

## 12 POWER SPECTRAL DENSITY

### 12.1 Standard Applicable

According to 15.247(d), for bluetooth device, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

### 12.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 4. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any measured frequency within its operating range and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 3kHz, VBW to 30 kHz, sweep 300kHz and sweep time 100 sec.
4. Measure the highest amplitude appearing on spectral display and record the level to calculate result data.
5. Repeat above procedures until all frequencies measured were complete.

### 12.3 Measurement Equipment

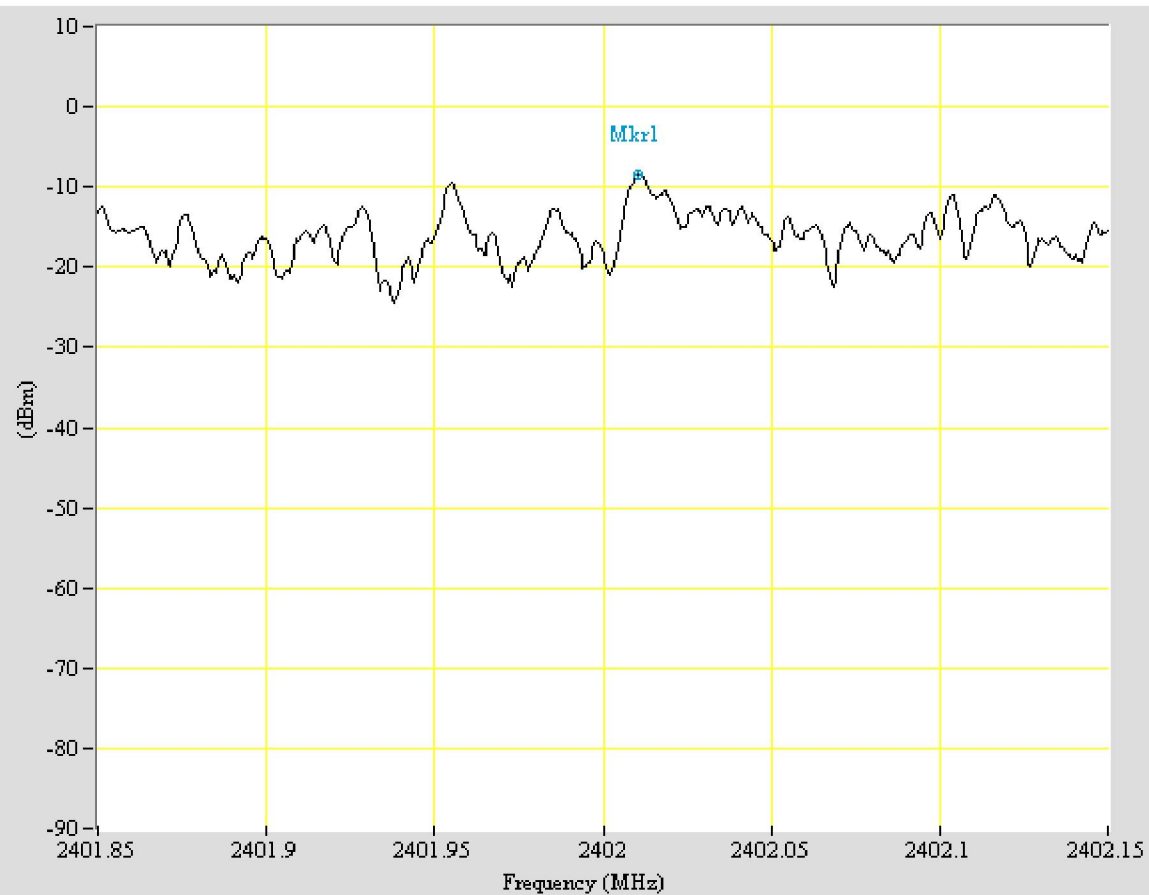
| Equipment         | Manufacturer    | Model No. | Next Cal. Due |
|-------------------|-----------------|-----------|---------------|
| Spectrum Analyzer | Hewlett-Packard | 8564EC    | 09/16/2005    |

## 12.4 Measurement Data

Test Date : Aug. 27, 2004Temperature : 21Humidity: 69%

| Channel | Frequency<br>(MHz) | Reading<br>(dBm) | Cable Loss<br>(dB) | Power Spectral Density<br>(dBm) | FCC Limit<br>(dBm) | Chart   |
|---------|--------------------|------------------|--------------------|---------------------------------|--------------------|---------|
| 0       | 2402               | -8.33            | 1.0                | -7.33                           | 8                  | Page 62 |
| 39      | 2441               | -7.50            | 1.0                | -6.50                           | 8                  | Page 63 |
| 78      | 2480               | -8.33            | 1.0                | -7.33                           | 8                  | Page 64 |

***Note: Please refer to page 62 to page 64 for chart***



\*Center 2402.0000MHz

\*SPAN 0.3000MHz

\*RBW 3.00kHz

\*VBW 10.00kHz

\*SWP 100000.00msec

\*ATTEN 20.00dB

\*RL 10.00dBm

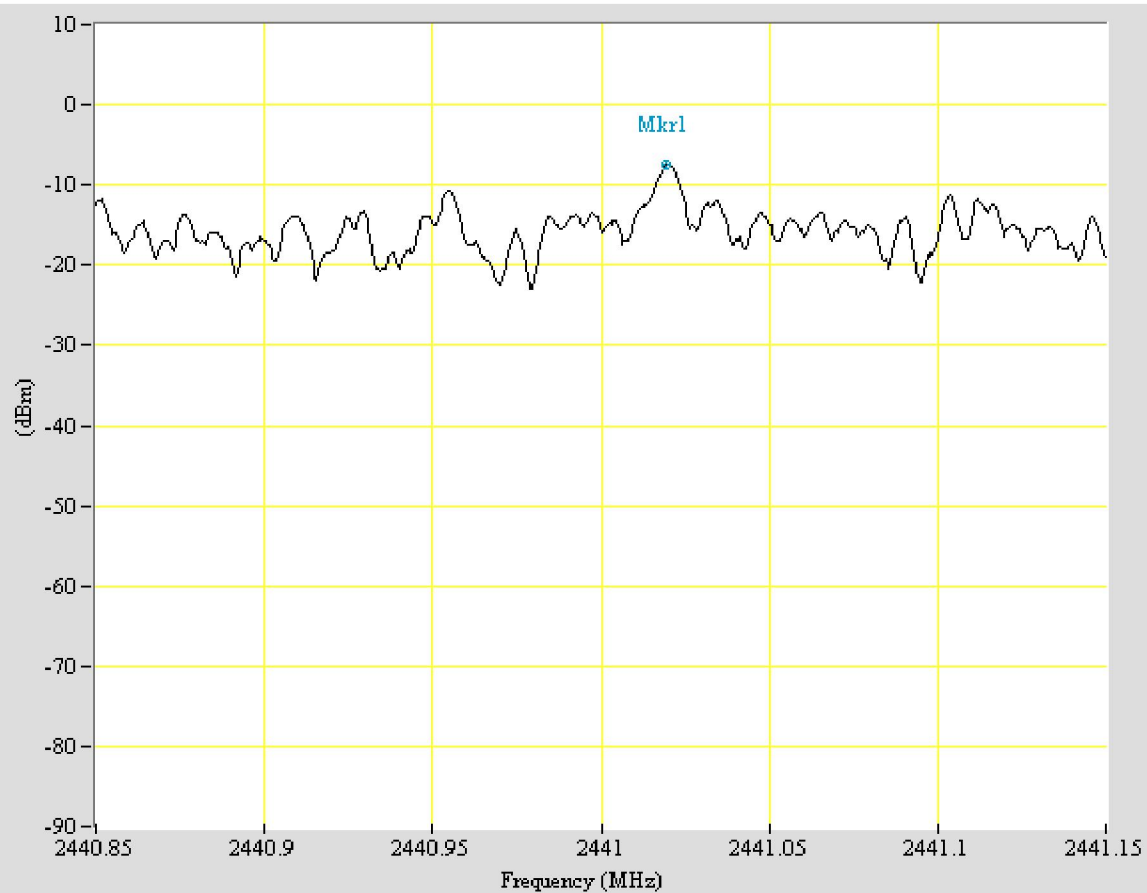
Marker 2402.010MHz -8.330dBm

EUT: BT29

Purpose: PwrDensity

Condition: CH0

Note:



\*Center 2441.0000MHz

\*SPAN 0.3000MHz

\*RBW 3.00kHz

\*VBW 10.00kHz

\*SWP 100000.00msec

\*ATTEN 20.00dB

\*RL 10.00dBm

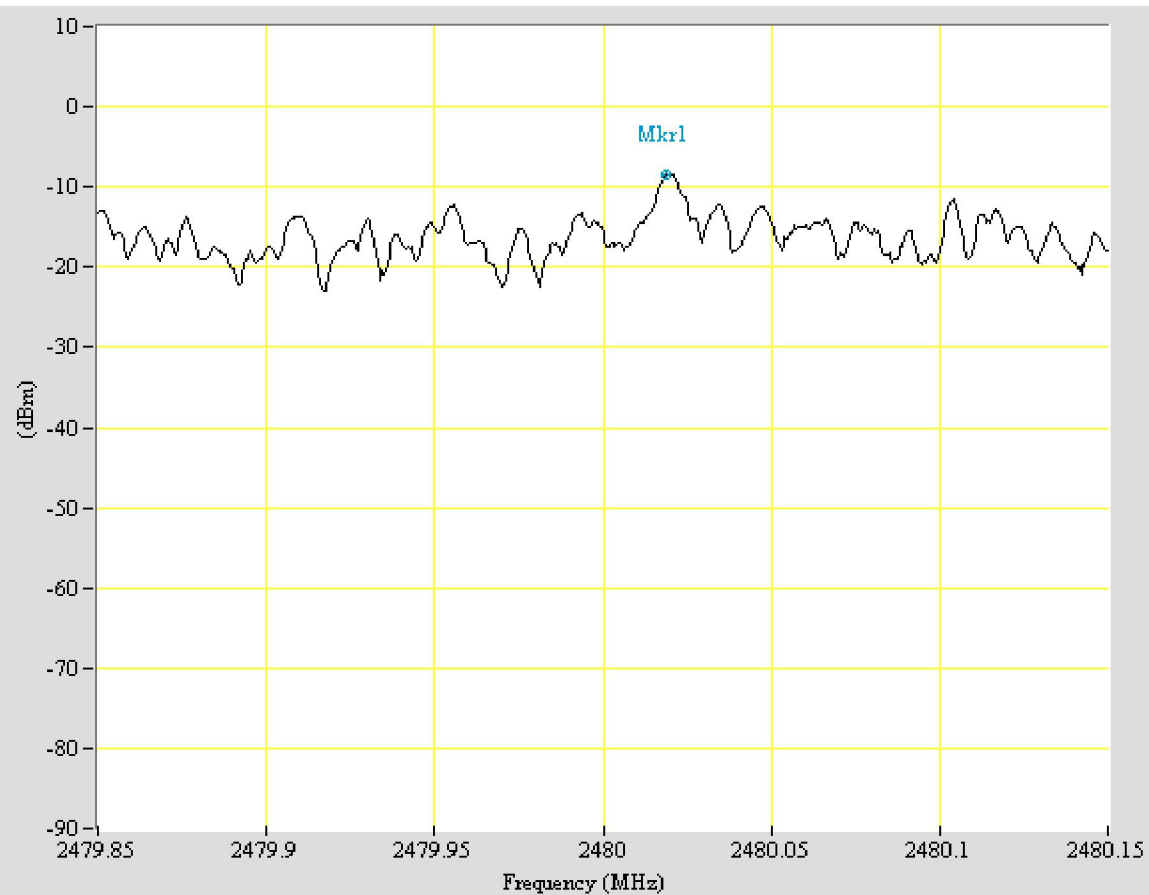
Marker 2441.020MHz -7.500dBm

EUT: BT29

Purpose: PwrDensity

Condition: CH39

Note:



\*Center 2480.0000MHz

\*SPAN 0.3000MHz

\*RBW 3.00kHz

\*VBW 10.00kHz

\*SWP 100000.00msec

\*ATTEN 20.00dB

\*RL 10.00dBm

Marker 2480.019MHz -8.330dBm

EUT: BT29

Purpose: PwrDensity

Condition: CH78

Note:

## 13 Dwell Time

### 13.1 Standard Applicable

According to 15.247(a)(1)(iii), frequency hopping system in the 2400-2483.5MHz band employing at least 15 non-overlapping channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 second multiplied by the number of hopping channels employed.

### 13.2 Measurement Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. The setup of the EUT as shown in figure 4.

### 13.3 Measurement Equipment

| Equipment         | Manufacturer    | Model No. | Next Cal. Due |
|-------------------|-----------------|-----------|---------------|
| Spectrum Analyzer | Hewlett-Packard | 8564EC    | 09/16/2005    |

### 13.4 Measurement Data

Test Date : Aug. 27, 2004

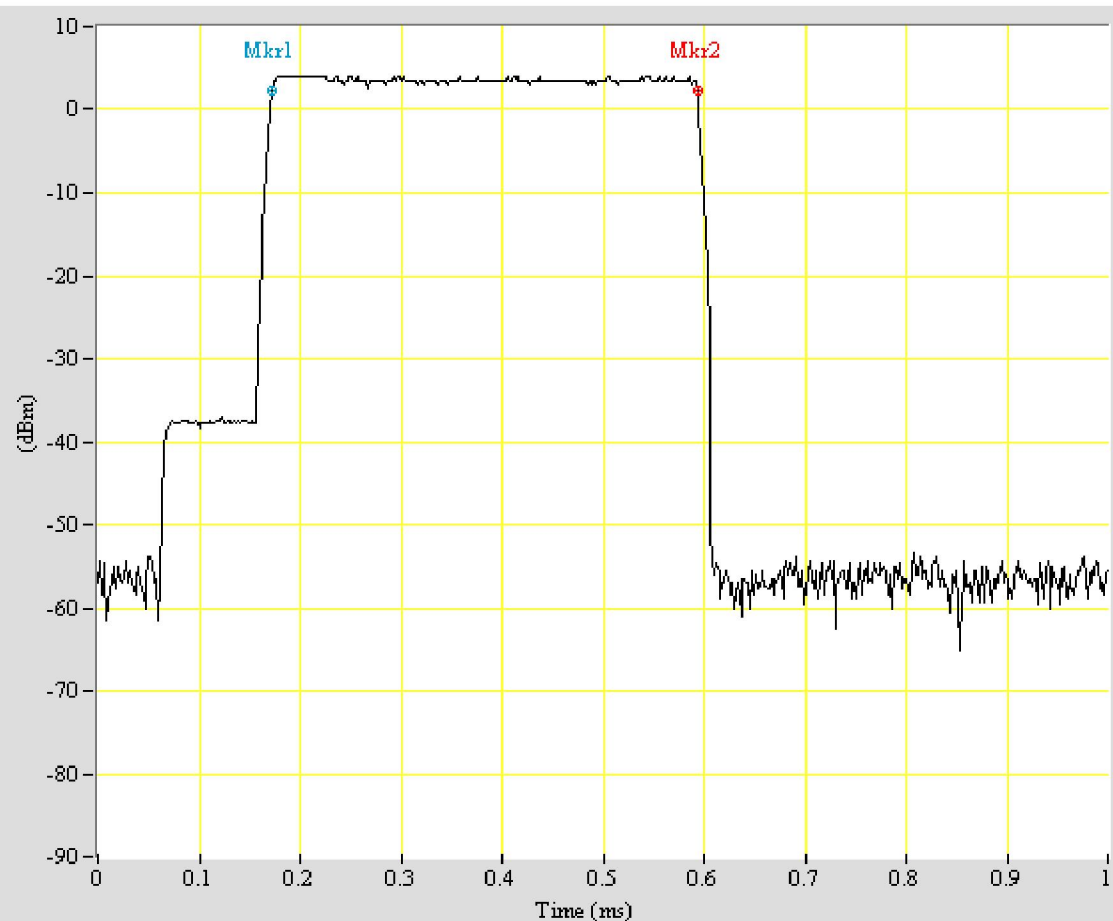
Temperature : 21

Humidity: 69%

Test period=0.4(second/channel)×79 channel=31.6sec

- a) 2402MHz dwell time=  $421.7\text{us} \times \frac{800}{79} \times 31.6 = 134.944 \text{ ms}$
- b) 2441MHz dwell time=  $423.3 \text{ us} \times \frac{800}{79} \times 31.6 = 135.456 \text{ ms}$
- c) 2480MHz dwell time=  $421.7 \text{ us} \times \frac{800}{79} \times 31.6 = 134.944 \text{ ms}$

*Note: Please refer to page 66 to page 71 for chart*



\*Center 2.4020MHz

\*SPAN 0.0000MHz

\*RBW 1000.00kHz

\*VBW 1000.00kHz

\*SWP 1.00msec

\*ATTEN 20.00dB

\*RL 10.00dBm

$\Delta$ Marker -0.4217msec 0.000dB

Mkr1 0.1717msec 2.170dBm

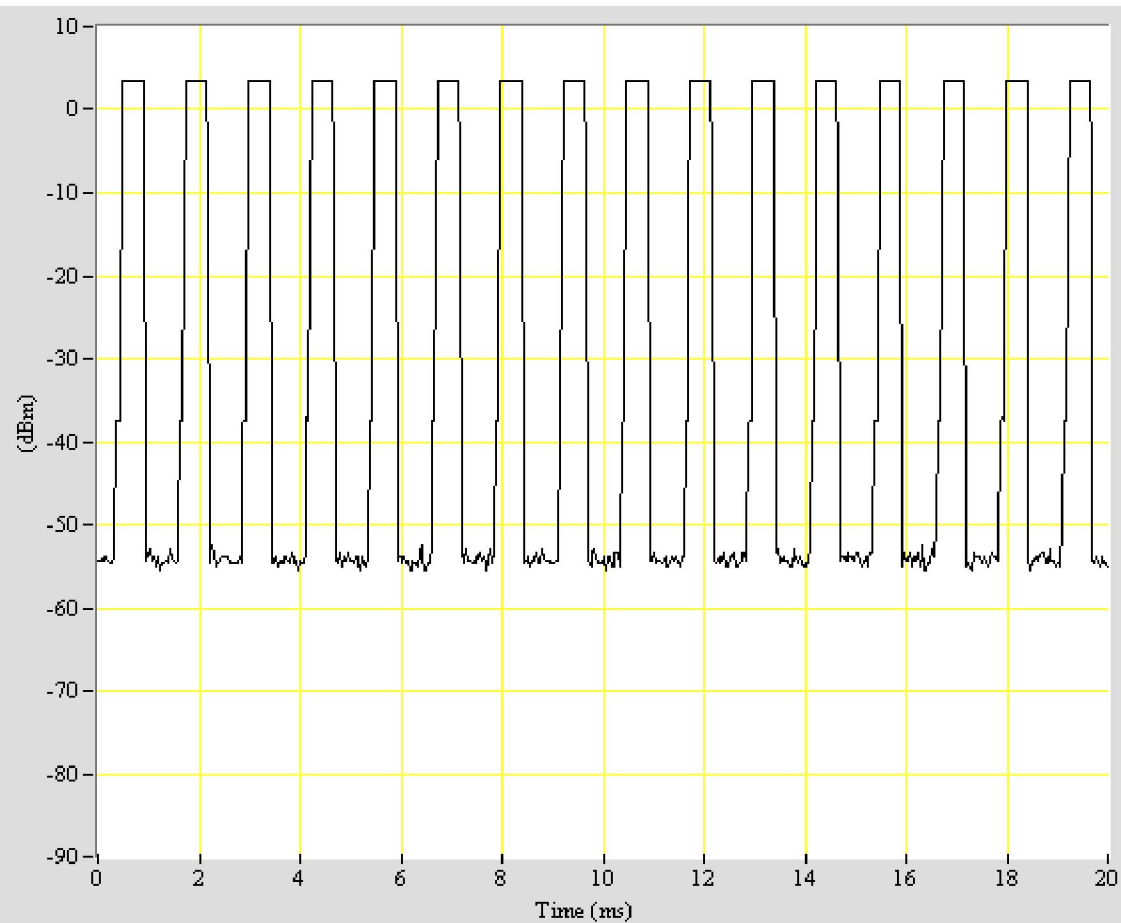
Mkr2 0.5933msec 2.170dBm

EUT: BT29

Purpose: Dwell\_Time

Condition: DH1\_CH0

Note:



\*Center 2.4020MHz

\*SPAN 0.0000MHz

\*RBW 1000.00kHz

\*VBW 1000.00kHz

\*SWP 20.00msec

\*ATTEN 20.00dB

\*RL 10.00dBm

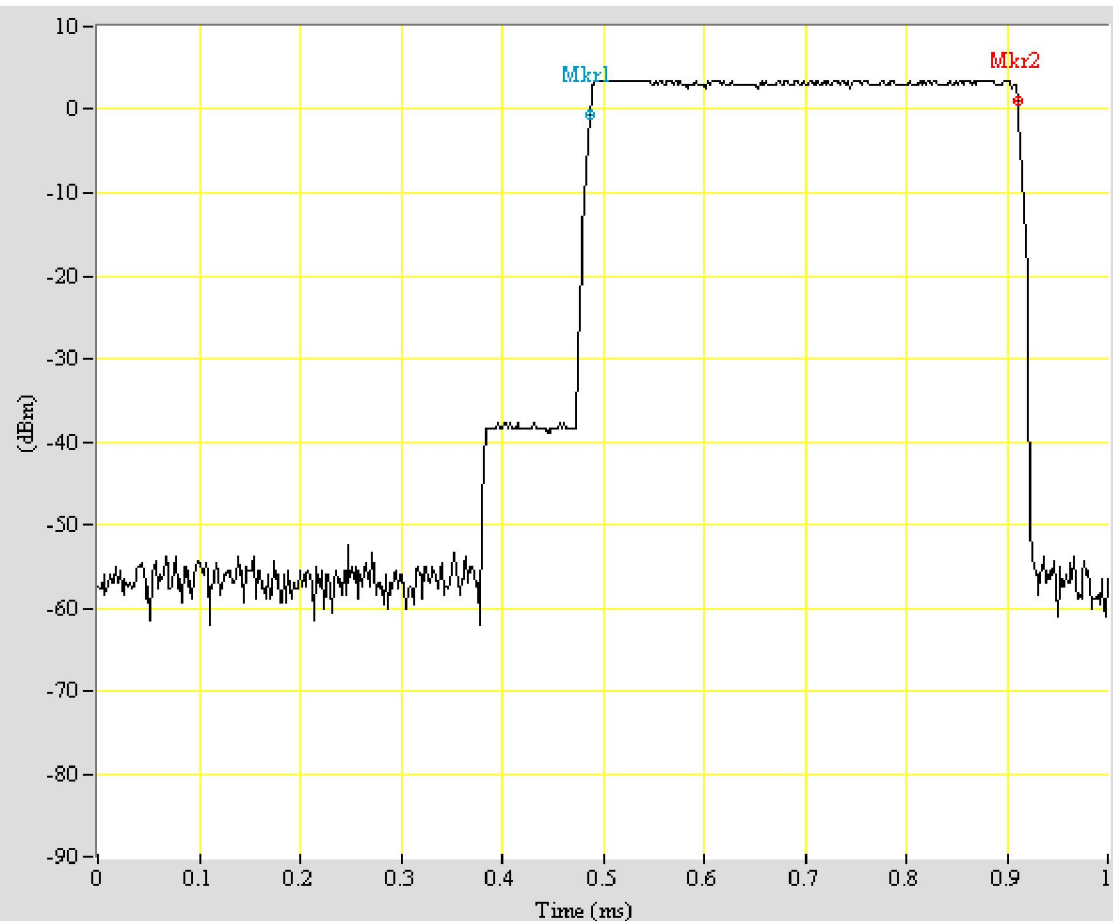
EUT: BT29

Purpose: Dwell\_Time\_Peroid

Condition: DH1\_CH0

Note:





\*Center 2.4410MHz

\*SPAN 0.0000MHz

\*RBW 1000.00kHz

\*VBW 1000.00kHz

\*SWP 1.00msec

\*ATTEN 20.00dB

\*RL 10.00dBm

$\Delta$  Marker -0.4233msec 1.830dB

Mkr1 0.4867msec -0.660dBm

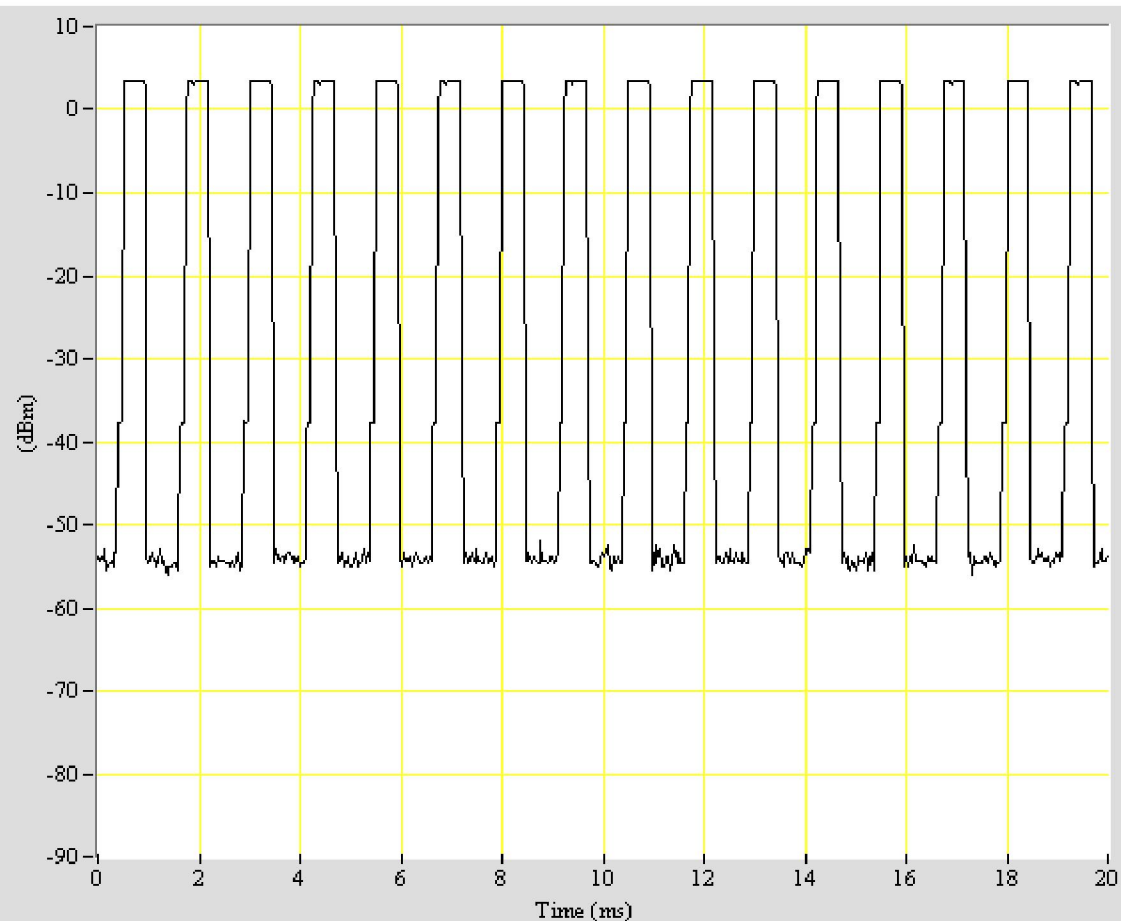
Mkr2 0.9100msec 1.170dBm

EUT: BT29

Purpose: Dwell\_Time

Condition: DH1\_CH39

Note:



\*Center 2.4410MHz

\*SPAN 0.0000MHz

\*RBW 1000.00kHz

\*VBW 1000.00kHz

\*SWP 20.00msec

\*ATTEN 20.00dB

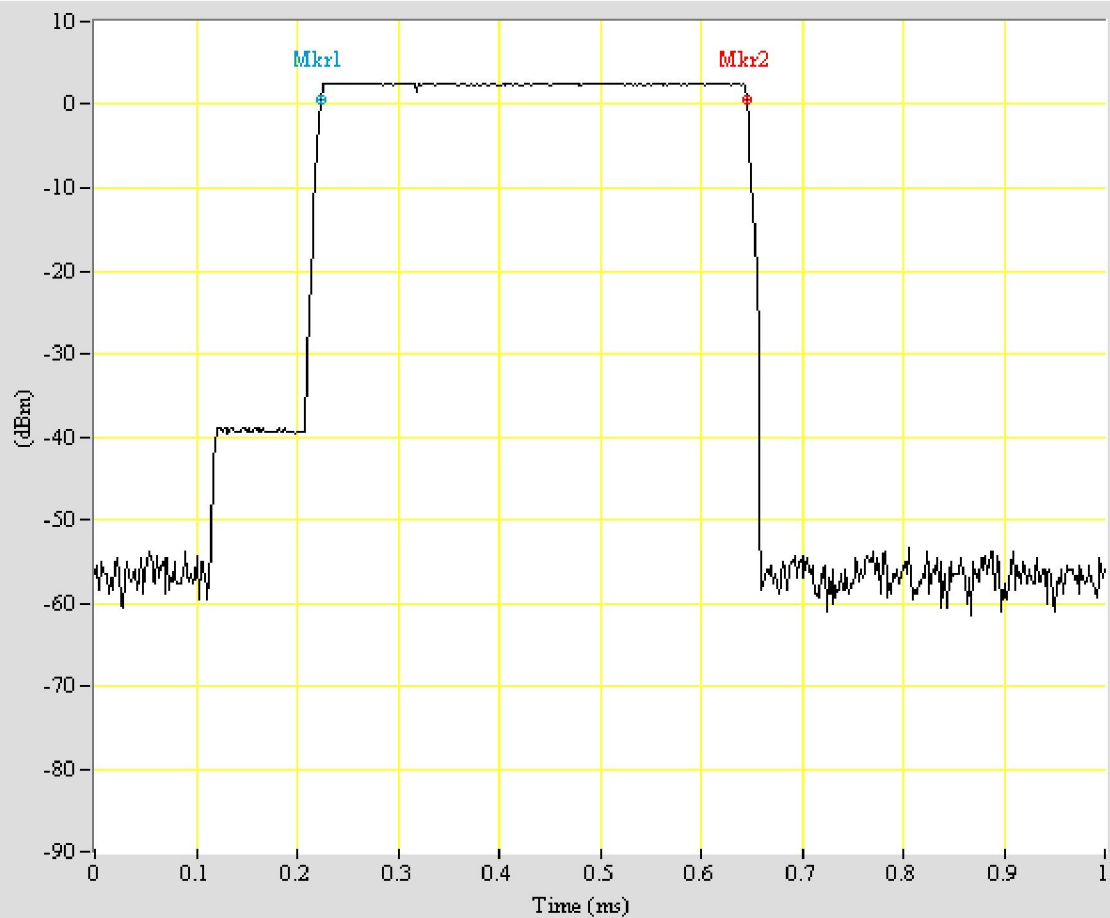
\*RL 10.00dBm

EUT: BT29

Purpose: Dwell\_Time\_Peroid

Condition: DH1\_CH39

Note:



\*Center 2.4800MHz

\*SPAN 0.0000MHz

\*RBW 1000.00kHz

\*VBW 1000.00kHz

\*SWP 1.00msec

\*ATTEN 20.00dB

\*RL 10.00dBm

$\Delta$ Marker -0.4217msec 0.000dB

Mkr1 0.2233msec 0.670dBm

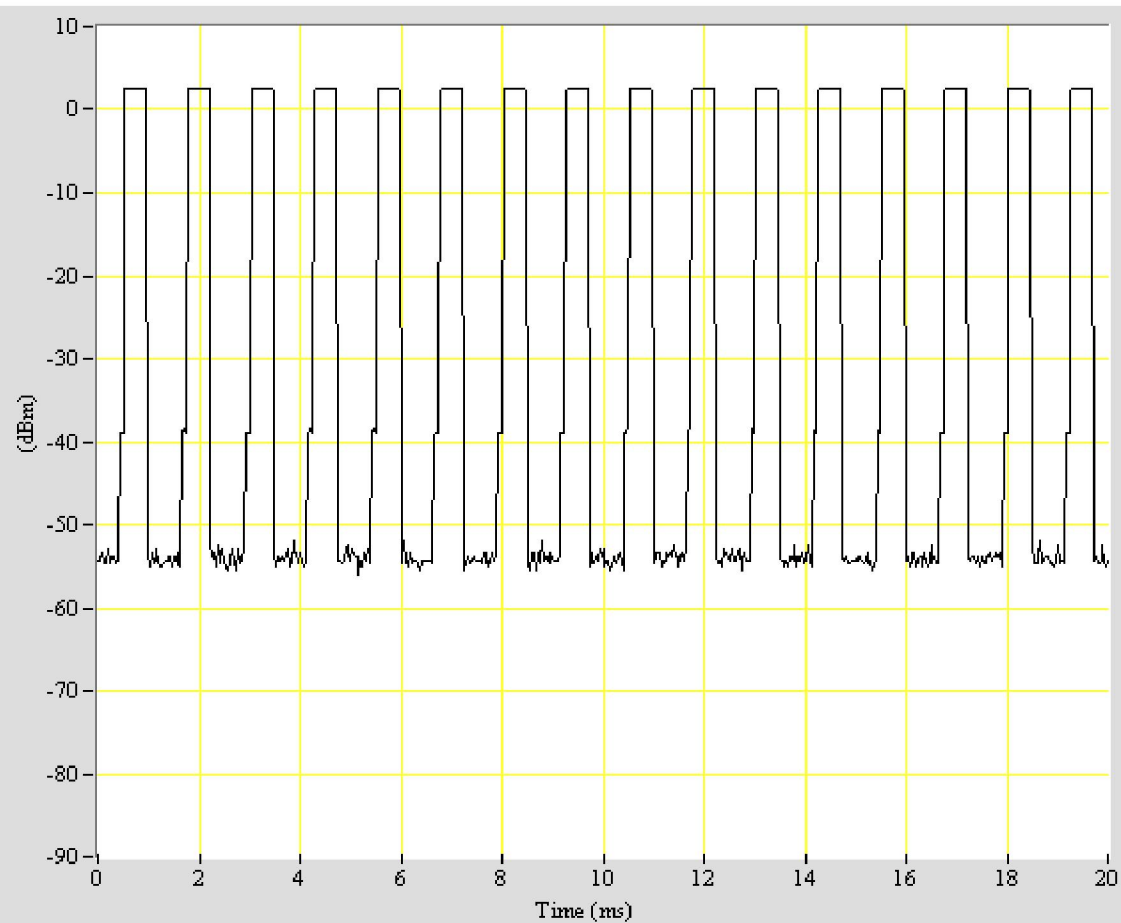
Mkr2 0.6450msec 0.670dBm

EUT: BT29

Purpose: Dwell\_Time

Condition: DH1\_CH78

Note:



\*Center 2.4800MHz

\*SPAN 0.0000MHz

\*RBW 1000.00kHz

\*VBW 1000.00kHz

\*SWP 20.00msec

\*ATTEN 20.00dB

\*RL 10.00dBm

EUT: BT29

Purpose: Dwell\_Time\_Peroid

Condition: DH1\_CH78

Note: