

UTAM Certification Procedures

Table of Contents

1.0	Introduction	2
2.0	Disablement Test Suite and Location Verification Process	3
3.0	UTAM Certification Laboratory	3
4.0	Certification Flow Chart	5
5.0	Explanation of Application Form	9
6.0	Payment of Certification Fees	11
7.0	Required Information from Manufacturer	11
8.0	Specific Information to be Submitted	12
9.0	Modification Application	13
10.0	Criteria for Acceptance of Test Data	13
11.0	Witness Testing	14
12.0	Clarification of Procedures	14
13.0	Sample Certification Letter	15

1.0 Introduction

UTAM, Inc. is designated by the Federal Communications Commission (FCC) to coordinate and manage the transition of the 1910-1930 MHz band from Private Operational Fixed Microwave Service (POFS) to unlicensed Personal Communication Service (PCS) operations. POFS licensees currently operate under FCC Rules and Regulations, Part 94. Unlicensed PCS devices are intentional radiators operating in the frequency band 1910-1930 MHz that provide a wide array of mobile and fixed communications services to individuals and businesses. A typical unlicensed PCS device may be a wireless local area network (LAN) or a private branch exchange (PBX) telephone system with mobile stations.

In order to facilitate the deployment of these devices as soon as possible, UTAM, Inc. has implemented a method for locating unlicensed PCS devices in specific areas prior to relocating, or "clearing," incumbent microwave systems. The UTAM Plan calls for manufacturers to produce equipment in such a manner that the location can be verified by UTAM, Inc. and that if the equipment is dismantled and moved, it will not operate at a new location until that location is verified and approved by UTAM, Inc. Devices that meet these criteria are dubbed "coordinatable."

To qualify as coordinatable an unlicensed PCS system or device must satisfy three disablement requirements:

- A. Any mobile part of a coordinatable system (such as a handset, PDA or notebook computer) must be disabled from operating (transmitting) when it leaves the system's coordinated environment.
- B. Coordinatable systems and devices may not begin operation until installation at the UTAM-approved location is confirmed.
- C. A coordinatable system or device that is moved from its coordinated location must be disabled and prevented from operating until installation at a new, UTAM, Inc. approved coordinated, location is confirmed.

The FCC has issued Subpart D to FCC Rules and Regulations, Part 15, that details the requirements of UTAM, Inc. and the manufacturers in the coordination and production of these devices. Each device requesting FCC certification, through Part 15, to operate in this band must be accompanied by an affidavit from UTAM stating that the coordinatable device meets the requirements of Rules 15.307(d), (e) and (h), regarding UTAM, Inc. location verification and disablement.

Ultimately, UTAM's function is to clear all the incumbent POFS licensees from the 1910-1930 MHz band, at which time devices may be deployed without coordination. However, until this goal

is reached, UTAM, Inc. must certify that the devices meet the requirements set forth by the FCC in Rule 15.307.

2.0 Disablement Test Suite and Location Verification Process

UTAM, Inc. has prepared a test specification document to aid manufacturers in the design and testing of equipment to operate in this band while microwave incumbents are being cleared. This document consists of the Location Verification Process and Disablement Test Suite. The Location Verification Process (LVP) details the criteria that must be met in order to achieve UTAM, Inc. certification with respect to Rule 15.307. The Disablement Test Suite provides the test procedures that are to be followed in testing UPCS equipment for compliance with the disablement portion of Part 15.

3.0 UTAM Certification Laboratory

UTAM, Inc. has subcontracted with an independent body to perform the function of reviewing applications and test data to determine if the unlicensed PCS device or system is coordinatable. The UTAM Certification Laboratory has the capability to perform the required tests and take the necessary steps to assure that the products submitted are coordinatable. UTAM, Inc. has selected Communication Certification Laboratory to act as the UTAM Certification Laboratory.

Testing can be performed by any laboratory, including either the manufacturer's own internal test facility or an independent third party laboratory. Laboratories submitting test data to UTAM, Inc. must meet the requirements given in this document.

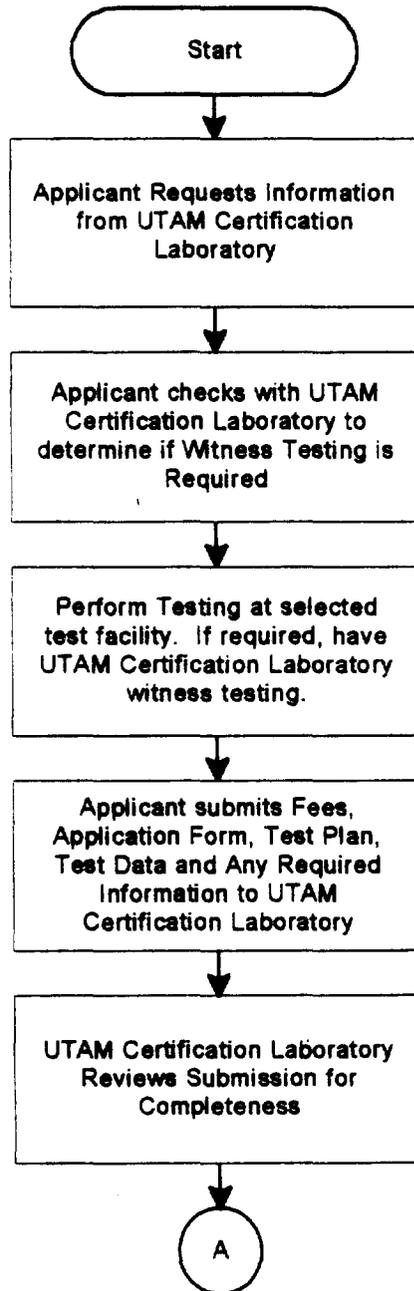
The UTAM Certification Laboratory provides the following functions:

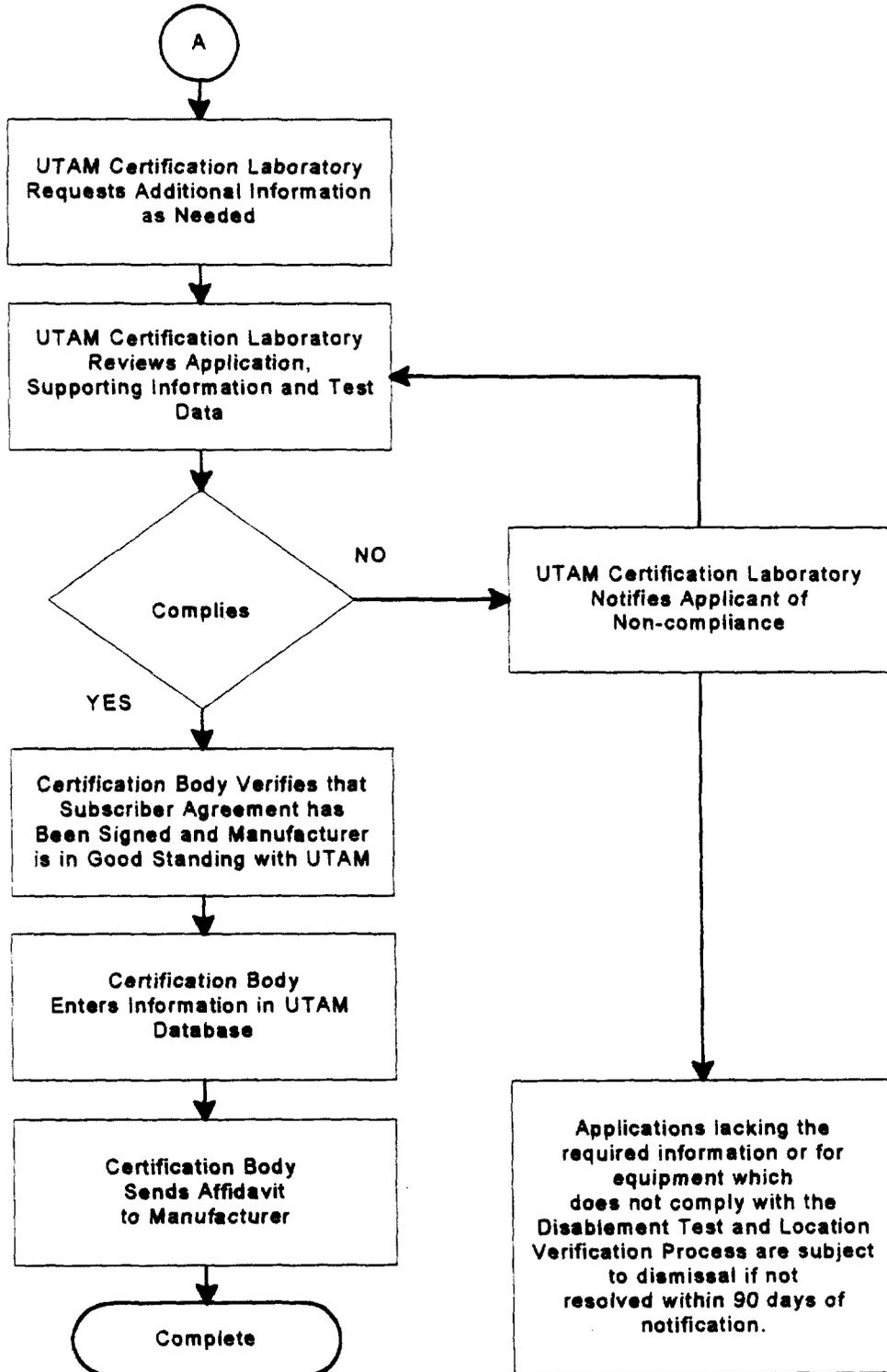
- A. The UTAM Certification Laboratory will analyze technical documentation and test results provided by the manufacturer to determine if the disablement and location verification engineering is sound. Test results must document compliance. The UTAM Certification Laboratory will conduct this review within 30 days of receipt of all required information and test data. Applications lacking the required information or for equipment which does not comply with the Disablement Test Suite and Location Verification Process are subject to dismissal if not resolved within 90 days of notification.
- B. The UTAM Certification Laboratory will take whatever steps necessary to determine if the equipment is compliant. This includes on-site witness testing and the testing of

equipment samples at the UTAM Certification Laboratory.

- C. The UTAM Certification Laboratory will answer questions of interpretation and respond to questions from applicants to assist them in understanding the UTAM requirements related to certification.
- D. Assuming favorable demonstration of compliance with FCC Rule 15.307, the UTAM Certification Laboratory will issue an affidavit of compliance to the manufacturer.
- E. The UTAM Certification Laboratory will maintain a listing of all approved products. This listing will include information relating to the certification of the product by the FCC, such as FCC ID number and other information as determined necessary by UTAM, Inc.
- F. The UTAM Certification Laboratory will perform the function of reviewing testing laboratories to determine if they comply with the criteria for submitting data in support of certification by UTAM, Inc.
- G. The UTAM Certification Laboratory will treat all information obtained in the certification process as confidential.

4.0 Certification Flow Chart





UTAM, Inc. Product Certification Application Form	Office Use Only	
	System ID	
	Fees Paid	
	Sub. Agree.	

Applicant Information	
Company Name	
Mailing Address	
City	State/Prov
Country	Postal Code
Prime Contact Name	Title
Phone	FAX
UTAM Member ID #	E-mail

Equipment Description
FCC ID Number(s):
Trade Name(s):
Model Name/Number(s):
Description: (80 characters)

Type of Application		
<input type="checkbox"/> Original	<input type="checkbox"/> Modification	<input type="checkbox"/> Name Change

Product Information	
Device Type (fixed radiator, mobile radiator, system)	
UPCS Band (asych or isoch)	
Radio Technology (FDMA, TDMA, CDMA, Other)	
Number of Slots per Radio (for TDMA only)	
Emission Bandwidth	
Peak Power per Device	
Number of Transmitters per Device	
System Capacity - Fixed Units	
System Capacity - Mobile Units	
Maximum Horizontal Distance (between fixed units) in meters	
Power Aggregation per Device	

Attachments
A - Installation Documents B - Product Specification C - Product Description D - Description of Location Verification Process and Disablement Method E - Test Plan F - Test Results
<i>Attachments may be submitted on paper, 3.5 inch floppy disk or CD ROM</i>

Agreement	
<p>The applicant certifies that all the statements in this application and in the exhibits attached hereto are true and correct to the best of their knowledge and belief; if the applicant is not the actual manufacturer of the equipment listed herein, appropriate arrangements have been made with the manufacturer to ensure that production units of the equipment listed in this application will continue to comply with UTAM, Inc.'s requirements; the unit tested is a representative sample; and, that the test results submitted are a true representation of the characteristics of the equipment type for which certification is requested. The applicant agrees to accept full responsibility for all initial and subsequent charges arising from this application; and, fulfill all conditions and responsibilities in accordance with UTAM, Inc. Certification Procedures.</p>	
Printed Name	Title
Signature of Applicant	Date

5.0 Explanation of Application Form

5.1 Applicant Information

Complete the specific information concerning the company acting as the applicant for the UTAM Certification. The UTAM Member ID # is to be obtained from UTAM, Inc.

5.2 Equipment Description

- A. **FCC ID Number:** List all of the applicable FCC ID Numbers associated with this device or system.
- B. **Trade Name(s):** List all trade names associated with this device or system. If additional space is needed, a separate page should be attached.
- C. **Model Name/Number(s):** List all model names and numbers associated with this device or system. If additional space is needed, a separate page should be attached.
- D. **Description:** Provide a brief description of the product. Description should not exceed 80 characters.

5.3 Type of Application

- A. **Original:** Check this box if this is for a product that is being submitted for UTAM Certification for the first time.
- B. **Modification:** Check this box if the application is for a modification filing as described in section 9.0 of this procedure.
- C. **Name Change:** Check this box if the application is for a name change as described in section 9.0 of this procedure.

5.4 Product Information

The information provided in this section will be entered into the UTAM Database by the UTAM Certification Laboratory.

- A. **Device Type:** Type of Device (F - Fixed/basestation, M - Mobile/handset, or S - System for UTAM Certification).

- B. **UPCS Band:** UPCS band used by device (Async or Isoch). If a device operate in both the Async and Isoch bands, two Product records are entered, one for each band.
- C. **Radio Technology:** Radio Technology used. (FDMA, TDMA, CDMA, or Other)
- D. **Number of Slots per Radio:** Number of duplex slots used per radio; only for TDMA devices.
- E. **Emission Bandwidth:** Emission Bandwidth (units are stored in kHz); May be entered/displayed as kHz or MHz; as per FCC Rules, Part 15.303.
- F. **Peak Power:** Peak power per device (mW); if more than one transmitter in device, total of all transmitters.
- G. **Number of Transmitters per Device:** Number of unlicensed transmitters per unit, default is 1; this entry is for fixed devices only.
- H. **System Capacity - Fixed Units:** Maximum number of fixed units supported; for systems only.
- I. **System Capacity - Mobile Units:** Maximum number of mobile units supported; for systems only.
- J. **Maximum Horizontal Distance:** Maximum horizontal distance between fixed radiating components; for systems only; units reported meters (m).
- K. **Power Aggregation per Device:** Power aggregation per device (mW); always set equal to value in Peak Power.

5.5 Agreement

The application form is to be signed by an authorized representative of the company acting as the applicant.

6.0 Payment of Certification Fees

Note: The fees listed in this document are subject to change.

6.1 Application Fees

All application fees are to be paid by the applicant directly to the UTAM Certification Laboratory, at the time the application is filed. A certificate of compliance will not be issued until all applicable fees have been paid. Checks shall be made payable to Communication Certification Laboratory and drawn on a U.S. Bank. Application fees are as follows:

Original Application	USD \$750
Modification Application	USD \$750
Name Change Application	USD \$175

6.2 Witness Testing Fees

Fees for witness testing performed by the UTAM Certification Laboratory shall be paid directly by the applicant to the UTAM Certification Laboratory. The witness testing fee is USD \$1,000 per day plus reasonable and customary related expenses. Note: witness testing is a review process conducted by the UTAM Certification Laboratory and does not include the costs of performing the tests. Arrangements for performing the tests by a laboratory, either internal or external are arranged by the applicant and are separate from the review function provided by the UTAM Certification Laboratory.

6.3 Requests for Information

If an applicant requests information from the UTAM Certification Laboratory that requires more than two hours to provide or requests personnel from the UTAM Certification Laboratory to travel to another location to present such information, the fees for such services shall be USD \$100 per hour plus reasonable and customary related expenses.

7.0 Required Information from Manufacturer

A completed application form, a covering letter, a description of the equipment to be certified, and required fees must be submitted to the UTAM Certification Laboratory in support of a request for certification. A separate application form and fee payment is required for each product family. Each device or system in a product family must use the same radio controller and method of disablement and location verification in order to be submitted under one application. Applications

shall be addressed to:

UTAM Certification Laboratory
Communication Certification Laboratory
1940 West Alexander Street
Salt Lake City, UT 84119-2039

Phone: 801/972-6146

Fax: 801/972-8432

An affidavit of compliance will only be issued after all required information has been submitted and a satisfactory test report has been received.

All test results and information submitted to the UTAM Certification Laboratory shall be treated as confidential.

8.0 Specific Information to be Submitted

Application form

Attachments

- A. All applicable installation documentation (draft documents are acceptable).
- B. Specifications for the product (if not in installation documentation), including physical size, weight, number of radiating devices, and maximum distance between radiating fixed equipment.
- C. Description of product (if not in installation documentation).
- D. Full description of Location Verification Process and Disablement Method.
- E. Test Plan used to show compliance with the Disablement Test Suite and Location Verification Process.
- F. Test Results.

9.0 Modification Application

The applicant shall notify the UTAM Certification Laboratory of any change in design or modification to the equipment certified with respect to the Location Verification Procedure and the Disablement Test Suite. The UTAM Certification Laboratory will notify the applicant if additional testing of the modified model is necessary.

A new application shall be filed in the event of any of the following:

9.1 Name Change:

- A. Change in the identification of the equipment.
- B. Change in the name and/or address of the grantee.

9.2 Modification of Device:

- A. Change in the equipment design affecting the technical requirements of the Location Verification Procedure and the Disablement Test Suite.
- B. Change in the information contained in the UTAM Certification Application Form.

10.0 Criteria for Acceptance of Test Data

Test data will be accepted from all test laboratories including manufacturer in-house test facilities and independent test laboratories. The first set of test data submitted by a test laboratory will require the testing to be verified by the UTAM Certification Laboratory by means of witness testing. Witness testing will continue to be performed on future projects, until a sufficient level of confidence is developed by the UTAM Certification Laboratory. The UTAM Certification Laboratory shall assure that the organization performing the testing is capable of performing such testing and is capable of maintaining a level of proficiency in such testing and evaluation of the product to the UTAM, Inc. Location Verification and Test Disablement Test Suite requirements. The UTAM Certification Laboratory will conduct random witness testing as a means of auditing the test results from the laboratories submitting test data.

11.0 Witness Testing

The UTAM Certification Laboratory has been tasked to take reasonable steps to assure the integrity of the Certification Process. To maintain this assurance, the UTAM Certification Laboratory may:

- A. Witness the testing performed on the unlicensed PCS; or
- B. Require the applicant to submit one or more samples for measurement at UTAM Certification Laboratory.

12.0 Clarification of Procedures

Any concerns or questions relating to a certification of products by UTAM, Inc., should be directed to the UTAM Certification Laboratory. All requests for information and clarification of certification issues will be addressed.

The UTAM Certification Subcommittee acts as the advisory committee in addressing issues related to certification. In order to maintain the confidentiality of information all requests for clarification should be addressed to the UTAM Certification Laboratory. Only those details needed to resolve the issue will be discussed by the UTAM Certification Subcommittee.

The UTAM Certification Subcommittee will address the following:

- A. Maintenance of the Location Verification Procedures.
- B. Maintenance of the Disablement Test Suite.
- C. Maintenance of the UTAM Certification Procedures.
- D. General questions related to the interpretation of UTAM Certification Procedures, Location Verification Procedures, and Disablement Test Suite.

13.0 Sample Certification Letter

Manufacturer
Address
City, State
Zip Code

Dear

On behalf of UTAM, Inc., Communication Certification Laboratory, has certified that the product(s) specifically identified below, meets the disablement and location verification requirements of FCC Rule 15.307, and qualifies as a UTAM approved coordinatable device.

Applicant:
UTAM Member Number:
System Certification ID:
FCC ID Number(s):
Model Number(s):

Any changes to the location verification or disablement mechanism and procedures or any changes to the FCC Certification may require recertification by UTAM, Inc. Please document and forward the details of any changes to Communication Certification Laboratory.

Communication Certification Laboratory will continue to maintain strict confidentiality regarding the engineering and functionality of your product, including the disablement and location verification mechanism.

A copy of this affidavit shall be included with your application for certification by the FCC, in accordance with FCC Part 15, Subpart D.

Sincerely yours,

Certifying Engineer
UTAM Certification Laboratory

APPENDIX C

Disablement Test Suite and Location Verification Process

**Issue 1.0a
June 29, 1995**

**Disablement Test Suite and
Location Verification Process**

Table of Contents

1.0	Background.....	2
2.0	Mobile Part Disablement Requirements.....	3
3.0	Fixed Part Disablement Requirements.....	4
4.0	Disablement when Moved Requirement.....	6

Disablement Test Suite and Location Verification Process

1.0 Background

The FCC has mandated that coordinatable, unlicensed PCS equipment deployed before the spectrum is totally cleared is subject to disablement requirements in order to provide protection to the incumbent microwave community from interference as specified by Telecommunications Industry Association (TIA) Bulletin 10 F, including its latest revisions. UTAM, Inc. has developed a framework for testing the mobile and non-mobile RF portions of unlicensed PCS devices to demonstrate compliance with the requirements specified by the Federal Communications Commission (FCC), found in Part 15.307 (d), (e) and (h). The FCC Rules state:

- “(d) A coordinatable [unlicensed] PCS device is required to incorporate means that ensure that it cannot be activated until its location has been coordinated by UTAM, Inc. The application for certification shall contain an explanation of all measures taken to prevent unauthorized operation. This explanation shall include all procedural safeguards, such as the mandatory use of licensed technicians to install the equipment, and a complete description of all technical features controlling activation of the device.

- (e) A coordinatable [unlicensed] PCS device shall incorporate an automatic mechanism for disabling operation in the event it is moved outside the geographic area where its operation has been coordinated by UTAM, Inc. The application for certification shall contain a full description of the safeguards against unauthorized relocation and must satisfy the Commission that the safeguards cannot be easily defeated.

- (h) The operator of a [unlicensed] PCS device that is relocated from the coordinated area specified by UTAM, Inc., must cease operating the device until coordination for the new location is verified by UTAM, Inc.”

The FCC will allow manufacturers to define mechanisms to enable their unlicensed PCS product to be FCC disablement compliant. To provide a product development and testing framework, UTAM, Inc. has defined a series of tests that coordinatable unlicensed PCS devices/systems may use to demonstrate compliance with the prerequisites for FCC Part 15 certification.

These tests permit a manufacturer to ensure that, prior to deployment, its products will not violate FCC disablement requirements and cause harmful interference. It should be noted, however, there has been no attempt to devise methodologies which will survive deliberate, illegal attempts to defeat the safeguards.

2.0 Mobile Part Disablement Requirements

The unlicensed PCS system mobile part shall either be physically constrained to the unlicensed PCS fixed part location or incorporate a mechanism that will engage when the unlicensed PCS mobile part does not detect the presence of the fixed part. In this case, the mobile part must cease transmitting within 1 minute if it fails to detect a signal from the fixed part, and transmission may not be resumed until the mobile part again detects the presence of the fixed part.

Disablement Compliance Certification Test

Step 1.

Demonstrate that the unlicensed PCS mobile part is operational and that it communicates with the fixed part by establishing a radio link with the fixed part.

Step 2.

Demonstrate that, when the mobile part is placed in an environment where the power received from any system fixed part is less than $KTB + 6$ dBm (e.g., the removal of power from the fixed part), within 1 minute the power emitted by the mobile part in the band of operation must be less than -60 dBc or the levels specified in FCC Part 15.209, (whichever is the less stringent level) measured at a distance of three meters under all manufacturer specified operation conditions.

To ensure that a mobile part is responding to the emission from a related fixed part rather than a "noise" level in the environment, the tester shall generate a noise pulse of at least $KTB + 50$ dBm on a frequency that the EUT (Equipment Under Test) is designed to operate on, lasting for two minutes and located within 10 meters of the mobile part. Arrange the noise pulse timing with respect to the frame timing of the equipment under test. The measured output of the mobile part shall not exceed -60 dBc or the levels specified in FCC Part 15.209 (whichever is the less stringent level) measured at a distance of 3 meters for at least three minutes after the noise pulse ends under all manufacturer specified operating conditions.

Step 3.

Enable the fixed radiating part to operate and confirm that the mobile part is operational by establishing a communications link with the fixed radiating part.

3.0 Fixed Part Disablement Requirements

The fixed part of a coordinatable unlicensed system may not become operational until its geographic location has been verified as available for deployment by UTAM, Inc. This requirement also applies to the removable fixed part of those systems where the removable fixed part can be located more than 8000 meters from other fixed parts. Removable parts must not be designed so that they can be cascaded or daisy chained so as to defeat the distance requirement. An example of a removable part of an unlicensed PCS device/system is a remoted portion of a wireless PBX.

Compliance Certification Test

Step 1.

Install a working system according to the installation instructions. The size shall be determined by the test engineer, with the configuration containing at least three fixed radiating parts and at least four portable radiating parts. For systems that support less than three fixed radiating parts and four portable radiating parts, the maximum number of fixed and portable radiating parts shall be used. These fixed parts shall be deployed with representative spacing, such as that identified in the manufacturer's deployment guidelines. (The UTAM Certification Laboratory may request an alternate test configuration after reviewing the system description and test report.)

Systems that support radiating parts that can be located more than 8000 meters from each other and/or a central element shall test two such removable parts.

Step 2.

Activate the system or device and measure the energy output level of the system. To demonstrate that it is inoperable, one minute after the system has finished initialization, the tester shall determine whether any fixed radiating device(s) attached to the system are transmitting radio energy in the band of operation greater than -60 dBc or the levels specified in FCC Part 15.209, whichever is the higher level, measured at a distance of three meters under all manufacturer specified operating conditions.

Step 3.

After establishing that the system or device cannot operate upon installation, the location verification process (LVP) shall be performed to enable the system or device.

The LVP shall be performed on the fixed part and on the part(s) that can be remoted more than 8000 meters. The LVP must meet the following criteria:

- The LVP must be specific to each system, where system is defined as any group of fixed parts that exchange messages.
- The LVP must have a uniqueness feature that differs each time the LVP is used.
- The LVP must not be readily replicable by unauthorized personnel either by random or informed operation.
- The LVP must contain the function that reports the system size, unit power output and area of installation.

Example

After installing the system, the installer calls the manufacturer's or their authorized representative's monitoring center as part of the LVP. The required information is provided to the data base. If the geographic area is a UTAM, Inc. authorized area, the authorization key is provided by the manufacturer or their authorized representative to the installer who uses the key to enable the system. If the geographic area is not a UTAM, Inc. authorized area, the authorization key is denied and the system cannot be enabled.

Step 4.

Verify that the system is now operational and the fixed and portable radiating devices are performing as designed.

Step 5.

Connect an additional fixed radiating part to the system. Activate the additional fixed radiating part. The energy output level of the additional radiating part shall then be measured. To demonstrate that it is inoperable, one minute after the additional fixed radiating part has finished initialization, the tester shall determine whether the fixed radiating device that was added to the system is transmitting radio energy in the band of

operation greater than -60 dBc or the levels specified in FCC Part 15.209, whichever is the higher level, measured at a distance of three meters under all manufacturer specified operating conditions.

Step 6.

After establishing that the additional fixed part cannot operate upon installation, the location verification process (LVP) shall be performed to enable the additional fixed radiating part. The LVP shall meet the criteria given in step 3.

Step 7.

Verify that the additional fixed radiating part is now operational and the fixed radiating part is performing as designed.

Step 8.

Retain the system as installed for the next test.

4.0 Disablement when Moved Requirement

If the fixed radiating part of the system is moved from its original installed location and reinstalled at another location, the system shall not be able to begin operation until the location is re-verified with UTAM, Inc. as open for deployment.

Systems that have the ability to locate radiating parts more than 8000 meters from each other and/or from a central controlling element, shall perform the following tests. Systems that do not have this capability shall complete only steps 5-8. The 8000 m distance is not considered the maximum "coordinatable" area, but is only used to define a remotable radiating part.

Systems with Remotable Parts:

Step 1.

Install system for testing as specified in Section 3.0, Fixed Part Disablement Requirements.

Remove the remotable part(s) as outlined in the instructions. In the absence of instructions, good installation practices must be used.

Step 2.

Disconnect or power down the remotable part(s). Move the remoteable part(s) to simulate relocating the equipment.

Store the remotable part(s) for at least 8 hours.

Step 3.

Install the remoteable part(s) according to the installation instructions. Apply power to the remoteable part(s).

Step 4.

Perform steps 2 through 4 in Section 3.0, Fixed Part Disablement Requirements.

All systems must complete the following test steps:

Step 5.

Install the system for testing, as specified in Section 3.0 Fixed Part Disablement Requirements or, if this system participated in the test for remotable parts, begin with that configuration.

Disconnect or power down the system. Move the system to simulate relocating the equipment.

Step 6.

Store the system for at least 8 hours.

Step 7.

Install the equipment according to the installation instructions. Apply power to the system.

Step 8.

Perform steps 2-4 in Section 3.0 Fixed Part Disablement Requirements.

APPENDIX D