



# Maximum Permissible Exposure Evaluation

**FCC ID: 2AW68-NP1257GB**

## 1. Client Information

<b>Applicant</b>	:	Shenzhen SDMC Technology Co., Ltd.
<b>Address</b>	:	Room 1022, Floor 10, Building A, Customs Building, No. 2, Xin'an 3rd Road, Dalang Community, Xin'an Street, Bao'an District, Shenzhen, China
<b>Manufacturer</b>	:	Shenzhen SDMC Technology Co., Ltd.
<b>Address</b>	:	Room 1022, Floor 10, Building A, Customs Building, No. 2, Xin'an 3rd Road, Dalang Community, Xin'an Street, Bao'an District, Shenzhen, China

## 2. General Description of EUT

<b>EUT Name</b>	:	AC1200 Dual Band WiFi GPON Terminal, Dual Band WiFi GPON Terminal, Terminal WiFi GPON de doble banda AC1200
<b>Models No.</b>	:	NP1257GB
<b>Brand Name</b>	:	SDMC, Claro, D FIBRA
<b>Sample ID</b>	:	202302-0215-5-2#
<b>Operation Frequency</b>	:	U-NII-1: 5180MHz~5240MHz; U-NII-2A: 5260MHz~5320MHz U-NII-2C: 5500MHz~5720MHz; U-NII-3: 5745MHz~5825MHz 2.4G Wi-Fi: 2412MHz~2462MHz
<b>Modulation Type:</b>		802.11a: OFDM (QPSK, BPSK, 16QAM, 64QAM) 802.11b: DSSS (DQPSK, DBPSK, CCK) 802.11g: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11n: OFDM (QPSK, BPSK, 16QAM, 64QAM) 802.11ac: OFDM (QPSK, BPSK, 16QAM, 64QAM, 256QAM)
<b>Power Rating</b>	:	AC Adapter 1#(Model: SA12BV-120100U <b>SUNUN</b> ): Input: 100-240V~, 50/60Hz, 0.4A Output: 12.0V=1A AC Adapter 2#(Model: F12L33-120100SPAU <b>FRECOM</b> ): Input: 100-240V~, 50/60Hz, 0.3A Output: 12.0V=1.0A 12.0W
<b>Software Version</b>	:	N/A
<b>Hardware Version</b>	:	N/A
<b>Remark:</b>		(1) The adapter provided by the applicant, the verified for the RF conduction test provided by TOBY test lab. (2) Antenna information from antenna specification.



## Method of Measurement for FCC

### 1. Max. Antenna Gain:

Band	Antenna Type	Antenna Gain(dBi)	
		Ant. 1	Ant. 2
2.4G WiFi	Dipole	4.26	3.18
5G U-NII-1		3.67	3.22
5G U-NII-2A		3.67	3.23
5G U-NII-2C		3.11	3.24
5G U-NII-3		2.99	3.28

### 2. EUT Operation Condition:

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

### 3. 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

### Simultaneous transmission MPE Considerations

According to KDB447498: 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  $\leq 1.0$ .

This means that:

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





4. Test Result:

2.4G WiFi MPE Result									
Test Mode	Ant.	Channel	Conducted Power(max) (dBm)	Turn-up Power (dB)	Max tune up power (dBm) [P]	ANT Gain (dBi) [G]	Distance (cm) [R]	Power Density (mW/ cm <sup>2</sup> ) [S]	Limit (mW/ cm <sup>2</sup> )
11B	Ant1	2412	19.37	19±1	20	4.26	20	0.0531	1
	Ant2	2412	18.98	19±1	20	3.18	20	0.0414	1
	Ant1	2437	19.37	19±1	20	4.26	20	0.0531	1
	Ant2	2437	18.90	19±1	20	3.18	20	0.0414	1
	Ant1	2462	19.30	19±1	20	4.26	20	0.0531	1
	Ant2	2462	18.85	19±1	20	3.18	20	0.0414	1
11G	Ant1	2412	14.89	15±1	16	4.26	20	0.0211	1
	Ant2	2412	14.87	15±1	16	3.18	20	0.0165	1
	Ant1	2437	15.18	15±1	16	4.26	20	0.0211	1
	Ant2	2437	14.54	15±1	16	3.18	20	0.0165	1
	Ant1	2462	15.03	15±1	16	4.26	20	0.0211	1
	Ant2	2462	14.46	15±1	16	3.18	20	0.0165	1
11N20	Ant1	2412	14.27	14±1	15	4.26	20	0.0168	1
	Ant2	2412	13.61	14±1	15	3.18	20	0.0131	1
	Ant1	2437	13.82	14±1	15	4.26	20	0.0168	1
	Ant2	2437	13.39	14±1	15	3.18	20	0.0131	1
	Ant1	2462	13.74	14±1	15	4.26	20	0.0168	1
	Ant2	2462	13.27	14±1	15	3.18	20	0.0131	1
11N40	Ant1	2422	11.98	12±1	13	4.26	20	0.0106	1
	Ant2	2422	11.17	12±1	13	3.18	20	0.0083	1
	Ant1	2437	12.05	12±1	13	4.26	20	0.0106	1
	Ant2	2437	11.17	12±1	13	3.18	20	0.0083	1
	Ant1	2452	11.96	12±1	13	4.26	20	0.0106	1
	Ant2	2452	11.14	12±1	13	3.18	20	0.0083	1

Note: RF Output power specifies that Maximum Conducted Peak Output Power.





**5G Wi-Fi MPE worst Result**

Test Mode	Ant.	Channel (MHz)	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 <sup>2</sup> ) [S]	Limit (mW/ cm <sup>2</sup> )
11A	Ant1	5785	19.19	19±1	20	3.67	20	0.0463	1
	Ant2	5745	18.43	19±1	20	3.28	20	0.0423	1
11N20	Ant1	5785	18.10	18±1	19	3.67	20	0.0368	1
	Ant2	5785	17.01	18±1	19	3.28	20	0.0336	1
11N40	Ant1	5795	18.61	18±1	19	3.67	20	0.0368	1
	Ant2	5795	17.48	18±1	19	3.28	20	0.0336	1
11AC20	Ant1	5785	18.13	18±1	19	3.67	20	0.0368	1
	Ant2	5785	17.01	18±1	19	3.28	20	0.0336	1
11AC40	Ant1	5795	18.63	18±1	19	3.67	20	0.0368	1
	Ant2	5795	17.48	18±1	19	3.28	20	0.0336	1
11AC80	Ant1	5775	20.13	20±1	21	3.67	20	0.0583	1
	Ant2	5775	19.19	20±1	21	3.28	20	0.0533	1

**Note: RF Output power specifies that Maximum Conducted Peak Output Power.**





**5. 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 <sup>2</sup> )
300-1,500	F/1500
1,500-100,000	1.0

For: 2.4G&5G

MPE limit S: 1mW/cm<sup>2</sup>

The worst MPE is calculated as  $0.0583mW / cm^2 < limit 1mW / cm^2$ .

**6. Summary simultaneous transmission information**

Modulation Type	Work Frequency Band	Transmit Antenna		Antenna 1 Antenna 2 Synchronization Transmit
		Antenna 1	Antenna 2	
IEEE 802.11a	U-NII-1/ U-NII-2A U-NII-2C/ U-NII-3	Yes	Yes	No
IEEE 802.11b	2.4GHz	Yes	Yes	No
IEEE 802.11g	2.4GHz	Yes	Yes	No
IEEE 802.11n HT20	2.4GHz	Yes	Yes	Yes
IEEE 802.11n HT40	2.4GHz	Yes	Yes	Yes
IEEE 802.11n HT20	U-NII-1/ U-NII-2A U-NII-2C/ U-NII-3	Yes	Yes	Yes
IEEE 802.11n HT40	U-NII-1/ U-NII-2A U-NII-2C/ U-NII-3	Yes	Yes	Yes
IEEE 802.11ac VHT20	U-NII-1/ U-NII-2A U-NII-2C/ U-NII-3	Yes	Yes	Yes
IEEE 802.11ac VHT40	U-NII-1/ U-NII-2A U-NII-2C/ U-NII-3	Yes	Yes	Yes
IEEE 802.11ac VHT80	U-NII-1/ U-NII-2A U-NII-2C/ U-NII-3	Yes	Yes	Yes





## 7. Summary simultaneous transmission results

### Antenna 1 and Antenna 2 for 2.4G WLAN

Modulation Type	MPE Antenna 1 (mW/cm <sup>2</sup> )	MPE Antenna 2 (mW/cm <sup>2</sup> )	ΣMPE ratios	Limit	Results
IEEE 802.11b	0.0531	0.0414	/	1.0	PASS
IEEE 802.11g	0.0211	0.0165	/	1.0	PASS
IEEE 802.11n HT20	0.0165	0.0313	0.0478	1.0	PASS
IEEE 802.11n HT40	0.0106	0.0083	0.0189	1.0	PASS

### Antenna 1 and Antenna 2 for 5G RLAN

Modulation Type	MPE Antenna 1 (mW/cm <sup>2</sup> )	MPE Antenna 2 (mW/cm <sup>2</sup> )	ΣMPE ratios	Limit	Results
IEEE 802.11a	0.0463	0.0123	/	1.0	PASS
IEEE 802.11n HT20	0.0368	0.0336	0.0704	1.0	PASS
IEEE 802.11n HT40	0.0368	0.0336	0.0704	1.0	PASS
IEEE 802.11ac VHT20	0.0368	0.0336	0.0704	1.0	PASS
IEEE 802.11ac VHT40	0.0368	0.0336	0.0704	1.0	PASS
IEEE 802.11ac VHT80	0.0528	0.0533	0.1061	1.0	PASS

WiFi support Synchronization transmit the

Maximum MPE ratio 2.4GWiFi	Maximum MPE ratio 5GWiFi	ΣMPE ratios	Limit	Results
0.0531	0.1061	0.1592	1	PASS

So, RF exposure limit warning or SAR test are not required.

The EUT will only be used with a separation of 20cm or greater between the antenna and nearby persons and can therefore be considered a mobile transmitter per 47 CFR 2.1091 (b). The RF Exposure Information page from the manual is included here for reference.

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

