



Test Report No.: FM2104WDG0365-1





# RF EXPOSURE REPORT

Applicant	DEI Sales Inc., dba Polk Audio
Address	5541 Fermi Court Carlsbad CA 92008 United States Of America

Manufacturer or Supplier	DEI Sales Inc., dba Polk Audio
Address	5541 Fermi Court Carlsbad CA 92008 United States Of America
Product	Magnifi Mini AX Ultra-Compact Sound Bar System
Brand Name	polk
Model	MAGNIFI MINI AX SOUND BAR
Additional Model & Model Difference	N/A
Date of tests	Apr. 30, 2021 ~ Oct. 11, 2021

- FCC Part 2 (Section 2.1091)
- KDB 447498 D01
- IEEE C95.1

**CONCLUSION: The submitted sample was found to COMPLY with the test requirement**

Tested by Lucas Chen Project Engineer / EMC Department	Approved by Glyn He Assistant Manager / EMC Department
	

Date: Dec. 06, 2021

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## TABLE OF CONTENTS

RELEASE CONTROL RECORD .....	3
1. CERTIFICATION.....	4
2. RF EXPOSURE LIMIT .....	5
3. MPE CALCULATION FORMULA.....	5
4. CLASSIFICATION .....	5
5. ANTENNA GAIN .....	6
6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER.....	6



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## RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FM2104WDG0365-1	Original release	Dec. 09, 2021

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## 1. CERTIFICATION

<b>PRODUCT:</b>	Magnifi Mini AX Ultra-Compact Sound Bar System
<b>BRAND NAME:</b>	polk
<b>MODEL NO.:</b>	MAGNIFI MINI AX SOUND BAR
<b>ADDITIONAL MODEL:</b>	N/A
<b>FCC ID:</b>	WLQMINIAXSB
<b>TEST SAMPLE:</b>	ENGINEERING SAMPLE
<b>APPLICANT:</b>	DEI Sales Inc., dba Polk Audio
<b>STANDARDS:</b>	FCC Part 2 (Section 2.1091)
	KDB 447498 D01
	IEEE C95.1

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## 2. RF EXPOSURE LIMIT

### 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 (minutes)
<b>LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE</b>				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

## 3. MPE CALCULATION FORMULA

$$Pd = (Pout * G) / (4 * pi * r^2)$$

where

Pd = power density in mW/cm<sup>2</sup>

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

## 4. CLASSIFICATION

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

## 5. ANTENNA GAIN

The antennas provided to the EUT, please refer to the following table:

Frequency Band	Antenna Gain (dBi)	Antenna Type
BT 2.4GHz	3.50	FPCB Antenna
Wi-Fi 2.4GHz	3.60	FPCB Antenna
Wi-Fi 5GHz (5150-5250MHz)	3.61	FPCB Antenna
Wi-Fi 5GHz (5250-5350MHz)	3.61	FPCB Antenna
Wi-Fi 5GHz (5500-5725MHz)	3.61	FPCB Antenna
Wi-Fi 5GHz (5725-5850MHz)	3.61	FPCB Antenna
Wireless 5.1GHz+5.8GHz	3.05	FPCB Antenna

## 6. CALCULATION RESULT OF MAXIMUM CONDUCTED POWER

The tuned conducted Average Power (declared by client)

Mode	Frequency (MHz)	Target Power (dBm)	Tolerance (dBm)	Lower Tolerance (dBm)	Upper Tolerance (dBm)
BT (GFSK)	2402-2480MHz	7	+1	6	8
BT (8DPSK)	2402-2480MHz	7	+1	6	8
BT-LE (GFSK)	2402-2480MHz	4	+1	3	5
802.11b	2412-2462MHz	14	+2	12	16
802.11g	2412-2462MHz	13	+2	11	15
802.11n HT20	2412-2462MHz	13	+2	11	15
802.11n HT40	2422-2452MHz	12	+1	11	13
Wi-Fi 5GHz(Band1)	5150-5250MHz	11	+1	10	12
Wi-Fi 5GHz(Band2)	5250-5350MHz	11	+1	10	12
Wi-Fi 5GHz(Band3)	5500-5725MHz	11	+1	10	12
Wi-Fi 5GHz(Band4)	5725-5850MHz	10	+1	9	11
Wireless 5.1GHz+5.8GHz	5160~5240MHz 5735~5840MHz	10	+1	9	11



The measured conducted Average Power

Mode	Frequency (MHz)	Averaged Power (dBm)
BT (GFSK)	2402	7.36
BT (8DPSK)	2402	6.85
BT-LE (GFSK)	2402	3.98
802.11b	2437	14.61
802.11g	2462	13.43
802.11n HT20	2462	13.39
802.11n HT40	2452	12.49
Wi-Fi 5GHz(Band1)	5240	10.98
Wi-Fi 5GHz(Band2)	5300	11.33
Wi-Fi 5GHz(Band3)	5700	10.84
Wi-Fi 5GHz(Band4)	5785	9.85
Wireless 5.1GHz+5.8GHz	5160	10.11

FREQUENCY BAND (MHz)	MAX AVERAGE POWER (dBm)	ANTENNA GAIN (dBi)	DISTANCE (cm)	POWER DENSITY (mW/cm <sup>2</sup> )	LIMIT (mW/cm <sup>2</sup> )
BT	8	3.50	20	0.002810	1.0
Wi-Fi 2.4GHz	16	3.60	20	0.018144	1.0
Wi-Fi 5GHz	12	3.61	20	0.007240	1.0
Wireless 5.1GHz+5.8GHz	11	3.05	20	0.005055	1.0



**CONCLUSION:**

The BT, Wi-Fi and Wireless 5.1GHz+5.8GHz can transmit simultaneously, but Wi-Fi 2.4G and Wi-Fi 5G can not transmit simultaneously, the formula of calculated the MPE is:

$$\text{CPD1} / \text{LPD1} + \text{CPD2} / \text{LPD2} + \dots \text{etc.} < 1$$

**CPD = Calculation power density**

**LPD = Limit of power density**

$(0.002810/1)+(0.018144/1)+(0.005055/1) = 0.026009 < 1$ , which is less than the “1” limit.

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