

2002. 6.



건설교통부
서울지방항공청



가

가

가

.

가

가

4가

가

1.	.....	1
2.	.....	29
3.	.....	45
4.	.....	59

2002-1

:

, ('02. 6. 20)

1.

, , .

(2 16)

○ 가

,

○

.

2.

3 가

,

,

.

○

- 가

.

(

)

,

- , , ,

가

,

가

- ,

.

- (LLZ), (GP), Marker, (DME), (VOR), (RADAR), (TACAN), (NDB) .

○

- ()

.

-

- (ALS), (PAPI), (REDL), (RTIL) 16 .

(

)가

○

- 가 . .

.

,

-

- (Air to Ground) .

3.

○ 가

가 .

○ 가 가 (ASDE)

○ ((LLZ))

○ ()

가

• : (LLZ)

- : (A/G)
- : (RCLL),
(REDL)

○ 가 (가)
(가)
,

○ , (),
가
(: 2)

○ , ,
(RADAR) .

○ 가
(VOR)
.

○ (VOR) (DME)
.

○ VOR DME TACAN
.

- (VOR) 가 (DME) (TACAN) ,
- TACAN DME .
- (ICAO) (VOR) (DME)

가

- : (RADAR), (VOR), (TACAN), (DME)
 - : (A/G)
- 가 (VOR), (DME)
- (10NM 20NM) (LLZ)

○ (3)

Marker (Inner, Middle, Outer)

가 Marker

,
- Marker

(DME)가 Marker

(DME) ICAO

(DME)

- ICAO CAT- Marker

(DME), CAT-

, DME Inner Marker

○ (3 가 가

) ,
(GP)

- (LLZ), (GP), Marker(

DME)
, 가

(ILS)

○ , , ,

,
 .
 ()
 (runway
 centre line lights) ()
 900m 600m
 () 300m
 ,
 (runway edge lights) ()
 600m ()
) .

가

- : (LLZ), (GP),
 Marker, (DME),
 (VOR)
- : (A/G)
- : (RCLL),
 (REDL), (PAPI),
 () (RTHL)

4.

,

.

,
(: LLZ, GP)가

(: PAPI) .

○ ,

(: GP PAPI)

, 가

() .

-

(GP)

(PAPI) .

•

(GP)

- ,
(PAPI) (GP)

- .
(GP) (PAPI)
가 GP

- .
(: FAA 204-327)

- 1.
- 2.
- 3.
- 4.
- 5.

< 1 >

1.

ILS : Instrument Landing System)
가 ()

,
가

2.5° 3.5°

3°

○ LLZ(Localizer)

-

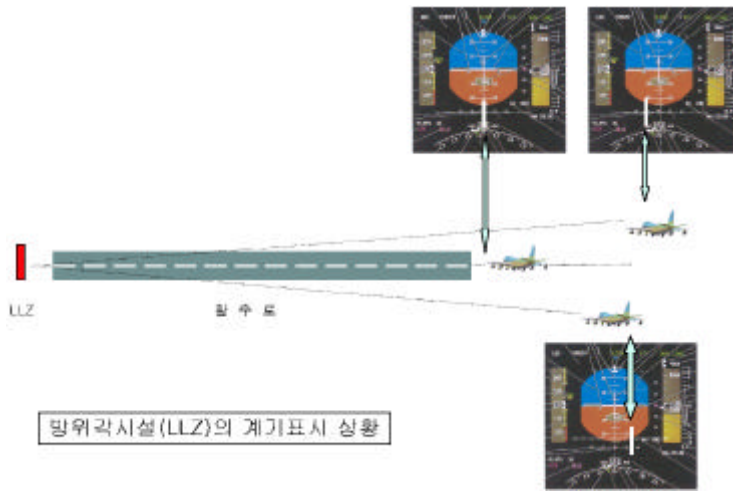
가

- 가

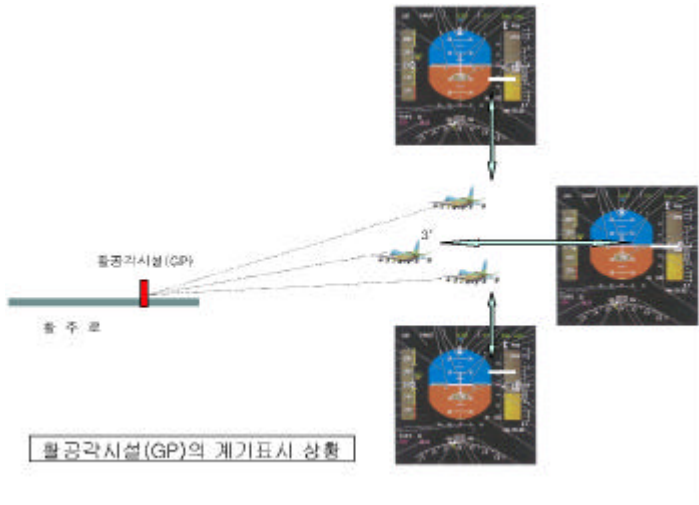
가

,

.



○ GP(Glide Path)
 - 가 가 3° 가



- 가
가

○ MARKER()

- (3)
Marker 가 Marker

· Marker Inner Marker(240 450m), Middle
Marker(600 1,800m), Outer Marker(7.2Km 12.6Km)

· ICAO CAT-I Marker
(DME)
, CAT-II III
DME Inner Marker

· 가
Outer Marker ,
Middle Marker , Inner
Marker .

Marker (DME)가

Marker

DME

ICAO

(DME)

.

DME(Distance Measuring Equipment)

○

가 (NM)

.

(ILS)

(VOR)

,

-

(VOR)

.

VOR(VHF Omni-directional Range)

○

360 °

가(VOR

)

가

-

VOR

가

240Km (70Km)

(1KW) .
- VOR
(50Km) 100W

TACAN (Tactical Air Navigation)

○ (VOR) (DME)

가 (DME) .

NDB (Non-directional Beacons)

○ 360°
가
()

- .

○ VOR

RADAR(Radio Detection and Ranging)

○

, , , .

○ 1 2 2 가

- PSR(Primary Surveillance Radar 1)

- SSR(Secondary Surveillance Radar 2)

, , , ,

. 1 2 , 1 .

ASDE(Air Surface Detection Equipment)

○

가

가 가

가

2.

(前)

○ ALS (Approach Lighting Systems)

-

900m 30m

(, 300m 16

)

CAT-

○ RTHL(Runway Threshold Lights ())

- 가

11 “ ”

○ RTIL(Runway Threshold Identification Lights (

))

- 가

(1

60 120) .
 (420m)
 11 “
 ”

○ WBAR(Runway Threshold Wing Bar Lights ())
 - .
 11 “
 ”

○ RENL(Runway End Lights)
 - .

○ STWL(Stop Way Lights)
 - 가
 () 가
 60 300m
 (1/2) (Stop
 way)

○ RTZL(Runway Touchdown Zone Lights)

- 가
가
900m .

○ RCLL(Runway Centreline Lights)

- .
가,
- .
()
() 900m
600m
, 300m
.
.

○ REDL(Runway Edge Lights)

- .
.
- .
.

()

()

600m

()

○ DMS(Runway Distance Marker Signs)

- .

가 300m

○ TGS(Taxiway Guidance Signs)

- 가 ()

○ PAPI (Precision Approach Path Indicator)

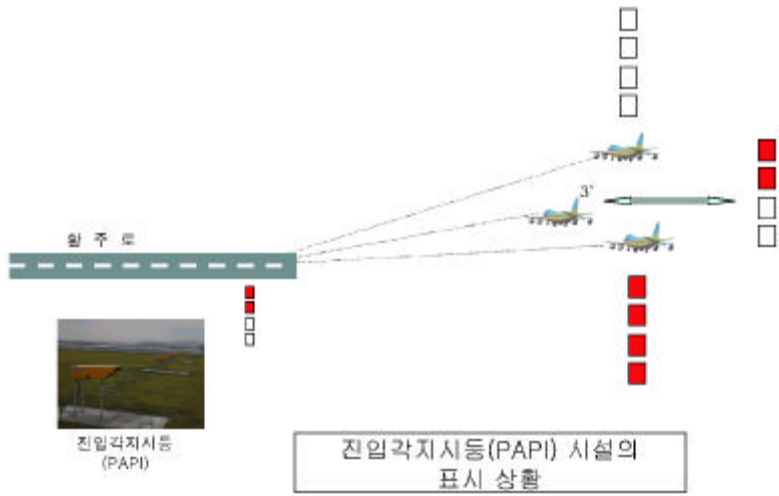
- 가 3°

(GP)

- 가 4 2 가 , 2

가

가



○ IWDI(Illuminated Wind Direction Indicators,)
 - (PAPI)

○ SBL(Stop Bar Lights)
 - 가
 (:)
 가

○ TCLL(Taxiway Centre Line Lights)
 -

○ TEDL(Taxiway Edge Lights)

-

○ FLO(Apron Floodlighting)

-

○ VDGS(Visual Docking Guidance Systems)

-

○ SIGL(Signalling Lamp, Light Gun)

-

3.

A/G(Air/Ground)

○

-

:

(VHF/UHF)

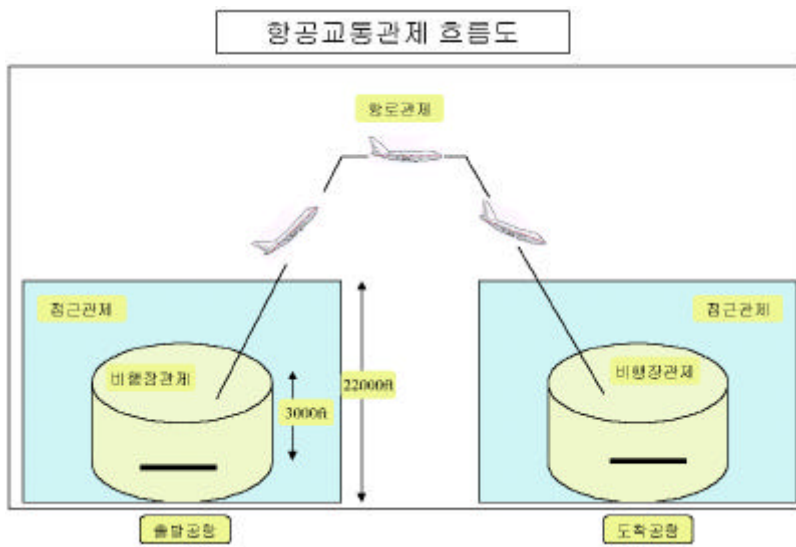
-

:

(HF)

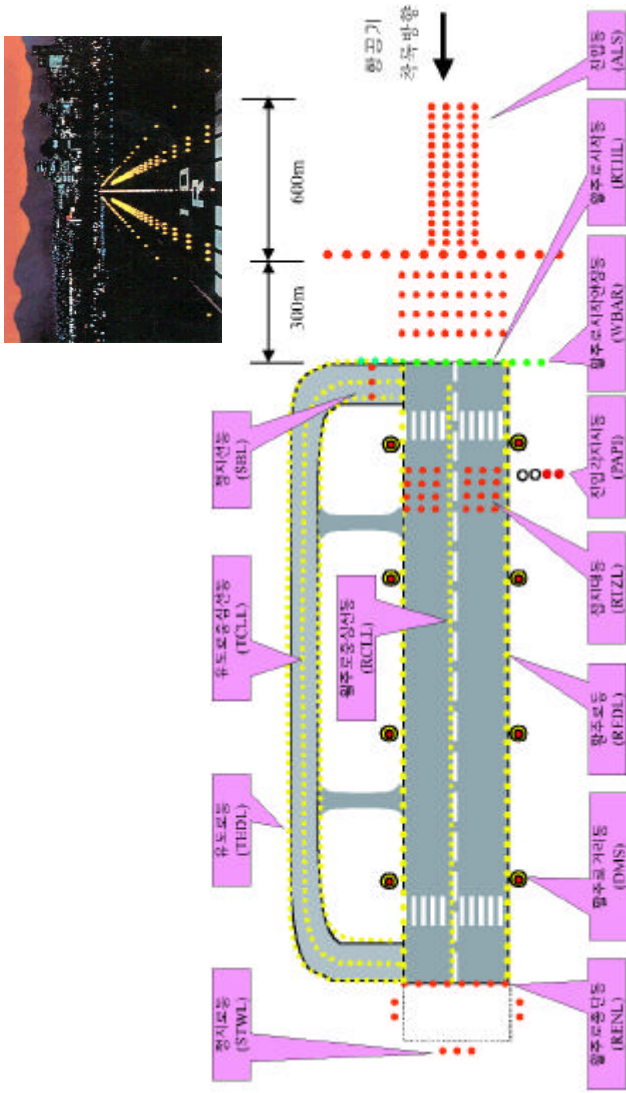
< 2 >

()
 “ ” , 3가
 .
 ○ 가 ()
 9Km, 0.9Km “ ”
 ,

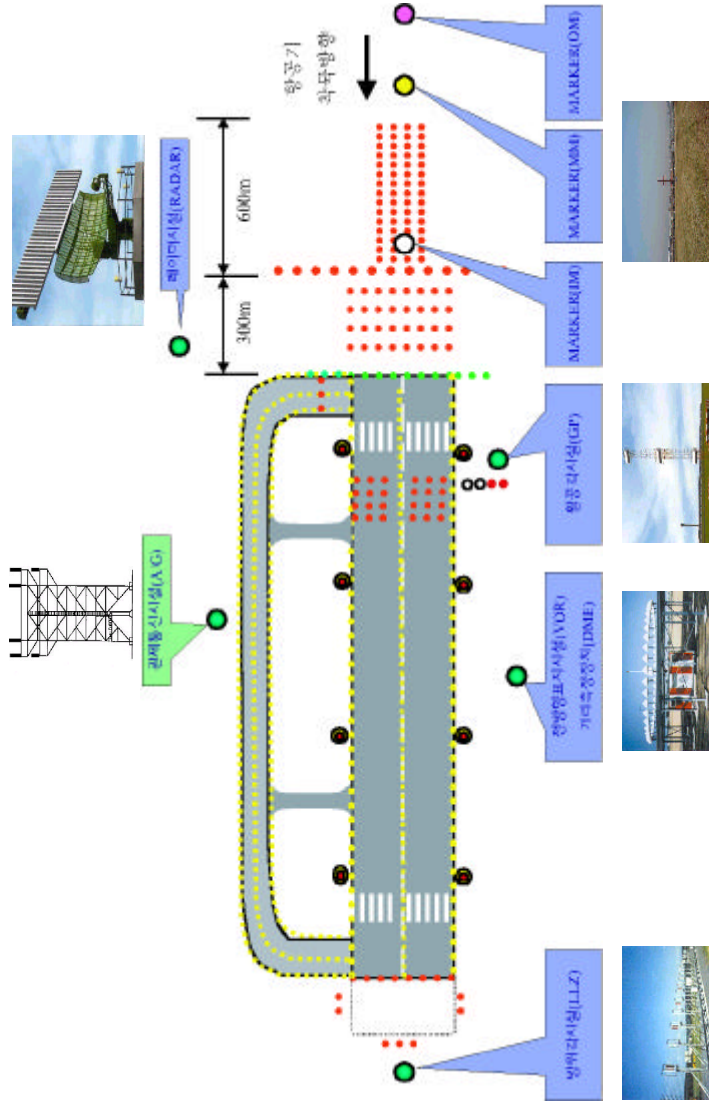


- 가 (108Km, 6.6Km) “ ” ,
- 가 가 “ ” .
- , , . , 가 (: , , , JFK), . , .

항공등화시설 설치 지점



항행안전무선시설 설치 지점



2002-2

:

, ('02. 6. 20)

1.

“ ” 가

1)

2)

1) “ ”

2) “ ”

2. (ICAO)

1),

2)

,

1) “ ”

가 , ,
()

2) “ ”

가

,

○ 1,500m , 30m

- , 가 가

○ 75 < 1 > 가

○ 가 (RVR)
1) CAT- 2) 1 , CAT-
2) , 2 3 .

1) “ ” (GP)

(3°)

2) “CAT- , , ”

가

□

) 26)

08

) “ ”

,

○ (DME) (LLZ), (GP),

(GP) (LLZ) , (DME)

○

,

○ (GP)

(3°)

○ (LLZ), (DME)
 , (GP) 가

○

< 2 >
 - (,)
 (GP)

가 CAT- , , a, b,
 c 5

< >
 : CAT- , , a, b, c

[]

3.

()

,

()

(,)
75

,

(,)
77

4.

가

○

가 ,

○

() 가 ()
 ()
) “ ”
 (A, B, C, D, E
 5) ,
 < 3 >

□

○ (GP), (LLZ),
 (DME),

-

	가 (RVR) ¹⁾ ₂₎	
CAT-	RVR 550m 800m	60m
CAT-	RVR 350m	30m
CAT- a	RVR 200m	15m
CAT- b	RVR 50m	15m
CAT- c	0m()	0m()

1) “ 가 (RVR)”

가

2) “ ” 가 (RVR) 가

가

CAT- , , a, b, c

가

-

(LLZ GP

)

가

< 4 >

-

가

,

)

100

가

(RVR)가

550m

(100

가

+ 800m

)

□

○

(GP)

,

(LLZ),

(DME),

○

(

)

○

< 5 >

)

		A	B	C	D
	)	500			500
		1,200m			1,600m
		1,600m	2,800m	3,200m	

) “ ” ,

- ICAO

- FAA 1966

-

(,

, , ,)

5,000m

가

- ()

가

() 5

○

()

,

○

< 6 >

)

		A	B	C	D
		700			1,100
		1,600m		3,200m	4,800m
		2,000m	2,800m	4,000m	4,600m

1.

2. ()

3.

4.

5.

6.

< 1 >

(75 , 17 225)

			CAT-	CAT-	CAT-
●					
- (VOR)					
- (LLZ)					
- (DME)					
- (GP)					
- (IM)					
- (ASDE)					
●					
-					
-			(F1)	(F2)	(F2)
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
-					
●					
- 가 (RVR)			1	2 3	2 3

< 2 >

()

가.

	가 (RVR) ¹⁾	²⁾		
CAT-	550m (³⁾ 800m)	60m	, , ()	, , ,
CAT-	350m	30m	,	
CAT- a	200m	15m	, , ,	
CAT- b	50m	15m	, , ,	
CAT- c	0m ()	0m ()		

(99.)

1) “ 가 (RVR)”
가

2) “ ”

3) “ ” 가 (RVR) 가
가

	3,750 × 60m	15R	CAT- a
		33L	
	3,750 × 60m	15L	
		33R	
	3,200 × 60m	14R	CAT-
		32L	
	3,600 × 45m	14L	CAT-
		32R	
	2,743 × 45m	36R	CAT-
	3,200 × 60m	36L	
	3,000 × 45m	06	CAT-
		24	
	2,500 × 45m	33	CAT-
		15	
	2,755 × 45m	31	CAT-
	2,743 × 45m	28	CAT-
	2,744 × 60m	24R	CAT-
	2,743 × 45m	26	CAT-
	2,743 × 45m	03	
	2,743 × 45m	06R	CAT-
		24L	
	2,740 × 45m	18	CAT-
		36	
	2,000 × 45m	36	CAT-
	2,134 × 45m	10	
	2,835 × 45m	04	CAT-
		22	
	1,550 × 30m	17	
	1,600 × 30m	06	

< 3 >

(2002- 1)

A()	91 Knots	
B()	91 Knots 120 Knots	
C()	121 Knots 140 Knots	
D()	141 Knots 165 Knots	
E()	166 Knots	

< 4 >

	CAT-	CAT-	CAT-
-			
-			
- ILZ, GP	1	2	2
- Marker	1	1	1
-			
-			
-		100 /6	100 /6
.		85%	95%
-			
.		3	3
.		1	1
.		1	1
.			
-			
.		300	300

('99.)

< 5 >

	A	B	C	D	
	1,600m		2,000m	2,400m	
	) 500 1,200m			500 1,600m	
	1,600m		2,800m	3,200m	

) “ ” ICAO

-

< 6 >

	A	B	C	D	
	700			1,100	
	1,600m		3,200m	4,800m	
	700			1,000	
	1,600m		2,800m	5,000m	
	1,100				
	2,000m	2,400m	4,800m		
	800	900		1,000	
	1,600m	2,000m	4,000m	5,000m	
	2,000m	2,800m	4,000m	4,600m	

2002-3

:

, ('02. 6. 20)

1. (Approach Category)

“ 가 가

1.3

,

”

2. (ICAO, FAA)

가

,

1.3

A()	91 Knots
B()	91 120 Knots
C()	121 140 Knots
D()	141 165 Knots
E()	166 Knots

3. < 1 >

,

,

가

,

(:)

4.

(,)

,

FAA

1988

< 2 >

(G/P)가

,

CAT- , , a, b, c 5

< 3 >

○

a 가

CAT-

5.

(RVR)

가

<RVR >

- RVR : 가
 (“ 가 ”)
 - : 가 (RVR)

< 가 >

(Category)	가 (RVR)	()
CAT-	550m	*, *
CAT-	350m	,
CAT- a	200m	, ,
CAT- b	50m	,
CAT- c	0m ()	

1. * 가 ,

2. 가 RVR 가
 (CAT-I : 800m)

○

○ < 4 >
 < ; >

	A	B	C	D
		500 1,200m		500 1,600m

○ () 가 , < 4, 6 > 가
 - , < 5 >
 - .
 < ; >

	A	B	C	D	E
	700 1,600m	700 3,200m	1,100 4,800m	2,400 4,800m	

(Ceiling)

○ ICAO

○ FAA 1966

○

- , , , , , (, , , ,)

1.

2. ,

3. (CAT- , ,)

4.

5.

6. (ICAO Doc.8168

vol II, Chapter 8, Table -8-1)

< 1 >

F100	109	C	C
MD80	160	C	C(120,500LBS D)
A300-600/600R	266 276	C	D
A330	258 352	C	D
B737-800/900	189 193	C	D
B777-200	301	C	D
B777-300	376	D	D
B747-200	280 455	D	D
MD-11		D	D
A321	177 195	C	C
B737-400/500	120 152	C	C
B767S	260	C	C
B767ER	224 260	D	D
B777-200	301	C	C
B747	280 418	D	D

< 2 >

,

가.

:

	- (LLZ) - (GP) - (DME)	- ILS() - PAR()	
	- (LLZ) - (DME)	- VOR() - TACAN()	(GP)

.

○

-

,

.

○

-

가

-

) ,

-
- :
- ()
- () 5

< 3 >

(CAT- , ,)

(CAT- , ,)

○

- (,)
-
-
-

○ CAT- , , a, b, c 5

- CAT- a 가
- : 가 (RVR) 200m

○ 가 (RVR)

< 가 >

(Category)	가 (RVR)	()
CAT-	550m	,
CAT-	350m	,
CAT- a	200m	, ,
CAT- b	50m	,
CAT- c	0m ()	

< 4 >

가.

-
-

		A	B	C	D
		1,600m		2000m	2,400m
		1600m		2800m	3200m
		500			500
		1200m			1600m

E

A	1.68 NM
B	2.66 NM
C	4.20 NM
D	5.28 NM
E	6.94 NM

< 5 >

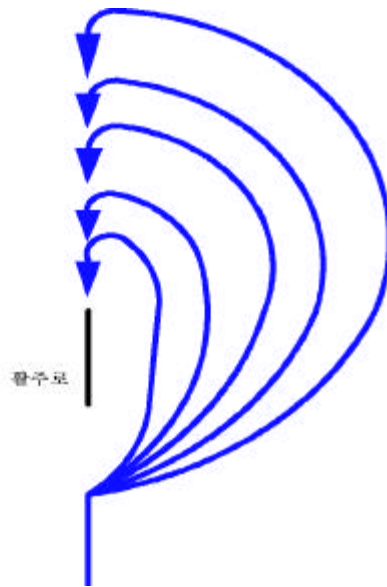
	A	B	C	D
	700			1,100
	1,600m		3,200m	4,800m
	700		700	1,000
	1,600m		2,800m	5,000m
	1,100			
	2,000m	2,400m	4,800m	
	800	900		1000
	1,600m	2,000m	4,000m	5,000m
	2,000m	2,800m	4,000m	4,600m

E

< 6 >

(ICAO Doc8168 Vol- . Chapter 8)

- E : 6,94NM
- D : 5,28NM
- C : 4,20NM
- B : 2,66NM
- A : 1,68NM



2002-4

:

('02. 6. 20)

1.

“ ” ,
 ,
 가 . ,
 , . 가

○ 70 『

,
 ,

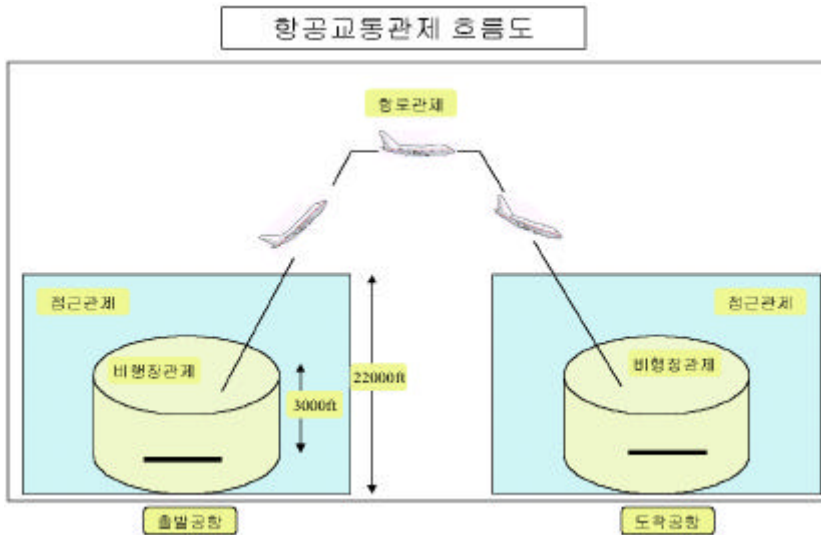
- “ (管制圈)”
 , “ (管制區)”

(가)

- .
- ,
- .
- . 가
-
-
-
-
-
-

2.

()
 ()
 “ ” , 3
 가 .
 ○ 가 (9Km, 0.9Km) “ ” ,
 ○ 가 (108km, 6.6Km) “ ” ,
 ○ 가 가 “ ” .
 ○ , , .
 , 가 (: , , JFK),
 • ,



3.

(ICAO)

가 “
 (FIR: Flight Information Region)” . < 1 >

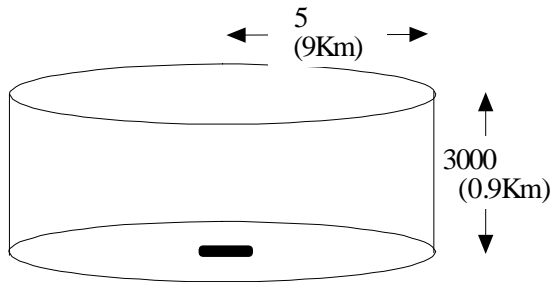
○ “ ”

’
 , ,

,
 . < 2 3 >

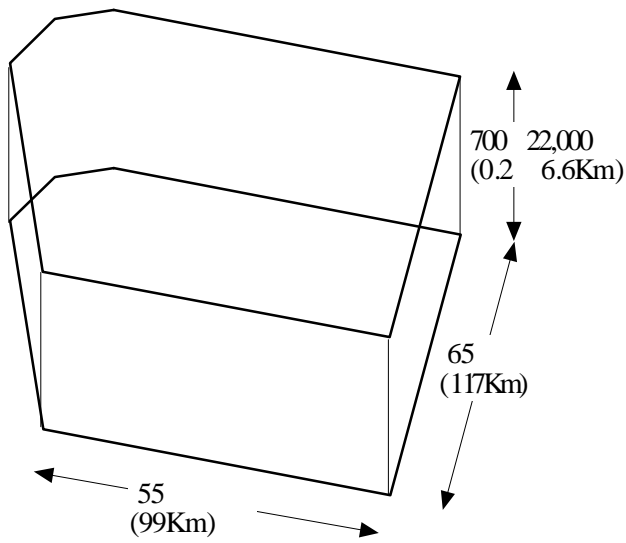
○ ,
 가
 가 .

- ,
 . .
 ○ , 3,000 5,000 “ 3 5 ”
 , ()
)가 < 4 >
 ()



○ ,

- ()
- 60 (108Km), 70
0 22,000 (6.6Km)
 - ()가 .(:
50 , 700 22,000)
 - 14
, 2 , 10 ,
2 ,
< 3 >
()



○

○

,
22,000 ,
가

.

4.

, , ,
(, ,)
가 .

○

,

.

,
가 . ()
68 3)

5.

2가 .

○ (,) .

○ (ICAO) “ ” .

○ , .

가

- , , , .

- , , , .

가

.

-
 (:)
 < > < >
 KAL1253 H - KAL1253 :
 075 310 25 - H :
 ICDEP B747 - 075 : (7,500)
 - 310 : (31,000)
 - 25 : (250)
 - ICDEP : ()
 - B747 :
 - **0** :

(VHF, UHF)

(HF) , 가

	(VHF, UHF)	(HF)
	•	• 가 ,
	• - VHF : - UHF :	• , , , •

6.

- 가 (“ ”)
- , 가 가
- ,
- 가 ,
- 10 (18km),
가 8,000 (2.4km) .
- , 가
- , 가 ()
- , () 가
-

○ , (가) .

()

○ 29,000 : 1,000

○ 29,000 : 2,000

()

○ 가 40 : 3

○ 가 40 : 5

7.

가

○ , , ,

가

○

가

○

(:).

○

- 가

○

가

가

,

○

, 가

.

(VHF)

(UHF)

가

,

.

()

- : 118.2MHz, 122.2MHz
- : 120.8MHz, 125.15MHz
- : 123.6MHz, 122.4MHz

8.

,

가

.

○

:

가
가
가

가

○ :) 가(가 가 가

- : / , ()
- :
- () , /
-
-

가 가

【 ()】 < 5 6 >

○) 10 (가 가 .

- ,
.
○ 가 ()
) 가 . 가
- 가
○ 가
.
○ ()
 가 .
- ,
가 .
- 가 ()
1,000 2,000) ()
.
○ (,)
- .
가 .

○ 가

- 가

○

,

○

)

(

,

-

가

○

가

15 20

가

-

○

가

()

(

10

)

○

가

-

,

- 가 가
- 가 , 가

9.

가 17 ,
가 6
, 11
가 ,
: , , , , ,
: , , , , , , , , ,
, ,

가
1 2

.
1995 3 1
() 가

,
가 .

- 1.
- 2. (FIR)
- 3.
- 4.
- 5. ()
- 6. ()

< 1 >

1.

- “ ” “ ” ‘ .
- “ ” (‘ ,) ,
- “ ” .

2.

(ICAO) ,

, “ (FIR: Flight Information Region)” .

, “ ” .

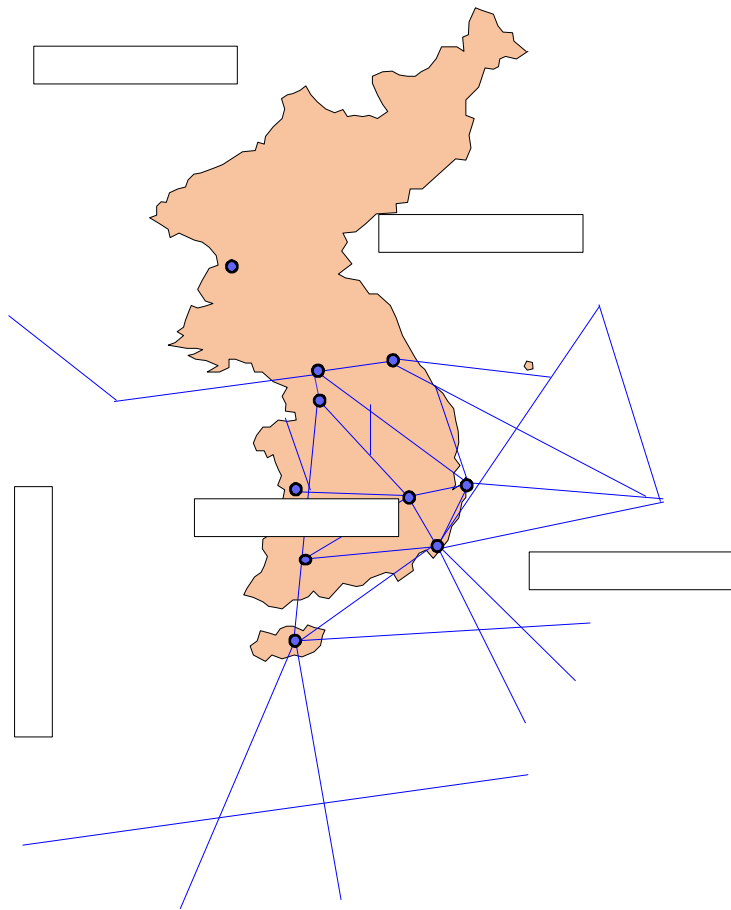
3.

,

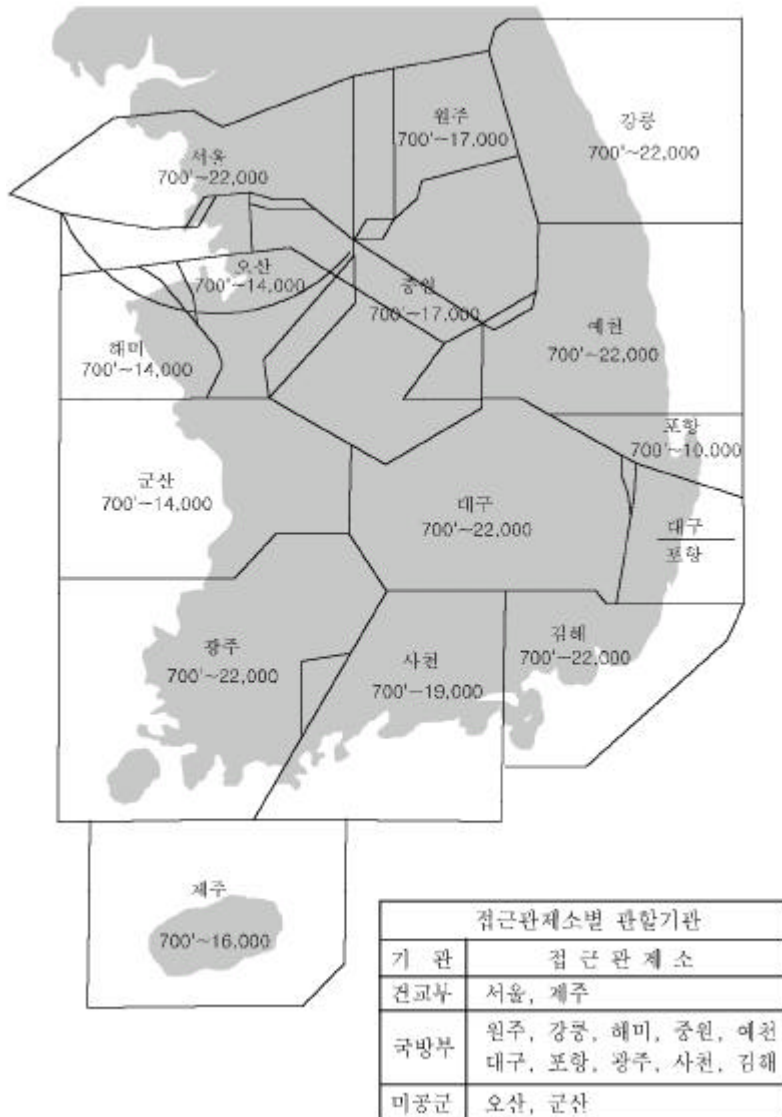
“ (, ,) ”

(:) (:) ,) .

(FIR)



< 3 >



< 4 >

			()
	5 (9Km)	3000 (0.9Km)	
	5 (9Km)	3000 (0.9Km)	"
	5 (9Km)	3000 (0.9Km)	"
	5 (9Km)	3000 (0.9Km)	"
	5 (9Km)	3000 (0.9Km)	"
	5 (9Km)	3000 (0.9Km)	"
	5 (9Km)	3000 (0.9Km)	()
	5 (9Km)	5000 (1.5Km)	"
	5 (9Km)	4000 (1.2Km)	"
	5 (9Km)	4000 (1.2Km)	"
	5 (9Km)	4000 (1.2Km)	"
	5 (9Km)	5000 (1.5Km)	"
	5 (9Km)	4000 (1.2Km)	"
	5 (9Km)	4000 (1.2Km)	"
	5 (9Km)	5000 (1.5Km)	"
	5 (9Km)	3000 (0.9Km)	()
	5 (9Km)	3000 (0.9Km)	"
	5 (9Km)	3000 (0.9Km)	
	5 (9Km)	3000 (0.9Km)	"

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- 10 가 (121.0MHz)
가 .

“KAL1253, CLEARED to Kimhae APRPORT OSAN1S
DEPARTURE via A582 MAINTAIN Flight Level 250
SQUAWK 5051”

(1253, 가 .
OSAN1S A582
, 25,000 , 5051)

- 가
(121.65MHz) ()
) 가 .

“AAR8251, PUSH-BACK APPROVED”

(8251,)

- (121.65MHz)
가 .

“KAL1253, TAXI to RUNWAY 15R via Alpha TAXIWAY”

(1253, Alpha 15)

- (118.2MHz)

가 .(가)

“AAR8251, WIND 150 AT 5Knot CLEARED FOR TAKE-OFF RWY 15R”

(8251, 15 , 150 5)

- 가 (1,000 2,000) (125.15MHz)

“KAL1253, CONTACT Seoul Departure 125.15”

(1253, 125.15MHz)

-

가 .

“AAR8251, RADAR CONTACT, CLIMB TO Flight Level 250”

(8251, , 25,000)

- 가

.(가

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“KAL1253, CONTACT Incheon Control 123.6”

(1253, 123.6MHz)

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-

(119.9MHz)

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가

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“AAR8251, Seoul Approach RADAR CONTACT, CLEARED BULLS 1A Arrival DESCEND to 8000feet”

(8251, , BULLS 1A , 8,000

)

-

가

(13,000)

(120.8MHz)

.

“KAL1253, CONTACT Seoul Arrival 124.2”

(1253, 124.2MHz)

- 가 15 20
가 .

“AAR8251, DESCEND to 3000feet CLEARED ILS/DME
Runway 33R Approach and Report Intercept Localizer”

(8251, 3,000 ,
33 .
)

- 가 .

“KAL1253, CONTACT Incheon Tower 118.2”

(1253, 118.2MHz)

- 10
가
.(,
가)

“AAR8251, WIND 150 AT 5Kont CLEARED TO LAND
Runway 33R”

(8251, 33
. 150 5)

- 가

가 .

“KAL1253, TAXI TO Gate27 VIA Bravo Then Alpha8 TAXIWAY”

(1253, Bravo Alpha8
27 가)

- 가
,

가

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[Empty rectangular box]

○ 가

“KAL1253, PUSH-BACK APPROVED”

(1253,)

○ 가

“AAR8251, TAXI TO RUNWAY 15R VIA Alpha7 TAXIWAY”

(8251, Alpha7 15)

○ 가

“KAL1253, TAXI TO Gate27 VIA Bravo Then Alpha8 TAXIWAY”

(1253, Bravo Alpha8
27 가)

○ 가 (, ,)

“AAR8251, WIND 150 AT 5Knot CLEARED FOR TAKE-OFF RWY 15R”

(8251, 15
 , 150 5)

○ 가 (, ,)

“KAL1253, WIND 150 AT 5Kont CLEARED TO LAND RWY 15L”

(1253, 15
 150 5)

○

“AAR8251, CONTACT Seoul Approach 125.5”

(8251, 125.5)

○

“KAL1253, RADAR CONTACT, CLIMB TO 7000feet”

(1253, , 7,000
)

○

“AAR8251, RADAR CONTACT, FLY HEADING 310
DESCEND TO 8000feet”

(8251, ,
310 , 8,000)

○

“KAL1253, TURN RIGHT HEADING 120”
(1253, 120)

○

“AAR8251, TRAFFIC Twelve O’Clock, Seven Miles,
Eastbound, B747, Flight Level One Seven Zero”
(8251, 12 7 가 ,
B747, 17,000 ,
)

○

“KAL1253, INCREASE TO two five zero”
(1253, 250)

“AAR8251, REDUCE SPEED TO two five zero”
(8251, 250)

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