



Model: DNUA-81



DNUA-81 is a 802.11n Draft 2.0 a/b/g wifi USB adapter designed specifically for laptops/desktop PC and peripherals with standard USB 2.0 slot. 2Tx2Rx design overlaying the signals of multiple radios, DNUA-81 sets new standards in throughput and range to deliver 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/2Rx architecture maximizes link data rate up to 300Mbps and very effectively sustains the

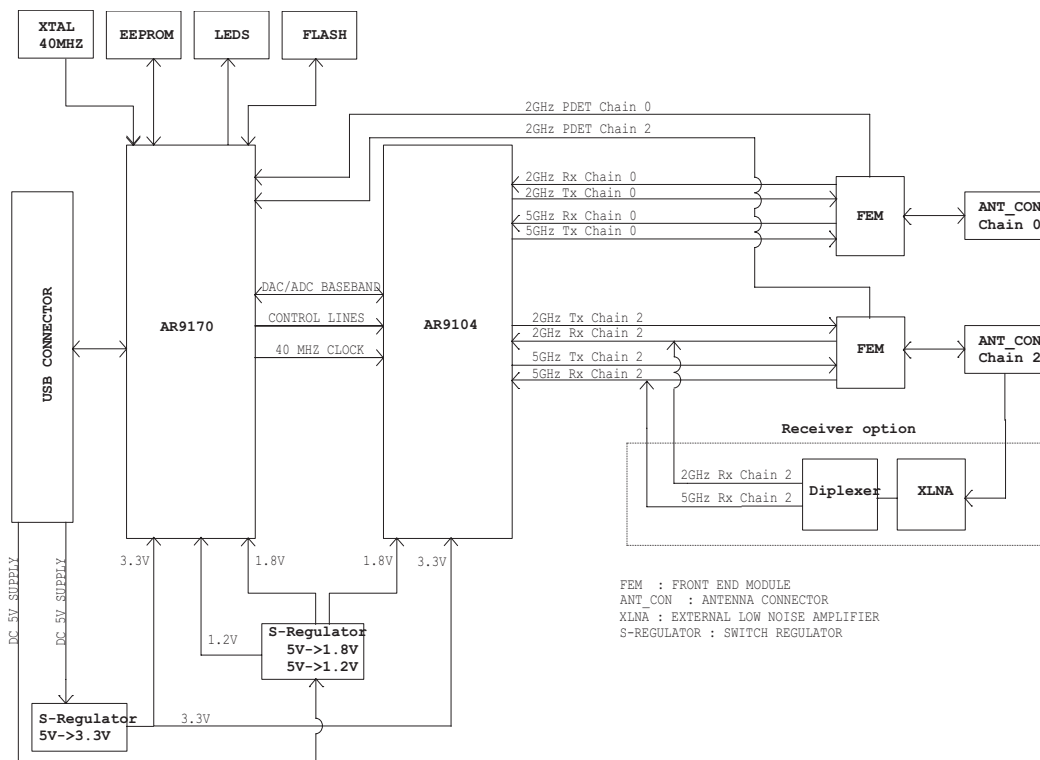
802.11n radio signal to optimizes for higher throughputs over range.

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:

- USB 2.0 interface in 2Tx/2Rx dongle design.
- Windows 2000/XP/Vista driver supports provide immediate 11n a/b/g wifi and management capability.
- 802.11n draft 2.0 compliance 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/2Rx 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.
- Two embedded 2.4/5.0GHz IFA printed antenna to reach smallest USB dongle size without sacrifice of WiFi performance.
- RoHS 2002/95/EC compliance meets environment-friendly requirement.

Hardware Block Diagram



FEM : FRONT END MODULE
ANT_CON : ANTENNA CONNECTOR
XLNA : EXTERNAL LOW NOISE AMPLIFIER
S-REGULATOR : SWITCH REGULATOR

Specifications:						
Main Chipset	Atheros AR9170, AR9104					
Tx/Rx	2T2R					
Standard Conformance	802.11n draft 2.0, 802.11a, 802.11b and 802.11g					
Frequency Range	<ul style="list-style-type: none"> ▪ USA: <ul style="list-style-type: none"> ◦ 2.400 ~ 2.483GHz ◦ 5.15 ~ 5.35GHz ◦ 5.47 ~ 5.725GHz ◦ 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 ~ 2.497GHz ◦ 5.15 ~ 5.35GHz ◦ 5.47 ~ 5.725GHz ▪ China: <ul style="list-style-type: none"> ◦ 2.400 ~ 2.483GHz ◦ 5.725 ~ 5.85GHz 					
Interface	USB 2.0					
Operation Voltage	5.0V ± 5%					
Modulation Technique	<ul style="list-style-type: none"> ▪ DSSS with CCK, DQPSK, DBPSK ▪ OFDM with BPSK, QPSK, 16QAM, 64QAM 					
Channel Spacing	5MHz					
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/n <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	399/460	304/380	287/380	254/350	334/410
	FTP Tx	256/370	260/390	217/380	227/390	240/420
	FTP Rx	201/320	200/360	178/320	195/330	232/390
	Standby mode	186/310	168/330	164/300	182/300	200/320
Antenna	two 2.4/5.0GHz IFA printed antenna					
Output Power	<ul style="list-style-type: none"> ▪ 802.11a: 15 ~ 17dBm ▪ 802.11b: 18dBm ▪ 802.11g: 16 ~ 18dBm ▪ 802.11n, 5.0GHz/HT20@800GI(400GI): 12 ~ 17dBm ▪ 802.11n, 5.0GHz/HT40@800GI(400GI): 9 ~ 17dBm ▪ 802.11n, 2.4GHz/HT20@800GI(400GI): 13 ~ 18dBm ▪ 802.11n, 2.4GHz/HT40@800GI(400GI): 11 ~ 18dBm 					

Specifications:

Receiver Sensitivity	802.11a	Modulation	Code Rate	Typical/Maximum (2Rx dBm)
		BPSK	1/2	-91/-87
		BPSK	3/4	-91/-87
		QPSK	1/2	-90/-86
		QPSK	3/4	-90/-86
		16-QAM	1/2	-88/-84
		16-QAM	3/4	-84/-80
		64-QAM	2/3	-80/-76
		64-QAM	3/4	-79/-75
	802.11b	DBPSK		-96/-92
		DQPSK		-94/-90
		CCK		-90/-86
	802.11g	BPSK	1/2	-91/-87
		BPSK	3/4	-91/-87
		QPSK	1/2	-91/-87
		QPSK	3/4	-90/-86
		16-QAM	1/2	-88/-84
		16-QAM	3/4	-85/-81
		64-QAM	2/3	-81/-77
		64-QAM	3/4	-79/-75
	802.11na	HT20		
		(MCS0) BPSK	1/2	-90/-86
		(MCS1) QPSK	1/2	-90/-86
		(MCS2) QPSK	3/4	-88/-84
		(MCS3) 16-QAM	1/2	-85/-81
		(MCS4) 16-QAM	3/4	-82/-78
		(MCS5) 64-QAM	2/3	-78/-74
		(MCS6) 64-QAM	3/4	-77/-73
		(MCS7) 64-QAM	5/6	-74/-70
		HT40		
		(MCS0) BPSK	1/2	-87/-83
		(MCS1) QPSK	1/2	-86/-82
		(MCS2) QPSK	3/4	-85/-81
		(MCS3) 16-QAM	1/2	-83/-79
		(MCS4) 16-QAM	3/4	-80/-76
		(MCS5) 64-QAM	2/3	-76/-72
		(MCS6) 64-QAM	3/4	-73/-69
		(MCS7) 64-QAM	5/6	-71/-67

Specifications:					
Receiver Sensitivity	802.11ng	Modulation	Code Rate	Typical/Maximum (2Rx dBm)	
		HT20			
		(MCS0) BPSK	1/2	-91/-87	
		(MCS1) QPSK	1/2	-89/-85	
		(MCS2) QPSK	3/4	-87/-83	
		(MCS3) 16-QAM	1/2	-86/-82	
		(MCS4) 16-QAM	3/4	-83/-79	
		(MCS5) 64-QAM	2/3	-80/-76	
		(MCS6) 64-QAM	3/4	-76/-72	
		(MCS7) 64-QAM	5/6	-74/-70	
		HT40			
		(MCS0) BPSK	1/2	-88/-84	
		(MCS1) QPSK	1/2	-88/-84	
		(MCS2) QPSK	3/4	-86/-82	
		(MCS3) 16-QAM	1/2	-83/-79	
		(MCS4) 16-QAM	3/4	-76/-72	
		(MCS6) 64-QAM	3/4	-74/-70	
(MCS7) 64-QAM	5/6	-72/-68			
Operation Distance	Outdoor		Indoor		
	802.11a	<ul style="list-style-type: none"> 50m @ 54Mbps 300m @ 6Mbps 	<ul style="list-style-type: none"> 30m @ 54Mbps 100m @ 6Mbps 		
	802.11b	<ul style="list-style-type: none"> 150m @ 11Mbps 300m @ 1Mbps 	<ul style="list-style-type: none"> 30m @ 11Mbps 100m @ 1Mbps 		
	802.11g	<ul style="list-style-type: none"> 50m @ 54Mbps 300m @ 6Mbps 	<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 	<ul style="list-style-type: none"> 20m @ 300Mbps 20m @ 130Mbps 100m @ 6.5Mbps 		
MAC Protocol	CSMA/CA with ACK architecture 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 encryption 				
Operation Systems Supported	Windows 2000/XP/XP-64/Vista driver				
Wi-Fi Compliance	Wi-Fi 2.4/5.0GHz by request				
WHQL	Microsoft® 2000, XP, and Vista				
Dimension	68.58mm(L) x 24.31mm(W) x 10.0mm(H)				
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				
LED Signaling	1 LEDs on board, Act: green color, Transmission: blinking				
Antenna	two 2.4/5.0GHz IFA printed antenna on board				
EMC Certificate	FCC part 15C, IC RSS210, CE ETSI EN301893 EN60950, Telec, VCCI Class B by project.				
Environment-Friendly Compliance	RoHS				

Ordering Information:

DNUA-81	802.11n a/b/g USB adapter(2T2R), UB82/AR9170+AR9104
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- Durable Bridge to Wireless

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