IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

PRESTWICK LICENSING LLC Plaintiff, v. **ANRITSU AMERICAS SALES COMPANY,** Defendant.	C.A. No. 2:22-cv-284 **JURY TRIAL DEMANDED** **PATENT CASE**

ORIGINAL COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Prestwick Licensing LLC files this Original Complaint for Patent Infringement against Anritsu Americas Sales Company and would respectfully show the Court as follows:

I. THE PARTIES

1. Plaintiff Prestwick Licensing LLC ("Prestwick" or "Plaintiff") is a Texas limited liability company having an address at 5121 Collin McKinney Pkwy Ste 500, McKinney, Tx 75070-1524.

2. On information and belief, Defendant Anritsu Americas Sales Company ("Defendant") has a place of business at 450 Century Parkway, Suite 190, Allen, TX 75013 Defendant has a registered agent Paul Innis at 450 Century Parkway, Suite 190, Allen, TX 75013.

II. JURISDICTION AND VENUE

3. This action arises under the patent laws of the United States, Title 35 of the United States Code. This Court has subject matter jurisdiction of such action under 28 U.S.C. §§ 1331 and 1338(a).

4. On information and belief, Defendant is subject to this Court's specific and general personal jurisdiction, pursuant to due process and the Texas Long-Arm Statute, due at least to its

business in this forum, including at least a portion of the infringements alleged herein, at 450 Century Parkway, Suite 190, Allen, TX 75013.

5. Without limitation, on information and belief, within this state, Defendant has used the patented inventions thereby committing, and continuing to commit, acts of patent infringement alleged herein. In addition, on information and belief, Defendant has derived revenues from its infringing acts occurring within Texas. Further, on information and belief, Defendant is subject to the Court's general jurisdiction, including from regularly doing or soliciting business, engaging in other persistent courses of conduct, and deriving substantial revenue from goods and services provided to persons or entities in Texas. Further, on information and belief, Defendant is subject to the Court's personal jurisdiction at least due to its sale of products and/or services within Texas. Defendant has committed such purposeful acts and/or transactions in Texas such that it reasonably should know and expect that it could be haled into this Court as a consequence of such activity.

6. Venue is proper in this district under 28 U.S.C. § 1400(b). On information and belief, Defendant has businesses in this district at 450 Century Parkway, Suite 190, Allen, TX 75013. On information and belief, from and within this District Defendant has committed at least a portion of the infringements at issue in this case.

7. For these reasons, personal jurisdiction exists, and venue is proper in this Court under 28 U.S.C. § 1400(b).

III. COUNT I
(PATENT INFRINGEMENT OF UNITED STATES PATENT NO. 7,668,301)

8. Plaintiff incorporates the above paragraphs herein by reference.

9. On February 23, 2010, United States Patent No. 7,668,301 ("the '301 Patent") was duly and legally issued by the United States Patent and Trademark Office. The '301 Patent is titled "Simulated User Calling Test System and Method with Built-In Digital SPC-Exchange." A true

and correct copy of the '301 Patent is attached hereto as Exhibit A and incorporated herein by reference.

10. Prestwick is the assignee of all right, title, and interest in the '301 patent, including all rights to enforce and prosecute actions for infringement and to collect damages for all relevant times against infringers of the '301 Patent. Accordingly, Prestwick possesses the exclusive right and standing to prosecute the present action for infringement of the '301 Patent by Defendant.

11. The invention in the '301 Patent relates to the field of digital stored program control (SPC) switch technique in telecommunications, particularly, to a simulated user call test system built-in digital SPC switch and method. (Ex. A at 1:13-16).

12. In the prior art, simulated user calling performance tests for digital SPC switches mainly employed large traffic call test instruments. (*Id.* at 1:20-22). The available commercial simulated user calling test instruments simulated the calling process of actual users realistically, in which the test is performed by transmitting and receiving pass detecting tone and judging the pass detecting tone while a call is initiated on a user line, a dial is simulated, and the call is communicated. (*Id.*at 1:23-28). However, these systems were expensive and therefore many network operators do not buy this type of equipment and therefore calling tests are vey complicated during pass tests of many digital SPC switches. (*Id.* at 1:31-37). It is therefore advantageous and simpler if a calling test instrument was built into the switch. (*Id.*at 1:35-37).

13. There are existing switches with a built-in large traffic calling test system characterized by designing a virtual calling process on a user element processor, simulating the whole process including initiating a call by a user and answering the call by the called user. (Ex. A at 1:43-48). However, the main disadvantage of these kind of system was that it could only realistically test the process of call signaling by the main control system in a test switch, but not

the performance such as the hardware interface performance in the switch and the performance of the switching connection path. (*Id.*at 1:48-53). Furthermore, they cannot accurately reflect the call process performance of the switch system. (*Id.*at 1:53-54).

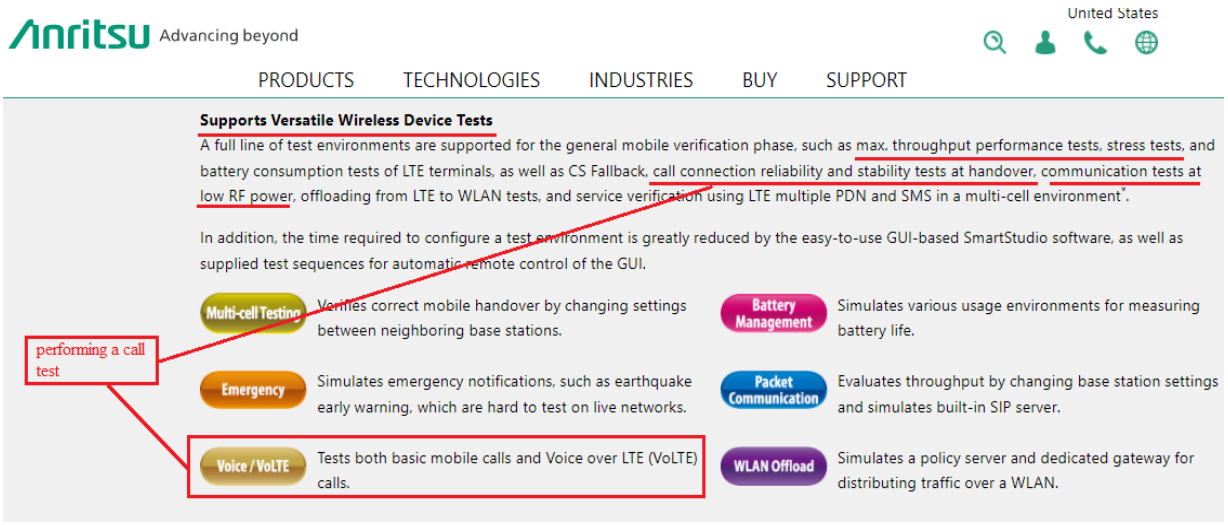
14. The technical problem solved by the inventors is to provide a simulated user call test system located within a digital SPC switch, and to provide a test method based on built-in modules of a digital SPC switch, in which equal functions to commercial external call test systems can be realized with a lower cost by user the current hardware and software resources in a digital SPC switch. (*Id.* at 1:58-64).

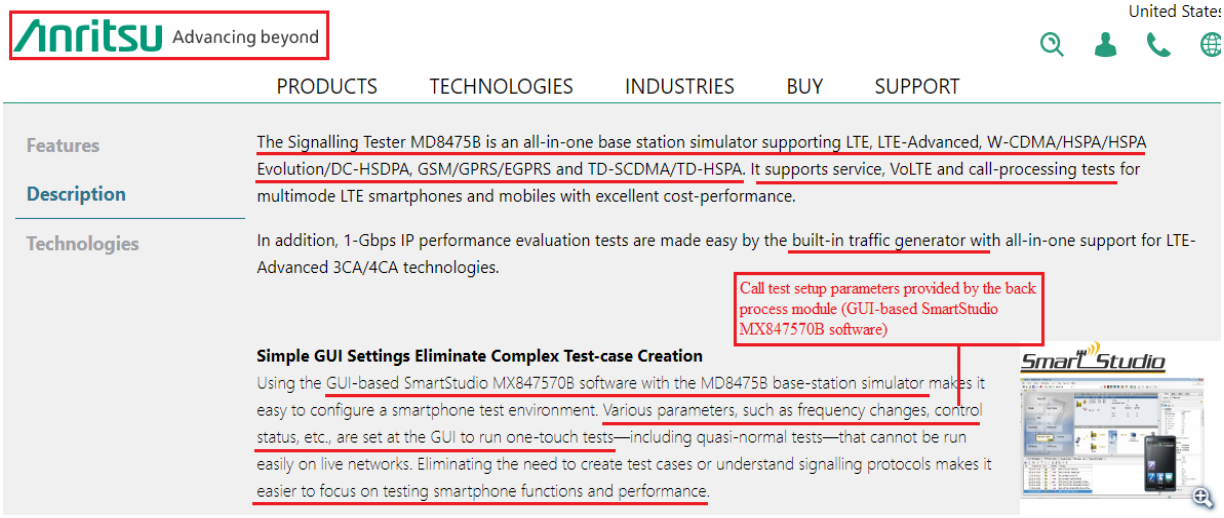
15. **Direct Infringement.** Upon information and belief, Defendant has been directly infringing claim 1 of the '301 Patent in Texas, and elsewhere in the United States, by making, using, selling, and or offering to sell the Anritsu MD8475B ("Accused Instrumentality").

16. The Accused Instrumentality is a simulated user call test system (*e.g.*, GUI-based SmartStudio MX847570B software with the MD8475B base-station simulator), characterized in that the simulated user call test system is built in a digital stored program control switch (*e.g.*, the Accused Instrumentality), and comprises a back process module (*e.g.*, GUI-based SmartStudio MX847570B software), a front call control process module (*e.g.*, user equipment (UE)) and a hardware subsystem (*e.g.*, Hardware Units (Multi Signaling unit, GSM signaling unit enhanced signaling unit) in the Accused Instrumentality) for performing a call test (*e.g.*, Both basic mobile calls and Voice over LTE (VoLTE) calls test). As shown below, the Accused Instrumentality is a part of the simulated user call test system which is a GUI-based SmartStudio MX847570B software with the MD8475B base-station simulator. The Accused Instrumentality comprises back process module (*e.g.*, GUI-based SmartStudio MX847570B software software), a front call control process module (*e.g.*, user equipment (UE)) and a hardware subsystem (*e.g.*, Hardware) for

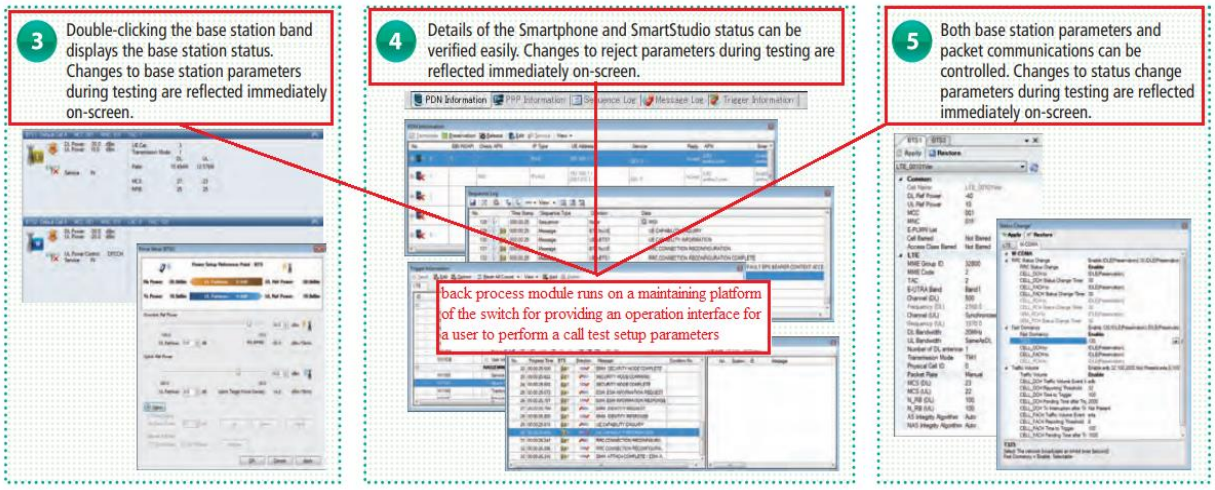
performing a call test (*e.g.*, both basic mobile calls and Voice over LTE (VoLTE) calls test). The back process module (GUI-based SmartStudio MX847570B software) provides an operation interface for a user to perform a call test setup (setting various parameters for call test), receives call test result data (*e.g.*, result report) transmitted by the front call control process module (*e.g.*, user equipment (UE)), and displays the result on the display of the Accused Instrumentality. The front call control process module receives call test setup parameters provided by the SmartStudio MX847570B software, controls the hardware subsystem (Hardware Units (Multi Signaling unit, GSM signaling unit enhanced signaling unit) in the Accused Instrumentality) to perform a call test, and reports a result of the call test to SmartStudio MX847570B software. The hardware subsystem comprises function process units (Multi Signaling unit, GSM signaling unit enhanced signaling unit) of the switch to receive instructions from the user equipment (UE), perform tests comprising picking-up phones, detecting signaling tone, and talking; and report test results to the front call control process module.

(*E.g.*, https://www.anritsu.com/en-us/test-measurement/products/md8475b).

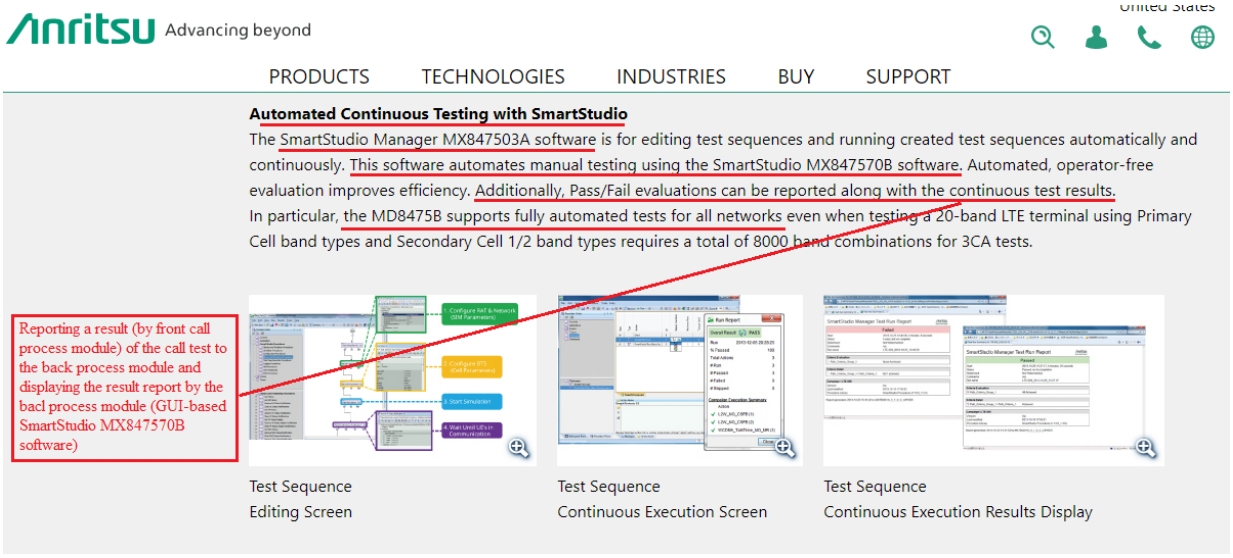




(*E.g.*, https://www.anritsu.com/en-us/test-measurement/products/md8475b).



(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf).



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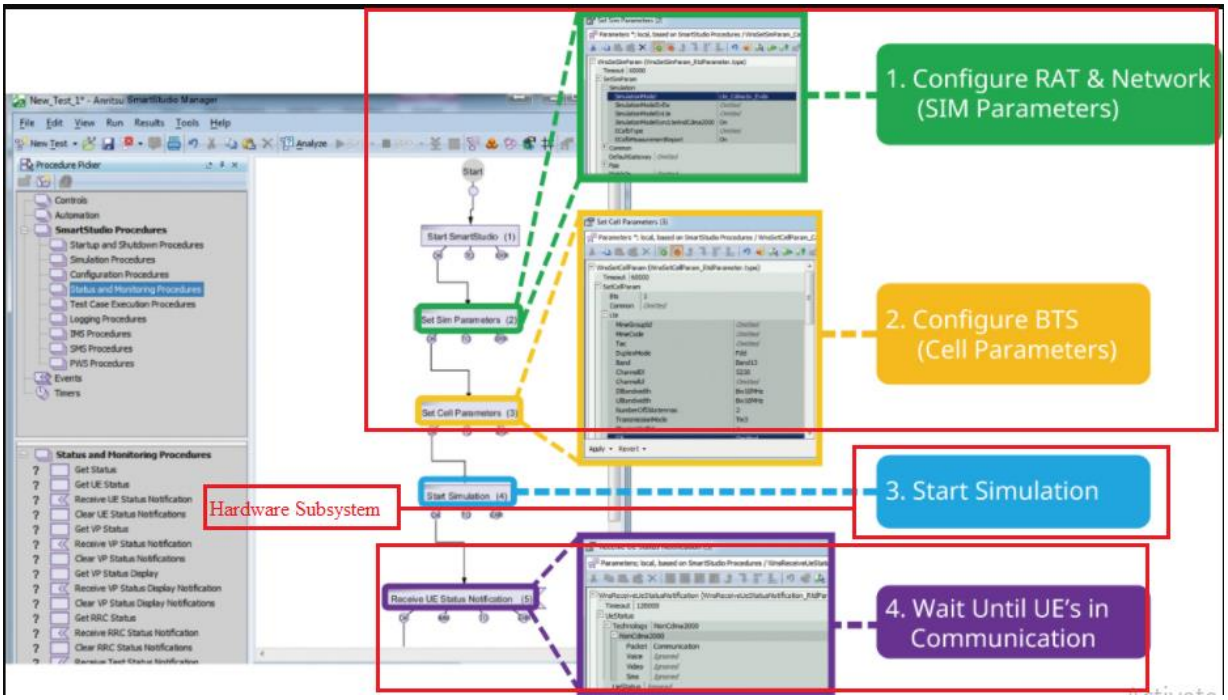
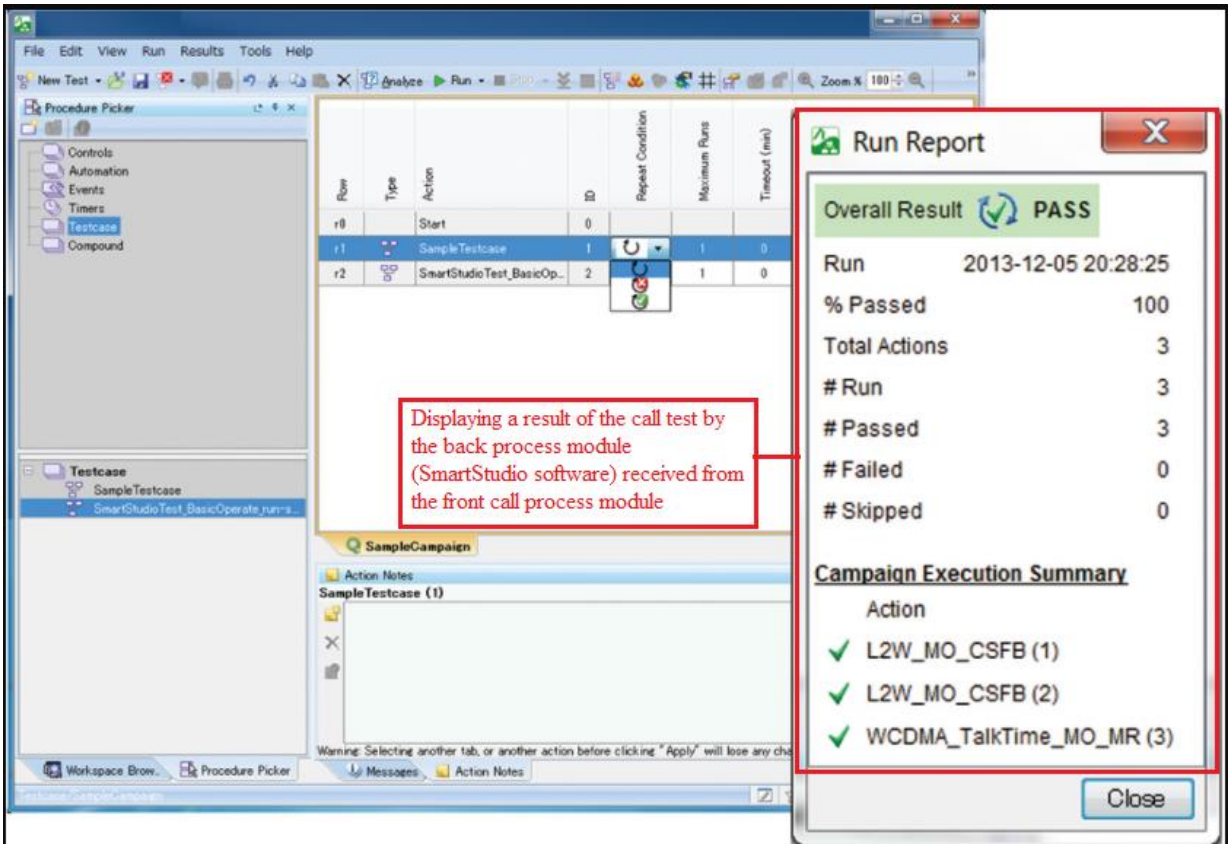
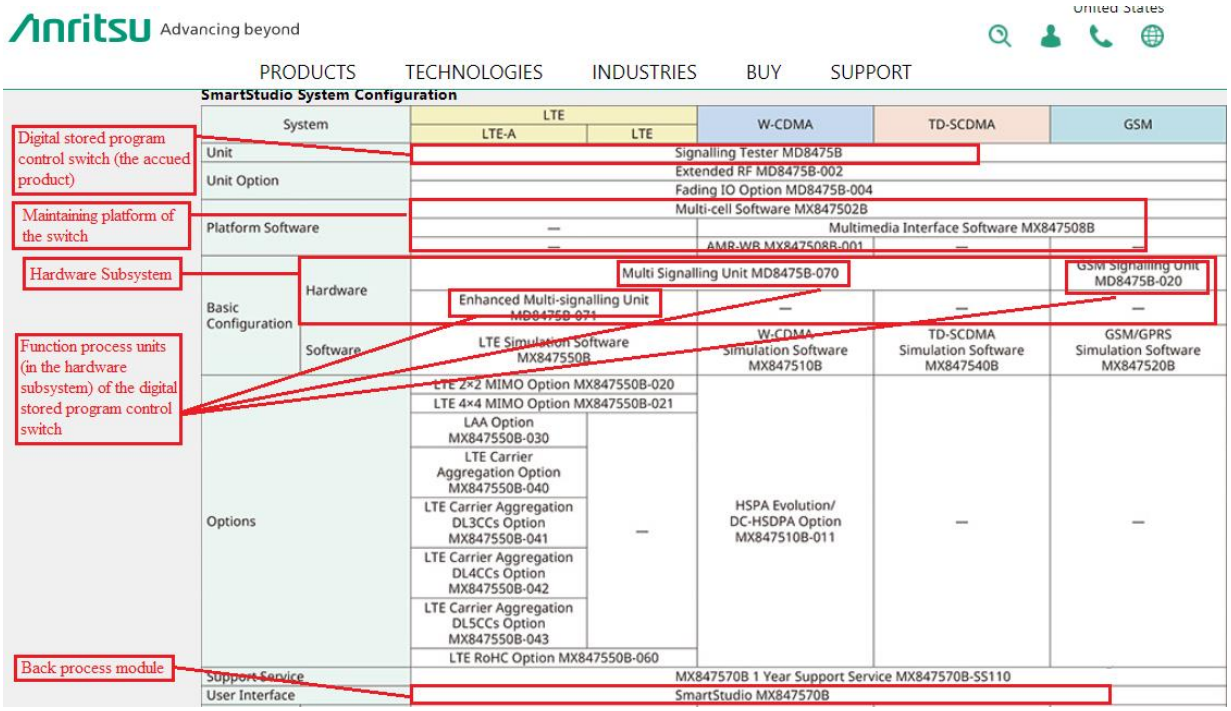


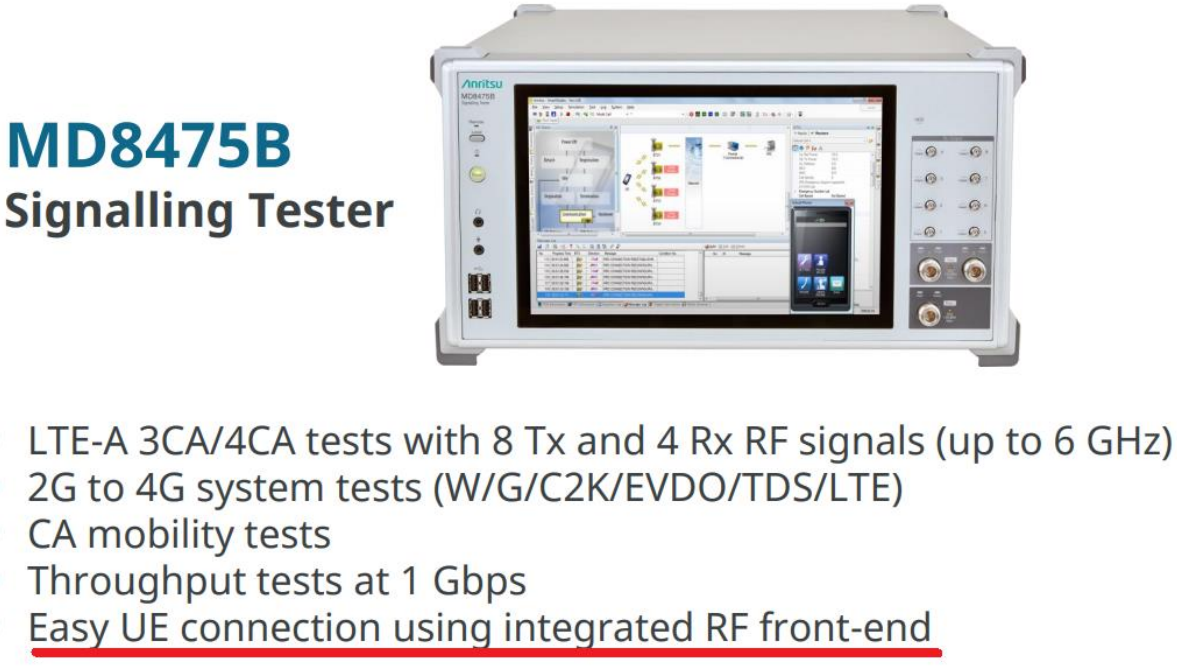
(*E.g.*, https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/fig01_l-4.jpg?la=en-us).



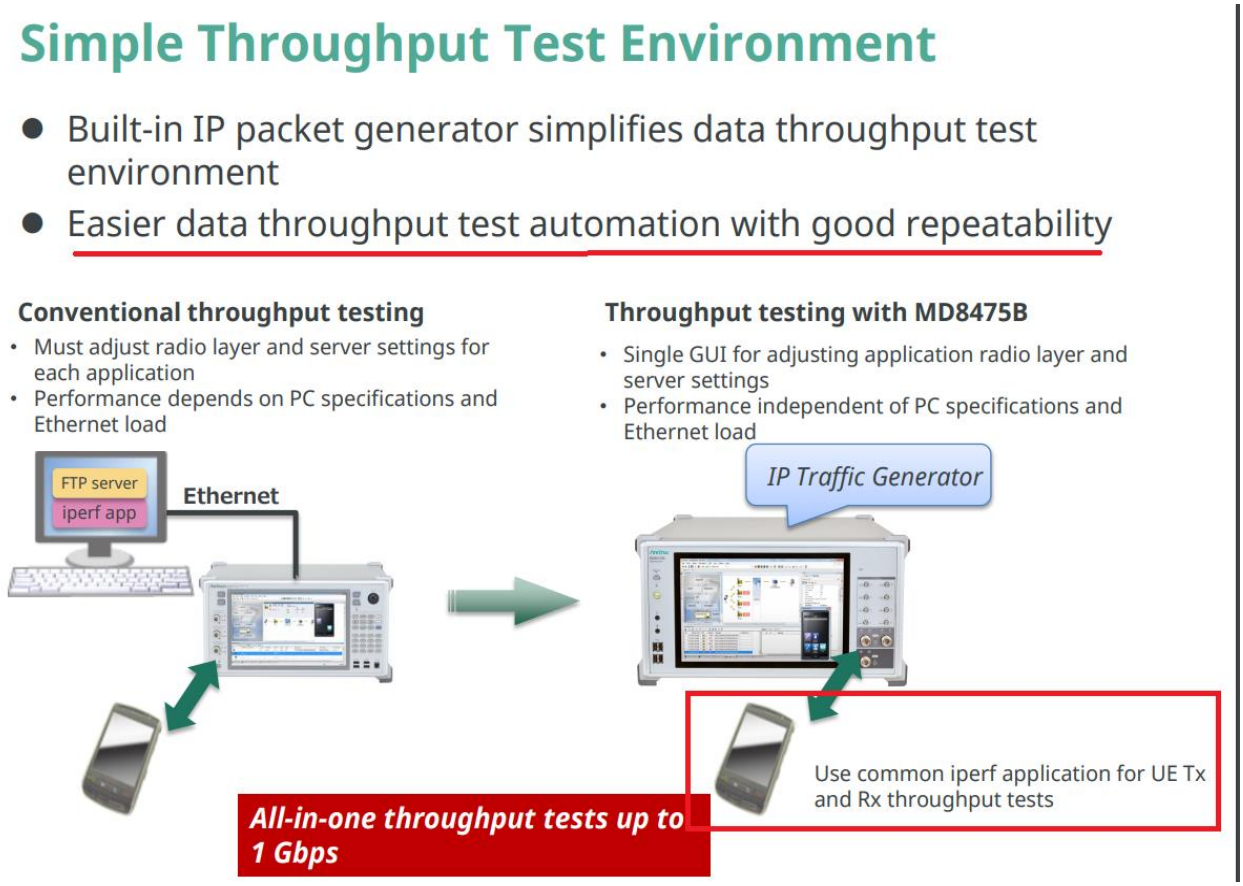
(*E.g.*, https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/screens02_l.jpg?la=en-us).



(*E.g.*, https://www.anritsu.com/en-us/test-measurement/products/md8475b).



(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-el1200.pdf).

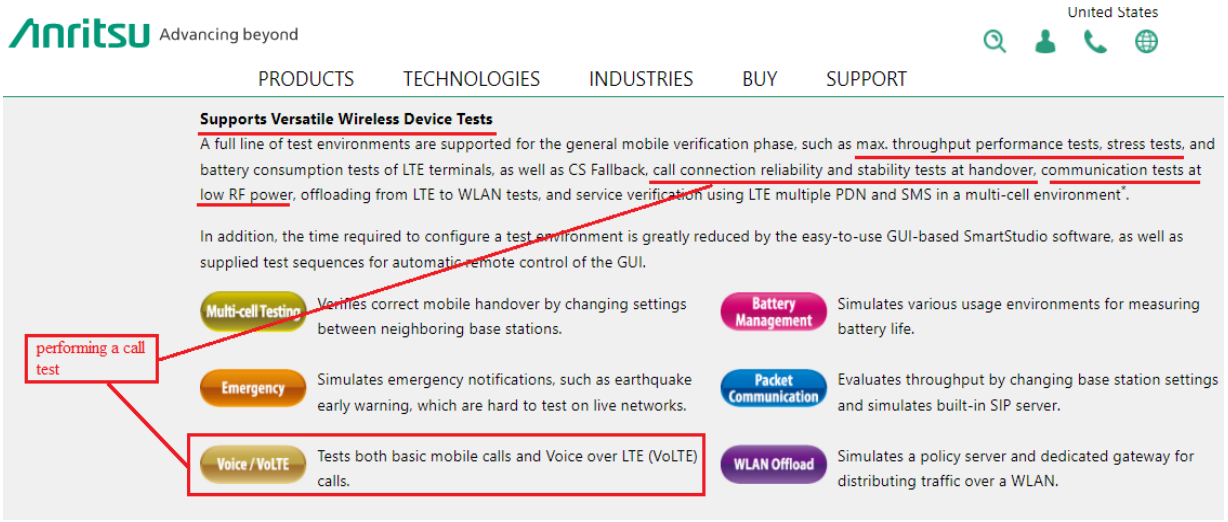


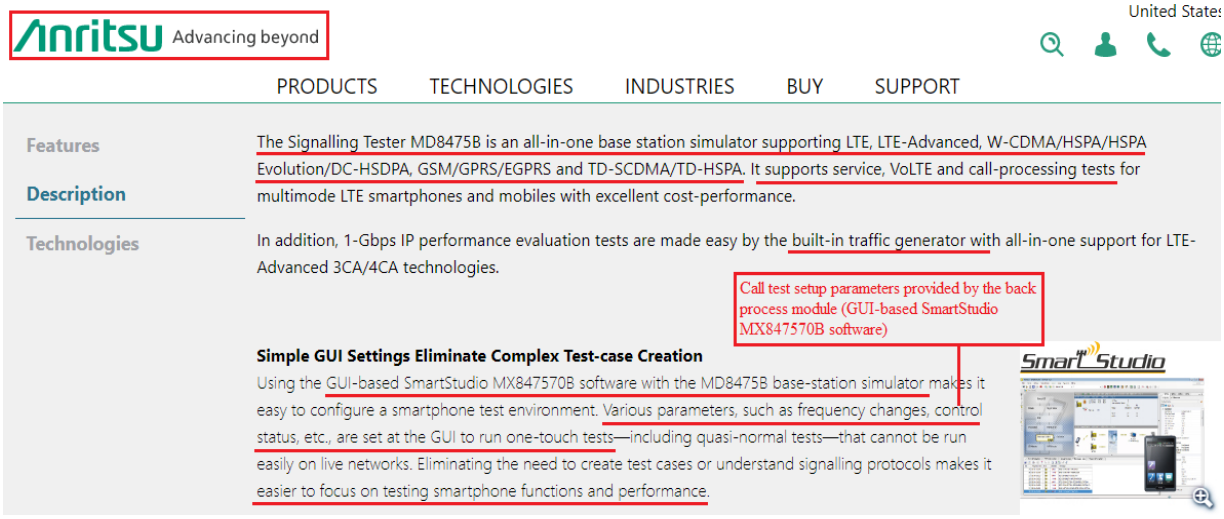
(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-el1200.pdf).

(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf).

17. The Accused Instrumentality is a simulated user call test system that comprises the back process module (*e.g.*, a GUI-based SmartStudio MX847570B software) runs on a maintaining platform (*e.g.*, Platform Software) of the switch (*e.g.*, the Accused Instrumentality) for providing an operation interface (*e.g.*, GUI) for a user to perform a call test setup (*e.g.*, to set various parameters such as frequency changes, control status, etc.), receives call test result data (*e.g.*, Pass/Fail evaluations report of test results) transmitted by the front call control process module

(*e.g.*, user equipment (UE)), and performs display and statistical processes (*e.g.*, display the result and statistical data on the display of the Accused Instrumentality). As shown below, the Accused Instrumentality is a part of the simulated user call test system which is a GUI-based SmartStudio MX847570B software with the MD8475B base-station simulator. The Accused Instrumentality comprises back process module (*e.g.*, GUI-based SmartStudio MX847570B software), a front call control process module (*e.g.*, user equipment (UE)) and a hardware subsystem (*e.g.*, Hardware) for performing a call test (*e.g.*, both basic mobile calls and Voice over LTE (VoLTE) calls test). The back process module (*e.g.*, SmartStudio MX847570B software) provides an operation interface for a user to perform a call test setup (setting various parameters for call test), receives call test result data (*e.g.*, result report) transmitted by the front call control process module (*e.g.*, user equipment (UE)), and displays the result on the display of the Accused Instrumentality. The front call control process module receives call test setup parameters provided by the SmartStudio MX847570B software, controls the hardware subsystem (Hardware Units (Multi Signaling unit, GSM signaling unit enhanced signaling unit) in the Accused Instrumentality) to perform a call test, and reports a result of the call test to SmartStudio MX847570B software. The hardware subsystem comprises function process units Multi Signaling unit, GSM signaling unit enhanced signaling unit) of the switch to receive instructions from the user equipment (UE), perform tests comprising starting a call, hanging a call and handover between calls; and report test results to the front call control process module.





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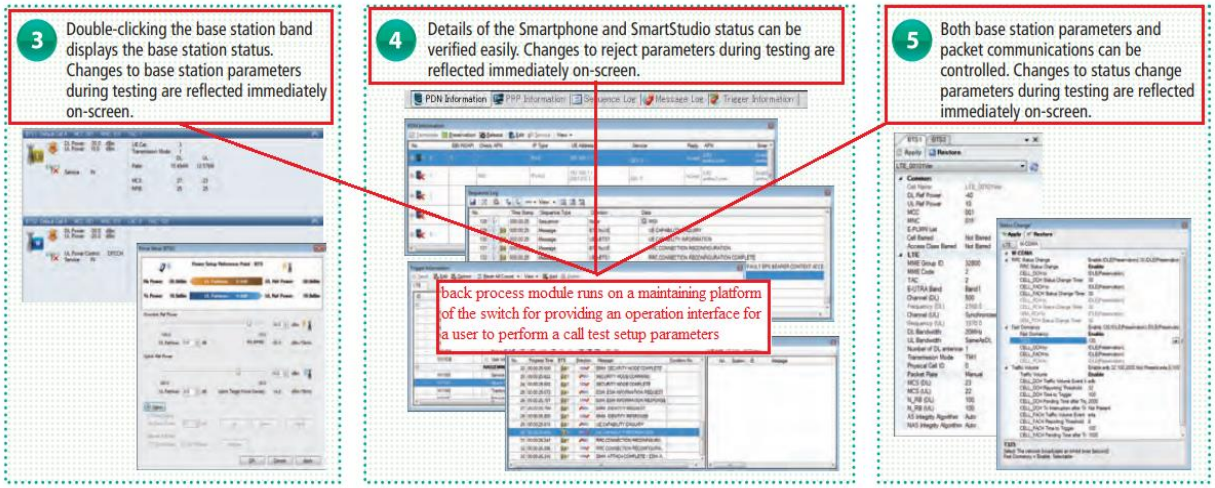

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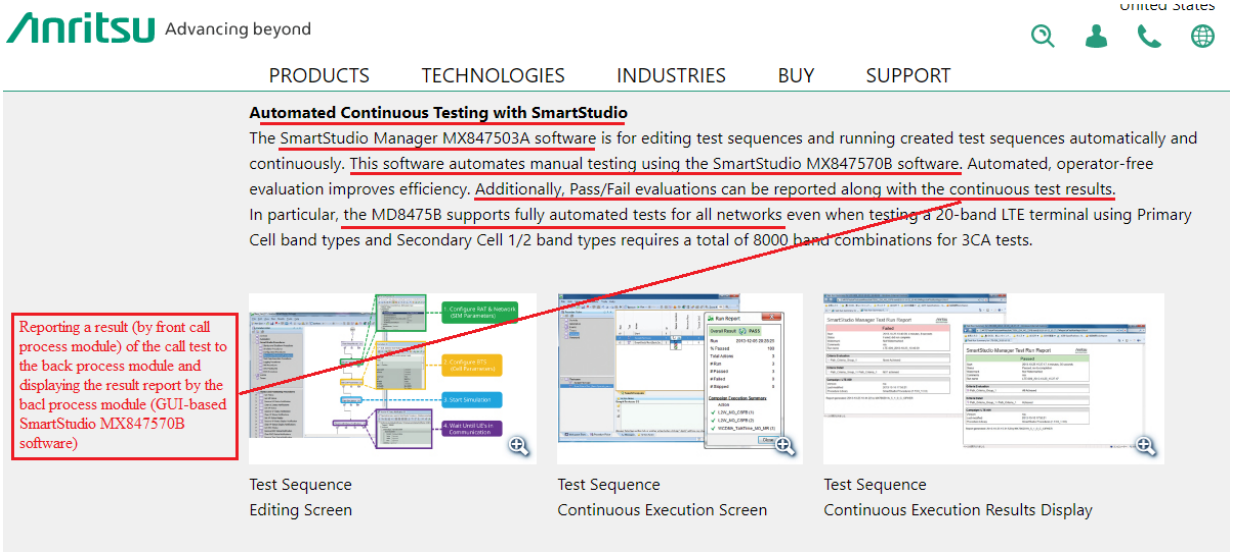

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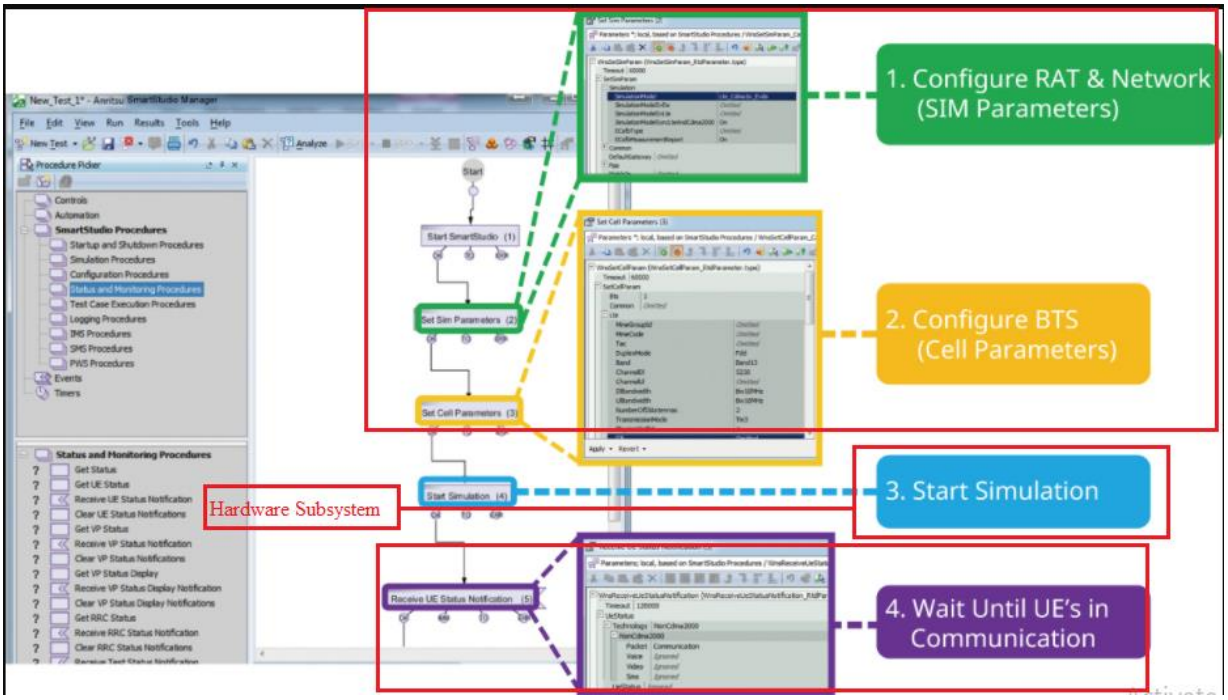
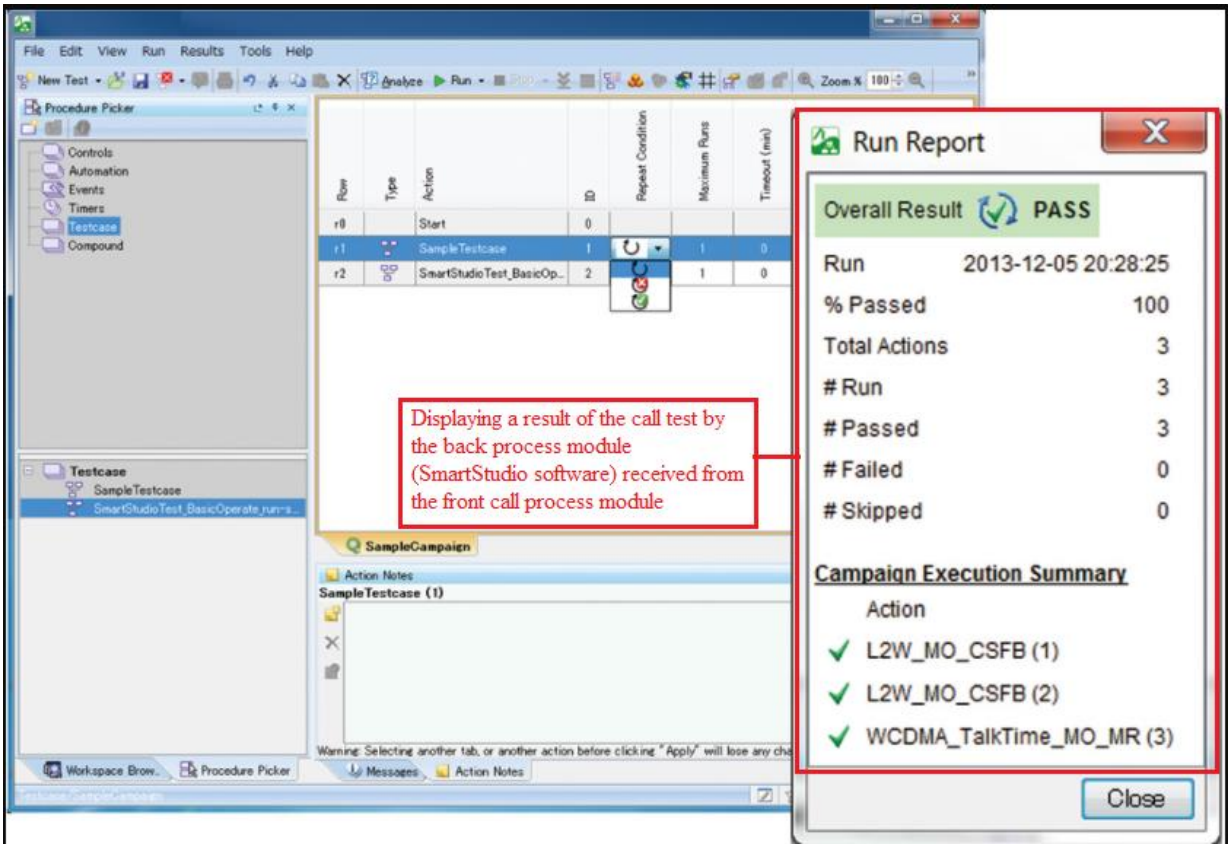
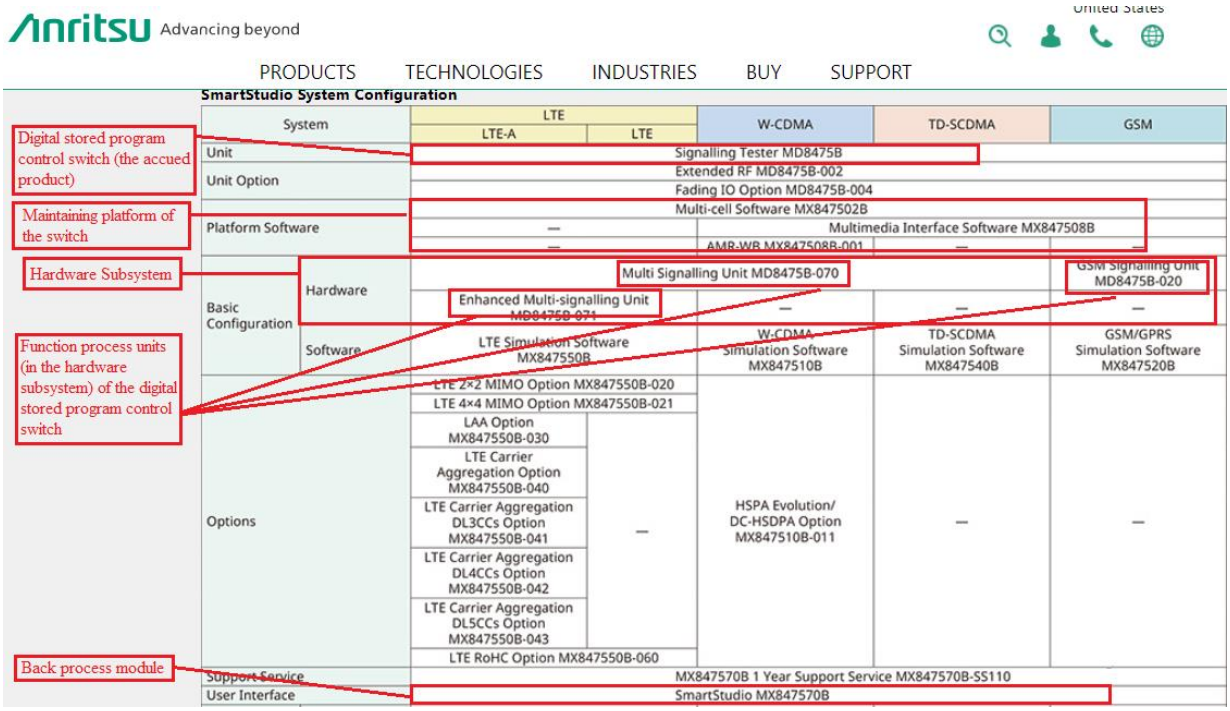


(*E.g.*, https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/fig01_l-4.jpg?la=en-us).



(*E.g.*, https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/screens02_l.jpg?la=en-us).



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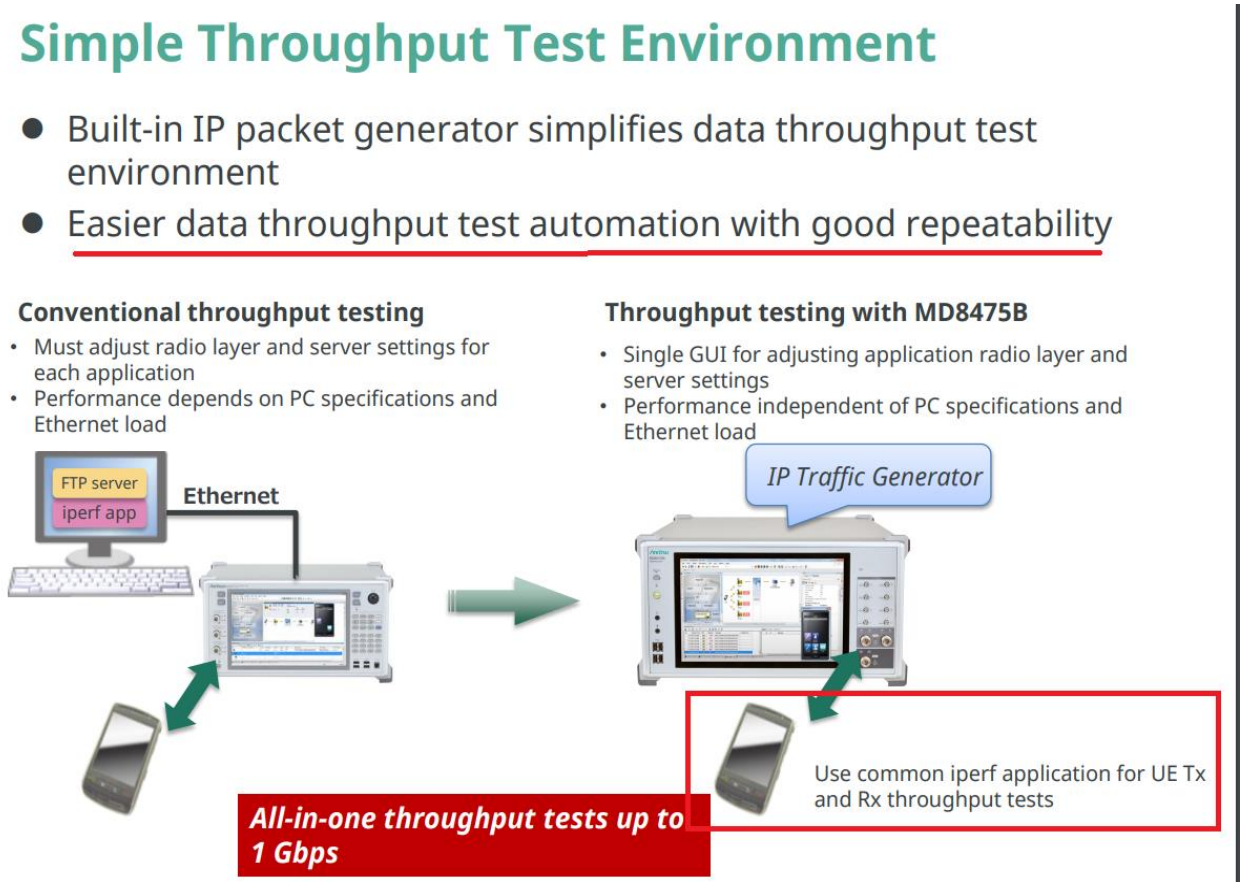

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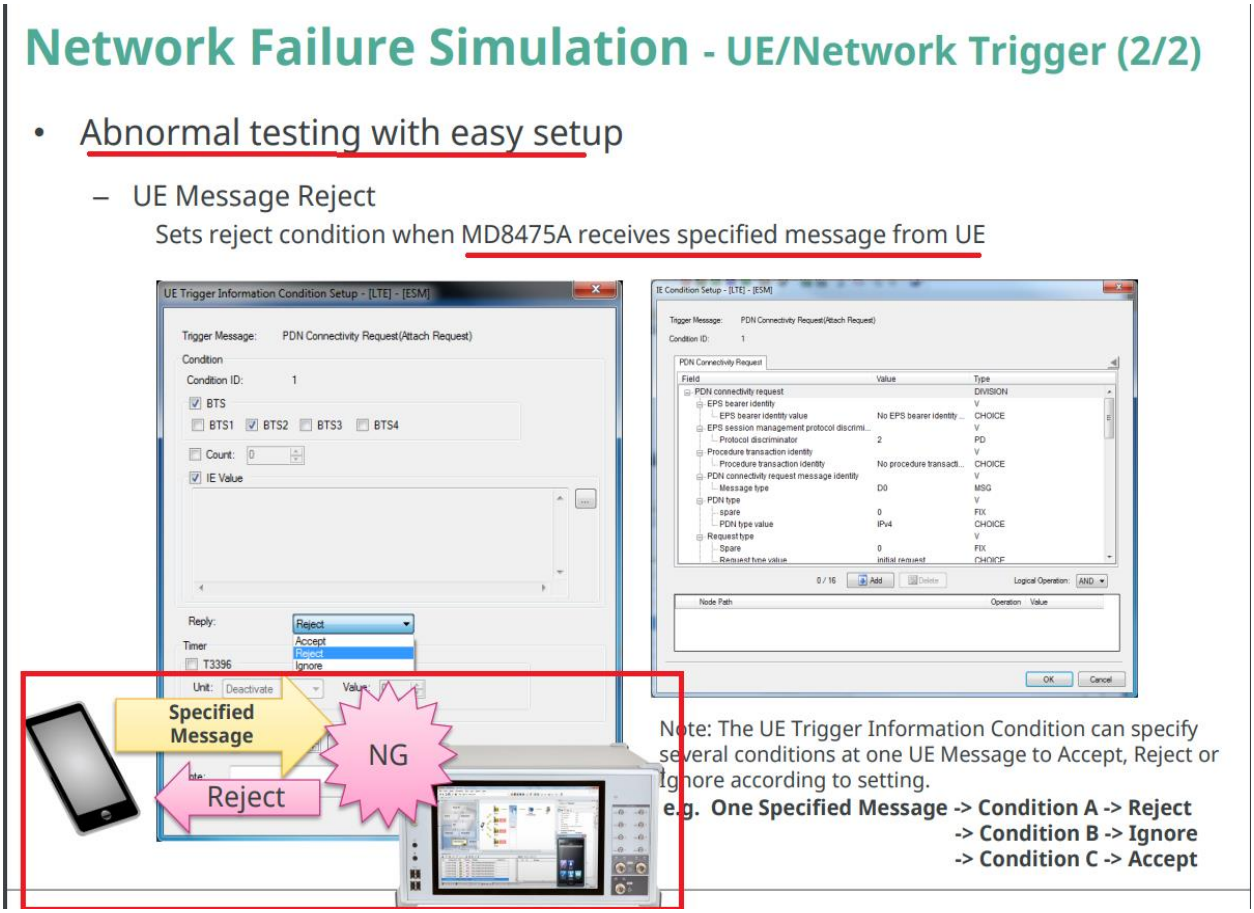


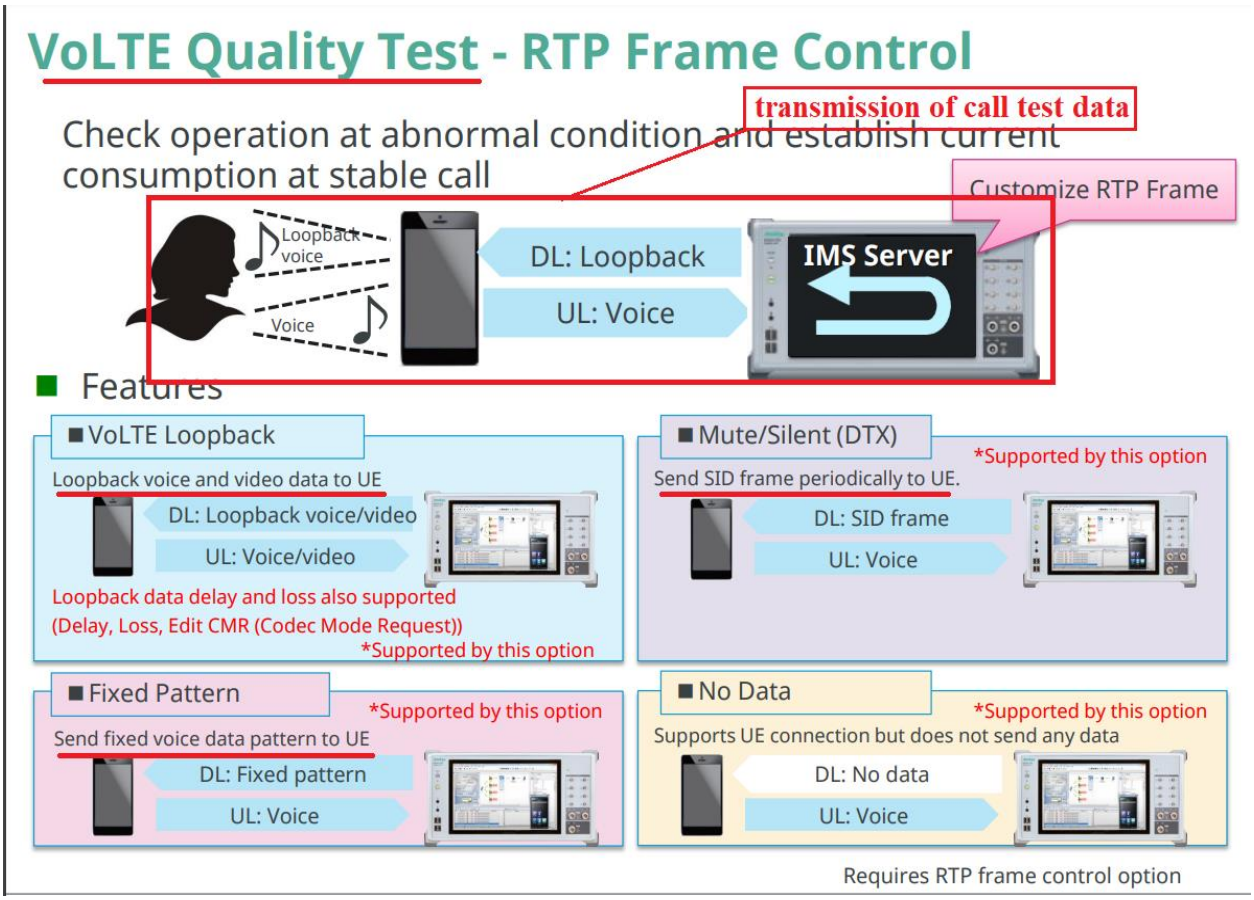
(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-el1200.pdf).

SmartStudio MX847570B
This software supports the user interface for scenario-less testing. In addition to offering functions such as sending and receiving SMS messages, sending and receiving ETWS/CMAS messages, making and receiving voice calls, and sending and receiving data packets, it also supports CSCF server functions required for IMS service tests.

- **Support Service**

MX847570B 1Year Support Service MX847570B-SS110
This service contract offers customers 1 year of support for technical enquiries as well as updates to the latest software versions adding extra functionality and bug fixes via downloads from the web page.

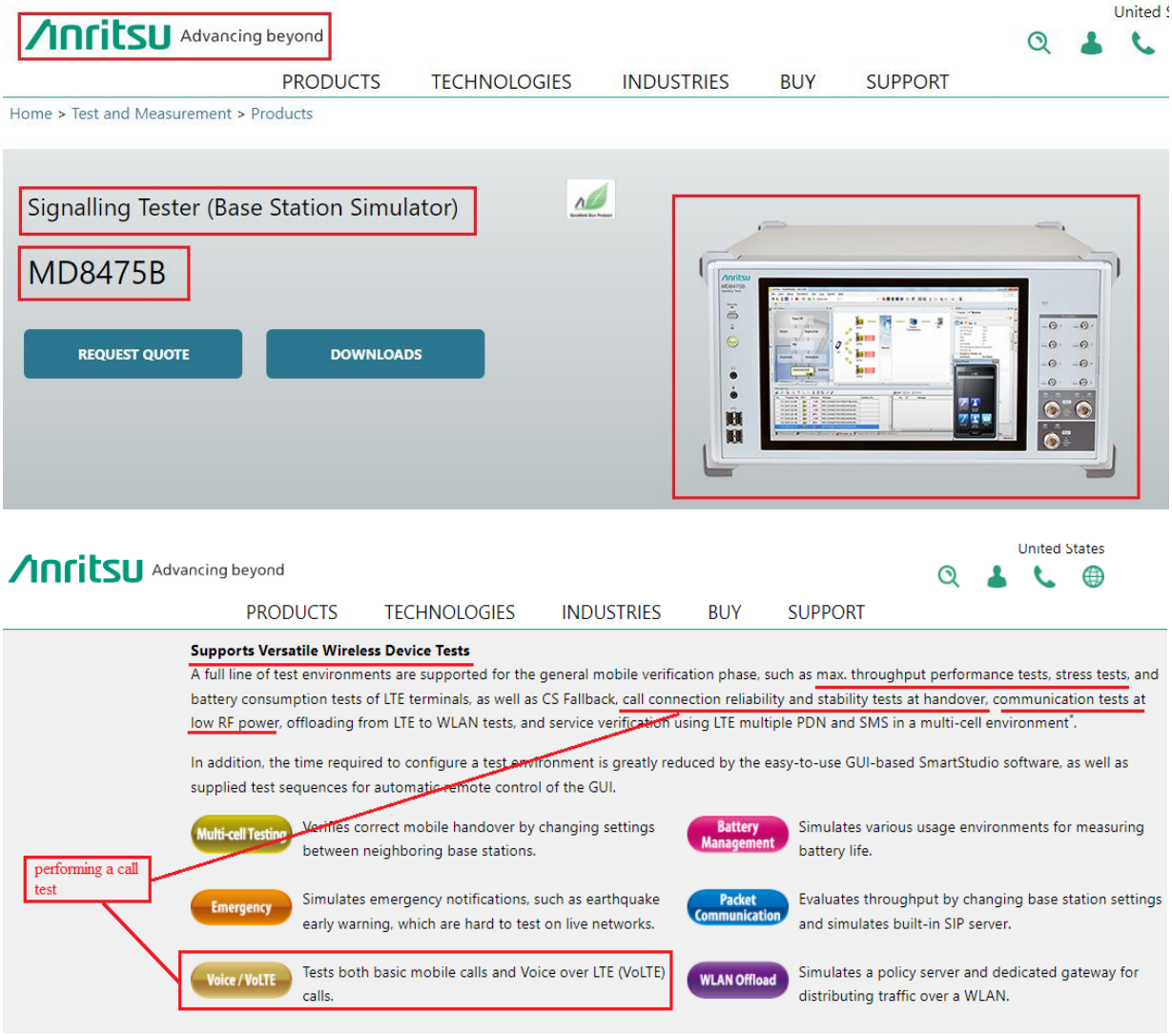
(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf).



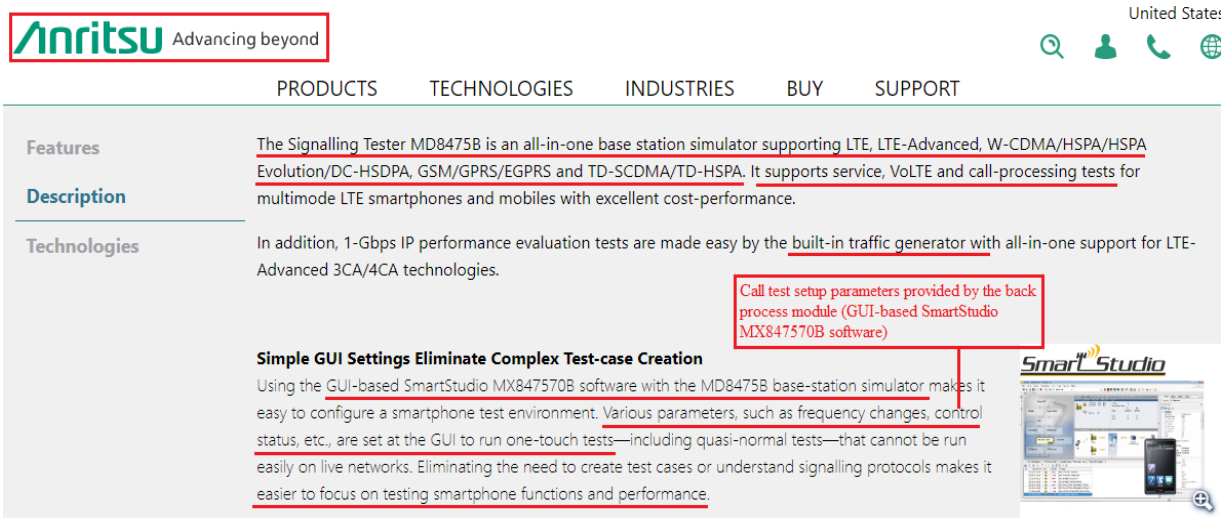
(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-el1200.pdf).

18. The Accused Instrumentality is a simulated user call test system that comprises the front call control process module (*e.g.,* user equipment (UE)) is included in a main control module of the switch (*e.g.*, the Accused Instrumentality) to receive call test setup parameters (*e.g.*, call test data containing various parameters, such as frequency changes, control status, etc.) provided by the back process module (*e.g.,* GUI-based SmartStudio MX847570B software), control the hardware subsystem (*e.g.,* Hardware) to perform a call test process (*e.g.,* 3G/2G voice call test) according to a flowchart and user parameters set (*e.g.*, various parameters, such as frequency changes, control status, etc.), and report a result of the call test to the back process module (*e.g.*, GUI-based SmartStudio MX847570B software). As shown below, the Accused Instrumentality is a part of the simulated user call test system which is a GUI-based SmartStudio MX847570B software with the MD8475B base-station simulator. The Accused Instrumentality comprises back process module (*e.g.,* GUI-based SmartStudio MX847570B software), a front call control process module (*e.g.,* user equipment (UE)) and a hardware subsystem (*e.g.,* Hardware) for performing a call test (*e.g.,* both basic mobile calls and Voice over LTE (VoLTE) calls test). The back process module (*e.g.,* SmartStudio MX847570B software) provides an operation interface for a user to perform a call test setup (setting various parameters for call test), receives call test result data (*e.g.*, result analysis) transmitted by the front call control process module (*e.g.,* user equipment (UE)), and displays the result on the display of the Accused Instrumentality. The front call control process module receives call test setup parameters provided by the SmartStudio MX847570B software, controls the hardware subsystem (Hardware Units (Multi Signaling unit, GSM signaling unit enhanced signaling unit) in the Accused Instrumentality) to perform a call test, and reports a result of the call test to SmartStudio MX847570B software. The hardware subsystem comprises function process units of the switch to receive instructions from the user equipment (UE), perform tests

comprising picking-up phones, detecting signaling tone, and talking; and report test results to the front call control process module.



(*E.g.*, https://www.anritsu.com/en-us/test-measurement/products/md8475b).



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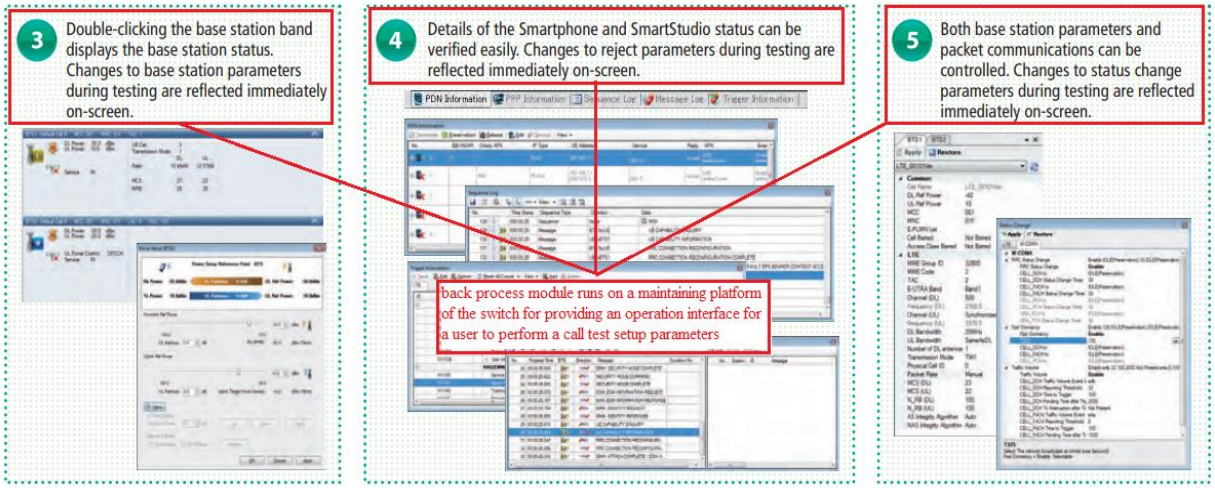

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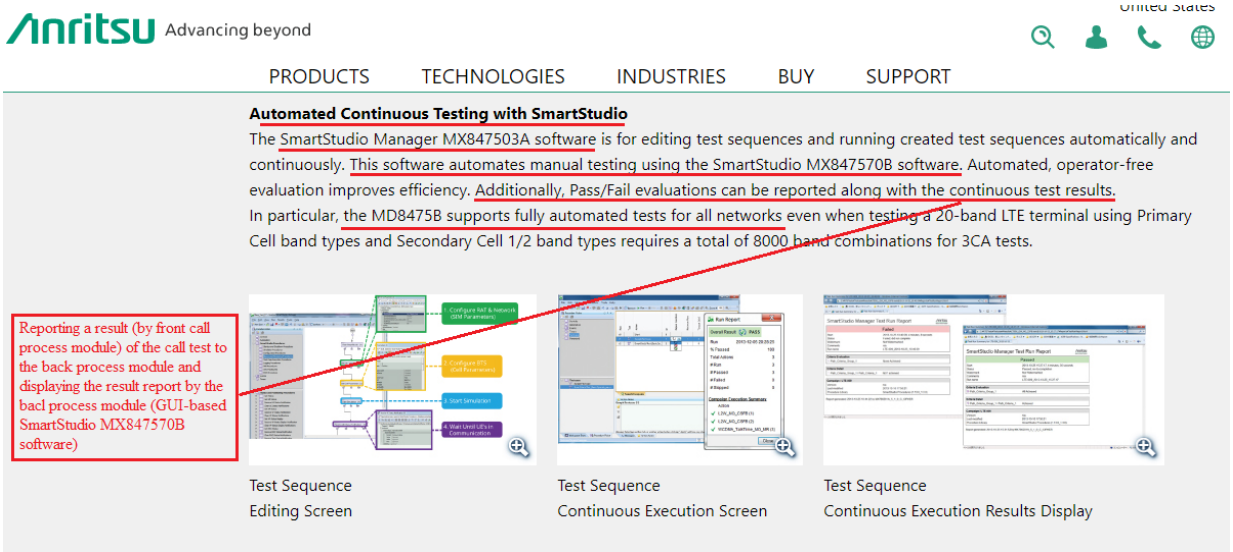

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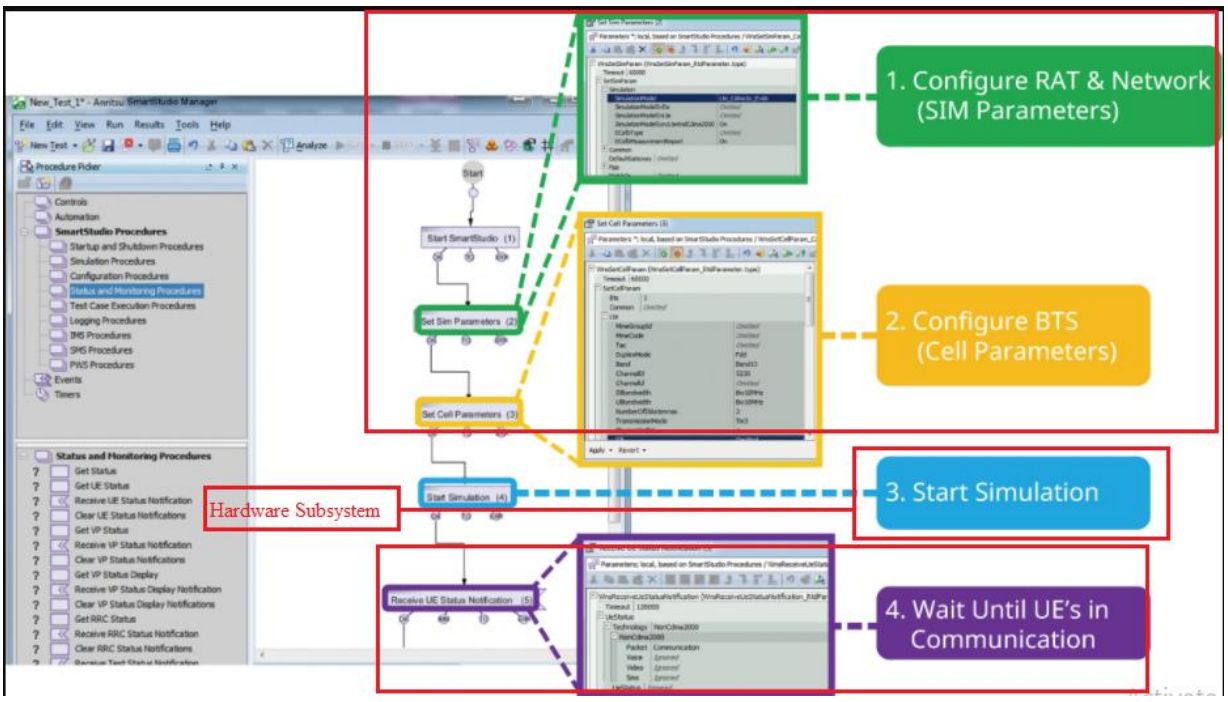

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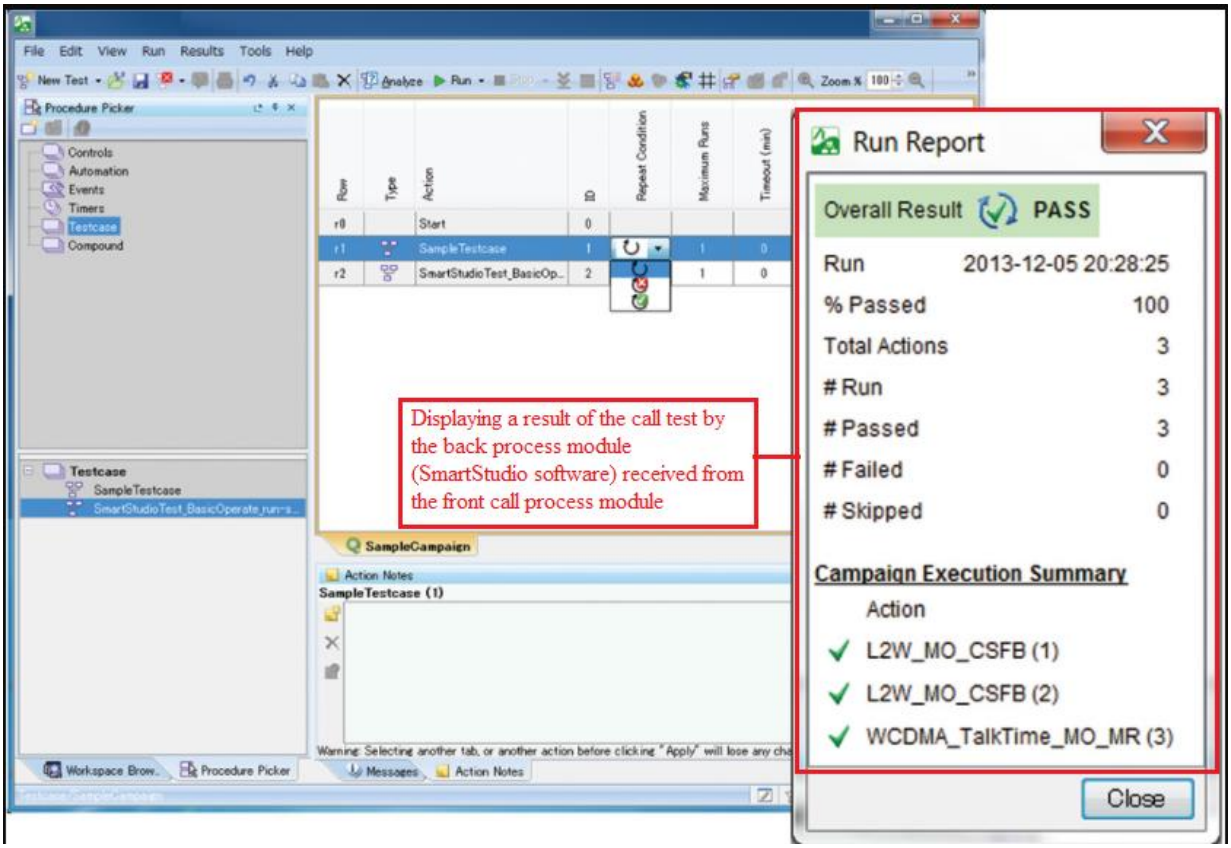


(*E.g.*, https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/screens02_l.jpg?la=en-us).

Offloading data traffic to WLAN networks is being deployed as a technology for preventing traffic congestion on mobile networks. The MD8475B supports a WLAN data offload test environment.

WLAN Offload Basic Option MX847570B-070

The software option provides functions for forwarding packets between the UE and networks with both Trusted non-3GPP Access and Untrusted non-3GPP Access authentication functions, as well as for monitoring packets graphically.

ePDG Option MX847570B-071

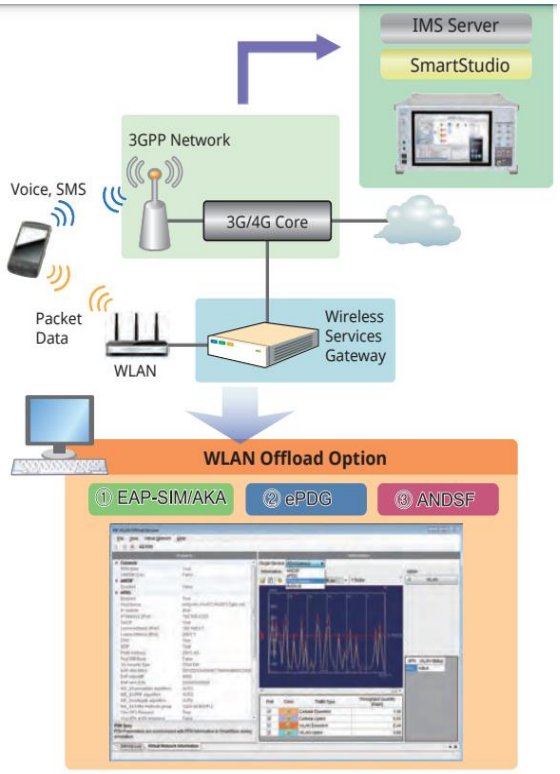
The software option supports the IKEv2 key exchange procedure and IPsec communications functions for Untrusted non-3GPP Access network authentication.

ANDSF Option MX847570B-072

The software option supports the function for setting and distributing the system selection policy between 3GPP and WLAN (distributes Policy and Discovery Information according to request from UE, and receives Location and Profile reports from UE).

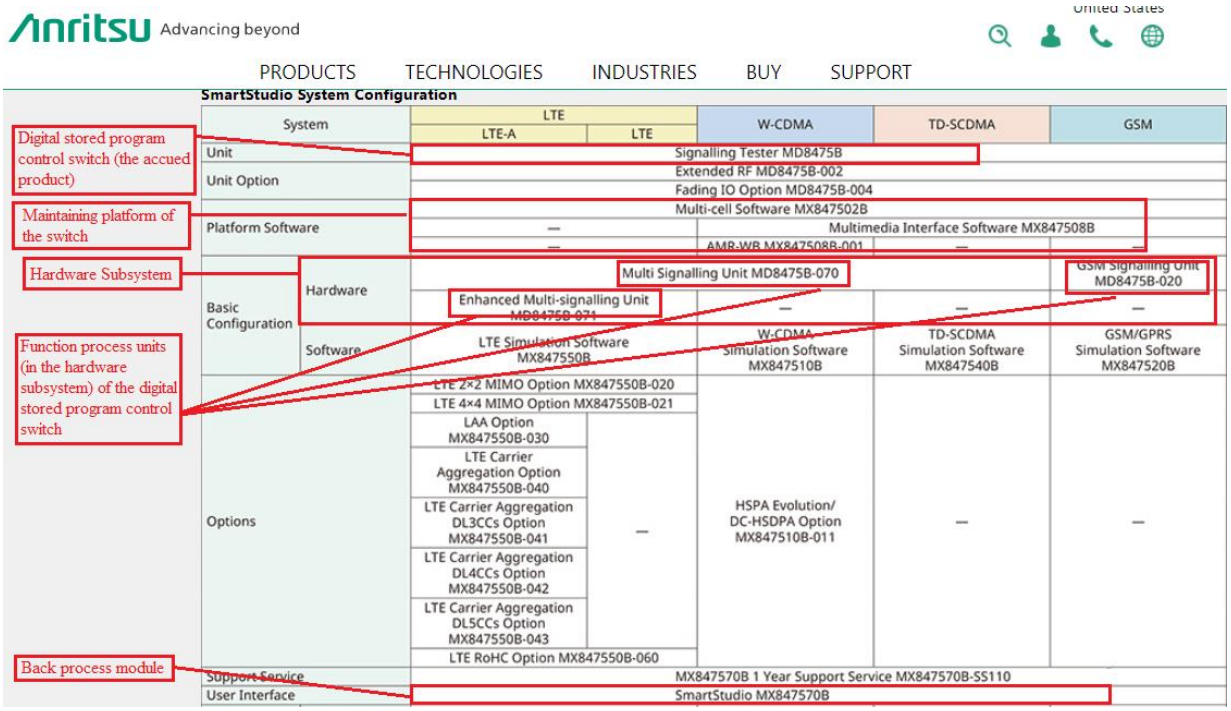
Extended ePDG Option MX847570B-073

The software option supports configuration of an ePDG status fault test environment for inserting errors into the ePDG sequence, setting timeouts, etc. Additionally, this option can be used to support Fast Re-Authentication (EAP-SIM/EAP-AKA) tests without the need to generate UE-side authentication keys.

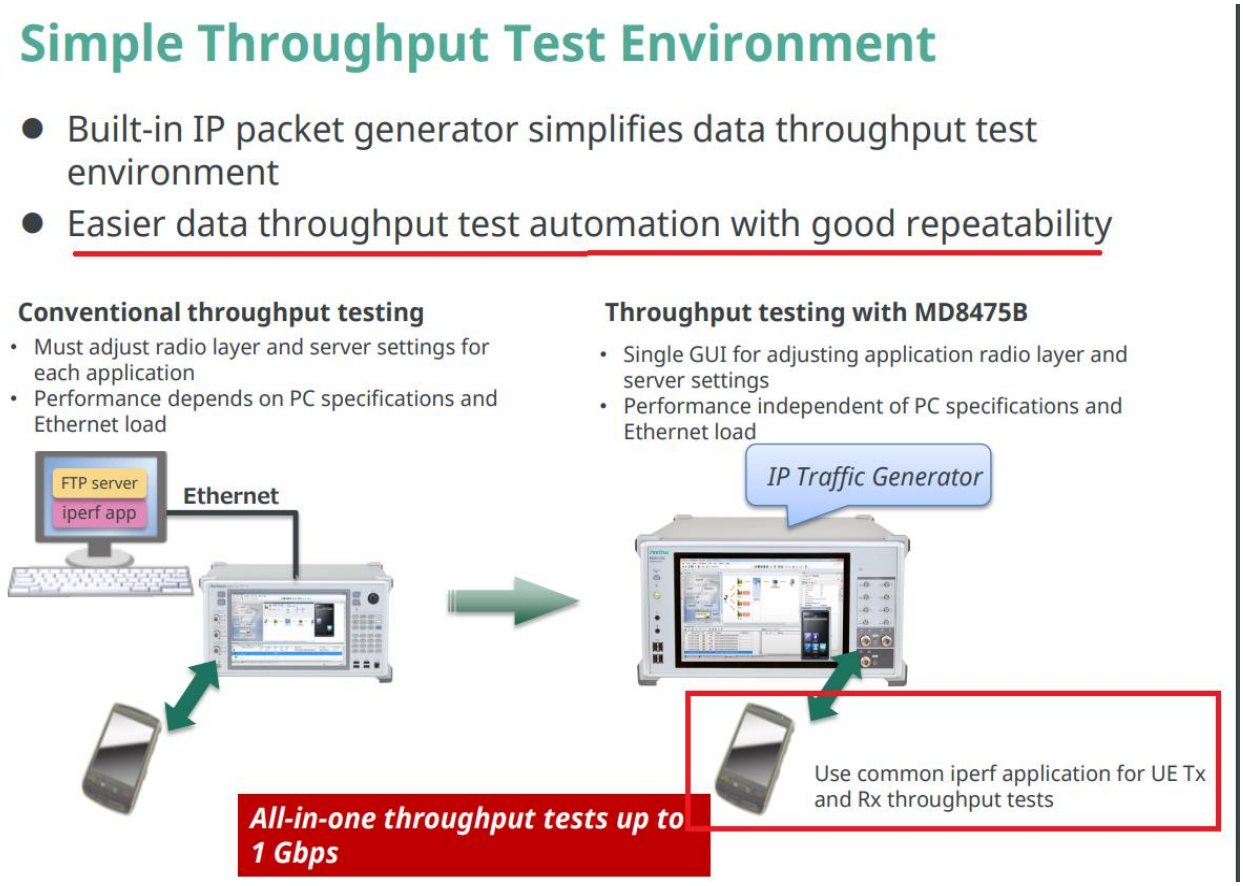


Wi-Fi Calling Evaluation Environment

(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf).



(*E.g.*, https://www.anritsu.com/en-us/test-measurement/products/md8475b).



(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-el1200.pdf).

SmartStudio MX847570B

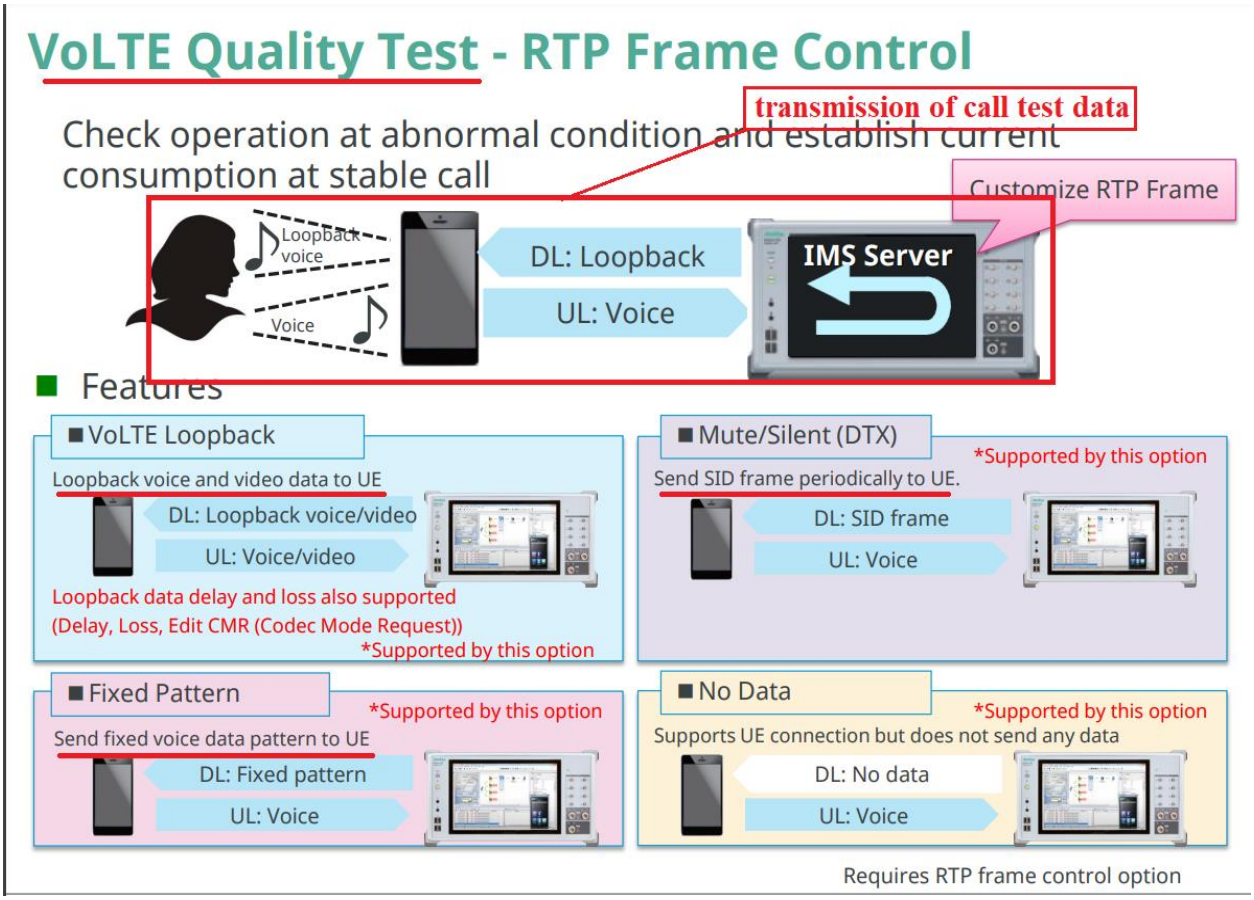
This software supports the user interface for scenario-less testing. In addition to offering functions such as sending and receiving SMS messages, sending and receiving ETWS/CMAS messages, making and receiving voice calls, and sending and receiving data packets, it also supports CSCF server functions required for IMS service tests.

- **Support Service**

MX847570B 1Year Support Service MX847570B-SS110

This service contract offers customers 1 year of support for technical enquiries as well as updates to the latest software versions adding extra functionality and bug fixes via downloads from the web page.

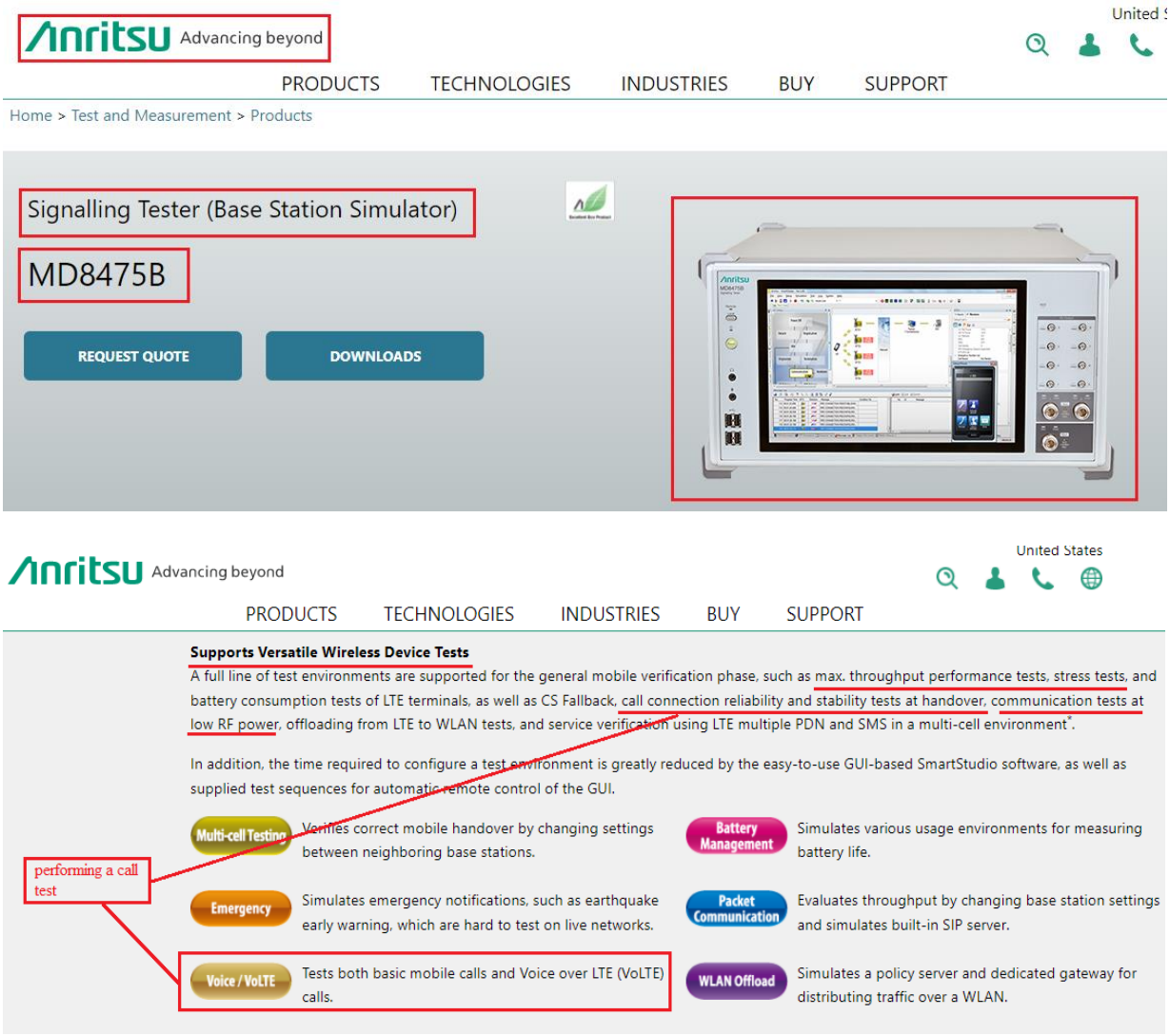
(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf).



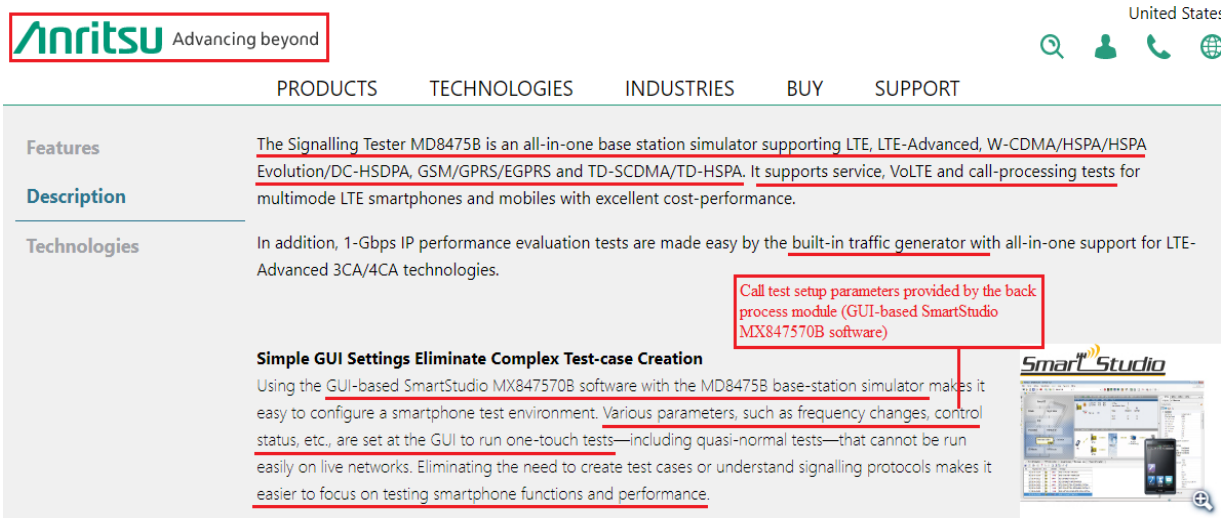
(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-el1200.pdf).

19. The Accused Instrumentality is a simulated user call test system that comprises a hardware subsystem (*e.g.*, Hardware) that comprises function process units of the digital stored program control switch (*e.g.*, the Accused Instrumentality) to receive instructions from the front call control process module (*e.g.*, user equipment (UE)), perform tests comprising at least one of the following: picking-up or hanging-up phones, detecting signaling tone, dialing, sending a test tone, or talking (see below evidence showing picking up, detecting signaling tone and talking etc.); and report test results to the front call control process module (*e.g.*, user equipment (UE)), and wherein the hardware subsystem further comprises a loop relay panel (*e.g.*, display of the MD8475B base-station simulator) used for simulating picking-up or hanging-on a phone in a

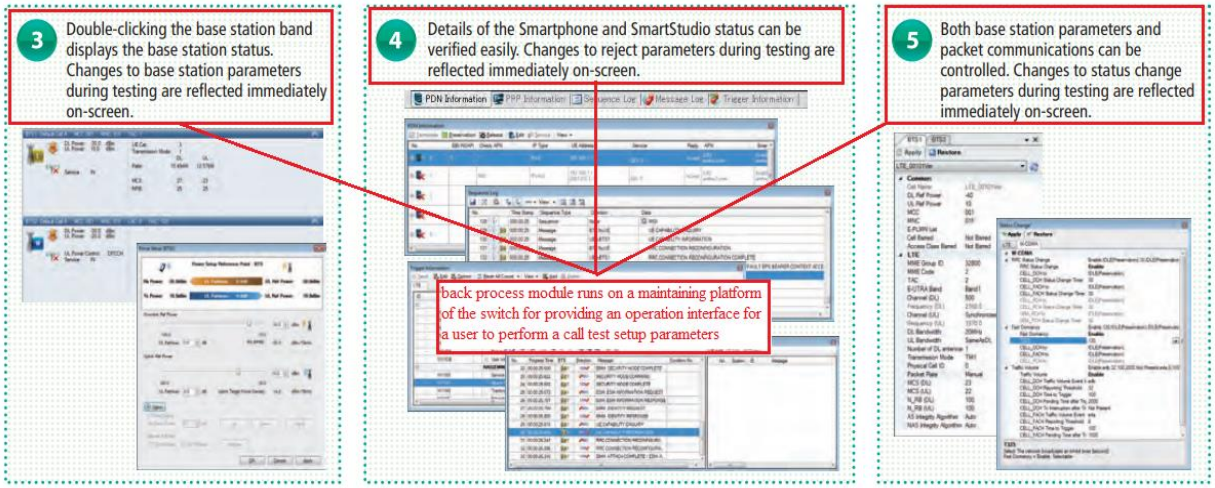
calling (*e.g.*, call holding) or called user terminal and dial function of dial pulse form by the calling user. As shown below, the Accused Instrumentality is a part of the simulated user call test system which is a GUI-based SmartStudio MX847570B software with the MD8475B base-station simulator. The Accused Instrumentality comprises back process module (*e.g.*, GUI-based SmartStudio MX847570B software), a front call control process module (*e.g.*, user equipment (UE)) and a hardware subsystem (*e.g.*, Hardware) for performing a call test (*e.g.*, call tests for both basic mobile calls and Voice over LTE (VoLTE) calls test). The back process module (*e.g.*, SmartStudio MX847570B software) provides an operation interface for a user to perform a call test setup (setting various parameters for call test), receives call test result data (*e.g.*, result analysis) transmitted by the front call control process module (*e.g.*, user equipment (UE)), and displays the result on the display of the Accused Instrumentality. The front call control process module receives call test setup parameters provided by the SmartStudio MX847570B software, controls the hardware subsystem (Hardware Units (Multi Signaling unit, GSM signaling unit enhanced signaling unit) in the Accused Instrumentality) to perform a call test, and reports a result of the call test to SmartStudio MX847570B software. The hardware subsystem comprises function process units of the switch to receive instructions from the user equipment (UE), perform tests comprising picking-up phones, detecting signaling tone, and talking; and report test results (*e.g.*, report generator) to the front call control process module.



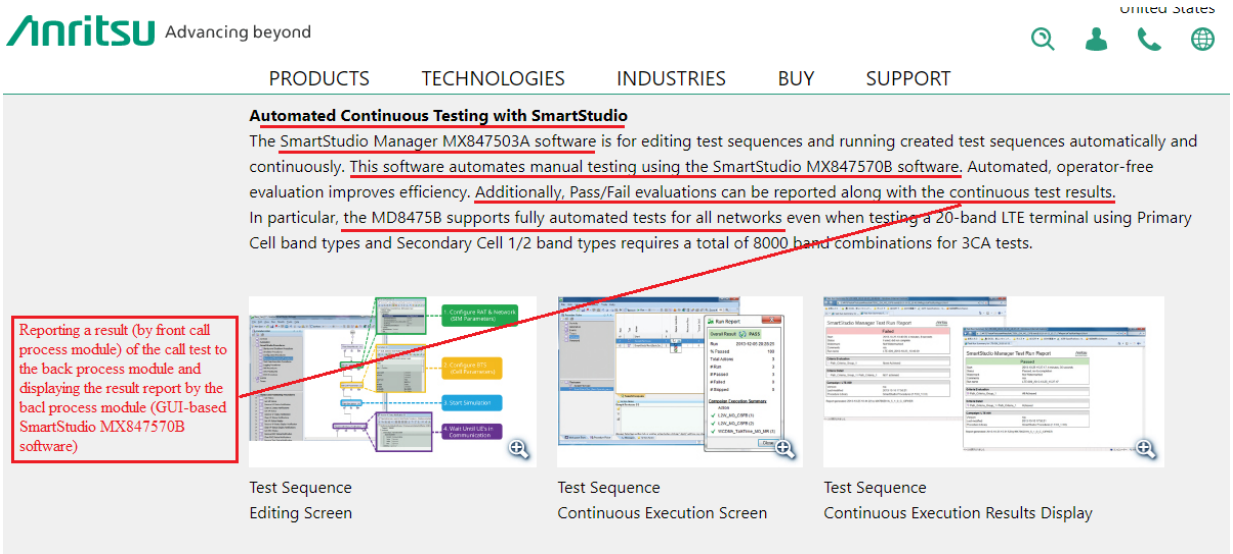
(*E.g.*, https://www.anritsu.com/en-us/test-measurement/products/md8475b).



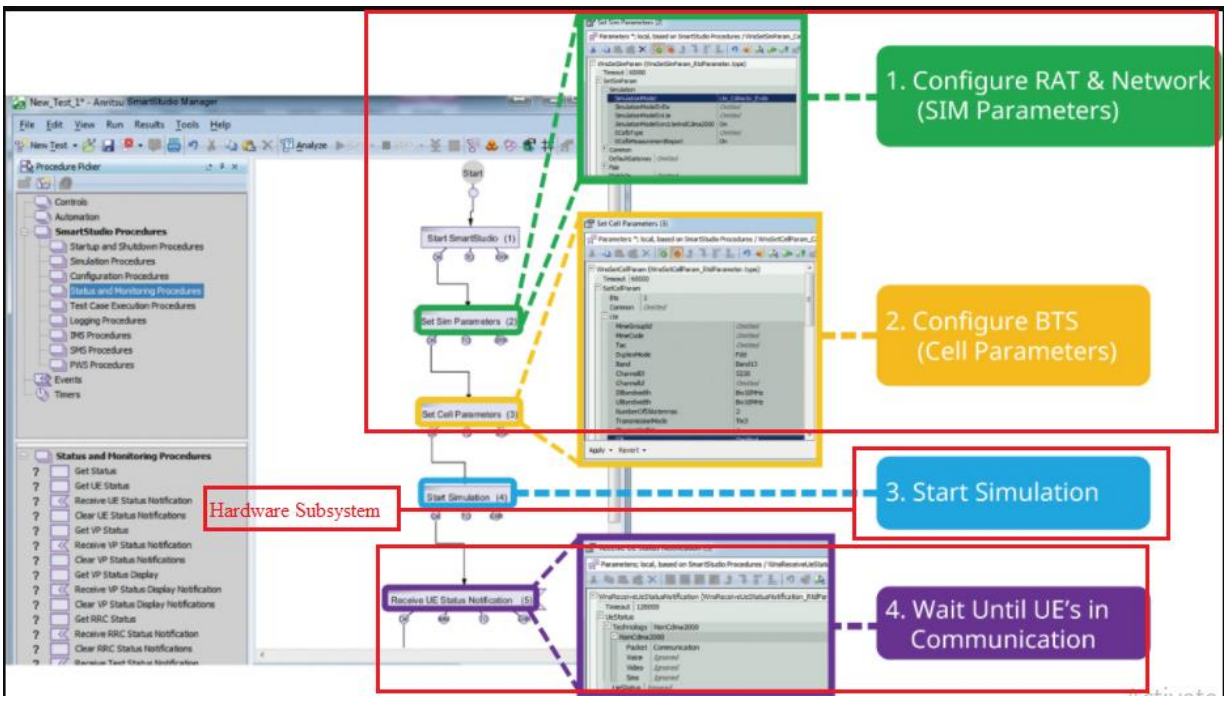
(*E.g.*, https://www.anritsu.com/en-us/test-measurement/products/md8475b).



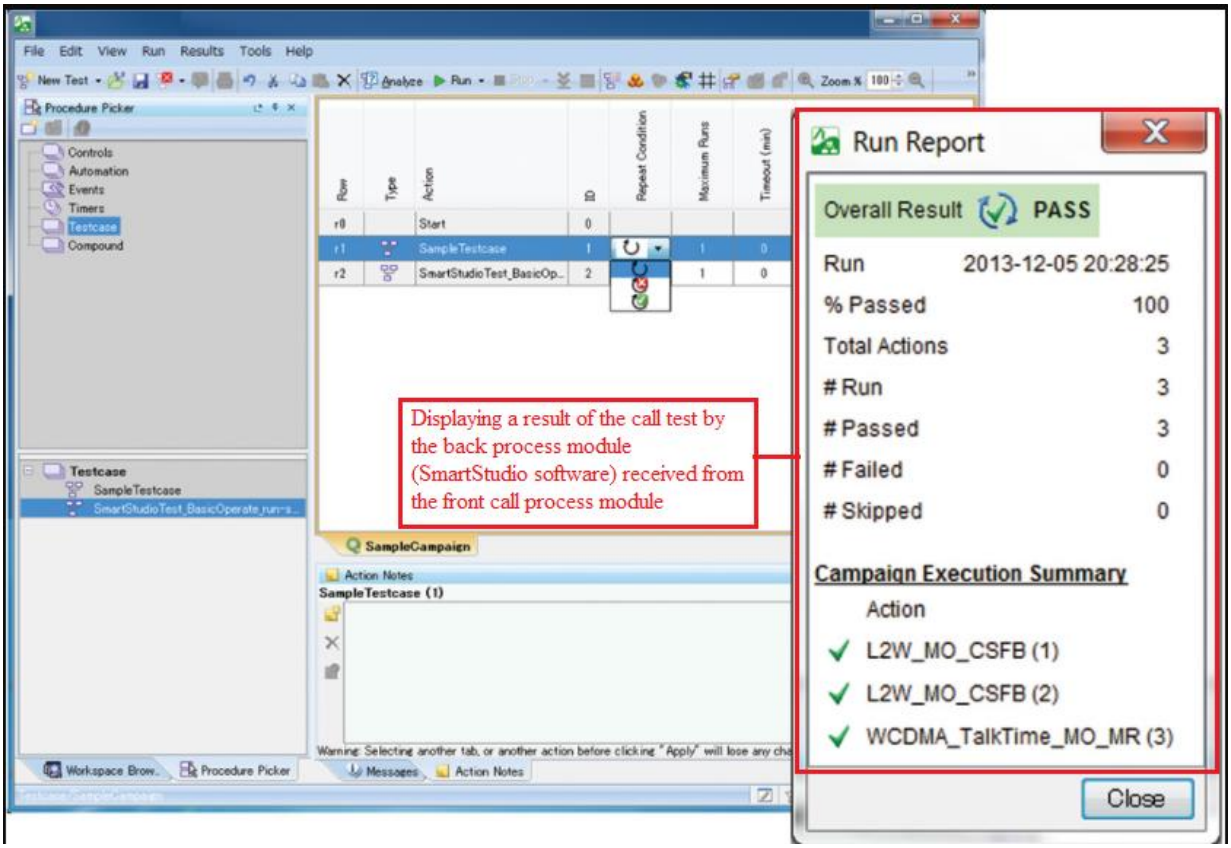
(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf).



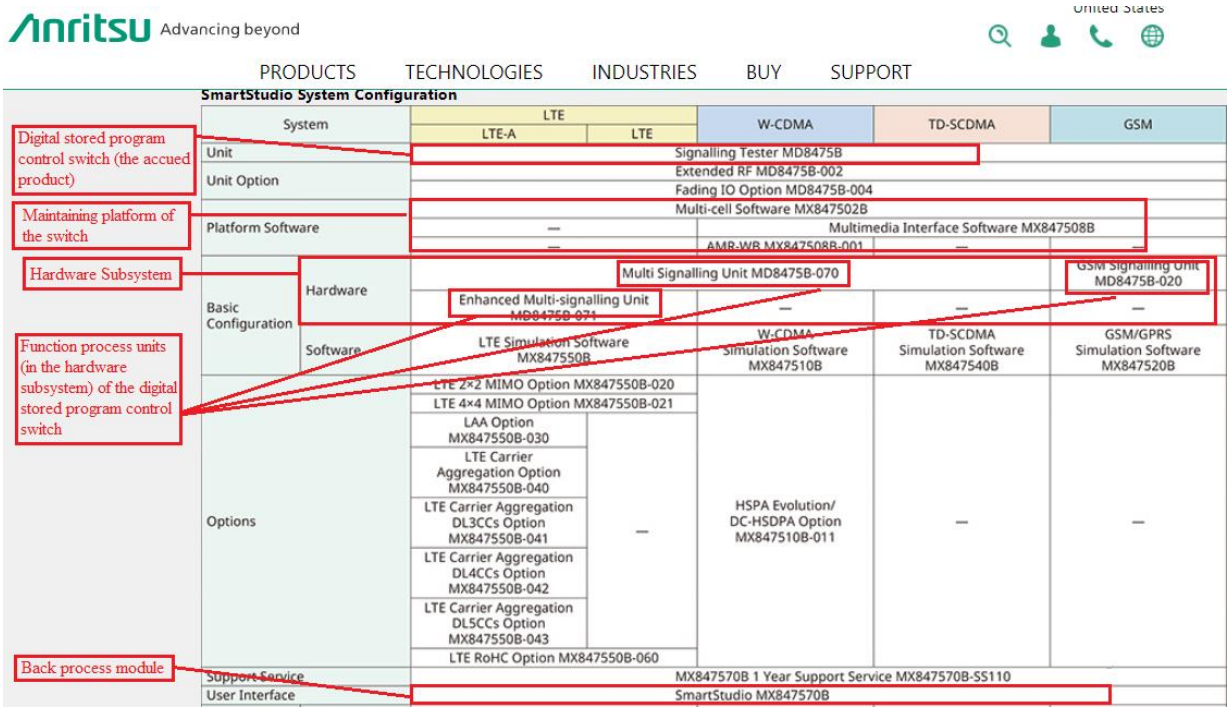
(*E.g.*, https://www.anritsu.com/en-us/test-measurement/products/md8475b).



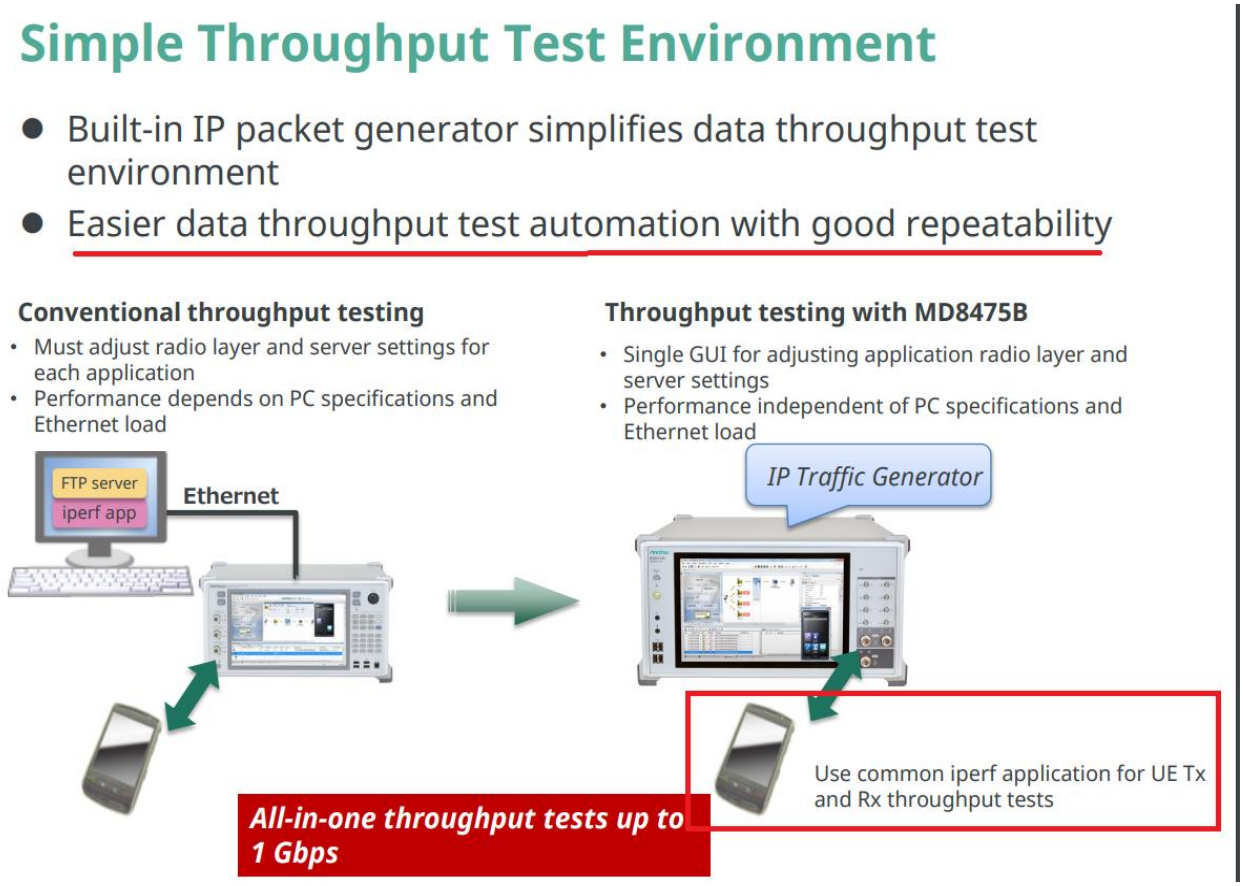
(*E.g.*, https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/fig01_l-4.jpg?la=en-us).



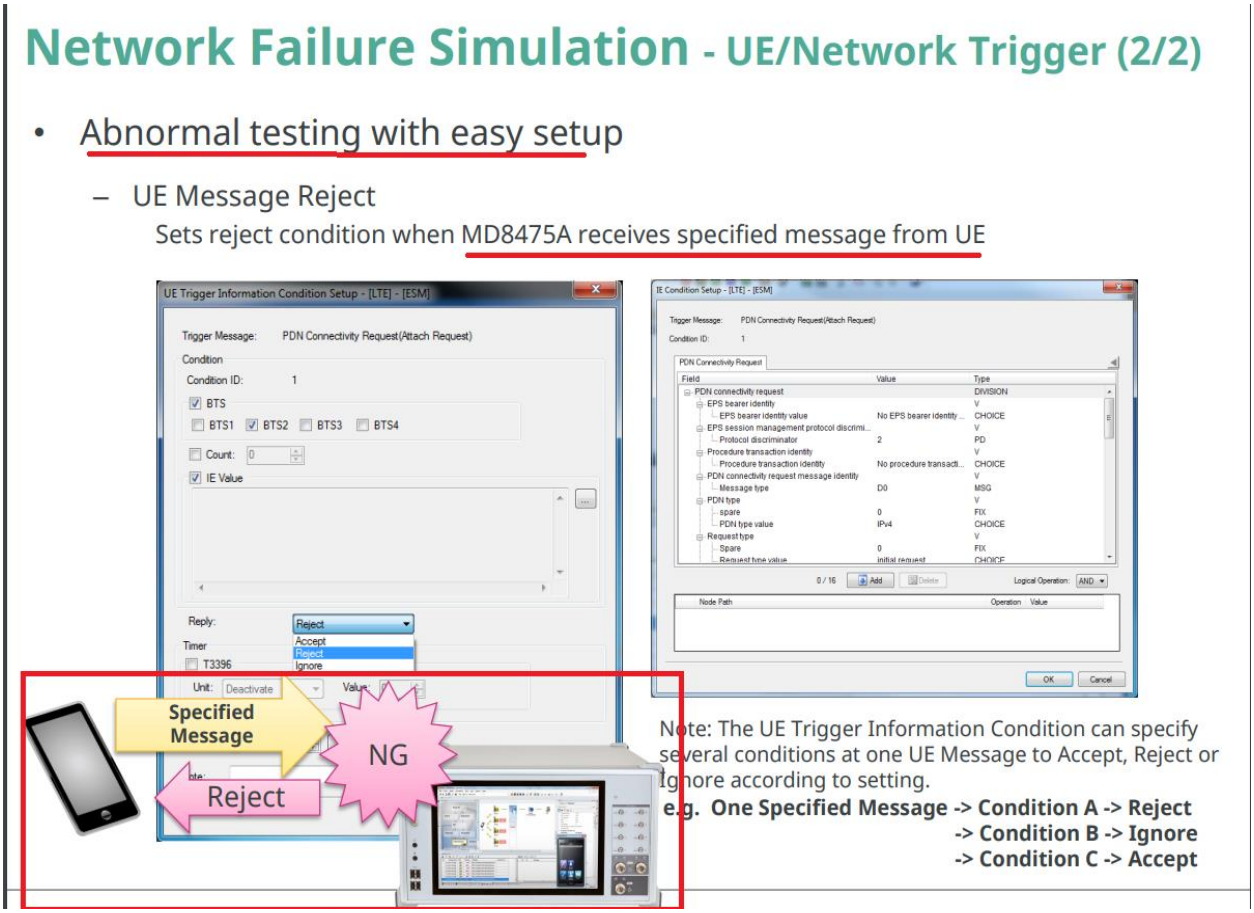
(*E.g.*, https://dl.cdn-anritsu.com/images/gw1/jp/products-solutions/products_e/md8475a/screens02_l.jpg?la=en-us).



(*E.g.*, https://www.anritsu.com/en-us/test-measurement/products/md8475b).



(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-el1200.pdf).



(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Product-Introductions/Product-Introduction/md8475b-el1200.pdf).

SmartStudio MX847570B

This software supports the user interface for scenario-less testing. In addition to offering functions such as sending and receiving SMS messages, sending and receiving ETWS/CMAS messages, making and receiving voice calls, and sending and receiving data packets, it also supports CSCF server functions required for IMS service tests.

- **Support Service**

MX847570B 1Year Support Service MX847570B-SS110

This service contract offers customers 1 year of support for technical enquiries as well as updates to the latest software versions adding extra functionality and bug fixes via downloads from the web page.

The need for voice-call evaluations has not changed even with the spread of LTE services. However, some voice-call test items, such as the access barred condition and emergency calls, are not easily evaluated on live networks. SmartStudio supports comprehensive evaluation of UE under high-load conditions, such as testing of simultaneous voice calls and other functions.

3G/2G Voice Calling Test

Just making voice settings using SmartStudio is all that is necessary for voice tests with the MD8475B.

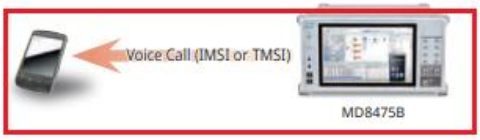
Multimedia Interface Software MX847508B

Setting Roaming and Registering Address Book

When performing incoming-call tests of W-CDMA/GSM UE, SmartStudio can display any of 'Public', 'National', 'International', and 'Unknown' on the UE. Additionally, when the incoming call number matches a preregistered number in the address book, the name associated with the number is displayed.

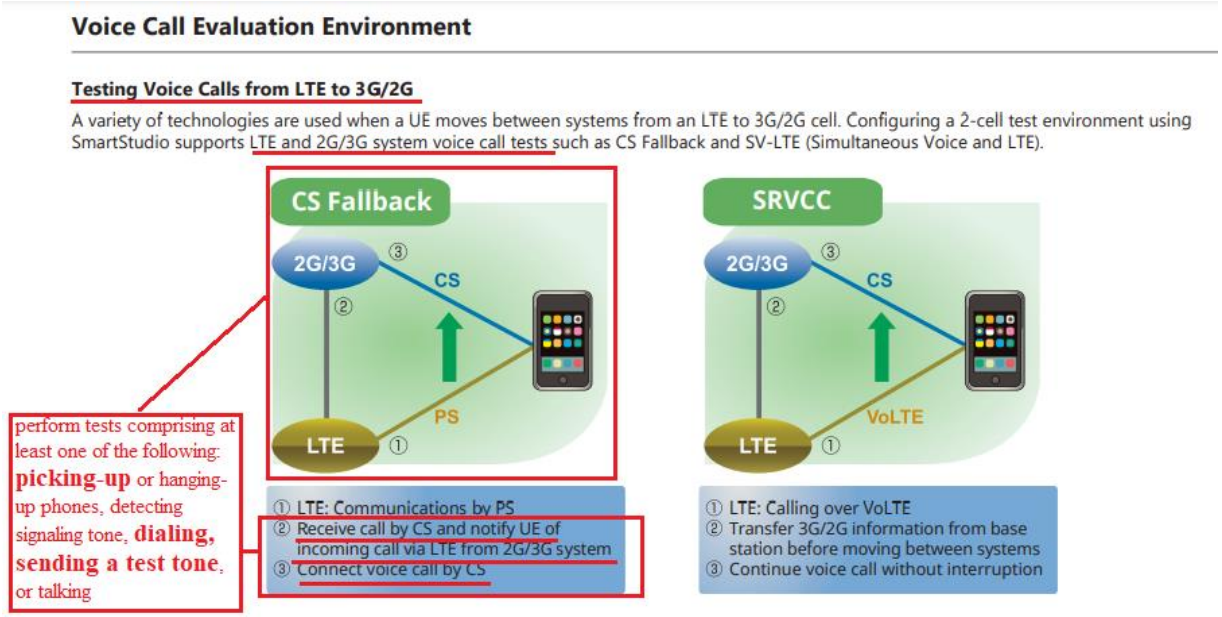
Setting Identify Type

When performing incoming call tests of W-CDMA/GSM UEs, either IMSI or TMSI can be chosen for the UE Caller ID using Paging.



Perform tests comprising at least one of the following: picking-up or hanging-up phones, **detecting signaling tone**, dialing, sending a test tone, or talking

(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf).



Extended CSCF Option MX847570B-080

This software option adds functions for calling from the network to UE as well as extended functions for CSCF-server-side network congestion and no response status.

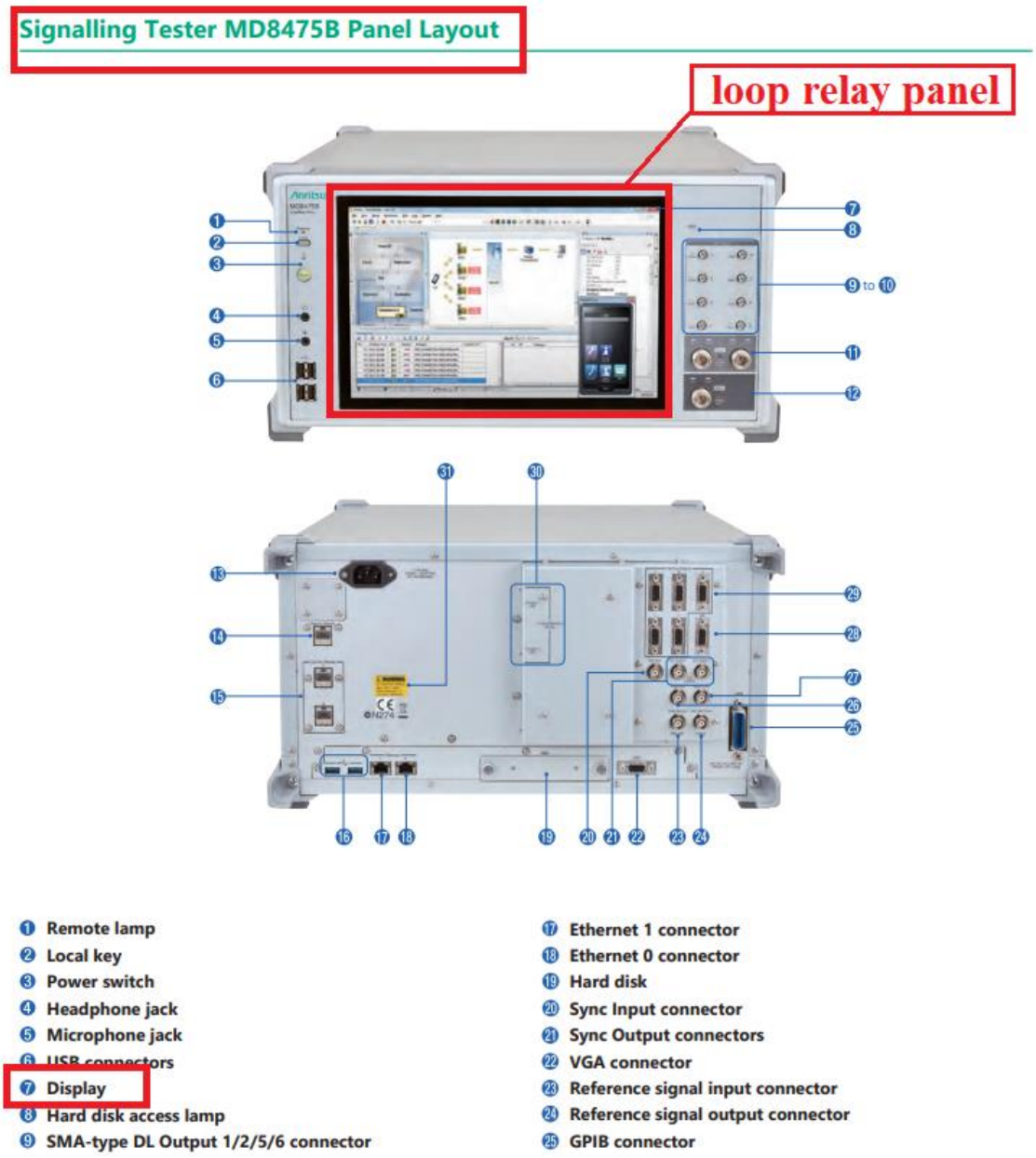
IMS Supplementary Service Option MX847570B-081

This software option adds other service tests, including VoLTE caller ID display, call forwarding, call holding, etc.

RCS Basic Option MX847570B-083

This software option simulates RCS services. It is used to perform tests including RCS Configuration, Registration, Instant Messaging, etc.

(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf).



(*E.g.*, https://dl.cdn-anritsu.com/en-en/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/md8475b-e1201.pdf).

IV. COUNT II
(PATENT INFRINGEMENT OF UNITED STATES PATENT NO. 9,179,339)

20. Plaintiff incorporates the above paragraphs herein by reference.

21. On November 3, 2015, United States Patent No. 9,179,339 ("the '339 Patent") was duly and legally issued by the United States Patent and Trademark Office. The '339 Patent is titled

"Method and System for Testing the Wireless Signal Propagation Model of the Cellular Network." A true and correct copy of the '339 Patent is attached hereto as Exhibit B and incorporated herein by reference.

22. Prestwick is the assignee of all right, title, and interest in the '339 patent, including all rights to enforce and prosecute actions for infringement and to collect damages for all relevant times against infringers of the '339 Patent. Accordingly, Prestwick possesses the exclusive right and standing to prosecute the present action for infringement of the '339 Patent by Defendant.

23. The invention in the '339 Patent relates to the field of communication and more particularly to a method and system for testing the wireless signal propagation of the cellular network. (Ex. B at 1:17-19).

24. Cellular networking is one of the most common networking mode in the wireless communication. (*Id.* at 1:23-24). A cellular network is constructed of base stations in which the coverage area of a base station is called a cell. (*Id.* at 1:24-32). In the coverage area of the cell, a terminal can establish a wireless communication link with the base station. (*Id.* at 1:32-34). Multiple base station transceivers form a network to continually cover an area so to provide a user terminal with seamless wireless communication service within the network. (*Id.* at 1:34-36). When planning a network, the provider looks at the user requirements, including designed capacity, coverage range and rate, and network performance. (*Id.* at 1:37-41). When the designed requirement is clear, it comes to the requirement analysis of the wireless network design, including the prediction of the coverage radius of the coverage area and the analysis of the distribution of the user capacity. (*Id.* at 1:41-45). The capacity distribution of the coverage area means to determine the equipment configuration and the size of the coverage radius of the cell according to the potential of the user development in the network coverage area. (*Id.* at 1:45-48). The original

design 206 of the network topology structure is completed on the map by combining the two factors, *i.e.*, the network coverage and the user distribution. (*Id.* at 1:48-51).

25. A site survey is then performed to help select the appropriate base station sites in the actual coverage environment. (*Id.* at 1:52-54). After the site survey, the provider has basically ascertained which sites possess the essential conditions for establishing the base stations. (*Id.*at 1:57-61).

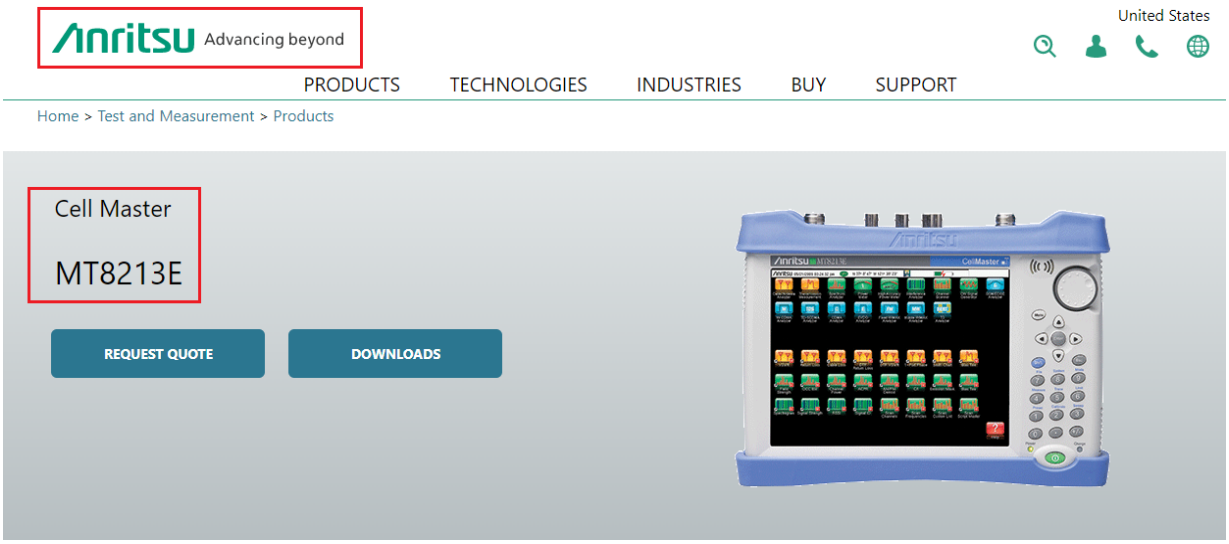
26. After the sites are selected, it is necessary to use a network simulation to verify whether the network design requirement is satisfied and adjust the site parameters on the simulation platform to find the appropriate site places. (*Id.* at 1:61-67). A signal propagation model is used for the traditional cell coverage prediction and is usually needed to correct for typical topographic and geomorphologic environments. (*Id.* at 2:2-11). A propagation model correction is also used, which corrects the wireless propagation model by collecting sufficient field strength testing data through selecting the typical sites with respect to the typical topography and geomorphology (multiple testing sites are usually needed to be selected such that the testing data covers various topography, geomorphology, and site heights). (*Id.* at 2:2-5, 12-14, 38-44). The more testing sites in an area, the better the model correction effect is (multiple parameters in the model are corrected and the parameters corresponding to various geomorphology are corrected). (*Id.* at 2:45-49). When testing the wireless signal field strength, transmission apparatus need to be installed in sequence at each testing site in the testing area, and the receiving field strength of the wireless signal is tested for the coverage area of each site in sequence. (*Id.* at 2:50-54). If n sites are to be tested, the apparatus installation and the testing need to be performed n times, which results in quite large workload. (*Id.* at 2:54-56).

27. In view of this problem, the inventors therefore invented a system for testing the wireless propagation model to address the problem of the heavy workload caused by repeated installing of the transmission apparatus and testing the receiving field strength at each testing site in the testing area in the prior art. (*Id.* at 2:60-65).

28. **Direct Infringement.** Upon information and belief, Defendant has been directly infringing claim 4 of the '339 Patent in Texas, and elsewhere in the United States, by making, using, selling, and or offering to sell the Anritsu Cell Master MT8213E ("Accused System").

29. The Accused System is a system for testing wireless signal field strength of a cellular network (*e.g.*, GSM, CDMA, LTE, etc.).

(*E.g.*, https://www.anritsu.com/en-us/).



The MT8213E Cell Master™ Base Station Analyzer is the smallest, lightest, and most economical solution for 2G/3G/4G, and WiMAX base station transmitter testing and ISDB-T and DVB-T/H digital broadcast field testing. It's ideal for installation and commissioning as well as for maintenance and troubleshooting.

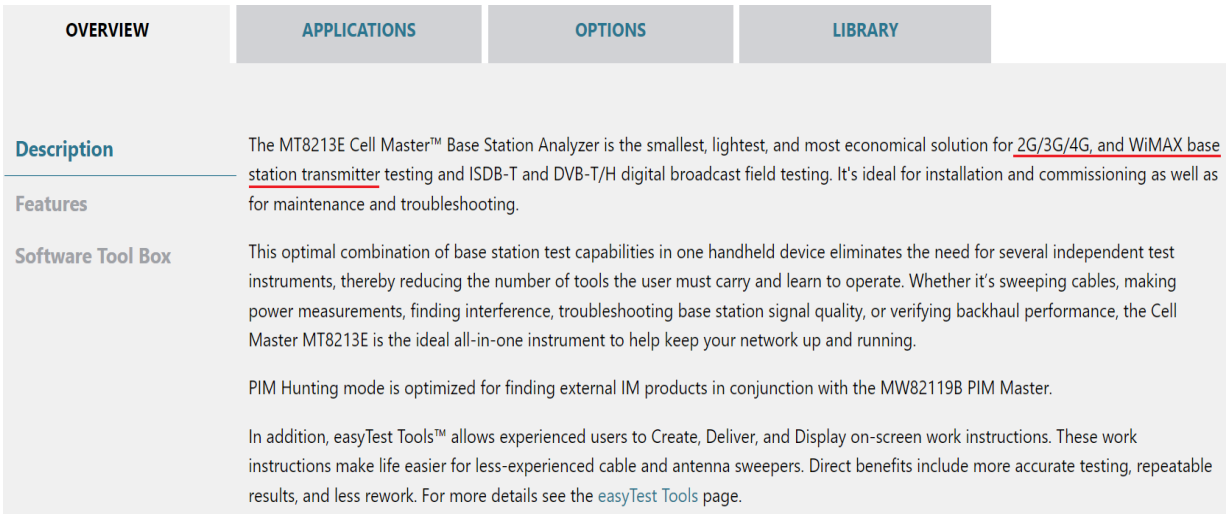
This optimal combination of base station test capabilities in one handheld device eliminates the need for several independent test instruments, thereby reducing the number of tools the user must carry and learn to operate. Whether it's sweeping cables, making power measurements, finding interference, troubleshooting base station signal quality, or verifying backhaul performance, the Cell Master MT8213E is the ideal all-in-one instrument to help keep your network up and running.

Signal Analyzer Highlights

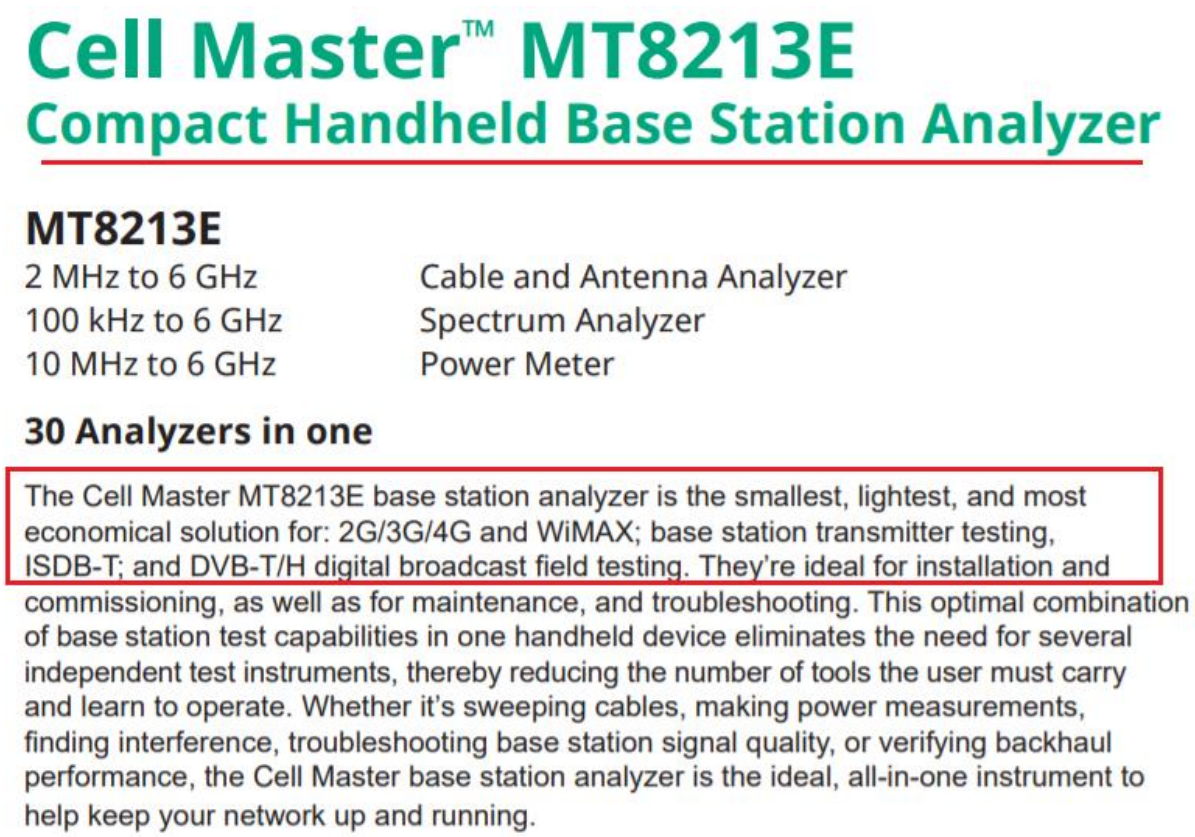
- 3GPP Signal Analyzers GSM/EDGE, W-CDMA/HSPA+, TD-SCDMA/HSPA+, LTE/LTE-A, TD-LTE/LTE-A, NB-IoT
- 3GPP2 Signal Analyzers cdmaONE/CDMA2000 1X, CDMA2000 1xEV-DO
- IEEE 802.16 Signal Analyzers Fixed WiMAX, Mobile WiMAX
- Digital TV ISDB-T, DVB-T/H Signal Analyzer
- 20 MHz demodulation bandwidth

(*E.g.*, https://www.anritsu.com/en-us/test-measurement/products/mt8213e).

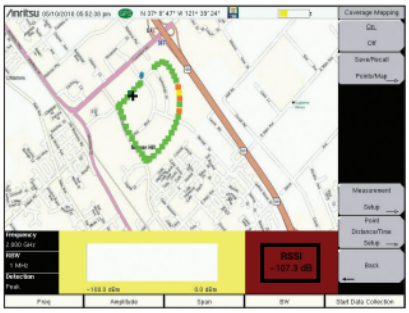
30. The Accused System is a system comprising a transmitting apparatus (*e.g.*, a base station transmitter for testing), configured to transmit a testing signal upon moving along a testing route (a test route for indoor/outdoor mapping, etc.).



(*E.g.*, https://www.anritsu.com/en-us/test-measurement/products/mt8213e).

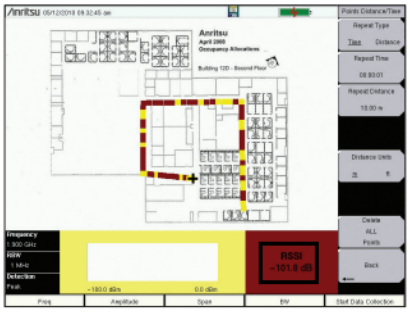


(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00635F.pdf).



On-screen Outdoor Coverage Mapping

Enables a maintenance technician to make low cost coverage measurements to quickly verify coverage around a base station site.



On-screen Indoor Coverage Mapping

Coverage Mapping

There is a growing demand for low cost coverage mapping solutions. Anritsu's Coverage Mapping measurements option provides wireless service providers, public safety users, land mobile ratio operators, and government officials with indoor and outdoor mapping capabilities

Outdoor Mapping

With a connected to the instrument and a valid GPS signal, the instrument monitors RSSI and ACPR levels automatically. Using a map created with Map Master, the instrument displays maps, the location of the measurement, and a special color code for the power level. The refresh rate can be set up in time (1 sec, minimum) or distance.

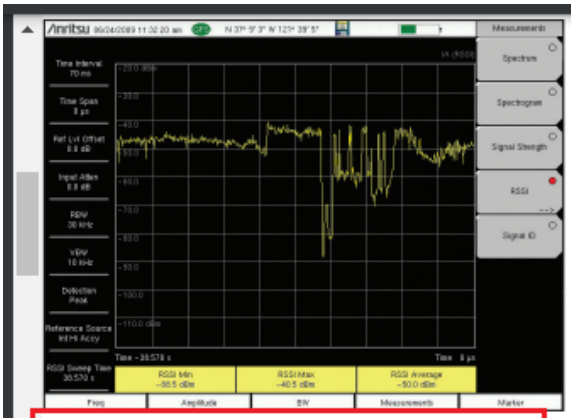
The overall amplitude accuracy coupled with the GPS update rate ensures accurate and reliable mapping results.

Indoor Mapping

When there is no GPS signal valid, the Cell Master uses a start-walk-stop approach to record RSSI and ACPR levels. You can set the update rate, start location, and end location and the interpolated

Coverage Mapping Measurements

Spectrum Analyzer Mode
- ACPR
- RSSI



Received Signal Strength Indicator (RSSI)

Used to observe the signal strength of a single frequency over time. Data can be collected for up to one week with an external USB flash drive.

measurements is to resolve interference issues as quickly as possible.

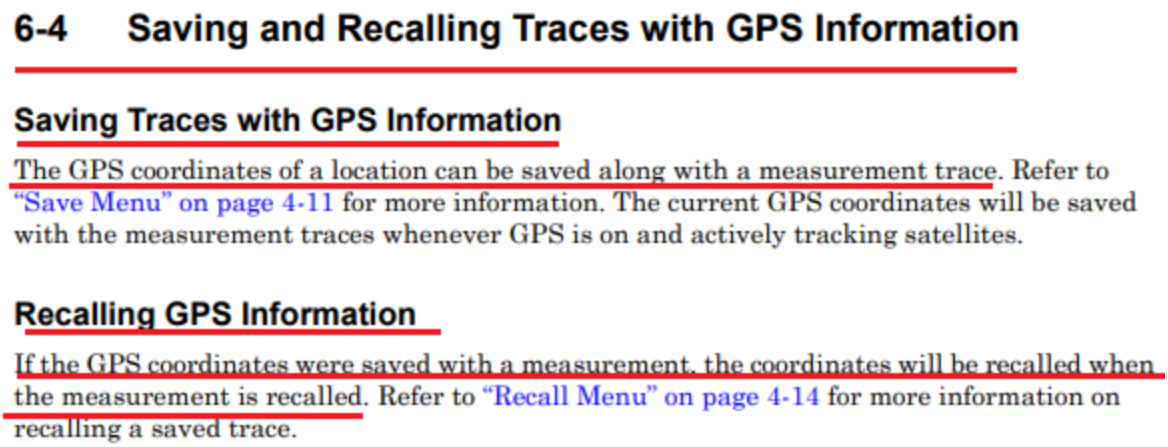
Monitoring Interference

The Cell Master offers many tools for monitoring intermittent interferers over time to determine patterns:

- Spectrogram
- Received Signal Strength Indicator
- Remote Monitoring over the Internet
- Save-on-Event – crossing a limit line

Master Software Tools for your PC features diagnostic tools for efficient analysis of the data collected during interference monitoring. These features include:

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00517W.pdf).



6-4 Saving and Recalling Traces with GPS Information

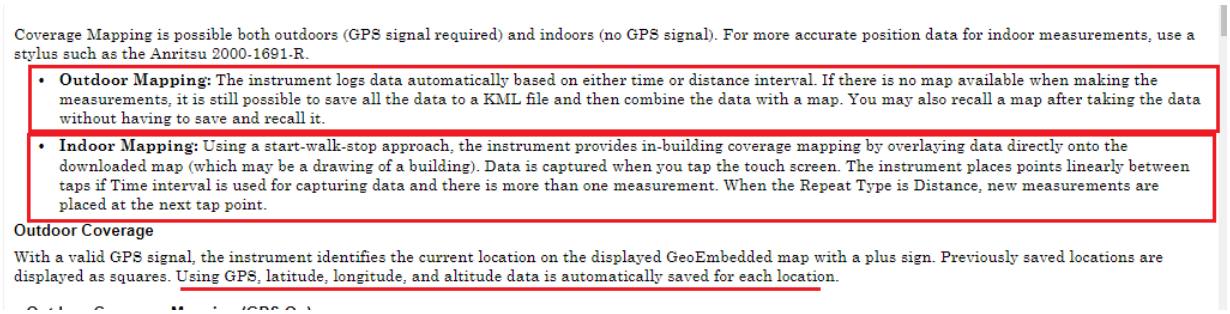
Saving Traces with GPS Information

The GPS coordinates of a location can be saved along with a measurement trace. Refer to "Save Menu" on page 4-11 for more information. The current GPS coordinates will be saved with the measurement traces whenever GPS is on and actively tracking satellites.

Recalling GPS Information

If the GPS coordinates were saved with a measurement, the coordinates will be recalled when the measurement is recalled. Refer to "Recall Menu" on page 4-14 for more information on recalling a saved trace.

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Manuals/Users-Guide/10580-00250AA.pdf).



Coverage Mapping is possible both outdoors (GPS signal required) and indoors (no GPS signal). For more accurate position data for indoor measurements, use a stylus such as the Anritsu 2000-1691-R.

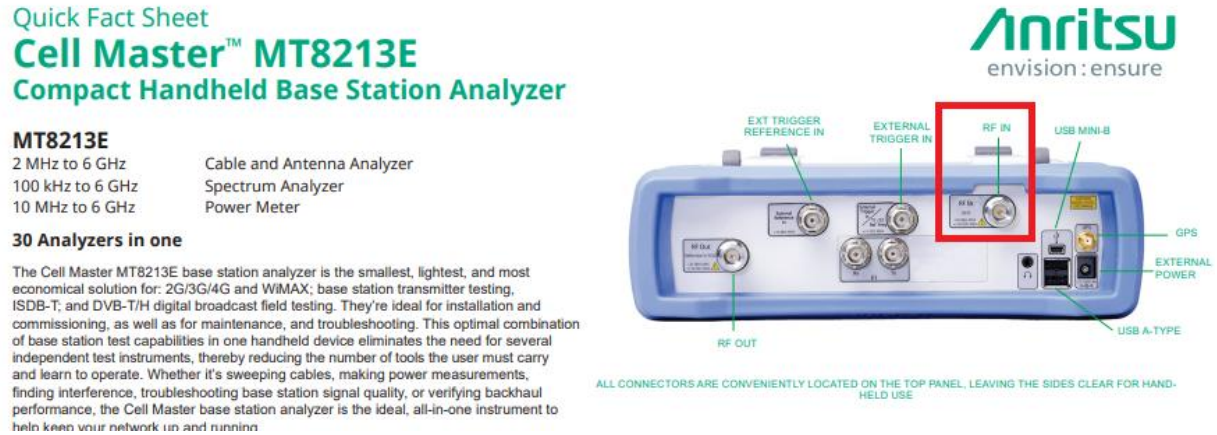
- **Outdoor Mapping:** The instrument logs data automatically based on either time or distance interval. If there is no map available when making the measurements, it is still possible to save all the data to a KML file and then combine the data with a map. You may also recall a map after taking the data without having to save and recall it.
- **Indoor Mapping:** Using a start-walk-stop approach, the instrument provides in-building coverage mapping by overlaying data directly onto the downloaded map (which may be a drawing of a building). Data is captured when you tap the touch screen. The instrument places points linearly between taps if Time interval is used for capturing data and there is more than one measurement. When the Repeat Type is Distance, new measurements are placed at the next tap point.

Outdoor Coverage

With a valid GPS signal, the instrument identifies the current location on the displayed GeoEmbedded map with a plus sign. Previously saved locations are displayed as squares. Using GPS, latitude, longitude, and altitude data is automatically saved for each location.

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/ohs/10450-00021H/index.html#page/Measurements%2F6_Coverage.07.04.html%23).

31. The Accused System is a system comprises a receiving testing apparatus (*e.g.*, a receiver, RF IN, etc.), installed at more than one selected testing sites (*e.g.*, multiple locations), configured to receive the testing signal and to detect the strength (RSSI, field strength, etc.) of the received signal.


Quick Fact Sheet

Cell Master™ MT8213E

Compact Handheld Base Station Analyzer

MT8213E

2 MHz to 6 GHz	Cable and Antenna Analyzer
100 kHz to 6 GHz	Spectrum Analyzer
10 MHz to 6 GHz	Power Meter

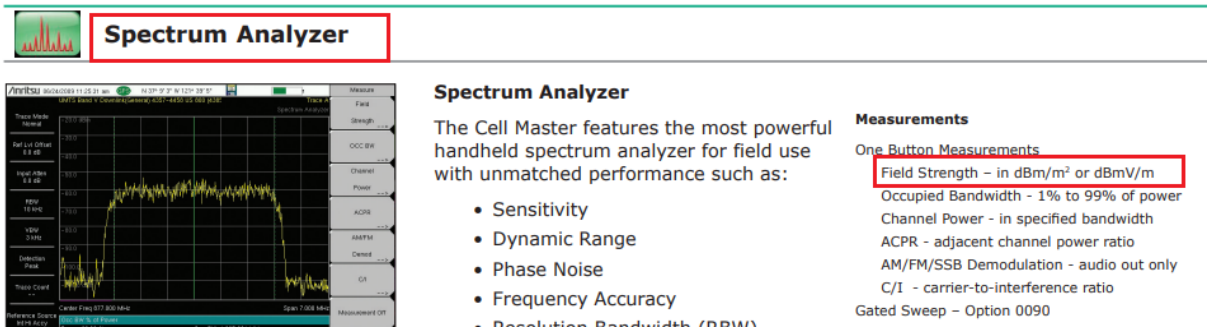
30 Analyzers in one

The Cell Master MT8213E base station analyzer is the smallest, lightest, and most economical solution for: 2G/3G/4G and WiMAX; base station transmitter testing, ISDB-T; and DVB-T/H digital broadcast field testing. They're ideal for installation and commissioning, as well as for maintenance, and troubleshooting. This optimal combination of base station test capabilities in one handheld device eliminates the need for several independent test instruments, thereby reducing the number of tools the user must carry and learn to operate. Whether it's sweeping cables, making power measurements, finding interference, troubleshooting base station signal quality, or verifying backhaul performance, the Cell Master base station analyzer is the ideal, all-in-one instrument to help keep your network up and running

Anritsu envision:ensure

ALL CONNECTORS ARE CONVENIENTLY LOCATED ON THE TOP PANEL, LEAVING THE SIDES CLEAR FOR HAND-HELD USE

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00635F.pdf).


Spectrum Analyzer

Spectrum Analyzer

The Cell Master features the most powerful handheld spectrum analyzer for field use with unmatched performance such as:

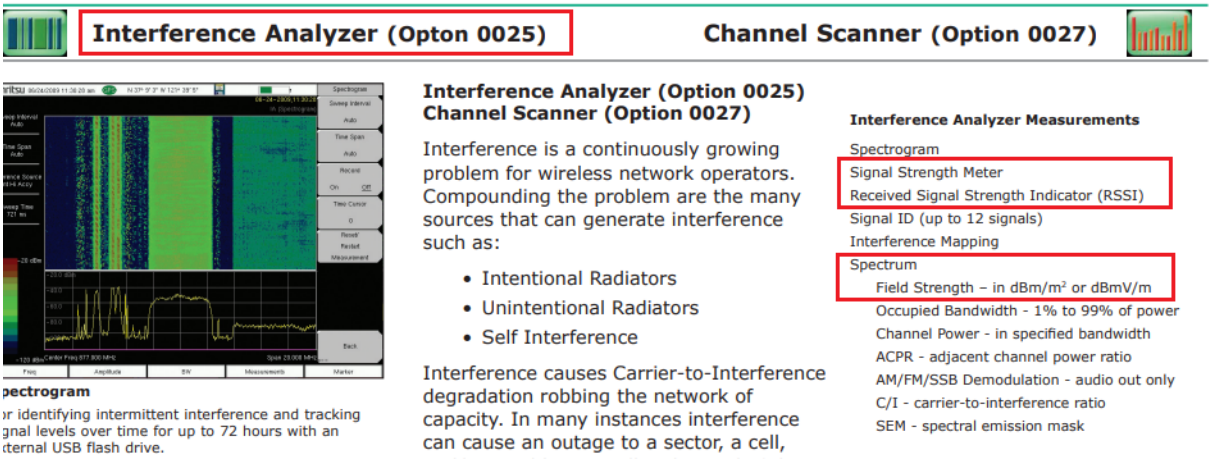
- Sensitivity
- Dynamic Range
- Phase Noise
- Frequency Accuracy
- Resolution Bandwidth (RBW)

Measurements

One Button Measurements
- Field Strength – in dBm/m² or dBmV/m
- Occupied Bandwidth - 1% to 99% of power
- Channel Power - in specified bandwidth
- ACPR - adjacent channel power ratio
- AM/FM/SSB Demodulation - audio out only
- C/I - carrier-to-interference ratio

Gated Sweep – Option 0090

Cell Master™ Base Station Analyzer Features


Interference Analyzer (Opton 0025)

Channel Scanner (Option 0027)

pectrogram

r identifying intermittent interference and tracking gnal levels over time for up to 72 hours with an ternal USB flash drive.

Interference Analyzer (Option 0025)
Channel Scanner (Option 0027)

Interference is a continuously growing problem for wireless network operators. Compounding the problem are the many sources that can generate interference such as:

- Intentional Radiators
- Unintentional Radiators
- Self Interference

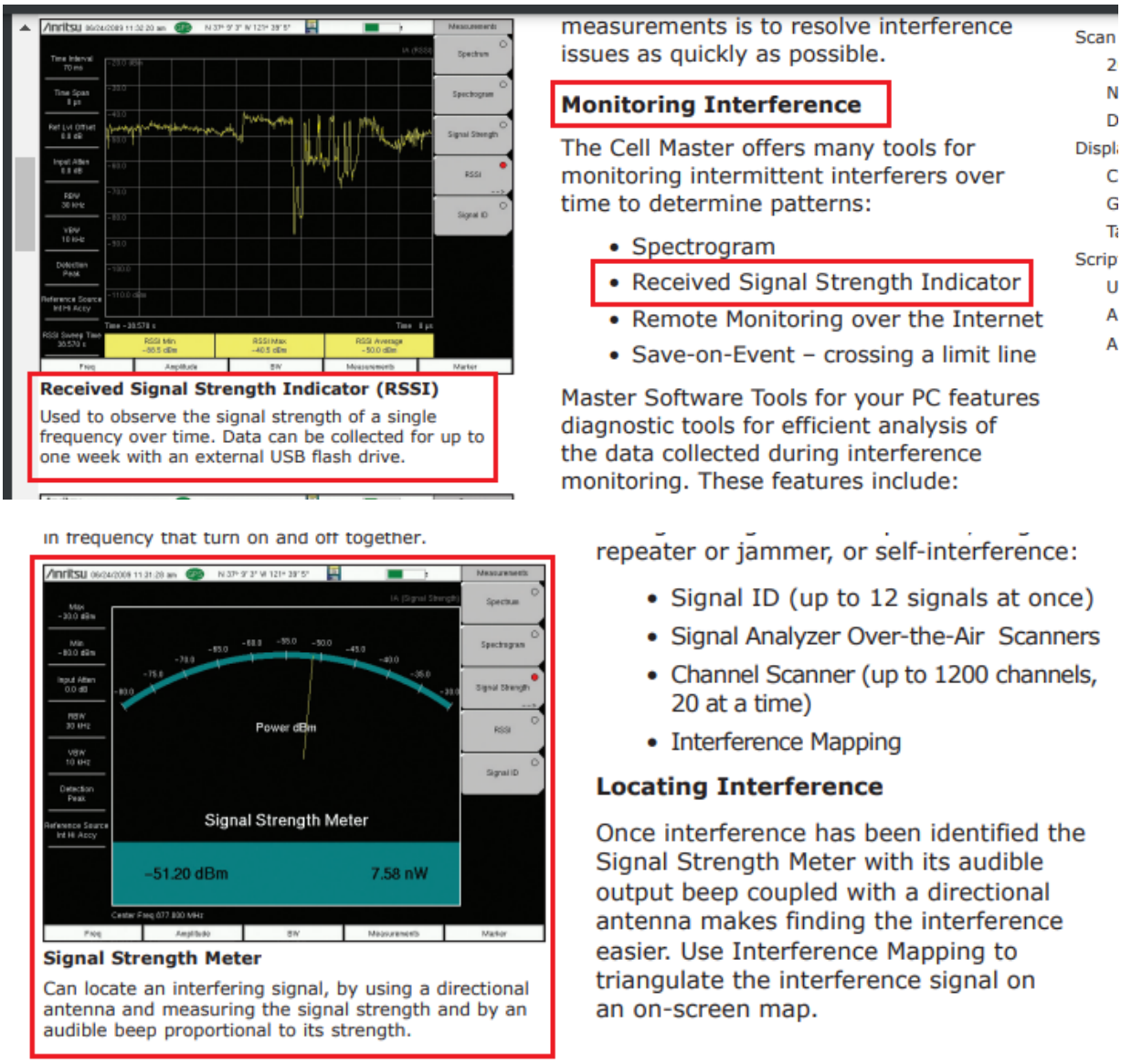
Interference causes Carrier-to-Interference degradation robbing the network of capacity. In many instances interference can cause an outage to a sector, a cell,

Interference Analyzer Measurements

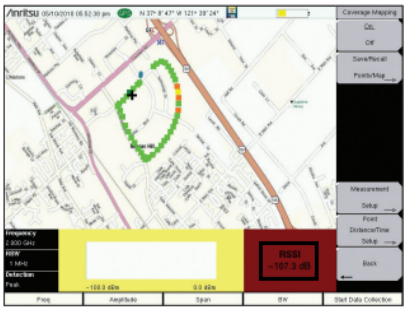
Spectrogram
- Signal Strength Meter
- Received Signal Strength Indicator (RSSI)
- Signal ID (up to 12 signals)
- Interference Mapping

Spectrum
- Field Strength – in dBm/m² or dBmV/m
- Occupied Bandwidth - 1% to 99% of power
- Channel Power - in specified bandwidth
- ACPR - adjacent channel power ratio
- AM/FM/SSB Demodulation - audio out only
- C/I - carrier-to-interference ratio
- SEM - spectral emission mask

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00517W.pdf).

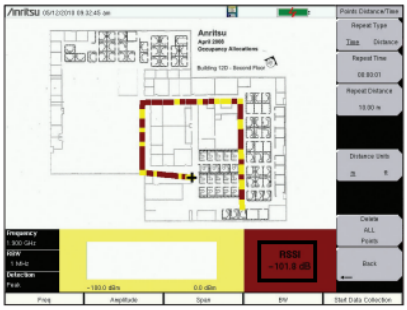


(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00517W.pdf).



On-screen Outdoor Coverage Mapping

Enables a maintenance technician to make low cost coverage measurements to quickly verify coverage around a base station site.



On-screen Indoor Coverage Mapping

Coverage Mapping

There is a growing demand for low cost coverage mapping solutions. Anritsu's Coverage Mapping measurements option provides wireless service providers, public safety users, land mobile ratio operators, and government officials with indoor and outdoor mapping capabilities

Outdoor Mapping

With a connected to the instrument and a valid GPS signal, the instrument monitors RSSI and ACPR levels automatically. Using a map created with Map Master, the instrument displays maps, the location of the measurement, and a special color code for the power level. The refresh rate can be set up in time (1 sec, minimum) or distance.

The overall amplitude accuracy coupled with the GPS update rate ensures accurate and reliable mapping results.

Indoor Mapping

When there is no GPS signal valid, the Cell Master uses a start-walk-stop approach to record RSSI and ACPR levels. You can set the update rate, start location, and end location and the interpolated

Coverage Mapping Measurements

Spectrum Analyzer Mode
- ACPR
- RSSI

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00517W.pdf).

Coverage Mapping is possible both outdoors (GPS signal required) and indoors (no GPS signal). For more accurate position data for indoor measurements, use a stylus such as the Anritsu 2000-1691-R.

- **Outdoor Mapping:** The instrument logs data automatically based on either time or distance interval. If there is no map available when making the measurements, it is still possible to save all the data to a KML file and then combine the data with a map. You may also recall a map after taking the data without having to save and recall it.
- **Indoor Mapping:** Using a start-walk-stop approach, the instrument provides in-building coverage mapping by overlaying data directly onto the downloaded map (which may be a drawing of a building). Data is captured when you tap the touch screen. The instrument places points linearly between taps if Time interval is used for capturing data and there is more than one measurement. When the Repeat Type is Distance, new measurements are placed at the next tap point.

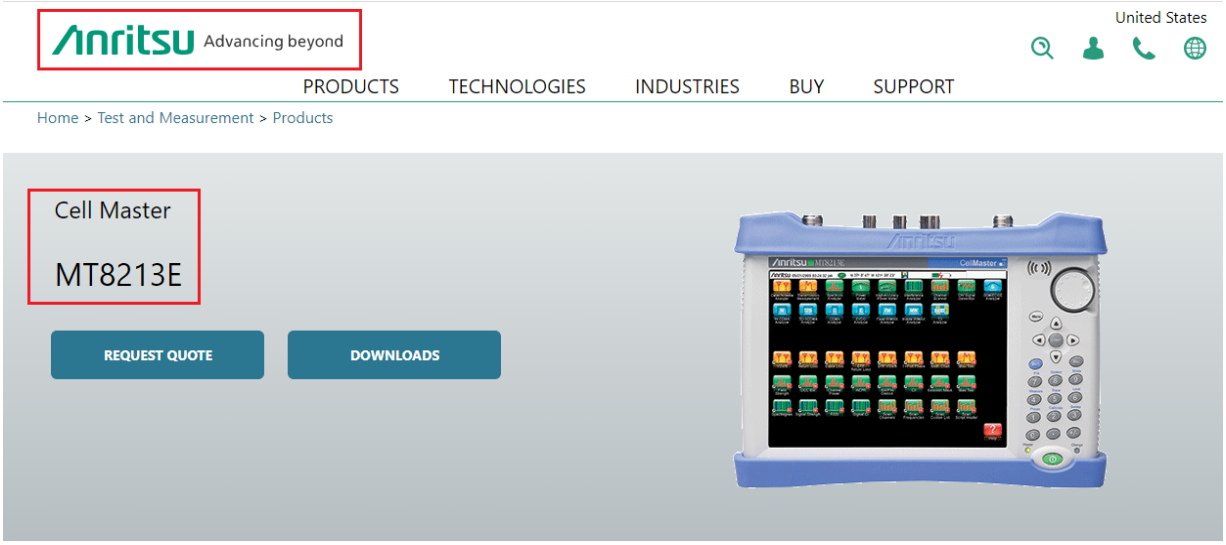
Outdoor Coverage

With a valid GPS signal, the instrument identifies the current location on the displayed GeoEmbedded map with a plus sign. Previously saved locations are displayed as squares. Using GPS, latitude, longitude, and altitude data is automatically saved for each location.

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/ohs/10450-00021H/index.html#page/Measurements%2F6_Coverage.07.04.html%23).

32. The Accused System is a system that obtains field strength testing data (*e.g.*, RSSI, field strengths, interference strengths, etc.) along the testing route (*e.g.*, a test route for indoor/outdoor mapping, etc.) according to a synchronization established between the transmission apparatus and the receiving testing apparatus (*e.g.*, synchronization between the transmitter and

the receiver), wherein the more than one selected testing sites (*e.g.*, field strength, RSSI values, etc. are collected from multiple locations) to install the receiving testing apparatus comprise at least one height (*e.g.*, altitude) selected in each of the testing sites to mount at least one said receiving testing apparatus, the at least one receiving testing apparatus being respectively oriented in at least one direction (*e.g.*, the orientation of the directional antenna).



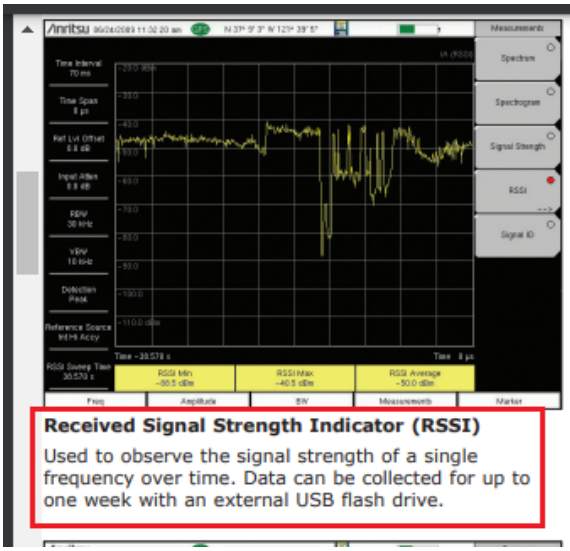
(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00635F.pdf).

The MT8213E Cell Master™ Base Station Analyzer is the smallest, lightest, and most economical solution for 2G/3G/4G, and WiMAX base station transmitter testing and ISDB-T and DVB-T/H digital broadcast field testing. It's ideal for installation and commissioning as well as for maintenance and troubleshooting.

This optimal combination of base station test capabilities in one handheld device eliminates the need for several independent test instruments, thereby reducing the number of tools the user must carry and learn to operate. Whether it's sweeping cables, making power measurements, finding interference, troubleshooting base station signal quality, or verifying backhaul performance, the Cell Master MT8213E is the ideal all-in-one instrument to help keep your network up and running.

(*E.g.*, https://www.anritsu.com/en-us/test-measurement/products/mt8213e).

Tilt bails are integrated into the case and soft case for better screen viewing.



Received Signal Strength Indicator (RSSI)

Used to observe the signal strength of a single frequency over time. Data can be collected for up to one week with an external USB flash drive.

measurements is to resolve interference issues as quickly as possible.

Monitoring Interference

The Cell Master offers many tools for monitoring intermittent interferers over time to determine patterns:

- Spectrogram
- Received Signal Strength Indicator
- Remote Monitoring over the Internet
- Save-on-Event – crossing a limit line

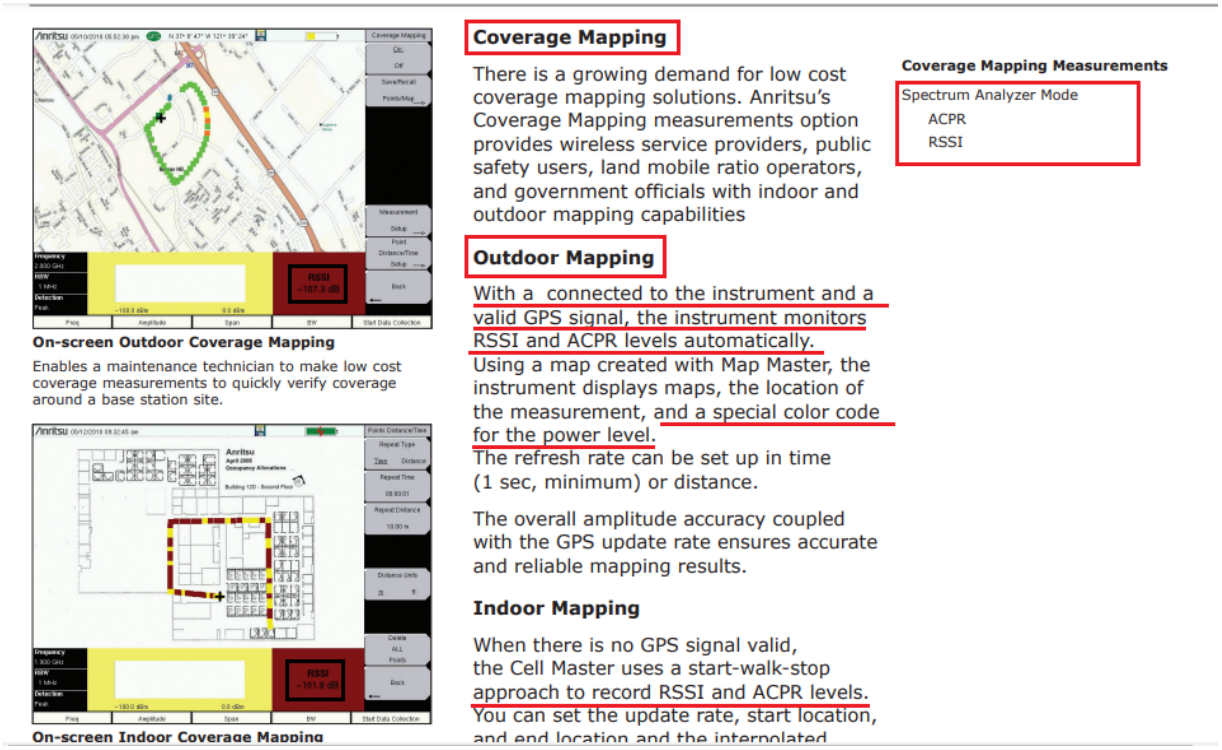
Master Software Tools for your PC features diagnostic tools for efficient analysis of the data collected during interference monitoring. These features include:

Making Measurements Easier

The Cell Master provides features for making measurements easier to perform and to analyze test results such as:

- InstaCal™ provides the most accurate one-step calibration process
- FlexCal™ eliminates the need to recalibrate when changing frequencies
- High RF Immunity for testing in harsh RF environments
- Trace Overlay compares reference traces to see changes over time
- Limit Lines and Alarming for providing reference standards
- High Power output to test tower-top components without climbing the tower
- GPS tagging of data to verify location of tests
- Line Sweep Tools for post-analysis and report generation

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00517W.pdf).



Coverage Mapping

There is a growing demand for low cost coverage mapping solutions. Anritsu's Coverage Mapping measurements option provides wireless service providers, public safety users, land mobile ratio operators, and government officials with indoor and outdoor mapping capabilities

Outdoor Mapping

With a connected to the instrument and a valid GPS signal, the instrument monitors RSSI and ACPR levels automatically. Using a map created with Map Master, the instrument displays maps, the location of the measurement, and a special color code for the power level. The refresh rate can be set up in time (1 sec, minimum) or distance.

The overall amplitude accuracy coupled with the GPS update rate ensures accurate and reliable mapping results.

Indoor Mapping

When there is no GPS signal valid, the Cell Master uses a start-walk-stop approach to record RSSI and ACPR levels. You can set the update rate, start location, and end location and the interpolated

Coverage Mapping Measurements

Spectrum Analyzer Mode
- ACPR
- RSSI

On-screen Outdoor Coverage Mapping

Enables a maintenance technician to make low cost coverage measurements to quickly verify coverage around a base station site.

On-screen Indoor Coverage Mapping

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00517W.pdf).

6-4 Saving and Recalling Traces with GPS Information

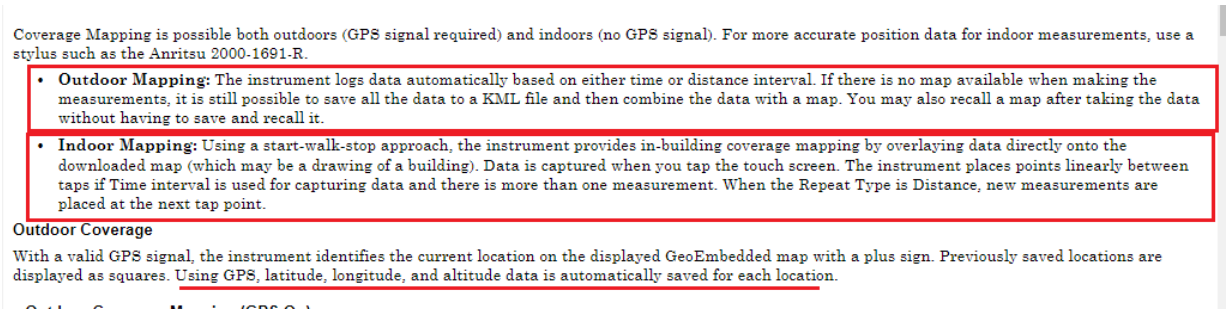
Saving Traces with GPS Information

The GPS coordinates of a location can be saved along with a measurement trace. Refer to "Save Menu" on page 4-11 for more information. The current GPS coordinates will be saved with the measurement traces whenever GPS is on and actively tracking satellites.

Recalling GPS Information

If the GPS coordinates were saved with a measurement, the coordinates will be recalled when the measurement is recalled. Refer to "Recall Menu" on page 4-14 for more information on recalling a saved trace.

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Manuals/Users-Guide/10580-00250AA.pdf).



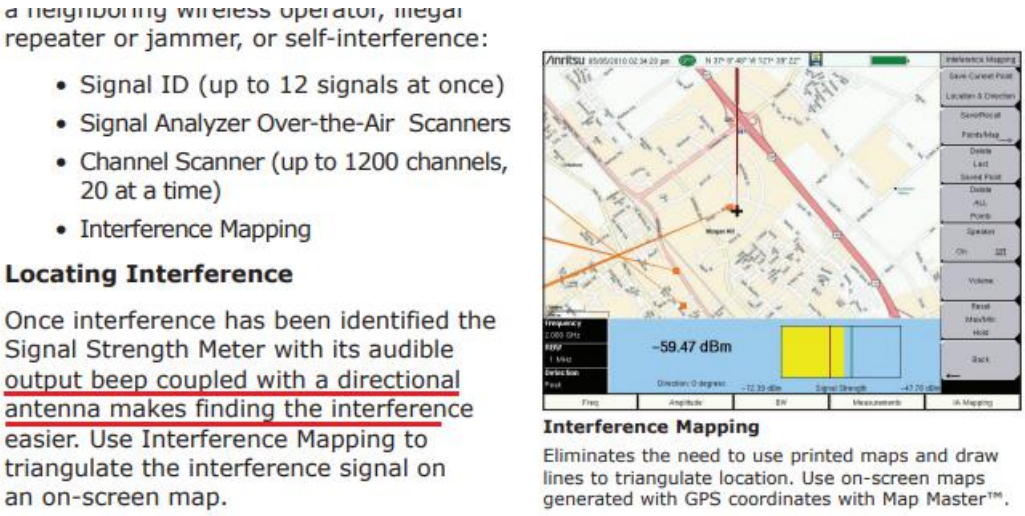
Coverage Mapping is possible both outdoors (GPS signal required) and indoors (no GPS signal). For more accurate position data for indoor measurements, use a stylus such as the Anritsu 2000-1691-R.

- **Outdoor Mapping:** The instrument logs data automatically based on either time or distance interval. If there is no map available when making the measurements, it is still possible to save all the data to a KML file and then combine the data with a map. You may also recall a map after taking the data without having to save and recall it.
- **Indoor Mapping:** Using a start-walk-stop approach, the instrument provides in-building coverage mapping by overlaying data directly onto the downloaded map (which may be a drawing of a building). Data is captured when you tap the touch screen. The instrument places points linearly between taps if Time interval is used for capturing data and there is more than one measurement. When the Repeat Type is Distance, new measurements are placed at the next tap point.

Outdoor Coverage

With a valid GPS signal, the instrument identifies the current location on the displayed GeoEmbedded map with a plus sign. Previously saved locations are displayed as squares. Using GPS, latitude, longitude, and altitude data is automatically saved for each location.

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/ohs/10450-00021H/index.html#page/Measurements%2F6_Coverage.07.04.html%23).



repeater or jammer, or self-interference:

- Signal ID (up to 12 signals at once)
- Signal Analyzer Over-the-Air Scanners
- Channel Scanner (up to 1200 channels, 20 at a time)
- Interference Mapping

Locating Interference

Once interference has been identified the Signal Strength Meter with its audible output beep coupled with a directional antenna makes finding the interference easier. Use Interference Mapping to triangulate the interference signal on an on-screen map.

Interference Mapping

Eliminates the need to use printed maps and draw lines to triangulate location. Use on-screen maps generated with GPS coordinates with Map Master™.

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00517W.pdf).

3. Set the Anritsu instrument to IA Mapping and configure the instrument.

A. Connect a directional antenna in the frequency range of interest to the Anritsu instrument's RF In connector.

B. Open up the Interference Analyzer by pressing the **Menu** key and selecting the Interference Analyzer icon or press **Shift** then **Mode** (9), highlight Interference Analysis and press **Enter**.

C. Press the **Measurements** main menu key then press the Interference Mapping submenu key twice to display the Interference Mapping menu.

D. Turn on GPS.

a. Press **Shift** then **System** (8).

b. Press the GPS submenu key.

c. Connect a GPS antenna to the SMA connector.

d. Set the GPS voltage to match the antenna you are using, then press the GPS On/Off submenu key to select On.

e. Press GPS Info and verify that the information from three or more satellites is captured. Press **Esc** to close the info box.

It may take several minutes for the GPS receiver to lock. When it does the GPS icon at the top of the screen is solid green and location information is displayed. Refer to the User Guide for your instrument for additional information about GPS.

E. Set the frequency (**Freq** > Center Freq) for mapping.

4a. Load (Recall) the map file.

The instrument allows you to recall a .map or .azm file (created with Anritsu easyMap Tools). With a valid GPS signal, the current location will be displayed on the map or an arrow will show the direction of the current location if it is outside the map coverage area.

A. Press the **IA Mapping** main menu key at the bottom of the screen.

B. Press the Save/Recall Points/Map submenu key.

C. Press Recall a Map and select the File Type (AZM or MAP).

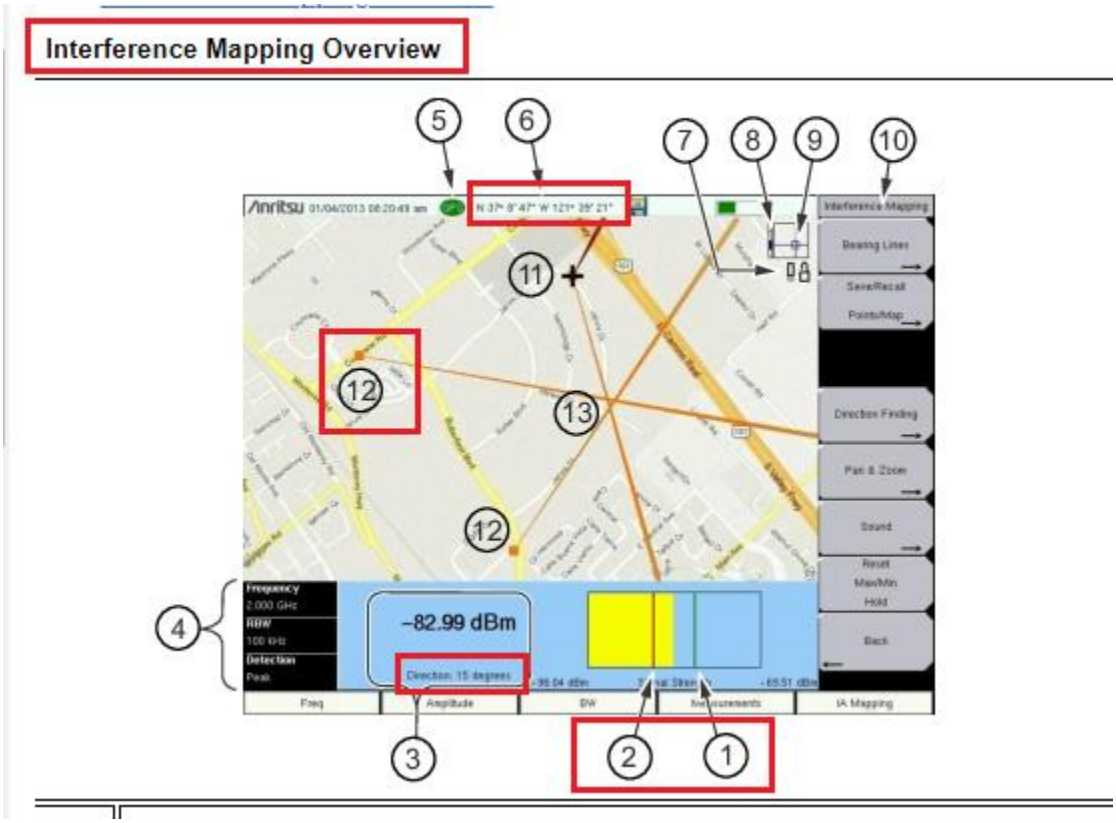
D. Use the arrow keys to scroll down to the desired map and press Enter to select.

E. The new map file will be displayed and the current location (if within the GPS boundaries of the displayed map) is shown as a plus sign.

F. AZM maps allow zoom and pan. Refer to Pan & Zoom Menu for additional information.

G. If the current location is outside the map boundaries, a black arrow will indicate the direction of the current location in relation to the displayed map.

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/ohs/10450-00021H/index.html#page/Measurements%2F3_Int_Analysis.04.08.html%23wwconnect_header).

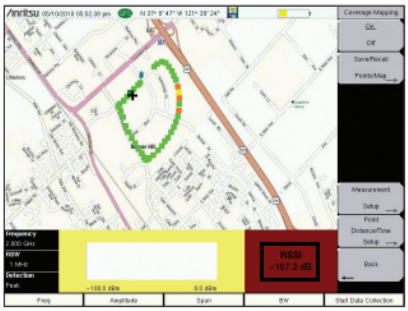


(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/ohs/10450-00021H/index.html#page/Measurements%2F3_Int_Analysis.04.08.html%23wwconnect_header).

1	Maximum signal level.
2	Minimum signal level.
3	Current readings. • Power level: Displays the power level at the Anritsu instrument's receiver. • Direction: Bearing of the active vector (red). Adjust with the rotary knob on the Anritsu instrument.
4	Current Anritsu instrument settings.
5	GPS lock icon.
6	Current position.
7	Status Icons. Refer to Figure: Map Legend Status Indicators.
8	Zoom level indication (when using .azm maps). Top is maximum zoomed in position. Bottom is maximum zoomed out position. Refer to Pan & Zoom Menu.
9	Current tile location in base map (when using .azm maps).
10	Refer to Interference Mapping Menu.
11	Plus sign indicates current position.
12	Previous saved locations and bearings. Existing bearings can be deleted. Refer to Bearing Lines Menu.
13	Approximate location of the interfering signal.

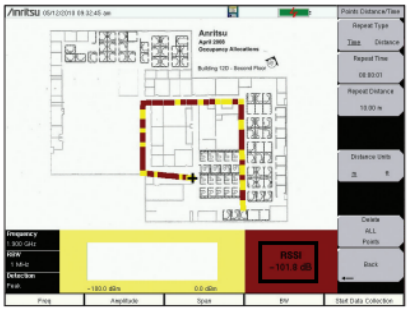
(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/ohs/10450-00021H/index.html#page/Measurements%2F3_Int_Analysis.04.08.html%23wwconnect_header).

33. The Accused System is a system that comprises a model analyzing apparatus (*e.g.*, Mapping apparatus comprising antennas, GPS receivers, maps, etc.), configured to analyze the field strength testing data (*e.g.*, RSSI, field strengths, interference strengths, etc.) to obtain a wireless propagation model about an area of the testing route (*e.g.*, coverage mapping, interference mapping, etc.).



On-screen Outdoor Coverage Mapping

Enables a maintenance technician to make low cost coverage measurements to quickly verify coverage around a base station site.



On-screen Indoor Coverage Mapping

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Coverage Mapping Measurements

Spectrum Analyzer Mode
- ACPR
- RSSI

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00635F.pdf).

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(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Manuals/Users-Guide/10580-00250AA.pdf).

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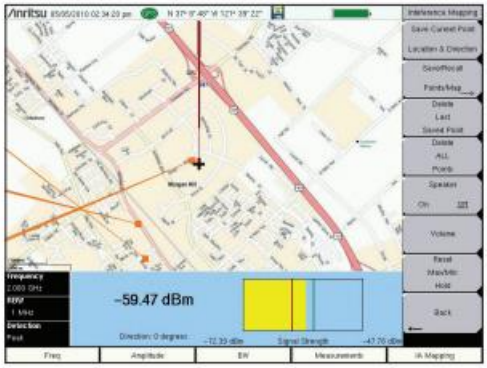
(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/ohs/10450-00021H/index.html#page/Measurements%2F6_Coverage.07.04.html%23).

a neighboring wireless operator, illegal repeater or jammer, or self-interference:

- Signal ID (up to 12 signals at once)
- Signal Analyzer Over-the-Air Scanners
- Channel Scanner (up to 1200 channels, 20 at a time)
- Interference Mapping

Locating Interference

Once interference has been identified the Signal Strength Meter with its audible output beep coupled with a directional antenna makes finding the interference easier. Use Interference Mapping to triangulate the interference signal on an on-screen map.



Interference Mapping

Eliminates the need to use printed maps and draw lines to triangulate location. Use on-screen maps generated with GPS coordinates with Map Master™.

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3. Set the Anritsu instrument to IA Mapping and configure the instrument.

A. Connect a directional antenna in the frequency range of interest to the Anritsu instrument's RF In connector.

B. Open up the Interference Analyzer by pressing the **Menu** key and selecting the Interference Analyzer icon or press **Shift** then **Mode** (9), highlight Interference Analysis and press **Enter**.

C. Press the **Measurements** main menu key then press the Interference Mapping submenu key twice to display the Interference Mapping menu.

D. Turn on GPS.

a. Press **Shift** then **System** (8).

b. Press the GPS submenu key.

c. Connect a GPS antenna to the SMA connector.

d. Set the GPS voltage to match the antenna you are using, then press the GPS On/Off submenu key to select On.

e. Press GPS Info and verify that the information from three or more satellites is captured. Press **Esc** to close the info box.

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E. Set the frequency (**Freq** > Center Freq) for mapping.

4a. Load (Recall) the map file.

The instrument allows you to recall a .map or .azm file (created with Anritsu easyMap Tools). With a valid GPS signal, the current location will be displayed on the map or an arrow will show the direction of the current location if it is outside the map coverage area.

A. Press the **IA Mapping** main menu key at the bottom of the screen.

B. Press the Save/Recall Points/Map submenu key.

C. Press Recall a Map and select the File Type (AZM or MAP).

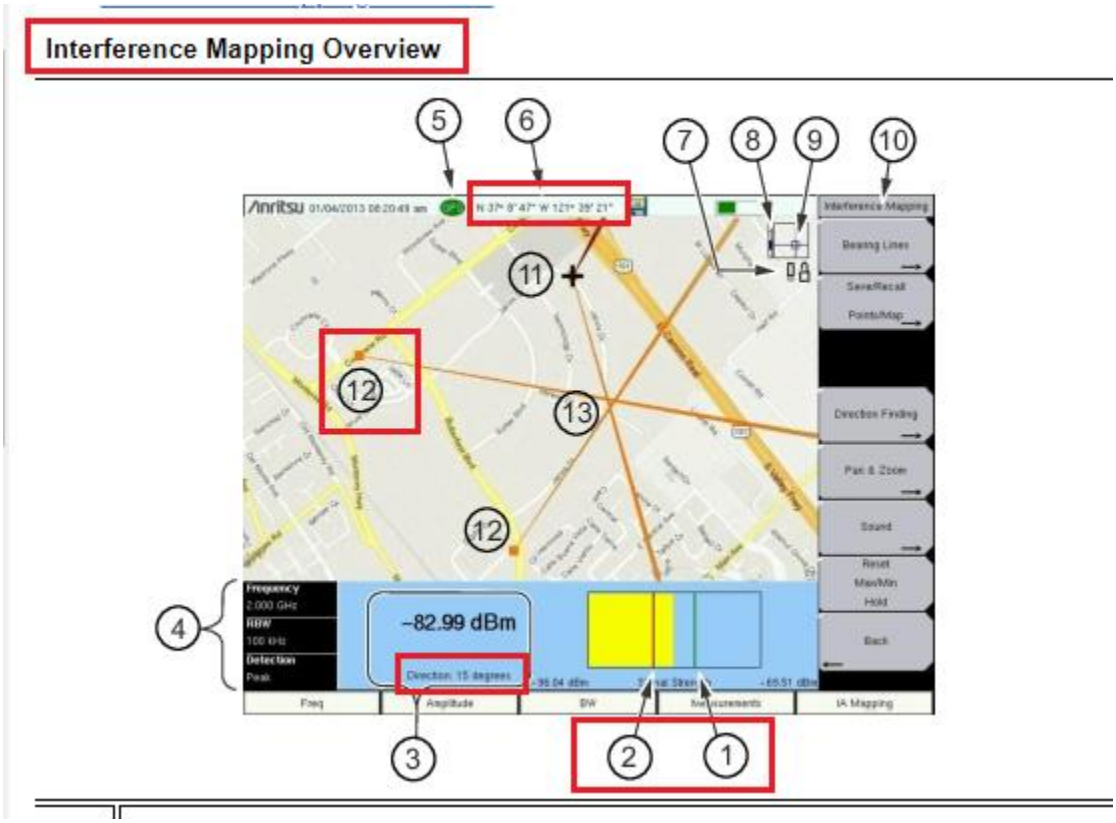
D. Use the arrow keys to scroll down to the desired map and press Enter to select.

E. The new map file will be displayed and the current location (if within the GPS boundaries of the displayed map) is shown as a plus sign.

F. AZM maps allow zoom and pan. Refer to Pan & Zoom Menu for additional information.

G. If the current location is outside the map boundaries, a black arrow will indicate the direction of the current location in relation to the displayed map.

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/ohs/10450-00021H/index.html#page/Measurements%2F3_Int_Analysis.04.08.html%23wwconnect_header).



(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/ohs/10450-00021H/index.html#page/Measurements%2F3_Int_Analysis.04.08.html%23wwconnect_header).

1	Maximum signal level.
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7	Status Icons. Refer to Figure: Map Legend Status Indicators.
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10	Refer to Interference Mapping Menu.
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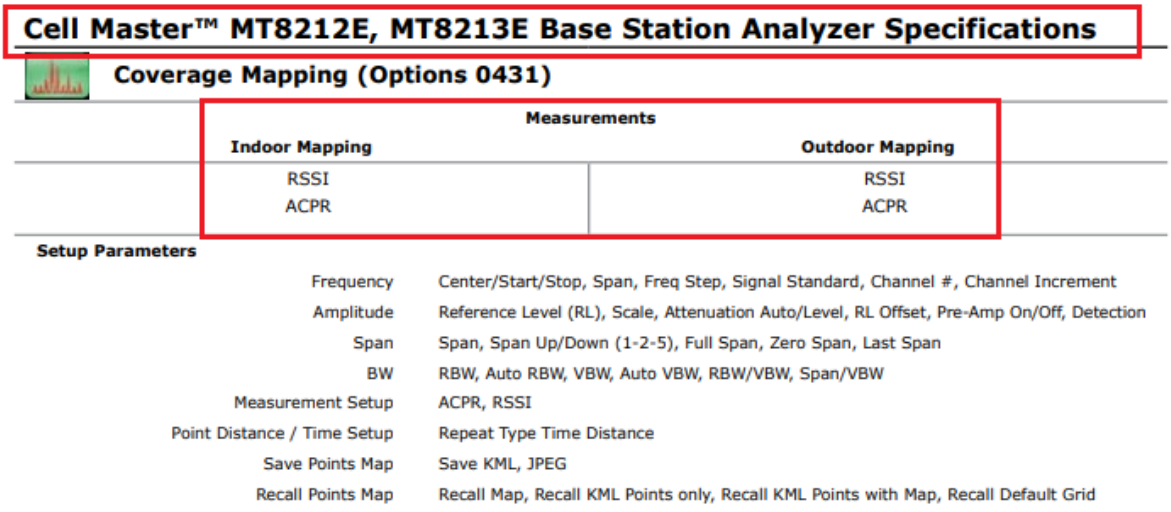
12	Previous saved locations and bearings. Existing bearings can be deleted. Refer to Bearing Lines Menu.
13	Approximate location of the interfering signal.

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/ohs/10450-00021H/index.html#page/Measurements%2F3_Int_Analysis.04.08.html%23wwconnect_header).



Cell Master™ MT8212E, MT8213E Base Station Analyzer Specifications

Coverage Mapping (Options 0431)

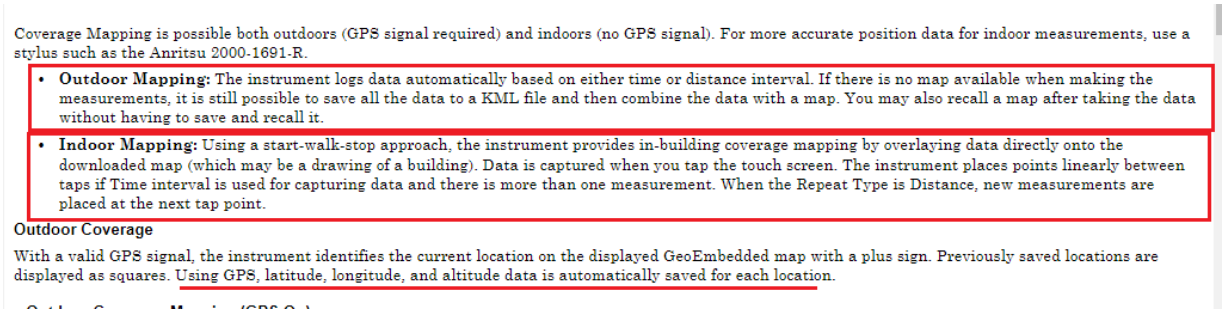
	Measurements	
	Indoor Mapping	**Outdoor Mapping**
	RSSI ACPR	RSSI ACPR

Setup Parameters

Frequency	Center/Start/Stop, Span, Freq Step, Signal Standard, Channel #, Channel Increment
Amplitude	Reference Level (RL), Scale, Attenuation Auto/Level, RL Offset, Pre-Amp On/Off, Detection
Span	Span, Span Up/Down (1-2-5), Full Span, Zero Span, Last Span
BW	RBW, Auto RBW, VBW, Auto VBW, RBW/VBW, Span/VBW
Measurement Setup	ACPR, RSSI
Point Distance / Time Setup	Repeat Type Time Distance
Save Points Map	Save KML, JPEG
Recall Points Map	Recall Map, Recall KML Points only, Recall KML Points with Map, Recall Default Grid

(*E.g.*, https://www.tehencom.com/Companies/Anritsu/MT8212E_MT8213E/Anritsu_MT8212E_MT8213E_Datasheet.pdf).

34. The Accused System comprises a merging module (*e.g.*, easyMap Tools, etc.), configured to selectively merge the field strength testing data (*e.g.*, RSSI, field strengths, interference strengths, etc.) according to a topographic and geomorphologic feature along the testing route. As shown, the Accused System saves the latitude, longitude and altitude data for each location (according to a topographic and geomorphologic feature along the testing route) and merges the field strength data with the location data. These files can be saved as KML and can be opened using Google Earth.



Coverage Mapping is possible both outdoors (GPS signal required) and indoors (no GPS signal). For more accurate position data for indoor measurements, use a stylus such as the Anritsu 2000-1691-R.

- **Outdoor Mapping:** The instrument logs data automatically based on either time or distance interval. If there is no map available when making the measurements, it is still possible to save all the data to a KML file and then combine the data with a map. You may also recall a map after taking the data without having to save and recall it.
- **Indoor Mapping:** Using a start-walk-stop approach, the instrument provides in-building coverage mapping by overlaying data directly onto the downloaded map (which may be a drawing of a building). Data is captured when you tap the touch screen. The instrument places points linearly between taps if Time interval is used for capturing data and there is more than one measurement. When the Repeat Type is Distance, new measurements are placed at the next tap point.

Outdoor Coverage

With a valid GPS signal, the instrument identifies the current location on the displayed GeoEmbedded map with a plus sign. Previously saved locations are displayed as squares. Using GPS, latitude, longitude, and altitude data is automatically saved for each location.

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/ohs/10450-00021H/index.html#page/Measurements%2F6_Coverage.07.04.html%23).

GPS-Assisted Frequency Accuracy

With GPS Option 0031 the frequency accuracy is 50 ppb (parts per billion). Also all measurements can be GPS tagged for exporting to maps.

Rx Noise Floor Testing

Validates coverage for enterprise accounts.

Plot Coverage on PC-based Map

Once coverage data has been collected on the instrument, the data can be imported into a mapping program for further review and reporting.

easyMap Tools™

These capabilities make it possible to find and prepare maps and floor plans for use on Anritsu handheld spectrum analyzers

Export KML Files

Save files as KML or JPEG. Open KML files with Google Earth™. When opening up a pin in Google Earth, center frequency, detection method, measurement type, and RBW are shown on screen.

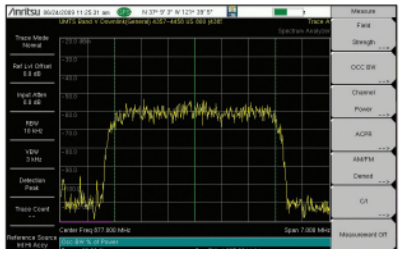
easyMap Tools™

easyMap Tools provides maps in formats that Antritsu's handheld spectrum analyzers can use for either coverage mapping or interference hunting. It helps users find and prepare geo-referenced maps and building floor plans for use by Anritsu handheld spectrum analyzers.

easyMap allows users to quickly:

- Create geo-referenced maps with pan and zoom capability
- Use either Google Maps or MapQuest (an Open Source map provider) to source maps
- Create legacy mode geo-referenced maps
- Convert maps and floor plans to a form suitable for use on Anritsu handheld spectrum analyzers

Spectrum Analyzer



Spectrum Analyzer

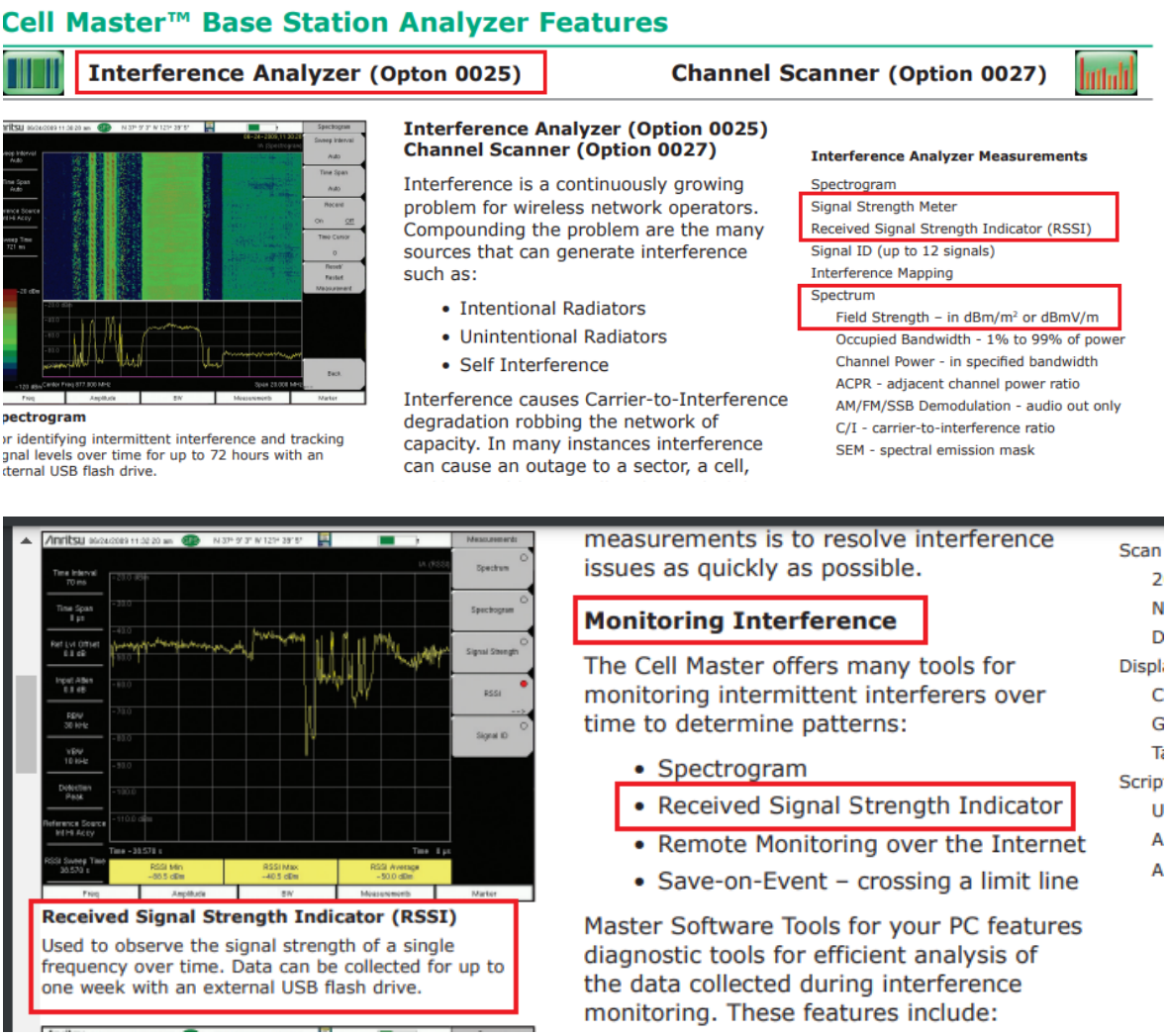
The Cell Master features the most powerful handheld spectrum analyzer for field use with unmatched performance such as:

- Sensitivity
- Dynamic Range
- Phase Noise
- Frequency Accuracy

Measurements

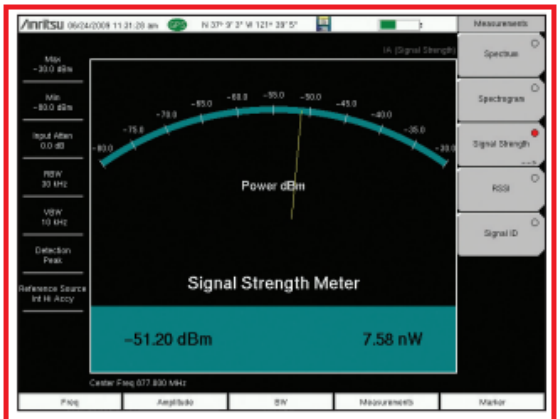
One Button Measurements
Field Strength – in dBm/m² or dBmV/m
Occupied Bandwidth - 1% to 99% of power
Channel Power - in specified bandwidth
ACPR - adjacent channel power ratio
AM/FM/SSB Demodulation - audio out only
C/I - carrier-to-interference ratio
Gated Sweep – Option 0090

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00517W.pdf).



(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00517W.pdf).

in frequency that turn on and off together.



Signal Strength Meter

Can locate an interfering signal, by using a directional antenna and measuring the signal strength and by an audible beep proportional to its strength.

repeater or jammer, or self-interference:

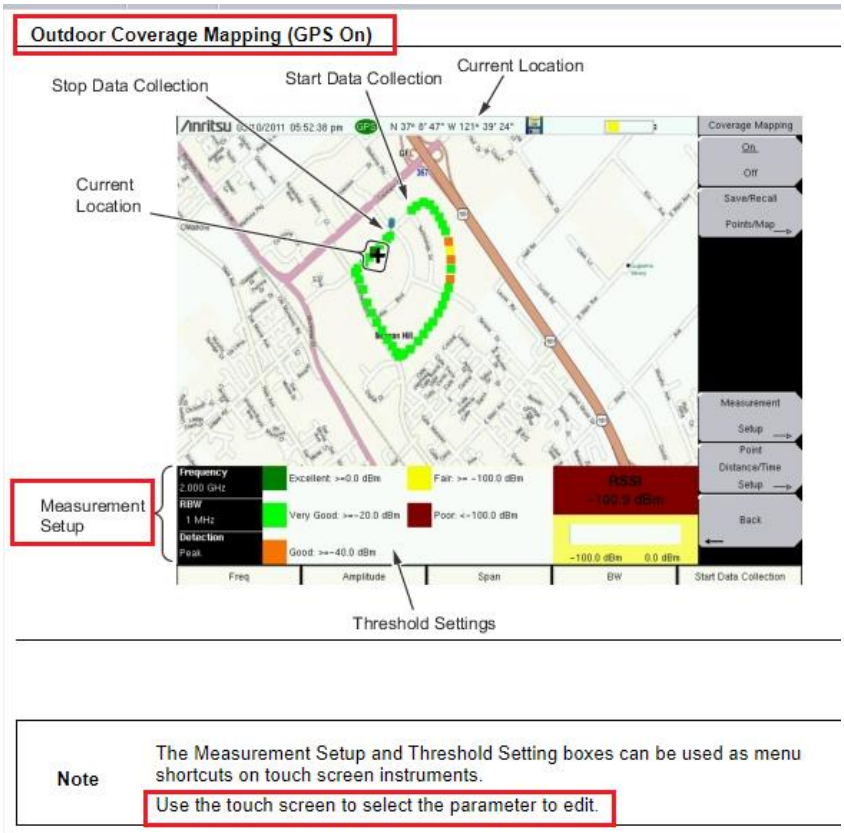
- Signal ID (up to 12 signals at once)
- Signal Analyzer Over-the-Air Scanners
- Channel Scanner (up to 1200 channels, 20 at a time)
- Interference Mapping

Locating Interference

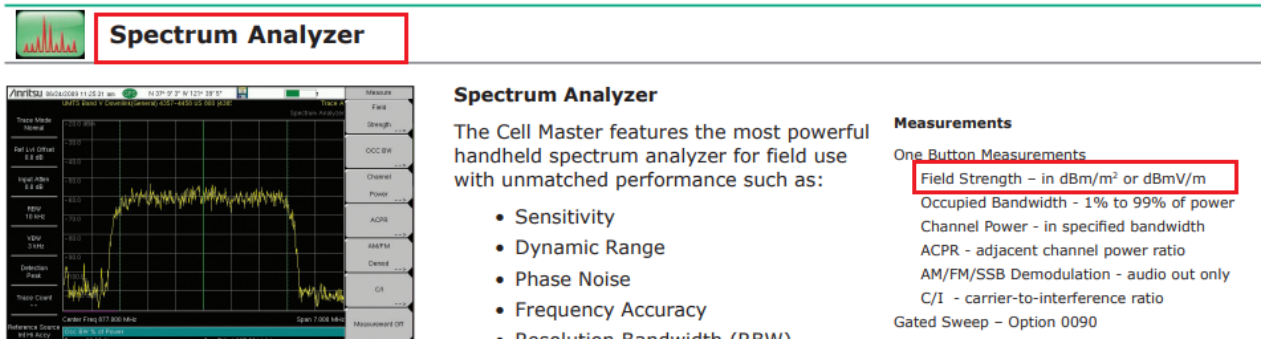
Once interference has been identified the Signal Strength Meter with its audible output beep coupled with a directional antenna makes finding the interference easier. Use Interference Mapping to triangulate the interference signal on an on-screen map.

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00517W.pdf).

35. The Accused System comprises a correcting module (*e.g.*, module to edit parameters using touch screen, etc.), configured to perform a wireless propagation model correction (*e.g.*, edit parameters, etc.) using the field strength testing data (*e.g.*, RSSI, field strengths, interference strengths, etc.) to form the wireless propagation model under at least one type of environment (*e.g.*, current testing environment, etc.).



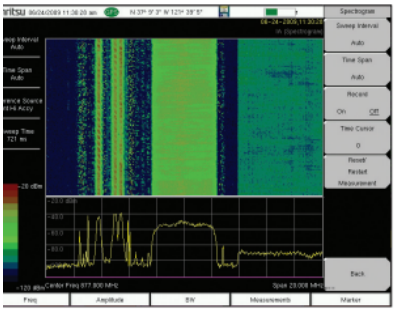
(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/ohs/10450-00021H/index.html#page/Measurements%2F6_Coverage.07.04.html%23ww1342747).



(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00517W.pdf).

Cell Master™ Base Station Analyzer Features

Interference Analyzer (Opton 0025) **Channel Scanner (Option 0027)**



pectrogram

r identifying intermittent interference and tracking gnal levels over time for up to 72 hours with an ternal USB flash drive.

Interference Analyzer (Option 0025)
Channel Scanner (Option 0027)

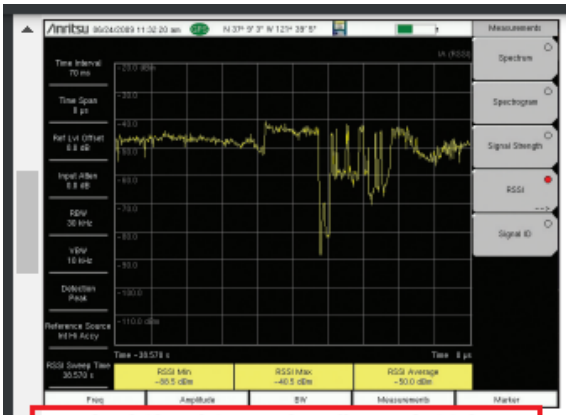
Interference is a continuously growing problem for wireless network operators. Compounding the problem are the many sources that can generate interference such as:

- Intentional Radiators
- Unintentional Radiators
- Self Interference

Interference causes Carrier-to-Interference degradation robbing the network of capacity. In many instances interference can cause an outage to a sector, a cell,

Interference Analyzer Measurements

Spectrogram
Signal Strength Meter
Received Signal Strength Indicator (RSSI)
Signal ID (up to 12 signals)
Interference Mapping
Spectrum
Field Strength – in dBm/m² or dBmV/m
Occupied Bandwidth - 1% to 99% of power
Channel Power - in specified bandwidth
ACPR - adjacent channel power ratio
AM/FM/SSB Demodulation - audio out only
C/I - carrier-to-interference ratio
SEM - spectral emission mask



Received Signal Strength Indicator (RSSI)
Used to observe the signal strength of a single frequency over time. Data can be collected for up to one week with an external USB flash drive.

measurements is to resolve interference issues as quickly as possible.

Monitoring Interference

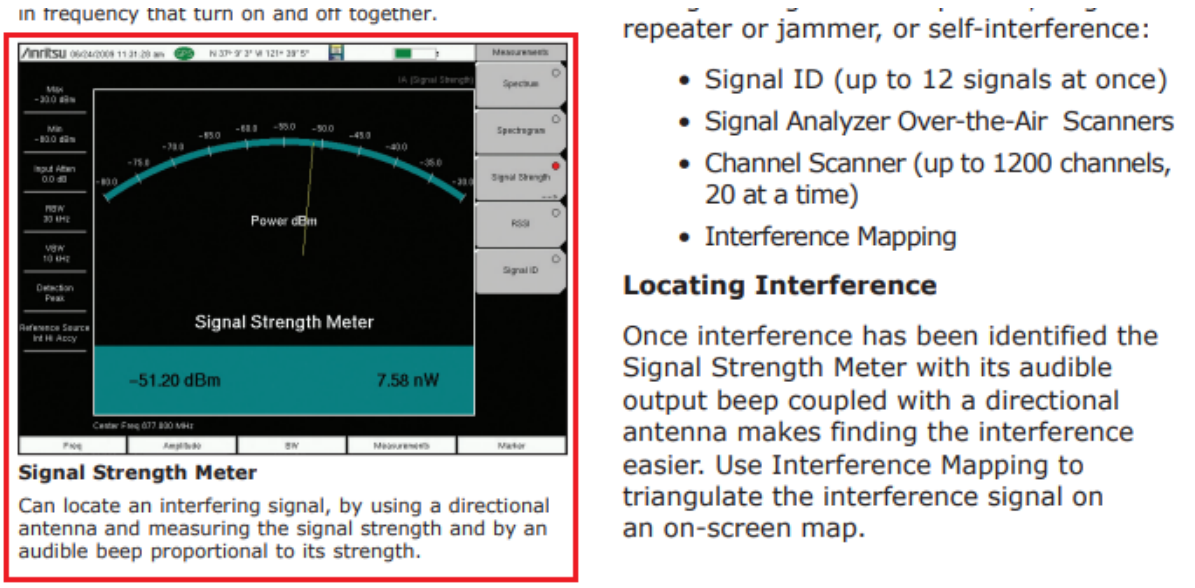
The Cell Master offers many tools for monitoring intermittent interferers over time to determine patterns:

- Spectrogram
- Received Signal Strength Indicator
- Remote Monitoring over the Internet
- Save-on-Event – crossing a limit line

Master Software Tools for your PC features diagnostic tools for efficient analysis of the data collected during interference monitoring. These features include:

Scan
2
N
D
Displ
C
G
T
Scrip
U
A
A

(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00517W.pdf).



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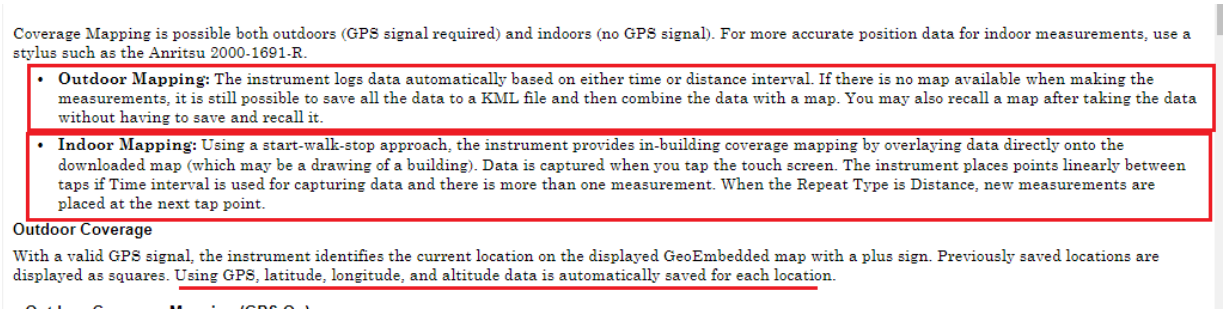
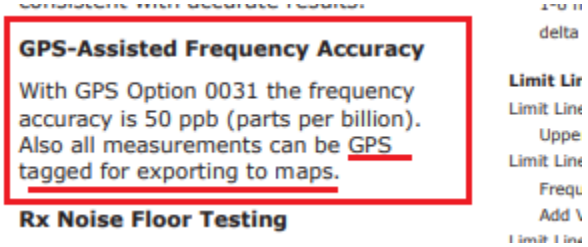


(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/ohs/10450-00021H/index.html#page/Measurements%2F6_Coverage.07.04.html%23).



(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00517W.pdf).

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(*E.g.*, https://dl.cdn-anritsu.com/en-us/test-measurement/files/Brochures-Datasheets-Catalogs/Brochure/11410-00517W.pdf).

36. Plaintiff has been damaged as a result of Defendant's infringing conduct with respect to United States Patent Nos. 7,668,301 and 9,179,339. Defendant is thus liable to Plaintiff for damages in an amount that adequately compensates Plaintiff for such Defendant's infringement of the '301 patent and the '339 patent, *i.e.*, in an amount that by law cannot be less than would constitute a reasonable royalty for the use of the patented technology, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

37. On information and belief, and to the extent required, all marking requirements have been complied with.

V. JURY DEMAND

Plaintiff, under Rule 38 of the Federal Rules of Civil Procedure, requests a trial by jury of any issues so triable by right.

VI. PRAYER FOR RELIEF

WHEREFORE, Plaintiff respectfully requests that the Court find in its favor and against Defendant, and that the Court grant Plaintiff the following relief:

a. Judgment that one or more claims of United States Patent Nos. 7,668,301 and 9,179,339 have been infringed, either literally and/or under the doctrine of equivalents, by Defendant;

b. Judgment that Defendant account for and pay to Plaintiff all damages to and costs incurred by Plaintiff because of Defendant's infringing activities and other conduct complained of herein, and an accounting of all infringements and damages not presented at trial;

c. That Plaintiff be granted pre-judgment and post-judgment interest on the damages caused by Defendant's infringing activities and other conduct complained of herein; and

d. That Plaintiff be granted such other and further relief as the Court may deem just and proper under the circumstances.

July 26, 2022

Respectfully Submitted,

/s/ David R. Bennett

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(312) 291-1667
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Attorneys for Plaintiff Prestwick Licensing LLC