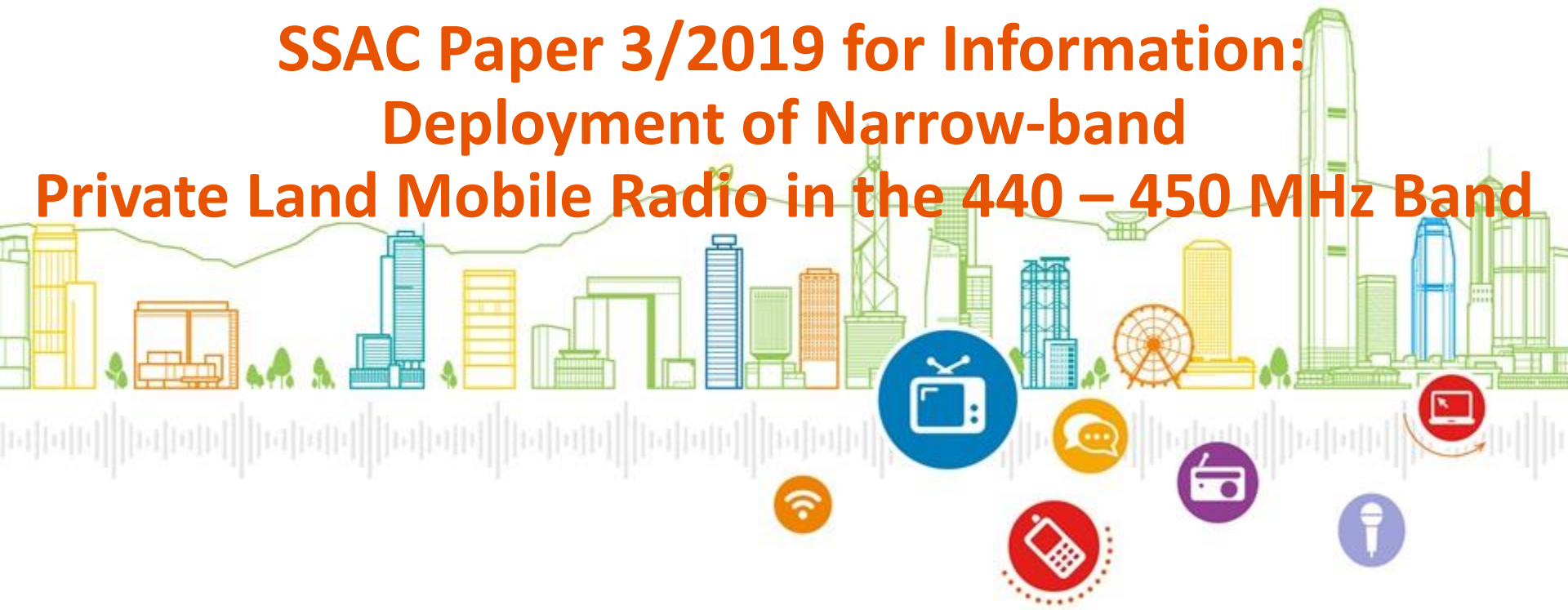


Radio Spectrum and Technical Standards Advisory Committee

SSAC Paper 3/2019 for Information: Deployment of Narrow-band Private Land Mobile Radio in the 440 – 450 MHz Band



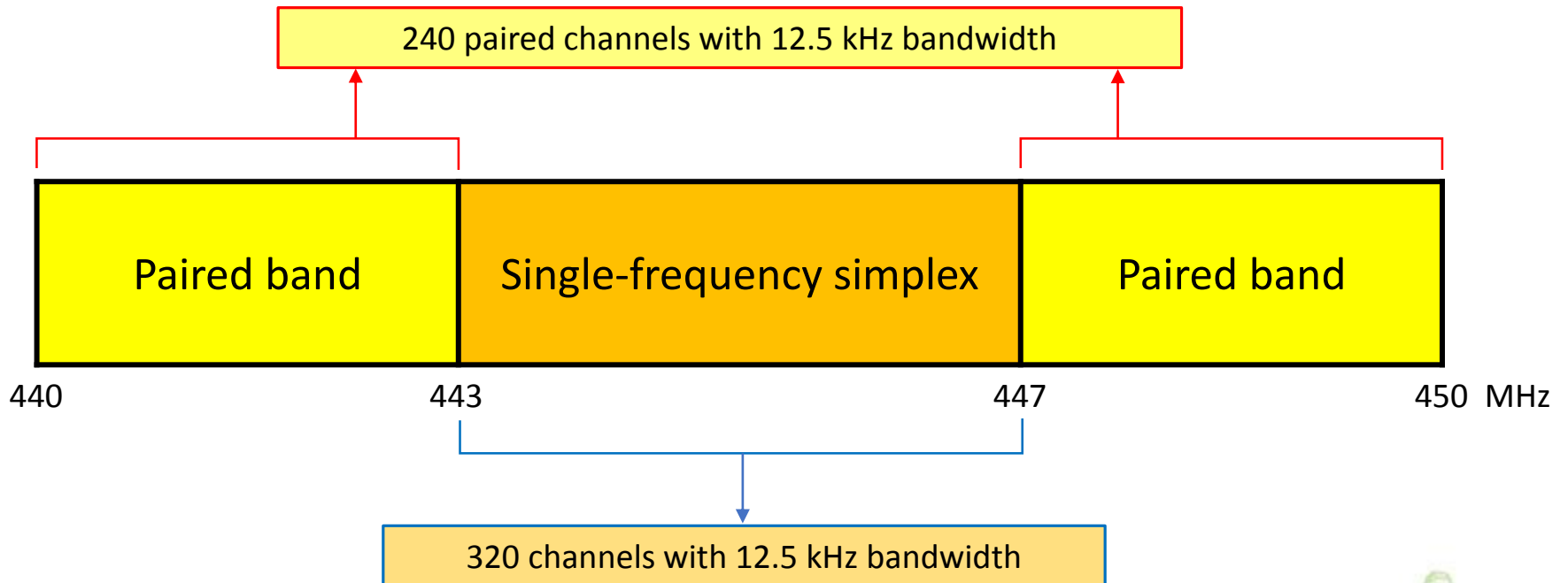
Office of the Communications Authority
April 2019

Background

- The 440 – 450 MHz band is allocated to the mobile service and is a popular band for use by Private Land Mobile Radio Systems (PLMRS) in Hong Kong
- Before 2012, the 440 – 450 MHz band adopted a channel spacing of 25 kHz (PLMRS (25kHz))
- Having consulted the former Radio Spectrum Advisory Committee in end 2011, for more efficient use of spectrum, the channel spacing was changed to 12.5 kHz (PLMRS (12.5kHz)) in 2012
- This paper gives an update on the situation



The Band Plan



Historical Utilisation

- Back in 2012, for the 440 – 450 MHz band, just when it was decided to change channel spacing to 12.5 kHz -
 - paired channels - 70% (168 channels) vacant
 - single frequency channels - 63% (201 channels) vacant
- In view of adequate channel availability, PLMRS (25 kHz) were also permitted
- Assignment of even smaller 6.25 kHz channel spacing for PLMRS would be considered on a case by case basis

Current Utilisation

- Channels are assigned on a sharing basis for use by licensed users
- As of April 2019, within the 440 – 450 MHz band
 - out of the 240 paired channels, **24 % (58 channels)** are assigned for PLMRS (12.5 kHz) and **49 % (117 channels)** are still vacant
 - out of the 320 single frequency channels, **22 % (69 channels)** are assigned for PLMRS (12.5 kHz) and **42 % (135 channels)** are still vacant
 - involving some **1593** no. of equipment/stations
- On the other hand, number of channels assigned for PLMRS (25 kHz) has decreased -
 - from **83** as of 2012 to **66** as of April 2019 (including paired and single frequency channels)
 - involving some **497** no. of equipment/stations as of April 2019



Relevant Overseas Development

- In mid 2000's, within the 400 MHz range, some administrations including Australia, mainland China, New Zealand and the United States promulgated plans for migration to new channel spacing of 12.5 kHz
 - set deadlines for phasing out PLMRS (25kHz)
 - some of them further adopted measures to invalidate type-approval granted / cease granting new type-approval to PLMRS (25 kHz)
 - ▶ even forbidden domestic sale of such equipment

Use of Digital PLMRS

- In the light of the global development trend to phasing out PLMRS (25kHz), there are increasing supply of equipment supporting 12.5 kHz channel spacing
- Advances in digital technology help improve performance
- For instance, Time Division Multiple Access (TDMA) technology could support two simultaneous and independent talk paths in a same 12.5 kHz channel
- Digital PLMRS (12.5 kHz) could provide better sound quality, better call control such as emergency call pre-emption and transparent sharing of channel among different co-channel users, better battery life, and etc.

Equipment Availability

- Type approved equipment for the UHF band

Certifications to HKCA specifications	25 kHz only	12.5 kHz only	12.5 kHz and 6.25 kHz	12.5 kHz and 25 kHz	12.5 kHz and 6.25 kHz and 25 kHz	Total	
1002	19	1	0	18	0	38	Analogue only
1010	8	11	0	8	0	27	Digital only
Both 1002/1010 for same equipment	0	5	1	69	7	82	Dual mode (analogue and digital)
Total	27	17	1	95	7	147	
		Certified equipment support 12.5 kHz channels spacing = 120 or 81.6%					

Observations

- Currently, over 80% of type-approved PLMRS in Hong Kong support 12.5 kHz channel spacing, hence availability of more digital equipment for users' choice
- Advanced user-friendly features of digital PLMRS could better serve users' needs, and hence a favourable choice for users' deployment



Conclusion

- OFCA will continue to encourage the deployment of PLMRS (12.5 kHz) in the 440 – 450 MHz band to help promote spectrum efficiency
- Having considered channel availability, it is expected that medium-term demand could be met
- No imminent need to consider phasing out PLMRS (25 kHz)
- OFCA would keep abreast of the local situation, technological development and overseas experience on the use of narrowband radios and timely consider the need for reviewing the matter
- Members are invited to note the content of this paper

THANK YOU

