

# Additive Manufacturing Breakthrough: Harris Corp. 3D Prints RF Amplifiers Using Nano Dimension's DragonFly Pro; Performance is Comparable to Traditionally Manufactured Circuits

# Tests Demonstrate Viability of 3D Printed Electronics for Rapid, Affordable Prototyping and Low-Volume Manufacturing of Antennas

**NESS ZIONA, Israel and MELBOURNE, Fla., – Nov. 7, 2018** – In a major breakthrough for additive manufacturing for printed electronics, tests conducted by Harris Corporation showed 3D printed radio frequency (RF) circuit performance is comparable to that of circuits developed using conventional manufacturing techniques. Harris selected Nano Dimension, a leading additive electronics provider (Nasdaq, TASE: NNDM) and its multi-material DragonFly Pro 3D electronics printer to produce the functional circuits in a single print. The study on the advantages of using additive manufacturing to develop RF circuits for wireless systems is part of a joint project with the Israel Innovation Authority and Space Florida Foundation, a partnership promoting research, development and the commercialization of aerospace and technology projects.

Harris is a leader in the development of RF circuits for electronic warfare and communications systems. In recent years, developing these circuits and systems used for conveying information such as data, video and voice across long distances, has focused on improving mobility and performance. Harris also has focused on reducing development time and cost which typically is a long, complex multi-stage process when using conventional manufacturing methods.

"Harris looked at the applicability of 3D printing for developing RF systems, and then designed, simulated and tested the 3D printed RF amplifier and compared it with an amplifier fabricated using conventional manufacturing techniques," said Arthur Paolella, PhD, senior scientist, Space and Intelligence Systems, Harris Corporation. "Our results showed similar RF performance between the 3D printed version and the baseline amplifier, clearly demonstrating the viability of 3D printed electronics for RF circuitry."

"The use of in-house 3D printed electronics to make antennas is a breakthrough, in terms of the time and cost of prototyping and proofs-of-concept," said Amit Dror, CEO of Nano Dimension. "In addition, 3D printed electronics makes possible development of even smaller and lighter antennas that have rigid packaging integrated with flexible circuits, without the need for cables and connectors."

The Nano Dimension DragonFly Pro is a multi-material, extremely precise inkjet deposition 3D printing system that incorporates conductive silver inks and dielectric inks to create functional electronic parts in a single print.

Harris will present the full details of its findings at the IEEE Radio and Wireless Symposium in January.

In June 2017, Nano Dimension received an Israel Innovation Authority grant approval to finance a project to develop 3D printing of electronical modules for space applications in collaboration with Harris. The grant project was designed to demonstrate potential that 3D printing double sided, multilayer circuits that distribute digital, power and RF signals could reduce size, weight, power and cost of space systems. The DragonFly 2020 Pro 3D printer transforms electromechanical development by empowering companies to take control of their entire development cycle. The system enables the 3D printing of functional electronics such as encapsulated sensors, conductive free-form geometries, antennas, molded connected devices, printed circuit boards and other innovative devices.

To learn more about Nano Dimension's precision additive manufacturing for printed electronics, please download our Harris Use Case.

#### **About Harris Corporation**

Harris Corporation is a leading technology innovator, solving customers' toughest mission-critical challenges by providing solutions that connect, inform and protect. Harris supports government and commercial customers in more than 100 countries and has approximately \$6 billion in annual revenue. The company is organized into three business segments: Communication Systems, Electronic Systems and Space and Intelligence Systems. Learn more at harris.com.

#### About Nano Dimension Ltd.

Nano Dimension **(Nasdaq, TASE: NNDM)** is a leading electronics provider that is disrupting, reshaping, and defining the future of how cognitive connected products are made. With its unique 3D printing technologies, Nano Dimension is targeting the growing demand for electronic devices that require increasingly sophisticated features. Demand for circuitry, including PCBs - which are the heart of every electronic device - covers a diverse range of industries, including consumer electronics, medical devices, defense, aerospace, automotive, IoT and telecom. These sectors can all benefit greatly from Nano Dimension's products and services for rapid prototyping and short-run manufacturing. For more information, please visit <u>www.nano-di.com</u>.

#### **Forward-Looking Statements**

This press release contains forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995 and other Federal securities laws. Words such as "expects," "anticipates," "intends," "plans," "believes," "seeks," "estimates" and similar expressions or variations of such words are intended to identify forward-looking statements. For example, Nano Dimension is using forward-looking statements in this press release when it discusses the potential of its products and the findings of Harris' study. Because such statements deal with future events and are based on Nano Dimension's current expectations, they are subject to various risks and uncertainties. Actual results, performance or achievements of Nano Dimension could differ materially from those described in or implied by the statements in this press release. The forward-looking statements contained or implied in this press release are subject to other risks and uncertainties, including those discussed under the heading "Risk Factors" in Nano Dimension's annual report on Form 20-F filed with the Securities and Exchange Commission ("SEC") on March 15, 2018, and in any subsequent filings with the SEC. Except as otherwise required by law, Nano Dimension undertakes no obligation to publicly release any revisions to these forward-looking statements to reflect events or circumstances after the date hereof or to reflect the occurrence of unanticipated events. References and links to websites have been provided as a convenience, and the information contained on such websites is not incorporated by reference into this press release. Nano Dimension is not responsible for the contents of third-party websites.

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