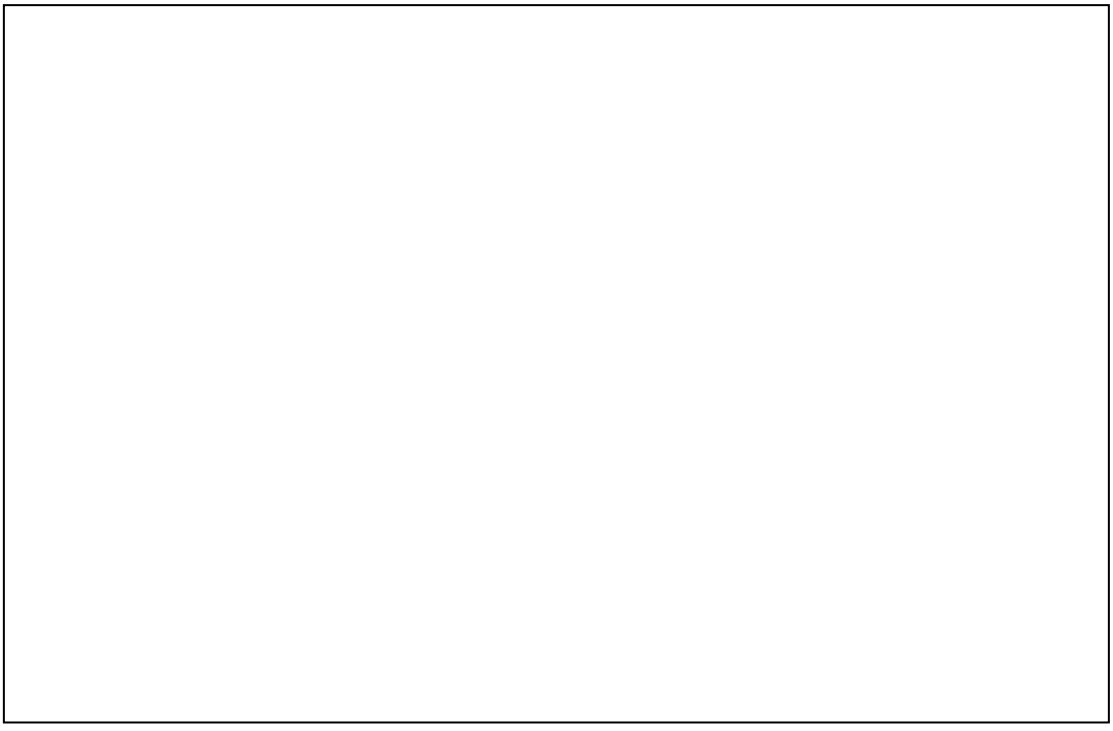
Date: 2016/08/01

Delivery Specifications

Product Description	802.11a/b/g/n WLAN/Bluetooth 4.1LE Combo Module
Customer Part Number	098001403080
WNC Part Number	91DHUR13.G21
WNC Model Name	DHUR-W32
Issue Version :	V1.4
Manufacturer	Wistron NeWeb Corporation (WNC) Address: 20 Park Avenue II Road, Hsinchu Science Park, Hsinchu 308, Taiwan, R.O.C. (ZIP Code: 308) Tel: +886-3-666-7799
Production Factory	Wistron NeWeb (Kunshan) Corporation Address: 789 Yujinxiang Road, Comprehensive Free Trade Zone, Kunshan City, Jiangsu Province, P.R.C (ZIP Code: 215300) Tel: 0086-512-5772-2688
Production Country	People's Republic of China
PO Reception & Invoice Release Company	ANC holding Corporation P.O. Box 3152, Road Town, Tortola, British Virgin Islands



Revision History

Version	Change history	Date
V1.0	Initial version	2016/07/15
V1.1	Add/modify some items, page.1, 4, 5, 17, 18, 22~29	2016/07/18
V1.2	Modify mainchip PN	2016/07/19
V1.3	Add module label and packing information	2016/07/20
V1.4	Update packing information	2016/08/01

Contents

1. Product Introduction

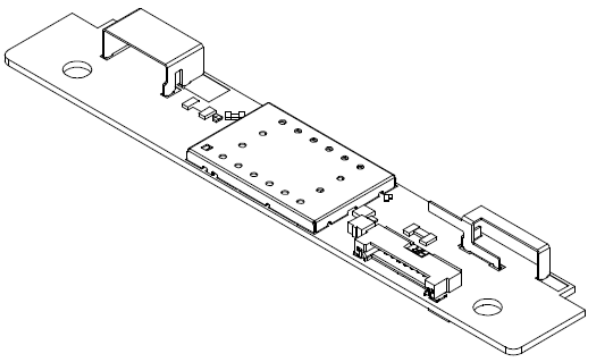
DHUR-W32 is a 802.11 a/b/g/n WLAN/Bluetooth Combo Module which compliant with IEEE802.11n standard supports 2x2 ac/a/b/g/n MIMO technology with data rate from MCS 0-15 in 20MHz/40MHz Channels, and BT4.1 LE specifications.

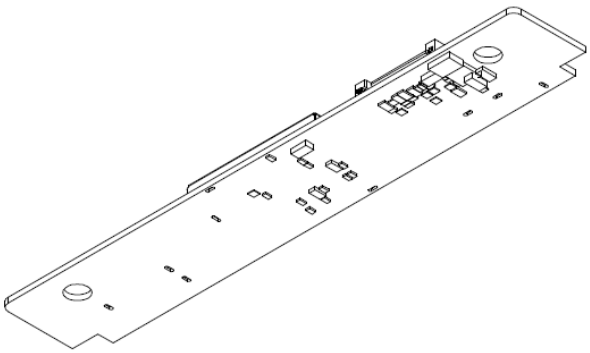
Features

- Full IEEE 802.11 a/b/g/n legacy compatibility with enhanced performance
- Dual-stream spatial multiplexing up to 300 Mbps data rate, supports 20 and 40 channels with optional SGI (256 QAM modulation)
- Complies with Bluetooth Core Specification Version 4.1 + EDR with provisions for supporting future specifications
- Bluetooth class 1 or class 2 transmitter operation
- Wake on WLAN and Bluetooth function
- Double-side SMT process
- Two on-board metal antennas

Interfaces and Power supply

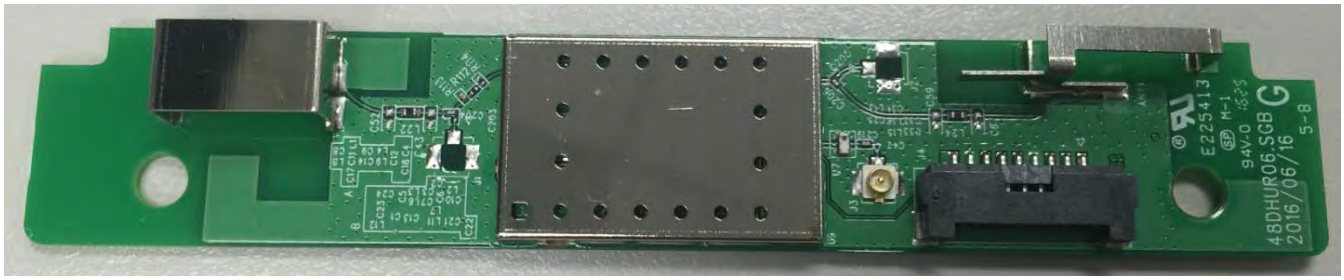
- WLAN / Bluetooth RF interface
- 5V supply voltage
- 9 pins I/O connector



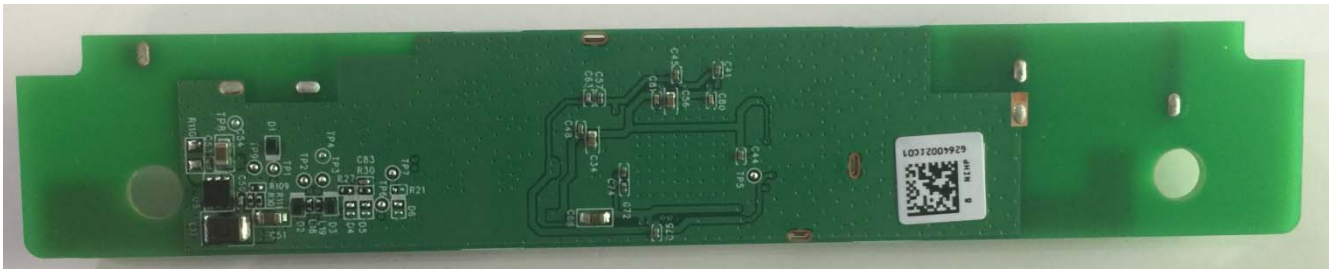


2. Product Photograph

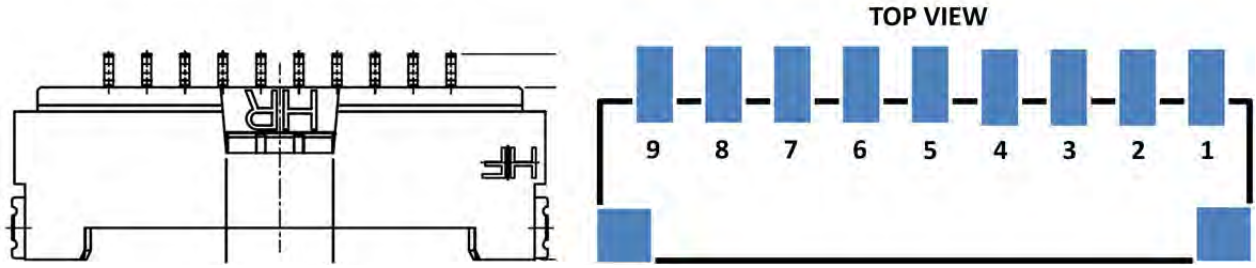
Top side



Bottom side



4. I/O Pin Definition



Pin Number	Pin Name	Pin Type	Description
1	+5V	Power	+5V Power Supply
2	USB_D-	I/O	USB_N
3	USB_D+	I/O	USB_P
4	GND	GND	GND
5	Reset	I	Reset
6	WoWLAN	O	WLAN Wake up
7	WoBT	O	BT Wake up
8	GND	GND	GND
9	+5V	Power	+5V Power Supply

Connector dimension, please refer to Chapter 8.1

5. Product Specification

5.1 WiFi portion

Item	Key specifications
Main chipset	Mediatek MT7632TUN
TX/RX	2T2R
Frequency range	2.400 ~ 2.497GHz,5.15GHz ~ 5.85GHz
Modulation technique	➢ **802.11 a/b/g** DSSS (DBPSK, DQPSK, CCK) OFDM (BPSK, QPSK, 16-QAM, 64-QAM) DSSS (Direct Sequence Spread Spectrum) with DBPSK (Differential Binary Phase Shift Keying 1Mbps), DQPSK (Differential Quaternary Phase Shift Keying 2Mbps), and CCK (Complementary Code Keying 5.5&11Mbps), and OFDM (Orthogonal Frequency Division Multiplexing with BPSK for 6,9Mbps、 QPSK for 12,18Mbps、 16QAM for 24,36Mbps、 64QAM for 48,54Mbps) ➢ **802.11n a/g** OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
Host interface	➢ USB 2.0
Operation voltage	➢ 5V DC +/-9% (including voltage ripple)
Power consumption @25 ^{o} C	TBD *** WiFi in throughput test condition, and measured in PC (Linux) platform.

Output power (for each chain; tolerance +1.5/-1.5 dB)

➢ 802.11a

Test Frequencies	6-12_Target	18_Target	24_Target	36_Target	48_Target	54_Target
5180	14	14	14	14	14	14
5320	14	14	14	14	14	14
5500	14	14	14	14	14	14
5600	14	14	14	14	14	14
5700	14	14	14	14	14	14
5825	14	14	14	14	14	14

➢ 802.11b

Test Frequencies	1/2_Target	5.5_Target	11_Target
2412	15	15	15
2442	15	15	15
2474	15	15	15

➢ 802.11g

Test Frequencies	6-12_Target	18_Target	24_Target	36_Target	48_Target	54_Target
2412	14	14	14	14	14	14
2442	14	14	14	14	14	14
2472	14	14	14	14	14	14

➢ 802.11n

Freq. Range: HT20

Test Freq	MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7
5180	12	12	12	12	12	12	12	12
5240	12	12	12	12	12	12	12	12
5320	12	12	12	12	12	12	12	12
5500	12	12	12	12	12	12	12	12
5700	12	12	12	12	12	12	12	12
5745	12	12	12	12	12	12	12	12
5825	12	12	12	12	12	12	12	12

Freq. Range: HT40

Test Freq	MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7
5190	12	12	12	12	12	12	12	12
5230	12	12	12	12	12	12	12	12
5270	12	12	12	12	12	12	12	12
5510	12	12	12	12	12	12	12	12
5670	12	12	12	12	12	12	12	12
5755	12	12	12	12	12	12	12	12
5795	12	12	12	12	12	12	12	12

Freq. Range: HT20

Test Freq	MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7
2412	14	14	14	14	14	14	14	14
2442	14	14	14	14	14	14	14	14
2472	14	14	14	14	14	14	14	14

Freq. Range: HT40

Test Freq	MCS 0	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7
2422	13	13	13	13	13	13	13	13
2442	13	13	13	13	13	13	13	13
2462	13	13	13	13	13	13	13	13

EVM

The transmit modulation accuracy is measured using error vector magnitude (EVM).
EVM is the magnitude of the phase difference as a function of time between an ideal reference signal and the measured transmitted signal.

➢ **802.11a**

Modulation	Code Rate	Relative constellation error (dB) IEEE Spec (1Tx dB)	Relative constellation error (dB) Typical (1Tx dB)
BPSK	1/2	-5	-15
BPSK	3/4	-8	-18

QPSK	1/2	-10	-20
QPSK	3/4	-13	-22
16-QAM	1/2	-16	-24
16-QAM	3/4	-19	-26
64-QAM	2/3	-22	-28
64-QAM	3/4	-25	-30

- **802.11b**

Modulation	Code Rate	Relative constellation error (dB) IEEE Spec (1Tx dB)	Relative constellation error (dB) Typical (1Tx dB)
DBPSK		-10	-12
DQPSK		-10	-12
CCK		-10	-12

- **802.11g**

Modulation	Code Rate	Relative constellation error (dB) IEEE Spec (1Tx dB)	Relative constellation error (dB) Typical (1Tx dB)
BPSK	1/2	-5	-15
BPSK	3/4	-8	-18
QPSK	1/2	-10	-20
QPSK	3/4	-13	-22
16-QAM	1/2	-16	-24
16-QAM	3/4	-19	-26
64-QAM	2/3	-22	-28
64-QAM	3/4	-25	-30

- **802.11ng（HT20）**

Modulation	Code Rate	Relative constellation error (dB) IEEE Spec (1Tx dB)	Relative constellation error (dB) Typical (1Tx dB)
(MCS0) BPSK	1/2	-5	-15
(MCS1) QPSK	1/2	-10	-18
(MCS2) QPSK	3/4	-13	-20
(MCS3) 16-QAM	1/2	-16	-22
(MCS4) 16-QAM	3/4	-19	-24
(MCS5) 64-QAM	2/3	-22	-26
(MCS6) 64-QAM	3/4	-25	-28
(MCS7) 64-QAM	5/6	-27	-30

（HT40）

Modulation	Code Rate	Relative constellation error (dB) IEEE Spec (1Tx dB)	Relative constellation error (dB) Typical (1Tx dB)
(MCS0) BPSK	1/2	-5	-15
(MCS1) QPSK	1/2	-10	-18
(MCS2) QPSK	3/4	-13	-20
(MCS3) 16-QAM	1/2	-16	-22
(MCS4) 16-QAM	3/4	-19	-24
(MCS5) 64-QAM	2/3	-22	-26
(MCS6) 64-QAM	3/4	-25	-28
(MCS7) 64-QAM	5/6	-27	-30

- **802.11na（HT20）**

Modulation	Code Rate	Relative constellation error (dB) IEEE Spec (1Tx dB)	Relative constellation error (dB) Typical (1Tx dB)
(MCS0) BPSK	1/2	-5	-15
(MCS1) QPSK	1/2	-10	-18
(MCS2) QPSK	3/4	-13	-20
(MCS3) 16-QAM	1/2	-16	-22
(MCS4) 16-QAM	3/4	-19	-24
(MCS5) 64-QAM	2/3	-22	-26
(MCS6) 64-QAM	3/4	-25	-28
(MCS7) 64-QAM	5/6	-27	-30

（HT40）

Modulation	Code Rate	Relative constellation error (dB) IEEE Spec (1Tx dB)	Relative constellation error (dB) Typical (1Tx dB)
(MCS0) BPSK	1/2	-5	-15
(MCS1) QPSK	1/2	-10	-18
(MCS2) QPSK	3/4	-13	-20
(MCS3) 16-QAM	1/2	-16	-22
(MCS4) 16-QAM	3/4	-19	-24
(MCS5) 64-QAM	2/3	-22	-26
(MCS6) 64-QAM	3/4	-25	-28
(MCS7) 64-QAM	5/6	-27	-30

Sensitivity

- **802.11a**

Modulation	Code Rate	IEEE Spec (1Rx dBm)	Typical (1Rx dBm)
BPSK	1/2	-82	-88
BPSK	3/4	-81	-86
QPSK	1/2	-79	-84
QPSK	3/4	-77	-82
16-QAM	1/2	-74	-78
16-QAM	3/4	-70	-76
64-QAM	2/3	-66	-72
64-QAM	3/4	-65	-70

- **802.11b**

Modulation	Code Rate	IEEE Spec (1Rx dBm)	Typical (1Rx dBm)
DBPSK		not specified	-92
DQPSK		not specified	-90
CCK		not specified	-86

- **802.11g**

Modulation	Code Rate	IEEE Spec (1Rx dBm)	Typical (1Rx dBm)
BPSK	1/2	-82	-90
BPSK	3/4	-81	-88
QPSK	1/2	-79	-86
QPSK	3/4	-77	-84
16-QAM	1/2	-74	-82
16-QAM	3/4	-70	-78
64-QAM	2/3	-66	-74
64-QAM	3/4	-65	-72

- **802.11ng（HT20）**

Modulation	Code Rate	IEEE Spec (1Rx dBm)	Typical (1Rx dBm)
(MCS0) BPSK	1/2	-82	-88
(MCS1) QPSK	1/2	-79	-86
(MCS2) QPSK	3/4	-77	-82
(MCS3) 16-QAM	1/2	-74	-80
(MCS4) 16-QAM	3/4	-70	-76
(MCS5) 64-QAM	2/3	-66	-73
(MCS6) 64-QAM	3/4	-65	-71
(MCS7) 64-QAM	5/6	-64	-69

（HT40）

Modulation	Code Rate	IEEE Spec (1Rx dBm)	Typical (1Rx dBm)
(MCS0) BPSK	1/2	-79	-86
(MCS1) QPSK	1/2	-76	-82
(MCS2) QPSK	3/4	-74	-80
(MCS3) 16-QAM	1/2	-71	-77
(MCS4) 16-QAM	3/4	-67	-74
(MCS5) 64-QAM	2/3	-63	-69
(MCS6) 64-QAM	3/4	-62	-68
(MCS7) 64-QAM	5/6	-61	-66

<table>
<tr><td></td><td>

➢ 802.11na（HT20）

Modulation	Code Rate	IEEE Spec (1Rx dBm)	Typical (1Rx dBm)
(MCS0) BPSK	1/2	-82	-86
(MCS1) QPSK	1/2	-79	-84
(MCS2) QPSK	3/4	-77	-82
(MCS3) 16-QAM	1/2	-74	-80
(MCS4) 16-QAM	3/4	-70	-77
(MCS5) 64-QAM	2/3	-66	-71
(MCS6) 64-QAM	3/4	-65	-70
(MCS7) 64-QAM	5/6	-64	-69

（HT40）

Modulation	Code Rate	IEEE Spec (1Rx dBm)	Typical (1Rx dBm)
(MCS0) BPSK	1/2	-79	-84
(MCS1) QPSK	1/2	-76	-80
(MCS2) QPSK	3/4	-74	-78
(MCS3) 16-QAM	1/2	-71	-75
(MCS4) 16-QAM	3/4	-67	-71
(MCS5) 64-QAM	2/3	-63	-67
(MCS6) 64-QAM	3/4	-62	-66
(MCS7) 64-QAM	5/6	-61	-64

</td></tr>
<tr><td>Transmit spectrum mask</td><td>For transmitted spectral mask for 11b shall be less than –50dBr for 22MHz<f<fc+22MHz.
For transmitted spectral mask for 11g shall be less than –40dBr for fc–30MHz<f<fc+30MHz.
For transmitted spectral mask for 11n 20MHz shall be less than –45dBr for fc–30MHz<f<fc+30MHz.
For transmitted spectral mask for 11n 40MHz shall be less than –45dBr for fc–60MHz<f<fc+60MHz.</td></tr>
<tr><td>Transmit spectrum flatness</td><td>For 802.11g the average energy of the constellations in each of spectral lines –16..-1 and +1..+16 will deviate no more than +/- 2dB from their average energy.
For 802.11n 40MHz mode, the average energy of the constellations in each of spectral lines –42..-2 and +2..+42 will deviate no more than +/- 2dB from their average energy.
The transmitted spectral flatness should be with in +2/- 4dB.</td></tr>
<tr><td>Transmit center frequency tolerance</td><td>The transmitted center frequency tolerance shall be ±20 ppm maximum.</td></tr>
<tr><td>Carrier suppression</td><td>802.11a:
The leakage of the center frequency component shall not exceed -15 dB relative to overall transmitted power or, equivalently, +2 dB relative to the average energy of the rest of the sub-carriers.
802.11b:
The RF carrier suppression, measured at the channel center frequency, shall be at least 15 dB below the peak SIN(x)/x power spectrum.
802.11g:
The leakage of the center frequency component shall not exceed -15 dB relative to overall transmitted power or, equivalently, +2 dB relative to the average energy of the rest of the sub-carriers.
802.11n:
For all 20 MHz modes of transmission
The leakage of the center frequency component shall not exceed -15 dB relative to overall transmitted power or, equivalently, +2 dB relative to the average energy of the rest of the sub-carriers.
For all 40 MHz modes of transmission
The center frequency leakage shall not exceed -18 dB relative to overall transmitted power, or, equivalently, +2 dB relative to the average energy of the rest of the sub-carriers.</td></tr>
<tr><td>Transmit power on ramp and power down ramp time</td><td>➢ The transmitting power-on ramp for 10% to 90% of maximum power m shall be no greater than 2 µs.
➢ The transmitting power-down ramp for 90% to 10% of maximum power shall be no greater than 2 µs.</td></tr>
<tr><td>Receiver maximum</td><td>➢ 802.11a
Modulation Code Rate IEEE Spec (1Rx dBm)</td></tr>
</table>

input level	>-30 ➢ 802.11b Modulation — IEEE Spec (1Rx dBm) DBPSK — >-10 DQPSK — >-10 CCK — >-10 ➢ 802.11g Modulation — Code Rate — IEEE Spec (1Rx dBm) >-20 ➢ 802.11na Modulation — Code Rate — IEEE Spec (1Rx dBm) >-30 ➢ 802.11ng Modulation — Code Rate — IEEE Spec (1Rx dBm) >-20
PCB dimension	➢ 100+/-0.2.mm x 17.00+/-0.2mm x 1.0+/-0.1mm 4L FR4
Transfer data rate	➢ 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps ➢ 802.11b: 1, 2, 5.5, 11Mbps ➢ 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps ➢ 802.11n: @800GI(400GI) ● 20MHz BW ▪ 1 Nss: 65(72.2) Mbps maximal ▪ 2 Nss: 130(144.444) Mbps maximal ● 40MHz BW ▪ 1 Nss: 135(150) Mbps maximal ▪ 2 Nss: 270(300) Mbps maximal
Security	WEP, WPA ,WPA2 ,AES, TKIP
Operation temperature	-10° ~ 60° C
Storage temperature	-35° ~ 70° C ,R.H:90%
Antenna	2 on-board antennas
PID/VID	PID: 76A1, VID: 0E8D

5.2 BT portion

<table>
<tr><th>Item</th><th>Key specifications</th></tr>
<tr><td>Main chipset</td><td>➢ Mediatek MT7632TUN</td></tr>
<tr><td>Compliance</td><td>➢ Bluetooth v4.1 LE</td></tr>
<tr><td>Frequency range</td><td>➢ 2402 ~ 2480MHz</td></tr>
<tr><td>Initial carrier frequency tolerance</td><td>➢ +/- 20kHz (typical)</td></tr>
<tr><td>Modulation technique</td><td>➢ Frequency hopping, 1600 hops/sec</td></tr>
<tr><td>Channel spacing</td><td>➢ 1MHz</td></tr>
<tr><td>Channels support</td><td>➢ 79 channels</td></tr>
<tr><td>Operation voltage</td><td>➢ 5V +/-9% (including voltage ripple)</td></tr>
<tr><td>Power consumption @25° C</td><td>TBD
<table>
<tr><td></td><td>Avg (mA)</td><td>Max (mA)</td></tr>
<tr><td>Idle mode</td><td></td><td></td></tr>
<tr><td>Continuous DH5 TX</td><td></td><td></td></tr>
<tr><td>Continuous 2DH5 TX</td><td></td><td></td></tr>
<tr><td>Continuous 3DH5 TX</td><td></td><td></td></tr>
<tr><td>Inquiry Scan</td><td></td><td></td></tr>
</table>
Note：
1. The WLAN core is in reset (WLAN_REG_ON=low) for all measurement.
2. BT for common usb (WiFi idle), and measured in PC (WIN7) platform.</td></tr>
<tr><td>Output power (dBm)</td><td>➢ Class 1, BT output power is adjusted by FW .</td></tr>
<tr><td>Sensitivity</td><td>➢ -80 dBm (typ.) for pi/4-DQPSK, 0.1%BER</td></tr>
<tr><td>Operation temperature</td><td>➢ -10° ~ 60° C</td></tr>
<tr><td>Storage temperature</td><td>➢ -35° ~ 70° C , R.H. : 90%</td></tr>
<tr><td>Antenna</td><td>➢ 1 I-PEX connector for external antenna</td></tr>
<tr><td>PID/VID</td><td>➢ PID: 76A1, VID: 0E8D</td></tr>
</table>

5.3 EEPROM Information

5.3.1 WiFi Information

- WiFi MAC Address
- PA parameter
- Vendor ID
- Product ID

5.3.2 BT Information

- BT MAC Address
- Vendor ID
- Product ID

FCC Statement:
FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

IMPORTANT NOTE:
FCC Radiation Exposure Statement:
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

IMPORTANT NOTE:
This module is intended for OEM integrator. The OEM integrator is responsible for the compliance to all the rules that apply to the product into which this certified RF module is integrated.
Additional testing and certification may be necessary when multiple modules are used.

USERS MANUAL OF THE END PRODUCT:
In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied.

The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

If the labelling area is small than the palm of the hand, then additional FCC part 15.19 statement is required to be available in the users manual: This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

LABEL OF THE END PRODUCT:
The final end product must be labeled in a visible area with the following " Contains TX FCC ID: NKR-DHURW32 ".
If the labelling area is larger than the palm of the hand, then the following FCC part 15.19 statement has to also be available on the label: This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

Ant.	Brand	Part Number	Antenna Type	Connector	Gain (dBi)	
					WLAN 2.4GHz	WLAN 5GHz

Ant.	Brand	Part Number	Antenna Type	Connector	Gain (dBi)	
					WLAN 2.4GHz	WLAN 5GHz
1	WNC	3ADHUBW69S2-111	PIFA Antenna	N/A	2.04	4.95
2	WNC	3ADHUAW08S1-111	PIFA Antenna	N/A	2.37	6.52
Ant.	**Brand**	**Part Number**	**Antenna Type**	**Connector**	**Gain (dBi)**	
					Bluetooth	
3	WNC	81.EEW15.GM3	PIFA Antenna	I-PEX	-1.39	
4	WNC	81.EEW15.GM4	PIFA Antenna	I-PEX	-1.99	

IC Statement:

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

Pour les produits disponibles aux États-Unis / Canada du marché, seul le canal 1 à 11 peuvent être exploités. Sélection d'autres canaux n'est pas possible.

This device and its antenna(s) must not be co-located with any other transmitters except in accordance with IC multi-transmitter product procedures.
Referring to the multi-transmitter policy, multiple-transmitter(s) and module(s) can be operated simultaneously without reassessment permissive change.
Cet appareil et son antenne (s) ne doit pas être co-localisés ou fonctionnement en association avec une autre antenne ou transmetteur.

This radio transmitter (IC: 4441A-DHURW32) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.
*Le présent émetteur radio (*IC: 4441A-DHURW32*) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.*

Dynamic Frequency Selection (DFS) for devices operating in the bands 5250- 5350 MHz, 5470-5600 MHz and 5650-5725 MHz.
Sélection dynamique de fréquences (DFS) pour les dispositifs fonctionnant dans les bandes 5250-5350 MHz, 5470-5600 MHz et 5650-5725 MHz.

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.
les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

The maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit.
le gain maximal d'antenne permis pour les dispositifs utilisant les bandes 5250-5350 MHz et 5470-5725 MHz doit se conformer à la limite de p.i.r.e.

The maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate.
le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5725-5850 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non point à point, selon le cas.

For indoor use only.
Pour une utilisation en intérieur uniquement.

IMPORTANT NOTE:
IC Radiation Exposure Statement:
This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.
Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un

environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20

cm de distance entre la source de rayonnement et votre corps.

IMPORTANT NOTE:
This module is intended for OEM integrator. The OEM integrator is responsible for the compliance to all the rules that apply to the product into which this certified RF module is integrated.
Additional testing and certification may be necessary when multiple modules are used.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

USERS MANUAL OF THE END PRODUCT:
In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the IC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied.

The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. Operation is subject to the following two conditions: (1) this device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

LABEL OF THE END PRODUCT:

The final end product must be labeled in a visible area with the following " Contains IC: 4441A-DHURW32".

The Host Model Number (HMN) must be indicated at any location on the exterior of the end product or product packaging or product literature which shall be available with the end product or online.

Ant.	Brand	Part Number	Antenna Type	Connector	Gain (dBi)	
					WLAN 2.4GHz	WLAN 5GHz
1	WNC	3ADHUBW69S2-111	PIFA Antenna	N/A	2.04	4.95
2	WNC	3ADHUAW08S1-111	PIFA Antenna	N/A	2.37	6.52
Ant.	**Brand**	**Part Number**	**Antenna Type**	**Connector**	**Gain (dBi)**	
					Bluetooth	
3	WNC	81.EEW15.GM3	PIFA Antenna	I-PEX	-1.39	
4	WNC	81.EEW15.GM4	PIFA Antenna	I-PEX	-1.99	