

Reasoned Document for draft of specification no. MMDTS 18034, Rev-5

Comments/suggestions received from firms and MCF's decisions on them are given below.

1. Clause no. 2 (Documents to be submitted along with offer)(CP-):

- i. First time supplier/OEM as per Rev.05 of this specification shall submit clause wise comments on the specification for compliance and deviation (if any).
- ii. Supplier/OEM shall submit test certificate of parameters (clause 3, sr. no. V to XV) of specification from:
 - (a) Any NABL accredited lab (in-house or outside) having tests & test method mentioned in clause 3(sr. no. V to XV) in its scope of accreditation from NABL or report from NTH/NPL. Test report must contain NABL logo/seal, in case reports are submitted from NABL accredited lab.
 - (b) In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, any government's lab in India report will be acceptable.

In absence of any of above details for offered product, the offer would not be considered.

- iii. The submitted test reports along with offer shall not be more than one (01) years old from the date of tender opening except for type test (Fires and smoke test) (item no. XIII of Para 3). Test report for Fire and smoke characteristics as per EN 45545/2 R1/HL3 Shall not be more than three (03) years older from date of tender opening.
- iv. Valid audit report/CCA report except by bidder seeking developmental order based on availability of M&P & shall be subjected to CCA before placement of purchase order if its bid is acceptable.

Firm's comments:

(i) M/s G.S. Industries- Jalandhar (CP-45):

Comments on clause no. 2(ii):We would also like to suggest that, in cases where certain tests require specialized facilities that even government laboratories do not possess, non-NABL (National Accreditation Board for Testing and Calibration Laboratories) accredited labs should be allowed to perform these tests. This flexibility would ensure that testing can proceed without unnecessary delays or limitations due to the unavailability of certain facilities in government labs (CP-45).

MCF decision: Acceptable clause 2(iv &c) added as follows:

In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in clause 3(sr. no. V to XIV) in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for the such specific tests.

(ii) M/s Nippon paint Pvt. Ltd.-Ranipet (CP-42):

Comments on clause no. 2(ii):

You have mentioned, in cases NABL or NTH/NPL is not having testing facilities (with test method mentioned in the specification) to be accepted by any government lab.

Since, DOI and cyclic corrosion not available in Government lab also, may be accepted from any NABL laboratory having test facility of paint without NBL logo or firms work test certificate (CP-42).

MCF decision: Acceptable, clause 2(iv &c) added as follows:

In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in clause 3(sr. no. V to XIV) in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for the such specific tests.

2. Clause no. 4(Warranty period):

In case of failure of the Paint with respect to gloss retention, premature failure in colour retention (colour fading) or patches/peel-off and blistering etc., the firm executing the supply and apply contract shall rectify the complaint free of cost, at the base depot of the affected coach as per convenience and requirement of the user Railway. This shall be carried out without affecting the exterior aesthetics of the coach. ***This repair shall be permitted only once in warranty period. If there is a repair requirement after this, the paint shall be treated as rejected during warranty period.***

Firm's comments:

(i) M/s G.S. Industries- Jalandhar (CP:44 to 45):

We kindly request the deletion of the last line, '**This repair shall be permitted only once in the warranty period. If there is a repair requirement after this, the paint shall be treated as rejected during the warranty period.**' This clause may cause issues, as even for small maintenance tasks, the paint supplier may need to visit multiple times over the six-year warranty period (CP-45).

Additionally, there are several major factors contributing to the deterioration of the paint, which should be considered in this context:

1. **Improper Cleaning Methods:** The coaches are often cleaned in ways that are not suitable for maintaining the paint's integrity.
2. **Poor Maintenance of Coaches:** Insufficient maintenance practices further lead to the degradation of the paint.
3. **Application of Vinyl Wrapping:** In many cases, vinyl wrapping, such as advertisements like the recent Maha Kumbh campaign, is applied to coaches. *When this vinyl is removed, the adhesive often remains on the paint, which not only damages the surface but also attracts dust and debris, further affecting the paint quality.*

Considering these points, I believe it would be more reasonable to remove the restriction on the number of repairs allowed within the warranty period."

MCF decision:

Paint damage on exterior of surface on sidewall due to removal of vinyl wrapping, such as advertisements like the recent Maha Kumbh campaign, is applied to coaches. *When this vinyl is removed, the adhesive often remains on the paint, which not only damages the surface but also attracts dust and debris, further affecting the paint quality,* is exempted from warranty period.

(ii) M/s Nippon paint Pvt. Ltd.-Ranipet (CP-42):

The last line of **"This repair shall be permitted only once in the warranty period. If there is a repair requirement after this, the paint shall be treated as rejected during the warranty period"** may be kindly deleted.

Since, even for small maintenance **damage or removal of stickers even though we are not at fault, the paint supplier may be called for to do the rectification in the multiple times of 6 years. Hence this line may be deleted.**

MCF decision (on both firm comments): Acceptable and modified as under:

In case of failure of the Paint with respect to gloss retention, premature failure in colour retention (colour fading) or patches/peel-off and blistering etc., the firm executing the supply and apply contract shall rectify the complaint free of cost, at the base depot of the affected coach as per convenience and requirement of the user Railway. This shall be carried out without affecting the exterior aesthetics of the coach. *This repair shall be permitted only once in warranty period. If there is a repair requirement after this, the paint shall be treated as rejected during warranty period.*

However, if reason for defacement of paint is on account of wrong maintenance/handling by depot or workshop of Indian railways, warranty obligation will not be acceptable.

3. Clause no. 6 (PROTOTYPE APPROVAL):

The Firm shall supply a sample along with the following details at the time of prototype testing as per PO or as per applicable guideline:

- i. Supplier shall submit test certificate of parameters (clause 3, sr. no. V to XV) of specification from:
 - (a) Any NABL accredited lab (in-house or outside) having tests & test method mentioned in clause 3 (sr. no. V to XV) of specification in its scope of accreditation from NABL or report from NTH/NPL. Test report must contain NABL logo/seal, in case reports are submitted from NABL accredited lab.
 - (b) In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, any government's lab in India report will be acceptable.
- ii. Material and Safety data sheets.
- iii. The bulk manufacturing shall be undertaken only after approval of Prototype. This clause of Prototype approval is applicable for the first supply by new firm as well as in case of change of design and change of manufacturing process or raw material.

Firm's comments:

(i) M/s G.S. Industries- Jalandhar (CP-42):

(a) Comments on clause no. 6(i):

We would also like to suggest that, in cases where certain tests require specialized facilities that even government laboratories do not possess, non-NABL (National Accreditation Board for Testing and Calibration Laboratories) accredited labs should be allowed to perform these tests. This flexibility would ensure that testing can proceed without unnecessary delays or limitations due to the unavailability of certain facilities in government labs (CP-45).

MCF decision: Acceptable, clause 2(c) added as follows:

In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in clause

3(sr. no. V to XIV) in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for the such specific tests.

(b)Comments on clause no. 6(Prototype approval):

The prototype type approval should be required only for first-time suppliers. Since the specification has undergone five revisions in the last five years, it means that firms would need to obtain prototype approval every year. This is practically not feasible due to the long testing process involved.

Additionally, process auditing is already included in the specification, which would result in the firm spending the majority of its time conducting audits rather than focusing on actual production and improvements.

Furthermore, TPI (Third-Party Inspection) audits will still be conducted for routine materials. This approach ultimately leads to a significant increase in costs without benefiting anyone, as it creates unnecessary administrative burdens and does not contribute to the overall quality or efficiency of the process.

Additionally, the specification itself mandates a 6-year warranty, which is inherently sufficient to ensure the quality of the material. This extended warranty period already serves as a guarantee for the durability and performance of the product, making further audits or approvals redundant

MCF decision: Not acceptable. Prototype approval is applicable for the first supply by new firm as well as in case of change of design and change of manufacturing process or raw material. It is necessary requirement.

4. Clause no. 7 (Painting Sequence and detailed activities involved):

SN	Activity
1	Cleaning and De-greasing as per work instructions no. PLW0001-2013 dated 06.08.2014.
2	Application of APP on complete interior and exterior as per specification no. MDTS 48279 Rev-04.
3	Body Filler application as per MDTS 176 Rev-4 + Putty application in single coat.
4	Elastified paint as per MDTS 094 Rev-01, amendment no. 1 on Under frame bottom.
5	Putty rub down and cleaning
6	Surfacer application with Ist shade of PU top coat i.e. Signal Red to IS:5 shade 537 or as specified on both sides of sidewall
7	Rub down for surface roughness and cleaning with masking
8	Application of PU top coat Grey to RAL 7001 as specified
9	Anti-graffiti coating compatible to above painting scheme should be ensured by the firm. Quality parameters shall be ensured as per M&C/PCN/127/2020, Rev.02 (except gloss at 60 – Degree, sr. no. 3 of table 1). Gloss value shall be minimum 95 at 60 degree on PU top coat
Total Timing allowed for complete painting of coach as per this specification is around 30 hrs.	

Firm's comments:

(i) M/s Nippon paint Pvt. Ltd.-Ranipet (CP-42):

Comments on SN. no. 9 of clause no. 7:

(Except gloss value and single or two pack) since, M&C/PCN/127/2020, Rev.02 is a single pack.

MCF Design: Accepted. For clarity, clause modified as under:

9	Anti-graffiti coating (single pack or two pack) compatible to above painting scheme should be ensured by the firm. Quality parameters shall be ensured as per M&C/PCN/127/2020, Rev.02 (except gloss at 60 –Degree, sr. no. 3 of table 1). Gloss value shall be minimum 95 at 60 degree on PU top coat
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Clause no. 8(Quality Assurance, test & documents):

Requirement description	Requirement detail	<u>Remarks</u>
Quality Assurance plan	<p>The manufacturer shall have the detailed quality Assurance plan. The Plan shall be submitted for the approval by respective PU. The QAP document shall clearly document the following and control the test record formats.</p> <ol style="list-style-type: none"> 1. Control over outsourced products and processes 2. Testing of raw material and establishing its traceability 3. Sampling Plan 4. Type Tests 5. Routine tests 6. Acceptance tests 7. Raw Materials 	<p>The QAP shall be submitted in PDF as per MCF format (Annexure-A)</p> <p>Quality control requirement will be done as per clause no. 8 of RDSO STR no. M&C/PCN/040/2020 (Rev.02) (Annexure-B)</p>
Type Tests	<p>These tests shall be done on a sampled lot of prototype. Such Tests are required only on initial approval, change of design and change of manufacturing process or raw material. These tests are to be repeated as detailed in prototype of approval process after every 36 months or as specified as quality control measure.</p> <ul style="list-style-type: none"> • Fire and smoke characteristics as per EN 45545-2, R1, and HL3 (item no. XIII of Para 3). <p>However, if the consignee or inspecting agency desires to do the type tests, before 36 months, the supplier should not deny the same. There are various circumstances when type tests may be needed on next supply before three(03) years of last supply /last type tests. eg:</p> <ul style="list-style-type: none"> • In case of doubt in type test certificate. (Previous) • Complaint regarding type test certificates. • Failure of material attributable to any of the parameters covered in type tests, etc. <p><i>Moreover, during type test, all tests, listed in routine tests & acceptance tests shall also be conducted.</i></p>	<p>The records of the type tests shall be maintained by the manufacturer and shall be made available upon demand. These records shall be traceable and verifiable.</p>
Routine Tests	<p>These tests are required to verify the functional working of the system. These may require</p>	<p>The records of the routine tests shall be maintained</p>

	<p>simulated in-puts for testing the operation under full range of inputs. These tests shall be done by the manufacturer during manufacturing and record maintained for inspection.</p> <p>These tests are to be repeated after every 12 months or as specified.</p> <ul style="list-style-type: none"> • Weathering resistance • Corrosion resistance • Humidity resistance • Cyclic corrosion <p><i>Moreover, during routine tests, all tests, listed in acceptance tests shall also be conducted.</i></p>	<p>by the manufacturer shall be made available upon demand.</p> <p>These records shall be traceable and verifiable.</p>
Acceptance tests	<p>These tests shall be done on all or samples of lot for bulk supply. Sampling shall be done as per IS:2500</p> <p>Following tests shall be considered as acceptance tests:</p> <ul style="list-style-type: none"> • Dry film thickness • Distinctness of image • Anti graffiti test • chemical resistance • Abrasion resistance • Gloss (Minimum 95 unit at 60° , immediately after being painted and drying of 72 hrs) <ul style="list-style-type: none"> • All other parameters apart from Type test & routine test shall be checked as per Acceptance test. • Documents for routine test & type test with above detailed periodicity & validity shall also be checked during acceptance test & enclosed with acceptance test documents. 	<p>These shall be conducted by the consignee or their authorized agency prior to dispatch.</p> <p>All infrastructures required to enable acceptance tests shall be provided by the bidder / OEM.</p> <p>The records of the acceptance tests shall be enclosed along with the supply consignment.</p> <p>These records shall be traceable and verifiable.</p>

Note:

1. For Natural weathering test, firm will give guarantee certificate along with the supply of 6 years.
2. Supplier shall submit test certificate of parameters (clause 3, sr. no. V to XV) of specification for Type Tests, Routine Tests & Acceptance tests from :
 - (a) Any NABL accredited lab (in-house or outside) having tests & test method mentioned in clause 3 (sr. no. V to XV) of specification in its scope of accreditation from NABL or report from NTH/NPL. Test report must contain NABL logo/seal, in case reports are submitted from NABL accredited lab.
 - (b) In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, any government's lab in India report will be acceptable.

Firm's comments:

(i) **M/s G.S. Industries- Jalandhar (CP-45):**

- (a) **Comments on clause no. 8(b):** We would also like to suggest that, in cases where certain tests require specialized facilities that even government laboratories do not possess, non-NABL (National Accreditation Board for Testing and Calibration Laboratories) accredited labs should be allowed to perform these tests. This flexibility would ensure that testing can proceed without unnecessary delays or limitations due to the unavailability of certain facilities in government labs (CP-45).

MCF Decision: Acceptable, clause 2(c) added as follows:

In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in clause 3(sr. no. V to XIV) in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for the such specific tests.

(ii) **M/s Nippon paint Pvt. Ltd.-Ranipet (CP-42):**

To be mentioned as sr. no. V to XIV. Since, XV test is natural weathering for which we will be giving you guarantee certificate along with supply as per (f) clause no. 8 in this page itself.

MCF Decision: Accepted, clause modified accordingly (i.e. mentioned as sr. no. V to XIV).

5. Clause no. 9{Process audit requirement(in every 3 years)}:

Audit of OEMs for manufacturing & testing activities of material will be done by M/s RITES or any agency authorized by concerned PU in every 3 years.

It shall be responsibility of OEM to get audit done by M/s RITES or any agency authorized by concerned PU at its own cost. During audit, all tests except type test (Fire and smoke characteristics as per EN 45545-2, R1, HL 3) shall be conducted as per specification & shall be made part of the report. OEMs shall keep valid audit report & submit the valid audit report on demand. For type test, report not older than three (03) shall be submitted during audit.

At any stage of procurement i.e. tender opening date, Purchase order placement date & during supplies, valid process audit report shall be available with supplier/tenderer. However, in case, audit report validity of three (03) years has expired but the supplier/tenderer has applied for audit/re-audit to RITES/or agency authorized by concern PUs well in advance i.e. at least three (03) months before expiry date of last audit report, case of such supplier/tenderer shall be proceeded & shall not be rejected on this account. However, for such cases, it shall be responsibility of supplier/tenderer to submit valid audit report within three (03) months after expiry at validity of last audit report. In case of new suppliers, CCA report shall be considered first audit report.

Firm's comments:

(i) **M/s G.S. Industries- Jalandhar (CP-44):**

There is no need for a separate process audit, as the finished product is already regularly audited as per the specified duration and requirements. Promoting unnecessary efforts for additional audits would not be productive, especially considering the wide range of items in the paint industry. If we were to implement process audits for all items, the firm would be overwhelmed with this task, potentially hindering other important work.

MCF Decision: clause modified as under:

Audit of OEMs for manufacturing & testing activities of material will be done by M/s RITES or any agency authorized by concerned PU in every 3 years.

It shall be responsibility of OEM to get audit done by M/s RITES or any agency authorized by concerned PU at its own cost.

Auditor will audit manufacturing & testing process at premises of the supplier. During audit, all tests (facilities which are available in premises of supplier) ~~except type test (Fire and smoke characteristics as per EN 45545-2, R1, HL 3)~~ shall be conducted as per specification & shall be made part of the report. **However, auditor shall pick & send sealed sample to labs as detailed in clause 3(sr. no. V to XIV) of this specification for testing of all parameters.**

Reports of tests from labs shall also be made part of audit report. However, provisional audit report may be issued meanwhile, till receiving reports from labs.

OEMs shall keep valid audit report & submit the valid audit report on demand. For type test, report not older than three (03) shall be submitted during audit.

At any stage of procurement i.e. tender opening date, Purchase order placement date & during supplies, valid process audit report shall be available with supplier/tenderer. However, in case, audit report validity of three (03) years has expired but the supplier/tenderer has applied for audit/re-audit to RITES/or agency authorized by concern PUs well in advance i.e. at least three (03) months before expiry date of last audit report, case of such supplier/tenderer shall be proceeded & shall not be rejected on this account. However, for such cases, it shall be responsibility of supplier/tenderer to submit valid audit report within three (03) months after expiry at validity of last audit report. In case of new suppliers, CCA report shall be considered first audit report.

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Name	Designation	Signature	Date	Level
Harikesh Kumar	SSE / Design			Prepared
Sh. A.K. Agnihotri	SME /Design/ Fur			Agreed
Sh. Shobhit Pratap Singh	Dy. CME / Design-II			Reviewed
Sh. D. K. Singh	CDE			Approved

Issue/Rev.	Details of changes	Date
01	a) 'Developmental specification' added in Description of specification. b) Para 5 (PO shall be placed on minimum three firms and the quantity of failing or defaulter firm shall be transferred to the remaining firms.) deleted.	18.01.2019
02	a) Para 2 added to include list of documents to be submitted with offer. b) Antigraffiti clear coating & Ant graffiti test added. Para 3(sr. no. III & X). c) Elastified application on "whole interior" of Non-AC coaches deleted. Para 7 (Sr. no. 4). d) Total Painting cycle time reduced from 38 hrs 30 min. to 30 hrs, Anti-graffiti coating added, activity time deleted. Para 7(sr. no.10). e) "Facility Paint drying with Oven" deleted. Para 7). f) Over all DFT change from 300 to 350 microns. Para 3 (sr. no. IV)	13.05.2019
03	a) "Developmental" deleted from description of specification. b) Para 7(sr. no. 2): specification for Adhesion promoting primer MDTs-48279 Rev01 may be read as MDTs48279 Rev-01 instead of rev-02. c) Para 7: Exterior letter to MDTs156 rev-5 deleted from.	29.05.2019
04	a) Point no. II modified and note no. II added a.(para-2). b) Unsaturated added in putty. c) test method and DFT Anti graffiti coating added, requirement of weathering modified(para.3) d) Para-7(Sr. no. 9) modified.	12.07.2019
05	a) clause no. 2: "In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in clause 3(sr. no. V to XIV) in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for the	

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	<p>specific tests. “added in sr. no. ii(c).</p> <p>b) Clause no. 2, ii(a): modified as “</p> <p>i. Any NABL accredited lab (in-house or outside) having tests & test method mentioned in clause 3(sr. no. V to XIV) in place of in clause 3(sr. no. V to XV)”.</p> <p>ii. Any Government recognized lab in India added in sr. no. ii (b)</p> <p>iii. “In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in clause 3(sr. no. V to XIV) in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for such specific test ” added in clause no. 2, sr. no. ii(c).</p> <p>iii. The submitted test reports along with offer shall not be more than three (03) years old from the date of tender opening except for type test (Fires and smoke test) (item no. 22 of table 1 of Para 4). Test report for Fire and smoke characteristics as per EN 45545/2 R1/HL3 Shall not be more than three (03) years older from date of tender opening.(Sr. No. iii)</p> <p>iv. Clause 2, Sr. no. (iv) deleted.</p> <p>c) Clause 4: Warranty period modified as: In case of failure of the Paint with respect to gloss retention, premature failure in colour retention (colour fading) or patches/peel-off and blistering etc., the firm executing the supply and apply contract shall rectify the complaint free of cost, at the base depot of the affected coach as per convenience and requirement of the user Railway. This shall be carried out without affecting the exterior aesthetics of the coach. This repair shall be permitted only once in warranty period. If there is a repair requirement after this, the paint shall be treated as rejected during warranty period.</p> <p>However, if reason for defacement of paint is on account of wrong maintenance/handling by depot or workshop of Indian railways, warranty obligation will not be acceptable.</p> <p>d) Clause 6: PROTOTYPE APPROVAL:</p> <p>“In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in clause 3(sr. no. V to XIV) in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for such</p>	
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	<p>the specific test” added in clause no. 6, sr. no. i(c).</p> <p>e) Clause 7(Sr no. 9): Painting Sequence and detailed activities involved: Modified as: Anti-graffiti coating (single pack or two pack) compatible to above painting scheme should be ensured by the firm. Quality parameters shall be ensured as per M&C/PCN/127/2020, Rev.02 (except gloss at 60 –Degree, sr. no. 3 of table 1). Gloss value shall be minimum 95 at 60 degree on PU top coat.</p> <p>f) Clause 9: Quality Assurance plan “In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in clause 3(sr. no. V to XIV) in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the further for the such specific test” added in clause no. 8, note(c)</p> <p>g) Clause 9: In Process audit requirement (in every 3 years) modified as : Audit of OEMs for manufacturing & testing activities of material will be done by M/s RITES or any agency authorized by concerned PU in every 3 years. It shall be responsibility of OEM to get audit done by M/s RITES or any agency authorized by concerned PU at its own cost. Auditor will audit manufacturing & testing process at premises of the supplier. During audit, all tests (facilities which are available in premises of supplier) except type test (Fire and smoke characteristics as per EN 45545-2, R1, HL-3) shall be conducted as per specification & shall be made part of the report. However, auditor shall pick & send sealed sample to labs as detailed in clause 3(sr. no. V to XIV) of this specification for testing of all parameters. Reports of tests from labs shall also be made part of audit report. However, provisional audit report may be issued meanwhile, till receiving reports from labs. OEMs shall keep valid audit report & submit the valid audit report on demand. For type test, report not older than three (03) shall be submitted during audit. At any stage of procurement i.e. tender opening date, Purchase order placement date & during supplies, valid process audit report shall be available with supplier/tenderer. However, in case, audit report validity of three (03) years has expired but the supplier/tenderer has applied for audit/re-audit to RITES/or agency authorized by concern PUs well in advance i.e. at least three (03) months before expiry date of last audit report, case of such supplier/tenderer shall be proceeded & shall not be rejected on this account. However, for such cases, it shall be responsibility</p>	
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	of supplier/tenderer to submit valid audit report within three (03) months after expiry at validity of last audit report. In case of new suppliers, CCA report shall be considered first audit report.	
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1. Scope:

This specification covers the performance requirements of complete coach painting system based on Epoxy cum Polyurethane Painting System (Two Pack) for LHB coaches. Complete painting of coach as per this specification has to be completed in around 30 hours.

2. Documents to be submitted along with offer:

- ~~First time~~ supplier/OEM as per Rev.05 of this specification shall submit clause wise comments on the specification for compliance and deviation (if any).
- Supplier/OEM shall submit test certificate of parameters (clause 3, sr. no. V to XV) of specification from:
 - Any NABL accredited lab (in-house or outside) having tests & test method mentioned in clause 3(sr. no. V to XIV) in its scope of accreditation from NABL or report from NTH/NPL. Test report must contain NABL logo/seal, in case reports are submitted from NABL accredited lab.
 - In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, **report from** any Government's lab/any **Government recognized lab for such test** in India will be acceptable.
 - In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in clause 3(sr. no. V to XIV) in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for the specific test also.**

In absence of any of above details for offered product, the offer would not be considered.

- The submitted test reports along with offer shall not be more than one (03) years old from the date of tender opening ~~except for type test (Fires and smoke test) (item no. XIII of Para 3). Test report for Fire and smoke characteristics as per EN 45545/2 R1/HL3 Shall not be more than three (03) years older from date of tender opening.~~
- ~~Valid audit report/CCA report except by bidder seeking developmental order based on availability of M&P & shall be subjected to CCA before placement of purchase order if its bid is acceptable.~~

3. Performance of the offered painting system shall be gauged based on the following parameters:

S. No.	Parameters	Requirements	Test method
I.	Painting system Configuration	<ul style="list-style-type: none"> Painting system shall be wet on wet type with respect to surfacer and two coat top coats of specified colour schemes. Top Coat: Two component System <ul style="list-style-type: none"> Component-A: Enamel consisting of Oil free 	Nil

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		<p>Polyacrylate Polyol + Pigments, solvents, additives.</p> <ul style="list-style-type: none"> ○ Component-B: Hardener consisting of Aliphatic Polyisocyanate + solvent. • Surfacer: <ul style="list-style-type: none"> ○ Component-A: As Base consist of polyol may be polyacrylate polyol + appropriate pigments, extenders, solvents and additives. ○ Component-B: Hardener consisting of Aliphatic Polyisocyanate + solvent and additives. • Putty: <ul style="list-style-type: none"> ○ Component-A: An appropriate unsaturated polyester resin + pigments, extender, solvent and additives. ○ Component-B: Hardener, organic peroxide + additives. 	
II.	Top coat application	Top coat to be applied as wet on wet application basis after Surfacer coat. Without allowing dry time.	Nil
III.	Anti graffiti clear coating	The clear coating should not reduce the gloss value of PU top coat beyond limits specified in this table. Para 3(Sr. no. XIV of MMDTS 18034, Rev.5) after application of anti-graffiti coating.DFT of anti graffiti coating shall be minimum 3 microns (single coat).	Nil
IV.	Dry Film thickness (DFT)	<p>Adhesion Promoting Primer: 35 to 45 microns.</p> <p>Putty: As per requirement.</p> <p>Surfacer: Minimum 60 microns.</p> <p>Top coat: Minimum 70 microns in two coats.</p> <p>Over-all DFT should not minimum 200 microns.</p>	<p>IS : 101-89(part.3/sec.-2) by Elcometer,</p> <p>DFT gauge</p>
V.	Weathering resistance	<p>QUV</p> <p>OR</p>	QUV as per ASTM - G-154-1000 Hrs

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		Xenon Arc-ASTM D 6695- 2500 hrs on full system. Observations shall be as per Sr. no. 21 of Table 1 (M&C/PCN/100/2018)	Xenon Arc-ASTM D 6695- 2500hrs
VI.	Corrosion resistance	Corrosion resistance 500 Hrs shall be done on APP as per RCF specification MDTs 48279 Rev.04	ASTM-B-117-
VII.	Humidity resistance	1000 Hrs Humidity resistance shall be done on APP as per RCF specification MDTs 48279 Rev.04	ASTM D-2247-1000 hrs
VIII.	Cyclic Corrosion	1000 Hrs Cyclic Corrosion shall be conducted on full system	ISO:11997-1
IX.	Distinctness of Image	Min. 85 unit by BK Y wave scane	ASTM D5767-17
X.	Anti-graffiti test	Passes scale: level 5, with permanent marker when tested as per M&C/PCN/ 127/2020, Rev.02 Table 1 sr. no. 14	ASTM D 6578
XI.	Chemical Resistance	30% H ₂ SO ₄ , 20% NAOH	Test as per APPENDIX-V of RDSO specification no. M&C/PCN/ 100/2018
XII.	Abrasion Resistance	Max., 100 mg loss, 1000 cycle on full system with CS-17 wheels, 1 Kg load.	ASTM D4060
XIII.	Smoke & fire resistance	ISO EN 45545, R1-HL3(on full system)	ISO: EN45545 Part-II
XIV.	Gloss	<ul style="list-style-type: none"> Minimum 95 units at 60 degree, immediately after being painting and drying of 72 hrs. Minimum 70 units at 60 degree after service life of 6 years. 	IS:101-88(Part-4/Sec.-4
XV.	Natural weathering	<ul style="list-style-type: none"> Minimum 90% gloss retention after 01 years Minimum 85% gloss retention after 02 year Minimum 80% gloss retention after 03 year Minimum 75% gloss retention after 04 year Minimum 70% gloss retention after 05 year Minimum 70% gloss retention after 06 year 	Nil
XVI.	Total Painting Time allowed	30 Hrs (Max.)	Nil

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XVII.	Allowed Time margin	Coach painting should be completed in specified time of 30 hrs. However, time limit of Max 6 hours extra is permitted in rare cases with valid reasons, and time taken beyond this extra time limit shall be calculated for penalty as per terms of PO.	Nil
XVIII.	Warranty on Paint life and gloss value	6 years minimum from the date of dispatch from MCF*	Nil

(*) The gloss value should be measured maximum three months in advance to the service life of six years and it should not be less than 70 units.

4. In case of failure of the Paint with respect to gloss retention, premature failure in colour retention (colour fading) or patches/peel-off and blistering etc., the firm executing the supply and apply contract shall rectify the complaint free of cost, at the base depot of the affected coach as per convenience and requirement of the user Railway. This shall be carried out without affecting the exterior aesthetics of the coach. This repair shall be permitted only once in warranty period. If there is a repair requirement after this, the paint shall be treated as rejected during warranty period.

However, if reason for defacement of paint is on account of wrong maintenance/handling by depot or workshop of Indian railways, warranty obligation will not be acceptable.

5. The successful tenderer, executing supply and apply contract as per this specification, shall submit the process and sequence of various painting activities for approval from MCF before starting execution of the contract.

6. PROTOTYPE APPROVAL:

The Firm shall supply a sample along with the following details at the time of prototype testing as per PO or as per applicable guideline:

- i. Supplier shall submit test certificate of parameters (clause 3, sr. no. V to XV) of specification from:
 - (a) Any NABL accredited lab (in-house or outside) having tests & test method mentioned in clause 3 (sr. no. V to XIV) of specification in its scope of accreditation from NABL or report from NTH/NPL. Test report must contain NABL logo/seal, in case reports are submitted from NABL accredited lab.
 - (b) In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, **report from** any Government's lab/any **Government recognized lab for such test** in India will be acceptable.
 - (c) **In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in clause 3(sr. no. V to XIV) in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the purchaser for the specific test.**
- ii. Material and Safety data sheets.

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- iii. The bulk manufacturing shall be undertaken only after approval of Prototype. This clause of Prototype approval is applicable for the first supply by new firm as well as in case of change of design and change of manufacturing process or raw material.

7. Painting Sequence and detailed activities involved:

SN	Activity
1	Cleaning and De-greasing as per work instructions no. PLW0001-2013 dated 06.08.2014.
2	Application of APP on complete interior and exterior as per specification no. MDTs 48279 Rev-04.
3	Body Filler application as per MDTs 176 Rev-4 + Putty application in single coat.
4	Elastified paint as per MDTs 094 Rev-01, amendment no. 1 on Under frame bottom.
5	Putty rub down and cleaning
6	Surfacer application with Ist shade of PU top coat i.e. Signal Red to IS:5 shade 537 or as specified on both sides of sidewall
7	Rub down for surface roughness and cleaning with masking
8	Application of PU top coat Grey to RAL 7001 as specified
9	Anti-graffiti coating (single pack or two pack) compatible to above painting scheme should be ensured by the firm. Quality parameters shall be ensured as per M&C/PCN/127/2020, Rev.02 (except gloss at 60 –Degree, sr. no. 3 of table 1). Gloss value shall be minimum 95 at 60 degree on PU top coat
Total Timing allowed for complete painting of coach as per this specification is around 30 hrs.	

8. Quality Assurance, test & documents:

Requirement description	Requirement detail	Remarks
Quality Assurance plan	The manufacturer shall have the detailed quality Assurance plan. The Plan shall be submitted for the approval by respective PU. The QAP document shall clearly document the following and control the test record formats. <ol style="list-style-type: none"> 1. Control over outsourced products and processes 2. Testing of raw material and establishing its traceability 3. Sampling Plan 4. Type Tests 5. Routine tests 6. Acceptance tests 7. Raw Materials 	The QAP shall be submitted in PDF as per MCF format (Annexure-A) Quality control requirement will be done as per clause no. 8 of RDSO STR no. M&C/PCN/040/2020 (Rev.02) (Annexure-B)
Type Tests	These tests shall be done on a sampled lot of prototype. Such Tests are required only on initial approval, change of design and chance of manufacturing process or raw material. These tests are to be repeated as detailed in prototype of approval process after every 36 months or as specified as quality control	The records of the type tests shall be maintained by the manufacturer and shall be made available upon demand. These records shall be traceable and verifiable.

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	<p>measure.</p> <ul style="list-style-type: none"> • Fire and smoke characteristics as per EN 45545-2, R1, and HL3 (item no. XIII of Para 3). <p>However, if the consignee or inspecting agency desires to do the type tests, before 36 months, the supplier should not deny the same. There are various circumstances when type tests may be needed on next supply before three(03) years of last supply /last type tests. eg:</p> <ul style="list-style-type: none"> • In case of doubt in type test certificate. (Previous) • Complaint regarding type test certificates. • Failure of material attributable to any of the parameters covered in type tests, etc. <p><i>Moreover, during type test, all tests, listed in routine tests & acceptance tests shall also be conducted.</i></p>	
Routine Tests	<p>These tests are required to verify the functional working of the system. These may require simulated in-puts for testing the operation under full range of inputs. These tests shall be done by the manufacturer during manufacturing and record maintained for inspection. These tests are to be repeated after every 12 months or as specified.</p> <ul style="list-style-type: none"> • Weathering resistance • Corrosion resistance • Humidity resistance • Cyclic corrosion <p><i>Moreover, during routine tests, all tests, listed in acceptance tests shall also be conducted.</i></p>	<p>The records of the routine tests shall be maintained by the manufacturer shall be made available upon demand. These records shall be traceable and verifiable.</p>
Acceptance tests	<p>These tests shall be done on all or samples of lot for bulk supply. Sampling shall be done as per IS:2500</p> <p>Following tests shall be considered as acceptance tests:</p> <ul style="list-style-type: none"> • Dry film thickness • Distinctness of image • Anti graffiti test • chemical resistance • Abrasion resistance • Gloss (Minimum 95 unit at 60° , immediately after being painted and drying of 72 hrs) 	<p>These shall be conducted by the consignee or their authorized agency prior to dispatch. All infrastructures required to enable acceptance tests shall be provided by the bidder / OEM.</p> <p>The records of the acceptance tests shall be enclosed along with the supply consignment. These records shall be</p>

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	<ul style="list-style-type: none"> • All other parameters apart from Type test & routine test shall be checked as per Acceptance test. • Documents for routine test & type test with above detailed periodicity & validity shall also be checked during acceptance test & enclosed with acceptance test documents. 	traceable and verifiable.
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Note:

1. For Natural weathering test, firm will give guarantee certificate along with the supply of 6 years.
2. Supplier shall submit test certificate of parameters (clause 3, sr. no. V to XIV) of specification for Type Tests, Routine Tests & Acceptance tests from :
 - (a) Any NABL accredited lab (in-house or outside) having tests & test method mentioned in clause 3 (sr. no. V to XIV) of specification in its scope of accreditation from NABL or report from NTH/NPL. Test report must contain NABL logo/seal, in case reports are submitted from NABL accredited lab.
 - (b) In case, there is no NABL accredited lab is available in India for some tests (with test method mentioned in the specification) and the test facility for same tests (with test method mentioned in the specification) are also not available with NTH/NPL, then for those tests, **report from any Government's lab/any Government recognized lab for such test** in India will be acceptable.
 - (c) **In rare case, when test facilities are not available as per (a) & (b) of this Para above, test certificate from NABL accredited lab not having tests & test method mentioned in clause 3(sr. no. V to XIV) in its scope of accreditation from NABL shall be acceptable, subject to prior approval of the further for the such specific test also.**

9. Process audit requirement(in every 3 years):

Audit of OEMs for manufacturing & testing activities of material will be done by M/s RITES or any agency authorized by concerned PU in every 3 years.

It shall be responsibility of OEM to get audit done by M/s RITES or any agency authorized by concerned PU at its own cost.

Auditor will audit manufacturing & testing process at premises of the supplier. During audit, all tests **(facilities which are available in premises of supplier) except type test (Fire and smoke characteristics as per EN 45545-2, R1, HL 3)** shall be conducted as per specification & shall be made part of the report. **However, auditor shall pick & send sealed sample to labs as detailed in clause 3(sr. no. V to XIV) of this specification for testing of all parameters.**

Reports of tests from labs shall also be made part of audit report. However, provisional audit report may be issued meanwhile, till receiving reports from labs.

OEMs shall keep valid audit report & submit the valid audit report on demand. For type test, report not older than three (03) shall be submitted during audit.

At any stage of procurement i.e. tender opening date, Purchase order placement date & during supplies, valid process audit report shall be available with supplier/tenderer. However, in case, audit

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report validity of three (03) years has expired but the supplier/tenderer has applied for audit/re-audit to RITES/or agency authorized by concern PUs well in advance i.e. at least three (03) months before expiry date of last audit report, case of such supplier/tenderer shall be proceeded & shall not be rejected on this account. However, for such cases, it shall be responsibility of supplier/tenderer to submit valid audit report within three (03) months after expiry at validity of last audit report. In case of new suppliers, CCA report shall be considered first audit report.

10. List of Machineries & plant and testing facilities :

RDSO STR no. M&C/PCN/040/2020 (Rev.02) for “Schedule of technical requirement for Infrastructure, manufacturing, testing facilities & Quality control requirement” will be followed for this specification (Annexure-B).

Note: Clause no. 11 of above mentioned RDSO STR no. M&C/PCN/040/2020 (Rev.02) shall be read as:

The list of wet on wet paints based on epoxy and polyurethane resins which may be used for exterior painting system for LHB type coaches as per MCF Specification no.MMDTS18034 Rev 05 etc. is furnished below:

1.	Application of APP on complete interior and exterior as per specification no. MDTS 48279 Rev-04.
2.	Body Filler application as per MDTS 176 Rev-4 + Putty application in single coat.
3.	Elastified paint as per MDTS 094 Rev-01, amendment no. 1 on Under frame bottom.
4.	Surfacer application with 1st shade of PU top coat i.e. Signal Red to IS:5 shade 537 or as specified on both sides of sidewall
5.	Application of PU top coat Grey to RAL 7001 as specified
6.	Anti-graffiti coating (single pack or two pack) compatible to above painting scheme should be ensured by the firm. Quality parameters shall be ensured as per M&C/PCN/127/2020, Rev.02 (except gloss at 60 –Degree, sr. no. 3 of table 1). Gloss value shall be minimum 95 at 60 degree on PU top coat

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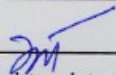
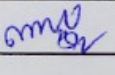
MCF QAP format (Annexure-A)

Name of the firm

Head Office Address	Manufacturing Unit Addresses	Add more columns if more required
ABC XYZ STATE with PIN Telephone: Mobile: Email:	ABC XYZ STATE with PIN Telephone: Mobile: Email:	

PL Number of the item	
Description of the item	
Specification/Drawing number of the item	
Purchase order number with date	

Date of submission of QAP: DD.MM.YYYY

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ANNEXURE-I

QAP	PL Number & Item Description	Internal Doc. No.	Revision
	Name of the firm	ABCD-1234	XX

1. Company Profile (Maximum 250 words)

May include brief history, date of setup, founders, products/services, organization chart, article of association of the company as per companies act, 1956.

2. Certificates and Essential Documents

Clear images/scans of factory license and ISO certifications (9001, 14001, others). Please ensure that the text is legible.

3. Process Flow chart/Installation Flow Chart

Description of manufacturing process

- Process flow chart indicating various stages/activities of manufacturing process for an individual product, with quality control points
- Details of manufacturing & testing processes to comply specification(s)

Sl. No.	Clause	Requirement of manufacturing process as per specification	Process details to comply the specification requirements

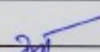

Note

- Process flow chart shall indicate all the operations involving procurement, handling, manufacturing, & testing of the product from raw material to finished product, including RDSO/RITES/Consignee inspection/dispatch.
- There should be a separate flow chart for each item.

4. Details of Procurement - Raw material/Components/Sub-assemblies

- Details of components/sub-assemblies manufactured in-house

Sl. No.	Item Name	Drawing No	Material Grade	Source of Raw Material

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ANNEXURE-I

QAP	PL Number & Item Description	Internal Doc. No.	Revision
	Name of the firm	ABCD-1234	XX

B. Details of components/sub-assemblies purchased from approved sources of ICF/MCF/RCF/RDSO

Sl. No.	Item Name	Drawing No	Material Grade	Source (Firm name & Address)

C. Details of outsourced/imported items

Sl. No.	Item Name	Drawing No	Material Grade	Source (Firm name & Address)

5. Inspection Procedure



Provide the inspection process followed at the firm for subject item(s). It may include stage inspections where critical parameters are inspected before sending to the next stage, material composition test when the material is received from an outside agency, inspection of material properties and critical dimensions at the time of final dispatch to Indian Railways units. Kindly provide details in the following format.

Sl. No.	Type of inspection Raw material or Incoming product/ Assembly or Stage/Final dispatch of the item to consignee	Sample Size & its Frequency of inspection	Inspection parameter	Mode of inspection/ Test equipment used	Criteria or limits of acceptance	Record of inspection maintained at Register No./Computer file name & address

Note: Provide internal inspection dimensional/material checklists for raw material, stage assembly, final assembly, as annexure.

6. Rejection Handling Plan

Rejections are part and parcel of any manufacturing process and can occur at any stage. It is essential to have a clear plan to handle the rejections due to various reasons. In a few situations, rework may be done to correct the workpieces. In others it might not be feasible and/or recommendable. A rejection handling plan clarifies the rejection criteria and further required processing for rework or scrapping. Analyzing rejects is a key component to improve the efficiency and quality of the output.

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ANNEXURE-I			
QAP	PL Number & Item Description	Internal Doc. No.	Revision
	Name of the firm	ABCD-1234	XX

Kindly provide the details of handling rejection of work-in-process (WIP) and recording such incidents.

7. Tool and machine calibration plan

The machines, tools, fixtures, jigs, gauges, and instruments used for manufacturing, testing, and inspection should be regularly calibrated to ensure that they are accurate for their intended use. A schedule of calibration for all the essential machines, tools, gauges, and instruments may be planned by taking into account both usage rate and that machine's particular maintenance needs. Kindly provide details in the following format.

Sl. No.	Name and ID of Tool/Machine/Gauge/Instrument	Make and Model Number	Range/Capacity	Frequency of calibration	Due date of calibration	Record of calibration maintained at Register No./Computer file name & address

8. Requirement of Qualified/Experienced Personnel as per Specification(s)

Details of qualification/experience of the quality control personnel specified in the relevant STR/MDTS/ Specification for the items to be manufactured may be provided in the following format.

Sl. No.	Specified Requirements		Details of Personnel Employed			
	Clause number with specification details	Qualification/ Experience	Name	Designation	Technical Qualification	Experience

Note: Welding procedure specification (WPS), Welding Procedure Qualification Record (WPQR) and Welder Qualification Test Certificate (WTC) to be submitted wherever applicable.

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Note: "This QAP does not have any deviation from Purchase order" will be written on front page of QAP.

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