e2ip TECHNOLOGIES

5G SMART SURFACE DATASHEET

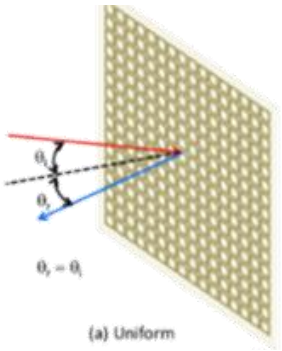
APPLICATION

SIGNAL REFLECTOR / DIFFUSER

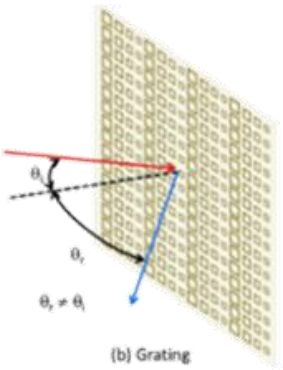
The printed 5G Smart Surface is used to redirect/diffuse the signal to otherwise dead zones that would require the placement of a small cell antenna. It has been successfully demonstrated in both indoor and outdoor applications and can be installed on surfaces such as **billboards**, **windows**, **walls**, **paintings** etc. Since the 5G Smart Surface does not require a power source, it provides a highly cost efficient solution to enhance mm-wave coverage.

PURPOSE

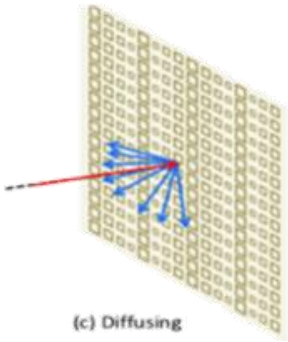
The surface can be designed for different angles of reflection depending on network deployment requirements.



a) Uniform 5G Smart Surface reflects the signal at the same angle as the incident signal



b) Grating 5G Smart Surface reflects the incident signal at a pre-determined angle, different from the incident angle.



c) Diffusing 5G Smart Surface reflects the incident angle in all directions to maximize the coverage area

Figure 1: Possible signal redirections for both single source and multiple source use cases

TECHNICAL DATA

Specifications

Thickness	0.4 mm
Weight	~ 0.6 kg/m^2
Dimensions	Tailored to customer specifications
Colour	Opaque or semi-transparent
Power Source	Not required (passive)
Frequency	28 GHz and 60 GHz
Maximum transmission loss	Less than 7dB
Outdoor Operating Temperature	From -46°C to 63°C

Qualified for outdoor applications as per MIL-STD-810G Military Standard.
Qualified for indoor application at 25°C (Aging test : 85%RH @85°C equivalent to more than 15 years)

TESTS

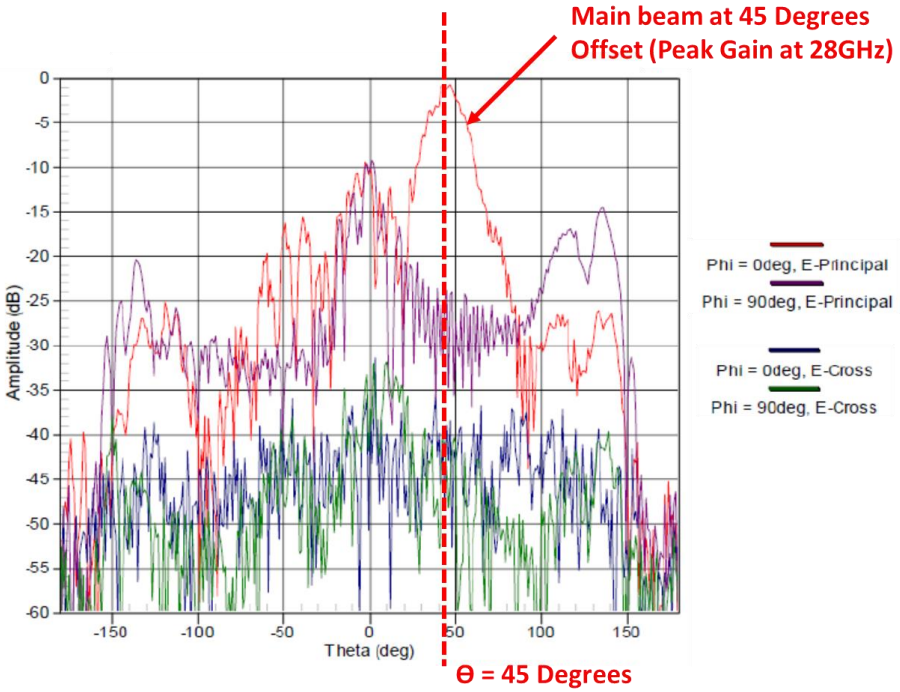


Figure 2: Peak signal strength demonstrated for a 5G Smart Surface designed to reflect a 45° signal source

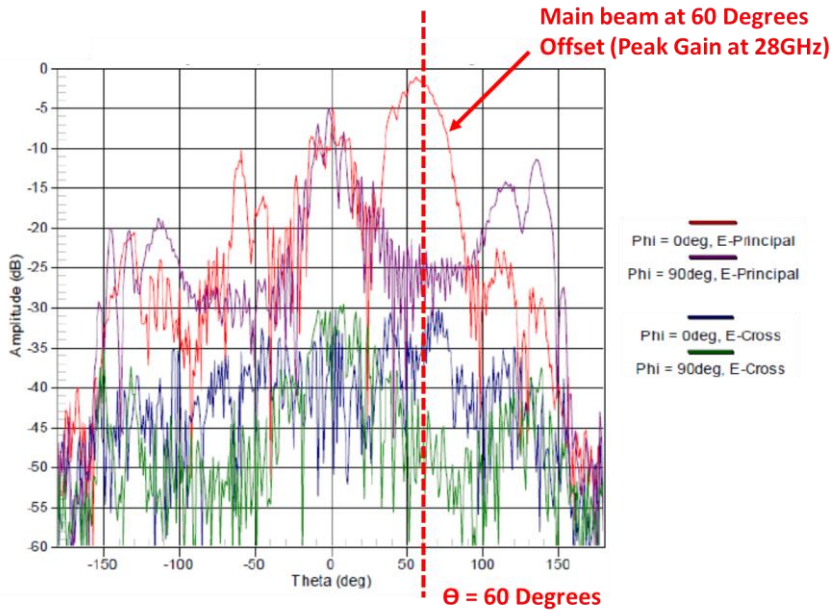


Figure 3: Peak signal strength demonstrated for a 5G Smart Surface designed to reflect a 60° signal source

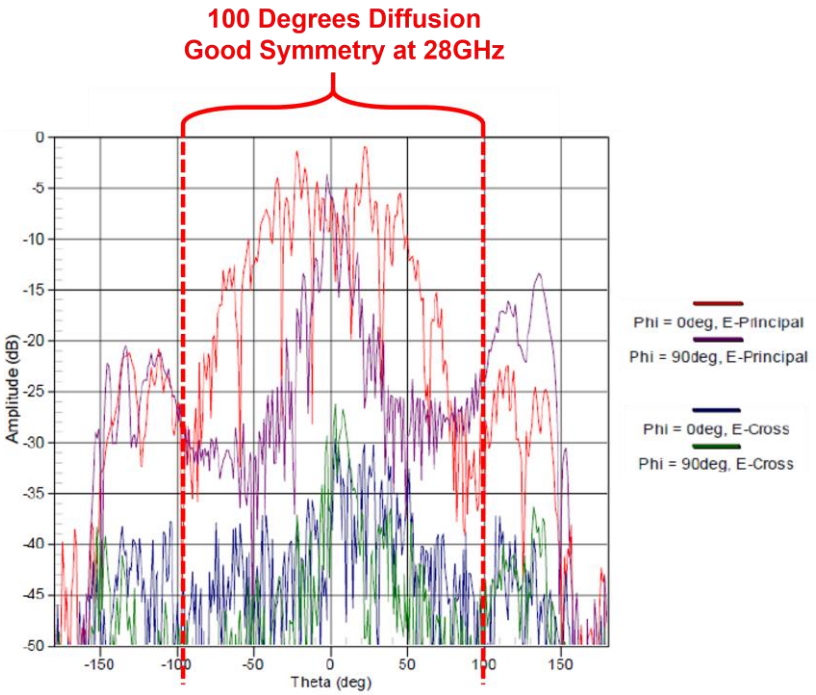


Figure 4: Peak signal strength demonstrated for a 5G Smart Surface designed to reflect a 100° signal source

DEPLOYMENT PROCESS

1. Gather customer requirements
2. 3D modelling of denoted area
3. Simulation to determine performance for required dimension
4. Simulation for optimal placement of surface
5. Surface printed
6. Surface assembled
7. Surface prepared for placement
8. Installation of Surface
9. Validation of surface in denoted area
10. Customer sign-off

For more information, speak with a specialist at e$_2$ip technologies.

We're always looking forward to hearing from you!

info@e2ip.com

1 866-631-6662

750 Marcel-Laurin, Suite 375
St-Laurent, Québec
H4M 2M4
Canada

e2ip.com

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