16 AUG 1973

DEPARTMENT OF THE ARMY
ABERDEEN PROVING GROUND Mr. Neff/cjg/3937
ABERDEEN PROVING GROUND, MARYLAND 21005

0031

STEAP-MT-U

SUBJECT: Final Letter Report on Comparison Test of Truck, Utility, 1/4-Ton, 4X4, M151A2, USA Reg. No. NB004A, Mfg. Serial No. 26801, TECOM Project No. 1-VG-120-151-067, Report No. APG-MT-4341

Commander
US Army Tank-Automotive Command
ATTN: AMSTA-QST
Warren, Michigan 48090

1. REFERENCES:

a. Letter, TECOM, AMSTE-BB, Customer Test Directive: Inspection Comparison Test of Trucks, Utility, 1/4-Ton, 4X4, M151A2, TECOM Project No. 1-VG-120-151-058/059/060/061/062/063/064/065/066/067/068/069, 27 March 1972.

b. AMC Form 1006A, Test Program for Truck, Utility, 1/4-Ton, Contract No. DAAE07-71-C-0103, 16 March 1972.

c. TACOM Procurement/Work Directive (AMC Form 1095A), for Truck, 1/4-Ton, ABTM151 Series, 3 March 1972.

d. Letter, TACOM, AMSTA-QST, AM General Corporation, Contract DAAE07-72-C-0103, M151A2 Comparison Test, 22 February 1973.

e. Letter, AMSTA-QST, Noise Test, (Piggy Back) TECOM Project No. 1-CO-266-000-004, on the Inspection Comparison Test of the M151A2 and M561 Trucks, 8 March 1973.

2. BACKGROUND:

One vehicle, truck, utility, 1/4-ton, 4X4, M151A2, US Army Reg. No. NB004A, produced under contract No. DAAE07-71-C-0103, was subjected to a 5000-mile comparison test at this installation during the period 24 May to 2 July 1973.

The over-all configuration of the M151A2 vehicle is basically the same as previous models; all models incorporate the product improvements previously evaluated on the M151A2 vehicle. The most significant of the

product improvements are the 1-piece windshield, deep-dish steering wheel, mechanical fuel pump, and trailing arm rear suspension. The vehicle is powered by a 4-cylinder, water-cooled, gasoline engine, a 4-speed forward transmission, and selective front wheel drive. The body is of unitized construction. The vehicle is designed for use over all types of roads as well as cross-country terrain, and in all weather conditions.

3. OBJECTIVE:

The objective was to provide evidence of contractor conformance to specified sections of MIL-T-0045331E, 23 January 1970, and related requirements as outlined in AMC form 1006A, 16 March 1972.

4. SUMMARY OF RESULTS:

One M151A2 vehicle, USA Reg. No. NB004A, was received from the contractor's plant, via commercial carrier, on 24 May 1973 in an acceptable condition in accordance with applicable shipping procedures.

An initial inspection was performed on the vehicle to assure a safe operating condition. All on-equipment materiel (OEM) was inventoried, checked for fit, and installed on the vehicle for the duration of the test. The vehicle was received less the vehicle curtain, folding top, quarter, and back, FSN 2540-064-6587. The shortage of this GFE item was annotated on the receiving document (DD Form 250), and therefore is not a chargeable shortcoming.

Initial lubrication was performed in accordance with LO 9-2320-218-12. The engine and gear boxes were checked and all lubricant levels were satisfactory. All grease fittings were lubricated.

Upon completion of initial inspection and lubrication, five test radial tires and wheels were installed and 100 mile of break-in mileage was accomplished. The test tires and wheels were removed and original tires and wheels reinstalled for the conduct of noise spectra test, Ref. Letter, AMSTA-QST, 8 March 1973, and specified performance tests.

After completion of all performance tests the test tires and wheels were reinstalled for remainder of test. Remaining break-in mileage (420-miles) was accomplished on paved road, at curb weight per instructions contained in TM-9-2320-218-10. This mileage is included in the total prescribed endurance mileage.

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The load distribution at curb, with cross-country, and highway payloads was determined by use of portable scales at each wheel position. The payload consisted of sand-filled canvas bags and boxes. Specified cross-country payload was 800 pounds. Specified highway payload was 1200 pounds. Load distribution was as shown in Table I.

Table I. Load Distribution

Load Location	Weight, LB		
	Curb	Cross-Country	Highway
Left Front Wheel	696	764	780
Right Front Wheel	630	685	696
Left Rear Wheel	572	933	1894
Right Rear Wheel	561	887	1068
Total	2459	3269	4438

The prescribed vehicle performance tests were conducted in accordance with specific paragraphs of MIL-T-0045331E, 23 January 1970, and related requirements as outlined in the procurement/work directive. The performance test results were as shown in Table II.

Table II. Vehicle Performance Tests

Test	Requirement	Eng Ref Para	Results
Engine	4.3.1.1	3.3.1	Satisfactory
Speed Check	4.3.1.3	3.4.5.1	Unsatisfactory[a]
Turning Ability	4.3.1.5	3.4.11	Satisfactory[b]
Accessories Check	4.3.1.6	3.5	Satisfactory
Servicing and Adjustment Check	4.3.1.7	3.6	Satisfactory
Grade Speeds	4.3.2.5	3.4.5.2	Satisfactory[c]
Highway and Slope Operation	4.3.2.6	3.4.6 and 3.4.7	Satisfactory
Cross-Country and Highway Operation	4.3.3.4	3.4.6 thru 3.4.8	Satisfactory
Fording Operation	4.3.3.5	3.4.9.2	Satisfactory
Electromagnetic interference Characteristics	4.3.3.6	3.7	Unsatisfactory[d]

[a]The vehicle failed to meet the maximum speed criteria of 60 mph, but met the minimum speed criteria of 2-1/2 mph. The maximum speed obtained was 56.5 mph, @ 3220 Engine RPM (Ref. Incl 1, Page 1).

[b]Turning radius was 17.5 both right and left (Ref. Incl 1, Page 1).

[c]The 6-1/2% slope is not available at APG; 10% slope speed was 29.5 mph and 60% slope speed was 7.8 mph (Ref. Incl. 1, Page 2).

[d]The radiated and conducted electomagnetic emissions from the test item exceeded the specified allowable limits of MIL-STD-461A for Class IIIA Equipment over the frequency ranges where tests were performed.

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Frequencies and amplitudes where the test item failed are given in Inclosure 1, Pages 4 thru 25.

The vehicle was subjected to and satisfactorily completed the 5000-mile endurance test which included 500 miles of break-in operation on paved road at curb weight. The remaining 4500 miles were completed in two cycles as shown in Table III. The first cycle was accomplished with a towed load.

Table III. Endurance Test Mileage

Course	Payload	Towed Load[a]	Mileage Specified	Mileage Actual
Paved (Break-In)	None	None	500	520
Paved (Highway)	1179	1320	1000	982
Gravel	810	1070	425	435
Belgian Block and Gravel[b]	810	1070	375	363
Level Cross-Country	810	1070	700	700
Hilly Cross-Country	810	1070	800	800
Secondary Road "A"	810	1070	1200	1200
Total			5000	5000

[a]First cycle only.

[b]60% Gravel and 40% Belgian Block.

Three significant incidents were experienced during the endurance test. The lower right front suspension arm rear mounting cap screw loosened, resulting in the loss of one shim. The shim was replaced and all mounting cap screws were retorqued as prescribed in TM-9-2320-218-34 (Ref. Incl 2, Page 1). The upper radiator insulator assembly fractured through the front mounting screw; the insulator assembly was replaced (Ref. Incl 2, Page 2) and the right rear outboard suspension arm bushing was worn and replacement was necessary after 3000 test miles (Ref. Incl 2, Page 2). The vehicle was forded in 21 inches of water, without incident, upon completion of the test miles.

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Fuel consumption data are included in Inclosure 1, Page 26.

Upon completion of all testing a final inspection of the vehicle was performed. A limited teardown and inspection of the engine, power train, brake, suspension, and electrical systems was accomplished. The radial test tires and wheels were removed from the vehicle and original tires and wheels reinstalled on the vehicle. The test tires and wheels are stored in the warehouse awaiting instruction from AMSTA-RKMT.

No significant incidents were experienced as the result of final inspection.

The vehicle was restored to code "B" condition, given a technical inspection, painted, lubricated, and returned to supply channels.

5. CONCLUSIONS:

It is concluded that:

a. Quality of workmanship at the time of manufacture was satisfactory.

b. Vehicle performance requirements were met with the exception of maximum speed and radio interference suppression requirements within the frequency spectrum tested.

c. Vehicle endurance was satisfactory, except the lower right front suspension arm cap screws loosened, the upper radiator insulator assembly fractured, and the right rear outboard suspension arm bushing was worn.

FOR THE COMMANDER:

H. A. BECHTOL
Acting Associate Director
Materiel Testing Directorate

2 Incl
1. Test Data
2. Deficiencies and Shortcomings

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Copies Furnished:
Cdr, TECOM, APG, MD. 21005, ATTN: AMSTE-BB (2 cys)
Cdr, TACOM, Warren, Mich. 48090
ATTN: AMSTA-QST (2 cys)
AMSTA-QKT (1 cy)
AMSTA-QKW (1 cy)
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Chief, DCASO, South Bend, 2015 Western Ave., South Bend, Ind. 46621
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Dir, DCASR, Chicago, O'Hare International Airport, P. O. Box 66475, Chicago, Ill. 60666, ATTN: DCRI-FCM (1 cy)
AM General Corp., 701 W. Chippewa Ave., South Bend, Ind. 46623
ATTN: Mr. Yeakey (QA),
Cdr, APG, MD. 21005
ATTN: STEAP-TL (1)
STEAP-MT-U (8 cys)
STEAP-MT-X (1 Cy)
Cdr, DDC, Alexandria, VA. 22314, ATTN: Docu Svc Cntr (2 cys)

Secondary distribution is controlled by the US Army Tank-Automotive Command, ATTN: AMSTA-QST

TEST DATA

The M151A2 truck was tested in conformance to MIL-T-0045331E, 23 January 1970.

Test	Requirements	Results
Engine	Paragraph 3.3.1. The engine shall conform to MIL-E-0045332, except that the section covering preparation for delivery shall not apply. The vehicle shall meet all performance requirements specified herein with the engine installed.	Satisfactory.
Speed Check	Paragraph 3.4.5.1. The M151A2 trucks, including cross-country towed load, shall sustain a speed of not less than 60 mph. The M718A1 and M825 vehicles, including cross-country payload, shall sustain a speed of not less than 60 mph and 50 mph, respectively. All vehicles shall sustain a low speed of not more than 2-1/2 mph in low gear, when operated on smooth, dry, relatively level, hard-surfaced roads. Drumming, shimmy, or tramping shall not occur throughout any speed range.	Unsatisfactory: Maximum speed, 56.5 mph; minimum speed 2.5 mph.
Turning Ability	Paragraph 3.4.11. The vehicle shall demonstrate a maximum turning radius of 18.5 feet, measured from the centerline of the outside front wheel, when completing full turns to right and left.	Satisfactory: 17.5 feet both right and left.
Accessories Check	Paragraph 3.5. Horn, windshield wipers, windshield washers, lights, turn signals and hazard warning lights, sending units, gages and other instruments, switches, and controls shall perform their intended use.	Satisfactory.

Test	Requirements	Results
Servicing and Adjustment Check	Paragraph 3.6. Prior to delivery, the contractor shall service the vehicle for operational use. Servicing and adjustment shall result in vehicle demonstrating performance in accordance with requirements of this specification. Engine cooling system shall be serviced with a solution of ethylene glycol conforming to type I of O-A-548 and water, in equal parts by volume.	Satisfactory.
Grade Speeds	Paragraph 3.4.5.2. The truck, including cross-country payload and with cross-country towed load when applicable, shall ascend and descend grades up to 6-1/2% at a speed of 30 mph, when operated on smooth, dry, hard-surfaced roads. Without towed load, the M151A2 and M718A1, including cross-country payload, shall ascend and descend grades up to 60% at a speed of 2-1/2 mph, when operated on smooth, dry, hard-surfaced roads. Without towed load, but including cross-country payload, the M825 shall ascend and descend grades up to 50% at a speed of 2-1/2 mph when operating on smooth, dry, hard-surfaced roads.	Satisfactory.
Highway and Slope Operation	Paragraph 3.4.6. The truck shall transport highway payloads, while towing highway loads, when operated on smooth, dry, relatively level, hard-surfaced roads.	Satisfactory.
	Paragraph 3.4.7. The M151A2 and M718A1 trucks, including cross-country payload, shall operate on side slopes of up	Satisfactory.

Test	Requirements	Results
	to 40%, and the M825 truck, including cross-country payload, on side slopes up to 30%, sloping right or left.	
Cross-Country Operation	Paragraph 3.4.8. The trucks shall transport cross-country payloads, while towing cross-country loads when applicable, on unimproved roads, trails, and open terrain.	Satisfactory.
Fording Operation	Paragraph 3.4.9.2. The vehicle, without fording equipment or modification and with rated cross-country payload and towed load when applicable, shall ford a hard-bottomed, relatively level crossing in fresh or salt water to a depth of at least 21 inches.	Satisfactory.
Electromagnetic Interference Characteristics	Paragraph 3.7. The vehicle shall conform to the electromagnetic interference characteristics requirements for tactical equipment, class IIIA of MIL-STD-461.	Unsatisfactory. The vehicle failed to conform to the electromagnetic interference characteristic for tactical equipment, class IIIA of MIL-STD-461A. Test results are presented in Inclosure 1, Pages 4 through 25.

ELECTROMAGNETIC INTERFERENCE EVALUATION

1. OBJECTIVE

To measure and determine if the radiated and conducted electromagnetic interference (EMI) emission levels from the Truck, Utility, 1/4 Ton, 4X4, Model M151A2, Serial No. MB004A-26801, USA Reg No. MB004A, and its electrical accessories are within the specified allowable limits of MIL-STD-461A for Class IIIa equipment.

2. CRITERIA

Radiated and conducted EMI emissions from the complete vehicle including its electrical accessories shall not exceed the specified allowable limits of MIL-STD-461A for Class IIIa equipment.

3. METHOD

Spectrum Surveillance System Model FSS-250D, Serial No. 33, is used to collect and record the radiated and conducted EMI emission measurements.

A list of associated ancillary equipment used in conjunction with the Spectrum Surveillance System FSS-250D is give in Inclosure I.

The radiated emission subtests are performed in accordance with the methods for Subtest RE05 outlined in MIL-STD-462 over the frequency range from 150 kHz to 1000 MHz. The antennas are individually oriented one meter above ground level and one meter from the front, left and right sides of the vehicle engine compartment. The Biconical Antenna BIA-25 is alternately polarized horizontally and vertically to obtain measurements over the frequency range from 25 to 200 MHz.

The conducted emission subtests are performed in accordance with the methods for Subtest CE03 outlined in MIL-STD-462 over the frequency range from 150 kHz to 50 MHz. The Current Probe PCL-25 is clamped alternately around the positive (+) and negative (-) power cables at the vehicle battery.

Operation of the test vehicle during simultaneous operation of one or more of the electrical subsystems during the radiated and conducted EMI emission subtests is established as shown in Table I.

TABLE I
Special Operating Conditions

Mode	Test Condition
1	Ignition and battery charging systems operating with headlights energized (engine speed - 700 rpm, slow idle)
2	Ignition and battery charging systems operating with headlights energized (engine speed - 1200 rpm, fast idle)
3	Windshield wiper motor energized (high speed)
4	Directional signal/4-way flasher system energized (4-way operation)
5	Horn assembly energized - horn relay actuated approximately 60 times per minute (60 cpm)

Radiated and conducted EMI emission subtests of the ignition and battery charging systems are made with the vehicle engine operating at slow idle (700 rpm) and fast idle (1200 rpm) with headlights energized to provide some electrical loading.

Radiated and conducted EMI emission subtests of the windshield wiper motor, directional signal/4-way flasher and electric horn assembly relay are made with the vehicle engine inoperative. The electric horn assembly relay is actuated approximately 60 times per minute to obtain measurements of switching transients, if any.

A list of the potential sources of EMI and their respective manfacturer's nomenclature is given in Inclosure I.

4. RESULTS

The subject vehicle failed the radiated and conducted EMI emission subtests RE05 and CE03, MIL-STD-461A for Class IIIa equipment.

A summary of the radiated and conducted EMI emission subtest results for the complete vehicle and individual accessories are given in Table II.

TABLE II

Radiated and Conducted EMI Emission Results

Item/Accessory Desc.	Rad Emission (RE05) Passed	Failed	Cond Emission (CE03) Passed	Failed
M151A2 Truck		X		X
Ign & Batt Chg Sys (slow idle 700 rpm) Mode 1	X			X
Ign & Batt Chg Sys (fast idle 1200 rpm) Mode 2	X			X
Windshield Wiper Motor Mode 3	X		X	
Dir Sig/4-Way Flasher Mode 4	X			X
Horn Assembly (Switching) Mode 5*		X		X

*Electric horn operated ON/OFF (60 times per minute)

Radiated Emissions, Subtest RE05 - Frequency range, 150 kHz to 100 MHz. Radiated EMI emissions from the ignition and battery charging systems, windshield wiper motor and directional signal/4-way flasher were within the allowable limits of the governing specification. However radiated EMI emissions from the electric horn assembly (switching ON/OFF) exceeded the allowable limits of the governing specification. Radiated EMI emission measurements could not be made over the frequency ranges from 150 kHz to 21.5 MHz because of excessively high RF ambient noise levels, 0-42 db above specification limits, with exception of the radiated emission subtests of the electric horn assembly. It was possible to measure the radiated emissions from the electric horn assembly above the RF ambients because the magnitude of these emissions exceeded the RF ambient noise level. Summary tabulations of the radiated EMI emission accessory failures (Subtest RE05) are shown in Table III.

TABLE III

Radiated EMI Emission Accessory Failures

MIL-STD-461A (RE05) - 150 kHz - 1000 MHz

Sys/Acces. Desc.	Freq Range (MHz)	Db Above Spec Limit	Ant. (25-200 MHz) Loc/Polar	
*Horn Assembly (Switching) Mode 5	1.65-800	0-40	F	V
*Horn Assembly (Switching) Mode 5	25-200	0-30	F	H
*Horn Assembly (Switching) Mode 5	2.5-880	0-37	L	V
*Horn Assembly (Switching) Mode 5	25-200	0-33	L	H
*Horn Assembly (Switching) Mode 5	2.5-750	0-26	R	V
*Horn Assembly (Switching) Mode 5	25-200	0-25	R	H

Legend:

F - Front of vehicle
L - Left side of vehicle engine compartment
R - Right side of vehicle engine compartment
V - BIA-25 Biconical Antenna vertically polarized (25-200 MHz)
H - BIA-25 Biconical Antenna horizontally polarized (25-200 MHz)
Mode 5 - Ref Table I

*Electric horn assembly operated ON/OFF (60 cpm)

Graphic presentation of the radiated EMI emission accessory failures (Subtest RE05) is given in Appendix I. Graphic presentation of a typical RF ambient noise level recorded during radiated EMI emission testing is shown in Inclosure I-9.

Conducted Emissions, Subtest CE03 - Frequency range, 150 kHz to 50 MHz. Conducted EMI emissions from the ignition system and electric windshield wiper motor were within the allowable limits of the governing specification. Conducted EMI emissions from the battery charging system at both slow and fast engine idle and from the directional signal/4-way flasher system and

electric horn assembly exceeded the allowable limits of the governing specification. Summary tabulations of the conducted EMI emission accessory failures (Subtest CE03) are shown in Table IV below:

TABLE IV
Conducted EMI Emission Accessory Failures

Sys/Acces. Desc.	Freq Range (MHz)	Db Above Spec Limit	Battery Cable
Ign & Batt Chg Sys	0.15-1.6	0-20	P
(slow idle) Mode 1	0.15-1.6	0-20	N
Ign & Batt Chg Sys	0.15-1.4	0-26	P
(fast idle) Mode 2	0.15-1.4	0-26	N
Dir Sig/4-Way Flasher	0.15-1.5	0-32	P
Mode 4	0.15-1.4	0-33	N
*Horn Assembly	0.15-0.22	0-18	P
(Switching) Mode 5	0.42-50	0-52	P
	0.15-0.22	0-17	N
	0.32-50	0-65	N

Legend:

Modes 1 thru 5 - Ref Table I
P - Positive battery cable
N - Negative battery cable

*Electric horn assembly operated ON/OFF (60 cpm)

Graphic presentation of the conducted EMI emission accessory failures (Subtest CE03) is given in Inclosure 1.

5. ANALYSIS

Although other accessories and/or subsystems failed the radiated and/or conducted EMI emission subtests, the electric horn assembly appeared to be a commercially available off-the-shelf item. It contained no apparent RF interference suppression treatment.

Although the vehicle ignition and battery charging systems were operating simultaneously during performance of radiated and conducted emission tests of these accessories, it was quite evident by the nature of the emissions measured that they were being produced by the battery charging system.

Radiated and conducted emission results obtained during conduct of the tests herein contained are comparable with those obtained during previous tests of the M151A2 Utility Trucks.

POTENTIAL SOURCES OF EMI TO BE EVALUATED

Truck, Utility, 1/4 Ton, 4X4, M151A2, AM General Corp, S/N NB004A-26801 (252 miles at end of test)

1. Engine AM General Corp Model M151 series, 141.5 CID, 4 cylinder, liquid cooled, gasoline, S/N 5018019, Ord Part No. 11613729

   a. Ignitor (combination coil-distributor) - Prestolite Model IDA-4402UT, 28 volt, S/N 2F916919, Ord Part No. 11660529

   b. High Tension Ignition Leads (4) - Woven metallic hose shielding

   c. Spark Plugs (4) - Shielded and suppressed Mil Std type

   d. Alternator - Prestolite Model AMA-5102UT, 28 volt, 60 amp, 10,000 rpm, S/N 4F001297, MIL-G-46795

2. Windshield Wiper Motor (Electric) - Prestolite Model ETU 5001UT, 24 volt, US Part No. 11644874, F3, 052629

3. Directional Signal/4-Way Flasher System - Swiss Controls & Research

   a. Control Assembly Directional Signal - US Part No. 11613632, 24 volt, S/N 1931-3090090, FSN 2590-808-6072

   b. Flasher Directional Signal - US Part No. 11613631, 24 volt, S/N 1780-3090157, FSN 5945-789-3706

4. Horn, Electric, Automotive - Sparton Corp No. 14S-50M-C, Mfg Part No. MS-51074-1

LIST OF INSTRUMENTATION AND FACILITIES

1. Spectrum Surveillance System Model FSS-250D, S/N 33 - Calibration Due Date: 25 July 1973; Accuracy: Frequency ±2%, Amplitude ±2db

2. Ancillary equipment for radiated emissions (RE05) - 150 kHz to 1000 MHz

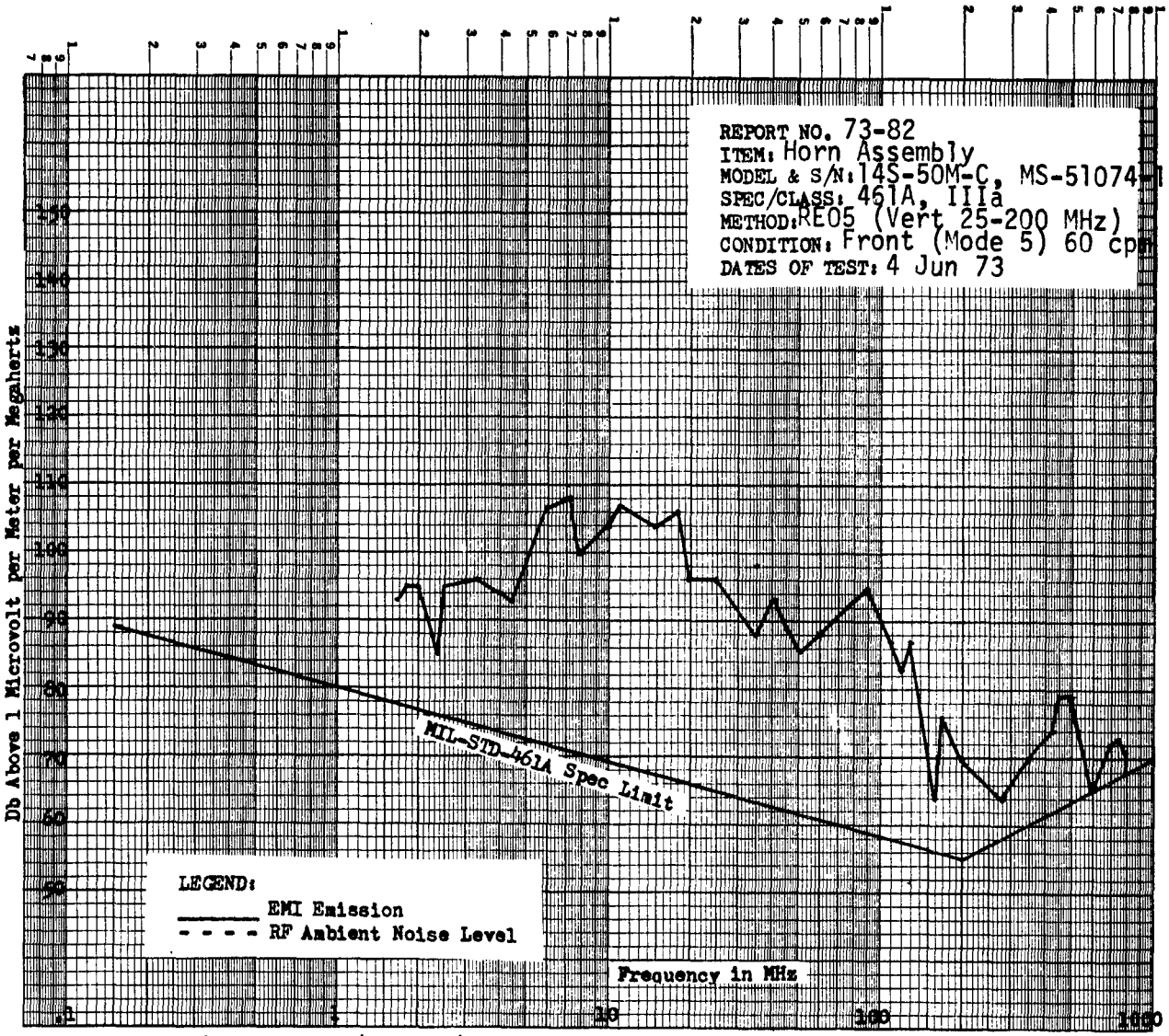
   a. Antenna, Whip - RVR-25 (14 kHz to 25 MHz)

   b. Antenna, Biconical - BIA-25 (20 to 200 MHz)

   c. Antenna, Log Spiral - LCA-25 (200 to 1000 MHz)

3. Ancillary equipment for conducted emissions (CE03) - 150 kHz to 50-MHz

   Current Probe - PCL-25 (14 kHz to 50 MHz)



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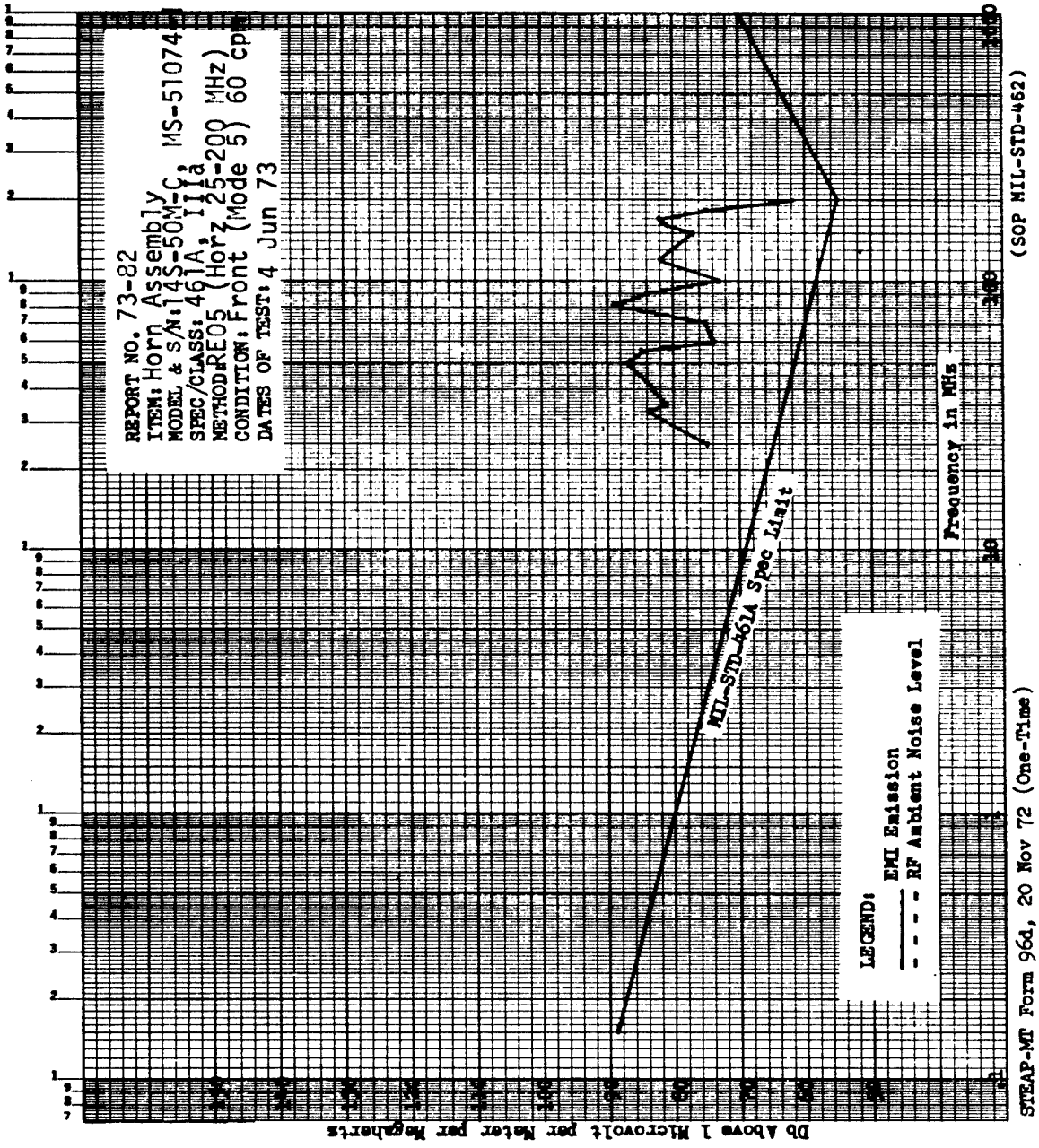
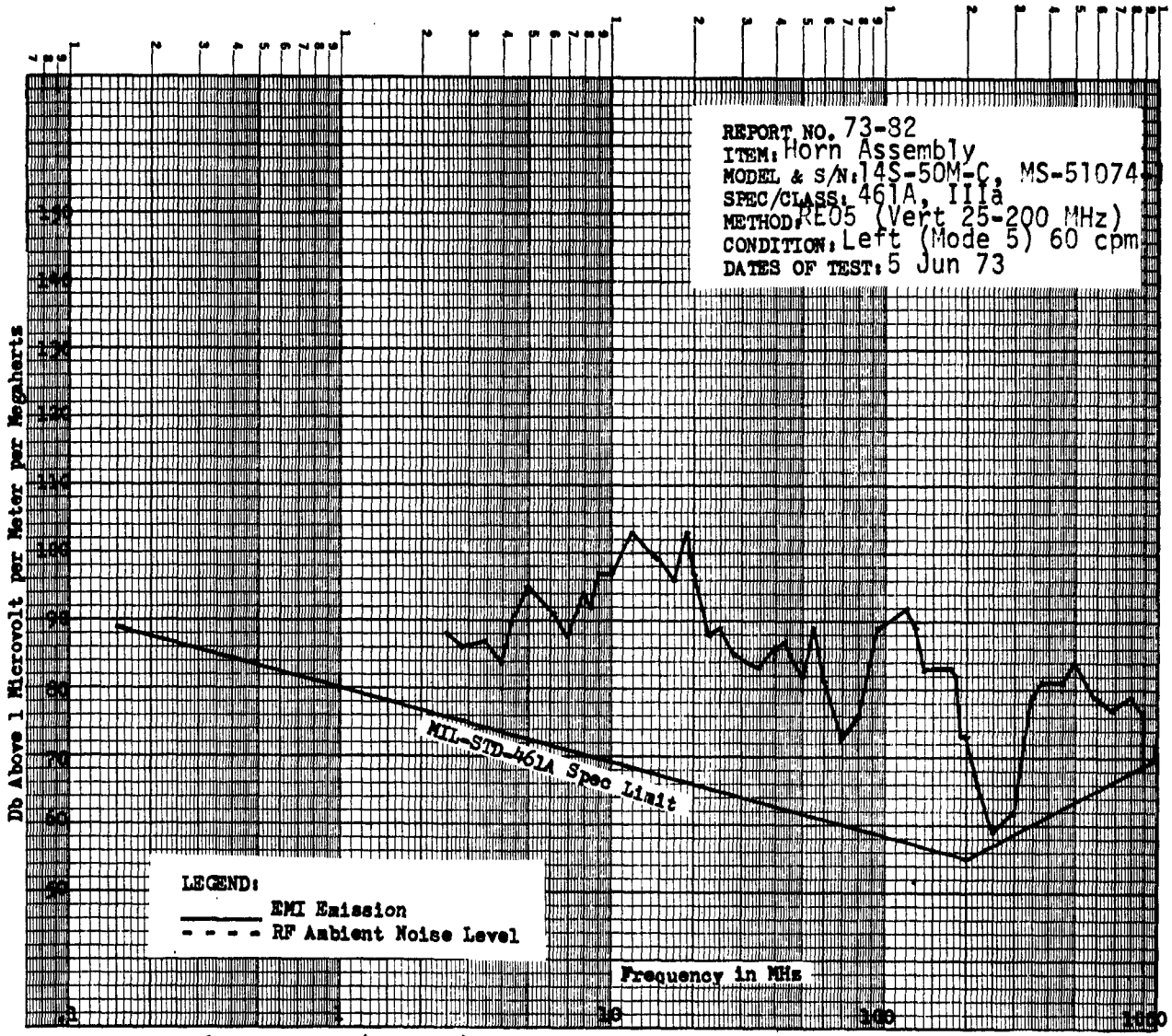

REPORT NO. 73-82
ITEM: Horn Assembly
MODEL & S/N: 145-50M-C, MS-51074
SPEC/CLASS: 461A, III a
METHOD#RE05 (Horz 25-200 MHz)
CONDITION: Front (Mode 5) 60 cps
DATES OF TEST: 4 Jun 73
MIL-STD-461A Spec Limit
LEGEND:
EMI Emission
RF Ambient Noise Level
Frequency in MHz
DB Above 1 Microvolt per Meter per Megahertz
(SOP MIL-STD-462)
STEAP-MT Form 96d, 20 Nov 72 (One-Time)



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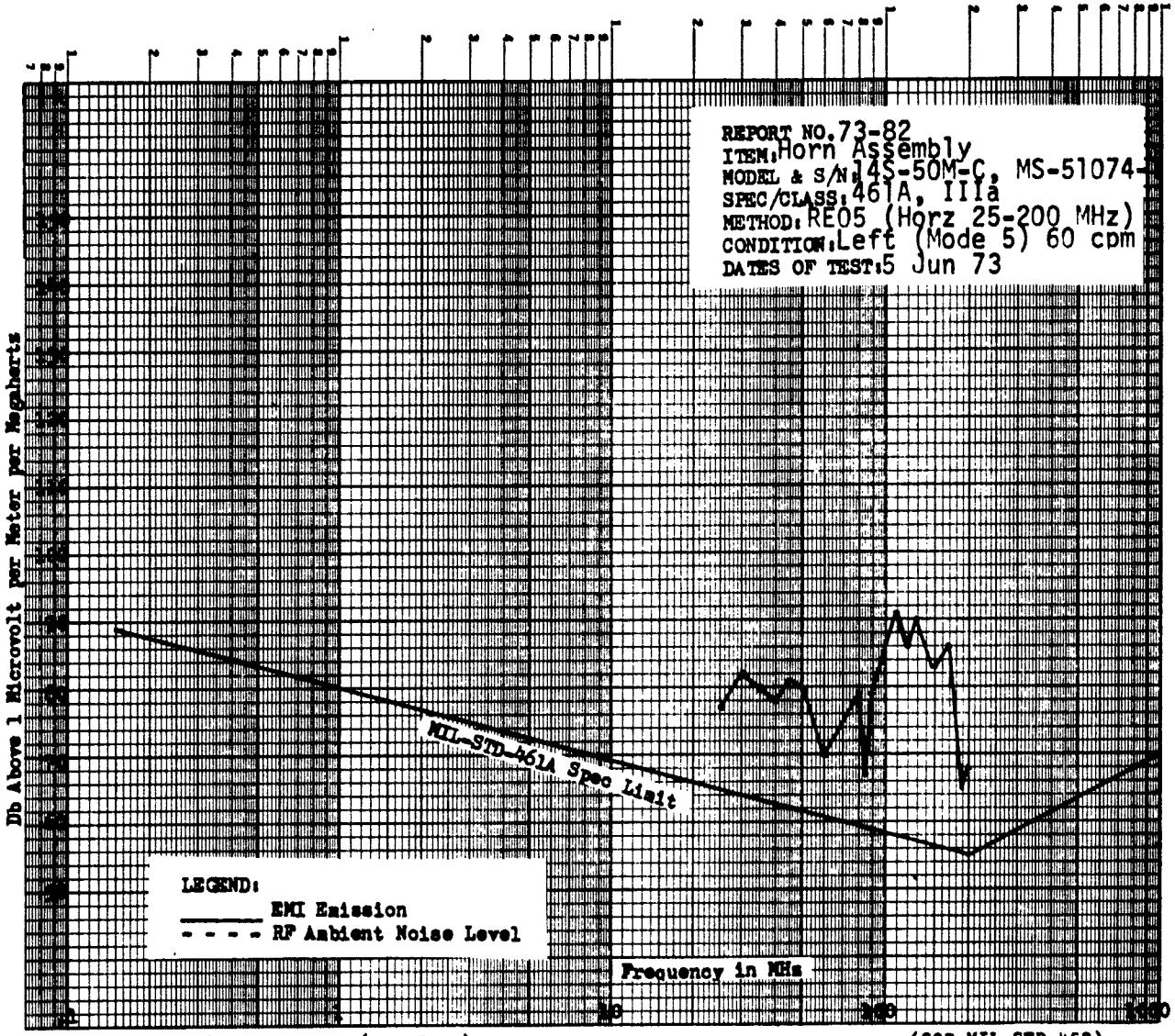

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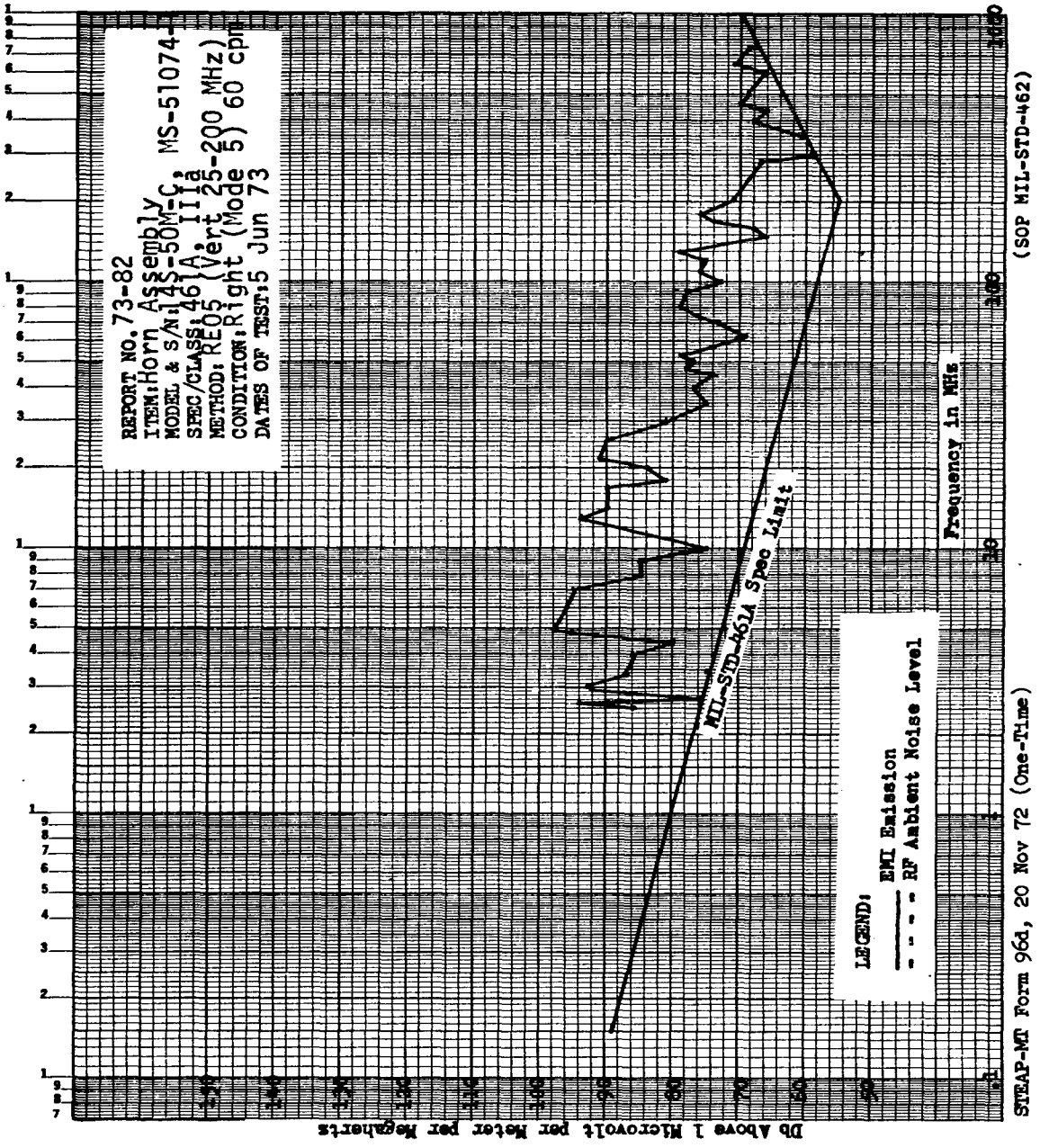
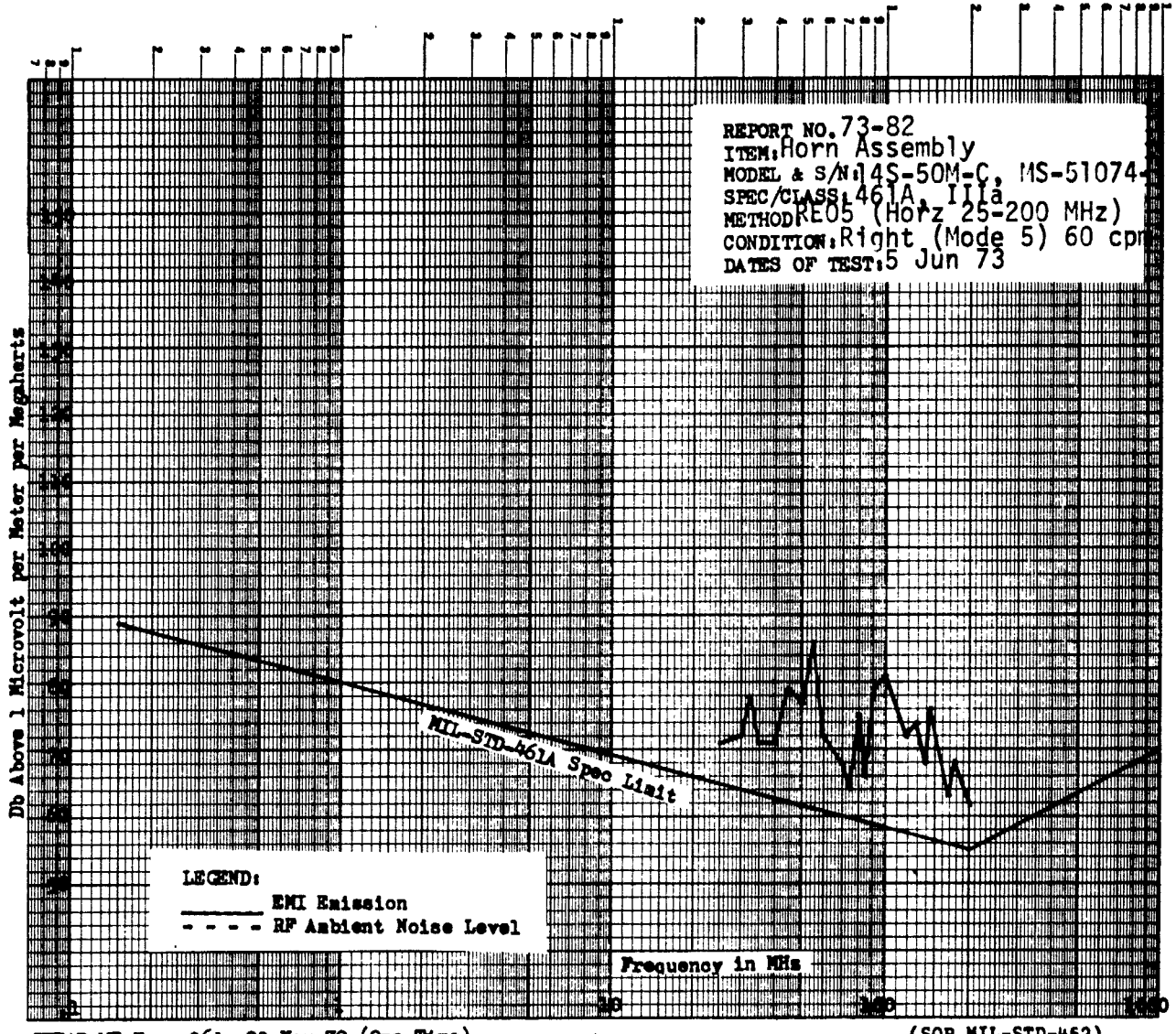
(SOP MIL-STD-462)


REPORT NO. 73-82
ITEM: Horn Assembly
MODEL & S/N: 145-50M-C, MS-51074
SPEC/CLASS: 461A, III a
METHOD: RE05 (Vert 25-200 MHz)
CONDITION: Right (Mode 5) 60 cps
DATES OF TEST: 5 Jun 73
LEGEND:
EMI Emission
RF Ambient Noise Level
MIL-STD-461A Spec Limit
Frequency in MHz
Db Above 1 Microvolt per Meter per Megahertz
STEAP-MT Form 96d, 20 Nov 72 (One-Time)
(SOP MIL-STD-462)



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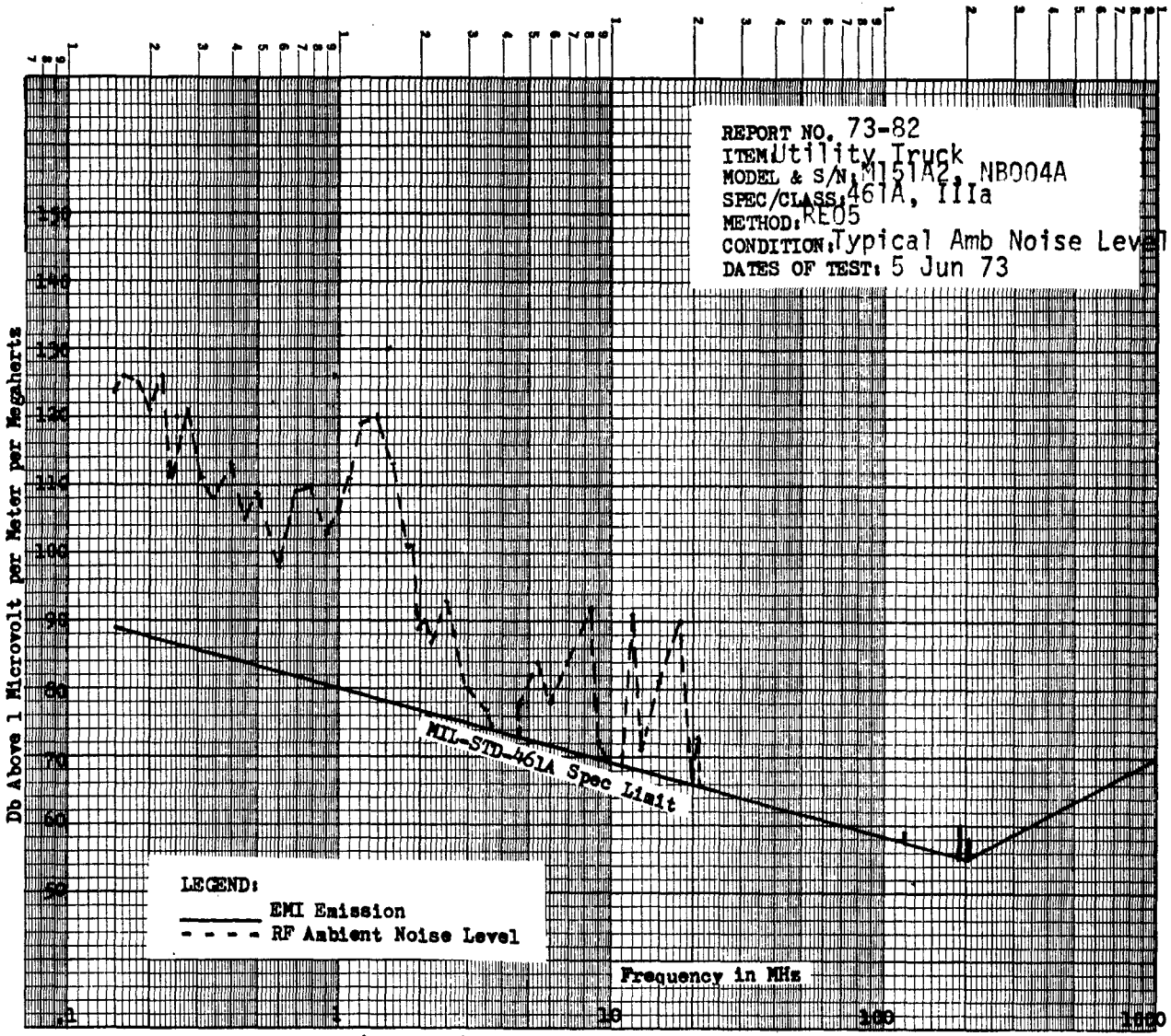
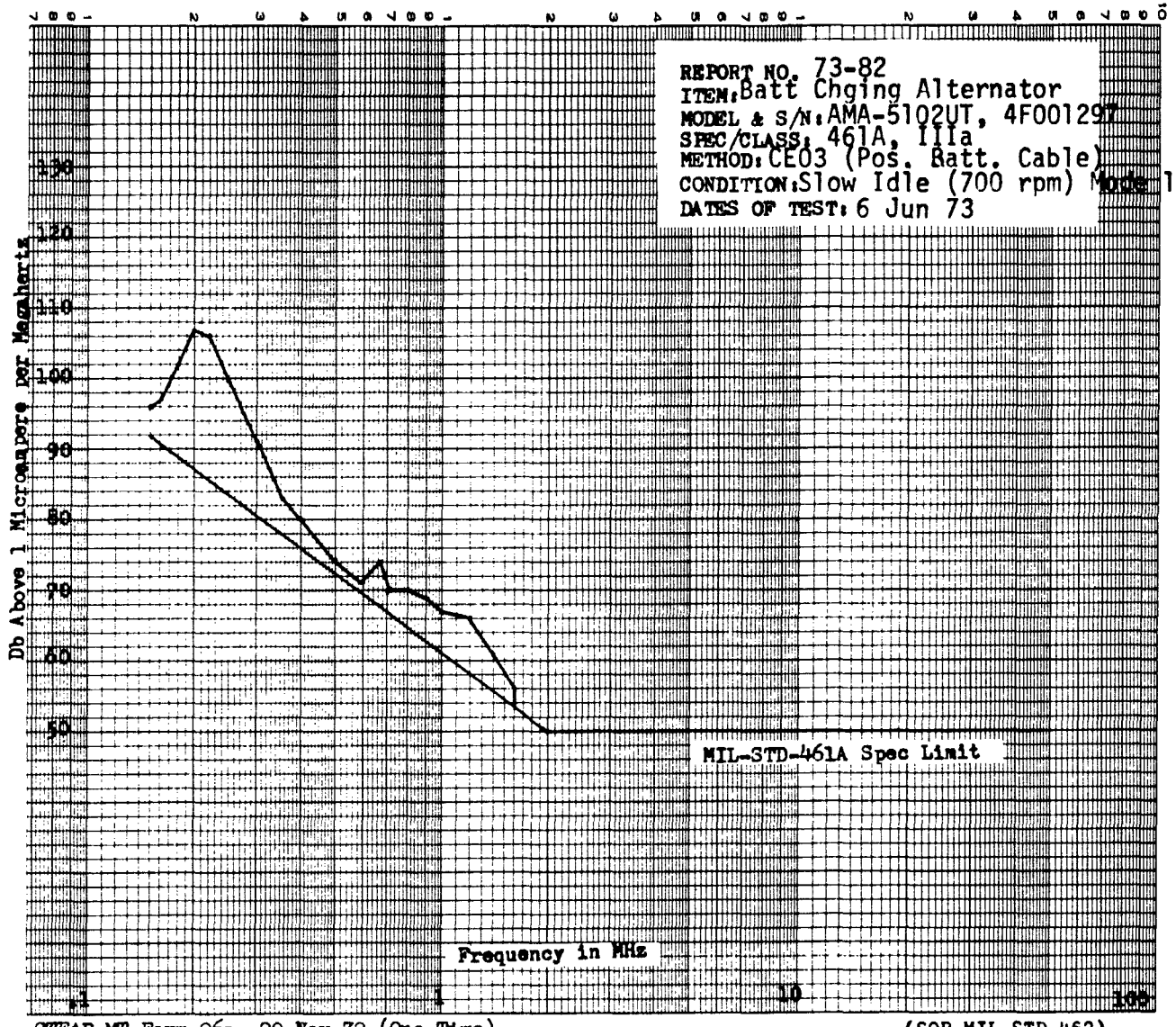
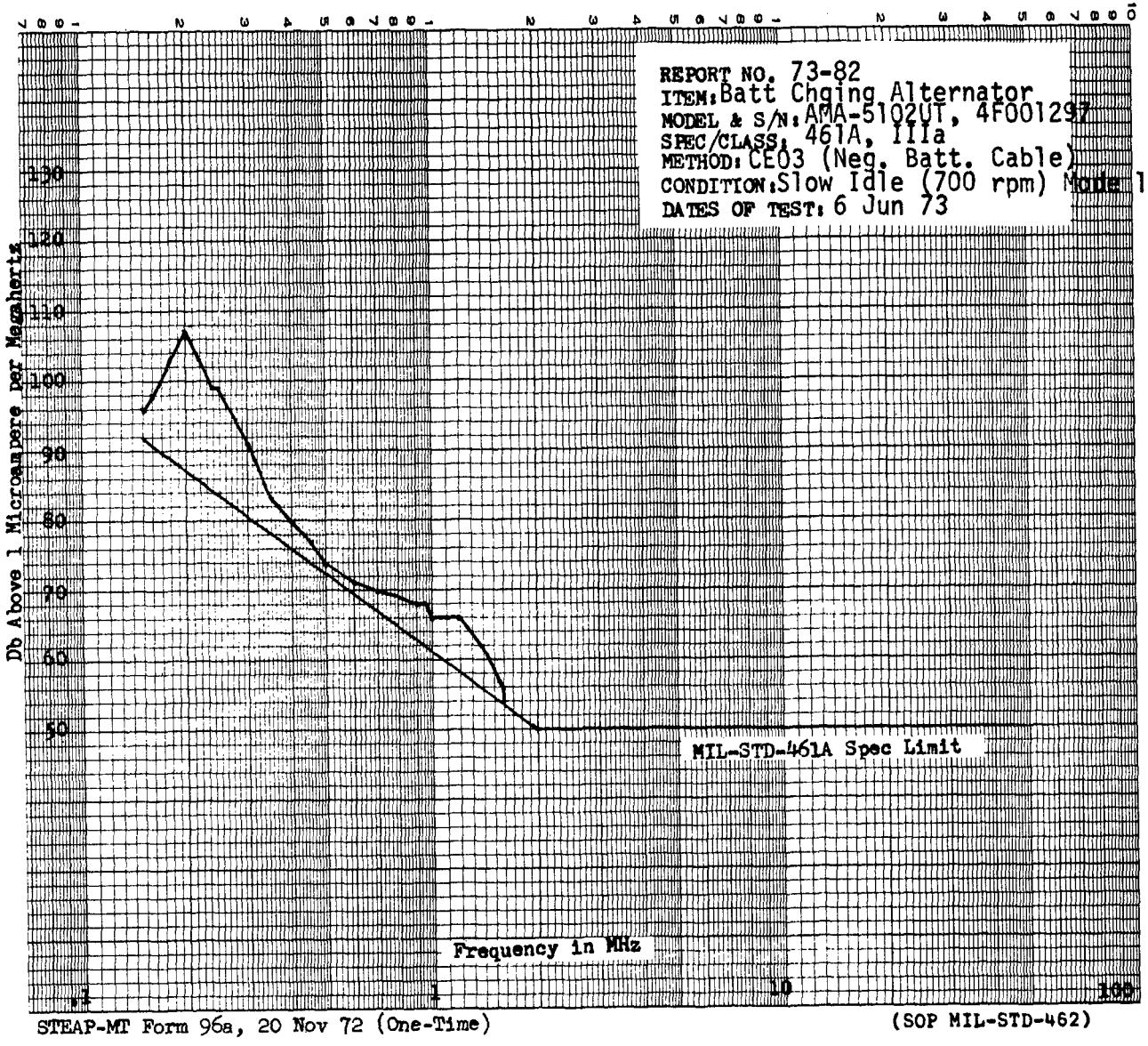


STEAP-MT Form 96d, 20 Nov 72 (One-Time) (SOP MIL-STD-462)



STEAP-MT Form 96a, 20 Nov 72 (One-Time) (SOP MIL-STD-462)



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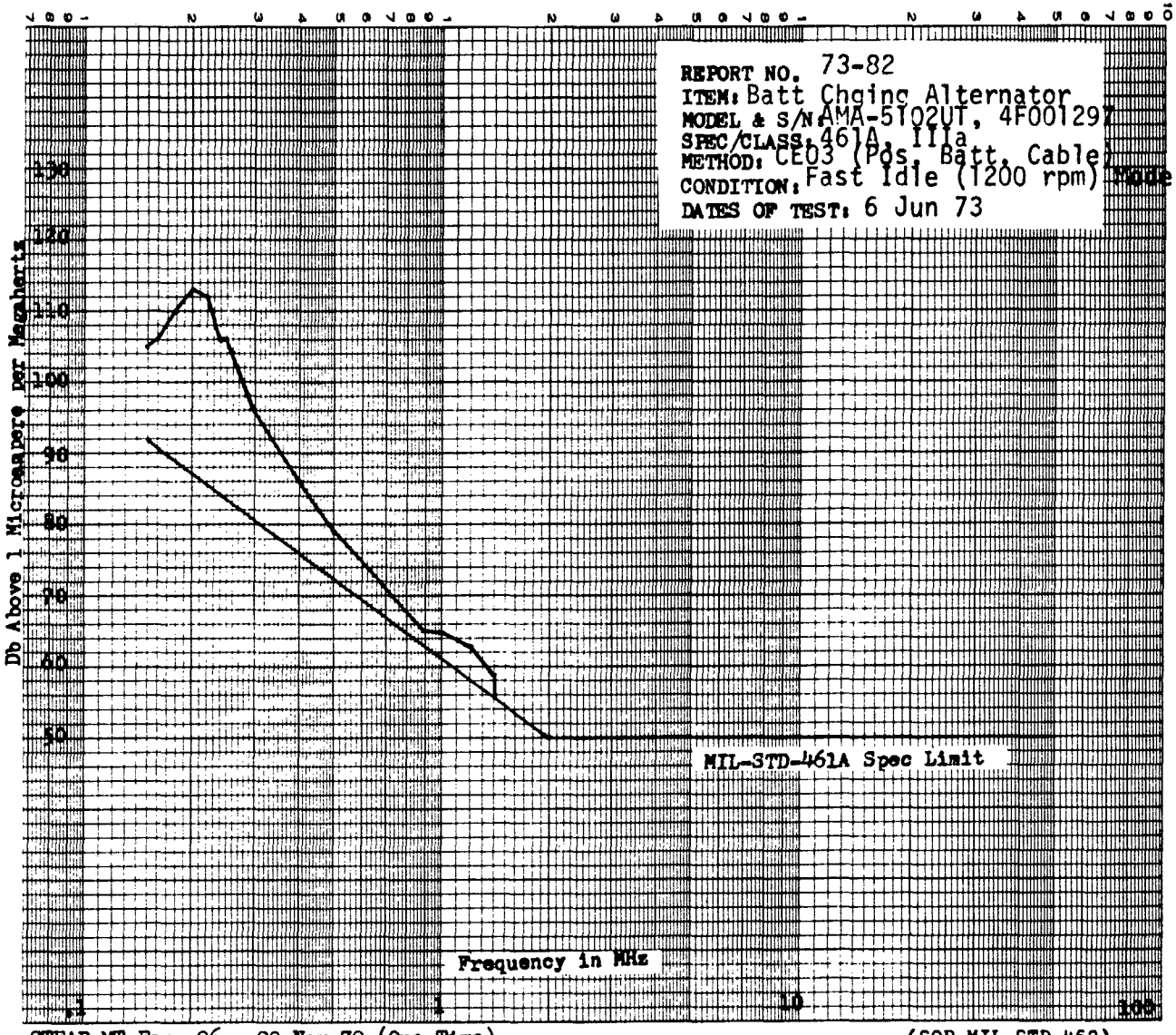

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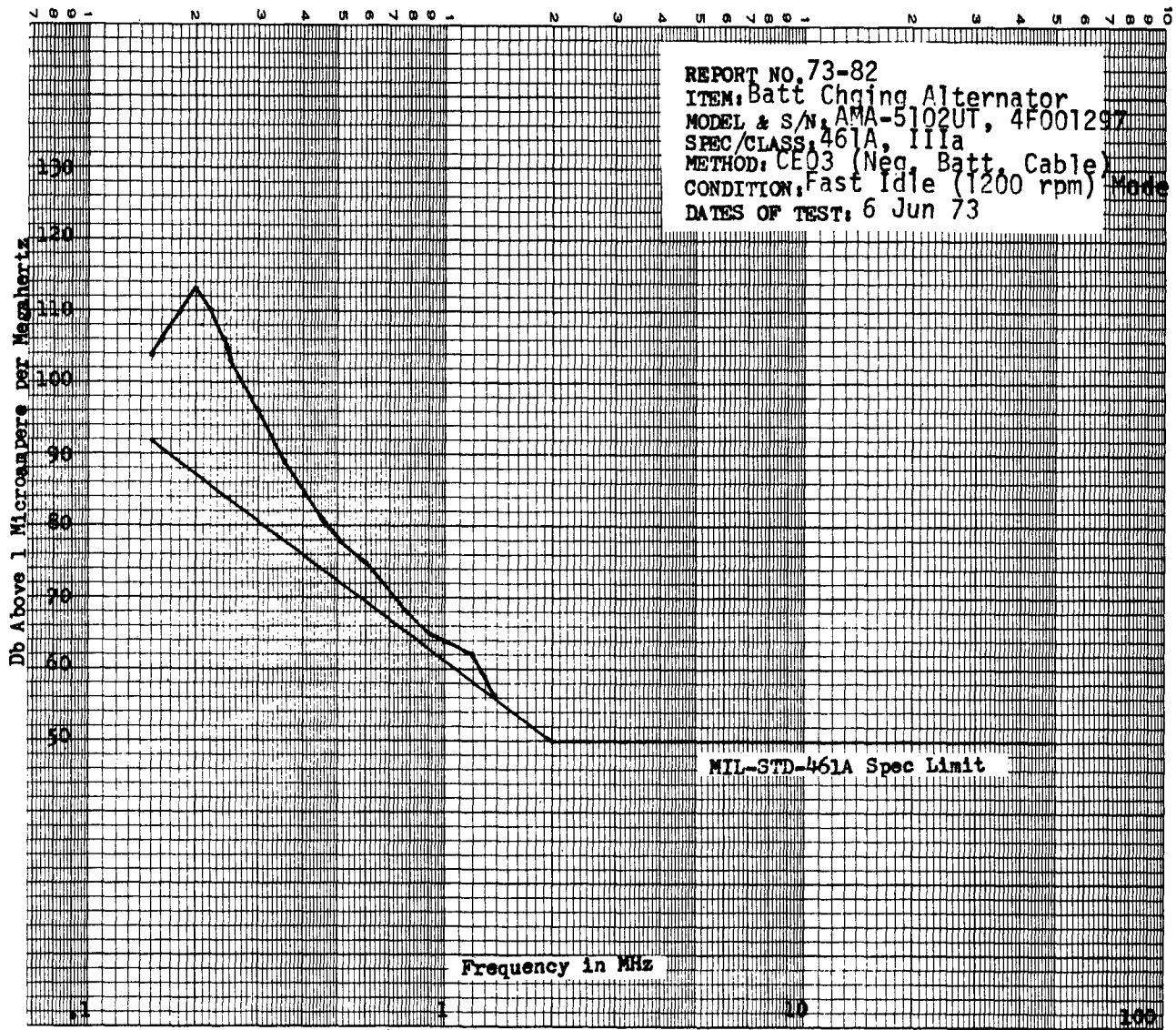
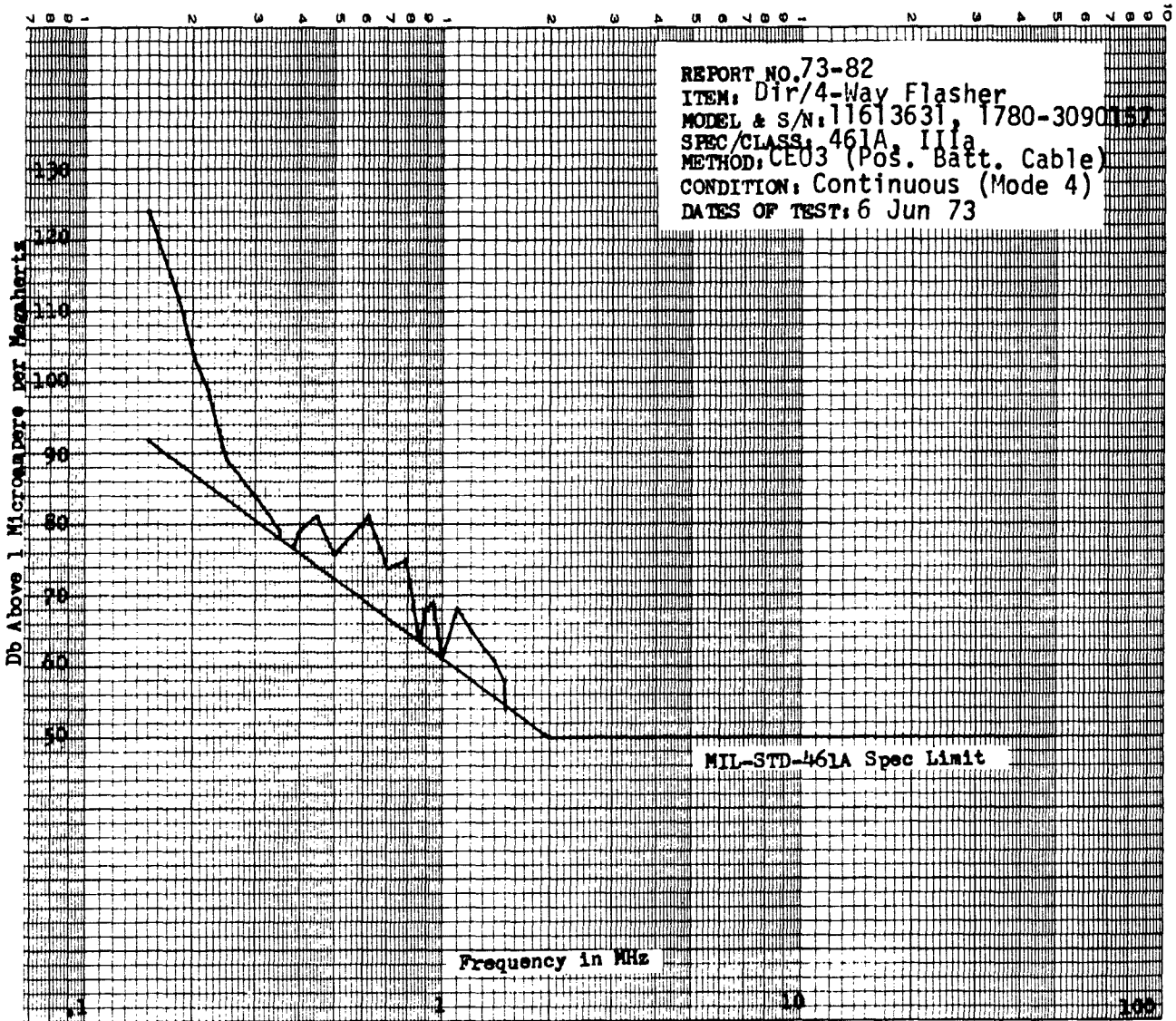
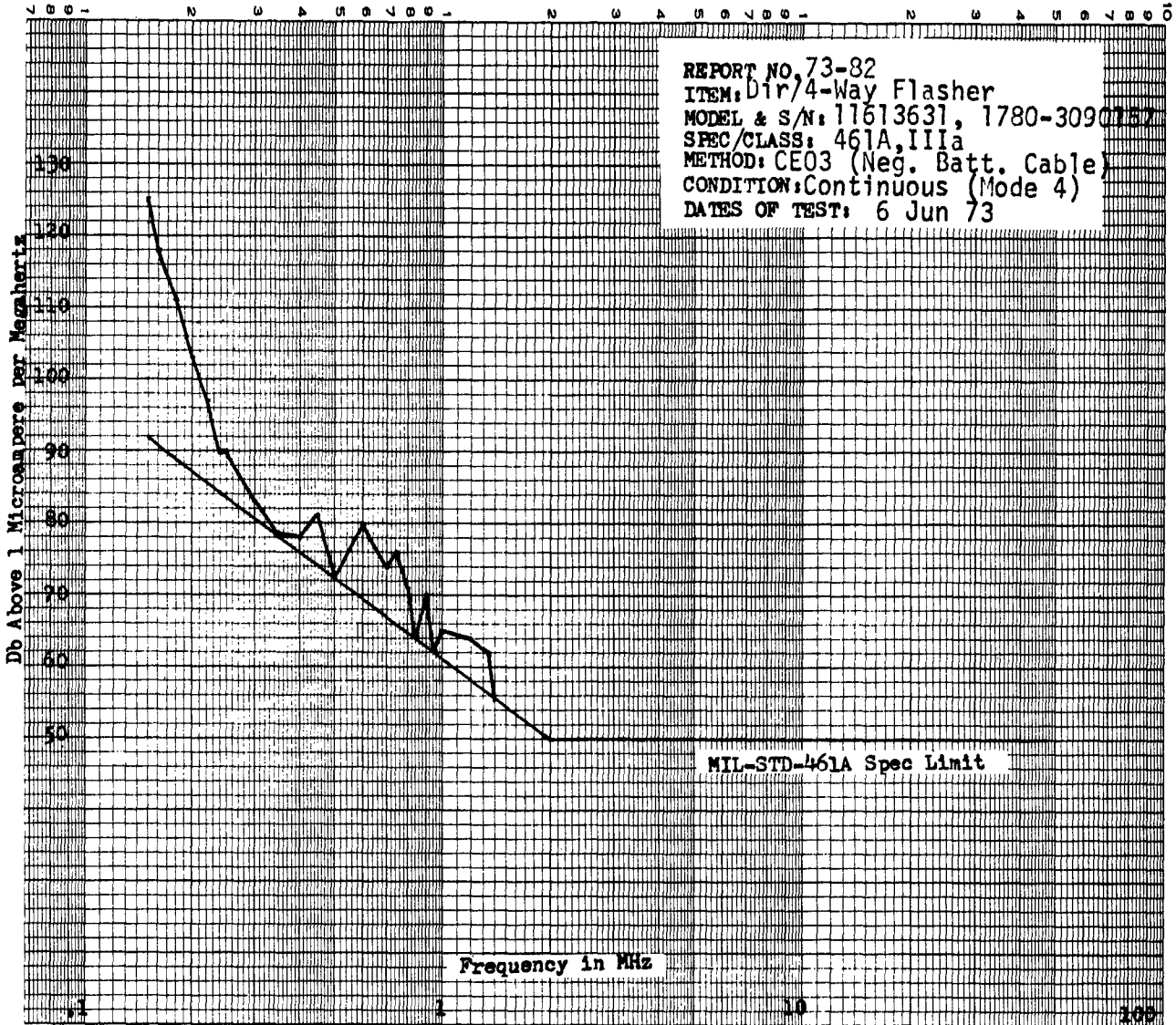


STEAP-MT Form 96a, 20 Nov 72 (One-Time) (SOP MIL-STD-462)

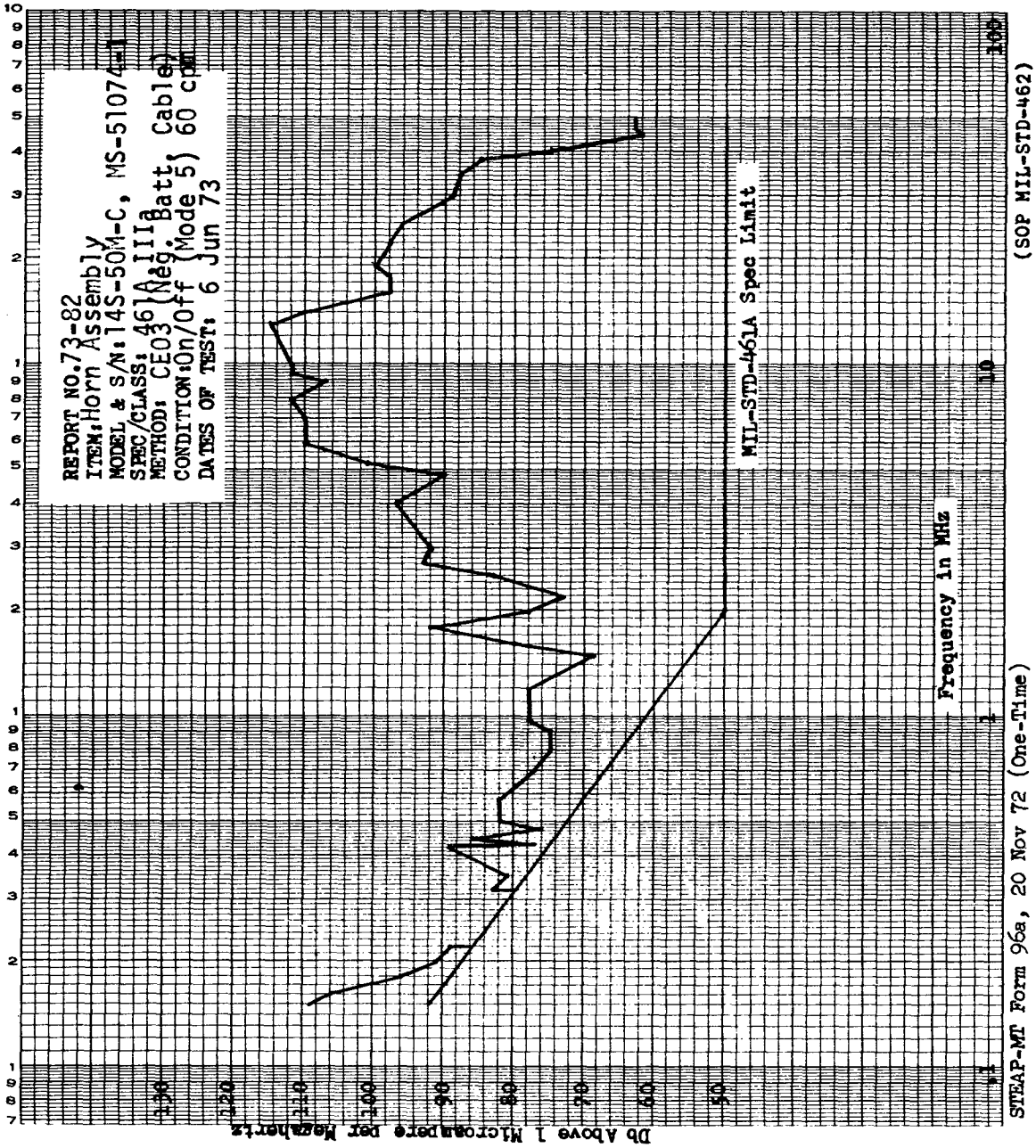


STEAP-MT Form 96a, 20 Nov 72 (One-Time) (SOP MIL-STD-462)



STEAP-MT Form 96a, 20 Nov 72 (One-Time) (SOP MIL-STD-462)

REPORT NO. 73-82
ITEM: Horn Assembly
MODEL & S/N: 14S-50M-C, MS-51074
SPEC/CLASS: 461A, IIIa
METHOD: CE03 (Pos. Batt. Cable)
CONDITION: On/Off (Mode 5) 60 dBm
DATES OF TEST: 6 Jun 73
MIL-STD-461A Spec Limit
Frequency in MHz
Db Above 1 Microampere per Meter
STEAP-MT Form 96a, 20 Nov 72 (One-Time)
(SOP MIL-STD-462)


REPORT NO.73-82
ITEM:Horn Assembly
MODEL & S/N:14S-50M-C, MS-51074-1
SPEC/CLASS: 461A IIIa
METHOD: CE03 (Neg. Batt, Cable)
CONDITION:On/Off (Mode 5) 60 cps
DATES OF TEST: 6 Jun 73
MIL-STD-461A Spec Limit
Frequency in MHz
Db Above 1 Microampere per Meganerte
STEAP-MT Form 96a, 20 Nov 72 (One-Time)
(SOP MIL-STD-462)

Fuel Consumption Average By Course, Vehicle No. NB004A

Course	Avg. Speed, MPH	Miles Per Gallon	Avg. Speed, MPH	Miles Per Gallon
Paved (Break-in)			28.5	24.8
Paved	38.6	21.9	36.9	16.4
Gravel	34.8	18.3	34.6	18.5
Belgian Block and Gravel	28.7	15.6	26.1	7.7
Hilly Cross-country	26.1	12.1	20.7	9.7
Level Cross-country	28.1	16.9	28.7	14.0
Secondary Road "A"	30.7	19.2	26.9	16.9
Total Average	31.2	17.3	28.9	15.4

DEFICIENCIES AND SHORTCOMINGS

1. Deficiencies
None

2. Shortcomings

Shortcoming	Suggested Corrective Action	Remarks
2.1 Maximum Road speed cannot be met.		The maximum speed obtained with cross-country payload and towed load was 56.5 mph or 3.5 mph less than specified
2.2 Radio frequency interference suppression requirements cannot be met because electromagnetic emmissions exceed the allowable limits.		The vehicle failed to meet specified requirements of MIL-STD-461.
2.3 The rear mounting capscrews of the lower right front suspension arm loosen at rear mounting shim.		The mounting shim was replaced to restore front wheel alignment and the mounting capscrews torqued as prescribed in TM9-2320 218-34.
2.4 The upper radiator insulator assembly fractures through the front mounting screw after 2410-test miles.		The mounting insulator was replaced.
2.5 The right rear outboard suspension arm bushing is worn after 3000-test miles.		The bushing rubber segment had completely disintegrated. The bushing was replaced.

Unclassified
Security Classification

DOCUMENT CONTROL DATA - R & D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY *(Corporate author)*
Materiel Testing Directorate
Aberdeen Proving Ground, Maryland 21005

2a. REPORT SECURITY CLASSIFICATION
Unclassified

2b. GROUP

3. REPORT TITLE
Comparison Test of Truck, Utility, 1/4-Ton, 4X4, M151A2, USA Reg No. NB004A Mfg Serial No. 26801.

4. DESCRIPTIVE NOTES *(Type of report and inclusive dates)*
Final Letter Report, 24 May to 2 July 1973.

5. AUTHOR(S) *(First name, middle initial, last name)*
W. H. Neff, Jr.

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
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c.	9b. OTHER REPORT NO(S) *(Any other numbers that may be assigned this report)*
d.	

10. DISTRIBUTION STATEMENT
Distribution limited to U. S. Government Agencies only; Test and Evaluation; other requests for this document must be referred to Commander, US Army Tank-Automotive Command, ATTN: AMSTA-QST

11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY
None	TACOM

13. ABSTRACT

A comparison test of one truck, utility, 1/4-ton, 4X4, M151A2, was conducted by the Materiel Testing Directorate at Aberdeen Proving Ground from 24 May to 2 July 1973. Testing was conducted in accordance with military specification MIL-T-0045331E. Quality of workmanship at the time of manufacture was satisfactory. Vehicle performance requirements were met with the exception of radio interference suppression and maximum speed requirements. Vehicle endurance was satisfactory, except the lower right front suspension arm capscrews loosened, the upper radiator insulator assembly fractured, and the right rear outboard suspension arm bushing was worn.

DD FORM 1 NOV 68 1473 REPLACES DD FORM 1473, 1 JAN 64, WHICH IS OBSOLETE FOR ARMY USE.

Unclassified
Security Classification

14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
Truck, utility, 1/4-ton, 4X4, M151A2 Quality assurance Performance Endurance						