

# FCC ID:2AFZZ-XMTYY03PFMG

## RF EXPOSURE EVALUATION

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) Radiation as specified in §1.1307(b)

Limits for Maximum Permissible Exposure (MPE)

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density(mW/cm <sup>2</sup> )	Average Time
<b>(A) Limits for Occupational/Control Exposures</b>				
<b>300-1500</b>	--	--	<b>F/300</b>	<b>6</b>
<b>1500-100000</b>	--	--	<b>5</b>	<b>6</b>
<b>(B) Limits for General Population/Uncontrol Exposures</b>				
<b>300-1500</b>	--	--	<b>F/1500</b>	<b>6</b>
<b>1500-100000</b>	--	--	<b>1</b>	<b>30</b>

### 11.1 Friis transmission formula: $P_d = (P_{out} * G) / (4 * \pi * R^2)$

Where

$P_d$  = Power density in mW/cm<sup>2</sup>

$P_{out}$  = output power to antenna in mW

$G$  = Numeric gain of the antenna relative to isotropic antenna

$\pi$  = 3.1416

$R$  = distance between observation point and center of the radiator in cm

$P_d$  the limit of MPE, 1mW/cm<sup>2</sup>, If we know the maximum gain of the antenna, total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

RF Exposure Information: The radiated output power of this device meets the limits of FCC/IC radio frequency exposure limits. This device should be operated with a minimum separation distance of 20cm (8 inches) between the equipment and a person's body.

Characteristics	Description
<b>Product:</b>	Xiaomi Smart Projector L1 Pro
<b>Model Number:</b>	XMTYY03PFMG, XMTYY**PFMG (*=0-9, indicates for different market purposes) (Note: All models are identical in circuitry and electrical, mechanical and physical construction; the difference are model number for trading purpose. Mode XMTYY03PFMG was Chosen final test.)
<b>Test Sample S/N:</b>	N/A
<b>Variant Number:</b>	N/A
<b>Device Type:</b>	Bluetooth V5.0
<b>Data Rate :</b>	1Mbps, 2Mbps
<b>Modulation:</b>	GFSK
<b>Operating Frequency Range:</b>	2402-2480MHz
<b>Number of Channels:</b>	40 Channels
<b>Antenna Type:</b>	FPC Antenna
<b>Antenna Gain:</b>	2.47 dBi
<b>Power Supply:</b>	DC 19V from adapter
<b>Adapter:</b>	Model No:NSA120EC-19063201 Input:100-240V~50/60Hz 2.0A Max Output:19.0V/6.32A 120.0W
<b>Test Voltage:</b>	AC 120V/60Hz
<b>Temperature Range:</b>	0°C ~ +40°C
<b>Software Version:</b>	2.0.0.87
<b>Hardware Version:</b>	CO25FGN_TV

Characteristics	Description
<b>Product:</b>	Xiaomi Smart Projector L1 Pro
<b>Model Number:</b>	XMTYY03PFMG, XMTYY**PFMG (*=0-9, indicates for different market purposes) (Note: All models are identical in circuitry and electrical, mechanical and physical construction; the difference are model number for trading purpose. Mode XMTYY03PFMG was Chosen final test.)
<b>Test Sample S/N:</b>	N/A
<b>Variant Number:</b>	N/A
<b>Device Type:</b>	Bluetooth V5.0
<b>Data Rate:</b>	1Mbps for GFSK modulation 2Mbps for $\pi/4$ -DQPSK modulation 3Mbps for 8DPSK modulation
<b>Modulation:</b>	GFSK, $\pi/4$ -DQPSK, 8DPSK
<b>Operating Frequency Range(s) :</b>	2402-2480MHz
<b>Number of Channels:</b>	79 channels
<b>Antenna Type:</b>	FPC Antenna
<b>Antenna Gain:</b>	2.47dBi
<b>Power supply:</b>	DC 19V from adapter
<b>Adapter:</b>	Model No:NSA120EC-19063201 Input:100-240V~50/60Hz 2.0A Max Output:19.0V/6.32A 120.0W
<b>Test Voltage:</b>	AC 120V/60Hz
<b>Temperature Range:</b>	0°C ~ +40°C
<b>Software Version:</b>	2.0.0.87
<b>Hardware Version:</b>	CO25FGN_TV

Characteristics	Description
<b>Product:</b>	Xiaomi Smart Projector L1 Pro
<b>Model Number:</b>	XMTYY03PFMG, XMTYY**PFMG (*=0-9, indicates for different market purposes) (Note: All models are identical in circuitry and electrical, mechanical and physical construction; the difference are model number for trading purpose. Mode XMTYY03PFMG was Chosen final test.)
<b>Test Sample S/N:</b>	N/A
<b>Variant Number:</b>	N/A
<b>IEEE 802.11 WLAN Mode Supported:</b>	802.11b 802.11g 802.11n(20MHz channel bandwidth) 802.11n(40MHz channel bandwidth)
<b>Modulation:</b>	DSSS with DBPSK/DQPSK/CCK for 802.11b; OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n;
<b>Operating Frequency Range:</b>	2412-2462MHz for 802.11b/g/n(HT20); 2422-2452MHz for 802.11n(HT40);
<b>Number of Channels:</b>	11 channels for 802.11b/g/n(HT20); 7 Channels for 802.11n(HT40);
<b>Antenna Port:</b>	<input checked="" type="checkbox"/> Antenna port 1, <input checked="" type="checkbox"/> Antenna port 2
<b>Antenna Type:</b>	<input checked="" type="checkbox"/> ANT 1: FPC Antenna <input checked="" type="checkbox"/> ANT 2: FPC Antenna
<b>Antenna Gain:</b>	<input checked="" type="checkbox"/> ANT 1: 2.78 dBi <input checked="" type="checkbox"/> ANT 2: 2.59 dBi
<b>Power Supply:</b>	DC 19V from adapter
<b>Adapter:</b>	Model No:NSA120EC-19063201 Input:100-240V~50/60Hz 2.0A Max Output:19.0V/6.32A 120.0W
<b>Test Voltage:</b>	AC 120V/60Hz
<b>Temperature Range:</b>	0°C ~ +40°C
<b>Software Version:</b>	2.0.0.87
<b>Hardware Version:</b>	CO25FGN_TV

Characteristics	Description
<b>Product:</b>	Xiaomi Smart Projector L1 Pro
<b>Model Number:</b>	XMTYY03PFMG, XMTYY**PFMG (*=0-9, indicates for different market purposes) (Note: All models are identical in circuitry and electrical, mechanical and physical construction; the difference are model number for trading purpose. Mode XMTYY03PFMG was Chosen final test.)
<b>Sample Number:</b>	2#
<b>Wifi Type:</b>	Wifi 5G with 5150MHz-5250MHz Band Wifi 5G with 5250MHz-5350MHz Band Wifi 5G with 5470MHz-5725MHz Band Wifi 5G with 5725MHz-5850MHz Band
<b>WLAN Supported:</b>	802.11a/n/ac
<b>Data Rate :</b>	802.11a: 54/48/36/24/12/9/6Mbps 802.11n: MCS0-MCS7 802.11ac: MCS0-MCS9
<b>Modulation:</b>	OFDM with BPSK/QPSK/16QAM/64QAM for 802.11a/n OFDM with BPSK/QPSK/16QAM/64QAM/256QAM for 802.11ac
<b>Frequency Range:</b>	UNII-1: 5150MHz-5250MHz Band 5180-5240MHz for 802.11a/n(HT20)/ac(VHT20) 5190-5230MHz for 802.11n(HT40)/ac(VHT40) 5210MHz for 802.11ac(VHT80)
	UNII-2A: 5250MHz-5350MHz Band 5260-5320MHz for 802.11a/n(HT20)/ac(VHT20) 5270-5310MHz for 802.11n(HT40)/ac(VHT40) 5290MHz for 802.11ac(VHT80)
	UNII-2C: 5470MHz-5725MHz Band 5500-5700MHz for 802.11a/n(HT20)/ac(VHT20) 5510-5670MHz for 802.11n(HT40)/ac(VHT40) 5530MHz for 802.11ac(VHT80)
	UNII-3 with 5725MHz-5850MHz Band 5745-5825MHz for 802.11a/n(HT20)/ac(VHT20) 5755-5795MHz for 802.11n(HT40)/ac(VHT40) 5775MHz for 802.11ac(VHT80);
<b>TPC Function:</b>	Not Applicable
<b>Antenna Port:</b>	<input checked="" type="checkbox"/> Antenna port 1 <input checked="" type="checkbox"/> Antenna port 2
<b>Antenna Type:</b>	FPC Antenna
<b>Antenna Gain:</b>	<input checked="" type="checkbox"/> ANT 1: 2.54 dBi <input checked="" type="checkbox"/> ANT 2: 1.98 dBi
<b>Power Supply:</b>	DC 19V from adapter
<b>Adapter:</b>	Model No:NSA120EC-19063201 Input:100-240V~50/60Hz 2.0A Max

	Output:19.0V/6.32A 120.0W
Test Voltage:	AC 120V/60Hz
Temperature Range:	0°C ~ +40°C
Software Version:	2.0.0.87
Hardware Version:	CO25FGN_TV
<b>Note:</b> 1.For more details, please refer to the User's manual of the EUT.	

## 11.2 Measurement Result

Below BT and WIFI mode can transmit simultaneously.

Mode	Max Conducted Power (dBm)	Antenna gain (dBi)	Antenna Gain Numeric	Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
BLE	5.35	2.47	1.77	0.00120	1
BT	5.79	2.47	1.77	0.00133	1
2.4G WIFI	17.34	2.78	1.90	0.02045	1
5G WIFI	17.99	2.54	1.79	0.02248	1

Max RF Exposure evaluation.

BT (mW/cm <sup>2</sup> )	5G WIFI (mW/cm <sup>2</sup> )	Summation of Evaluation result (mW/cm <sup>2</sup> )	Power density Limits (mW/cm <sup>2</sup> )
0.00133	0.02248	0.02381	1

**Note:** All the modes are tested, only the worst data are described in the table.

----- The End -----