CTS-D® Exam Candidate Handbook

Certified Technology Specialist – Design

Table of Contents

Preface

InfoComm International® is pleased to continue the growth in recognition, acceptance, and availability of the audiovisual (AV) professional Certified Technology Specialist™ (CTS®) certification program that is recognized worldwide as the leading AV specialist credential.

InfoComm's certification program is accredited through the International Organization of Standardization (ISO) and the International Electrotechnical Commission (IEC) ISO/IEC 17024:2012 certification of personnel as administered in the United States by American National Standards Institute (ANSI). This accreditation achievement verifies compliance with requirements outlined in the internationally accepted standards for assessing personnel certification programs (ANSI/ISO/IEC 17024:2012) and for the operation of accreditation bodies (ISO/IEC 17011).

The independent InfoComm Certification Committee, composed of professional audiovisual volunteers to guide and administer all aspects of the CTS certification program, administers the program. Computer-based exams are provided at testing centers worldwide. The exam development and delivery are continually under review and improvement, utilizing subject matter experts under the guidance of professional exam development experts. This process enhances the level of credibility and defensibility of the CTS credentialing program. The agreement to abide by the CTS Code of Ethics and Conduct is now part of the initial application and a new Ethics and Disciplinary Committee investigates violations, issues sanctions as warranted, and publishes sanctions on the InfoComm website.

Many audiovisual specialist professionals have volunteered and contributed to this effort by serving on committees and other activities to meet the growing need for the CTS credential worldwide and to make the best AV certification program even better. The CTS-D Candidate Handbook online at www.infocomm.org/ctsd is an important part of these efforts.

For further information, please contact:
InfoComm International, Attn. Certification Office
11242 Waples Mill Rd., Suite 200, Fairfax, VA 22030
1.800.659.7469 or +1.703.273.7200;
+1.703.991.8259 Fax
certification@infocomm.org
www.infocomm.org

Introduction

Welcome to those interested in the InfoComm CTS-D certification. InfoComm has offered its certification program for more than 30 years and every year certifies more qualified AV professionals than anyone else in the industry. Individuals, companies, and customers have always recognized the CTS-D certification for its credibility and integrity.

A true certification program assesses individuals against peer-developed standards and competencies and provides a credential that is time limited. A certification exam assessment must be independent of any specific course or curriculum. In addition, continued competency is enhanced through ongoing renewal requirements and there must be adherence to a code of ethics.

InfoComm's independent Certification Committee is responsible for providing oversight to the development and administration of credible Certified Technology Specialist certifications (CTS, CTS-D® and CTS-I®), and to ensure the credentials meet high standards of ethical and professional practice for the audiovisual industry that assures the proficiency and competency of AV professionals.

ANSI/ISO/IEC 17024:2012 accreditation of the CTS program provides many positive benefits for the CTS, CTS-D and CTS-I certification process:

- Defensible and reliable examinations
- Increased value of the CTS, CTS-D and CTS-I credentials
- Increased availability and recognition
- Ability to defend and protect the CTS, CTS-D and CTS-I credentials
- Increased security and confidentiality
- Increased professional acceptance and marketability of the CTS, CTS-D and CTS-I credentials
- Peer development and review with professional test development guidance

It is the policy of the independent InfoComm Certification Committee (Certification Committee) to administer valid, reliable, defensible, and psychometrically sound examinations. To assist in this process, InfoComm has joined with two highly regarded professional testing service organizations that will assist in continuing to maintain and further enhance the CTS, CTS-D, and CTS-I credentials, already recognized worldwide as the leading audiovisual specialist credentials. These companies are:

Professional Testing, Inc., of Orlando, Fla., is a full-service provider of assessment and evaluation services for certification organizations and licensing agencies. Professional Testing provides psychometrically sound assessment services to ensure that tests achieve compliance with professional and accreditation standards. Professional Testing will be involved in all certification tests, the development of all certification exams and will conduct ongoing analysis of the performance of each exam to assure its validity and reliability as an assessment instrument.

Pearson VUE is the exam delivery company for all InfoComm certification exams. Pearson VUE has a network of testing centers worldwide, which offer reliable exam center proctoring,

administration, and candidate verification. All centers employ a secure, state-of-the-art computer network to deliver exams and manage data.

InfoComm Certification Committee Mission Statement
To provide oversight to the development and administration of credible Certified Technology Specialist certifications (CTS, CTS-D, and CTS-I), and to assure the credentials meet high standards of ethical and professional practice for the audiovisual industry that assure the proficiency and competency of AV professionals.

Definition of a Certified Technology Specialist-Design (CTS-D)
A Certified Technology Specialist-Design (CTS-D) is an AV systems designer who assesses client's needs, designs AV systems and prepares AV design documents, by coordinating and collaborating with other professionals to create AV systems that satisfy clients' requirements.

Successful achievement of a passing score on the exam is required for an individual to earn the CTS-D certification. Each candidate must demonstrate competence in the professional practices for the audiovisual industry commensurate with the standards established by the Certification Committee. In addition, all candidates and CTS-D certificants are required to abide by the CTS Code of Ethics and Conduct and all related InfoComm certification policies and procedures. For a further explanation of the exam development and scoring determination process, see the Summary of the Scoring Process in this handbook.

This handbook describes all aspects of the credentialing process and assists in preparation for the exam. It contains:

- an overview of exam content (the exam content outline)
- admission policies
- guidelines for taking the exam
- an exam application
- suggested study resources
- pertinent facts about policies governing the exam

It also describes the content and procedures for all parts of the exam process. Sample questions and many study resources are provided online at www.infocomm.org/ctsd to help familiarize candidates with the types of questions appearing on the comprehensive, multiple-choice exam.

InfoComm's Certified Technology Specialists (CTSs), at all levels of certification, have demonstrated audiovisual technology knowledge and/or skills. Certified individuals adhere to a Code of Ethics and Conduct and maintain their status through continued education. Certification is not a guarantee for performance by certified individuals. Certification demonstrates commitment to professional growth in the audiovisual industry and is strongly supported by InfoComm.

All eligibility, applications, score reports, special accommodation requests and general inquiries regarding InfoComm certification will be handled through the InfoComm International Certification Office, with headquarters located in Fairfax, VA., U.S.A.

Direct all inquiries to:
InfoComm International, Attn. Certification Office
11242 Waples Mill Rd., Suite 200, Fairfax, VA 22030
1.800.659.7469 or +1.703.273.7200
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certification@infocomm.org
www.infocomm.org

Glossary of Candidate Handbook Terms

Glossary	**Certification Committee** The InfoComm independent Certification Committee which InfoComm formed as an independent committee to provide oversight to the development and administration of the InfoComm certification program and has full responsibility for all policies and procedures pertaining to certification.
Glossary	**Certification Office** The InfoComm certification staff office that supports the InfoComm independent Certification Committee and its programs.
Glossary	**Certification program** Refers to a few or to all components associated with awarding a certification. That is, it may refer to the certification examination or to the full set of activities related to awarding and maintaining the credential. These activities include eligibility, examination, recertification, disciplinary action, governance, and policies.
Glossary	**Certification test** Typically, a voluntary exam program designed as criterion-referenced testing (CRT) that measures professional competence, and is sponsored by a non-governmental agency. This type of test may be targeted to measure entry-level professional skills, specialty skills within the profession or advanced skills in the profession.
Glossary	**Code of Ethics and Conduct** Canons or professional standards by which certificate holders must agree to uphold and abide. It is frequently an agreed-upon statement of principles and expected behavior and conduct of the certificate holders. Commonly referred to as codes of professional conduct, the canons are subject to enforcement, and certificate holders found in violation of the code of ethics may be subject to disciplinary procedures. Commitment to codes of ethics is a requirement for application to or awarding certification.
Glossary	**CBT (Computer-Based Testing)** The mode of test administration in which items are presented to an examinee on a computer screen. Examinees typically indicate their responses by clicking with a mouse. This is an alternative to the more traditional paper-and-pencil testing method.
Glossary	**DACUM** Acronym for "Developing A CUrriculuM." This process develops a summary of what a worker does in terms of duties, tasks, knowledge, skills, traits and in some cases the tools the person uses. This information is then presented in a chart or table format.
Glossary	**Domain** The major categories of a certification test blueprint resulting from a DACUM.

Glossary	**Exam Content Outline** The term used most frequently to refer to the outline of domains and tasks identified as a result of the DACUM process. It provides the structure for the test forms to be developed. A typical exam content outline has a listing of the content areas to be included on the test, along with the cognitive levels that test items are intended to target.
Glossary	**Good standing** Should an individual be currently under sanction, he/she is not considered to be in "good standing."
Glossary	**Item** Formal term used for "test question," since exam elements are frequently not structured as direct questions.
Glossary	**JTA (Job Task Analysis)** A study that may be conducted to identify the knowledge, skills and abilities necessary for professional competence in a particular field. A job analysis is frequently conducted to determine the content and competencies that should be included in the certification or licensure exam.
Glossary	**Psychometrician** A professional who works in the field of psychometrics, or measurement. Specifically, psychometrics refers to the measurement of individuals' psychological attributes, including job-related knowledge, skills and abilities.
Glossary	**Scheme** Another word for exam.
Glossary	**SME (Subject Matter Expert)** The term is used to refer to personnel deployed during different phases of the test development process. These individuals have extensive knowledge of the content and competencies assessed by the exam. SMEs are used in test development activities such as item writing, item review and standard setting.

CTS-D Application and Exam Process Overview

1. You must meet all eligibility requirements as of the date of the application.

2. You may apply for the CTS-D by using the application online at www.infocomm.org/ctsd, by mail, email, or fax to the InfoComm Certification Office for review and subsequent approval.

3. Once your application is approved by InfoComm, notice of eligibility is sent to Pearson VUE and an email notification is sent to you from InfoComm within 10 business days regarding eligibility approval. Notification includes the required candidate ID number and scheduling information for the exam appointment from the list of available testing locations as found at www.pearsonvue.com/infocomm - Locate a Testing Center.

4. Applications will not be processed unless all required information on the application is completed and application fee is received.

5. You must provide phone and email contact information to facilitate email in receiving confirmation of receipt of application and any necessary phone contact during or following the exam.

6. Your application is approved for a period of 120 days from the date of the eligibility approval notice and you must arrange for **and be tested during** that 120-day period. The exam fee for applications must be paid by using a major credit card or by check at the time the application is submitted.

7. Appointments for taking the exam can only be made with Pearson VUE Testing after approval and notification from InfoComm to you. The earlier you apply, the earlier you can be approved and make an appointment to obtain the date, time, and professional testing center location of your choice.

8. All requests for accommodations related to the Americans with Disabilities Act (or international equivalent) must be forwarded to the InfoComm Certification Office to be attached to your application. There are two forms required: Request for InfoComm Exam Special Accommodations, and Healthcare Documentation of Disability Related Needs. Both are found in this Candidate Handbook as Appendix C and D.

Note: Request forms for Special Accommodations must be received at least 45 days prior to the preferred testing date.

9. You must submit all name and contact changes to the InfoComm Certification Office, which will then notify Pearson VUE of the changes.

Note: Name changes require documentation of court records.

10. The InfoComm exams use two different question types: multiple choice and hotspot. The exam is administered in a computer-based testing (CBT) format at established Pearson VUE professional testing centers worldwide. Locations of testing centers are found at www.pearsonvue.com/infocomm

11. You are required to bring two forms of valid ID, one of which must be a government issued photo ID with signature (driver's license, government ID or passport), with you to the testing

center. (See On the Day of the Exam.). For testing center identification purposes, candidate must bring both a valid government issued ID and a secondary ID that has a matching signature to the name on the government ID.

> ### *Important*
> The first and last name on the photo ID **must match exactly** the name submitted in your application. Middle names are not recorded by the testing center.

12. You will be asked to provide a digital signature and have your digital photograph taken at the testing center as a part of the security process.

13. A score report is provided at the testing center upon completion of the exam. No results are provided over the phone. A sample "Pass" and "Fail" score reports are provided in Appendix H and I in this handbook. As appropriate, a certificate, pin, and other information will be sent via mail.

14. See Preparation and Education for more detailed information about the exam.

15. If you fail the exam, up to two retests are allowed by filing a **Retest Application** and submitting payment of a retest fee for each retest. In order to be eligible for the retest fee, candidates must complete and return the Retest Application found as Appendix G, no later than 120 days from the date of your last exam attempt. Please see Fee Schedule for pricing.

You are allowed 120 days from the retest approval notification to complete each retest. **There is a minimum waiting period of 30 days before processing/retaking the exam.** After two retest attempts, you must wait a period of 90 days before starting the application process again. This period allows you time to adequately prepare for the retest and prevents over-exposure to the exam.

16. Candidates must reschedule or postpone exam appointments (by contacting Pearson VUE, not InfoComm) no later than 24 hours prior to the testing appointment to avoid additional fees.

17. Requests for retests must be made to InfoComm (not to Pearson VUE) by completing and submitting the Retest Application with appropriate retesting fee.

Detailed Exam-Related Information

About the Exams

The exam presents each question with four response alternatives (A, B, C and D). One of these represents the single best response and credit is granted only for selection of this response. Candidates are currently provided 180 minutes for 135 questions, 10 of which are non-scoring pilot questions. There is a brief on-screen computer-based tutorial just prior to starting the exam and a brief online survey at the end of the exam. The time allotted to complete the tutorial and survey is in addition to the 180 minute exam time. *(Also see Preparation and Education.)*

It is the policy of the Certification Committee that all certification examinations will be developed utilizing a psychometrically valid process. The exam questions are based upon a Job Task Analysis from which the Exam Content Outline is created, which can be seen in this handbook as Appendix A or a more detailed copy of the complete Job Task Analysis can be found at www.infocomm.org/ctsd. Questions are written in a format that evaluates a candidate's ability to perform the job tasks as listed in the Exam Content Outline rather than solely on the basis of knowledge recall or memorization of facts. Candidates are strongly encouraged to review this CTS-D Job Task Analysis information as they consider applying and preparing for the CTS-D exam.

Exam questions are written by individuals certified as CTS-D or deemed otherwise as subject matter experts, reviewed and validated by both test development experts and other subject matter experts. As with other professional credentialing exams, the exact questions cannot be revealed; however, the Exam Content Outline, primary references, and tips on how to prepare are available in this handbook and online at www.infocomm.org/ctsd.

Foreign Language Exams

The CTS-D exam is available in English.

Acceptance Process

If your application is approved for eligibility, an eligibility acceptance letter will be emailed to you by InfoComm within 10 business days of InfoComm receiving the completed application package with payment. The letter will contain proof of acceptance, your unique candidate ID number, contact information to schedule the testing appointment with Pearson VUE and additional information.

CTS-D exam eligibility requires that candidates:

1. Agree to the terms and conditions as noted in the CTS-D Application, which includes agreement to the CTS Code of Ethics & Conduct.

2. It is strongly recommended that candidates have the skills and/or experience as indicated in the Exam Content Outline, found in Appendix A.

3. Must have a valid CTS certification and be in good standing with the Certification Committee (no sanctions or pending investigations)

4. Verify that they have a minimum of two (2) years of audiovisual DESIGN experience, specifically in audiovisual DESIGN.

5. Agree to read and abide by the CTS Code of Ethics and Conduct

CTS-D applications that are complete, meet all eligibility requirements, and for which payment has been approved, will be initially processed and an e-mail sent to the applicant within 10 business days of receiving the completed CTS-D application with required documentation in the InfoComm Certification Office. Applications that are incomplete or for which payments have been denied will delay approval. If the application is not accepted, a letter of explanation will be e-mailed to the applicant. Please be sure to include all required documentation with your application to avoid denial and/or delay.

Professional Testing Centers and Locations

InfoComm exams are administered through the professional testing company Pearson VUE, which provides state-of-the-art testing centers and services in the United States and internationally. All CTS exams are now computer-based tests (CBTs). Pearson VUE testing centers incorporate state-of-the-art security and professionally designed testing environments.

Applicants are strongly encouraged to make sure they know the exact location and physically travel to the exam site prior to the exam date to prevent getting lost and arriving late. In addition, it is strongly recommended that extra time be allowed in the event of unforeseen circumstances such as a traffic delay, flat tire and weather conditions. Plan your trip to arrive at least 30 minutes before your appointment. **No-shows or late arrivals (which are considered no-shows) will NOT be admitted and will result in an additional fee and a requirement to reschedule as described under No-Shows or Late-for-Appointment below.**

The physical addresses of all Pearson VUE testing centers are available at *www.pearsonvue.com/infocomm*, click on Locate a Testing Center.

Exam Appointment Scheduling and Rescheduling Process

An approved candidate's information is sent from InfoComm to Pearson VUE at the time the eligibility approval email is sent to the candidate. The candidate may then contact Pearson VUE after 24 hours from receipt of the eligibility approval to schedule the testing appointment. Candidates who are approved for testing have a 120-day window from the date of the eligibility approval notice to complete the initial exam.

Note: The earlier an applicant who has been approved contacts Pearson VUE to schedule the testing site, date and time, the better the chance of obtaining the preferred choice, as all testing centers are scheduled on a first-come, first-served appointment basis. Once the candidate has made a confirmed appointment with Pearson VUE, the testing center will immediately send the candidate an appointment confirmation email.

To change the original exam center appointment, or to postpone or reschedule the testing appointment date or time, the candidate must contact Pearson VUE. Candidates must reschedule or postpone exam appointments (by contacting Pearson VUE - not InfoComm) no later than 24 hours prior to the testing appointment to avoid additional fees.

No-Shows or Late-for-Appointment Policies

Candidates who are late or do not arrive for the testing appointment, or who do not cancel or reschedule their testing appointment as described in the previous section, will be required to re-apply and re-schedule the testing appointment through InfoComm. Candidates must complete and submit a reinstatement application along with the reinstatement fee to InfoComm, no later than 120 days from the missed/not scheduled exam. The reinstatement fee includes the testing center seat fee.

Certain extenuating circumstances may be appealed to the Director of Certification at InfoComm. Examples include disaster resulting in an officially declared "local state of emergency," death of an immediate family member within 14 calendar days prior to the exam date (copy of death certificate or obituary must be provided for consideration of the cancellation and rescheduling fee to be waived), or sudden illness or injury. A doctor's verification may be required.

Fee Schedule (Exam Application, Rescheduling, No-Show, Retesting, Renewal, Replacement/Duplicate Certificates)

The exam fee must be paid by providing credit card information on the application form or attaching a check at the time the application is submitted.

Certification Fee Schedule

	USD Member	USD Non-Member	Euro Member	Euro Non-Member	GBP Member	GBP Non-Member	AUD Member	AUD Non-Member
2017 CERTIFICATION FEE SCHEDULE _Effective January 1st, 2017_ _Applicable VAT and taxes are NOT included_								
CTS	375	475	340	430	280	350	500	635
CTS-D	475	575	430	520	350	425	635	765
CTS-I	475	575	430	520	350	425	635	765
Developing Country CTS	165	215	150	195	125	160	220	285
Developing Country CTS-D	215	265	195	240	160	195	285	355
Developing Country CTS-I	215	265	195	240	160	195	285	355
Retest/Reinstatement	130		120		100		175	
Renewal	130		120		100		175	
Dual Specialty Renewal	260		235		190		345	

InfoComm International is providing exams at a reduced fee to individuals in certain countries in order to make certification more accessible worldwide. InfoComm International uses The World Bank's annual country and lending groups report in order to determine which countries will be eligible for reduced exam fees. Below are the countries currently eligible:

East Asia and Pacific		
American Samoa	Malaysia	Samoa
Cambodia	Marshall Islands	Solomon Islands
China	Micronesia, Fed. Sts	Thailand
Fiji	Mongolia	Timor-Leste
Indonesia	Myanmar	Tuvalu
Kiribati	Palau	Tonga
Korea, Dem. Rep.	Papua New Guinea	Vanuatu
Lao PDR	Philippines	Vietnam
Europe and Central Asia		
Albania	Kazakhstan	Russian Federation
Armenia	Kosovo	Serbia
Azerbaijan	Kyrgyz Republic	Tajikistan
Belarus	Macedonia, FYR	Turkey
Bosnia and Herzegovina	Moldova	Turkmenistan
Bulgaria	Montenegro	Ukraine
Georgia	Romania	Uzbekistan
Latin America and the Caribbean		
Argentina	Ecuador	Nicaragua

Belize	El Salvador	Panama
Bolivia	Grenada	Paraguay
Brazil	Guatemala	Peru
Colombia	Guyana	St. Lucia
Costa Rica	Haiti	St. Vincent and the Grenadines
Cuba	Honduras	Suriname
Dominica	Jamaica	Venezuela, RB
Dominican Republic	Mexico	
Middle East and North Africa		
Algeria	Jordan	Tunisia
Djibouti	Lebanon	West Bank and Gaza
Egypt, Arab Rep.	Libya	Yemen, Rep.
Iran, Islamic Rep.	Morocco	
Iraq	Syrian Arab Republic	
South Asia		
Afghanistan	India	Pakistan
Bangladesh	Maldives	Sri Lanka
Bhutan	Nepal	
Sub-Saharan Africa		
Angola	Gabon	Nigeria
Benin	Gambia, The	Rwanda
Botswana	Ghana	São Tomé and Principe
Burkina Faso	Guinea	Senegal
Burundi	Guinea-Bissau	Sierra Leone
Cameroon	Kenya	Somalia
Cabo Verde	Lesotho	South Africa
Central African Republic	Liberia	South Sudan
Chad	Madagascar	Sudan
Comoros	Malawi	Swaziland
Congo, Dem. Rep.	Mali	Tanzania
Congo, Rep	Mauritania	Togo
Côte d'Ivoire	Mauritius	Uganda
Equatorial Guinea	Mozambique	Zambia
Eritrea	Namibia	Zimbabwe
Ethiopia	Niger	

Examination Withdrawal with Partial Refund of Fee

In order to be considered for complete withdrawal of testing with a refund of a portion of the examination fee (equal to one half original fee paid due to administrative and seat fees); the approved candidate must contact the InfoComm office directly within the 120-day eligibility time

frame. In the event there is an examination scheduled, the candidate must provide the examination cancellation email from Pearson Vue at the time of requesting partial refund.

On the Day of the Exam

Candidates should report to the exam center on the day of exam as instructed in their appointment confirmation letter and plan to arrive at least 30 minutes prior to the appointment time. Candidates must check in using two forms of valid ID, one of which must be a government issued photo ID with signature (driver's license, government ID or passport) with you to the testing center. For testing center identification purposes, candidate must bring both a valid government issued ID and a secondary ID that has a matching signature to the name on the government ID. **THE FIRST AND LAST NAMES ON THE PHOTO ID MUST MATCH EXACTLY THE NAMES SUBMITTED ON THE APPLICATION OR THE CANDIDATE WILL BE DENIED ADMISSION.** Candidates can make changes to their names by contacting InfoComm (certification@infocomm.org) prior to scheduling their exam appointment. Candidates will also be required to provide a digital signature and have a digital photo taken when checking in.

The candidate demographic information used in exam application/eligibility documents, the certification database, on the certification, etc. is recorded in English. For certain Asian countries, specifically, China, Hong Kong and Taiwan, if a candidate does not have their English name printed on his/her passport, the candidate must use standard Pinyin to translate his/her name into English to match up to the required ID policies noted below. For ID purposes at the testing center the candidate must fulfill ONE of these options:

Valid Passport Option- For the exam application and certification process candidates should use the name as displayed on a valid passport. For ID purposes at the testing center, the candidate must present a valid passport which matches the exam application and eligibility notice.

OR

Government Issued ID and one other ID Option- The standard Pinyin English translated name must be used for the exam application and certification process. For testing center identification purposes, **both** a valid government issued National ID for the photo verification **and** either a valid credit card or military ID that has a matching signature to the name on the National ID for the signature portion of the verification of ID must be provided by the candidate. Testing center staff will verify that the standard Pinyin English translated names on the two presented IDs match the exam application/eligibility documents.

	Candidates will not be admitted to take the exam if any of the above requirements are not met. Candidates who are not permitted to test due to violation of the above agreement will forfeit their exam fee, and must reapply and pay a reinstatement fee in order to reschedule another exam date no later than 120 days from the missed/not scheduled exam.

Candidates should be at the exam site at least 30 minutes prior to the scheduled start time. It is not necessary (however, it is preferred) to have your email or letter of confirmation with you, but you must have proper identification, which includes the valid ID mentioned above with the name and address on the ID matching the information on file with InfoComm and Pearson VUE (per earlier confirmations sent to the candidate upon scheduling).

> ⚠️ Anyone who arrives after the assigned testing appointment time will be considered a "no-show," will not be admitted and will be required to re-apply by contacting InfoComm and paying a reinstatement fee in order to retake the exam, no later than 120 days from the missed/not scheduled exam.

The exam center supervisor will keep the official time and ensure that the proper amount of time is provided for the exam. There is a countdown timer in the upper left of the screen that will display the amount of time left. Shortly after completion of the exam the candidate will receive an email and will be requested to complete an electronic survey, which will be used to measure and improve the entire exam process.

The candidate will be reminded when logging in to the testing center computer screen prior to being allowed to take the exam that he/she has agreed to follow the CTS Code of Ethics and Conduct and non-disclosure agreements earlier during the application process.

During the exam, candidates will have access to an online calculator and a wipe-off note board provided by the testing center.

Candidates will have the capability to provide comments for any question, as well as mark questions and return to them for review.

Candidates are not allowed to bring anything into the testing room. Secure lockers are provided to candidates to store their personal items while taking the exam.

The following are NOT PERMITTED in the exam room or center:

- slide rules, papers, dictionaries or other reference materials
- telephones, signaling devices such as pagers, cell phones
- alarms or recording/playback devices of any kind
- calculators
- photographic or image copying devices
- electronic devices of any kind
- jewelry or watches (time will be displayed on computer screen and wall clocks in each testing center)
- caps or hats (except for religious reasons)

No exam materials, notes, documents, or memoranda of any kind are to be taken from the exam room. Questions concerning the content of the exam will not be answered during the exam. Listen carefully to the instructions given by the supervisor and read all directions thoroughly.

The supervisor may dismiss a candidate from the exam for any of the following reasons:

- If the candidate's admission to the exam is unauthorized
- If a candidate creates a disturbance or gives or receives help

- If a candidate attempts to remove exam materials or notes from the testing room
- If a candidate attempts to take the exam for someone else
- If a candidate has in his/her possession any item excluded from the exam center as specified above
- If a candidate exhibits behavior consistent with memorization or copying of exam items

Restroom breaks are permitted but are included as part of the allotted time for the actual exam. Any individual who removes or attempts to remove exam materials including memorizing exam questions or observed cheating in any manner while taking the exam will be subject to disciplinary and/or legal action. Sanctions could result in removal of the credential or denial to apply for any InfoComm credential.

Any unauthorized individual found in possession of exam materials will be subject to disciplinary procedures in addition to possible legal action. If the individual is a Certified Technology Specialist, sanctions could result in the removal of certification.

Candidates in violation of InfoComm testing policies are subject to forfeiture of exam fee, disciplinary and/or legal action.

Hazardous Weather or Local Emergencies

In the event of hazardous weather, or any other unforeseen emergencies occurring on the day of an exam, Pearson VUE will determine whether circumstances require the cancellation. Every attempt will be made to administer all exams as scheduled. Pearson VUE has an incident management team, which handles these events. When an exam center must be closed, Pearson VUE contacts all affected candidates and asks them to reschedule. Candidates are contacted through every means available: email and all phone numbers. This is another reason for candidates to provide and maintain up-to-date contact information with InfoComm and Pearson VUE.

Exam Security

All exam materials are the property of InfoComm. Removal of any material from the exam room by unauthorized persons is prohibited. Copyrights for the CTS, CTS-D and CTS-I exams are owned by InfoComm. Any attempt to reproduce or memorize all or part of the exam is prohibited by law unless written permission is obtained from InfoComm.

Appeals and Complaints

Eligibility Appeals

Applicants who are denied eligibility may request reconsideration of the decision of denial by making an appeal to the Eligibility Committee. Requests for an appeal must be made no later than 30 days after the applicant is denied. Appeals are reviewed by the Director of Certification to determine if the appeal is a valid appeal. Should the appeal be found invalid, the Director of Certification shall notify the candidate of the reason(s) the appeal is not valid. The Director of Certification shall also notify the candidate if additional information is needed, or the appeal is being forwarded to the Appeals Committee for review. Within 60 days of the receipt of the

written appeal, the Eligibility Committee must conclude its deliberations. Decisions of the Eligibility Committee can be appealed to the Appeals Committee. Requests for appeal to the Appeals Committee must be made no later than 30 days after the Eligibility Committee decision. Within 60 days of the receipt of the written appeal the Appeals Committee must conclude its deliberations. All decisions of the Appeals Committee are final.

Certification Appeals

Appeals of the denial of initial certification may only be made for:

•Technical difficulties experienced during exam administration

•Fairness of the execution of the certification testing procedures

Appeals must be submitted in writing to the Director of Certification within 30 days of the instance in question. Appeal requests must include specific reasons for the appeal. Appeals are reviewed by the Director of Certification to determine if the appeal is a valid appeal. Should the appeal be found invalid, the Director of Certification shall notify the candidate of the reason(s) the appeal is not valid. Should the appeal be found valid, the Director of Certification will assign an appeals number to the case and gather all additional information relative to the specific appeal issue to be considered. The appeal case packet will then be forwarded to the Appeals Committee for review and a conference call meeting with the Appeals Committee will be established for deliberation of the case. After the Appeals Committee, has concluded its deliberations and reached a decision, the Director of Certification or designated certification staff will notify the applicant in writing.

Renewal Appeals

Requests for an appeal in the case of a denied renewal must be made to the Certification Office no later than 30 days after the notification to the applicant of denied renewal. Appeals are reviewed by the Director of Certification to determine if the appeal is a valid appeal. Should the appeal be found invalid, the Director of Certification shall notify the candidate of the reason(s) the appeal is not valid.   The Director of Certification shall also notify the candidate if additional information is needed, or if the appeal is being forwarded to the Renewal Committee for review. Within 60 days of the receipt of the written appeal, the Renewal Committee must conclude its deliberations.

Decisions of the Renewal Committee can be appealed to the Appeals Committee. Requests for appeal to the Appeals Committee must be made no later than 30 days after the Renewal Committee decision. Within 60 days of the receipt of the written appeal, the Appeals Committee must conclude its deliberations. All decisions of the Appeals Committee are final.

Administrative Complaints

Any individual applying for certification or recertification may file a complaint of an administrative nature. Administrative complaints include dissatisfaction with services including, but not limited to: not adhering to published deadlines; not providing information regarding fees, refunds, exam registration information, requirements for certification and recertification, Code of Ethics, etc.; failure to administer the examination; or general dissatisfaction with services related to certification.

Complaints related to examination content, examination administration irregularities, and alleged violations of the Code of Ethics are handled through separate complaints processes.

Complaints must be submitted in writing, utilizing the Administrative Complaint Form, to InfoComm Certification within 3 business days following the date on which the individual encountered the service leading to the complaint. Complaints received beyond the deadline will not be considered.

Upon receipt, InfoComm Certification shall review the complaint and acknowledge receipt of the complaint to the complainant. Complaints not falling under the categories established as "Administrative" shall be considered invalid and no further action shall occur. The complainant shall be informed of this within 5 business days following the date of receipt of the complaint.

InfoComm Certification has 5 business days following the date of receipt of the complaint, to investigate the complaint. Within 2 business days of completion of the investigation, the complainant will receive a response, and if the complaint is valid and actionable, the complainant shall be notified of the redress, if any. Redress shall be proportionate to the nature of the complaint and shall be granted on a case-by-case basis. All decisions of InfoComm Certification are final.

Code of Ethics and Conduct Complaint Process

Every candidate and audiovisual professional certified through the Certification Committee must adhere to the Certification Committee CTS Code of Ethics and Conduct.

When it is believed that a CTS®, CTS-D® or CTS-I® has violated this code, the first step is to complete the Professional Discipline Complaint Form in its entirety, sign it, and submit with any documentation to the InfoComm Certification Office.

Upon receipt, the Ethics and Disciplinary Committee will determine whether an inquiry can be initiated under its authority. This committee will consider matters regarding possible violations of the CTS Code of Ethics and Conduct including falsification of applications.

The ethics and disciplinary process used will be governed by the Rules and Procedures of the Ethics and Disciplinary Committee.

The Ethics and Disciplinary Committee shall have the power to, but shall not be obligated to, investigate all allegations of unprofessional and unethical conduct that may be harmful to colleagues, the public, or that otherwise may be contrary to the objectives of the CTS Code of

Ethics and Conduct, provided that such allegations are made in writing and are signed by the complainant.

If, during the course of its investigation, the committee determines that there may be additional violations of the code, the committee may investigate and reach appropriate findings regarding such additional violations within the Certified Technology Specialist Rules and Procedures Regarding Ethical and Professional Discipline Complaints.

The Ethics and Disciplinary Committee reports findings to the Certification Committee, publishes sanctions and shall also at least annually review the CTS Code of Ethics and Conduct and the Certified Technology Specialist Rules mentioned above to ensure that the integrity, professionalism and competency of those certified through the CTS program are suited to the needs of InfoComm International and the audiovisual profession.

Matters involving fraudulent use of the credential and/or trademark or copyright violations will be investigated and aggressively pursued by the Certification Committee and InfoComm International.

Summary of Scoring Process

InfoComm establishes the minimum passing score for each examination based on an extensive psychometric profile of the examination. The final passing score for each examination form is established by a panel of subject matter experts using a criterion-referenced process, which defines the minimally acceptable level of competence.

Note: In order to allow scores on one examination form to be compared to scores on another examination form, the scores are scaled so that the passing score is always 350 out of a possible 500 points. The scaling process is a simple linear transformation that does not affect the rank ordering of scores or whether a particular candidate passes or fails the examination. This process is very similar to that used for converting measurements from inches to centimeters; the actual length of the item being measured has not changed, only the scale used to describe the length has been changed.

Candidates who do not pass the examination are provided with percentages of correctly answered items in primary content areas. An additional scoring FAQ sheet is provided online. As an additional quality control step, analysis of each item's (question's) actual performance is conducted by psychometricians on a periodic basis. On a rare occasion if an item is determined through this analysis to be a "poor performer" using psychometric analysis and subsequent review by the exam committee, credit may be given retroactively to scores already issued. If the adjustment changes should move a candidate from a fail to pass category, the InfoComm certification office will notify the candidate and process accordingly. Only candidates whose status changes from fail to pass as a result of the adjustment will be notified.

The percentage scores reported for each content domain are provided in order to help candidates identify their relative areas of strength and weakness in order to assist them with future study efforts. It is not possible to arrive at your total exam score by averaging these percentages because there are differing numbers of items on the examination from each of the

domains. Information on the number of questions drawn from each domain is provided in the Candidate Handbook.

The passing standard was established by a panel of content experts using criterion referenced process which takes into consideration the difficulty of the questions used on each examination form. As a result, the actual number of questions that must be answered correctly in order to pass may vary slightly. In other words, on a harder examination form candidates would have to answer fewer items in order to achieve a passing score. In order to allow scores from one examination form to be compared to scores from another form, professional testing experts scale the scores so that the passing score on both forms is equal to 350. Even though 350 is 70 percent of 500, the passing score on the examination may not be exactly 70 percent.

For further information, please see the Scaled Scoring FAQ on the www.infocomm.org/ctsd website under "CTS-D Resources."

A score report is provided at the testing center upon completion of the exam. No results are provided over the phone. A sample "Pass" and "Fail" score reports are provided in Appendix H and I in this handbook. As appropriate, a certificate, pin, and other information will be sent via mail.

Following certification best practices, as a final check and balance actual field results of exam questions are analyzed periodically and occasionally necessitate rescores of the exam. If a rescore occurs and results in a change in status from a fail to pass, the Certification Office will notify the candidate.

Cancellation of Scores

The Certification Committee is concerned with reporting only valid scores. On rare occasions, circumstances may invalidate exam scores. The Certification Committee reserves the right to cancel or withhold exam scores if there is any reason to question their validity.

Doubts may be raised about the validity of candidates' scores because of suspected misconduct; in such circumstances, candidates should cooperate in the investigation of their scores. Such candidates will be notified of procedures to ensure fair treatment. Some scores may be rendered invalid due to circumstances beyond candidates' control, such as faulty exam materials or mis-timing. In this rare event, retesting will be arranged.

In addition to the reasons listed above, the Certification Committee may cancel or invalidate exam results if, upon investigation, violations of Certification Committee policies outlined in this publication have been committed.

Special Accommodations for Exams

The Certification Committee complies with the Americans with Disabilities Act (ADA) (or country equivalent) and is interested in ensuring that no individual is deprived of the opportunity to take the exam solely by reason of a disability as defined under the ADA (or equivalent). There are two forms required: *Request for InfoComm (CTS, CTS-D, CTS-I) Exam Special*

Accommodations, and *InfoComm (CTS, CTS-D, CTS-I) Exam, Healthcare Documentation of Disability Related Needs.* Both are found in this Candidate Handbook as Appendix C and D.

Applicants requiring special accommodations must complete both forms and submit them with their application information to the InfoComm Certification Office no later than 45 days prior to the desired exam date. Requests for special testing accommodations require documentation of a formally diagnosed and qualified disability by a qualified professional who has provided evaluation or treatment for the candidate.

Note: Requests without proper documentation will not be processed until all required documentation is received by InfoComm and the 45-day advance notice window will begin as of the date all documentation is received.

Retesting

Candidates who do not pass the CTS-D exam may retake the exam two additional times (with a minimum period of 30 days between the exams). Complete the CTS-D Exam Retest Form found as **Appendix G** in this handbook and available at www.infocomm.org/ctsd , no later than 120 days from the date of your last exam attempt. Candidates have up to 120 days to retest each time, once approved for a retest. After two retest attempts, the individual must wait a period of 90 days before restarting the application process. This period allows the applicant time to adequately prepare for the retest and prevents over-exposure to the exam. Currently certified CTS individuals may not retake the CTS exam, except as specified by the InfoComm renewal policy. Candidates must meet all eligibility requirements in effect at the time of any subsequent application. Please see Fee Schedule for pricing.

Application-Related Information

CTS-D Eligibility Requirements

Note: See *Appendix A* for complete CTS-D Exam Content Outline.

The InfoComm CTS-D job description as established by the Job Task Analysis is as follows:

A Certified Technology Specialist-Design (CTS-D) is an AV systems designer who assesses client's needs, designs systems, and collaborates with other professionals to implement solutions that satisfy clients' requirements. A minimum of two years' industry experience accompanies the theoretical and practical competencies.

Specific CTS-D Applicant Eligibility Requirements

CTS-D exam eligibility requires that candidates:

- Hold current certification as a general CTS
- Have signature agreement to the terms and conditions including the CTS Code of Ethics and Conduct.
- Be in good standing with the Certification Committee (no ethics cases or sanctions)
- Provide documentation verifying a minimum of two years audiovisual industry experience in audiovisual design as verified by signature of owner, supervisor, HR department OR provide redacted documentation such as W2s, performance reviews, client letters etc.

Note: Applicants are strongly urged to refer to the examination content outline/blueprint found in Appendix A for details regarding the level of skill and knowledge required to earn the CTS-D.

Auditing of Applications

The Certification Committee randomly audits applications to verify the applicant's eligibility to take the exam. A candidate whose application is being audited will be notified in writing by the certification office and given a reasonable time frame to provide any additional documentation that is required. If a candidate does not respond by the deadline, or does not provide the required documentation within the given time frame, he or she may be declared ineligible. If the exam has already been taken, any candidate or individual certified through the Certification Committee found to be ineligible will be referred to the Certification Ethics and Disciplinary Committee to be processed under the guidelines of that committee.

Application Procedures

Visit the InfoComm website (www.infocomm.org/ctsd) to apply for the CTS-D certification exam. First, read or download the free CTS-D Candidate Handbook and current CTS-D candidate application. CTS-D applications may be found online at www.infocomm.org/ctsd, or may be printed and mailed, scanned and emailed, or faxed along with required documentation and

payment as noted on the application (the application is located in Appendix B of this handbook). All signatures must be submitted by the applicant and agreed to as provided in the CTS-D application.

InfoComm will review and respond to applications within approximately 10 business days following receipt of the complete application materials and payment. For applications that are incomplete or lack documentation and/or payment, InfoComm will contact the applicant regarding the missing requirements. Once approved for eligibility, the applicant will be notified within one business day of InfoComm submitting approval information to Pearson VUE and the candidate then may contact Pearson VUE after a 24-hour period to make a testing appointment.

Testing center locations may be found by visiting Pearson VUE: www.pearsonvue.com/infocomm and clicking on "Locate a Testing Center".

Subsequent questions, comments or suggestions should be directed to:
InfoComm International, Attn. Certification Office
11242 Waples Mill Rd., Suite 200, Fairfax, VA 22030
1.800.659.7469 or +1.703.273.7200
+ 1.703.991.8259 Fax
certification@infocomm.org
www.infocomm.org

CTS Code of Ethics and Conduct and Disciplinary Policies

As a credible credentialing organization, the Certification Committee is committed to and is obligated to protect and defend the credentials provided by InfoComm. Every candidate and audiovisual professional certified through the Certification Committee must adhere to the CTS Code of Ethics and Conduct (see Appendix E). When it is believed that a CTS, CTS-D, or CTS-I has violated this CTS Code of Ethics and Conduct, the first step is to complete the Professional Discipline Complaint Form (link to the form is available at Code of Ethics and Conduct). The form may also be obtained by calling or writing the InfoComm Certification Office.

The Professional Discipline Complaint Form must be completed in its entirety, signed, and submitted with any documentation to:

InfoComm International, Attention: Certification Office
11242 Waples Mill Rd., Suite 200
Fairfax, VA 22030

Please include all suitable documentation in support of this complaint. Upon receipt, the Ethics and Disciplinary Committee will determine whether an inquiry can be initiated under its authority. Please be advised that this committee will consider matters regarding possible violations of the CTS Code of Ethics and Conduct including falsification of applications. The process used will be that as found on the website at Code of Ethics and Conduct.

The Ethics and Disciplinary Committee shall have the power to, but shall not be obligated to, investigate all allegations of unprofessional and unethical conduct that may be harmful to colleagues, the public, or that otherwise may be contrary to the objectives of the CTS Code of Ethics and Conduct provided that such allegations are made in writing and are signed by the

complainant. If, during the course of its investigation, the committee determines that there may be additional violations of the code, the committee may investigate and reach appropriate findings regarding such additional violations within the Certified Technology Specialist Rules and Procedures Regarding Ethical and Professional Discipline Complaints.

The Ethics and Disciplinary Committee reports findings to the Certification Committee, publishes sanctions and shall also at least annually review the CTS Code of Ethics and Conduct and the Certified Technology Specialist Rules mentioned above to ensure that the integrity, professionalism and competency of those certified through the CTS program are suited to the needs of InfoComm International and the audiovisual profession.

Matters involving fraudulent use of the credential and/or trademark or copyright violations will be investigated and aggressively pursued by the Certification Committee and InfoComm International.

Important CTS-D Certification Program Information

Certification Committee's Position on Education

The Certification Committee believes that as a credible credentialing organization, it should facilitate appropriate preparation of candidates for the CTS-D exams. InfoComm, under the requirements of the ISO/IEC 17024:2012 standard will provide appropriate exam preparatory materials and other programs and services as allowed by those accreditation requirements and will continue to work with other audiovisual stakeholders to encourage educational and training programs in assisting candidates with attaining knowledge, skills and abilities as audiovisual professionals.

The InfoComm Certification Committee and InfoComm do not accredit or endorse any particular training course or source of education as a guarantee of success on the CTS-D exams.

The Certification Committee and InfoComm in keeping with the accreditation requirements of the ISO/IEC 17024:2012 standard do not link any training or education programs or any other educational provider's educational programs offered to obtaining a CTS-D credential.

The Certification Committee provides as public information a CTS-D Candidate Handbook, an exam content outline with job task analysis information, a primary reference materials listing, glossary, and other materials online at www.infocomm.org/ctsd. These are suggested materials in helping individuals to become prepared for the CTS-D exam. The list and information provided is not intended to be inclusive of all potentially useful resources, nor does inclusion on this list constitute an endorsement by the Certification Committee. The Certification Committee does not endorse any particular reference as being completely accurate and encompassing and it is recommended that applicants utilize multiple resources in the process of preparing for the exam.

Experience indicates that audiovisual technology candidates who participate in formal training programs emerge better prepared for their professional positions as audiovisual technology specialists and as qualified candidates for the CTS-D certification exam than those who do not.

Certification Committee Statement of Non-Discrimination

All levels of the certification program do not discriminate among applicants on the basis of age, gender, sexual orientation, race, religion, national origin, disability, marital status and ethnicity.

Confidentiality

The Certification Committee and InfoComm adheres to required best practices utilizing strict guidelines as regards confidentiality of candidates, certificants, score results, and all certification related materials not otherwise deemed public information. All committee, panel and task force chairs, and members are required to sign a confidentiality agreement. InfoComm staff and testing-service staff assigned to the InfoComm account are also required to sign a confidentiality agreement.

Information about candidates and their exam results is confidential. Studies and reports concerning candidates will contain no information identifiable with any candidate, unless authorized by the candidate.

All personal data including applications, payments, scores, and contact information maintained by InfoComm or InfoComm testing partners is stored in confidential electronic and hard copy files with access limited to authorized and designated staff.

Opt-Out Policy

Limited information is provided publicly in the searchable directory of certified CTS, CTS-D and CTS-I individuals located at www.infocomm.org/ctssearch This information is limited to first and last name, city, state, country and expiration date. Anyone certified as a CTS, CTS-D and/or CTS-I who do not wish to have his or her information included in the online directory should contact the InfoComm Certification Office by letter or email at certification@infocomm.org. Upon request, the InfoComm Certification Office is required to respond to requests to verify certification of an individual to include name, current certification level(s), good standing or any current sanctions that may be in place and expiration date. The CTS, CTS-D and CTS-I online directory contents are the property of the Certification Committee and are to be used for verification purposes only.

The Certification Committee will not sell or rent contact lists of certificants. As part of the application and ongoing credential renewal process, the Certification Committee policies provide permission for certification staff, agents and contractors to contact certified CTS individuals by U.S. mail, electronic mail, and facsimile or via other media on matters limited to those that the Certification Committee believes may be of significant interest to a CTS, CTS-D and CTS-I. To be removed from the CTS, CTS-D and CTS-I mailing list, contact the InfoComm Certification Office by letter or email at certification@infocomm.org.

Trademarks and Copyrights

InfoComm has trademarked the Certified Technology Specialist and CTS certification marks in the U.S. and is in the process of doing so internationally. In addition, all exam materials and all publications of InfoComm - both printed and electronic - are copyrighted. These trademarks and copyrights are protected under U.S. and international law and any unauthorized uses of these marks or copyrights are prohibited. Violators are subject to prosecution under applicable laws. In order to use any of these marks or portions of these materials, individuals or organizations must obtain prior approval in writing from the certification office.

Address, Name or Contact Information Changes

Candidates and subsequent CTS certified individuals who have a change in their mailing address or contact information must notify the certification office in writing (email, fax or mail) to ensure that all records, score reports and certificates are sent to the correct address and received in a timely manner. Change of address requests should be mailed, emailed or faxed to:

InfoComm International, Attn. Certification Office
11242 Waples Mill Rd., Suite 200, Fairfax, VA 22030
1.800.659.7469 or +1.703.273.7200
+1.703.991.8259 Fax
certification@infocomm.org

The Certification Committee issues certificates to successful candidates in their legal name. Candidates who legally change their name must notify the certification office in writing. Name change requests should be mailed to the certification office. Please note that a notarized copy of official or certified documentation supporting the request (e.g., a notarized copy of a marriage certificate) must be included with the request. Requests received without official documentation will not be processed.

Duplicate or Replacement Certificates

Individual duplicate or replacement certificates can be ordered through the certification office for a small fee. See the chart of pricing in the Fee Schedule. Duplicates/replacements may only be ordered by the CTS holder. Any change of address must be requested in writing from the CTS holder (email is satisfactory).

If you have not received your certificate, you must notify the certification office within 120 days of earning/renewing your certification(s). If the certification office is not notified within 120 days, the duplicate certificate fee must be paid.

Verification of Credentials

The Certification Committee provides a searchable online CTS directory located at www.infocomm.org/ctssearch. In addition, individuals or organizations may request written verification of an individual's registry status from the certification office. Requests for verification may be made to the certification office in writing, by fax, by telephone or by email. It is the responsibility of the certification office to verify certification information regarding those certified through the CTS certification program. Information provided online and in response to individual requests is limited to the following: first and last name, city, state, country and expiration date.

An individual certified as a CTS, CTS-D and/or CTS-I who do not wish to have his or her information included in the online directory should contact the certification office by letter or email at certification@infocomm.org. InfoComm is obligated, however, to provide current certification status when contacted. Current sanctions against those certified are posted online on the Code of Ethics and Conduct webpage.. The Certification Committee online directory contents are the property of the Certification Committee and are to be used for verification purposes only.

Renewal Policy

To maintain the integrity and value of certification in a fast-changing industry, all certified individuals must renew every three years through continuing education. Please download a copy of the Certification Renewal Handbook, which will guide you through the renewal process. The CTS, CTS-D and/or CTS-I holders must submit a Certification Renewal Application (see Appendix F) in this handbook or online at www.infocomm.org/renewal) to the certification office every three years with the required information and a renewal fee (see Fee Schedule).

Note: Please note that it is critical to notify the certification office of any email and other contact changes while maintaining certification. This is the only way that the certification office can notify you of an upcoming expiration date or other critical information.

Certificate holders applying for renewal at any CTS level:

- Must have completed thirty approved (30) renewal units (RUs) within the three year certification period. (Note: each specialty level of certification over the basic CTS level must be renewed separately, however the general CTS does not have to be renewed if the individual maintains a higher specialty level of certification (CTS-I or CTS-D). Please refer to the handbook for details.
- Must sign and agree to continue to abide by and uphold the CTS Code of Ethics and Conduct (included in the renewal application).
- Must agree to continue to use any CTS designation in an authorized and appropriate manner. Only those individuals who maintain their CTS certification requirements may continue to use the CTS designation.

CTS-D Renewal Requirements

It is the responsibility of the certification holder to keep a record of renewal units earned. InfoComm helps by providing a transcript of all courses that are registered through InfoComm. Outside sources are to provide proof of attendance. It is highly advisable to begin a log and record renewal unit activity as it occurs.

CTS and CTS-D Expiration	Renewal Units (RUs) Required	Fee	Renewal Requirement (If expired for less than 120 days)	Renewal Requirement (If expired for greater than 120 days)
3 years	30 RU's with a minimum of 15 RU's for the CTS-D level with remainder of RU's from general CTS level	$130 USD (plus any applicable taxes)	Same RUs and fee	Must retest with regular exam fee

Sources for renewal units are explained in the Certification Renewal Handbook, and include InfoComm University online and classroom courses; InfoComm seminars and workshops; approved manufacturer, private vendor, and association courses; postsecondary education, specified teaching, and InfoComm volunteer hours. InfoComm maintains a list of eligible courses and associated renewal units. Please visit www.infocomm.org/renewal to download a copy of the Certification Renewal Handbook.

For AV professionals maintaining both a CTS-D and CTS-I credential, please see the Certification Renewal Handbook for details.

An updated list of renewal unit providers is posted on the InfoComm certification web pages. Visit www.infocomm.org/renewal to stay current with the renewal unit opportunities available.

Other InfoComm CTS Certification Program Recognition

The InfoComm CTS certification program is also approved by the United States Veteran's Administration for reimbursement to veterans under the GI Bill. For further information, please go to www.gibill.va.gov/pamphlets/LC_brochure.pdf

Preparation and Education

CTS-D Exam Content Outline Process

A detailed job task analysis is available under "CTS-D Resources" of InfoComm's website. Visit *www.infocomm.org/ctsd*.

To create this exam, a group of volunteers participated in a study to identify the major categories (domains) for the certification examination and topics within each domain based on the jobs and tasks a certified individual might perform. These categories and topics have already been organized into an Exam Content Outline (a complete test outline, including the percentage of each content area to the overall test) that is approved by a scheme (exam) committee.

As you prepare for the exam, you may encounter several terms about the exam process that are new to you. A glossary of terms used is provided at the beginning of the handbook.

Preparation and Testing Tips for the Exam

Step One: Self-Assessment

The first step to prepare for the exam is a self-assessment of your readiness:

- Review the description in this handbook of what a CTS-D does. Do you feel ready to fulfill all of these tasks? (Also refer to the CTS-D Resources located at www.infocomm.org/ctsd.)
- Have you met the eligibility requirements?
- Take the free CTS-D Practice Exam

Step Two: Review of Exam Topics

Review the exam content outline from two different perspectives:

- Which content areas represent the greatest number of test questions? The greater the number of possible questions on the exam, the more focus you need on these topics to prepare for the exam. As an example, if there is only one question out of 100 questions on a specific item, it would not make sense to spend 50% of your study time on that topic.
- How does your current knowledge and skill compare to these content areas? Are you strong in some but weak in others? If you have had extensive training and/or experience in a specific area, you may decide that your focus should be on the areas that are less familiar to you.

Your analysis of these two questions will help you decide where you need to spend your study time.

Step Three: Define Difficulty Level

It is hard to define difficulty levels, as what may be easy for some can be harder for others. Some topics may also seem broad in scope. Here are some tips to help you gauge the scope of the topic:

- Revisit the credential description and the eligibility requirements, if any. Is it expected that someone with this level of experience would be able to do this task at this level?
- Using the full duties/tasks/steps document from the Exam Content Outline, explore each topic by reviewing the skills, knowledge and tools and equipment required to do the work appropriately to help you determine to what level you need to prepare.
- Correlate suggested reference works against the topics. What level of difficulty do they represent?
- Review sample questions.

Step Four: Determine your Learning Style

How do you learn? Are you a hands-on learner? If so, attending a classroom course or working with a mentor with plenty of opportunity to work directly with the gear or discuss concepts may be best for you. Interactive online courses are helpful for people who don't have time or resources to travel to a classroom course, and who enjoy the opportunity to repeat lessons until they feel comfortable. You may prefer a reference book that you can highlight and annotate. You need to determine the best method for you and use the reference materials that help you prepare appropriately.

Study Recommendations

The study recommendations described here may be helpful as you prepare for the exam. Try to be objective about your abilities when you are deciding how best to proceed with your study.

Determine how you study best. Some individuals seem to learn faster by hearing information, while others need to see it written or illustrated, or prefer to discuss material with colleagues. A combination of these alternatives may produce the most effective study strategies for you. If you have had success in lecture courses with little outside review, it may be that you need to HEAR information for best retention. If you find that you prefer to READ material, then you might consider writing down important information on index cards and refresh your memory by periodically reviewing the cards.

This is especially effective if you write the material thoughtfully and concisely, allowing for study through both writing and reading. Additionally, you may wish to organize a study group and find a study partner. Once you decide on a study approach, focus on that preference and use the other methods to supplement it.

Plan your study schedule in advance of the exam and allow sufficient time for meaningful, organized study. Find a quiet place to study where you will not be interrupted. Candidates who are unfamiliar with computers may wish to practice ahead of time using a computer.

A computer-based testing tutorial will be provided at the beginning of the exam.

On the Day of the Exam

Note: The following summary regarding the exam process is presented to familiarize you with helpful information for taking the exam.

- Plan to arrive at the site of the exam the night before the exam, unless you live in the locale of the exam center (i.e., no more than one hour driving distance), and get a good night's rest.
- Candidates should actually go to the physical location of the testing center prior to the exam to ensure exactly where to go and how to get there on the day of the exam and allow extra time for unforeseen events such as traffic and flat tires. This will help reduce unnecessary stress.
- Eat a well-balanced meal prior to reporting to the exam center on the day of the exam, but limit the amount of stimulants you ingest (e.g., caffeine).
- Read and follow all instructions carefully.
- Be at the exam site at least 30 minutes prior to the scheduled start time for registration processing.
- For best results, pace yourself by periodically checking your progress. This will allow you to make necessary adjustments. Remember, the more questions you answer, the better your chance of achieving a passing score. If you are unsure of a response, eliminate as many options as possible and choose an option from those that remain. You will be allowed to mark questions for review prior to the end of the exam.
- Be sure to record an answer for each question, even if you are not sure the answer is correct. You can note the questions you wish to review and return to them later. All questions are of equal weight. Avoid leaving any questions unanswered; marking an answer to all questions will maximize your chances of passing. There is no penalty for guessing and each item counts one point.
- Candidates are encouraged to go through the pre-exam tutorial at the test site as well as a pre-exam tutorial available prior to your appointment at the www.pearsonvue.com/infocomm site.

CTS-D Exam Primary References

A detailed job task analysis is available on the CTS-D Exam Resources page of InfoComm's website. Visit www.infocomm.org/ctsd and select the CTS-D Job Task Analysis under CTS-D Resources.

ISO/IEC 17024:2012 accreditation requirements acknowledge the need for candidates to prepare for exams from a variety of materials and sources. InfoComm and the Certification Committee acknowledge that they are not the sole provider of reference and educational materials for these questions. The audiovisual industry represents both science and art; some areas are documented, many areas are still in debate.

InfoComm has created a resource center for you at www.infocomm.org/ctsdprep. It's called "CTS-D Exam Preparation." It provides assessment tools and material references to help you study for the exam. Note the following references:

For an overview of AV design best practices:

- AV Design Level 1: Environment
- AV Design Level 2: Infrastructure
- AV Design Level 3: Applied Design
- CTS-D Prep and CTS-D Prep Virtual Classroom (content derived from three courses above)

For an overview of networked AV system design:

- Networked AV Systems (course) and *Networked AV Systems* (McGraw Hill Publication)

For an overview of AV design calculations: AV Math for Design Online

Other resources:

- InfoComm Standards:
- Audio Coverage Uniformity in Enclosed Listener Areas
- Standard Guide for Audiovisual Design and Coordination Processes
- Projected Image System Contrast Ratio
- Audiovisual Systems Energy Management
- Audiovisual Systems Performance Verification

For greater understanding in areas of AV project life cycle and project management, the *AV Implementation Handbook* is recommended.

There is a wide range of materials and education available about the audiovisual industry in general that would be helpful in your preparation. Examples include:

- Content Related White Papers

- InfoComm Webinars: visit www.infocomm.org/webinars

Other Reference Materials

There is a wide range of materials and education available about the audiovisual industry in general that would be helpful in your preparation. Examples include:

- Lampen, Stephen H. 2002. *Audio/Video Cable Installer's Pocket Guide.* New York: McGraw-Hill.

- Da-Lite, ed. *Angles of View: Collected Edition 1995-1997.* Warsaw, Ind.: Da-Lite Screen Company, 1997.

- Giddings, Philip. *Audio Systems Design and Installation.* Boston: Focal Press, 1990.

- Project Management Institute, Inc. 2004. *A Guide to the Project Management Body of Knowledge* (PMBOK) 4th edition. Newton Square, Pa.

Abbreviations/Glossary

Please go to www.infocomm.org/certification for the most recent version of InfoComm's abbreviations and glossary.

Sample Questions

To help you prepare, here are some sample questions. First, it is helpful to distinguish between a knowledge-based vs. job/task based question. The exam questions are job/task based. Compare the two types:

Here is an example of a **knowledge-based** question:

Aspect ratio is the
A. relationship of the width to the height of a displayed image.
B. viewer's attitude when viewing an image.
C. relationship of the viewer distance to the screen size.
D. relationship of the number of viewers to the screen diagonal measurement.

Certification questions need to relate knowledge and skill to a specific job task. To answer correctly, the candidate needs to have the knowledge and then take it to the next step by applying the knowledge to a specific task in the audiovisual industry. The aspect ratio question above verifies that the candidate knows a specific fact.

A job/task based question using this knowledge would look like this:
In order to calculate the BTU output of a device, the designer should _____ by 3.415.
A. Multiply the wattage
B. Divide the wattage
C. Multiply the impedance
D. Divide the impedance

Here is another example of a job/task-based question:
Given a 10 Port, 10 Base-T switch, ten network devices can be connected with each device having its own _____ Mbps communications bus.
A. 1
B. 2
C. 5
D. 10

Try these:

If you were designing a front projection system and were unsure about the exact location of pendant lighting in the room, you would generate an:
A. RFI
B. RFP
C. RTM
D. SOL
The answer would be RFI (Request for Information).
RFP is Request for Proposal
RTM is Read the Manual
SOL is Standards of Learning

To measure background noise in a room, you would use a measurement device that measures:
A. SPL
B. NC
C. RTA
D. RT-60
The answer is NC (Noise Criteria)
SPL is Sound Pressure Level and is a one-number rating, inadequate for properly measuring background noise levels.
RTA is a Real-Time Analyzer. Although an NC number could be derived from information displayed on the RTA, using a device that directly provides an NC number would be more proper.
RT-60 is a measurement of reverberation in the room, and although it has a direct bearing on speech intelligibility, it is not a measurement of background noise.

To properly make brightness and contrast adjustments to a projector you would employ a _____ pattern:
A. Alternating Pixel
B. Checkerboard
C. Grayscale
D. SMPTE Color Bars
The answer is Grayscale.
The alternating pixel pattern is used to assess the high frequency performance of a display.
The checkerboard pattern is used to evaluate contrast ratio.
SMPTE color bars are used for color adjustment of NTSC signals.

Appendix A: CTS-D Exam Content Outline

The CTS-D exam specifications were developed by combining the importance, criticality, and frequency data obtained from the Job Task Analysis study. The resulting data were converted to percentages and the percentages were used to determine the number of questions related to each domain and task that should appear on the multiple-choice CTS-D examination. The test specifications in the table below list how many questions are included in each Domain and Task and the percentage of the test included in each domain. The Job Task Analysis Final Report can be downloaded at www.infocomm.org/ctsd under "CTS-D Resources."

CTS-D Exam Content Outline	% of Exam	# of Items
Domain A: Conducting a Needs Assessment	**15.2%**	**19**
Task 1: Identify stakeholders/decision-makers	1.6%	2
Task 2: Identify skill level of end users	1.6%	2
Task 3: Educate the AV client	0.8%	1
Task 4: Review client technology master plan	1.6%	2
Task 5: Identify clients' procurement processes	0.8%	1
Task 6: Research clients' business process	0.8%	1
Task 7: Research clients' business environment	0.8%	1
Task 8: Define AV needs (absolutes)	2.4%	3
Task 9: Identify scope of work	2.4%	3
Task 10: Identify regulatory requirements and project certification goals	2.4%	3
Domain B: Collaborating With Other Professionals	**25.6%**	**32**
Task 1: Review A/E (architectural and engineering) drawings	4%	5
Task 2: Coordinate architectural/interior design criteria	3.2%	4
Task 3: Coordinate structural/mechanical criteria	3.2%	4
Task 4: Coordinate electrical criteria	3.2%	4
Task 5: Coordinate lighting criteria	3.2%	4
Task 6: Coordinate IT and network security criteria	4%	5
Task 7: Recommend acoustical criteria	2.4%	3
Task 8: Coordinate life safety and security criteria	2.4%	3
Domain C: Developing AV Designs	**49.6%**	**62**
Task 1: Create draft AV design	10.4%	13
Task 2: Confirm site conditions	8%	10
Task 3: Produce infrastructure drawings	10.4%	13
Task 4: Produce AV system documents	11.2%	14
Task 5: Produce AV build documentation	9.6%	12
Domain D: Conducting Project Implementation Activities	**9.6%**	**12**
Task 1: Participate in project implementation communication	2.4%	3
Task 2: Perform system verifications	4%	5
Task 3: Conduct system close out activities	3.2%	4
Total	**100.0%**	**125**

CTS-D Examination: Job Task Analysis

A detailed job task analysis is available on the CTS-D Exam Resource page of InfoComm's website. Visit www.infocomm.org/ctsd

Domain A: Conducting a Needs Assessment
Task 1: Identify stakeholders/decision-makers

Knowledge of:

- Contractual relationships
- How to identify project decision makers

Attributes:

- Ability to work as part of a team or team leader
- Good verbal communication skills
- Good written communication skills
- Attention to detail
- Good interpersonal skills

Domain A: Conducting a Needs Assessment
Task 2: Identify skill level of end users

Knowledge of:

- Video components
- Networking
- AV terminology

Attributes:

- Ability to translate AV speak into IT speak
- Ability to translate AV speak into lay terms
- Good listening skills
- Good verbal communication skills
- Good written communication skills
- Good interpersonal skills

Domain A: Conducting a Needs Assessment
Task 3: Educate the AV client

Knowledge of:

- Basic concepts of auxiliary systems
- Accessibility issues
- AV systems
- Networking
- Local regulatory issues
- AV products

Attributes:

- Basic computer skills
- Ability to communicate ideas clearly
- Public speaking

Domain A: Conducting a Needs Assessment
Task 4: Review client technology master plan

Knowledge of:

- Basic fiscal planning terminology (ROI, etc.)
- Client's structured cabling system
- Equipment life cycles
- RoHS and other green issues

Attributes:

- Good verbal communication skills
- Good written communication skills

Domain A: Conducting a Needs Assessment
Task 5: Identify clients' procurement processes

Knowledge of:

- Purchasing terms and processes

Attributes:

- Good verbal communication skills
- Good written communication skills
- Good interpersonal skills

Domain A: Conducting a Needs Assessment
Task 6: Research clients' business process

Knowledge of:

- Workflows in business environments

Attributes:

- Good verbal communication skills
- Good written communication skills
- Good interpersonal skills

Domain A: Conducting a Needs Assessment
Task 7: Research clients' business environment

Knowledge of:

- Existence of encryption standards
- IT bandwidth
- Network systems & terminology (IP based networks)

Attributes:

- Good verbal communication skills
- Good written communication skills
- Good interpersonal skills

Domain A: Conducting a Needs Assessment
Task 8: Define AV needs (absolutes)

Knowledge of:

- AV systems
- Networking

Attributes:

- Good verbal communication skills
- Good written communication skills

Domain A: Conducting a Needs Assessment
Task 9: Identify scope of work

Knowledge of:

- Basic drafting skills
- General AV products
- AV systems
- markups/profit margins for budgeting
- other technology disciplines (structured cabling, lighting, acoustics, networking etc,)
- Program report checklists

Skill in:

- Basic and Advanced math
- Good verbal communication skills
- Good written communication skills
- Flexibility

Domain A: Conducting a Needs Assessment
Task 10: Identify regulatory requirements and project certification goals

Knowledge of:

- Local regulatory issues

Skill in:

- Utilizing reference materials
- Good verbal communication skills
- Good written communication skills
- Good interpersonal skills

Domain B: Collaborating With Other Professionals
Task 1: Review A/E (architectural and engineering) drawings

Knowledge of:

- Architectural details that impact AV
- Architectural drawing symbols
- AV best practices (stage height, size of screen vs.
seating arrangements, viewing angles, viewing distances,
height of screen, ceiling soffits, distribution of audio, etc.)
- Drawing conventions

Skill in:

- Ability to calculate room dimensions
- Ability to read construction drawings
- Good math skills
- Understanding of construction specifications
- Understanding of drawing scale
- Attention to detail
- Ability to mentally visualize based on drawings
- Ability to use a scale ruler
- Ability to use a scientific calculator

Domain B: Collaborating With Other Professionals
Task 2: Coordinate architectural/interior design criteria

Knowledge of:

- AV design best practices
- AV equipment capabilities
- Construction materials
- Construction practices
- Current display technologies

Attributes:

- Ability to calculate area
- Ability to identify 3 dimensional interference issues from 2 dimensional plans
- Ability to visualize spatial relationships from plans
- Understanding of AV maintenance requirements
- Understanding of AV systems operational requirements
- Understanding of equipment space and access requirements
- Understanding of ergonomic best practices
- Understanding of Inverse Square Law
- Ability to utilize reference materials

Skill in:

- CAD Software
- Using a calculator
- Using a computer
- Using light meters
- RTA (real time analyzer)
- Using scale rulers and measuring devices
- Using a SPL (sound pressure level) meter

Domain B: Collaborating With Other Professionals
Task 3: Coordinate structural/mechanical criteria

Knowledge of:

- Mechanical (HVAC) components
- Equipment clearance/safety issues
- equipment mounting technologies
- Mechanical handling and access equipment
- Local codes
- Equipment mounting best practices
- Structural mounts
- Types of mounting hardware

Attributes:

- Ability to calculate BTU loads
- Understanding of proper air flow
- Ability to understand manufacturer specifications

Skill in:

- CAD Software
- Using a calculator
- Using a computer
- Using scale rulers and measuring devices
- Mechanical drawings

Domain B: Collaborating With Other Professionals
Task 4: Coordinate electrical criteria

Knowledge of:

- AV best practices
- Electrical regulatory requirements
- Appropriate use of 3 phase power
- Grounding
- Ohm's Law

Attributes:

- Ability to calculate conduit size
- Ability to calculate electrical power loads
- Ability to calculate amplifier load requirements
- Understanding of electrical terminology
- Understanding of power management technology

Skill in:

- Using a calculator
- Utilizing reference materials

Domain B: Collaborating With Other Professionals
Task 5: Coordinate lighting criteria

Knowledge of:

- Attributes of luminaries
- Color Rendering Index (CRI) by application
- Lighting color temperature by application
- Lighting controls protocols (DMX, RS 232, closed contact, DALI, RS 485, RS 422, etc.)
- Lighting fixture types
- Maximum allowable light levels at the screen
- Room lighting levels by application

Attributes:

- Ability to measure lighting levels
- Ability to calculate contrast ratios
- Ability to use a light meter

Skill in:

- CAD Software
- Using a calculator
- Lighting cut sheets
- Lighting design software
- Utilizing reference manuals

Domain B: Collaborating With Other Professionals
Task 6: Coordinate IT and network security criteria

Knowledge of:

- Existence of encryption standards
- IP protocols and addressing
- Fiber optics
- IT terminology
- Networking terminology
- Structured cabling
- Wireless network systems

Skill in:

- Ability to communicate with IT professionals

Domain B: Collaborating With Other Professionals
Task 7: Recommend Acoustical Criteria

Knowledge of:

- Inverse Square Law
- Ohm's Law
- Speaker placement
- Speech intelligibility metrics
- Acoustic isolation from adjacent spaces

Skill in:

- Basic math and physics of sound (wavelengths, frequency, logarithms, etc.)
- Ability to calculate speaker coverages
- Ability to measure ambient noise

Domain B: Collaborating With Other Professionals
Task 8: Coordinate life safety and security criteria

Knowledge of:

- Electronic security systems
- Fire alarm systems
- Equipment network requirements
- Local codes
- Physical security issues

Skill in:

- Utilizing reference materials

Domain C: Developing AV Designs
Task 1: Create draft AV design

Knowledge of:

- Image aspect ratios
- Audio components
- Audio crossovers
- AV systems
- Cable types
- Control components
- Digital world clock
- Distance limitations
- Equipment manufacturers
- AV market forces/trends
- Networks
- Properties of sound and light
- Signal types
- AV streaming over IP
- Video components
- Video formats (HDTV, SDTV, etc.)
- Video timing (Genlock, video sync)
- Signal limitations
- Content encryption techniques and DRM
- Redundancy

Skill in:

- Math and physics
- Audio design software
- Computers
- Utilizing reference manuals
- Comprehending user manuals and specifications

Attributes:

- Ability to apply Inverse Square Law, logarithmic calculations
- Ability to apply Ohm's Law
- Ability to calculate contrast ratio
- Ability to calculate PAG/NAG
- Ability to calculate required amplifier power
- Ability to calculate screen brightness/contrast ratio
- Ability to calculate speaker coverages
- Ability to calculate video bandwidth
- Ability to calculate audio delay
- Ability to calculate projector throw distances
- Ability to calculate viewing angles
- Ability to determine screen size for application
- Basic computer skills
- Basic drafting skills
- Basic understanding of control system protocols
- Understanding of basic principles of RF propagation
- Understanding of bit rate
- Understanding of decibels
- Understanding of display technologies (plasma, LCD, CRT, DLP, LED, LCoS)
- Understanding of limitations of control systems
- Understanding of microphone and loudspeaker polar patterns
- Understanding of product warranties
- Understanding of quantization
- Understanding of resolution capabilities (pitfalls of mixing resolutions)
- Understanding of relationship between font size and screen size (visual acuity)
- Understanding of sampling rate and Nyquist Frequency
- Understanding of sensory communication (human ear, eyes, etc.)
- Understanding of signal properties (frequency, wavelength, amplitude, phase, bandwidth)

Domain C: Developing AV Designs
Task 2: Confirm site conditions

Attributes:

- Image aspect ratios
- Audio components
- Audio crossovers
- AV systems
- Cable types
- Control components
- Digital world clock
- Distance limitations
- Equipment manufacturers
- AV market forces/trends
- Networks
- Properties of sound and light
- Signal types
- AV streaming over IP
- Video components
- Video formats (HDTV, SDTV, etc.)
- Video timing (Genlock, video sync)
- Signal limitations
- Content encryption techniques and DRM
- Redundancy

Skill in:

- Using ladders safely
- Using a light meter
- PPE
- Using scale rulers and measuring devices
- SPL meters

Domain C: Developing AV Designs
Task 3: Produce infrastructure drawings

Knowledge of:

- Architectural terminology
- Construction abbreviations
- Construction practices
- Architectural/engineering drawing symbols

Skill in:

- CAD software
- Computers
- Drafting supplies
- Using scale rulers and measuring devices

Attributes:

- Ability to convert measurements
- Ability to direct the production of CAD drawings
- Ability to read construction drawings
- Basic drafting skills
- Attention to detail

Domain C: Developing AV Designs
Task 4: Produce AV system documents

Knowledge of:

- Network systems & terminology(IP based networks)
- Architectural terminology
- AV best practices
- Reading equipment setup configurations
- Regulatory requirements

Skill in:

- CAD software
- Computers
- Drafting supplies
- Using a printer/plotter

Attributes:

- Ability to convert measurements
- Ability to create schematic diagrams
- Ability to direct the production of CAD drawings
- Ability to produce custom furniture details
- Basic drafting skills
- Understanding of DSP products

Domain C: Developing AV Designs
Task 5: Finalize project documentation

Knowledge of:

- AV delivery models
- Project documentation

Attributes:

- Understanding of specification and tender documentation
- Ability to specify performance criteria

Domain D: Conducting Project Implementation Activities
Task 1: Participate in project implementation communication

Knowledge of:

- Construction contractual relationships
- Construction roles and responsibilities
- Construction terminology

Attributes:

- Understanding of construction processes
- Good verbal communication skills
- Good written communication skills
- Attention to detail
- Diplomacy
- Flexibility
- Tact
- Understanding of construction documents
- Understanding of construction forms
- Understanding of project documents and specifications

Domain D: Conducting Project Implementation Activities
Task 2: Perform system verifications

Knowledge of:

- Audio and video theory
- Acceptable signal levels
- Test equipment

Skill in:

- Using an audio analyzer
- Using an audio generator
- Using a colorimeter
- Using an impedance meter
- Using a laptop
- Using a level (spirit level)
- Using a light meter
- Using a multimeter
- Using an oscilloscope
- RTA
- Using a SPL meter
- Using a tape measure
- Using a test pattern generator
- Using testing software
- Using UTP cable testers
- Using a wave form monitor

Attributes:

- Ability to identify common audio problems
- Ability to identify common video problems
- Ability to read system schematic diagrams

Domain D: Conducting Project Implementation Activities
Task 3: Conduct system close out activities

Attributes:

- Conflict resolution skills
- Good verbal communication skills
- Good written communication skills
- Attention to detail
- Common sense
- Meticulous

Appendix B: Certified Technology Specialist – Design (CTS-D) - Exam Application

Section I: Summary of Eligibility Requirements

To be eligible to take the CTS-D exam, a candidate must:

- Hold current certification as a general CTS
- Have signature agreement to the terms and conditions including the CTS Code of Ethics and Conduct
- Be in good standing with the Certification Committee (no ethics cases or sanctions)
- Provide documentation verifying a minimum of two years' audiovisual industry experience in audiovisual design as verified by signature of owner, supervisor, HR department OR provide redacted documentation such as W2s, performance reviews, client letters, etc.

Applicants are strongly urged to refer to the examination content outline found in Appendix A of the CTS-D Candidate Handbook.

InfoComm has created a CTS-D Exam Resource center at www.infocomm.org/ctsdprep, which provides assessment tools and resource information to help you prepare yourself for the exam.

Candidates for the CTS-D examination, administered by the independent InfoComm Certification Committee, must complete all sections of this application in full and submit the application with the required examination fee. The application may be downloaded online at www.infocomm.org/ctsd, and then emailed as a completed PDF, mailed, or faxed to the certification office:

InfoComm International, Attn. Certification Office
11242 Waples Mill Rd., Suite 200, Fairfax, VA 22030

Contact information for additional information:
1.800.659.7469 or +1.703.273.7200
+1.703.991.8259 Fax
certification@infocomm.org
www.infocomm.org

Note: Candidates for the CTS-D examination administered by the Certification Committee must complete all sections of this application with payment to be considered for eligibility to take the CTS-D examination. Application must be emailed, mailed or faxed to the certification office.

Note: Candidates are strongly encouraged to carefully review the CTS-D Candidate Handbook available online at www.infocomm.org/ctsd BEFORE applying. Obtain important information regarding preparing for the exam, the application and testing process including all fees, as well as the exam content outline/blueprint and references for the exam.

Section II: Applicant Information

> **⚠ Important Note**
> Name MUST match your government issued identification that will be presented at the testing center. Failure to do so will result in being denied exam access.

First (Given) Name _____ Last (Family) Name _____

Address 1 _____

Address 2 _____

City _____ ZIP/Postal Code_____

State/Province_____ Country_____

Phone_____ FAX_____ Email_____

❑ Yes I have a valid CTS certification and have no sanctions or pending investigations through the Certification Committee.

Section III: Employment History
Please complete employment history, latest experience listed first.

Most Recent Employer (1) _____

Address 1 _____

Address 2 _____

City _____ ZIP/Postal Code_____

State/Province_____ Country_____

Supervisor Name _____ Supervisor Title_____

Employment Dates_____ Your Title_____

Employer Phone_____   Employer Email_____

Employer (2) _____

Address 1 _____

Address 2 _____

City _____ ZIP/Postal Code_____

State/Province_____ Country_____

Supervisor Name _____ Supervisor Title_____

Employment Dates_____ Your Title_____

Employer Phone_____ Employer Email_____

Section IV: Documentation of Experience

	This section must be completed and signed if the candidate chooses to verify experience by employer. If you choose not to have your employer verify experience, you must provide alternate documentation of two years audiovisual design experience. Examples would include redacted W2s, evaluations, client letters or similar documents.

Current accreditation standards under which the CTS-D is accredited require that a candidate for the CTS-D examination validate that they have met the prerequisite of possessing a minimum of two (2) years of design experience in the area of audiovisual design. If the verification of experience by employer option is chosen by the candidate, this form must be signed by the employer, supervisor, or HR department of the candidate's employer as verification as noted below:

I hereby affirm that the following candidate _____ (*Print candidate's name*) for the CTS-D examination has met the requirement of a minimum of two (2) years of design experience in audiovisual design. I also understand that applicants accepted as candidates and those certified as CTS-D have agreed to a Code of Ethics and Conduct and that providing false information on an exam application may result in an investigation and subsequent sanctions against the candidate by the Certification Ethics Committee that could include suspension of privileges as an applicant to apply for an InfoComm certification exam for a set period of time or suspension/removal of an existing certification.

Verifier's Name (Please print) _____

Title or position (Please print) _____

Company _____

Contact phone _____ Contact email _____

Signature _____ Date signed_____

Section V: Applicant Special Accommodations Request

Please check **Yes** or **No**: ❑Yes ❑ No

*If yes, you must complete the Request for InfoComm Examination Special Accommodations AND Healthcare Documentation of Disability Related Needs forms in the CTS-D Candidate Handbook online at www.infocomm.org/ctsd and mail to the certification office a **minimum of 45 days** prior to your desired testing date.*

Section VI: Agreement and Signature

By checking the box and by typing or signing my name in the space provided, I agree to the following:

- I authorize the Certification Committee to obtain any background information necessary to verify the accuracy and completeness of my responses to all questions contained herein.
- I understand that the Certification Committee may audit candidate applications to verify experience or education either prior to or after an examination is taken, or after the results are announced. I agree to cooperate with such audit and further understand that providing false information for verification of experience or education, or having others to do so is a violation of the Certified Technology Specialist Code of Ethics and Conduct and may result in sanctions.
- I hereby certify that I have read all portions of this application and the CTS-D Candidate Handbook and believe myself to be in compliance with all admission policies related to the CTS-D examination. The information I submit on this application and any documents I have enclosed or forwarded are complete, true and correct to the best of my knowledge and belief.
- I agree to immediately inform the certification office of all changes to the information included in this application while I am an applicant, and for as long as I am certified by the Certification Committee.
- I hereby attest that I am signing, either in person or electronically if by other than mailed application, and that I will be the individual taking the CTS-D examination I have applied for, solely for the purposes of CTS-D certification. I further understand that I am prohibited from transmitting information regarding examination questions or content in any form to any person or entity, and understand that failure to comply with this prohibition may result in my certification being revoked and/or legal action being taken against me.
- I have read, understand, and agree to be bound by the certification-related policies and procedures and Certified Technology Specialist Code of Ethics and Conduct promulgated by the Certification Committee. I understand and agree that my failure to abide by the Certification Committee's policies and procedures and Certified Technology Specialist Code of Ethics and Conduct shall constitute grounds for rejection of my application or denial or revocation of my certification.
- I understand that if successful I will be listed in the online professional certification registry; however if in the future if I should not want to continue to be listed in the online registry, that I should send an email request stating such to certification@infocomm.org or fax/mail the request to the certification office. I understand that even if my credentials are not listed in the online directory InfoComm will continue to verify credentials upon request.
- I agree to give the Certification Committee, and its agents and contractors, permission to contact me by U.S. mail, electronic mail, facsimile, or through other media on matters that InfoComm believes may be of importance to me. Should I wish to be taken off the certification mailing list in the future, I will send an email request stating such to certification@infocomm.org, or fax/mail the request to the certification office.

❑ I have read, understand, and agree to the terms listed above.
Please check the box and personally sign or type name and date below as your electronic signature of agreement if this application is submitted other than by mail.

Applicant Signature: _____ Date: _____

Section VII: Examination Fees and Payment Method

	USD Member	USD Non-Member	Euro Member	Euro Non-Member	GBP Member	GBP Non-Member	AUD Member	AUD Non-Member
CTS-D	475	575	430	520	350	425	635	765
Developing Country CTS-D	215	265	195	240	160	195	285	355

Note: Please note that applications will not be processed unless accompanied by a payment for the correct amount, signatures and any attachments required as a part of the eligibility requirements.

Please indicate form of payment:

□ I have enclosed a check or money order payable to InfoComm International for the appropriate amount as listed above.

OR

□ USD   □ GBP

□ I authorize InfoComm International to charge my credit card _____   □ Euro   □ AUD

Credit Card #_____Expiration Date_____

Type of Credit Card: □ Visa   □ MasterCard   □ American Express

Print Name of Cardholder_____

Signature of Cardholder_____

Print Name of Applicant if Different from Cardholder_____

OR

By wire transfer:
Wire transfers are acceptable methods of payments, however, added processing time and additional bank fees may occur as a result. The applicant is responsible for any bank fees incurred.

□ USD   □ GBP

□ Euro   □ AUD

□ I have sent a wire transfer to InfoComm International in the amount of $_____

Wire transfer #: _____
OR
Gift Card #: _____

Mail, fax, or email this application to the following addresses:
InfoComm International, Attn. Certification Office
11242 Waples Mill Rd., Suite 200, Fairfax, VA 22030
1.800.659.7469 or +1.703.273.7200
+1.703.991.8259 Fax
certification@infocomm.org
www.infocomm.org

Appendix C: Special Accommodations

Request for InfoComm (CTS, CTS-D, CTS-I) Exam Special Accommodations

If you have a disability covered by a national disabilities program (e.g., Americans with Disabilities Act), and you wish to request accommodation for a qualified disability, please complete this form AND the *Healthcare Documentation of Disability Related Needs Form* so your request can be processed efficiently. The information you provide, along with any documentation regarding your disability and your need for accommodation in testing, is strictly confidential.

Applicant Information

First (Given) Name _____ Last (Family) Name _____

Address 1:_____

Address 2:_____

City:_____ ZIP/Postal Code:_____

State/Province:_____Country:_____

Phone:_____FAX:_____Email:_____

Special Accommodations

I request special accommodations (please indicate in the table below), for the (preferred date of exam) _____ administration of the Certified Technology Specialist (CTS, CTS-D or CTS-I) Exam. I understand that the InfoComm Certification Committee may require a fee to defray the costs of these accommodations, as may be permitted by law.

Please provide (check all that apply):
   ❑ Accessible testing site
   ❑ Separate testing area
   ❑ Special seating
   ❑ Reader
   ❑ Extended testing time (time and a half)
   ❑ Other ADA special accommodations as authorized by a qualified medical professional (please specify)

Applicant's Signature: _____ Date _____

Healthcare Provider's Signature: _____ Date _____

*Return this form with your exam application information to the certification office **a minimum of 45 days** prior to the date you wish to take the exam. This request will not be processed if it is not accompanied by a properly completed InfoComm Exam Documentation of Disability Related Needs Form (Appendix D).*

Appendix D: Healthcare Documentation

InfoComm (CTS, CTS-D, CTS-I) Exam - Healthcare Documentation of Disability Related Needs

]This section must be completed by a licensed healthcare provider who has been personally involved in the diagnosis or treatment of the disability for which you are requesting accommodation, OR an educational or testing professional who has previously provided you with testing accommodations similar to those requested. This form must accompany the Request For InfoComm (CTS, CTS-D, CTS-I) Exam Special Accommodations Form.

Professional Documentation

I have known_____ (Exam Applicant's Name) since _____ (Date) in my capacity as a _____(Professional Title)

The applicant has discussed with me the nature of the exam to be administered. It is my opinion that, because of this applicant's disability described below, he/she should be accommodated by providing the special arrangements listed on the reverse side.

Comments_____

_____

_____

Signed: _____

Print Name: _____

Title: _____Date: _____

License # (if applicable) _____

*Return this form with your exam application information and the "Request for InfoComm (CTS, CTS-D, CTS-I) Exam Special Accommodations" to the certification office a **minimum of 45 days** prior to the date you wish to take the exam. Please call the InfoComm Certification Office, if you have any questions about procedures in completing this application.*

InfoComm International, Attn. Certification Office
11242 Waples Mill Rd., Suite 200
Fairfax, VA 22030

Appendix E: CTS Code of Ethics and Conduct

Certified Technology Specialist Code of Ethics and Conduct

► As a Certified Technology Specialist, I understand that my personal standards of honor and integrity must, at all times, be above reproach and I must conduct myself in a manner that reflects favorably on my profession. By doing so, I will strive to create an ethical climate within my organization, my industry and the community of clients which I serve, building honesty and trustworthiness in all of my relationships and ensuring my reliability in performing my assigned responsibilities.

► As a Certified Technology Specialist, I pledge to be truthful and accurate in what I say, do, and write. I will exhibit constructiveness and cooperation in all of my working relationships, ensuring adherence to the law at all times. I will efficiently use resources and will not reveal facts, data or information obtained in connection with services rendered without the prior consent of the client or employer - except as authorized or required by law.

► As a Certified Technology Specialist, I will demonstrate a commitment to excellence in all aspects of my profession and will consistently promote and encourage the highest level of ethics within the industry.

►As a Certified Technology Specialist, I will avoid compromise of professional judgment by conflicts of interest.

► As a Certified Technology Specialist, I will act in a manner free of bias with regard to age, gender, sexual orientation, race, religion, national origin, disability, marital status and ethnicity.

► As a Certified Technology Specialist, I will always strive to maintain proficiency by updating technical knowledge and skills.

► As a Certified Technology Specialist, I agree to inform InfoComm certification management of any matters that will affect my capability to fulfill my certification requirements.

► As a Certified Technology Specialist, I will undertake only those assignments for which I am competent by way of education, training, and experience. I will not misrepresent or permit misrepresentation of my own or associates' academic or professional qualifications nor exaggerate my degree of responsibility for any work. Furthermore, I will admit and accept my own errors when proven wrong, refraining from distorting or altering the facts in an attempt to justify my decisions.

► As a Certified Technology Specialist, I will use every opportunity to improve public understanding of the role of the communications industry. I will also have due regard for the physical environment and for public safety, health, and well-being. If my judgment is overruled under circumstances where the safety, health, property or welfare of the public may be endangered, I will notify my employer, client and/or such other authority as may be appropriate.

► As a Certified Technology Specialist, I understand that the certificate, logo, and marks are the property of InfoComm. I agree to return the certificate upon request to the Certification Committee.

► As a Certified Technology Specialist, I will uphold and follow all policies and procedures required by the Certification Committee to remain in good standing, and abide by the CTS Code of Ethics and Conduct.

Failure to abide by the CTS Code of Ethics and Conduct shall constitute grounds for denial or revocation of certification.

Appendix F: CTS Renewal Application

Name_____ Date_____

Company_____

Address_____

City/State/Country_____ Zip/Postal Code_____

Email_____

Phone_____ Fax_____

I am renewing my:
- ☐ General CTS
- ☐ General CTS & CTS-I
- ☐ General CTS & CTS-D
- ☐ CTS-D & CTS-I

Instructions:
Complete all sections of this form. An incomplete application may delay your renewal. Please be sure to check your application.
- ☐ Downloaded the most recent application from www.infocomm.org/renewal?
- ☐ Printed neatly so your application is legible?
- ☐ Included copies of required documents?
- ☐ Signed the application?
- ☐ Provided current contact information?
- ☐ Included payment?

Ways to earn Renewal Units:

InfoComm Certification Renewal Unit (RU) Options Chart*		
Activity	**RUs Available**	**Maximum RUs Allowed**
Approved Non-Manufacturer Onsite or Online Course, Webinars	1 RU per 1 hour of contact time	30 RUs No limit (Only once per 24 months for the same course)
Approved Manufacturer Onsite or Online Course	1 RU per 2 hours of contact time	30 RUs No limit (Only once per 24 months for the same course)
Approved Book and Evaluation Tool	2 RUs per book and completion of evaluation	6 RUs per 12 months (Maximum of 3 books per 12 months)
Writing an approved Industry Related and Published Article or White Paper	2 RUs per published article or white paper	6 RUs per 12 months (Maximum of 3 articles or white papers per 12 months)
Industry Related College Course of 3-4 Credit Hours	10 RUs per course	30 RUs No limit (Only once per 12 months for same course)
Teaching an RU Approved Course	1 RU per course hour and 1 RU for preparation per every 2 course hours	30 RUs No limit (Only once per 6 months for same course)
InfoComm Volunteer	3 RUs (per 12 months) for each active volunteer capacity served	3 RUs (per 12 months) for each active volunteer capacity served
30 RUs required in a 3-year period.		
RUs are offered in half (.5) units, based on 30 minutes of contact time rounded to the nearest 30 minutes. For example, 35 minutes = .5 RUs; 45 minutes = 1 RU; and 1 hour and 40 minutes = 1.5 RUs.		

This page is provided for your reference. Do not return with application!

Renewal Units submitted on the Renewal Application must be within the category guidelines. For a complete list of RU providers and RU approved courses please see our online RU Provider list. You may renew by successfully completing one or more of the following options:

- **InfoComm onsite or online courses**
  - A transcript of InfoComm registered courses taken by individuals may be found at www.infocomm.org/renewal.
  - ***Documentation***: Attach a copy of your InfoComm Transcript

- **Non-manufacturer onsite or online courses**
  - ***Documentation***: Attach the certificate awarded

- **Manufacturer onsite and/or online courses**
  - ***Documentation***: Attach the certificate awarded

- **College level courses of 3-4 semester hours that are related to the CTS certification level(s) I hold.**
  - Courses must be obtained from an accredited institution, related specifically to the work of the appropriate CTS level being renewed, and directly enhance the knowledge or skill level of the certificant for the certification being renewed.
  - ***Documentation***: A transcript must be provided

- **Teaching for InfoComm or other programs approved for renewal units by the InfoComm Certification Committee.**
  - ***Documentation***: Copy of course program indicating instructor, hours, date, etc.

- **Serving as a volunteer in some capacity that contributes to further development of the InfoComm Certification Committee certification program**
  - Examples include active participation as a subject matter expert, serving on a certification related committee, industry standards committee, InfoComm Board or committee, or similar activities previously submitted to and recognized by the Renewal Committee for consideration of renewal units. Certificants who submit RUs under this category are subject to verification of active participation through InfoComm records.
  - You must document your participation and identify the areas in which you have made a significant contribution to the certification program.

- **Writing an article or white paper related to an area that is addressed in one of the CTS Exam Content Outlines and is published in an AV trade media or industry related technical book.**
  - Must be submitted prior to renewal for approval by the Certification Committee
  - ***Documentation***: Copy of the published article or white paper

- **Reading a previously approved industry related book with successful completion of an evaluation tool.**
  - ***Documentation***: Copy of certificate or successful evaluation results.

I am applying for renewal of my:

❑ **CTS**: 30 RUs from any combination of CTS, CTS-D, or CTS-I approved RUs

❑ **CTS-D**: 30 RUs total with a minimum of 15 RUs approved for the CTS-D level, with the remainder from any combination of CTS, CTS-D, or CTS-I approved RUs

❑ **CTS-I**: 30 RUs total with a minimum of 15 RUs approved for the CTS-I level, with the remainder from any combination of CTS, CTS-D, or CTS-I approved RUs

❑ **CTS-D & CTS-I**: 30 RUs total using 15 RUs approved for each certification level.

Please list your activities in the table below:

Activity Type	Activity Name	Date	RUs	Apply to CTS, CTS-D or CTS-I?

Certified Technology Specialist Code of Ethics and Conduct

► As a Certified Technology Specialist, I understand that my personal standards of honor and integrity must, at all times, be above reproach and I must conduct myself in a manner that reflects favorably on my profession. By doing so, I will strive to create an ethical climate within my organization, my industry and the community of clients which I serve, building honesty and trustworthiness in all of my relationships and ensuring my reliability in performing my assigned responsibilities.

► As a Certified Technology Specialist, I pledge to be truthful and accurate in what I say, do, and write. I will exhibit constructiveness and cooperation in all of my working relationships, ensuring adherence to the law at all times. I will efficiently use resources and will not reveal facts, data or information obtained in connection with services rendered without the prior consent of the client or employer - except as authorized or required by law.

► As a Certified Technology Specialist, I will demonstrate a commitment to excellence in all aspects of my profession and will consistently promote and encourage the highest level of ethics within the industry.

►As a Certified Technology Specialist, I will avoid compromise of professional judgment by conflicts of interest.

► As a Certified Technology Specialist, I will act in a manner free of bias with regard to age, gender, sexual orientation, race, religion, national origin, disability, marital status and ethnicity.

► As a Certified Technology Specialist, I will always strive to maintain proficiency by updating technical knowledge and skills.

► As a Certified Technology Specialist, I agree to inform InfoComm certification management of any matters that will affect my capability to fulfill my certification requirements.

► As a Certified Technology Specialist, I will undertake only those assignments for which I am competent by way of education, training, and experience. I will not misrepresent or permit misrepresentation of my own or associates' academic or professional qualifications nor exaggerate my degree of responsibility for any work. Furthermore, I will admit and accept my own errors when proven wrong, refraining from distorting or altering the facts in an attempt to justify my decisions.

► As a Certified Technology Specialist, I will use every opportunity to improve public understanding of the role of the communications industry. I will also have due regard for the physical environment and for public safety, health, and well-being. If my judgment is overruled under circumstances where the safety, health, property or welfare of the public may be endangered, I will notify my employer, client and/or such other authority as may be appropriate.

► As a Certified Technology Specialist, I understand that the certificate, logo, and marks are the property of InfoComm. I agree to return the certificate upon request to the Certification Committee.

► As a Certified Technology Specialist, I will uphold and follow all policies and procedures required by the Certification Committee to remain in good standing, and abide by the CTS Code of Ethics and Conduct.

Failure to abide by the CTS Code of Ethics and Conduct shall constitute grounds for denial or revocation of certification.

This page provided for your reference. Please do not return with renewal application!

Agreement and Signature

By checking the box and by typing or signing my name in the space provided, I agree to the following:

• I authorize the Certification Committee to obtain any background information necessary to verify the accuracy and completeness of my responses to all questions contained herein.

• I understand that the Certification Committee may audit renewal applications to verify information provided as part of the application response. I agree to cooperate with such audit and further understand that providing false information for verification of meeting renewal requirements, or having others to do so is a violation of the CTS Code of Ethics and Conduct and may result in sanctions.

• I hereby certify that I have read all portions of this application and related sections of the CTS Renewal Handbook and believe myself to be in compliance with all policies related to the CTS renewal requirements. The information I submit on this application and any documents I have enclosed or forwarded are complete, true and correct to the best of my knowledge and belief.

• I agree to immediately inform the certification office of all changes to the information included in this application as long as I am certified by the Certification Committee.

• I hereby attest that I, the applicant, am signing, either in person or electronically if by other than mailed application.

• I have read, understand, and agree to be bound by the certification-related policies and procedures and CTS Code of Ethics and Conduct promulgated by the Certification Committee.

• I understand and agree that my failure to abide by the Certification Committee's policies and procedures and CTS Code of Ethics and Conduct shall constitute grounds for rejection of my application or denial or revocation of my certification.

• I understand that, if my renewal is successful, I will be listed in the online professional certification directory; however if in the future if I should not want to continue to be listed in the online directory, that I should send an e-mail request stating such to certification@infocomm.org, or fax/mail the request to the Certification Office. I understand that even if my credentials are not listed in the online directory InfoComm will continue to verify credentials upon request.

• I agree to give the Certification Committee, and its agents and contractors, permission to contact me by U.S. mail, electronic mail, facsimile, or through other media on matters that InfoComm believes may be of importance to me. Should I wish to be taken off the certification mailing list in the future, I will send an e-mail request stating such to certification@infocomm.org, or fax/mail the request to the certification office.

❑ **I have read, understand, and agree to abide by the CTS Code of Ethics and Conduct.**

Please check the box and personally sign or type name and date below as your electronic signature of agreement if this application is submitted other than by mail.

Applicant Signature: _____ Date: _____

Payment Information

	USD Member/Non-Member	Euro Member/Non-Member	GBP Member/Non-Member	AUD Member/Non-Member
Renewal	130	120	100	175
Dual Specialty Renewal	260	235	190	345

I am renewing my:

□ General CTS   □ General CTS/CTS-I   □ General CTS/CTS-D   □ CTS-D & CTS-I

□ I have enclosed a check or money order payable to InfoComm International for the appropriate amount as listed above.

OR

□ USD   □ GBP

□ I authorize InfoComm International to charge my credit card _____   □ Euro   □ AUD

Credit Card #_____Expiration Date_____

Type of Credit Card: ❑ Visa   ❑ MasterCard   ❑ American Express

Print Name of Cardholder_____

Signature of Cardholder_____

Print Name of Applicant if Different from Cardholder_____

OR

By wire transfer:

Wire transfers are acceptable methods of payments, however, added processing time and additional bank fees may occur as a result. The applicant is responsible for any bank fees incurred.

□ I sent a wire transfer to InfoComm International in the amount of _____   □ USD   □ GBP

Wire transfer #:_____   □ Euro   □ AUD

OR

Gift Card #: _____

Mail, fax, or email this application to the following addresses:
InfoComm International, Attn. Certification Office
11242 Waples Mill Rd., Suite 200, Fairfax, VA 22030
1.800.659.7469 or +1.703.273.7200
+1.703.991.8259 Fax
certification@infocomm.org
www.infocomm.org

Appendix G: Retest Application

Certified Technology Specialist™ CTS®, CTS-D® or CTS-I® RETEST Application

Candidates who do not pass the CTS, CTS-D, or CTS-I exam may retake the exam two additional times (with a minimum period of 30 days between each retake attempt) for **a fee of $130 USD worldwide** (plus any applicable taxes) for each retake attempt by using the CTS Exam Retest Form, no later than 120 days from the date of the last exam attempt.

Candidates RETESTING for the CTS, CTS-D, or CTS-I exams administered by Certification Committee must complete all applicable sections of this application along with payment in order to RETEST the CTS, CTS-D, or CTS-I exam. This retest application must be e-mailed, mailed or faxed with payment to the InfoComm Certification Office at:

> InfoComm International, Attn. Certification Office
> 11242 Waples Mill Rd., Suite 200, Fairfax, VA 22030
> 1.800.659.7469 or +1.703.273.7200
> +1.703.991.8259 Fax
> certification@infocomm.org
> www.infocomm.org

Note:
Candidates RETESTING are strongly encouraged to carefully review the CTS, CTS-D or CTS-I Candidate Handbook again, available online at www.infocomm.org BEFORE applying to RETEST in order to obtain important information regarding preparing for the exam, the RETEST application and testing process including all fees, as well as the Exam Content Outline and references for the exam.

Applicant Information – Please Print

First (Given) Name _____Last (Family) Name _____

⚠️	**Important Note:** Name must match your government issued identification that will be presented at the testing center. Failure to do so will result in being denied exam access

Address 1 _____

Address 2 _____

City _____ ZIP/Postal Code_____

State/Province_____Country_____

Phone_____ FAX_____

Email _____

Retesting for: ❏ CTS   ❏ CTS-D   ❏ CTS-I   Date of original test:_____

Date(s) of previous RETEST if you have previously retested (Maximum of two retests total are allowed): _____,

Special Accommodations Request: ❏ Yes   ❏ No

✏️	**Note:** *If yes, you must complete the Request for InfoComm Examination Special Accommodations AND InfoComm (CTS, CTS-D, CTS-I) Examination Healthcare Documentation of Disability Related Needs found in the Candidate Handbooks online at www.infocomm.org/certification and email, mail, or fax it to the InfoComm Certification Office a **minimum of 45 days prior** to your desired testing date.*

RETEST ONLY Examination Fees

	USD Member/Non-Member	*Euro Member/Non-Member*	*GBP Member/Non-Member*	*AUD Member/Non-Member*
Retest	130	120	100	175

Note: Fees include testing center "seat fees".

RETEST ONLY Agreement and Signature

- I authorize the Certification Committee to obtain any background information necessary to verify the accuracy and completeness of my responses to all questions contained herein.

- I understand that Certification Committee may audit candidate applications to verify experience or education either prior to or after an examination is taken, or after the results are announced. I agree to cooperate with such audit and further understand that providing false information for verification of experience or education, or having others to do so is a violation of the CTS Code of Ethics and Conduct and may result in sanctions.

- I hereby certify that I have read all portions of this application and the CTS Candidate Handbook and believe myself to be in compliance with all admission policies related to the CTS examination. The information I submit on this application and any documents I have enclosed or forwarded are complete, true and correct to the best of my knowledge and belief.

- I agree to immediately inform the certification office of all changes to the information included in this application while I am an applicant, and for as long as I am certified by the Certification Committee.

- I hereby attest that I am personally taking the CTS examination I have applied for, solely for the purposes of CTS certification. I further understand that I am prohibited from transmitting information regarding examination questions or content in any form to any person or entity, and understand that failure to comply with this prohibition may result in my certification being revoked and/or legal action being taken against me.

- I have read, understand, agree to be bound by the certification-related policies and procedures and Code of Ethics and Conduct promulgated by the Certification Committee. I understand and agree that my failure to abide by the Certification Committee's policies and procedures and Code of Ethics and Conduct shall constitute grounds for rejection of my application or denial or revocation of my certification.

- I understand that if successful I will be listed in the online Certification Committee's professional certification registry; however, if in the future if I should not want to continue to be listed in the online registry, that I should send an email request stating such to certification@infocomm.org or fax/mail the request to the certification office. I understand that even if my credentials are not listed in the online directory, InfoComm will continue to verify credentials upon request.

- I agree to give the Certification Committee and its agents and contractors permission to contact me by U.S. mail, electronic mail, facsimile, or through other media on matters that the Certification Committee believes may be of importance to me. Should I wish to be taken off the InfoComm mailing list in the future, I will send an email request stating such to certification@infocomm.org, or fax/mail the request to the InfoComm certification office.

❑ I have read, understand, and agree to the terms above. (Please check box and personally sign or type name and date below as your electronic signature of agreement if this application is submitted other than by mail).

Signature: _____ Date: _____

Payment Information

	USD Member/Non-Member	Euro Member/Non-Member	GBP Member/Non-Member	AUD Member/Non-Member
Retest	130	120	100	175

Please indicate form of payment:

☐ I have enclosed a check or money order payable to InfoComm International for the appropriate amount as listed above.

OR

☐ I authorize InfoComm International to charge my credit card _____

☐ USD   ☐ GBP
☐ Euro   ☐ AUD

Credit Card #_____ Expiration Date_____

Type of Credit Card: ☐ Visa   ☐ MasterCard   ☐ American Express

Print Name of Cardholder_____

Signature of Cardholder_____

Print Name of Applicant if Different from Cardholder_____

OR

By wire transfer:

Wire transfers are acceptable methods of payments, however, added processing time and additional bank fees may occur as a result. The applicant is responsible for any bank fees incurred.

☐ I sent a wire transfer to InfoComm International in the amount of _____

☐ USD   ☐ GBP
☐ Euro   ☐ AUD

Wire transfer #: _____

OR

Gift Card #: _____

Mail, fax, or email this application to the following address:

InfoComm International, Attn. Certification Office
11242 Waples Mill Rd., Suite 200, Fairfax, VA 22030
1.800.659.7469 or +1.703.273.7200
+1. 703.991.8259 Fax
certification@infocomm.org
www.infocomm.org

Appendix H: Sample Score Report – Pass- Copy

InfoComm CTS Examination Score Report - Pass

Congratulations on successfully passing the CTS-D examination!

Scores on the CTS-D Examination range from 0-500 with a minimum score of 350 required for passing. You will be receiving your certificate package from the InfoComm Certification Office within 4-6 weeks. Additional information is also provided in the CTS-D Candidate Handbook at www.infocomm.org/ctsd.

Exam Information
Candidate Name-
Exam Title-
Exam Date-
Candidate ID-
Test Site-

Score Information
Score Range – (0-500)
Minimum Passing Score- (350)
Score Achieved- (scaled score)
Result- (Pass)

If you have any questions or concerns regarding your testing experience, score report, or exam process please email InfoComm at certification@infocomm.org.

Appendix I: Sample Score Report – Fail- Copy

InfoComm CTS Examination Score Report- Fail

Unfortunately, you were not successful in your attempt to pass the CTS-D examination. Please do not be discouraged, it is not unusual for some candidates to have to retake the examination before attaining the CTS-D certification. Many candidates utilize the required waiting period for retesting to review the domains and obtain additional training or education where their performance was low. Noted below is your performance within each domain which you can use to prepare for retesting.

Scores on the CTS-D Examination range from 0-500 with a minimum score of 350 required for passing.

Please refer to the InfoComm CTS-D Candidate Handbook at www.infocomm.org/ctsd for further information regarding scoring and retesting.

Exam Information
Candidate Name-
Exam Title-
Exam Date-
Candidate ID-
Test Site-

Score Information
Score Range – (0-500)
Minimum Passing Score- (350)
Score Achieved- (scaled score)
Result- (Fail)

Domain Performance
Domain A- (percent correct)
Domain B - (percent correct)
Domain C - (percent correct)
Domain D - (percent correct)

Because the number of items in each domain varies, it is not possible to average the domain scores in order to determine your overall percentage correct score. If you have any questions or concerns regarding your testing experience, score report, or exam process please email InfoComm at certification@infocomm.org.