



# Company presentation

## 公司介绍

Sept. 2021  
2021年9月

## The company and the products 公司和产品

*Eagantu is a communications company focused on 5G solutions, advanced filtering, and wide bandwidth RF parts*  
Eagantu是一家专注于5G解决方案、先进滤波器和宽带射频零件的通信公司

*The company's patented technology (Asymmetric Coupled Networks, ACoN) enables design of miniature passive wideband **circulators**; advanced **RF filters** with high rejection and flexible bandwidth without frequency or bandwidth limitations*

利用Eagantu具专利的非对称耦合网络技术(ACoN技术)，使微型无源宽带**环行器**和不具频率或带宽限制的高阻灵活先进**滤波器**的设计成为可能

Visit us at 访问我们的网站 [www.eagantu.com](http://www.eagantu.com)

# Eagantu

*Founded in Israel, TerraLab incubator – Oct. 2013*  
2013年10月成立于以色列，TerraLab孵化器

*Behind the name: a Sanskrit word meaning newcomer*  
公司名称由来：Eagantu 在梵语意谓的是新来者

*Presently operating: Yokneam, Israel*  
目前运营于以色列的Yokneam

*Status: private company, fabless*  
公司现状：私人无厂半导体公司

*Eagantu - Intel Ingenuity Partner 2016*  
在2016年是英特尔独创项目合作伙伴

*Eagantu – Top 3 Winner of the China - Israel Innovation Contest, 2018*  
2018年中国-以色列创新创业大赛前三强

**Two families of products 两个系列产品：**

**RF filters – ready for mass production**  
射频滤波器 - 已可进入大规模生产

**Microwave circulators – pilot production in Q3'22**  
微波环行器 - 将于2022年第三季进行试生产

# Core team 核心团队

## Michael Dakhiya 博士

### CEO, Co-Founder 首席执行官和联合创始人

Former R&D Director and Business Development Director of AVX Corp., a leading American electronics producer.

Michael developed several electronic components which became industry standards.

Research interests: solid state physics, electromagnetism, optics, non-linear programming.

Michael 是美国领先电子产品制造商 AVX 公司的前研发总监和业务发展总监

他开发出的几个电子元件已成为行业标准  
研究焦点为固态物理学、电磁学、光学、非线性编程

## Roman Joffe 博士

### Chief Design Officer 首席设计官

Leading specialist in magnetic materials, electromagnetic simulations and microwave components.

Before Eagantu, served as microwave specialist in Israeli Aircraft Industries.

Research interests: electromagnetism, electrical engineering, electromagnetic simulations and software.

磁性材料、电磁模拟和微波元件方面的领先专家

在加入 Eagantu 之前，曾以微波专家身份在以色列飞机行业工作

研究聚焦：电磁学、电气工程、电磁模拟和软件

## Market need: RF filters for 5G 市场需求：用于5G的射频滤波器

Eagantu will replace some portion of existing RF filters\* for 5G, emerging WiFi and mm-wave bands

Eagantu will take a portion of the future RF filters applications for 5G.

Major drives: ability to reach very high frequencies (>6 GHz and mm-wave range), wide and flexible bandwidth, high power rating, low cost

Eagantu将为5G、新兴无线网络和毫米波频段取代部分现行射频滤波器\*

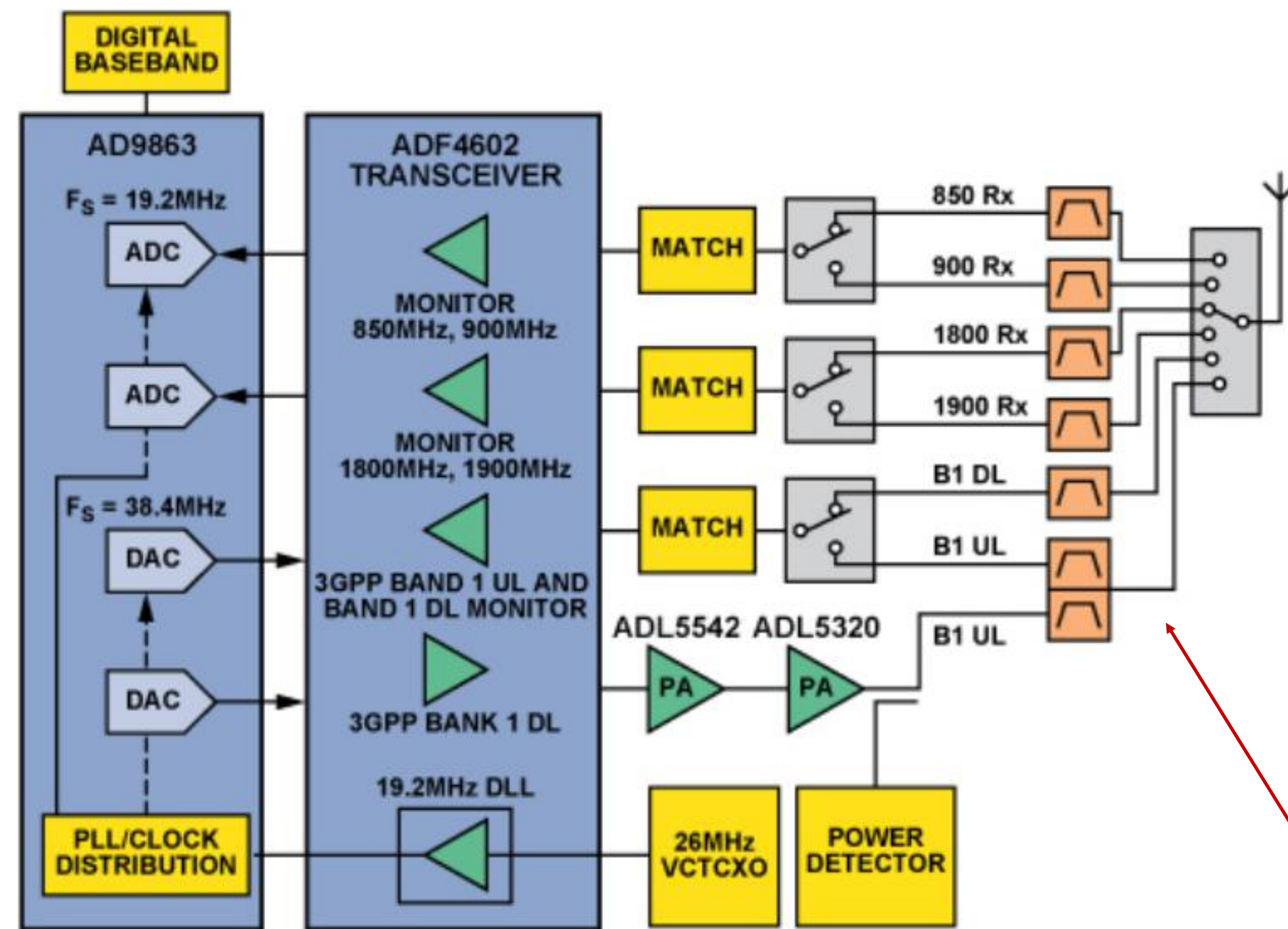
Eagantu未来将拿下5G一部分的射频滤波器应用

主要优势：能达到非常高的频率（大于6GHz和毫米波范围）、宽又灵活的带宽，高额定功率、低成本

*\*RF filter is a passive device that allows signals to pass through at discrete frequencies but rejects any frequency outside of the specified range*

\*射频滤波器是一种无源器件，允许信号在特定的频率下通过，并阻止指定范围外的频率

# Market need: RF filters for 4 and 5G, example 市场需求：用于4G和5G的射频滤波器，例如



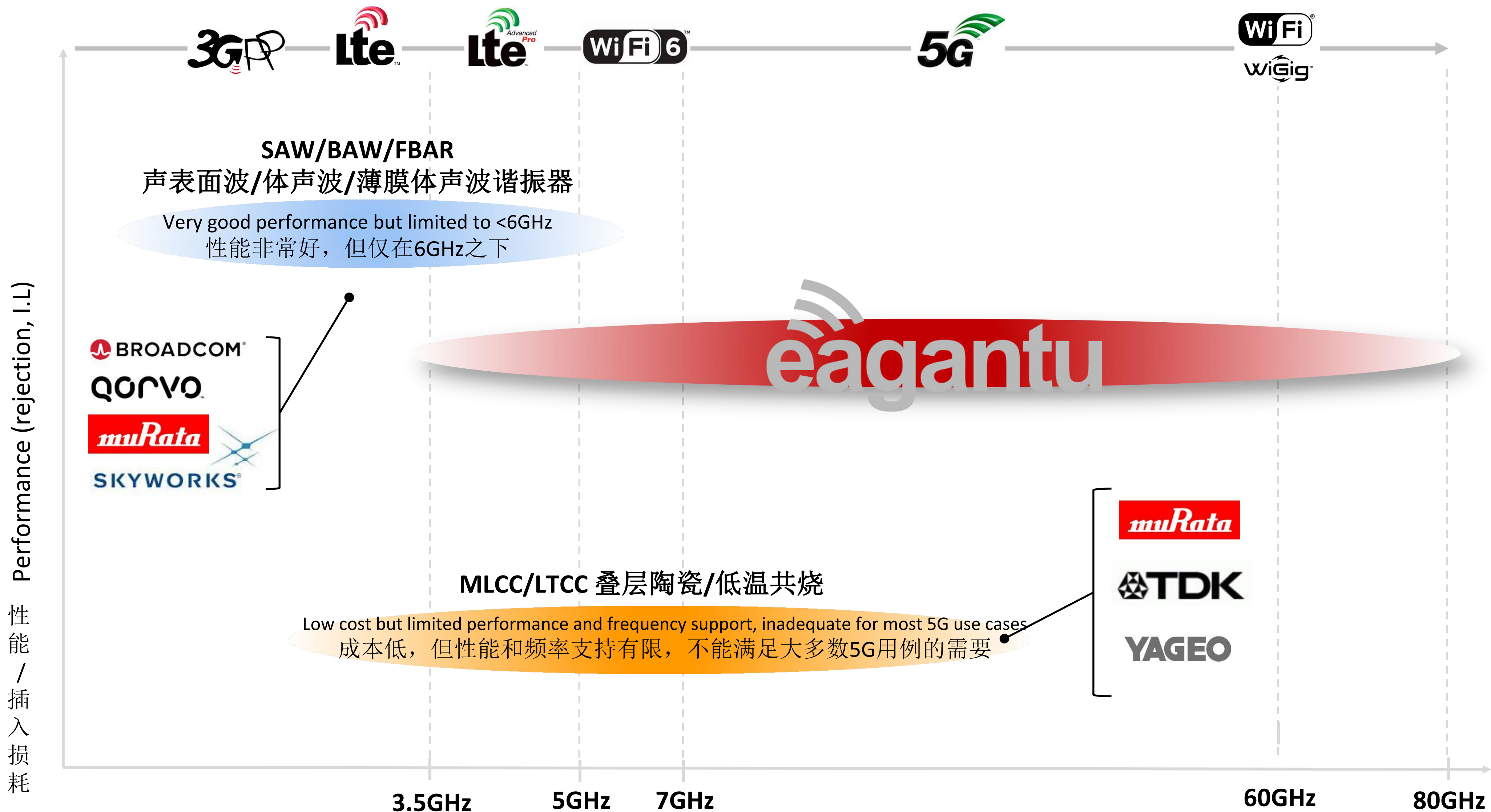
Standard non-tunable SAW and BAW acoustic filters are presently dominate the market for wireless communication and 5G. Their major advantages are good rejection and competitive cost for SAW. Their major disadvantages are low power rating (up to a few watts) and limited frequency range (<4.5 GHz for SAW and <6 GHz for BAW).

标准的不可调谐声表面波和体声波滤波器目前在无线通信和5G的市场中占主导地位。其主要优点是带阻良好且在生表面波的成本具竞争力。主要的缺点则是额定功率低（最多几瓦）和频率范围有限（声表面波小于4.5 GHz，体声波小于6 GHz）

5G Femto Base Station with Bank of Filters  
 Source: Analog Devices  
 带有滤波器组的节点基站  
 资料来源: Analog Devices

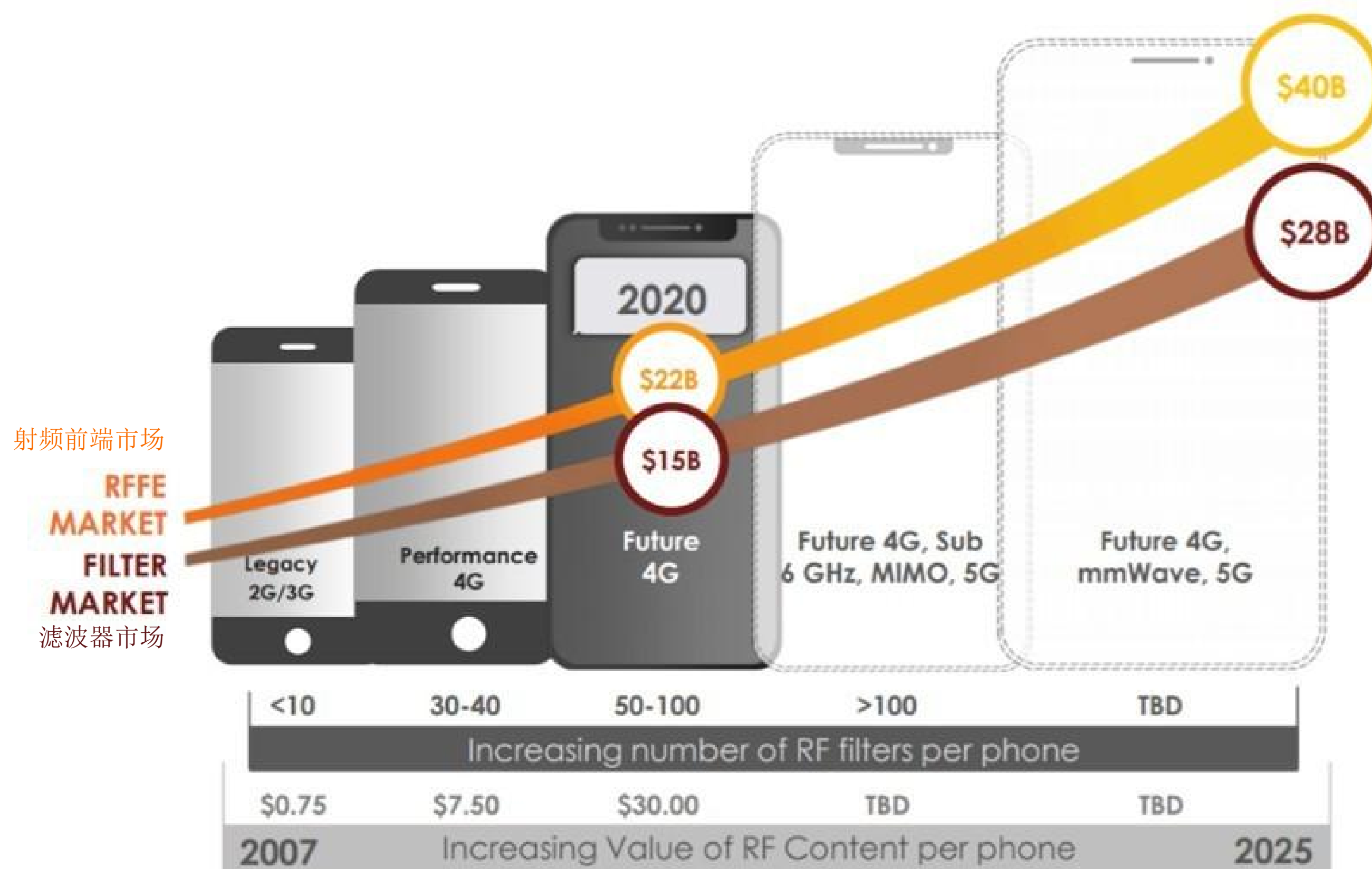
Multiple RF Filters are required for multiband wireless communications: cellular handsets, base stations, portable devices, etc.  
 多频段无线通信需要多个射频滤波器：蜂窝电话、基站、便携式设备等

# Eagantu filters pave the way to 5G Eagantu的滤波器为5G铺路

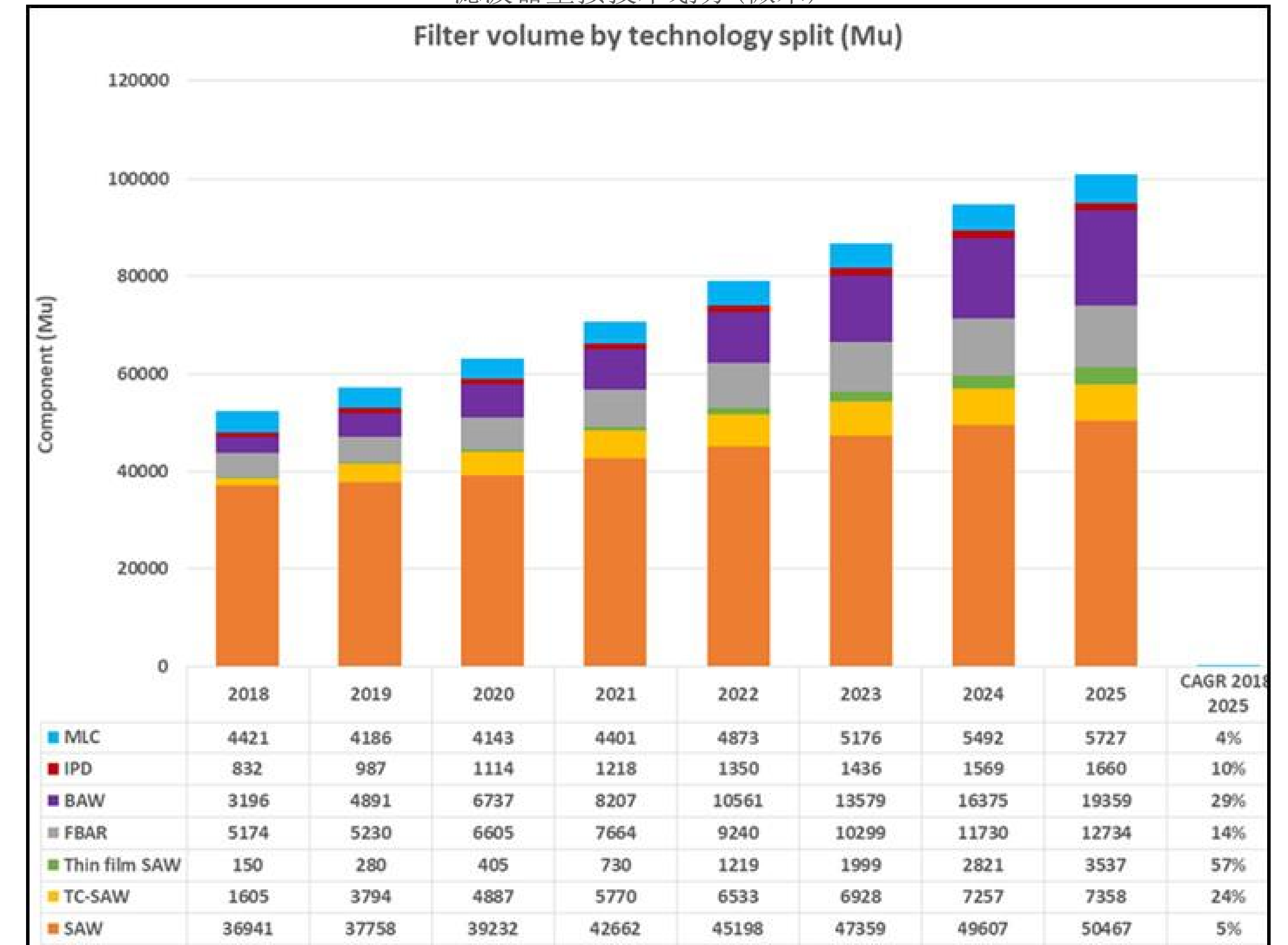


# TAM RF filters: fast growing demand for 5G

## 射频滤波器总可用市场：5G需求快速增长



滤波器量按技术划分(微米)





Market need: microwave circulators for 5G 市场需求：用于5G的微波环行器

*Eagantu will replace some portion of existing RF circulators\* for 5G infrastructure*

*Eagantu 将为5G基础设施取代部分现有射频环行器*

*Eagantu will take significant portion of future circulators applications*

*Eagantu 将拿下众多未来环行器应用*

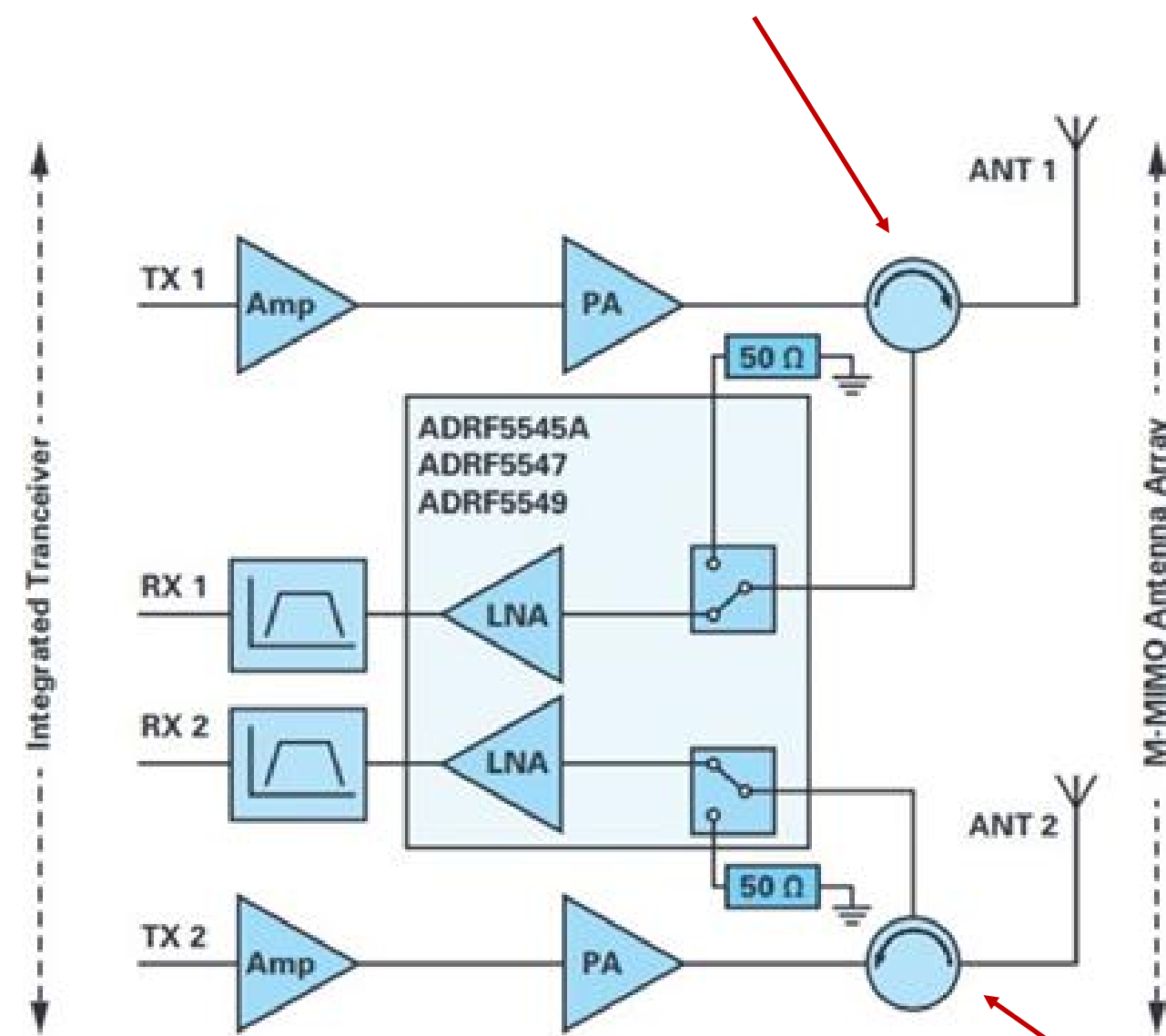
*Major drives: smallest physical size, lowest cost*

*主要驱动力：实际尺寸最小、成本最低*

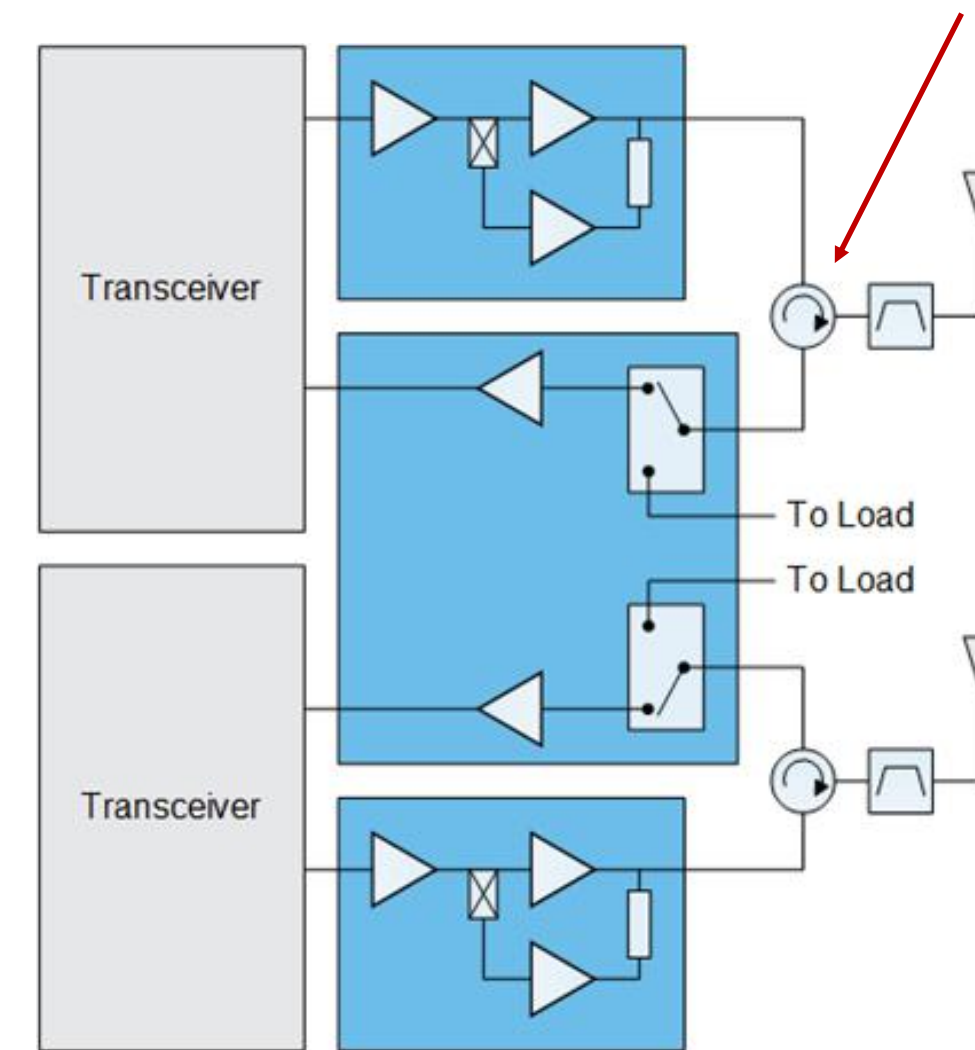
*\*Microwave circulator is a passive, non-reciprocal three- or four-port device that only allows a microwave or radio-frequency signal to exit through the port directly after the one it entered*

*微波环行器是一种无源的、非可逆的三端口或四端口装置，允许微波或射频信号直接在下一个端口出射*

# Market need: Circulators for 5G 市场需要：用于5G的环行器



5G Front End by Analog Devices (1.8 – 5.3 GHz)  
Analog Devices的5G前端



5G base station block diagram (Qorvo)  
5G基站方块图

According to Skyworks and Qorvo:

“Circulators play a critical role in 5G wireless communications protecting RF power amplifiers (PA / LNA) from excessive signal reflection from the antenna.”

环行器在5G无线通信中发挥关键作用，保护射频功率放大器(PA / LNA)免受来自天线的过度信号反射

# Market opportunity: Eagantu circulators for 5G

## 市场机会：用于5G的Eagantu环行器

Make	Size, mm	Estimated price,\$	Freq. GHz	I.Loss dB	Bandwidth MHz	Isolation dB
Skyworks SKFR-001685	10.2 dia.	1.1	2.5-2.7	0.3	190	20
Skyworks SKFR-00742	15 dia.	1.1	2.3-2.4	0.3	100	20
Skyworks SKFR-001692	10.2 dia.	1.1	3.4-3.6	0.23	200	21
TDK SU4S0508	5.2 by 5.0	0.9	3.5-3.7	1.2	200	10
Eagantu Target	<b>~3 by 3</b>	<b>~0.12*</b> *Cost	3.5-3.7 4.6-4.8	0.3-0.5	200-400	20

品牌

尺寸毫米

估计售价

频率(吉赫兹)

插入损耗(分贝) 带宽(兆赫)

隔离(分贝)

## Miniature Circulators for 5G: Eagantu' TAM 用于5G的微型循环器：Eagantu的总可用市场

According to the data provided by Skyworks Inc., 根据Skyworks的数据

Total available market (TAM) for small circulators (~ 10 -20 mm in size) for infrastructure applications was around \$70 M in 2018 and is going to grow to around \$500 M by 2025.

给基础设施应用的小型环行器(约10至20毫米大小)的总可用市场在2018年约为7000万美元，到2025年会增长到约5亿美元

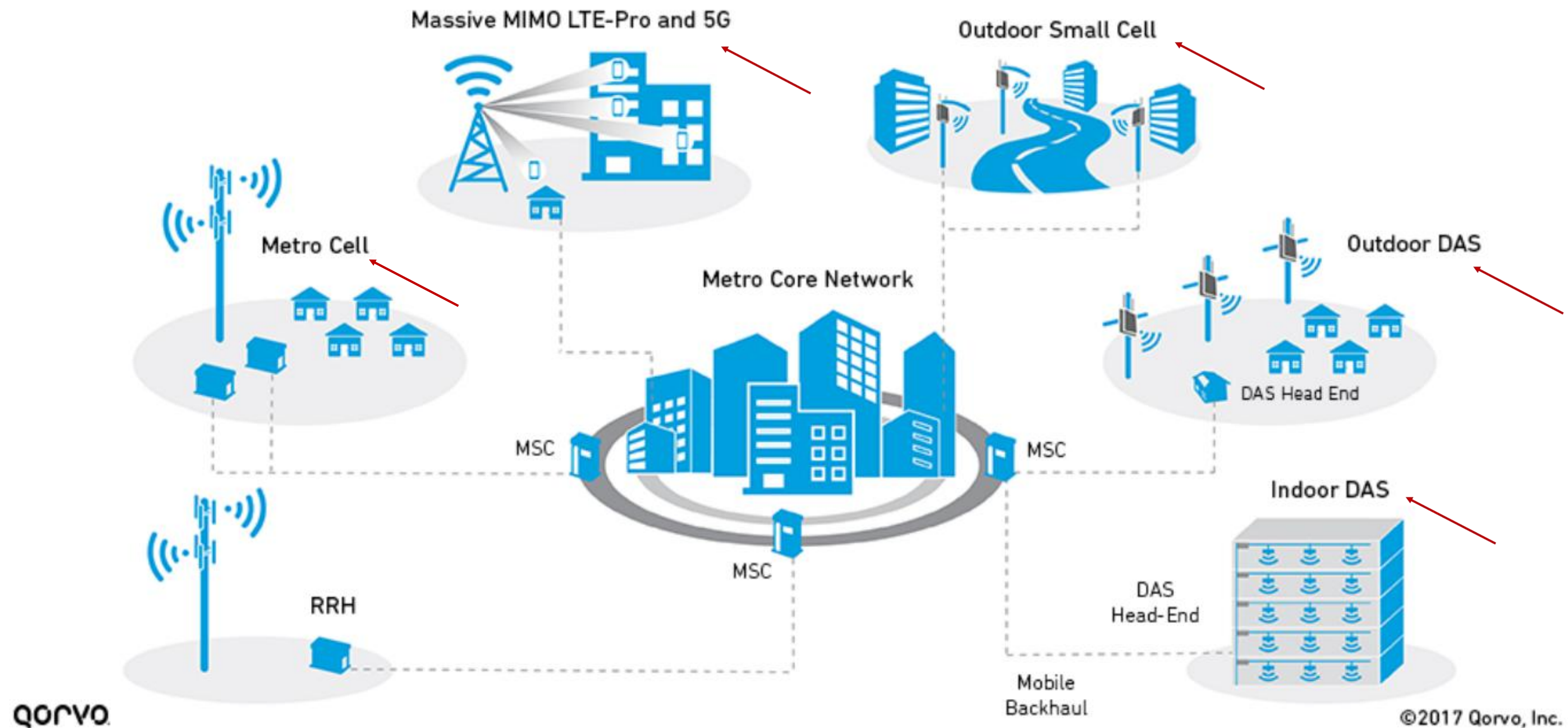
These data are not including TAM for miniature circulators implemented in portable devices.

这些数据并不包括便携式设备中之微型环行器的总可用市场

# Large TAM for microwave circulators 微波环行器的总可用市场庞大

Circulator as a part of wider system for protection of PA / LNA  
环行器作为广大系统的一部分，用于保护PA/LNA

Wireless Infrastructure: A Heterogeneous Network 无线基础设施：异质的网络



<https://www.sdxcentral.com/5g/definitions/key-elements-5g-network/>

## Innovative technology, Investment target 创新技术、投资目标



*Eagantu developed a generic technology for advanced 5G components.*  
Eagantu 为先进5G元件开发了通用技术



*No strong Chinese presence on the market of the advanced 5G microwave passive components: the market is dominated by Murata, Broadcom, Qorvo, Skyworks*  
在先进的5G微波无源元件市场上，中国没有明显份额，市场由村田、博通、Qorvo、Skyworks主导



*Eagantu's technology can help to close this gap.*  
Eagantu的技术可以帮助缩小这一落差

# Technology proof 技术证明

- Eagantu' filters are the enabling technology in wireless connectivity ranging from WiFi to WiGig, IoT and Automotive Systems  
Eagantu 的滤波器是无线连接的使能技术，范围从无线网络到无线千兆、物联网和汽车系统
- Eagantu developed generic designs for different 5G frequency bands up to 32 GHz  
Eagantu为不同的5G频段开发了通用设计，最高可达32GHz
- Eagantu' filters samples were manufactured by different foundries in Canada and France; these products are ready for mass production  
Eagantu 滤波器样品由加拿大和法国不同的代工生产，已为大规模生产做好准备
- Pilot production for Eagantu' circulators is planned for Q3'22  
Eagantu环行器试生产计划在22年第三季度进行
- Number of granted and pending patent applications  
多个已获专利和待批专利的申请

# Investment Target 资金目标

- Company's financing to-date totals ~\$2.5M  
公司迄今的融资总额约为250万美元
- Number of employees – 5 (2020)  
2020年的员工人数：5人
- Revenue - \$100K (2019), revenue for 2020 – see the next slide  
营收：2019年为10万美元、2020年的收入(见下一页)
- Amount planned for current round - \$5.0M  
本轮计划融资金额：500万美元
- The funds are intended to support the company in its go-to-market process and in building a solid growth foundation in the following two years  
资金会用在支持公司进入市场的进程，并在接下来的两年中建立坚实的增长根基



# Update for Y'2020 and COVID-19 2020年和COVID-19 疫情下的进展

- The COVID-19 pandemic caused significant slowdown in operations: received income - \$5K  
COVID-19疫情导致业务显著放缓， 仅获得收入5千美元
- However in May'2020, the company sign an agreement with a private Chinese company  
然而， 公司在2020年5月与一家中国的私人公司签署了一项协议
- Essence of the agreement: establishment of a JV in Israel, the JV to design the filters for mass production, Eagantu to transfer entire filter IP to the JV, the Chinese company to manufacture and sell the filters in China and worldwide and share profit with the JV, the Chinese company to pay several millions of USD to Eagantu as a compensation for filter IP transfer to the JV.  
协议的主要内容是共同在以色列建立一个合资公司， 由合资公司设计用于大规模生产的滤波器， Eagantu将整个滤波器的知识产权转让给合资公司， 中国公司在中国和世界各地生产和销售滤波器并与合资公司分享利润， 中国公司向Eagantu支付几百万美元作为将滤波器知识产权转让给合资公司的补偿
- The agreement was still not executed due to COVID-19 and related problems at the Chinese side.  
由于疫情以及与中方相关的问题， 此协议尚未履行
- Agreement can be revitalized in Y'2022, but in the meantime, Eagantu is free to explore other M&A options.  
协议可在2022年重新启动， 但与此同时Eagantu可自由探索其他并购选项

# Thank you 谢谢

## Contact us 联系我们

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