Geovanni Portillo
Github root directory: https://github.com/portig1/submissions_E2

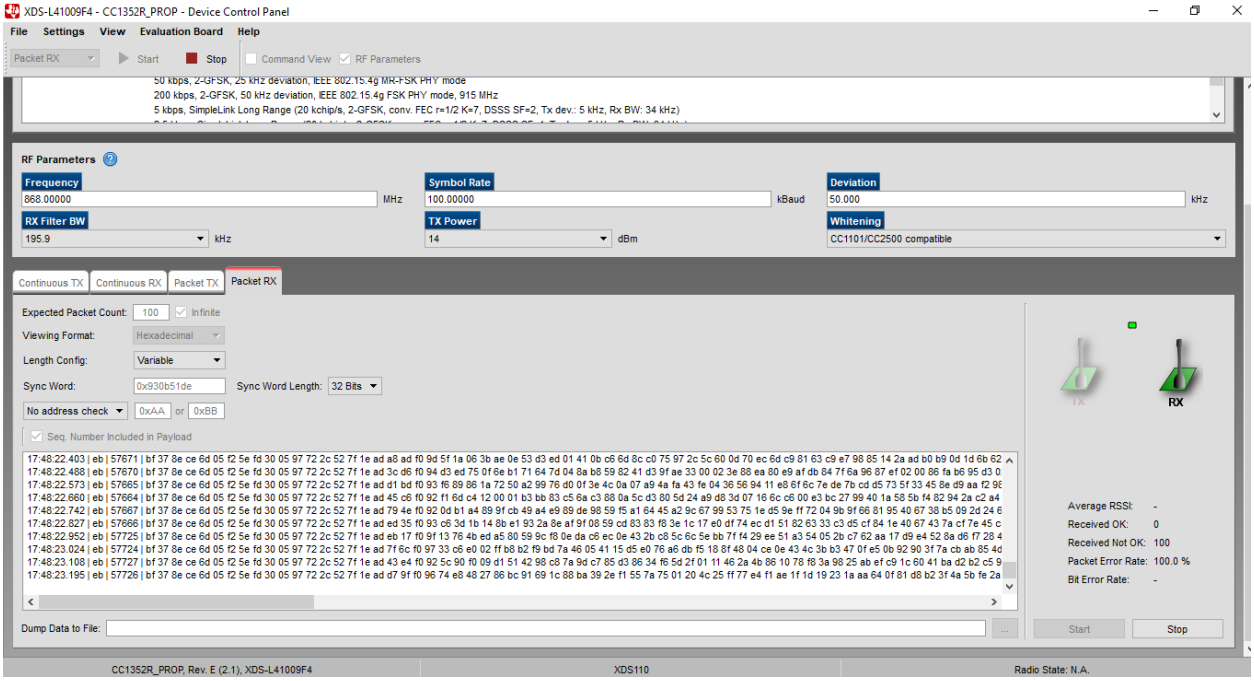
Date Submitted: **November 21, 2019**

Task 01 :

Youtube Link:

Partner had device set to the modified transmit task

Screenshots:



Task 02 :

Youtube Link: https://youtu.be/DyW6vjJ6YLI

Modified Code:

```
/***** Includes *****/
/* Standard C Libraries */
#include <stdlib.h>
#include <unistd.h>

/* TI Drivers */
#include <ti/drivers/rf/RF.h>
#include <ti/drivers/PIN.h>
#include <ti/drivers/pin/PINCC26XX.h>
```

Grading scheme: 30% Coding, 30% Documentation, 40% Execution/Video.

```
/* Driverlib Header files */
#include DeviceFamily_constructPath(driverlib/rf_prop_mailbox.h)

/* Board Header files */
#include "ti_drivers_config.h"
#include <ti_radio_config.h>

/***** Defines *****/

/* Do power measurement */
//#define POWER_MEASUREMENT

/* Packet TX Configuration */
#define PAYLOAD_LENGTH      30
#ifdef POWER_MEASUREMENT
#define PACKET_INTERVAL     5  /* For power measurement set packet interval to 5s */
#else
#define PACKET_INTERVAL     500000  /* Set packet interval to 500000us or 500ms */
#endif

/***** Prototypes *****/

/***** Variable declarations *****/
static RF_Object rfObject;
static RF_Handle rfHandle;

/* Pin driver handle */
static PIN_Handle ledPinHandle;
static PIN_State ledPinState;

static uint8_t packet[PAYLOAD_LENGTH];
static uint16_t seqNumber;

/*
 * Application LED pin configuration table:
 *   - All LEDs board LEDs are off.
 */
PIN_Config pinTable[] =
{
    CONFIG_PIN_RLED | PIN_GPIO_OUTPUT_EN | PIN_GPIO_LOW | PIN_PUSHPULL |
PIN_DRVSTR_MAX,
#ifdef POWER_MEASUREMENT
#if defined(CONFIG_CC1350_LAUNCHXL)
    CONFIG_DIO30_SWPWR | PIN_GPIO_OUTPUT_EN | PIN_GPIO_HIGH | PIN_PUSHPULL |
PIN_DRVSTR_MAX,
#endif
#endif
    PIN_TERMINATE
};

/***** Function definitions *****/

void *mainThread(void *arg0)
{
```

Grading scheme: 30% Coding, 30% Documentation, 40% Execution/Video.

```
    RF_Params rfParams;
    RF_Params_init(&rfParams);

    /* Open LED pins */
    ledPinHandle = PIN_open(&ledPinState, pinTable);
    if (ledPinHandle == NULL)
    {
        while(1);
    }

#ifdef POWER_MEASUREMENT
#if defined(CONFIG_CC1350_LAUNCHXL)
    /* Route out PA active pin to CONFIG_DIO30_SWPWR */
    PINCC26XX_setMux(ledPinHandle, CONFIG_DIO30_SWPWR, PINCC26XX_MUX_RFC_GPO1);
#endif
#endif

    RF_cmdPropTx.pktLen = PAYLOAD_LENGTH;
    RF_cmdPropTx.pPkt = packet;
    RF_cmdPropTx.startTrigger.triggerType = TRIG_NOW;

    /* Request access to the radio */
#if defined(DeviceFamily_CC26X0R2)
    rfHandle = RF_open(&rfObject, &RF_prop, (RF_RadioSetup*)&RF_cmdPropRadioSetup,
&rfParams);
#else
    rfHandle = RF_open(&rfObject, &RF_prop, (RF_RadioSetup*)&RF_cmdPropRadioDivSetup,
&rfParams);
#endif// DeviceFamily_CC26X0R2

    /* Set the frequency */
    RF_postCmd(rfHandle, (RF_Op*)&RF_cmdFs, RF_PriorityNormal, NULL, 0);

    while(1)
    {
        /* Create packet with incrementing sequence number and random payload */
        packet[0] = (uint8_t)(seqNumber >> 8);
        packet[1] = (uint8_t)(seqNumber++);
        uint8_t i;
        for (i = 2; i < PAYLOAD_LENGTH; i++)
        {
            packet[i] = rand();
        }

        /* Send packet */
        RF_EventMask terminationReason = RF_runCmd(rfHandle, (RF_Op*)&RF_cmdPropTx,
                                                   RF_PriorityNormal, NULL, 0);

        switch(terminationReason)
        {
            case RF_EventLastCmdDone:
                // A stand-alone radio operation command or the last radio
                // operation command in a chain finished.
                break;
            case RF_EventCmdCancelled:
```

Grading scheme: 30% Coding, 30% Documentation, 40% Execution/Video.

```
                // Command cancelled before it was started; it can be caused
            // by RF_cancelCmd() or RF_flushCmd().
                break;
            case RF_EventCmdAborted:
                // Abrupt command termination caused by RF_cancelCmd() or
                // RF_flushCmd().
                break;
            case RF_EventCmdStopped:
                // Graceful command termination caused by RF_cancelCmd() or
                // RF_flushCmd().
                break;
            default:
                // Uncaught error event
                while(1);
        }

        uint32_t cmdStatus = ((volatile RF_Op*)&RF_cmdPropTx)->status;
        switch(cmdStatus)
        {
            case PROP_DONE_OK:
                // Packet transmitted successfully
                break;
            case PROP_DONE_STOPPED:
                // received CMD_STOP while transmitting packet and finished
                // transmitting packet
                break;
            case PROP_DONE_ABORT:
                // Received CMD_ABORT while transmitting packet
                break;
            case PROP_ERROR_PAR:
                // Observed illegal parameter
                break;
            case PROP_ERROR_NO_SETUP:
                // Command sent without setting up the radio in a supported
                // mode using CMD_PROP_RADIO_SETUP or CMD_RADIO_SETUP
                break;
            case PROP_ERROR_NO_FS:
                // Command sent without the synthesizer being programmed
                break;
            case PROP_ERROR_TXUNF:
                // TX underflow observed during operation
                break;
            default:
                // Uncaught error event - these could come from the
                // pool of states defined in rf_mailbox.h
                while(1);
        }

#ifndef POWER_MEASUREMENT
        PIN_setOutputValue(ledPinHandle,
CONFIG_PIN_RLED,!PIN_getOutputValue(CONFIG_PIN_RLED));
#endif
        /* Power down the radio */
        RF_yield(rfHandle);
```

Grading scheme: 30% Coding, 30% Documentation, 40% Execution/Video.

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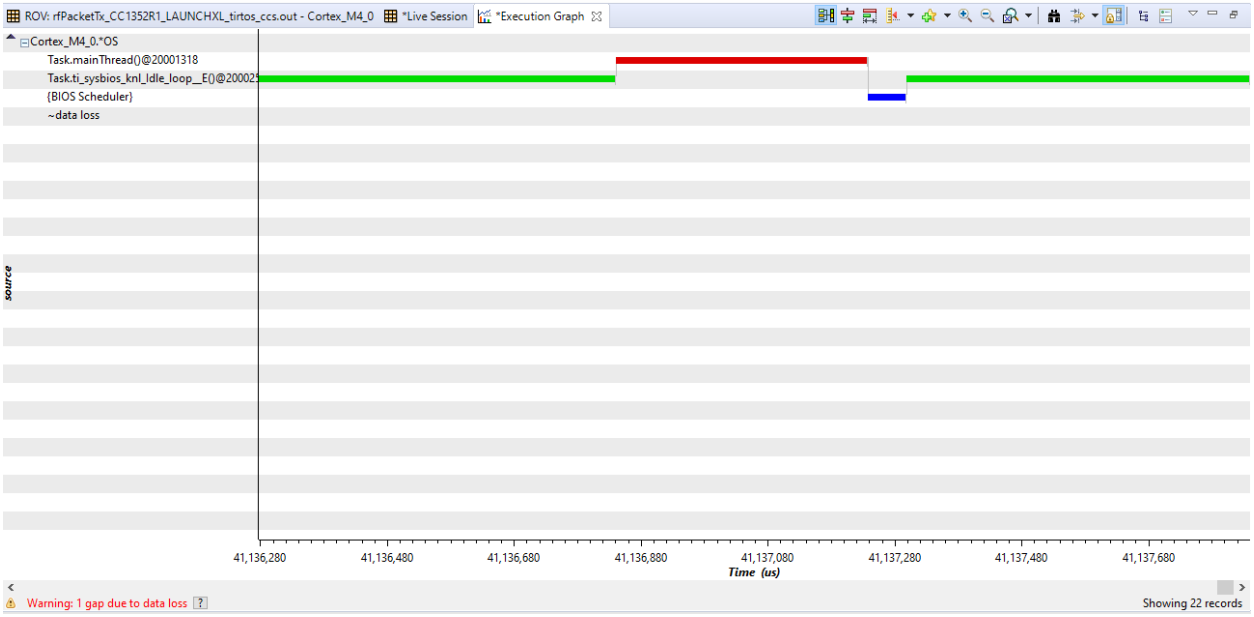
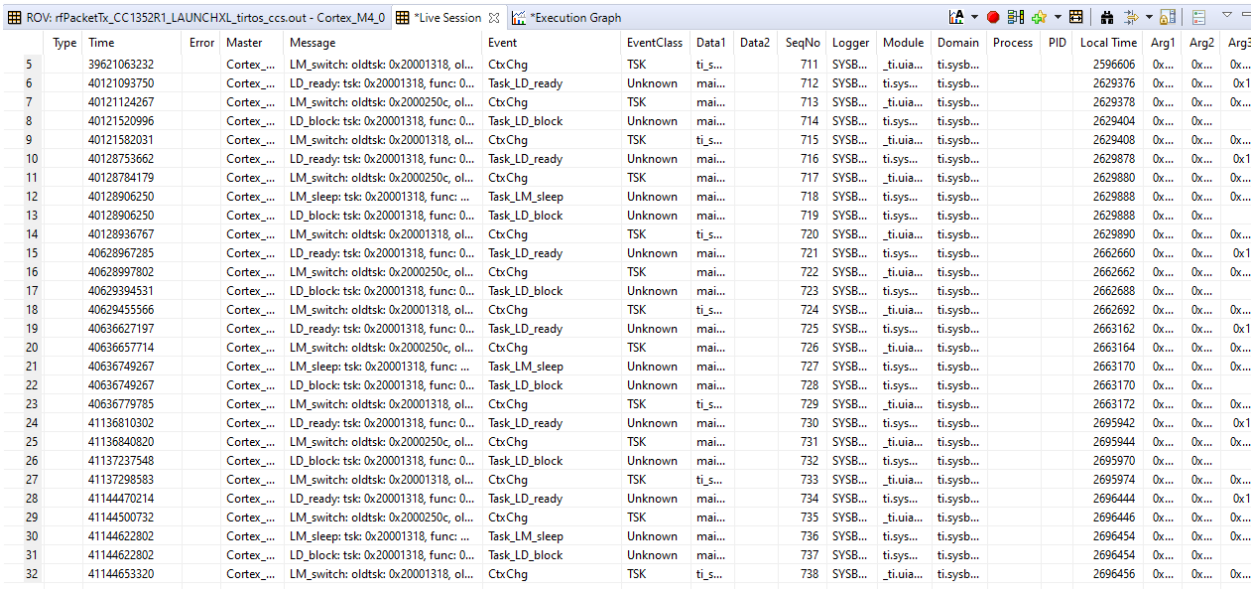
```
#ifdef POWER_MEASUREMENT
        /* Sleep for PACKET_INTERVAL s */
        sleep(PACKET_INTERVAL);
#else
        /* Sleep for PACKET_INTERVAL us */
        usleep(PACKET_INTERVAL);
#endif

    }
}
```

Screenshots:





	Type	Time	Error	Master	Message	Event	EventClass	Data1	Data2	SeqNo	Logger	Module	Domain	Process	PID	Local Time	Arg1	Arg2	Arg3
5		39621063232		Cortex_...	LM_switch: oldtsk: 0x20001318, ol...	CtxChg	TSK	ti_s...		711	SYSB...	_ti.uia...	ti.sysb...			2596606	0x...	0x...	0x...
6		40121093750		Cortex_...	LD_ready: tsk: 0x20001318, func: 0...	Task_LD_ready	Unknown	mai...		712	SYSB...	ti.sys...	ti.sysb...			2629376	0x...	0x...	0x1
7		40121124267		Cortex_...	LM_switch: oldtsk: 0x2000250c, ol...	CtxChg	TSK	mai...		713	SYSB...	_ti.uia...	ti.sysb...			2629378	0x...	0x...	0x...
8		40121520996		Cortex_...	LD_block: tsk: 0x20001318, func: 0...	Task_LD_block	Unknown	mai...		714	SYSB...	ti.sys...	ti.sysb...			2629404	0x...	0x...	
9		40121582031		Cortex_...	LM_switch: oldtsk: 0x20001318, ol...	CtxChg	TSK	ti_s...		715	SYSB...	_ti.uia...	ti.sysb...			2629408	0x...	0x...	0x...
10		40128753662		Cortex_...	LD_ready: tsk: 0x20001318, func: 0...	Task_LD_ready	Unknown	mai...		716	SYSB...	ti.sys...	ti.sysb...			2629878	0x...	0x...	0x1
11		40128784179		Cortex_...	LM_switch: oldtsk: 0x2000250c, ol...	CtxChg	TSK	mai...		717	SYSB...	_ti.uia...	ti.sysb...			2629880	0x...	0x...	0x...
12		40128906250		Cortex_...	LM_sleep: tsk: 0x20001318, func: ...	Task_LM_sleep	Unknown	mai...		718	SYSB...	ti.sys...	ti.sysb...			2629888	0x...	0x...	0x...
13		40128906250		Cortex_...	LD_block: tsk: 0x20001318, func: 0...	Task_LD_block	Unknown	mai...		719	SYSB...	ti.sys...	ti.sysb...			2629888	0x...	0x...	
14		40128936767		Cortex_...	LM_switch: oldtsk: 0x20001318, ol...	CtxChg	TSK	ti_s...		720	SYSB...	_ti.uia...	ti.sysb...			2629890	0x...	0x...	0x...
15		40628967285		Cortex_...	LD_ready: tsk: 0x20001318, func: 0...	Task_LD_ready	Unknown	mai...		721	SYSB...	ti.sys...	ti.sysb...			2662660	0x...	0x...	0x1
16		40628997802		Cortex_...	LM_switch: oldtsk: 0x2000250c, ol...	CtxChg	TSK	mai...		722	SYSB...	_ti.uia...	ti.sysb...			2662662	0x...	0x...	0x...
17		40629394531		Cortex_...	LD_block: tsk: 0x20001318, func: 0...	Task_LD_block	Unknown	mai...		723	SYSB...	ti.sys...	ti.sysb...			2662688	0x...	0x...	
18		40629455566		Cortex_...	LM_switch: oldtsk: 0x20001318, ol...	CtxChg	TSK	ti_s...		724	SYSB...	_ti.uia...	ti.sysb...			2662692	0x...	0x...	0x...
19		40636627197		Cortex_...	LD_ready: tsk: 0x20001318, func: 0...	Task_LD_ready	Unknown	mai...		725	SYSB...	ti.sys...	ti.sysb...			2663162	0x...	0x...	0x1
20		40636657714		Cortex_...	LM_switch: oldtsk: 0x2000250c, ol...	CtxChg	TSK	mai...		726	SYSB...	_ti.uia...	ti.sysb...			2663164	0x...	0x...	0x...
21		40636749267		Cortex_...	LM_sleep: tsk: 0x20001318, func: ...	Task_LM_sleep	Unknown	mai...		727	SYSB...	ti.sys...	ti.sysb...			2663170	0x...	0x...	0x...
22		40636749267		Cortex_...	LD_block: tsk: 0x20001318, func: 0...	Task_LD_block	Unknown	mai...		728	SYSB...	ti.sys...	ti.sysb...			2663170	0x...	0x...	
23		40636779785		Cortex_...	LM_switch: oldtsk: 0x20001318, ol...	CtxChg	TSK	ti_s...		729	SYSB...	_ti.uia...	ti.sysb...			2663172	0x...	0x...	0x...
24		41136810302		Cortex_...	LD_ready: tsk: 0x20001318, func: 0...	Task_LD_ready	Unknown	mai...		730	SYSB...	ti.sys...	ti.sysb...			2695942	0x...	0x...	0x1
25		41136840820		Cortex_...	LM_switch: oldtsk: 0x2000250c, ol...	CtxChg	TSK	mai...		731	SYSB...	_ti.uia...	ti.sysb...			2695944	0x...	0x...	0x...
26		41137237548		Cortex_...	LD_block: tsk: 0x20001318, func: 0...	Task_LD_block	Unknown	mai...		732	SYSB...	ti.sys...	ti.sysb...			2695970	0x...	0x...	
27		41137298583		Cortex_...	LM_switch: oldtsk: 0x20001318, ol...	CtxChg	TSK	ti_s...		733	SYSB...	_ti.uia...	ti.sysb...			2695974	0x...	0x...	0x...
28		41144470214		Cortex_...	LD_ready: tsk: 0x20001318, func: 0...	Task_LD_ready	Unknown	mai...		734	SYSB...	ti.sys...	ti.sysb...			2696444	0x...	0x...	0x1
29		41144500732		Cortex_...	LM_switch: oldtsk: 0x2000250c, ol...	CtxChg	TSK	mai...		735	SYSB...	_ti.uia...	ti.sysb...			2696446	0x...	0x...	0x...
30		41144622802		Cortex_...	LM_sleep: tsk: 0x20001318, func: ...	Task_LM_sleep	Unknown	mai...		736	SYSB...	ti.sys...	ti.sysb...			2696454	0x...	0x...	0x...
31		41144622802		Cortex_...	LD_block: tsk: 0x20001318, func: 0...	Task_LD_block	Unknown	mai...		737	SYSB...	ti.sys...	ti.sysb...			2696454	0x...	0x...	
32		41144653320		Cortex_...	LM_switch: oldtsk: 0x20001318, ol...	CtxChg	TSK	ti_s...		738	SYSB...	_ti.uia...	ti.sysb...			2696456	0x...	0x...	0x...

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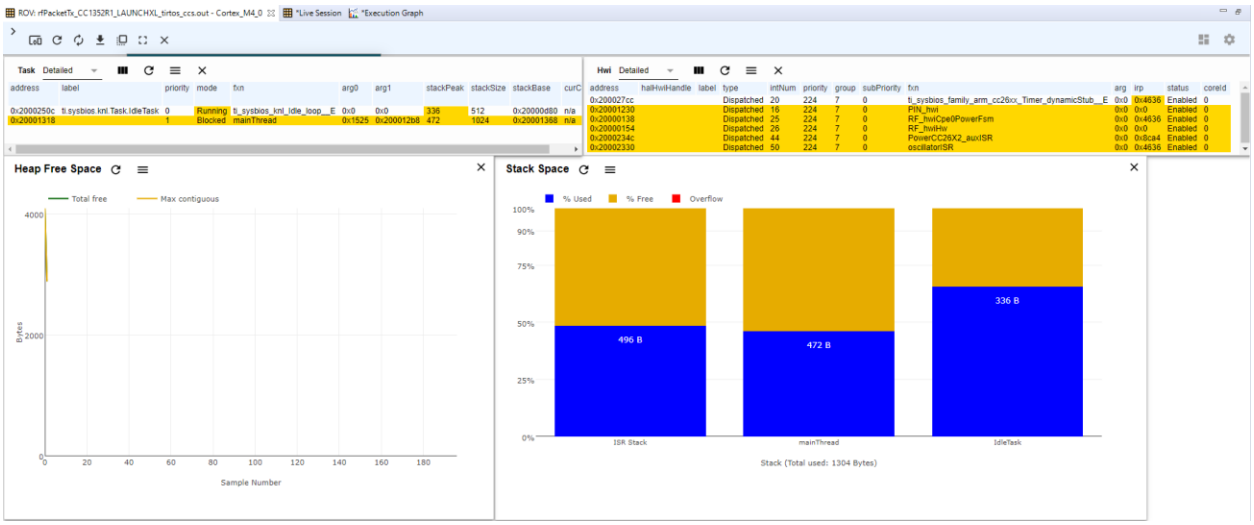
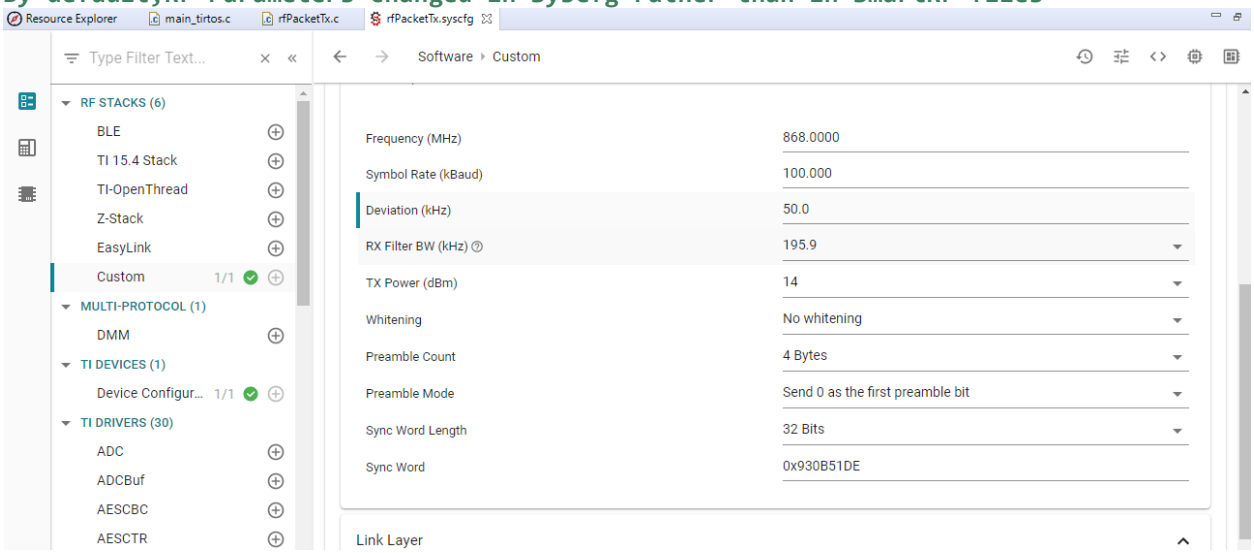


Task 03 :

Youtube Link: https://youtu.be/KFcw3kwP4qE

Modified Code:
Code is unmodified from previous task

Screenshots:
By default,RF Parameters changed in SysCfg rather than in SmartRF files



Grading scheme: 30% Coding, 30% Documentation, 40% Execution/Video.

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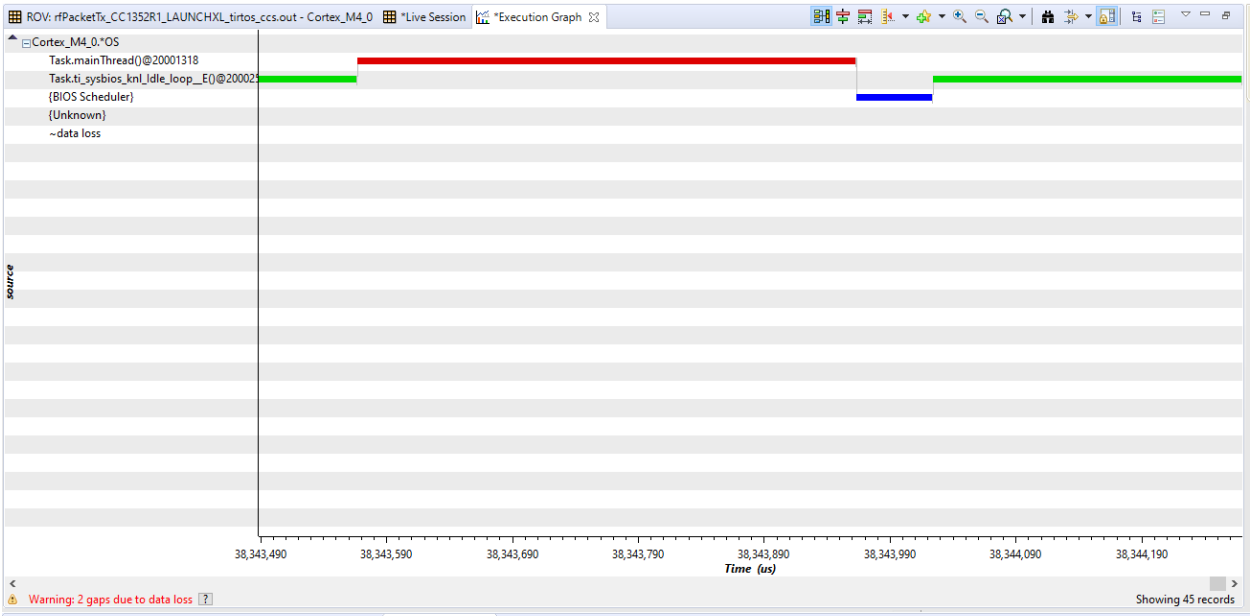

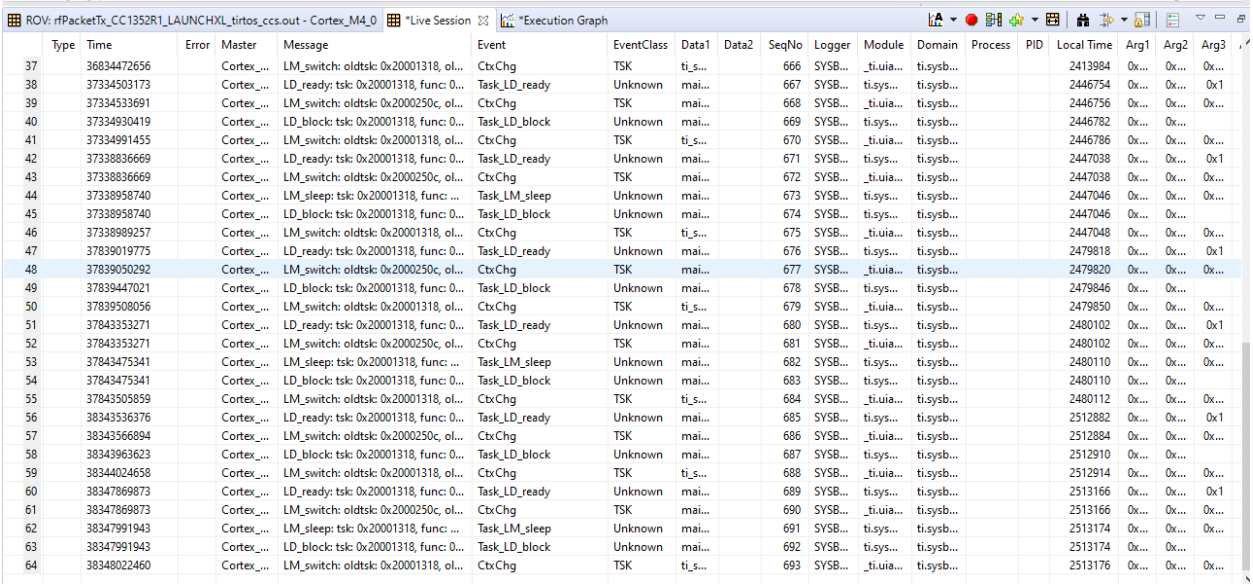

	Type	Time	Error	Master	Message	Event	EventClass	Data1	Data2	SeqNo	Logger	Module	Domain	Process	PID	Local Time	Arg1	Arg2	Arg3
37		36834472656		Cortex_...	LM_switch: oldtsk: 0x20001318, ol...	CtxChg	TSK	ti_s...		666	SYSB...	_ti.uia...	ti.sysb...			2413984	0x...	0x...	0x...
38		37334503173		Cortex_...	LD_ready: tsk: 0x20001318, func: 0...	Task_LD_ready	Unknown	mai...		667	SYSB...	ti.sys...	ti.sysb...			2446754	0x...	0x...	0x1
39		37334533691		Cortex_...	LM_switch: oldtsk: 0x2000250c, ol...	CtxChg	TSK	mai...		668	SYSB...	_ti.uia...	ti.sysb...			2446756	0x...	0x...	0x...
40		37334930419		Cortex_...	LD_block: tsk: 0x20001318, func: 0...	Task_LD_block	Unknown	mai...		669	SYSB...	ti.sys...	ti.sysb...			2446782	0x...	0x...	
41		37334991455		Cortex_...	LM_switch: oldtsk: 0x20001318, ol...	CtxChg	TSK	ti_s...		670	SYSB...	_ti.uia...	ti.sysb...			2446786	0x...	0x...	0x...
42		37338836669		Cortex_...	LD_ready: tsk: 0x20001318, func: 0...	Task_LD_ready	Unknown	mai...		671	SYSB...	ti.sys...	ti.sysb...			2447038	0x...	0x...	0x1
43		37338836669		Cortex_...	LM_switch: oldtsk: 0x2000250c, ol...	CtxChg	TSK	mai...		672	SYSB...	_ti.uia...	ti.sysb...			2447038	0x...	0x...	0x...
44		37338958740		Cortex_...	LM_sleep: tsk: 0x20001318, func: ...	Task_LM_sleep	Unknown	mai...		673	SYSB...	ti.sys...	ti.sysb...			2447046	0x...	0x...	0x...
45		37338958740		Cortex_...	LD_block: tsk: 0x20001318, func: 0...	Task_LD_block	Unknown	mai...		674	SYSB...	ti.sys...	ti.sysb...			2447046	0x...	0x...	
46		37338989257		Cortex_...	LM_switch: oldtsk: 0x20001318, ol...	CtxChg	TSK	ti_s...		675	SYSB...	_ti.uia...	ti.sysb...			2447048	0x...	0x...	0x...
47		37839019775		Cortex_...	LD_ready: tsk: 0x20001318, func: 0...	Task_LD_ready	Unknown	mai...		676	SYSB...	ti.sys...	ti.sysb...			2479818	0x...	0x...	0x1
48		37839050292		Cortex_...	LM_switch: oldtsk: 0x2000250c, ol...	CtxChg	TSK	mai...		677	SYSB...	_ti.uia...	ti.sysb...			2479820	0x...	0x...	0x...
49		37839447021		Cortex_...	LD_block: tsk: 0x20001318, func: 0...	Task_LD_block	Unknown	mai...		678	SYSB...	ti.sys...	ti.sysb...			2479846	0x...	0x...	
50		37839508056		Cortex_...	LM_switch: oldtsk: 0x20001318, ol...	CtxChg	TSK	ti_s...		679	SYSB...	_ti.uia...	ti.sysb...			2479850	0x...	0x...	0x...
51		37843353271		Cortex_...	LD_ready: tsk: 0x20001318, func: 0...	Task_LD_ready	Unknown	mai...		680	SYSB...	ti.sys...	ti.sysb...			2480102	0x...	0x...	0x1
52		37843353271		Cortex_...	LM_switch: oldtsk: 0x2000250c, ol...	CtxChg	TSK	mai...		681	SYSB...	_ti.uia...	ti.sysb...			2480102	0x...	0x...	0x...
53		37843475341		Cortex_...	LM_sleep: tsk: 0x20001318, func: ...	Task_LM_sleep	Unknown	mai...		682	SYSB...	ti.sys...	ti.sysb...			2480110	0x...	0x...	0x...
54		37843475341		Cortex_...	LD_block: tsk: 0x20001318, func: 0...	Task_LD_block	Unknown	mai...		683	SYSB...	ti.sys...	ti.sysb...			2480110	0x...	0x...	
55		37843505859		Cortex_...	LM_switch: oldtsk: 0x20001318, ol...	CtxChg	TSK	ti_s...		684	SYSB...	_ti.uia...	ti.sysb...			2480112	0x...	0x...	0x...
56		38343536376		Cortex_...	LD_ready: tsk: 0x20001318, func: 0...	Task_LD_ready	Unknown	mai...		685	SYSB...	ti.sys...	ti.sysb...			2512882	0x...	0x...	0x1
57		38343566894		Cortex_...	LM_switch: oldtsk: 0x2000250c, ol...	CtxChg	TSK	mai...		686	SYSB...	_ti.uia...	ti.sysb...			2512884	0x...	0x...	0x...
58		38343963623		Cortex_...	LD_block: tsk: 0x20001318, func: 0...	Task_LD_block	Unknown	mai...		687	SYSB...	ti.sys...	ti.sysb...			2512910	0x...	0x...	
59		38344024658		Cortex_...	LM_switch: oldtsk: 0x20001318, ol...	CtxChg	TSK	ti_s...		688	SYSB...	_ti.uia...	ti.sysb...			2512914	0x...	0x...	0x...
60		38347869873		Cortex_...	LD_ready: tsk: 0x20001318, func: 0...	Task_LD_ready	Unknown	mai...		689	SYSB...	ti.sys...	ti.sysb...			2513166	0x...	0x...	0x1
61		38347869873		Cortex_...	LM_switch: oldtsk: 0x2000250c, ol...	CtxChg	TSK	mai...		690	SYSB...	_ti.uia...	ti.sysb...			2513166	0x...	0x...	0x...
62		38347991943		Cortex_...	LM_sleep: tsk: 0x20001318, func: ...	Task_LM_sleep	Unknown	mai...		691	SYSB...	ti.sys...	ti.sysb...			2513174	0x...	0x...	0x...
63		38347991943		Cortex_...	LD_block: tsk: 0x20001318, func: 0...	Task_LD_block	Unknown	mai...		692	SYSB...	ti.sys...	ti.sysb...			2513174	0x...	0x...	
64		38348022460		Cortex_...	LM_switch: oldtsk: 0x20001318, ol...	CtxChg	TSK	ti_s...		693	SYSB...	_ti.uia...	ti.sysb...			2513176	0x...	0x...	0x...

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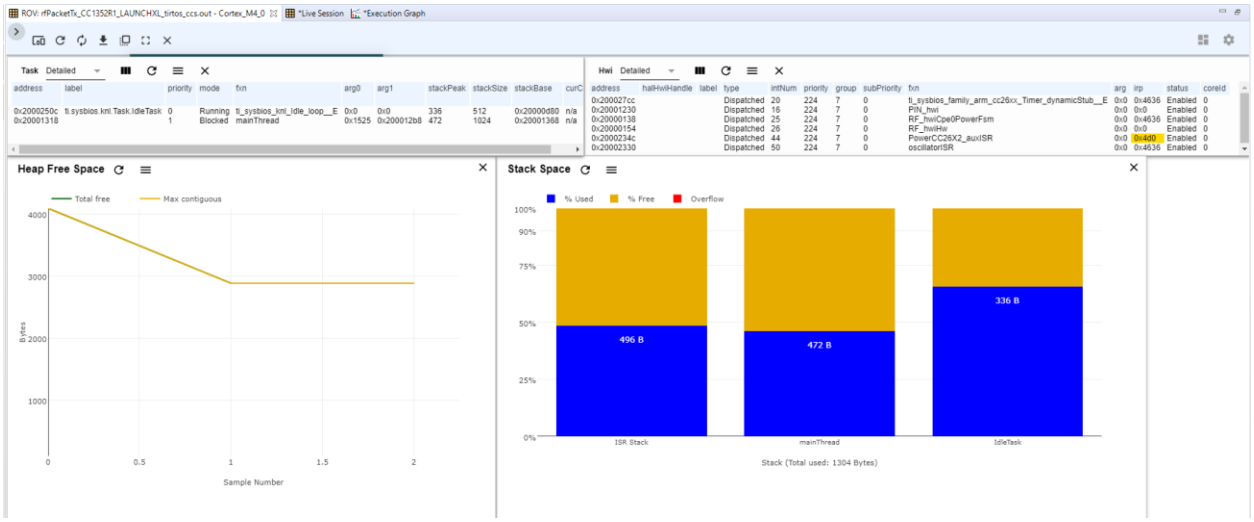
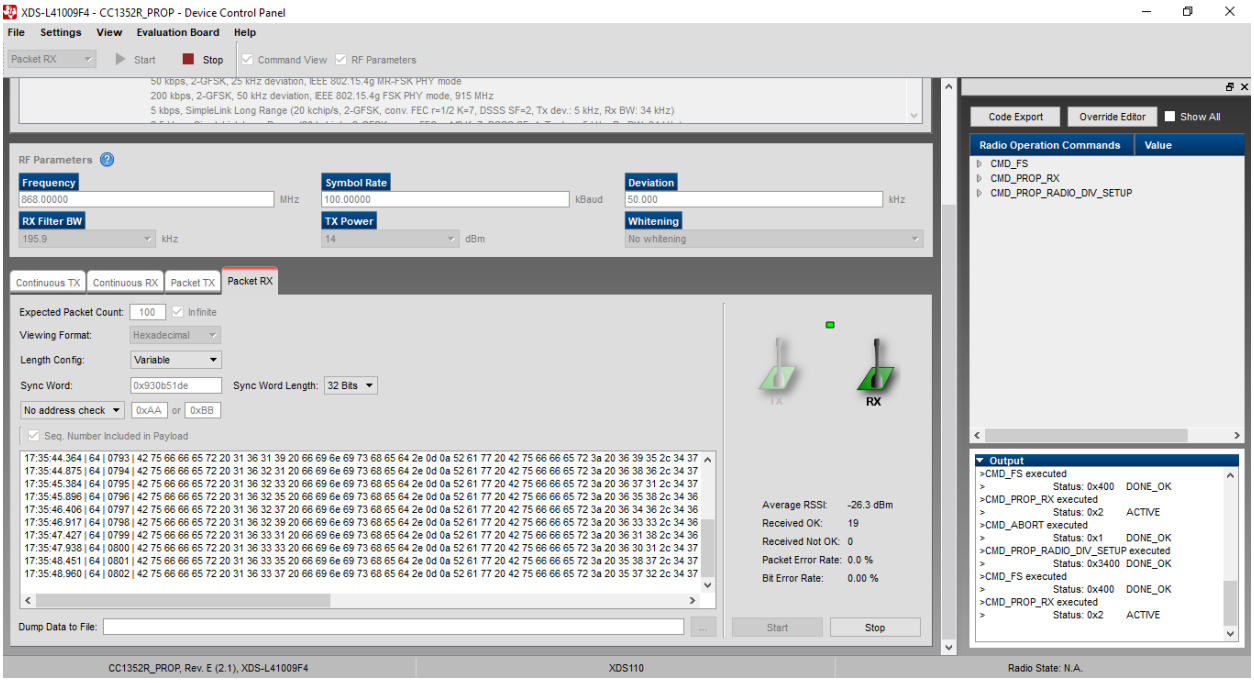


Task 04 :

Youtube Link:

Like in Task 1, the TX device is set to transmit a ADC value

Screenshots:



Grading scheme: 30% Coding, 30% Documentation, 40% Execution/Video.

Geovanni Portillo
Github root directory: https://github.com/portig1/submissions_E2

Task 05 :

Youtube Link:

Modified Code:

```
/***** Includes *****/
/* Standard C Libraries */
#include <stdlib.h>

/* TI Drivers */
#include <ti/drivers/rf/RF.h>
#include <ti/drivers/PIN.h>

/* Driverlib Header files */
#include DeviceFamily_constructPath(driverlib/rf_prop_mailbox.h)

/* Board Header files */
#include "ti_drivers_config.h"

/* Application Header files */
#include "RFQueue.h"
#include <ti_radio_config.h>

/***** Defines *****/

/* Packet RX Configuration */
#define DATA_ENTRY_HEADER_SIZE 8  /* Constant header size of a Generic Data Entry */
#define MAX_LENGTH             30 /* Max length byte the radio will accept */
#define NUM_DATA_ENTRIES       2  /* NOTE: Only two data entries supported at the
moment */
#define NUM_APPENDED_BYTES     2  /* The Data Entries data field will contain:
                                   * 1 Header byte (RF_cmdPropRx.rxConf.bIncludeHdr =
0x1)
                                   * Max 30 payload bytes
                                   * 1 status byte (RF_cmdPropRx.rxConf.bAppendStatus
= 0x1) */



/***** Prototypes *****/
static void callback(RF_Handle h, RF_CmdHandle ch, RF_EventMask e);

/***** Variable declarations *****/
static RF_Object rfObject;
static RF_Handle rfHandle;

/* Pin driver handle */
static PIN_Handle ledPinHandle;
static PIN_State ledPinState;
```

Grading scheme: 30% Coding, 30% Documentation, 40% Execution/Video.

```
/* Buffer which contains all Data Entries for receiving data.
 * Pragmas are needed to make sure this buffer is 4 byte aligned (requirement from
the RF Core) */
#if defined(__TI_COMPILER_VERSION__)
#pragma DATA_ALIGN (rxDataEntryBuffer, 4);
static uint8_t
rxDataEntryBuffer[RF_QUEUE_DATA_ENTRY_BUFFER_SIZE(NUM_DATA_ENTRIES,
                                                  MAX_LENGTH,
                                                  NUM_APPENDED_BYTES)];
#elif defined(__IAR_SYSTEMS_ICC__)
#pragma data_alignment = 4
static uint8_t
rxDataEntryBuffer[RF_QUEUE_DATA_ENTRY_BUFFER_SIZE(NUM_DATA_ENTRIES,
                                                  MAX_LENGTH,
                                                  NUM_APPENDED_BYTES)];
#elif defined(__GNUC__)
static uint8_t
rxDataEntryBuffer[RF_QUEUE_DATA_ENTRY_BUFFER_SIZE(NUM_DATA_ENTRIES,
                                                  MAX_LENGTH,
                                                  NUM_APPENDED_BYTES)]
                                                  __attribute__((aligned(4)));
#else
#error This compiler is not supported.
#endif

/* Receive dataQueue for RF Core to fill in data */
static dataQueue_t dataQueue;
static rfc_dataEntryGeneral_t* currentDataEntry;
static uint8_t packetLength;
static uint8_t* packetDataPointer;


static uint8_t packet[MAX_LENGTH + NUM_APPENDED_BYTES - 1]; /* The length byte is
stored in a separate variable */

/*
 * Application LED pin configuration table:
 *   - All LEDs board LEDs are off.
 */
PIN_Config pinTable[] =
{
    CONFIG_PIN_RLED | PIN_GPIO_OUTPUT_EN | PIN_GPIO_LOW | PIN_PUSHPULL |
PIN_DRVSTR_MAX,
      PIN_TERMINATE
};

/***** Function definitions *****/

void *mainThread(void *arg0)
{
    RF_Params rfParams;
    RF_Params_init(&rfParams);

    /* Open LED pins */
    ledPinHandle = PIN_open(&ledPinState, pinTable);
```

Grading scheme: 30% Coding, 30% Documentation, 40% Execution/Video.

```
    if (ledPinHandle == NULL)
    {
        while(1);
    }

    if( RFQueue_defineQueue(&dataQueue,
                            rxDataEntryBuffer,
                            sizeof(rxDataEntryBuffer),
                            NUM_DATA_ENTRIES,
                            MAX_LENGTH + NUM_APPENDED_BYTES))
    {
        /* Failed to allocate space for all data entries */
        while(1);
    }

    /* Modify CMD_PROP_RX command for application needs */
    /* Set the Data Entity queue for received data */
    RF_cmdPropRx.pQueue = &dataQueue;
    /* Discard ignored packets from Rx queue */
    RF_cmdPropRx.rxConf.bAutoFlushIgnored = 1;
    /* Discard packets with CRC error from Rx queue */
    RF_cmdPropRx.rxConf.bAutoFlushCrcErr = 1;
    /* Implement packet length filtering to avoid PROP_ERROR_RXBUF */
    RF_cmdPropRx.maxPktLen = MAX_LENGTH;
    RF_cmdPropRx.pktConf.bRepeatOk = 1;
    RF_cmdPropRx.pktConf.bRepeatNok = 1;

    /* Request access to the radio */
#if defined(DeviceFamily_CC26X0R2)
    rfHandle = RF_open(&rfObject, &RF_prop, (RF_RadioSetup*)&RF_cmdPropRadioSetup,
&rfParams);
#else
    rfHandle = RF_open(&rfObject, &RF_prop, (RF_RadioSetup*)&RF_cmdPropRadioDivSetup,
&rfParams);
#endif// DeviceFamily_CC26X0R2

    /* Set the frequency */
    RF_postCmd(rfHandle, (RF_Op*)&RF_cmdFs, RF_PriorityNormal, NULL, 0);

    /* Enter RX mode and stay forever in RX */
    RF_EventMask terminationReason = RF_runCmd(rfHandle, (RF_Op*)&RF_cmdPropRx,
                                               RF_PriorityNormal, &callback,
                                               RF_EventRxEntryDone);

    switch(terminationReason)
    {
        case RF_EventLastCmdDone:
            // A stand-alone radio operation command or the last radio
            // operation command in a chain finished.
            break;
        case RF_EventCmdCancelled:
            // Command cancelled before it was started; it can be caused
            // by RF_cancelCmd() or RF_flushCmd().
            break;
        case RF_EventCmdAborted:
```

```
        // Abrupt command termination caused by RF_cancelCmd() or
        // RF_flushCmd().
        break;
    case RF_EventCmdStopped:
        // Graceful command termination caused by RF_cancelCmd() or
        // RF_flushCmd().
        break;
    default:
        // Uncaught error event
        while(1);
}

uint32_t cmdStatus = ((volatile RF_Op*)&RF_cmdPropRx)->status;
switch(cmdStatus)
{
    case PROP_DONE_OK:
        // Packet received with CRC OK
        break;
    case PROP_DONE_RXERR:
        // Packet received with CRC error
        break;
    case PROP_DONE_RXTIMEOUT:
        // Observed end trigger while in sync search
        break;
    case PROP_DONE_BREAK:
        // Observed end trigger while receiving packet when the command is
        // configured with endType set to 1
        break;
    case PROP_DONE_ENDED:
        // Received packet after having observed the end trigger; if the
        // command is configured with endType set to 0, the end trigger
        // will not terminate an ongoing reception
        break;
    case PROP_DONE_STOPPED:
        // received CMD_STOP after command started and, if sync found,
        // packet is received
        break;
    case PROP_DONE_ABORT:
        // Received CMD_ABORT after command started
        break;
    case PROP_ERROR_RXBUF:
        // No RX buffer large enough for the received data available at
        // the start of a packet
        break;
    case PROP_ERROR_RXFULL:
        // Out of RX buffer space during reception in a partial read
        break;
    case PROP_ERROR_PAR:
        // Observed illegal parameter
        break;
    case PROP_ERROR_NO_SETUP:
        // Command sent without setting up the radio in a supported
        // mode using CMD_PROP_RADIO_SETUP or CMD_RADIO_SETUP
        break;
    case PROP_ERROR_NO_FS:
```

```
            // Command sent without the synthesizer being programmed
            break;
        case PROP_ERROR_RXOVF:
            // RX overflow observed during operation
            break;
        default:
            // Uncaught error event - these could come from the
            // pool of states defined in rf_mailbox.h
            while(1);
    }

    while(1);
}

void callback(RF_Handle h, RF_CmdHandle ch, RF_EventMask e)
{
    if (e & RF_EventRxEntryDone)
    {
        /* Toggle pin to indicate RX */
        PIN_setOutputValue(ledPinHandle, CONFIG_PIN_RLED,
                           !PIN_getOutputValue(CONFIG_PIN_RLED));

        /* Get current unhandled data entry */
        currentDataEntry = RFQueue_getDataEntry();

        /* Handle the packet data, located at &currentDataEntry->data:
         * - Length is the first byte with the current configuration
         * - Data starts from the second byte */
        packetLength      = *(uint8_t*)(&currentDataEntry->data);
        packetDataPointer = (uint8_t*)(&currentDataEntry->data + 1);

        /* Copy the payload + the status byte to the packet variable */
        memcpy(packet, packetDataPointer, (packetLength + 1));

        RFQueue_nextEntry();
    }
}
```

Screenshots:

Task 06 :

Youtube Link:

Modified Code:

Grading scheme: 30% Coding, 30% Documentation, 40% Execution/Video.

Screenshots:

Task 07 :

Youtube Link:

Modified Code:

Screenshots:
