

**Reasoned Documents on the Comments received regarding RDSO Spec. no WD-29-MISC-19 Rev-1 for Electronic In-Motion Railway Weighbridges**

**Ref:** Uploaded Draft of RDSO STR no WD-29-MISC-19 Rev-1 for Electronic In-Motion Railway Weighbridge (15 kmph speed) on RDSO Website

<b>Draft of RDSO STR for EIMWB (15 kmph speed) Para no.</b>	<b><u>Para wise Comments</u></b>	<b><u>Received from</u></b>	<b><u>RDSO Remarks</u></b>
GENERAL QUERIES:	There was a procedure followed in 1992, i.e. Before the specifications are put as part of Standards, you circulated the specs with specific advantages and specs - (these have not been shared yet). Vendors then were asked to give feed-back on that. Based on which a consolidated feedback specification was frozen by RDSO - and each vendor would be given a trial order if an improved specs was arrived at. This was then to be installed at site, RDSO would evaluate, give approvals and there after only it was to be included as “Standards”.	M/s Ricelake	1. As per requirement, Railway Board and Legal Metrology department will be approached for clarification regarding trial and developmental orders. 2. Prototype testing in collaboration with Legal Metrology before trial orders as per technical requirements stipulated in the RDSO specification.
	Whether the new equipment has been tested with the railways, as a development order, and has been installed and has performed successfully in any of the railways in the recent last six months, before its introduction, is irresolute. If so, then was it approved by RDSO prior, because the present spec did not permit so.	M/s Ricelake	Noted
	The best approach will be to ensure and confirm that the new system is duly approved by Indian Legal Metrology. Please refer 3.4.3 of 2019 Misc.	M/s Ricelake	Noted
	If we over rule the Legal Metrology department’s authentication, then the RR (Railway Receipt) produced in EIMWB cannot stand legal scrutiny.	M/s Ricelake	Noted
OBSERVATIONS	When we have a standard system in place - tested and proven – we wonder what benefit will be gained by this introduction, other than creating an utter confusion with the end user customer- viz no proven track record on improved accuracy / no speed weighing/ installation etc.	M/s Ricelake	Present Specification is being amended to open the avenue for various technologies .being used worldwide. New technology will be implemented after proven of accuracy, reliability and other required essential parameters as would be stipulated in the RDSO specification.
	The special advantage with the new system over a proven system is not known or yet to be established.	M/s Ricelake	-do-

	If this system is better than the present one, a total switch should be initiated.	M/s Ricelake	This amendment is not meant for total switching over. RDSO's approach is to make the specification technology neutral. IR may go with more than one technology provided that they should comply technical, functional and legal metrology requirements as stated in RDSO specification.
	The uniformity of the product, across the country, will be derailed and confusion will be at large with the customers.	M/s Ricelake	Not agreed with. In fact, there are variations in the sensor configuration and software interfaces in the existing weighrail based technology.
TECHNICAL	A new design envisaged is yet to be tested by RDSO and it is very pertinent that any system for example working in Australia/ Germany need not work in India. Our Indian working condition is unique and entirely different from the rest of the country and main challenge is the straight line or track parameters.	M/s Ricelake	Any weighbridge system shall be implemented in Indian railways after confirming the requirements of legal metrology guidelines and stipulations given therein RDSO specification.
	The new proposed product will take different/ unique forms and shapes which may be in conflict with the railways / ILM/ RDSO /safety unless the product design/ drawings and civil is shared by RDSO to understand the intricacies.	M/s Ricelake	-do-
	The existing vendors should be allowed to redesign the equipment. A time period of six months should be given for such incorporation; only thereafter the specs in the RDSO schedule should be altered. i. e. Existing vendors too should be ready with a similar product and one does not get a head start in the market place at the expense of the other. Else it will look that a favour has been done for the manufacturer of this new designed concept, where its veracity has yet not been proven/ established.	M/s Ricelake	RDSO's endeavour is to make the level playing field and make the specification technology neutral. It is likely that Indian railways shall be benefitted in terms of performance, functionality and reliability. Question of re-designing of equipment is not needed until the products are complying the technical and functional requirements.
	We fear that if it is multiple load-cells design – (Higher than 8) can have probability of high failure rates. One or two load -cell failure in a set of 14, may go un noticed and hence weightment with error – suffer colossal loss till it is uncovered	M/s Ricelake	It may just be a speculation. However, there is always a mechanism of maintenance and improvement in any product and technology.
	We do not want the safety factor to be compromised.	M/s Ricelake	-do-
FEARS	RDSO rejected a design of “Load cells placed in sleepers” earlier and so	M/s Ricelake	Any new technology will be

	did the Rly board.		implemented after proving the accuracy, reliability and other required essential parameters. Any product which has failed in the past doesn't mean that the possibility of improvement is also ended and it shall not be able to develop further and meet out the requirements. However, it is again reiterated that any product shall be implemented in the Indian railway system after proper testing and validation.
	When a party introduced "Load cells placed in sleepers", it failed miserably in the field. For example, Track Blaze Australia type (Supply in India failed at Essel Mining, Jodha Barbill).	M/s Ricelake	-do-
	If it is the same system, earlier rejected, with "Load cells placed in sleepers", (Multiple Load cells below rails), fitted on concrete sleepers technology - The feedback is not good. For example, 'Senlogic' at a number of places failed and subsequently had been black listed- they came back with the name of Aditya technologies – another company)	M/s Ricelake	-do-
	Schenck has been advocating it vehemently during the period 2015-2016 and at that time also Rly Board ,ED- RDSO and Dy. Dir. -RDSO technically rejected it .	M/s Ricelake	-do-
	Four similar systems at East Central railways of Schenck had been replaced and converted.	M/s Ricelake	-do-
<b>General</b>	<p>Load Receptors based in Motion weighing: .In addition to being one of the RDSO approved supplier of EIMWB to Railways and private sliding's We are also one of the largest manufactures of Truck in Motion weigh bridges in India with a Weighing process based on load receptors /bending plate.</p> <p>On the subject of adopting Load receptors for Rail In Motion weighbridges we here by confirm that we will adopt to the same however we request you to give us adequate time to incorporate these into our product line. Meanwhile we would like to request you to let us know further clarity on design and also design restrictions if any.</p> <p>We also request to know Ms. RDSO officials has inspected any machine if yes request you to kindly let us to share the basic details.</p> <p>We have been recently noting increasingly many Consignees from Railway are not providing line blockage for installing the EIMW's</p>	M/s Essae	Noted

	especially doing civil foundation work, though RDSO suggesting installation of same in loop line it is ignored on many times due to their own constraints. So We request further clarify on civil foundation and also on sleepers in case of load receptors in case we consider sleeper based load receptors.		
	We here by humbly submit that we initiated the process of applying for STQC certification as per your recent communication.  However We feel incorporating STQC certification in Spec is not a progressive step as we feel that technology and requirements are evolving in nature. Re-Certification for any modification is not industry friendly. We request you to drop this in the specification.	M/s Essae	Not accepted, as the STQC certification has been recommended by Railway Board and shall ensure the uniformity and genuineness of software used.
	Password Protection: We feel this is not recommended to hardware panel. Present tamper proof mechanism is sufficient to safe guard from the tampering and also there is password protection for the software as per the RDSO guidelines.	M/s Essae	There is no password protection in hardware panel.
	We also would like to bring to your notice that we require further clarity to on points mentioned on 3.1.2.7 and 3.1.2.8 to avoid assumptions	M/s Essae	Noted
<b>2.0 (i)</b>	Chance of derailed	M/s Weightrack	Contention is not clear.
<b>2.0 (ii)</b>	Schenck do not use Track switch/sensors for wagon/coach type detection. We use track sensors for Advance speed signalling only.	M/s Schenck	Noted
<b>2.0(ii)</b>	We recommend using only sensors instead of Track Switches for wagon/coach type detection to prevent errors and malfunctioning of the system because mechanical track switches often malfunction or get damaged leading to errors in assignment of weights to the correct wagons. For example, dual pole Wheel sensors, which are inductively acting sensors. These detect the metal mass of the wheel flange and generate electrical impulses that are interpreted by the system, to count axles, determine direction & take "rollback" into account.	M/s Trakblaze	This technology is being used in IR since long. Hence, not accepted.
2.0 (iv)	It is well known that the codal life of PCs and printers are 03 years only, but the PCs and printers are used throughout the 08 years span or more of weighbridge. Thus, a provision is required for replacement of the PCs & printer after completed their codal life.	Western Railway	PCs and Printers are part of CAMC and it has maintained its terms and condition.
<b>2.0</b>	Load receptor technology opens the innovation and it is as per the MINISTRY OF CONSUMER AFFAIRS, FOOD AND PUBLIC DISTRIBUTION (Published in the Gazette of India, Part II-Section 3 – Sub-section) Department of Consumer Affairs NOTIFICATION New Delhi, the 25 <sup>th</sup> July 2001. It is long overdue.	M/s Merit	Noted
<b>2.1.1</b>	RDSO stipulate the Minimum and Maximum of the weighing speed.	South Western Railway	Accepted and necessary amendments have been done.

2.1.2	Transducers/load receptors shall be able to weigh at least 35 t axle load and software should be able to compute weights up to 140 t for an individual wagon/coach	M/s Avery	Not Accepted as IR present requirement is up to 140 ton only.
2.1.2	The future upgradation requirement may be added/ considered here. For example, the weighing capacity of the WB should be upgradable to 50 T per axle in the future with minimum change in the deployed system.	M/s Trakblaze	-do-
2.1.5	Wagon or Coach Identification: The measurement technique used may be either axle by-axle or bogie by bogie or all axles together. However, the machine shall identify four axle wagons & brake vans and locomotives (and eliminate brake vans & locomotives in the weighment). It shall be possible to weigh all types of approved wagons & coaching stock available on Indian Railways, which include container wagons i.e. BLCA & BLCB and their variants,	M/s Avery	Accepted and necessary amendments have been done.
2.1.5	i. It should be capable of weighing long haul trains in a single hook. In this connection Railway Board letter no. 2014/Dev.Cell/IDEI/1 dated 19.11.2005 addressed to RDSO may please be connected. ii. Please clarify that these specifications are applicable to all types of approved wagons (including tank wagons) & coaching stock available on Indian Railways, since it is understood that FULL DRAFT EIMWBs are required for weighment of tank wagons as Centre of Gravity of these wagons are fluctuating. If these specifications are applicable for weighment of tank wagons also specifications may be amended as- It shall be possible to weigh all types of approved wagons & coaching stock available on Indian Railways, which include Tank Wagons, container wagons i.e. BLCA & BLCB and their variants, Parcel Vans, variants of passenger coaches and also VPU, VPH, their variants including long haul trains.	Central Railway	There is a separate guideline for weighment of Tank wagons from Railway Board. Hence, there is no need for inclusion of tank wagon in present specification.
2.1.5	It is requested you to let the vendor provide all details about the different parameter of Coach /Engine which come to operation of Railway so that system could be developed accordingly to suit the new Coach/Engine Weighing .Following parameter as per our technical experience I wish vendor need information 1) Type of Wagon/Engine 2) Axle Distance 3) l. No of Axle 4) Type of Wagon	M/s Pragati	Noted
2.1.6	We request also customer should be informed that in bi-directional, 100 mtr straight line on either side and let customer also should follow the RDSO Guidelines for bidirectional track installation and maintenance.	M/s Pragati	Noted.
2.1.7	Having a fully empty wagon connected to a fully loaded wagon can/may	M/s Trakblaze	This is not the general practice of IR.

	cause accuracy issues due to load transfer through the coupling because of height differences between wagons. Hence, measurement deviation shall be tolerated in this case.		
2.1.10	Tamper proof procedure to be clarified in detailed. The RDSO approved EIMWB firms are maintaining different procedures during calibration. 1) Pass word protection should be compulsory for hardware cabin in control console along with existing arrangement of bolting/locking of hardware in panel. 2) Logging details at the time of calibration are recorded and can be verified. This is the only proof that calibration was done during its schedule.	South Western Railway	1. Control console is sealed by legal metrology dept. 2. This provision is already provided.
2.1.10.1	PC shall be considered as a part of the complete system and track logic shall be allowed to be stored in the PC. Reason: The sophisticated EIMWB uses high end software which is stored in PC because it requires a high performance PC (CPU). To ensure complete security and eliminate all human interference to change or alter any track logic, as per OIML Global standards, there is no requirement for PC to work independently. Disconnecting the PC from outside network/Internet is sufficient to maintain the secure environment during the calibration. However, PC must be isolated physically from the LAN/WAN to avoid any unwanted interference in the system. This can safeguard the software including track logic in the PC.	M/s Trakblaze	After deliberation (during calibration, PC is not connected), it has been decided to retain the original clause.
2.1.10.1 & 2.1.10.2	Calibration: With the advent of latest technology all the Analog to Digital convertor IC's used in the digitizer are software programmable and the calibration facility is available through the dedicated application software. Means an application software used only for the static calibration of the AD Module. In case of application software the key board through the laptop is connected to the USB port AD module and calibrated. Our suggestion is to include the application software for calibration through Hand held device/ Laptop after the calibration the same shall be removed and after sealing no access shall be available to the USB port of the digitizer.	M/s Merit	After deliberation (during calibration, PC is not connected), it has been decided to retain the original clause.
2.1.10.3	With the latest technology, No separate calibration mode switches are available. All are done through soft key/ dedicated application Software. After calibration accesses to the calibration port is sealed. Hence our suggestion is to take care of this point suitably while revising the new specification.	M/s Merit	-do-
2.1.10.3	We use a dongle on the serial port of the controller as well as having an automated calibration count number & the ability to print all of the	M/s Trakblaze	Not accepted, After deliberation, it has been decided to retain the original

	parameter settings.		clause.
2.1.10.4	For the reason mentioned under 2.1.10.1, the mentioned information (to view calibration value, calibration date & time) shall be allowed to be displayed in PC.	M/s Trakblaze	-do-
2.1.10.4	Calibration history can be made available through serial port to PC in which we can provide the complete history of the test wagon calibration details. It may not be feasible to maintain the test wagon weigh details during the calibration within weighing console.	M/s Merit	-do-
2.1.10.5	The practical difficulty is explained below:- While Test wagon repeatability testing during stamping, 6 Test wagons are to be tested for both IN & OUT direction 10 times minimum in each direction. Control Console to store data of 120 wagon wise data, which we feel will be very difficult considering the memory requirements. Detailed calibration report can be maintained in the PC with minimum details in the control console.	M/s Merit	Not accepted. If test wagon data is not saved in control console then the same may be printed for record purpose.
2.1.10.5	For the reason mentioned under 2.1.10.1, the printer shall be allowed to work with the PC and store the data in the PC all the time. The PC is an integral part of the complete system.	M/s Trakblaze	After deliberation, it has been decided to retain the original clause.
2.1.10.5	All EIMWB firms should follow that – “weighing control console must be capable of saving the calibration data/weight of each test wagon/train for record purpose” as a proof.	South western railway	In any way, the calibration data shall be available for record purpose. Therefore, it is kept optional to save the data in control console.
<b>2.1.11</b>	A minimum of 100 meter straight track length shall be made available with a gradient of not more than 1:400 on either side of Electronic In-Motion Rail weighbridge. This portion of the track should be on Ballast cushion/part or full concrete, well maintained and well drained so that there is no water accumulation. The level, twist and alignment shall be maintained to main line track standard of IR. Site earmarked should be as per current RDSO specification and preferably approachable by road.	M/s Avery	After deliberation, it has been decided to retain the original clause. It is prudent that Tenderer should study the parameters before commencing the works undertaken.
<b>2.1.11</b>	The modern Electronic In-Motion Weighing Bridges are capable of weighing the rakes with minimum 50 metres of straight track on either side of the weighbridge. They can be installed on a 4 deg curve, having a minimum radius of 150 m. It can also be installed on a 1:200 gradient or better. However, in this case the gradient should be the same for 2 wagon lengths on either side of the weighbridge. If installed on a curve, speed should be restricted to 5 Km/h. Hence, RDSO shall consider the specify requirement of the straight rail track to minimum 50 m with 1:200 gradient or better. The choice should be given to tenderer. The tenderer can optimise the requirement based on the ground conditions and availability of the straight track. This will save a lot of efforts and money	<b>M/s Trakblaze</b>	After deliberation, it has been decided to retain the original clause.

	of Indian Railways where straight track of 100m is not feasible or easily not available.		
<b>2.1.11</b>	We agree on your point for track maintenance and requirement. We request all the customer need to be informed the same for track maintenance as per RDSO .Track foundation base need to be monitored from the concerned Division/Zone along on wish for smooth operation, a survey team need to be created from Railway, Vendor representative and technical team from Customer who would inspect the site on periodic manner for track condition and same technical information /Photo should be uploaded to centralized monitoring for knowledge sharing and technical documentation for suggestion and future reference .RDSO Specification/guidelines also need to be sent customer to abide by to take care of track maintenance electric power maintenance. Civil Diagram for track installation and commissioning should be issued to concerned railway authority of Weighbridge .Customer need to follow the track diagram guidelines issued by RDSO for track installation and management.	M/s Pragati	Noted.
<b>2.1.11</b>	Track requirement Drainage facility should be made mandatory on 100 meters on either side of weighbridge along the track to avoid water logging in weigh- rail area during heavy rains.	Western Railway	This provision is already there.
<b>3.0</b>	Chance of derailed	M/s Weightrack	Contention is not clear. To be submitted in detail.
<b>3.1.1</b>	Query: If 5.5 m length of Rails be valid for load receptors too? Minimum length of Rail that can be used should be specified. Bonded weigh rail can be specified as minimum 5.5m as now.	M/s Avery	Other than bonded weigh rail; minimum length of weigh rail is not required.
<b>3.1.1.1</b>	Weigh Rail or weigh zone must be electrically/electronically isolated from approach Rail by providing glued joint between weigh rail and approach rail to prevent signaling voltage and OHE return current as well as to protect weigh rails/load receptor from lightning.	Central Railway	After deliberation, it has been decided to retain the original clause.
<b>3.1.1.1</b>	Bypass the Weigh rail/weigh zone point to be clarified in detailed. Since, Bypassing the rail of length 5.5 mtr is not possible from Signalling dept.	South western railway	-do-
<b>3.1.1.1</b>	Deviation: isolation joint between weighing and non-weighing rail to be arranged by respective railway authority.	M/s Schenck	-do-
<b>3.1.1.1</b>	Weigh rail/Load receptor in the RDSO specification WD-29-MISC-19 Rev-1 have changed with new title weigh rail/load receptor. RDSO may confirm that earlier design as per RDSO specification WD-29-MISC-19 weigh rail will be replaced with a different design and engineering superseding the earlier one. RDSO may also describe load receptor and its working procedure for operation.	M/s Digital	IR has no plans to switch over to any specific technology rather it is an endeavour to make the specification technology neutral. As per the legal metrology general rules, Load receptor may be described as a mechanism of weighing instrument,

			inclusive of rails. Hence, load receptor and weigh rails are synonymous terms. And introducing the term load receptor as a general term in lieu of weigh rail shall not affect the status of existing vendor base.
3.1.1.1	We believe the rail replacement is applicable to individual EIMWB system requirement. If any EIMWB system does not require cutting or changing rail then this clause is not applicable.	M/s Trakblaze	After deliberation, it has been decided to retain the original clause.
3.1.1.3	We recommend using only sensors instead of Track Switches for wagon/coach type detection to prevent errors and malfunctioning of the system because mechanical track switches often malfunction or get damaged leading to errors in assignment of weights to the correct wagons. For example, dual pole Wheel sensors, which are inductively acting sensors. These detect the metal mass of the wheel flange and generate electrical impulses that are interpreted by the system, to count axles, determine direction & take “rollback” into account.	M/s Trakblaze	-do-
3.1.1.4	RDSO should ensure that all EIMWB firms should provide this Automatic Zero setting menu in panel.	South western railway	It should get automatically set at zero without any manual interference.
3.1.1.4 C	Suitable input device as per clause 2.0(iv) shall be provided for inputting the data from time to time.	M/s Avery	Noted and necessary amendments have been done.
3.1.1.4 F	Suitable fault finding software routines for display of major faults occurring in the system shall be provided. Suitable LED panel / Message display should be provided on the console/ <b>operator PC</b> , each LED/message should light up indicating the type of fault for diagnostics	M/s Avery	After deliberation (during calibration, PC is not connected), it has been decided to retain the original clause.
3.1.1.4 G	Auto zero function for eliminating zero error resulting from drift shall be provided <b>before each weighment, If not able to zero, weighment should be not done.</b> Auto calibration and balance should be operable up to 4% capacity of the system	M/s Avery	Noted and necessary amendments have been done.
3.1.1.4 H	To be removed	M/s Avery	Revised 3.1.1.4 g) as: Automatic zero setting of the system for eliminating zero error resulting from drift shall be provided after each and every weighment cycle. Auto calibration & balance should be possible in case out of balance is within 4% of the capacity of system.  3.1.1.4 h): deleted.

3.1.1.5	We are supplying Battery Backup and UPS as per RDSO. But the battery management and care are not taken care by operator. Also, customer adamant on their word that all thing ok ignoring our advice for proper battery maintenance. A guidelines need to be issued to customer for normal operations and power management to follow for smooth operations of the weighbridge.	M/s Pragati	Noted
3.1.1.5	This point should be explained in detailed. i.e. “memory protection in case of power failure”	South western railway	There should be a suitable electronic device in control console for saving the data. The clause is self-descriptive. No change is envisaged
3.1.1.5	Power equipment and battery backup: Suitable ratings of ELCB and high/low voltage cut off devices should be installed as a mandatory measure for protection of the device, by the Electrical Department.	Western railway	There is already a provision for voltage stabilizer/CVT and surge protection device for protection of equipment.
3.1.1.6	We are following guidelines of lighting and transient protection defined by RDSO Clause. But in coming days, you have noticed the intensity and frequency of thundering increased which are damaging electrical equipment. Also, the weighbridge installation and commissioning and maintenance are taken care by Railway authority, customer and us. We time to time guide the customer for the same but a demo video class/demo of the installation of the electronic protection need to be issued to customer for smooth installation work. It is better if the railway take care of electrical lighting protection installation and transient protection on approved diagram from RDSO.	M/s Pragati	Noted
3.1.2.2	The weighbridge PC should have FOIS functionality <b>and should be able to exchange data with FOIS of Railways</b> . The weighbridge manufacturer shall, upon direction from Indian Railways, either now or at any future date, enable the weighbridge software to <b>receive and</b> transmit weighment data in the prescribed syntax, sequence and format with/without prescribed encryption against the data transfer protocol. <b>The weighbridge software will not transfer data to any other system except FOIS</b>	M/s Avery	Noted and necessary amendments have been done.
3.1.2.6	While in weighing mode screen should show number of Axles in the wagon/coach, its <del>Gross</del> weight and its sequence number. Date and Time should be taken from system date and time.	M/s Avery	Not accepted.
3.1.2.7	RDSO should ensure that all EIMWB firms must be capable of removing Brake van weighment during rake weighment	South western railway	There is already a provision for same.
3.1.2.7	Is this a manual operation?	M/s Trakblaze	It may be manual process before starting weighment cycle however there shall not be any manual

			intervention possible after completion of the weighment cycle.
<b>3.1.2.9</b>	May be removed.	M/s Avery	Noted and the same has merged with clause no. 3.1.1.4 (g).
<b>3.1.2.10</b>	Availability for “Weighing long haul trains of composition” to be checked	South western railway	All vendors have been communicated to ensure this facility in the software.
<b>3.1.3 C</b>	Query : IF any other data , like wagon type (BOXN, BOBR etc), product, under/overload etc., apart from Wagon coach identification no allowed to appear in print outs	M/s Avery	Print out requirements stipulated in the specification is minimum requirement.
<b>3.1.5</b>	The operating software should have in built security so that no unauthorised person can alter/interfere with the system to ensure reliability of weighment. The system should have adequate capacity to store the record of 200 rakes weighed without having to delete/offload for storage. These records will be normally preserved for about six months and the system should not permit any alteration of records after the weighment is completed. <del>There should be provision to record the weighment on DVDs. It should not feasible to modify these records after of loading on DVDs. Operating software should have the capacity to store at least last 100 nos. of login particulars without facility of editing.</del> Query: After 200 weighments are complete what should be done? If previous weighments to be deleted? May kindly be added in specifications.	M/s Avery	Noted and necessary amendments have been done.
<b>3.1.5</b>	EIMWB should conform to WELMEC Guide 7.2 (Measuring Instruments Directive 2004/22/EC) or equivalent which is a prerequisite to pass the OIML R106 type approval process. This directive lays down the legal requirement for the software to be secure and that all data cannot be tampered with, altered, deleted or changed in any way. The practicality of this directive, ensures, that each time anyone makes the slightest change to the configuration of the system, the access counter increases by 1 integer. In addition, this is logged into the inaccessible, secure database will also include time/date input and user log on information. This ensures total protection of not only the systems calibration, but also all log files and configuration data. The password protection can be dual level, ensuring that both a registered supplier and a nominated Railway official need to input their details to gain access to the configuration. This would work in Tandem with the secure database and detail both passwords had been entered and at what time and date. Again, this would increase the integer for and change.	M/s Trakblaze	Noted and after deliberation, it has been decided to retain the original clause.
<b>3.2.2</b>	Manufacturers shall be required to submit certified copy of EIMWB software from the STQC Directorate, Ministry of Electronics and	M/s Avery	Noted and after deliberation, necessary amendments have been

	Information Technology, Govt. of India which should be fully compatible to this specification <b>Software requirements 3.1.2 and 3.1.3</b> for record and quality assurance		done.
<b>3.2.2</b>	<p>We strongly recommend to use only OIML R106 certified EIMWB along with re-certification from Indian Metrology (India is a member of OIML) in Indian Railways as this is the global standard. This will ensure high accuracy, better reliability and the highest level of security against any manipulation in the system. OIML R106-1 (2011), section A.7.3. describes EMC Testing Procedure. There are a number of tests within the EMC testing procedure, as per the following list:</p> <ul style="list-style-type: none"> <li>• Mains dips/interruptions (if EUT mains powered or DC-powered via mains adaptor)-IEC 61000-4-11</li> <li>• Bursts on mains (if EUT mains powered or DC-powered via mains adaptor) and I/Os - IEC 61000-4-4</li> <li>• Surges on mains (if EUT mains powered or DC powered via mains adaptor) and I/Os-IEC 61000-4-5</li> <li>• ESD-IEC61000-4-2</li> <li>• Radiated immunity( 80MHz to GHz, 10V/m, 80% AM 1kHz sine wave)-IEC-61000-4-3</li> <li>• Conducted immunity (0.15 TO 80MHz, 10V) on mains (if EUT mains powered or DC powered via mains adaptor) and I/Os-IEC61000-4-6.</li> </ul> <p>In addition to the above, EIMWB shall conform to Guideline from STQC Directorate, Ministry of Electronics and Information Technology, Govt. of India or WELMEC Guide 7.2 (Measuring Instruments Directive 2004/22/EC) or equivalent. This is a prerequisite to pass the OIML R106 type approval process. This directive lays down the legal requirement for the software to be secure and that all data cannot be tampered with, altered, deleted, or changed in any way.</p>	M/s Trakblaze	Noted and after deliberation, necessary amendments have been done. RDSO is following the rules mandated by Metrological department, Government of India.
<b>3.2.2</b>	As per STQC Directorate, an SRS (Software Requirement Specifications) to be submitted to the Directorate they will evaluate, understand and then certify the software. SRS to be prepared as per the IEEE 830, RDSO Specifications of IEIMWB. In our view SRS is interpreted from the software point of view by the respective vendors which could be different from one vendor to other vendor. We suggest RDSO to prepare the basis SRS and standardize it based on the inputs from the vendors and there after either STQC Directorate or any other approved Software certifying agency give the certification for the specific SRS which will be common for all the vendors. Also whenever the version change is necessitated if	M/s Merit	The IT audit of software and certification from STQC is mandated by Railway board. In addition, SRS to be formulated by the firm itself as software of EIMWB is the proprietary items of vendors.

	<p>the base version is approved by the SQTC then vendor can self-certify and give a compliance report to RDSO/Railway before implementation. This is similar to the model approval issued by Legal Metrology for a particular design/model series.</p> <p>Practically obtaining STQC for every small change will be very difficult as the Software requirement of the end users at times the private plants/customers are having different requirements in terms of data processing/invoicing etc. the core of the weighment data is transmitted to FOIS as soon as the rake weighing is over.</p>		
3.2.2	<p>Clause no. 3.2.2 in the RDSO specification WD-29-MISC-19 Rev-1 regarding certification of software from STQC directorate, Digital weighing system has submitted documents and further correspondences in this regard awaited at this office. So this is requested RDSO/Railway may kindly send advice /appropriate guideline for certification of software from STQC.</p>	M/s Digital	Noted.
3.4	<p>We practice issuing customer a GA Diagram to customer for weighbridge installation along with Room Diagram before starting any Civil Work for the Rail Weighbridge. But sometimes, we are only provide the work for supply of equipment rest civil work are done by the customer on their risk. As proper sub-base and foundation are necessary for proper accurate weighing .We request customer need to follow guidelines for taking care of track condition and room maintenance for smooth operation of the weighbridge. A separate guidelines need to be issued to customer as code of conduct for hassle free operation of the weighbridge. We faced that most customer are adamant not to listen the track condition problem and blame only on us for inaccurate weighment. Foundation /support work as done by tenderer, it need to follow RDSO Guidelines for installation and civil work of foundation work. A guidelines need to be issued to customer from the RDSO to follow during lighting to avoid using machines /electronic equipment so to avoid any damage caused by lightning /thunderstorm.</p>	M/s Pragati	noted
3.4.1	<p>In order to minimize leakage of signals from sensor/load receptor to control console) the maximum distance of control room from weigh rails may be specified.</p>	Central Railway	As the EIMWB electronics, software and design configuration are proprietary of vendors and varies from system to system therefore the overall weighbridge configuration including referred infrastructure shall be decided by the vendors itself.
3.4.2	<p>Foundation/Support- A <del>slab type</del> of concrete foundation support should be provided for laying concrete sleepers throughout the underneath length</p>	M/s Avery	Not accepted.

	of weigh rail/weigh zone, if required for installation. Foundation work should be carried out by the tenderer and shall form part of the contract. <b>Concrete, if used should be of M30 or higher grade.</b> Foundation drawing shall be furnished with the offer. Foundation/Support shall be constructed so as to last minimum 8 years from the date of commissioning. Any damages, if any, shall have to be repaired by OEM during Warranty/AMC+C36		
3.4.2	Schenck EIMWB system doesn't require any concrete slab for laying the concrete sleepers underneath the weigh rails. In this context, please find below our technical recommendations* Ref. Drawing Attached along with this comments Report (Placed at page no. 223)	M/s Schenck	After deliberation, it has been decided to retain the original clause.
3.4.2	Clause no. 3.4.2 Foundation & support in the RDSO specification WD-29-MISC-19 Rev-1, RDSO/Railway may advise or provide guideline with detail description along with dimension for design and engineering of foundation/support and time required for construction, which will have a life span of 8 years. Basic engineering for the work may be implemented in the specification Rev-1 by RDSO/Railway that can help OEM to execute work under single guideline and its compliance.	M/s Digital	Noted
3.4.2	The paragraph is contradictory, It is newly added "Foundation – If required for Installation" (marked in RED). In continuation it is also mentioned that foundation work should be carried out. OEM should be given the liberty to decide the requirement of civil foundation or not. As long as the accuracy is maintained.	M/s Merit	Noted, necessary amendments have been done.
3.4.4	It shall be mandatory to follow IRS track structure & fittings, for the weighbridge installation which shall be as per RDSO drawing no T-2496 (latest alt), with the provision of <del>slab type</del> foundation/apron, <b>if required</b> , as per Indian Railway Standards, provided underneath the weigh rail/weighzone	M/s Avery	Not accepted.
3.4.4	The weigh rails will sit on T-2496 .The system with load receptor will be with RDSO approved sleepers other than T-2496. The fittings for this sleeper will also are RDSO fittings	M/s Schenck	Noted, necessary amendments have been done.
3.5.2	RDSO should ensured this clause should be included in manual.	South western rly	Noted
4.1	We request you to intervene in the metrological requirement process required for stamping and verification of the weighbridge. The whole process we request you should look that could be made transparent and smooth so that the date from the breakdown to restoration could be minimized. We are facing that the delay in restoration of the weighbridge is generally due to lengthy legal metrology process and unavailability of the LMO of the concerned State. If the Legal Metrology could be monitored through Central Government Authority, we could minimize	M/s Pragati	Noted

	the delay in timing of restoration of the weighbridge and its commercial operation” As you could understand, it could be easy to monitor the weighbridge and smooth operation of the weighbridge if the customer and vendor both have knowledge and diagram defined by RDSO along with any Video Guidelines/Demo class provide before installation of the weighbridge and sub-base foundation and track installation .Also laziness in legal metrology process should be taken care of to decide the penalties imposed on vendor and also the customer in delay in restoration and commissioning of the weighbridge. Legal Metrology take ample time to start the weighbridge. Also, we request you on as per your comfortable period to call representative of the RDSO authorized Vendor to give demo class/Video guidelines for any updation/new methology in in-motion Weighing Installation and maintenance.		
<b>4.1.3</b>	Query: The Tare weight entry is scale interval of 10 kg, if OK or it should be in 200 kg interval. Note: If empty wagons are weighed on IMWB, the scale interval be 200kg.	M/s Avery	All EIMWB shall be connected to FOIS server and tare weight data shall be received from server so that manual entry of Tare weight does not arise.
	d should be <= 100 kg for 0.5 Accuracy Class	M/s Avery	Noted and necessary amendments have been done.
	Sum of weight of reference wagons (at least 60 nos) should not exceed the tolerance allowed.	M/s Avery	Noted
<b>Para 4.2</b>	In order to ensure accuracy of weighment, instructions issued vide Railway Board letter no. 99/Dev.Cell/ IDEI/1 Vol.6 dated 30.11.2006 regarding maintaining almost uniform speed over EIMWB may be considered to incorporated in this specifications.	Central Railway	Noted and necessary amendments have been done.
<b>4.2.8</b>	Firm should keep the EIMWB in working condition in between two calibrations period. i.e, Calibration, repeatability test in next six months, and Calibration for annual Stamping certificate. If any break down arises, then firm should take responsibility for calibration/stamping	South western railway	It should be carried out as per CAMC between the firm and user.
<b>6.0</b>	1) UPS batteries should be added in firm’s account, since all electrical equipment’s to be maintained by firm to up keep the system in good working condition. 2) In addition to this point, another point to be included – “ During 8 years of life, Maintenance of all electrical Earth pits to be maintained by firm only”- Since, Firm complaints that maximum breakdown’s are happened due to non-maintenance of electrical earth pits. It will decrease the breakdown time of machine when it was maintained by firm.	South western railway	1. Since it is a consumable item, it is to be maintained by the user as it is in the case of other consumables such as printer ribbon, printer cartridge and fuses etc. 2. Earth pit should be maintained by user as the availability of their personnel at EIMWB site shall be more than that of firm.

6.1	The Contractor shall warrant that everything to be furnished hereunder shall be free from defects and faults in design, material, workmanship and manufacture and shall be of the highest grade and consistent with the established and generally accepted standards for goods of the type ordered and in full conformity, with the contract specifications and samples if any and shall if operatable, operate properly.	Western Railway	These requirements may be stipulated in the tender document by the user.
6.1.4	RDSO should inform to all the EIMWB firms that spare parts at hub to be maintained before commissioning of new EIMWB. Since, they are failed to maintain the spare parts hub even after completion of Warranty period and also further in CAMC period also.	South western railway	Noted
6.1.4 (a)	We are maintaining the required quantity of dedicated spare items at our factory location. These spares will be despatched within a very short notice period and will be delivered at Rly owned EIMWB sites under Warranty/CAMC within 72 Hrs. For private owned EIMWB's, the end customer keeps the recommended spares in their stock.	M/s Schenck	Noted
6.1.4 (c)	We are maintaining the required quantity of dedicated spare items at our factory location. These spares will be despatched within a very short notice period and will be delivered at Rly owned EIMWB sites under Warranty/CAMC within 72 Hrs. For private owned EIMWB's, the end customer keeps the recommended spares in their stock.	M/s Schenck	Noted
6.2	This warranty shall survive inspection of payment for and acceptance of the goods and shall expire after 24 months form the date of commissioning of machine at ultimate destination in India, any approval of acceptance by purchaser of the Stores or of the material incorporated here in shall not in any way limits the contractor's liability.	Western Railway	These requirements may be stipulated in the tender document by the user.
6.3	The contractor's liability in respects of any complaints defects and or claims shall be limited to the furnishing and installation of replacement parts free of any charge or the repair or defective parts only to eh extent that such replacement or repairs are attributable to or arise form faulty workmanship or material or design in the manufacture of the stores, provided that the defects are brought to the notice of contractor within 3 (Three) months of their being first discovered during the warranty period or 3 (Three) months from the date of expiry of warranty period or at the option of the Purchaser to the payment of the value, expenditure and damage as hereafter mentioned.	Western Railway	
6.4	The contractor shall, if required, replaced or repair the goods or such portion thereof as is rejected by the Purchaser free of cost at the ultimate destination or at the option of the purchaser, the contractor shall pay to the purchaser value thereof at the contract price or in the absence of such price at price decided by the Purchase, and such other expenditure and	Western Railway	

	damages as may arise by reason of the breach of the condition herein specified.		
<b>6.5</b>	All replacement and repairs that the purchaser shall call upon the contractor to deliver or perform under this warranty shall be delivered and performed by the contractor within 1 (One) weeks, promptly and satisfactorily, the warranty period will be extended by the number of days the machine remains under breakdown during the warranty period and the warranty Bank Guarantee would be returned at the end of such extended warranty period for the full machine.	Western Railway	
<b>6.6</b>	If the contractor so desires, the replaced parts can be take over by him or his representative in India for disposal as he deems fit at the time of replacement of goods/parts. No clam whatsoever shall lie on the Purchaser for the replaced parts thereafter.	Western Railway	
<b>6.7</b>	The warranty herein contained shall not apply to any material which shall have been repaired or altered by the Purchaser, or on his behalf in any way without the consent of the contractor, so as to effect the strength, performance or reliability or to any defects to any part due to misuse, negligence or accident.	Western Railway	
<b>6.8</b>	The decision of the Purchaser in regard to contractor's liability and the amount, if any, payable under this warranty shall be final and conclusive.	Western Railway	
<b>6.9</b>	The warranty period in the offer shall survive for a period of 24 months form the date of commissioning of machine. If the offer is found with less that 24 months or ambiguous/uncertain on warranty condition, the tender is liable to be rejected.	Western Railway	
<b>6.10</b>	The purchaser, without prejudice, shall be entitled and it shall be lawful on his part to forfeit the amount of the Guarantee Bond furnished in respect of warranty as per relevant clause in whole or in part in the event of any defaults, failure or neglect on the part of the contractor in the fulfillment or performance in all respects of the warranty provisions under reference or failure to extend the validity of Guarantee Bond of the period of break down occurred during warranty period and for such part(s) immediately connected thereto as per clause 6.5	Western Railway	
<b>6.11</b>	Warranty will be applicable on UPS batteries and fuses associated with EIMWB as these concomitant accessories are highly likely to be unavailable in the contractor shall be liable to provide the same as and when required up on tis failure.	Western Railway	
<b>Add. clause suggestion</b>	Earth Pit to be Jointly Inspected once in every 6 months during the periodical Health check-up Visit of EIMWB. Further, railway should perform the following for proper up keeping of the earth pits: a. Basic maintenance of the Earth pits as per Railway standard.	M/s Schenck	Noted. The same shall be intimated to railway board to include in maintenance guidelines.

	<p>b. Arrange Earth Meggar during the half yearly inspection.</p> <p>c. A log book should be maintained for the EIMWB earth pits and the earthing resistance values to be updated after every Inspection.</p>		
	<p>Before each Half-yearly calibration with Railway test Van, a Joint inspection must be carried out by the EIMWB user department in presence of the OEM representative to maintain the track parameters as per WD-29-MISC-19 (Rev-1) Clause 2.1.11. Subsequently a track alignment protocol to be signed off by both the parties.</p>	M/s Schenck	Noted.
	<p>Control room basic maintenance.</p>	M/s Schenck	Noted
	<p>Remote Access system must be introduced in Railway owned EIMWB sites to attend any minor software/operation related issues. This will save the travel time of service engineer as well as increase the uptime of the machine. Remote Access session logs can generated in the system for audit purposes. Anyway, for major breakdown of hardwares, calibration requirements site visit will be necessary.</p>	M/s Schenck	Not accepted.
<p><b>* For concrete foundation, We recommend the following:</b></p>	<p>We do not recommend any concrete foundation there. Only the existing sleepers (8 nos. in under the weighrails) location to be reoriented/repositioned according to our drawing.</p> <p><b>Benefits of Ballast cushioning support of sleepers over the concrete slab support:</b></p> <ol style="list-style-type: none"> <li>1. Reduced cost of installation.</li> <li>2. Reduced time of installation and thus reduced track shutdown requirement. Track side installation work can be completed typically within one working day.</li> <li>3. Ease of track maintenance and perform track alignment.</li> </ol>	M/s Schenck	Not accepted.
<p><b>Trakblaze Special comment:</b></p>	<p>EIMWB is very critical and important system to secure government revenue collection. Hence, accuracy, reliability, security and the robust quality are of utmost importance for preventing revenue loss due to inaccurate system measurements. As RDSO is working to revise the specification, it is recommended to incorporate the latest existing technology complying to global standard and specifications (like OIML, WELMEC GUIDE 7.2) along with Indian metrological specifications in place and in use around the world. This will ensure the highest level of security in the measurement process. Also, the latest specifications and conforming systems will ease the installation process, reduce the requirement of traffic block while installation, reduce the maintenance efforts, eliminate the possibility of human interference / tampering in the measurement process and hence securing the revenue of the Indian Railways.</p>	M/s Trakblaze	RDSO is following the rules mandated by Metrological department, Government of India.