



RF Justification Report

Created By: Varadaraj Kallur, RF Deployment Engineer

Approved By: John Haubrich, Sr. RF Deployment Engineer – 6/3/2016

PH10721A – Camelback Inn Ballroom

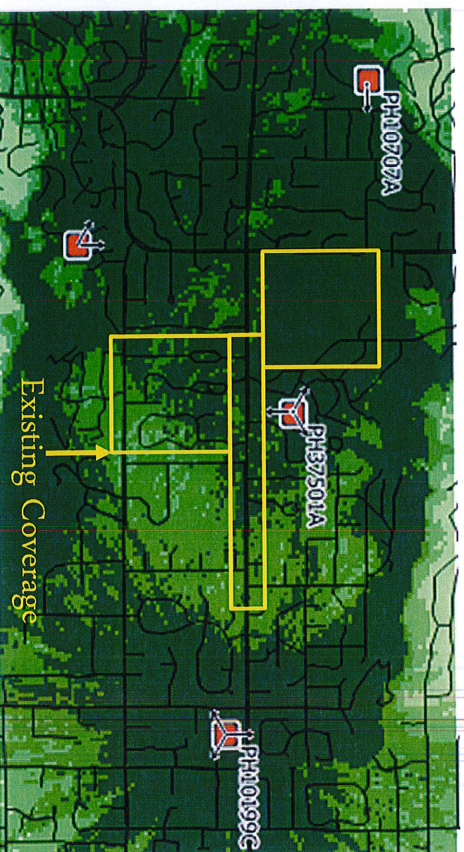
PH37501A, an existing GSM Indoor Wireless Communication Facility (WCF) located at 5402 E. Lincoln Dr, Paradise Valley, 85253 is being decommissioned. In order to maintain the existing coverage and provide new LTE coverage to indoor areas near existing site, a new WCF PH10721A is proposed.

The FCC states in 47 CFR 1.1310 that the maximum permissible exposure (MPE) level from nonionizing electromagnetic radiation (NIEER) to the general population at cellular and PCS frequencies is 1.0 milliwatt per centimeter squared (mW/cm^2). MPE is a measure of the RF power density at or below which there are no potential harmful effects from the exposure.

As per MPE study, the maximum power density will not exceed at ground level for 1900 and 2100 Band. Moreover, the average energy expected near ground level is less than 1% of the MPE level. This level does not exceed the MPE limit set by the Federal Communications Commission or the American National Standards Institute.

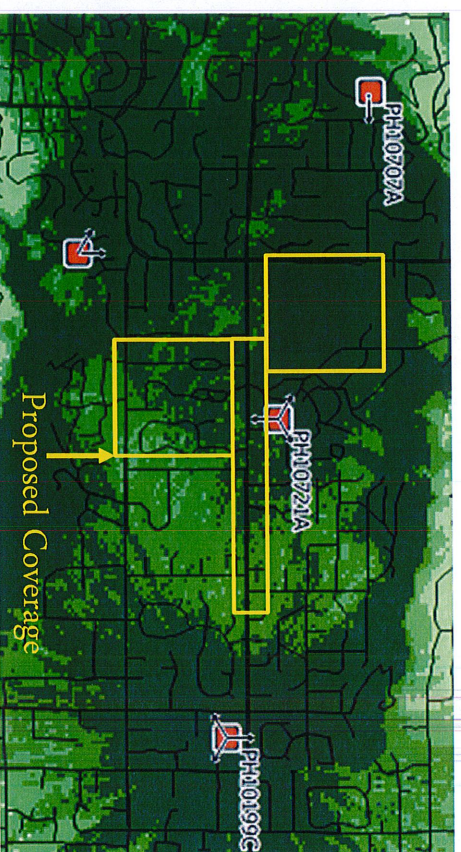
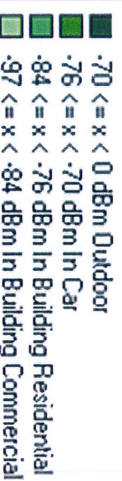
Based upon the FCC/ANSI standard and the predicted levels of electromagnetic energy emitted by site “PH10721A”, this installation will be in compliance.

PH10721A Predicted Coverage Analysis



Current Coverage:

The areas south and northwest of the proposed locations are currently served by existing site PH37501A and provide the signal coverage to deliver high quality Data and Voice services. PH37501A will be decommissioned and the coverage needs to be maintained. See annotations on map.



Proposed Coverage:

With the addition of the new T-Mobile WCF (PH10721A), the coverage by PH37501A will be maintained and the businesses and homes within 1/2 mile radius (Intersection) will experience improved speeds and coverage for indoor Data and Voice Services. See annotations on map for Improvements.

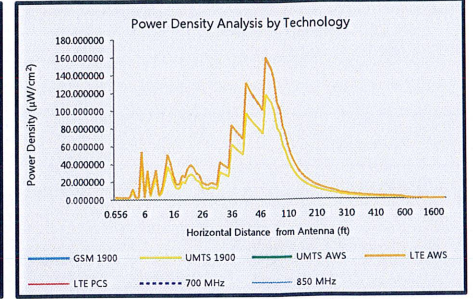
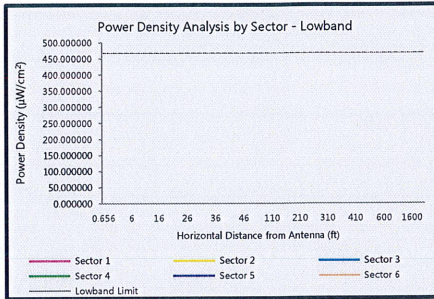
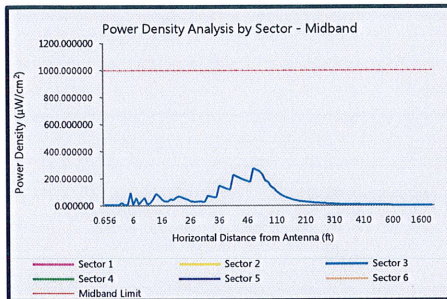
REGION : West

MARKET : Phoenix

SITE ID : PH10721A

SITE TYPE : Non-pole

COLOCATED: No



Distance (ft)	Midband Frequencies - Calculated Power Density (μW/cm ²)						Lowband Frequencies - Calculated Power Density (μW/cm ²)						Midband Limit	Lowband Limit
	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6		
0.656	4.635655	4.635655	4.635655										1000	467
0.6561	4.635631	4.635631	4.635631										1000	467
0.7	4.624805	4.624805	4.624805										1000	467
0.8	4.154753	4.154753	4.154753										1000	467
0.9	4.262606	4.262606	4.262606										1000	467
1	5.029096	5.029096	5.029096										1000	467
2	22.032574	22.032574	22.032574										1000	467
3	4.216813	4.216813	4.216813										1000	467
4	6.175603	6.175603	6.175603										1000	467
5	93.862740	93.862740	93.862740										1000	467
6	5.573569	5.573569	5.573569										1000	467
7	58.107409	58.107409	58.107409										1000	467
8	10.024743	10.024743	10.024743										1000	467
9	36.237428	36.237428	36.237428										1000	467
10	58.418879	58.418879	58.418879										1000	467
11	10.498092	10.498092	10.498092										1000	467
12	19.434641	19.434641	19.434641										1000	467
13	48.939723	48.939723	48.939723										1000	467
14	88.730098	88.730098	88.730098										1000	467
15	72.364110	72.364110	72.364110										1000	467
16	47.288650	47.288650	47.288650										1000	467
17	30.306347	30.306347	30.306347										1000	467
18	30.806177	30.806177	30.806177										1000	467
19	48.626827	48.626827	48.626827										1000	467
20	44.164600	44.164600	44.164600										1000	467
21	62.528400	62.528400	62.528400										1000	467
22	68.666585	68.666585	68.666585										1000	467
23	63.088975	63.088975	63.088975										1000	467
24	52.551941	52.551941	52.551941										1000	467
25	48.590333	48.590333	48.590333										1000	467
26	33.246445	33.246445	33.246445										1000	467
27	30.909493	30.909493	30.909493										1000	467
28	28.808106	28.808106	28.808106										1000	467
29	33.724486	33.724486	33.724486										1000	467
30	31.573411	31.573411	31.573411										1000	467
31	29.620086	29.620086	29.620086										1000	467
32	73.567796	73.567796	73.567796										1000	467
33	69.275241	69.275241	69.275241										1000	467
34	65.345146	65.345146	65.345146										1000	467
35	61.738094	61.738094	61.738094										1000	467
36	146.744021	146.744021	146.744021										1000	467
37	139.059435	139.059435	139.059435										1000	467
38	131.959736	131.959736	131.959736										1000	467
39	125.387356	125.387356	125.387356										1000	467
40	119.291601	119.291601	119.291601										1000	467
41	229.342323	229.342323	229.342323										1000	467
42	218.702070	218.702070	218.702070										1000	467
43	208.782285	208.782285	208.782285										1000	467
44	199.519634	199.519634	199.519634										1000	467
45	190.857562	190.857562	190.857562										1000	467
46	182.745447	182.745447	182.745447										1000	467
47	175.137870	175.137870	175.137870										1000	467
48	278.159403	278.159403	278.159403										1000	467
49	267.037613	267.037613	267.037613										1000	467
50	256.567623	256.567623	256.567623										1000	467
60	234.834761	234.834761	234.834761										1000	467
70	188.823915	188.823915	188.823915										1000	467
80	176.392381	176.392381	176.392381										1000	467
90	143.760596	143.760596	143.760596										1000	467
100	128.640835	128.640835	128.640835										1000	467
110	106.360773	106.360773	106.360773										1000	467
120	89.402036	89.402036	89.402036										1000	467
130	76.196418	76.196418	76.196418										1000	467
140	65.713344	65.713344	65.713344										1000	467
150	56.728126	56.728126	56.728126										1000	467
160	49.865406	49.865406	49.865406										1000	467
170	44.176354	44.176354	44.176354										1000	467
180	39.407896	39.407896	39.407896										1000	467
190	35.371655	35.371655	35.371655										1000	467
200	31.925073	31.925073	31.925073										1000	467
210	28.958664	28.958664	28.958664										1000	467

Distance (ft)	Midband Frequencies - Calculated Power Density ($\mu\text{W}/\text{cm}^2$)						Lowband Frequencies - Calculated Power Density ($\mu\text{W}/\text{cm}^2$)						Midband Limit	Lowband Limit
	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6		
220	26.387218	26.387218	26.387218										1000	467
230	24.143619	24.143619	24.143619										1000	467
240	22.174421	22.174421	22.174421										1000	467
250	20.436642	20.436642	20.436642										1000	467
260	18.895394	18.895394	18.895394										1000	467
270	17.522126	17.522126	17.522126										1000	467
280	16.293287	16.293287	16.293287										1000	467
290	13.382528	13.382528	13.382528										1000	467
300	12.505472	12.505472	12.505472										1000	467
310	11.711887	11.711887	11.711887										1000	467
320	10.991508	10.991508	10.991508										1000	467
330	10.335599	10.335599	10.335599										1000	467
340	9.736693	9.736693	9.736693										1000	467
350	9.188371	9.188371	9.188371										1000	467
360	8.685093	8.685093	8.685093										1000	467
370	8.222057	8.222057	8.222057										1000	467
380	7.795085	7.795085	7.795085										1000	467
390	7.400527	7.400527	7.400527										1000	467
400	7.035183	7.035183	7.035183										1000	467
410	6.696239	6.696239	6.696239										1000	467
420	6.381211	6.381211	6.381211										1000	467
430	6.087901	6.087901	6.087901										1000	467
440	5.814358	5.814358	5.814358										1000	467
450	5.558845	5.558845	5.558845										1000	467
460	5.319812	5.319812	5.319812										1000	467
470	5.095870	5.095870	5.095870										1000	467
480	4.885777	4.885777	4.885777										1000	467
490	4.688413	4.688413	4.688413										1000	467
500	4.502770	4.502770	4.502770										1000	467
600	3.127019	3.127019	3.127019										1000	467
700	2.297444	2.297444	2.297444										1000	467
800	1.759002	1.759002	1.759002										1000	467
900	1.389840	1.389840	1.389840										1000	467
1000	1.125777	1.125777	1.125777										1000	467
1100	0.930398	0.930398	0.930398										1000	467
1200	0.781796	0.781796	0.781796										1000	467
1300	0.666147	0.666147	0.666147										1000	467
1400	0.574383	0.574383	0.574383										1000	467
1500	0.500352	0.500352	0.500352										1000	467
1600	0.439763	0.439763	0.439763										1000	467
1700	0.389549	0.389549	0.389549										1000	467
1800	0.347468	0.347468	0.347468										1000	467
1900	0.311855	0.311855	0.311855										1000	467
2000	0.281450	0.281450	0.281450										1000	467

MPE ANALYSIS RESULTS		Midband Frequencies						Lowband Frequencies				Max. power density dist. (ft)		Pass or Fail
SECTOR	TECH	RAD CENTER (ft)	TOTAL PCS EIRP (W)	TOTAL AWS EIRP (W)	CATEGORICAL EXCLUSION RESULT	MAX POWER DENSITY ($\mu\text{W}/\text{cm}^2$)	NEXT STEPS	TOTAL 700 MHz EIRP (W)	TOTAL 850 MHz EIRP (W)	MAX POWER DENSITY ($\mu\text{W}/\text{cm}^2$)	NEXT STEPS	Midband	Lowband	
1	U19,L21	30.00	2,501	3,382	Not Categorically Excluded	278.16	No further action needed	0	0	-	No further action needed	48	N/A	PASS
2	U19,L21	30.00	2,501	3,382	Not Categorically Excluded	278.16	No further action needed	0	0	-	No further action needed	48	N/A	PASS
3	U19,L21	30.00	2,501	3,382	Not Categorically Excluded	278.16	No further action needed	0	0	-	No further action needed	48	N/A	PASS

MPE SUMMARY REPORT

MPE RESULT : The site PASSED on the power density modelling.

NEXT STEP : Generate and save the MPE site report (PDF format) and no further action needed.

SIGN REQUIREMENTS (Note: The sign requirements below are from the result of the MPE analysis. Ability of an individual to come near the antenna can result in requiring signs also)

		
Required on sector 1, 2, 3	None required	None required