MAY CHEONG TOY PRODUCTS FTY LTD

TEST REPORT

SCOPE OF WORK
RAIDO FREQUENCY AND EMC TESTING–82181/19181

REPORT NUMBER
SZHH01538188-001

ISSUE DATE	[REVISED DATE]
11 MARCH 2021	[----------]

PAGES
34

DOCUMENT CONTROL NUMBER
ETSI EN300440_c

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TEST REPORT

Intertek Report No. : SZHH01538188-001

RADIO COMMUNICATIONS AND EMC TESTING REPORT

MAY CHEONG TOY PRODUCTS FTY LTD

82181/19181
Additional Models: 82180/82182/82184/82185/82186

R/C Work Machines UNIMOG U430 (19CM)
Additional Name: R/C Work Machines MACK Granite Refuse Truck (19CM)

Test Report: SZHH01538188-001

Test Engineer :	Terry Tang Assistant Supervisor	Sign On File
Report Approved By :	Jimmy Wen Assistant Manager	Digitally signed by Jimmy Wen Location: Intertek Testing Services
Date :	11 March 2021	

Intertek Testing Services Shenzhen Ltd.
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RADIO PERFORMANCE MEASUREMENTS
RESULT SUMMARY

Requirements	ETSI EN 300 440		Compliance
	Technical requirements	Test Specification	
	Clause Number		
Equivalent Isotropically Radiated Power (EIRP)	4.2.2	4.2.2.3	Complied
Permitted Range of Operating Frequencies	4.2.3	4.2.3.3	Complied
Unwanted emissions in the spurious domain	4.2.4	4.2.4.3	Complied
Duty Cycle	4.2.5.4	4.2.5.4.3	Complied
Blocking or desensitization	4.3.4	4.3.4.3	Complied
Spurious radiation	4.3.5	4.3.5.3	Complied
When determining the test conclusion, the Measurement Uncertainty of test has been considered.			

EMC COMPLIANCE MEASUREMENTS
RESULT SUMMARY

	ETSI EN 301 489-3	ETSI EN 301 489-1	Compliance
	Clause Number		
EMC Emission	7.1	8.2	Complied
Electrostatic Discharge	7.2	9.3	Complied
Radio Frequency Electromagnetic Field (80MHz-6GHz)	7.2	9.2	Complied
When determining the test conclusion, the Measurement Uncertainty of test has been considered.			

EQUIPMENT UNDER TEST (EUT) INFORMATION

Applicant:	MAY CHEONG TOY PRODUCTS FTY LTD UNIT 901-2, 9/F., EAST OCEAN CENTRE, 98 GRANVILLE ROAD, TSIMSHATSUI EAST, KOWLOON, HONG KONG
Description of EUT:	R/C Work Machines UNIMOG U430 (19CM)
Type Number (s):	82181/19181
Brand Name(s):	N/A
Serial Number (s):	Not Labelled
Equipment Received:	19 February 2021
Test Date (s):	19 February 2021 to 11 March 2021
Modulation:	GFSK
Categories of Receiver :	Category 2
Test Site and Location:	Intertek Testing Services Shenzhen Ltd. (CNAS L0327) 1F/2F, Building B, QiaoAn Scientific Technology Park, Shangkeng Community, Guanhu Subdistrict, Longhua District, Shenzhen, P.R. China.
Test Specification (s):	ETSI EN 300 440 V2.1.1 (2017-03) ETSI EN 301 489-1 V2.2.3 (2019-11) ETSI EN 301 489-3 V2.1.1 (2019-03)

CONTENTS

EXHIBIT 1

GENERAL DESCRIPTION

1 INTRODUCTION

Intertek Testing Services Shenzhen Limited (address: 1F/2F, Building B, QiaoAn Scientific Technology Park, ShangKeng Community, GuanHu Subdistrict, LongHua District, ShenZhen. P.R. China, 518110) has tested the MAY CHEONG TOY PRODUCTS FTY LTD 82181/19181 R/C Work Machines UNIMOG U430 (19CM). The sample was tested to the relevant performance specification published by the European Telecommunications Standards Institute. This report contains the results of these tests and is submitted MAY CHEONG TOY PRODUCTS FTY LTD as the final test results.

The equipment under test (EUT) is a R/C Work Machines UNIMOG U430 (19CM) operating at 2.4G Band. The Car Unit is powered by DC 3.0V (2 x 1.5V AA batteries). For more detail information pls. refer to the user manual.

The Models: 82180/82182/82184/82185/82186 are the same as the Model: 82181/19181 in hardware and electrical aspect. The difference in appearance and model number serves as marketing strategy.

The production units are required to conform to the initial sample as received when the units are placed on the market.

2 TEST SPECIFICATION

2.1 RELEVANT PERFORMANCE SPECIFICATION

The relevant performance specifications for 82181/19181 R/C Work Machines UNIMOG U430 (19CM) are the harmonised standard is ETSI EN 300 440 V2.1.1 (2017-03) and the technical standards are ETSI EN 301 489-3 V2.1.1 (2019-03) and ETSI EN 301 489-1 V2.2.3 (2019-11)

The tests performed are those required to demonstrate compliance with the technical specifications and the essential requirements of Article 3.1(b) and 3.2 of the Radio Equipment Directive (2014/53/EU) - RED for regulatory purposes.

2.2 TEST ENVIRONMENT

The tests were performed in the Radio communications and Electromagnetic Compatibility Test Facility at Intertek Testing Services Shenzhen Ltd. (CNAS L0327). The sample was subjected to the ambient conditions in the laboratory and indoor test site except during tests at extremes of temperatures and the Radiated Emissions Tests. The temperature and relative humidity recorded during the period of each test are given in the results.

2.3 CONFIGURATION OF TEST SAMPLE

The test samples consisted of one transceiver (Car Unit).

2.4 TEST POWER SOURCES

The Car Unit is powered by DC 3.0V (2 x 1.5V AA batteries). The test power source voltages declared by the manufacturer were:

	Car Unit
Nominal test voltage	DC 3.0V
Lower extreme test voltage	DC 2.55V
Upper extreme test voltage	DC 3.0V

2.5 TEST FREQUENCIES

The sample supplied operated nominally at 2410- 2475MHz for transmitter and the channel list with 1 MHz channel spacing. The tests were carried out on channel Low, Medium and High of the alignment range.

2.6 GENERAL REQUIREMENTS

2.6.1 MODULATION

1. Modulation is used with GFSK technique.
2. Manufacturer's declared operating temperature: -20°C to +55°C.

2.6.2 ANTENNA

The antenna used in transceiver is permanent Integrate antenna.

2.7 MEASUREMENT UNCERTAINTY

All measurement uncertainties stated in this report are estimated to a 95% confidence level.

2.8 SUPPORT EQUIPMENT – RADIO PERFORMANCE MEASUREMENTS

N/A

2.9 SUPPORT EQUIPMENT – EMC COMPLIANCE MEASUREMENTS

Controller(Model: 19181) (Provided by Applicant)

2.10 PERFORMANCE CRITERIA

2.10.1 GENERAL PERFORMANCE CRITERIA:

Criterion	During test	After test
A	Operate as intended No loss of function No unintentional responses	Operate as intended No loss of function No degradation of performance No loss of stored data or user programmable functions
B	May show loss of function No unintentional responses	Operate as intended Lost function(s) shall be self-recoverable No degradation of performance No loss of stored data or user programmable functions

2.10.2 PERFORMANCE CRITERIA FOR CONTINUOUS PHENOMENA

Performance criterion A applies for immunity tests with phenomena of a continuous nature.

2.10.3 PERFORMANCE CRITERIA FOR TRANSIENT PHENOMENA

Performance criterion B applies for immunity tests with phenomena of a transient nature.

EXHIBIT 2

TEST RESULT
OF
RADIO PERFORMANCE MEASUREMENTS

3 EQUIVALENT ISOTROPICALLY RADIATED POWER (EIRP) AND SPURIOUS EMISSIONS

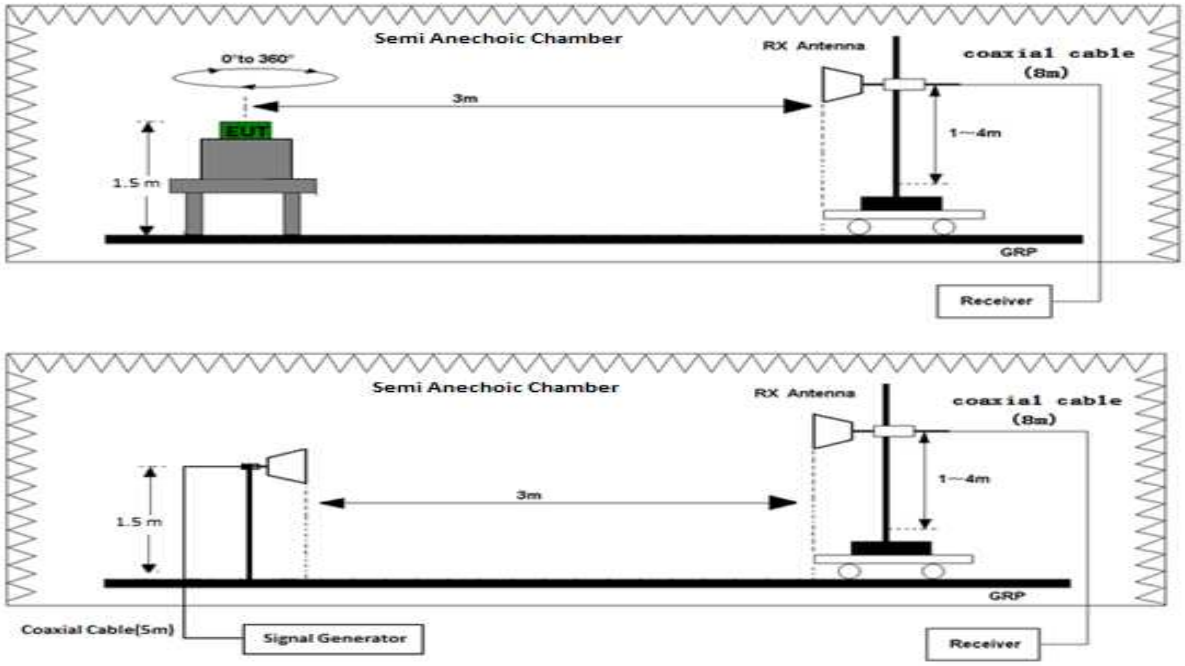
3.1 TEST METHOD AND SUMMARY

	Equivalent Isotropically Radiated Power (EIRP)	Unwanted emissions in the spurious domain	Spurious radiations
Basic Standard :	ETSI EN 300 440 V2.1.1 (2017-03)		
Clause :	4.2.2	4.2.4	4.3.5
Application :	Transmitter with an Integral or Dedicated Antenna	All Transmitters	All Receivers

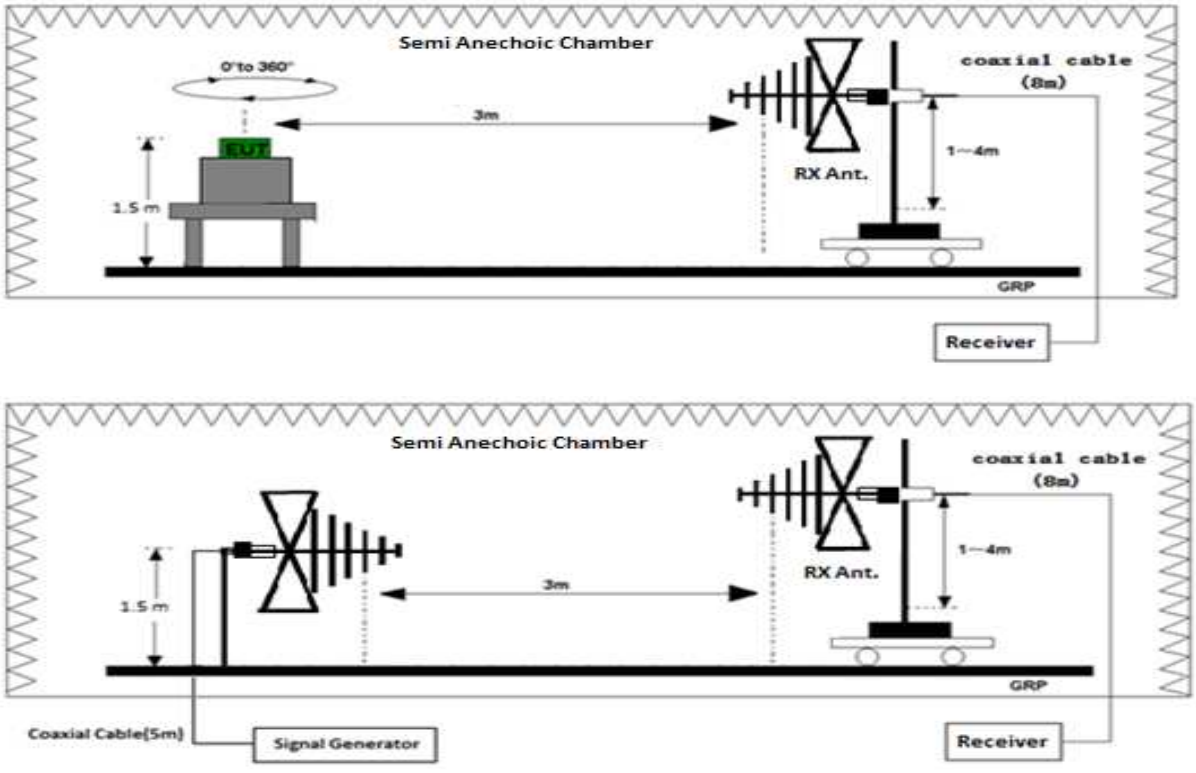
3.2 EQUIPMENT LIST

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ061-12	BiConiLog Antenna	ETS	3142E	14-Sep-2018	14-Sep-2021
SZ016-12	Temperature & Humidity Chamber	Terchy	MHK-120NK	12-Jan-2021	12-Jan-2022
SZ185-01	EMI Receiver	R&S	ESCI	22-Dec-2020	22-Dec-2021
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	15-Dec-2018	15-Dec-2021
SZ056-03	Spectrum Analyzer	R&S	FSP30	27-May-2020	27-May-2021
SZ006-05	DC Power Source	APC	GPS-3030DD	12-Feb-2021	12-Aug-2022
SZ062-12	RF Cable	RADIALL	RG 213U	24-Feb-2021	24-Aug-2021
SZ062-13	RF Cable	Habia	0.026-26.5GHz	24-Feb-2021	24-Aug-2021

3.3 Test Setup



Test set-up of radiated disturbance (above 1GHz)



Test set-up of radiated disturbance (30MHz-1GHz)

3.4 TEST RESULT - EQUIVALENT ISOTROPICALLY RADIATED POWER (EIRP)

Ambient Test Conditions: Temperature 25°C; Humidity 50%

(Car Unit)

Test Conditions			Power (mW)	Power (dBm)	Limit (dBm)	Margin (dB)
Temperature(°C) Humidity**(%)**	**Voltage**	**CH(MHz)**				
Ambient	❒ VDC $_{nom}$ DC 3.0V	2410.000	0.468	-3.3	10.0	-13.3
T_{min} -20°C H_{min} 0%	❒ VDC $_{max}$ DC 3.0V		0.437	-3.6	10.0	-13.6
	❒ VDC $_{min}$ DC 2.55V		0.417	-3.8	10.0	-13.8
T_{max} 55°C H_{max} 50%	❒ VDC $_{max}$ DC 3.0V		0.427	-3.7	10.0	-13.7
	❒ VDC $_{min}$ DC 2.55V		0.407	-3.9	10.0	-13.9
Ambient	❒ VDC $_{nom}$ DC 3.0V	2440.000	0.537	-2.7	10.0	-12.7
T_{min} -20°C H_{min} 0%	❒ VDC $_{max}$ DC 3.0V		0.525	-2.8	10.0	-12.8
	❒ VDC $_{min}$ DC 2.55V		0.513	-2.9	10.0	-12.9
T_{max} 55°C H_{max} 50%	❒ VDC $_{max}$ DC 3.0V		0.479	-3.2	10.0	-13.2
	❒ VDC $_{min}$ DC 2.55V		0.468	-3.3	10.0	-13.3
Ambient	❒ VDC $_{nom}$ DC 3.0V	2475.000	0.562	-2.5	10.0	-12.5
T_{min} -20°C H_{min} 0%	❒ VDC $_{max}$ DC 3.0V		0.513	-2.9	10.0	-12.9
	❒ VDC $_{min}$ DC 2.55V		0.550	-2.6	10.0	-12.6
T_{max} 55°C H_{max} 50%	❒ VDC $_{max}$ DC 3.0V		0.525	-2.8	10.0	-12.8
	❒ VDC $_{min}$ DC 2.55V		0.537	-2.7	10.0	-12.7

Notes:

1. Negative sign (-) in the margin column signify levels below the limit.
2. 10 dBm corresponds to 10 mW.
3. Measurement Uncertainty : ±4.8dB.

3.5 RESULTS OF TRANSMITTER TESTS - SPURIOUS EMISSIONS

3.5.1 CONDUCTED

Not applicable. Equipment has integral antenna.

3.5.2 RADIATED

3.5.2.1 SPURIOUS EMISSIONS - OPERATING

Test Conditions: Temperature 25°C; Humidity 50%

(Car Unit)

Channel: Low			
Frequency (MHz)	Measured Power (dBm)	Limit (dBm)	Margin (dB)
4820.000	-36.7	-30.0	-6.7

Channel: Medium			
Frequency (MHz)	Measured Power (dBm)	Limit (dBm)	Margin (dB)
4880.000	-36.8	-30.0	-6.8

Channel: High			
Frequency (MHz)	Measured Power (dBm)	Limit (dBm)	Margin (dB)
4950.000	-36.9	-30.0	-6.9

Notes:

1. Negative sign (-) in the margin column signify levels below the limit.
2. Other emissions found were at least 10 dB below the limit.
3. -30 dBm corresponds to 1 μW.
4. Measurement Uncertainty: ±4.8dB.

3.5.2.2 SPURIOUS EMISSIONS - STANDBY

There were no emissions found above system measuring level (at least 10 dB below the limit).

3.6 RESULTS OF RECEIVER TESTS - SPURIOUS EMISSIONS

3.6.1 CONDUCTED

Not applicable. Equipment has integral antenna.

3.6.2 RADIATED

3.6.2.1 SPURIOUS EMISSIONS - OPERATING

There were no emissions found above system measuring level (at least 10 dB below the limit).

3.6.2.2 SPURIOUS EMISSIONS - STANDBY

There were no emissions found above system measuring level (at least 10 dB below the limit).

4 PERMITTED RANGE OF OPERATING FREQUENCIES

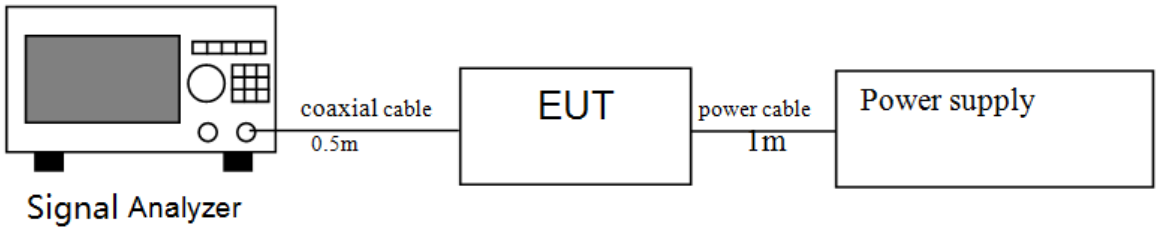
4.1 TEST METHOD AND SUMMARY

Basic Standard :	ETSI EN 300 440 V2.1.1 (2017-03)
Clause :	4.2.3
Application :	All Transmitters

4.2 EQUIPMENT LIST

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ056-03	Spectrum Analyzer	R&S	FSP30	27-May-2020	27-May-2021
SZ016-12	Temperature & Humidity Chamber	Terchy	MHK-120NK	12-Jan-2021	12-Jan-2022
SZ006-05	DC Power Source	APC	GPS-3030DD	12-Feb-2021	12-Aug-2022
SZ062-16	RF cable	HUBER+SUHNER	CBL2-BN-1m	13-Nov-2020	13-Nov-2021

4.3 Test Setup



4.4 TEST RESULT - DC TEST VOLTAGE

(Car Unit)

Test Conditions			Frequency Range (GHz)	
Temperature (°C) Humidity (%)	Voltage	CH	F_L	F_H
Ambient	❒ VDC $_{nom}$ DC 3.0V	Low, High	2.408965	2.476201
T_{min} -20°C H_{min} 0%	❒ VDC $_{max}$ DC 3.0V		2.408923	2.476352
	❒ VDC $_{min}$ DC 2.55V		2.408782	2.476298
T_{max} 55°C H_{max} 50%	❒ VDC $_{max}$ DC 3.0V		2.408987	2.476223
	❒ VDC $_{min}$ DC 2.55V		2.408942	2.476311
Measurement Uncertainty			± 240Hz	

4.5 BAND EDGE WORSE RESULT

(Car Unit)

		Frequency (GHz)	Within Assigned Frequency Band
Lowest F_L	F_{LB}	2.408782	Complied
Highest F_H	F_{HB}	2.476352	Complied

where

F_{LB} Lowest frequency at appropriate spurious emission level
F_{HB} Highest frequency at appropriate spurious emission level

The permitted range of modulation bandwidth must be within the limits of the assigned frequency band 2.4-2.4835 GHz.

5 BLOCING OR DESENSITIZATION

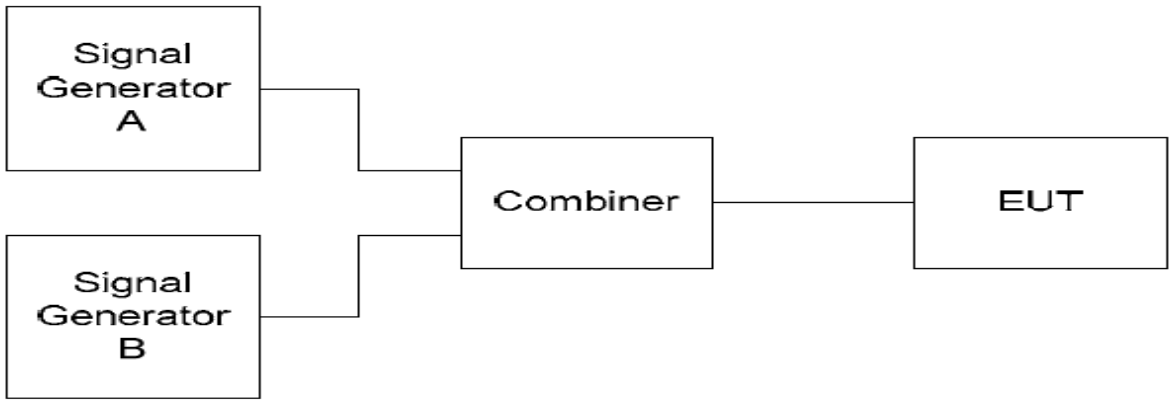
5.1 TEST METHOD AND SUMMARY

Basic Standard :	ETSI EN 300 440 V2.1.1 (2017-03)
Clause :	4.3.4
Test method	Conducted measurements

5.2 EQUIPMENT LIST

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ056-07	Signal Analyzer	R&S	FSV40	27-Oct-2020	27-Oct-2021
SZ180-13	MXG Vector Signal Generator	Keysight	N5182B	27-Oct-2020	27-Oct-2021
SZ180-15	Signal Generator	R&S	SMB100A	27-Oct-2020	27-Oct-2021
SZ070-21	Combiner	Mini-Circuits	ZN2PD-63-S+	27-May-2020	27-May-2021
SZ070-04	Directional Coupler	Agilent	86205A	22-Dec-2020	22-Dec-2021
SZ070-18	Attenuator	Agilent	8494B	22-Dec-2020	22-Dec-2021
SZ070-19	Attenuator	Agilent	8495B	22-Dec-2020	22-Dec-2021
SZ068-03	RF Shielding Cover	Changruixing	50×50×60cm	24-Feb-2021	24-Aug-2020

5.3 Test Setup



5.4 TEST RESULT - DC TEST VOLTAGE

The minimum level of Wanted signal from companion device (dBm) (P_{min}+3dB)	Blocking signal frequency (MHz)		Blocking signal power (dBm)	Limit (-45 dBm + k)	Result
-40.0+3	±10*BW	Lower: 2397.4	-32.0	-53.4	Pass
-40.0+3		Upper: 2422.6	-34.0	-53.4	Pass
-40.0+3	±20*BW	Lower: 2385.4	-28.0	-53.4	Pass
-40.0+3		Upper: 2434.6	-26.0	-53.4	Pass
-40.0+3	±50*BW	Lower: 2349.4	-21.0	-53.4	Pass
-40.0+3		Upper: 2470.6	-20.0	-53.4	Pass

Notes:
1. When adjusts the level for the wanted signal at the input of the UUT to -40.0dBm, the UUT still gives sufficient response. And when below the level -40.0dBm, the UUT couldn't give sufficient response.
2. The receive channel bandwidth (BW) is 1.2MHz, which is declared by manufacturer.
3. The nominal frequency of the receiver f during test is 2410MHz.
4. The correction factor k = −20log f −10log BW. Where f is the frequency in GHz and BW is the channel bandwidth in MHz. As the f is 2410MHz and BW is 1.2MHz, the correction factor k is -8.4dB.

6 DUTY CYCLE

6.1 TEST METHOD AND SUMMARY

Basic Standard :	ETSI EN 300 440 V2.1.1 (2017-03)
Clause :	4.2.5
Test method	Conducted measurements

6.2 EQUIPMENT LIST

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ056-03	Spectrum Analyzer	R&S	FSP30	27-May-2020	27-May-2021
SZ062-16	RF cable	HUBER+SUHNER	CBL2-BN-1m	13-Nov-2020	13-Nov-2021

6.3 Limits

No Restriction

6.4 Test Result

(Car Unit)

Frequency (MHz)	Duty Cycle
2410	16.3%

EXHIBIT 3

TEST RESULT
OF
EMC COMPLIANCE MEASUREMENTS

7 EMC EMISSION TEST

7.1 TEST METHOD AND SUMMARY

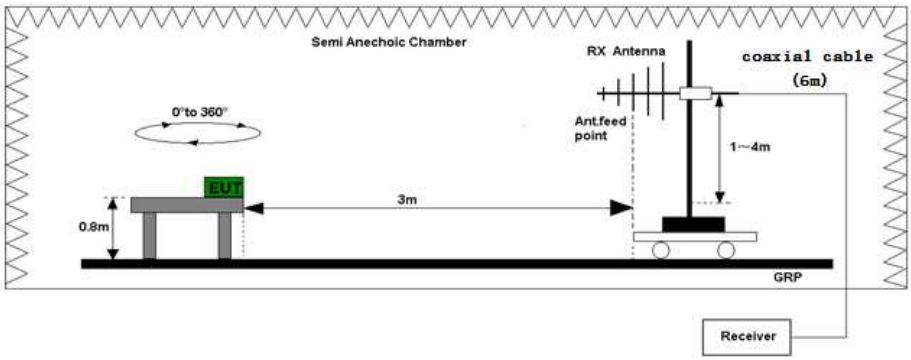
Basic Standard :	EN55032
Test :	Radiated Emission
Classification :	Class B
Port :	Enclosure Port of Ancillary Equipment

7.2 RADIATED EMISSION TEST

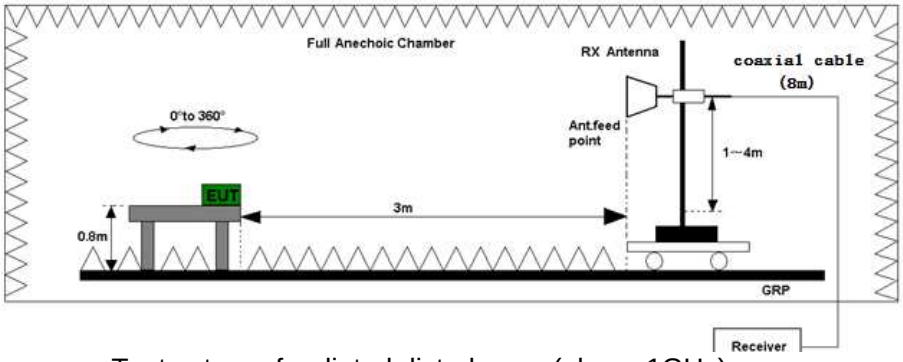
7.2.1 TEST EQUIPMENT

Equip No.	Description	Manufacturer	Model No.	Cal. Date	Due Date
SZ061-12	BiConiLog Antenna	ETS	3142E	14-Sep-2018	14-Sep-2021
SZ185-01	EMI Receiver	R&S	ESCI	22-Dec-2020	22-Dec-2021
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	15-Dec-2018	15-Dec-2021
SZ056-03	Spectrum Analyzer	R&S	FSP30	27-May-2020	27-May-2021
SZ062-12	RF Cable	RADIALL	RG 213U	24-Feb-2021	24-Aug-2021
SZ062-13	RF Cable	Habia	0.026-26.5GHz	24-Feb-2021	24-Aug-2021

7.2.2 TEST SETUP



Test set-up of radiated disturbance (30MHz-1GHz)

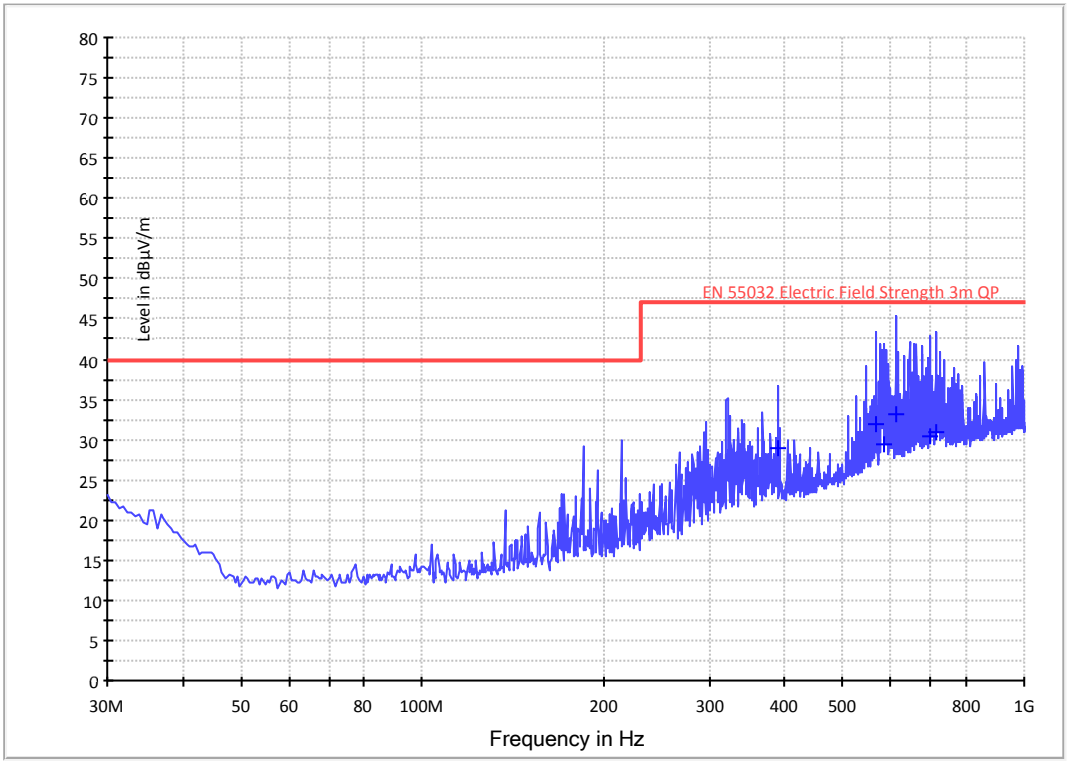


Test set-up of radiated disturbance (above 1GHz)

7.2.3 TEST RESULT

Worst-case Operating Mode: Link & Running (Motor)

Horizontal



Limit and Margin

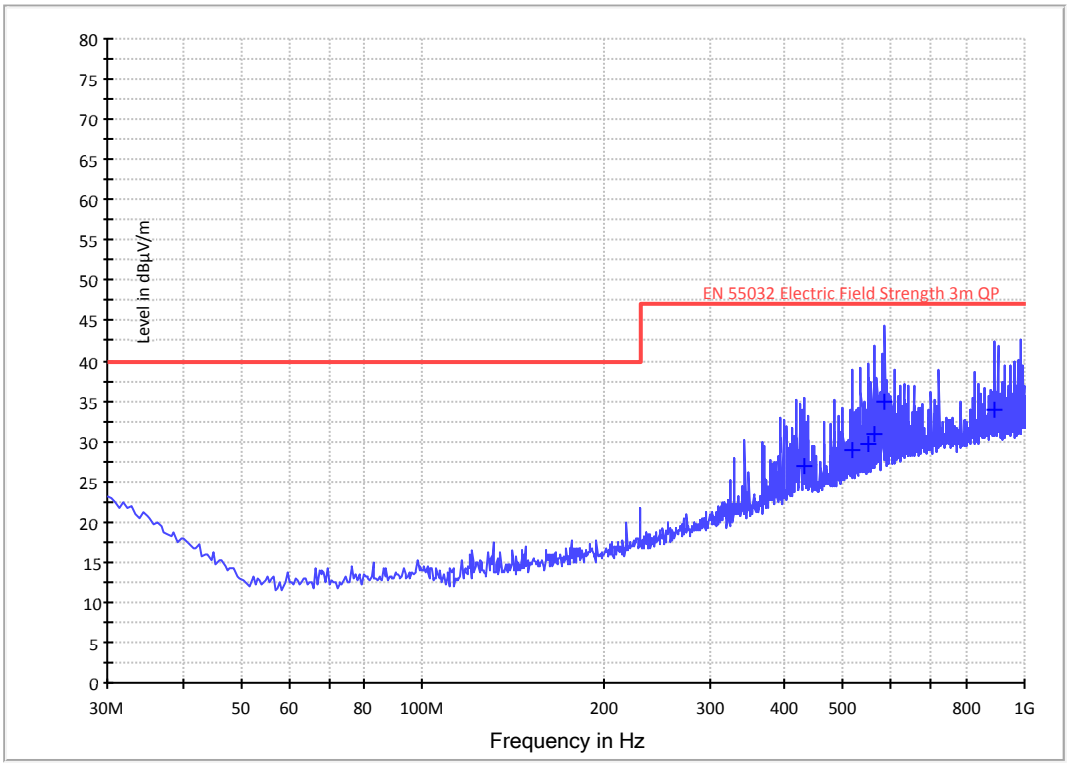
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
390.840000	28.9	1000.0	120.000	H	18.8	17.1	47.0
568.350000	31.8	1000.0	120.000	H	22.7	15.2	47.0
584.355000	29.4	1000.0	120.000	H	23.0	17.6	47.0
613.940000	33.3	1000.0	120.000	H	23.6	13.7	47.0
695.905000	30.5	1000.0	120.000	H	25.5	16.5	47.0
714.820000	30.9	1000.0	120.000	H	25.6	16.1	47.0

☐ No emissions significantly above equipment noise floor.

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. QuasiPeak (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)
3. Margin (dB) = Limit QP(dBµV/m) – QP(dBµV/m)
4. The emissions were very low against the limit in the frequency range 1 GHz ~ 6GHz.

Vertical



Limit and Margin

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Polarization	Corr. (dB)	Margin - QPK (dB)	Limit - QPK (dBµV/m)
429.640000	26.9	1000.0	120.000	V	19.7	20.1	47.0
518.880000	28.9	1000.0	120.000	V	21.8	18.1	47.0
550.890000	29.6	1000.0	120.000	V	22.4	17.4	47.0
564.470000	31.0	1000.0	120.000	V	22.7	16.0	47.0
587.265000	34.9	1000.0	120.000	V	23.1	12.1	47.0
893.785000	34.0	1000.0	120.000	V	27.1	13.0	47.0

☐ No emissions significantly above equipment noise floor.

Remark:

1. Corr. = Antenna Factor (dB/m) + Cable Loss (dB)
2. QuasiPeak (dBµV/m)= Corr. (dB/m)+ Read Level (dBµV)
3. Margin (dB) = Limit QP(dBµV/m) – QP(dBµV/m)
4. The emissions were very low against the limit in the frequency range 1 GHz ~ 6GHz.

Notes:

1. Quasi-Peak Detector used up to 1G, Peak and Average Detector used above 1G
2. Frequency range scanned: 30 MHz to 6000 MHz
3. Only emissions significantly above equipment noise floor are reported
4. Measurement Uncertainty: ±4.8dB.

7.2.4 MEASUREMENT UNCERTAINTY

Measurement Uncertainties: ± 4.8dB. The measured result is above the specification limit by a margin less than the measurement uncertainty; it is therefore not possible to state compliance based on the 95% level of confidence. However, the result indicates that compliance is more probable than non-compliance with the specification limit.

8 ELECTROSTATIC DISCHARGE

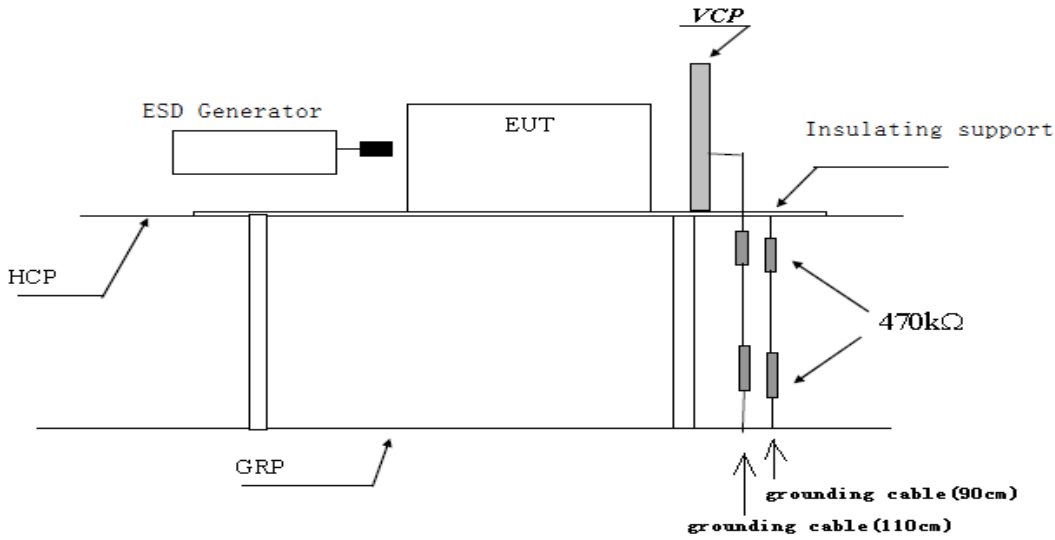
8.1 TEST METHOD AND SUMMARY

Basic Standard :		EN 61000-4-2
Port :		Enclosure
Required Performance Criterion :		B
Level :		± 2.0, ± 4.0, ±8.0 kV (Air Discharge) ± 2.0, ±4.0 kV (Contact Discharge) ± 2.0, ±4.0 kV (Indirect Contact Discharge)
No. of Discharge(s) :		Minimum of 10 Discharges per Each Polarity
Time Between Each Discharge :		1 second
Test Mode :		Stand-by, Link & Running (Motor)
Test Setup :		Table-top
Temperature :		24.0^{0}C
Relative Humidity :		55.1%
Test of Post-installation :		N/A
Test Point	Air Discharge:	All insulated enclosure and seams
		All the points where contact discharge cannot be applied
	Contact:	All conductive surfaces of the EUT
	HCP:	All sides of the EUT
	VCP:	Four faces of the EUT

8.2 TEST EQUIPMENT

Equipment No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
SZ189-01	ESD Simulator	KIKUSUI	KES4021	11-Nov-2020	11-Nov-2021

8.3 TEST SETUP



Test set-up of electrostatic discharge

8.4 TEST RESULT

8.4.1 TEST RESULT

Discharge Type	Applied Voltage	Result (Pursuant to ETSI EN 301 489-3 Criterion B)
Contact Discharge	± 2.0, ± 4kV	Complied
Air Discharge	± 2, ± 4, ± 8kV	Complied
Indirect HCP Discharge	± 2.0, ± 4kV	Complied
Indirect VCP Discharge	± 2.0, ± 4kV	Complied

8.4.2 ADDITIONAL RESULT INFORMATION

No observable change.

9 RADIO FREQUENCY ELECTROMAGNETIC FIELD

9.1 TEST METHOD AND SUMMARY

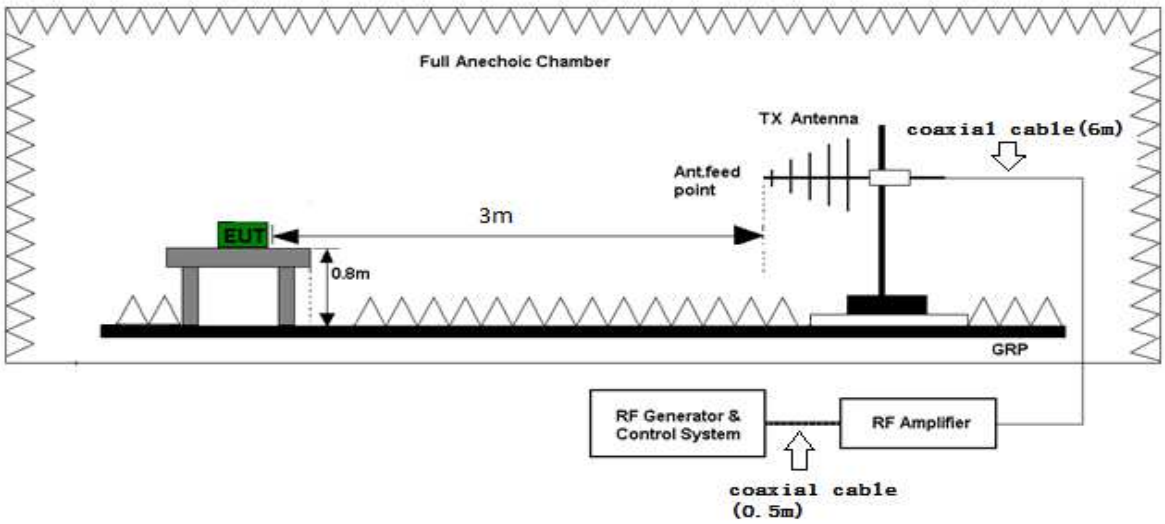
Basic Standard :	EN 61000-4-3
Port :	Enclosure
Required Performance Criterion :	A
Level :	3.0 V/m (rms)
Test Modulation :	1kHz, 80% AM
Frequency :	80 MHz to 6000 MHz
Dwell Time :	1s
Frequency Step :	10%
Temperature :	25.4^{0}C
Relative Humidity :	47.9%
Test Facility :	Full Anechoic Chamber
Antenna Polarization :	Horizontal and Vertical
Type of Antenna :	Broadband Antenna
Test Distance :	3m
Test Mode :	Stand-by, Link & Running (Motor)
Test Setup :	Table-top

9.2 TEST EQUIPMENT

Equipment No.	Equipment	Manufacturer	Model No.	Cal. Date	Due Date
SZ061-03	BiConiLog Antenna	ETS	3142C	24-May-2019	24-May-2021
SZ180-01	Signal Generator	R&S	SML03	27-May-2020	27-May-2021
SZ181-01	Amplifier	PRANA	AP32 MT215	5-Jan-2021	5-Jan-2022
SZ181-06	Power Amplifier	INTERTEK HK	ZKL-1R5+	27-May-2020	27-May-2021
SZ182-01	RF Power Meter	BOONTON	4232A	5-Jan-2021	5-Jan-2022
SZ188-02	Anechoic Chamber	ETS	RFD-F/A-100	15-Dec-2018	15-Dec-2021
SZ190-07	RF Amplifier	Milmega	AS0860-75/45	5-Jan-2021	5-Jan-2022
SZ180-15	Signal Generator	R&S	SMB100A	27-Oct-2020	27-Oct-2021
SZ061-16	Stacked double log.-Per. Antenna	SCHWARZBECK	STLP 9149	9-Nov-2019	9-Nov-2021

* The Equipment would be verified together with the test system before testing.

9.3 TEST SETUP



Test set-up of Immunity to Radiated Electric Fields

9.4 TEST RESULT

9.4.1 TEST RESULT

Frequency (MHz)	Exposed Side	Result (Pursuant to ETSI EN 301 489-3 Criterion A)
80 to 6000	Front	Complied
80 to 6000	Left	Complied
80 to 6000	Rear	Complied
80 to 6000	Right	Complied

8.4.2 ADDITIONAL RESULT INFORMATION

No observable change.

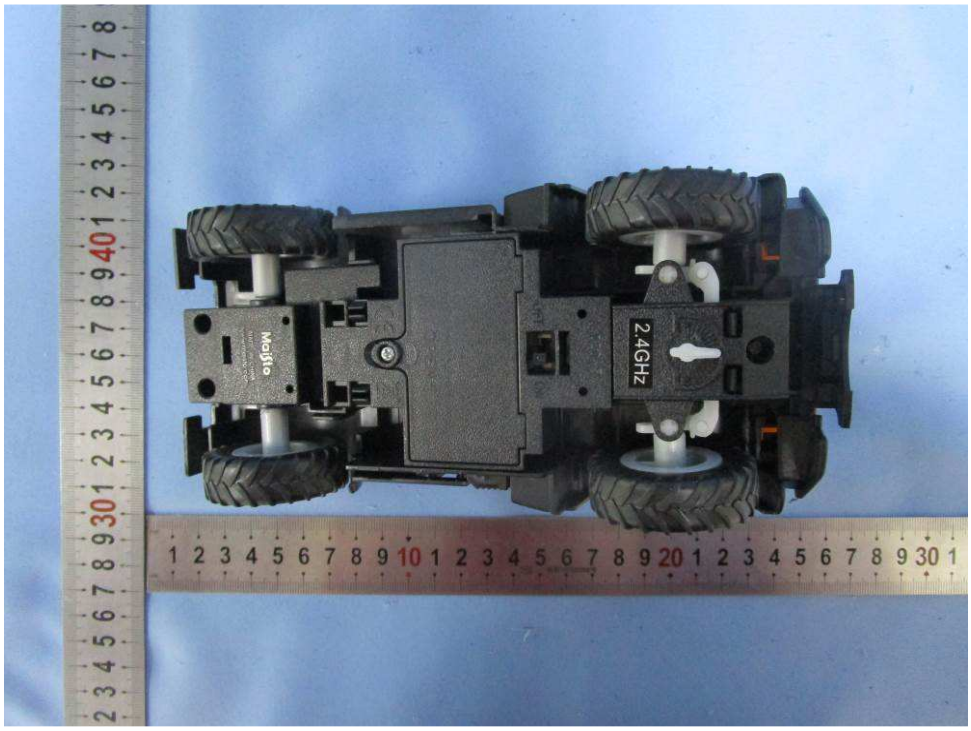
EXHIBIT 4

PHOTOS OF EUT

10. EUT PHOTOS

External Photo

External Photo



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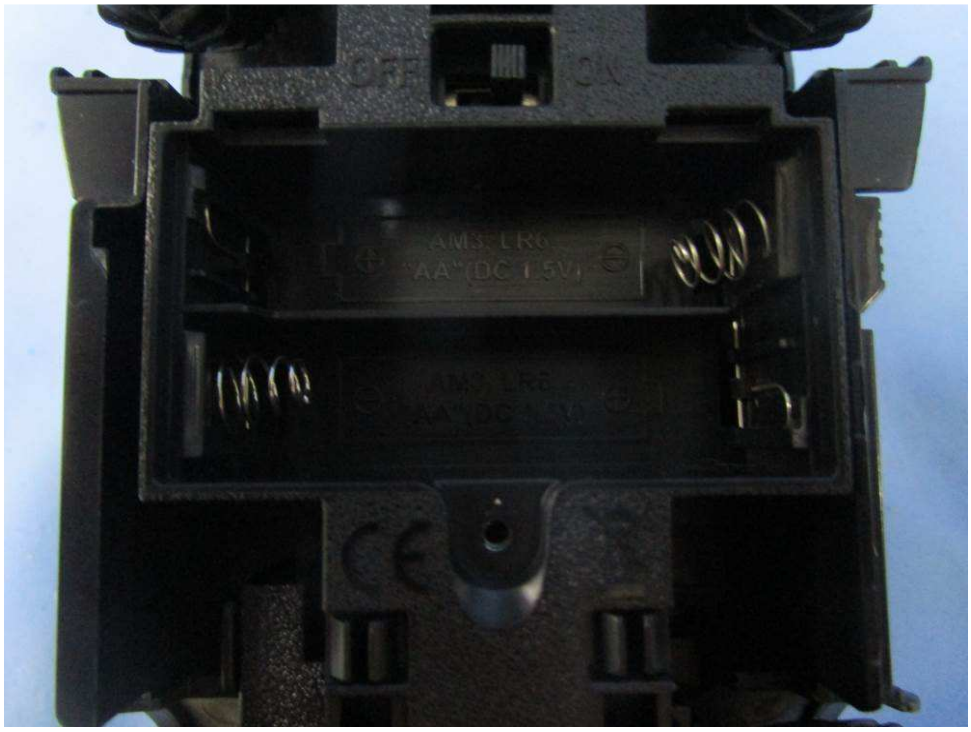

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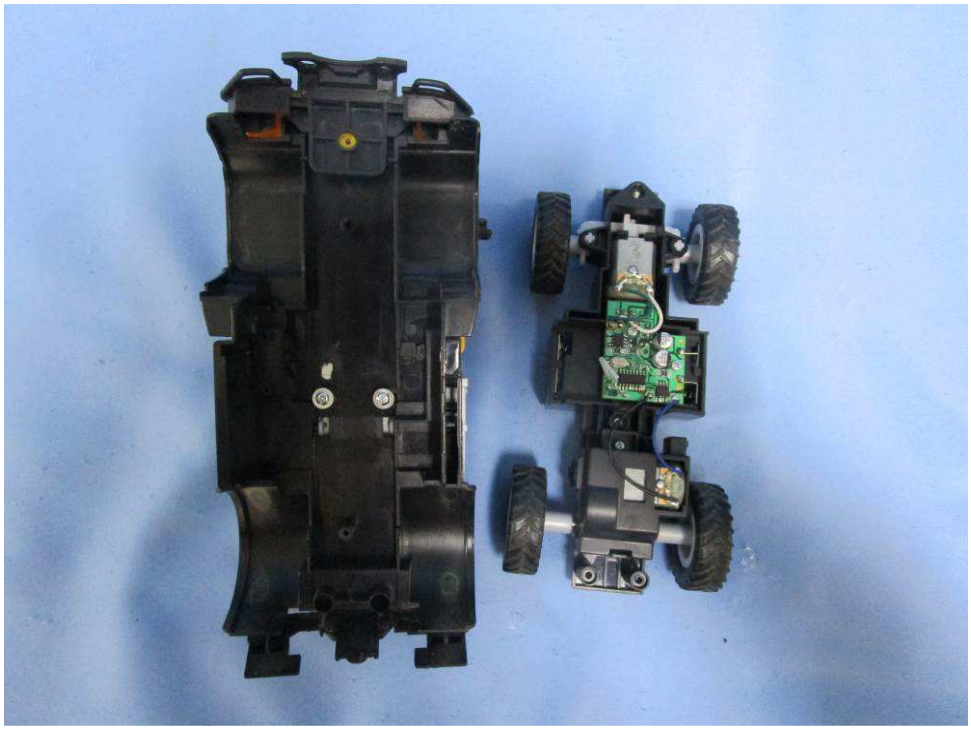

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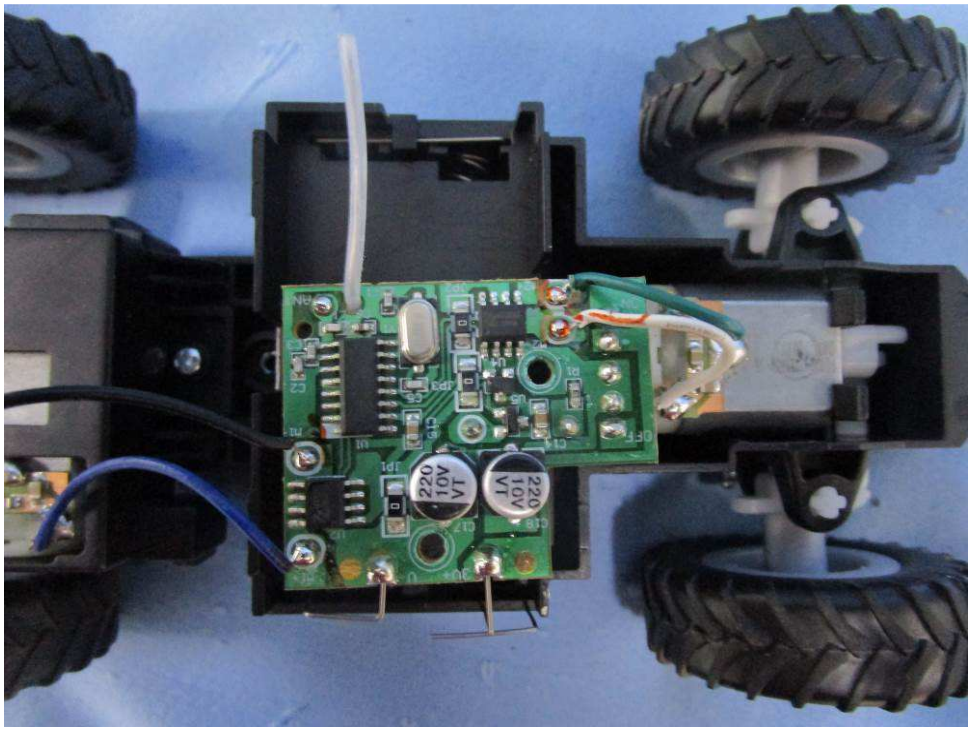

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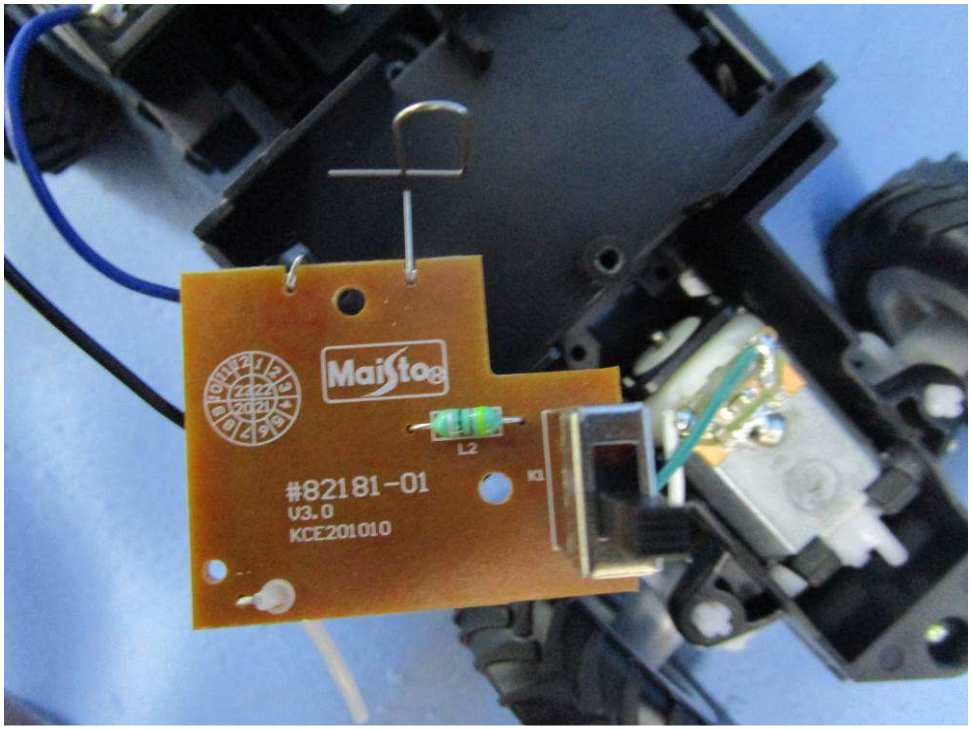

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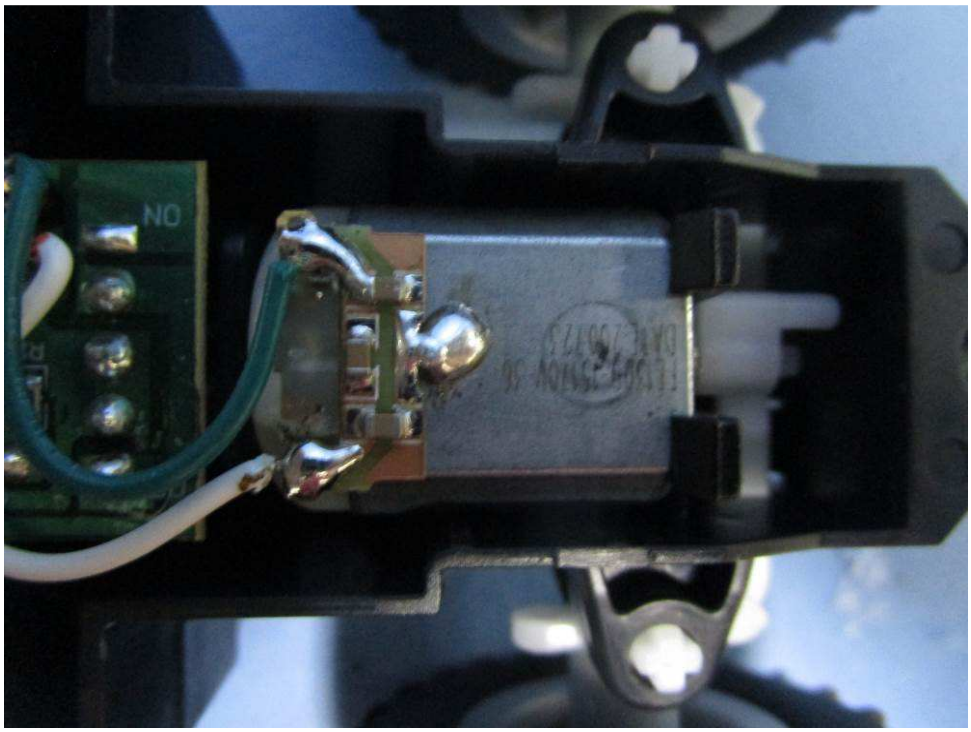

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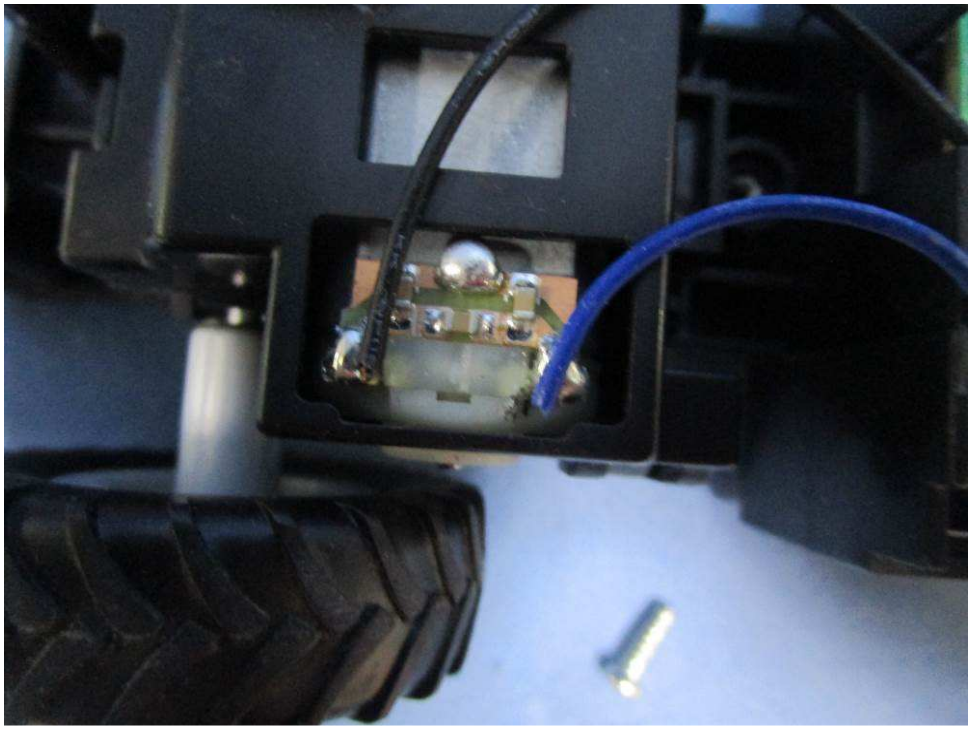

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