



**STATEMENT OF JOHN E. HIDLE, P.E.
IN SUPPORT OF A PETITION TO AMEND
THE DIGITAL TELEVISION TABLE OF ALLOTMENTS
KMYU - ST. GEORGE, UTAH
DTV - CH. 21 - 250 kW - 43 m HAAT**

Prepared for: KUTV LICENSEE, LLC

I am a Consulting Engineer, an employee in the firm of Carl T. Jones Corporation, with offices located in Springfield, Virginia. My education and experience are a matter of record with the Federal Communications Commission. I am a Licensed Professional Engineer in the Commonwealth of Virginia, No. 7418, and in New York State, No. 63418.

GENERAL

This office has been authorized by KUTV LICENSEE, LLC, licensee of KMYU channel 9, licensed to St. George, Utah, to prepare this statement in support of a Petition to Amend the Digital Television (DTV) Post Repack Table of Allotments, §73.622(i) of the FCC Rules. The petitioner requests that §73.622(i) of the Commission's Rules be modified to change KMYU's allotted channel. DTV channel 9 is currently specified in the Digital Television Table of Allotments for KMYU. The petitioner requests herein to substitute DTV channel 21 for DTV channel 9. The proposed arrangement of allotments is made to enhance potential viewers' ability to more easily receive the broadcast signal of KMYU. For example, when a signal strength of 80 dBu is compared, channel 9 provides a potential viewer population of 86,628 persons while channel 21 provides a population of 109,570 persons. Further, comparing a signal strength of 60 dBu channel 9 equals 127,709 while channel 21 equals 137,365. A signal level greater than 100 dBu provides the most dramatic comparison. For a predicted channel 9 signal greater than 100 dBu the predicted

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population is zero while the channel 21 predicted greater than 100 dBu population is 86,293 persons. Additionally the UHF channel 21 requires a significantly smaller receiving antenna approximately one-third the size of an equivalent antenna for channel 9. This smaller antenna size by one-third and the >100 dBu signal level population of more than 86,000 persons bodes well for changing from channel 9 to UHF channel 21, especially when the ATSC 3.0 DTV standard is considered.

Even so, serious propagation problems associated with digital television broadcast (DTV) use of high-VHF television channels (7-13) remain. These are also well documented, both before and especially after the initial digital transition on June 12, 2009. These propagation and reception problems for channels 7-13 have been severe enough for the FCC to have, in Zone I where the ERP limit for channels 7-13 is 30 kW at 305 meters HAAT, granted a construction permit for channel 7 with an ERP of 34 kW at 500 meters HAAT. The Zone I ERP Limit for high-VHF channels at 500 meters HAAT is 5.8 kW. 34 kW is more than 5 times the zone I limit. And yet when ATSC 3.0 is considered the remaining problems continue to frustrate DTV broadcasters that use VHF channels, and many of those station still struggle with propagation problems and the subsequent viewer complaints. This proposal seeks to remedy this well known systemic problem in this instance and to provide viewers with a significant improvement in reception capability.

EXPLANATION OF REASON FOR REQUEST

KMYU's licensee has determined that the proposed migration from channel 9 to channel 21 will be a favorable arrangement of allotments based on the enhanced signal levels that will be delivered to a majority of the population within the station's "protected

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service area". For example: The population receiving a signal greater than 100 dBu is zero for channel 9 while the population predicted to receive a signal greater than 100 dBu is 86,293 for channel 21. The populations predicted for each channel and signal levels are shown in the attached map exhibits. Note that a change to channel 21 results in a predicted increase of about 8,000 persons in the overall population. The licensee believes that changing KMYU to operate on channel 21 will solve most, if not all of its current reception problems.

ATSC 3.0 PERMISSIBLE DTV STANDARD

A more immediate concern is the future migration to the ATSC 3.0 permissible standard for over-the-air DTV and the multitude of potential benefits expected to accrue. Probably the most anticipated benefit is the ability to reach portable and mobile devices that have become the essence of the ubiquitous smart-phone culture. However, these devices must be small to fit the culture. Therein lies the intractable problem for VHF DTV stations. Channel 9, for example, has a wavelength of 5.204 feet. A simple half-wave dipole antenna, used as a reference with 0 dB gain, must be 2.60 feet long. The DTV planning factors set forth in the Sixth Report and Order (FCC 97-115) call for an antenna with 6 dB of gain elevated to 30 feet above the ground to just barely receive a signal at a strength of 36 dBu. An antenna for channel 9 with 6 dB of gain would measure 2.60 feet wide and at least 10 to 12 feet long. Obviously the required size of antennas for VHF channels precludes their use in the smart-phone culture. Therefore KMYU on channel 9 will likely be precluded from participation in ATSC 3.0 serving the portable and mobile users of these services. KMYU's licensee has heretofore been unable to consider a truly

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effective solution to its reception problems, and sees no viable solution to the portable, mobile problem while broadcasting on its VHF channel 9, until now. KMYU's licensee herein seeks an effective solution: change to a UHF channel.

KMYU's licensee has determined that the proposed migration to channel 21 will be a favorable arrangement of allotments based on the enhanced signal levels that will be delivered to a majority of the population within the station's "protected service area". As previously noted the population receiving a signal greater than 100 dBu is zero for channel 9, while the population that is predicted to receive a signal greater than 100 dBu is 86,293 persons for channel 21. The higher signal levels provided by use of channel 21 will enable an ease of reception for mobile and portable devices users, notably the smartphone set. The populations predicted for each channel and signal levels are shown in the attached map exhibits. Please note there is a predicted population gain of 8,000 persons for KMYU on channel 21 compared to channel 9.

TECHNICAL STUDY

An engineering study of all pertinent allotments, assignments, applications, construction permits and DTV licenses reveals that DTV channel 21 can be allotted to St. George, St. George in lieu of channel 9, and meet all of the Commission's interference criteria. The allotment reference coordinates for DTV channel 21 at St. George, Utah are: 37 03' 48.0" N.L. and 113 34' 26.0" W.L.¹ The St. George allotment reference site meets the allotment standards in §73.616(b); the requirements set forth in §73.616(f); the

¹ The channel 21 DTV allotment reference coordinates are the same as the DTV channel 9 allotment reference coordinates (as defined in Section 73.622(i) of the FCC Rules) of the petitioner's licensed KMYU, St. George, Utah tower site. License BLCDT-20021031ABG (See FCC tower registration number 1053312).

requirements set forth in §73.623(e), the requirement set forth in §73.623(f), and the principal community coverage requirements set forth in §73.625(a).

The petitioner proposes to install a new Dielectric model TFU-21EST/VP-R O4 non-directional antenna for channel 21 at KMYU's current centerline height above mean sea level (AMSL) of 965.0 meters and 43 meters above average terrain. The proposed changes include the new non-directional antenna, an increase in ERP to 250 kW and a change from channel 9 to channel 21, The coverage area and population predicted to be served by KMYU are increased. All other station parameters are to remain unchanged.

ALLOCATION CONSIDERATIONS

Post-Transition DTV Considerations

A study was performed, using the FCC's software, *tvstudy* v2.2.5, to determine if the instant petition to amend the post-transition Table is predicted to cause new prohibited interference to DTV stations, construction permits or DTV allotments. Results of the study indicate that the instant petition is predicted to cause no new interference greater than 0.5% to the populations served by any full-power DTV station, construction permit or allotment. See Appendix B. These results comply with the 0.5% limit for new post-repack interference set forth in §73.616(e) of the Commission's Rules.

International DTV Considerations

The KMYU site is located more than 1,300 kilometers from the nearest point on the US-Canadian border and 494.1 kilometers from the nearest point on the US-Mexican border. Therefore no international coordination is required.

Class A Television Allocation Considerations

As required in Section 73.616(f) of the FCC's Rules, the study results in Appendix B shows no Class A station predicted to be affected by the re-allotment of KMYU.

Land Mobile and FM radio Considerations

The *tvstudy* results found no Land Mobile violations for this site, and the site is deemed OK toward AM radio stations.

SUMMARY

It is submitted that the instant Petition to Amend the DTV Table of Allotments to substitute DTV channel 20 for DTV channel 9 in St. George, St. George, as described herein, complies with the Rules, Regulations and relevant Policies of the Federal Communications Commission. This statement was prepared by me, or under my direct supervision, and its contents are believed to be true and correct to the best of my knowledge and belief.

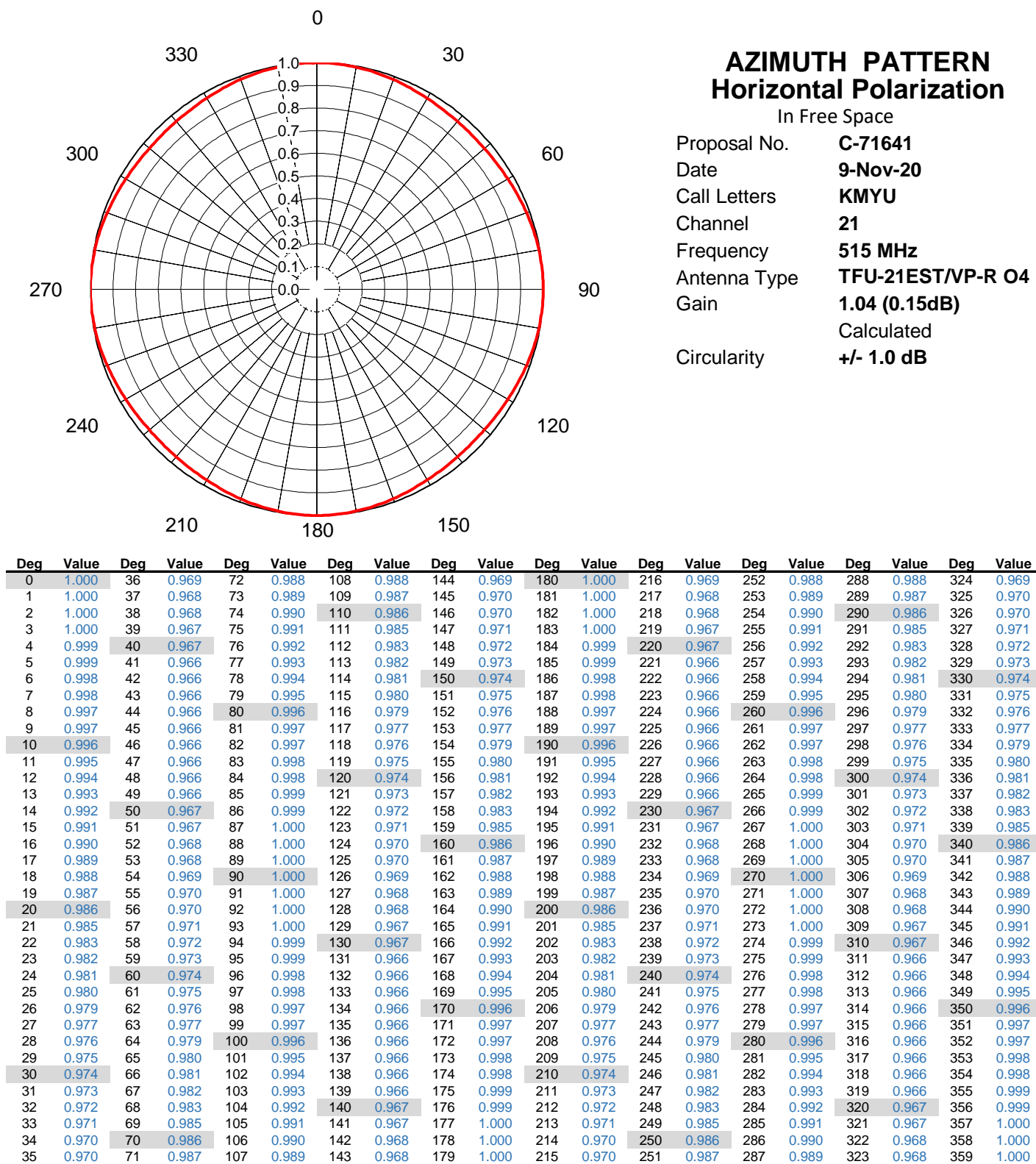
DATED: November 22, 2020


John E. Hidle, P.E.

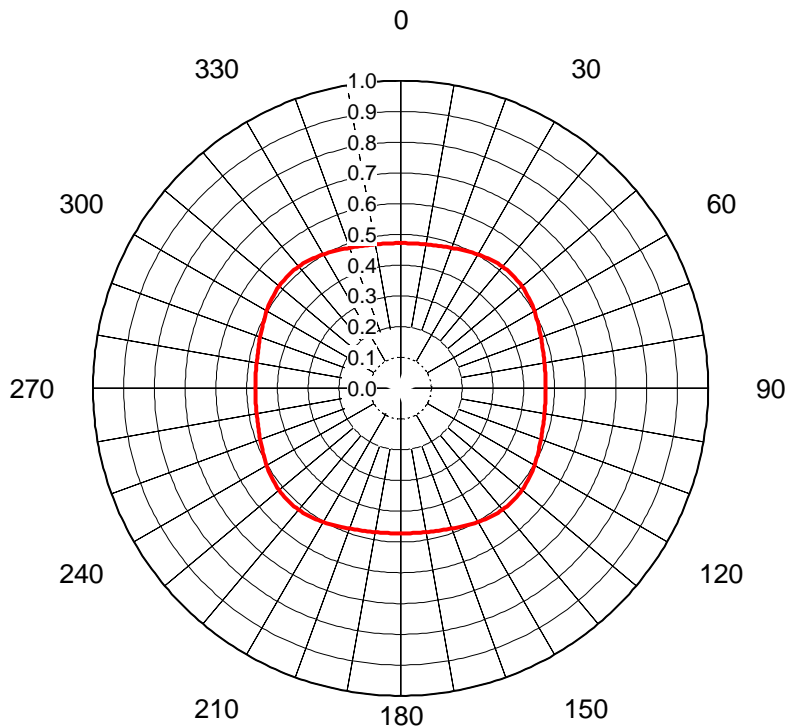

AZIMUTH PATTERN Horizontal Polarization

In Free Space

Proposal No. **C-71641**
Date **9-Nov-20**
Call Letters **KMYU**
Channel **21**
Frequency **515 MHz**
Antenna Type **TFU-21EST/VP-R 04**
Gain **1.04 (0.15dB)**
Circularity **+/- 1.0 dB**



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AZIMUTH PATTERN Vertical Polarization

In Free Space

Proposal No. **C-71641**
 Date **9-Nov-20**
 Call Letters **KMYU**
 Channel **21**
 Frequency **515 MHz**
 Antenna Type **TFU-21EST/VP-R O4**
 Gain **1.11 (0.44dB)**
 Calculated
 Circularity **+/- 1.0 dB**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.472	36	0.512	72	0.483	108	0.483	144	0.512	180	0.472	216	0.512	252	0.483	288	0.483
1	0.472	37	0.513	73	0.482	109	0.484	145	0.510	181	0.472	217	0.513	253	0.482	289	0.484
2	0.472	38	0.514	74	0.480	110	0.486	146	0.509	182	0.472	218	0.514	254	0.480	290	0.486
3	0.472	39	0.515	75	0.479	111	0.487	147	0.507	183	0.472	219	0.515	255	0.479	291	0.487
4	0.472	40	0.516	76	0.478	112	0.489	148	0.506	184	0.472	220	0.516	256	0.478	292	0.489
5	0.473	41	0.516	77	0.477	113	0.490	149	0.504	185	0.473	221	0.516	257	0.477	293	0.490
6	0.473	42	0.517	78	0.476	114	0.492	150	0.502	186	0.473	222	0.517	258	0.476	294	0.492
7	0.473	43	0.517	79	0.476	115	0.494	151	0.501	187	0.473	223	0.517	259	0.476	295	0.494
8	0.474	44	0.518	80	0.475	116	0.495	152	0.499	188	0.474	224	0.518	260	0.475	296	0.495
9	0.474	45	0.518	81	0.474	117	0.497	153	0.497	189	0.474	225	0.518	261	0.474	297	0.497
10	0.475	46	0.518	82	0.474	118	0.499	154	0.495	190	0.475	226	0.518	262	0.474	298	0.499
11	0.476	47	0.517	83	0.473	119	0.501	155	0.494	191	0.476	227	0.517	263	0.473	299	0.501
12	0.476	48	0.517	84	0.473	120	0.502	156	0.492	192	0.476	228	0.517	264	0.473	300	0.502
13	0.477	49	0.516	85	0.473	121	0.504	157	0.490	193	0.477	229	0.516	265	0.473	301	0.504
14	0.478	50	0.516	86	0.472	122	0.506	158	0.489	194	0.478	230	0.516	266	0.472	302	0.506
15	0.479	51	0.515	87	0.472	123	0.507	159	0.487	195	0.479	231	0.515	267	0.472	303	0.507
16	0.480	52	0.514	88	0.472	124	0.509	160	0.486	196	0.480	232	0.514	268	0.472	304	0.509
17	0.482	53	0.513	89	0.472	125	0.510	161	0.484	197	0.482	233	0.513	269	0.472	305	0.510
18	0.483	54	0.512	90	0.472	126	0.512	162	0.483	198	0.483	234	0.512	270	0.472	306	0.512
19	0.484	55	0.510	91	0.472	127	0.513	163	0.482	199	0.484	235	0.510	271	0.472	307	0.513
20	0.486	56	0.509	92	0.472	128	0.514	164	0.480	200	0.486	236	0.509	272	0.472	308	0.514
21	0.487	57	0.507	93	0.472	129	0.515	165	0.479	201	0.487	237	0.507	273	0.472	309	0.515
22	0.489	58	0.506	94	0.472	130	0.516	166	0.478	202	0.489	238	0.506	274	0.472	310	0.516
23	0.490	59	0.504	95	0.473	131	0.516	167	0.477	203	0.490	239	0.504	275	0.473	311	0.516
24	0.492	60	0.502	96	0.473	132	0.517	168	0.476	204	0.492	240	0.502	276	0.473	312	0.517
25	0.494	61	0.501	97	0.473	133	0.517	169	0.476	205	0.494	241	0.501	277	0.473	313	0.517
26	0.495	62	0.499	98	0.474	134	0.518	170	0.475	206	0.495	242	0.499	278	0.474	314	0.518
27	0.497	63	0.497	99	0.474	135	0.518	171	0.474	207	0.497	243	0.497	279	0.474	315	0.518
28	0.499	64	0.495	100	0.475	136	0.518	172	0.474	208	0.499	244	0.495	280	0.475	316	0.518
29	0.501	65	0.494	101	0.476	137	0.517	173	0.473	209	0.501	245	0.494	281	0.476	317	0.517
30	0.502	66	0.492	102	0.476	138	0.517	174	0.473	210	0.502	246	0.492	282	0.476	318	0.517
31	0.504	67	0.490	103	0.477	139	0.516	175	0.473	211	0.504	247	0.490	283	0.477	319	0.516
32	0.506	68	0.489	104	0.478	140	0.516	176	0.472	212	0.506	248	0.489	284	0.478	320	0.516
33	0.507	69	0.487	105	0.479	141	0.515	177	0.472	213	0.507	249	0.487	285	0.479	321	0.515
34	0.509	70	0.486	106	0.480	142	0.514	178	0.472	214	0.509	250	0.486	286	0.480	322	0.514
35	0.510	71	0.484	107	0.482	143	0.513	179	0.472	215	0.510	251	0.484	287	0.482	323	0.513

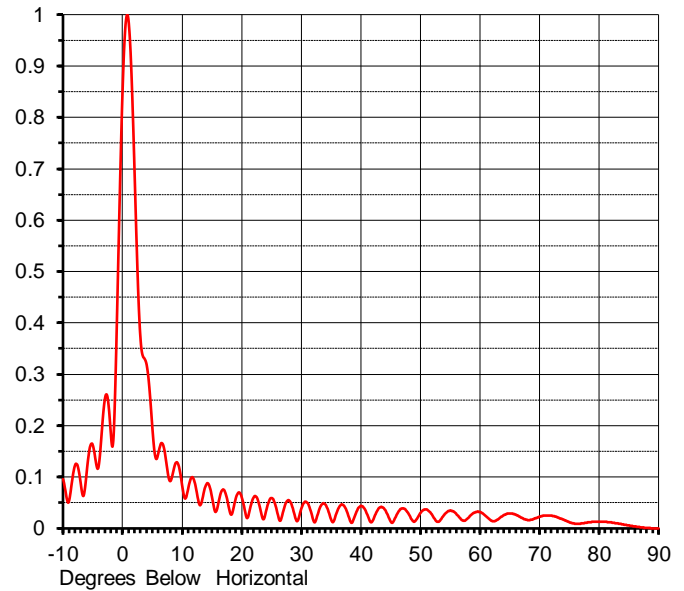
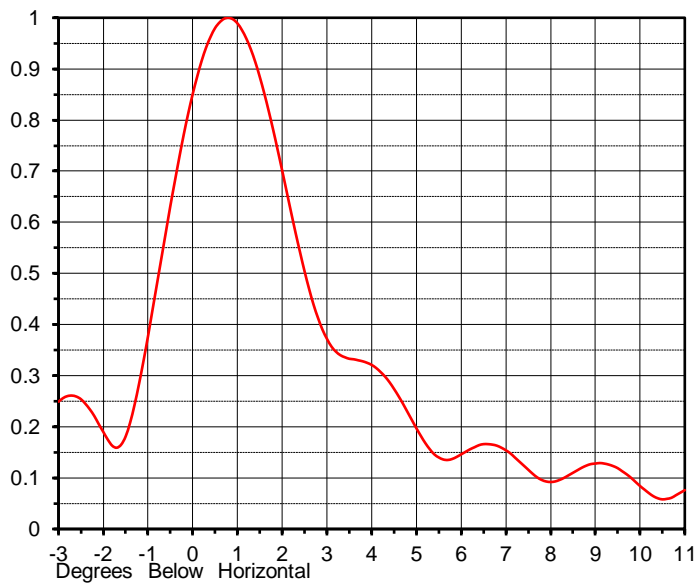
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ELEVATION PATTERN

Proposal No. **C-71641**
 Date **9-Nov-20**
 Call Letters **KMYU**
 Channel **21**
 Frequency **515 MHz**
 Antenna Type **TFU-21EST/VP-R 04**

RMS Directivity at Main Lobe **21.5 (13.32 dB)**
 RMS Directivity at Horizontal **15.6 (11.93 dB)**
Calculated

Beam Tilt **0.80 deg**
 Pattern Number **080**

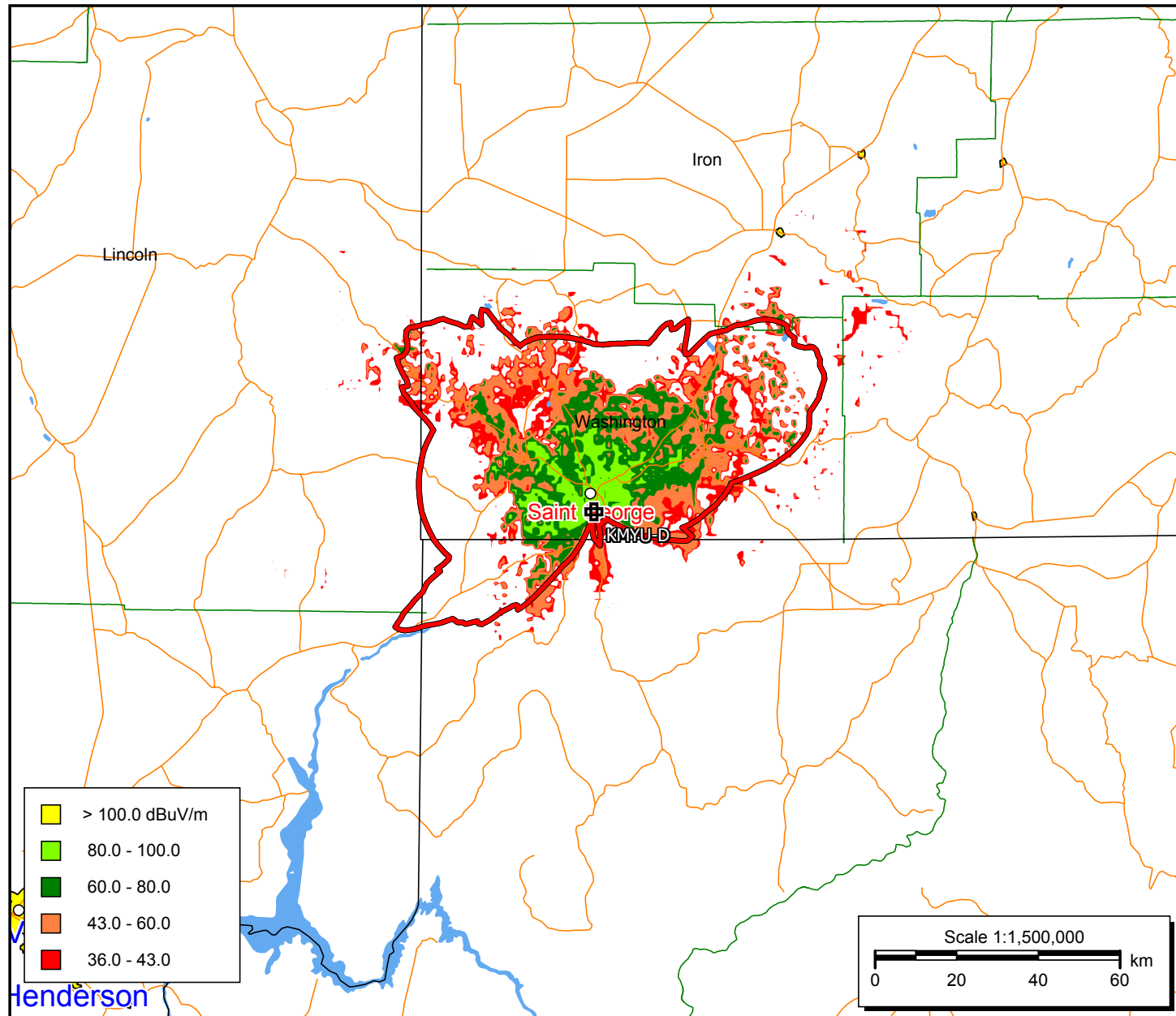


Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.096	10.0	0.084	30.0	0.038	50.0	0.030	70.0	0.023
-9.0	0.053	11.0	0.076	31.0	0.050	51.0	0.037	71.0	0.025
-8.0	0.122	12.0	0.094	32.0	0.017	52.0	0.026	72.0	0.025
-7.0	0.086	13.0	0.045	33.0	0.036	53.0	0.013	73.0	0.022
-6.0	0.112	14.0	0.084	34.0	0.047	54.0	0.026	74.0	0.017
-5.0	0.162	15.0	0.062	35.0	0.018	55.0	0.035	75.0	0.012
-4.0	0.122	16.0	0.044	36.0	0.032	56.0	0.029	76.0	0.009
-3.0	0.249	17.0	0.075	37.0	0.046	57.0	0.016	77.0	0.010
-2.0	0.190	18.0	0.033	38.0	0.022	58.0	0.020	78.0	0.011
-1.0	0.377	19.0	0.058	39.0	0.024	59.0	0.030	79.0	0.013
0.0	0.851	20.0	0.061	40.0	0.044	60.0	0.032	80.0	0.013
1.0	0.989	21.0	0.021	41.0	0.029	61.0	0.024	81.0	0.013
2.0	0.701	22.0	0.060	42.0	0.015	62.0	0.015	82.0	0.012
3.0	0.372	23.0	0.044	43.0	0.039	63.0	0.017	83.0	0.010
4.0	0.321	24.0	0.029	44.0	0.037	64.0	0.026	84.0	0.008
5.0	0.197	25.0	0.059	45.0	0.014	65.0	0.029	85.0	0.006
6.0	0.146	26.0	0.030	46.0	0.026	66.0	0.027	86.0	0.004
7.0	0.154	27.0	0.034	47.0	0.039	67.0	0.021	87.0	0.002
8.0	0.092	28.0	0.054	48.0	0.029	68.0	0.016	88.0	0.001
9.0	0.128	29.0	0.021	49.0	0.013	69.0	0.018	89.0	0.000
								90.0	0.000

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KMYU-D

BLCDT-20021031ABG
Latitude: 37-03-48.07 N
Longitude: 113-34-23.16 W
ERP: 3.20 kW
Channel: 9
Frequency: 189.0 MHz
AMSL Height: 965.0 m
Elevation: 958.0 m
Horiz. Pattern: Directional
Vert. Pattern: Yes
Elec Tilt: 0.75
Prop Model: Longley-Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 311.0
Receiver Ht AG: 10.0 m
Receiver Gain: 0 dB
Time Variability: 90.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast

KMYU - Ch 9**3.2 kW - 57 m HAAT****POPULATION by Signal****>100 dBu = 0****>80 dBu = 86,628****>60 dBu = 127,709****>Principal Community****43 dBu = 148,712****>Noise Limited****36 dBu = 150,452**

KMYU-A

DTV Pet-21

Latitude: 37-03-47.93 N

Longitude: 113-34-25.84 W

ERP: 250.00 kW

Channel: 21

Frequency: 515.0 MHz

AMSL Height: 965.0 m

Elevation: 948.89 m

Horiz. Pattern: Omni

Vert. Pattern: Yes

Elec Tilt: 0.75

Prop Model: Longley-Rice

Climate: Cont temperate

Conductivity: 0.0050

Dielec Const: 15.0

Refractivity: 311.0

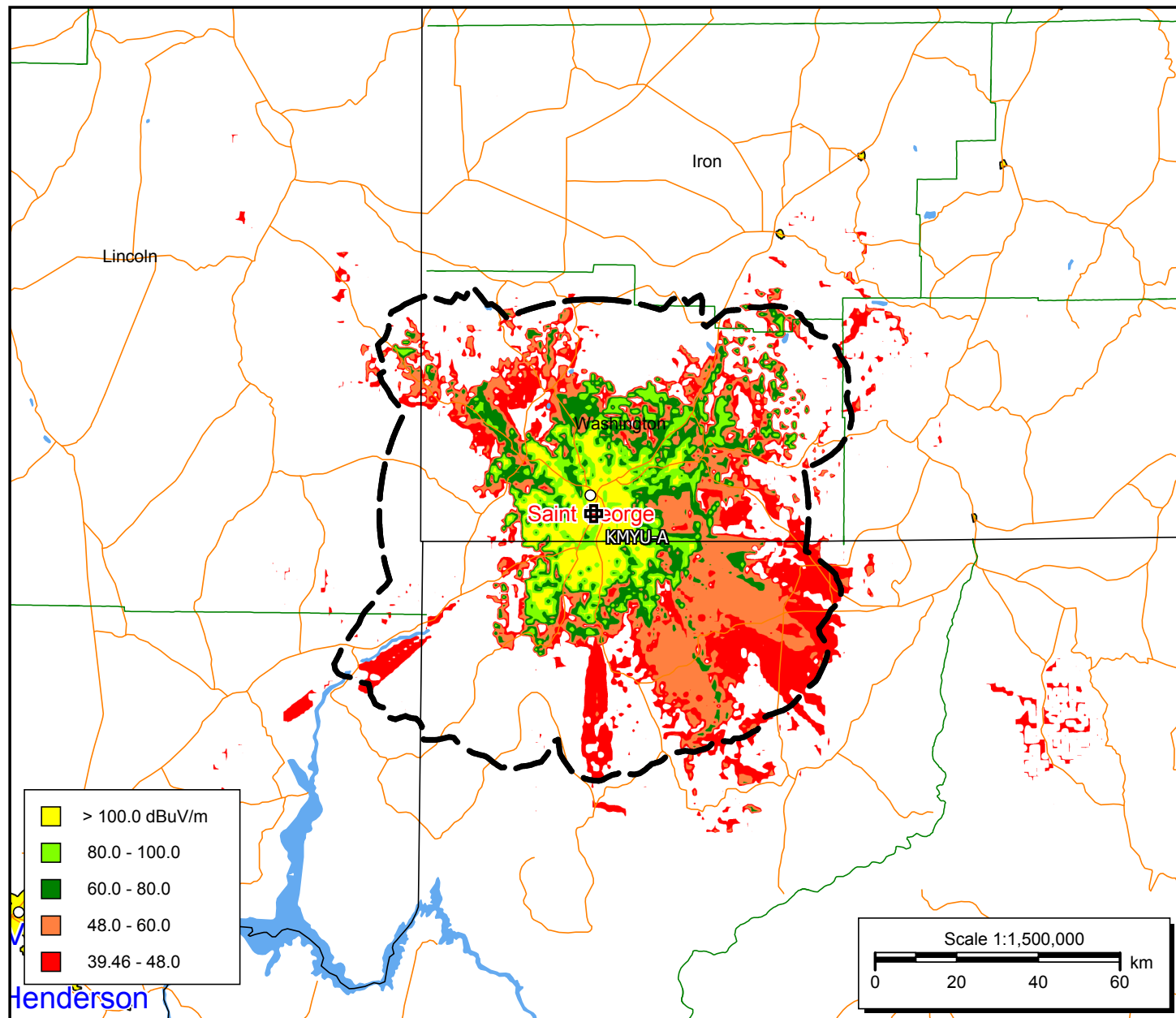
Receiver Ht AG: 10.0 m

Receiver Gain: 0 dB

Time Variability: 90.0%

Sit. Variability: 50.0%

ITM Mode: Broadcast

KMYU - Ch. 21**250 kW - 57 m HAAT****POPULATION by Signal****>100 dBu = 86,293****>80 dBu = 109,570****>60 dBu = 137,365****>Principal Community****48 dBu = 149,771****>Noise Limited****39.46 dBu - 158,454**



KMYU - ST. GEORGE, UTAH

NOVEMBER 2020

APPENDIX B

Longley-Rice Interference Analysis

tvstudy v2.2.5 (4uoc83)
Database: localhost, Study: KMYU 21 250kW OMNI 43H, Model: Longley-Rice
Start: 2020.11.19 10:42:38

Study created: 2020.11.19 10:42:38

Study build station data: LMS TV 2020-11-19

Proposal: KMYU D21 DT APP ST. GEORGE, UT
File number: KMYU 21 250kW OMNI 43H
Facility ID: 35822
Station data: User record
Record ID: 1346
Country: U.S.
Zone: II

Search options:
Non-U.S. records included
Baseline record excluded if station has CP

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	KBLR	D20	DT	LIC	PARADISE, NV	BLANK0000058879	173.4 km
No	KEJT-CD	D21	DC	LIC	SALT LAKE CITY, UT	BLANK0000059449	417.0
No	KSNV	D22	DT	LIC	LAS VEGAS, NV	BLANK0000112809	173.7

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D21
Latitude: 37 3 48.00 N (NAD83)
Longitude: 113 34 26.00 W
Height AMSL: 965.0 m
HAAT: 43.0 m
Peak ERP: 250 kW
Antenna: Omnidirectional
Elev Pattn: Generic

39.5 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	250 kW	-57.6 m	52.8 km
45.0	250	114.9	70.2
90.0	250	-14.8	52.8
135.0	250	91.4	67.1
180.0	250	79.0	65.1
225.0	250	121.0	70.8
270.0	250	6.2	52.8
315.0	250	115.2	70.2

Database HAAT does not agree with computed HAAT
Database HAAT: 43 m Computed HAAT: 57 m

Distance to Canadian border: 1326.5 km

Appendix B - Interference Analysis
KMYU - St. George, Utah
Channel 21 - 250 kW - Page 2

Distance to Mexican border: 494.1 km

Conditions at FCC monitoring station: Douglas AZ
 Bearing: 148.7 degrees Distance: 715.3 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
 Bearing: 62.3 degrees Distance: 798.2 km

No land mobile station failures found

Study cell size: 2.00 km
 Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%
 Maximum new IX to LPTV: 2.00%

 Interference to proposal scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	KMYU	D21	DT	APP	ST. GEORGE, UT	KMYU 21 250kW OMNI 43H	

	Service area	Terrain-limited		IX-free	Percent IX
13048.4	165,358	9054.6	144,781	9054.6	144,781
					0.00 0.00