Dictionary Creation Exercise

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| **Class Name: Instrument\_Status** | | | | | | |
| Attribute | Min/Max | Description | Type | Min | Max | Values |
| number\_of\_samples | 1,1 | Number of samples to be measured in the test. | ASCII\_NonNegative\_Integer | 0 | 65535 |  |
| sampling\_frequency | 1,1 | Sampling frequency for the commanded test. | ASCII\_NonNegative\_Integer | 0 | 65535 |  |
| instrument\_status\_type | 1,1 | The first 4 bits (MSB ones) determine the Current SW mode as follows: 1 -> StandBy; 2-> Ready; 4 -> Safe. The next 4 bits (LSB ones) determine the test ID. | ASCII\_NonNegative\_Integer | Not  Used | Not  Used | =1 meaning Standby, =2 meaning Ready, = 4 meaning Safe |
| beginning\_of\_test\_timestamp | 1,1 | Timestamp at the beginning of the test (since the last power on of RAMAN). | ASCII\_NonNegative\_Integer | 0 | 65535 |  |
| rotation\_angle | 1,1 | rotation angle, not actually an rls attribute | ASCII\_Real | -180 | 180 | Include Units\_of\_Angle in attribute definition |
| criticality | 1,1 | Critical levels of the Science TM packets. | ASCII\_NonNegative\_Integer | Not  Used | Not Used | = 03 meaning Science Critical, Science packets with the highest download priority  = 02 meaning Science Non-Critical, Science packets with the lowest download priority |

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| **Class Name: Autofocus\_Data** | | | | | | |
| Attribute | Min/Max | Description | Type | Min | Max | Values |
| step\_mode | 1,1 | Step Mode controls how a stepper motor operates, there are three commonly used excitation modes for stepper motors, full step, quarter step and microstepping. These excitation modes have an effect on both the running properties and torque the motor delivers. - 0 = FullStep - 1 = QuarterStep - 2 = MicroStep. | ASCII\_NonNegative\_Integer | Not Used | Not Used | Permissible value = 0 meaning Full Step, = 1 meaning Quarter Step, = 2 meaning Micro Step |
| autofocus\_range | 1,1 | Encoder range of the Autofocus. | ASCII\_NonNegative\_Integer | 0 | 65535 |  |
| autofocus\_position\_tolerance | 1,1 | Tolerance of the Autofocus position during Autofocus operation. | ASCII\_NonNegative\_Integer | 0 | 65535 |  |
| preamplifier\_gain | 1,1 | Preamplifier Gain at the end of the Autofocus. | ASCII\_Integer |  |  | =0 meaning GainBit1=0,GainBit2=0 --> Gain Value 128.  = 1 meaning  GainBit1=0,GainBit2=1 --> Gain Value 32.  = 2 meaning  GainBit1=1,GainBit2=0 --> Gain Value 8.  =3 meaning  GainBit1=1,GainBit2=1 --> Gain Value 2. |
| number\_of\_points\_on\_curve | 1,1 | Number Of Points on Curve. | ASCII\_NonNegative\_Integer | 1 | 900 |  |
| focus\_position\_calculated | 1,1 | Focus position after algorithm. | ASCII\_NonNegative\_Integer | 1 | 4095 |  |
| laser\_channel | 1,1 | Laser channel switch on (From System Parameter). Values- 01 Nominal Laser- 02 Redundant Laser. | ASCII\_NonNegative\_Integer | Not Used | Not Used | Permissible value = 0 meaning Nominal Laser, = 1 meaning Redundant Laser |
| end\_of\_test\_trigger | 1,1 | Event that triggered the end of the test. Values:- 0x00 if range is covered - 0x01 if Test timed out. | ASCII\_NonNegative\_Integer | Not Used | Not Used | Permissible value = 0 meaning range covered, = 1 meaning Test Timeout |
| end\_of\_test\_timestamp | 1,1 | Timestamp at the end of the test (since the last power on of RAMAN). | ASCII\_NonNegative\_Integer | 0 | 65535 |  |
| snr | 0,1 | Onboard calculated SNR value of the reference frame acquired with Final Ti. | ASCII\_NonNegative\_Integer | 0 | 4095 |  |
| enabling\_algorithm\_mask | 0,1 | Mask indicating which acquisition parameter calculation algorithms will be executed. | ASCII\_NonNegative\_Integer | 0 | 12167928680721 |  |
| criticality | 1,1 | Critical levels of the Science TM packets. | ASCII\_NonNegative\_Integer |  |  | = 03 meaning Science Critical, Science packets with the highest download priority  = 02 meaning Science Non-Critical, Science packets with the lowest download priority |