

DUT control using 'user command' function of RWC5020A_APP utility.

1. Concept diagram of DUT control using user commands through RS232.



2. How to make a user command file.

- A. Create a User Command file using template function.
 - i. [SETUP]/[Control DUT]/[Make Cmds Template]
 - ii. A template text file will be pop up.
 - iii. Modify using your own commands and save



Ex) my_user_command_file.txt

🔟 USER_CTRL_CMD_TEMPLETE.INI - 메모장	×
파일(E) 편집(E) 서식(Q) 보기(V) 도움말(H)	
<pre>[CONFIG] VENDOR-NOVAME NUM_CMD5-28 BAUDRATE-115200 EOU-rn Set_class_a=NONE; //insert your command and parameter set_class_b=NONE; //insert your command and parameter set_class_b=NONE; set_als_c=NONE; set_activation=NONE; set_activation=NONE; set_act_oul=NONE; set_app_eul=NONE; set_app_eul=NONE; set_app_eul=NONE; set_app_eul=NONE; set_app_eul=NONE; set_app_eul=NONE; set_app_eul=NONE; set_app_eul=NONE; set_app_eul=NONE; set_app_ed=NONE; set_app_ed=NONE; set_app_ed=NONE; set_app_ed=NONE; set_app_ed=NONE; set_app_ed=NONE; set_app_ed=NONE; set_app_ed=NONE; set_app=NONE;</pre>	^
<pre>set_adr_dis=NONE; set_dr=NONE; set_dr=NONE; set_dr=NONE; set_dr=NONE; set_dr=NONE; set_dr=NONE; set_dr=NONE; set_dr=NONE; sed_data_cfm=AT+CFM 1; AT+SEND 12345678;</pre>	

3. How to modify the user command file

- A. Guide for modifying user command file.
 - i. No space between '=' character
- Ex) set_class_a=AT CLS A; (0), set_class_a = AT CLS A; (X)
 - ii. No single comment line allowed.
 - Ex) set_class_a=AT+CLS 0; //0=class A, 1=class B (0)
 //0=class A, 1=class B (X)
 - iii. Multiple commands are allowed for one reference command. But Multiple commands should be separated with ';'(semicolon)
 - Ex) set_class_a=AT+CLS 0; AT+RST; $\ \ //$ two commands are needed for setup class.
 - iv. Comment is allowed for [CMDS] category but not for [CONFIG].
- B. Example and comment for user command file.

[CONFIG]	
VENDOR=SEMTECH	
NUM_CMDS=28	the number of the following commands
BAUDRATE=115200	the baud rate of your DUT
EOL=rn	end of line character of your DUT // n, r, rn, rn
SEQ_CMD_INTV=1.5	the time interval of consequential commands for one reference action
[CMDS]	
set_class_a=AT+ CLASS 0;	//setup class of LoRa DUT
set_class_b= AT+ CLASS 1;	
set_class_c= AT+ CLASS 2;	
set_ul_cycle_off=NONE;	// ref command for "set ul cycle off" action

set_activation=NONE;	// ref command for "activation mode" action
	// ex) AT+ACT ABP; AT_ACT OTAA
set_app_key=NONE;	// ref commands for "Setup Application key" action
	<pre>// ex) AT+AKEY 000000000000000000000000000000000000</pre>
set_dev_eui=NONE;	// ref commands for "Setup Application key" action
	// ex) AT+DEUI 0000000000000002;
set_app_eui=NONE;	// ref commands for "Setup Application Session key" action
	// ex) AT+AEUI 000000000000003;
set_apps_key=NONE;	// ref commands for "Setup Application Session key" action
	// ex) AT+ASKEY 000000000000000000000000000000000000
set_nwks_key=NONE;	//ref commands for "Setup Network Session key" action
	// ex) AT+NSKEY 000000000000000000000000000000000000
set_dev_addr=NONE;	// ref commands for "Setup Application Session key" action
	// ex) AT+AEUI 000000000000003;
reset_device=NONE;	// ref commands for "Reset DUT device" actions
	// ex) AT+RESET;
do_pseudo_join=NONE;	// ref commands for "Pesudo Join for SKT" actions
set_adr_en=NONE;	// ref commands for "Set ADR enabled" actions
set_adr_dis=NONE;	// ref commands for "Set ADR disabled" actions
set_dr0=NONE;	// ref commands for " Set dataRate 0" actions
set_dr1=NONE;	// ref commands for " Set dataRate 1" actions
set_dr2=NONE;	// ref commands for " Set dataRate 2" actions
set_dr3=NONE;	// ref commands for " Set dataRate 3" actions
set_dr4=NONE;	// ref commands for " Set dataRate 4" actions
set_dr5=NONE;	// ref commands for " Set dataRate 5" actions
set_rtr_num=NONE;	// ref commands for " Set retransmission number" actions
send_data_cfm=AT+CFM 1; AT	+SEND 12345678;
	// ref commands for "Let DUT to send confirmed up data",
	// the length is up to you.
send_data_uncfm= AT+CFM 0	; AT+SEND 12345678; // ref commands for "Let DUT to send Unconfirmed
up data" action	
send_link_check_req=NONE;	// ref commands for "Let DUT to send link check request frame"
send_dev_time_req=NONE;	// ref commands for "Let DUT to send dev time request frame"
send_data_cfmax=NONE;	// ref commands for "Let DUT Send maximum sized confirmed up data"
send_data_uncfmax=NONE;	// ref commands for "Let DUT Send maximum sized unconfirmed up
data"	

4. Load user command data

A. How to load user cmds

Click [Load User Cmds]

RedwoodComm : LoRa Autotest (Version : 1.04a)					
PROJECT	SETUP	ABOUT			
PROJECT p	Conr	nect RWC5020A			
PATH D	Con	trol DUT 🔹 🕨		Open Port	
	Test Configure			Load User Cmds	
Utility Environment		ty Environment		Show User Cmds	ZER
CERTIFICATION LoRa Certificat			Show DUT Monitor		
		LoRa Certificat		Make Cmds Templete	
EU-8	68	LoRa Alliance 	ormance Test (EU) Activation		

B. How to see the loaded commands

Click [show user cmds]

PROJECT S	ETUP ABOUT		
PROJECT p Connect RWC5020A PATH D Control DUT			
		Open Port	
	Test Configure	Load User Cmds	
LORACE	Utility Environment	Show User Cmds	
CERTIFICATION LoRa Certificat		Show DUT Monitor	
		Make Cmds Templete	
F11.066	Conformance Test (EU)		

		COMMAND LIST for DUT CONTRO	ST for DUT CONTROL Load Cmds CLEAR		
	Reference Action	User Defined Cmd	Comment		^
	set_class_a	AT+CLS 0;			
	<pre>set_class_b</pre>	AT+CLS 1;	0: A, 2: C		
	set_class_c	AT+CLS 2;	0: A, 2: C		-
	<pre>set_ul_cycle_off</pre>	AT+PRF 1;	0: off, 1: on		
	set_activation	NONE;			۲
	set_app_key	AT+AK 000000000000000000000000000000000000	128 bit		
	set_dev_eui	NONE;			
	set_app_eui	NONE;			
	set_apps_key	NONE;			
	set_nwks_key	NONE;			
	set_dev_addr	NONE;			
	reset device	AT+RST;	reset		-
•				•	

C. How to open RS232 Port

Click [Open Port]

RedwoodComm : LoRa Autotest (Version : 1. PROJECT SETUP ABOUT	04a)	DUT CONTROL PORT	
PROJECT p PATH p Control DUT + Test Configure Utility Environment	Open Port Load User Cmds Show User Cmds ZER Show ULT Monitor	PORT No. BAUD RATE OPEN PORT COM12 - 38400 -	
TEST ITEM SENSITIVITY AND TX POWE	Make Cmds Templete TES R TEST	CLOSE	

5. How to control DUT using loaded user command w.r.t. the reference action

RWC5020A_APP will send 'user commands' if you make 'control DUT' checked.

It finds adequate user command matched to the reference needed for actions during certification test or performance test.

[Caution]

- It will not send 'user commands' if you don't load a user command file even though you make 'control DUT' checked.
- It will not send 'user commands' if you make 'control DUT' unchecked even though you loaded the user commands.
- It will not send 'user commands' if you didn't open RS232 port correctly even though you make 'control DUT' checked.

RedwoodComm : LoRa Autotest (Version : 1.04a)		
PROJECT SETUP ABOUT	PERFO	RMANCE
PROJECT prj_11 PATH D:\project\LoRa\gui\LoRa\Aetease\prj_11	DUT NAME ST_MICHON - NEW	REPORT NUTH D:\undert\loRa\relian\loRa\Release\und_l11\ST_MICRON FRE NAME
	UNK ANALYZER UTILITIES	
STOP TEST	Control DUT	PER and TX POWER Test using RX1 Window : SF12BW125
TEST ITEM	TEST CONDITIONS	[TEST CONDITION]
SENSITUTY AND TX POWER TEST PER and TX POWER TEST using RX1 Window SF328W225 -TESTING SF38W225 SF38W225 SF38W225 PER Test using RX2 Window SF328W125 SF38W225 SF308W225 SF308W225 SF308W225 SF308W225 SF308W225 SF308W225 SF308W225 SF308W225 SF308W225 SF308W225 SF308W225 SF308W225 SF308W225 SF308W225 SF308W225 SF308W225 SF308W225	Test Parameters (BOL_DBO) Stars Power Step Number Step Number <th>[SMSITUTY] Sige Power : -110 dim Sige Power : 2 Sige Power : -2 Sige Power : -120 dim K WINCOW : - FAI K Unitable :</th>	[SMSITUTY] Sige Power : -110 dim Sige Power : 2 Sige Power : -2 Sige Power : -120 dim K WINCOW : - FAI K Unitable :
Testing : 1/6	Power Criteria	
TEST CONFIGURATION	\$0(x) = 1\$0(b) dBm Report Option	CLEAR MON MSG # / 0 0 133.0 MSS # MSS / 10 0 11 / 10 0 0 0
REGION EU_868 • OUT TYPE END DEVICE • CLASS Class A • SCENARIO CERTI ECHO •	Get Link message after test	CLEAR SPY MSG READ:SEASTINTY:PROGRESS? SAVE SPY MSG / 0 0 - 119.0
		View Remote Message [TEST TIME] Begin : 8/1/2017 PH 5:24:06 Finish :

You can see the transmitted user commands using 'DUT control Monitor' by clicking [DUT Monitor] button.

💀 DUT Control Monitor		
COMPORT COM12 BAUD RATE 38400	Show time	CLEAR
OnRadioRxTimeout OnRadioRxTimeout OnRadioRxTimeout AT+RST Reset the LORa module RESET OK [SOLUM] START MODULE VERSION 1.2.0 LOG Message is disabled. If you want to on, AT+LOG 1 [SOLUM] CHECK FIRMWARE FAIL ABP DevEui= BE-7A-01-00-00-00-08-A2 DevAdd= A8891F72 NwKSKy= 05 12 5B 73 98 14 69 6B 98 5F 56 26 7D 23 85 98 AppSKey= 49 93 DD 82 BA 49 DB 17 30 62 06 29 7D 6D 61 AF OnRadioRxTimeout OnRadioRxTimeout OnRadioRxTimeout OnRadioRxTimeout		
AT+RST		