

AD 2. AERODROMES**VECC AD 2.1 AERODROME LOCATION INDICATOR AND NAME**

VECC - KOLKATA / INTL

VECC AD 2.2 AERODROME GEOGRAPHICAL AND ADMINISTRATIVE DATA

1	Aerodrome reference point coordinates and its site	223914N 0882648E 01.75 DEG /1294M from THR 01R								
2	Direction and distance of aerodrome reference point from the center of the city or town which the aerodrome serves	045 DEG/15KM from Howrah Railway Station								
3	Aerodrome elevation and reference temperature	23 FT / 36.0 DEG C								
4	Magnetic variation, date of information and annual change	0.50 DEG W (2010) /0.00								
5	Name of aerodrome operator, address, telephone, telefax, e-mail address, AFS address, website (if available)	<p>Airports Authority of India Netaji Subash Chandra Bose International Airport, Kolkata -700052.,</p> <table> <tr> <td>Telephone:</td> <td>+91-33-25119944</td> </tr> <tr> <td>Fax:</td> <td>+91-33-25118873</td> </tr> <tr> <td>AFS:</td> <td>VECCYUYU</td> </tr> <tr> <td>Email:</td> <td>apdkolkata@aai.aero</td> </tr> </table>	Telephone:	+91-33-25119944	Fax:	+91-33-25118873	AFS:	VECCYUYU	Email:	apdkolkata@aai.aero
Telephone:	+91-33-25119944									
Fax:	+91-33-25118873									
AFS:	VECCYUYU									
Email:	apdkolkata@aai.aero									
6	Types of traffic permitted (IFR/VFR)	IFR/VFR								
7	Remarks	NIL								

VECC AD 2.3 OPERATIONAL HOURS

1	Aerodrome Operator	MON-FRI 0400-1230 UTC (0930-1800 IST) Sat, Sun and Hol : Nil
2	Custom and immigration	H24
3	Health and sanitation	H24
4	AIS briefing office	H24
5	ATS reporting office (ARO)	H24
6	MET Briefing office	H24
7	Air Traffic Service	H24
8	Fuelling	H24
9	Handling	H24
10	Security	H24
11	De-icing	NIL
12	Remarks	<p>The approved hourly runway traffic handling capacity is as follows:</p> <p>1. Peak capacity when runway 19L/01R in use:</p> <ul style="list-style-type: none"> •Maximum number of Arrival and Departure- 35 •Maximum number of Arrival only – 23 •Maximum number of Departure only -23 <p>2. During the period runway 19L/01R is taken for schedule maintenance i.e. when runway 19R/01L is in use:</p> <ul style="list-style-type: none"> •Maximum number of Arrival and Departure- 15 •Maximum number of Arrival only – 12 •Maximum number of Departure only -12

VECC AD 2.4 HANDLING SERVICES AND FACILITIES

1	Cargo-handling facilities	Upto 12 Tons Handling Possible.
2	Fuel and Oil types	Avg 100LL, (ATF) JET A-1, MWM 45.55 MJOII
3	Fuelling facilities and capacity	(a) Hydrant At Prkg Stands 15-26 & 41-52. (b) Bowzer At Dispersal Area Of Hanger 9,C1 & C2 , 1,000 Litres/ Min.
4	De-icing facilities	NIL
5	Hangar space for visiting aircraft	NIL
6	Repair facilities for visiting aircraft	Available For A321/A320 & B737-200 & ATR - 72 Type Of Aircraft, with Air India. Requiring Prior Arrangements
7	Remarks	1. Handling Services Available with Air India and Bhadra International. Requiring Prior Arrangements 2. All non-scheduled aircraft operators shall ensure availability of tow bar on board or availability of tow bar with their ground handling agent. Non-standard parking shall not be permitted for aircraft not having tow bar. 3. AVGAS 100LL not available for into plane service. On demand, AVGAS 100LL available against payment in barrels of 200LTRS. Methanol water mix, MWM not available.

VECC AD 2.5 PASSENGER FACILITIES

1	Hotel(s) at or in the vicinity of aerodrome	Near The AD and in the city.
2	Restaurant(s) at or in the vicinity of aerodrome	At AD and in the city.
3	Transportation possibilities	Taxis, Buses from AD.
4	Medical Facilities	First aid at AD. Hospitals in the city.
5	Bank and post office at or in the vicinity of aerodrome	Banks: At AD. Open H24. Post office: At AD. Open H24.
6	Tourist office	At AD and in the City
7	Remarks	NIL

VECC AD 2.6 RESCUE AND FIRE FIGHTING SERVICES

1	Aerodrome category for fire fighting	Within ATS HR: CAT-9
2	Rescue equipment	AVBL. as per category
3	Capability for removal of disabled aircraft	Available For Removal Of Up to B707 Type Of Aircraft
4	Remarks	NIL

VECC AD 2.7 SEASONAL AVAILABILITY CLEARING

1	Type(s) of clearing equipment	NIL
2	Clearance priorities	NIL
3	Remarks	NIL

VECC AD 2.8 APRONS, TAXIWAYS AND CHECK LOCATIONS/POSITIONS DATA

1	Designation, surface and strength of aprons	Refer Para VECC AD 2.23
2	Designation, width, surface and strength of taxiways	Refer Para VECC AD 2.23
3	Location and elevation of altimeter checkpoints	NIL

4	Location of VOR checkpoints	NIL
5	Position of INS checkpoints	NIL
6	Remarks	

VECC AD 2.9 SURFACE MOVEMENT GUIDANCE AND CONTROL SYSTEM AND MARKINGS

1	Use of aircraft stand identification signs, taxiway guidelines and visual docking/parking guidance system at aircraft stands	For Aircraft stand identification sign & VDGs, Refer AD 2.23 Taxiway guideline marking available on all Taxiways. Appropriate signages available.
2	Runway and taxiway markings and lights	RWY19L/01R Markings: Designation, Aiming Point, THR, TDZ, Centreline, Side Strip, Chevron Marking, Runway Turn pad RWY 19L Lights: CAT-II Approach, Centreline, TDZ, THR, wing bar, RWY edge, RWY end. RWY 01R Lights: CAT-III B Approach, Centreline, TDZ, THR, wing bar, RWY edge, RWY end. RWY19R/01L Markings: Designation, Aiming Point, THR, TDZ, Centreline, Side Strip RWY19R/01L Lights: THR, RWY edge, RWY end. TWY Markings: Centreline, Edge, Holding Position, Fillet TWY Lights: Centreline lights on TWYs A, D, K, F1, F2, J1 & H1. Edge lights on all taxiways
3	Stop bars (if any)	Available on TWY D, A & C.
4	Remarks	Runway Guard lights have been provided at CAT I holding positions on taxiways A, B, C and D and at 108M from Runway 19L centerline on taxiway K. Intermediate Holding Position (IHP) lights have been provided on the following taxiways: i. F1 Short of junction of F1, F2, H1, J1 ii. F2 Short of junction of F1, F2, H1, J1 iii. H1 Short of junction of F1, F2, H1, J1 iv. J1 Short of junction of F1, F2, H1, J1 v. A North of junction of A & D vi. A South of junction of A & D vii. A North of junction of A, H & H1 viii. A South of junction of A & H1

VECC AD 2.10 AERODROME OBSTACLES

In Approach/Take-off/Circling Area and at AD					
1	2	3	4	5	6
RWY/Area affected	Obstacle type	Coordinates	Elevation	Marking/LGT	Remarks
19R/TKOF 01L/APCH	TREE	223747.8N 0882637.4E	99 FT	NIL	TREE

In Approach/Take-off/Circling Area and at AD					
1	2	3	4	5	6
RWY/Area affected	Obstacle type	Coordinates	Elevation	Marking/LGT	Remarks
19R/APCH 01L/TKOF	TREE	224006.4N 0882642.1E	75 FT	NIL	TREE
19L/APCH 01R/TKOF	TREE	224044.3N 0882658.3E	62 FT	NIL	TREE
19L/APCH 01R/TKOF	TREE	224045.9N 0882703.9E	59 FT	NIL	TREE
19L/APCH 01R/TKOF	TREE	224047.7N 0882700.0E	84 FT	NIL	TREE
19L/APCH 01R/TKOF	TREE	224048.7N 0882654.2E	89 FT	NIL	TREE
19L/APCH 01R/TKOF	TREE	224042.6N 0882653.5E	59 FT	NIL	TREE
19L/APCH 01R/TKOF	TREE	224047.2N 0882708.3E	78 FT	NIL	GP OF TREES
19L/APCH 01R/TKOF	OTHER	224049.1N 0882709.9E	79 FT	NIL	CHIMNEY
19L/APCH 01R/TKOF	TREE	224058.3N 0882707.7E	86 FT	NIL	TREE
19L/APCH 01R/TKOF	TREE	224059.1N 0882659.8E	89 FT	NIL	TREE
19L/APCH 01R/TKOF	TREE	224106.6N 0882705.3E	103 FT	NIL	TREE
19L/APCH 01R/TKOF	TREE	224053.0N 0882705.4E	103 FT	NIL	TREE
19R/TKOF 01L/APCH	TREE	223807.8N 0882635.9E	54 FT	NIL	TREE
19R/TKOF 01L/APCH	TREE	223811.4N 0882643.2E	47 FT	NIL	TREE
19R/TKOF 01L/APCH	TREE	223800.3N 0882637.7E	69 FT	NIL	TREE
19R/TKOF 01L/APCH	TREE	223813.1N 0882635.8E	57 FT	NIL	TREE
19R/TKOF 01L/APCH	TREE	223812.9N 0882639.4E	53 FT	NIL	TREE
19R/TKOF 01L/APCH	TREE	223816.0N 0882651.3E	52 FT	NIL	TREE
19R/TKOF 01L/APCH	TREE	223758.3N 0882629.8E	92 FT	NIL	TREE

VECC AD 2.11 METEOROLOGICAL INFORMATION PROVIDED

1	Name of the associated meteorological office	AMO Kolkata
2	Hours of service and, where applicable, the designation of the responsible meteorological office outside these hours	H24
3	Office responsible for preparation of TAFs and periods of validity and interval of issuance of the forecasts	Kolkata 9, 30HR
4	Availability of the trend forecast for the aerodrome and interval of issuance	Trend Trend Type landing forecast appended with each METAR / SPECI
5	Information on how briefing and/or consultation is provided	Provided, , through Documentation and OLBS
6	Types of flight documentation supplied and language(s) used in flight documentation	Chart And Tabular English

7	Charts and other information displayed or available for briefing or consultation	1. WAFC Products: Data for upper wind & temperature for levels: 850 h.Pa, 700 h.Pa, 500 h.Pa, 300 h.Pa, 250 h.Pa, 200 h.Pa, 150 h.Pa, SIG Wx charts for FL 100 - 250 & for FL 250 - 630. 2. National Charts for consultation only. Surface charts, synoptic upper air charts for levels: 100, 150, 200, 250, 300, 400, 500, 600, 700, 850 hPa, prognostic upper air charts at constant pressure, prognostic significant weather chart, DWR products / Satellite imagery.
8	Supplementary equipment available for providing information on meteorological conditions, e.g. weather radar and receiver for satellite images;	RS / RW Ascent, Transmissometer at TDZ 19L, TDZ 19R, MID 19L, TDZ 01R, MID 01R & END 01R, DCWIS at TDZ 19L & TDZ 01R, Radar & Satellite Picture
9	The air traffic services unit(s) provided with meteorological information	Kolkata ATC, ATS and ACC
10	Additional information, e.g. concerning any limitation of service.	Estimated cloud base height (No Ceilometers Data)

VECC AD 2.12 RUNWAY PHYSICAL CHARACTERISTICS

Designations	TRUE Bearings	Dimensions of RWY (M)	Strength of pavement (PCN) and associated data) and surface of runway and associated stopways	Geographical coordinates for threshold and runway end
1	2	3	4	5
01L	6.25 DEG		70/F/B/W/T Asphalt	THR: 223824.71N 0882638.37E
19R	186.25 DEG		70/F/B/W/T Asphalt	THR: 223953.64N 0882648.82E
01R	6.25 DEG	3627 x 45 M	84/F/C/W/T Asphalt	THR: 223831.91N 0882646.73E
19L	186.25 DEG	3627 x 45 M	84/F/C/W/T Asphalt	THR: 224014.70N 0882657.80E

THR elevation and highest elevation of TDZ of precision APP RWY	Slope of runway and associated stopway	Dimensions of stopway (M)	Dimensions of clearway (M)	Dimensions of strips (M)
6	7	8	9	10
THR: 19.7FT TDZ:	-0.02%	NIL	NIL	2823 x 150 M
THR: 19.0FT TDZ:	-0.02%	NIL	NIL	2823 x 150 M
THR: 20.0FT TDZ: 20.2FT		NIL	NIL	3956 x 300 M
THR: 19.0FT TDZ: 19.8FT		NIL	NIL	3956 x 300 M

Dimensions of runway end safety areas	Location and description of arresting system (if any)	Existence of an obstacle-free zone	Remarks.
11	12	13	14
130M x 90M		NIL	1. Dimension of RWY 01L: 3270M X 45M. 2. PCN from beginning RWY 01L upto 430M: 76/R/B/W/T, Surface: Concrete; PCN from 430 M upto 2830M: 70F/B/W/T, Surface Bitumen; PCN from 2830M upto End of RWY: 101/R/C/W/T, Surface: Concrete 3. Slope : -.08% (769M) -.02% (1080M) +.2% (550M)
135M x 90M		NIL	1. Dimension of RWY 19R: 2839M X 45M. 2. Threshold displaced by 90M 3. Slope: +.2% (550M) -.02% (1080M) -.08% (769M)
90M x 90M		NIL	NIL
240M x 90M		NIL	Threshold displaced by 427M NOTE: - To eliminate chance of RWY surface damage Pilots to use Turn Pad of RWY 19L while lining up for departure.

VECC AD 2.13 DECLARED DISTANCES

RWY Designator	Take-off run available TORA (M)	Take-off distance available TODA (M)	Accelerate distance available ASDA (M)	Landing distance available LDA (M)	Remarks (including runway entry or start point where alternative reduced declared distances have been declared)
1	2	3	4	5	6
01L	3270	3270	3270	2839	
19R	2839	2839	2839	2749	
01R	3627	3627	3627	3627	
19L	3627	3627	3627	3200	

VECC AD 2.14 APPROACH AND RUNWAY LIGHTING

Runway Designator	Type, length and intensity of approach lighting system	Runway threshold lights, colour and wing bars	Type of visual slope indicator system	Length of runway touchdown zone lights
1	2	3	4	5
01L	SALS 420 M	Green Wing Bar - NO	PAPI LEFT/3.00 DEG MEHT (50.00FT)	
19R	CAT I 900 M LIH	Green Wing Bar - No	PAPI LEFT/3.00 DEG MEHT (50.00FT)	
01R	900 M CAT-IIIB LIH	Green	PAPI LEFT/3.00 DEG MEHT (50.00FT)	900 M

Runway Designator	Type, length and intensity of approach lighting system	Runway threshold lights, colour and wing bars	Type of visual slope indicator system	Length of runway touchdown zone lights
1	2	3	4	5
19L	CAT II 900 M LIH	Green	PAPI LEFT/3.00 DEG MEHT (50.00FT)	900 M

Length, spacing, colour and intensity of runway centre line lights	Length, spacing, colour and intensity of runway edge lights	Colour of runway end lights and wing bars	Length and colour of stopway lights	Remarks
6	7	8	9	10
	3270 M 60 M Variable white LIH	Red		1. APCH with cross bar at 300M.
	2839 M 60 M Variable white LIH	Red		1. Last 600M of runway edge lights amber.
3627 M 15 M LIHVariable White	3627 M 60 M Variable white LIH	Red		1. Runway Centreline lights Last 900m to 300m from RWY end alternate red & variable white Red for last 300m from RWY end 2. Last 600M of Runway Edge lights amber.
3627 M 15 M LIHVariable White	3627 M 60 M Variable white LIH	Red		1. RWY Centreline lightsLast 900m to 300m from RWY end alternate red & variable white Red for last 300m from RWY end 2. Last 600M of runway edge lights amber. 3. Inset Turn Pad Lights on Runway 19L Available InSingle Circuit with Turn Pad Edge Light

VECC AD 2.15 OTHER LIGHTING, SECONDARY POWER SUPPLY

1	Location, characteristics and hours of operation of aerodrome beacon/identification beacon (if any)	ABN	Installed on the top of ATC tower; Beam colour- Green & White; 24-30 flashes per minutes; H-24 H24
		IBN	NIL
2	Location and lighting (if any) of anemometer/ landing direction indicator;	LDI	Available WDI Not Available
		Anemometer	1. 390 M from THR19L, Lighted 2. 300 M from THR01R, Lighted (Both 1&2 located North of RWY 19L / 01R)

3	Taxiway edge and taxiway centre line lights;	Edge	ALL TWYs
		Centre Line	ON TWYs A,D, K, F1, F2, J1 & H1
4	Secondary power supply including switch-over time;	Secondary power supply to all air field lighting. Switch-over time : CAT-I 15 SEC CATII/IIIB 1 sec.	
5	Remarks		

VECC AD 2.16 HELICOPTER LANDING AREA

1	Geographical coordinates of the geometric centre of touchdown and lift-off (TLOF) or of each threshold of final approach and take-off (FATO) area	Not Established
2	TLOF and/or FATO area elevation:	Not Established
3	TLOF and FATO area dimensions to the nearest metre or foot, surface type, bearing strength and marking;	Not Established
4	True bearings of FATO;	Not Established
5	Declared distances available	Not Established
6	Approach and FATO lighting;	Not Established
7	Remarks	Not Established

VECC AD 2.17 AIR TRAFFIC SERVICE AIRSPACE

1	Airspace designation, geographical coordinates and lateral limits	CTR: Circular area centered on ARP VECC (223914N 0882648E) within a 25NM radius.
2	Vertical limits	FL 50
3	Airspace classification	D
4	Call sign and language(s) of the air traffic services unit providing service;	Kolkata Tower, English
5	Transition altitude	4000 FT
6	Hours of applicability	H24
7	Remarks	NIL

VECC AD 2.18 AIR TRAFFIC SERVICES COMMUNICATION FACILITIES

Service Designation	Call sign	Channel(s)	SATVOICE Number(s), if available
1	2	3	4
TAR	Kolkata Radar	119.300 MHZ	
TAR	Kolkata Radar	127.900 MHZ	
SAR	-	123.100 MHZ	
APP	Kolkata Approach	119.300 MHZ	
APP	Kolkata Approach	127.900 MHZ	
TWR	Kolkata Tower	118.100 MHZ	
ATIS	Kolkata Information	126.400 MHZ	
ALRS	-----	121.500 MHZ	
RADAR	Kolkata Radar	120.100 MHZ	
RADAR	Kolkata Radar	120.700 MHZ	
RADAR	Kolkata Radar	125.900 MHZ	
RADAR	Kolkata Radar	126.100 MHZ	
RADAR	Kolkata Radar	132.450 MHZ	
SMC	Kolkata Ground	121.900 MHZ	

Logon address, as appropriate	Hours of operation	Remarks
5	6	7
	H24	SDBY
	H24	NIL
		International Voice SAR On Scene Frequency 123.1MHZ Is Operational
	H24	SDBY
	H24	NIL
	H24	NIL
	H24	NIL
	H24	EMERGENCY FREQUENCY
	H24	NIL
	H24	NIL
	H24	SDBY
	H24	SDBY
	H24	NIL
	H24	NIL

VECC AD 2.19 RADIO NAVIGATION AND LANDING AIDS

Type of aids, magnetic variation and type of supported operation for ILS/MLS, basic GNSS, SBAS and GBAS, and for VOR/ILS/MLS station used for technical lineup of the aid	Identification	Frequency(ies), Channel number(s), Service provider, and reference path identifier(s) (RPI), as appropriate	Hours of operation, as appropriate;
1	2	3	4
LOC 01R	ICAL	109.900 MHz	H24
LOC 19L	IDUM	110.300 MHz	H24
LOC 19R	IOKL	111.300 MHz	
GP 01R	ICAL	333.800 MHz	H24
GP 19L		335.000 MHz	H24
GP 19R	IOKL	332.300 MHz	
DME ILS 01R	ICAL	CH36X	H24
DME ILS 19L	IDUM	CH40X	H24
DME ILS 19R	IOKL	CH50X	
DVOR/DME	CEA	112.500 MHz CH72X	H24
L	CA	293.000 kHz	H24
L	DU	385.000 kHz	H24

Geographical coordinates of the position of the transmitting antenna	Elevation of transmitting antenna of DME/ elevation of GBAS reference point	Service volume radius from the GBAS reference point	Remarks
5	6	7	8
224040.8N 0882701.9E			
223818.1N 0882644.7E			
223801.6N 0882635.7E			LLZ inner coverage is restricted to 30 DEG on 150HZ side, no restriction on 90HZ side.
223841.8N 0882652.1E			
224004.0N 0882701.5E			3 DEG
223943.5N 0882643.3E			
223841.8N 0882652.1E	48 FT		Colocated with GP 01R 3 DEG
224004.0N 0882701.5E	62 FT		Colocated with GP 19L
223943.5N 0882643.3E			Collocated with GP 19R
224033.5N 0882653.3E	49 FT		
223501.6N 0882623.8E			
224424.6N 0882727.4E			

VECC AD 2.20 LOCAL AERODROME REGULATIONS

1. For Stand 15, 16 & 17 Taxi in via TWY G & Taxi out via TWY A.
2. For parking stands 52 & 53 manual marshalling required. Departing aircraft to push back on TWY F1 facing north and start engines only after reaching abeam stand No.51
3. Portion of TWY 'F1' from the rear of stand 50 to the intersection of TWY 'R' available for operations of ACFT. Up to CAT C. Necessary guidance board, lights and markings provided.
4. Portion of TWY 'R' from the intersection of TWY 'A' till intersection of TWY 'F1' available for aircraft upto CAT C. During towing to hanger exercise caution due presence of vehicles.

VECC AD 2.21 NOISE ABATEMENT PROCEDURES

Consistent with safety of aircraft operations and in consideration of high intensity runway operations, pilots should minimize the use of reverse thrust after landing to reduce disturbance in areas adjacent to the aerodrome.

VECC AD 2.22 FLIGHT PROCEDURES

I. Kolkata TMA Routing

Route Designator	Kolkata TMA Routing
P646	DOPID N205503.2 E 0891216.1 – 339 DEG/112NM ---CEA VOR N223842.6 E0882710.4
M773	BUBKO N191103.7 E0883950.5 – 349 DEG/151NM -- LEGOs N213802.9 E0880520.6 – 019 DEG/064NM --- CEA VOR N223842.6 E0882710.4

II. SURVEILLANCE RADAR APPROACH PROCEDURES**i. NSCBI AIRPORT, KOLKATA**

RWY	THR ELEVATION (FT)	Inbound Track DEG (M)	IF (Dist. From touch down) (NM)	Altitude over IF (FT)	FAF (Dis. From touch down (NM)	Altitude over FAF (FT)	MAPT (Dist. From touch down) (NM)	OCA (Straight-in) (FT)
19 L	19	187	12	2000	6.2	2000	2	660
01 R	20	007	12	2000	6.2	2000	2	670

ii. Distance / Altitude Information

RWY	Dist. from TD (NM)	Distance / Altitude Information (NM)					Descent Gradient (GP Angle)
		6	5	4	3	2	
19L	Altitude (Ft)	1940	1620	1300	980	660	5.26% (3 Deg)
01R	Altitude (Ft)	1940	1620	1300	980	670	5.26% (3 Deg)

iii. OCA Circling:

CAT A/B: 720 ft.
CAT C/D: 820 ft.

iv. Missed Approach Procedure:

RWY 19L: Climb straight ahead to 2000 ft then turn left to join VOR holding as specified in Para 6 or as instructed by ATC.
RWY 01R: Climb straight ahead to 2000 ft then turn right to join VOR holding as specified in Para 6 or as instructed by ATC.

v. Radar vectoring Areas:

Radar vectoring area is 2000 ft AMSL in all the sectors up to 25 NM.

vi. Holding procedure VOR (112.5 CEA)

RWY 19L One-minute right hand pattern inbound track 003 DEG M. Minimum holding altitude 2000ft.

RWY 01R One-minute left hand pattern inbound track 205 DEG M. Minimum holding altitude 2000ft.

vii. Radio communication failure procedure:

- a. In case radio communication failure takes place prior to establishing final approach, maintain the last assigned altitude or 2000ft whichever is higher and proceed to VOR (112.5) CEA via the shortest route to join holding procedure as specified in para vi
- b. In case radio communication failure takes place after establishing the final approach track, aircraft may continue the approach and land if visual, or go around and carry out the missed approach procedure and join the VOR (112.5) CEA holding procedure as specified in Para 6.
- c. After joining the VOR holding procedure commence the instrument approach procedure (ILS or VOR) for RWY for which SRA was being provided.
- d. If required by ATC the length of intermediate segment may be reduced to less than 5NM but not less than 2NM provided angle of interception does not exceed 30 Deg.

III. RADIO COMMUNICATION FAILURE PROCEDURES:

1. INTRODUCTION:

The Radio Communication Failure procedures established herein are based on the provisions of ICAO PANS ATM DOC 4444. The objective is to standardize the actions to be taken by the pilot of arriving and departing aircraft experiencing radio communication failure at Kolkata airport, when ATS surveillance system is used in the provision of air traffic control in such airspace.

During the periods of non-availability of ATS surveillance system in part or whole of the concerned airspace in Kolkata, the provisions of ICAO PANS ATM DOC 4444 shall be followed.

2. SCOPE:

The procedures in this document shall be applicable to the pilots of arriving and departing aircraft experiencing radio communication failure at Kolkata airport when ATS surveillance system is used in the provision of air traffic control in such airspace.

3. GENERAL:

3.1 All Transponder equipped aircraft experiencing Radio Communication Failure shall set transponder to Mode A/C code 7600 as soon as practicable. (Note: This Requirement of Setting transponder to Mode A/C code 7600 in no way imposes any restriction on the pilot's decision to set transponder to Mode A/C code 7500 or 7700, whenever required).

3.2 An aircraft equipped with other surveillance system transmitters, including ADS-B and ADS-C, might indicate the loss of air-ground communication by all of the available means.

3.3 Aircraft equipped with CPDLC should log on to Kolkata Data-link (ADS-CPDLC) VECF, so that CPDLC connection may be established for communication.

3.4 To indicate that it is experiencing Radio Communication Failure, an aircraft equipped with ADS-C shall transmit appropriate message in this regard.

3.5 Immediately after detection of RCF, the pilot shall try to communicate to the concerned ATS unit through the frequencies of adjacent units/stations, or 121.5 MHz or by relay through other aircraft. The RCF aircraft shall also try to contact the appropriate HF frequencies to relay messages to the concerned ATS unit.

3.6 Aircraft shall avoid all Restricted Areas and active Danger Areas. Aircraft shall not enter Bangladesh airspace if flight plan does not include Dhaka FIR unless emergency conditions warrant so. If aircraft is observed entering any of the areas mentioned above concerned ATC unit shall inform the units concerned accordingly.

3.7 Pilot shall make blind transmission to ATC of all necessary reports and actions taken by the aircraft, e.g. descent, turn, proceeding to waypoint etc., irrespective of whether partial/ complete RCF has been established or not.

4. ASSIGNED RUNWAY AND ITS AVAILABILITY FOR RCF AIRCRAFT:

4.1 In case of an arriving aircraft experiencing RCF, when Runway for landing has already been advised to the aircraft by ATC, such runway shall be considered as the assigned runway. If an arriving aircraft has not been advised of any runway, Runway 19L shall be considered as assigned runway for such arrival. During the notified periods of maintenance/closure of Runway 19L, Runway 19R shall be considered as assigned Runway and vice-versa.

4.2 In case of departures from Kolkata returning due to RCF, the departure runway of such aircraft shall be considered as assigned runway for landing.

4.3 Runway lights and Approach lights in ‘SWITCHED ON’ position shall indicate the availability of such Runway for aircraft experiencing RCF.

4.4 Irrespective of visibility/weather conditions, Runway and Approach lights in ‘SWITCHED OFF’ position shall indicate non-availability of such Runway for aircraft experiencing RCF.

In such cases, alternate runway shall be made available for such aircraft. Runway 19R shall be alternate to Runway 19L and Runway 01L shall be alternate to Runway 01R. Similarly, Runway 19L shall be alternate to Runway 19R and Runway 01R shall be alternate to Runway 01L.

4.5 In case strong tail wind conditions are encountered during approach for the assigned Runway, the aircraft experiencing RCF will carry out a missed approach on assigned runway and after following complete missed approach procedure for such approach, aircraft will carry out the published ILS/VOR approach procedure for the runway which is in opposite direction to the assigned Runway, e.g. Runway 01R in case of assigned Runway 19L.

5. PROCEDURE FOR ARRIVALS:

5.1 General:

a.Except when descent clearance has already been received from ATC and acknowledged, pilot shall not commence descent before 100 NM from CEA VOR or until three minutes after setting Mode A/C code 7600 whichever is later.

b.In case radio communication failure takes place after establishing ILS/ final approach track, aircraft may continue the approach and land if visual, or go around and carry out the missed approach procedure and join the VOR (112.5) CEA holding procedure climbing to and maintaining 2000 FT.

5.2 Arriving Aircraft – STAR Assigned

When STAR has been assigned to an arrival experiencing radio communication failure, it shall:

a.Continue on the assigned STAR following all level and speed restrictions applicable to STAR, as far as practicable.

b.Commence descent as in Para 5.1(a) above. Descend to FL70.

c.At the end of the STAR, descend to 2000ft and take a suitable turn to intercept localizer or final approach track of the published procedure for the assigned runway, remaining within 25 NM of CEA.

d.If additional track miles are required to adjust descent, hold across the final approach track of the assigned runway between 15 and 25 NM from CEA.

5.3 Arriving Aircraft – STAR Not Assigned

When STAR has not been assigned to an arrival experiencing radio communication failure, it shall:

a.Continue on ATS route, (re-join ATS route if given heading or flying offset)

b.Commence descent as in Para 5.1 (a) above. Descend to FL70 and proceed to CEA VOR.

c.Descend in CEA hold to 2000ft and carry out the published ILS/VOR approach procedure for the assigned runway.

5.4 Arriving Aircraft Being Radar Vectored

An aircraft which is radar vectored, on experiencing radio communication failure, shall:

a.Maintain the last assigned speed, level and heading for 3 minutes after selecting MODE A/C 7600.

b.Then proceed direct to CEA VOR descending to FL70 according to Para 5.1 (a) above.

c.Descend in CEA hold to 2000 FT and carry out the published ILS/VOR approach procedure for the assigned runway.

6. PROCEDURE FOR DEPARTURES:

6.1 Departure Intending to Continue to Destination

A departing aircraft experiencing radio communication failure and intending to continue to its filed plan destination shall:

- a. Continue on the assigned SID or heading, climbing to/ maintaining cleared and acknowledged level or FL60, whichever is higher.
- b. Three minutes after setting Mode A/C code 7600 or reaching FL60 or cleared Flight level (if higher than FL60) whichever is later:
 - i. if following SID, continue on SID to join ATS route and climb to filed Flight level and continue as per the filed flight plan.
 - ii. if following Radar heading or have been directed by ATC to proceed offset using RNAV without a specified limit, proceed in the most direct manner possible to re-join the current flight plan route no later than the next significant point, maintaining cleared flight level/FL60 whichever is higher. After joining ATS route, climb to filed Flight level and continue as per the filed flight plan.

6.2 Departure Intending to Land Back at Kolkata:

A departing aircraft, experiencing radio communication failure and intending to land back under VMC at Kolkata Airport in accordance with provisions of DGCA CAR Series C part I, shall:

- a. Continue on assigned SID or radar heading and set Mode A/C code 7600.
- b. Climb/ stop climb at a level according to the table given below:

Phase of flight	Actions to be followed by pilot
At or below FL70	Maintain/Climb to FL70
Above FL70, but below FL230	Maintain/ Climb to: The last cleared and acknowledged level or FL230/ FL220, (appropriate to the direction of the flight) whichever is lower.
At or above FL230	Stop climb at the next level appropriate to the direction of the flight.

c. On reaching a suitable level according to Para 6.2 (b) above, or three minutes after setting Mode A/C code 7600, whichever is later, take a suitable turn to establish inbound the same ATS route and proceed to CEA VOR. After establishing the inbound track, descend as mentioned in Para 6.2 (d) or 6.2 (e) below.

d. At 50NM descend to FL70, if jettisoning is not necessary.

e. In case the aircraft needs to jettison fuel, it shall:

- i. Climb/descend to FL100. Proceed outbound on R-170 CEA VOR until 80NM.
- ii. Hold at FL100 between R-160 and R-180 CEA VOR, 80 and 100 NM from CEA DME to jettison fuel.
- iii. On completion of jettisoning return to CEA VOR via R-170 CEA VOR. At 50NM inbound descend to FL70 and subsequently follow the provisions of Para 6.2 (f) below.

f. Descend in CEA hold to 2000 FT and leave CEA VOR to carry out the published ILS/VOR approach procedure for the assigned runway.

VECC AD 2.23 ADDITIONAL INFORMATION

I PARKING STANDS

CARGO APRON							
Aircraft Stand No.	Surface	PCN	Co-ordinates	Suitability	Type	Parking guidance	Fuel Hydrant
C1	CONCRETE	90/R/C/W/T	223909.48N 0882632.73E	B737-200	Power-In/ Power-Out	Ground marking	Not Avbl.
C2	CONCRETE	90/R/C/W/T	223909.36N 0882633.87E	B737-200	Power-In/ Power-Out	Ground marking	Not Avbl.
C3	CONCRETE	90/R/C/W/T	223921.48N 0882636.30E	B747-400	Power-In/ Push Back	Ground marking	Not Avbl.
C4	CONCRETE	90/R/C/W/T	223924.02N 0882636.59E	AN-124	Power-In/ Push Back	Ground marking	Not Avbl.
C5	CONCRETE	90/R/C/W/T	223926.75N 0882636.99E	AN-124	Power-In/ Push Back	Ground marking	Not Avbl.

APRON 1							
Aircraft Stand No.	Surface	PCN	Co-ordinates	Suitability	Type	Parking guidance	Fuel Hydrant
13	BITUMEN	32/F/C/W/T	223905.90N 0882636.86E	DO-228	Power-In/ Power-Out	Ground marking	Not Avbl.
14	BITUMEN	32/F/C/W/T	223906.01N 0882635.63E	DO-228	Power-In/ Power-Out	Ground marking	Not Avbl.
15	CONCRETE	79/R/C/W/T	223900.43N 0882635.72E	A300	Power-In/ Power-Out	Ground marking	Avbl.
16	CONCRETE	79/R/C/W/T	223858.77N 0882635.54E	A300	Power-In/ Power-Out	Ground marking	Avbl.
17	CONCRETE	79/R/C/W/T	223857.05N 0882635.32E	A300	Power-In/ Power-Out	Ground marking	Avbl.
18	CONCRETE	60/R/C/W/T	223854.77N 0882634.70E	B737-800	Power-In/ Pushback	Ground marking	Avbl.
19	CONCRETE	60/R/C/W/T	223853.42N 0882634.50E	B737-800	Power-In/ Pushback	Ground marking	Avbl.
20	CONCRETE	32/R/C/W/T	223850.76N 0882634.11E	B737-800	Power-In/ Power-Out	Ground marking	Avbl.
21	CONCRETE	32/R/C/W/T	223849.38N 0882633.88E	B737-800	Power-In/ Power-Out	Ground marking	Avbl.
41	CONCRETE	50/R/C/W/T	223902.83N 0882628.58E	B747-400	Power-In/ Pushback	Ground marking stand identification signs	Avbl.
42	CONCRETE	50/R/C/W/T	223900.49N 0882628.20E	B747-400	Power-In/ Pushback	Ground marking stand identification signs	Avbl.

43	CONCRETE	50/R/C/W/T	223858.20N 0882627.89E	B747-400	Power-In/ Pushback	Ground marking stand identification signs	Avbl.
44	CONCRETE	60/R/C/W/T	223855.26N 0882627.53E	B747-400	Power-In/ Pushback	Ground marking stand identification signs	Avbl.
45	CONCRETE	103/R/C/W/T	223853.31 N 0882627.45E	B747-400	Power-In/ Pushback	Ground marking stand identification signs	Avbl.
46	CONCRETE	60/R/C/W/T	223850.85N 0882627.18E	B747-400	Power-In/ Pushback	Ground marking stand identification signs	Avbl.

APRON 2

22	CONCRETE	103/R/C/W/T	223843.95N 0882633.52E	B738	Power-In/ Power-Out	Ground marking	Avbl.
23	CONCRETE	103/R/C/W/T	223842.44N 0882633.35E	B738	Power-In/ Power-Out	Ground marking	Avbl.
24	CONCRETE	103/R/C/W/T	223841.03N 0882632.25E	B738	Power-In/ Power-Out	Ground marking	Avbl.
25	CONCRETE	103/R/C/W/T	223839.73N 0882631.97E	B738	Power-In/ Power-Out	Ground marking	Avbl.
26	CONCRETE	103/R/C/W/T	223835.74N 0882632.54E	B738	Power-In/ Power-Out	Ground marking	Avbl.
27	CONCRETE	106/R/C/W/T	223834.45N 0882632.39E	B738	Power-In/ Power-Out	Ground marking	Not Avbl.
28	CONCRETE	106/R/C/W/T	223833.01N 0882632.11E	B738	Power-In/ Power-Out	Ground marking	Not Avbl.
29	CONCRETE	106/R/C/W/T	223831.69N 0882631.94E	B738	Power-In/ Power-Out	Ground marking	Not Avbl.
30	CONCRETE	80/R/C/W/T	223830.15N 0882631.71E	B738	Power-In/ Power-Out	Ground marking	Not Avbl.
31	CONCRETE	80/R/C/W/T	223828.79N 0882631.52E	B738	Power-In/ Power-Out	Ground marking	Not Avbl.
32	CONCRETE	80/R/C/W/T	223827.50N 0882631.37E	B738	Power-In/ Power-Out	Ground marking	Not Avbl.
48	CONCRETE	60/R/C/W/T	223844.57N 0882626.69E	A300	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Avbl.

49	CONCRETE	60/R/C/W/T	223842.24N 0882626.30E	A300	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Avbl.
50	CONCRETE	106/R/C/W/T	223840.40N 0882626.26E	A300	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Avbl.
51	CONCRETE	106/R/C/W/T	223838.90N 0882626.33E	B738	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Avbl.
52	CONCRETE	111/R/C/W/T	223837.60N 0882626.15E	B738	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Avbl.
53	CONCRETE	111/R/C/W/T	223836.19N 0882625.88E	B738	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.

54	CONCRETE	80/R/C/W/U	223834.4N 0882625.3E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
55R	CONCRETE	80/R/C/W/U	223833.1N 0882626.1E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
55	CONCRETE	80/R/C/W/U	223832.5N 0882625.9E	B744	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
55L	CONCRETE	80/R/C/W/U	223831.7N 0882626.6E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
56R	CONCRETE	80/R/C/W/U	223830.5N 0882625.8E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.

56	CONCRETE	80/R/C/W/U	223829.8N 0882625.6E	B744	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
56L	CONCRETE	80/R/C/W/U	223829.9N 0882626.3E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
57R	CONCRETE	100/R/C/W/U	223829.1N 0882625.0E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
57	CONCRETE	100/R/C/W/U	223827.2N 0882624.8E	A380	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
57L	CONCRETE	100/R/C/W/U	223826.2N 0882625.0E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.

<u>APRON 3</u>							
58R	CONCRETE	103/R/C/W/T	223826.0N 0882623.2E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
58	CONCRETE	103/R/C/W/T	223825.7N 0882622.6E	B744	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
58L	CONCRETE	103/R/C/W/T	223825.4N 0882621.9E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
59R	CONCRETE	103/R/C/W/T	223824.9N 0882620.6E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.

59	CONCRETE	103/R/C/W/T	223824.7N 0882619.9E	B744	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
59L	CONCRETE	103/R/C/W/T	223824.3N 0882619.2E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
60R	CONCRETE	103/R/C/W/T	223823.9N 0882617.9E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
60	CONCRETE	103/R/C/W/T	223823.7N 0882617.2E	B744	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
60L	CONCRETE	103/R/C/W/T	223823.4N 0882616.6E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.

61R	CONCRETE	103/R/C/W/T	223825.7N 0882622.6E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
61	CONCRETE	103/R/C/W/T	223825.4N 0882621.9E	B744	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.
61L	CONCRETE	103/R/C/W/T	223824.9N 0882620.6E	A321	Power-In/ Pushback	VDGS, Ground marking, stand identification signs and aircraft stand manoeuvring guidance lights with stop position lights	Not Avbl.

Note : -

1. Aerobridge on stand no. 44,48 and 50.
2. All arrival/departure to report aircraft registration on first contact with SMC on 121.9MHz alongwith other details.
3. Parking stand C-3,C-4,C-5 are located north of Fire station.
4. For stand no. 52 and 53, departing aircraft will push back on TWY 'F1' facing north and starts engine only after reaching abeam stand no.51.
5. The aircraft allotted stand no.15-16 and 17 will taxi in via TWY "G" & "F" and taxi out via TWY "A"

II. TAXIWAYS					
Designation	Width	Surface	PCN	Edge Lights (EL) / Centre Line lights (C/L)	Other lights available
A	23	BITUMEN	55/F/C/W/T	C/L	Guard Lights & Stop Bar
B	23	CONCRETE	35/R/C/W/T	E/L	Guard Lights
C	23	BITUMEN	39/F/C/W/T	E/L	Guard Lights & Stop Bar
D	23	CONCRETE	35/R/C/W/T	C/L	Guard Lights & Stop Bar
E	15.5	BITUMEN	27/F/C/W/T	E/L	
F	23	CONCRETE	50/R/C/W/T	E/L	
F1	23	CONCRETE	50/R/C/W/T	C/L	Apron taxilane
F2	23	CONCRETE	103/R/C/W/T	C/L	Apron taxilane
H	25	CONCRETE	100/R/C/W/U	E/L	
H1	25	CONCRETE	100/R/C/W/U	E/L & C/L	
J	25	CONCRETE	100/R/C/W/U	E/L	
J1	25	CONCRETE	100/R/C/W/U	E/L & C/L	
K	23	CONCRETE	100/R/C/W/T	E/L & C/L	Guard Lights
R	23	CONCRETE	80/R/C/W/U	E/L	
A Extd. Port.	25	CONCRETE	100/R/C/W/U	E/L	

1. TWY 'F' beginning from TWY 'A' upto behind parking stand no. 53 renamed as aircraft stand taxilane 'F' and portion behind TWY 'G' upto parking stand no. 25 and 51 alongwith further extention is renamed as 'F1' TWY connecting TWY 'A' at the south of TWY 'C' upto aircraft stand taxilane 'F/F1'designated as TWY 'G'.
2. Mid-RWY transmissometer operational.
3. New TWY designated "TWY hanger 18"connecting TWY 'A' with hanger '18'is established.TWY hanger 18 available with lead in marking for aircraft operations upto code letter 'C' type of aircraft having maximum wing span upto 35.8 M.
4. Portion of TWY 'B' between secondary RWY 19R and TWY 'A' available for aircraft operations upto code letter'C' having a wingspan upto 35.8Mand portion of TWY'B'between RWY 19Land secondary RWY 19R available for aircraft operations upto code letter 'C'having a wing span upto 28.3M.
5. RWY 19R/01L extended by 440Mtowards north.PCN of extended portion is 101/R/C/W/T and that of the remaining part of thr RWY 19R/01Lis 45/F/C/W/T.
6. Taxi holding positions for Cat-II ILS operations are available at 120M at TWY "C" and TWY"D" from the centerline of RWY 19L/01R.Lighted decorated boards have been provided for identification.
7. Following intermediate holding position(IHP) has been provided
 - On TWY 'A'in between TWY 'C' and 'D' short of 'G'.
 - On TWY 'A' in between TWY 'A' and 'B'.
8. The erected structure of Vidyasagar setu (second Hoogly bridge) position 223315N 0881942E with two pairs of high rise height 424 Ft AGL / 436 Ft AMSL each at two banks of the river 458 Mtrs apart. Distance / Direction / Bearing from Kolkata airport 16.5 Km/ SW/228 degree .Obstruction marked by four red coloured aviation obstruction lights and additionally four lights at intermediate level.
9. Chimney approx 285 M(935 Ft) AMSL height at location 222750N0880748E, not yet marked, temporarily six neon obstruction lights (CFL)provided during night.Aircraft operating in the vicinity exercice caution.
10. Four flood lighting steel tower height 83M AMSL erected in Eden.-garden stadium position 223348N 0882044E, 14.3 Km SW from ARP Kolkata and 7850M NE from ARP Behala.
11. Parking Stands No. 22 to 25 have been provided Power out guideline marking from parking Stands no. 22 to 25 joining TWY "A" has A gradient of 1.5 % Slope
12. ASMGCS available at KOLKATA
13. Gradient Slop of Parking Stands NO. 30,31 and 32 is 0.50 %
14. Gradient Slop of Parking Stands NO. 22 and 25 is 1.50 %.
15. Gradient Slop of Parking Stand NO. 27 is 1.50 %
16. Gradient Slop of Parking Stand NO. 26is 1.50 %
17. Gradient Slop of Parking Stands NO. 28 and 29is 1.5 %
18. Aircraft fromParking Stands Number 51,52 and 53 shall Pushback facing north or south as per RWY in use.
19. Taxiway K available for unrestricted operation for aircraft upto Code letter E. Fillets are provided on taxiway K at junction with Runway 19L/01R. Taxiway Centreline Lights available on Taxiway K upto Runway Holding Position. Take off distance from Taxiway K Intersection for Runway 19L is 2645M.
20. Lock turn on Runway 19L/01R at Taxiway K intersection not permitted. Pilots are advised to make U turn abeam Taxiway K by using the fillet for reducing the runway occupancy time.
21. Two number of Drishti Transmissometer (CAT III B compliant) installed at Runway 01R Mid, End Point and both are operational.

III. LOW VISIBILITY PROCEDURE FOR CAT II OPERATIONS AT NSCBI AIRPORT KOLKATA

1. DEFINITIONS AND ABBREVIATIONS

1.1 Precision approach and landing operations

An instrument approach and landing using precision azimuth and glide path guidance with minima as determined by Category of operations.

1.2 Category I (Cat I) Operations

A precision instrument approach and landing with a decision height not lower than 60M (200 feet) and with either a visibility not less than 800M, or runway visual range not less than 550 meters.

1.3 Category II (Cat II) Operations

A precision instrument approach and landing with a decision height lower than 60M (200 feet) but not lower than 30M(100 feet), and a runway visual range not less than 350 meters.

1.4 Category III A (Cat III A) Operations

A precision instrument approach and landing with :

a)a decision height lower than 30M (100 feet), or no decision height, and

b)a runway visual range not less than 200M.

1.5 Category III B (Cat III B) Operations

A precision instrument approach and landing with :

a)a decision height lower than 15M (50 feet), or no decision height, and

b)a runway visual range less than 200M but not less than 50M.

1.6 Category III C (Cat III C) Operations

A precision instrument approach and landing with no decision height and no runway visual range limits.

1.7 Decision Altitude / Height (DA/H)

A specified altitude or height in the precision approach at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

NOTE : The required visual reference means that a section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change position in relation to the desired flight path.

1.8 ILS Critical Area

An area of defined dimensions about the localizer and glide path antennas, where vehicles, including aircraft are excluded during all ILS operations. Their presence within the defined area will cause unacceptable disturbance to the ILS signal. Critical area is protected because the presence of vehicles and / or aircraft inside its boundaries will cause unacceptable disturbances to the ILS signal in-space.

1.9 ILS Sensitive Area

An area extending beyond the ILS Critical area where the parking and /or movement of aircraft or vehicles are controlled to prevent the possibility of unacceptable interference to the ILS signal during ILS operations. The sensitive area is protected to provide protection against interferences, caused by large moving objects outside the critical area but still normally within the airfield boundary.

1.10 Low Visibility Procedures

Low Visibility Procedures (LVP) are instructions for the safe and efficient operation of aircraft and vehicles during Cat II operations and Low Visibility Take-offs.

1.11 Low Visibility Take-Off

Low Visibility Take-Off is a departure carried out when the Runway Visual Range is less than 500M.

1.12 Obstacle Free Zone (OFZ)

The airspace above the inner approach, inner transitional and balked landing surface and that portion of the strip bounded by these surfaces, which is not penetrated by any fixed obstacle other than of low mass and frangible mounted, required for air navigation purposes.

1.13 Runway Visual Range (RVR)

The range over which the pilot of an aircraft on the center line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centerline.

1.14 Safeguarding Procedures (SP)

Safeguarding Procedures (SP) are instructions for relevant airport departments and airside operators to prepare ground services and facilities for low visibility operations, in order that when LVP are implemented all Safeguarding procedures are complete and airport is configured for Cat II Operations and Low Visibility Take-Offs.

1.15 Aerodrome Operating minima

The limit of usability of an aerodrome for either take-off or landing usually expressed in terms of visibility or runway visual range, decision height/altitude or minimum decision height/altitude and cloud condition.

1.16 Touchdown Zone

The portion of runway beyond the threshold where it is intended landing aeroplanes first contact the runway.

1.17 Visibility

The ability as determined by atmospheric conditions and expressed in units of distance to see and identify prominent unlighted objects by day and prominent lighted objects by night.

1.18 Missed approach procedure

The procedure to be followed if the approach can not be continued.

1.2 The abbreviations used in description to Low Visibility Procedures have the following meaning:

ADC	AERODROME CONTROL
AFSS	AIRPORT FIRE SAFETY SERVICES
AGL	AIRFIELD GROUND LIGHTING
ATC	AIR TRAFFIC CONTROL
ATIS	TERMINAL AERODROME INFORMATION SERVICE
ILS	INSTRUMENT LANDING SYSTEM
LLZ	LOCALIZER
LSA	LOCALIZER SENSITIVE AREA
LVP	LOW VISIBILITY PROCEDURE
MET	METEOROLOGY
MID	MID POINT
OFZ	OBSTACLE FREE ZONE
RVR	RUNWAY VISUAL RANGE
SMC	SURFACE MOVEMENT CONTROL
SP	SAFEGUARDING PROCEDURES
SSO	SHIFT SUPERVISORY OFFICE
TDZ	TOUCH DOWN ZONE
WSO	WATCH SUPERVISORY OFFICER

2. INTRODUCTION

2.1 General

- 2.1.1 Runway 19L at NSCBI Airport is equipped for the Category II Operations
- 2.1.2 The following equipment will be serviceable to the required standard to support CAT II Operations.
- a) ILS localizer, glide path and ILS DME or outer marker and middle marker.
 - b) Airfield ground lighting system (AGL)
 - c) RVR system.(TDZ and MID)
 - d) Standby power supply for ILS and airport ground lighting system.
- 2.1.3 It will be the responsibility of the Pilot to decide the category of ILS approach he may wish to carry out under the given conditions

2.2 Safeguarding Procedures (SP)

- 2.2.1 Safeguarding Procedures are the necessary actions to prepare airport for CAT II operations (Low Visibility Procedures). They include inspection of airfield ground lighting, termination of all work in progress and removal of all equipment / material from localizer and glide path sensitive area and the manoeuvring area, restrictions on the movement of vehicles on the manoeuvring area and apron.

2.2.2 Watch Supervisory Officer (ATC) at NSCBI Airport will co-coordinate with all the concerned agencies for implementation of Low Visibility Procedures.

2.2.3 SP shall be implemented whenever ATC considers the introduction of Low Visibility Procedures is necessary

2.3 Low Visibility Procedures (LVP)

2.3.1 Low Visibility Procedures, are the actions to ensure the safe operation of aircraft during periods of reduced visibility or low cloud base.

2.3.2 LVP shall only be implemented when SP has been completed and the airport is configured for low visibility operations.

2.4 ATC Requirement

2.4.1 WSO (ATC) shall implement and cancel LVP when so required and inform all concerned.

2.4.2 The concerned ATC unit shall advise aircraft when any equipment listed in para 2.1.2 above, becomes unserviceable during periods of LVP.

2.4.3 When SP are initiated SMC shall select the appropriate airport ground lighting Cat II. These facilities shall remain selected until SP and LVP are cancelled.

2.5 ILS Critical Areas and Sensitive Areas

The ILS critical and sensitive areas(Cat II) have been marked as per diagram in Annexure-III.

NOTE : Signages indicating the limits of localizer and glide paths sensitive areas have been provided.

2.6 Reporting RVR

2.6.1 There are two RVR transmissometers located at Touchdown Zone (TDZ) and Mid-point (MID). The reference RVR value for the implementation and cancellation of LVP shall be the lower of the TDZ and MID RVR.

i) TDZ RVR shall always be passed.

ii) In addition to (i), If TDZ RVR is below 550M then MID RVR shall also be passed

2.6.2 When any of the two RVR value is not available, Cat .II operation shall be suspended.

3. IMPLEMENTATION OF SAFEGUARDING PROCEDURES (SP) AND LOW VISIBILITY PROCEDURES (LVP)

3.1 Criteria for Implementing Safeguarding Procedures (SP)

3.1.1 Safeguarding Procedures shall be initiated when

a)The RVR is less than 1200m and visibility is forecast to deteriorate to 800m or less.

and / or

b)The cloud ceiling is 400 feet and forecast to fall to 200 feet or less.

3.2 Criteria for Implementing Low Visibility Procedures (LVP)

3.2.1 Low Visibility Procedures shall be implemented when :

a) either the TDZ or MID RVR is less than 800m, or,

b) the cloud ceiling is less than 200 feet ; and

c) SP have been completed and the airport is safeguarded.

NOTE : Though LVP is implemented when the above mentioned conditions are applicable, Cat I operations will continue till TDZ RVR is less than 550M.

3.3 Implementation of Safeguarding Procedures (SP)

3.3.1 On the receipt of outlook for Low Visibility the Watch Supervisory Officer (ATC) will inform the Asstt. Airport Manager, Apron Control, the Communication/Technical Supervisory Officer (SSO) and the Aerodrome Tower Controller.

3.3.2 On receipt of the above information, the above mentioned agencies will take action for proper planning for activation of LVP.

NOTE : Action to be taken by various agencies are attached as Annexure-II.

3.3.3 When all the concerned agencies have completed their necessary actions, they shall report to WSO (ATC) that their SP are completed and the airport is safeguarded for CAT II operations

3.4 Implementation of Low Visibility Procedures

WSO shall implement Low Visibility Procedure when either TDZ RVR or MID RVR is less than 800m and/or the cloud ceiling is less than 200 feet. He shall inform the following :-

- a) Tower and Approach/Radar Controller
- b) Communication/Technical Shift Supervisory Officer (SSO)
- c) Duty Met. Officer

He shall also ensure that **LOW VISIBILITY PROCEDURES IN OPERATION** is included in ATIS broadcast.

3.5 Cancellation of Safeguarding Procedures and Low Visibility Procedures

3.5.1 WSO may terminate LVP when

- a) meteorological conditions improve and both the TDZ and MID RVR are 800m or more and the cloud ceiling is 200 feet or higher, and trend is for improvement.

or

facilities, equipment and services necessary for CAT II operations are degraded and/or the prevailing conditions are considered unsafe for such operations.

3.5.2 WSO should consult MET office for forecast before cancelling SP and LVP

3.5.3 When LVP are cancelled Aerodrome Control shall include it in the subsequent two ATIS broadcasts that "Low Visibility Procedures are cancelled". It will also inform all the concerned agencies as specified at Para 3.4.2.

3.5.4 If SP are implemented and LVP are not subsequently initiated and MET conditions improve and the visibility/RVR is more than 1200m and the cloud ceiling is 400 feet or higher and both are forecast to remain above the required SP criteria, WSO may cancel SP.

4. LOW VISIBILITY PROCEDURES (LVP) OPERATIONS

4.1 Approach Control Procedures

4.1.1 During LVP the approach/radar controller shall have the following information

- a) status of ILS
- b) the serviceability of visual aids

RVR information

4.1.2 In addition to the information normally transmitted by Approach/Radar control, the following information shall be passed to the arriving aircraft on first contact or as soon as possible, thereafter

- a) The current Touch Down Zone RVR, and if TDZ RVR is below 550m then MID RVR shall also be passed.

b) the unserviceability of any component of CAT II facilities not previously broadcast on ATIS.

4.1.3 Approach/radar controller should vector the arriving aircraft to intercept the localizer at a distance not less than 10NM from touchdown.

4.1.4 Suitable spacing between the arriving aircraft may be provided to ensure that arriving aircraft can be given a landing clearance by 2NM from touchdown. The spacing of 12 NM between two successive landing aircraft may be necessary. If there is a departure between the two arrivals the spacing between the arriving aircraft may be suitably increased in such a way that when a departing aircraft passes overhead the localizer antenna the arriving aircraft reaches 2NM from touchdown. When Taxiway A north of F is not available and the departing aircraft enters Rwy via Taxiway C, special precaution may be exercised for providing the spacing between two arrivals so that landing clearance is issued to the arriving aircraft at least by 2NM from Touchdown.

NOTE : To ensure that the departing aircraft passes overhead the localizer before the inbound aircraft reaches 2 NM from touch down, a departing aircraft must commence its take off run before an arriving aircraft passes 5 NM from touch down.

4.1.5 Approach/radar controller shall not subject an aircraft carrying out CAT II approaches to any speed control

4.2. Aerodrome Control Procedures

4.2.1 Arriving aircraft shall be issued landing clearance not later than 2NM from touch down. If landing clearance cannot be issued when the aircraft is 2NM from touchdown it shall be instructed to carryout a missed approach.

4.2.2 Arriving aircraft should be given unimpeded taxi route to allow it to clear the localizer sensitive area expeditiously

4.2.3 Landing Clearance shall not be issued until :

a) a preceding landing aircraft has vacated the localizer sensitive area (LSA).

b) a preceding departing aircraft is airborne and has passed over the localizer antenna.

4.2.4 The LSA in front of an arriving aircraft shall not be infringed from the time it is 2NM from the touchdown until it has completed its landing roll.

4.2.5 The Low Visibility Taxi Routes are intended to assist the pilots in determining their location on the airport during the periods of low visibility.

4.2.6 During take-off in Cat II condition the LSA in front of a departing aircraft shall not be infringed from the time take-off clearance is issued until the aircraft has departed and passed over the localizer aerial.

4.2.7 Aerodrome Control shall initiate emergency action if an aircraft is not seen or not in radio contact as expected.

4.3 Surface Movement Control Procedures

4.3.1 Pilots need additional guidance and information when taxiing during periods of reduced visibility. The view from the cockpit of the aircraft is very limited. Therefore, taxi instructions and essential traffic information should be passed in a clear and concise manner.

4.3.2 Taxiing aircraft should be routed in accordance with the prescribed Low Visibility Routes to ensure a simple one-way traffic flow is maintained, however, it may be necessary for operational reasons sometimes to route aircraft via alternative taxiways.

4.3.3 During LVP full use should be made of intermediate taxi holding positions

4.3.4 Surface Movement Control shall monitor the status of taxiway lights and immediately advise the aircraft under its control of any unserviceability affecting the LVP taxiways.

4.3.5 Surface Movement Control should monitor the progress of arriving aircraft as they vacate the runway after landing and ensure that they do not stop within the limits of LSA thereby degrading ILS integrity for subsequent landing aircraft. Pilots shall report RWY vacated when aircraft is clear of the ILS sensitive area. Runway Vacation Boards have been provided at a distance of 160M from Rwy centerline on taxiway A, C & D.

4.3.6 When RVR is less than 550 meters vehicles movement should be restricted. Only operationally essential vehicle duly authorized by Apron Control should be permitted to operate. These vehicles shall remain out side the Localizer Sensitive Area (LSA). Any movement of vehicle on the maneuvering area shall be coordinated with ATC.

4.4 Low Visibility Procedure Taxi Route

4.4.1 When LVP are in force, aircraft shall be routed in accordance with the pre designated taxi routes (refer Annexure IV A, IV B, IV C & IV D)

4.4.2 During Cat II conditions i.e. when RVR reduced to less than 550m, 'Follow me' service will be provided to arriving/departing aircraft 'on request'.

NOTE : Follow me service shall be provided by trained personnel who's fully familiar with the taxi routes, intersections and other maneuvering area/apron/bays.

4.4.3 Runway centre line lights after the displaced threshold(426m) are offset by 60cm to the left from the centre line lights prior to threshold. Pilots may use the discretion for take off from the displaced threshold (TORA 3200m). Pilots intending to take off from the displaced threshold shall :-

a) inform the ATC prior to taxiing out, and

b) execute 180° turn at the turn pad of Rwy 19L only.

4.4.4 The following taxi routes shall be used for arrivals/departures.

4.4.4.1 Taxi routing for arriving aircraft :

After landing on runway 19L vacate via Cor D taxtrack and then for parking stands

(i) 22-37 Taxi via A,G and F1

(ii) 41-53 Taxi via A,G and F

Note- Airlines operators will be responsible for ensuring that the parking stand area is clear of all equipment when aircraft is taxing in for parking/docking.

4.4.4.2 Taxi Routing for Departures

Taxi to Cat II holding position RWY 19L from parking stands

(i) 22-37 via F1, F and A

(ii) 41-46 and 50-53 via F and A

(iii) 47-49 via A

Note-

1. The airline operators shall ensure that push back area is clear of all equipment before push back is commenced.
2. It is expected that during Cat II operations aircraft back track and take off either from the beginning or from displaced threshold(refer para 4.4.3). However aircraft intending to take off from intersection of TWY A(TORA 2120 m) shall inform ATC accordingly before commencement of taxiing.

4.4.5 In case of taxiway A, North of F is not available, the following alternate taxi routing shall be followed.

4.4.5.1 Taxi routing of arriving aircraft

After landing on runway 19L vacate via Cor D taxiway and then taxi via

- i. 22-37 Taxi via A,G and F1
- ii. 41-53 Taxi via A,G and F

Note

1. ATC may hold the arriving aircraft on intermediate taxi holding position located on A south of TWY G to resolve conflict with aircraft taxing out from G to TWY C
2. Airlines operators will be responsible for ensuring that the parking stand area is clear of all equipment when aircraft is taxing in for parking/docking.

4.4.5.2 Taxi Routing for departures

Taxi to Cat II holding position rwy 19L from parking stands

- (i) 22-37 via F1, F & C
- (ii) 41-46 and 50-53 via F, G & C
- (iii) 47-49 via A & C

Note: Aircraft to excise caution for arriving aircraft taxing via D & A to the designated parking stands

5. PROVISION OF EQUIPMENTS FOR CAT II OPERATIONS

5.1 Runway Visual Range (RVR)

5.1.1 There are two transmissometers for recording RVR for Rwy 19L. One unit is located at the touch down zone and other unit at runway mid point. RVR values always refer to as Touchdown RVR (TDZ) and Mid-point RVR (MID).

5.1.2 RVR is reported in the following scales ,

- i)In the increments 25M when less than 400M.
- ii) In the increments 50M when RVR greater than 400M but less than 800M.
- iii) In the increments 100M when greater than 800M.

The maximum reportable value of RVR is 1500M. When RVR is above 1500M, it is reported as 1500M.

5.1.3 Equipment serviceability for Cat II operations :

If any of the RVR is not available CAT II shall be suspended

5.2 Airfield Ground Lighting (AGL) System

5.2.1 The Precision Approach Lighting system for Cat II operations are installed on Runway 19L at NSCBI airport.

5.2.2 During Cat II operations, the standby generator will take over as primary power source and the main supply becomes the backup power source

5.2.3 STOP BAR : Stop bars have been provided on the following taxi tracks:

A (Holding Position Rwy 19R) and C

5.2.4 The Intermediate Taxi Holding (ITH) Positions markings(unlighted) have been provided at the following positions.

1. On taxiway A to the south of intersection with G at a distance of 75M from the centerline of taxiway G

2.On taxiway A to the south of intersection with B at a distance of 75M from the centerline of taxiway B

5.2.5When LVP is in force the AGL must comply with the following minimum serviceability requirement.

AGL FACILITY	CAT II UNSERVICEABILITY	CAT II RESTRICTIONS
Approach Lights	The inner 450 meters - more than 5% of all lights. Beyond 450 meters more than 15% of all lights.	Suspend CAT II operations.
Runway Edge Lights	More than 5% of all lights. Two adjacent lamps.	Suspend CAT II operations.
Runway Centre-line Lights	More than 5% of all lights. Two adjacent lamps.	Suspend CAT II operations.
Touchdown Zone Lights	More than 10% of all lights Two lamps in a barrette.	Suspend CAT II operations.
Threshold Lights	More than 5% of all lights Two adjacent lamps	Suspend CAT II operations.
Runway End Lights	More than 25% of all lights Two adjacent lamps	Suspend CAT II operations.
Standby Generators	Generator in any one unit	Suspend CAT II operations.

NOTE : An un-serviceability of any of the following facilities does not affect CAT II operations

a)PAPI

b)taxiway edge lights (during day time only)

5.3. Inspections of Airfield Ground Lighting System

5.3.1 One of the LVP criteria is that the appropriate airfield ground lights must have been inspected during the hour preceding implementation of LVP, and thereafter every subsequent two hour period. The lighting inspections should be accorded high priority and for this purpose aircraft operations may have to be delayed if necessary.

5.3.2 Asstt. Airport Manager, Apron Control is responsible to organizing lighting inspections. He shall arrange an inspection of the relevant airfield ground lighting system. To ensure minimum delay in completing the inspection, separate teams may inspect the landing runway, associated taxiways and apron area.

5.3.3 For SP and LVP only the lighting for the active runway and associated taxiways are inspected.

5.4 Navigational Aids

5.4.1 RWY 19L has been equipped with Cat II Instrument Landing System (ILS).

5.4.2 The ILS category monitor panel at the Control Tower console indicate the ILS Category availability by monitoring the following equipment :

- a)main and standby localizer transmitters
- b) main and standby glide path transmitters;

5.4.3 The status of the following facilities is monitored and displayed by a separate Nav. Aid status indicator panel :

- a) ILS DME
- b) Outer marker ;
- c) Middle marker

5.4.4 ILS equipment serviceability required for Cat II operations :

- 1.both main and standby localizer transmitters ;
- 2.both main and standby glide path transmitters ;
- 3.one standby power generator in each unit.
- 4.Outer marker
- 5.Middle marker

NOTE : i) Unserviceable ILS DME will not change the status of ILS provided markers are available.

ii)Unserviceable outer marker and/or middle marker will not change the status of ILS provided ILS DME is operational.

5.5 Airport Fire Safety Services (AFSS)

5.5.1 The AFSS shall be on Weather Standby Position at the Fire Station itself whenever LVP are in force.

5.5.2 In the event of an incident when LVP are in force, ADC and SMC should provide the maximum assistance in directing AFSS to required location.

ANNEXURE – 1 SUMMARY OF THE LOW VISIBILITY PROCEDURES

1. Subject to completion of safe guarding procedures, LVP comes into operation when
- either TDZ and/or MID RVR is below 800 meters and / or
 - cloud ceiling below 200 feet

2. Vehicular movements

When LVP are in operation

- Vehicles shall not be cleared to enter the runway once an inbound aircraft is 8NM from touchdown.
- Vehicular movement on the maneuvering area shall be restricted to essential vehicles only.
- Vehicles shall not be held at any point closer to the runway than the Cat II holding position/ stop-bars

3. Aircraft movement

- Aircraft shall not be held at any point closer to the runway than the Cat II holding position/ stop-bars.
- Aircraft shall be permitted to enter the runway via ‘A’ taxi-track only.
- Aircraft shall be permitted to exit the runway via C / D taxi track only.
- When Taxi track A, north of F is not available, aircraft shall be permitted to enter the Rwy via Taxi track C and exit via taxi track D.

4. ATC Procedures

- The aim will be to give landing clearance by 2NM. An initial spacing between successive arrivals of 12NM or more may be necessary to achieve this.
- Departing aircraft must commence their take off run before an inbound aircraft is 5 NM from touchdown.
- Protection of localizer /glide path and critical and sensitive area must be ensured.

ANNEXURE – II ACTIONS TO BE TAKEN BY VARIOUS AGENCIES

1 Action by Watch Supervisory Officer (WSO)

1.1 Implementing Safeguarding Procedures - When RVR is less than 1200M and visibility is forecast to deteriorate to 800 meter or less and/or the cloud ceiling is 400 Feet and is forecast to fall to 200 Feet or less, Watch Supervisory Officer will inform the following for implementing the Safeguarding Procedures :-

- Assistant Airport Manager-Apron Control
- Technical / Communication Supervisory Officer (SSO)
- Aerodrome Tower Controller

1.2 Implementing LVP

1.2.1 WSO shall implement Low Visibility Procedure when either

- TDZ RVR or MID RVR is less than 800 meter; and/or
- Cloud ceiling is less than 200 Feet.

1.2.2 For the purpose of commencing Low Visibility Procedure, WSO shall inform :

- Technical/Electronics Shift Supervisory Officer (SSO)
- Duty Met. Officer
- Tower & Approach / Radar Controller

1.2.3 WSO would declare LVP effective after confirmation from Airport Manager/ Apron Control, all actions have been completed.

1.2.3 WSO would declare LVP effective after confirmation from Airport Manager/ Apron Control, all actions have been completed

1.2.5 WSO may terminate LVP when -

- in consultation with Meteorological Office, meteorological conditions improve and both the TDZ and MID RVR are 800 meters or more and

b) cloud ceiling is 200 Feet or higher, and trend is for improvement.

facilities, equipment and services necessary for CAT II operations are degraded and/or the prevailing conditions are considered unsafe for such operations.

1.2.6 The WSO will intimate Aerodrome Tower Controller, Approach/Radar Controller and Technical/Electronics Shift Supervisory Officer (SSO) regarding the termination of LVP operation

2. Action by Aerodrome Tower Controller :

2.1 On being notified by WSO that ILS Cat-II Low Visibility Procedures are to commence, the Aerodrome Tower Controller will:

- a. inform Aerodrome Rescue & Fire Fighting Services :
- b. check ILS status :
- c. check AGL lighting is correctly selected and operating properly :
- d. check transmissometers display
- e. inform Apron Control

2.2 After the commencement of ILS Cat-II operations, the Aerodrome Tower Controller will :-

- a. check ATIS broadcast and include the message that "ILS Cat-II Low Visibility Procedures in operation".
- b. give landing clearance to aircraft not later than 2NM from touch down
- c. inform changes in RVR readings to the landing aircraft.
- d. give an unimpeded taxi route to arriving aircraft to allow it to clear the localizer sensitive area expeditiously.
- e. inform pilots of failures of ILS, lighting system, transmissometers relevant to ILS Cat-II Low Visibility Operations.
- f. initiate emergency action if aircraft on CAT II ILS is not seen (on radar or otherwise) or is not in radio contact as expected.

g record of the above actions with time be maintained and signed by the officer taking action

3. Action by Surface Movement Controller

3.1 During the period the Low Visibility Procedures are effective the Surface Movement Controller will : monitor all surface movement of aircraft and vehicles on the manuevring area.

- b) inform all taxiing aircraft of the preceding taxiing or holding aircraft.
- c) hand over only one aircraft at a time to tower Controller

4. Action by Approach/Radar Controller

On being advised by WSO that ILS Cat-II Low Visibility Procedures are effective, the Approach/Radar Controller will:-

- a) inform the arriving aircraft "ILS Cat-II Low Visibility Procedures in operation".
- b) vector the aircraft to intercept the localizer not less than 10NM from touch down.

Note : Ensure that Pilot acknowledges of being cleared for ILS CAT II Approach.

- c) inform RVR at touch down to arriving aircraft. In addition, if TDZ RVR is below 550M, then MID RVR shall also be passed.

NOTE : After an aircraft is 8NM from Touch Down or has passed outer marke RVR observations need not be passed unless there is changes in RVR values.

- d) provide adequate spacing between the successive arriving aircraft so that landing clearance may be issued by at least 2 NM from touchdown. Consideration should also be given for a departing aircraft using full length of runway for take-off. Special precaution may be exercised when departing aircraft enters the runway via C.
- e) issue landing clearance to arriving aircraft not later than 2NM from touchdown.

5. Action by Technical/Communication Shift Supervisory Officer (SSO)

a) On receipt of 'Outlook for LVPs' from the WSO, the Technical/Electronics Shift Supervisory Officer (SSO) will inform the Duty Officer, equipment room. Duty officer, equipment room will check the status of main and standby ILS system (LLZ/Glide Path/Markers/ Locator) and check the status indicators in the ATC units. Duty officer, equipment room will intimate the SSO regarding the status of ILS system. SSO will inform WSO of any un-serviceability in the equipment which is likely to affect ILS Cat-II operation.

b) On receipt of 'Advisory Message' from WSO that LVPs are to be made effective, Duty Officer, equipment room will continuously monitor the performance of ILS system and intimate the SSO of any unserviceability which may affect ILS Cat II operations.

6. Actions by Asstt. Airport Manager, Apron Control

a) On receipt of advice from WSO to implement Low Visibility Procedures, the Asstt. Airport Manager, Apron Control will immediately inform the following :

-Assistant Engineer (Electrical) in shift on R/T 146.275 MHz

-Assistant Engineer (Civil), Operational Area Maintenance (during day time only) to ensure to stop all civil works in progress in movement area. During Cat-II Operations, no equipment, manpower or material shall be present in sensitive areas of localizer and glide path.

-CISF Control Room

- b) Asstt. Airport Manager Apron Control shall deploy a traffic hand at barrier near Nallah to stop vehicular movement on the perimeter road around Runway 19L, except AAI operational vehicles fitted with R/T and operating with prior clearance from ATC.
- c) Asstt. Airport Manager Apron Control shall deploy security jeep with Security Supervisor to ensure that vehicles do not operate on the service road beyond Nallah. Signboards for stopping movement of vehicles shall be switched 'ON' by the Security Jeep. Signboards shall be displayed on or before barrier/closure points
- d) Security Supervisor in Security jeep shall ensure that no vehicles/person enter or are present in the sensitive/critical areas of localizer and glide path. All civil/electrical works in progress to be stopped immediately and men/material/equipment to be removed from the sensitive/critical areas of localizer and glide path. After ensuring above, Security Supervisor will confirm the same to the Asstt. Airport Manager, Apron Control. Subsequently, Security jeep shall remain available near the barrier and will maintain listening watch on R/T 121.9 MHz and 146.275 MHz.
- e) On receipt of information about unserviceability of any of the runway visual aids or power supply system. Asstt. Airport Manager, Apron Control will immediately inform ATC Tower accordingly.
- f) No vehicles on domestic apron shall enter/cross in the vicinity of runway or any taxi track without permission from ATC Control Tower. Apron Control shall coordinate with Control Tower for permission, if any vehicles of the fire services, civil electrical division or of any other agency has to enter the runway or taxi track for urgent operational requirement.
- g) None of the workers/vehicles of grass cutting contractor, garbage removal contractor, electrical/civil contractor shall enter the operational area during the operations of ILS Cat-II Low Visibility Procedures
- h) All coordination with AAI units and ATC shall be carried out by Asstt. Airport Manager, Apron Control only.
- i) Asstt. Airport Manager, Apron Control would advise ATC Tower / Watch Supervisory Officer when all actions are completed for commencement of LVPs

7 Action by A.E. (Elect) on Shift Duty

7.1 On receipt on advice to implement Low Visibility Procedures from Apron Control, Electrical Section will :

- a) check in co-ordination with Apron Control that following visual aids associated with Rwy 19L are serviceable and can be operated at full intensity.

*Approach lighting system.

*Runway Edge lights

*Runway threshold and end lights

*Runway center line lights

*Runway touch down zone lights

*Stop Bar Lights

*Taxiway edge lights

*Taxi holding position lights

*Runway clearance light

Note : No adjustment of light intensities shall be made without permission from Control Tower.

b) inform the serviceability of above visual lighting aids to Asstt. Airport Manager, Apron Control

c) ensure that runway switch room is manned and position himself at New Power House for standby power supply requirements and will maintain a listening watch on R/T 146.275 MHz. He will ensure availability of power supply to meet Cat-II requirement

inform the un-serviceability or any change in status of any facility/systems to Asstt. Airport Manager, Apron Control immediately.

8. Action by Airport Manager

8.1 The Airport Manager will :-

- a) be overall responsible for ensuring smooth coordination between all AAI units and other concerned agencies.
- b) ensure that all entry / exit are restricted through NTB gate and all other gates (including Narayanpur gate) shall remain closed during LVP.

9. Action by Main Fire Station

Fire officer on duty will ensure that fire vehicles remain on Whether Standby at the Fire Station during the implementation of LVP.

10. Action by Airport Security Police (CISF)

Action by CISF Control Room

- a) The Inspector-in-Charge, on receipt of advice to implement Low Visibility Procedures, will immediately inform all access gates and CISF posts under their respective controls in operational area to restrict the vehicles to use the service road towards Runway 19L side only, for proceeding to localiser and vice-versa, till such time he is informed of termination of ILS Cat-II Low Visibility Procedures
- b) For carrying out Security Checks of their security personnel on Runway 19L side, Inspector In-Charge of CISF Control Room would be escorted by 'Fellow-Me Jeep' for which they would liaise with Apron Control.
- c) The inspector in charge shall ensure that movement of security personnel is restricted through NTB gate only

11. ACTION BY DUTY OFFICER, METEOROLOGICAL OFFICE

- a) Duty Met. Officer would issue an 'Outlook for Low Visibility Procedures' to the Watch Supervisory Officer [WSO] of air traffic services whenever he expects that the RVR [Runway 19L] and/or cloud ceiling will fall below 800 metres and/or 200 feet or less respectively
- b) Whenever the Duty Met. Officer visualize that RVR {Runway 19L} is likely to fall below 800 meters and/or cloud ceiling to 200 feet or less within next 2 hours, he will issue an 'Advisory Message' to WSO to this effect.
- c) Whenever the RVR and/or cloud ceiling are 800 metres and/or 200 feet respectively and the trend is towards improvement in these elements of weather conditions, the Duty Met Officer may, when requested by WSO, advise him about such improving weather conditions for the purpose of termination of LVP operation.
- d) The Duty Met. Officer would ensure that the RVR displays in ATC units in the Control Tower and Approach Control are serviceable. He would also ensure that RVR/visibility recorders of Touch down zone and Mid-Point positions are serviceable.

NOTE : Due to high variability of meteorological elements in space and time and the limitations of forecasting techniques available, it may not be always possible to issue a precise forecast of RVR particularly in case of transient weather phenomenon within two hours.

12. ACTION BY OTHER AIRPORT AGENCIES (Airlines, Refueling Companies, Catering Agencies, Airport Police, Customs, Immigration, Health etc.)

- a) All agencies operating in the operational area shall ensure that minimum number of their vehicles, as are absolutely essential for aircraft operations, operate in the operational area. The drivers of these vehicles should keep a look out for taxiing aircraft and other vehicles to prevent accidents.
- b) All the vehicles must have their obstruction lights "ON" during operation of low visibility procedures.
- c) Follow all instructions/sign boards provided for vehicular movement area/service roads.
- d) No vehicle/equipment/personnel shall enter in and around the vicinity of the runways or taxi-tracks except with prior permission of AAI Apron Control who in turn shall coordinate with aerodrome control tower.

13. TERMINATION OF LOW VISIBILITY PROCEDURES

- a) When metrological conditions have improved and both the TDZ and MID/RVR are 800M or more, cloud ceiling is 200 feet or higher and trend is for improvement, the WSO would terminate operations of LVPs. He may obtain advise from Duty Met. Officer regarding improvement in weather conditions for the purpose of termination of LVP operations.
- b) The WSO will intimate Aerodrome Tower Controller, Approach/Radar Controller and Technical/Electronics Watch Supervisory Officer regarding the termination of LVP operations. Aerodrome Tower Controller will in turn inform Asstt. Airport Manager, Apron Control, who subsequently will advise all the previously notified personnel to resume normal operations

TRANSPOUNDER OPERATING PROCEDURES

For departure:

1. At The Gate/stand:

Select Stby And Enter The Discrete Ssr Code Received From Clearance Delivery And The Three Letter Icao Designator Followed By The Flight Identification Number Through The Fms Or The Transponder Control Panel,depending On The Airborne Equipment.

2. On Requesting Pushback/taxi(Whichever Is Earlier):

Select Transponder Or Equivalent And Auto If Available

3. When Lining Up:

Select Tcas Only After Receiving The Clearance To Line Up

For Arrival:

1. When On The Runway Keep TCAS(TA/RA) Selected

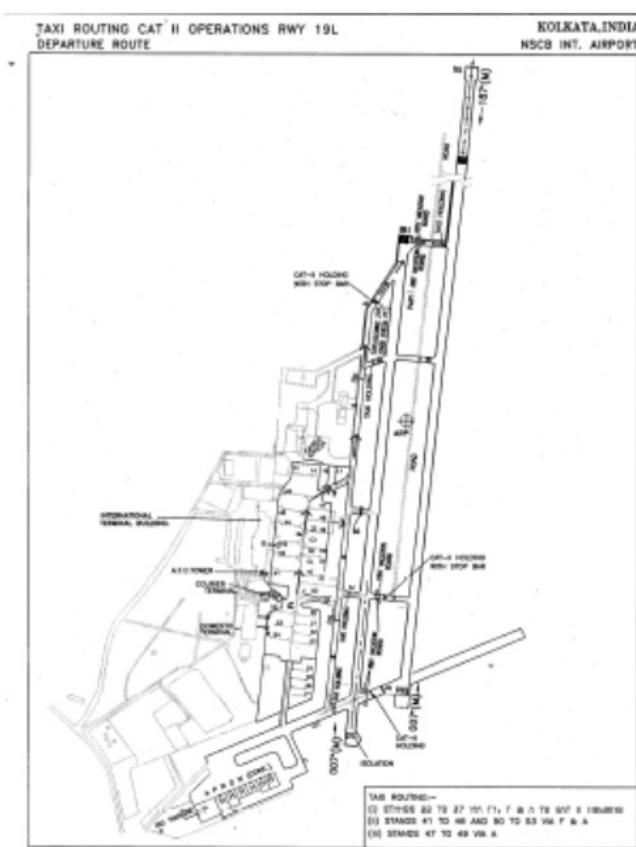
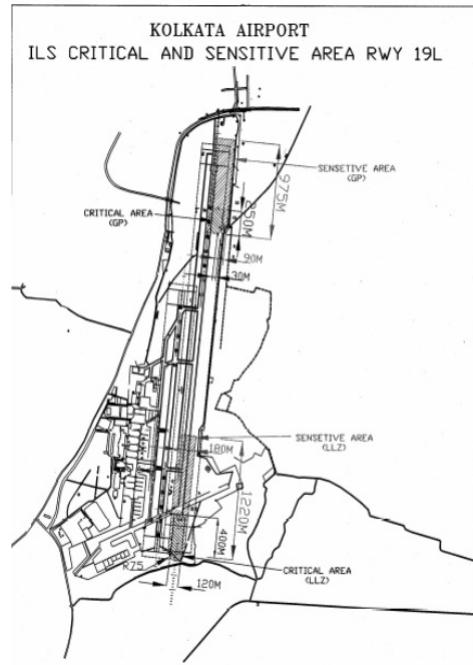
2. After Vacating The Runway:

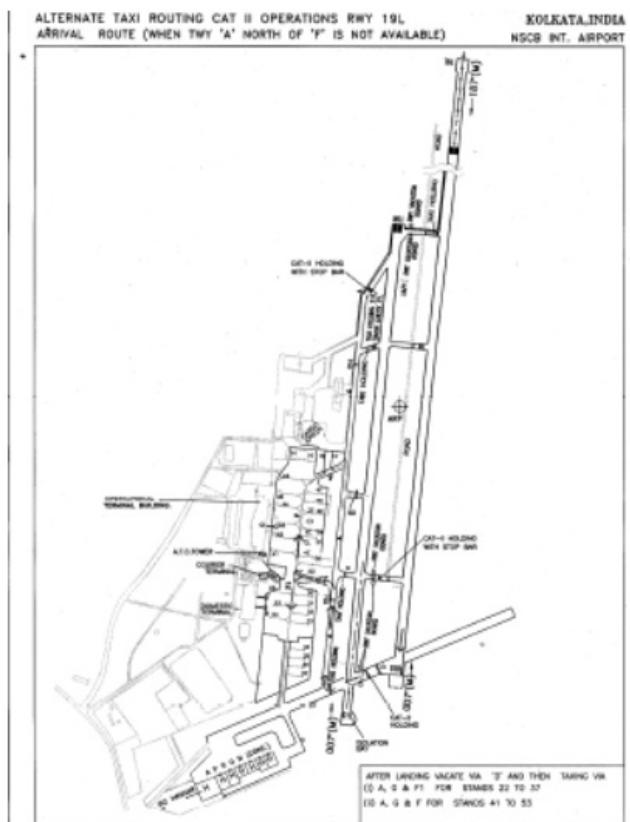
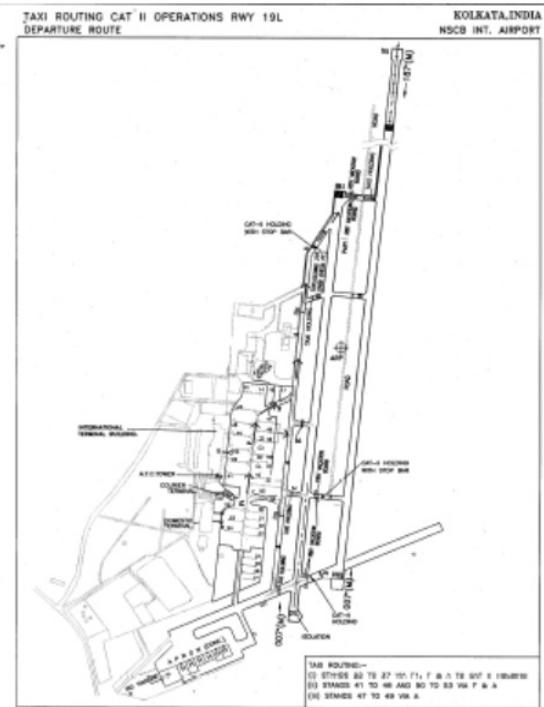
Select Transponder Or Equivalent And Auto If Available Tcas Shall Be Deselected When Vacating The Runway.

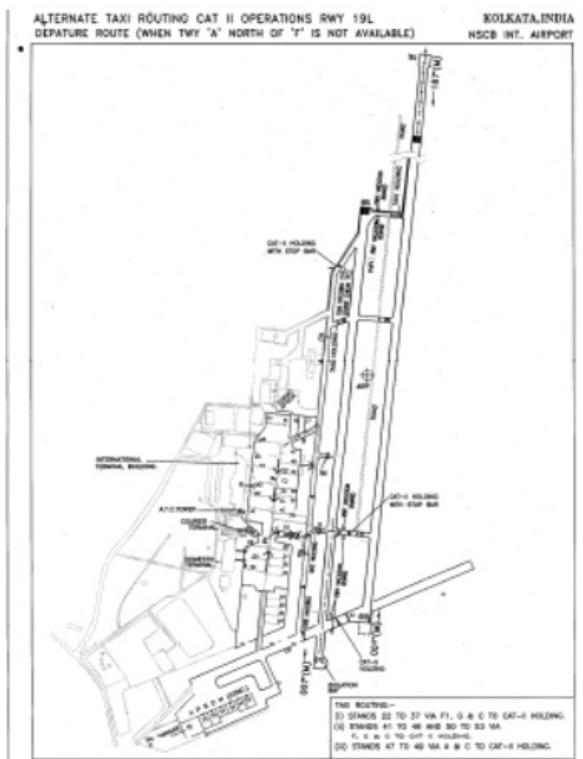
3. Parked On Stand:

Select Stby:

Note:when On Ground The Aircraft Must Squawk Mode C,in Order To Provide The Altitude Information To The Surveillance System.







VECC AD 2.24 CHARTS RELATED TO AN AERODROME

1. ILS (Z) Procedure RWY 01R
2. ILS (Y) Procedure RWY 01R
3. ILS (Z) (CAT-I) Procedure RWY 19L
4. ILS (Y) (CAT- I) Procedure RWY 19L
5. ILS (Z) (CAT-II) Procedure RWY 19L
6. ILS (Y) (CAT- II) Procedure RWY 19L
7. ILS Procedure Runaway 19R
8. VOR Procedure RWY 01L
9. VOR Procedure RWY 19R
10. VOR Procedure RWY 01R
11. VOR Procedure RWY 19L
12. ILS (Z) (CAT-II/III A/III B) Procedure RWY 01R

