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Una empresa de Redeia

The Path towards 5G NTN

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5G Strategy Manger

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What do we do?

Operator Infrastructure

Leading operator in **Spanish and Portuguese speaking markets**,

Service Provider

Satellite **solutions** with **solid positioning** in **HISPAM** and **civil government** projects

Track-record
Years in operation

+30

Market leadership
ranking by revenues in Europe and HISPAM

3rd/4th

Space infrastructure
GEO Satellites in orbit

13

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Iris2
LEO/MEO Satellites

300

Frequency bands

Ka – Ku
C

Two flavors of 5G-NTN (D2D and Broadband)

	Release 17	Release 18	Release 19
Satellite Operator	MSS Holder	FSS Holder	FSS Holder
Frequency band	L & S	Ka	Ku
Application	 D2D	 Broadband (VSAT)	 Broadband (mVSAT)
Numerology	FR1	FR2	FR1 & FR2

Why the broadband satellite sector embraced 5G-NTN?

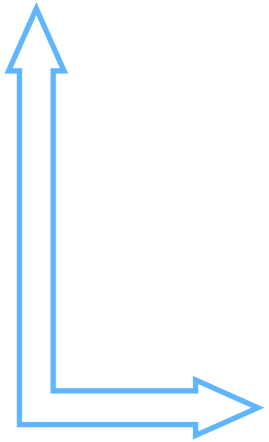
*To solve the two pains of the Satcom industry → **vendor lock-in** and **low volume market***

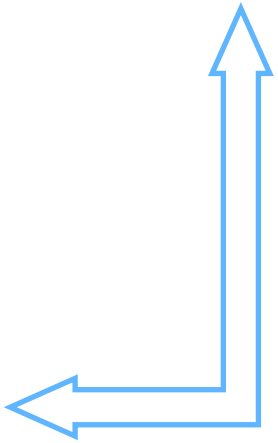
Economies of scale

Drop down terminal cost

Interoperability

Standard + high volumes





Chipset centric approach

Numerologies FR1 and FR2

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FR1 (Frequency Range 1)

SCS (15, 30 and 60 KHz)

Bandwidth from 1 of 100 MHz

Initially defined for bands <= 7GHz

FR2 (Frequency Range 2)

SCS (60 and 120 KHz)

Bandwidth from 50 to 400 MHz

Initially defined for bands > 24GHz

FR1 vs FR2 potential risks

FR2

Expensive modems and vendor lock-in

Only TDD FR2 chipsets- unlikely to get FDD update

Leading to a **higher modem cost**

Potential vendor lock-in

FR1 – *chipset centric?*

Performance degradation

Carrier aggregation (CA)

Phase noise due to lower SCS

What does 5G-NTN bring to Satellite industry?

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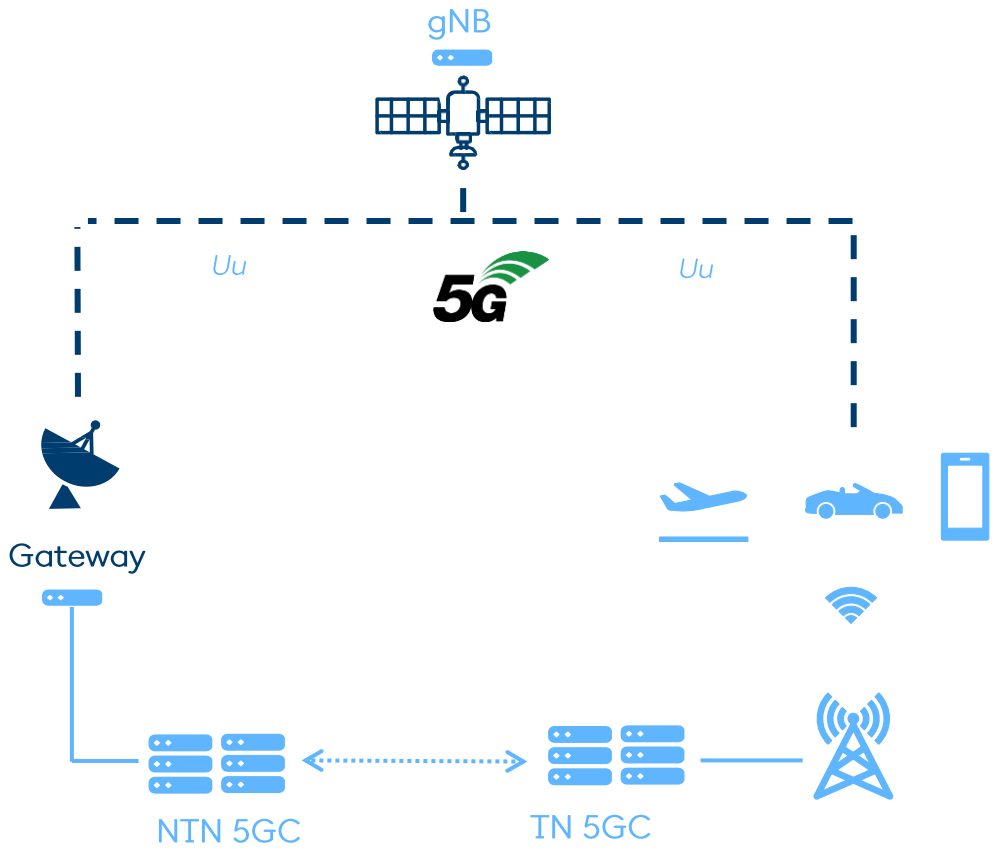
Technology

Commercial

Operations

Mindset



Hispasat path to 5G NTN

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5G NTN gNB and UE

5G stardust

TN – NTN integration

5G-HUB

G-HUB – 5G NTN integration

5G NTN Mobility use case

6G unity-6G

Dynamic resource allocation between TN and NTN

redeia

Valuing the essentials

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