

FCC RF Exposure Evaluation

1. Product Information

FCC ID	2A3G9-VG-WH1513T
Product Name	MEDIASCREEN 15,6-1
Test Model	#VG-WH1513T
Power Supply	Input: 100-240V~, 50/60Hz, 0.6A Max Output: 12.0V---2.0A, 24.0W
Modulation Type	Bluetooth: GFSK, $\pi/4$ DQPSK, 8DPSK BLE: GFSK 2.4G WIFI: 802.11b: DSSS 802.11g/802.11n(H20)/802.11n(H40): OFDM 5G WIFI: IEEE 802.11a/ac/n: OFDM
Antenna Type	PIFA Antenna
Antenna Gain	1.5dBi
Frequency Range	2402-2480MHz / 2412-2462MHz / 5180-5240MHz / 5745-5825MHz
Exposure Category	General population/uncontrolled environment
EUT Type	Production Unit
Device Type	Mobile 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 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 “

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

- 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 Results

[BT]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	0	2402	4.06
	39	2441	4.69
	78	2480	4.51
$\pi/4$ DQPSK	0	2402	4.10
	39	2441	4.75
	78	2480	4.57
8-DPSK	0	2402	4.49
	39	2441	5.15
	78	2480	4.98

[BLE]

Mode	Channel	Frequency (MHz)	Peak Conducted Output Power (dBm)
GFSK	0	2402	4.15
	19	2440	4.84
	39	2480	4.62

[2.4GWIFI]

Mode	Channel	Frequency(MHz)	Max Conducted Power(dBm)
IEEE 802.11b	1	2412	8.51
	6	2437	7.34
	11	2462	8.00
IEEE 802.11g	1	2412	3.65
	6	2437	3.42
	11	2462	3.78
IEEE 802.11n HT20	1	2412	3.51
	6	2437	3.23
	11	2462	3.62
IEEE 802.11n HT40	3	2422	3.39
	6	2437	3.31
	9	2452	3.24

[5.2GWIFI]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11A	36	5180	6.88
	40	5200	6.85
	48	5240	7.35
11N20 SISO	36	5180	6.11
	40	5200	6.85
	48	5240	7.23
11N40 SISO	38	5190	8.09
	46	5230	7.89
11AC (VHT20)	36	5180	4.93
	40	5200	5.75
	48	5240	6.24
11AC (VHT40)	38	5190	5.79
	46	5230	6.57
11AC (VHT80)	42	5210	8.65

[5.8WIFI]

Mode	Channel	Frequency (MHz)	Max Conducted Power(dBm)
11A	149	5745	3.13
	157	5785	2.30
	165	5825	1.97
11N20 SISO	149	5745	3.85
	157	5785	3.24
	165	5825	2.55
11N40 SISO	151	5755	3.78
	159	5795	3.09
11AC (VHT20)	149	5745	4.18
	157	5785	3.67
	165	5825	-0.97
11AC (VHT40)	151	5755	1.55
	159	5795	2.73
11AC (VHT80)	155	5775	4.19

5. Manufacturing Tolerance

[BT]

GFSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	4.0	4.0	4.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
$\pi/4$ DQPSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	4.0	4.0	4.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
8-DPSK (Peak)			
Channel	Channel 0	Channel 39	Channel 78
Target (dBm)	4.0	5.0	5.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

[BLE]

GFSK (Peak)			
Channel	Channel 0	Channel 19	Channel 39
Target (dBm)	4.0	4.0	4.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

<2.4GWLAN >

IEEE 802.11b (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	8.0	7.0	8.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11g (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	4.0	4.0	4.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT20 (Peak)			
Channel	Channel 1	Channel 6	Channel 11
Target (dBm)	4.0	3.0	4.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
IEEE 802.11n HT40 (Peak)			
Channel	Channel 3	Channel 6	Channel 9
Target (dBm)	3.0	3.0	3.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

<5.2GWLAN >

11A (Peak)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	7.0	7.0	7.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 (Peak)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	7.0	7.0	7.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 (Peak)			
Channel	Channel 38	Channel 46	
Target (dBm)	8.0	8.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20 (Peak)			
Channel	Channel 36	Channel 40	Channel 48
Target (dBm)	5.0	6.0	6.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11AC40 (Peak)			
Channel	Channel 38	Channel 46	
Target (dBm)	6.0	6.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC80 (Peak)			
Channel	Channel 42		
Target (dBm)	8.0		
Tolerance $\pm$ (dB)	1.0		

<5.8GWLAN>

11A (Peak)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	3.0	2.0	2.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N20 SISO (Peak)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	4.0	3.0	3.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0
11N40 SISO (Peak)			
Channel	Channel 151	Channel 159	
Target (dBm)	4.0	3.0	
Tolerance $\pm$ (dB)	1.0	1.0	
11AC20 SISO (Peak)			
Channel	Channel 149	Channel 157	Channel 165
Target (dBm)	4.0	3.0	0.0
Tolerance $\pm$ (dB)	1.0	1.0	1.0

11AC40 SISO (Peak)		
Channel	Channel 151	Channel 159
Target (dBm)	2.0	3.0
Tolerance $\pm$ (dB)	1.0	1.0
11AC80 SISO (Peak)		
Channel	Channel 155	
Target (dBm)	4.0	
Tolerance $\pm$ (dB)	1.0	

6. Evaluation Results

<BT>

Modulation Type	Output power		Antenna Distance (mm)	SAR Test Exclusion Threshold	SAR Test Exclusion
	dBm	mW			
GFSK	5.0	3.1623	25	0.1960< 3.0	Yes
$\pi/4$ DQPSK	5.0	3.1623	25	0.1960< 3.0	Yes
8DPSK	6.0	3.9811	25	0.2468< 3.0	Yes

<BLE>

Modulation Type	Output power		Antenna Distance (mm)	SAR Test Exclusion Threshold	SAR Test Exclusion
	dBm	mW			
GFSK	5.0	3.1623	25	0.1960< 3.0	Yes

<2.4GWLAN>

Modulation Type	Output power		Antenna Distance (mm)	SAR Test Exclusion Threshold	SAR Test Exclusion
	dBm	mW			
IEEE 802.11b	9.0	7.9433	25	0.4935< 3.0	Yes
IEEE 802.11g	5.0	3.1623	25	0.1964< 3.0	Yes
IEEE 802.11n HT20	5.0	3.1623	25	0.1964< 3.0	Yes
IEEE 802.11 n HT40	4.0	2.5119	25	0.1560< 3.0	Yes

<5.2GWLAN>

Modulation Type	Output power		Antenna Distance (mm)	SAR Test Exclusion Threshold	SAR Test Exclusion
	dBm	mW			
IEEE 802.11a	8.0	6.3096	25	0.5744< 3.0	Yes
IEEE 802.11 n HT20	8.0	6.3096	25	0.5744< 3.0	Yes
IEEE 802.11 n HT40	9.0	7.9433	25	0.7231< 3.0	Yes
IEEE 802.11ac 20	7.0	5.0119	25	0.4563< 3.0	Yes
IEEE 802.11ac 40	7.0	5.0119	25	0.4563< 3.0	Yes
IEEE 802.11ac 80	9.0	7.9433	25	0.7231< 3.0	Yes

<5.8G WLAN>

Modulation Type	Output power		Antenna Distance (mm)	SAR Test Exclusion Threshold	SAR Test Exclusion
	dBm	mW			
IEEE 802.11a	4.0	2.5119	25	0.2408< 3.0	Yes
IEEE 802.11 n HT20	5.0	3.1623	25	0.3032< 3.0	Yes
IEEE 802.11 n HT40	5.0	3.1623	25	0.3032< 3.0	Yes
IEEE 802.11ac 20	5.0	3.1623	25	0.3032< 3.0	Yes
IEEE 802.11ac 40	4.0	2.5119	25	0.2408< 3.0	Yes
IEEE 802.11ac 80	5.0	3.1623	25	0.3032< 3.0	Yes

Remark:

1. Output power including tune up tolerance;
2. The distance between the antenna and the screen is greater than 25mm, and it is fixed for use.
3. The thickness of the product is greater than 25mm.
4. WLAN and BT share same modular and same antenna, no need consider simultaneous transmit.

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.....