

Public Safety Site Survey Summary Report

Banks Trail Middle School



1640 Banks Road, Fort Mill, SC 29715

June 4, 2020

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Introduction

- In this report we measured RF signals on the 800 MHz Public Safety Frequency Bands for York County and the Town of Fort Mill, SC .
- The measurements were gathered by using a PC Tel SeeGull using SeeHawk Touch release 2.9.0.3 RF analyzing software
- **Measured Regions:**
 - First Floor divided into 24 sections to complete the required grid test.

Summary of Findings:

Harris Communications sent technicians Gary Baker and Brandon Brown to conduct an RF Survey for Banks Trail Middle School located in Fort Mill, SC. Mr. Baker and Mr. Brown arrived on site on April 29, 2020 and took RF readings using a PC Tel SeeGull RF analyzer to test the current RF signal inside the school.

Based upon the current RF signals collected at this location, a Public Safety Distributed Antenna System is highly recommend both for the safety of the children but also for the faculty, staff and volunteers. Blow you will find the actual readings taken in each of the 24 grid squares. The minimum acceptable readings meet the public safety requirements is RF strength and Quality of at least -90 dBm for 95% of the building. As you will see in this report Banks Trail Middle School missed the mark in almost every area of the facility, thus failing this RF grid test guidelines.

It would be the recommendation of Harris Communications that a Public Safety Emergency Responder Radio Communications System be installed prior to the upcoming school year. This would provide the highest level of assurance that emergency responders would be able to communicate within the facility should an emergency occur.

Additional supporting information for this recommendation will be found below.

Public Safety Grid Test Results

Emergency Responder Radio System Coverage Report Test Results

Date Prepared:	Apr 29, 2020
Test Location:	Banks Trail Middle
	1640 Banks Rd. Fort Mill SC 29730
Technician:	Gary Baker
FCC#:	0024078164

Building: Banks Trail Middle
Result: Fail

Test Report Summary

Channel/ Ch Group	Freq (MHz)	Technology	Band	Result	Area Points passed (%)	Critical Points passed (%)
control : 1	853.77500	P25	Family Court - York County	Fail	1/24 (4%)	0/0 (0%)
6	852.97500	P25	Family Court - York County	Fail	1/24 (4%)	0/0 (0%)
9	851.83750	P25	Family Court - York County	Fail	1/24 (4%)	0/0 (0%)
11	851.61250	P25	Family Court - York County	Fail	2/24 (8%)	0/0 (0%)
14	851.06250	P25	Family Court - York County	Fail	1/24 (4%)	0/0 (0%)
15	852.71250	P25	Family Court - York County	Fail	1/24 (4%)	0/0 (0%)

Test Details

Number of Floors Tested:	1	Result Calculation:	By area per floor
Number of Areas Tested:	24	Area Pass Criteria:	95%
Number of Critical Points Tested:	0	Critical Points Pass Criteria:	99%
		Apply Adjacent Area Rule:	No

Equipment Configuration

Vendor	Application	Device	Calibration Expires	Antenna info
PCTEL	SeeHawk Touch rel 2.9.0.3	SeeGull IBflex Device rel 3.3.3.0 SN: 081709030	11-18-2021	

Threshold Settings

Measurement	DL Area Point	UL Area Point	DL Critical Point	UL Critical Point	Use for grading
P25 Power (RSSI)	-95.0 dBm	-95.0 dBm	-95.0 dBm	-95.0 dBm	Yes
P25 S/N (SINR)	18.0 dB	18.0 dB	20.0 dB	20.0 dB	Yes
P25 FBER	5.0 %	5.0 %	5.0 %	5.0 %	Yes
DAQ	3.0				Yes

Floors Result

Floor Plan	control	6 852.97500	9 851.83750	11 851.61250	14 851.06250
Floor 1	Fail	Fail	Fail	Fail	Fail

Floor Plan	15 852.71250
Floor 1	Fail

Floor: Floor 1

Group: control Channels: 1

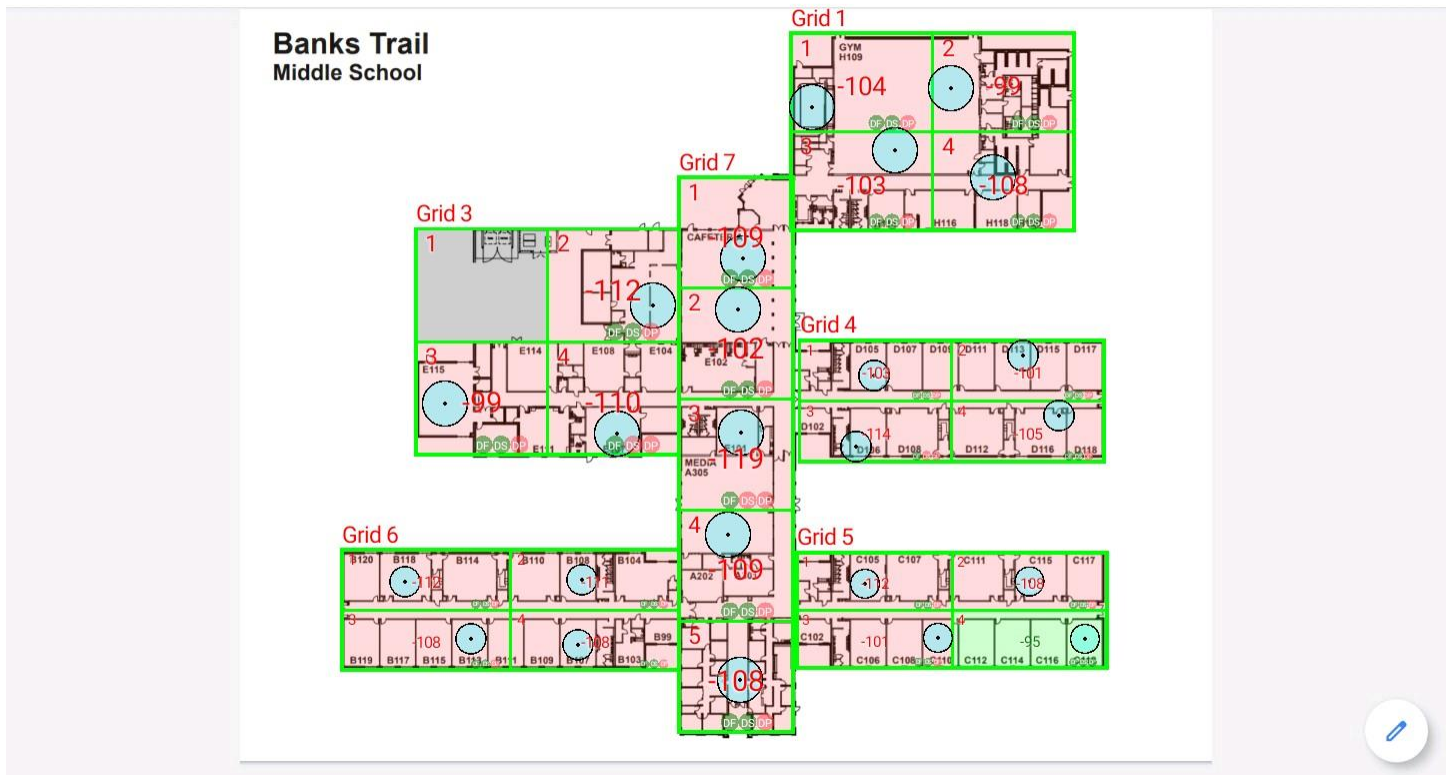
Result: **Fail**

Freq (MHz)	Tech	Band	Ant Gain	Cable Loss	Ph.	Type	Mod	NAC	Area Points passed (%)	Critical Points passed (%)
853.77500	P25	Family Court - York County	0.00	0.00	-	---	---	---	1/24 (4%)	0/0 (0%)

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99%

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Grid	# of Areas	Area Size (sq. ft)	Area Width (ft)	Area Height (ft)	Comments
1	4	674.82	27.26	24.76	
3	4	717.87	25.34	28.34	
4	4	446.84	29.33	15.24	
5	4	431.92	29.86	14.47	
6	4	489.50	32.46	15.08	
7	5	611.45	21.96	27.84	

Floor: Floor 1

Group: control Channels: 1

Area Report

Grid	Area	DL Power (dBm)	DL S/N (dB)	DL FBER (%)	DL DAQ	UL Power (dBm)	UL S/N (dB)	UL FBER (%)	UL DAQ	Result	DL Loss (dB)	Comment
1	1	-103.34	25.21	0.00						Fail		
1	2	-98.43	30.48	0.00						Fail		
1	3	-102.94	26.34	0.00						Fail		
1	4	-107.32	21.81	0.00						Fail		
3	1	NT	NT	NT	NT	NT	NT	NT	NT	NT		
3	2	-111.13	19.79	0.00						Fail		
3	3	-98.12	29.03	0.00						Fail		
3	4	-109.57	17.87	0.00						Fail		
4	1	-102.63	24.39	0.00						Fail		
4	2	-100.38	28.19	0.00						Fail		
4	3	-113.52	12.81	0.00						Fail		
4	4	-104.23	24.91	0.00						Fail		
5	1	-111.73	18.41	0.00						Fail		
5	2	-107.53	20.52	0.00						Fail		
5	3	-100.85	27.50	0.00						Fail		
5	4	-94.71	30.32	0.00						Pass		
6	1	-111.36	21.88	0.00						Fail		
6	2	-110.41	18.84	0.00						Fail		
6	3	-107.64	18.29	0.00						Fail		
6	4	-107.10	20.36	0.00						Fail		
7	1	-108.94	21.75	0.00						Fail		
7	2	-101.14	28.79	0.00						Fail		
7	3	-118.48	12.88	0.00						Fail		
7	4	-108.14	21.47	0.00						Fail		
7	5	-107.49	22.41	0.00						Fail		

Floor: Floor 1

Channel: 6

Result: **Fail**

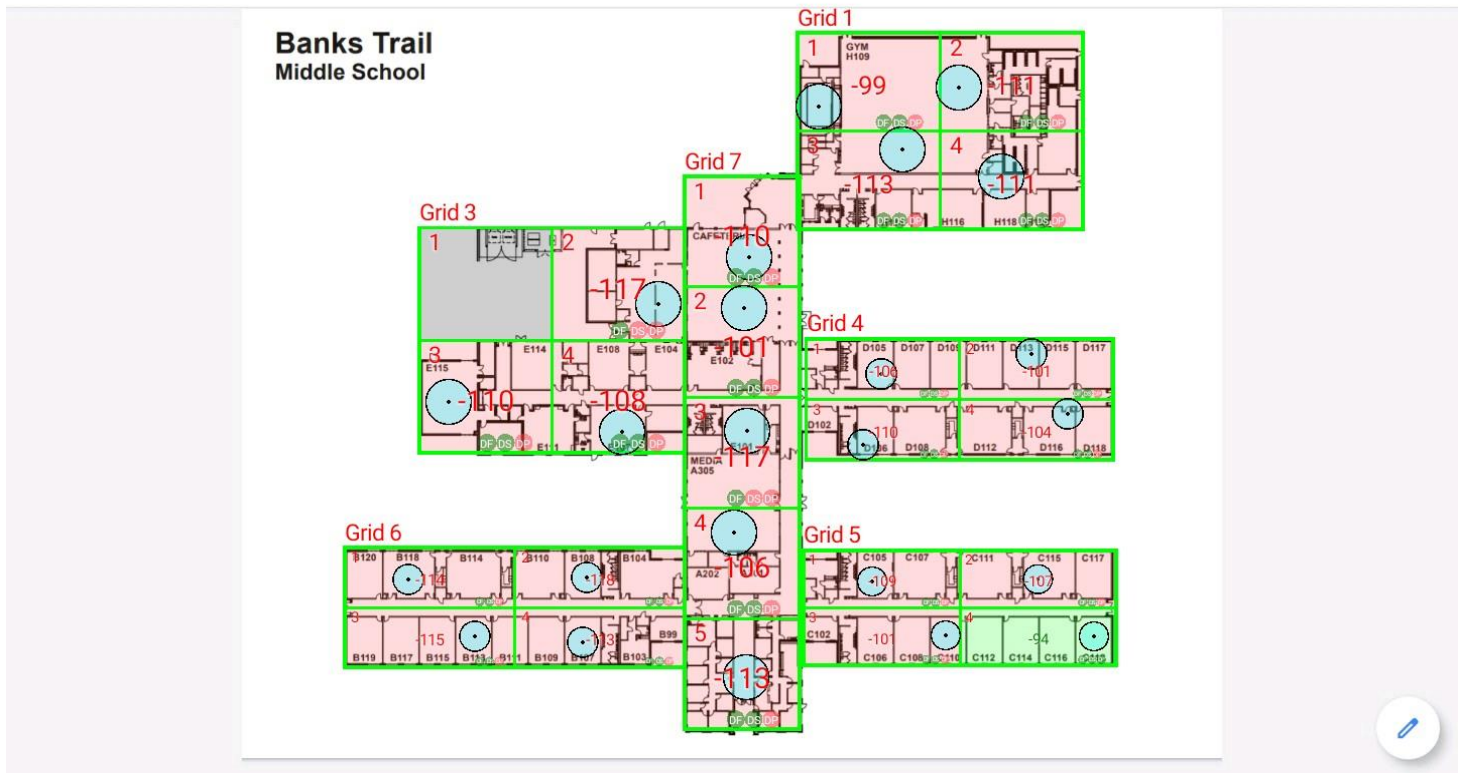
Freq (MHz)	Tech	Band	Ant Gain	Cable Loss	Ph.	Type	Mod	NAC	Area Points passed (%)	Critical Points passed (%)
852.97500	P25	Family Court - York County	0.00	0.00	1	CC	CQPS K	1BA	1/24 (4%)	0/0 (0%)

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99%

← BTMS(1).pdf

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Grid	# of Areas	Area Size (sq. ft)	Area Width (ft)	Area Height (ft)	Comments
1	4	674.82	27.26	24.76	
3	4	717.87	25.34	28.34	
4	4	446.84	29.33	15.24	
5	4	431.92	29.86	14.47	
6	4	489.50	32.46	15.08	
7	5	611.45	21.96	27.84	

Floor: Floor 1

Channel: 6

Area Report

Grid	Area	DL Power (dBm)	DL S/N (dB)	DL FBER (%)	DL DAQ	UL Power (dBm)	UL S/N (dB)	UL FBER (%)	UL DAQ	Result	DL Loss (dB)	Comment
1	1	-98.77	29.64	0.00						Fail		
1	2	-110.01	27.66	0.00						Fail		
1	3	-112.61	26.74	0.00						Fail		
1	4	-110.67	25.85	0.00						Fail		
3	1	NT	NT	NT	NT	NT	NT	NT	NT	NT		
3	2	-116.77	17.94	0.00						Fail		
3	3	-109.11	30.43	0.00						Fail		
3	4	-107.65	20.66	0.00						Fail		
4	1	-105.86	29.36	0.00						Fail		
4	2	-100.33	30.61	0.00						Fail		
4	3	-109.73	21.75	0.00						Fail		
4	4	-103.15	26.12	0.00						Fail		
5	1	-108.08	22.99	0.00						Fail		
5	2	-106.87	24.18	0.00						Fail		
5	3	-100.91	27.13	0.00						Fail		
5	4	-93.56	32.38	0.00						Pass		
6	1	-113.05	21.53	0.00						Fail		
6	2	-117.84	21.83	0.00						Fail		
6	3	-114.28	25.02	0.00						Fail		
6	4	-112.41	25.60	0.00						Fail		
7	1	-109.29	28.88	0.00						Fail		
7	2	-100.51	28.31	0.00						Fail		
7	3	-116.63	12.41	2.24						Fail		
7	4	-105.88	23.56	0.00						Fail		
7	5	-112.70	23.28	0.00						Fail		

Floor: Floor 1

Channel: 9

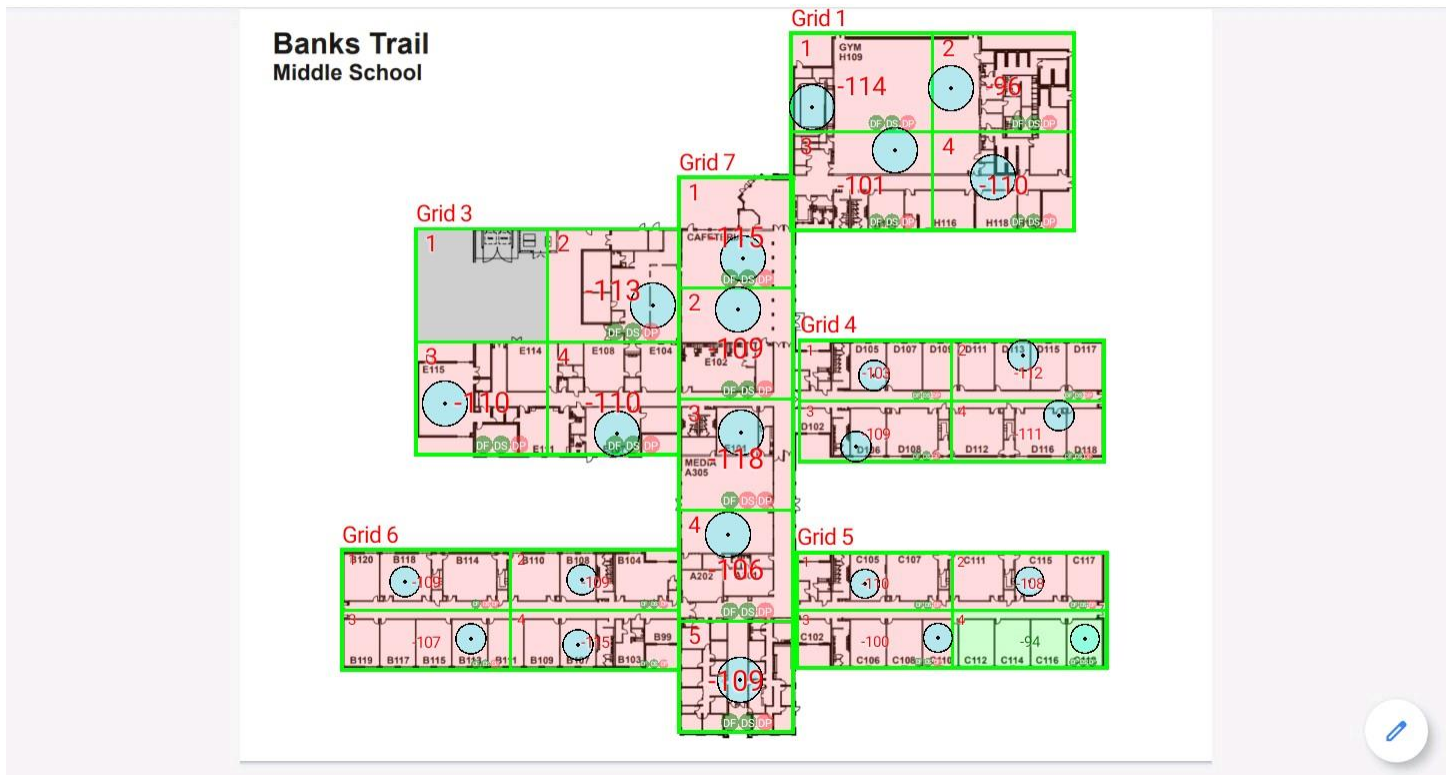
Result: **Fail**

Freq (MHz)	Tech	Band	Ant Gain	Cable Loss	Ph.	Type	Mod	NAC	Area Points passed (%)	Critical Points passed (%)
851.83750	P25	Family Court - York County	0.00	0.00	1	CC	CQPS K	1BA	1/24 (4%)	0/0 (0%)

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99%

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Grid	# of Areas	Area Size (sq. ft)	Area Width (ft)	Area Height (ft)	Comments
1	4	674.82	27.26	24.76	
3	4	717.87	25.34	28.34	
4	4	446.84	29.33	15.24	
5	4	431.92	29.86	14.47	
6	4	489.50	32.46	15.08	
7	5	611.45	21.96	27.84	

Floor: Floor 1

Channel: 9

Area Report

Grid	Area	DL Power (dBm)	DL S/N (dB)	DL FBER (%)	DL DAQ	UL Power (dBm)	UL S/N (dB)	UL FBER (%)	UL DAQ	Result	DL Loss (dB)	Comment
1	1	-113.51	26.79	0.00						Fail		
1	2	-95.79	32.41	0.00						Fail		
1	3	-100.43	29.72	0.00						Fail		
1	4	-109.52	19.51	0.00						Fail		
3	1	NT	NT	NT	NT	NT	NT	NT	NT	NT		
3	2	-112.53	18.65	0.00						Fail		
3	3	-109.14	31.93	0.00						Fail		
3	4	-109.31	25.63	0.00						Fail		
4	1	-102.34	26.14	0.00						Fail		
4	2	-111.86	31.59	0.00						Fail		
4	3	-108.17	21.14	0.00						Fail		
4	4	-110.31	24.88	0.00						Fail		
5	1	-109.90	19.58	0.00						Fail		
5	2	-107.09	21.07	0.00						Fail		
5	3	-99.16	26.73	0.00						Fail		
5	4	-94.00	32.41	0.00						Pass		
6	1	-108.60	17.38	0.00						Fail		
6	2	-108.70	20.45	0.00						Fail		
6	3	-106.43	20.60	0.00						Fail		
6	4	-114.41	24.68	0.00						Fail		
7	1	-114.30	27.43	0.00						Fail		
7	2	-108.26	25.94	0.00						Fail		
7	3	-117.32	13.38	0.69						Fail		
7	4	-105.04	24.04	0.00						Fail		
7	5	-108.30	24.21	0.00						Fail		

Floor: Floor 1

Channel: 11

Result: **Fail**

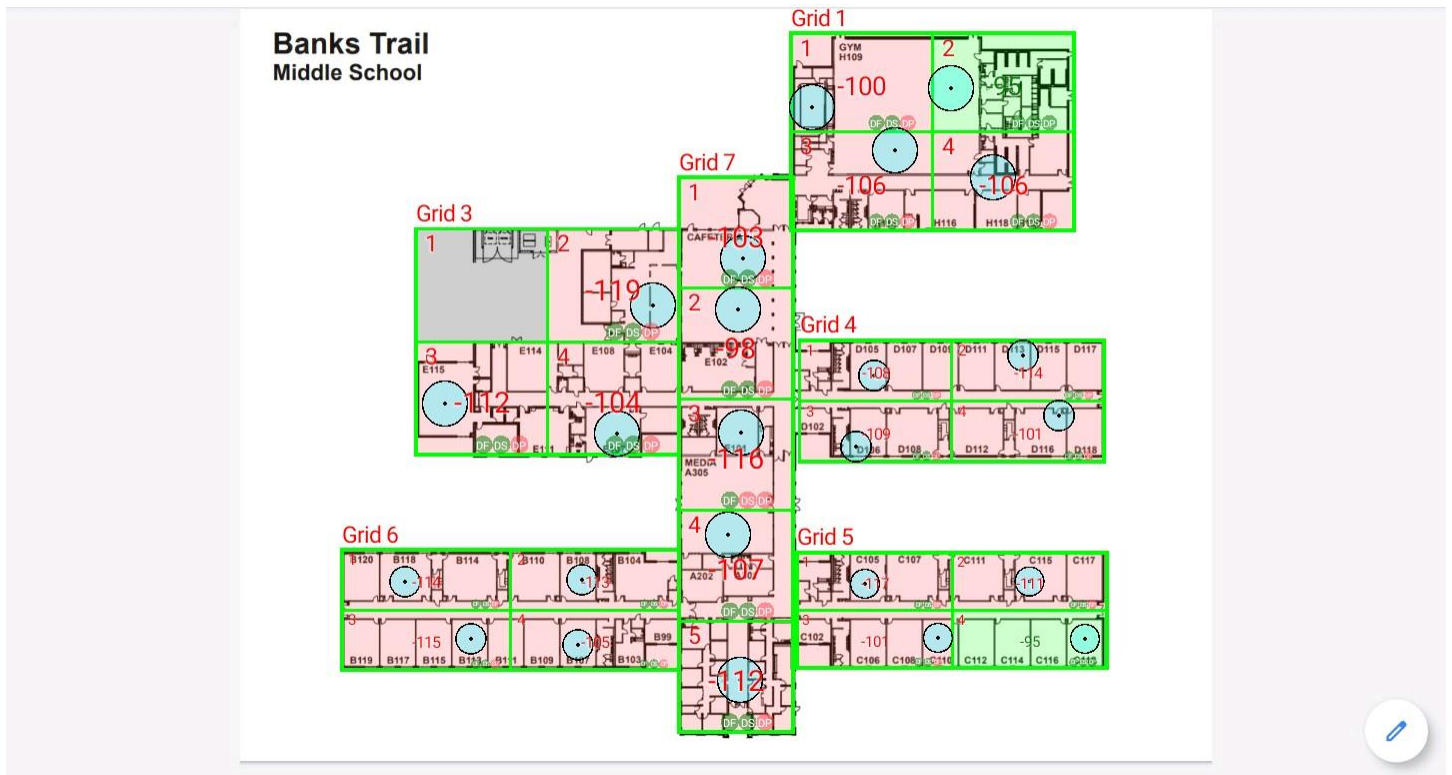
Freq (MHz)	Tech	Band	Ant Gain	Cable Loss	Ph.	Type	Mod	NAC	Area Points passed (%)	Critical Points passed (%)
851.61250	P25	Family Court - York County	0.00	0.00	1	CC	CQPS K	1BA	2/24 (8%)	0/0 (0%)

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99%

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Grid	# of Areas	Area Size (sq. ft)	Area Width (ft)	Area Height (ft)	Comments
1	4	674.82	27.26	24.76	
3	4	717.87	25.34	28.34	
4	4	446.84	29.33	15.24	
5	4	431.92	29.86	14.47	
6	4	489.50	32.46	15.08	
7	5	611.45	21.96	27.84	

Floor: Floor 1

Channel: 11

Area Report

Grid	Area	DL Power (dBm)	DL S/N (dB)	DL FBER (%)	DL DAQ	UL Power (dBm)	UL S/N (dB)	UL FBER (%)	UL DAQ	Result	DL Loss (dB)	Comment
1	1	-99.52	29.25	0.00						Fail		
1	2	-94.90	33.64	0.00						Pass		
1	3	-105.89	29.48	0.00						Fail		
1	4	-106.00	24.45	0.00						Fail		
3	1	NT	NT	NT	NT	NT	NT	NT	NT	NT		
3	2	-118.80	19.56	0.00						Fail		
3	3	-111.17	28.62	0.00						Fail		
3	4	-103.94	23.89	0.00						Fail		
4	1	-107.33	29.00	0.00						Fail		
4	2	-113.08	29.01	0.00						Fail		
4	3	-108.49	20.27	0.00						Fail		
4	4	-100.06	28.92	0.00						Fail		
5	1	-117.00	28.03	0.00						Fail		
5	2	-110.17	22.53	0.00						Fail		
5	3	-100.36	25.63	0.00						Fail		
5	4	-94.33	32.14	0.00						Pass		
6	1	-113.03	19.31	0.00						Fail		
6	2	-112.68	20.19	0.00						Fail		
6	3	-114.44	19.16	0.00						Fail		
6	4	-104.28	25.18	0.00						Fail		
7	1	-102.22	28.53	0.00						Fail		
7	2	-97.73	29.37	0.00						Fail		
7	3	-115.71	15.94	0.00						Fail		
7	4	-106.21	23.81	0.00						Fail		
7	5	-111.03	25.21	0.00						Fail		

Floor: Floor 1

Channel: 14

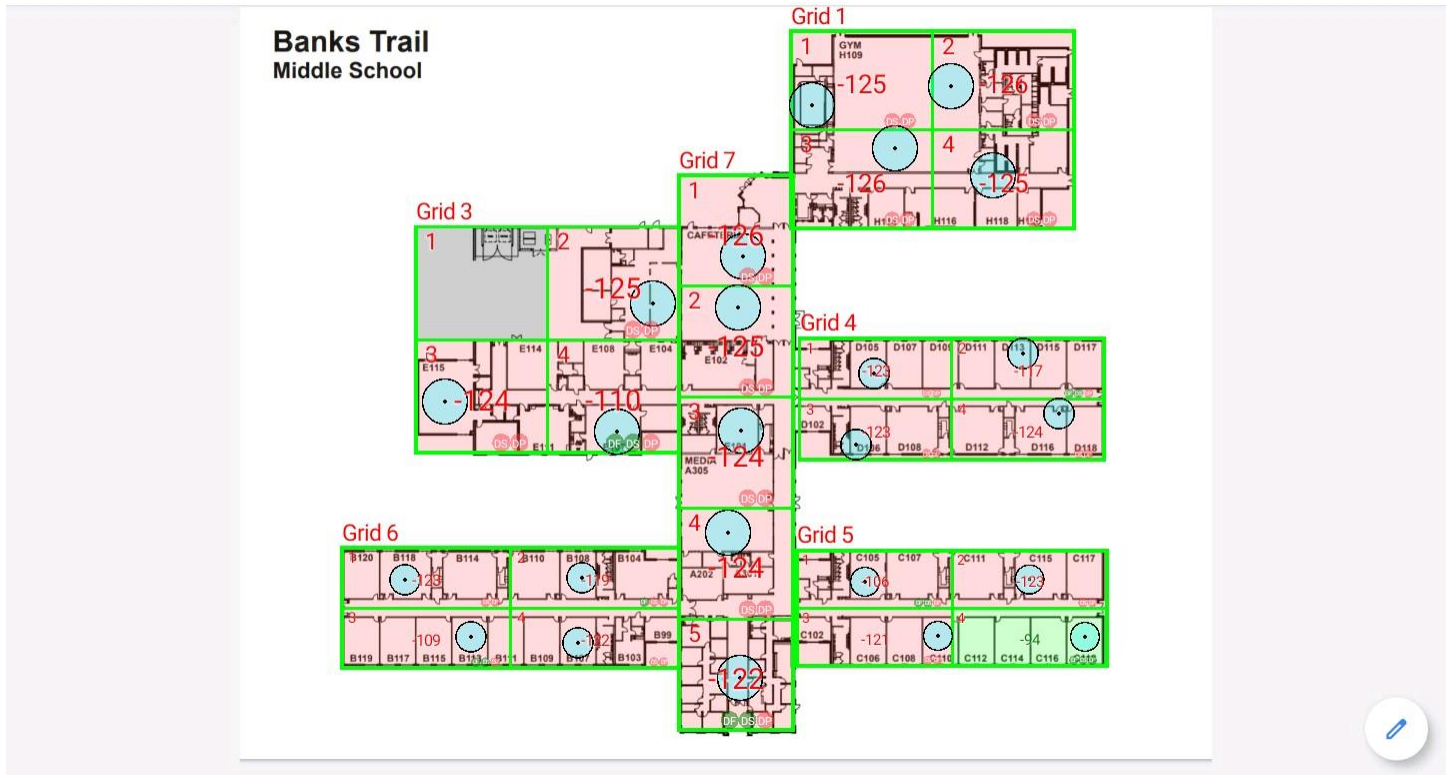
Result: **Fail**

Freq (MHz)	Tech	Band	Ant Gain	Cable Loss	Ph.	Type	Mod	NAC	Area Points passed (%)	Critical Points passed (%)
851.06250	P25	Family Court - York County	0.00	0.00		CC			1/24 (4%)	0/0 (0%)

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99%

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Grid	# of Areas	Area Size (sq. ft)	Area Width (ft)	Area Height (ft)	Comments
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4	4	446.84	29.33	15.24	
5	4	431.92	29.86	14.47	
6	4	489.50	32.46	15.08	
7	5	611.45	21.96	27.84	

Floor: Floor 1

Channel: 14

Area Report

Grid	Area	DL Power (dBm)	DL S/N (dB)	DL FBER (%)	DL DAQ	UL Power (dBm)	UL S/N (dB)	UL FBER (%)	UL DAQ	Result	DL Loss (dB)	Comment
1	1	-124.65								Fail		
1	2	-125.24								Fail		
1	3	-125.10								Fail		
1	4	-124.08								Fail		
3	1	NT	NT	NT	NT	NT	NT	NT	NT	NT		
3	2	-124.54								Fail		
3	3	-123.01								Fail		
3	4	-109.80	25.45	0.00						Fail		
4	1	-122.91								Fail		
4	2	-116.94	30.43	0.00						Fail		
4	3	-122.77								Fail		
4	4	-123.11								Fail		
5	1	-105.16	24.22	0.00						Fail		
5	2	-122.11								Fail		
5	3	-120.24								Fail		
5	4	-93.70	31.33	0.00						Pass		
6	1	-122.48								Fail		
6	2	-118.94	14.71	0.00						Fail		
6	3	-108.15	19.79	0.00						Fail		
6	4	-121.97								Fail		
7	1	-125.25								Fail		
7	2	-124.59								Fail		
7	3	-123.03								Fail		
7	4	-123.71								Fail		
7	5	-121.15	22.83	0.00						Fail		

Floor: Floor 1

Channel: 15

Result: **Fail**

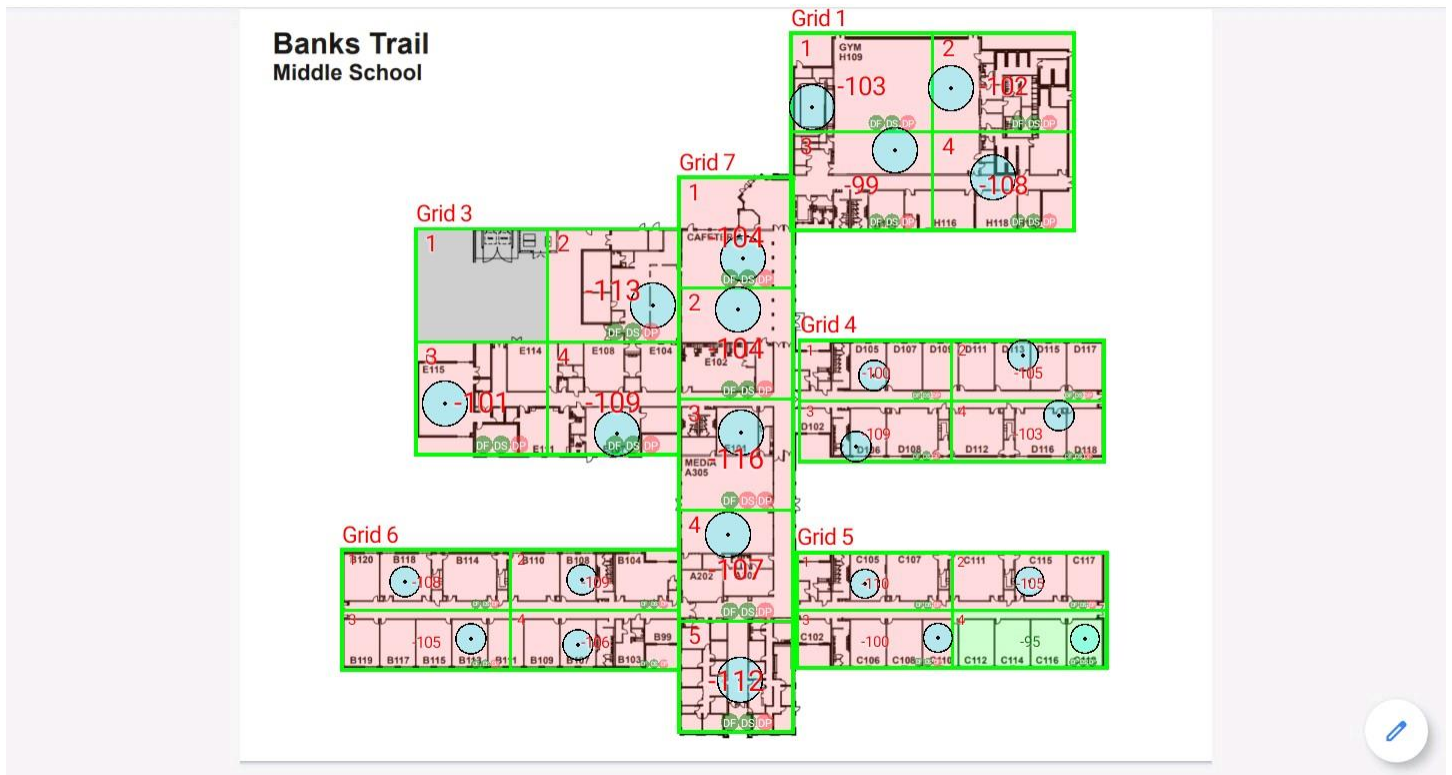
Freq (MHz)	Tech	Band	Ant Gain	Cable Loss	Ph.	Type	Mod	NAC	Area Points passed (%)	Critical Points passed (%)
852.71250	P25	Family Court - York County	0.00	0.00	1	CC	CQPS K	1BA	1/24 (4%)	0/0 (0%)

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99%

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Grid	# of Areas	Area Size (sq. ft)	Area Width (ft)	Area Height (ft)	Comments
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6	4	489.50	32.46	15.08	
7	5	611.45	21.96	27.84	

Floor: Floor 1

Channel: 15

Area Report

Grid	Area	DL Power (dBm)	DL S/N (dB)	DL FBER (%)	DL DAQ	UL Power (dBm)	UL S/N (dB)	UL FBER (%)	UL DAQ	Result	DL Loss (dB)	Comment
1	1	-102.54	26.03	0.00						Fail		
1	2	-101.90	27.91	0.00						Fail		
1	3	-98.46	28.73	0.00						Fail		
1	4	-107.22	22.34	0.00						Fail		
3	1	NT	NT	NT	NT	NT	NT	NT	NT	NT		
3	2	-112.96	18.39	0.00						Fail		
3	3	-100.39	26.42	0.00						Fail		
3	4	-108.82	18.53	0.00						Fail		
4	1	-99.47	29.35	0.00						Fail		
4	2	-104.09	25.71	0.00						Fail		
4	3	-108.08	20.49	0.00						Fail		
4	4	-102.84	25.53	0.00						Fail		
5	1	-109.95	18.49	0.00						Fail		
5	2	-104.67	20.94	0.00						Fail		
5	3	-99.02	27.64	0.00						Fail		
5	4	-94.40	31.39	0.00						Pass		
6	1	-107.97	21.42	0.00						Fail		
6	2	-108.31	21.37	0.00						Fail		
6	3	-104.72	21.93	0.00						Fail		
6	4	-105.24	22.41	0.00						Fail		
7	1	-103.85	26.80	0.00						Fail		
7	2	-103.63	25.78	0.00						Fail		
7	3	-115.95	12.81	1.13						Fail		
7	4	-106.01	22.74	0.00						Fail		
7	5	-111.46	22.93	0.00						Fail		

- End of Report -