Case Study

Effective Communications for First Responders in 3WTC

Deploying ERRCS in 3WTC

HiRiseTech client was contracted by the NYNJPA to develop an Emergency Responder Radio Coverage System (ERRCS) for Building 3 of the World Trade Center. The major technical challenge was to provide effective emergency communications in 97% of the building for nine independent services including FDNY, NYPD, NYNJPA, FBI.
The purpose of the System is to transmit and receive wireless communication between BTS and Mobile handsets via a high power amplifier.

The Customer

HiRiseTech has developed a patented ERRCS which is a cost-effective and simply-arrayed solution for Emergency Communications in High-Rise Buildings. The system fully meets regulatory requirements of the NYC Building Department and FDNY.

The Need

HiRise Tech required a sophisticated RF Combining system that would ensure that an RF signal transmitted from the base station is successfully communicated through an RF cable to the DAS equipment and then amplified so that it can be transmitted to shadow areas via an optical cable. Weak signals, originating from any point in the building, must be sufficiently amplified by the DAS equipment so they can be transmitted to the base station through the optical cable. This ensures continuous communications under any conditions.

BEACOMM Benefits

- One-shop provider
- Exceedingly fast turnaround
- Comprehensive understanding of customer's requirements
- In-depth resources to handle projects of equal complexity
- Competitive pricing

The BEACOMM Solution »

The BEACOMM Solution

HiRiseTech selected BEACOMM to provide the RF Combining system because we were able to meet their strict deadlines and complex technical requirements.
The major technical problem was to ensure that 11 different frequencies, for each UL and DL, all function in harmony. The solution included:

- A multi-carrier, multi-band Power Amplifier for uplink and downlink, which covered all required frequencies, UHF/VHF and 800Mhz on one cable.
- The PA design included high IMD and linearity to handle multi-tones. The IP3 requirements for DL brought us to the obvious selection of an LPA (Linear Power Amplifier) using feed-forward technology. We succeeded in reaching IP3 63 ~ 67dBm.
- With ALC level control, various levels can be set for each HPA or LNA. The ALC has On or Off control and HPA or LNA gain control is provided.
- HPA protection load VSWR protection is provided for over power and high temperature.
- The system includes an automatic reset algorithm.
- The requirement for rejection of 25KHz from the pass band edge was implemented using a digital filter.

Why HiRiseTech Selected BEACOMM

A HiRiseTech's employee, previously employed by BEACOMM recommended contacting the company for a proposal. HiRiseTech asked BEACOMM for a technical and price proposal within a 2-week timeframe – something which is normally considered simply impossible.
BEACOMM took the challenge and within the required timeframe submitted a full proposal fully meeting HiRiseTech's requirements. After one technical meeting at BEACOMM's facility Itsick BenTolila, HiRiseTech's CEO and Founder, already knew he would award the contract to BEACOMM. Mr. BenTolila stated: "With the other leading contender it took us about 15 calls and meetings to reach the same technical understanding and confidence that I reached with BEACOMM after the first meeting." "Since I had never worked with BEACOMM, I needed to be very sure where I was going. The RF community is small, so I made a few phone calls to people I trust and asked about their experience with BEACOMM. The feedback I received was all positive".
BenTolila continues:
"BEACOMM's wasn't the cheapest, but still very competitive, and I decided to give them the green light."

The Outcome

BEACOMM provided a 40 page Acceptance Test report that verified the effective transmission of all frequencies both independently and together – seamlessly with no interference. Mr. Itsick BenTolila of HiRiseTech summarized: "I appreciated the fact that BEACOMM was willing to take the full responsibility for this project. BEACOMM engineering team knows how to solve complex RF problems and I will definitely work with BEACOMM in future projects."

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ABOUT BEACOM

BEACOMM provides dedicated solutions in the realm of High Power Amplifiers to the defense, public safety, aerospace, scientific and telecommunications communities. Enbedded BEACOMM Power Amplifiers are combat-proven – operating in the most volatile conflict zones of the twenty-first century. Thus, by definition, they have been designed, developed and manufactured to address the most demanding RF challenges in regard to packaging, size, weight, power and efficiency. They are absolutely reliable.
BEACOMM provides the broadest coverage along with cost-effective concept-to-product customization capabilities to rapidly meet our customers' concerns. BEACOMM delivers wide band or band-specific HPA, implementing multi-carrier technology (LPA) supplying the broadest range of end products – from standalone HPA components to entire RF combining systems.