



Britecell® Plus

Multi-Band, Multi-Operation Optical Distribution System

PRODUCT SPECIFICATIONS



Ultimate in-building coverage for airports, shopping malls, hotels conference centers, tunnels, corporate enterprises and high-rise buildings

Wireless operators have the ultimate solution for their indoor coverage and capacity problems with Britecell Plus from Andrew Corporation.

Britecell Plus is a radio over fiber system that meets all distribution needs from the simplest to the most complex applications.

This optical distribution system for wireless networks is capable of transporting frequencies from 800 MHz to 2500 MHz, from traditional cellular to wireless LAN signals.

Using a unique design and transparent medium, Britecell Plus transports signals with near perfect integrity, regardless of protocol or modulation.

Britecell Plus has two main components: a master unit and a remote unit. The master unit is collocated with the base station and connected via an RF interface (coaxial cable). Inside the master unit are various plug-in cards including RF-to-optical converters (local units), passive RF components, micro-controllers and power supply. RF signals are transported to the remote units over single mode fiber at 1310 nm.

The remote units, which can be up to 3 km (about 2 miles) away, are available in three different power classes and are designed to meet any distribution needs.

The Britecell Plus intelligent plug-and-play system includes an Automatic Gain Control (AGC) that eliminates system gain, regardless of optical loss. This avoids field adjustments and reduces design, installation, and optimization time.

- Tri-band modular system
- Flexible radio network interface
- Multiple power class remote units to meet any requirements
- 3 km guaranteed optical link distance
- Centralized system management interface
- Easy to install and maintain
- Infrastructure cost optimization

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Britecell® Plus – System Specifications

Frequency

Frequency range, MHz

SMR800	Uplink	806 to 824
	Downlink	851 to 869
CELL800	Uplink	824 to 849
	Downlink	869 to 894
GSM900	Uplink	890 to 915
	Downlink	935 to 960
EGSM900	Uplink	880 to 915
	Downlink	925 to 960

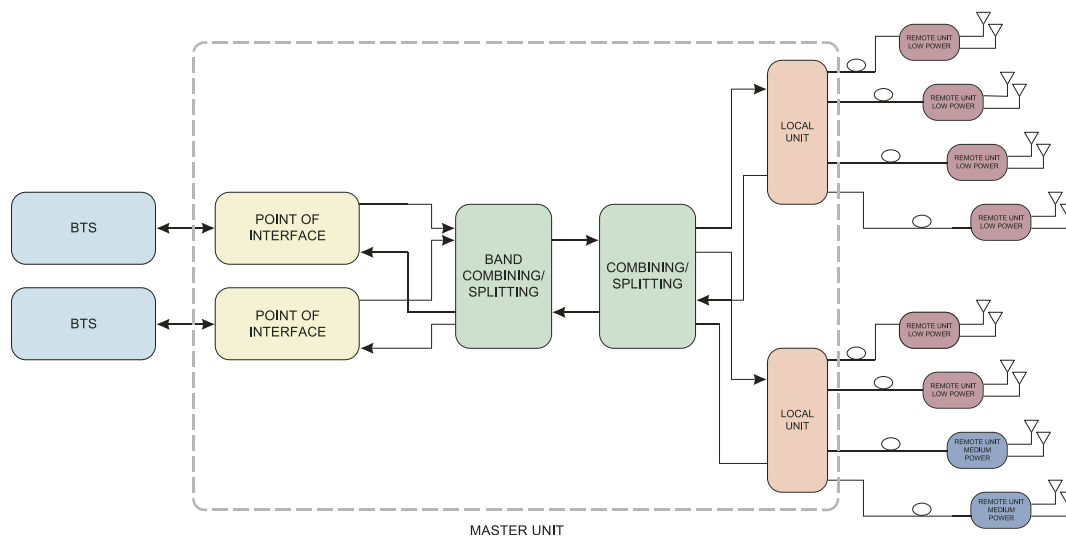
Frequency range, MHz

GSM1800	Uplink	1710 to 1785
	Downlink	1805 to 1880
PCS1900	Uplink	1850 to 1910
	Downlink	1930 to 1990
UMTS2100	Uplink	1920 to 1980
	Downlink	2110 to 2170

Output power

Output power per carrier, dBm

	LOW POWER				MEDIUM POWER				HI POWER			
Number of Carriers	1	2	4	8	1	2	4	8	1	2	4	8
iDEN, CDMA800	16	11.5	8	4	21	17	13	9	31	25	23	19
Analog, GSM800	22	14	12	8	27	20	17	13	37	30	27	23
TDMA800	19	12.5	10	6	24	18.5	15	11	34	26	25	21
EDGE800	18	12	10	6	23	18	15	11	33	25.5	25	21
WCDMA800	12	6	1	-2	17	11	6	3	27	21	16	13
GSM900	13	10	7	4	18	15	12	9				
EDGE900	11	8	5	2	16	13	10	7				
GSM1800	13	10	7	4	20	17	14	11				
EDGE1800	11	8	5	2	18	15	12	9				
TDMA1900	18	11.5	9	5	24	18.5	15	11	34	26	25	21
GSM1900	21	13	11	7	27	20	17	13	37	27.5	27	23
EDGE1900	17	11	9	5	23	18	15	11	33	25.5	25	21
CDMA1900	15	10.5	7	3	21	17	13	9	31	25	23	19
WCDMA1900	11	5	0	-3	17	11	6	3	27	21	16	13
CDMA2100	19	15	11	7	21	17	13	9				
WCDMA2100	15	9	4	1	17	11	6	3				



Britecell Plus System: Block Diagram

Britecell® Plus – System Specifications

System performance: 1 Local Unit + 1 Remote Unit

	LOW POWER	MEDIUM POWER (*)	HIGH POWER
DOWNLINK			
Maximum composite RF input level, dBm	+10	+10	+10
RF gain, dB			
@800 MHz	+14	+20	+27/25**
@900 MHz	+10	+15	-
@1800 MHz	+10	+17	-
@1900 MHz	+14	+20	+27
@2100 MHz	+15**	+17	-
Flatness, dB	±2	±2	±1
Output 1 dB compression point, dBm			
@800,900,	+22	+27	+37/+34**
@1800, 1900 MHz	+21	+27	+37
@2100 MHz	+25**	+27	-
Output wideband noise, dBm/Hz			
@800,1900 MHz	<-116	<-110	<-100
@900 MHz	<-120	<-115	-
@1800 MHz	<-120	<-113	-
@2100 MHz	<-115**	<-113	-
Spurious emissions, dBm			
@800,1900 MHz	<-13	<-13	<-13
@900 MHz	<-36	<-36	-
@1800 MHz	<-30	<-30	-
UPLINK			
Maximum RF input level (1CW tone), dBm	-15	-15	-15
Flatness, dB	± 2	± 2	± 1
RF gain, dB			
@800,900,1800,1900 MHz	+10	+14	+20
@2100 MHz	+14**	+14	-
Noise figure, dB			
@800,900,1800,1900 MHz	13	+11	+5
@2100 MHz	12**	+11	-
IIP3, dBm			
@800,900,1800,1900 MHz	>-3	>-7	>-13
@2100 MHz	>-7**	>-7	-
Blocking (3 dB), dBm			
@800,900,1800,1900 MHz	>-18	>-22	>-28
Blocking (6 dB), dBm			
@2100 MHz	>-25**	>-25	-
Automatic Level Control (ALC) for UL	@800,900,1800,1900,2100 MHz	Standard	Standard
	(*) preliminary data	(**) tri-band version	

Britecell® Plus – System Specifications

Local Unit

RF INTERFACE	
Operating frequency band, MHz	800-2500
Connectors	SMA-f
Impedance, ohm	50
Return loss, dB	>10
AUXILIARY PORT	
Connectors	SMB-male

Electrical

Power supply, Vdc	12 Proprietary backplane
Power consumption, watts	12

Mechanical

Height, depth, width	4HE x 7TE x 235 mm (modular plug-in)
Housing subrack	4HE x 19"
Backplane connector	DIN41612
Weight, kg	0.75

Optic Interface - Local Unit and Remote Unit

Fiber optic type, μm	9.5/125 Single mode
Optical connectors, dBm	SC/APC
LOCAL UNIT UPLINK / REMOTE UNIT DOWNLINK	
Optical receiver	PIN photodiode
Max. allowed optical input power, dBm	<+3
Allowed optical input power under AGC, dBm	0 to -3
Allowed optical input back reflection, dB	<-36
Optical input alarm threshold, dBm	-5
LOCAL UNIT DOWNLINK / REMOTE UNIT UPLINK	
Optical transmitter	laser diode, class 1 (EN60825)
Wavelength, nm	1310 $\pm$ 10
Output optical power, dBm	0

Remote Unit

RF INTERFACE	
Operating frequency band, MHz	see frequency table
Connectors	Case A, B, F N-Female, (2 ports) Case F N-Female, (1 port)
Impedance, ohm	50
Return loss, dB	>10
AUXILIARY PORT	
Connectors	SMA-female

Electrical

Power supply, Vac (Vdc)	Case A (internal) 85-265 (-72- -36) Case B (external) 85-265 (-72- -36) Case F 85-265 (-72- -36)
Power consumption, watts	Low power 15 to 20 Medium power 25 to 30 Hi power <90

Mechanical

Height, depth, width, mm (in)	Case A 240 x 200 x 38 (9.4 x 7.9 x 1.5) Case B 240 x 240 x 38 (9.4 x 9.4 x 1.5) Case F 445 x 255 x 167 (17.5 x 10 x 6.6)
Weight, kg (lb)	Case A 1.9 (4.2) Case B 2.1 (4.6) Case F 14 (30.8)

Environmental and Safety - Local Unit and Remote Unit

Operating temperature range	+5° C to +40° C
Storage temperature range	-20° C to +65° C
Compliance	ETS300 019-1-3, class 3.1
Safety compliance	EN60950

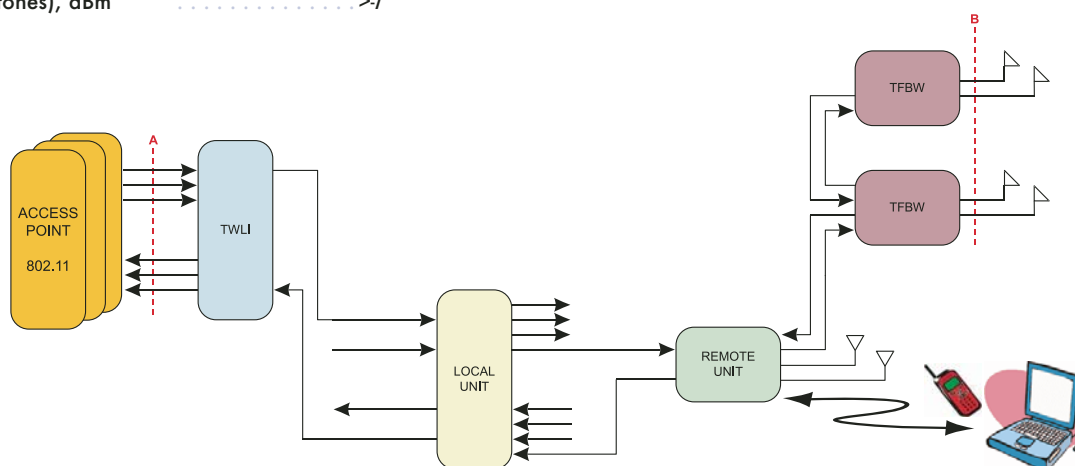
Britecell® Plus – System Specifications

Centralized WLAN System Specification

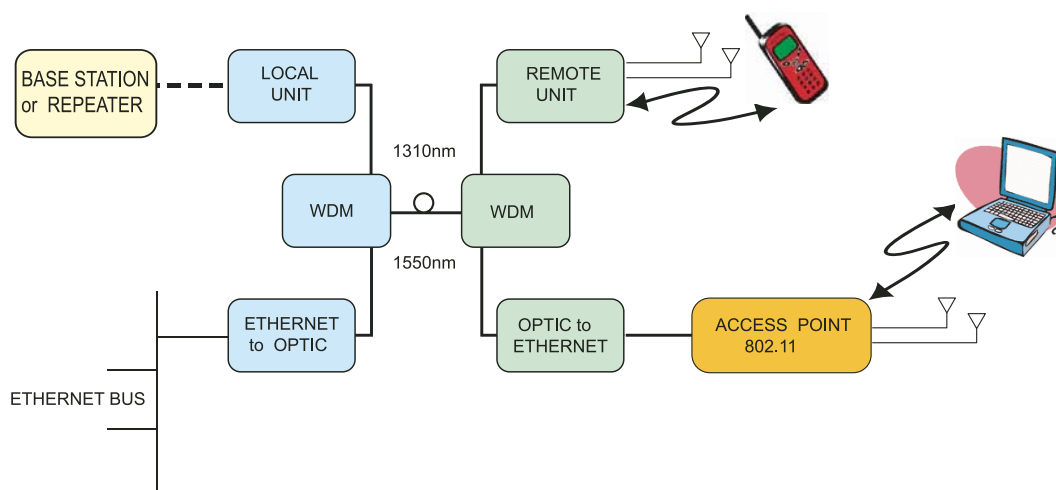
Antenna separation required, dB	>50
DOWNLINK	
RF gain range, dB (typical)	-4 to 0 in steps of 0.5
Flatness, dB	±2
Noise floor level, dBm/Hz	-108
Maximum input power per channel, dBm	+19
Maximum output power per channel (WLAN channel-max. 3 channels), dBm	+15
OIP3 (2 CW tones), dBm	>+44
UPLINK	
ALC threshold (CW tone), dBm	-36
RF gain, dB (typical)	+10
Flatness, dB	±2
Noise figure, dB	+13
IIP3 (2 CW tones), dBm	>-7

Distributed WLAN System Specification

Input interface	10/100 Base T
Output interface	10/100 Base T
Transport data rate	10/100 MBit/s
Transport distance	10 km

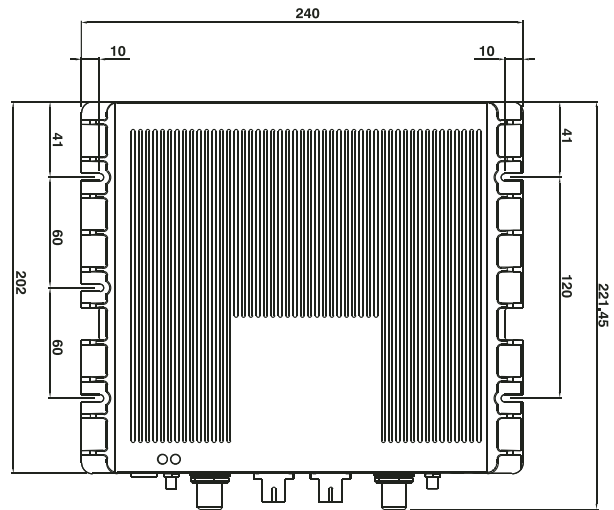


Centralized Access Point

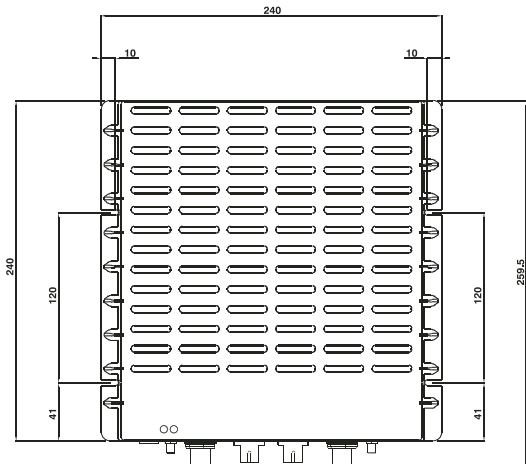


Distributed Access point

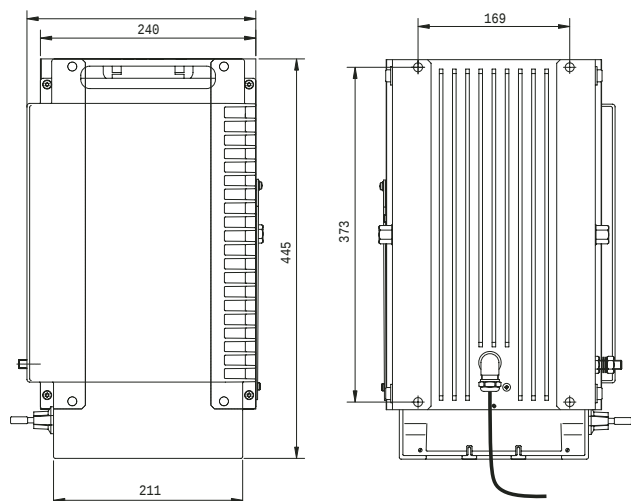
Britecell® Plus – System Specifications



Case A



Case B

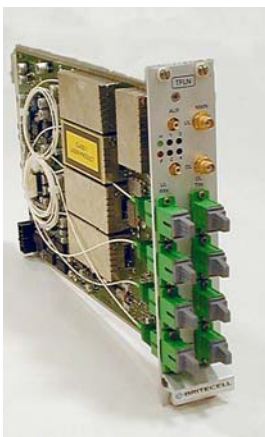


Case F

Britecell® Plus – System Specifications

Features

Single, dual and triple bands modular system with auxiliary channel	Open infrastructure for future proof transport
Redundant power supply	Optional
Configuration and monitoring functions	GUI based local management. High level of system management (SNMP/HTTP)
Intelligent master unit subrack	Hosting 12 active auto sensing slots for local units and any active boards
Automatic Level Control (ALC) on uplink	To guarantee optimal blocking performance for multi-service and multi-operator applications
Alarms	Optical failure, equipment failure, external alarms, power supply failure, data failure
BTS interface	Via coaxial combining network / via optical interconnect link / via RF repeater



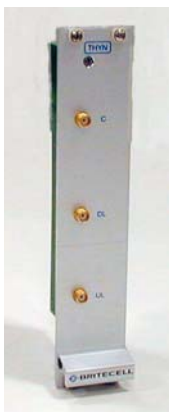
Local unit



Wireless LAN
local interface **



Master unit subrack*



Hybrid coupler**



Wideband RF
attenuator**



2-way splitter
combiner**



4-way splitter
combiner**



Tri-band splitter
combiner**



Dual band splitter
combiner**



SNMP agent

*The master unit can be placed in the equipment room. The designer can choose among three different remote units for the best coverage optimization to guarantee a strong and uniform coverage for optimal network performance, while maintaining flexibility and modularity for future growth

**See proper product specification for details

Britecell® Plus – System Specifications

Available band configurations and power options

	SMR800	Cell800	GSM900	EGSM900	GSM1800	PCS1900	UMTS2100	MODEL	CASE
Single Band	low							TFAF07	A
	high							TFAH07	F
		low						TFAF08	A
		high						TFAH08	F
			low					TFAF09	A
				low				TFAF91	A
					low			TFAF18	A
						low		TFAF19	A
						high		TFAH19	F
Dual Band							medium	TFAN20	A
	low					low		TFAF26	A
	medium					medium		TFAM26	B
	high					high		TFAH26	F
		low				low		TFAF23	A
		medium				medium		TFAM23	B
		high				high		TFAH23	F
		low			low			TFAF24	A
		medium			medium			TFAM24	B
	low		low					TFAF16	A
			low		low			TFAF21	A
			medium		medium			TFAM21	B
				low	low			TFAF92	A
				medium	medium			TFAM92	B
		medium					medium	TFAM28	B
			medium				medium	TFAM29	B
				medium			medium	TFAM30	B
Tri Band		low			low		low	TFAN46	B
			low		low		low	TFAN48	B
				low	low		low	TFAN47	B
	high	high				high		TFAH34	F



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Bulletin 10976 (Rev. B 3/04)
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