

# MWC2024報告

東京工業大学・マクセル株式会社

# 概要

- 展示物

- Beyond 5G/6G用  
ミリ波/テラヘルツ波  
パッシブデバイス

- 展示場所

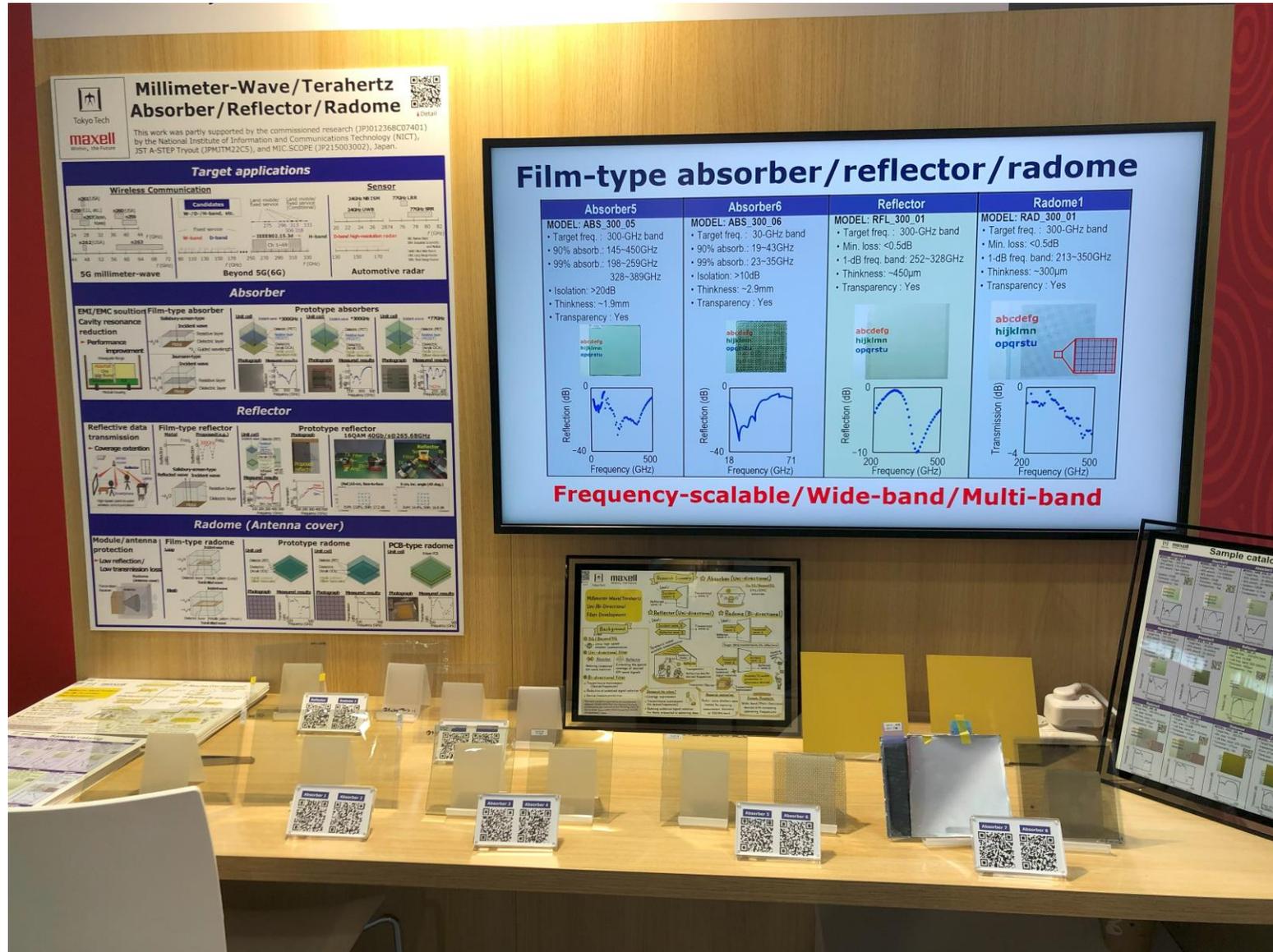
- D-6 (Japan Pavilion)  
Hall6, Fira Gran Via

- 参加者

- 東工大側 4人  
マクセル 1人



# 展示会の様子



# 展示会の様子



# 取材 (6Gworld)

## Japan Comes Strong in 6G with Demos from THz to Taste Sharing

March 15, 2024

Written by Caio Castro

### Tokyo Tech and Maxell

The educational institution and the manufacturer displayed radio-wave absorbers (unidirectional), reflectors (unidirectional), and radomes (bidirectional) developed for 6G.

They all work in the sub-Terahertz range:

- Two absorbers at 300 GHz
- One absorber at 150 GHz
- One reflector at 300 GHz
- Four radomes at 300 GHz.

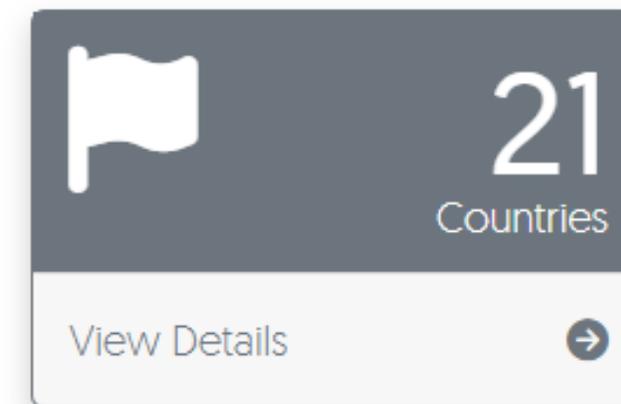
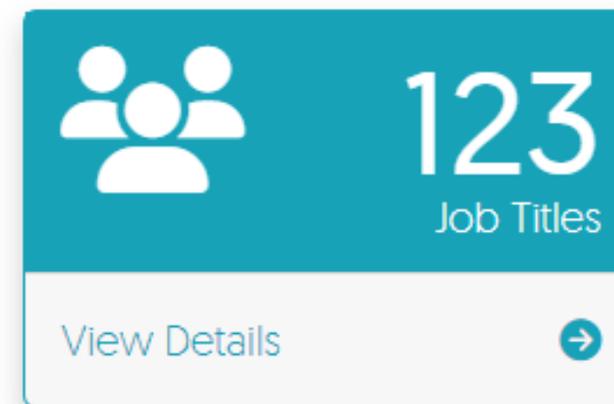
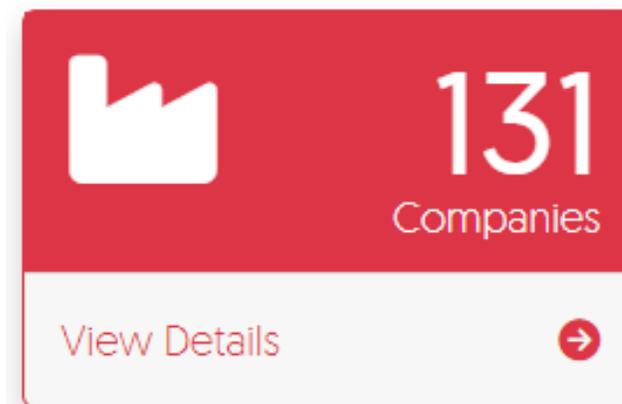
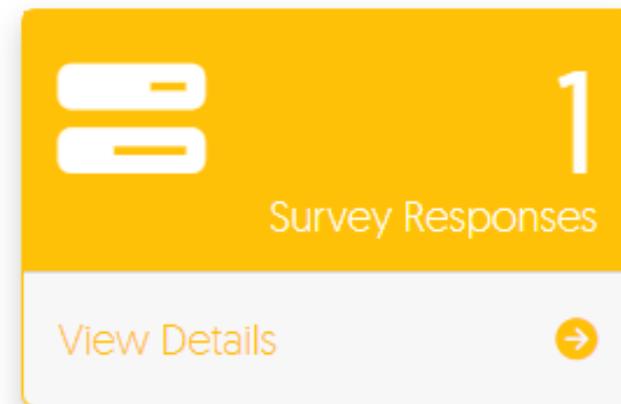
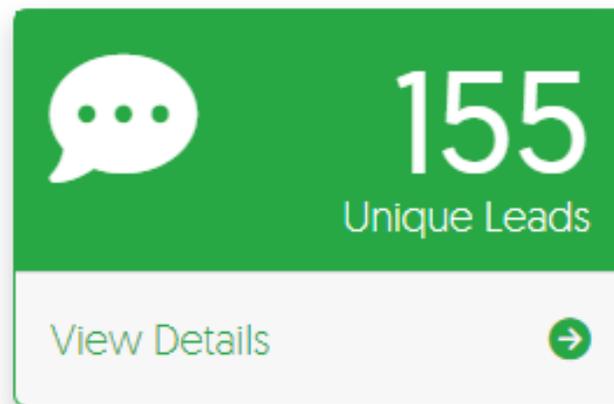
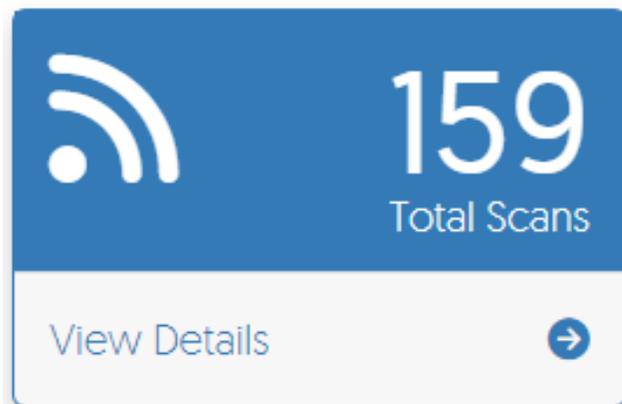
Each product has a different thickness depending on the use case (the absorbers, for instance, vary between 470 micrometres and 2.9 millimetres).



<https://www.6gworld.com/exclusives/japan-comes-strong-in-6g-with-demos-from-thz-to-taste-sharing/>

# 来場者データ

- 合計来場者数(D-6のみ) : 1 8 0 人程度



# 展示物紹介

【ミリ波・テラヘルツ帯パッシブデバイス】

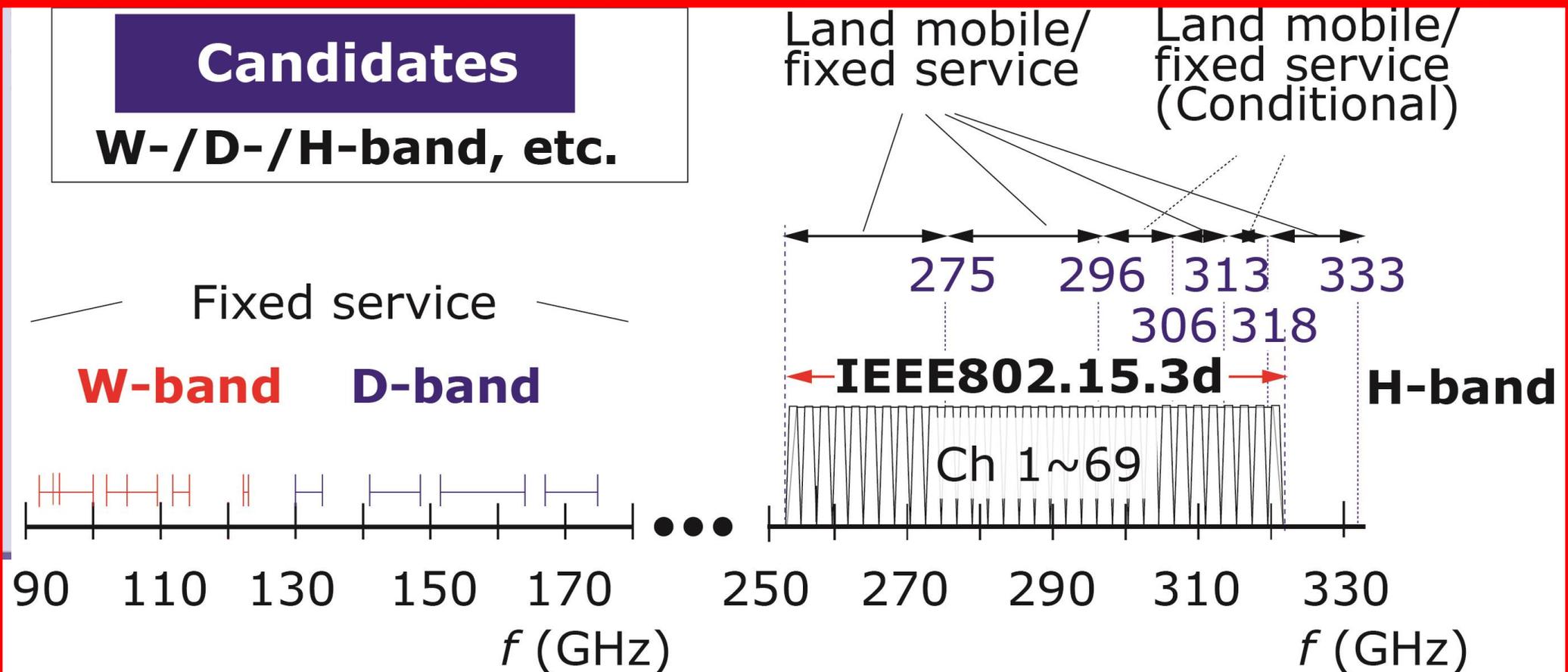
# フィルム型電波吸収体

Absorber1	Absorber2
MODEL: ABS 300 01	MODEL: ABS 150 01
<ul style="list-style-type: none"> <li>● Target freq. : 300-GHz band</li> <li>● 90% absorb.: 114~336GHz</li> <li>● 99% absorb.: 144~183GHz</li> </ul>	<ul style="list-style-type: none"> <li>● Target freq. : 150-GHz band</li> <li>● 90% absorb.: 114~229GHz</li> <li>● 99% absorb.: 175~198GHz</li> </ul>
244~290GHz	● Isolation: >20dB

## 6G (Beyond 5G)

### Candidates

W-/D-/H-band, etc.



# フィルム型電波吸収体

5G mmW

## Absorber3

MODEL: ABS 030 01

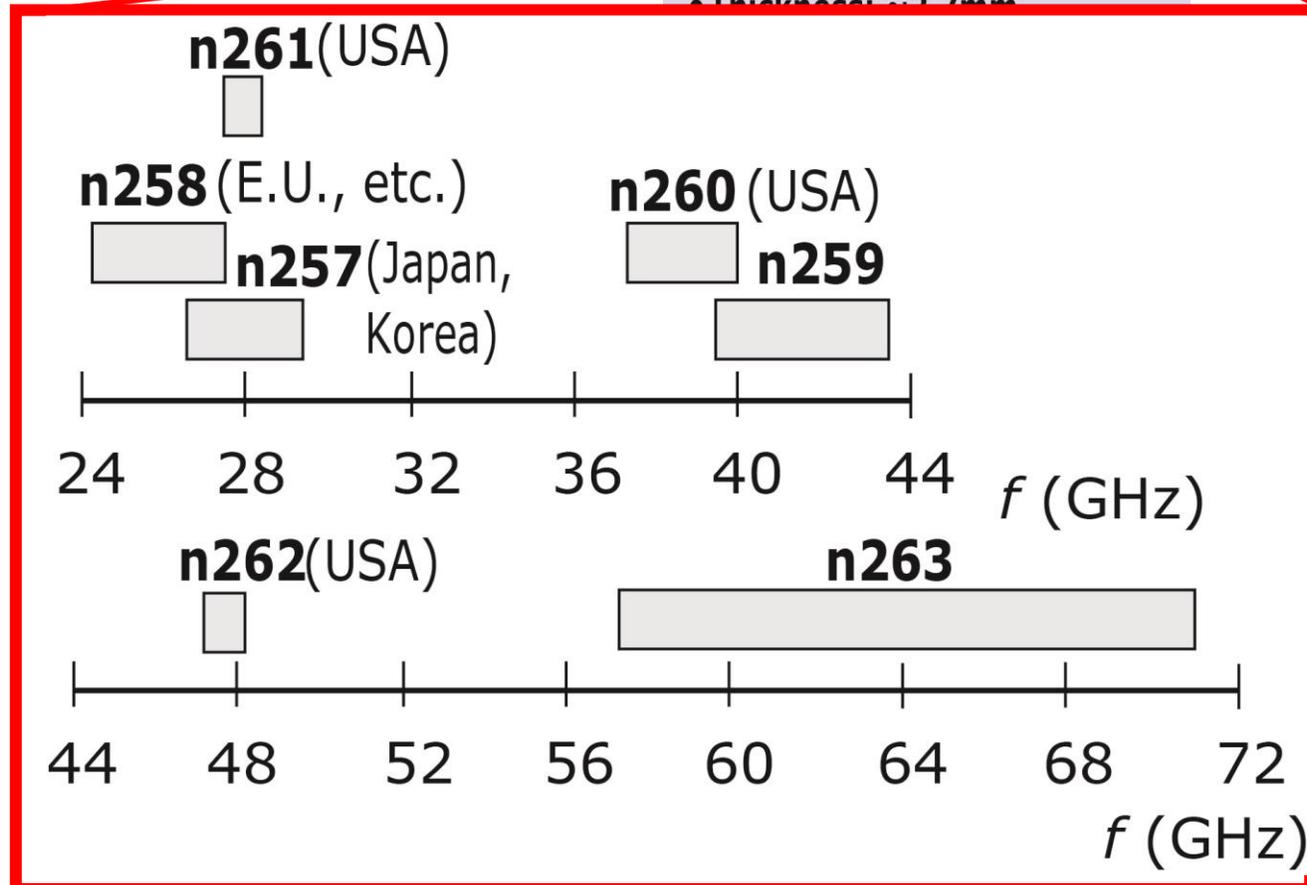
▶ Target freq. : 30-GHz band

▶ 90% absorb.: 18~56GHz

▶ 99% absorb.: 24~49GHz

● Isolation: >20dB

● Thickness: 2.7mm



# フィルム型電波吸収体

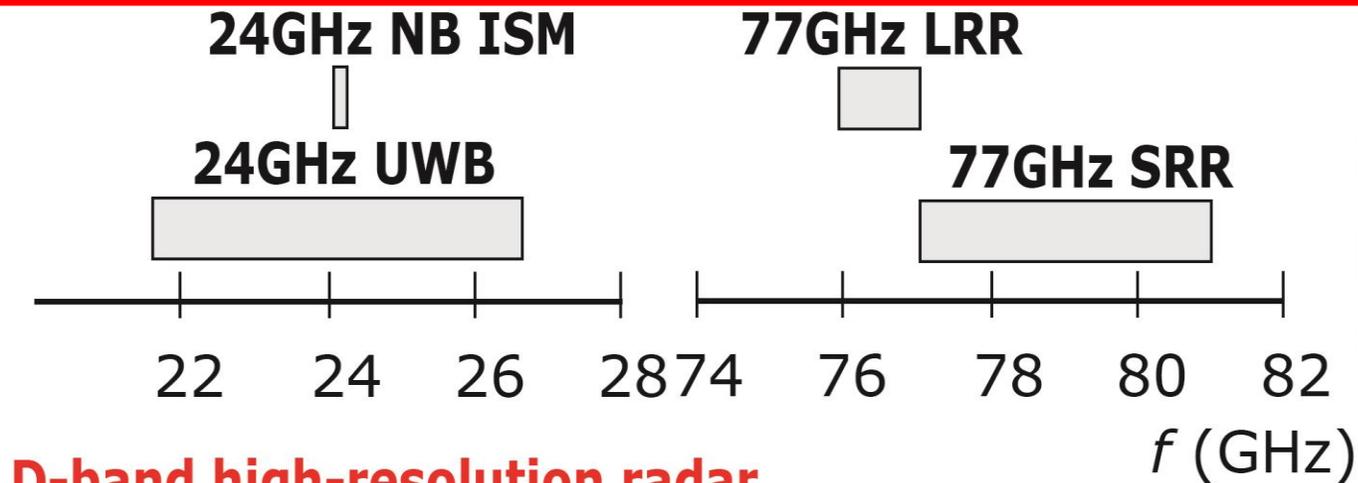
## Automotive radar

### Absorber4

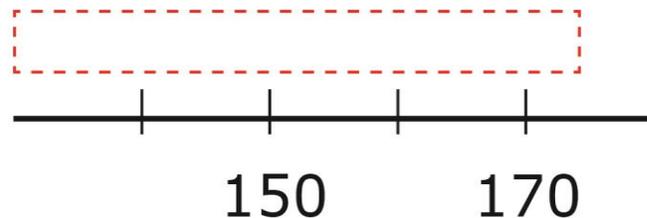
MODEL: ABS 077 01

- Target freq. : 77-GHz band
- 90% absorb.: 39~110GHz
- 99% absorb.: 48 ~108GHz
- Isolation: >20dB
- Thickness: ~1.3mm

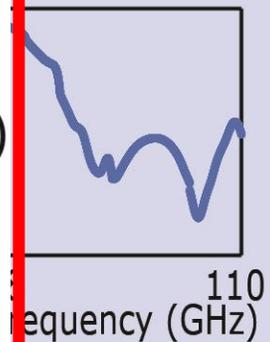
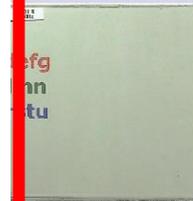
Efficiency : Yes



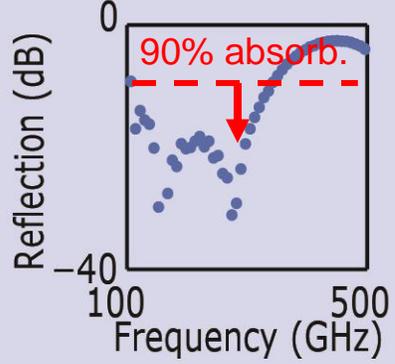
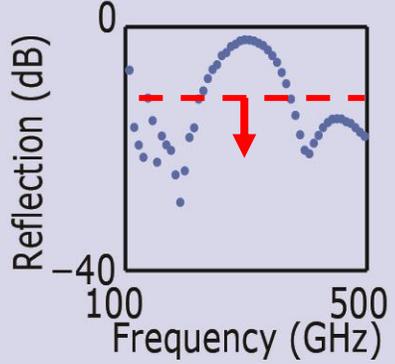
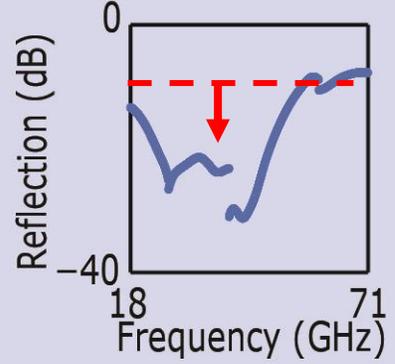
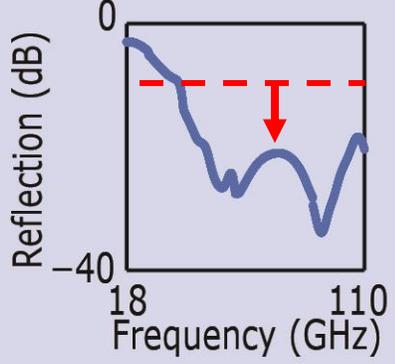
### D-band high-resolution radar



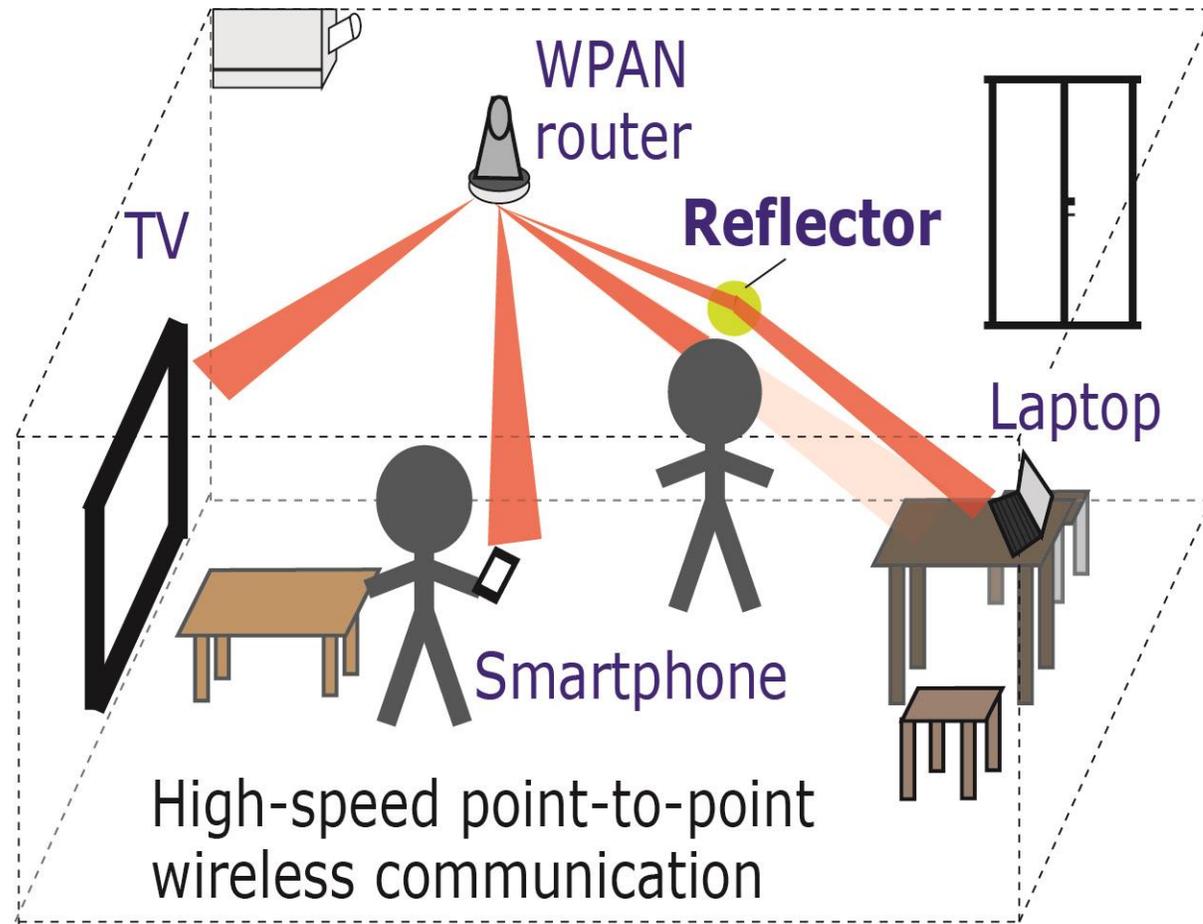
NB: Narrow Band  
ISM: Industrial Scientific  
and Medical  
UWB: Ultra Wide Band  
LRR: Long Range Radar  
SRR: Short Range Radar



# フィルム型電波吸収体

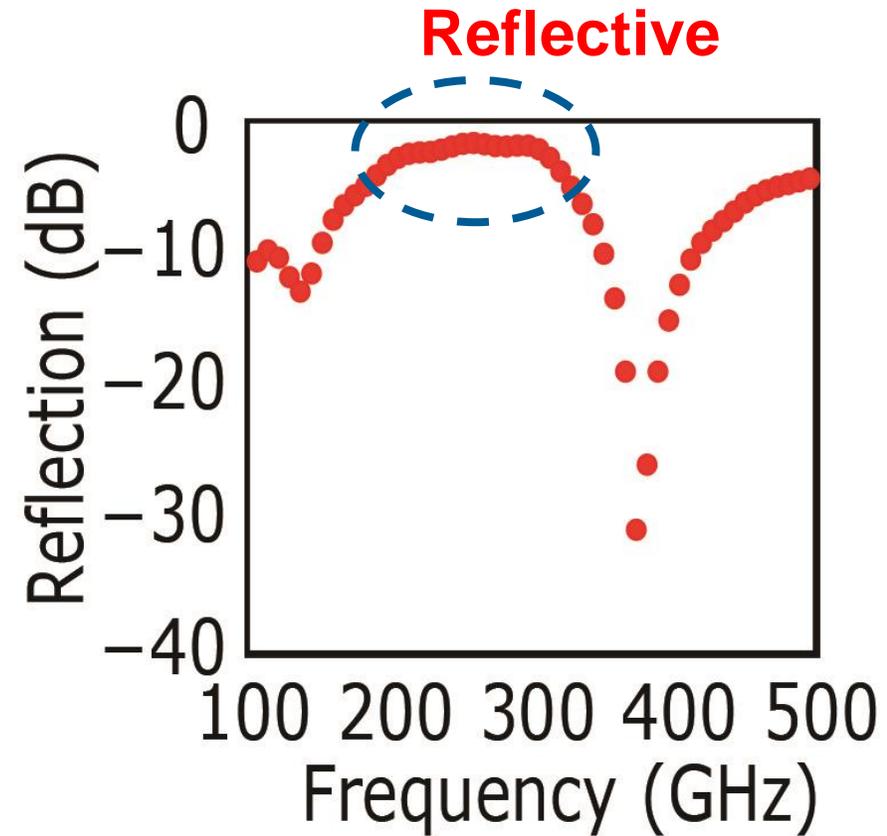
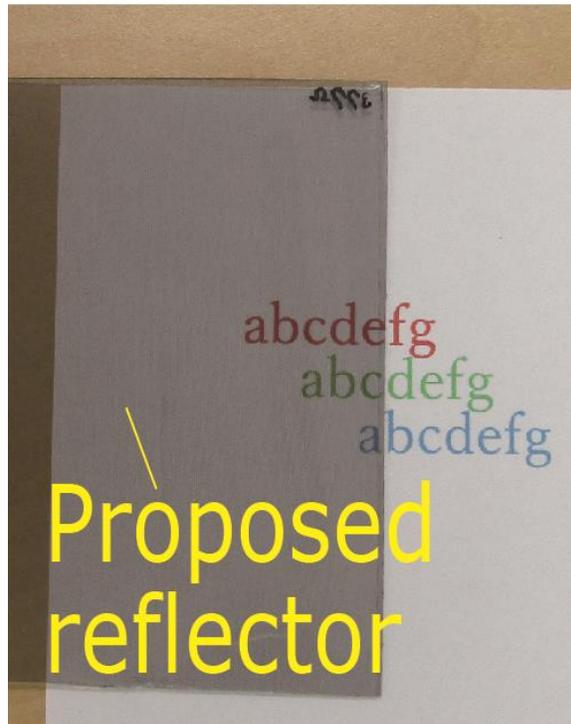
Absorber1	Absorber2	Absorber3	Absorber4
<p>MODEL: ABS_300_01</p> <ul style="list-style-type: none"> <li>● Target freq. : 300-GHz band</li> <li>● 90% absorb.: 114~336GHz</li> <li>● 99% absorb.: 144~183GHz 244~290GHz</li> <li>● Isolation: &gt;20dB</li> <li>● Thickness: ~470<math>\mu</math>m</li> <li>● Transparency : Yes</li> </ul>	<p>MODEL: ABS_150_01</p> <ul style="list-style-type: none"> <li>● Target freq. : 150-GHz band</li> <li>● 90% absorb.: 114~229GHz</li> <li>● 99% absorb.: 175~198GHz</li> <li>● Isolation: &gt;20dB</li> <li>● Thickness: ~690<math>\mu</math>m</li> <li>● Transparency : Yes</li> </ul>	<p>MODEL: ABS_030_01</p> <ul style="list-style-type: none"> <li>● Target freq. : 30-GHz band</li> <li>● 90% absorb.: 18~56GHz</li> <li>● 99% absorb.: 24~49GHz</li> <li>● Isolation: &gt;20dB</li> <li>● Thickness: ~2.7mm</li> <li>● Transparency : Yes</li> </ul>	<p>MODEL: ABS_077_01</p> <ul style="list-style-type: none"> <li>● Target freq. : 77-GHz band</li> <li>● 90% absorb.: 39~110GHz</li> <li>● 99% absorb.: 48 ~108GHz</li> <li>● Isolation: &gt;20dB</li> <li>● Thickness: ~1.3mm</li> <li>● Transparency : Yes</li> </ul>
			
			

# 300GHz帯反射体（透明）



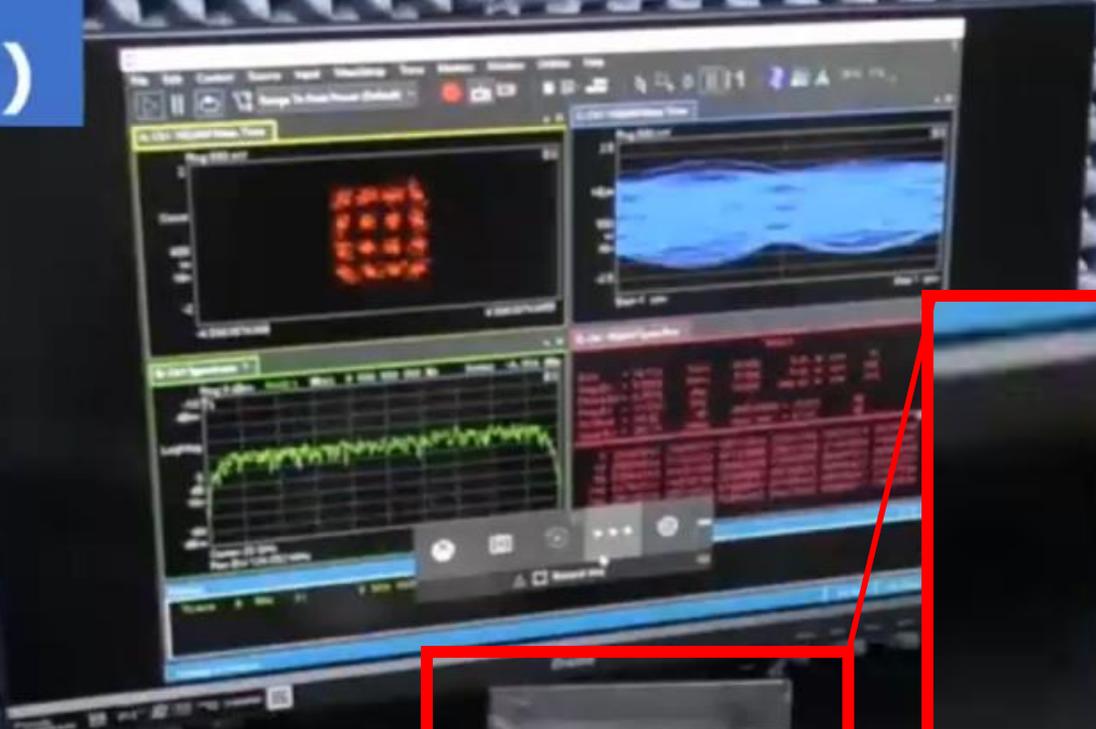
**Coverage extension**

# 300GHz帯反射体 (透明)

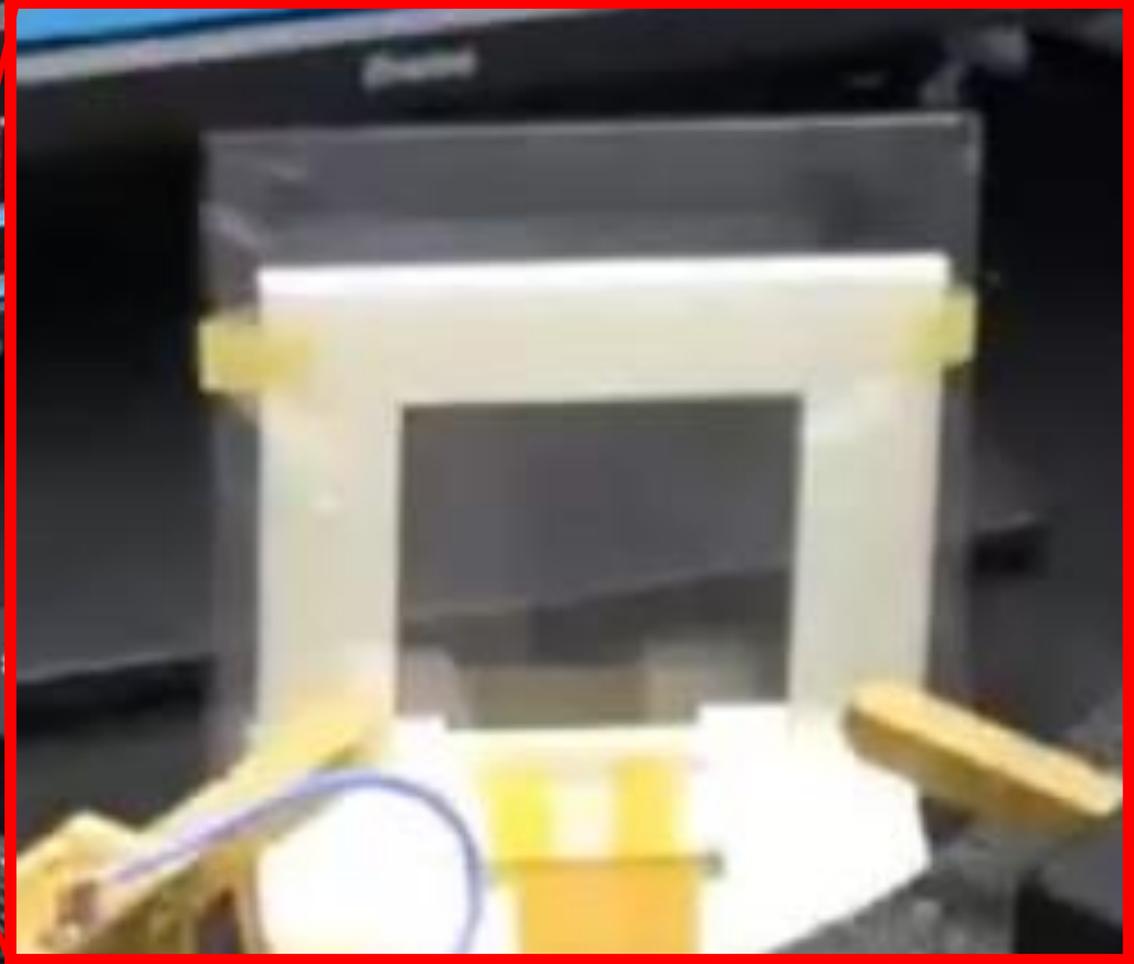
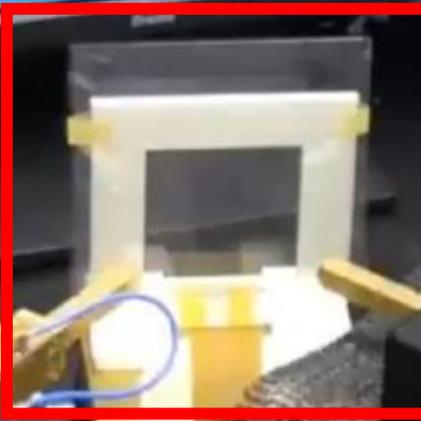


**1-dB bandwidth: 214GHz-305GHz**

**Reflector  
(modified)**

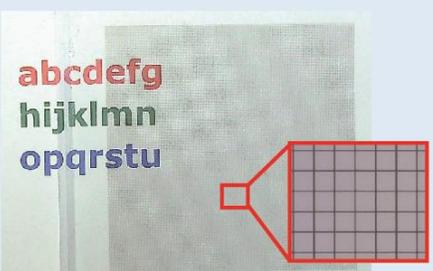
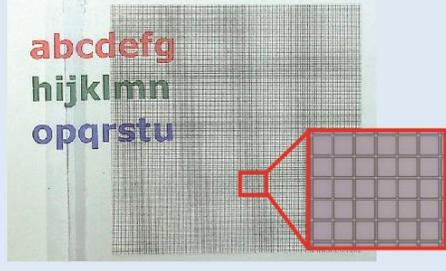
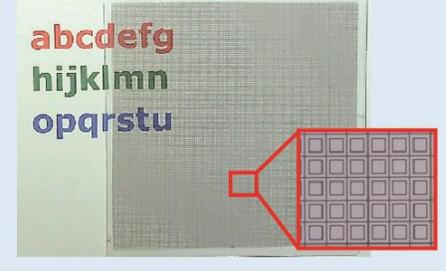
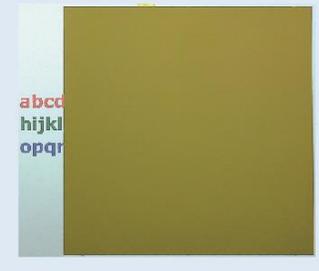
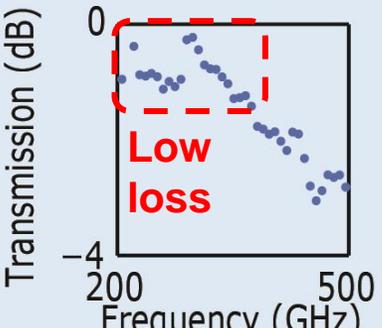
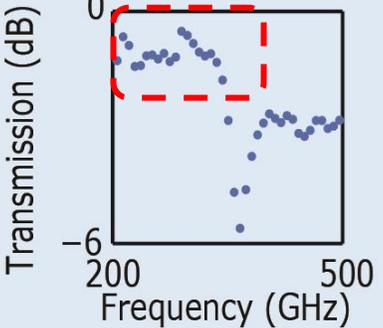
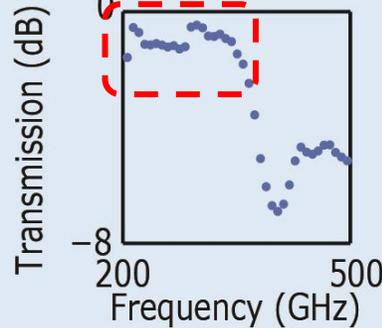
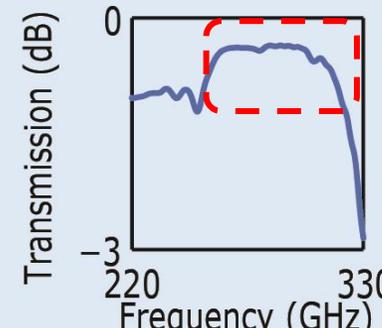
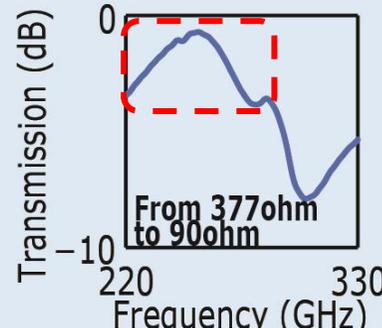


**16QAM 80Gb/s  
@265.68GHz**



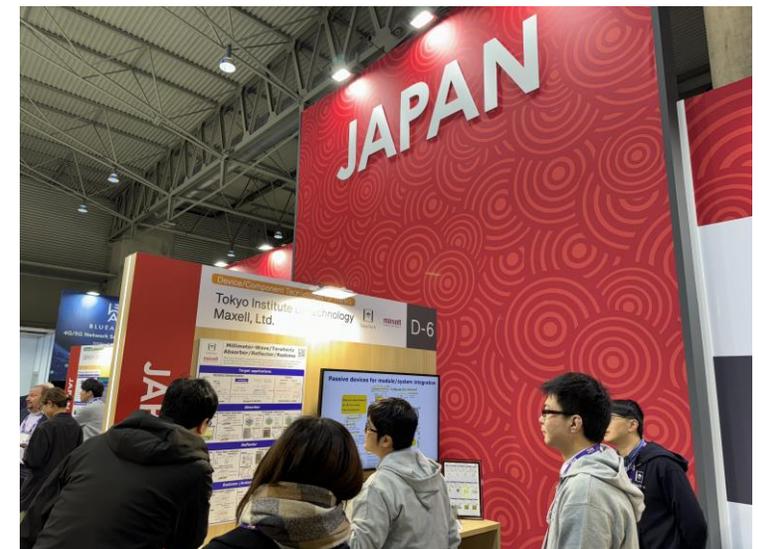
**@NICT, Japan**

# 300GHz帯レドーム (アンテナカバー)

Radome1	Radome2	Radome3	Radome4	Z converter
<p>MODEL: RAD_300_01</p> <ul style="list-style-type: none"> <li>Target freq. : 300-GHz band</li> <li>Min. loss: &lt;0.5dB</li> <li>1-dB freq. band: 213~350GHz</li> <li>Thickness: ~300<math>\mu</math>m</li> <li>Transparency : Yes</li> </ul>	<p>MODEL: RAD_300_02</p> <ul style="list-style-type: none"> <li>Target freq. : 300-GHz band</li> <li>Min. loss: &lt;0.5dB</li> <li>1-dB freq. band: 213~350GHz</li> <li>Thickness: ~300<math>\mu</math>m</li> <li>Transparency : Yes</li> </ul>	<p>MODEL: RAD_300_03</p> <ul style="list-style-type: none"> <li>Target freq. : 300-GHz band</li> <li>Min. loss: &lt;0.5dB</li> <li>1-dB freq. band: 213~343GHz</li> <li>Thickness: ~300<math>\mu</math>m</li> <li>Transparency : Yes</li> </ul>	<p>MODEL: RAD_300_04</p> <ul style="list-style-type: none"> <li>Target freq. : 300-GHz band</li> <li>Min. loss: &lt;0.5dB</li> <li>1-dB freq. band: 220~323GHz</li> <li>Thickness: ~370<math>\mu</math>m</li> <li>Transparency : No</li> </ul>	<p>MODEL: FTR_300_01</p> <ul style="list-style-type: none"> <li>Target freq. : 300-GHz band</li> <li>Impedance converter (From 377ohm to 90ohm)</li> <li>Thickness: ~370<math>\mu</math>m</li> <li>Transparency : No</li> </ul>
				
				

**Low-transmission loss, low reflection**

# ご清聴ありがとうございました



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