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Vincit Omnia Veritas

Zigbee 信号测试

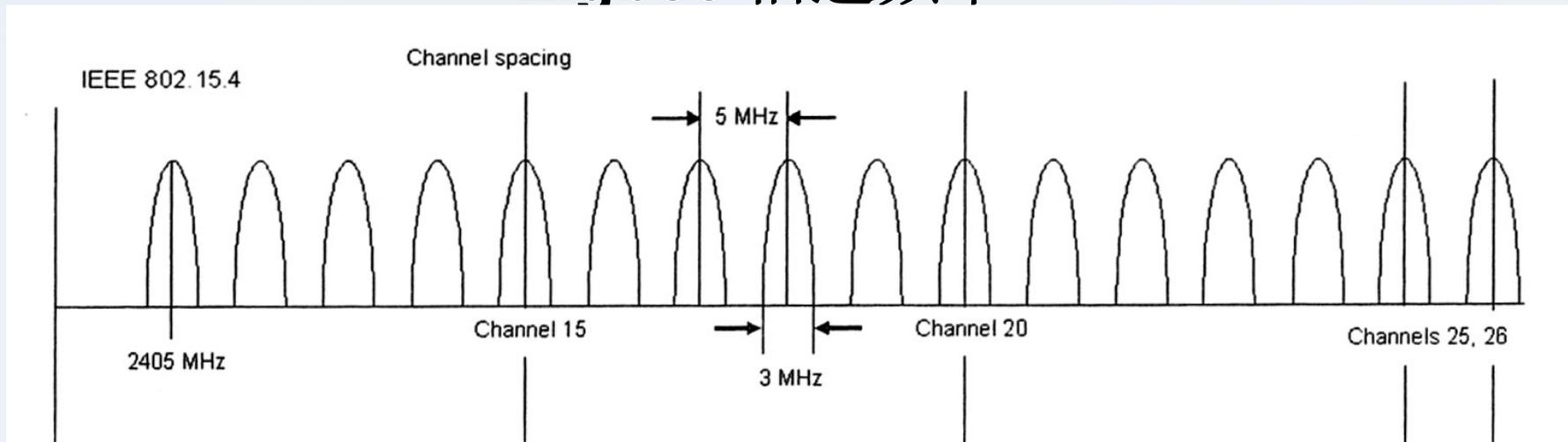




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Zigbee 信道频率



第一个信道ch11是2.4G ISM 频段, 最后一个信道是ch 26, 总共16个信道。

信道空间是 5MHz

Zigbee 信号带宽 3MHz



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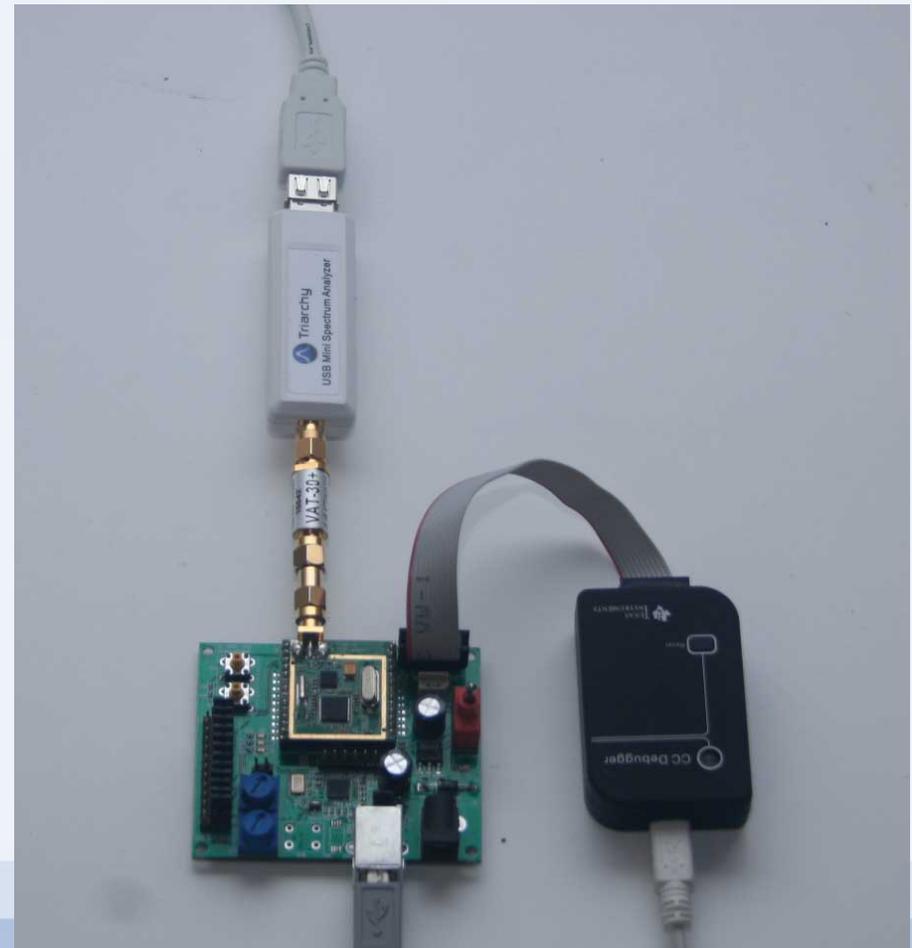
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Zigbee 模块接入测试

1: TSA5G35 通过外接 30 dB 衰减器与 Zigbee 模块连接.

2: Zigbee 模块是 TR2401, 安装在演示板上, CC 调试器将连接到演示板.

3: TI 上的 SmartRF Studio Tool 将用来控制 Zigbee 模块.





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Zigbee 模块接入测试

TSA5G35参数设定:

Parameter Setting

Center-Freq(MHz)

Span(MHz)

Amplitude(dBm) External ATT(30dB)

Sweep Time

6286 - CC2430 - Device Control Panel

File Settings View Evaluation Board Help

Easy Mode Expert Mode Register View RF Parameters Device reset

RF Parameters

Frequency: 2405 MHz IEEE 802.15.4 channel 0x0B TX power: 0.6 dBm

Range Extender: None High Gain Mode(RX)

Continuous TX Continuous RX Packet TX Packet RX RF Device Commands

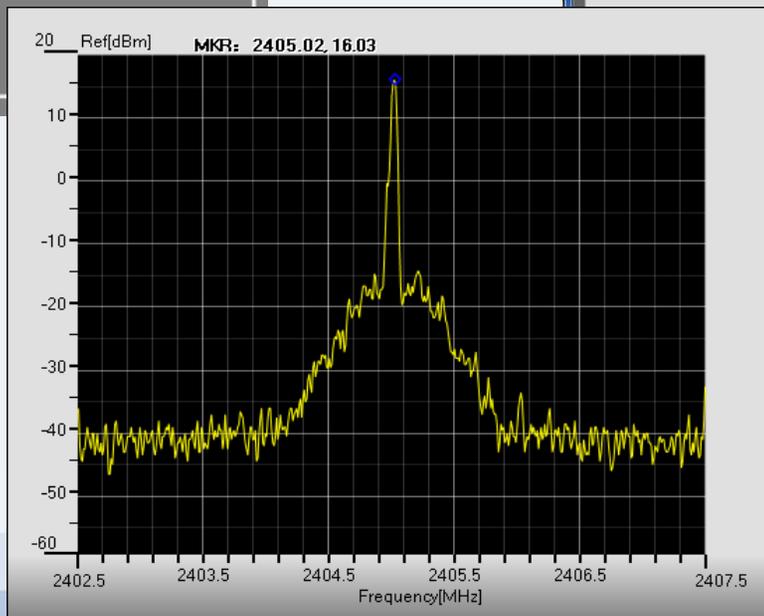
Modulated Unmodulated

LOCK_STATUS

Output power: 0.6 dBm Channel: 0x0B

Start Stop

CC Debugger Radio state: (63)



测量Zigbee
模块携带的信号

Smart RF studio
设置



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Zigbee 模块接入测试

TSA5G35 参数设定:

Parameter Setting

Center-Freq(MHz)

Span(MHz)

Amplitude(dBm) External ATT(30dB)

Sweep Time

Lost device - CC2430 - Device Control Panel

File Settings View Evaluation Board Help

Easy Mode Expert Mode Register View RF Parameters Device reset

RF Parameters

Frequency: 2405 MHz IEEE 802.15.4 channel TX power: 0.6 dBm

Range Extender: None High Gain Mode(RX)

Continuous TX Continuous RX Packet TX Packet RX RF Device Commands

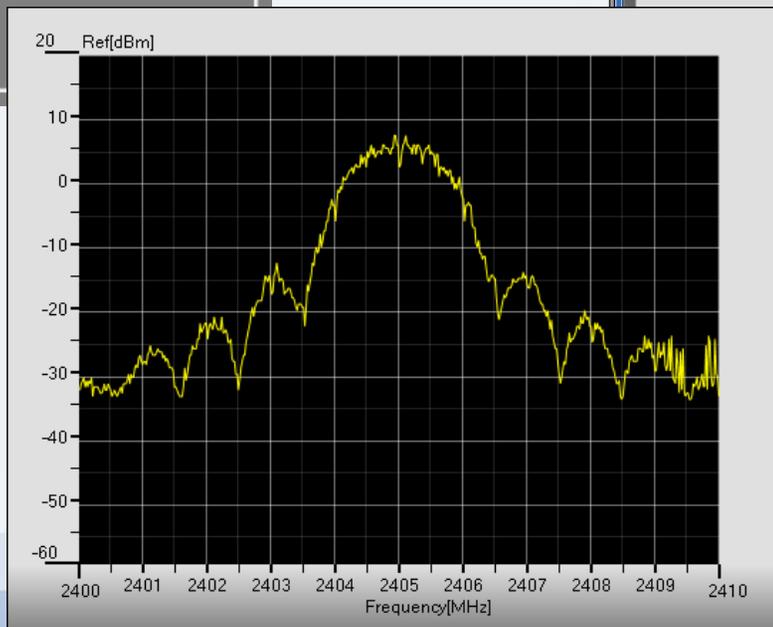
Modulated Unmodulated

Output power: 0.6 dBm
Channel: 0x0B

Start Stop

Radio state: N.A.

测量Zigbee模块调制信号



Smart RF studio
设置



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Zigbee 模块接入测试

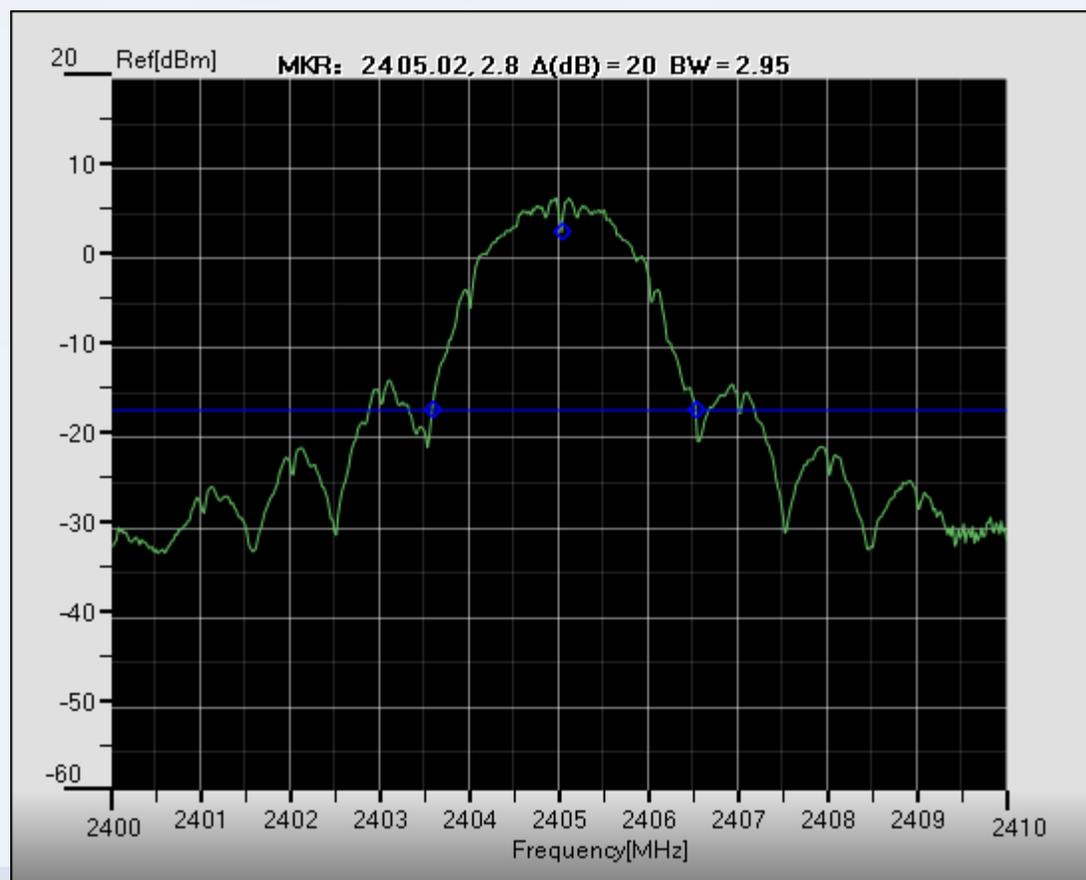
平均曲线会更平滑，更容易测量.

使用“mark to notch”取中心频率.

Frequency=2405.02MHz

调制后的信号电平是
7dBm.

信号带宽是 2.95MHz





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Zigbee 模块传导测试

Parameter Setting

Center-Freq(MHz)

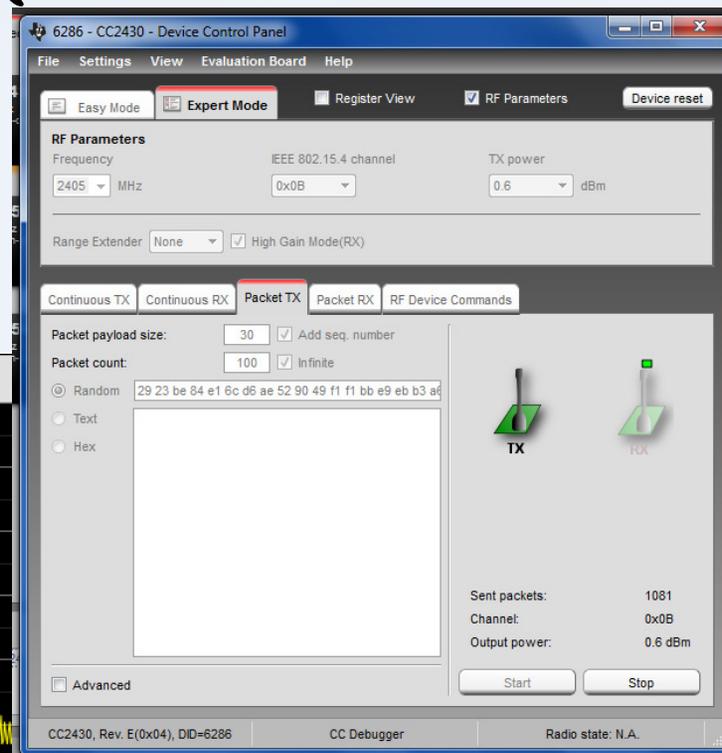
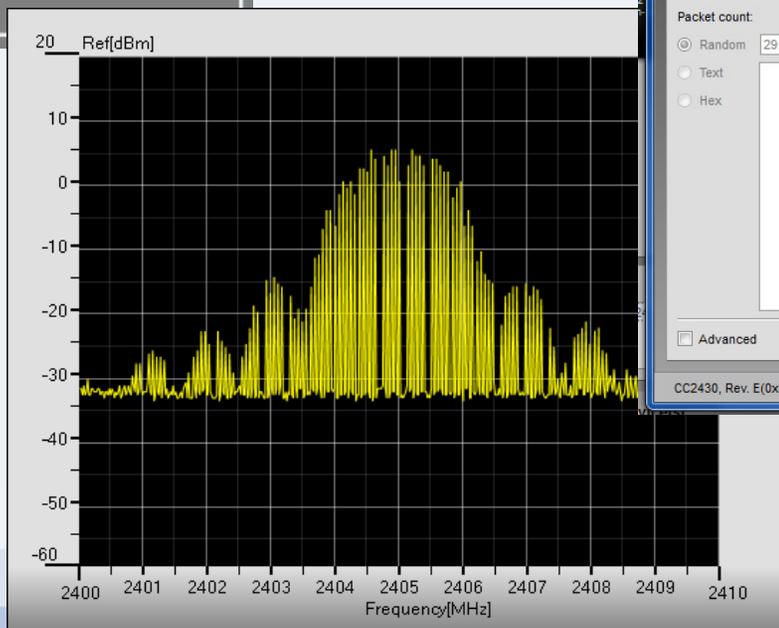
Span(MHz)

Amplitude(dBm) External ATT(30dB)

Sweep Time

TSA5G35
参数设定:

分组信号不是连续波，它减少扫描时间为的是在每帧测量中接收更多的信号。



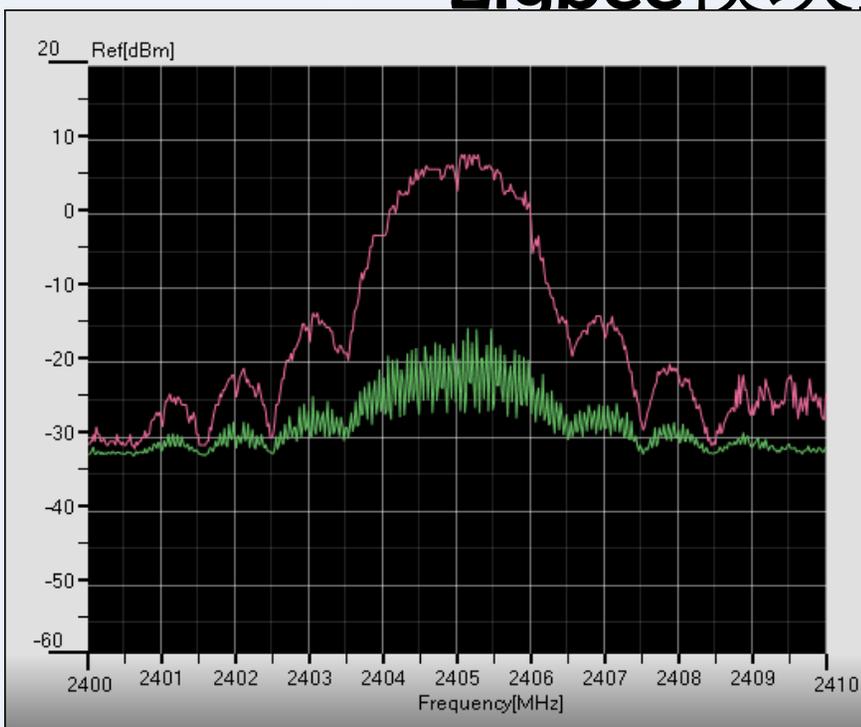
设置Zigbee 进入Packet Tx模式



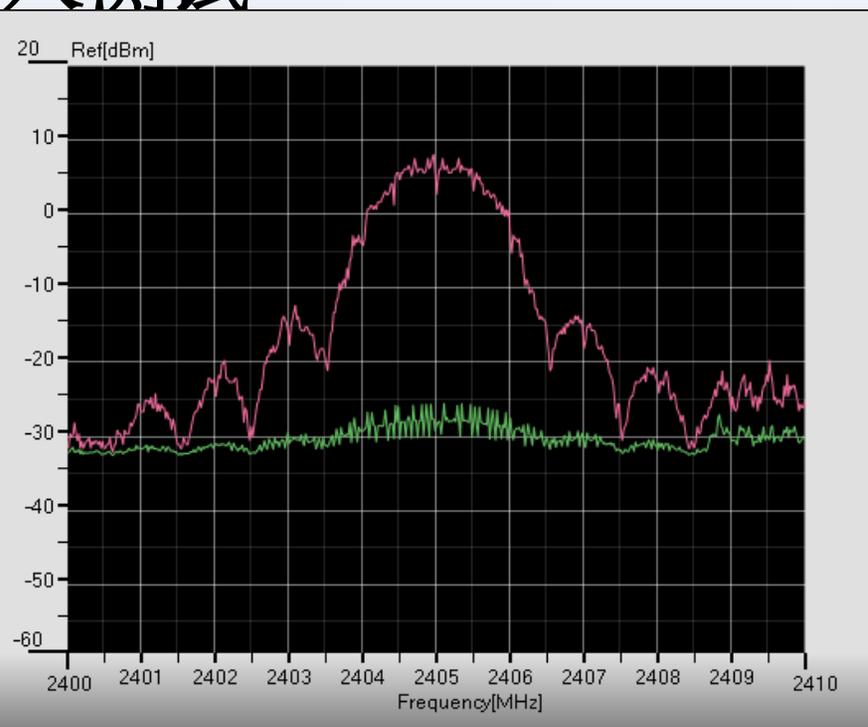
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Zigbee模块接入测试



载荷数据是30帧，帧重复率高，平均曲线也会很高。



载荷数据是120帧，帧重复率高，平均曲线也会很高



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Zigbee模块辐射测试

1: TSA5G35和2.4G鞭形天线连接

2: Zigbee也和 2.4G天线连接,
两个天线相距10mm

3: TI的SmartRF Studio tool 将被用来控制Zigbee模块.





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Zigbee模块辐射测试

TSA5G35参数设定:

Parameter Setting

Center-Freq(MHz)	2405	Start	
Span(MHz)	10		
Amplitude(dBm)	0		<input checked="" type="checkbox"/> External ATT(30dB)
Sweep Time	x8 (Burst Mode)		

信号电平降至0dBm, 如果
天线移到远处, 信号电平将
下降很多.

