



هيئة تنظيم الاتصالات  
Telecommunications Regulatory Authority

## Quality of Mobile Services **Billing audit**

Kingdom of Bahrain - 2014



This study is published in accordance with Articles 3(b)(1), 3(c)(2), 3(c)(4) and Article 54 of the Telecommunications Law. The purpose of the study is to evaluate and benchmark Quality Levels offered by Mobile Network Operators, Batelco, Viva and Zain, in the Kingdom of Bahrain. The independent study was conducted with an objective End-user perspective by Cabinet Directique and does not represent any views of the Authority.

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## 1 READER'S ADVICE

For a proper understanding of this report, readers are advised to take into account the following key elements:

Quality of Mobile Services Audit is a snapshot of the observed quality and performance offered by Mobile Operators at the time of the measurements campaign.

Mobile Operators are continuously performing modifications and upgrades (including during the audit). Performance at the time of reading the report may be different.

TRA deliberately chose to assess quality from the end user perspective, which involves for example carrying out measurements with mobile devices which are available in Mobile Operator shops, behaving like the user on the field and cross network testing. Please read section 4 carefully for a full understanding of the test protocol and measurement conditions.

As with any quality audit or survey, the statistical accuracy is systematically presented in the results tables. Accuracy is the error margin to the actual values, so any comparison between results should take this confidence interval into account.

To be consistent with this level of accuracy, results have been rounded up or down to the nearest tenth of a unit. It is reminded that:

- the sum of two rounded results can be different from the rounding of their sum,
- Multiplying one rounded result by another is different than rounding the result of their multiplication.

Other statistical aggregates used in the report are:

- **Standard deviation** shows how much variation there is from the average. A low standard deviation indicates that the data points tend to be very close to the mean, whereas high standard deviation indicates that the data are spread out over a large range of values.
- **Min** and **Max** show the worse and best results (such as delay, throughput) obtained during successful measurements.
- **Average** is always the arithmetic mean of the referred sample.



## 2 EXECUTIVE SUMMARY

### 2.1 Report objective

The aim of this report is to evaluate, from an end-user perspective, the accuracy of the billing systems used by mobile network Operators Batelco, Zain and Viva for the following key services:

- National Calls
- National Short Message Services (SMS)

Subscriber identity modules (SIM cards) used in this study are post-paid packages.

The Authority selected Directique, an international consulting firm, to conduct the assessment using a test method designed to gather a faithful qualitative records from an End-users' point of view, avoiding assessing quality through a pure technical angle as this is performed by Mobile Operators themselves on a regular basis.

This audit was conducted from the 2<sup>nd</sup> June 2014 to the 2<sup>nd</sup> of July 2014 inclusive. Measurements were performed between 9:00 AM to 10:00 PM every day except Saturdays.



## 2.2 Post-paid Measurement Results

### 2.2.1 National calls

| National calls*   | BATELCO   | ZAIN      | VIVA      |
|---|-----------|-----------|-----------|
|   | 1 682 mes | 1 704 mes | 1 706 mes |
| Percentage of service calls billed at appropriated tariff | 100.0%    | 100.0%    | 100.0%    |
| <i>Statistical accuracy</i>                               | 0.0%      | 0.0%      | 0.0%      |

\* For all 3 operators, no calls were made beyond the inclusive minutes of the tariff plan; therefore, there are no additional charges on the bill other than the monthly line rental.

The billing records for national voice calls are in conformity with the BATELCO, ZAIN and VIVA announced price list.

### 2.2.2 National Short Message Services (SMS)

| National Short Message Services                           | BATELCO | VIVA    | ZAIN    |
|---|---------|---------|---------|
|   | 531 mes | 532 mes | 535 mes |
| Percentage of service calls billed at appropriated tariff | 100.0%  | 100.0%  | 100.0%  |
| <i>Statistical accuracy</i>                               | 0.0%    | 0.0%    | 0.0%    |

The billing records for SMS are in conformity with the BATELCO, ZAIN and VIVA announced price list.



### 3 MEASUREMENTS SPECIFICATIONS

#### 3.1 SIM Cards and Tariff Plans

The national calls and SMS were made with the Post-paid tariff plan for the 3 operators.

|             | Type     | BATELCO  | VIVA                   | ZAIN       |
|-------------|----------|----------|------------------------|------------|
| VOICE & SMS | Postpaid | Smart 30 | VIVA Postpaid 20 Basic | Hewar 3000 |

#### 3.2 Published Price Lists

##### 3.2.1 Batelco

| Smart Packages                       | Freetime Packages | Custom Packages | Family Plan1 | Special Packages |
|--------------------------------------|-------------------|-----------------|--------------|------------------|
|                                      | Smart 20          | Smart 25        | Smart 30     | Smart Max        |
| Phone Provided                       | Smart Phone       | Smart Phone     | Smart Phone  | Smart Phone      |
| Free Calls (Batelco – Batelco)       | Unlimited         | Unlimited       | Unlimited    | Unlimited        |
| Free Data                            | Unlimited         | Unlimited       | Unlimited    | Unlimited        |
| Free calls (to other local operator) | -                 | 60 min          | 120 min      | 2000 min         |
| Free SMS **                          | -                 | -               | -            | 1000             |
| Minutes rate offnet                  | 30 fils           | 25 fils         | 20 fils      | 20 fils          |
| SMS Rate                             | 30 fils           | 25 fils         | 20 fils      | 20 fils          |
| 4G LTE                               | BD5               | BD5             | Free         | Free             |
| Registration                         | BD5               | BD5             | Free         | Free             |
| Rental                               | BD20              | BD25            | BD30         | BD50             |
| Contract Duration                    | 12/18 Months      | 12/18 Months    | 12/18 Months | 18 Months        |



### 3.2.2 Viva

|                                 | Postpaid 10  | Postpaid 20                                  |
|---------------------------------|--|--|
| SIM Price                       | Free   | Free   |
| Monthly subscription            | BD 10  | BD 20  |
| Free Bundled Credit             | BD 10  | BD 20  |
| Voice Minute Rate               | 20 fils  | 10 fils                                      |
| International Voice Minute Rate | Please refer to <a href="http://viva.com.bh">viva.com.bh</a> |  |
| Free Bundled Data               | 100 MB   | 200 MB                                       |
| Local SMS Price                 | 20 fils  | 20 fils                                      |
| International SMS Price         | 25 fils  | 25 fils                                      |
| Video Call Minute Rate          | 40 fils  | 40 fils                                      |
| MMS Prices                      | 1 - 100 KB: 50 fils<br>100 - 400 KB 125 fils                 | 1 - 100 KB: 50 fils<br>100 - 400 KB 125 fils |
| GPRS (additional)               | 3 fils / 200 KB  | 3 fils / 200 KB                              |

### 3.2.3 Zain

| Package                  |                 | Hewar 110 | Hewar 330 | Hewar 3000* |
|--------------------------|-----------------|-----------|-----------|-------------|
| Monthly Rental           |                 | BD 6      | BD 11     | BD 29       |
| FREE Bundle              | Local Minutes   | 110       | 330       | 3000        |
|                          | SMS             | 30        | 30        | 100         |
|                          | Data            | -         | -         | 3 GB        |
| Voice Calls (per minute) | Peak Time**     | 45 fils   | 36 fils   | 10 fils     |
|                          | Off-Peak Time** | 36 fils   | 26 fils   | 10 fils     |
| SMS                      | Local           | 25 fils   | 25 fils   | 25 fils     |
|                          | International   | 25 fils   | 25 fils   | 25 fils     |



### 3.3 Methodology

For **post-paid voice calls** and sms, the amount identified by the Operator in its detailed billing is compared with the information collected during the tests.

#### Voice call measurements

Measurements were performed over a sample of 18 cities: Capital city, 4 cities of more than 50,000 inhabitants, 13 cities of less than 50,000 inhabitants and 24 road links.

Calls were made as follows:

- 70% Mobile to Mobile (MTM) own network (Same Operator)
- 30% Mobile to Landline

Calls were placed simultaneously on both networks from the same physical location.

#### SMS measurements

Measurements were performed in 18 cities, excluding road links. Testing schedule was the same as for voice service testing. SMS were tested as follows:

- 100% Mobile to Mobile (MTM) own network

### 3.4 Global indicator

This global indicator, applied to each service tested for each operator, testifies of the overall accuracy of the billing system. It is computed for each service as the percentage of service calls billed at appropriated tariff over the total number of service calls made during the test.



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