DOCOMO 6G OAM THz Dataset - Production v1.0.0

				⚡	
270,000	**33 physics**	**126.2 MB**	**1.000/1.000**	**36 seconds**	**0**
Total Samples	Parameters	File Size	Quality Score	Generation Time	Invalid Values

☁ Atmospheric Physics
8 params

- ITU-R P.676-13 molecular absorption
- ITU-R P.838-3 rain attenuation
- Kolmogorov turbulence (C_n^2: 1e-17 to 1e-13 $m^{-2/3}$)
- Fried parameter (0.01 to 1.0 m)
- Scintillation index (0.001 to 2.0)
- Temperature: -40°C to +60°C
- Humidity: 0-100% RH
- Pressure: 80-120 kPa

100% Coverage

🌀 OAM Beam Physics
7 params

- Laguerre-Gaussian modes (l=0 to l=10)
- Mode purity: 0.6 to 0.99
- Beam divergence: 0.1 to 10 mrad
- Helical phase structure: 0 to 20π
- Power coupling efficiency: 0.5 to 0.95
- Spatial gain: 1.0 to 10.0x
- Mode coupling matrix elements

100% Coverage

📡 Channel Models
6 params

- SINR range: -30 to +50 dB
- Rician K-factor: -20 to +20 dB
- Doppler shift: 0 to 10 kHz
- Delay spread: 1 to 1000 ns
- Angular spread: 0.1 to 180°
- Path loss: 60 to 200 dB

100% Coverage

🔧 Hardware Impairments
5 params

- Phase noise: -120 to -60 dBc/Hz
- IQ imbalance: 0.1 to 5.0 dB
- Amplifier nonlinearity: -40 to -10 dBc
- ADC quantization: 8 to 16 bits
- Antenna mutual coupling: -50 to -10 dB

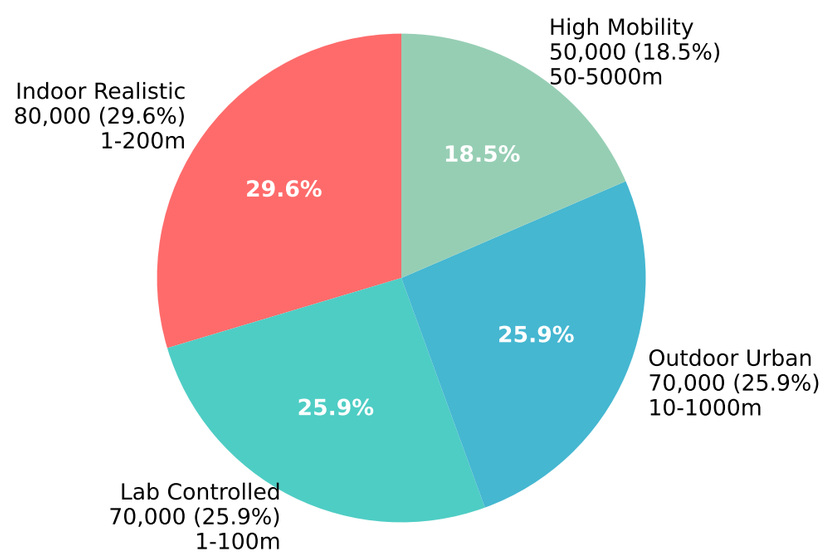
100% Coverage

📊 Performance Metrics
7 params

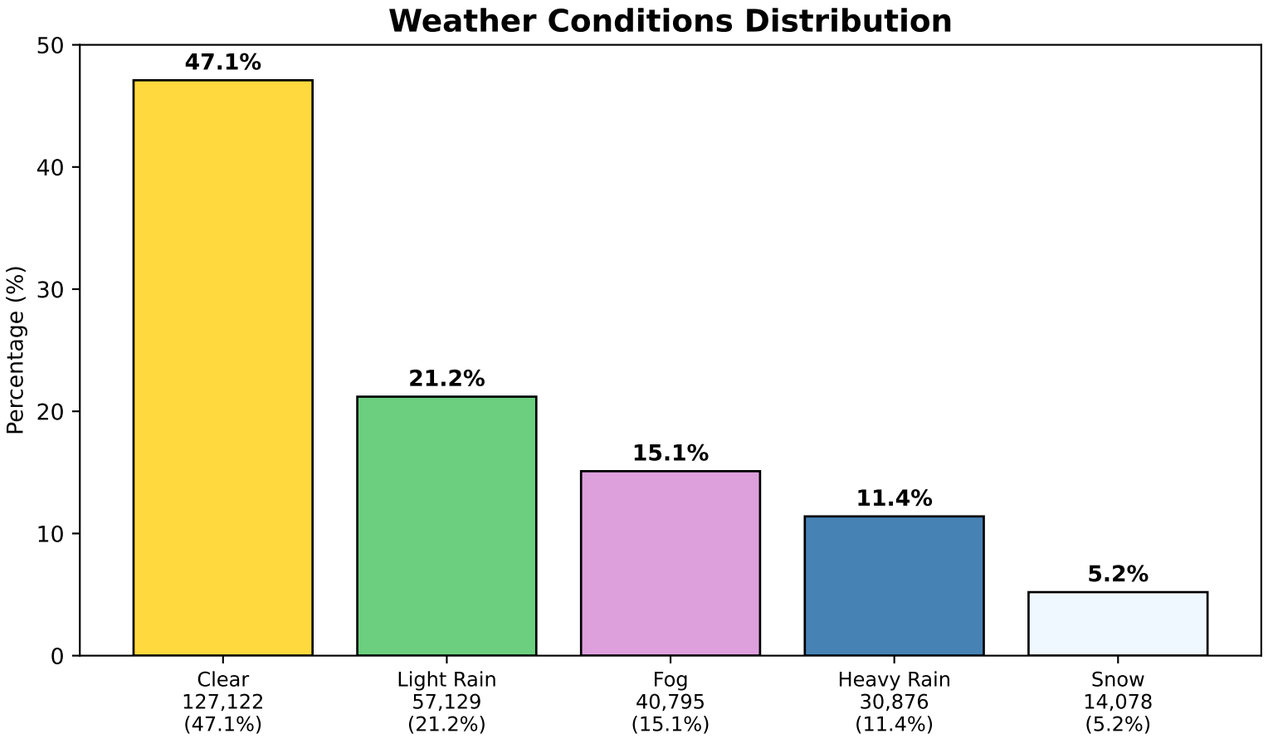
- Throughput: 0.1 to 1000 Gbps
- Latency: 0.011 to 2.841 ms
- Reliability: 90 to 99.999%
- Energy efficiency: 0.1 to 1000 bits/J
- Spectral efficiency: 1 to 100 bps/Hz
- Connection density: 1K to 10M devices/km²
- Coverage probability: 0.5 to 0.99

100% KPI Coverage

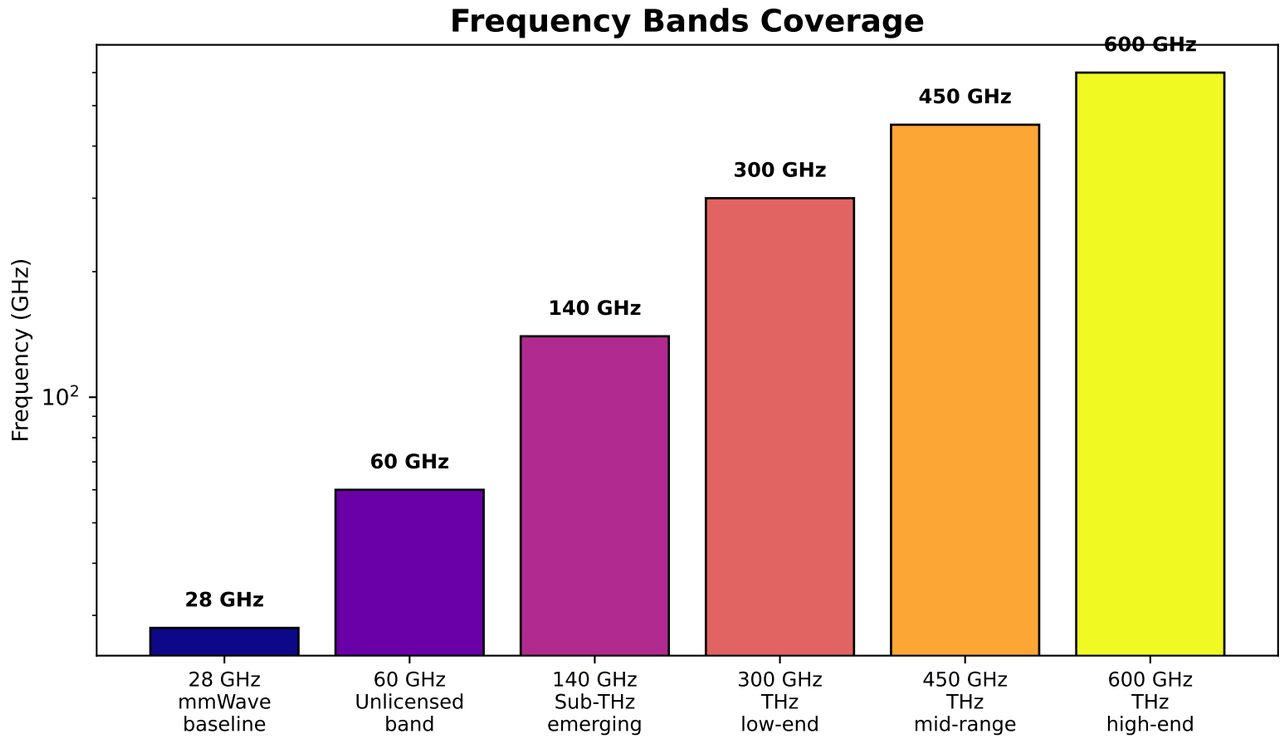
Scenario Distribution



Weather Conditions Distribution



Frequency Bands Coverage



Compliance Standards

DOCOMO 6G	ITU-R IMT-2030	3GPP Rel 21+
≥100 Gbps	50-200 Gbps	Network slicing
≤1ms latency	0.1-1ms latency	AI/ML native
99.999% reliability	Peak rate target	THz spectrum
✅ ACHIEVED	✅ COMPLIANT	✅ SUPPORTED

Dataset Validation Status

✅ Atmospheric Physics
✅ OAM Beam Physics
✅ Channel Models
✅ Hardware Impairments
✅ Performance Metrics
✅ Overall Quality