EDUSUM

#1 Online Certification Guide

AVIXA CTS-I

AVIXA CTS-I - Installation Certification Questions & Answers

Exam Summary – Syllabus –Questions

CTS-I

AVIXA Certified Technology Specialist - Installation (CTS-I)

110 Questions Exam – 350/500 Cut Score – Duration of 150 minutes

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Know Your CTS-I Certification Well:

The CTS-I is best suitable for candidates who want to gain knowledge in the AVIXA Audiovisual Systems (AV). Before you start your CTS-I preparation you may struggle to get all the crucial CTS-I - Installation materials like CTS-I syllabus, sample questions, study guide.

But don't worry the CTS-I PDF is here to help you prepare in a stress free manner. The PDF is a combination of all your queries like-

- What is in the CTS-I syllabus?
- How many questions are there in the CTS-I exam?
- Which Practice test would help me to pass the CTS-I exam at the first attempt?

Passing the CTS-I exam makes you AVIXA Certified Technology Specialist - Installation (CTS-I). Having the CTS-I - Installation certification opens multiple opportunities for you. You can grab a new job, get a higher salary or simply get recognition within your current organization.

AVIXA CTS-I - Installation Certification Details:

Exam Name	AVIXA Certified Technology Specialist - Installation (CTS-I)
Exam Code	CTS-I
Member Exam Price	$475 (USD)
Non-Member Exam Price	$575 (USD)
Duration	150 mins
Number of Questions	110
Passing Score	350 / 500
Books / Training	**Candidate Handbook**
Schedule Exam	**Pearson VUE**
Sample Questions	**AVIXA CTS-I Sample Questions**
Practice Exam	**AVIXA CTS-I Certification Practice Exam**

CTS-I Syllabus:

Topic	Details	Weights
Domain 1: Conducting Pre-Installation Activities		**22%**
Task 1: Review Audiovisual Project Documentation	**Knowledge of:** - Converting scales - Local language - Reading and interpreting drawings - Interpreting measurements and symbols **Skill in:** - Interpreting measurements - Interpreting symbols - Reading blueprints - Reading written documentation - Utilizing the Internet - Basic computer operations - Basic math - Listening - Verbal communication - Written communication - Typing - Writing legibly	4%
Task 2: Conduct Technical Site Survey	**Knowledge of:** - Arranging site access and access limitations - Site obstacles (i.e., ceilings, flooring, walls) - Infrastructure (i.e., conduit, floor boxes, power location, data points, grounding) - Mounting/rigging points for substructures - Documenting observations (i.e., photographs, sketches, layouts) - Special requirements (i.e., local code requirements, regulations, special cable requirements, cable management) - Scaffolding - Communicating site observations to project management - Chain of command procedures - Conduit capacities - Electrical components (cable trays, pathways, backboxes, etc.) - Employer policies - General construction principles - Installation options and alternatives - Installation process - Local codes	4%

Topic	Details	Weights
	- Calculating throw distances - Measuring distances - Products - System functionality - Tool limitations and capabilities - Basic first aid - Lock out/tag out standards - Safety standards (OSHA, health and safety, etc.,) - Hazard awareness **Skill in:** - Calculation of conduit capacities - Calculation of throw distances - Measuring distances - Basic computer operations - Basic math - Interpersonal communication - Technical writing - Climbing ladders - Taking documentary photographs of site conditions - Using a manlift	
Task 3: Prepare for Audiovisual Installation	**Knowledge of:** - Audiovisual tools, materials and equipment - Identifying connectors and cable requirements (quantity and type) - Specialty tools (lifts, transportation, etc.) - Network provisioning information - Cable pull lists and hardware lists - Special fabrication - Permitting - Calculating cable take offs - Calculating load capacities - Determining dimensions of custom parts - Estimating project and task durations - Reading and Interpreting schedules - Selecting tools and sizes - Safety meetings - Cable specifications/limits/application - Access limitations - Basic first aid - Chain of command procedures - Conduit capacities - Electrical components (cable trays, pathways, backboxes, etc.) - Employer policies - General construction principles	4%

Topic	Details	Weights
	- Creating schedules - Installation options and alternatives - Installation processes - LAN/WAN topology - Local codes - Network terminology - Permitting requirements - Products - Project budgets - Project timelines - Proper tool use - Resource allocation - RoHS compliance requirements - Security requirements - Signal types transmitted by different cables - Structural components and capacities - Supply management - System functionality - Types of connectors and appropriate cable types - Tool limitations and capabilities - Activities performed by other construction trades **Skill in:** - Calculation of cable take offs (estimate cable quantities) - Calculation of load capacities - Determining dimensions of custom parts - Estimating project and task durations - Following instructions - Reading and interpreting schedules - Selecting correct tools and sizes - Basic computer operations - Basic math - Interpersonal communication	
Task 4: Evaluate Overall Facility Conditions	**Knowledge of:** - Site logistics (parking, loading docks, elevators, lifts, etc.) - Building access obstacles - Required infrastructures - Appropriate site conditions (i.e., dust free, HVAC operational, power, lighting) - Calculating weight capacities - Measuring distances - Activities performed by other construction trades - Building timelines - General construction principles	3%

Topic	Details	Weights
	- Security requirements - Visual-spatial relationships - Construction hazards - General hazards - Facility specific hazards **Skill in:** - Calculation of weight capacities - Measuring distances - Written communication - Verbal communication	
Task 5: Maintain Tools and Equipment	**Knowledge of:** - Rechargeable meters - Drilling and cutting tools (bits, wire strippers, wire cutters, saw blades, etc.) - Calibrating test equipment - Labeling kits - Electrical safety testing - Tagging of electrical tools and equipment - First aid kits and fire extinguishers - Testing and tagging of safety and access equipment - Equipment testing protocols - Grounding - Electrical power and electrical current - Pre-use equipment checks - Tagging requirements to verify inspection - Tool and equipment calibration requirements - Voltage **Skill in:** - Basic math - Recognizing defective equipment - Using a voltmeter	3%
Task 6: Prepare Site for Installation	**Knowledge of:** - Marking installation locations for equipment and services - Assembling scaffolding - Identifying hazards and taking safety measures - Calculating throw distances - Measuring distances - Asbestos - Ceiling systems - Construction terminology - General construction principles - Hazards	4%

Topic	Details	Weights
	- Responsibilities of other trades - Scaffolding assembly - System functionality - Ladder safety - Fall protection - Confined spaces - Customer safety - Safety zones - OSHA/HSE **Skill in:** - Interpersonal communication - Basic math	
Domain 2: Conducting Site Rough-In/First-Fix		**11%**
Task 1: Deinstallation of Existing Equipment/cabling	**Knowledge of:** - Selecting equipment/cabling that should be removed - Removing equipment/cabling - Disposing of removed equipment/cabling - Storing equipment/cabling per customer instructions or scope of work. - Preparing equipment for reinstallation (testing, cleaning, labeling, etc.) - Calculating weights and loads - Electrical power - Local disposal regulations - Manual handling techniques - System functionality - OSHA/HSE - Cadmium hazard - Asbestos - CRT **Skill in:** - Interpersonal Communication - Drilling holes - Painting - Cutting drywall/plaster board	3%
Task 2: Pull Cable	**Knowledge of:** - Identifying cable paths by signal types - Cable pull lists and drawings - Cable groupings - Cable routes/paths for non-conduit cables - Cutting in mud rings, low voltage rings, electrical boxes (or pattresses), backboxes, etc. - Installing cable supports/containment	4%

Topic	Details	Weights
	- Preparing cables for pulling - Marking cables - Marking spools and drums - Pulling cable - Securing cable - Securing cable ends - Calculating areas - Calculating lengths - Interpreting drawings - Measuring diameters - Measuring lengths - Measuring volumes - Measuring with an architect's scale - Cable pulling techniques - Cable terminology - Cable types and applications - Conduit capacities - Fiber optic cables - Fiber optic cable handling techniques - Firestop requirements - OSHA/HSE/COSHH and related standards - Project requirements - Tensile and shear strengths - Fiber optic disposal - Asbestos - Power tool certifications - Confined spaces - COSHH - Control of hazardous substances **Skill in:** - Calculating areas - Calculating lengths - Interpreting drawings - Measuring diameters - Measuring lengths - Measuring volumes - Basic math - Applying firestop materials - Climbing ladders - Cutting cable - Making a snout (wire pull cable harness) - Pulling cable - Marking cable	
Task 3: Mount Substructure	**Knowledge of:** - Locations for mountings - Methods/materials for mountings	4%

Topic	Details	Weights
	- Prefabricated structures - Installing anchors - Attaching substructures - Testing mountings of substructures - Measuring distances - Calculating weight capacities - Adequacy of substructures - Blocking (or noggin) - Concrete construction methods and materials - Correct locations for placing fasteners - Engineering lumber - Fasteners (capabilities, limitations, options, etc.) - Glue laminated construction methods - Pipes - Powder actuated tools - Rigging - Safe working loads (weights and safety margins) - Seismic restraints - Slotted channel and accessories (unistruts) - Steel construction methods and materials - Tensile and shear strengths - Threaded rods - Throw distances - Wood frame construction methods and materials - OSHA/HSE - Powder actuated tool certification - Safety zones - General work site conditions **Skill in:** - Measuring distances - Basic math - Cutting - Drilling - Calculating weight capacities - Interpersonal communication	
Domain 3: Installing Audiovisual Systems		**37%**
Task 1: Conduct Off-site Fabrication	**Knowledge of:** - Creating material lists for off-site fabricated items - Assembling off-site fabricated items - AC theory - Basic electronic components (resistors, diodes, transformers) - Basic metalworking techniques: types of metal, gage, drilling, tapping, punching, layout, bend radius - Basic woodworking techniques: types of wood and	3%

Topic	Details	Weights
	finishes, drilling, cutting, layout, laminates - DC theory - Lead time and schedule restrictions - Materials - Outsourcing and fabrication options - Punch tools - Tap and die use - Tool selection - OSHA and health and safety Requirements **Skill in:** - Cutting - Drilling - Marking out items	
Task 2: Prepare Audiovisual Rack	**Knowledge of:** - Drawings and project documentation - Assembling audiovisual equipment racks from kits - Populating audiovisual equipment racks - Installing rack infrastructures (lacing, power, fans, peripherals, etc.) - Documenting serial numbers of equipment - Interpreting rack elevations - Measuring rack units - ADA requirements - Electrical power and grounding - Rack accessories and components - Rack elevation design - Screw gun settings, torque settings - Standard rack unit and width - System functionality and components - Ventilation requirements - Weight distribution **Skill in:** - Reading comprehension - Assembling a rack	4%
Task 3: Wire the Audiovisual Equipment Rack	**Knowledge of:** - Setting up workstations (terminating supplies, heat shrink guns, etc.) - Selecting cables for applications - Determining cable dressing strategies - Measuring cable lengths - Terminating cables (audiovisual, network, power, etc.) - Installing cables and cable management techniques	4%

Topic	Details	Weights
	- Cable labeling - Testing cable - Testing rack loaded components - Documenting changes (mark ups) - Selecting die sets - Measuring cable lengths - Crimping techniques (BNC, spade lugs, bell caps, ferrules) - Adjusting torque on screw gun - Balanced and unbalanced audio - Cable types - Client requirements (e.g., military, government) - Compression connections - Compression techniques - Connector types - Cable preparation for connector types - Crimp connections - Dressing techniques for racks - Fiber optic terminations - Insulation displacement - Labeling systems - Lacing components - Linear compression techniques - Plenum rated tie wraps - Tie wrap applications and selection - Service loops - Signal separation - Signal types - System functionality - The project specifications - OSHA/HSE - Spacing of components for access to connections **Skill in:** - Applying heat shrink - Basic computers - Creating service loops - Dressing wire - Soldering - Cutting wire - Applying barrier strips	
Task 4: Distribute Audiovisual Equipment	**Knowledge of:** - Equipment manifests and delivery schedules - What to do in the event of equipment damage - Obtaining delivery confirmations - Documenting serial numbers of equipment	3%

Topic	Details	Weights
	- Client and company policies and procedures - Reading and using floor plans - Hazards - Projects - Proper loading techniques to avoid equipment damage - Site restrictions - Timelines - Wrapping, banding, palleting equipment - Safe bending and lifting techniques - OSHA/HSE - Loading techniques **Skill in:** - Basic math - Interpersonal communication - Reading and writing - Written communication	
Task 5: Mount Audiovisual Equipment	**Knowledge of:** - Acceptable substructures for specific purposes - Installing mounting brackets and mounting hardware - Customized millwork/joinery for audiovisual installations - Installing equipment - Preparing cables for termination - Terminating cables - Connecting power to equipment - Dressing cables - Measuring distances - Calculating weight capacities - Blocking (or noggin) - Cleaning supplies and techniques - Concrete construction methods and materials - Correct locations for placing fasteners - Correct mountings for components - Engineered lumber - Fasteners (capabilities, limitations, options, etc.) - Glue laminated construction methods - Metal frame construction methods and materials - Pipes - Powder actuated tools - Rigging - Safe working loads (weights) and safety margins - Seismic restraints - Slotted channel and accessories (unistrut)	4%

Topic	Details	Weights
	- Steel construction methods and materials - Tensile and shear strengths - Threaded rods - Throw distances - Wood frame construction methods and materials - OSHA/HSE - Safety zones - Work site safety **Skill in:** - Measuring distances - Basic math - Calculating weights - Interpersonal communication - Cutting - Drilling	
Task 6: Terminate Cables	**Knowledge of:** - Preparing cable ends - Connectors - Applying insulation (heat shrink, sleeving, etc.) - Attaching connectors - Labeling cables - Identifying fiber optic terminations (sc/st/fc/mt-rj) - Crimping techniques (BNC, spade lugs, bell caps, ferrules) - Compression techniques - Fiber optic cable types (single mode, multimode) and sizes - Fiber optic technology (transceivers) - Fiber optic terminology - Handling techniques for fiber optic cable - Insulation displacement - Interduct (conduit type for fiber optic) - Cable types - Limitations of fiber optic cables and connectors - Linear compression techniques - Stripping techniques - RoHS compliance requirements - Signal types - Testing fiber optic cable for signal continuity and attenuation - OSHA/ESE - Eye protection - Fiber optic technology safety protocols - RoHS	4%

Topic	Details	Weights
	Skill in: - Applying heat shrink - Soldering - Cutting wire	
Task 7: Configure Network Attached Components (ISDN, IP, POTS, etc.)	**Knowledge of:** - Network topologies - Loading network configurations into equipment - Preparing AV Internet protocol tables - Network connectivity - Basic router configuration (e.g., Linksys WRT54G) - Cable types/specifications - Classifications of IP addresses (routable, unroutable) - Testing network connectivity (ping) - Testing terminations - Network equipment - Network systems - Network terminology - Projects - Wireless connectivity (Wi-Fi, RF, IR) **Skill in:** - Communicating with subcontractors - Basic computers - Interpersonal communication	4%
Task 8: Load Control Programs	**Knowledge of:** - Establishing communications with devices - Obtaining correct versions of uploadables - Loading audiovisual programming - Verifying codes are loaded and saved - Testing communications to ancillary devices - Selecting cables - Downloading firmware updates - Audiovisual equipment configurations - Baud rates - Company policies and procedures for archiving and saving code - DSP programs - Firmware (verification, updates, compatibility) - Obtaining manufacturer updates - Signal types **Skill in:** - Basic computers	3%

Topic	Details	Weights
Task 9: Test the Audiovisual Equipment	**Knowledge of:** - Operational procedures for audiovisual equipment - Correct cable connectivity - Selecting appropriate test equipment and supplies - Proper test methods and requirements - Performing audiovisual tests - Comparing tests results with specifications - Troubleshooting AV equipment - Performing corrective actions to systems - Calculating anticipated impedance - Calculating Ohm's Law - Measuring impedance - Testing audio DSP - Testing audio signal paths - Testing device communications - Testing limits - Testing RF signal paths - Testing speakers - Testing video signal paths - Adjusting audio gain - Anti-static techniques - Audio gain structures - Signal processing components (EQ, limiter) - System functionality - Vendor policies, phone numbers - Video system timing - Wave form monitors and vectorscopes - Electrical safety **Skill in:** - Basic computers - Adjusting basic color balance display	4%
Task 10: Calibrate Audiovisual Equipment	**Knowledge of:** - Calibration standards - Component adjustments - Aligning display equipment to system configurations for optimal performance - Adjusting gain structure for audio - Adjusting gain structure for video - Setting user preferences for equipment (power management, signal type, etc.) - Aiming loud speakers - Adjusting camera configurations - Setting limits for equipment (cameras, screens, etc.) - Setting up lighting (presets, fixture positions, zoning, etc.)	4%

Topic	Details	Weights
	- Setting up assisted listening devices - Adjusting gain and channel on RF frequencies - Adjusting microphones for optimal performance - Timing video and audio systems - Adjusting equalization of rooms (sound systems, etc.) - Setting data baud rates - Calculating anticipated impedance - Calculating Ohm's Law - Determining speaker taps - Measuring impedance - Measuring signal levels - Reading schematics - Anti-static techniques - Audio gain structure - Distributed audio systems - Equalization of a room - Project requirements and specifications - Signal processing components (EQ, limiter) - Signal to noise ratio - System functionality - Video system timing - Wave form monitor and vectorscope - Electrical safety - Reading and setup of EDID - HDCP **Skill in:** - Basic computers - Interpersonal communication - Reading and writing - Adjusting audio DSP - Adjusting audio gain - Adjusting basic color balance displays - Adjusting video system timing - Setting speaker taps - Setting and locking limits - Setting RF Channels - Aiming and positioning microphones	
Domain 4: Perform Systems Close Out		**11%**
Task 1: Demonstrate to Client or Client's Representative that System Performs to Specifications	**Knowledge of:** - Generating punch lists/deficiency lists - Resolving punch lists and deficiency lists - Substantial completion sign-offs - Project timelines - System functionality	4%

Topic	Details	Weights
	- Troubleshooting techniques - Test equipment **Skill in:** - Basic computers - Interpersonal communication - Reading and writing	
Task 2: Obtain Project Completion Sign-Off from Client or Client's Representative	**Knowledge of:** - Deliverables (inventory lists/assets register, manuals, remotes, as-builts, etc.) - Warranty coverages - Maintenance schedules - Project timelines - System functionality **Skill in:** - Basic computers - Interpersonal communication - Reading and writing	3%
Task 3: Provide Training on Equipment Operation	**Knowledge of:** - Training techniques - Training attendance logs - Company policies and procedures - Customer expectations - System functionality **Skill in:** - Basic computers - Verbal Communication	4%
Domain 5: Conducting Ongoing Project Responsibilities		**19%**
Task 1: Perform Site Clean-up	**Knowledge of:** - Debris removal - Cleaning protocols and methods - Appropriate cleaning products for equipment - Site protocols (dumpsters, rules, etc.)	3%
Task 2: Complete Daily Progress Reports	**Knowledge of:** - Reporting procedures for damaged, defective or missing equipment - Reporting procedures for man-hours - Reporting procedures for additional expenses - Estimating time to project completion - Reporting procedures for project delays, design deficiencies, changes in scope of work and requests	3%

Topic	Details	Weights
	for additional resources - Company policies and procedures - Project tasks - Vendor policies and phone numbers **Skill in:** - Basic computers - Interpersonal communication - Planning - Observation - Reading and writing	
Task 3: Coordinate with Other Contractors	**Knowledge of:** - Construction progress meetings - Reporting procedures for discrepancies and coordination issues - Responsibilities of various contractors - Scheduling practices **Skill in:** - Communicating with other contractors - Interpersonal communication	3%
Task 4: Conduct Field Engineering	**Knowledge of:** - Creating field mark-ups (design changes, site conditions, etc.) - Making design modifications to accommodate site issues - Making installation decisions in response to assessments of sites - Communicate changes to engineering, project managers and others - Adequacy of substructures - Blocking (or noggin) - Cleaning supplies and techniques - Company policy and procedures - Concrete construction methods and materials - Correct locations for placing fasteners - Correct mountings for components - Engineered lumber - Equipment capabilities - Fasteners (capabilities, limitations, options) - Glue laminated construction methods - Completing markups - Metal frame construction methods and materials - Pipes - Powder actuated tools	4%

Topic	Details	Weights
	- Rigging - Safe working loads (weights) and safety margins - Seismic restraints - Slotted channel and accessories (unistrut) - Steel construction methods and materials - Tensile and shear strengths - Threaded rods - Wood frame construction methods and materials **Skill in:** - Communicating with other contractors - Interpersonal communication - Basic math	
Task 5: Repair Audiovisual Systems	**Knowledge of:** - Troubleshooting system problems - Making recommendations for problem resolution - Implementing problem resolutions - Calculating signal levels - Measuring impedance - Testing audio DSP - Testing audio signal paths - Testing device communications - Testing limits - Testing RF signal paths - Test speakers - Testing video signal paths - Company policy and procedures - Conferencing products - Control systems - Customer expectations - DSP - Individual system component capabilities - Service agreements and warranties - Signal to noise ratios - System functionality - Troubleshooting techniques - Vendor policies **Skill in:** - Interpersonal communication - Adjusting audio gain - Adjusting basic color balance displays	3%
Task 6: Maintain AV Systems	**Knowledge of:** - Maintenance requirements for systems - Maintenance schedules	3%

Topic	Details	Weights
	- Obtaining parts and supplies for maintenance - Performing maintenance activities - Performing system/component functionality tests - Submitting maintenance documentation - Cleaning procedures and products - Manufacturer's recommended maintenance schedules - Service agreements and warranties - Testing practices **Skill in:** - Interpersonal communication	

AVIXA CTS-I Sample Questions:

Question: 1

In which situations or environments is the system optimization method of gain adjustment preferable to the unity gain method?

a) In performing arts centers and lecture halls
b) For installations with short deadlines
c) For systems with .75 V input signal levels
d) Where clipping levels will not vary within the system

Answer: a

Question: 2

Which statement accurately describes what you should do when de-installing existing equipment?

a) Dispose of equipment right away
b) Remove the connecting cables
c) Smash the hardware so that data cannot be stolen
d) Call an electronic waste recycling contractor

Answer: b

Question: 3

After which of the following activities is an AV project completed?

a) All hardware is installed
b) Software integration is completed
c) Verification that the system is operational
d) System closeout activities are completed

Answer: d

Question: 4

What is a best practice when installing cables where there is no conduit for ceiling-mounted projectors?

a) Securing the cables with bridle rings mounted to bar joists
b) Resting the cables gently on the ceiling tile
c) Interlacing the cables
d) Stacking the cables along one side of the ceiling grid

Answer: a

Question: 5

Which of the following provides a method of ensuring best image quality between source and sink/display?

a) HDCP
b) EDID
c) HDMI
d) Hot plug

Answer: b

Question: 6

A projector weighing 429 pounds (195 kilograms) should be mounted only to what type of surface?

a) Ceiling tile of an auditorium
b) Front wall in a classroom
c) Drywall in conference room
d) Building structural support or blocking

Answer: d

Question: 7

What type of rack would you use for a room with limited space for servicing equipment?

a) Fixed stand-alone
b) Portable
c) Wall-mounted
d) Built-in

Answer: d

Question: 8

Where should a DVD player be placed in a rack?

a) At the bottom of the rack
b) At the top of the rack
c) Next to an audio speaker
d) Within the user's reach

Answer: d

Question: 9

What is the primary reason an AV installer should attend weekly construction meetings?

a) Learn about safety requirements
b) Establish relationships with allied trade teams
c) Identify changes that will affect the AV installation
d) Find out when the cafeteria is open

Answer: c

Question: 10

How can you access regional codes for safety procedures?

a) Check with the client
b) Check with local residents
c) Check websites of standards organizations
d) Check websites of manufacturers

Answer: c

Study Guide to Crack AVIXA CTS-I – Installation Exam:

- Getting details of the CTS-I syllabus, is the first step of a study plan. This pdf is going to be of ultimate help. Completion of the syllabus is must to pass the CTS-I exam.
- Making a schedule is vital. A structured method of preparation leads to success. A candidate must plan his schedule and follow it rigorously to attain success.
- Joining the AVIXA provided training for CTS-I exam could be of much help. If there is specific training for the exam, you can discover it from the link above.
- Read from the CTS-I sample questions to gain your idea about the actual exam questions. In this PDF useful sample questions are provided to make your exam preparation easy.
- Practicing on CTS-I practice tests is must. Continuous practice will make you an expert in all syllabus areas.