

Configure Tx in use  
File: H\_CRP\_TTC\_TUOX.xls  
Author: E. Picallo



## Procedure Summary

### Objectives

This procedure describes the steps needed to configure the transmitter in use with RNG MOD Index, TM MOD Index and Output Power Level Set values different from the nominals ones, when the downlink and the uplink are already established.

Even if this procedure uses the logical addressing must be executed under Ground control.

### Summary of Constraints

XPND in use 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 transmitter after power up (LCLs 23/16 ON default values) 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 TX and TWTA marked as "Nominal" and "Not Failed" in the "Unit in Use" table (nominally the branch 1);  
TM bit rate set to any value.

#### End of Procedure

CDMU in default configuration;  
Downlink active via TX and TWTA marked as "Nominal" and "Not Failed" in the "Unit in Use" table (nominally the branch 1);  
TM bit rate unchanged;  
XPND 1/2 configuration changed.

### Reference File(s)

#### Input Command Sequences

#### Output Command Sequences

HRRTUOX

### Referenced Displays

Configure Tx in use  
 File: H\_CRP\_TTC\_TU0X.xls  
 Author: E. Picallo



ANDs GRDs SLDS  
 ZAZ7I999  
 ZAZ7J999

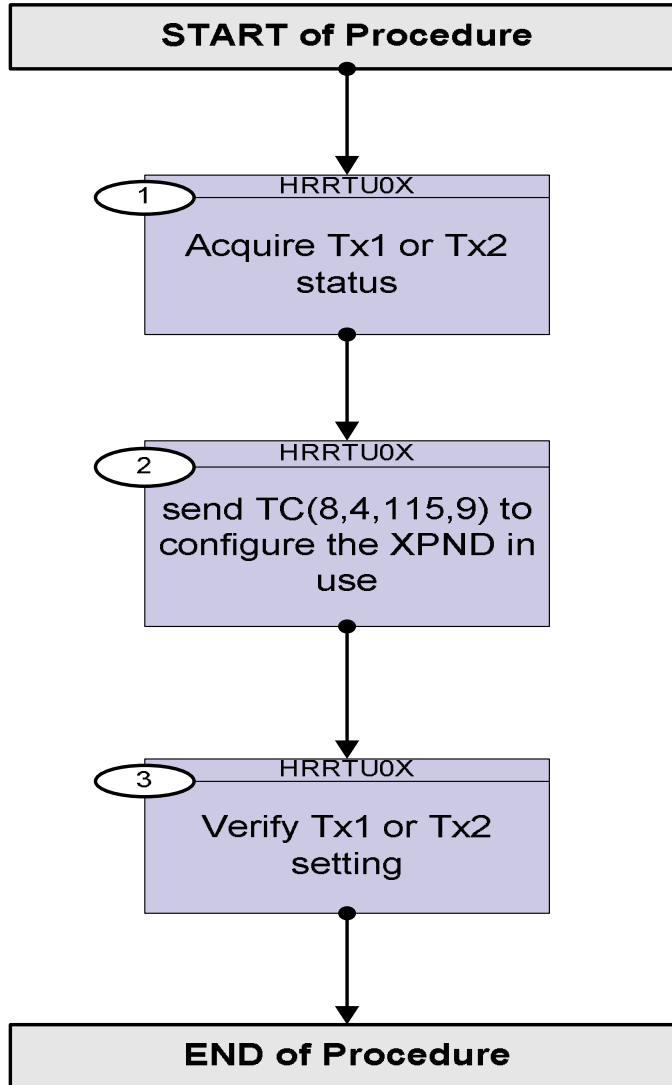
Configuration Control Information

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	

Configure Tx in use  
File: H\_CRP\_TTC\_TU0X.xls  
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## Procedure Flowchart Overview



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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
<b>Beginning of Procedure</b>				
TC Seq. Name :HRRTUOX (Configure Tx use) Tx use change configuration from default  TimeTag Type: N Sub Schedule ID: Formal Parameter List : <input type="checkbox"/> XpndConfDW1_RMI RM_ID= XpndConfDW1_TMI TM_ID= XpndConfDW2OPLS OutPower=				
1		Acquire Tx1 or Tx2 status		Next Step: 2
1.1		Verify if Tx1 in use		<input type="checkbox"/>
		Verify RX1 Lock status Telemetry X1 Rx Lock - RL RMB24442		AND=ZAZ7I999
		Verify Low Rate-1 status Telemetry X1 LowRate-1 MD RMB30442		AND=ZAZ7I999
		Verify Low Rate-2 status Telemetry X1 LowRate-2 MD RMB31442		AND=ZAZ7I999
		Verify Medium Rate Modulator status Telemetry X1 MedRate-MRM RMB29442		AND=ZAZ7I999
		Verify High Rate status Telemetry X1 HIRateMD-HRM RMB28442		AND=ZAZ7I999
		Verify Coherent Mode status Telemetry X1 Coher MOD-CM RMB26442		AND=ZAZ7I999
		Verify Ranging Modulator status Telemetry X1 Rang MOD-RM RMB27442		AND=ZAZ7I999
		Verify Telemetry Modulation Index Telemetry X1 TM MD ID-TMI RMB33442		AND=ZAZ7I999
		Verify Ranging Modulation Index Telemetry X1 RNGMD ID-RMI RMB32442		AND=ZAZ7I999
		Verify Power level at transmitter output Telemetry X1 OutPowLevSet RMB35442		AND=ZAZ7I999
		Verify encoder status Telemetry TME_BITRATE DEMRF160		AND=ZAZ7J999
1.2		Verify if Tx2 in use		<input type="checkbox"/>
		Verify RX2 Lock status Telemetry X2 Rx Lock - RL RMB45442		AND=ZAZ7I999
		Verify Low Rate-1 modulator status Telemetry X2 LowRate-1 MD RMB51442		AND=ZAZ7I999

Configure Tx in use  
 File: H\_CRP\_TTC\_TU0X.xls  
 Author: E. Picallo



Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		Verify Low Rate-2 modulator status Telemetry X2 LowRate-2 MD RMB52442		AND=ZAZ7I999
		Verify Medium Rate Modulator status Telemetry X2 MedRate-MRM RMB50442		AND=ZAZ7I999
		Verify High Rate modulator status Telemetry X2 HIRateMD-HRM RMB49442		AND=ZAZ7I999
		Verify Coherent Mode status Telemetry X2 Coher MOD-CM RMB47442		AND=ZAZ7I999
		Verify Ranging Modulator status Telemetry X2 Rang MD - RM RMB48442		AND=ZAZ7I999
		Verify Telemetry Modulation Index Telemetry X2 TM MD ID-TMI RMB54442		AND=ZAZ7I999
		Verify Ranging Modulation Index Telemetry X2 RNGMD ID-RMI RMB53442		AND=ZAZ7I999
		Verify Power level at transmitter output Telemetry X2 OutPowLevSet RMB56442		AND=ZAZ7I999
		Verify encoder status Telemetry TME_BITRATE DEMRF160		AND=ZAZ7J999
2		send TC(8,4,115,9) to configure the XPND in use		Next Step: 3
		<b>WARNING:</b> Ranging is not possible with high bit rate. 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.		
		Execute Telecommand XpndConfigure_Templ  Command Parameter(s) : XpndId DH018170 XpndInUseLogic XpndConfMask1Unus DH220170 0 <hex> (Def) XpndConfMask1_ER DH221170 OFF (Def) XpndConfMask1_CM DH222170 OFF (Def) XpndConfMask1_RM DH223170 OFF (Def) XpndConfMask1_HRM DH224170 OFF (Def) XpndConfMask1_MRM DH225170 OFF (Def) XpndConfMask1LRM1 DH226170 OFF (Def) XpndConfMask1LRM2 DH227170 OFF (Def) XpndConfMask1_RMI DH228170 Update XpndConfMask1_TMI DH229170 Update	DCT18170	

Configure Tx in use  
 File: H\_CRP\_TTC\_TU0X.xls  
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch	
		XpndConfMask2_PG XpndConfMask2Unus XpndConfMask2OPLS XpndConfDW1Unus XpndConfDW1_ER XpndConfDW1_CM XpndConfDW1_RM XpndConfDW1_HRM XpndConfDW1_MRM XpndConfDW1LRM1 XpndConfDW1LRM2 XpndConfDW1_RMI XpndConfDW1_TMI XpndConfDW2_PG XpndConfDW2Unus	DH230170 DH231170 DH232170 DH020170 DH021170 DH022170 DH023170 DH024170 DH025170 DH026170 DH027170 DH028170 DH029170 DH030170 DH031170	OFF (Def) 0 <dec> (Def) Update 0 <dec> (Def) OFF (Def) OFF (Def) OFF (Def) OFF (Def) OFF (Def) OFF (Def) OFF (Def) OFF (Def) OFF (Def) RM_ID TM_ID OFF (Def) 0 <dec> (Def)	
		XpndConfDW2OPLS  TC Control Flags :  Subsch. ID : 10 Det. descr. : TEMPLATE Configure Xpnd TC(8,4,115,9)	DH032170	OutPower  GBM IL DSE --Y -- --	
3		Verify Tx1 or Tx2 setting		Next Step: END	
3.1		Verify if Tx1 in use		<input type="checkbox"/>	
		Verify Low Rate-1 status Telemetry X1 LowRate-1 MD	RMB30442	AND=ZAZ7I999	
		Verify Low Rate-2 status Telemetry X1 LowRate-2 MD	RMB31442	AND=ZAZ7I999	
		Verify Medium Rate Modulator status Telemetry X1 MedRate-MRM	RMB29442	AND=ZAZ7I999	
		Verify High Rate status Telemetry X1 HIRateMD-HRM	RMB28442	AND=ZAZ7I999	
		Verify Coherent Mode status Telemetry X1 Coher MOD-CM	RMB26442	AND=ZAZ7I999	
		Verify Ranging Modulator status Telemetry X1 Rang MOD-RM	RMB27442	AND=ZAZ7I999	
		Verify Telemetry Modulation Index Telemetry X1 TM MD ID-TMI	RMB33442	AND=ZAZ7I999	
		Verify Ranging Modulation Index Telemetry X1 RNGMD ID-RMI	RMB32442	AND=ZAZ7I999	
		Verify Power level at transmitter output Telemetry X1 OutPowLevSet	RMB35442	AND=ZAZ7I999	
		Verify encoder status Telemetry TME_BITRATE	DEMRF160	AND=ZAZ7J999	

Configure Tx in use  
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
3.2		Verify if Tx2 in use		<input type="checkbox"/>
		Verify Low Rate-1 modulator status Telemetry X2 LowRate-1 MD RMB51442		AND=ZAZ7I999
		Verify Low Rate-2 modulator status Telemetry X2 LowRate-2 MD RMB52442		AND=ZAZ7I999
		Verify Medium Rate Modulator status Telemetry X2 MedRate-MRM RMB50442		AND=ZAZ7I999
		Verify High Rate modulator status Telemetry X2 HIRateMD-HRM RMB49442		AND=ZAZ7I999
		Verify Telemetry Modulation Index Telemetry X2 TM MD ID-TMI RMB54442		AND=ZAZ7I999
		Verify Ranging Modulation Index Telemetry X2 RNGMD ID-RMI RMB53442		AND=ZAZ7I999
		Verify Coherent Mode status Telemetry X2 Coher MOD-CM RMB47442		AND=ZAZ7I999
		Verify Ranging Modulator status Telemetry X2 Rang MD - RM RMB48442		AND=ZAZ7I999
		Verify Power level at transmitter output Telemetry X2 OutPowLevSet RMB56442		AND=ZAZ7I999
		Verify encoder status Telemetry TME_BITRATE DEMRF160		AND=ZAZ7J999
<b>End of Procedure</b>				