

# The performance of back up power at KMBO primary seismic station post upgrade

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## INTRODUCTION AND MAIN RESULTS

This poster paper demonstrates how critical stable power can be for remote IMS stations. For KMBO seismic station, CDGA ENGINEERING CONSULTANTS LTD undertook a power assessment survey in August 2019. Following their recommendation, power upgrade involving installation of back up power supply ([IRS-149702](#)) was undertaken from August to October 2021. This proved to be the only optimal solution to rampant mains power outages which would affect data availability (DA), data transmission and mission capability (MC). The back up power is now able to last for twenty one (21) days without AC mains power.

## Introduction

Power system upgrade at KMBO was occasioned by rampant mains power outages affecting data acquisition and transmission to IDC ([IRS-PR-KMBO-161955](#): KMBO infrastructure upgrade commencing [2021/08/16](#)).

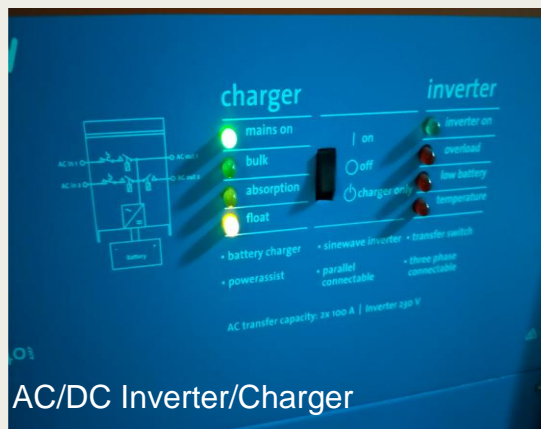
KMBO experienced a myriad of power related outages, and voltage fluctuations leading to data gaps, data and GCI outages.

PRs and outage tickets from IDC/OPS and Hughes Network Systems LLC were a common phenomenon.

In addition to power system upgrade, there was need to upgrade the Europa-T digitizer and seismometer as current STS-2.0 sensor coil hampered calibration ([2018 – 2022](#)).

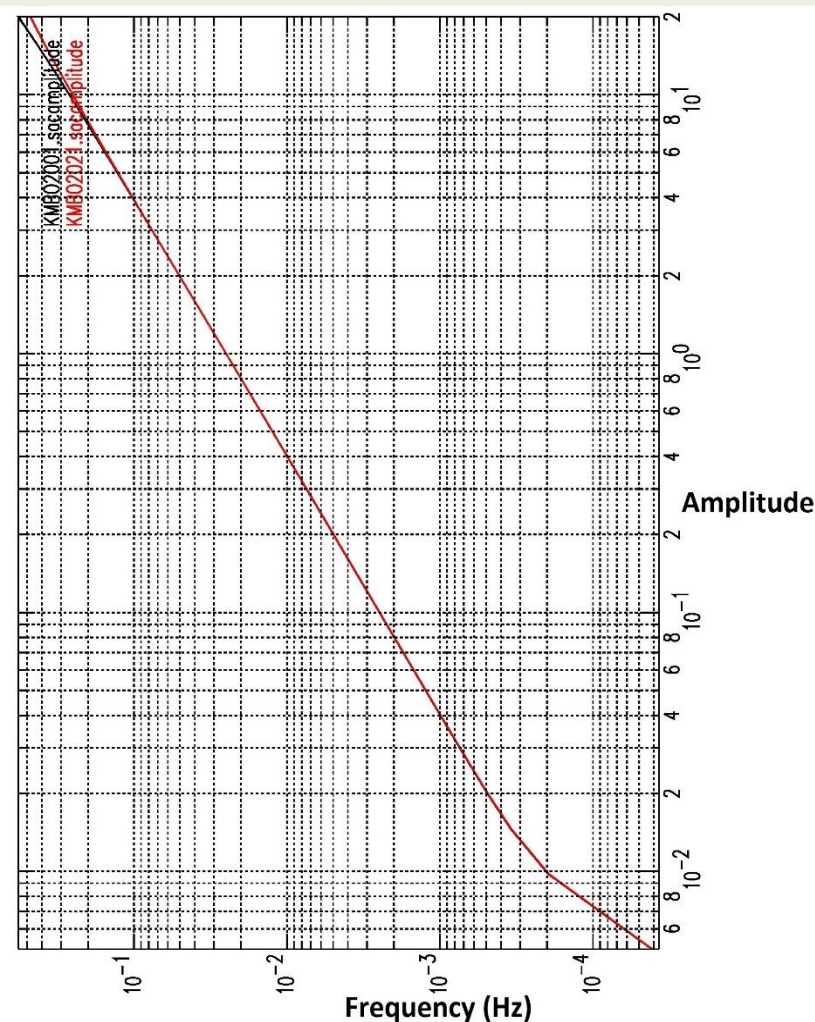
Timing issues at KMBO ([IRS – 156021](#))

## Equipment upgrade at KMBO





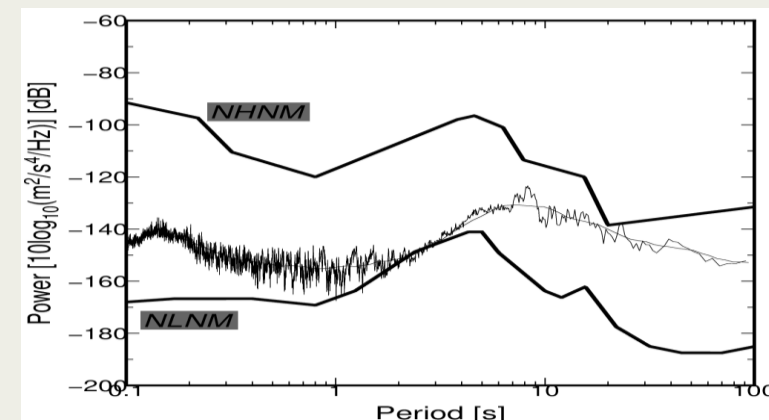
## Frequency Response (STS-2.0 vs STS-2.5)



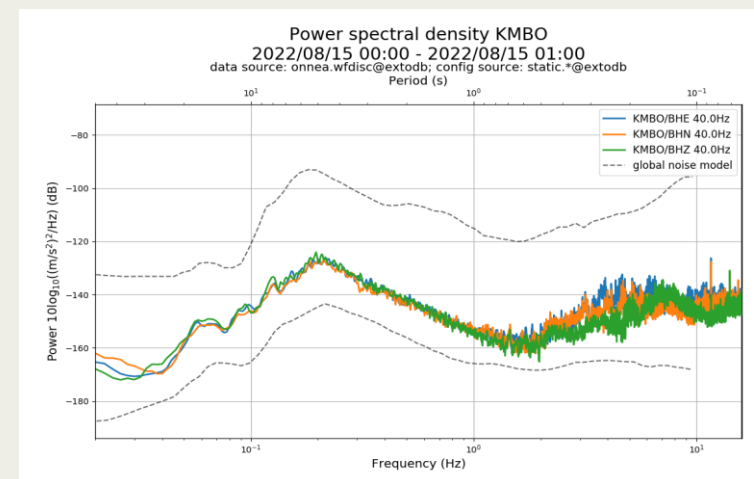
## STS seismometer noise levels pre- and post- upgrade



STS-2.0

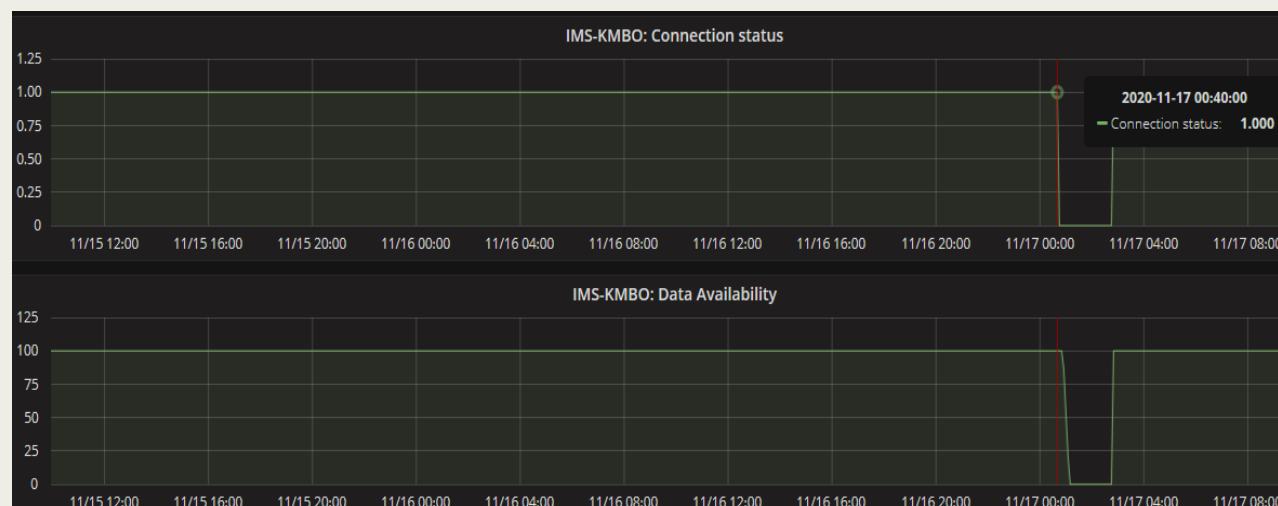
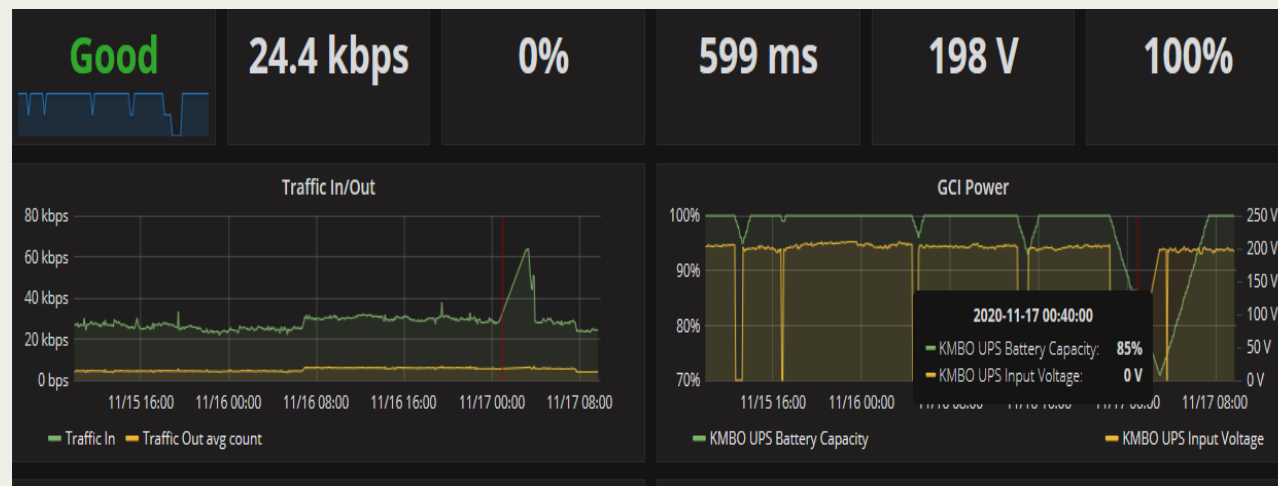


STS-2.5





## Mains AC power performance pre- upgrade



## Summary

### Pre- Upgrade:

- DA zero percent (0%) as long as mains power outage would persists
- Seismic station none mission capable (Non-MC)

### Post- Upgrade

- The power bank has been tested, through "force majeure", and seismic station proven to last for 21 days without AC mains power.

### Current status

- KMBO continues to be out of IDC processing since July 2, 2024 as per [IRS-183645](#) due to timing issues

