

17Z90TP, 17ZB90TP, 17ZD90TP, 17ZG90TP is 17" Notebook Computer embedded with Intel BE201D2W, it supports the following radio technologies:

- 802.11abgn+ac+axR2+axR2(Pre-Standard) MIMO 2x2 – Supports Wi-Fi 6
- Bluetooth\* 5.3

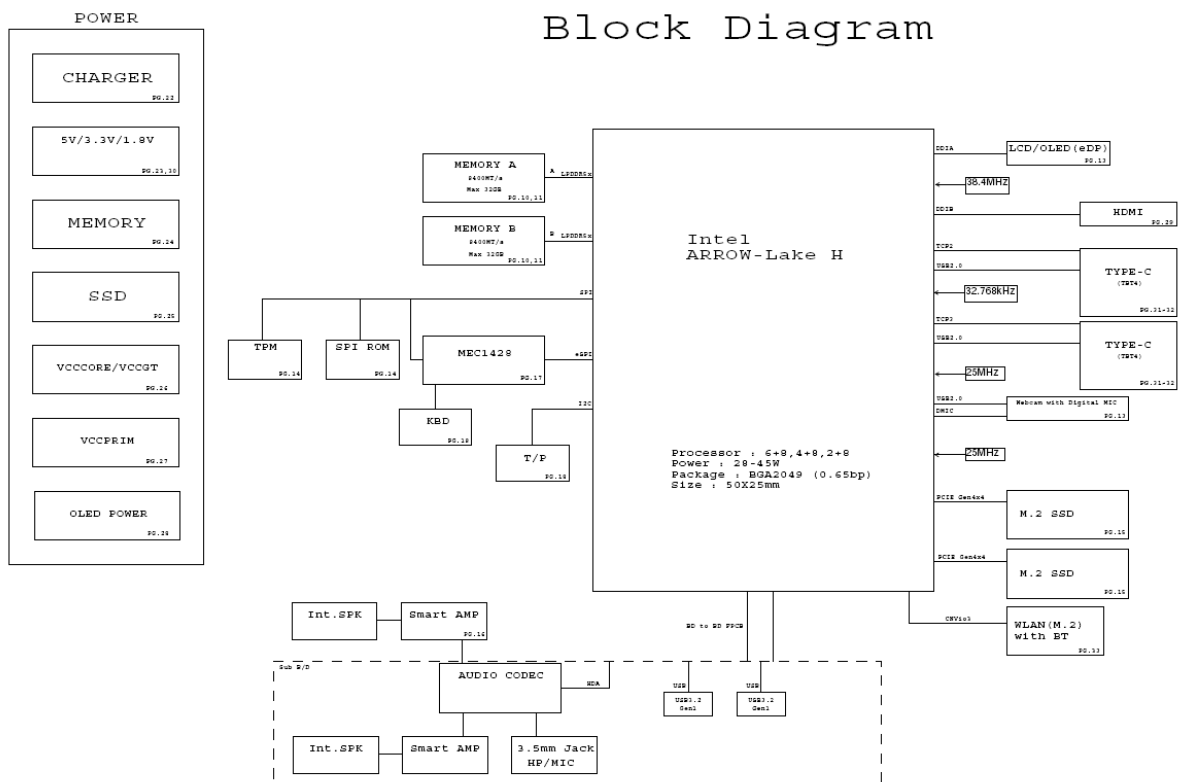
### 1.1 Key features

Table1–1 Key features

Feature	Windstorm Peak
Wi-Fi	High performance low power dual band Pre-Standard-802.11BE (Wi-Fi7) 2x2 both with 320 MHz channel support
Bluetooth	Bluetooth* 5.4
Host Interfaces	Wi-Fi: PCI Express* (PCIe*) based (internal to the SOC) Bluetooth®: USB/BT over PCIe Intel® AMT: CLINK (internal to the SOC)
Wi-Fi Alliance certifications	802.11a/b/g/n/ac/ax/be, WPA/2/3 Personal and enterprise, WPS2, PMF, WMM, WMM-PS, WFD, Miracast, Passpoint R2, Voice Personal
Wi-Fi-Bluetooth Coex	MIMO Tx/Tx and Rx/Rx Concurrency

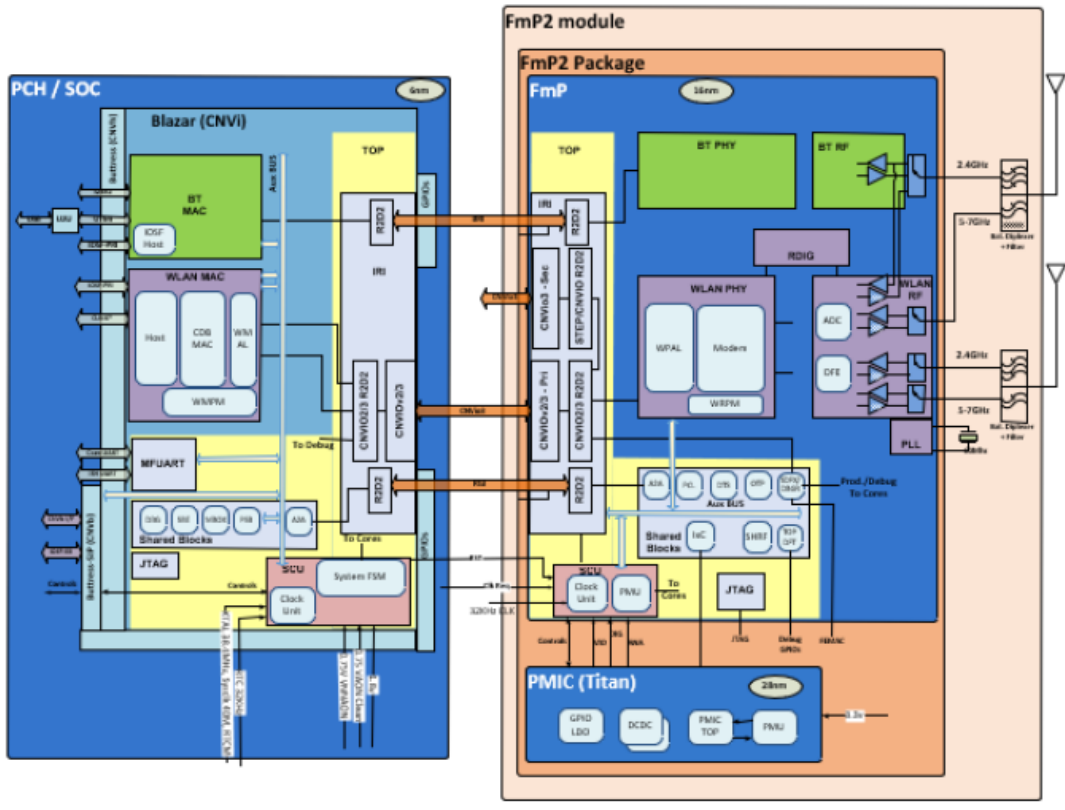
### 1.2 Block Diagram

System-Block Diagram (Notebook)



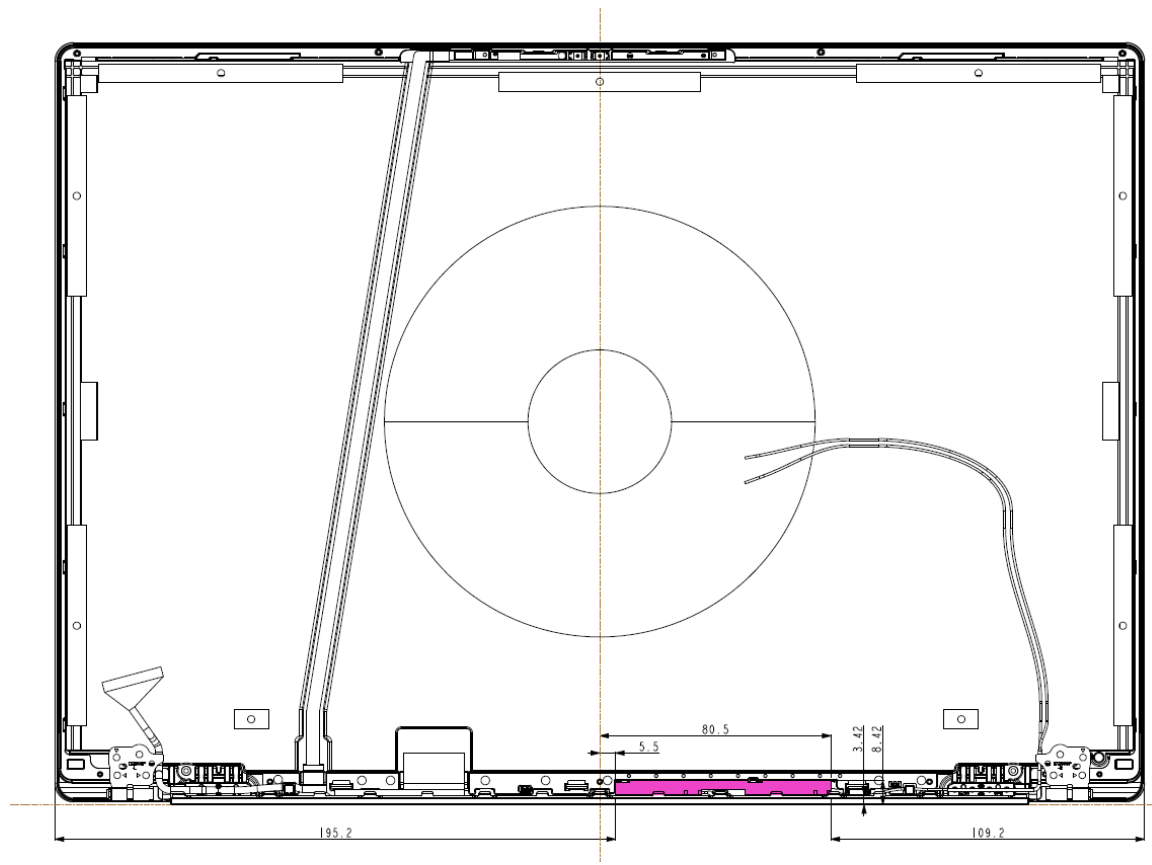
Module-Block Diagram

SOC/Blazar + FmP2



Antenna Location

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## RF Technical Specification

<b>Communication Spec</b>		802.11a/b/g/n/ac/ax/be, BT/BLE	
<b>Operation Bandwidth</b>		20 / 40 / 80 / 160 / 320MHz	
<b>Modulation Type</b>		<b>RF Output Power</b>	
<b>BT:</b> FHSS (GFSK, 8DPSK,π/4 DQPSK) <b>BLE:</b> GFSK (1M, 2M, PHY Coded S8, PHY Coded S2) <b>WLAN 802.11b:</b> DSSS (DBPSK/ DQPSK/ CCK) <b>802.11a/g/n-HT20/n-HT40:</b> OFDM (BPSK/ QPSK/ 16QAM/ 64QAM) <b>802.11ac-VHT20/VHT40/VHT80/VHT160/:</b> OFDM (BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM) <b>802.11ax-HE20/HE40/HE80/HE160:</b> OFDMA (BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM/ 1024QAM) <b>802.11be-EHT20/EHT40/EHT80/EHT160/EHT320:</b> OFDMA (BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM/1024QAM/4096QAM)		<b>2.4GHz:</b>	28.0 dBm(PK)
		<b>BT(GFSK):</b>	15.3 dBm(PK)
		<b>BT(8DPSK):</b>	15.3 dBm(PK)
		<b>BLE:</b>	15.3 dBm(PK)
		<b>5GHz UNII Band 1:</b>	20.0 dBm (AV)
		<b>5GHz UNII Band 2A:</b>	19.5 dBm (AV)
		<b>5GHz UNII Band 2C:</b>	20.0 dBm (AV)
		<b>5GHz UNII Band 3:</b>	20.0 dBm (AV)
<b>5GHz UNII Band 4:</b>	22.0 dBm (AV) E.I.R.P		
<b>Technical</b>		<b>Frequency Bands (MHz)</b>	<b>Channels</b>
<b>BT:</b>		2402-2480	79
<b>BLE:</b>		2402-2480	40
<b>WLAN 2.4GHz</b>	<b>802.11b/g/n-HT20/802.11ac-VHT20/ax-HE20/be-EHT20:</b>	2412-2472	13
	<b>802.11n-HT40/802.11ac-VHT40/ax-HE40/be-EHT40:</b>	2422-2462	9
<b>WLAN 5GHz</b>	<b>802.11a:</b>	5180-5240	4
		5260-5320*	4
		5500-5720*	12
		5745-5825	5
		5845-5885	3
	<b>802.11n-HT20/802.11ac-VHT20/ax-HE20/be-EHT20:</b>	5180-5240	4
		5260-5320*	4
		5500-5720*	12
		5745-5825	5
		5845-5885	3
	<b>802.11n-HT40/802.11ac-VHT40/ax-HE40/be-EHT40:</b>	5190-5230	2
		5270-5310*	2
		5510-5710*	6
		5755-5795	2
		5835-5875	2
	<b>802.11ac-VHT80/ax-HE80/be-EHT80:</b>	5210	1
		5290*	1
		5530-5690*	3
5775		1	
<b>802.11ac-VHT160/ax-HE160/be-EHT160:</b>	5885	1	
	5250	1	
	5570	1	
	5815	1	

Note:

1. “\*”:UNII Band 2A & 2C [DFS Function-Slave(Without radar detection function)]
2. 802.11ax/be channel puncturing is not implemented.

<b>Antenna Type</b>	<b>Main: Mono-pole type</b>						
	<b>AUX: Mono-pole type</b>						
<b>Antenna Gain</b>	No.	Antenna Part Number	Manufacture	Antenna Type	Frequency (MHz)	Max Gain(dBi)	
						Main	AUX
	1.	WA-P-LBLB-04-112	INPAQ	Mono-Pole	2400~2500	1.5	2.7
					5150~5350	1.6	3.0
					5470~5725	2.5	1.3
					5725~5900	2.5	2.3
					5925~6425	0.6	2.4
					6425~6525	3.1	2.4
					6525~6875	2.8	1.6
6875~7125					2.7	1.4	

**For WLAN Function**

Type of Network	Frequency (MHz)	Average Output Power Tune-Up (dBm)	
		ANT AUX	ANT Main
802.11b	2412	18.0	20.0
	2417	18.0	20.0
	2422	19.0	20.0
	2427	20.0	20.0
	2442	20.3	20.0
	2462	20.0	20.0
	2467	20.0	20.0
802.11g	2472	18.0	18.0
	2412	19.5	20.0
	2417	20.0	20.0
	2442	20.0	20.0
802.11n-HT20	2472	14.0	14.0
	2412	18.0	17.3
	2417	20.0	20.0
	2442	19.5	19.3
	2457	20.0	20.0
	2462	19.0	18.5
	2467	13.5	13.0
802.11n-HT40	2472	13.0	12.3
	2422	18.0	18.0
	2427	19.0	18.3
	2442	18.5	18.5
802.11ax-HE20	2462	13.3	13.0
	2412	18.0	17.3
	2417	19.5	19.3
	2442	20.0	19.0
802.11ax-HE40	2472	13.0	12.0
	2422	18.5	17.5
	2427	19.0	18.0
	2442	19.0	18.3
802.11be-EHT20	2462	13.3	12.5
	2412	18.0	17.5
	2417	20.0	19.3
	2442	20.0	19.0
802.11be-EHT40	2472	13.0	12.3
	2422	18.3	17.5
	2427	19.0	18.0
	2442	19.0	18.3
802.11be-EHT40	2462	13.0	13.0

Type of Network	Frequency (MHz)	RU Configuration	Average Output Power Tune-Up (dBm)	
			ANT AUX	ANT Main
802.11ax- HE20	2412	26/0	24.5	24.0
		52/37	25.0	24.0
		106/53	25.0	24.0
	2472	26/8	17.3	16.5
		52/40	16.0	16.0
		106/54	22.0	21.0
802.11ax- HE40	2422	242/61	23.0	22.5
	2462	242/62	25.0	25.0
802.11be- EHT20	2412	26/0	25.0	24.0
		52/37	24.0	24.3
		106/53	24.5	24.0
	2472	26/8	15.5	15.0
		52/40	14.5	14.0
		106/54	21.0	20.3
802.11be- EHT40	2422	242/61	23.0	22.3
	2462	242/62	24.5	24.0

**For WLAN Function**

Type of Network	U-NII Band	Frequency (MHz)	Average Output Power Tune-Up (dBm)	
			ANT AUX	ANT Main
802.11a	1	5180	16.3	16.5
		5200	16.5	16.0
		5240	16.3	17.0
	2A	5260	16.3	16.5
		5300	17.0	16.3
		5320	16.0	16.3
	2C	5500	17.0	16.3
		5580	17.3	16.0
		5700	17.3	17.0
		5720	17.0	17.0
	3	5745	17.0	16.5
		5785	17.0	16.3
		5825	16.3	16.5
	4	5845	17.0	16.5
		5865	17.0	16.3
5885		16.5	16.3	
802.11n-HT20	1	5180	16.3	16.0
		5200	16.5	16.3
		5240	17.0	17.0
	2A	5260	17.0	16.3
		5300	16.3	16.5
		5320	16.0	16.3
	2C	5500	16.5	16.0
		5580	17.3	16.0
		5700	17.3	17.0
		5720	17.0	16.5
	3	5745	17.0	17.0
		5785	17.0	16.3
		5825	17.0	16.5
	4	5845	17.0	16.0
		5865	16.3	16.0
5885		16.3	16.3	
802.11n-HT40	1	5190	16.3	16.0
		5230	16.5	16.0
	2A	5270	16.3	17.0
		5310	16.0	16.3
	2C	5510	16.5	16.3
		5550	17.0	16.0
		5670	17.0	17.0
		5710	17.0	17.0
	3	5755	16.5	17.0
		5795	17.0	16.5
4	5835	17.0	16.5	
	5875	16.3	16.3	

**For WLAN Function**

Type of Network	U-NII Band	Frequency (MHz)	Average Output Power Tune-Up (dBm)	
			ANT AUX	ANT Main
802.11ac-VHT20	1	5180	16.3	16.0
		5200	16.3	16.3
		5240	17.0	17.0
	2A	5260	16.5	16.3
		5300	16.3	16.5
		5320	16.0	16.0
	2C	5500	16.3	16.0
		5580	17.0	16.0
		5700	17.0	17.0
		5720	17.0	16.3
	3	5745	17.0	16.5
		5785	17.0	16.3
		5825	17.0	16.3
	4	5845	16.5	16.0
		5865	16.3	16.0
5885		16.3	16.3	
802.11ac-VHT40	1	5190	16.0	16.0
		5230	16.5	16.0
	2A	5270	16.3	17.0
		5310	16.0	16.3
	2C	5510	16.3	16.3
		5550	17.0	16.0
		5670	17.0	17.0
		5710	17.0	17.0
	3	5755	16.5	16.5
		5795	17.0	16.3
4	5835	16.5	16.3	
	5875	16.3	16.3	
802.11ac-VHT80	1	5210	15.5	15.3
	2A	5290	15.0	15.3
	2C	5530	15.5	15.0
		5610	15.0	15.0
		5690	15.3	15.3
	3	5775	16.0	16.0
	4	5855	15.3	15.3
802.11ac-VHT160	1/2A	5250	14.5	15.0
	2C	5570	15.3	15.0
	4	5815	16.0	15.5



**For WLAN Function**

Type of Network	U-NII Band	Frequency (MHz)	Average Output Power Tune-Up (dBm)	
			ANT AUX	ANT Main
802.11ax-HE20	1	5180	16.3	16.0
		5200	17.0	16.0
		5240	16.3	17.0
	2A	5260	16.3	16.3
		5300	16.0	16.3
		5320	16.3	16.3
	2C	5500	16.3	16.0
		5580	17.0	16.3
		5700	17.0	17.0
		5720	17.0	16.5
	3	5745	17.0	16.3
		5785	16.5	16.3
		5825	16.5	16.3
	4	5845	17.0	16.3
		5865	16.5	16.0
5885		16.3	16.0	
802.11ax-HE40	1	5190	16.5	16.0
		5230	16.3	16.3
	2A	5270	16.3	17.0
		5310	16.0	16.3
	2C	5510	17.0	16.0
		5550	16.5	16.3
		5670	17.0	16.3
	3	5710	17.0	16.5
		5755	16.5	16.3
	4	5795	16.5	16.3
5835		17.0	16.3	
802.11ax-HE80	1	5210	15.3	15.3
	2A	5290	15.0	15.3
		5530	15.5	15.0
	2C	5610	15.0	14.5
		5690	15.3	15.3
	3	5775	15.5	16.0
4	5855	15.5	15.5	
802.11ax-HE160	1/2A	5250	14.5	15.0
	2C	5570	15.3	15.0
	4	5815	16.0	15.3

Type of Network	U-NII Band	Frequency (MHz)	Average Output Power Tune-Up (dBm)	
			ANT AUX	ANT Main
802.11be-EHT20	1	5180	16.5	16.0
		5200	16.3	16.5
		5240	16.5	16.5
	2A	5260	16.3	16.5
		5300	16.3	16.0
		5320	16.3	16.0
	2C	5500	17.0	16.0
		5580	17.0	16.0
		5700	17.0	16.3
		5720	17.0	17.0
	3	5745	17.0	16.0
		5785	16.5	16.3
		5825	16.3	16.3
	4	5845	16.5	16.0
		5865	16.3	16.3
5885		16.5	16.0	
802.11be-EHT40	1	5190	16.3	16.3
		5230	17.0	16.3
	2A	5270	16.5	16.3
		5310	16.3	16.3
	2C	5510	16.3	16.0
		5550	16.5	16.3
		5670	16.5	16.5
		5710	17.0	16.5
	3	5755	17.0	16.0
		5795	16.5	16.3
4	5835	16.5	16.3	
	5875	17.0	16.0	
802.11be-EHT80	1	5210	15.3	15.3
	2A	5290	15.0	15.3
	2C	5530	15.3	15.0
		5610	15.0	14.5
		5690	15.0	15.3
	3	5775	15.5	15.5
4	5855	15.3	15.3	
802.11be-EHT160	1/2A	5250	14.5	15.0
	2C	5570	15.3	15.0
	4	5815	16.0	15.3

For WLAN Function

Type of Network	U-NII Band	Frequency (MHz)	RU Configuration	Average Output Power Tune-Up (dBm)	
				ANT AUX	ANT Main
802.11ax-HE20	1	5180	26/0	10.0	10.0
			52/37	13.0	13.0
			106/53	16.0	16.0
	2A	5320	26/8	10.0	9.5
			52/40	13.0	12.3
			106/54	16.0	16.0
	2C	5500	26/0	10.3	10.0
			52/37	13.3	13.0
			106/53	16.0	16.0
		5700	26/8	10.5	10.3
			52/40	14.0	13.3
			106/54	16.5	16.3
	3	5745	26/0	17.0	17.0
			52/37	17.0	17.0
			106/53	16.5	16.3
5825		26/8	17.0	16.3	
		52/40	16.3	16.5	
		106/54	16.3	17.0	
802.11ax-HE40	1	5190	242/61	16.3	16.0
	2A	5310	242/62	16.0	16.3
	2C	5510	242/61	17.0	16.0
		5670	242/62	17.0	17.0
	3	5755	242/61	16.5	16.3
		5795	242/62	17.0	16.0
802.11ax-HE80	1	5210	484/65	15.3	15.5
	2A	5290	484/66	15.0	15.5
	2C	5530	484/65	15.5	15.0
		5610	484/66	15.0	15.0
	3	5775	484/65	15.3	16.0
			484/66	16.0	16.3
802.11ax-HE160	1/2A	5250	996/67	15.0	15.3
		5250	996/S67	14.3	14.5
	2C	5570	996/67	15.3	15.0
		5570	996/S67	15.3	15.0

Type of Network	U-NII Band	Frequency (MHz)	RU Configuration	Average Output Power Tune-Up (dBm)	
				ANT AUX	ANT Main
802.11be-EHT20	1	5180	26/0	10.0	10.0
			52/37	13.0	13.0
			106/53	16.3	16.0
	2A	5320	26/8	10.0	9.3
			52/40	13.0	12.5
			106/54	16.0	16.0
	2C	5500	26/0	10.0	10.0
			52/37	13.3	13.0
			106/53	16.3	16.0
		5700	26/8	11.0	10.0
			52/40	14.0	13.5
			106/54	16.3	16.3
	3	5745	26/0	17.0	16.3
			52/37	17.0	17.0
			106/53	17.0	16.5
5825		26/8	17.0	17.0	
		52/40	17.0	17.0	
		106/54	16.3	17.0	
802.11be-EHT40	1	5190	242/61	16.5	16.0
	2A	5310	242/62	16.3	16.3
	2C	5510	242/61	16.5	16.5
		5670	242/62	17.0	17.0
	3	5755	242/61	17.0	16.3
		5795	242/62	17.0	16.0
802.11be-EHT80	1	5210	484/65	15.5	15.5
	2A	5290	484/66	15.0	15.3
	2C	5530	484/65	15.5	15.3
		5610	484/66	15.0	15.0
	3	5775	484/65	15.3	16.0
			484/66	16.0	16.0
802.11be-EHT160	1/2A	5250	996/67	15.0	15.3
		5250	996/S67	14.3	14.5
	2C	5570	996/67	15.3	15.0
		5570	996/S67	15.3	15.0

**For BT Function**

Type of Network	Channel	Frequency (MHz)	Average Output Power Tune-Up (dBm)
			ANT AUX
Bluetooth (GFSK)	CH 0	2402	13.5
	CH 39	2441	14.0
	CH 78	2480	13.5
Bluetooth (8-DPSK)	CH 0	2402	11.5
	CH 39	2441	11.5
	CH 78	2480	11.3
BLE (1M)	CH 37	2402	14.5
	CH 17	2440	14.3
	CH 39	2480	14.3
BLE (2M)	CH 37	2402	12.5
	CH 17	2440	12.5
	CH 39	2480	13.0
BLE (PHY Coded S2)	CH 37	2402	13.3
	CH 17	2440	13.3
	CH 39	2480	13.3
BLE (PHY Coded S8)	CH 37	2402	13.5
	CH 17	2440	13.5
	CH 39	2480	13.3