

JASON DERULO @ISTANBUL FESTIVAL 2024 - RF ENGINEER

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Istanbul Festival, held on August 14th 2024, is one of Turkey's largest music events, featuring a diverse line-up of both local and international artists. Given the scale and complexity of the event, advanced RF (radio frequency) management was crucial to ensure stable wireless microphone and in-ear monitoring systems.

At this festival, I was responsible for managing all aspects of RF coordination during Jason Derulo's performance, including:

- Conducting RF spectrum analysis and coordinating frequency distribution,
- Identifying environmental RF sources to prevent interference and signal dropouts,
- Optimizing wireless microphone and intercom systems within the stage design,
- Placing antennas strategically to minimize signal loss and ensure stable reception,
- Integrating Shure and Sennheiser wireless systems into a unified management network,
- Implementing wired IEM solutions for static performers and crew to optimize RF space.

A crucial part of my role was maintaining a clean RF spectrum and preventing frequency congestion. To ensure this, I applied advanced RF techniques, including:

- Optimized frequency coordination using Shure Wireless Workbench and Sennheiser WSM software
- Performing intermodulation calculations to eliminate potential frequency conflicts
- Pre-configuring backup frequencies for seamless transitions in case of interference
- Utilizing high-gain helical antennas and remote receivers for maximum signal stability



Challenges & Improvements

One of the biggest technical challenges was maintaining uninterrupted signal transmission while working within aesthetic constraints. The festival organizers preferred to keep antennas hidden for a cleaner stage design, which limited optimal positioning options. Some antennas had to be mounted on microphone stands, making them slightly visible, but despite this compromise, RF performance remained flawless.

In future projects, I would recommend:



- Mounting antennas on trusses rather than microphone stands for better coverage and reduced interference,
- Expanding backup frequency plans to account for unexpected RF congestion,
- Increasing the use of wired communication solutions to preserve wireless bandwidth.

Key Takeaways

This project reinforced my expertise in RF management, particularly in high-traffic festival environments where stable wireless performance is critical. Despite the complexity of the stage conditions, I successfully ensured seamless RF coordination and interference-free, stable operation.

During soundcheck, Laurie Binns, Jason Derulo's monitor engineer, provided highly positive feedback, confirming that RF coordination was flawless. This experience highlighted how RF engineering is not just a technical field but an essential part of performance production, requiring close collaboration with monitor engineers and stage designers.

While this project is a technical process, it can also be considered a creative field that supports the performers' on-stage expression by aiding in the creation of an uninterrupted performance, high-quality audio, and overall pleasing stage visuals. The strategies developed in this project will serve as a benchmark for my future RF work.