FCC RF Exposure Evaluation

1. Product Information

Test Model Additional Model No. HT14CCIC44EGP Model Declaration PCB board, structure and internal of these model(s) are the same, So no additional models were tested DC 8.4 by Battery(5000mAh) Adapter parameters: Input: AC 100-240V 50/60Hz 0.55A Output: DC 12V 2A Hardware Version G116X1-1 REV.02 Software Version JC 8.40 by Battery(5000mAh) Adapter parameters: Input: AC 100-240V 50/60Hz 0.55A Output: DC 12V 2A Hardware Version JC 8.40 by Battery(5000mAh) Adapter parameters: Input: AC 100-240V 50/60Hz 0.55A Output: DC 12V 2A Hardware Version JC 8.40 by Battery(5000mAh) Adapter parameters: Input: AC 100-240V 50/60Hz 0.55A Output: DC 12V 2A Hardware Version JC 8.40 by Battery(5000mAh) Adapter parameters: Input: AC 100-240V 50/60Hz 0.55A Output: DC 12V 2A Hardware Version JC 8.40 by Battery(5000mAh) JC 9.40	FCC ID:	2AVTU UT14CCICA4ECU
Test Model Additional Model No. HT14CCIC44EGP Model Declaration PCB board, structure and internal of these model(s) are the same, So no additional models were tested Do 8.4 vb y Battery(5000mAh) Adapter parameters: Input: AC 100-240V 50/60Hz 0.55A Output: DC 12V 2A Hardware Version G116X1-1 REV.02 Software Version John Miller of Bluetooth V4.0 (BDR/EDR) Adapter parameters: Input: AC 100-240V 50/60Hz 0.55A Output: DC 12V 2A Hardware Version John Miller of Bluetooth V4.0 (BDR/EDR) Ad channels for Bluetooth V4.0 (BDR/EDR) AD channels for Bluetooth V4.0 (BT LE) AD channels for Bluetooth V4.0 (BT LE) AD Miller of Bluetooth V4.0 (BT LE) Modulation Type GFSK, R7-DQPSK, 8-DPSK for Bluetooth V4.0 (BDR/EDR) GFSK for Bluetooth V4.0 (BT LE) Bluetooth Version V4.0 Antenna Description Internal Antenna, 1.5dBi(Max.) 2412MHz ~ 2462 MHz Channel Spacing SMHz Channel Spacing T1 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz) IEEE 802.11E: DSSS (CKC, DQPSK, DBPSK) IEEE 802.11E: DFSDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11E: OFDM (64QAM, 16QAM, 16QAM, QPSK, BPSK) IEEE 802.11E: OFDM (64QAM, 16QAM, 16QAM, QPSK, BPSK) IEEE 802.11E: OFDM (64QAM, 16QAM, 16QAM, QPSK, BPSK) IEEE 802.11E: OFDM (64QAM, 16QAM, 16QAM, QPSK, BPSK) IEEE 802.11E: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11E: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Internal Antenna, 1.5dBi(Max.) 5.8G WLAN 5745-5825MHz 5 channels for 80MHz bandwidth (5775-5795MHz) 1 channels for 80MHz bandwidth (5775-5795MHz) 1 channels for 80MHz bandwidth (5755-5795MHz) 1 channels for 80MHz	FCC ID:	2AVTH-HT14CCIC44EGH
Additional Model No. HT14CCIC44EGP Model Declaration PCB board, structure and internal of these model(s) are the same, so no additional models were tested DC 8.4 Vb y Battery(5000mAh) Adapter parameters: Input: AC 100-240V 50/60Hz 0.55A Output: DC 12V 2A Hardware Version G116X1-1 REV.02 Software Version / Bluetooth 2402MHz ~ 2480MHz Po bluetooth V4.0 (BDR/EDR) 40 channels for Bluetooth V4.0 (BDR/EDR) 40 channels for Bluetooth V4.0 (BDR/EDR) AD channels for Bluetooth V4.0 (BTLE) Modulation Type GFSK, rfA-DQPSK, 8-DPSK for Bluetooth V4.0 (BDR/EDR) GFSK for Bluetooth V4.0 (BT LE) Network of the state of		
PCB board, structure and internal of these model(s) are the same, So no additional models were tested DC 8.4V by Battery(SO00MAh) Adapter parameters: Input: AC 100-240V 50/60Hz 0.55A Output: DC 12V 2A Hardware Version G116X1-1 REV.02 Software Version / Bluetooth 2402MHz ~ 2480MHz Channel Number 40 channels for Bluetooth V4.0 (BDR/EDR) 40 channels for Bluetooth V4.0 (BT LE) Channel Spacing 1MHz for Bluetooth V4.0 (BDR/EDR) 2MHz for Bluetooth V4.0 (BT LE) Modulation Type GFSK, r/4-DQPSK, 8-DPSK for Bluetooth V4.0 (BDR/EDR) 2MHz for Bluetooth V4.0 (BT LE) Bluetooth Version V4.0 Antenna Description Internal Antenna, 1.5dBi(Max.) 2.4G WLAN 2412MHz ~ 2462 MHz Channel Spacing 5MHz Channel Number 11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz) IEEE 802.11b: DSSS (CCK, DQPSK, BPSK) IEEE 802.11b: DSSS (CCK, DQPSK, BPSK) IEEE 802.11b: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11c GPDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11a/Nac: OFDM (256QAM, 64QAM, 16QAM, 16QAM, QPSK, BPSK) IEEE 802.11a/Nac: OFDM (256QAM, 64QAM, 16QAM, 16QAM, 16QAM, QPSK, BPSK) IEEE 802.11a/Nac: OFDM (256QAM, 64QAM, 16QAM, 16QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.2G WLAN 5180MHz-5240MHz 4 channels for 20MHz bandwidth (5180-5230MHz) 1 channels for 40MHz bandwidth (5745-5825MHz) 2 channels for 40MHz bandwidth (5755-57595MHz) 1 channels for 80MHz bandwidth (57	Test Model	HT14CCIC44EGH
the same, So no additional models were tested DC 8.4V by Battery(S000mAh) Adapter parameters: Input: AC 100-240V 50/60Hz 0.55A Output: DC 12V 2A Hardware Version G116X1-1 REV.02 Software Version / Bluetooth 2402MHz ~ 2480MHz 79 channels for Bluetooth V4.0 (BDR/EDR) 40 channels for Bluetooth V4.0 (BDR/EDR) 2MHz for Bluetooth V4.0 (BT LE) Modulation Type GFSK, π/4-DQPSK, 8-DPSK for Bluetooth V4.0 (BDR/EDR) 2MHz for Bluetooth V4.0 (BT LE) Bluetooth Version Attenna Description Internal Antenna, 1.5dBi(Max.) 2.4G WLAN 2412MHz ~ 2462 MHz Channel Spacing SMHz Channel Spacing SMHz Channel Spacing SMHz Channel Spacing Channel Spacing SMHz IEEE 802.11s; OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11s; OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11s; OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11s/Nac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Channels For 40MHz bandwidth (5180-5240MHz) 2 channels for 40MHz bandwidth (5180-5230MHz) 1 channels for 80MHz bandwidth (5180-5230MHz) 1 channels for 80MHz bandwidth (5745-5825MHz) Schannels For 40MHz bandwidth (5745-5825MHz) Channel Number IEEE 802.11a/Nac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Atenna Description Internal Antenna, 1.5dBi(Max.) Schannels for 80MHz bandwidth (5775-795MHz) 1 channels for 80MHz bandwidth (5785-75759MHz) 1 channels for 80MHz bandwidth (Additional Model No.	
Power Supply DC 8.4V by Battery(\$000mAh) Adapter parameters: Input: AC 100-240V 50/60Hz 0.55A Output: DC 12V 2A Hardware Version G116X1-1 REV.02 Software Version / Bluetooth 2402MHz ~ 2480MHz 79 channels for Bluetooth V4.0 (BDR/EDR) 40 channels for Bluetooth V4.0 (BT LE) Channel Spacing Modulation Type GFSK, m/4-DQPSK, 8-DPSK for Bluetooth V4.0 (BDR/EDR) GFSK for Bluetooth V4.0 (BT LE) Bluetooth Version Antenna Description Internal Antenna, 1.5dBi(Max.) 2412MHz ~ 2462 MHz Channel Spacing SMHz Channel Spacing Thannels for 20MHz bandwidth (2412~2462MHz) 7 Channels Spacing Channel Number 11 Channels for 20MHz bandwidth (2412~2452MHz) IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, 16Q	Model Declaration	
Software Version January Januar	Power Supply	DC 8.4V by Battery(5000mAh) Adapter parameters: Input: AC 100-240V 50/60Hz 0.55A
Bluetooth 2402MHz ~ 2480MHz Channel Number 79 channels for Bluetooth V4.0 (BDR/EDR) 40 channels for Bluetooth V4.0 (BT LE) Modulation Type GFSK, r/4-DQPSK, 8-DPSK for Bluetooth V4.0 (BDR/EDR) 2MHz for Bluetooth V4.0 (BT LE) Modulation Type GFSK, r/4-DQPSK, 8-DPSK for Bluetooth V4.0 (BDR/EDR) GFSK for Bluetooth V4.0 (BT LE) Bluetooth Version V4.0 Antenna Description Internal Antenna, 1.5dBi(Max.) 2.4G WLAN 2412MHz ~ 2462 MHz Channel Spacing 5MHz 11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz) 1EEE 802.11a: DFSS (CCK, DQPSK, DBPSK) 1EEE 802.11b: DSSS (CCK, DQPSK, DBPSK) 1EEE 802.11b: DSSS (CCK, DQPSK, DBPSK) 1EEE 802.11c: OFDM (64QAM, 16QAM, QPSK, BPSK) 1EEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) 1 Internal Antenna, 1.5dBi(Max.) 5.2G WLAN 5180MHz-5240MHz 4 channels for 20MHz bandwidth (5180-5240MHz) 2 channels for 40MHz bandwidth (5180-5240MHz) 1 channels for 80MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth (5745-5825MHz) Antenna Description Internal Antenna, 1.5dBi(Max.) 5 channels for 20MHz bandwidth (5745-5825MHz) 2 channels for 40MHz bandwidth (5775MHz) Modulation Type 3 channels for 80MHz bandwidth (5775MHz) Letter 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5 channels for 80MHz bandwidth (5775MHz) I channels for 80MHz bandwidth (5775MHz)	Hardware Version	G116X1-1 REV.02
Channel Number 79 channels for Bluetooth V4.0 (BDR/EDR) 40 channels for Bluetooth V4.0 (BT LE) Channel Spacing 1MHz for Bluetooth V4.0 (BT LE) Modulation Type GFSK, rr/4-DQPSK, 8-DPSK for Bluetooth V4.0 (BDR/EDR) 2MHz for Bluetooth V4.0 (BT LE) Modulation Type GFSK, rr/4-DQPSK, 8-DPSK for Bluetooth V4.0 (BDR/EDR) GFSK for Bluetooth V4.0 (BT LE) Bluetooth Version V4.0 Antenna Description Internal Antenna, 1.5dBi(Max.) 2.4G WLAN 2412MHz ~ 2462 MHz Channel Spacing 5MHz Channel Number 7 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz) Total Channels for 40MHz bandwidth (2422~2452MHz) IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11b: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11b: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11b: OFDM (54QAM, 16QAM, QPSK, BPSK) IEEE 802.11b: OFDM (54QAM, 16QAM, QPSK, BPSK) Internal Antenna, 1.5dBi(Max.) 5.2G WLAN 5180MHz-5240MHz 4 channels for 20MHz bandwidth (5180-5240MHz) 2 channels for 40MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth (5240AM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.8G WLAN 5745-5825MHz 5 channels for 20MHz bandwidth (5745-5825MHz) 2 channels for 80MHz bandwidth (57755~5795MHz) 1 channels for 80MHz bandwidth (5775575795MHz) 2 channels for 80MHz bandwidth (5775575795MHz) 3 channels for 80	Software Version	/
Channel Number 40 channels for Bluetooth V4.0 (BT LE) 1MHz for Bluetooth V4.0 (BDR/EDR) 2MHz for Bluetooth V4.0 (BDR/EDR) 2MHz for Bluetooth V4.0 (BT LE) Modulation Type GFSK, r/4-DQPSK, 8-DPSK for Bluetooth V4.0 (BDR/EDR) GFSK for Bluetooth V4.0 (BT LE) Bluetooth Version V4.0 Antenna Description Internal Antenna, 1.5dBi(Max.) 2.4G WLAN 2412MHz ~ 2462 MHz Channel Spacing SMHz Channel Number 11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz) TO Channels for 40MHz bandwidth (2422~2452MHz) EEE 802.11b: DSSS (CCK, DQPSK, DBPSK) EEE 802.11b: DSSS (CCK, DQPSK, DBPSK) EEE 802.11b: OFDM (64QAM, 16QAM, QPSK, BPSK) EEE 802.11p: OFDM (64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.2G WLAN 5180MHz-5240MHz 4 channels for 20MHz bandwidth (5180-5240MHz) 2 channels for 40MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth (520MHz) Wodulation Type IEEE 802.11a//vac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5 channels for 40MHz bandwidth(5745-5825MHz) 2 channels for 80MHz bandwidth(57755~5795MHz) 1 channels for 80MHz bandwidth(57755~5795MHz) 1 channels for 80MHz bandwidth(5775MHz) Modulation Type IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) EEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) EEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.)	Bluetooth	2402MHz ~ 2480MHz
Channel Spacing 1MHz for Bluetooth V4.0 (BDR/EDR) 2MHz for Bluetooth V4.0 (BTLE) Modulation Type GFSK, 7/4-DQFSK, 8-DPSK for Bluetooth V4.0 (BDR/EDR) GFSK for Bluetooth V4.0 (BTLE) Bluetooth Version V4.0 Antenna Description Internal Antenna, 1.5dBi(Max.) 2.4G WLAN 2412MHz ~ 2462 MHz Channel Spacing SMHz Channel Number 11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2412~2462MHz) 1 EEE 802.11b: DSSS (CCK, DQPSK, BBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.2G WLAN 5180MHz-5240MHz 4 channels for 20MHz bandwidth (5180-5240MHz) 1 channels for 80MHz bandwidth (5190~5230MHz) 1 Channel Number Internal Antenna, 1.5dBi(Max.) 5745-5825MHz S channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 20MHz bandwidth(5775-5795MHz) 1 channels for 80MHz bandwidth(5775-5795MHz) 1 channels for 80MHz bandwidth(5775MHz) Modulation Type IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.)	Channel Number	
Bluetooth Version Antenna Description Internal Antenna, 1.5dBi(Max.) 2.4G WLAN 2412MHz ~ 2462 MHz Channel Spacing 5MHz Channel Number Thannels for 20MHz bandwidth (2412~2462MHz) Thannels for 40MHz bandwidth (2422~2452MHz) IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11b: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11a- (OFDM (64QAM, 16QAM, QPSK, BPSK) Internal Antenna, 1.5dBi(Max.) 5.2G WLAN 5180MHz-5240MHz 4 channels for 20MHz bandwidth (5180-5240MHz) 2 channels for 40MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth(5210MHz) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.8G WLAN 5745-5825MHz 5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 80MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5755MFz) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) EEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit	Channel Spacing	1MHz for Bluetooth V4.0 (BDR/EDR) 2MHz for Bluetooth V4.0 (BT LE)
Antenna Description 2.4G WLAN 2412MHz ~ 2462 MHz Channel Spacing 5MHz Channel Spacing 5MHz Channel Number 11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz) 1EEE 802.11b: DSSS (CCK, DQPSK, BPSK) Modulation Type [EEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.2G WLAN 5180MHz-5240MHz 4 channels for 20MHz bandwidth (5180-5240MHz) 2 channels for 40MHz bandwidth (5190-5230MHz) 1 channels for 80MHz bandwidth (5210MHz) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.8G WLAN 5745-5825MHz 5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 80MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5775MHz) Modulation Type [EEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Figure Sepsion Internal Antenna, 1.5dBi(Max.) [EEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit	Modulation Type	GFSK, π/4-DQPSK, 8-DPSK for Bluetooth V4.0 (BDR/EDR)
2.4G WLAN Channel Spacing SMHz Channel Number 7 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz) IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) Antenna Description S180MHz-5240MHz 4 channels for 20MHz bandwidth (5180-5240MHz) 2 channels for 40MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth (5210MHz) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 20MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5775MHz) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit	Bluetooth Version	V4.0
Channel Spacing Channel Number 11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2422~2452MHz) IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.2G WLAN 5180MHz-5240MHz 4 channels for 20MHz bandwidth (5180-5240MHz) 2 channels for 40MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth(5210MHz) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.8G WLAN 5745-5825MHz 5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 40MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5775MHz) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) EEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit	Antenna Description	Internal Antenna, 1.5dBi(Max.)
Channel Number 11 Channels for 20MHz bandwidth (2412~2462MHz) 7 Channels for 40MHz bandwidth (2412~2452MHz) 1 IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) 1 IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) 1 IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) 1 Internal Antenna, 1.5dBi(Max.) 5.2G WLAN 5180MHz-5240MHz Channel Number 4 channels for 20MHz bandwidth (5180-5240MHz) 2 channels for 40MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth(5210MHz) 1 channels for 80MHz bandwidth(5210MHz) 1 EEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.8G WLAN 5745-5825MHz 5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 40MHz bandwidth(577575~5795MHz) 1 channels for 80MHz bandwidth(5775MHz) Modulation Type IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) EEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit	2.4G WLAN	2412MHz ~ 2462 MHz
Thannels for 40MHz bandwidth (2422~2452MHz) IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) Internal Antenna, 1.5dBi(Max.) 5.2G WLAN	Channel Spacing	5MHz
Modulation Type IEEE 802.11g; OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.2G WLAN 5180MHz-5240MHz 4 channels for 20MHz bandwidth (5180-5240MHz) 2 channels for 40MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth (5210MHz) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.8G WLAN 5745-5825MHz 5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 40MHz bandwidth(5775~5795MHz) 1 channels for 80MHz bandwidth(5775MHz) Modulation Type 4 Channel For 80MHz bandwidth(5775MHz) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit	Channel Number	7 Channels for 40MHz bandwidth (2422~2452MHz)
5.2G WLAN 5180MHz-5240MHz 4 channels for 20MHz bandwidth (5180-5240MHz) 2 channels for 40MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth (5210MHz) Modulation Type [EEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.8G WLAN 5745-5825MHz 5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 40MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5775MHz) Modulation Type [EEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit	Modulation Type	IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK)
Channel Number 4 channels for 20MHz bandwidth (5180-5240MHz) 2 channels for 40MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth (5210MHz) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.8G WLAN 5745-5825MHz 5 channels for 20MHz bandwidth (5745-5825MHz) 2 channels for 40MHz bandwidth (5755~5795MHz) 1 channels for 80MHz bandwidth (5775MHz) Modulation Type IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit	Antenna Description	Internal Antenna, 1.5dBi(Max.)
Channel Number 2 channels for 40MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth(5210MHz) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) 5.8G WLAN 5745-5825MHz 5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 40MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5775MHz) Modulation Type IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit	5.2G WLAN	5180MHz-5240MHz
Antenna Description Internal Antenna, 1.5dBi(Max.) 5.8G WLAN 5745-5825MHz 5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 40MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5775MHz) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit	Channel Number	2 channels for 40MHz bandwidth (5190~5230MHz) 1 channels for 80MHz bandwidth(5210MHz)
5.8G WLAN 5745-5825MHz 5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 40MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5775MHz) Modulation Type IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit	Modulation Type	
5 channels for 20MHz bandwidth(5745-5825MHz) 2 channels for 40MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5775MHz) Modulation Type IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit	Antenna Description	Internal Antenna, 1.5dBi(Max.)
Channel Number 2 channels for 40MHz bandwidth(5755~5795MHz) 1 channels for 80MHz bandwidth(5775MHz) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit	5.8G WLAN	5745-5825MHz
1 channels for 80MHz bandwidth(5775MHz) IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit		5 channels for 20MHz bandwidth(5745-5825MHz)
Modulation Type IEEE 802.11a/n/ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit	Channel Number	2 channels for 40MHz bandwidth(5755~5795MHz)
Antenna Description Internal Antenna, 1.5dBi(Max.) Exposure category General population/uncontrolled environment EUT Type Production Unit		1 channels for 80MHz bandwidth(5775MHz)
Exposure category General population/uncontrolled environment EUT Type Production Unit	Modulation Type	
EUT Type Production Unit	Antenna Description	Internal Antenna, 1.5dBi(Max.)
	Exposure category	General population/uncontrolled environment
Device Type Portable	EUT Type	Production Unit
	Device Type	Portable

2. Evaluation Method

According to KDB447498 D01 General RF Exposure Guidance v06 Section 4.3.1 Standalone SAR test exclusion considerations: "Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Test Exclusion Threshold condition, listed below, is satisfied. These test exclusion conditions are based on source-based time-averaged maximum conducted output power of the RF channel requiring evaluation, adjusted for tune-up tolerance, and the minimum test separation distance required for the exposure conditions. The minimum test separation distance is determined by the smallest distance from the antenna and radiating structures or outer surface of the device, according to the host form factor, exposure conditions and platform requirements, to any part of the body or extremity of a user or bystander (see 5) of section 4.1). To qualify for SAR test exclusion, the test separation distances applied must be fully explained and justified by the operating configurations and exposure conditions of the transmitter and applicable host platform requirements, typically in the SAR measurement or SAR analysis report, according to the required published RF exposure KDB procedures. When no other RF exposure testing or reporting is required, a statement of justification and compliance must be included in the equipment approval, in lieu of the SAR report, to qualify for the SAR test exclusion. When required, the device specific conditions described in the other published RF exposure KDB procedures must be satisfied before applying these SAR test exclusion provisions; for example, handheld PTT two-way radios, handsets, laptops & tablets etc."

[(max. power of channel, including tune-up tolerance, mW)/ (min. test separation distance, mm)] \cdot [Vf (GHz)] \leq 3.0 for 1-g SAR and \leq 7.5 for 10-g extremity SAR, where:

- f (GHz) is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

 The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

When one of the following test exclusion conditions is satisfied for all combinations of simultaneous transmission configurations, further equipment approval is not required to incorporate transmitter modules in host devices that operate in the mixed mobile and portable host platform exposure conditions. The grantee is responsible for documenting this according to Class I permissive change requirements. Antennas that qualify for standalone SAR test exclusion must apply the estimated standalone SAR to determine simultaneous transmission test exclusion.

- The $[\sum of]$ (the highest measured or estimated SAR for each standalone antenna configuration, adjusted for maximum tune-up tolerance) / 1.6 W/kg] + $[\sum of]$ MPE ratios] is \leq 1.0.
- b) The SAR to peak location separation ratios of all simultaneously transmitting antenna pairs operating in portable device exposure conditions are all \leq 0.04, and the [\sum of MPE ratios] is \leq 1.0.

3. Refer Evaluation Method

<u>ANSI C95.1–1999:</u> IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

FCC KDB publication 447498 D01 General RF Exposure Guidance v06: Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies.

FCC CFR 47 part1 1.1310: Radiofrequency radiation exposure limits.

FCC CFR 47 part2 2.1093: Radiofrequency radiation exposure evaluation: portable devices

4. Conducted Power Results

4.1 Test Setup Block Diagram



4.2 Test Equipment

	Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
I	1	Power Meter	R&S	NRVS	100444	2022-06-21
Ī	2	Power Sensor	R&S	NRV-Z81	100458	2022-06-21

Remark: all calibration period of equipment list is one year.

4.3 Test Procedure

The EUT was directly connected to the power meter and antenna output port as show in the block diagram Test Setup;

Setup EUT work at duty cycle more than 98%;

[BT Max Conducted Power]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
	0	2402	1.080
GFSK	39	2441	1.055
	78	2480	1.375
	0	2402	3.596
$\pi/4$ DQPSK	39	2441	3.733
	78	2480	4.311
	0	2402	4.107
8DPSK	19	2440	4.354
	39	2480	4.955

[BLE Max Conducted Power]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
	0	2402	1.604
BT LE	19	2440	1.804
	39	2480	2.199

[2.4GWIFI Max Conducted Power]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
	1	2412	8.18
11B	6	2437	7.83
	11	2462	7.96
	1	2412	7.59
11G	6	2437	8.17
	11	2462	7.73
	1	2412	8.72
11N20SISO	6	2437	8.35
	11	2462	7.95
	3	2422	8.78
11N40SISO	6	2437	8.58
	9	2452	8.33

[5.2GWIFI Max Conducted Power]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
	36	5180	5.14
11A	40	5200	5.51
	48	5240	5.58
	36	5180	5.35
11N20 SISO	40	5200	5.38
	48	5240	5.92
11N40 SISO	38	5190	5.86
111140 5150	46	5230	5.96
	36	5180	5.08
11AC20 SISO	40	5200	5.48
	48	5240	6.00
11AC40 SISO	38	5190	5.84
11AC40 SISO	46	5230	5.50
11AC80 SISO	42	5210	5.45

[5.8WIFI Max Conducted Power]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
	149	5745	5.74
11A	157	5785	5.07
	165	5825	5.05
	149	5745	6
11N20 SISO	157	5785	5.36
	165	5825	5.22
11N40 SISO	151	5755	5.17
111140 5150	159	5795	5.83
	149	5745	5.08
11AC20 SISO	157	5785	5.48
	165	5825	6
11 A C 40 C C C	151	5755	5.84
11AC40 SISO	159	5795	5.5
11AC80 SISO	155	5775	5.05

5. Measurement Results

ВТ

GFSK (Peak)						
Channel Channel 0 Channel 39 Channel 7						
Target (dBm)	1.0	1.0	1.0			
Tolerance ±(dB)	1.0	1.0	1.0			
	π/4DQPSK (Peak)					
Channel	annel Channel 0 Channel 39		Channel 78			
Target (dBm)	4.0	4.0	4.0			
Tolerance ±(dB)	1.0	1.0	1.0			
	8DPSK	(Peak)				
Channel	Channel 0	Channel 19	Channel 39			
Target (dBm) 4.0 4.		4.0	5.0			
Tolerance ±(dB)	1.0	1.0	1.0			

BLE

BT LE (Peak)						
Channel Channel 0 Channel 19 Channel 39						
Target (dBm)	2.0	2.0	2.0			
Tolerance ±(dB)	1.0	1.0	1.0			

2.4GWIFI

11B (Peak)						
Channel	Channel 1	Channel 6	Channel 11			
Target (dBm)	8.0	8.0	8.0			
Tolerance ±(dB)	1.0	1.0	1.0			
	110	(Peak)				
Channel	Channel 1	Channel 6	Channel 11			
Target (dBm)	8.0	8.0	8.0			
Tolerance ±(dB)	Tolerance ±(dB) 1.0 1.0		1.0			
	11N20S	SISO (Peak)				
Channel	Channel 1	Channel 6	Channel 11			
Target (dBm)	8.0	8.0	8.0			
Tolerance ±(dB)	1.0	1.0	1.0			
	11N40SISO (Peak)					
Channel	Channel Channel 3 Channel 6		Channel 9			
Target (dBm)	8.0	8.0	8.0			
Tolerance ±(dB)	1.0	1.0	1.0			

5.2GWIFI

11A (Peak)					
Channel	Channel 36	Chann	el 40	Channel 48	
Target (dBm)	5.0	5.0)	5.0	
Tolerance ±(dB)	1.0	1.0)	1.0	
	11N20 S	SISO (Peak)			
Channel	Channel 36	Chann	el 40	Channel 48	
Target (dBm)	5.0	5.0)	5.0	
Tolerance ±(dB)	1.0	1.0)	1.0	
	11N40 S	SISO (Peak)			
Channel	Channel 3	38		Channel 46	
Target (dBm)	5.0			5.0	
Tolerance ±(dB)	1.0 1.0		1.0		
	11AC20	SISO (Peak)			
Channel	Channel 36	Chann	el 40	Channel 48	
Target (dBm)	5.0	5.0)	5.0	
Tolerance ±(dB)	1.0	1.0)	1.0	
	11AC40	SISO (Peak)			
Channel	Channe3	8		Channel 46	
Target (dBm)	5.0 5.0				
Tolerance ±(dB)	1.0				
	11AC80 SISO (Peak)				
Channel	Channel 42				
Torget (dDm)	5.0				
Target (dBm)		<u> </u>			

5.8GWIFI

11A (Peak)					
Channel	Channel 149	Channe	el 157	Channel 165	
Target (dBm)	5.0	5.0)	5.0	
Tolerance ±(dB)	1.0	1.0)	1.0	
	11N20 S	SISO (Peak)			
Channel	Channel 149	Channe	el 157	Channel 165	
Target (dBm)	5.0	5.0)	5.0	
Tolerance ±(dB)	1.0	1.0)	1.0	
	11N40 S	SISO (Peak)			
Channel	Channel 1	51	(Channel 159	
Target (dBm)	5.0 5.0		5.0		
Tolerance ±(dB)	1.0			1.0	
	11AC20	SISO (Peak)			
Channel	Channel 149	Channe	el 157	Channel 165	
Target (dBm)	5.0	5.0)	5.0	
Tolerance ±(dB)	1.0	1.0)	1.0	
	11AC40	SISO (Peak)			
Channel	Channe15	51	(Channel 159	
Target (dBm)	5.0 5.0		5.0		
Tolerance ±(dB)	1.0				
11AC80 SISO (Peak)					
Channel	Channel 155				
Target (dBm)	5.0				
Tolerance ±(dB)	1.0				

6. Evaluation Results6.1 Standalone Evaluation

Band/Mode	f (GHz)	Antenna	RF output power		SAR Test	CAD Toot
		Distance	dBm	mW	Exclusion	SAR Test Exclusion
		(mm)			Threshold	EXCIUSION
GFSK	2480	5	2.00	1.5849	0.5 < 3.0	Yes
π/4DQPSK	2480	5	5.00	3.1623	1.0 < 3.0	Yes
8-DPSK	2480	5	6.00	3.9811	1.3 < 3.0	Yes
BT LE	2480	5	3.00	1.9953	0.6 < 3.0	Yes
IEEE 802.11b	2480	5	9.00	7.9433	2.5 < 3.0	Yes
IEEE 802.11g	2480	5	9.00	7.9433	2.5 < 3.0	Yes
IEEE 802.11n HT20	2480	5	9.00	7.9433	2.5 < 3.0	Yes
IEEE 802.11n HT40	2480	5	9.00	7.9433	2.5 < 3.0	Yes
11A(5.2GWIFI)	5800	5	6.00	3.9811	1.9 < 3.0	Yes
11N20	5800	5	6.00	3.9811	1.9 < 3.0	Yes
SISO(5.2GWIFI)						
11N40	5800	5	6.00	3.9811	1.9 < 3.0	Yes
SISO(5.2GWIFI)						
11AC20	5800	5	6.00	3.9811	1.9 < 3.0	Yes
SISO(5.2GWIFI)						
11AC40	5800	5	6.00	3.9811	1.9 < 3.0	Yes
SISO(5.2GWIFI)						
11AC80	5800	5	6.00	3.9811	1.9 < 3.0	Yes
SISO(5.2GWIFI)						
11A(5.8GWIFI)	5800	5	6.00	3.9811	1.9 < 3.0	Yes
11N20	5800	5	6.00	3.9811	1.9 < 3.0	Yes
SISO(5.8GWIFI)						
11N40	5800	5	6.00	3.9811	1.9 < 3.0	Yes
SISO(5.8GWIFI)						
11AC20	5800	5	6.00	3.9811	1.9 < 3.0	Yes
SISO(5.8GWIFI)						
11AC40	5800	5	6.00	3.9811	1.9 < 3.0	Yes
SISO(5.8GWIFI)						
11AC80	5800	5	6.00	3.9811	1.9 < 3.0	Yes
SISO(5.8GWIFI)						

Remark:

^{(1).} RF output power including tune up tolerance;

^{(2).} When the minimum test separation distance is < 5 mm, a distance of 5 mm according to f) in section

4.1 of KDB 447498 is applied to determine SAR test exclusion.

6.2 Simultaneous Transmission for SAR Exclusion

The sample support only one RF modular and one antenna, no need consider simultaneous transmission;

7. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB 447498 v06.

-----THE END OF REPORT-----