

Exhibit 12
Comprehensive Engineering Statement

prepared for

Team Radio, L.L.C.

NEW(FX) Stillwater, Oklahoma

Facility ID 202367

Channel 226D 0.17 kW 112 meters AGL

Team Radio, L.L.C. (“*Team*”), seeks to propose a new cross-service FM translator for standard broadcast station KOKP(AM) (file number BL-19880909AB). The instant application is a Long Form intended to cover the Short Form application which was filed as part of the Auction 100 filing window¹. In particular, *Team* proposes to use the registered tower, ASRN 1302011 with coordinates of 36° 07’ 04.5”N, 97° 10’ 46.6”W (NAD 27). The proposed antenna will be omnidirectional, circularly polarized and mounted at 112 meters AGL. An ERP of 170 Watts on Channel 226D is being specified. The instant proposal represents a change in location of 12.5 km, and a Channel change from 227D to 226D, which falls within the minor modification rules for translators.

Allocation Considerations

The location of the 60 dB μ coverage contour of the proposed translator lies within both the 2 mV/m and the 40 km (25-mile) radius of the licensed coordinates of KOKP(AM), as shown in the map provided as **Figure 1**, thus complying with §74.1201(g). The original Short Form contour is shown as a black dashed line for comparison.

The results of a study of nearby FM facilities on co-channel, adjacent-channel, and intermediate frequencies was conducted to identify which stations require further study to demonstrate compliance under §74.1204. KOMA(FM) (Ch 223C, Oklahoma City, OK), KBEZ(FM) (Ch 225C0, Tulsa, OK), KJKE(FM) (Ch 227C1, Newcastle, OK), K226BR(FX) (Ch 226, Enid, OK), K227DK(FX) (Ch 227D, Blackwell, OK), and KSPI-FM (Ch 229C2, Stillwater, OK) require attention. **Figure 2** demonstrates contour protection² of co-channel station K226BR(FX), Ch. 226D, as well as first adjacent stations KJKE(FM), Ch. 227C1 and KBEZ(FM), Ch. 225C0 and first adjacent K227DK(FX). **Figure 2a** provides a detailed view of the contour relationship between the proposal and first adjacent KBEZ. No prohibited contour overlap is predicted.

¹ Public Notice Media Bureau Announces Auction 100 FM Translator Filing Window for Long-Form Applications, Released March 15, 2018, DA 18-256.

² Contour distances for this study were calculated at every degree for HAAT and distance.

Comprehensive Engineering Statement

(page 2 of 4)

Protection of third adjacent KSPI-FM is achieved pursuant to §74.1204(d) by demonstrating that the proposed translator's interfering contour does not reach populated areas. The proposed facility's Channel 226 antenna is located just inside the 110 dB μ F(50,50) contour of KSPI-FM (see **Figure 3**). Thus, based on the -40 dB desired-to-undesired ratio specified in §74.1204(a)(3), the appropriate second-adjacent interfering signal level at this location is 150 dB μ . The calculated radius distance to the proposed translator's 150 dB μ contour is 2.9 meters. The proposed facility's antenna will be mounted at 112 meters above ground level. Thus, the proposed translator's interfering signal will not exceed the level of 150 dB μ that would be considered interference to surrounding population at ground level or nearby buildings for KSPI-FM.

Likewise, protection of third adjacent KOMA(FM) is achieved pursuant to §74.1204(d) by demonstrating that the proposed translator's interfering contour does not reach populated areas. The proposed facility's Channel 226 antenna is located just inside the 67 dB μ F(50,50) contour of KOMA(FM). Thus, based on the -40 dB desired-to-undesired ratio specified in §74.1204(a)(3), the appropriate second-adjacent interfering signal level at this location is 107 dB μ . *Team* is proposing to install a 4-bay, half-wave spaced antenna made by Dielectric (model DCRT04C50). **Figure 4** depicts the vertical (elevation) pattern provided by the manufacturer. Using the provided elevation pattern, and calculating the proposal's contour every 10 meters from the tower, at 2 meters above ground level, the worst case contour level from the instant proposal would be 102.2 dB μ at a distance of 430 meters from the tower base. Thus, the proposal will not exceed the level of 107 dB μ that would be considered interference to surrounding population at ground level or nearby buildings for KOMA(FM). There are no IF relationship (53 or 54 channels removed) facilities within 29 km of the proposal.

The proposed site is located more than 800 km from the Canadian and Mexican borders, well beyond the 320 km coordination distance required for translators specified in §74.1235(d). The nearest FCC monitoring station is 544.3 km distant at Grand Island, NE and the facility is 833.6 km from the Table Mountain Quiet Zone. These distances exceed the threshold minimum distance specified in §73.1030 that would suggest consideration.

It is therefore believed that the proposed facility satisfies all of the pertinent Commission Rules and Policies now in effect regarding allocation matters.

Comprehensive Engineering Statement

(page 3 of 4)

Environmental Considerations

The proposed facility will operate with a circularly-polarized ERP of 170 Watts with a non-directional antenna at 112 meters AGL on the registered tower with ASRN 1302011. The use of existing transmitting locations has been characterized as being environmentally preferable by the Commission, according to Note 1 of §1.1306 of the FCC Rules. Because no change in structure height is proposed, no change in current structure marking and lighting requirements is anticipated. Therefore, it is believed that this application may be categorically excluded from environmental processing pursuant to §1.1306 of the Commission's rules.

Human Exposure to Radiofrequency Radiation

The proposed operation was evaluated for human exposure to radiofrequency energy using the procedures outlined in the Commission's OET Bulletin No. 65 ("OET 65"). OET 65 describes a means of determining whether a proposed facility meets the radiofrequency exposure guidelines adopted in §1.1310. Under present Commission policy, a facility may be presumed to comply with the limits specified in §1.1310 if it satisfies the exposure criteria set forth in OET 65. Based upon that methodology, and as demonstrated in the following, the proposed transmitting system will comply with the cited adopted guidelines.

The general population/uncontrolled maximum permitted exposure ("MPE") limit specified in §1.1310 for the entire FM broadcast band is $200 \mu\text{W}/\text{cm}^2$. For the purpose of this study, "public access" will be considered at the base of the tower at a location two-meters above ground.

Using the FCC's FM Model program and a worst-case EPA Type 1 antenna it was determined that the proposed facility would contribute a worst-case RF power density of $0.032 \mu\text{W}/\text{cm}^2$ at two meters above ground level near the antenna support structure, or 0.016 percent of the general population/uncontrolled limit.

§1.1307(b)(3) states that facilities at locations with multiple emitters are categorically excluded from responsibility for taking any corrective action in the areas where their contribution is less than five percent of the pertinent MPE limit. Since the instant situation meets the five percent exclusion test at all ground level areas, the impact of any other facilities near this site may be considered independently from this proposal. Accordingly, it is believed that the impact of the

Comprehensive Engineering Statement

(page 4 of 4)

proposed operation should not be considered to be a factor at ground level as defined under §1.1307(b).

Safety of Tower Workers and the General Public

As demonstrated herein, excessive levels of RF energy will not be caused by the proposal at publicly accessible areas at ground level near the antenna supporting structure. Consequently, members of the general public will not be exposed to RF levels in excess of the Commission's guidelines. Nevertheless, tower access will continue to be restricted and controlled through the use of a locked gate. According to information provided by the applicant, appropriate RF exposure warning signs are posted.

With respect to worker safety, it is believed that based on the preceding analysis, excessive exposure would not occur in areas at ground level. A site exposure policy will be employed protecting maintenance workers from excessive exposure when work must be performed on the tower in areas where high RF levels may be present. Such protective measures may include, but will not be limited to, restriction of access to areas where levels in excess of the guidelines may be expected, power reduction, or the complete shutdown of facilities when work or inspections must be performed in areas where the exposure guidelines would otherwise be exceeded. On-site RF exposure measurements may also be undertaken to establish the bounds of safe working areas. The applicant will coordinate exposure procedures with all pertinent stations. Based on the preceding, it is believed that the instant proposal may be categorically excluded from environmental processing under §1.1306 of the Rules, hence preparation of an Environmental Assessment is not required.

Conclusion

It is therefore believed that the proposed facility satisfies all of the pertinent Commission Rules and Policies now in effect.

**EXHIBIT 12 - FIGURE 1
COVERAGE CONTOUR COMPARISON**

prepared April 2018 for

**Team Radio, L.L.C.
NEW(FX) Stillwater, OK
Facility ID 202367**

Ch. 226D 0.17 kW 112 m AGL

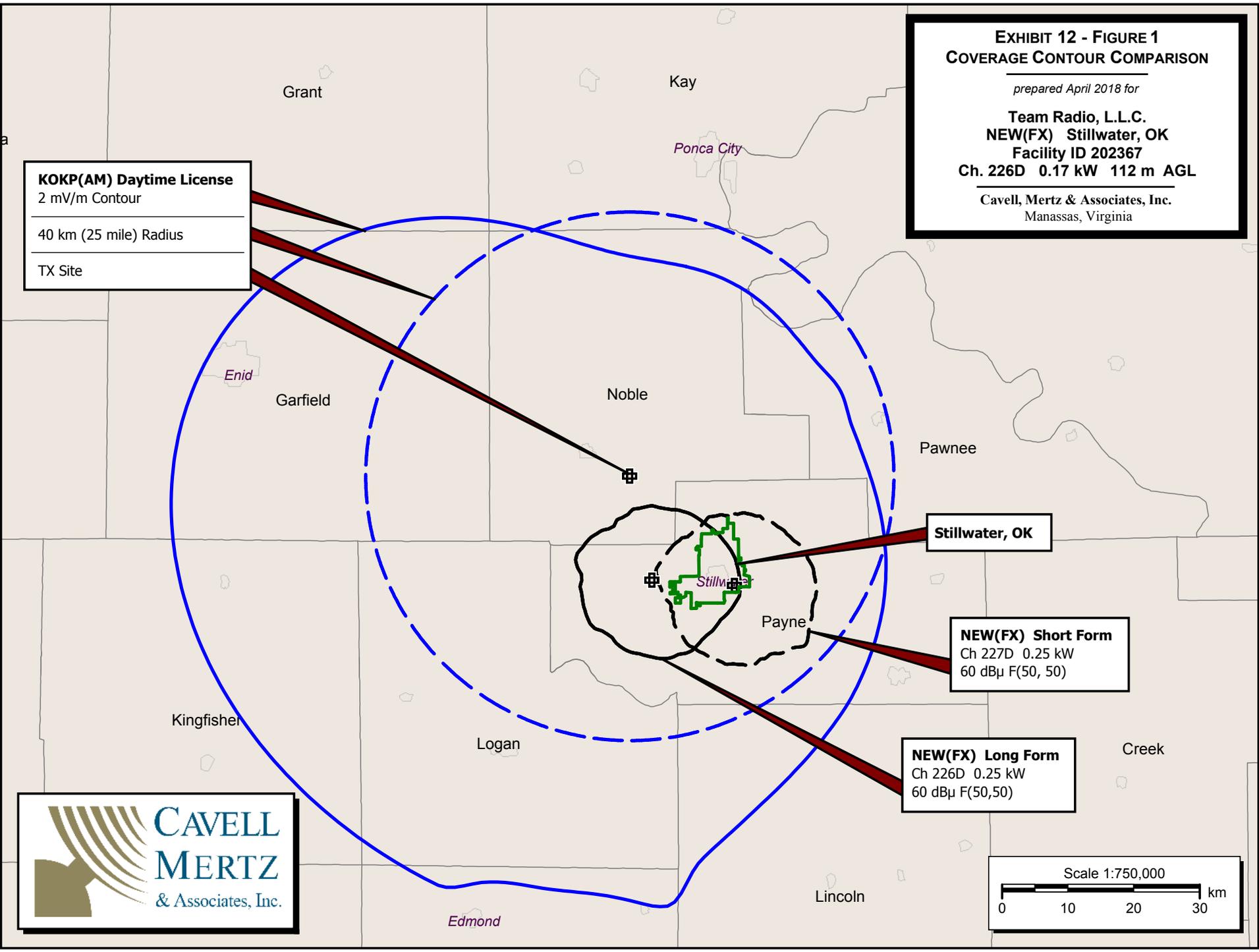
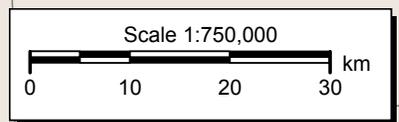
**Cavell, Mertz & Associates, Inc.
Manassas, Virginia**

KOKP(AM) Daytime License
2 mV/m Contour
40 km (25 mile) Radius
TX Site

Stillwater, OK

NEW(FX) Short Form
Ch 227D 0.25 kW
60 dB μ F(50, 50)

NEW(FX) Long Form
Ch 226D 0.25 kW
60 dB μ F(50,50)



**EXHIBIT 12 - FIGURE 2
CO-CHANNEL AND 1ST ADJACENT
CONTOUR PROTECTION**

prepared April 2018 for

**Team Radio, L.L.C.
NEW(FX) Stillwater, OK
Facility ID 202367
Ch. 226D 0.17 kW 112 m AGL**

**Cavell, Mertz & Associates, Inc.
Manassas, Virginia**

K227DK(FX) CP
Ch 227D 1st Adjacent
60 dBμ F(50, 50)

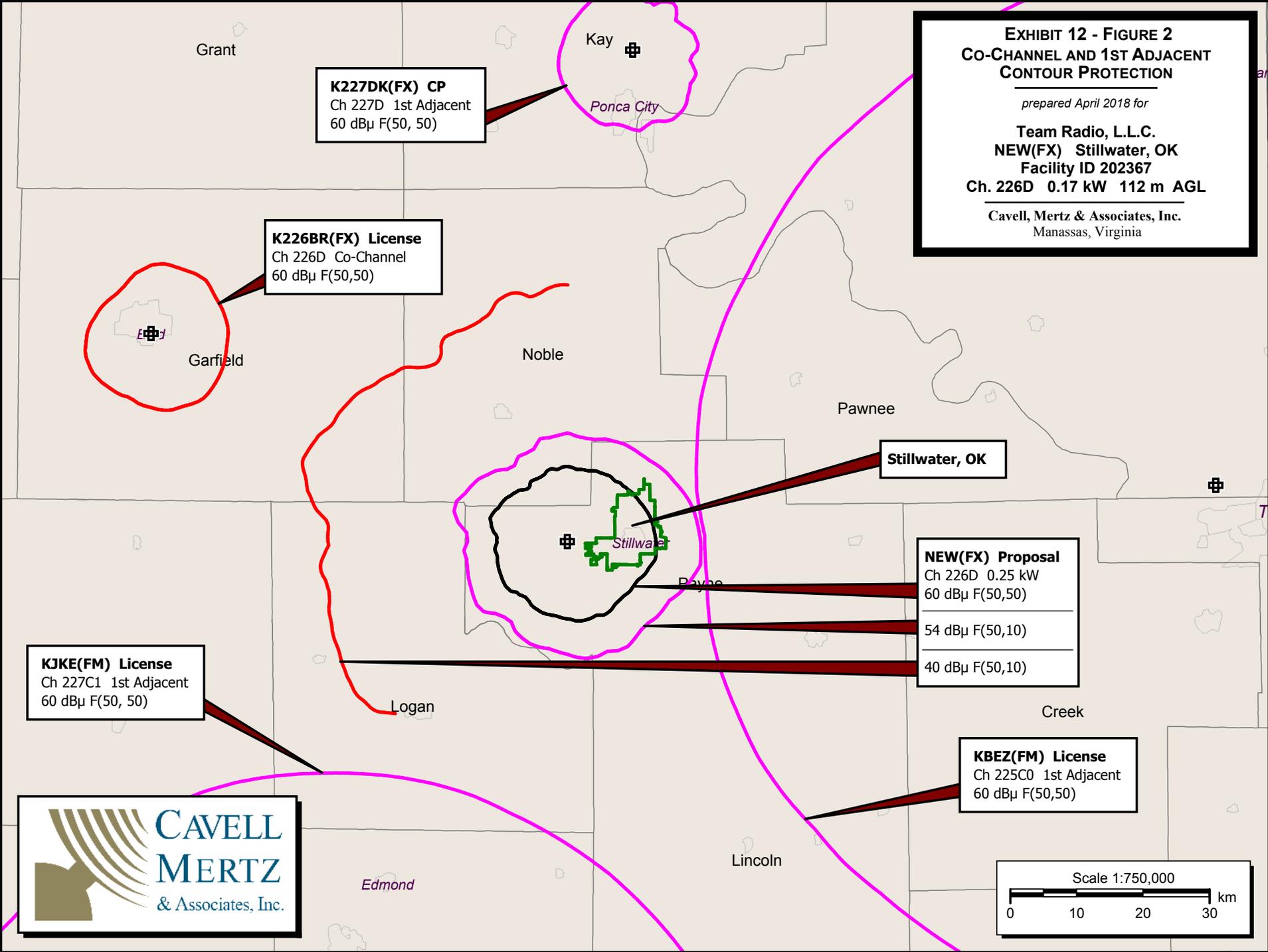
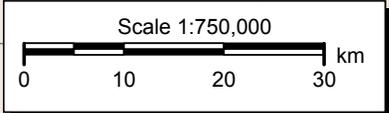
K226BR(FX) License
Ch 226D Co-Channel
60 dBμ F(50,50)

Stillwater, OK

NEW(FX) Proposal
Ch 226D 0.25 kW
60 dBμ F(50,50)
54 dBμ F(50,10)
40 dBμ F(50,10)

KJKE(FM) License
Ch 227C1 1st Adjacent
60 dBμ F(50, 50)

KBEZ(FM) License
Ch 225C0 1st Adjacent
60 dBμ F(50,50)



**EXHIBIT 12 - FIGURE 2A (DETAIL)
1ST ADJACENT CONTOUR PROTECTION**

prepared April 2018 for

**Team Radio, L.L.C.
NEW(FX) Stillwater, OK
Facility ID 202367**

Ch. 226D 0.17 kW 112 m AGL

**Cavell, Mertz & Associates, Inc.
Manassas, Virginia**

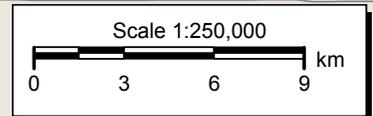
KBEZ(FM) License
Ch 225C0 1st Adjacent
60 dB μ F(50,50)

Stillwater, OK

NEW(FX) Proposal
Ch 226D 0.25 kW
60 dB μ F(50,50)
54 dB μ F(50,10)

Payne

Stillwater



**EXHIBIT 12 - FIGURE 3
3RD ADJACENT CONTOUR PROTECTION**

prepared April 2018 for

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NEW(FX) Stillwater, OK
Facility ID 202367
Ch. 226D 0.17 kW 112 m AGL**

**Cavell, Mertz & Associates, Inc.
Manassas, Virginia**

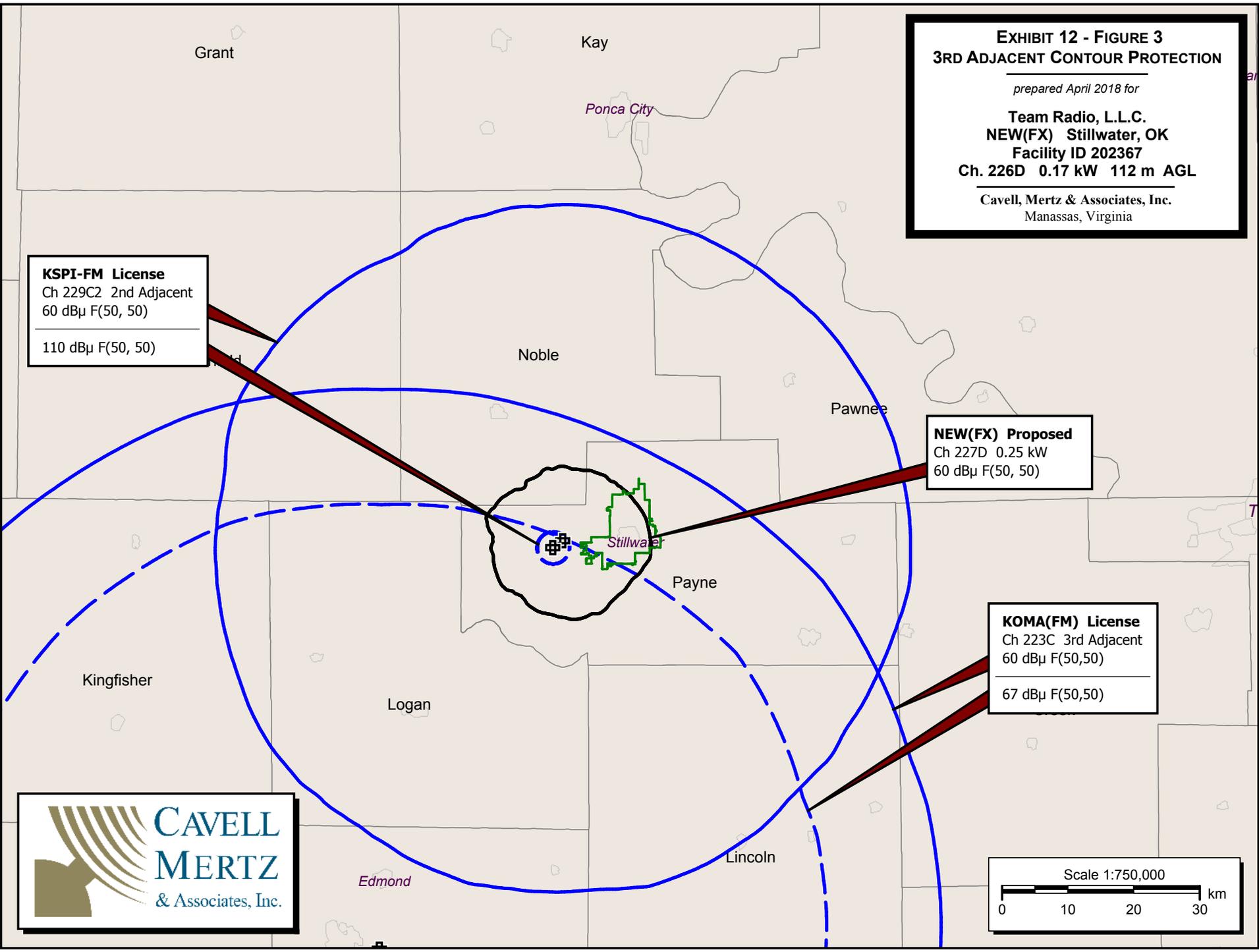
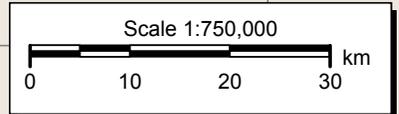
KSPI-FM License
Ch 229C2 2nd Adjacent
60 dBμ F(50, 50)

110 dBμ F(50, 50)

NEW(FX) Proposed
Ch 227D 0.25 kW
60 dBμ F(50, 50)

KOMA(FM) License
Ch 223C 3rd Adjacent
60 dBμ F(50,50)

67 dBμ F(50,50)



Relative Field Pattern

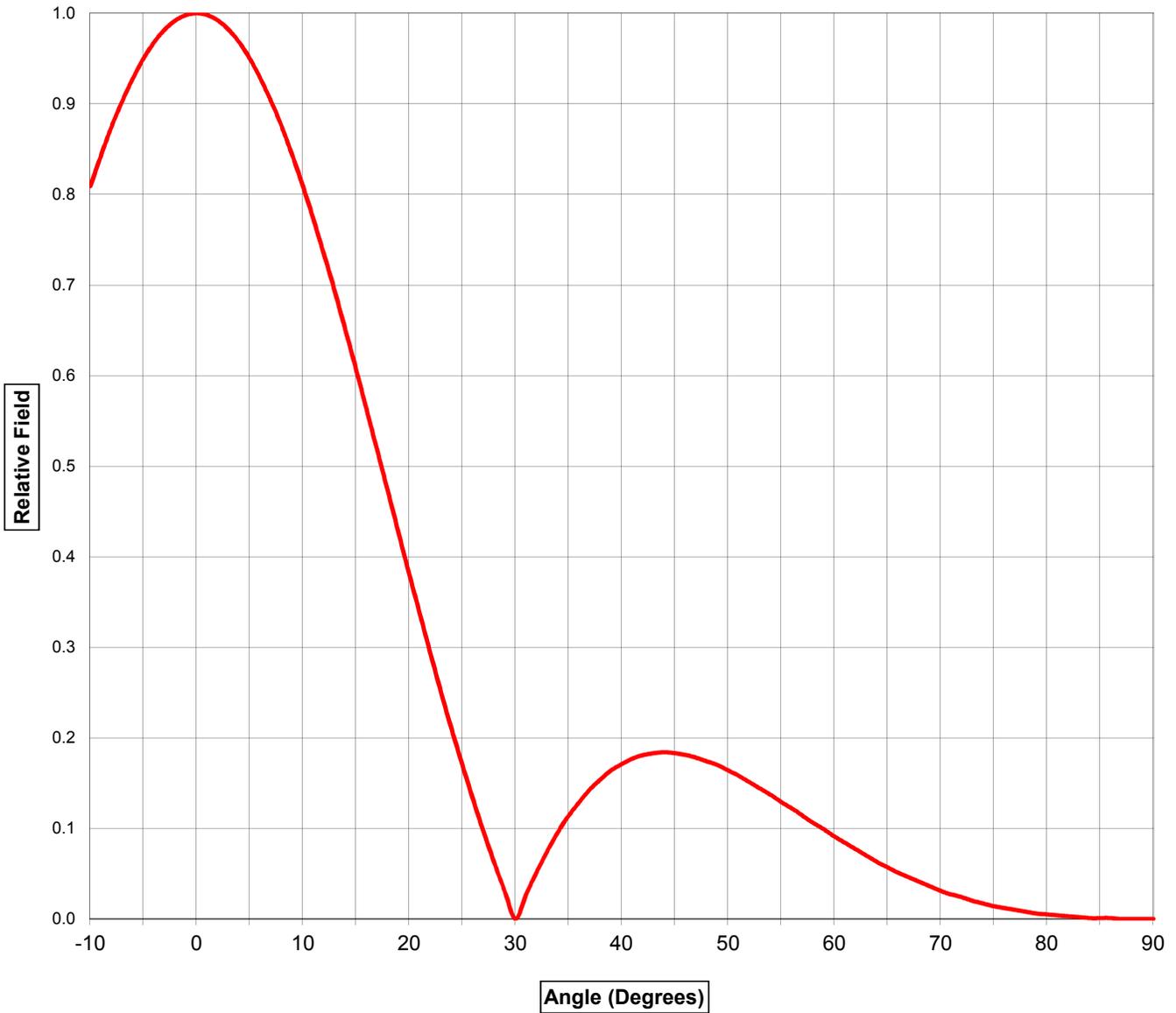


EXHIBIT 12 - FIGURE 4
ANTENNA VERTICAL (ELEVATION)
PLANE RADIATION PATTERN

prepared April 2018 for
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