Harris Communications
Solving All Your DAS Coverage Needs

Emergency Responder Radio System
Coverage Report Test Results

Date Prepared:	Feb 7, 2022
Test File:	Catawba Ridge High School 20220131
Test Location:	Catawba Ridge High School
Technician:	Brandon Brown
FCC#:	0024078164

Building: Catawba Ridge High School
Result: Fail

Test Report Summary

Channel/ Ch Group	Freq (MHz)	Technology	Band	Result	Area Points passed (%)	Critical Points passed (%)
Control : 1	853.77500	P25	York County Public Safety	Fail	68/87 (78%)	4/13 (30%)

Test Details			
Number of Floors Tested:	4	**Result Calculation:**	By area per floor
Number of Areas Tested:	87	**Area Pass Criteria:**	95%
Number of Critical Points Tested:	13	**Critical Points Pass Criteria:**	99%
		Apply Adjacent Area Rule:	Yes

Equipment Configuration

Vendor	Application	Device	Calibration Expires	Antenna info
PCTEL	SeeHawk Touch rel 3.4.1.0	SeeGull IBflex Device rel 3.8.1.0 SN: 081709030	7-29-2023	

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Threshold Settings

Measurement	DL Area Point	UL Area Point	DL Critical Point	UL Critical Point	Use for grading
P25 Power (RSSI)	-110.0 dBm	-95.0 dBm	-95.0 dBm	-95.0 dBm	Yes
P25 S/N (SINR)	18.0 dB	20.0 dB	22.0 dB	22.0 dB	Yes
P25 FBER	2.0 %	2.0 %	1.5 %	1.5 %	Yes
DAQ	3.0				Yes

Floors Result

Floor Plan	Control
Catawba Ridge High School-Roof	**Pass**
Catawba Ridge High School Upper Level	**Fail**
Catawba Ridge High School Main Level	**Fail**
Catawba Ridge High School Lower Level	**Fail**

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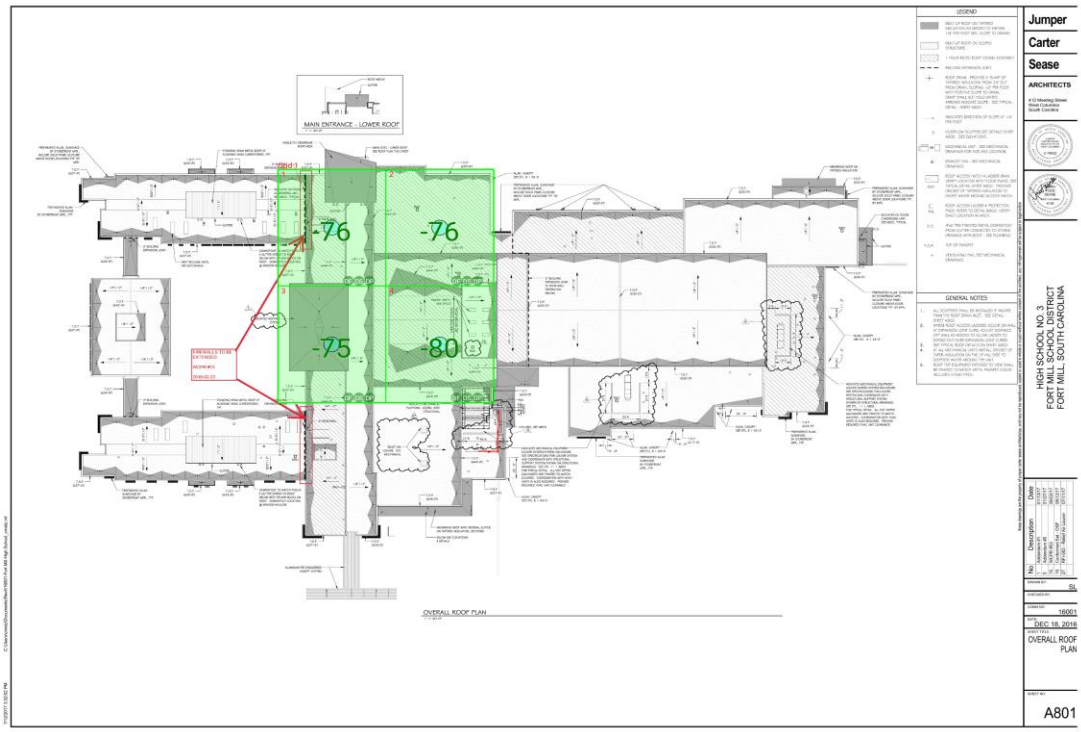
Floor: Catawba Ridge High School-Roof
Group: Control Channel
Result: Pass Donor Signal Test

Freq (MHz)	Tech	Band	Ant Gain	Cable Loss	Ph.	Type	Mod	NAC	Area Points passed (%)	Critical Points passed (%)
853.77500	P25	York County Public Safety	0.00	0.00	1	TC	CQPSK	1BA	4/4 (100%)	0/0 (0%)

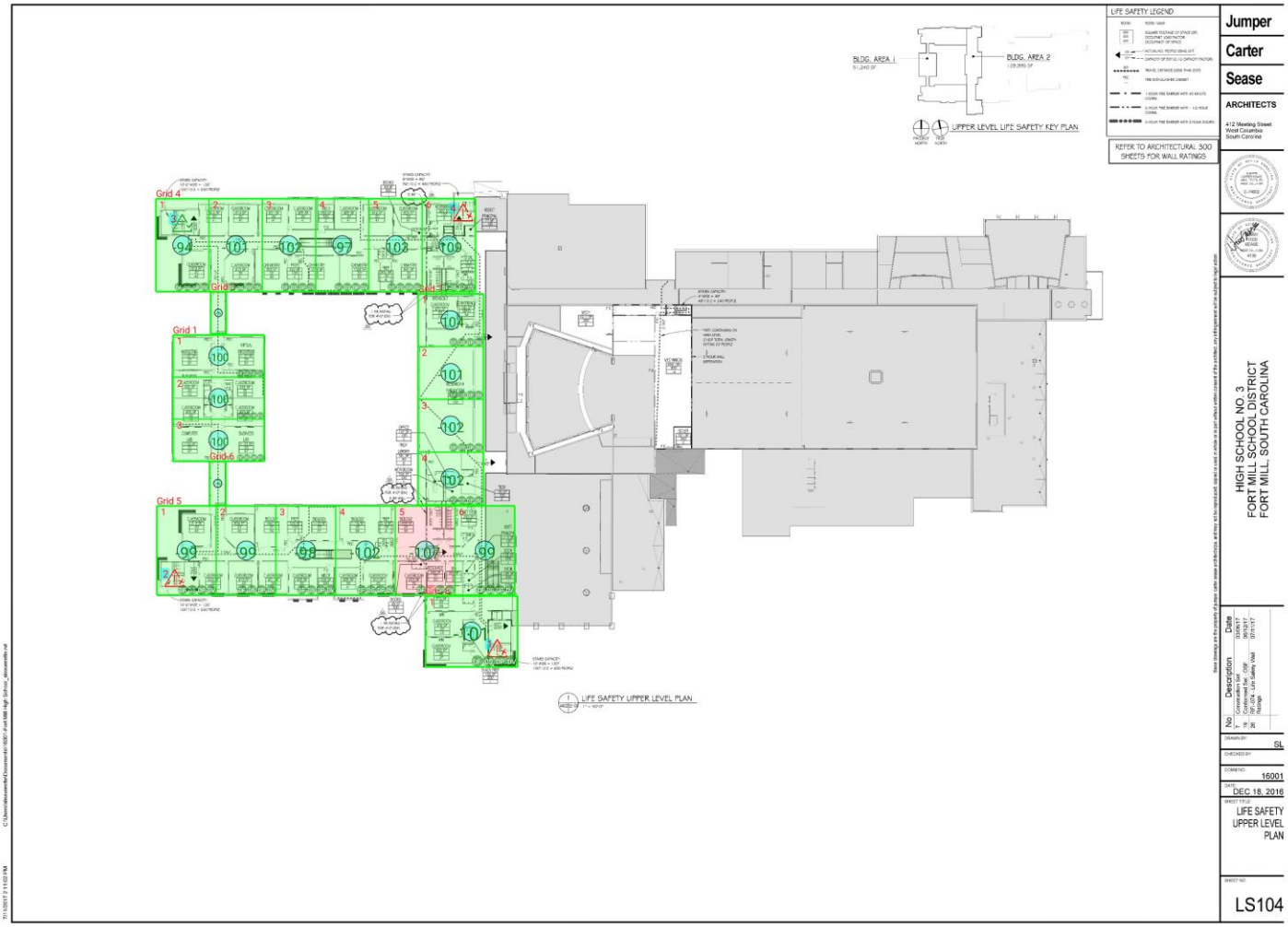


Grid	# of Areas	Area Size (sq. ft)	Area Width (ft)	Area Height (ft)	Ignore Area Color	Comments
1	4	18206.54	125.68	144.87	Black	

Grid	Area	DL Power (dBm)	DL S/N (dB)	DL FBER (%)	DL DAQ	UL DAQ	Result	Comment
1	1	-75.11	32.98	0.00			Pass	Donor Strength Test
1	2	-75.63	32.92	0.00			Pass	Donor Strength Test
1	3	-74.30	35.08	0.00			Pass	Donor Strength Test
1	4	-79.55	33.35	0.00			Pass	Donor Strength Test

Floor: Catawba Ridge High School Upper Level
Group: Control Channel
Result: Fail

Freq (MHz)	Tech	Band	Ant Gain	Cable Loss	Ph.	Type	Mod	NAC	Area Points passed (%)	Critical Points passed (%)
853.77500	P25	York County Public Safety	0.00	0.00	1	TC	CQPSK	1BA	21/22 (95%)	1/4 (25%)



Grid	# of Areas	Area Size (sq. ft)	Area Width (ft)	Area Height (ft)	Ignore Area Color	Comments
1	3	1504.07	57.16	26.31	Black	
3	1	253.01	9.69	26.11	Black	
4	6	1940.41	33.36	58.16	Black	
5	6	2083.85	37.35	55.79	Black	
6	1	285.03	10.29	27.70	Black	
7	4	1350.94	40.95	32.99	Black	
8	1	2559.92	57.76	44.32	Black	

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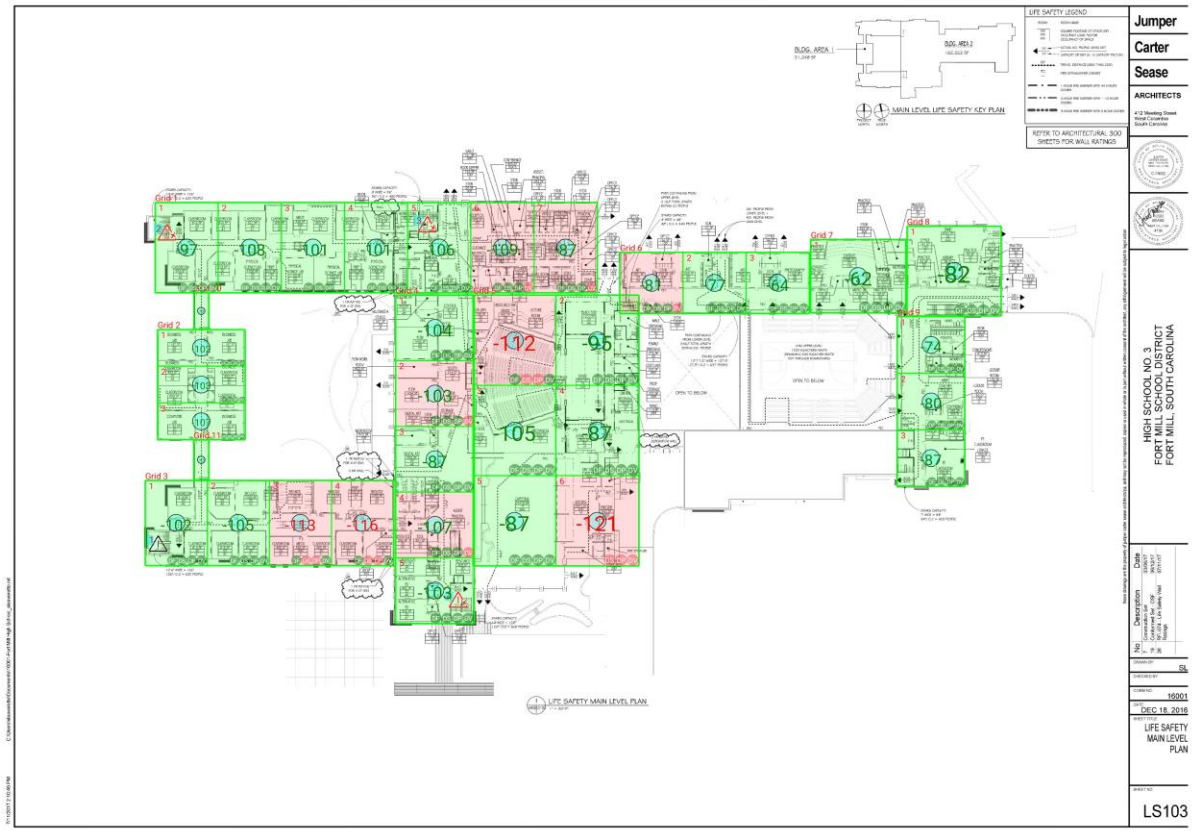
Floor: Catawba Ridge High School Upper Level
Group: Control Channel

Critical Point	DL Power (dBm)	DL S/N (dB)	DL FBER (%)	DL DAQ	UL DAQ	Result	Comment
1	-103.57	19.75	0.21	-	-	Fail	
2	-100.45	18.25	0.00	-	-	Fail	
3	-91.74	31.51	0.00	5.0	5.0	Pass	
4	-100.66	19.71	0.00	-	-	Fail	

Grid	Area	DL Power (dBm)	DL S/N (dB)	DL FBER (%)	DL DAQ	UL DAQ	Result	Comment
1	1	-99.51	27.19	0.00	5.0	5.0	Pass	
1	2	-99.58	26.82	0.00	5.0	5.0	Pass	
1	3	-99.14	24.28	0.00	5.0	5.0	Pass	
3	1	-98.99	25.93	0.00	5.0	5.0	Pass	
4	1	-93.49	30.23	0.00	5.0	5.0	Pass	
4	2	-100.08	25.72	0.00	5.0	5.0	Pass	
4	3	-101.13	24.38	0.00	5.0	5.0	Pass	
4	4	-96.57	26.47	0.00	5.0	5.0	Pass	
4	5	-102.27	25.02	0.00	5.0	5.0	Pass	
4	6	-108.31	20.22	0.00	5.0	5.0	Pass	
5	1	-98.50	29.73	0.00	5.0	5.0	Pass	
5	2	-98.98	29.80	0.00	5.0	5.0	Pass	
5	3	-97.34	29.51	0.00	5.0	5.0	Pass	
5	4	-101.69	25.77	0.00	5.0	5.0	Pass	
5	5	-107.00	16.60	0.00	-	-	Fail	
5	6	-98.48	28.13	0.00	5.0	5.0	Pass	
6	1	-98.09	27.54	0.00	5.0	5.0	Pass	
7	1	-103.05	24.69	0.00	5.0	5.0	Pass	
7	2	-100.68	25.87	0.00	5.0	5.0	Pass	
7	3	-101.67	25.24	0.00	5.0	5.0	Pass	
7	4	-101.85	25.56	0.00	5.0	5.0	Pass	
8	1	-100.94	25.36	0.00	5.0	5.0	Pass	

Floor: Catawba Ridge High School Main Level
Group: Control Channel
Result: Fail

Freq (MHz)	Tech	Band	Ant Gain	Cable Loss	Ph.	Type	Mod	NAC	Area Points passed (%)	Critical Points passed (%)
853.77500	P25	York County Public Safety	0.00	0.00	1	TC	CQPSK	1BA	26/35 (74%)	0/3 (0%)



Grid	# of Areas	Area Size (sq. ft)	Area Width (ft)	Area Height (ft)	Ignore Area Color	Comments
1	7	4100.76	52.72	77.79	Black	
2	3	2314.97	73.22	31.62	Black	
3	4	3803.04	51.81	73.40	Black	
4	5	3718.80	65.68	56.62	Black	
5	6	5378.56	69.15	77.79	Black	
6	3	2779.22	52.77	52.67	Black	
7	1	5023.75	79.54	63.16	Black	
8	1	6068.82	78.51	77.30	Black	
9	3	2752.09	56.43	48.77	Black	
10	1	393.40	12.41	31.70	Black	
11	1	434.91	12.65	34.38	Black	

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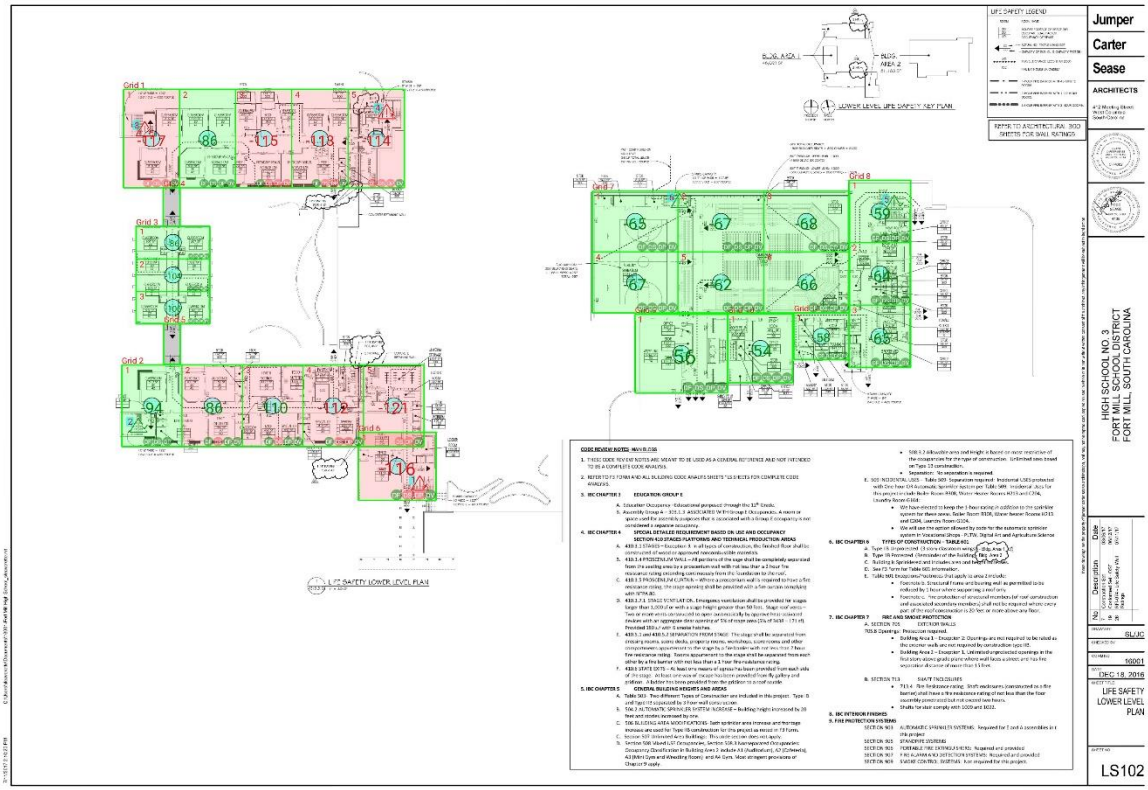
Floor: Catawba Ridge High School Main Level
Group: Control Channel

Critical Point	DL Power (dBm)	DL S/N (dB)	DL FBER (%)	DL DAQ	UL DAQ	Result	Comment
1	-97.90	18.21	0.00	-	-	Fail	
2	-96.13	19.01	0.00	-	-	Fail	
3	-104.84	19.28	0.00	-	-	Fail	

Grid	Area	DL Power (dBm)	DL S/N (dB)	DL FBER (%)	DL DAQ	UL DAQ	Result	Comment
1	1	-96.92	28.30	0.00	5.0	5.0	Pass	
1	2	-107.86	19.93	0.00	4.0	4.0	Pass	
1	3	-100.19	26.27	0.00	5.0	5.0	Pass	
1	4	-100.54	25.61	0.00	5.0	5.0	Pass	
1	5	-105.33	22.72	0.00	5.0	5.0	Pass	
1	6	-108.06	17.95	0.00	-	-	Fail	
1	7	-86.84	17.82	0.00	-	-	Fail	
2	1	-101.28	24.11	0.00	5.0	5.0	Pass	
2	2	-102.27	23.59	0.00	5.0	5.0	Pass	
2	3	-106.06	22.97	0.00	5.0	5.0	Pass	
3	1	-101.63	25.92	0.00	5.0	5.0	Pass	
3	2	-104.68	20.52	0.13	3.0	3.0	Pass	
3	3	-112.47	17.26	0.00	-	-	Fail	
3	4	-115.08	13.12	0.45	-	-	Fail	
4	1	-103.20	24.47	0.00	5.0	5.0	Pass	
4	2	-102.80	14.05	0.00	1.0	1.0	Fail	
4	3	-86.61	18.37	0.00	-	-	Pass	
4	4	-106.70	23.27	0.00	-	-	Fail	
4	5	-102.43	18.41	0.23	5.0	5.0	Pass	
5	1	-111.86	16.12	0.00	-	-	Fail	
5	2	-94.39	27.95	0.09	4.0	4.0	Pass	
5	3	-104.03	21.90	0.00	5.0	5.0	Pass	
5	4	-86.61	29.32	0.00	4.0	4.0	Pass	
5	5	-86.61	22.56	0.00	5.0	5.0	Pass	
5	6	-120.13			-	-	Fail	
6	1	-80.20	17.91	0.00	-	-	Fail	
6	2	-76.25	32.24	0.00	4.0	4.0	Pass	Current BDA utilized
6	3	-63.02	32.46	0.00	4.0	4.0	Pass	Current BDA utilized
7	1	-61.28	33.60	0.00	4.0	4.0	Pass	Current BDA utilized
8	1	-81.84	31.42	0.00	5.0	5.0	Pass	Current BDA utilized
9	1	-73.95	30.22	0.00	5.0	5.0	Pass	Current BDA utilized
9	2	-79.32	35.77	0.00	5.0	5.0	Pass	Current BDA utilized
9	3	-86.61	27.79	0.00	5.0	5.0	Pass	Current BDA utilized
10	1	-99.92	27.24	0.00	5.0	5.0	Pass	Current BDA utilized
11	1	-106.23	19.72	0.00	5.0	5.0	Pass	Current BDA utilized

Floor: Catawba Ridge High School Lower Level
Group: Control Channel
Result: Fail

Freq (MHz)	Tech	Band	Ant Gain	Cable Loss	Ph.	Type	Mod	NAC	Area Points passed (%)	Critical Points passed (%)
853.77500	P25	York County Public Safety	0.00	0.00	1	TC	CQPSK	1BA	17/26 (65%)	3/6 (50%)



Grid	# of Areas	Area Size (sq. ft)	Area Width (ft)	Area Height (ft)	Ignore Area Color	Comments
1	5	4202.92	47.90	87.74	Black	
2	5	3762.12	51.55	72.98	Black	
3	3	1826.45	62.88	29.05	Black	
4	1	494.35	14.40	34.33	Black	
5	1	505.58	14.04	36.01	Black	
6	1	4031.37	66.24	60.86	Black	
7	6	3967.88	73.09	54.29	Black	
8	3	2925.14	52.56	55.65	Black	
9	1	5539.30	79.02	70.10	Black	
10	1	3396.28	55.26	61.46	Black	
11	1	1953.57	47.04	41.53	Black	

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Floor: Catawba Ridge High School Lower Level
Group: Control Channel

Critical Point	DL Power (dBm)	DL S/N (dB)	DL FBER (%)	DL DAQ	UL DAQ	Result	Comment
1	-110.78	17.82	0.00	-	-	Fail	
2	-91.85	32.92	0.00	5.0	5.0	Pass	
3	-86.00	17.98	0.39	-	-	Fail	
4	-116.27	11.50	13.54	-	-	Fail	
5	-66.50	32.57	0.00	5.0	5.0	Pass	
6	-70.70	33.04	0.00	5.0	5.0	Pass	

Grid	Area	DL Power (dBm)	DL S/N (dB)	DL FBER (%)	DL DAQ	UL DAQ	Result	Comment
1	1	-116.72	11.45	33.33	-	-	Fail	
1	2	-86.00	19.06	0.00	4.0	4.0	Pass	
1	3	-114.29	14.77	0.00	-	-	Fail	
1	4	-112.24	13.86	0.60	-	-	Fail	
1	5	-113.42	10.20	13.49	-	-	Fail	
2	1	-93.52	30.80	0.00	5.0	5.0	Pass	
2	2	-86.00	17.80	0.00	-	-	Fail	
2	3	-109.31	13.61	1.14	-	-	Fail	
2	4	-111.66	15.03	0.00	5.0	5.0	Fail	
2	5	-120.24			-	-	Fail	
3	1	-86.00	20.01	0.21	4.0	4.0	Pass	
3	2	-103.72	22.42	0.00	4.0	4.0	Pass	
3	3	-105.51	22.89	0.00	4.0	4.0	Pass	
4	1	NT	NT	NT	NT	NT	NT	
5	1	NT	NT	NT	NT	NT	NT	
6	1	-115.35	13.58	0.00	-	-	Fail	
7	1	-64.94	32.16	0.00	5.0	5.0	Pass	Current BDA utilized
7	2	-66.37	34.17	0.00	5.0	5.0	Pass	Current BDA utilized
7	3	-67.83	33.07	0.00	5.0	5.0	Pass	Current BDA utilized
7	4	-66.75	32.35	0.00	5.0	5.0	Pass	Current BDA utilized
7	5	-61.22	33.19	0.00	5.0	5.0	Pass	Current BDA utilized
7	6	-65.68	34.45	0.00	5.0	5.0	Pass	Current BDA utilized
8	1	-58.46	33.64	0.00	5.0	5.0	Pass	Current BDA utilized
8	2	-63.51	34.03	0.00	5.0	5.0	Pass	Current BDA utilized
8	3	-64.77	31.93	0.00	5.0	5.0	Pass	Current BDA utilized
9	1	-55.08	33.45	0.00	5.0	5.0	Pass	Current BDA utilized
10	1	-53.29	34.45	0.00	5.0	5.0	Pass	Current BDA utilized
11	1	-57.75	33.24	0.00	5.0	5.0	Pass	Current BDA utilized

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Additional Info

- The testing parameters have changed since the previous grid test completion at this location. The 2015 IFC was utilized previously which dictated -95 dBm Signal Strength throughout the facility. With the code change listed below, the building tests out better but still has a significant lack of usage.

Code Reference: 2018 International Fire Code, Section 510, Emergency Responder Radio Coverage

510.4.1 Emergency responder communication enhancement system signal strength. The building shall be considered to have acceptable emergency responder communications enhancement system coverage when signal strength measurements in 95 percent of all areas on each floor of the building meet the signal strength requirements in Sections 510.4.1.1 through 510.4.1.3.

510.4.1.1 Minimum signal strength into the building. The minimum inbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the fire code official. The inbound signal level shall be sufficient to provide not less than a Delivered Audio Quality (DAQ) of 3.0 or an equivalent Signal-to-Interference Plus-Noise Ratio (SINR) applicable to the technology for either analog or digital signals.

510.4.1.2 Minimum signal strength out of the building. The minimum outbound signal strength shall be sufficient to provide usable voice communications throughout the coverage area as specified by the fire code official. The outbound signal level shall be sufficient to provide not less than a DAQ of 3.0 or an equivalent SINR applicable to the technology for either analog or digital signals.