

Github root directory: https://github.com/JeffinVegas/403_AdvEmbSys

Date Due: November 19th, 2018

Youtube Link (Task 7): <https://youtu.be/m4-Mnnx-CSE>

Task 1: SmartRF Studio ↔ SmartRF Studio

We were able to transfer/receive packets in RF Studio.

Task 2: Importing and running the rfPacketTx example

We were able to import, build, and run the rfPacketTx example.

Task 3: Exporting and using RF configuration

We were able to change the RF settings

Task 4: Firmware TX → SmartRF Studio RX

We were able to receive packets using both RF Studio (TX) and CCS (RX)

Task 5: Importing and Modifying rfPacketRx

We were able to import, build, and run the rfPacketRx.

Task 6: Firmware TX → Firmware RX

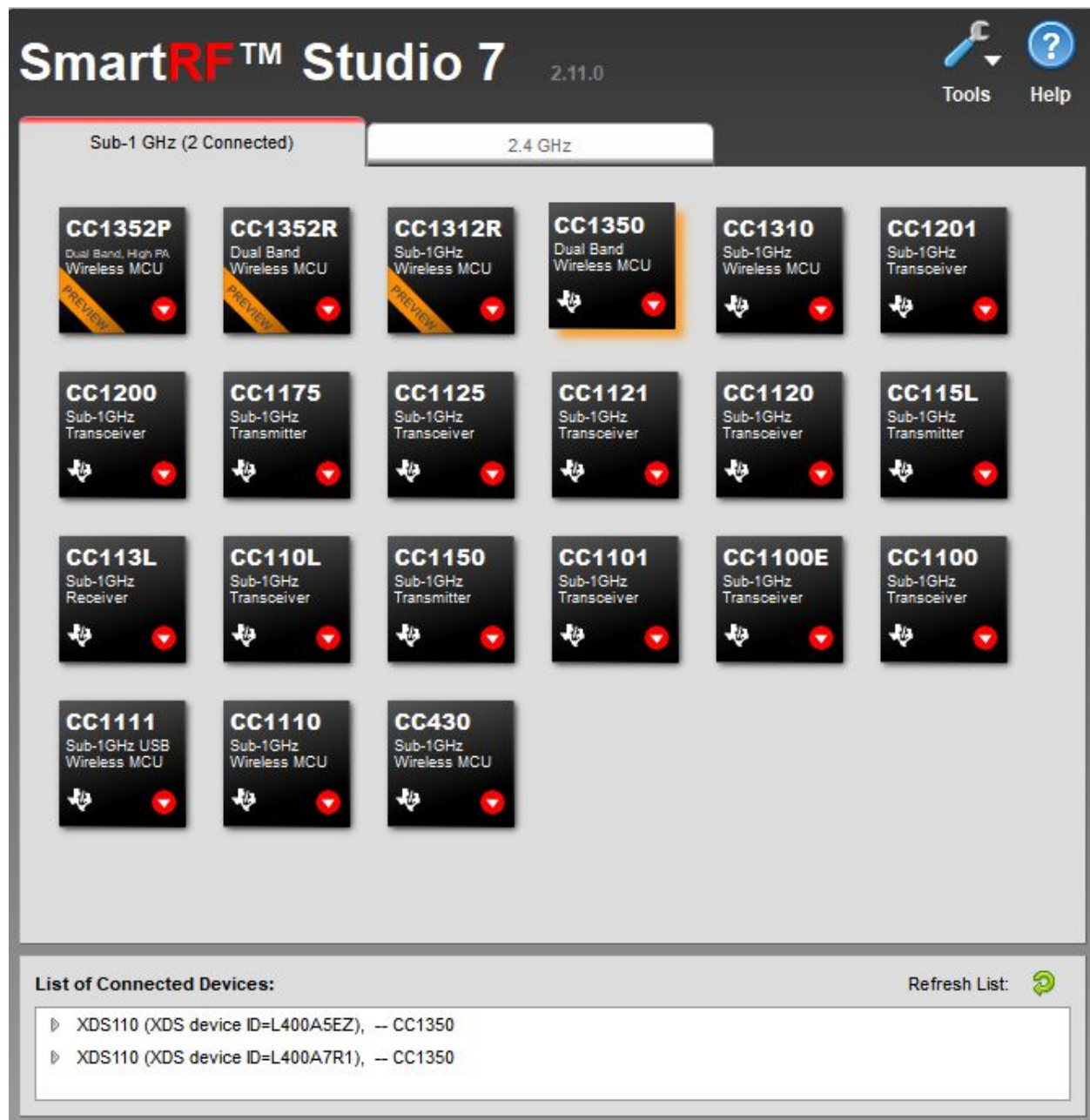
We disconnected the device and reconnected the devices and transfer/receive packets.

Task 7: SmartRF Studio TX → Firmware RX

We connected the TX launchpad to RF Studio and transfer/receive packets.

Photos:

a) RFStudio menu



b) RX menu

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, 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

Expected Packet Count: 100 Infinite

Viewing Format: Hexadecimal

Length Config: Variable

Sync Word: 0x930b51de 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 f8 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 f8 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 f8 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 f8 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 f8 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 f8 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 f8 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 f8 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 f8 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 f8 cb 66 0a b3 2d cc 76 d4 | -24
17:09:17.776 | 1e | 0096 | 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 | -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 f8 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 f8 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 f8 cb 66 0a b3 2d cc 76 d4 | -24

Dump Data to File: ...

Start Stop

Average RSSI: -25.2 dBm
Received OK: 100
Received Not OK: 0
Packet Error Rate: 0.0 %
Bit Error Rate: 0.00 %

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

c) TX menu

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 ☐ 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, Loopy-Low-Power (40 kbps, 2-GFSK, IEEE 802.15.4g MR-FSK PHY mode, 5 kHz Dev, 40 kHz BW)

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.