Sun pass, 13-15 Feb 2019

1. Switchyard connections

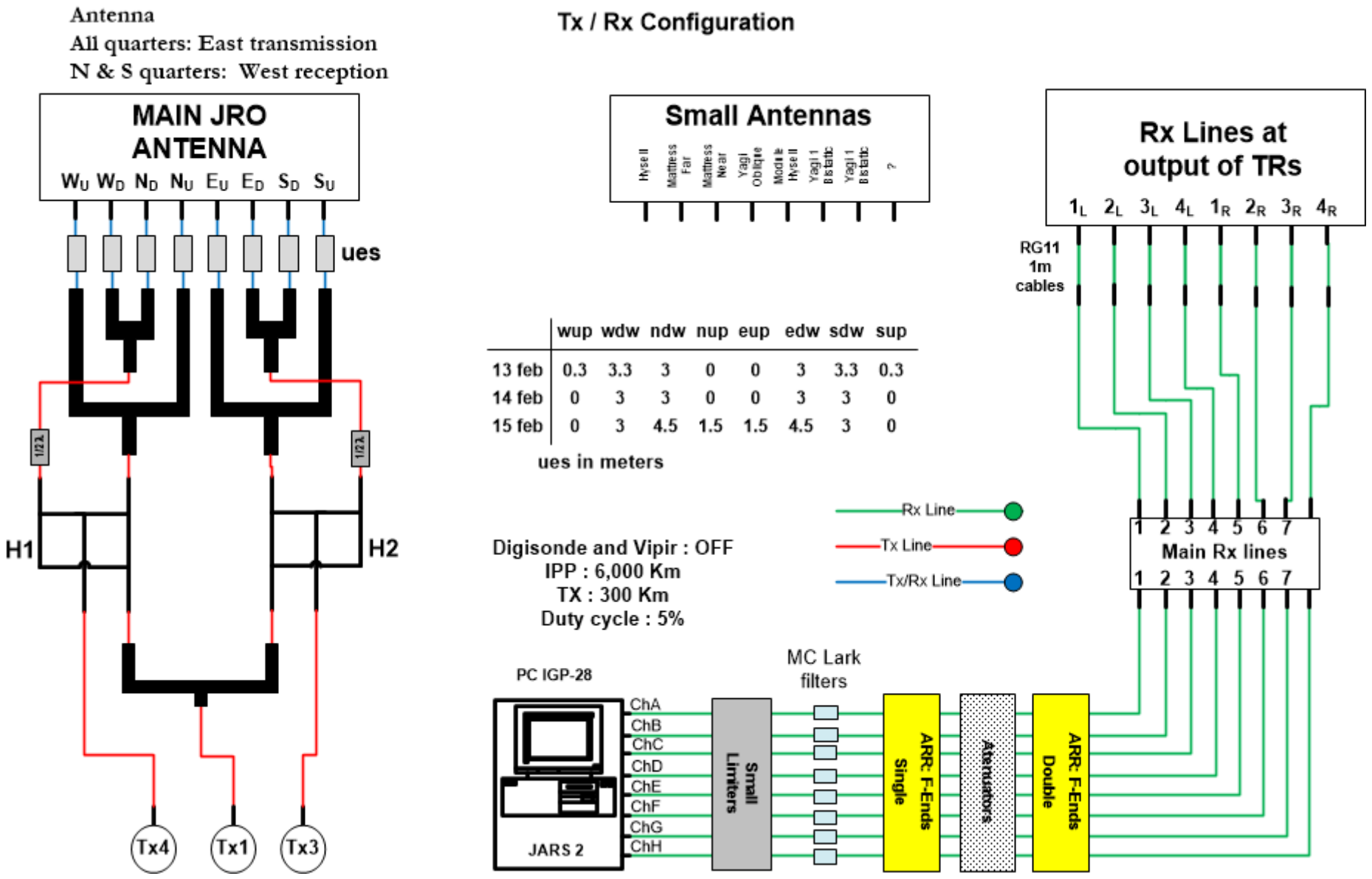

Figure 1

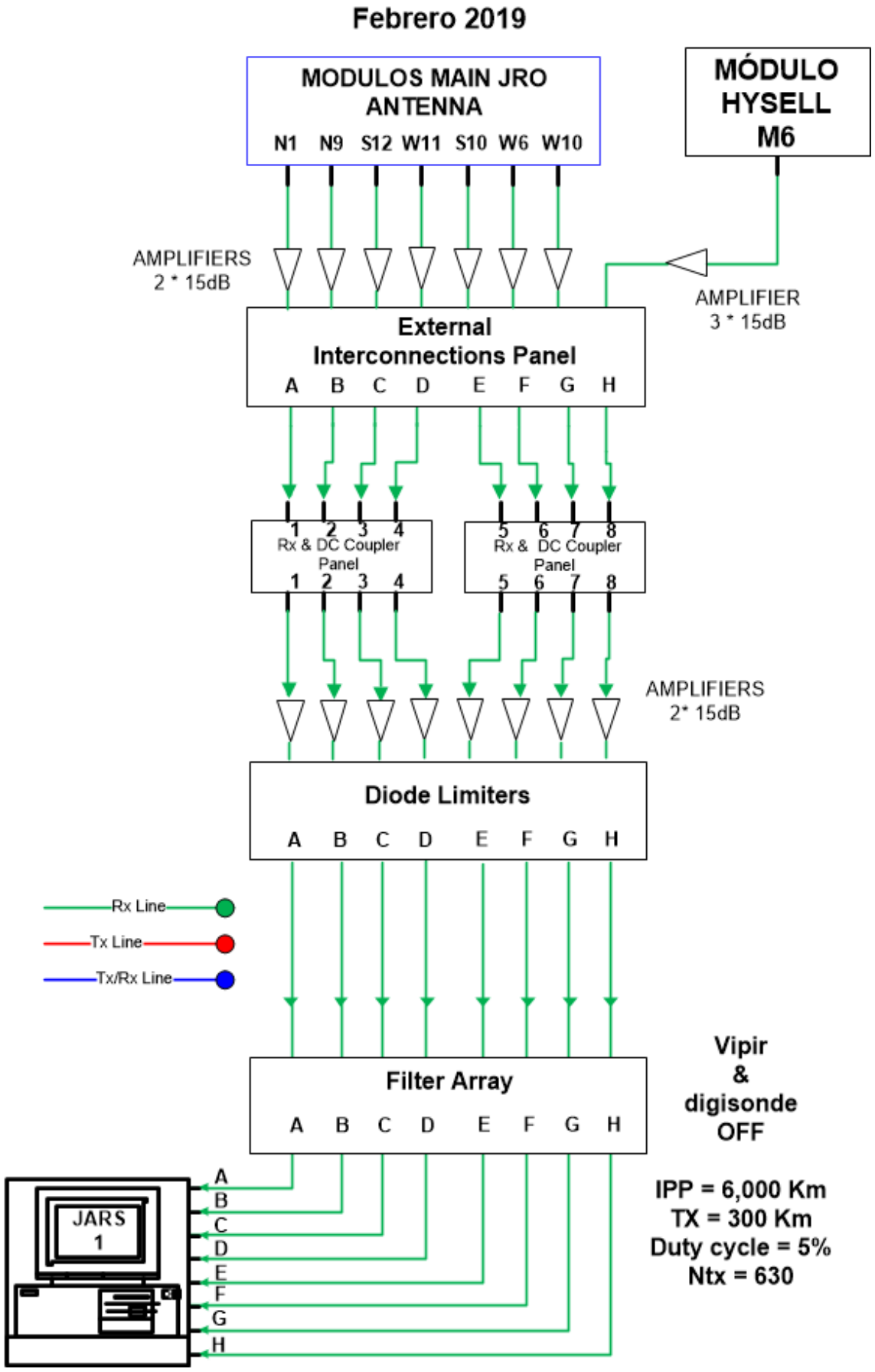
Febrero 2019
MODULOS MAIN JRO ANTENNA
N1 N9 S12 W11 S10 W6 W10
MÓDULO HYSELL M6
AMPLIFIERS 2 * 15dB
AMPLIFIER 3 * 15dB
External Interconnections Panel
A B C D E F G H
1 2 3 4
Rx & DC Coupler Panel
1 2 3 4
5 6 7 8
Rx & DC Coupler Panel
5 6 7 8
AMPLIFIERS 2* 15dB
Diode Limiters
A B C D E F G H
Rx Line
Tx Line
Tx/Rx Line
Filter Array
A B C D E F G H
Vipir & digisonde OFF
IPP = 6,000 Km
TX = 300 Km
Duty cycle = 5%
Ntx = 630
JARS 1
A
B
C
D
E
F
G
H

Figure 2

Main antenna phasing

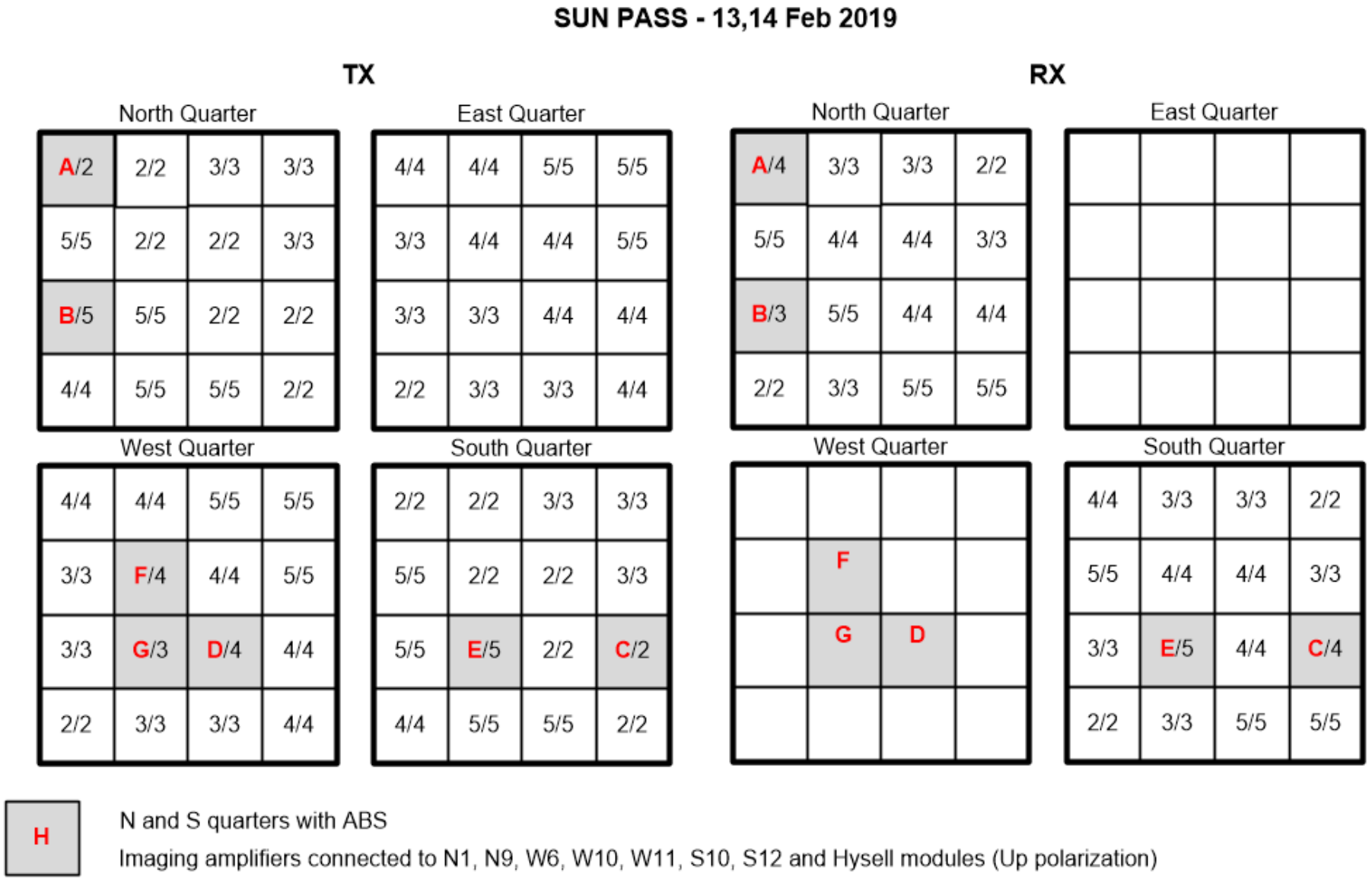

Figure 3

SUN PASS - 15 Feb 2019

TX

North Quarter

A/3	3/3	3/3	3/3
5/5	2/2	2/2	3/3
B/5	5/5	2/2	2/2
4/4	5/5	5/5	2/2

East Quarter

5/5	5/5	5/5	5/5
3/3	4/4	4/4	5/5
3/3	3/3	4/4	4/4
2/2	3/3	3/3	4/4

West Quarter

5/5	5/5	5/5	5/5
3/3	F/4	4/4	5/5
3/3	G/3	D/4	4/4
2/2	3/3	3/3	4/4

South Quarter

3/3	3/3	3/3	3/3
5/5	2/2	2/2	3/3
5/5	E/5	2/2	C/2
4/4	5/5	5/5	2/2

RX

North Quarter

A/5	4/4	4/4	2/2
5/5	4/4	4/4	3/3
B/3	5/5	4/4	4/4
2/2	3/3	5/5	5/5

East Quarter

West Quarter

	F		
	G	D	

South Quarter

5/5	4/4	4/4	2/2
5/5	4/4	4/4	3/3
2/3	E/5	5/4	C/4
2/2	3/3	5/5	5/5

H

N and S quarters with ABS

Imaging amplifiers connected to N1, N9, W6, W10, W11, S10, S12 and Hysell modules (Up polarization)

Figure 4

3. Antenna pattern

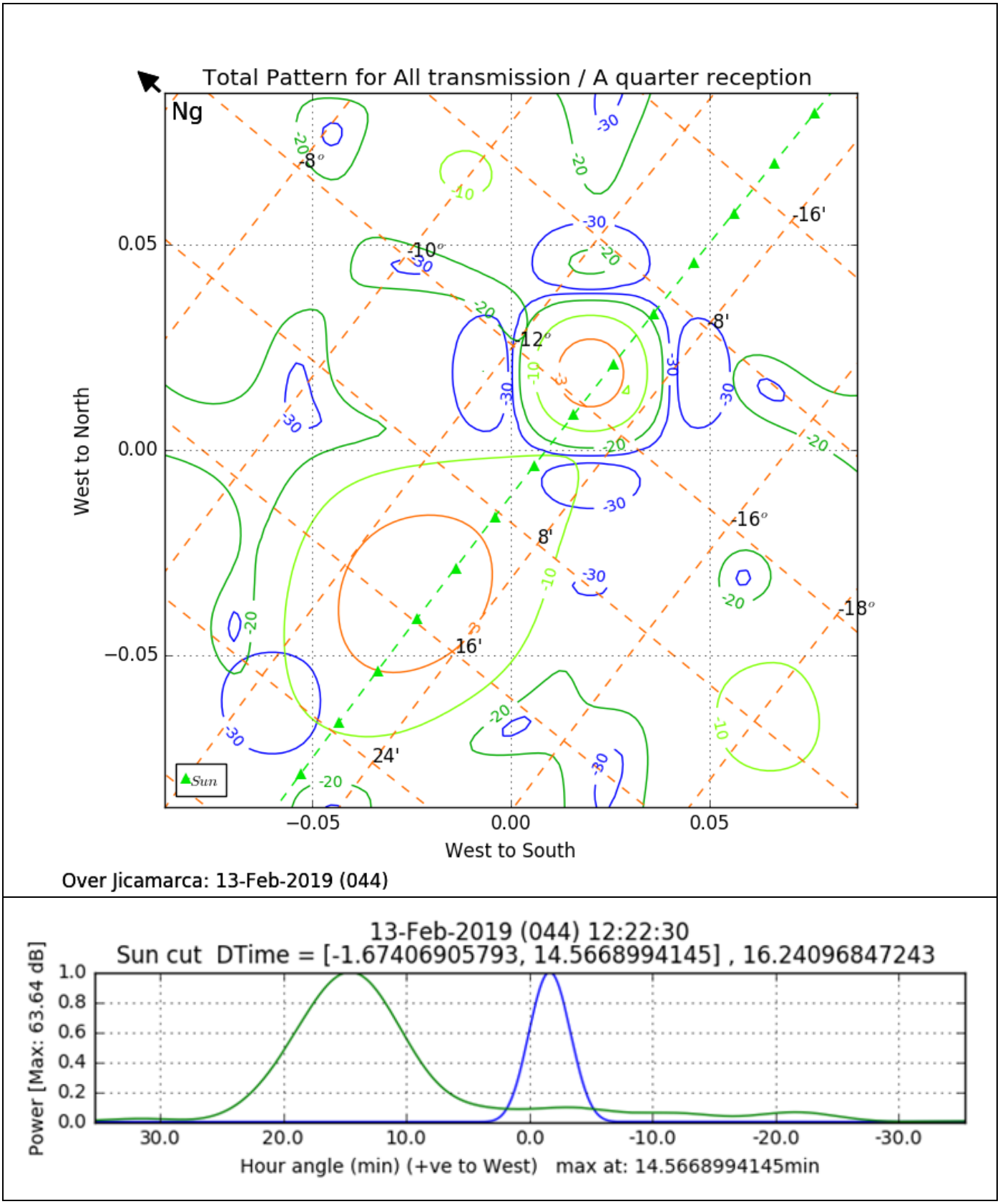

Figure 5 Down

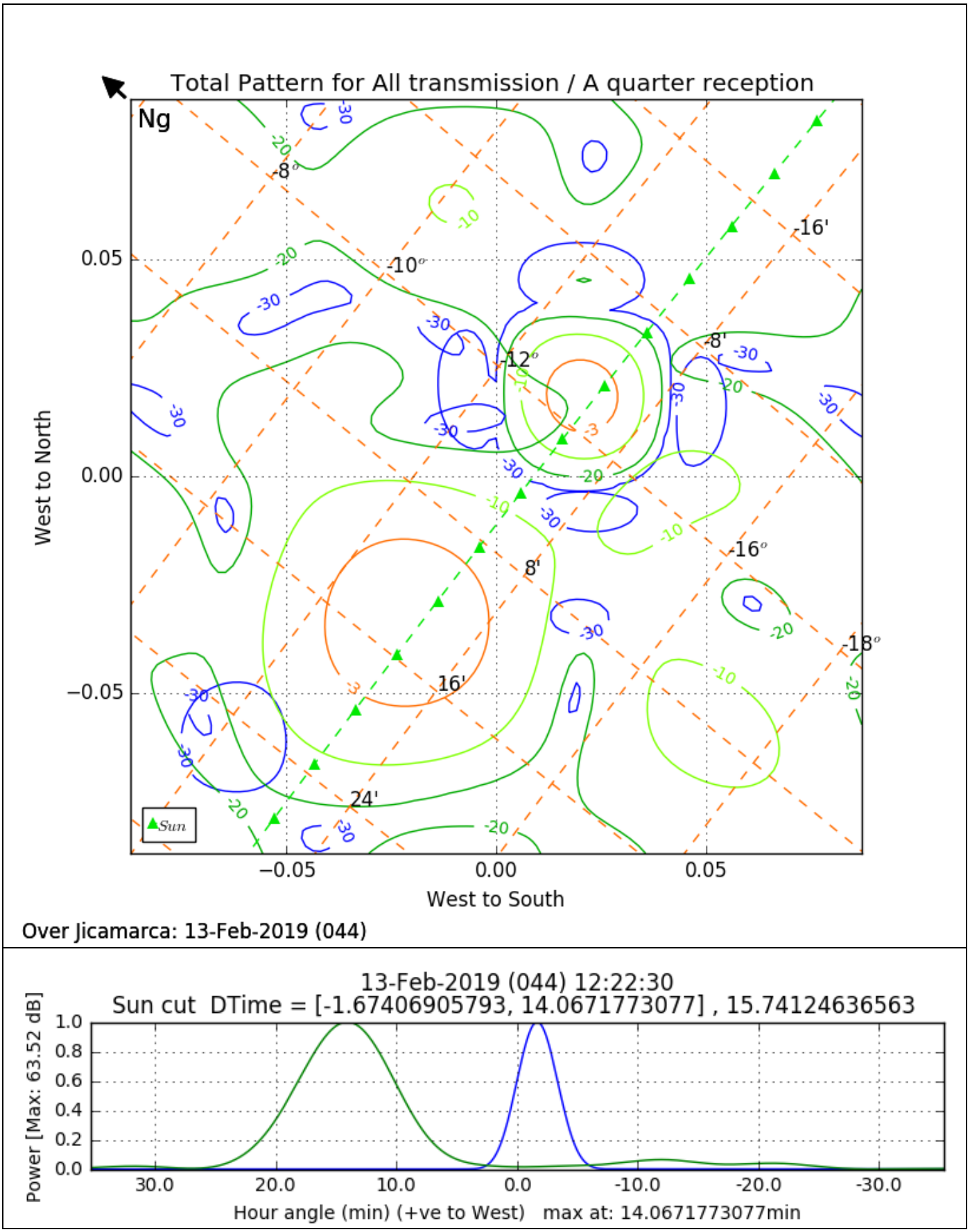

Figure 6 UP North reception quarter

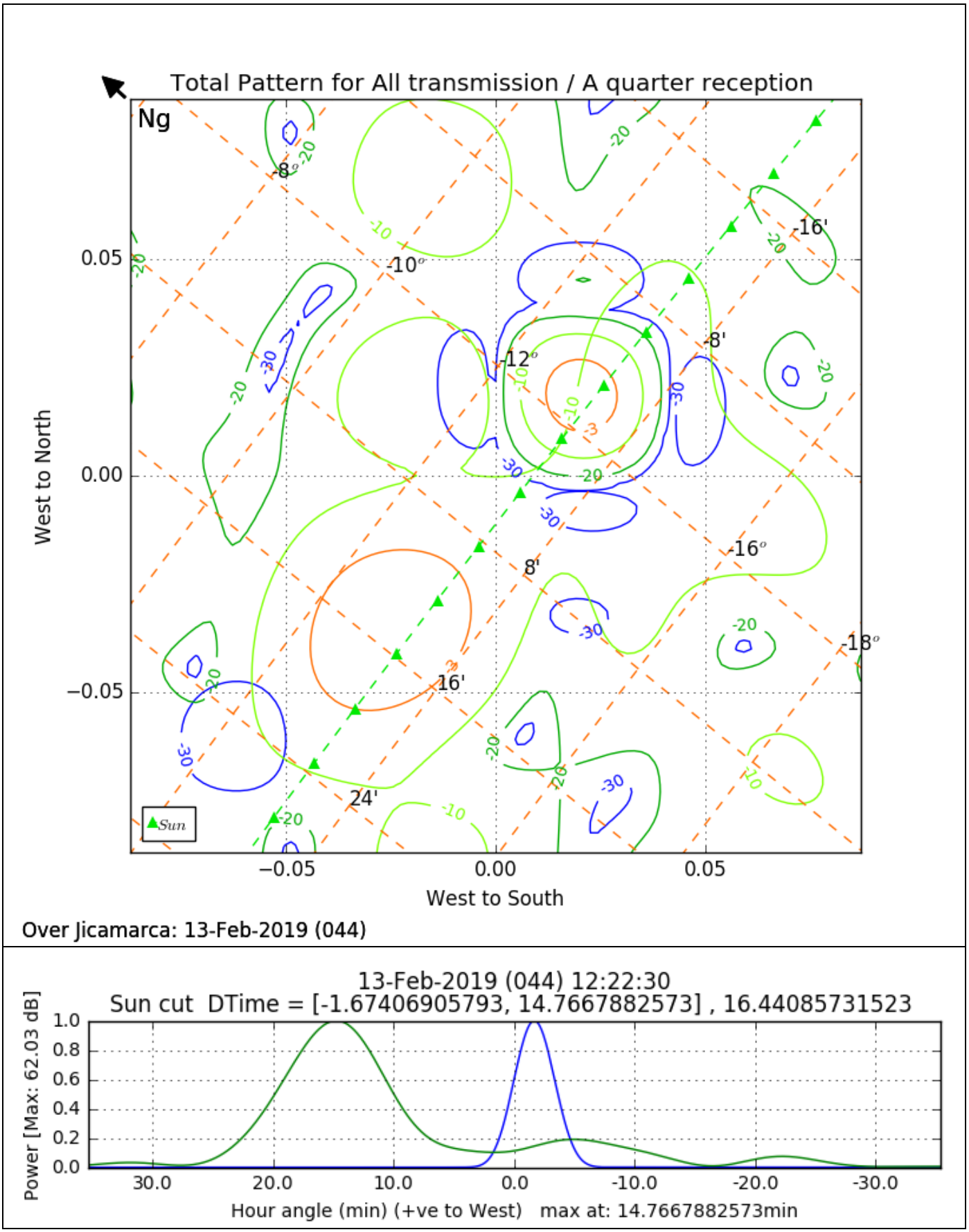

Figure 7 UP South reception quarter

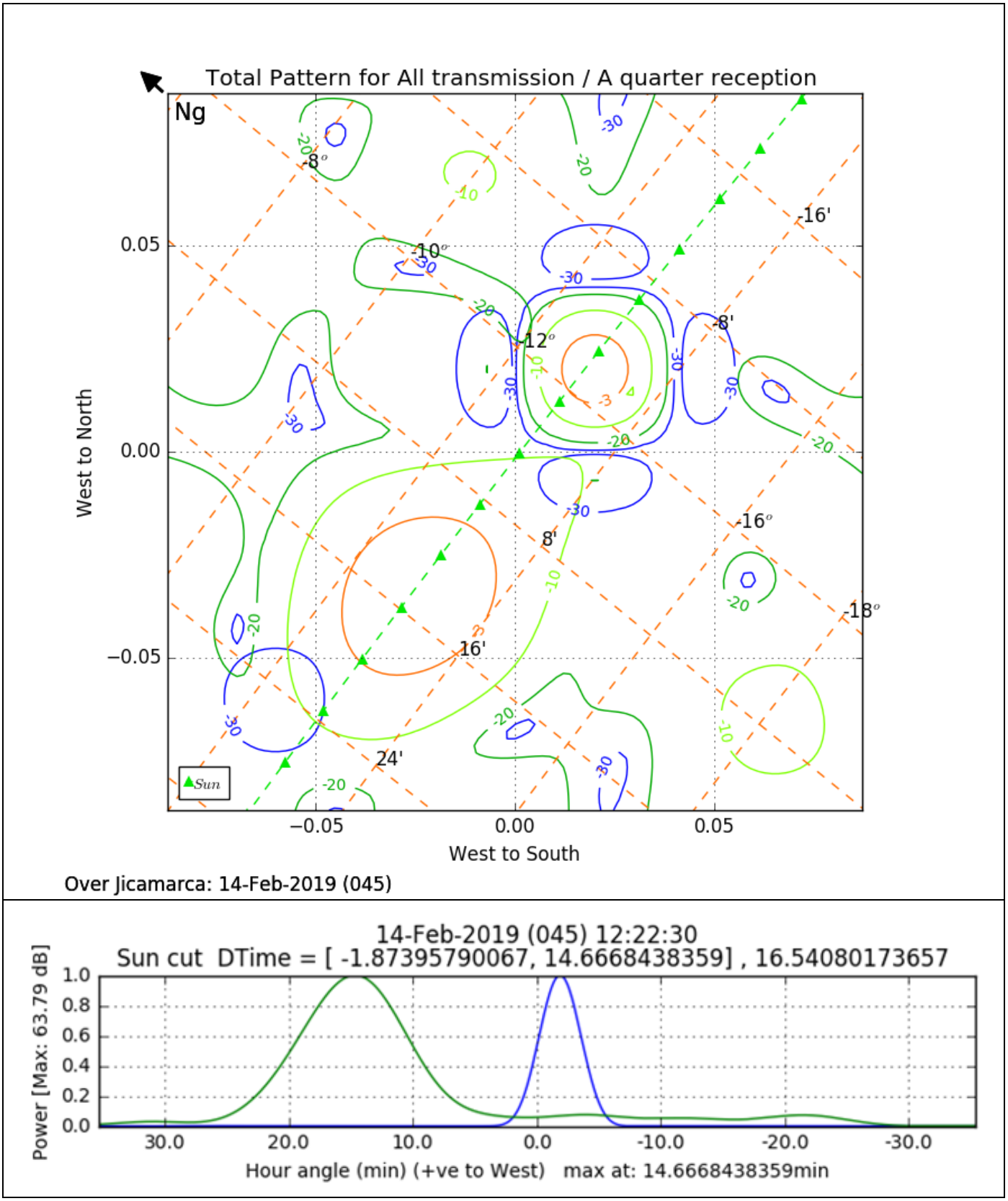

Figure 8 Down

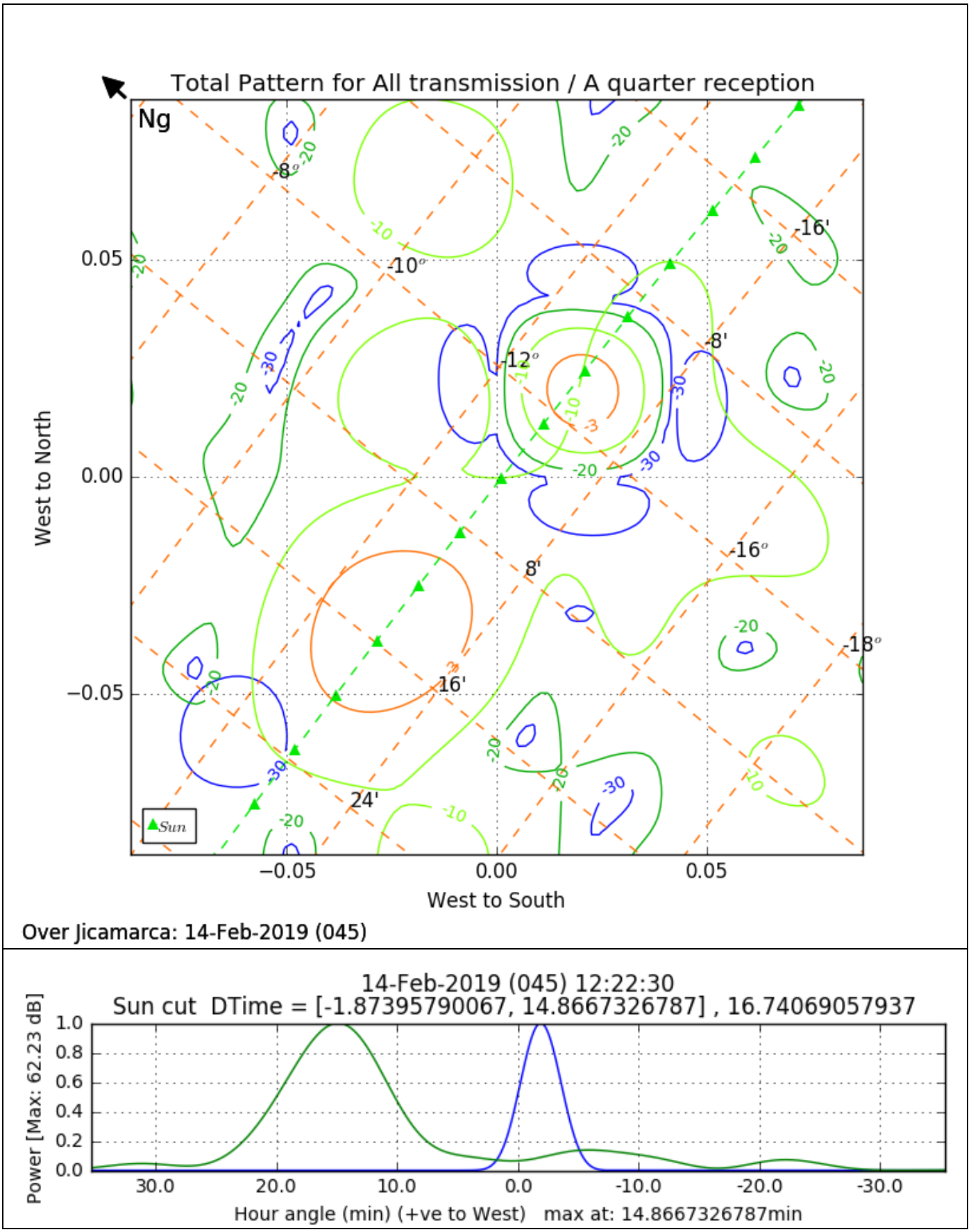

Figure 9 UP South reception quarter

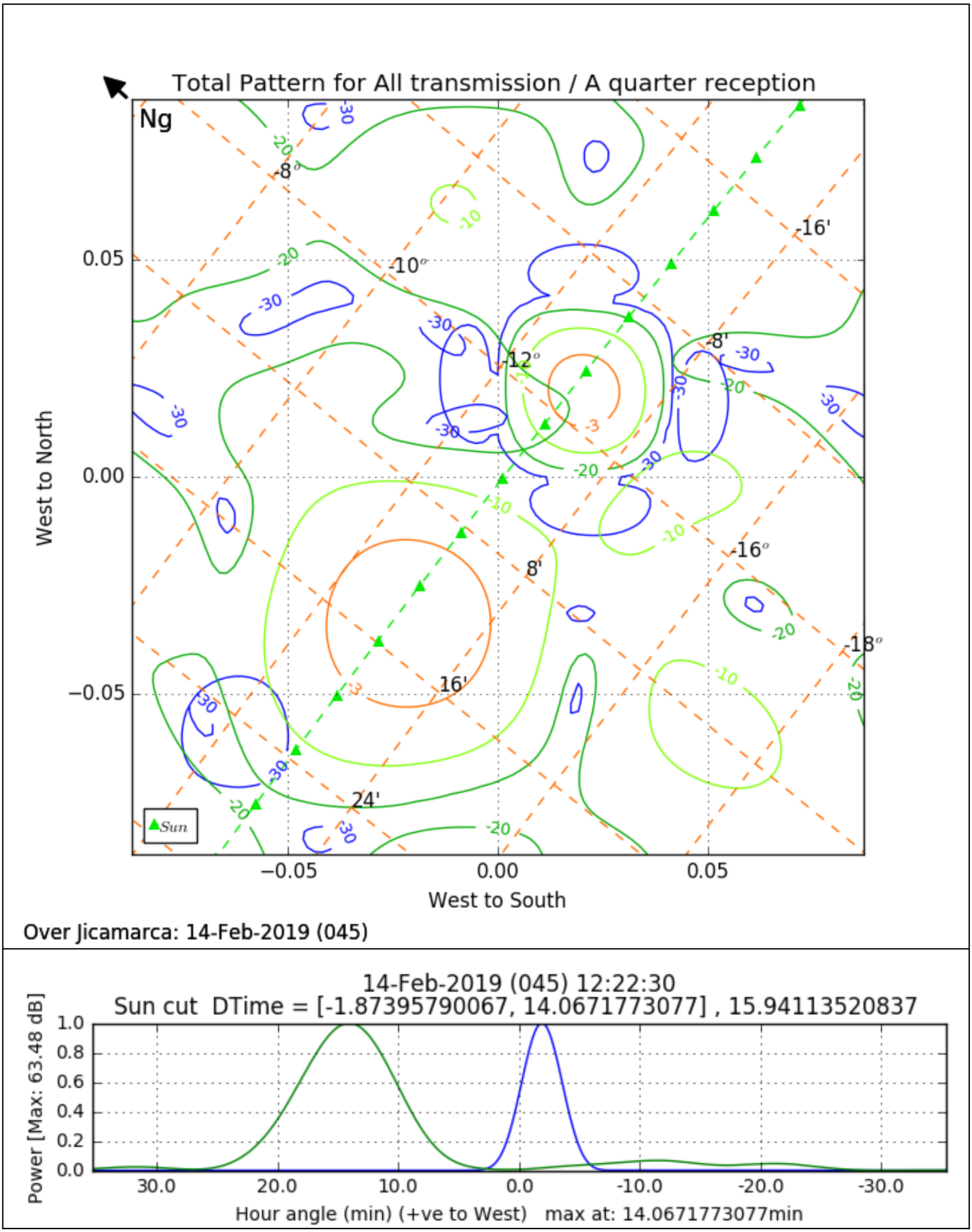

Figure 10 UP North reception quarter

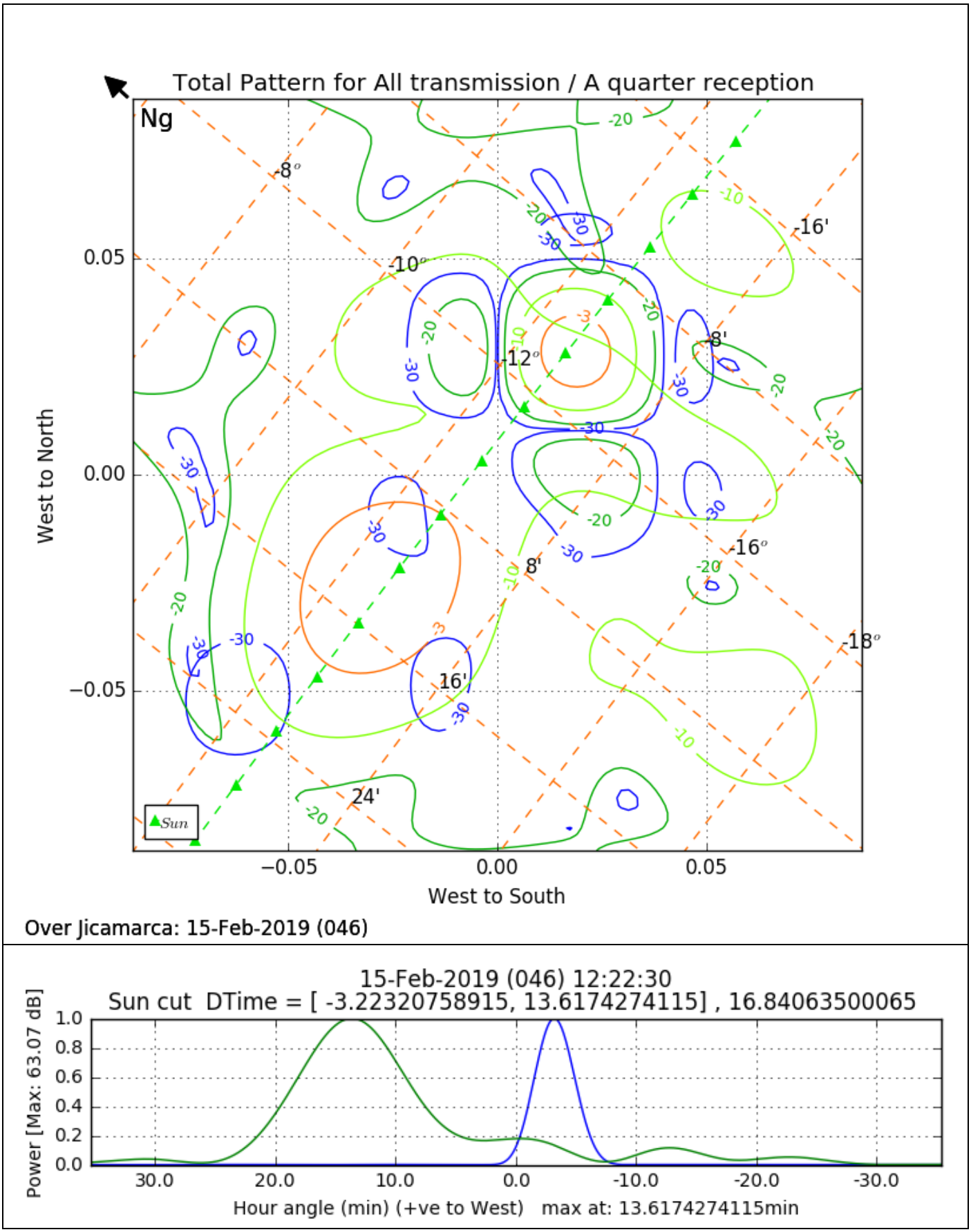

Figure 11 Down

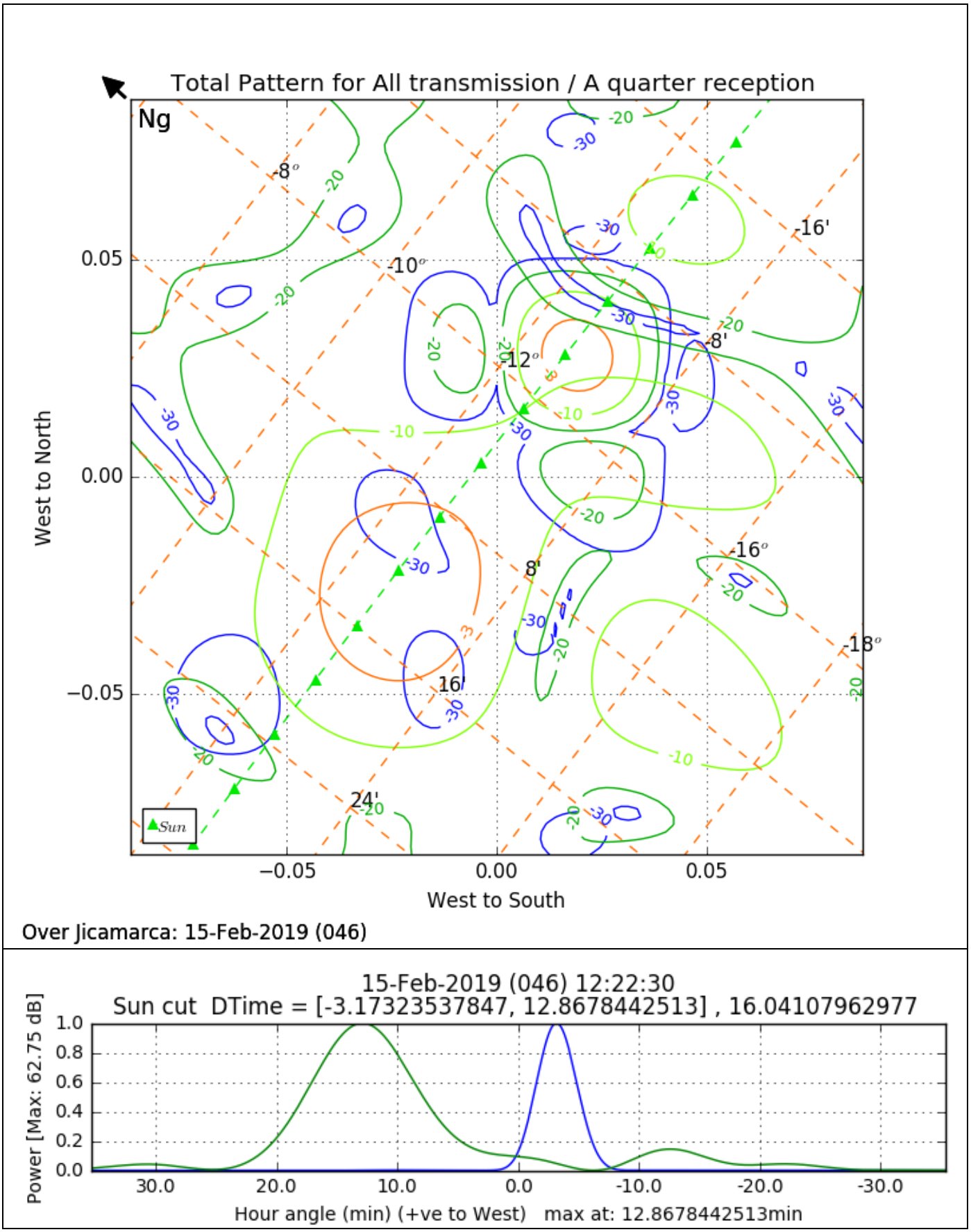

Figure 12 UP North reception quarter

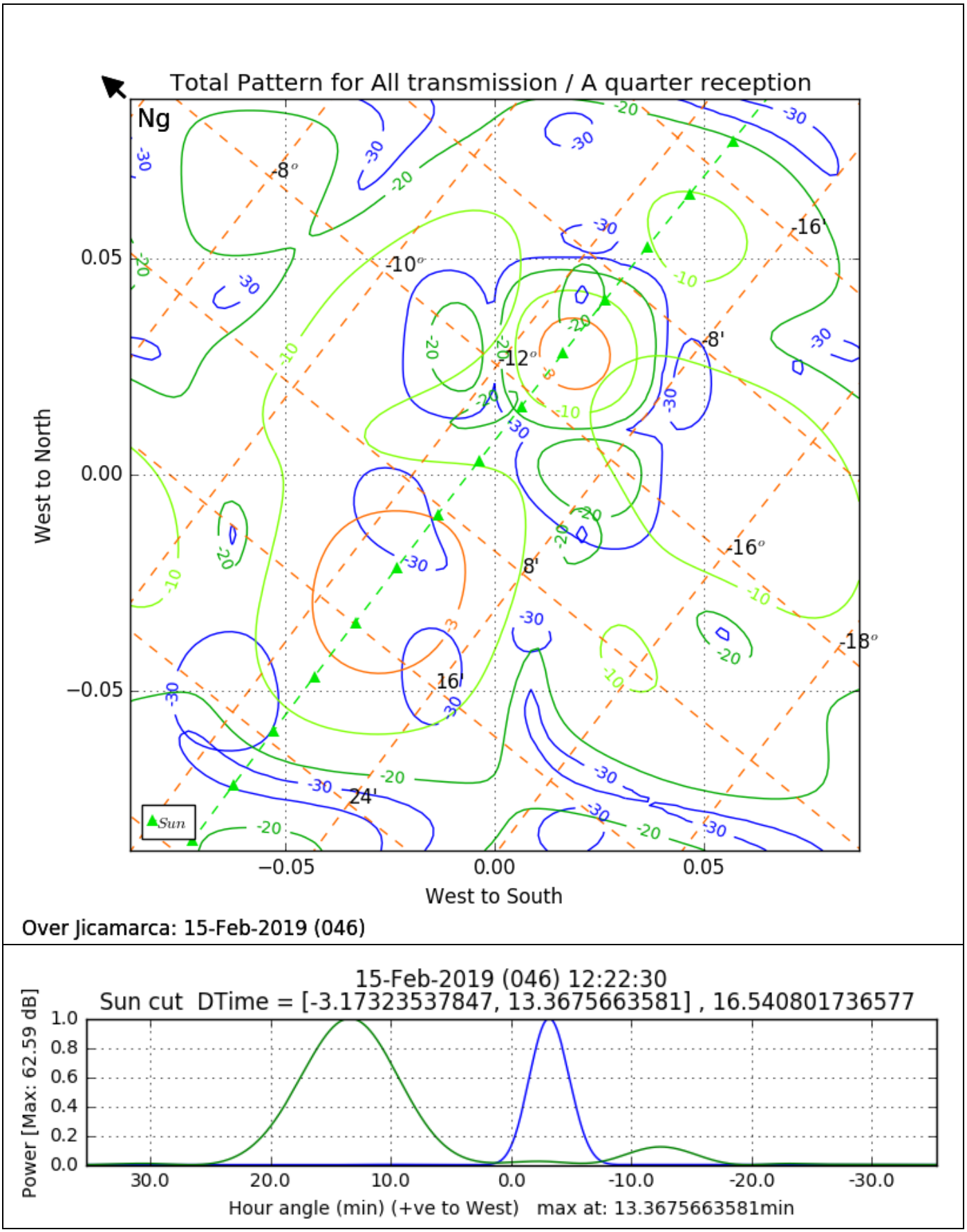

Figure 13 UP South reception quarter

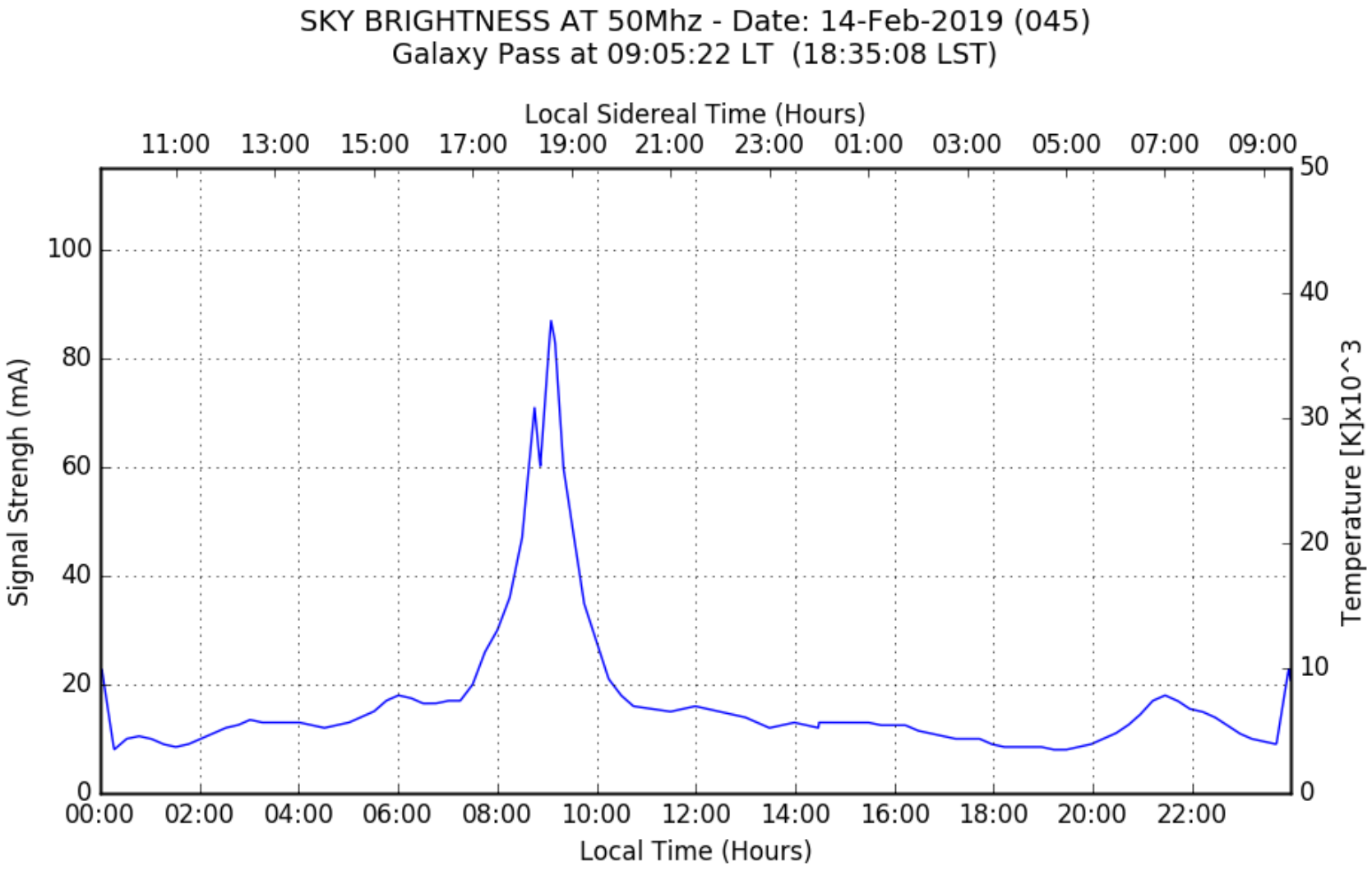
SKY BRIGHTNESS AT 50Mhz - Date: 14-Feb-2019 (045)
Galaxy Pass at 09:05:22 LT (18:35:08 LST)
Local Sidereal Time (Hours)
11:00
13:00
15:00
17:00
19:00
21:00
23:00
01:00
03:00
05:00
07:00
09:00
Signal Strengh (mA)
0
20
40
60
80
100
Temperature [K]x10^3
0
10
20
30
40
50
00:00
02:00
04:00
06:00
08:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
Local Time (Hours)

Figure 14

4. Experiment overview

<table>
<tr><td></td><td>PARAMETERS</td></tr>
<tr><td>Schedule</td><td>23:00 to 01:00 LT : Hydra pass
11:00 to 14:00 LT : Sun pass</td></tr>
<tr><td>Syncrhonization</td><td>None</td></tr>
<tr><td>NTX</td><td>630</td></tr>
<tr><td>IPP</td><td>6,000km (40mS)</td></tr>
<tr><td>TxA</td><td>300Km (2mS)</td></tr>
<tr><td>Duty cycle</td><td>5 %</td></tr>
<tr><td>Transmitters</td><td>Tx1, Tx3 y Tx4</td></tr>
<tr><td>Transmitter frequency</td><td>F1=50.02 MHz / F2=49.82 (FSK mode)</td></tr>
<tr><td>Freq. per IPP</td><td><table><tr><td>NTX</td><td>Code</td><td>Freq</td></tr><tr><td>1</td><td>1</td><td>F1</td></tr><tr><td>2</td><td>1</td><td>F1</td></tr><tr><td>3</td><td>1</td><td>F1</td></tr><tr><td>…</td><td>…</td><td></td></tr><tr><td>630</td><td>0</td><td>F2</td></tr></table></td></tr>
<tr><td>NTX as F1, otherwise is F2</td><td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620</td></tr>
<tr><td>Acquisition system</td><td>JARS 1 y 2</td></tr>
<tr><td>Sampling window</td><td>Window1<table><tr><td>h0</td><td>0km</td></tr><tr><td>dh</td><td>0.15km / 1.5</td></tr><tr><td>nsa</td><td>39,980 /3,998</td></tr></table></td></tr>
<tr><td># channels</td><td>16</td></tr>
<tr><td>Profiles per Block</td><td>7</td></tr>
<tr><td>Blocks per File</td><td>9</td></tr>
<tr><td>Data type</td><td>Raw Data</td></tr>
<tr><td>Data rate (GB/h)</td><td>110 / 10</td></tr>
</table>

Table 1

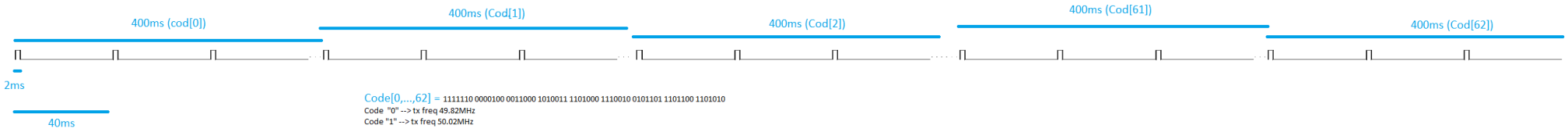
400ms (cod[0])
400ms (Cod[1])
400ms (Cod[2])
400ms (Cod[61])
400ms (Cod[62])
2ms
40ms
Code[0,...,62] = 1111110 0000100 0011000 1010011 1101000 1110010 0101101 1101100 1101010
Code "0" --> tx freq 49.82MHz
Code "1" --> tx freq 50.02MHz

Figure 15

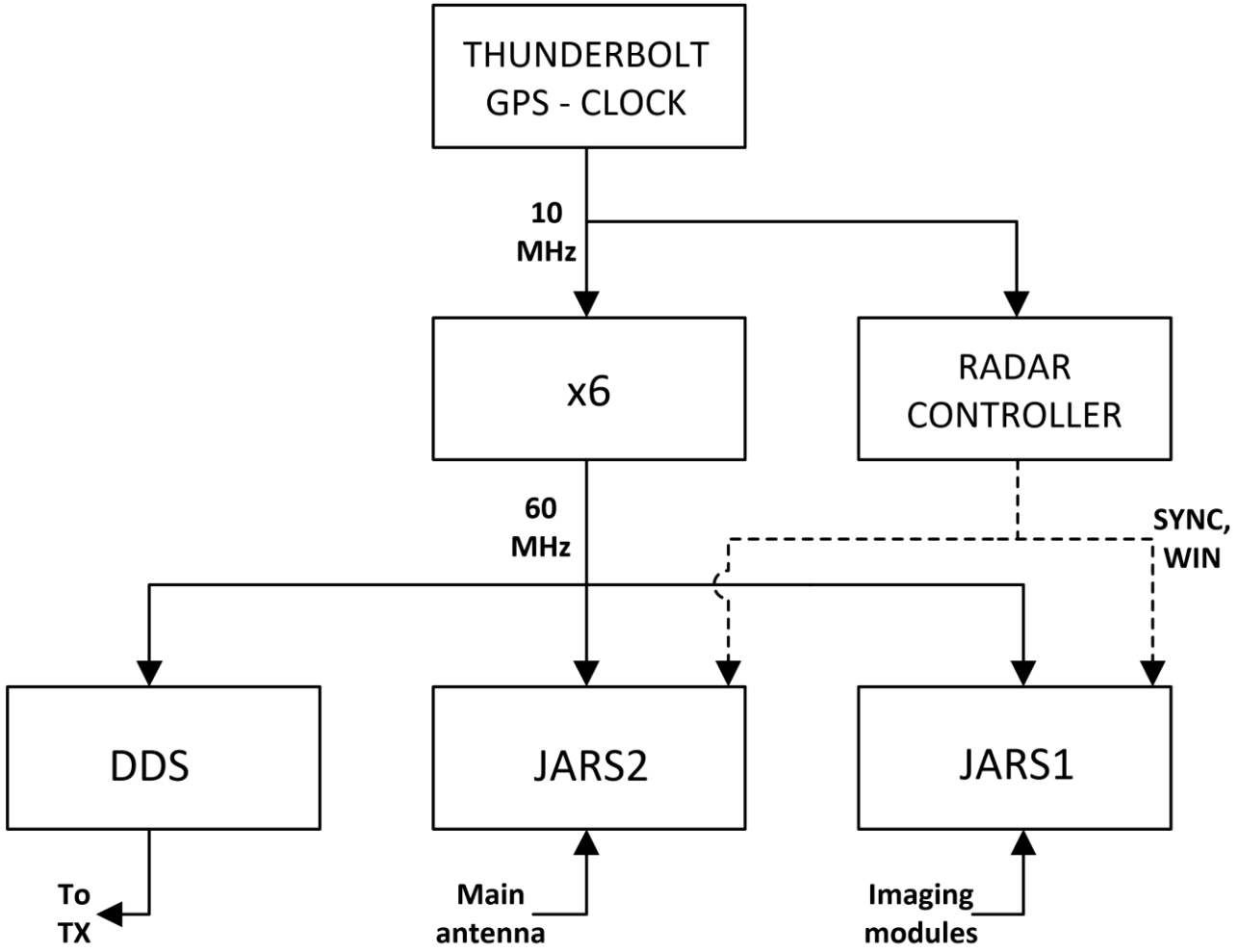

Figure 16 Operation room connections