

## HMMH

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### TECHNICAL MEMORANDUM

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**To:** Mr. Dave Kiff  
City Manager  
City of Newport Beach, California  
100 Civic Center Drive  
Newport Beach, CA 92660

**From:** Scott McIntosh and Justin W. Cook

**Date:** June 2, 2018

**Subject:** Portable Short-Term Noise Monitoring

**Reference:** HMMH Project Number 309550

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#### 1. Introduction



HMMH conducted portable short-term noise monitoring during a period of four (4) days at five (5) separate locations around John Wayne Airport (SNA) on December 12-13, 2017 and January 11-12, 2018. The noise monitoring was attended, which means that HMMH staff was physically at each location and were logging aircraft noise events.

The first two (2) days (December 12-13, 2017) of portable short-term noise monitoring consisted of conducting side by side testing near SNA's permanent Noise Monitoring Stations (NMS's) 5S and 6S. NMS 5S is located at 324 ½ Vista Madera and NMS 6S is located at 1912 Santiago Drive in the City of Newport Beach. HMMH made every effort to locate the noise monitoring equipment as close to SNA's permanent NMS's as possible. Location A was placed near the front yard of 1912 Santiago Drive, approximately 80 feet from NMS 6S. Location B was placed approximately 100 feet from NMS 5S.

The second two (2) days (January 11-12, 2018) of portable short-term noise monitoring consisted of making noise measurements at three (3) new locations not necessarily near SNA's permanent NMS's. The new locations were selected in coordination with the City of Newport Beach. Location C was placed at 2131 Vista Entrada, Location D was placed at 700 South Bay Front, and Location E was placed at 1506 Antigua Way in the City of Newport Beach.

The portable noise monitors recorded continuous one-second A-weighted noise values. Microphones were placed at a height of five (5) feet and were not located near any obstructions. It is important to note that the microphones were not able to be placed in accordance with California Noise Standards – Title 21 (Register 90, No. 10-3-10-90), California Division of Aeronautics, Subchapter 6, Paragraph 5072 Field Measurement Requirements – which states the microphones “shall be placed 20 feet above the ground level, or at least 10 feet above neighboring roof tops, whichever is higher and has a clear line of sight to the path of aircraft in flight.”

## 2. Study Location

As mentioned above, portable short-term noise monitoring was conducted at five (5) different locations in the City of Newport Beach. A map of the study area showing SNA's permanent NMS's 5S and 6S and the portable short-term Sound Level Meters (SLM's) is provided in Figure 1.

**Figure 1. Map of Study Area Showing SNA's Permanent NMS's and Portable Short-Term SLM's**

Source: HMMH, Map Image and Data © Google 2018

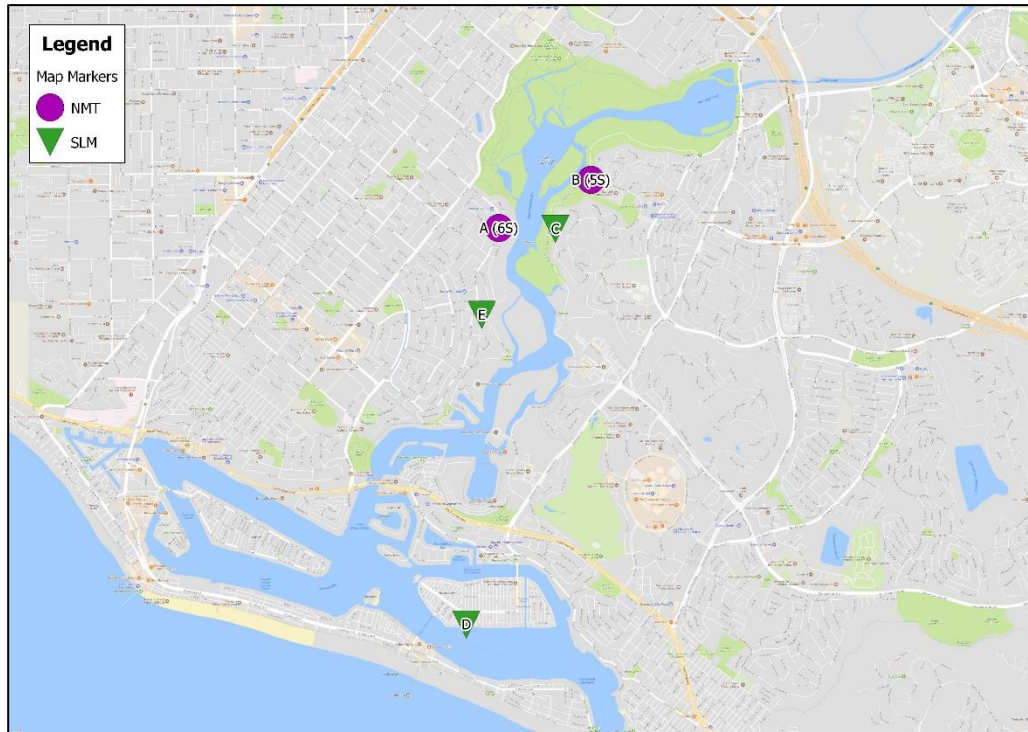


Table 1 shows the duration of data acquisition at the short-term portable noise monitoring locations for each measurement day.

**Table 1. Duration of Data Acquisition**

Source: HMMH

Address	Location ID	12-Dec	13-Dec	11-Jan	12-Jan	Total
1912 Santiago Dr.	A	07:49:42	07:51:51	-	-	15:41:33
324 1/2 Vista Madera	B	11:14:03	09:21:50	-	-	20:35:53
2131 Vista Entrada	C	-	-	08:01:02	09:49:19	17:50:21
700 South Bay Front	D	-	-	07:51:45	07:40:21	15:32:06
1506 Antigua Way	E	-	-	07:57:11	07:36:33	15:33:44

Noise measurements and observations at Locations A, C, D, and E were conducted during daytime hours (7 a.m. to 4 p.m.). Noise measurements and observations at Location B were conducted during daytime hours (7 a.m. to 7 p.m.) and evening hours (7 p.m. to 8 p.m.).

### 3. Side by Side Analysis

HMMH first processed the noise monitoring data into discrete aircraft noise events, which were then processed with the same event-threshold parameters utilized by SNA's permanent NMS's 5S and 6S, which were obtained from SNA's Access and Noise Office. Table 2 presents these event-threshold parameters for each NMS.

**Table 2. NMS Event-Threshold Parameters**

*Source: SNA's ANOMS System*

NMT	Threshold (dB)	Trigger Type	Min Duration (sec)	Max Duration (sec)
5S	65	LEQ	10	60
6S	65	LEQ	10	60

These processed aircraft noise events were subsequently correlated to aircraft noise events exported from SNA's ANOMS system. A total of 443 of the aircraft noise events processed from this data were correlated to ANOMS aircraft noise events at NMS 5S or 6S, 329 of which were correlated to events at both locations. A breakdown of correlated events by location is given in Table 3.

**Table 3. Breakdown of Correlated Aircraft Noise Events**

*Source: HMMH, SNA's ANOMS System*

Date	Location B - NMT 5S	Location A - NMT 6S
12-Dec-17	80	15
13-Dec-17	61	16
<b>Total</b>	<b>141</b>	<b>31</b>

Table 4 presents average values for correlated aircraft noise events from the portable short-term SLM's at Locations A and B and NMS's 6S and 5S, respectively. The average differences between SLM aircraft noise events and NMS aircraft noise events is given.

**Table 4. Average Correlated Aircraft Noise Event Levels**

*Source: HMMH, SNA's ANOMS System*

Metric	Location B - NMT 5S			Location A - NMT 6S		
	SEL	Leq	Lmax	SEL	Leq	Lmax
SLM	82.9	69.9	72.4	83.9	71.1	74.2
NMT	82.8	70.1	73.2	83.7	71.1	74.9
Diff (dB)	0.1	-0.1	-0.8	0.2	0.0	-0.7
% Diff	0.2%	-0.2%	-1.1%	0.3%	-0.1%	-1.0%

As the data in Table 4 shows, the average SEL deviation between aircraft noise events is as high as 0.2 dB for both locations. The average Leq deviation between aircraft noise events as high is as 0.1 dB for both locations. The average Lmax deviation between aircraft noise events is as high as 0.8 dB for both locations.

Table 6 through Table 18 at the end of this technical memorandum present all correlated aircraft noise event data for Locations A-B.



#### 4. Additional Portable Short-Term Noise Monitoring

HMMH processed the noise monitoring data from Locations C-E using the same methodology as described in the previous section. However, the noise monitoring data from these locations was not correlated to any data from SNA's permanent NMS's. Table 5 presents a results summary of portable short-term noise monitoring aircraft noise events.

**Table 5. Results Summary of Portable Short-Term Noise Monitoring Aircraft Noise Events**

*Source: HMMH, SNA's ANOMS System*

Metric	Location	Min	Median	Max	Average	Number of Correlated Events	Class A SENEL Noise Limit @
SEL	C (2131 Vista Entrada)	76.9	85.9	92.3	85.9	85	NMS 5S = 95.3 dB
	D (700 South Bay Front)	76.4	83.7	87.2	83.1	29	N/A
	E (1506 Antigua Way)	76.8	85.3	91.9	85.2	149	NMS 6S = 96.8 dB, NMS 7S = 93.7 dB
Leq	C (2131 Vista Entrada)	65.8	71.7	77.0	72.0	85	NMS 5S = 95.3 dB
	D (700 South Bay Front)	66.4	70.9	72.4	70.5	29	N/A
	E (1506 Antigua Way)	66.8	71.6	78.1	71.9	149	NMS 6S = 96.8 dB, NMS 7S = 93.7 dB
Lmax	C (2131 Vista Entrada)	66.8	75.1	81.8	75.2	85	
	D (700 South Bay Front)	67.1	73.8	76.8	73.2	29	NMS 5S = 95.3 dB
	E (1506 Antigua Way)	68.0	74.5	82.8	75.0	149	NMS 6S = 96.8 dB, NMS 7S = 93.7 dB



Table 6 through Table 18 at the end of this technical memorandum present all aircraft noise event data at Locations C-E.

#### 5. Observations

For the side by side testing, the noise levels measured by HMMH were generally quite close to the noise levels measured by SNA's ANOMS system. At the additional portable short-term noise monitoring locations, noise levels recorded were below the Class A SENEL noise limits at nearby NMS's (5S, 6S, and 7S). At Location D (700 South Bay Front), noise appears to have been lower in all noise categories (min, median, max, average for SEL, Leq, and Lmax) than at either Locations C or E.

**Table 6. Correlated Aircraft Noise Events for Locations A-B**

Source: HMMH, SNA's ANOMS System

Location	Meter	Date	Time	SEL				Leq				Lmax						
				SLM	NMT 5S		NMT 6S		SLM	NMT 5S		NMT 6S		SLM	NMT 5S		NMT 6S	
					Level	% Diff	Level	% Diff		Level	% Diff	Level	% Diff		Level	% Diff	Level	% Diff
A	1286	12/12/2017	9:53:27 AM	82.0	84.6	-3.1%	86.2	-5.0%	70.3	71.6	-1.9%	73.0	-3.8%	75.0	75.2	-0.3%	77.5	-3.3%
A	1286	12/12/2017	10:16:11 AM	76.0	0.0		81.4	-6.9%	66.0	0.0		69.9	-5.8%	67.8	0.0		72.8	-7.1%
A	1286	12/12/2017	11:03:59 AM	82.4	83.6	-1.4%	85.1	-3.2%	68.3	70.9	-3.7%	72.3	-5.7%	73.6	73.6	0.0%	76.5	-3.9%
A	1286	12/12/2017	11:50:12 AM	77.5	0.0		83.8	-7.8%	67.5	0.0		71.8	-6.1%	69.7	0.0		74.9	-7.1%
A	1286	12/12/2017	12:06:19 PM	85.9	78.8	8.7%	79.4	7.9%	71.8	68.0	5.4%	68.6	4.6%	75.7	69.5	8.6%	70.4	7.3%
A	1286	12/12/2017	12:19:07 PM	83.2	85.2	-2.4%	86.5	-3.9%	69.0	71.8	-4.0%	73.2	-5.9%	71.6	75.8	-5.7%	78.3	-8.9%
A	1286	12/12/2017	12:23:25 PM	84.8	0.0		79.6	6.4%	69.5	0.0		68.1	2.1%	70.6	0.0		70.4	0.2%
A	1286	12/12/2017	12:23:58 PM	81.7	78.3	4.2%	79.3	2.9%	69.4	67.9	2.1%	68.5	1.3%	69.7	69.2	0.7%	71.7	-2.9%
A	1286	12/12/2017	12:57:33 PM	86.1	0.0		82.1	4.8%	72.0	0.0		68.3	5.2%	74.4	0.0		71.4	4.1%
A	1286	12/12/2017	12:57:58 PM	82.8	85.0	-2.7%	87.2	-5.2%	68.1	71.1	-4.3%	72.1	-5.6%	70.0	75.7	-7.8%	78.3	-11.1%
A	1286	12/12/2017	1:43:04 PM	85.4	83.2	2.6%	83.0	2.8%	75.4	69.4	8.2%	70.0	7.4%	80.3	73.0	9.5%	73.8	8.4%
A	1286	12/12/2017	2:04:02 PM	85.1	84.2	1.0%	84.3	0.9%	72.5	70.7	2.5%	72.0	0.7%	76.0	74.8	1.6%	75.3	0.9%
A	1286	12/12/2017	4:59:00 PM	89.0	85.5	4.1%	86.1	3.4%	75.2	71.3	5.4%	72.6	3.6%	79.9	76.3	4.6%	77.4	3.1%
A	1286	12/12/2017	5:54:11 PM	80.4	80.4	0.0%	81.3	-1.2%	68.9	68.9	0.0%	69.6	-1.0%	71.0	71.2	-0.3%	72.9	-2.7%
A	1286	12/12/2017	6:41:09 PM	80.7	0.0		79.9	1.0%	69.0	0.0		69.1	-0.2%	70.8	0.0		71.6	-1.2%
A	1286	12/13/2017	10:14:04 AM	84.9	86.9	-2.4%	87.3	-2.8%	71.3	72.5	-1.7%	72.9	-2.3%	73.7	76.1	-3.2%	77.7	-5.3%
A	1286	12/13/2017	10:16:17 AM	89.3	80.3	10.7%	82.7	7.7%	76.1	68.5	10.5%	70.6	7.5%	80.0	70.2	13.0%	74.3	7.4%
A	1286	12/13/2017	10:54:51 AM	88.1	0.0		83.0	6.0%	75.1	0.0		70.4	6.5%	78.8	0.0		74.4	5.8%
A	1286	12/13/2017	11:08:03 AM	88.9	81.6	8.5%	84.9	4.6%	73.2	69.9	4.6%	72.2	1.4%	79.9	72.1	10.2%	76.9	3.8%
A	1286	12/13/2017	11:16:29 AM	81.0	84.9	-4.8%	86.5	-6.6%	69.8	72.1	-3.2%	73.5	-5.1%	71.8	76.2	-5.9%	78.4	-8.7%
A	1286	12/13/2017	11:23:56 AM	84.4	86.3	-2.2%	87.4	-3.5%	71.9	71.9	-0.1%	73.9	-2.8%	74.8	77.0	-2.9%	79.1	-5.6%
A	1286	12/13/2017	11:47:38 AM	81.8	84.9	-3.7%	86.2	-5.2%	67.9	71.1	-4.7%	73.0	-7.3%	70.8	74.7	-5.4%	76.7	-8.1%
A	1286	12/13/2017	1:27:48 PM	82.1	87.6	-6.4%	88.8	-7.8%	70.4	74.0	-5.0%	75.3	-6.7%	72.9	77.7	-6.3%	80.3	-9.6%
A	1286	12/13/2017	1:55:01 PM	84.2	88.0	-4.4%	89.1	-5.6%	71.2	73.8	-3.6%	75.7	-6.1%	73.7	78.5	-6.3%	80.3	-8.6%
A	1286	12/13/2017	4:27:44 PM	89.1	78.4	12.8%	79.6	11.3%	75.5	67.6	11.1%	68.4	9.9%	78.5	68.8	13.1%	71.0	10.0%
A	1286	12/13/2017	5:00:18 PM	78.3	80.5	-2.8%	82.2	-4.9%	67.8	69.0	-1.7%	70.1	-3.3%	69.6	71.3	-2.5%	73.2	-5.1%
A	1286	12/13/2017	5:09:35 PM	82.5	80.5	2.4%	81.6	1.1%	69.5	68.5	1.4%	69.3	0.2%	71.4	70.9	0.7%	72.4	-1.3%
A	1286	12/13/2017	5:17:54 PM	83.5	78.4	6.3%	80.7	3.4%	70.7	66.7	5.8%	68.4	3.3%	73.4	67.5	8.4%	71.3	2.9%
A	1286	12/13/2017	6:07:33 PM	87.2	85.6	1.9%	86.2	1.2%	74.0	72.0	2.7%	73.2	1.1%	77.9	76.3	2.1%	77.4	0.6%
A	1286	12/13/2017	6:35:40 PM	91.6	0.0		83.7	9.0%	79.0	0.0		70.9	10.8%	86.3	0.0		74.0	15.4%
A	1286	12/13/2017	6:44:01 PM	81.3	0.0		78.5	3.5%	68.3	0.0		68.1	0.3%	70.5	0.0		69.8	1.0%
B	1216	12/12/2017	7:01:09 AM	77.6	79.4	-2.3%	82.4	-6.0%	66.8	68.3	-2.2%	69.6	-4.1%	67.7	69.8	-3.1%	74.0	-8.9%
B	1216	12/12/2017	7:01:49 AM	82.8	83.8	-1.2%	86.9	-4.8%	70.0	71.0	-1.4%	73.1	-4.3%	72.1	74.3	-3.1%	78.9	-9.1%
B	1216	12/12/2017	7:03:31 AM	78.5	80.0	-1.8%	83.0	-5.5%	67.4	68.6	-1.8%	71.3	-5.6%	68.5	70.4	-2.7%	75.4	-9.6%
B	1216	12/12/2017	7:04:23 AM	84.4	85.3	-1.1%	87.1	-3.2%	71.4	71.5	-0.2%	73.6	-3.1%	73.6	75.5	-2.6%	78.4	-6.3%



**Table 7. Correlated Aircraft Noise Events for Locations A-B (cont'd)**  
 Source: HMMH, SNA's ANOMS System

Location	Meter	Date	Time	SEL				Leq				Lmax						
				SLM	NMT 5S		NMT 6S		SLM	NMT 5S		NMT 6S		SLM	NMT 5S		NMT 6S	
					Level	% Diff	Level	% Diff		Level	% Diff	Level	% Diff		Level	% Diff	Level	% Diff
B	1216	12/12/2017	7:05:13 AM	84.8	85.0	-0.3%	86.6	-2.1%	71.0	71.2	-0.3%	73.6	-3.6%	74.0	75.3	-1.7%	78.0	-5.2%
B	1216	12/12/2017	7:06:11 AM	81.2	81.8	-0.8%	85.2	-4.9%	68.9	69.8	-1.4%	73.5	-6.5%	70.7	73.0	-3.3%	77.5	-9.2%
B	1216	12/12/2017	7:08:47 AM	83.7	85.2	-1.7%	87.4	-4.3%	70.5	71.4	-1.2%	74.6	-5.6%	73.1	75.8	-3.6%	79.7	-8.6%
B	1216	12/12/2017	7:09:38 AM	85.0	85.4	-0.5%	87.3	-2.7%	71.7	72.0	-0.4%	73.9	-3.0%	74.9	75.8	-1.2%	78.7	-5.0%
B	1216	12/12/2017	7:10:27 AM	82.2	82.7	-0.6%	83.2	-1.2%	68.6	68.9	-0.5%	70.6	-2.9%	70.4	71.1	-1.1%	73.7	-4.7%
B	1216	12/12/2017	7:14:29 AM	84.8	86.0	-1.4%	87.1	-2.6%	71.4	72.2	-1.1%	74.3	-4.0%	75.0	76.9	-2.6%	79.0	-5.2%
B	1216	12/12/2017	7:24:58 AM	79.7	80.1	-0.5%	82.2	-3.1%	67.7	68.6	-1.4%	70.7	-4.4%	69.1	70.2	-1.5%	74.1	-6.9%
B	1216	12/12/2017	7:27:56 AM	83.0	82.7	0.3%	83.6	-0.8%	68.5	68.7	-0.3%	69.9	-2.0%	70.6	71.6	-1.3%	73.5	-4.0%
B	1216	12/12/2017	7:32:57 AM	78.5	79.3	-1.0%	82.4	-4.8%	67.1	67.8	-1.1%	71.0	-5.7%	68.5	69.7	-1.8%	74.1	-7.9%
B	1216	12/12/2017	7:40:29 AM	81.7	81.1	0.7%	81.5	0.2%	68.3	68.8	-0.8%	69.5	-1.8%	71.1	72.3	-1.7%	72.7	-2.2%
B	1216	12/12/2017	7:42:38 AM	85.8	85.6	0.2%	86.5	-0.9%	71.6	72.2	-0.8%	73.1	-2.1%	75.4	77.0	-2.2%	77.6	-2.9%
B	1216	12/12/2017	7:55:56 AM	82.9	82.5	0.5%	83.3	-0.5%	69.1	69.7	-0.9%	70.8	-2.4%	71.8	72.8	-1.5%	74.5	-3.8%
B	1216	12/12/2017	7:57:40 AM	83.6	84.6	-1.2%	86.8	-3.8%	69.4	70.4	-1.4%	72.4	-4.2%	71.9	73.5	-2.2%	77.5	-7.5%
B	1216	12/12/2017	8:17:04 AM	79.3	81.3	-2.5%	87.0	-9.3%	67.5	69.5	-2.9%	73.2	-8.1%	69.6	71.8	-3.1%	78.7	-12.3%
B	1216	12/12/2017	8:20:36 AM	84.0	85.2	-1.5%	86.5	-3.0%	70.3	71.6	-1.8%	73.8	-4.8%	73.3	76.2	-3.9%	78.4	-6.7%
B	1216	12/12/2017	8:25:13 AM	82.7	84.3	-1.9%	86.3	-4.2%	68.7	70.1	-2.0%	73.5	-6.7%	71.3	73.9	-3.7%	78.7	-9.9%
B	1216	12/12/2017	8:30:48 AM	82.5	84.1	-2.0%	86.4	-4.7%	69.4	71.3	-2.6%	73.6	-5.8%	71.9	74.6	-3.7%	79.1	-9.6%
B	1216	12/12/2017	8:38:23 AM	76.4	78.7	-3.0%	80.8	-5.6%	66.4	67.9	-2.3%	69.7	-4.9%	67.3	69.5	-3.2%	72.9	-8.0%
B	1216	12/12/2017	9:06:16 AM	83.5	84.4	-1.1%	85.3	-2.1%	69.9	70.6	-1.0%	71.9	-2.9%	71.9	73.8	-2.6%	76.4	-6.1%
B	1216	12/12/2017	9:19:01 AM	81.3	81.2	0.1%	81.5	-0.3%	67.9	68.6	-1.1%	69.2	-2.0%	69.1	70.1	-1.5%	72.8	-5.3%
B	1216	12/12/2017	9:20:17 AM	84.2	83.4	0.9%	0.0		70.0	69.8	0.3%	0.0		72.4	72.3	0.1%	0.0	
B	1216	12/12/2017	9:21:51 AM	77.0	78.3	-1.7%	0.0		66.5	67.2	-1.0%	0.0		67.4	69.2	-2.7%	0.0	
B	1216	12/12/2017	9:32:32 AM	76.4	77.9	-1.9%	80.4	-5.1%	66.4	67.1	-1.0%	69.3	-4.2%	66.8	68.7	-2.8%	72.2	-7.8%
B	1216	12/12/2017	9:38:26 AM	78.8	79.4	-0.8%	81.2	-3.0%	67.3	68.0	-1.0%	69.5	-3.2%	68.4	69.9	-2.2%	72.2	-5.4%
B	1216	12/12/2017	9:42:42 AM	82.9	82.8	0.1%	84.7	-2.1%	69.7	69.8	-0.1%	71.3	-2.3%	71.9	73.2	-1.8%	76.3	-6.0%
B	1216	12/12/2017	9:53:24 AM	83.9	84.6	-0.8%	86.2	-2.7%	70.5	71.6	-1.5%	73.0	-3.5%	73.3	75.2	-2.6%	77.5	-5.6%
B	1216	12/12/2017	9:57:39 AM	81.3	81.1	0.2%	83.4	-2.6%	68.5	69.4	-1.3%	71.3	-4.0%	70.2	72.1	-2.6%	75.1	-6.7%
B	1216	12/12/2017	10:15:48 AM	76.9	79.0	-2.7%	81.4	-5.7%	66.9	67.8	-1.4%	69.9	-4.4%	67.7	69.8	-3.0%	72.8	-7.2%
B	1216	12/12/2017	10:48:14 AM	82.0	81.7	0.3%	82.8	-1.0%	69.2	69.7	-0.7%	70.3	-1.6%	71.9	72.3	-0.6%	73.8	-2.7%
B	1216	12/12/2017	11:03:56 AM	83.7	83.6	0.1%	85.1	-1.7%	69.9	70.9	-1.4%	72.3	-3.4%	72.3	73.6	-1.7%	76.5	-5.6%
B	1216	12/12/2017	11:17:38 AM	79.7	78.5	1.5%	80.0	-0.4%	67.4	67.7	-0.5%	69.2	-2.7%	69.0	69.5	-0.7%	71.6	-3.7%
B	1216	12/12/2017	11:20:13 AM	85.3	85.8	-0.6%	87.0	-2.0%	71.1	71.9	-1.1%	73.2	-2.9%	73.5	75.1	-2.2%	78.0	-5.9%
B	1216	12/12/2017	11:23:11 AM	87.2	86.8	0.5%	85.7	1.8%	72.7	72.7	0.1%	71.8	1.3%	76.0	76.0	-0.1%	75.8	0.2%
B	1216	12/12/2017	11:28:48 AM	77.6	0.0		78.1	-0.6%	66.8	0.0		67.7	-1.3%	68.4	0.0		70.0	-2.4%
B	1216	12/12/2017	11:33:12 AM	79.5	79.9	-0.5%	84.2	-5.8%	66.5	67.1	-0.9%	69.1	-3.9%	67.7	68.2	-0.7%	72.5	-6.8%



**Table 8. Correlated Aircraft Noise Events for Locations A-B (cont'd)**  
 Source: HMMH, SNA's ANOMS System

Location	Meter	Date	Time	SEL				Leq				Lmax						
				SLM	NMT 5S		NMT 6S		SLM	NMT 5S		NMT 6S		SLM	NMT 5S		NMT 6S	
					Level	% Diff	Level	% Diff		Level	% Diff	Level	% Diff		Level	% Diff	Level	% Diff
B	1216	12/12/2017	11:45:46 AM	78.3	78.6	-0.4%	80.8	-3.1%	67.5	68.2	-1.0%	69.7	-3.2%	68.7	69.9	-1.8%	72.4	-5.3%
B	1216	12/12/2017	11:46:54 AM	83.4	83.8	-0.5%	86.5	-3.6%	71.4	71.7	-0.5%	73.9	-3.5%	73.2	75.3	-2.9%	77.8	-6.1%
B	1216	12/12/2017	11:50:08 AM	81.5	81.8	-0.4%	83.8	-2.8%	69.0	69.8	-1.2%	71.8	-4.0%	71.0	71.9	-1.2%	74.9	-5.3%
B	1216	12/12/2017	11:56:26 AM	83.7	83.2	0.6%	84.9	-1.4%	69.9	70.1	-0.3%	72.2	-3.2%	71.9	72.9	-1.5%	76.3	-6.0%
B	1216	12/12/2017	1:42:40 PM	84.7	83.2	1.8%	83.0	2.1%	70.9	69.4	2.2%	70.0	1.3%	73.1	73.0	0.1%	73.8	-1.0%
B	1216	12/12/2017	1:46:57 PM	83.4	82.6	0.9%	83.1	0.3%	70.6	70.5	0.1%	70.7	-0.2%	73.6	74.0	-0.5%	75.3	-2.3%
B	1216	12/12/2017	1:53:21 PM	87.1	86.1	1.2%	86.7	0.5%	72.8	72.2	0.8%	72.7	0.1%	75.4	75.6	-0.3%	76.5	-1.5%
B	1216	12/12/2017	2:04:33 PM	85.1	84.2	1.0%	84.3	0.9%	71.3	70.7	0.8%	72.0	-1.0%	73.9	74.8	-1.2%	75.3	-1.9%
B	1216	12/12/2017	2:07:02 PM	80.1	78.6	1.8%	80.1	-0.1%	68.0	67.5	0.8%	69.7	-2.4%	69.4	69.0	0.6%	72.1	-3.8%
B	1216	12/12/2017	2:08:21 PM	81.4	80.9	0.7%	82.2	-0.9%	68.9	68.9	0.0%	70.5	-2.3%	70.5	71.3	-1.1%	73.3	-3.9%
B	1216	12/12/2017	2:31:47 PM	80.2	79.3	1.1%	80.8	-0.8%	68.4	68.5	-0.1%	69.4	-1.4%	70.3	71.7	-2.0%	72.5	-3.1%
B	1216	12/12/2017	2:36:16 PM	85.5	85.1	0.5%	86.6	-1.3%	71.9	71.5	0.5%	73.2	-1.8%	75.9	75.4	0.6%	77.8	-2.5%
B	1216	12/12/2017	2:46:24 PM	78.6	78.7	-0.1%	0.0		68.6	68.7	-0.1%	0.0		70.6	71.7	-1.6%	0.0	
B	1216	12/12/2017	2:49:26 PM	84.2	84.8	-0.7%	85.8	-1.9%	71.0	70.8	0.3%	73.2	-3.1%	74.2	75.7	-1.9%	77.8	-4.7%
B	1216	12/12/2017	2:54:05 PM	80.8	79.5	1.6%	80.3	0.6%	68.7	68.0	1.1%	69.1	-0.6%	71.4	70.3	1.5%	72.3	-1.3%
B	1216	12/12/2017	2:57:41 PM	83.2	83.9	-0.9%	84.4	-1.5%	70.4	70.5	-0.2%	72.1	-2.4%	72.9	74.4	-2.1%	76.4	-4.7%
B	1216	12/12/2017	3:00:52 PM	79.5	79.3	0.2%	81.2	-2.1%	67.4	68.2	-1.1%	70.0	-3.7%	70.0	70.3	-0.4%	73.3	-4.6%
B	1216	12/12/2017	3:12:46 PM	82.4	82.4	0.0%	83.6	-1.4%	68.8	69.0	-0.3%	70.6	-2.6%	71.2	72.6	-2.0%	73.4	-3.1%
B	1216	12/12/2017	3:17:12 PM	85.2	84.1	1.3%	85.1	0.2%	71.6	71.1	0.7%	71.6	0.0%	74.7	74.4	0.4%	76.0	-1.7%
B	1216	12/12/2017	3:37:58 PM	83.1	81.3	2.2%	81.2	2.3%	68.6	67.8	1.2%	67.6	1.5%	70.3	70.9	-0.8%	70.1	0.3%
B	1216	12/12/2017	3:41:03 PM	80.7	79.2	1.9%	80.7	0.0%	68.4	68.4	0.0%	69.6	-1.7%	70.2	70.2	-0.1%	72.4	-3.1%
B	1216	12/12/2017	3:43:01 PM	85.7	84.8	1.1%	85.1	0.7%	72.3	71.6	1.0%	72.6	-0.4%	75.2	76.0	-1.0%	76.8	-2.1%
B	1216	12/12/2017	3:58:22 PM	86.3	87.0	-0.9%	88.3	-2.3%	72.5	72.9	-0.6%	75.3	-3.8%	76.2	77.4	-1.5%	80.5	-5.5%
B	1216	12/12/2017	3:59:19 PM	80.5	78.8	2.1%	80.0	0.6%	68.2	68.0	0.2%	68.8	-0.9%	69.5	69.8	-0.5%	71.7	-3.2%
B	1216	12/12/2017	4:12:22 PM	83.1	82.5	0.8%	83.3	-0.2%	70.4	70.4	-0.1%	71.2	-1.2%	73.3	73.3	0.0%	74.4	-1.5%
B	1216	12/12/2017	4:29:57 PM	83.6	82.3	1.6%	82.7	1.1%	70.8	70.3	0.7%	70.4	0.6%	73.8	74.1	-0.4%	73.3	0.7%
B	1216	12/12/2017	4:33:30 PM	79.8	78.2	2.0%	79.4	0.5%	67.5	67.4	0.1%	67.7	-0.3%	69.5	69.7	-0.3%	69.2	0.4%
B	1216	12/12/2017	4:35:57 PM	82.6	81.7	1.1%	83.6	-1.2%	70.3	70.3	0.0%	71.5	-1.7%	72.8	73.4	-0.8%	74.7	-2.6%
B	1216	12/12/2017	4:45:02 PM	81.9	81.0	1.0%	82.0	-0.2%	69.3	69.3	0.0%	70.8	-2.1%	71.9	71.8	0.1%	73.7	-2.5%
B	1216	12/12/2017	4:50:35 PM	86.4	86.0	0.5%	87.0	-0.7%	73.2	72.4	1.1%	73.8	-0.8%	76.4	77.8	-1.8%	78.5	-2.7%
B	1216	12/12/2017	6:37:15 PM	79.1	80.4	-1.7%	81.6	-3.1%	67.9	69.0	-1.6%	70.1	-3.1%	70.0	72.1	-2.9%	72.9	-4.0%
B	1216	12/12/2017	6:48:30 PM	84.5	85.2	-0.8%	85.6	-1.3%	70.9	71.3	-0.6%	72.6	-2.4%	74.3	77.0	-3.6%	77.0	-3.6%
B	1216	12/12/2017	6:50:03 PM	78.3	80.7	-3.0%	82.0	-4.6%	67.6	69.2	-2.4%	70.8	-4.7%	69.0	70.7	-2.5%	74.1	-7.2%
B	1216	12/12/2017	6:55:42 PM	85.0	86.4	-1.6%	87.3	-2.7%	70.4	71.9	-2.1%	73.0	-3.6%	72.8	75.8	-4.0%	77.7	-6.5%
B	1216	12/12/2017	7:20:18 PM	79.1	80.7	-2.0%	81.6	-3.1%	67.9	69.3	-2.0%	70.4	-3.5%	69.7	72.0	-3.3%	73.3	-5.0%



**Table 9. Correlated Aircraft Noise Events for Locations A-B (cont'd)**  
 Source: HMMH, SNA's ANOMS System

Location	Meter	Date	Time	SEL				Leq				Lmax						
				SLM	NMT 5S		NMT 6S		SLM	NMT 5S		NMT 6S		SLM	NMT 5S		NMT 6S	
					Level	% Diff	Level	% Diff		Level	% Diff	Level	% Diff		Level	% Diff	Level	% Diff
B	1216	12/12/2017	7:23:49 PM	81.8	82.9	-1.4%	84.1	-2.8%	69.0	69.9	-1.3%	71.5	-3.6%	71.0	73.4	-3.4%	76.2	-7.1%
B	1216	12/12/2017	7:29:09 PM	78.4	79.8	-1.8%	82.5	-5.1%	67.0	68.1	-1.7%	71.4	-6.4%	68.8	70.7	-2.7%	75.2	-8.9%
B	1216	12/12/2017	7:30:15 PM	84.9	85.6	-0.8%	85.8	-1.1%	70.7	71.3	-0.8%	72.8	-2.9%	73.2	75.5	-3.1%	77.8	-6.1%
B	1216	12/12/2017	7:37:44 PM	83.9	85.9	-2.4%	87.3	-4.0%	70.1	71.8	-2.5%	73.5	-4.8%	73.3	76.0	-3.6%	78.8	-7.2%
B	1216	12/12/2017	7:38:46 PM	79.1	80.7	-2.0%	82.1	-3.7%	67.9	69.2	-1.8%	70.6	-3.8%	69.8	71.4	-2.3%	74.3	-6.2%
B	1216	12/12/2017	8:14:55 PM	78.8	80.4	-2.0%	81.6	-3.5%	67.7	69.3	-2.4%	70.8	-4.5%	69.2	72.2	-4.3%	73.4	-5.9%
B	1216	12/12/2017	8:49:59 PM	82.2	81.9	0.4%	0.0		70.1	70.2	-0.1%	0.0		73.2	74.8	-2.2%	0.0	
B	1216	12/13/2017	7:01:02 AM	79.3	80.3	-1.2%	81.7	-3.0%	67.9	68.6	-1.1%	70.2	-3.4%	69.3	71.1	-2.5%	72.8	-4.9%
B	1216	12/13/2017	7:01:48 AM	85.2	86.0	-0.9%	87.4	-2.6%	71.4	72.2	-1.1%	74.2	-3.9%	74.3	76.6	-3.0%	80.4	-7.9%
B	1216	12/13/2017	7:02:54 AM	83.9	86.1	-2.6%	88.4	-5.2%	70.3	72.0	-2.4%	75.1	-6.6%	72.7	76.0	-4.4%	81.3	-11.1%
B	1216	12/13/2017	7:04:18 AM	84.7	84.8	-0.1%	86.2	-1.8%	70.4	70.4	0.0%	73.0	-3.6%	73.2	74.9	-2.3%	78.9	-7.5%
B	1216	12/13/2017	7:06:57 AM	82.2	0.0		83.8	-1.9%	67.9	0.0		71.7	-5.4%	70.4	0.0		75.9	-7.5%
B	1216	12/13/2017	7:10:18 AM	84.6	86.4	-2.1%	88.7	-4.7%	70.8	72.4	-2.3%	75.5	-6.4%	74.3	76.4	-2.7%	81.4	-9.1%
B	1216	12/13/2017	7:11:09 AM	85.5	86.6	-1.3%	88.8	-3.8%	71.7	73.0	-1.8%	75.2	-4.8%	74.8	76.9	-2.8%	81.3	-8.4%
B	1216	12/13/2017	7:14:01 AM	84.2	84.3	-0.1%	84.9	-0.9%	69.9	70.3	-0.6%	71.3	-2.0%	72.6	73.0	-0.5%	75.5	-3.9%
B	1216	12/13/2017	7:16:12 AM	87.0	87.8	-0.9%	89.2	-2.5%	73.4	73.5	-0.1%	75.7	-3.1%	77.7	78.9	-1.5%	81.1	-4.3%
B	1216	12/13/2017	7:17:28 AM	84.8	86.2	-1.6%	88.7	-4.5%	71.2	72.2	-1.4%	75.9	-6.4%	74.9	77.0	-2.8%	81.9	-8.9%
B	1216	12/13/2017	7:19:30 AM	80.3	80.7	-0.5%	83.0	-3.3%	68.0	69.3	-1.9%	71.3	-4.7%	70.1	71.2	-1.6%	75.2	-7.0%
B	1216	12/13/2017	7:20:32 AM	81.3	0.0		83.9	-3.2%	69.0	0.0		71.4	-3.5%	71.2	0.0		75.5	-5.8%
B	1216	12/13/2017	7:24:26 AM	83.8	84.1	-0.4%	85.5	-2.0%	69.5	69.8	-0.5%	71.9	-3.4%	71.3	72.8	-2.0%	76.2	-6.6%
B	1216	12/13/2017	7:43:14 AM	84.8	0.0		88.8	-4.6%	70.5	0.0		76.0	-7.5%	73.9	0.0		81.5	-9.8%
B	1216	12/13/2017	9:25:21 AM	81.4	80.7	0.8%	82.8	-1.7%	68.4	68.6	-0.4%	71.1	-3.9%	70.5	71.0	-0.7%	74.4	-5.3%
B	1216	12/13/2017	9:39:36 AM	80.5	79.8	0.8%	82.7	-2.8%	67.7	68.4	-1.1%	70.4	-4.0%	70.0	70.5	-0.8%	75.6	-7.7%
B	1216	12/13/2017	9:55:10 AM	87.0	86.0	1.2%	87.9	-1.0%	73.1	72.0	1.5%	73.4	-0.5%	75.8	75.8	0.0%	78.8	-3.9%
B	1216	12/13/2017	9:59:51 AM	76.7	0.0		78.2	-1.9%	66.3	0.0		67.7	-2.1%	67.5	0.0		69.8	-3.4%
B	1216	12/13/2017	10:09:00 AM	80.7	79.1	2.0%	81.9	-1.4%	68.4	67.7	1.1%	69.8	-2.0%	69.7	69.6	0.1%	73.6	-5.5%
B	1216	12/13/2017	10:14:48 AM	88.3	86.9	1.6%	87.3	1.2%	74.2	72.5	2.3%	72.9	1.7%	76.7	76.1	0.7%	77.7	-1.3%
B	1216	12/13/2017	10:16:17 AM	80.7	80.3	0.5%	82.7	-2.5%	67.9	68.5	-0.9%	70.6	-3.9%	70.0	70.2	-0.3%	74.3	-6.0%
B	1216	12/13/2017	10:27:47 AM	79.1	80.1	-1.3%	81.9	-3.5%	68.0	68.6	-0.9%	70.5	-3.7%	69.5	70.0	-0.7%	74.0	-6.3%
B	1216	12/13/2017	11:01:06 AM	83.8	83.2	0.8%	85.0	-1.4%	70.6	70.7	-0.1%	72.7	-2.9%	73.4	73.5	-0.1%	77.6	-5.5%
B	1216	12/13/2017	11:08:34 AM	81.2	81.6	-0.4%	84.9	-4.4%	68.4	69.9	-2.1%	72.2	-5.3%	70.5	72.1	-2.2%	76.9	-8.6%
B	1216	12/13/2017	11:16:45 AM	85.8	84.9	1.1%	86.5	-0.8%	72.4	72.1	0.4%	73.5	-1.5%	75.1	76.2	-1.4%	78.4	-4.3%
B	1216	12/13/2017	11:23:36 AM	85.7	86.3	-0.7%	87.4	-2.0%	71.5	71.9	-0.5%	73.9	-3.3%	75.9	77.0	-1.5%	79.1	-4.1%
B	1216	12/13/2017	11:29:31 AM	79.9	0.0		83.9	-4.9%	67.6	0.0		71.1	-5.1%	69.1	0.0		75.2	-8.5%
B	1216	12/13/2017	11:39:21 AM	84.6	83.7	1.1%	85.0	-0.4%	70.7	69.5	1.7%	71.2	-0.8%	72.8	71.9	1.3%	75.3	-3.4%





**Table 10. Correlated Aircraft Noise Events for Locations A-B (cont'd)**  
 Source: HMMH, SNA's ANOMS System

Location	Meter	Date	Time	SEL				Leq				Lmax						
				SLM	NMT 5S		NMT 6S		SLM	NMT 5S		NMT 6S		SLM	NMT 5S		NMT 6S	
					Level	% Diff	Level	% Diff		Level	% Diff	Level	% Diff		Level	% Diff	Level	% Diff
B	1216	12/13/2017	11:47:36 AM	84.3	84.9	-0.7%	86.2	-2.2%	70.5	71.1	-0.8%	73.0	-3.4%	73.5	74.7	-1.6%	76.7	-4.2%
B	1216	12/13/2017	11:50:19 AM	81.4	81.1	0.4%	82.4	-1.2%	68.6	68.8	-0.3%	70.6	-2.8%	71.0	71.6	-0.8%	73.5	-3.5%
B	1216	12/13/2017	11:55:17 AM	76.6	0.0		81.1	-5.8%	66.6	0.0		68.6	-3.0%	67.3	0.0		72.2	-7.0%
B	1216	12/13/2017	11:58:26 AM	84.1	84.1	0.0%	85.8	-2.0%	71.1	70.8	0.4%	73.0	-2.7%	73.1	74.9	-2.5%	77.5	-5.9%
B	1216	12/13/2017	1:27:40 PM	87.5	87.6	-0.1%	88.8	-1.4%	73.7	74.0	-0.4%	75.3	-2.1%	78.2	77.7	0.7%	80.3	-2.6%
B	1216	12/13/2017	1:38:09 PM	86.7	84.7	2.3%	84.9	2.1%	72.4	70.2	3.1%	71.3	1.5%	76.1	73.6	3.3%	75.3	1.0%
B	1216	12/13/2017	1:41:21 PM	87.3	87.4	-0.1%	88.9	-1.8%	73.3	74.6	-1.8%	75.9	-3.5%	77.4	79.0	-2.0%	80.9	-4.4%
B	1216	12/13/2017	1:51:58 PM	87.2	85.8	1.6%	86.9	0.3%	72.9	72.1	1.1%	74.4	-2.1%	76.5	75.7	1.0%	79.4	-3.8%
B	1216	12/13/2017	1:55:44 PM	88.4	88.0	0.4%	89.1	-0.8%	74.6	73.8	1.0%	75.7	-1.5%	79.4	78.5	1.2%	80.3	-1.1%
B	1216	12/13/2017	2:05:48 PM	85.4	83.1	2.7%	83.2	2.6%	71.4	69.1	3.3%	70.7	1.0%	74.7	72.8	2.6%	75.1	-0.5%
B	1216	12/13/2017	2:07:14 PM	81.7	80.3	1.7%	81.7	0.0%	68.7	68.2	0.7%	69.9	-1.7%	71.0	70.3	0.9%	74.2	-4.4%
B	1216	12/13/2017	2:09:29 PM	84.2	82.2	2.4%	82.9	1.6%	69.9	68.0	2.7%	69.9	0.0%	72.0	70.3	2.4%	73.7	-2.3%
B	1216	12/13/2017	2:13:37 PM	83.8	82.1	2.1%	83.1	0.9%	70.6	69.5	1.6%	70.6	0.0%	73.4	72.2	1.6%	73.9	-0.7%
B	1216	12/13/2017	2:17:51 PM	82.1	81.0	1.3%	82.9	-1.0%	69.3	69.2	0.1%	71.2	-2.8%	72.0	71.4	0.8%	74.5	-3.5%
B	1216	12/13/2017	2:42:33 PM	87.0	85.9	1.3%	86.8	0.2%	73.6	71.9	2.3%	73.6	-0.1%	76.6	76.0	0.8%	78.5	-2.5%
B	1216	12/13/2017	2:51:16 PM	85.7	83.7	2.4%	84.3	1.7%	71.6	69.9	2.4%	70.7	1.2%	74.7	72.6	2.8%	74.4	0.4%
B	1216	12/13/2017	3:01:27 PM	84.0	82.9	1.3%	83.7	0.3%	70.5	69.7	1.2%	71.4	-1.2%	73.5	72.9	0.9%	75.2	-2.2%
B	1216	12/13/2017	3:04:52 PM	82.6	81.3	1.5%	82.0	0.7%	69.3	69.2	0.2%	69.7	-0.5%	71.3	71.2	0.1%	73.8	-3.5%
B	1216	12/13/2017	3:07:29 PM	85.4	85.8	-0.5%	86.4	-1.2%	72.1	73.4	-1.7%	73.9	-2.4%	75.2	76.6	-1.8%	77.5	-3.0%
B	1216	12/13/2017	3:09:04 PM	87.5	86.8	0.8%	87.9	-0.4%	73.4	72.4	1.3%	73.8	-0.6%	76.6	76.6	0.0%	80.3	-4.7%
B	1216	12/13/2017	3:12:44 PM	87.1	85.6	1.8%	85.6	1.8%	73.2	71.6	2.1%	72.6	0.8%	76.3	74.9	1.9%	76.8	-0.6%
B	1216	12/13/2017	3:17:12 PM	82.6	81.1	1.8%	82.7	-0.1%	70.3	69.4	1.3%	70.4	-0.2%	72.8	73.0	-0.3%	74.0	-1.6%
B	1216	12/13/2017	3:18:02 PM	84.7	84.6	0.1%	0.0		70.4	70.1	0.4%	0.0		72.7	73.3	-0.8%	0.0	
B	1216	12/13/2017	3:29:13 PM	80.9	77.0	4.9%	81.2	-0.4%	67.7	66.2	2.2%	67.4	0.4%	68.7	67.0	2.5%	69.9	-1.7%
B	1216	12/13/2017	3:44:00 PM	81.6	79.1	3.1%	81.0	0.7%	69.3	67.9	2.0%	69.2	0.1%	70.9	69.3	2.3%	72.6	-2.4%
B	1216	12/13/2017	3:50:59 PM	86.7	84.8	2.2%	85.9	0.9%	72.9	71.2	2.4%	71.6	1.8%	75.2	75.0	0.3%	77.4	-2.9%
B	1216	12/13/2017	3:55:32 PM	82.2	80.1	2.6%	81.4	1.0%	69.4	68.6	1.2%	69.4	0.0%	71.3	70.1	1.7%	72.1	-1.2%
B	1216	12/13/2017	3:59:07 PM	81.7	78.6	3.8%	80.9	0.9%	69.4	67.2	3.2%	69.1	0.4%	71.2	69.3	2.7%	71.9	-1.0%
B	1216	12/13/2017	4:00:52 PM	85.7	85.1	0.7%	86.0	-0.4%	72.7	71.8	1.2%	73.3	-0.9%	75.6	75.9	-0.4%	77.3	-2.2%
B	1216	12/13/2017	4:13:51 PM	82.6	80.2	3.0%	81.5	1.3%	69.8	68.7	1.6%	69.7	0.2%	72.0	70.7	1.8%	72.6	-0.9%
B	1216	12/13/2017	4:21:59 PM	86.2	84.6	1.8%	86.1	0.1%	72.9	71.6	1.9%	72.9	0.1%	76.1	75.5	0.8%	77.3	-1.6%
B	1216	12/13/2017	4:28:03 PM	81.6	78.4	4.0%	79.6	2.5%	69.3	67.6	2.5%	68.4	1.3%	70.9	68.8	3.0%	71.0	-0.1%
B	1216	12/13/2017	4:35:40 PM	79.4	0.0		77.3	2.7%	66.8	0.0		66.8	0.1%	67.6	0.0		68.2	-0.9%
B	1216	12/13/2017	4:44:42 PM	86.4	85.0	1.6%	85.9	0.5%	72.9	71.6	1.8%	72.5	0.6%	75.9	75.9	-0.1%	77.0	-1.5%
B	1216	12/13/2017	4:53:44 PM	85.4	85.3	0.1%	86.5	-1.2%	72.6	72.5	0.2%	74.0	-1.9%	75.9	76.0	-0.2%	78.6	-3.5%



**Table 11. Correlated Aircraft Noise Events for Locations A-B (cont'd)**

Source: HMMH, SNA's ANOMS System

Location	Meter	Date	Time	SEL				Leq				Lmax						
				SLM	NMT 5S		NMT 6S		SLM	NMT 5S		NMT 6S		SLM	NMT 5S		NMT 6S	
					Level	% Diff	Level	% Diff		Level	% Diff	Level	% Diff		Level	% Diff	Level	% Diff
B	1216	12/13/2017	#####	82.2	80.5	2.1%	82.2	0.0%	69.4	69.0	0.6%	70.1	-1.0%	72.6	71.3	1.8%	73.2	-0.9%
B	1216	12/13/2017	#####	80.3	81.5	-1.5%	83.4	-3.8%	68.6	69.5	-1.4%	71.4	-4.1%	69.9	71.4	-2.2%	75.3	-7.5%
B	1216	12/13/2017	#####	86.2	86.1	0.2%	87.0	-0.9%	71.8	71.6	0.2%	73.5	-2.4%	75.7	76.3	-0.8%	78.1	-3.2%
B	1216	12/13/2017	#####	80.4	80.2	0.2%	81.6	-1.5%	68.1	68.4	-0.5%	69.6	-2.2%	69.8	70.4	-0.8%	72.9	-4.3%
B	1216	12/13/2017	#####	83.6	84.3	-0.8%	85.5	-2.2%	68.8	70.1	-1.8%	71.7	-4.1%	71.4	72.9	-2.0%	75.1	-5.0%



**Table 12. Aircraft Noise Events for Locations C-E**

Source: HMMH, SNA's ANOMS System

Location	Meter	Date	Time	SEL	Leq	Lmax
C	1212	1/11/2018	7:01:11 AM	89.8	75.0	79.1
C	1212	1/11/2018	7:02:40 AM	87.5	72.3	75.1
C	1212	1/11/2018	7:04:24 AM	83.8	70.0	72.7
C	1212	1/11/2018	7:06:00 AM	90.0	75.0	79.4
C	1212	1/11/2018	7:07:28 AM	85.8	71.3	75.5
C	1212	1/11/2018	7:09:04 AM	90.1	75.2	79.2
C	1212	1/11/2018	7:10:50 AM	92.3	77.0	81.8
C	1212	1/11/2018	7:12:09 AM	88.3	74.0	77.3
C	1212	1/11/2018	7:15:18 AM	88.7	74.1	77.9
C	1212	1/11/2018	7:16:39 AM	89.5	74.8	79.2
C	1212	1/11/2018	7:18:21 AM	81.7	69.7	72.0
C	1212	1/11/2018	7:23:08 AM	88.5	72.3	76.2
C	1212	1/11/2018	7:26:31 AM	85.5	71.1	74.3
C	1212	1/11/2018	7:27:58 AM	85.7	71.0	74.2
C	1212	1/11/2018	7:29:58 AM	86.2	71.5	74.9
C	1212	1/11/2018	7:36:37 AM	85.2	70.6	74.5
C	1212	1/11/2018	7:38:45 AM	81.8	69.2	71.0
C	1212	1/11/2018	7:40:28 AM	83.0	69.8	72.2
C	1212	1/11/2018	7:53:09 AM	83.6	69.6	72.2
C	1212	1/11/2018	8:02:59 AM	88.8	75.0	78.5
C	1212	1/11/2018	8:04:44 AM	80.6	67.4	68.9
C	1212	1/11/2018	8:08:22 AM	77.1	66.7	67.6
C	1212	1/11/2018	8:09:21 AM	88.8	73.8	77.4
C	1212	1/11/2018	8:12:12 AM	83.8	69.0	71.5
C	1212	1/11/2018	8:13:56 AM	84.7	70.9	73.5
C	1212	1/11/2018	8:16:02 AM	82.1	70.6	73.6
C	1212	1/11/2018	8:20:23 AM	89.7	74.7	78.6
C	1212	1/11/2018	8:23:19 AM	85.6	71.3	74.9
C	1212	1/11/2018	8:26:03 AM	84.0	70.4	73.3
C	1212	1/11/2018	8:27:03 AM	84.3	70.7	73.7



**Table 13. Aircraft Noise Events for Locations C-E (cont'd)**

Source: HMMH, SNA's ANOMS System

Location	Meter	Date	Time	SEL	Leq	Lmax
C	1212	1/11/2018	8:29:00 AM	79.5	67.0	67.9
C	1212	1/11/2018	8:30:51 AM	85.7	70.9	74.4
C	1212	1/11/2018	8:32:26 AM	82.0	68.6	70.5
C	1212	1/11/2018	8:34:50 AM	90.1	75.4	79.2
C	1212	1/11/2018	8:35:50 AM	87.3	72.6	76.5
C	1212	1/11/2018	8:37:25 AM	88.4	73.3	75.9
C	1212	1/11/2018	8:54:17 AM	85.2	71.1	73.9
C	1212	1/11/2018	9:26:23 AM	84.5	70.1	72.9
C	1212	1/11/2018	9:31:37 AM	85.0	70.7	73.6
C	1212	1/11/2018	9:38:31 AM	85.9	73.1	76.3
C	1212	1/11/2018	9:40:46 AM	85.4	70.9	74.4
C	1212	1/11/2018	9:43:11 AM	85.7	71.5	74.8
C	1212	1/11/2018	9:50:04 AM	88.5	74.0	77.8
C	1212	1/11/2018	10:03:44 AM	89.7	75.4	79.3
C	1212	1/11/2018	10:05:02 AM	89.9	75.6	80.0
C	1212	1/11/2018	10:05:55 AM	87.7	73.4	77.5
C	1212	1/11/2018	10:08:51 AM	78.2	67.8	68.7
C	1212	1/11/2018	10:29:07 AM	85.5	71.2	74.3
C	1212	1/11/2018	10:32:17 AM	81.4	68.9	71.3
C	1212	1/11/2018	10:35:27 AM	78.1	66.6	67.7
C	1212	1/11/2018	10:37:14 AM	85.9	71.6	73.8
C	1212	1/11/2018	10:38:23 AM	85.8	71.5	74.9
C	1212	1/11/2018	10:44:29 AM	77.5	66.7	67.5
C	1212	1/11/2018	11:16:02 AM	89.8	75.2	79.1
C	1212	1/11/2018	11:24:42 AM	89.1	74.5	78.6
C	1212	1/11/2018	11:28:54 AM	86.9	72.4	76.8
C	1212	1/11/2018	11:33:03 AM	87.2	73.2	77.8
C	1212	1/11/2018	11:39:21 AM	85.7	71.8	74.5
C	1212	1/11/2018	1:19:00 PM	89.5	75.1	79.0
C	1212	1/11/2018	1:20:38 PM	86.9	71.5	75.5
C	1212	1/11/2018	1:22:27 PM	80.6	68.8	71.9
C	1212	1/11/2018	1:31:11 PM	89.4	75.1	80.1
C	1212	1/11/2018	1:34:45 PM	89.1	74.1	77.9
C	1212	1/11/2018	1:36:55 PM	89.7	75.0	79.2
C	1212	1/11/2018	1:44:06 PM	89.5	75.1	78.9



**Table 14. Aircraft Noise Events for Locations C-E (cont'd)**

Source: HMMH, SNA's ANOMS System

Location	Meter	Date	Time	SEL	Leq	Lmax
C	1212	1/11/2018	1:45:38 PM	85.1	73.1	76.9
C	1212	1/11/2018	1:49:52 PM	90.4	75.8	79.6
C	1212	1/11/2018	1:52:06 PM	89.4	75.0	78.9
C	1212	1/11/2018	1:53:54 PM	86.5	72.2	75.8
C	1212	1/11/2018	2:06:46 PM	86.8	73.2	76.1
C	1212	1/11/2018	2:09:17 PM	89.5	75.7	79.0
C	1212	1/11/2018	2:22:18 PM	85.7	71.7	74.9
C	1212	1/11/2018	2:28:03 PM	85.5	71.5	74.6
C	1212	1/11/2018	2:49:22 PM	85.2	71.4	74.5
C	1212	1/11/2018	2:52:53 PM	76.9	65.8	66.8
C	1212	1/11/2018	2:59:25 PM	88.7	73.4	77.3
C	1212	1/11/2018	3:07:40 PM	90.7	76.5	81.2
C	1212	1/11/2018	3:15:42 PM	83.0	70.0	72.4
C	1212	1/11/2018	3:18:51 PM	88.6	75.0	79.3
C	1212	1/11/2018	3:22:00 PM	78.7	67.6	69.1
C	1212	1/11/2018	3:25:00 PM	84.5	69.9	72.9
C	1212	1/11/2018	3:28:48 PM	83.3	70.3	72.1
C	1212	1/11/2018	3:36:18 PM	89.3	74.9	78.6
C	1212	1/11/2018	3:50:19 PM	86.9	72.5	75.9
C	1212	1/11/2018	3:56:37 PM	86.1	72.2	75.3
D	1216	1/11/2018	7:01:30 AM	83.7	70.7	73.6
D	1216	1/11/2018	7:27:03 AM	87.2	71.9	76.2
D	1216	1/11/2018	8:35:06 AM	84.4	72.1	75.1
D	1216	1/11/2018	9:10:22 AM	76.4	66.4	67.1
D	1216	1/11/2018	9:38:45 AM	79.0	67.2	69.2
D	1216	1/11/2018	10:05:18 AM	83.6	71.1	74.1
D	1216	1/11/2018	1:19:20 PM	84.0	70.9	73.8
D	1216	1/12/2018	7:03:13 AM	83.4	69.8	71.8
D	1216	1/12/2018	7:04:05 AM	87.1	72.3	76.8
D	1216	1/12/2018	7:05:08 AM	84.7	70.9	74.0
D	1216	1/12/2018	7:07:52 AM	85.3	70.9	75.1
D	1216	1/12/2018	7:12:04 AM	84.4	72.4	74.9
D	1216	1/12/2018	7:12:58 AM	83.6	70.6	73.5
D	1216	1/12/2018	7:20:14 AM	84.0	69.3	71.7
D	1216	1/12/2018	7:24:09 AM	82.3	69.6	71.5



**Table 15. Aircraft Noise Events for Locations C-E (cont'd)**

Source: HMMH, SNA's ANOMS System

Location	Meter	Date	Time	SEL	Leq	Lmax
D	1216	1/12/2018	7:59:26 AM	84.0	71.7	74.5
D	1216	1/12/2018	9:33:30 AM	83.8	71.3	73.6
D	1216	1/12/2018	9:58:53 AM	83.4	71.9	74.7
D	1216	1/12/2018	10:22:15 AM	83.7	71.4	73.8
D	1216	1/12/2018	11:28:47 AM	79.1	68.7	70.3
D	1216	1/12/2018	1:32:54 PM	84.4	71.2	73.6
D	1216	1/12/2018	1:42:21 PM	84.8	72.0	75.1
D	1216	1/12/2018	2:08:32 PM	85.8	72.4	75.4
D	1216	1/12/2018	2:28:53 PM	81.9	70.7	73.5
D	1216	1/12/2018	2:30:48 PM	78.0	67.6	69.1
D	1216	1/12/2018	2:42:17 PM	83.4	72.2	75.3
D	1216	1/12/2018	3:11:40 PM	85.2	72.4	76.5
D	1216	1/12/2018	3:15:26 PM	82.5	69.4	71.8
D	1216	1/12/2018	3:21:06 PM	76.7	66.7	67.2
E	1286	1/11/2018	7:01:21 AM	89.2	74.5	79.0
E	1286	1/11/2018	7:02:53 AM	86.4	71.0	73.4
E	1286	1/11/2018	7:04:40 AM	83.3	70.1	72.4
E	1286	1/11/2018	7:06:12 AM	89.3	74.8	78.3
E	1286	1/11/2018	7:07:44 AM	85.2	71.4	74.9
E	1286	1/11/2018	7:09:13 AM	89.0	74.1	78.1
E	1286	1/11/2018	7:11:03 AM	90.9	75.8	80.3
E	1286	1/11/2018	7:12:18 AM	87.0	72.8	76.2
E	1286	1/11/2018	7:15:30 AM	88.9	74.6	78.7
E	1286	1/11/2018	7:16:51 AM	90.1	75.9	80.5
E	1286	1/11/2018	7:18:34 AM	81.7	69.2	71.3
E	1286	1/11/2018	7:23:23 AM	88.5	72.6	76.1
E	1286	1/11/2018	7:26:48 AM	85.4	71.6	74.3
E	1286	1/11/2018	7:28:08 AM	86.5	72.0	75.2
E	1286	1/11/2018	7:30:12 AM	85.3	71.2	74.3
E	1286	1/11/2018	7:36:51 AM	84.7	70.7	74.2
E	1286	1/11/2018	7:40:37 AM	81.5	68.9	71.2
E	1286	1/11/2018	7:53:25 AM	82.5	69.3	71.6
E	1286	1/11/2018	8:03:07 AM	88.8	75.2	79.2
E	1286	1/11/2018	8:04:59 AM	77.6	67.2	68.8
E	1286	1/11/2018	8:08:28 AM	78.7	67.5	68.6



**Table 16. Aircraft Noise Events for Locations C-E (cont'd)**

Source: HMMH, SNA's ANOMS System

Location	Meter	Date	Time	SEL	Leq	Lmax
E	1286	1/11/2018	8:09:31 AM	88.7	74.0	78.2
E	1286	1/11/2018	8:12:26 AM	86.1	71.8	75.1
E	1286	1/11/2018	8:14:10 AM	83.5	70.2	72.4
E	1286	1/11/2018	8:16:12 AM	81.5	70.7	73.5
E	1286	1/11/2018	8:20:35 AM	89.1	74.7	78.7
E	1286	1/11/2018	8:23:34 AM	84.7	71.1	73.8
E	1286	1/11/2018	8:26:15 AM	85.9	73.4	76.8
E	1286	1/11/2018	8:27:17 AM	83.0	69.6	71.8
E	1286	1/11/2018	8:27:17 AM	83.0	69.6	71.8
E	1286	1/11/2018	8:31:06 AM	84.8	70.3	73.0
E	1286	1/11/2018	8:32:39 AM	84.0	70.0	72.2
E	1286	1/11/2018	8:34:59 AM	90.1	75.9	79.9
E	1286	1/11/2018	8:36:02 AM	86.9	72.8	76.2
E	1286	1/11/2018	8:37:37 AM	87.5	72.5	75.3
E	1286	1/11/2018	8:54:31 AM	84.0	70.3	73.2
E	1286	1/11/2018	9:08:59 AM	87.3	73.5	77.4
E	1286	1/11/2018	9:10:17 AM	81.4	69.1	72.0
E	1286	1/11/2018	9:12:00 AM	79.3	68.8	70.9
E	1286	1/11/2018	9:26:38 AM	83.4	70.0	72.8
E	1286	1/11/2018	9:31:47 AM	85.8	71.9	74.9
E	1286	1/11/2018	9:38:42 AM	81.8	70.0	71.5
E	1286	1/11/2018	9:41:03 AM	83.9	70.5	73.0
E	1286	1/11/2018	9:43:26 AM	84.2	71.0	73.4
E	1286	1/11/2018	9:50:15 AM	87.5	74.1	77.7
E	1286	1/11/2018	10:03:54 AM	89.7	75.9	80.5
E	1286	1/11/2018	10:05:13 AM	89.7	76.0	80.4
E	1286	1/11/2018	10:06:03 AM	86.7	72.3	76.4
E	1286	1/11/2018	10:08:59 AM	82.1	71.4	74.0
E	1286	1/11/2018	10:29:20 AM	84.6	70.8	73.7
E	1286	1/11/2018	10:32:24 AM	82.8	69.4	72.7
E	1286	1/11/2018	10:37:28 AM	85.2	71.8	74.7
E	1286	1/11/2018	10:38:37 AM	85.1	71.5	74.5
E	1286	1/11/2018	10:44:37 AM	78.8	68.4	70.0
E	1286	1/11/2018	10:50:59 AM	84.7	70.7	73.6
E	1286	1/11/2018	10:59:39 AM	84.5	71.0	74.7



**Table 17. Aircraft Noise Events for Locations C-E (cont'd)**

Source: HMMH, SNA's ANOMS System

Location	Meter	Date	Time	SEL	Leq	Lmax
E	1286	1/11/2018	11:16:15 AM	88.7	74.7	78.6
E	1286	1/11/2018	11:24:54 AM	88.3	74.9	78.5
E	1286	1/11/2018	11:29:12 AM	85.8	72.6	75.3
E	1286	1/11/2018	11:33:26 AM	83.4	70.8	73.9
E	1286	1/11/2018	1:11:17 PM	76.8	66.8	68.1
E	1286	1/11/2018	1:19:15 PM	88.9	75.5	79.4
E	1286	1/11/2018	1:20:59 PM	86.6	71.6	75.0
E	1286	1/11/2018	1:35:04 PM	88.5	75.3	79.0
E	1286	1/11/2018	1:37:09 PM	88.8	74.7	78.0
E	1286	1/11/2018	1:45:51 PM	81.1	69.3	71.5
E	1286	1/11/2018	1:54:10 PM	85.8	71.8	75.4
E	1286	1/11/2018	2:06:58 PM	86.1	71.7	75.1
E	1286	1/11/2018	2:22:34 PM	84.7	71.1	73.3
E	1286	1/11/2018	2:28:18 PM	84.9	71.1	73.1
E	1286	1/11/2018	2:49:36 PM	84.2	70.0	72.6
E	1286	1/11/2018	2:53:04 PM	77.1	67.1	68.0
E	1286	1/11/2018	2:59:43 PM	87.4	73.0	77.1
E	1286	1/11/2018	3:07:54 PM	90.6	76.8	81.5
E	1286	1/11/2018	3:15:56 PM	80.1	69.7	72.0
E	1286	1/11/2018	3:17:17 PM	85.1	70.6	73.0
E	1286	1/11/2018	3:19:01 PM	88.9	75.3	80.1
E	1286	1/11/2018	3:22:13 PM	78.9	67.8	69.1
E	1286	1/11/2018	3:25:21 PM	83.3	69.5	71.2
E	1286	1/11/2018	3:28:57 PM	85.5	71.9	76.0
E	1286	1/11/2018	3:48:01 PM	78.4	67.6	69.6
E	1286	1/11/2018	3:50:38 PM	84.5	71.1	73.2
E	1286	1/12/2018	7:01:30 AM	89.6	75.6	79.6
E	1286	1/12/2018	7:02:59 AM	86.6	71.9	74.5
E	1286	1/12/2018	7:03:52 AM	85.2	71.0	73.9
E	1286	1/12/2018	7:04:57 AM	87.1	72.4	75.2
E	1286	1/12/2018	7:08:44 AM	89.8	75.4	79.7
E	1286	1/12/2018	7:09:44 AM	78.3	68.3	69.9
E	1286	1/12/2018	7:11:56 AM	87.4	73.9	77.5
E	1286	1/12/2018	7:13:47 AM	89.7	75.9	79.8
E	1286	1/12/2018	7:15:34 AM	80.8	68.3	70.3





**Table 18. Aircraft Noise Events for Locations C-E (cont'd)**

Source: HMMH, SNA's ANOMS System

Location	Meter	Date	Time	SEL	Leq	Lmax
E	1286	1/12/2018	7:20:01 AM	86.2	72.4	75.7
E	1286	1/12/2018	7:21:18 AM	85.4	71.4	74.3
E	1286	1/12/2018	7:23:55 AM	85.0	71.2	74.0
E	1286	1/12/2018	7:25:07 AM	88.8	73.7	77.5
E	1286	1/12/2018	7:28:25 AM	84.9	71.3	74.1
E	1286	1/12/2018	7:39:53 AM	91.2	76.7	81.8
E	1286	1/12/2018	7:54:44 AM	81.7	68.9	70.6
E	1286	1/12/2018	7:57:16 AM	84.3	70.6	73.2
E	1286	1/12/2018	7:59:21 AM	88.1	74.6	78.5
E	1286	1/12/2018	8:03:18 AM	80.4	68.4	69.7
E	1286	1/12/2018	8:25:47 AM	89.1	75.0	79.2
E	1286	1/12/2018	8:30:40 AM	82.5	69.3	71.7
E	1286	1/12/2018	8:33:49 AM	84.6	71.0	74.0
E	1286	1/12/2018	8:35:38 AM	79.3	67.9	69.7
E	1286	1/12/2018	8:38:36 AM	89.9	76.4	81.2
E	1286	1/12/2018	8:50:32 AM	85.5	72.2	74.9
E	1286	1/12/2018	9:08:25 AM	80.9	67.6	69.1
E	1286	1/12/2018	9:12:57 AM	82.5	69.5	72.4
E	1286	1/12/2018	9:15:11 AM	86.6	72.0	74.4
E	1286	1/12/2018	9:17:15 AM	82.7	69.5	71.3
E	1286	1/12/2018	9:20:56 AM	87.9	74.1	78.0
E	1286	1/12/2018	9:47:29 AM	83.5	70.3	73.3
E	1286	1/12/2018	9:54:20 AM	88.2	75.0	78.8
E	1286	1/12/2018	9:58:52 AM	87.9	76.1	80.6
E	1286	1/12/2018	10:10:18 AM	89.4	74.9	78.9
E	1286	1/12/2018	10:37:21 AM	86.6	72.5	75.0
E	1286	1/12/2018	10:48:26 AM	84.6	71.4	74.3
E	1286	1/12/2018	11:16:39 AM	84.3	71.1	74.0
E	1286	1/12/2018	11:18:48 AM	84.5	71.4	74.1
E	1286	1/12/2018	11:28:46 AM	81.2	70.4	72.5
E	1286	1/12/2018	11:34:39 AM	88.6	74.6	79.4
E	1286	1/12/2018	11:41:36 AM	86.8	72.5	75.5
E	1286	1/12/2018	1:17:13 PM	81.4	69.1	71.6
E	1286	1/12/2018	1:23:40 PM	78.5	68.1	69.8
E	1286	1/12/2018	1:29:26 PM	86.4	72.0	75.3



**Table 19. Aircraft Noise Events for Locations C-E (cont'd)**

Source: HMMH, SNA's ANOMS System

Location	Meter	Date	Time	SEL	Leq	Lmax
E	1286	1/12/2018	1:32:48 PM	89.4	75.0	79.3
E	1286	1/12/2018	1:38:30 PM	78.8	68.4	70.0
E	1286	1/12/2018	1:42:14 PM	89.7	75.5	79.8
E	1286	1/12/2018	1:43:59 PM	87.0	73.0	76.5
E	1286	1/12/2018	1:45:43 PM	90.4	77.2	81.0
E	1286	1/12/2018	2:03:27 PM	85.7	71.8	75.5
E	1286	1/12/2018	2:08:30 PM	91.9	78.1	82.8
E	1286	1/12/2018	2:23:09 PM	85.2	72.2	74.9
E	1286	1/12/2018	2:28:52 PM	78.7	68.7	70.5
E	1286	1/12/2018	2:42:14 PM	90.4	76.9	81.5
E	1286	1/12/2018	2:44:48 PM	84.9	71.7	74.8
E	1286	1/12/2018	2:47:37 PM	82.5	70.2	72.8
E	1286	1/12/2018	2:53:41 PM	89.5	75.2	78.7
E	1286	1/12/2018	3:05:19 PM	80.8	68.7	71.2
E	1286	1/12/2018	3:08:27 PM	81.5	70.7	73.7
E	1286	1/12/2018	3:11:41 PM	88.7	75.7	79.4
E	1286	1/12/2018	3:14:05 PM	78.3	67.8	69.2
E	1286	1/12/2018	3:15:14 PM	85.9	72.1	76.2
E	1286	1/12/2018	3:48:54 PM	89.4	76.2	80.1
E	1286	1/12/2018	3:50:13 PM	84.1	70.3	73.1
E	1286	1/12/2018	3:52:22 PM	90.3	76.9	81.6
E	1286	1/12/2018	3:55:36 PM	85.4	72.0	75.0
E	1286	1/12/2018	3:59:35 PM	79.1	67.7	69.3

