

Github root directory: <https://github.com/Ayertena/AdvEmbeddedSys>

Date Due: November 19th, 2018

Task 00: Labeled Launchpads

Task 01: SmartRF Studio ↔ SmartRF Studio

Successfully transmitted 100 packets and received packets In RF Studio.

Task 02: Importing and running the rfPacketTx
Imported build and ran the rfPacketTx example.

Task 03: Exporting and using RF configuration

Successfully changed the RF settings.

Task 04: Firmware TX → SmartRF Studio RX

Successfully received packets using CCS(Rx) and RF studio.

Task 05: Importing and Modifying rfPacketRx

Successfully imported, built and ran the rfPacketRx.

Task 06: Firmware TX → Firmware RX

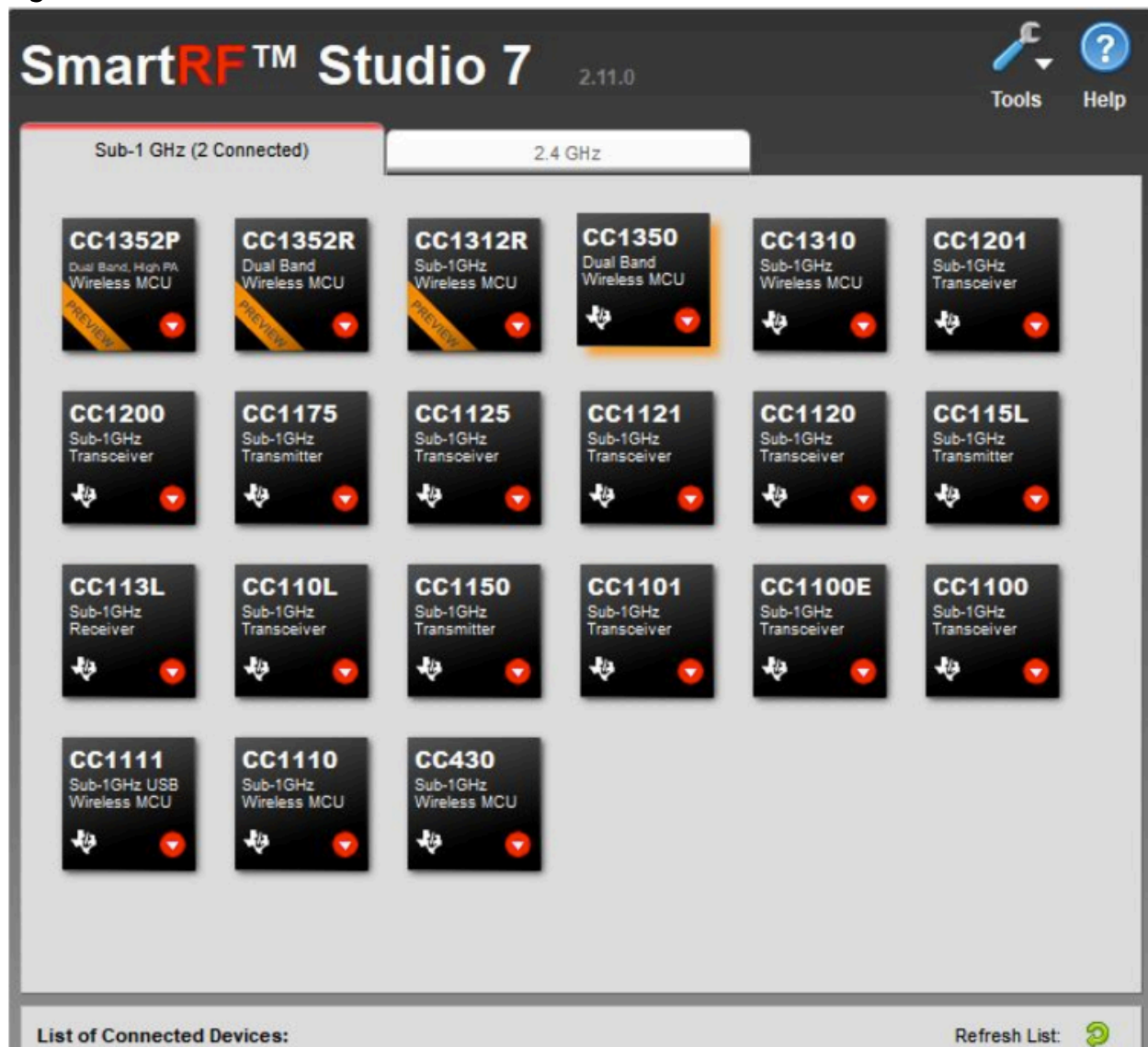
Successfully reconnected the devices and transmitted and received packets.

Task 07: SmartRF Studio TX → Firmware RX

Successfully connected Tx launchpad to RF studio and transmitted and received packets.

Youtube Link: <https://www.youtube.com/watch?v=iTtI7J1v1sc>

Figure 1: RFStudio



Figuer2: Rx

XDS-L400A5EZ - CC1350_PROP - Device Control Panel

File Settings View Evaluation Board Help

Packet RX Start Stop Command View RF Parameters

Target Configuration

RF Design Based On: LAUNCHXL-CC1350-7XD-7793 DC/DC Enable Cap-array Tuning Delta 0 0x00 Customize...

Typical Settings

| Category | Setting Name |
|---------------------------------|---|
| Settings for 779 - 930 MHz band | 50 kbps, 2-GFSK, 25 kHz deviation |
| | 50 kbps, 2-GFSK, 25 kHz deviation, IEEE 802.15.4g MR-FSK PHY mode |
| | 200 kbps, 2-GFSK, 70 kHz deviation |
| | 300 kbps, 2-GFSK, 105 kHz deviation |
| | 400 kbps, 2-GFSK, 140 kHz deviation |
| | 500 kbps, 2-GFSK, 175 kHz deviation |
| | 625 kbps, 1-encry Long Range (10 kbit/s), 2-FSK, conv. FFC, r=1/2, K=7, DSSS, SF=8, Tx dev. 5 kHz, Rx BW: 40 kHz) |

RF Parameters

Frequency: 868.00000 MHz Symbol Rate: 100.00000 kbaud Deviation: 50.000 kHz

RX Filter BW: 196 kHz TX Power: 14 dBm Whitening: No whitening

Continuous TX Continuous RX Packet TX Packet RX

Expected Packet Count: 100 Infinite

Viewing Format: Hexadecimal

Length Config: Variable

Sync Word: 0x930e51de Sync Word Length: 32 Bits

No address check 0xAA or 0xBB

Seq. Number Included in Payload

```

17:09:16.418 | 1e | 0086 | 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc fb cb 66 0a b3 2d cc 76 d4 | -24
17:09:16.556 | 1e | 0087 | 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc fb cb 66 0a b3 2d cc 76 d4 | -25
17:09:16.695 | 1e | 0088 | 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc fb cb 66 0a b3 2d cc 76 d4 | -24
17:09:16.818 | 1e | 0089 | 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc fb cb 66 0a b3 2d cc 76 d4 | -24
17:09:16.957 | 1e | 0090 | 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc fb cb 66 0a b3 2d cc 76 d4 | -24
17:09:17.085 | 1e | 0091 | 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc fb cb 66 0a b3 2d cc 76 d4 | -24
17:09:17.232 | 1e | 0092 | 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc fb cb 66 0a b3 2d cc 76 d4 | -24
17:09:17.373 | 1e | 0093 | 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc fb cb 66 0a b3 2d cc 76 d4 | -24
17:09:17.514 | 1e | 0094 | 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc fb cb 66 0a b3 2d cc 76 d4 | -24
17:09:17.640 | 1e | 0095 | 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc fb cb 66 0a b3 2d cc 76 d4 | -24
17:09:17.778 | 1e | 0096 | 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc fb cb 66 0a b3 2d cc 76 d4 | -24
17:09:17.890 | 1e | 0097 | 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc fb cb 66 0a b3 2d cc 76 d4 | -24
17:09:18.026 | 1e | 0098 | 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc fb cb 66 0a b3 2d cc 76 d4 | -25
17:09:18.157 | 1e | 0099 | 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc fb cb 66 0a b3 2d cc 76 d4 | -24

```

Dump Data to File: ...

Start Stop

CC1350_PROP, Rev 2.1 (Rev. B), XDS-L400A5EZ XDS110 Radio State: N.A.

Figure3: Tx

XDS-L400A7R1 - CC1350_PROP - Device Control Panel

File Settings **View** Evaluation Board Help

Packet TX Start Stop Command View ☒ RF Parameters

Target Configuration

RF Design Based On: LAUNCHXL-CC1350-7XD-7793 ☒ DCDC Enable ☐ Cap-array Tuning Delta: 0 - 0x00 Customize...

Typical Settings

| Category | Setting Name |
|---------------------------------|---|
| Settings for 779 - 930 MHz band | 50 kbps, 2-GFSK, 25 kHz deviation |
| | 50 kbps, 2-GFSK, 25 kHz deviation, IEEE 802.15.4g MR-FSK PHY mode |
| | 200 kbps, 2-GFSK, 70 kHz deviation |
| | 300 kbps, 2-GFSK, 105 kHz deviation |
| | 400 kbps, 2-GFSK, 140 kHz deviation |
| | 500 kbps, 2-GFSK, 175 kHz deviation |

RF Parameters

| | | |
|--------------------------|------------------------------|-------------------------|
| Frequency: 868.00000 MHz | Symbol Rate: 100.00000 kBaud | Deviation: 50.000 kHz |
| RX Filter BW: 196 kHz | TX Power: 14 dBm | Whitening: No whitening |

Continuous TX Continuous RX **Packet TX** Packet RX

Packet Count: 100 ☐ Infinite
Length Config: Variable


| Preamble | Sync word | Length (dec) | Packet Data | CRC |
|-------------|-------------|--------------|---|-----|
| 01010101... | 93 0b 51 de | 30 | S N 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc f8 cb 66 0a b3 2d cc 76 d4 | |

Preamble Count: 4 Bytes Sync Word Length: 32 Bits ☐ Address
Preamble Mode: Send 0 as the first preamble bit


☒ Add Seq. Number

☒ Random 23 3d ab 20 b0 a7 82 9d 77 d9 96 a3 e0 6d a8 3f d3 7d fc f8 cb 66 0a b3 2d cc 76 d4
☐ Text
☐ Hex

☐ Advanced



TX



RX

Sent Packets: 0
Frequency: 868.00000 MHz
Output Power: 14 dBm

Start Stop

CC1350_PROP, Rev. 2.1 (Rev. B), XDS-L400A7R1 XDS110 Radio State: N.A.