Little Gun vs. Superstation

Just How Much Weaker Am I?

Sea-Pac

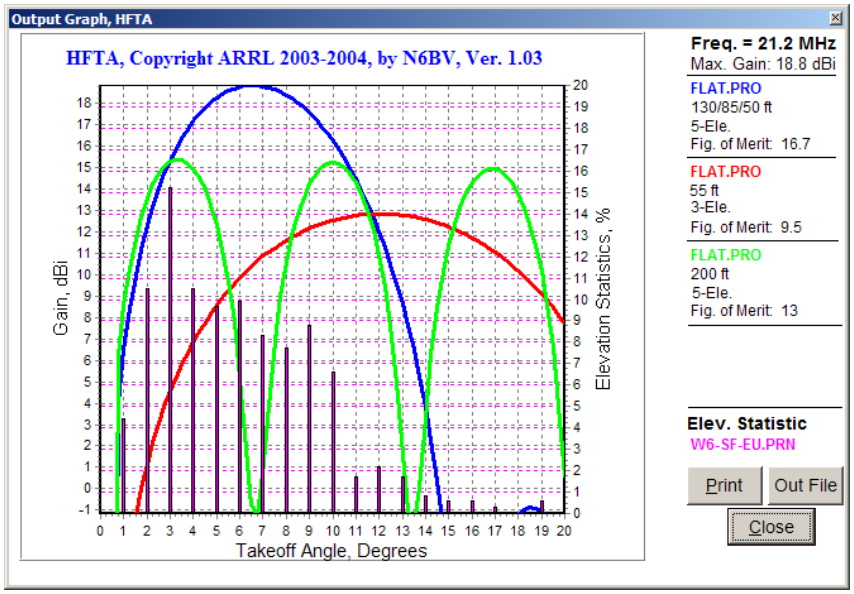
on Friday, June 6, 2014

By Dean Straw, N6BV

Putting up the two 4L40 Yagis at N6RO with big crane.

Antennas for Contesting

• In past presentations and in various Webinars on contest antennas, I've talked about antennas at multi-multi *superstations*, like N6RO, W6YI, K3LR and KC1XX.



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• But what about a Little Gun?

Antennas for Contesting

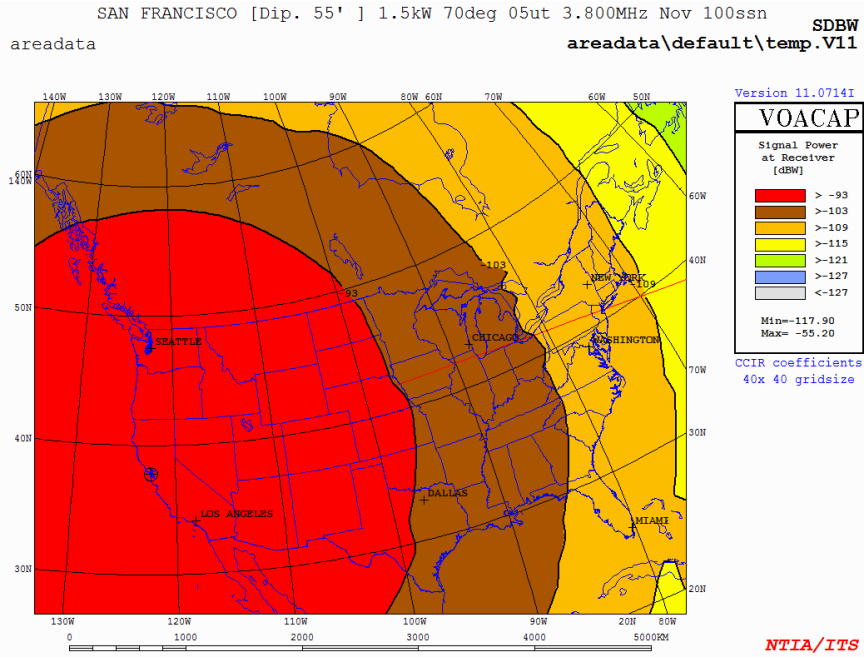
- In past presentations and in various Webinars on contest antennas, I've talked about antennas at multi-multi *superstations*, like N6RO, W6YI, K3LR and KC1XX.

- But what about a Little Gun?

- Today, I'll talk about more modest antenna installations that can still give you a lot of bang for the buck in contests or DXing.

Tools Used in the Analyses

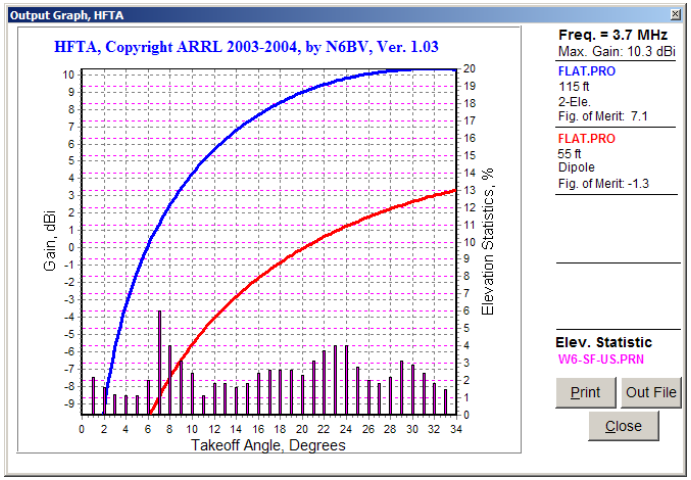
- *VOAAREA* — Nov. SSN = 100 (except where noted) gives area-coverage charts.



Tools Used in the Analyses

• *VOAAREA* — Nov. SSN = 100 (except where noted) gives area-coverage charts.

• *HFTA* (High Frequency Terrain Assessment) for real-world terrains.



Area-Coverage Charts

>-93 dBW

-103 dBW = -73 dBm

-109 dBW

-115 dBW

-121 dBW

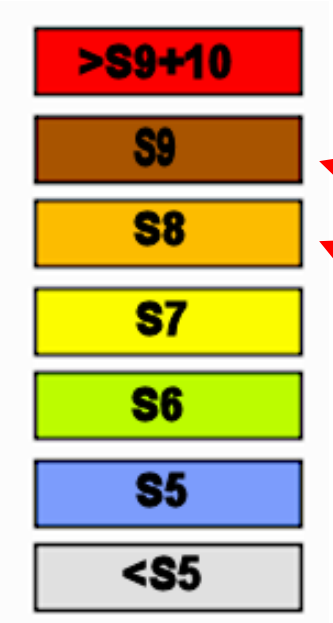
-127 dBW

<-127 dBW

S-meter calibration for the area-coverage charts: 6 dB per S-Unit color gradation, with S9 = 50 µV on 50 Ω.

This gives more resolution for S5 to S9^{+10} dB contest-level signals compared to my older presentations, where the calibration was 12 dB (2 S-Units) per color gradation.

Running Rate — N6BV's Rule of Thumb



Signal levels needed to run *rate* during a major contest:

Domestic contests: S9 min.

To Europe: S8 min.

Big-Gun Reference Antennas

• I'll use as a standard of comparison the antennas at big-gun contest station N6RO:

80 m: 2-ele. wire quads at 115' and a Four Square
40 m: two 4L40s stacked at 130'/70'
20 m: three 5L20s stacked at 130'/90'/45'
15 m: three 6L15s stacked at 130'/85'/50'
10 m: three 5L10s stacked at 80'/60'/40'

• The ground terrain is essentially flat at N6RO.

Background: Top two Yagis in 20-m stack, N6RO

Little-Gun Antennas

• Here's a more modest station, again over flat terrain:

80/40 m: flat-top dipoles at 55'
20/15/10 m: 3-element triband Yagi at 55'

Little-Gun Antennas

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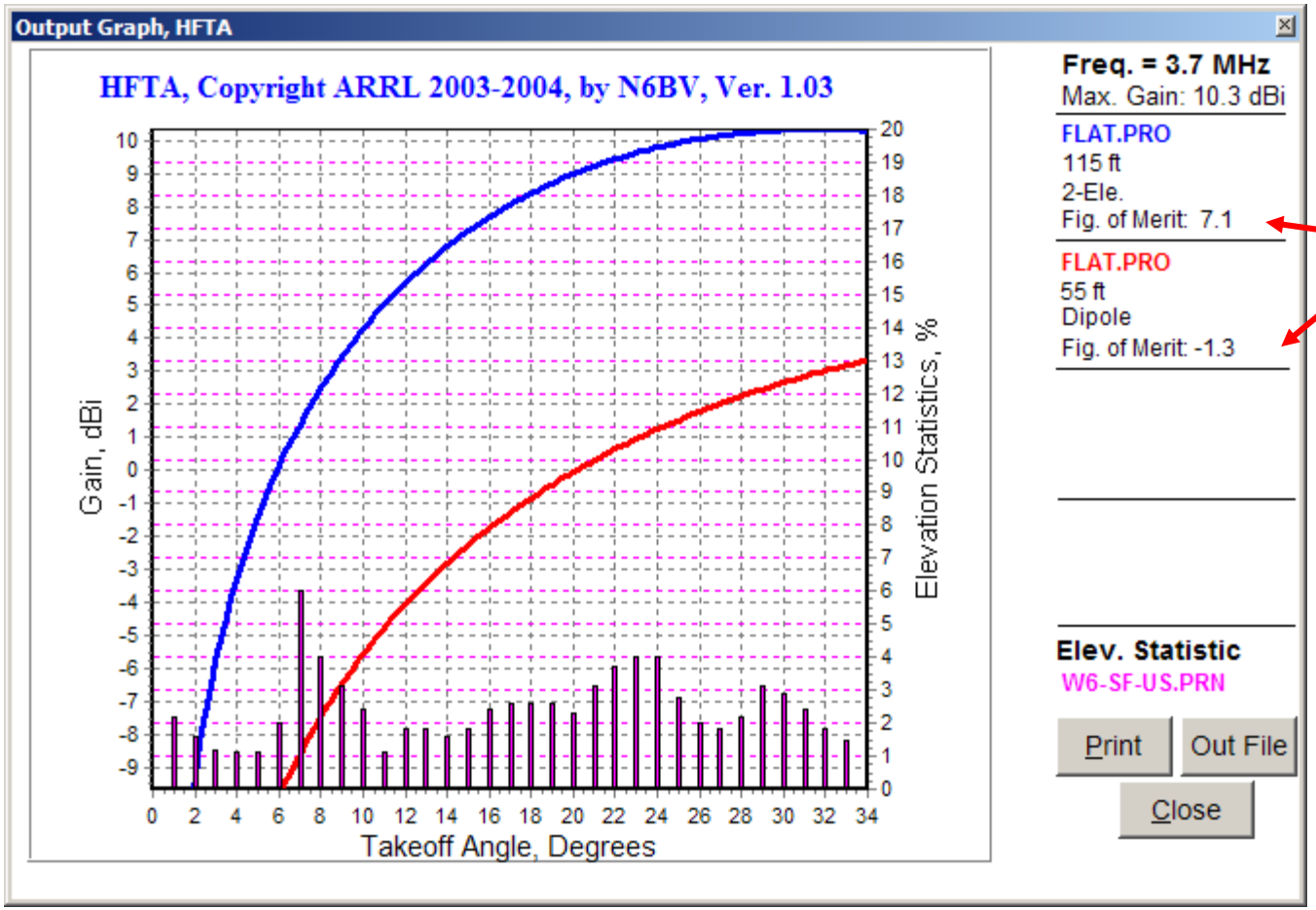
For both Little-Gun and N6RO *VOAAREA* calculations, the receive antennas are the same as the Little-Gun antennas listed here.

Transmitter power is assumed to be 1.5 kW for both Little Gun and N6RO.

Looks Pretty Grim for Little Gun…



Δ 8.4 dB FOM
~ 1.5 S-Units

N6RO Quad at 115' compared to dipole at 55'

80-Meters to USA

Making a Difference

• In a pileup, even 1 or 2 dB can make a difference in getting through.

Making a Difference

- In a pileup, even 1 or 2 dB can make a difference in getting through.

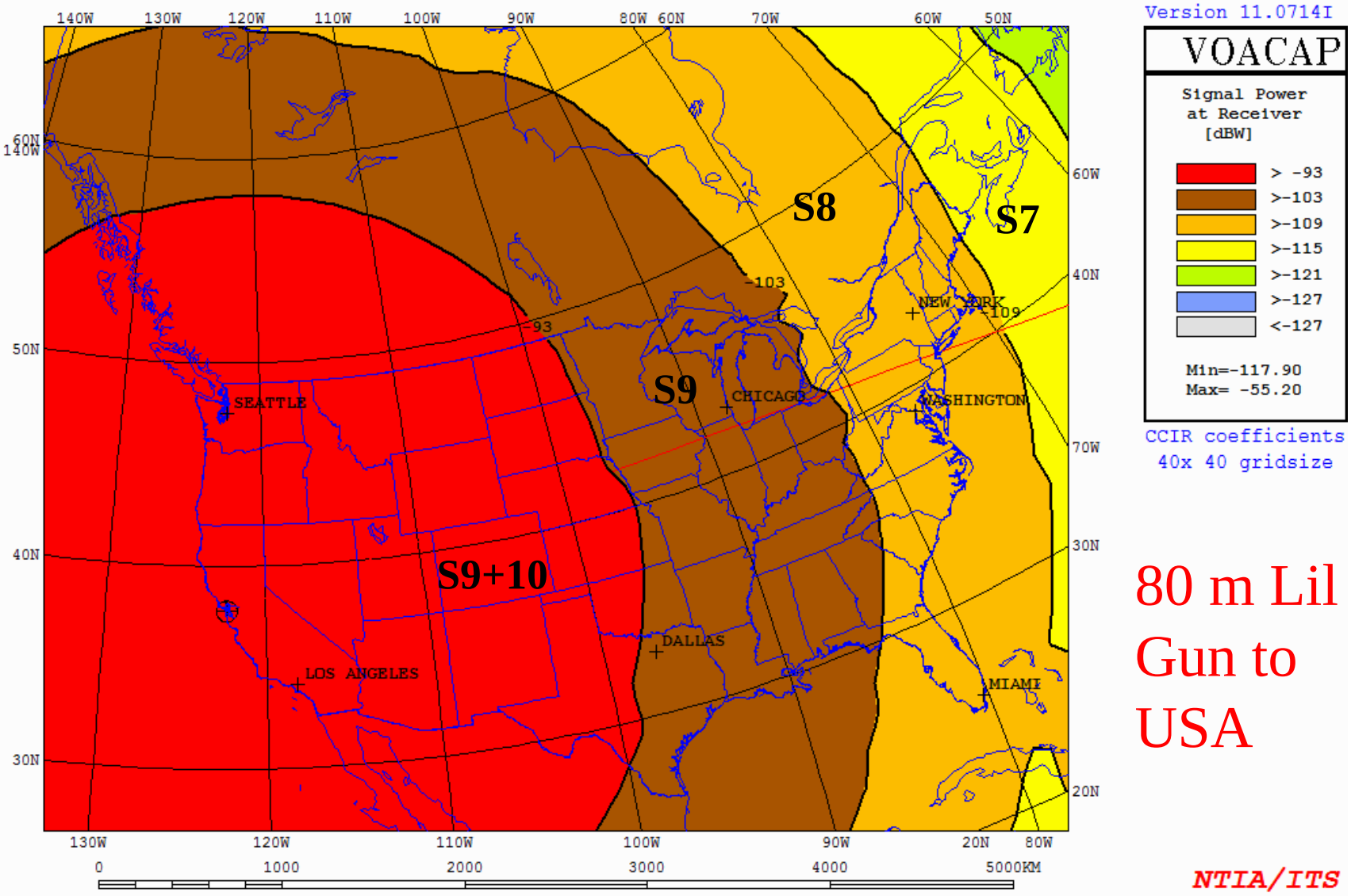
- But how much difference is there in area coverage for 1 or 2 S-Units less signal (where each S-Unit is 6 dB)?

SAN FRANCISCO [Dip. 55'] 1.5kW 70deg 05ut 3.800MHz Nov 100ssn

areadata

SDBW

areadata\default\temp.V11



Version 11.0714I

VOACAP

Signal Power at Receiver [dBW]

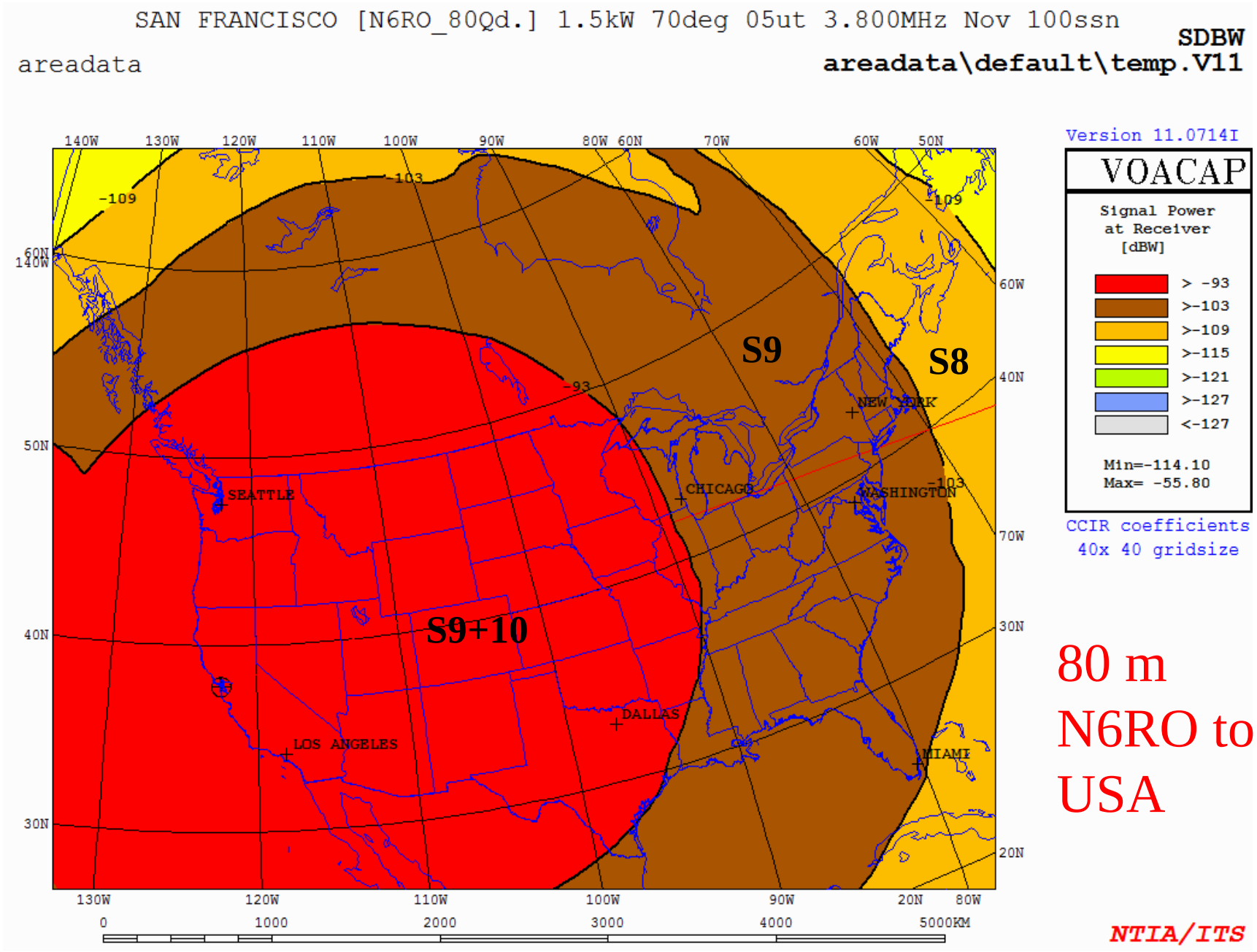
- > -93
- >-103
- >-109
- >-115
- >-121
- >-127
- <-127

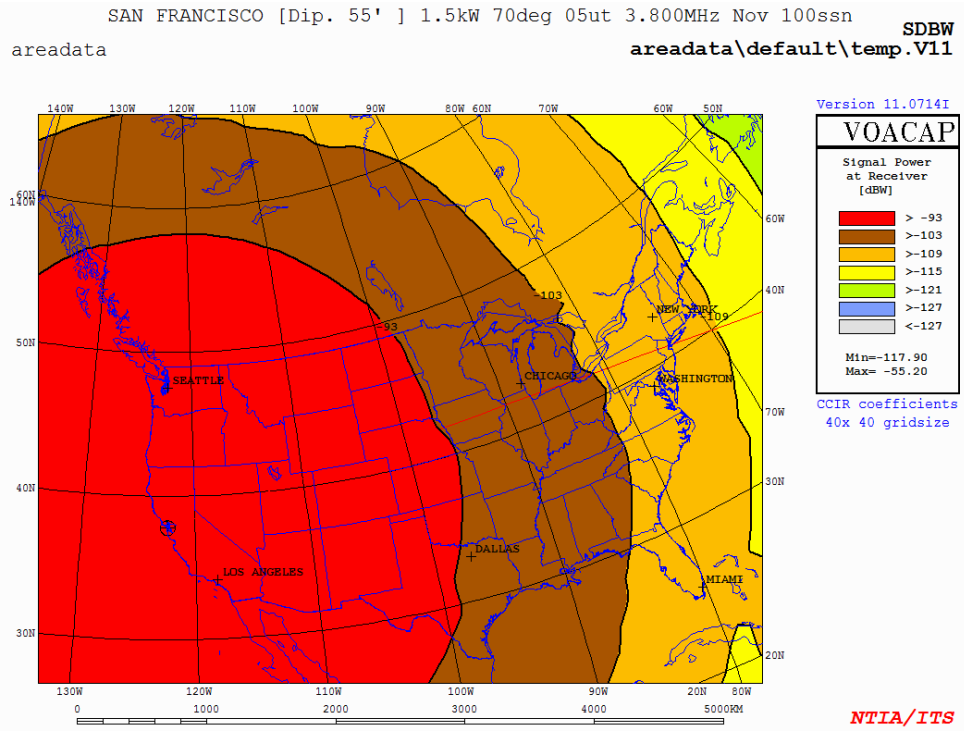
Min=-117.90
Max= -55.20

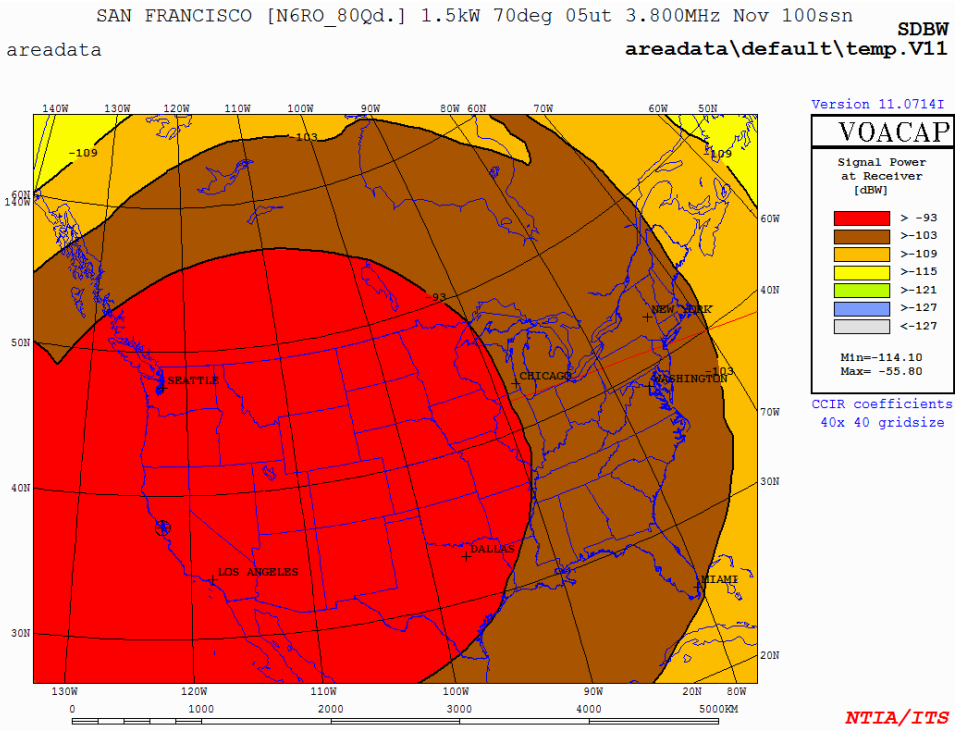
CCIR coefficients
40x 40 gridsize

80 m Lil Gun to USA

NTIA/ITS


SAN FRANCISCO [N6RO_80Qd.] 1.5kW 70deg 05ut 3.800MHz Nov 100ssn
areadata
SDBW
areadata\default\temp.V11
Version 11.0714I
VOACAP
Signal Power at Receiver [dBW]
> -93
>-103
>-109
>-115
>-121
>-127
<-127
Min=-114.10
Max= -55.80
CCIR coefficients
40x 40 gridsize
S9
S8
S9+10
-93
-103
-109
SEATTLE
CHICAGO
NEW YORK
WASHINGTON
DALLAS
LOS ANGELES
MIAMI
140W
130W
120W
110W
100W
90W
80W
70W
60W
50N
60N
40N
30N
20N
0
1000
2000
3000
4000
5000KM
80 m
N6RO to
USA
NTIA/ITS





80m Dipole at 55'

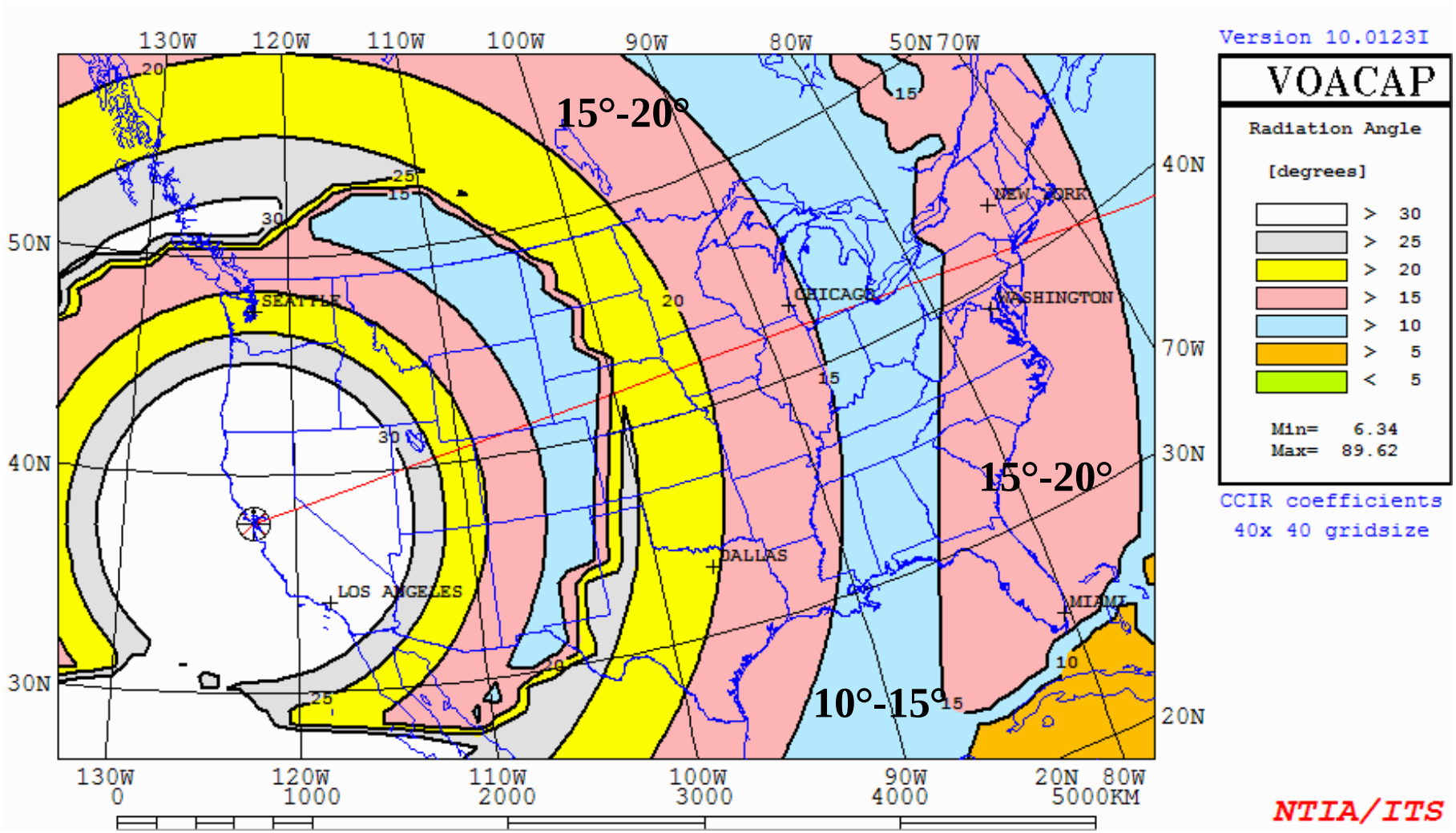
N6RO Quad at 115'

Surprisingly, not a *huge* difference on 80 meters for domestic US coverage. The Little Gun is still loud.

Side-by-side: Area Coverage on 80 m to USA

What Takeoff Angles Does *VOAAREA* Say Are Needed on 80 Meters to the USA?

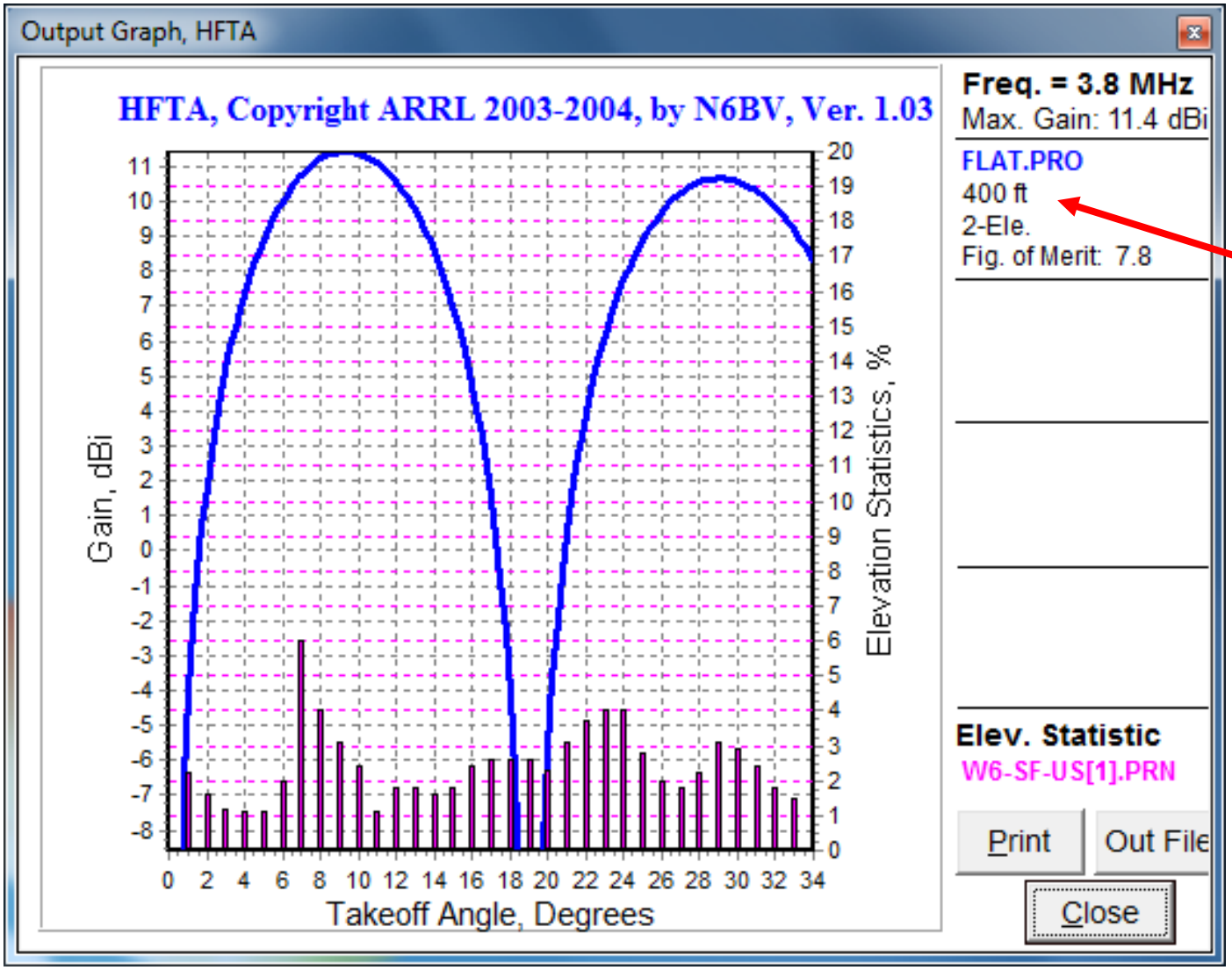
Hint: They're surprisingly low,
especially to the Midwest.



N6RO Quad at 115'

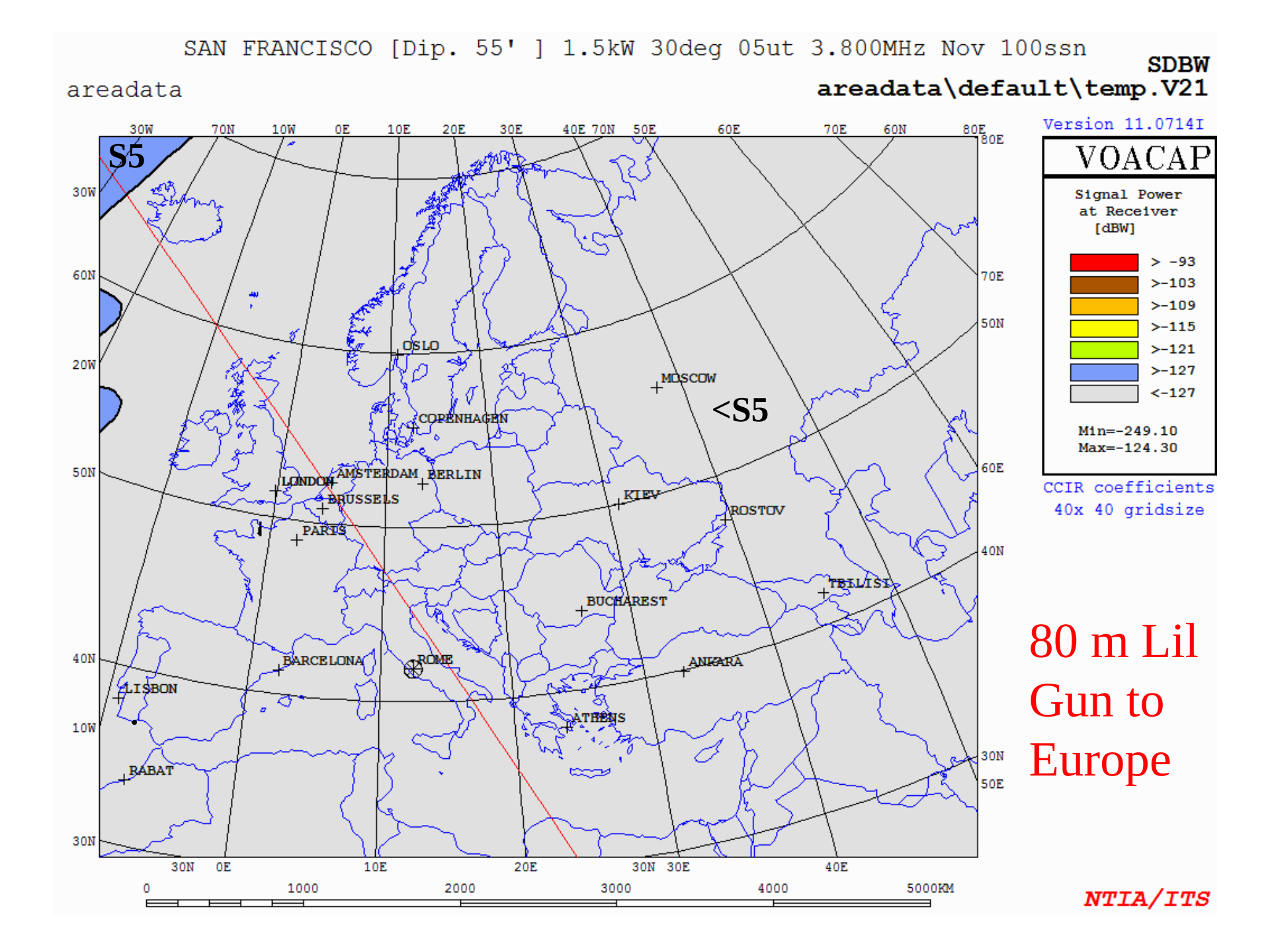
80-Meter Angles to USA

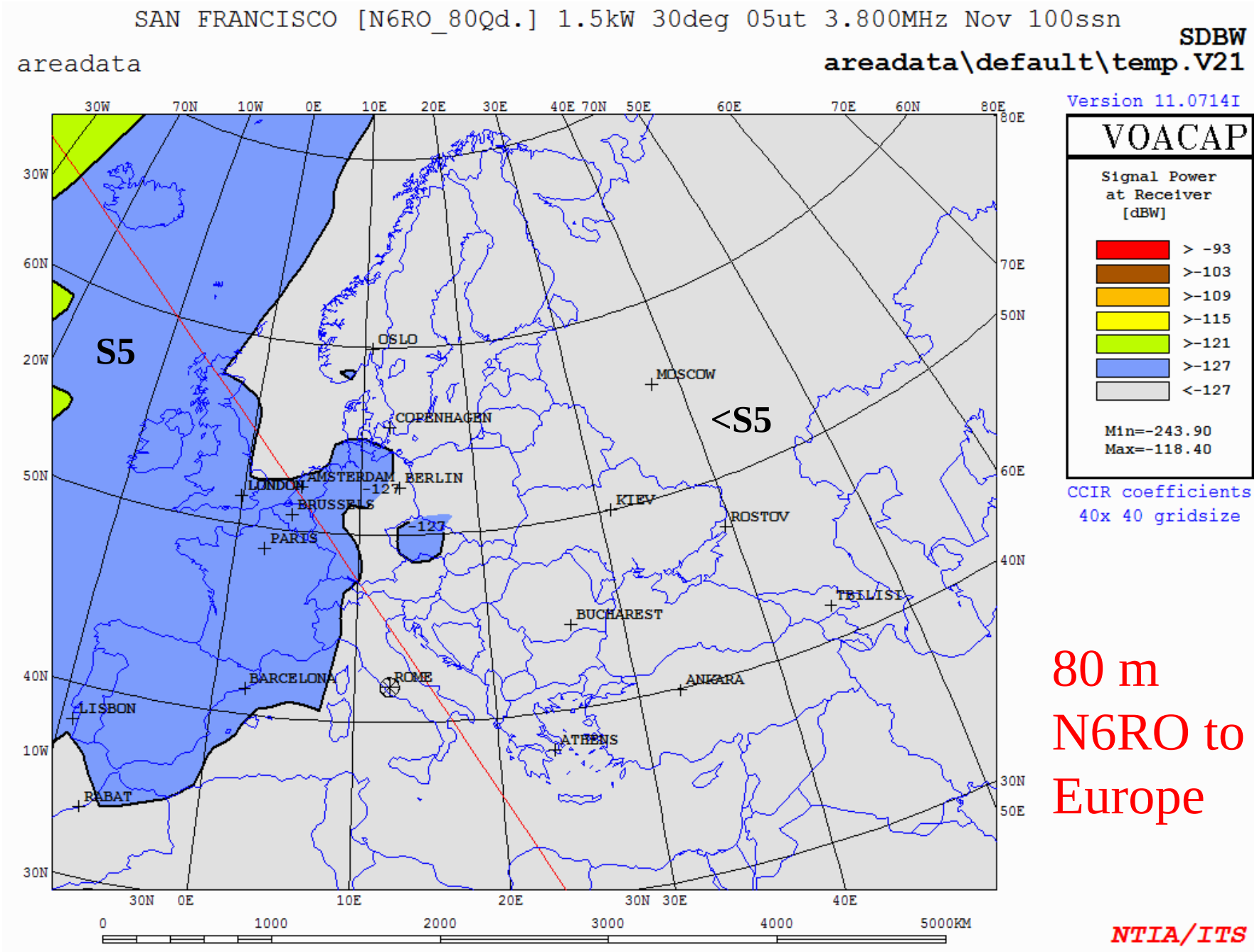
[Quiz: How high must you be for a peak elevation angle of 10° on 80 m?]



400'!

80 Meters to USA


SAN FRANCISCO [Dip. 55'] 1.5kW 30deg 05ut 3.800MHz Nov 100ssn
SDBW
areadata
areadata\default\temp.V21
Version 11.0714I
VOACAP
Signal Power at Receiver [dBW]
> -93
>-103
>-109
>-115
>-121
>-127
<-127
Min=-249.10
Max=-124.30
CCIR coefficients
40x 40 gridsize
S5
<S5
OSLO
MOSCOW
COPENHAGEN
LONDON
AMSTERDAM
BERLIN
BRUSSELS
PARIS
KIEV
ROSTOV
TBILISI
BUCHAREST
BARCELONA
ROME
ANKARA
LISBON
ATHENS
RABAT
80 m Lil Gun to Europe
NTIA/ITS


SAN FRANCISCO [N6RO_80Qd.] 1.5kW 30deg 05ut 3.800MHz Nov 100ssn
areadata
SDBW
areadata\default\temp.V21
Version 11.0714I
VOACAP
Signal Power at Receiver [dBW]
> -93
>-103
>-109
>-115
>-121
>-127
<-127
Min=-243.90
Max=-118.40
CCIR coefficients
40x 40 gridsize
S5
<S5
-127
-127
OSLO
MOSCOW
COPENHAGEN
LONDON
AMSTERDAM
BERLIN
BRUSSELS
PARIS
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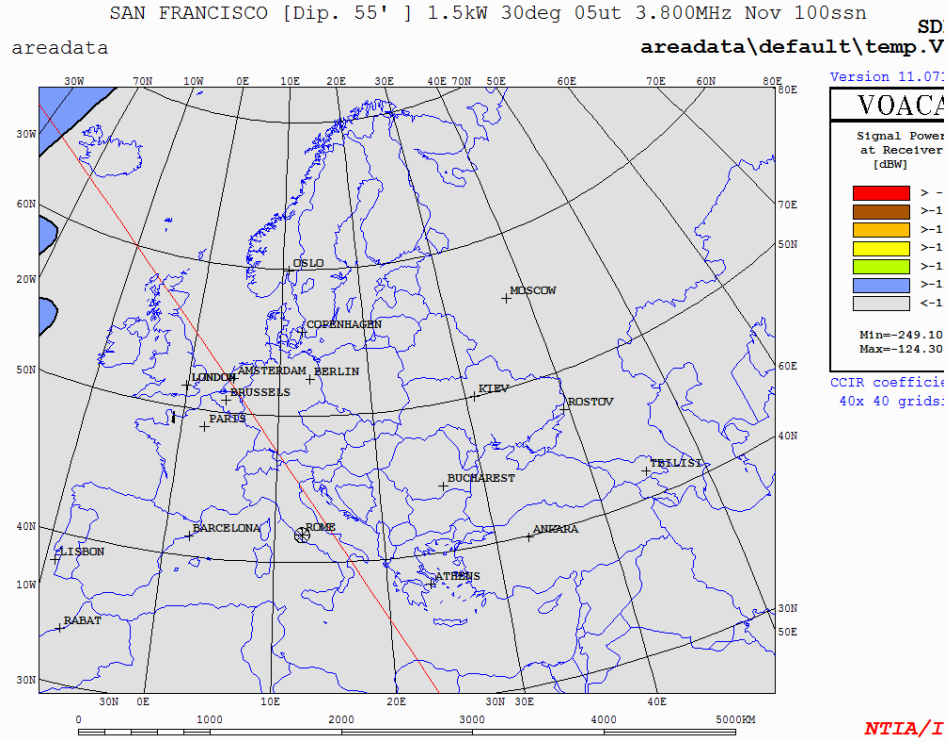
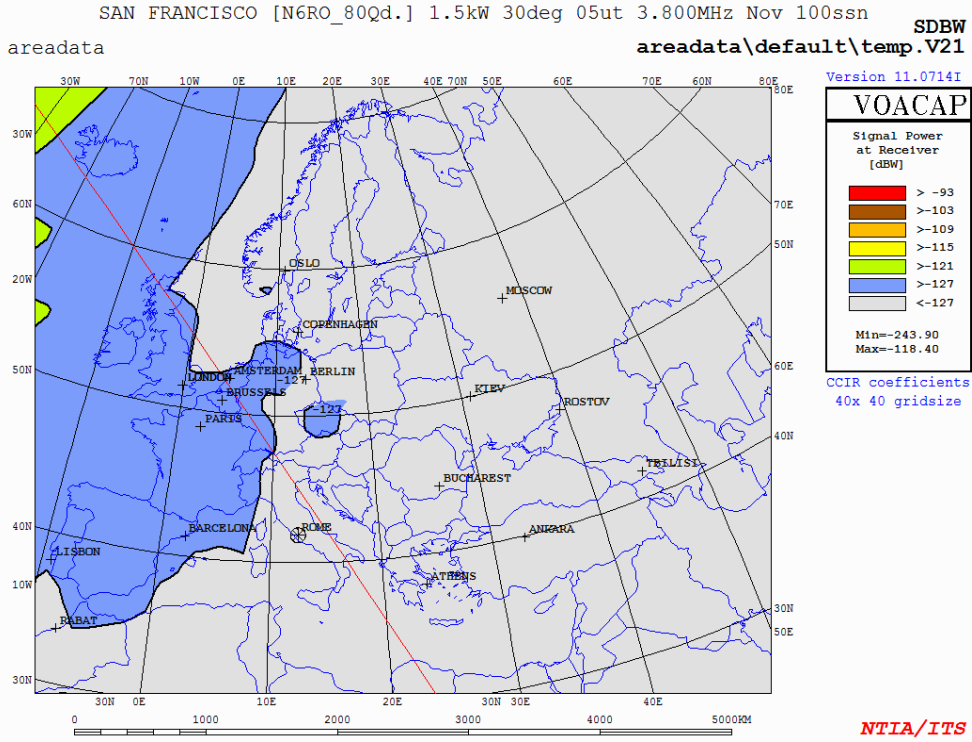
RABAT
80 m
N6RO to
Europe
NTIA/ITS





80m Dipole at 55'

N6RO Quad at 115'

Neither N6RO nor Little Gun is strong on 80 meters to Europe — N6RO just makes my contest threshold of S5.

Side-by-side: 80 Meters to Europe

SAN FRANCISCO [Dip. 55'] 1.5kW 305deg 10ut 3.800MHz Nov 100ssn

areadata

SDBW

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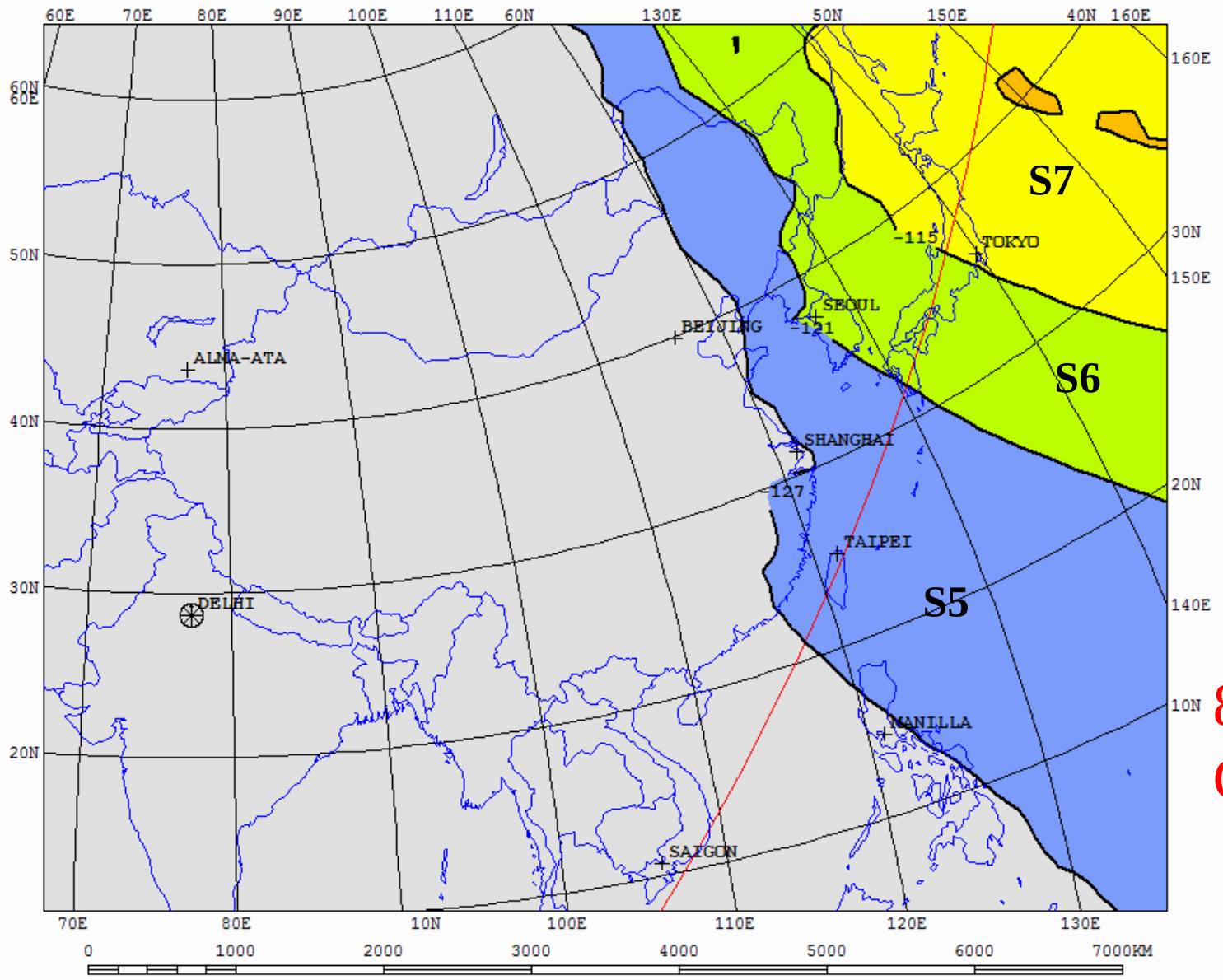


Version 11.0714I

VOACAP

Signal Power at Receiver [dBW]

- > -93
- >-103
- >-109
- >-115
- >-121
- >-127
- <-127

Min=-357.30
Max=-108.00

CCIR coefficients
40x 40 gridsize

80 m Lil Gun to Asia

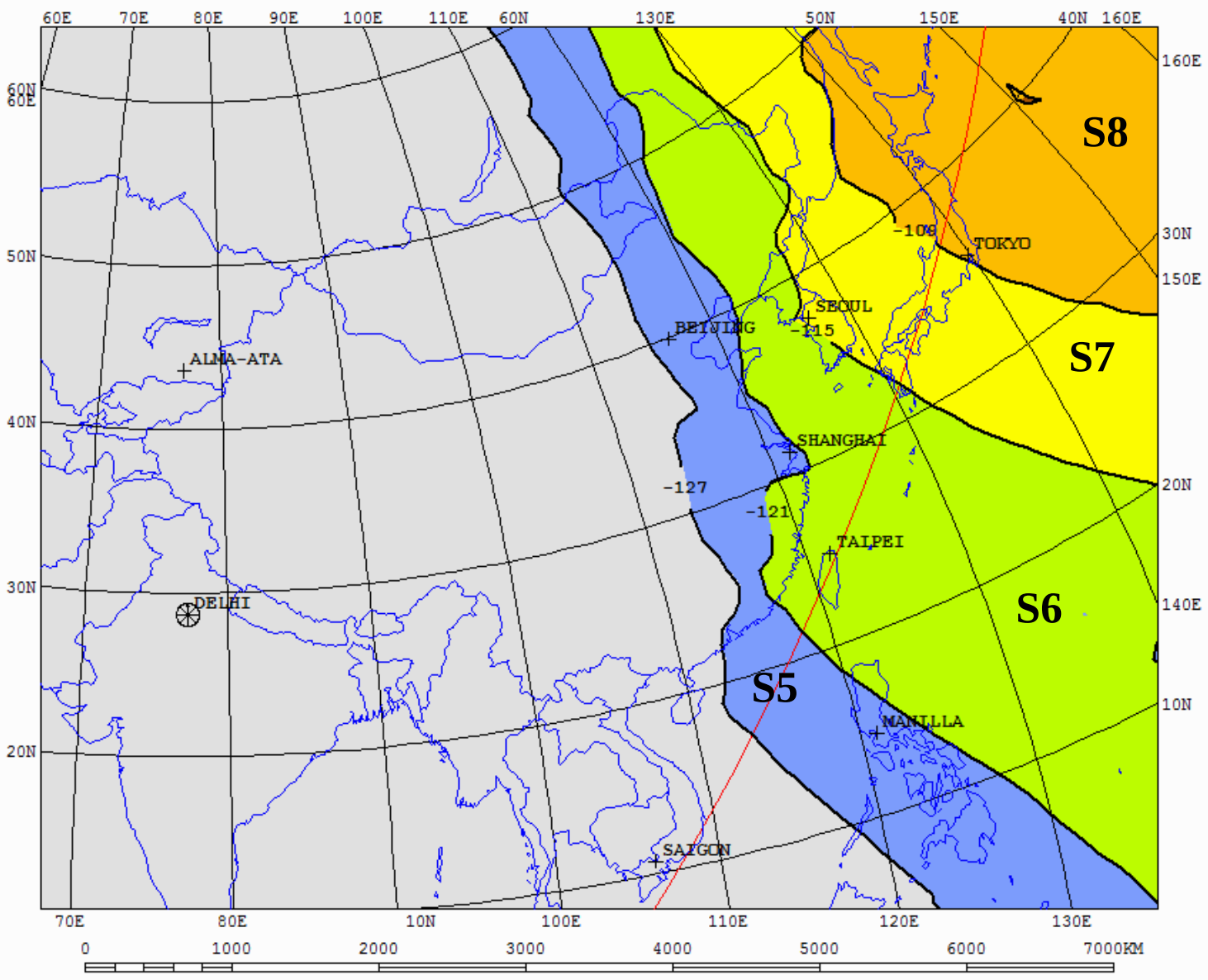
NTIA/ITS

SAN FRANCISCO [N6RO_80Qd.] 1.5kW 305deg 10ut 3.800MHz Nov 100ssn

areadata

SDBW

areadata\default\temp.V21



Version 11.0714I

VOACAP

Signal Power at Receiver [dBW]

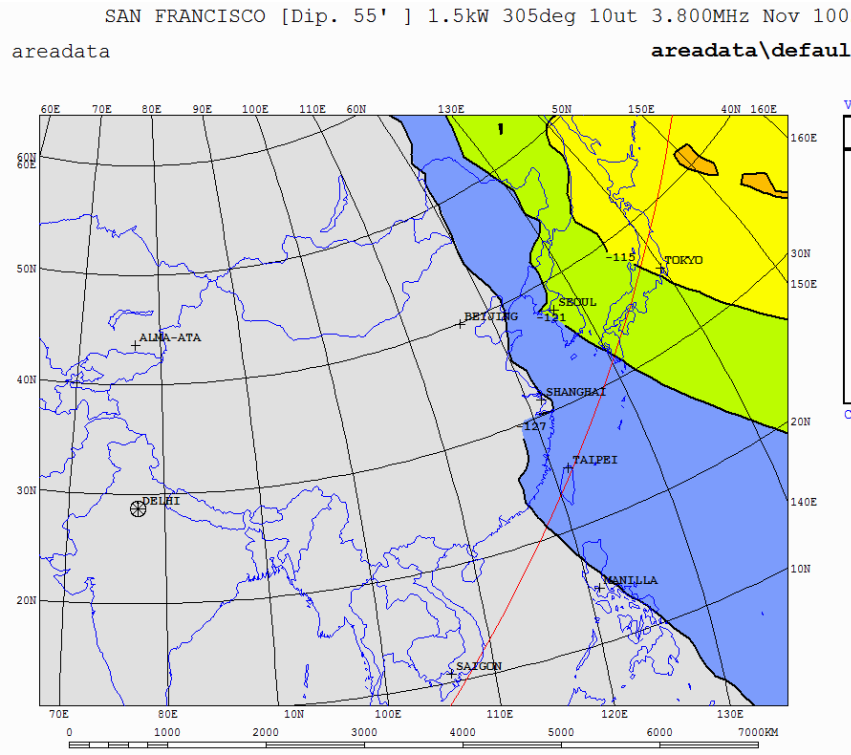
- > -93
- >-103
- >-109
- >-115
- >-121
- >-127
- <-127

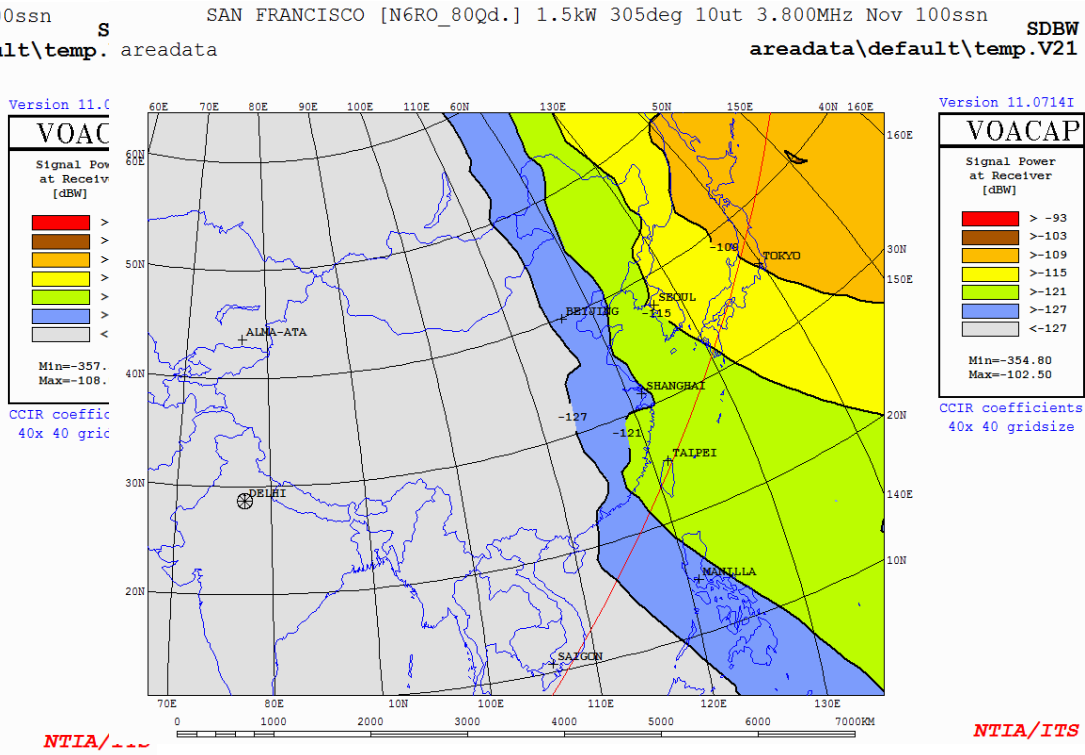
Min=-354.80
Max=-102.50

CCIR coefficients
40x 40 gridsize

80 m
N6RO to
Asia

NTIA/ITS





80m Dipole at 55'

N6RO Quad at 115'

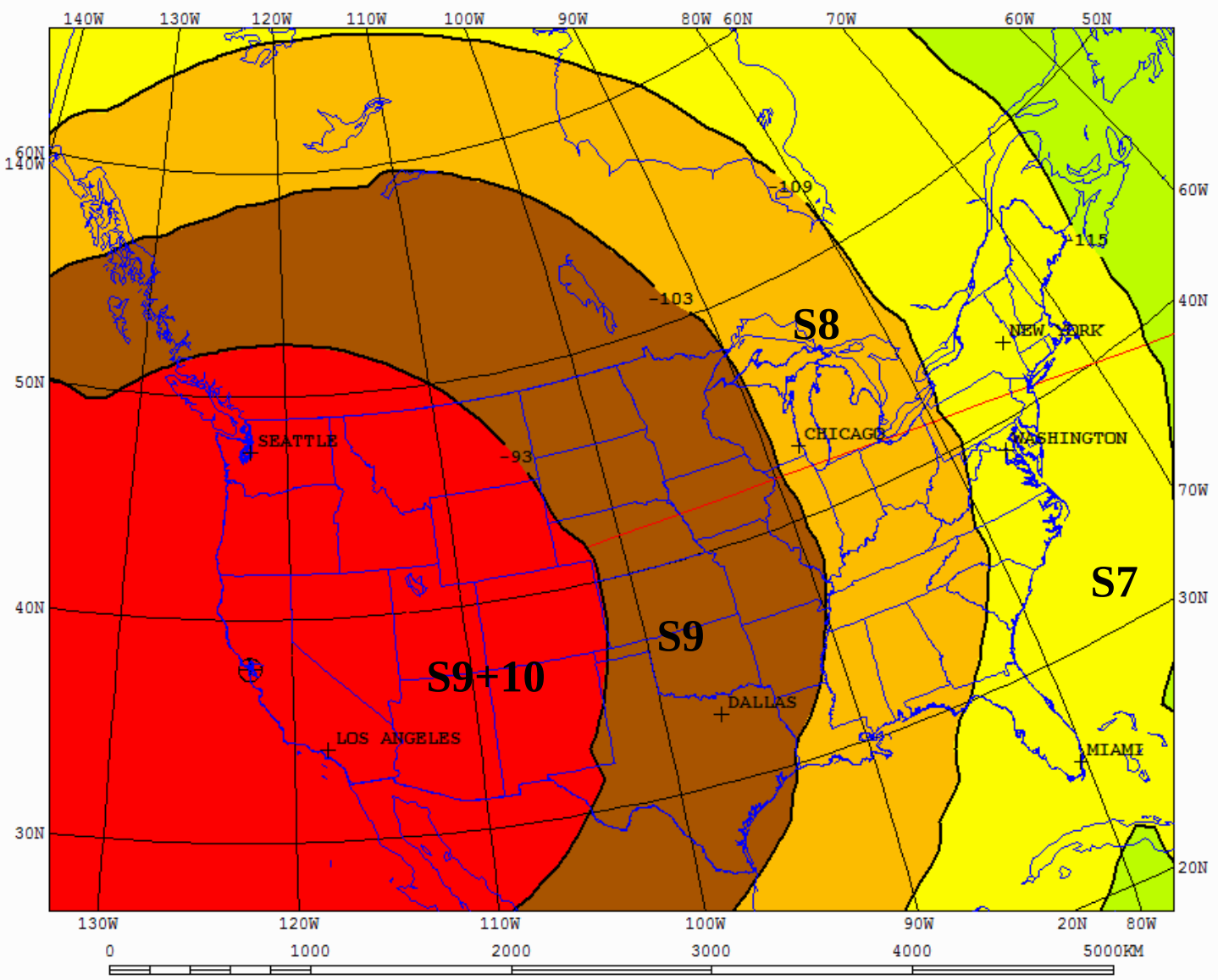
Again, not a huge difference on 80 meters between N6RO and a Little Gun to the Far East — in Tokyo, 1 S-Unit.

Side-by-side: 80 Meters to Asia

SAN FRANCISCO [Dip. 55'] 1.5kW 70deg 24ut 7.200MHz Nov 100ssn

areadata

SDBW
areadata\default\temp.V11



Version 11.0714I

VOACAP

Signal Power at Receiver [dBW]

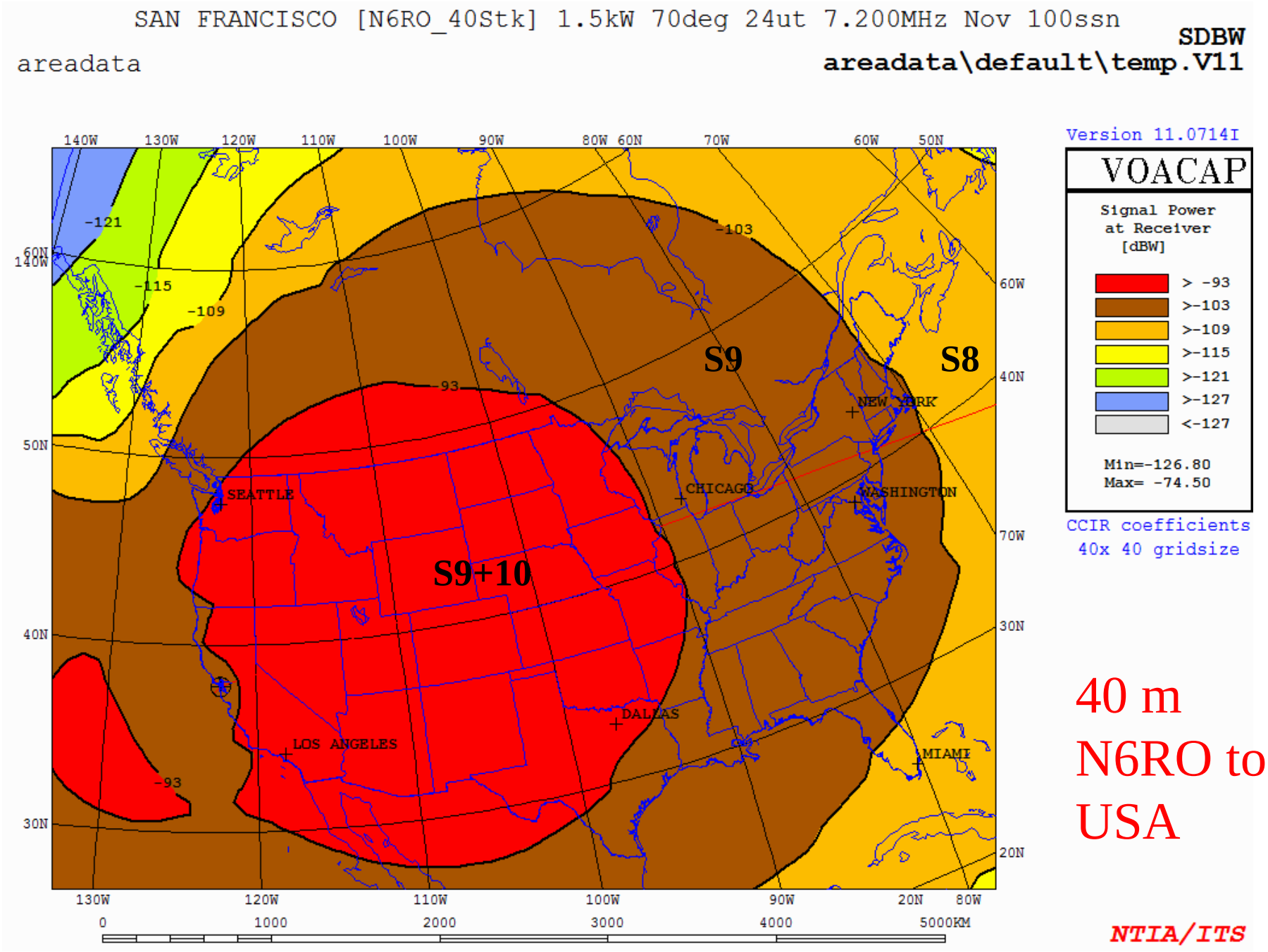
- > -93
- >-103
- >-109
- >-115
- >-121
- >-127
- <-127

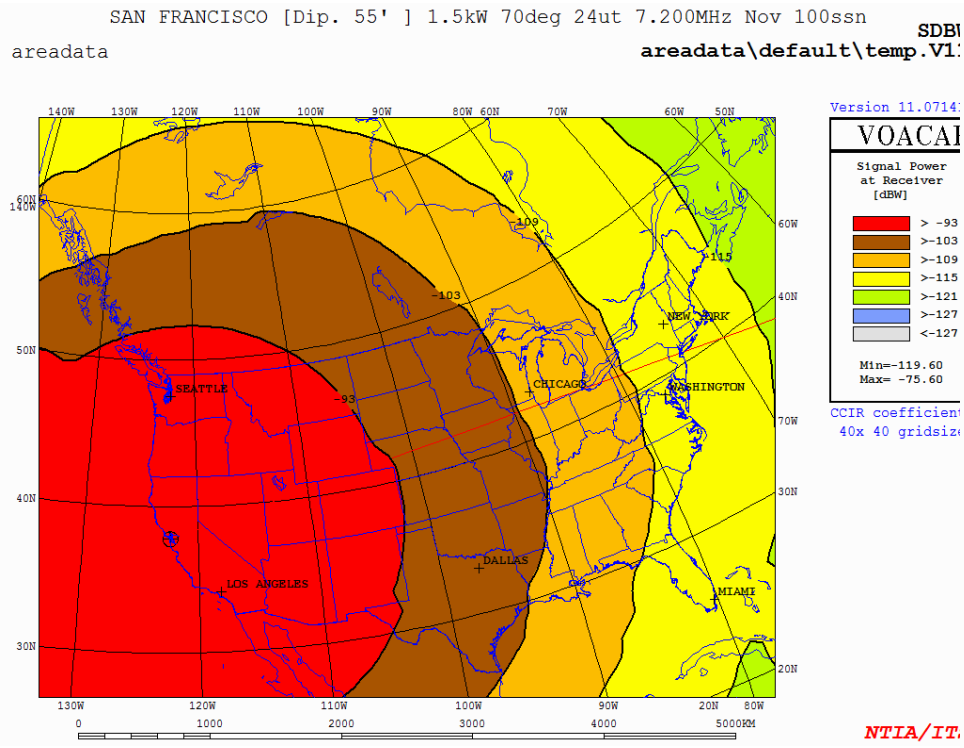
Min=-119.60
Max= -75.60

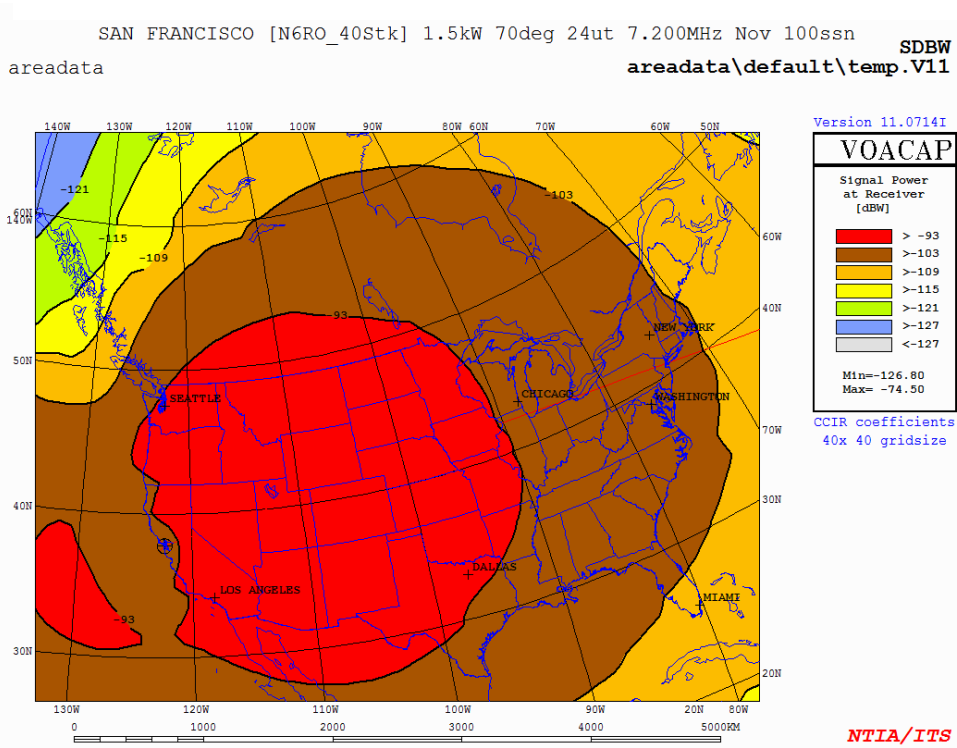
CCIR coefficients
40x 40 gridsize

40 m Lil Gun to USA

NTIA/ITS


SAN FRANCISCO [N6RO_40Stk] 1.5kW 70deg 24ut 7.200MHz Nov 100ssn
areadata
SDBW
areadata\default\temp.V11
Version 11.0714I
VOACAP
Signal Power at Receiver [dBW]
> -93
>-103
>-109
>-115
>-121
>-127
<-127
Min=-126.80
Max= -74.50
CCIR coefficients
40x 40 gridsize
S9
S8
S9+10
-121
-115
-109
-103
-93
SEATTLE
CHICAGO
NEW YORK
WASHINGTON
DALLAS
LOS ANGELES
MIAMI
140W
130W
120W
110W
100W
90W
80W
70W
60W
50W
60N
50N
40N
30N
20N
0
1000
2000
3000
4000
5000KM
40 m
N6RO to
USA
NTIA/ITS





40m Dipole at 55'

N6RO Stacked 4L40s at 130'/70'

Difference of 2 S-units (+12 dB) on East Coast.
Can the Little Gun still have fun? Of course!

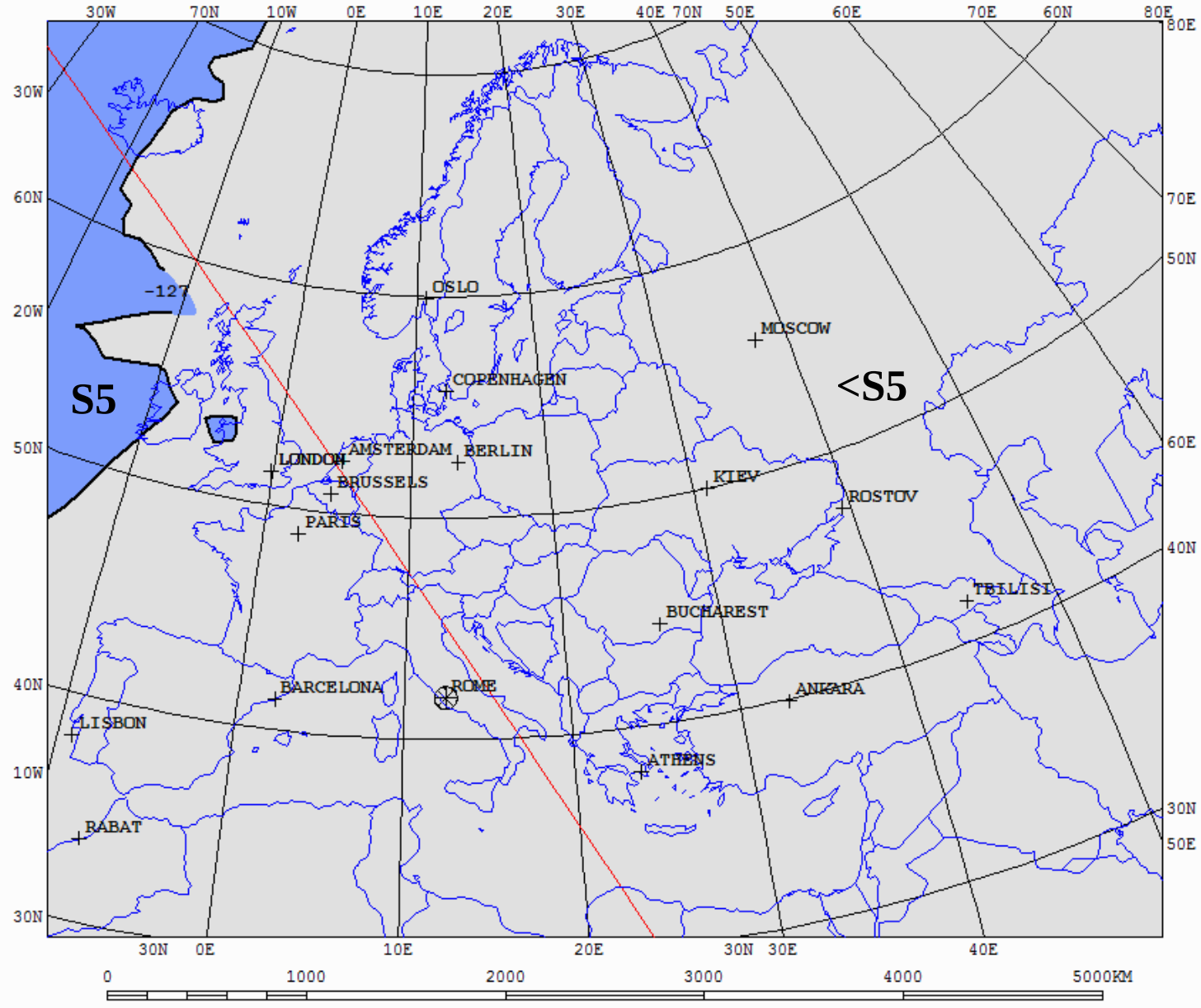
Side-by-side: 40 Meters to USA

SAN FRANCISCO [Dip. 55'] 1.5kW 30deg 24ut 7.200MHz Nov 100ssn

areadata

SDBW

areadata\default\temp.V21



Version 11.0714I

VOACAP

Signal Power at Receiver [dBW]

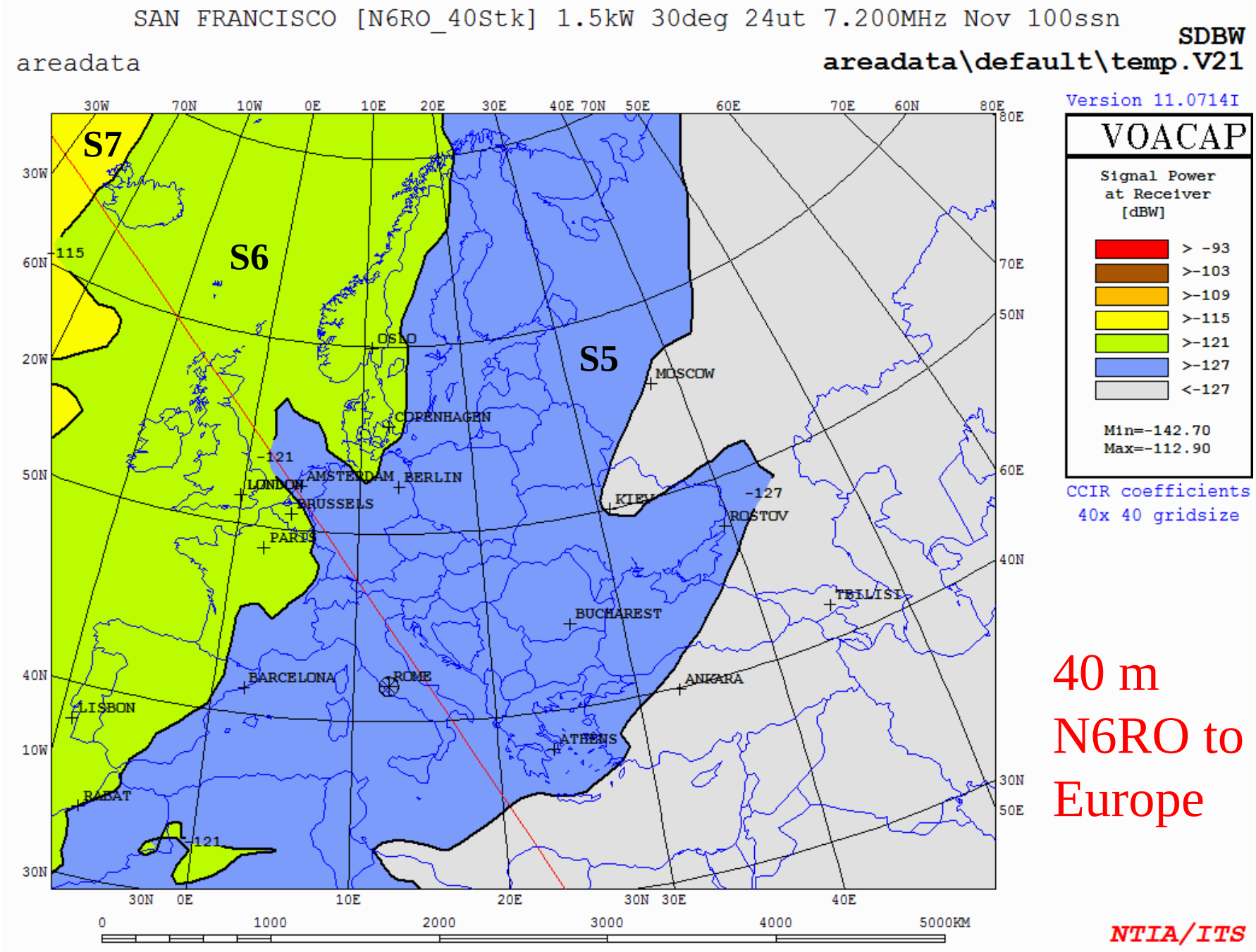
- > -93
- >-103
- >-109
- >-115
- >-121
- >-127
- <-127

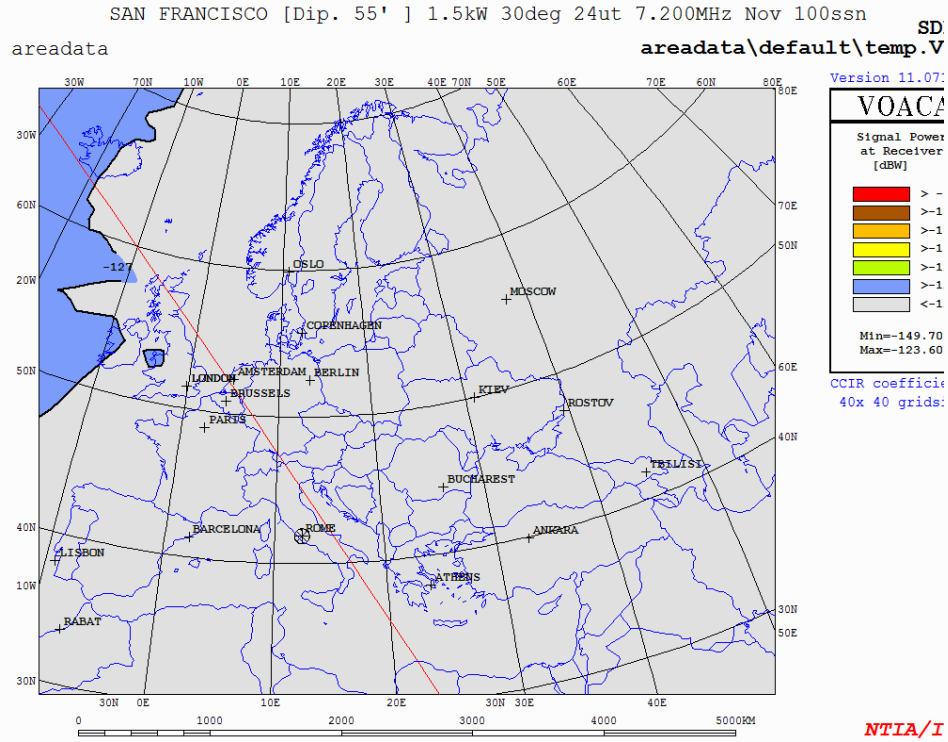
Min=-149.70
Max=-123.60

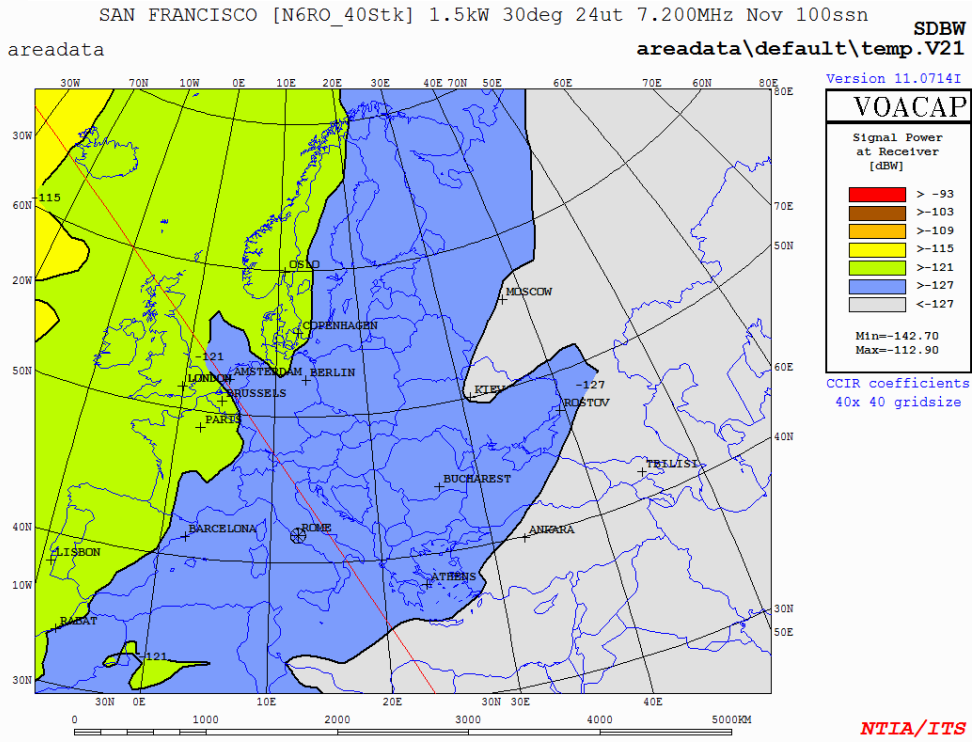
CCIR coefficients
40x 40 gridsize

40 m Lil Gun to Europe

NTIA/ITS


SAN FRANCISCO [N6RO_40Stk] 1.5kW 30deg 24ut 7.200MHz Nov 100ssn
areadata
SDBW
areadata\default\temp.V21
Version 11.0714I
VOACAP
Signal Power at Receiver [dBW]
> -93
>-103
>-109
>-115
>-121
>-127
<-127
Min=-142.70
Max=-112.90
CCIR coefficients
40x 40 gridsize
S7
S6
S5
-115
-121
-127
OSLO
MOSCOW
COPENHAGEN
AMSTERDAM
BERLIN
LONDON
BRUSSELS
PARIS
KIEV
ROSTOV
TBILISI
BUCHAREST
BARCELONA
ROME
ANKARA
ATHENS
LISBON
RABAT
30W 70N 10W 0E 10E 20E 30E 40E 70N 50E 60E 70E 60N 80E
30N 0E 10E 20E 30N 30E 40E
0 1000 2000 3000 4000 5000KM
40 m
N6RO to
Europe
NTIA/ITS





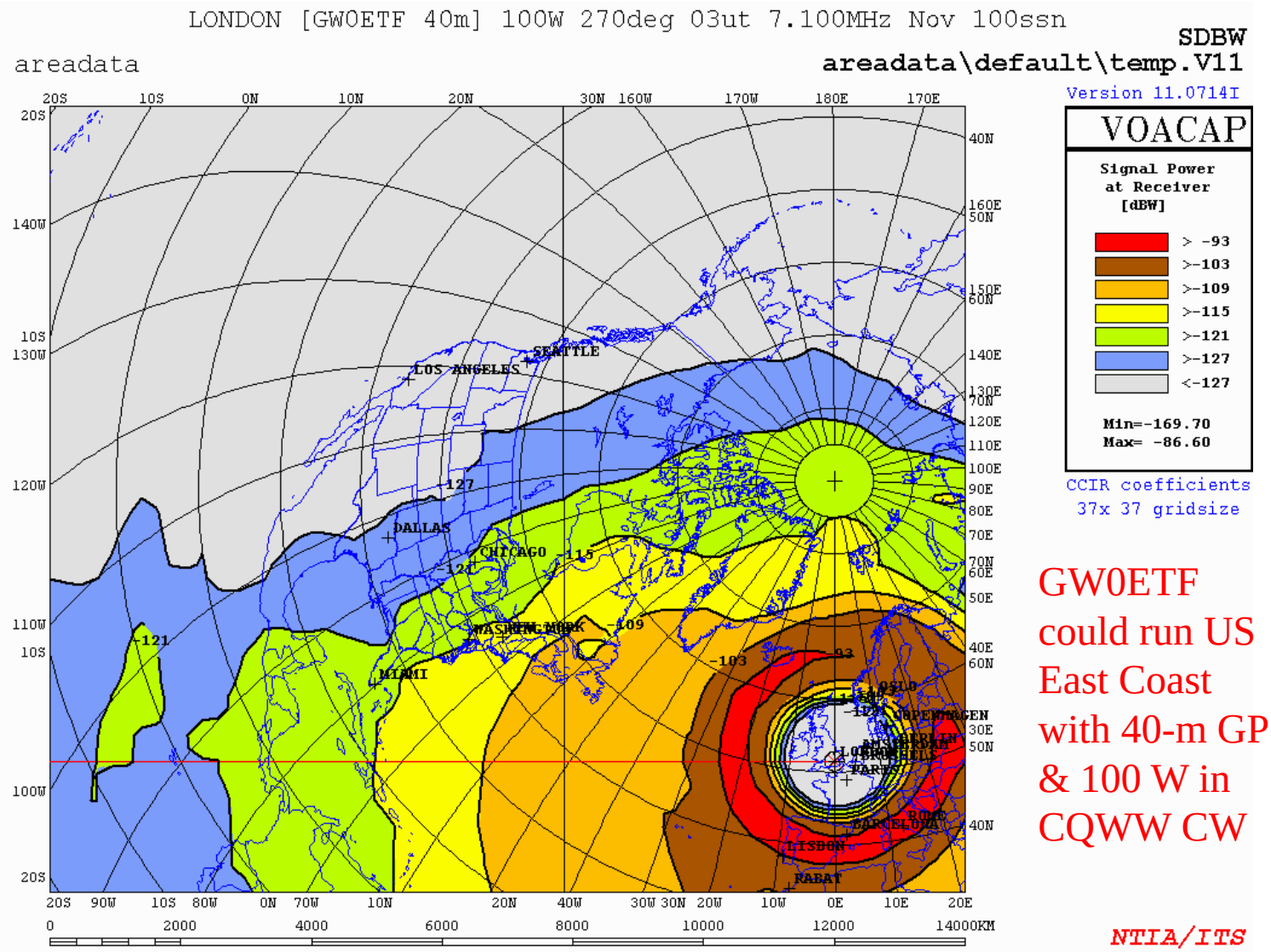
40m Dipole at 55'

N6RO Stacked 4L40s at 130'/70'

Difference of 2 S-units (+12 dB) into Europe. It will be a struggle for the Little Gun on 40 m.

Side-by-side: 40 Meters to Europe

Running Rate — N6BV's Rule of Thumb



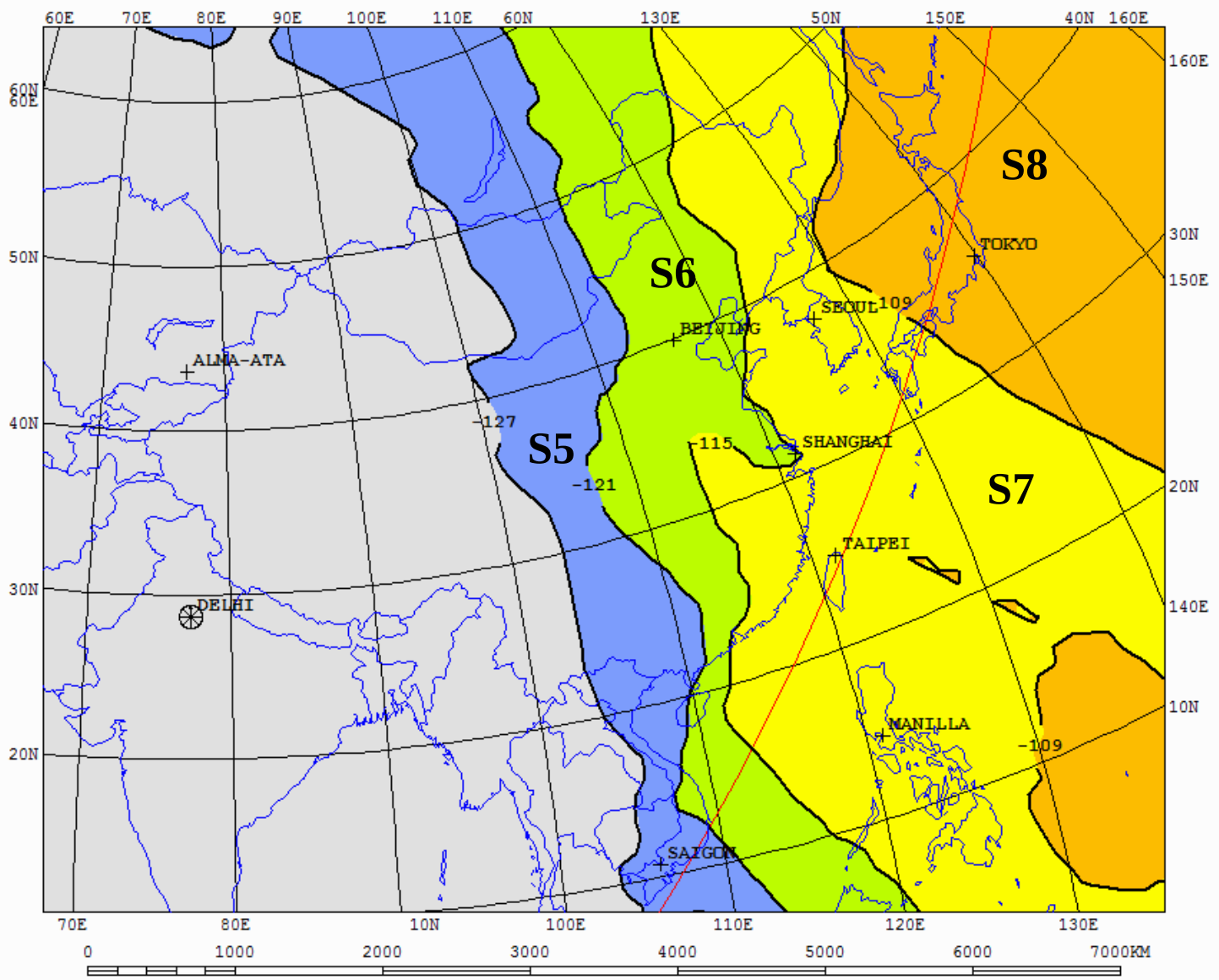
GW0ETF could run US East Coast with 40-m GP & 100 W in CQWW CW

NTIA/ITS

SAN FRANCISCO [Dip. 55'] 1.5kW 305deg 10ut 7.200MHz Nov 100ssn

areadata

SDBW
areadata\default\temp.V21



Version 11.0714I

VOACAP

Signal Power at Receiver [dBW]

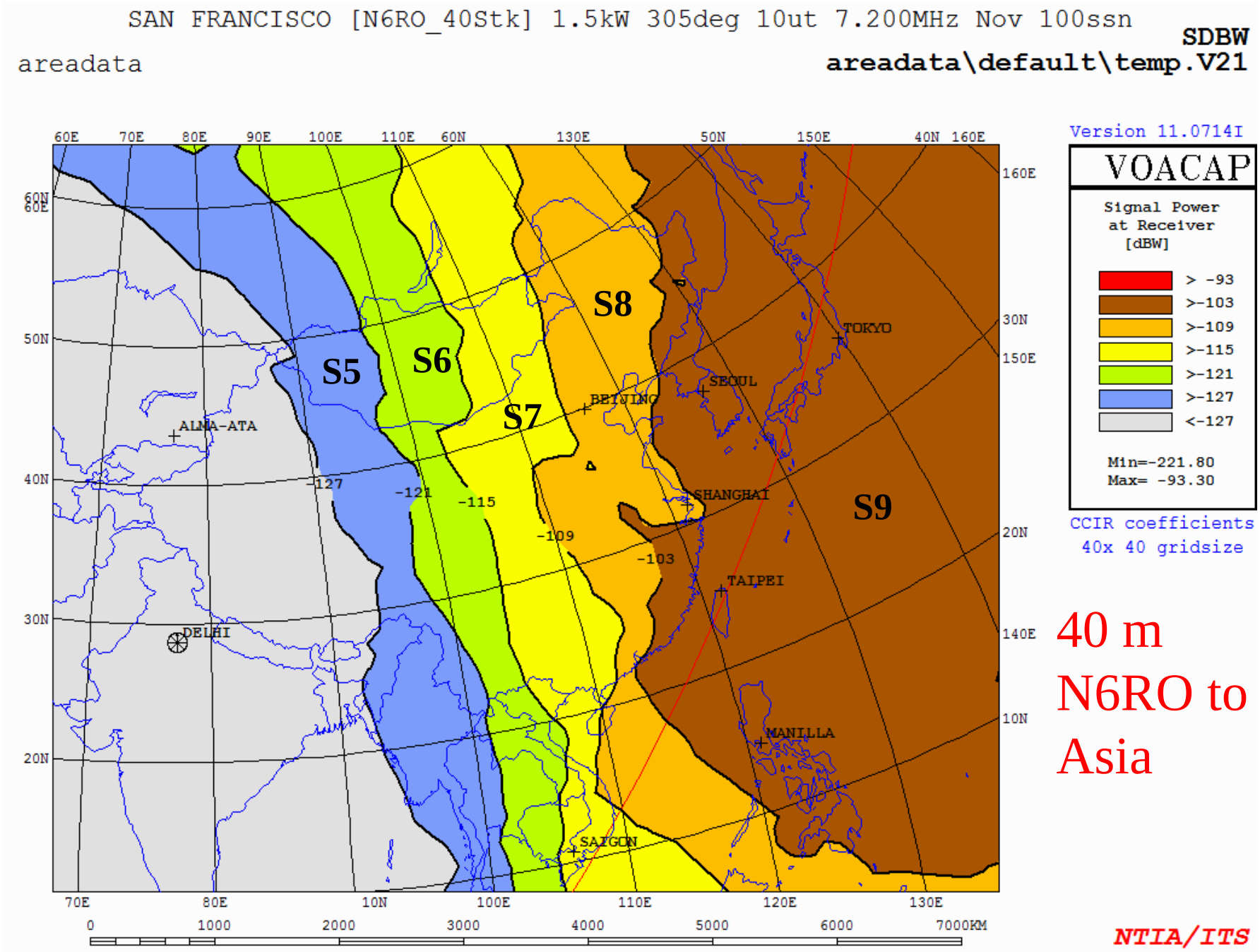
- > -93
- >-103
- >-109
- >-115
- >-121
- >-127
- <-127

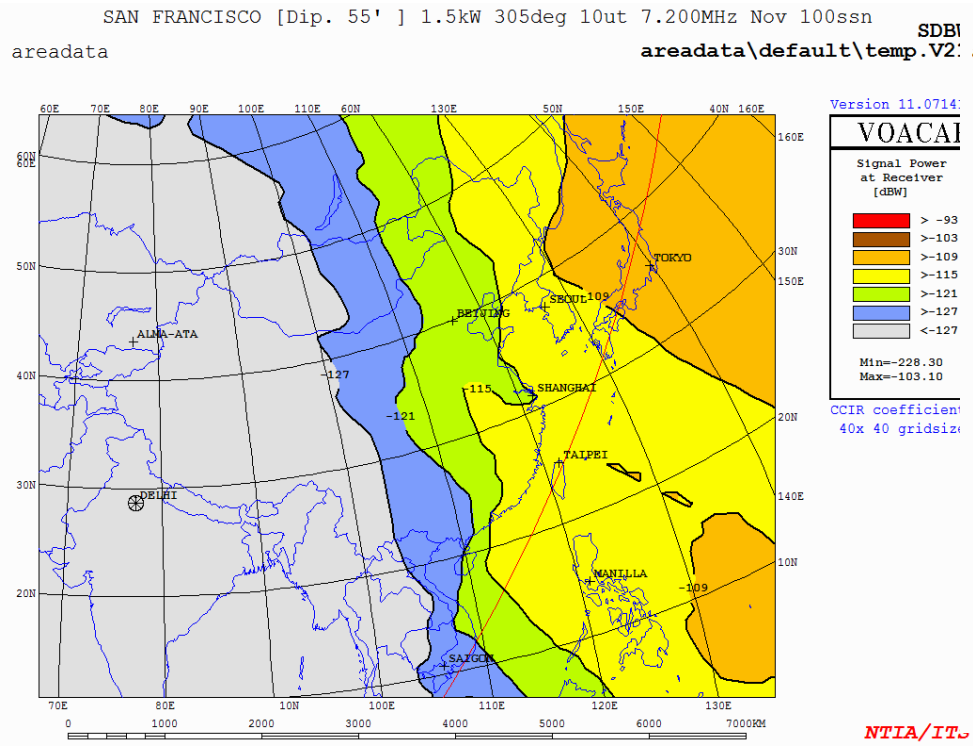
Min=-228.30
Max=-103.10

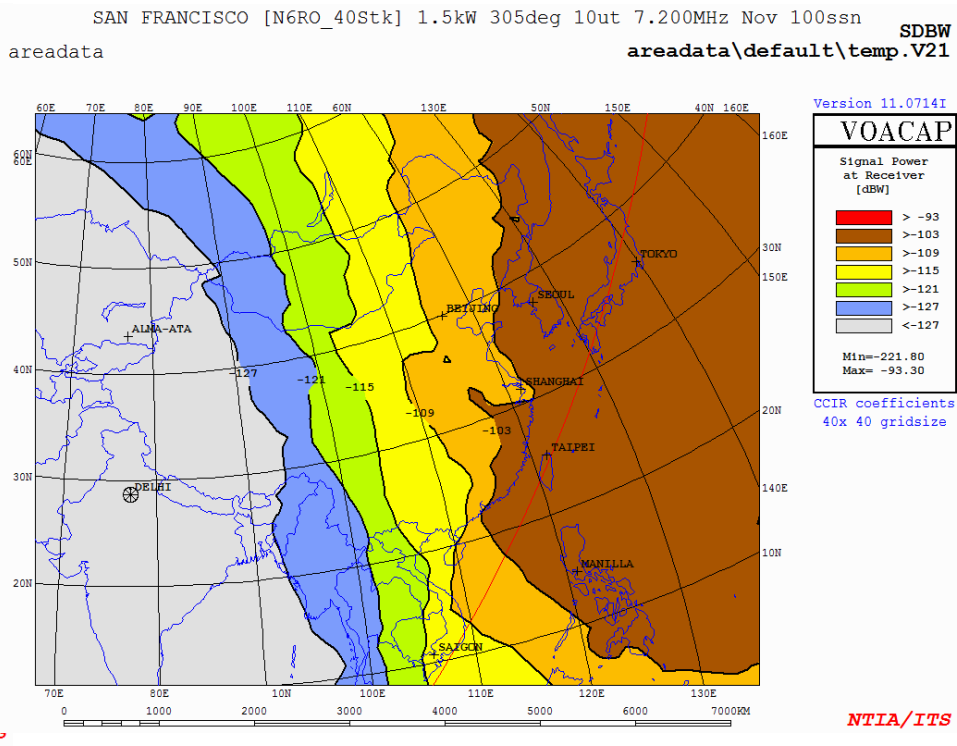
CCIR coefficients
40x 40 gridsize

40 m Lil Gun to Asia

NTIA/ITS


SAN FRANCISCO [N6RO_40Stk] 1.5kW 305deg 10ut 7.200MHz Nov 100ssn
areadata
SDBW
areadata\default\temp.V21
Version 11.0714I
VOACAP
Signal Power at Receiver [dBW]
> -93
>-103
>-109
>-115
>-121
>-127
<-127
Min=-221.80
Max= -93.30
CCIR coefficients
40x 40 gridsize
S5
S6
S7
S8
S9
-127
-121
-115
-109
-103
ALMA-ATA
DELHI
BEIJING
SEOUL
TOKYO
SHANGHAI
TAIPEI
MANILLA
SAIGON
60E 70E 80E 90E 100E 110E 60N 130E 50N 150E 40N 160E
60N 50N 40N 30N 20N
160E 150E 140E 130E 120E 110E 100E 10N
70E 80E 10N 100E 110E 120E 130E
0 1000 2000 3000 4000 5000 6000 7000KM
40 m
N6RO to
Asia
NTIA/ITS





40 m Dipole at 55'

N6RO Stacked 4L40s at 130'/70'

Difference of about 2 S-units into Far East also.

But can the Little Gun have fun? You bet he can!

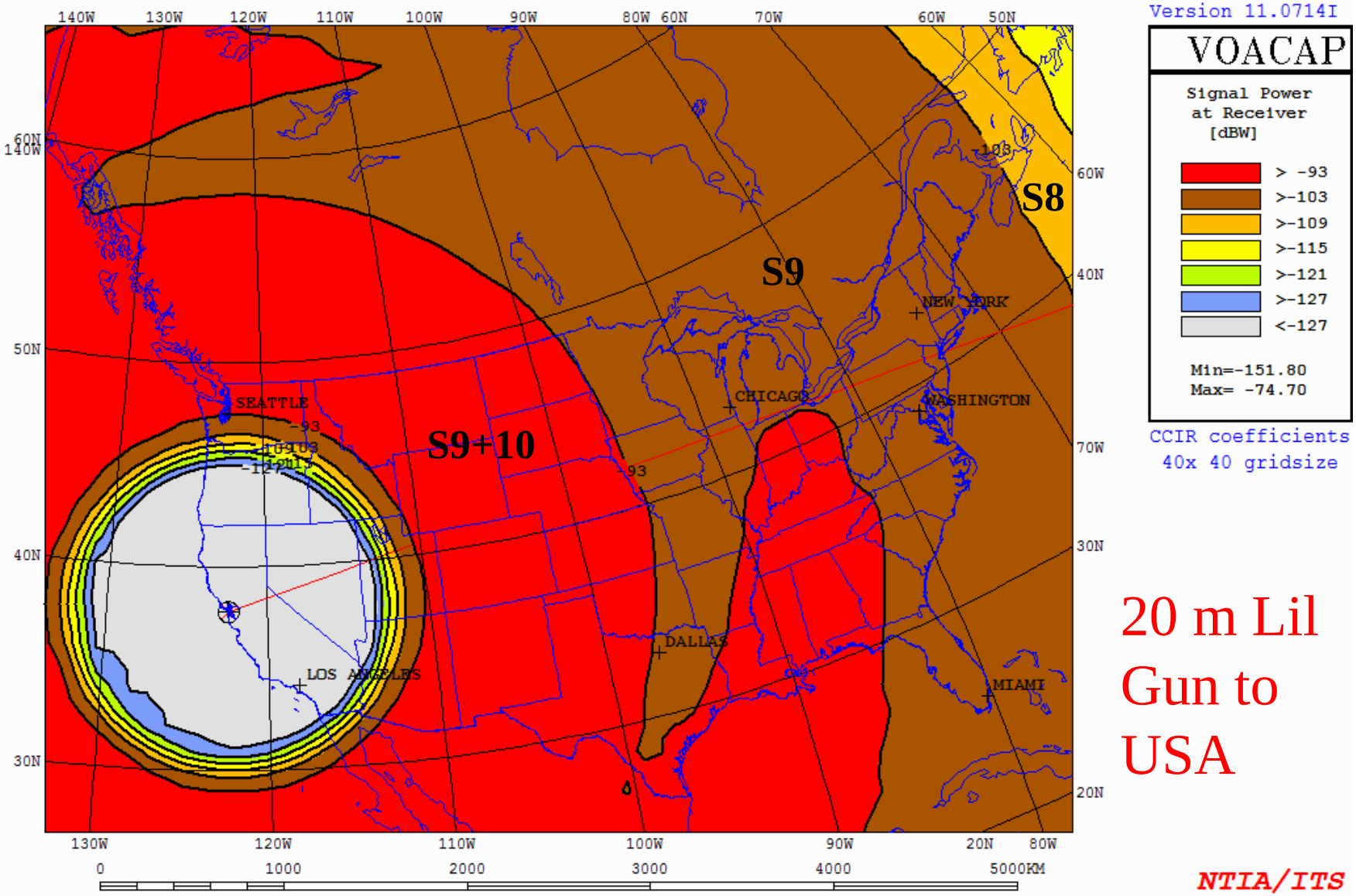
Side-by-side: 40 Meters to Asia

SAN FRANCISCO [3-el Yagi] 1.5kW 70deg 24ut 14.200MHz Nov 40ssn

areadata

SDBW

areadata\default\temp.V11



Version 11.0714I

VOACAP

Signal Power at Receiver [dBW]

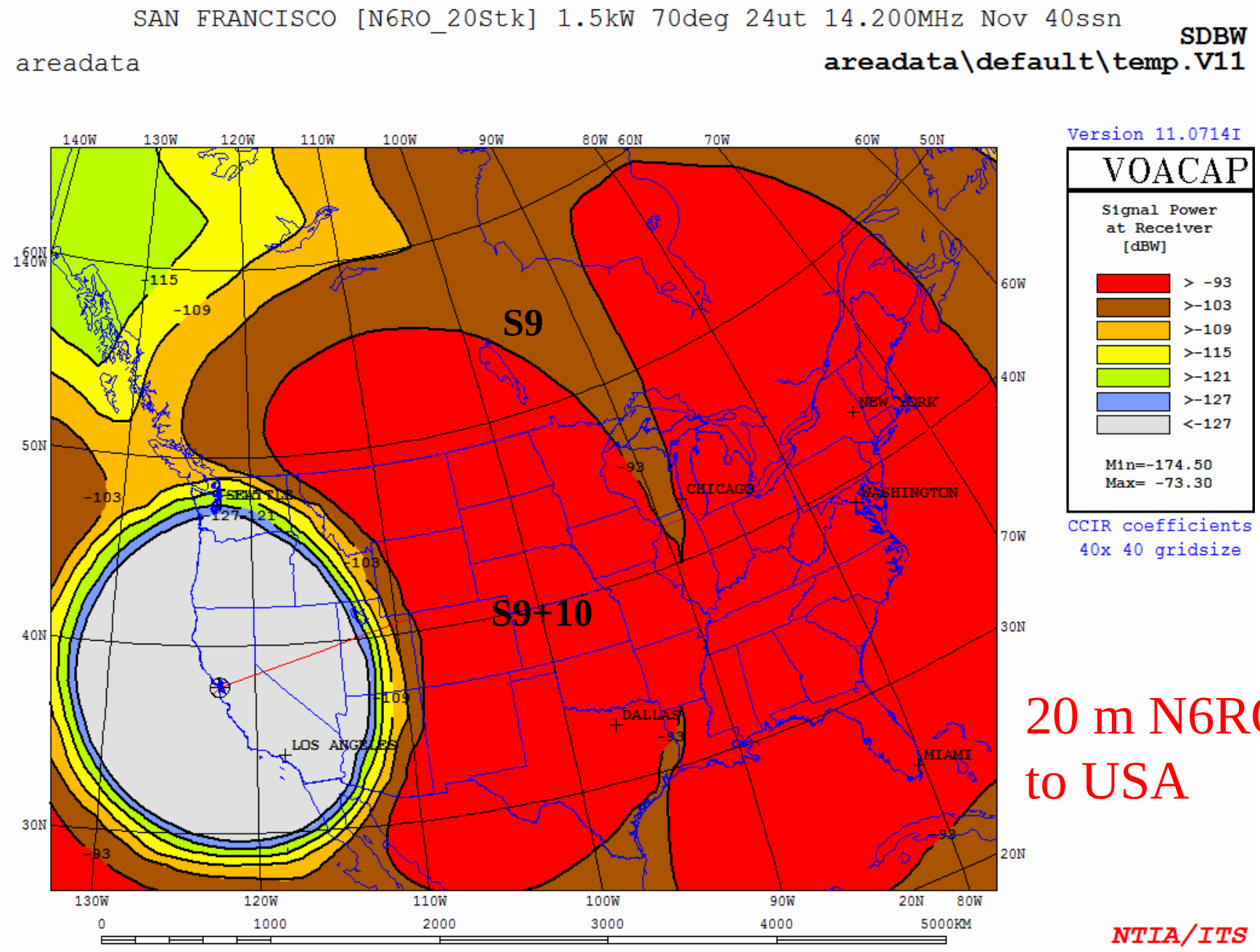
> -93
>-103
>-109
>-115
>-121
>-127
<-127

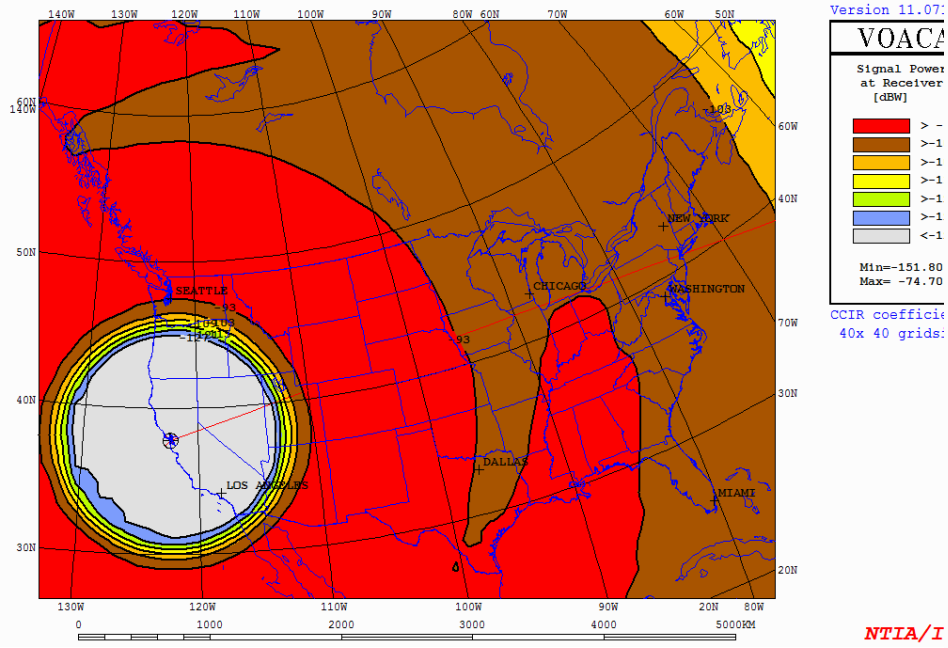
Min=-151.80
Max= -74.70

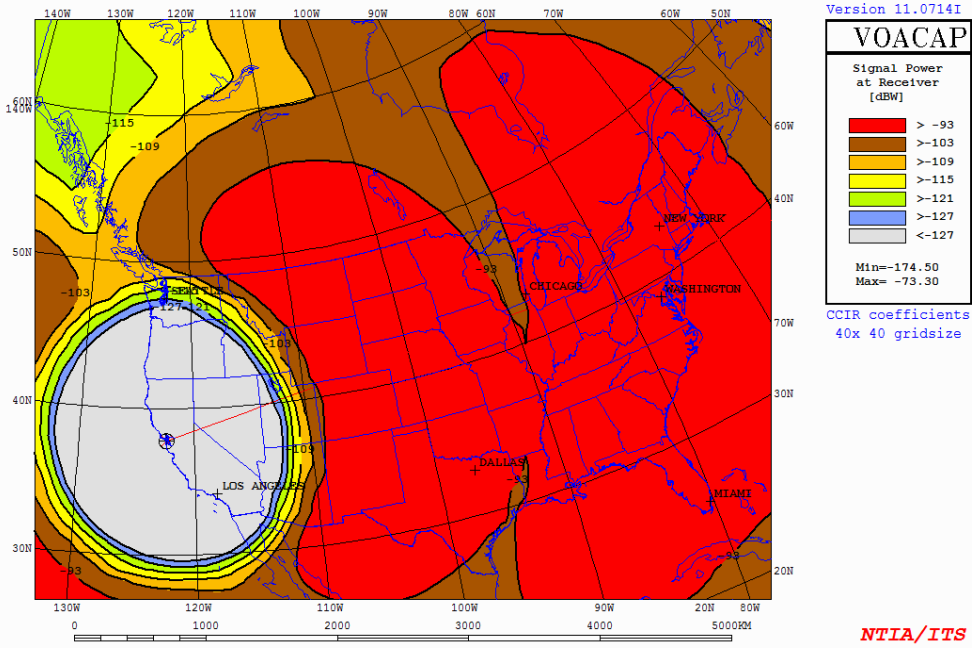
CCIR coefficients
40x 40 gridsize

20 m Lil Gun to USA

NTIA/ITS


SAN FRANCISCO [N6RO_20Stk] 1.5kW 70deg 24ut 14.200MHz Nov 40ssn
areadata
SDBW
areadata\default\temp.V11
Version 11.0714I
VOACAP
Signal Power at Receiver [dBW]
> -93
>-103
>-109
>-115
>-121
>-127
<-127
Min=-174.50
Max= -73.30
CCIR coefficients
40x 40 gridsize
S9
S9+10
NEW YORK
CHICAGO
WASHINGTON
DALLAS
MIAMI
LOS ANGELES
SEATTLE
20 m N6RO to USA
NTIA/ITS



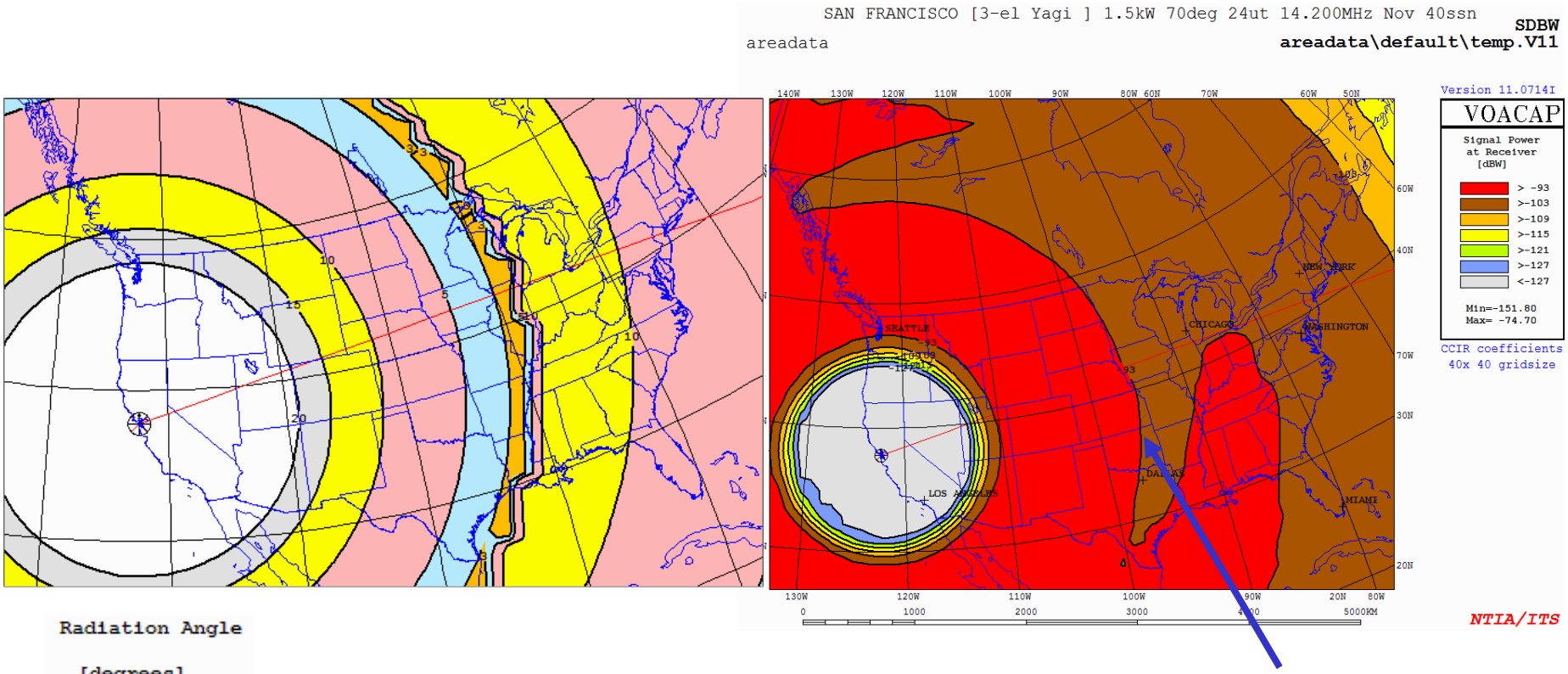


3L20 at 55'

N6RO Stacked 5L20s at 130'/90'/45'

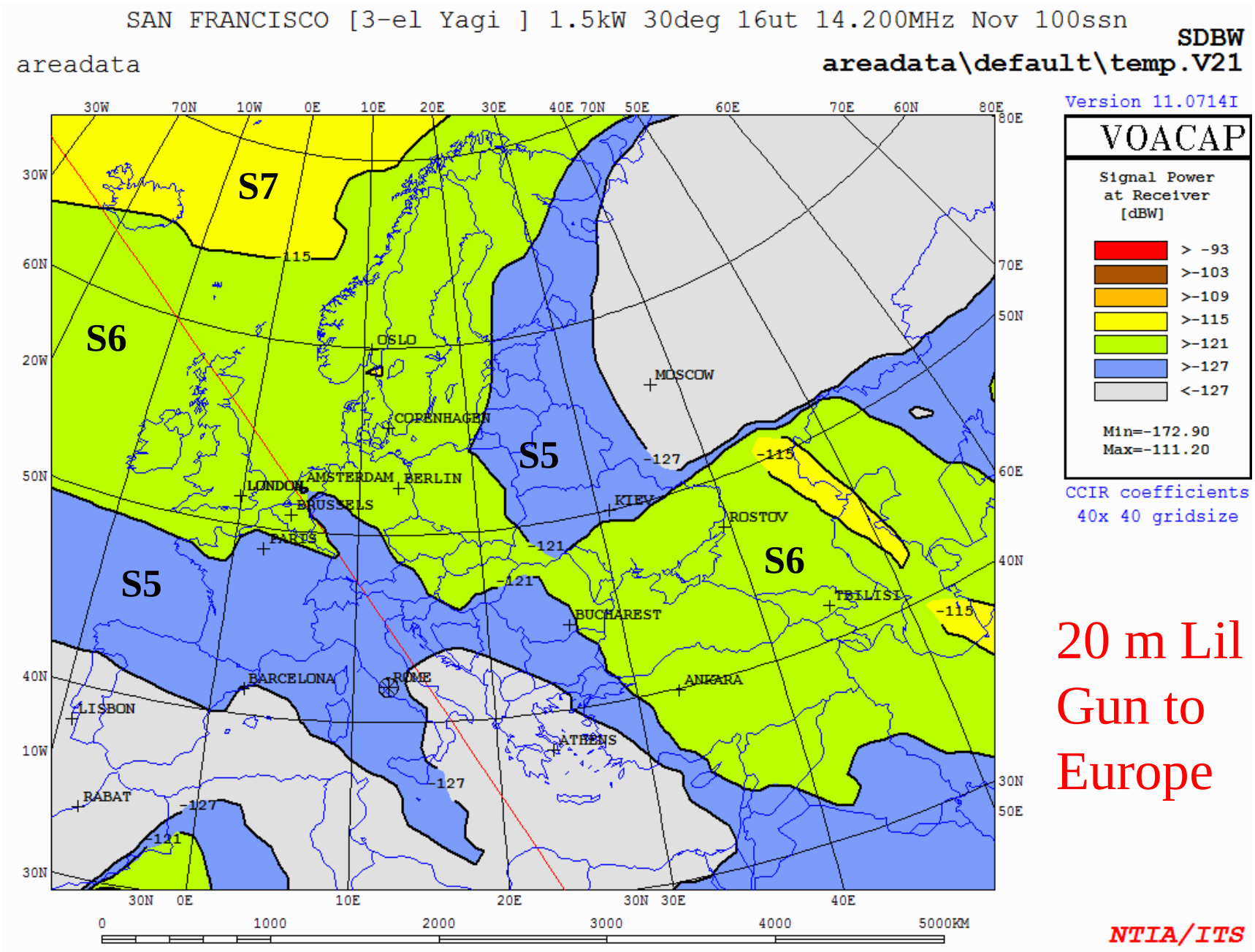
Difference of almost 2 S-units into Boston. Still, an S9 signal all around the USA is not bad for a Little Gun!

Side-by-side: 20 Meters to USA

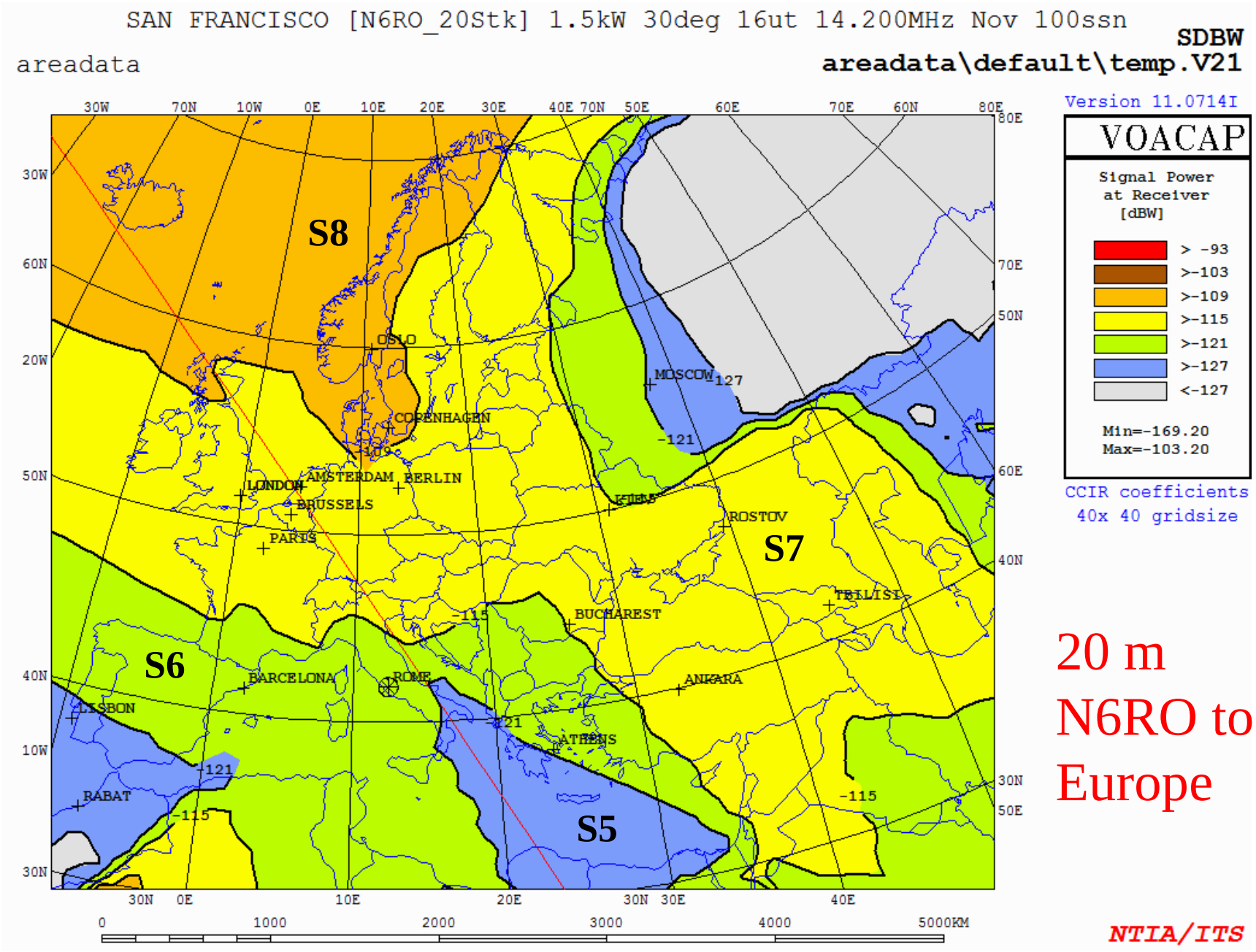


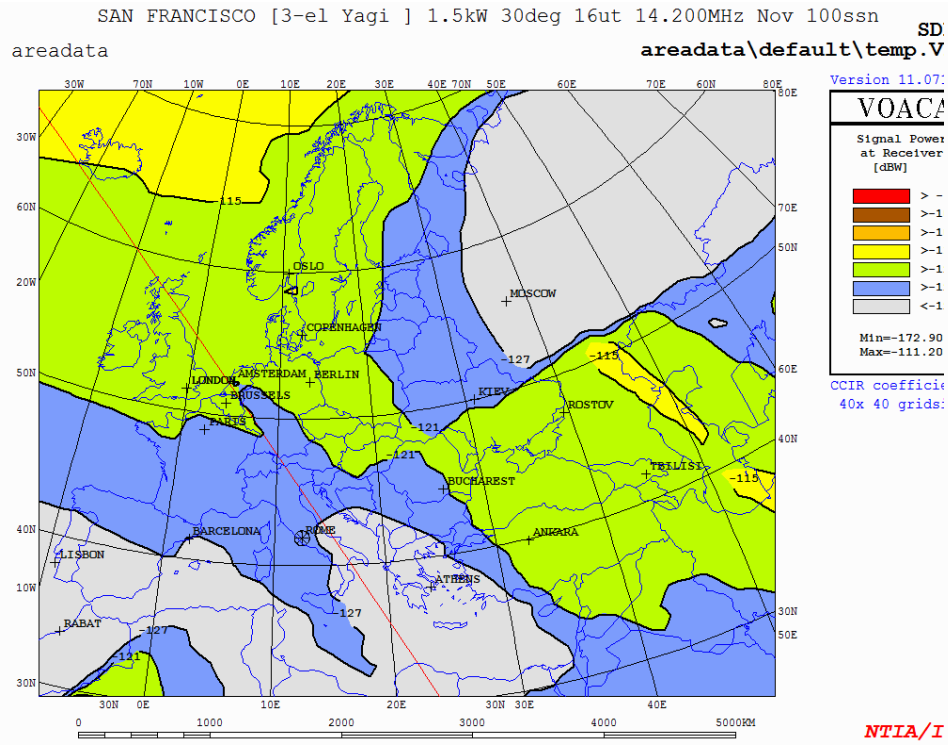
Note the "weak area" in the Midwest, where takeoff angles are 1° to 3°. This area is where the propagation mode is $1F_2$, at very low angles, before changing to $2F_2$, at higher takeoff angles, closer to the East Coast.

20 Meter Angles to USA

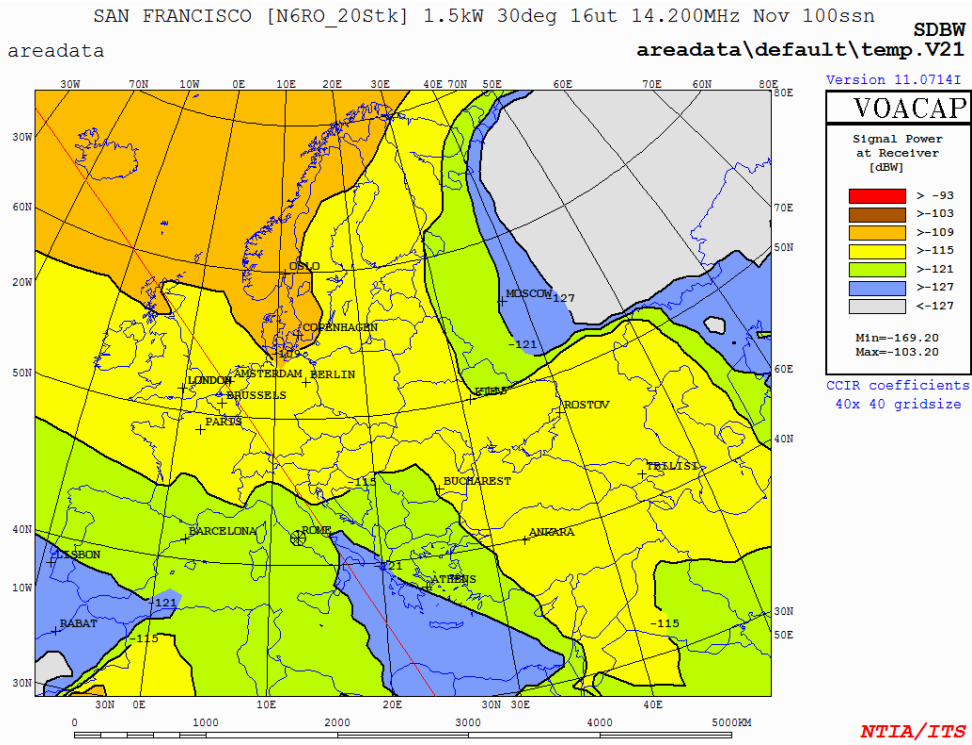


20 m Lil Gun to Europe


SAN FRANCISCO [N6RO_20Stk] 1.5kW 30deg 16ut 14.200MHz Nov 100ssn
areadata
SDBW
areadata\default\temp.V21
Version 11.0714I
VOACAP
Signal Power at Receiver [dBW]
> -93
>-103
>-109
>-115
>-121
>-127
<-127
Min=-169.20
Max=-103.20
CCIR coefficients
40x 40 gridsize
S8
S7
S6
S5
OSLO
COPENHAGEN
LONDON
AMSTERDAM
BERLIN
BRUSSELS
PARIS
MOSCOW
KIEV
ROSTOV
TBILISI
BUCHAREST
BARCELONA
ROME
ANKARA
LISBON
ATHENS
RABAT
-109
-121
-115
-127
-21
30W 70N 10W 0E 10E 20E 30E 40E 70N 50E 60E 70E 60N 80E
30N 0E 10E 20E 30N 30E 40E
0 1000 2000 3000 4000 5000KM
20 m
N6RO to
Europe
NTIA/ITS



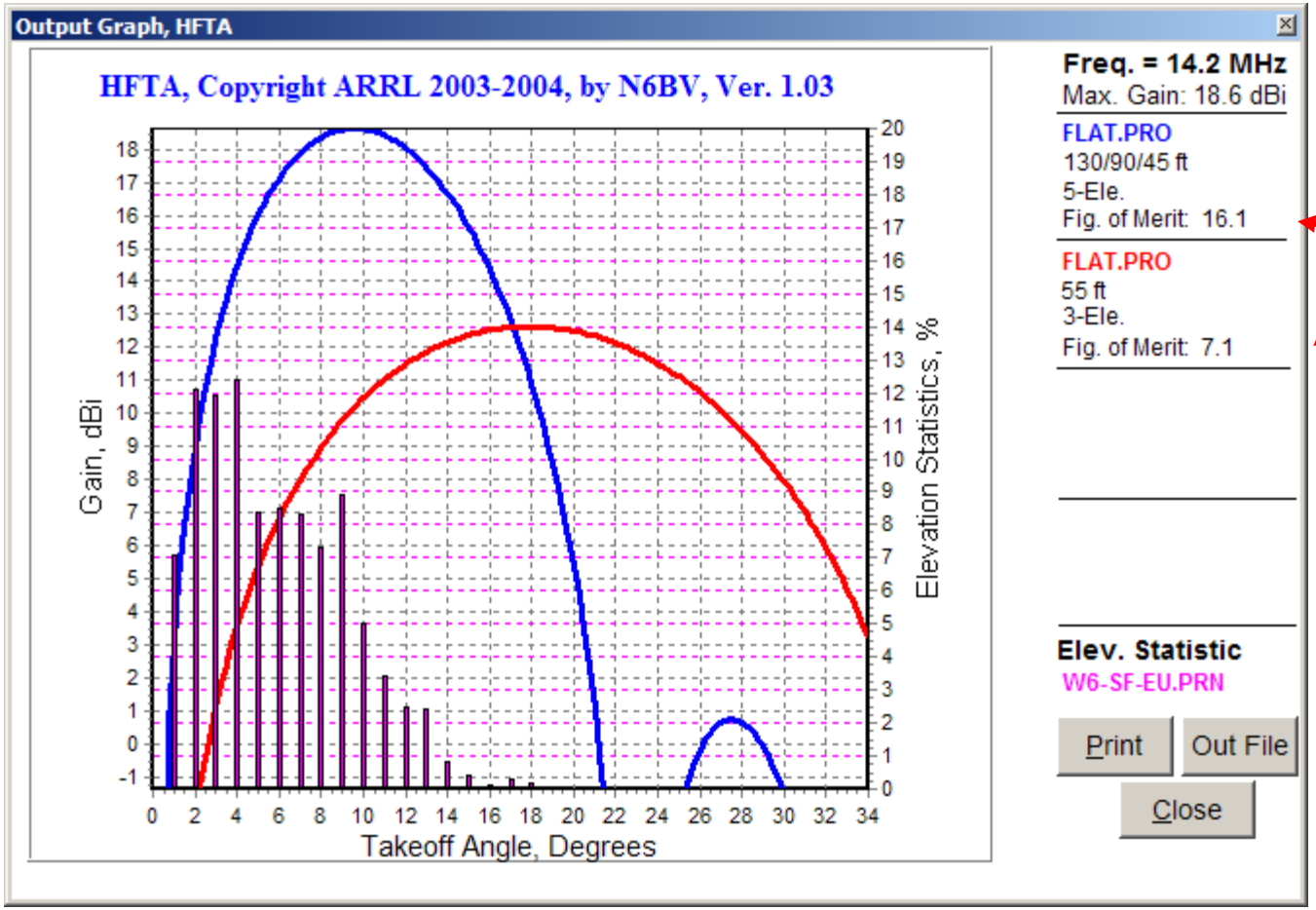
3L20 at 55'



N6RO Stacked 5L20s at 130'/90'/45'

Difference of almost 2 S-units into Copenhagen. But the Little Gun can still work lots of Europe on 20 meters.

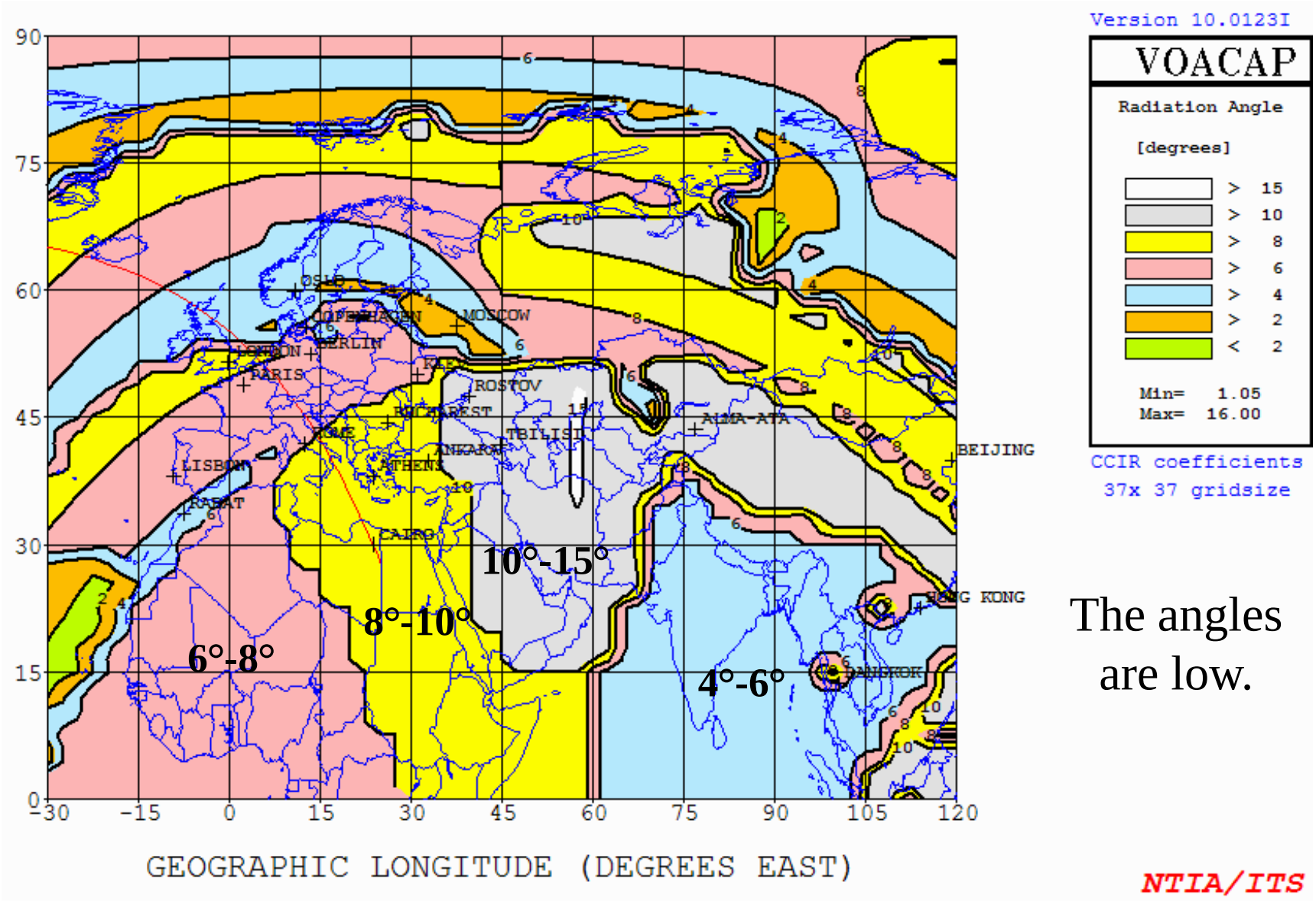
Side-by-side: 20 Meters to Europe



Δ 9 dB FOM

N6RO stack at 130′/90′/45′ compared to 3L20 at 55′

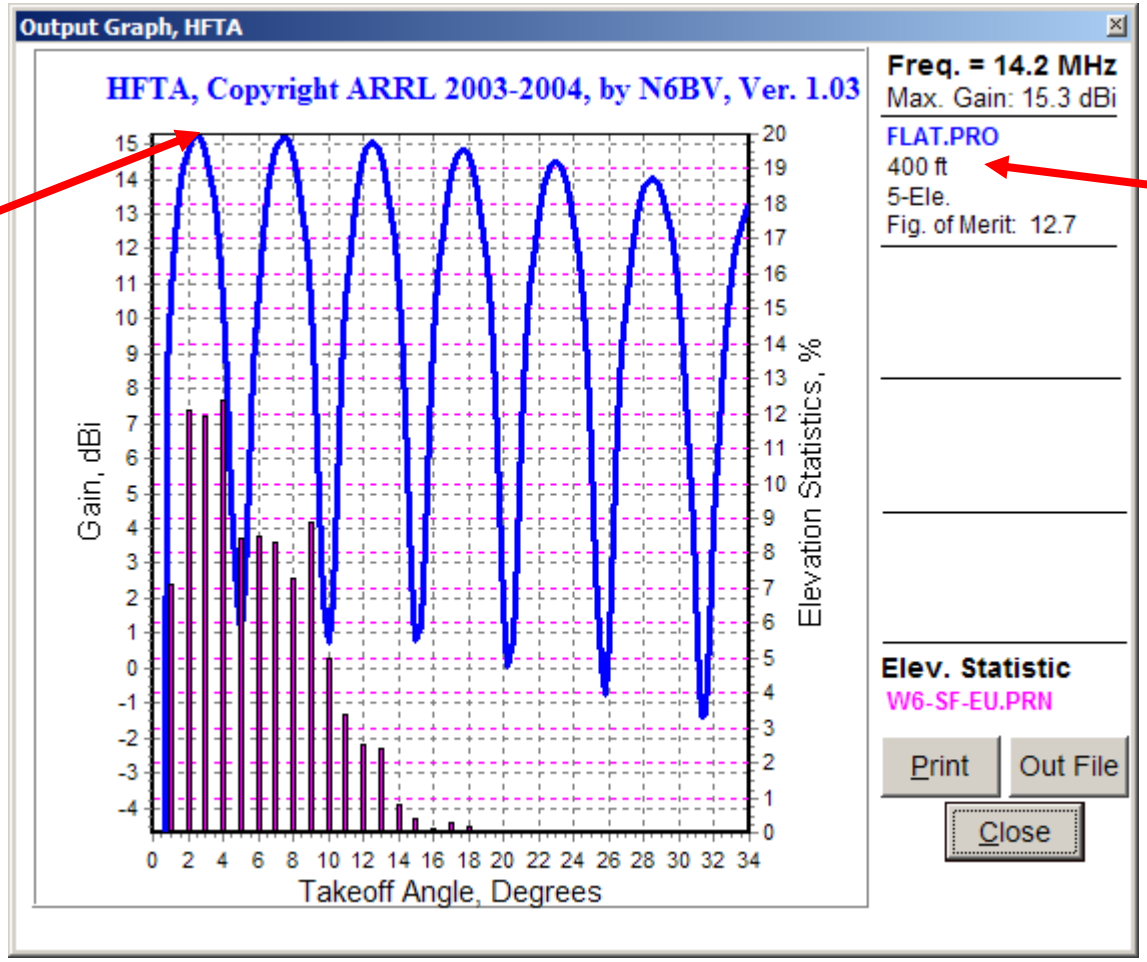
20-Meter Angles to Europe



The angles are low.

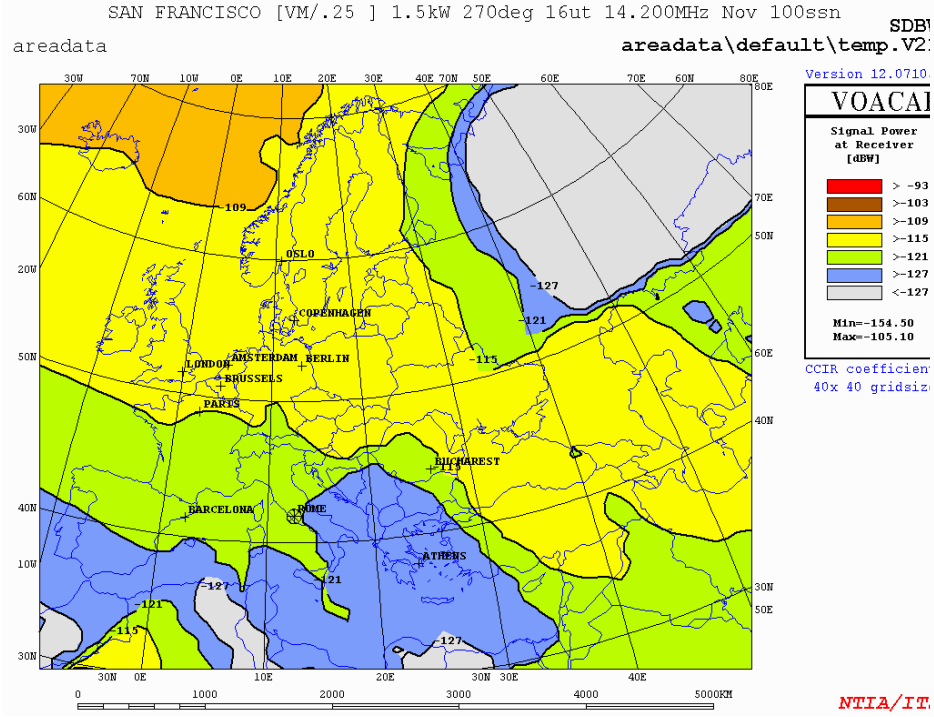
20-M Angles to Europe

How high must you be to peak at 2° on 20 meters?

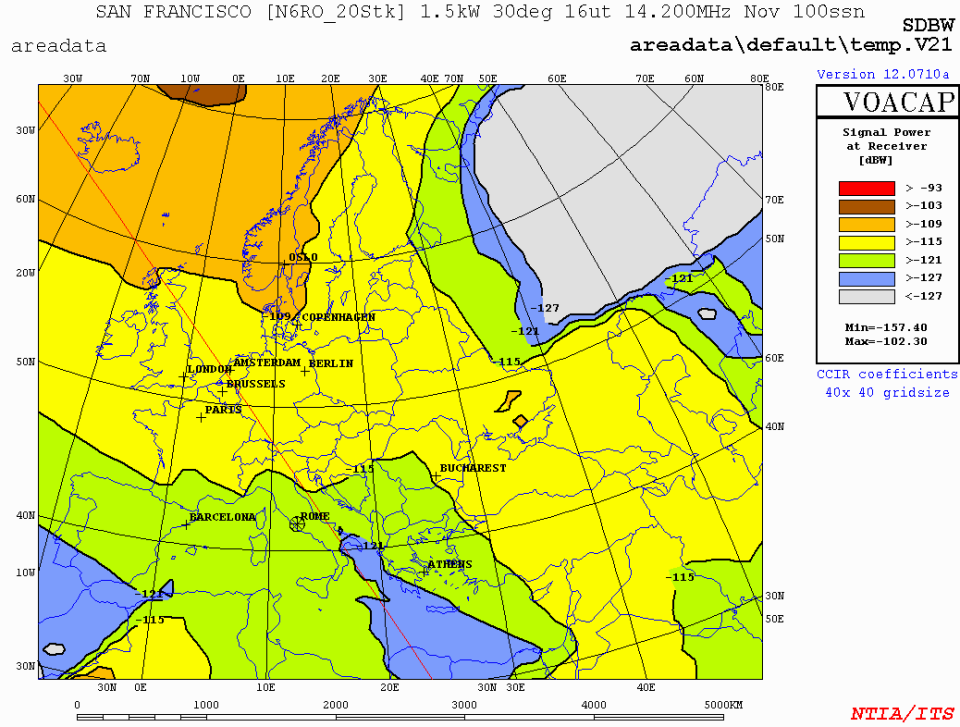


How high must you be to peak at 2° on 20 meters?
400 feet sounds about right… !

How would a simple quarter-wave vertical on the beach compare with N6RO's 20-meter stack into Europe?



Simple vertical on the beach



N6RO's 5/5/5 20-meter stack

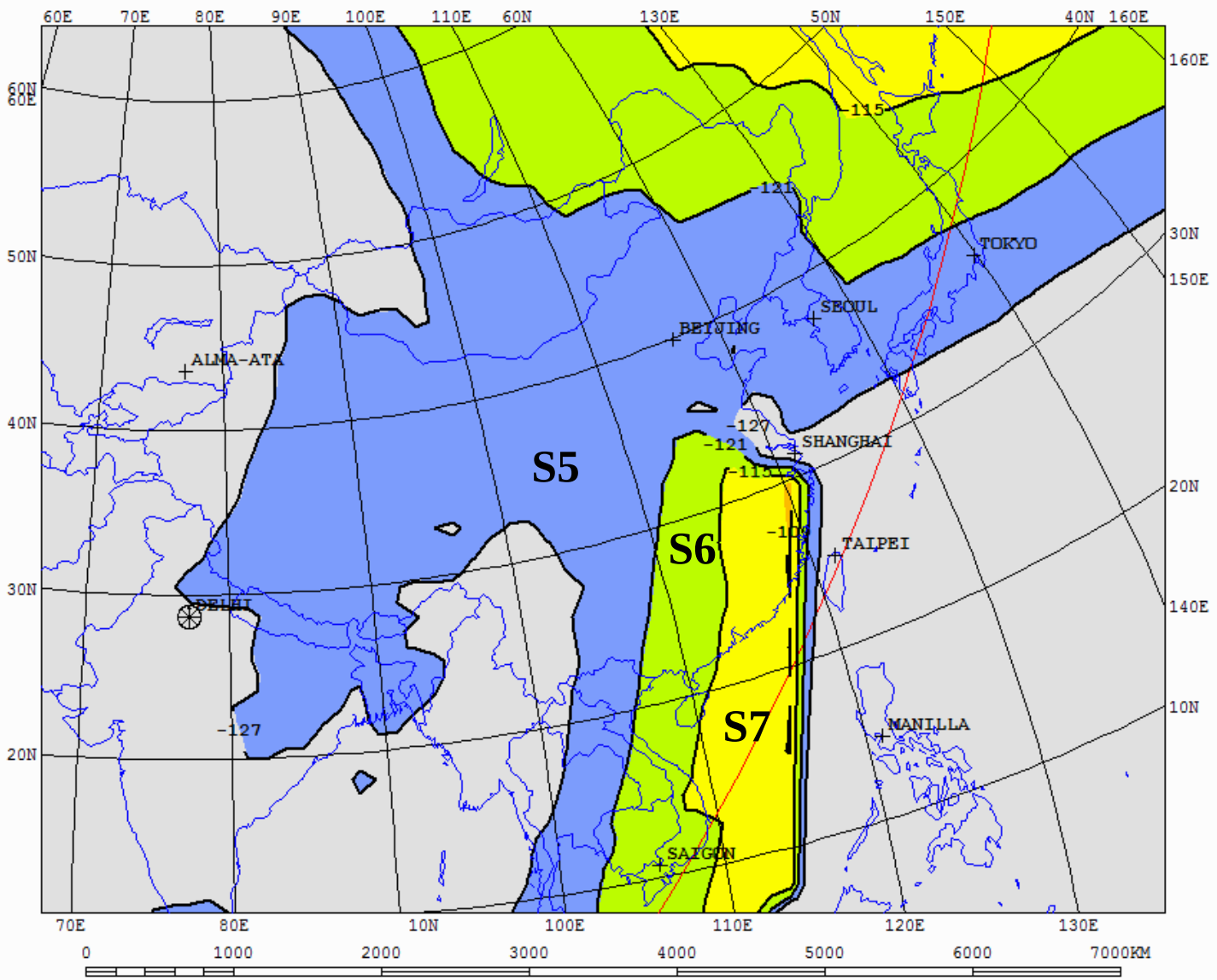
Verticals over saltwater can be incredibly effective!

SAN FRANCISCO [20-meter Y] 1.5kW 305deg 24ut 14.200MHz Nov 100ssn

areadata

SDBW

areadata\default\temp.V21



Version 11.0714I

VOACAP

Signal Power at Receiver [dBW]

- > -93
- >-103
- >-109
- >-115
- >-121
- >-127
- <-127

Min=-203.30
Max=-108.30

CCIR coefficients
40x 40 gridsize

20 m Lil Gun to Asia

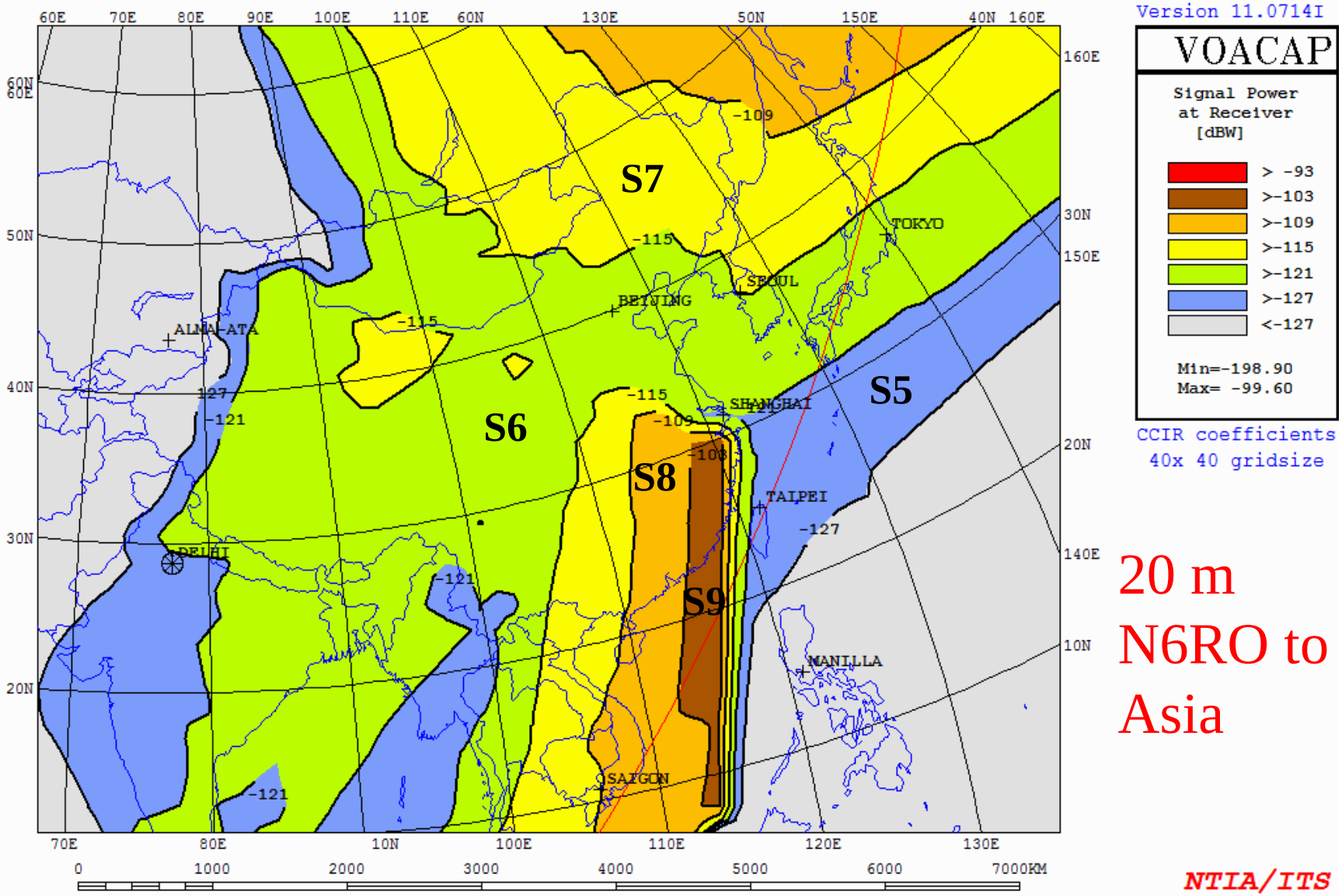
NTIA/ITS

SAN FRANCISCO [N6RO_20Stk] 1.5kW 305deg 24ut 14.200MHz Nov 100ssn

areadata

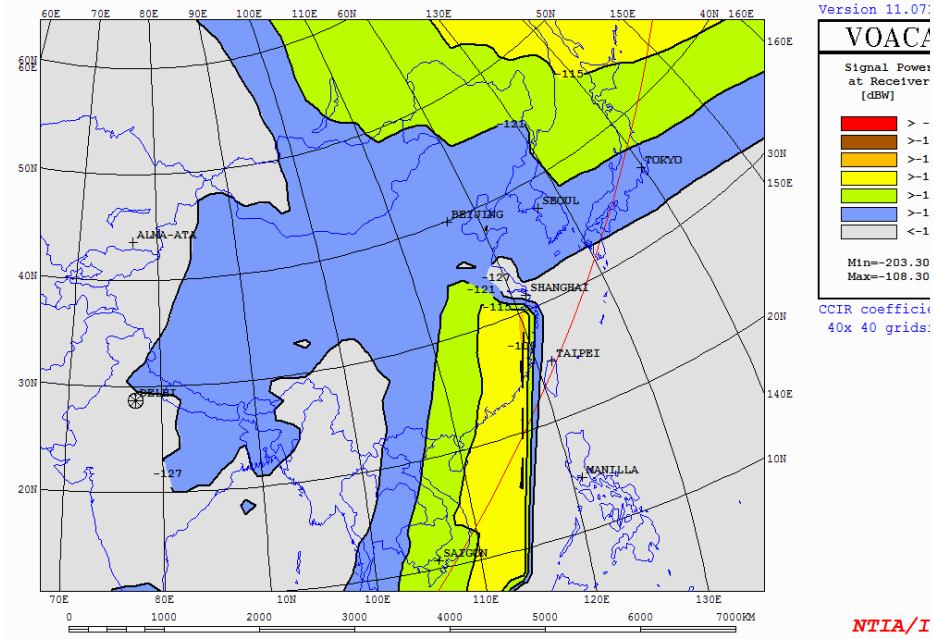
SDBW

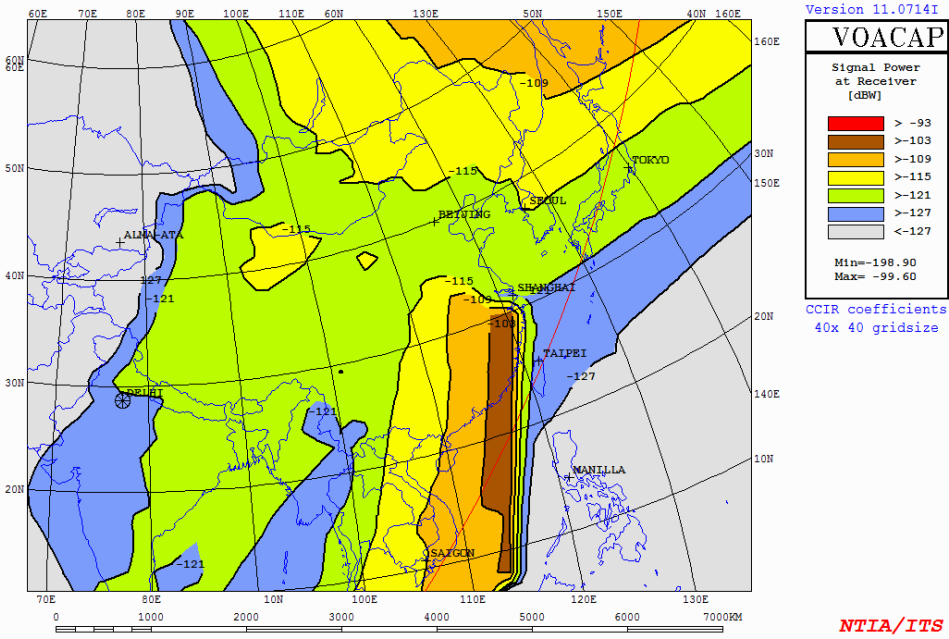
areadata\default\temp.V21



20 m N6RO to Asia

NTIA/ITS





3L20 at 55'

N6RO Stacked 5L20s at 130'/90'/45'

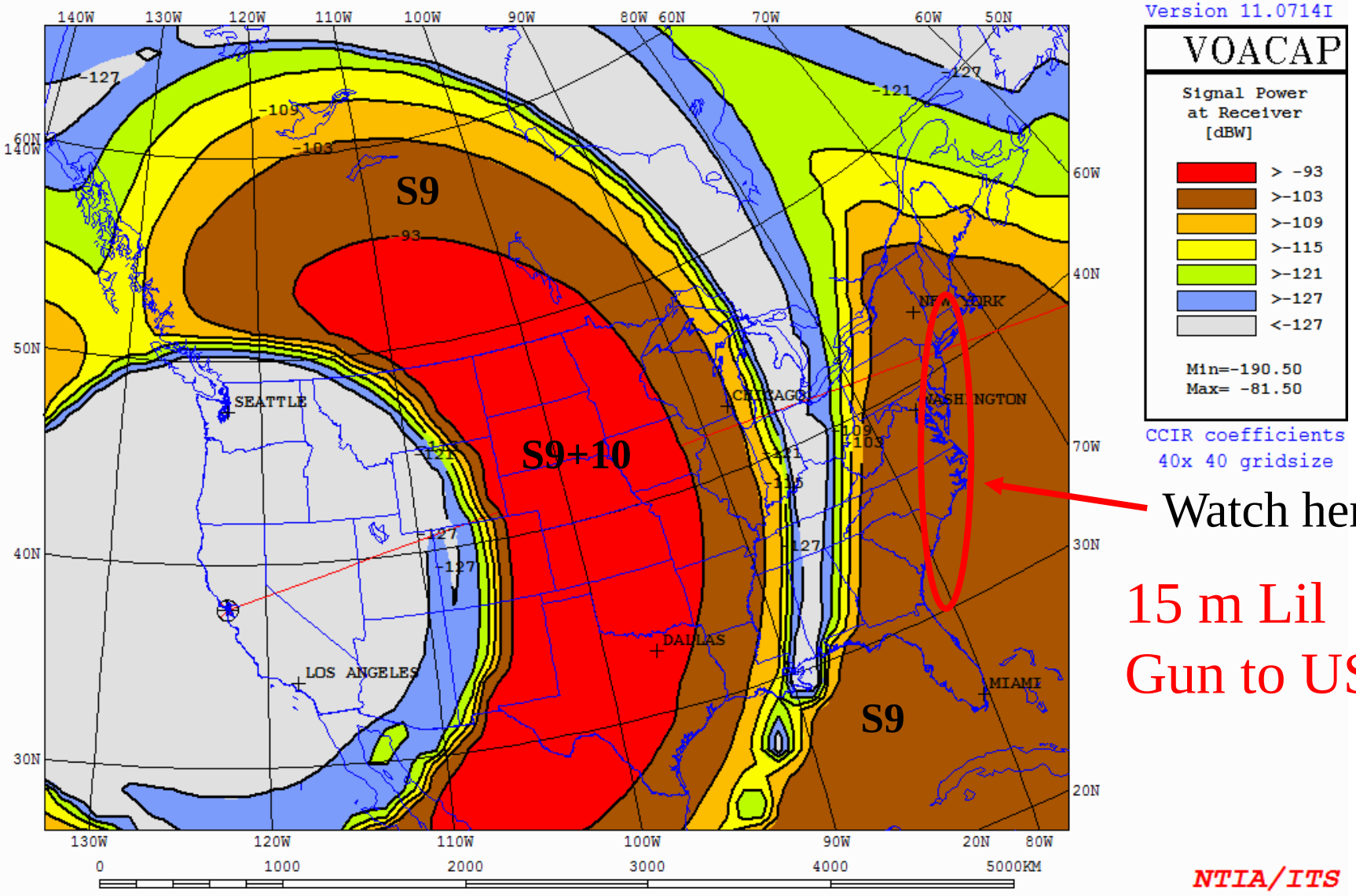
Difference of almost 2 S-units into Saigon.

Side-by-side: 20 Meters to Asia

SAN FRANCISCO [3L15_55'] 1.5kW 70deg 24ut 21.200MHz Nov 100ssn

areadata

SDBW
areadata\default\temp.V11



Watch here

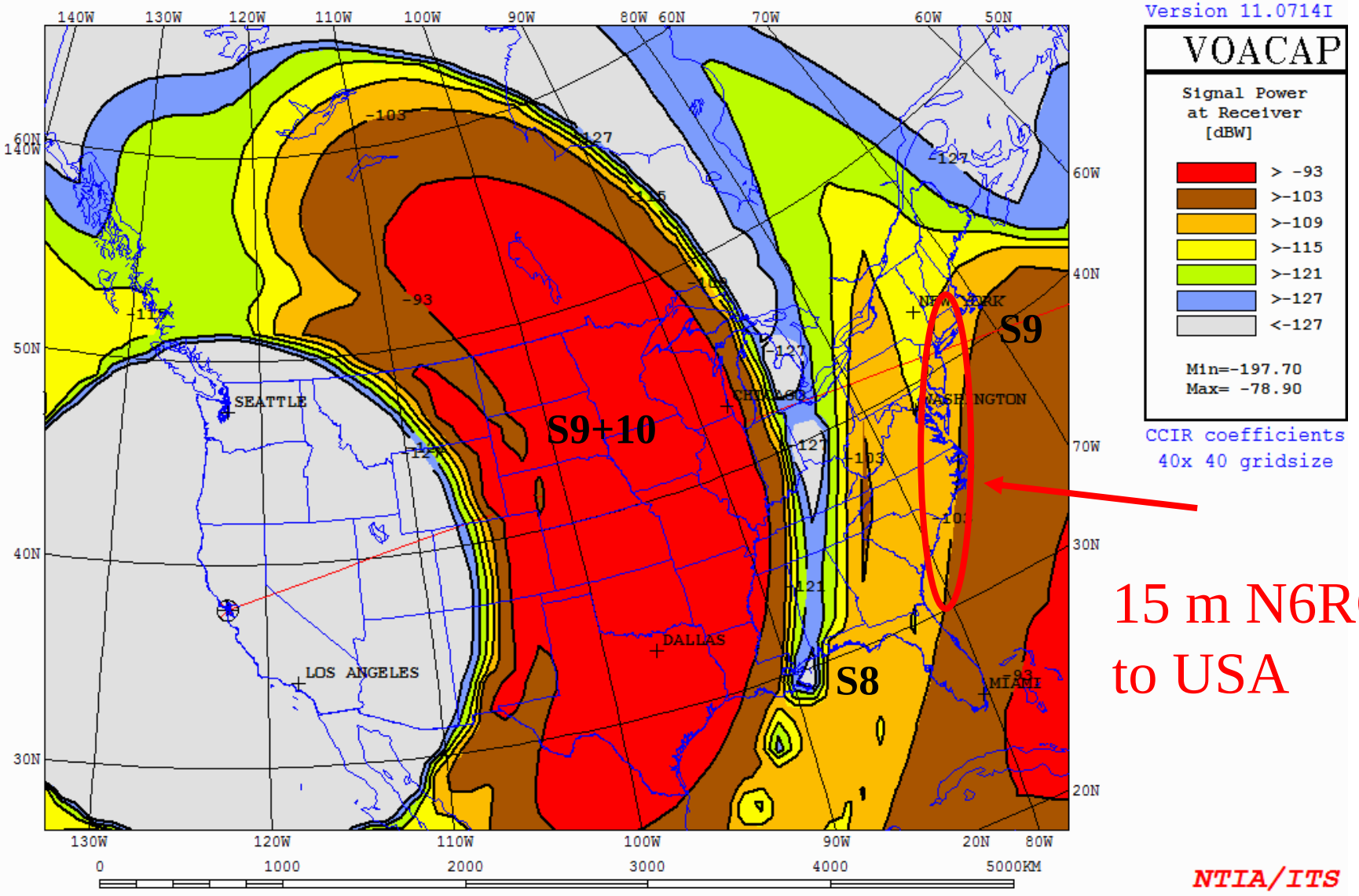
15 m Lil
Gun to USA

NTIA/ITS

SAN FRANCISCO [N6RO_15Stk] 1.5kW 70deg 24ut 21.200MHz Nov 100ssn

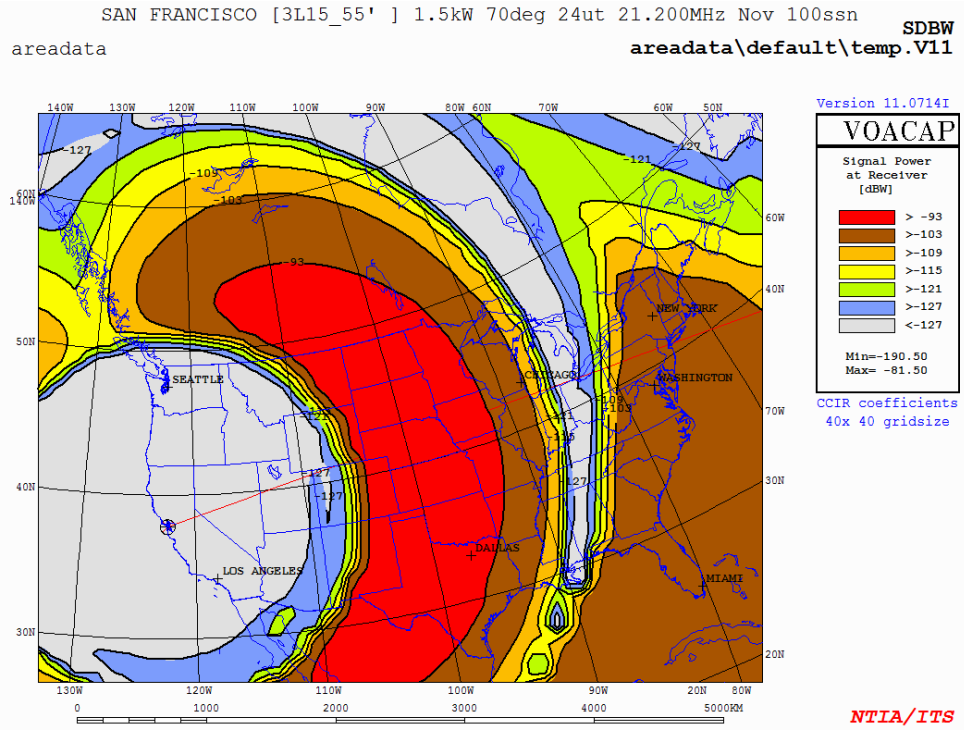
areadata

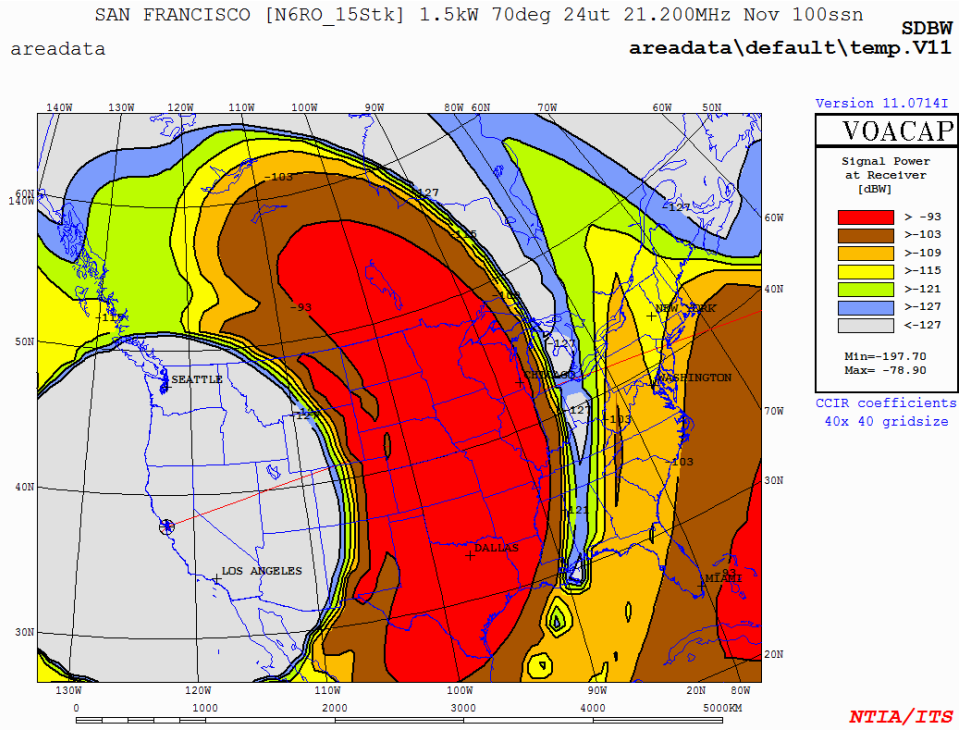
SDBW
areadata\default\temp.V11



15 m N6RO to USA

NTIA/ITS



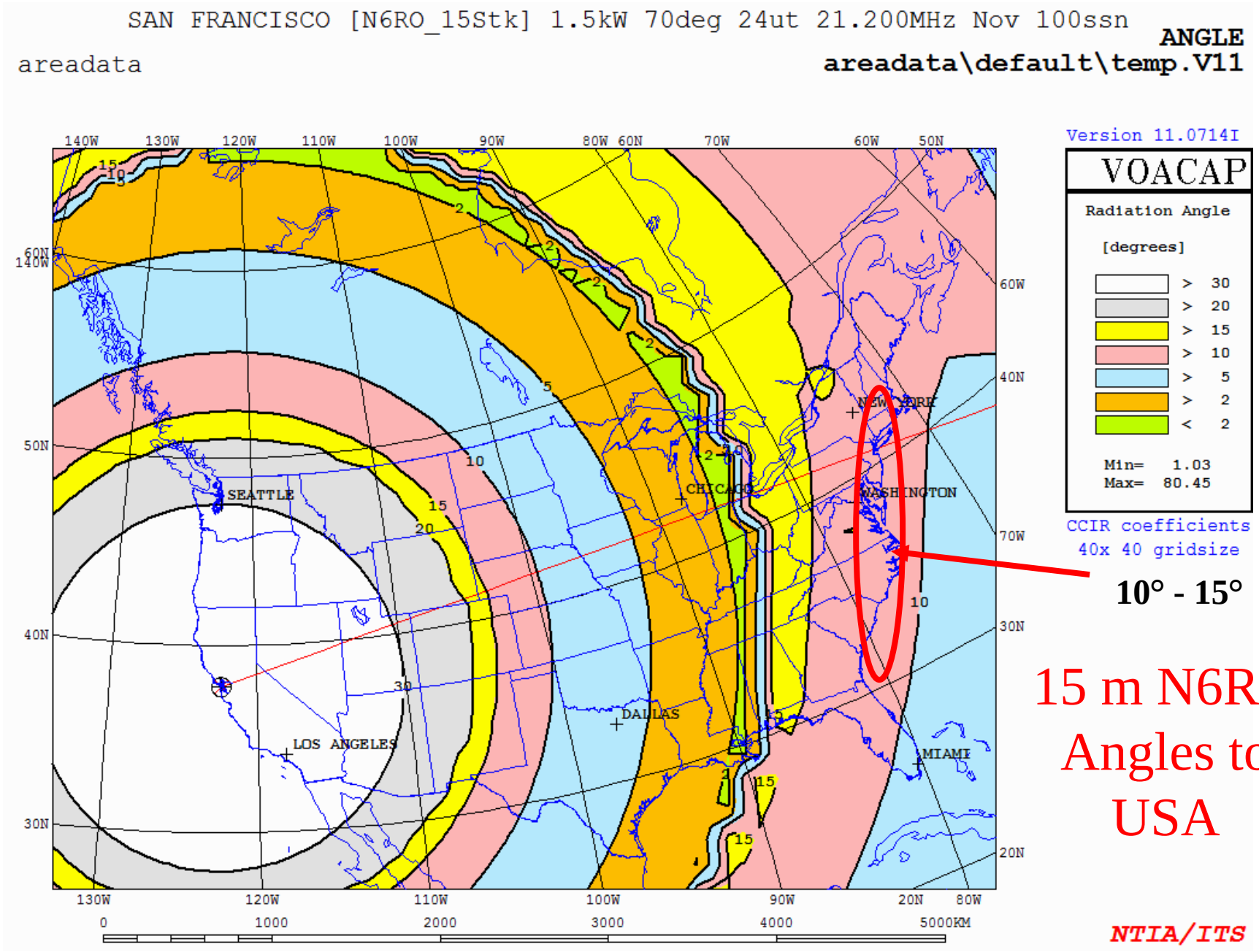


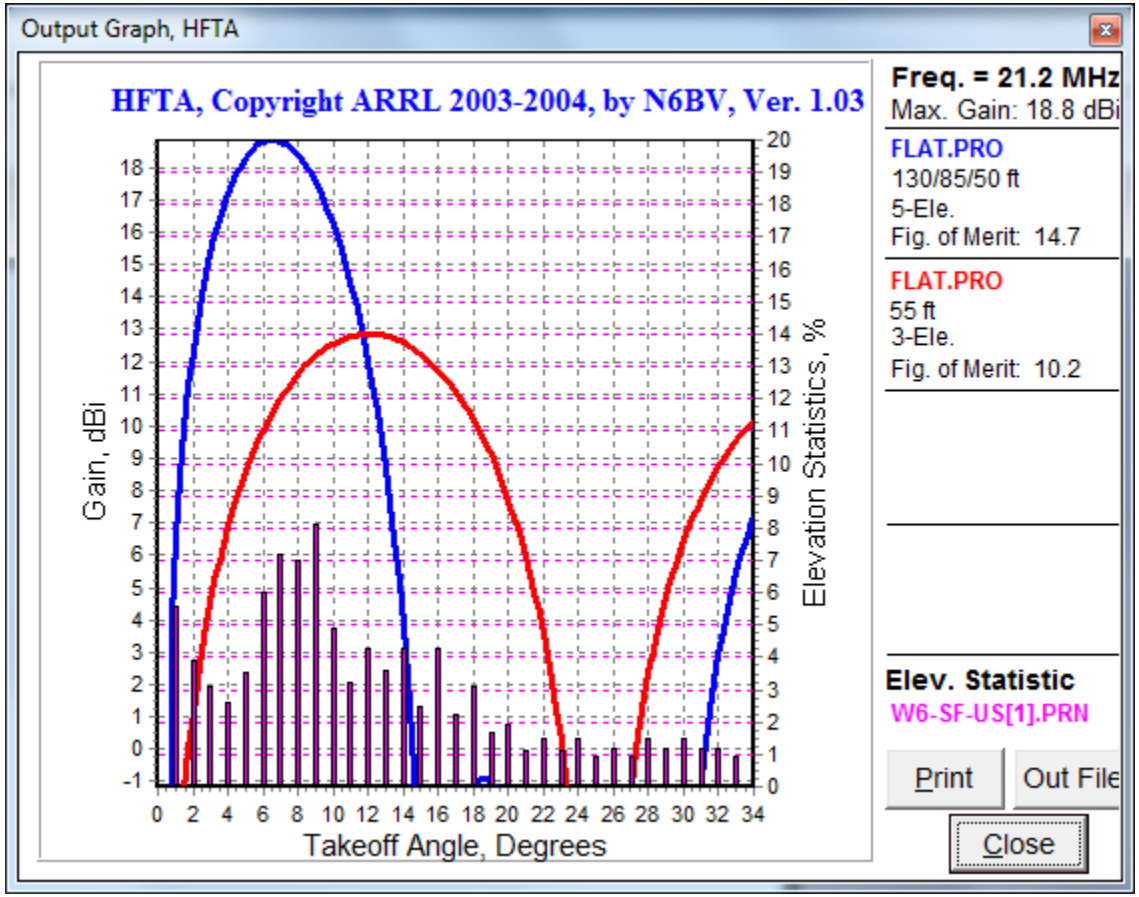
3L15 at 55'

N6RO Stacked 6L15s at 130'/85'/50'

Top N6RO antenna is too high for two F_2 hops to East Coast in the late afternoon at high sunspot levels.

Side-by-side: 15 Meters to USA

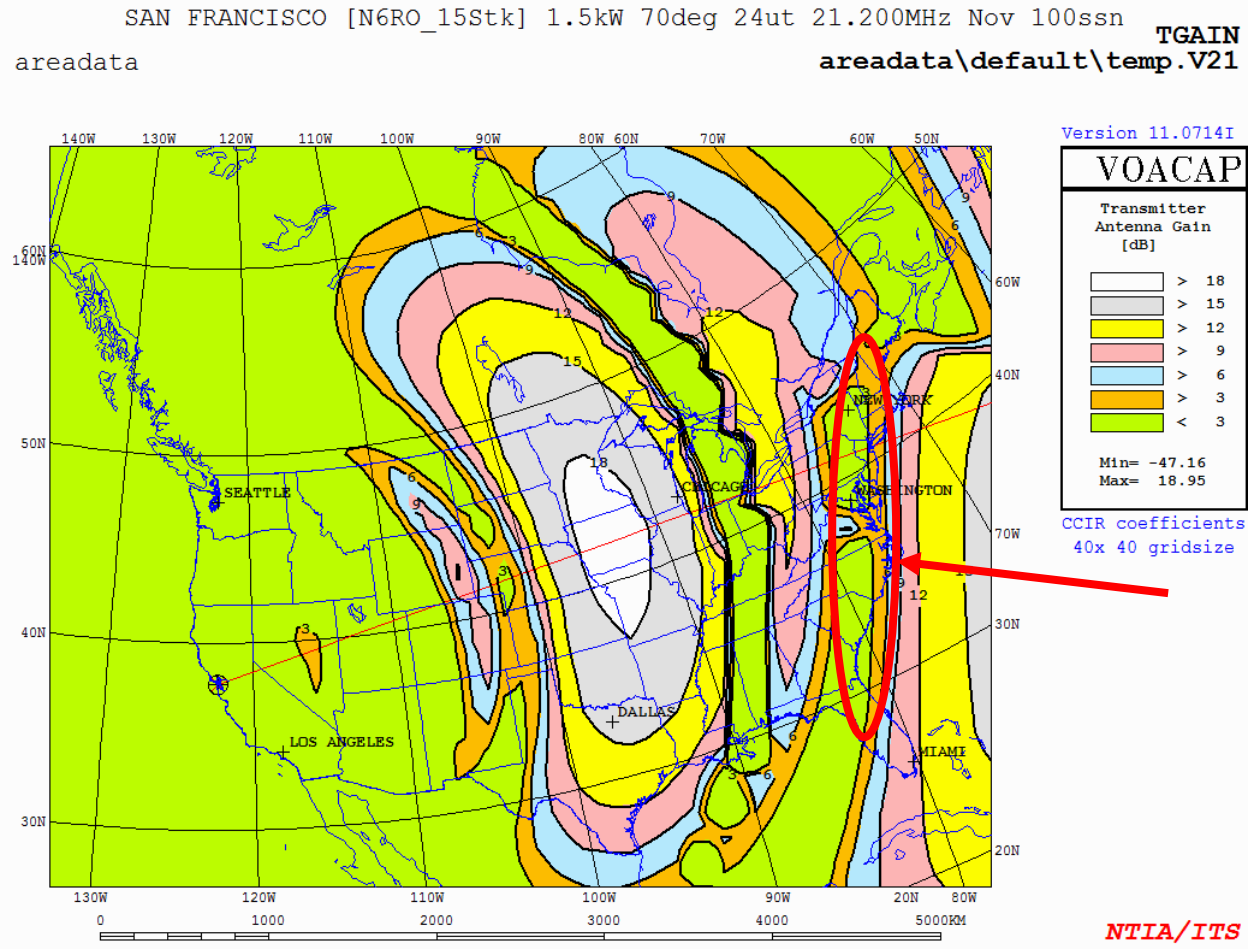

SAN FRANCISCO [N6RO_15Stk] 1.5kW 70deg 24ut 21.200MHz Nov 100ssn
areadata
ANGLE
areadata\default\temp.V11
Version 11.0714I
VOACAP
Radiation Angle
[degrees]
> 30
> 20
> 15
> 10
> 5
> 2
< 2
Min= 1.03
Max= 80.45
CCIR coefficients
40x 40 gridsize
SEATTLE
CHICAGO
WASHINGTON
LOS ANGELES
DALLAS
MIAMI
10° - 15°
15 m N6RO Angles to USA
NTIA/ITS



Δ 4.5 dB FOM

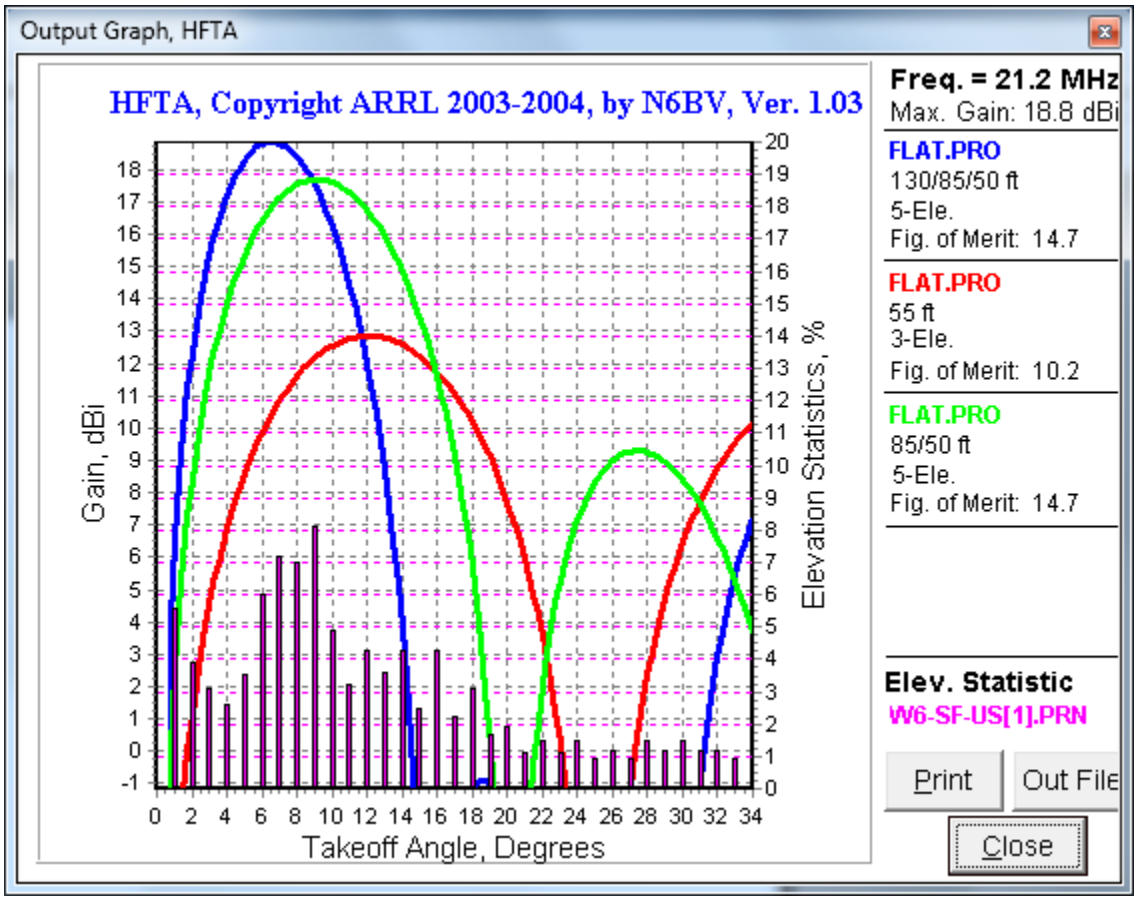
N6RO 130'/85'/50' stack too high compared to 3L15 at 55' at angles greater than about 12°.

15-Meter Angles to USA



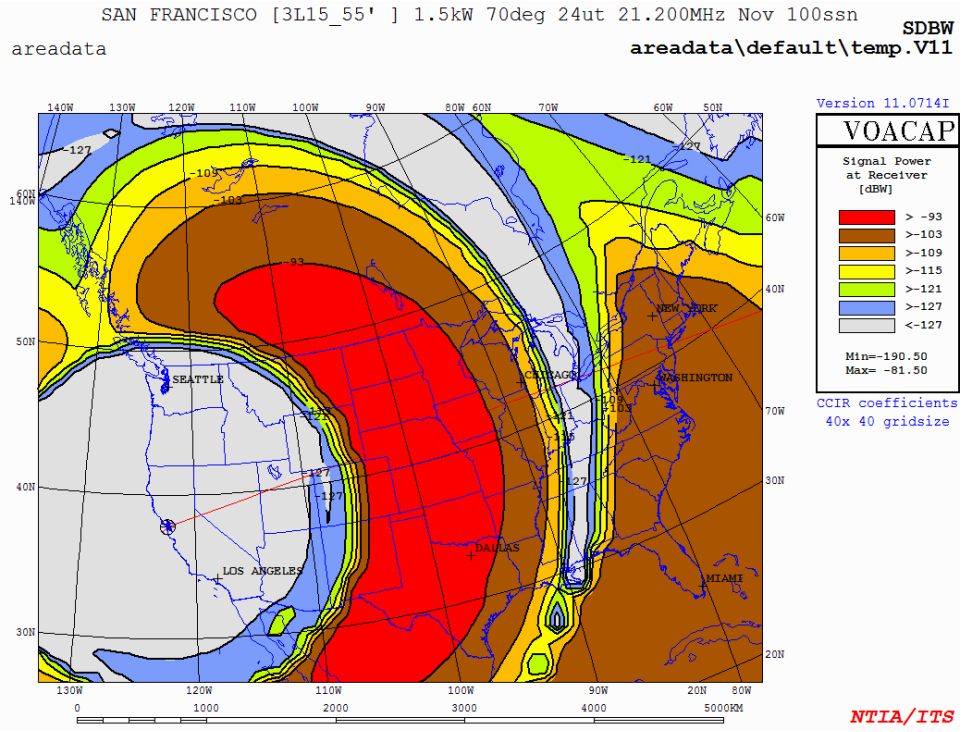
N6RO 130'/85'/50' stack too high compared to 3L15 at 55' at angles greater than about 12°. What to do?

15-Meter TGAIN to USA

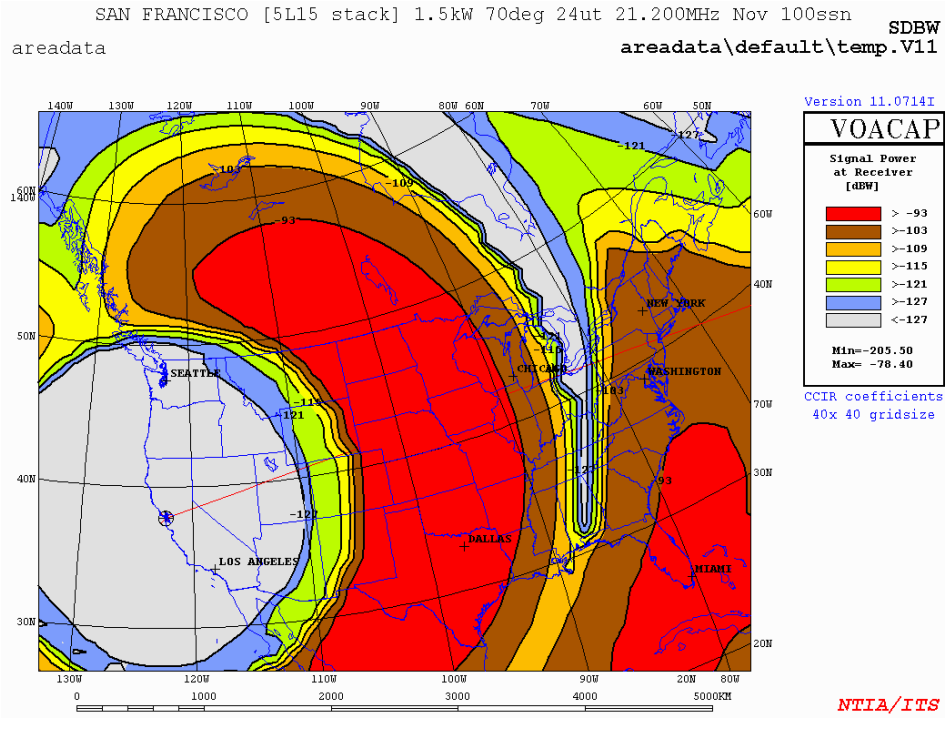


Switch out 130' antenna in 130'/85'/50' stack to cover higher angles better than 3L15 at 55'.

15-Meter Angles to USA

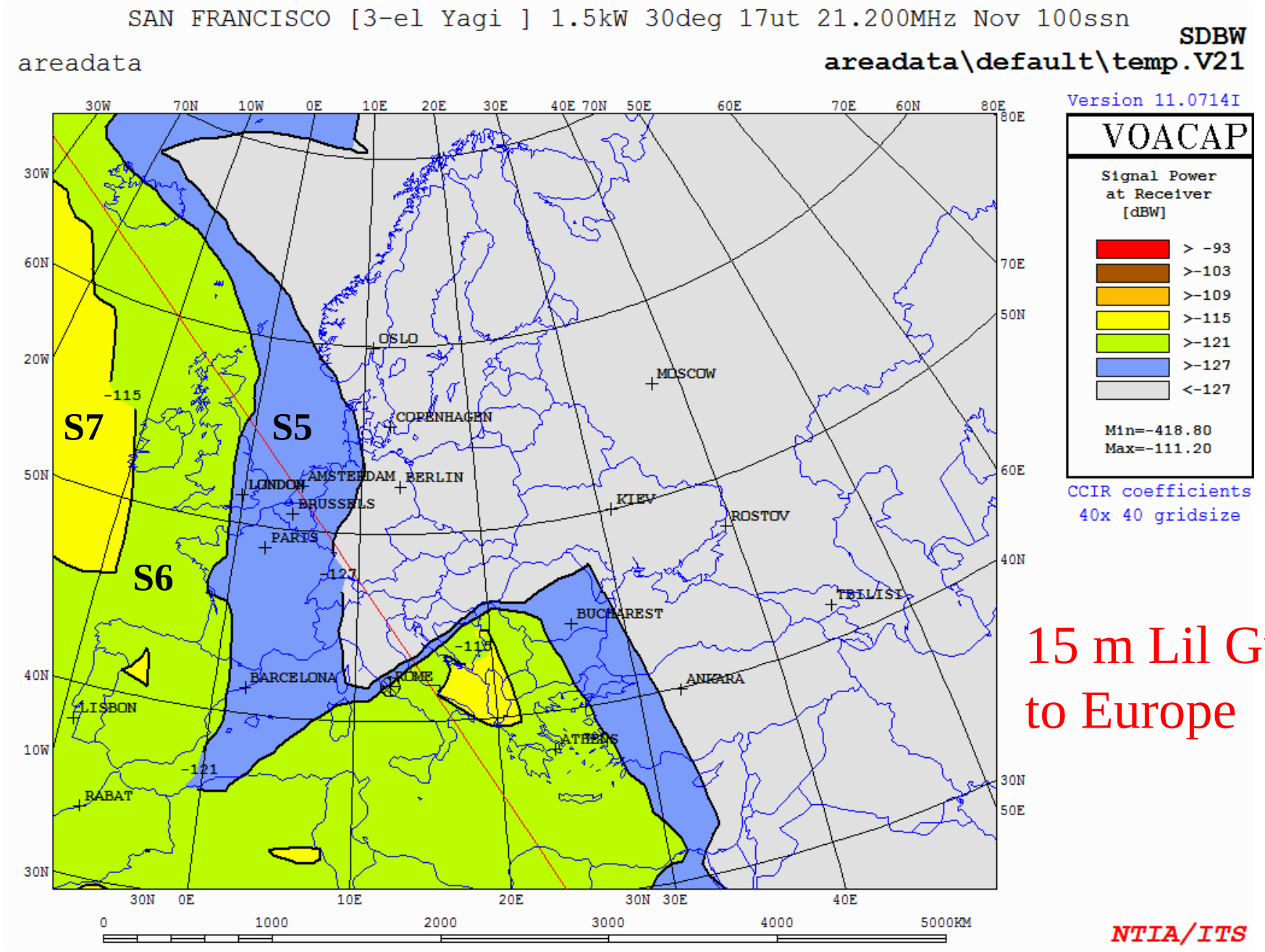


3L15 at 55'

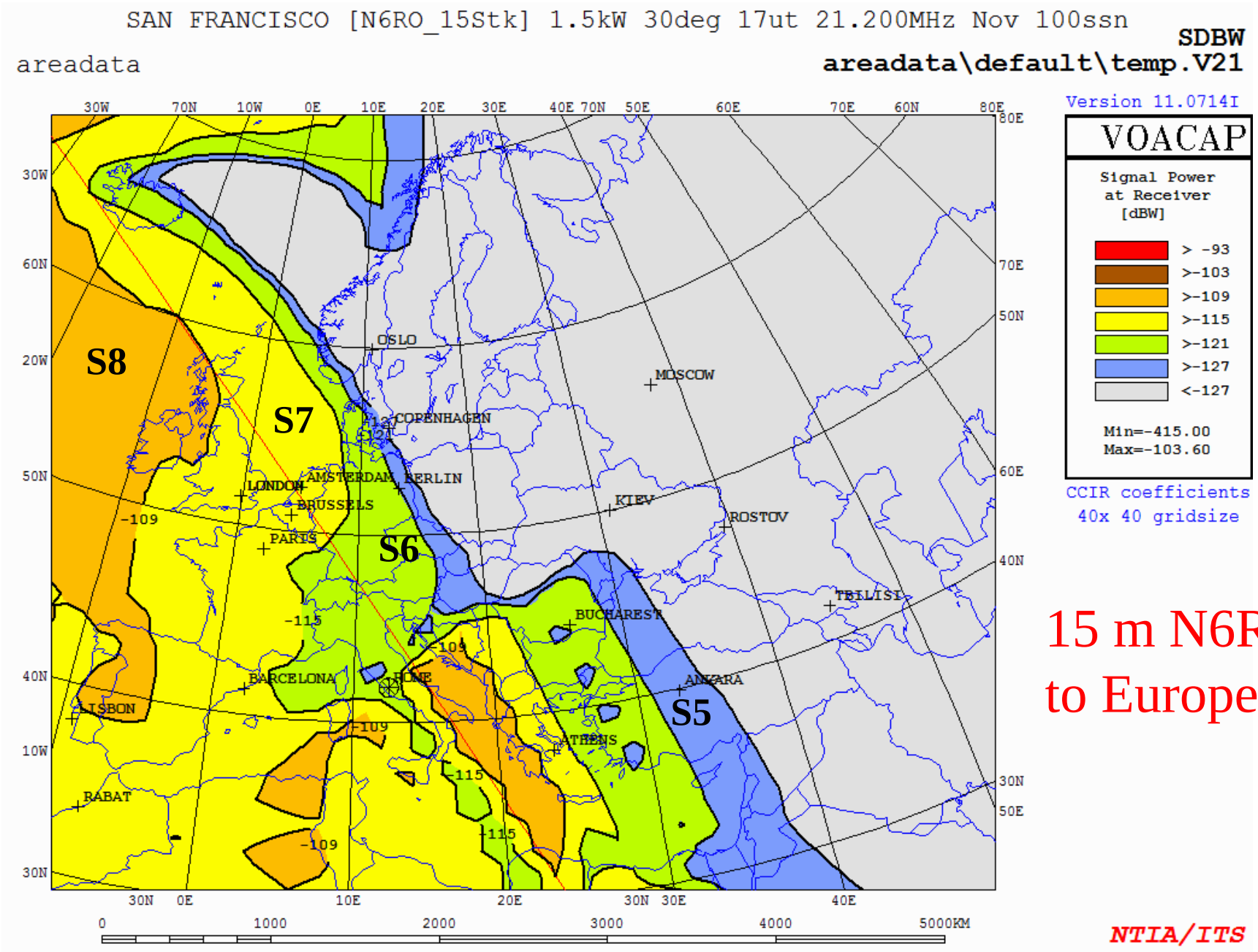


6L15s stacked 85'/50'

Switch out 130' antenna in 130'/85'/50' stack to cover higher angles better than 3L15 at 55'.

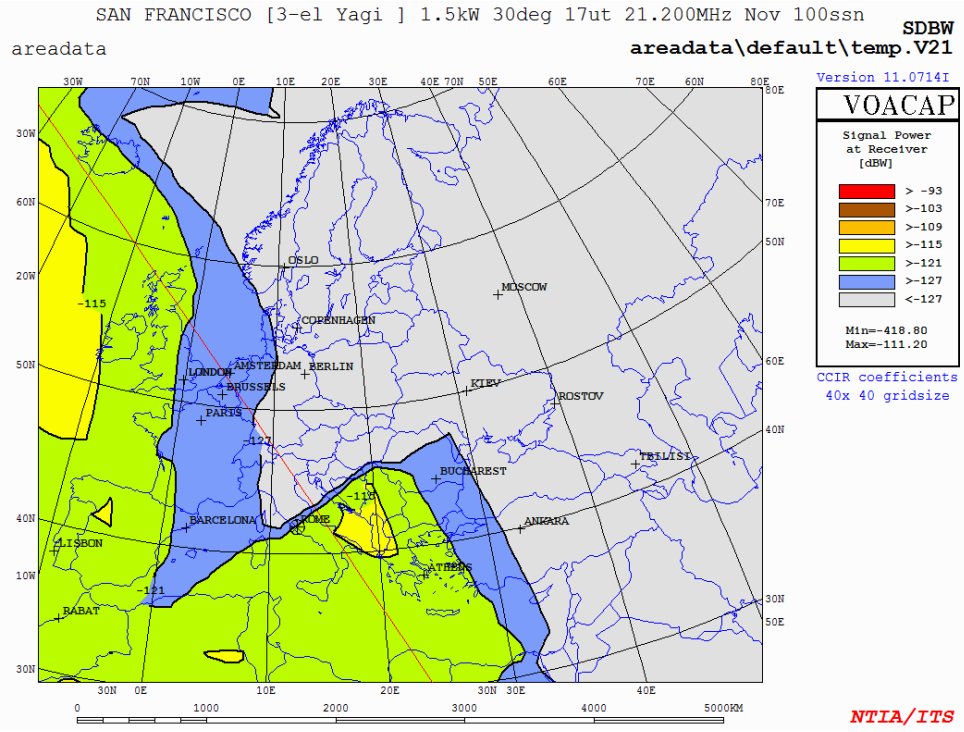


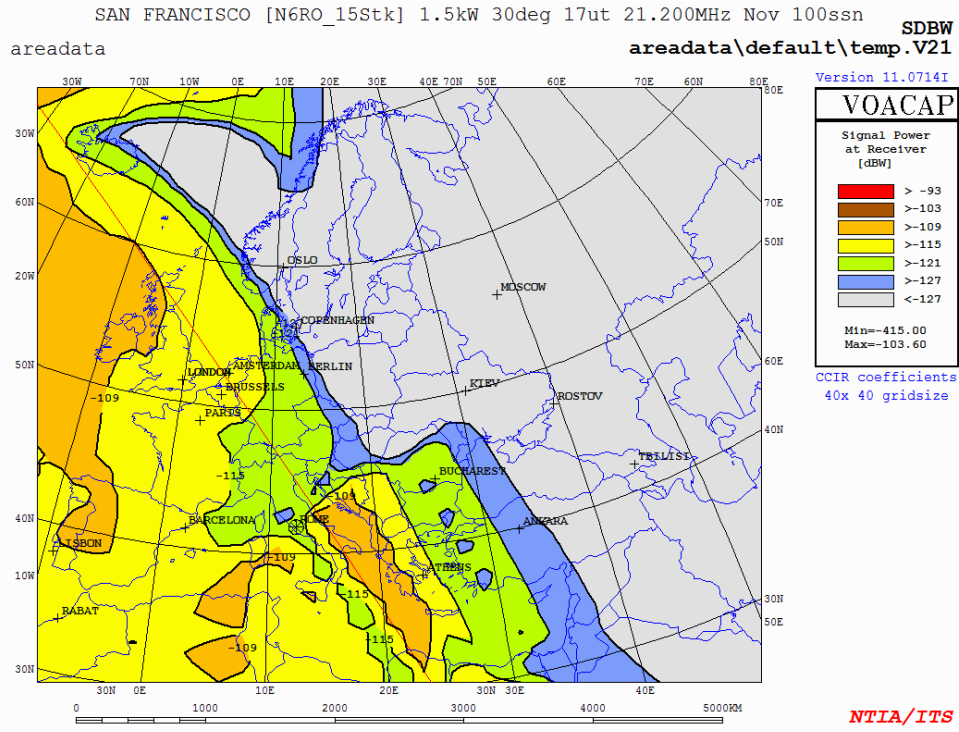
15 m Lil Gun to Europe



15 m N6RO to Europe

NTIA/ITS



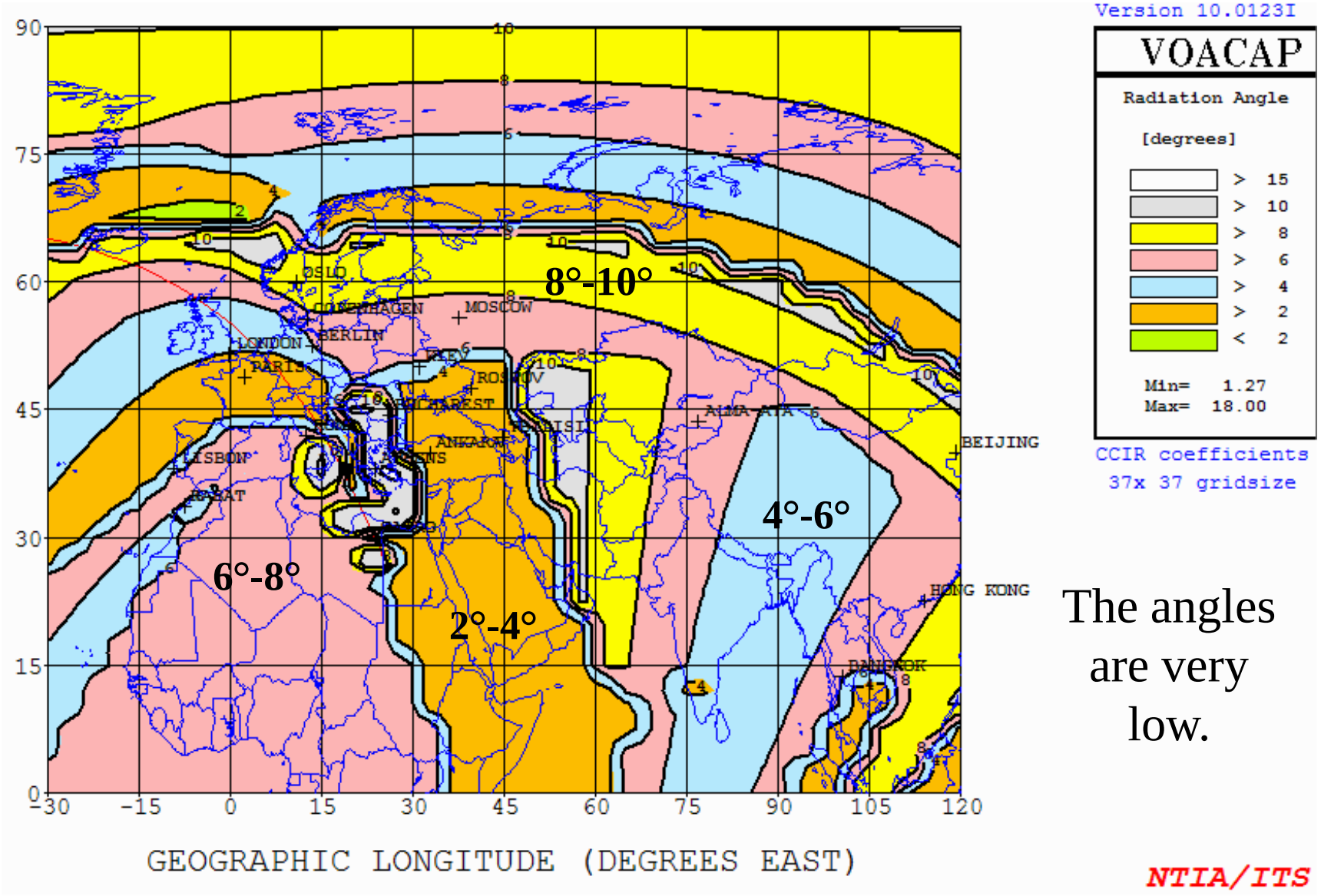


3L15 at 55'

N6RO Stacked 6L15s at 130'/85'/50'

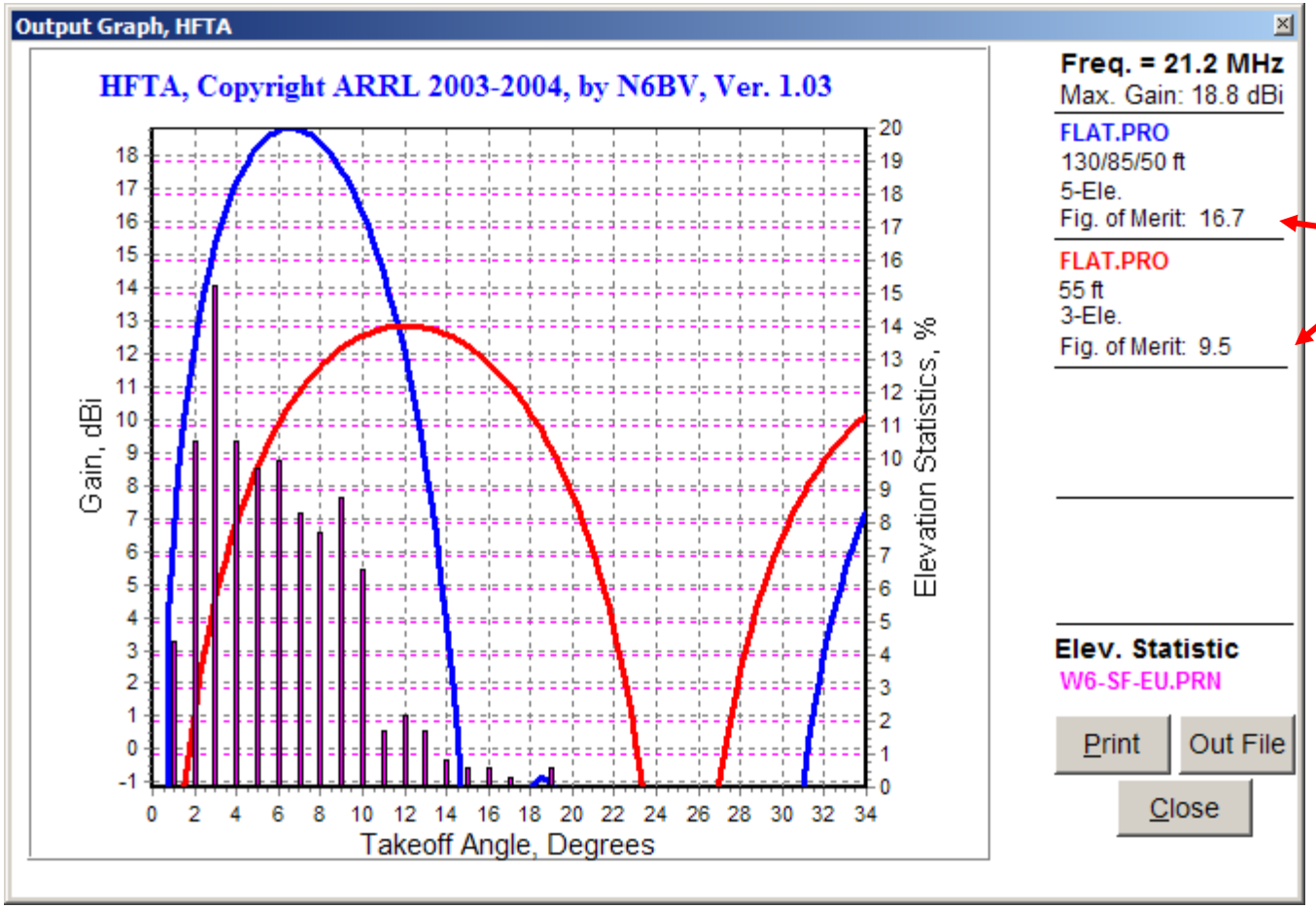
Significant difference (2 S-units) on 15 meters. The Little Gun will still work some strong Europeans.

Side-by-side:15 Meters to Europe



The angles are very low.

15-Meter Angles to Europe



Δ 7.2 dB FOM

N6RO stack at 130′/85′/50′ compared to 3L15 at 55′

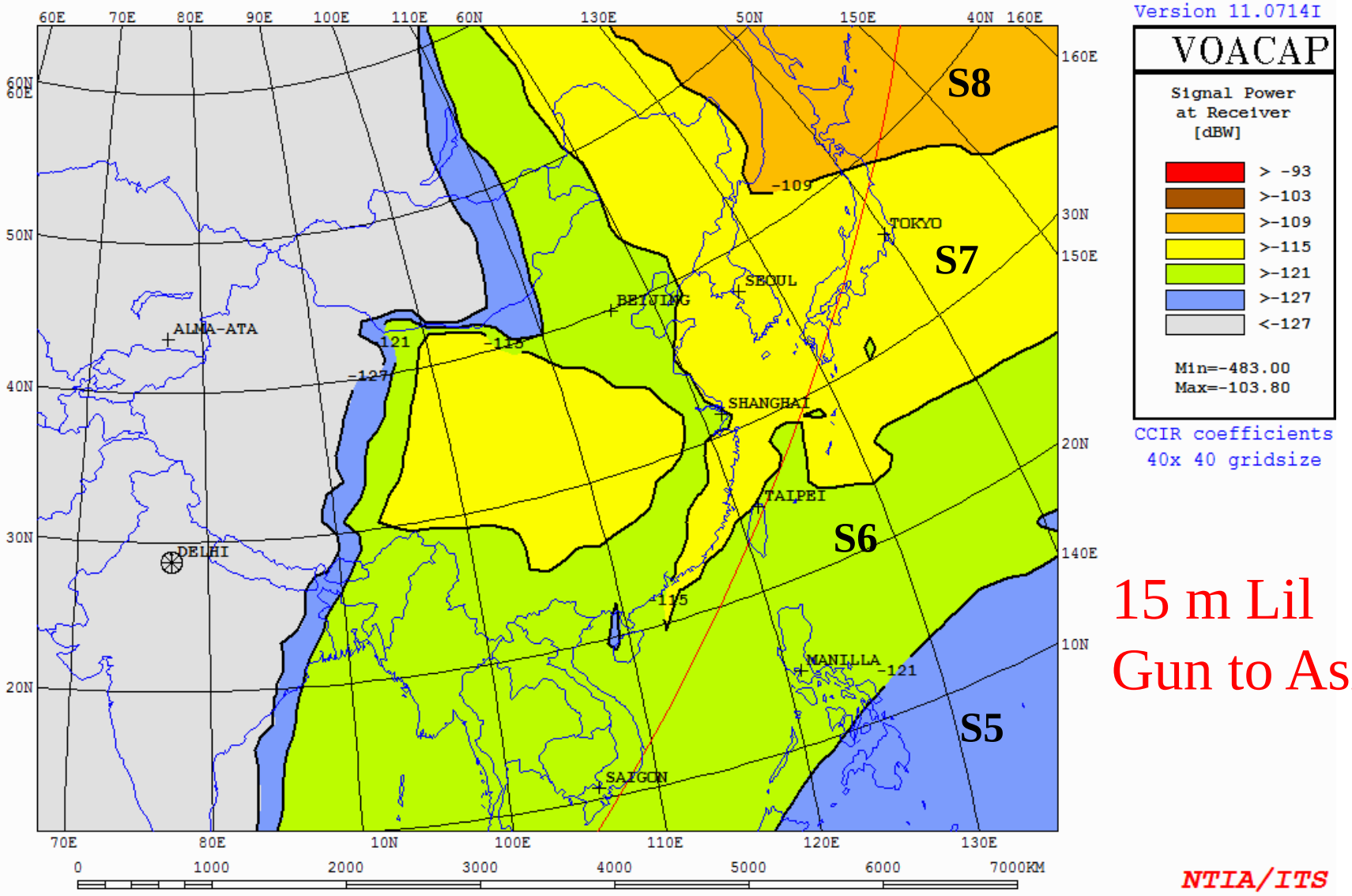
15-Meter Angles to Europe

SAN FRANCISCO [3-el Yagi] 1.5kW 305deg 24ut 21.200MHz Nov 100ssn

areadata

SDBW

areadata\default\temp.V21



15 m Lil Gun to Asia

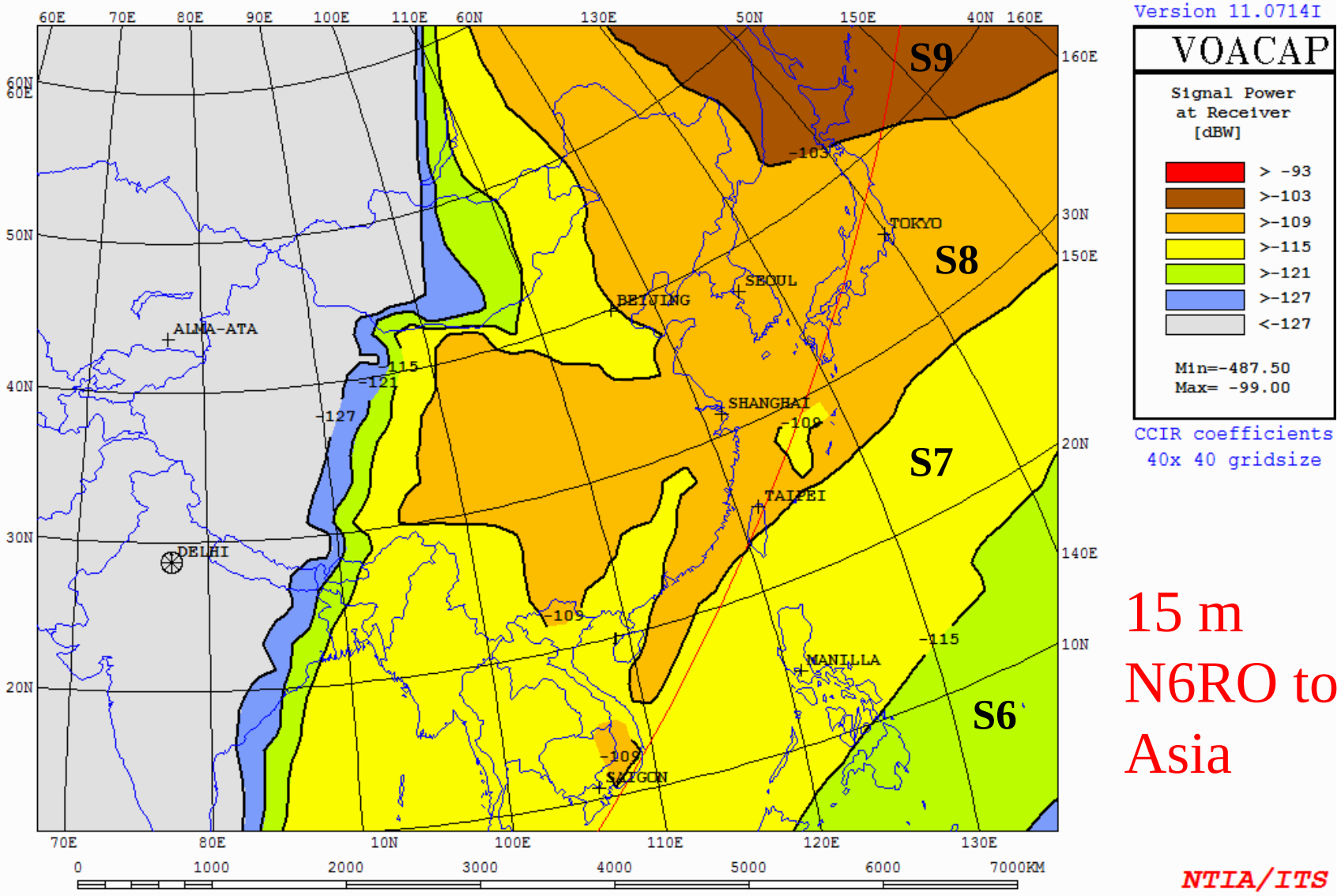
NTIA/ITS

SAN FRANCISCO [N6RO_15Stk] 1.5kW 305deg 24ut 21.200MHz Nov 100ssn

areadata

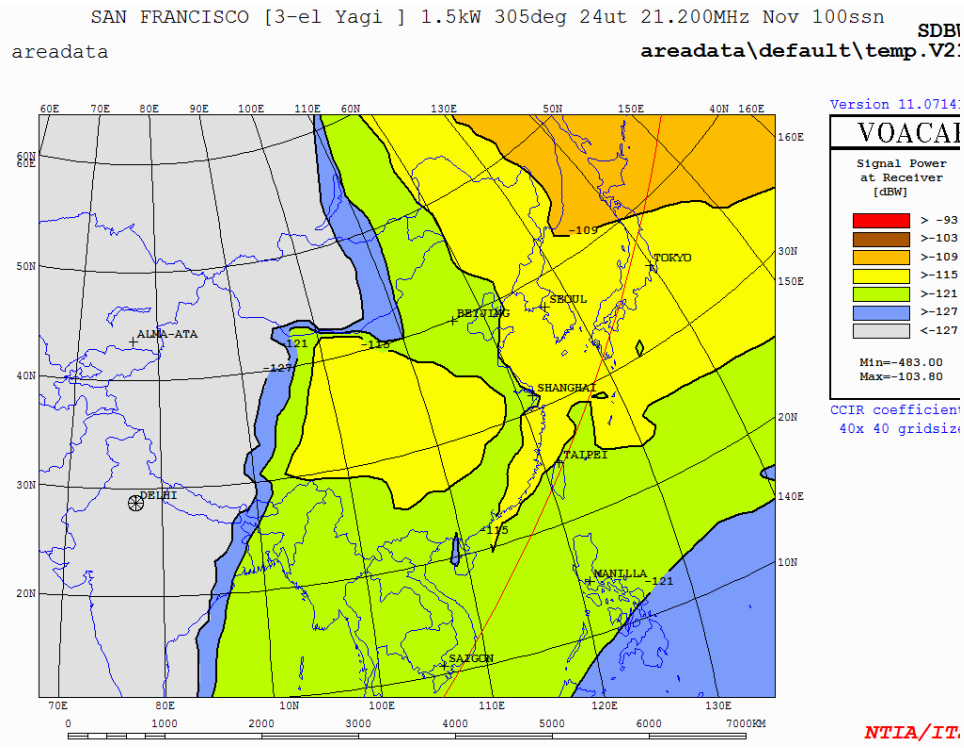
SDBW

areadata\default\temp.V21

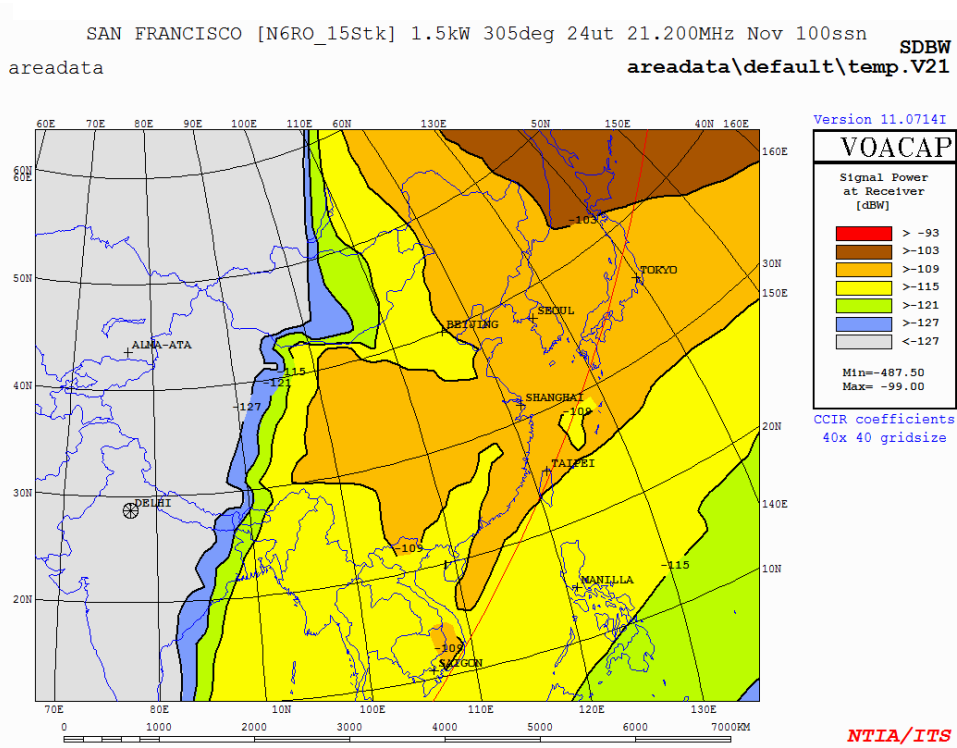


15 m N6RO to Asia

NTIA/ITS



3L15 at 55'



N6RO Stacked 6L15s at 130'/85'/50'

Little Gun is about 1 S-unit down from N6RO stack into the Far East (1 S-Unit more to Tokyo).

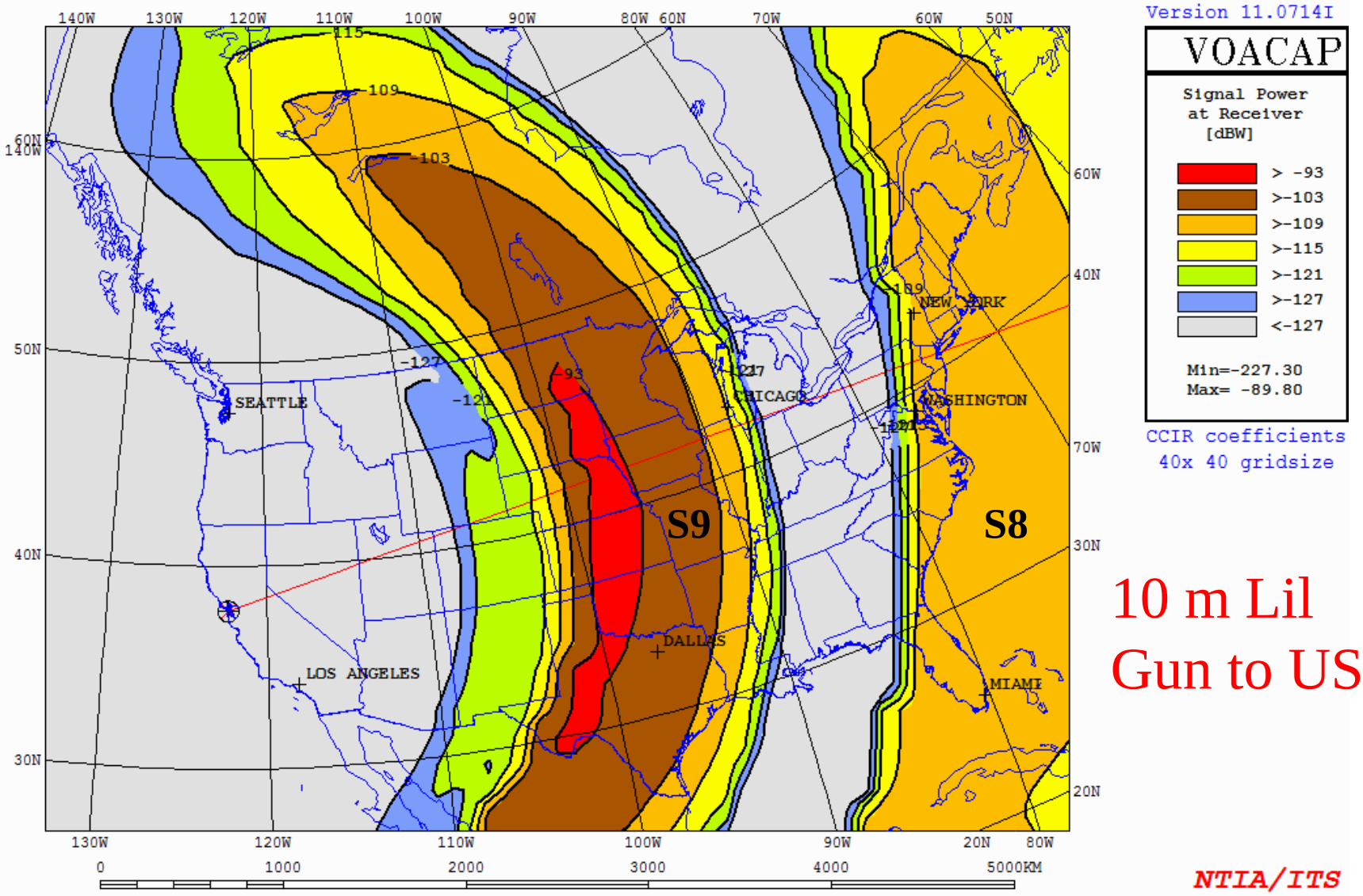
Side-by-side: 15 Meters to Asia

SAN FRANCISCO [3L10_55'] 1.5kW 70deg 18ut 28.400MHz Nov 100ssn

areadata

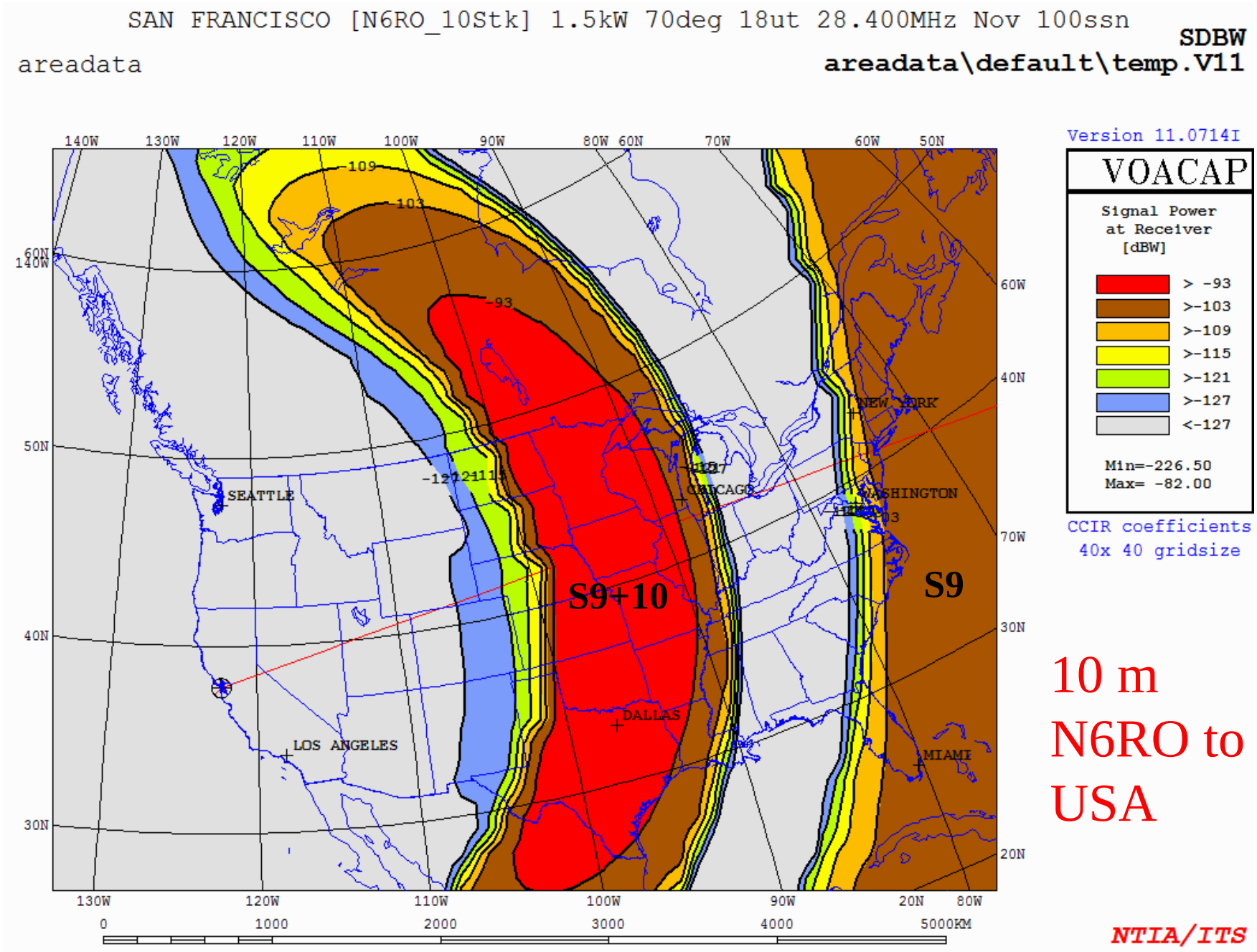
SDBW

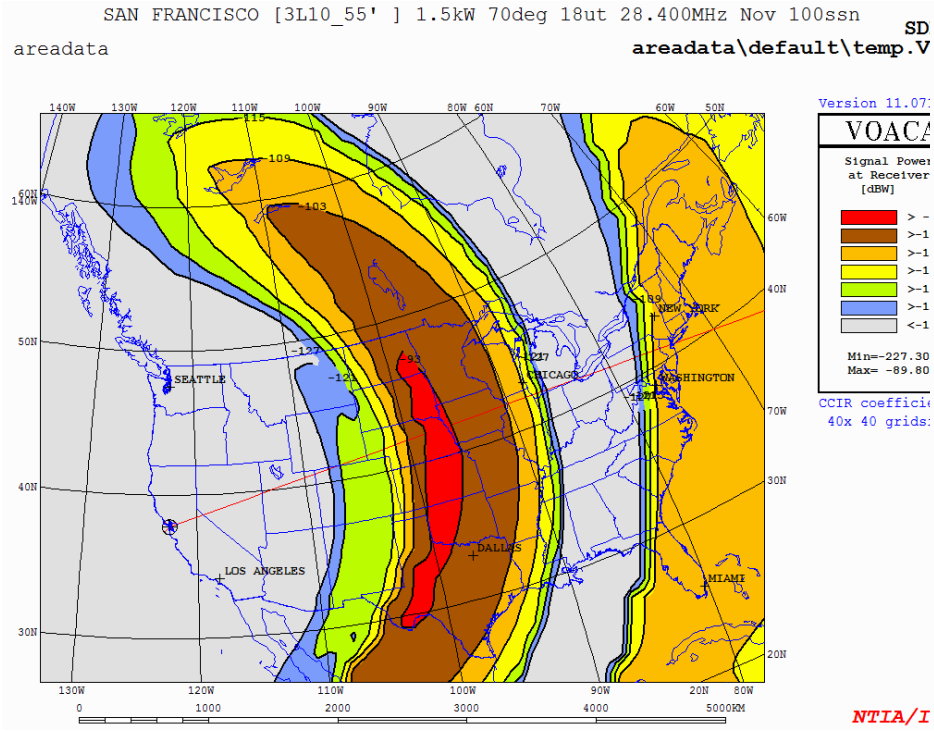
areadata\default\temp.V11

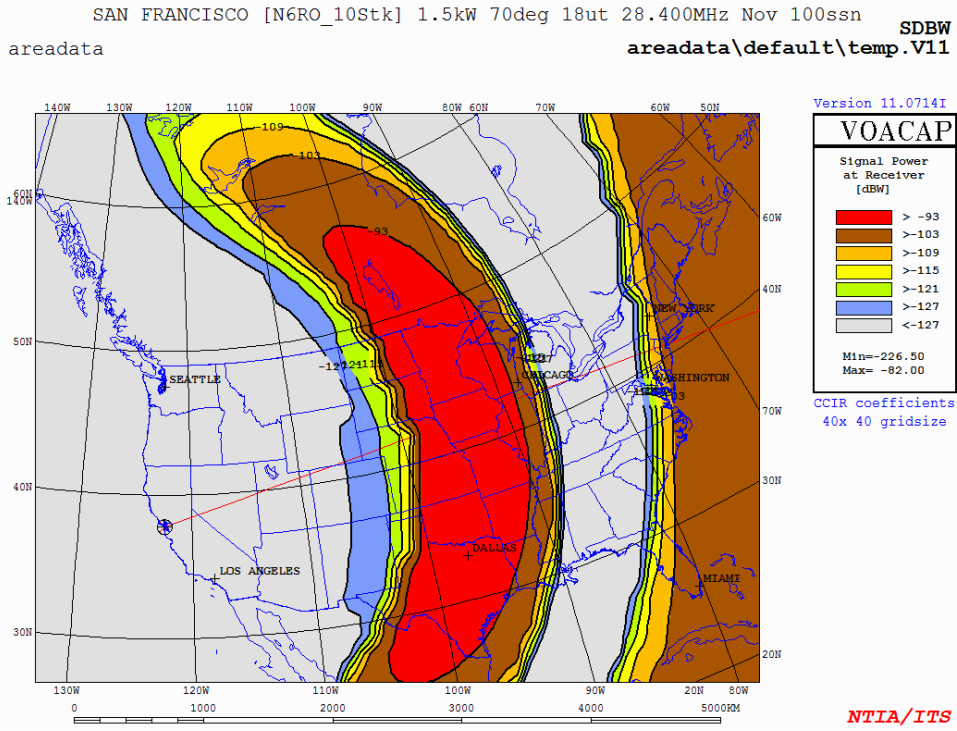


10 m Lil Gun to USA

NTIA/ITS


SAN FRANCISCO [N6RO_10Stk] 1.5kW 70deg 18ut 28.400MHz Nov 100ssn
areadata
SDBW
areadata\default\temp.V11
Version 11.0714I
VOACAP
Signal Power at Receiver [dBW]
> -93
>-103
>-109
>-115
>-121
>-127
<-127
Min=-226.50
Max= -82.00
CCIR coefficients
40x 40 gridsize
S9+10
S9
SEATTLE
LOS ANGELES
DALLAS
CHICAGO
NEW YORK
WASHINGTON
MIAMI
10 m
N6RO to
USA
NTIA/ITS



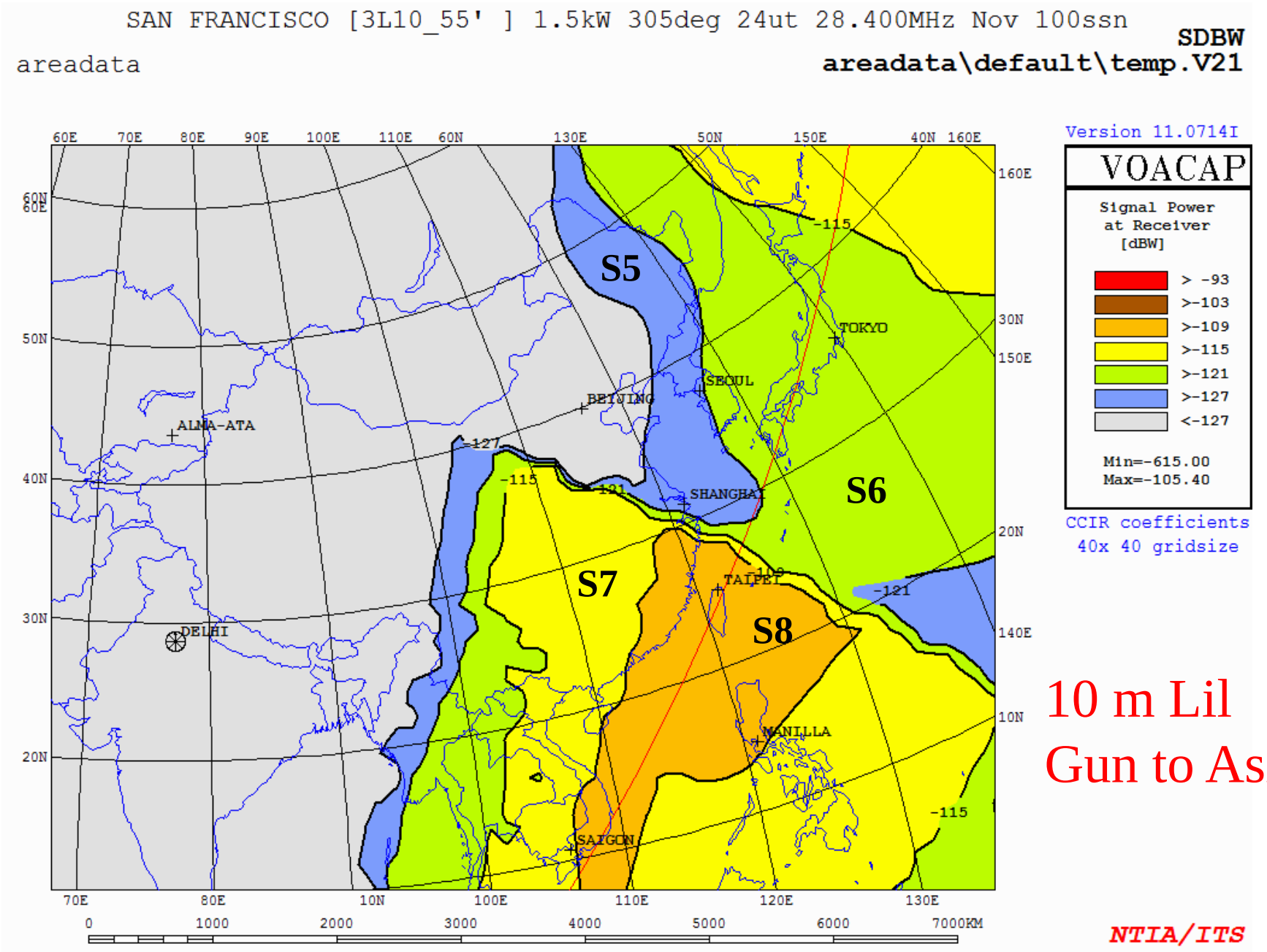


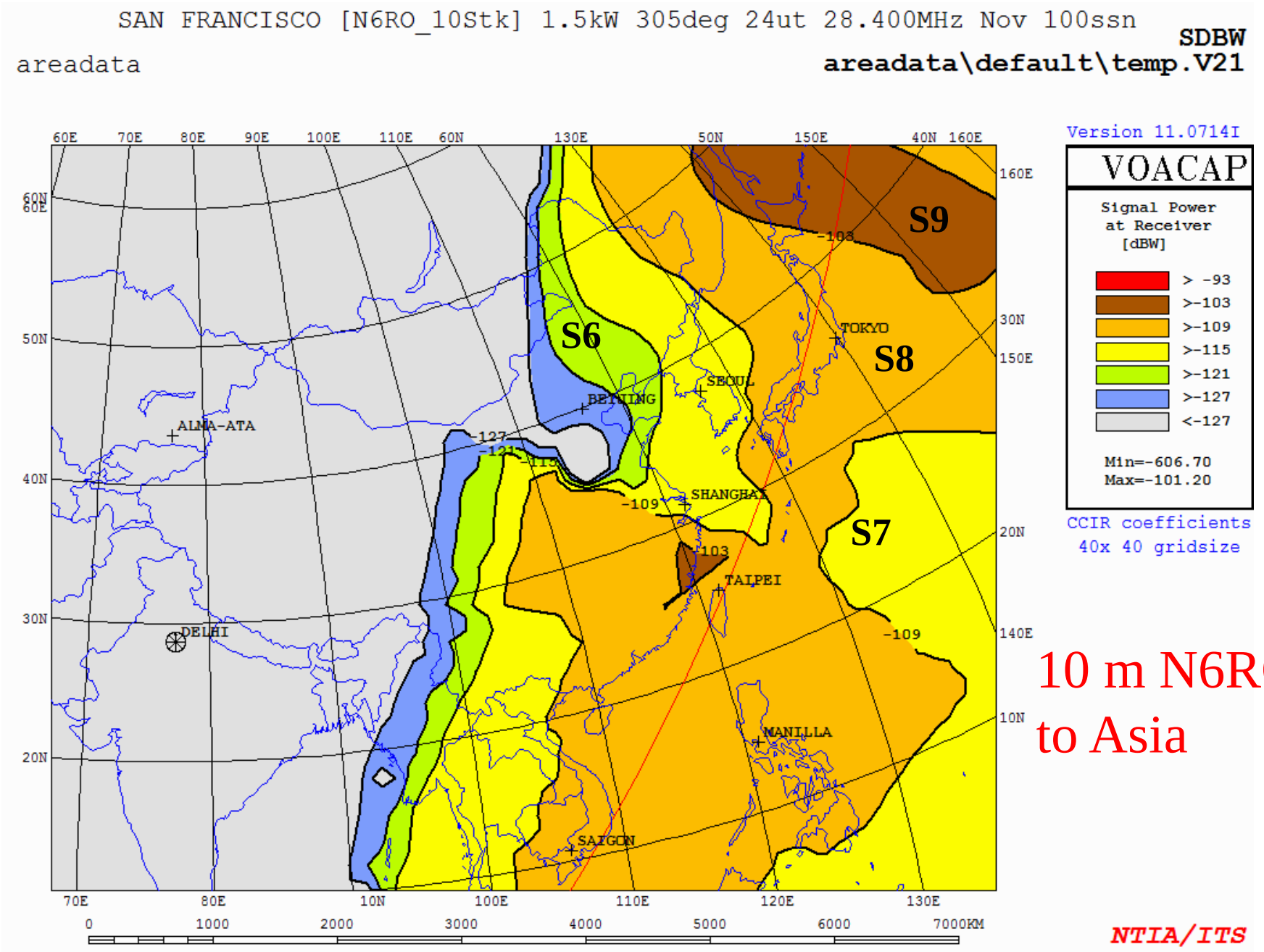
3L10 at 55'

N6RO Stacked 5L10s at 80'/60'/40'

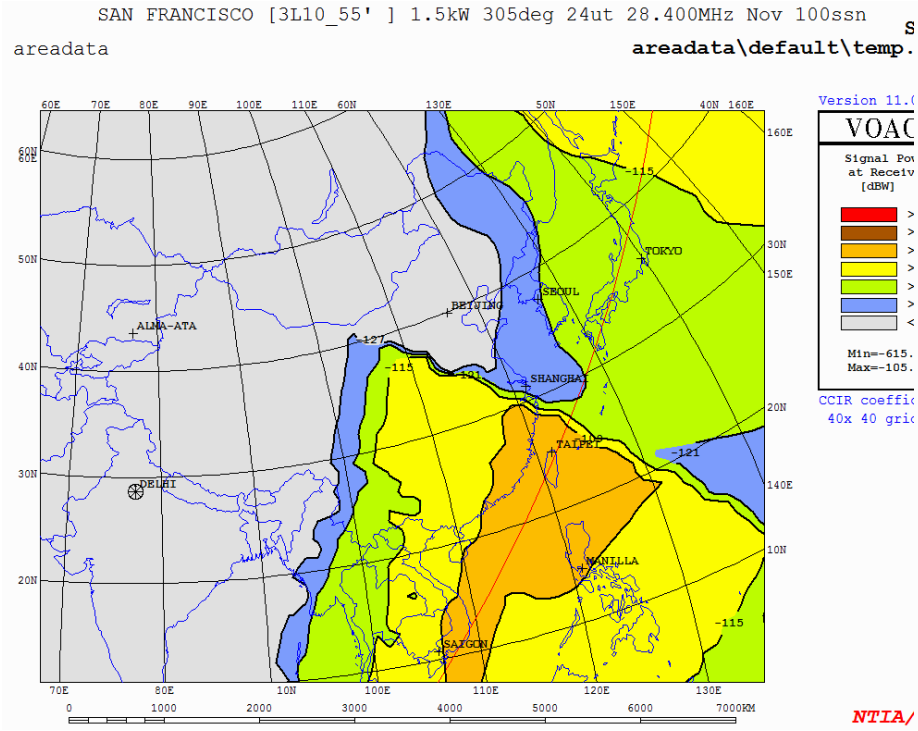
Significant difference on 10 meters to western Midwest and also on East Coast. But Little Gun is still competitive.

Side-by-side: 10 Meters to USA

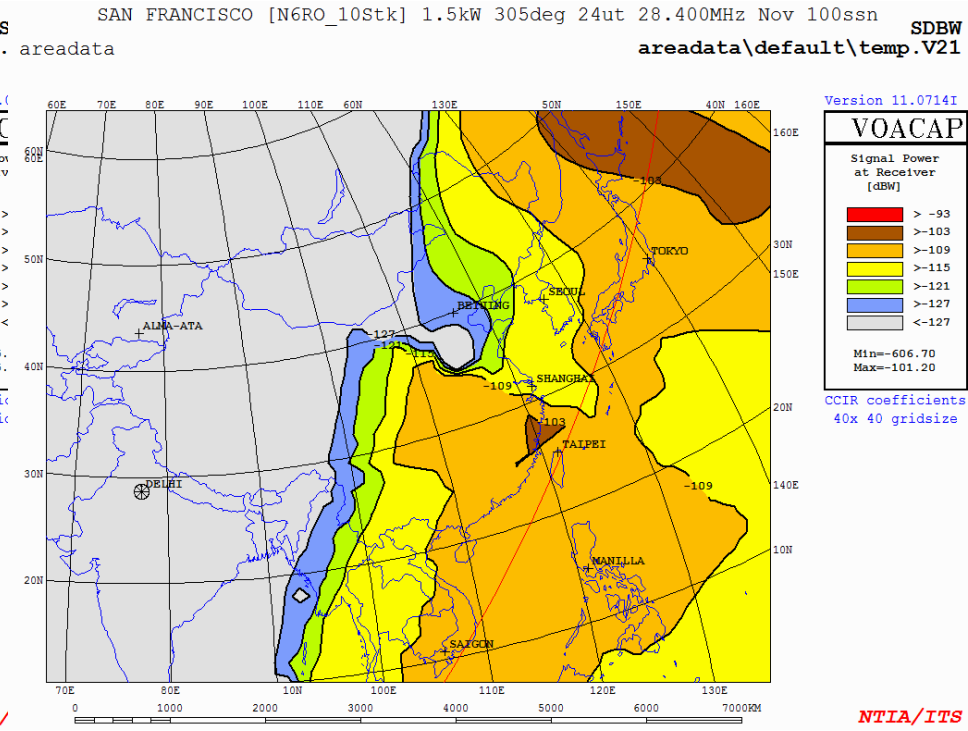

SAN FRANCISCO [3L10_55'] 1.5kW 305deg 24ut 28.400MHz Nov 100ssn
areadata
SDBW
areadata\default\temp.V21
Version 11.0714I
VOACAP
Signal Power at Receiver [dBW]
> -93
>-103
>-109
>-115
>-121
>-127
<-127
Min=-615.00
Max=-105.40
CCIR coefficients
40x 40 gridsize
S5
S6
S7
S8
-115
-127
-121
TOKYO
SEOUL
BEIJING
ALMA-ATA
SHANGHAI
TAIPEI
DELHI
MANILLA
SAIGON
60E 70E 80E 90E 100E 110E 60N 130E 50N 150E 40N 160E
160E 30N 150E 20N 140E 10N
60N 50N 40N 30N 20N
70E 80E 10N 100E 110E 120E 130E
0 1000 2000 3000 4000 5000 6000 7000KM
10 m Lil
Gun to Asia
NTIA/ITS



10 m N6RO to Asia



3L10 at 55'

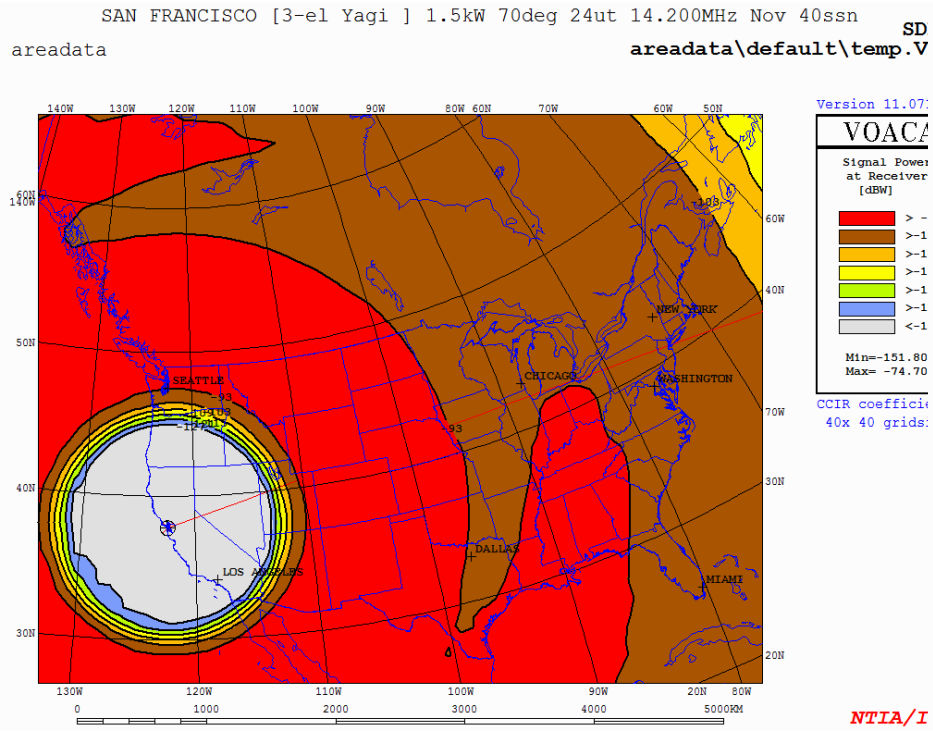


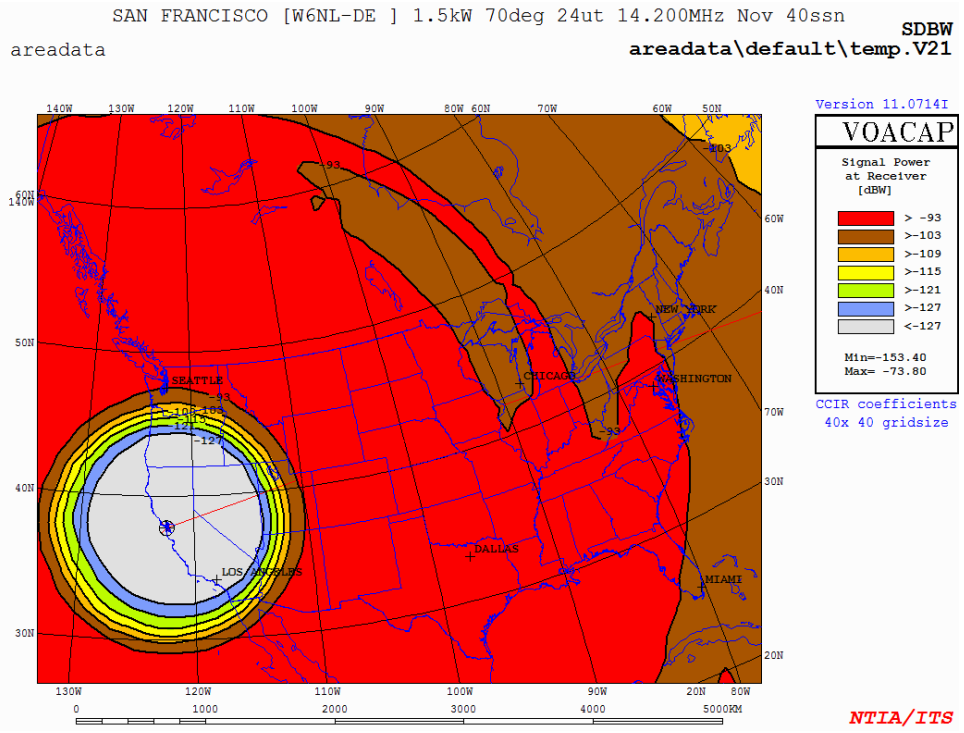
N6RO Stacked 5L10s at 80'/60'/40'

Significant difference on 10 meters to Far East. But S8 to Taipei isn't bad for a Little Gun.

Side-by-side: 10 Meters to Asia

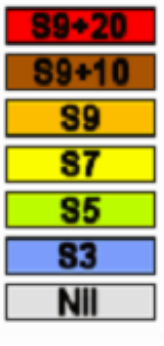
What About Terrain?





3L20 at 55' on flat ground

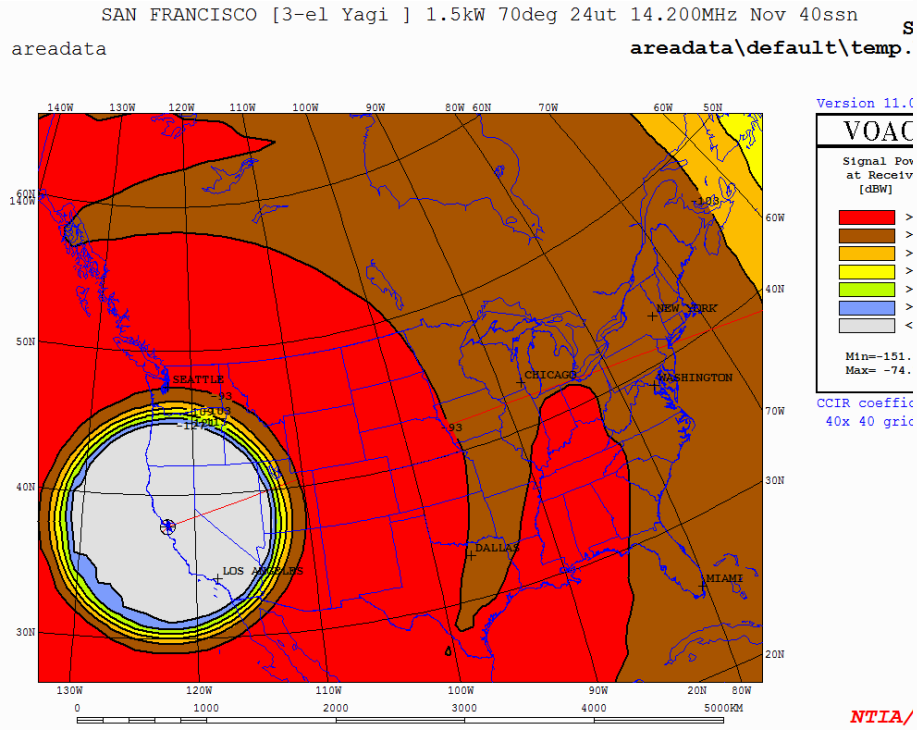
3L20 at 55' on W6NL's 3400' mountaintop

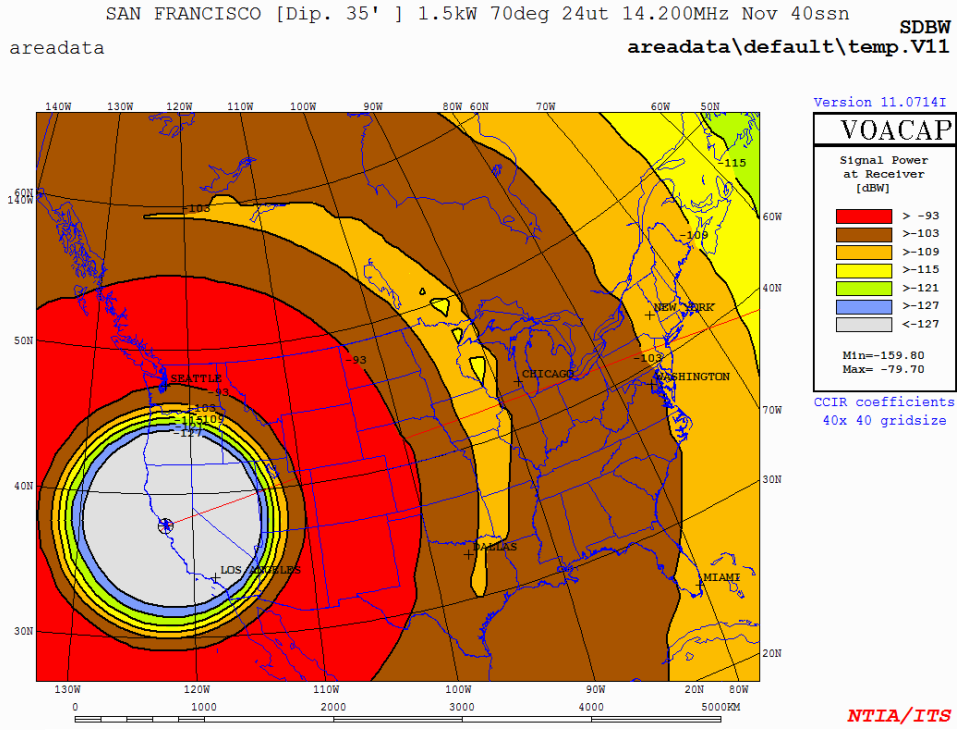


Being on a mountain makes a difference, even domestically.

Terrain: 20 Meters to USA

What About a Low Dipole for a "Tiny Gun"?



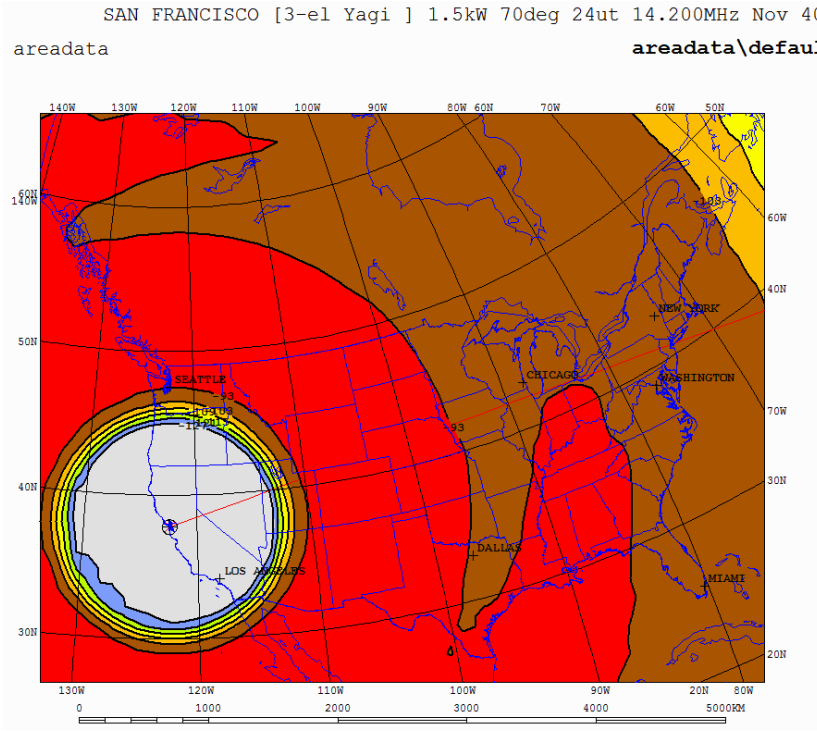


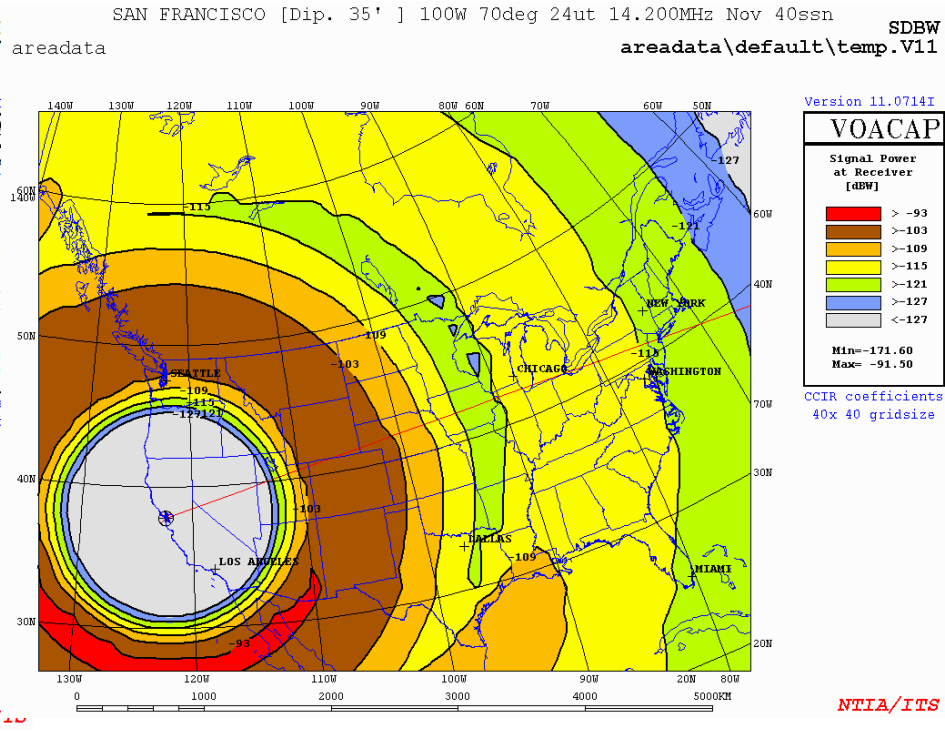
3L20 at 55'

Dipole at 35'

Comparing a tribander to a dipole at 35' — almost 1 S-Unit difference. But Tiny Gun should still have lots of fun!

Dipole: 20 Meters to USA





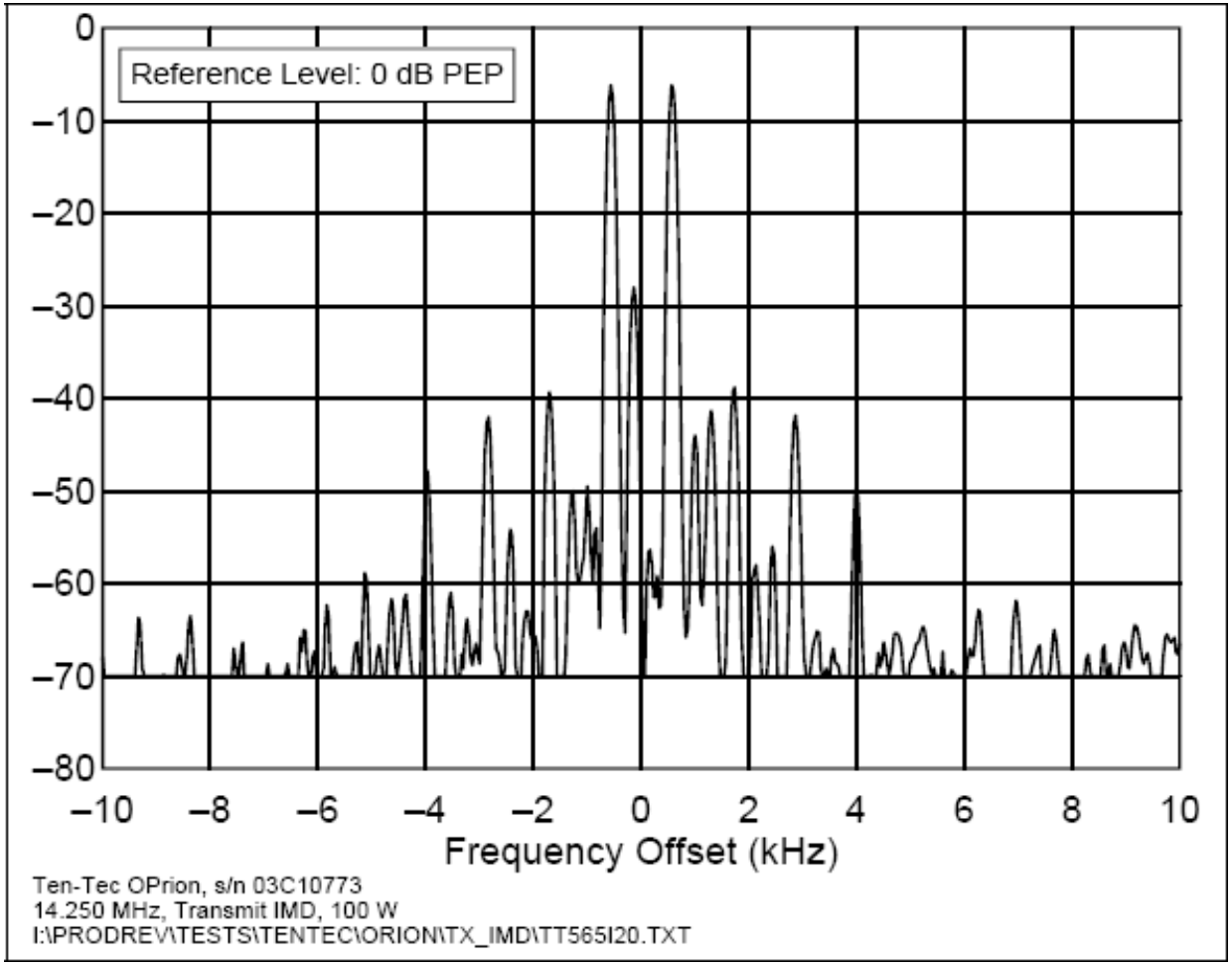
3L20 at 55', 1500 W

Dipole at 35', 100 W

Comparing a tribander and 1.5 kW to a dipole at 35' and 100 W. Now the “Popgun” is a bit more challenged — with S7 on East Coast, enough for S&P, if nobody else is calling.

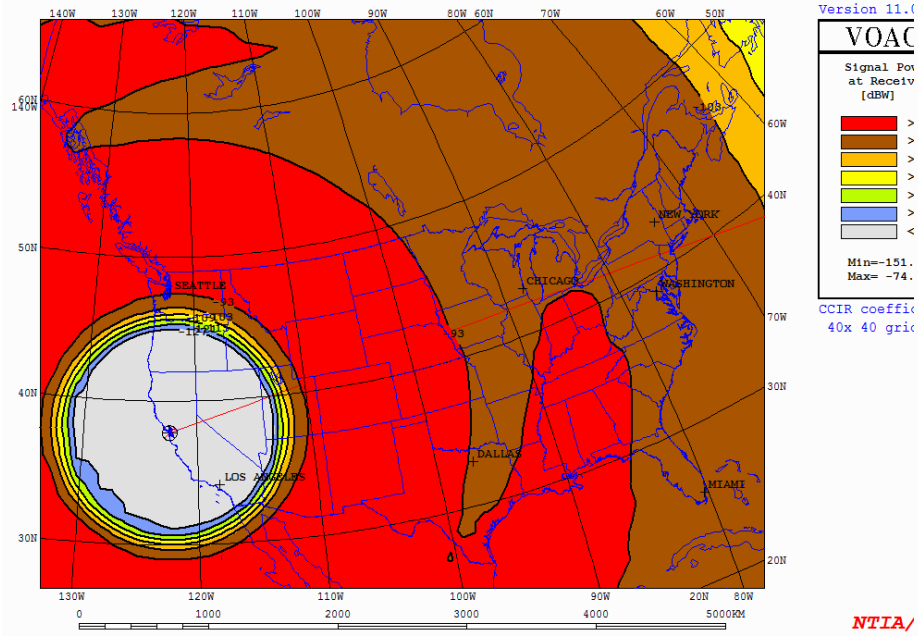
Dipole: 20 Meters to USA, 100 W

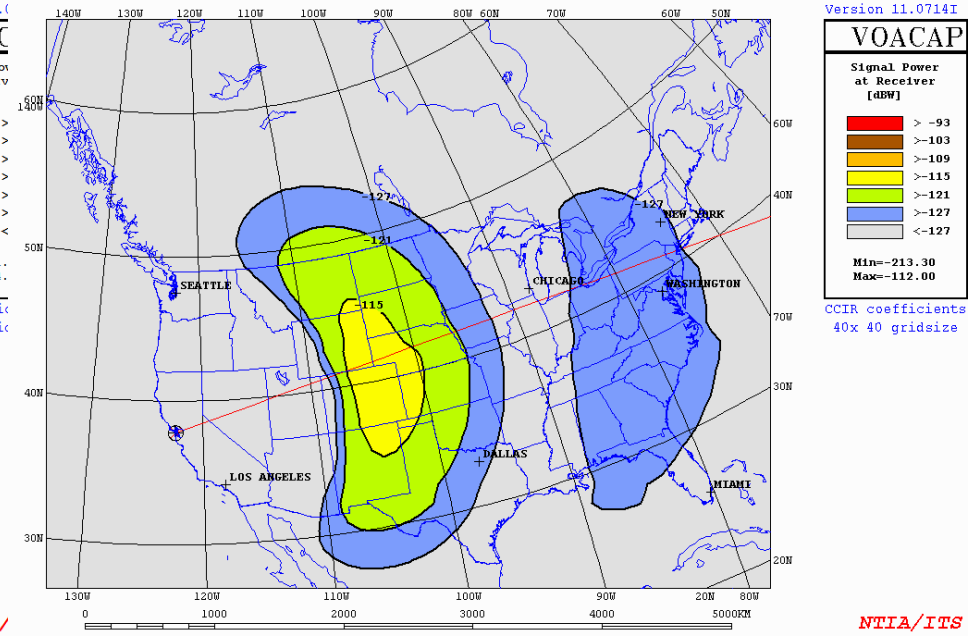
How strong is your splatter?



IMD products about 40 dB down in adjacent voice channels; > 65 dB further out.

IMD: Good 100-W Transceiver





3L20 at 55', 1500 W

IMD 40 dB Down

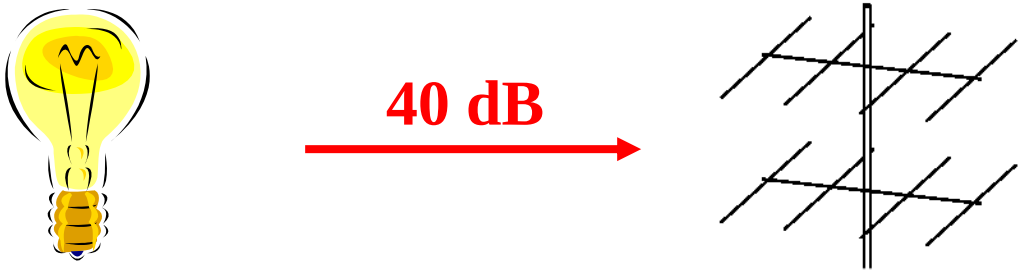
Comparing a tribander at 1.5 kW to adjacent-channel IMD products down 40 dB (0.15 W). So, is an S5 level of splatter good enough on the East Coast?

IMD: 20 Meters to USA

Everything Works – Sort of!

The range of HF antenna gain is not huge — from about –20 dBi to +20 dBi.

• A 40-dB range covers antennas such as a radiating light bulb, all the way up to a stack of monoband Yagis.



Thanks, N6BT, (July 2000 *QST*) for the reality check!

Antennas for Contesting

Little-Gun vs a Superstation

- Today I have presented comparisons between a Big Gun multi-multi contest station and a more modest Little Gun.

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Antennas for Contesting

Little-Gun vs a Superstation

- Today I have presented comparisons between a Big Gun multi-multi contest station and a more modest Little Gun.
- Usually, the Big Gun was stronger by about two S-units due to antennas.
- While it's true that a Little Gun won't be able to steal N6RO's run frequency… the Little Gun still can have *lots* of fun working contests or DX!

Further Listening/Reading

- Check out the following URLs:
  - **http://nccc.cc**, click “Webinars”
  - **http://pvrc.org**, click “Recorded webinars”
  - **http://tinyurl.com/4fvqnb2** for information on area-coverage charts