

WNFT-237ACN(BT)

802.11ac Wave 2 Compliant with MU-MIMO

2T2R Wi-Fi M.2 Module



Support Multiple Drivers (Android/ Windows/ Linux)

SparkLAN WNFT-237ACN(BT) is an 802.11ac/a/b/g/n Dual -Band Wi-Fi M.2 (Key A,E) module based on Realtek RTL8822CE chipset, **It supports Multiple drivers (Android/ Windows/ Linux) for various platform.**

This module support MU-MIMO two streams on dual band 2.4GHz or 5GHz operating, the data rate up to 867Mbps on ac mode. The WNFT-237ACN(BT) is designed by M.2 2230 slot type form factor.

The WNFT-237ACN(BT) is using highly integrated single-chip MIMO (Multiple In, Multiple Out) wireless local area network (WLAN) RTL8822CE solution to let users enjoy the high digital content through the latest wireless technology without using cables and cords. RTL8822CE combines a WLAN MAC, a 2T2R capable WLAN baseband, and RF in a single chip. WNFT-237ACN(BT) module enables a high performance, cost effective, low power, compact solution that easily fits in the PCI Express and USB M.2 2230 A-E Key module which is Incorporated with advanced security encryption WEP, WPA, WPA2, WPA3, WPS, and 802.1x, it will prevent user's devices from malicious attacks.

Embedded Application

WNFT-237ACN(BT) key applications include:
Tablet/ Notebook/ Advertising machine/ OTT
Box/ IPTV/ DVB/ STB / DV/ IPC/ Mini Driving
Recorder/ Doorbell / Smart TV/ Intelligent
Projector Pico/ VR/ AR terminal/ Wireless
storage/ Printer/ POS machine/ Vehicle mounted
front/ Rear Terminal UAV/ Robot/ Intelligent
Gateway/ Smart city and other consumer

Key Feature

- Support Multiple drivers (Android/Windows/Linux)
- Supports for Simple Pairing (SP) and Enhanced Inquiry Response (EIR) function
- Support 802.11ac 2X2 Wave2 compliant with MU-MIMO
- Wi-Fi Supports Low Power PCIe (w/ L1 substate) interfaces
- Two-stream spatial multiplexing up to 867Mbps data

electronic products.

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WNFT-237ACN(BT)
ver.1.4

Specification

Standards	IEEE 802.11ac/a/b/g/n (2T2R)
Chipset	Realtek RTL8822CE
Data Rate	802.11b: 11Mbps 802.11a/g: 54Mbps 802.11n: MCS0~15 802.11ac: MCS0~9
Operating Frequency	IEEE 802.11ac/a/b/g/n ISM Band, 2.412GHz~2.484GHz, 5.150GHz~5.850GHz *Subject to local regulations
Interface	WLAN: PCIe
Form Factor	M.2 2230-S3-A-E Key
Antenna	2 x IPEX MHF4 connectors Support WLAN/BT co-existence Main: WLAN, Aux: WLAN/ BT
Modulation	Wi-Fi: 802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)
Power Consumption	TX mode (VHT20,11ac): 606mA (Average) RX mode (VHT80,11ac): 302mA (Average)
Operating Voltage	DC 3.3V
Operating Temperature Range	0°C~70°C
Storage Temperature Range	-40°C~80°C
Humidity (Non-Condensing)	5%~90% (Operating) 5%~90% (Storing)
Dimension L x W x H (in mm)	30mm(±0.15mm) x 22mm(±0.15mm) x 2.15mm(±0.3mm)
Weight (g)	2.5g
Driver Support	Win10, Linux, Android
Security	64/128-bits WEP, WPA, WPA2, WPA3, 802.1x

OUTPUT POWER & SENSITIVITY
802.11b

Data Rate	Tx \pm 2dBm	Rx Sensitivity
11Mbps	18dBm	\leq -85dBm

802.11g

Data Rate	Tx \pm 2dBm	Rx Sensitivity
54Mbps	17dBm	\leq -74dBm

802.11n / 2.4GHz

	Data Rate	Tx \pm 2dBm (1TX)	Tx \pm 2dBm (2TX)	Rx Sensitivity
HT20	MCS7	16dBm	19dBm	\leq -70dBm
	MCS7	16dBm	19dBm	\leq -67dBm

802.11a

Data Rate	Tx \pm 2dBm	Rx Sensitivity
54Mbps	17dBm	\leq -68dBm

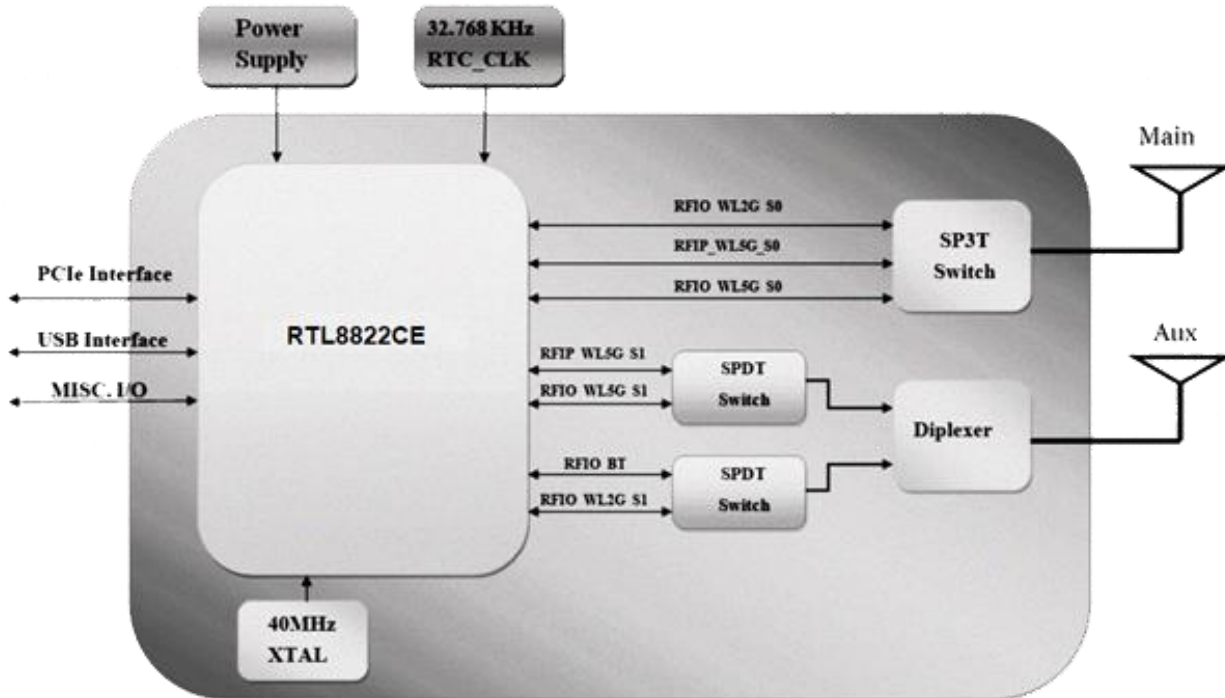
802.11n / 5GHz

	Data Rate	Tx \pm 2dBm (1TX)	Tx \pm 2dBm (2TX)	Rx Sensitivity
HT20	MCS7	16dBm	19dBm	\leq -67dBm
	MCS7	16dBm	19dBm	\leq -64dBm

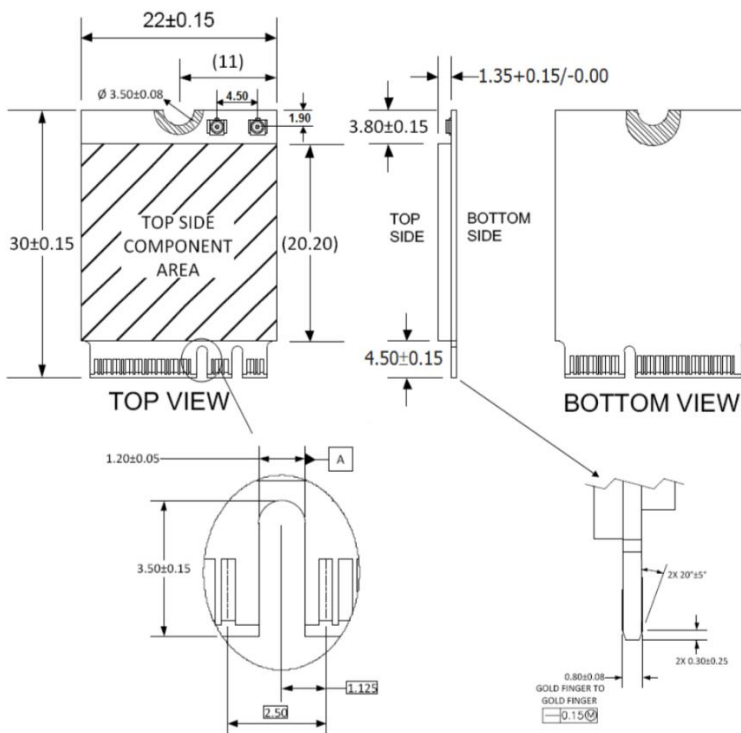
802.11ac

	Data Rate	Tx \pm 2dBm (1TX)	Tx \pm 2dBm (2TX)	Rx Sensitivity
VHT80	MCS9	14dBm	17dBm	\leq -54dBm

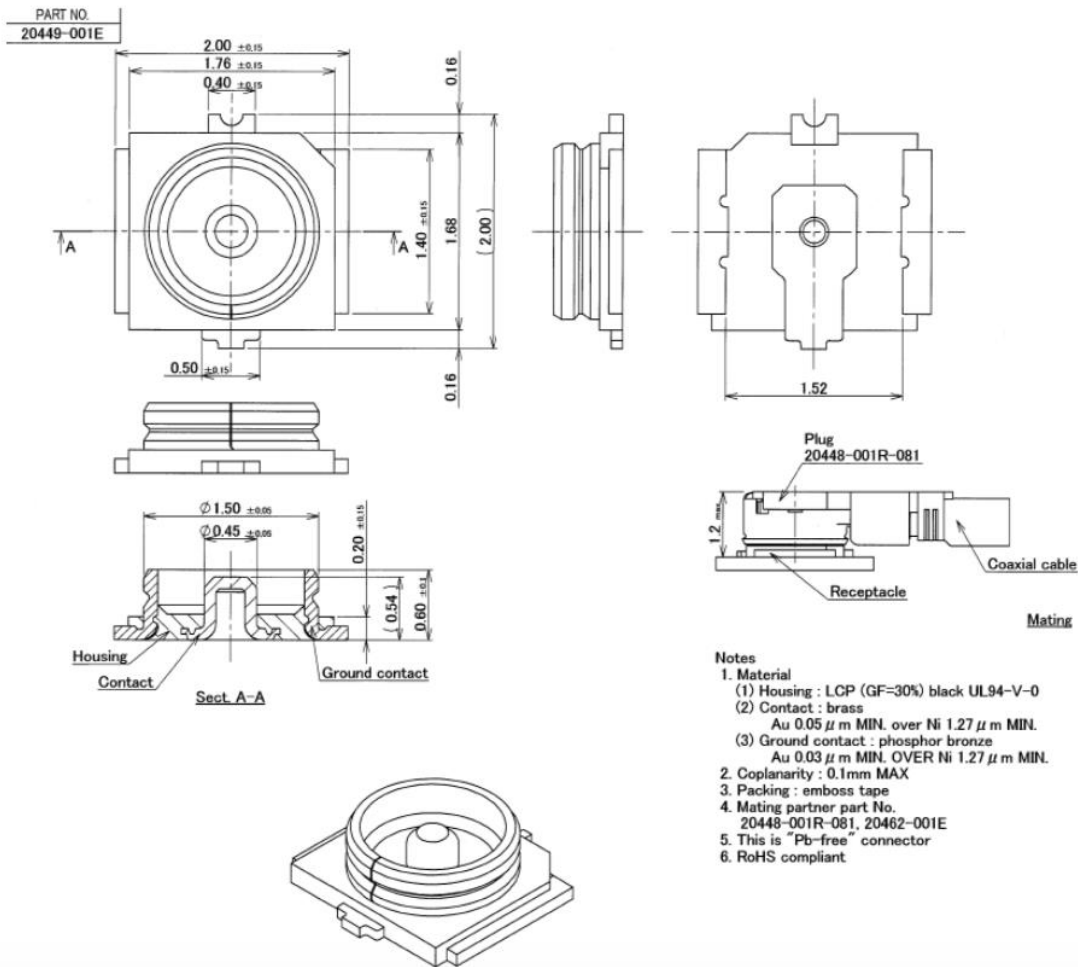
Block Diagram



Mechanical Diagram (mm)



MHF4 Connector spec.



Pin Assignment

Pin#	Pin Name	Description	Pin#	Pin Name	Description
1	GND	GND	2	+3.3V	+3.3V
3	USB_D+	USB_D+	4	+3.3V	+3.3V
5	USB_D-	USB_D-	6	LED_WLAN_L (OPT)	Defined in the PCI Express Mini card specification and it is an open drain, active low signal, used to allow the PCIe Mini Card add-in card to provide status indicators via LED devices that will be provided by the system.
7	GND	GND	8	No Connection	No Connection
9	No Connection	No Connection	10	No Connection	No Connection
11	No Connection	No Connection	12	No Connection	No Connection
13	No Connection	No Connection	14	No Connection	No Connection
15	No Connection	No Connection	16	BT_LED	Status indicators via LED devices that will be provided by the system and it is an open drain.
17	No Connection	No Connection	18	GND	GND
19	No Connection	No Connection	20	No Connection	No Connection
21	No Connection	No Connection	22	No Connection	No Connection
23	No Connection	No Connection	24	No Connection	No Connection
25	No Connection	No Connection	26	No Connection	No Connection
27	No Connection	No Connection	28	No Connection	No Connection
29	No Connection	No Connection	30	No Connection	No Connection
31	No Connection	No Connection	32	No Connection	No Connection
33	GND	GND	34	No Connection	No Connection
35	PERp0	PCI Express x1 data interface: one differential receive pair	36	No Connection	No Connection
37	PERn0	PCI Express x1 data interface: one differential receive pair	38	No Connection	No Connection
7	GND	GND	8	No Connection	No Connection
9	No Connection	No Connection	10	No Connection	No Connection
39	GND	GND	40	Reserved	-
41	PETp0	PCI Express x1 data interface: one differential transmit pair	42	Reserved	-

Pin Assignment

Pin#	Pin Name	Description	Pin#	Pin Name	Description
43	PETn0	PCI Express x1 data interface: one differential transmit pair	44	COEX3_ACTIVE (OPT)	No Connection
45	GND	GND	46	COEX2_PRI(OPT)	No Connection
47	REFCLK+	Input signal for PCI Express differential reference clock (100 MHz)	48	COEX1_SYNC (OPT)	No Connection
49	REFCLK-	Input signal for PCI Express differential reference clock (100 MHz)	50	SUSCLK(OPT)	32.768 kHz clock supply input that is provided by PCH to reduce power and cost for the module. SUSCLK will have a duty cycle that can be as low as 30% or as high as 70% 200ppm.
51	GND	GND	52	PERST_L	Input signal for functional reset to the card
53	CLKREQ_L	Output for reference clock request signal	54	BT_DISABLE_L (OPT)	Input and active low signal. This signal is used by the system to disable radio operation on add-in cards that implement radio frequency applications. When implemented, this signal requires a pull-up resistor on the card
55	WAKE_L (OPT)	Output and open Drain active Low signal. This signal is used to request that the system return from a sleep/suspended state to service a function initiated wake event.	56	W_DISABLE_L (OPT)	Input and active low signal. This signal is used by the system to disable radio operation on add-in cards that implement radio frequency applications. When implemented, this signal requires a pull-up resistor on the card
57	GND	GND	58	No Connection	No Connection
59	Reserved	-	60	No Connection	No Connection
61	Reserved	-	62	No Connection	No Connection
63	GND	GND	64	No Connection	No Connection

Pin Assignment

Pin#	Pin Name	Description	Pin#	Pin Name	Description
65	Reserved	-	66	Reserved	-
67	Reserved	-	68	Reserved	-
69	GND	GND	70	Reserved	-
71	Reserved	-	72	+3.3V	+3.3V
73	Reserved	-	74	+3.3V	+3.3V
75	GND	GND			

*NA→No active

*OPT →Optional

(This is optional as the function may or may not work under all platform configurations, to ensure this product performs the feature you need, please contact our Sales first with your platform design and configuration details before implementing layout design.)

Certification

Dipole Ant.

- | | |
|---|--|
| <input checked="" type="checkbox"/> FCC | <input checked="" type="checkbox"/> CE (RED EN 300 328 V2.1.1 / EN 301 893 V2.1.1) |
| <input checked="" type="checkbox"/> IC | <input checked="" type="checkbox"/> MIC |
| <input type="checkbox"/> NCC | <input checked="" type="checkbox"/> ASNZS |

Ordering Information

Product Name	Part Number	Description
WNFT-237ACN(BT)	R9701810009	802.11ac/b/g/n Wi-Fi + BT M.2 Card, RTL8822CE,2T2R 2230

Optional Accessory

Product Name	Part Number	Description
CBIRF-NE150	R3470300025	RF Cable, I-PEXMHF4 to RP-SMA(F); L150mm; Coaxial 0.81 Black
CBIRF-NE250	R3470300026	RF Cable, I-PEXMHF4 to RP-SMA(F); L250mm; Coaxial 0.81 Black