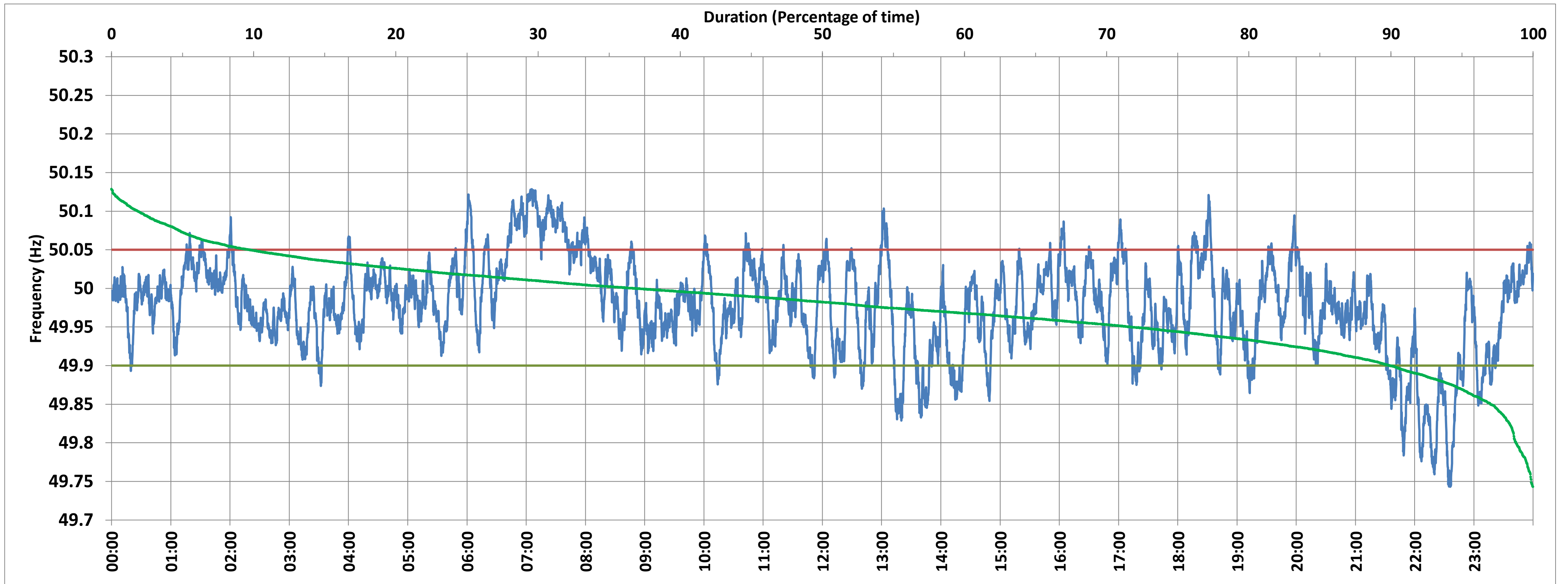


POWER SYSTEM OPERATION CORPORATION LIMITED
NATIONAL LOAD DESPATCH CENTRE NEW DELHI



MPPTCL BINA:Frequency

National Grid Frequency Profile for 9-Apr-2018



| | | | | | | | | | | | | | | | |
|-------|--------|--------|-----------|-----------|-----------|-----------|-----------|-------------|-----------|-------------|------------|-------|--------|--------|-------|
| <49.7 | <49.90 | <49.97 | 49.7-49.8 | 49.8-49.9 | 49.9-50.0 | 50.0-50.1 | 50.1-50.2 | 49.90-50.05 | 49.7-50.2 | 49.97-50.03 | 50.05-50.1 | >50 | >50.03 | >50.05 | >50.2 |
| 0.00 | 10.07 | 41.60 | 1.19 | 8.88 | 53.14 | 34.94 | 1.85 | 80.24 | 100.00 | 40.64 | 7.87 | 36.69 | 17.77 | 9.69 | 0.00 |

| | | | | | | | |
|---------------------|--------|-----------------------------|-------|----------------------|-------|---------|-------|
| Average Frequency : | 49.978 | Frequency Variation Index : | 0.042 | Standard Deviation : | 0.061 | Mileage | 46.29 |
|---------------------|--------|-----------------------------|-------|----------------------|-------|---------|-------|

| | | |
|-------------------------|--------|----------|
| Instantaneous Frequency | | |
| Max | 50.129 | 7:05:30 |
| Min | 49.743 | 22:35:50 |

| | | |
|-----------------------------|--------|----------|
| 15 minute Average Frequency | | |
| Max | 50.107 | 7:15:00 |
| Min | 49.817 | 22:45:00 |

| | |
|----------------------------------|-----|
| No. of excursions above 50.03 Hz | 114 |
| No. of excursions below 49.97 Hz | 163 |
| No. of excursions above 50.00 Hz | 172 |
| No. of excursions below 50.00 Hz | 174 |

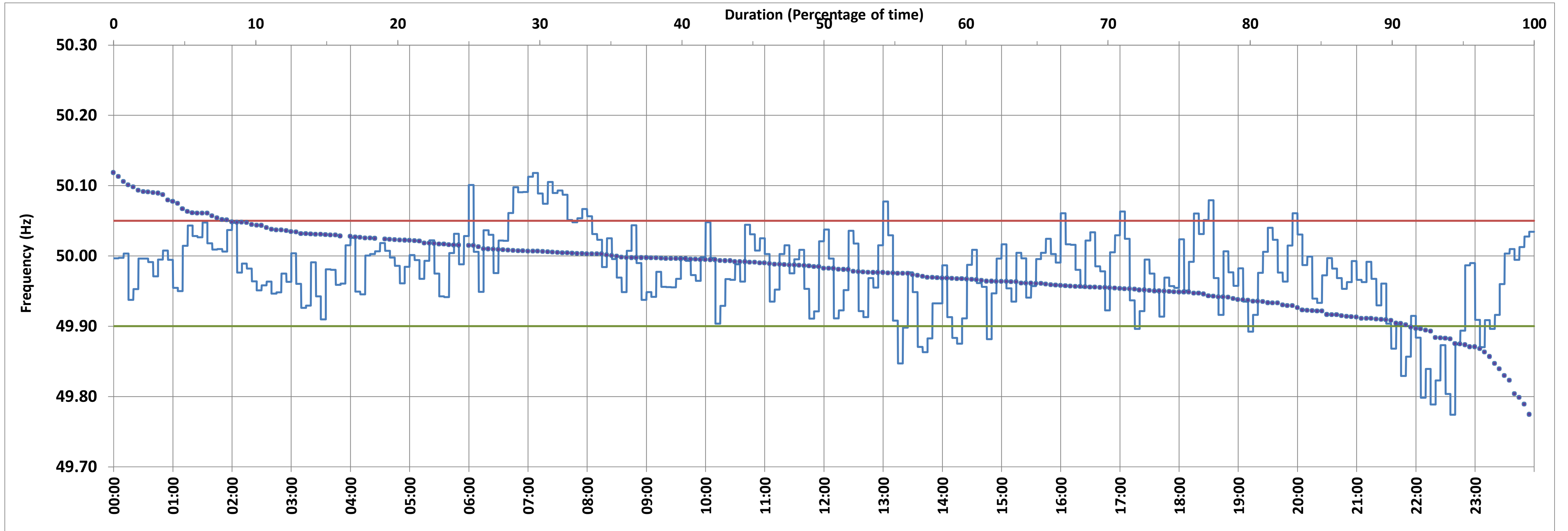
| | |
|-------------------------------|-------|
| % time <49.95 | 28.31 |
| % time between 49.95 to 50.05 | 62.00 |

| | | | |
|---|---------|--|---------|
| Average time freq remains below 49.97 per excursion | 0:03:40 | Average time frequency remains above 50.03 per excursion | 0:02:15 |
|---|---------|--|---------|



MPPTCL BINA:Frequency

5 Min. Average Frequency Profile for 9-Apr-2018



| | | | | | | | | | | | | | | | |
|-------|--------|--------|-----------|-----------|-----------|-----------|-----------|-------------|-----------|-------------|------------|-------|--------|--------|-------|
| <49.7 | <49.90 | <49.97 | 49.7-49.8 | 49.8-49.9 | 49.9-50.0 | 50.0-50.1 | 50.1-50.2 | 49.90-50.05 | 49.7-50.2 | 49.97-50.03 | 50.05-50.1 | >50 | >50.03 | >50.05 | >50.2 |
| 0.00 | 8.68 | 42.71 | 1.04 | 7.64 | 55.90 | 34.03 | 1.39 | 82.99 | 100.00 | 42.36 | 6.94 | 35.42 | 14.93 | 8.33 | 0.00 |

| | |
|---------------------|--------|
| Average Frequency : | 49.978 |
|---------------------|--------|

| | |
|---------|--------|
| Mileage | 9.5268 |
|---------|--------|

| Instantaneous Frequency | | |
|-------------------------|--------|----------|
| Max | 50.129 | 7:05:30 |
| Min | 49.743 | 22:35:50 |

| Based on 5 minute Average Frequency | | |
|-------------------------------------|--------|----------|
| Max | 50.118 | 7:10:00 |
| Min | 49.774 | 22:45:00 |

| | |
|----------------------------------|----|
| No. of excursions above 50.03 Hz | 20 |
| No. of excursions below 49.97 Hz | 42 |
| No. of excursions above 50.00 Hz | 35 |
| No. of excursions below 50.00 Hz | 35 |

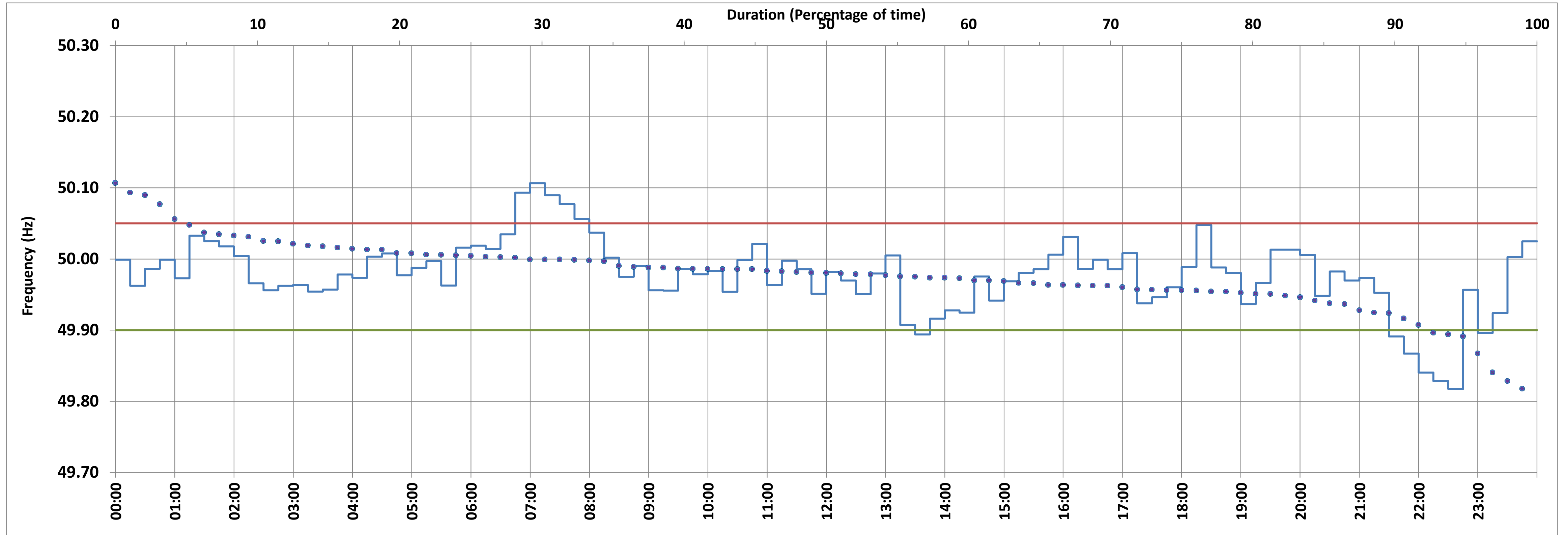
| | |
|-------------------------------|-------|
| % time <49.95 | 26.74 |
| % time between 49.95 to 50.05 | 64.93 |

NOTE: All calculations except Instantaneous Max/Min based on 5 minute average frequency



MPPTCL BINA:Frequency

15 Min. Average Frequency Profile for 9-Apr-2018



| | | | | | | | | | | | | | | | | |
|-------|--------|--------|-----------|-----------|-----------|-----------|-----------|-------------|-----------|-------------|------------|-------|--------|--------|-------|--|
| <49.7 | <49.90 | <49.97 | 49.7-49.8 | 49.8-49.9 | 49.9-50.0 | 50.0-50.1 | 50.1-50.2 | 49.90-50.05 | 49.7-50.2 | 49.97-50.03 | 50.05-50.1 | >50 | >50.03 | >50.05 | >50.2 | |
| 0.00 | 7.29 | 39.58 | 0.00 | 7.29 | 63.54 | 28.13 | 1.04 | 87.50 | 100.00 | 50.00 | 4.17 | 29.17 | 10.42 | 5.21 | 0.00 | |

| | |
|---------------------|--------|
| Average Frequency : | 49.978 |
|---------------------|--------|

| | |
|---------|--------|
| Mileage | 2.5114 |
|---------|--------|

| Instantaneous Frequency | | |
|-------------------------|--------|----------|
| Max | 50.129 | 7:05:30 |
| Min | 49.743 | 22:35:50 |

| Based on 15 minute Average Frequency | | |
|--------------------------------------|--------|----------|
| Max | 50.107 | 7:15:00 |
| Min | 49.817 | 22:45:00 |

| | |
|----------------------------------|----|
| No. of excursions above 50.03 Hz | 4 |
| No. of excursions below 49.97 Hz | 15 |
| No. of excursions above 50.00 Hz | 10 |
| No. of excursions below 50.00 Hz | 10 |

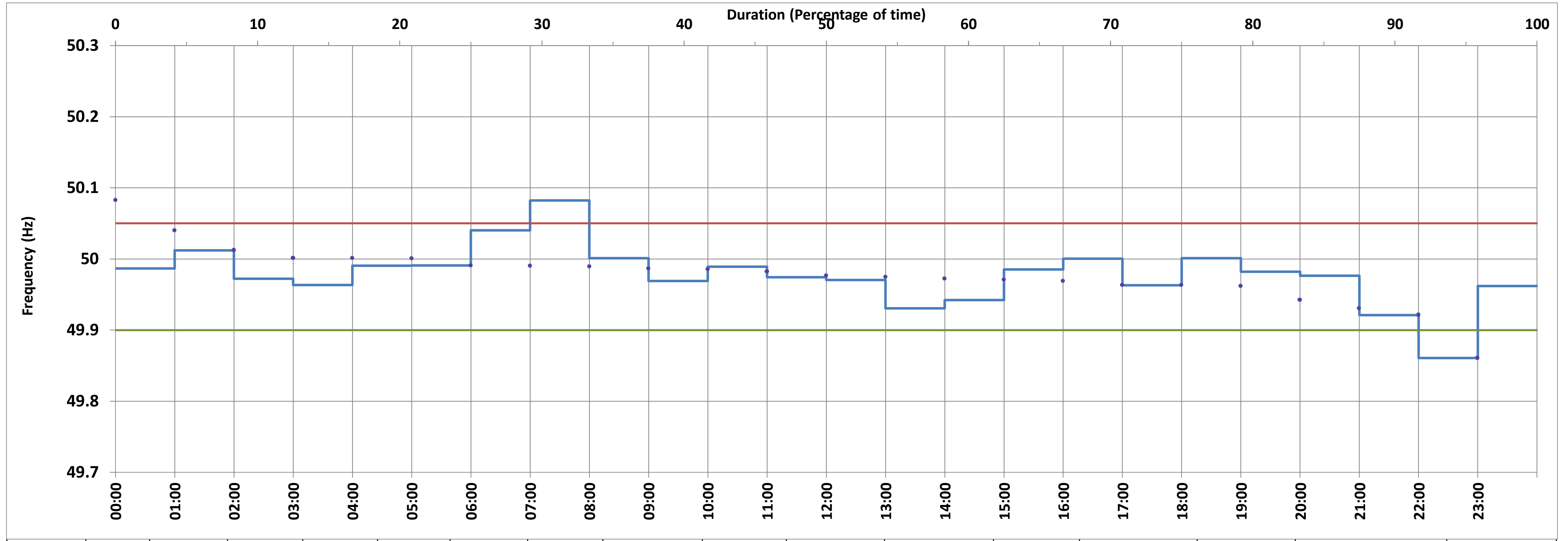
| | |
|-------------------------------|-------|
| % time <49.95 | 17.71 |
| % time between 49.95 to 50.05 | 77.08 |

NOTE: All calculations except Instantaneous Max/Min based on 15 minute average frequency



MPPTCL BINA:Frequency

Hourly Average Frequency Profile for 9-Apr-2018



| | | | | | | | | | | | | | | | | |
|-------|--------|--------|-----------|-----------|-----------|-----------|-----------|-------------|-----------|-------------|------------|-------|--------|--------|-------|--|
| <49.7 | <49.90 | <49.97 | 49.7-49.8 | 49.8-49.9 | 49.9-50.0 | 50.0-50.1 | 50.1-50.2 | 49.90-50.05 | 49.7-50.2 | 49.97-50.03 | 50.05-50.1 | >50 | >50.03 | >50.05 | >50.2 | |
| 0.00 | 4.17 | 33.33 | 0.00 | 4.17 | 70.83 | 25.00 | 0.00 | 91.67 | 100.00 | 58.33 | 4.17 | 25.00 | 8.33 | 4.17 | 0.00 | |

| | |
|---------------------|--------|
| Average Frequency : | 49.978 |
|---------------------|--------|

| | |
|---------|--------|
| Mileage | 0.7726 |
|---------|--------|

| Instantaneous Frequency | | |
|-------------------------|--------|----------|
| Max | 50.129 | 7:05:30 |
| Min | 49.743 | 22:35:50 |

| Based on an hour Average Frequency | | | |
|------------------------------------|--------|----------|--|
| Max | 50.082 | 8:00:00 | |
| Min | 49.861 | 23:00:00 | |

| | |
|----------------------------------|---|
| No. of excursions above 50.03 Hz | 1 |
| No. of excursions below 49.97 Hz | 5 |
| No. of excursions above 50.00 Hz | 4 |
| No. of excursions below 50.00 Hz | 5 |

| | |
|-------------------------------|-------|
| % time <49.95 | 16.67 |
| % time between 49.95 to 50.05 | 79.17 |

NOTE: All calculations except Instantaneous Max/Min based on an hour average frequency