

Spirometer mod. MIR Spirolab S/N A23-0J.00003 with disposable turbine
Reference system: Pulmonary Waveform Generator mod. PWG S/N: 901

FVC Results- ATS 24 Standard Waveforms

Testing date: 27/08/2014

| Waveform number | Target Value | Measured FVC Trial 1 | Measured FVC Trial 2 | Measured FVC Trial 3 | Measured FVC Trial 4 | Measured FVC Trial 5 | Mean FVC | FVC Range | FVC Range % | Deviation From Target | Deviation % from Target |
|-----------------|--------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------|-----------|-------------|-----------------------|-------------------------|
| 1 | 6,153 | 6,13 | 6,20 | 6,16 | 6,12 | 6,16 | 6,154 | 0,08 | 1,300 | 0,001 | 0,018 |
| 2 | 5,131 | 5,15 | 5,15 | 5,12 | 5,13 | 5,06 | 5,122 | 0,09 | 1,757 | -0,009 | -0,176 |
| 3 | 3,579 | 3,51 | 3,49 | 3,49 | 3,52 | 3,49 | 3,500 | 0,03 | 0,857 | -0,079 | -2,199 |
| 4 | 1,538 | 1,55 | 1,55 | 1,57 | 1,56 | 1,52 | 1,550 | 0,05 | 3,226 | 0,012 | 0,782 |
| 5 | 5,253 | 5,25 | 5,22 | 5,29 | 5,24 | 5,27 | 5,254 | 0,07 | 1,332 | 0,001 | 0,017 |
| 6 | 4,111 | 4,10 | 4,08 | 4,09 | 4,11 | 4,09 | 4,094 | 0,03 | 0,733 | -0,017 | -0,418 |
| 7 | 3,230 | 3,23 | 3,25 | 3,21 | 3,23 | 3,27 | 3,238 | 0,06 | 1,853 | 0,008 | 0,252 |
| 8 | 2,043 | 2,03 | 2,00 | 2,05 | 2,02 | 2,05 | 2,030 | 0,05 | 2,463 | -0,013 | -0,625 |
| 9 | 4,965 | 5,00 | 4,94 | 5,03 | 5,01 | 4,93 | 4,982 | 0,10 | 2,007 | 0,017 | 0,346 |
| 10 | 3,928 | 3,95 | 3,96 | 3,95 | 3,91 | 3,91 | 3,936 | 0,05 | 1,270 | 0,008 | 0,216 |
| 11 | 2,770 | 2,80 | 2,82 | 2,85 | 2,81 | 2,77 | 2,810 | 0,08 | 2,847 | 0,040 | 1,437 |
| 12 | 2,043 | 2,02 | 2,03 | 2,04 | 2,03 | 2,04 | 2,032 | 0,02 | 0,984 | -0,011 | -0,527 |
| 13 | 5,014 | 5,03 | 5,04 | 5,03 | 5,03 | 5,00 | 5,026 | 0,04 | 0,796 | 0,012 | 0,238 |
| 14 | 3,774 | 3,75 | 3,76 | 3,77 | 3,78 | 3,76 | 3,764 | 0,03 | 0,797 | -0,010 | -0,255 |
| 15 | 6,087 | 6,05 | 6,07 | 6,13 | 6,00 | 6,00 | 6,050 | 0,13 | 2,149 | -0,037 | -0,612 |
| 16 | 5,598 | 5,58 | 5,63 | 5,64 | 5,58 | 5,57 | 5,600 | 0,07 | 1,250 | 0,002 | 0,038 |
| 17 | 5,980 | 5,99 | 6,01 | 6,07 | 5,98 | 5,98 | 6,006 | 0,09 | 1,499 | 0,026 | 0,443 |
| 18 | 4,405 | 4,41 | 4,43 | 4,45 | 4,43 | 4,40 | 4,424 | 0,05 | 1,130 | 0,019 | 0,440 |
| 19 | 4,035 | 3,99 | 4,06 | 4,06 | 4,00 | 3,99 | 4,020 | 0,07 | 1,741 | -0,015 | -0,378 |
| 20 | 2,948 | 2,96 | 2,92 | 2,97 | 2,92 | 2,92 | 2,938 | 0,05 | 1,702 | -0,010 | -0,329 |
| 21 | 4,562 | 4,62 | 4,63 | 4,64 | 4,63 | 4,60 | 4,624 | 0,04 | 0,865 | 0,062 | 1,368 |
| 22 | 3,940 | 3,96 | 3,96 | 3,95 | 3,96 | 3,95 | 3,956 | 0,01 | 0,253 | 0,016 | 0,410 |
| 23 | 3,498 | 3,51 | 3,47 | 3,55 | 3,50 | 3,49 | 3,504 | 0,08 | 2,283 | 0,006 | 0,182 |
| 24 | 1,262 | 1,22 | 1,24 | 1,22 | 1,23 | 1,23 | 1,228 | 0,02 | 1,629 | -0,034 | -2,693 |

Acceptable Performance Criteria

Accuracy: Deviation from Target +/- 3.5% or +/- 0.100 liters, whichever is greater

Testing was performed using guidelines from the American Thoracic Society's "Standardization of Spirometry" 1994 update.

Averages: 0,06 1,530 0,000 -0,084

Spirometer mod. MIR Spirolab S/N A23-0J.00003 with disposable turbine
Reference system: Pulmonary Waveform Generator mod. PWG S/N: 901

FEV1 Results- ATS 24 Standard Waveforms

Testing date: 27/08/2014

| Waveform number | Target Value | Measured FEV1 Trial 1 | Measured FEV1 Trial 2 | Measured FEV1 Trial 3 | Measured FEV1 Trial 4 | Measured FEV1 Trial 5 | Mean FEV1 | FEV1 Range | FEV1 Range % | Deviation From Target | Deviation % from Target |
|-----------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------|------------|--------------|-----------------------|-------------------------|
| 1 | 4,508 | 4,50 | 4,45 | 4,57 | 4,49 | 4,56 | 4,514 | 0,12 | 2,658 | 0,006 | 0,128 |
| 2 | 4,709 | 4,70 | 4,74 | 4,73 | 4,71 | 4,69 | 4,714 | 0,05 | 1,061 | 0,005 | 0,099 |
| 3 | 1,302 | 1,31 | 1,32 | 1,24 | 1,33 | 1,30 | 1,300 | 0,09 | 6,923 | -0,002 | -0,153 |
| 4 | 1,423 | 1,42 | 1,39 | 1,40 | 1,41 | 1,40 | 1,404 | 0,03 | 2,137 | -0,019 | -1,340 |
| 5 | 3,955 | 3,96 | 3,95 | 3,98 | 3,98 | 3,97 | 3,968 | 0,03 | 0,756 | 0,013 | 0,323 |
| 6 | 3,104 | 3,08 | 3,06 | 3,07 | 3,09 | 3,09 | 3,078 | 0,03 | 0,975 | -0,026 | -0,826 |
| 7 | 2,564 | 2,55 | 2,60 | 2,53 | 2,57 | 2,57 | 2,564 | 0,07 | 2,730 | 0,000 | 0,001 |
| 8 | 1,654 | 1,62 | 1,61 | 1,62 | 1,62 | 1,60 | 1,614 | 0,02 | 1,239 | -0,040 | -2,413 |
| 9 | 3,854 | 3,85 | 3,88 | 3,86 | 3,84 | 3,83 | 3,852 | 0,05 | 1,298 | -0,002 | -0,043 |
| 10 | 3,095 | 3,08 | 3,10 | 3,07 | 3,09 | 3,07 | 3,082 | 0,03 | 0,973 | -0,013 | -0,434 |
| 11 | 1,828 | 1,85 | 1,83 | 1,86 | 1,86 | 1,87 | 1,854 | 0,04 | 2,157 | 0,026 | 1,404 |
| 12 | 1,653 | 1,60 | 1,57 | 1,61 | 1,61 | 1,60 | 1,598 | 0,04 | 2,503 | -0,055 | -3,321 |
| 13 | 3,922 | 3,85 | 3,89 | 3,94 | 3,90 | 3,86 | 3,888 | 0,09 | 2,315 | -0,034 | -0,877 |
| 14 | 3,126 | 3,09 | 3,12 | 3,11 | 3,08 | 3,06 | 3,092 | 0,06 | 1,940 | -0,034 | -1,095 |
| 15 | 5,437 | 5,40 | 5,36 | 5,50 | 5,45 | 5,41 | 5,424 | 0,14 | 2,581 | -0,013 | -0,235 |
| 16 | 3,990 | 4,00 | 4,02 | 3,94 | 4,02 | 4,01 | 3,998 | 0,08 | 2,001 | 0,008 | 0,198 |
| 17 | 2,657 | 2,68 | 2,68 | 2,67 | 2,67 | 2,70 | 2,680 | 0,03 | 1,119 | 0,023 | 0,853 |
| 18 | 3,194 | 3,20 | 3,21 | 3,18 | 3,22 | 3,18 | 3,198 | 0,04 | 1,251 | 0,004 | 0,127 |
| 19 | 2,569 | 2,57 | 2,58 | 2,61 | 2,56 | 2,55 | 2,574 | 0,06 | 2,331 | 0,005 | 0,191 |
| 20 | 2,620 | 2,65 | 2,64 | 2,66 | 2,63 | 2,63 | 2,642 | 0,03 | 1,136 | 0,022 | 0,824 |
| 21 | 3,608 | 3,61 | 3,60 | 3,63 | 3,62 | 3,62 | 3,616 | 0,03 | 0,830 | 0,008 | 0,209 |
| 22 | 2,872 | 2,86 | 2,84 | 2,91 | 2,88 | 2,84 | 2,866 | 0,07 | 2,442 | -0,006 | -0,201 |
| 23 | 1,386 | 1,42 | 1,44 | 1,45 | 1,41 | 1,40 | 1,424 | 0,05 | 3,511 | 0,038 | 2,732 |
| 24 | 0,939 | 0,90 | 0,89 | 0,88 | 0,89 | 0,89 | 0,890 | 0,02 | 2,247 | -0,049 | -5,197 |

Acceptable Performance Criteria
 Accuracy: Deviation from Target +/- 3.5% or +/- 0.100 liters, whichever is greater
Testing was performed using guidelines from the American Thoracic Society's "Standardization of Spirometry" 1994 update.

Averages: 0,05 2,046 -0,006 -0,377

Spirometer mod. MIR Spirolab S/N A23-0J.00003 with disposable turbine
Reference system: Pulmonary Waveform Generator mod. PWG S/N: 901

FEF2575 Results- ATS 24 Standard Waveforms

Testing date: 27/08/2014

| Waveform number | Target Value | Measured FEF2575 Trial 1 | Measured FEF2575 Trial 2 | Measured FEF2575 Trial 3 | Measured FEF2575 Trial 4 | Measured FEF2575 Trial 5 | Mean FEF2575 | FEF2575 Range | FEF2575 Range % | Deviation From Target | Deviation % from Target |
|-----------------|--------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------|---------------|-----------------|-----------------------|-------------------------|
| 1 | 3,765 | 3,76 | 3,76 | 3,75 | 3,75 | 3,77 | 3,758 | 0,02 | 0,532 | -0,007 | -0,197 |
| 2 | 6,114 | 6,13 | 6,12 | 6,12 | 6,10 | 6,11 | 6,116 | 0,03 | 0,491 | 0,002 | 0,034 |
| 3 | 0,704 | 0,70 | 0,71 | 0,70 | 0,71 | 0,72 | 0,708 | 0,02 | 2,825 | 0,004 | 0,592 |
| 4 | 1,902 | 1,92 | 1,91 | 1,91 | 1,90 | 1,93 | 1,914 | 0,03 | 1,567 | 0,012 | 0,620 |
| 5 | 3,292 | 3,28 | 3,28 | 3,29 | 3,30 | 3,28 | 3,286 | 0,02 | 0,609 | -0,006 | -0,195 |
| 6 | 2,637 | 2,65 | 2,63 | 2,61 | 2,63 | 2,66 | 2,636 | 0,05 | 1,897 | -0,001 | -0,031 |
| 7 | 2,404 | 2,42 | 2,41 | 2,40 | 2,41 | 2,40 | 2,408 | 0,02 | 0,831 | 0,004 | 0,170 |
| 8 | 1,904 | 1,91 | 1,91 | 1,90 | 1,91 | 1,92 | 1,910 | 0,02 | 1,047 | 0,006 | 0,302 |
| 9 | 3,432 | 3,44 | 3,43 | 3,42 | 3,41 | 3,45 | 3,430 | 0,04 | 1,166 | -0,002 | -0,057 |
| 10 | 2,959 | 2,94 | 2,96 | 2,95 | 2,95 | 2,96 | 2,952 | 0,02 | 0,678 | -0,007 | -0,236 |
| 11 | 1,281 | 1,25 | 1,29 | 1,29 | 1,26 | 1,27 | 1,271 | 0,04 | 3,147 | -0,010 | -0,817 |
| 12 | 1,825 | 1,82 | 1,82 | 1,80 | 1,81 | 1,83 | 1,816 | 0,03 | 1,652 | -0,009 | -0,507 |
| 13 | 3,756 | 3,77 | 3,76 | 3,76 | 3,74 | 3,75 | 3,756 | 0,03 | 0,799 | 0,000 | -0,005 |
| 14 | 3,344 | 3,34 | 3,35 | 3,34 | 3,35 | 3,33 | 3,342 | 0,02 | 0,598 | -0,002 | -0,052 |
| 15 | 6,236 | 6,20 | 6,23 | 6,24 | 6,23 | 6,25 | 6,230 | 0,05 | 0,803 | -0,006 | -0,097 |
| 16 | 2,975 | 2,97 | 2,96 | 2,95 | 2,97 | 2,95 | 2,960 | 0,02 | 0,676 | -0,015 | -0,518 |
| 17 | 1,185 | 1,19 | 1,18 | 1,18 | 1,17 | 1,19 | 1,182 | 0,02 | 1,776 | -0,003 | -0,239 |
| 18 | 2,368 | 2,35 | 2,35 | 2,36 | 2,34 | 2,36 | 2,352 | 0,02 | 0,850 | -0,016 | -0,676 |
| 19 | 1,163 | 1,12 | 1,10 | 1,16 | 1,13 | 1,12 | 1,126 | 0,06 | 5,329 | -0,037 | -3,222 |
| 20 | 2,758 | 2,74 | 2,71 | 2,75 | 2,79 | 2,76 | 2,750 | 0,08 | 2,909 | -0,008 | -0,286 |
| 21 | 3,402 | 3,46 | 3,41 | 3,42 | 3,45 | 3,42 | 3,432 | 0,05 | 1,457 | 0,030 | 0,875 |
| 22 | 2,253 | 2,21 | 2,20 | 2,25 | 2,21 | 2,26 | 2,226 | 0,06 | 2,695 | -0,027 | -1,203 |
| 23 | 0,543 | 0,54 | 0,55 | 0,53 | 0,56 | 0,55 | 0,546 | 0,03 | 5,495 | 0,003 | 0,598 |
| 24 | 0,724 | 0,71 | 0,71 | 0,72 | 0,72 | 0,73 | 0,718 | 0,02 | 2,786 | -0,006 | -0,877 |

Acceptable Performance Criteria

Accuracy: Deviation from Target +/- 5.5% or +/- 0.250 liters, whichever is greater

Testing was performed using guidelines from the American Thoracic Society's "Standardization of Spirometry" 1994 update.

Averages: 0,03 1,776 -0,004 -0,251

Spirometer mod. MIR Spirolab S/N A23-0J.00003 with disposable turbine
Reference system: Pulmonary Waveform Generator mod. PWG S/N: 901

PEF Results- ATS 26 Standard Waveforms

Testing date: 27/08/2014

| Waveform number | Target Value (Instant) | Measured PEF Trial 1 | Measured PEF Trial 2 | Measured PEF Trial 3 | Measured PEF Trial 4 | Measured PEF Trial 5 | Mean PEF | PEF Range | PEF Range % | Deviation From Target | Deviation % from Target |
|-----------------|------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------|-----------|-------------|-----------------------|-------------------------|
| 1 | 7,414 | 7,40 | 7,49 | 7,51 | 7,51 | 7,47 | 7,476 | 0,11 | 1,471 | 0,062 | 0,836 |
| 2 | 10,614 | 10,70 | 10,72 | 10,68 | 10,67 | 10,65 | 10,684 | 0,07 | 0,655 | 0,070 | 0,660 |
| 3 | 4,699 | 4,75 | 4,81 | 4,75 | 4,67 | 4,73 | 4,742 | 0,14 | 2,952 | 0,043 | 0,915 |
| 4 | 4,375 | 4,35 | 4,29 | 4,39 | 4,41 | 4,35 | 4,358 | 0,12 | 2,754 | -0,017 | -0,389 |
| 5 | 3,631 | 3,69 | 3,67 | 3,68 | 3,66 | 3,71 | 3,682 | 0,05 | 1,358 | 0,051 | 1,405 |
| 6 | 2,992 | 2,97 | 3,02 | 3,05 | 3,08 | 3,02 | 3,028 | 0,11 | 3,633 | 0,036 | 1,203 |
| 7 | 2,438 | 2,44 | 2,41 | 2,51 | 2,50 | 2,45 | 2,462 | 0,10 | 4,062 | 0,024 | 0,984 |
| 8 | 2,252 | 2,28 | 2,27 | 2,33 | 2,28 | 2,27 | 2,286 | 0,06 | 2,625 | 0,034 | 1,510 |
| 9 | 5,174 | 5,13 | 5,20 | 5,13 | 5,17 | 5,09 | 5,144 | 0,11 | 2,138 | -0,030 | -0,580 |
| 10 | 4,719 | 4,61 | 4,77 | 4,68 | 4,71 | 4,60 | 4,674 | 0,17 | 3,637 | -0,045 | -0,954 |
| 11 | 6,791 | 6,65 | 6,68 | 6,75 | 6,80 | 6,61 | 6,698 | 0,19 | 2,837 | -0,093 | -1,369 |
| 12 | 10,681 | 10,73 | 10,85 | 10,81 | 10,69 | 10,78 | 10,772 | 0,16 | 1,485 | 0,091 | 0,852 |
| 13 | 4,795 | 4,79 | 4,82 | 4,87 | 4,80 | 4,83 | 4,822 | 0,08 | 1,659 | 0,027 | 0,563 |
| 14 | 3,815 | 3,91 | 3,84 | 3,92 | 3,86 | 3,85 | 3,876 | 0,08 | 2,064 | 0,061 | 1,599 |
| 15 | 7,946 | 7,91 | 7,87 | 7,93 | 7,94 | 7,91 | 7,912 | 0,07 | 0,885 | -0,034 | -0,428 |
| 16 | 5,228 | 5,30 | 5,38 | 5,29 | 5,23 | 5,28 | 5,296 | 0,15 | 2,832 | 0,068 | 1,301 |
| 17 | 5,813 | 5,88 | 5,95 | 5,92 | 5,84 | 5,87 | 5,892 | 0,11 | 1,867 | 0,079 | 1,359 |
| 18 | 8,572 | 8,55 | 8,60 | 8,51 | 8,51 | 8,52 | 8,538 | 0,09 | 1,054 | -0,034 | -0,397 |
| 19 | 6,885 | 6,93 | 6,93 | 6,86 | 6,79 | 6,80 | 6,862 | 0,14 | 2,040 | -0,023 | -0,334 |
| 20 | 7,411 | 7,48 | 7,32 | 7,35 | 7,47 | 7,35 | 7,394 | 0,16 | 2,164 | -0,017 | -0,229 |
| 21 | 3,923 | 3,90 | 3,98 | 3,90 | 3,95 | 3,89 | 3,924 | 0,09 | 2,294 | 0,001 | 0,025 |
| 22 | 3,378 | 3,42 | 3,43 | 3,31 | 3,36 | 3,36 | 3,376 | 0,12 | 3,555 | -0,002 | -0,059 |
| 23 | 8,105 | 8,26 | 8,21 | 8,04 | 8,21 | 8,15 | 8,174 | 0,22 | 2,691 | 0,069 | 0,851 |
| 24 | 4,131 | 4,17 | 4,13 | 4,20 | 4,15 | 4,19 | 4,168 | 0,07 | 1,679 | 0,037 | 0,896 |
| 25 | 14,117 | 14,10 | 14,08 | 14,02 | 14,12 | 14,07 | 14,078 | 0,10 | 0,710 | -0,039 | -0,276 |
| 26 | 11,317 | 11,48 | 11,26 | 11,27 | 11,32 | 11,21 | 11,308 | 0,27 | 2,388 | -0,009 | -0,080 |

Acceptable Performance Criteria

Accuracy: Deviation from Target +/- 12% or +/- 0.417 liters/sec (25 liters/min), whichever is greater
Testing was performed using guidelines from the American Thoracic Society's "Standardization of Spirometry" 1994 update.

Averages: 0,12 2,211 0,016 0,379