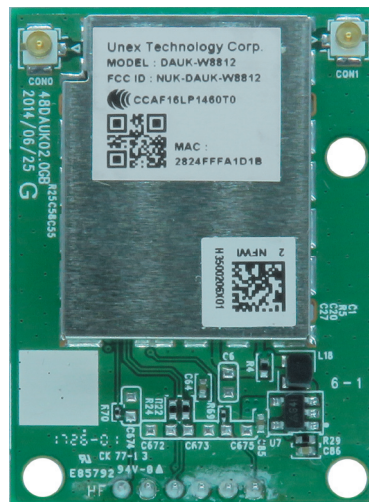




DAUK-W8812 Information Sheet

802.11 ac/a/b/g/n dual-band wifi 2x2 USB module, RTL8812AU-VS



Overview:

DAUK-W8812 is an 802.11 ac/a/b/g/n dual-band wifi 2x2 MIMO module in USB 6-pin headers interface. Highly integrated MAC/BB/RF and PA single chip architecture, DAUK-W8812 sets new dual-band wifi standards in superior throughput performance at low power consumption. DAUK-W8812 is designed specifically to deliver the ultimate wireless triple play experience for video, voice, and data transmission in the home, for the business, and on the road in flexible USB 6-pin headers.

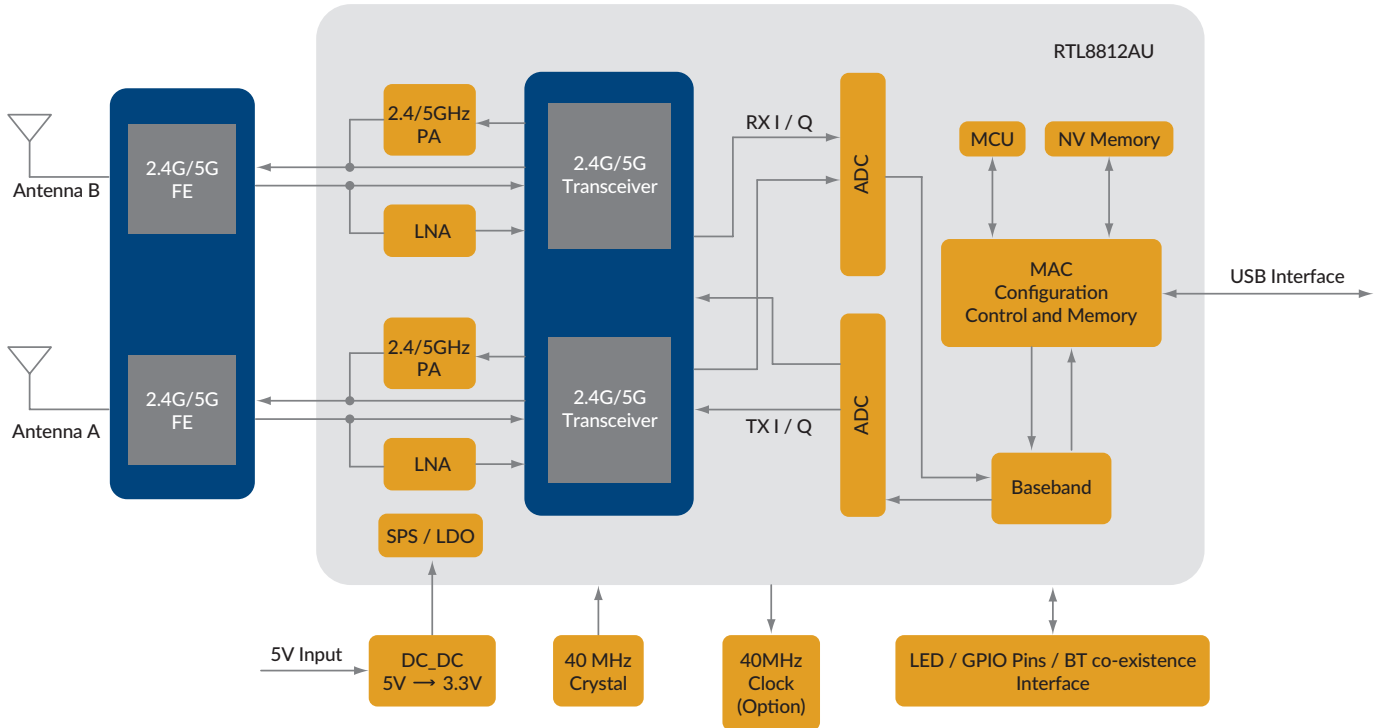
Integrating the market-proof wifi design experiences and well-known production calibration system enable companies to quickly and easily bring advanced and quality-consistency wifi-embedded systems to market.

Features:

- » 40mm x 28mm small dimension with 6-Pin USB 2.0 header is ideal for USB-equipped wireless embedded systems and consumer electronics.
- » Windows 10/8.1/7/Vista/XP and Linux driver support enable companies to quickly and easily bring new bandwidth intensive applications to market with trouble-free WiFi integration.
- » SoftAP (Software enabled Access Point) support on Linux provides easy and direct connection among Wi-Fi devices.
- » Wi-Fi Direct (P2P) support on Windows 10/8.1/7/Vista/XP and Linux allows WiFi devices to connect to each other with no need for a wireless access point.
- » Optimized power calibration provides superior performance with low power consumption.
- » 2.4/5 GHz dual band 2T2R supports up to 867 Mbps PHY link rate and fully complies with 802.11 ac/a/b/g/n specifications.
- » Supports 64/128-bit WEP, WPA, and WPA2 advanced security.
- » Two Hirose U.FL antenna connectors support MIMO functionality.
- » REACH and RoHS compliance meets environment-friendly requirement.

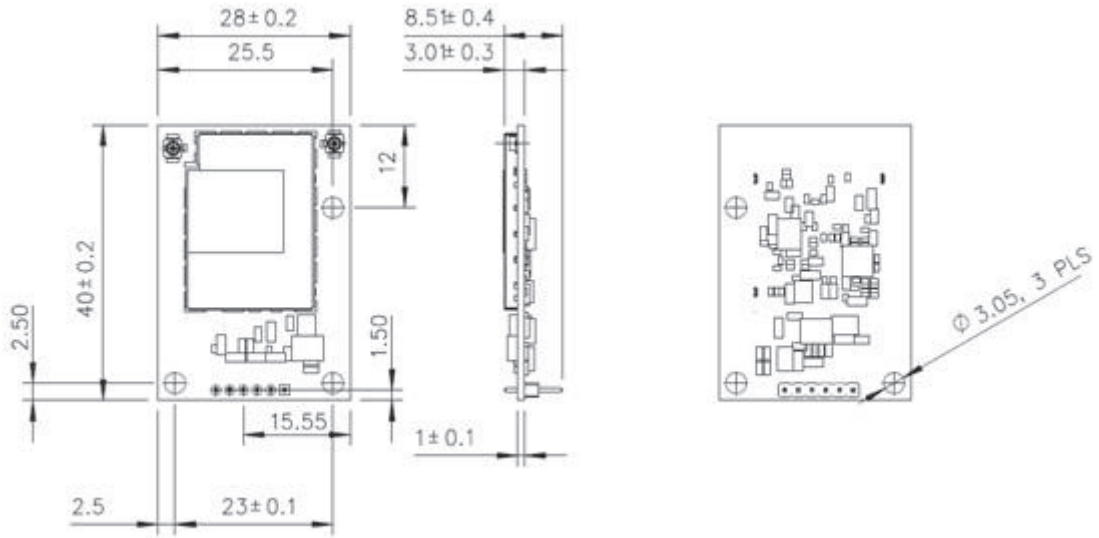
Block Diagram:

11ac Dual-Band 2x2 RF Application

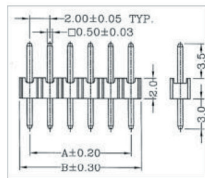


Dual-Band MIMO 2x2 Solution - RTL8812AU-CG (11ac 2x2 MAC/BB/RF + PA)

Mechanical Outline:



USB 2.0 Pin Assignment:



USB 2.0

Pin1	WIFI_RESET
Pin2	5V
Pin3	USB3_DP
Pin4	USB3_DN
Pin5	GND
Pin6	WIFI_Wake_UP

Specifications:

Main Chipset RTL8812AU-VS

Standard
Conformance 802.11ac, 802.11a, 802.11b, 802.11g, and 802.11n

Frequency Range » USA:
 » 2.400 – 2.483GHz
 » 5.15 – 5.35GHz
 » 5.47 – 5.725GHz
 » 5.725 – 5.825GHz
 » Europe:
 » 2.400 – 2.483GHz
 » 5.15 – 5.35GHz
 » 5.47 – 5.725GHz
 » Japan:
 » 2.400 – 2.497GHz
 » 5.15 – 5.35GHz
 » 5.47 – 5.725GHz
 » China:
 » 2.400 – 2.483GHz
 » 5.725 – 5.85GHz

Host Interface 6-Pin USB 2.0 header

Antenna 2 x SMT U.FL connectors (Foxconn: KK23011-32-7H)

Channel Spacing 20MHz

Operation Voltage 5.0V ± 5%

Modulation Technique

- » DSSS with CCK, DQPSK, DBPSK
- » OFDM with BPSK, QPSK, 16QAM, 64QAM, 256QAM

Data Rate

- » 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
- » 802.11ac @800GI (400GI):
 - » 20MHz channel:
 - » 1Nss: 65 (72.2) Mbps max.
 - » 2Nss: 130 (144.4) Mbps max.
 - » 40MHz channel:
 - » 1Nss: 135 (150) Mbps max.
 - » 2Nss: 270 (300) Mbps max.
 - » 80MHz channel:
 - » 1Nss: 390 (433.3) Mbps max.
 - » 2Nss: 780 (866.7) Mbps max.

Operating Channels

- » B/G Mode:
 - » 2.400 ~ 2.4836 GHz (CH 1 ~ CH13)
- » A/AC Mode:
 - » 5.150 ~ 5.250 GHz (CH 36/40/44/48)
 - » 5.250 ~ 5.350 GHz (CH 52/56/60/64)
 - » 5.470 ~ 5.825 GHz (CH 100/104/108/112/116/120/124/128/132 /136/140 and 149/153/157/161/165)

Power Consumption of 2T2R @25C@5V	802.11n (2.4GHz)	802.11ac (5GHz)
	FTP Tx	425mA
AP scanning (no association)	160mA	160mA

Transmit Power Settings
(for each chain with ± 2 .dBm tolerance)

- » 802.11a:
 - » +14dBm
- » 802.11b:
 - » +17dBm
- » 802.11g:
 - » +16dBm
- » 802.11n 2.4GHz/HT20:
 - » +15dBm
- » 802.11n 2.4GHz/HT40:
 - » +15dBm
- » 802.11n 5GHz/HT20:
 - » +13dBm
- » 802.11n 5GHz/HT40:
 - » +13dBm
- » 802.11ac 5GHz/HT80:
 - » +10dBm

EVM

	Data Rate	Relative constellation error	Relative constellation error
		IEEE Spec. (1Tx dB)	Typical/Max. (1Tx dB)
802.11a	6M	-5	-31/-28
	9M	-8	-31/-28
	12M	-10	-31/-28
	18M	-13	-31/-28
	24M	-16	-34/-30
	36M	-19	-34/-30
	48M	-22	-34/-30
	54M	-25	-34/-30
802.11b	1M	-10	-27/-22
	5.5M	-10	-27/-22
	11M	-10	-27/-22
802.11g	6M	-5	-35/-32
	9M	-8	-35/-32
	12M	-10	-35/-32
	18M	-13	-35/-32
	24M	-16	-35/-32
	36M	-19	-35/-32
	48M	-22	-35/-32
	54M	-25	-35/-32

802.11a/n	6.5M	-5	-36/-31
HT20	13M	-10	-36/-31
	19.5M	-13	-36/-31
	26M	-16	-36/-31
	39M	-19	-36/-31
	52M	-22	-36/-31
	58.5M	-25	-36/-31
	65M	-28	-36/-31
	13M	-5	-36/-31
	26M	-10	-36/-31
	39M	-13	-36/-31
	52M	-16	-36/-31
	78M	-19	-36/-31
	104M	-22	-36/-31
	117M	-25	-36/-31
	130M	-28	-36/-31

802.11a/n	13.5M	-5	-36/-31
HT40	27M	-10	-36/-31
	40.5M	-13	-36/-31
	54M	-16	-36/-31
	81M	-19	-36/-31
	108M	-22	-36/-31
	121.5M	-25	-36/-31
	13.5M	-28	-36/-31
	27M	-5	-36/-31
	54M	-10	-36/-31
	81M	-13	-36/-31
	108M	-16	-36/-31
	162M	-19	-36/-31
	216M	-22	-36/-31
	243M	-25	-36/-31
	270M	-28	-36/-31

802.11b/g/n	6.5M	-5	-36/-31
HT20	13M	-10	-36/-31
	19.5M	-13	-36/-31
	26M	-16	-36/-31
	39M	-19	-36/-31
	52M	-22	-36/-31
	58.5M	-25	-36/-31
	65M	-28	-36/-31
	13M	-5	-36/-31
	26M	-10	-36/-31
	39M	-13	-36/-31
	52M	-16	-36/-31
	78M	-19	-36/-31
	104M	-22	-36/-31
	117M	-25	-36/-31
	130M	-28	-36/-31

802.11b/g/n	13.5M	-5	-36/-31
HT40	27M	-10	-36/-31
	40.5M	-13	-36/-31
	54M	-16	-36/-31
	81M	-19	-36/-31
	108M	-22	-36/-31
	121.5M	-25	-36/-31
	13.5M	-28	-36/-31
	27M	-5	-36/-31
	54M	-10	-36/-31
	81M	-13	-36/-31
	108M	-16	-36/-31
	162M	-19	-36/-31
	216M	-22	-36/-31
	243M	-25	-36/-31
	270M	-28	-36/-31

Receiver
Sensitivity (with \pm
3dBm tolerance)

	Data Rate	IEEE Spec(1 Rx dBm)	Typical(3Rx dBm)
802.11a	6M	-82	-90
	9M	-81	-89
	12M	-79	-88
	18M	-77	-86
	24M	-74	-83
	36M	-70	-80
	48M	-66	-76
	54M	-65	-74
802.11b	1M	not specified	-95
	5.5M	not specified	-92
	11M	not specified	-90
802.11g	6M	-82	-89
	9M	-81	-89
	12M	-79	-87
	18M	-77	-85
	24M	-74	-82
	36M	-70	-79
	48M	-66	-75
	54M	-65	-73
802.11a/n	6.5M	-82	-90
HT20	13M	-79	-88
	19.5M	-77	-86
	26M	-74	-83
	39M	-70	-79
	52M	-66	-75
	58.5M	-65	-74
	65M	-64	-70
	802.11a/n	13.5M	-79
HT40	27M	-76	-85
	40.5M	-74	-82
	54M	-71	-79
	81M	-67	-76
	108M	-63	-72
	121.5M	-62	-70
	135M	-61	-68

802.11b/g/n	6.5M	-82	90
HT20	13M	-79	-86
	19.5M	-77	-84
	26M	-74	-81
	39M	-70	-78
	52M	-66	-73
	58.5M	-65	-72
	65M	-64	-70
	802.11b/g/n	13.5M	-79
HT40	27M	-76	-84
	40.5M	-74	-82
	54M	-71	-79
	81M	-67	-76
	108M	-63	-72
	121.5M	-62	-69
	135M	-61	-68
	802.11ac	BPSK(MCS0)	-76
VHT80	QPSK(MCS1)	-73	-82
	QPSK(MCS2)	-71	-80
	16-QAM(MCS3)	-68	-77
	16-QAM(MCS4)	-64	-73
	64-QAM(MCS5)	-60	-69
	64-QAM(MCS6)	-59	-67
	64-QAM(MCS7)	-58	-65
	256-QAM(MCS8)	-53	-61
	256-QAM(MCS9)	-51	-58

Transmit Center
Frequency
Tolerance ± 20ppm

Operation System
Supported Windows 10/8.1/7/Vista/XP and Linux

Dimension 40 x 28 x 1.0mm FR4 4-Layers

Security 64/128-bit WEP, WPA, WPA2, TKIP, AES, WAPI

Operation Temperature Range 0°C - +60°C (ambient)

Storage Temperature Range -20°C - +80°C

Operating Humidity 15% - 95%, non-condensing

Storage Humidity max. 95%, non-condensing

Environment-Friendly Compliance REACH and RoHS

Safety Compliance FCC ID: [NUK-DAUK-W8812](#)
NCC ID: [CCAF16LP1460T0](#)

Ordering Information:

DAUK-
W8812

802.11 ac/a/b/g/n dual-band wifi 2x2 USB module, RTL8812AU-VS

EX-21

6-Pin USB 2.0 header to USB type A extension cable

Wireless radio modules are ESD sensitive, especially the components such as RF switch and the power amplifier. To avoid damage by electrostatic discharge, the following installation procedure is recommended:

- » Touch your hands and the bag or tray containing the radio module to a ground point on the host board (for example one of the mounting holes).
- » Install the radio module in the corresponding socket of host board.
- » Install the pigtail cable in the cutout of the enclosure. This will ground the pigtail to the enclosure.
- » Touch the I-PEX connector of the pigtail to the mounting hole (discharge), then plug onto the radio module.
- » Use external lightning protection for outdoor applications.
- » Make sure all antennas are being connected with the radio module (don't leave I-PEX connector open) before powering on the host device.