

CWNA-110 Official Curriculum

Certified Wireless Network Administrator — Exam Table of Contents & Domain Breakdown

Vendor: CWNP

Exam Code: CWNA-110

Status: Official Standard

The Certified Wireless Network Administrator (CWNA) credential is the foundational standard for enterprise Wi-Fi networking. It validates core enterprise knowledge across modern wireless architectures, security frameworks, and troubleshooting principles.

Official Exam Domain Weightings

DOMAIN	DOMAIN TITLE	EXAM WEIGHT
Domain 1	Radio Frequency (RF) Technologies	15%
Domain 2	WLAN Regulations and Standards	20%
Domain 3	WLAN Protocols and Devices	20%
Domain 4	WLAN Network Architecture and Design Concepts	15%
Domain 5	WLAN Network Security	10%
Domain 6	RF Validation and Remediation	20%

Total Exam Coverage Scope

6 Comprehensive Domains

Domain 1: Radio Frequency (RF) Technologies (15%)

- **RF Characteristics:** Wavelength, frequency, amplitude, and phase relationships.
- **RF Behavior:** Propagation, reflection, refraction, diffraction, and scattering dynamics.
- **Antenna Theory:** Gain, polarization, beamwidth, and radiation patterns (omnidirectional vs. directional).
- **Calculations & Budgets:** EIRP, noise floor, Signal-to-Noise Ratio (SNR), and link budget engineering.
- **Frequency Bands:** Channel structures and characteristics across 2.4 GHz, 5 GHz, and 6 GHz.

Domain 2: WLAN Regulations and Standards (20%)

- **Regulatory Frameworks:** Maximum power rules and EIRP regulatory limits (FCC, ETSI).
- **IEEE 802.11 Evolution:** Legacy amendments through 802.11ac, 802.11ax (Wi-Fi 6/6E), and 802.11be (Wi-Fi 7).
- **Alliance Certifications:** Wi-Fi Alliance feature sets, interoperability, and capability testing.
- **Physical Layer Mechanics:** Channel bonding, guard intervals, and spatial stream allocation rules.

Domain 3: WLAN Protocols and Devices (20%)

- **MAC Layer Operation:** CSMA/CA, DCF, EDCA (WMM), and wireless Quality of Service (QoS).
- **Frame Architecture:** Management, control, and data frames plus specific operational subtypes.
- **Topologies & Hardware:** BSS, ESS, IBSS, mesh structures, APs, controllers, and client adapters.
- **Advanced Performance:** MU-MIMO, OFDMA, BSS coloring, Target Wake Time (TWT), and power saving.

Domain 4: WLAN Network Architecture and Design (15%)

- **Architecture Models:** Autonomous, controller-managed, and cloud-driven deployment models.
- **Data Forwarding:** Split MAC architectures, local switching vs. centralized tunnel forwarding.
- **RF Planning & Layout:** Cell overlap design, capacity planning, channel reuse, and roaming domains.
- **Advanced Environments:** High-density stadiums, outdoor bridging, mesh links, and SSID-to-VLAN mapping.

Domain 5: WLAN Network Security (10%)

- **Security Frameworks:** WPA2 and WPA3 deployments in Personal and Enterprise modes (SAE).
- **802.1X & AAA:** EAP framework, authentication protocols (EAP-TLS, PEAP), and RADIUS server integration.
- **Threats & Mitigation:** Rogue APs, evil twins, deauthentication vulnerabilities, and KRACK mitigation.
- **Monitoring:** WIPS/WIDS deployment, rogue detection, and Management Frame Protection (802.11w).

Domain 6: RF Validation and Remediation (20%)

- **Site Survey Methodologies:** Predictive, passive, active, and spectrum analysis site surveys.
- **Toolkit & Interpretation:** Using spectrum and protocol analyzers to interpret coverage heat maps.
- **Interference Profiling:** Identifying narrowband, wideband, and non-Wi-Fi radio frequency interference.
- **Troubleshooting:** Throughput validation, Voice-over-Wi-Fi verification, and systematic debugging.