

| | | | |
|--|-----------------------|-----------------------------|--|
| 8564 -- ISUAL Commands | | | |
| 14-Apr-00 | | | |
| parameters of more than one byte have most significant byte first (leftmost) | | | |
| byte offset | number of bytes | Item name | Item description |
| TPA Command | | (data generated by ROCSAT2) | |
| 0 | 1 | (opcode) | |
| 1 | 1 | spare | |
| 2 | 2 | year | 2-byte unsigned integer (2000, 2001,...) |
| 4 | 2 | day of year | UT Day number (1,2,...365,366) |
| 6 | 1 | hour of day | |
| 7 | 1 | minute of hour | |
| 8 | 1 | second of minute | |
| 9 | 1 | Hundredths of Second | |
| 10 | 1 | Ten Thousandths of Second | |
| 11 | 1 | Minor cycle number | ***don't know what this is |
| 12 | 4 | X Position ECF | geographic or inertial? |
| 16 | 4 | Y Position ECF | meters |
| 20 | 4 | Z Position ECF | |
| 24 | 4 | X Velocity ECF | geographic or inertial? |
| 28 | 4 | Y Velocity ECF | meters/sec |
| 32 | 4 | Z Velocity ECF | |
| 36 | 4 | S/C Quaternion 1 | transforms what system into which? |
| 40 | 4 | S/C Quaternion 2 | |
| 44 | 4 | S/C Quaternion 3 | |
| 48 | 4 | S/C Quaternion 4 | |
| 52 | 1 | GPS Receiver Status Code | |
| 53 | 1 | GPS Receiver Error Codes | |
| 54 | total length in bytes | | |
| | | | |

| | | | | | |
|-------------------------------------|----|------------------|--|--|------|
| Store Parameter State-Group | | | | | |
| 0 | 1 | (opcode) | Store Current setup parameters is designated group | #Sub-Commands | Arg2 |
| 1 | 1 | STORE_GROUP | code (0..15) to designate group of setup values | | |
| 2 | | | | | |
| Fetch Parameter State-Group | | | | | |
| 0 | 1 | (opcode) | | | |
| 1 | 1 | FETCH_GROUP | code (0..15) to designate group of setup values | | |
| 2 | | | | | |
| Set Current Camera Parameters | | | | | |
| | | | | <i>(these could be set up in more than two commands)</i> | |
| 0 | 1 | (opcode) | | | |
| 1 | 1 | CAM_GATED_ENABLE | 1=Gated Operation enabled, 0=not | | |
| 2 | 1 | CAM_GATED_ON | 1=gated on, 0=gated off (when gated operation enabled) | | |
| 3 | 1 | CAM_FRAME_MODE | 1=single, 0=multiple | | |
| 4 | 2 | CAM_EXP | | | |
| 6 | 2 | CAM_VSHIFT | | | |
| 8 | 2 | CAM_VRATE | | | |
| 10 | 2 | CAM_SMAX | | | |
| 12 | 1 | CAM_V12HI | | | |
| 13 | 1 | CAM_V3HI | | | |
| 14 | 2 | CAM_GDELAY | | | |
| 16 | | | | | |
| Set other Current camera parameters | | | | | |
| | | | | <i>(these could be set up in more than two commands)</i> | |
| 0 | 1 | (opcode) | | | |
| 1 | 1 | CAM_BINNING | | | |
| 2 | 16 | CAM_ROI | x1,y1,x2,y2 (16 bits each) | | |
| 18 | 1 | CAM_ADGAIN | | | |
| 19 | 1 | CAM_RORATE | | | |
| 20 | 1 | CAM_MONV | | | |
| 21 | | | | | |

| Diagnostic Direct Commands -- executed immediately | | | |
|--|---|---------------|--|
| 0 | 1 | (opcode) | CAM_TEST - acquire test image |
| 0 | 1 | (opcode) | CAM_BIT_ENABLE |
| 0 | 1 | (opcode) | CAM_BIT_DISABLE |
| 0 | 1 | (opcode) | CAM_DISABLE_CLEAR |
| 0 | 1 | (opcode) | CAM_RESET (also changes Current State Group to defaults) |
| Direct Commands which return a result | | | |
| 0 | 1 | (opcode) | GET_CAM_ID |
| 0 | 1 | (opcode) | GET_LENS_TEMP |
| 0 | 1 | (opcode) | GET_CAM_SS_STAT |
| 0 | 1 | (opcode) | GET_FWHEEL_TEMP |
| 0 | 1 | (opcode) | GET_FWHEEL_POS |
| 0 | 1 | (opcode) | GET_FILTER_TEMP |
| Set HV values (doesn't turn them on/off) | | | |
| 0 | 1 | (opcode) | |
| 1 | 4 | HV_MAY_I | the 4 "may-I" bytes |
| 5 | 2 | HV_MCP_NO_SUN | volts |
| 7 | 2 | HV_MCP_SUN | volts |
| 9 | 2 | HV_PHOS | volts |
| 11 | 2 | HV_SP1_NO_SUN | volts |
| 13 | 2 | HV_SP1_SUN | volts |
| 15 | 2 | HV_SP2_NO_SUN | volts |
| 17 | 2 | HV_SP2_SUN | volts |

| | | | | | |
|--------------------|---|--------------|---|--|--|
| 19 | 2 | HV_AP_NO_SUN | volts | | |
| 21 | 2 | HV_AP_SUN | volts | | |
| 23 | | | | | |
| | | | | | |
| | | | | | |
| Set Operating Mode | | | <i>(may also be generated directly by ROCSAT-2)</i> | | |
| | | (opcode) | | | |
| | 1 | OP_MODE | 1=Reset, 2=Heated, 3=Non-Obs, 4=Sprite, 5=Aurora | | |
| | | | | | |

| | | | | | |
|--|---|--------------|--|--|--|
| Set Current Spectrophotometer Parameters | | | | | |
| | 1 | (opcode) | | | |
| | | SP_PHOT_TEMP | | | |
| | | SP_SRATE | | | |
| | | SP_ERATE | | | |
| | | SP_RESCAN | | | |
| | | SP_POSTSCAN | | | |
| | | | | | |
| Set Current Array Photometer Parameters | | | | | |
| 0 | 1 | (opcode) | | | |
| 1 | 2 | AP_SRATE | | | |
| 3 | 2 | AP_ERATE | | | |
| 5 | 2 | AP_RESCAN | | | |
| 7 | 2 | AP_POSTSCAN | | | |
| 9 | | | | | |
| | | | | | |

| | | | | |
|--|---|------------|--|--|
| Start Memory Upload | | | | |
| 0 | 1 | (opcode) | | |
| 1 | 2 | MEM_NBYTES | total number of bytes to be uploaded (max 1024) | |
| 3 | 8 | MEM_DATA | (up to 8 bytes may be valid) | |
| 11 | | | <i>ON IMAGE, WE HAD TO LIMIT TO 8, BECAUSE OF STOL</i> | |
| Continue Memory Upload | | | one or more of these may be required to make up MEM_NBYTES | |
| 0 | 1 | (opcode) | | |
| 1 | 8 | MEM_DATA | (up to 8 bytes may be valid) | |
| 9 | | | | |
| Perform Checkum on Uploaded bytes | | | | |
| 0 | 1 | (opcode) | returns checkum in telemetry | |
| Copy Uploaded bytes to designated memory | | | | |
| 0 | 1 | (opcode) | | |
| 1 | 2 | MEM_BANK | | |
| 3 | 2 | MEM_ADDR | | |
| 5 | | | | |
| Request Memory Dump | | | | |
| 0 | 1 | (opcode) | | |
| 1 | 1 | DUMP_ID | | |
| 2 | 2 | DUMP_BANK | | |
| 4 | 2 | DUMP_ADDR | | |
| 6 | | | | |
| Allow Next Command (Critical) to be executed | | | | |
| | | (opcode) | | |