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**Engineering Statement  
Digital Companion Channel Application for K14HT  
For Operation on Channel 34  
April 2007**

This Engineering Statement has been prepared on behalf of Apple Valley Broadcasting, Inc. ("Apple Valley"), licensee of TV translator station K14HT at Walla Walla, Washington. This material has been prepared in connection with a digital companion channel application for operation on Channel 34.

**I. 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 interference to any facilities with which contour overlap exists. This study was performed using the SunDTV program from V-Soft Communications and a 1 km grid spacing. The SunDTV program identically duplicates the FCC's OET-69 processing program.

The results of this study indicate that the proposed facility is predicted to cause zero additional interference to any of the listed stations.

Based on the foregoing allocation and interference study, it is believed that the proposed facility can operate without risk of unacceptable interference to other stations.

# Summary Study

1990 Census data selected  
TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 04-11-2007 Time: 20:51:50

Record Selected for Analysis

WW34 USERRECORD-01 WALLA WALLA WA US  
Channel 34 ERP 0.26 kW HAAT 214. m RCAMSL 01031 m STRINGENT MASK  
Latitude 045-49-54 Longitude 0118-15-38  
Status APP Zone 2 Border  
Dir Antenna Make usr Model USRPAT01 Beam tilt N Ref Azimuth 335.  
Last update Cutoff date Docket  
Comments  
Applicant

Cell Size for Service Analysis 1.0 km/side

Distance Increments for Longley-Rice Analysis 1.00 km

Not full service station

Facility meets maximum power limit

Azimuth (Deg)	ERP (kW)	HAAT (m)	51.0 dBu F(50,90) (km)
0.0	0.195	439.1	36.1
45.0	0.005	70.0	6.9
90.0	0.000	75.3	2.7
135.0	0.001	33.0	3.4
180.0	0.001	33.0	2.8
225.0	0.000	131.0	4.9
270.0	0.020	410.8	22.9
315.0	0.218	527.1	39.4

Contour Overlap to Proposed Station

Station  
K33EJ 33 WALLA WALLA WA BLTT19980428JG

Station inside contour of Digital LPTV station  
WW34 34 WALLA WALLA WA USERRECORD01

Station  
K35FO 35 MILTON-FREEWATER OR BLTT20020724AAD

Station inside contour of Digital LPTV station  
WW34 34 WALLA WALLA WA USERRECORD01

Contour Overlap Evaluation to Proposed Station Complete

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 = 352.2km

Proposed facility is beyond the Mexican coordination distance

Proposed station is OK toward AM broadcast stations

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### Start of Interference Analysis

Channel	Call	Proposed Station City/State	ARN
34	WW34	WALLA WALLA WA	USERRECORD01

### Stations Potentially Affected by Proposed Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
19	K19BY	GRANGEVILLE, ETC. ID	141.2	LIC	BLTT	-19890705IH
19	KEPR-TV	PASCO WA	77.7	LIC	BLCT	-2582
20	K20ES	PENDLETON, ETC. OR	105.9	LIC	BLTTL	-19960301JC
26	K26CK	CRAIGMONT, ETC. ID	141.2	LIC	BLTT	-19890921IH
26	K26FV	ELGIN OR	71.1	LIC	BLTT	-20011212AAD
27	KIDQ-LP	LEWISTON ID	118.6	CP	BPTTL	-20060209AAB
27	K54DU	RICHLAND WA	93.4	CP	BPTTL	-20050330AOZ
27	K28FT	WALLA WALLA WA	27.3	LIC	BLTTL	-19900813IH
30	K30EW	MONUMENT, ETC. OR	105.9	LIC	BLTTL	-19950818JD
30	K63AT	WALLOWA OR	83.1	CP	BPTT	-20050527AXD
31	K31GN	LA GRANDE OR	71.1	LIC	BLTT	-20030609AAT
31	KTNW	RICHLAND WA	73.5	LIC	BLET	-20000628AET
32	K32DE	PENDLETON, ETC. OR	105.9	LIC	BLTT	-19950127JH
33	K33FS	ELGIN OR	71.1	LIC	BLTT	-20011212AAB
33	K33CJ	WASCO/HEPPNER OR	177.8	LIC	BLTTL	-19980903JE
33	K33EH	QUINCY WA	203.0	LIC	BLTT	-19951215JA
33	K33EJ	WALLA WALLA WA	18.4	LIC	BLTTL	-19980428JG
33	KIMA-TV	YAKIMA WA	189.8	CP MOD	BMPCDT	-20060706AFQ
34	KMMF-LP	KALISPELL MT	382.2	APP	BDFCDTL	-20060331BLG
34	K34DI	LA GRANDE OR	105.9	LIC	BLTT	-19920304II
34	K34AI	NORTH LA PINE OR	335.6	LIC	BLTT	-19881013IB
34	KKEI-CA	PORTLAND OR	350.0	CP	BDCCDTL	-20061027ACO
34	K34AI	SUNRIVER OR	335.6	CP	BPTT	-20050606AIA
34	K65AE	TERREBONNE OR	283.5	APP	BDISTT	-20061212ABJ
34	K65AY	WALLOWA OR	83.1	CP	BPTT	-20050527AXW
34	NEW	KENNEWICK, ETC. WA	93.4	APP	BDCCDTL	-20070405ACG
34	K34HK	LONGVIEW WA	364.2	LIC	BLTTL	-20061205ABL
34	K34HK	LONGVIEW WA	364.2	APP	BSTA	-20061109ADS
34	KGPX	SPOKANE WA	209.9	LIC	BLCT	-19990809AAA
34	K34EM	WENATCHEE WA	230.8	APP	BDFCDTT	-20060329AES
34	K34EM	WENATCHEE WA	230.8	LIC	BLTT	-19971030JA
35	K35BW	LEWISTON ID	116.1	LIC	BLTT	-19890203IC
35	KUID-TV	MOSCOW ID	144.5	LIC	BPRM	-20020805ABD
35	KUID-TV	MOSCOW ID	137.0	APP	BPET	-20041019ABU
35	K35GA	LA GRANDE OR	71.1	LIC	BLTT	-20011212AAE
35	K35FO	MILTON-FREEWATER OR	2.2	LIC	BLTT	-20020724AAD
35	KAPP	YAKIMA WA	189.8	LIC	BLCT	-2022
36	K36DP	PENDLETON, ETC. OR	105.9	LIC	BLTT	-19950512IH
36	K67BF	WALLOWA OR	83.1	CP	BPTT	-20050527AWK
36	KBWU-LP	RICHLAND, ETC. WA	73.7	CP	BPTTL	-20040301AAY
38	K38AH	PENDLETON, ETC. OR	105.9	LIC	BLTT	-19950612II
42	K42AI	BAKER OR	141.1	LIC	BLTT	-19820511IC
42	KVBI-LP	CLARKSTON WA	116.1	APP	BPTTA	-20060324AAQ
42	KVBI-LP	CLARKSTON WA	116.1	LIC	BLTTL	-20010807AAP

42 KVEW KENNEWICK WA 73.7 LIC BLCT -19771207KJ

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

Proposed station is MX

Proposal MX with group in scenario 2 of station 46

(NOTE: THIS IS KENNEWICK CH34 APPLICATION FOR DIGITAL COMPANION  
CHANNEL, WITH WHICH APPLE VALLEY HAS A SETTLEMENT AGREEMENT.)

## II. NIER Study

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 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. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\text{mW} / \text{cm}^2) = \frac{33.40981 \times \text{AdjERP}(\text{Watts})}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

*D* is the distance in meters from the center of radiation to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Power density levels produced by the proposed facility were calculated for an elevation of 2 meters above ground level using the manufacturer's vertical plane pattern for the Scala 4DR-16S antenna proposed in this application. The highest calculated power density from the proposed antenna alone occurs at 7 meters from the base of the antenna support structure. At this point the power density is calculated to be 10.7  $\mu\text{W}/\text{cm}^2$ , which is 2.7% of 395  $\mu\text{W}/\text{cm}^2$  (the FCC standard for uncontrolled environments at the Channel 34 frequency).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed 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.

Public access to the transmitter site is restricted. Pursuant to OET Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken. 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.

April 12, 2007

Erik C. Swanson