Design Note Overview

1 Introduction

This document contains an overview of the different design notes available. The design notes are divided into six different categories; RF, SoC, MAC, Tools, Systems, and CC11xx/CC25xx Digital Features.

Category	Numbering
RF	DN001 – DN099
SoC	DN100 – DN199
MAC and ZigBee	DN200 – DN299
Tools	DN300 – DN399
System	DN400 – DN499
CC11xx/CC25xx Digital Features	DN500 – DN599

Table 1. Numbering Overview

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2 Design Note Overview

DN Number	Title	Keywords
DN001	Antenna Measurement with Network Analyzer	Antenna, Network Analyzer, Measure, Return Loss, Reflection, Impedance
DN002	Practical Sensitivity Testing	Receiver Testing, Sensitivity, PER (Packet Error Rate), BER (Bit Error Rate)
DN003	Implementation of Microstrip Balun for CC2420, CC243x, and CC2480	Balun, Microstrip, CAD Tool, DXF, Gerber, CC2420, CC2430, CC2431, CC2480
DN004	Folded Dipole Antenna for CC25xx	CC2500, CC2510, CC2511, CC2550, Folded Dipole, PCB Antenna, 2.4 GHz
DN005	CC11xx Sensitivity versus Frequency Offset and Crystal Accuracy	Sensitivity, Frequency Offset, Crystal Accuracy, PER (Packet Error Rate), CC1100, CC1101, CC1110, CC1111
DN006	CC11XX Settings for FCC 15.247 Solutions	FCC 15.247 and 15.249, Wideband Requirements , CC11xx System parameters, AN001 SRD Regulations, Digital Modulation
DN007	2.4 GHz Inverted F Antenna	CC2400, CC2420, CC2430, CC2431, CC2500, CC2510, CC2511, CC2550, CC2520, CC2480, PCB Antenna, 2.4 GHz, Inverted F Antenna
DN008	868 MHz and 915 MHz PCB Antenna	CC1000, CC1010, CC1020, CC1021, CC1050, CC1070, CC1100, CC1150, PCB Antenna, 868 MHz, 915 MHz, Monopole
DN009	Upgrade from CC1100 to CC1101	RF transceiver, CC1100, CC1101
DN010	Close-in Reception with CC1101	CC1101, Close-in Reception, Saturation
DN011	RF Module Testing using SmartRF® Studio	Take Advantage of the Development Tools, Simplify Module Verification
DN012	Programming Output Power on CC1100 and CC1150	PATABLE Register Settings, Output Power Levels, Current Consumption, CC1100, CC1150
DN013	Programming Output Power on CC1101	PATABLE Register Settings, Output Power Levels, Current Consumption, CC1101
DN014	Programming Output Power on CC2500 and CC2550	PATABLE Register Settings, Output Power Levels, Current Consumption, CC2500, CC2550
DN015	Permanent Frequency Offset Compensation	Frequency Offset Compensation, Component Tolerance/Accuracy, Permanent Compensation, Compensation Span, Centre Frequency, Receive, CC1100, CC1101, CC1110, CC1111, CC2500, CC2510, CC2511
DN016	Compact 868/915 MHz Antenna Design	CC1100, CC1101, CC1110, CC1111, CC1150, Chip Antenna, 868 MHz, 915 MHz, ISM Bands, Johanson Technology
DN017	CC11xx 868/915 MHz RF Matching	Balun, Reference Design, RF Matching, Impedance, Filter, CC1100, CC1101, CC1110, CC1111, CC1150
DN018	Range Measurements in an Open Field Environment	Friis Equation, Ground Model, Range, Sensitivity, Transmission Budget
DN020	Programming Output Power on CC243x	TXCTRLL, Output Power Level, Harmonics, Error Vector Magnitude, Current Consumption, CC2430, CC2431
DN021	CC2500 and CC2510/CC2511 Sensitivity versus Frequency Offset and Crystal Accuracy	Sensitivity, Frequency Offset, Crystal Accuracy, PER (Packet Error Rate), CC2500, CC2510, CC2511

DN100	Executing Program Code from RAM	Obsolete
DN101	Using the ADC to Measure Supply Voltage	ADC, VDD, Supply Voltage, CC1110, CC1111, CC2430, CC2431, CC2510, CC2511
DN102	SoC Temperature Sensor	Temperature Sensor, ADC, CC1110, CC1111, CC2430, CC2510. CC2511
DN103	Optimizing Current Consumption in TX and RX	Obsolete. Replaced by DN106.
DN104	Memory and Register Content After Reset	Obsolete. Info added to datasheets
DN105	Upgrade from CC2510/11 Preview to Release part	CC2510, CC2511, External Interrupts, Software Changes, Hardware Changes
DN106	Power Modes in CC111xFx, CC243x, and CC251xFx	Power Modes, Data Sheet, Errata Note, Work around, Interrupt Service Routine, External Port Interrupt, Sleep Timer Interrupt, CC1110, CC1111, CC2430, CC2431, CC2510, CC2511
DN107	DMA and Radio Configuration	DMA, Packet Handling Configuration, Radio, CC1110, CC1111, CC2510, CC2511
DN108	Using AES Encryption in CC11xFx, CC243x, and CC251xFx	AES, Encryption, Decryption, Initialization vector (IV)/nonce, Download/Upload, DMA, Interrupt Service Routine, CC1110, CC1111, CC2430, CC2431, CC2510, CC2511
DN109	DN109 Using I2S in CC111xFx and CC251xFx	I2S, CPU, DMA, Audio, Codec, Protocol, µ-Law Compression/Expansion, Sample Rate, Stereo/Mono, Word Select (Left/Right Audio Channel), CC1110, CC1111, CC2510, CC2511
DN200	Using Constants in Code with Z-Stack	Z-stack, XDATA, Code, IAR Embedded, CC2430, CC2431
DN201	Using the Direct Join Request Feature in Z-Stack	CC2420, CC2430, CC2431, Z-stack, Direct Join, Orphan, IAR Embedded Workbench
DN300	SmartRF04®EB Troubleshooting	SmartRF04®EB, EM, CC1100, CC1110, CC1150, CC2430, CC2431, CC2500, CC2510, CC2511, CC2550
DN301	Code Export from SmartRF® Studio	SmartRF® Studio, Code Export, Register View
DN302	Register View in SmartRF® Studio	SmartRF® Studio, Register View, Link
DN303	Cleanup of Installed PC tools	SmartRF®Studio, Packet Sniffer, SmartRF® Flash Programmer, Remove, Clean up, PC Tools, Development Tools, Drivers, Windows Registers
DN400	Interfacing CC1100 - CC2500 to the MSP430	MSP430, CC1100, CC2500, Application Example, Interfacing CC1100 using SPI, MSP430 with SmartRF04®EB, Library for CC1100 and CC2500
DN401	Interfacing CC1020/1 to the MSP430	MSP430, CC1020, CC1021, CC1070, Application Example, MSP430 and SmartRF®04EB, Interfacing CC1020 using SPI, Protocol Example
DN402	Simple Audio Loopback Using CC251X	ADC, DAC, µLaw, CC2510, CC2511
DN500	Packet Transmission Basics	CC1100, CC1101, CC1150, CC2500, CC2550, FIFO, Fixed Packet Length Mode, Variable Packet Length Mode, Infinite Packet Length Mode
DN501	PATABLE Access	CC1100, CC1101, CC1150, CC2500, CC2550, PATABLE
DN502	CRC Implementation	CC1100, CC1101, CC1110, CC1111, CC1150, CC2500, CC2510, CC2511, CC2550, CRC
DN503	SPI Access	CC1100, CC1101, CC1150, CC2500, CC2550, SPI, Reset, Burst Access, Command Strobes
DN504	FEC Implementation	CC1100, CC1101, CC1110, CC1111, CC1150, CC2500, CC2510, CC2511, CC2550, FEC, Viterbi, Trellis

DN505	RSSI Interpretation and Timing	CC1100, CC1101, CC1110, CC1111, CC2500, CC2510, CC2511, RSSI
DN506	GDO Pin Usage	CC1100, CC1101, CC1150, CC2500, CC2550, GDO Pin, RXFIFO_OVERFLOW, TXFIFO_UNDERFLOW

Table 2. Design Note Overview

3 General Information

3.1 Document History

Revision	Date	Description/Changes
SWRA120I	2008.04.04	Added CC2480 to DN003 and DN007. Added DN021
SWRA120H	2008.02.01	Added DN017
SWRA120G	2008.01.24	Added DN108
SWRA120F	2008.01.11	Added DN018
SWRA120E	2007.12.21	Added DN106, DN107, and DN020
SWRA120D	2007.10.22	Added DN105, DN015, DN016, DN300, and DN301. DN100, DN103, and DN104 have been removed from the web and are therefore marked as Obsolete. Removed logo from header.
SWRA120C	2007.10.09	Added DN201, DN010, DN009, DN011, DN012, DN013, and DN014.
SWRA120B	2007.04.16	Added DN007, DN008, and DN402. Added ZigBee to the MAC category
SWRA120A	2007.02.01	Added DN006
SWRA120	2006.07.06	Initial release.

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