**Oscilloquartz Response to ESMA's MiFIR Review Consultation on Synchronization of Business Clocks**

**To**:  
European Securities and Markets Authority (ESMA)  
Consultation on the Review of the Markets in Financial Instruments Regulation (MiFIR)

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**Date**:  
26/08/2024

**1. Introduction**

Oscilloquartz, a part of Adtran, is a global leader in delivering advanced timing and synchronization solutions across various industries, including finance. Our precision timing technology supports financial institutions in meeting critical regulatory requirements, including MiFID II/MiFIR, ensuring the accurate synchronization of business clocks.

**2. Response to ESMA's Consultation**

**2.1. Strengthening Synchronization Standards**

* **Proposal**: We recommend that ESMA further tighten synchronization standards across financial institutions, requiring business clocks to be synchronized with **100 nanoseconds traceability to UTC**.
* **Rationale**: In high-frequency trading, even the smallest discrepancies in timing can lead to unfair advantages or reporting inaccuracies. A stricter standard will ensure better market integrity.

**2.2. GNSS Vulnerability and Resilience**

* **Proposal**: Suggest that ESMA adopt ITU-T's approach for long-term backup from GNSS failures, such as **ePRTC solutions**. Currently, ePRTC calls for **40 days of protection** from GNSS failures, but the industry is moving toward providing **much longer periods** of protection.
* **Rationale**: GNSS dependency introduces significant risks to synchronization. A robust long-term backup strategy, such as ePRTC, mitigates these risks and ensures ongoing resilience against GNSS disruptions.

**2.3. Cybersecurity in Time Synchronization**

* **Proposal**: Introduce security protocols, such as **Annex P of IEEE 1588**, into the regulatory requirements for synchronization to protect against time-based cyberattacks. Additionally, include **GNSS multilayer jamming and spoofing detection** at **antenna level, receiver level, device level, and NMS level**. Probing should be used to compare GNSS signals against trusted PTP sources to detect attacks such as **meaconing**.
* **Rationale**: Financial markets are increasingly vulnerable to cyberattacks, including GNSS jamming and spoofing. Enhancing security through multilayer detection and probing provides a more comprehensive defense against these threats.

**3. Conclusion**

In conclusion, Oscilloquartz supports the strengthening of synchronization standards in financial markets and urges ESMA to consider the above proposals to ensure a more resilient, secure, and interoperable timing infrastructure. We are available to provide further technical details and support as needed.