and ALICE chamber (32.44 μA)
- Removed chamber EPDT3 on wednesday
- CMS-GT_2-0 gap is showing unexpected behaviour in terms of dark current
- New HV scan started today @10.04AM