



Welcome – ASMG

GSMA Lunchtime Session

AI 1.13



Welcome – ASMG

Mohamed Abbes
Public Policy Director, MENA
GSMA



Impact of mmWave Spectrum in Middle East & North Africa

Brett Tarnutzer
Head of Spectrum
GSMA

5G needs spectrum across three ranges



Sub-1 GHz
1 – 6 GHz
AND ABOVE
6 GHz



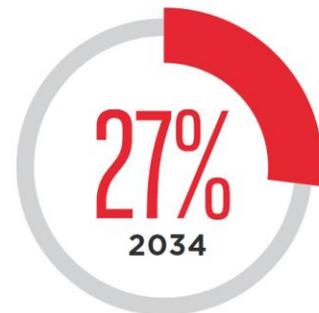
The socio-economic benefits of mmWave 5G (2020-2034)

Middle East and North Africa Edition

GDP impact of mmWave spectrum by 2034

 **\$15.4 billion**

TAX
\$3.1bn



The share of 5G services using mmWaves



Use cases for mmWave spectrum

5G: reaching it's full potential



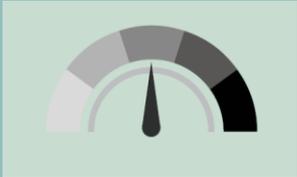
**Remote
manipulation**



**Industrial
automation**



**Quick/temp.
deployment**



**High-speed
broadband**



**Virtual reality
and meetings**



**Next-gen
transport
connectivity**



A lot at stake – WRC-19

A successful identification of spectrum for IMT under Agenda Item 1.13 is vital to realise the full potential of 5G networks

The GSMA supports the **26 GHz and 40 GHz** bands

The GSMA also supports **66-71 GHz**

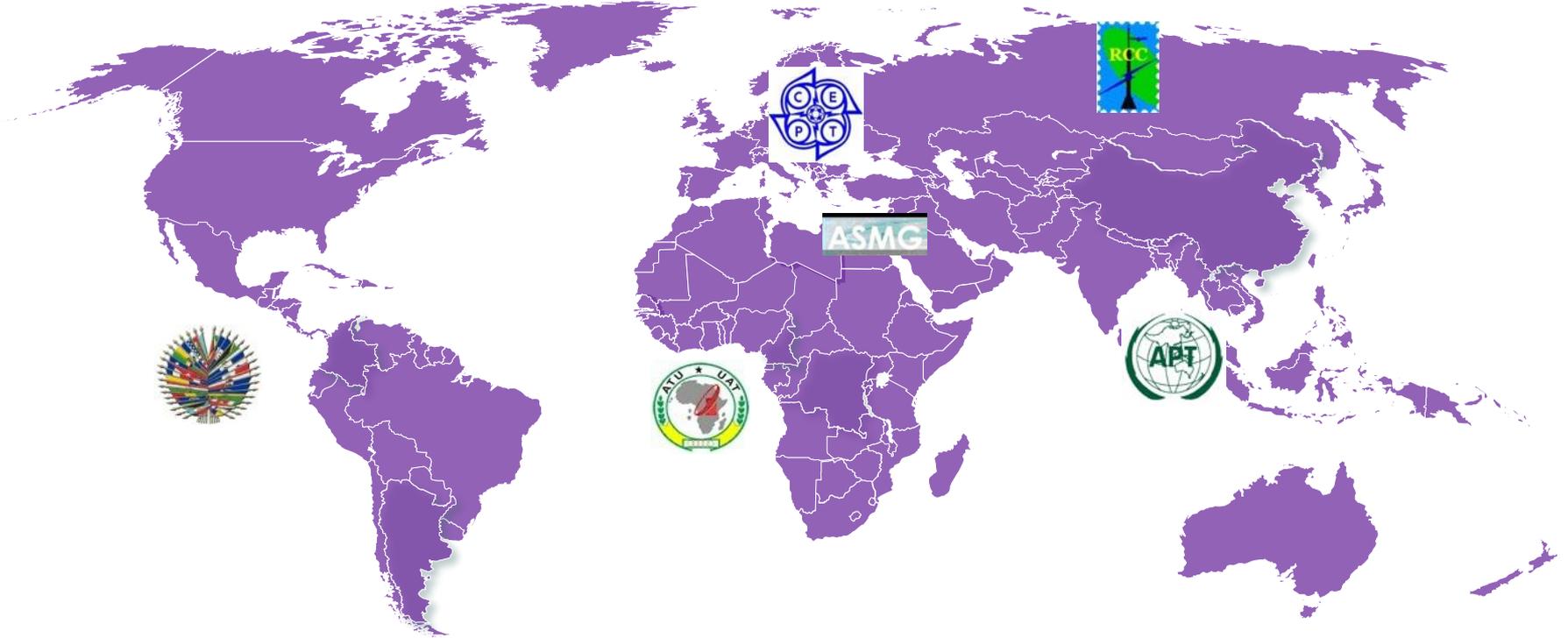
Due to the large amount of spectrum needed for 5G services, the range **45.5-52.6 GHz** also needs to be considered

Technical studies show coexistence between IMT and other services is possible

The result will have a major impact on the future of 5G



Target bands around the world





Dr. Abdulhadi AbouAlmal
Head of Section / Technology and Spectrum
Etisalat International



Noel Kirkaldy
Market Development MEA,
Nokia Enterprise (GSA ASMG)

GLOBAL HARMONISATION OF MILLIMETER WAVE SPECTRUM FOR IMT-2020

February 2019

Global mobile Suppliers Association

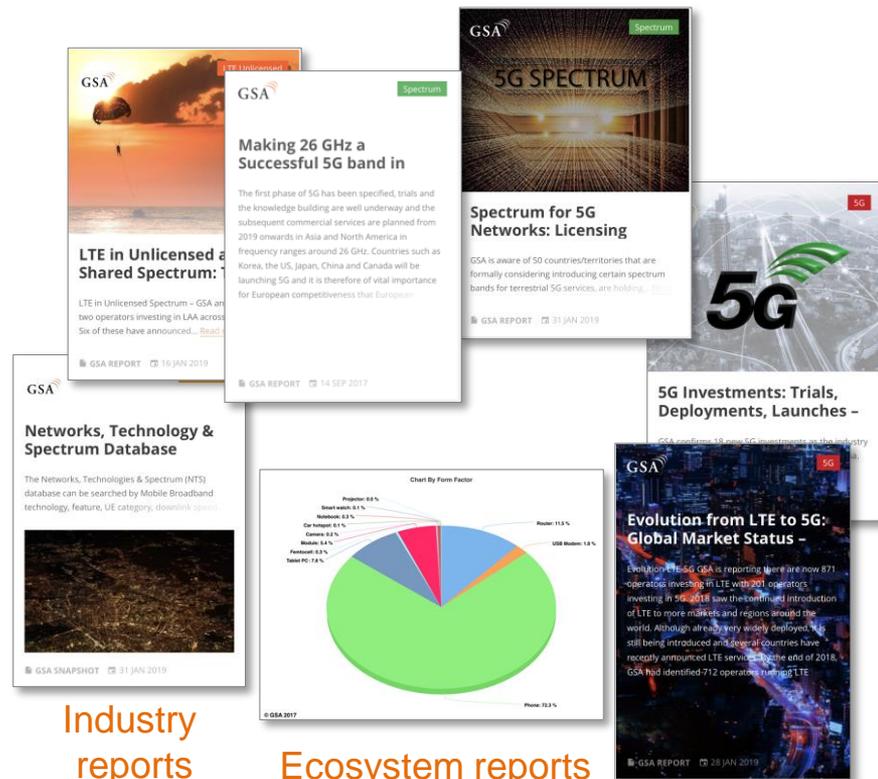


ABOUT GSA

See <https://gsacom.com/>

- GSA (the Global mobile Suppliers Association) is the *Voice of the Global Mobile Ecosystem* and has been supporting the industry since 1998
- GSA actively promotes the 3GPP technology and spectrum road-map – 3G; 4G; 5G – and is a single source of information resource for industry reports and market intelligence
- GSA reports are free to download and are based on our leading industry database – **GAMBoD**
- Regulators can access specific reports and consultation responses at <https://gsacom.com/regulators/>
- Regulator members have access to GAMBoD

Spectrum reports



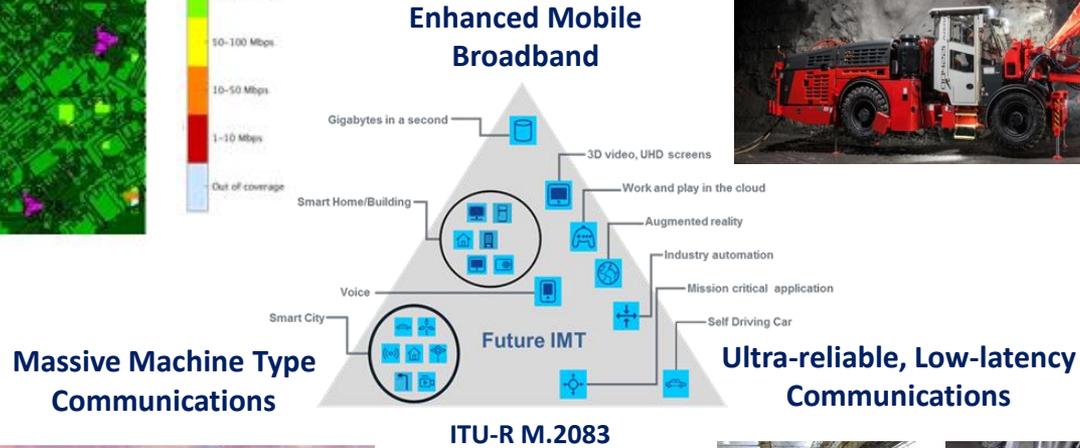
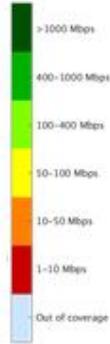
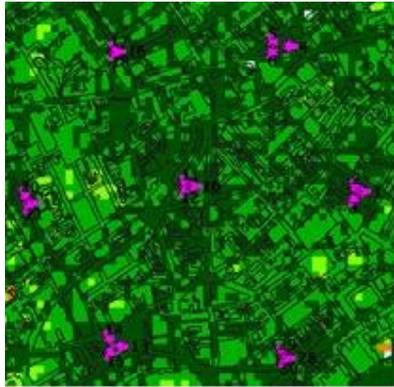
Industry reports

Ecosystem reports

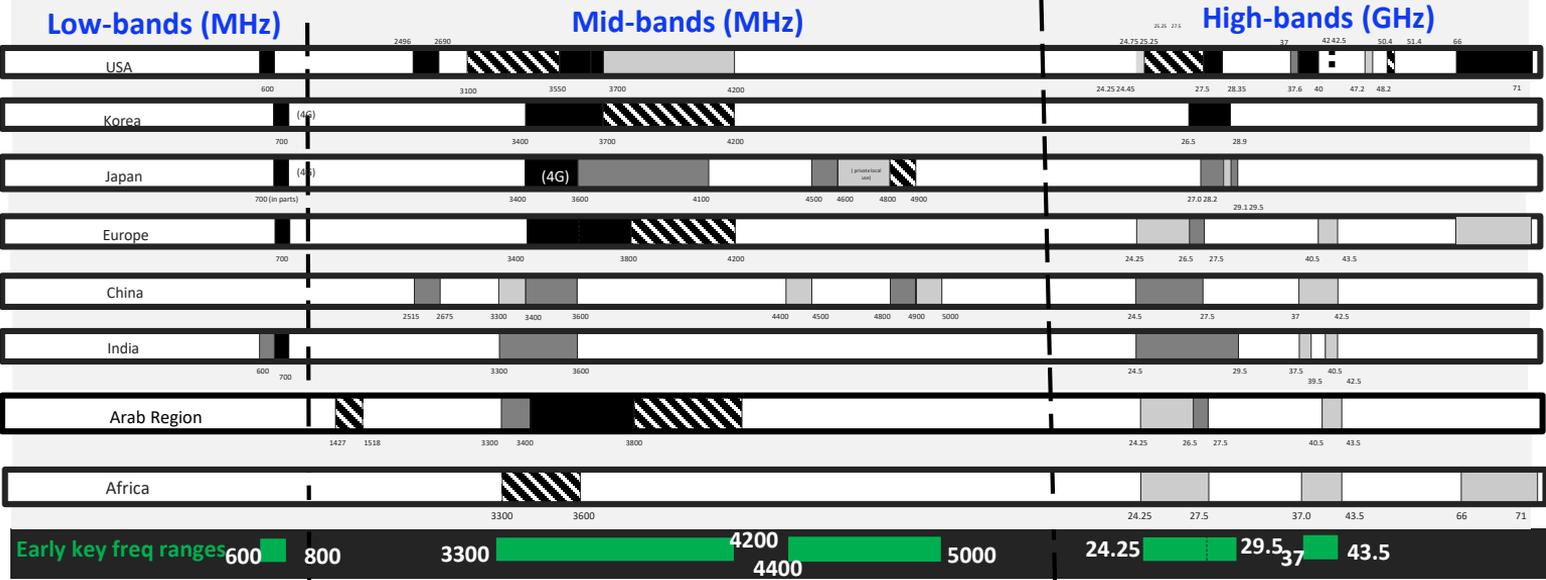
5G Reports

<https://gsacom.com/gambod/>

ENABLE A VARIETY OF USE CASES



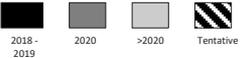
ENABLE A VARIETY OF FREQUENCY BANDS - EXAMPLES



Wide area, deep indoor

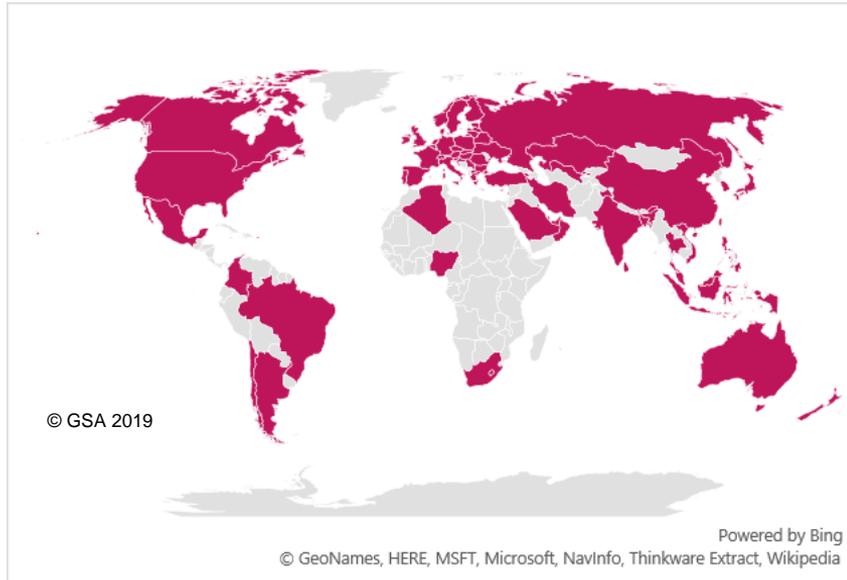
Capacity and Coverage

Extreme bitrates / low latency

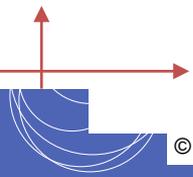
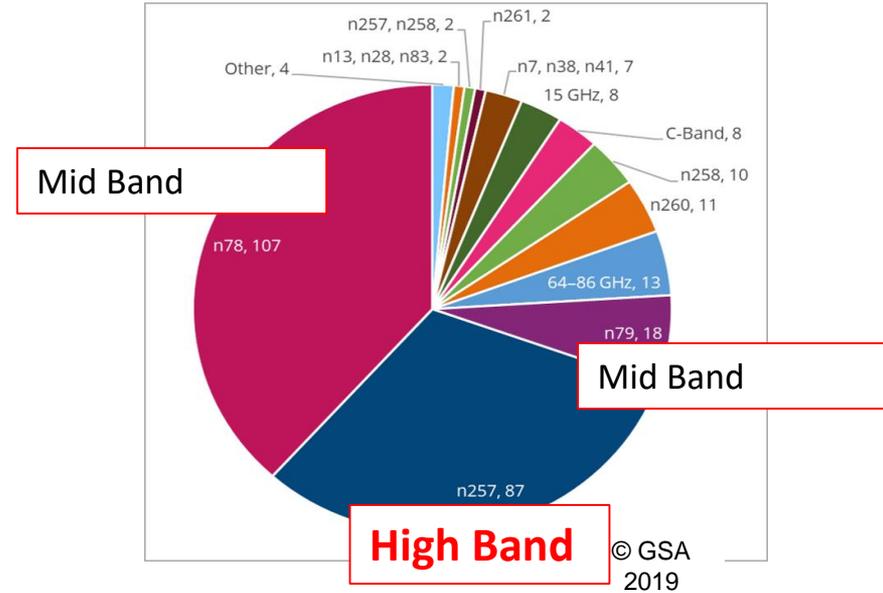


Key frequency ranges for early 5G NR deployments globally:
 600/700 MHz, 3.3-5 GHz, 26/28 GHz and 37-43.5 GHz

*Tests/trials/launches:
201 operators, 83 countries*



*Spectrum bands used in IMT-2020 / 5G trials, mapped to
3GPP 5G spectrum band allocations (November 2018)*



3GPP

- Initial 3GPP standard (Rel 15) completed
- Work started on release 16
- mmWave frequency bands specified, in addition to mid and low bands

NR – mmWave			
Band	Frequencies GHz	BW MHz	Duplex mode
n257	26.5 – 29.5	50 – 400	TDD
n258	24.25 – 27.5	50 – 400	TDD
n259	[40.5] – 43.5	50 - 400	TDD
n260	37.0 – 40.0	50 - 400	TDD
n261	27.5 – 28.35	50 – 400	TDD

Commercial equipment

- 5G Infrastructure base stations, chipsets, 5G/Wi-Fi routers and phones available 2018 – 2020 to support frequency bands available
- 5G Operator commercial deployments commenced



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600/700 MHz, 3.3-5 GHz, 26/28 GHz and 37-43.5 GHz**



The Industry Voice of the Global Mobile Ecosystem

<https://gsacom.com>





Closing remarks

Brett Tarnutzer
Head of Spectrum
GSMA



How will the industry prepare for 5G?

26 GHz

24.25-27.5 GHz

EESS (passive)
-32 to -35
dB(W/200MHz)

FSS / ISS sharing
studies show
significant
protection margin

40 GHz

37-43.5 GHz

EESS (passive)
Res 752 applies
Active band

FSS sharing is a
national issue

66 GHz

66-71 GHz

Flexible use for 5G
systems

Enabling both IMT
and non-IMT
technologies



MOBILE CHANGES EVERYTHING

mmWaves: unlock the full potential of 5G