

CEV EuroVolley 2019

Competition Handbook
Chapter 7 – FOP Technology



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#EuroVolleyW

The CEV will coordinate a variety of innovative technology solutions on the Field of Play for Volleyball, such as:

- Video Challenge System
- CEV E-Scoresheet (including LiteScore)
- Tablets E-Scoresheet
- CEV Statistics – Data Volley
- Referee Communication System
- Video Sharing

1 VIDEO CHALLENGE SYSTEM REGULATIONS

The FIVB and CEV are committed to using new technology to assist the referees in the decision making process in order to make the game absolutely fair to the athletes' actions.

1. Teams may request a review of actions, which they suspect are faults not identified and thus whistled or signalled by the referees or line judges.
2. Teams are entitled to request "Challenges" as follows:
 - (a) **During play** each time they believe a fault has taken place and is not called by the referees, or
 - (b) **at the end of the rally** when they would like to ask a review of the referees' decision concerning **the last action of the rally**. Teams will keep the right to call another "Challenge" if their claim is correct, up to the maximum of two unsuccessful Challenges per set.
3. Challenges are allowed for one of the following situations:
 - a) Line – for side and end lines
 1. Ball In, or
 2. Ball Out
 - b) Block Touch – contact with the ball by the player (i.e. the blocker)
 1. Block Touch, or
 2. No Touch
 - c) Net FAULT – contact with the net between the antennae by the player in the action of playing the ball
 1. Net Touch, or
 2. No Touch
 - d) Antenna Touch – contact with the antenna by the player or by the ball
 1. Antennae Touch, or
 2. No Touch
 - e) Foot Fault – a) contact of the server with the playing court (end line included) or the lateral free zone outside the service zone, b) faulty contact of a player with the 3-meter attack line, c) the complete crossing of the centre line by the player's foot or feet.
 1. Foot Fault, or
 2. No Fault
 - f) Ball touches the court surface – "pancake" – to determinate if the ball contacts the court or did not touch the court.
 1. Floor Touch, or
 2. No Floor Touch
4. Challenges must be requested only through the pre-programmed ETT right after the occurrence of the suspected fault and this will prompt the 1st referee to stop the action when the suspected fault occurs during play. Otherwise, teams have eight seconds after the rally is over to challenge exclusively the decisive action which finishes the rally. For the avoidance of doubt: after the rally is over, a suspected fault can only be challenged if it happens during the final action which ends the rally; actions taking place earlier in the rally cannot now be challenged after the rally is over.
5. Challenges for faults, which cannot be challenged (for example, claiming "four touches" by an opponent team) will not be accepted and will be considered in the first instance as incorrect challenges. (Challenging for block touch, however, would be possible). Subsequent/ repeated requests of this nature could be classified as delays and sanctioned as such.

6. Challenges take precedence over all other match actions – e.g. time out or substitution requests, which may be impacted by the result of the Challenge.
7. The software will prevent a challenge being requested 8 seconds from the moment a point is inserted into the e-score system. This is to avoid a challenged claim being made a long time after the completion of the rally (unless in the case of item 13 below, where this is needed to prevent an unfair situation).
8. The challenge request will be made through two consecutive actions. At first, there will be a single “CHALLENGE” button to press on the tablet. Pressing it will request a challenge, trigger the challenge horn, and stop the action; automatically, a new series of buttons will appear, presenting the Challenge options for the team to indicate the suspected fault being challenged. The team must not spend more than eight seconds to indicate their suspected fault. The two-step procedure is designed to help coaches in pressing the correct button when they indicate the suspected fault being challenged. In case of delay, the referee may apply a “delay warning”.
9. When a team calls a challenge, the 1st referee will immediately confirm to the Challenge Referee the suspected fault being challenged. The examination of the images must be conducted as quickly as possible but precision of judgement must prevail over speed. The Challenge Referee will then transmit what has been revealed by the examination of the action being challenged directly via the Referee Communication Device (headset) to the 1st Referee. As soon as the image of the challenge is shown in the arena screen, the 1st Referee will announce the final decision and indicate the team winning the point and thus will be serving next.
10. After the result of the Challenge has been transmitted, the match continues, with the score adjusted as necessary.
11. Consequences of successful / unsuccessful Challenges:
 - a. A second unsuccessful Challenge by a team in a set will result in the requesting team being unable to request more Challenges for the remainder of that set.
 - b. This will be indicated to the coach by the 2nd Referee (also shows in the ETT) and announced by the announcer to the public through the PA.
 - c. In competitions where the tablet technology allows, the number of remaining Challenges by each team will also be part of the information displayed in the venue scoreboards.
12. (a) At the end of any rally, the 1st Referee has the right to request a Challenge review should he/she feel unclear about his/ her final decision. The 1st Referee will whistle, make the Challenge signal and will also indicate with both hands that he is asking for the Challenge personally. This action immediately triggers the Challenge examination process. The 1st Referee’s right to ask for a challenge is one more way to ensure that the final decision of the awarding of the points to the teams will be fair, will correspond to the effort of the athletes, and will not be impacted by human error.
12. (b) Should the 1st referee complete such a challenge, the team losing the point as a result of this process has the right within the same interruption to raise a challenge for a previously suspected fault which went unpunished during the final action which finished the rally.
13. It is important to emphasize that the first fault observed in the sequence of images under review, even if not the specific action being challenged, will prevail over any subsequent fault and will form the basis of the 1st Referee’s final decision, determining the fair and correct award of the point contested in the rally.
14. Should a team that challenges the final action WIN the rally anyway, the Challenge will automatically be declined (as unnecessary).
15. A Team may request a Challenge only once within the same interruption – i.e. they cannot challenge a second time within the same interruption. However, both teams may request a Challenge within the same interruption.
16. If two teams challenge in the same interruption for actions which happened within a very short time interval – same action-phase – i.e. a completed attack from the attack line is challenged by team A, but team B challenges for a touch on the net by the team A block, which is part of the same action sequence – the whole sequence of that action will be reviewed and the first fault observed, if any, will prevail.

Even if a team loses the Challenge due to its claimed fault not being the first one observed in a play-action sequence, if the evidence nevertheless demonstrates that the fault occurred, then they will still keep the number of Challenges available. So “Challenge successful” does not automatically mean this team wins the rally.

17. All players must remain on the court for the time needed to assess the video footage. No substitutes / replacement players / liberos or bench personnel may enter the court because the result of the challenge may have an impact on the need for substitution or replacement.
18. As a general principle, a suspected fault that is NOT CONFIRMED by the video footage, is considered as NOT having occurred.
19. In case the Electronic Team Tablet (E.T.T.) fails, the team coach or the assistant coach are allowed to make a manual signal and a direct oral request to the referees.
20. In case there is a general failure in the Challenge System, the Second Referee will communicate the teams of the failure, and the match will be officiated normally by the referees according to the rules of the game (with no Challenge requests). If the Challenge System works again, this will be communicated to the teams, and Challenges will be allowed from that moment on.
21. The result of the Electronic Review, as soon as announced by the 1st referee, is final and non-appealable.
22. Should a team press the challenge button on the tablet mid-rally, then fail to select from the challenge menu, within the required time limit (8 seconds), the challenge will automatically fail, the team will lose the rally and the opponents will gain a point.
23. Should a team at the end of the rally press the challenge button but either not choose in time or not choose at all from the challenge menu, within the time limit (8 seconds), it will lose one of its challenges.

24. 1. BALL IN / OUT		Followed by		Or
OFFICIAL REVIEW BALL IN	OFFICIAL REVIEW BALL OUT	CHALLENGE SUCCESSFUL	CHALLENGE SUCCESSFUL	CHALLENGE UNSUCCESSFUL
2. BLOCK TOUCH		Followed by		Or
OFFICIAL REVIEW NO TOUCH	OFFICIAL REVIEW TOUCH	CHALLENGE SUCCESSFUL	CHALLENGE SUCCESSFUL	CHALLENGE UNSUCCESSFUL
3. NET FAULT		Followed by		Or
OFFICIAL REVIEW NO FAULT	OFFICIAL REVIEW FAULT	CHALLENGE SUCCESSFUL	CHALLENGE SUCCESSFUL	CHALLENGE UNSUCCESSFUL
4. ANTENNA TOUCH (BY PLAYER OR BY BALL)		Followed by		Or
OFFICIAL REVIEW NO TOUCH	OFFICIAL REVIEW TOUCH	CHALLENGE SUCCESSFUL	CHALLENGE SUCCESSFUL	CHALLENGE UNSUCCESSFUL
5. FOOT FAULT – LINES (SERVICE – ATTACK – CENTRE)		Followed by		Or
OFFICIAL REVIEW NO FAULT	OFFICIAL REVIEW FAULT	CHALLENGE SUCCESSFUL	CHALLENGE SUCCESSFUL	CHALLENGE UNSUCCESSFUL
6. FLOOR TOUCH (PANCAKE)		Followed by		Or
OFFICIAL REVIEW NO FLOOR TOUCH	OFFICIAL REVIEW FLOOR TOUCH	CHALLENGE SUCCESSFUL	CHALLENGE SUCCESSFUL	CHALLENGE UNSUCCESSFUL
SIMULTANEOUS FAULT		FIRST FAULT		DECISION NOT POSSIBLE
PREMATURE INTERRUPTION BY REFEREE		either		either
OFFICIAL REVIEW DOUBLE FAULT REPLAY POINT	OFFICIAL REVIEW NO FAULT	OFFICIAL REVIEW FIRST FAULT by XXXX	OFFICIAL REVIEW FIRST FAULT by XXXX	OFFICIAL REVIEW DECISION NOT POSSIBLE REPLAY POINT
followed by		or		or
OFFICIAL REVIEW CHALLENGE SUCCESSFUL REPLAY POINT		OFFICIAL REVIEW		OFFICIAL REVIEW DECISION NOT POSSIBLE REFEREE'S DECISION REMAINS

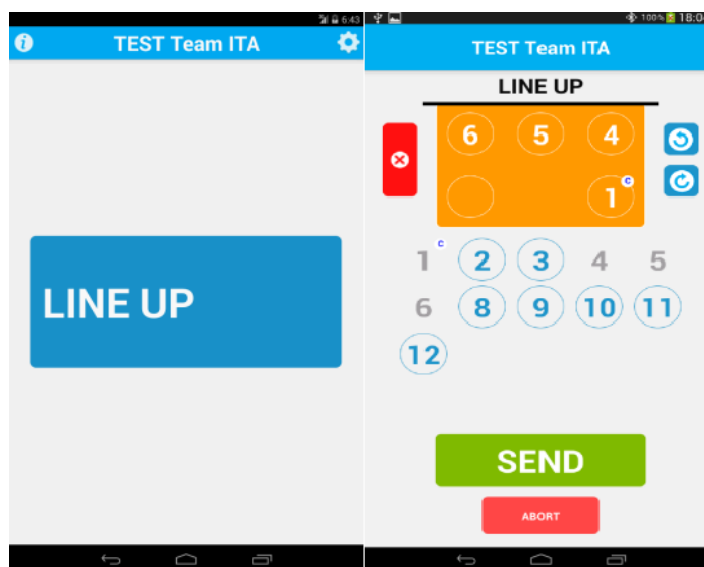
2 TEAM TABLET REGULATIONS

2.1 BEFORE THE MATCH

STARTING LINE-UPS

1. The Coaches or nominated Bench personnel member must transmit the starting line up to the e-Scorer via their paired tablets.

2. Line ups from each team must be visible on the e-Scoresheet and Referees tablet at least 1 minutes before the match. This image will also be shown on the CEV Supervisors monitor.

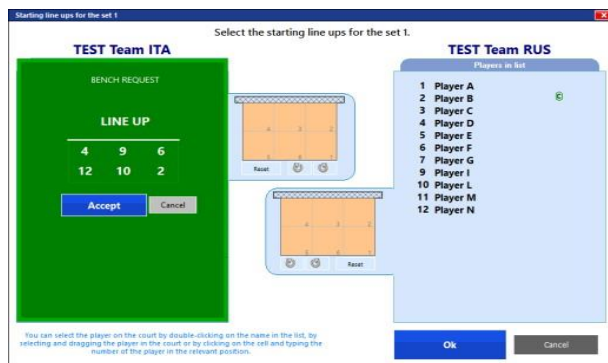
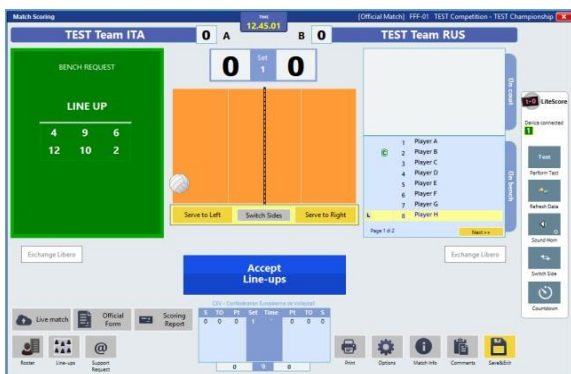


3. The Coach or nominated Bench personnel member presses the LINE UP button and enters the starting line-up.

4. He/she can change the player's number or, in any case, click on the red button (X) and reset the entire Line Up previously entered.

5. This is confirmed and transmitted by pressing "SEND".

The starting line ups will show as below



6. The e-scorer can then choose to accept the submitted line-up in the main window.
7. The starting Libero will be permitted to enter the court in the usual way after checking by the second referee.
8. The first Libero to enter the court is considered to be the starting Libero.
9. The Captain on court will be recorded by the e-Scorer following instructions from 2nd referee.
10. The 2nd referee will use his/her tablet before the match to check each team's line up. Should modifications be needed following a mistake or requested correction, these must follow the CEV Rules in force at the time.
11. The 1st Referee will also be able to view the line ups on his/her tablet fixed the post.



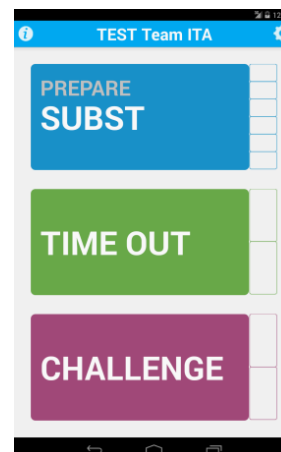
2.2 DURING THE MATCH

During the match the tablet will have 3 buttons indicating Substitutions, Timeout and Challenge. Each of the buttons has a "progress" bar showing the number of requests made for each action.

1. A major change is that the eScorer must click on "START RALLY" when the 1st referee blows their whistle.
2. Pressing the "START RALLY" button will disable the Time Out (Video Challenge Request and Substitution preparations can still be made) on the coaches' tablets.
3. Whist enabled to prepare substitutions during a rally a request can only be made when a point has been awarded and the rally ended.



4. When a point is recorded, the buttons "START RALLY", "TIME OUT" will be enabled once more.



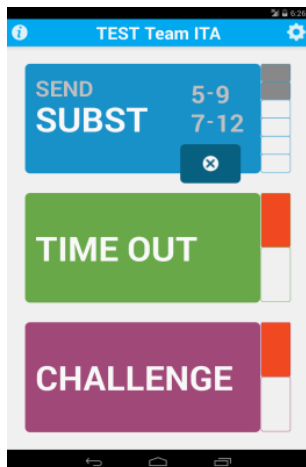
SUBSTITUTIONS

1. The bench personnel press the "PREPARE SUBST" button on their tablet (see above)
2. A window with the current line-up will appear with the players eligible for substitution.
3. Using the tablet coaches request substitutions by clicking on the numbers of the players entering and leaving the court. They are then highlighted.

4. It's possible to enter 2 or 3 or more substitutions at the same time, in the window. It is not possible to enter another substitution once sent or one has been postponed.

5. If the players have been previously involved in a substitution the partner player will be automatically highlighted.

6. Once entered, the team can choose to send the substitution to the eScorer (if the rally is running) or postpone the request.



7. The pending substitution will be displayed in the "SUBST" button.

8. The team can also cancel pending substitutions by clicking "X" on the "SUBST" recap button.

9. At the end of the rally, by clicking on the "SUBST" Send button again the coach can "SEND".

10. If used the LiteScore unit will sound and show the player's number to be substituted on the LED display.

11. The scorer will only accept a substitution request if the players enter the substitution zone during a game interruption and begin the quick substitution process.



12. The e-Scorer upon seeing the players entering the substitution zone will announce and acknowledge the request by sounding the horn and pressing "accept" for the substitution request.

13. The substitution(s) must still enter the substitution zone without delay.

14. The official "REQUEST" for a substitution is the entrance of the substitute(s) into the substitution zone.

15. The Coach or Game Captain does not need to make a signal (Note: in case of a forced substitution due to injury the coach or indeed the game captain may, of course, make the substitution signal to the second referee who will authorise the substitution in this case.)

16. The quick substitution process must not be delayed in any way.

17. The substituting player goes immediately to the sideline close to the net post within the substitution zone, to make the exchange with the player on court. This process is observed by the 2nd Referee who will only intervene if the players create a delay or the coach creates a delay or requests an illegal substitution – which will be signalled by the scorer again by use of a buzzer.

18. Once a player enters the substitution zone, and the buzzer/whistle is sounded, a substitution must be completed – unless rejected for delay or illegality.

19. Once the buzzer/whistle sounds, a team, which retracts its request for substitution automatically, causes a delay, and a delay sanction will be charged against the team.

20. In the case where the player(s) enter but the coach has not sent this information via the tablet and a delay is caused the substitution(s) are denied (refused) and the team is sanctioned for "delay".

21. The instant the substitute player(s) enter the substitution zone, the e-Scorer:
a) will sound the horn, acknowledge and announcing the substitution request.

Will accept the substitution and complete the administration.



Then the e-Scorer will raise both arms to indicate that he/she is ready for the next rally. (Note: there is no necessity for the e-Scorer to raise one hand to signify at the start of the process that the substitution event has been recognized – the sounding of the buzzer carries out that function).

22. Using the eScorer bench app a coach cannot request an illegal substitution (please see below for exceptional substitution) however a substitution can still be denied should the wrong players enter or leave or a delay in the process occur.

a) In this case the e-Scorer pushes the buzzer (again) and indicates the illegality of the substitution by waving one hand back and forth.

b) The Second Referee will blow the whistle to indicate the illegality of the substitution to the 1st Referee, who gives the team the appropriate delay warning or sanction.

c) The substitution is rejected automatically in this instance.

23. In the case of multiple substitutions by the same team, all must be made at the same time.

24. In the case of both teams making a request, the assistant e-Scorer will indicate which team should complete their substitution first.

25. In all cases, the 1st Referee has the right to authorise the next service after having seen the e-Scorer's two-handed "READY" signal at the completion of all team substitutions and both teams are ready to play.

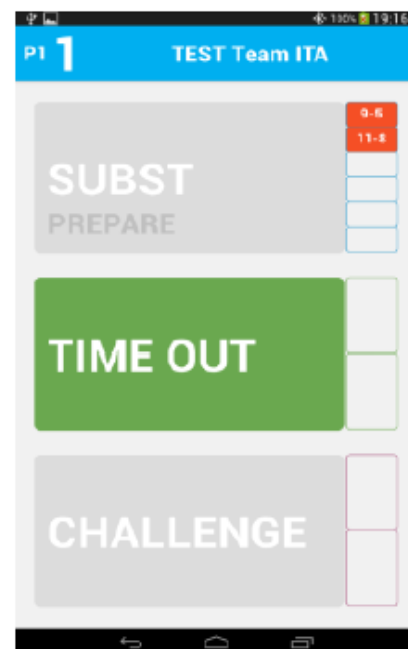
26. The number of completed substitutions, and the player's number, will be indicated by the lighting of the progress bar slots in red.

27. The e-Scorer must report the 5th & 6th substitution of each team to the 2nd referee, who will pass this information to the team Coach and the 1st Referee as per the Official Rules of the Game (24.2.7).

28. For the 5th substitution a yellow square will surround the Substitution button on the respective tablet.

29. Upon reaching 6 (or the maximum available) the substitution button will automatically be deactivated.

30. Should a coach need to make an exceptional substitution provide for the rules of the game this can be done by pressing the "EXCEPTIONAL" button.



TIME OUTS – REQUESTED BY THE TEAMS – 30 SECONDS

1. During the rally the Time Out button will be silver, - i.e. it is deactivated.

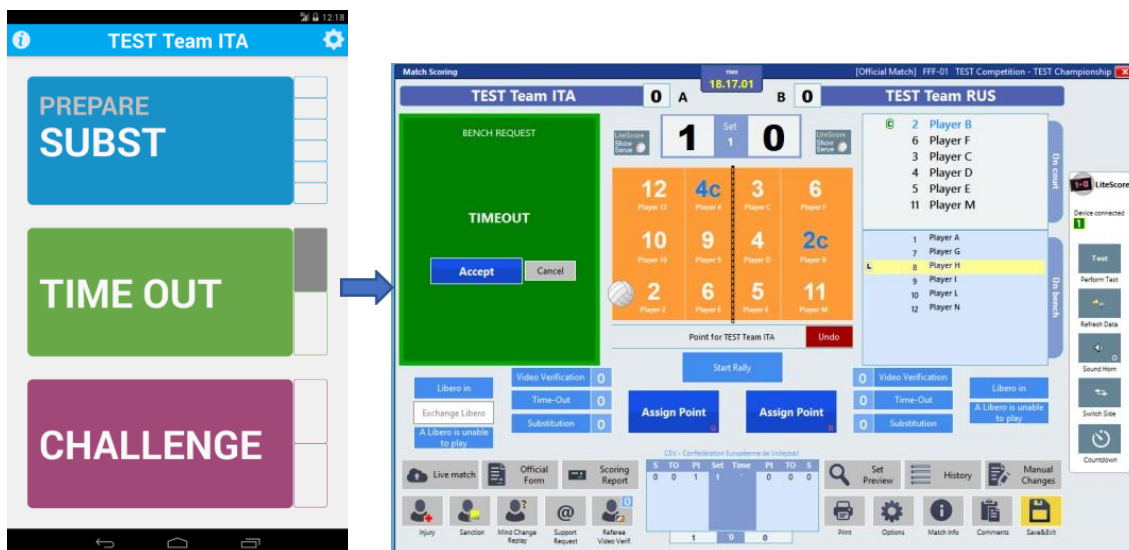
2. Once the request is made using a Tablet, the LiteScore unit will sound and a flashing LED light will indicate the team requesting the time out.

3. One or two LED lights on the LiteScore will indicate the number of time outs a team has taken.

4. A countdown clock will display the remaining seconds of the time out.

5. A second time out or new request by the opposing team will be authorised during the same stoppage according to the official rules.

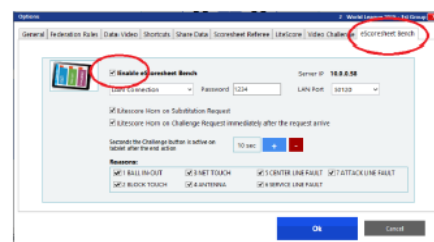
6. Any subsequent request must be made using the tablet and confirmed by the e-Scorer.



8. Once accepted the progress bar will indicate in red the number time outs taken.
9. Upon reaching the teams requested time outs (two) the button will be deactivated.

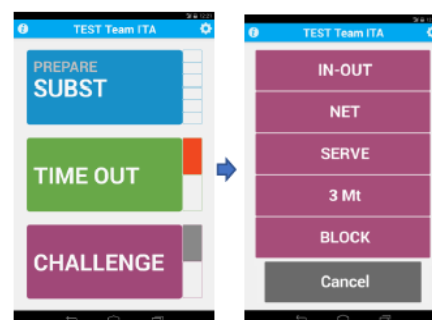
CHALLENGE SYSTEM

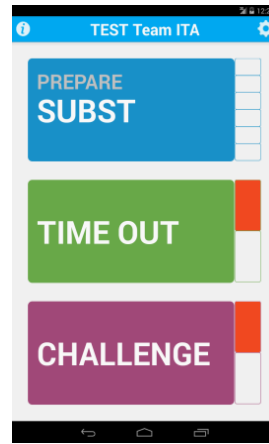
The CEV Challenge System regulations in force at the time will be applied. The e-Scoresheet bench application in conjunction with LiteScore can be used to indicate a challenge as below. Before the match, the eScorer enters the options menu and turns on Challenge system.



E-Scoresheet will have within it a function that will allow the type of Challenge System that is being used and will in turn ensure the correct configuration is shown on each tablet.

1. During the rally the Challenge button will be active (new option).
2. When a challenge is requested by a coach on their tablet the progress bar will change colour to silver indicating the request has been acknowledged.
3. A second window will appear where the coach must indicate the nature of the challenge they are making.
4. A request will appear on e-Scoresheet, which the e-Scorer (directed by the reserve referee) can accept or deny.
5. Following a review of the video, should the challenge be denied then the progress bar for challenge will indicate red on the coach's tablet.
6. Upon reaching two incorrect challenges (progress bar red for both) the "CHALLENGE" button for this coach will be deactivated,
7. If the challenge is agreed then the silver progress bar indicator will become clear once more.



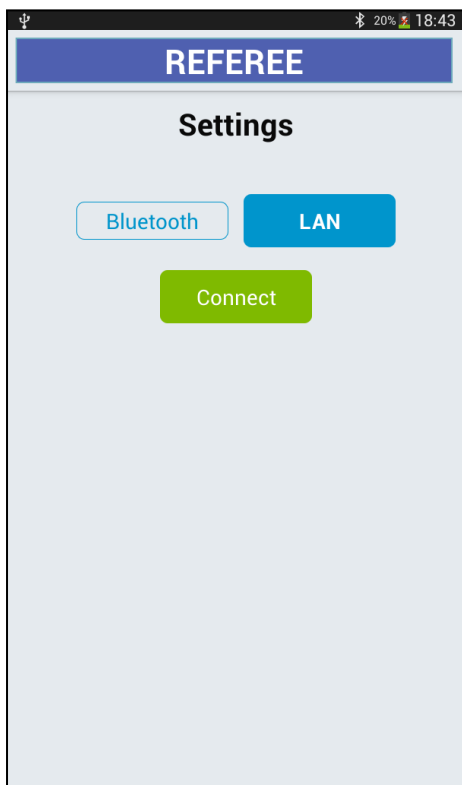


3 REFEREE APPLICATION

On the post of the 1st and 2nd referees it is expected to fix two tablets where will run the ES Referee Application.

Tablets, same characteristics as the previous one used for the Bench App, will be fixed on the post with special supports and elastics.

By the way any solution adopted to fix in a good and solid condition is welcome. The App will be installed on the tablets in the same way described above.



Entering the Tablet application it has to be chosen or [LAN], as in the ES Bench App.

And then, in the next windows, has to be selected the recognized e-Scoresheet laptop or typed his IP address.

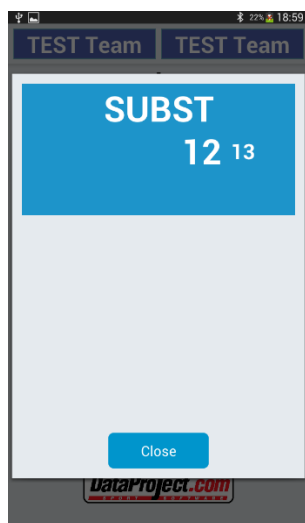
It will be possible to connect more than two ES Referee app (e.g. for the Video Challenge referee, or for the Referee Delegate), but only 2 Bench App one for each team.

Once connected, it will be presented the main windows with all the data regarding the team rotations, the score and the requests



- S (substitutions)
- T (timeouts)
- C (challenges).

The referee has only to [Switch Team] side, eventually, just at the beginning of the match.



When there is a request from the Coach, using the Bench Tablet, a window with all the relevant information will appear on the Tablets of the Referees. They have to close this windows when the request is completed. In case of simultaneous requests from both benches (e.g. Substitutions) a double sided window will appear.



4 LITESCORE

LiteScore is a portable scoring system that is connected to e-Scoresheet. It automatically displays the official score, sets won, the number of time outs and substitutions for each team. During the match it can display:

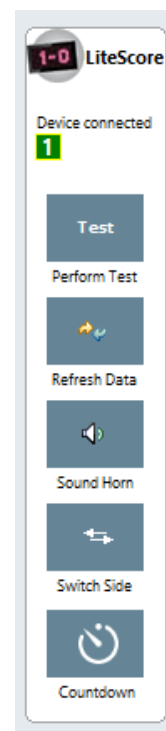


- The score of a volleyball match
- Indicate the serving team with a light below the respective teams score
- Show the number of the player serving upon request
- Sets won - indicated by LED lights
- Time outs - indicated by LED lights (flash during requested stoppage)

4.1 LiteScore integration with e-Scoresheet

LiteScore is designed to work with e-Scoresheet and display in real time the score and data of a match. Once LiteScore is successfully connected, via a USB stick, to the e-Scoresheet laptop (and the driver is correctly installed), a vertical box (see right) with information buttons will appear on the right of the e-Scoresheet main window. The functionality of each button is clearly shown and is easy to understand. These functions are clearly described in the e-Scoresheet handbook.

When the background colour of this box turns red it indicates that LiteScore is disconnected or turned off. Once LiteScore is reconnected or turned on, e-Scoresheet will rebuild the connection in just a few seconds.

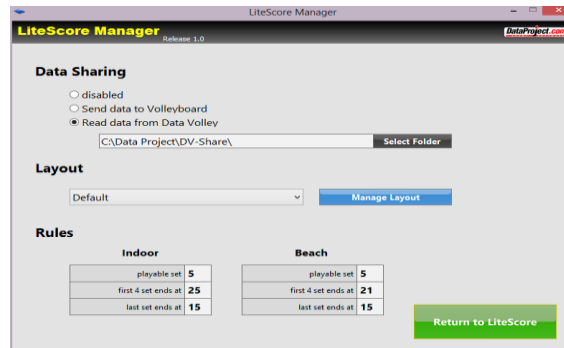


4.2 LiteScore integration with DataVolley

LiteScore Manager is a windows based software that enables an interface between Data Volley and the LiteScore software – this means it can also receive the score directly from the statistical software

It's enough to run LiteScore manager in the background and to define in the [Option windows] the path of the Data Volley Share folder on the Data Volley laptop for the systems to work.

LiteScore Manager can be used to manually change the score and the other LED fields that are connected to LiteScore



5 CEV STATISTICS – DATA VOLLEY

Data Volley is the statistics software provided by Data Project. The use of the Data Volley software is mandatory for all CEV matches. It provides the statistical information on the CEV website which is used by users and media around the world.

To download the latest version of the Data Volley online statistics program, please follow the instructions outlined under www.dataproject.com/cev/

Technical support is provided by Data Project: score@dataproject.com.

Prior to the Match

- At least 1 week before the tournament, the Organiser/National Federation must perform the “test of the official Match” to ensure that the user and the account have the appropriate rights to complete their work.
- 1 day before the first match of the tournament, again perform the “test of the official Match” procedure in the presence of the CEV Supervisor, from a courtside location using the internet connection in the competition hall.

The day of the Match

- The notebook/laptop must be connected to the internet through a wired connection (NOT wireless) and must support the use of FTP protocols.
- The CEV Supervisor may request to receive a printed copy of the stats after each set and at the end of the match.

During the Match

- At the end of each set the statistician is required to upload the relevant set statistics file.

At the end of the Match

- After the end of the match, the statistician has to print the final version of the match statistics for approval by the CEV Supervisor.
- Upload the match statistics (this may take up to 5 minutes) and verify they are visible on the CEV website.
- All statistics for a match in a tournament must be processed after that specific match has finished.
- Only then can the statistician leave the playing court.

It is very important that the match statistics are uploaded as soon as the match is finished. There should be no delays.

6 REFEREE COMMUNICATION SYSTEM

During the CEV EuroVolley 2019 a homologated Headset Communication System must be used.

The technical requirements of a wireless headset communication system are as follows:

- Shall function with transceivers on a secure radio frequency, using a different radio frequency from any other radio users on site;
- Shall be accompanied by a working charging system and a base station or configurator;
- Shall be comfortable to wear with an unobstructed earpiece and microphone, with all wires discreetly hidden inside the user's uniform;
- The "push to talk" button shall have easy access and be simple to operate;
- Each headset shall be able to filter the noise digitally at varying levels allowing the user to filter external noise to their own requirement. Reducing the noise of spectators, the speaker and music and each other's whistles.
- The system shall be fully tested for at least ten minutes before being used for the first time during a match, and before the start of the official match protocol.