

Application: 4811

## Celona 5G LAN Lights up Manufacturing Automation at Del Conca USA

<b>Page: General Information</b>
Provide information about the company to be considered for the award. If you will be nominating an individual, specify the nominee's employer.
<b>Name of Organization/Company</b> Celona
<b>Additional Contacts</b> I do not wish to list additional contacts
<b>Page: Entry Information</b>
<b>Entry Title</b> Celona 5G LAN Lights up Manufacturing Automation at Del Conca USA
<b>Category</b> R04. Technology Breakthrough of the Year - Manufacturing Technology
<b>Technology Breakthrough of the Year Submission Format</b> Written Answers
<b>a. Briefly describe the organization that achieved the nominated technology breakthrough: its history and past performance (up to 200 words). Required</b> <p>Del Conca USA is a 50-acre manufacturing facility in Loudon Tennessee, where they create fine Italian porcelain tile from the raw materials of clay and sand into the beautiful finished product installed in modern homes. Del Conca prides themselves on their state-of-the-art facility. As they continued to add AGVs and ruggedized tablets to automate the movement of raw material to finished product throughout the plant, they were running into the limitations of Wi-Fi. They found that their regular Wi-Fi APs were not providing the reliable connectivity they needed – especially outdoors. They could not get the Wi-Fi signal through the pallets of ceramic stored throughout the facility. Inside the facility, Wi-Fi coverage was also patchy due to all the metal structures typical in any factory floor. As their forklifts moved in and out of the facility and into the yard, Wi-Fi connectivity constantly broke down due to lack of mobility as they roamed between indoor and outdoor Wi-Fi APs. On top of that, indoor public cellular coverage was poor. Employees couldn't access their phones in the far reaches of the building.</p>
<b>b. Outline the nominated technology breakthrough. Be sure to describe it in terms that someone with limited knowledge of the technology can understand and appreciate (up to 250 words). Required</b> <p>In 2022, Celona worked with Del Conca to replace their Wi-Fi system with Celona 5G LAN, and the solution is now fully integrated into the plant. Freshly manufactured tiles keep coming from assembly lines and AGVs constantly pick up tile stacks and move them. If the AGVs lose network connectivity and stop, then the whole plant operation would stop. If the tablets on the forklifts lose connection, forklift operators cannot get new work orders and trucks waiting outside cannot be loaded.</p> <p>As a result of their new private network, Del Conca is seeing major reductions in downtime and improvements in operational efficiency that is positively impacting their bottom line. AGVs are buzzing around, operating autonomously and continuously on the private wireless network. The AGVs are key to operational efficiency, picking up stacks of tiles and moving them through final quality check and palletizing. Forklift operators get orders directly sent to their tablets with the specific location of pallets they need to pick up and drop off. With this new network, plant operations can be monitored remotely – even from Italy – since everything is connected to the corporate Intranet. If needed, anyone on the plant floor can connect to an expert using Teams on their tablet. In early 2024 Celona worked with Del Conca to add Celona's neutral host capability on the same network so that their employees can remain productive on their cell phones no matter where they are in the plant.</p>
<b>c. Explain why the technology breakthrough you have highlighted is unique or significant (up to 250 words). Required</b> <p>As a result of all these successful automation efforts, powered by Celona 5G LAN, the Head of IT Operations Luca Chichiarelli said that Del Conca has significantly reduced the cost of operations and improved plant safety and reliability. According to Luca: "Celona's 5G LAN has allowed us to cost effectively streamline the automation of our manufacturing operations and dramatically improve operational efficiency. We went from about 2 days a month of service disruption with Wi-Fi to almost zero disruption with private wireless."</p> <p>We're seeing the same results with our other customers as well – across industries. Any mine, refinery, warehouse, or manufacturing plant that is trying to add automation to their operation, both indoors and out, is quickly running into the limitations of Wi-Fi. You cannot reliably and safely run AGVs and Automated Forklifts on Wi-Fi. If you can run one reliably in a small section of the warehouse where Wi-Fi coverage is not impeded by racks of goods, you cannot run that AGV down an aisle or into a corner, and network performance plummets as you add more AGVs onto the network. It can be cost prohibitive to run the cable and power needed to light up Wi-Fi in the far reaches of a mine or refinery, but these same areas can easily and cost effectively be covered by a handful of outdoor private 5G APs.</p> <p>Private 5G is a robust and secure connectivity option that has only recently become available, and is the necessary foundation of Industry 4.0.</p>

**d. Reference any attachments of supporting materials throughout this nomination and how they provide evidence of the claims you have made in this nomination (up to 250 words). Optional**

Our CTO recently visited the Del Conca plant. He wrote up this instructive trip report describing what he found, including before and after pictures: <https://www.celona.io/5g-lan/secret-ingredient-for-fine-italian-tile-celona-private-wireless>.

The Del Conca case study provides detailed information about the deployment: <https://pages.celona.io/hubfs/Action%20Media%20Files/Del%20Conca%20Manufacturing%20v1.0.3.27.pdf>.

This case study summarizes performance results measured by an independent third party MS Benbow in our deployment with a distribution center for a large retail home supply company, showing the performance and latency improvements over Wi-Fi and the resulting improvements in Total Cost of Ownership: [https://pages.celona.io/hubfs/Action%20Media%20Files/Case%20Study%20-%20Comparing%20Wifi%20and%20Private%20Wireless%20case%20study\\_v1.7.2.21.23.pdf](https://pages.celona.io/hubfs/Action%20Media%20Files/Case%20Study%20-%20Comparing%20Wifi%20and%20Private%20Wireless%20case%20study_v1.7.2.21.23.pdf).

This blog details performance comparisons between Wi-Fi and Celona 5G LAN for AGVs and robots on five vital Key Performance Indicators – coverage, latency, mobility, scalability and security: <https://www.celona.io/agv-powered-manufacturing>.

This TCO calculator provides our customers with a tool to estimate their own TCO by entering the parameters of their environment: <https://www.celona.io/tco-calculator>.

Note that these links and collateral pieces are also included below.

**Webpage Link**

<https://www.celona.io/manufacturing> (<https://www.celona.io/manufacturing>)

**Would you like to add an additional webpage link?**

Yes

**Webpage Link 2**

<https://www.celona.io/private-wireless-for-manufacturing> (<https://www.celona.io/private-wireless-for-manufacturing>)

**Would you like to add an additional webpage link?**

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**Webpage Link 3**

<https://www.celona.io/5g-lan/secret-ingredient-for-fine-italian-tile-celona-private-wireless> (<https://www.celona.io/5g-lan/secret-ingredient-for-fine-italian-tile-celona-private-wireless>)

**Would you like to add an additional webpage link?**

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**Web Page Link 4**

<https://www.celona.io/agv-powered-manufacturing> (<https://www.celona.io/agv-powered-manufacturing>)

**Would you like to add an additional webpage link?**

Yes

**Web Page Link 5**

<https://www.celona.io/5g-lan/strategies-and-best-practices-for-implementing-private-5g-in-plc-driven-manufacturing> (<https://www.celona.io/5g-lan/strategies-and-best-practices-for-implementing-private-5g-in-plc-driven-manufacturing>)

**Would you like to add an additional webpage link?**

Yes

**Web Page Link 6**

<https://www.celona.io/5g-lan/connecting-the-connected-worker-in-the-industrial-enterprise-with-private-wireless> (<https://www.celona.io/5g-lan/connecting-the-connected-worker-in-the-industrial-enterprise-with-private-wireless>)

**Would you like to add an additional webpage link?**

Yes

**Web Page Link 7**

<https://www.celona.io/5g-lan/5g-in-manufacturing> (<https://www.celona.io/5g-lan/5g-in-manufacturing>)

**Would you like to add an additional webpage link?**

Yes

**Web Page Link 8**

<https://www.celona.io/webinar-del-conca> (<https://www.celona.io/webinar-del-conca>)

**Would you like to add an additional webpage link?**

Yes

**Web Page Link 9**

<https://www.celona.io/webinar-solving-the-pain-of-connectivity-in-manufacturing-environments> (<https://www.celona.io/webinar-solving-the-pain-of-connectivity-in-manufacturing-environments>)

**Would you like to add an additional webpage link?**

Yes

**Web Page Link 10**

<https://www.celona.io/resources/celona-for-manufacturing> (<https://www.celona.io/resources/celona-for-manufacturing>)

**Supporting Document**

Download File (<https://stevies-tech.secure-platform.com/file/67463/eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJtZWRpYUlkIjo2NzQ2MywiYWxsbn3dOb3RTaWduZWRVcmwiOiJGYWxzZSI6ImInbn9bTzrciMqRR0IU?Private%205G%20Considerations%20for%20Manufacturing%20CIOs.pdf>)

**Would you like to add an additional supporting document?**

Yes

**Supporting Document 2**

Download File (<https://stevies-tech.secure-platform.com/file/67464/eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJtZWRpYUlkIjo2NzQ2NCwiYWxsbn3dOb3RTaWduZWRVcmwiOiJGYWxzZSI6ImInbn9bManufacturing%20Solution%20Brief.pdf>)

**Would you like to add an additional supporting document?**

Yes

**Supporting Document 3**

Download File ([https://stevies-tech.secure-platform.com/file/67465/eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJtZWRpYUlkIjo2NzQ2NSwiYWxsbn3dOb3RTaWduZWRVcmwiOiJGYWxzZSI6ImInbn9bW\\_5jLHqXNFilQuz\\_6A\\_aeE9KGv3c?Celona%205G%20LAN%20Product%20Brief.pdf](https://stevies-tech.secure-platform.com/file/67465/eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJtZWRpYUlkIjo2NzQ2NSwiYWxsbn3dOb3RTaWduZWRVcmwiOiJGYWxzZSI6ImInbn9bW_5jLHqXNFilQuz_6A_aeE9KGv3c?Celona%205G%20LAN%20Product%20Brief.pdf))

**Would you like to add an additional supporting document?**

Yes

**Supporting Document 4**

Download File (<https://stevies-tech.secure-platform.com/file/67466/eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJtZWRpYUlkIjo2NzQ2NiwiYWxsbn3dOb3RTaWduZWRVcmwiOiJGYWxzZSI6ImInbn9b4?Del%20Conca%20Case%20Study.pdf>)

**Would you like to add an additional supporting document?**

Yes

**Supporting Document 5**

Download File (<https://stevies-tech.secure-platform.com/file/67467/eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJtZWRpYUlkIjo2NzQ2NywiYWxsbn3dOb3RTaWduZWRVcmwiOiJGYWxzZSI6ImInbn9bDistribution%20Center%20Wi-Fi%20Comparison%20Case%20Study.pdf>)

**Would you like to add an additional supporting document?**

Yes

**Supporting Document 6**

Download File (<https://stevies-tech.secure-platform.com/file/67468/eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJtZWRpYUlkIjo2NzQ2OCwiYWxsbn3dOb3RTaWduZWRVcmwiOiJGYWxzZSI6ImInbn9bRb4I0Sq-QwWE0FRf8qt-U?Wireless%20Process%20Automation%20with%20PROFINET.pdf>)

**Would you like to add an additional supporting document?**

Yes

**Supporting Document 7**

Download File (<https://stevies-tech.secure-platform.com/file/67470/eyJ0eXAiOiJKV1QiLCJhbGciOiJIUzI1NiJ9.eyJtZWVpYUlkIjo2NzQ3MCwiYWxsY3dOb3RTaWduZWVcmwiOiJGYWxzZSIsImInbm9P7P5jsE?Untethering%20PLCs%20with%20Private%205G.pdf>)

**Would you like to add an additional supporting document?**

No

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