TIDC-CC2530-CC2592EMK-RD

Test Results and Performance curves

Test data in this report has been measured on TIDC-CC2530-CC2592EMK-RD under typical conditions defined in this document as temperature = 25°C, supply = 3.0 V, frequency = 2440 MHz if nothing else is stated. The PCB layout on this design will greatly influence the RF performance. When using CC2530 and CC2592 on a design, it is highly recommended to follow TI reference design for layout, stack-up and schematic as close as possible to obtain optimum performance.

Current Consumption

Table 1 Current Consumption

Parameter	Condition	Typical	Unit
Receive Current	Wait for sync, -90 dBm input level Wait for sync, -50 dBm input level	28.8 25	mA
Transmit Current	TXPOWER = 0xF5 TXPOWER = 0xE5 TXPOWER = 0xD5 TXPOWER = 0xC5 TXPOWER = 0xB5 TXPOWER = 0xA5 TXPOWER = 0x95 TXPOWER = 0x85 TXPOWER = 0x75 TXPOWER = 0x65 TXPOWER = 0x55 TXPOWER = 0x45 TXPOWER = 0x35	172.3 155.7 143.1 133.8 124.8 115.2 102.7 95.0 847.5 82.3 77.9 75.1 73.6	mA

Receive Parameters

Table 2 Receive Parameters

Parameter	Condition	Typical	Unit
Receive Sensitivity HGM	1 % PER, IEEE 802.15.4 [7] requires -85 dBm	-100.3	dBm
Receive Sensitivity LGM	1 % PER, IEEE 802.15.4 [7] requires -85 dBm	-99.2	
Saturation HGM	IEEE 802.15.4 [7] requires -20 dBm	–2	
Saturation LGM	IEEE 802.15.4 [7] requires -20 dBm	–1	
Interferer Rejection	Wanted signal 3 dB above the sensitivity level, IEEE 802.15.4 modulated interferer at IEEE 802.15.4 channels		dB
	±5 MHz from wanted signal, IEEE 802.15.4 [7] requires 0 dB	35.5	
	±10 MHz from wanted signal, IEEE 802.15.4 [7] requires 30 dB	45.5	
	±20 MHz from wanted signal. Wanted signal at -82dBm	48.8	

Transmit Parameters

Table 3. Transmit Parameters

Parameter	Condition	Typical	Unit
Emission with TXPOWER = 0xE5	Conducted 2•RF (FCC restricted band)	-46.4	dBm
	Conducted 3•RF (FCC restricted band)	-48.3	
	Radiated 2·RF (FCC restricted band)	-41.66	
	Radiated 3·RF (FCC restricted band)	-42.84	
Max Error Vector Magnitude (EVM)	IEEE 802.15.4 requires max. 35% Measured as defined by IEEE 802.15.4		%
	TXPOWER = 0xF5	31.6	
	TXPOWER = 0xE5	16.8	

Output Power Programming

Table 4. Power Table

TXPOWER	Power [dBm]	Current [mA]
0xF5	21.1	172.3
0xE5	20.4	155.7
0xD5	19.7	143.1
0xC5	18.9	133.8
0xB5	18.2	124.8
0xA5	17.2	115.2
0x95	15.7	102.7
0x85	14.8	95
0x75	13.4	87.5
0x65	11.8	82.3
0x55	9.9	77.9
0x45	7.7	75.1
0x35	5.4	73.6

Typical Performance Curves

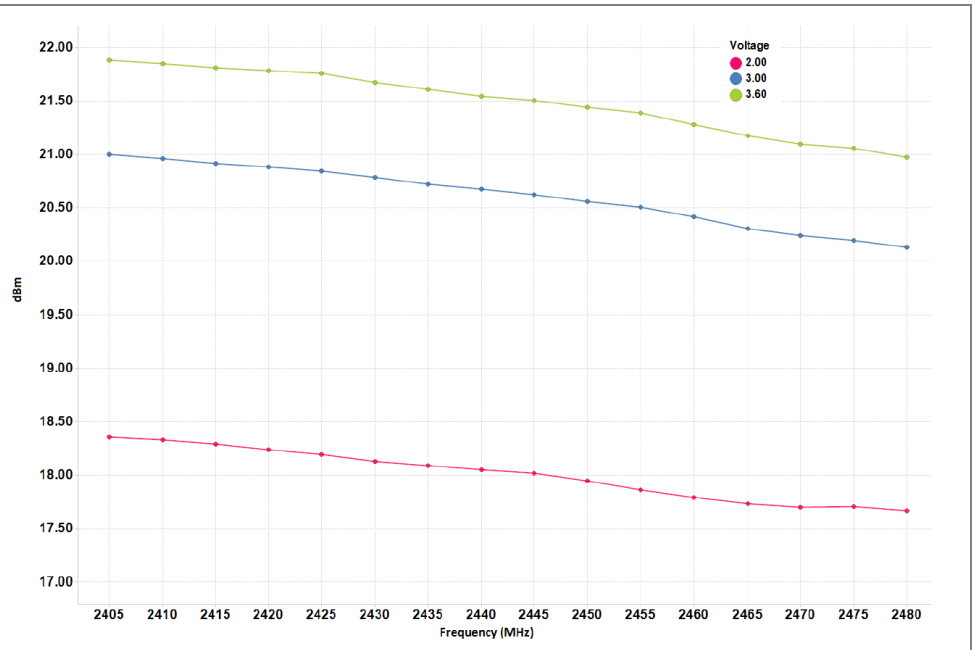

Figure 1. Output Power vs. Frequency and Power Supply Voltage, TXPOWER = 0xE5

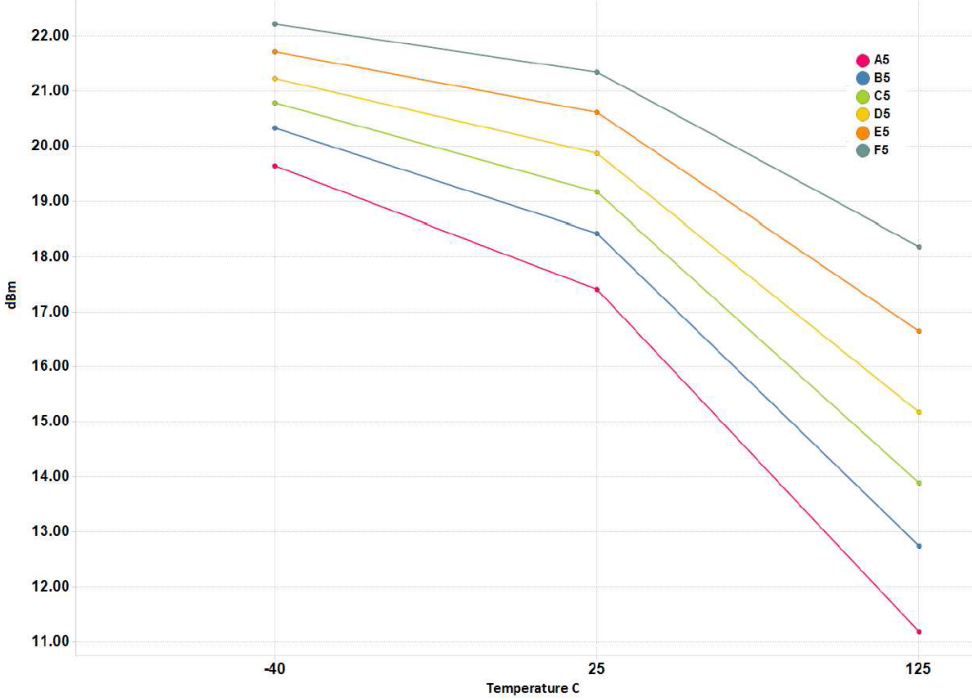

Figure 2. Output Power vs. Temperature

Figure 3. Sensitivity vs. Frequency and Power Supply Voltage

Figure 5. Selectivity Operating at Channel 18 (2440 MHz)

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