

# **Motivation of the New SI Proposal: Spectrum Sharing in Licensed Bands for LTE**

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# Spectrum Availability

- Portions of the licensed spectrum identified for IMT-advanced services are under-utilized:

Some bands not yet allocated to MFCN are only partially occupied by incumbent users (radars, satellites, telemetry, PMSE)

- e.g. 2300-2400 MHz band in Europe, which could be made available by Licensed Shared Access (LSA)

Parts of bands are becoming available from displaced/re-farmed licensed RATs

- e.g. GSM channels are gradually released and made available for LTE in the granularity of 200 kHz

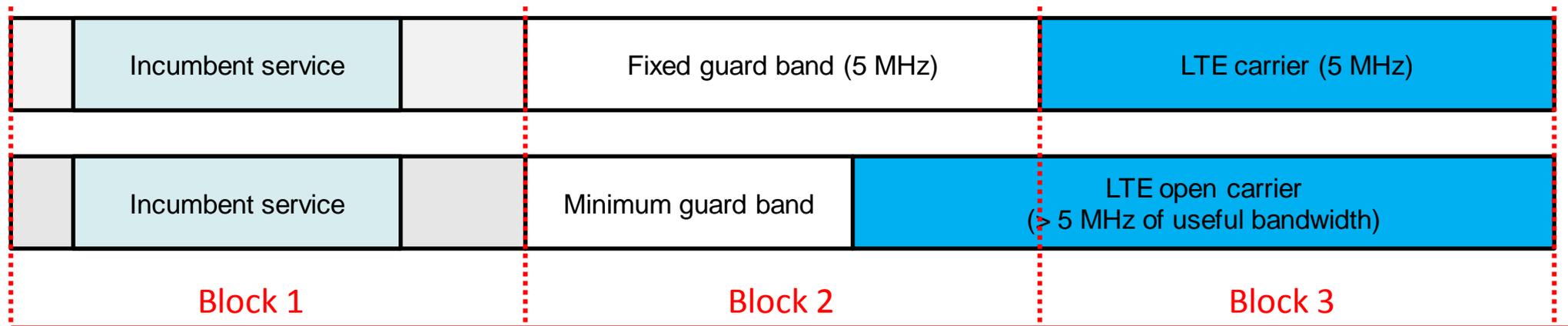
MFCN = mobile and fixed communication networks  
PMSE = program making and special events

# Spectrum Sharing Scenarios

Spectrum Sharing Scenario	Sharing/compatibility needs
Same spectrum in the same location shared on a time basis	No issue
Same spectrum at the same time in different locations	Exclusion zone/separation distance Limits on UE and BS transmit power
Portion of a band not being utilized by the incumbent at the same location and time	Flexible operating frequency/bandwidth Limits on out-of-band emissions

# Efficient Spectrum Utilization

- Usable spectrum blocks can have any bandwidth size
  - Full utilization of these blocks under the current specifications is not feasible due to wideband common channels and signals
  - Carrier aggregation allows only limited scalability and becomes too complex with many band combinations and a large number of carriers
  - LTE specifications should enable spectrally efficient operation of LTE with LSA and in displaced/re-farmed spectrum



# Requirements

Licensed LTE shares the spectrum with other systems on a mutually non-interfering basis. QoS is guaranteed in LTE and in other systems, where any system operating in the band must be authorized by individual licensing.

LTE should occupy the maximum usable spectrum, and be capable of adapting its operating frequency and useful bandwidth.

A generic radio framework should allow this type of deployment irrespective of the type of incumbent services. This will help identify more spectrum for MFCN globally.

Enhancements should be applicable to TDD and FDD, support downlink and uplink with and without carrier aggregation, and all services supported by LTE.

# Proposal for 3GPP

- The proposed study item is to investigate scenarios and requirements for maximizing usable spectrum in portions of bands where **licensed LTE coexists with other systems** on a non-interfering basis, focusing on identifying aspects of a **generic radio framework** that would maximize the spectrum utilization **under a predictable coexistence scenario**.
- Draft SID in RP-140158

Thank you !

