



Model: DNBA-81



DNBA-81 is a 802.11n 2x3 2-stream a/b/g dual band wifi Cardbus designed specifically for laptops and access points/home gateways/consumer electronics/multimedia entertainment devices/peripherals with standard Cardbus slot. Setting new standards in throughput, range, reliability, and power consumption, DNBA-81 delivers the ultimate wireless triple play experience for video, voice, and data transmission in the home, for the business, and on the road.

XSPAN with Signal-Sustain Technology (SST) using 2Tx/3Rx architecture maximizes link data rate up to 300Mbps and very effectively sustains the 802.11n radio signal to optimizes for higher throughputs over range.

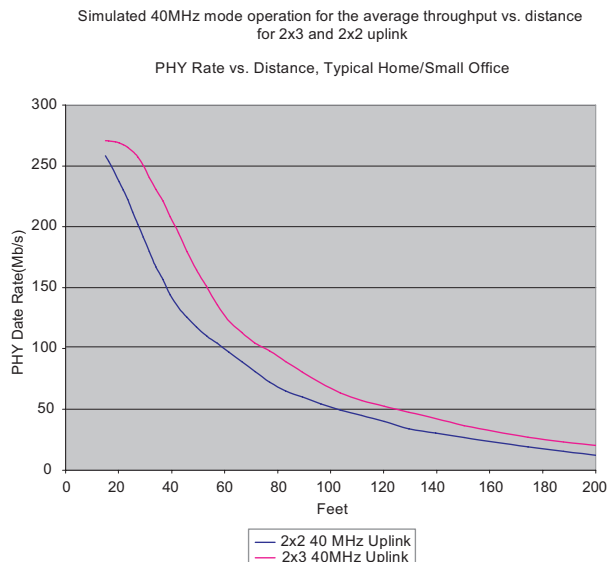
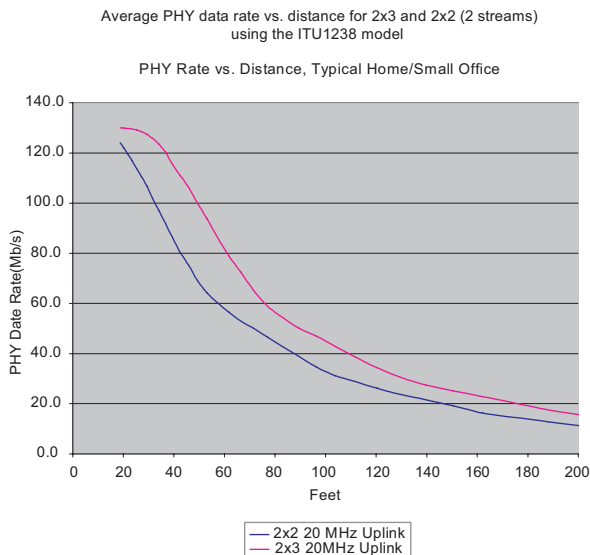
Integrating the superior experiences of WLAN/embedded antenna/mechanical design service and WiFi Chipset Partner enable customers to quickly and easily bring competitive price/performance WLAN products to market.

Key Features:

- Cardbus 32-bit Type II interface in 2Tx/3Rx design.
- Windows XP/Vista/7 driver and comprehensive client utility supports provide immediate 11n a/b/g wifi and management capability.
- 802.11n compliance effectively interoperates with other chipsets.
- Enables bandwidth of up to 300Mbps link rate, six times the throughput of 802.11a and 802.11g.
- Supports IEEE 802.11a/802.11b/802.11g backward compatibility allowing inter-operability among multiple wifi networks.
- Smart Clear Channel Assessment (CCA) allows legacy-friendly operation with 802.11a, 802.11b and 802.11g devices.
- XSPAN with Signal-Sustain Technology (SST) 2Tx/3Rx design architecture optimizes for higher and greater reliable throughputs over range.
- Supports 802.11e prioritizing voice traffic over data traffic.
- Supports 64/128/152-bit WEP encryption, 802.1x authentication, and AES-CCM & TKIP encryption enabling advanced LAN security.
- Combination of two Dual band metal PIFA and one chip antenna design.
- RoHS compliance meets environment-friendly requirement.

What's the benefits to use 2x3 (2T3R) 2-stream instead of other standard 2x2 2-stream?

2x3, 2-stream devices will have 20% improvement in average throughput comparing with 2x2, 2-stream at 20MHz mode in the uplink direction. Average throughput rates can be up to 40% better in the 30-40 ft range and 20% better in the 60-100 ft range at 40MHz mode in the uplink direction.



Specifications:						
Main Chipset	Atheros AR5416, AR5133					
Standard Conformance	802.11a, 802.11b, 802.11g, and 802.11n					
Frequency Range	<ul style="list-style-type: none"> ▪ USA: <ul style="list-style-type: none"> ◦ 2.400 ~ 2.483GHz ◦ 5.15 ~ 5.35GHz ◦ 5.725 ~ 5.825GHz ▪ Europe: <ul style="list-style-type: none"> ◦ 2.400 ~ 2.483GHz ◦ 5.15 ~ 5.35GHz ◦ 5.47 ~ 5.725GHz ▪ Japan: <ul style="list-style-type: none"> ◦ 2.400 ~ 2.483GHz ◦ 4.90 ~ 5.091GHz ◦ 5.15 ~ 5.35GHz ▪ China: <ul style="list-style-type: none"> ◦ 2.400 ~ 2.483GHz ◦ 5.725 ~ 5.85GHz 					
Interface	Cardbus Type II 32-bit					
Operation Voltage	3.3V ± 5%					
Modulation Techniqu	<ul style="list-style-type: none"> ▪ DSSS with CCK, DQPSK, DBPSK ▪ OFDM with BPSK, QPSK, 16QAM, 64QAM 					
Data Rate	<ul style="list-style-type: none"> ▪ 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps ▪ 802.11b: 1, 2, 5.5 and 11Mbps ▪ 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps ▪ 802.11n: <ul style="list-style-type: none"> ◦ 20MHz channel: <ul style="list-style-type: none"> 1Nss: 65Mbps @ 800GI, 72.2Mbps @ 400GI (Max.) 2Nss: 130Mbps @ 800GI, 144.4Mbps @ 400GI (Max.) ◦ 40MHz channel: <ul style="list-style-type: none"> 1Nss: 135Mbps @ 800GI, 150Mbps @ 400GI (Max.) 2Nss: 270Mbps @ 800GI, 300Mbps @ 400GI (Max.) 					
Operating Channels	<ul style="list-style-type: none"> ▪ 802.11a <ul style="list-style-type: none"> ◦ USA/Canada: 12 non-overlapping channels ◦ Major Europe Countries: 19 non-overlapping channels ◦ Japan: 19 non-overlapping channels ◦ China: 5 non-overlapping channels ▪ 802.11b/g/n <ul style="list-style-type: none"> ◦ USA/Canada: 11 (1~11) ◦ Major Europe Countries: 13 (1~13) ◦ France: 4 (10~13) ◦ Japan: 14 for 802.11b (1~13 or 14th), 13 for 802.11g (1~13) ◦ China: 13 (1~13) 					
Power Consumption		802.11a	802.11b	802.11g	802.11n(2.4GHz)	802.11n(5GHz)
		Avg./Max. (mA)	Avg./Max. (mA)	Avg./Max. (mA)	Avg./Max. (mA)	Avg./Max. (mA)
	Continue Tx	615/716	614/720	547/639	584/685	632/732
	FTP Tx	384/600	487/640	351/480	486/669	572/698
	FTP Rx	433/524	379/611	386/499	406/653	474/676
	Standby mode	437/502	393/485	391/468	383/456	393/490
	Power saving	38/487	41/447	42/454	42/417	101/426
Antenna	two dual band metal PIFA antenna and one printed antenna					

Specifications:

Transmit Power Settings

- 802.11a:
 - +14~+17dBm @ 6, 9, 12, 18, 24Mbps
 - +14~+16dBm @ 36Mbps
 - +14~+16dBm @ 48Mbps
 - +14~+15dBm @ 54Mbps
- 802.11b:
 - +16dBm
- 802.11g:
 - +17Bm @ 6, 9, 12,18,24Mbps
 - +17dBm @ 36Mbps
 - +17dBm @ 48Mbps
 - +16dBm @ 54Mbps
- 802.11n 2.4GHz/HT20 @800GI(400GI): +13 ~ +18dBm
- 802.11n 2.4GHz/HT40 @800GI(400GI): +12 ~ +18dBm
- 802.11n 5GHz/HT20 @800GI(400GI): +12 ~ +18dBm
- 802.11n 5GHz/HT40 @800GI(400GI): +11 ~ +17dBm

Receiver Sensitivity

802.11a

Modulation	Code Rate	Typical/Maximum (3Rx dBm)
BPSK	1/2	-94/-90
BPSK	3/4	-94/-90
QPSK	1/2	-94/-89
QPSK	3/4	-93/-88
16-QAM	1/2	-90/-86
16-QAM	3/4	-87/-82
64-QAM	2/3	-83/-79
64-QAM	3/4	-81/-77

802.11b

Modulation	Relative constellation error (dB)
DBPSK	-99/-95
DQPSK	-93/-89
CCK	-90/-86

802.11g

Modulation	Code Rate	Relative constellation error (dB)
BPSK	1/2	-95/-91
BPSK	3/4	-95/-91
QPSK	1/2	-95/-91
QPSK	3/4	-94/-90
16-QAM	1/2	-91/-87
16-QAM	3/4	-88/-84
64-QAM	2/3	-84/-80
64-QAM	3/4	-82/-77

802.11ng

Modulation	Code Rate	Typical/Maximum (3Rx dBm)
HT20		
BPSK	1/2	-95/-91
QPSK	1/2	-94/-90
QPSK	3/4	-91/-87
16-QAM	1/2	-88/-84
16-QAM	3/4	-85/-81
64-QAM	2/3	-81/-77
64-QAM	3/4	-80/-76
64-QAM	5/6	-77/-72

Specifications:		
Receiver Sensitivity	802.11na	
	Modulation	Code Rate Typical/Maximum (3Rx dBm)
	HT20	
	BPSK	1/2 -94/-90
	QPSK	1/2 -92/-88
	QPSK	3/4 -91/-87
	16-QAM	1/2 -87/-83
	16-QAM	3/4 -84/-81
	64-QAM	2/3 -81/-76
	64-QAM	3/4 -79/-75
	64-QAM	5/6 -76/-72
	802.11na	
	Modulation	Code Rate Typical/Maximum (3Rx dBm)
	HT40	
	BPSK	1/2 -90/-86
	QPSK	1/2 -89/-85
	QPSK	3/4 -88/-84
	16-QAM	1/2 -85/-80
	16-QAM	3/4 -81/-77
	64-QAM	2/3 -78/-73
	64-QAM	3/4 -76/-72
	64-QAM	5/6 -74/-70
Operation Distance	Outdoor	Indoor
	802.11a	<ul style="list-style-type: none"> ▪ 50m @ 54Mbps ▪ 300m @ 6Mbps
	802.11b	<ul style="list-style-type: none"> ▪ 30m @ 54Mbps ▪ 100m @ 6Mbps
	802.11g	<ul style="list-style-type: none"> ▪ 150m @ 11Mbps ▪ 300m @ 1Mbps
	802.11n	<ul style="list-style-type: none"> ▪ 30m @ 54Mbps ▪ 100m @ 6Mbps
	802.11n	<ul style="list-style-type: none"> ▪ 30m @ 300Mbps ▪ 30m @ 130Mbps ▪ 250m @ 6.5Mbps
MAC Protocol	CSMA/CA with ACK archite 250m @ 6.5Mbpscture 32-bit MAC	
Security	<ul style="list-style-type: none"> ▪ 64-bit, 128-bit and 152-bit WEP encryption ▪ 802.1x authentication ▪ AES-CCM & TKIP 	
Operation Systems Supported	Windows XP/Vista/7	
Wi-Fi Compliance	Wi-Fi 2.4/5GHz by request	
WHQL	Microsoft® 2000 and XP	
Dimension	112 x 48 x 0.79mm	
Operation Temperature Range	0°C ~ +55°C	
Storage Temperature Range	-20°C ~ +80°C	
Operating Humidity	15% ~ 95%, non-condensing	
Storage Humidity	max. 95%, non-condensing	
EMC Certificate	by project request	
Environment-Friendly Compliance	RoHS	

Ordering Information:

DNBA-81	802.11n a/b/g Cardbus(2T3R), CB72/AR5416+AR5133
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- Durable Bridge to Wireless

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