

Resolving the 2 GHz Coexistence Challenge

An Executive Briefing on WRC-27
Agenda Item 1.14

Space / MSS

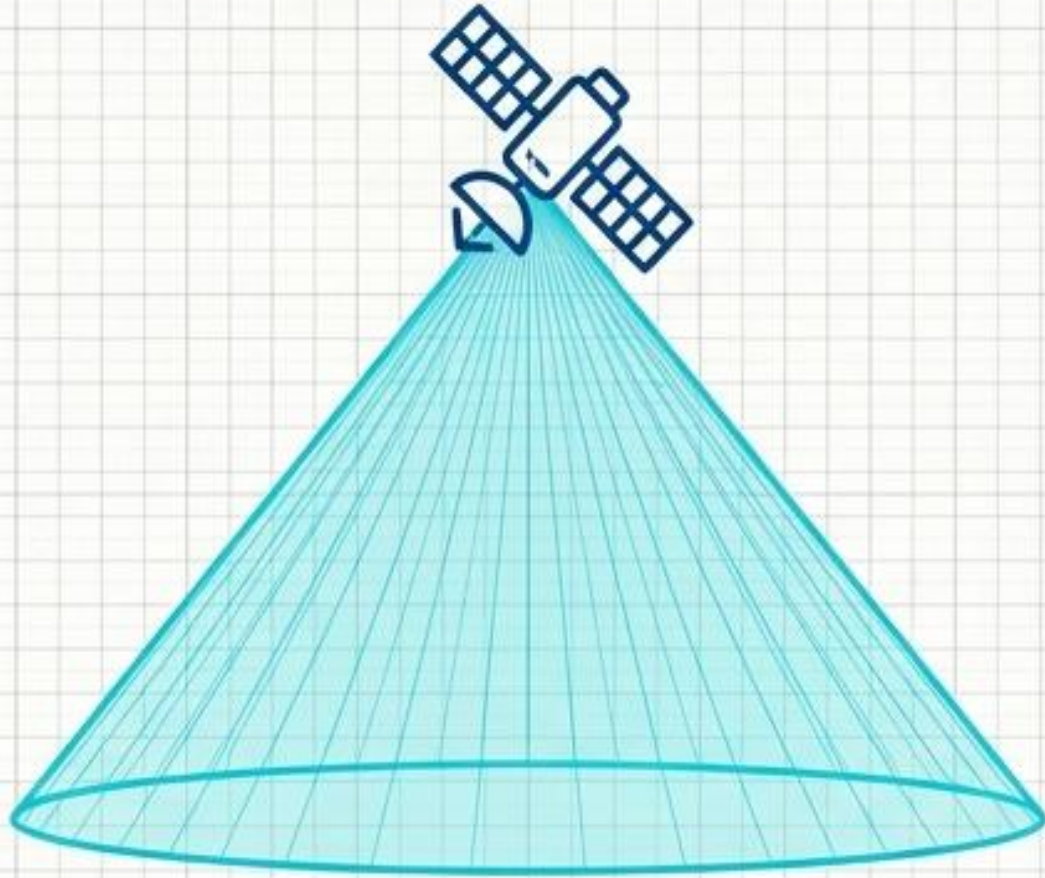
Terrestrial / IMT



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The Mandate: Expansion vs. Protection

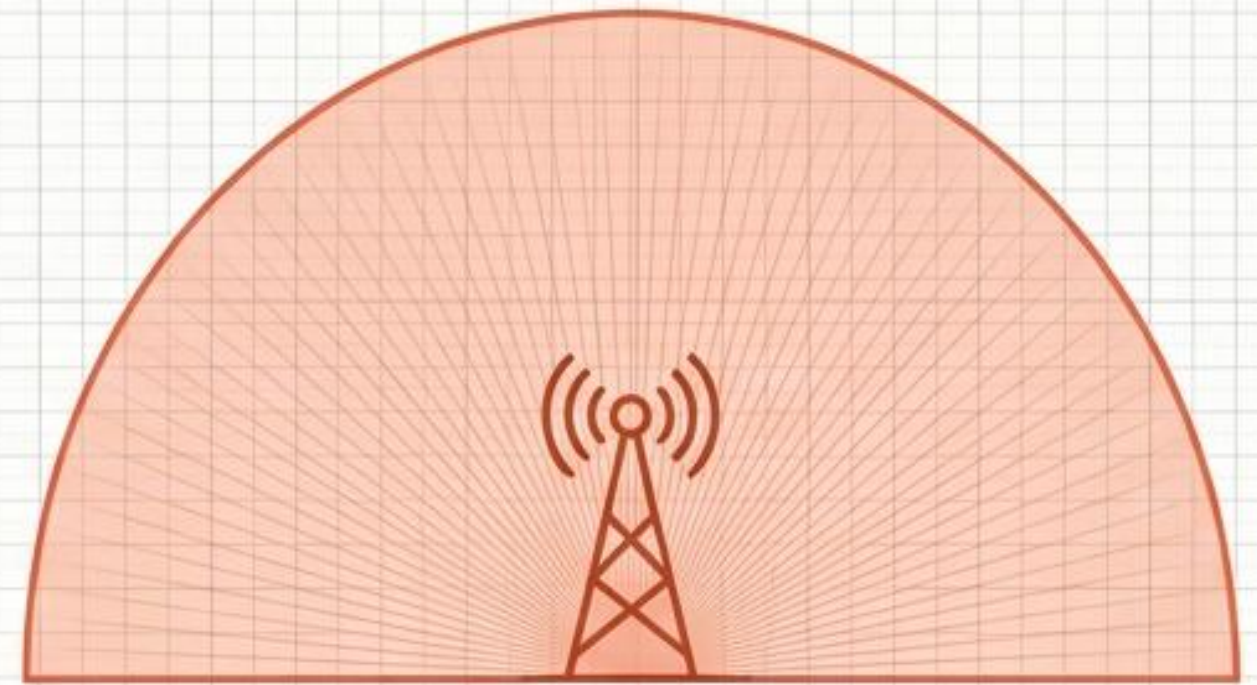
The MSS Aspiration



- Advances in satellite tech drive the need for resilient, globally harmonized communications.
- Goal: Bridge the digital divide through economies of scale and standardized equipment.

WRC-27
AI 1.14

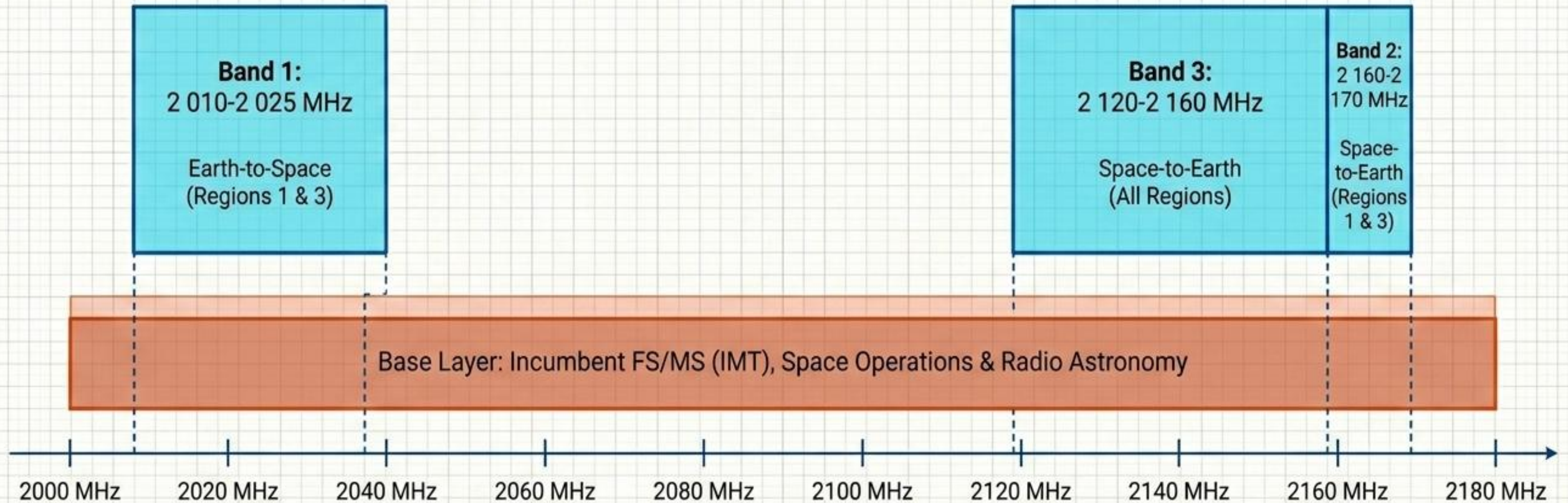
The Incumbent Reality



- The 2 GHz spectrum is globally allocated on a primary basis to Fixed (FS) and Mobile (MS) terrestrial services, including IMT.
- Constraint: Resolution 254 strictly requires the protection of existing services without imposing new regulatory or technical constraints.

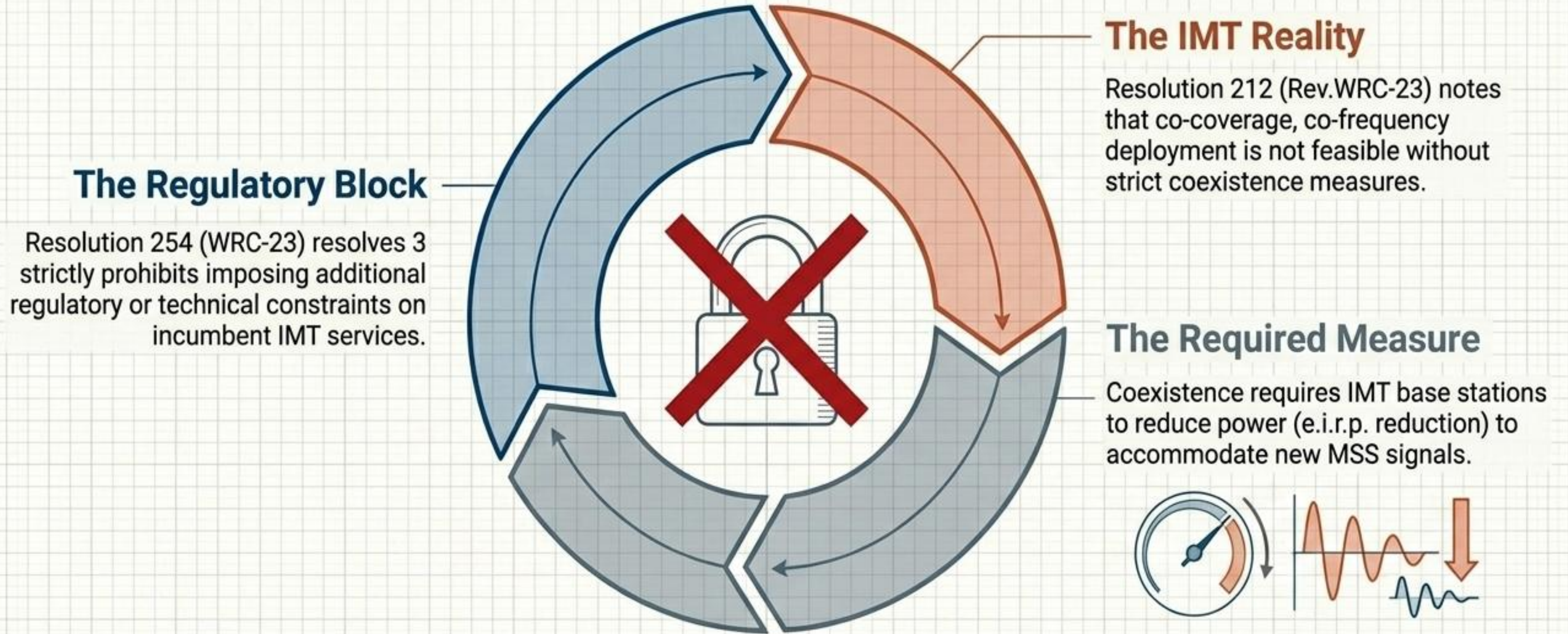
Mapping the 2 GHz Target Spectrum

Visual Proof: Target bands are entirely superimposed over densely occupied incumbent infrastructure.



Spectrum Allocation Block Timeline

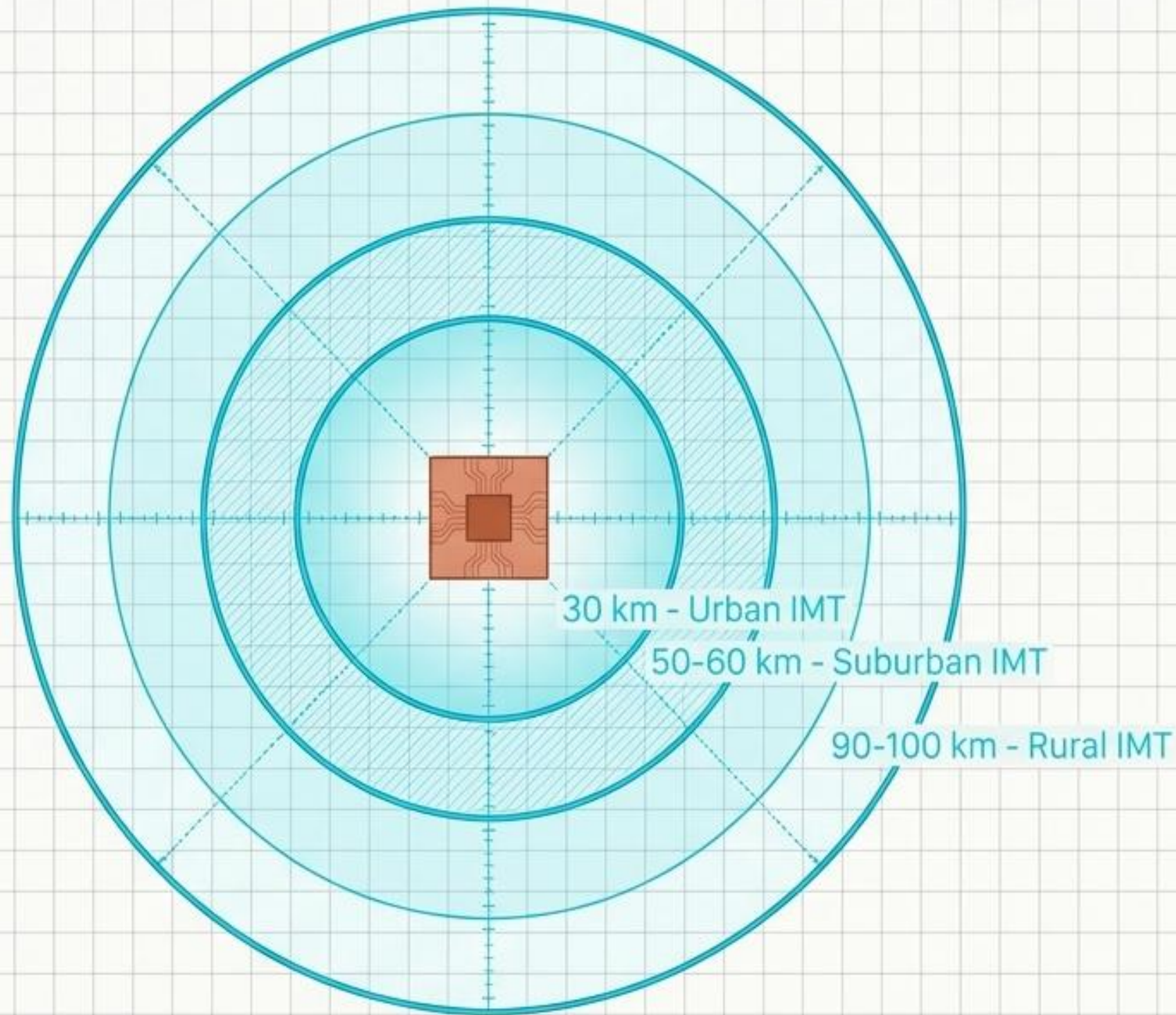
The Co-Primary Paradox



Conclusion: Adding co-primary MSS inevitably imposes power reduction constraints on IMT, which directly violates Resolution 254.

Physical Proof of Harmful Interference

Based on ITU-R Working Party 4C Studies (2 120-2 170 MHz Band)



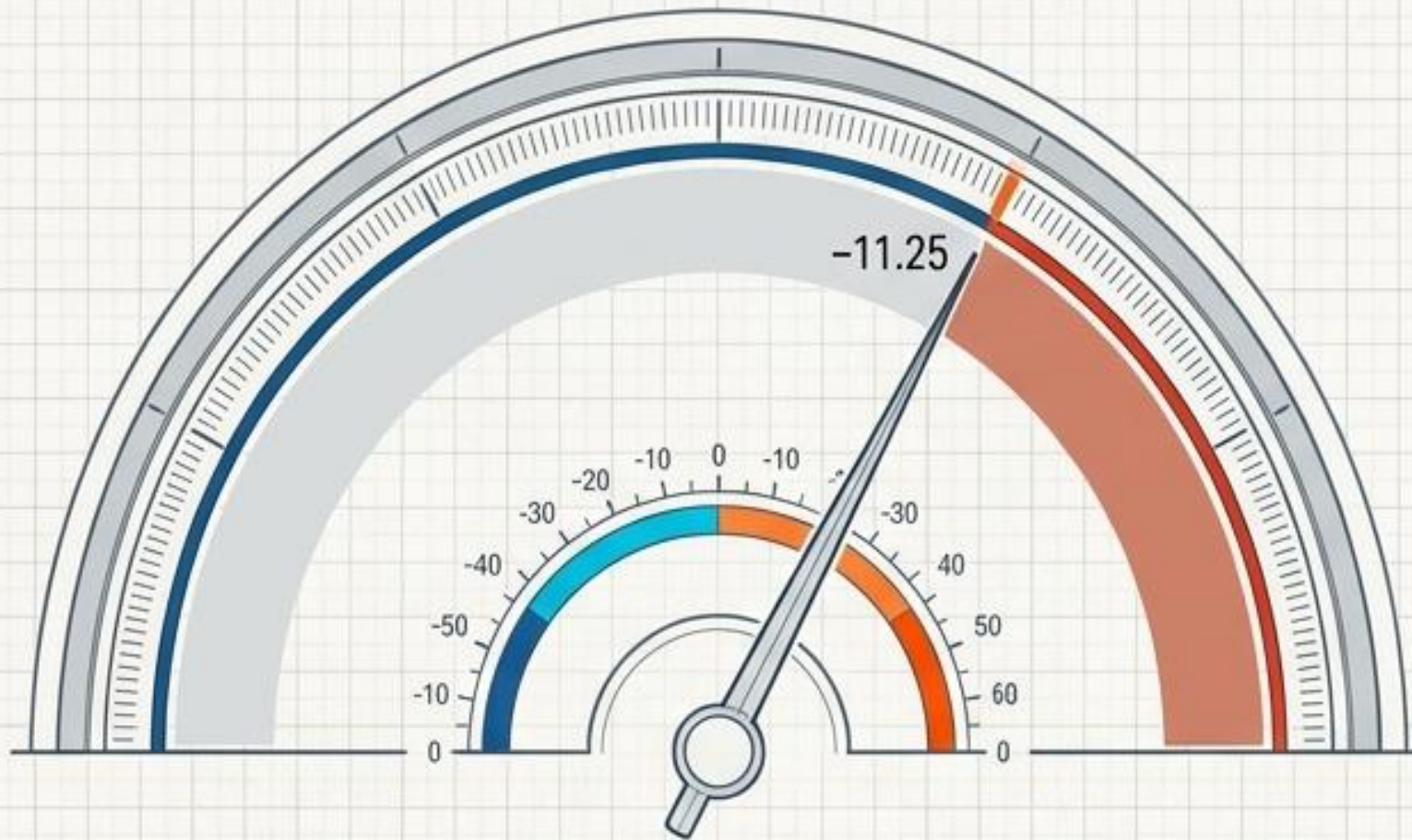
Key Insight

MSS cannot provide adequate quality of service within already deployed IMT network areas. Conversely, an MSS allocation would inflict significant regulatory constraints on the future development of IMT.

Aggregate Protection Thresholds for Incumbent Systems

Aggregate Protection Dashboard

Single-Entry Protection Limit



Metric: -11.25 dB I/N
Condition: Not to be exceeded for more than 0.1% of the time.

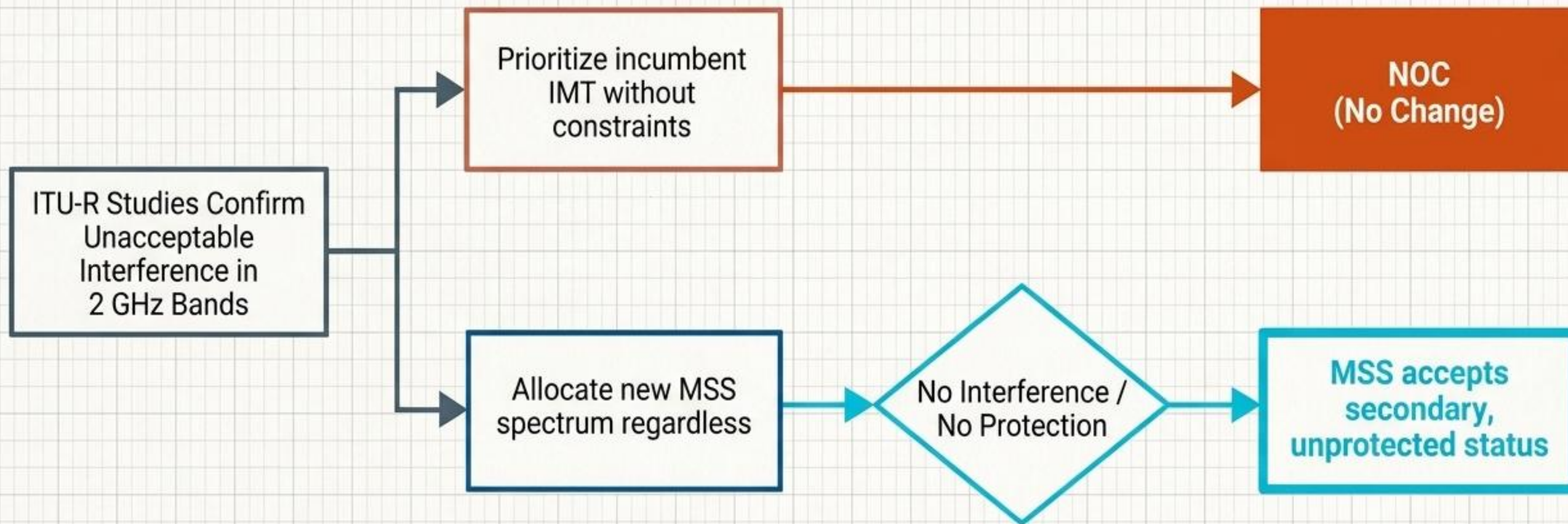
Aggregate Protection Limit



Metric: -6.02 dB I/N
Condition: Not to be exceeded for more than 0.1% of the time
(where N = receiving system noise power).

Context Note: These strict noise floor thresholds illustrate the extreme difficulty of integrating new co-primary transmitters into the band without violating established limits.

The Regulatory Decision Tree



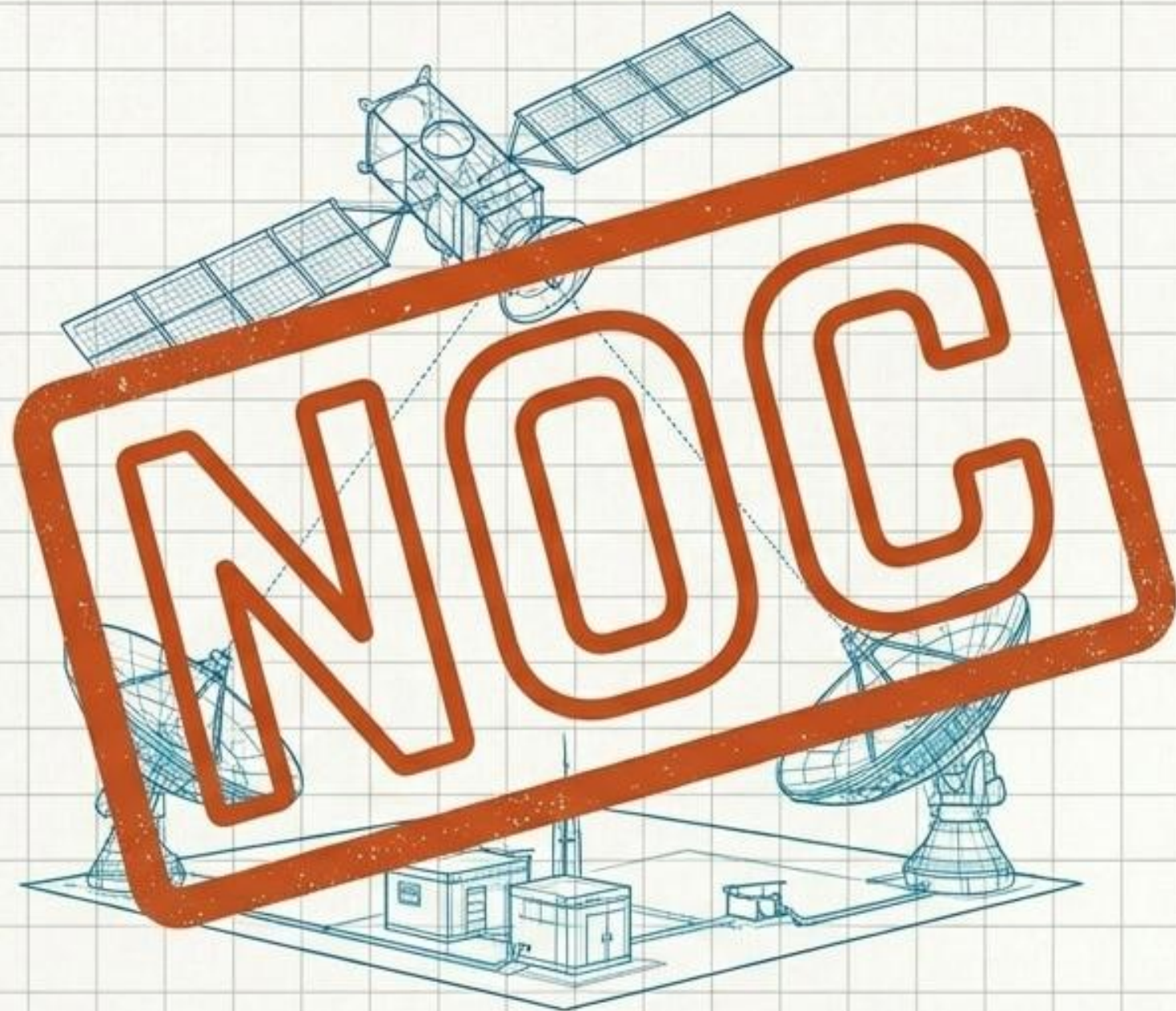
Takeaway: The only viable pathways forward under WRC-27 AI 1.14 require either suppressing the new allocation entirely, or forcing the new MSS to claim absolutely no protection from existing IMT.

Agenda Item 1.14: Methods to Satisfy Matrix

	Method A (Baseline)	Method A2	Method A3	Method A4
Band 1 (2 010-2 025 MHz)	NOC	New MSS + No Protection (Overlaps AI 1.12 / 1.13)	NOC	NOC
Band 2 (2 160-2 170 MHz)	NOC	NOC	New MSS + No Protection (Overlaps AI 1.13)	NOC
Band 3 (2 120-2 160 MHz)	NOC	NOC	NOC	New MSS + No Protection (Overlaps AI 1.13)

Note: Methods A2, A3, and A4 isolate individual bands for new allocations while maintaining NOC for the rest.

The Baseline Posture: Method A (No Change)



The Action

- **No Change** to the Radio Regulations.
- Suppression of **Resolution 254** (WRC-23).

The Rationale

- Studies demonstrate that sharing generic co-primary MSS in bands heavily deployed for **IMT** is **technically unviable**.

The Consequence

- Proceeding with generic MSS allocations would **jeopardize the reliable functioning and future development of IMT systems** in globally harmonized core bands.

Ultimately, under WRC-27 AI 1.14, spectrum expansion cannot out-leverage the physics of interference or the regulatory imperative to protect incumbent infrastructure.

*Thank
You!*



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