



Multiple Choice Exam Objectives

The following chart provides a breakdown of the questions within each knowledge domain

Knowledge Domain	Percentage
Ekahau Tools & Methodology	3
Standards & Regulations	3
RF Fundamentals	8
Modulations & Spectrum	3
Wi-Fi Channels & Power Levels	5
802.11 Fundamentals	3
Association & Re-association Process	5
Contention	9
Wi-Fi Security	3
Wi-Fi Predictive Design	30
Wi-Fi Validation Surveys	25
Ekahau Reporting	3

Ekahau Tools & Methodology - 3%

- ✔ Identify and use Ekahau Tools
 - + Ekahau AI Pro
 - + Ekahau Connect Suite
 - + Ekahau Sidekick
- ✔ Explain 3 Steps to Great Wi-Fi
 - + Step 1: Design
 - + Step 2: Validate
 - + Step 3: Health Checks

Standards & Regulations - 3%

- ✔ Explain the role of industry organizations
 - + IEEE
 - + Wi-Fi Alliance
 - + Regulatory Domains & Bodies
- ✔ Explain IEEE 802.11-2020 PHYs

+ 802.11 Prime

- + 802.11a
- + 802.11b
- + 802.11g
- + 802.11n
- + 802.11ac
- + 802.11ax

RF Fundamentals - 8%

- ✔ Explain RF fundamentals
 - + Sine waves
 - + Wavelength & frequency
 - + Amplitude
 - + Phase
 - + Noise & SNR
 - + Inverse Square Law (ISL)
 - + Free Space Path Loss (FSPL)

- ✔ Understand how to measure wall attenuation
- ✔ Understand units used in Wi-Fi and dB math
 - + dB vs mW
 - + Rules of 3s and 10s

Modulations & Spectrum - 3%

- ✔ Understand modulation types
 - + Baseband
 - + Frequency
 - + Amplitude
 - + Phase
- ✔ Understand modulation constellations
 - + BPSK
 - + QPSK
 - + 16-QAM through 1024-QAM
- ✔ Understand Air Time
- ✔ Understand spread spectrum
 - + DSSS
 - + OFDM
 - + OFDMA
 - + Spectral masks

Wi-Fi Channels & Power Levels - 5%

- ✔ Explain Multiple Input Multiple Output (MIMO) operations
 - + Spatial Multiplexing
 - + TxBF
 - + MRC

- Explain Modulation and Coding Schemes (MCS) table
 - + Channels aggregation
- Understand 2.4 GHz channels allocation
 - + Channels allocation
- Understand 5 GHz channels allocation
 - + Channels allocation
 - + DFS
- Understand 6 GHz channels allocation
 - + Channels allocation
 - + Devices Classification
 - + AFC
 - + PSD
- Explain channel planning across all 3 bands

802.11 Fundamentals - 3%

- Explain OSI Model and understand how it applies to Wi-Fi
- Explain structure of 802.11 Header
- Explain types of 802.11 MAC Frames and understand their role
 - + Management frames
 - + Control frames
 - + Data frames

Association & Re-association Process - 5%

- Explain association process
 - + Green Diamond
 - + Association process
 - + SSID vs BSSID
- Explain re-association process and improvements
 - + Re-association process
 - + 802.11r

- + 802.11k
- + 802.11v
- Explain AP discovery options on 2.4 and 5 GHz bands
 - + Passive
 - + Active
- Explain AP discovery options on 6 GHz band
 - + Out-of-band
 - + In-band

Contention - 9%

- Explain channel contention
 - + Channel co-location & reuse
 - + Radio Tx power impact on channel contention
 - + Distributed Coordination Function (DCF) aka "The Game"
 - + Design for Least Capable Most Important (LCMI) device
- Explain interference impact on channel contention
 - + Cross-Channel Interference (CCI) / channel contention
 - + Adjacent-Channel Interference (ACI)
 - + Primary / secondary channels and pri / sec Overlapping Basic Service Set (OBSS)
 - + non-Wi-Fi interference
 - + Noise
 - + Attenuation
 - + Reflection
 - + Multipath
 - + Refraction
 - + Scattering
 - + Diffraction
- Explain network load impact on contention

- + Calculate capacity requirements realistically

Wi-Fi Security - 3%

- Explain Wi-Fi security options and identify which ones should not be used in enterprise Wi-Fi
 - + Open
 - + WEP
 - + WPA
 - + WPA2
 - + WPA3

Wi-Fi Predictive Design - 30%

- Understand steps required to prepare the project for Wi-Fi design using Ekahau AI Pro
 - + Set regulatory domain
 - + Import floor plans
 - + Scale
 - + Draw and manipulate walls and attenuation areas
 - + Create building
 - + Align floors
 - + Specify inclusion and exclusion areas
 - + Use areas nesting
 - + Use holes in the floors
- Understand design visualizations
 - + Primary coverage
 - + Secondary coverage
 - + Coverage Planning
 - + SNR
 - + Noise
 - + Channel interference
 - + Network health
 - + Network issues
 - + Channel width

- + Data rate
 - + Throughput
 - + BLE
 - Understand antenna fundamentals
 - + Gain
 - + Beamwidth
 - + Polarization
 - + Frequency response
 - + Coverage pattern
 - + Reading antenna data sheets / charts
 - Use Ekahau AI Pro for manual predictive design
 - + Choosing relevant AP and antenna type
 - + Using omnidirectional and directional antennas
 - + Setting antennas height, direction and tilt
 - + Setting radio Tx power
 - Use Ekahau AI Pro Auto-Planner for automatic predictive design
 - + AI Auto-Planner
 - + Channel Planner
 - Understand how to capture business and technical requirements and translate them into RF requirements to design or survey against
 - + Business requirements
 - + Technical requirements
 - + RF requirements
- Wi-Fi Validation Surveys - 25%**
- Explain when and how to use different types of surveys
 - + Wi-Fi Design Survey
 - + Pre-Deployment Survey (AP on a Stick)
 - + Post-Deployment Survey (protocol)
 - + Periodic Health Survey
 - + TShooting / Assessment Survey
 - Explain when and how to use different types of survey data collection with both Ekahau AI Pro and Ekahau Survey
 - + Stop and go
 - + Continuous
 - + Autopilot
 - + GPS
 - Understand the difference between active and passive surveys
 - + Passive site survey
 - + Active site survey
 - Explain how to perform super-accurate Wi-Fi site surveys
 - + Ekahau 6 Tips for Super-Accurate Wi-Fi Site Surveys
 - Explain what Ekahau Insights is and how to use it
 - + What is Ekahau Insights
 - + Who is it good for
 - + How to use Ekahau Insights
 - Use advanced Ekahau AI Pro features
 - + Auto Wall Calibration
 - + Network Simulator
 - Demonstrate ability to analyze survey and live 802.11 data
 - + Analyzing survey data with Ekahau AI Pro
 - + Analyzing survey data with Ekahau Survey
 - + Analyzing live RF conditions with Ekahau AI Pro and the Sidekick (protocol)
 - + Analyzing live RF conditions with Ekahau Analyzer and the Sidekick
- Ekahau Reporting - 3%**
- Demonstrate ability to use reporting tools
 - + Ekahau AI Pro One-Click reporting tool
 - + Exporting visualizations as images
 - + Ekahau Insights