



Maximum Permissible Exposure Evaluation

FCC ID: 2AFIW-AR300M16

Report No.	:	TBR-C-202504-0055-17	
Applicant	:	GL Technologies (Hong Kong) Limited	
Equipment Under Test (EUT)			
EUT Name	:	300M Mini Smart Router	
Model No.	:	GL-AR300M16-EXT	
Series Model No.	:	GL-AR300M, GL-AR300M16, GL-AR300M-Ext	
Brand Name	:	GL.iNET	
Sample ID	:	HC-C-202504-0055-03-01-1#&HC-C-202504-0055-03-01-2#	
Receipt Date	:	2025-04-23	
Test Date	:	2025-04-23 to 2025-06-05	
Issue Date	:	2025-06-06	
Standards	:	FCC Part 2.1091	
Test Method	:	KDB 447498 D01 General RF Exposure Guidance v06	
Conclusions	:	PASS	
		In the configuration tested, the EUT complied with the standards specified above.	
Test By	:	Rick . chan	Rick chen
Reviewed By	:	Wade. Lv	Wade Lv
Approved By	:	Ivan Su	Ivan Su
This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.			

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Revision History



1. General Information about EUT

1.1 Client Information

Applicant	:	GL Technologies (Hong Kong) Limited
Address	:	Unit 601, Building 5W, Hong Kong Science Park, Shatin, N.T., Hong Kong
Manufacturer	:	GL Technologies (Hong Kong) Limited
Address	:	Unit 601, Building 5W, Hong Kong Science Park, Shatin, N.T., Hong Kong

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	300M Mini Smart Router								
Models No.	:	GL-AR300M, GL-AR300M16, GL-AR300M-Ext								
Model Different	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is Models with "Ext" are external antennas, while other models are built-in antennas, The GL-AR300M16 has one less nand flash compared to the GL-AR300MThe GL-AR300M16-Ext has one less nand flash compared to the GL-AR300M-Ext.								
Product Description	:	<table border="1"> <tr> <td>Operation Frequency:</td> <td>802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz</td> </tr> <tr> <td>Modulation Type:</td> <td>802.11b: DSSS (DQPSK, DBPSK, CCK) 802.11g: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11n: OFDM (QPSK, BPSK, 16QAM, 64QAM)</td> </tr> <tr> <td>External Antenna Gain:</td> <td>2.67dBi Dipole Antenna1 2.67dBi Dipole Antenna2</td> </tr> <tr> <td>Internal Antenna Gain:</td> <td>1.16dBi PCB Antenna1 1.16dBi PCB Antenna2</td> </tr> </table>	Operation Frequency:	802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz	Modulation Type:	802.11b: DSSS (DQPSK, DBPSK, CCK) 802.11g: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11n: OFDM (QPSK, BPSK, 16QAM, 64QAM)	External Antenna Gain:	2.67dBi Dipole Antenna1 2.67dBi Dipole Antenna2	Internal Antenna Gain:	1.16dBi PCB Antenna1 1.16dBi PCB Antenna2
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External Antenna Gain:	2.67dBi Dipole Antenna1 2.67dBi Dipole Antenna2									
Internal Antenna Gain:	1.16dBi PCB Antenna1 1.16dBi PCB Antenna2									
Power Rating	:	Adapter(KA12C-0502000US) INPUT: 100-240V~50/60Hz 0.35A Max OUTPUT: 5V/2000mA								
Software Version	:	----								
Hardware Version	:	----								

Remark: The above antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.



2. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U_{Lab})
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	± 3.50 dB ± 3.10 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	± 4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	± 4.50 dB
Radiated Emission	Level Accuracy: Above 1000MHz	± 4.20 dB
RF Power-Conducted	Level Accuracy: Above 1000MHz	± 0.95 dB
Power Spectral Density-Conducted	Level Accuracy: Above 1000MHz	± 3 dB
Occupied Bandwidth	Level Accuracy: 30MHz to 1000 MHz Above 1000MHz	$\pm 3.8\%$
Unwanted Emission-Conducted	Level Accuracy: 30MHz to 1000 MHz Above 1000MHz	± 2.72 dB
Temperature	/	$\pm 0.6^{\circ}\text{C}$
Humidity	/	$\pm 4\%$
Supply voltages	/	$\pm 2\%$
Time	/	$\pm 4\%$



3. Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1/F., Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351. Designation Number: CN1223.

IC Registration No.: (11950A)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A. CAB identifier: CN0056.



4. Method of Measurement for FCC

4.1 EUT Operation Condition:

Software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

4.2 Exposure Evaluation:

Equation from page 18 of OET Bulletin 65, Edition 97-01

$$S = (PG)/4\pi R^2$$

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

4.3 Simultaneous transmission MPE Considerations

According to KDB447498 D01 v06: All transmitters and antennas in the host must be either evaluated for MPE compliance, by measurement or computational modeling, or qualify for the standalone MPE test exclusion in section 7.1. Simultaneous transmission MPE test exclusion applies when the sum of the MPE ratios for all simultaneous transmitting antennas incorporated in a host device, based on the calculated/estimated, numerically modeled or measured field strengths or power density, is ≤ 1.0 . This means that:

$$\sum \text{ of MPE ratios} \leq 1.0$$



5. Test Result

Worst MPE Result							
Test Mode	Antenna	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	Max. ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm ²) [S]
2.4G b	Ant1	11.81	11±1	12	2.67	20	0.00583
	Ant2	12.04	12±1	13	2.67	20	0.00734
2.4G g	Ant1	12.56	12±1	13	2.67	20	0.00734
	Ant2	12.68	12±1	13	2.67	20	0.00734
2.4G n20	Ant1	11.94	11±1	12	2.67	20	0.00583
	Ant2	12.31	12±1	13	2.67	20	0.00734
2.4G n40	Ant1	7.94	7±1	8	2.67	20	0.00232
	Ant2	9.13	9±1	10	2.67	20	0.00368

Note: The antenna gain used max. antenna gain

Conclusion:

As specified in Table 1B of 47 CFR 1.1310- Limits for Maximum Permissible Exposure (MPE),

Limits for General Population/ Uncontrolled Exposure

Frequency Range (MHz)	Power density (mW/ cm ²)
300-1,500	F/1500
1,500-100,000	1.0

Summary simultaneous transmission information:

The sample supports two antennas for 2.4G WIFI Ant.1 and 2.4G WIF Ant.2.

The 2.4G WIFI Ant.1 and 2.4G WIF Ant.2 can transmit simultaneous.

The 2.4G WIFI Ant.1 and 2.4G WIF Ant.2 with two different Antenna.

According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;

\sum of MPE ratios ≤ 1.0

Summary simultaneous transmission results:

2.4G WIFI Antenna1 + 2.4G WIFI Antenna2 Maximum Simultaneous transmission MPE Ratios is
 $0.00734+0.00734=0.01468 \leq 1.0$

The measurement results comply with the FCC Limit per 47 CFR 2.1091 for the uncontrolled RF Exposure of mobile device.

-----END OF THE REPORT-----

