

수 신 : 김 희 수 선임연구원

No. 연 - 4 - 330

Date. 2004년 11월 2일

참 조 : 김 대 열 대리

송 신 : 전 용 승 선임연구원

제 목 : VK-900 폰에 해당하는 대역&채널별 측정환경과 측정내용 요약합니다.

다음과 같이 EMW Antenna의 안테나 측정환경과 측정내용을 요약합니다.

1. 측정환경

- 핸드폰 VK-900에 VK-900 Antenna를 체결 후 측정
- 안테나 상태는 Fixed Antenna, · 핸드폰 상태는 Close, Open

· **Matching**

- Matching : Antenna 단부터 → shunt 1.2pF , Series 3.2nH , Shunt NC

· **주파수 대역은 GSM : Low 채널 1번 (Tx : 890.2 Rx: 935.2)**

Mid 채널 65번(Tx : 903, Rx : 948)

High 채널 124번(Tx : 914.8 ,Rx : 959.8 MHz)

DCS-1800 : Low 채널 512번 (Tx : 1710.2, Rx: 1805.2 MHz)

Mid 채널 698번(Tx : 1747.4, Rx : 1842.4 MHz)

High 채널 885번(Tx : 1784.8, Rx : 1879.8 MHz)

PCS-1900 : Low 채널 512번 (Tx : 1850.2, Rx: 1930.2 MHz)

Mid 채널 698번(Tx : 1880, Rx : 1960 MHz)

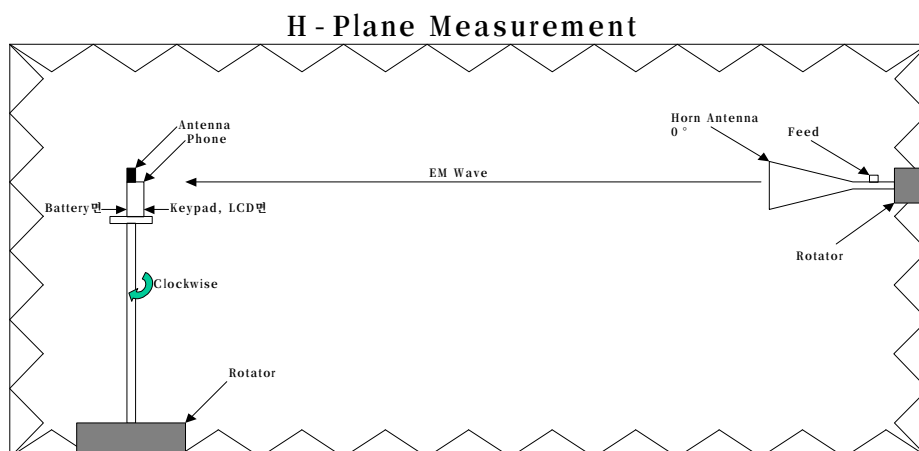
High 채널 885번(Tx : 1909.8, Rx : 1989.8 MHz)

2. 측정내용

- VSWR, Smith-chart, H-pattern

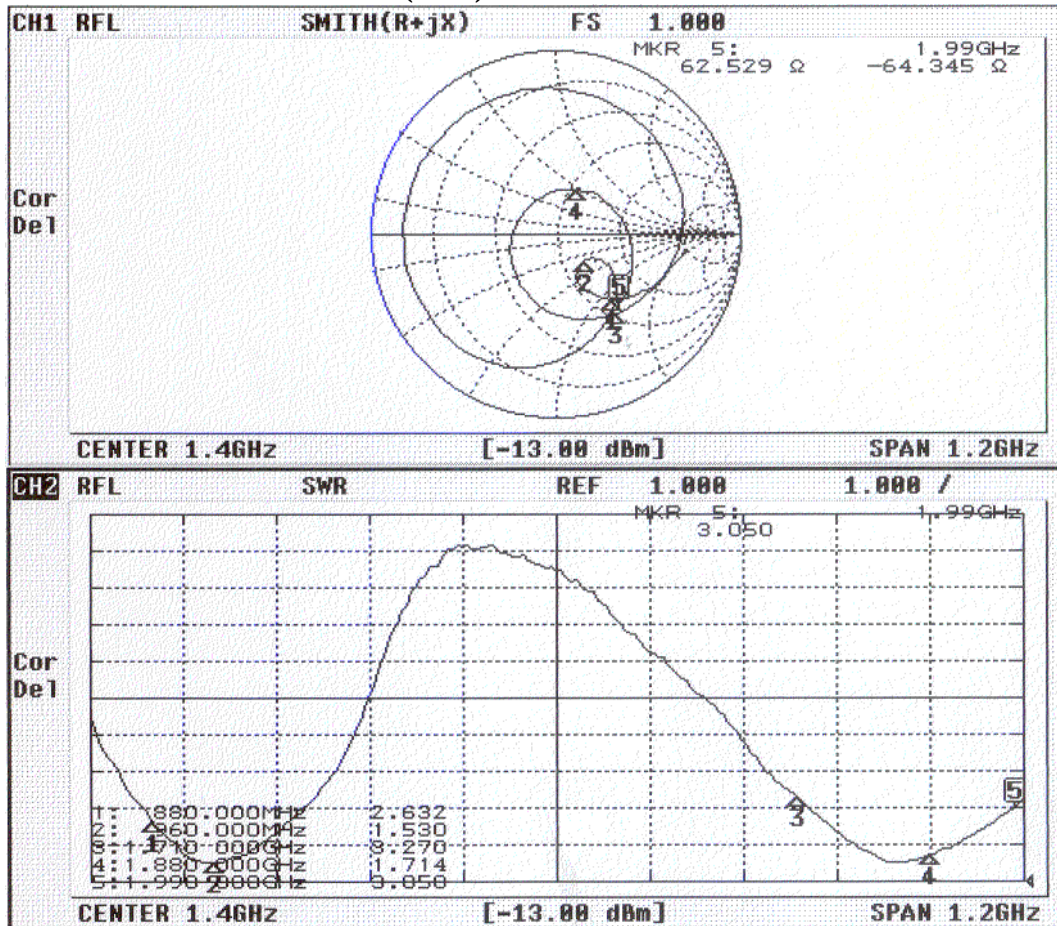
3. 측정방법

- 회전방향 : CW

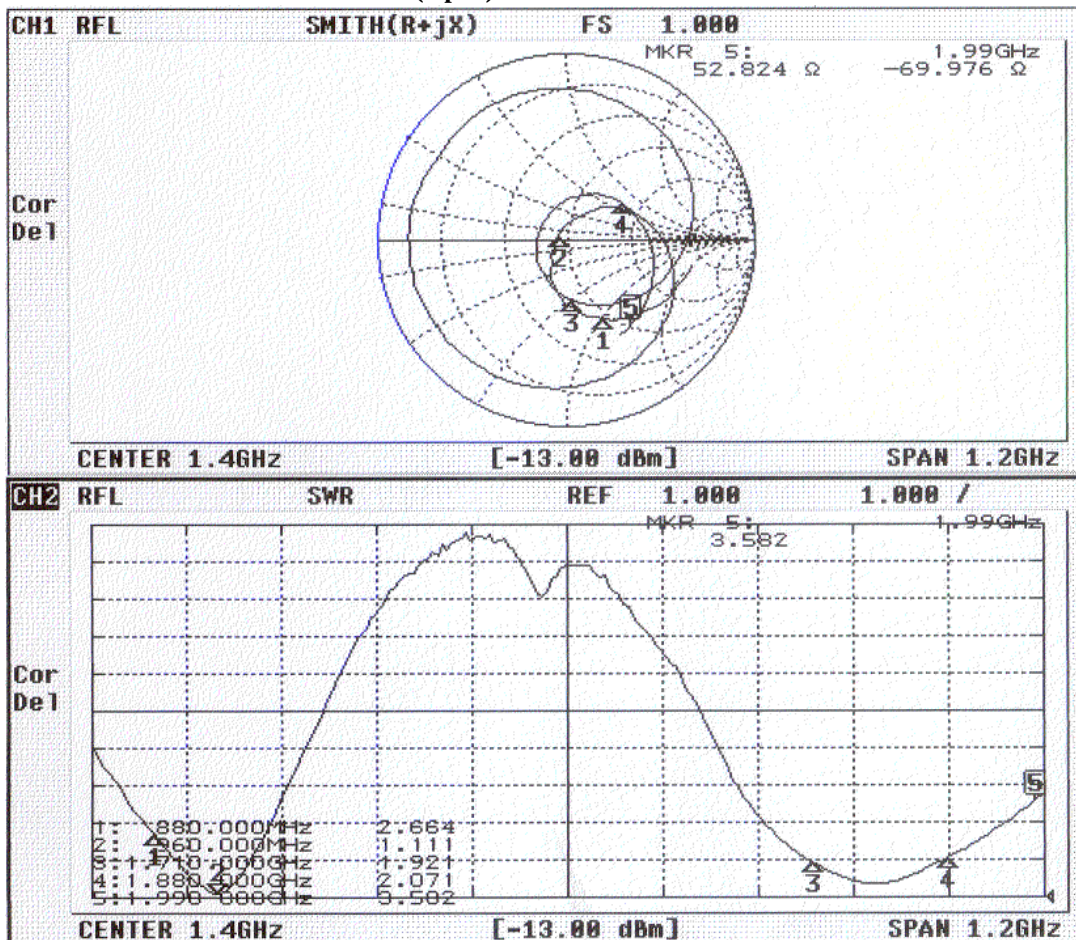


4. 측정결과

· VK-900 Smith chart & VSWR (Close)



· VK-900 Smith chart & VSWR (Open)



• **VK-900 H Pattern Slide Down (GSM LOW)**

Operator:

VK900 H Pattern

Date 11/2/04 10:03 AM

Handset: VK900
Antenna: VK900 Antenna
Antenna State: Fixed. Slide DOWN
Matching: Shunt 1.2pF, Series 3.2nF,
Shunt NC
ADD:

ADD :

Side lobes

Data- base

Axial
Ratio

Side Lobes

No.	deg	dB
1L	-2.09	-106.2

visible section

Alignment No
Display Line

Display Line

[illegible]

- **VK-900 H Pattern Slide Down (GSM Middle)**

Operator: jun

VK900 H Pattern

Date 11/2/04 10:03 AM

Handset: VK900
Antenna: VK900 Antenna
Antenna State: Fixed, Slide DOWN
Matching: Shunt 1.2pF, Series 3.2nF, Shunt NC

ADD:

Side lobes

Database

Axial
Ratio

Side Lobes

No.	deg	dB
1L	-2.31	-106.2

visible section

Alignment No
Display  Line

Display Line

[illegible]

- **VK-900 H Pattern Slide Down (GSM High)**

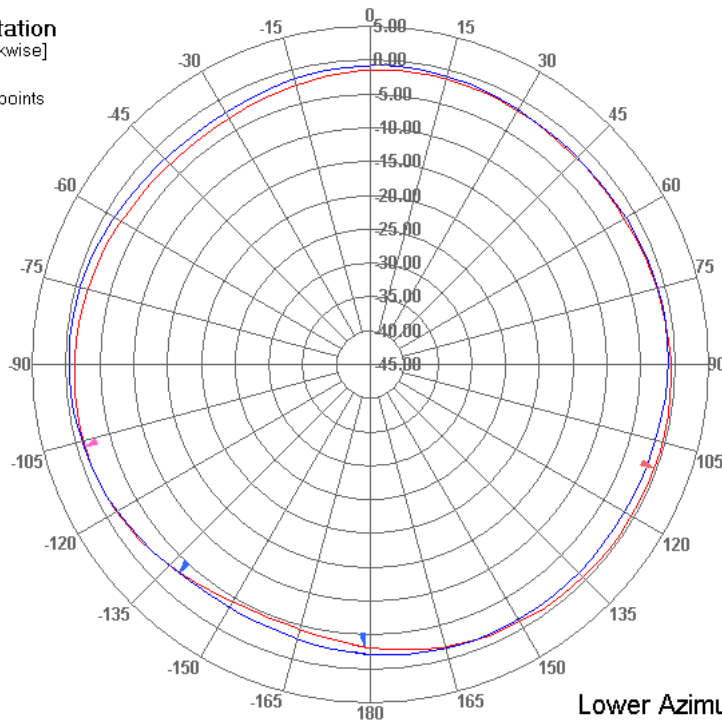
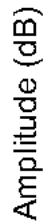
Operator: jun

VK900 H Pattern

Date 11/2/04 10:03 AM

Handset: VK900
Antenna: VK900 Antenna
Antenna State: Fixed, Slide DOWN
Matching: Shunt 1.2pF, Series 3.2nF,
 Shunt NC
ADD:

☐ Representation
Original [clockwise]

☐ Connect end points

Lower Azimuth [deg]

[illegible]

Side lobes	Data-base	Axial Ratio
------------	-----------	-------------

[illegible]

visible section



Alignment  No
Display  Linear

- **VK-900 H Pattern Slide UP (GSM LOW)**

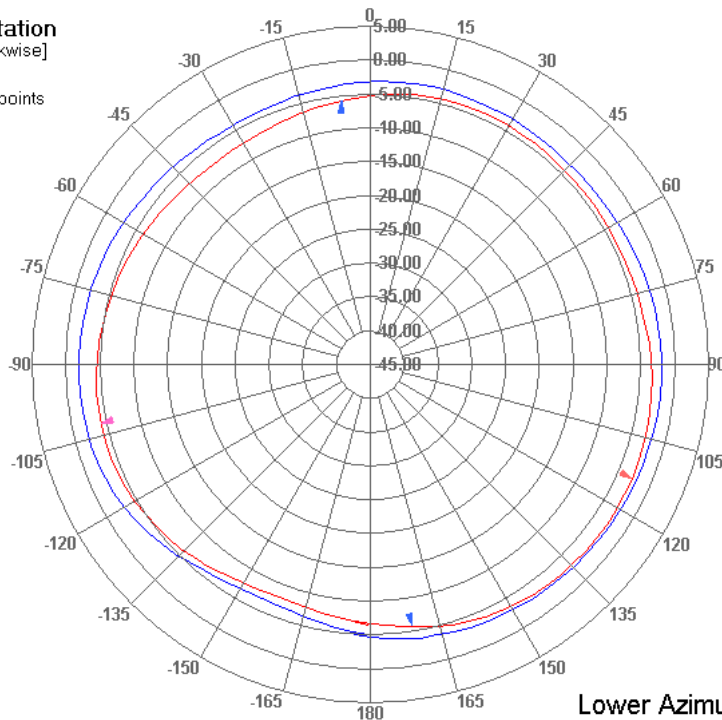
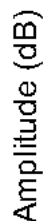
Operator: jun

VK900 H Pattern

Date 11/2/04 9:56 AM

Handset: VK900
Antenna: VK900 Antenna
Antenna State: Fixed, Slide UP
Matching : Shunt 1.2pF, Series 3.2nF,
 Shunt NC
ADD :

☐ Representation
Original [clockwise]

☐ Connect end points

Lower Azimuth [deg]

[illegible]

Side lobes	Data-base	Axial Ratio
------------	-----------	-------------

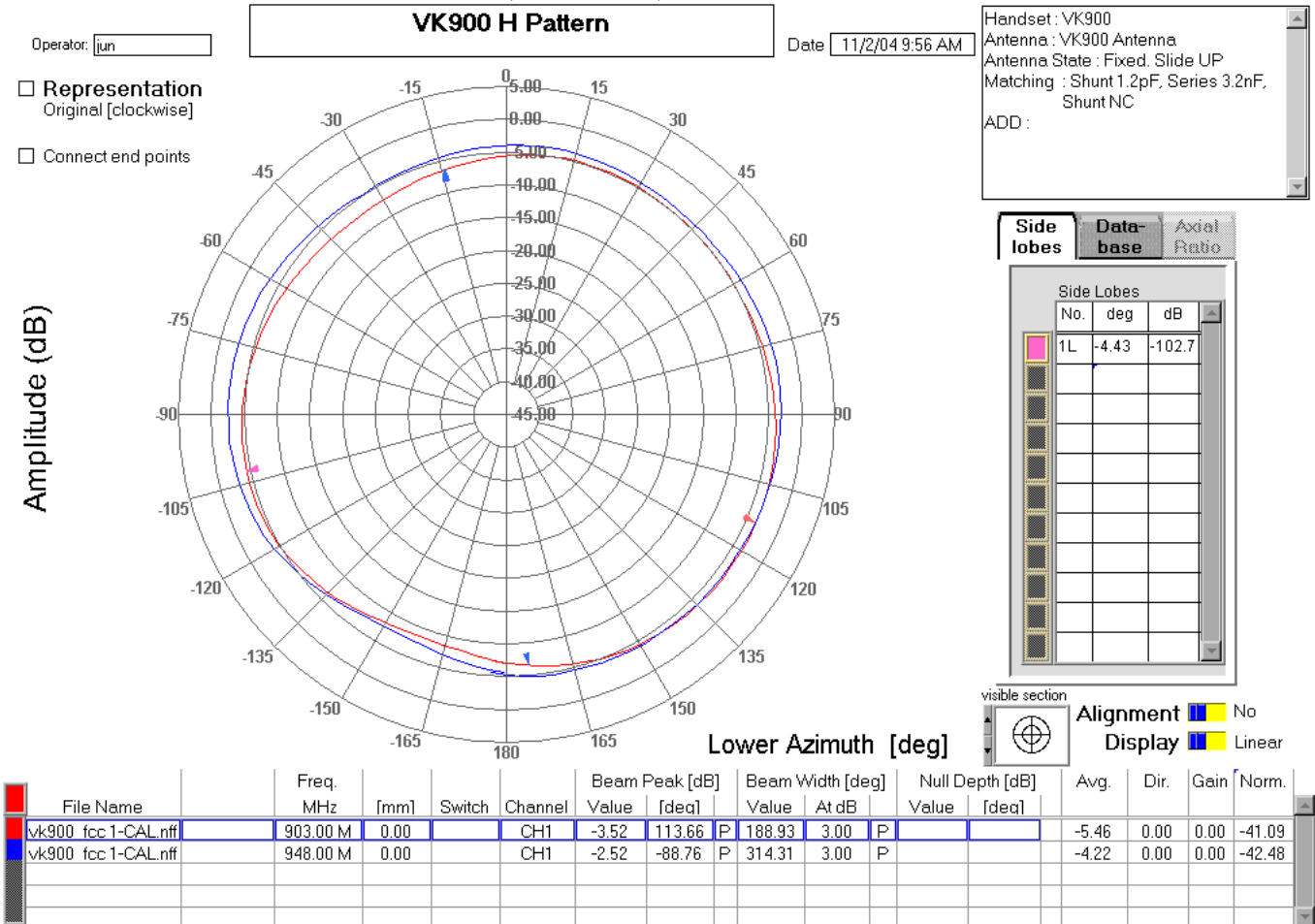
[illegible]

visible section

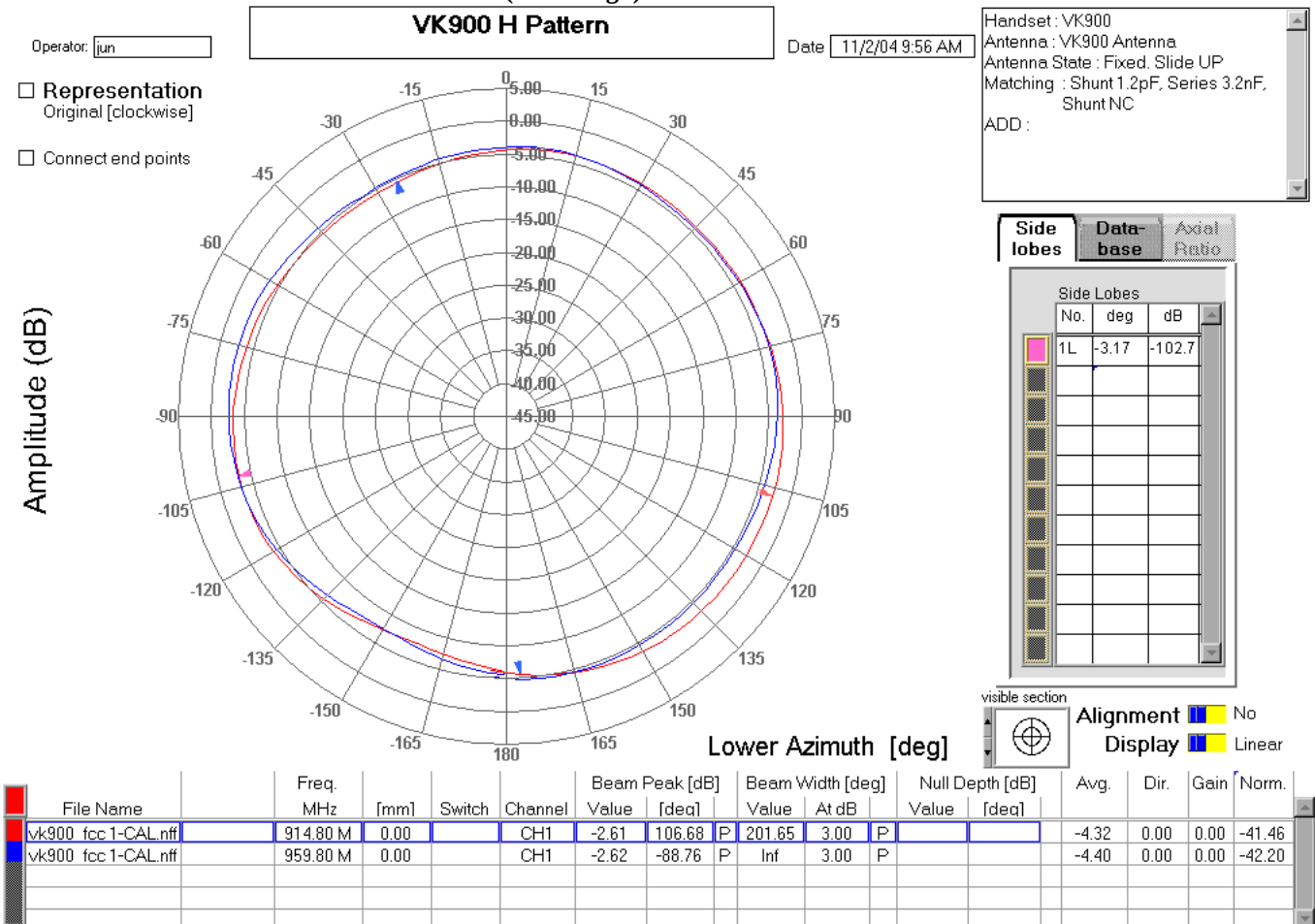


Alignment  No
Display  Linear

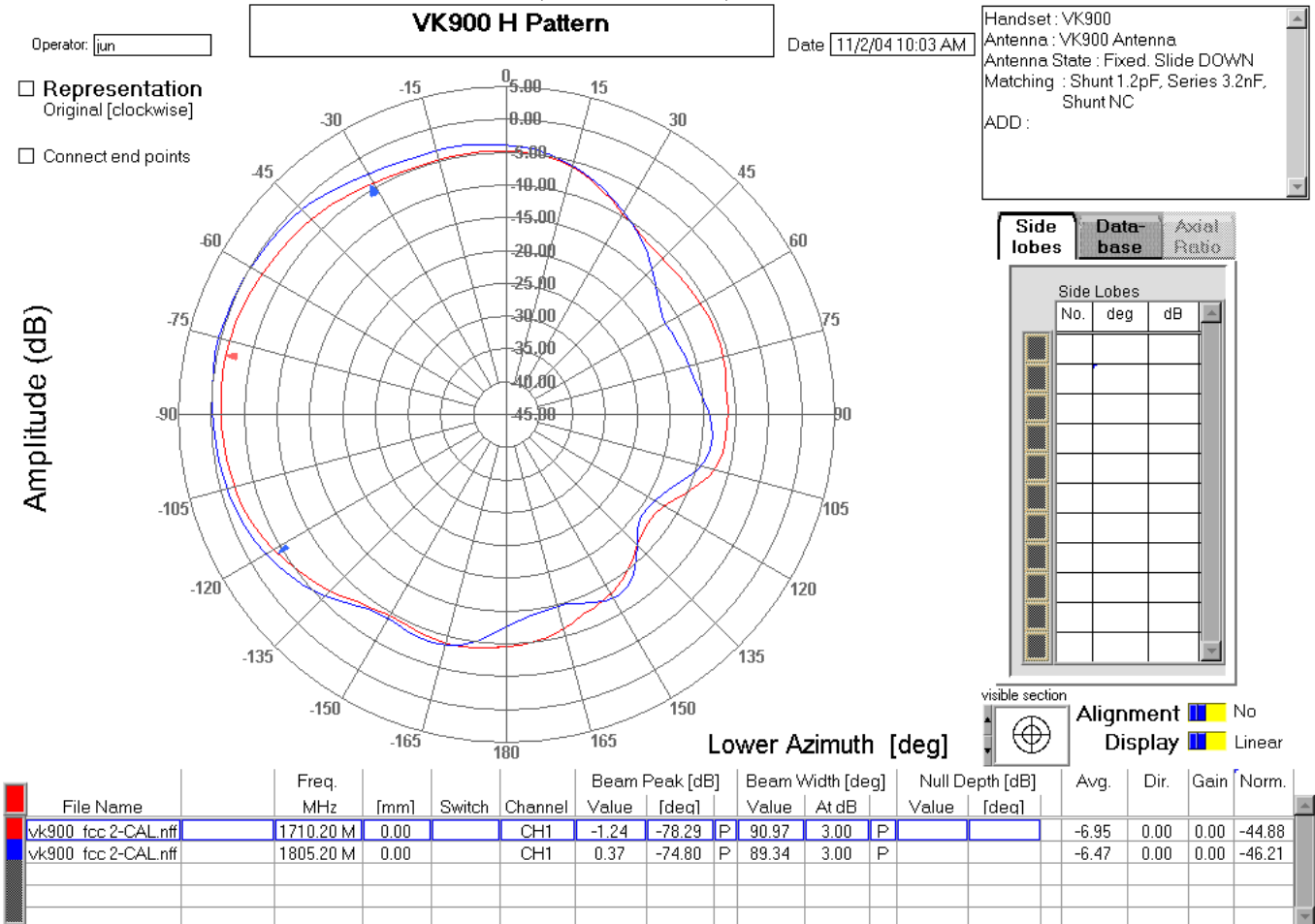
• VK-900 H Pattern Slide UP (GSM Middle)



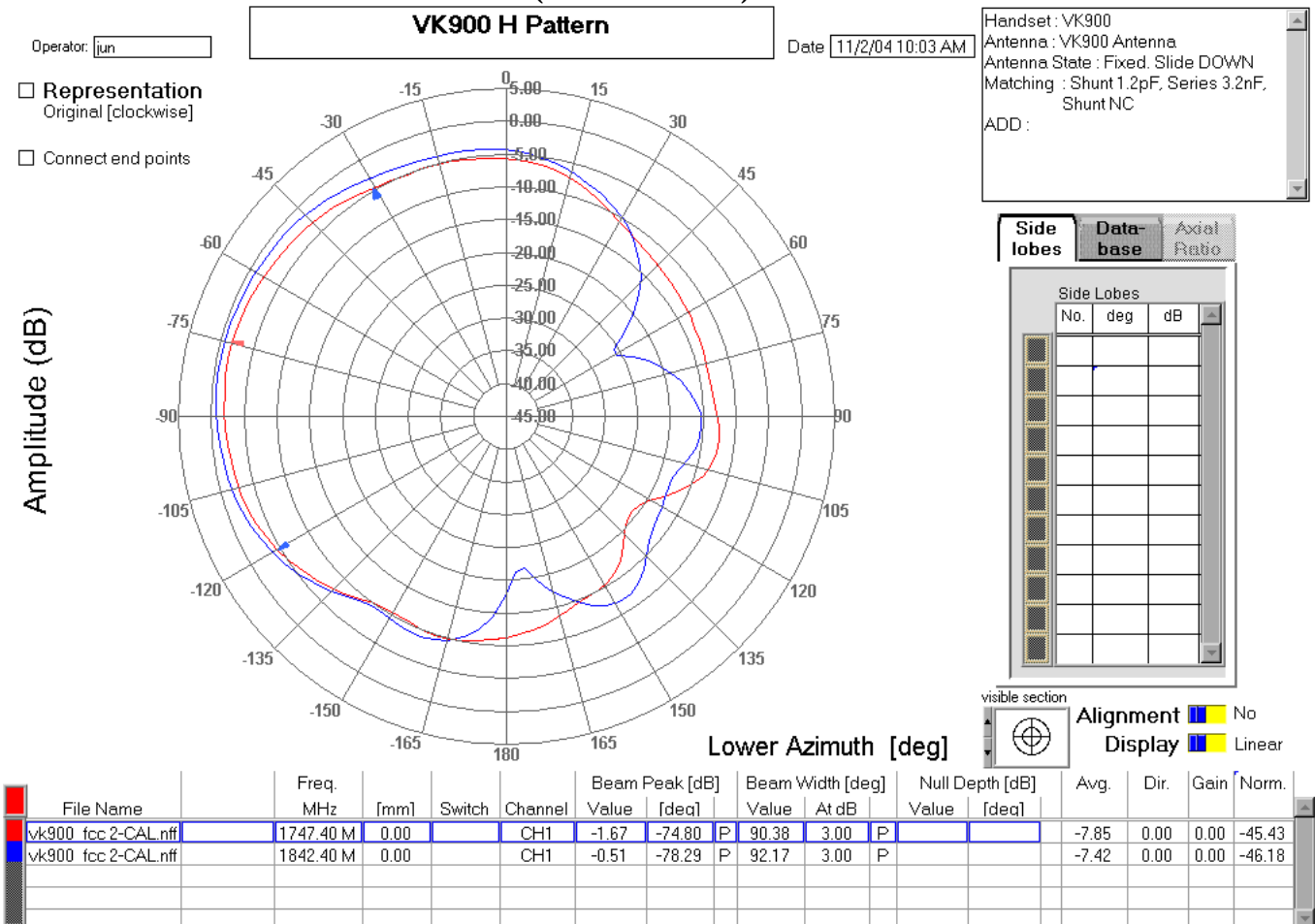
• VK-900 H Pattern Slide UP (GSM High)



• VK-900 H Pattern Slide Down (DCS-1800 LOW)



• VK-900 H Pattern Slide Down (DCS-1800 Middle)



• **VK-900 H Pattern Slide Down (DCS-1800 High)**

Operator:

VK900 H Pattern

Date 11/2/04 10:03 AM

Handset: VK900
Antenna: VK900 Antenna
Antenna State: Fixed. Slide DOWN
Matching: Shunt 1.2pF, Series 3.2nF,
Shunt NC
ADD:

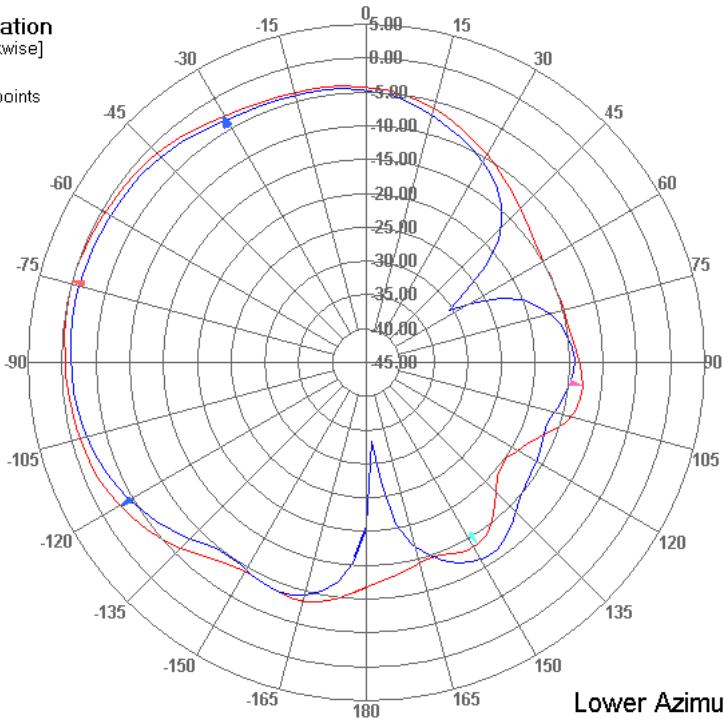
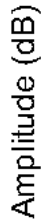
ADD :

Side lobes	Data-base	Axial Ratio
------------	-----------	-------------

Side Lobes		
No.	deg	dB
1R	-12.79	96.21
2R	-13.47	148.56

visible section

Alignment  No
Display Linear

[illegible]

• **VK-900 H Pattern Slide UP (DCS-1800 LOW)**

Operator: jun

VK900 H Pattern

Date 11/2/04 9:56 AM

Handset: VK900
Antenna: VK900 Antenna
Antenna State: Fixed. Slide UP
Matching: Shunt 1.2pF, Series 3.2nF,
Shunt NC

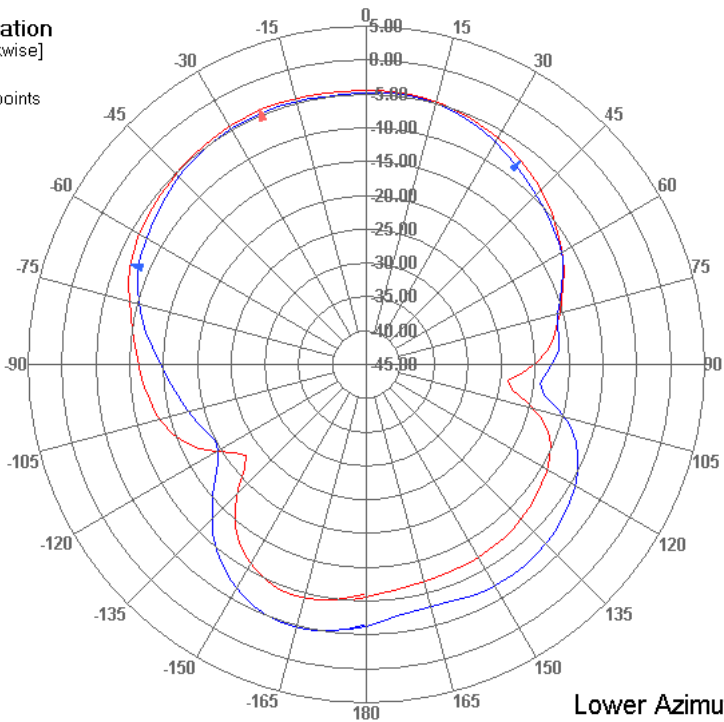
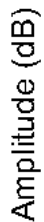
ADD :

Side lobes	Data-base	Axial Ratio
0.00	0.00	0.00
0.01	0.01	0.01
0.02	0.02	0.02
0.03	0.03	0.03
0.04	0.04	0.04
0.05	0.05	0.05
0.06	0.06	0.06
0.07	0.07	0.07
0.08	0.08	0.08
0.09	0.09	0.09
0.10	0.10	0.10
0.11	0.11	0.11
0.12	0.12	0.12
0.13	0.13	0.13
0.14	0.14	0.14
0.15	0.15	0.15
0.16	0.16	0.16
0.17	0.17	0.17
0.18	0.18	0.18
0.19	0.19	0.19
0.20	0.20	0.20
0.21	0.21	0.21
0.22	0.22	0.22
0.23	0.23	0.23
0.24	0.24	0.24
0.25	0.25	0.25
0.26	0.26	0.26
0.27	0.27	0.27
0.28	0.28	0.28
0.29	0.29	0.29
0.30	0.30	0.30
0.31	0.31	0.31
0.32	0.32	0.32
0.33	0.33	0.33
0.34	0.34	0.34
0.35	0.35	0.35
0.36	0.36	0.36
0.37	0.37	0.37
0.38	0.38	0.38
0.39	0.39	0.39
0.40	0.40	0.40
0.41	0.41	0.41
0.42	0.42	0.42
0.43	0.43	0.43
0.44	0.44	0.44
0.45	0.45	0.45
0.46	0.46	0.46
0.47	0.47	0.47
0.48	0.48	0.48
0.49	0.49	0.49
0.50	0.50	0.50
0.51	0.51	0.51
0.52	0.52	0.52
0.53	0.53	0.53
0.54	0.54	0.54
0.55	0.55	0.55
0.56	0.56	0.56
0.57	0.57	0.57
0.58	0.58	0.58
0.59	0.59	0.59
0.60	0.60	0.60
0.61	0.61	0.61
0.62	0.62	0.62
0.63	0.63	0.63
0.64	0.64	0.64
0.65	0.65	0.65
0.66	0.66	0.66
0.67	0.67	0.67
0.68	0.68	0.68
0.69	0.69	0.69
0.70	0.70	0.70
0.71	0.71	0.71
0.72	0.72	0.72
0.73	0.73	0.73
0.74	0.74	0.74
0.75	0.75	0.75
0.76	0.76	0.76
0.77	0.77	0.77
0.78	0.78	0.78
0.79	0.79	0.79
0.80	0.80	0.80
0.81	0.81	0.81
0.82	0.82	0.82
0.83	0.83	0.83
0.84	0.84	0.84
0.85	0.85	0.85
0.86	0.86	0.86
0.87	0.87	0.87
0.88	0.88	0.88
0.89	0.89	0.89
0.90	0.90	0.90
0.91	0.91	0.91
0.92	0.92	0.92
0.93	0.93	0.93
0.94	0.94	0.94
0.95	0.95	0.95
0.96	0.96	0.96
0.97	0.97	0.97
0.98	0.98	0.98
0.99	0.99	0.99
1.00	1.00	1.00

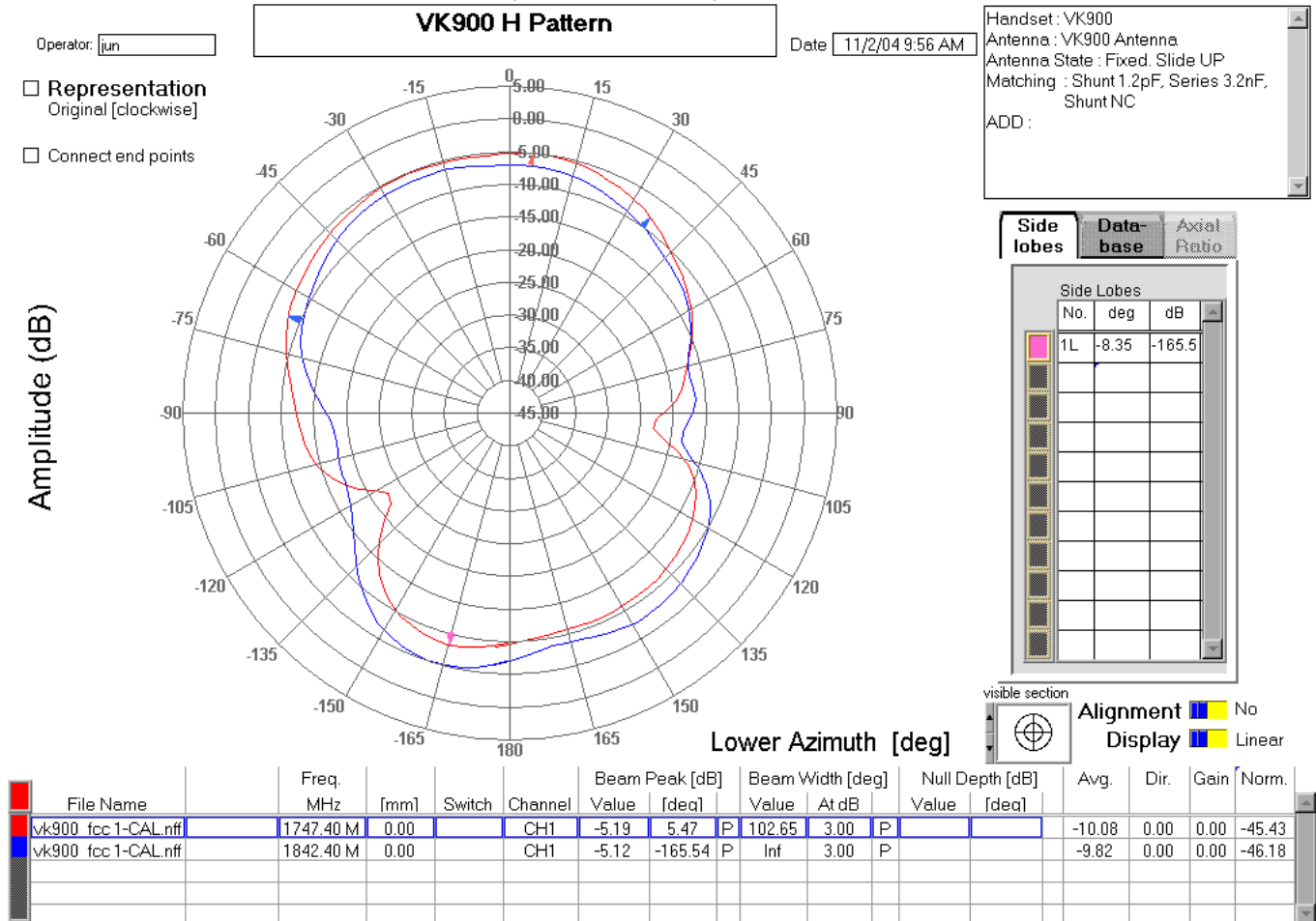
Side Lobes		
No.	deg	dB

visible section

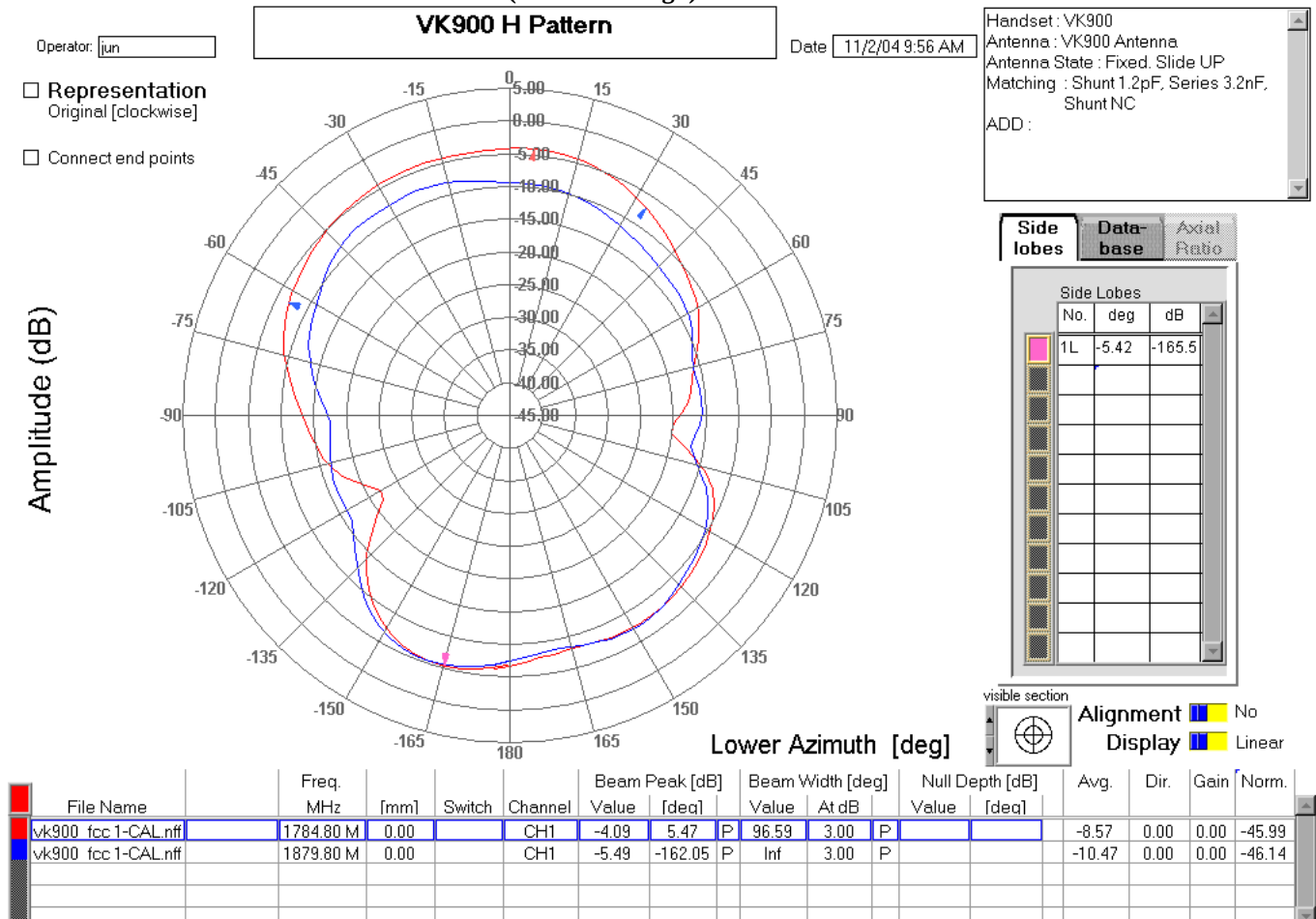
Alignment  No
Display  Linear

[illegible]

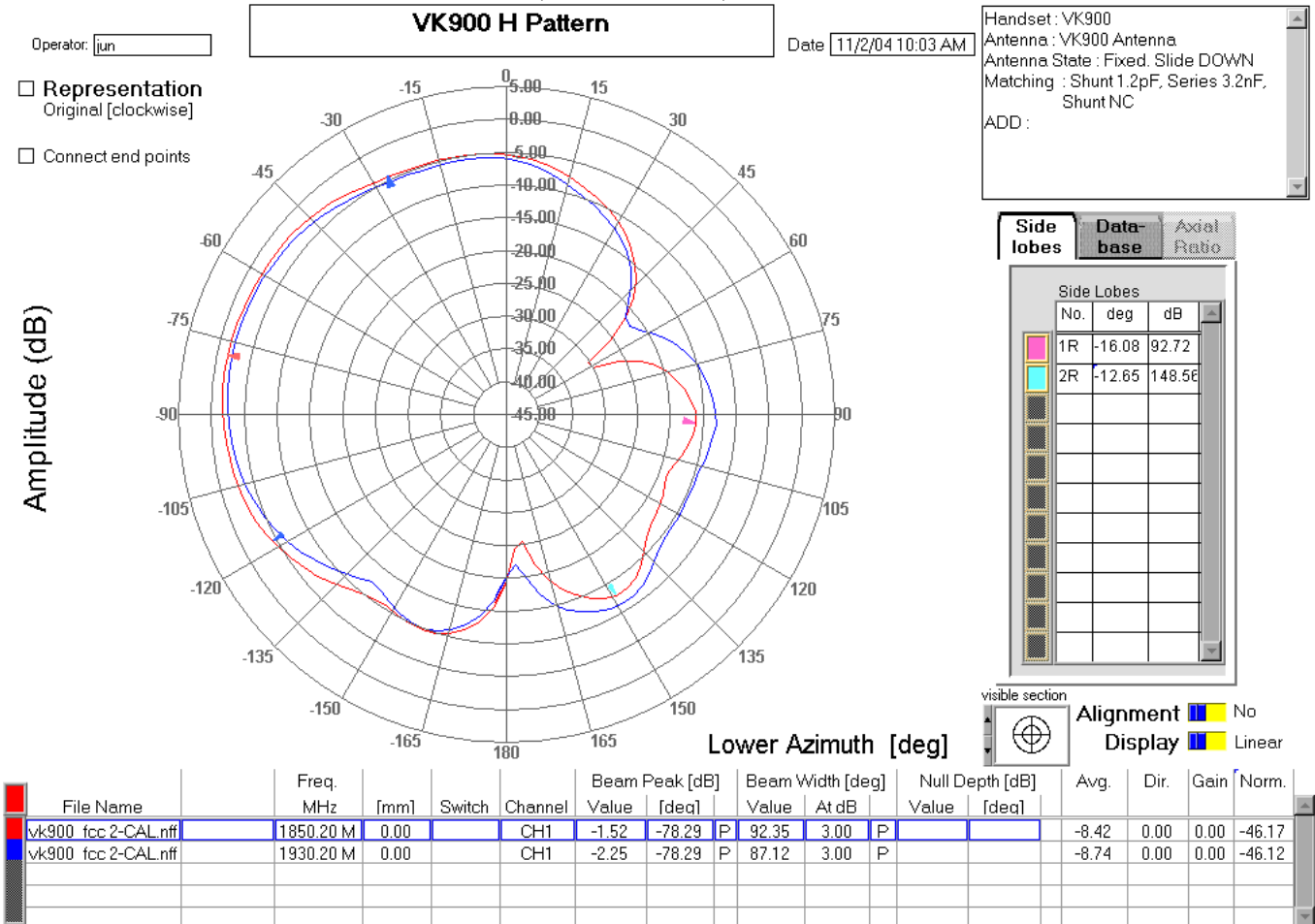
• VK-900 H Pattern Slide UP (DCS-1800 Middle)



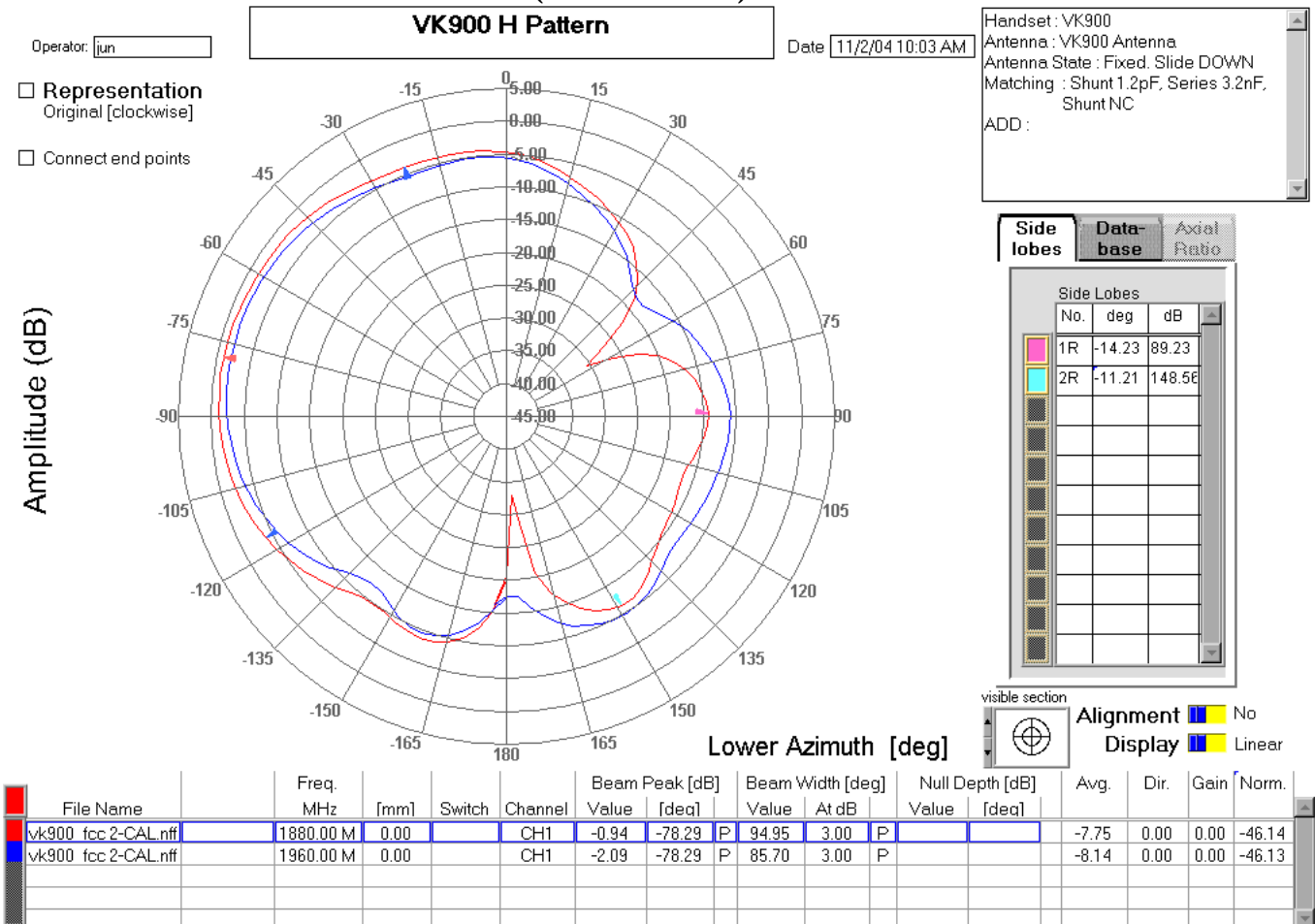
• VK-900 H Pattern Slide UP (DCS-1800 High)



• VK-900 H Pattern Slide Down (PCS-1800 LOW)



• VK-900 H Pattern Slide Down (PCS-1800 Middle)



• VK-900 H Pattern Slide Down (PCS-1800 High)

Operator: jun

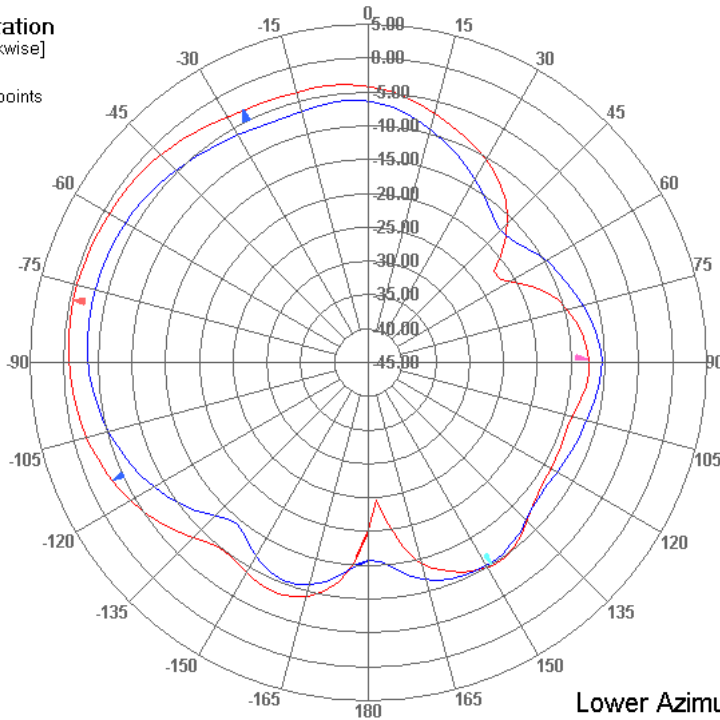
VK900 H Pattern

Date 11/2/04 10:03 AM

Handset: VK900
Antenna: VK900 Antenna
Antenna State: Fixed. Slide DOWN
Matching: Shunt 1.2pF, Series 3.2nF, Shunt NC
ADD:

- ☐ Representation
Original [clockwise]
- ☐ Connect end points

Amplitude (dB)



Side lobes Data-base Axial Ratio

Side Lobes		
No.	deg	dB
1R	-12.36	89.23
2R	-9.85	148.56

visible section



Alignment ☐ No
Display ☐ Linear

Lower Azimuth [deg]

File Name	Freq. MHz	[mm]	Switch	Channel	Beam Peak [dB] Value [deg]	Beam Width [deg] Value At dB	Null Depth [dB] Value [deg]	Avg.	Dir.	Gain	Norm.
vk900 fcc 2-CAL.nff	1909.80 M	0.00		CH1	-0.36 -78.29 P	88.56 3.00 P		-7.06	0.00	0.00	-46.12
vk900 fcc 2-CAL.nff	1989.80 M	0.00		CH1	-3.20 -81.78 P	79.76 3.00 P		-8.98	0.00	0.00	-46.13

• VK-900 H Pattern Slide UP (PCS-1800 LOW)

Operator: jun

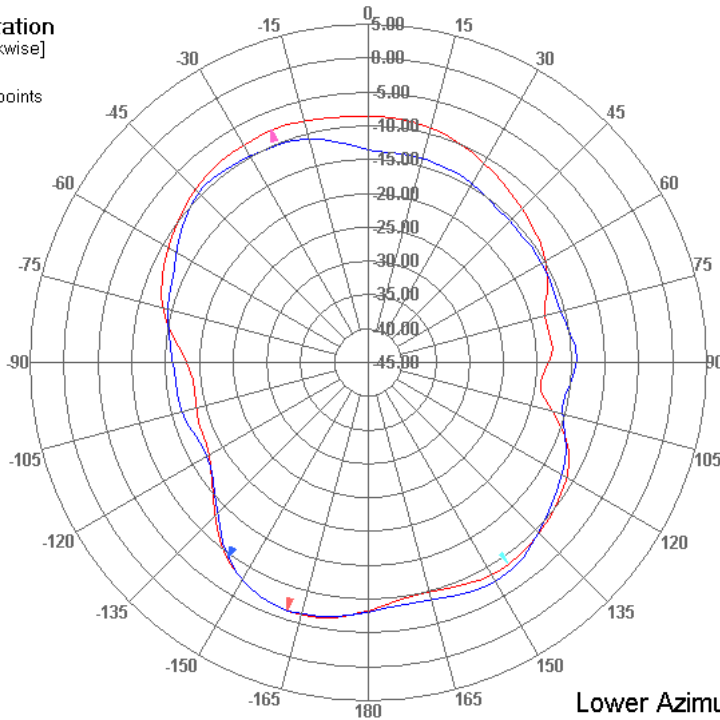
VK900 H Pattern

Date 11/2/04 9:56 AM

Handset: VK900
Antenna: VK900 Antenna
Antenna State: Fixed. Slide UP
Matching: Shunt 1.2pF, Series 3.2nF, Shunt NC
ADD:

- ☐ Representation
Original [clockwise]
- ☐ Connect end points

Amplitude (dB)



Side lobes Data-base Axial Ratio

Side Lobes		
No.	deg	dB
1R	-7.84	-22.45
2R	-8.65	145.07

visible section

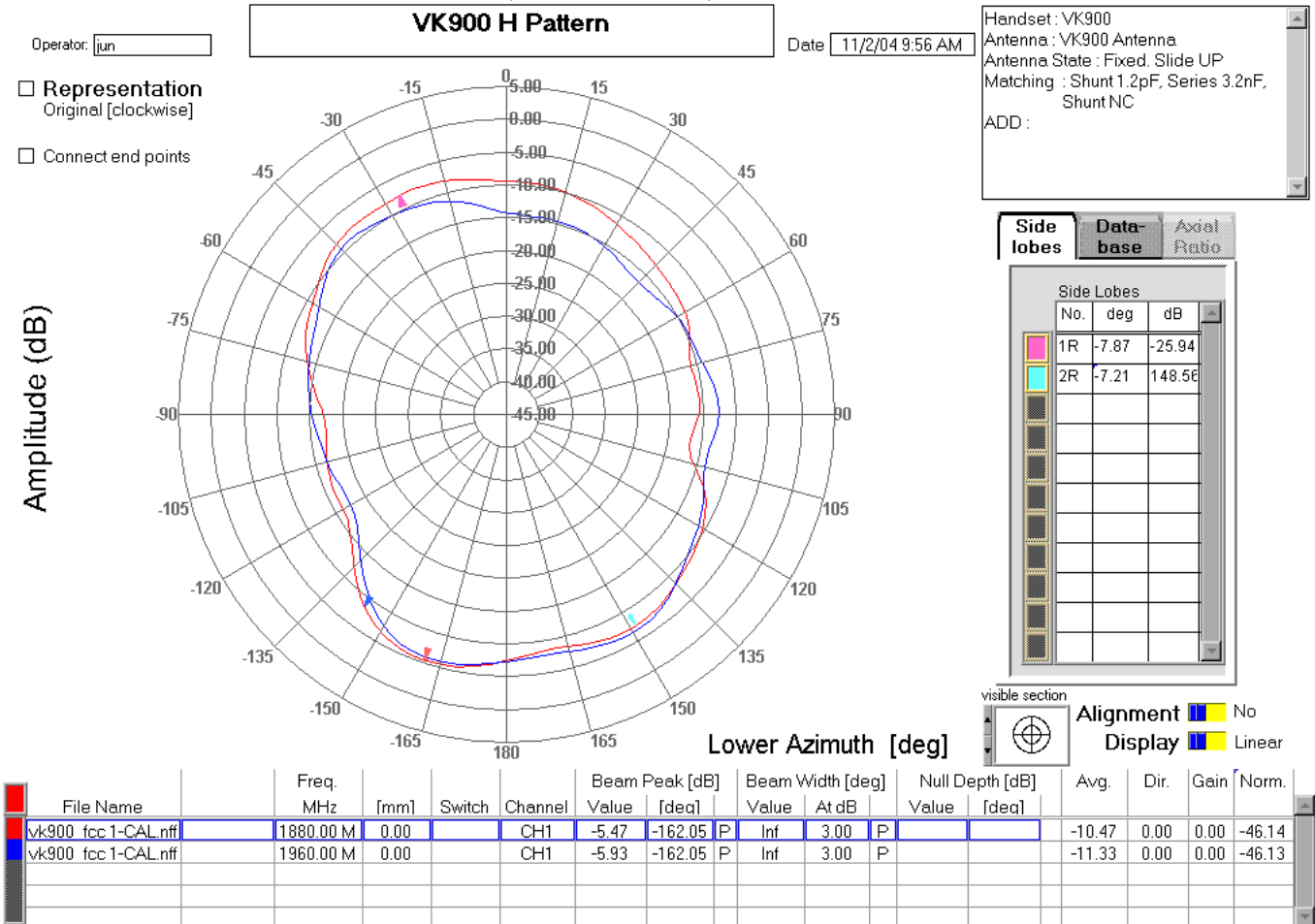


Alignment ☐ No
Display ☐ Linear

Lower Azimuth [deg]

File Name	Freq. MHz	[mm]	Switch	Channel	Beam Peak [dB] Value [deg]	Beam Width [deg] Value At dB	Null Depth [dB] Value [deg]	Avg.	Dir.	Gain	Norm.
vk900 fcc 1-CAL.nff	1850.20 M	0.00		CH1	-6.33 -162.05 P	Inf 3.00 P		-11.10	0.00	0.00	-46.17
vk900 fcc 1-CAL.nff	1930.20 M	0.00		CH1	-6.43 -162.05 P	Inf 3.00 P		-11.74	0.00	0.00	-46.12

• VK-900 H Pattern Slide UP (PCS-1800 Middle)



• VK-900 H Pattern Slide UP (PCS-1800 High)

