

Ground Controller S1 Training Handbook

Integrated Training for vACC SRM Controllers and Pilots

For additional details refer SRM [Metar Handbook](#), [Radiotelephony Communications Handbook](#) & [VFR/IFR Handbook](#)



virtual Air-traffic Control Center
Sri Lanka & Maldives

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Note: Information appear in this document extracted from data available in WWW
For simulated flight and controller use only

INTRODUCTION

In vACCSRM, new members will initially be authorised to control either VRMM/VCBI Ground or VRMM/VCBI Tower. To control VRMM or VCBI Tower, a trainee must have a mentor online and actively supervising the session.

To obtain the S1 rating, the trainee must first pass the [VATWA HQ theoretical test](#). It is in the trainee's best interest to prepare thoroughly and pass the test on the first attempt, as there is no automatic retake following a failed test. If the test is failed, the trainee will need to work through all identified areas of difficulty with an instructor/mentor before requesting VATWA to authorise a retake.

S1 is the only rating in SRM vACC that does not require a Controller Practical Test (CPT). Instead, trainees will complete several practical training sessions with an instructor/mentor using Sweatbox, the simulator feature of EuroScope. Sweatbox allows the instructor to generate and control simulated traffic while the trainee performs the role of the ATC controller.

The S1 rating will be granted once the instructor determines that the trainee is ready to control independently in the "real world." Therefore, the number of training sessions and the overall duration of the process will vary depending on each trainee's progress and performance.

1 Ratings in Vatsim vACC

1. Pilot/Observer
2. Student 1 (S1) - DEL/GND [_DEL / _GND]
3. Student 2 (S2) - TWR [_TWR]
4. Student 3 (S3) - APP/DEP [_APP / _DEP]
5. Controller 1/3 (C1/C3) - CTR [_CTR / _FSS]
6. Instructor 1 (I1) - Mentoring for the DEL/GND/TWR/APP/DEP/CTR ratings
7. Instructor 3 (I3) - Same as Instructor 1
8. Supervisor (SUP) - Same as Instructor 1 + Vatsim Supervisor
9. Administrator (ADM) - Same as Instructor 1 + Vatsim Administration



2 Observer (OBS) to S1 (GND)

2.1 Vatsim SRM controller rating S1 permits a member to control GND (Ground) and DEL (Delivery) positions. This is valid for all the airports within Sri Lanka and Maldives region. After the completion of theory (written multiple choice) exam, member will start practical training at any SRM aerodrome towards the S1 rating through mentoring sessions in the live network.

2.2 Assessment of theory knowledge is done via the RTS System HQ theory examination. At this level, practical competency is continually assessed during mentoring sessions by approved mentors and S1 rating will be issued when the student achieves the required competency standard.

2.3 S1 rating is issued to a controller, when s/he is competent in the following subject areas:

1) Radiotelephony ([Refer Radiotelephony Communications Handbook](#))

- a) Phraseology and text communications

- b) RT pace and clarity, monitoring pilot read backs
- c) Communication priority

2) Coordination

- a) Handoff procedures
- b) Coordination with Tower for departures and VFR traffic
- c) Coordination of non-standard practices

3) Planning

- a) Aerodrome knowledge
- b) Aerodrome chart reading
- c) Data block, flight plan and departure listing
- d) 3 or more aircraft workload management

4) Controlling

- a) IFR departure clearances
- b) VFR departure clearances
- c) Taxi instructions, taxi routings and stand allocation

5) Safety

- a) Safe operating technique
- b) Order and expedition consistent with safety

6) Meteorology and altimetry (Refer [Metar Handbook](#))

- a) Basic METARs
- b) Runway selection
- c) Understanding of meteorological effects of aerodrome operations
- d) Understanding of QNH and QFE

7) ATC Systems

- a) Setup and operation of Vatsim ATC client software
- b) Text and voice ATIS



3 DEL Position

3.1 Clearance Delivery is a frequency used on the ground to provide initial clearance from ATC to aircraft before the takeoff.

3.2 The idea behind using a dedicated frequency for this is that it avoids tying up the ground control frequency (used for authorizing ground movement on taxiways and such) with long clearances and read backs.

3.3 Clearance Delivery is found at busy controlled airports. Pilots operating under Instrument Flight Rules will generally use it prior to each flight, and at airfields in class C or class B airspace it's used by VFR pilots as well (since they will be contacting departure controller immediately after takeoff until clear of the controlled airspace).

3.4 At less busy Vatsim airports Clearance Delivery is covered by same controller working as Ground or Tower.



4 GND Position

4.1 Guiding the plane to the gate and from gate to the active runway is the responsibility of Ground Control. The Tower control ensures that the airplane has departed/landed safely, guides it away from the active runway via taxiways and hands them to Ground Control. GND controller is NOT authorised to issue runway line up calls or allow aircraft to cross active runways.

4.2 The time it takes to reach the gate after the plane has landed depends on a lot of factors, primary being the traffic or the number of planes already on the ground moving around the airport either for a departure or heading towards a gate. The more the number of planes the longer it will take. The airport and taxiway layout also play a major role in how long the taxi times are. Airports with full length taxiways and less turns see aircraft reaching faster to the gate or runway holding point.

4.3 Guiding planes on the ground is as challenging as in the air. The planes have to remain on their taxiways and away from active runways. In the air, when two aircraft come close to each other, the TCAS (Traffic Collision Avoidance System) alerts the pilots and they can take heavy evasive action like diving, ascending, turning left or right to avoid the collision. The Ground Controller needs to ensure that such a situation never occurs and s/he must keep the planes moving. Guiding the departing planes to the runways and arriving ones to their gates ensures that the airport stays efficiently operational.

4.4 Progressive Taxi

4.4.1 Precise taxi instructions given to a pilot unfamiliar with the airport or issued in stages as the aircraft proceeds along the taxi route.

4.4.2 Progressive taxi instructions are issued on a step-by-step basis and are used:

1. When requested by the pilot (e.g. due to unfamiliarity with the aerodrome).
2. When deemed necessary by the air traffic controller.
3. In accordance with local conditions (e.g. during reduced visibility if so prescribed by the relevant manual).

4.5 Helicopter Traffic

4.5.1 Helicopter operations may be conducted from a runway, taxiway, portion of a landing strip, or any clear area which could be used as a landing site. ATC will issue take off clearances from movement areas other than active runways, or in diverse directions from active runways, with additional instructions as necessary. Whenever possible, take off clearance will be issued in lieu of extended air taxi operations. Phraseology should be:

CLEARED FOR TAKE OFF FROM (taxiway, helipad, runway number, etc.)

MAKE RIGHT/LEFT TURN FOR (direction, heading, NAVAID radial)

DEPARTURE/DEPARTURE ROUTE (number, name, etc.)

4.5.2 Air taxi is the preferred method for helicopter ground movements on airports provided ground operations and conditions permit. Unless otherwise requested or instructed, pilots are expected to remain below 100 feet AGL. However, if a higher than normal airspeed or altitude is desired, the request should be made prior to lift-off. The pilot is solely responsible for selecting a safe airspeed for the altitude/operation being conducted.

4.6 Before issuing flight plan clearance check and confirm following:

- Departure & Arrival airport ICAO codes
- Aircraft type/equipment code
- Cruise altitude correct for direction of flight (east/west bound)
- Flight route confirms the regions published procedures
- Transponder code assigned
- Communication tag set (Voice / Text / Receive only)

4.7 Radar Client Visual Ranges

The VATSIM community relies on a network of computers interlinked to provide position updates to controllers and pilots alike. In an effort to avoid any wasting of bandwidth the following maximum ranges have been imposed.

Position	Range
DEL/GND	10 to 20 nm
TWR	30 to 50 nm
APP/DEP	100 to 150 nm
CTR	300 to 600 nm
FSS	1500 nm

Note: When a user logs on to VATSIM network, it is important that the visual range slider be set to the appropriate range.

4.8 Voice Readability

When calling a radio station, it is good to perform a radio-check to test the voice transmission and reception quality. For this purpose, a readability scale has been developed.

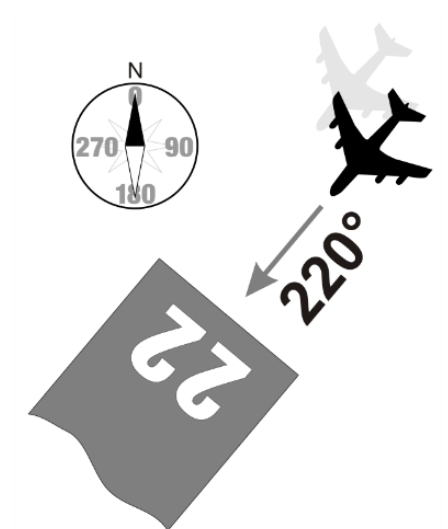
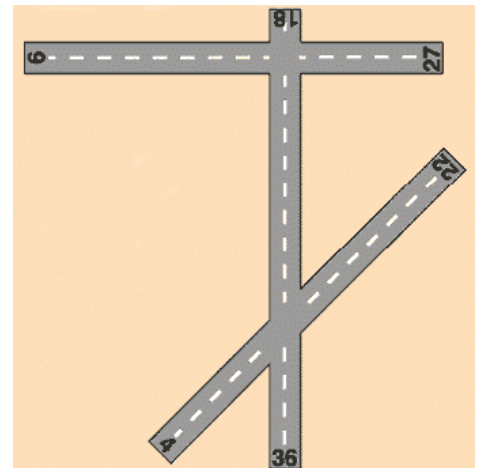
Readability Scale Definition:

1 Unreadable, **2 Readable now and then**, **3 Readable**, but with difficulty, **4 Readable**, **5 Perfectly readable** (loud and clear)

4.9 Runway Designators (numbers)

A runway is a strip used for take-off and landing. The runways are numbered according to the compass-direction they are headed, rounded off to the closest tenth degrees. A runway that has the “course” 180 degrees is hence named 18 and one with “course” 224 is named 22. Since runway is used both directions, it’s named with the contra-course from the other side (18-36, 04-22, etc.).

Some airports have parallel runways, i.e. more than one runway that has the same number. They are named with the suffixes R (right), and L (left) after the number to tell them apart if they are two runways, and R, C (centre) and L if there are three runways.



4.10 ATS Airspace Classification

ATS airspace classification varies from region to region. General ATS airspace is classified and designated in accordance with the following:

Class A. IFR flights only are permitted, all flights are provided with air traffic control service and are separated from each other. No speed limit.

Class B. IFR and VFR flights are permitted; all flights are provided with air traffic control service and are separated from each other. No speed limit.

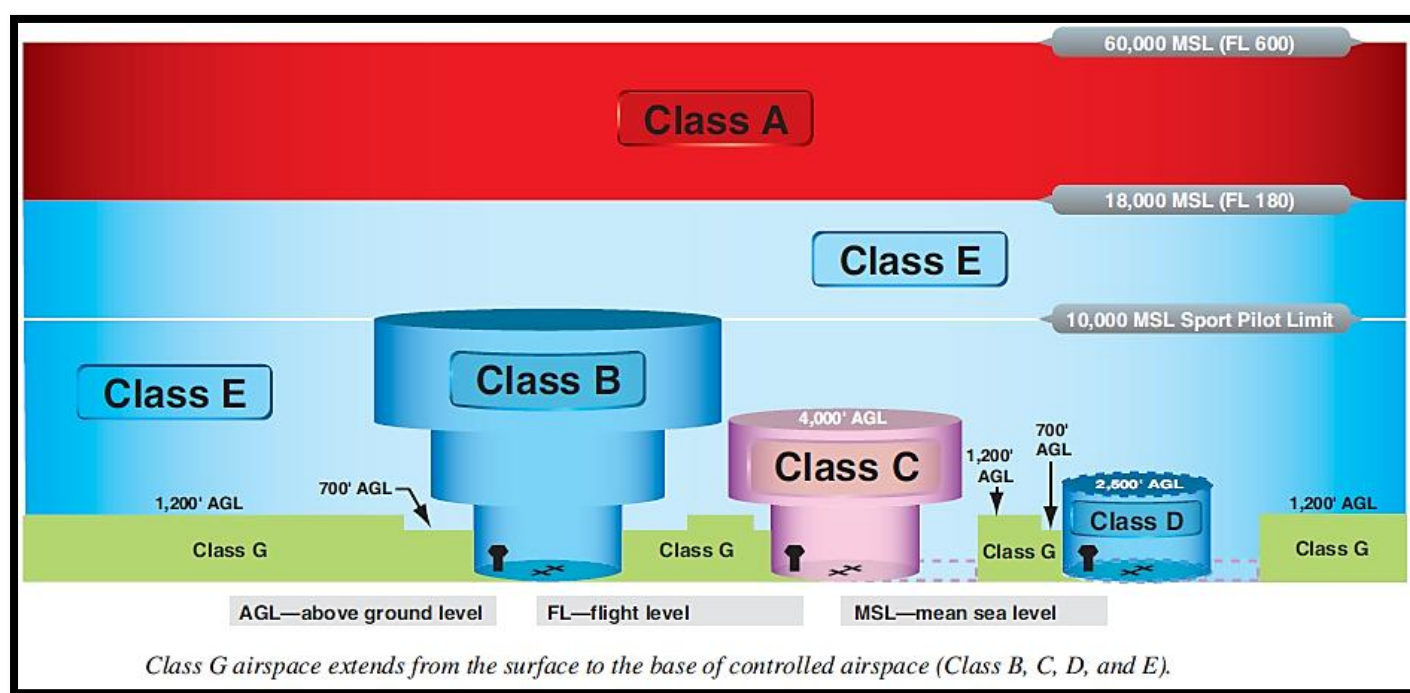
Class C. IFR and VFR flights are permitted, all flights are provided with air traffic control service and IFR flights are separated from other IFR flights and from VFR flights. VFR flights are separated from IFR flights and receive traffic information in respect of other VFR flights. Speed limit: IFR- No speed limit, VFR 250 kt below 10000ft asl.

Class D. IFR and VFR flights are permitted and all flights are provided with air traffic control service, IFR flights are separated from other IFR flights and receive traffic information in respect of VFR flights, VFR flights receive traffic information in respect of all other flights. Speed limit: IFR and VFR 250 kt below 10000ft asl.

Class E. IFR and VFR flights are permitted, IFR flights are provided with air traffic control service and are separated from other IFR flights. All flights receive traffic information as far as is practical. Class E shall not be used for control zones. Speed limit: IFR and VFR 250 kt below 10000ft asl.

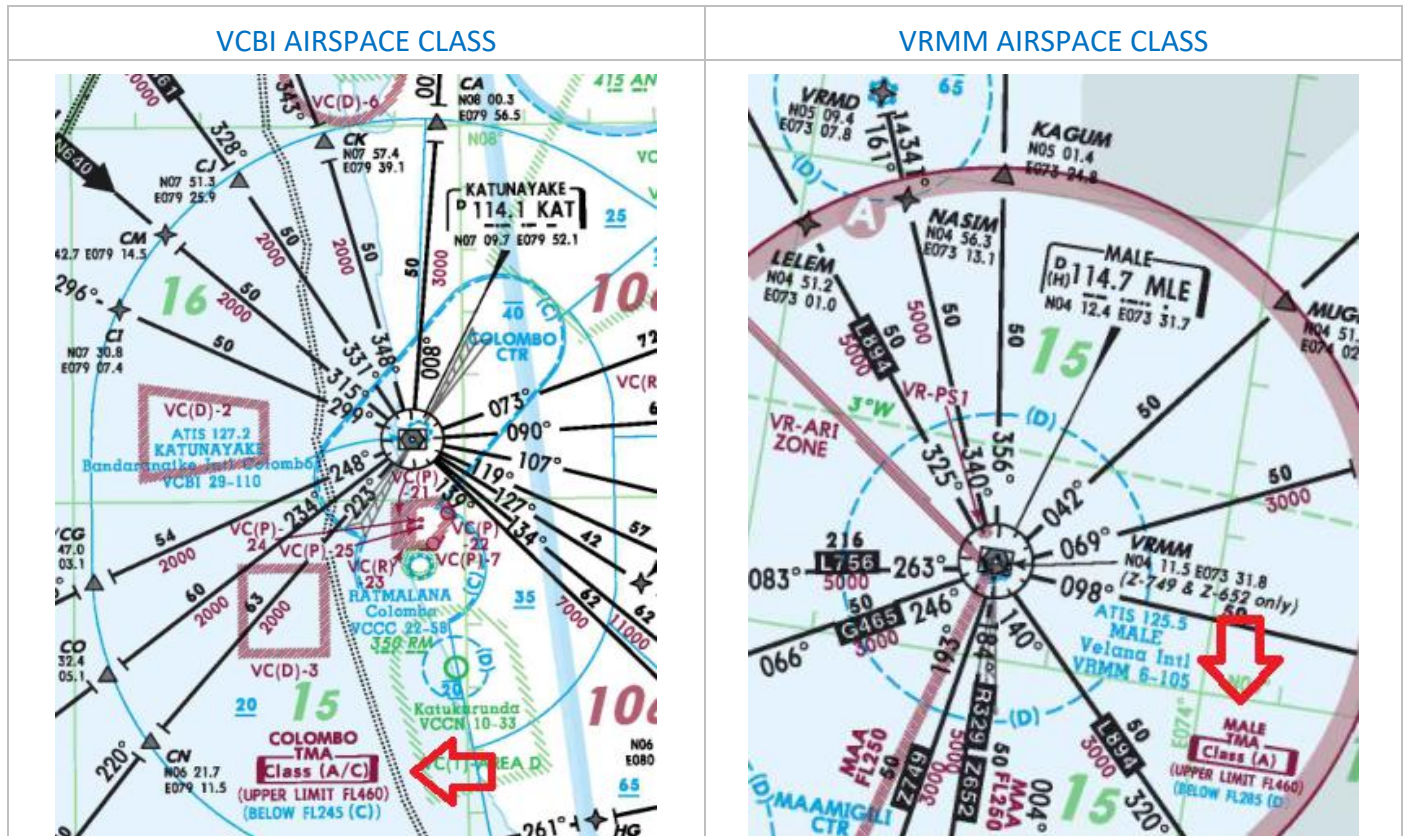
Class F. IFR and VFR flights are permitted, all IFR flights receive Air traffic advisory service and flight information service. VFR flights receive flight information service if requested. Speed limit: IFR and VFR 250 kt below 10000ft asl.

Class G. IFR and VFR flights are permitted and receive flight information service if requested. Speed limit: IFR and VFR 250 kt below 10000ft asl.



4.11 Transition Classification

- Transition Altitude. The altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes. [Ex: VCBI Trans Alt – 11000’]
- Transition Level. The lowest flight level available for use above the transition altitude. [Ex: VRMM Trans Level- FL130]
- Transition Layer. The airspace between the transition altitude and the transition level.



4.12 SID & STAR Procedures

Standard Instrument Departures (SIDs) and Standard Instrument Arrivals (STARs) provide a safe and efficient way of prescribing a large amount of information through pre published procedure design. Both depict the lateral profile of an instrument departure (SID) or arrival route (STAR) and the associated altitude and speed restrictions.

The use of SID/STAR phraseology brings significant benefits. It enables efficient and concise communication. It allows ATC to issue, and pilot to understand detailed clearance information that would otherwise require long and complex transmissions.

The core phraseologies are:

CLIMB VIA SID TO (level)

DESCEND VIA STAR TO (level)

These require the aircraft to:

1. Climb/descend to the cleared level in accordance with published level restrictions
2. Follow the lateral profile of the procedure
3. Comply with published speed restrictions or ATC-issued speed control instructions as applicable

VCBI/CMB

BANDARANAIKE INTL COLOMBO

KATUNAYAKE, SRI LANKA

RNAV SID

Apt Elev
29'

Trans level: FL130 Trans alt: 11000'

1. RNAV-1 (GNSS).
2. GNSS required.
3. **ATS Surveillance required.**
4. ACFT not approved for RNAV-1 (GNSS) operations shall inform ATC and EXPECT conventional route where applicable or EXPECT RADAR vectors.

BASUR 1D [BASU1D]

LALUM 1D [LALU1D]

RNAV DEPARTURES

Direct distance from
Bandaranaike Intl Colombo to:
BI601 22NM
BI611 6NM

Continue on SID to cruising level.
IF ACFT return to VCBI:

BASUR ID

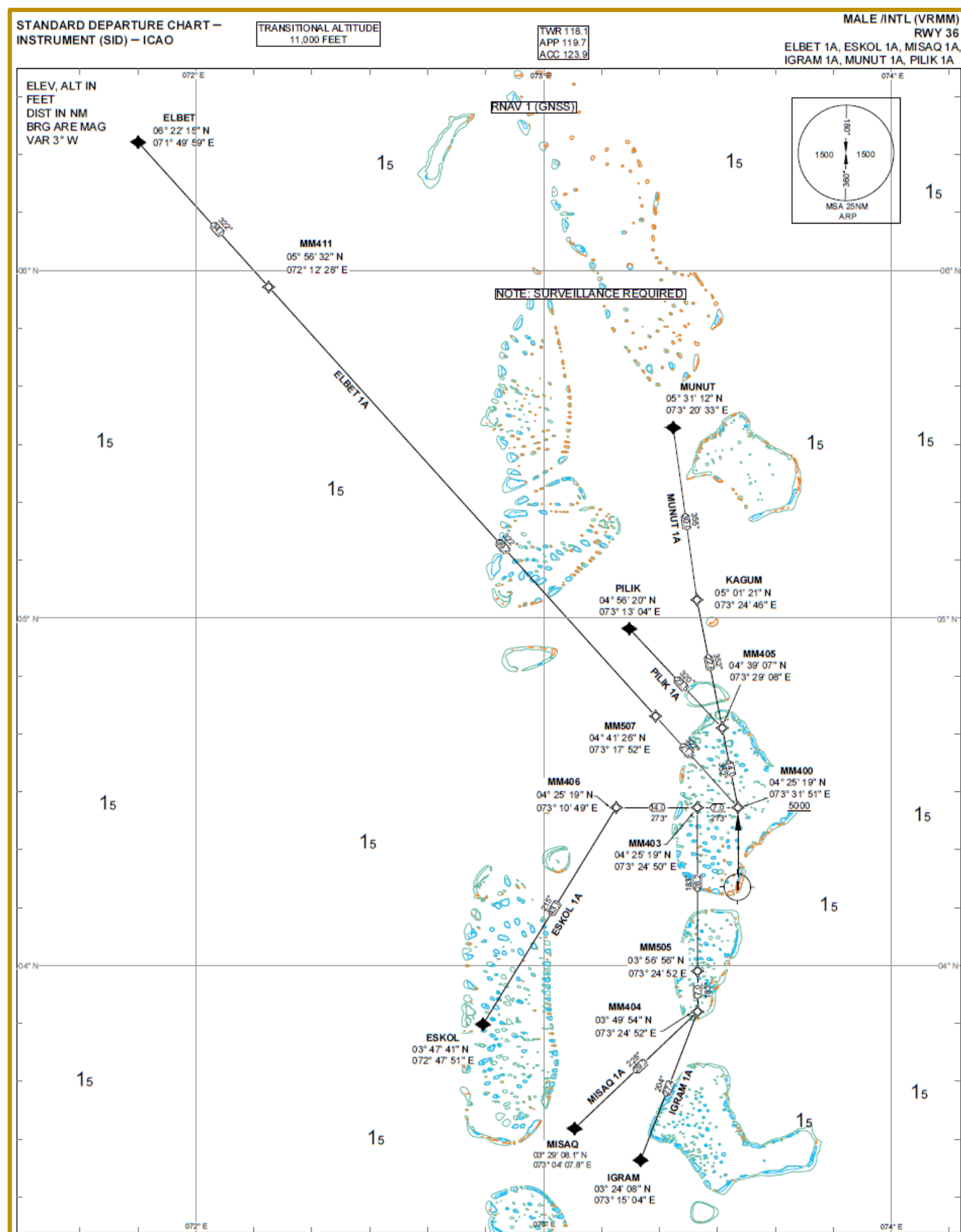
- Before BI453:
Continue on SID to BI453. Join STAR LALUM 1A. Join ILS Z RWY22.
- After BI453:
Join STAR BIKOK 1A. Join ILS Z RWY22.
- If landing land on RWY22.
- If holding/fuel dumping: From KADIR track to PASKU hold at or above 6000'. For landing track to BI453 and join STAR LALUM 1A. Join ILS Z RWY22.

LALUM ID

- Join STAR LALUM 1A. Join ILS Z RWY22.
- If landing land on RWY22.
- If holding/fuel dumping: From KADIR track to PASKU hold at or above 6000'. For landing track to BI453 and join STAR LALUM 1A. Join ILS Z RWY22.

SID	RWY	INITIAL CLIMB/ROUTING
BASUR 1D	22	Climb on 220° track to 500', after crossing DER turn RIGHT to BI611, to BI453, to BI613, to BI614, to BASUR.
LALUM 1D		Climb on 220° track to 500', after crossing DER to BI601, to BI602, to BI603, to LALUM.

Example 2: A STAR chart for VRMM



5 Points on Avoiding Communication Errors

5.1 Communication error is a significant contributory factor in both misunderstandings and confusions in Vatsim.

5.2 The following points will help to improve RTF standards in Vatsim airspace:

- a. Use standard phraseology at all times.
- b. Maintain RTF discipline - use clear and unambiguous phraseology at all times.
- c. Avoid unnecessary RTF.
- d. Both pilots and controller should monitor the active frequency.
- e. Do not read back a clearance as a question and avoid merely asking confirmatory questions. Much better to use 'say again.'
- f. Ensure you pass all information relevant to your phase of flight. For example: On initial call to Departure, inform call sign, SID, passing level, cleared level or first step altitude.
- g. On frequency changes, wait and listen before transmitting.
- h. Take particular care when issued with a conditional clearance. When reading back a conditional clearance, make sure to state the condition first.
- i. Check RTF if there is a prolonged break in activity on the frequency.
- j. Set cockpit with the clearance given, not the clearance expected.
- k. Note down ATC instructions / Pilot information when possible / as required.
- l. If unsure, always check / ask / confirm.



6 Push and Start Procedure

6.1 Conditional Push Back Clearance - An ATC clearance that authorises an aircraft to commence pushback subject to a specified condition being met. The condition must be clearly stated before the clearance to push back and must be unambiguous.

6.2 Conditional clearances expedite traffic flow, but it should avoid any ambiguity. Read-back must be in full and in the same sequence as given. A conditional push back clearance, (example below) allows push back after another action has first taken place (i.e. the condition of the clearance). Where there may be ambiguity as to the subject of the condition, additional details such as airline and aircraft type are given to aid identification.

Pilot- VRMM Delivery, ALK102, Stand 1, A320 with information D, request IFR clearance to Colombo

ATC DEL- ALK102, VRMM Delivery, Cleared to Colombo, D1A departure, Squawk 2600, slot time 0905

Pilot- Cleared to Colombo, D1A, Squawk 2600, ALK102

Pilot- ALK102, request start up

ATC DEL- ALK102, start up approved, contact VRMM Ground 118.75 for push back

Pilot- Start approved, contact VRMM Ground 118.75 for push, ALK102

Pilot- VRMM Ground, ALK102 Stand 1, request push

ATC GND- ALK102, VRMM Ground, after the AIC A321 passing behind, push back approved

Pilot- After the AIC A321 passing behind, push back approved, ALK102

7 Taxi and Take-off Procedure

7.1 Taxiing - A Safety Critical Activity

The use of standard phraseology is crucial to the safety of the flight during taxiing. Any mistake that causes the aircraft to enter a runway in error could be catastrophic.

7.2 Taxi Clearance Limit

All taxi clearances will contain a clearance limit, which is the point at which the aircraft must stop unless further permission to proceed is given.

7.3 Noting Down Taxi Clearances

Complex or lengthy taxi clearances should be noted down by crews.

Taxi Instructions 'To Hold Short Of' Departure Runway:

Pilot- VRMM Ground, ALK102, request taxi

ATC GND- ALK102, VRMM Ground, taxi to holding point C, Runway 36

Pilot- Taxi holding point C, Runway 36, ALK102

ATC GND- ALK102, contact VRMM Tower 118.5

Pilot - Contact VRMM Tower 118.5, ALK102

Note: Unless requested by the pilot, downwind take offs will not be issued if the tailwind exceeds 5 knots.



8 Flight Plan Description

The screenshot shows a 'Flight Plan' form with various fields and buttons. Red numbers 1 through 9 are placed over specific fields to indicate key information:

- 1: Flight Plan title
- 2: CRE (Crew) field
- 3: Force (Force) field
- 4: MODAPL (Mode of Departure) field
- 5: ADEP (Aircraft Designation) field
- 6: ADES (Aircraft Description) field
- 7: VCB (Vertical Clearance) field
- 8: RFL (Runway Length) field
- 9: RTE (Route) field

Other visible fields include: Call sign (UAE658), FRUL (Fuel Remaining), FTYPE (Fuel Type), NRAC (Number of Runway Allocations), ATYP/W (Aircraft Type/Weight), B77W (Boeing 777-300ER), H (Holding), EQCST (Equipment), W/EQ (Weight/Equipment), Y/EQ (Yield/Equipment), U/NO (Unusable/Not On), R/EQ (Runway/Equipment), P/EQ (Passenger/Equipment), EOBD (Estimated Off-Block Date), EOBT (Estimated Off-Block Time), EQUIP (Equipment), SDE1E2E3FGHIJ2J3J4J5M1RWXY (Serial Number), LB1D1 (License Plate), ETD (Estimated Time of Departure), ETB (Estimated Time of Arrival), TAS (True Airspeed), N0486 (North 486), F350 (Fuel 350), ANVIX L223 TARDI N629 GIDAN P570 KITAL L894 BOLUR/N0485F370 L894 ELBET ELBET1B, Other (PBN/A1B1C1D1L10152 D0F/260928 REG/A6ENI EET/00MM0009 VABF0052 VRMF0253 OPR/UAE PER/D RALT/00MS VOCL RVR/200 /V/), SUP (E/0539), PSSR (Passenger Status), ASSR (Aircraft Status), PEL/CFL (Passenger/Flight Level), 350 (Altitude), Type (FPL), Status (NOTIFIED), ETN (Estimated Time of Arrival), 0358 (Time), COPN (Crew Position), ETX (Estimated Time of Departure), COPX (Crew Position), LFUNC (Landing Function), Prev (Previous), 1/1 (Page 1 of 1), Next (Next), INI (Initial), Refresh, Apply, and Cancel buttons.

1 HEADER – Details and selections of Flight Plan.

2 CALL SIGN - Aircraft identification (Flight number or Registration). Aircraft is called using the call sign when giving instructions. Call sign is selected by pilot.

Example: ALK101 = SriLankan one zero one. 8QADM = Eight Quebec Alpha Delta Mike

3 A/C TYPE – Identity code of aircraft type and equipment code. Refer links below for more details.

a. ICAO aircraft codes: icao.int/publications/DOC8643/Pages/Search.aspx

b. Equipment codes: my.vatsim.net/learn

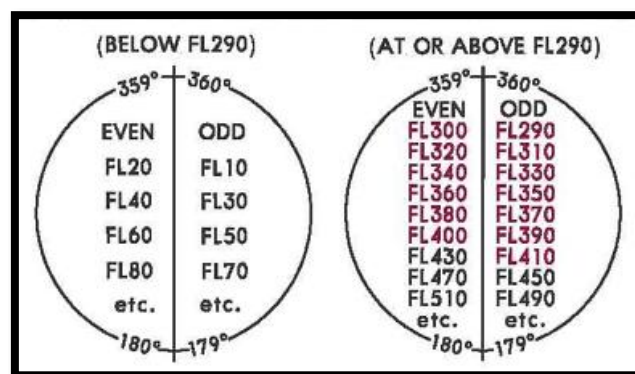
4 FLIGHT RULES - Type of flight rules that the pilot will be flying. There are three types of flight rules – VFR (Visual Flight Rules), SVFR (Special VFR) and IFR (Instrument Flight Rules). Refer VFR/IFR Handbook for details.

5 DEPART - Departure airport ICAO identifier.

6 ARRIVE - Arrival airport ICAO identifier.

7 ALTERNATE - IFR alternate airport for the aircraft destination (such as weather or an unusually long holding time). As with the origin and destination fields, this should have a valid ICAO identifier. IFR aircraft are not always required to have a filed alternate. It is acceptable to have "NONE" in the flight plan or blank.

8 CRUISE ALT - Cruise altitude when aircraft in cruise flight level. Refer the chart below.



9 ROUTE - Route the aircraft is using from Departure airport to Arrival airport. It is important that this route corresponds with any local vACC Standards Operating Procedures (SOPs) and Letters of Agreements (LOAs)

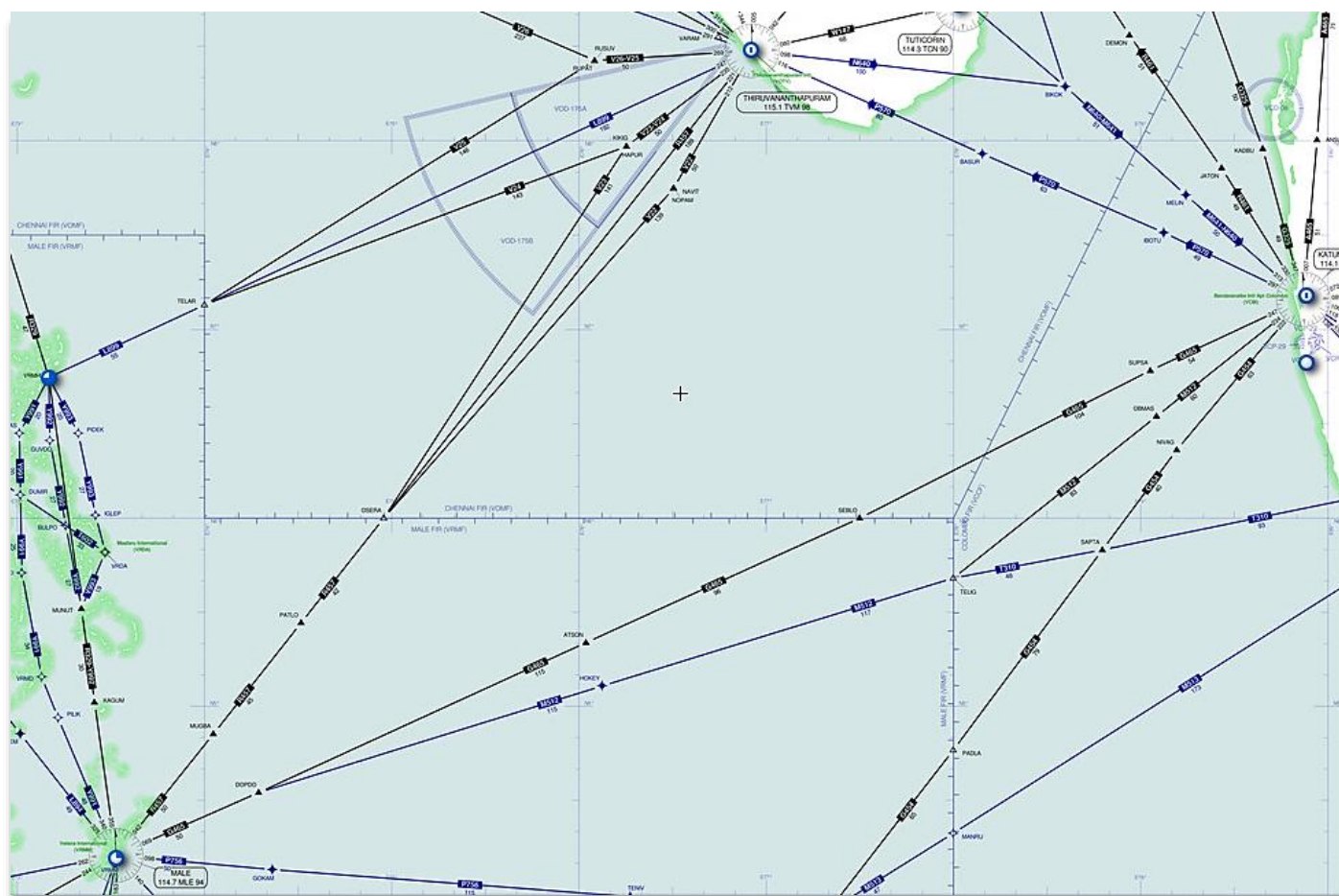
SCRATCHPAD - Your notes for ATC coordination. Refer Euroscope Manual for details.

SQUAWK - Squawk/transponder code that ATC issue to the pilot. Refer Euroscope Manual for details.

Squawk is the code to which pilot set the transponder. It transmits a 4-digit ID when queried by air traffic control radar (so-called "secondary radar"), so the controller can identify the aircraft easily. Transponder always has a 4-digit display, an off/standby/on switch, and some means of entering the squawk code.

Real transponders have different modes, such as A (only squawk code), C (squawk plus pressure altitude) and S (squawk, pressure altitude, a unique 24bit ID associated with the aircraft, and some other advanced features for traffic avoidance). Transponder codes do not use digits 8 or 9. In Vatwa vACC squawk codes are assigned from blocks allotted to each FIR. All aircraft should have a valid squawk code when clearance is given.

Example 3: En-route chart between VRMM-VOTV-VCBI



Routes between Maldives (VRMM) and Katunayaka (VCBI) are identical in both directions.

1. DOPDO G465 SUPSA (both ways)
OR
2. DOPDO M512 TELIG (both ways)

Routes between Thiruvananthapuram (VOTV) and Katunayaka (VCBI) are not identical in both directions.

1. TVM N640 BIKOK (one way only)
2. IBOTU P570 BASUR (one way only)

Sometimes a pilot can file route as GPS DIRECT.

Note: GPS routes and tracks are sets of GPS information designed to help aircraft navigation. GPS Routes are pre-defined paths created from a group of longitude/latitude location points entered into the GPS receiver in the sequence to navigate them.

If possible, the controller can inform the correct flight plan route to the pilot and ask the pilot if s/he can accept it. Due consideration must be given to the fact that various Vatsim users are having different capabilities.

You can find commonly available routes at the following sites:

rfinder.asalink.net/free/

simbrief.com/home/

skyvector.com/

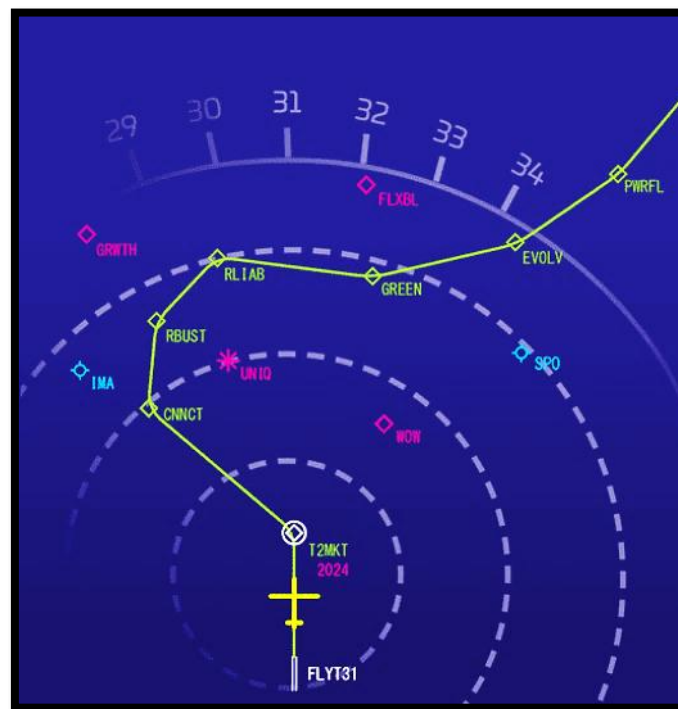
REMARKS – Records additional remarks that the pilot has filed, such as expanded call sign, weather client, and other miscellaneous information. It is not compulsory to have remarks. Following may be added as required.

/V/ - both voice receive and transmit

/R/ - receive voice, but will transmit via text

/T/ - both receive and transmit using text

| End of document |




Contents

REFER VACCSRM SITE 4r-ipm.me/vaccsrn or vaccsrn.milair.lk FOR LATEST REVISION OF THIS DOCUMENT