2025

ITTF COUNCIL MEETING

WORKING DOCUMENTS

TABLE TENNIS.
FOR ALL.
FOR LIFE.

2025 INTERNATIONAL TABLE TENNIS FEDERATION COUNCIL MEETING

The 2025 ITTF Council Meeting of the International Table Tennis Federation will be held in Doha, Qatar, in a hybrid format on Monday, 26th May 2025, starting at 09h00 AST (Arabia Standard Time – 08h00 CEST).

AGENDA

1. President's Welcome and Opening Address
2. Roll Call, welcome, and ratification of new members (if any)
3. Confirmation of the Agenda
4. Confirmation of the Minutes of the ITTF Council Meeting held on 26th February 2024 in Busan, Korea Republic
5. Annual reports of the Athletes Commission and Commissioners
   - 5.1 Athletes' Commission
   - 5.2 Technical Commissioner
   - 5.3 Gender and Diversity Commissioner
   - 5.4 Youth Commissioner
6. Appointment of new Members to the Audit and Finance Committee (if any)
7. Appointment of Committee Chairs[1]
8. Propositions and Resolutions
   - 8.1 General Propositions and Resolutions
   - 8.2 London 2026 Playing System
   - 8.3 Para Table Tennis Classes Combination
9. Competition Updates
   - 9.1 World Title Events
   - 9.2 World Youth Events
   - 9.3 World Veterans Events
   - 9.4 Para Table Tennis
   - 9.5 World Cups
   - 9.6 Dakar 2026
10. Next ITTF Council Meeting
11. Any Other Business
12. Adjournment

[1] Subject to the ratification of the Committee Members proposed to the AGM on 27th May.

1. Introduction

The Athletes Commission (AC) continues to actively engage with the ITTF and other stakeholders to ensure that the concerns of athletes are addressed and to advocate for positive changes in the sport. Early 2024 has been marked by productive discussions and progress, particularly around issues such as World Ranking points, tournament scheduling conflicts, prize money, and the pathway to the Paris 2024 Olympic Games. This report also highlights positive developments, particularly from the World Table Tennis (WTT) organisation, where several key changes have been made to improve the athlete experience.

2. Key Discussions and Updates

2.1. Online Meetings & Key Topics

The Athletes Commission held two online meetings in early 2024, focusing on various pressing issues:

- **World Ranking System:** The inclusion of World Ranking points in the Mixed Team World Cup (China) and the World Team Championships (Korea) was discussed. Athletes expressed concerns about the fairness and transparency of these decisions.
- **Prize Money:** A key topic of discussion has been the reduction in prize money of the previous years, 2022 and 2023, particularly in comparison to the 2021 season.
- **Tournament Scheduling Conflicts:** The overlapping of tournament dates, such as the Pan Am Games and the Frankfurt Champions, and between the African Games and Singapore Smash, was raised as a major issue affecting athletes' ability to participate in multiple important events.

2.2. Athlete Satisfaction with Major Events

Athletes have expressed positive feedback regarding key events held in early 2024, such as the World Championships, Frankfurt Champions, and the Mixed Team World Cup. These events have been praised for their organisation, competitive atmosphere, and support services for athletes, demonstrating that improvements are being made to ensure better competition environments.

3. Positives from WTT: Key Changes in the Handbook

WTT has made several significant changes in its 2024 Handbook, leading to improvements in tournament conditions, which have been positively received by athletes. These changes focus on reducing costs, improving prize money, and streamlining penalties.
Some of the key improvements include:

3.1. Reduction in Hospitality Requirements:

- The minimum number of days required for hospitality has been reduced from 3 days to 2 days. This change helps to alleviate the financial burden on athletes, as they are no longer required to pay for additional days of accommodation and food. This is a welcome change for many players, especially those with limited sponsorship or funding.

3.2. Increase in Prize Money:

- WTT has made notable strides in increasing prize money for several tournaments, addressing one of the key concerns raised by athletes. The increase in prize money is aimed at helping athletes offset the costs of participation, especially those who are competing in lower-tier tournaments or feeder events, where prize money was previously insufficient to cover basic expenses.

3.3. Reduction of Penalties:

- Another positive development is the reduction in penalties for certain violations, ensuring that penalty systems are fairer and more consistent across different competitions. This change was welcomed by athletes, as it reduces the severity of penalties and ensures that minor infractions do not lead to disproportionately harsh consequences. The adjustment aims to create a more player-friendly environment.

3.4. AC Co-Chair Invited to WTT HQ in Singapore:

- In September 2024, the AC Co-Chair, Sharath Kamal Achanta, was invited to the WTT Headquarters in Singapore to engage in direct discussions about these recent changes. This meeting provided an invaluable opportunity for the Athletes Commission to discuss the latest developments in the WTT Handbook, including hospitality reductions, prize money increases, and penalty adjustments. The dialogue with WTT's leadership was a positive step forward in ensuring that athlete perspectives continue to be integrated into decision-making processes at the organisational level.

These changes reflect WTT's ongoing efforts to make the sport more accessible and sustainable for athletes, demonstrating a commitment to improving the overall experience for players at all levels of competition.

4. Requests and Concerns from Athletes

4.1. Exceptions from Mandatory Event

- Many top-tier tournaments have been announced, and the athletes requested for some exceptions to the mandatory events, which could help them plan better their tournaments and training calendar.

4.2. High costs for participation

- WTT Tournament Costs: The cost of participating in WTT tournaments remains high, with many athletes spending up to 1200 USD for a 3-day stay covering basic hospitality. This cost burden is becoming unsustainable for many athletes, especially those without major sponsorships or financial backing.

4.3. Calendar Announcement Delays

Athletes have requested that the ITTF announce the tournament calendar well in advance to allow sufficient time for proper preparation. This includes:

- Avoiding Last-Minute Changes: The inclusion of World Ranking points for the Mixed Team World Cup just a few weeks before the event, and similar last-minute changes to the World Team Championships, were a source of frustration for many athletes. Such changes make it difficult to plan training schedules, travel logistics, and overall tournament participation.

4.4. Communication Platform for Athletes

The Athletes Commission has received a request from athletes to improve communication and networking opportunities among players. A potential solution is to start using the drop-down menu on the ITTF website to facilitate direct communication between athletes. This feature would allow athletes to easily connect with each other, share advice, and collaborate on various initiatives, fostering a stronger sense of community within the sport.

Sharath Kamal ACHANTA and LIU Shiwen
Co-Chairs of the Athletes' Commission

ITTF TECHNICAL COMMISSIONER (Graeme IRELAND)
Report to the ITTF Council **Document G-02**

The mandate of the Technical Commissioner includes:

- Consult with the Competition Department and advise the ITTF Council on the organisation of the Olympic Games, and World Title competitions, and make recommendations on the system of play;
- Assist the Competition Department and referee team with the World Championships draws;
- Advise on the playing schedule for the Olympic Games and World Title competitions, as necessary;
- Serve as a member of the World Ranking Working Group;
- Serve as a member of the other Working Groups as required;
- Provide advice on eligibility matters;
- Function as the Chair of the Jury at the World Championships;
- Provide technical assistance for Multi-Sport Games and Continental Championships;
- Work closely with the Competition Department to achieve the above objectives; and
- Provide technical expertise and guidance to the Rules, Umpires and Referees Committees, Para Table Tennis and professional staff.

These responsibilities are managed in close cooperation with the Competition Department.

In 2024 my key role was to assist the ITTF and the Competition Department with the playing format, schedules, and general inquiries relating to technical rules for major events. These included the Olympic Games, Olympic Games Qualification, Paralympic Games, Paralympic Games Qualification, World Championships, World Cup, Mixed Team World Cup, World Para Championships and World Youth Championships. I attended the Paris 2024 Olympic Games as Chair of the Jury.

I am a member of the World Ranking Group looking at various items and have also provided expertise and assistance as required to other Working Groups and Committees, mainly to the URC, and the ITTF staff, whenever requested.

I am also available to consult with the continental representatives on technical issues related to continental events to align them more closely with the ITTF and WTT events.

Graeme IRELAND
ITTF Technical Commissioner

Throughout 2024, activities and programmes were carried out to meet the objectives of the ITTF GEDI Action Plan, both internally within the ITTF and within our Member Associations.

Strategic Goal 1: Undertake efforts to promote women's leadership and gender equality in governance models:
Initiated discussions with ITTF Human Resources to integrate GEDI education as part of the Induction of new and ongoing training of current staff.
Sponsored one participant each for the ASOIF's Women Lead Sports and the Women in Para Sport Leadership online courses in March 2024 (Ms Irene FABER, NED, and Ms Limpho RAKOTO, LES) and one for the ASOIF's Women Lead Sports (WLS) course in Lausanne in October 2024 (Ms Virginia SUNG, USA).

Strategic Goal 2: Undertake efforts to prevent and respond to violence against women and girls in and through sports:
Introduced a prerequisite Sustainability pledge in the new Event Manual, requiring MA/LOC to sign to be eligible for the bidding process. The pledge ensures that they commit to safeguarding, equality, and social inclusion for open and inclusive events.

Strategic Goal 3: Undertake efforts to close the gap in investment in women's sport and promote equal economic opportunities for women and girls:
Sustainability and GEDI Session during the WTCC in Busan, which attracted overwhelmingly many participants.

The "My Gender. My Strength." Development Project supported 20 female coaches from 20 Member Associations – five from Africa (NGR, RSA, MRI, MAR, CGO), five from the Americas (DOM, BOL, NCA, ECU and GUA), 5 from Asia (JOR, MAS, NEP, IND, IRI), three from Oceania (NZL, FIJ, COK) and two from Europe (DEN, SVK) for the MGMS project, with the highest interest ever as 50 applications were submitted.
The IU Exam had a higher percentage of those who passed in general (58%), but an even bigger increase of females. Out of those who passed the exam, 54,9 % were men, whereas 62,8% were women, indicating that the percentage of women passing the exam was higher.
Successfully implemented Development projects and Match Officials education with a general percentage of 60% male and 40% female; 56% male and 44% female athletes; 59 % male and 41 % female coaches, and 66% male and 34% technical officials.

Strategic Goal 4: Undertake efforts to promote women's equal participation and bias-free representation in sports media, including communications to eliminate harmful gender stereotypes and to promote positive role models:
The ITTF website introduced a dedicated section for GEDI, providing visibility and updates on gender equality, diversity, and inclusion initiatives. The GEDI Action Plan 2025 is also available in Arabic, Chinese, English, French, German and Spanish on the website.
Engaged with IOC representatives during the Paris Olympic Games to discuss the work and implementation of GEDI. While full gender equality is already a standard at ITTF for athletes, we

were strongly encouraged to enhance our work on diversity among technical and appointed officials.
On March 8, a social media campaign was launched, highlighting female athletes in Table Tennis to celebrate International Women's Day.
Increased visibility of female and para role models from all the continents and highlighted their achievements through social media initiatives. Ensured the use of inclusive language across all communication channels.

Strategic Goal 5: Undertake efforts to support equal opportunities for girls in sports, physical activity, and physical education:
Organised a session on "Empowering women in coaching" which presented the different women's development projects available under the ITTF's Sports Development umbrella. From the other hand, the Swedish Olympic Committee's Ulrika Sandman presented Project Q, highlighting Sweden's work on levelling the playing field for female coaches and athletes. The session also brought to the stage a panel of "My Gender. My Strength" participants, as well as a participant of Sweden's Project Q.

Strategic Goal 6: Agree to monitor and publicly report on progress on an annual basis:
Monitoring and Evaluation of the representation of women and girls in all their diversity in all forms of media. This is done in each social media post and article published.

Cross-Cutting Achievements:
ITTF became a signatory to the UN Sports For Generation Equality Framework in March 2024, endorsing the framework and leading the advancement of gender equality and mainstreaming across diverse backgrounds in and through table tennis.
The ITTF partnership with UN Women has been strengthened by the alignment of the GEDI action plan and the UN Women framework. This has laid a foundation for collaborative efforts aimed at harnessing the transformative power of sports to achieve sustainable development that positively impacts the lives of women and girls. UN Women will financially support GEDI initiatives in the future.

The enactment of the ITTF Policy on Eligibility in International Competitions for Transgender and DSD Athletes, effective 1st October 2024, as approved by the Executive Board on 22nd May 2024. This aligns with ITTF's commitment to inclusivity and respect for all Athletes.

Conclusion
My appreciation and thanks to the President, Ms Petra Sorling, the ITTF EVP, the Continental Presidents, Member Associations, and the GEDI Task Force Team members for their unwavering commitment to promote Gender Equality and recognising Diversity, embraced by ALL.

A special thanks to the ITTF Chief Executive Officer, Mr Steve Dainton, Secretary General, Mr Raul Calin and the ITTF staff for their support.

Hajera KAJEE
ITTF Gender and Diversity Commissioner

YOUTH COMMISSIONER (Heike Ahlert)

Report to the ITTF Council **Document G-04**

Dear ITTF Council Members,

I look forward to meeting you all in Doha at the ITTF Council meeting.

Here is my report:

WTT Youth Series

In 2024, the WTT Youth Series contained 54 events, showing that the Youth series has become even more popular. This enabled WTT to have 6 Star contender and 45 contender events in the Youth Series Calendar in all continents (3 youth contender events had to be cancelled):

	Africa	Asia	Europe	Oceania	Pan America
Youth Contender	2	11	21	1	10
Youth Star Contender	1	2	2		1

121 Member associations sent in a total of 4171 players to the events in 2024. In total, nearly 30.000 matches were played. In singles, it was played for 472 titles. The possibility of being able to play mixed doubles in the majority of the events was, like in 2023, well accepted; and 2024 saw again a significant increase in the number of U11 players (more than 700; in 2023 we had already 563) who participated in the Youth Series.

The application process for the 2025 WTT Youth Series in Summer 2023 showed great interest again. The Youth Series Calendar for 2025 was published in the Summer of 2024 in due time.

Thank you to Tiago Viegas, WTT Youth Series Senior Manager, with his staff for the incredible work to put the puzzle of dates for the events together and for the very good work towards the host associations to get the events done.

ITTF World Youth Championships (WYC)

The 2024 WYC took place in the city of Helsingborg from 22nd to 29th November 2024. Many thanks to the Swedish Table Tennis Association, who transformed the Helsingborg Arena into a world-class venue, with their organisation setting the perfect stage for the young players. We could see a good performance level throughout the matches. The most successful Member Association was China, with 11 titles, followed by Japan and Germany, with each having 1 title. In total, 16 Member associations brought medals home.

Alongside the WYC, the ITTF Youth Development Summit was held. It brought together global stakeholders to shape the future of table tennis. The event highlighted the federation’s commitment to nurturing young talent, fostering inclusivity, and

addressing challenges in the sport. President Petra Sörling and CEO Steve Dainton opened the day by sharing their vision for youth development. The Summit was very well attended and accepted. I hope we will continue with Youth Summits in the future.

The next two edditions of the WYC will be organised by the associations of:

- Romania **in 2025** (City of Cluj-Napoca) and
- Bahrain **in 2026** (City of Manama)

Finally, I thank everyone involved and engaged in the WTT Youth Event Series program and WYC. A special thank you goes to Tiago Viegas, the WTT Youth Series Manager, for his great work.

Thank you to all involved in the work for youth table tennis for your cooperation and good work.

Heike AHLERT
ITTF Youth Commissioner

Proposition IC-01 (Simple majority required)

Proposed by the Rules Committee.

To amend 3.2.3.1.

3.2.3.1. The playing space shall be of any shape, as long as the minimum size is defined by a ~~rectangle~~ cuboid not less than 14m long, 7m wide and 5m high, ~~but the four corners may be covered by surrounds~~; for wheelchair events, the playing space may be reduced, but shall not be less than 8m long and 6m wide; for Masters events, the playing space may be reduced, but shall not be less than 10m long and 5m wide.

Rationale:

This proposition was already prepared for the 2024 Council meeting, but was not presented on the public screen by error.

Proposition IC-02 (Simple majority required)

Proposed by the Rules Committee.

To remove 3.2.4.5.

~~3.2.4.5. A properly ventilated area shall be provided for the attachment of racket coverings to rackets, and liquid adhesives shall not be used anywhere else at the playing venue. "Playing venue" means that part of the building used for table tennis and its related activities, facilities and public area.~~

Rationale:

Such area is not needed anymore due to enhanced rules regarding racket control (3.2.4).

Proposition IC-03 (Simple majority required)

Proposed by the Rules Committee.

To amend 3.3.2.8.

3.3.2.8 When Table Tennis Review (TTR) is in operation, a decision resulting in a point made by either the umpire or assistant umpire on a question of fact may be overruled by the TTR official in accordance with 3.2.7.1.

Rationale:

This would clarify that TTR would only monitor match officials' decisions resulting in a point on matters of fact.

Proposition IC-04 (Simple majority required)

Proposed by the ITTF Executive Board and WTT.

To amend 3.5.1.1 & 3.5.1.2:

3.5.1.1 In a team event, players may receive advice from ~~anyone~~ a certified coach authorised to be at the playing area.

3.5.1.2 In an individual event, a player or pair may receive advice only from ~~one person, designated beforehand to the umpire, except that where the players of a doubles pair are from different Associations each may designate an adviser, but with regard to 3.5.1. and 3.5.2., these two advisers shall be treated as a unit;~~ a certified coach authorised to be at the playing area; if an unauthorised person gives advice the umpire shall hold up a red card and send him or her away from the playing area.

Rationale:

In accordance with the professionalisation of the sport, only certified/recognised coaches should be permitted to be seated at the player bench for coaching purposes. This also provides ITTF with additional revenue opportunities through a coach certification program of sports.

Proposition IC-05 (Simple majority required)

Proposed by the ITTF Executive Board.

To add 4.1.2.12., 4.3.9., 4.4.9., 4.5.4. and 4.6.4.

4.1.2.12. Organisers shall cover the cost of the TTR implementation, as described in 3.2.7. with a vendor approved by the ITTF.

4.3.9. Table Tennis Review.
4.3.9.1. The Organising Committee shall cover the cost of the TTR implementation, as described in 3.2.7. with a vendor approved by the ITTF.

4.4.9. Table Tennis Review.
4.4.9.1. The Organising Committee shall cover the cost of the TTR implementation, as described in 3.2.7. with a vendor approved by the ITTF.

4.5.4. The use of TTR, as described in 3.2.7. is mandatory at the Olympic Games. The Organising Committee of the Olympic Games shall provide such technology with a vendor approved by the ITTF.

4.6.4. The use of TTR, as described in 3.2.7. is mandatory at the Paralympic Games. The Organising Committee of the Olympic Games shall provide such technology with a vendor approved by the ITTF.

Rationale:

The use of Table Tennis Review is imperative in major Table Tennis events to ensure the challenged decisions are accurate, providing the athletes, officials, and the public, confidence on the officiating.

Proposition IC-06 (Simple majority required)

Proposed by the ITTF Executive Board.

To amend 4.1.5.6. & 4.1.9.6.

4.1.5.6. The ITTF may accept only formal nominations by an eligible Association, with the exception of Singles players who meet either of the following criteria of (i) being the incumbent World Champion in the Singles event; or (ii) incumbent Singles World Cup winner, which are received, properly signed by a responsible representative of the nominating Association, on or before the closing date.

..//..

4.1.9.6. Each Association shall be entitled to qualify maximum 3 men and 3 women players in each singles event, with one additional player ranked in the top 100 and one additional player ranked in the top 20 of the ITTF world ranking list issued in January of the year of the Championships to a maximum of 5 men and 5 women, with the exception of Singles players who meet either of the following criteria of (i) being the incumbent World Champion in the Singles event; or (ii) incumbent Singles World Cup winner. The maximum entry for each Association is 4 players for men's doubles, 4 players for women's doubles and 2 men and 2 women for mixed doubles; all players may be different, however, each Association can only enter a maximum of 2 combined pairs (players from different Associations) per doubles event.

Rationale:

In line with the professionalisation of the sport and extensive discussions with the players, this provides additional playing opportunities for professional players who have earned their right to participate in major events while also elevating the value of the World Title events.

Proposition IC-07 (Simple majority required)

Proposed by the Member Association of China (CHN)

To amend 4.1.12.3.

~~4.1.12.3. A player who wins the men's or women's singles event 3 times in succession or 4 times in all shall receive from the ITTF a half-size replica of the appropriate trophy as a permanent possession.~~

4.1.12.3 If a player or a pair who wins the men's or women's singles event, men's doubles, women's doubles or mix doubles 3 times in succession or 4 times in all from the 1st World Championships, each player shall receive from the ITTF a half-size replica of the appropriate trophy as a permanent possession.

Rationale:

The awarding of a replica of the trophy is honourable and meaningful for players and recognises their outstanding achievements To encourage more players to participate in doubles and mix doubles events and thus promote the comprehensive development of table tennis sports, it is proposed that the scope of application of the policy be extended.

Proposition IC-08 (Simple majority required)

Proposed by the Equipment Committee

To modify the Manual M1 - TABLE

Modifications of specification and requirements; add Friction tolerance values

a) 2.5.4 COLOUR/GLOSS, FINISH AND LINES OF TABLETOP

LINES

In addition to the principal finish, the playing surface must be marked with white side-lines, end lines and centrelines (b6, b7, l7 and l8),whose colour is visually different from the playing surface. The difference in level of all lines should not be detectable by the fingers, and in no case shall it be measurable.

The testing laboratories will survey the testing methods to define what is visually different.

b) 2.5.6 WHEELS AND BRAKES

BRAKES

Half of the wheels should carry an easily adjustable brake, thus preventing rolling away on a slope. The following ~~recommendations~~ should be considered for the location and quantity of the brake wheels (exceptions for special constructions can be made):

Rolling tables type (II): ~~brake wheels on the furthest end from the player.~~ At least 2 brakes per table half, 1 brake on table half left and right side. The location of the brakes should be symmetrical.
Rolling tables type (III): brake wheels diagonally opposed. At least 1 brake per table half.
Rolling tables type (IV): ~~brake wheels under one tabletop only.~~ brake wheels diagonally opposed. At least 1 brake per table half.

The rolling devices should be solid and durable; they should sustain without damage the endurance test as described at the end of this chapter.

b)
2.5.12 TABLES FOR WHEELCHAIR PLAY

Additional dimensions of wheelchair table [mm]	
Distance of the end legs + cross bracing from the table end *(l_3)*	≥ 400
Free space below the end crossbar *(h_3)* and table end	≥ 480
Distance between the table end legs if *$l_3 \leq 480$ mm*	≥ 950
Height of the batten + playing board in the players safety area *(h_6)* ~~(recommendation)~~	≤ 80

[..]

The brand of the table should mark through the table name that he has given the design not only a legal but also otherwise careful consideration for the needs of wheelchair players.

The ITTF Logo on the wheelchair table frame can have a minimum size of 9 sqcm.

The ITTF recommends adding the logo “full accessibility for wheelchairs” (see figure 17) either on the frame or on the undercarriage, once per side, within an area of at least 9 ~~25~~ sqcm and not more than 50 sqcm.

c)
2.6 ADVERTISMENTS/MARKINGS ON TABLE

REQUIREMENTS FOR TABLETOP-SIDE

Restrictions on advertising markings on tables are described ~~above~~ below under “International Regulations for Competetions” (see Chapter 6.1). ~~The side of half a table is considered to be a “face”, so that on the sides of the complete table the manufacturer’s mark may appear twice.~~

Each table half has 3 sides: left side, right side, table end side (in total: each table has 6 sides) and should contain brand and product information and the ITTF Logo as follows:

Brand logo and/or name:
- must be twice on each table half (e.g., left side and right side or left side and end side or right side and end side)
- can be three times on each table half (e.g., left side and right side and end side)

Product/Model name:
- must be once on a table half left or right side
- can be once on a table half left and once on a table half right side
- not at the table half end side

ITTF Logo
- must be once on a table half left or right side
- can be once on a table half left and once on a table half right side
- not at the table half end side
- ~~Each side of the table shall carry once~~ the ITTF logo indicating that the table is ITTF-approved. The logo shall be visible in an area of at least 25 sqcm and not more than 50 sqcm that may be located on the frame of the tabletop or on the undercarriage.

Wheelchair approval can differ from the mentioned logo regulations.

For more information, please refer to the ITTF Branding Guidelines. Both, the guidelines and the versions of the ITTF logo, can be requested from ITTF Equipment Department.

Permanent advertisements (brand or product markings) on tables are allowed only on the sides and ends of the tabletop and each shall be no longer than 60 cm on any face.

On each ~~face~~ table side, a continuous length of 70 cm shall be free, i.e. without any permanent marking including ITTF-logo, so that temporary advertisements can be affixed.

The organising authority of a competition may grant permission for additional, but not other table tennis equipment brand’s, temporary advertisements, one on each half of a side and one on each end, clearly separated from the permanent advertisements.

d)
3.1.3 FRICTION

[…]

Once the result detected is within the limit, the tabletop will be categorized into one of the friction range (FR) groups and published on the equipment website.

TOLERANCES

To check the quality of the surface, regular re-tests (5-year cycle) and market/retail testing are carried out. Manufacturers are permitted to deviate from the specified reference value. Even when the newly measured value is out of the FR this tabletop has been categorized, it will be accepted and the former FR will stay, as long as the newly measured value is within the tolerances below:

Tolerances for CoF in re-testing or retail testing	
01.06.2025 – 31.12.2029	+- 0,035
01.01.2030 – 31.12.2034	+- 0,030
01.01.2035 – open end	+- 0,025

Rationale:

a) *The tables used in the 2024 Paris Olympics and other WTT show courts featured improved designs, combining coloured lines and playing surface colours for better presentation. To avoid impacting the players, the lines must contrast distinctly with the playing surface.*

b) *The use of brakes for the rollaway tables is based on recommendations. To simplify the approval and testing procedures, a specified number of brakes is provided to enhance the tables' stability and uniformity.*

c) *Research in recent years has found that wheelchair regulations must be stricter to better protect wheelchair players and simplify the approval process. Consequently, the word "recommendation" needs to be removed. Additionally, due to the need to reduce the metal frame during manufacturing, the space for the ITTF or Wheelchair logo is decreased, allowing for smaller logo sizes.*

d) *To avoid confusion regarding the requirements for permanent markings permitted and required on the table sides.*

e) *Tabletops should have stable playing quality. As the BBOT Friction regulation is new as of 01.01.2025, it has been agreed that all manufacturers will be allowed a higher manufacturing tolerance during the first five years. Over time, this tolerance will be gradually reduced so that by 2035, the quality of tabletops from the same manufacturer will be as consistent as possible.*

Proposition IC-09 (Simple majority required)

Proposed by the Equipment Committee

To modify the Manual M2 – NET ASSEMBLY

Additional explanation about net post and net mesh construction and net mesh

a)
2.3 APPEARANCE

The net posts may be cast, moulded or machined, although well-designed sheet-metal work can be adequate and may be approved. The horizontal part of the net post may allow different construction (e.g.: gap in the centre of the horizontal part outside tableside) as long as all required dimensions are permitted and it not affect the game play. The upright post is preferably fixed integrally to the horizontal part, and it must stay vertical, when the net is mounted to the table. The dimensions given have to be observed.

b + c + d)
2.4 NET/NET POST SPECIFICATIONS

COLOUR

Any colour, but not glossy, luminescent or fluorescent, is permitted. They are based on CIE-Lab system.

Upright Post	< 60 % Lightness
Net (mesh)	< 50 % Lightness
Net attaching to the post (binding)	Same than net colour
Net tape	White ~~or pale yellow~~ or other colour

The net tape's colour should be always the same colour as the tables' side line and center line.

The testing laboratories will survey the testing methods to define what is visually different.

DIMENSIONS OF NET

NET		mm
Height above table surface (It must be adjustable during play to any height between 150.5 mm and 154.5 mm)	h	152.5
Height of fabric (tape included)	h_{10}	145 – 149
Height of top tape	h_{11}	12 – 15
Height of bottom finish (no tape, but different meshes permitted)	h_{12}	≤ 10
Gap between net bottom and tabletop (not touching tabletop or horizontal part of the net post)		≤ ~~10~~ 15
Thread thickness		< 2.0
Mesh square section (thread included; circular or hexagonal)	h_{12} / w_{13}	7 – 12
Width of side binding	w_{14}	≤ 30

Rationale:

a) *To save material during construction, it is permitted to produce parts with gaps, provided that nothing is harmful or interferes with the game (e.g., ensuring that no ball can pass through a gap in the horizontal part of the post).*

b) *The net tape colour should always match the table's side lines and center lines. With the introduction of coloured lines, the net tape should also align with them.*

c) *During the transition from T2 to M2, the explanation that any net height between 150,5 and 154,5 mm should be adjusted was missing.*

d) *The previous value of 10 mm between the net end bottom and the table surface was very small. In practice, a distance of 15 mm can be allowed, as no ball of the current sizes will pass through.*

Proposition IC-10 (Simple majority required)

Proposed by the Equipment Committee

To modify the Manual M4 – RACKET COVERINGS

Additional content for the player's responsibility

a)
2.2 PLAYERS, BRANDS AND MANUFACTURERS RESPONSIBILITY

PLAYER'S RESPONSIBILITY

It is the player's responsibility to use racket coverings that comply with the rules. For example, a red racket covering may become too dark when affixed to a dark blade. A thick glue layer may cause the racket covering to exceed the maximum thickness specified in the T9 Racket Control. Players are advised to air a brand-new rubber before use, even though the manufacturer is expected to aerate the rubber before packaging. Use of post-factory treatments (including, but not limited to: boostering the racket covering, self-assembling a topsheet with a non-original sponge (e.g., damping sponges), sanding the blades which generates differences between inspection devices and actual flatness) is not permitted and may cause the racket covering to exceed the permitted thickness, friction, pimple density, etc.

Rationale:

In recent years, many questions have arisen about what post-factory treatments are. Three main topics have been added as examples, but there may also be other treatments.

Proposition IC-11

(Simple majority required)

Text: T9 – RACKET CONTROL

Precise the regulation for visible inspection and small content changes for flatness and thickness measurements.

a)
Introduction

This Technical Leaflet describes the tests used in a racket control center. While the tests are generally designed to verify that every racket fulfills the requirements of the ITTF Laws of Table Tennis and the ITTF Regulations for International Competitions, they also include additional tests as approved by the ~~Board of Directors~~ ITTF Council.

b + c)
1. Regularity of Blade and Racket Coverings

[...]

• **Damage** – The referee should provide guidance to describe the amount of racket damage that will be tolerated. In general, slight damage around the edge of a racket may be permitted depending on the extent; but significant blade damage, or a crack, chip, or missing pimple in the hitting area usually will have to be reported and the referee decides if an exchange of the racket is required or not. Damages during the game can lead to an exchange of the racket as well.

[...]

• **Other Irregularities** – There are many additional conditions which may cause a racket to be considered irregular and not permitted for competition. There are also many irregularities which would be considered acceptable. For example, a part of the blade near the handle might be uncovered, or covered with different materials; this would normally be accepted if this area is covered by the player's hand. Or the back side of a penhold racket might be covered with paint~~,~~ or plastic~~, treated rubber, etc~~. Again, this is permitted, provided that it is matt and the colour is black or bright colour. The use of rubber material or unauthorised racket coverings, that is similar to an authorised racket covering is not allowed, even on a side not used for striking the ball. When in doubt, the racket tester should note the irregularity and inform the referee, who will make the final decision.

d)
2. Authorisation of Racket Coverings

Racket coverings (rubber) must be on the current List of Authorised Racket Coverings (LARC) published by the ITTF. The rubber must have the ~~supplier's name,~~ brand name, product name and the ITTF logo.

[...]

When doing a lookup of the covering in the LARC, note that the list is not purely alphabetical. For each ~~supplier~~ brand, all rubbers which have an ITTF number are first, followed by all rubbers without numbers. Therefore, you will find a "Megabrand 001 Toprubber" far *before* a "Megabrand Superrubber".

The branding area on a racket covering can contain additional text or wordings than the above listed requirements (brand name, product name, ITTF Logo and ITTF number) in case the

branding area fits with the published artwork on ITTF equipment website. If the markings do not match, the racket covering is not authorised.

If other branding/marking difficulties arise, the referee retains the final decision.

~~The branding area of a rubber can contain text in addition to what is listed on the LARC. For example, rubber with the text "Butterfly Sriver S D13" is authorised as "Butterfly Sriver S". However, care should be taken to ensure that any additional text does not refer to a completely different rubber which was authorised by itself in the past and removed from the list in the meantime. Such an example would be the "DHS 651" (still authorised) and the "DHS 651 PF4" (withdrawn in January 2004). A LARC archive is helpful to resolve this matter. Also, a comparison with the original branding area on the ITTF website can be used via the Internet connection in the Racket Control Center. In any case the final decision is with the referee.~~

e)
3. Flatness Test

3.2. Electronic flatness device

[...]

5. Record both flatness values for each side ~~the highest magnitude (worst) reading~~. Do not take an average. ~~The~~ Both measured flatness values must be **≥ -0.50 mm** and **≤ +0.20 mm.**

f)
4. Racket Covering Thickness Test

4.1. Electronic thickness device

[...]

- If this side (A) of the racket is convex (one or two positive measurements in the flatness test), the measured flatness may need to be added to the thickness. Perform one of the following:
    a. If this side (A) is convex and the reverse side (B) is flat (zero value) or convex (positive value), add the flatness measurement of this side (A) to the thickness measurement (Example 1).
    b. If this side (A) is convex and the reverse side (B) is flat (zero value) or concave (one negative measurement in the flatness test),
        i. and the sum of the two flatness measurements is positive, add this sum to the thickness measurement (Example 2).
        ii. ~~If this~~ and the sum of the two flatness measurements is zero/negative, add nothing (Example 3).
- If this side (A) of the racket is flat (zero value) or concave (negative measurements in the flatness test), the other sides flatness is not important and nothing will be added to the measured thickness (Example 4).

Example 1:

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Thickness measurement of ~~red~~coloured side (A)	3.90	3.90	3.90	3.90
1. Flatness of ~~red~~ coloured side (A)	**+0.10**	**+0.10**	**+0.10**	**+0.10**
2. Flatness of coloured side (A)	+0.05	-0.05	0.00	-0.05
1. Flatness of black side (B)	+0.05	+0.05	+0.05	0.00
2. Flatness of black side (B)	0.00	0.00	+0.10	0.00
Final thickness result of ~~red~~ coloured side (A)	4.00	4.00	4.00	4.00

In bold are the values that will be used for calculation.

Example 2:

	Scenario 5	Scenario 6	Scenario 7	Scenario 8
Thickness measurement of coloured side (A)	3.90	3.90	3.90	3.90
1. Flatness of coloured side (A)	**+0.10**	**+0.10**	**+0.10**	**+0.10**
2. Flatness of coloured side (A)	+0.05	-0.05	-0.05	-0.05
1. Flatness of black side (B)	+0.05	+0.05	0.00	**-0.08**
2. Flatness of black side (B)	**-0.05**	**-0.05**	**-0.05**	-0.05
Final thickness result of coloured side (A)	3.95	3.95	3.95	3.92

In bold are the values that will be used for calculation.

Example 3:

	Scenario 9	Scenario 10	Scenario 11	Scenario 12
Thickness measurement of coloured side (A)	3.90	3.90	3.90	3.90
1. Flatness of coloured side (A)	**+0.10**	**+0.10**	**+0.10**	**+0.10**
2. Flatness of coloured side (A)	+0.05	-0.05	+0.05	-0.05
1. Flatness of black side (B)	+0.05	-0.05	-0.05	+0.10
2. Flatness of black side (B)	**-0.10**	**-0.10**	**-0.20**	**-0.20**
Final thickness result of coloured side (A)	3.90	3.90	3.90	3.90

In bold are the values that will be used for calculation.

Example 4:

	Scenario 13	Scenario 14	Scenario 15	Scenario 16
Thickness measurement of coloured side (A)	3.90	3.90	3.90	3.90
1. Flatness of coloured side (A)	-0.10	-0.10	0.00	0.00
2. Flatness of coloured side (A)	0.00	-0.05	0.00	0.00
1. Flatness of black side (B)	-0.05	-0.05	+0.05	+0.05
2. Flatness of black side (B)	+0.05	-0.10	-0.10	+0.10
Final thickness result of coloured side (A)	3.90	3.90	3.90	3.90

g)
7. Dismantling rackets

7.1 Procedure

Dismantling of rackets is not part of the umpires' after-match duties and shall be performed by trained racket testing staff and in the racket control room, only. The referee will be called to the racket control room and decides based on the measurement results by the racket tester whether a dismantling is required or not.

Reasons for deciding that the racket be dismantled after the match include (but are not limited to):

- The racket is submitted to the racket control room before the match or after the match (due to delay of the player before the match):
    - and the result of the thickness measurement is an acceptable figure but does not look reasonable to the racket tester – for example because a check with a net gauge or a loupe suggests a bigger thickness.
    - and the result is more than 4.05 mm, so that the racket tester has to double check this value with the dismantling procedure.
    - and any preparation on the visible blade parts, e.g.: certain amount of lacquer on the handle area, has been inspected which could lead to an after treatment on the blade.
- With the rubber surface of the racket, it looks like the pimples come to the surface and the rubber edge bends outwards.
- The appearance of the blade is leaving doubts about its carving to the umpire who checks the racket in the Call Area but cannot be proven legal/illegal unless examined separately.

In case a post-match dismantling is decided, the umpires of the match are informed as early as possible, preferably before they appear at the playing area and start the match preparation. The ~~umpires~~ referee shall inform the player before the match that the racket will be collected for dismantling after the match. Should, for any reason, the racket be replaced before or during the match, both the original racket and its replacement will be collected and dismantled after the match.

[...]

If the player is present, he/she shall be invited by the racket tester to dismantle the racket. If the player refuses or is not present, the player will bear the consequences that are pronounced by the referee. The racket covering(s) should be then examined according to section 7.2. while the blade is then examined according to section 7.3.

~~The racket tester should decide whether the racket has to come back after the match or not. When the racket is back the racket tester should call the referee when dismantling is required, let the player dismantle, measure and show the result.~~ If ok, the racket will be given back to the player. If not ok, the referee can decide about further consequences.

h)

Appendix A: Summary of Racket Tests

#	Test	Specification	Remark / Example	Perform this test at:		
				Match Table	Call Area	Racket Control
1	Regularity of Blade and Racket Coverings	Tolerance from referee	Extension of rubber, scratches, missing pimples, broken wood, etc.	Yes	Yes	Yes
2	Authorisation of Racket Coverings	Must be on LARC	~~Supplier name,~~ brand name, product name, ITTF logo and code/number	No	Yes	Yes
3	Flatness	Concave ≥ -0.50 mm Convex ≤ +0.20 mm	Worst of 2 perpendicular measurements. Do not average.	No	Yes	Yes
4	Racket Covering Thickness	With sponge: < 4.05 mm Without sponge: < 2.05 mm (plus a measurement tolerance of 0.05 mm)	Average of 4 measurements; 2 parallel, 2 across.	No	Yes	Yes
5	Volatile Organic Compounds	VOC level ≤ 3.3 ppm	Differential reading after 20 seconds.	No	No	Yes
6	Pimple Spacing	Width of pimple + space < 3.5mm		No	No	Optio-nal
7	Dismantling	Blade of even thickness; ≥ -0.50 mm to ≤ +0.20 mm	No overthick lacquer, no sanding	No	No	Yes
		see 4 - Racket covering thickness	Average of 4 measurements. ~~No overthick~~	No	No	Yes

Rationale:

a) *Replace "BOD" with "ITTF Council"*

b) *During the game, any damage to an authorized racket covering could result in its replacement. This clarified the situation at the table for the umpires and referees.*

c) *Any rubber-like material on the unused side should not be allowed, as it may cause excessive confusion for the umpire and the opponent. If rubber is mounted on the blade, it must be an authorized racket covering (LARC) that passes all inspections, whether visual or measurable.*

d) *- Replace the word "supplier" with "brand"*
- Clarify the requirements for branding information on a racket covering and ensure alignment with the specifications in M4: Racket Covering.
- All racket covering products on the ITTF equipment website are regularly updated. Only the published branding and information are permitted, with no exceptions. Any deviations indicate potential illegal use, and the referee has the final decision.
- Remove any reference to a published LARC Archive, as no archive exists.

e) *An adaptation of the wording is needed to align with well-understood practice and to better distinguish between: 1. the "standalone" flatness requirement, and 2. the excess thickness caused by convexity.*

f) *Clarify the explanation of how to correlate flatness measurement results with thickness measurement results.*

g) *- Complete the sentence by adding "so that".*
- Clarification that only the referee has the final authority to decide whether to announce a dismantling procedure to the player. Additionally, in an official testing, the referee is responsible for communicating with the player or coaches.
- Remove duplicate information

h) *Update of the specifications for racket testing.*

Resolution IC-12 (Simple majority required)

Proposed by the Member Association of China (CHN)

Clearly define the concept of Table Tennis Review (TTR), including its purpose, the scope of application, and scenarios of use. In particular, the characteristics of TTR that distinguish it from broadcasting replay should be emphasised.

Meanwhile, develop and publish general principles, rules, procedures and directives for the usage of TTR in all ITTF Sanctioned Events. It should be made clear that the player can only appeal against the decision made by the umpire when the TTR is used for the selected event. In addition, the standard procedures and overall flow of actions should be published and conveyed to every MA and player to ensure the appropriate usage of TTR in all ITTF Sanctioned Events, especially the upcoming World Championships in Doha.

Rationale:

TTR was used for the Mixed Team World Cup 2024. Given that TTR is not applicable to all events, it's necessary to differentiate between TTR and onsite broadcasting replay to prevent misinformation and controversy. Besides, the WTT Handbook includes corresponding content regarding the TTR. It should also be specified in ITTF Statutes.

Resolution IC-13 (Simple majority required)

Proposed by the Member Association of China (CHN)

According to ITTF resolution 2024-02-26-IC-17, a maximum total of players from each member association in U19 and U15 men's singles and women's singles sub-events in ITTF World Youth Championships shall be increased from 2 to 4-5. It's proposed to implement the resolution at the earliest possibility. Each member association shall be allowed a maximum total of 4-5 players in the Singles events and two (2) full pairs consisting of players from the same member association in the Doubles events.

Rationale:

To implement ITTF Resolution 2024-02-26-IC-17 as soon as possible.

Resolution IC-14 (Simple majority required)

Proposed by the Member Association of China (CHN)

It's proposed to amend the qualification pathway of the Singles, Double and Mixed Doubles events of the World Youth Championships. In addition to the existing policy "Players qualified in Singles events are entitled to participate in Doubles and Mixed Doubles events of the respective age category that are qualified in Singles.", add "Member Associations (MAs) with a team qualified will be entitled to nominate players to participate in Singles, Doubles, Mixed Doubles events." It's proposed to implement the resolution from the ITTF World Youth Championships 2026.

Rationale:

Youth events are not for professional athletes. In order to ensure the highest level of competition, it is recommended that MAs nominate players for participation in Singles, Doubles and Mixed Doubles sub-events.

Resolution IC-15 (Simple majority required)

Proposed by the ITTF Executive Board

The ITTF Council resolves establishing a dedicated Working Group tasked with designing and implementing a comprehensive coaching accreditation system. This system will aim to:

- Assess and enhance the technical competencies of table tennis coaches.
- Ensure adequate knowledge of physical and mental coaching strategies.
- Promote player safeguarding and enforce awareness of anti-harassment and anti-doping policies.

Implementation:

- The Working Group shall be formed immediately upon approval of this resolution.
- It will consist of representatives from the Athletes' Entourage, Athletes' Commission, and experts in sports education, safeguarding, and anti-doping.
- The Working Group will submit a detailed framework for the accreditation system within six months.

Full implementation of the system will occur within 12 months of the resolution's adoption.

This initiative aligns with ITTF's commitment to promoting professionalism, safeguarding athlete welfare, and fostering integrity in our sport.

Rationale:

Recognising the vital role of coaches in the development of athletes and the sport of table tennis, it is imperative to ensure that coaches are equipped with the highest standards of technical, physical, and mental training methodologies. Equally important is their understanding of safeguarding players, anti-harassment principles, and compliance with anti-doping regulations.

London 2026 World Team TT Championships – Playing System

Proposition for London 2026 Playing System (Simple majority required)

Proposed by the ITTF Technical Commissioner and Competition Department

Background:

The following resolution was passed at the 2024 ITTF Council Meeting held in Busan:

To review the qualification system and the competition format of the World Team Table Tennis Championships Finals to be held from 2026 onwards, with 64 teams per gender, to ensure:

1. *Relevance of the Qualification Pathway;*
2. *That, ideally, all teams participating in the WTTTC Finals can opt to win the title.*

The Qualification Pathway was approved by the ITTF Council via online voting in December 2024. The following summary provides options for the Playing System, which will require a decision by the ITTF Council. The attached document provides full details of the recommended option.

SUMMARY

In all options there will be a total of 64 teams of each gender, with 16 Groups of 4 teams in Stage 1, separated into Stage 1a and Stage 1b, followed by a Preliminary Knockout and the Main Draw. In Stage 1a the top 7 ranked teams plus the host (8 teams total) will be drawn into 2 groups. The purpose of this Stage is to determine seedings for the Main Draw and all teams from this Stage will progress to the Main Draw. In Stage 1b the remaining 56 teams will be drawn into 14 groups.
Following the completion of Stage 1a and Stage 1b, all teams from Stage 1a (8 teams) and the top team in each group from Stage 1b (14 teams) will progress directly to the Main Draw. The second-placed teams from Stage 1b will progress either directly to the Main Draw (options 2 and 3) or to the Preliminary Knockout (options 1 and 3) to determine the remaining 10 teams for the Main Draw.
All teams participating in the World Championships Finals therefore have the opportunity to win the title.
Stage 1a (seeding groups) and the Main Draw will be played at Wembley Arena and Stage 1b (qualification groups) at Copper Box, as will the Preliminary Knockout.

RECOMMENDED OPTION

The 14 second-placed teams from Stage 1b will play a single Preliminary Knockout, drawn at random (7 matches), with the 7 winners progressing to the Main Draw. Three (3) additional teams from the losers of the Preliminary Round (best losers) will qualify for the Main Draw depending on their results from the Preliminary Round.

- Only 1 Preliminary Round of 7 matches per gender to be played with winners advancing to the Main Draw
- 3 teams out of the 7 losers with best results in the Preliminary Round will advance to the Main Draw
- All qualification matches will be played at Copper Box and only the Main Draw and seeding group matches will be played at Wembley
- Finishing all the qualification matches in Copper Box on May 1 gives more chance and time for teams to move to different hotels on May 2 and more

practice time in Wembley for the qualified teams before the Main Draw commences on May 4
- England, as host, is guaranteed media exposure at Wembley during the seeding groups play and at least the first round in the Main Draw
- The best option for operational, commercial and logistical reasons.

OTHER OPTIONS CONSIDERED

2. Ten second-placed teams with the best results from group matches
3. Six second-placed teams with the best results from group matches, with the remaining eight second-placed teams playing a single preliminary round to determine the final four places in the Main Draw
4. A fourth option was considered: a progressive knockout for the second-placed teams. However, this was discarded as it would require four rounds to determine the qualified teams. Three rounds would need to be played at Wembley, which would affect the overall Main Draw schedule and be a distraction for spectators. It would also be very hard to explain and follow.

For options 2 and 3, the second-placed qualifiers would be selected based purely on group results, which could be influenced by the luck of the draw, and some groups may only have three teams.

SCHEDULE

The draft playing schedule is also included in the attached file.

Main Draw
2nd to 10th May 2026
- More time for qualified teams from Copper Box to practice at Wembley with 2 days between
- Stage 1a matches to be played on the first 2 days
- All round-of-32 matches to be played on 4 tables on days 3 and 4
- All round-of-16 matches to be played on 4 tables on day 5
- Four quarter-final matches to be played on 2 tables with the remainder on 1 table

Rationale:

After considering many different options, this seems the fairest and most doable. It is to be noted that the WTTC Finals will last a record 13 days (28th April to 10th May 2026), the largest since Osaka 2001, when the Team and Individual World Championships were still played together.

Attached is a detailed version of the proposed option and support slides.

2026 WORLD TEAM TABLE TENNIS CHAMPIONSHIPS

COMPETITION DETAILS

1. STRUCTURE

1.1 There will be a total of 64 teams of each gender, with 16 Groups of 4 teams in Stage 1, separated as follows into Stage 1a and Stage 1b, followed by a Preliminary Round and the Main Draw.

2. PLAYING SYSTEM

2.1 The playing system will be as follows:
Each group of 4 teams shall play a complete round robin competition (3 matches per team).

Stage 1a

The top 7 ranked teams plus the host (8 teams total) will be drawn into 2 groups (Group 1 and Group 2) using a modified snake system 2 at a time. The purpose of this Stage is to determine seedings for the Main Draw and all teams from this Stage will progress to the Main Draw.

Stage 1b

The remaining 56 teams will be drawn into 14 groups (Groups 3 – 16) using a modified snake system 3 or 4 at a time (see diagram below).

The order of play and the scheduling of the matches will be prepared in such a way as to avoid, whenever possible, the possibility of predetermining results. All final round matches must be significant for each competing team.

Stage 2

(see diagram below)

Following the completion of Stage 1a and Stage 1b, all teams from Stage 1a (8 teams) and the top team in each group from Stage 1b (14 teams) will progress directly to the Main Draw. The second-placed teams from Stage 1b will play a single Preliminary Round knockout drawn at random (7 matches) with the 7 winners progressing to the Main Draw. Three (3) additional teams from the losers of the Preliminary Round (best losers) will qualify to the Main Draw depending on their results from the Preliminary Round, based on the ratios of wins to losses first in individual matches, then games and points, as far as is necessary to resolve the order.

The teams from Stage 1a (8 teams) will be drawn into seeded positions - winner of Group 1 seeded 1st (position 1), winner of Group 2 seeded 2nd (position 32), second-placed teams drawn into positions 16 and 17, third-placed teams drawn into positions 9 and 24, fourth-placed teams drawn into positions 8 and 25.

The winners from Groups 3 - 10 will be drawn into remaining seeded positions 4, 5, 12, 13, 20, 21, 28 and 29. The winners of Groups 11-16 will then be drawn to positions 6, 11, 14, 19, 22 and 27. The second-placed teams who progressed to the Main Draw by winning in the Preliminary Round, will be drawn into positions 3, 7, 10, 15 or 18, 23, 26 and 30. The three best losers (defined above) will be drawn into positions 2, 15 or 18, and 31. Teams having played against each other in the group stage shall not meet again in the first round of the Main Draw.

3. SEEDING AND RANKING

3.1 Seeding shall be done as follows:
(see diagram below)

Stage 1a

3.1.1 Teams Ranked 1 and 2 shall be seeded as top of each group in number order.
3.1.2 Remaining teams will be drawn two-by-two using the modified snake system until all groups are complete.

Stage 1b

3.1.3 Teams Ranked 9 - 22 shall be seeded as top of each group in number order.
3.1.4 Teams ranked 23 – 26 shall be drawn in Groups 13 – 16.
3.1.5 Teams ranked 27 - 29 shall be drawn in Groups 10 - 12, etc.
3.1.6 Remaining teams will be drawn similarly three or four at a time using the modified snake system until all groups are complete.

3.2 The WTR which will be used for the for the draws shall be the last WTR before the draw.

GROUPS

Stage 1a		Stage 1b													
1	2	9	10	11	12	13	14	15	16	17	18	19	20	21	22
(4, 3)		(36, 35, 34)			(33, 32, 31, 30)				(29, 28, 27)			(26, 25, 24, 23)			
(5, 6)		(37, 38, 39)			(40, 41, 42, 43)				(44, 45, 46)			(47, 48, 49, 50)			
(8, 7)		(64, 63, 62)			(61, 60, 59, 58)				(57, 56, 55)			(54, 53, 52, 51)			

PRELIMINARY ROUND

1	Second G3-G16
2	Second G3-G16
3	Second G3-G16
4	Second G3-G16
5	Second G3-G16
6	Second G3-G16
7	Second G3-G16
8	Best Loser 1
9	Best Loser 2
10	Best Loser 3

Match Summary					
MT WT					
Copper Box					
Grps	84	84		168	182
Prel	7	7		14	
Wembley					
Seed	12	12		24	86
R32	16	16		32	
R16	8	8		16	
QF	4	4		8	
SF	2	2		4	
Final	1	1		2	
				Total Matches	268

MAIN DRAW

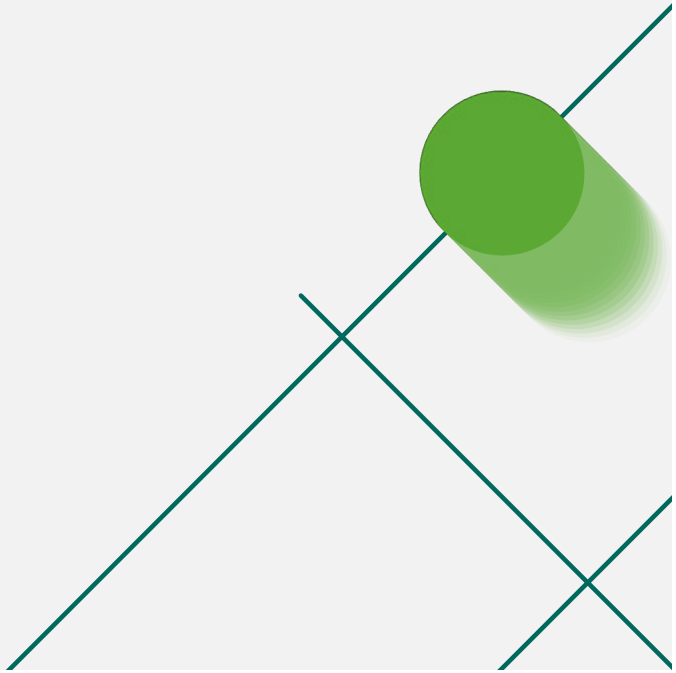
1	Winner G1
2	Best Loser 1
3	2nd G3-G16
4	1st G3-G10
5	1st G3-G10
6	1st G11-G16
7	2nd G3-G16
8	4th G1/G2
9	3rd G1/G2
10	2nd G3-G16
11	1st G11-G16
12	1st G3-G10
13	1st G3-G10
14	1st G11-G16
15	2nd G3-G16/BL3
16	2nd G1/G2
17	2nd G1/G2
18	2nd G3-G16/BL3
19	1st G11-G16
20	1st G3-G10
21	1st G3-G10
22	1st G11-G16
23	2nd G3-G16
24	3rd G1/G2
25	4th G1/G2
26	2nd G3-G16
27	1st G11-G16
28	1st G3-G10
29	1st G3-G10
30	2nd G3-G16
31	Best Loser 2
32	Winner G2

Apr 28 – May 1 @ Copper Box			
Copper Box			
28-Apr-26 29-Apr-26 30-Apr-26	10:00	12 tables	MT/WT Stage 1b Groups
	13:00	12 tables	MT/WT Stage 1b Groups
	17:00	12 tables	MT/WT Stage 1b Groups
	20:00	12 tables	MT/WT Stage 1b Groups
01-May-26		12 tables	MT/WT Stage 1b Groups
		12 tables	WT Stage 1b Groups
		7 tables	MT Preliminary round
		7 tables	WT Preliminary round

May 2 – May 10 @ Wembley Arena			
Wembley Arena			
02-May-26	10:00	4 tables	MT/WT Stage 1a Groups – R1
	13:00	4 tables	MT/WT Stage 1a Groups – R1
	17:00	4 tables	MT/WT Stage 1a Groups – R2
	20:00	4 tables	MT/WT Stage 1a Groups – R2
03-May-26	10:00	4 tables	MT/WT Stage 1a Groups – R3
	13:00	4 tables	MT/WT Stage 1a Groups – R3
04-May-26	10:00	4 tables	MT/WT – R32
	13:00	4 tables	MT/WT – R32
	17:00	4 tables	MT/WT – R32
	20:00	4 tables	MT/WT – R32
05-May-26	10:00	4 tables	MT/WT – R32
	13:00	4 tables	MT/WT – R32
	17:00	4 tables	MT/WT – R32
	20:00	4 tables	MT/WT – R32
06-May-26	10:00	4 tables	MT/WT – R16
	13:00	4 tables	MT/WT – R16
	17:00	4 tables	MT/WT – R16
	20:00	4 tables	MT/WT – R16
07-May-26	10:00	2 tables	MT/WT – QF
	13:00	2 tables	MT/WT – QF
	17:00	1 table	WT - QF
	20:00	1 table	WT - QF
08-May-26	10:00	1 table	MT - QF
	13:00	1 table	MT - QF
	17:00	1 table	WT - SF
	20:00	1 table	WT – SF
09-May-26	10:00	1 table	MT – SF
	13:00	1 table	WT – F
	17:00	1 table	MT – SF
10-May-26	13:00	1 table	MT – F

2026 WORLD TABLE TENNIS CHAMPIONSHIPS
PLAYING SYSTEM

- 64 teams of each gender
- 16 groups of 4
- Top 7 ranked teams plus host play in 2 groups at Wembley Arena to determine seeding positions – all 8 teams qualify for the Main Draw which will be played at Wembley Arena
- Remaining 56 teams play in 14 groups at The Copper Box
- The 14 group winners qualify for the Main Draw
- 10 second-placed teams will also qualify for the Main Draw
- All teams participating in the World Championships Finals can win the title



RECOMMENDED OPTION

- The second-placed teams play a single Preliminary Round (7 matches) at Copper Box
- Winners progress to the Main Draw at Wembley Arena
- Three additional teams from the losers of the Preliminary Round (best losers) will qualify for the Main Draw depending on their results from the Preliminary Round

OTHER OPTIONS CONSIDERED

- 10 second-placed teams with best results from group matches
- 6 second-placed teams with best results from group matches with remaining 8 teams playing a single preliminary round to determine final 4 places in the Main Draw
- The second-placed teams play a Progressive Knockout (13 matches) at both The Copper Box and Wembley Arena

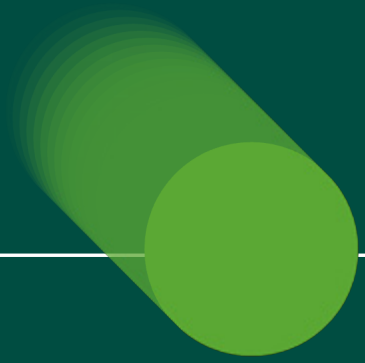
RECOMMENDED OPTION

- Only 1 Preliminary Round of 7 matches per gender to be played with winners advancing to the Main Draw
- 3 best teams, based on results, in Preliminary Round from the 7 losers will advance to the Main Draw
- All qualification matches will be played at The Copper Box
- Having all qualification matches in The Copper Box gives more chance and time for teams to move to different hotels if needed and more practice time in Wembley for the qualified teams
- Only Main Draw and seeding group matches will be played at Wembley Arena
- England, as host, is guaranteed media exposure at Wembley during the seeding groups play and at least the first round in the Main Draw

OTHER OPTIONS

- 10 second-placed qualifiers selected based purely on group results which could be influenced by the luck of the draw and some groups may only have 3 teams
- 6 second-placed qualifiers selected based purely on group results which could be influenced by the luck of the draw and some groups may only have 3 teams
- Four rounds of Progressive Knockout matches per gender to define the 10 qualified teams
- First Preliminary Round to be played at The Copper Box, other Preliminary Rounds to be played at Wembley which would affect the overall Main Draw schedule
- Very hard to explain and follow

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Para Table Tennis Classes Combination

Proposition to combine Para Table Tennis Classes (Simple majority required)

Proposed by the Para Table Tennis Committee.

To combine the single events for classes 4 and 5 in all Para Table Tennis events, including the Para Continental Championships and the Para World Championships.

Rationale:

The difference in physical impairment is minimal. The analysis of hundreds of matches in the last 15 years also proves that both classes can compete against each other in a fairly manner.

Neither class 4 nor class 5 players would have an advantage over the other class. Maintaining two different events for athletes with no significant differences in impairment undermines the credibility of Para Table Tennis.

A detailed analysis and a scientific paper are attached with more technical details.

METHOD OF ANALYSIS

A retrospective analysis was conducted on Para TT match outcomes saved on an International Table Tennis Federation (ITTF) database of official results from sanctioned international competitions occurring between 2009 and 2023. Matches were included in the analysis if the competing athletes were from different sport classes. To control for skill level and technical proficiency only matches from the top ten ranked athletes (at the time of competition) in wheelchair sport class were included. Only the final outcome of the match (win or loss) was considered regardless of the result of the individual games.

Descriptive statistics were used to report the frequencies of match wins by the higher class in different sport class pairings. Chi-square analysis was performed to determine if there was a difference in frequency of wins based on classification parings.

RESULTS

The ITTF database had result records from 185 sanctioned events (including continental championships, world championships and 3 Paralympic Games) in the targeted timeframe. From these 185 competitions, 11063 matches occurred between wheelchair athletes of different sport classes. Only 3,745 matches occurred between top 10 ranked athletes at the time of the competition.

In following chart, we can observe:

- Outcome of matches between players in class 1 and 2 show that the higher class wins in 76% of the times
- Outcome of matches between players in class 1 and 3 show that the higher class wins in 91% of the times
- Outcome of matches between players in class 4 and 5 show that both classes can win almost equally

Match results analysis

- Analysis of 1422 matches between **top 10 ranked** players since 2009.
- n is the number of matches
- % is the percentage of victories for the player in the higher class

	TT1	TT2	TT3	TT4	TTT5
TT1		(n=329) 76%	(n=44) 91%	(n=15) 93%	(n=9) 100%
TT2			(n=221) 86%	(n=32) 84%	(n=35) 94%
TT3				(n=137) 60%	(n=143) 59%
TT4					(n=457) 53%
TT5					

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Combining Wheelchair Table Tennis Classes 4 and 5: A Performance-Based Perspective on Classification

Sheng K Wu[1], Tai-Fen Song[1], Yao-Chuen Li[2] and Yung-Hoh Sheu[3]*

[1]*Department of Sport Performance, National Taiwan University of Sport, Taiwan*

[2]*Department of Physical Therapy, China Medical University, Taiwan*

[3]*Department of Computer Science & Information Engineering, National Formosa University, Taiwan*

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***Corresponding author:** Yung-Hoh Sheu, Department of Computer Science & Information Engineering, National Formosa University, Taiwan, Email: yhsheu@nfu.edu.tw

Abstract

The debate surrounding the amalgamation of wheelchair table tennis classes 4 and 5 has persisted for two decades, yet it remains clouded by a dearth of scientific evidence. This paper aims to address this gap by conducting a review of existing literature and scrutinizing global player rankings within wheelchair classes, specifically through the performance perspective. While conventional wisdom suggests a positive correlation between higher wheelchair classes and enhanced table tennis proficiency, current world rankings present a counterintuitive scenario. Surprisingly, athletes in class 4 demonstrate performance levels comparable to, if not exceeding, their counterparts in class 5. Notably, within the top 10, 20, and 50 rankings, the representation of both male and female players in class 4 surpasses that of class 5. These empirical insights prompt consideration for the consolidation of classes 4 and 5 into a unified class 4. However, such a merger necessitates meticulous adjustments to criteria, including the establishment of minimum impairment thresholds and the refinement of the boundary between classes 3 and 4. To ensure the ongoing fairness and integrity of competition, it is imperative that further research be conducted on this contentious issue.

Keywords: Wheelchair table tennis; Classification; Performance; Fairness

Introduction

In the current world, many people with physical impairments (PI) enjoy playing table tennis (TT) for fun, health, recreation, or competition. TT has been widely used for rehabilitation, recreation, social integration, exercise, or competition for people with PI since the 1950s. At the 2020 Tokyo Paralympic Games, para table tennis (PTT) ranked in the top 3 in the number of participating players and in the top 4 in medal counts. However, evidence-based classification (EBC) for eligible wheelchair TT players and objective testing with technological support during classification have never been examined properly [1]. In the 2021 international VISTA conference organized by the International Paralympic Committee (IPC), urgent requests for EBC and practices were made, and the core concept of scientific evidence was promoted for future sport-specific classification [2]. Principally, classification in disability sports means that athletes with similar impairments, severities, and functions should compete with each other [3]. Classification in para sports is essential and cannot be avoided for the fairness of competition. Since the Paralympic Games began internationally in 1960, classification has been recognized as one of the most important aspects: without solid classification processes and outcomes, fair competition in the Paralympic Games is not possible [4-6].

The current TT classification system for wheelchair players has never been examined in depth, although the system has combined the medical and functional approaches [5]. However, EBC has been mentioned by the IPC for several years, but the progression has been slow. Only limited examinations on a few sports have been published, such as in wheelchair basketball, wheelchair rugby, athletics, swimming, etc. Regarding the classification system for PTT players, fairness of competition and classification outcomes have never been mentioned in the recent 10 years [7]. On the other hand, the old medical-based classification system for standing TT players has been criticized through proof of performance analysis [8]. In 2002, the functional approach was used to revise the old

system, based on considering the TT-specific functions of PTT players instead of traditional medical diagnosis and impairments. The functional-based classification system for PTT was quite successful based on empirical studies conducted at the 2004 Paralympic Games and 2006 World PTT Championships. Even though the functional approach was accepted by most coaches and players, objective measurements on players' functions and abilities related to TT skills and performances have never been mentioned until 2016 [7]. Although TT-related functions and 3S principles are the main framework for fair classification among different classes of players with PI, few empirical examinations have been reported [9], and so EBC in PTT was almost nonexistent. Wu and colleagues compared the players in classes 4 and 5 regarding their hitting abilities. In their findings, the successful hitting percentage of elite players in classes 4 and 5 was not significantly different [9]. However, the study design was too simple, and thus the basic ability of players may not have been measured properly, even though players in class 4 had less trunk functions compared with class 5 players. Similar findings also appeared in the wheelchair racing classification study [10]. They found that international wheelchair racers with partial trunk functions or with normal trunk did not show a significant difference in acceleration and racing time. Thus, the reduction in wheelchair TT classes should be considered carefully, just based on the limited evidence. In this study, the functional and performance perspectives were used to discuss the issue of combination of wheelchair TT classes to maintain fairness and enhance the level of competition.

Evidenced-Based Classification in PTT

Research on wheelchair TT and classification has been limited. Most studies have examined the fairness of wheelchair classification through the performance perspective. Recently, technology and sports science applied in many elite able-bodied sports have become popular [2]. No studies have been applied in PTT and its classification, except the first preliminary study conducted by Wu and his colleagues [6,11]. They used the intelligent TT racket (ITTR) to quantify the speed, acceleration, and X-Y-Z axes of swing patterns of the forehand stroke for the able-bodied players and to reveal the potential to evaluate the TT skills and abilities between elite and amateur able-bodied players. Theoretically, the ITTR can be considered as the possible technological approach to distinguish skillful abilities and functions among different classes. Wu and colleagues used the ITTR to evaluate a few elite PTT players to prove its effectiveness and differentiate the functional TT abilities in different classes of players [11]. Based on the preliminary data and case studies, they proposed that elite wheelchair players in classes 4 and 5 did not appear to show significant differences in terms of the swing pattern and efficiency [12]. This indicates the possible direction of combining classes 4 and 5 because they may have similar TT-related abilities.

Although no further study has applied the ITTR in wheelchair players, we know that the higher the wheelchair classes, the better the functional abilities, especially in TT-related skills such as forehand swing and smash. The main characteristics of wheelchair players in classes 1 to 5 have been summarized in Table 1 [13]. However, no empirical and scientific studies have proved the relationships between classes and functions in PTT. In disability swimming, wheelchair racing, wheelchair basketball, wheelchair rugby, this kind of data analysis has proven that the higher the classes, the better the performances in specific sports [10,14-17,19]. Thus, we believe that if the sport-specific classification is fair, the classification outcomes should reveal the theoretical assumptions through proper measurements of functions and abilities of players with PI (Table 1).

Table 1: Main Characteristics of Wheelchair TT Players in Classes 1 to 5.

Class	Standard impairments	Functional abilities	3S principle
1	SCI C6 or comparable impairments	Poor control in playing arm and non-playing arm, no trunk function	Slow speed, poor spin, narrow spot
2	SCI C7 or comparable impairments	Reasonable control in playing arm and non-playing, no trunk function	Slow to moderate speed, poor spin, narrow spot
3	SCI C8-T8 or comparable impairments	Normal playing arm, no to poor trunk function, no dynamic trunk balance	Moderate speed, moderate spin, moderate spot
4	SCI T9-L1/2, double AK amputation, or comparable impairments	Normal playing arm, moderate trunk function, some dynamic trunk balance	Moderate to fast speed, good spin, moderate to wide spot
5	SCI L2/3-S1/2, single AK amputation, or comparable impairments	Normal playing arm, good to normal trunk function, good to normal dynamic trunk balance	Fast speed, good spin, wide spot

Note: SCI means spinal cord injury, AK amputation means above knee amputation.

Resources from the ITTF classification system [13] and classification seminar. The authors summarized the relevant contents. When Sheu et al. developed the ITTR with current technology, one inertial measurement unit (IMU) sensor was set on the inner handle space without significantly changing the weight of the ITTR. A force-sensitive resistor (FSR) sensor was embedded between the wood and plastic rubber of the racket to sense the position of the hitting point on the racket. The IMU sensor includes a 3-axis accelerometer, a 3-axis gyroscope, and a 3-axis magnetometer, which are MEMS (Micro Electro Mechanical

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Systems) sensors [18]. The IMU and FSR sensor data are gathered into a low power consumption microcomputer (Cortex-M3 series), and all data are sent to the computer by a high-speed 2.4G RF module (Taiwan patent I713890, 2020). ITTR has been proven to detect the posture of TT hitting movements [19]. The breakthrough TT equipment for able-bodied TT and PTT may enhance the levels of training and increase the precise measurements in players' performances. ITTR is recognized as a useful and objective tool for PTT classification. However, the related testing methods and database have never been developed, and the evaluation has been used for a few players with PI [11,12]. Nevertheless, this exploratory method connects technological support (i.e., ITTR) and sport science concepts (testing and measurements in PTT) for wheelchair players and classification, which is the appropriate direction for objective and longitudinal measurement.

In addition, during the classification processes in wheelchair classes, EBC is the core element. Classifiers need to conduct physical evaluations, technical evaluations related to TT skills, and observations during competition to confirm the class of a player. For most honest players, the above processes can provide the right and fair classes for them. However, how can the right procedures be introduced to avoid cheating or intentional misrepresentation (IM)? Also, how do classifiers more objectively classify borderline players to avoid making wrong decisions? These issues need to be identified clearly to maintain the fairness of competition [12]. Therefore, it is essential to develop valid testing methods with proper scientific equipment to measure sport-specific functions and abilities of players with PI in order to conduct EBC in PTT.

Performance Approach to Analyze the Wheelchair World Ranking

In the previous ITTF meeting, a few countries and many classifiers recognized the controversial issue: Does ITTF need 5 wheelchair classes instead of 4 classes? In Table 1, players in classes 1 and 2 show weaknesses in their playing and non-playing arms. Obviously, they are much weaker players in terms of the severity of PI. Players in classes 3 to 5 may have normal playing arms, but their main differences lie in trunk functions and reaching abilities during play. Limited trunk functions may affect their playing speed and the area covered in reaching, such as playing wide or short balls among classes 3, 4, and 5. If the classification is valid, players in different classes should demonstrate different abilities and skills. Thus, we may assume that players in class 5 should outperform those in class 4.

We used the current PTT ranking data in March 2024 to test a simple concept: the higher the wheelchair classes, the better the world ranking. Data retrieved from https:// www.ipttc.org/rating/2024-03-01/ To avoid biases, we only analyzed the numbers and percentage of wheelchair classes 1 to 5 in the world ranking's top 10, 20, 50, and 100. The summarized data for male and female wheelchair players are shown in Tables 2 and 3. After basic descriptive analysis, due to the limited number of female players, we focused on the analysis of elite wheelchair players in the top 20 and top 50 to observe general patterns of male and female players in classes 1 to 5 (Figures 1 and 2).

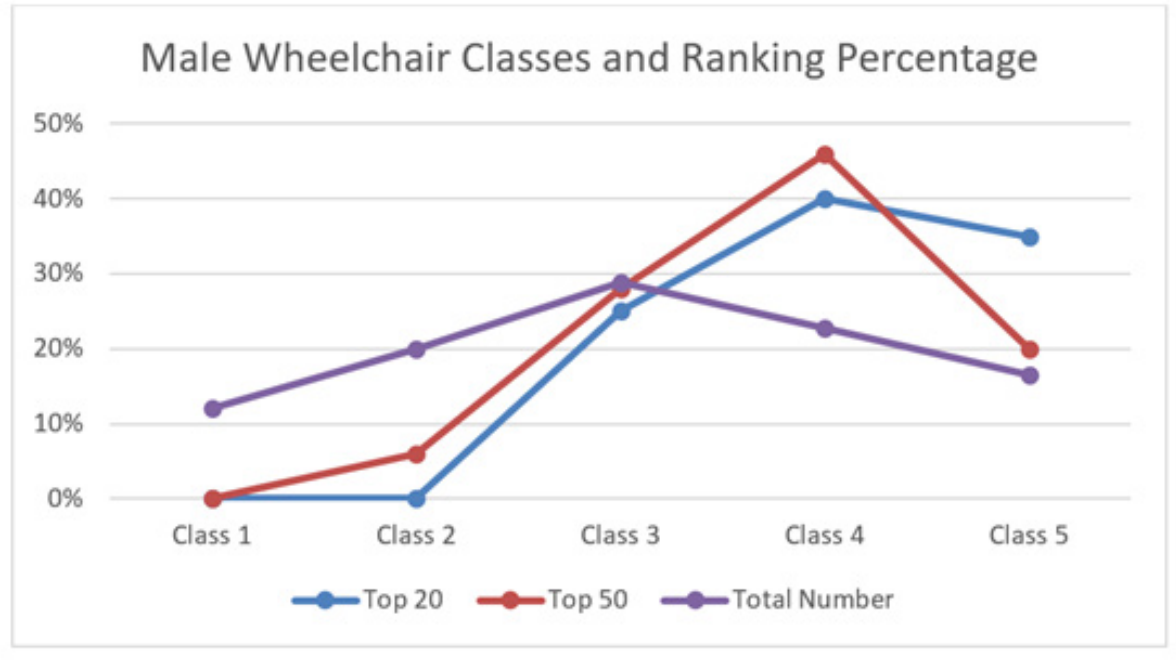


Figure 1: Percentage of Male Classes 1 to 5 in World Raking Top 20 and 50.

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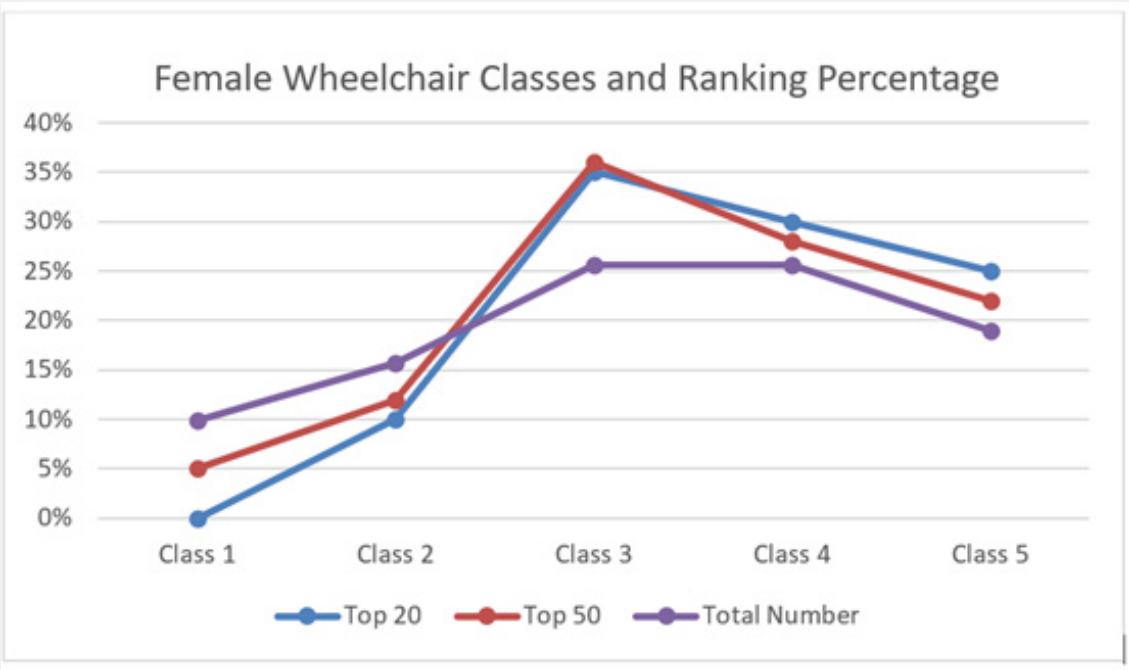


Figure 2: Percentage of Female Classes 1 to 5 in World Raking Top 20 and 50.

Based on Tables 2 and 3, as well as Figures 1 and 2, we found that male players in classes 4 and 5 had similar numbers in the top 20, but this pattern was not shown in female players. Among the top 50 male players, 23 players in class 4 outnumbered those in classes 3 and 5 which were only 14 and 10 respectively. Findings from the performance approach, it is possible to consider the combination of classes 4 and 5. However, the above patterns were not observed in female players, even though we understand that there are far fewer female players in wheelchair classes compared to male players. We did not find that female class 5 players performed better than class 4.

Table 2: Numbers from classes 1 to 5 in Male Wheelchair Players (N=316).

	Class 1	Class 2	Class 3	Class 4	Class 5
Top 10	0	0	3	5	2
Top 20	0	0	5	8	7
Top 50	0	3	14	23	10
Top 100	5	18	26	26	23
Total number	38	63	91	72	52

Table 3: Numbers from classes 1 to 5 in Female wheelchair players (N=121).

	Class 1	Class 2	Class 3	Class 4	Class 5
Top 10	0	0	3	5	2
Top 20	0	2	7	6	5
Top 50	1	6	18	14	11
Top 100	6	12	27	34	21
Total number	12	19	31	36	23

Estimation of Combination and Adjustment of Classes 4 and 5

Regarding the functional abilities and medical conditions, players in class 5 should perform better than those in class 4 and class 3 (Table 1), even though all of them have both normal playing and non-playing arms. However, this theoretical concept was not supported by the performance approach considering the analysis of the top world ranking. We did not find that players in class 5

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outperformed players in class 4. In this empirical data, players in class 4 achieved better ranking results in the top 10, 20, and 50 than players in class 5.

In actual practice, a few female players in class 4 would like to be in class 5 because they think it may be easier to win a medal in class 5. This is an unusual circumstance, but it occurs. When considering the combination of classes 4 and 5 and making a few adjustments to the criteria of these classes, this may be an essential process. Surely, objective criteria cannot be offered in this study. Further evidence is needed to clarify the revised criteria if the combination of classes 4 and 5 is considered. However, we may propose that the low abilities of players in class 4 should be checked as class 3, and the high abilities of players in class 5 should be evaluated to see if they fit the MIC. We estimate that 5% of players in the current class 4 may move to class 3, and 10% of players in the current class 5 may not be eligible to reach MIC for wheelchair classification. In this case, the estimated numbers of players in 4 classes may be reported in Table 4. However, this needs further evaluation and evidence to prove it.

Table 4: Estimation of Possible Numbers of Players in Wheelchair Classes.

	Class 1	Class 2	New Class 3	New Class 4
Male	38	63	95	115
Female	12	19	34	48

Note: 5% of current class 4 moves to class 3 and 10% of current class 5 is not eligible for wheelchair classification

On the one hand, if a wheelchair class is reduced, the competition level in the new class 4 can be enhanced, and fairness can also be maintained by including eligible players in the ITTF classification system and excluding non-eligible players. ITTF may consider the testing findings and evidence in this study to develop the objective minimal impairment criteria (MIC) for wheelchair players in greater depth. On the other hand, the cancellation of two events in male and female singles may result in the reduction of 8 medals in those events. From a political perspective, most countries and players may not support it. Thus, experts in ITTF should consider available evidence to make a final decision.

Trunk functions significantly affect performances in several wheelchair sports, such as wheelchair basketball [16], wheelchair racing [10,17], wheelchair rugby [20], and wheelchair TT [9]. Researchers agree that precise measurements of trunk functions are difficult and inconsistent [20]. Currently, different para sports have their own specific trunk functional tests. For example, TT includes the observation of trunk forward/backward, rotation, and side bending movements. Three classes have been assigned for wheelchair TT players based on trunk-related functions (no balance, partial, and almost normal functions). However, no quantitative data have been recorded. On the other hand, wheelchair racing requires explosive power in acceleration. However, only two classes (no or limited trunk balance vs partial to normal trunk function) are assigned to athletes. The decision in wheelchair racing is more based on EBC and scientific evidence. Thus, trunk functional tests with unambiguous evidence are essentially needed for wheelchair TT because of their impact on three classes in PTT.

The other critical issue in wheelchair classes is the main minimal impairment criteria (MIC) for including players with PI. In the past 20 years, classifiers have found it difficult to evaluate players to define MIC objectively. More often than not, classifiers rely on their experience and subjective judgments to decide whether players may compete in wheelchair classes. The rationale behind these decisions may not be persuasive, leading to discussions and challenges to the credibility and validity of the wheelchair classification system by players and coaches. Through the use of the ITTR for measurement, we believe this is an objective way to identify players' functions and abilities. Generally, wheelchair players in higher classes should have better sport performances. In PTT, we may interpret this theoretical assumption more extensively: wheelchair players in class 5 should have stronger playing styles, strength, power, speed, reaching abilities, and tactics than players in class 4. If scientific data cannot identify the main differences in the above testing results, theoretically, it may be fair to combine those two classes and create a new class to increase competitiveness. From the classifiers' perspective, the clear dividing criteria for players in classes 4 and 5 are ambiguous because the borderline area between classes 4 and 5 is always in doubt. Practical ways to classify wheelchair players without arm problems can be more easily evaluated and classified. In addition, from coaches' and players' perspectives, what is the main difference between elite class 4 and class 5 players in terms of TT skills and functional abilities? Thus, researchers and classifiers need to find solutions to deal with the problems in the MIC in wheelchair players and also consider possible approaches to combine wheelchair classes fairly based on scientific evidence.

Conclusion

Based on the current evidence and performance perspectives on the issue of combining wheelchair classes 4 and 5, it is possible to support this direction. However, research on wheelchair TT is quite limited, and thus the significant discussion on the issue of combining or adjusting classes may not be conclusive. In particular, the new criteria for the new classes 3 and 4 need to be checked and evaluated carefully if the combination of classes 4 and 5 is

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approved by ITTF. The introduction of ITTR and measurement in PTT classification is urgently needed to have more objective data for analysis. This is an essential task in the evaluation process before a final decision is made to address the controversial issue.

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Introduction

This Technical Leaflet describes the tests used in a racket control center. While the tests are generally designed to verify that every racket fulfills the requirements of the ITTF Laws of Table Tennis and the ITTF Regulations for International Competitions, they also include additional tests as approved by the ~~Board of Directors~~ ITTF Council.

The primary functions of the racket tester are to inspect and measure rackets, record results, and communicate with other officials. A racket tester cannot validate or disqualify a racket; he or she can only test the racket and report the findings to the necessary umpire or referee. Through the course of a competition, a racket tester will handle the rackets of many players. It is important to handle rackets with care, understanding that each racket is a vital tool of a professional player. Specifically, rubber surfaces should not be touched with bare fingers. If a racket must be adjusted, such as trimming of edges or removal of tape, it is recommended that this be done by the player.

A description of each test follows. Appendix A lists each test and its respective limit for quick reference.

For those players and officials who are interested in acquiring a deeper understanding, Appendix B describes the principles which form the basis of the racket tests and limits.

1. Regularity of Blade and Racket Coverings

A visual inspection is the first thing that a racket tester should do when he receives a racket. A racket should always be checked to see that it satisfies the basic requirements of a table tennis racket. These include:

- **Colour** – There must be one coloured side and one black side.
- **Wooden Blade** – The blade must be composed mostly of natural wood, though layers of other fibrous reinforcement materials are permitted. The surface of the blade may have a thin layer of lacquer, but not coated with paint or very thick lacquer over 0.1 mm thick.
- **Surface Regularity** – The racket covering must be flat, continuous, and have a regular appearance such as in texture and colour. The racket covering should extend up to the limits of the blade, though the referee may provide guidance regarding the tolerance to be permitted.
- **Damage** – The referee should provide guidance to describe the amount of racket damage that will be tolerated. In general, slight damage around the edge of a racket may be permitted depending on the extent; but significant blade damage, or a crack, chip, or missing pimple in the hitting area usually will have to be reported and the referee decides if an exchange of the racket is required or not. Damages during the game can lead to an exchange of the racket as well.
- **Attachment of Topsheet, Sponge, and Blade** – The racket covering must be completely attached to the blade. Problems in this regard may be directly visible, but during inspection the tester should be careful not to risk further detachment. The referee will make the final ruling.
- **Treated Rubber** – Racket coverings must not be treated, i.e. its physical or chemical properties must not have been changed, whether deliberately or not. This is difficult to declare with certainty, unless a reference rubber in the original state is available for comparison. However, it can always be checked that the surface of the racket covering should be clean and free of any additional substance or materials.
- **Other Irregularities** – There are many additional conditions which may cause a racket to be considered irregular and not permitted for competition. There are also many irregularities which would be considered acceptable. For example, a part of the blade near the handle might be uncovered, or covered with different materials; this would normally be accepted if this area is covered by the player's hand. Or the back side of a penhold racket might be covered with paint~~,~~ or plastic~~, treated rubber, etc~~. Again, this is permitted, provided that it is matt and the colour is black or bright colour. The use of rubber material or unauthorised racket coverings, that is similar to an authorised racket covering is not allowed, even on a side not used for striking the ball. When in doubt, the racket tester should note the irregularity and inform the referee, who will make the final decision

2. Authorisation of Racket Coverings

Racket coverings (rubber) must be on the current List of Authorised Racket Coverings (LARC) published by the ITTF. The rubber must have the ~~supplier's name~~, brand name, product name and the ITTF logo. In addition, if the rubber exists only with an ITTF number on the LARC, then the ITTF number on the rubber is also mandatory. Be aware that some racket coverings have two versions, one with and one without a number, and in these cases the ITTF number on the rubber is not required.

The latest LARC is available on **equipment.ITTF.com** in the **Racket Coverings** section. It is updated daily, and all new rubbers are authorised with immediate effect while all rubbers that have been removed lose their authorisation with immediate effect. Note that National Associations may extend the period of validity for their national play.

As an exception, racket covering that were authorised on the first day of a tournament shall be valid for use until the last day of this tournament, even if any changes have occurred in the LARC in between.

When doing a lookup of the covering in the LARC, note that the list is not purely alphabetical. For each ~~supplier~~ brand, all rubbers which have an ITTF number are first, followed by all rubbers without numbers. Therefore, you will find a "Megabrand 001 Toprubber" far *before* a "Megabrand Superrubber".

The branding area on a racket covering can contain additional text or wordings than the above listed requirements (brand name, product name, ITTF Logo and ITTF number) in case the branding area fits with the published artwork on ITTF equipment website. If the markings do not match, the racket covering is not authorised.

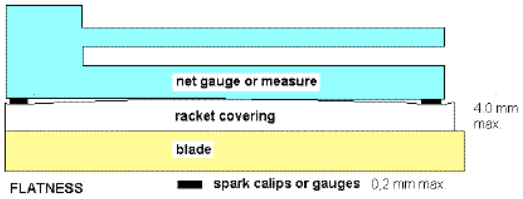
If other branding/marking difficulties arise, the referee retains the final decision.

~~The branding area of a rubber can contain text in addition to what is listed on the LARC. For example, rubber with the text "Butterfly Sriver S D13" is authorised as "Butterfly Sriver S". However, care should be taken to ensure that any additional text does not refer to a completely different rubber which was authorised by itself in the past and removed from the list in the meantime. Such an example would be the "DHS 651" (still authorised) and the "DHS 651-PF4" (withdrawn in January 2004). A LARC archive is helpful to resolve this matter. Also, a comparison with the original branding area on the ITTF website can be used via the Internet connection in the Racket Control Center. In any case the final decision is with the referee.~~

3. Flatness Test

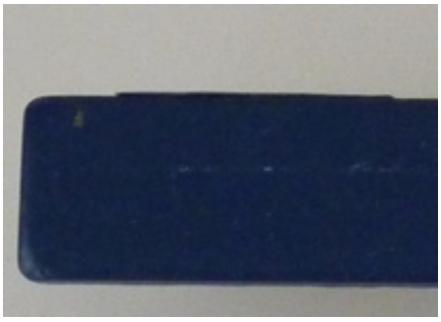
3.1. Manual flatness device – Net gauge

A striking surface must be flat. A net gauge laid down with its straight edge on the rubber and observed against the light should not show a gap between it and the rubber. In the call area, if an umpire is satisfied with the flatness there is no need to perform a measurement. When measured, the magnitude of curvature may not be more than 0.2 mm when the shape is convex, and 0.5 mm when the shape is concave.



The magnitude of curvature can be tested by using standardized steel blades. In the picture above, the net gauge rests on 0.2 mm blades. If the center of the net gauge touches the rubber surface, this indicates that this side of the racket is convex.

Optionally, tape that is 0.2 mm thick may be affixed to a net gauge for convenience, as shown below. The thickness of the tape can be verified using calipers or the electronic flatness measurement device. This permits a quick test for flatness using the method previously described.





3.2. Electronic flatness device

This device consists of a gauge set in the center of a supporting body which spans the racket. The body is placed across the racket and the gauge's contact point will touch the rubber. The gauge displays the difference in height between the center and the edges.

For convex racket coverings (center thicker than edge), the gauge shows readings > 0.00 mm; for concave racket coverings (center thinner than edge) the gauge shows readings < 0.00 mm.



Test Procedure:

1. Turn on the gauge. Make sure it is set to display millimeters, not inches.
2. Rest the device on the flat calibration block, and reset the gauge to 0.00 if necessary.
3. Place the device across the rubber, being sure that the device is not resting on the raised moulded branding area of the rubber. Read the gauge display.
4. Perform at least 2 diagonal measurements on each side of the racket; one as shown in the picture above, and another in the perpendicular orientation.
5. Record both flatness values for each side ~~the highest magnitude (worst) reading~~. Do not take an average. ~~The~~ Both measured flatness values must be **≥ -0.50 mm** and **≤ +0.20 mm.**

3.3. Electronic flatness device with adjustable feet

This is an optional step which can be taken if the flatness device has adjustable feet.

Test Procedure:

1. Place a straightedge (such as a net gauge) along the racket surface to see if there are visible hills or valleys – localized areas which are distinctly not flat.
2. If there is such an area, adjust the feet of the device such that the contact point will touch the highest magnitude point, while the feet span the point.
3. Reset the gauge to 0.00 on the calibration block.
4. Place the device on the rubber to measure the area which was identified.
5. Record the reading if it exceeds the specified limits. Note that this localized flatness reading should not be added to a thickness reading.

In the example below, a cut-out area has been identified (left picture). The flatness device is adjusted to measure the hill by placing the left foot into the cutout. Alternately, the valley could be measured by shifting the device to the left, placing the gauge contact point in the valley.





4. Racket Covering Thickness Test

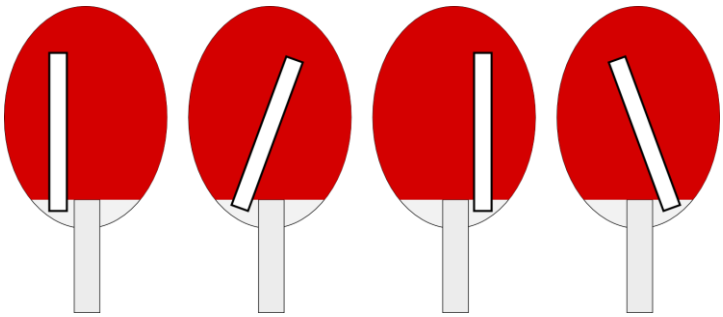
4.1. Electronic thickness device

This device consists of a gauge set at the end of a supporting body. The body is placed on the rubber surface and the gauge's contact point touches the bare zone of the blade between the handle and the end of the rubbers as shown in the figure below.



Test Procedure:

1. Turn on the gauge. Make sure it is set to display millimeters, not inches.
2. Rest the device on the flat calibration block and reset the gauge to 0.00 if necessary.
3. Place the device across the rubber such that the gauge's contact point rests on the blade, being sure that the device is not resting on the raised moulded branding area of the rubber.
4. For each side of the racket, perform and record 4 measurements in the orientations below.



5. Calculate and record the average of the four readings.
6. When thickness will be measured the sign (+ or -) before the result shown on the device will change (i.e.: -3,95 → 3,95 or 0,05 → -0,05).
7. If this side (A) of the racket is convex (one or two positive measurements in the flatness test), the measured flatness may need to be added to the thickness. Perform one of the following:
    a. If this side (A) is convex and the reverse side (B) is flat (zero value) or convex (positive value), add the flatness measurement of this side (A) to the thickness measurement (Example 1).
    b. If this side (A) is convex and the reverse side (B) is flat (zero value) or concave (one negative measurement in the flatness test),
        i. and the sum of the two flatness measurements is positive, add this sum to the thickness measurement (Example 2).

ii. ~~If this~~ and the sum of the two flatness measurements is zero/negative, add nothing (Example 3).

8. If this side (A) of the racket is flat (zero value) or concave (negative measurements in the flatness test), the other sides flatness is not important and nothing will be added to the measured thickness (Example 4).

Example 1:

	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Thickness measurement of~~red~~coloured side (A)	3.90	3.90	3.90	3.90
1. Flatness of ~~red~~ coloured side (A)	**+0.10**	**+0.10**	**+0.10**	**+0.10**
2. Flatness of coloured side (A)	+0.05	-0.05	0.00	-0.05
1. Flatness of black side (B)	+0.05	+0.05	+0.05	0.00
2. Flatness of black side (B)	0.00	0.00	+0.10	0.00
Final thickness result of ~~red~~ coloured side (A)	4.00	4.00	4.00	4.00

In bold are the values that will be used for calculation.

Example 2:

	Scenario 5	Scenario 6	Scenario 7	Scenario 8
Thickness measurement of coloured side (A)	3.90	3.90	3.90	3.90
1. Flatness of coloured side (A)	**+0.10**	**+0.10**	**+0.10**	**+0.10**
2. Flatness of coloured side (A)	+0.05	-0.05	-0.05	-0.05
1. Flatness of black side (B)	+0.05	+0.05	0.00	**-0.08**
2. Flatness of black side (B)	**-0.05**	**-0.05**	**-0.05**	-0.05
Final thickness result of coloured side (A)	3.95	3.95	3.95	3.92

In bold are the values that will be used for calculation.

Example 3:

	Scenario 9	Scenario 10	Scenario 11	Scenario 12
Thickness measurement of coloured side (A)	3.90	3.90	3.90	3.90
1. Flatness of coloured side (A)	**+0.10**	**+0.10**	**+0.10**	**+0.10**
2. Flatness of coloured side (A)	+0.05	-0.05	+0.05	-0.05
1. Flatness of black side (B)	+0.05	-0.05	-0.05	+0.10
2. Flatness of black side (B)	**-0.10**	**-0.10**	**-0.20**	**-0.20**
Final thickness result of coloured side (A)	3.90	3.90	3.90	3.90

In bold are the values that will be used for calculation.

Example 4:

	Scenario 13	Scenario 14	Scenario 15	Scenario 16
Thickness measurement of coloured side (A)	3.90	3.90	3.90	3.90
1. Flatness of coloured side (A)	-0.10	-0.10	0.00	0.00
2. Flatness of coloured side (A)	0.00	-0.05	0.00	0.00
1. Flatness of black side (B)	-0.05	-0.05	+0.05	+0.05
2. Flatness of black side (B)	+0.05	-0.10	-0.10	+0.10
Final thickness result of coloured side (A)	3.90	3.90	3.90	3.90

The thickness limit is defined under the Laws of Table Tennis of the ITTF Statutes + a measurement tolerance of 0.05 mm, and the result of the electronic device is rounded to the number of digits specified in the Law.
For example, if the Law requires thickness to be less than 4.05 mm with sponge and less than 2,05 mm without sponge, then:

- For racket coverings with sponge, the limit would be <4.10 mm.
- For racket coverings without sponge, the limit would be <2.10 mm.

Recall that the limit is applied to the average of four readings which is rounded to two digits. As two examples, with the limits as above:
4.10 / 4.09 / 4.09 / 4.09, which is in average 4.0925 mm = 4,09 mm, passes the racket control.
Opposite, 4.10 / 4.10 / 4.09 / 4.09, which is in average 4.0950 mm = 4,10 mm, fails the racket control.

Precautions:

- If the wood near the handle is uneven, the gauge's contact point should carefully be placed in a spot which reflects the level of the blade.
  Example 1: If a small piece of wood is missing, then the contact point must not be placed on this spot, or the reading will be too thick.
  Example 2: If there is excess glue or lacquer on all spots but one, then the contact point must be placed on this spot, or the reading will be too low. If no such spots are available, ask the player to scratch off some lacquer. If the player refuses, refer the matter to the referee.
- If all the wood near the handle contains a layer of lacquer which does not cover the entire blade, and for any reason cannot be removed anywhere, then the estimated thickness of the lacquer must be added to the electronic thickness result. As a guide, such layers should not normally be thicker than 0.1 mm. A loupe can be used to measure the lacquer's thickness.

4.2. Optical thickness device – Loupe

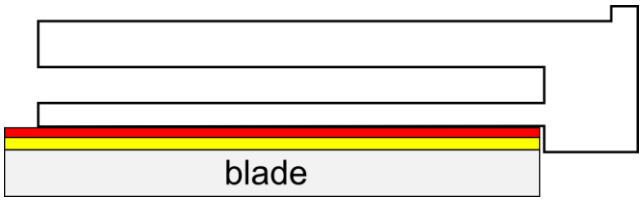
A magnifying glass (loupe) can be used when there is no possibility to check the thickness of a specific racket with an electronic device, regardless of whether such a device is actually available. It can also be used if there are doubts that the electronic device is measuring the real thickness of a rubber.

Some cases in which a loupe would be used are:

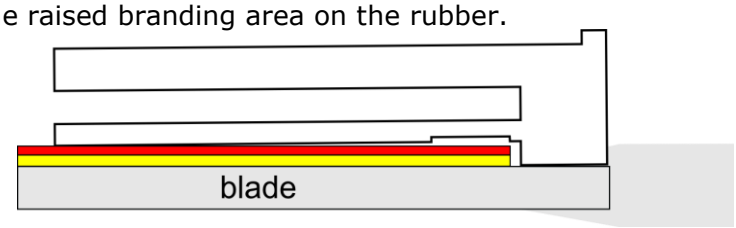
- An electronic device is not available.
- The wood near the handle has a layer of lacquer and the player refuses to remove it.
- The wood near the handle carries an additional layer of cork.
- The wood near the handle has a specific form which does not allow the contact point of the electronic device to rest on it at the same level as the blade.
- The rubber's moulded branding area (rubber name, ITTF number etc.) has an extension which does not allow the contact point to rest on the wood while the device rests on the flat rubber.
- In case of doubt that the electronic device can measure the actual thickness of the racket covering, due to any irregularity or unusual racket construction. In these cases, measurement by loupe should take precedence over the electronic device.

4.3. Manual thickness device – Net gauge

An initial thickness measurement can be made with a net gauge. A typical net gauge can be rested on the surface of the rubber, with the 4 mm protrusion aligned with the edge. Visual inspection will show whether the rubber is thicker than the 4 mm guide. Use the 2 mm protrusion on the other side for rubber without sponge. Care should be taken not to press the net gauge into the rubber.

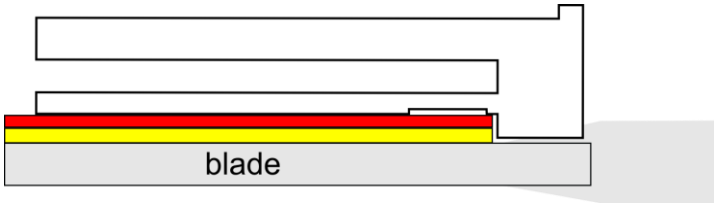


Alternately, the net gauge can be used in a manner similar to the electronic thickness device, with the net gauge in line with the handle. This method requires that the net gauge have a cutout with extra clearance to allow for the raised branding area on the rubber.



Rest the flat surface of the net gauge (left side in the pictures) on the rubber. If the 4 mm protrusion (right side) touches the blade as in the picture above, then the racket covering is less than 4 mm.

If the 4 mm protrusion does not touch the blade surface, as below, then the racket covering is thicker than 4 mm.



The 4 mm and 2 mm protrusions can be checked using the electronic thickness device. See the Laws of Table Tennis for the specified thickness limit.



5. Test for Volatile Organic Compounds

Volatile organic compounds (VOCs) have been banned by the ITTF. The current limit is 3.0 ppm, but it may change if decided by the ITTF Executive Board. VOCs are measured using the MiniRAE-Lite device. Setup and calibration of the device is described in Appendix B.

Test Procedure:

1. Prior to measuring each side of a racket, read the background VOC level by turning the cap to the open air. Record the background reading on the Racket Control Report Form 3.
2. Apply the cap to the middle of the rubber surface for 20 seconds, with gentle hand pressure to enclose the cap but not compress the rubber. Write the reading on the same form. The difference between the reading after 20 seconds and the background reading is the "real reading".

RED SIDE	BLACK SIDE
Background level reading (A): _____	Background level reading (A): _____
Reading after 20 seconds (B): _____	Reading after 20 seconds (B): _____
Real reading (B - A): _____	Real reading (B - A): _____

3. Repeat the same procedure with the other side of the racket. Before doing so, remove the cap from the racket and allow the system to aerate until it reaches the previous background level.
4. In those competitions where a second RAE equipment is available, and when a racket is found with a reading over the allowed limit, the second device shall be used to confirm the result of the first measurement. If the second device also gives readings above the acceptable level then it is clear that the racket has failed the test. However, if the second device gives readings below the defined limit then the racket is deemed to be within acceptable limits.
5. To turn off the instrument, press and hold the MODE key for 3 seconds, and a 5 second countdown to shut off begins. Once the countdown stops and the display shows "Unit off…" release the MODE key, and the instrument is now switched off.

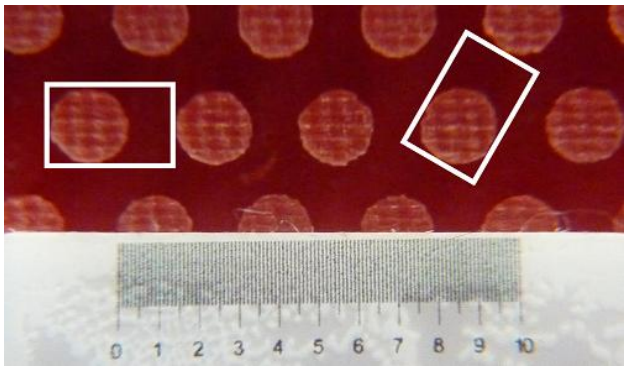
When using the MiniRAE-Lite, it should be taken into account that the tolerance of the reading is ±10%. So, a player should not receive any disciplinary action if his or her racket does not release more than the limit stated by the ITTF Executive Board **plus a 10% allowance** of this limit. E.g.: if the limit is 3.0 ppm, the tolerance would be ±0.3 and the maximum reading that a racket covering may release would be **3.3 ppm**.

6. Optional Tests

The following tests are strictly optional and, in general, should only be used in cases of doubt which was found by inspection. They should not be a part of the normal racket testing procedure.

6.1. Pimple Density

The pimple density of racket coverings is measured during the ITTF authorisation process, and therefore measurement of pimple density normally is not needed during racket control. However in some cases the density is modified by the user, by stretching or other means. If there is doubt that the pimple density is within the specified limits, it can be quickly verified using a loupe.



Measure the pimple spacing, defined as the diameter of an individual pimple plus the space to a neighboring pimple, shown with the white boxes above. (In this example the pimple spacing is approximately 3.0 mm.)

The measured pimple spacing must be **< 3.5 mm**. A spacing of 3.5 mm or more indicates a pimple density below the minimum limit.

6.2. Colour

The colour of racket coverings is measured during the ITTF authorisation process; however due to variations in production, it is possible that particular batches of rubber will not meet the precise requirements of Manual M4.
At this time, the ITTF recommends use of the following guidelines:

- If the colour of the rubber is uneven, for example part of the hitting surface is faded – the racket shall be submitted to the referee.
- If a coloured pimples-out rubber is used with no sponge, and dark wood shows through it causing the overall appearance to be dark, or lettering printed on the blade shows through it causing it to be uneven – the racket shall be submitted to the referee.
- In all other cases, if the coloured rubber does not appear "bright colour" but meets all other requirements – it is recommended that use of the racket be permitted, as long as the opponent can clearly and easily distinguish the coloured side from the black side.

If a racket covering does not appear in bright colour, and it is believed to be caused by a production fault from the rubber manufacturer, please send a message and photo to the ITTF Equipment Department for further investigation.

6.3. Gloss

Gloss of racket coverings is measured during the ITTF authorisation process; however the gloss of a particular sheet of rubber may exceed the specified limit due to variations in production, or due to use.

At this time, the ITTF recommends that judgment of gloss be based on whether the gloss would adversely affect an opponent. Gloss measurement in racket control is not recommended.

If a racket covering seems excessively glossy, and it is believed to be caused by a production fault from the rubber manufacturer, please send a message and photo to the ITTF Equipment Department for further investigation.

7. Dismantling rackets

In certain circumstances, based on the respective rules, a post-match racket control test may include the dismantling of a racket, i.e., the rubber be removed from the blade. The primary objective is to check whether there is an irregularity on the racket covering or blade, for example in a way which could have affected the measurements of thickness as described in section 4.

7.1. Procedure

Dismantling of rackets is not part of the umpires' after-match duties and shall be performed by trained racket testing staff and in the racket control room, only. The referee will be called to the racket control room and decides based on the measurement results by the racket tester whether a dismantling is required or not.

Reasons for deciding that the racket be dismantled after the match include (but are not limited to):

- The racket is submitted to the racket control room before the match or after the match (due to delay of the player before the match):
  - and the result of the thickness measurement is an acceptable figure but does not look reasonable to the racket tester – for example because a check with a net gauge or a loupe suggests a bigger thickness.
  - and the result is more than 4.05 mm, so that the racket tester has to double check this value with the dismantling procedure.
  - and any preparation on the visible blade parts, e.g.: certain amount of lacquer on the handle area, has been inspected which could lead to an after treatment on the blade.
- With the rubber surface of the racket, it looks like the pimples come to the surface and the rubber edge bends outwards.
- The appearance of the blade is leaving doubts about its carving to the umpire who checks the racket in the Call Area but cannot be proven legal/illegal unless examined separately.

In case a post-match dismantling is decided, the umpires of the match are informed as early as possible, preferably before they appear at the playing area and start the match preparation. The ~~umpires~~ referee shall inform the player before the match that the racket will be collected for dismantling after the match. Should, for any reason, the racket be replaced before or during the match, both the original racket and its replacement will be collected and dismantled after the match.

After the match, the umpires shall collect the racket(s) and submit it/them immediately to the racket control room, so that the racket can be checked and dismantled if there is a doubt. There is no need to also collect the opponent's or doubles partner's racket, unless it was individually decided that this racket be also dismantled. The following individuals are admitted to the racket control room for the dismantling procedure: The player, one representative of the player's association, the referee, and ITTF racket testing staff (not limited but kept at a minimum). Apart from these persons, the racket tester shall keep any result strictly confidential.

If the player is present, he/she shall be invited by the racket tester to dismantle the racket. If the player refuses or is not present, the player will bear the consequences that are pronounced by the referee. The racket covering(s) should be then examined according to section 7.2. while the blade is then examined according to section 7.3.

~~The racket tester should decide whether the racket has to come back after the match or not. When the racket is back the racket tester should call the referee when dismantling is required, let the player dismantle, measure and show the result.~~ If ok, the racket will be given back to the player. If not ok, the referee can decide about further consequences.

The racket tester shall only make decisions of fact about the racket covering(s) and blade. Judicial comments, such as whether a player has committed a deliberate infraction or not, are the competency of the referee and shall be strictly avoided by a racket tester.
The dismantling procedure may or may not include further measurements at the discretion of ITTF, the referee or the racket tester. Whereas the detection of an illegal blade may have consequences, regardless of whether this was the source for the different thickness readings.

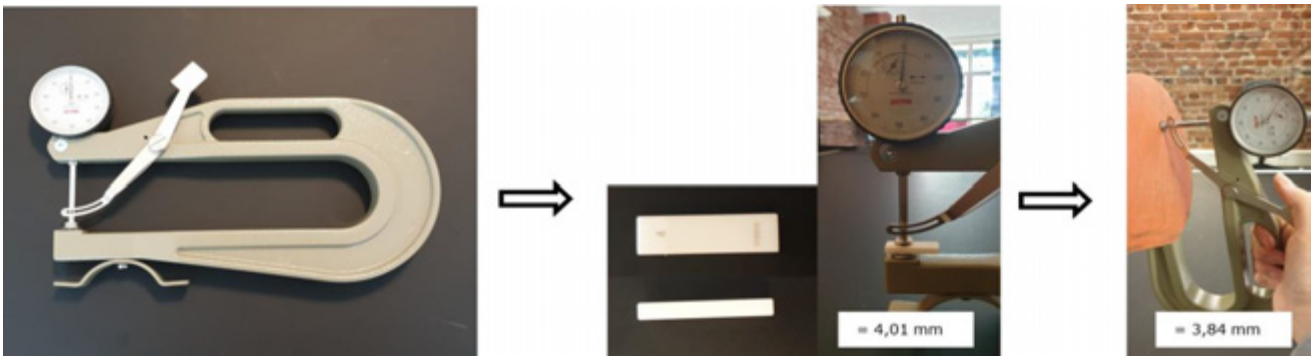
This procedure may be adjusted by the referee to what is practical in the event, for example by appointing additional officials for any of the tasks described above.

7.2. Racket covering checks

The main objective of the racket covering check is to detect irregularities which may give the player an unfair advantage. The most common of such advantages is the ability to use a rubber which exceeds the thickness limit of Law 2.4.3.
To understand how this can happen, the racket tester should use a thickness device as for example KÄFER J200/JD200 device to measure 4 different points on positions with normal adhesive layers**.** The average value should not overpass the limit of Law 2.4.3.

Test procedure:

9. Check that the gauge value is 0.00 mm.
10. Check that there are no particles between the measuring plate and measuring pin.
11. Use the 4,00 mm calibration block; the result should be ~4,00 mm.
12. Insert the racket covering between measuring plate and pin, take care to not measure on adhesive knots.
13. Measure 4 points and calculate the average with 2 digits.



The thickness limit is defined by Law 2.4.3 + a measurement tolerance of 0.05 mm, and the result of the electronic device is rounded to the number of digits specified in the Law.
For example, if the Law requires thickness to be less than 4.05 mm with sponge and less than 2,05 mm without sponge, then:

- For racket coverings with sponge, the limit would be <4.10 mm.
- For racket coverings without sponge, the limit would be <2.10 mm.

Recall that the limit is applied to the average of four readings which is rounded to two digits. As two examples, with the limits as above:
4.10 / 4.09 / 4.09 / 4.09, which is in average 4.0925 mm = 4,09 mm, passes the racket control.
Opposite, 4.10 / 4.10 / 4.09 / 4.09, which is in average 4.0950 mm = 4,10 mm, fails the racket control.

With the dismantling also the glue layer should stick to the racket covering.

- In case there is no glue layer at the measuring points on the dismantled racket covering, another racket covering part with glue layer should be measured.

- If there is no glue layer on the racket covering at all and all glue is sticked to the blade, the following procedure will take place: the blade without racket coverings but with the glue layer on it will be measured with the thickness device (in average of all 4 spots, i.e.: 0,20 mm). Afterwards the glue will be removed from the blade and the testing will be done as the blade flatness testing with the thickness device (in average of all 4 spots, i.e.: -0,05 mm). The calculation of the two results will be the glue layer thickness (i.e.: 0,20 + -0,05 = 0,15 mm), that should be added to the dismantled racket covering results measured with the off-blade thickness device (Spot 1: 3,80 + 0,15 = 3,95 mm; Spot 2: 3,77 + 0,15 = 3,92 mm, etc.).

7.2.1. RESHAPING

The thickness data checked in the off-blade measurement may lead to different data from normal racket control on-blade. Such differences should be considered as normal reshaping of the racket covering due to its physical properties after dismantled from the blade. But such reshaping should still stay in the limit of Law 2.4.3

Racket Control Value	Dismantling Value	Remarks	Result
3.98	4.04	with sponge	PASS
3.98	4.12	with sponge	FAILURE
1.98	2.04	without sponge	PASS
1.98	2.12	without sponge	FAILURE

The tolerance of 0.05mm on top of the limit specified in Law 2.4.3 is intended to also cover any reshaping, for the benefit of the players. In return, players are strongly advised not to exploit the full tolerance when gluing the rubber to the blade. It is the player's responsibility that the rubber complies with the above limits both on and off the blade.

7.2.2. COMPENSATION

If a racket has been dismantled, the player can ask for compensation of the dismantled racket coverings.

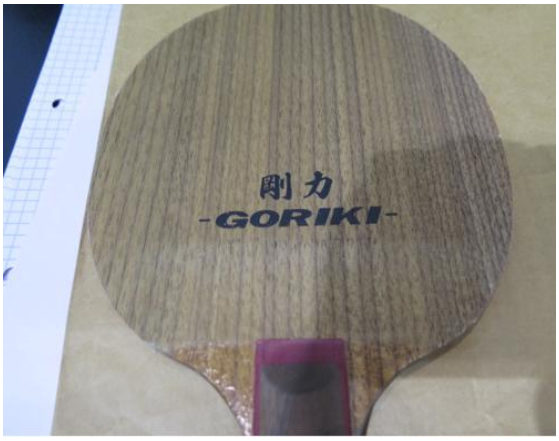
7.3. Blade checks

The main objective of the blade check is to detect irregularities which may give the player an unfair advantage. The most common of such advantages is the ability to use a rubber which exceeds the thickness limit of Law 2.4.3. To understand how this can happen, the racket tester should recall that the thickness device does not measure the mere *thickness* of the rubber but the *height difference* between the rubber and the blade near the handle: The device has a metal "pin" (here between the tester's fingers) and two plastic "feet" (resting on the rubber). The thickness result equals the extent to which the pin goes below the level of the plain created by the feet.
Here are the basic examples of what may make either the rubber thickness or a blade itself illegal. The Term of Reference which is backing this is Law 2.4.5: "*The blade, any layer within the blade and any layer of covering material or adhesive on a side used for striking the ball shall be continuous and of even thickness.*"



7.3.1. LACQUER NEAR THE HANDLE

In this picture the lacquer sheet near the handle appears to be thicker. Especially when the "end" of the rubber near the handle coincides with the "beginning" of the lacquer, this will create a problem: The pin of the thickness device will rest on the lacquered part of the blade, so that the height difference between the pin and the feet resting on the rubber is reduced.



Example: Say the lacquer has a thickness of 0.3 mm and the rubber is in fact 4.3 mm thick, which is illegal. Then the thickness device will record a thickness of only 4.3 – 0.3 = 4.0 mm, which would be legal.

(Although it is generally legal to cover the area near the handle with arbitrary material, in this case an illegal thickness is created which can be detected only after dismantling. Therefore, this outcome is considered a failure in the combination of blade and rubber which may overrule a pre-match thickness test.)

7.3.2. SANDED BLADE (STRIKING PART OF HANDLE)

Instead of *increasing* blade thickness near the handle, the opposite would have the same effect: *Decreasing* the blade thickness everywhere else but near the handle. This happens when the blade is sanded.



In this picture, the sanding may be concluded from two observations:

1) The branding inscription is almost gone
2) There are significant variations in the colour of the wood (note for example the area between the two green lines)

Moving the fingers over the blade, switching between the area near the handle and the rest of the blade, may indicate a height difference and / or a difference in roughness. A substantial concavity fails the racket - whether or not the rubber is too thick. Concavity can be visualized or measured by using one of the methods used for checking the flatness of a rubber - for example by using a net gauge resting over the area and showing a gap in the middle, or by using the electronic flatness or thickness device to measure a height difference.

7.3.3. SANDED BLADE (AREA NEAR HANDLE ONLY)

Even when only a small part of the blade is sanded, this will affect the measurement with the thickness device. In this picture, only the area between the two green lines is sanded. In this area, with the rubber on it, the proximal foot of the thickness device comes to rest, i.e. the foot which is closer to the pin. This foot is then resting lower than the distal foot, i.e. the one far from the pin. This creates a falling level towards the device's pin – and this causes the pin to measure less height.



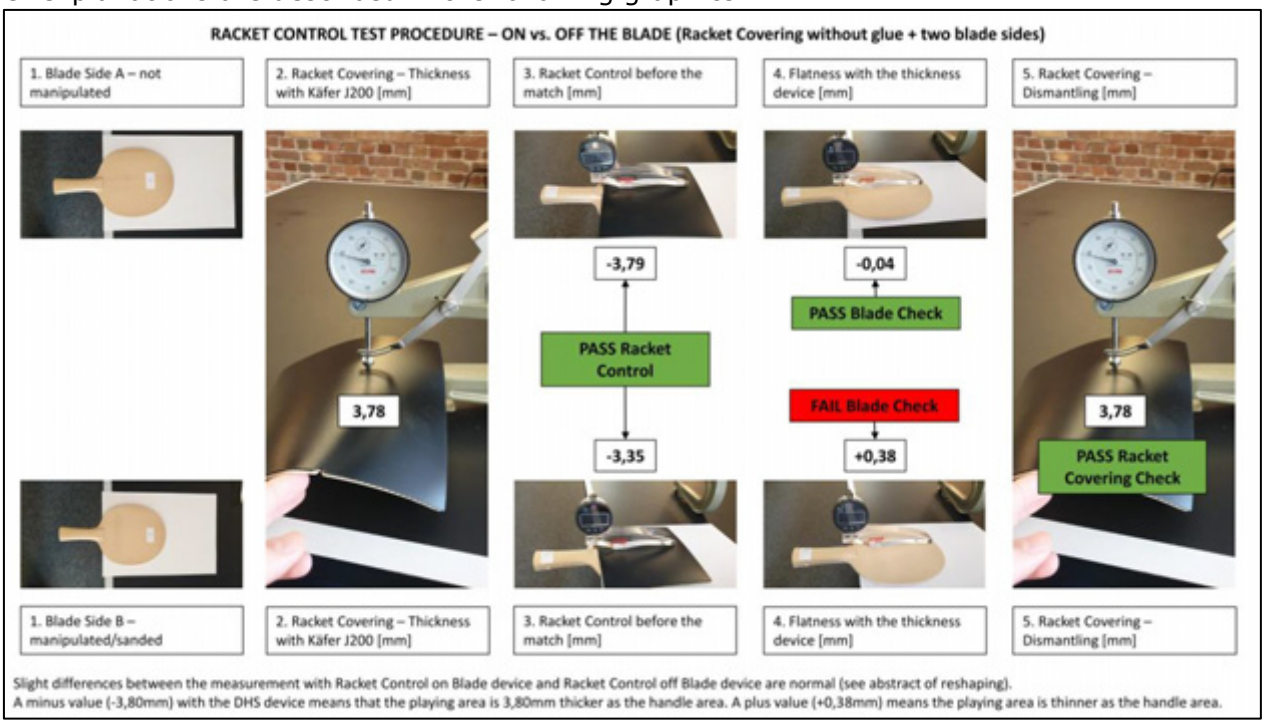
Therefore, a substantial concavity, to be detected like in the previous example, fails the racket, whether or not the rubber is too thick.

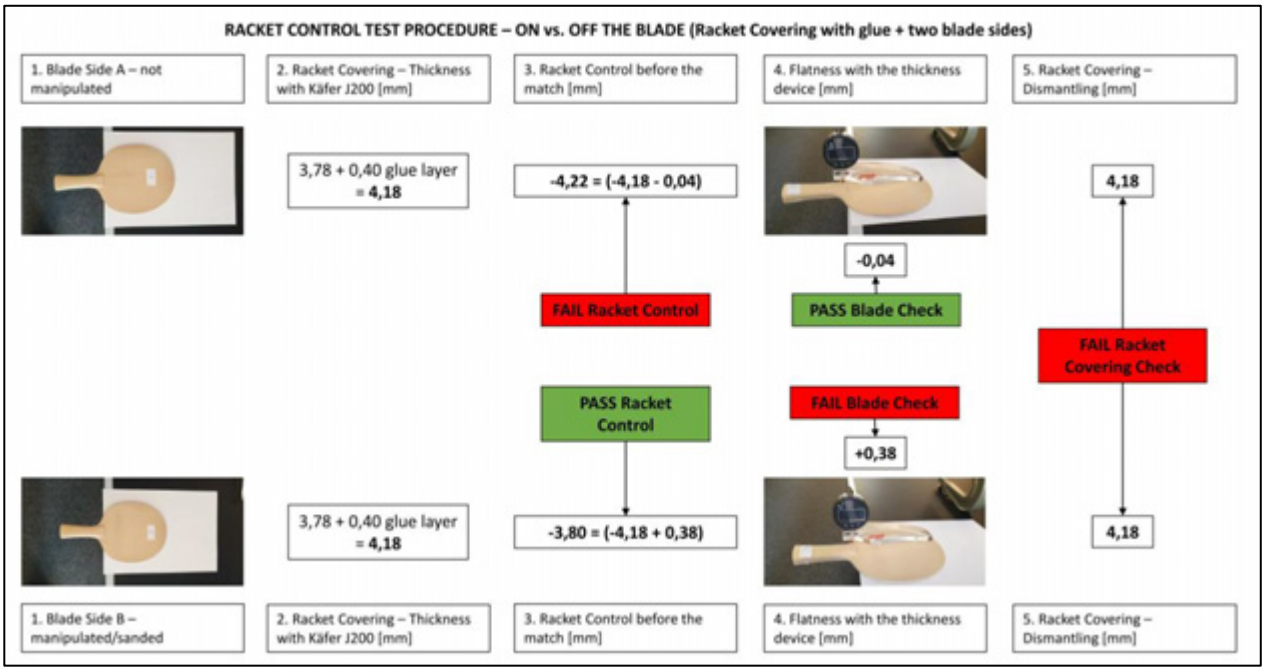
7.3.4. BLADE MEASUREMENTS

Consequently, the racket tester should first perform a standard thickness measurement with the rubber on the racket (see section 4.1) and then, after dismantling, measure the thickness of for all doubtful cases (lacquer on the handle, sanded blade at striking part and sanded blade at handle near) with the electronic thickness device (similar spots as in 4.1 only on the pure blade). The allowed limit of height difference between handle and striking/playing area should be between -0.50 mm and +0.20 mm at any checking spot. Afterwards the dismantled racket covering will be measured as described in 7.2.

7.4. Conclusion

Further explanations are described in the following graphics:





ADDITIONAL NOTES

When flatness will be measured (with on-blade flatness device or on-blade thickness device), the result shown on the device will stay (i.e.: 0,20 → 0,20 or -0,15 → -0,15).

When thickness will be measured (with on-blade thickness device), the sign (+ or -) before the result shown on the device will change (i.e.: -3,95 → 3,95 or 0,05 → -0,05).

Slight differences between the measurement with racket control on blade device and racket control off blade device are normal (due to device tolerances and reshaping).

A minus value (-3,80 mm) with the on-blade thickness device means that the playing area is 3,80 mm thicker as the handle area. A plus value (+0,38 mm) means the playing area is thinner as the handle area.

An irregular blade may appear in different facets and extents, most of which can be detected by looking at the colour of the wood, feeling its roughness or measuring a height gap. Any of these irregularities, if significant, may influence the rubber thickness test and therefore should be taken seriously. The dismantling racket tester should bring any doubtful case before the referee, however avoiding any prejudice about responsibilities and consequences.

8. Sanctions

8.1. Voluntary tests

Please refer to the article 3.2.4.2.4 of the ITTF statutes.

8.2. Pre-match racket control test

Please refer to the article 3.2.4.2.3 of the ITTF statutes.

8.3. Post-match racket control test

If a player fails in any racket control test after the match has been completed:

- on the blade (in case no on the blade measurement in the before match control has been done), or
- in the off blade/dismantling control,

the player's name will be written down on the infraction list and the referee will decide, taking into consideration any recommendation by the racket tester, if any additional sanction will be handed against that player. Without limiting the penalties stated under the ITTF Statutes, one or more of the following sanctions may be handed to the player in addition to recording their name down in the infraction list:

- a censure, reprimand, or warning,
- a fine of up to CHF10.000,
- a disqualification of results and outcomes of results in the relevant ITTF Sanctioned Events, including a forfeiture of any related awards, titles, ranking points or prizes; and
- a suspension from competing in any ITTF Sanctioned Events for up to 12 months.

If a player fails the racket control test with the first racket in the pre-match control test and subsequently, fails the post-match racket control test with their 2nd racket in the off blade or on the blade measurement, the player will get two notices on the infraction list at the same event.

Appendix A: Summary of Racket Tests

#	Test	Specification	Remark / Example	Perform this test at:		
				Match Table	Call Area	Racket Control
1	Regularity of Blade and Racket Coverings	Tolerance from referee	Extension of rubber, scratches, missing pimples, broken wood, etc.	**Yes**	**Yes**	**Yes**
2	Authorisation of Racket Coverings	Must be on LARC	~~Supplier name,~~ brand name, product name, ITTF logo and code/number	**No**	**Yes**	**Yes**
3	Flatness	Concave ≥ -0.50 mm Convex ≤ +0.20 mm	Worst of 2 perpendicular measurements. Do not average.	**No**	**Yes**	**Yes**
4	Racket Covering Thickness	With sponge: < 4.05 mm Without sponge: < 2.05 mm (plus a measurement tolerance of 0.05 mm)	Average of 4 measurements; 2 parallel, 2 across.	**No**	**Yes**	**Yes**
5	Volatile Organic Compounds	VOC level ≤ 3.3 ppm	Differential reading after 20 seconds.	**No**	**No**	**Yes**
6	Pimple Spacing	Width of pimple + space < 3.5mm		**No**	**No**	**Optio-nal**
7	Dismantling	Blade of even thickness; ≥ -0.50 mm to ≤ +0.20 mm	No overthick lacquer, no sanding	**No**	**No**	**Yes**
		see 4 - Racket covering thickness	Average of 4 measurements; ~~No overthick~~	**No**	**No**	**Yes**

Appendix B: Principles of Racket Control

General remarks

During the past decades, with increasing industrial capabilities, the table tennis racket has become a sophisticated piece of equipment. This may be beneficial for the players and spectators, however to use equipment which has almost unlimited variations and possibilities requires certain minimum standards. An example is the use of speed glue which, at a first glance, brought more power to the game; but bore the risk of health issues. In addition, even when driven to perfection, the behavior of equipment should not be unpredictable for the opponent.

This need for minimum standards necessitated the creation of Laws and Regulations regarding the racket, and instituted the concept of racket control. The purpose of racket control is to contribute to the fairness for which table tennis is known. Racket testing will not detect every possible deficiency by total control; the concept is to keep deficiencies within a reasonable range that will ensure fair play.

A racket tester should not be guided by the ambition to detect fraud, but assist players in optimizing their fair play. A breach of the Laws and Regulations for rackets definitely needs to be penalized, but

may nevertheless be unintentional, and unless the contrary is obvious, this is what should be assumed in favor of the player who might simply try to optimize his equipment legally. This of course does not preclude keeping an eye on the characteristics of rackets and their owners throughout a tournament.

Especially in professional play, the table is the players' workplace. Racket testing should assist them and, to do so, requires additional duties of them, but should not be an unnecessary burden.

Terms of Reference

The principal Laws and Regulations which guide racket testing are:

- 2.4 The Racket
- 3.2.1.3, which describes the use of racket coverings
- 3.2.4 Racket Control

Flatness Test - principle and rationale

The flatness of a racket must be checked because of two reasons:

a) Flatness by itself is a requirement of Law 2.4.1

b) The thickness of the covering is measured at four points which are not in the center of the racket. There are several ways to use non-flatness in order to achieve an illegal thickness at other points of the covering. For example: Gluing a "bubble" in the center of a racket; having a "hill" in the direction of the handle etc.

For these reasons, a difference between the level of the edge points and the level of the center of the racket shall be detected and the result shall be used in two different ways:

For a), the result as it stands (worst of two values) will determine pass or fail for flatness.

For b), a concave covering has its maximum thickness at the edges. Therefore, this maximum is already covered by the thickness test itself. Nothing needs to be added or subtracted. A convex covering has its maximum thickness in the center. Therefore, the flatness result (= center minus edge) has to be added to the thickness result (= edge). A covering just *appearing* convex because the bent is blade shall only be regarded convex to the extent not caused by the blade. This extent equals the difference of flatness on the convex side minus flatness on the concave side, and only this figure, if still positive, shall be added to the thickness result.

Thickness Test - principle and rationale

The thickness of the racket covering must be checked because it is a requirement of Law 2.4.3. An unlimited thickness will give advantages to those who can afford the most extreme industrial developments, so that the skill of a player may no longer be the main driver of a match result.

The thickness can normally be determined by evaluating the difference between the level of the covering and the level of the wood. However, there are cases where this measurement cannot be reliably performed. Then an optical measurement of the covering's thickness at the edge of the blade is in order.

It should be decided case by case which is the most accurate way to determine the thickness of a covering. However, in different tests of the same racket in the same tournament, consistency of the applied procedure should be ensured. A slight change of results in every test is normal, but a player who encounters erratic results, such as 3.92 in a first test and 4.09 in a second one, will lose confidence in the racket testing.

However, consistency shall not be used as an argument for ignoring an unexpected result. It is quite possible that a racket with a thickness close to the limit will for example pass a test in the morning and

will fail in the afternoon. Conditions of a racket may change slightly during a day, and this is the player's responsibility if he or she has chosen to use a racket at the limit. Preferably, this should be explained to a player already when the result is a "passed, but close". But definitely it shall be explained in cases of a failure.

Loupe tolerances

When a loupe is used, the relative accuracy of the loupe may be evaluated by measuring a racket covering with the electronic thickness measurement device, and comparing the result with the measurement taken with the loupe.

The referee may specify a tolerance to be applied when using a loupe. The tolerance of a loupe is dependent on its magnifying power and the scale of the reticle divisions; for a typical loupe, a tolerance of one-half scale unit or one scale unit can be expected, i.e. a loupe with a 0.1 mm scale may have a tolerance of 0.05 mm or 0.10 mm applied.

VOC Test - principle and rationale

The release of Volatile Organic Compounds (VOC) must be tested because it is a requirement of Regulation 3.2. The reason for this is that table tennis, like all other sports, should consider the health of players, spectators and all others involved. To do so, first speed gluing and then boosting and any other treatment of rubbers was declared illegal. The purpose of the VOC test is to ensure that at the time of the match, when the equipment is present in the venue, there is no VOC exposure which may be harmful or may give an unfair advantage to a player.

It is ITTF's strong conviction that the ban of VOCs is in favor of all players not only because of the health issue; in addition, for example, using VOCs deliberately (such as in speed gluing) requires application shortly before the match and therefore has only disturbed the reasonable match preparations of players and their coaches.

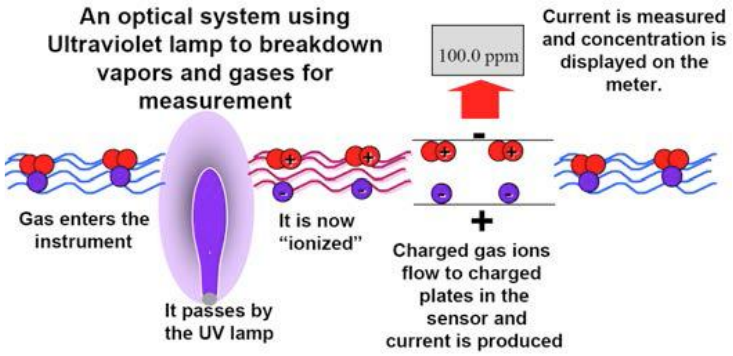
When executing a VOC test, the background level B is subtracted from the "gross reading" A (final display after 20 secs) in favor of the player, because the result is the lower bound of possible VOC levels coming from the racket itself. If a racket has in fact zero VOC emissions, this is trivial because the reading A will equal the reading B. If a racket has in fact VOC emissions of 3*B, three times the background B, the reading A will be *at most* 4*B, so the result counting is *at most* 4*B – 1*B = 3*B.

It is in the nature of VOC emissions that the first seconds of the test will already show the direction of the journey: If after 10 seconds the reading did not change at all, it is very likely that the same holds after 20 seconds. In busy situations, consideration may be given to this fact.

On the other hand, precision is crucial in close cases. For example, a reading reaching the limit after exactly 20 seconds is an acceptable result, no matter how fast it is increasing from the 21st second on. Another example, if the racket tester is not sure whether he or she had a precise look at the timer, there is no harm in just repeating the measurement while keeping a closer eye on the stop watch.

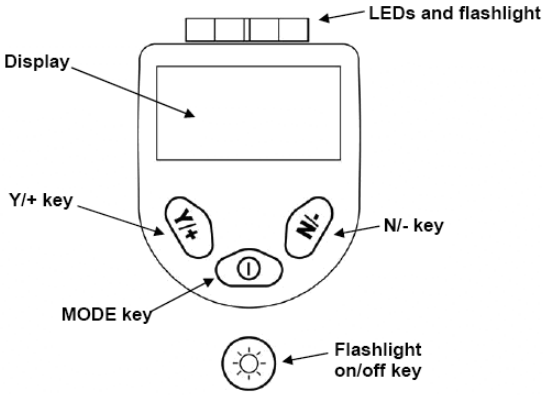
MiniRAE-Lite Setup

The MiniRAE-Lite is currently used by the ITTF and is a photoionization detector (PID) which uses ultraviolet (UV) light to break down chemicals to positive and negative ions that can be easily measured.



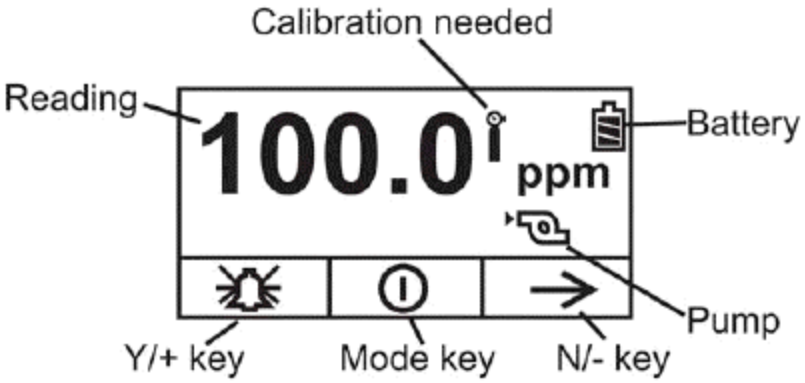
The instrument's user interface consists of the display, LED's, an alarm transducer, and four keys. The keys are:

- Y/+
- MODE
- N/-



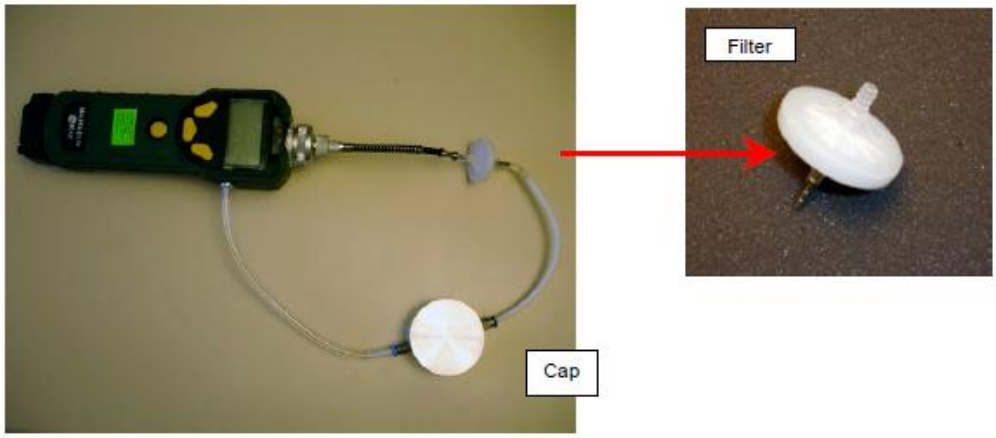
- Flashlight On/Off

The display shows the following information:



For proper measurement on the surface of the coverings of the racket, the device is used together with a special cap connected by two tubes to the MiniRAE Lite. These tubes shall be of PTFE Teflon. A filter

supplied by RAE shall be used to reduce the effects of the humidity and dust. If there is a mark "INLET" on the filters, that side of the filter should face away from the device. The filter shall be changed every two events, in the case of competitions with duration of a maximum of 5 days. For World Championships the filter shall be changed once in the middle of the competition. For Olympic and Paralympic Games the filter shall be changed twice during the competition.



Device Setup:

1. Connect the air outlet tube, which is with the device, to the threaded hole in the right side of the instrument.
2. Connect the flexible tube to the top part of the device and then the filter to this tube.
3. Connect the flexible tubes to the Teflon tubes attached to the cap.
4. To turn on the instrument press and hold the MODE key.
5. When the display turns on, release the MODE key.



6. When the display shows "Ready … Start sampling?" press the Y/+ key to start the measurement.
7. Zeroing calibration: Every day, before starting any measurement, a Zeroing calibration is recommended.
   - Go to a fresh air environment.
   - Press and hold the MODE and N/- keys at the same time.
   - A password will be required (normally "0000"). Use the Y/+ and N/- keys to change numbers. Press Enter (MODE key).
   - Select "Calibration" and "Zero calib".
   - When the display shows "Please apply zero gas…" press Y/+ key to start calibration and wait for 30 seconds, and the calibration is finished.
8. Span calibration: before each competition the MiniRAE Lite shall be calibrated with a span gas. For Olympic and Paralympic Games this calibration shall be done daily, after the Zeroing calibration. This operation shall only be done by an experienced person. A bottle of 10 ppm of Isobutylene shall be used as a reference gas for the span calibration.