|  |  |  |
| --- | --- | --- |
| LHC- - - 1999-09-22 | | |
| 2PACL Systems for ATLAS & CMS Phase II Upgrade | | |
| Pressure decay test results:  {system} | | |
| Abstract  This document shows the analysis and results of the leak testing of the above-mentioned system through a pressure decay procedure over the course of several days. This document is generated using the analysis performed through the online application developed by the EP-DT-FS section. | | |
| Prepared by: | Checked by: | Approved by: |
|  |  |  |

History of Changes

|  |  |  |  |
| --- | --- | --- | --- |
| Rev. No. | Date | Pages | Description of Changes |
| 1 | {current\_date} | 1 - 5 | EP-DT: Creation of document |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Table of Contents

1. Input 4

2. Results 4

2.1 Leak Rates 4

2.2 Plots 4

# Input

The pressure decay test was performed using the following input data:

System name: {system}

System volume: {volume} {unit\_volume}

Injected starting mass: {mass} {unit\_mass}

Test medium: {medium}

Start time of the test: {start\_time}

End time of the test: {end\_time}

# Results

## Leak Rates

The leak rates have been calculates using two different methods. The leak rate is first calculated using the density as taken from the REFPROP software, based on the provided temperature and pressure. The second leak rate is calculated using the ideal gas law, and might be less accurate when using high pressure systems. A bubble rate is calculated using the first leak rate, and is given to indicate the size of a leak by how much the diameter of a bubble will grow to per second.

Leak rate (mass-density): {leak\_rate\_refprop} grams/year

Leak rate (ideal gas law): {leak\_rate\_ideal} grams/year

Bubble diameter rate: {bubble\_rate} mm/s

## Plots

The following plots display the pressure, P/T and mass over the selected time range. The orange-dotted trendline is displayed to show over which range the leak rate has been calculated. The leak rate will only be calculated over 24-hour periods, to filter out the day-night cycle.