



Transition altitude - шилжих түвшин

Бусад Улс орон зөвхөн өөрийн нутаг дэвсгэрт төдийгүй, бүс нутгаараа, бүр тивээрээ нэг шилжих түвшинд ИКАО-ийн зөвлөмжийн дагуу шилжиж байна.

Гэтэл Монгол улсын аэродром бүр өөр өөр шилжих түвшинтэй байгаа нь нислэгийн аюулгүй байдалд сөргөөр нөлөөлж байгаа төдийгүй нэгдсэн Нислэгийн түвшин (Flight Level) тогтооход төвөг учруулж байна.

Иймд Монголын FIR-д нэгдсэн шилжих өндөр тогтоох асуудлыг яаралтай шийдэж шинээр гарах нислэгийн дүрмүүдэд суулгаж өгөх шаардлагатай байгаа тул холбогдох албад үйл ажиллагаагаа нэгтгэн чиглүүлнэ үү.



Өнөөдөр Монголд мөрдөж байгаа TA, TL, MDA, MDH

№	Аэродромууд	Aerodrome elevation (м)	MDA (м)	MDH (м)	TL (м)	TA (м)	TA (м) QNH≥1031hPa	Ойртолтын давтамж
1	ZMAN Өвөрхангай/ Арвайхээр	1808	2050	290	3300	3000		
2	ZMAT Говь-Алтай/ Алтай	2218	2400	215	4200	3600	3900	130MHz
3	ZMBH Баянхонгор/ Баянхонгор	1865	2100	256	3600	3100		
4	ZMBN Булган/ Булган	1315	Unknown	Unknown	Unknown	2600		
5	ZMBS Ховд/ Булган сум	1194	Unknown	Unknown	Unknown	2700		
6	ZMBU Сүхбаатар/ Баруун-Урт	976	Unknown	Unknown	Unknown	1900		
7	ZMCD Дорнод/ Чойбалсан	748	950	202	2400	1800	2100	130MHz
8	ZMDA Хэнтий/Дэлүүн болдог	979	Unknown	Unknown	Unknown	2100		
9	ZMDN Завхан/ Доной	1768	Unknown	Unknown	Unknown	3300		
10	ZMDZ Өмнөговь/ Гурвансайхан	1458	1700	248	3300	2700		129MHz
11	ZMGT Өмнөговь/ Овоот	1576	Unknown	Unknown	Unknown	2800		
12	ZMHG Хөвсгөл/ Хатгал	1691	Unknown	Unknown	Unknown	3200		
13	ZMHH Өвөрхангай/ Хархорин	1453	Unknown	Unknown	Unknown	3000		
14	ZMKB Өмнөговь/Ханбумбат	1196	1400	204	3000	2400	2700	131MHz
15	ZMKD Ховд/ Ховд	1493	2500	1007	4200	3600	3900	130MHz
16	ZMMG Дундговь/ Мандалговь	1386	Unknown	Unknown	Unknown	2300		
17	ZMMN Хөвсгөл/ Мөрөн	1302	2200	908	3600	3000	3300	130MHz
18	ZMSF Налайх/ Скай фрэндс	1472	Unknown	Unknown	Unknown	2500		
19	ZMTL Завхан/ Тосонцэнгэл	1707	Unknown	Unknown	Unknown	3200		
20	ZMTT Өмнөговь/ Тавантолгой	1460	Unknown	Unknown	Unknown	2500		
21	ZMUB Улаанбаатар/ Буянт-Ухаа	1330	1800	535	3600	3000	3300	120MHz
22	ZMUG Увс/ Дэглий цагаан	935	1150	246	3000	2200		130MHz
23	ZMUN Хэнтий/ Өндөрхаан	1039	1300	264	2400	2100		
24	ZMUL Баян-Өлгий/ Өлгий	1754	Unknown	Unknown	Unknown	3300		130MHz

<https://www.ais.mn/aipAip> 2019 оны 06-р сарын 06-ны хэвлэл



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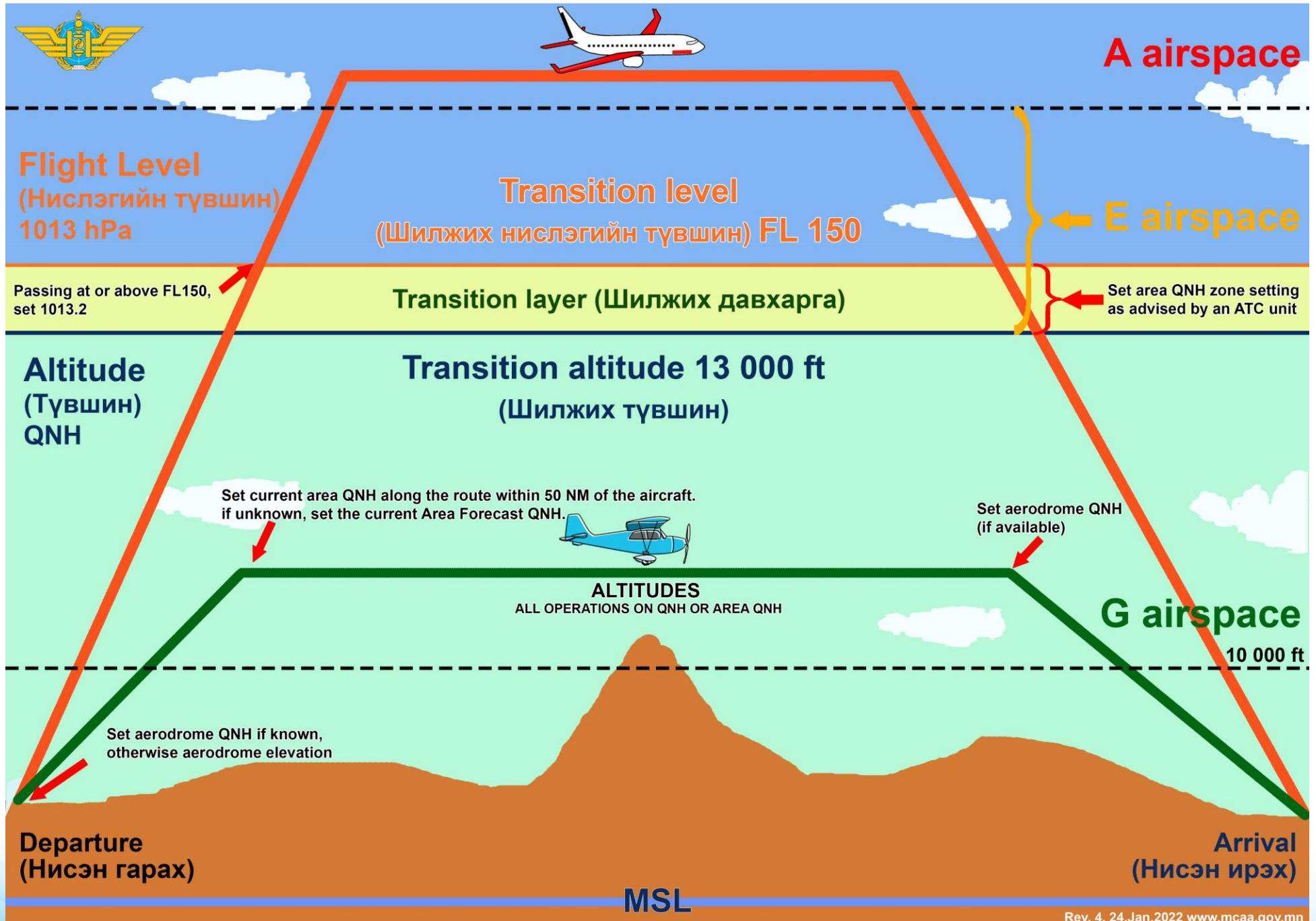
No	Aerodromes	Common TA
1	New Zealand	13'000ft
2	Australia	10'000ft
3	United States	18'000ft
4	Canada	18'000ft
5	Sweden	5'000ft
6	Germany (All Europa)	5'000ft
7	Russian Federation	10'000ft
8	Hong Kong, China	11'000ft

EUROCONTROL Agency нислэгийн аюулгүй байдлыг эсрдэлийг бууруулах зорилгоор Европын Холбооны гишүүн Улсуудын шилжих түвшнийг нэгдсэн нэг түвшинд шилжүүлэх судалгаа хийж, нэг түвшинд шилжүүлэх шаардлагатай гэж дүгнэсэн.

“A Common European Transition Altitude An ATC Perspective” тайланг хавсаргав.



Шинэ- Зеландын шилжих өндрийн жишээ





Common TA

Advantages		Disadvantages	
1	ICAO recommended	1	Implementation of change for some ATC providers
2	IFALPA recommended	2	Training and adjustment period
3	Flight Deck study recommended	3	Temporary loss of comfort zone with current familiarity
4	Common procedures reduce potential for error	4	Possible resources implications for implementation
5	Facilitates common approach design	5	Requires amendments to some State regulations
6	More compatible with RNAV/BARONAV procedures	6	Operations and publications amendments required to implement changes
7	Simplifies ATCOs adjustment and training to various airspace/sectors		<p>Энд заасан хүндрэлүүд нь бидний хувьд ерөөсөө хүндрэл биш. Учир нь бидэнд энэ огт байхгүй.</p>
8	Simplifies publication of charts		
9	Facilitates national and international arrangements		
10	Proven record of safe application in North America of over 50 years and in other regions		
11	Facilitates integration of VFR/IFR altimeter setting procedures		
12	Facilitates integration with future changes in airspace structure and classification		
13	Reduced risk where adjacent airports use different TAs		
14	Eliminates the need for ATC to provide the TL information		
15	Overall improvement to flight safety		
16	Compatible with the EUROCONTROL Agency ANS Safety Policy		



High TA – 5500 м (18000 ft)

No.	Advantages	No.	Disadvantages
1	Common with NAM structure	1	More aircraft need QNH setting
2	More adaptable to airspace structure/classification changes	2	Additional workload for ACCs
3	Eliminates terrain clearance issues in all States	3	All change related issues previously noted
4	Facilitates future SID/STAR, RNAV/BARONAV design and implementation	4	Potential complexity with airspace division at FL195 will require further study
5	Adaptable as common TA for all ECAC		
6	Acceptable for flight operations		
7	Acceptable to IFALPA		
8	Most facilitates regional agreement		
9	No mix of TA/TL reference in lower airspace		
10	No application of altimeter correction for terrain clearance		



Medium TA – 3000 м (10000 ft)

No.	Advantages	No.	Disadvantages
1	Compatible with most SID/STAR designs and noise abatement procedures	1	All contras involved w/ changes – same as implementation of a common TA as in 10.2 above
2	More preferable for flight operations	2	Not high enough for terrain issues in all States therefore cannot be used as common TA for all States
3	Acceptable to IFALPA	3	Some TMA caps are above this altitude
4	Minimises terrain clearance issues in most States	4	Transfer of workload for most ATS
5	Eliminates TA/TL reference mix in most TMAs for flight crews and ATCOs	5	Exceptions still needed to regional agreement
6	More compatible for VFR/IFR integration		
7	Facilitates airspace structure and classification changes more easily than lower TA		
8	No loss of usable airspace in most TMAs		
9	No adjustments of TL necessary in the majority of TMAs		
9	Constant vectoring parameters		
10	Above most TMA caps		
11	No application of altimeter corrections in most areas		



Low TA – 1500 m (5000 ft)

No.	Advantages	No.	Disadvantages
1	Already exists in some jurisdictions or locations	1	Only adequate for terrain clearance issues where terrain obstacles are relatively low
2	No change in procedures for some providers	2	Not compatible with SIDs/STARs design and application
3	Familiarity for some ATC providers, minor adjustment for others	3	Loss of valuable airspace in TMAs
		4	Not ideal for flight operations procedures
		5	Not easily compatible with changes in airspace structure or classification
		6	Mix of altitude and flight level references in TMA airspace
		7	Current VFR/IFR integration problems
		8	Exceptions needed to regional agreement
		9	Requires the application of altimeter correction factors for determining terrain clearance depending on location



Common TA CONCLUSIONS

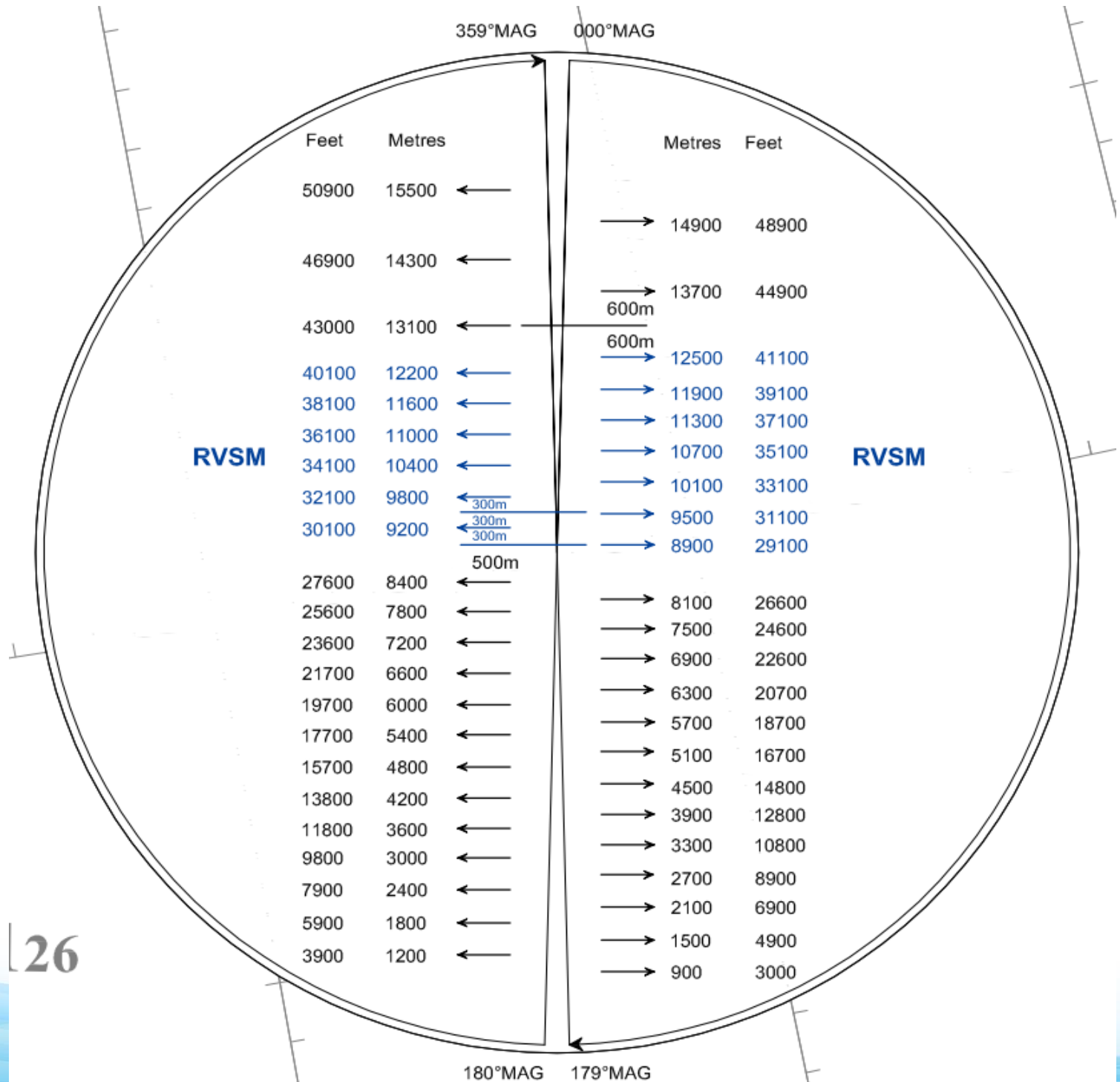
11.1 The establishment of a common TA for ECAC States and the EUR Region is a fundamental element in achieving the goal of a unified sky and the safety policy of reducing risks to the greatest degree practicable. Aviation history has proven conclusively, and too often tragically, that the standardisation of procedures and adherence to those procedures reduces the probability of error. The current multiplicity of TAs is contrary to both the goals of the agency and to good operating practice.

11.2 ATC providers, as is human nature, grow comfortable with what they are most familiar. It is natural to resist change if there is no apparent benefit for those involved in implementing the change.

11.3 Systems which contain potential risk should not be perpetuated for internal structural reasons. The challenge for the ATC service providers and the State regulators will be willingness to invest the effort necessary to implement this change for the single objective of improving flight safety.



Cruising altitude and flight level



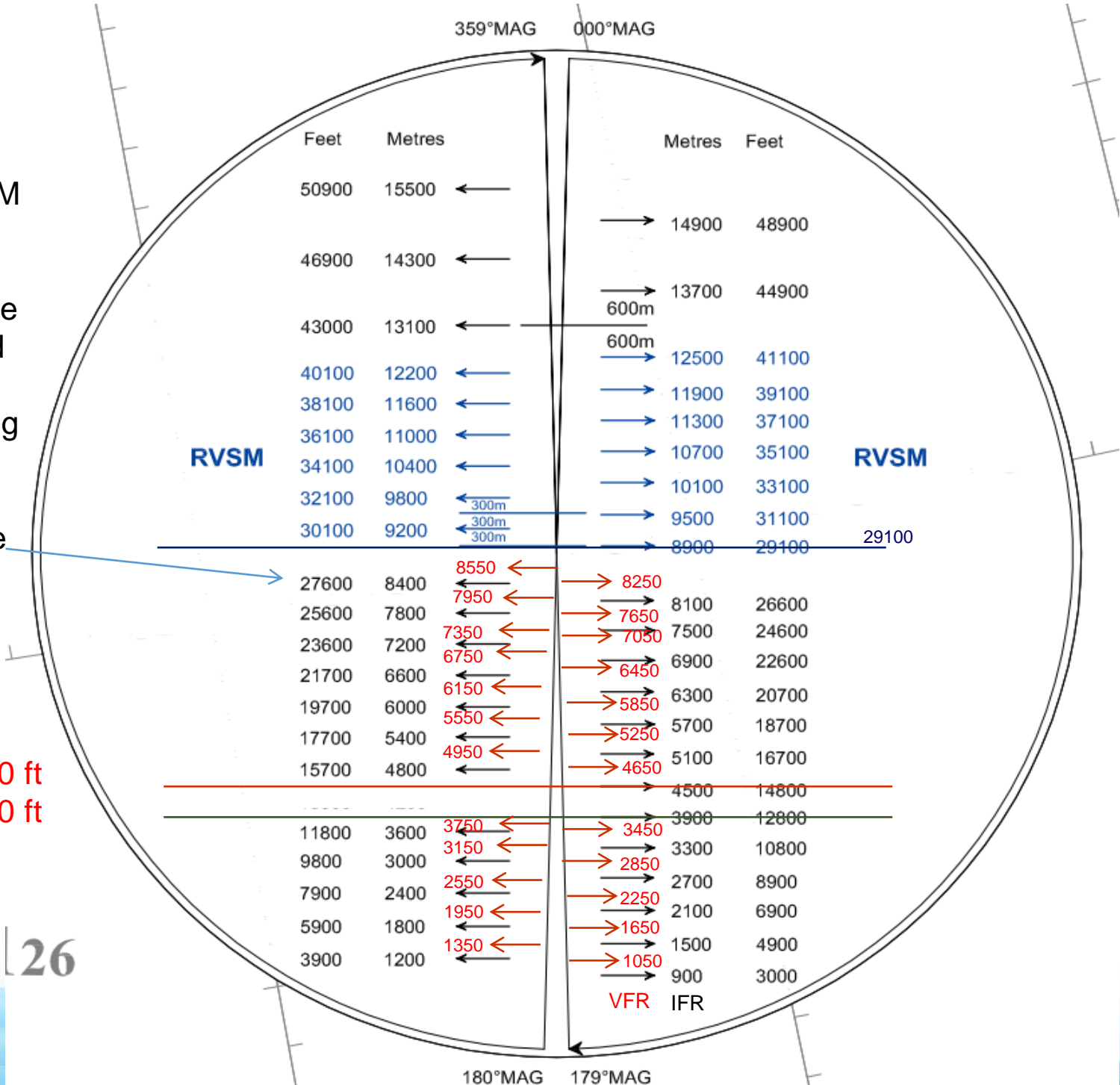
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Cruising altitude and flight level

2007 31th The ICAO RVSM implementation task force meeting:
 IATA advised China that the 8 400 m for the westbound should be 8 600 m.
 China informed the meeting that they would send a delegation to Mongolia in August to coordinate these proposals.

Transition level 15000 ft
 Transition altitude 13000 ft



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