

Maximum Permissible Exposure Report

1. Product Information

FCC ID:	2AF82-TD1060S
Product name	PANEL PC
Model number	TD-1060 Slim,TD-1060XXXXXX (X = 0~9 , A~Z ,a~z)
Power supply	For Adapter:Input:100-240V~50/60Hz Max/0.7A Output:12V=1.5A
Operation frequency	IEEE 802.11b:2412-2462MHz IEEE 802.11g:2412-2462MHz IEEE 802.11n HT20:2412-2462MHz Bluetooth: 2402MHz-2480MHz 5.2GHz Band:5180~5240MHz 5.8GHz Band:5745~5825MHz NFC: 13.56MHz
Modulation Type	IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK,BPSK) GFSK, $\pi/4$ -DQPSK, 8-DPSK for Bluetooth V5.0 (DSS) GFSK for Bluetooth V5.0 (DTS) IEEE 802.11a/n/ac: OFDM(64QAM, 16QAM, QPSK, BPSK) NFC: ASK
Channel Number	11 Channels for 20MHz bandwidth(2412~2462MHz) 79 Channels for Bluetooth V5.0(BDR/EDR) 4 channels for 20MHz bandwidth(5180MHz-5240MHz) 2 channels for 40MHz bandwidth(5190MHz~5230MHz) 1 channels for 80MHz bandwidth(5210MHz) 5 channels for 20MHz bandwidth(5745MHz-5825MHz) 2 channels for 40MHz bandwidth(5755MHz~5795MHz) 1 channels for 80MHz bandwidth(5775MHz) 1 channels for NFC
Antenna Type	PIFA Antenna
Antenna Gain	1.99dBi(Max.) for BT and WIFI; 0dBi(Max.) for NFC
Hardware version	/
Software version	/
Exposure category	General population/uncontrolled environment
EUT Type	Production Unit
Device Type	Portable Device

2.Evaluation method and Limit

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 and/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.22 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.²³ “

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

- 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 f) in section 4.1 is applied to determine SAR test exclusion.

3. Refer Evaluation Method

[ANSI C95.1–1999](#): 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 and Manufacturing Tolerance

[BT Max Conducted Power]

Mode	Channel	Frequency(MHz)	Max Conducted Power (dBm)	Peak Max. Tune Up Power (dBm)
GFSK BT LE	0	2402	-4.933	-4.0±1.0
	19	2440	-7.296	-7.0±1.0
	39	2480	-4.246	-4.0±1.0
GFSK	0	2402	-4.165	-4.0±1.0
	39	2441	-6.296	-6.0±1.0
	78	2480	-3.541	-3.0±1.0
π/4DQPSK	0	2402	-4.941	-4.0±1.0
	39	2441	-6.970	-6.0±1.0
	78	2480	-4.221	-4.0±1.0
8DPSK	0	2402	-4.649	-4.0±1.0
	39	2441	-7.403	-7.0±1.0
	78	2480	-4.362	-4.0±1.0

[2.4GWLAN Max Conducted Power]

Mode	Channel	Frequency(MHz)	Max Conducted Power (dBm)	Peak Max. Tune Up Power (dBm)
IEEE 802.11b	1	2412	7.45	7.0±1.0
	6	2437	7.13	7.0±1.0
	11	2462	9.04	9.0±1.0
IEEE 802.11g	1	2412	10.49	10.0±1.0
	6	2437	8.07	8.0±1.0
	11	2462	7.9	7.0±1.0
IEEE 802.11n HT20	1	2412	10.43	10.0±1.0
	6	2437	10.82	10.0±1.0
	11	2462	10.1	10.0±1.0

[5.2GWLAN Max Conducted Power]

Mode	Channel	Frequency(MHz)	Max Conducted Power (dBm)	Average Max. Tune Up Power (dBm)
IEEE 802.11a	36	5180	10.07	10.0±1.0
	40	5200	9.39	9.0±1.0
	48	5240	8.18	8.0±1.0
IEEE 802.11n20	36	5180	9.15	9.0±1.0
	40	5200	8.47	8.0±1.0
	48	5240	9.37	9.0±1.0
IEEE 802.11n40	38	5190	9.82	9.0±1.0
	46	5230	9.59	9.0±1.0
IEEE 802.11ac20	36	5180	9.12	9.0±1.0
	40	5200	9.48	9.0±1.0
	48	5240	9.28	9.0±1.0
IEEE 802.11ac40	38	5190	9.69	9.0±1.0
	46	5230	9.46	9.0±1.0
IEEE 802.11ac80	42	5210	9.35	9.0±1.0

[5.8GWLAN Max Conducted Power]

Mode	Channel	Frequency(MHz)	Max Conducted Power (dBm)	Average Max. Tune Up Power (dBm)
IEEE 802.11a	149	5745	10.58	10.0±1.0
	157	5785	10.11	10.0±1.0
	165	5825	8.85	8.0±1.0
IEEE 802.11n20	149	5745	10.64	10.0±1.0
	157	5785	10.5	10.0±1.0
	165	5825	9.3	9.0±1.0
IEEE 802.11n40	151	5755	10.52	10.0±1.0
	159	5795	10.25	10.0±1.0
IEEE 802.11ac20	149	5745	9.12	9.0±1.0
	157	5785	9.48	9.0±1.0
	165	5825	9.28	9.0±1.0
IEEE 802.11ac40	151	5755	9.69	9.0±1.0
	159	5795	9.46	9.0±1.0
IEEE 802.11ac80	155	5775	9.21	9.0±1.0

7. Measurement Results

Band/Mode	f (GHz)	Antenna Distance (mm)	RF output power		SAR Test Exclusion Threshold	SAR Test Exclusion
			dBm	mW		
GFSK	2.450	25	-2.00	0.6310	0.0395 < 3.0	Yes
$\pi/4$ DQPSK	2.450	25	-3.00	0.5012	0.0314 < 3.0	Yes
8DPSK	2.450	25	-3.00	0.5012	0.0314 < 3.0	Yes
GFSK (BT LE)	2.450	25	-3.00	0.5012	0.0314 < 3.0	Yes
IEEE 802.11b	2.450	25	10.00	10.0000	0.6261 < 3.0	Yes
IEEE 802.11g	2.450	25	11.00	12.5893	0.7882 < 3.0	Yes
IEEE 802.11n HT20	2.450	25	11.00	12.5893	0.7882 < 3.0	Yes
IEEE 802.11a (5.2G)	5.250	25	11.00	12.5893	1.1538 < 3.0	Yes
IEEE 802.11n20 (5.2G)	5.250	25	10.00	10.0000	0.9165 < 3.0	Yes
IEEE 802.11n40 (5.2G)	5.250	25	10.00	10.0000	0.9165 < 3.0	Yes
IEEE 802.11ac20 (5.2G)	5.250	25	10.00	10.0000	0.9165 < 3.0	Yes
IEEE 802.11ac40 (5.2G)	5.250	25	10.00	10.0000	0.9165 < 3.0	Yes
IEEE 802.11ac80 (5.2G)	5.250	25	10.00	10.0000	0.9165 < 3.0	Yes
IEEE 802.11a (5.8G)	5.825	25	11.00	12.5893	1.2154 < 3.0	Yes
IEEE 802.11n20 (5.8G)	5.825	25	11.00	12.5893	1.2154 < 3.0	Yes
IEEE 802.11n40 (5.8G)	5.825	25	11.00	12.5893	1.2154 < 3.0	Yes
IEEE 802.11ac20 (5.8G)	5.825	25	10.00	10.0000	0.9654 < 3.0	Yes
IEEE 802.11ac40 (5.8G)	5.825	25	10.00	10.0000	0.9654 < 3.0	Yes
IEEE 802.11ac80 (5.8G)	5.825	25	10.00	10.0000	0.9654 < 3.0	Yes

Remark:

1. Output power including tune up tolerance;
2. WLAN and BT share same modular and same antenna, no need consider simultaneous transmit.

9. 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.

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