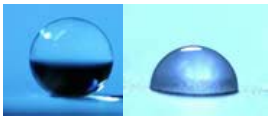
HIREC Case Study: NTT DoCoMo

Preventing Service Outages at Japan's #1 Wireless Carrier

NTT DoCoMo was experiencing outages due to blizzards in the northern part of Japan. HIREC from NTT Advanced Technology eliminated the problem.

NTT DoCoMo, headquartered in Tokyo, is one of the world's leading mobile communications company, located all throughout Japan, with branch offices in Asia, Europe, and North America. With its combination of trusted service and a wide variety of leading-edge mobile multimedia, DoCoMo is aiming to transform the mobile phone into a "Lifestyle Infrastructure." DoCoMo offers its services to more than 52 million customers nationwide and holds more than a half of the market share in Japan's cell phone market.

However, during a recent winter season, DoCoMo's service failed across a wide area in the north of Japan. The cause was snow accumulation on the surface of the company's antennas, leading to a disruption in signal transmission. In response to the snow problem, DoCoMo immediately looked into hydrophobic material for the solution.



HIREC **Standard Hydrophobic**

After extensive research, DoCoMo found HIREC, which had been used on NTT's satellite circuit as well as on existing antennas outside of DoCoMo. HIREC was proven highly effective and desirable in preventing weather related damage on antenna surfaces. HIREC has high water repellency and a self-cleaning mechanism. Unlike waterproofing coating, water droplets do not stick to any surface coated with HIREC, so it can prevent not only snow, but also the build up of water film. A surface coated with HIREC exfoliates and dissolves dirt by a sunlight activated photocatalyst, which then creates a clean new surface. By retaining the clean surface, water repellency remains high. In DoCoMo's case, this capability was especially suitable in the area adjacent to the Sea of Japan, where yellow sand from China gets blown in by wind and sticks to the antennas. DoCoMo went with HIREC only after extensive testing. In a comparison test done by DoCoMo, the other coating considered, Teflon®, lost its water repellency

HIREC effect on rain

With HIREC **Without HIREC**

quicker than HIREC due to dirt accumulation. HIREC works well with signal emission too, because it does not interfere with the signal even at high frequency bands, up to 11 to 22 GHz.

HIREC effect on snow

With HIREC **Without HIREC**

To apply HIREC on new antennas, DoCoMo asked its manufacturer to apply it at the factory prior to delivery. For the recoating of HIREC on existing antennas, engineers at DoCoMo now climb towers and apply it on the surface of the dishes with a customized roller. Alcohol based HIREC is also friendly to the neighbors, when applying, unlike other lacquer based paints that give off a strong smell.

Today, DoCoMo has 268 HIREC coated antennas in the Kanto area out of a total of 500 including local DoCoMo affiliated service in Hokkaido and Tohoku. “After applying HIREC on the antennas, disruption of the line had never been observed. It’s 0%”, according to DoCoMo engineer Mr. Saito. Unlike a few decades ago when cell phone users were limited, the number has increased dramatically. Mr. Saito suggests that in this environment, failure of the cell phone service is unacceptable 24 hours a day, 365 days a year. He believes that if it is possible for any wireless provider to keep service stable even in the event of heavy snow or rainfall by applying HIREC, it will definitely be an advantage over competitors.

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For more information on HIREC

HIREC is distributed in the U.S. by NTT Advanced Technology U.S. Office. Please visit our HIREC website http://www.ntt-at.com/products_e/hirec/index.html or contact us by phone at 1-408-392-4280.

About NTT Advanced Technology (NTT-AT)

NTT Advanced Technology Corporation is the technology commercialization arm of NTT, the largest telecommunications service provider in Japan. Since its founding in 1976, NTT-AT has grown rapidly, largely due to its close links with NTT Laboratories and its success in the technology transfer business. Today, NTT-AT has over 1600 employees with offices worldwide. In the U.S., NTT-AT’s office is in San Jose, California and can be reached at: NTT Advanced Technology Corporation, 1741 Technology Drive, Suite 380, San Jose, CA 95110 , Phone: 408 392 4280 , Fax: 408 573 7721