Annex B. Considerations Related to Bluetooth Duty Cycle Calculation

This device has installed Bluetooth engineering testing software which can provide continuous transmitting RF signal. This device was operated to transmit continuously at the maximum transmission duty with specified transmission mode, operating frequency, lowest data rate, and maximum output power.

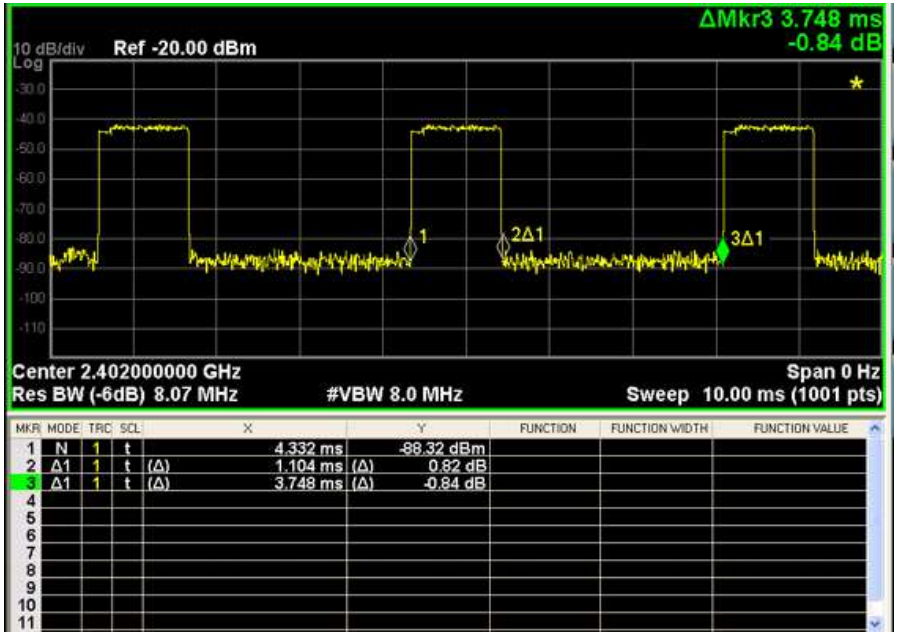
The Bluetooth call box has been used and the EUT was set to GFSK, 8DPSK/DQPSK, BT 4.0 and BT 5.2 mode at the maximum output power. Its duty factor was calculated and the duty factor of Bluetooth signal are showas below.

<Time-domain plot for GFSK transmission signal>

Time-domain plot for Bluetooth transmission signal

The duty factor of Bluetooth signal has been calculated as following.
Duty Factor = Pulse Width / Total Period = 1.117 / 3.739 = 29.87%

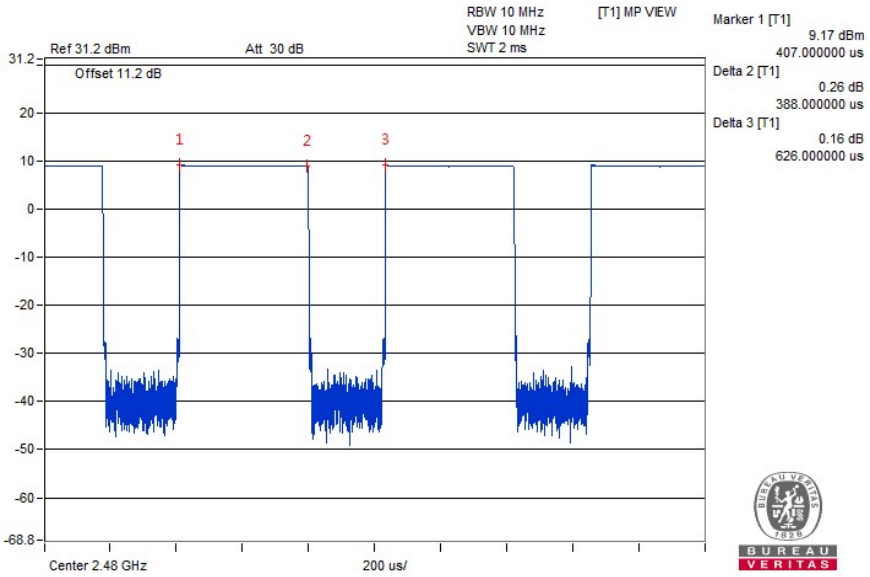
<Time-domain plot for 8DPSK/DQPSK transmission signal>



Time-domain plot for Bluetooth transmission signal

The duty factor of Bluetooth signal has been calculated as following.
Duty Factor = Pulse Width / Total Period = 1.104 / 3.748 = 29.46%

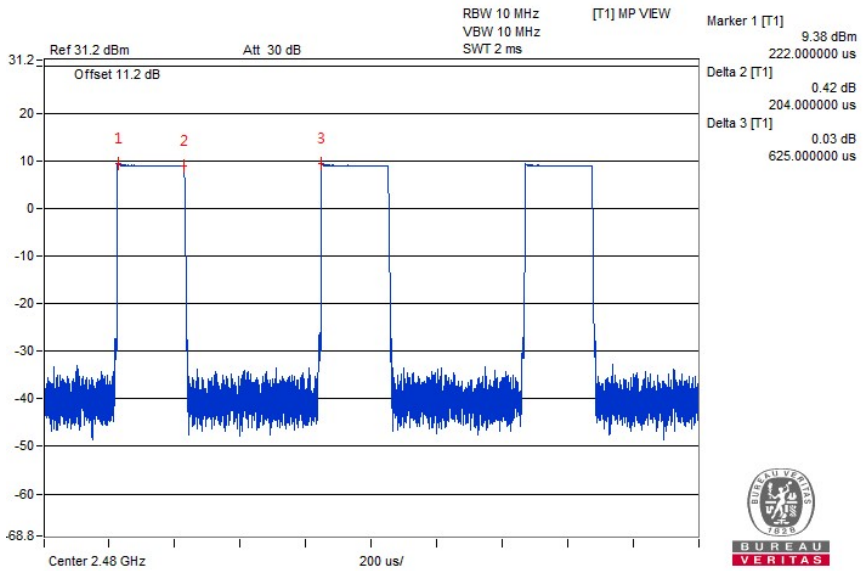
<Time-domain plot for BT 4.0 transmission signal>



Time-domain plot for Bluetooth transmission signal

The duty factor of Bluetooth signal has been calculated as following.
Duty Factor = Pulse Width / Total Period = 388 / 624 = 61.98%

<Time-domain plot for BT 5.2 transmission signal>



Time-domain plot for Bluetooth transmission signal

The duty factor of Bluetooth signal has been calculated as following.
Duty Factor = Pulse Width / Total Period = 204 / 625 = 32.64%