



Press Release
Taiyo Wire Cloth Co., Ltd
NGK Insulators, Ltd.
Technosolver Corporation
Koyo Materica Corporation
Japan Aerospace Exploration Agency (JAXA)

JAXA, Taiyo Wire, NGK, Technosolver, and Koyo Materica develop a metal mesh for onboard deployable reflectors

Japan Aerospace Exploration Agency (JAXA), Taiyo Wire Cloth Co., Ltd, NGK Insulators, Ltd., Technosolver Corporation, and Koyo Materica Corporation have jointly developed a metal mesh for onboard deployable reflectors that has achieved a dramatic cut in costs.

In order to realize faster communications speeds, next generation communications satellites need to be able to work with high frequency band, which necessitates large deployable reflectors. Conventionally, the metal mesh of the antennas have been made from gold plated Molybdenum wire, which is a mixed metal of precious metal and rare metal and therefore difficult to obtain and very costly. To cut costs, the five organizations have jointly developed a new metal mesh.

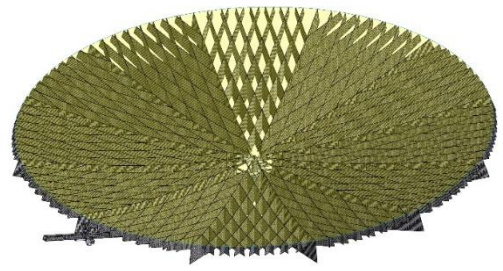
The new metal mesh is made from Zirconium Copper wire and fabricated by tricot weaving. It is light weight, flexible, and has excellent electrical reflection properties at the high frequency band of Ka (30 GHz). Zirconium Copper wire has characteristics similar to Molybdenum wire and is applicable to metal mesh. On top of this, Zirconium Copper wire is strong enough to be fabricated into a metal mesh without gold plating. These two reasons make it possible to dramatically cut cost compared with conventional metal mesh.

The new metal mesh is expected to be applied primarily to next generation communications satellites and SAR (synthetic aperture radar) satellites, both of which use deployable reflectors to improve satellite capabilities.

Taiyo Wire Cloth Co., Ltd, and three other corporations are planning to make the new metal mesh available on the market for commercial satellites.



New metal mesh
(c) Taiyo Wire Cloth



Artist image of deployable reflector using
metal mesh. (c) JAXA

●Links

Taiyo Wire Cloth Co., Ltd <https://www.twc-net.com/>

NGK Insulators, Ltd. <https://www.ngk-insulators.com/en/index.html>

Technosolver Corporation <https://www.techsol.jp/>

Koyo Materica Corporation <http://www.koyom.co.jp>

Japan Aerospace Exploration Agency (JAXA) https://global.jaxa.jp/press/2021/01/20210126-1_e.html