Configure Tx1
File: H_CRP_TTC_T10X.xls
Author: E. Picallo

# Procedure Summary

## Objectives

This procedure describes the steps needed to configure the transmitter 1 (with values different from the nominals ones), when the downlink and the uplink are already established.

This procedure does not use the logical addressing, thus must be executed under Ground control (the commands used cannot be inserted in the MTL).

## Summary of Constraints

XPND1 is configured using TC(8,4,115,9), thus the status of the ASW function "TTC Management" has to be "running".

Note that:
- the nominal value of the TM modulation index is 1.2;
- the nominal value of the RNG modulation index, when CM and RNG are ON, is 0.6;
- the nominal value of the Output power level is - 4dBm;
- the External reference and Internal bit pattern generator are always OFF.

Note that the configuration of the transmiter after power up (default values at LCL23 ON) are:
- TM modulation index 1.2 rad
- RNG modulation index 0.5 rad
- Output power level 0 dBm

## Spacecraft Configuration

**Start of Procedure**

CDMU in default configuration;
Downlink active via TX1 and TWTA1;
TM bit rate set to any value.

**End of Procedure**

CDMU in default configuration;
Downlink active via TX1 and TWTA1;
TM bit rate unchanged;
XPND1 configuration changed.

## Reference File(s)

**Input Command Sequences**

**Output Command Sequences**

HRRT10X

## Referenced Displays

**ANDs** **GRDs** **SLDs**

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ZAZ7I999
ZAZ7J999

**Configuration Control Information**

| DATE | FOP ISSUE | VERSION | MODIFICATION DESCRIPTION | AUTHOR | SPR REF |
|---|---|---|---|---|---|
| 15/07/08 | 1 | 1 | Created | R. Miniscalco | |
| 06/11/08 | 2 | 2 | TC DCT18170 Configure Xpnd mask update | E. Picallo | |

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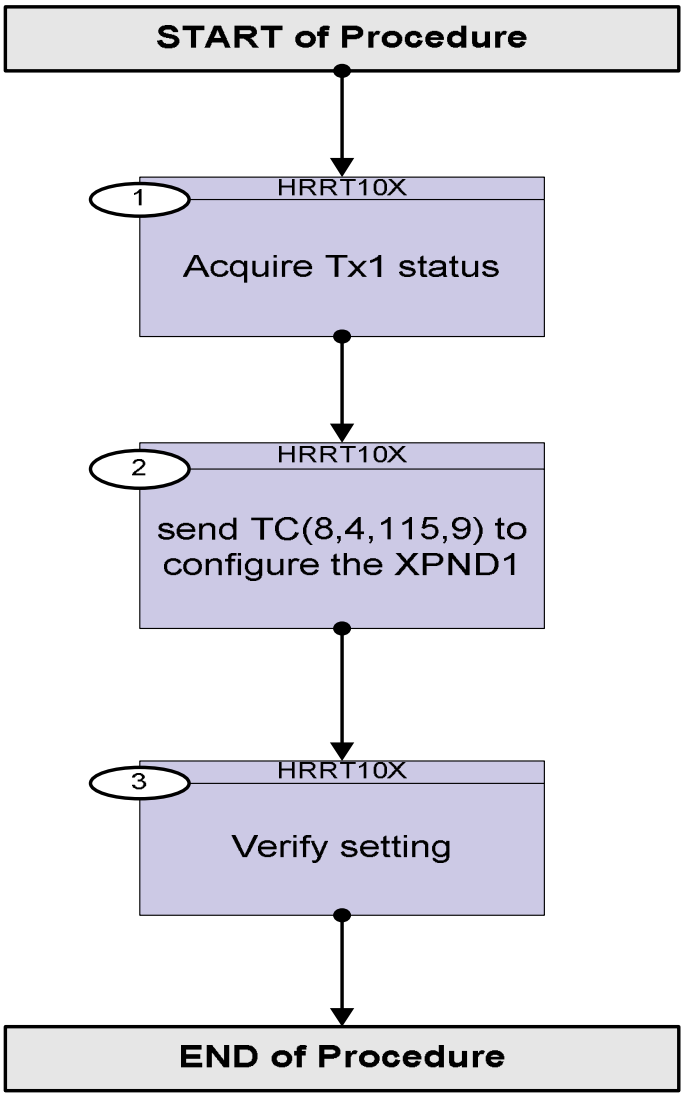
# Procedure Flowchart Overview



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| Step No. | Time | Activity/Remarks | TC/TLM | Display/ Branch |
|---|---|---|---|---|
| | | **Beginning of Procedure** | | |
| | | *TC Seq. Name :HRRT10X* (Configure Tx1)<br>Tx1 change configuration from default<br><br>*TimeTag Type: N*<br>*Sub Schedule ID:*<br>*Formal Parameter List :*<br>XpndConfDW1_RMI RM_ID=<br>XpndConfDW1_TMI TM_ID=<br>XpndConfDW2OPLS OutPower= | | |
| 1 | | *Acquire Tx1 status* | | Next Step: 2 |
| | | Verify RX1 Lock status Telemetry<br>**X1 Rx Lock - RL** **RMB24442** | | AND=ZAZ7I999 |
| | | Verify Low Rate-1 status Telemetry<br>**X1 LowRate-1 MD** **RMB30442** | | AND=ZAZ7I999 |
| | | Verify Low Rate-2 status Telemetry<br>**X1 LowRate-2 MD** **RMB31442** | | AND=ZAZ7I999 |
| | | Verify Medium Rate Modulator status Telemetry<br>**X1 MedRate-MRM** **RMB29442** | | AND=ZAZ7I999 |
| | | Verify High Rate status Telemetry<br>**X1 HIRateMD-HRM** **RMB28442** | | AND=ZAZ7I999 |
| | | Verify Coherent Mode status Telemetry<br>**X1 Coher MOD-CM** **RMB26442** | | AND=ZAZ7I999 |
| | | Verify Ranging Modulator status Telemetry<br>**X1 Rang MOD-RM** **RMB27442** | | AND=ZAZ7I999 |
| | | Verify Telemetry Modulation Index Telemetry<br>**X1 TM MD ID-TMI** **RMB33442** | | AND=ZAZ7I999 |
| | | Verify Ranging Modulation Index Telemetry<br>**X1 RNGMD ID-RMI** **RMB32442** | | AND=ZAZ7I999 |
| | | Verify Power level at transmitter output Telemetry<br>**X1 OutPowLevSet** **RMB35442** | | AND=ZAZ7I999 |
| | | Verify encoder status Telemetry<br>**TME_BITRATE** **DEMRF160** | | AND=ZAZ7J999 |
| | | | | |
| 2 | | *send TC(8,4,115,9) to configure the XPND1* | | Next Step: 3 |
| | | **WARNING:**<br>**Ranging is not possible with high bit rate.**<br>**If the TM bit rate is equal to 1.5 Mbps RNG has to be set to zero and RNG Mod Index is irrelevant in this case.** | | |

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| Step No. | Time | Activity/Remarks | TC/TLM | Display/ Branch |
|---|---|---|---|---|
| | | Execute Telecommand<br>**XpndConfigure_Templ** | **DCT18170** | |
| | | *Command Parameter(s) :*<br>**XpndId** **DH018170**<br>**XpndConfMask1Unus** **DH220170**<br>**XpndConfMask1_ER** **DH221170**<br>**XpndConfMask1_CM** **DH222170**<br>**XpndConfMask1_RM** **DH223170**<br>**XpndConfMask1_HRM** **DH224170**<br>**XpndConfMask1_MRM** **DH225170**<br>**XpndConfMask1LRM1** **DH226170**<br>**XpndConfMask1LRM2** **DH227170**<br>**XpndConfMask1_RMI** **DH228170**<br>**XpndConfMask1_TMI** **DH229170**<br><br>**XpndConfMask2_PG** **DH230170**<br>**XpndConfMask2Unus** **DH231170**<br>**XpndConfMask2OPLS** **DH232170**<br>**XpndConfDW1Unus** **DH020170**<br>**XpndConfDW1_ER** **DH021170**<br>**XpndConfDW1_CM** **DH022170**<br>**XpndConfDW1_RM** **DH023170**<br>**XpndConfDW1_HRM** **DH024170**<br>**XpndConfDW1_MRM** **DH025170**<br>**XpndConfDW1LRM1** **DH026170**<br>**XpndConfDW1LRM2** **DH027170**<br>**XpndConfDW1_RMI** **DH028170**<br>**XpndConfDW1_TMI** **DH029170**<br>**XpndConfDW2_PG** **DH030170**<br>**XpndConfDW2Unus** **DH031170**<br><br>**XpndConfDW2OPLS** **DH032170** | **XpndA** (Def)<br>**0 <dec>** (Def)<br>**OFF** (Def)<br>**OFF** (Def)<br>**OFF** (Def)<br>**OFF** (Def)<br>**OFF** (Def)<br>**OFF** (Def)<br>**OFF** (Def)<br>**Update**<br>**Update**<br><br>**OFF** (Def)<br>**0 <dec>** (Def)<br>**Update**<br>**11 <bin>**<br>**OFF** (Def)<br>**OFF** (Def)<br>**OFF** (Def)<br>**OFF** (Def)<br>**OFF** (Def)<br>**OFF** (Def)<br>**OFF** (Def)<br>**RM_ID**<br>**TM_ID**<br>**OFF** (Def)<br>**0 <dec>** (Def)<br><br>**OutPower** | |
| | | *TC Control Flags :*<br>**GBM IL DSE**<br>**--Y -- ---**<br>*Subsch. ID : 10*<br>Det. descr. : TEMPLATE Configure Xpnd TC(8,4,115,9) | | |
| | | | | |
| 3 | | *Verify setting* | | Next Step:<br>END |
| | | Verify Low Rate-1 status Telemetry<br>**X1 LowRate-1 MD** **RMB30442** | | AND=ZAZ7I999 |
| | | Verify Low Rate-2 status Telemetry<br>**X1 LowRate-2 MD** **RMB31442** | | AND=ZAZ7I999 |
| | | Verify Medium Rate Modulator status Telemetry<br>**X1 MedRate-MRM** **RMB29442** | | AND=ZAZ7I999 |
| | | Verify High Rate status Telemetry<br>**X1 HIRateMD-HRM** **RMB28442** | | AND=ZAZ7I999 |
| | | Verify Power level at transmitter output Telemetry<br>**X1 OutPowLevSet** **RMB35442** | | AND=ZAZ7I999 |
| | | Verify Coherent Mode status Telemetry<br>**X1 Coher MOD-CM** **RMB26442** | | AND=ZAZ7I999 |

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| Step No. | Time | Activity/Remarks | TC/TLM | Display/ Branch |
|---|---|---|---|---|
| | | Verify Ranging Modulator status Telemetry<br>**X1 Rang MOD-RM RMB27442** | | AND=ZAZ7I999 |
| | | Verify Telemetry Modulation Index Telemetry<br>**X1 TM MD ID-TMI RMB33442** | | AND=ZAZ7I999 |
| | | Verify Ranging Modulation Index Telemetry<br>**X1 RNGMD ID-RMI RMB32442** | | AND=ZAZ7I999 |
| | | | | |
| | | | | |
| | | **End of Procedure** | | |