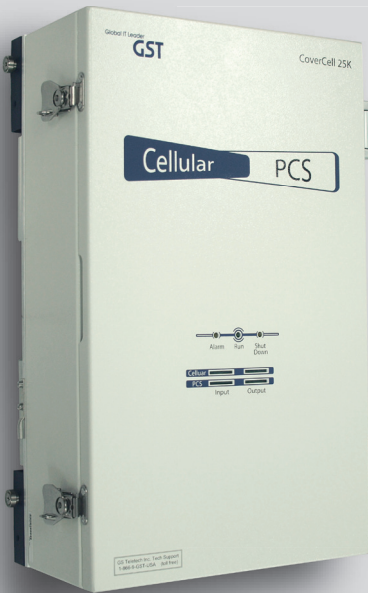


# CoverCell 25K

## Inbuilding Dual Band RF Repeater

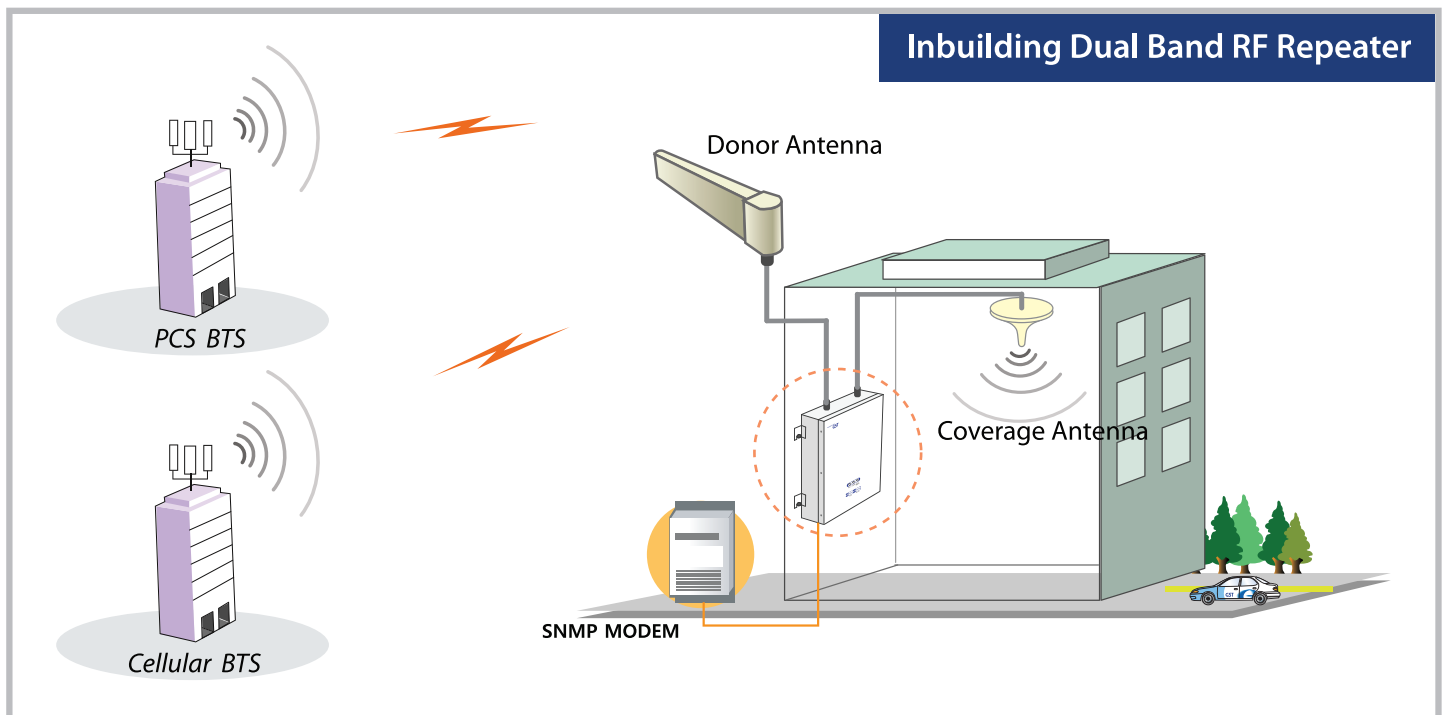


### FEATURES

- > Field Adjustable Band Selection (Digital Filter)
- > Cellular A1+A2,B1+B2, A+B Band and LTE Frequency Block Support
- > PCS Band Configurable (A, D, B, E, F, C)
  - Single Selectable Contiguous Bandwidth (5, 10, or 15MHz)
- > Automatic Setup and Operational Gain Control
  - Easy Installation and Maintenance
- > Small Lightweight, Mounts Virtually Anywhere
- > Low Power Consumption, Powered from Any 100 - 125VAC Outlet
- > Remote Monitoring and Control
- > Applications – 25,000 sq ft Coverage
  - Small Stores and Businesses
  - Manufacturing Facilities
  - Warehouses

### APPLICATION

#### Inbuilding Dual Band RF Repeater



## SYSTEM SPECIFICATIONS

Item		Downlink	Uplink	Remark
Cellular Frequency (MHz)	A1	869 - 880	824 - 835	
	A2	890 - 891.5	845 - 846.5	
	B1	880 - 890	835 - 845	
	B2	891.5 - 894	846.5 - 849	
PCS Frequency (MHz)		1930 - 1990	1850 - 1910	
Sub Band Filtering		A1+A2,B1+B2, A+B Band and LTE Frequency block support		
		Single selectable contiguous bandwidth (5,10, or 15MHz)		
Gain	Cellular	80dB	80dB	
	PCS	80dB	80dB	
Flatness		5dB peak to peak		Channel power
Input Range	Cellular	Maximum -63dBm	Maximum -63dBm	
	PCS	Maximum -61dBm	Maximum -63dBm	
Output Power	Cellular	17dBm	17dBm	Conducted Power
	PCS	19dBm	17dBm	Conducted Power
AGC Range	Cellular	25dB		
	PCS	25dB		
Roll off	Cellular	≥ 45dBc @ ±2MHz ≥ 30dBc @ ±0.375MHz		
	PCS	≥ 30dBc @ ±1.5MHz		
Group Delay		≤ 6μs		
Single & 2-tone	Cellular	Single tone : ≤ Input Power @ -30dBm, 2-tone : ≤ Input Power @ -40dBm		
	PCS	Single tone : ≤ Input Power @ -40dBm, 2-tone : ≤ Input Power @ -40dBm		
Noise Figure		< 7dB		
Input Inter-modulation		≤ 10dB		
Adjacent Channel Power	Cellular	≥ 45dBc @ 750kHz ≥ 45dBc @ 1.98MHz		
	PCS	≥ 45dBc @ 885kHz ≥ 45dBc @ 1.98MHz		
Conducted Spurious Emissions		≤ -13dBm		
Frequency Error		0.01 ppm		
Signal Quality		Rho >0.98		

## MECHANICAL SPECIFICATIONS

Item	Specification	Remark
RF Connector	N-Type Female	Donor & Coverage Antenna Port
AC Power Connector	MS3102A-10SL (3Pin)	
AC Supply	AC 100-125VAC 60Hz	
Outside Dimension	21 x 12.6 x 6.6	Inches
Net Weight	41	Pounds
Operation Temperature	14°F - 122°F	Convection cooling
Humidity	5% - 85%	Non-condensing

# CoverCell 25KN

## Inbuilding Dual Band RF Repeater

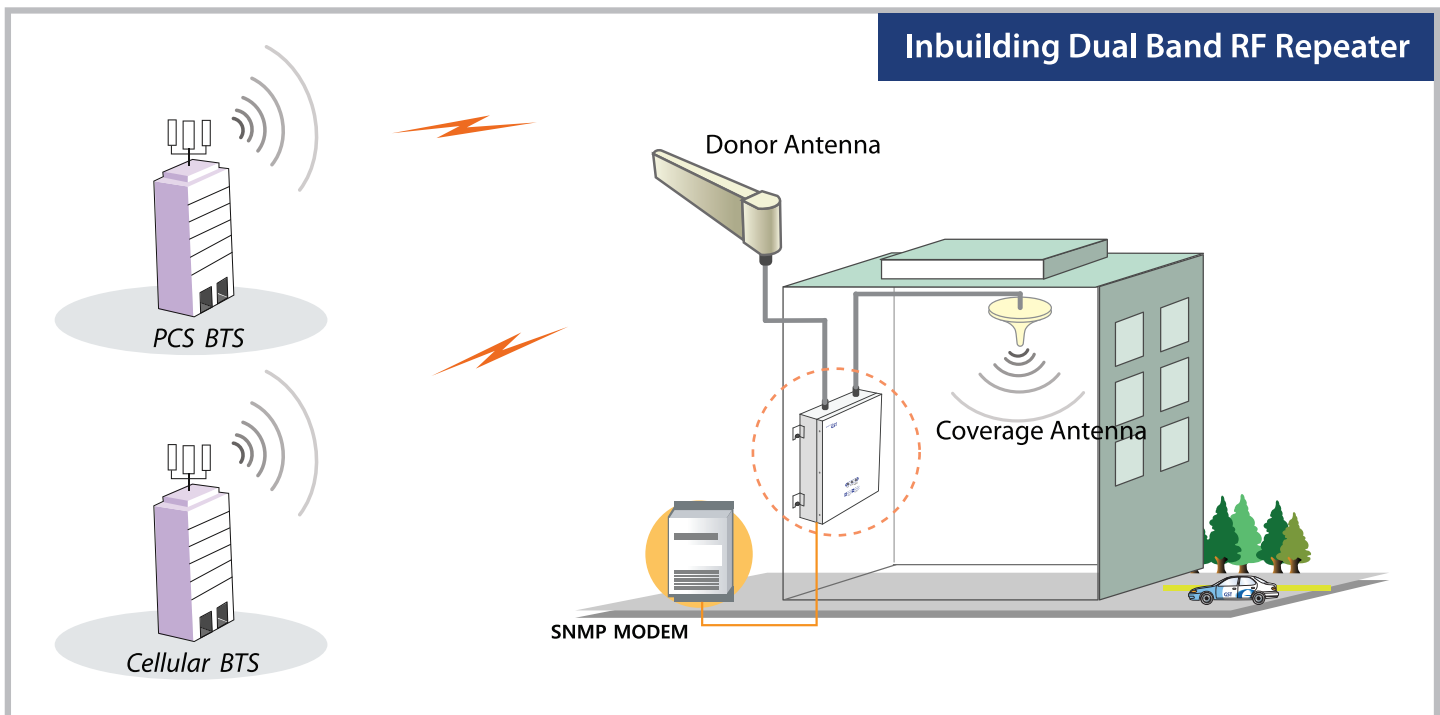
### FEATURES

- > Field Adjustable Band Selection (Digital Filter)
- > Cellular and PCS Dual Band Service
  - Cellular : A1+A2,B1+B2, A+B Band and LTE Frequency Block Support
  - PCS up to Non-contiguous 3 Channels A thru C Band
    - Three Independent PCS Channels Each Channel Supports 1.25 MHz to 18.75MHz Bandwidth by 1.25MHz Steps
- > Automatic Setup and Operational Gain Control
  - Easy Installation and Maintenance
- > Small Lightweight, Mounts Virtually Anywhere
- > Low Power Consumption, Powered from Any 100~125VAC Outlet
- > Remote Monitoring and Control
- > Applications – 25,000 sq ft Coverage
  - Small Stores and Businesses
  - Manufacturing Facilities
  - Warehouses



### APPLICATION

#### Inbuilding Dual Band RF Repeater



## SYSTEM SPECIFICATIONS

Item		Downlink	Uplink	Remark
Cellular Frequency (MHz)	A1	869 - 880	824 - 835	
	A2	890 - 891.5	845 - 846.5	
	B1	880 - 890	835 - 845	
	B2	891.5 - 894	846.5 - 849	
PCS Frequency (MHz)		1930 - 1990	1850 - 1910	
Sub Band Filtering		A1+A2,B1+B2, A+B Band and LTE Frequency block support		
		1.25MHz to 18.75MHz by 1.25MHz Steps, Can Select Three Separated Block Simultaneously		
Gain	Cellular	80dB	80dB	
	PCS	80dB	80dB	
Flatness		5dB peak to peak		Channel power
Input Range	Cellular	Maximum -56dBm	Maximum -56dBm	
	PCS	Maximum -56dBm	Maximum -56dBm	
Output Power	Cellular	24dBm	24dBm	Conducted Power
	PCS	24dBm	24dBm	Conducted Power
AGC Range	Cellular	30dB		
	PCS	30dB		
Roll off	Cellular	≥45dBc @ ±2MHz		
		≥30dBc @ ±0.375MHz		
	PCS	≥30dBc @ ±1.5MHz		
Group Delay		≤ 6μs		
Single & 2-tone	Cellular	≤ Maximum Output Power @ -30dBm		
	PCS	≤ Maximum Output Power @ -40dBm		
Noise Figure		<7dB		
Input Inter-modulation		≤ 10dB		
Adjacent Channel Power	Cellular	≥ 45dBc @ 750kHz		
		≥ 45dBc @ 1.98MHz		
	PCS	≥ 45dBc @ 885kHz		
		≥ 45dBc @ 1.98MHz		
Radiated Spurious Emissions		≤ -13dBm		
Frequency Error		0.01 ppm		
Signal Quality		Rho >0.98		

## MECHANICAL SPECIFICATIONS

Item	Specification	Remark
RF Connector	N-Type Female	Donor & Coverage Antenna Port
AC Power Connector	MS3102A-10SL (3Pin)	
AC Supply	AC 100 - 125VAC 60Hz	
Outside Dimension	21 x 12.6 x 6.6	Inches
Net Weight	55	Pounds
Operation Temperature	14°F - 122°F	Convection cooling
Humidity	5% - 85%	Non-condensing

# CoverCell 25K700 Model GRS-724D-VER

# CoverCell 100K700 Model GRS-730D-VER

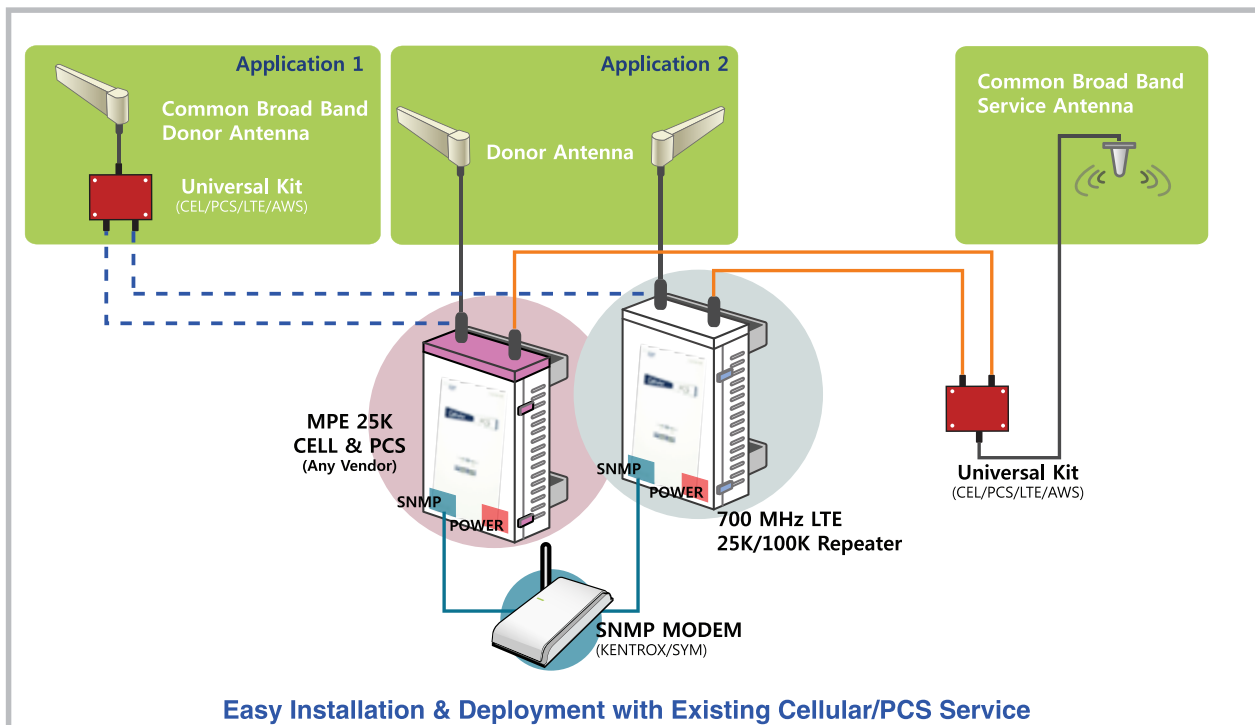
## 700MHz LTE Digital Repeater

### FEATURES



- > Field Adjustable Band Selection (Digital Filter)
  - Any 700 MHz Band A,B, C Combination
  - Contiguous and Non-contiguous Compatible
- > High Compatibility with PCS/Cellular Networks
- > 2 RF Power Options (24dBm & 30dBm)
  - Ability to Change RF Power Amplifier Module
  - 25K (24dBm), 100K (30dBm)
- > Automatic Gain Setting & Setup
  - Easy Installation and Maintenance
- > Small Lightweight and Low Power Consumption
- > Remote Monitoring & Control
- > Applications
  - 25,000 Square ft Coverage for 25K (24dBm)
  - 100,000 Square ft Coverage for 100K (30dBm)

### APPLICATION



## SYSTEM SPECIFICATIONS

ITEM		LTE	
		Downlink	Uplink
Frequency Range (MHz)		Upper C: 746 - 757	Upper C: 776 - 787
		Lower A: 728 - 734	Lower A: 698 - 704
		Lower B: 734 - 740	Lower B: 704 - 710
Bandwidth		Upper Band : 11MHz/Total	
		Lower Band : 6MHz/Band	
Gain/Adjust Range (Repeater)	25K	49dB - 79dB/30dB	
	100K	55dB - 85dB/30dB	
Ripple		3dBp-p	
Output Power	25K	24dBm	
	100K	30dBm	
Waveform Quality (EVM) (Stability)		8%@CPL 15dB	12.5%@CPL 15dB
Noise Figure		7dB (Prefer 5dB) @Maximum Gain	
System Delay		6us (Prefer 3us)	
VSWR		1.5 : 1	
Function		Automatic Gain Balance	
Out-of-Band Emissions		A,B,C : 43+10logP-100kHz/30kHz	A,B : 43+10logP-100kHz/30kHz C : 43+10logP
Single Tone Interference		≤ Input CW -40dBm (Operating band+/- 1MHz)	
Intermodulation Interference		≤ 10dB	

## MECHANICAL SPECIFICATIONS

Item	Specification	Remark
RF Connector	N-Type Female	Donor & Coverage Antenna Port
AC Power Connector	MS3102A-10SL (3Pin)	
AC Supply	AC 100-125VAC 60Hz	
Main Unit / HPA Dimensions	12 x 13.5 x 6.3 / 12 x 4 x 5.6	Inches
Net Weight	40	Pounds
Operation Temperature	14°F - 122°F	Convection cooling
Humidity	5% - 85%	Non-condensing

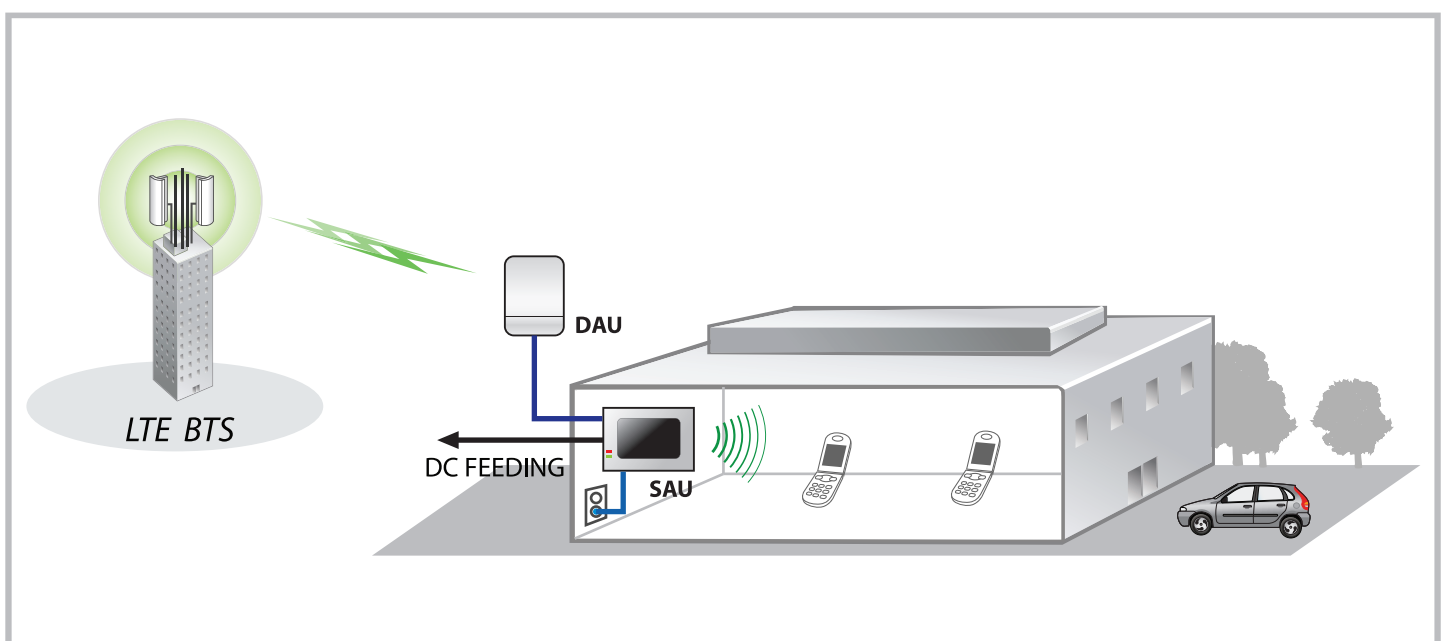
# SMR - 700

## (In Building LTE SOHO Repeater)



### FEATURES

- > 700MHz Upper C Band Supports
- > Automatic Setup and Operational Gain Control
  - Auto Gain Control, Auto Limit Control, AGS
  - Installation and Maintenance Free Operation
- > Small Lightweight, Mounts Virtually Anywhere
  - Wall Mount Install and Run
- > Low Power Consumption, Powered from Any 100 ~ 125VAC Outlet
- > Applications – Less than 25,000 Square ft Coverage
  - Small Stores and Businesses
  - Manufacturing Facilities
  - Warehouses



## SYSTEM SPECIFICATIONS

ITEM	Specification		Remark
	Down Link	Up Link	
Frequency Range	746 – 756MHz	777 – 787MHz	Upper C Band, BW: 10MHz
Output Power	+13dBm	+13dBm	
System Gain	50 – 80 dB	50 – 80dB	DL & UL link
Delay	< 6us	< 6us	
EVM	< 8%	< 12.5%	
Antenna Gain	Donor Unit	≥ 1dBi	
	Remote Unit	≥ 0dBi	
Surface Temp/Handling/Vibration	Telcordia GR-63CORE		
AC Power	VAC 110V		
Operating Temperature	14°F ~ 122°F		

ITEM	GS-RFC1000-SB
Attenuation (dB/m)	0.276 @120MHz
Impedance (Ω)	50
Cable type	RG174 (1.5D)
Remark	Link Cable between DAU and SAU Unit Basically 196.85 ft





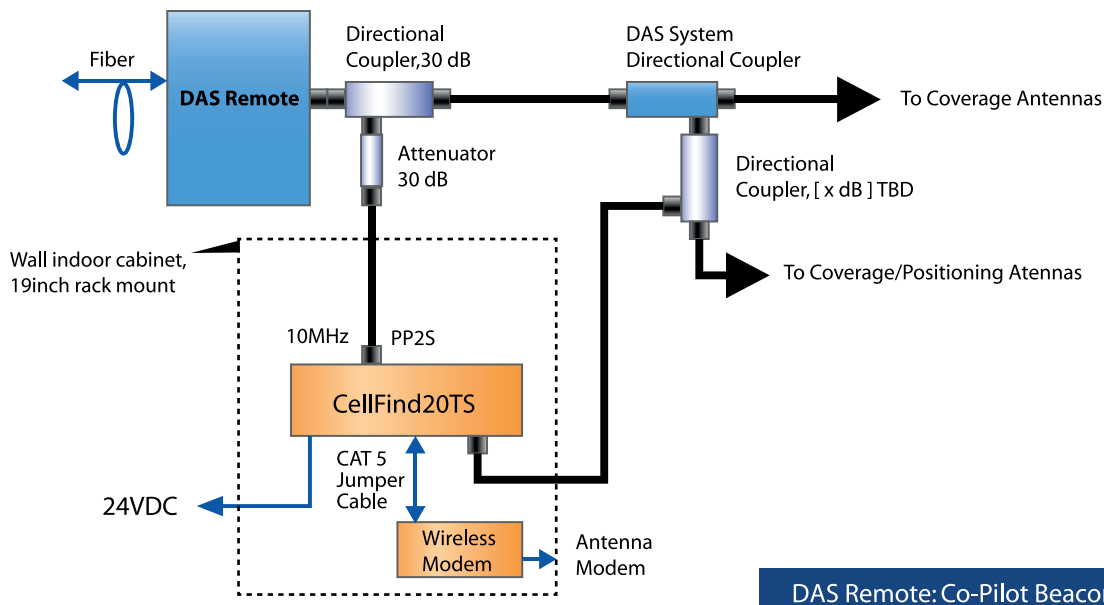
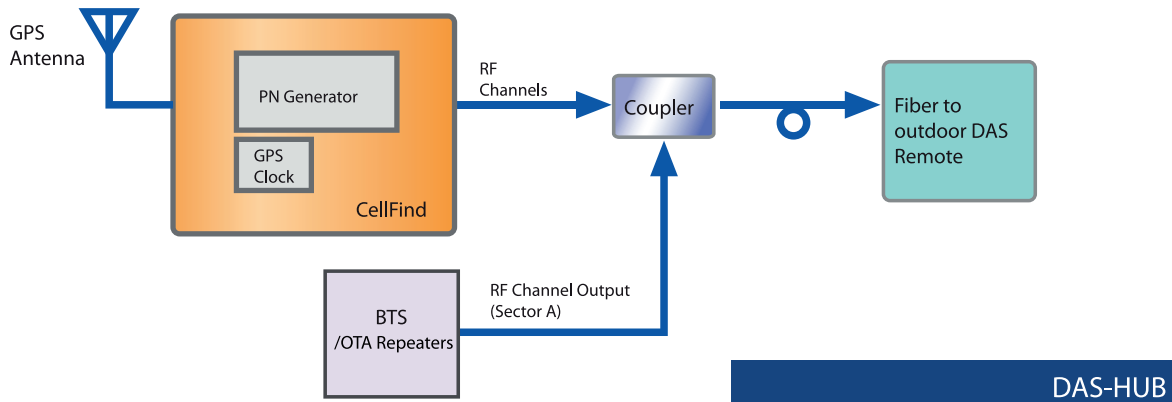
# CellFind

## Model CellFind 20T CDMA Enhanced Location



### FEATURES

- > LBS and E911 Accuracy Enhancement
  - with Indoor and/or Outdoor DAS
  - with OTA Repeater
- > Installation at DAS Hub and/or DAS Remote
- > Network Timing with GPS and/or CDMA Sync Module
- > No Subscriber Unit or Network Modification
- > Cellular up to 17 channels A and B band
- > PCS up to 11 channels A thru G band
- > User Friendly Interface
- > Remote Access (HTTPS) or Alarming (SNMP)



## System Specifications

ITEM		Specification	Remark
Frequency Band	Cellular	A, A', B, B'	Supports Bands Simultaneously
	PCS	A1, A2, A3, D, B1, B2, B3, E, F, C3, C4, C5, G	Supports Channels Simultaneously
Channel Selection	Cellular	Up to 17	
	PCS	Up to 11	
TX Power	20T	0dBm ~ 20dBm	Composite Power per Band
TX Power resolution		0.5dB	
TX Power Accuracy		+/- 1dB	
Spurious Emission		<-45 dBc delta f 0.75 to 1.98 MHz	
		<-60 dBc delta f 1.98 to 4.0 MHz	
		<-70 dBc delta f 4.0 to 16 MHz	
		<-75 dBc delta f > 16 MHz	
Carrier Frequency Accuracy, GPS-locked		0.01 ppm	
Holdover time		24 hours	Same as BTS, Master Only
Pilot Timing Noise		<50 nsec peak	
Waveform Accuracy Rho (Noise)		>0.99(one channel), >0.98(all channels)	
Tau Adjustment Range		-100012.5 ~ 100012.5	
Tau Adjustment Resolution		6.35ns	
Management Protocol		HTTPS , SNMPv2	

## Electrical and Environment Specifications

ITEM		Specification	Remark
RF Output		SMA Female	Cellular, PCS
10M Reference		SMA Female	Input, Output
PP2S		SMA Female	Input, Output
Active GPS RX		SMA Female	
Power Connector	DC	Circular, K-16-2R	
AC Supply		110VAC ~ 240VAC, 60Hz 1.3A	AC/DC Adapter
DC Supply		18~36 VDC	
Unit Dimension		19(W) * 1.75(H) * 17.7(L)	Inch (Rack Mount), 1RU
Net Weight		8	Lbs
Operation Temperature		14°F ~ 122°F	Convection Cooling
Humidity		5% ~ 90%	Non-condensing
Industry Standards		Telcodia GR63-CORE	
Regulatory Approvals		FCC	
Safety Approvals		UL	