FIELD OBSERVATION REPORT

Date .....July 14, 2011

Observation Time: 11:00am

Re: FCC 2nd Floor Computer Room
CCA Project No.: 09359/09360

Weather Conditions: inside

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Field Report No. 004

Est. % Of Completion: 99%

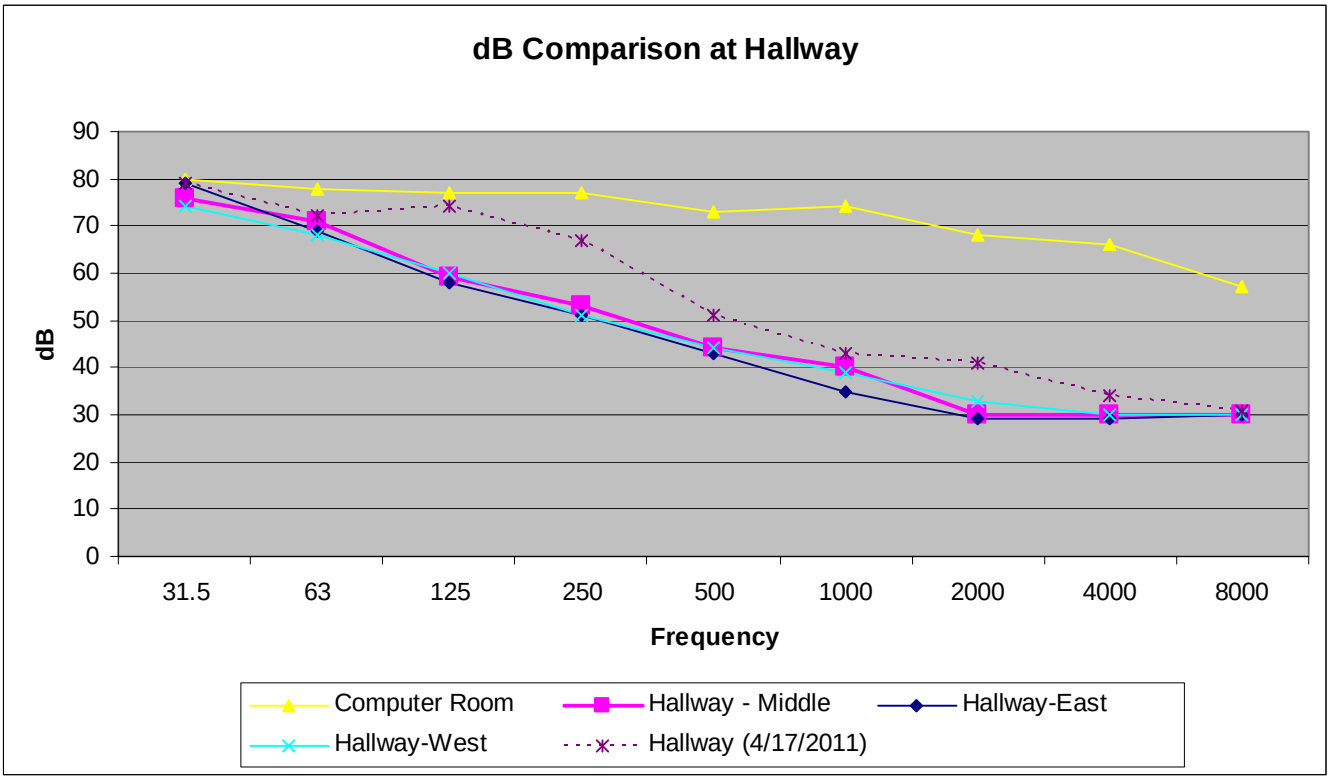
Conformance With Schedule (+.-): N/A

Observations:

Amy, Tom, and myself recorded sound decibel readings on the second floor of the Feynman Computing Center. These readings were taken to evaluate the effects of sound transmission now that the 'sound wall' between the 2nd Floor Computer Room and the adjacent offices and hallway has been constructed. New readings were taken in the Computer Room and the Hallway at the same locations as before. In addition, two more locations were added; the east and west end of the hallway. The readings at all locations were taken at nine different frequencies ranging from 31.5 Hz to 8000 Hz. The recorded sound decibel readings, including the readings from April 14, 2011, are as follows:

	FCC 2nd Floor						
Frequency	Computer Room (4/14/2011)	Computer Room	Hallway (4/17/2011)	Hallway - Middle	Hallway - East	Hallway - West	Hallway Average
31.5	*79*	**80**	*79*	**76**	79	74	76.3
63	*79*	**78**	*72*	**71**	69	68	69.3
125	*76*	**77**	*74*	**59**	58	60	59.0
250	*76*	**77**	*67*	**53**	51	51	51.7
500	*73*	**73**	*51*	**44**	43	44	43.7
1000	*73*	**74**	*43*	**40**	35	39	38.0
2000	*68*	**68**	*41*	**30**	29	33	30.7
4000	*66*	**66**	*34*	**30**	29	30	29.7
8000	*57*	**57**	*31*	**30**	30	30	30.0

With the Computer Room as a reference, the following graph depicts the recorded dB readings at the middle of the hallway and both the east and west ends of the hallway. The four CRAC units adjacent to the hallway wall are situated more to the east end of the hallway, hence the slightly different dB readings.



Evaluation:

The readings inside the 2nd Floor Computer room are relatively the same as the readings on April 14, 2011. Therefore, the readings taken on both dates can be compared equally. The above two charts indicate that the higher decibel readings are in the low frequencies. These are normal readings around mechanical equipment of this type. And as suspected, the common wall between the Computer Room and the Hallway does perform better as the frequency increases.

It is important to note that the human ear perceives a 10dB decrease in sound level as being half as loud. When comparing the readings for the 2nd Floor Hallways, one will notice that there is a 10dB or more difference in all the frequencies, except the lowest two, 31.5 Hz and 63 Hz. Therefore, we perceive the sound levels in the 2nd Floor Hallway to be half as loud or less than the Computer Room.

The dashed line in the chart above indicates the dB levels recorded in the Hallway on April 14th, 2011. Transmission Loss (the gap between the lines) is improved at all frequencies. However the greatest improvement was at the 125 Hz and 250 Hz level with an average loss of 21 dB.

Using Transmission Loss (TL), STC Contour Adjustments, and Deficiencies as before, we have determined a Field STC rating of 33 for the newly constructed 'sound wall'. For comparisons, the following is a list of all the walls that were tested.

3rd Floor Computer Room to Hallway (short)	Field STC-27
3rd Floor Computer Room to Vestibule	Field STC-15
Vestibule to Hallway (short)	Field STC-13
3rd Floor Electrical Room to Hallway (long)	Field STC-29
2nd Floor Computer Room to Hallway (Old Wall)	Field STC-22
2nd Floor Computer Room to Hallway (New Wall)	**Field STC-33**

Location: FCC_2 Computer Room to Hallway

	STC Test Calculator			33	
Frequency (Hz)	STC Contour Adjustment	Transmission Loss	Transmision Loss Adjusted	STC you wish to test	Deficiencies
125	16	18	34	33	0
160	13	20	33	33	0
200	10	22	32	33	1
250	7	24	31	33	2
315	4	26	30	33	3
400	1	28	29	33	4
500	0	29	29	33	4
630	-1	31	30	33	3
800	-2	31	29	33	4
1000	-3	34	31	33	2
1250	-4	35	31	33	2
1600	-4	36	32	33	1
2000	-4	38	34	33	0
2500	-4	37	33	33	0
3150	-4	37	33	33	0
4000	-4	36	32	33	1
				<32	27

The readings depicted in this report were performed on site, and not under laboratory conditions, and with sound equipment that had a limited range of frequencies. Therefore, for purposes of this report, we have established what we are calling a 'Field STC rating' for the walls at the areas tested. This Field STC rating is based on some assumptions, but is accurate for the evaluations of this report. The Field STC ratings of this report SHOULD NOT be compared to other STC ratings.

In summary, the results of these tests have proven that the construction of the sound wall between the hallway and the computer room was effective, and the wall performs as or even better than expected.

END OF REPORT