

Annex C

Detailed Calculations of Operational Noise Levels

Expansion of Heliport Facilities at Macau Ferry Terminal - Operational Phase Noise Monitoring (Day-time)

Date: 11 February 2010
Time: 15:22 - 16:34
Location: Wayson Commercial Building (roof level)
Weather Condition: Sunny periods

| Flight Ref. No. | Flight Model | Flight Direction * | Approx. Time | Flight Event | Duration of Flight Event, s | Measured Façade Noise Level at Wayson Comm. Bldg., dB(A) | | | | Corrected Façade Noise Level After Correction for Shielding Effect at Talon Tower, dB(A) # | | | | Bkg. Level, dB(A) | Distance Attenuation, dB(A) ## | Calculated Noise Level at Talon Tower, dB(A) |
|-----------------------------|--------------|--------------------|--------------|--------------|-----------------------------|--|------|------|-------|--|------|------|-------|-------------------|--------------------------------|--|
| | | | | | | LAeq | LA10 | LA90 | LAMax | LAeq | LA10 | LA90 | LAMax | | | LAMax @ |
| | | | | | | | | | | | | | (1A) | | | |
| 1 | AW139 | E | 15:22 | Approach | 74 | 73 | 73.3 | 72.4 | 75.7 | 74.3 | 74.7 | 73.8 | 80.7 | 72.2 | -0.6 | 79 |
| | | | | Hovering | 23 | 73.7 | 74.1 | 73.1 | 79.2 | 73.7 | 74.1 | 73.1 | 79.2 | 72.2 | -0.6 | 78 |
| | | | | Idling | 475 | 73.1 | 73.4 | 72.5 | 81.3 | 73.1 | 73.4 | 72.5 | 81.3 | 72.2 | -0.6 | 80 |
| | | E | 15:32 | Take-off | 72 | 73.6 | 74.2 | 72.8 | 79.7 | 74.9 | 75.5 | 74.1 | 82.3 | 72.2 | -0.6 | 81 |
| 2 | AW139 | E | 15:58 | Approach | 72 | 72.8 | 73.3 | 72.2 | 77.9 | 74.0 | 74.5 | 73.3 | 82.9 | 72.2 | -0.6 | 82 |
| | | | | Hovering | 22 | 73 | 73.6 | 72.3 | 77.7 | 73.0 | 73.6 | 72.3 | 77.7 | 72.2 | -0.6 | 76 |
| | | | | Idling | 424 | 73.1 | 73.8 | 72.3 | 81.6 | 73.1 | 73.8 | 72.3 | 81.6 | 72.2 | -0.6 | 80 |
| | | W | 16:07 | Take-off | 59 | 74.1 | 74.7 | 73.3 | 80.4 | 74.1 | 74.7 | 73.3 | 80.4 | 72.2 | -0.6 | 79 |
| 3 | AW139 | E | 16:19 | Approach | 71 | 72 | 72.2 | 71.4 | 74.1 | 73.2 | 73.4 | 72.6 | 78.4 | 72.2 | -0.6 | 77 |
| | | | | Hovering | 23 | 73.4 | 73.7 | 72.8 | 77.1 | 73.4 | 73.7 | 72.8 | 77.1 | 72.2 | -0.6 | 75 |
| | | | | Idling | 776 | 72.7 | 73.1 | 72.1 | 81.3 | 72.7 | 73.1 | 72.1 | 81.3 | 72.2 | -0.6 | 80 |
| | | W | 16:33 | Take-off | 51 | 75.2 | 75.9 | 74.3 | 82.5 | 75.2 | 75.9 | 74.3 | 82.5 | 72.2 | -0.6 | 81 |
| Highest Lmax, dB(A): | | | | | | | | | | | | | | | 82 | |

Remark:

* E - Flight approaches from or departs to the East; W - Flight approaches from or departs to the West.

Corrected noise level after correction for shielding effect (+5dB(A) to the concerned noise data) in accordance with Table 10, Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

Distance correction factor in accordance with Table 9, Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

@ Calculated noise level (without background) with noise correction for shielding effect and distance attenuation in accordance with Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

Expansion of Heliport Facilities at Macau Ferry Terminal - Operational Phase Noise Monitoring (Evening-time)

Date: 11 February 2010
Time: 19:00 - 23:00
Location: Wayson Commercial Building (roof level)
Weather Condition: Fine

| Flight Ref. No. | Flight Model | Flight Direction * | Approx. Time | Flight Event | Duration of Flight Event, s | Measured Façade Noise Level at Wayson Comm. Bldg., dB(A) | | | Corrected Façade Noise Level After Correction for Shielding Effect at Talon Tower, dB(A) # | | | Bkg. Level, dB(A) | Distance Attenuation, dB(A) ## | Calculated Noise Level at Talon Tower |
|-----------------|--------------|--------------------|--------------|--------------|-----------------------------|--|------|------|--|------|------|---------------------------|--------------------------------|---------------------------------------|
| | | | | | | LAeq | LA10 | LA90 | LAeq | LA10 | LA90 | | | LAeq @ |
| | | | | | | | | | (1B) | | | | | =(1B)-(2)+(3) |
| 1 | AW139 | - | | Approach | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** |
| | | | | Hovering | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** |
| | | | | Idling | 281 | 72.7 | 73.1 | 72.1 | 72.7 | 73.1 | 72.1 | 72.0 | -0.6 | 64 |
| | | | | E Take-off | 19:04 | 70 | 72.4 | 72.6 | 71.8 | 73.4 | 73.6 | 72.9 | 72.0 | -0.6 |
| 2 | AW139 | W | 19:22 | Approach | 68 | 74.6 | 75.2 | 73.7 | 74.6 | 75.2 | 73.7 | 71.3 | -0.6 | 71 |
| | | | | Hovering | 19 | 74.8 | 75.4 | 73.9 | 74.8 | 75.4 | 73.9 | 71.3 | -0.6 | 72 |
| | | | | Idling | 511 | 72.2 | 72.5 | 71.7 | 72.2 | 72.5 | 71.7 | 71.3 | -0.6 | 64 |
| | | | | E Take-off | 19:32 | 71 | 72.7 | 73.1 | 72.2 | 74.0 | 74.3 | 73.4 | 71.3 | -0.6 |
| 3 | AW139 | W | 19:55 | Approach | 64 | 74.4 | 75.3 | 73.5 | 74.4 | 75.3 | 73.5 | 71.5 | -0.6 | 71 |
| | | | | Hovering | 22 | 76.1 | 76.7 | 75.3 | 76.1 | 76.7 | 75.3 | 71.5 | -0.6 | 74 |
| | | | | Idling | 340 | 72.2 | 72.5 | 71.6 | 72.2 | 72.5 | 71.6 | 71.5 | -0.6 | 63 |
| | | | | E Take-off | 20:02 | 69 | 72.5 | 72.8 | 72 | 73.9 | 74.2 | 73.4 | 71.5 | -0.6 |
| 4 | AW139 | W | 20:19 | Approach | 69 | 73.8 | 74.2 | 73.1 | 73.8 | 74.2 | 73.1 | 70.5 | -0.6 | 70 |
| | | | | Hovering | 19 | 73.2 | 73.6 | 72.5 | 73.2 | 73.6 | 72.5 | 70.5 | -0.6 | 69 |
| | | | | Idling | 583 | 72.1 | 72.6 | 71.5 | 72.1 | 72.6 | 71.5 | 70.5 | -0.6 | 66 |
| | | | | E Take-off | 20:30 | 66 | 71.1 | 71.4 | 70.6 | 72.5 | 72.8 | 72.0 | 70.5 | -0.6 |
| 5 | AW139 | W | 20:46 | Approach | 74 | 74.7 | 75.6 | 73.5 | 74.7 | 75.6 | 73.5 | 70.3 | -0.6 | 72 |
| | | | | Hovering | 18 | 78.1 | 78.9 | 77 | 78.1 | 78.9 | 77.0 | 70.3 | -0.6 | 77 |
| | | | | Idling | 1021 | 71.5 | 71.9 | 70.9 | 71.5 | 71.9 | 70.9 | 70.3 | -0.6 | 65 |
| | | | | E Take-off | 21:04 | 69 | 71.1 | 71.4 | 70.6 | 72.5 | 72.8 | 72.0 | 70.3 | -0.6 |
| 6 | AW139 | E | 21:24 | Approach | 70 | 70.3 | 70.6 | 69.6 | 71.9 | 72.2 | 71.3 | 70.2 | -0.6 | 66 |
| | | | | Hovering | 18 | 74.4 | 75.2 | 73.6 | 74.4 | 75.2 | 73.6 | 70.2 | -0.6 | 72 |
| | | | | Idling | 437 | 71.8 | 72.2 | 71.1 | 71.8 | 72.2 | 71.1 | 70.2 | -0.6 | 66 |
| | | | | E Take-off | 21:33 | 72 | 72.4 | 72.6 | 71.9 | 73.4 | 73.7 | 72.9 | 70.2 | -0.6 |
| 7 | AW139 | E | 21:49 | Approach | 71 | 70.8 | 71.2 | 70.1 | 72.1 | 72.5 | 71.5 | 70.2 | -0.6 | 67 |
| | | | | Hovering | 20 | 71.2 | 71.4 | 70.6 | 71.2 | 71.4 | 70.6 | 70.2 | -0.6 | 64 |
| | | | | Idling | 470 | 71.2 | 71.5 | 70.6 | 71.2 | 71.5 | 70.6 | 70.2 | -0.6 | 64 |
| | | | | W Take-off | 21:59 | 71 | 71.1 | 71.6 | 70.4 | 71.1 | 71.6 | 70.4 | 70.2 | -0.6 |
| 8 | AW139 | E | 22:18 | Approach | 70 | 71 | 71.3 | 70.5 | 72.4 | 72.6 | 71.8 | 70.8 | -0.6 | 67 |
| | | | | Hovering | 20 | 70.8 | 71.2 | 70.3 | 70.8 | 71.2 | 70.3 | 70.8 | -0.6 | 60 |
| | | | | Idling | 544 | 71 | 71.4 | 70.4 | 71.0 | 71.4 | 70.4 | 70.8 | -0.6 | 57 |
| | | | | E Take-off | 22:29 | 67 | 72.8 | 73.3 | 72 | 74.1 | 74.6 | 73.3 | 70.8 | -0.6 |
| 9 | AW139 | W | 22:44 | Approach | 68 | 76.1 | 77.2 | 74.7 | 76.1 | 77.2 | 74.7 | 70.5 | -0.6 | 74 |
| | | | | Hovering | 19 | 70.9 | 71.4 | 70.1 | 70.9 | 71.4 | 70.1 | 70.5 | -0.6 | 60 |
| | | | | Idling | 657 | 71.7 | 72.1 | 71.1 | 71.7 | 72.1 | 71.1 | 70.5 | -0.6 | 65 |
| | | | | W Take-off | 22:56 | 69 | 71.6 | 72.1 | 70.9 | 71.6 | 72.1 | 70.9 | 70.5 | -0.6 |
| | | | | | | | | | | | | Leq(4-hrs), dB(A): | 63 | |

Remark:

* E - Flight approaches from or departs to the East; W - Flight approaches from or departs to the West.

Corrected noise level after correction for shielding effect (+5dB(A) to the concerned noise data) in accordance with Table 10, Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

Distance correction factor in accordance with Table 9, Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

@ Calculated noise level (without background) with noise correction for shielding effect and distance attenuation in accordance with Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

** Evening-time Noise measurement was commenced at 19:00. Thus, noise data before this time is not available.

Expansion of Heliport Facilities at Macau Ferry Terminal - Operational Phase Noise Monitoring (Day-time)

Date: 11 February 2010
Time: 17:13 - 18:34
Location: Wing On Centre (roof level)
Weather Condition: Sunny periods

| Flight Ref. No. | Flight Model | Flight Direction * | Approx. Time | Flight Event | Duration of Flight Event, s | Measured Façade Noise Level at Wing On Centre, dB(A) | | | | Corrected Façade Noise Level After Correction for Shielding Effect at The Bauhinia, dB(A) # | | | | Bkg. Level, dB(A) | Distance Attenuation, dB(A) ## | Calculated Noise Level at The Bauhinia, dB(A) |
|-----------------|--------------|--------------------|--------------|--------------|-----------------------------|--|------|------|-------|---|------|------|---------------|-----------------------------|--------------------------------|---|
| | | | | | | LAeq | LA10 | LA90 | LAMax | LAeq | LA10 | LA90 | LAMax | | | |
| | | | | | | | | | | (1A) | (2) | (3) | =(1A)-(2)+(3) | | | |
| 1 | AW139 | E | 17:18 | Approach | 71 | 76.5 | 77.2 | 75.6 | 86.1 | 74.1 | 74.9 | 73.1 | 83.1 | 67.4 | 0.4 | 83 |
| | | | | Hovering | 22 | 71.7 | 73.5 | 70.3 | 84.9 | 71.7 | 73.5 | 70.3 | 84.9 | 67.4 | 0.4 | 85 |
| | | | | Idling | 745 | 68.2 | 68.4 | 67.7 | 78 | 68.2 | 68.4 | 67.7 | 78.0 | 67.4 | 0.4 | 78 |
| | | E | 17:32 | Take-off | 65 | 72.5 | 73.1 | 71.7 | 82.2 | 72.3 | 73.0 | 71.5 | 82.2 | 67.4 | 0.4 | 82 |
| 2 | AW139 | W | 17:45 | Approach | 67 | 67.9 | 68.4 | 67.2 | 73.5 | 67.9 | 68.4 | 67.2 | 73.5 | 66.9 | 0.4 | 73 |
| | | | | Hovering | 20 | 72.2 | 72.4 | 71.7 | 75.1 | 72.2 | 72.4 | 71.7 | 75.1 | 66.9 | 0.4 | 75 |
| | | | | Idling | 604 | 70.1 | 70.4 | 69.7 | 78.5 | 70.1 | 70.4 | 69.7 | 78.5 | 66.9 | 0.4 | 79 |
| | | E | 17:57 | Take-off | 68 | 70.5 | 70.8 | 69.9 | 77.2 | 70.0 | 70.4 | 69.4 | 77.2 | 66.9 | 0.4 | 77 |
| 3 | AW139 | W | 18:16 | Approach | 68 | 68.2 | 68.5 | 67.6 | 73.9 | 68.2 | 68.5 | 67.6 | 73.9 | 66.7 | 0.4 | 73 |
| | | | | Hovering | 20 | 71.6 | 71.9 | 71 | 74.8 | 71.6 | 71.9 | 71.0 | 74.8 | 66.7 | 0.4 | 74 |
| | | | | Idling | 935 | 68.7 | 68.9 | 68.3 | 74 | 68.7 | 68.9 | 68.3 | 74.0 | 66.7 | 0.4 | 74 |
| | | E | 18:33 | Take-off | 68 | 71.4 | 72.1 | 70.6 | 80.7 | 71.1 | 71.8 | 70.3 | 80.7 | 66.7 | 0.4 | 81 |
| | | | | | | | | | | | | | | Highest Lmax, dB(A): | 85 | |

Remark:

* E - Flight approaches from or departs to the East; W - Flight approaches from or departs to the West.

Corrected noise level after correction for shielding effect (-5dB(A) to the concerned noise data) in accordance with Table 10, Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

Distance correction factor in accordance with Table 9, Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

@ Calculated noise level (without background) with noise correction for shielding effect and distance attenuation in accordance with Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

Expansion of Heliport Facilities at Macau Ferry Terminal - Operational Phase Noise Monitoring (Evening-time)

Date: 11 February 2010
 Time: 19:00 - 23:00
 Location: Wing On Centre (roof level)
 Weather Condition: Fine

| Flight Ref. No. | Flight Model | Flight Direction * | Approx. Time | Flight Event | Duration of Flight Event, s | Measured Façade Noise Level at Wing On Centre, dB(A) | | | Corrected Façade Noise Level After Correction for Shielding Effect at The Bauhinia, dB(A) # | | | Bkg. Level, dB(A) | Distance Attenuation, dB(A) ## | Calculated Noise Level at The Bauhinia | |
|-----------------|--------------|--------------------|--------------|--------------|-----------------------------|--|------|------|---|------|------|--------------------|--------------------------------|--|--------------------|
| | | | | | | LAeq | LA10 | LA90 | LAeq | LA10 | LA90 | | | | L _{Aeq} @ |
| | | | | | | | | | (1B) | | | | | (2) | |
| 1 | AW139 | - | | Approach | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** |
| | | | | Hovering | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** | ** |
| | | | | Idling | 281 | 67.5 | 67.6 | 67 | 67.5 | 67.6 | 67.0 | 67.4 | 0.4 | 51 | |
| E | 19:04 | Take-off | 70 | 71.2 | 71.7 | 70.2 | 69.1 | 69.5 | 68.2 | 67.4 | 0.4 | 65 | | | |
| 2 | AW139 | W | 19:22 | Approach | 68 | 68.3 | 68.8 | 67.5 | 68.3 | 68.8 | 67.5 | 66.4 | 0.4 | 64 | |
| | | | | Hovering | 19 | 71.3 | 71.5 | 70.7 | 71.3 | 71.5 | 70.7 | 66.4 | 0.4 | 70 | |
| | | | | Idling | 511 | 67.4 | 67.6 | 66.9 | 67.4 | 67.6 | 66.9 | 66.4 | 0.4 | 61 | |
| E | 19:32 | Take-off | 71 | 71.1 | 71.8 | 69.7 | 70.4 | 71.0 | 69.1 | 66.4 | 0.4 | 69 | | | |
| 3 | AW139 | W | 19:55 | Approach | 64 | 66.7 | 66.9 | 66.2 | 66.7 | 66.9 | 66.2 | 66.1 | 0.4 | 58 | |
| | | | | Hovering | 22 | 70.3 | 70.6 | 69.7 | 70.3 | 70.6 | 69.7 | 66.1 | 0.4 | 69 | |
| | | | | Idling | 340 | 66.9 | 67 | 66.4 | 66.9 | 67.0 | 66.4 | 66.1 | 0.4 | 60 | |
| E | 20:02 | Take-off | 69 | 70.2 | 70.5 | 69.5 | 69.8 | 70.1 | 69.1 | 66.1 | 0.4 | 68 | | | |
| 4 | AW139 | W | 20:19 | Approach | 69 | 71.5 | 72 | 70.7 | 71.5 | 72.0 | 70.7 | 65.8 | 0.4 | 71 | |
| | | | | Hovering | 19 | 71.3 | 71.5 | 70.7 | 71.3 | 71.5 | 70.7 | 65.8 | 0.4 | 70 | |
| | | | | Idling | 583 | 67.9 | 68.1 | 67.3 | 67.9 | 68.1 | 67.3 | 65.8 | 0.4 | 64 | |
| E | 20:30 | Take-off | 66 | 69.2 | 69.7 | 68.3 | 68.2 | 68.6 | 67.4 | 65.8 | 0.4 | 65 | | | |
| 5 | AW139 | W | 20:46 | Approach | 74 | 66 | 66.2 | 65.5 | 66.0 | 66.2 | 65.5 | 64.9 | 0.4 | 60 | |
| | | | | Hovering | 18 | 71.8 | 72 | 71.1 | 71.8 | 72.0 | 71.1 | 64.9 | 0.4 | 71 | |
| | | | | Idling | 1021 | 66.8 | 67 | 66.3 | 66.8 | 67.0 | 66.3 | 64.9 | 0.4 | 63 | |
| E | 21:04 | Take-off | 69 | 69.8 | 70.1 | 69 | 68.1 | 68.4 | 67.4 | 64.9 | 0.4 | 66 | | | |
| 6 | AW139 | E | 21:24 | Approach | 70 | 77.8 | 78.3 | 76.7 | 75.2 | 75.8 | 74.0 | 64.8 | 0.4 | 75 | |
| | | | | Hovering | 18 | 78.9 | 79.2 | 78 | 78.9 | 79.2 | 78.0 | 64.8 | 0.4 | 79 | |
| | | | | Idling | 437 | 67.2 | 67.4 | 66.7 | 67.2 | 67.4 | 66.7 | 64.8 | 0.4 | 64 | |
| E | 21:33 | Take-off | 72 | 69.5 | 69.9 | 68.6 | 68.7 | 69.1 | 67.9 | 64.8 | 0.4 | 67 | | | |
| 7 | AW139 | E | 21:49 | Approach | 71 | 78.2 | 78.6 | 77.2 | 76.2 | 76.8 | 75.2 | 65.2 | 0.4 | 76 | |
| | | | | Hovering | 20 | 76.7 | 77.3 | 75.5 | 76.7 | 77.3 | 75.5 | 65.2 | 0.4 | 77 | |
| | | | | Idling | 470 | 67.1 | 67.2 | 66.5 | 67.1 | 67.2 | 66.5 | 65.2 | 0.4 | 63 | |
| W | 21:59 | Take-off | 71 | 68.3 | 68.6 | 67.4 | 68.3 | 68.6 | 67.4 | 65.2 | 0.4 | 66 | | | |
| 8 | AW139 | E | 22:18 | Approach | 70 | 77.4 | 78.1 | 76.3 | 75.7 | 76.5 | 74.6 | 65.5 | 0.4 | 76 | |
| | | | | Hovering | 20 | 72.6 | 74.1 | 70.2 | 72.6 | 74.1 | 70.2 | 65.5 | 0.4 | 72 | |
| | | | | Idling | 544 | 66.5 | 66.6 | 66 | 66.5 | 66.6 | 66.0 | 65.5 | 0.4 | 60 | |
| E | 22:29 | Take-off | 67 | 70.3 | 71.2 | 69 | 69.8 | 70.7 | 68.5 | 65.5 | 0.4 | 68 | | | |
| 9 | AW139 | W | 22:44 | Approach | 68 | 68.3 | 68.5 | 67.6 | 68.3 | 68.5 | 67.6 | 65.3 | 0.4 | 66 | |
| | | | | Hovering | 19 | 71.6 | 71.9 | 71 | 71.6 | 71.9 | 71.0 | 65.3 | 0.4 | 71 | |
| | | | | Idling | 657 | 67.3 | 67.5 | 66.8 | 67.3 | 67.5 | 66.8 | 65.3 | 0.4 | 63 | |
| W | 22:56 | Take-off | 69 | 68.2 | 68.5 | 67.6 | 68.2 | 68.5 | 67.6 | 65.3 | 0.4 | 65 | | | |
| | | | | | | | | | | | | Leq(4-hrs), dB(A): | 62 | | |

Remark:

* E - Flight approaches from or departs to the East; W - Flight approaches from or departs to the West.

Corrected noise level after correction for shielding effect (-5dB(A) to the concerned noise data) in accordance with Table 10, Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

Distance correction factor in accordance with Table 9, Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

@ Calculated noise level (without background) with noise correction for shielding effect and distance attenuation in accordance with Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

** Evening-time Noise measurement was commenced at 19:00. Thus, noise data before this time is not available.

Expansion of Heliport Facilities at Macau Ferry Terminal - Operational Phase Noise Monitoring (Day-time)

Date: 23 February 2010
Time: 16:03 - 17:33
Location: Seaview Commercial Building (roof level)
Weather Condition: Fine

| Flight Ref. No. | Flight Model | Flight Direction * | Approx. Time | Flight Event | Duration of Flight Event, s | Measured Façade Noise Level at Seaview Comm. Bldg., dB(A) | | | | | Bkg. Level, dB(A) | Distance Attenuation, dB(A) ## | Calculated Noise Level at Ka On Bldg., dB(A) |
|-----------------------------|--------------|--------------------|--------------|--------------|-----------------------------|---|------|------|-------|-------|-------------------|--------------------------------|--|
| | | | | | | LAeq | LA10 | LA90 | LAMin | LAMax | | | LAMax @ |
| | | | | | | | | | | (1A) | | | (2) |
| 1 | AW139 | W | 16:18 | Approach | 67 | 75.6 | 76.3 | 74.8 | 69.9 | 80.1 | 71.8 | 0.9 | 80 |
| | | | | Hovering | 18 | 75.2 | 75.8 | 74.4 | 70.7 | 80.6 | 71.8 | 0.9 | 81 |
| | | | | Idling | 903 | 71.8 | 72.1 | 71.3 | 68.5 | 78.0 | 71.8 | 0.9 | 78 |
| | | E | 16:35 | Take-off | 69 | 72.2 | 72.3 | 71.7 | 70.2 | 74.6 | 71.8 | 0.9 | 72 |
| 2 | AW139 | W | 16:51 | Approach | 67 | 73.7 | 74.2 | 73.0 | 71.1 | 79.9 | 72.0 | 0.9 | 80 |
| | | | | Hovering | 18 | 77.9 | 78.5 | 77.1 | 75.8 | 80.3 | 72.0 | 0.9 | 81 |
| | | | | Idling | 611 | 72.0 | 72.2 | 71.4 | 69.1 | 79.8 | 72.0 | 0.9 | 80 |
| | | E | 17:02 | Take-off | 67 | 73.0 | 73.3 | 72.3 | 70.4 | 76.6 | 72.0 | 0.9 | 76 |
| 3 | AW139 | W | 17:22 | Approach | 73 | 75.2 | 75.7 | 74.5 | 70.9 | 82.1 | 71.4 | 0.9 | 83 |
| | | | | Hovering | 21 | 73.1 | 73.7 | 72.1 | 70.5 | 79.9 | 71.4 | 0.9 | 80 |
| | | | | Idling | 550 | 71.5 | 71.7 | 71.0 | 68.6 | 75.6 | 71.4 | 0.9 | 74 |
| | | E | 17:32 | Take-off | 72 | 73.1 | 73.4 | 72.4 | 69.8 | 79.7 | 71.4 | 0.9 | 80 |
| Highest Lmax, dB(A): | | | | | | | | | | | 83 | | |

Remark:

* E - Flight approaches from or departs to the East; W - Flight approaches from or departs to the West.

Distance correction factor in accordance with Table 9, Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

@ Calculated noise level (without background) with noise correction for shielding effect and distance attenuation in accordance with Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

Expansion of Heliport Facilities at Macau Ferry Terminal - Operational Phase Noise Monitoring (Evening-time)

Date: 23 February 2010
Time: 19:00 - 23:00
Location: Seaview Commercial Building (roof level)
Weather Condition: Fine

| Flight Ref. No. | Flight Model | Flight Direction * | Approx. Time | Flight Event | Duration of Flight Event, s | Measured Façade Noise Level at Seaview Comm. Bldg., dB(A) | | | Bkg. Level, dB(A) | Distance Attenuation, dB(A) ## | Calculated Noise Level at Ka On Bldg. |
|---------------------------|--------------|--------------------|--------------|------------------|-----------------------------|---|------|------|-------------------|--------------------------------|---------------------------------------|
| | | | | | | LAeq | LA10 | LA90 | | | |
| | | | | | | (1B) | | | | | (2) |
| 1 | AW139 | - | | Approach | ** | ** | ** | ** | ** | ** | ** |
| | | | | Hovering | ** | ** | ** | ** | ** | ** | |
| | | | | Idling | 211 | 73.2 | 73.5 | 72.6 | 72.0 | 0.9 | 68 |
| | | | | E 19:03 Take-off | 73 | 74.0 | 74.3 | 73.5 | 72.0 | 0.9 | 71 |
| 2 | AW139 | W | 19:23 | Approach | 69 | 74.3 | 74.9 | 73.5 | 71.5 | 0.9 | 72 |
| | | | | Hovering | 18 | 78.2 | 78.8 | 77.2 | 71.5 | 0.9 | 78 |
| | | | | Idling | 411 | 72.1 | 72.4 | 71.6 | 71.5 | 0.9 | 64 |
| | | | | E 19:32 Take-off | 72 | 72.2 | 72.3 | 71.7 | 71.5 | 0.9 | 65 |
| 3 | AW139 | W | 19:53 | Approach | 68 | 75.8 | 76.3 | 74.9 | 70.8 | 0.9 | 75 |
| | | | | Hovering | 18 | 71.2 | 71.5 | 70.6 | 70.8 | 0.9 | 62 |
| | | | | Idling | 384 | 71.2 | 71.5 | 70.8 | 70.8 | 0.9 | 62 |
| | | | | E 20:00 Take-off | 68 | 71.8 | 72.0 | 71.3 | 70.8 | 0.9 | 66 |
| 4 | AW139 | W | 20:23 | Approach | 69 | 73.7 | 74.0 | 73.1 | 70.6 | 0.9 | 72 |
| | | | | Hovering | 19 | 75.0 | 75.4 | 74.4 | 70.6 | 0.9 | 74 |
| | | | | Idling | 500 | 70.8 | 71.1 | 70.4 | 70.6 | 0.9 | 58 |
| | | | | E 20:33 Take-off | 71 | 71.5 | 71.8 | 71.0 | 70.6 | 0.9 | 65 |
| 5 | AW139 | W | 20:47 | Approach | 75 | 71.7 | 72.0 | 71.1 | 70.5 | 0.9 | 66 |
| | | | | Hovering | 20 | 77.4 | 77.9 | 76.5 | 70.5 | 0.9 | 77 |
| | | | | Idling | 745 | 70.8 | 71.1 | 70.3 | 70.5 | 0.9 | 60 |
| | | | | E 21:01 Take-off | 69 | 72.0 | 72.4 | 71.5 | 70.5 | 0.9 | 68 |
| 6 | AW139 | W | 21:27 | Approach | 65 | 78.9 | 79.5 | 78.1 | 70.3 | 0.9 | 79 |
| | | | | Hovering | 18 | 72.3 | 72.8 | 71.5 | 70.3 | 0.9 | 69 |
| | | | | Idling | 439 | 71.1 | 71.3 | 70.6 | 70.3 | 0.9 | 64 |
| | | | | E 21:35 Take-off | 69 | 71.8 | 72.1 | 71.3 | 70.3 | 0.9 | 67 |
| 7 | AW139 | W | 21:49 | Approach | 72 | 74.0 | 74.5 | 73.2 | 69.9 | 0.9 | 73 |
| | | | | Hovering | 22 | 71.3 | 71.8 | 70.6 | 69.9 | 0.9 | 67 |
| | | | | Idling | 436 | 70.3 | 70.8 | 69.7 | 69.9 | 0.9 | 61 |
| | | | | E 21:58 Take-off | 67 | 70.6 | 70.8 | 70.2 | 69.9 | 0.9 | 63 |
| Leq(4-hrs), dB(A): | | | | | | | | | | 62 | |

Remark:

* E - Flight approaches from or departs to the East; W - Flight approaches from or departs to the West.

Distance correction factor in accordance with Table 9, Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

@ Calculated noise level (without background) with noise correction for shielding effect and distance attenuation in accordance with Operational Phase Helicopter Noise Monitoring Methodology (Revision 3).

** Evening-time Noise measurement was commenced at 19:00. Thus, noise data before this time is not available.