Middle East PV Parking Lot Field Test: Jinko Tiger Neo vs. N-Type BC Modules, Achieving a Maximum Yield Gain of 8.93% under Low Irradiance in Early/Late Hours

Against the backdrop of the global solar PV industry's accelerated transition to high-efficiency N-type modules, parking lots, as one of the core application scenarios for distributed PV, feature low installation tilt angles, significant fluctuations in ground reflection, and frequent changes in ambient temperature—all of which place higher requirements on the comprehensive performance of modules. Recently, Jinko Solar conducted a four-month field test (from Jul 29 to Nov 12, 2025) in the Matn District of Mount Lebanon Governorate (east of Beirut, Lebanon). Focusing on the power generation performance differences between Tiger Neo modules and N-type BC bifacial modules, the test accurately captured operational data under varying irradiance levels, ambient temperatures, and ground reflection conditions to comprehensively evaluate the outdoor actual performance of the two module types. This provides authoritative data support for the design optimization and product selection of PV parking lot systems.

Key Conclusions

1.Outstanding Advantages in Early/Late Low-Irradiance and High-Temperature Periods: During the early morning (7:00-8:00) and late afternoon (17:00-18:00) when irradiance intensity is typically in the low-light range of 100-200 W/m², Tiger Neo modules demonstrated exceptional performance. Specifically, their power generation output was **5.21%** higher than that of N-type BC modules in the morning, with a yield gain of **8.93%** in the late afternoon. The core reason lies in their superior low-light response characteristics.

2.Significant Performance Improvement in Midday High-Reflection Period: During midday (12:00-13:00), the reduced number of parked vehicles in the parking lot area leads to a marked increase in ground reflection intensity. Leveraging its higher bifacial factor, Tiger Neo modules achieved a **2.75%** power generation yield gain—exceeding the daily average level and fully unleashing its performance potential in high-reflection scenarios.

Figure 1：Project picture

Project Background

This test focuses on the power generation performance differences between two mainstream bifacial modules (Tiger Neo and N-type BC) in the typical parking lot application scenario. It emphasizes analyzing performance variations under key operating conditions such as low irradiance, high temperature, and high reflection, aiming to provide data reference for end applications.

The test site is located in the Matn District, east of Beirut, Mount Lebanon Governorate. During the test period, the average daily irradiance reached 526.57 W/m², and the average ambient temperature was 22.8°C. The representative meteorological conditions can fully simulate the actual operating environment of PV projects in the Middle East and similar climate zones.

Project Design

Eight 630W Jinko Tiger Neo modules and eight 640W N-type BC modules were selected for the test. Both module types feature a bifacial dual-glass structure and consistent environmental adaptability. For installation, all modules are arranged at a 5 ° tilt angle facing southeast, with an installation height of approximately 2.5 meters above the ground—fully replicating the module installation status of real parking lots. To ensure data accuracy, the two module types are connected to independent Maximum Power Point Tracking (MPPT) systems, completely restoring the system configuration in practical applications. The test system is equipped with high-precision sensing equipment, collecting data at 6-minute intervals to real-time monitor core parameters including DC voltage, current, output power, module temperature, and front-side irradiance. The test period covers from Jul 29 to Nov 12, 2025.

Cell Technology	Module Power	Module type
Jinko Tiger Neo	630W	Bifacial Dual-Glass
N-type BC	640W	Bifacial Dual-Glass

Conclusion

Full-cycle field test data from the Middle East parking lot confirms Jinko Tiger Neo modules outperform N-type BC modules in power generation efficiency and environmental adaptability, offering clear guidance for PV parking lot product selection. With a specific yield of **327.22 kWh/kW** (vs. 320.08 kWh/kW for BC modules), Tiger Neo achieved a **2.23%** average per-watt gain—stable during the high-temperature summer period (Jul 29-Sep 30), underscoring its reliability in heat.

Tailored to the Middle East' s high-temperature, high-irradiance climate, Tiger Neo minimizes extreme weather impacts on power generation. This test validates Tiger Neo as the preferred choice for high-efficiency PV parking lot projects in the Middle East and similar regions, with its scenario-aligned technical advantages providing core support for large-scale distributed PV deployment.

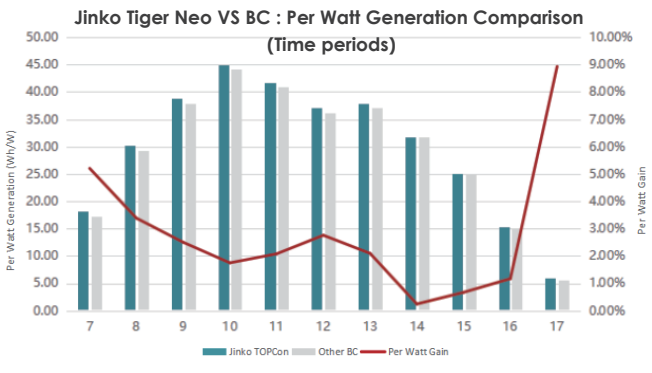

Figure 2：Time interval based per watt gain comparison