

**FINAL DECISION OF  
THE COMMUNICATIONS AUTHORITY**

**BILLING ERRORS OF  
HONG KONG BROADBAND NETWORK LIMITED**

<b>Telecommunications Licensee Investigated:</b>	Hong Kong Broadband Network Limited (“HKBN”)
<b>Issue:</b>	HKBN provided incorrect billing information to its fixed and mobile customers between January and April 2023
<b>Relevant Instruments:</b>	Special Condition (“SC”) 9.1 of HKBN’s Unified Carrier Licence (Licence No. 045) (“UCL”) and SC 5.1 of HKBN’s Services-based Operator Licence (Licence No. 094) (“SBO Licence”)
<b>Decision:</b>	Breach of SC 9.1 of HKBN’s UCL and SC 5.1 of HKBN’s SBO Licence
<b>Sanction</b>	Financial penalty imposed
<b>Case Reference:</b>	LM T 20/23 in OFCA/R/R/269 C

**BACKGROUND**

In April and May 2023, HKBN, holder of UCL and SBO Licence, reported to the Office of the Communications Authority (“OFCA”) that there were three billing error incidents happened between January and April 2023 concerning its fixed and mobile telecommunications services provided under the respective licences.

### **The First Incident**

2. The first incident concerned erroneous bills generated between 0:00 am and 3:00 am on 1 April 2023 for certain HKBN's residential customers in which the applicable discount credits for individual customers were not reflected in the bills. HKBN submitted that the error was related to the malfunction of the Billing Discount Engine which was a software module for calculating and granting discount credit amounts to the customers concerned. The incident affected 4 262 fixed and mobile subscribers with the erroneous charges amounting to about HK\$ 218,000. HKBN noticed the error on 4 April 2023 only when it received an enquiry from a customer.

### **The Second Incident**

3. HKBN received a total of seven customers' enquiries regarding duplicate payments during 31 March to 5 April 2023. The cases were only referred to its Information Technology ("IT") department on 11 April 2023 and it was subsequently found that the billing error reports were related to the payment platform of its "My HKBN" App. In particular, when a HKBN subscriber made payment via Apple mobile devices using credit cards or Octopus through the "My HKBN" App, the App would display a message "繳費失敗" (unsuccessful payment) even if HKBN's billing system had in fact successfully completed the payment process. Some customers had mistakenly made duplicate payments after receipt of the wrongly sent unsuccessful payment message. HKBN submitted that the billing error had been caused by an unexpected software bug in the Apple iOS version 9.3.5 of the "My HKBN" App, which was released at 2:30 pm on 30 March 2023. The billing error lasted until 11:00 am on 13 April 2023 and affected 1 251 fixed and mobile subscribers with the erroneous charges amounting to about HK\$ 674,000.

### **The Third Incident**

4. After receiving an enquiry from a subscriber concerning a missing bill adjustment on 16 March 2023, HKBN found a bug in its billing system called the [ ✂ ] system which was responsible for calculating correct service charges for customers for billing purpose. The bug was found in the [ ✂ ] system after it had been upgraded (from Version 7.5 to Version 12) on 20 December 2022. As a result of the software bug, credit adjustments due to

service plan change by affected customers were not reflected in the bills. The incident affected 4 716 fixed and mobile subscribers with bills issued between 1 January and 18 April 2023 and the total amount of erroneous charges were about HK\$ 96,000.

## **OFCA'S INVESTIGATION**

### **Relevant Licence Obligation**

5. Both SC 9.1 of HKBN's UCL and SC 5.1 of its SBO Licence set out the following requirement pertaining to billing and metering accuracy –

*“The licensee shall take all reasonable steps to ensure that any metering equipment and billing system used in connection with the service is accurate and reliable.”*

6. With a view to enhancing transparency of chargeable items in bills issued by telecommunications service providers, the voluntary “Code of Practice in Relation to Billing Information and Payment Collection for Telecommunications Services” (“CoP”) issued in October 2011 specifies the following requirements –

*“4. Service providers shall take all reasonable, necessary and practical steps to ensure that their billing information provided to customers are accurate and error-free in respect of all forms of bills and means of payment including but not limited to direct debit made to the bank accounts of customers.”*

*“10. Currently, service providers are offering various means of payment for customers' choice (e.g. by automatic or direct debit payment through a bank or credit card, or by manual payment via cash, cheque or other electronic means). Given the nature of automatic payment and the importance of correct collection of payment to both customers and service providers, service providers shall take all reasonable, necessary and practical steps to ensure that the information used for collection of payment from*

*customers (particularly so with automatic payment arrangements) is secure, authentic and error-free.”*

7. Paragraphs 5 to 9 of the CoP set out the information which should be provided in telecommunications service bills to allow customers to verify the charges incurred for usage of telecommunications services. Under the CoP, service providers are required to “*report to [OFCA] immediately after occurrence of any incident involving systematic errors in the billing information or payment collection, and provide timely progress update of the remedial action so that [OFCA] can take the necessary remedial action to minimise the impact of the incident on the community.*”<sup>1</sup>

8. At present, major fixed network operators and mobile network operators including HKBN have pledged their compliance with the voluntary CoP.

9. Having considered the findings and assessment of OFCA, the Communications Authority (“CA”) issued its Provisional Decision to HKBN on 26 September 2023 and invited HKBN to make representations within 14 days. HKBN submitted to OFCA on 9 October 2023 that it did not have further representations to make on the CA’s Provisional Decision.

## **MAJOR ISSUES AND OFCA’S ASSESSMENT**

### **The Causes of the Incidents**

10. In light of the three incidents, HKBN was requested to submit a detailed report for each incident. The reports included the explanation for the causes of the incidents and measures adopted by HKBN to rectify the errors.

### ***The First Incident***

#### HKBN’s Representations

11. HKBN submitted that the billing error had been caused by human error of its IT personnel on 30 March 2023 during system configuration to

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<sup>1</sup> Paragraphs 11 to 14 of the CoP set out the reporting requirements to OFCA for service providers.

transit from manual to automation mode for activation of the Billing Discount Engine to apply applicable discount credits to each bill statement. The responsible IT personnel did not carry out any user acceptance test (“UAT”) for the activation of the automation mode. The human error not only led to the failure of the activation of the Billing Discount Engine, but it also ended up leading to the failure of an alert system within HKBN software platform to detect any possible malfunction. Therefore, the billing error occurred on 1 April 2023 went unnoticed until a customer’s enquiry was received.

12. Upon receiving the first customer’s enquiry on 4 April 2023, HKBN investigated the root cause and determined the total amount of erroneous charges and the number of affected customers of this incident on 12 April 2023. It also rectified the malfunction of the Billing Discount Engine as well as put in place an alert system on the same day, i.e. 12 April 2023.

13. To prevent the recurrence of similar incidents, HKBN submitted that it had implemented a new monitoring system on the Billing Discount Engine. The new monitoring system would send alert messages to HKBN’s IT Operation Team whenever there was any failure to activate the Billing Discount Engine. Moreover, an additional audit checking step was put in place to ensure no audit step would be missed. It would also ensure any change to billing-related IT programmes be checked and tested by senior IT staff prior to launch.

#### OFCA’s Assessment

14. OFCA notes that the cause of the first incident was due to the absence of any verification and cross-checking before the launch of the automation mode for the Billing Discount Engine. In addition, the new automation mode and alert system were set up by the responsible IT personnel without any cross-checking by other more senior IT personnel. Hence, the human error made by the responsible IT personnel could not be discovered until 12 April 2023.

15. Despite HKBN’s omission mentioned above, it acted properly to resolve the problem by fixing the bug after the root cause had been confirmed on 12 April 2023 and implemented corrective actions, including the implementation of the new monitoring system and additional audit checking step, as well as enhancements of its IT operational procedures.

## *The Second Incident*

### HKBN's Representations

16. HKBN submitted that the root cause of the second incident was a software bug in a new version of the "My HKBN" App which resulted in the incorrect display of payment confirmation message for customers who settled outstanding balance via Apple mobile devices using credit cards or Octopus. HKBN was not aware of the unexpected consequence of the software upgrade so that the UAT did not include any tests on payment confirmation and the software bug remained undetected after the release of the new version of the "My HKBN" App. Customers who settled their outstanding balances on the "My HKBN" App between 30 March and 13 April 2023 might receive incorrect payment confirmation messages, even though their initial payments were successful.

17. HKBN submitted that its Customer Service ("CS") department had received seven customers' enquiries regarding duplicate payments between 31 March and 5 April 2023. Subsequently, on 11 April 2023, HKBN's IT department carried out investigation. HKBN then identified and confirmed the bug which caused the problem on 12 April 2023. The bug was removed and an updated version of the "My HKBN" App for Apple iOS devices was released on 13 April 2023.

18. After the incident, HKBN's IT department would implement a new operational procedure in the testing arrangements for the "My HKBN" App so as to ensure comprehensive UAT cases and testing would be conducted before release of each update.

### OFCA's Assessment

19. OFCA considers that the cause of the second incident was similar to the first one which was largely due to the absence of an effective verification, cross-checking and control mechanism by appropriate IT personnel. HKBN explained that UAT or testing on payment functions were not conducted as the enhancement of the "My HKBN" App was not related to payment functions. OFCA considers such omission unacceptable given that HKBN should have exercised better oversight to its IT process to ensure that a comprehensive and effective UAT must be performed to verify all essential

functions of the software upgrade before the new version of software could be put in operation.

20. In addition, OFCA notes that although HKBN had already received customers' enquiries regarding duplicate payments one day after the release of the new version of the "My HKBN" App, its CS department was unable to communicate timely for identifying the potential error earlier and could only submit the error report to the IT department on 11 April 2023, more than a week after the first customer enquiry received on 31 March 2023. Had the relevant departments (including CS and IT departments) put in place a proper channel for communication and a reasonable auditing step before the launch of the new version of the "My HKBN" App, the incident could have been avoided. Eventually, HKBN fixed the bug on 13 April 2023 after having identified and confirmed the bug on 12 April 2023. Since 22 May 2023, HKBN has been implementing a new operational procedure in the "My HKBN" App testing arrangements before release of each update.

### ***The Third Incident***

#### HKBN's Representations

21. HKBN submitted that the third incident was due to a malfunction of the upgraded version of the [ ✂ ] system such that it failed to recognize the credit adjustment for certain subscribers based on the remaining days of unutilized service charges under the original service plans when generating bill statements. According to HKBN, an external consultant was responsible for outlining specifications for the upgrade, advising potential risk concerns, providing details on the new features, as well as advising on the UAT scope on the upgrade. The external consultant did not alert the potential risk of failure of the credit adjustment function nor did it propose the need to conduct UAT for the credit adjustment function before launching this new version. The malfunction of the system also prevented an existing IT programme, which was designed to detect missing credit adjustments, from running. As a result, erroneous billing information was provided to HKBN's fixed and mobile customers between 1 January and 18 April 2023.

22. After receiving the first customer's enquiry about a missing credit adjustment on 16 March 2023, HKBN commenced investigation and with the assistance from the external consultant, identified the potential root cause on

26 April 2023. On 29 April 2023, HKBN launched a replacement solution whilst waiting for the third-party vendor investigation results.

23. With regard to the implementation of measures for preventing future recurrence, an audit checking step had been put in place to perform validation on credit adjustments in the bills, and the IT Billing Team would check and test on changes including those made by internal or third-party configured billing-related IT programs. The IT Operation Team would also periodically review the updated procedure. In addition, an instant messaging group had been set up with the external parties for timely communication purpose.

#### OFCA's Assessment

24. The cause of the third incident was again similar to the previous two incidents which was owing to a lack of cross-checking and control mechanism for configuration of new updates of the [ ✂ ] system as well as maintaining an internal alert system for checking missing credit adjustments. While HKBN claimed that UAT was not conducted for the credit adjustment function as it was not informed by the external consultant about any potential risk of this function, OFCA considers this explanation not acceptable given that HKBN was primarily responsible of observing its licence obligations and it could not simply delegate such responsibility to the external consultant without putting in place a proper internal audit system. That said, it is noted that HKBN had implemented measures to ensure relevant testing would be conducted on any changes of the billing system in the future.

25. In conclusion, having examined the facts and circumstances of the three incidents and information provided by HKBN, OFCA considers the handling of IT project developments for the purposes of enhancing billing system and payment collection by HKBN was not acceptable. HKBN had failed to take all reasonable steps to ensure that the billing system used in connection with the service was accurate and reliable for compliance with the licence obligation under SC 9.1 of its UCL and SC 5.1 of its SBO Licence.



## **HKBN's Communications with Customers and OFCA over the Incidents**

### ***HKBN's Representations in all three Incidents***

#### Communications between HKBN and its Customers

26. HKBN submitted that in all three incidents, it had issued notifications through different channels, and reimbursed all its affected customers. Details of the relevant communications and arrangements are as follows –

- (a) in the first incident,
  - (i) notifications of the incident were issued to the affected customers by emails on 13 April 2023;
  - (ii) if payments had not been made by the customers, the corrected amount stated in the emails should be paid;
  - (iii) if payments had been made by the customers, adjustments would be displayed in their next monthly bills;
  - (iv) a customer service hotline was also provided in the emails for customers to make enquiry;
- (b) in the second incident,
  - (i) notifications of the incident were issued to the affected customers by emails by 26 April 2023;
  - (ii) if customers' existing outstanding balances had not been fully settled by the duplicate payments, adjustments were reflected on their accounts and the latest current balance stated in the emails should be paid;
  - (iii) if the duplicate payments were made via credit cards, refunds would be made to the affected customers through the relevant banks within four weeks from 25 April 2023;

- (iv) if the duplicate payments were made via Octopus cards, refunds would be issued by cheque by 5 May 2023;
  - (v) a customer service hotline was also provided in the emails for customers to make enquiry; and
- (c) in the third incident,
- (i) notifications were made to affected customers by phone on 5 May 2023;
  - (ii) if payments had not been made by the customers, the missing credit adjustments would be reflected on their accounts and offset their current debit balances;
  - (iii) if payments had been made by the customers, the missing credit adjustments would be reflected on their respective bills issued on or before 18 May 2023;
  - (iv) if payments had been made by the customers who had already unsubscribed any of the HKBN services and still had credit balances in their accounts, refunds would be issued by cheque in batches on or before 25 May 2023 according to their respective billing cycles.

27. According to HKBN, it had received 359 complaints/enquiries on the first incident; 92 complaints/enquiries on the second incident and five enquiries on the third incident. All the complaints/enquiries had been settled. OFCA had not received any complaint/enquiry from the general public regarding these three incidents.

#### Communications between HKBN and OFCA

28. Following the reporting requirement specified in the CoP, HKBN reported the first incident to OFCA on 13 April 2023, the second incident on 17 April 2023 and the third incident on 2 May 2023 (via submitting an initial situation report to OFCA). It also submitted to OFCA two preliminary reports for the first and second incidents on 18 April 2023 and a preliminary report for the third incident on 4 May 2023. HKBN provided two detailed

incident reports for the first and second incidents on 4 May 2023 and a detailed incident report for the third incident on 19 May 2023. In the course of OFCA's investigation into the three incidents, HKBN also provided supplementary information in response to OFCA's enquiries.

### ***OFCA's Assessment***

29. After examining the actions taken by HKBN, OFCA is of the view that HKBN had generally taken appropriate actions to rectify the billing errors and to inform all the affected customers in a timely manner. On the other hand, according to the CoP, the service provider concerned should submit an initial situation report to OFCA within one working day after the discovery on a billing error incident which met specified triggering criteria. While the reports under the first and third incidents were submitted on time, HKBN failed to meet this requirement for the second incident which confirmed and identified the bug in the "My HKBN" App on 12 April 2023 but only provided the initial situation report for the second incident to OFCA on 17 April 2023.

## **THE CA'S CONSIDERATIONS AND DECISION**

30. After careful consideration of all the relevant facts and circumstances of the three incidents and taking into account the representations provided by HKBN on the CA's Provisional Decision, the CA considers that HKBN had –

- (a) failed to implement a satisfactory internal audit system, including cross-checking procedures and control mechanisms concerning its newly developed or enhanced IT programmes, and perform comprehensive UAT and production verification before and after the launch of the abovementioned programmes respectively. This resulted in errors in the bills issued to customers and the occurrence of incorrect display of payment confirmation messages leading to duplicate payments by certain customers;
- (b) failed to put in place an effective mechanism to supervise the performance of its appointed consultant. Although HKBN attributed the fault in the third incident to its external consultant

responsible for the software upgrade, it could not absolve its duties under the licence by solely delegating the task without implementing appropriate measures to ensure compliance by either the licensee or the external consultant. Had HKBN put in place adequate checking system and communication with external consultant throughout the configuration process, the occurrence and impacts of three incidents would have been reduced or avoided; and

- (c) in the second incident, failed to comply with the CoP to submit the initial situation report to OFCA within the timeframe as stipulated.

31. In conclusion, the CA considers that HKBN had failed to comply with the obligation on ensuring billing system's accuracy, which was in breach of SC 9.1 of its UCL and SC 5.1 of its SBO Licence. HKBN had also failed to comply with the requirements stipulated in paragraphs 4 and 10 of the CoP to take all reasonable and necessary steps to ensure billing information in respect of all forms of bills and means of payment provided to customers would be accurate and error-free.

32. In considering the appropriate sanction which should be imposed, the CA notes that this is the second occasion in which HKBN breached SC 5.1 of its SBO Licence. In the first occasion<sup>2</sup>, HKBN made incorrect charge entries in June 2018 to the bills of its mobile service customers and credit card pre-payments for mobile handset, and the CA advised HKBN to observe more closely SC 5.1 of its SBO Licence as a result of that breach. It is noted that the main causes of the previous incidents under the first breach and the current three incidents are similar. Furthermore, due to the similar nature of the three incidents which occurred within an overlapped timespan and were caused by problems of similar nature, the CA considers it appropriate to consider the three incidents together in determining any regulatory action warranted.

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<sup>2</sup> For the first breach by HKBN, please refer to the CA decision published at [https://www.coms-auth.hk/filemanager/statement/en/upload/490/HKBN\\_FinalDecision\\_20190131.pdf](https://www.coms-auth.hk/filemanager/statement/en/upload/490/HKBN_FinalDecision_20190131.pdf)

## **FINANCIAL PENALTY**

33. In light of the above, the CA considers that it is appropriate and justified to impose a financial penalty under section 36C(1)(a) of the Telecommunications Ordinance (Cap. 106) (“TO”) on the licensee concerned for the breach of SC 9.1 of its UCL and SC 5.1 of its SBO Licence.

34. Pursuant to section 36C(1)(a) of the TO, the CA may, subject to section 36C(3B), impose a financial penalty in any case where a licensee fails to comply with any licence condition. Under section 36C(3) of the TO, a financial penalty so imposed shall not exceed \$200,000 for the first occasion, on which a penalty is so imposed.

35. This is the first occasion where a financial penalty is to be imposed on HKBN for its non-compliance with SC 9.1 of its UCL and SC 5.1 of its SBO licence, and the maximum penalty stipulated by the TO is \$200,000. In considering the appropriate level of financial penalty in this case, the CA has made reference to the Guidelines on the Imposition of Financial Penalty under Section 36C of the TO (“Guidelines”). Under the Guidelines, the CA has to consider the gravity of the breach (such as the nature and seriousness of the infringement, damage caused to third parties by the infringement, and the duration of the infringement), whether the licensee under concern has previous records of similar infringements, and whether there are any mitigating and aggravating factors.

36. In considering the gravity of the breach and therefore the starting point for the level of financial penalty, the CA notes that –

- (a) the breach of the licence conditions can be attributed to the same operational problem rather than intentional misconduct or wilful disregard for compliance;
- (b) although the duration of incorrect billing information was within a day for the first incident, the second and third incidents affected HKBN’s subscribers for 15 days and three and a half months respectively;
- (c) it was reported that less than 1% of HKBN’s customers were affected for each of the three incidents;

- (d) there was no disruption of services to customers and no actual monetary loss suffered by any of the affected customers; and
- (e) no complaint case was received by OFCA for all three incidents.

37. Taking into account the above factors, the CA is of the view that the appropriate starting point for determining the level of financial penalty should be HK\$ 100,000.

38. In considering the mitigating factors, the CA notes that HKBN had taken immediate actions to rectify the errors. For the first and second incidents, HKBN had fixed the software bugs shortly after the root causes of the errors were identified. For the third incident, although the root cause of the incident had not been identified by the external parties, HKBN took steps to mitigate the issue and implemented a replacement solution. HKBN had also fully cooperated with OFCA in the course of the investigation and had taken prompt remedial actions to prevent recurrence of similar incidents. The CA has not identified any aggravating factors which should be taken into account.

39. Having carefully considered the circumstances of all three incidents and taken all mitigating factors into account, the CA concludes that a financial penalty of HK\$ 80,000 is proportionate and reasonable in relation to the breach. In imposing the financial penalty, the CA intends to emphasize the importance of addressing and rectifying the underlying operational problem to prevent future breaches by implementing adequate internal controls and ensuring compliance within licence obligation to protect the interests of customers and maintain the reliability of the billing system.

## **IMPROVEMENT MEASURES**

40. In addition, the CA recommends HKBN to implement the following measures to prevent the recurrence of similar incidents in the future, and to enhance its capability in handling billing errors. HKBN should take immediate corrective measures to address the inadequacies in its internal audit system and prevent the recurrence of similar incident in the future including without limitation to –

- (a) conduct a holistic and comprehensive UAT and production verification whenever there are new updates on billing-related IT systems or programmes to ensure that the relevant systems or programmes are reliable, stable and perform their intended functions or tasks at all times;
- (b) review the current operational flow to ensure efficient and effective communications between relevant parties (such as CS, IT departments, external contractors), and ensure that they should remain alert and vigilant after any upgrade of IT system so as to shorten the lead time on identifying the cause of any billing error upon receiving consumer complaint/enquiry; and
- (c) review and improve its internal procedures to ensure compliance by its staff with the CoP on reporting requirement to OFCA and timely dissemination of information to its customers in the event of billing error.