ORIGINAL

Before the
2019 FEB 26 PM 2 FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In re Application of	)	
	)	
Apple 107.1, Inc.	)	
	)	
For modification of the facilities	)	File No. BPFT- 20190122AHG
of FM Translator Station W292DV,	)	Accepted / Filed
Long Island City, New York	)	
	)	FEB 21 2019

Federal Communications Commission
Office of the Secretary

To: Marlene H. Dortch, Secretary

For transmission to: Albert Shuldiner, Chief
Audio Division, Media Bureau

REPLY TO "OPPOSITION TO PETITION TO DENY"

1. Press Communications, LLC ("Press"), licensee of Station WKMK(FM), Eatontown, New Jersey, hereby replies to the Opposition of Apple 107.1 ("Apple") to Press's petition to dismiss or deny Apple's above-captioned application for modification of the facilities of FM Translator Station W292DV.

2. In its Petition Press expressed concern about the fact that Apple was proposing to morph an antenna designed to operate with only horizontal or vertical polarization into something quite different, *i.e.*, an antenna operating with both horizontal ***and*** vertical polarization. Apple did not indicate precisely how it planned to effect this hand-cranked transmogrification. It did suggest that it was contemplating some unspecified jiggering of the antenna, but Apple failed to provide any manufacturer-supplied data or other empirical analysis that might support the notion that its DIY plans could possibly result in a reliably predictable directional pattern. This was a significant omission, because Apple's proposal was based on a

highly-directionalized pattern necessitated by the intensely congested spectrum in the New York market.[1] Because of that congestion, and the absolute need for precision in the design and implementation of such a specialized antenna pattern, Press argued that the Commission – and any of the multiple other stations that might be adversely affected by Apple's signal – should take appropriate steps to ensure that Apple's facilities would perform as proposed.

3. As Press argued, its concerns here are not trivial. WKMK operates on the same channel as the Apple translator, with considerable overlap of the two signals over highly populated areas in which WKMK enjoys significant, established listenership. The potential for interference to WKMK – and, therefore, loss of audience and revenues – is substantial.[2] Indeed, that potential has already been realized multiple times over the preceding nine years, as the Commission's records amply demonstrate.

4. In its Opposition, Apple has tacitly acknowledged the correctness of Press's position: Apple has now withdrawn its initial DIY approach to antenna design and, instead, is proposing to use an antenna specifically designed for horizontal and vertical polarization. Apple has also provided antenna pattern information – something that was omitted from its initial proposal. Press appreciates Apple's apparent recognition of the importance of advancing a reliable, objectively assessable proposal.[3]

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[1] That congestion, and the urgent need for protective directionalization, have been brought to Apple's attention by its long-running dispute with Press.

[2] Included as Attachment A hereto is an engineering statement illustrating, through multiple analyses, the risks to WKMK's signal posed by Apple's proposal.

[3] Press notes that, in its Opposition, Apple suggests that Press's objection involved only "Apple's choice of antenna". Apple Opposition at 2. To be clear, Press's objection was not so limited. Rather, Press objected to the choice of antenna ***and*** the unorthodox way that that antenna was proposed to be installed and operated ***and*** Apple's failure to provide data and other information to permit evaluation of the antenna's likely performance characteristics.

5. While Apple's amended proposal is an improvement over its original application, the potential for unreliability – and, therefore, new interference – remains. Again, it is crucial to recognize that, as noted in the attached engineering statement, the danger of significantly increased interference to WKMK is especially acute. Since Apple has opted to try to shoe-horn its translator into spectrum space which is extraordinarily congested, it has left itself, and the Commission, no leeway for mistakes: if the translator's pattern is not realized precisely as proposed, other stations will likely suffer along with Press. That being the case, Press urges the Commission to take certain steps designed to ensure that: (a) the Commission has sufficient information from which to assess Apple's amended proposal; and (b) any facilities that may be approved are installed precisely as approved.[4]

6. The first component can be achieved by requiring Apple to document the source of the antenna pattern values submitted in its amendment. As submitted, those values do not indicate whether they were provided by the antenna manufacturer (and, therefore, presumably based on tried-and-true measurement processes), or whether, instead, they were calculated by Apple. If the former, the pattern values may be presumed valid and reliable; if the latter, the Commission should further require some showing establishing the values' reliability. This is not a frivolous point. After all, Apple initially proposed to wiggle an antenna in some way or another in order to achieve its desired pattern. If its amended proposal is based on the same type of non-specific guesstimation, the Commission should be reluctant to embrace it without far more detail.

[4] Press notes that grant of the application and licensing of the translator's modified facilities would afford the benefit of removing from the Commission's database the translator's currently-licensed facilities, facilities that, as Press conclusively demonstrated years ago, cannot be utilized. The Commission itself should be eager to rid its records of such facility specifications. Of course, given the history of interference and the obvious potential for future interference, Press reserves its right to bring instances of actual interference to the Commission's attention, should the Apple application be granted and the facilities proposed therein be constructed.

7. The second component can be achieved through a simple and routine condition on any construction permit that might be granted to Apple requiring that, before the issuance of program test authority, Apple will submit a certification from a qualified independent source confirming that the antenna has been installed precisely as authorized by the permit. Such a certification should provide all concerned confidence that whatever the Commission may authorize in the way of signal pattern will adequately protect the interest of WKMK and all other affected broadcasters is what the Commission will, indeed, get.

8. Press regrets having to urge such steps, but its history with respect to the Apple translator has taught Press that such caution, and attention to detail, are necessary and appropriate.

Respectfully submitted,

/s/ Harry F. Cole Harry F. Cole 4486
Harry F. Cole

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February 21, 2019

ATTACHMENT A

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ENGINEERING STATEMENT AND AFFIDAVIT OF TIMOTHY Z. SAWYER IN SUPPORT OF REPLY TO "OPPOSITION TO PETITION TO DENY"

APPLE 107.1, INC. MODIFICATION OF
FACILITIES OF W292DV
BPFT-20190122AHG - AS AMENDED

February 20, 2019

I, Timothy Z. Sawyer, dba T Z Sawyer Technical Consultants, do hereby attest that I have reviewed the Reply To Opposition To Petition To Deny of which this affidavit and engineering statement are part and that I believe the statements contained within the reply are true and correct.

The application of Apple 107.1, Inc. to modify the facilities of W292DV has been amended to specify a new directional antenna system, one that supplied the necessary antenna data to allow for further analysis of the proposal by the undersigned.

My analysis of the application and its detrimental effect on the reception of full-service FM facility WKMK, Eatontown, New Jersey (a co-channel facility) is included in this narrative and the associated figures described herein.

Figure 1 establishes that the existing service area of WKMK can be expected to extend far beyond the simple FCC F(50,50) propagation contour distances. This expectation is validated by listener affidavits previously submitted to the Commission and in particular those listeners or travelers within the five boroughs of New York City and the surrounding area of Nassau County, New York.

In preparing Figure 1 a contour value (or reception/receiver threshold) of 42 dBu was selected as the basis for our analysis. That is not to say that the reception of WKMK does not exist below the 42 dBu signal level (or beyond its contour distance), as it does, but rather that 42 dBu is a signal level upon which a desired to undesired signal ratio can be readily computed.[1] Use of the 42 dBu signal level as a baseline for receiver reception represents a signal level value predicted by the Longley-Rice method as being representative of the expected signal from WKMK within the 60 dBu contour of W292DV. [2]

Figure 1 shows the FCC standard contour method of predicting a service area as well as a predicted contour distance based upon a computed mean value [3] derived from the Longley-Rice method of signal propagation adopted in OET Bulletin Number 69 as an alternative means of predicted signal levels and facility coverage areas.[4]

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[1] The desired to undesired signal ratio for co-channel (same frequency) FM stations is 20 dB; thus a 42 dBu desired signal has an interfering signal threshold of 22 dB (42-20=22). Signal ratios of less than 20 dB will cause interference.

Signal contours are either modeled or measured field strengths at a prescribed level. Contours are also given confidence levels, most commonly, F(50,50), which means that the predicted field strength value occurs at 50% of the locations (receivers) 50% of the time. Interference contours are most commonly expressed as F(50,10), 50% of the locations (receivers) 10% of the time.

[2] The predicted signal level from WKMK (using the Longley-Rice method) at the proposed W292DV site is approximately 45 dBu, the signal level along the northern edge of the translator's 60 dBu contour is predicted to be 42 dBu and the southern edge of the contour has a predicted signal value of 48 dBu. The average is 45 dBu which was adjusted downward by 3 dB for urban clutter.

[3] The mean distance value is first determined by specifying a particular signal level, the distances to this signal level are then computed along the total radial length, and the resulting distance is the average of the distances to the specified signal level.

[4] OET BULLETIN No. 69 Longley-Rice Methodology for Evaluating TV Coverage and Interference February 06, 2004, This methodology has been widely adopted by the industry for use in predicting "real world" interference and coverage in the FM radio service as well as the Television bands. In particular, its use can be found in numerous applications before the Commission as an alternate means for the evaluation of city of license coverage contours and the associated signal levels of the FM stations.

The Longley-Rice method for predicting contour distance and signal levels is appropriate in cases where the Delta H of the terrain profile deviates from the national average of 50-meters as is the case here.[5] The Delta H values for radial azimuths of 0, 10, 20, 30 and 40 degrees True have been included in Figure 1.

Figure 2 uses the Commission's standard method for determining interference areas. The predicted contour to contour method uses the standard VHF-TV-FM propagation curves and is described in 47 C.F.R. 73.525(e)(1)(v), and has been used for years in determining interference from reserve band FM stations to TV channel 6 facilities. This method has also been adopted in other cases of FM to FM protection and interference calculations, in particular, it is widely used in determining "grandfather" contour overlap areas in which interference reduction or lack of interference is to be demonstrated.

Figure 3 uses the Longley Rice method of signal propagation (a point to point method) to define individual signal levels at regularly spaced cells within a service area (0.25 km X 0.25 km cell spacing is used in Figure 3). The parameters for the study are listed on the figure.

In its simplest form, a series of map cells of a predetermined size are laid out (equally spaced) across a service area. At each cell centroid (location) the desired and undesired signal levels are computed. If the desired to undesired protection ratio is not met, then that individual cell location is marked as predicted to have interference. The population of that cell is then computed and added to a running total of the interference population. The area of the individual cell is also added to a running total of the total interference area.

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[5] "Delta-H" is the distance, in meters, between elevations exceeded, by all points on a terrain profile, for 10 percent and 90 percent, respectively, of the length of the profile segment.

Interference Evaluation:

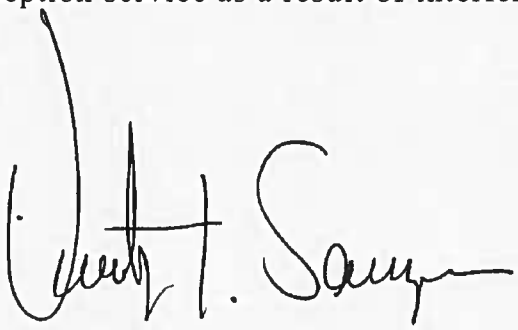
From Figure 1 the service area of the desired station is described. Figure 2 using the contour to contour method indicates that predicted interference to WKMK will occur over an area of approximately 537.2 square kilometers in which 3,451,822 person reside. [6]

Figure 3 using the Longley-Rice OET bulletin 69 methods indicates a much wider area of interference and a predicted interference to 1670.96 square kilometers in which 6,215,832 persons reside. The area and population are significantly increased over that of the contour to contour method as the interference area is not restricted by a particular contour, but rather by the threshold of the signal available to the receiver at any given cell location within the study area. The receiver threshold as noted in Figure 3 is 42 dBu (i.e., the threshold for reception).

Summary:

As previously demonstrated to the Commission in a number of filings over the years and further described herein, WKMK enjoys a substantial number of regular listeners in the New York City area and Nassau County, New York, listeners who may be deprived of regular reception service as a result of interference from this proposal.

February 20, 2019



Timothy Z. Sawyer, Consulting Engineer

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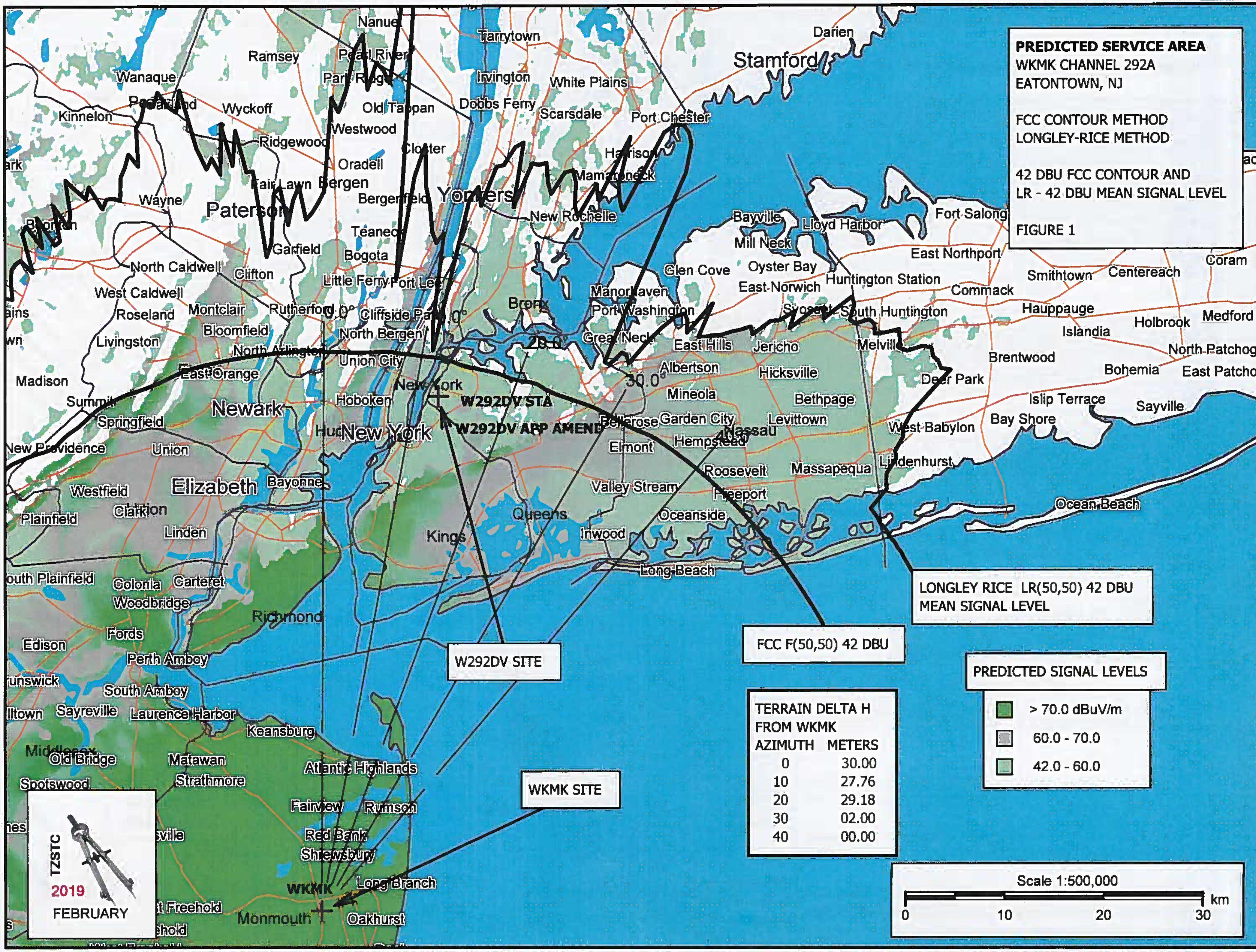
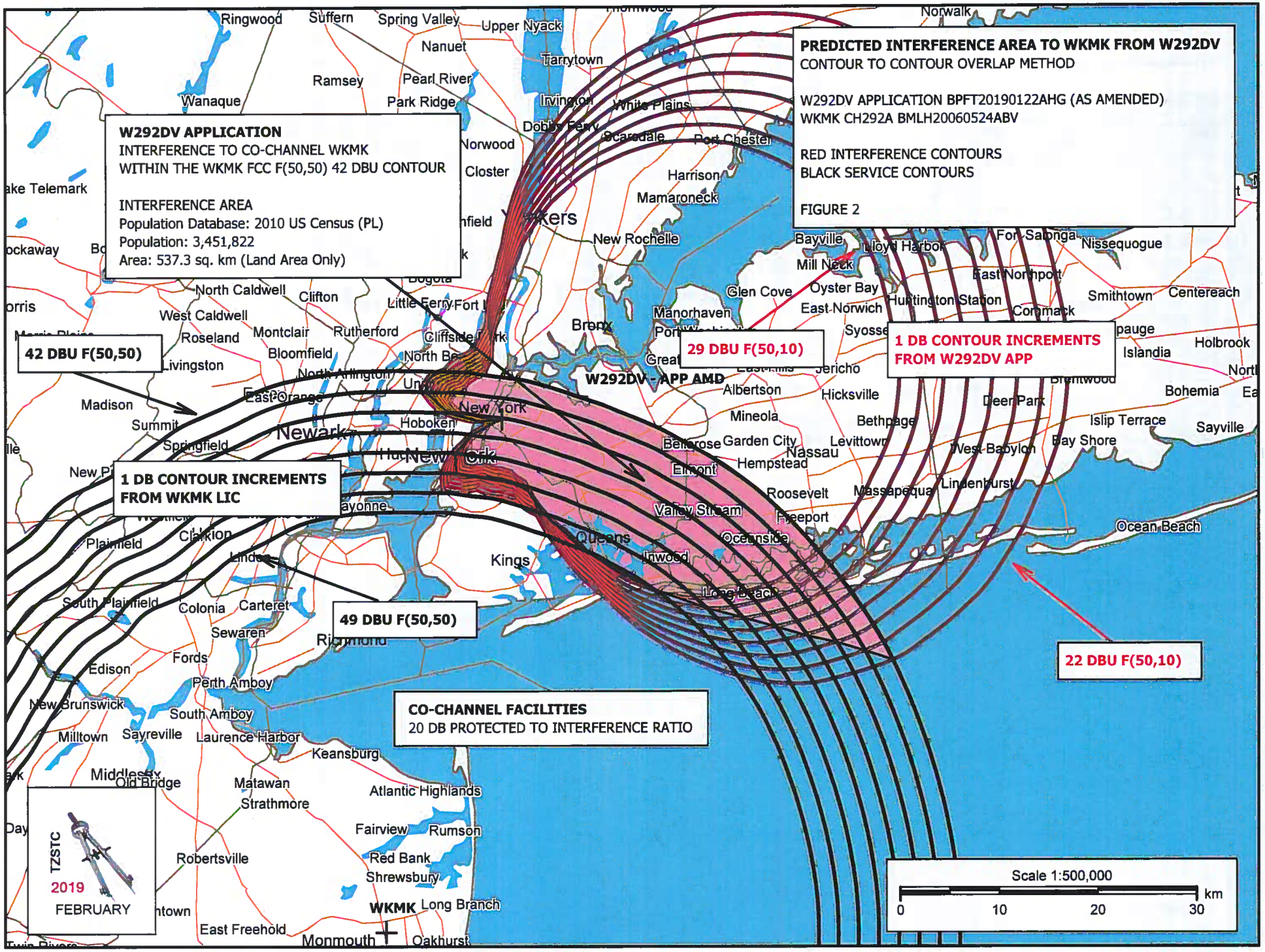
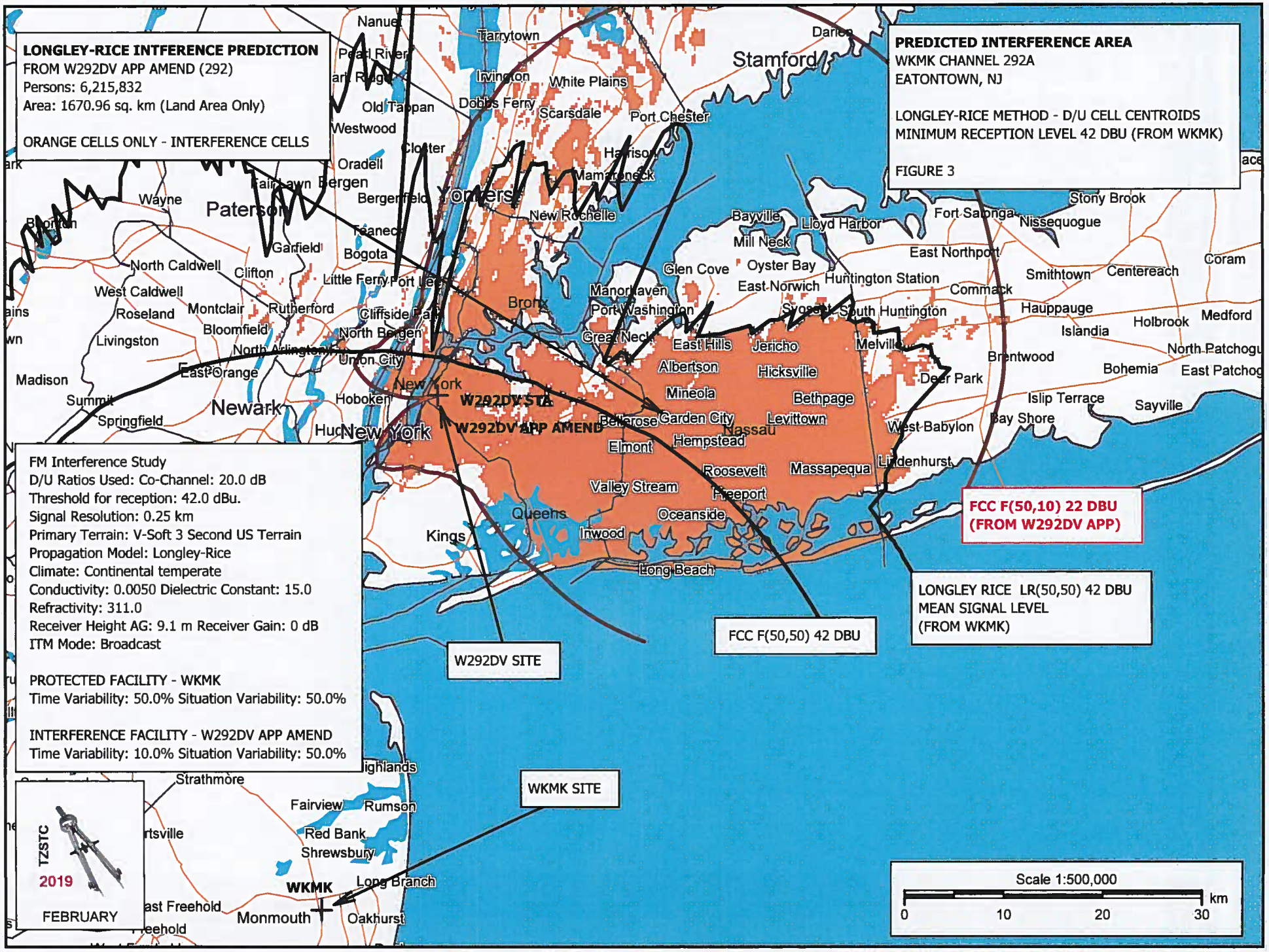
[6] US Census of Population, block level data, 2010.


PREDICTED SERVICE AREA
WKMK CHANNEL 292A
EATONTOWN, NJ
FCC CONTOUR METHOD
LONGLEY-RICE METHOD
42 DBU FCC CONTOUR AND
LR - 42 DBU MEAN SIGNAL LEVEL
FIGURE 1
LONGLEY RICE LR(50,50) 42 DBU
MEAN SIGNAL LEVEL
FCC F(50,50) 42 DBU
PREDICTED SIGNAL LEVELS
> 70.0 dBuV/m
60.0 - 70.0
42.0 - 60.0
W292DV SITE
W292DV STA
W292DV APP AMEND
WKMK SITE
WKMK
TERRAIN DELTA H
FROM WKMK
AZIMUTH METERS
0 30.00
10 27.76
20 29.18
30 02.00
40 00.00
Scale 1:500,000
0 10 20 30 km
TZSTC
2019
FEBRUARY


PREDICTED INTERFERENCE AREA TO WKMK FROM W292DV
CONTOUR TO CONTOUR OVERLAP METHOD
W292DV APPLICATION BPFT20190122AHG (AS AMENDED)
WKMK CH292A BMLH20060524ABV
RED INTERFERENCE CONTOURS
BLACK SERVICE CONTOURS
FIGURE 2
W292DV APPLICATION
INTERFERENCE TO CO-CHANNEL WKMK
WITHIN THE WKMK FCC F(50,50) 42 DBU CONTOUR
INTERFERENCE AREA
Population Database: 2010 US Census (PL)
Population: 3,451,822
Area: 537.3 sq. km (Land Area Only)
42 DBU F(50,50)
29 DBU F(50,10)
1 DB CONTOUR INCREMENTS FROM W292DV APP
W292DV - APP AMD
1 DB CONTOUR INCREMENTS FROM WKMK LIC
49 DBU F(50,50)
22 DBU F(50,10)
CO-CHANNEL FACILITIES
20 DB PROTECTED TO INTERFERENCE RATIO
TZSTC
2019
FEBRUARY
WKMK
Scale 1:500,000
0 10 20 30 km
Ringwood
Suffern
Spring Valley
Upper Nyack
Nanuet
Tarrytown
Ramsey
Pearl River
Wanaque
Park Ridge
Irvington
White Plains
Dobbs Ferry
Scarsdale
Port Chester
Norwood
Closter
Harrison
Mamaroneck
New Rochelle
Norwalk
Bayville
Lloyd Harbor
Mill Neck
Glen Cove
Oyster Bay
East Northport
Huntington Station
Smithtown
Centereach
Commack
East Norwich
Nissequogue
Fort Salonga
North Caldwell
Clifton
West Caldwell
Montclair
Rutherford
Roseland
Bloomfield
Livingston
Madison
Summit
Springfield
East Orange
Newark
Hoboken
New York
Bronx
Manorhaven
Albertson
Hicksville
Mineola
Bethpage
Deer Park
Islip Terrace
Sayville
Bay Shore
Holbrook
Islandia
Bohemia
Garden City
Levittown
Nassau
Hempstead
West Babylon
Lindenhurst
Massapequa
Roosevelt
Freeport
Valley Stream
Oceanside
Inwood
Long Beach
Ocean Beach
Queens
Kings
Plainfield
Clarkson
Linden
Bayonne
South Plainfield
Colonia
Carteret
Sewaren
Fords
Edison
Perth Amboy
New Brunswick
South Amboy
Milltown
Sayreville
Laurence Harbor
Keansburg
Middlesex
Old Bridge
Matawan
Strathmore
Atlantic Highlands
Fairview
Rumson
Red Bank
Shrewsbury
Robertsville
Long Branch
East Freehold
Monmouth
Oakhurst


LONGLEY-RICE INTFERENCE PREDICTION
FROM W292DV APP AMEND (292)
Persons: 6,215,832
Area: 1670.96 sq. km (Land Area Only)
ORANGE CELLS ONLY - INTERFERENCE CELLS
PREDICTED INTERFERENCE AREA
WKMK CHANNEL 292A
EATONTOWN, NJ
LONGLEY-RICE METHOD - D/U CELL CENTROIDS
MINIMUM RECEPTION LEVEL 42 DBU (FROM WKMK)
FIGURE 3
FM Interference Study
D/U Ratios Used: Co-Channel: 20.0 dB
Threshold for reception: 42.0 dBu.
Signal Resolution: 0.25 km
Primary Terrain: V-Soft 3 Second US Terrain
Propagation Model: Longley-Rice
Climate: Continental temperate
Conductivity: 0.0050 Dielectric Constant: 15.0
Refractivity: 311.0
Receiver Height AG: 9.1 m Receiver Gain: 0 dB
ITM Mode: Broadcast
PROTECTED FACILITY - WKMK
Time Variability: 50.0% Situation Variability: 50.0%
INTERFERENCE FACILITY - W292DV APP AMEND
Time Variability: 10.0% Situation Variability: 50.0%
TZSTC
2019
FEBRUARY
W292DV STA
W292DV APP AMEND
W292DV SITE
WKMK SITE
WKMK
FCC F(50,10) 22 DBU
(FROM W292DV APP)
FCC F(50,50) 42 DBU
LONGLEY RICE LR(50,50) 42 DBU
MEAN SIGNAL LEVEL
(FROM WKMK)
Scale 1:500,000
0
10
20
30
km
Stamford
Yonkers
Paterson
Newark
New York
Bronx
Kings
Queens
Nassau
Suffolk
Tarrytown
White Plains
Scarsdale
Port Chester
New Rochelle
Mamaroneck
Harrison
Irvington
Dobbs Ferry
Old Tappan
Westwood
Oradell
Bergen
Wayne
Garfield
Bogota
Teaneck
Clifton
North Caldwell
West Caldwell
Roseland
Montclair
Rutherford
Little Ferry
Cliffside Park
North Bergen
Union City
Hoboken
Bloomfield
Livingston
East Orange
Madison
Summit
Springfield
Bayville
Lloyd Harbor
Mill Neck
Glen Cove
Oyster Bay
East Norwich
Huntington Station
Manorhaven
Port Washington
Great Neck
East Hills
Jericho
Albertson
Hicksville
Mineola
Bethpage
Garden City
Levittown
Bellerose
Hempstead
Elmont
Roosevelt
Massapequa
Valley Stream
Freeport
Oceanside
Inwood
Long Beach
Lindenhurst
West Babylon
Bay Shore
Islip Terrace
Sayville
Deer Park
Brentwood
Bohemia
East Patchogue
North Patchogue
Holbrook
Medford
Islandia
Hauppauge
Smithtown
Centereach
Commack
South Huntington
Sysosset
East Northport
Fort Salonga
Nissequogue
Stony Brook
Coram
Strathmore
Fairview
Rumson
Red Bank
Shrewsbury
Long Branch
Monmouth
Oakhurst

CERTIFICATE OF SERVICE

I, Harry F. Cole, hereby certify that, on this 21st day of February, 2019, I caused a copy of the foregoing "Reply to 'Opposition to Petition to Deny'" to be transmitted electronically, or placed in the U.S. mail, first class postage prepaid, addressed to the following:

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