



Raymond Powers, Director of Sales and Marketing, W.B. Walton Enterprises

Remaining at the top

W.B. Walton Enterprises is a landmark designer and manufacturer of equipment that protects satellite antennas from the environment, across thermal extremes as well as high winds and dust levels, allowing installations to perform at high efficiency in some of the most inhospitable environments on the planet. Raymond Powers, Director of Sales and Marketing, explains how the company has maintained a gleaming 40-year history of success in the market, and how they plan to remain on top.

Laurence Russell, News and Social Editor, Satellite Evolution Group

Question: Walton De-Ice is in its 40th year of antenna de-icing. What are some of the company's proudest moments over the last four decades?

Ray Powers: Well, that's a lot of achievements to summarise. Going back to the beginning, Bill Walton, our Founder and President, was an electrical contractor in the 1970s in southern California where he worked with satellite communications. He gained a contract there installing antennas for the then fledgeling satcom industry.

During his career, Bill became friends with a gentleman also working in antenna installation who was working in the San Francisco bay area. That gentleman happened to mention that 'if

someone could figure out how to keep the ice off of these things, they'd make a million dollars.'

When Bill flew home back to California, he found himself drawing out an idea on a cocktail napkin. The design for a prototype which would go on to remain the company's primary, legacy product to this very day, the Hot Air De-ice system. At the time it was something no one had really addressed, though it was a pretty common problem.

The device encloses the back of the structure of the antenna, reflector and hub assembly and uses a heating system, whether it's electric or gas, which maintains an optimal temperature, keeping the reflector dry during inclement weather.

Antennas have started to downsize more recently as VSATs have become more popular, which our conventional solution couldn't address, though the

problem of ice and the threat of adverse weather is just as serious. So we developed something bespoke to address the problem.

We were approached by W. L. GORE who proposed a partnership to work on a comprehensive cover because accessing the back of the structure as we did with larger models wasn't possible. To develop a solution, we needed to develop a fabric which was virtually RF invisible as well as UV resistant. We delivered Snow Shield in a PTFE architectural fabric, which was a huge hit on its release 25 years back and has made up a strong pillar of our product portfolio ever since.

When Ka-band began growing in popularity, we found the fabric we were using soon became unavailable, forcing us to find a suitable alternative. Knowing that the materials used by our competition blocked performance in that wavelength, we had to move to a new fabric called Sefar, which is developed in the EU and ticked all our boxes. So once again we were able to remain providing for the cutting edge of antennas.

Jumping right up to present day in the midst of the LEO/MEO boom, of course, many players are looking at constellations, and the need for tracking antennas, which more often than not need to be deployed in areas of extreme conditions. We're talking about some of the coldest and hottest environments on the planet.

So, our next challenge was to provide a solution that worked for virtually everything on the surface of the Earth while allowing the antenna to



Walton De-Ice Snow Shield IceQuake

move: Our answer was the Portable Radome. The Radome has seen a lot of interest from the government and military sectors, although commercial uptake is rising swiftly.

That's essentially the 40-year evolution of Walton in a nutshell, a succession of problems borne out of a fast-moving industry, which we solved one after another.

Question: In the middle of 2019, you celebrated a contract with a leading sports TV provider to integrate your systems including the Snow Shield system, which seems to have been a favourite in the industry. What makes Snow Shield stand out compared to competing systems?

Ray Powers: I would say that the only viable solution for VSAT antennas in any frequency is the Snow Shield. We currently offer three different fabrics for the product depending on the needs and budget of the end-user, however, only one fabric is viable for Ka-band, the Sefar offering.

Competing systems are unable to go in front of the reflector because they interrupt the signal, so their solution is to stay behind the reflector where they use some kind of heat transmission system. The problem there is that the scale and complexity of the platform means their system doesn't offer

complete coverage, only parts of the reflector are affected, so ice can still accumulate in certain areas.

Because metal can expand under certain temperatures, and the movement of the sun hits different parts of the platform throughout the day, having only parts of the machine temperature-controlled can potentially cause more problems than it solves. Hot spots and cold spots across the model can potentially compromise the life of the structure.

Question: You've reported that the Portable Radome has seen the most uptake from military and government segments, but you've found increasing interest in the commercial sector. What do you believe will be some of the most popular commercial businesses making use of satellite communications?

Ray Powers: There are multiple segments in the world of satcom. The first is the end-user, television studios for instance that have mobile applications. Not fixed installations like the kind you can get attached to a van, but pop-up antennas that run transmission even more portably.

We met with a television station out of Mexico City that was sent to Russia to cover the Winter Olympics in 2014. They set up their antennas on a roof

which had the elevation to transmit effectively, but the winds there were so high that even their small antenna was getting buffeted out of position. In the end, they actually had to put two personnel on the job of physically holding the reflector in the right position as they're trying to transmit.

So you've got this smart, agile little broadcast team sent on a trip to cover a huge event, being held back from delivering their footage solely because of the wind. They were prepared for just about everything else.

When they started working with us, they discovered that the Portable Radome would cover their antenna and redirected the winds around the fabric, allowing it to transmit at full efficiency, of course without having to deploy highly trained engineers and broadcasters to stop it from blowing away.

The Radome can offer a consistent resistance of 85mph, which means that even in powerful winds, you can just leave the thing out in the elements, confident that it'll perform.

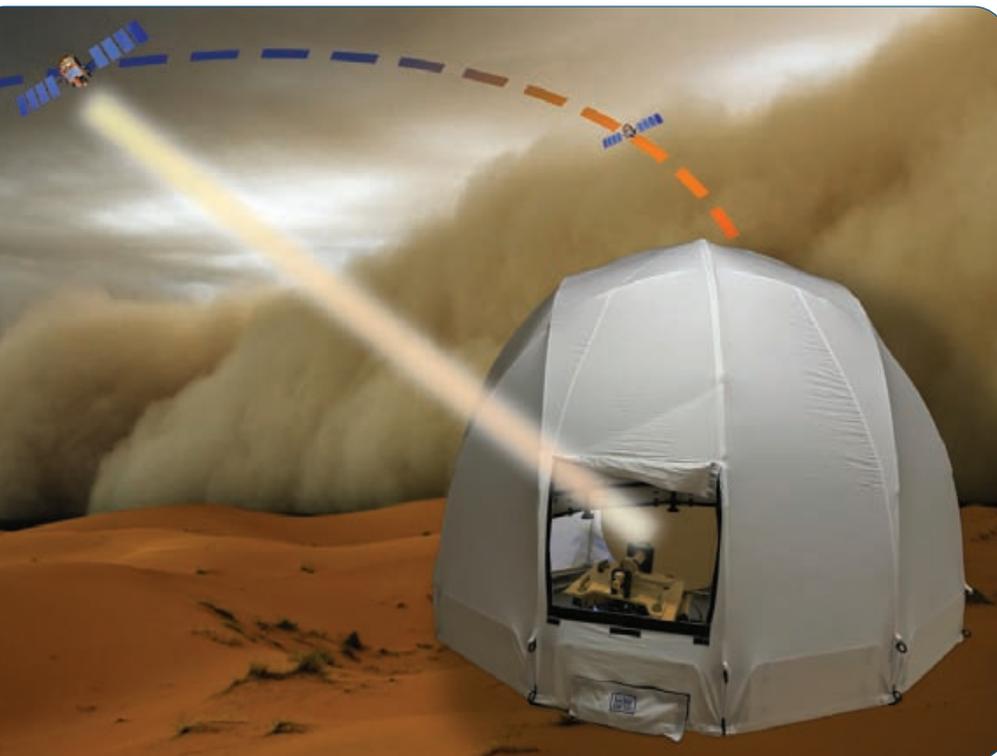
In the government segment, there are a number of emerging applications. Our first customer was in the EU, a military group who needed to deploy in an arid region where they expected high heat, great winds, and a lot of dust. I'd like to share the name of the group, but unfortunately, I'm not at liberty to do that.

Since then, the business has spread to other governments in the EU that required small numbers of reliable units for testing purposes. Of course, in that unique scenario, we couldn't have known their exact requirements, but the Radome delivered everything that those clients needed, nonetheless.

As you might expect, we also work with the US government, who are interested in a great number of our Radome models as fixed solutions, interestingly, not necessarily for protection against the elements, but also to obscure a specific form of antenna.

So, the applications of our clients have a great deal of variety, which speaks to the adaptability of our product portfolio. As new clients enter this market due to dipping operational costs, we look forward to working with them and solving the new challenges they bring.

Question: The Portable Radome is set to serve the LEO/MEO const-



Walton portable radome. Photo courtesy of Walton De-Ice

ellation boom well, with so many tracking antennas required in remote locations. Do you have any comments or predictions for what we'll see from LEO/MEO technologies once the planned satellites and their infrastructure is up and running?

Ray Powers: I can only comment as one with an outsider understanding of satcoms technology, but rather as a partner surrounded by such people. We think the LEO/MEO constellations are going to become something of a necessity in the near future. Perhaps inside of five years?

Effective commercialisation of LEO delivering broadband to all areas across the globe seems to be the primary goal of this technological movement. Bringing a level of connection to people that have never benefitted from it before, and delivering a greater degree of informational awareness, education, and quality of life.

I also believe LEO will affect the financial sector, which will no doubt take advantage of the faster connections constellations offer. We're not far from instantaneous connections, and when you apply that to world markets, combined with automated systems that can think and respond faster than people can, I think you'll see finance really evolve. That, in turn, is likely to fuel the commercialisation of the technology into other areas, driving access elsewhere.

Technological turnover and

generational jumps are faster now than they've ever been before, and as a large, cutting edge industry, satellites are at the forefront of change.

Question: With the growing threat of climate change, conditions in extreme environments are becoming ever more unstable. As a company well placed to provision for those demands, do you have any thoughts about the increasing urgency to future-proof for an uncertain tomorrow?

Ray Powers: Again, I'm afraid my thoughts are outside of the appropriate sphere of knowledge, but I think corporations now are quite green-minded, and certainly looking in positive directions to be more sustainable.

As the climate changes, new markets will develop amid groups serving areas hit the hardest by temperature shift in the proceeding decades.

Temperate areas will become arid, and colder areas will become more liveable. That means countless satcom groups are going to need to sit up and start paying attention to temperature controlling their installations.

No one can predict the future, but we can look at the past, and see how we adapted to scary new circumstances back then and apply that same culture to the challenges we face today. It's taken us some time to understand how to be responsible custodians of the Earth, but I think we have much of the

information we need now, and many industries are well aware of it, they just need to put it all into practice and make it fit with the economy we have.

More widely, the satcom industry is a world where I believe the human benefit uniquely outstrips the environmental cost in terms of power and uptake of land. In that regard, they have a good foundation for carbon neutrality, a more optimistic one than countless more harmful industries, combined with an essential and wonderful human benefit in connectivity.

This is a topic we like to follow quite closely so that we can better adapt with it, which is a perspective Walton possess regarding all evolving trends in this industry. ■



Plenum rear snow device. Photo courtesy of Walton De-Ice

leading in VSAT antenna innovation

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