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Agricultural Machinery Testing and Evaluation Center
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ACR 005:2021 CHECKLIST AND REMINDERS FOR THE AMTEC TEST CONDITIONS AND REQUIREMENTS FOR RICE COMBINE HARVESTER

■ Application for AMTEC Test

The test applicant shall submit AMTEC-OP-F01 (Agricultural Machinery Test Application Form) together with the following requirements:

- AMTEC-OP-15 (Waiver for Machine Specifications)
- AMTEC-OP-18 (Data Privacy Consent Form)

■ Technical Specifications of the Machine

The test applicant shall submit any document/s indicating the specifications and other relevant information of the machine upon application for testing.

- Operator's manual with complete specifications as indicated in Annex B of PNS/PAES 152:2015
- Brochure
- Machine specifications sheet (shall be filled out upon request and receipt of copy from AMTEC in case the manual or brochure is not available)

■ Preparation and Operation of the Machine

During field performance test, the tractor shall be ready for operation. The officially designated representative/skilled operator of the test applicant shall operate, demonstrate, adjust, repair, and decide on matters related to the operation of the machine. The operator shall be skilled in operating a mechanical rice combine harvester.

■ Running-in of the Machine

A test run shall be conducted prior to the official test to check its condition and make necessary adjustments to the machine according to the recommendation of the test applicant and/or manufacturer. No other adjustments shall be permitted while the official test is on-going.

■ Test Plot

The test applicant shall prepare at least three (3) test plots. Each test plot shall be:

- At least 500 m² for walk-behind type;
- At least 1000 m² for ride-on and attachment type;
- Rectangular with sides in the ratio of 2:1 as much as possible; and
- Completely dried plot.

■ Other Test Necessities

The following shall also be adequately supplied during the conduct of the field performance test:

- Fuel tank filled to full capacity;
- 36 L or sufficient fuel for refilling after each test trial;
- Tools for machine repair and adjustments;
- Weighing scale with at least 100 kg capacity; and
- Sacks.

■ Machine Setting

The rice combine harvester shall be tested at the manufacturer's recommended setting for the following:

- Gear shift: _____
- Traveling speed, kph: _____
- Cutting angle, °: _____
- Cutting height, mm: _____
- Cutting width, mm: _____

■ Recommended Harvesting Pattern

The PNS/PAES 225:2015 does not indicate any recommended pattern of harvesting. Therefore, the test applicant can decide what pattern they intend to use.



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■ Requirements

AMTEC shall conduct various tests and verification on different parameters of the machine including the following requirements as per PNS/PAES 225:2015:

■ Design Requirements

Item	Requirement as per PNS/PAES 224:2015
Cutting unit	<input type="checkbox"/> It should be composed of reel assembly and cutter bar. <input type="checkbox"/> The reel shall be adjustable horizontally and vertically to suit different crop conditions such as height and density. <input type="checkbox"/> The recommended reel speed should be 25-50 % faster than the ground speed. <input type="checkbox"/> The cutter bar shall be adjustable to fit various height of cut.
Feeding unit	<input type="checkbox"/> It should be composed of feeder or conveyor and front beater or feed chain.
Threshing unit	<input type="checkbox"/> It should be composed of threshing drum, concaves, open grates and beaters, or stripper drum. <input type="checkbox"/> The recommended peripheral speed of the threshing drum is 20 m/s to 30 m/s. <input type="checkbox"/> Concaves should be adjustable at the front and rear to change the clearance between the concave and the cylinder.
Separating unit	<input type="checkbox"/> It shall be provided with deflectors, rotary beaters, or retarders.
Cleaning unit	<input type="checkbox"/> It should be either mechanical (i.e. screening out larger particles with the chaffer and sieves) or aerodynamics (i.e. blowing out the lighter particles with an air blast) or combination of both. <input type="checkbox"/> It should consist of grain pan, chaffer with adjustable openings, tailing sauger, shoe sieve with adjustable position and inclination, and fan. <input type="checkbox"/> The fan speed should be adjustable.
Grain handling unit	<input type="checkbox"/> It should be composed of grain auger, grain elevator, and grain collector. <input type="checkbox"/> If grain tank is used, steps and handrails outside of the grain tank shall be provided. <input type="checkbox"/> If grain bag is used, two-spout bag attachment and a platform or collector's seat shall be provided.
Cab or frame	<input type="checkbox"/> It shall conform with the requirements of PNS/PAES 139:2004. <input type="checkbox"/> The operator's seat and the location of specific controls relative to the Seat Index Point (SIP) within the seating accommodation shall conform with ISO 4253:1993.
Traction type	<input type="checkbox"/> It should be made of pneumatics tires, steel cage wheels, halftracks, or full crawler ground drive.

■ Fabrication Requirements

General	<input type="checkbox"/> Different components shall be generally made of steel bars and metal sheet. <input type="checkbox"/> Primary components (e.g. reel assembly and pick-up tines) shall be generally made of stainless steel, steel alloys, or abrasion-resistant coated metals.
Cutting elements	<input type="checkbox"/> Cutting elements (e.g. knife) should be made of either American Iron and Steel Institute (AISI) 1080 to AISI 1085 or AISI 5160 or its equivalent. <input type="checkbox"/> The serrated edge of the cutting knife should be case hardened at Rockwell C Scale (RC) 46 to RC 52 for AISI 1080 to AISI 1085 (Figure 4). <input type="checkbox"/> The non-hardened portion of the cutting knife shall have hardness within the range of RC 25 to RC 27.



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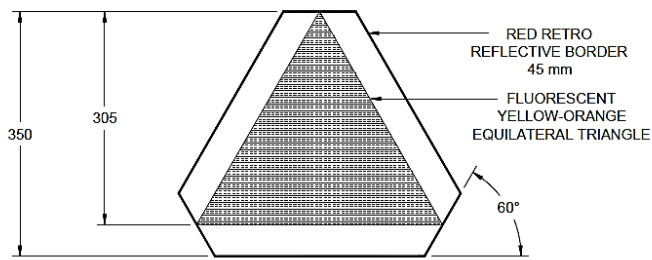
■ Fabrication Requirements (Cont'n)

Threshing elements	<input type="checkbox"/> It shall be made of alloy steel or heat-treated carbon steel with carbon content of 0.40-0.45 % (i.e. AISI 1040 to AISI 1045 or its equivalent)
Bolts and screws	<input type="checkbox"/> It shall conform with the requirements of PNS/PAES 311:2001 and PNS/PAES 313:2001.

■ Standard Tools

Basic tools shall be provided for the mechanical rice transplanter. These tools shall be suitable to the necessary adjustment operations during maintenance and operation.

■ Safety Requirements

Item	Requirement as per PNS/PAES 224:2015
General	<input type="checkbox"/> Safety requirements shall conform with ISO 4254-7:1993.
Slow-moving vehicle (SMV)	<input type="checkbox"/> It shall be provided. <input type="checkbox"/> It shall be located at the rear of the rice combine harvester with the following dimensional requirement.
 <p style="text-align: right;">Dimensions are in millimeter</p>	

■ Performance Requirements

Criteria	Requirement as per PNS/PAES 224:2015
Field efficiency, minimum, %	75
Losses (%), maximum	
Header loss, maximum, %	0.5
Separation loss	1.3
Blower loss	1.2
Unthreshed loss	0.2
Scattering loss	0.3
Purity, minimum, %	97 (with fan) 95 (without fan)
Broken grains, maximum, %	2.0
Net cracked grain, maximum, %	5.0
Noise level, maximum, dB(A)	95 (Allowable noise level for 4 hours of continuous exposure based on Occupational Safety and Health Standards, Department of Labor and Employment, Philippines, 2013)



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■ Suspension and Termination of Test

If the test material and test plot do not conform with the recommended quantity and characteristics, AMTEC shall not proceed with the test. Should the test applicant request the conduct of the test despite the non-conformity to the test requirements identified by AMTEC, the applicant shall sign the AMTEC Waiver for Nonconformity to Test Requirements.

- AMTEC-OP-F24 (Waiver for Nonconformity to Test Requirements)

If the machine stops due to breakdown or malfunction during the test run, thus affecting the machine's performance, the test may be suspended. If the machine cannot continue the operation, the test shall be consequently terminated.

■ Other Assistance During Test

1. For field and laboratory tests outside the AMTEC premises, the applicant shall shoulder the transportation expenses (i.e. fuel, toll fees, vehicle rental, plane fare, sea fare, etc.) of the AMTEC Staff assigned for the testing activity.
2. The applicant is requested to assist the AMTEC Staff in looking and/or making arrangements for hotel accommodation and food near the test site.
3. The applicant shall provide drinking water to the AMTEC Staff during the testing activity.
4. The applicant shall provide any form of shed or sunshade (e.g. tent, umbrella, etc.) for the test equipment, samples (if applicable) and AMTEC Staff during the testing activity in the field.
5. The applicant is requested to assist the AMTEC Staff in finding any means to access a safe and convenient restroom near the test site during the testing activity.

■ Testing Fee

1. The testing fee for rice combine harvester is PhP 13,500.
2. To proceed through AMTEC test, the test applicant shall settle at least 50 % of the testing fee which is non-refundable but transferrable.
3. In cases of additional testing during the field, the test applicant shall immediately submit the required documents and settle at least 50% of the testing fee within 5 working days after the testing proper.
 Additional testing, number of machines: _____
4. Payment/s shall be directed to the following:
 Through UPLB Cashier's Office (8Am to 3PM): AMTEC Trust Fund Code No. 8271632-40A2040101000
 Through Landbank (8:30AM to 3PM): UPLB Trust Fund Account No. 1892100507 or UPLB FI Account No. 1892-1003-29

■ Other Reminders

1. All manufacturers, fabricators, assemblers, and importers (MFAI) shall secure a Certificate of Conformity (CC) from the Bureau of Agricultural and Fisheries Engineering (BAFE) which guarantees that their agricultural and fisheries machinery conforms with PNS/BAFS PABES or other relevant standards identified by BAFE. More information about the application for CC can be found at <http://bafe.da.gov.ph/index.php/certificate-of-conformity-of-manufacturers-fabricators-assemblers-distributors-dealers-importers-and-exporters/>.
2. All MFAI shall employ an Agricultural and Biosystems Engineer (ABE), as mandated by RA 10915 (ABE Law), who shall facilitate all activities and concerns pertinent to AMTEC testing and BAFE requirements. Do you currently have an ABE in your roster of employees? Yes No