CellGain Services

Consulting • Design & Engineering • Implementation & Acceptance Training & Operations • Program Management

Complicated agency codes, complex multi-band solutions, and the risks of delay and interruption from multi-party coordinations are just some of the common challenges faced in the implementation of in-building wireless communications.

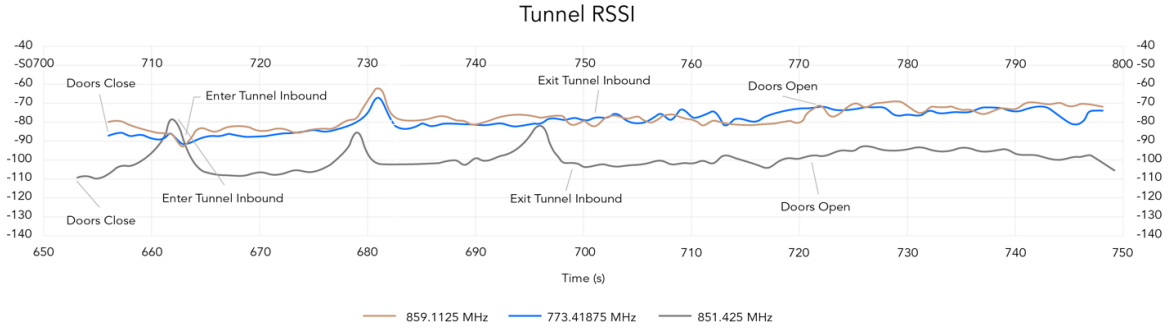
A trusted expert in turnkey in-building wireless communications solutions specializing in public safety for large venues, CellGain brings seamless wireless coverage for critical public and commercial buildings, such as public transit systems, airports, tunnels, office buildings, university campuses, malls, and more.

From design and engineering to testing and commissioning, CellGain offers any and all phases of integration services to bring the best-fit solutions unique to each customer's environment. Leveraging its own experience, innovative products, tools, and processes, CellGain delivers turnkey solutions, complete with approvals from all required agencies, with simplicity, speed and confidence.

CONSULTING

- Site Survey
- Topology Review
- Public Safety Agency Requirements
- Solution Requirements

CellGain provides consulting services to assess customer requirements for the best-fit wireless communications solutions. Depending on client needs, the services can include gap analysis on current operations (e.g., RSSI for Received Signal Strength Indicator), topology review of covered infrastructure, assessment of requirements across involved public safety agencies, assessment of current planned design and equipment lists, and more.



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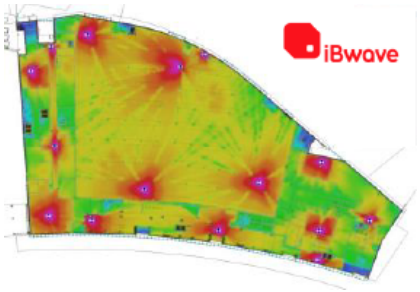
DESIGN & ENGINEERING

- Coverage / iBWave Analysis
- Vendor Agnostic Product
- Selection & Integration
- Link Budget Analysis
- Design Drawings & Parts List
- Solution Approval

CellGain designs and engineers the best-fit solutions based on client and public safety agencies requirements with the right products available. The solutions are optimized with high resiliency via redundancy and verified such as with iBWave and Link Budget analyses. Detailed design drawings, including building details for interoperability with other contracts, are provided with the parts list.



Link Budget Report

Project Name:		Design Company:	GellGain Wireless
Project Creation Date:		Designer:	

Antenna ID	Operator	System ID	Summary			
			Sys Out Per Total	Total DAS Gain/Loss	Antenna Gain	Antenna ERP Pwr per Ln
			[dBm]	[dB]	[dBd]	[dBm]
HH1DL-FTA201		BDD MHz - 5A1R - Analog - Sector 1	-3.89	-0.50	4.39	0.00
HH1DL-FTA202		BDD MHz - 5A1R - Analog - Sector 1	-3.89	-0.50	4.39	0.00
HH1DL-FTA203		BDD MHz - 5A1R - Analog - Sector 1	-3.89	-0.50	4.39	0.00
HH1DL-FTA204		BDD MHz - 5A1R - Analog - Sector 1	-3.89	-0.50	4.39	0.00
HH1DL-FTA205		BDD MHz - 5A1R - Analog - Sector 1	-3.89	-0.50	4.39	0.00

IMPLEMENTATION & ACCEPTANCE

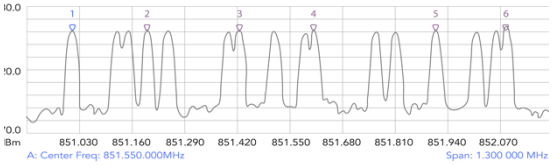
- Solution Staging and Testing
- Field Installation
- Performance Testing
- Site Acceptance Testing
- Stakeholder Signoff and Documentation

CellGain delivers integrated solutions onsite with validation through field testing and user acceptance testing.

Leveraging CellGain's innovative tools and processes developed from decades of expertise and experience, CellGain accelerates project delivery while minimizing unforeseen pitfalls. CellGain manages across agencies and obtains all necessary approvals from multiple stakeholders, simplifying this complex task.

Spectrum Analyzer Data

Captured (2/26/2017 4:01:00PM)



N.	Ref	Delta	Ref Freq	Ref Amp	Delta Freq	Delta Amp
1	■		851.013 455 MHz	10.47 dBm		
2	■		851.200 192 MHz	10.31 dBm		
3	■		851.424 727 MHz	10.03 dBm		
4	■		851.613 818 MHz	9.06 dBm		
5	■		851.914 000 MHz	10.46 dBm		
6	■		852.088 909 MHz	10.16 dBm		

Measurement Parameters

		Stop Frequency	852.200 000 MHz
Trace Mode	Normal	Frequency Span	1.300 000 MHz
Preamp	OFF	Reference Level	15.000 dBm
Min Sweep Time	0.001 S	Scale	10.0 dB/dw
Reference Level Offsel	15 dB	Serial Number	1522087
Input Attenuation	35.0 dB	Base Ver.	V5.70
RBW	10.0 kHz	App Ver.	V6.95
VBW	3.0 kHz	Model	S382E
Detection	Peak	Options	21,27,28,31,411,431
Center Frequency	851. 550 000 MHz	Date	2/26/2017 4:01:00 PM
Start Frequency	850. 900 000 MHz	Device Name	

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TRAINING & OPERATIONS

- User & Technician Training
- Network Monitoring and Management
- NOC Integration
- Ongoing Maintenance

CellGain provides training for testing (e.g. OTDR for optical transmission), field integration, maintenance and trouble shooting. Ongoing monitoring and maintenance is also available.

Network management is made simple with CellGain's FTAS Network Management System (NMS), which provides visibility and control across the full network as well as individual components. The FTAS NMS is ready to integrate with Network Operations Center (NOC).

PROGRAM MANAGEMENT

- Single Point of Contact
- Milestone Reporting
- Stakeholder Approval
- Contractor & Vendor Management
- End to End Turnkey Delivery

CellGain simplifies the delivery of turnkey solutions and any phases of the integration services through end to end program management with a single point of contact. CellGain manages all stakeholders as well as vendors and contracts to streamline coordination, reduce risks and errors, and accelerate time to operations. With a proven track record of on time, on budget delivery, CellGain is a trusted partner to provide wireless coverage to critical public infrastructures.

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