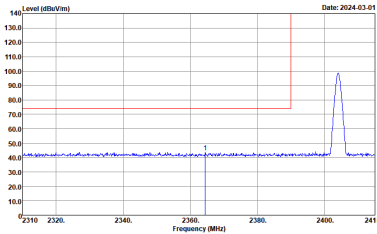
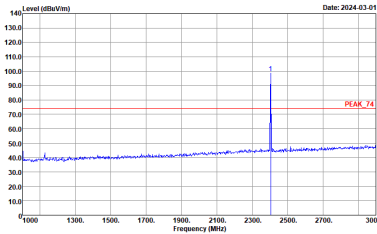
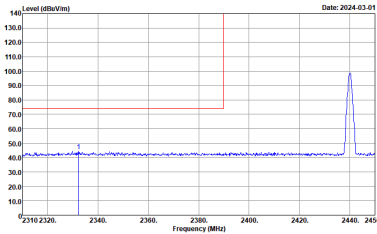
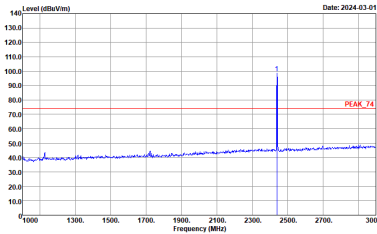
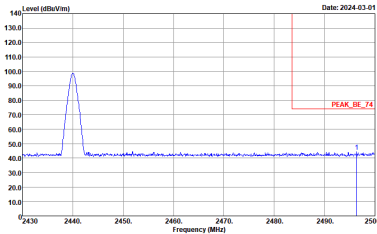


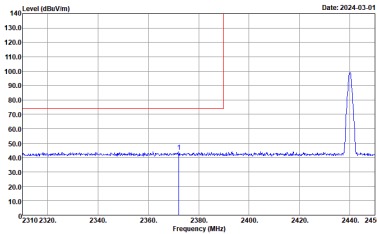
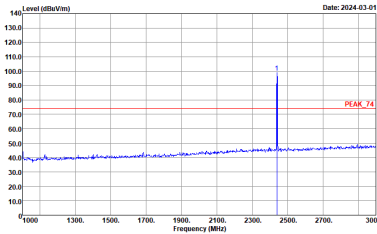
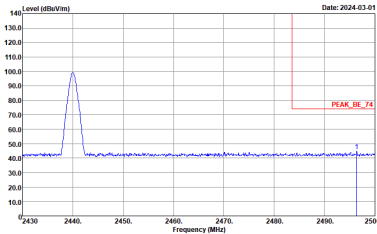


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH02 2404MHz	
3	Vertical	Fundamental
Peak	 Site : 03CH23-HY Condition : PEAK_BC_74 3m LE2005A18ENL_230712 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH23-HY Condition : PEAK_74 3m LE2005A18ENL_230712 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH38 2440MHz	
3	Horizontal	Fundamental
Peak	 Site : 03CH23-HY Condition : PEAK_BE_74 3m LE2C05A18ENL_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH23-HY Condition : PEAK_74 3m LE2C05A18ENL_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site : 03CH23-HY Condition : PEAK_BE_74 3m LE2C05A18ENL_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

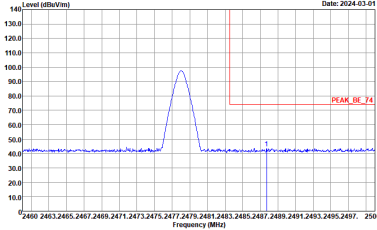
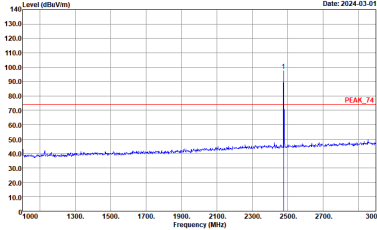


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH38 2440MHz	
3	Vertical	Fundamental
Peak	 Site : 03CH23-HY Condition : PEAK_BE_74 3m LE2C05A18ENL_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH23-HY Condition : PEAK_74 3m LE2C05A18ENL_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
	 Site : 03CH23-HY Condition : PEAK_BE_74 3m LE2C05A18ENL_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH76 2478MHz	
3	Horizontal	Fundamental
Peak	Site : 03CH23-HY Condition : PEAK_BC_74 3m LE2005A18ENL_230712 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Site : 03CH23-HY Condition : PEAK_74 3m LE2005A18ENL_230712 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH76 2478MHz	
3	Vertical	Fundamental
Peak	 Site : 03CH23-HY Condition : PEAK_BC_74 3m LE2005A18ENL_230712 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH23-HY Condition : PEAK_74 3m LE2005A18ENL_230712 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto



2.4GHz 2400~2483.5MHz

BLE (Harmonic @ 3m)

BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH02 2404MHz	
3	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-1HY Condition : PEAK_74 3m LE2C05A18EN_230712 HORIZONTAL	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-1HY Condition : PEAK_74 3m LE2C05A18EN_230712 VERTICAL



BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH02 2404MHz	
3	Horizontal	Vertical
10.6G ~18G Avg.	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : AVG_54 3m LE2005A18EN_230712 HORIZONTAL :	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : AVG_54 3m LE2005A18EN_230712 VERTICAL :



BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH38 2440MHz	
3	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : PEAK_74 3m LE2005A18EN_230712 HORIZONTAL	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : PEAK_74 3m LE2005A18EN_230712 VERTICAL



BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH38 2440MHz	
3	Horizontal	Vertical
10.6G ~18G Avg.	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : AVG_54 3m LE2005A18EN_230712 HORIZONTAL :	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : AVG_54 3m LE2005A18EN_230712 VERTICAL :



BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH76 2478MHz	
3	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : PEAK_74 3m LE2005A18EN_230712 HORIZONTAL	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : PEAK_74 3m LE2005A18EN_230712 VERTICAL

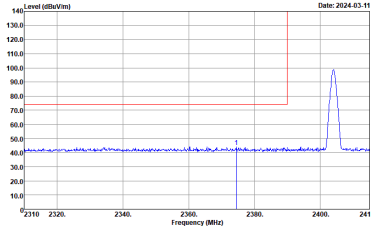
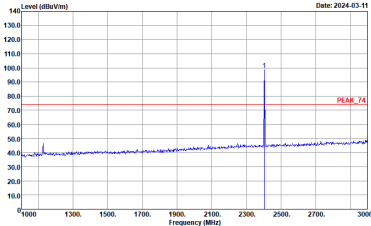


BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH76 2478MHz	
3	Horizontal	Vertical
10.6G ~18G Avg.	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : AVG_54 3m LE2005A18EN_230712 HORIZONTAL :	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : AVG_54 3m LE2005A18EN_230712 VERTICAL :

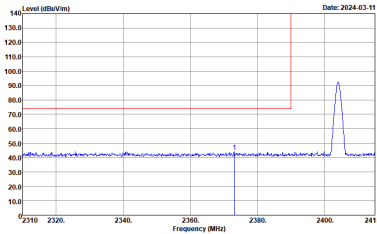
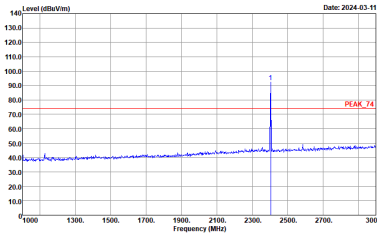


2.4GHz 2400~2483.5MHz

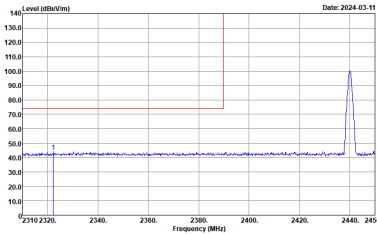
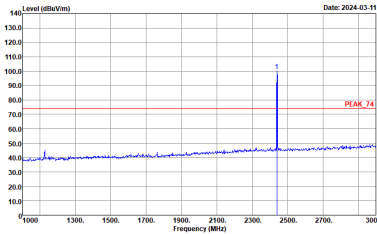
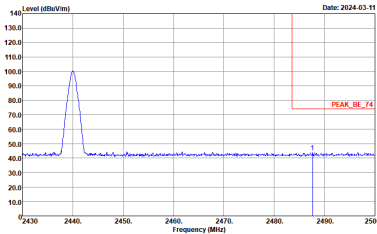
BLE (Band Edge @ 3m)

BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH02 2404MHz	
4	Horizontal	Fundamental
Peak	 Site : 03CH23-HY Condition : PEAK_BE_74 3m LE2C05A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH23-HY Condition : PEAK_F4 3m LE2C05A18EN_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

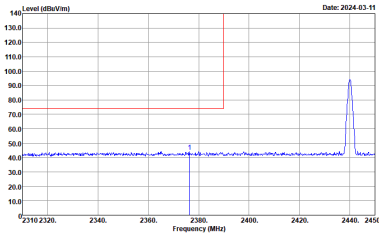
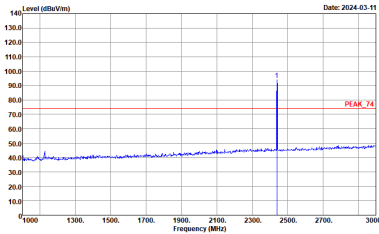
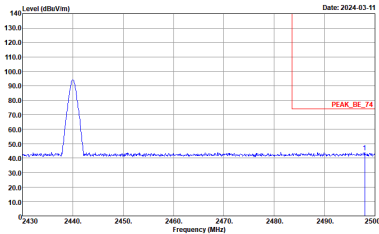


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH02 2404MHz	
4	Vertical	Fundamental
Peak	 Site : 03CH23-HY Condition : PEAK_BC_74 3m LE2005A18ENL_230712 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH23-HY Condition : PEAK_74 3m LE2005A18ENL_230712 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto

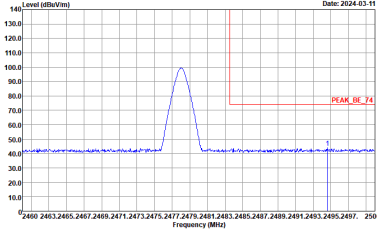
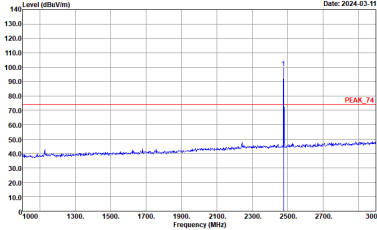


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH38 2440MHz	
4	Horizontal	Fundamental
Peak	 Site : 03CH23-HY Condition : PEAK_BE_74 3m LE2C05A18ENL_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH23-HY Condition : PEAK_74 3m LE2C05A18ENL_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH23-HY Condition : PEAK_BE_74 3m LE2C05A18ENL_230712 HORIZONTAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank

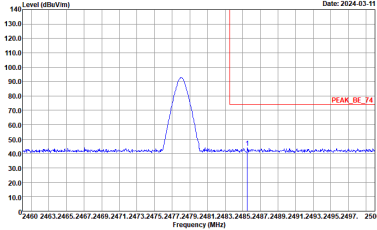
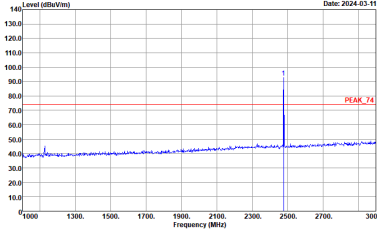


BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH38 2440MHz	
4	Vertical	Fundamental
Peak	 Site : 03CH23-HY Condition : PEAK_BE_74 3m LE2C05A18ENL_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH23-HY Condition : PEAK_74 3m LE2C05A18ENL_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto
Peak	 Site : 03CH23-HY Condition : PEAK_BE_74 3m LE2C05A18ENL_230712 VERTICAL : RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	Left blank



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH76 2478MHz	
4	Horizontal	Fundamental
Peak	 Site : 03CH23-HY Condition : PEAK_BC_74 3m LE2005A18ENL_230712 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH23-HY Condition : PEAK_74 3m LE2005A18ENL_230712 HORIZONTAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto



BLE	2.4GHz 2400~2483.5MHz Band Edge @ 3m	
ANT	BLE CH76 2478MHz	
4	Vertical	Fundamental
Peak	 Site : 03CH23-HY Condition : PEAK_BC_74 3m LE2005A18ENL_230712 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto	 Site : 03CH23-HY Condition : PEAK_74 3m LE2005A18ENL_230712 VERTICAL RBW:1000.000KHz VBW:3000.000KHz SWT:Auto



2.4GHz 2400~2483.5MHz

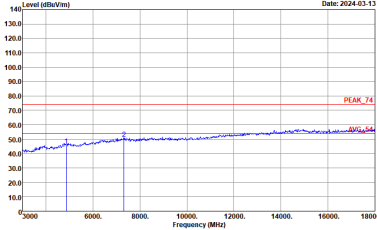
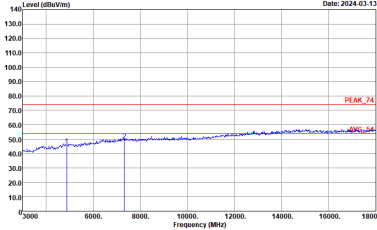
BLE (Harmonic @ 3m)

BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH02 2404MHz	
4	Horizontal	Vertical
Peak Avg.	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-1HY Condition : PEAK_74 3m LE2C05A18EN_230712 HORIZONTAL	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-1HY Condition : PEAK_74 3m LE2C05A18EN_230712 VERTICAL



BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH02 2404MHz	
4	Horizontal	Vertical
10.6G ~18G Avg.	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : AVG_54 3m LE2005A18EN_230712 HORIZONTAL :	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : AVG_54 3m LE2005A18EN_230712 VERTICAL :

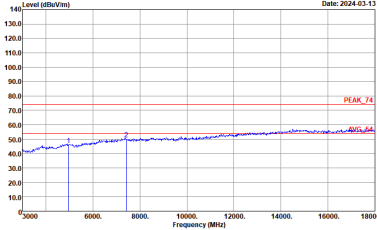
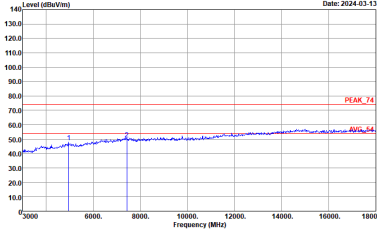


BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH38 2440MHz	
4	Horizontal	Vertical
Peak Avg.	 Site : 03CH23-HY Condition : PEAK_74 3m LE2005A18EN_230712 HORIZONTAL :	 Site : 03CH23-HY Condition : PEAK_74 3m LE2005A18EN_230712 VERTICAL :



BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH38 2440MHz	
4	Horizontal	Vertical
10.6G ~18G Avg.	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : AVG_54 3m LE2005A18EN_230712 HORIZONTAL :	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : AVG_54 3m LE2005A18EN_230712 VERTICAL :



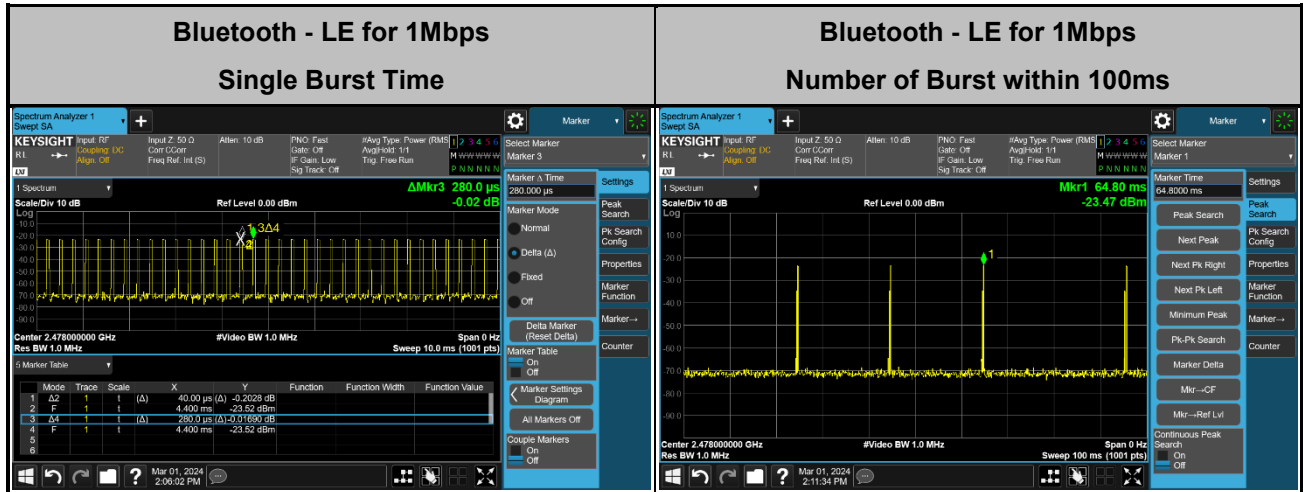
BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH76 2478MHz	
4	Horizontal	Vertical
Peak Avg.	 Site : 03CH23-HY Condition : PEAK_74 3m LE2005A18EN_230712 HORIZONTAL :	 Site : 03CH23-HY Condition : PEAK_74 3m LE2005A18EN_230712 VERTICAL :



BLE	2.4GHz 2400~2483.5MHz Harmonic @ 3m	
ANT	BLE CH76 2478MHz	
4	Horizontal	Vertical
10.6G ~18G Avg.	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : AVG_54 3m LE2005A18EN_230712 HORIZONTAL :	Level (dBuV/m) Date: 2024-03-13 Site : 03CH23-HY Condition : AVG_54 3m LE2005A18EN_230712 VERTICAL :

Appendix E. Duty Cycle Plots

< Ant. 3>



Note:

1. Worst case Duty cycle = on time/100 milliseconds = $4 \times 0.040 / 100 = 0.16\%$
2. Worst case Duty cycle correction factor = $20 \times \log(\text{Duty cycle}) = -55.92 \text{ dB}$

Duty Cycle Correction Factor Consideration for AFH mode:

Bluetooth normal hopping rate is 1600Hz and reduced to 800Hz in AFH mode; due to the reduced number of hopping frequencies, with the same packet configuration the dwell time in each channel frequency within 100msec period is longer in AFH mode than normal mode.

In AFH mode, the minimum hopping frequencies are 20, to get the longest dwell time DH5 packet is observed; the on time period to have DH5 packet completing one hopping sequence is

$$0.040 \text{ ms} \times 40 \text{ channels} = 1.6 \text{ ms}$$

There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. $[100 \text{ ms} / 0.8 \text{ ms}] = 2 \text{ hops}$

Thus, the maximum possible ON time:

$$0.040 \text{ ms} \times 4 = 0.16 \text{ ms}$$

Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

$$20 \times \log(0.16 \text{ ms}/100 \text{ ms}) = -55.92 \text{ dB}$$


Note:

1. Worst case Duty cycle = on time/100 milliseconds = $4 \times 0.040 / 100 = 0.16\%$
2. Worst case Duty cycle correction factor = $20 \times \log(\text{Duty cycle}) = -55.92 \text{ dB}$

Duty Cycle Correction Factor Consideration for AFH mode:

Bluetooth normal hopping rate is 1600Hz and reduced to 800Hz in AFH mode; due to the reduced number of hopping frequencies, with the same packet configuration the dwell time in each channel frequency within 100msec period is longer in AFH mode than normal mode.

In AFH mode, the minimum hopping frequencies are 20, to get the longest dwell time DH5 packet is observed; the on time period to have DH5 packet completing one hopping sequence is

$$0.040 \text{ ms} \times 40 \text{ channels} = 1.6 \text{ ms}$$

There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. $[100 \text{ ms} / 0.8 \text{ ms}] = 2 \text{ hops}$

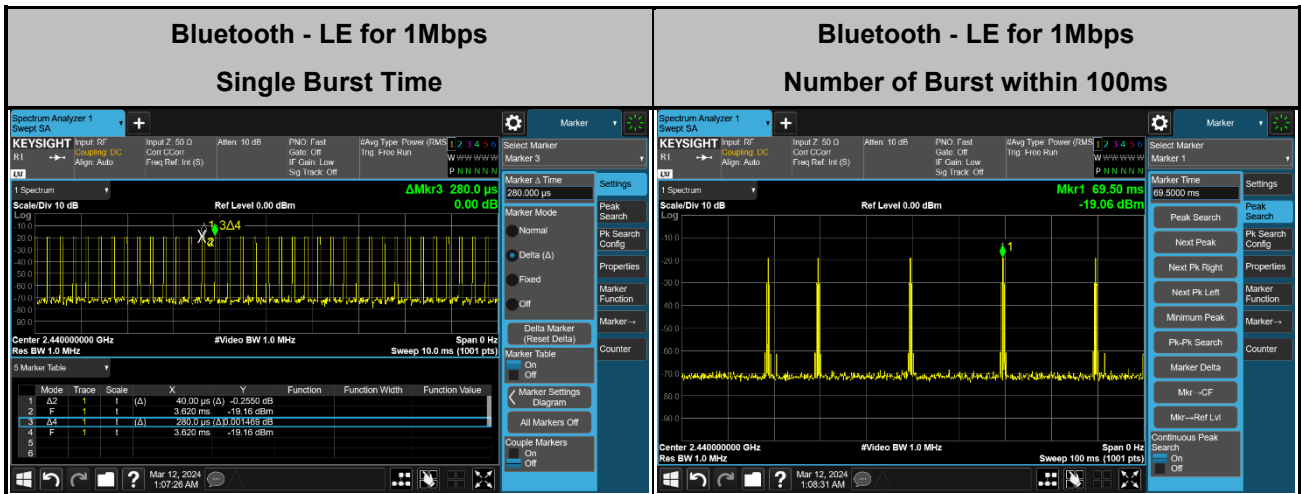
Thus, the maximum possible ON time:

$$0.040 \text{ ms} \times 4 = 0.16 \text{ ms}$$

Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

$$20 \times \log(0.16 \text{ ms}/100 \text{ ms}) = -55.92 \text{ dB}$$

< Ant. 4>



Note:

- Worst case Duty cycle = on time/100 milliseconds = $5 * 0.040 / 100 = 0.20\%$
- Worst case Duty cycle correction factor = $20 * \log(\text{Duty cycle}) = -53.98 \text{ dB}$

Duty Cycle Correction Factor Consideration for AFH mode:

Bluetooth normal hopping rate is 1600Hz and reduced to 800Hz in AFH mode; due to the reduced number of hopping frequencies, with the same packet configuration the dwell time in each channel frequency within 100msec period is longer in AFH mode than normal mode.

In AFH mode, the minimum hopping frequencies are 20, to get the longest dwell time DH5 packet is observed; the on time period to have DH5 packet completing one hopping sequence is

$$0.040 \text{ ms} \times 50 \text{ channels} = 2 \text{ ms}$$

There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. $[100 \text{ ms} / 0.8 \text{ ms}] = 2 \text{ hops}$

Thus, the maximum possible ON time:

$$0.040 \text{ ms} \times 5 = 0.2 \text{ ms}$$

Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

$$20 \times \log(0.2 \text{ ms}/100 \text{ ms}) = -53.98 \text{ dB}$$

< Ant. 4>



Note:

1. Worst case Duty cycle = on time/100 milliseconds = $5 * 0.044 / 100 = 0.20 \%$
2. Worst case Duty cycle correction factor = $20 * \log(\text{Duty cycle}) = -53.98 \text{ dB}$

Duty Cycle Correction Factor Consideration for AFH mode:

Bluetooth normal hopping rate is 1600Hz and reduced to 800Hz in AFH mode; due to the reduced number of hopping frequencies, with the same packet configuration the dwell time in each channel frequency within 100msec period is longer in AFH mode than normal mode.

In AFH mode, the minimum hopping frequencies are 20, to get the longest dwell time DH5 packet is observed; the on time period to have DH5 packet completing one hopping sequence is

$$0.040 \text{ ms} \times 50 \text{ channels} = 2 \text{ ms}$$

There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. $[100 \text{ ms} / 0.8 \text{ ms}] = 2 \text{ hops}$

Thus, the maximum possible ON time:

$$0.040 \text{ ms} \times 5 = 0.2 \text{ ms}$$

Worst case Duty Cycle Correction factor, which is derived from the maximum possible ON time,

$$20 \times \log(0.2 \text{ ms}/100 \text{ ms}) = -53.98 \text{ dB}$$

—————THE END—————