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Engineering Statement
Application for Minor Modification of CP for KVEW-DT
Pre- and Post-Transition Channel 44 at Kennewick, WA
September 2008

This Engineering Statement has been prepared on behalf of Apple Valley Broadcasting, Inc. ("Apple Valley"), licensee of television station KVEW at Kennewick, Washington. KVEW presently operates on analog Channel 42, with paired digital Channel 44. KVEW will be continuing permanent digital operation on its present digital channel. This material has been prepared in connection with an application for minor modification of the KVEW-DT construction permit, for both pre-transition and post-transition facilities on digital Channel 44.

The following table lists the KVEW-DT post-transition facilities approved in Appendix B of the DTV Seventh Report and Order MO&O¹, as well as Apple Valley's requested facilities as proposed herein:

	DTV Table Appendix B	Proposed Form 301
Channel	44	44
ERP	160 kW	110 kW
HAAT	390 meters	404 meters
Antenna	omnidirectional	Dielectric TFU-30GTH-R O4 omnidirectional
Coordinates	46-06-11 119-07-54	46-06-12 119-07-57
DTV Population (thousand)	373	370 (99%)

¹ See *Advanced Television Systems and their Impact Upon the Existing Television Broadcast Service*, MB Docket No. 87-268, Memorandum Opinion and Order on Reconsideration of the Seventh Report and Order and Eighth Further Notice of Proposed Rulemaking, FCC 08-72, Released March 6, 2008.

I. International Allocation Study

The proposed transmitter site is located within the US-Canada border zone. As depicted on the attached contour map, however, the proposed coverage contour is completely contained within the coverage contour authorized by construction permit BMPCDT-20041101ADY. Therefore, coordination of the instant application with Canadian authorities is not believed to be necessary prior to grant.

II. Domestic Allocation Study

Study has been made of all cochannel and adjacent-channel facilities in the vicinity of the proposed operation, including a detailed Longley-Rice interference study to demonstrate that the proposed operation will not cause impermissible interference (i.e. more than 0.5 percent new interference) to any stations beyond that level listed in the pre-transition DTV Table or in the post-transition DTV Table Appendix B. This study was performed using the SunDTV program from V-Soft Communications and a 2 km grid spacing. The SunDTV program identically duplicates the FCC's OET-69 processing program.

Study has been performed using both the pre-transition and post-transition databases. The results of these studies indicate that the proposed facility is predicted to cause zero additional interference to any of the listed stations. Based on this allocation and interference study, it is believed that the proposed facility can operate without risk of interference to other stations.

Pre-Transition Analysis

Summary Study

TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 09-12-2008 Time: 21:40:17

Record Selected for Analysis

KVEW USERRECORD-01 KENNEWICK WA US
Channel 44 ERP 110. kW HAAT 407. m RCAMSL 00723 m
Latitude 046-06-12 Longitude 0119-07-57
Status APP Zone 2 Border
Dir Antenna Make usr Model USRPAT01 Beam tilt N Ref Azimuth 0.
Last update Cutoff date Docket
Comments
Applicant

Cell Size for Service Analysis 2.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Facility meets maximum height/power limits

Azimuth (Deg)	ERP (kW)	HAAT (m)	41.0 dBu F(50,90) (km)
0.0	110.000	551.0	98.1
45.0	110.000	575.3	99.6
90.0	110.000	479.0	92.6
135.0	110.000	326.9	81.7
180.0	110.000	339.0	83.0
225.0	110.000	346.6	83.8
270.0	110.000	193.6	70.6
315.0	110.000	444.0	90.4

Evaluation toward Class A Stations

No Spacing violations or contour overlap to Class A stations

Class A Evaluation Complete

SPACING VIOLATION FOUND BETWEEN STATION

KVEW 44 KENNEWICK WA USERRECORD01

and station

SHORT TO: KVEW-DT 44 KENNEWICK WA DTVPLN DTVP1285
46-06-11 119-07-54
Req. separation 223.7 Actual separation 0.1 Short 223.6 km

SHORT TO: KVEW 44 KENNEWICK WA BMPCDT 20041101ADY
046-06-11 0119-07-54
Req. separation 223.7 Actual separation 0.1 Short 223.6 km

LANDMOBILE SPACING VIOLATIONS FOUND

NONE

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quite zone

Proposed facility OK toward Table Mountain

Proposed facility is within the Canadian coordination distance
Distance to border = 322.0km

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

Start of Interference Analysis

Channel	Proposed Station Call	City/State	ARN
44	KVEW	KENNEWICK WA	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
29	KIMA-TV	YAKIMA WA	116.0	LIC	BLCT	-2586
36	K36EW	COLLEGE PARK WA	58.6	LIC	BLTTL	-19991018AAB
42	KVEW	KENNEWICK WA	0.1	LIC	BLCT	-19771207KJ
43	KGPX	SPOKANE WA	217.1	APP	BPRM	-20040322AHM
44	KTRV-DT	NAMPA ID	353.7	PLN	DTVPLN	-DTVP1260
44	KEZI-TV	EUGENE OR	375.2	LIC	BPRM	-20000925APP
44	KEZI	EUGENE OR	375.2	LIC	BLCDT	-20070315ABI
44	KHCV-DT	SEATTLE WA	294.7	PLN	DTVPLN	-DTVP1286
44	KHCV	SEATTLE WA	266.1	CP	BPCDT	-20080609AAG
45	KDHW-LP	YAKIMA WA	114.8	CP	BPTTA	-20040525ADF
45	KDHW-LP	YAKIMA WA	112.0	LIC	BLTTA	-20010709ADB
47	KYVE	YAKIMA WA	116.0	LIC	BLET	-20061213AHK

%%%

Study of this proposal found the following interference problem(s):

NONE.

Post-Transition Analysis

Summary Study

Percent allowed new interference: 0.500
Percent allowed new interference to Class A: 0.500
Census data selected 2000
Post Transition Data Base Selected ./data_files/pt_tvdb.sff

TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 09-12-2008 Time: 21:45:11

Record Selected for Analysis

KVEW USERRECORD-01 KENNEWICK WA US
Channel 44 ERP 110. kW HAAT 407. m RCAMSL 00723 m
Latitude 046-06-12 Longitude 0119-07-57
Status APP Zone 2 Border
Dir Antenna Make usr Model USRPAT01 Beam tilt N Ref Azimuth 0.
Last update Cutoff date Docket
Comments
Applicant

Cell Size for Service Analysis 2.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Facility meets maximum height/power limits

Azimuth (Deg)	ERP (kW)	HAAT (m)	41.0 dBu F(50,90) (km)
0.0	110.000	551.0	98.1
45.0	110.000	575.3	99.6
90.0	110.000	479.0	92.6
135.0	110.000	326.9	81.7
180.0	110.000	339.0	83.0
225.0	110.000	346.6	83.8
270.0	110.000	193.6	70.6
315.0	110.000	444.0	90.4

Evaluation toward Class A Stations

No Spacing violations or contour overlap to Class A stations

Class A Evaluation Complete

SPACING VIOLATION FOUND BETWEEN STATION

KVEW 44 KENNEWICK WA USERRECORD01

and station

SHORT TO: KVEW 44 KENNEWICK WA DTVPLN DTVPL1599
46 -06-11 119 -07-54
Req. separation 223.7 Actual separation 0.1 Short 223.6 km

LANDMOBILE SPACING VIOLATIONS FOUND

NONE

Proposed facility OK to FCC Monitoring Stations

Proposed facility OK toward West Virginia quiet zone

Proposed facility OK toward Table Mountain

Proposed facility is within the Canadian coordination distance
Distance to border = 322.0km

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

Start of Interference Analysis

Channel	Proposed Station Call	City/State	ARN
44	KVEW	KENNEWICK WA	USERRECORD01

Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
36	K36EW	COLLEGE PARK WA	58.6	LIC	BLTTL	-19991018AAB
44	KHCV	SEATTLE WA	266.1	CP	BPCDT	-20080609AAG
44	KHCV	SEATTLE WA	266.1	PLN	DTVPLN	-DTVP1600
45	KDHW-LP	YAKIMA WA	114.8	CP	BPTTA	-20040525ADF
45	KDHW-LP	YAKIMA WA	112.0	LIC	BLTTA	-20010709ADB

%%%

Study of this proposal found the following interference problem(s):

NONE.

Furthermore, it has been verified that the proposed facility will not reduce the population served by the KVEW digital facility by more than 5%, compared to the DTV population listed in Appendix B.

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Analysis of Interference to Affected Station 6

Analysis of current record

Channel	Call	City/State	Application Ref. No.
44	KVEW	KENNEWICK WA	USERRECORD-01

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
44	KHCV	SEATTLE WA	266.1	CP	BPCDT -20080609AAG
44	KHCV	SEATTLE WA	266.1	PLN	DTVPLN -DTVP1600

Total scenarios = 1

Result key: 1
Scenario 1 Affected station 6
Before Analysis

Results for: 44A WA KENNEWICK USERRECORD01 APP

HAAT 407.0 m, ATV ERP 110.0 kW		
	POPULATION	AREA (sq km)
within Noise Limited Contour	383827	23797.8
not affected by terrain losses	370119	22511.1
lost to NTSC IX	0	0.0
lost to additional IX by ATV	0	0.0
lost to ATV IX only	0	0.0
lost to all IX	0	0.0

Potential Interfering Stations Included in above Scenario 1

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III. NIER Study

OET Bulletin 65 Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01) states in part that:

When performing an evaluation for compliance with the FCC's RF guidelines all significant contributors to the ambient RF environment should be considered. . . For purposes of such consideration, significance can be taken to mean any transmitter producing more than 5% of the applicable exposure limit (in terms of power density or the square of the electric or magnetic field strength) at accessible locations.

As will be demonstrated below, the proposed KVEW-DT operation will produce less than 5% of the applicable exposure limit for both controlled and uncontrolled environments. Thus, the proposed facility is categorically excluded from the requirement of further study. Therefore, pursuant to §1.1307(b)(3) of the Commission's Rules no calculations are required for the other FM and TV facilities in the vicinity, and precise calculations are made only with regard to the levels from this proposal.

The power density calculations shown below were made using the techniques and formulas outlined in the OET Bulletin 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower.

Power density levels produced by the proposed KVEW-DT facility were calculated for an elevation of 2 meters above ground (72 meters below the antenna radiation center). The worst case power density levels occur at depression angles between 45 and 90 degrees below the horizontal. The calculations in this report assume a worst-case relative field value of 0.054 at these angles, based on the manufacturer's vertical plane pattern for the horizontally-polarized Dielectric TFU-30GTH-R O4 antenna proposed in this application. This relative field value yields a worst-case adjusted effective radiated power of 321 Watts at depression angles between 45 and 90 degrees below the horizontal. Assuming this power and the shortest distance between the antenna radiation center and 2 meters above ground level (i.e. straight down), the highest calculated power density from the proposed antenna alone occurs at the base of the antenna support structure. At this point the power density is calculated to be $2.1 \mu\text{W}/\text{cm}^2$, which is 0.5% of $435 \mu\text{W}/\text{cm}^2$ (the FCC maximum for uncontrolled environments at the Channel 44 frequency).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed KVEW-DT operation alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 1000 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicants proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 et seq and no further analysis of non-ionizing radiation at this site is required in this application.

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency radiation in excess of FCC guidelines.

September 12, 2008

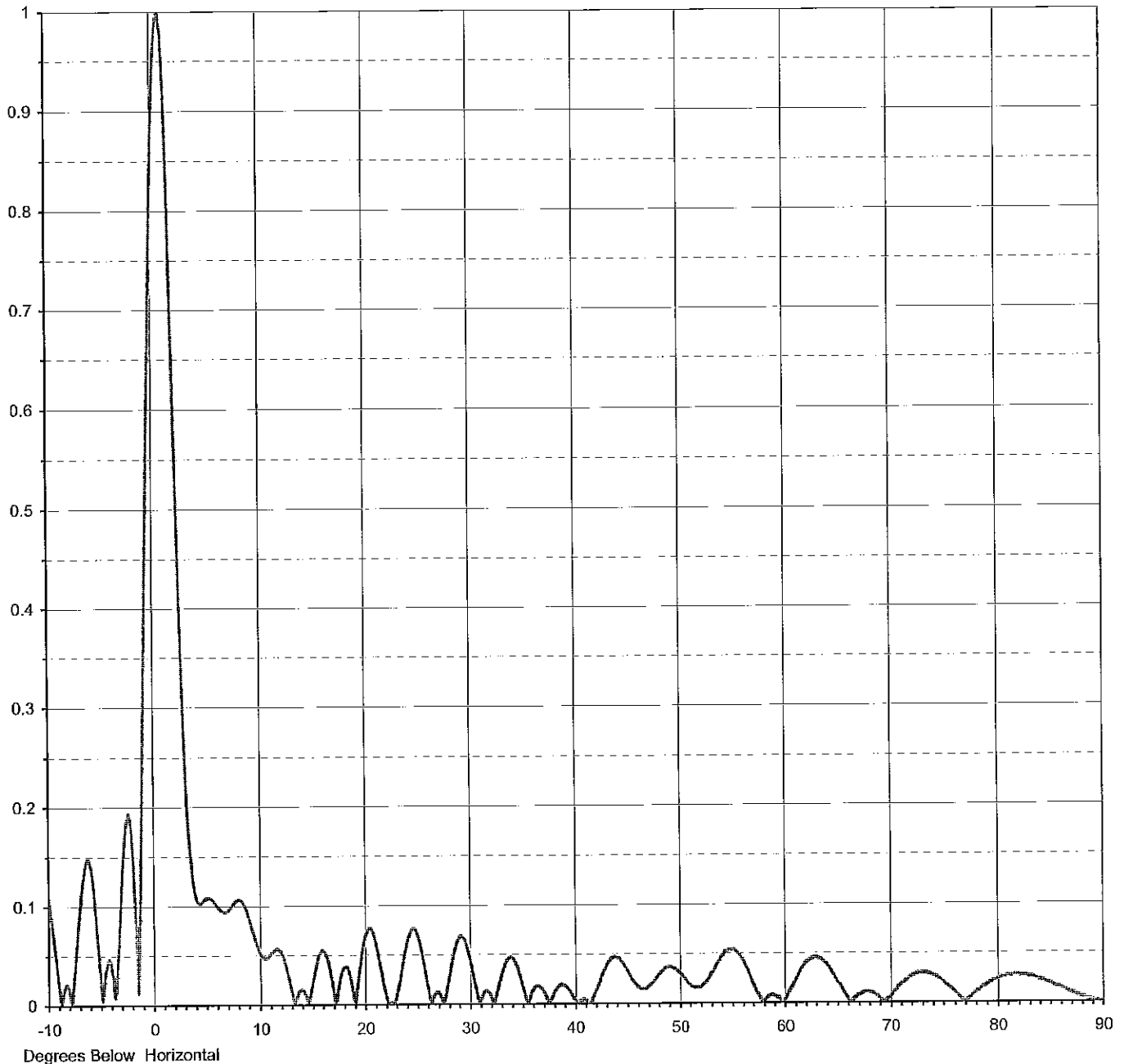
Erik C. Swanson, P.E.



Proposal Number	C-01588	Revision:	1
Date	10-Oct-07		
Call Letters	KVEW-DT	Channel	44
Location	Kennewick, WA		
Customer			
Antenna Type	TFU-30GTH-R O4		

ELEVATION PATTERN

RMS Gain at Main Lobe	27.00 (14.31 dB)	Beam Tilt	0.75 deg
RMS Gain at Horizontal	18.70 (12.72 dB)	Frequency	653.00 MHz
Calculated / Measured	Calculated	Drawing #	30G270075-90



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Proposal Number **C-01588** Revision: **1**
Date **10-Oct-07**
Call Letters **KVEW-DT** Channel **44**
Location **Kennewick, WA**
Customer
Antenna Type **TFU-30GTH-R 04**

TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **30G270075-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.108	2.4	0.458	10.6	0.047	30.5	0.022	51.0	0.019	71.5	0.023
-9.5	0.066	2.6	0.378	10.8	0.048	31.0	0.002	51.5	0.016	72.0	0.027
-9.0	0.015	2.8	0.307	11.0	0.051	31.5	0.013	52.0	0.016	72.5	0.029
-8.5	0.018	3.0	0.247	11.5	0.056	32.0	0.009	52.5	0.021	73.0	0.030
-8.0	0.012	3.2	0.198	12.0	0.054	32.5	0.008	53.0	0.029	73.5	0.029
-7.5	0.033	3.4	0.161	12.5	0.040	33.0	0.028	53.5	0.038	74.0	0.027
-7.0	0.096	3.6	0.135	13.0	0.016	33.5	0.043	54.0	0.047	74.5	0.024
-6.5	0.141	3.8	0.118	13.5	0.007	34.0	0.047	54.5	0.052	75.0	0.020
-6.0	0.141	4.0	0.108	14.0	0.015	34.5	0.038	55.0	0.054	75.5	0.015
-5.5	0.091	4.2	0.104	14.5	0.006	35.0	0.020	55.5	0.051	76.0	0.010
-5.0	0.017	4.4	0.103	15.0	0.019	35.5	0.001	56.0	0.044	76.5	0.005
-4.5	0.038	4.6	0.105	15.5	0.044	36.0	0.014	56.5	0.033	77.0	0.001
-4.0	0.037	4.8	0.107	16.0	0.055	36.5	0.018	57.0	0.020	77.5	0.006
-3.5	0.029	5.0	0.108	16.5	0.044	37.0	0.013	57.5	0.009	78.0	0.011
-3.0	0.124	5.2	0.109	17.0	0.015	37.5	0.002	58.0	0.001	78.5	0.015
-2.8	0.158	5.4	0.108	17.5	0.017	38.0	0.011	58.5	0.007	79.0	0.019
-2.6	0.182	5.6	0.106	18.0	0.037	38.5	0.018	59.0	0.008	79.5	0.022
-2.4	0.193	5.8	0.103	18.5	0.033	39.0	0.019	59.5	0.005	80.0	0.024
-2.2	0.188	6.0	0.100	19.0	0.005	39.5	0.013	60.0	0.002	80.5	0.026
-2.0	0.162	6.2	0.097	19.5	0.034	40.0	0.005	60.5	0.012	81.0	0.027
-1.8	0.116	6.4	0.095	20.0	0.066	40.5	0.003	61.0	0.022	81.5	0.028
-1.6	0.050	6.6	0.094	20.5	0.077	41.0	0.004	61.5	0.032	82.0	0.027
-1.4	0.038	6.8	0.095	21.0	0.065	41.5	0.001	62.0	0.040	82.5	0.027
-1.2	0.140	7.0	0.096	21.5	0.038	42.0	0.012	62.5	0.044	83.0	0.026
-1.0	0.255	7.2	0.098	22.0	0.011	42.5	0.025	63.0	0.046	83.5	0.024
-0.8	0.378	7.4	0.101	22.5	0.002	43.0	0.038	63.5	0.044	84.0	0.023
-0.6	0.503	7.6	0.104	23.0	0.006	43.5	0.046	64.0	0.039	84.5	0.021
-0.4	0.624	7.8	0.106	23.5	0.031	44.0	0.047	64.5	0.029	85.0	0.019
-0.2	0.735	8.0	0.107	24.0	0.059	44.5	0.042	65.0	0.020	85.5	0.016
0.0	0.832	8.2	0.106	24.5	0.076	45.0	0.034	65.5	0.011	86.0	0.014
0.2	0.909	8.4	0.103	25.0	0.072	45.5	0.024	66.0	0.003	86.5	0.012
0.4	0.964	8.6	0.099	25.5	0.051	46.0	0.017	66.5	0.004	87.0	0.010
0.6	0.994	8.8	0.093	26.0	0.020	46.5	0.015	67.0	0.008	87.5	0.007
0.8	1.000	9.0	0.086	26.5	0.004	47.0	0.017	67.5	0.011	88.0	0.005
1.0	0.981	9.2	0.078	27.0	0.012	47.5	0.022	68.0	0.010	88.5	0.003
1.2	0.941	9.4	0.070	27.5	0.001	48.0	0.029	68.5	0.008	89.0	0.002
1.4	0.882	9.6	0.062	28.0	0.024	48.5	0.034	69.0	0.004	89.5	0.001
1.6	0.808	9.8	0.059	28.5	0.051	49.0	0.037	69.5	0.002	90.0	0.000
1.8	0.724	10.0	0.053	29.0	0.067	49.5	0.035	70.0	0.007		
2.0	0.635	10.2	0.050	29.5	0.066	50.0	0.031	70.5	0.013		
2.2	0.545	10.4	0.048	30.0	0.048	50.5	0.025	71.0	0.019		

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