#### **Hamed Benhamed**

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**Transmission & Microwave Engineer**

**Technical Support, Project Manager**

**Skills**

* **Microwave Radio Networks (PtP & PtMP)**
* **Microwave Engineering, Design and Planning using IQ-Link**
* **Survey, Radio LOS visibility, design, link profile, link budget**

Lat/ Long/ AGL/ ASL/ Azimut/ Tilt/ RSSI aligning antennas, Tx power, frequencies, Channel bandwidth, Modulation, capacity planning, Throughput, path clutter and Clearance, clearance K factor, Free space loss, atmospheric absorption loss, Field Margin, obstruction loss, Rx Power, Rx Threshold criteria 10-6/ 10-3, Composite Fade Margin FM, frequency diversity FD, polarization diversity PD, XPIC, space diversity SD, Adaptative Modulation ADM, path classification, refractivity, reflection, Multipath and Rain Fading, unavailability (% - sec), monthly and annual availability (% - Sec), Target objective availability (% - sec),…**.**

* **Microwave radio propagations solutions**

HSB/ MIMO/ FD/ SD/ PD/ XPIC/ AM/ ATPC/ PLA/ passive relay/ active relay/…**.**

* **BOQ & POs**

ODU, IDU, service boards, control & switching boards, power interface unit, software and license key, ODF, DDF, optical & electrical interfaces cables, patch cords, DDF unit and Box, Connectors, IF/RF cables, power cables, couplers, waveguide, antennas, bracket, tower accessory, pole, towers, masts,…**.**

* **Microwave Rollout & Implementation**

Scope of work, site survey, Radio LOS visibility, BOQ/POs equipment list needed, on-site equipment delivery, installations indoor/outdoor, commissioning, configurations, upgrade, swap, operations, diagnosis, tests and acceptance.

* **Microwave Configurations, Operations & Maintenance using NMS U2000/ WebLCT**

* Radio system integration.
* Radio properties configurations (type, ID, extended ID, Name, Gateway,...).
* NE/Radio time synchronization.
* Configurations of boards and interfaces (**PDH, SDH,** **Ethernet, Control & Switching Hybrid, IF Digital interface (PDH/SDH), IF Microwave interface (QinQ VLANs/ Eth), IF/RF interface, RF)**.
* Port encapsulation type (QinQ/ 802.1Q/ Null).
* IF interface configuration (Hybrid (native E1+Eth), channel bandwidth, modulations, adaptative modulation AM, guaranteed E1 capacity, full capacity, ATPC,…).
* RF/ODU interface configurations (Frequencies, Tx, T/R spacing, Rx, sub-band, Pe, Pr, RTPC range, unmute/ mute,…).
* Microwave link configuration (local and remote sites).
* NE communications parameters (NE IP address, Subnet Mask IP address, Gateway IP address, Gateway port).
* Services configuration = Source Node / Sink Node = (PDH/ SDH/ FE/ GE/ ATM/ MPLS/ IP)
* PDH/SDH service management (**PDH** (IMA E1/VC12, VC2, VC3), **SDH** (VC4))\_SDH digital interface.
* QinQ link ID (creation of VLANs)\_MW interface.
* Ethernet service management (E-line services\_Ports/ VLANs).

* Test of interfaces (PDH/SDH, Ethernet, IF/RF, auxiliary interface/ orderwire/ alarm/ synchronous & asynchronous data, clock interface, NM port,…).
* Test of capacity (SDH, Data rate, E1 guaranteed capacity, link capacity,…).
* IP Ping test.
* Test of (N+1) protection, switching and rerouting (WTR Time).
* Diagnosis and maintenance:
	+ ODU frequency scan.
	+ Service performance test.
	+ Microwave link loopback.
	+ NE loopback.
	+ ATPC test.
	+ XPIC test.
* **Optical transport systems DWDM/ OTN**
* **Ethernet switches**
* **Routers & clouds**
* **IP**
* **MPLS**
* **VPN/ VLAN/ VPLS**
* **GPON**
* **Optical Fibers.**
* **Access Networks WLL/ WiMAX/ WiFi**
* **Fixed networks (Core/ MSAN/ PABX/ DSL)**
* **Mobile networks 2G/ 3G/ 4G-LTE/ 5G (Core MSC/ RNC/ NodeB/ BSC/ BTS/ MS)**
* **Networks protection EPS/ MSP (Linear/ SPRing)/ SNCP**
* **Networks synchronization SDH/ SONET**
* **OSS & tools**
* **Network Management System NMS U2000**
* **Project Management**

Certified TSPM Project Management from TenStep Project Management Institute/ PMI 

 End-to-End Project management:

* Engineering and planning of Scope of Work.
* Planning of project activities and communications plans.
* Coordination meetings with different stakeholders.
* Scheduling site visits, survey and installations reports.
* Bill of quantity BOQ and purchase orders POs.
* Transverse coordination to support teams and subcontractors to achieve customer requirements and respect deadlines.
* On-site equipment delivery, installations indoor/outdoor, commissioning configurations, tests and acceptance.
* Quality change management.
* Follow-up of technical and financial progress.
* Database update and reporting.
* Attachments and invoices.
* Provisional and definitive acceptance reports
* Getting all project certificates.
* Project closing.

**Professional Experience**

* **Since 2016: Transmission & Microwave Project Manager**

End-to-End project technical support and management of microwave transmission networks (IP Microwave Radio\_E1+Ethernet\_PDH/ SDH/ FE/ GE/ ATM\_IP/ MPLS), engineering, planning, deployment and O&M, such as scope of work, site survey, radio LOS visibility, link profile & budget, BOQ/POs equipment needed, on-site equipment delivery, installations, commissioning, configurations, upgrade, swap, optimization, operations, tests and acceptance, to provide the transmission support for backhaul fixed and mobile networks (Core/ Access node/ MSAN/ PABX/ RNC/ NodeB/ BSC/ BTS/ B2B/…), follow-up of technical and financial progress, invoices payment, certificates and project closing.

* **Experience with: Huawei Microwave Radio RTN 950/980.**
* **2014 - 2015: Transmission & Microwave Technical Support**

Technical support for microwave transmission projects (IP Microwave Radio\_E1+Ethernet\_PDH/ SDH/ FE/ GE/ ATM\_IP/ MPLS), engineering, planning, deployment and O&M, scope of work, site survey, radio LOS visibility, link profile & budget, BOQ/POs equipment needed, on-site equipment delivery, installations, commissioning, configurations, upgrade, swap, optimization, operations, tests and acceptance, to provide the transmission support for backhaul fixed and mobile networks (Core/ Access node/ MSAN/ PABX/ RNC/ NodeB/ BSC/ BTS/ B2B/…).

* **Experience with: Huawei Microwave Radio RTN 950.**

* **2012 – 2013: Transmission & Microwave Operations & Maintenance using NMS U2000/**

 **WebLCT**

Performs operations and maintenance such as configurations, monitoring, tests, verifications, diagnosis and optimization of microwave radio transmission networks to ensure and maintain networks performance and reliability.

* **Experience with: Huawei Microwave Radio RTN 950.**
* **2010 – 2011: Transmission & Microwave Engineering, Design & Planning using IQ-Link**

Engineering, design and planning of microwave radio transmission networks using radio planning tool **IQ-Link**, performs site survey, radio LOS visibility, geographic coordinates, microwave propagations solutions, link design, path profile, link budget and BOQ/POs.

* **2008 – 2009: Transmission Microwave & Optical Project Manager**

End-to-End project management of microwave and optical transmission networks (E1+Ethernet\_PDH/ SDH/ FE/ GE/ ATM\_IP/ MPLS), engineering, planning, deployment and O&M, scope of work, site survey, radio LOS visibility, link profile & budget, BOQ/POs equipment needed, on-site equipment delivery, installations, commissioning, configurations, upgrade, swap, optimization, operations, tests and acceptance, to provide the transmission support for backhaul fixed and mobile networks (Core/ Access node/ MSAN/ PABX/ RNC/ NodeB/ BSC/ BTS/ B2B/…), follow-up of technical and financial progress, invoices payment, certificates and project closing.

* **Experience with: Ericsson DWDM/OMS and Microwave Radio Marconi LH & SH.**
* **2004 – 2007: Transmission Microwave & Wireless Supervisor**

Supervisor for rollout and implementation of microwave transmission and WLL networks, such as scope of work, site survey, radio LOS visibility, survey and installations reports, BOQ/POs, on-site equipment delivery, installations, commissioning, configurations, upgrade, swap, operations, tests and acceptance, to ensure the WLL rural coverage.

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| * **Experience with:**
 | * **NEC Microwave Radio Pasolink & 3000s.**
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|  | * **TAWA WLL Systems.**
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* **August 2000 – 2003: Optical Fiber Supervisor**

Supervisor for OutSide Plant OSP of optical fiber cables, such as civil engineering work, installations of pipes, pulling, joining, welding, connectors and connection to ODF.

**Education**

* **Year 2000**

Bachelor’s degree, Telecommunications.

 High Institute of Telecommunications – Tunisia.

* **Year 2015**

TSPM: TenStep Project Management Professional Certification.

Project Management Institute TenStep/ PMI – Tunisia.

**Languages**

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| * **English**
 | Fluent |
| * **French**
 | Fluent |
| * **Spanish**
 | Fluent  |
| * **Arabic**
 | Fluent |

**Various**

* **Traveling**.
* **Sport**.
* **Driver license**.