

*Appendix E*

*Best Fit Coefficients of Vibration Propagation Data  
and Propagation Testing Results*

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*Appendix E*

# **Appendix E: Best Fit Coefficients of Vibration Propagation Data and Propagation Testing Results**

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The best fit coefficients of the vibration propagation test results from the FWLE project corridor provided in Tables E-1 and E-2. The best coefficients A, B, and C are presented such that:

$$\text{Line Source Transfer Mobility (LSTM)} = A + B(x) + C \log(x)$$

Where x is the distance from the impact line.

Graphs of LSTM and coherence measured at test sites V-1 through V-20 are shown in Exhibits E-1 through E-20.

**TABLE E-1**  
Vibration Propagation Best Fit Coefficients Sites V-1 to V-6

Site	Co-efficient	5Hz	6.3Hz	8Hz	10Hz	12.5Hz	16Hz	20Hz	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz
V-1	A	47.9	38.7	32.1	22.0	23.0	35.7	11.6	32.2	-17.5	-8.4	-57.3	-130.5	-151.8	-34.8	-36.1	78.2	100.6	90.2	87.0
	B	-22.6	-19.4	-16.3	-9.7	-8.3	-13.2	22.7	12.3	82.5	78.7	147.6	244.2	267.0	111.0	117.3	-28.7	-55.9	-52.4	-53.7
	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-11.2	-9.7	-30.4	-30.5	-54.2	-86.7	-94.2	-45.5	-50.0	-5.9	0.0	0.0
V-2	A	11.4	16.4	22.3	18.8	27.0	31.7	43.7	59.8	81.0	86.9	110.0	101.5	86.8	74.6	76.6	74.5	76.4	63.4	34.6
	B	-3.2	-5.4	-6.9	-1.6	-4.6	-5.6	-9.3	-15.5	-26.2	-27.8	-42.4	-40.4	-35.3	-32.7	-37.0	-39.3	-44.9	-42.8	-30.0
	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V-3	A	38.0	26.6	31.2	25.1	26.3	26.6	35.5	-25.2	-29.1	-44.3	13.5	-17.5	-21.0	69.5	63.1	74.2	72.8	58.8	52.0
	B	-16.6	-10.9	-12.7	-8.7	-8.6	-7.9	-10.4	69.5	88.1	110.8	45.4	78.8	80.5	-29.0	-28.3	-37.4	-40.4	-34.6	-32.1
	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-22.8	-29.9	-37.2	-19.9	-29.5	-30.4	0.0	0.0	0.0	0.0	0.0
V-4	A	15.9	7.7	19.1	12.9	24.9	28.0	29.4	-46.5	-103.5	-57.8	-72.9	-62.5	6.9	71.8	60.6	-119.3	-72.1	-35.3	-66.0
	B	-6.8	-2.7	-9.5	-5.7	-11.5	-10.1	-8.5	93.1	176.0	137.0	172.3	153.5	56.0	-29.2	-11.3	198.1	151.6	97.5	132.3
	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-29.8	-54.7	-46.1	-62.7	-57.3	-26.1	0.0	-8.2	-70.1	-60.7	-42.7
V-5	A	-0.4	-16.7	3.4	8.1	13.2	20.0	23.7	24.8	21.0	-15.4	-3.0	10.4	35.6	10.7	73.9	75.8	50.5	71.3	54.4
	B	0.8	16.4	-1.7	-4.0	-6.6	-9.8	-10.0	-6.1	13.0	69.8	65.9	61.9	31.5	52.4	-23.8	-31.5	-4.7	-35.0	-34.5
	C	0.0	-4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-6.6	-25.7	-27.4	-29.7	-22.0	-27.4	-6.8	-4.8	-12.5	-3.4
V-6	A	-34.1	3.0	12.1	8.7	18.7	42.0	70.7	72.7	80.5	56.5	90.4	67.5	66.6	72.1	63.9	47.6	50.1	9.4	1.4
	B	41.2	-2.7	-8.5	-3.6	-4.8	-12.5	-24.8	-23.8	-27.4	3.4	-35.9	-26.3	-27.5	-33.2	-32.6	-27.1	-30.0	-7.5	-4.8
	C	-12.2	-0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE E-2  
Vibration Propagation Best Fit Coefficients Sites V-7 to V-12

Site	Co-efficient	5Hz	6.3Hz	8Hz	10Hz	12.5Hz	16Hz	20Hz	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz
V-7	A	28.8	18.5	15.4	5.0	11.1	31.4	37.4	-104.1	-106.6	-67.5	1.3	40.4	13.1	33.2	87.0	39.8	76.9	54.6	54.9
	B	-14.5	-10.3	-8.0	10.6	11.6	-8.8	-9.0	171.9	185.1	148.4	71.1	16.1	46.1	26.3	-41.9	9.1	-40.8	-31.7	-35.6
	C	0.0	0.0	0.0	-5.7	-6.5	0.0	0.4	-52.8	-58.1	-50.1	-30.8	-14.1	-22.7	-19.6	0.0	-15.0	0.0	0.0	0.0
V-8	A	44.9	29.4	26.9	23.2	26.2	38.4	47.0	24.0	4.4	-60.7	-25.2	-25.1	35.7	-1.3	-28.5	-24.2	82.3	45.3	13.6
	B	-23.1	-15.4	-14.1	-10.6	-8.9	-13.2	-16.4	16.3	50.0	141.1	104.7	103.0	25.5	63.8	91.7	84.5	-50.4	-33.7	-18.8
	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-9.8	-21.1	-51.1	-43.3	-43.7	-21.4	-32.4	-41.0	-39.7	0.0	0.0
V-9	A	28.1	22.3	15.0	20.0	24.7	-9.2	48.6	59.4	-53.1	-31.8	-20.8	-26.7	17.8	75.9	80.5	86.7	48.2	-35.6	7.9
	B	-9.5	-4.5	-1.0	-1.0	-4.4	36.8	-16.5	-13.0	119.7	105.2	94.9	100.7	37.8	-33.2	-46.2	-53.0	-30.6	69.7	12.6
	C	0.0	0.0	0.0	0.0	0.0	-11.6	0.9	-3.0	-40.7	-40.0	-39.4	-42.8	-23.8	-4.1	0.0	0.0	0.0	-27.6	-10.3
V-10	A	15.4	15.6	17.9	19.8	28.3	36.6	48.5	39.4	1.1	-6.7	-24.5	31.6	41.6	37.3	-27.6	-57.1	-59.7	46.2	32.4
	B	-6.7	-8.2	-10.9	-12.1	-15.6	-17.9	-20.9	2.7	64.6	83.5	104.6	39.9	19.0	17.5	85.7	108.9	107.3	-17.6	-10.9
	C	0.0	0.0	0.0	0.0	0.0	0.0	-0.1	-6.9	-26.0	-33.6	-40.0	-22.7	-15.1	-15.5	-34.4	-40.1	-39.6	-5.0	-6.4
V-11	A	43.2	45.3	39.7	33.6	28.8	28.5	3.3	25.3	15.1	-13.4	22.2	-8.5	17.6	73.8	71.7	63.8	46.1	59.9	48.9
	B	-19.3	-22.0	-19.2	-16.3	-14.2	-14.2	20.7	5.2	29.2	75.7	39.4	80.7	47.1	-21.8	-31.4	-29.6	-3.2	-29.2	-22.6
	C	0.0	0.0	0.0	0.0	0.0	0.0	-9.8	-5.6	-12.2	-27.7	-18.2	-32.1	-22.9	-4.3	0.0	0.0	-9.8	-0.2	-2.0
V-12	A	12.3	10.2	15.5	10.6	12.0	21.9	-55.6	-5.4	39.1	49.2	-6.3	44.8	-47.7	-163.4	-19.6	-146.1	-55.9	-40.6	60.7
	B	-8.4	-8.3	-10.8	-7.6	-8.8	-14.4	95.0	39.0	-13.7	-14.1	72.9	8.7	109.1	247.9	70.7	219.1	109.0	93.2	-35.7
	C	0.0	0.0	0.0	0.0	0.0	0.0	-35.8	-18.2	0.0	0.0	-30.6	-12.3	-39.6	-81.2	-28.2	-73.2	-41.6	-39.8	0.0

**TABLE E-3**  
Vibration Propagation Best Fit Coefficients Sites V-13 to V-18

Site	Co-efficient	5Hz	6.3Hz	8Hz	10Hz	12.5Hz	16Hz	20Hz	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz
V-13	A	34.3	23.6	13.6	25.3	21.4	24.5	28.0	38.4	35.2	14.6	36.4	43.3	64.9	96.2	70.8	49.0	-31.5	-42.8	-37.3
	B	-18.4	-11.8	2.2	-11.8	-9.6	-10.3	-9.9	-12.7	-10.8	-0.8	-13.8	-17.7	-29.4	-47.4	-35.4	-2.0	92.5	122.3	113.8
	C	0.0	0.0	-5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-11.7	-39.9	-52.9	-51.7
V-14	A	41.8	33.0	29.0	28.7	24.9	19.1	19.2	18.3	-5.3	35.7	35.2	64.2	48.7	63.4	63.6	54.4	57.2	72.6	77.3
	B	-20.6	-16.1	-13.4	-12.1	-9.1	-5.2	-4.8	-3.6	31.2	-12.2	-2.8	-30.1	-24.4	-31.5	-31.5	-28.5	-32.0	-39.2	-41.3
	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-11.2	0.0	-6.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V-15	A	0.3	6.3	12.9	11.3	15.3	22.3	37.3	-19.3	43.2	18.9	-0.1	18.8	63.5	90.1	93.8	81.1	54.2	49.3	49.6
	B	-2.6	-5.6	-7.8	-5.7	-8.0	-11.1	-18.6	57.9	-20.5	-6.1	22.7	14.5	-30.8	-45.7	-49.2	-44.0	-32.1	-30.7	-33.8
	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-24.2	0.0	0.0	-10.1	-11.8	0.0	0.0	0.0	0.0	0.0	0.0
V-16	A	17.0	22.6	25.1	29.4	36.1	45.5	53.3	63.1	64.1	63.4	73.0	84.8	81.7	70.4	79.3	85.6	86.0	81.4	85.5
	B	-9.6	-12.5	-10.1	-8.4	-11.8	-17.6	-19.3	-20.8	-17.4	-15.3	-24.3	-33.1	-31.5	-24.9	-35.3	-42.4	-47.8	-49.3	-56.2
	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V-17	A	8.3	13.1	11.7	13.8	19.5	35.7	40.4	43.5	58.1	77.8	89.7	89.5	71.9	78.7	85.6	69.9	68.1	56.9	59.7
	B	-2.4	-4.6	-3.6	-5.3	-8.8	-17.8	-17.9	-15.7	-18.6	-25.5	-33.4	-34.8	-27.4	-33.4	-39.6	-33.2	-35.9	-33.9	-35.9
	C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V-18	A	4.1	13.5	16.6	11.8	22.3	37.4	58.0	73.0	72.8	64.1	62.3	73.3	75.3	75.7	65.8	68.4	55.1	41.2	38.9
	B	-0.5	-6.9	-8.2	-2.6	-7.6	-13.7	-23.1	-27.5	-27.0	-22.2	-23.1	-30.5	-34.2	-36.4	-33.2	-37.8	-33.8	-28.6	-29.9
	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

TABLE E-4  
Vibration Propagation Best Fit Coefficients Sites V-19,V-20, and Averages

Site	Co-efficient	5Hz	6.3Hz	8Hz	10Hz	12.5Hz	16Hz	20Hz	25Hz	31.5Hz	40Hz	50Hz	63Hz	80Hz	100Hz	125Hz	160Hz	200Hz	250Hz	315Hz
V-19	A	14.8	13.7	14.7	15.2	17.6	20.0	30.5	41.5	46.7	49.2	61.3	66.3	80.7	81.0	85.5	83.2	119.0	139.8	126.1
	B	-4.6	-2.3	-4.8	-2.6	-4.3	-6.1	-9.9	-11.7	-8.4	-7.3	-13.1	-15.2	-26.3	-30.8	-34.8	-35.3	-61.6	-78.3	-71.3
	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V-20	A	12.3	11.0	11.1	5.7	5.7	16.9	34.1	36.4	50.8	74.2	81.5	83.1	69.5	64.3	58.4	59.7	73.9	57.9	66.6
	B	-5.8	-5.8	-4.7	-1.4	-1.3	-7.1	-13.5	-9.1	-12.3	-25.2	-30.1	-34.0	-28.2	-25.7	-24.3	-27.9	-40.0	-33.3	-41.1
	C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Avg V-1,2,18	A	60.0	35.6	25.5	17.3	24.4	34.1	46.7	63.7	57.1	67.1	87.3	82.5	73.1	67.4	82.3	87.4	111.9	108.2	109.1
	B	-48.2	-24.6	-12.6	-3.7	-5.7	-10.9	-15.4	-21.9	-2.2	-8.8	-21.2	-20.6	-18.4	-20.5	-37.5	-46.9	-78.1	-82.7	-90.0
	C	10.0	4.0	1.2	0.4	0.2	1.0	1.2	1.2	-6.7	-5.3	-5.5	-5.8	-5.7	-4.7	-1.4	0.5	8.1	10.2	12.3
Avg V-3,17	A	44.0	24.8	31.2	22.6	24.1	30.2	36.9	-17.5	-4.6	27.8	57.5	45.4	30.8	76.4	87.6	72.4	70.9	58.0	57.5
	B	-29.4	-12.4	-17.3	-8.8	-8.6	-13.3	-13.8	58.3	57.5	30.4	0.2	12.7	20.1	-33.5	-47.4	-36.1	-39.1	-34.4	-35.7
	C	4.7	1.1	2.1	0.2	0.0	1.1	0.7	-19.8	-21.2	-15.2	-8.5	-12.4	-13.3	0.6	3.4	0.4	0.5	0.0	0.4
Avg V-11,20	A	47.1	53.8	46.1	39.9	31.3	26.4	22.2	35.7	38.4	24.4	37.0	6.8	31.7	82.2	70.1	62.2	51.3	58.7	54.5
	B	-28.8	-37.7	-32.8	-30.5	-23.5	-15.1	-0.5	-8.3	1.9	32.2	21.6	60.1	26.6	-37.1	-33.1	-29.1	-11.0	-30.1	-30.1
	C	3.4	5.6	5.3	5.8	4.4	1.4	-3.7	-0.7	-4.2	-15.7	-13.6	-26.2	-16.7	1.3	1.4	0.1	-7.7	-0.1	-0.4
Avg V-1-12	A	51.2	52.5	38.7	48.9	44.8	49.6	73.9	63.1	26.5	21.5	43.4	19.3	20.4	53.4	54.3	55.4	34.6	64.1	60.4
	B	-36.3	-40.8	-26.0	-38.2	-30.0	-28.8	-43.1	-22.3	29.7	42.2	22.5	47.8	39.5	-5.1	-10.6	-17.2	6.8	-39.0	-41.8
	C	6.1	7.6	3.8	8.5	6.0	5.1	7.3	0.7	-14.9	-19.5	-15.9	-23.5	-20.5	-8.0	-6.7	-5.1	-13.1	2.2	3.5

## Measured Line Source Transfer Mobility and Coherence at Test Sites

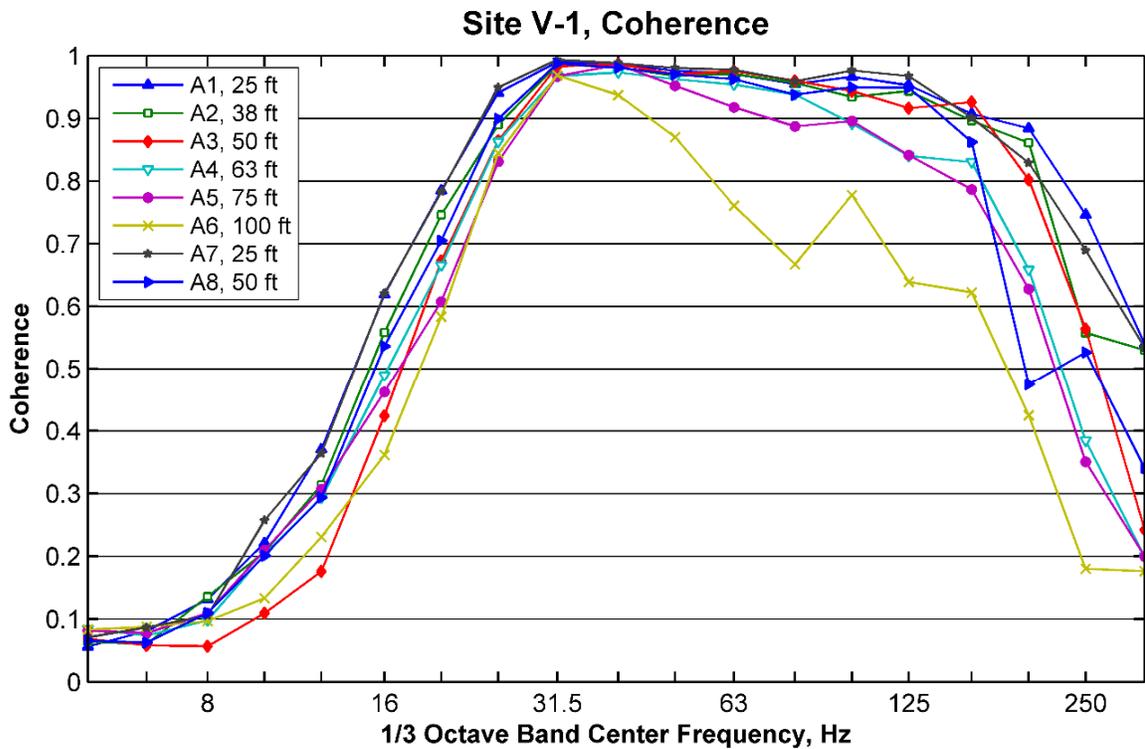
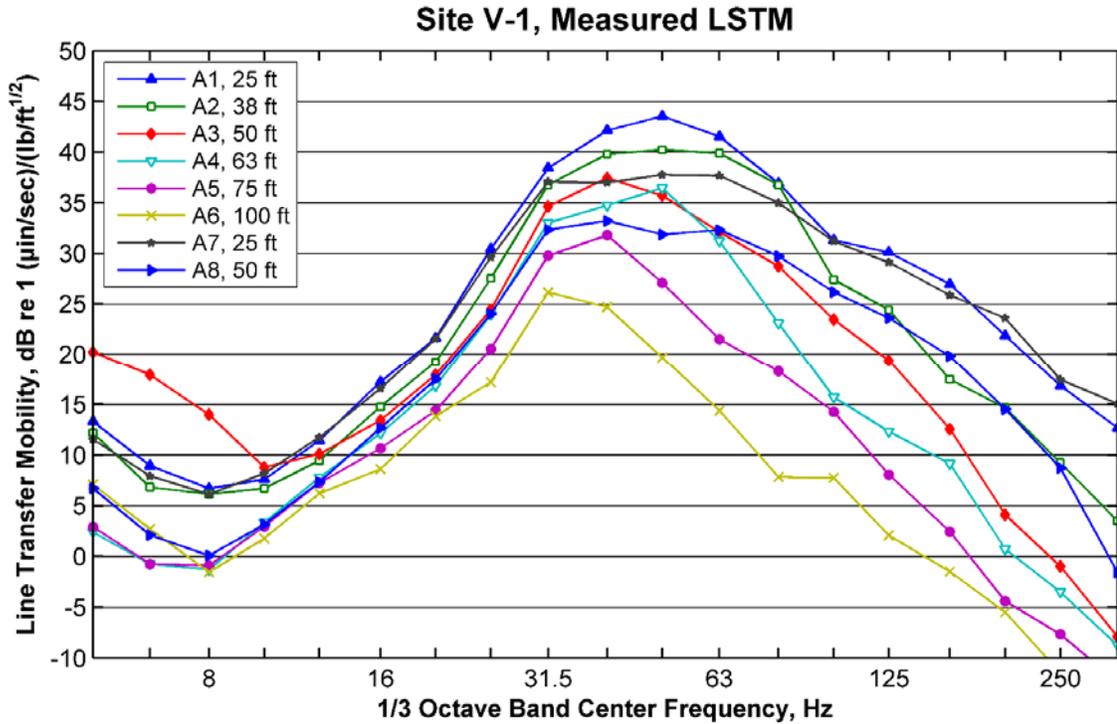


EXHIBIT E-1  
Measured LSTM and Coherence at Test Site V-1 (surface site)

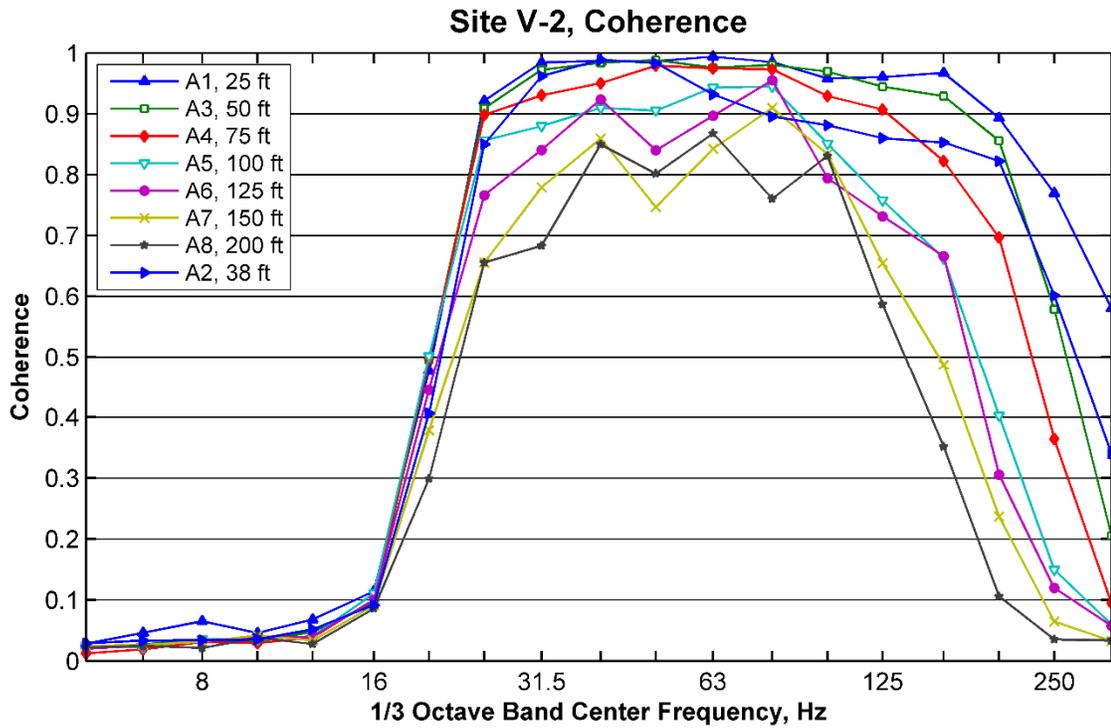
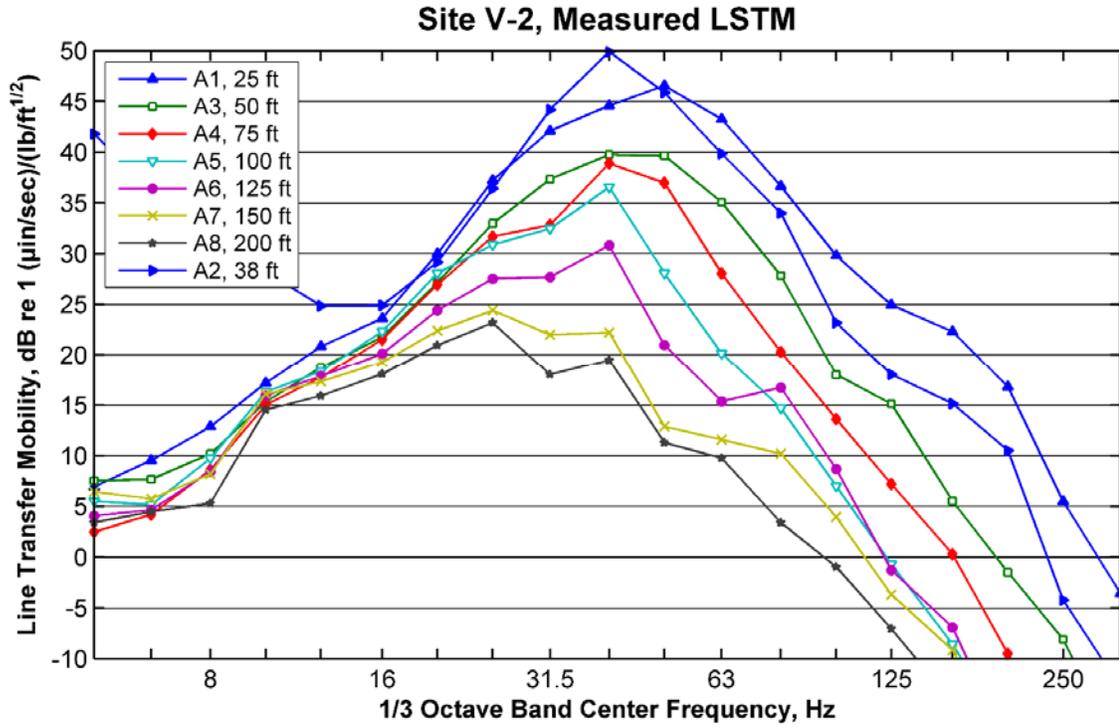


EXHIBIT E-2  
Measured LSTM and Coherence at Test Site V-2 (surface site)

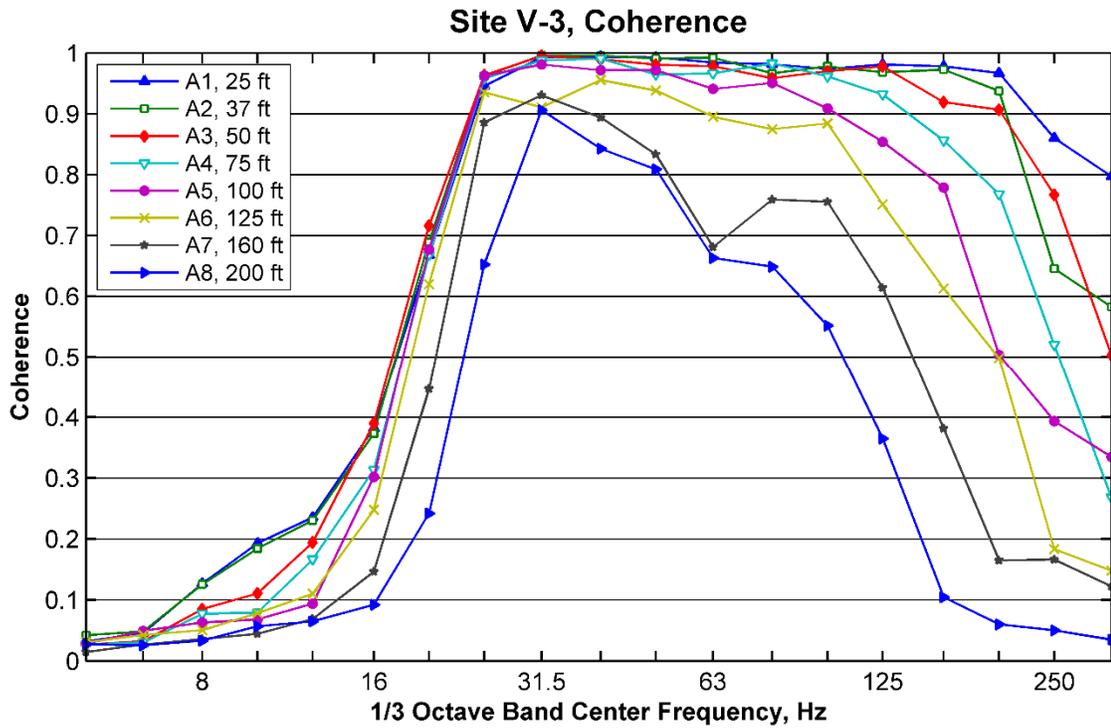
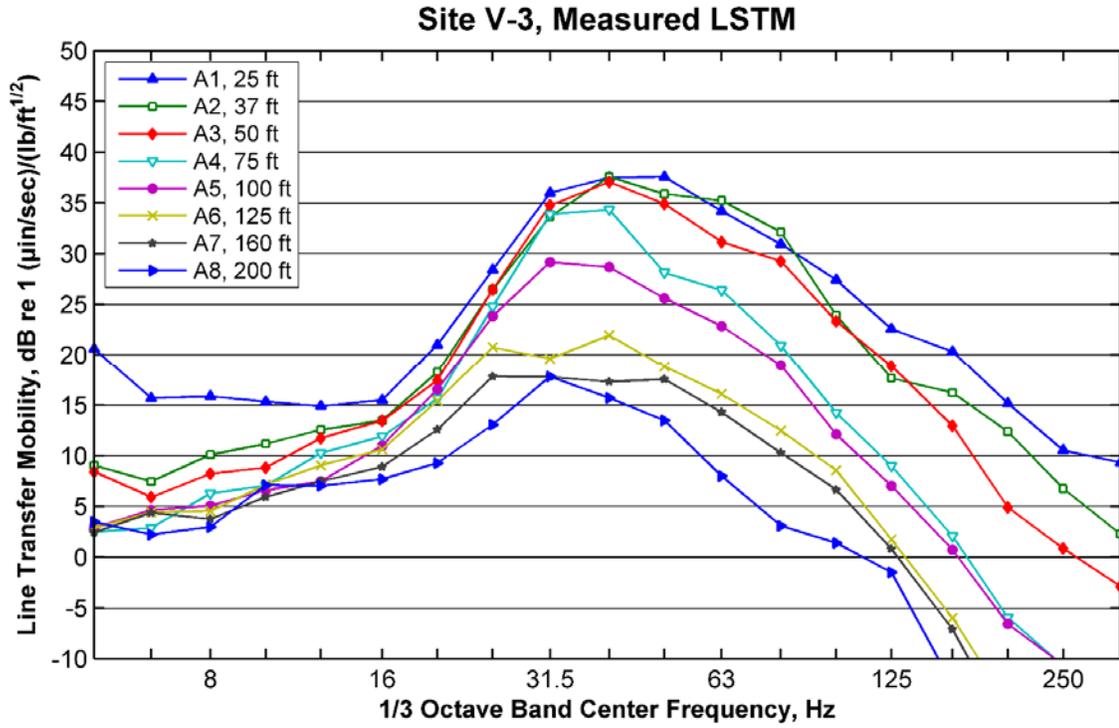


EXHIBIT E-3  
Measured LSTM and Coherence at Test Site V-3 (surface site)

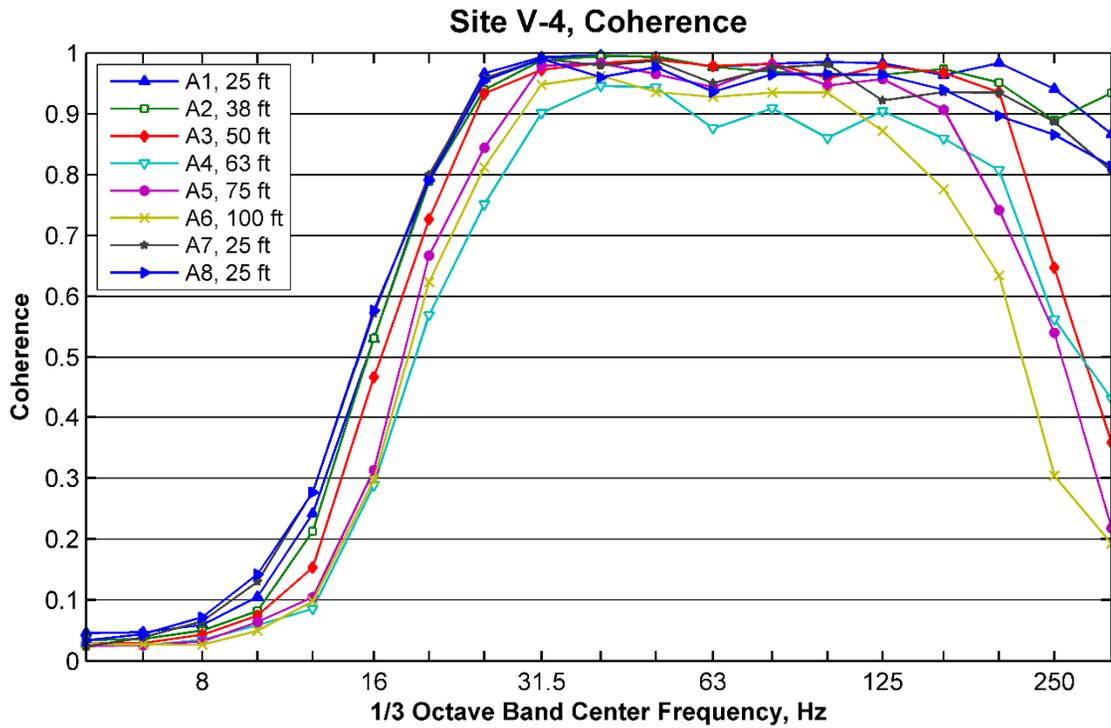
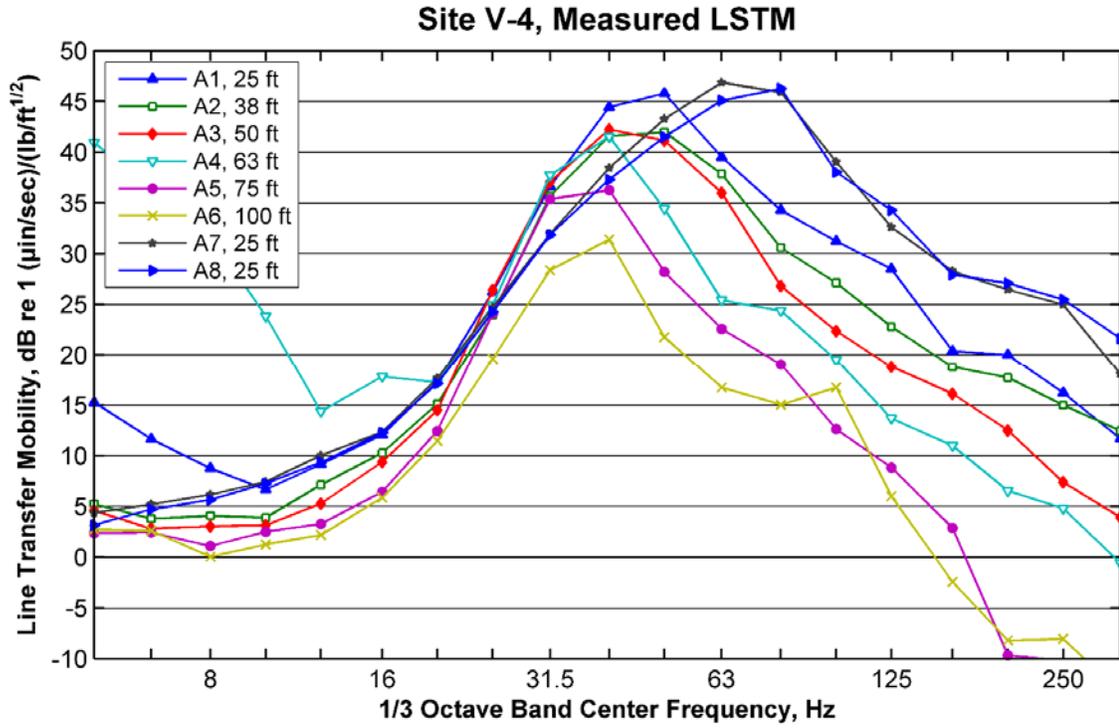


EXHIBIT E-4  
Measured LSTM and Coherence at Test Site V-4 (surface site)

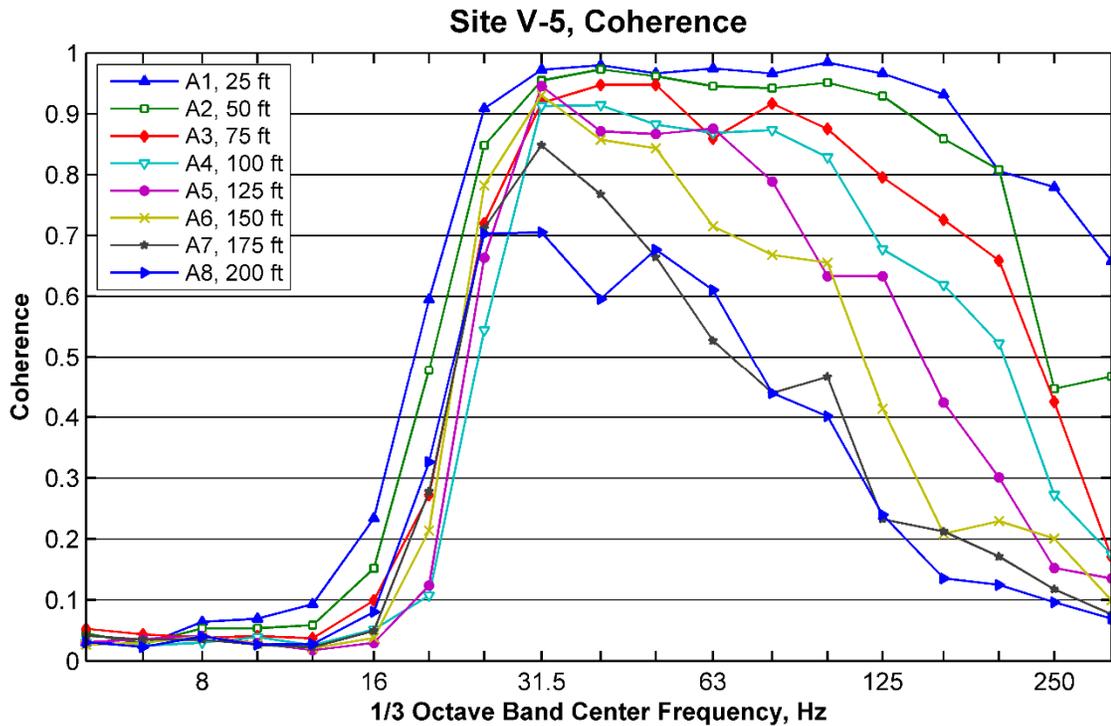
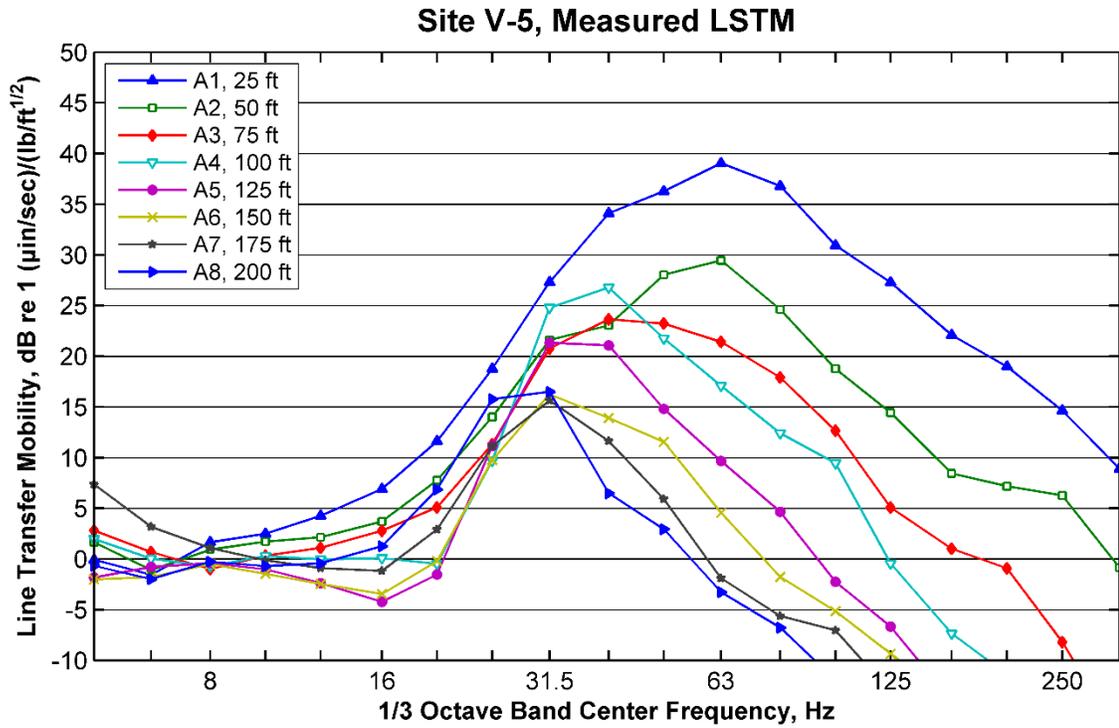


EXHIBIT E-5  
Measured LSTM and Coherence at Test Site V-5 (surface site)

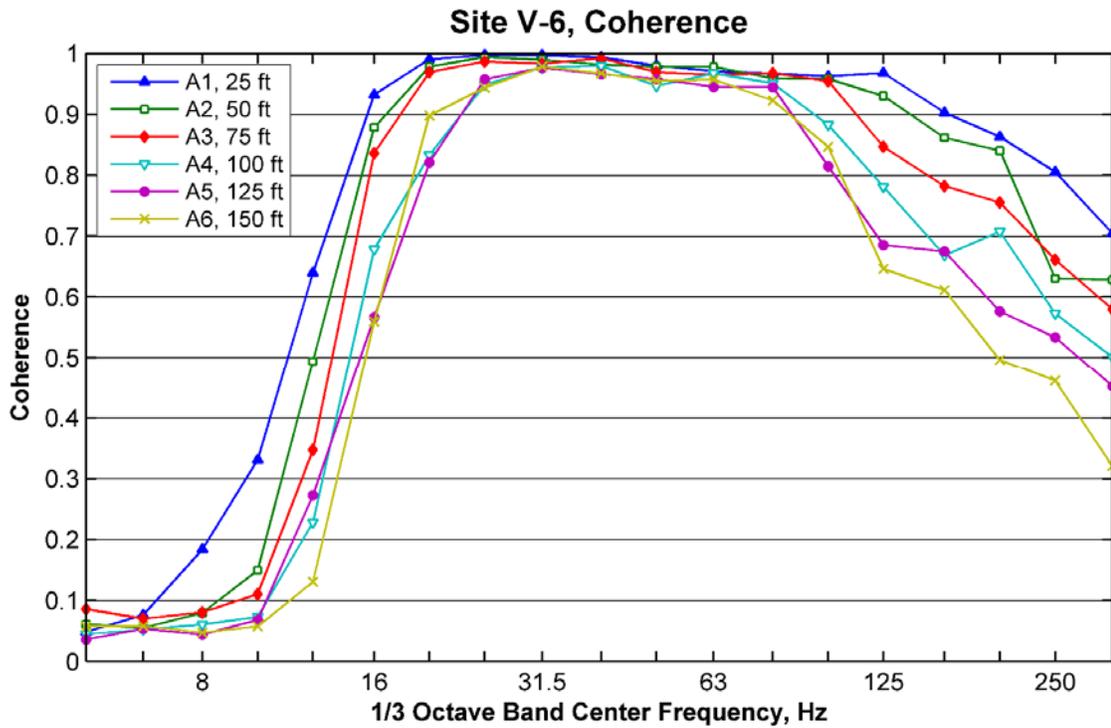
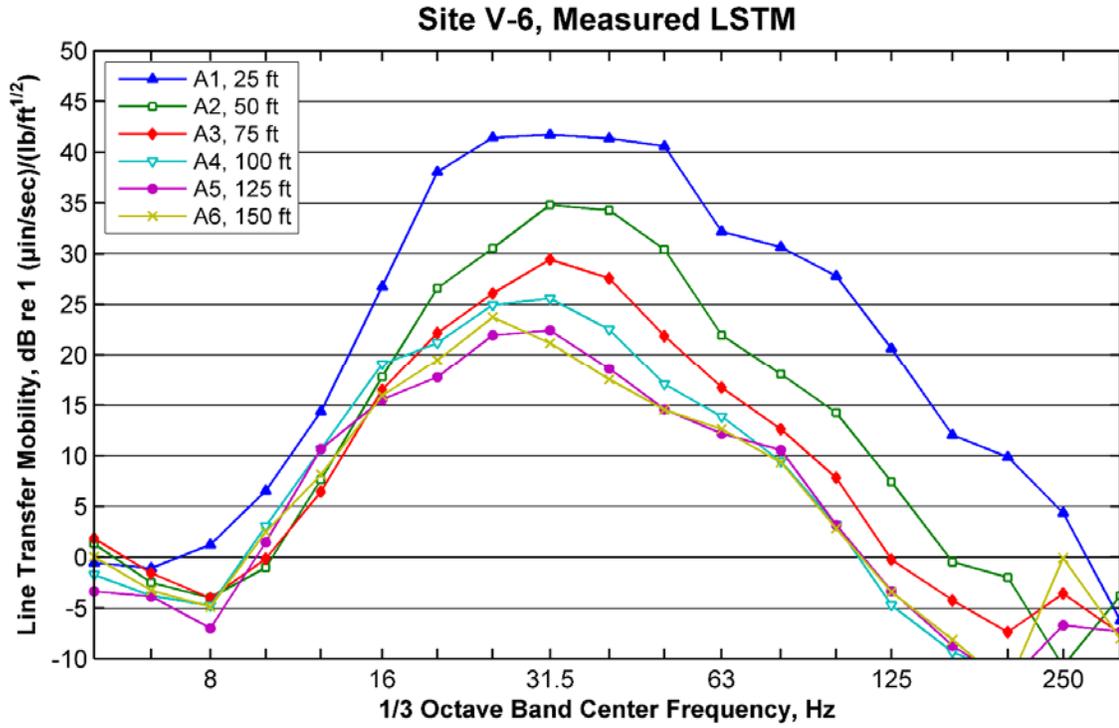


EXHIBIT E-6  
Measured LSTM and Coherence at Test Site V-6 (surface site)

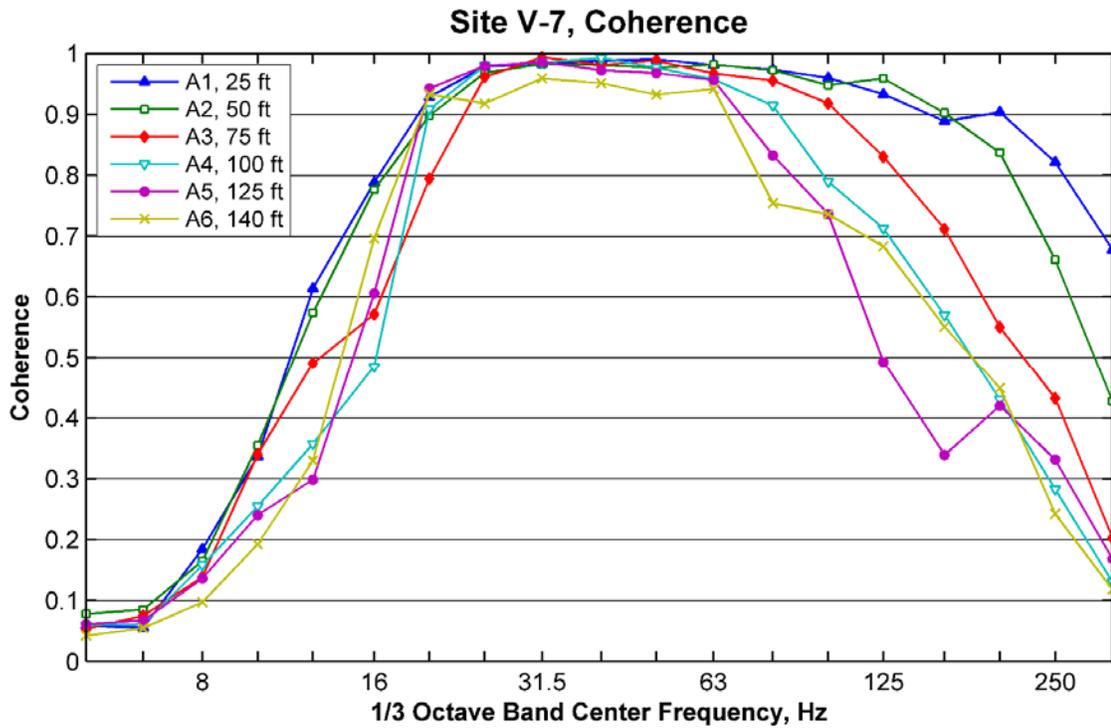
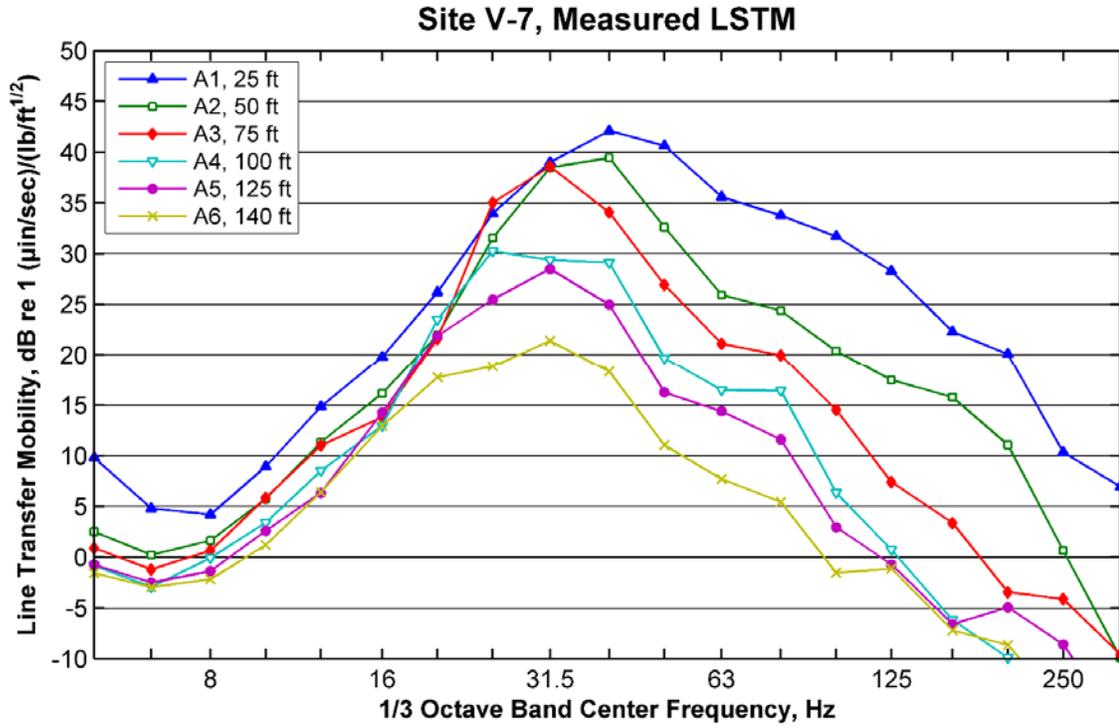


EXHIBIT E-7  
Measured LSTM and Coherence at Test Site V-7 (surface site)

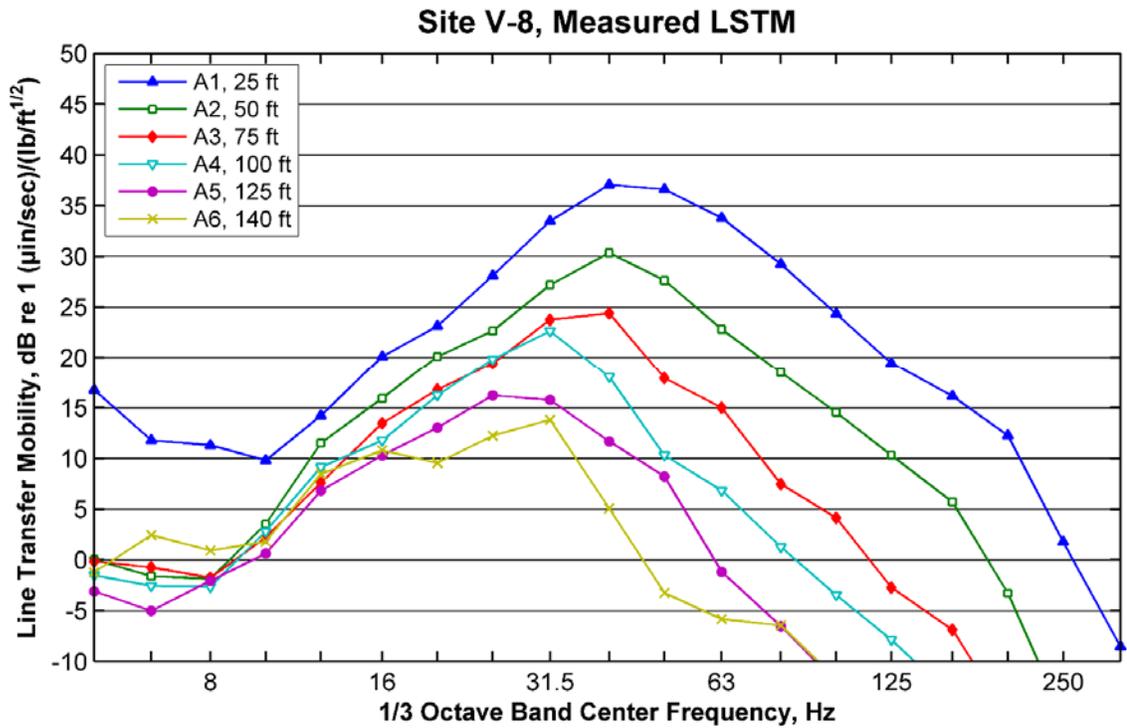
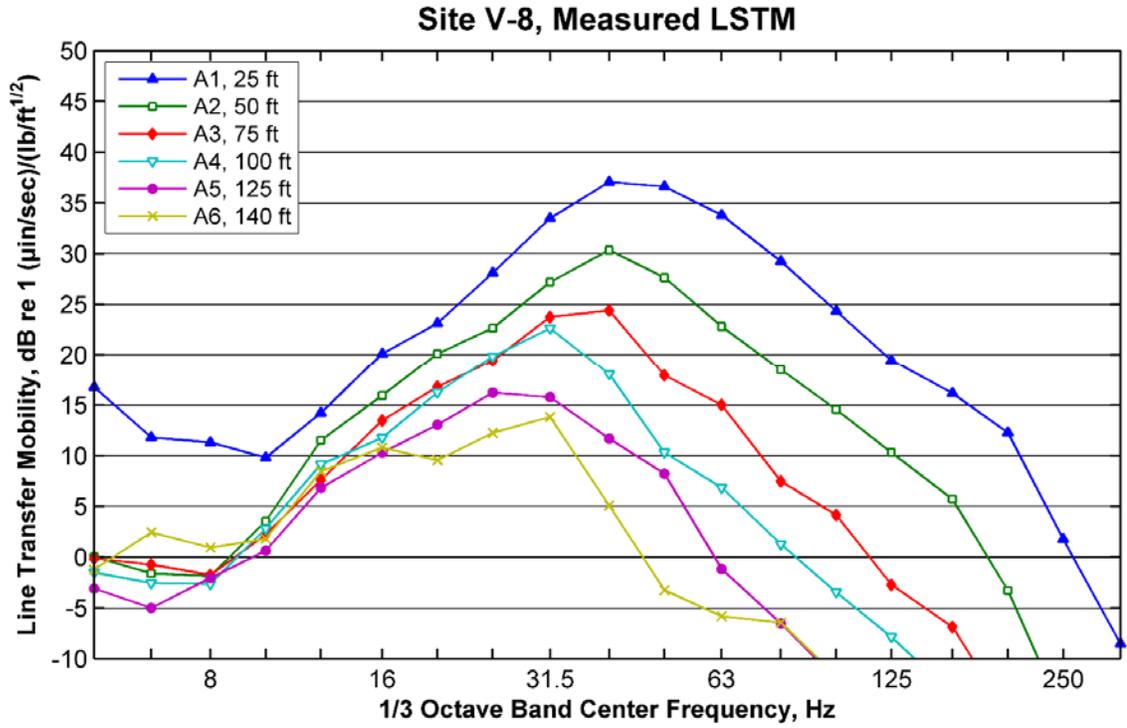


EXHIBIT E-8  
Measured LSTM and Coherence at Test Site V-8 (surface site)

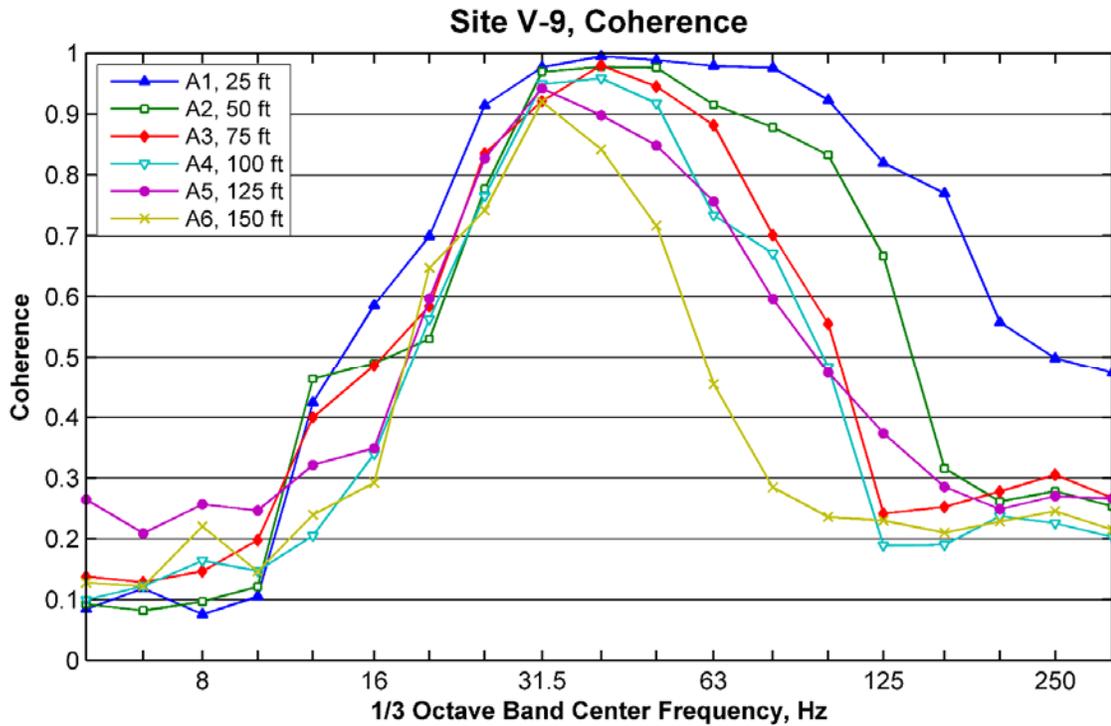
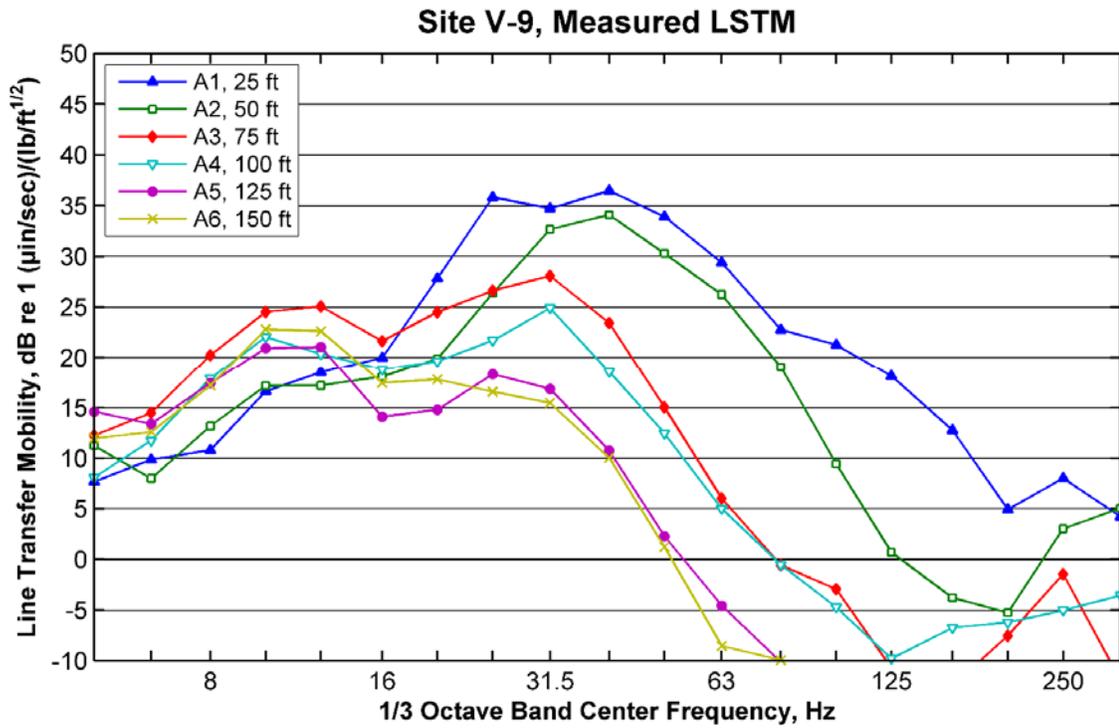


EXHIBIT E-9  
Measured LSTM and Coherence at Test Site V-9 (surface site)

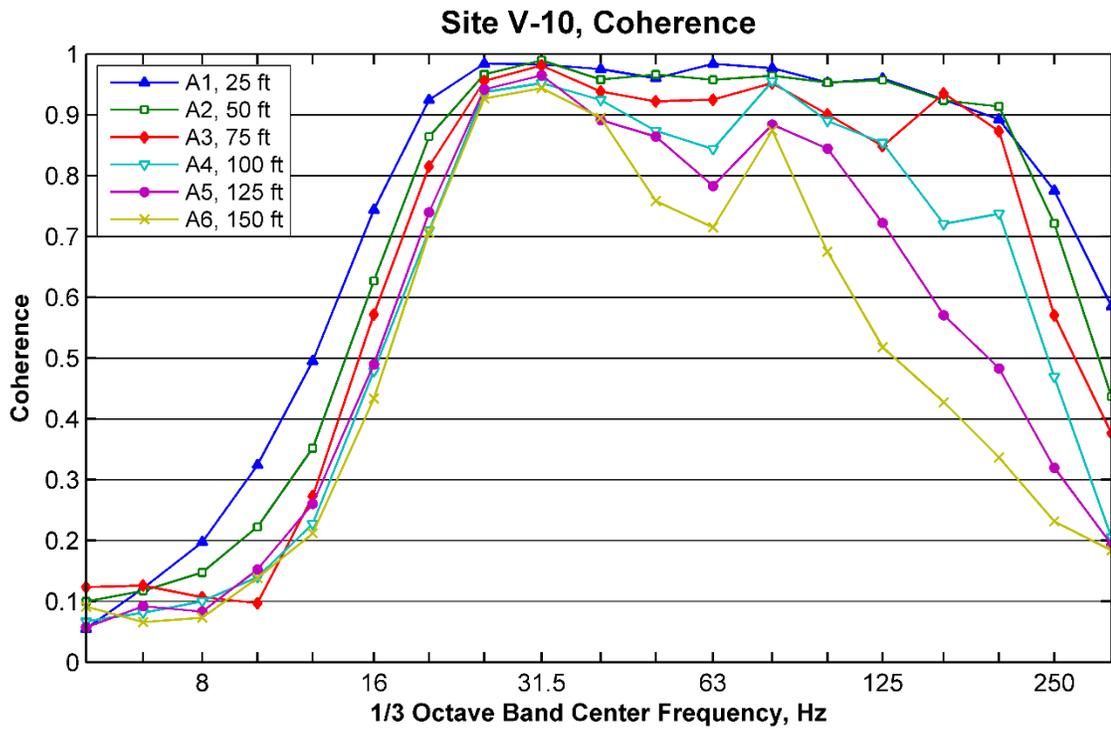
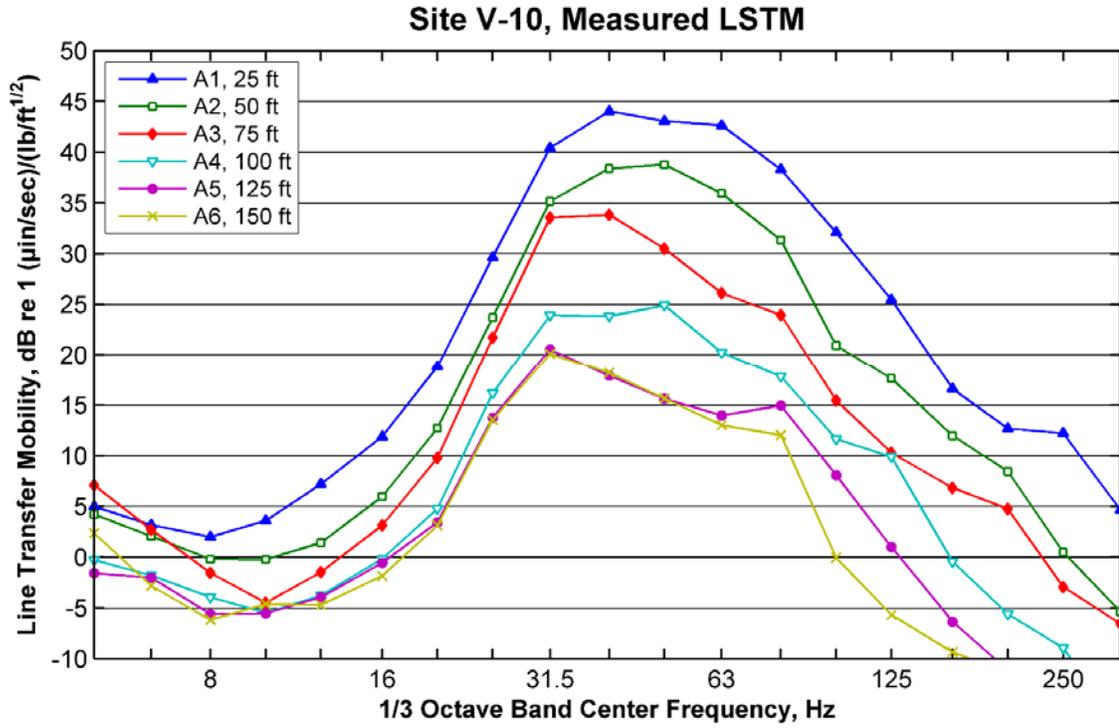


EXHIBIT E-10  
Measured LSTM and Coherence at Test Site V-10 (surface site)

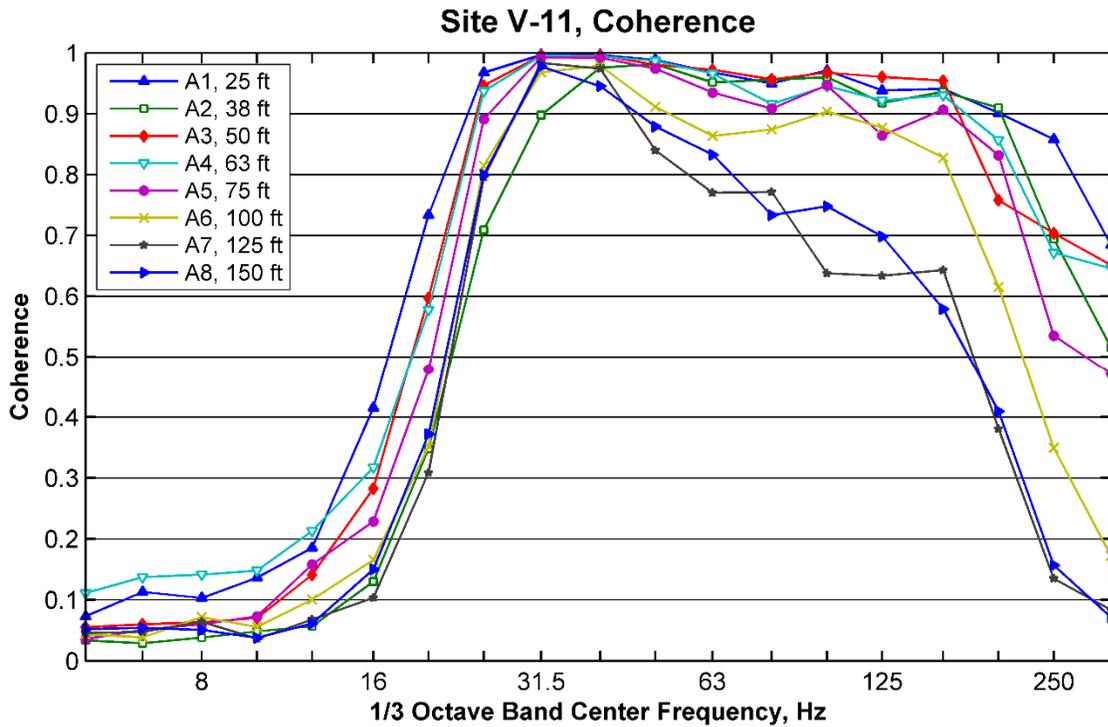
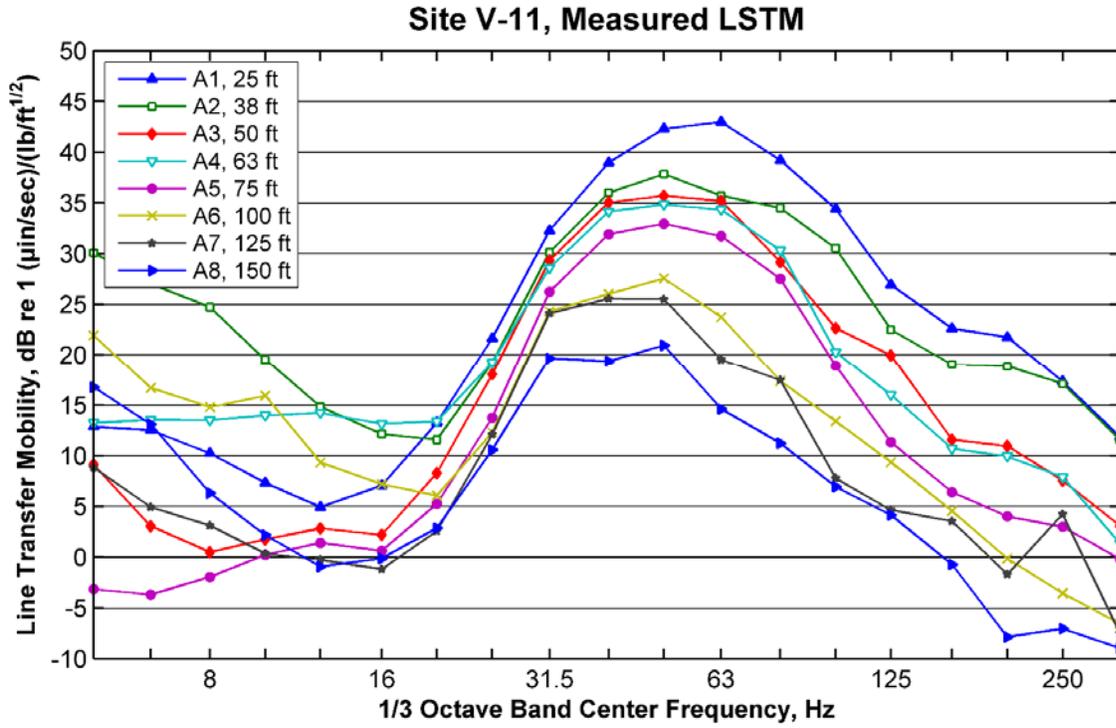


EXHIBIT E-11  
Measured LSTM and Coherence at Test Site V-11 (surface site)

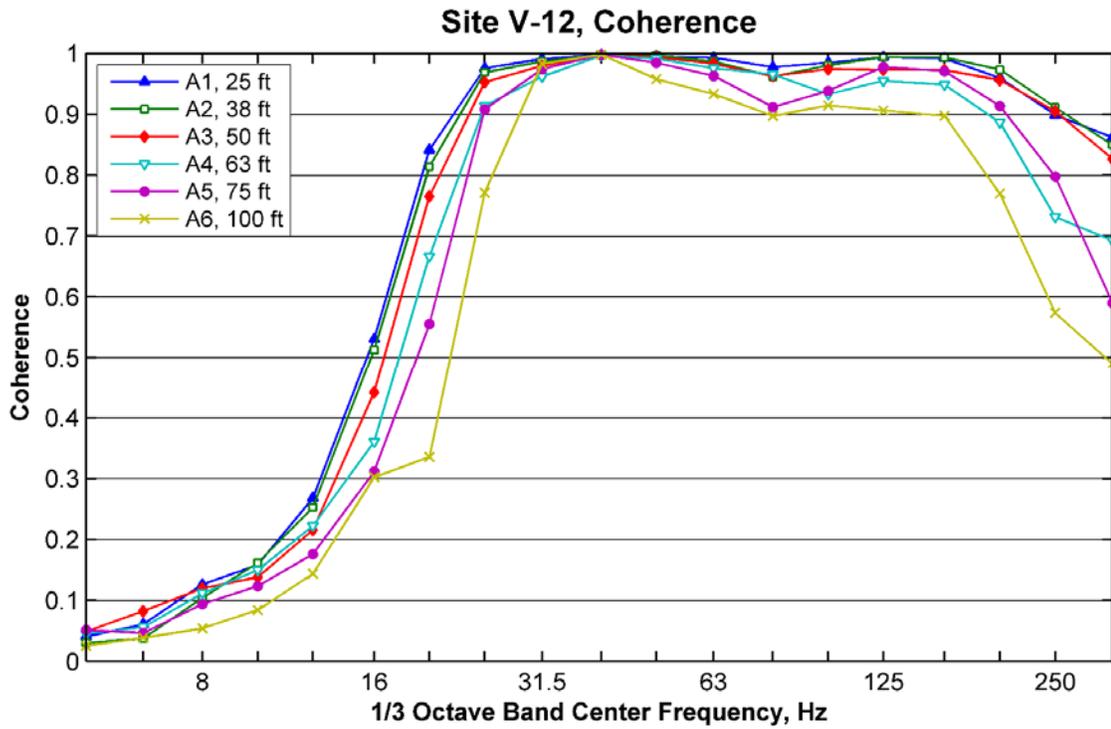
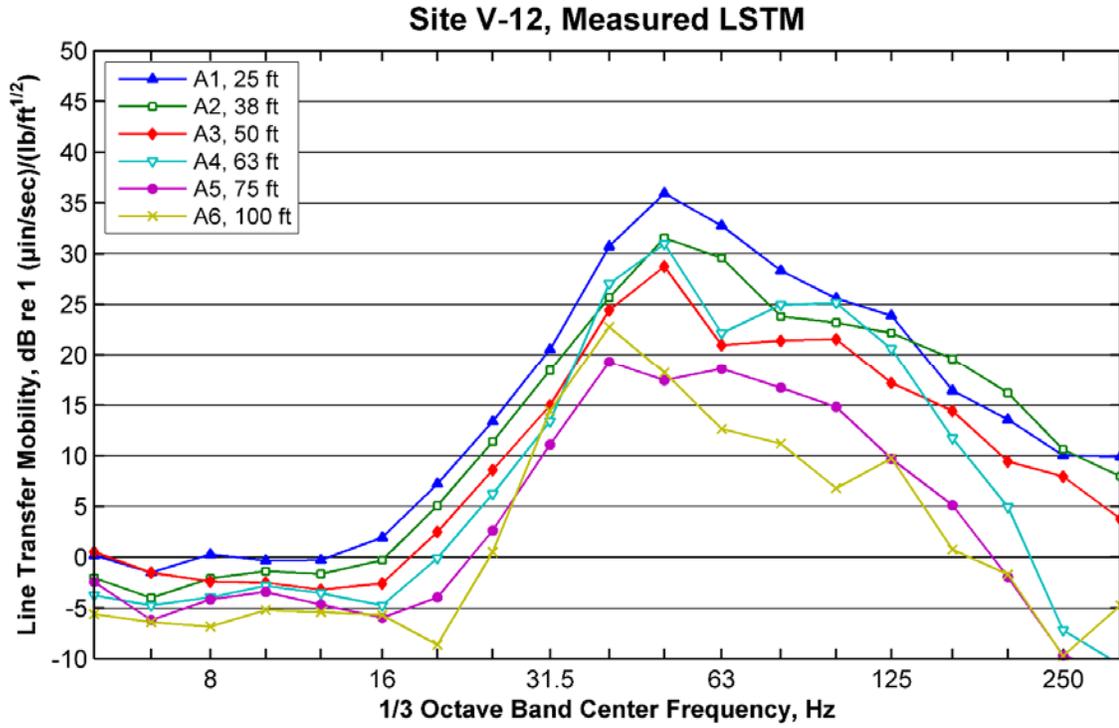


EXHIBIT E-12  
Measured LSTM and Coherence at Test Site V-12 (surface site)

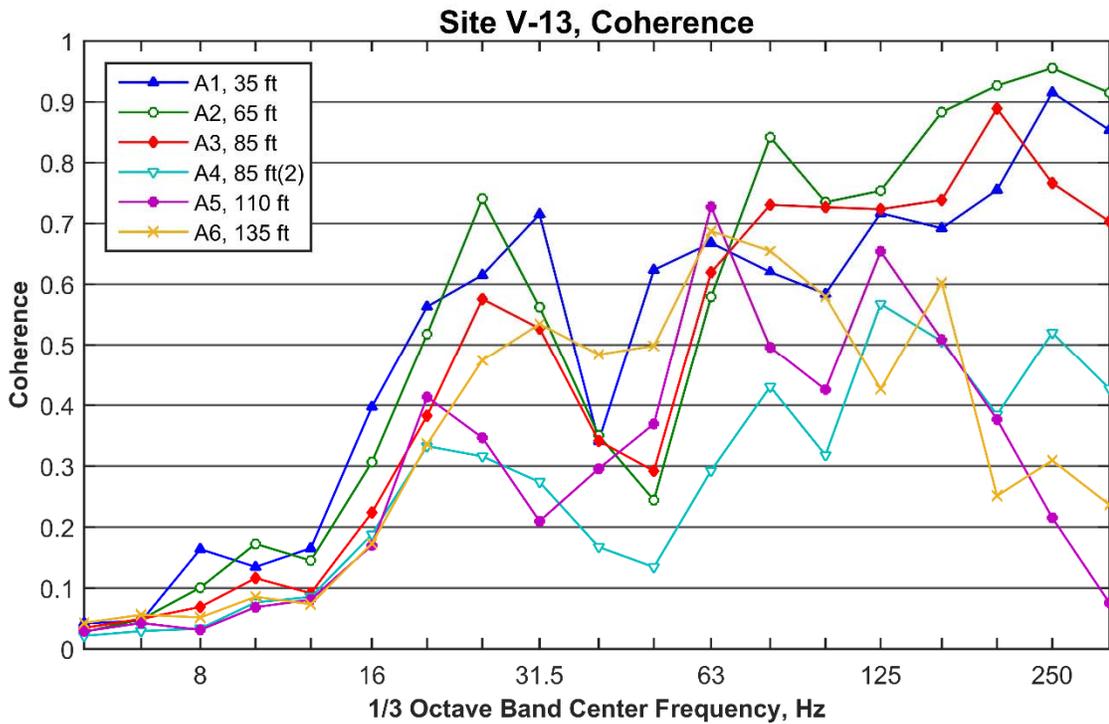
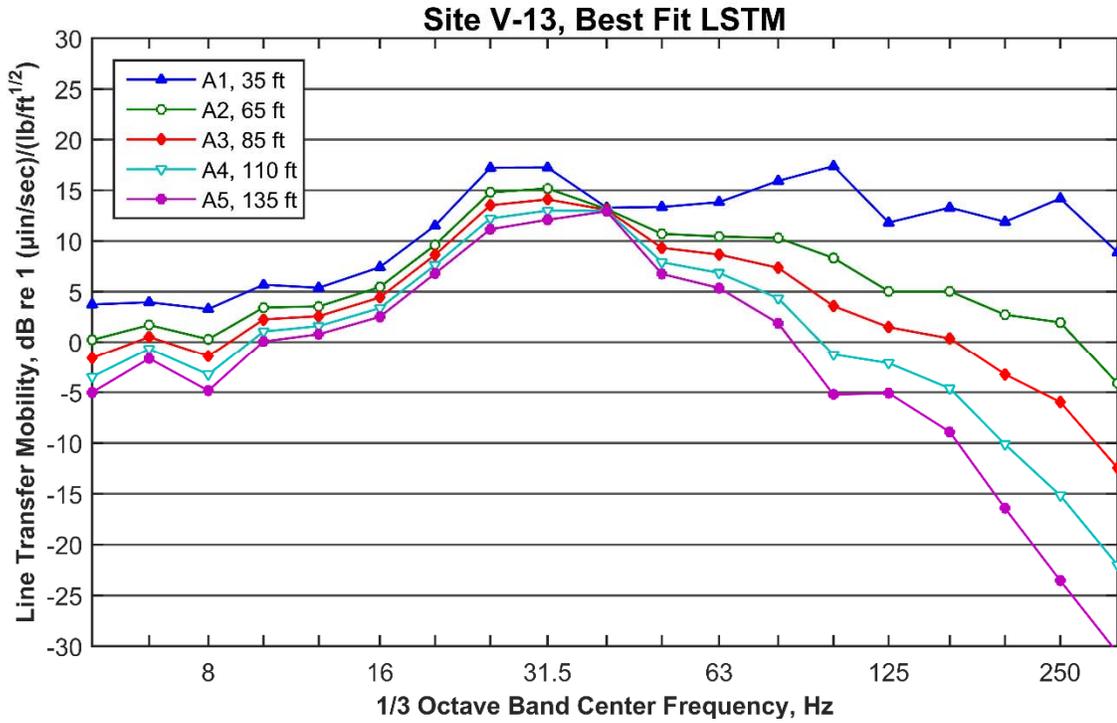


EXHIBIT E-13  
Measured LSTM and Coherence at Test Site V-13 (borehole site)

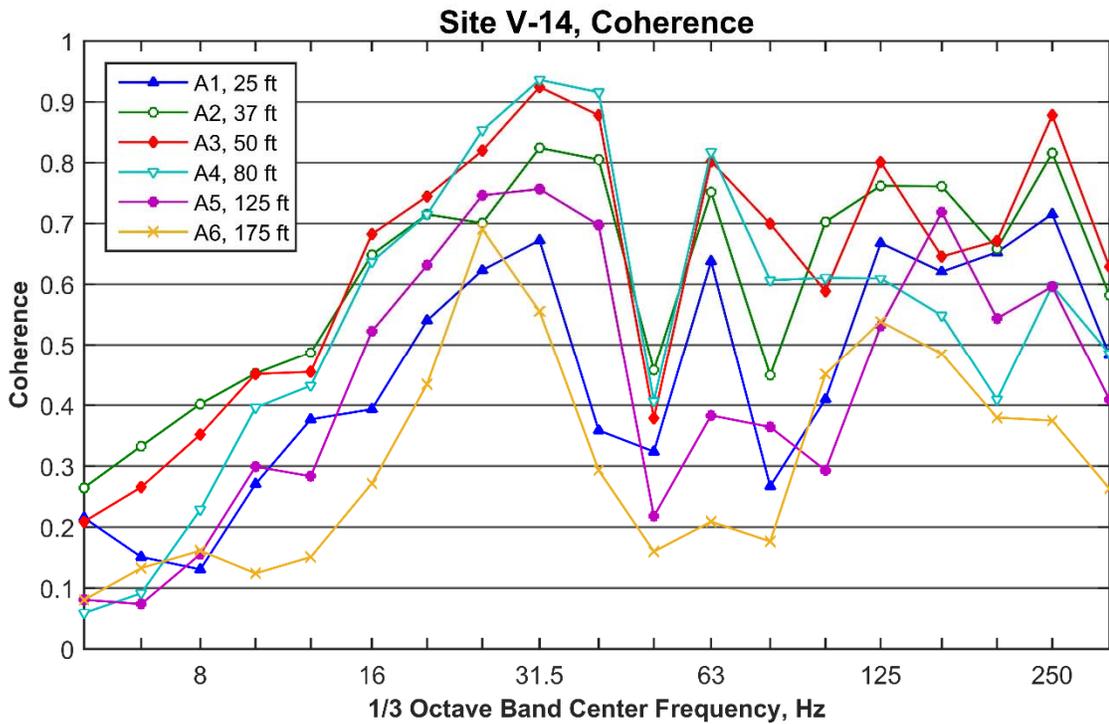
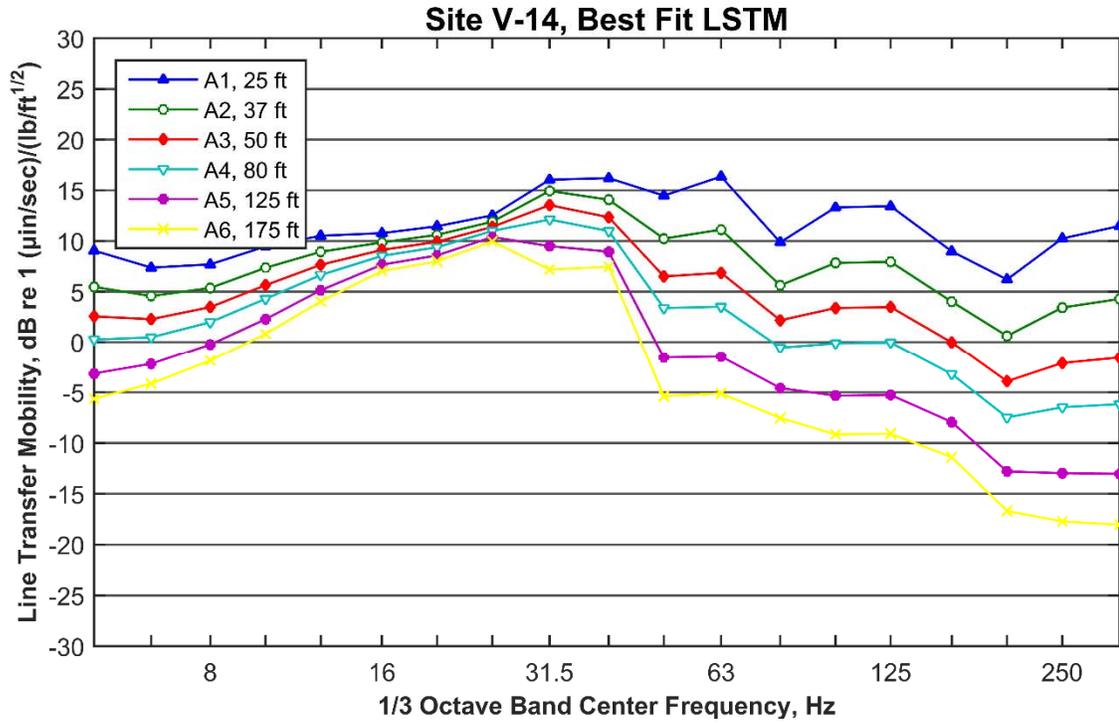


EXHIBIT E-14  
Measured LSTM and Coherence at Test Site V-14 (borehole site)

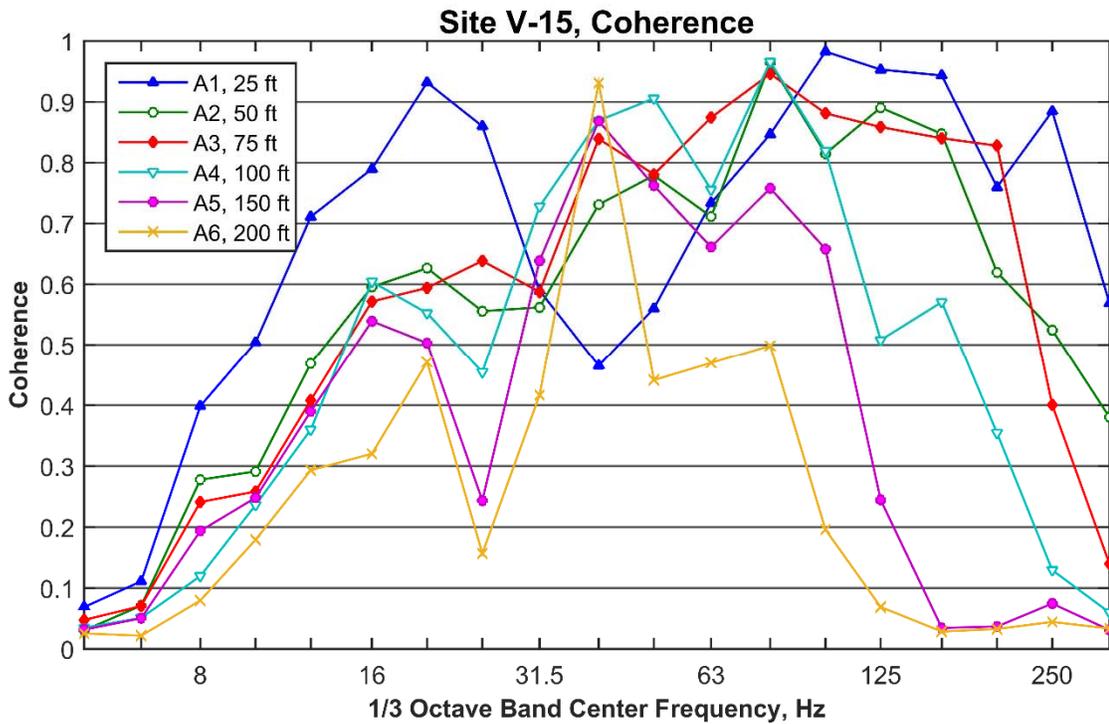
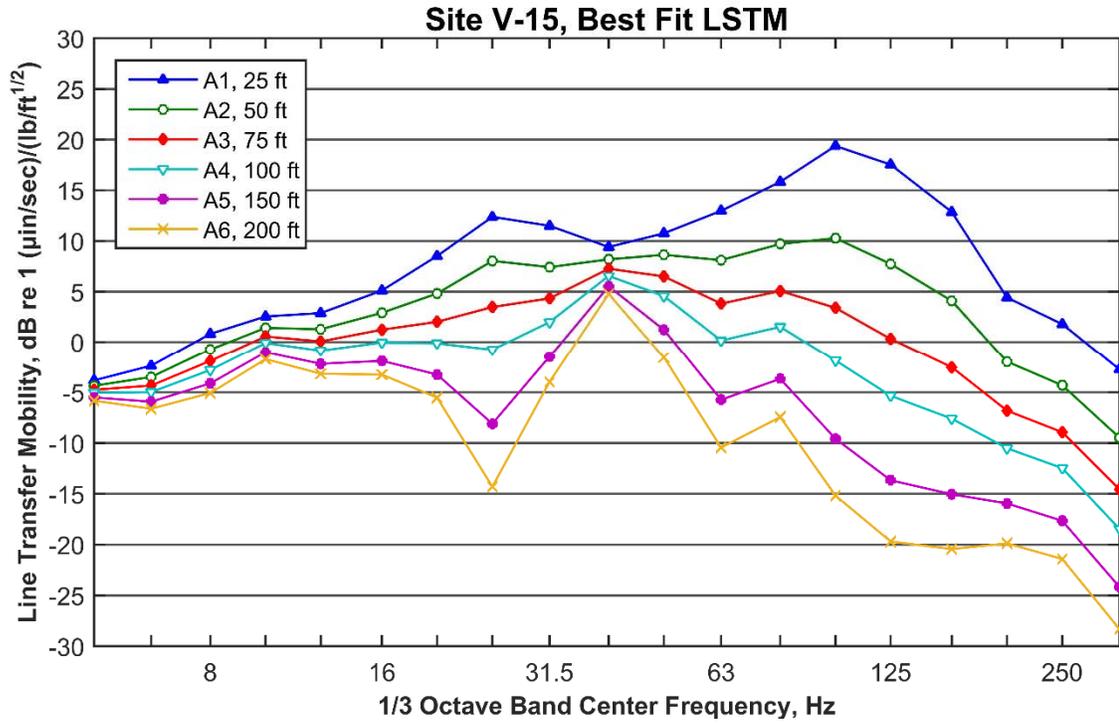


EXHIBIT E-15  
Measured LSTM and Coherence at Test Site V-15 (borehole site)

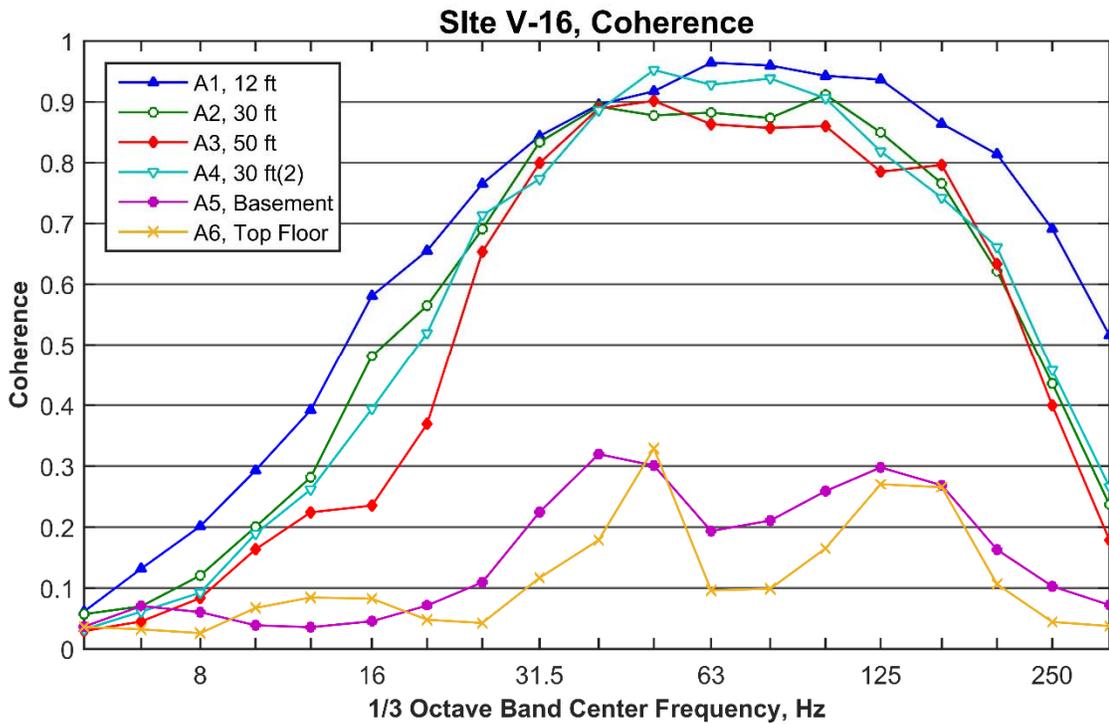
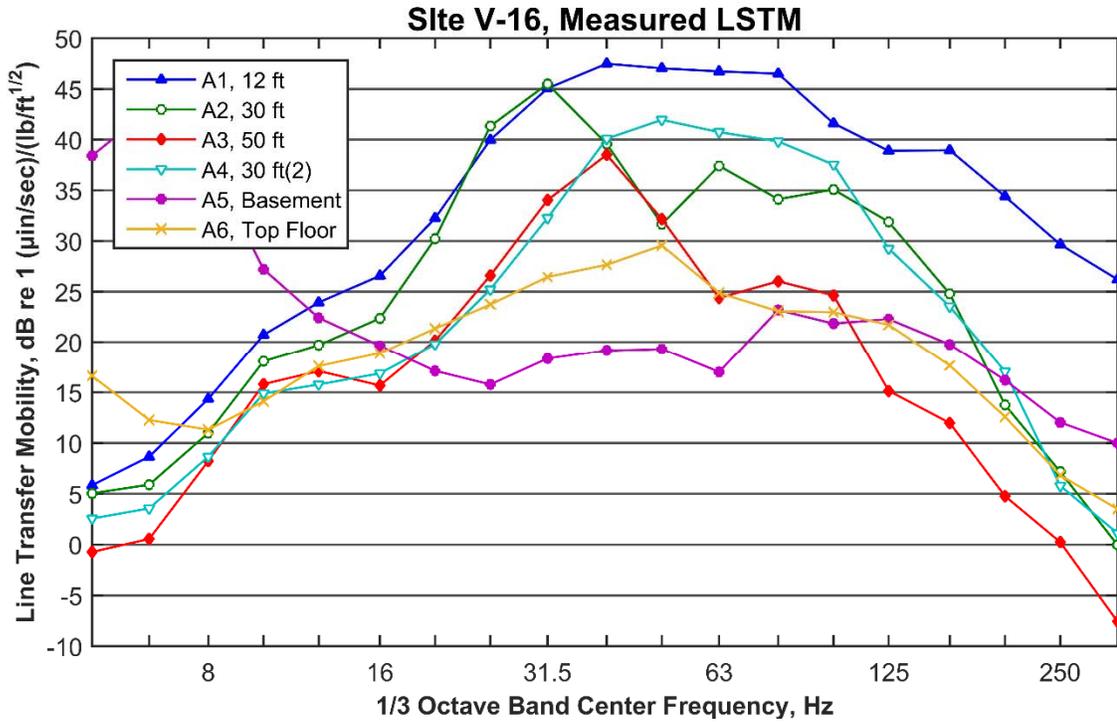


EXHIBIT E-16  
Measured LSTM and Coherence at Test Site V-16 (surface site)

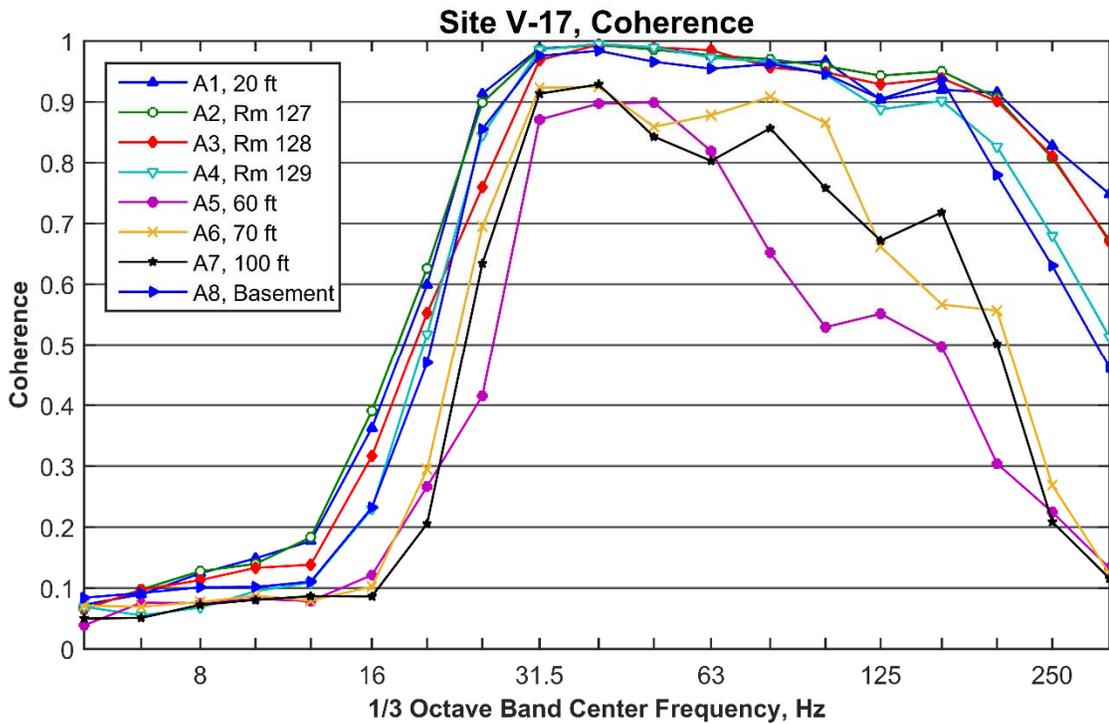
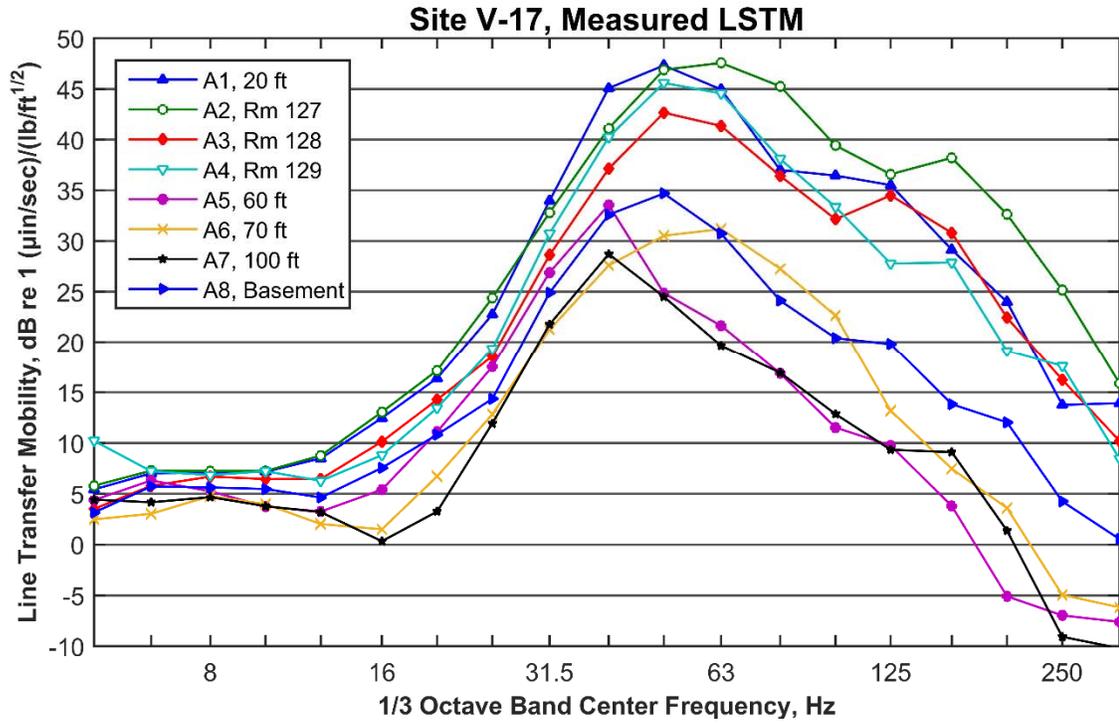


EXHIBIT E-17  
Measured LSTM and Coherence at Test Site V-17 (surface site)

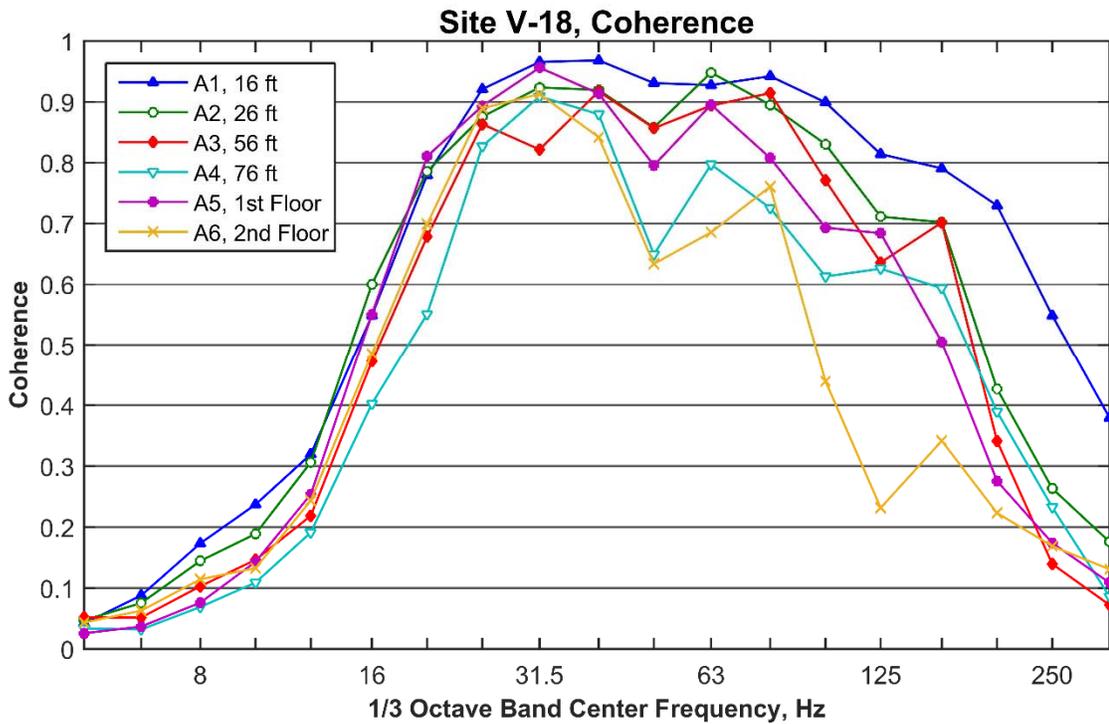
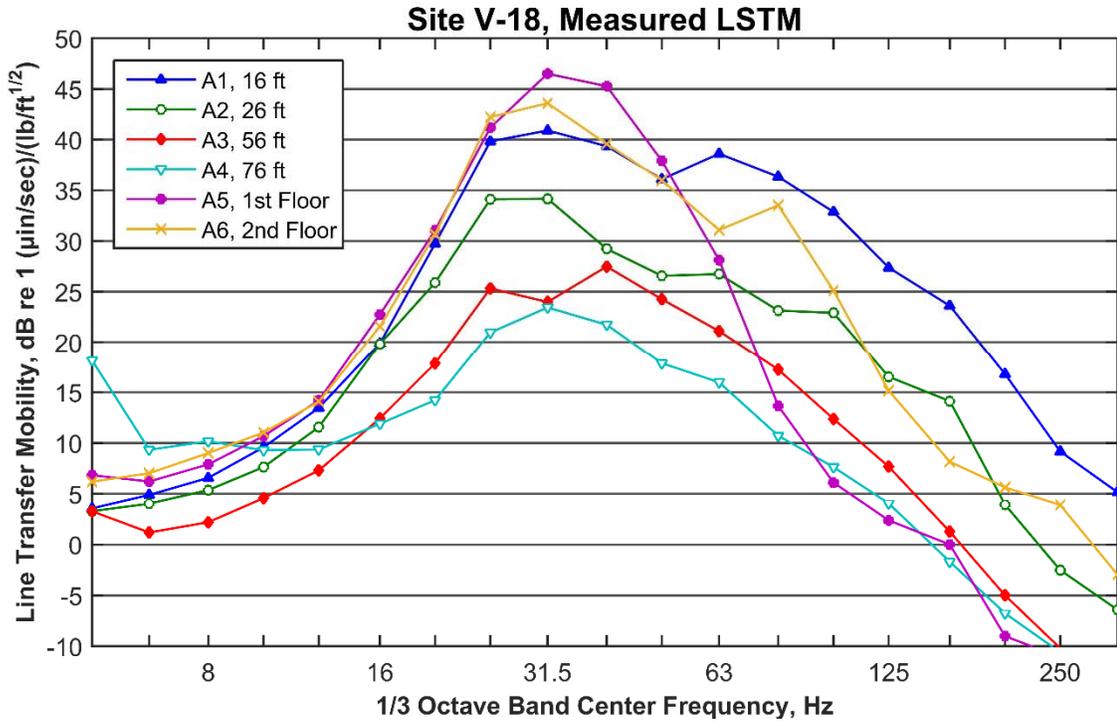


EXHIBIT E-18  
Measured LSTM and Coherence at Test Site V-18 (surface site)

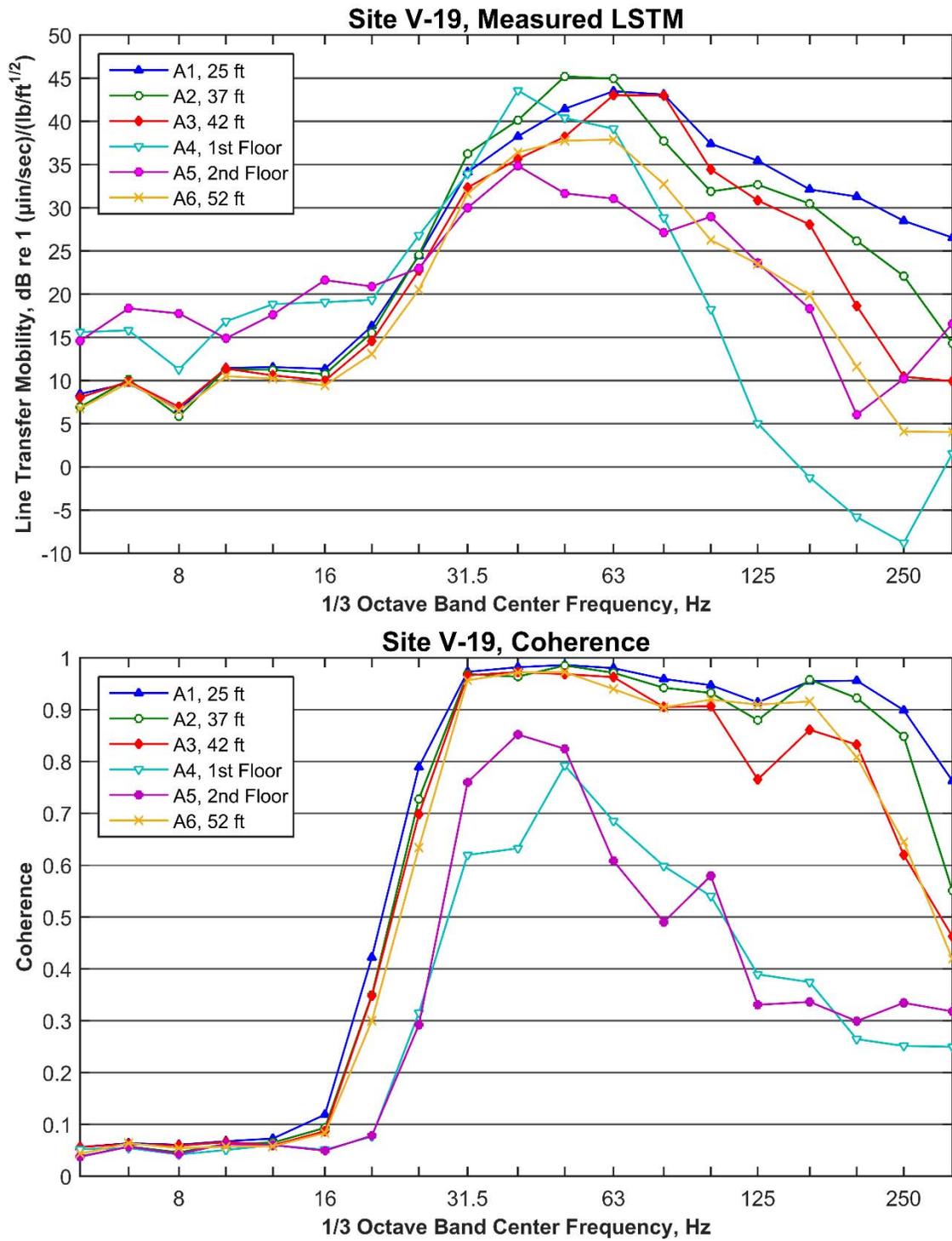


EXHIBIT E-19  
Measured LSTM and Coherence at Test Site V-19 (surface site)

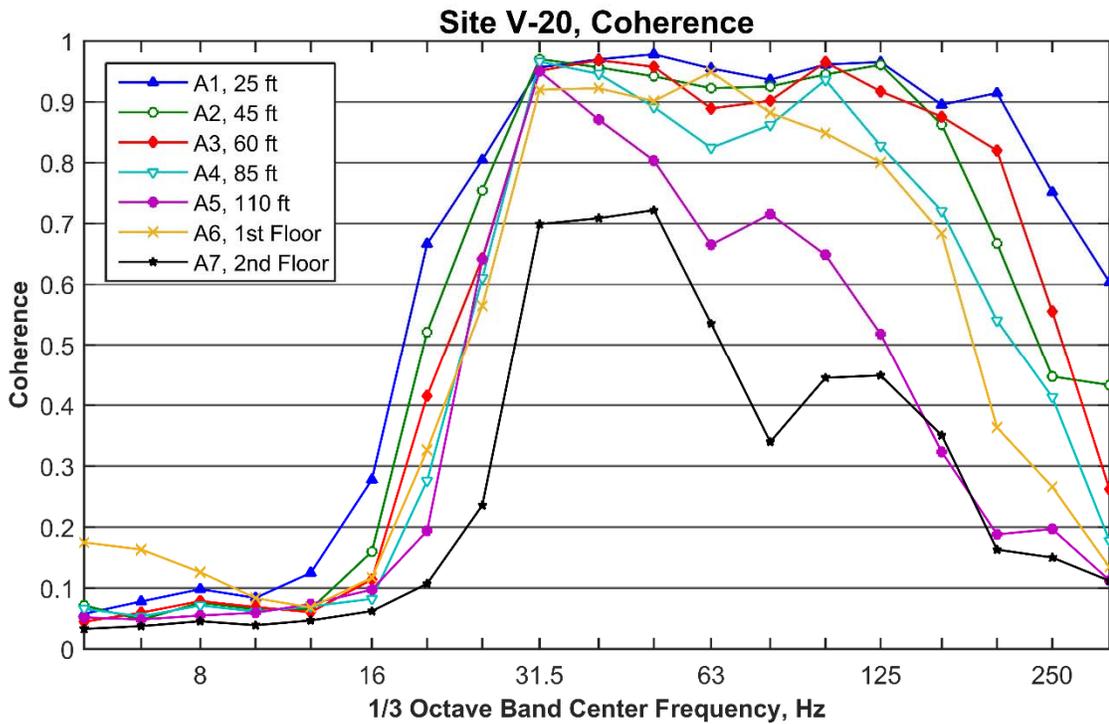
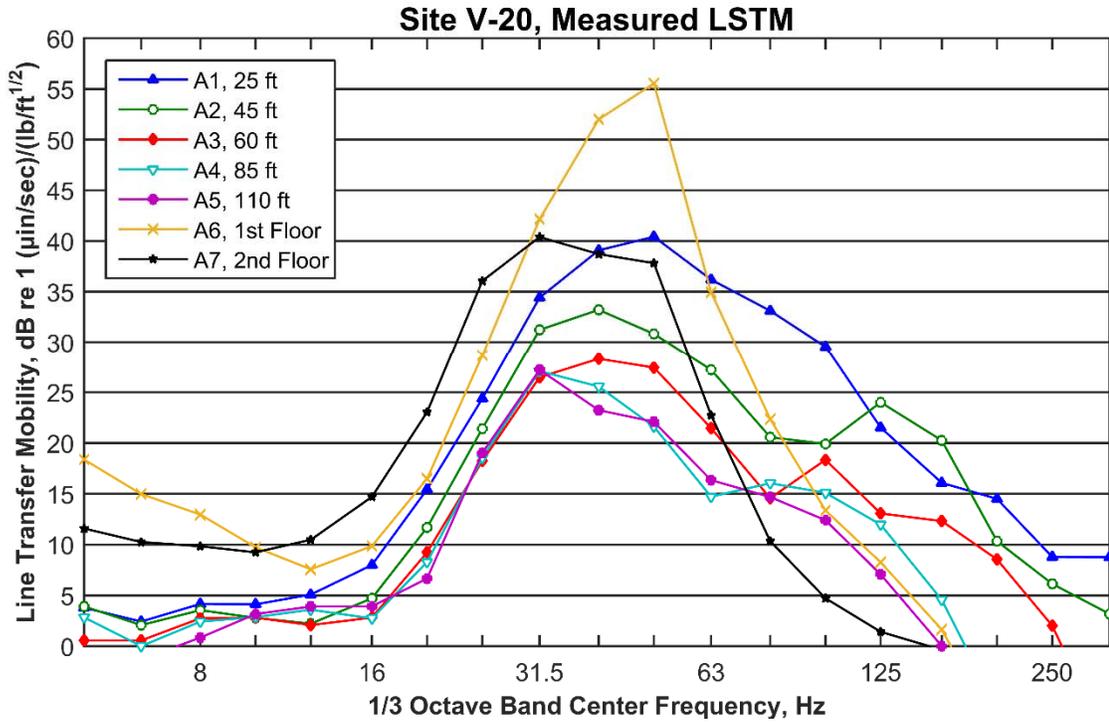


EXHIBIT E-20  
Measured LSTM and Coherence at Test Site V-20 (surface site)

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