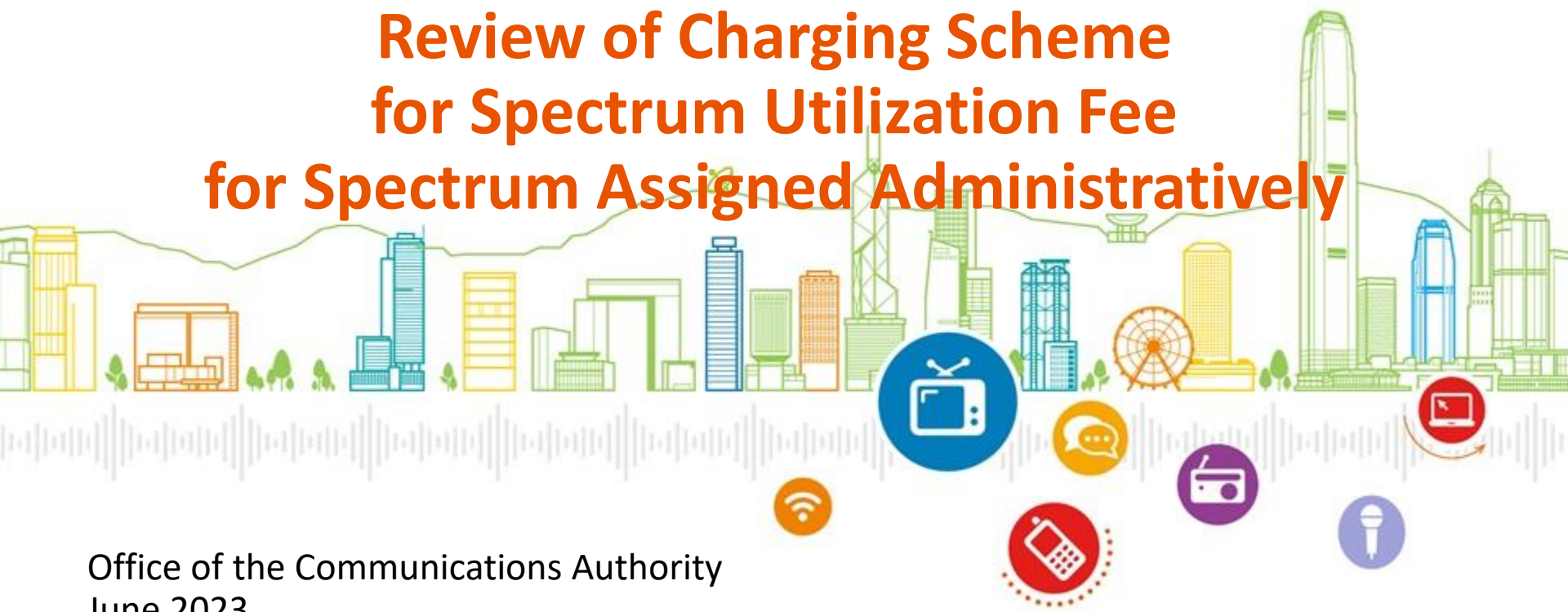


Radio Spectrum and Technical Standards Advisory Committee

SSAC Paper 1/2023

Review of Charging Scheme for Spectrum Utilization Fee for Spectrum Assigned Administratively



Office of the Communications Authority
June 2023

Background



Radio Spectrum Policy Framework

- In April 2007, the Government promulgated the Radio Spectrum Policy Framework (“RSPF”)
 - ❖ In principle, for non-government use of spectrum, a “market-based approach” for spectrum management will be used and spectrum utilization fee (“SUF”) will be applicable
 - ❖ For spectrum not released through auction/market mechanisms, SUF may be set to reflect the opportunity costs of the spectrum
- SUF serves as an economic incentive for the spectrum users
 - ❖ To make more efficient use of spectrum
 - ❖ To return excess spectrum to the Authority

Note: RSPF is available at www.cedb.gov.hk/assets/resources/ccib/policies/spectrum.pdf

Implementation of the SUF Charging Scheme

- On 23 Sept 2011, the Secretary for Commerce and Economic Development and the former Telecommunications Authority issued joint statement to set out the decisions on the SUF Charging Scheme for Spectrum Assigned Administratively
- On 1 Jan 2018, the regulation and order implementing the SUF Charging Scheme came into effect
 - ❖ SUF Regulation: Telecommunications (Level of Spectrum Utilization Fee) (Fixed and Other Links) Regulation (Cap. 106AE)
 - ❖ SUF Order: Also added 6 designated frequency bands in Part 7 of the Schedule to the Telecommunications (Designation of Frequency Bands subject to Payment of Spectrum Utilization Fee) Order (Cap. 106Y)

Note:

- 1) Joint Statement is available at www.coms-auth.hk/filemanager/common/ta20110923.pdf
- 2) Cap. 106AE is available at www.elegislation.gov.hk/hk/cap106AE
- 3) Cap. 106Y is available at www.elegislation.gov.hk/hk/cap106Y

The SUF Charging Scheme

Frequency Bands Subject to SUF

- Use the following criteria to determine frequency bands subject to SUF
 - ❖ Occupancy $\geq 75\%$
 - ❖ Demand is expected to grow or a high potential demand for alternative use(s)

SUF Levels

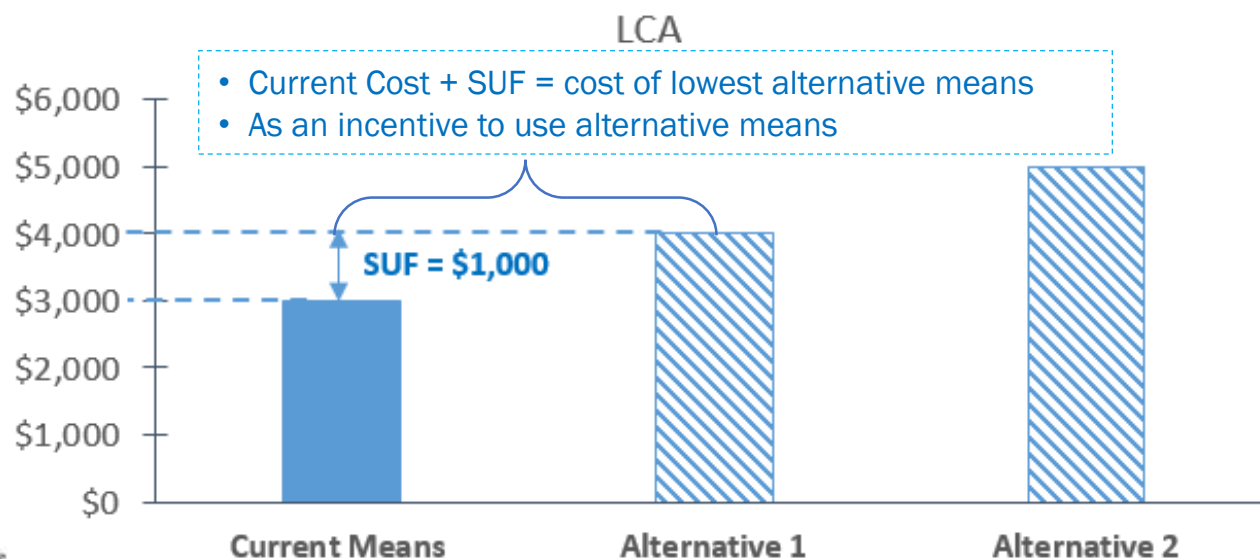
- Least Cost Alternative (“LCA”) approach to derive the levels of SUF

Review Cycle

- Review of the SUF charging scheme every 5 years
- Next review is required to be performed within 2023

Least Cost Alternative

- SUF may be set to reflect the opportunity costs of the spectrum which is not released through market-based mechanism
- Estimation of opportunity cost through identification of the LCA
 - ❖ $SUF = \text{Cost of lowest alternative means} - \text{Cost of the current means}$
- An example of alternative to fixed link is leased line



Designated Frequency Bands and Prescribed SUF Levels

Designated Frequency Bands (MHz)	Use	Prescribed SUF in the SUF Regulation* (in HK\$/MHz/annum)	
		Exclusive use	Non-exclusive use
2055 – 2095	ENG/OB links	21,600	10,800
5875 – 6425	Fixed links / Satellite uplinks	No exclusive use	432
6425 – 7100	Fixed links / Satellite uplinks	21,600 (carrier licence and SPETS licence) or 36,000 (WBLRS licence)	3,600 (carrier licence and SPETS licence) or 6,000 (WBLRS licence)
7421 – 7900	Fixed links		
8275 – 8500	Fixed links		
10700 – 11700	Fixed links		

* The SUF levels promulgated in 2011 was adjusted to the 2017 price levels based on inflation to reflecting the change in value of spectrum over time

Note:

ENG/OB Electronic News Gathering / Outside Broadcast
 SPETS Self-Provided External Telecommunications System
 WBLRS Wide-band Link and Relay Station



Levy of SUF – Transitional Arrangements

- Phased arrangement for levying SUF after two-year grace period :
 - ❖ 30% (2020), 70% (2021), 100% (2022)



- **Full payment of SUF** since 1 January 2022
- 15 licensees subject to SUF in 2022/23
- SUF fee ranges from \$1,300 to \$3.6 million

SUF led to Efficient Use of Spectrum

- The following table shows the number of links returned by licensees as a result of the introduction of SUF

Designated Frequency Band (MHz)	No. of Returned Links	
	Before SUF was levied (From 2017 to 2019)	After SUF was levied (From 2020 to 2022)
2055 - 2095	0	0
5875 - 6425	115	16
6425 - 7100	25	1
7421 - 7900	31	0
8275 - 8500	0	0
10700 - 11700	28	14
Subtotal (%)	199 (87%)	31 (13%)
Total	230	

Observations

- 87%** of the returned links were surrendered before the levy of SUF in 2020
- SUF Charging Scheme has encouraged spectrum users to **return excess spectrum to the Authority**, which is conducive to **efficient use of spectrum**

SUF led to Efficient Use of Spectrum (2)

- The following table shows the number of links assigned after the levy of SUF from 2020 to 2022

Designated Frequency Band (MHz)	Change in Total No. of Links assigned to Licensees
2055 – 2095	0
5875 – 6425	0
6425 – 7100	0
7421 – 7900	0
8275 – 8500	0
10700 – 11700	+2

Observations

- Only **modest growth** in the six designated frequency bands
- SUF Charging Scheme is **effective to control the use of spectrum** in congested frequency bands

Review of SUF Charging Scheme



Scope of the Review

- The scope of the review of the charging scheme for SUF for spectrum assigned administratively (“Review”) includes -
 - (a) Frequency bands subject to SUF
 - (b) Levels of SUF

Frequency Bands Subject to SUF

- Considering that the criteria set out in the Joint Statement were endorsed by the majority of respondents in the 2010 public consultation and have been used in other similar reviews, they are also used in this Review -
 - ❖ Occupancy \geq 75%
 - ❖ the demand is expected to grow or a high potential demand for alternative use(s)
- By applying the above criteria, the identified frequency bands are as follows -

Frequency Band (MHz)	Identified Frequency Band in 2023	Designated Frequency Band in 2018
2055 - 2095	Yes	✓
5875 - 6425	Yes	✓
6425 - 7100	Yes	✓
7421 - 7900	Yes	✓
8275 - 8500	Yes	✓
10700 - 11700	Yes	✓

Observation

- Identified frequency bands are identical to the prevailing six designated bands

Review of SUF Levels

- Three methods may be used to derive the new SUF levels

Method #1	Adjusting by referencing the Composite Consumer Price Indices (CCPIs) after 2018
Method #2	Performing a comprehensive LCA analysis
Method #3	Maintaining the prevailing SUF levels

Method #1

Adjusting by referencing the CCPIs

- Following the previous adjustment approach (i.e. based on inflation), the new SUF levels in 2023 may be derived by referencing the CCPIs
- The cumulative adjustment from 2018 to 2023 is about +12%

Year	CCPI (%) *
2018	+2.4
2019	+2.9
2020	+0.3
2021	+1.6
2022	+2.0
2023	+2.5
Adjustment to SUF From 2018 to 2023	+12%

* From the Census and Statistics Department and the Government Economist

Considerations

- Simple representation of spectrum value over time
- Will impose additional financial burden on the concerned licensees

Method #2

Performing a Comprehensive LCA Analysis

- A comprehensive LCA analysis will be needed
- **Preliminary Estimation**
 - ❖ By making reference to the last LCA analysis, the cost of the lowest alternative means would likely consist of the following components -
 - Cost for new equipment
 - Write-off for existing equipment
 - Licence fees
 - Additional running costs
 - Site acquisition and rental costs
 - ❖ A fresh LCA analysis takes time to complete. Given that site-related costs are the most significant part of the cost and that suitable sites for establishing radio equipment are increasingly harder to acquire, it is more likely than not that the newly derived SUF will be higher than their prevailing levels

Considerations

- Provide updated data to reflect the latest spectrum value
- Time consuming and may impose additional financial burden on the concerned licensees

Method #3

Maintaining the Prevailing SUF Levels

- To maintain the prevailing SUF levels having regard to the following factors -

Effectiveness

- The prevailing SUF Charging Scheme is found to be effective
- No imminent need to adjust the SUF levels/conduct LCA analysis

Economic perspective

- The impact of the COVID-19 pandemic on the industry remains uncertain
- Adjustment in SUF levels, reflecting the change in opportunity cost of spectrum use, may lead to additional burden to the concerned licensees

Monitoring the impact

- Industry are just accustomed to the full levy of SUF only since 2022
- The consultancy study in 2009 recommended to monitor the impact of spectrum usage due to SUF for at least 3 to 4 years from a change in pricing

Considerations

- Avoid imposing any additional financial burden on the concerned licensees
- Further monitoring the impact of SUF which has only been fully imposed for about 1 year
- Prevailing SUF levels may not reflect the latest spectrum value

Comparison of the Methods

Method	Pros	Cons
1. Adjusting by referencing CCPIs after 2018	<ul style="list-style-type: none"> ✓ Simple representation of spectrum value over time 	<ul style="list-style-type: none"> ✗ Will likely impose additional financial burden on the concerned licensees
2. Performing a comprehensive LCA Analysis	<ul style="list-style-type: none"> ✓ Provide updated data to reflect the latest spectrum value 	<ul style="list-style-type: none"> ✗ Conducting a new round of LCA analysis is time consuming and may lead to a significant increase in SUF
3. Maintaining the prevailing SUF levels	<ul style="list-style-type: none"> ✓ Avoid imposing any additional financial burden on the concerned licensees ✓ Further monitoring the impact of SUF which has just been fully imposed for about 1 year 	<ul style="list-style-type: none"> ✗ Prevailing SUF levels may not reflect the latest spectrum value

Comment Sought



Comment Sought

- Comment on the Review in respect of the following is sought -
 - ❖ Frequency bands subject to SUF
 - ❖ Methods to derive the levels of SUF



Thank You

