# Q. Can tET/tPET Series Modules achieve a PWM Output Accuracy of less than 1 ms?

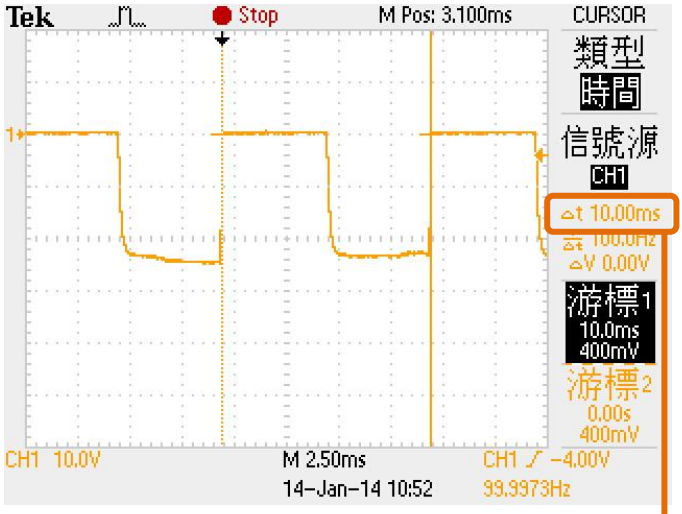
**A: Yes. Based on testing by ICP DAS, a PWM output accuracy of less than 1 ms (Accuracy < 1 ms) can be achieved for duty cycle values ranging from 5 to 15 ms, and the performance is very stable. Note that other functions, e.g., Frequency Measurement, should not be enabled while PWM output is active as this will reduce the PWM accuracy.**

■ **The test environment is as follows:**

| | |
|---|---|
| Operating System: | Windows XP SP3 |
| Module: | tPET-P2C2 |
| Firmware Version: | v1.2.8 |
| Measuring Instrument: | Oscilloscope |

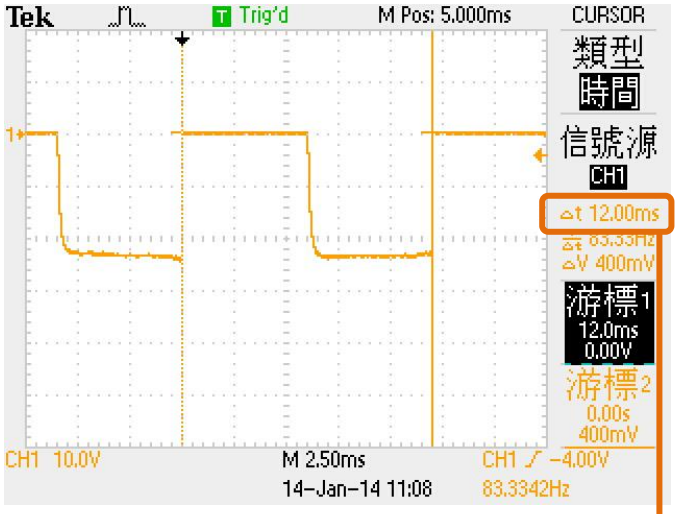
■ **The following figures illustrate the output accuracy for a range of duty cycle values from 5 to 15 ms:**

➢ Figure 1: **Duty Cycle = 5 ms**




**Error =**
**Desired Duty Cycle (High and Low) – Measured delta t = (5 ms x 2) – 10.00 ms = 0 ms (< 1 ms)**

➢ Figure 2: **Duty Cycle = 6 ms**

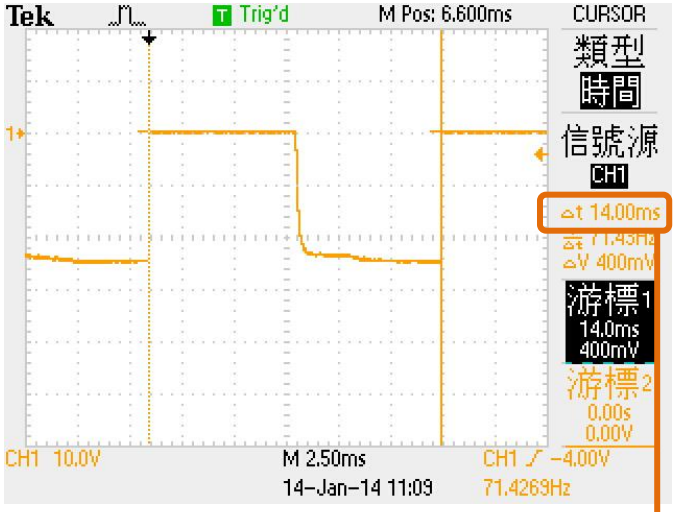



**Error =**
**Desired Duty Cycle (High and Low) – Measured delta t = (6ms x 2) – 12.00 ms = 0 ms (< 1 ms)**

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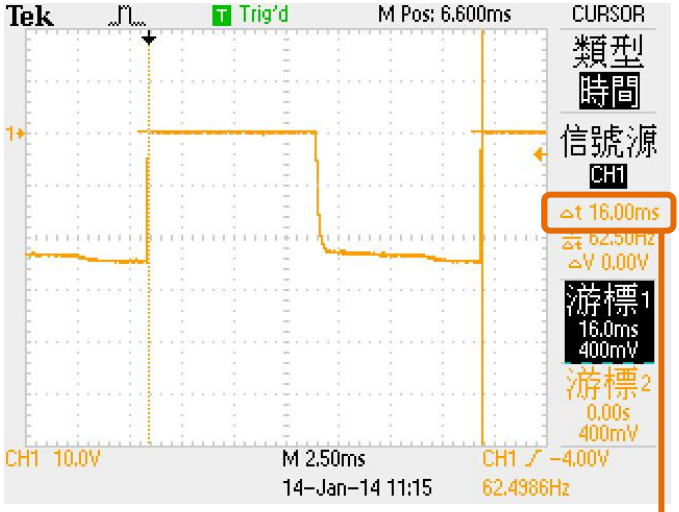

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➢ Figure 3: **Duty Cycle = 7 ms**



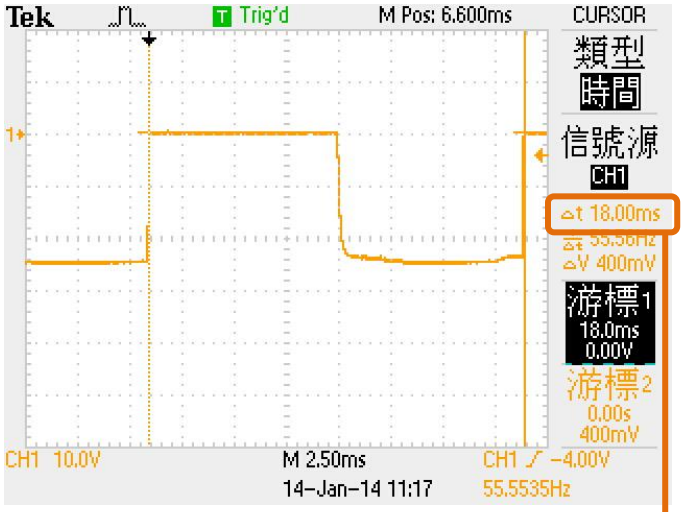

**Error =**
**Desired Duty Cycle (High and Low) – Measured delta t = (7 ms x 2) – 14.00 ms = 0 ms (< 1 ms)**

➢ Figure 4: **Duty Cycle = 8 ms**



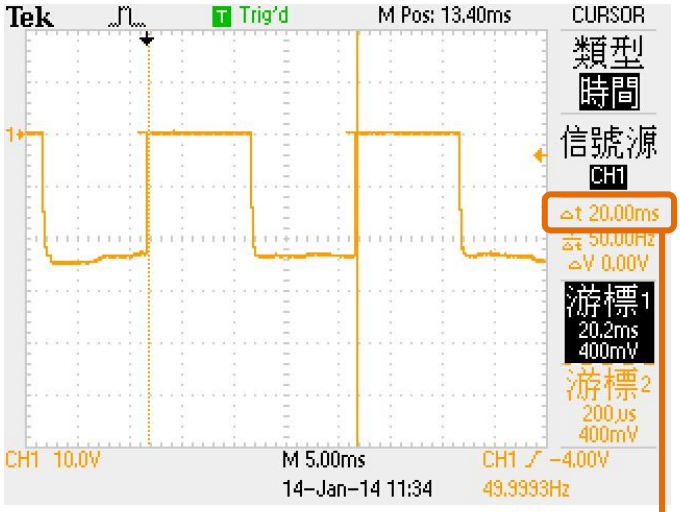

**Error =**
**Desired Duty Cycle (High and Low) – Measured delta t = (8 ms x 2) – 16.00 ms = 0 ms (< 1 ms)**

➢ Figure 5: **Duty Cycle = 9 ms**




**Error =**
**Desired Duty Cycle (High and Low) – Measured delta t = (9 ms x 2) – 18.00 ms = 0 ms (< 1 ms)**

➢ Figure 6: **Duty Cycle = 10 ms**

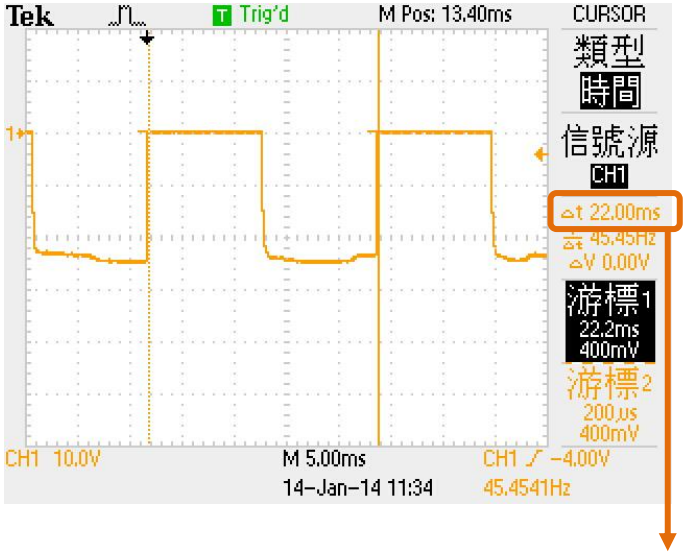



**Error =**
**Desired Duty Cycle (High and Low) – Measured delta t = (10 ms x 2) – 20.00 ms = 0 ms (< 1 ms)**

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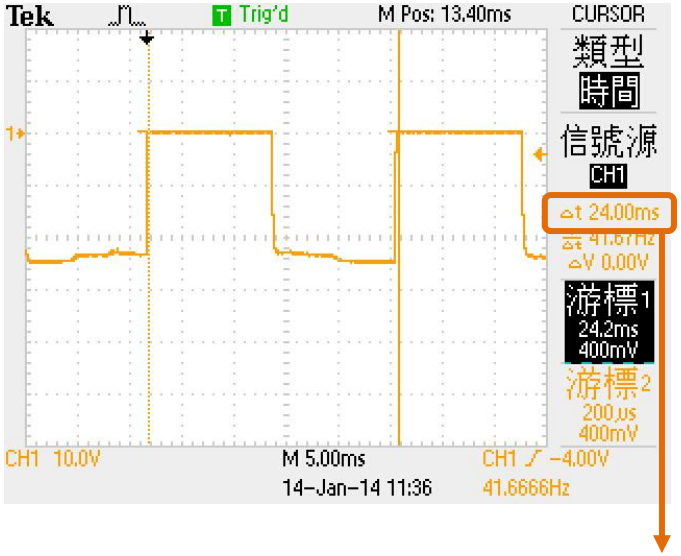

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➢ Figure 7: **Duty Cycle = 11 ms**



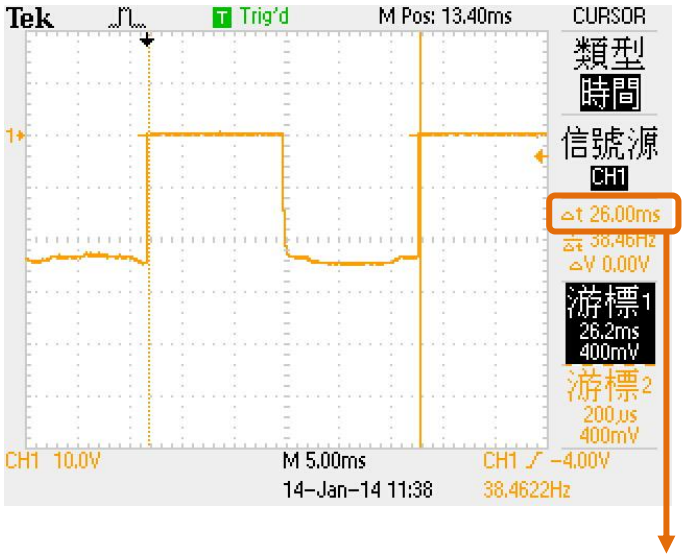

**Error =**
**Desired Duty Cycle (High and Low) – Measured delta t = (11 ms x 2) – 22.00 ms = 0 ms (< 1 ms)**

➢ Figure 8: **Duty Cycle = 12 ms**



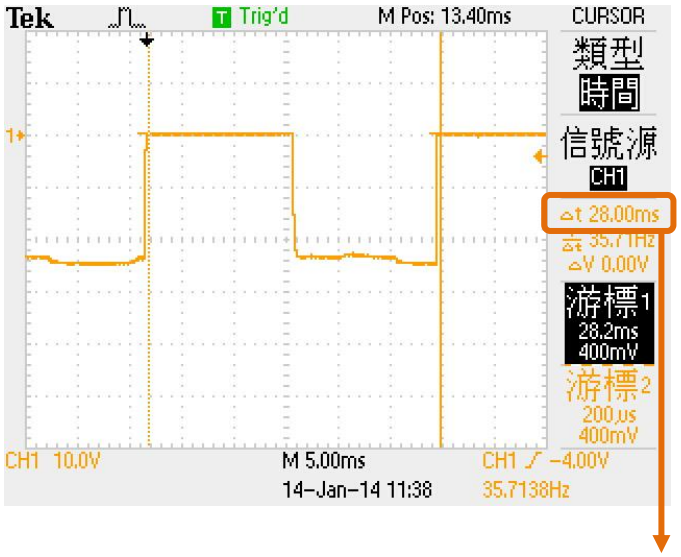

**Error =**
**Desired Duty Cycle (High and Low) – Measured delta t = (12 ms x 2) – 24.00 ms = 0 ms (< 1 ms)**

➢ Figure 9: **Duty Cycle = 13 ms**




**Error =**
**Desired Duty Cycle (High and Low) – Measured delta t = (13 ms x 2) – 26.00 ms = 0 ms (< 1 ms)**

➢ Figure 10: **Duty Cycle = 14 ms**

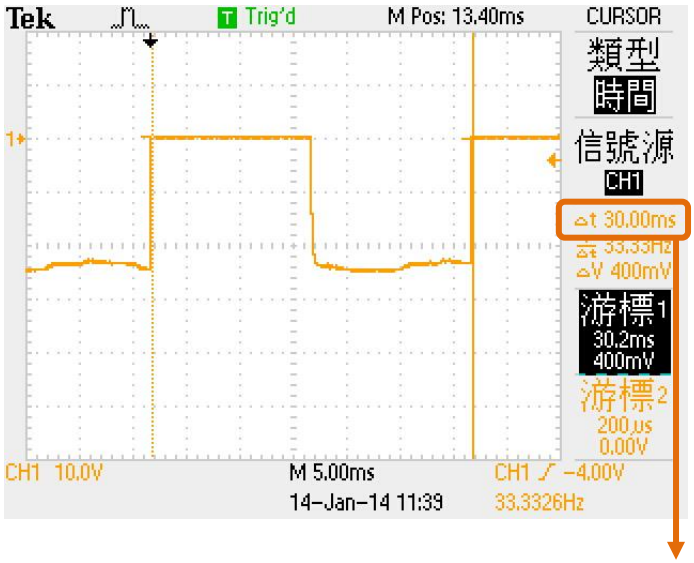



**Error =**
**Desired Duty Cycle (High and Low) – Measured delta t = (14 ms x 2) – 28.00 ms = 0 ms (< 1 ms)**

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➢ Figure 11: **Duty Cycle = 15 ms**




**Error =**
**Desired Duty Cycle (High and Low) – Measured delta t = (15 ms x 2) – 30.00 ms = 0 ms (< 1 ms)**

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