FINAL DECISION OF THE COMMUNICATIONS AUTHORITY

ALLEGED MISLEADING OR DECEPTIVE REPRESENTATIONS BY SMARTONE MOBILE COMMUNICATIONS LIMITED IN RELATION TO ITS NETWORK COMPARISON TESTS

Licensee Concerned:	SmarTone Mobile Communications Limited ("SmarTone")
Issue:	The website presentation and claims made by SmarTone in relation to its network comparison tests were alleged to be misleading or deceptive
Relevant Instruments:	Section 7M of the Telecommunications Ordinance ("TO") (Cap. 106)
Decision:	Breach of section 7M of the TO
Sanction:	Financial penalty
Case Reference:	7M/2/74-12

THE COMPLAINT

On 26 November 2012, the Office of the Communications Authority ("OFCA") received a complaint from an industry member, alleging that various representations made by SmarTone on a dedicated webpage of its

company website (the "**Webpage**") [1] from July 2012 in relation to the network comparison tests between its 3G network and other 3G and 4G networks in Hong Kong were misleading or deceptive in breach of section 7M of the TO. The complainant provided supplementary information to OFCA vide a letter dated 11 September 2013.

2. A screenshot of the Webpage published by SmarTone as at 28 November 2012 as extracted by OFCA is at **Appendix A**. In gist, the Webpage summarized the outcome of the network comparison tests conducted by SmarTone from April to July 2012 with a view to promoting the quality of its 3G network over its competitors' 3G and 4G networks in Hong Kong. On the Webpage, the following bullet points under the heading of "Summary" were shown –

- *"18,480 tests were carried out from April to July 2012 spanning 70 outdoor locations, 18 districts, 11 most common use types and all 8 networks (4G and 3G)"*

- *"In these tests, SmarTone 3G significantly outperformed all other 3G networks in Hong Kong, and was even faster than or equal to others' 4G in 30% of the tests"*

3. The above bullet points were followed by a powerpoint presentation under the heading "Methodology and Results" (the "**Powerpoint Presentation**") which provided the details of the test methodology adopted by SmarTone and summarized the outcome of the network comparison tests. The Powerpoint Presentation as extracted by the complainant from the Webpage as at 8 October 2012 is at **Appendix B-1**. OFCA extracted the corresponding Chinese version of the Powerpoint Presentation as at 28 November 2012 at **Appendix B-2**. According to the information in the Powerpoint Presentation, the network comparison tests primarily consisted of three parts, namely Test 1,

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[1] The Webpage was found at the following address:- http://www.smartone.com/jsp/LTE/english/network_compare.jsp. According to SmarTone, the Webpage was amended on 12 September 2013. Please see paragraph 31 below. The hyperlink of the amended Webpage is changed to "http://www.smartone.com/jsp/LTE/english/network_compare_3g_to_4g.jsp".

Test 2 and Test 3, which were conducted at 70 outdoor locations around Hong Kong, at which SmarTone claimed to have measured the respective time required for completing 11 types of common mobile applications using eight mobile networks in Hong Kong (four 4G networks and four 3G networks). SmarTone also mentioned that each test was conducted for three times, and hence a total of 18,480 tests[2] (i.e. 70 locations x 11 applications x 8 mobile networks x 3 times = 18,480) had been carried out. According to SmarTone, 11 types of common mobile applications used in the network comparison tests included –

(a) Test 1 – "Upload of 500KB Photo to Facebook"
    (i) Photo Upload to Facebook

(b) Test 2 – "Most Popular Use Types
    (i) Web browsing for TVB.com
    (ii) Web browsing for CNN.com
    (iii) Web browsing for YouTube.com
    (iv) Web browsing for Yahoo!HK
    (v) Launch a YouTube video
    (vi) Upload of 500KB photo to Facebook
    (vii) Download a 2MB file
    (viii) Download a 5MB app

(c) Test 3 – "Large-Size File Download / Upload"
    (i) OFCA speedtest
    (ii) Download a 12MB file

4. Further, under the heading "Videos", SmarTone posted a number of YouTube videos (the "**YouTube Videos**") on the Webpage providing a video presentation of the process and results of the network comparison tests at

[2] The term "test" is the terminology adopted by SmarTone to describe the number of measurements conducted for each mobile network per application per location under the network comparison tests. Although it should be more proper to use the term "measurement", this Final Decision will follow the same terminology adopted by SmarTone as far as possible.

different selected locations. The YouTube Videos were presented under two sub-headings, namely "Popular Use Types" which showed the results of Test 2, and "500KB Photo Upload to Facebook" which showed the results of Test 1. For "Popular Use Types", SmarTone presented the test results conducted at 5 selected locations for 8 networks using 5 applications (instead of 8 applications mentioned in Test 2 above) only. For "500KB Photo Upload to Facebook", SmarTone presented the results conducted at 36 selected locations for 8 networks using only one single application. The screenshots of YouTube Videos (the "**Screenshots of YouTube Videos**") captured by the complainant are at **Appendix C**.

The Complainant's Allegations

5. The allegations of the complainant in relation to the network comparison tests conducted by SmarTone are set out in paragraphs 6 to 11 below.

Selective Presentation of Test Results

6. First of all, the complainant alleged that under the heading "Videos" on the Webpage, there was a statement to invite viewers to "*see the results of all 18,480 tests all over Hong Kong*". Nevertheless, SmarTone only selectively showed 488 test results[3] in the YouTube Videos on the Webpage, which accounted for less than 3% of the total number of tests alleged to be conducted by SmarTone. The complainant considered that a general consumer would likely be misled or deceived by SmarTone that the YouTube Videos represented the results of all 18,480 tests conducted, but in fact, only the results of 488 tests

[3] As mentioned in paragraph 4 above, the YouTube videos posted by SmarTone were presented under two sub-headings, namely "Popular Use Types" which showed the results of Test 2, and "500KB Photo Upload to Facebook" which showed the results of Test 1. Under "Popular User Types", the results of the network comparison tests conducted at 5 selected locations for 8 networks using 5 applications were presented. The number of tests involved was therefore 200 (i.e. 5 locations x 5 applications x 8 networks = 200). Under "500KB Photo Upload to Facebook", results conducted at 36 selected locations for 8 networks using only a single application were shown. The number of tests involved was therefore 288 (i.e. 36 locations x 1 application x 8 networks = 288). As a result, the total number of tests shown under the heading of "Videos" on the Webpage was therefore only 200 + 288 = 488, instead of 18,480 claimed by SmarTone.

were shown.

7. Second, the complainant alleged that the average performance of SmarTone's network in those 488 tests published on the Webpage in the form of YouTube Videos was significantly better than its average performance when all the relevant 18,480 tests were taken into account. The complainant claimed that SmarTone presented an artificially distorted picture of the test results as there was no explanation on the number of tests shown or why those 488 tests were selected for posting. The complainant was of the view that SmarTone was cherry picking "above average" performance results for posting on the Webpage.

8. The complainant illustrated these distortions by using the following two examples –

(a) Test results for "Popular Use Types"

The complainant noted that in slide no. 9 of the Powerpoint Presentation, SmarTone provided the results of Test 2 in respect of "Popular Use Types" to compare the performance of 3G networks. The number of tests involved was 560[4] per network. However, under the heading of "Videos" of the Webpage, SmarTone only provided 5 YouTube Videos of test results for "Popular Use Types" and the tests were carried out at 5 selected locations (i.e. Central, Wan Chai, Causeway Bay, East Tsim Sha Tsui and Sha Tin) using 5 selected applications only and each test was conducted for one time. The test results shown in the YouTube video therefore merely represented the results of 25 tests per network conducted by SmarTone.

By making reference to p.1 to p.3 of the Screenshots of YouTube Videos, the complainant counted the respective number of times that

[4] Test 2 measured the respective time required for completing 8 mobile applications at 70 locations by each network. The total number of tests involved was therefore 560 (i.e. 70 locations x 8 applications = 560) per network.

each 3G network was found to use the shortest time to complete the relevant tests. The complainant then compared the result with the corresponding test results set out in slide no. 9 of the Powerpoint Presentation. The comparison is shown in the following Table 1 and Table 2 –

Table 1 ***Number of "firsts"*** *(Note: This is the terminology adopted by SmarTone. It shows the results for those tests in which a specific 3G network was the fastest to complete the mobile application)*

	3HK 3G	**CSL 3G**	**PCCW 3G**	**SmarTone 3G**	**No. of tests per network conducted**
Results shown in slide no. 9 of the Powerpoint Presentation	104	71	42	208	425
	24%	17%	10%	**49%**	
Results counted by the complainant based on the YouTube Videos	2	2	0	20	24
	8.3%	8.3%	0%	**83.3%**	

Table 2 ***Number of "first equals"*** *(Note: This is the terminology adopted by SmarTone. It shows the results for those tests in which a specific 3G network is among the fastest networks if more than one 3G networks including that 3G network have the same highest score)*

	3HK 3G	**CSL 3G**	**PCCW 3G**	**SmarTone 3G**	**No. of tests per network conducted**
Results shown in slide no. 9 of the Powerpoint Presentation	84	79	41	108	135
	62%	59%	30%	**80%**	
Results counted by the complainant based on the YouTube Videos	1	0	0	1	1
	100%	0%	0%	**100%**	

The complainant alleged that according to the above comparison, when the results of all the relevant 560 tests under Test 2 for each network were taken into account, SmarTone's 3G network only outperformed other 3G networks in 49% of all the tests under "Popular Use Types". However, SmarTone's performance was much exaggerated in the YouTube Videos which showed that SmarTone's 3G network outperformed other 3G networks in 83.3% of the tests when only 24 selected tests under Test 2 for each network were under consideration. Moreover, the percentage of SmarTone becoming one of the first equals was 80% in all the tests conducted but it was exaggerated to be 100% among the selected tests posted in the YouTube Videos.

(b) Test results for "500KB Photo Upload to Facebook"

Similarly, the complainant pointed out that in slide no. 7 of the Powerpoint Presentation, SmarTone provided the results of Test 1 in

respect of "500KB Photo Upload to Facebook" to compare the performance of 3G networks. The number of tests involved was 70[5] per network. However, under the heading of "Videos" of the Webpage, SmarTone only provided 36 YouTube Videos of test results for "500KB Photo Upload to Facebook" and the tests were carried out at 36 selected locations for one application and were only conducted for one time. The test results shown in the YouTube video therefore merely represented the results of 36 tests per network conducted by SmarTone.

By making reference to p.4 to p.21 of the Screenshots of YouTube Videos, the complainant counted the respective number of times that each 3G network was found to be the fastest to complete the relevant tests. The result was compared with the corresponding test results set out in slide no. 7 of the Powerpoint Presentation. The comparison is shown in the following Table 3 and Table 4 –

Table 3 Number of firsts

	3HK 3G	**CSL 3G**	**PCCW 3G**	**SmarTone 3G**	**No. of tests per network conducted**
Results shown in slide no. 7 of the Powerpoint Presentation	4	5	9	50	68
	6%	17%	13%	**74%**	
Results counted by the complainant based on the YouTube Videos	0	0	0	36	36
	0%	0%	0%	**100%**	

[5] Test 1 measured the respective time required for completing one mobile application, i.e. "500KB Photo Upload to Facebook", at 70 locations by each network. The total number of tests involved was therefore 70 (i.e. 70 locations x 1 application = 70) per network.

Table 4 Number of first equals

	3HK 3G	**CSL 3G**	**PCCW 3G**	**SmarTone 3G**	**No. of tests per network conducted**
Results shown in slide no. 7 of the Powerpoint Presentation	1	1	0	2	2
	50%	50%	0%	**100%**	
Results counted by the complainant based on the YouTube Videos	0	0	0	0	0
	n/a	n/a	n/a	**n/a**	

The complainant alleged that according to the comparison in Table 3 above, when all the relevant 70 tests under Test 1 for each network were taken into account, SmarTone's 3G network only outperformed other 3G networks in 74% of all the tests under the section of the "Upload of a 500KB Photo to Facebook". However, the percentage was exaggerated to become 100% among the test results posted in the YouTube Videos when only 36 selected tests under Test 1 for each network were under consideration.

SmarTone's Claim Regarding its 3G Network

9. Under the heading "Summary" on the Webpage, SmarTone made a comparative performance claim in the second bullet point as follows –

- *"In these tests, SmarTone 3G …… was even faster than or equal to others' 4G in 30% of the tests"*

  "喺呢系列測試中，SmarTone 3G …… 甚至有約3成嘅測試比其他嘅4G更快或睇齊"

(Hereafter referred to as "**Statement 1**")

10. The complainant pointed out that the testing methodology and locations for conducting the network comparison tests were solely designed by SmarTone and there was no objective basis as to how the 70 locations were selected. The complainant considered it not difficult for a mobile network operator to find 3 or 4 locations at which the operator would have better performance than others in each of the 18 districts. It also mentioned that at least 10 out of 36 testing sites for the test results for "500KB Photo Upload to Facebook" posted in the YouTube Videos were located inside or close to properties managed by Sun Hung Kai Properties, the parent company of SmarTone. According to the complainant, it was highly suspicious that SmarTone might have conducted tests at more than 70 locations but it selectively showed results of those locations in its favour. The test results were considered by the complainant to be self-serving especially when they could not be verified with reference to any independent surveys and studies.

11. The complainant quoted paragraph 3.25 of the Guidelines on Misleading or Deceptive Conduct issued by the former Telecommunications Authority on 21 May 2003 (the "**Guidelines**") as below to substantiate that the comparative claims made by SmarTone were misleading or deceptive –

> *"It is also misleading or deceptive to make comparative performance claims that cannot be substantiated; or if there is no reasonable basis for differentiating between products or services in the way claimed. For example, where mobile phone coverage is ubiquitous, it would be misleading to claim one licensee's products or services performed better in coverage terms than another licensee.* ***The claim should only be made when such differences can be verified with reference to independent studies or surveys.****"*

THE INITIAL ENQUIRY

12. On 25 January 2013, SmarTone was invited to comment on the complainant's allegations set out in the preceding paragraphs.

Information Provided by SmarTone on 3 May 2013

13. SmarTone provided comments on the complaint's allegations in its letter of 3 May 2013.

Selective Presentation of Test Results

14. In response to the allegation of the complainant that SmarTone had cherry picked those test results showing above average performance of its network for website posting, SmarTone submitted that the YouTube Videos of 488 tests were merely a demonstration of the way in which the network comparison tests were conducted. The full results of the 18,480 network comparison tests had been summarized in the Powerpoint Presentation. SmarTone emphasized that a reasonable person would not construe and analyze the results of the 488 tests as extracted from the YouTube Videos in the way alleged by the complainant. It was neither SmarTone's intention nor its actual website presentation to show the results of the network comparison tests in the manner and with such figures as produced by the complainant.

SmarTone's Claim Regarding its 3G Network

15. In response to the complainant's allegation that the 70 testing locations were selected without objective basis, SmarTone provided the relevant selection criteria. First, the 70 locations covered all the 18 districts of Hong Kong and only outdoor locations were chosen to ensure fairness to each mobile network. Second, each location had good coverage by all mobile networks, at which the received signal strength of each mobile network was 3 or 4 out of 5 bars. Finally, all locations were busy places with a large flow of people.

16. SmarTone further pointed out that all the locations selected for the network comparison tests were typical outdoor sites accessible by the general public. SmarTone considered that the complainant's claim that it had comparative advantage as some of the testing sites were close to its parent company's property was untenable. Being close to the buildings of Sun Hung Kai Properties did not necessarily mean that SmarTone had stronger network coverage because the tests were conducted at locations where all the mobile networks were of reasonably good signal strength.

17. As regards the complainant's argument that the network comparison tests could not be verified with reference to any independent studies or surveys and in turn the results were too prejudicial and not objective enough, SmarTone claimed that it had in no circumstances stated or hinted that the tests were carried out by anyone other than itself. The authenticity of its tests was provided by the methodology it posted on its website. It had not only adopted fair and objective criteria in selection of testing locations, but also conducted the tests using independent third parties' websites or tools, such as browsing popular websites and uploading pictures to Facebook. The methodology of the tests was common to similar tests conducted by other parties, such as those used in Information Technology magazines, websites or Audit Department's GovWiFi field tests. SmarTone said that it was just providing the results of 18,480 tests conducted by itself at 70 locations across Hong Kong through an objective and transparent methodology as clearly mentioned in the Powerpoint Presentation.

THE INVESTIGATION

18. OFCA examined the content of the Webpage, including the Powerpoint Presentation and the YouTube Videos, and considered the comments and information provided by both the complainant and SmarTone. OFCA had also made reference to the Press Release issued by SmarTone on 25 July 2012 under the title of "SmarTone Announces the Launch of its 4G Network" (the "**Press Release**") at **Appendix D**. Having taken into account all the relevant facts and circumstances of the case, OFCA identified the following

issues –

Selective Presentation of Test Results

19. Under the heading "Videos" on the Webpage, SmarTone used the following statement, namely "*See the results of 18,480 tests all over Hong Kong*", to precede 5 YouTube Videos under the sub-heading "Popular User Types" and 36 YouTube Videos under the sub-heading "500KB Photo Upload to Facebook". Nevertheless, only 488 tests were in fact shown in the YouTube Videos, as mentioned in paragraph 6 above.

20. As pointed out by the complainant, SmarTone might have cherry picked some test results which were favourable for its network for posting on the Webpage in form of the YouTube Videos. Since the average performance of SmarTone's 3G network in those 488 tests published under the heading "Videos" on the Webpage was much better than its average performance when all the relevant 18,480 tests were taken into account, it could create a distorted impression to an ordinary customer viewing the Webpage on the relative performance of the 3G networks in Hong Kong. In the absence of any clear indication that only a fraction of the tests (i.e. 488 tests) are shown in the YouTube Videos and any explanation why those 488 tests were selected for posting, an ordinary customer could be misled that the YouTube Videos posted by SmarTone would be representative samples of all the 18,480 tests conducted and so formed an impression that the average performance of SmarTone's network was better than the actual results if all the 18,480 tests were taken into account.

SmarTone's Claim Regarding its 3G Network

21. In addition to Statement 1 under "Summary" on the Webpage as pointed out by the complainant, OFCA found that SmarTone made similar comparative performance claims in slides no. 6 and 8 of the Powerpoint Presentation, involving comparison between SmarTone's 3G network with the other four 4G networks. The performance claims are set out below –

- *"SmarTone's 3G is faster than or equal to others' 4G in 13%-29% of these tests"* (regarding the "Upload of a 500KB photo to Facebook")

  SmarTone 3G 在其中13 – 29% 測試中，甚至比其他4G網絡更快或看齊。(有關"上載500KB相片至Facebook")

  (Hereafter referred to as "**Statement 2**")

- *"SmarTone's 3G is faster than or equal to others' 4G in 23%-32% of the tests"* (regarding the "Popular Use Types")

  SmarTone 3G 有23 – 32% 測試比起其他台之4G速度更快或看齊。(有關"常用應用類型")

  (Hereafter referred to as "**Statement 3**")

22. Furthermore, in the Press Release, SmarTone made the following comparative performance claim –

- *"SmarTone 3G was faster than or equal to others' 4G in 23% to 32% of tests on a network-to-network comparison basis."* (regarding the "Popular Use Types")

  "在各網絡間的比較下，SmarTone 3G 在 23%-32%的測試中，表現比其他的 4G 更快或相同。" (有關"最普遍應用模式"的測試)

  (Hereafter referred to as "**Statement 4**")

23. The above statements, together with Statement 1 at paragraph 9 above, are collectively referred to as the "**SmarTone's Performance Claims**". As a matter of fact, OFCA observed that these claims were neither substantiated by the data given in the Powerpoint Presentation or the YouTube Videos, nor

had SmarTone provided any other information to support those claims. Based on the literal meaning of the words used, SmarTone's claims should mean to a reasonable person that SmarTone's 3G network was faster than all other 4G networks in 23 – 32% of the tests for "Popular Use Types" and in 13 – 29% of the tests for "Upload of a 500KB Photo to Facebook". However, the data given in slides no. 6 and 8 of the Powerpoint Presentation only referred to the individual comparisons between SmarTone's 3G and each of the 4G networks. Hence the claims made by SmarTone would be misleading to a reasonable person.

24. Based on the above findings in the initial enquiry, it was considered that there were reasonable grounds for the Communications Authority ("CA") to suspect that there might be a breach of section 7M of the TO by SmarTone. Section 7M of the TO provides that –

> *A licensee shall not engage in conduct which, in the opinion of the Authority, is misleading or deceptive in providing or acquiring telecommunications networks, systems, installations, customer equipment or services including (but not limited to) promoting, marketing or advertising the network, system, installation, customer equipment or service.*

25. On 24 July 2013, SmarTone was advised that an investigation into the complaint had been commenced. SmarTone was requested to provide further information in relation to the complaint and OFCA's observations and to make representations that it wished the CA to consider in deciding on the matter.

SmarTone's Representations on 11 September 2013

26. SmarTone submitted its representations on 11 September 2013. SmarTone's representations are summarized in paragraphs 27 to 31 below –

Selective Presentation of Test Results

27. With regard to whether a reasonable person would be misled by the concerned statement under the heading "Videos" on the Webpage, namely "*see the results of 18,480 tests all over Hong Kong*", SmarTone stressed that the "results" of 18,480 tests referred to a summary of the tests only as it was practically difficult if not impossible to include a total of 18,480 test results in a single business video on YouTube. SmarTone considered it sensible from the point of view of an ordinary customer viewing the Webpage that it highlighted 488 tests only for illustration purpose. The 488 tests shown, covering 36 out of 70 testing locations, were chosen randomly. An ordinary customer, in normal circumstances, would not expect or wish to watch a business video consisting of 18,480 tests. Therefore, a reasonable person would not view such a claim in the way alleged by the complainant. SmarTone submitted that a reasonable person would expect that a process of selection would take place in order to arrive at a more manageable presentation of the test results.

28. As regards the calculation performed by the complainant based on the test results shown in the YouTube Videos posted on the Webpage, SmarTone submitted that the complainant had presented the test results with a totally different approach by converting the results in terms of "seconds" into percentages and figures. First, SmarTone reserved its rights to verify the accuracy of the results counted by the complainant based on the information presented in the YouTube Videos. Second, it was not SmarTone's intention to present the data in the way put forward by the complainant. Absent the counting done by the complainant, an ordinary customer viewing the Webpage would not form a view that the average performance of SmarTone's network in those 488 tests given in the YouTube Videos was better than its average performance when all the relevant tests were taken into account.

SmarTone's Claims Regarding its 3G Network

29. In response to OFCA's observation that the information given in the Powerpoint Presentation or the YouTube Videos were not able to

substantiate SmarTone's Performance Claims regarding its 3G networks, SmarTone reiterated that the figures in slide no. 6 in the Powerpoint Presentation already compared the upload speed of a standard 500KB photo using SmarTone's 3G network against each 4G network on 70 occasions at different locations in Hong Kong. Based on this total of 280 tests (4 networks x 70 tests/locations) with each test conducted for 3 times with the results averaged, the specific number of occasions in which SmarTone's 3G network was either faster than or equal to the concerned 4G operator were set out. The methodology used for the testing was clearly summarized in slide no. 4. SmarTone advised that the range of percentages of tests from 13 – 29% had already been reproduced at the bottom of the slide no. 6, thus supporting the correctness of Statement 2.

30. Similarly, SmarTone mentioned that Statements 3 and 4 were supported by figures set out in slide no. 8 which showed the results of 560 tests/locations (also with each test conducted 3 times at each location with the results averaged) in which SmarTone's 3G network was either faster than or equal to other 4G networks in 23 – 32% of the tests for "Popular Use Types". By averaging the above percentages, SmarTone claimed that its 3G network was either faster than or equal to other 4G networks in around 30% of the tests, and therefore providing the justification for Statement 1.

Subsequent Amendments Made to the Webpage by SmarTone

31. According to SmarTone, the entire content of the Webpage, including the Powerpoint Presentation and the YouTube Videos, was posted on SmarTone's website for public access on 28 July 2012. In its representations on 11 September 2013, SmarTone advised that, for the sake of clarity, the Webpage had been amended by replacing all the bullet points mentioned in paragraph 2 above with the following descriptions –

> *"Go online with our 3G network and be amazed by our speed. In recent network performance comparison tests of all 3G and 4G mobile networks in Hong Kong, our 3G was faster than or equal to competitors' 4G networks in 30% of the tests for most popular use types. This is*

especially notable as our 3G network carries substantial traffic while competitors' 4G networks carry little. If traffic volumes were equal, our 3G would have won even more."

The amended Webpage provided by SmarTone as at 12 September 2013 is at **Appendix E**.

32. It was noted that SmarTone had also removed the statement "see the results of all 18,480 tests all over Hong Kong" previously found under the heading "Videos" on the Webpage.

Continued Availability of the Webpage in SmarTone's Website

33. The Webpage, including the Powerpoint Presentation, SmarTone's Performance Claims and the YouTube Videos had been available on SmarTone's website from 28 July 2012 till 20 January 2014, though amended in September 2013 by SmarTone as mentioned in paragraph 31 above. As to the Press Release where the network comparison test results was mentioned, it had been published in a number of local Chinese and English newspapers on 26 July 2012 at **Appendix F**.

OFCA'S ASSESSMENT

34. Having taken into account the available evidence and the representations made by SmarTone, OFCA's assessment is set out in paragraphs 35 to 57 below.

Selective Presentation of Test Results

35. Regarding the statement "*See the results of 18,480 tests all over Hong Kong*" under the heading "Videos" on the Webpage available from SmarTone's website from 28 July 2012 until SmarTone amended the Webpage in September 2013, OFCA notes that SmarTone posted under that statement a total of 41 YouTube Videos, with 5 YouTube Videos under the sub-heading

"Popular Use Types" and 36 YouTube Videos under the sub-heading "500KB Photo Upload to Facebook".

36. OFCA has reviewed the contents of the YouTube Videos and noted that under "Popular Use Types", all of the 5 YouTube Videos provide the respective time needed to complete 5 applications (instead of all the 8 applications under "Popular Use Types" for Test 2 as mentioned in paragraph 3 above) using 8 mobile networks in Hong Kong at a selected location. The number of tests involved is therefore only 200 (i.e. 5 locations x 5 applications x 8 networks = 200). At the same time, under "500KB Photo Upload to Facebook", all of the 36 YouTube Videos provide the respective time needed to complete the 500KB Photo Upload to Facebook application using 8 mobile networks in Hong Kong at a selected location. The number of tests involved is therefore 288 (i.e. 36 locations x 1 application x 8 networks = 288). The total number of tests shown under the heading "Videos" is therefore only 200 + 288 = 488. SmarTone claimed in slide no. 4 of the Powerpoint Presentation and in its representations on 11 September 2013 that each test was conducted for 3 times with results averaged, but OFCA notes that each of the 41 YouTube Videos only provided the result of a single round of measurement conducted for each of the selected applications for each of the 8 mobile networks.

37. OFCA is of the view that the literal meaning of the concerned statement and its layout on the Webpage emphatically and unambiguously invited an ordinary customer viewing the Webpage to look for the results of all the 18,480 tests by clicking the YouTube Videos that were posted directly underneath the statement. Nevertheless, the YouTube Videos did not show the results of all the tests as alleged. As a matter of fact, only a total of 488 measurements, which were only a small fraction of the total number of measurements alleged to have been conducted by SmarTone, were shown. The statement by itself is therefore considered problematic and is not a correct description of the number of tests shown in the YouTube Videos that followed.

38. OFCA does not agree with SmarTone's representations that "the results of 18,480 tests" merely referred to a summary of the tests and it would be more sensible from the point of view of an ordinary customer viewing the

Webpage to only highlight 488 tests for illustration purpose. There was neither any disclaimer on the number of tests shown, nor any explanation on why and how the 488 tests were selected for posting. On the contrary, the statement provided a very clear message to an ordinary customer viewing the Webpage that he or she might click on the YouTube Videos and then he or she would be able to review the results of all the 18,480 tests, or to say the least an ordinary customer might expect that he or she would be presented with an interpretation of the results of all the 18,480 tests in a certain manner by SmarTone. However, this was not the case and only a small fraction of the tests (i.e. 488) were shown. Though SmarTone claimed that an ordinary customer, in normal circumstances, would not expect or wish to watch a business video consisting of 18,480 tests, OFCA considers that the statement would mislead an ordinary customer into believing that he or she was provided with the capability to review all the 18,480 test results through those YouTube Videos, regardless of whether he or she would actually exercise that capability or not.

39. Based on the above considerations, OFCA is of the view that the concerned statement under the heading "Videos" on the Webpage is factually incorrect.

40. As to the complainant's allegation that the average performance of SmarTone's network in the 488 tests published on the Webpage was significantly better than its average performance when all the relevant 18,480 tests were taken into account, OFCA has examined the content of all of the 41 YouTube Videos posted on the Webpage by clicking into each video and checking the content against the Screenshots of YouTube Videos extracted by the complainant at **Appendix C**. OFCA has verified that the data given in the last rows of the Tables 1 to 4 set out in paragraph 8 above is adapted from the YouTube Videos and the result of the counting made by the complainant is factually correct.

41. In Table 1, it is noted that SmarTone's 3G network outperformed other 3G networks in 49% of all the tests for "Popular Use Types" but the percentage perceived by an ordinary customer could be as high as 83% by viewing those selected test results posted on the YouTube Videos. In Table 2,

the percentage of SmarTone becoming one of the first equals was 80% in all the tests completed for "Popular Use Types" but the percentage perceived by an ordinary customer could be as high as 100% by viewing those the selected test results posted. Moreover, as given in Table 3, SmarTone's 3G network only outperformed other 3G networks in 74% of all the tests for "500KB Photo Upload to Facebook" but that percentage perceived by an ordinary customer could be as high as 100% by viewing those test results posted on YouTube Videos.

42. In this connection, there are reasonable grounds to suspect that SmarTone might have posted the test results selectively in its favour, without giving any disclaimer or explanation about the selection process and criteria. Even if the tests were selected at random as alleged by SmarTone, the fact remains that the test results of SmarTone's network presented selectively in the YouTube Videos are on average superior to those of all the 18,480 tests. It is noted that an ordinary customer viewing the Webpage might not examine all of the YouTube Videos in the same manner as the complainant in order to obtain the exact numerical average of the measurements of SmarTone's network revealed in the videos. Nonetheless, given that the selected tests did not constitute a representative sample of all the tests conducted, an ordinary customer, by randomly clicking through some of the YouTube Videos, would more likely than not perceive a performance of SmarTone's network which was better than the actual results of all the 18,480 tests.

43. As explained in paragraphs 35 to 39 above, based on the literal meaning of the statement "*See the results of 18,480 tests all over Hong Kong*", an ordinary customer viewing the Webpage would reasonably expect that the YouTube Videos following the statement would cover all the 18,480 tests. The ordinary customer would likely take what he or she perceived on randomly clicking through the videos as the actual results of all the tests conducted by SmarTone. SmarTone did not show a full set of the tests as expected. Instead, only a fraction of the tests, which were seemingly biased in favour of SmarTone, were presented in the YouTube Videos. The selection criteria were also not disclosed on the Webpage. **On the whole, the selective presentation of the test results in the YouTube Videos would likely cause the ordinary**

customer viewing the Webpage to form an impression on the performance of SmarTone's network which was better than the actual test results. As the YouTube Videos are posted as supporting information to the performance claims of SmarTone on its Webpage and Powerpoint Presentation, such impression would also increase the credibility of such claims. In this regard, **OFCA considers it necessary to also consider SmarTone's claims regarding the performance of its 3G network so as to examine the overall misleading/deceptive effect of the content of the Webpage in relation to SmarTone's network comparison tests** (see paragraphs 44 to 57 below).

SmarTone's Claims Regarding its 3G Network

44. In respect of the complainant's allegation that the test methodology and locations of SmarTone's network comparison tests were solely designed by SmarTone and there was no objective basis as to how the 70 locations were selected, OFCA is aware of the fact that paragraph 3.25 of the Guidelines states that "the claim should only be made when such differences can be verified with reference to independent studies or surveys". However, while the Guidelines encourages that comparison should be supported by independent studies or surveys as far as possible, the Guidelines does not seek to impose an obligation on any party that comparative performance claims must be substantiated by third party studies or surveys independent from the licensee concerned. That notwithstanding, where network comparison tests are conducted by a licensee itself and the results have not been verified by any independent parties, the licensee should disclose sufficient details about the tests including the methodology adopted and results of the tests in an unbiased and transparent manner to enable the ordinary customer to form an informed judgment as to whether the self-conducted tests are conducted fairly and objectively and whether the results could be relied on to substantiate the claims made by the licensee. In respect of the network comparison tests conducted by SmarTone, OFCA notes that SmarTone did not provide the exact address of all the 70 test locations, or explain how and why the 70 testing locations were chosen among the numerous sites meeting the criteria given by SmarTone in paragraph 15 above. Furthermore, no details about the time and conditions of the tests conducted at those 70 locations were given. While OFCA has not made

assessment of whether the test results of SmarTone were fair and accurate, the way in which the test methodology and test results were disclosed is not acceptable for the purpose of enabling an informed judgment to be made by an ordinary customer.

45. Besides, OFCA considers that SmarTone's Performance Claims, i.e. Statements 1 to 4 mentioned in paragraphs 9, 21 and 22 above respectively, were not substantiated by the information given on the Webpage. In making its performance claims, SmarTone did not provide clear information to the public as to whether the comparisons referred to in these claims were made with all other 4G networks or individual 4G network(s). In the circumstances, the wordings used in these statements would likely convey a message to a reasonable person that SmarTone's 3G network was faster than all other 4G networks in the various tests under different scenarios in the four statements. The meaning is even more apparent in the Chinese versions, in which all the statements in general send out the message that "*SmarTone 3G …比起其他台之4G 速度更快或看齊*". Literally, the statements provide a direct comparison between SmarTone's 3G network and all other 4G networks, explicitly claiming that SmarTone's 3G network was faster or on par with all other 4G networks in the tests conducted by SmarTone.

46. In its representations, SmarTone was of the view that the statements accurately reproduced the summary of the network comparison tests shown in the Powerpoint Presentation. In particular, SmarTone submitted that Statement 2 was just a summary of the Test 1 results for "Upload of 500KB Photo to Facebook" in slide no. 6, whereas Statements 3 and 4 summarized the Test 2 results for "Popular Use Types" in slide no. 8 of the Powerpoint Presentation. For Statement 1, the percentage of "in around 30%" was calculated by taking the average of Test 2 results for "Popular Use Types".

47. In respect of the justifications provided by SmarTone, OFCA has reviewed the test methodology and the details of the test results shown in the Powerpoint Presentation.

Validity of Statement 2

48. On slide no. 6 of the Powerpoint Presentation, the following table was shown –

Test 1 Results – Upload of a 500KB Photo to Facebook (SmarTone's 3G vs others' 4G)

	3HK (4G)	CMHK (4G)	CSL (4G)	PCCW (4G)
No. of tests/ locations	70	70	70	70
SmarTone 3G faster or equal to others' 4G	20 **29%**	16 **23%**	9 **13%**	19 **27%**

49. According to SmarTone, Statement 2 was just a summary of the percentages shown in the last row of the above table. SmarTone just combined the percentages together and arrived at the assertion in Statement 2 that "*SmarTone's 3G is faster than or equal to others' 4G in 13% - 29% of these tests*". Nevertheless, on a closer look at the calculation methodology adopted for these percentages, OFCA has doubts about the validity of whether these percentages can be combined in such a manner as suggested by SmarTone.

50. In the second column of the above table, SmarTone compared the performance of its 3G network with 3HK's 4G network at 70 locations for the application "Upload of a 500KB Photo to Facebook". At the 70 locations, SmarTone found that its 3G network performed better at 20 locations, and hence it claimed that its 3G network was faster or equal to 3HK's 4G in 29% of these 70 locations, but it did not provide any information that its 3G network might in fact be slower than the remaining three 4G networks at these 20 locations at the same time. In the third column, SmarTone compared its 3G network with CMHK's 4G network and found that its 3G network performed better at 16 locations, i.e. 23% of the 70 locations. Similarly, in the fourth column, SmarTone found that its 3G network performed better than CSL's 4G

network at 13% of the 70 locations. Finally, in the fifth column, SmarTone found that its 3G network performed better than PCCW's 4G network at 27% of the 70 locations.

51. OFCA notes that there was no relationship between the locations at which SmarTone's network outperformed an individual 4G network and the locations for the comparison with another 4G network. These locations might or might not overlap. In other words, the comparisons with each individual 4G network were independent to each other and they could not be automatically aggregated or generalized to deduce an overall comparison with all 4G networks as what was conveyed in Statement 2.

52. In fact, the assertion of Statement 2 might be true only if it was phrased "*SmarTone's 3G is faster than or equal to <u>at least one 4G</u> in 13% - 29% of these tests*". However, the actual wording of Statement 2 was "*SmarTone's 3G is faster than or equal to <u>others' 4G</u> in 13% - 29% of these tests*". In the absence of a clear indication that the comparison in the statement is made on a one-to-one basis only, it would likely convey the message that SmarTone's 3G was faster than all other 4G in 13% - 29% of the tests, as if the tests showed a comparison of SmarTone's 3G network with all other 4G networks simultaneously. In other words, given the tests were conducted at 70 locations, it would appear to a reasonable person that at these 70 locations, SmarTone's 3G network was better than all other 4G networks at around 9 to 20 locations (i.e. 13% – 29% of the tests). In reality, this was essentially not the result of the network comparison tests.[6]

53. As an illustration of the likely exaggeration produced by the method of presentation adopted by SmarTone, OFCA has set a hypothetical scenario in **Appendix G**, under which, in a similar comparison of the performance of one network (say Network E) against four other networks (say Networks A to D), Network E could be shown to be faster than or equal to at

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[6] According to the sample of test results revealed in the YouTube Videos (**Appendix C**), SmarTone only performed better than all other 4G networks simultaneously in one out of 36 rounds (= 36 locations x 1 application) of tests for "500KB Photo Upload to Facebook".

least one of the others' networks in around 20% - 50% of these tests, but in fact Network E did not have any particularly good performance in all the tests. The presentation of the test results by SmarTone in Statement 2 would likely exaggerate the performance of SmarTone's 3G network with other competitors' 4G network and give a misleading message to a reasonable person.

Validity of Statements 3 and 4

54. In slide no. 8 of the Powerpoint Presentation, the following table was shown –

Test 2 Result – Popular Use Types (SmarTone's 3G vs others' 4G)

	3HK (4G)	CMHK (4G)	CSL (4G)	PCCW (4G)
No. of tests/ locations	560	560	560	560
SmarTone 3G faster or equal to others' 4G	178 **32%**	145 **26%**	129 **23%**	179 **32%**

55. Again, according to SmarTone, Statements 3 and 4 were just a summary of the percentages shown in the last row of the above table. SmarTone just combined the percentages together and arrived at the assertion in Statements 3 and 4 that "*SmarTone's 3G is faster than or equal to others' 4G in 23% - 32% of these tests*". OFCA considers that the same problem exists here as the comparisons of SmarTone's 3G network with each individual 4G network were independent to each other and it would be meaningless to combine the percentage figures together. As with the case for Statement 2 discussed above, Statements 3 and 4 will likely have exaggerated the performance of SmarTone's 3G network[7] and conveyed a misleading message to a reasonable person.

[7] As a matter of fact, according to the sample of test results revealed in the YouTube Videos (**Appendix C**), SmarTone had never outperformed all other 4G networks simultaneously in any of the 25 rounds (= 5 locations x 5 applications) of tests for "Popular Use Types".

Validity of Statement 1

56. SmarTone submitted that in Statement 1, the percentage "in around 30% of the tests" was calculated by taking the average results of the Test 2 result for "Popular Use Types". As mentioned in the preceding paragraphs, OFCA considers it misleading to present the test results in form of Statements 3 and 4. In respect of Statement 1, SmarTone went one step further to average out the percentage of the Test 2 results to obtain a single figure of 30%, claiming that "*SmarTone's 3G is faster than or equal to others' 4G in 30% of the tests*". It is considered that the statement by itself was even more misleading, as the ordinary customers viewing the Webpage were presented with an over-simplified version of the test results and were informed that SmarTone's 3G was better than all other 4G networks in 30% of the tests. To a reasonable person, he or she would have expected that SmarTone had, say, conducted a certain number of measurements for all 4G networks together, and out of all the measurements conducted, approximately in 30% of the measurements SmarTone's 3G network would outperform all other 4G networks. Such a claim as conveyed by Statement 1 was clearly not substantiated by the network comparison tests or any information provided by SmarTone.

Conclusion

57. Having taken into account all the facts and circumstances concerning the content and format of presentation of the four Statements in question, **OFCA is of the view that these Statements delivered a misleading message to a reasonable person that SmarTone's 3G network was faster than all other 4G networks in certain percentages of the tests, which was not substantiated.** The misleading/deceptive effect on the reasonable person was aggravated by the selective presentation of test results according to the assessment given in paragraphs 35 to 43 above. **Overall speaking, OFCA considers that SmarTone's Performance Claims and selective presentation of test results on the WebPage were misleading or deceptive in breach of section 7M of the TO.**

THE CA'S ASSESSMENT AND DECISION

58. After examining the facts of the case, the information and representations provided by the complainant and SmarTone, including the further representations submitted by SmarTone on 19 February 2014, the CA affirms OFCA's assessment that SmarTone had engaged in misleading or deceptive conduct in breach of section 7M of the TO in relation to the selective presentation of test results and the SmarTone's claims regarding its 3G network found on the Webpage and the Press Release. A financial penalty should be imposed.

59. This is the fifth occasion[8] on which a financial penalty is to be imposed on SmarTone under section 7M of the TO, and the maximum penalty stipulated by section 36C(3) of the TO is $1,000,000. In considering the appropriate level of financial penalty in this case, the CA has had regard to the Guidelines on the Imposition of Financial Penalty issued under Section 36C of the TO (the "Penalty Guidelines"). Under the Penalty Guidelines, the CA is 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 duration of the infringement), whether the licensee under concern has previous records of similar infringements, and whether there are any aggravating and mitigating factors.

60. In considering the gravity of the breach and therefore the starting point for the level of penalty, the CA notes that the breach is a substantive one in the context of competition in the mobile broadband service market. Speed performance is a key element of mobile broadband service, and the website presentation and SmarTone's Performance Claims serve to differentiate SmarTone's services from competing service providers. It is therefore important that comparative speed claims are properly substantiated and presented so that the audience can receive the true and accurate message.

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[8] Case Ref. Numbers : T66/06, T66/08, T110/08 and 7M/2/3-12(T69/10)

Further, the Webpage was published from July 2012 till January 2014. Also, the Press Release carrying Statement 4 was posted on 25 July 2012 and is still available from SmarTone's website now. The content of the Press Release was also widely reported in more than 9 local newspapers on the day after 25 July 2012. The potential reach on consumers is obviously considerable.

61. While considering that this was a substantive breach of section 7M, the CA has not found any previous record of similar infringement committed by SmarTone in relation to speed comparison. OFCA had only received this industry complaint concerning the Powerpoint Presentation and YouTube Videos. Though the content of the Press Release was widely reported by the media, there was no consumer complaint received by OFCA. There is no evidence to suggest that a large number of consumers have been misled or deceived.

62. In consideration of the above, the CA is of the view that the appropriate starting point for determining the level of financial penalty is $180,000.

63. On mitigating factors, the CA notes that SmarTone has been cooperative with the OFCA during the course of investigation. However, SmarTone has not taken any effective rectification despite OFCA's investigation into the case, given the continuing availability of the Webpage on SmarTone's website.

64. The CA has not been able to establish any aggravating factors.

65. Having carefully considered the circumstances of the case and taking all factors into account, the CA concludes that in this case of the fifth occasion on which a financial penalty is imposed under section 7M of the TO on SmarTone, the penalty which is proportionate and reasonable in relation to the breach concerned is **$150,000**.

The Communications Authority
April 2014

Appendix A

SmarTone

中文

Hong Kong 4G / 3G Network Comparison Tests

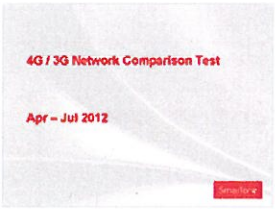
4G will offer faster data speeds but you'll also need a good 3G network running alongside it for the best mobile broadband experience. We conducted extensive tests to show the quality of our 3G network. See the results here and discover why you should choose us.

Summary Methodology and Results Videos

Summary

- 18,480 tests were carried out from April to July 2012 spanning 70 outdoor locations, 18 districts, 11 most common use types and all 8 networks (4G and 3G)
- In these tests, SmarTone 3G significantly outperformed all other 3G networks in Hong Kong, and was even faster than or equal to others' 4G in 30% of the tests
- As speedtests are based on large file downloads/uploads alone, using them to reflect the total mobile broadband experience is misleading

Methodology and Results



Videos

See the results of 18,480 tests all over Hong Kong

Popular use types

- Central
- Wan Chai
- Causeway Bay
- East Tsim Sha Tsui
- Sha Tin

500KB photo upload to Facebook

Hong Kong

- Central (IFC / Exchange Square)
- Sheung Wan
- Wan Chai
- Quarry Bay
- Causeway Bay (World Trade Center / Hysan Avenue)
- Chai Wan
- Aberdeen
- Stanley

Kowloon

- East Tsim Sha Tsui
- Jordan
- Tai Kok Tsui
- Sham Shui Po
- Mei Foo
- Kowloon Bay
- Kwun Tong
- Lam Tin
- Lok Fu
- Kowloon City
- Wong Tai Sin
- Diamond Hill

New Territories

- Sha Tin
- Tai Wai
- Tsing Yi
- Kwai Fong
- Tsuen Wan
- Tseung Kwan O
- Sai Kung
- Tai Po Market
- Tai Po
- Tuen Mun
- Yuen Long
- Fanling
- Sheung Shui
- Ngong Ping

SmarTone ENG

全港 4G 及 3G 網絡比併

4G 可提供更快數據速度，但你亦需要一個優質 3G 網絡兼行，先可享最佳流動寬頻體驗。我哋進行咗廣泛嘅測試以顯示我哋超卓嘅 3G 網絡。即睇測試結果同了解你點解要選擇我哋。

摘要 測試方法和結果 影片

摘要

- 2012 年 4 月到 7 月期間，我哋喺全港 18 區共 70 個戶外地點進行咗多達 18,480 次測試；每個地點都會透過 8 個網絡 (4G 同 3G) 測試 11 個最常用嘅應用類型
- 喺呢系列測試中，SmarTone 3G 嘅表現遠遠拋離香港其他所有嘅 3G 網絡，甚至有約 3 成嘅測試比其他嘅 4G 更快或睇齊
- 因為 Speedtests 只係基於單獨量度大型檔案上下載嘅速度，所以用嚟反映整體流動寬頻體驗係誤導

測試方法和結果

影片

查看全港合共18,480次的測試結果

常用嘅應用類型

- 中環
- 灣仔
- 銅鑼灣
- 尖東
- 沙田

上載500KB相片去Facebook

香港

- 中環 (國際金融中心 / 交易廣場)
- 柴灣
- 香港仔
- 赤柱
- 銅鑼灣 (世貿中心 / 希慎道)
- 上環
- 灣仔
- 鰂魚涌

九龍

- 尖東
- 佐敦
- 大角咀
- 深水埗
- 美孚
- 九龍灣
- 觀塘
- 藍田
- 樂富
- 九龍城
- 黃大仙
- 鑽石山

新界

- 沙田
- 大圍
- 青衣
- 葵芳
- 荃灣
- 將軍澳
- 西貢
- 大埔墟
- 大埔
- 屯門
- 元朗
- 粉嶺
- 上水
- 昂坪

4G / 3G Network Comparison Test

Apr – Jul 2012

SmarTone

1

Speed & User Experience

- A lot of confusion and hype about network performance
- Use of speedtests to reflect real user experience is misleading

SmarTone conducted tests to compare 4G & 3G user experiences on all networks in HK

2

Tests

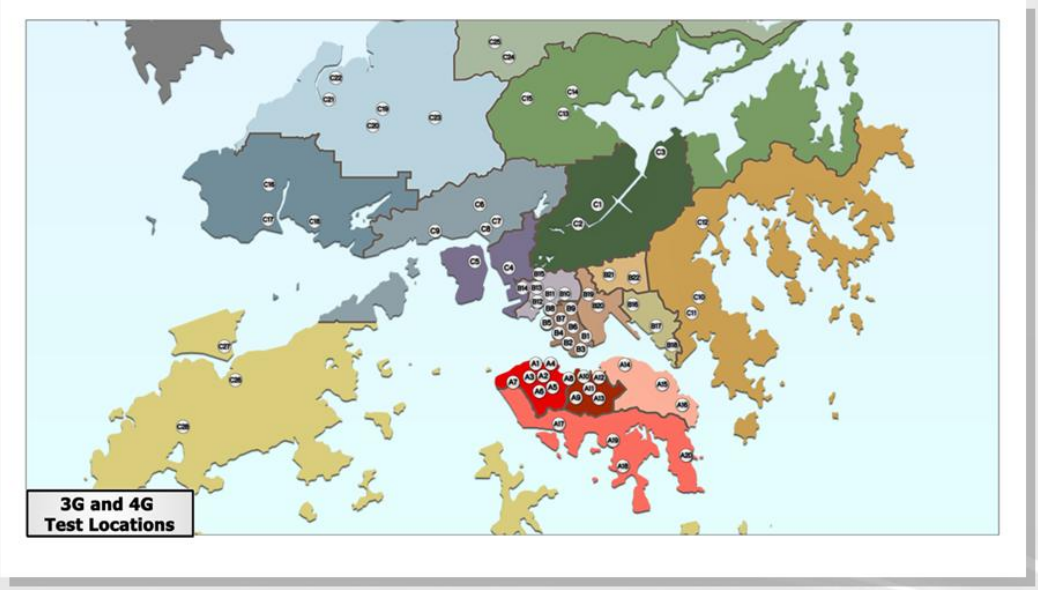
- Test 1: Photo upload to Facebook
- Test 2: Most popular use types
  - Web browsing *(TVB.com / CNN.com / YouTube.com / Yahoo! HK)*
  - Launch a Youtube video
  - Upload of a 500K photo to Facebook
  - Download a 2MB file
  - Download a 5MB app
- Test 3: Large-size file download / upload
  - OFCA speedtest
  - Download a 12MB file

Methodology

- 70 outdoor locations covering all 18 districts of Hong Kong
- Good coverage for all networks at each location
- Tested one location at a time with Samsung GALAXY SII LTE smartphones
- 11 use types on 8 networks (4G & 3G)
- Each test conducted 3 times with the results averaged
- Test period: Apr – Jul 2012

Total 18,480 tests completed

Test locations covered 18 districts of HK



Test 1 Results – Upload of a 500KB photo to Facebook (SmarTone 3G vs. others' 4G)

	3HK	CMHK	CSL	PCCW
No. of tests / locations	70	70	70	70
SmarTone 3G faster or equal to others' 4G	20 ***29%***	16 ***23%***	9 ***13%***	19 ***27%***

SmarTone's 3G is faster than or equal to others' 4G in 13% - 29% of these tests

Test 1 Results – Upload of a 500KB photo to Facebook (Comparing 3G networks)

Number of firsts

3HK	CSL	PCCW	SmarTone	No. of tests / locations
4	5	9	50	68
6%	**7%**	**13%**	**74%**	**100%**

Number of first equals

3HK	CSL	PCCW	SmarTone	No. of tests / locations
1	1	0	2	2
50%	**50%**	**0%**	**100%**	N/A

SmarTone 3G outperforms all other 3G networks

in 74% of the tests and the next highest ranking operator win in only 13% of the tests

Test 2 results - most popular use types (SmarTone 3G vs. others' 4G networks)

	3HK	CMHK	CSL	PCCW
No. of tests / locations	560	560	560	560
SmarTone 3G faster or equal to others' 4G	178 ***32%***	145 ***26%***	129 ***23%***	179 ***32%***

SmarTone's 3G is faster than or equal to others' 4G in 23%-32% of the tests

Test 2 results - most popular use types (comparing 3G networks)

Number of firsts

3HK	CSL	PCCW	SmarTone	No. of tests
104	71	42	208	425
24%	**17%**	**10%**	**49%**	**100%**

Number of first equals

3HK	CSL	PCCW	SmarTone	No. of tests
84	79	41	108	135
62%	**59%**	**30%**	**80%**	N/A

SmarTone 3G outperforms all others' 3G networks

Test 3 Results – Large-size file download / upload (comparing 4G vs. 3G)

- For large-size file download / upload on all networks, 4G is always faster than 3G
- For large-size file download / upload, others' 4G incremental speed over SmarTone 3G on average is as follows :-

3HK	CMHK	CSL	PCCW
3.0x	***3.1x***	***2.2x***	***2.0x***

Test 3 Results – Large-size file download / upload comparing 3G networks

Number of firsts

3HK	CSL	PCCW	SmarTone	No. of tests
26	15	56	106	203
13%	**7%**	**28%**	**52%**	**100%**

Number of first equals

3HK	CSL	PCCW	SmarTone	No. of tests
2	2	3	7	7
29%	**29%**	**43%**	**100%**	N/A

SmarTone 3G outperforms all other 3G networks

Results & conclusion

- A well run 3G HSPA network can perform at or close to 4G speeds for most popular use types
  - SmarTone's 3G is faster than or equal to others' already launched 4G networks in around 30% of the tests
  - SmarTone's 3G outperform all others' 3G network in HK
- Speedtests are based on large file download/upload
  - Large file download/upload are rarely done by smartphone users
  - Use of speedtests to reflect the whole mobile broadband experience is totally misleading

SmarTone
Love the difference

4G / 3G 網絡測試

2012年4-7月

SmarTone

1

速度及用戶體驗

- 市面有不少對4G網絡表現誤解及誇大的廣告及報導
- 以speedtests反映實際智能手機用戶體驗實屬誤導

***SmarTone** 對香港所有4G 及 3G網絡進行測試，*

比較兩者的用戶體驗

2

測試內容

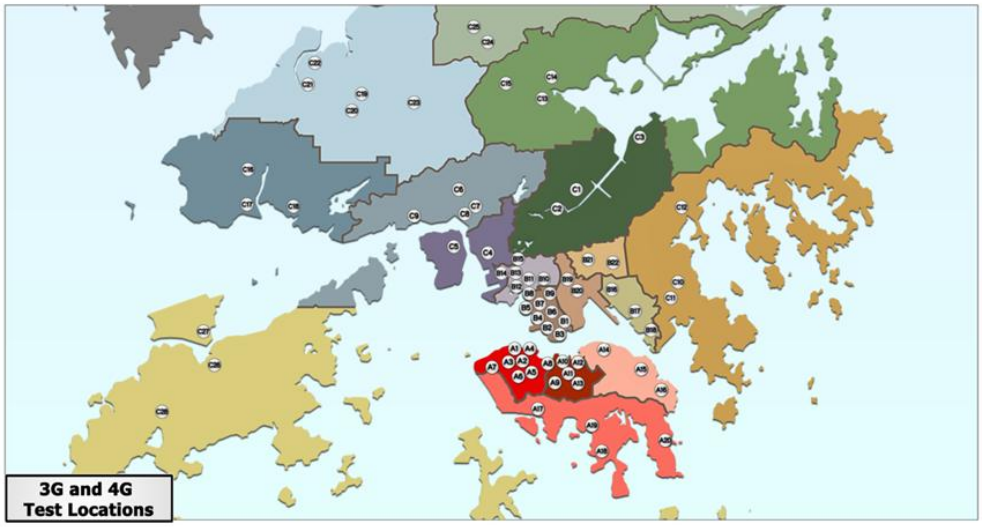
- 測試 1: 上載一張500KB相片至Facebook
- 測試 2:智能手機最常用應用類型
  - 瀏覽網頁 (TVB / CNN / YouTube / Yahoo! 香港)
  - 由 YouTube 網頁啓動影片
  - 上載一張 500KB 相片至 Facebook
  - 下載一個 2MB 檔案
  - 下載一個 5MB 應用程式
- 測試 3: 大型檔案的上下載
  - OFCA speedtest
  - 下載一個 12MB 檔案

測試方法

- 於全港18區, 總共 70 個戶外地點進行
- 在測試地方, 所有台之訊號皆良好
- 每次於同一位置進行測試，全部皆使用Samsung Galaxy S II LTE 手機
- 每個地方皆測試11個項目，共8個3G及4G網絡
- 所有測試均進行3次，取其平均數值
- 測試期: 2012年4 - 7月

共進行18,480次測試

測試地點覆蓋全港18區



測試 1 結果 – 上載一張500KB相片至Facebook
(比較SmarTone 3G 及其他4G 網絡)

	3HK	CMHK	CSL	PCCW
測試次數 / 測試地點數目	70	70	70	70
SmarTone 3G 表現比其他4G 網絡更快 / 相等	20 ***29%***	16 ***23%***	9 ***13%***	19 ***27%***

SmarTone 3G在其中13 - 29% 測試中，
甚至比其他4G網絡更快或看齊

測試 1 結果 – 上載一張500KB相片至Facebook (比較各台 3G 網絡)

測試中取得表現第一的次數

3HK	CSL	PCCW	SmarTone	測試次數 / 測試地點數目
4 **6%**	5 **7%**	9 **13%**	50 **74%**	68 **100%**

測試中表現並列第一的次數

3HK	CSL	PCCW	SmarTone	測試次數 / 測試地點數目
1 **50%**	1 **50%**	0 **0%**	2 **100%**	2 N/A

SmarTone 3G遠遠勝過其他 3G

SmarTone 3G有74%測試較其他3G更快，反觀第二位較佳成績網絡商只有13%

測試 2 結果 – 常用智能手機應用類型 (比較SmarTone 3G 及其他4G 網絡)

	3HK	CMHK	CSL	PCCW
測試次數 / 測試地點數目	560	560	560	560
SmarTone 3G 表現比其他4G 網絡更快 / 相等	178 ***32%***	145 ***26%***	129 ***23%***	179 ***32%***

SmarTone 3G有23%-32%測試

*比起其他台之**4G**速度更快或看齊。*

測試 2 結果 – 常用智能手機應用類型
(比較各台 3G 網絡)

測試中取得表現第一的次數

3HK	CSL	PCCW	SmarTone	測試次數
104	71	42	208	425
24%	**17%**	**10%**	**49%**	**100%**

測試中表現並列第一的次數

3HK	CSL	PCCW	SmarTone	測試次數
84	79	41	108	135
62%	**59%**	**30%**	**80%**	N/A

SmarTone 3G遠遠勝過其他 3G

測試 3 結果 – 大型檔案的上下載
(比較SmarTone 3G 及其他4G 網絡)

- 4G在大型檔案的上下載中，均較3G優勝
- 其他台之4G 比SmarTone 3G在大型檔案的上下載速度平均只快2-3倍：

3HK	CMHK	CSL	PCCW
3.0x	***3.1x***	***2.2x***	***2.0x***

測試 3 結果 – 大型檔案的上下載 (比較各台 3G 網絡)

測試中取得表現第一的次數

3HK	CSL	PCCW	SmarTone	測試次數
26	15	56	106	203
13%	**7%**	**28%**	**52%**	**100%**

測試中表現並列第一的次數

3HK	CSL	PCCW	SmarTone	測試次數
2	2	3	7	7
29%	**29%**	**43%**	**100%**	N/A

SmarTone 3G遠遠勝過其他 3G

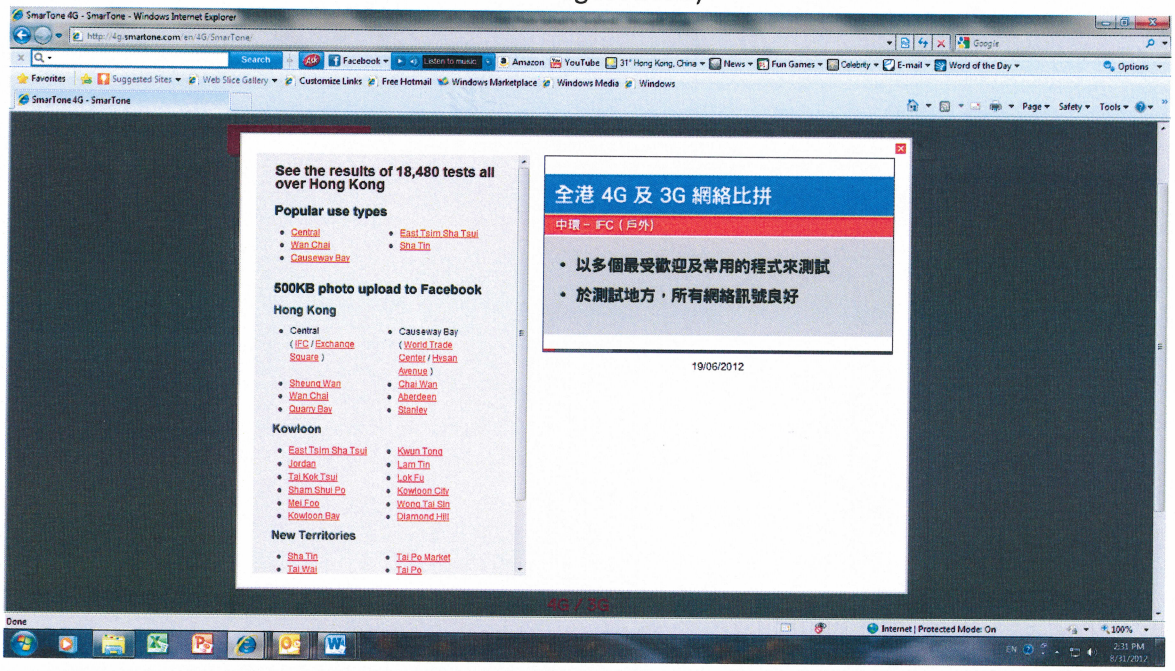
總結

- 至優質的3G HSPA網絡，在智能手機最常用的應用類型中，表現都可以等同或接近4G速度
  - SmarTone 3G在約3成的測試中，比起市場上已推出的4G速度更快或看齊
  - SmarTone 3G遠遠勝過香港其他 3G
- Speedtest只係量度大型檔案上下載速度
  - 但絕少用戶會透過智能手機上下載大型檔案
  - 以Speedtests反映整體流動寬頻體驗實屬片面之詞及誤導。我們的測試則更爲廣泛，並已包括智能手機最常用的應用類型，因此更能反映實際用戶體驗。

SmarTone
Love the difference

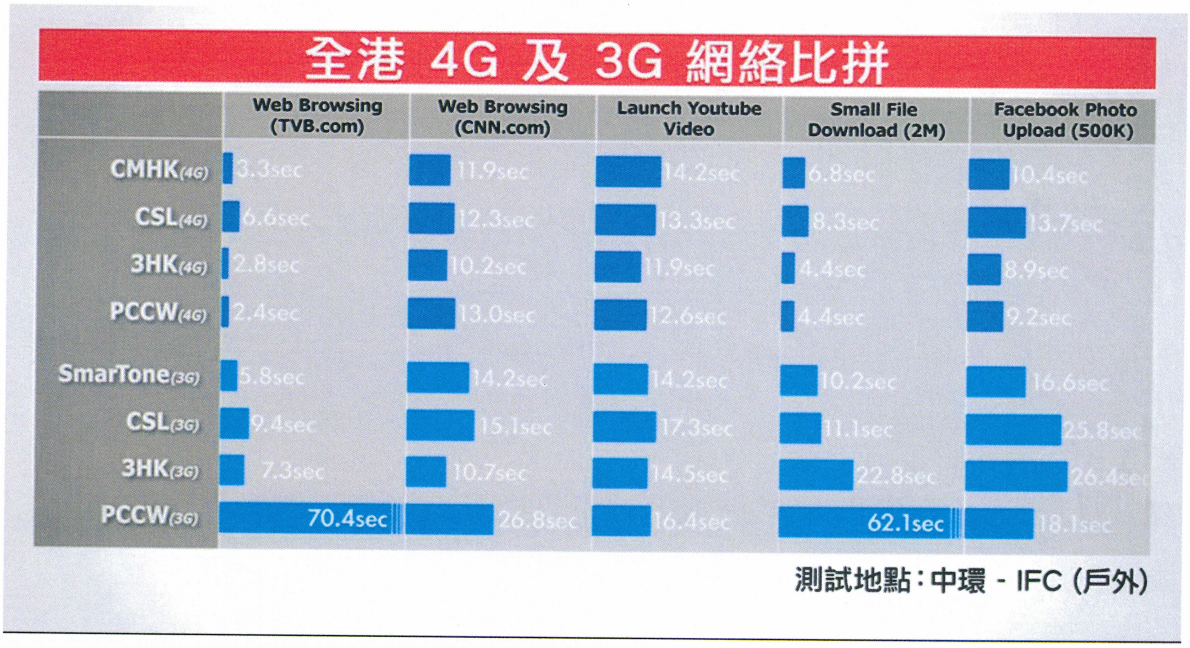
Appendix 2 Video of SmarTone Network Comparison Tests

(Extracted from SmarTone's website on 31 August 2012)

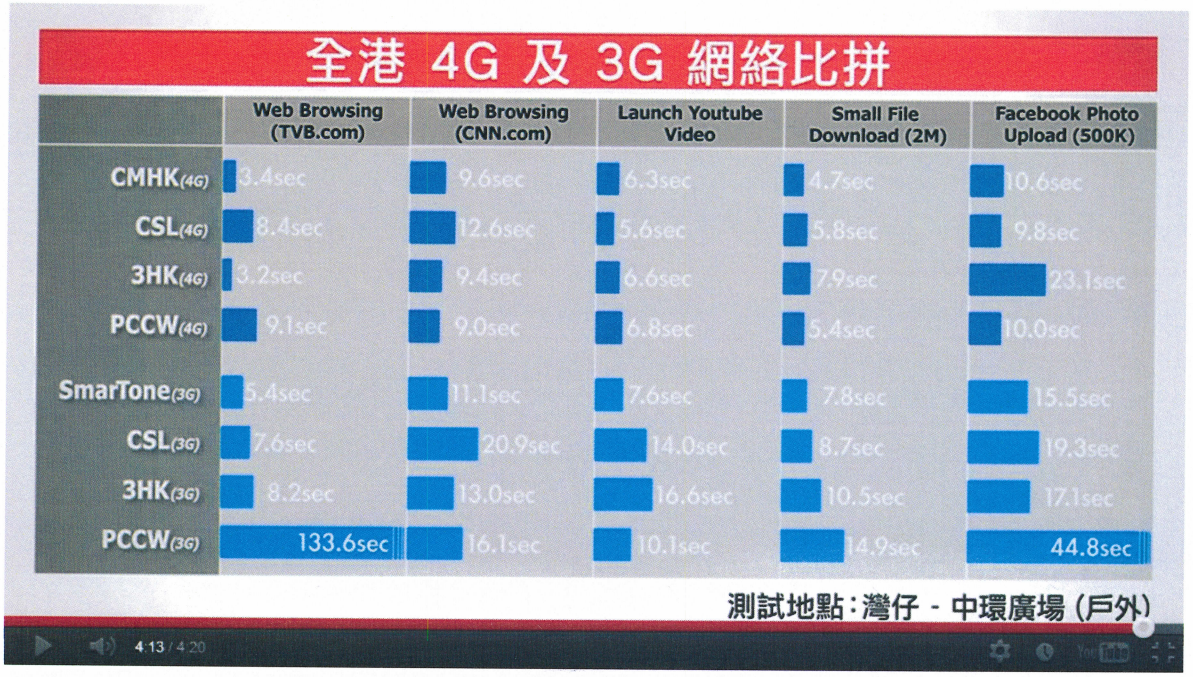


A.) Popular Use Types (Web Browsing (www.tvb.com and www.cnn.com), Youtube Video, Facebook Photo Upload and Small File Download)

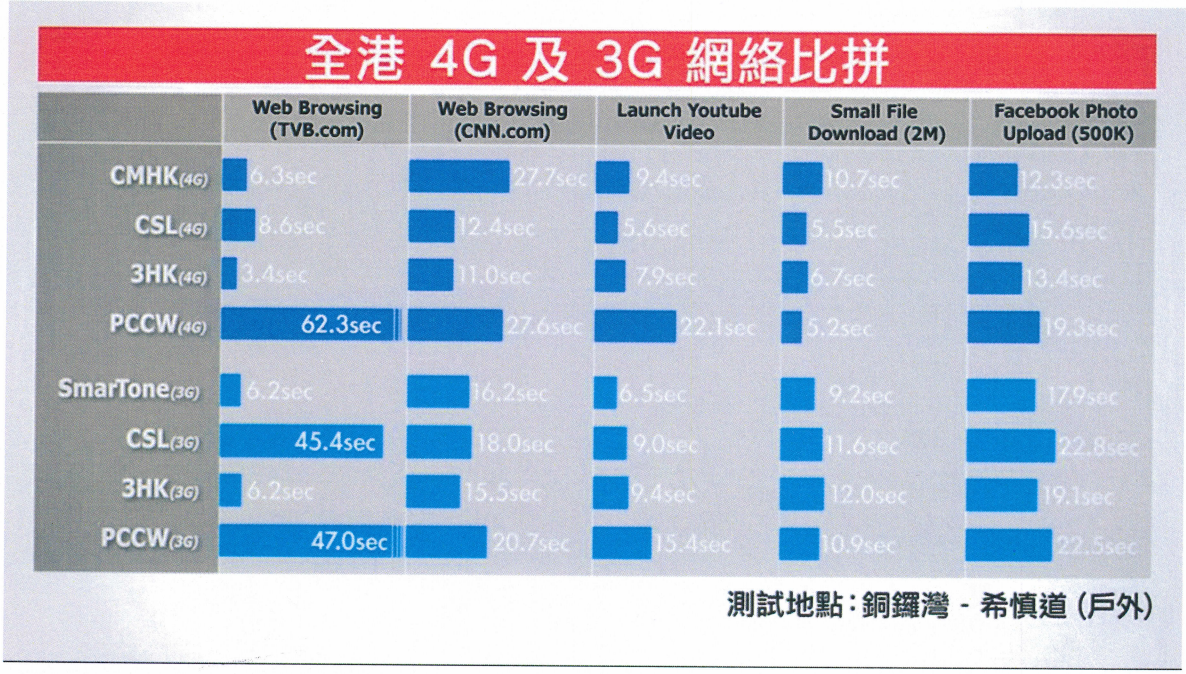
Central (19/06/2012)



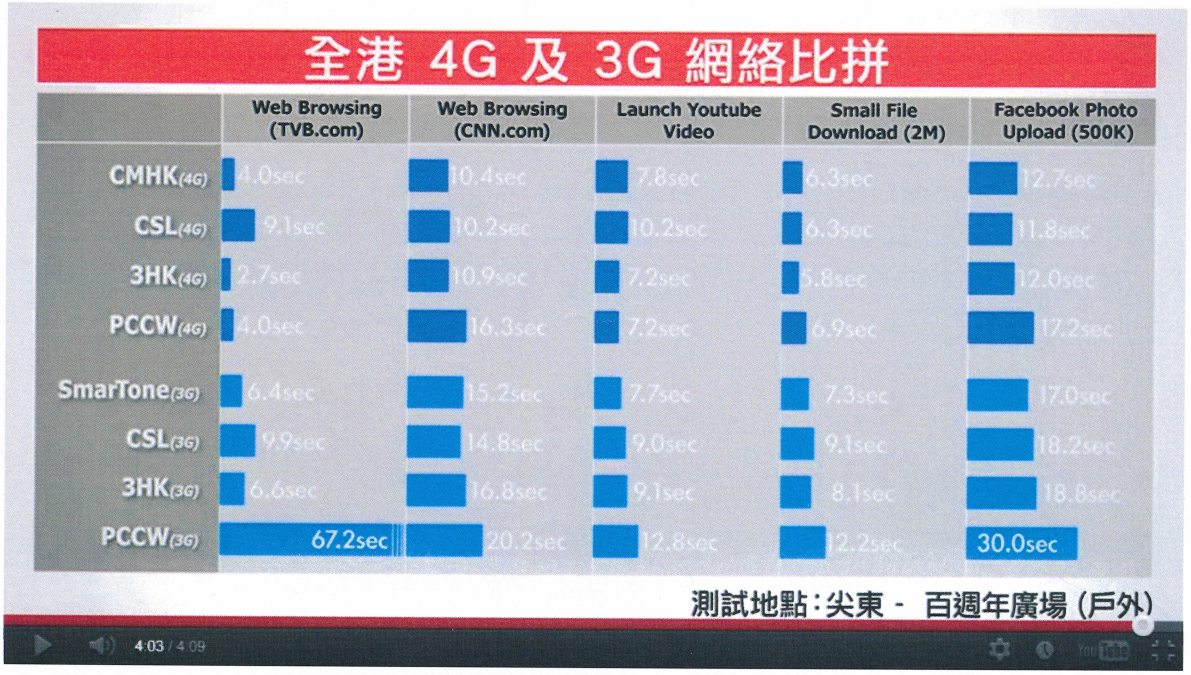
Wanchai (26/06/2012)



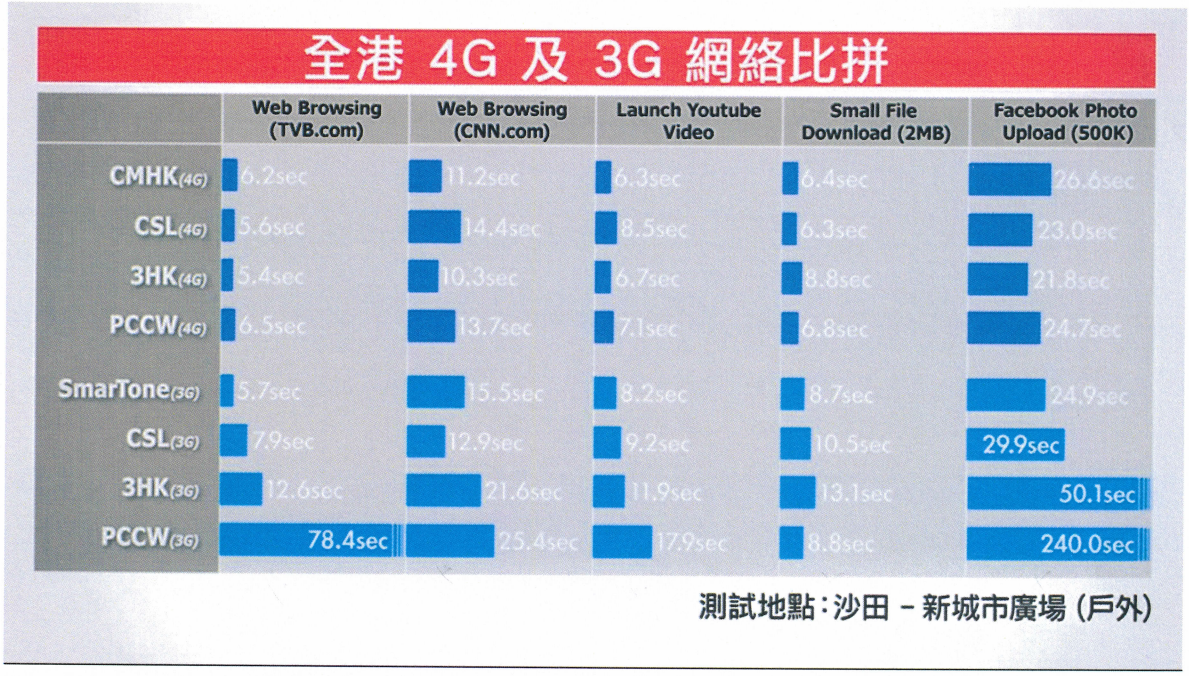
Causeway Bay (04/07/2012)



Tsim Sha Tsui East (28/06/2012)

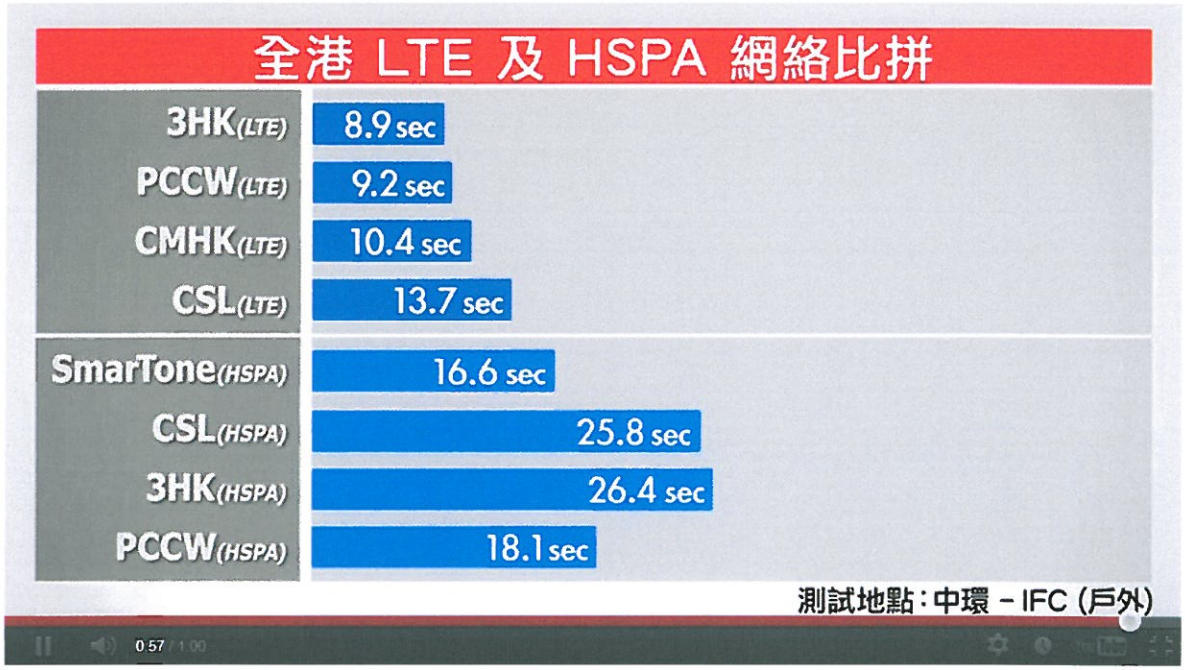


Shatin (14/06/2012)

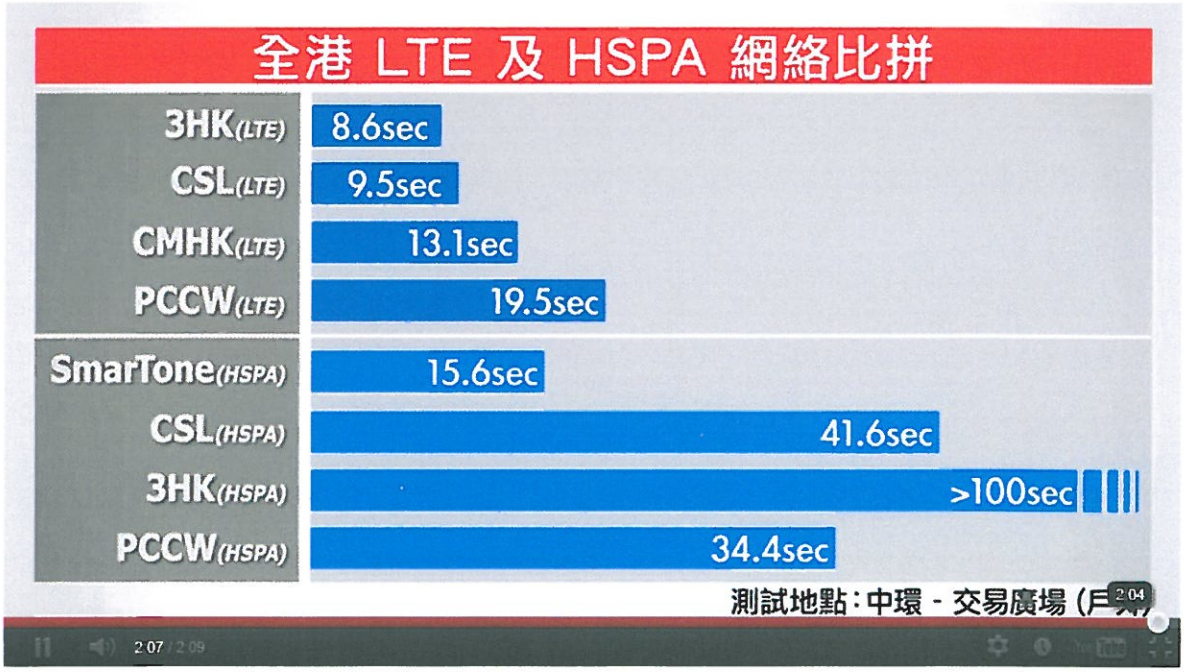


B.) 500K Photo Upload to Facebook

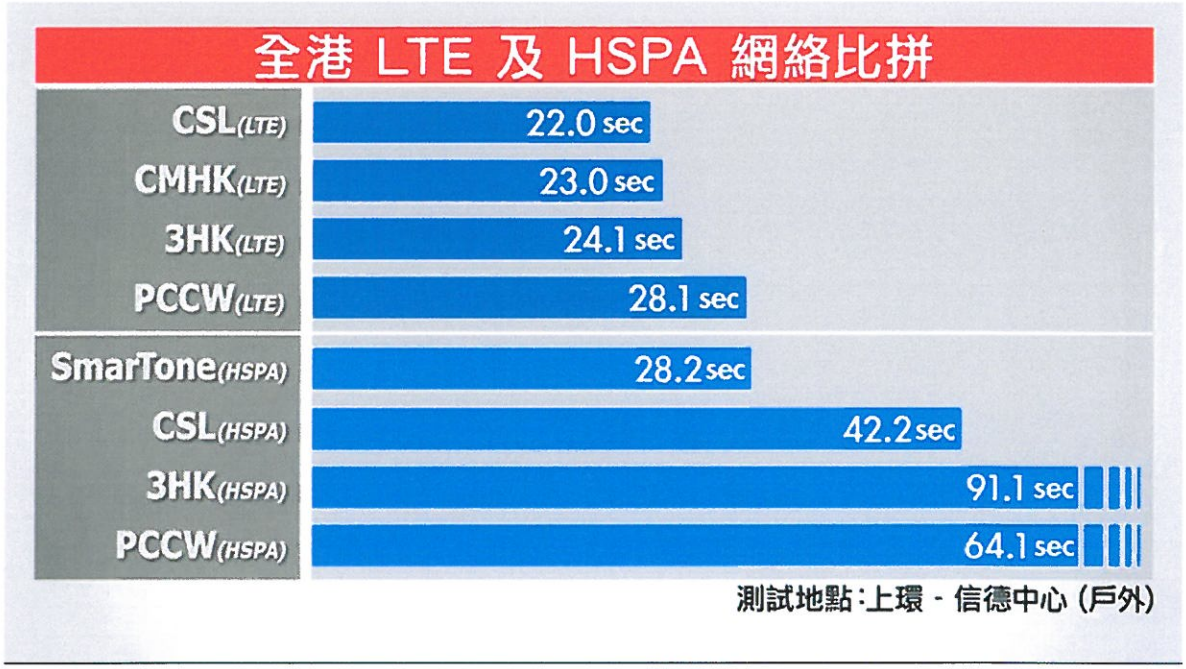
Central / IFC (12pm – 1pm on 19/06/2012)



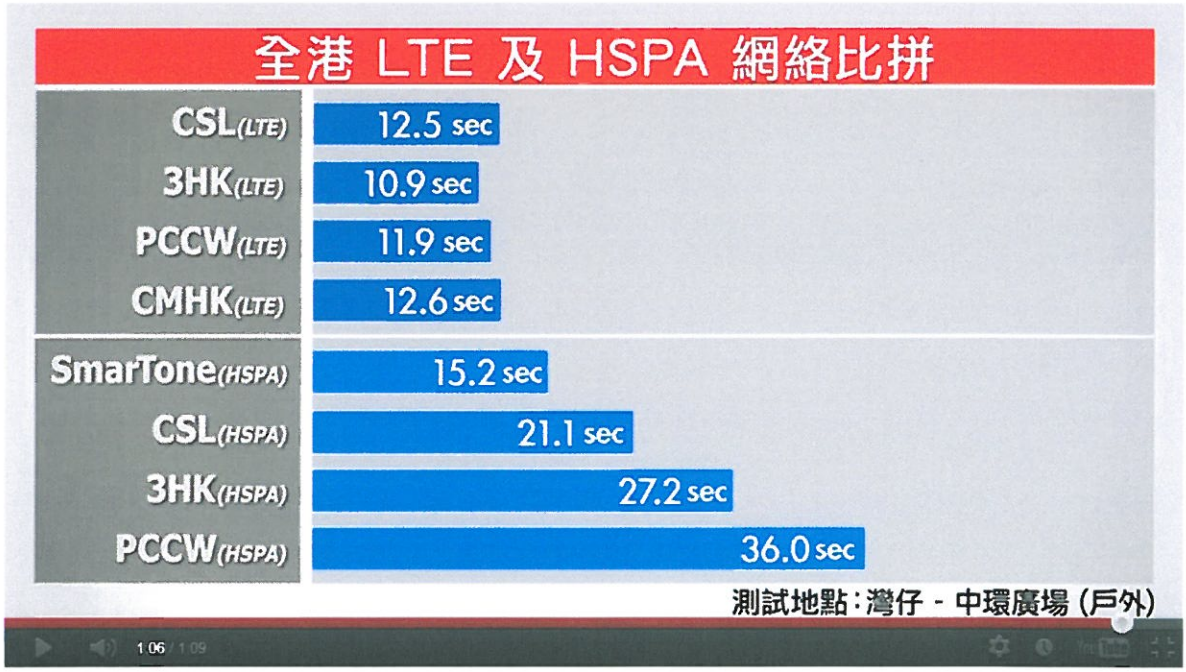
Central / Exchange Square (8am – 9am on 26/06/2012)



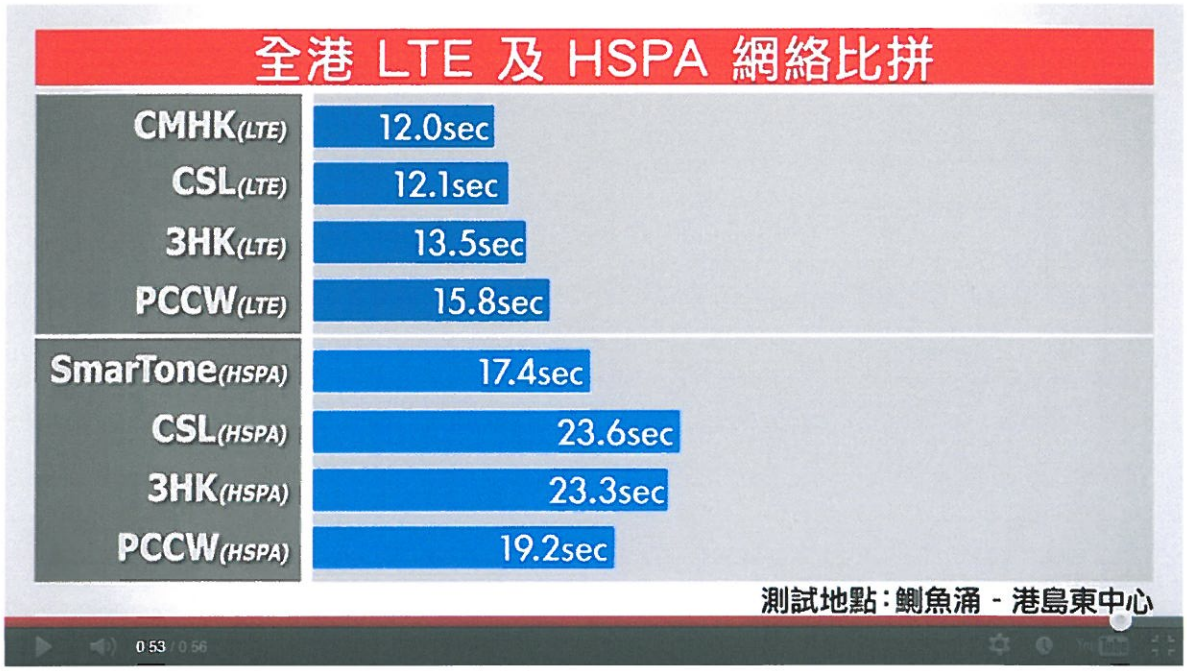
Sheung Wan (5pm – 6pm on 30/05/2012)



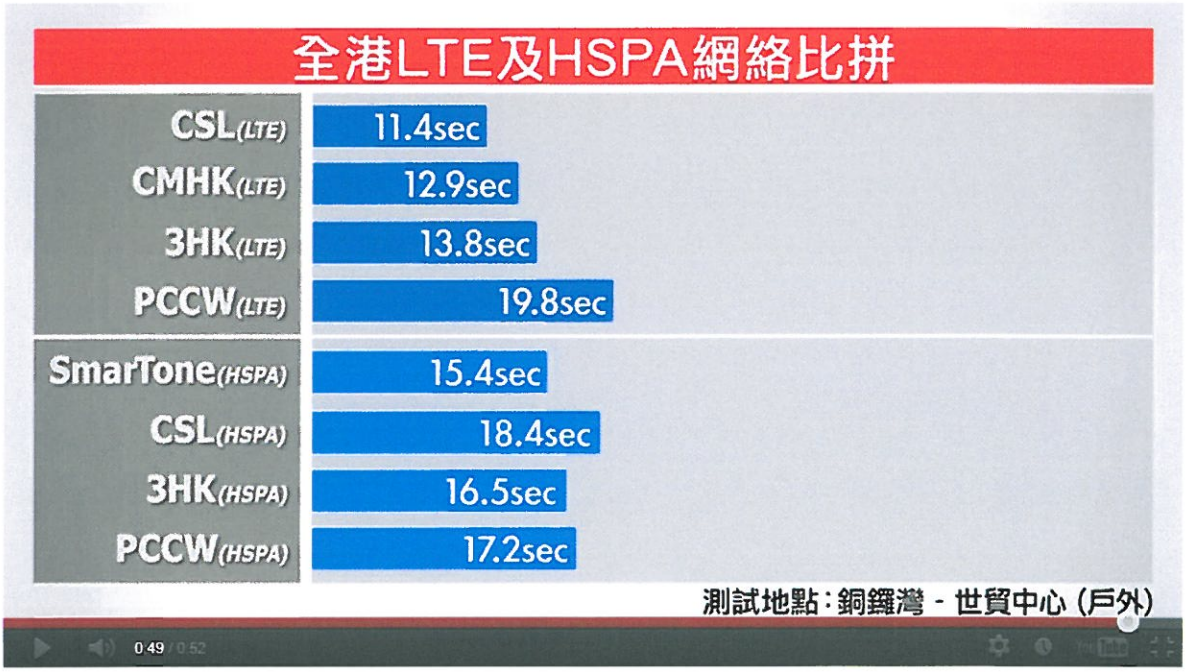
Wanchai (5pm – 6pm on 01/06/2012)



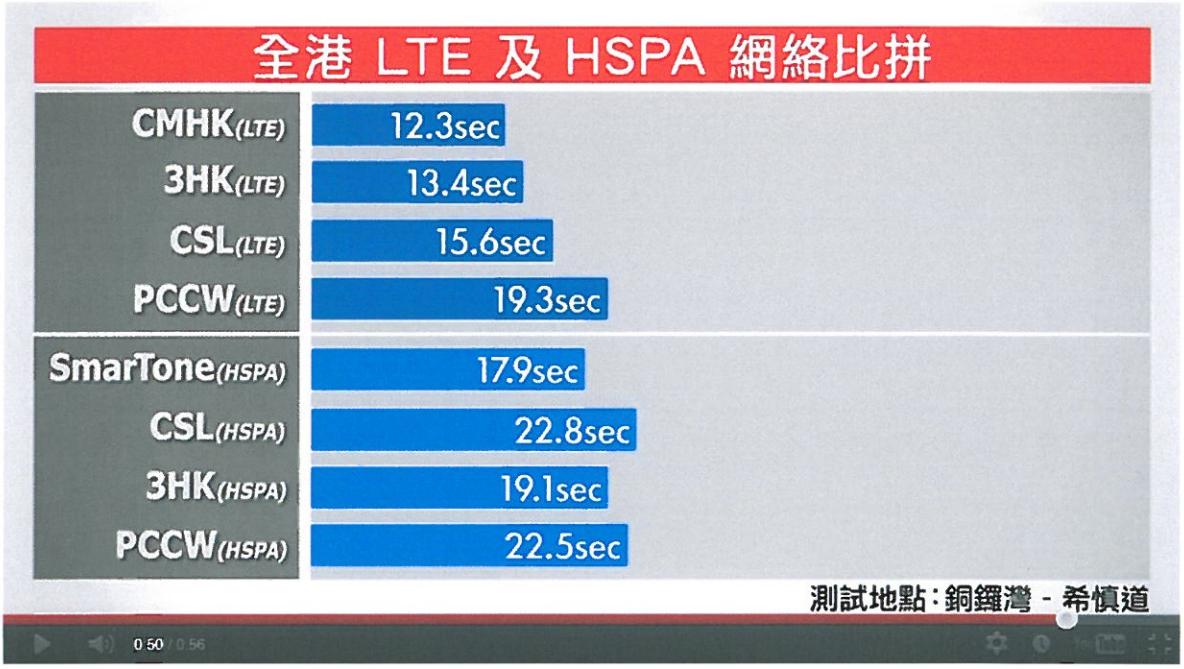
Quarry Bay (8am – 9pm on 04/07/2012)



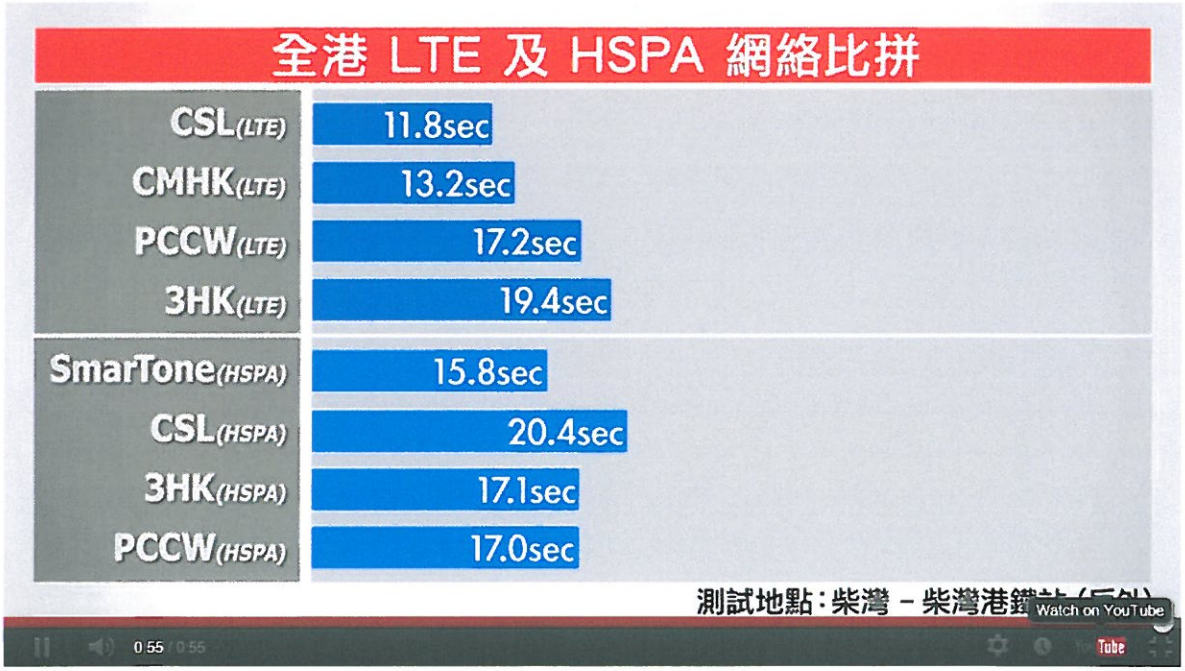
Causeway Bay / World Trade Center (8am – 9am on 28/06/2012)



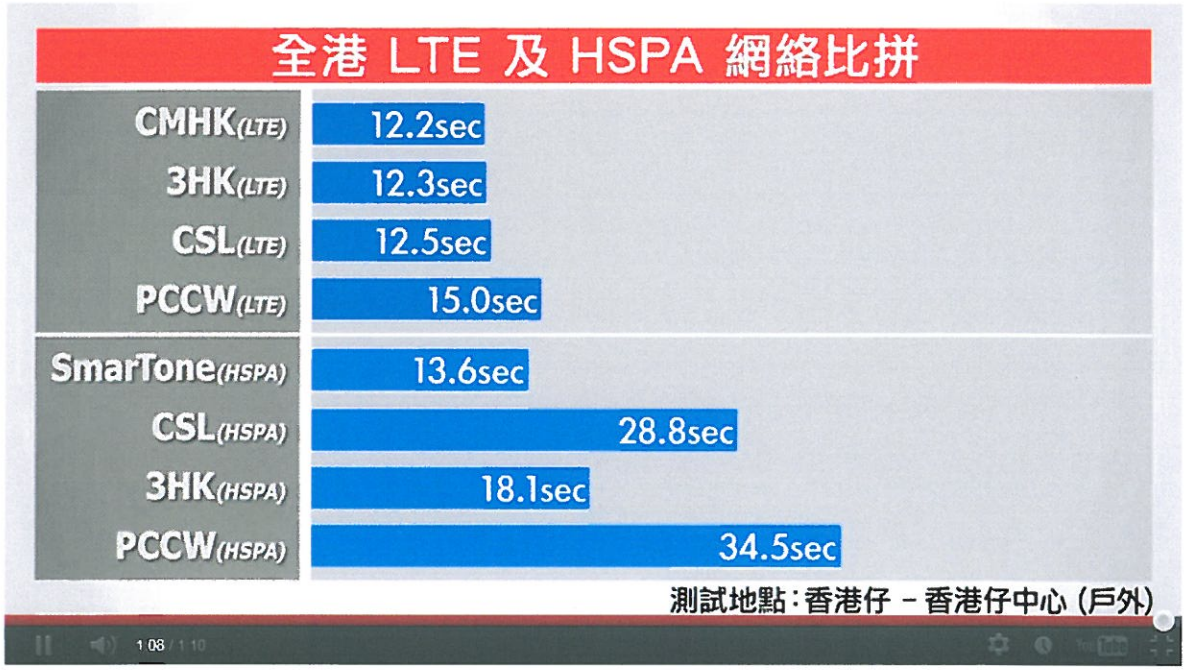
Causeway Bay / Hysan Avenue (11 am – 12 pm on 04/07/2012)



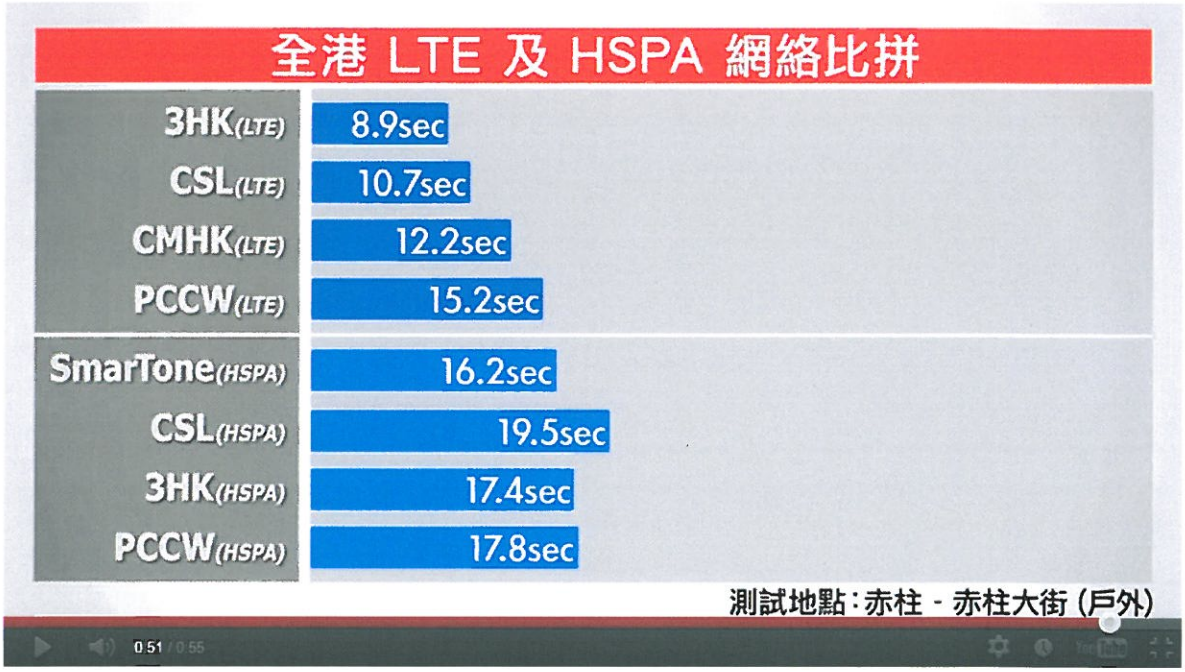
Chaiwan (4pm – 5pm on 26/06/2012)



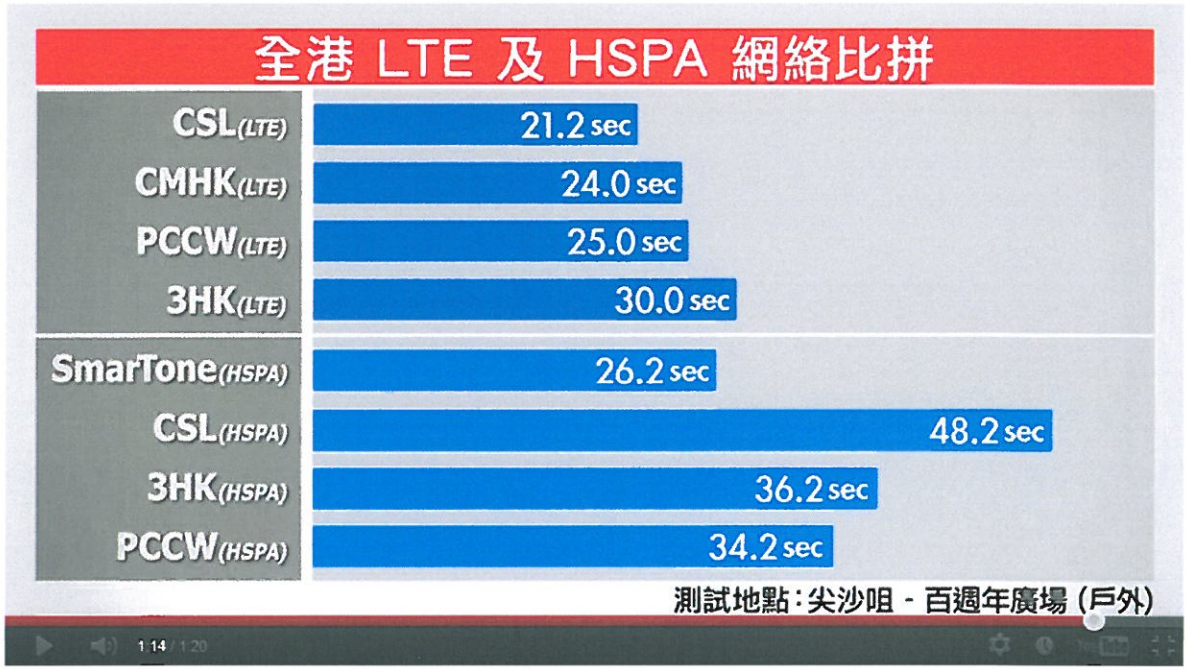
Aberbeen (12pm – 1pm on 26/06/2012)



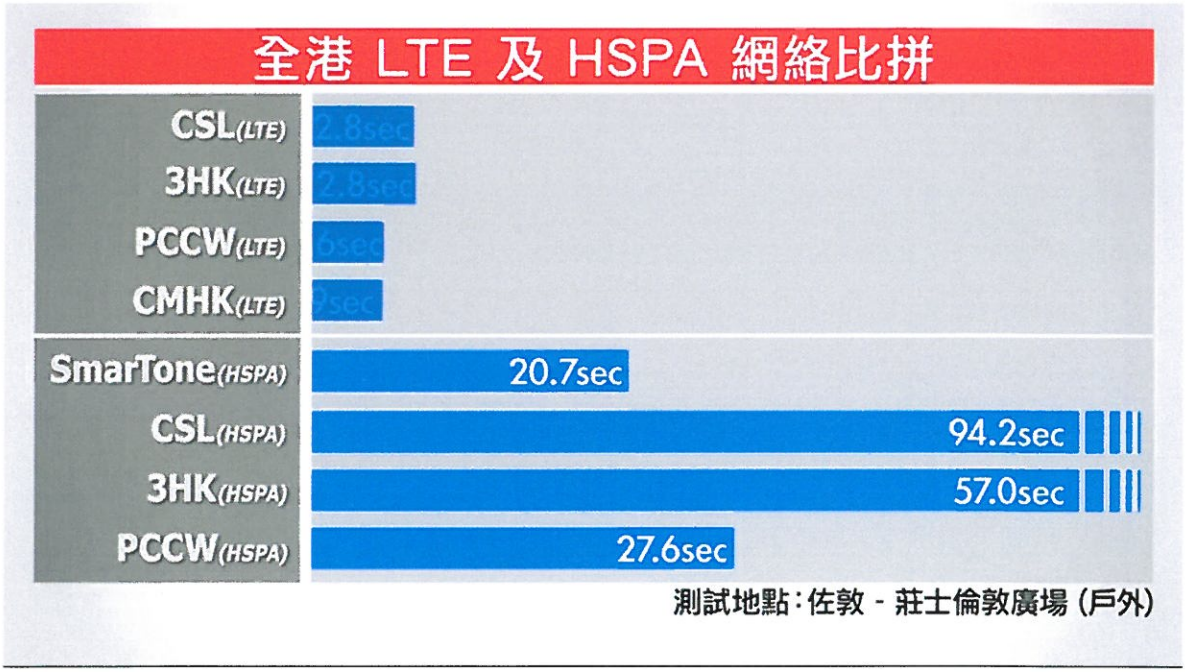
Stanley (2pm – 3pm on 26/06/2012)



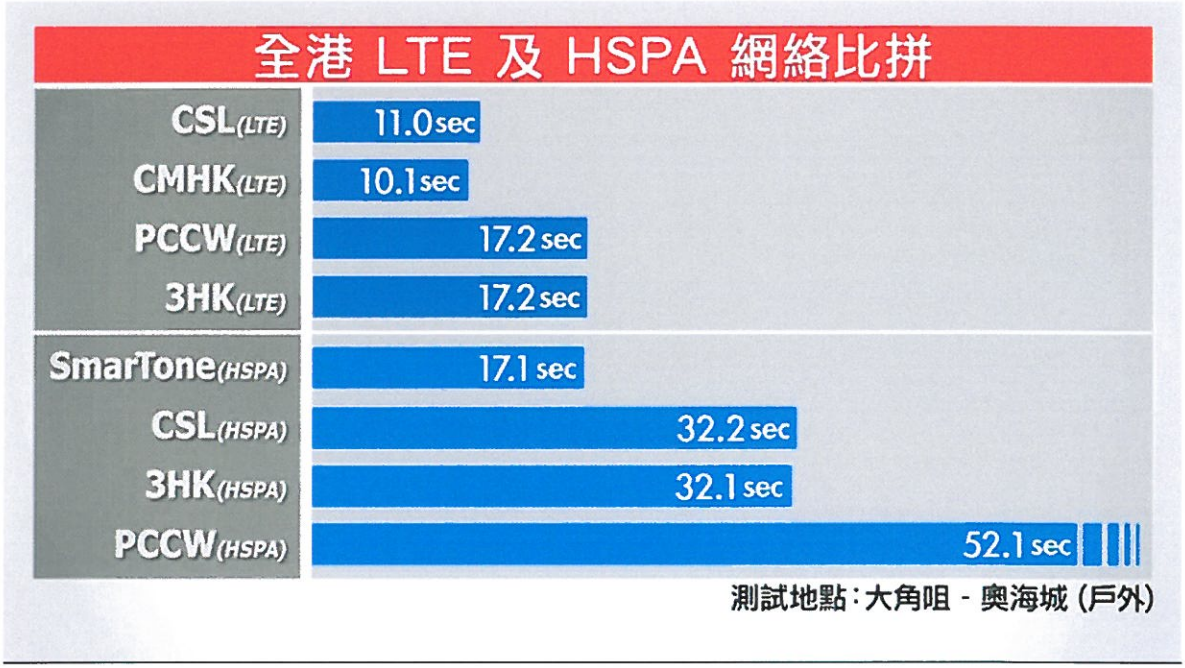
East Tsim Sha Tsui (3pm – 4pm on 31/05/2012)



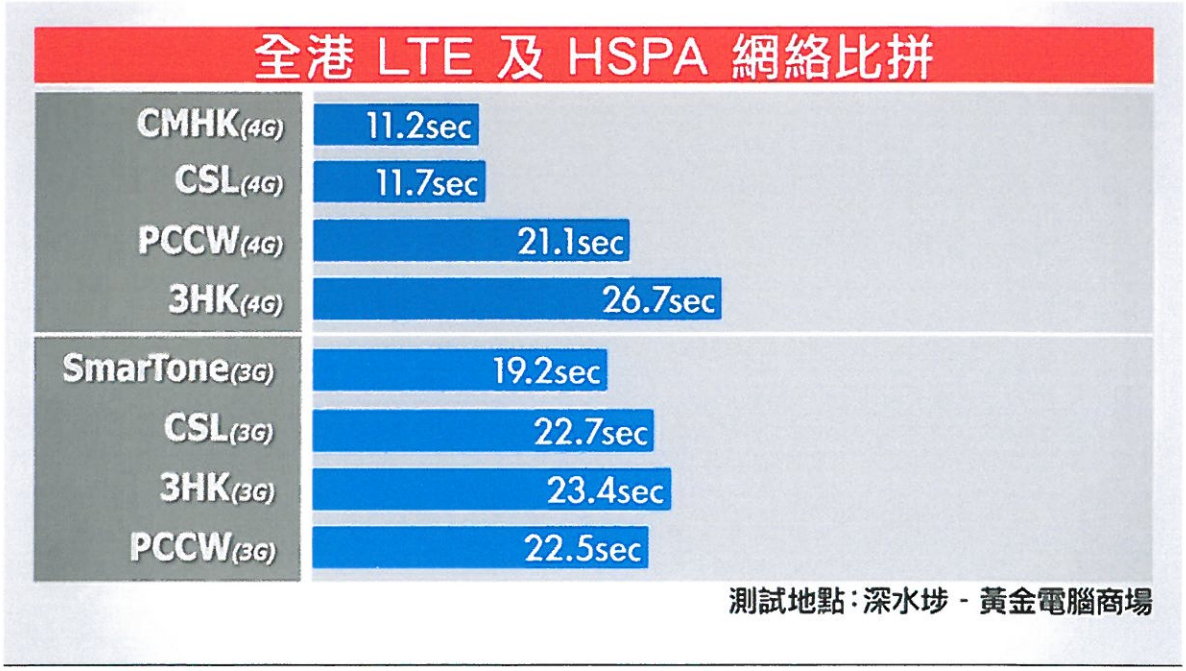
Jordan (12pm – 1pm on 18/07/2012)



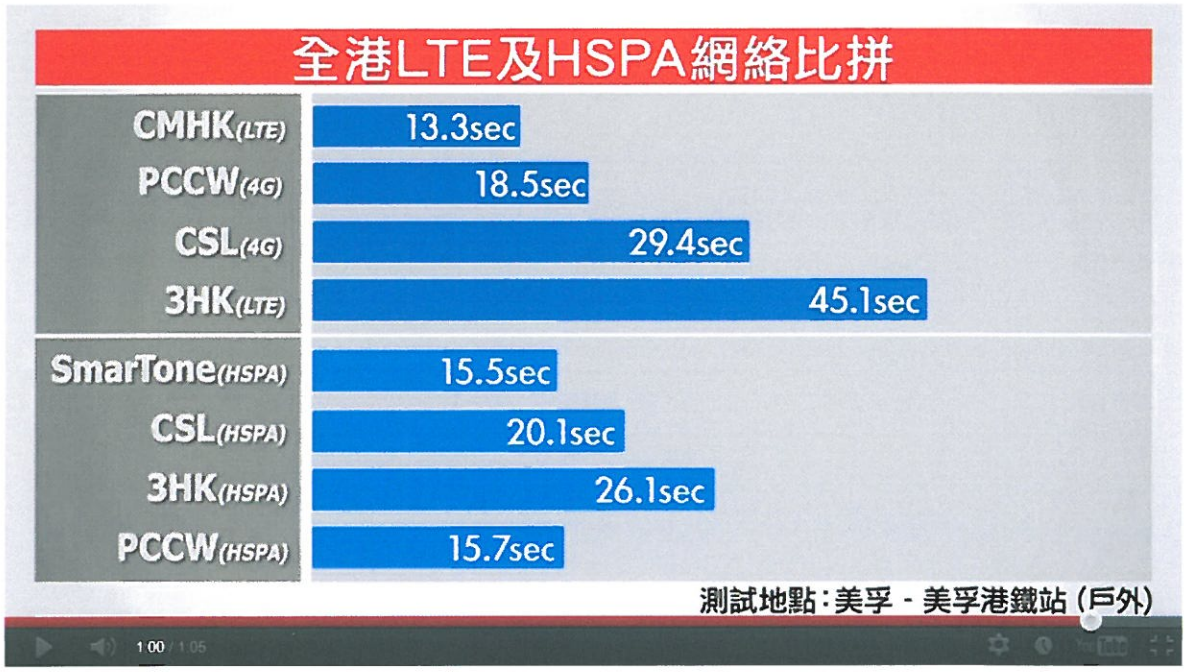
Tai Kok Tsui (12pm – 1pm on 01/06/2012)



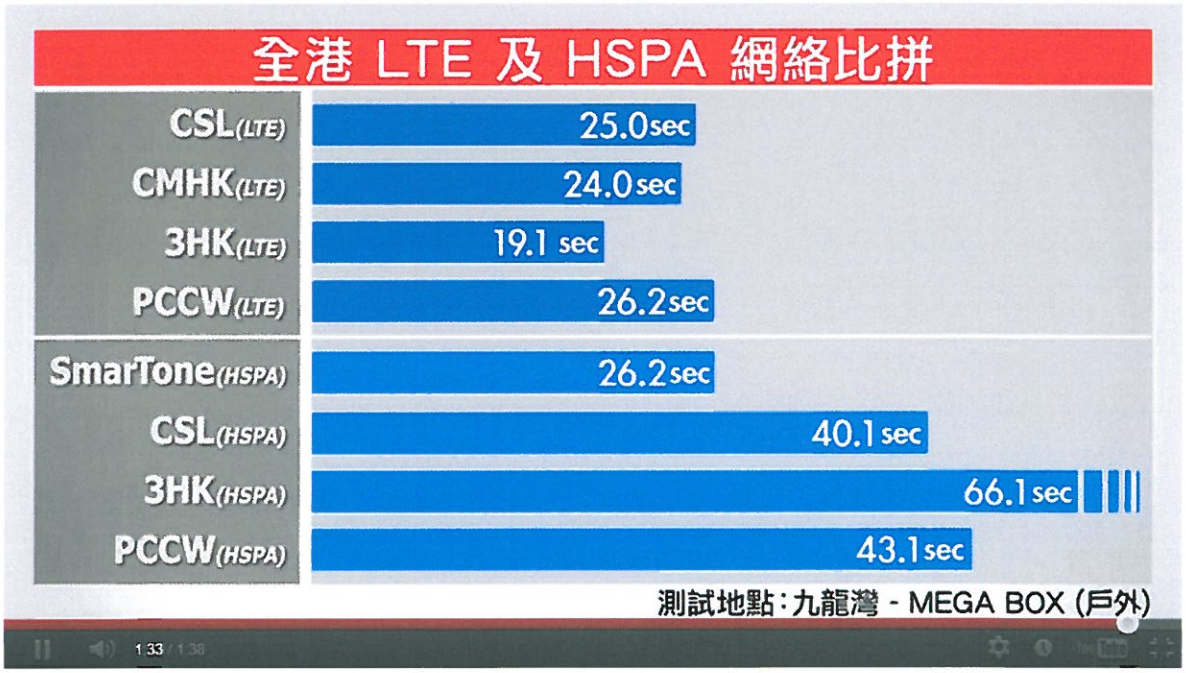
Sham Shui Po (12pm – 1pm on 01/07/2012)



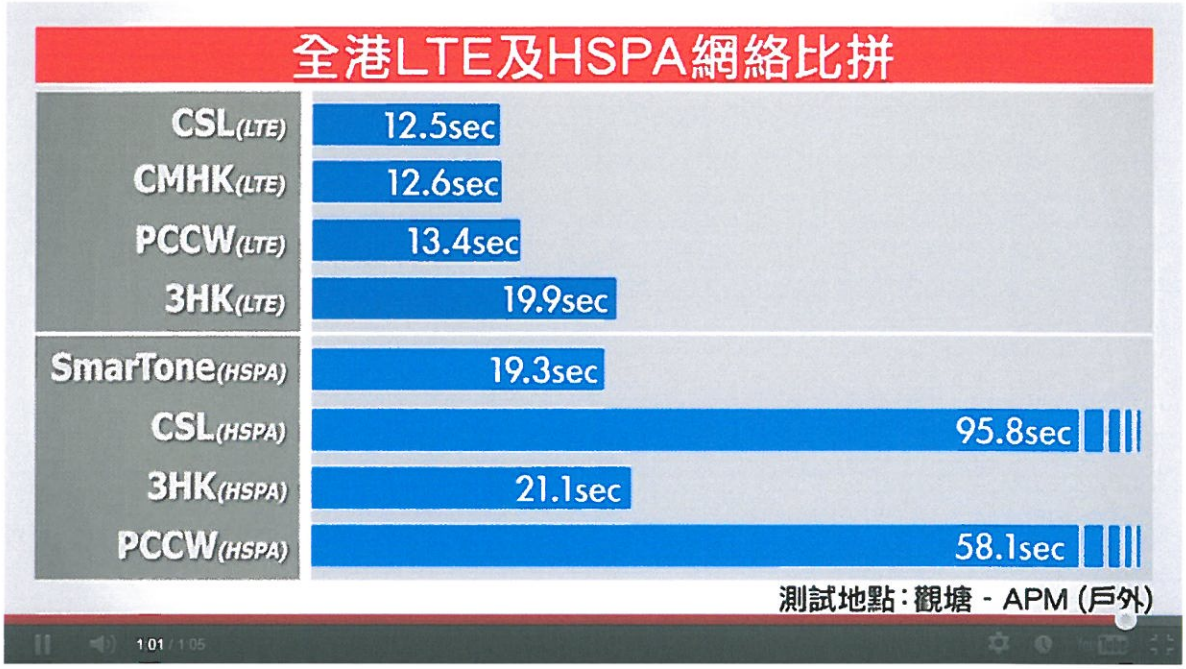
Mei Foo (2pm – 3pm on 19/07/2012)



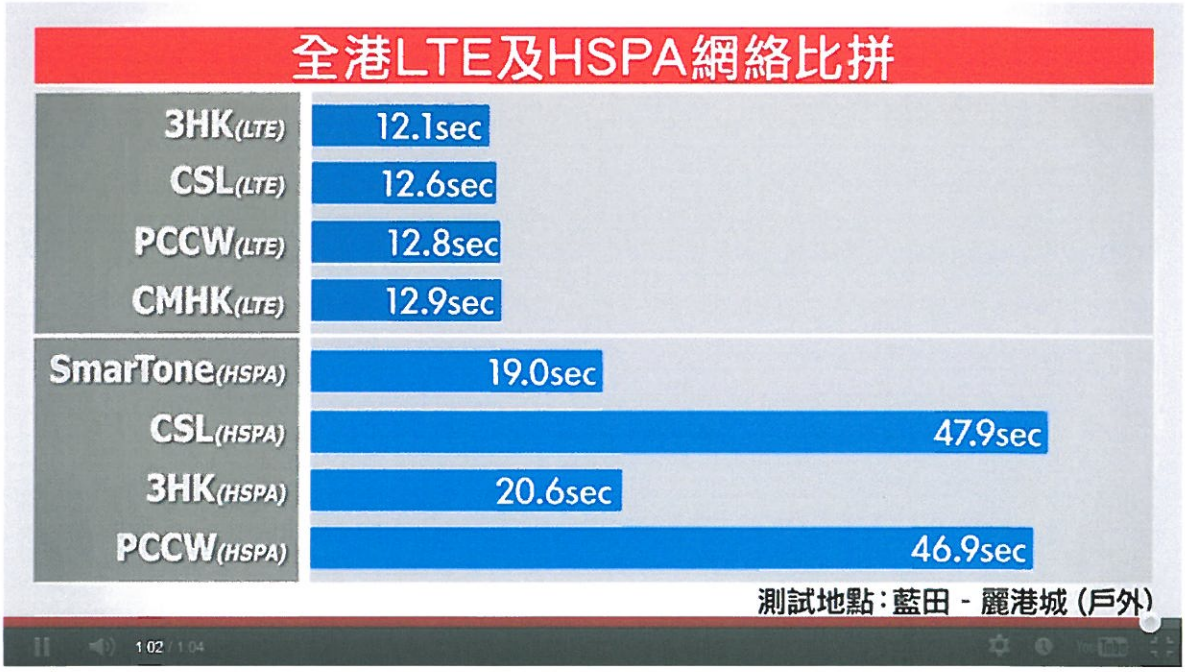
Kowloon Bay (4pm – 5pm on 09/05/2012)



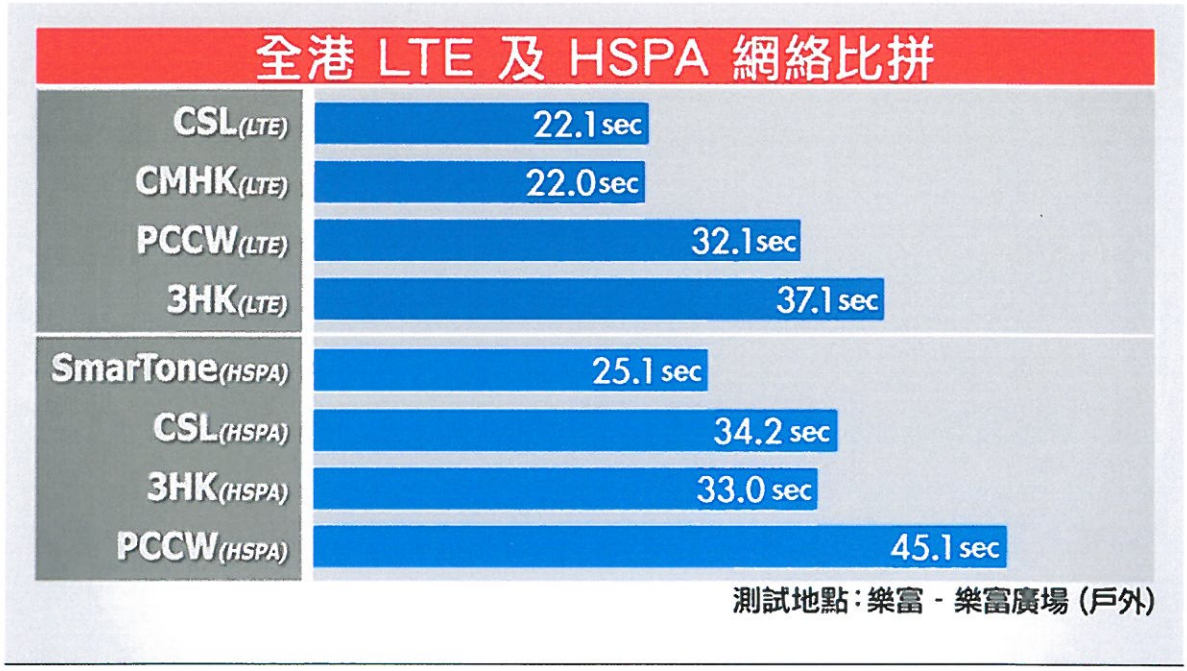
Kwun Tong (10am – 11am on 19/07/2012)



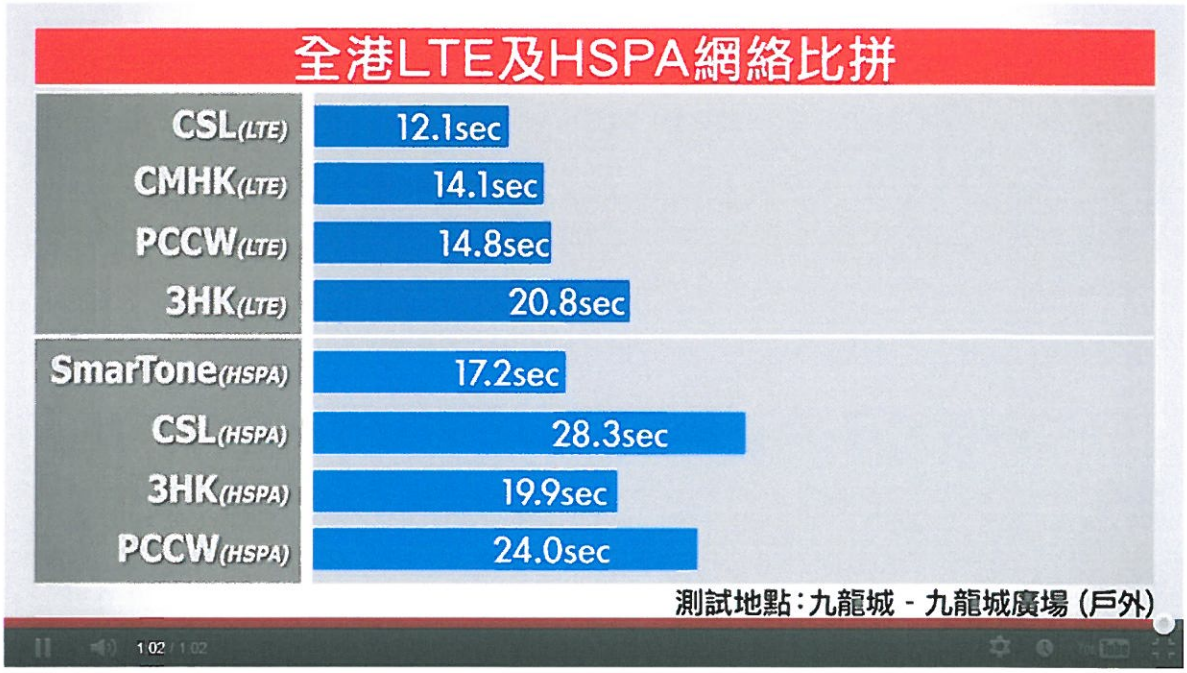
Lam Tin (6pm – 7pm on 13/07/2012)



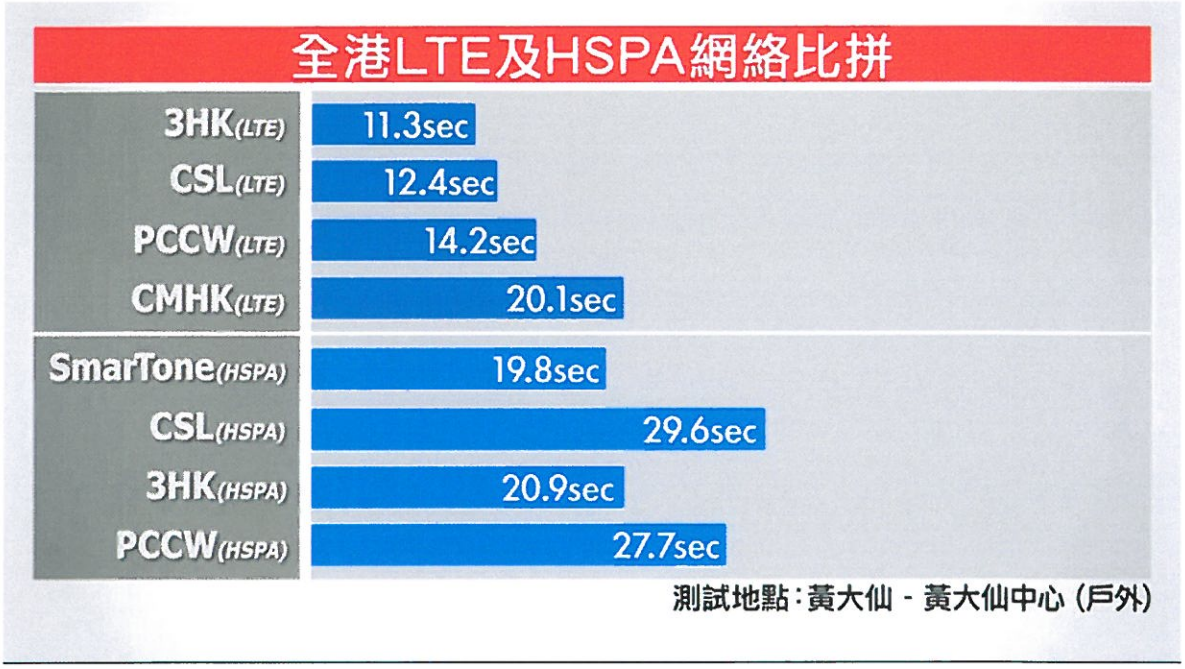
Lok Fu (12pm – 1 pm on 31-05/2012)



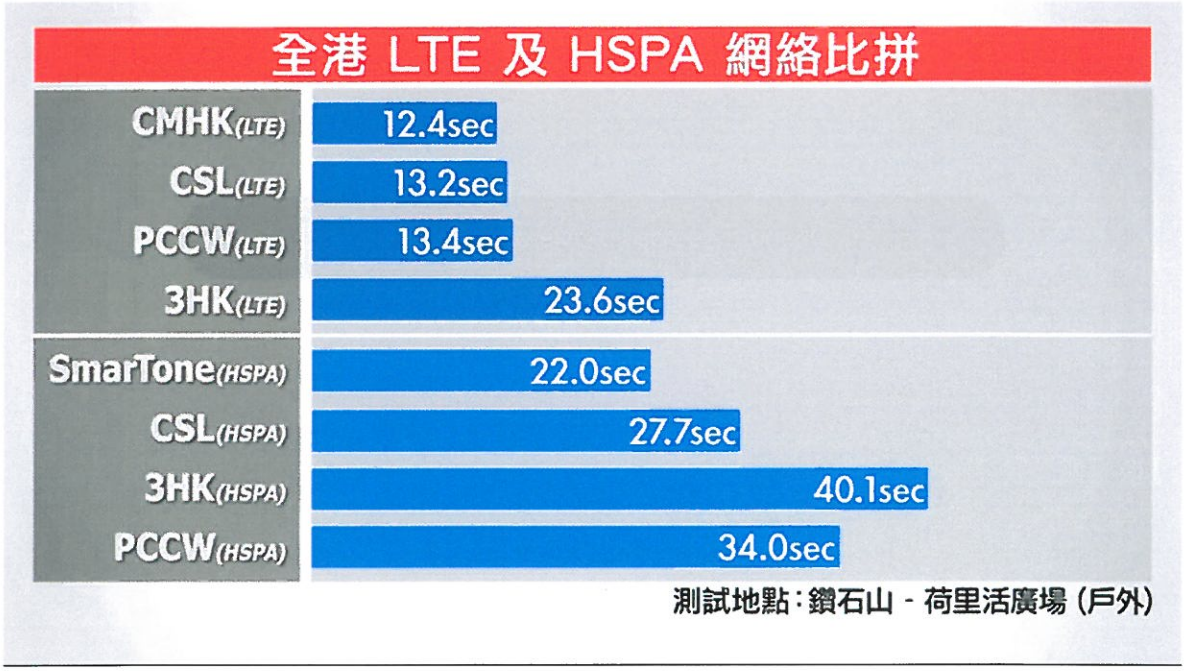
Kowloon City (4pm – 5pm on 19/07/2012)



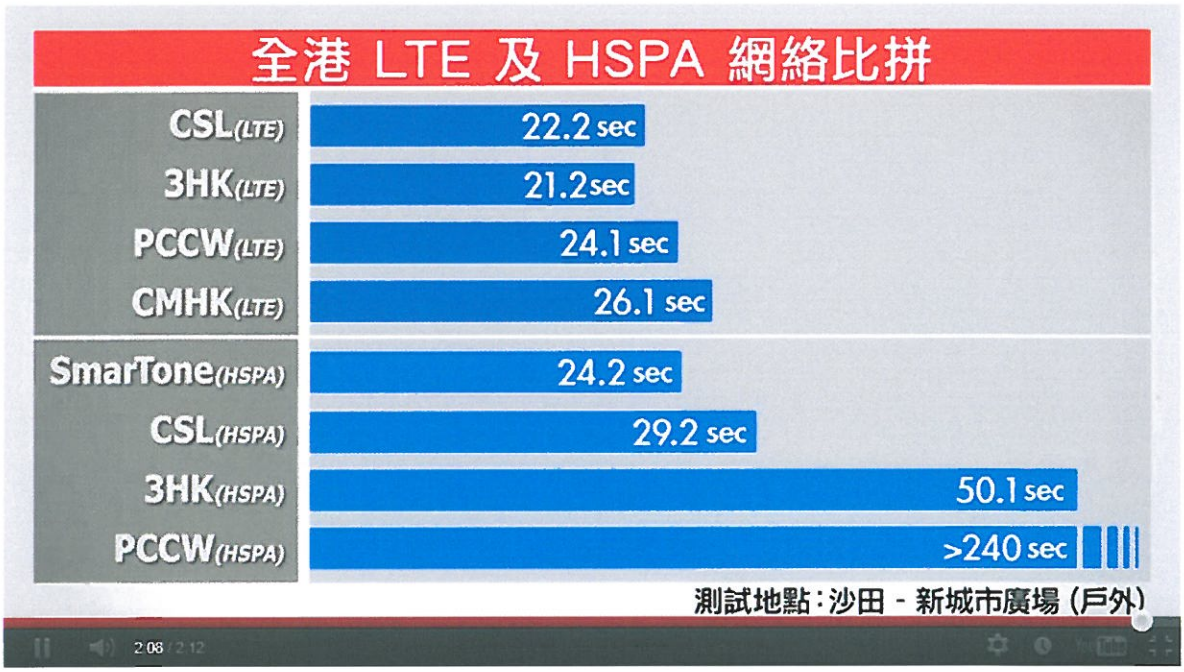
Wong Tai Sin (3pm – 4pm on 19/07/2012)



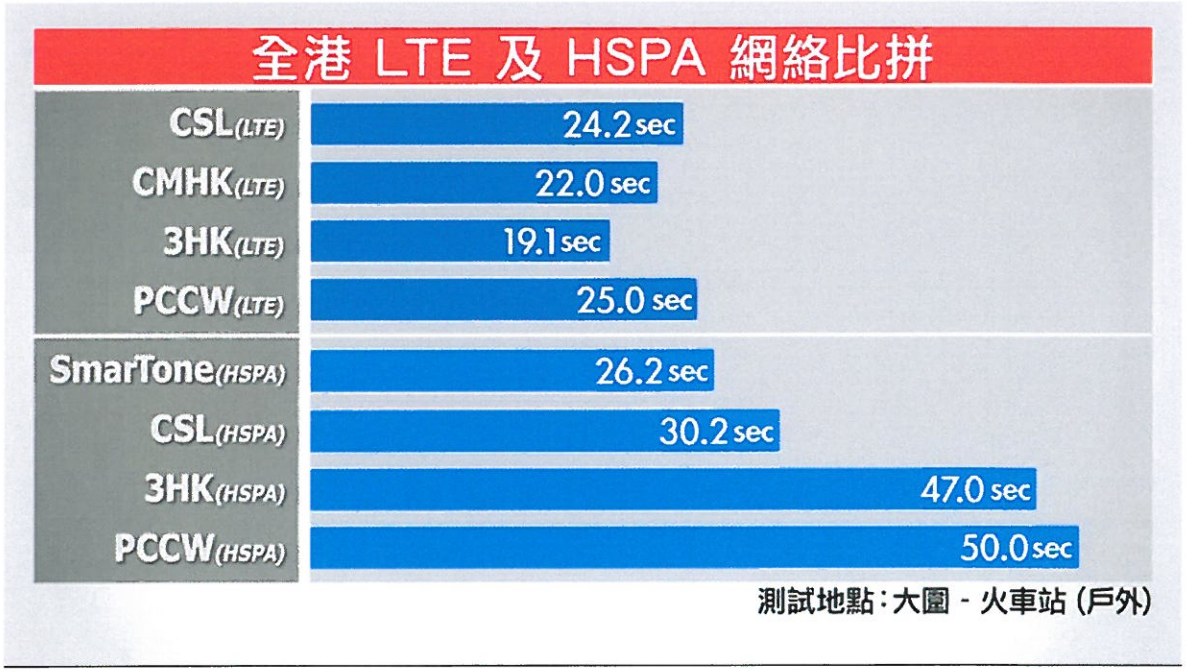
Diamond Hill (5pm – 6pm on 28/06/2012)



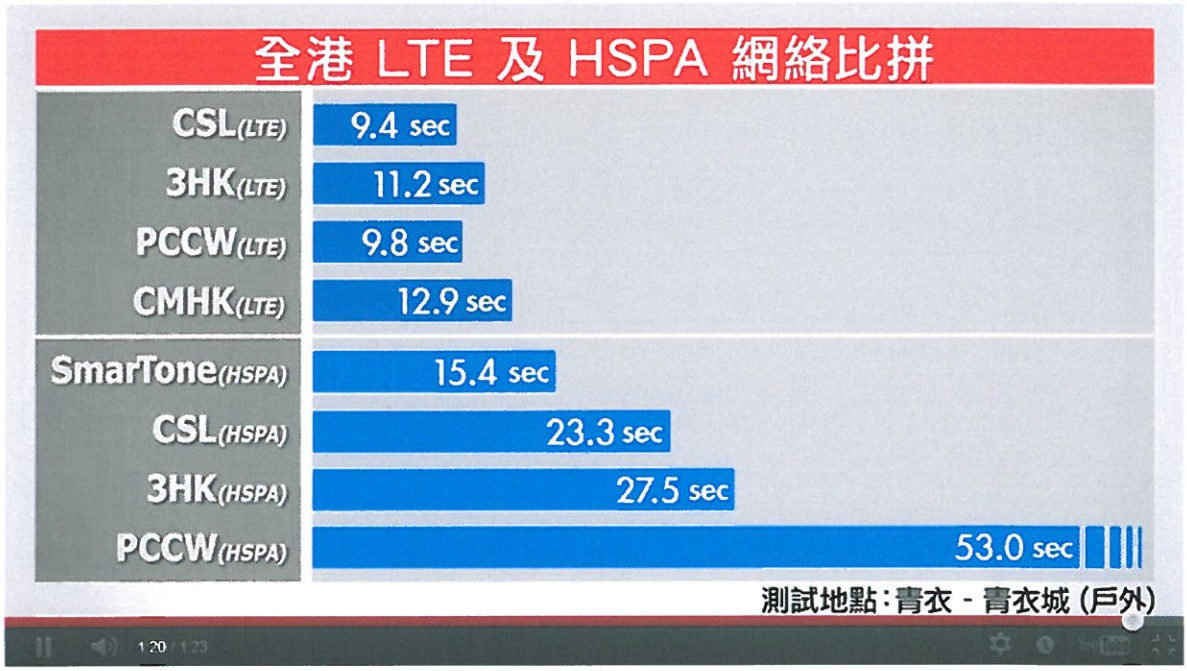
Sha Tin (3pm – 4pm on 30/05/2012)



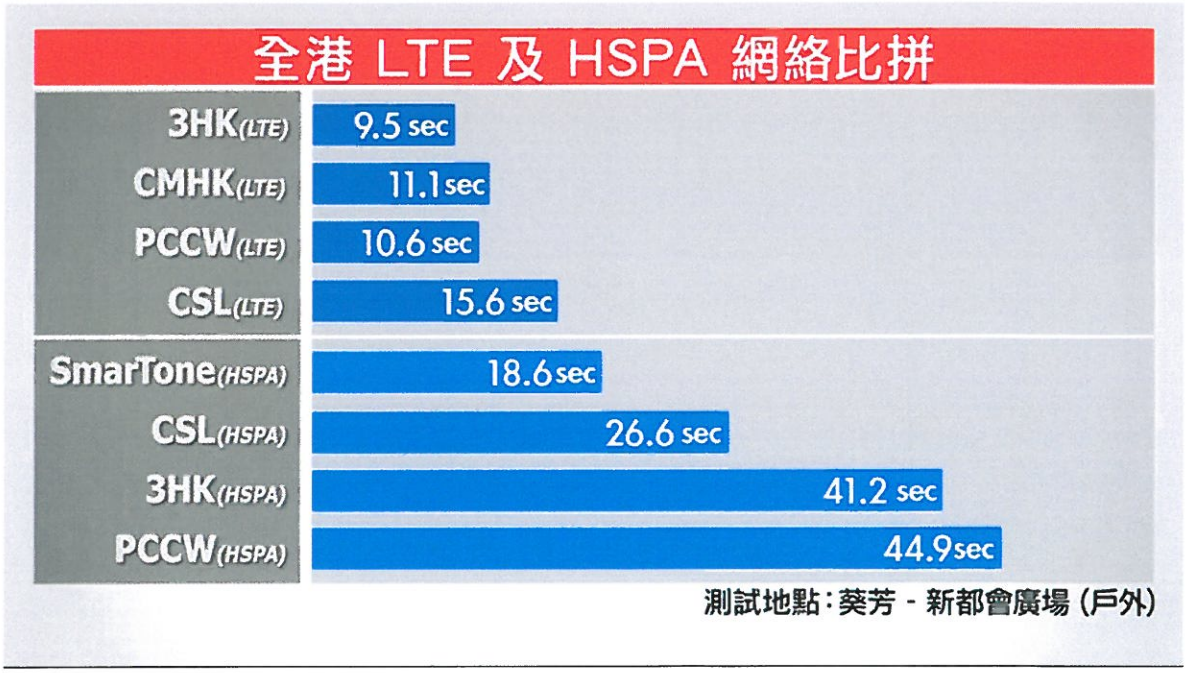
Tai Wai (12pm – 1pm on 31/05/2012)



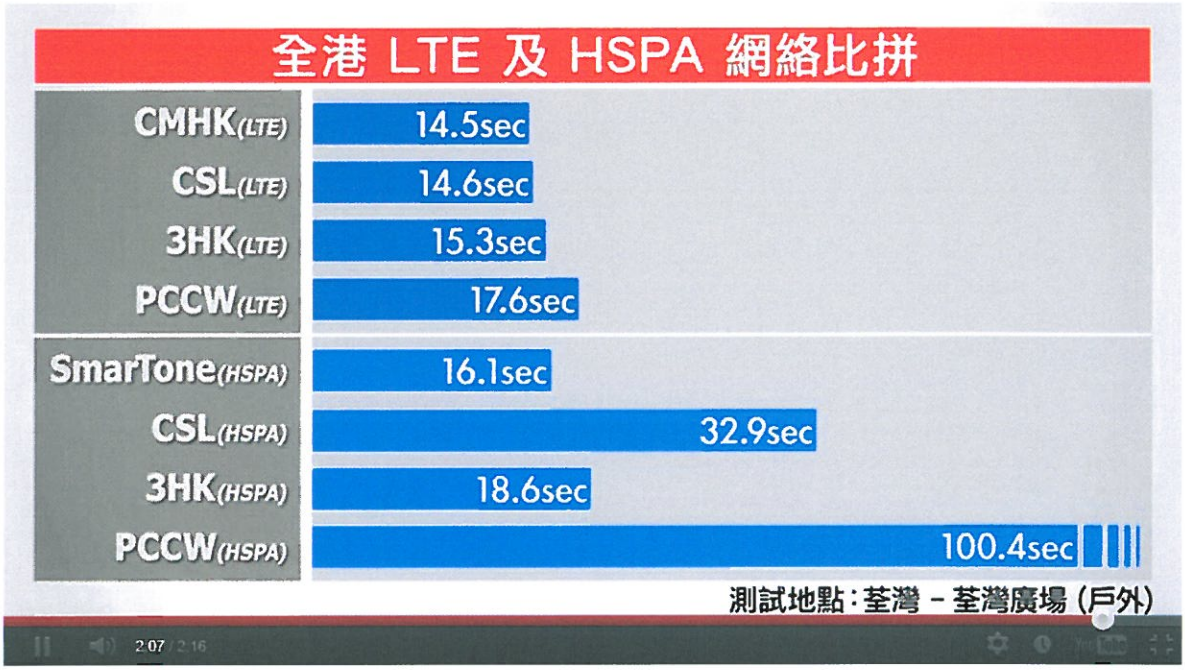
Tsing Yi (12pm – 1pm on 12/06/2012)



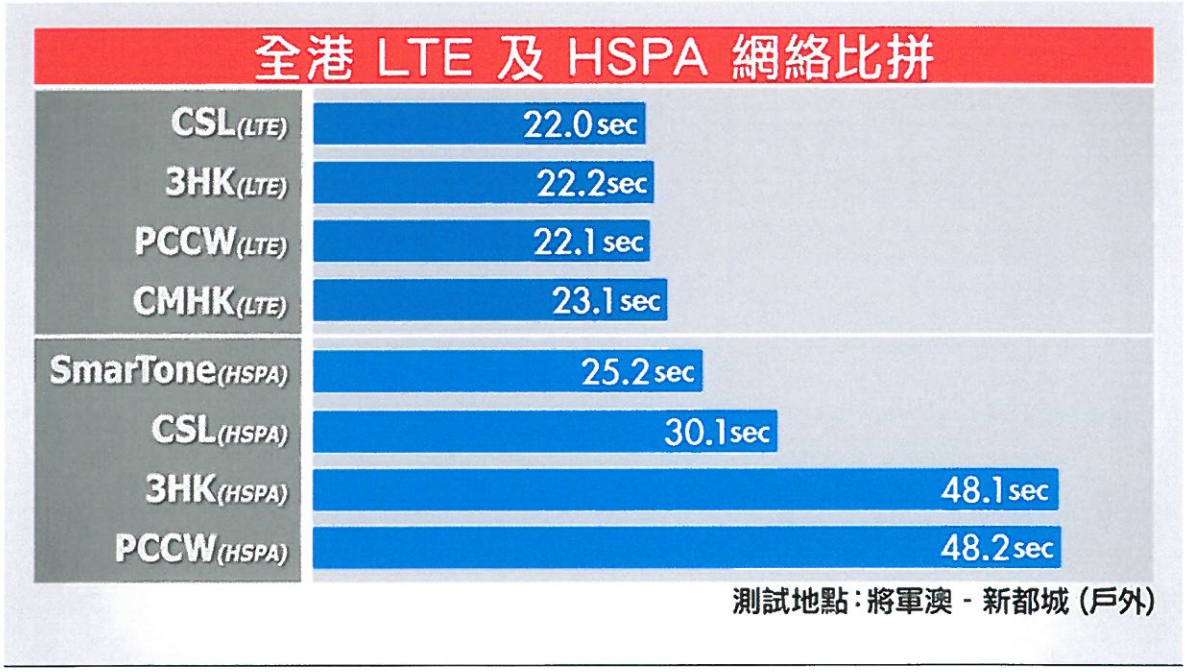
Kwai Fong (11am – 12pm on 12/06/2012)



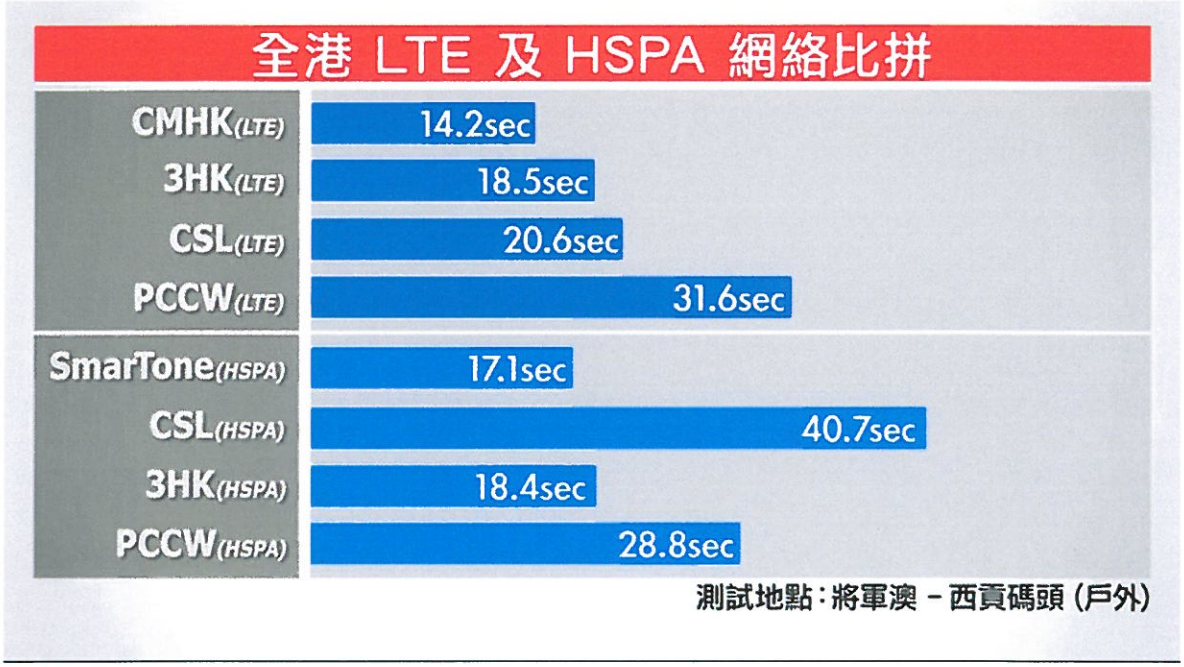
Tsuen Wan (1pm – 2pm on 28/06/2012)



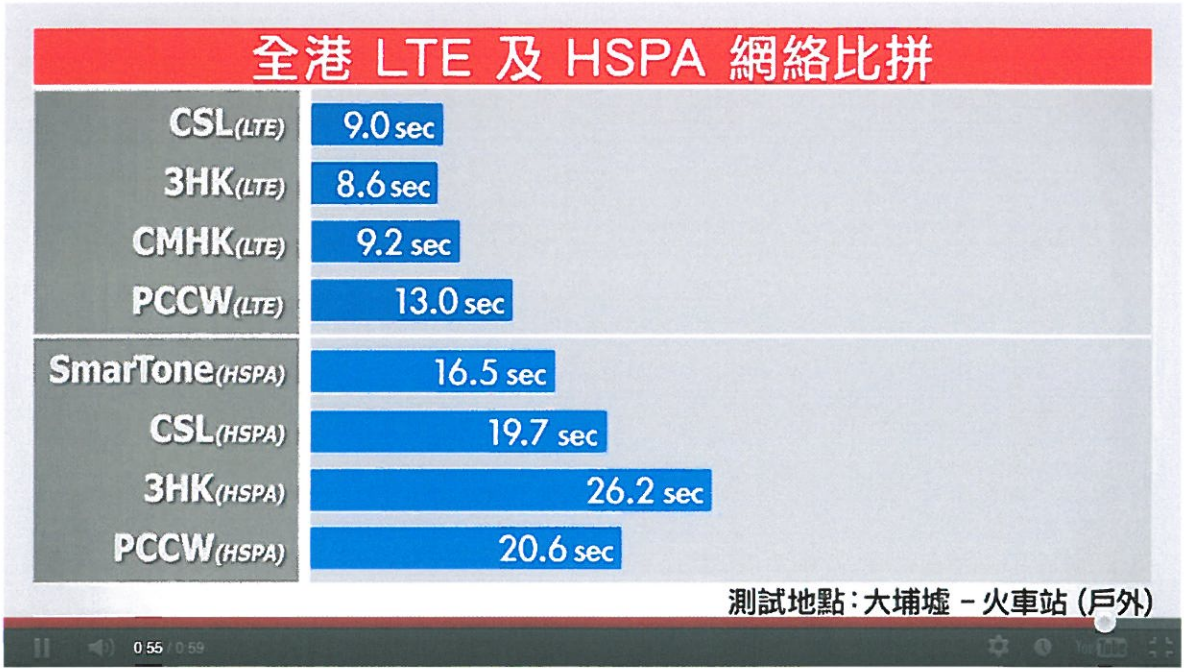
Tseung Kwan O (2pm – 3pm on 30/05/2012)



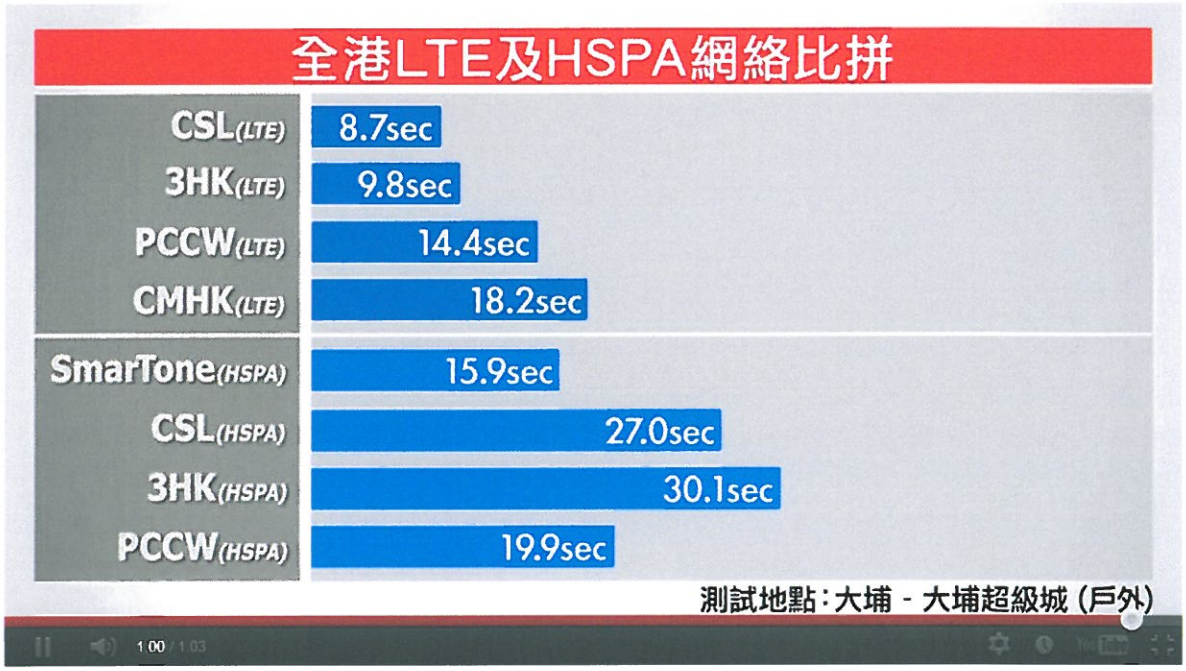
Sai Kung (5pm – 6pm on 13/07/2012)



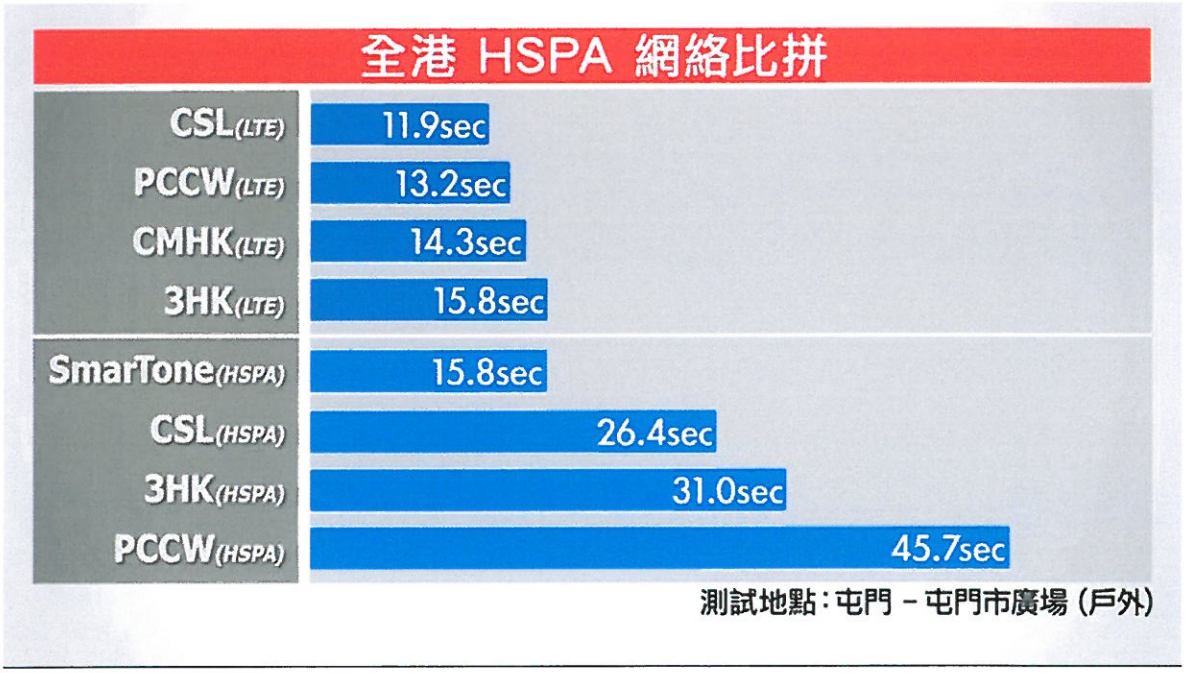
Tai Po Market (5pm – 6pm on 14/06/2012)



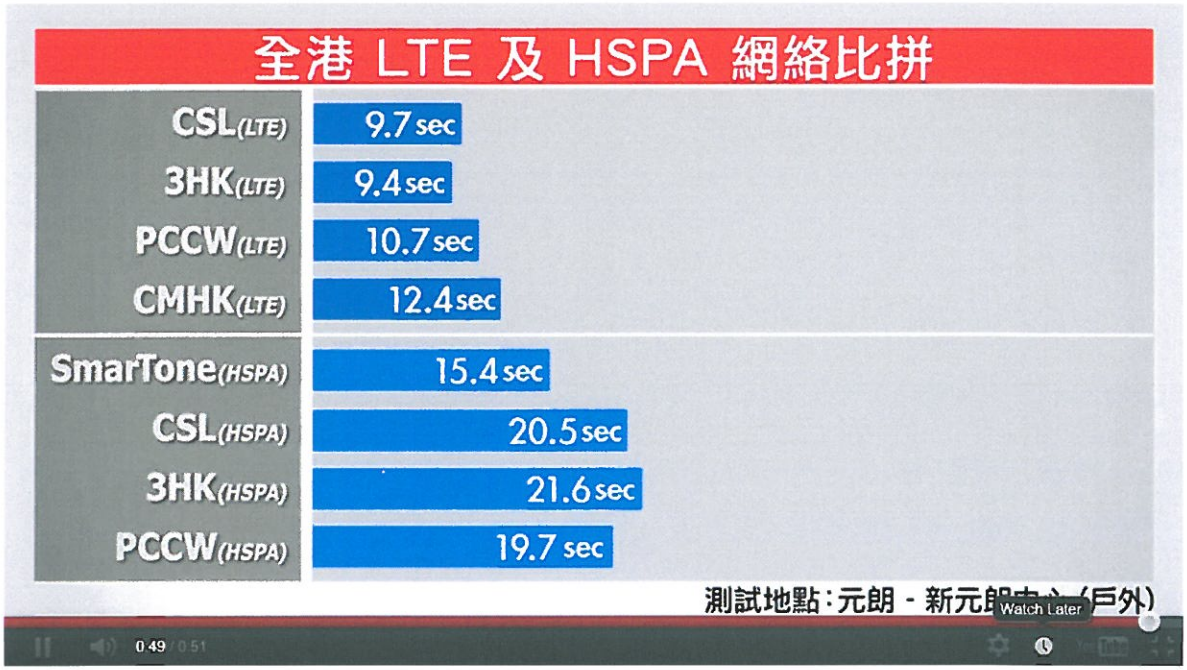
Tai Po (3pm – 4pm on 14/06/2012)



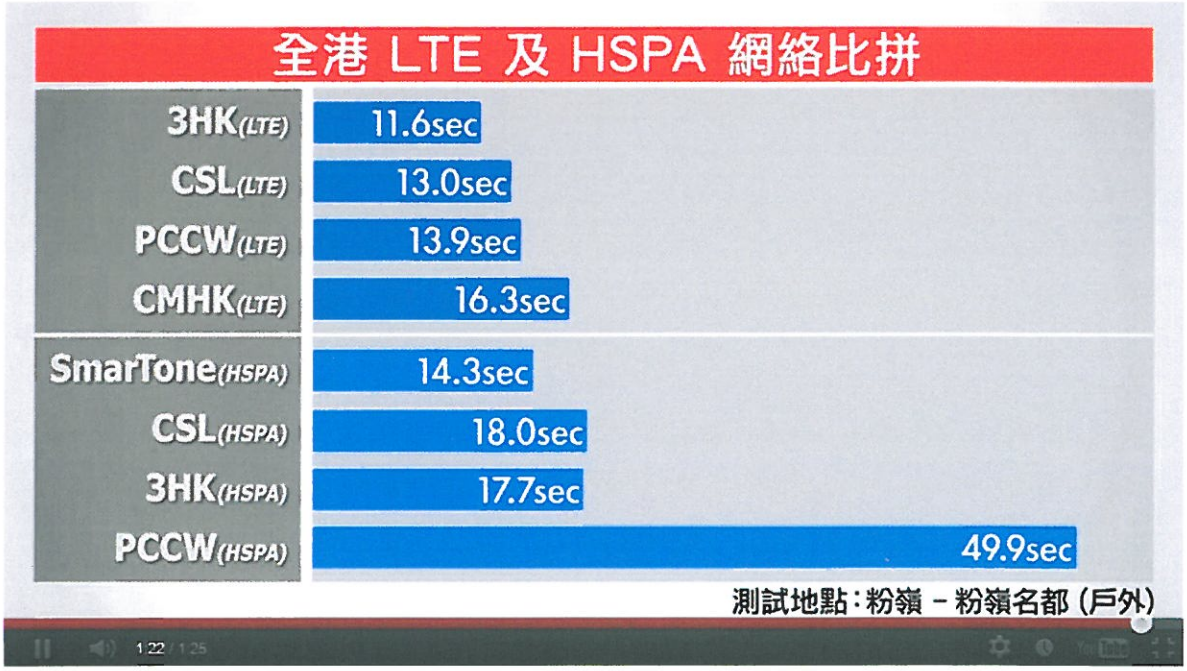
Tuen Mun (2pm – 3pm on 28/06/2012)



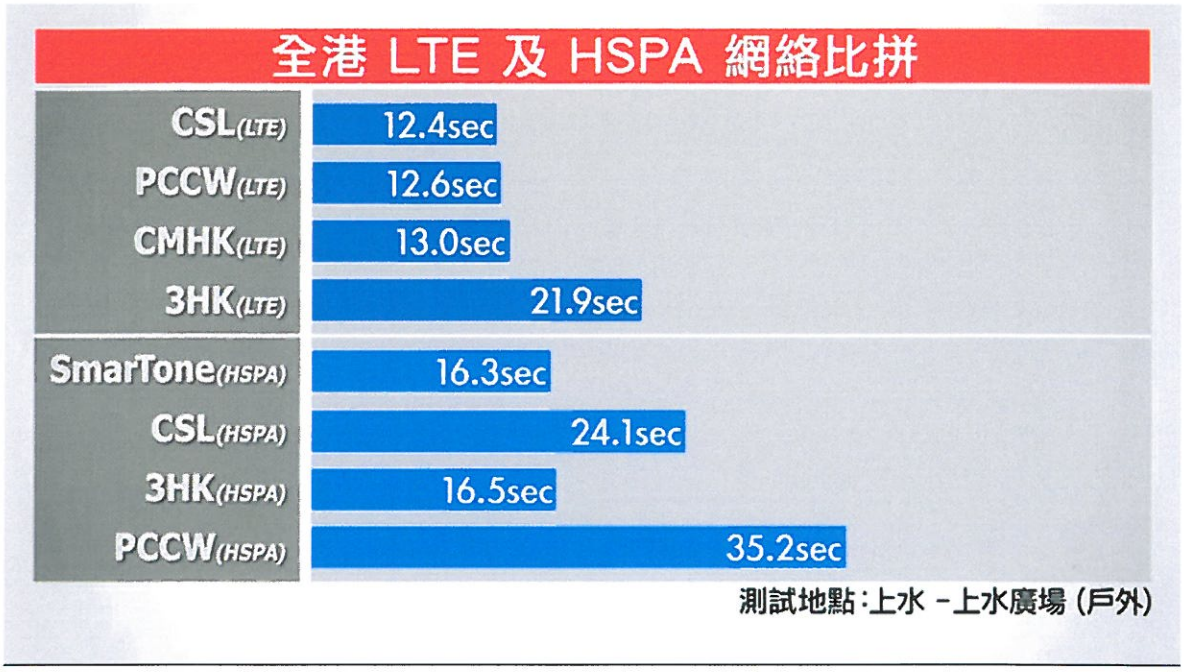
Yuen Long (2pm – 3pm on 12/06/2012)



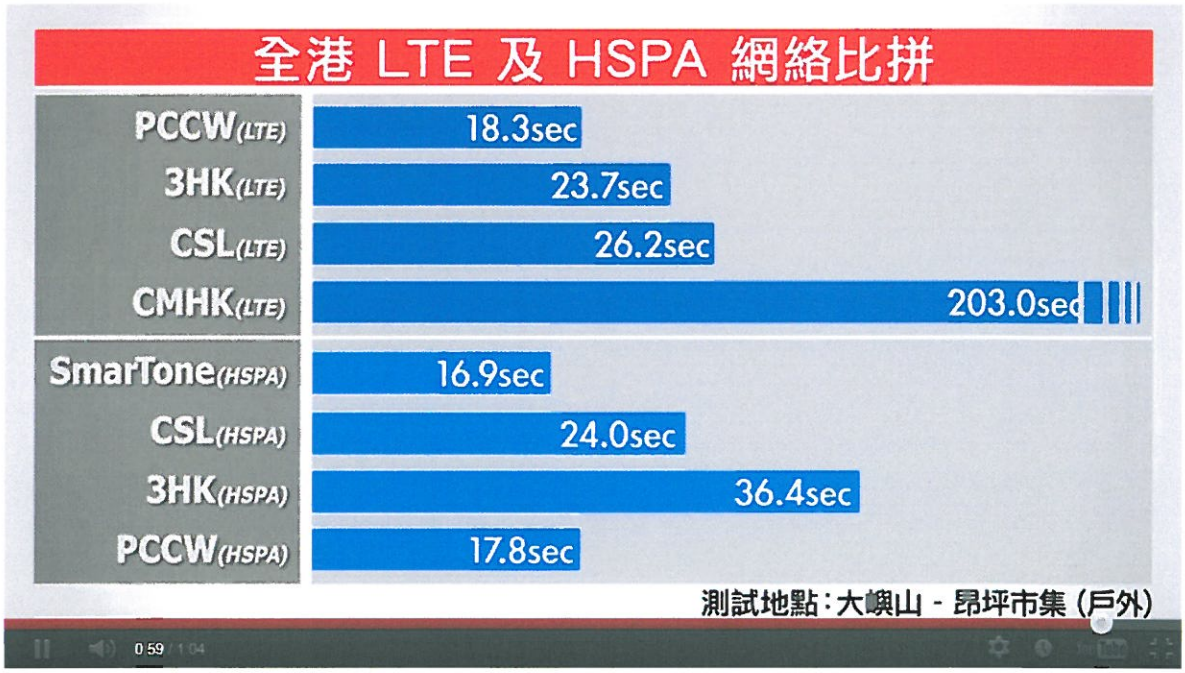
Fanling (4pm – 5pm on 28/06/2012)



Sheung Shui (3pm – 4pm on 28/06/2012)



Ngong Ping (2pm – 3pm on 13/07/2012)



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News Release

SmarTone Announces the Launch of its 4G Network

(Hong Kong, 25 July 2012) – SmarTone has today announced it will launch a territory-wide 4G LTE network in the 1800MHz spectrum on 28 August 2012. At launch, all current SmarTone price plans will apply.

"With ever growing customer demand for mobile broadband, the introduction of our 4G network vastly expands our capacity, which will enable our customers to enjoy more quality services and improved customer experiences," said Douglas Li, CEO, SmarTone. "Our choice of 1800MHz for 4G has proven prescient, with a wide range of compatible devices being made available by all leading smartphone manufacturers. These will be capable of switching seamlessly to our 3G HSPA+ network at 2100MHz and 850MHz."

To demonstrate the relative difference between 4G and 3G mobile broadband user experiences on all networks in Hong Kong, SmarTone conducted 18,480 tests in 70 locations all over the territory, covering all 8 4G and 3G networks. All locations enjoy good radio reception for all networks and tests included all popular smartphone use types including web browsing, photo upload to Facebook, launching a YouTube video, and 2-5MB file downloads.

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News Release

These tests of the most common use types revealed that SmarTone 3G achieved the highest percentage of firsts and first equals in speed amongst all 3G networks. The tests also show there was no meaningful or dramatic difference in performance between others' 4G and SmarTone's 3G. Furthermore, SmarTone 3G was faster than or equal to others' 4G in 23% to 32% of tests on a network-to-network comparison basis.

Across all networks, 4G was only consistently faster than 3G in tests of large-size file downloads and uploads (12MB or above). Speedtests fall under this category as they utilise the same download and upload mechanism.

"Large-size file downloads and uploads are rarely performed by the vast majority of smartphone users, so the common reliance on speedtests to reflect actual mobile broadband user experience is somewhat misplaced. For the most common use types, speed will improve but to a lesser extent than large-size file downloads and uploads. The biggest benefit of introducing 4G is additional broadband capacity, which means more customers can enjoy a good mobile broadband experience at the same time," Mr Li added. "SmarTone is excited to be bringing its 4G to its customers. With our launch of 4G, our leadership in network performance will be further enhanced and we are confident that Hong Kong smartphone users will love the difference."

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News Release

SmarTone 宣布推出其 4G 網絡

(香港, 2012 年 7 月 25 日) – SmarTone 今天宣布將於 2012 年 8 月 28 日推出採用 1800MHz 頻譜，覆蓋遍及全港的 4G 服務。屆時，現有 SmarTone 月費計劃亦可享用。

SmarTone 總裁黎大鈞先生表示：「鑑於客戶對流動寬頻的需求持續增長，推出 4G 網絡將大幅擴大我們的容量，讓客戶可享更有質素的服務及更佳的客戶體驗。我們決定採用 1800MHz 推出 4G 絕對是我們具有先見之明，所有主要智能手機製造商已提供不同的裝置，並可無間斷地切換至我們採用 2100MHz 及 850MHz 的 3G HSPA+網絡。」

爲展示本港各 4G 及 3G 網絡用戶體驗的分別，SmarTone 於全港 70 個地點以 8 個 4G 及 3G 網絡，進行 18,480 次測試。所有網絡在測試地點均有良好的接收。測試內容包括所有智能手機最受歡迎的應用模式：瀏覽網頁、將相片上載至 Facebook、由 YouTube 網頁開啓影片及下載 2-5MB 的檔案。

從這些最普遍應用模式的測試中，顯示 SmarTone 3G 與其他 3G 網絡相比，取得表現第一及並列第一的百分比最高。測試同時顯示其他網絡商的 4G 與 SmarTone 的 3G，網絡表現不存在巨大及明顯分別。反之，在各網絡間的比較下，SmarTone 3G 在 23%-32%的測試中，表現比其他的 4G 更快或相同。

測試結果亦反映所有 4G 網絡僅在下載及上載大型檔案(12MB 以上)的測試中，較 3G 優勝；而 Speedtest 的設計亦是採用相同的大型檔案下載及上載模式。

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News Release

黎先生補充：「由於絕大多數的智能手機用戶甚少會下載及上載大型檔案，倚賴 Speedtest 來反映實際流動寬頻的用戶體驗並不恰當。用戶使用最歡迎的應用模式，速度將有改善，但相比起下載及上載大型檔案，程度遙不可及。推出 4G 的最大好處是增加寬頻容量，讓更多客戶可同時享受優質流動寬頻體驗。SmarTone 很高興爲客戶帶來 4G。透過推出 4G，我們在網絡表現的領導地位也將進一步提升，我們亦有信心香港的智能手機用戶將愛上不一樣。」

###

Annex E

SmarTone

中文

SmarTone's 3G is faster than others' 4G

Go online with our 3G network and be amazed by our speed. In recent network performance comparison tests of all 3G and 4G mobile networks in Hong Kong, our 3G was faster than or equal to competitors' 4G networks in 30% of the tests for most popular use types. This is especially notable as our 3G network carries substantial traffic while competitors' 4G networks carry little. If traffic volumes were equal, our 3G would have won even more.

Check out the tests and results, and see for yourself!

SmarTone's 3G vs other 4G Networks

Methodology and Results

SmarTone's 3G vs other 4G Networks

Popular use types

- Central
- Wan Chai
- Causeway Bay
- East Tsim Sha Tsui
- Sha Tin

500KB photo upload to Facebook

Hong Kong

- Central (IFC / Exchange Square)
- Sheung Wan
- Wan Chai
- Quarry Bay
- Causeway Bay (World Trade Center / Hysan Avenue)
- Chai Wan
- Aberdeen
- Stanley

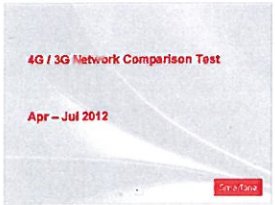
Kowloon

- East Tsim Sha Tsui
- Jordan
- Tai Kok Tsui
- Sham Shui Po
- Mei Foo
- Kowloon Bay
- Kwun Tong
- Lam Tin
- Lok Fu
- Kowloon City
- Wong Tai Sin
- Diamond Hill

New Territories

- Sha Tin
- Tai Wai
- Tsing Yi
- Kwai Fong
- Tsuen Wan
- Tseung Kwan O
- Sai Kung
- Tai Po Market
- Tai Po
- Tuen Mun
- Yuen Long
- Fanling
- Sheung Shui
- Ngong Ping

Methodology and Results



How much does SmarTone 3G outperform other 3G networks? See for yourself!

SmarTone

ENG

SmarTone 3G快過其他台嘅4G

透過我哋嘅3G網絡上網，感受我哋嘅驚人速度。最近喺全港進行嘅3G同4G流動網絡表現嘅比較測試中，我哋嘅3G喺約3成最常用嘅應用類型測試中比其他台嘅4G更快或睇齊。尤其值得注意嘅係，我哋嘅3G已大量載客但對手嘅4G網絡只有少量載客。如果大家嘅流量相同，我哋嘅3G會贏得更多。

立即睇測試同結果，了解更多！

比較SmarTone 3G同其他4G網絡　　測試方法和結果

比較SmarTone 3G同其他4G網絡

常用嘅應用類型

- 中環
- 灣仔
- 銅鑼灣
- 尖東
- 沙田

上載500KB相片去Facebook

香港

- 中環（國際金融中心 / 交易廣場）
- 柴灣
- 香港仔
- 赤柱
- 銅鑼灣（世貿中心 / 希慎道）
- 上環
- 灣仔
- 鰂魚涌

九龍

- 尖東
- 佐敦
- 大角咀
- 深水埗
- 美孚
- 九龍灣
- 觀塘
- 藍田
- 黃埔
- 九龍城
- 黃大仙
- 鑽石山

新界

- 沙田
- 大圍
- 青衣
- 葵芳
- 荃灣
- 將軍澳
- 西貢
- 大埔墟
- 大埔
- 屯門
- 元朗
- 粉嶺
- 上水
- 昂坪

測試方法和結果

想知SmarTone 3G拋離其他3G網絡有幾多？ 立即了解！

1. **數碼通下月加入 4G 戰團** [Wen Wei Po] 2012-07-26 B01 文匯財經

2. **4G 網速被誇大 僅比 3G 快 3 倍** [Hong Kong Economic Times] 2012-07-26 A32 Executive & Market i-Mad 林卓昕陳韻文

3. **數碼通 4G 收 3G 價下月尾登場料難刺激 ARPU** [Apple Daily] 2012-07-26 B07 財經要聞

4. **趕搭尾班車數碼通下月推 4G** [Hong Kong Economic Journal] 2012-07-26 A04 上市公司

5. **SmarTone to heat up 4G market with new network** [South China Morning Post] 2012-07-26 BIZ3 BIZ Bien Perez

6. **數碼通邊踩 4G 邊推出提早下月底推稱跟 3G 差別不大** [Ming Pao Daily News] 2012-07-26 B04 經濟

7. **絲絲講場：數碼通 4G 玩後發制人** [Oriental Daily News] 2012-07-26 B12 絲絲講場 絲絲講場 余絲韻

8. **3G 頻頻斷線歸咎手機問題** [Ming Pao Daily News] 2012-07-26 B04 經濟

9. **數碼通 8 月 28 日 3G 客免費升級 4G** [Sky Post] 2012-07-26 P02 要聞

10. **數碼通 4G 曲線減價** [Hong Kong Daily News] 2012-07-26 B02 新報財經 競爭激烈

1 .Wen Wei Po | 2012-07-26
B01| 文匯財經

數碼通下月加入 4G 戰團

香港文匯報訊（記者 陳遠威）流動數據網絡技術 4G 已在本港開跑，起步最遲的數碼通（0315）終於宣布推出 4G 服務，數碼通昨日公布，將於今年 8 月 28 日推出 4G 服務，月費將與現時 3G 服務收費相同，採用頻譜為 1,800MHz。

數碼通總裁黎大鈞昨日於午宴上表示，其 4G 網絡覆蓋率將與當初推出 3G 服務時的覆蓋率相若，而 1,800MHz 的頻譜是世界各地的主流，室內覆蓋亦較好，而推 4G 網絡將可擴大寬頻容量。他認為坊間指 4G 的速度快 3G 達 10 倍是不可能，實質速度只快 3 至 4 倍，兩者的網絡表現沒有巨大差別，而一般用戶亦不會用盡 4G 的功能。

減價與否視市場競爭

黎大鈞亦表示，今年沒有打算調整 3G 服務收費，惟減價與否仍要視乎市場競爭；而推出 4G 並不會影響每用戶平均收入（ARPU），認為兩者沒有直接關係，影響在乎市場的競爭反應。

數碼通近月在全港 70 個地點以 8 個 4G 及 3G 網絡進行網絡表現測試，測試對象包括 3 香港、CSL、PCCW 及數碼通的 3G 網絡，以及 3 香港、CSL、PCCW 及中國移動的 4G 網絡，測試各網絡上載相片、開啟各類型網站及下載檔案時的速度表現。

稱數碼通 3G 質素勝同業

黎大鈞表示，絕對有信心贏過其他服務供應商，測試結果已顯示其 3G 網絡表現領先其他網絡商提供的 3G 服務，甚至超越部分 4G 網絡。4G 網絡的優勢只有當下載大型檔案時才能表現出來，而智能手機用戶很少會下載大型檔案，而由於坊間進行的速度測試方式以大型檔案下載為主，故以這類型測試比較網絡服務質素沒有意義。

現場有記者質疑測試的有效性，指出作為一名數碼通服務用家，實質使用觀感並不如測試般理想，黎大鈞解釋，某些不如預期的情況各家電訊商都存在，其服務情況已較其他供應商理想，而該測試同時比較各家網絡供應商，當中沒有偏頗，如用戶出現跳線問題，可安排跟進，研究問題是否由另一方通話的服務供應商造成。

或競投新頻譜牌照

至於電訊管理局將於明年再次批出 2,600MHz 頻譜牌照，黎大鈞表示會考慮競投，惟現時未有決定，主要視乎競投頻譜和擴大基站兩者的價錢，如擴大基站所需的投資較少，便不會再競投頻譜。

2 .Hong Kong Economic Times | 2012-07-26
A32| Executive & Market| i-Mad| By 林卓昕陳韻文

4G 網速被誇大 僅比 3G 快 3 倍

4G 上網速度可能被誇大？數碼通早前於全港 18 區進行逾 1.8 萬次 3G 及 4G 網絡測試，結果發現數碼通有 2 成的 3G 測試速度，與其他供應商的 4G 速度相同或更快。該公司總裁黎大鈞指出，有個別網絡供應商誇大 4G 網速，測試證實 4G 平均只快 3 至 4 倍。

黎大鈞強調，4G 網速非較 3G 快 10 倍，只是增加寬頻容量令客人上網更流暢。過去數個月，數碼通技術人員走訪全港 18 區 70 個地點，以三星 Galaxy SII LTE 測試本港 4 個網絡商的 3G 及 4G 網絡表現，在同一時間、同一地點，並在各網絡商訊號接收良好下，分別測試 3 次，再以平均數作比較。
fb 鋪相只差 5 秒

結果發現，數碼通有逾 23%的 3G 測試，比其他供應商的 4G 更快或同速。以數碼通 3G 網絡上載一張 500KB 相片上 Facebook，需時 26.2 秒，較最快 4G 網絡商 CSL 的 21.2 秒只差 5 秒，卻比 3 香港的 30 秒快；而開啟 TVB.com，數碼通 3G 網速亦比部分 4G 供應商快（詳見表）。不過數碼通未有測試其 4G 服務表現，黎大鈞只稱與其他網絡商表現相若，比 3G 快 3 至 4 倍。

其實 4G 網絡有利上下載 12MB 以上的大型檔案，以通訊辦的寬頻表現測試 App 於灣仔戶外測試，4G 下載表現介乎 11.45 至 24.71Mbps，上載則介乎 4.42 至 14.79Mbps，的確較數碼通 1.73Mbps 及 11.12Mbps 的上下載表現好。惟黎大鈞稱：「一般用戶很少上下載大型檔案，實際使用時，4G 網速較 3G 只快 3 至 4 倍！」

數碼通的 4G 網絡將選用 1,800MHz 頻譜，好處在於其穿透力比其他頻譜高，有助改善室內訊號接收，亦支援現時大部分 4G 裝置，蘋果 The new iPad 除外。數碼通將於 8 月 28 日推出 4G LTE 服務，收費跟 3G 計劃一樣，現有數碼通 3G 客戶只要設備相容，到門市更換電話卡便可啟用 4G 服務。

3 .Apple Daily | 2012-07-26
B07| 財經要聞

數碼通 4G 收 3G 價下月尾登場料難刺激 ARPU

【本報訊】繼早前投得北角地皮後，新地（016）旗下的數碼通（315）亦有動作，再顯示郭氏兄弟涉賄被起訴一事，不影響集團整體業務發展。集團總裁黎大鈞表示，將於 8 月 28 日推 4G 服務，收費與現時 3G 的收費一樣，現有客戶不用簽新約亦可轉用 4G。

記者：石永樂

面對頻譜不足的問題，黎大鈞承認考慮競投明年推出的頻譜，彌補頻譜不足，料增加今年的資本開支，但會維持 100%的派息比率。

對於以 3G 價推 4G，黎大鈞表示，主要因為「4G 可做到的，3G 都做到。」他亦不寄望 4G 可提升集團的 ARPU（每月每戶平均收入）。至於目前 4G 未必全數覆蓋港鐵站內，黎大鈞表示，目前仍與港鐵傾談中，由於港鐵覆蓋工程規限較多，相信增加網絡需時，惟未有正面回應今年內能否於港鐵沿線推 4G。

擬競投額外頻譜

除數碼通，市面四家已推 4G 服務的電訊商之前都有競投 4G 頻譜，唯獨數數碼將原來服務 2G 用戶的 1800 兆赫頻段重組，以推 4G 服務。昨日黎大鈞強調，其 1800Mhz 頻段於室內有接收的優勢，不過他直言，數碼通的 4G 網絡上下載速度只較 3G 的快三至四倍，有別於其他電訊商力銷「4G 快 3G10 倍」的賣點，對此黎大鈞表示，「4G 與 3G 最大的分別在於網絡的容量而非速度……無可能快 10 倍。」

政府明年將推出的 2600 兆赫頻譜拍賣，向來批評 2600 兆赫頻譜的黎大鈞表示，有考慮去競投額外的頻譜，但主要看成本效益，他直言，「若果有埋 2600 兆赫頻譜，人多地點接收會好好。」意味以數碼通現有的頻譜推 4G，於用戶較多地區的網絡表現或有所影響。

100%派息率不變

另外，黎大鈞表示，除了競投更多頻譜，亦可透過增加發射站提高網絡質素，過去兩年數碼通亦一直有增加發射站。為進一步提 4G 及現有網絡質素，數碼通將增加今年的資本開支，但黎大鈞重申集團 100%的派息比率維持不變。

隨著智能手機普及刺激流動數據用量大增，網絡資源較少的數碼通開始被用戶投訴網絡質素「走樣」，昨日更被在場多名記者以用戶身份投訴，黎大鈞回應樂意跟進有關問題，但同時指出，接收欠佳可以有多個原因如手機、對手網絡等。

4 .Hong Kong Economic Journal | 2012-07-26
A04| 上市公司

趕搭尾班車數碼通下月推 4G

高速潮流無可抵擋，曾揚言不推 4G 的數碼通（315），昨日也宣布下月底正式推出服務，至此全港電訊商都已投身 4G 陣營，全面進入第四代流動通訊時期。但專家指出，4G 在港的迴響一直有限，因為市面的手機未夠吸引， 市場正期待很可能年底面世的 iPhone 5，屆時將掀起全港 4G 熱潮，為電訊商帶來回報。

數碼通下月 28 日推出 4G 服務，總裁黎大鈞表示，套餐月費將跟目前的 3G 套餐一樣【表】，現有客戶只需更換 SIM 卡便可升級，毋須另簽新約或續約。

有別於對手，數碼通並無競投新的 4G 頻譜，反而以較低成本，升級舊有的 2G （1800MHz）網絡進行 4G 傳輸， 速度可能略遜一籌。但黎大鈞強調，1800MHz 是適合 4G 的頻譜，外國不少電訊商也使用，尤其室內穿透能力更勝過競爭對手的頻譜。

短期對 ARPU 刺激不大

黎大鈞指出，4G 最大的意義並非速度，而是擴大頻寬容量以免擠塞。他昨日在發布會上測證其他電訊商的 4G，顯示速度只比數碼通的 3G 略快少許，但他以網絡未完成為由，拒絕測試數碼通 4G 的速度，雖然該服務在 1 個月後便會推出。

數碼通年初預計本財年的資本開支約 7.5 億至 8 億元，黎大鈞表示，為推出 4G ，資本開支可能略為增加。他指，公司提升 1800MHz 為 4G 的成本，低於其他電訊商競投新頻譜的逾 5 億元。但他估

計，4G 在短期內對 ARPU 的刺激不大。

本港五大電訊商為 4G 投入巨額的頻譜、網絡和推廣開支，但 4G 套餐月費大多與 3G 相若甚至更低。市場人士透露，各電訊商的 4G 上客情況不如預期熱烈，令人擔心投資回報。

資訊科技商會會長方保僑指出，用戶要買新手機才可使用 4G，但市面只有 3 款手機，未足以吸引大批用戶升級。他表示，各界均期望很可能本年底面世的 iPhone 5 會支援 4G，屆時會吸引大批用戶換機順道升級 4G 以求最佳享受；上網流量帶動 ARPU 提升，將為電訊商帶來回報。

5 .South China Morning Post | 2012-07-26
BIZ3| BIZ| By Bien Perez

SmarTone to heat up 4G market with new network

SmarTone Telecommunications expects to intensify competition in the city's nascent 4G mobile market with the launch of its new high-speed wireless network next month.

Chief executive Douglas Li said yesterday that from August 28, SmarTone would offer 4G subscribers the same 3G tariff plans it now provided.

The carrier also vowed to deliver superior network performance and better indoor coverage, which is made possible by running 4G services on the lower 1.8-gigahertz frequency band.

Our choice [of frequency band] has proven prescient, with a wide range of compatible devices being made available by all the leading smartphone manufacturers, Li said.

SmarTone's new infrastructure supports a technology known as frequency division duplex long-term evolution (FDD-LTE). The other recognised 4G network standard, time-division duplex long-term evolution (TDD-LTE), is championed by China Mobile, the world's biggest wireless network operator.

HKT, the telecoms arm of PCCW, and Three Hong Kong, the mobile unit of Hutchison Telecommunications Hong Kong, both operate their respective 4G FDD-LTE networks on the 2.6GHz band. China Mobile Hong Kong, the mainland carrier's local unit, also runs its FDD-LTE network on the band and will soon build a complementary TDD-LTE network that will run on the 2.3GHz band.

CSL, the city's largest wireless operator, runs its 4G FDD-LTE network on both the 1.8GHz and 2.6GHz bands. It was the first mobile carrier in Asia to launch a commercial 4G network, in November 2010.

Advanced 4G networks have theoretical web download speeds of up to 100 megabits per second. The

fastest 3G networks run at 42Mbps.

Macquarie Securities analyst Lisa Soh described SmarTone's entry in the 4G market as a positive development for Hong Kong's mobile industry since it will add more network capacity for local subscribers to use.

Li said the increase in capacity means more customers can enjoy a good mobile broadband experience at the same time. Leading LTE network supplier Ericsson, which is building SmarTone's network, has said greater demand for high-speed web access means operators must cope by establishing 4G networks.

Shares of SmarTone, a Sun Hung Kai Properties subsidiary, rose 1.26 per cent yesterday to finish at HK$16.06, the stock's highest close since reaching HK$16.08 on April 25.

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6 .Ming Pao Daily News | 2012-07-26
B04| 經濟

數碼通邊踩 4G 邊推出提早下月底推稱跟 3G 差別不大

本港多家電訊商今年已先後推出 4G，只餘下數碼通（0315） 「斯人獨憔悴」。不過數碼通昨日終於公布，將於 8 月 28 日加入 4G 戰場，而月費計劃與 3G 相同。之前「力踩」4G 在港未成熟的行政總裁黎大鈞坦言，今次推出相關服務，純粹是為了加大網絡容量，並非只因速度快而做。他更直指其他電訊商「吹噓」4G 速度，較 3G 快 10 倍是不符事實。

明報記者岑豪

數碼通原定今年底前提供 4G 服務，之前管理層的解釋是市面上的 4G 手機未成熟，無論款式多寡或支援制式有待發展，故不急於推出。然而在本地 4G 手機市場未有新產品面世前，數碼通卻公布提早推 4G。黎大鈞表示，4G 可助其網絡的傳送信號效率提高 30%，同時亦加大容量 1 倍，令網絡表現更好，所以加快推出。

現客購 4G 機換卡可用毋須再簽約

他又表示，現有的 3G 客戶若自行買 4G 手機，只需更換 SIM 卡就可使用，毋須重新簽約，但同時與 3G 一樣，當數據用量超過 5GB 後有速度限制。他坦言，由於用戶對 4G 與 3G 的感受分別不大，故難以加價，對 ARPU（每月每戶平均收入）亦難起推動作用（見表）。

「我們覺得 4G 最重要是加強網絡容量，而受制於技術問題，一般應用上 4G 快不了 3G 多少。」他

表示過去兩至三個月，集團在全港 70 個戶外地點，做了 18,480 次測試，包括用手機瀏覽網頁、Youtube 及上載照片等，結果 4G 與 3G 速度相若。直至使用手機下載大型檔案時才有明顯分別，4G 較 3G 快 2 至 3 倍，但並非其他電訊商所指的 10 倍。

擬明年競投 2.6GHz 頻譜

他又指出，原用作提供 2G 服務的 1.8GHz 頻譜已完成重組，而此頻譜在室內滲透率較高，表現會較其他電訊商的 2.6GHz 頻譜更好，「用 2.6GHz 做主導是很戇居」。不過他表示，明年 2.6GHz 的頻譜競投時會考慮出價，主要在人口密集的地區提供服務。

今年本地電訊市場格外熱鬧，繼「3G 無限 plan」取消又重推後，4G 市場的爭奪戰亦激烈。自從 CSL 於今年 2 月中移動 4G，成為全港首家之後，其後中移動香港、香港電訊（6823）及和記電訊（0215），亦爭相推出 4G 計劃（見表）。有電訊分析員認為，盛傳 9 月底面世的 iPhone 5，將會令 4G 市場將會更熱鬧，而數碼通有力「遲來先上岸」。

7 .Oriental Daily News | 2012-07-26
B12| 絲絲講場| 絲絲講場| By 余絲韻

絲絲講場：數碼通 4G 玩後發制人

標榜住「愛上不一樣」（love the difference）數碼通（00315）早前一樣發生網絡事故，自然引起唔少用家不滿，當中包括絲絲行家，令尋日數碼通個 4G 網絡記者會充滿火藥味。雖然面對群情洶湧，向來自信爆棚數碼通總裁黎大鈞點會被嚇窒？佢仲叫大家遇到網絡問題，最緊要同佢反映，先可以解決問題喎！

黎大鈞話，佢對公司服務十分有信心。（高嘉業攝）

面對本港同行陸續推出 4G 網絡，數碼通終於宣布下個月 28 日推出 4G，到時現有月費 plan 會同時享用咁話。雖然遲人九條街，黎總裁就解釋番，其實自己個 3G 唔輸畀其他網絡供應商 4G。大家唔好以為黎總裁空口講白話呀，佢真係做個網絡測試，全港 70 個地點進行超過 1.8 萬個速度測試，部分測試當中，數碼通 3G 網絡比起其他 4G 網絡更為優勝。

「謙稱」好對手幾倍

講開又講，個記者會明明係介紹 4G，點解絲絲聽來聽去都係 3G 呢？佢就話，公司會採取 3G 同 4G 兼容，而 4G 最大優勢就係上載同下載大檔案，亦可以解決網絡擠塞，不過佢就突然「謙虛」話，唔會預期自己 4G 做得好過人 10 倍，最多係好 3、4 倍喎!

8 .Ming Pao Daily News | 2012-07-26
B04| 經濟

3G 頻頻斷線歸咎手機問題

數碼通（0315）向來標榜網絡質素好，但近日卻被指其 3G（HSPA+）頻頻斷線，或個別地區接收不到信號。昨日有記者在傳媒午宴上，大呻上網慢及經常沒有信號，連通話亦不時斷線。

疑因清空 2G 頻譜升級 4G

數碼通早前因要清空 2G 頻譜（1.8GHz），將之升級成為 4G 網絡，故大部分的 2G 客已升級至 3G，無形中亦增加 3G 網絡的負擔。有電訊分析員認為，近期數碼通的網絡不穩定，重組 1.8GHz 頻譜亦是原因之一，但相信還有其他問題，引致斷線的情況。

行政總裁黎大鈞說集團有留意到相關的投訴，他們亦找出多種原因，包括被人干擾或者用戶在基站與基站之間的信號盲點，手機令 3G 跌落 2G，甚至失去信號。他又指出，部分智能手機因軟件或硬件問題，令接收信號時表現較差，集團已要求手機生產商改善問題。同時，用戶可以要求數碼通追蹤其手機信號，從而得出統計數據，找出問題所在。多名記者在宴上向管理層投訴，直指數碼通的網絡質素下降，路經荃灣部分地區時更突然斷線，而且乘巴士時，上網速度與其他電訊商比較，亦見有明顯緩慢的問題。

港鐵列車向來是信號接收較差的地段，黎大鈞表示要改善接收需要鋪網，但申請手續繁複及費時，故港鐵沿線的網絡容量仍然不足，需要很長時間才能加大。

9 .Sky Post | 2012-07-26
P02| 要聞

數碼通 8 月 28 日 3G 客免費升級 4G

數碼通昨日公布，下月 28 日推出使用 1800MHz 頻譜 4G 服務，現有客戶亦可享用，收費與現時 3G 計劃一樣；要「升級」轉用 4G，需先更換 4G 手機及更換可支援 4G LTE 網絡的 SIM 卡。

數碼通行政總裁黎大鈞表示，公司 4G 服務覆蓋遍及全港，早前曾在全港 70 個地點以八個 4G 及 3G 網絡進行 18,480 次測試，包括智能手機最受歡迎應用模式，如瀏覽網頁、上載相片至 facebook、由 YouTube 網頁開啟影片及下載 2 至 5MB 檔案等。

他指測試顯示數碼通 3G 網絡表現優勝，其他網絡商的 4G 與數碼通的 3G 網絡表現不存明顯分別。「4G 網絡僅在下載大型檔案（12MB 以上）時速度較 3G 快幾成。」他強調 4G 網絡好處不在於速度，

而是用戶可享用較大網絡容量，因可兼用 3G 網絡容量，減少遇到網絡擠塞。

10 .Hong Kong Daily News | 2012-07-26
B02| 新報財經| 競爭激烈

數碼通 4G 曲線減價

遲遲未公布推出 4G 服務時間表的數碼通（0315）終於宣布，將在 8 月 28 日開始推出有關服務。該公司總裁黎大鈞在一個午宴上表示，4G 計劃會與現時的 3G 收費一致，而 3G 計劃用戶可免費升級至 4G。

對於一般收費較高的數碼通而言，是次不加價行為實屬變相減價，因對手的 4G 計劃一般貴近一成，但經過比較後，該公司的收費仍處於同業中較高水平（見表）。黎大鈞解釋，由於始終不認為客戶升級 4G 後，可使用更多的功能，故未有調高收費。

他又認為，推 4G 服務對每月每戶平均消費（ARPU）未必有太大幫助，主要受市場的競爭策略的改變，並表示暫未有計劃對 3G 服務減價。

另外，黎氏反駁對手過份誇大 4G 的速度，該公司對現時香港 4 家 3G 網絡及 4 家 4G 網絡，在 70 個戶外地點進行 1.8 萬次測試，結果顯示，在實際的戶外環境下，本港現有的 4G 網絡只比該公司快 3 倍左右。

An Example of How the Method of Presentation by SmarTone in its Network Comparison Tests Could Have Exaggerated the Performance of a Network

In a network comparison test between Networks A to E, the respective time required for completing a common mobile application by these five networks is measured. The test is conducted at 10 locations and therefore a total of 10 tests per network are carried out. The results are shown in the following table. Figures shown in the table are hypothetical data for illustration purpose only.

Completion time (in seconds) for completing an application in 10 tests

Network	**A**	**B**	**C**	**D**	**E**
Test 1	100	20	20	20	90
Test 2	100	20	20	20	90
Test 3	20	100	20	20	90
Test 4	20	100	20	20	90
Test 5	20	100	20	20	90
Test 6	20	20	100	100	90
Test 7	20	20	100	100	90
Test 8	20	20	20	100	90
Test 9	20	20	20	100	90
Test 10	20	20	20	100	90

2. It is noted that Network E has never managed to get to the top among the 10 tests, and in fact the performance of Network E only ranks the third or fourth when the performance of all the five Networks are considered together. However, the operator of Network E can make

a comparison of its performance with an individual network for the 10 tests in the following manner –

No. of times Network E outperforms individual Networks in the 10 tests

Network	A	B	C	D
No. of tests	10	10	10	10
No. of times Network E being faster or equal to the other network	2	3	2	5
Percentage of the times Network E being faster or equal to the other network	**20%**	**30%**	**20%**	**50%**

3. If the operator of Network E adopts the same method of presentation as what SmarTone has done in its network comparison tests and in Statement 2, it can claim that "*Network E was faster than or equal to others' Networks in 20 - 50% of the tests*" based on the above figures, as if Network E indeed outperforms all other networks in 20-50% of the tests. In reality, Network E never has the top score for each single test when the results of all the networks are considered simultaneously.