

Limiting noise in licence-exempt bands

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- » Licence-exempt, Short Range Devices
- » Sharing dynamics and noise in the bands
- » A new paradigm

LICENCE-EXEMPT, SHORT RANGE DEVICES



SMART METERING



ENVIRONMENTAL
MONITORING



SMART AGRICULTURE



SMART HEALTH



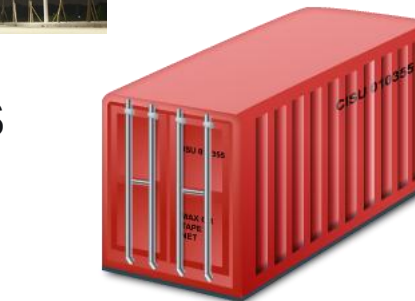
ALARMS



STREETLIGHTS



SMART GRID



LOGISTIC & TRACKING



SMART NETWORKS

SOCIOECONOMIC BENEFITS



The economic value of licence exempt spectrum

plum

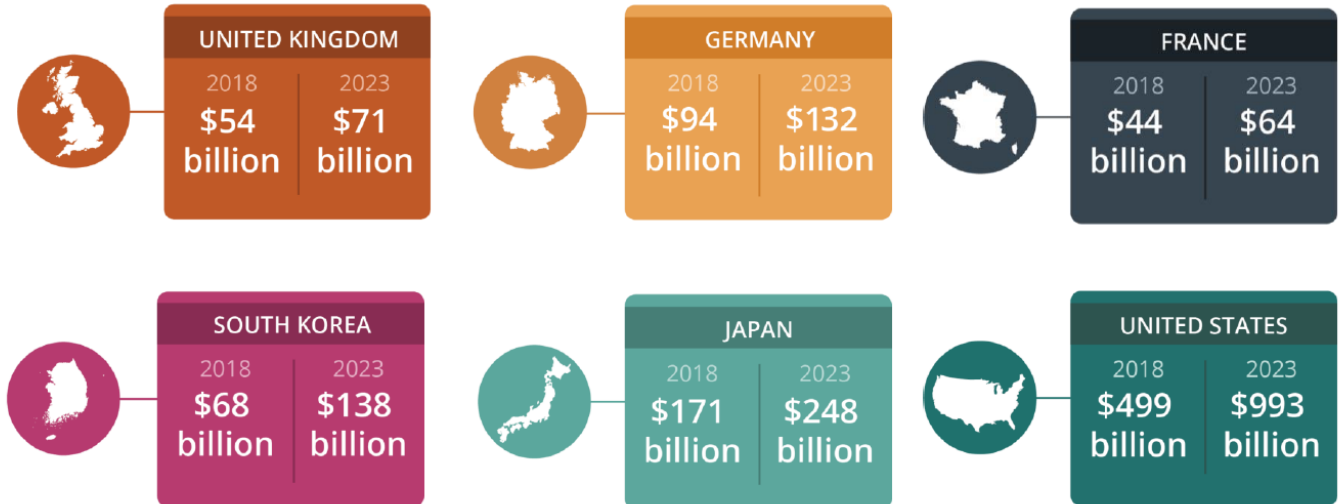
Future use of
Licence Exempt
Radio Spectrum

A report for the UK Spectrum Policy Forum
John Burns, Selcuk Kirtay, Phillipa Marks
14th July 2015

Six major economies studied...



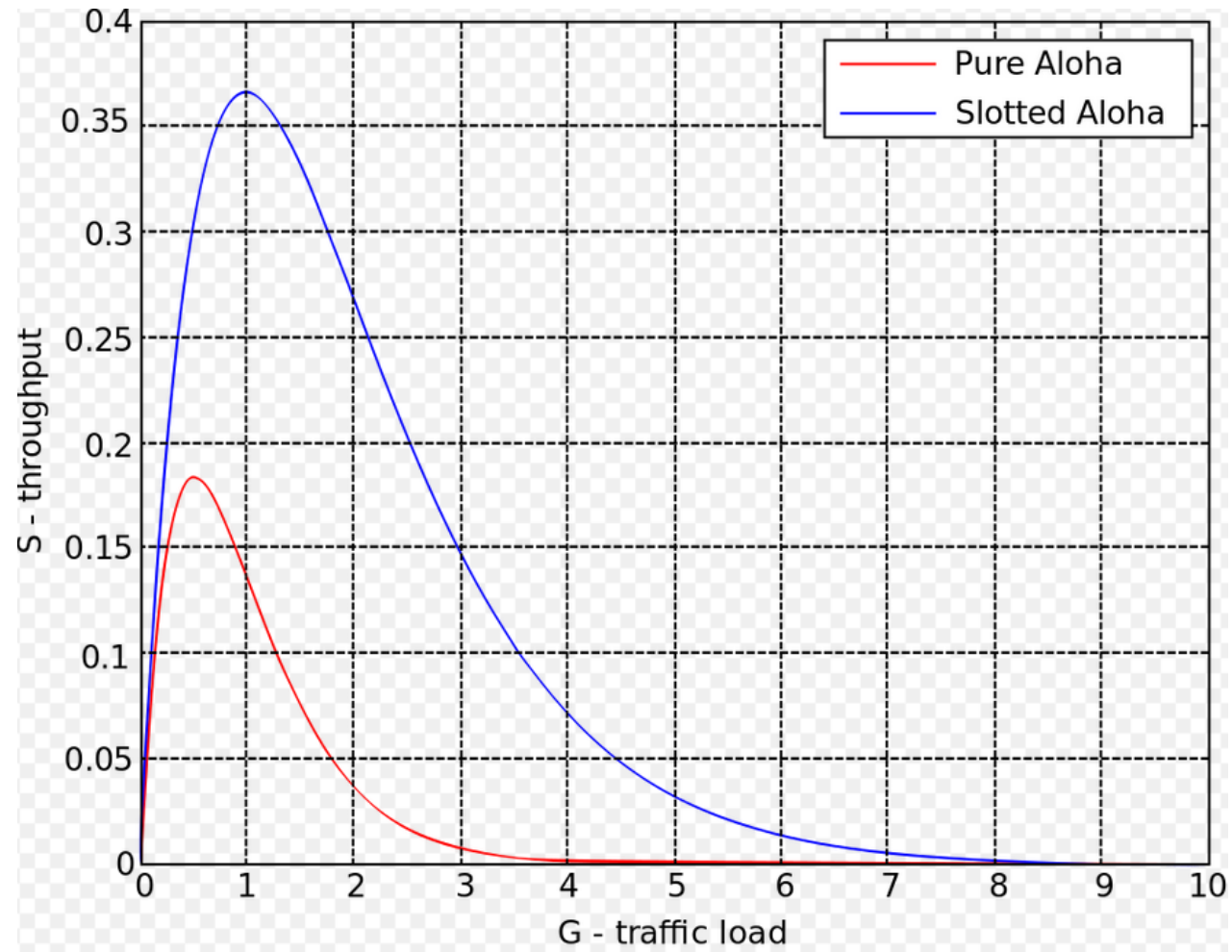
- Wi-Fi generated **\$2 Trillion USD economic value** in 2018 and rises to \$3.5 Trillion in 2023
- Full study is available at: www.valueofwifi.com



SHARING DYNAMICS AND NOISE IN THE BAND



ALOHA



LISTEN BEFORE TALK (LBT)

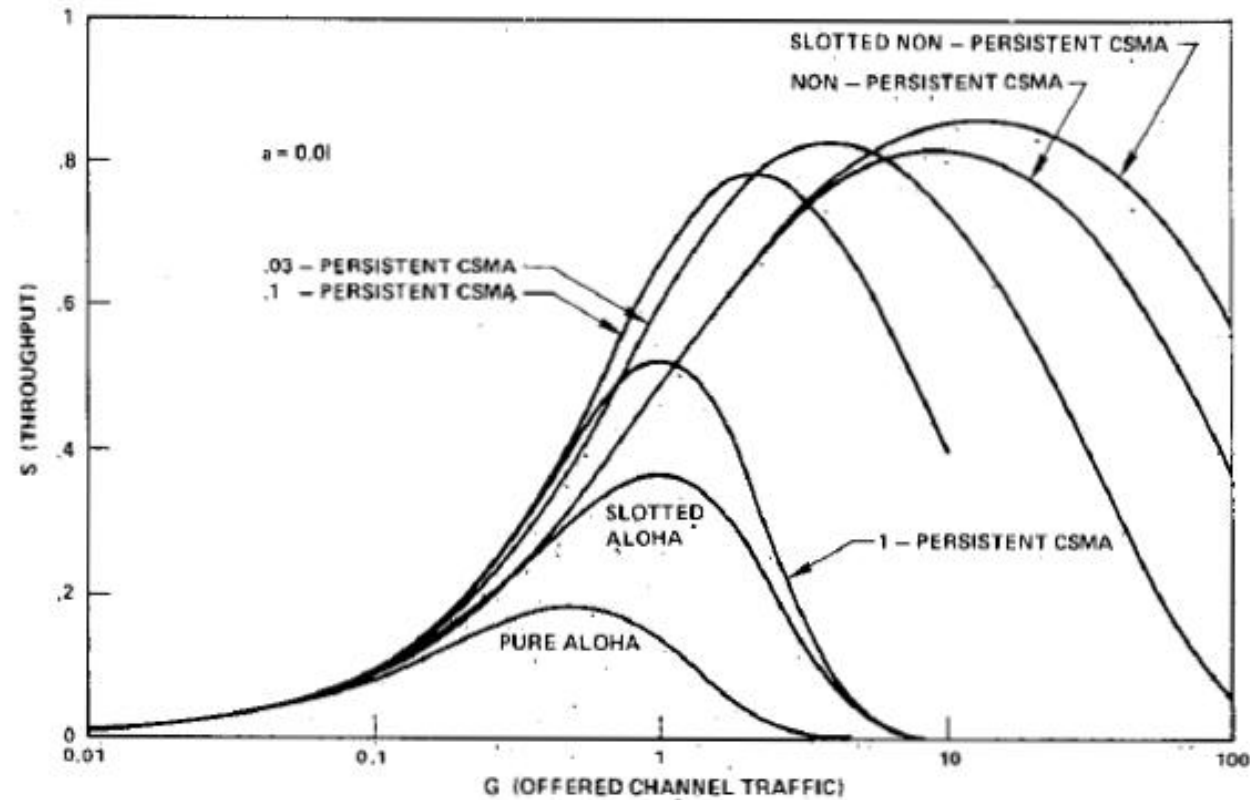
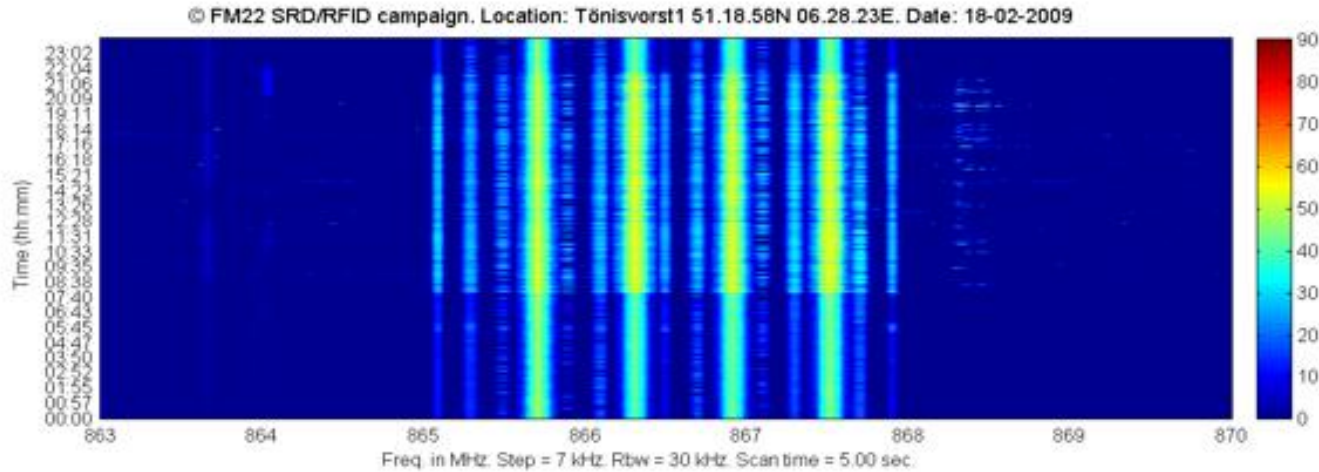


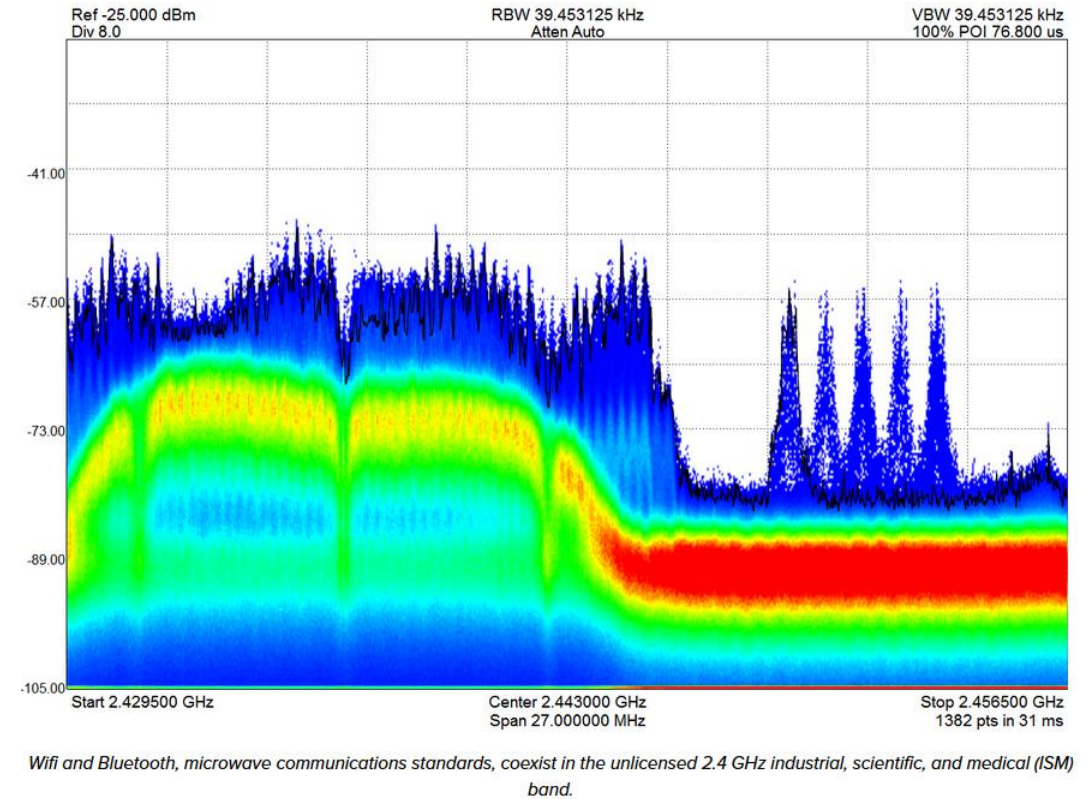
Fig. 9. Throughput for the various access modes ($a = 0.01$).

TRAFFIC IN SRD BANDS

863MHz

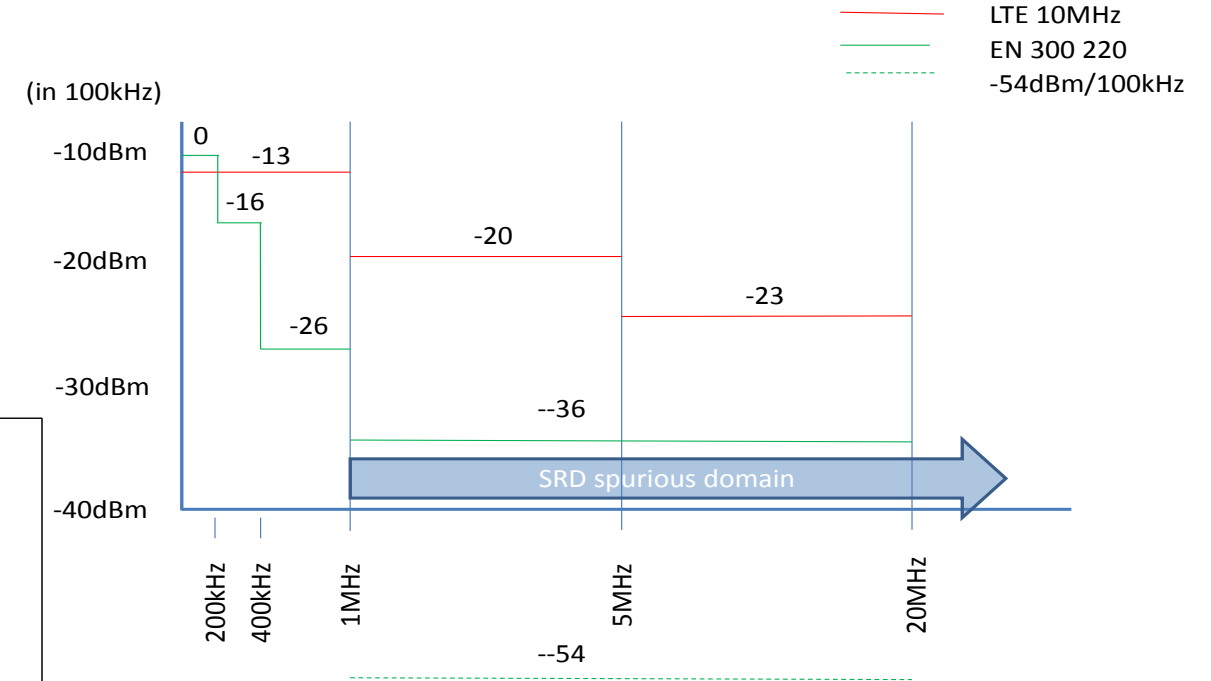
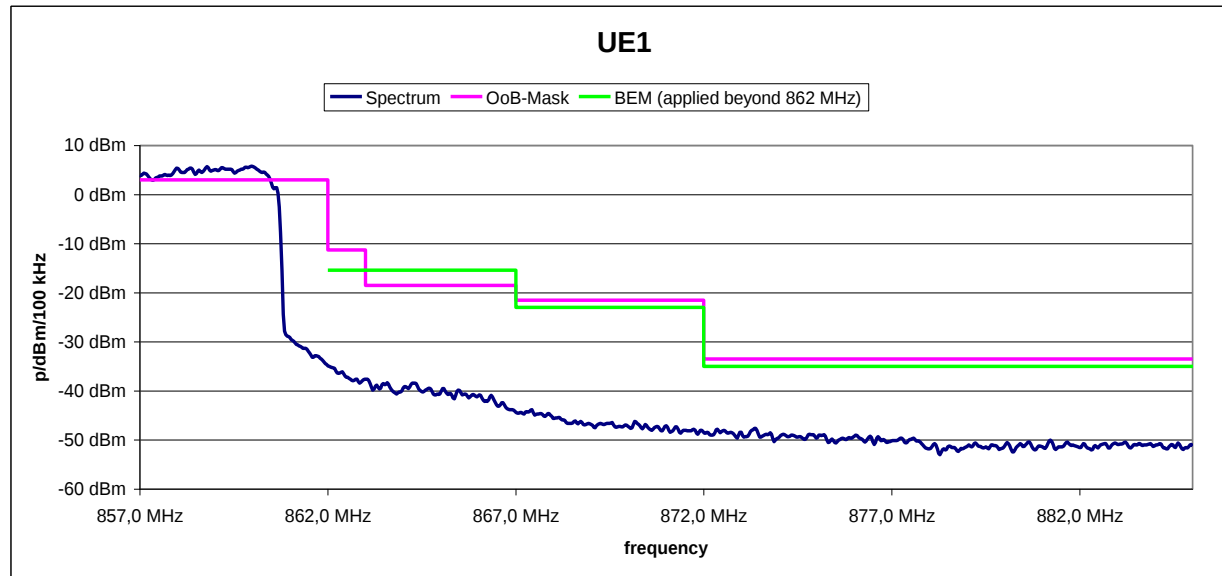


2.4GHz



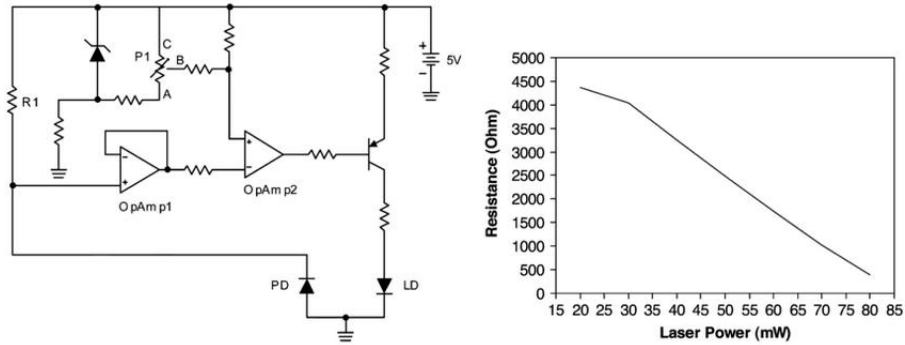
<https://signalhound.com/>

NOISE INTO SRD BANDS



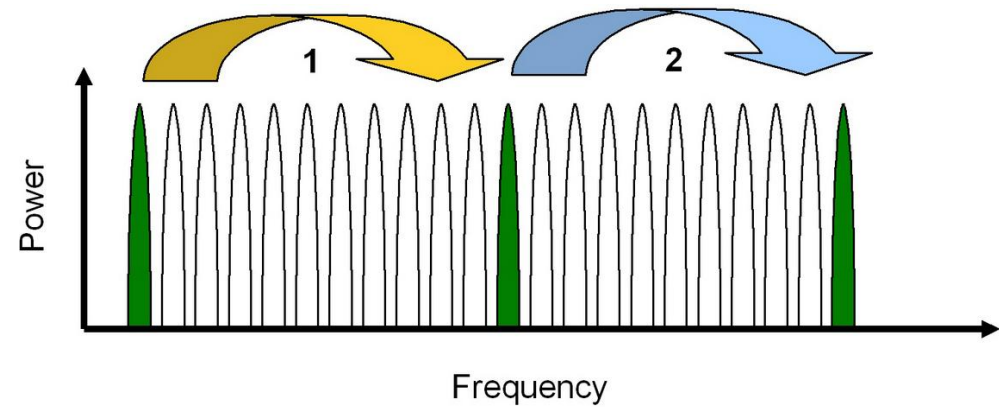
LTE 800 vs. SRD: practical interference measurements: Lithuanian Administration

AUTOMATIC POWER CONTROL AND ADAPTIVE FREQUENCY AGILITY

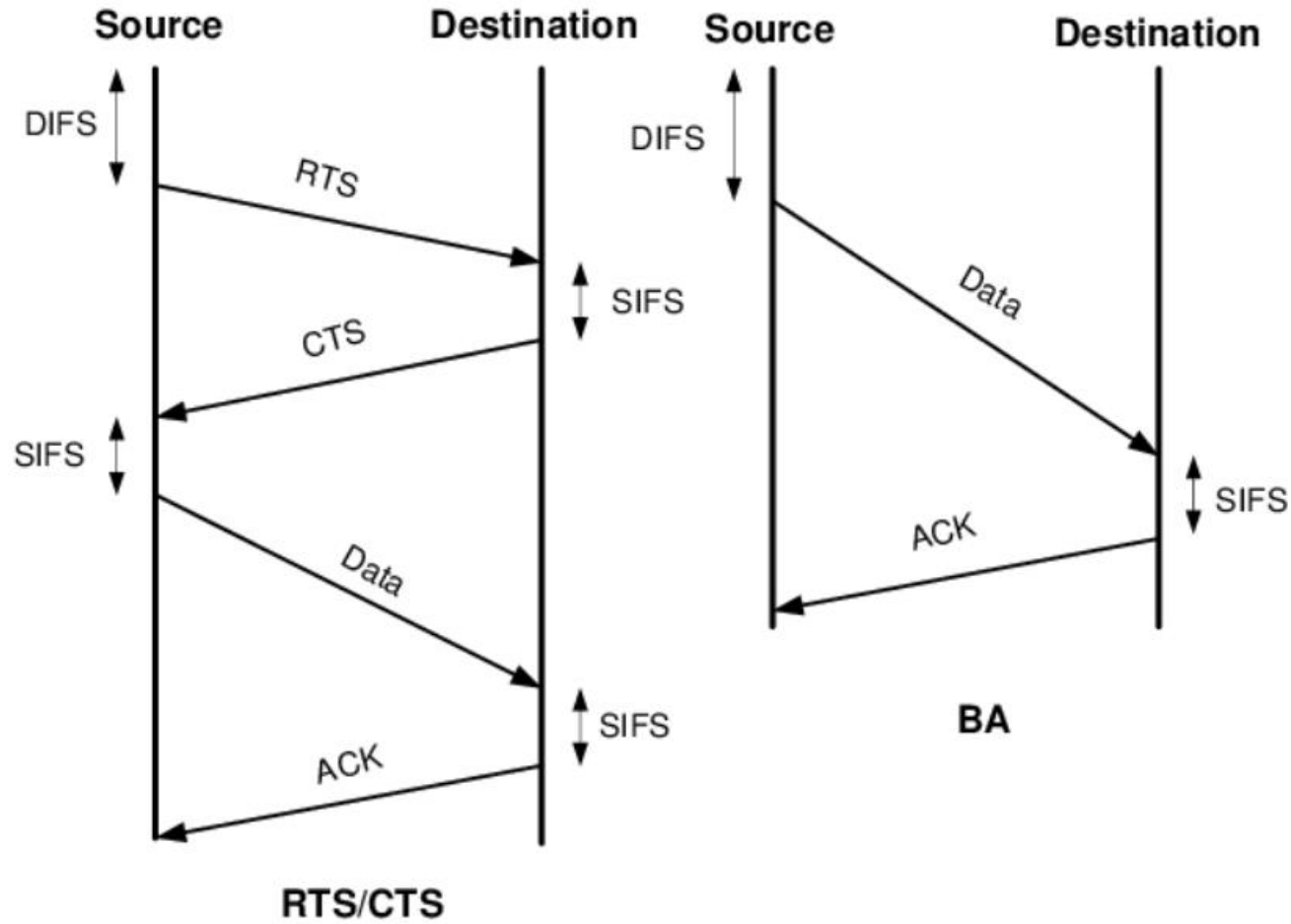


Automatic Power Control

Adaptive Frequency Agility



RTS/CTS



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BA and RTS/CTS methods handshake 3. IEEE 802.11 MAC PROTOCOL

A NEW PARADIGM

- » Recognise the economic contribution of SRDs
- » Be kinder to SRDs
- » Encourage manufacturers to adopt better practices
- » Outlaw of bad practice: repeated transmissions; unidirectional applications; too much power; no LBT
- » Research the effectiveness of techniques such as LBT in this context and reward in regulation

THANK YOU

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