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The option class listed below will begin trading on the MIAX PEARL Exchange at the start of trading on Thursday, December 21, 2017.

| Security<br>Symbol | Security Name | Option<br>Class | Price<br>Programs | Expiration<br>Programs | Penny<br>Pilot | Allocation<br>Style | Billing Style | Exchange<br>for<br>Opening | Closing<br>Time | Cloud |
|--------------------|---------------|-----------------|-------------------|------------------------|----------------|---------------------|---------------|----------------------------|-----------------|-------|
|                    |               |                 |                   |                        |                |                     |               |                            |                 |       |

Please contact MIAX Listings with any questions.

Listings@MIAXOptions.com

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