

FCC RF EXPOSURE REPORT

FCC ID: RWO-RZ120297

Project No. : 1907C235
Equipment : Wireless Earphones
Brand Name : RAZER, 
Test Model : 297R
Series Model : RC30-0297RXXXX-XXXX, 297L, RC30-0297LXXXX-XXXX (X can be 0-9, A-Z)
Applicant : Razer Inc.
Address : 201 3rd Street, Suite 900, San Francisco, CA 94103 USA
Manufacturer : Razer (Asia-Pacific) Pte.,Ltd.
Address : 514 Chai Chee Lane, #07-01-06, Singapore 469029
Factory : RAZER TECHNOLOGY AND DEVELOPMENT (SHENZHEN) CO., LTD
Address : East Wing, 3rd Floor, Block 2, Phase 1 of Vision Shenzhen Business Park Keji South Road, Hi-Tech Industrial Park, Shenzhen 518057, China
Date of Receipt : Aug. 01, 2019
Date of Test : Aug. 02, 2019 ~ Sep. 16, 2019
Issued Date : Sep. 29, 2019
Report Version : R00
Test Sample : Engineering Sample No.: DG19073061
Standard(s) : FCC Guidelines for Human Exposure IEEE C95.1 & KDB447498 D01

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.



Prepared by : Welly Zhou



Approved by : Ethan Ma



Certificate #5123.02

Add: No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

Tel: +86-769-8318-3000

Web: www.newbtl.com

1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF EUT

Equipment	Wireless Earphones	
Brand Name	RAZER, 	
Test Model	297R	
Series Model	RC30-0297RXXXX-XXXX, 297L, RC30-0297LXXXX-XXXX (X can be 0-9, A-Z)	
Model Difference(s)	The system model number is RZ12-0297, RZ12-0297XXXX-XXXX. This system contains Wireless Earphones 297L, RC30-0297LXXXX-XXXX, 297R, RC30-0297RXXXX-XXXX and Charging Case model: 297C, RC30-0297CXXXX-XXXX (X can be 0-9, A-Z)	
Hardware Version	DVT	
Software Version	1.0.5.3	
Power Source	1# Supplied from battery. 2# DC voltage supplied Charging case. (support unit).	
Power Rating	1# DC 3.80V, 40mAh 2# DC 5V, 100mA	
Product Description for BT EDR	Operation Frequency	2402 MHz ~ 2480 MHz
	Modulation Technology	GFSK, $\pi/4$ -DQPSK, 8-DPSK
	Bit Rate of Transmitter	1/2/3Mbps
	Max. Output Power	9.76 dBm (0.0095 W) For 1Mbps 5.11 dBm (0.0032 W) For 3Mbps
Product Description for LE	Operation Frequency	2402 MHz ~ 2480 MHz
	Modulation Technology	GFSK
	Bit Rate of Transmitter	1Mbps
	Max. Output Power	7.75 dBm (0.0060 W)

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. Channel List:
For BT EDR:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

For LE:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	20	2442
01	2404	21	2444
02	2406	22	2446
03	2408	23	2448
04	2410	24	2450
05	2412	25	2452
06	2414	26	2454
07	2416	27	2456
08	2418	28	2458
09	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
15	2432	35	2472
16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
19	2440	39	2480

3. Table for Filed Antenna:

For Left Earphone (297L)

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	 South Star	F01-6375-R0A	FPC	N/A	0.46

For Right Earphone (297R)

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	 South Star	F01-6376-R0A	FPC	N/A	1.06

Note: Both of antennas were tested and found the worst case was the Right Earphone. In this report only recorded the worst case.

2. GENERAL CONCLUSION:

According to FCC KDB447498 D01, Appendix A, SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:

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

- $f(\text{GHz})$ 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

Appendix A - SAR Test Exclusion Thresholds for 100 MHz - 6 GHz and ≤ 50 mm

MHz	5	10	15	20	25	30	35	40	45	50	mm
150	39	77	116	155	194	232	271	310	349	387	SAR Test Exclusion Thresholds (mW)
300	27	55	82	110	137	164	192	219	246	274	
450	22	45	67	89	112	134	157	179	201	224	
835	16	33	49	66	82	98	115	131	148	164	
900	16	32	47	63	79	95	111	126	142	158	
1500	12	24	37	49	61	73	86	98	110	122	
1900	11	22	33	44	54	65	76	87	98	109	
2450	10	19	29	38	48	57	67	77	86	96	
3600	8	16	24	32	40	47	55	63	71	79	
5200	7	13	20	26	33	39	46	53	59	66	
5400	6	13	19	26	32	39	45	52	58	65	
5800	6	12	19	25	31	37	44	50	56	62	

Maximum measured transmitter power:

For BT EDR:

Max. Output Power (dBm)	Max. Output Power (mW)	Limit (mW)
9.76	9.462	10

For LE:

Max. Output Power (dBm)	Max. Output Power (mW)	Limit (mW)
7.75	5.957	10

The maximum measured output peak power of this EUT is 9.462mW, less than 10 mW at 5mm distance.

Conclusion: No SAR evaluation required since transmitter power is below FCC threshold.

End of Test Report