

ITU

(2)

2000.

『ITU
(2)』.

2000.

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	()
	()

1. : ITU (2)

2. : 2000. 1. 1 12. 31

3. :

4.
가.

		1	2	3	4	5	6	7	8	9	10	11	12	
o - , - APT 3 - WRC-2000														
o - AP S30 S30A - ITU S/W(MSPACEG) ITU TOOL - - o - - ITU S/W -														
		30			50			70			100			

.

1) ITU

o APG-2000 WRC-2000

o

o WRC-2000

6 가

2)

o 가 AP S30 S30A

- ITU-R WP 4A

o

3)

o S9, S11 AP S7

o SRS

o

5.

가. ITU

o WRC-2000 가

- 6 가

6

- feeder-link 14GHz 6

17GHz 12

·

o 가 AP S30 S30A

- WRC-2000 가

AP S30/S30A

o

- LSTAR 3B LSTAR 4B

·

o S9, S11

-

ITU

o SRS

- ITU web-site

SRS CD

o

-

· : ASAN-3A 3 24

:

· : SAIGOH-Ku-5M 2 36

: N-STAR 3

-

· : ARABSAT-KA (, 10)

:

. WRC-2000

- o WRC-2000 1.19, 1.19bis
1.20 (APG2000-4)
- o (PP98 86),
(PP98 88) (APG2000-4)
- o 가
(WRC-2000)
- o filing (WRC-2000)
- o AP S30, S30A S30B AP S4
(ITU-R WP4A)
- .
- o (2000. 8. 11,)
- :
- o 2000 (2000. 11. 11,)
- : ITU-R

6.

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- o 가
- o 가

· ,
ITU-R (International Telecommunication
Union-Radiocommunication,) WRC (World Radiocommunication
Conference,)

가

WRC-97

WARC-77, 88 1, 3

(가 가) , ITU IRG (

) GTE (가)

1, 3 가 가 .

WRC-2000 1, 3

1 가 10 ,

가 3 가 12 .

1 ITU-R

, ITU MSPAGEG S/W

가

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, MSPAGEG S/W TOOL

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SUMMARY

The Region 1 and 3 BSS (Broadcasting Satellite Service) Plan covers the frequency bands 11.7–12.2GHz in Region 3 and 11.7–12.5GHz in Region 1, has its origin at the WARC (World Administrative Radio Conference) BCSAT-77 and is a conventional detailed a priori plan where the satellites are uniformly spaced in the orbit (generally each 6°) to provide each broadcasting service area with an equal number of 27MHz channels. The feeder link Plan in the frequency bands 14.5–14.8GHz and 17.3–18.1GHz for Region 1 and 3 was adopted at the WARC ORB-88 several years after its corresponding BSS Plan. However, in order to use new technical parameters and provide BSS resources to new countries, WRC-97 decided to review possible revision of BSS Plan by ITU-BR and IRG/GTE. The results of BSS replanning studies were submitted to WRC-2000.

WRC-2000 adopted a new Plan that increased the capacity for each country to the equivalent of 10 channels in Region 1 and to the equivalent of 12 channels in Region 3 utilizing digital modulation. Furthermore, all other changes such as modifications to assignments to add more channels, change of beam parameters etc will be permitted subject to successful application of new coordination procedures and once completed will be included in a "List", called the "Regions 1 and 3 List of additional uses". The List is separated from the Plans and annexed to the Master international Frequency Register (MIFR).

In this study, we summarize the results of associated meetings and analyze the effects of BSS replanning in Korea. We will study the effective interference analysis through the review of revised Radio Regulations and associate Resolution.

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2

2.1

2.2

3

3.1 ITU

3.2 IRG/ GTE APT

3.3 WRC- 2000

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5

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1

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IMT - 2000, . 가
, .
, ,
. .
ITU-R (International
Telecommunication Union-Radiocommunication,) WRC
(World Radiocommunication Conference,)
. .
가 WRC-
97 WARC-77, 88
1, 3 (가
가) , ITU IRG ()
GTE (가) 1, 3 가
가 [1,2,3,4,5] IRG GTE
WRC-2000
, 1, 3 가 .
2 , 3
4
가 .

2

2.1

ITU() RR () WRC ()
· , ()
)
· RR
Appendix (AP,) S30, S30A S30B , AP S30
, AP S30A feeder-link , AP S30B
·
ITU “First Come,
First Served”
, ITU
가 가 .

2.2

1 ,

2.2.1 (Advanced Publication, API)

()

가 $\pm 12^\circ$
RR Article S9 ,
 $\pm 12^\circ$ WRC-2000 ,
2000 6 3 . RR Article S9
section 1A 가 (plan)
, section 1B 가
.
가
, ITU BR 가 RR
IFIC (International Frequency
Information Circular) .
ITU BR (API) RR AP S4/ ,
, , ,
, 5
가 2 API .

(Advanced Publication)



(Coordination Publication)



(Notification)
(MIFR)

2.2.2 (Coordination Publication)

(API) 6

24 ,

BR RR

AP S4 IFIC

(International Frequency Information Circular)

,

가 RR ,

가 BR

가 BR

RR ,

IFIC

(API, AP S4/ ,) ITU

SpaceCap , ITU

GIMS (Graphic Interface Management System)

, 2000 6 3

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2.2.3 (Coordination Procedures)

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()

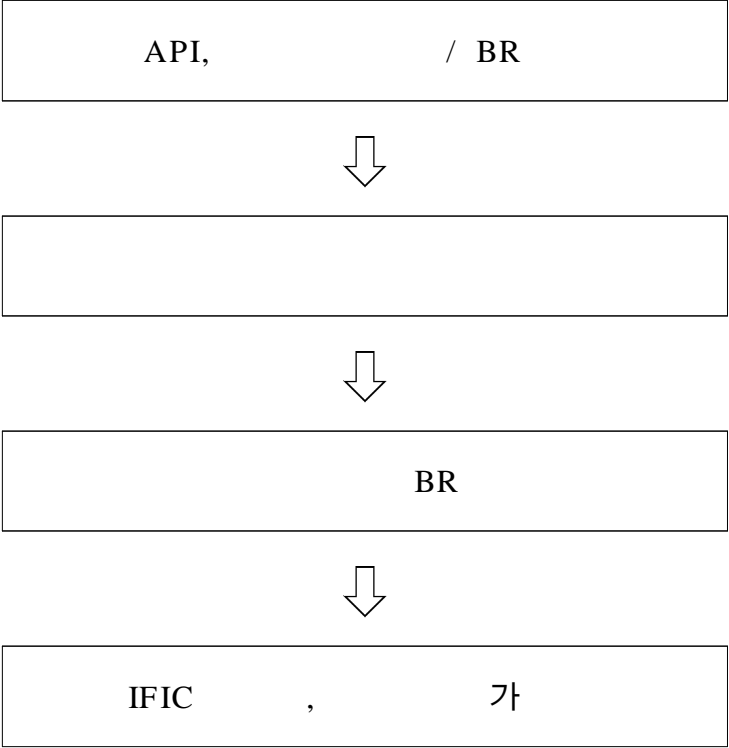
2 API BR

WRC-2000

, 4

, 가

.



2.

1 WRC-2000 C, Ku Ka
.
,
T/T가 6% 가 가 .
C, Ku Ka
T/T가 6% 가 .

1.

	(GHz)		
C	3 6	± 10 °	T/T가 6% 가
Ku	11 14	± 9 °	
Ka	17 30	± 8 °	

,
 , BR
 ,
 .

2.2.4

1997 11 22 (API)
 API 6 가 ,
 3 (WRC-97
 51). WRC-2000 WRC-97 API
 51 .
 1997 11 22 API
 API 5 , ,
 (),
 , , BR , ()
 가
 2 가 ,
 RRB() .

2.2.5

(Administrative Due Diligence)

paper satellite

ITU BR

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 , (, ,)
 (, , ,) 1997 11

. 1997 11 22 가
MIFR ()
2003 11 21
(Due Diligence Information, DDI) , MIFR
2000 11 21 DDI .
6 BR DDI
, DDI
, MIFR .

2.2.6 (Cost Recovery)

1998 ITU (, 1998) 91
, WRC-2000
. 가 Paper
Satellite
. ITU BR
1998 11 7 , 1998 11 7 , 11
7
3 . 가
1 ,
RR (WRC-2000) ,
, RR 2002
. 2 .

2. (: , CHF)

			page	가 (page)
(NGSO, non-coordination)	RR No. 2613 (S22.2) NGSO	1,200	9	100
(GSO)	RR S9.6-S9.11, S9.21 33 FSS, MSS, BSS	6,000	25	160
(GSO)	RR 9 46	17,500	34	360
(NGSO)	RR 46	9,600	24	300
(GSO)	RR Article S9	4,300	8	410
(NGSO)	RR Article S9 (S9.21)	4,600	7	500
	- 5 (1, 3) - 16 (2) - . .	5,000 2,000	11 11	360 150
	- 5 (1, 3) - 16 (2) - 가 . . (Part A) (Part B)	15,800 (AP30/Part A) 15,800 (AP30A/Part A) 6,600 (AP30/Part B) 6,200 (AP30A/Part B)	19 (AP30/Part A) 19 (AP30A/Part A) 3 (AP30/Part B) 3 (AP30A/Part B)	560 (AP30/Part A) 770 (AP30A/Part A) 1,730 (AP30/Part B) 1,570 (AP30A/Part B)
	(AP 30B)	9,900	9	880

2.2.7 (Notification & Recording)

3 3
, BR (AP S4)
,
,
. 가 BR MIFR (Master
International Frequency Register) .

3

3.1. ITU

1, 3 1977 WARC BCSAT-77
 27MHz , 6 ° , 1983 RARC SAT-
 83 2 . feeder link
 1, 3 WARC ORB-88 , 2
 RARC SAT-83 WARC ORB-85 . (3)

3. ITU

		(GHz)	
BSS	1	11.7 12.5	1977
BSS	3	11.7 12.2	1977
BSS	2	12.2 12.7	1983
Feeder link	2	17.3 17.8	1983/85
Feeder link	1 & 3	14.5 14.8*	1988
Feeder link	1 & 3	17.3 18.1	1988

* 1, 3 Feeder link (14.5 14.8GHz)

1992 (WARC-92)

30 30A 1, 3

가 ITU-R

(524) , 1995 (WRC-95)

ITU-R .

WRC-95

가 , 가

가

가

WRC-97 532 1, 3

가 1, 3 가

10 가 가 IRG (Inter-conference Representative Group ;) GTE (Group of Technical Experts ; 가)

EIRP 5dBW , [1,2]

WRC-2000 1, 3 ,

1 가 10 , 3 가 12

,

3.2 IRG/GTE APT

IRG GTE WRC-2000 5 4 가

,

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IRG 1, 3 가

10 .

() 가 .

, WRC-2000

3

1 가

, WRC-2000

.

ITU 3 3

가 24 ,

가가 10

, 20

12 .

,

가

가

APT 3 IRG GTE

, WRC-2000 3

. ITU

가 WRC

, IRG, GTE, APT

[6,7,8]

IRG GTE (Down link)

3 4 a), b), c), d)

b) 가 10 , 가

87%가 , 13%

10 가 ,

, EIRP 1 10 ,

3 12 가

Feeder link 가

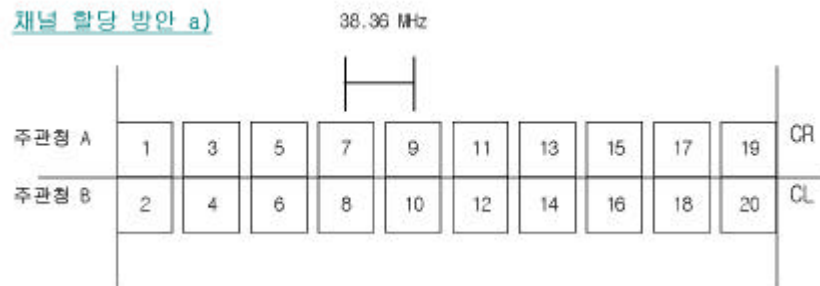
가

10 feeder link (3 12)

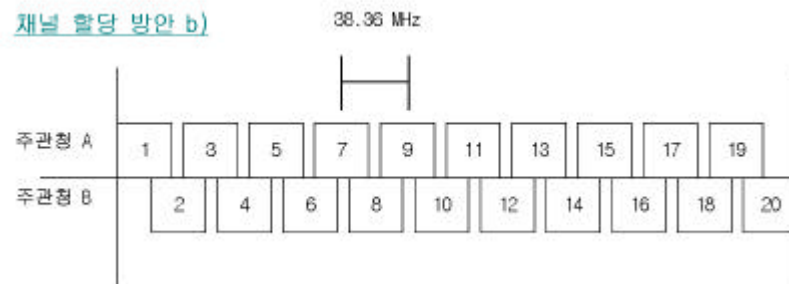
,

offset ($\pm 0.2^\circ$) .

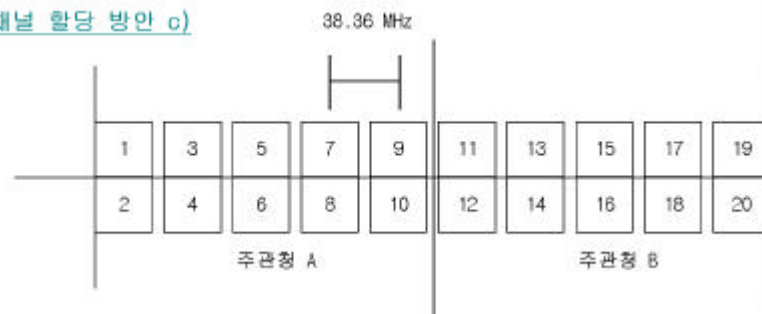
채널 할당 방안 a)



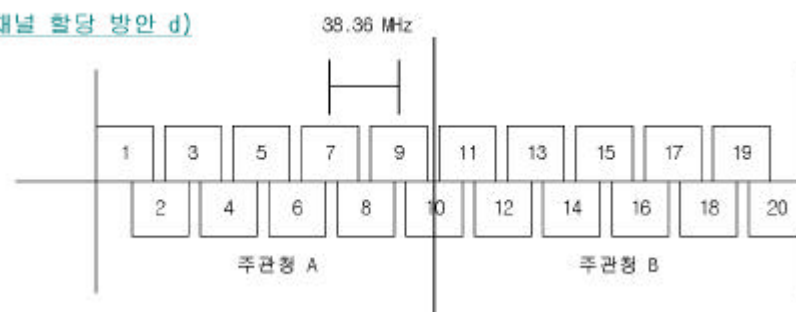
채널 할당 방안 b)



채널 할당 방안 c)



채널 할당 방안 d)



3 APT 3
가 12 가 가 3
가 12 ,
3 가 12 ,
1 가 IRG GTE
가 . WRC-2000
WRC-97 ITU Council-98 WRC-
2000 (agenda 1.19) , IRG
가 , 가 , WRC (2003
)
가 가
WRC-2000
, 가
WRC-2000
. APT 3 12
, 가
WRC-2000 .

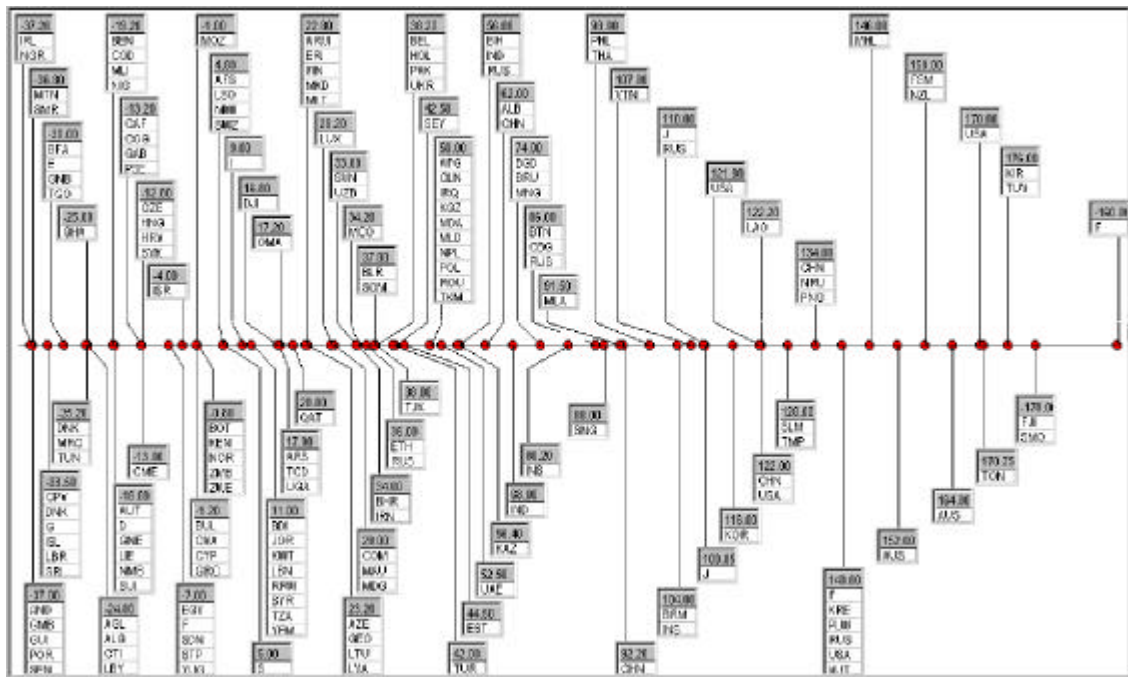
3.3 WRC-2000

2000 5 8 6 2 WRC-
2000 ,
(Plan) List , 1
가 10 , 3 가 12
.
List
, 533
(WRC-97) . 1, 3 .
, 가 ,
가
. 가 1, 3 /

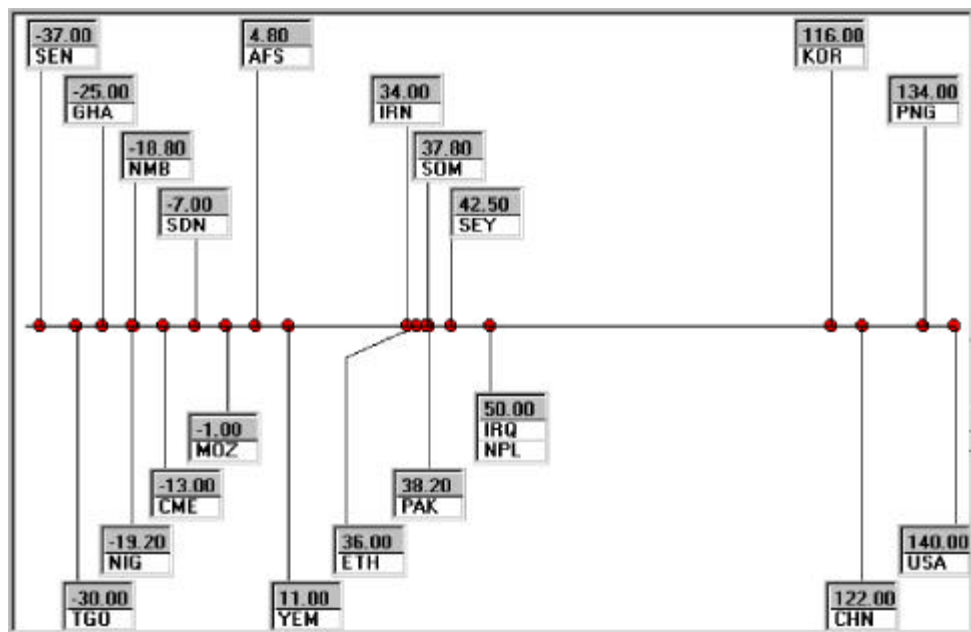
List ,
, BR
reference situation .
WRC-2000 1, 3 List
가 FSS
BR AP S30/C
. FSS
BR
1, 3 List .
AP S30 ITU-R BO. 1213
AP S30 Article 5 .

3.3.1 (Plan)

ITU RR (Radio Regulation,) feeder
link (Appendix) S30 S30A 3
b) 가 ,
가 .
가 가 27MHz ,
AP S30 31dB() 15dB(
) 24dB 16dB , feeder link(AP S30A)
40dB() 21dB() 30dB 22dB
. BO. 1445 fast-roll
, EIRP가 58.9dBW 가 31dB
EIRP ,
EIRP (63.6 dBW) .
9° .
reference (X) margin
-0.45dB , reference (X) margin
X-0.45dB .



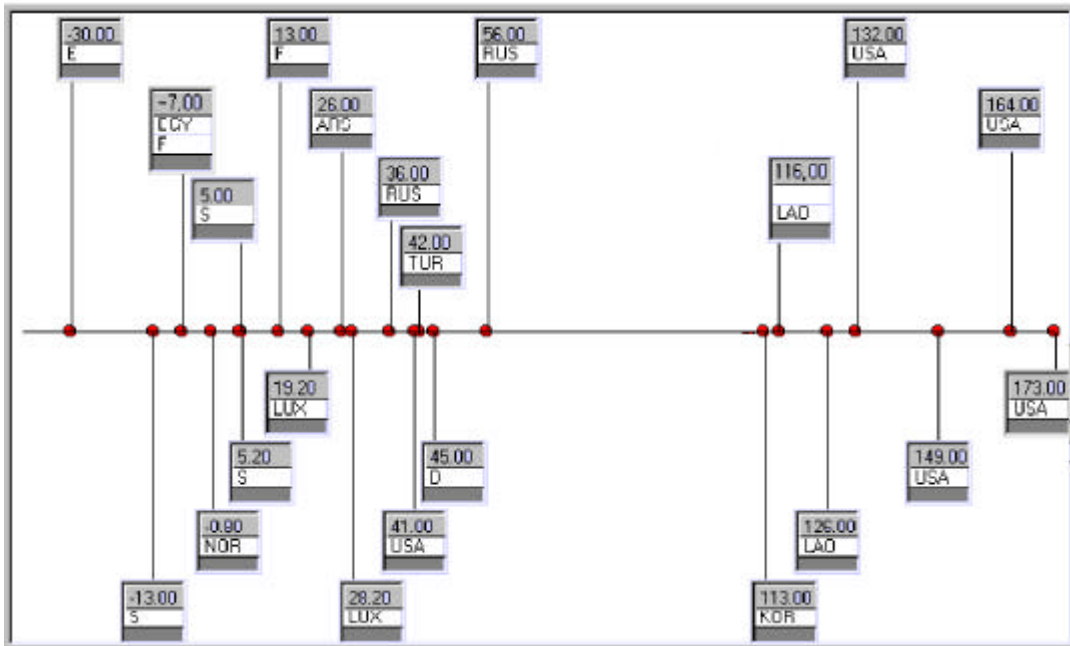
4. 1, 3 BSS 가 (Plan)



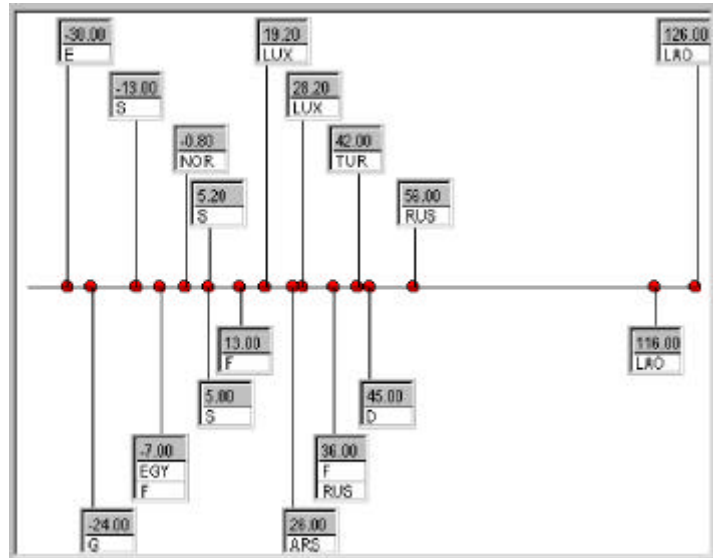
5. feeder link 14GHz 가 (Plan)

15

1, 3 List 가
(PFD) EPM 가 , PFD List
- 103.6dB(W/(m² · 27MHz))
Plan 가 reference (X)
margin - 0.45dB , reference (X)
margin X-0.45dB
7 8 List
가 , 14GHz feeder link
가 113 ° List



7. 1, 3 BSS 가 (List)



8. feeder link 17GHz 가 (List)

4

WARC-77 110 °
116 °
110 °
ITU 1, 3 가 10
110 ° 116 ° 6
12 , 가 가
,
2
116 ° 가 [9]
WRC-2000 (Plan)
116 ° 6 가 6
, feeder link 14GHz 6
17GHz 12 . List
113 ° 6 , feeder
link 14GHz 6 .
WRC-2000
116 °
(Plan)
3 (116 °)
BR ,
31dB 24dB ,
40dB 30dB .
WRC-2000 BR IRG 1, 3
가 , Article 4
가 , 가
가 .

116 ° 가
List L-STAR 3B (116 °)
가 116 ° 6 가
가

.
List 113 ° 6 가
1991 가 113 °

WRC-2000

EIRP

가 .

5

ITU
가 WRC
, IRG, GTE, APT
.
WRC- 2000 116 ° 6
가
.
List
113 °
.
.
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- [1] , “ WRC-97 가 ”, 1997.12
- [2] , “ BR98 가 ”, 1998.10
- [3] , “97 ”, 1997. 12
- [4] 2 , “ITU-R ”,
 , 1999. 7
- [5] 3 , “ITU ”,
 , 1999
- [6] IRG-3/GTE-2 , “ ”, , 1999. 2
- [7] IRG-3/GTE-2 , “ 1 BSS 3 FSS ”,
 , 1999. 2
- [8] APG2000-4 , “ WRC-2000 1.19
 ” , 2000. 1
- [9] WRC-2000 , “ 가
 ”, , 2000. 5
- [10] 3 , “ITU-R ”,
 , 2000. 11