

Concept Question 2-11: Why is the DTFT periodic in frequency?

The DTFT is defined in Eq. (2.73a) by $\mathbf{X}(\Omega) = \sum x[n] \exp(-j\Omega n)$ which is periodic in Ω with period 2π . A better reason is that discrete-time frequency Ω is periodic with period 2π , as discussed in Section 2-5.2.