



MPE Report

Applicant : Ring LLC

Product Type : Video Doorbell 3

Trade Name : Ring

Model Number : 5UM6E5

Test Specification : ANSI / IEEE Std.C95.1

47 CFR § 2.1091

47 CFR § 1.1310

(Mark Duan)

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Issue by

Approved By

Tested By

(Kris Pan)

1330

A Test Lab Techno Corp.

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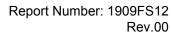
Tel: +886-3-2710188 / Fax: +886-3-2710190

Taiwan Accreditation Foundation accreditation number: 1330

Test Firm MRA designation number: TW0010

Note:

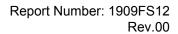
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Revision History

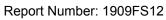
Rev.	Issue Date	Revisions	Revised By
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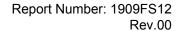




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1. Reference Testing Standards

Standard	Description	Version
ANSI/IEEE C95.1	American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 300 KHz to 100 GHz, New York.	1992

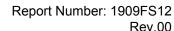




2. Description of Equipment under Test (EUT)

	Ring LLC								
Applicant	1523 26th Street, Santa Moni	ca CA 90404,	United States						
Manufacturer	Ring Inc. 1523 26th Street, Santa Monica CA 90404, United States								
Product Type	Video Doorbell 3								
Trade Name	Ring								
Model Number	5UM6E5								
FCC ID	2AEUPBHARG051	2AEUPBHARG051							
	Орг	erate Band			•	Frequency Range (MHz)			
	IEEE 802.11b / 802.11g / 802	.11n 2.4 GHz 2	20 MHz (256Q	AM)	2412	2 – 2462			
	IEEE 802.11a U-NII Band I				5180	0 – 5240			
	IEEE 802.11a U-NII Band II-A	٨			5260	0 – 5320			
	IEEE 802.11a U-NII Band II-0				5500	0 – 5720			
	IEEE 802.11a U-NII Band III				5720 – 5825				
	IEEE 802.11n 5 GHz / 802.11	5180 – 5240							
Frequency Range	IEEE 802.11n 5 GHz / 802.11	5260 - 5320							
	IEEE 802.11n 5 GHz / 802.11	5500 – 5720							
	IEEE 802.11n 5 GHz / 802.11	5720 – 5825							
	IEEE 802.11n 5 GHz / 802.11	5190 – 5230							
	IEEE 802.11n 5 GHz / 802.11	5270 – 5310							
	IEEE 802.11n 5 GHz / 802.11	5510 – 5710							
	IEEE 802.11n 5 GHz / 802.11ac 40 MHz U-NII Band III 5710 – 5795								
	Bluetooth LE					2402 – 2480			
	Model	Туре	Antenna		Max. Ga (dBi)	in			
		202	ANT-1	2.4 GHz		0.61			
	RFPCA491914EMLB303	PCB Antenna		5 GHz		5.26			
Antenna Information		7 till Cillia	ANT-0	Bluetooth LE		0.61			
			ANTO	2.4 GHz		0.72			
	RFPCA491914EMLB301	PCB Antenna	ANT-0	5 GHz		5.22			
		7 till Cillia	ANT-1	Bluetooth LE		0.72			
Antenna Delivery	IEEE 802.11b / g / n 2.4 GHz 20 MHz: 1TX(Diversity) IEEE 802.11a: 1TX(Diversity) IEEE 802.11n 5 GHz 20 MHz / 40 MHz: 1TX(Diversity) Bluetooth LE: 1TX(Diversity)								
RF Evaluation	0.034 mW/cm ²								
Operate Temp. Range	-20 ~ +50°C								

The above equipment was tested by A Test Lab Techno Corp. For compliance with the requirements set forth in 47 CFR \S 2.1091 / 47 CFR \S 1.1310. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties





3. Human Exposure Assessment

Due to the design and installation of this product, it is not possible to conduct SAR evaluation. This is because client either manufactures or supplies the antenna(s) that will be used in the installation of this product. Therefore, this product will be evaluated as a mobile device per 47 CFR § 1.1310 titled "Radiofrequency radiation exposure limits", generally referred to as MPE limits.

In 47 CFR § 2.1091, paragraph (b) defines a mobile device as "a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. " This product is intended to be installed into a vehicle such that the unit is physically secured at one location. In the installation guide supplied with the product,

Client has made the following statement: "IMPORTANT: To meet the FCC's RF Exposure Guidelines, the antenna should be installed so there is at least 20 cm of separation between the body of the user and nearby persons and the antenna". Based on the installation of the transceiver and the antenna, the transmitters radiating structure is more than 20 cm from the user. Thus, this product is a "mobile device" as defined in section § 2.1091 paragraph (b).

Exposure evaluation

$$S = \frac{PG}{4\pi R^2}$$

Where

S: power density

P: power input to the antenna

G: power gain of the antenna in the direction of interest relative to an isotropic radiator.

R: distance to the center of radiation of the antenna.



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4. RF Output Power

The conducted power turn-up tolerance reference manufacturer specification.

Band	Date Rate	Frequency	Average Conducted power (dBm)		
	(Mbps)	(MHz)	ANT-0	ANT-1	
	1	2412.0	17.14	17.58	
IEEE 802.11b	6	2437.0	17.28	17.64	
	11	2462.0	17.12	17.48	
	1	2412.0	14.17	14.56	
IEEE 802.11g	6	2437.0	17.17	17.65	
	11	2462.0	15.13	15.46	
JEEE 000 44	1	2412.0	13.63	13.82	
IEEE 802.11n 2.4 GHz 20 MHz	6	2437.0	16.64	16.66	
2.4 GHZ 20 WHZ	11	2462.0	14.23	14.42	

Note: The relevant measured result has the offset with cable loss already.



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Band	Date Rate	Frequency	Average Conducted power (dBm)		
	(Mbps)	(MHz)	ANT-0	ANT-1	
		5180.0	12.91	13.63	
		5200.0	12.87	13.65	
		5220.0	12.52	13.31	
		5240.0	12.71	13.32	
		5260.0	12.52	13.09	
		5280.0	12.61	13.16	
		5300.0	12.73	13.39	
		5320.0	12.89	13.42	
		5500.0	13.49	13.74	
	6	5520.0	13.49	13.59	
		5540.0	13.80	13.88	
		5560.0	13.75	13.79	
IEEE 802.11a		5580.0	13.86	13.88	
leee 802.11a		5600.0	13.66	13.70	
		5620.0	13.82	13.84	
		5640.0	13.90	13.94	
		5660.0	13.86	13.93	
		5680.0	13.73	13.87	
		5700.0	13.62	13.77	
		5720.0	12.53	13.06	
		5720.0	6.12	6.63	
		5745.0	13.38	13.78	
		5765.0	13.23	13.90	
		5785.0	13.06	13.76	
		5805.0	13.03	13.66	
		5825.0	12.94	13.61	

Note: The relevant measured result has the offset with cable loss already.



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Band	Date Rate	Frequency	Average Conducted power (dBm)		
	(Mbps)	(MHz)	ANT-0	ANT-1	
		5180.0	12.48	13.25	
		5200.0	12.60	13.41	
		5220.0	12.36	13.02	
		5240.0	12.30	13.14	
		5260.0	12.43	13.04	
		5280.0	12.44	13.07	
		5300.0	12.41	13.12	
		5320.0	12.84	13.26	
		5500.0	13.27	13.51	
		5520.0	13.34	13.35	
		5540.0	13.63	13.65	
		5560.0	13.37	13.41	
IEEE 802.11ac 20 MHz	6.5	5580.0	13.58	13.63	
TEEE 002. ITAC 20 WILL	0.5	5600.0	13.41	13.45	
		5620.0	13.51	13.63	
		5640.0	13.73	13.76	
		5660.0	13.76	13.82	
		5680.0	13.67	13.78	
		5700.0	13.54	13.80	
		5720.0	12.86	13.44	
		5720.0	6.84	7.39	
		5745.0	13.30	13.87	
		5765.0	13.11	13.81	
		5785.0	12.99	13.59	
		5805.0	13.04	13.82	
		5825.0	12.83	13.69	
		5190.0	9.79	9.93	
		5230.0	11.86	12.46	
		5270.0	11.70	12.19	
		5310.0	12.02	12.37	
		5510.0	12.75	12.81	
		5550.0	12.78	12.88	
IEEE 802.11ac 40 MHz	13.5	5590.0	12.71	12.92	
		5630.0	13.05	13.25	
		5670.0	12.92	13.44	
		5710.0	11.52	11.53	
		5710.0	-1.60	-1.53	
		5755.0	12.71	12.98	
		5795.0	12.75	12.94	

Note: The relevant measured result has the offset with cable loss already.



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Operate Band	Frequency	Packet Type	Average Conducted power (dBm)		
	(MHz)		ANT-0	ANT-1	
	2402.0		0.33	0.70	
Bluetooth LE	2440.0		0.41	0.74	
	2480.0		0.61	0.81	
	2402.0		0.62	0.69	
Bluetooth 2LE	2440.0		0.42	0.74	
	2480.0		0.61	0.80	



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5. Test Result

Antenna	Band	Frequency (MHz)	Limit (w)/m ²	Distance (m) [R]	Avg. burst tune-up Power (upper limit) [P] (dBm)	ANT Gain (dBi)	Numeric Gain [G]	Duty Cycle	Power with Duty cycle [TP] (W)	Power Density [S] (w)/m ²
Bluetooth Antenna	Bluetooth LE	2402-2480	1	20	1.31	0.72	1.18	1	1.60	0.000
	2.4 GHz	2412-2462	1	20	18.15	0.72	1.18	1	77.07	0.015
		5150-5250	1	20	14.15	5.26	3.36	1	87.37	0.017
Wi-Fi Antenna	5 GHz	5250-5350	1	20	13.92	5.26	3.36	1	82.86	0.016
7 the find		5470-5725	1	20	14.44	5.26	3.36	1	93.40	0.019
		5725-5850	1	20	14.40	5.26	3.36	1	92.54	0.018

Note:

- Mobile or fixed location transmitters, minimum separation distance is 20 cm, even if calculations indicate MPE distance is less.
- 2. We used the maximum power and gain to provide MPE results.
- 3. The Numeric Gain calculated by 10^(ant. Gain(dBi) /10).
- 4. The MPE results are evaluated by lowest data rate for WLAN.

Simultaneous Transmitting:

Total MPE = 2.4GHz MPE + 5GHz MPE + Bluetooth MPE = 0.015 + 0.019 + 0.000 = 0.034 (mw)/cm² < 1 (mw)/cm²

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