

# **EN 60950-1:2006**

## **TEST REPORT**

*For*

**Vehicle Radio**

**Model Name: 5188, 588, TWR MR-150U (400-490MHz)**

**Trade Name: N/A**

**Report No.: QZAGC013080602E3**

**Date of Issue: Jun.28, 2008**

*Prepared For*

**Qixiang Electron Science & Technology Co.,Ltd**

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**TEST REPORT**  
**EN 60950-1:2006**  
**Information technology equipment-Safety-**  
**Part 1:General requirements**

**Report Reference No.** ..... : QZAGC013080602E3

**Tested by (+ signature)** ..... : Steven Yu

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**Review by (+ signature)** ..... : Solger Zhang

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**Approved by (+ signature)** ..... : King Zhang

*King Zhang*

**Date of issue** ..... : Jun. 28 , 2008

**Contents** ..... : Total 28 pages

This report is based on a blank test report that was prepared by KEMA using information obtained from the TRF originator (see below).

**Testing laboratory**

**Name** ..... : Shenzhen Attestation of Global Compliance Science & Technology Co., Ltd.

**Address** ..... : 2F, No.2 Building, Chaxi Industrial Zone, Gushu Community, Xixiang, Baoan, Shenzhen

**Testing location** ..... : Same as above

**Client**

**Name** ..... : Qixiang Electron Science & Technology Co.,Ltd

**Address** ..... : Qixiang Building,Tangxi Industrial Zone,Luojiang District,Quanzhou 362011,Fujian Province,China

**Test specification**

**Standard** ..... : EN 60950-1:2006

**Test procedure** ..... : CCA

**Procedure deviation** ..... : N/A

**Non-standard test method** ..... : N/A

**Test Report Form/blank test report**

**Test Report Form No.** ..... : EN 60950-1A0

**Test Report Form(s) Originator** ..... : AGC

**Master TRF** ..... : 07-01

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**Test item**

**Description** ..... : Vehicle Radio

**Trademark** ..... : N/A

**Model and/or type reference** ..... : 5188, 588, TWR MR-150U (400-490MHz)

**Rating(s)** ..... : DC 13.8V $\frac{1}{2}$ , 10A

**Manufacturer** ..... : Qixiang Electron Science & Technology Co.,Ltd.

**Particulars; test item vs. test requirements**

Equipment mobility.....: Building-in  
Operating condition.....: Continuous  
Mains supply tolerance.....: +20%, -15%  
Tested for IT power systems.....: N/A  
IT testing, phase-phase voltage.....: N/A  
Class of Equipment.....: Class III  
Protection against ingress of water.....: IPX0

**Test case verdicts**

Test case does not apply to the test object .....: N/A  
Test item does meet the requirement .....: P(ass)  
Test item does not meet the requirement.....: F(ail)

**Attachments**

Attachment A Photo production 3 pages.

**Test**

Date of receipt of test item .....: Jun.12, 2008  
Date(s) of performance of test.....: Jun.15, 2008~Jun.28, 2008

**General remarks**

This test report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item tested.

“(See remark #)” refers to a remark appended to the report.

“(See appended table)” refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

Until otherwise specified, all tests are done under normal ambient condition  $25^{\circ}\text{C}\pm 10^{\circ}\text{C}$ , Max RH: 75%

And air pressure of 860 mbar to 1060 mbar.

**Factories:**

Factory Name:Qixiang Electron Science & Technology Co.,Ltd.

Address: Qixiang Building,Tangxi Industrial Zone, Luojiang District,QuanZhou 362011,Fujian Province,China

**General descriptions:**

The Vehicle Radio model is 5188, 588, TWR MR-150U (400-490MHz).

The Vehicle Radio is supply from DC power supply

All the test were performed on the model 5188 (400-490MHz)

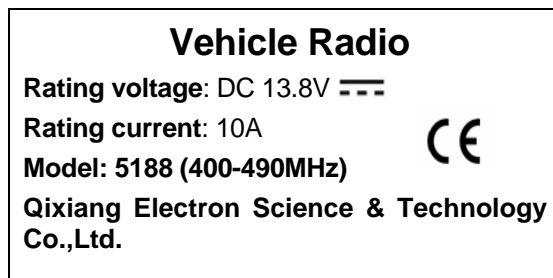
Specified maximum ambient temperature is  $40^{\circ}\text{C}$

### Summary is Testing and Conclusions

All the test were found satisfactory in accordance with EN 60950-1:2006

### Copy of marking plate :

1, Vehicle Radio marking plate:



EN 60950-1:2006			
Clause	Requirement – Test	Result – Remark	Verdict
1	GENERAL		<b>P</b>
1.5	Components		<b>P</b>
1.5.1	General		<b>P</b>
	Comply with IEC 60950 or relevant component standard	(Components which were found to affect safety aspects comply with the requirements of this standard or with the safety aspects of the relevant IEC/EN component standards. (see appended table 1.5.1)	<b>P</b>
1.5.2	Evaluation and testing of components	Components which are certified to IEC/EN and/or national standards are used correctly within their ratings. Components not covered by IEC/EN standards are tested under the conditions present in the equipment.	<b>P</b>
	Dimensions (mm) of mains plug for direct plug-in.....:		<b>N</b>
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N).....:		<b>N</b>
1.5.3	Thermal controls	No any thermal controls	<b>N</b>
1.5.4	Transformers	No any transformers	<b>N</b>
1.5.5	Interconnecting cables	Ditto	<b>N</b>
1.5.6	Capacitors in primary circuits .....	Ditto	<b>N</b>
1.5.7	Double insulation or reinforced insulation bridged by components	Ditto	<b>N</b>
1.5.7.1	General	See below	<b>N</b>
1.5.7.2	Bridging capacitors		<b>N</b>
1.5.7.3	Bridging resistors		<b>N</b>
1.5.7.4	Accessible parts		<b>N</b>
1.5.8	Components in equipment for IT power systems		<b>N</b>

1.6	Power interface		<b>P</b>
1.6.1	AC power distribution systems	Supply from DC power supply	<b>N</b>
1.6.2	Input current	(see appended table 1.6.2)	<b>P</b>
1.6.3	Voltage limit of hand-held equipment	Building-in equipment	<b>N</b>
1.6.4	Neutral conductor	Class III equipment, no earth provided.	<b>N</b>

1.7	Marking and instructions		<b>P</b>
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EN 60950-1:2006			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.1	Power rating	13.8V,10A	P
	Rated voltage(s) or voltage range(s) (V) .....	13.8V	P
	Symbol for nature of supply, for d.c. only.....	==	P
	Rated frequency or rated frequency range (Hz) ..		N
	Rated current (mA or A) .....	10A	P
	Manufacturer's name or trademark or identification mark .....	Qixiang Electron Science & Technology Co.,Ltd.	P
	Type/model or type reference .....	5188, 588, TWR MR-150U (400-490MHz)	P
	Symbol for Class II equipment only .....	Class III equipment	N
	Other symbols .....	Additional aymbols or markings do not cause misunderstanding	P
	Certification marks .....	CE mark	P
1.7.2	Safety instructions		P
1.7.3	Short duty cycles	Equipment is designed for continuous operation.	N
1.7.4	Supply voltage adjustment .....	No such devices used	N
	Methods and means of adjustment; reference to installation instructions .....		N
1.7.5	Power outlets on the equipment .....		N
1.7.6	Fuse identification (marking, special fusing characteristics, cross-reference) .....		P
1.7.7	Wiring terminals	See below	P
1.7.7.1	Protective earthing and bonding terminals .....	Class III equipment, no protective earthing	N
1.7.7.2	Terminal for a.c. mains supply conductors		N
1.7.7.3	Terminals for d.c. mains supply conductors	Suitable DC symbol used	P
1.7.8	Controls and indicators	Colour TFT LCD indication	P
1.7.8.1	Identification, location and marking .....	LED indicator is visible on the screen	P
1.7.8.2	Colours .....	LED indicator used for function display	P
1.7.8.3	Symbols according to IEC 60417.....		N
1.7.8.4	Markings using figures .....		N
1.7.9	Isolation of multiple power sources .....		N
1.7.10	IT power distribution systems		N
1.7.11	Thermostats and other regulating devices	No thermostats or other regulating devices used inside battery pack are not adjustable during normal use.	N

EN 60950-1:2006			
Clause	Requirement – Test	Result – Remark	Verdict
1.7.12	Language(s) .....	User's manual, service manual and marking label are in English. Versions of other languages will be provided when submitted to other countries.	P
1.7.13	Durability	The marking withstands required tests.	P
1.7.14	Removable parts	No required markings placed on removable parts.	N
1.7.15	Replaceable batteries	No battery used	N
	Language(s) .....	English version is checked. Instructions shall be in a language acceptable for the country where the equipment is to be used.	P
1.7.16	Operator access with a tool.....	No danger at operator access area.	N
1.7.17	Equipment for restricted access locations .....	No restricted access locations.	N

2	PROTECTION FROM HAZARDS		<b>N</b>
2.1	Protection from electric shock and energy hazards	Only SELV circuit	N
2.1.1	Protection in operator access areas		N
2.1.1.1	Access to energized parts		N
	Test by inspection .....		N
	Test with test finger .....		N
	Test with test pin .....		N
	Test with test probe .....		N
2.1.1.2	Battery compartments .....		N
2.1.1.3	Access to ELV wiring		N
	Working voltage ( $V_{peak}$ or $V_{rms}$ ); minimum distance (mm) through insulation	(see appended table 2.10.5)	—
2.1.1.4	Access to hazardous voltage circuit wiring		N
2.1.1.5	Energy hazards .....		N
2.1.1.6	Manual controls		N
2.1.1.7	Discharge of capacitors in equipment		N
	Time-constant (s); measured voltage (V).....		—
2.1.2	Protection in service access areas		N
2.1.3	Protection in restricted access locations		N
2.2	SELV circuits		<b>P</b>

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Clause	Requirement – Test	Result – Remark	Verdict
2.2.1	General requirements	42.4V peak or 60VDC are not exceeded in SELV circuit under normal operation or single fault condition.	P
2.2.2	Voltages under normal conditions (V) .....	Within SELV limits.	P
2.2.3	Voltages under fault conditions (V) .....	Within SELV limits.	P
2.2.3.1	Separation by double insulation or reinforced insulation (method 1)	Class III equipment	N
2.2.3.2	Separation by earthed screen (method 2)	Ditto	N
2.2.3.3	Protection by earthing of the SELV circuit (method 3)	Ditto	N
2.2.4	Connection of SELV circuits to other circuits .....	No direct connection between SELV and any primary circuits.	P

2.3	TNV circuits		<b>N</b>
2.3.1	Limits	See below	N
	Type of TNV circuits .....	No TNV circuits in the equipment	N
2.3.2	Separation from other circuits and from accessible parts	Ditto	N
	Insulation employed .....	Ditto	N
2.3.3	Separation from hazardous voltages	Ditto	N
	Insulation employed .....	Ditto	N
2.3.4	Connection of TNV circuits to other circuits	Ditto	N
	Insulation employed .....	Ditto	N
2.3.5	Test for operating voltages generated externally	Ditto	N

2.4	Limited current circuits		<b>N</b>
2.4.1	General requirements	No limited current circuits to be evaluated.	N
2.4.2	Limit values		N
	Frequency (Hz).....		N
	Measured current (mA) .....		N
	Measured voltage (V).....		N
	Measured capacitance (μF) .....		N
2.4.3	Connection of limited current circuits to other circuits		N

2.5	Limited power sources		<b>N</b>
	Inherently limited output		N

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Clause	Requirement – Test	Result – Remark	Verdict
	Impedance limited output		N
	Overcurrent protective device limited output	No limited output device	N
	Regulating network limited output under normal operating and single fault condition		N
	Regulating network limited output under normal operating conditions and overcurrent protective device limited output under single fault condition		N
	Output voltage (V), output current (A), apparent power (VA).....:		—
	Current rating of overcurrent protective device (A)		—

2.6	Provisions for earthing and bonding		<b>N</b>
2.6.1	Protective earthing	Class III equipment.	N
2.6.2	Functional earthing		N
2.6.3	Protective earthing and protective bonding conductors		N
2.6.3.1	General		N
2.6.3.2	Size of protective earthing conductors		N
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG.....:		—
2.6.3.3	Size of protective bonding conductors		N
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG.....:		—
2.6.3.4	Resistance ( $\Omega$ ) of earthing conductors and their terminations, test current (A).....:		N
2.6.3.5	Colour of insulation.....:		N
2.6.4	Terminals		N
2.6.4.1	General		N
2.6.4.2	Protective earthing and bonding terminals		N
	Rated current (A), type and nominal thread diameter (mm).....:		—
2.6.4.3	Separation of the protective earthing conductor from protective bonding conductors		N
2.6.5	Integrity of protective earthing		N
2.6.5.1	Interconnection of equipment		N
2.6.5.2	Components in protective earthing conductors and protective bonding conductors		N
2.6.5.3	Disconnection of protective earth		N
2.6.5.4	Parts that can be removed by an operator		N

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Clause	Requirement – Test	Result – Remark	Verdict
2.6.5.5	Parts removed during servicing		N
2.6.5.6	Corrosion resistance		N
2.6.5.7	Screws for protective bonding		N
2.6.5.8	Reliance on telecommunication network or cable distribution system		N

2.7	Overcurrent and earth fault protection in primary circuits		<b>N</b>
2.7.1	Basic requirements	no primary circuits inside.	N
	Instructions when protection relies on building installation		N
2.7.2	Faults not covered in 5.3		N
2.7.3	Short-circuit backup protection		N
2.7.4	Number and location of protective devices .....		N
2.7.5	Protection by several devices		N
2.7.6	Warning to service personnel.....		N

2.8	Safety interlocks		<b>N</b>
2.8.1	General principles	No safety interlocks	N
2.8.2	Protection requirements		N
2.8.3	Inadvertent reactivation		N
2.8.4	Fail-safe operation		N
2.8.5	Moving parts		N
2.8.6	Overriding		N
2.8.7	Switches and relays		N
2.8.7.1	Contact gaps (mm) .....		N
2.8.7.2	Overload test		N
2.8.7.3	Endurance test		N
2.8.7.4	Electric strength test	(see appended table 5.2)	N
2.8.8	Mechanical actuators		N

2.9	Electrical insulation		<b>P</b>
2.9.1	Properties of insulating materials	Natural rubber, asbestos or hygroscopic materials are not used.	P
2.9.2	Humidity conditioning	48 Hours	P
	Humidity (%) .....	93%RH	P
	Temperature (°C) .....	25°C	P
2.9.3	Grade of insulation	Function insulation provided.	P

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Clause	Requirement – Test	Result – Remark	Verdict
2.10	Clearances, creepage distances and distances through insulation		N
2.10.1	General		N
2.10.2	Determination of working voltage		N
2.10.3	Clearances		N
2.10.3.1	General		N
2.10.3.2	Clearances in primary circuits	No primary circuits	N
2.10.3.3	Clearances in secondary circuits	No secondary circuits	N
2.10.3.4	Measurement of transient voltage levels		N
2.10.4	Creepage distances	(see appended table 2.10.3 and 2.10.4)	N
	CTI tests .....		—
2.10.5	Solid insulation		
2.10.5.1	Minimum distance through insulation	(see appended table 2.10.5)	N
2.10.5.2	Thin sheet material		N
	Number of layers (pcs) .....		—
	Electric strength test	(see appended table 5.2)	—
2.10.5.3	Printed boards		N
	Distance through insulation		N
	Electric strength test for thin sheet insulating material	(see appended table 5.2)	—
	Number of layers (pcs) .....		N
2.10.5.4	Wound components		N
	Number of layers (pcs) .....		N
	Two wires in contact inside wound component; angle between 45° and 90° .....		N
2.10.6	Coated printed boards		N
2.10.6.1	General		N
2.10.6.2	Sample preparation and preliminary inspection		N
2.10.6.3	Thermal cycling		N
2.10.6.4	Thermal ageing (°C) .....		N
2.10.6.5	Electric strength test	(see appended table 5.2)	—
2.10.6.6	Abrasion resistance test		N
	Electric strength test	(see appended table 5.2)	—
2.10.7	Enclosed and sealed parts .....		N
	Temperature $T_1 = T_2 + T_{ma} - T_{amb} + 10K$ (°C) ...		N

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Clause	Requirement – Test	Result – Remark	Verdict
2.10.8	Spacings filled by insulating compound .....		N
	Electric strength test	(see appended table 5.2)	—
2.10.9	Component external terminations		N
2.10.10	Insulation with varying dimensions		N

3	WIRING, CONNECTIONS AND SUPPLY		P
3.1	General		P
3.1.1	Current rating and overcurrent protection	Adequate cross sectional areas on internal wiring. No internal wire for primary power distribution.	P
3.1.2	Protection against mechanical damage	Wires do not touch sharp edges that could damage the insulation and cause hazard.	P
3.1.3	Securing of internal wiring		P
3.1.4	Insulation of conductors	(see appended table 5.2)	P
3.1.5	Beads and ceramic insulators	No such insulators provided.	P
3.1.6	Screws for electrical contact pressure	No electrical contact pressure by screwed connections.	N
3.1.7	Insulating materials in electrical connections	No contact pressure through insulating material.	N
3.1.8	Self-tapping and spaced thread screws		P
3.1.9	Termination of conductors	All conductors are reliably secured	P
	10 N pull test		N
3.1.10	Sleeving on wiring	No sleeving used to provide supplementary insulation	N

3.2	Connection to an a.c. mains supply or a d.c. mains supply		P
3.2.1	Means of connection .....	See below	--
3.2.1.1	Connection to an a.c. mains supply		N
3.2.1.2	Connection to a d.c. mains supply		P
3.2.2	Multiple supply connections	One supply connection	N
3.2.3	Permanently connected equipment		N
	Number of conductors, diameter (mm) of cable and conduits .....		—
3.2.4	Appliance inlets		N
3.2.5	Power supply cords	See below	--
3.2.5.1	AC power supply cords	Fed from DC power supply	N
	Type.....		—
	Rated current (A), cross-sectional area (mm <sup>2</sup> ), AWG .....		—

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Clause	Requirement – Test	Result – Remark	Verdict
3.2.5.2	DC power supply cords		P
3.2.6	Cord anchorages and strain relief		N
	Mass of equipment (kg), pull (N) .....		—
	Longitudinal displacement (mm) .....		—
3.2.7	Protection against mechanical damage	No sharp points or cutting edges exist	N
3.2.8	Cord guards		N
	D (mm); test mass (g) .....		—
	Radius of curvature of cord (mm).....		—
3.2.9	Supply wiring space		N

3.3	Wiring terminals for connection of external conductors		<b>N</b>
3.3.1	Wiring terminals		N
3.3.2	Connection of non-detachable power supply cords		N
3.3.3	Screw terminals		N
3.3.4	Conductor sizes to be connected		N
	Rated current (A), cord/cable type, cross-sectional area (mm <sup>2</sup> ) .....		—
3.3.5	Wiring terminal sizes		N
	Rated current (A), type and nominal thread diameter (mm) .....		—
3.3.6	Wiring terminals design		N
3.3.7	Grouping of wiring terminals		N
3.3.8	Stranded wire		N

3.4	Disconnection from the mains supply		<b>N</b>
3.4.1	General requirement	Class III with only SELV circuit	N
3.4.2	Disconnect devices		N
3.4.3	Permanently connected equipment		N
3.4.4	Parts which remain energized		N
3.4.5	Switches in flexible cords		N
3.4.6	Single-phase equipment and d.c. equipment		N
3.4.7	Three-phase equipment		N
3.4.8	Switches as disconnect devices		N
3.4.9	Plugs as disconnect devices		N
3.4.10	Interconnected equipment		N

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Clause	Requirement – Test	Result – Remark	Verdict
3.4.11	Multiple power sources		N

3.5	Interconnection of equipment		P
3.5.1	General requirements		P
3.5.2	Types of interconnection circuits.....:	SELV circuit.	P
3.5.3	ELV circuits as interconnection circuits	No ELV interconnections.	N

4	PHYSICAL REQUIREMENTS		N
4.1	Stability	Building-in equipment	N
	Angle of 10°		N
	Test: force (N) .....		N

4.2	Mechanical strength		P
4.2.1	General	See below	P
4.2.2	Steady force test, 10 N		N
4.2.3	Steady force test, 30 N		N
4.2.4	Steady force test, 250 N	250N applied to outer enclosure. No energy or other hazards.	P
4.2.5	Impact test	See clause 4.2.6	N
	Fall test		N
	Swing test		N
4.2.6	Drop test		N
4.2.7	Stress relief test	70°C, 7hours	P
4.2.8	Cathode ray tubes	No cathode ray tube.	N
	Picture tube separately certified.....:	(see separate test report or attached certificate)	N
4.2.9	High pressure lamps	No high pressure lamp	N
4.2.10	Wall or ceiling mounted equipment; force (N) .....	Building-in equipment	N

4.3	Design and construction		P
4.3.1	Edges and corners	Edges and corners are rounded.	P
4.3.2	Handles and manual controls; force (N) .....	15N press force	P
4.3.3	Adjustable controls	No such adjustable control.	N
4.3.4	Securing of parts	No loosening of parts is likely to occur.	P
4.3.5	Connection of plugs and sockets		N
4.3.6	Direct plug-in equipment		N

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Clause	Requirement – Test	Result – Remark	Verdict
	Dimensions (mm) of mains plug for direct plug-in:		N
	Torque and pull test of mains plug for direct plug-in; torque (Nm); pull (N).....:		N
4.3.7	Heating elements in earthed equipment	No heating elements.	N
4.3.8	Batteries		N
4.3.9	Oil and grease	No Oil and grease	N
4.3.10	Dust, powders, liquids and gases	Equipment in intended use not considered to be exposed to these.	N
4.3.11	Containers for liquids or gases	No containers for liquids or gases	N
4.3.12	Flammable liquids .....	The equipment does not contain flammable liquid.	N
	Quantity of liquid (l) .....		N
	Flash point (°C) .....		N
4.3.13	Radiation; type of radiation .....		N
4.3.13.1	General	See below	N
4.3.13.2	Ionizing radiation	No ionizing radiation	N
	Measured radiation (pA/kg) .....		—
	Measured high-voltage (kV) .....		—
	Measured focus voltage (kV) .....		—
	CRT markings .....		—
4.3.13.3	Effect of ultraviolet (UV) radiation on materials	No ultraviolet radiation	N
	Part, property, retention after test, flammability classification .....		N
4.3.13.4	Human exposure to ultraviolet (UV) radiation .....		N
4.3.13.5	Laser (including LEDs)		N
	Laser class .....		—
4.3.13.6	Other types .....		N

4.4	Protection against hazardous moving parts		N
4.4.1	General	No hazardous moving parts.	N
4.4.2	Protection in operator access areas		N
4.4.3	Protection in restricted access locations		N
4.4.4	Protection in service access areas		N

4.5	Thermal requirements		P
4.5.1	Maximum temperatures	(see appended table 4.5)	P
	Normal load condition per Annex L .....		N

EN 60950-1:2006			
Clause	Requirement – Test	Result – Remark	Verdict
4.5.2	Resistance to abnormal heat		N

4.6	Openings in enclosures		N
4.6.1	Top and side openings		N
	Dimensions (mm) .....		—
4.6.2	Bottoms of fire enclosures		N
	Construction of the bottom .....		—
4.6.3	Doors or covers in fire enclosures		N
4.6.4	Openings in transportable equipment		N
4.6.5	Adhesives for constructional purposes		N
	Conditioning temperature (°C)/time (weeks).....		—

4.7	Resistance to fire		P
4.7.1	Reducing the risk of ignition and spread of flame	Method 2 is used.	P
	Method 1, selection and application of components wiring and materials	(see appended table 4.7)	N
	Method 2, application of all of simulated fault condition tests	(see appended table 5.3)	P
4.7.2	Conditions for a fire enclosure	See below	P
4.7.2.1	Parts requiring a fire enclosure		N
4.7.2.2	Parts not requiring a fire enclosure	The apparatus is power supplied by DC power supply and mounted on PCB of flammability class V-1 or better.	P
4.7.3	Materials		P
4.7.3.1	General	PCB rated at V-1 or better.	P
4.7.3.2	Materials for fire enclosures		P
4.7.3.3	Materials for components and other parts outside fire enclosures	Material for component and other parts outside fire enclosure fulfill the requirement	P
4.7.3.4	Materials for components and other parts inside fire enclosures		N
4.7.3.5	Materials for air filter assemblies	No air filter assemblies	N
4.7.3.6	Materials used in high-voltage components	No high voltage components.	N

5	ELECTRICAL REQUIREMENTS AND SIMULATED ABNORMAL CONDITIONS		N
5.1	Touch current and protective conductor current		—
5.1.1	General		N
5.1.2	Equipment under test (EUT)		N

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Clause	Requirement – Test	Result – Remark	Verdict
5.1.3	Test circuit		N
5.1.4	Application of measuring instrument		N
5.1.5	Test procedure		N
5.1.6	Test measurements		P
	Test voltage (V) .....		—
	Measured touch current (mA) .....		—
	Max. allowed touch current (mA) .....		—
	Measured protective conductor current (mA) .....		—
	Max. allowed protective conductor current (mA) ..		—
5.1.7	Equipment with touch current exceeding 3.5 mA :		N
5.1.8	Touch currents to and from telecommunication networks and cable distribution systems and from telecommunication networks		N
5.1.8.1	Limitation of the touch current to a telecommunication network and a cable distribution system		N
	Test voltage (V) .....		—
	Measured touch current (mA) .....		—
	Max. allowed touch current (mA) .....		—
5.1.8.2	Summation of touch currents from telecommunication networks .....		N

5.2	Electric strength		<b>P</b>
5.2.1	General	Class III equipment	P
5.2.2	Test procedure	(see appended table 5.2)	P

5.3	Abnormal operating and fault conditions		<b>P</b>
5.3.1	Protection against overload and abnormal operation	(see appended table 5.3)	N
5.3.2	Motors		N
5.3.3	Transformers		N
5.3.4	Functional insulation.....	Short-circuit test, results see appended table 5.3.	P
5.3.5	Electromechanical components		N
5.3.6	Simulation of faults	Result see appended table 5.3.	P
5.3.7	Unattended equipment		N
5.3.8	Compliance criteria for abnormal operating and fault conditions		P

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Clause	Requirement – Test	Result – Remark	Verdict

6	CONNECTION TO TELECOMMUNICATION NETWORKS		<b>N</b>
6.1	Protection of telecommunication network service persons, and users of other equipment connected to the network, from hazards in the equipment		N
6.1.1	Protection from hazardous voltages		N
6.1.2	Separation of the telecommunication network from earth		N
6.1.2.1	Requirements	(see appended table 5.2)	N
	Test voltage (V) .....		—
	Current in the test circuit (mA) .....		—
6.1.2.2	Exclusions .....		N

6.2	Protection of equipment users from overvoltages on telecommunication networks		<b>N</b>
6.2.1	Separation requirements		N
6.2.2	Electric strength test procedure		N
6.2.2.1	Impulse test	(see appended table 5.2)	N
6.2.2.2	Steady-state test	No insulation breakdown	N
6.2.2.3	Compliance criteria	Compliance	N

6.3	Protection of the telecommunication wiring system from overheating		<b>N</b>
	Max. output current (A).....		—
	Current limiting method .....		—

7	CONNECTION TO CABLE DISTRIBUTION SYSTEMS		<b>N</b>
7.1	Protection of cable distribution system service persons, and users of other equipment connected to the system, from hazardous voltages in the equipment		N
7.2	Protection of equipment users from overvoltages on the cable distribution system		N
7.3	Insulation between primary circuits and cable distribution systems		N
7.3.1	General		N
7.3.2	Voltage surge test	(see appended table 5.2)	N
7.3.3	Impulse test	(see appended table 5.2)	N

A	ANNEX A, TESTS FOR RESISTANCE TO HEAT AND FIRE		<b>N</b>
A.1	Flammability test for fire enclosures of movable equipment having a total mass exceeding 18 kg, and of stationary equipment (see 4.7.3.2)		N

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Clause	Requirement – Test	Result – Remark	Verdict
A.1.1	Samples.....:		—
	Wall thickness (mm) .....		—
A.1.2	Conditioning of samples; temperature (°C) .....		N
A.1.3	Mounting of samples .....		N
A.1.4	Test flame (see IEC 60695-11-3)		N
	Flame A, B, C or D .....		—
A.1.5	Test procedure		N
A.1.6	Compliance criteria		N
	Sample 1 burning time (s) .....		—
	Sample 2 burning time (s) .....		—
	Sample 3 burning time (s) .....		—
A.2	Flammability test for fire enclosures of movable equipment having a total mass not exceeding 18 kg, and for material and components located inside fire enclosures (see 4.7.3.2 and 4.7.3.4)		N
A.2.1	Samples, material.....:		—
	Wall thickness (mm) .....		—
A.2.2	Conditioning of samples		N
A.2.3	Mounting of samples .....		N
A.2.4	Test flame (see IEC 60695-11-4)		N
	Flame A, B or C .....		—
A.2.5	Test procedure		N
A.2.6	Compliance criteria		N
	Sample 1 burning time (s) .....		—
	Sample 2 burning time (s) .....		—
	Sample 3 burning time (s) .....		—
A.2.7	Alternative test acc. To IEC 60695-2-2, cl. 4 and 8		N
	Sample 1 burning time (s) .....		—
	Sample 2 burning time (s) .....		—
	Sample 3 burning time (s) .....		—
A.3	Hot flaming oil test (see 4.6.2)		N
A.3.1	Mounting of samples		N
A.3.2	Test procedure		N
A.3.3	Compliance criterion		N

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Clause	Requirement – Test	Result – Remark	Verdict
B	ANNEX B, MOTOR TESTS UNDER ABNORMAL CONDITIONS (see 4.7.2.2 and 5.3.2)		<b>N</b>
B.1	General requirements		N
	Position .....		—
	Manufacturer .....		—
	Type .....		—
	Rated values .....		—
B.2	Test conditions		N
B.3	Maximum temperatures		N
B.4	Running overload test		N
B.5	Locked-rotor overload test		N
	Test duration (days) .....		—
	Electric strength test: test voltage (V) .....		—
B.6	Running overload test for d.c. motors in secondary circuits		N
B.7	Locked-rotor overload test for d.c. motors in secondary circuits		N
B.7.1	Test procedure		N
B.7.2	Alternative test procedure; test time (h) .....		N
B.7.3	Electric strength test		N
B.8	Test for motors with capacitors		N
B.9	Test for three-phase motors		N
B.10	Test for series motors		N
	Operating voltage (V) .....		—

C	ANNEX C, TRANSFORMERS (see 1.5.4 and 5.3.3)		<b>N</b>
	Position .....		—
	Manufacturer .....		—
	Type .....		—
	Rated values .....		—
	Method of protection.....		—
C.1	Overload test		N
C.2	Insulation		N
	Protection from displacement of windings.....		N

D	ANNEX D, MEASURING INSTRUMENTS FOR TOUCH-CURRENT TESTS (see 5.1.4)		<b>N</b>
D.1	Measuring instrument		N

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Clause	Requirement – Test	Result – Remark	Verdict
D.2	Alternative measuring instrument		N
E	ANNEX E, TEMPERATURE RISE OF A WINDING (see 1.4.13)		N
F	ANNEX F, MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES (see 2.10)		N
G	ANNEX G, ALTERNATIVE METHOD FOR DETERMINING MINIMUM CLEARANCES		N
G.1	Summary of the procedure for determining minimum clearances		N
G.2	Determination of mains transient voltage (V) .....		N
G.2.1	AC mains supply		N
G.2.2	DC mains supply		N
G.3	Determination of telecommunication network transient voltage (V) .....		N
G.4	Determination of required withstand voltage (V)...		N
G.5	Measurement of transient levels (V) .....		N
G.6	Determination of minimum clearances .....		N
H	ANNEX H, IONIZING RADIATION (see 4.3.13)		N
J	ANNEX J, TABLE OF ELECTROCHEMICAL POTENTIALS (see 2.6.5.6)		N
	Metal used .....		—
K	ANNEX K, THERMAL CONTROLS (see 1.5.3 and 5.3.7)		N
K.1	Making and breaking capacity		N
K.2	Thermostat reliability; operating voltage (V).....		N
K.3	Thermostat endurance test; operating voltage (V) .....		N
K.4	Temperature limiter endurance; operating voltage (V) .....		N
K.5	Thermal cut-out reliability		N
K.6	Stability of operation		N
L	ANNEX L, NORMAL LOAD CONDITIONS FOR SOME TYPES OF ELECTRICAL BUSINESS EQUIPMENT (see 1.2.2.1 and 4.5.1)		N
L.1	Typewriters		N

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Clause	Requirement – Test	Result – Remark	Verdict
L.2	Adding machines and cash registers		N
L.3	Erasers		N
L.4	Pencil sharpeners		N
L.5	Duplicators and copy machines		N
L.6	Motor-operated files		N
L.7	Other business equipment		N

M	ANNEX M, CRITERIA FOR TELEPHONE RINGING SIGNALS (see 2.3.1)		<b>N</b>
M.1	Introduction		N
M.2	Method A		N
M.3	Method B		N
M.3.1	Ringing signal		N
M.3.1.1	Frequency (Hz) .....		—
M.3.1.2	Voltage (V) .....		—
M.3.1.3	Cadence; time (s), voltage (V) .....		—
M.3.1.4	Single fault current (mA).....		—
M.3.2	Tripping device and monitoring voltage .....		N
M.3.2.1	Conditions for use of a tripping device or a monitoring voltage		N
M.3.2.2	Tripping device		N
M.3.2.3	Monitoring voltage (V) .....		N

N	ANNEX N, IMPULSE TEST GENERATORS (see 2.10.3.4, 6.2.2.1, 7.3.2 and clause G.5)		<b>N</b>
N.1	ITU-T impulse test generators		N
N.2	IEC 60065 impulse test generator		N

P	ANNEX P, NORMATIVE REFERENCES		<b>P</b>
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Q	ANNEX Q, BIBLIOGRAPHY		<b>P</b>
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R	ANNEX R, EXAMPLES OF REQUIREMENTS FOR QUALITY CONTROL PROGRAMMES		<b>N</b>
R.1	Minimum separation distances for unpopulated coated printed boards (see 2.10.6)		N
R.2	Reduced clearances (see 2.10.3)		N

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Clause	Requirement – Test	Result – Remark	Verdict
S	ANNEX S, PROCEDURE FOR IMPULSE TESTING (see 6.2.2.3)		<b>N</b>
S.1	Test equipment		N
S.2	Test procedure		N
S.3	Examples of waveforms during impulse testing		N

V	ANNEX V, AC POWER DISTRIBUTION SYSTEMS (see 1.6.1)		<b>N</b>
V.1	Introduction		N
V.2	TN power distribution systems		N
V.3	TT power systems		N
V.4	IT power systems		N

W	ANNEX W, SUMMATION OF TOUCH CURRENTS		<b>N</b>
W.1	Touch current from electronic circuits		N
W.1.2	Earthed circuits		N
W.2	Interconnection of several equipments		N
W.2.1	Isolation		N
W.2.2	Common return, isolated from earth		N
W.2.3	Common return, connected to protective earth		N

X	ANNEX X, MAXIMUM HEATING EFFECT IN TRANSFORMER TESTS (see clause C.1)		<b>N</b>
X.1	Determination of maximum input current		N
X.2	Overload test procedure		N

Y	ANNEX Y, ULTRAVIOLET LIGHT CONDITIONING TEST (see 4.3.13.3)		<b>N</b>
Y.1	Test apparatus .....		N
Y.2	Mounting of test samples .....		N
Y.3	Carbon-arc light-exposure apparatus .....		N
Y.4	Xenon-arc light exposure apparatus .....		N

1.5.1	TABLE: list of critical components					P
Object/part no.	Manufacturer/ trademark	Type/model	Technical data	Standard	Mark(s) of conformity <sup>1</sup> .	
Cartridge Fuse-link	Shanghai Songshan Electronics Co.,Ltd.	RF1-30	15A, 250V~	GB9364.1-1997 IEC60127-2:2003+Amend.1:2003	CQC	
PCB	Qixiang Electron Science & Technology Co.,Ltd.	QX5188-V3	V-0 or better,130℃	EN 60950-1:2006	Tested with application	
Plastic enclose	--	--	V-0 or better, 130℃	UL 94	UL	
Speaker	--	--	8 Ω ,3W	EN60950-1:2006	Tested with application	
Metal enclosure	--	--	3.53mm	--	--	
Note(s):						
1. An asterisk indicates a mark that assures the agreed level of surveillance.						

1.6.2	TABLE: electrical data (in normal conditions)					<b>P</b>
Fuse #	I rated (A)	U (V)	P (W)	I (A)	I fuse (A)	Condition/status
--	10A	13.8V	--	4.9A	--	The vehicle radio working in the transmit state
Note(s):--						

2.10.3 and 2.10.4	TABLE: clearance and creepage distance measurements					N
Clearance cl and creepage distance dcr at/of:	U p (V)	U r.m.s. (V)	Required cl (mm)	cl (mm)	Required dcr (mm)	dcr (mm)
—	—	—	—	—	—	—
Note(s): —						

2.10.5	TABLE: distance through insulation measurements				N
Distance through insulation di at/of:	U r.m.s. (V)	Test voltage (V)	Required di (mm)	di (mm)	
Note(s): —					

4.5.1	TABLE: maximum temperatures		<b>P</b>
	test voltage (V) .....	a) d c 13.8-15% b) d c 13.8+20%	—
	t1 (°C) .....	25.0°C	—

	t2 (°C) .....	See below	—
Maximum temperature T of part/at:		T (°C)	allowed T <sub>max</sub> (°C)
		a)	b)
Supply lead		70.1	75.6
Main PCB		103.6	116.5
speaker		54.7	58.9
Metal enclosure		55.6	59.1
PCB of MIC		33.7	35.9
Enclosure of MIC		30.6	32.6
Ambient		25.1	25.1
Temperature T of winding:		R <sub>1</sub> (Ω)	R <sub>2</sub> (Ω)
		T (°C)	Allowed T <sub>max</sub> (°C)
—		—	—
Note(s): -		Insulation class	
		—	

4.5.2	TABLE: ball pressure test of thermoplastic parts		P
	allowed impression diameter (mm) .....	≤2 mm	—
Part		Test temperature (°C)	Impression diameter (mm)
Enclosure of MIC of Vehicle Radio		75	0.9
Note(s): —			
5.2	TABLE: electric strength tests and impulse tests		P
Test voltage applied between:		Test voltage (V)	Breakdown
L/N and enclosure		500	No breakdown
Note(s): —			

5.3	TABLE: fault condition tests		P
	ambient temperature (°C) .....	25.0°C	—
	model/type of power supply .....	5188(400-490MHz)	—
	manufacturer of power supply .....		—
	rated markings of power supply .....	Input: 13.8Vd.c. ,14A	—
No.	Component no.	Fault	Test voltage (V)
		Test time	Fuse no.
		Fuse current (A)	Result
1	Speaker	Short	13.8V d.c
		1h	--
2	Diode	Short	13.8V d.c
		7h	--
Note(s):--			

## Attachment - A

Photo production

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Fig.1- Overview of Vehicle Radio Model 5188(400-490MHz)



Fig.2- Overview of the connection of Vehicle Radio Model 5188(400-490MHz)

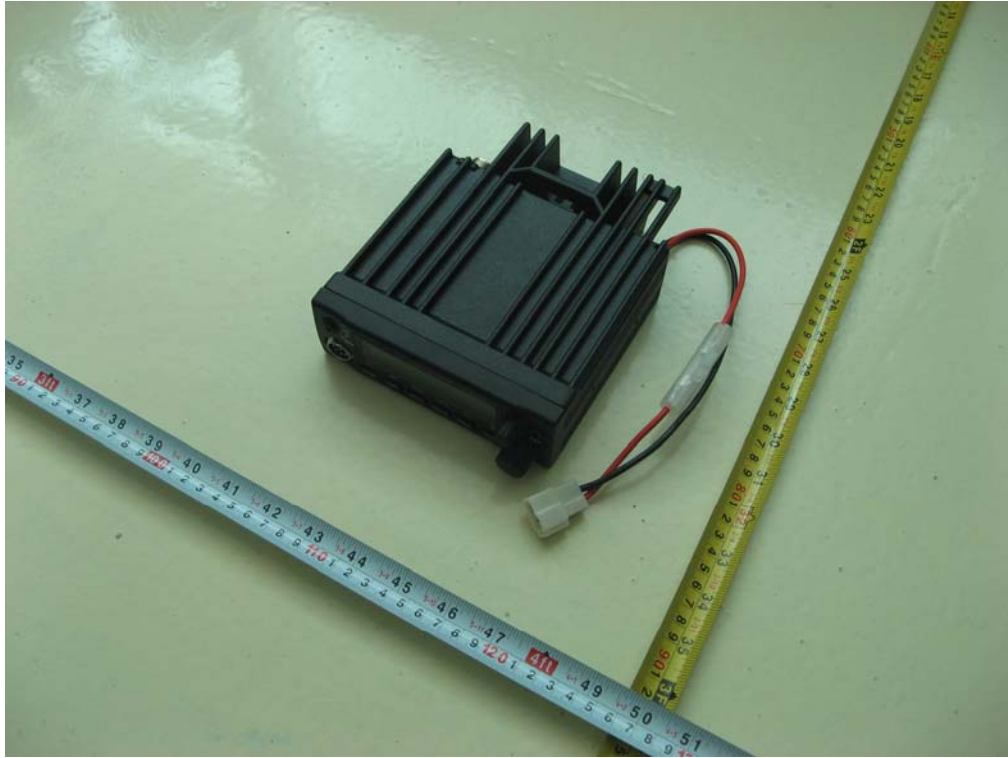


Fig.3- Overview of the front of Vehicle Radio Model 5188(400-490MHz)

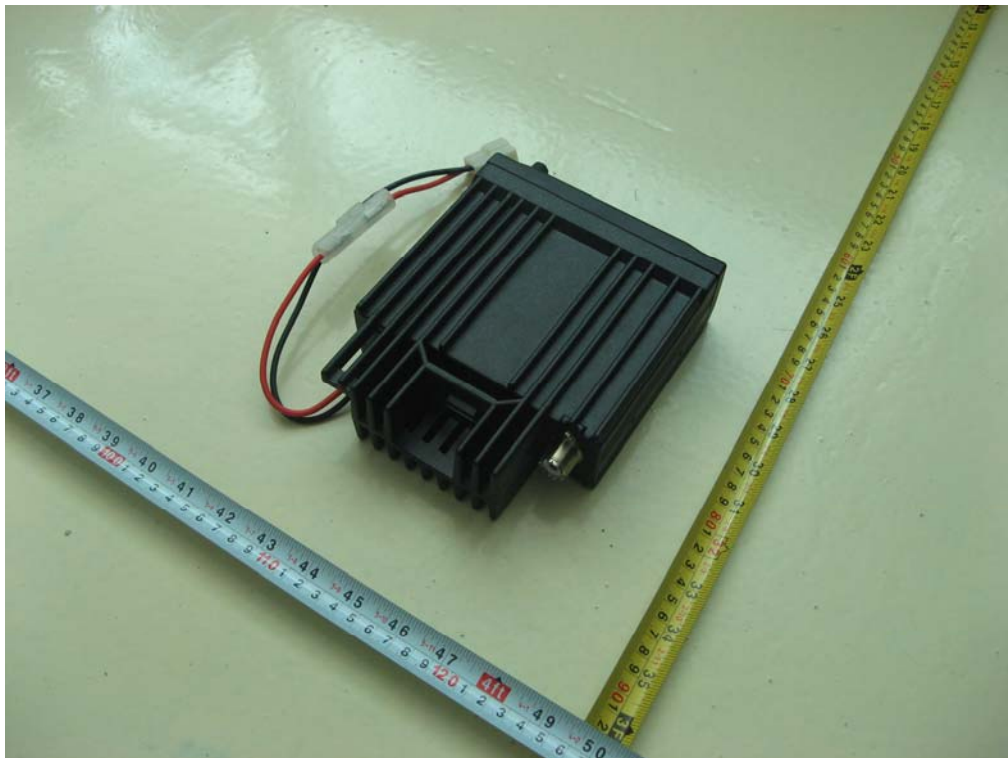


Fig.4- Overview of the back of Vehicle Radio Model 5188(400-490MHz)

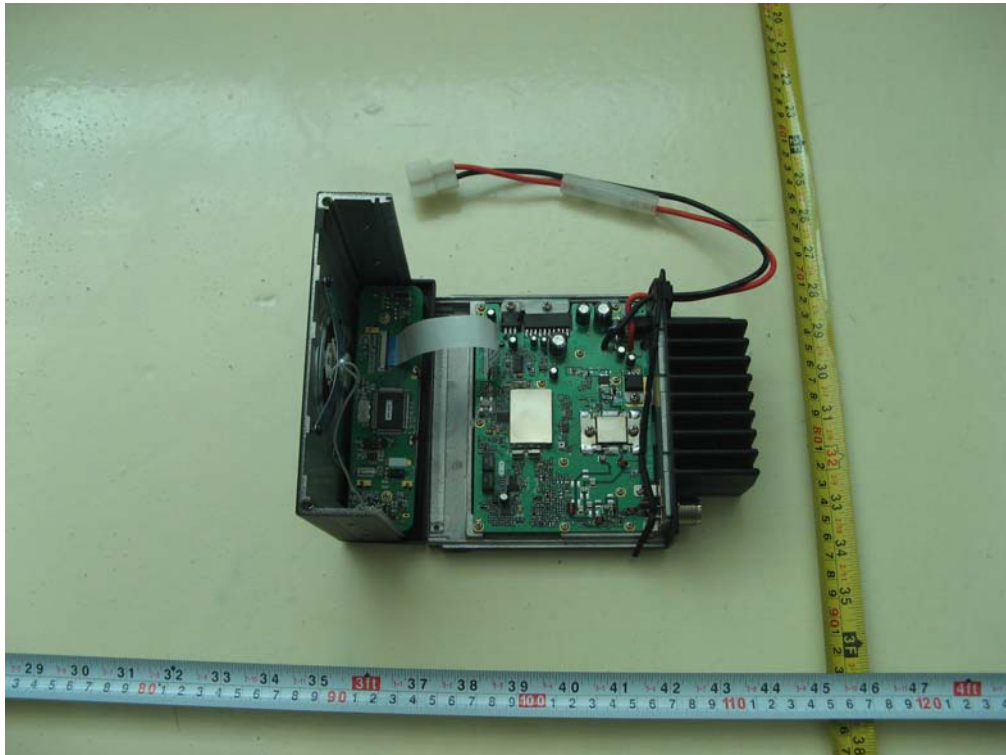


Fig.5- Overview of the interior circuit of Vehicle Radio Model 5188(400-490MHz)



Fig.6- Overview of the interior circuit of the microphone of Vehicle Radio Model 5188(400-490MHz)

※※※※※END OF REPORT※※※※※