American Aires Inc.
Research and Development department

研究與開發部門

REPORT **報告**

R&D: Evaluation of the effective range of the LIFETUNE ZONE MAX (2022 model) at a frequency of 4.9 GHz (Wi-Fi 5 G)

研發：在頻率為 4.9 GHz（Wi-Fi 5G）下對 LIFETUNE ZONE MAX（2022 年型號）有效範圍的評估

The protective properties of the LT ZONE MAX are due to its ability to coherently convert the technogenic electromagnetic radiation of mobile communications without weakening the original signal.

LT ZONE MAX 的防護特性來源於其能夠相干地轉換行動通訊的人工電磁輻射，而不削弱原始信號。

An electromagnetic field converted using the LT ZONE MAX is a stationary coherent wave superposition with a corresponding energy density characterized by intensity I (see table). Calculations were made for the frequency 4.9 GHz, which is standard for Wi-Fi radiation and 5G mobile communications. The effectiveness of the LT ZONE MAX was estimated based on the intensity of the field transformed into a coherent form, determining the zone of maximum action.

經由 LT ZONE MAX 轉換後的電磁場為一個具有相應能量密度且由強度 I 表徵的穩定相干波疊加（見表）。計算以 4.9 GHz 頻率為準，此頻率為 Wi-Fi 輻射與 5G 行動通訊的標準。LT ZONE MAX 的效能是依據被轉換為相干形式的場的強度來估算，從而決定最大作用區域。

The stable electromagnetic field generated by the LT ZONE MAX has several fractal levels due to the number of ring elements in the topological circuit of its microprocessor and the size of the circuit itself. Outside the zone of maximum action, the density of the highly coherent field begins to decrease and, accordingly, the effectiveness of the device decreases.

由 LT ZONE MAX 所產生的穩定電磁場具有數個分形層次，這取決於其微處理器拓樸電路中環形元件的數量以及電路本身的尺寸。在最大作用區域之外，高度相干場的密度開始下降，相應地裝置的效能也隨之降低。

Table 1: Table of the basic parameters of the LT ZONE MAX

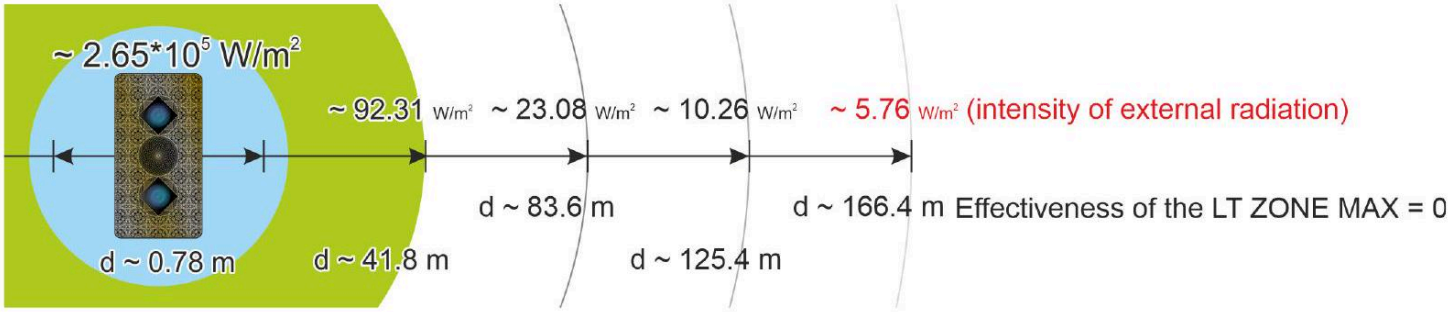
表 1：LT ZONE MAX 基本參數表

\captionsetup{labelformat=empty}

Diameter of the 64P1S5G microprocessor circuit **64P1S5G 微處理器電路的直徑**	0.02 m **0.02 公尺**
Number of elements in the topological circuit of the microprocessor **微處理器拓撲電路中的元件數量**	4161
Device size **裝置尺寸**	0.065 m/0.122 m
Diameter of the maximum effective zone of influence **最大有效影響區域的直徑**	0.78 m **0.78 公尺**
Recommended coverage diameter of the effective influence **建議的有效影響覆蓋直徑**	41.8 m **41.8 公尺**
Intensity I of the EM field in the maximum effective zone for the frequency 4.9GHz(5G) **在最大有效區域內，頻率為 $4.9\mathrm{GHz}(5\mathrm{G})$ 時電磁場的強度 I**	$2.65 * 10^5\ \mathrm{W/m^2}$

Fig. 1 shows the scale of the drop in the LT ZONE MAX's effectiveness using the example of its interaction with Wi-Fi radiation at a frequency of 4.9 $\mathrm{GHz}\ (I \sim 5.76\ \mathrm{W/m^2})$.

圖 1 顯示了以其與頻率為 4.9 $\mathrm{GHz}\ (I \sim 5.76\ \mathrm{W/m^2})$ 的 Wi-Fi 輻射交互為例，LT ZONE MAX 效能下降的尺度。



When the protective electromagnetic field's intensity decreases to the parameters of the intensity of external radiation, the LT ZONE MAX's effectiveness drops to zero.

當防護電磁場的強度降至外部輻射強度的同等參數時，LT ZONE MAX 的效能降為零。

If there are several external sources of radiation, it is necessary to use several devices LT ZONE in conjunction with the LT ZONE MAX, since the external radiation's total intensity dramatically reduces the LT ZONE's zone of effective influence.

若存在多個外部輻射源，則需與 LT ZONE MAX 一同使用多個 LT ZONE 裝置，因為外部輻射的總強度會劇烈縮小 LT ZONE 的有效影響範圍。

If there are powerful external sources of radiation, such as server data centers or cryptocurrency mining farms, as well as to cover large amounts of space, it is necessary to use several LT ZONE MAX and LT ZONE devices in a complex with the individual means of protection (LT FLEX, LT GO, LT ONE), since the external radiation's total intensity dramatically reduces the LT ZONE MAX's zone of effective influence.

若存在強大的外部輻射源，例如伺服器資料中心或加密貨幣挖礦場，或需涵蓋大面積空間，則必須將多個 LT ZONE MAX 與 LT ZONE 裝置以及個人防護設備（LT FLEX、LT GO、LT ONE）相結合使用，因為外部輻射的總強度會劇烈縮小 LT ZONE MAX 的有效影響範圍。

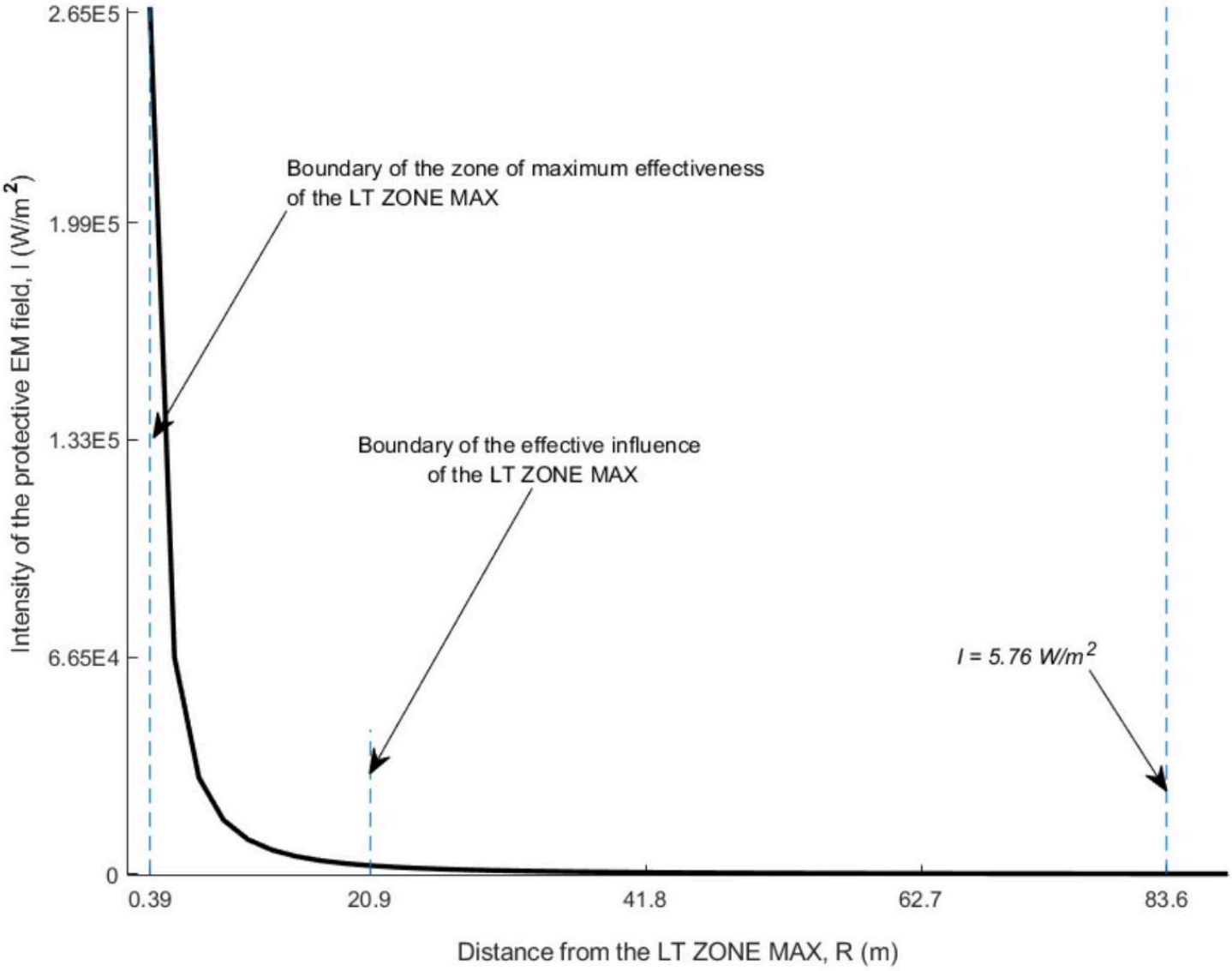
The decrease in effectiveness is determined by the decrease in the intensity of the protective EM field, which is inversely proportional to the square of the distance from the device (LT ZONE MAX) and is estimated using the following formula:

防護效能的降低是由防護電磁場強度的衰減所決定，該強度與距離（自裝置 LT ZONE MAX 起）的平方成反比，並以下列公式估算：

$$I \sim \frac{1}{R^2}.$$

At a distance of ~ 20.9 m from the center of the LT ZONE MAX (for EMR at a frequency of 4.9 GHz), the intensity of the protective field reaches a value at which the effectiveness drops to a critical level (see Fig. 2), determining the boundary of a highly coherent spherical field with a diameter of ~ 41.8 m.

在距 LT ZONE MAX 中心 ~ 20.9 m 處（針對頻率為 4.9 GHz 的電磁輻射），防護場的強度降至使效能下降到臨界水平的值（見圖 2），此點決定了高度相干球形場的邊界，其直徑為 ~ 41.8 m 。



Thus, the recommended coverage diameter of the effective influence of the LT ZONE MAX is ~ 41.8 m.

因此，建議的 LT ZONE MAX 有效影響覆蓋直徑為 ~ 41.8 m **。**

The indicated distances are reached in open space.

所示距離是在開放空間中達到的。