IU BOOTLOADER V0.1 TEST CASE

TEST SETUP				
Step Num	Step Description	Path and Action	Data	Comments
1	Create 3 folders and copy test bin files and md5 files to the corresponding folder	Folder names are : /iuBackupFirmware /IuRollbackFirmware /IuTempFirmware	STM-MFW.bin STM-MFW.md5	File name should be same for all folders
2	Upload bootloader L1	Memory location at 0x8000000		
3	Upload bootloader L2	Memory location at 0x8010000		
4	Upload factory firmware (FFW)	Memory location at 0x8036000		
5	Upload Main firmware (MFW)	Memory location at 0x8060000		
5	Clear all the flags	Use UART debug mode to Clear all the flags	UART Command for clear all the flags :- “CLF”	RFL command can be used to varify CLF command output

*****For manual testing, Please clear the flags after successfull booting of Upgraded firmware / Rollback Firmware.**

GPIO BOOT SELECTION TEST					
Step Num	Step Description	Pin status and Action	Test Setup	Expected Results	Comments
1	Factory Firmware	PC0 – Low PC1 – Low Restart the IDE		Boot from Memory location at 0x8036000 (FFW)	
2	UART Debug Mode	PC0 – Low PC1 – High Restart the IDE	Use Arduino terminal @ 115200 baudrate	Print “ ------UART DEBUG MODE------” and wait for the commands	
3	Rollback Firmware(switch to Older Image)	PC0 – High PC1 – Low Restart the IDE	Use Arduino terminal @ 115200 baudrate	Print “ Jumping to ROLLBACK MFW...” , rollback the main firmware from /IuRollbackFirmware folder and reboot	Reset the GPIO’s to default state before rebooting,
4	Main Firmware (Default)	PC0 – High PC1 – High Restart the IDE		Boot from Memory location at 0x8060000 (MFW)	If boot pins are unconnected it will get into MFW

UART DEBUG MODE					
Step Num	Step Description	command	Test Data	Expected Results	Comments
1	Entering to UART Debug Mode	PC0 – Low PC1 – High Restart the IDE	Use terminal @ 115200 baudrate	Print “ ------UART DEBUG MODE------” and wait for the commands	keep PC0 – Low PC1 – High
2	Invalid Commands	Other than any value (character , number or special character) listed in UART command is invalid command	Any value other than listed commands	Print “Invalid command !!!, enter HELP for list of supported commands !”	

3	List all the commands	HELP		List out all the supported Commands and Description	
4	Boot Main Firmware	BMF		Boot from Memory location at 0x8060000 (MFW)	
5	Boot Factory Firmware	BFF		Boot from Memory location at 0x8036000 (FFW)	
6	RollBack Main Firmware	RBM		Print " Jumping to ROLLBACK MFW..." , rollback the main firmware from /IuRollbackFirmware folder and reboot	
7	Reboot	RBT		Restart the IDE	
8	Boot	BOOT		Exit from UART Debug mode, And take an action with respect Flags	
9	Read Flag	RFL	Give Flag address(Range from 00 to 13)	Print Flag value	
			Give Flag adress other than range	Print "Invalid address"	
10	Write Flag	WFL	Give Flag address(Range from 00 to 13) and Flag Value(Range from 00 to 09)	Print "Flag updated !!"	
			Give Flag adress and Value other than range	Print "Invalid address or data !!"	

FIRMWARE UPGRADATION TEST					
Step Num	Step Description	command/Location	Test Data	Expected Results	Comments
1	copy new Main firmware binary and md5 files to external flash	/IuTempFirmware	STM-MFW.bin STM-MFW.md5		
2	Entering to UART Debug Mode	PC0 – Low PC1 – High Restart the IDE	Use terminal @ 115200 baudrate	Print " ------UART DEBUG MODE------" and wait for the commands	
3	Manually set the flag for firmware upgradation	WFL	Address – 00 Value – 01	Print "Flag updated !!"	
4	Change the GPIO to Default state and Reboot	RBT			

5	Firmare Upgradation			Print “Initializing External Flash Memory...Memory initialized. Upgrading STM Main Firmware.. File Size ..... Flashing Completed “ , Reboot and run the new main firmware.	

ROLLBACK FIRMWARE TEST					
Step Num	Step Description	command/Location	Test Data	Expected Results	Comments
1	Entering to UART Debug Mode	PC0 – Low PC1 – High Restart the IDE	Use terminal @ 115200 baudrate	Print “ ------UART DEBUG MODE------” and wait for the commands	
2	Manually set the flag for firmware upgradation	WFL	Address – 00 Value – 04	Print “Flag updated !!”	
3	Change the GPIO to Default state and Reboot	RBT			
4	Rollback Firmware(switch to Older Image)			Print “Roll back STM Main Firmware.. Flashing STM Main Firmware.. File Size is... Flashing Completed “ , Reboot and run the firmware which was stored in /IuRollbackFirmware folder	

ROLLBACK FIRMWARE FROM BACKUP FOLDER					
Step Num	Step Description	command/Location	Test Data	Expected Results	Comments
1	Entering to UART Debug Mode	PC0 – Low PC1 – High Restart the IDE	Use terminal @ 115200 baudrate	Print “ ------UART DEBUG MODE------” and wait for the commands	
2	Manually set the flag for firmware upgradation	WFL	Address – 00 Value – 05	Print “Flag updated !!”	
3	Change the GPIO to Default state and Reboot	RBT			
4	Rollback Firmware(switch to Older Image)			Print “Roll back STM Main Firmware.. Flashing STM Main Firmware.. File Size is..... Flashing Completed “ , Reboot and run the older main firmware (upload from /iuBackupFirmware folder)	