Operational Description

This device is a Notebook Computer, which operates in 2.4GHz band & 5.0GHz band; the maximum data rate could be up to 2402Mbps which OFDM technique. If the signal to noise radio is too poor which could not support 2402Mbps, the 11Mbps data rate with DSSS technique will be applied. The device characteristics see below for reference.

<table>
<tr><td>Model Name</td><td>16T90R, 16TD90R, 16TB90R, 16TG90R, 16T90R*
(* can be 0 to 9 or A to Z or blank denoting buyer request)</td></tr>
<tr><td>Power Supply</td><td>7.74 Vdc (Battery)
5 Vdc / 9Vdc / 15Vdc / 20Vdc (Adapter)</td></tr>
<tr><td>Modulation Technology</td><td>WLAN: DSSS, OFDM, OFDMA
BT: BT EDR: FHSS
BT LE: GFSK</td></tr>
<tr><td>Operating Frequency</td><td>WLAN:
2.4GHz: 2412 ~ 2472MHz
5.0GHz: 5180 ~ 5240MHz
5260 ~ 5320MHz
5500 ~ 5720MHz
5745 ~ 5825MHz
6.0GHz: 5945 ~ 6415MHz
6435 ~ 6525MHz
6525 ~ 6875MHz
6875 ~ 7125MHz
BT EDR: 2402MHz ~ 2480MHz
BT LE 1M& 2M: 2402MHz ~ 2480MHz
(channel list please refer to as below)</td></tr>
<tr><td>Transmitter</td><td>Chip Intel® Raptor Lake-P with 38.4 MHz and 32.768 kHzcrystal</td></tr>
<tr><td>Antenna Type</td><td>2.4GHz&5.0GHz:
NB:
<table>
<tr><th rowspan="2">Ant. Type</th><th rowspan="2">Brand</th><th rowspan="2">Ant.</th><th rowspan="2">Model</th><th colspan="5">Antenna Peak Gain (dBi)</th><th rowspan="2">Connector</th></tr>
<tr><th>2400-2483.5 MHz</th><th>5150-5250 MHz</th><th>5250-5350 MHz</th><th>5470-5725 MHz</th><th>5725-5850 MHz</th></tr>
<tr><td rowspan="4">PIFA</td><td rowspan="2">CHILISIN</td><td>Main</td><td>DQ600111500 (BTEA00111525GC1A01)</td><td>2.76</td><td>0.30</td><td>0.07</td><td>2.87</td><td>0.32</td><td rowspan="2">I-PEX</td></tr>
<tr><td>Aux.</td><td>DQ600111500 (BTEA00111525GC1A01)</td><td>1.02</td><td>2.35</td><td>2.30</td><td>2.07</td><td>0.81</td></tr>
<tr><td rowspan="2">Pulse</td><td>Main</td><td>DQ602119000 (TZ21190)</td><td>2.96</td><td>0.57</td><td>0.57</td><td>3.22</td><td>0.84</td><td rowspan="2">I-PEX</td></tr>
<tr><td>Aux.</td><td>DQ602119000 (TZ21190)</td><td>1.33</td><td>2.77</td><td>2.77</td><td>2.15</td><td>1.39</td></tr>
</table>
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<tr><td rowspan="4">PIFA</td><td rowspan="2">CHILISIN</td><td>Main</td><td>DQ600111500 (BTEA00111525GC1A01)</td><td>2.04</td><td>1.84</td><td>1.53</td><td>0.69</td><td>0.50</td><td rowspan="2">I-PEX</td></tr>
<tr><td>Aux.</td><td>DQ600111500 (BTEA00111525GC1A01)</td><td>1.64</td><td>1.02</td><td>0.78</td><td>1.73</td><td>1.62</td></tr>
<tr><td rowspan="2">Pulse</td><td>Main</td><td>DQ602119000 (TZ21190)</td><td>2.68</td><td>2.38</td><td>1.65</td><td>1.02</td><td>1.11</td><td rowspan="2">I-PEX</td></tr>
<tr><td>Aux.</td><td>DQ602119000 (TZ21190)</td><td>2.42</td><td>1.34</td><td>1.14</td><td>2.38</td><td>2.06</td></tr>
</table>
* The Bluetooth function was fixed on Aux antenna only.
* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.</td></tr>
</table>

6.0GHz:

NB:

Ant. Type	Brand	Ant.	Model	Antenna Peak Gain (dBi)				Connector
				5925-6425 MHz	6425-6525 MHz	6525-6875 MHz	6875-7125 MHz	
PIFA	CHILISIN	Main	DQ600111500 (BTEA00111525GC1A01)	1.00	-1.63	-1.80	-1.85	I-PEX
		Aux.	DQ600111500 (BTEA00111525GC1A01)	1.34	1.83	1.83	0.80	
	Pulse	Main	DQ602119000 (TZ21190)	1.58	-1.33	-1.74	-1.79	I-PEX
		Aux.	DQ602119000 (TZ21190)	1.60	1.97	1.97	1.06	

Tablet:

Ant. Type	Brand	Ant.	Model	Antenna Peak Gain (dBi)				Connector
				5925-6425 MHz	6425-6525 MHz	6525-6875 MHz	6875-7125 MHz	
PIFA	CHILISIN	Main	DQ600111500 (BTEA00111525GC1A01)	-0.08	-0.49	-1.58	-1.63	I-PEX
		Aux.	DQ600111500 (BTEA00111525GC1A01)	2.06	1.27	0.84	0.60	
	Pulse	Main	DQ602119000 (TZ21190)	0.35	0.35	-1.49	-1.49	I-PEX
		Aux.	DQ602119000 (TZ21190)	2.56	1.65	1.03	0.88	

* The worst case (NB mode) with the largest antenna gain was chosen for radiated emission and conducted emission final test.
* The maximum antenna gain for each band were chosen for antenna port conducted final test.
* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

FCC ID: BEJNT-16T90R

WLAN 2.4GHz:

13 channels are provided for 802.11b, 802.11g and 802.11n (HT20):

Channel	Frequency	Channel	Frequency
1	2412MHz	8	2447MHz
2	2417MHz	9	2452MHz
3	2422MHz	10	2457MHz
4	2427MHz	11	2462MHz
5	2432MHz	12	2467MHz
6	2437MHz	13	2472MHz
7	2442MHz		

7 channels are provided for 802.11n (HT40):

Channel	Frequency	Channel	Frequency
3	2422MHz	8	2447MHz
4	2427MHz	9	2452MHz
5	2432MHz	10	
6	2437MHz		
7	2442MHz		

BT:

79 channels are provided for BT EDR mode:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

40 channels are provided for BT LE 1M&2M mode:

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

WLAN 5.0GHz:

FOR 5180 ~ 5320MHz

8 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	52	5260 MHz
40	5200 MHz	56	5280 MHz
44	5220 MHz	60	5300 MHz
48	5240 MHz	64	5320 MHz

4 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	54	5270 MHz
46	5230 MHz	62	5310 MHz

2 channels are provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency	Channel	Frequency
42	5210 MHz	58	5290 MHz

1 straddle channel is provided for 802.11ac (VHT160), 802.11ax (HE160):

Channel	Frequency
50	5250 MHz

FCC ID: BEJNT-16T90R

FOR 5500 ~ 5720MHz

12 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz	144	5720 MHz

6 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz	142	5710 MHz

3 channels are provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	138	5690 MHz
122	5610 MHz		

1 straddle channel is provided for 802.11ac (VHT160), 802.11ax (HE160):

Channel	Frequency
114	5570MHz

FOR 5745 ~ 5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

FOR 5925 ~ 6425MHz (U-NII-5 band)

24 channels are provided for 802.11a, 802.11ax (HE20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	5955 MHz	5	5975 MHz	9	5995 MHz	13	6015 MHz
17	6035 MHz	21	6055 MHz	25	6075 MHz	29	6095 MHz
33	6115 MHz	37	6135 MHz	41	6155 MHz	45	6175 MHz
49	6195 MHz	53	6215 MHz	57	6235 MHz	61	6255 MHz
65	6275 MHz	69	6295 MHz	73	6315 MHz	77	6335 MHz
81	6355 MHz	85	6375 MHz	89	6395 MHz	93	6415 MHz

12 channels are provided for 802.11ax (HE40):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
3	5965 MHz	11	6005 MHz	19	6045 MHz	27	6085 MHz
35	6125 MHz	43	6165 MHz	51	6205 MHz	59	6245 MHz
67	6285 MHz	75	6325 MHz	83	6365 MHz	91	6405 MHz

6 channel is provided for 802.11ax (HE80):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
7	5985 MHz	23	6065 MHz	39	6145 MHz	55	6225 MHz
71	6305 MHz	87	6385 MHz				

FOR 6425 ~ 6525MHz (U-NII-6 band)

5 channels are provided for 802.11a, 802.11ax (HE20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
97	6435 MHz	101	6455 MHz	105	6475 MHz	109	6495 MHz
113	6515 MHz						

3 channels are provided for 802.11ax (HE40):

Channel	Frequency	Channel	Frequency	Channel	Frequency
99	6445 MHz	107	6485 MHz	*115	6525 MHz

2 channel is provided for 802.11ax (HE80):

Channel	Frequency	Channel	Frequency
103	6465 MHz	*119	6545 MHz

FOR 6525 ~ 6875MHz (U-NII-7 band)

18 channels are provided for 802.11a, 802.11ax (HE20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
117	6535 MHz	121	6555 MHz	125	6575 MHz	129	6595 MHz
133	6615 MHz	137	6635 MHz	141	6655 MHz	145	6675 MHz
149	6695 MHz	153	6715 MHz	157	6735 MHz	161	6755 MHz
165	6775 MHz	169	6795 MHz	173	6815 MHz	177	6835 MHz
181	6855 MHz	*185	6875 MHz				

9 channels are provided for 802.11ax (HE40):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
123	6565 MHz	131	6605 MHz	139	6645 MHz	147	6685 MHz
155	6725 MHz	163	6765 MHz	171	6805 MHz	179	6845 MHz
*187	6885 MHz						

4 channels are provided for 802.11ax (HE80):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
135	6625 MHz	151	6705 MHz	167	6785 MHz	*183	6865 MHz

FOR 6875 ~ 7125MHz (U-NII-8 band):

12 channels are provided for 802.11a, 802.11ax (HE20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
189	6895 MHz	193	6915 MHz	197	6935 MHz	201	6955 MHz
205	6975 MHz	209	6995 MHz	213	7015 MHz	217	7035 MHz
221	7055 MHz	225	7075 MHz	229	7095 MHz	233	7115 MHz

5 channels are provided for 802.11ax (HE40):

Channel	Frequency	Channel	Frequency	Channel	Frequency
195	6925 MHz	203	6965 MHz	211	7005 MHz
219	7045 MHz	227	7085 MHz		

2 channel is provided for 802.11ax (HE80):

Channel	Frequency	Channel	Frequency
199	6945 MHz	215	7025 MHz

Note: * mean this's straddle channel.

FCC 15.407(c) states: “The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met”

Data transmission is always initiated by software, which is then pass down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets (ACKs, CTS, PSPoll, etc…) are initiated by the MAC. There are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets are being transmitted.

U-NII 6 GHz devices operating in the 5.925-7.125 GHz band:

Device is an indoor client that operates solely under the control of a low power indoor access point. Please see the declaration letter exhibit supplied within this application for Grantee’s declaration of compliance with all 5.925-7.125 GHz band operational restrictions.

All devices sold/marketed to the United States will have the country element set to “U.S.” by default and is not modifiable by any third-party.

The other instruction, please have a look at the user’s manual.