

Waves PDS Data Products – Preliminary Ideas

Level 2 Dataset

Uncalibrated, Decompressed, Unsegmented, Packets.

```
WAVES_LEVEL2/T2009XXXX/T200910XX/T20091001/  
|  
|-- WAV_20091001T00_LVL2-V00.PKT
```

One file per hour, up to 24 in one directory.

Issues:

1. Can we use variable length records?
2. Should the level 2 product be included?
3. Do we have to segment into Low Rate, High Rate, and Housekeeping packets, or can all be lumped together? Does the inclusion of housekeeping data trigger ITAR issues?
4. Should we pull the Noise Reduction Diagnostic packets out of these and generate a separate Level2 data set?
5. What do we name this data set?

Level 3 Datasets

1. Onboard Spectra - Full Resolution, Calibrated.

Due to the fact that the creation cadence of LFR, MFR, HFR Base-band, and HFR Sweep packets will be equal in all modes (apoapsis, intermediate and perapsis) we can put all frequencies in a single row. Thus vastly simplifying the PDS products.

```
WAVES_LEVEL3_SPECTRA/T2009XXXX/T200910XX/  
|  
|-- WAV_20091001T00_SPEC_B-V00.DAT    (Magnetic Spectra)  
|-- WAV_20091001T00_SPEC_E-V00.DAT    (Electric Spectra)
```

This is one directory per year, one per month, and two files per day, for a max of 48 items in any one directory.

Issues:

1. Will the spectra production cadence ever be so far off that this data set will consist of so many MISSING_CONSTANTS as to make this format unwieldy?
2. What do we name this data set?
3. Is it reasonable to store this as ASCII?

2. Waveforms, Full Resolution, Calibrated, Variable Length.

WAVES_FULL_WAVEFORM/T2009XXXX/T200910XX/

```
|  
|  
|-- WAV_20091001_50KHZ_B-V00.DAT (LBR B Waveform)  
|-- WAV_20091001_50KHZ_E-V00.DAT (LFR Lo E Waveform)  
|-- WAV_20091001_375KHZ_E-V00.DAT (LFR Hi E Waveform)  
|-- WAV_20091001_7MHZ_E-V00.DAT (HFWR Base-band Waveform)  
|-- WAV_20091001_MIXED_E-V00.DAT (HFWR Mixed Waveform)
```

This is one directory per year, one per month, and a max of 5 file per day, for a max of 55 items in any one directory, though actual data rates will cause this to be 22 to 33 files per directory.

Issues:

1. We strongly prefer to use variable length records for this product.
2. Should these be stored calibrated, or should calibration files be included along with example calibration source code examples, (I think this is how we did it on Cassini).
3. Is it reasonable to store as ASCII?
4. What do we name this data set?
5. If the SAMPLING_PARAMETER_INTERVAL keyword can be made into a “value pointer” then all the files can be collapsed into one. Is this worth it?