

# **FCC RF EXPOSURE REPORT**

**FCC ID: Q87-RE7000**

**Project No. : 1602056**  
**Equipment : WiFi repeater**  
**Model : RE7000**  
**Applicant : Linksys LLC**  
**Address : 121 Theory Drive, Irvine, CA, 92617, USA**

**According: : FCC Guidelines for Human Exposure IEEE  
C95.1**

**B T L I N C .**

B1, No.37, Lane 365, Yang Guang St.,  
Nei-Hu District, Taipei City 114, Taiwan.  
TEL:+886-2-2657-3299 FAX: +886-2- 2657-3331

## MPE CALCULATION METHOD:

Calculation Method of RF Safety Distance:

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

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

Table for Filed Antenna

2.4G Band:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	Aristotle	N/A	PCB	iPEX	3.48	TX/RX
2	Aristotle	N/A	PCB	iPEX	0.56	TX/RX

5G Band:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)		Note
					Band 1	Band 4	
1	Aristotle	N/A	PCB	iPEX	3.21	3.21	TX/RX
2	Aristotle	N/A	PCB	iPEX	3.30	3.30	TX/RX
3	Aristotle	N/A	PCB	iPEX	3.25	3.25	TX/RX
4	Aristotle	N/A	PCB	iPEX	2.46	2.46	TX/RX

# TEST RESULTS

## 2.4G:

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	25 °C	Relative Humidity:	65 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX B Mode /CH01, CH06, CH11		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.48	2.2284	16.91	49.0908	0.02177461	1	Complies
3.48	2.2284	16.39	43.5512	0.01931748	1	Complies
3.48	2.2284	16.34	43.0527	0.01909635	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	25 °C	Relative Humidity:	65 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX G Mode /_ Total CH01, CH06, CH11		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.48	2.2284	25.73	374.1106	0.16593973	1	Complies
3.48	2.2284	25.86	385.4784	0.17098199	1	Complies
3.48	2.2284	26.04	401.7908	0.17821751	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	25 °C	Relative Humidity:	65 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-20M Mode_ Total /CH01, CH06, CH11		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.48	2.2284	25.58	361.4099	0.16030622	1	Complies
3.48	2.2284	25.16	328.0953	0.14552928	1	Complies
3.48	2.2284	25.61	363.9150	0.16141741	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	25 °C	Relative Humidity:	65 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	TX N-40M Mode_Total /CH03, CH06, CH09		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.48	2.2284	25.34	341.9794	0.15168770	1	Complies
3.48	2.2284	25.27	336.5116	0.14926238	1	Complies
3.48	2.2284	25.53	357.2728	0.15847121	1	Complies

## 5G Band: Non-Beamforming

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX A Mode_Total /CH36, CH40, CH48		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	21.21	132.1296	0.05622771	1	Complies
3.30	2.1380	20.83	121.0598	0.05151698	1	Complies
3.30	2.1380	20.53	112.9796	0.04807844	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX N20 Mode_Total /CH36, CH40, CH48		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	22.72	187.0682	0.07960684	1	Complies
3.30	2.1380	22.36	172.1869	0.07327408	1	Complies
3.30	2.1380	22.09	161.8080	0.06885736	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX N40 Mode _Total /CH38, CH46		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	24.17	261.2161	0.11116047	1	Complies
3.30	2.1380	23.82	240.9905	0.10255347	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX AC20 Mode _Total /CH36, CH40, CH48		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	22.51	178.2379	0.07584909	1	Complies
3.30	2.1380	22.70	186.2087	0.07924108	1	Complies
3.30	2.1380	22.22	166.7247	0.07094967	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX AC40 Mode _Total /CH38, CH46		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	22.37	172.5838	0.07344299	1	Complies
3.30	2.1380	21.95	156.6751	0.06667306	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX AC80 Mode _Total /CH42		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	25.22	332.6596	0.14156320	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/ TX A Mode_Total /CH149, CH157, CH165		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	21.09	128.5287	0.05469535	1	Complies
3.30	2.1380	21.06	127.6439	0.05431883	1	Complies
3.30	2.1380	21.03	126.7652	0.05394490	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX N20 Mode _Total /CH149, CH157, CH165		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	22.58	181.1340	0.07708154	1	Complies
3.30	2.1380	22.60	181.9701	0.07743733	1	Complies
3.30	2.1380	22.43	174.9847	0.07446469	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX N40 Mode _Total /CH151, CH159		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	23.84	242.1029	0.10302684	1	Complies
3.30	2.1380	23.74	236.5920	0.10068166	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX AC20 Mode _Total /CH149, CH157, CH165		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	22.76	188.7991	0.08034343	1	Complies
3.30	2.1380	22.75	188.3649	0.08015865	1	Complies
3.30	2.1380	22.75	188.3649	0.08015865	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX AC40 Mode _Total /CH151, CH159		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	23.56	226.9865	0.09659405	1	Complies
3.30	2.1380	23.48	222.8435	0.09483101	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX AC80 Mode _Total /CH155		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	25.65	367.2823	0.15629690	1	Complies

### 5G Band: Beamforming

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX N20 Mode _Total /CH36, CH40, CH48		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	22.90	194.9845	0.08297559	1	Complies
3.30	2.1380	22.40	173.7801	0.07395208	1	Complies
3.30	2.1380	18.87	77.0903	0.03280578	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX N40 Mode _Total /CH38, CH46		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	21.74	149.2794	0.06352583	1	Complies
3.30	2.1380	22.85	192.7525	0.08202578	1	Complies



EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-1/TX AC80 Mode _Total /CH42		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	20.25	105.9254	0.04507652	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX N20 Mode _Total /CH149, CH157, CH165		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	21.12	129.4196	0.05507448	1	Complies
3.30	2.1380	19.36	86.2979	0.03672403	1	Complies
3.30	2.1380	18.32	67.9204	0.02890350	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX N40 Mode _Total /CH151, CH159		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	22.14	163.6817	0.06965469	1	Complies
3.30	2.1380	22.48	177.0109	0.07532695	1	Complies

EUT:	WiFi repeater	Model Name :	RE7000
Temperature:	24 °C	Relative Humidity:	56 %
Test Voltage :	AC 120V/60Hz		
Test Mode :	UNII-3/TX AC80 Mode _Total /CH155		

Antenna Gain (dBi)	Antenna Gain (numeric)	Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.30	2.1380	19.08	80.9096	0.03443106	1	Complies

Note: the calculated distance is 20 cm.

So for 2.4G+5G simultaneous transmission (Non-Beamforming):

$$0.1782/1+0.1563/1=0.3345<1$$

So for 2.4G+5G simultaneous transmission (Beamforming):

$$0.1782/1+0.0830/1=0.2612<1$$