



RF EXPOSURE Test Report

Report No.: MTi240103011-02E3
Date of issue: 2024-03-27
Applicant: Dongguan Lingdu Electronic Technology Co.,Ltd
Product: Dash Cam
Model(s): D600, D500, D200, D100, LD01, A12, A14, M350, M360
FCC ID: 2BEAP-D600

Shenzhen Microtest Co., Ltd.

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Test Result Certification	
Applicant:	Dongguan Lingdu Electronic Technology Co.,Ltd
Address:	No.1, Longcheng Street, Qingxi Town, Dongguan City, Guangdong Province, China
Manufacturer:	Dongguan Lingdu Electronic Technology Co.,Ltd
Address:	No.1, Longcheng Street, Qingxi Town, Dongguan City, Guangdong Province, China
Product description	
Product name:	Dash Cam
Trademark:	N/A
Model name:	D600
Series Model:	D500, D200, D100, LD01, A12, A14, M350, M360
Standards:	N/A
Test procedure:	KDB 447498 D01 v06
Date of Test	
Date of test:	2024-03-13 to 2024-03-22
Test result:	Pass

Test Engineer	:	<i>Yanice Xie</i>
		(Yanice.Xie)
Reviewed By	:	<i>Leon Chen</i>
		(Leon Chen)
Approved By	:	<i>Tom Xue</i>
		(Tom Xue)



RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*100	30
1.34-30	824/f	2.19/f	*180/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

MPE Calculation Method

Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1415926

R = distance between observation point and center of the radiator in cm(20cm)

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.



Measurement Result

2.4GWiFi:

Operation Frequency: WIFI 802.11b/g/n HT20: 2412-2462MHz, n HT40: 2422-2452

Power density limited: 1mW/ cm²

5GWiFi:

802.11a: 20 MHz

802.11n: 20 MHz, 40 MHz

802.11ac: 20 MHz, 40 MHz, 80MHz

Antenna Type: FPC Antenna;

Antenna gain:

2.4G: 3.14 dBi

5G: U-NII 1: 5.78dBi; U-NII 3: 5.65dBi

R=20cm

$mW=10^{(dBm/10)}$

2.4G: antenna gain Numeric= $10^{(dBi/10)}=10^{(3.14/10)}=2.06$

5G:

U-NII 1: antenna gain Numeric= $10^{(dBi/10)}=10^{(5.78/10)}=3.78$

U-NII 3: antenna gain Numeric= $10^{(dBi/10)}=10^{(5.65/10)}=3.67$

2.4G WIFI:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna		Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain		Power density(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	(dBi)	Numeric		
		Ant A	Ant A	Ant A	Ant A	Ant A	Ant A	Ant A	
2412	802.11b	15.45	15±1	16	39.811	3.14	2.06	0.01632	1
2437		14.25	15±1	16	39.811	3.14	2.06	0.01632	1
2462		14.41	15±1	16	39.811	3.14	2.06	0.01632	1
2412	802.11g	9.78	15±1	16	39.811	3.14	2.06	0.01632	1
2437		9.40	15±1	16	39.811	3.14	2.06	0.01632	1
2462		9.61	15±1	16	39.811	3.14	2.06	0.01632	1
2412	802.11n H20	14.40	15±1	16	39.811	3.14	2.06	0.01632	1
2437		14.12	14±1	15	31.623	3.14	2.06	0.01296	1
2462		13.47	14±1	15	31.623	3.14	2.06	0.01296	1
2422	802.11n H40	15.10	15±1	16	39.811	3.14	2.06	0.01632	1
2437		14.40	14±1	15	31.623	3.14	2.06	0.01296	1
2452		13.55	14±1	15	31.623	3.14	2.06	0.01296	1



5G WIFI: UNII-1

Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	Numeric		
5180	11a	7.56	7±1	8	6.310	3.78	0.00475	1
5200	11a	7.69	7±1	8	6.310	3.78	0.00475	1
5240	11a	7.41	7±1	8	6.310	3.78	0.00475	1
5180	11n (VHT20)	7.04	7±1	8	6.310	3.78	0.00475	1
5200	11n (VHT20)	6.99	7±1	8	6.310	3.78	0.00475	1
5240	11n (VHT20)	6.91	7±1	8	6.310	3.78	0.00475	1
5190	11n (VHT40)	6.82	7±1	8	6.310	3.78	0.00475	1
5230	11n (VHT40)	7.06	7±1	8	6.310	3.78	0.00475	1
5180	11ac (VHT20)	6.64	7±1	8	6.310	3.78	0.00475	1
5200	11ac (VHT20)	6.41	7±1	8	6.310	3.78	0.00475	1
5240	11ac (VHT20)	6.61	7±1	8	6.310	3.78	0.00475	1
5190	11ac (VHT40)	6.84	7±1	8	6.310	3.78	0.00475	1
5230	11ac (VHT40)	6.73	7±1	8	6.310	3.78	0.00475	1
5210	11ac (VHT80)	7.20	7±1	8	6.310	3.78	0.00475	1

5G WIFI: UNII-3

Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	Numeric		
5745	11a	7.65	7±1	8	6.310	3.67	0.00461	1
5785	11a	7.84	7±1	8	6.310	3.67	0.00461	1
5825	11a	7.90	7±1	8	6.310	3.67	0.00461	1
5745	11n (VHT20)	7.00	7±1	8	6.310	3.67	0.00461	1
5785	11n (VHT20)	6.82	7±1	8	6.310	3.67	0.00461	1
5825	11n (VHT20)	6.91	7±1	8	6.310	3.67	0.00461	1
5755	11n (VHT40)	7.00	7±1	8	6.310	3.67	0.00461	1
5795	11n (VHT40)	7.09	7±1	8	6.310	3.67	0.00461	1
5745	11ac (VHT20)	6.89	7±1	8	6.310	3.67	0.00461	1
5785	11ac (VHT20)	6.45	7±1	8	6.310	3.67	0.00461	1
5825	11ac (VHT20)	6.61	7±1	8	6.310	3.67	0.00461	1
5755	11ac (VHT40)	6.97	7±1	8	6.310	3.67	0.00461	1
5795	11ac (VHT40)	7.02	7±1	8	6.310	3.67	0.00461	1
5775	11ac (VHT80)	7.30	7±1	8	6.310	3.67	0.00461	1

Conclusion:

Note: 2.4GWIFI and 5GWIFI cannot work at the same time

For the max result: $0.01632 \leq 1.0$ test exclusion threshold, No SAR is required.

----END OF REPORT----