

## Portable Tactical Radio Reconnaissance Product Line Cellular Survey Module (CSM)

### Key Features

- Portable PC with 3U cPCI chassis
- High Performance V/UHF Receivers
- High Speed A/D Input card with on-board FPGA and DSP resources
- Full RF Spectrum Search
- Cellular Network Analysis for both GSM/GPRS/EDGE, and CDMA systems simultaneously
- Complete network parameter recording for post analysis
- Mobile application for analysis/recording of network parameters for cell coverage analysis
- Mapping application for cell coverage analysis

One example of the modularity of the TriaSys Technologies' RForce architecture is the Cellular Survey Module (CSM). Combining COTS hardware with intuitive user interfaces, the RForce architecture easily provides the user with modularity, expandability and mobility.

The RForce CSM is designed by cellular engineers to be the ultimate system tool for building and maintaining cellular telephone networks. The RForce CSM is designed to perform a complete spectral search for cellular network assets. The RForce CSM automatically finds cellular activity, catalogs the data, and generates a comprehensive report identifying the cellular frequency bands that are active, the channel structure and cellular protocols present, and beacon allocations present in a particular geographic zone.

The high-performance tuners already available on the base RForce system are used by the RForce CSM, so there is no need to replace or swap tuner cards to add the CSM to the RForce unit. Only an additional DSP resource is inserted into the chassis for the CSM to be operational.

Band	Standard	Channel	PN	Rx	RxLev	Qual	SNR	Freq Err	Identifiers	Provider	P	C	L
1000	GSM EDGE	562	015	312	1	11	229		LAC:4807 Cell ID:4172	TIMBL			
1000	GSM EDGE	625	028	314	2	12	25		LAC:4807 Cell ID:4691	TIMBL			
1000	GSM GPRS	869	074	362	8	23	114		LAC:4808 Cell ID:3040	AT&T			
1000	CDMA 2X	625	417	072	111	3	20	-1	MNO:92:3:5 Base ID:330	SPRINT			
1000	CDMA 2X	626	417	064	112	8	17	-4	MNO:92:3:5 Base ID:320	SPRINT			
1000	CDMA 2X	625	449	064	108	3	17	-1	MNO:92:3:5 Base ID:4	VERIZON			
1000	GSM GPRS	568	061	308	7	15	167		LAC:4807 Cell ID:4173	TIMBL			
1000	GSM EDGE	136	078	308	8	25	26		LAC:4808 Cell ID:3043	AT&T			
1000	CDMA 2X	625	449	036	105	5	16	0	MNO:92:3:5 Base ID:...	VERIZON			
1000	CDMA 2X	646	449	062	115	9	18	-1	MNO:92:3:5 Base ID:...	VERIZON			
1000	CDMA 2X	568	449	062	116	9	18	-1	MNO:92:3:5 Base ID:...	VERIZON			
1000	CDMA 2X	589	449	076	113	9	20	-1	MNO:92:3:5 Base ID:...	VERIZON			
1000	CDMA 2X	384	449	025	107	6	14	-3	MNO:92:3:5 Base ID:...	VERIZON			
1000	GSM EDGE	144	013	314	1	10	41		LAC:4808 Cell ID:3042	AT&T			
1000	CDMA 2X	384	272	014	107	3	12	0	MNO:92:3:5 Base ID:...	VERIZON			
1000	CDMA 2X	425	272	062	107	2	12	0	MNO:92:3:5 Base ID:...	VERIZON			

Cellular Network Survey Results Screen

The features of the RForce CSM are designed so that there is no expectation of pre-existing knowledge or experience on the part of an operator. Several intuitive operator screens are available to perform a variety of cellular network survey functions.



RForce Mini Survey Chassis

### Specifications

#### V/UHF Tuner(s)

Frequency Range 20 - 3000MHz  
Tuning Res. 100kHz

#### System Chassis

Power 110/220v  
400W max

Windows XP Operating System

3U PXI/cPCI backplane

Weight 15 kg (33 lbs)

Operating 0-45 deg. C  
20-90% hum.  
1.0 Grms  
10 G Shock

### RForce CSM Features

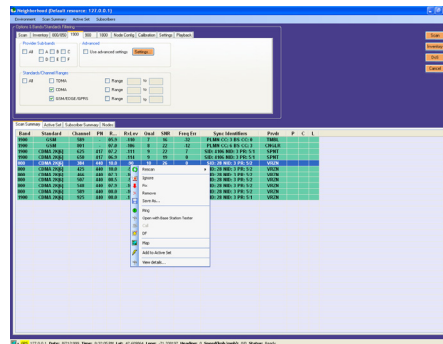
- Coverage of all standard cellular bands  
850/900/1800/1900 MHz  
450 MHz  
2100 MHz
- Nonstandard band analysis
- GPS receiver for mobile tracking/mapping features
- Mapping application with route display with network coverage analysis
- Directional, covert, and/or high gain antennas
- Wideband signal recording

### To Inquire or Order

For a demonstration, further information, or to contact a representative, please call 1.978.244.1060, or visit our website at [www.triasys.us](http://www.triasys.us)

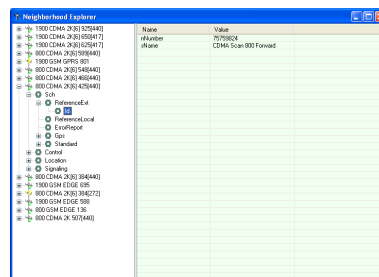
## CSM Features

### Real-Time Network Survey



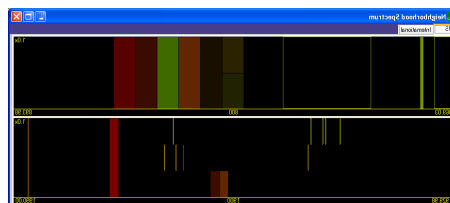
*Cellular Network Survey*

The RForce CSM can collect network parameters from all active bands simultaneously in real-time. This allows for real-time network characterization and parameter collection.



*Neighborhood Explorer*

During the network survey all beacon parameters including band and channel, protocol, received power, SNR, quality, service provider, etc. are collected and displayed. Furthermore, each beacon's parameter set can then be explored in detail using the Neighborhood Explorer.

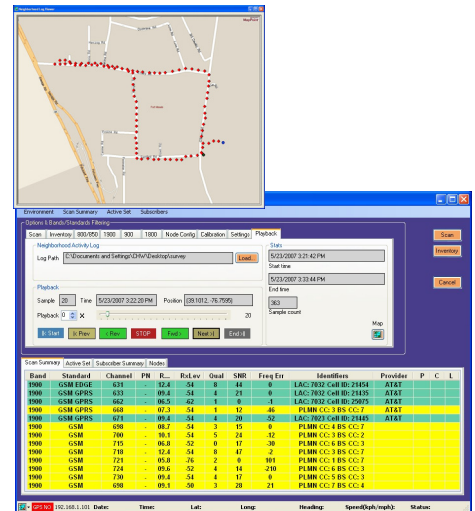


*Channel Utilization Display*

## RForce

### Network Survey Playback

In a mobile application, the network parameters are stored for playback. A typical playback allows the user to step through the various positions from the drive and observe the network parameter list as it would have appeared in real-time. Furthermore, a map can be opened with all of the "bread crumbs" (positions where data was collected) displayed. Network parameters can then be displayed either by stepping through the drive data or clicking on a particular position on the map.



*Playback with Mapping Display*

### Cell Coverage Analysis

Another useful feature of the CSM is that after a drive test, the signal strength of each beacon can be analyzed at each point along the drive, providing useful coverage information about each beacon observed.

### Ordering Information

Model 6100P - Base RForce System Console  
Option - CSM - Cellular Survey Module