**High resolution data information guide**

The folder “*Sample\_19Hz\_Oscillations\_data*” contains high resolution (20ms) data for 8 events captured at Red-Cliffs Transmission Station (RCTS).

The naming of the folders for each event is as follows:



Inside each folder, there are .csv files (depending on data availability), which include high resolution (20ms) data for available channels around RCTS. The .csv files in each folder can be any (or all) of the following files:

* *Date*\_*time*\_VIC\_RCTS\_RCTS\_1\_2
* *Date*\_*time*\_VIC\_RCTS\_RCTS\_2\_1
* *Date*\_*time*\_VIC\_RCTS\_RCTS\_2\_2
* *Date*\_*time*\_VIC\_RCTS\_RCTS\_3\_1

The .csv file with the general name of ***Date*\_*time*\_VIC\_RCTS\_RCTS\_X\_Y** includes the following data (each channel name corresponds to one column of the .csv file)

**A- *Date*\_*time*\_VIC\_RCTS\_RCTS\_1\_2**

**Channel Name Channel Description**

~ 22KV PSel RphVT Phase 1 to ground RMS voltage at 22kV bus

~ 22KV PSel WphVT Phase 2 to ground RMS voltage at 22kV bus

~ 22KV PSel BphVT Phase 3 to ground RMS voltage at 22kV bus

~ TR1A 22KV RphCT Phase 1 RMS current of 1A 220/22kV transformer

~ TR1A 22KV WphCT Phase 2 RMS current of 1A 220/22kV transformer

~ TR1A 22KV BphCT Phase 3 RMS current of 1A 220/22kV transformer

~ TR2A 22KV RphCT Phase 1 RMS current of 2A 220/22kV transformer

~ TR2A 22KV WphCT Phase 2 RMS current of 2A 220/22kV transformer

~ TR2A 22KV BphCT Phase 3 RMS current of 2A 220/22kV transformer

~ TR3A 22KV RphCT Phase 1 RMS current of 3A 220/22kV transformer

~ TR3A 22KV WphCT Phase 2 RMS current of 3A 220/22kV transformer

~ TR3A 22KV BphCT Phase 3 RMS current of 3A 220/22kV transformer

~ #1 22KVCAP RphCT Phase 1 RMS current of 22kV cap-bank

~ #1 22KVCAP WphCT Phase 2 RMS current of 22kV cap-bank

~ #1 22KVCAP BphCT Phase 3 RMS current of 22kV cap-bank

P3 TR1A 22KV 3-Phase active power of 220/22kV transformer 1A

Q3 TR1A 22KV 3-Phase reactive power of 220/22kV transformer 1A

P3 TR2A 22KV 3-Phase active power of 220/22kV transformer 2A

Q3 TR2A 22KV 3-Phase reactive power of 220/22kV transformer 2A

P3 TR3A 22KV 3-Phase active power of 220/22kV transformer 3A

Q3 TR3A 22KV 3-Phase reactive power of 220/22kV transformer 3A

P3 #1 22KV Cap Bank 3-Phase active power through 22kV cap-bank

Q3 #1 22KV Cap Bank 3-Phase reactive power through 22kV cap-bank

PPS ~V TR1A 22KV Posit. Sequence Voltage at 22kV transformer 1A

PPS ^V TR1A 22KV Posit. Sequence Phase Angle at 22kV transformer 1A

PPS ~V TR2A 22KV Posit. Sequence Voltage at 22kV transformer 2A

PPS ^V TR2A 22KV Posit. Sequence Phase Angle at 22kV transformer 2A

Frq. TR1A 22KV Frequency at 22kV bus

**B- *Date*\_*time*\_VIC\_RCTS\_RCTS\_2\_1**

**Channel Name Channel Description**

~ 66KV PSel RphVT Phase 1 to ground RMS voltage at 66kV bus2

~ 66KV PSel WphVT Phase 2 to ground RMS voltage at 66kV bus2

~ 66KV PSel BphVT Phase 3 to ground RMS voltage at 66kV bus2

~ MBN 66KV L RphCT Phase 1 RMS current towards MBN load

~ MBN 66KV L WphCT Phase 2 RMS current towards MBN load

~ MBN 66KV L BphCT Phase 3 RMS current towards MBN load

~ MDA#1 66KV RphCT Phase 1 RMS current towards MDA1 load

~ MDA#1 66KV WphCT Phase 2 RMS current towards MDA1 load

~ MDA#1 66KV BphCT Phase 3 RMS current towards MDA1 load

~ MDA#2 66KV RphCT Phase 1 RMS current towards MDA2 load

~ MDA#2 66KV WphCT Phase 2 RMS current towards MDA2 load

~ MDA#2 66KV BphCT Phase 3 RMS current towards MDA2 load

P3 MBN 66KV Line 3-Phase active power of MBN load

Q3 MBN 66KV Line 3-Phase reactive power of MBN load

P3 MDA#1 66KV Line 3-Phase active power of MDA1 load

Q3 MDA#1 66KV Line 3-Phase reactive power of MDA1 load

P3 MDA#2 66KV Line 3-Phase active power of MDA2 load

Q3 MDA#2 66KV Line 3-Phase reactive power of MDA2 load

PPS ~V MBN 66KV Line Positive Sequence Voltage at MBN 66kV

PPS ^V MBN 66KV Line Positive Sequence Phase Angle at MBN 66kV

PPS ~V MDA#1 66KV Line Positive Sequence Voltage at MDA1 66kV

PPS ^V MDA#1 66KV Line Positive Sequence Phase Angle at MDA1 66kV

Frq. MBN 66KV Line Frequency at MBN 66kV

**C- *Date*\_*time*\_VIC\_RCTS\_RCTS\_2\_2**

**Channel Name Channel Description**

~ 66KV PSel RphVT Phase 1 to ground RMS voltage at 66kV bus1

~ 66KV PSel WphVT Phase 1 to ground RMS voltage at 66kV bus1

~ 66KV PSel BphVT Phase 1 to ground RMS voltage at 66kV bus1

~ RVL 66KV L RphCT Phase 1 RMS current towards Robinvale

~ RVL 66KV L WphCT Phase 2 RMS current towards Robinvale

~ RVL 66KV L BphCT Phase 3 RMS current towards Robinvale

~ HTH 66KV L RphCT Phase 1 RMS current towards Hattah

~ HTH 66KV L WphCT Phase 2 RMS current towards Hattah

~ HTH 66KV L BphCT Phase 3 RMS current towards Hattah

P3 RVL 66KV Line 3-Phase active power Toward Robinvale

Q3 RVL 66KV Line 3-Phase reactive power Toward Robinvale

P3 HTH 66KV Line 3-Phase active power Toward Hattah

Q3 HTH 66KV Line 3-Phase reactive power Toward Hattah

PPS ~V RVL 66KV Line Positive Sequence Voltage at Robinvale 66kV

PPS ^V RVL 66KV Line Positive Sequence Phase Angle at Robinvale 66kV

PPS ~V HTH 66KV Line Positive Sequence Voltage at Hattah 66kV

PPS ^V HTH 66KV Line Positive Sequence Phase Angle at Hattah 66kV

Frq. RVL 66KV Line Frequency at Robinvale 66kV

**D- *Date*\_*time*\_VIC\_RCTS\_RCTS\_3\_1**

**Channel Name Channel Description**

~ BSS&WETS/KGTS RV Ph1-G RMS voltage at the connection to BSS&WETS

~ BSS&WETS/KGTS WV Ph2-G RMS voltage at the connection to BSS&WETS

~ BSS&WETS/KGTS BV Ph3-G RMS voltage at the connection to BSS&WETS

~ BSS #1B 220KV RI Phase 1 RMS current from 220kV bus1 to BSS

~ BSS #1B 220KV WI Phase 2 RMS current from 220kV bus1 to BSS

~ BSS #1B 220KV BI Phase 3 RMS current from 220kV bus1 to BSS

~ BSS #2B 220KV RI Phase 1 RMS current from 220kV bus2 to BSS

~ BSS #2B 220KV WI Phase 2 RMS current from 220kV bus2 to BSS

~ BSS #2B 220KV BI Phase 3 RMS current from 220kV bus2 to BSS

~ WETS/KGTS #1B RI Phase 1 RMS current from 220kV bus1 to WETS/KGTS

~ WETS/KGTS #1B WI Phase 2 RMS current from 220kV bus1 to WETS/KGTS

~ WETS/KGTS #1B BI Phase 3 RMS current from 220kV bus1 to WETS/KGTS

P3 BSS L #1B 220KV 3-Ph active power from 220kV bus1 into OX1 line

Q3 BSS L #1B 220KV 3-Ph reactive power from 220kV bus1 into OX1 line

P3 BSS L #2B 220KV 3-Ph active power from 220kV bus2 into OX1 line

Q3 BSS L #2B 220KV 3-Ph reactive power from 220kV bus2 into OX1 line

P3 WETS\_KGTS L #1B 3-Ph active power from 220kV bus1 into WETS/KGTS

Q3 WETS\_KGTS L #1B 3-Ph reactive power from 220kV bus1 to WETS/KGTS

PPS ~V BSS L #1B 220KV  Positive Sequence Voltage at 220kV bus1

PPS ^V BSS L #1B 220KV Positive Sequence Phase Angle at 220kV bus1

PPS ~V BSS L #2B 220KV Positive Sequence Voltage at 220kV bus2

PPS ^V BSS L #2B 220KV Positive Sequence Phase Angle at 220kV bus2

Frq. BSS L #1B 220KV Frequency at 220kV bus1