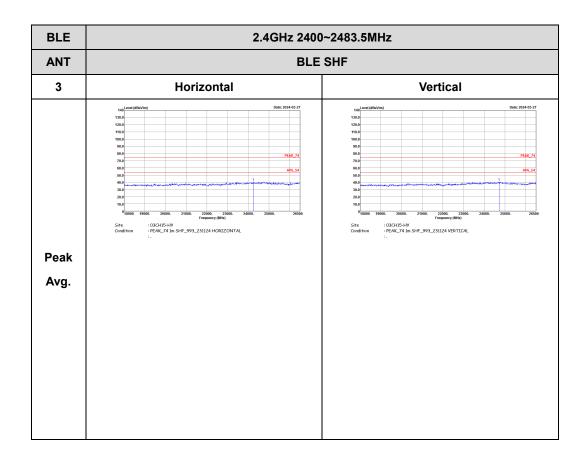


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Emission above 18GHz 2.4GHz BLE (SHF @ 1m)

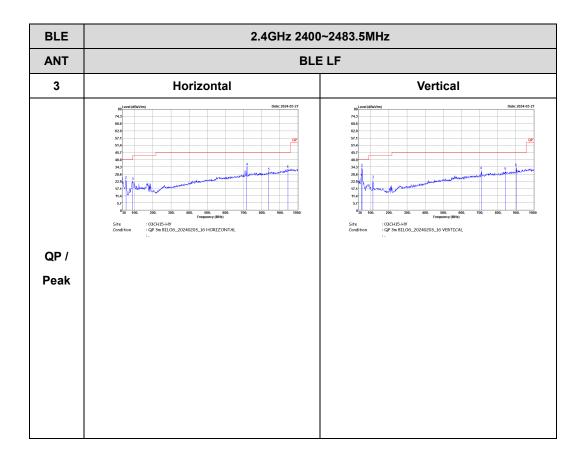
Report No. : FR3N2325L



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Emission below 1GHz 2.4GHz BT (LF)

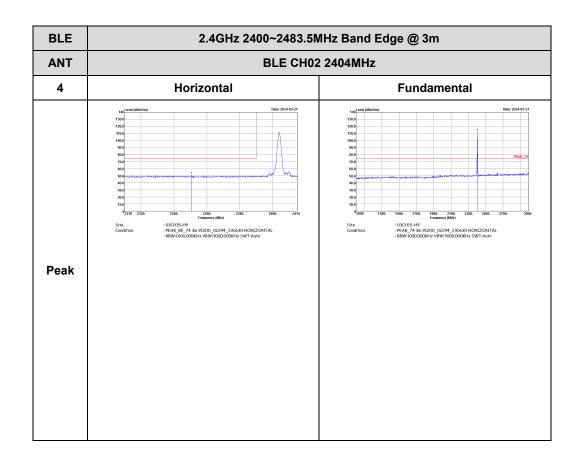
Report No. : FR3N2325L



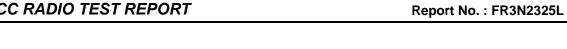
TEL: 886-3-327-0868 Page Number : D15 of D53

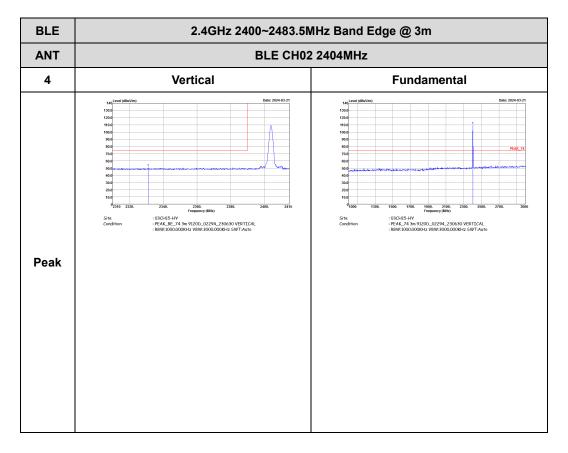
2.4GHz 2400~2483.5MHz BT (Band Edge @ 3m)

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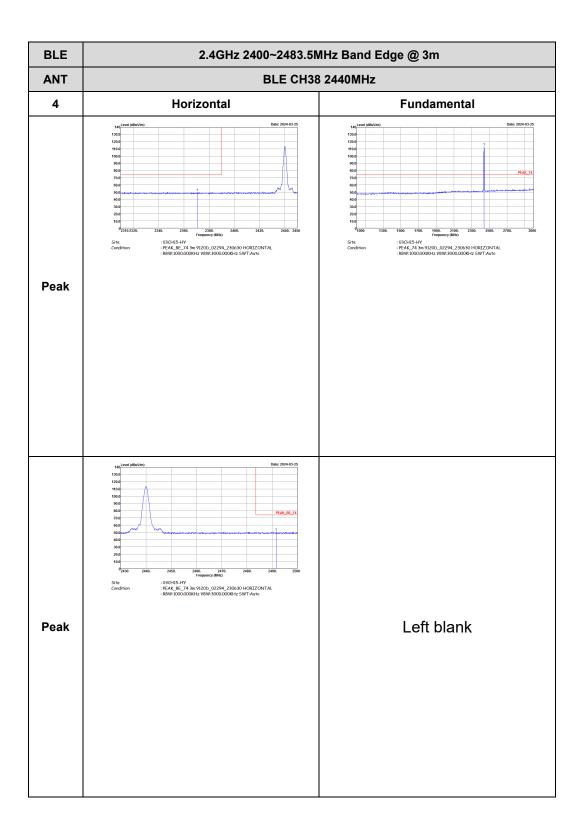


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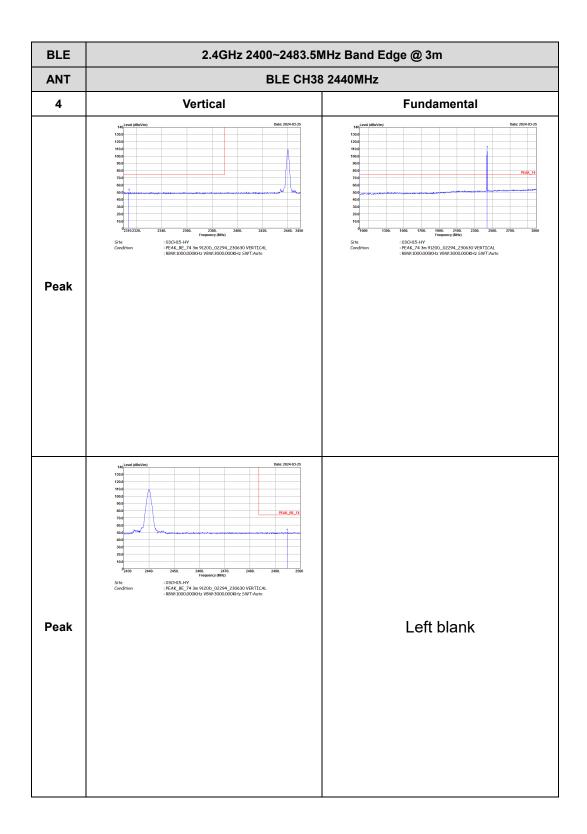




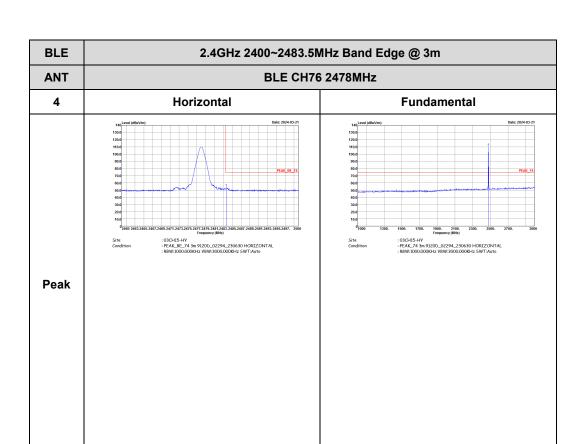
TEL: 886-3-327-0868 Page Number : D17 of D53



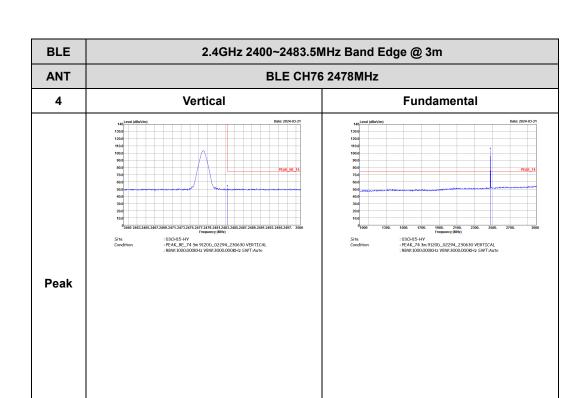
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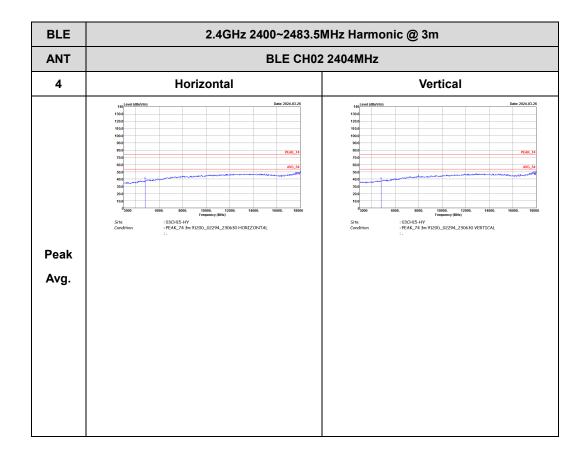
TEL: 886-3-327-0868 Page Number : D20 of D53



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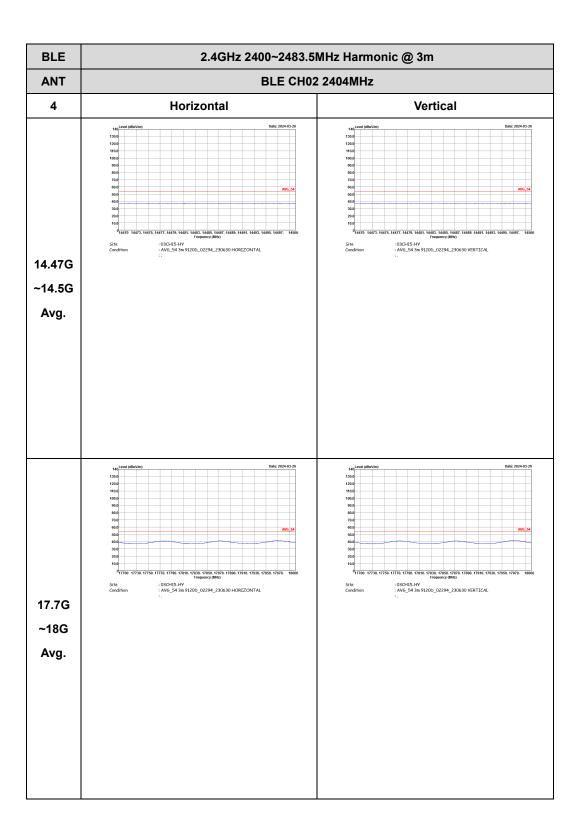
2.4GHz 2400~2483.5MHz BLE (Harmonic @ 3m)

Report No.: FR3N2325L



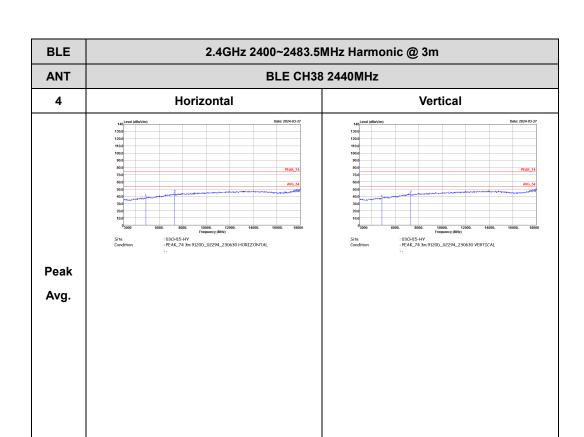
TEL: 886-3-327-0868 Page Number : D22 of D53

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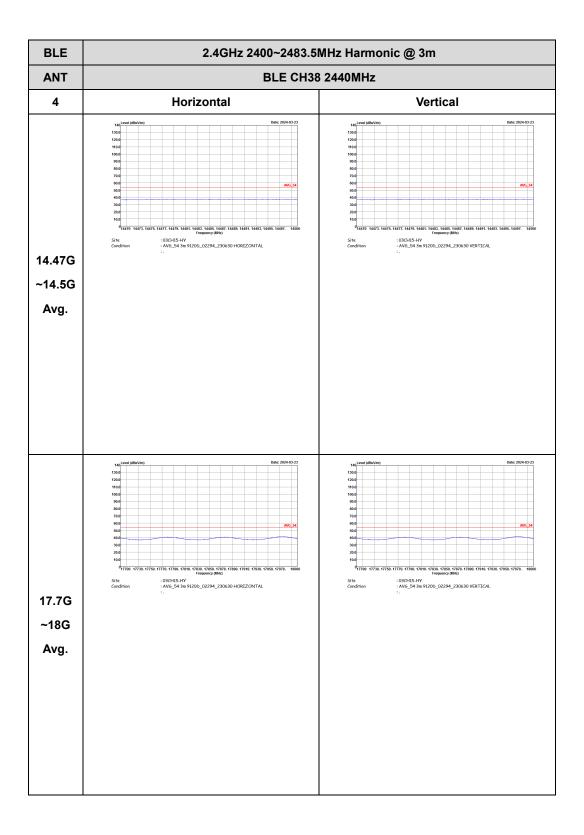


Report No.: FR3N2325L

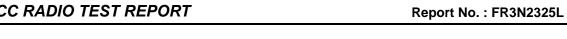
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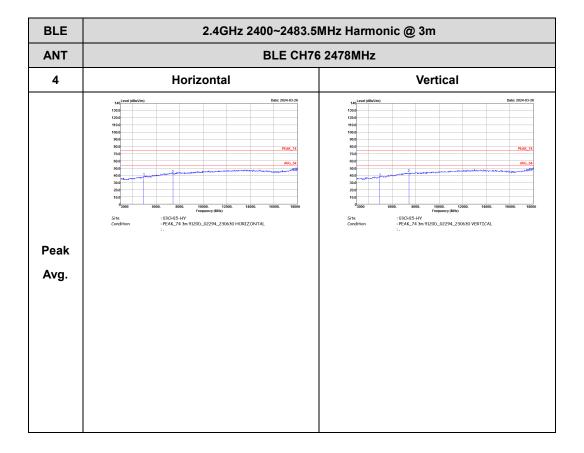


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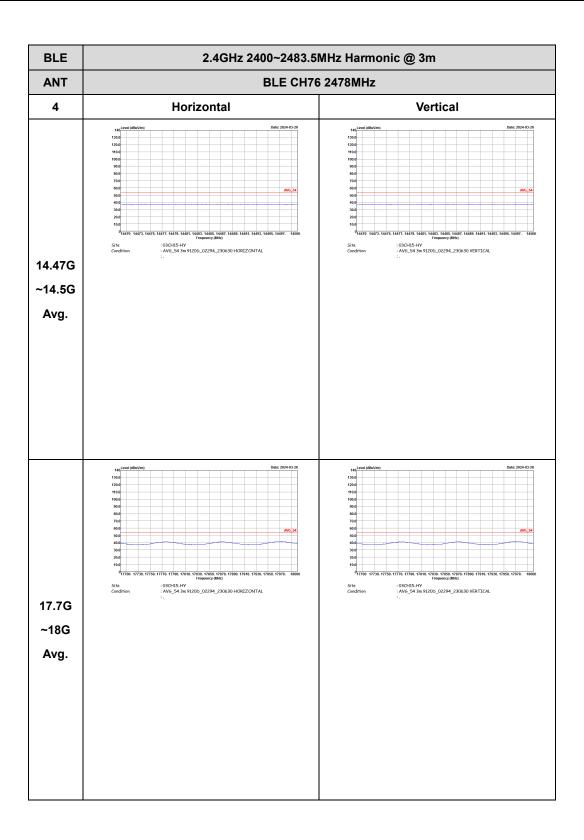


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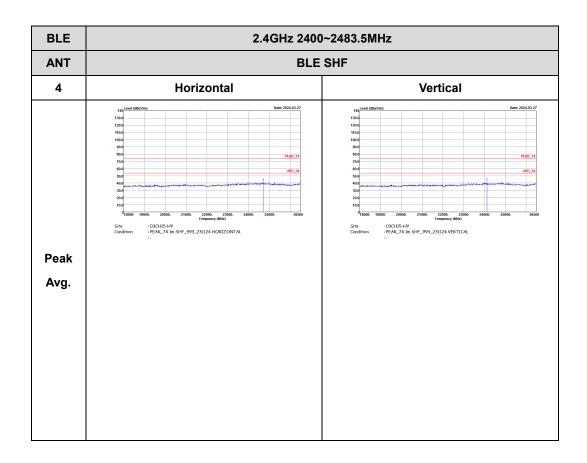
TEL: 886-3-327-0868 Page Number : D26 of D53



TEL: 886-3-327-0868 Page Number : D27 of D53

Emission above 18GHz 2.4GHz BLE (SHF @ 1m)

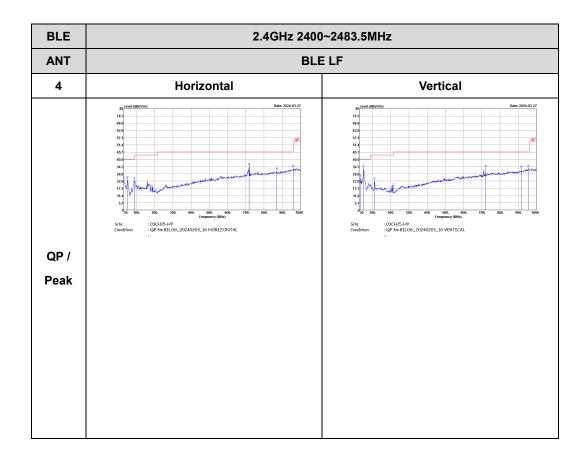
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TEL: 886-3-327-0868 Page Number : D28 of D53

Emission below 1GHz 2.4GHz BLE (LF)

Report No. : FR3N2325L

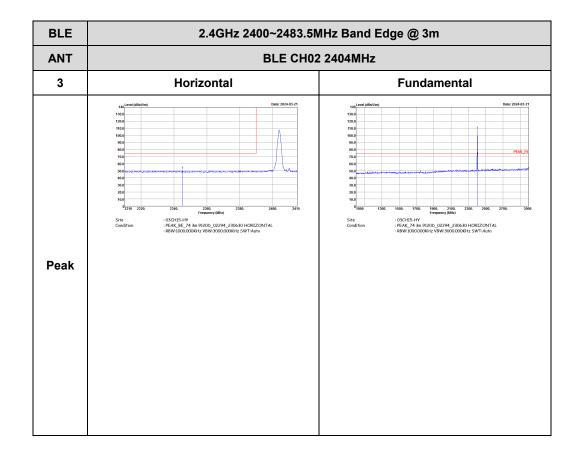


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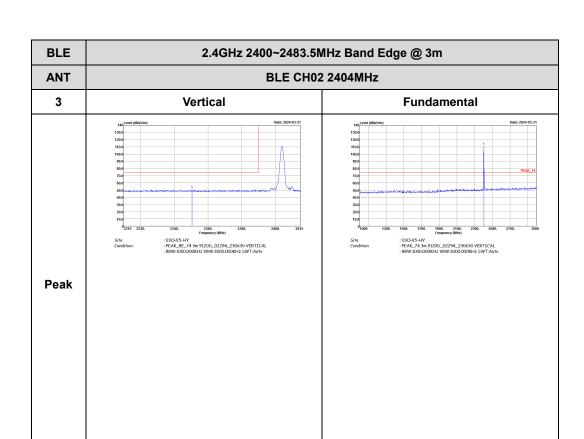
<2Mbps>

2.4GHz 2400~2483.5MHz BLE (Band Edge @ 3m)

Report No. : FR3N2325L

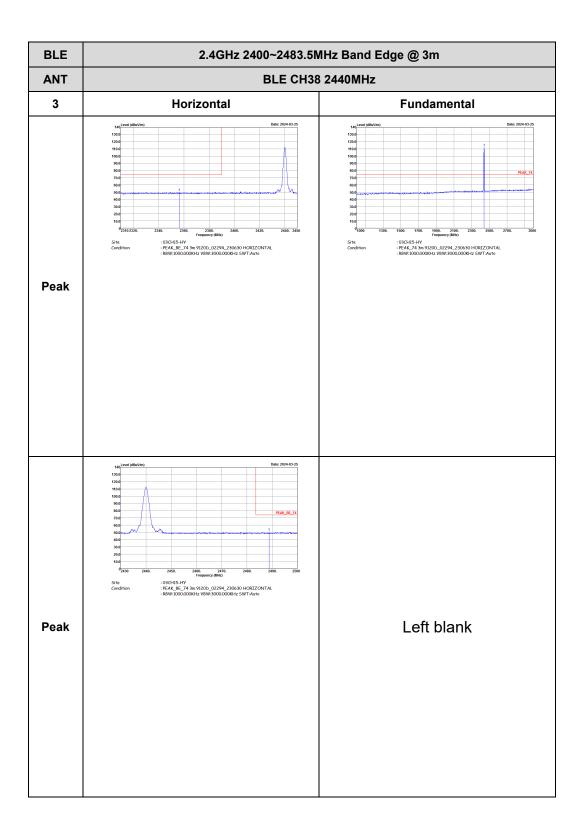


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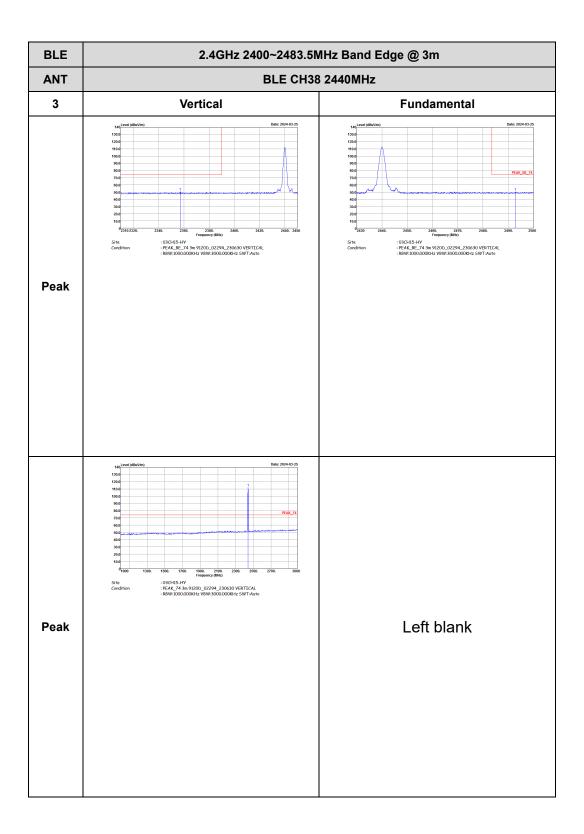


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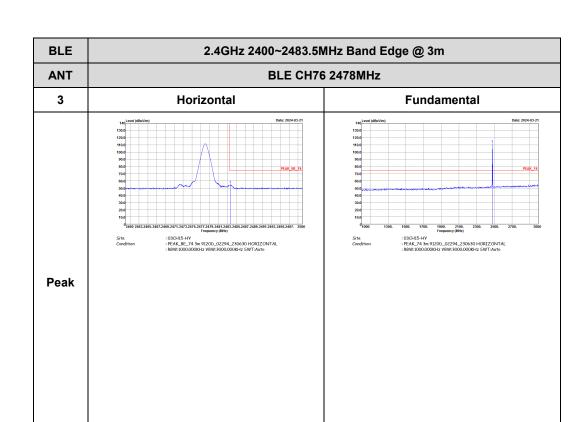
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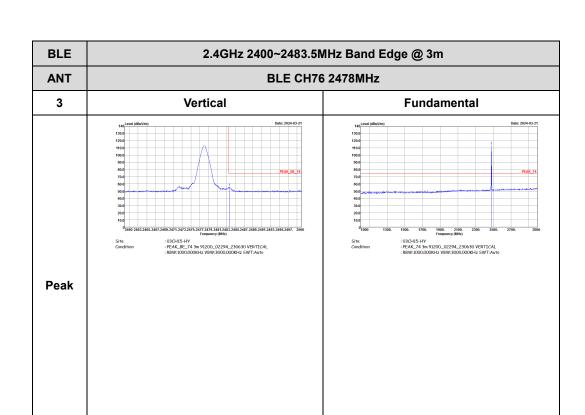
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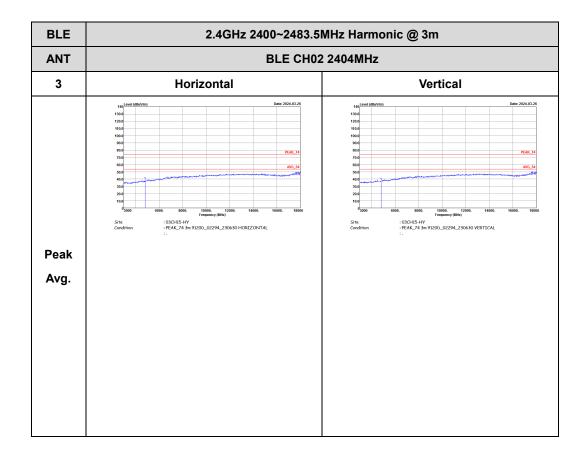
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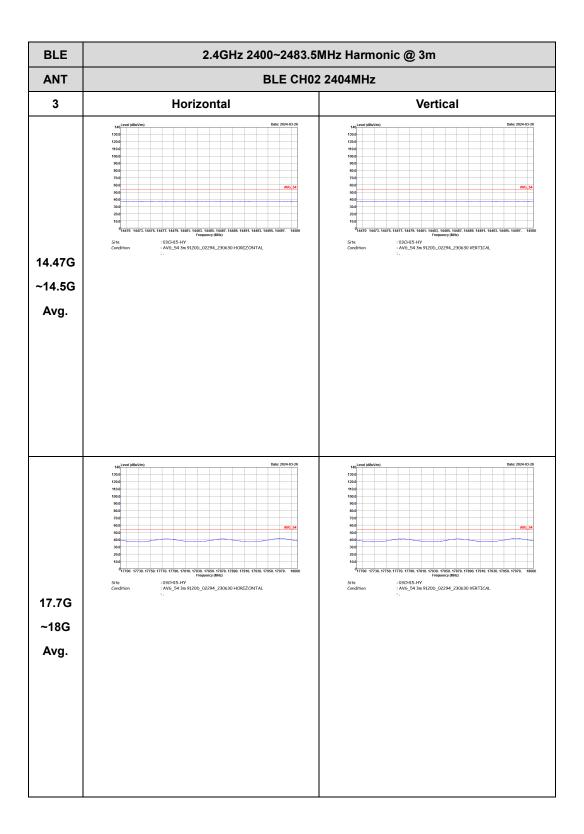
TEL: 886-3-327-0868 Page Number : D35 of D53

2.4GHz 2400~2483.5MHz BLE (Harmonic @ 3m)

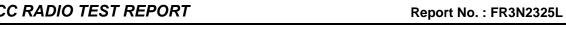
Report No. : FR3N2325L

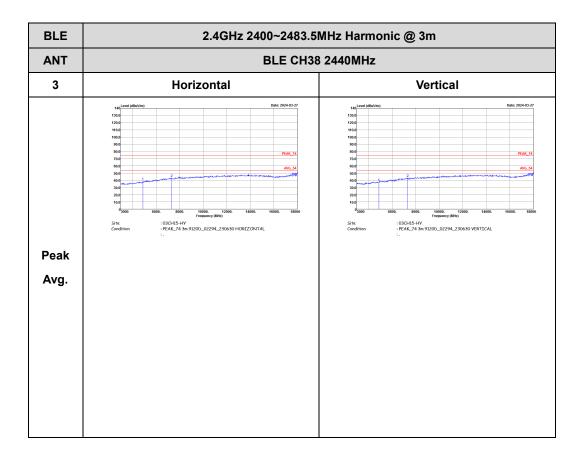


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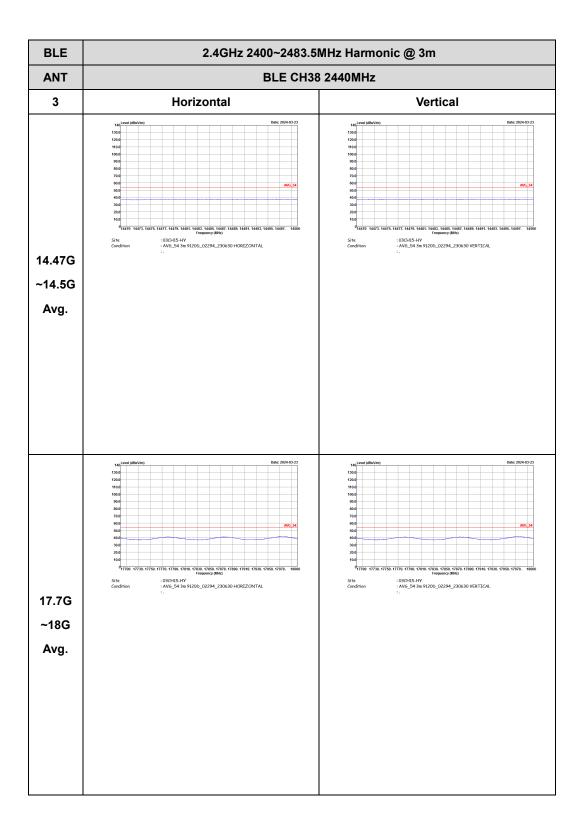


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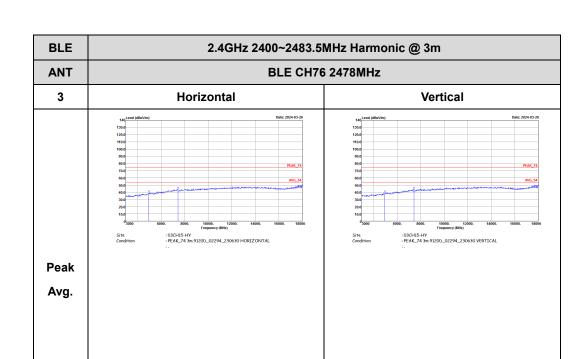




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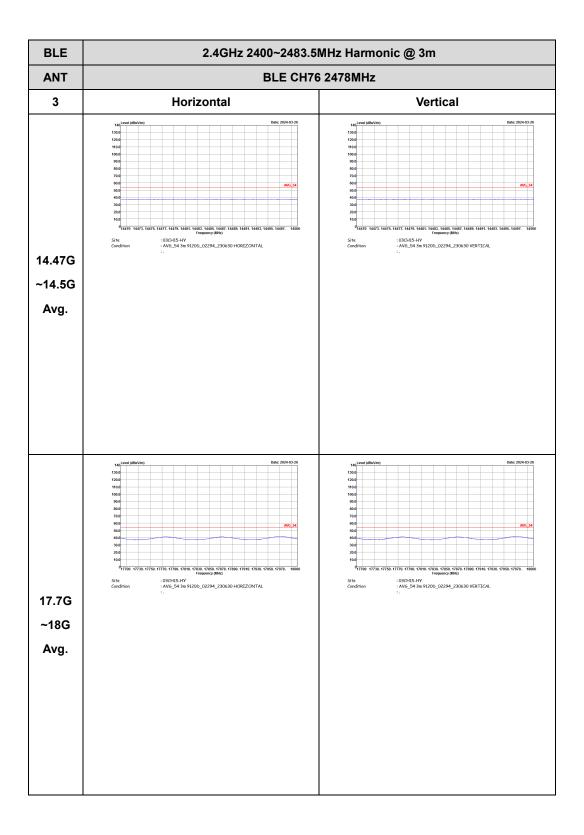


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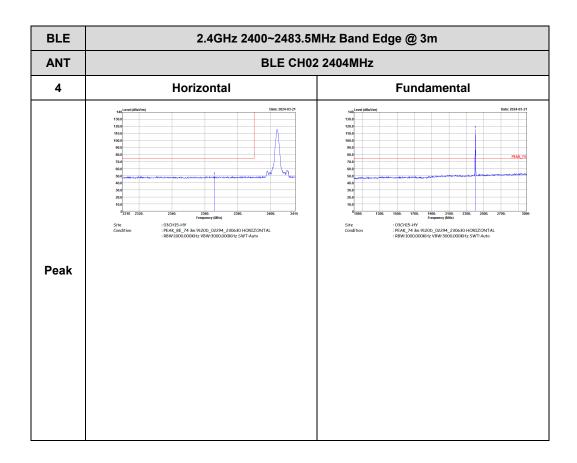
REPORT Report No. : FR3N2325L



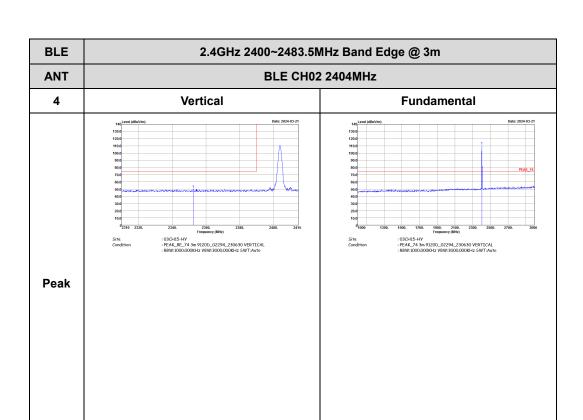
TEL: 886-3-327-0868 Page Number : D41 of D53

2.4GHz 2400~2483.5MHz BLE (Band Edge @ 3m)

Report No.: FR3N2325L

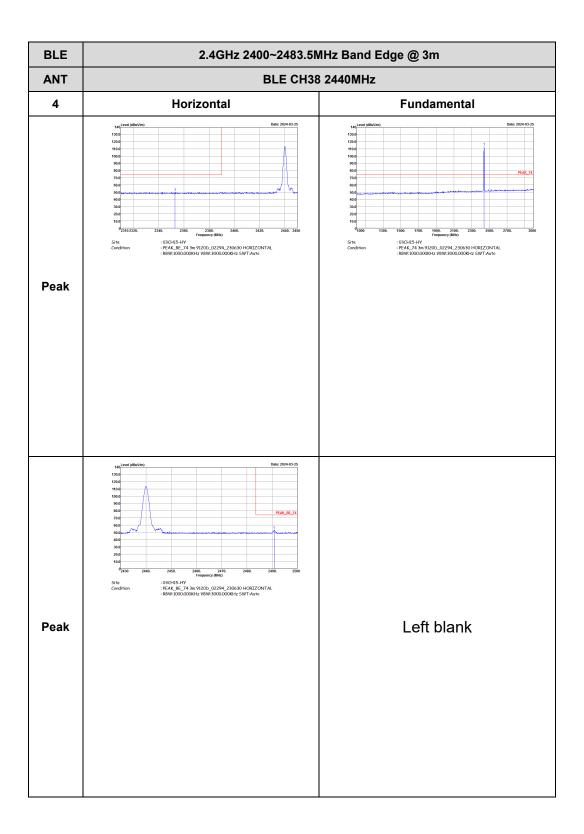


TEL: 886-3-327-0868 Page Number : D42 of D53



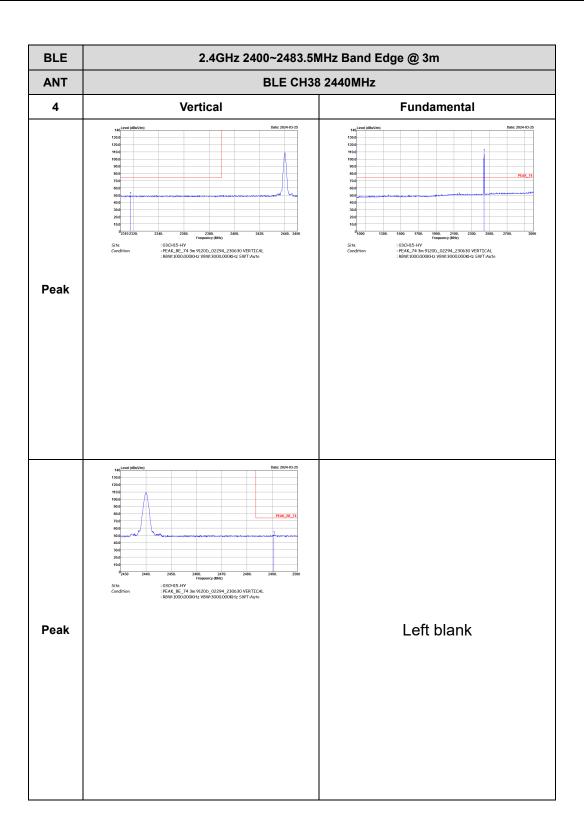
TEL: 886-3-327-0868 Page Number : D43 of D53

RADIO TEST REPORT Report No. : FR3N2325L

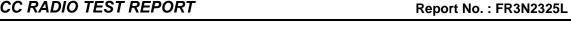


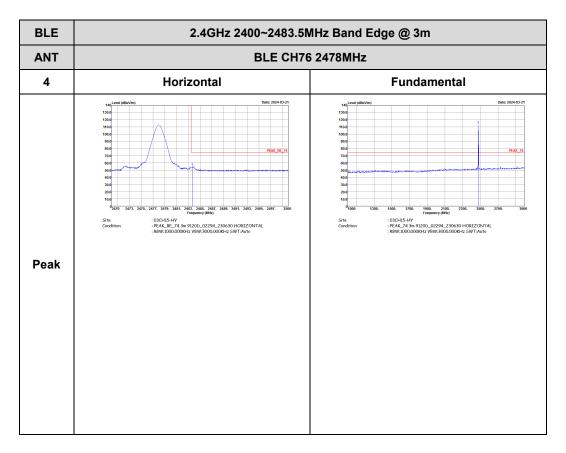
TEL: 886-3-327-0868 Page Number : D44 of D53

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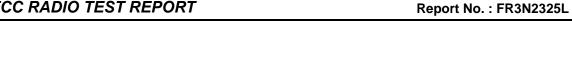


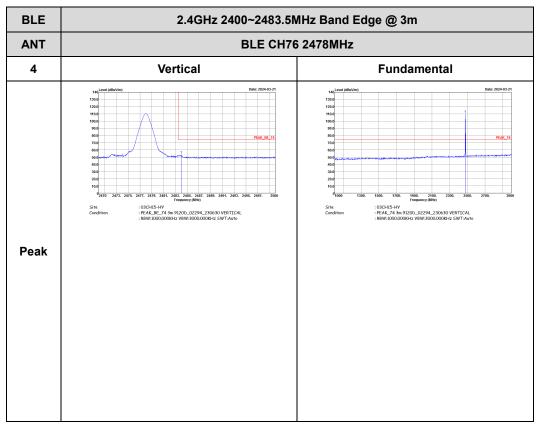
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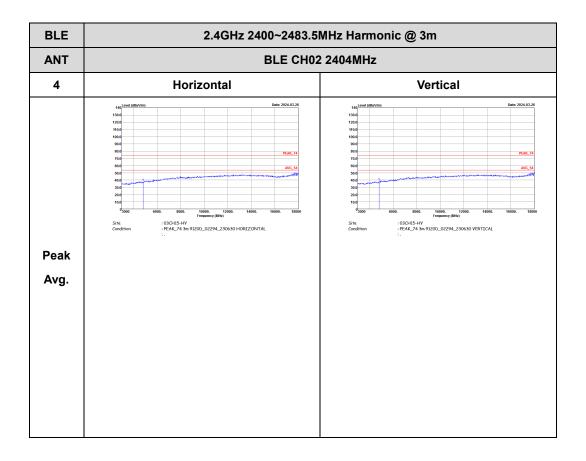




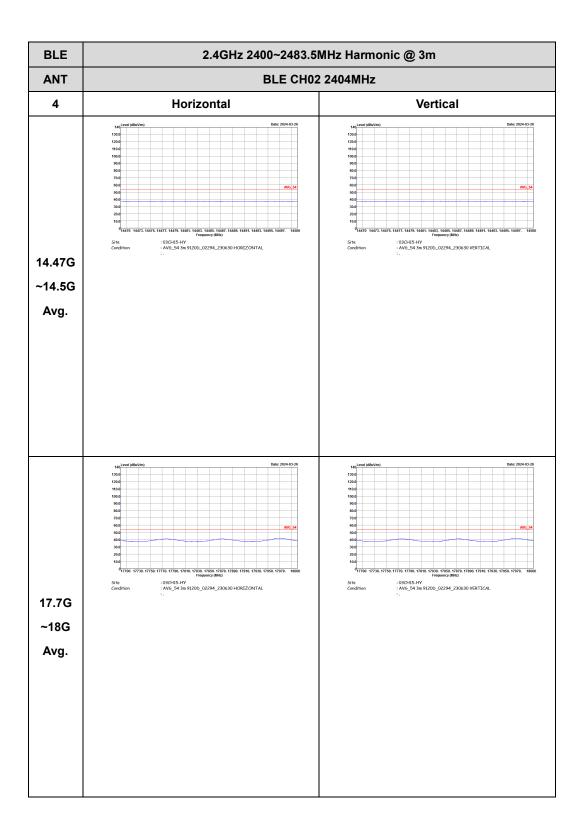
TEL: 886-3-327-0868 Page Number : D47 of D53

2.4GHz 2400~2483.5MHz BLE (Harmonic @ 3m)

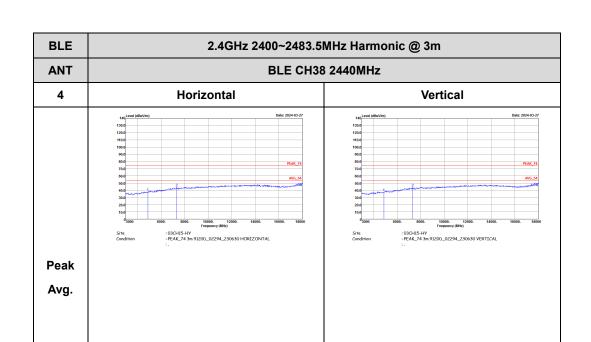
Report No.: FR3N2325L



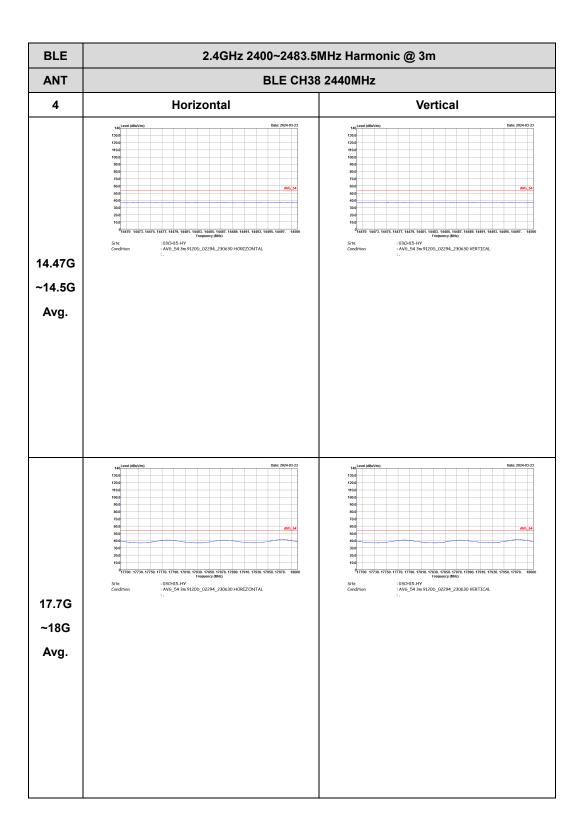
TEL: 886-3-327-0868 Page Number : D48 of D53



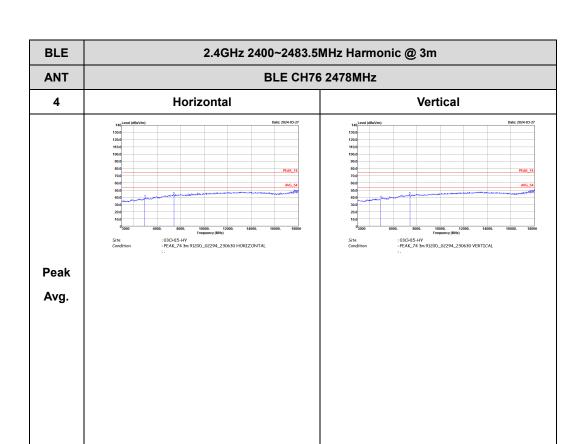
TEL: 886-3-327-0868 Page Number : D49 of D53



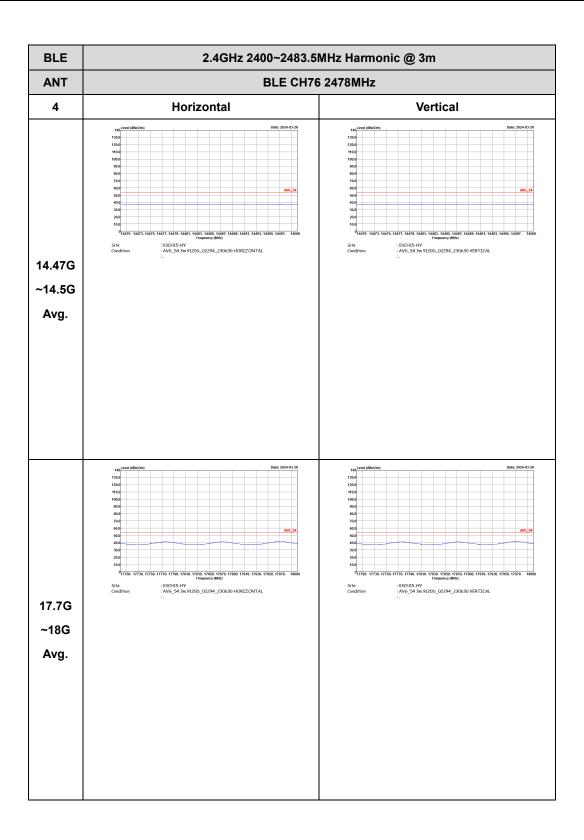
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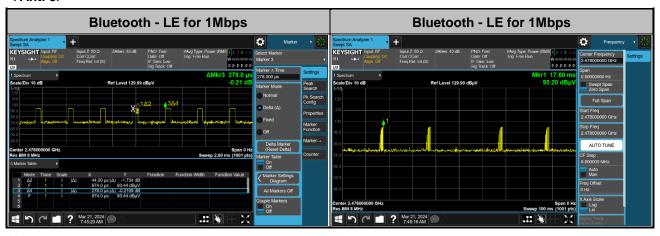
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Appendix E. Duty Cycle Plots

< Ant. 3>



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Note:

- 1. Worst case Duty cycle = on time/100 milliseconds = 4 * 0.044 / 100 = 0.18%
- 2. Worst case Duty cycle correction factor = 20*log(Duty cycle) = -55.09 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

$$0.044 \text{ ms x } 40 \text{ channels} = 1.76 \text{ ms}$$

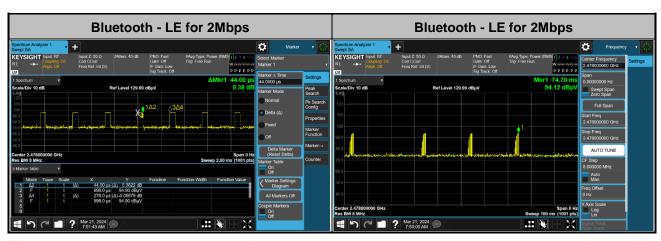
There cannot be 2 complete hopping sequences within 100ms period, considering the random hopping behavior, maximum 2 hops can be possibly observed within the period. [100 ms / 0.88 ms] = 2 hops Thus, the maximum possible ON time:

$$0.044 \text{ ms } x 4 = 0.176 \text{ ms}$$

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

$$20 \times log(0.176 \text{ ms/}100 \text{ ms}) = -55.09 \text{ dB}$$

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Note:

- 1. Worst case Duty cycle = on time/100 milliseconds = 4 * 0.044 / 100 = 0.18%
- 2. Worst case Duty cycle correction factor = 20*log(Duty cycle) = -55.09 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

$$0.044 \text{ ms } x \text{ } 40 \text{ } \text{channels} = 1.76 \text{ } \text{ms}$$

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 ms / 0.88 ms] = 2 hops Thus, the maximum possible ON time:

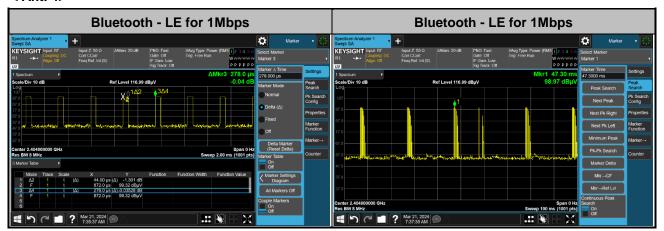
$$0.044 \text{ ms x } 4 = 0.176 \text{ ms}$$

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

$$20 \times \log(0.176 \text{ ms}/100 \text{ ms}) = -55.09 \text{ dB}$$

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< Ant. 4>



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Note:

- 1. Worst case Duty cycle = on time/100 milliseconds = 6 * 0.044 / 100 = 0.26%
- 2. Worst case Duty cycle correction factor = 20*log(Duty cycle) = -51.57 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

$$0.044 \text{ ms x } 60 \text{ channels} = 2.64 \text{ ms}$$

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 ms / 0.88 ms] = 2 hops Thus, the maximum possible ON time:

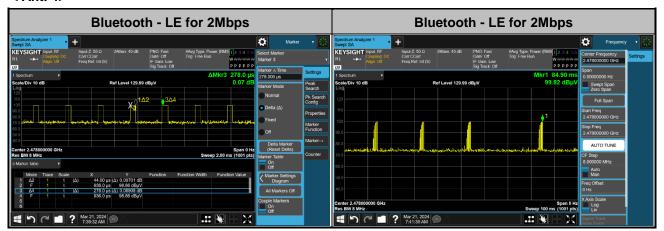
$$0.044 \text{ ms x } 6 = 0.264 \text{ ms}$$

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

$$20 \times \log(0.264 \text{ ms}/100 \text{ ms}) = -51.57 \text{ dB}$$

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< Ant. 4>



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Note:

- 1. Worst case Duty cycle = on time/100 milliseconds = 4 * 0.044 / 100 = 0.18 %
- 2. Worst case Duty cycle correction factor = 20*log(Duty cycle) = -55.09 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

$$0.044 \text{ ms } x \text{ } 40 \text{ } \text{channels} = 1.76 \text{ } \text{ms}$$

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 ms / 0.88 ms] = 2 hops Thus, the maximum possible ON time:

$$0.044 \text{ ms x } 4 = 0.176 \text{ ms}$$

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

$$20 \times \log(0.176 \text{ ms}/100 \text{ ms}) = -55.09 \text{ dB}$$



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