



Shenzhen CTL Electromagnetic Technology Co., Ltd.
Tel: +86-755-89486194 Fax: +86-755-89486194-805

TEST REPORT

ETSI EN 301 489-1 V1.9.2 (2011-09)

&

ETSI EN 301 489-3 V1.4.1 (2002-08)

Report Reference No......: **CTL1308301368-WE**

Compiled by

(position+printed name+signature)...: File administrators Jennifer Ni

Jennifer Ni

Supervised by

(position+printed name+signature)...: Test Engineer Jacky Chen

Jacky Chen

Approved by

(position+printed name+signature)...: Manager Tracy Qi

Tracy Qi

Date of issue.....: Oct. 08, 2013

Testing Laboratory Name: **Shenzhen CTL Electromagnetic Technology Co., Ltd.**

Address.....: Floor 1-A, Baisha Technology Park, No.3011, Shahehexi Road,
Nanshan District, Shenzhen, China 518055

Testing location/ procedure: Full application of Harmonised standards ☒
Partial application of Harmonised standards ☐
Other standard testing methods ☐

Applicant's name.....: **Da Ying Electronics Technology Co., Limited**

Address.....: 2nd Floor, Block D, Quanyuanfa Industrial Area, Zhucun, Guanlan
Town, Shenzhen City, Guangdong, China

Test specification:

Standard: **ETSI EN 301 489-1 V1.9.2 (2011-09)**

ETSI EN 301 489-3 V1.4.1 (2002-08)

TRF Originator.....: Shenzhen CTL Electromagnetic Technology Co., Ltd.

Master TRF.....: Dated 2011-01

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Test item description: **GSM Alarm system/ GSM+PSTN Alarm system**

Trade Mark: DYGSM

Model/Type reference.....: DY-10B, DY-10A , DY-30A, DY-40A, DY-40B, DY-50A, DY-50B,
DY-60A, DY-60B, DY-G66

Modulation.....: ASK

Ratings.....: DC 12V from battery for Transmitter 1

DC 9V from battery for Transmitter 2

DC 3V (CR2016) from battery for Transmitter 3

DC 7.2V from battery DC 12V from adapter input AC230V/50Hz for Receiver

Operating Frequency Range.....: 433.92 MHz

Maximum Transmitter Power(ERP)...	Transmitter 1: -1.60 dBm
	Transmitter 2: -3.36 dBm
	Transmitter 3: -5.28 dBm
Antenna Gain.....	1.0dBi
Receiver Category.....	3
Channel Spacing.....	Less than 25.0KHz
Result.....	Positive



EMC -- TEST REPORT

Test Report No. :	CTL1308301368-WE	Oct. 08, 2013
		Date of issue

Equipment under Test : GSM Alarm system/ GSM+PSTN Alarm system

Type / Model(s) : DY-10B

Listed Models : DY-10A , DY-30A, DY-40A, DY-40B, DY-50A, DY-50B,
DY-60A, DY-60B, DY-G66

Applicant : **Da Ying Electronics Technology Co., Limited**

Address : 2nd Floor, Block D, Quanyuanfa Industrial Area, Zhucun, Guanlan Town,
Shenzhen City, Guangdong, China

Manufacturer : **Da Ying Electronics Technology Co., Limited**

Address : 2nd Floor, Block D, Quanyuanfa Industrial Area, Zhucun, Guanlan Town,
Shenzhen City, Guangdong, China

Test Result according to the
standards on page 4:

Positive

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. TEST STANDARDS

The tests were performed according to following standards:

[ETSI EN 301 489-1 V1.9.2 \(2011-09\)](#) — Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements

[ETSI EN 301 489-3 V1.4.1 \(2002-08\)](#) — Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz



2. SUMMARY

2.1. General Remarks:

Date of receipt of test sample : Sept. 03, 2013

Testing commenced on : Sept. 03, 2013

Testing concluded on : Sept. 30, 2013

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage : ☐ 230V / 50 Hz ☐ 115V / 60Hz
☐ 12 V DC ☐ 24 V DC
☒ Other (specified in blank below)

DC 12V from battery for Transmitter 1/DC 9V from battery for Transmitter 2/DC 3V from battery for Transmitter 3/DC 7.2V from battery or DC 12V from adapter input AC230V/50Hz for Receiver

2.3. Short description of the Equipment under Test (EUT)

For more details, refer to the user's manual of the EUT.

Series number: prototype

2.4. EUT operation mode:

The EUT has been tested under typical operating condition. No software used to control the EUT for staying in transmitting and receiving mode for testing.

2.5. EUT configuration:

(The CDF filled by the applicant can be viewed at the test laboratory.)

The following peripheral devices and interface cables were connected during the measurement:

☐ - supplied by the manufacturer

☐ - supplied by the lab

2.6. Classification of SRD equipment

The product family of Short Range Devices is divided into three classes of equipment, each having its own set of minimum performance criteria. This classification is based upon the impact on persons and/or goods in case the equipment does not operate above the specified minimum performance level under EMC stress. The classification of SRD equipment as follow:

Class of SRD equipment	Risk assessment of receiver performance
1	Highly reliable SRD communication media; e.g. serving human life inherent systems (may result in a physical risk to a person)
2	Medium reliable SRD communication media; e.g. causing inconvenience to persons, which cannot simply be overcome by other means
3	Standard reliable SRD communication media; e.g. inconvenience to persons, which can simply be overcome by other means (e.g. manual)

Note: The Weather station with mold alarm belongs to Class 3 SRD equipment.

2.7. Types of SRD equipment

For the purpose of the present document Short Range Devices are divided into three types of equipment, based on the technical nature of the primary function. The types of SRD equipment as follow:

Equipment Type	Technical nature of the primary function
I	Transfer of messages (digital or analogue signals)
II	Transfer of audio (speech or music)
III	Others

Note: The Weather station with mold alarm belongs to type III SRD equipment.

2.8. Performance Criteria

Definition related to the performance level:

- based on the used product standard
- based on the declaration of the manufacturer, requestor or purchaser

General performance criteria

The performance criteria for the different classes of SRD equipment in combination with the different equipment types during and after immunity test are specified in this clause:

- performance criteria A for immunity tests with phenomena of a continuous nature;
- performance criteria B for immunity tests with phenomena of a transient nature;

Performance table**Table 4**

Class 1 SRD equipment		
Criteria	During test	After test
A	Operate as intended No loss of function For equipment type II the minimum performance shall be 12 dB SINAD No unintentional responses	Operate as intended For equipment type II the communication link shall be maintained No loss of function No degradation of performance No loss of stored data or user programmable functions
B	May be loss of function (one or more) 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
Class 2 SRD equipment		
Criteria	During test	After test
A	Operate as intended No loss of function For equipment type II the minimum performance shall be 6 dB SINAD No unintentional responses	Operate as intended For equipment type II the communication link shall be maintained No loss of function No degradation of performance No loss of stored data or user programmable functions
B	May be loss of function (one or more) 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
Class 3 SRD equipment		
Criteria	During test	After test
A and B	May be loss of function (one or more) No unintentional responses	Operate as intended, for equipment type II the communication link may be lost, but shall be recoverable by user No degradation of performance Lost functions shall be self-recoverable

EMC emission**Table 1: EMC emission measurements for radio and associated ancillary equipment specified in the present document, overview**

Phenomenon	Application	Equipment test requirement			Reference clause in the present document
		Radio and ancillary equipment for fixed use (e.g. base station equipment)	Radio and ancillary equipment for vehicular use (e.g. mobile equipment)	Radio and ancillary equipment for portable use (portable equipment)	
radiated emission	enclosure of ancillary equipment	applicable for stand alone testing	applicable for stand alone testing	applicable for stand alone testing	8.2
conducted emission	DC power input/output port	applicable	applicable	not applicable	8.3
conducted emission	AC mains input/output port	applicable	not applicable	not applicable	8.4
harmonic current emissions	AC mains input port	applicable	not applicable	not applicable	8.5
voltage fluctuations and flicker	AC mains input port	applicable	not applicable	not applicable	8.6
conducted emission	telecommunication port	applicable	not applicable	not applicable	8.7

General performance criteria

The performance criteria for the different classes of SRD equipment (see table 3) in combination with the different equipment types (see table 1) during and after immunity test are specified in this clause:

- performance criteria A for immunity tests with phenomena of a continuous nature;
- performance criteria B for immunity tests with phenomena of a transient nature;

- performance criteria for immunity tests with power interruptions exceeding a certain time are specified in clause 7.2.2, table 6.

The equipment shall meet the performance criteria as specified in the following clauses, for the appropriate class of SRD equipment.

Performance criteria for Continuous phenomena applied to Transmitters (CT)

For equipment of type I or II including ancillary equipment tested on a stand alone basis, the performance criteria A of the applicable class as given in clause 6.3 shall apply.

For equipment of type II or type III that requires a communication link that is maintained during the test, it shall be verified by appropriate means supplied by the manufacturer that the communication link is maintained during each individual exposure in the test sequence.

Where the EUT is a transmitter, tests shall be repeated with the EUT in standby mode to ensure that any unintentional transmission does not occur.

Performance criteria for Transient phenomena applied to Transmitters (TT)

For equipment of type I or II, including ancillary equipment tested on a stand alone basis, the performance criteria B of the applicable class as given in clause 6.3 shall apply, except for power interruptions exceeding a certain time the performance criteria deviations are specified in clause 7.2.2.

For equipment of type II or type III that requires a communication link that is maintained during the test, this shall be verified by appropriate means supplied by the manufacturer during each individual exposure in the test sequence.

Where the EUT is a transmitter, tests shall be repeated with the EUT in standby mode to ensure that any unintentional transmission does not occur.

Performance criteria for Continuous phenomena applied to Receivers (CR)

For equipment of type I or II, including ancillary equipment tested on a stand alone basis, the performance criteria A of the applicable class as given in clause 6.3 shall apply.

For equipment of type II or III that requires a communication link that is maintained during the test, it shall be verified by appropriate means supplied by the manufacturer that the communication link is maintained during each individual exposure in the test sequence.

Where the EUT is a transceiver, under no circumstances shall the transmitter operate unintentionally during the test.

Performance criteria for Transient phenomena applied to Receivers (TR)

For equipment of type I or II, including ancillary equipment tested on a stand alone basis, the performance criteria B of the applicable class as given in clause 6.3 shall apply, except for power interruptions exceeding a certain time the performance criteria deviations are specified in clause 7.2.2.

For equipment of type II or type III that requires a communication link that is maintained during the test, this shall be verified by appropriate means supplied by the manufacturer during each individual exposure in the test sequence.

Where the EUT is a transceiver, under no circumstances shall the transmitter operate unintentionally during the test.

Special conditions

The following special conditions set out in table 5, relate to the emission test methods used in EN 301 489-1 [1], clause 8.

Table 5: Special conditions for EMC emission measurements

Reference to clauses in EN 301 489-1 [1]	Special product-related conditions, additional to or modifying the test conditions in EN 301 489-1 [1], clause 8
8.3.2 and 8.4.2: Test method; DC power input/output ports, and AC mains input/output ports	Attention: The exclusion band for transmitters shall be considered for transmitters operating at frequencies below 30 MHz (see clause 4.3.2).



Immunity

Table 2: Immunity tests for radio and associated ancillary equipment specified in the present document, overview

Phenomenon	Application	Equipment test requirement			Reference clause in the present document
		Radio and ancillary equipment for fixed use (e.g. base station equipment)	Radio and ancillary equipment for vehicular use (e.g. mobile equipment)	Radio and ancillary equipment for portable use (portable equipment)	
RF electromagnetic field (80 MHz to 1 000 MHz and 1 400 MHz to 2 700 MHz)	enclosure	applicable	applicable	applicable	9.2
electrostatic discharge	enclosure	applicable	not applicable	applicable	9.3
fast transients common mode	signal, telecommunication and control ports, DC and AC power ports	applicable	not applicable	not applicable	9.4
RF common mode 0,15 MHz to 80 MHz	signal, telecommunication and control ports, DC and AC power ports	applicable	applicable	not applicable	9.5

Phenomenon	Application	Equipment test requirement			Reference clause in the present document
		Radio and ancillary equipment for fixed use (e.g. base station equipment)	Radio and ancillary equipment for vehicular use (e.g. mobile equipment)	Radio and ancillary equipment for portable use (portable equipment)	
transients and surges	DC power input ports	not applicable	applicable	not applicable	9.6
voltage dips and interruptions	AC mains power input ports	applicable	not applicable	not applicable	9.7
surges, line to line and line to ground	AC mains power input ports, telecommunication ports	applicable	not applicable	not applicable	9.8

General Requirements

The performance criteria criteria are used to take a decision on whether radio equipment passes or fails immunity tests.

For the purpose of the present document four categories of performance criteria apply:

- performance criteria for continuous phenomena applied to transmitters;
- performance criteria for transient phenomena applied to transmitters;
- performance criteria for continuous phenomena applied to receivers;
- performance criteria for transient phenomena applied to receivers.

Normally, the performance criteria depend on the type of radio equipment. Thus, the present document only contains general performance criteria commonly used for the assessment of radio equipment. More specific and product-related performance criteria for a dedicated type of radio equipment may be found in the part of EN 301 489 series [22] dealing with the particular type of radio equipment.

Performance criteria for continuous phenomena applied to transmitters and receivers

If no further details are given in the relevant part of EN 301 489 series [22] dealing with the particular type of radio equipment, the following general performance criteria for continuous phenomena shall apply.

During and after the test, the apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed a permissible performance level specified by the manufacturer when the apparatus is used as intended. In some cases this permissible performance level may be replaced by a permissible loss of performance.

During the test the EUT shall not unintentionally transmit or change its actual operating state and stored data.

If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deduced from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.

Performance criteria for transient phenomena applied to transmitters and receivers

If no further details are given in the relevant part of EN 301 489 series [22] dealing with the particular type of radio equipment, the following general performance criteria for transient phenomena shall apply.

After the test, the apparatus shall continue to operate as intended. No degradation of performance or loss of function is allowed below a permissible performance level specified by the manufacturer, when the apparatus is used as intended. In some cases this permissible performance level may be replaced by a permissible loss of performance.

During the EMC exposure to an electromagnetic phenomenon, a degradation of performance is, however, allowed. No change of the actual mode of operation (e.g. unintended transmission) or stored data is allowed.

If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be deduced from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.

Performance criteria for equipment which does not provide a continuous communication link

For radio equipment which does not provide a continuous communication link, the performance criteria described in clauses (1) and (2) are not appropriate, then the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests.

The performance specification shall be included in the product description and documentation. The related specifications set out in clause 5.3 of EN 301 489-1 V1.9.2 (2011-09) have also to be taken into account. The performance criteria specified by the manufacturer shall give the same degree of immunity protection as called for in clauses (1) and (2).

Performance criteria for ancillary equipment tested on a stand alone basis

If ancillary equipment is intended to be tested on a stand alone basis, the performance criteria described in clauses (1) and (2) are not appropriate, then the manufacturer shall declare, for inclusion in the test report, his own specification for an acceptable level of performance or degradation of performance during and/or after the immunity tests. The performance specification shall be included in the product description and documentation. The related specifications set out in clause 5.3 of EN 301 489-1 V1.9.2 (2011-09) have also to be taken into account.

The performance criteria specified by the manufacturer shall give the same degree of immunity protection as called for in clauses (1) and (2).

Special Performance Requirements (ETSI EN 301489-3)

The following special conditions set out in table 6, relate to the immunity test methods and performance criteria used in EN 301 489-1 [1], clause 9.

Table 6: Special conditions for EMC immunity tests

Reference to clauses in EN 301 489-1 [1]	Special product-related conditions, additional to or modifying the test conditions in EN 301 489-1 [1], clause 9
9.2.2: Test method; Radio frequency electromagnetic field	<p>Attention:The width of the steps for the test frequency increments is class-dependent:</p> <ul style="list-style-type: none"> - for SRDs of class 1 or class 2, the stepped frequency increments shall be 1 % of the momentary used test frequency; - for SRDs of class 3, the stepped frequency increments shall be 10 % of the momentary used test frequency.
9.5.2: Test method; Radio frequency, common mode	<p>Attention:The width of the steps for the test frequency increments is class-dependent:</p> <ul style="list-style-type: none"> - for SRDs of class 1 or class 2, the stepped frequency increments shall be 1 % of the momentary used test frequency in the frequency range 5 MHz to 80 MHz; - for SRDs of class 3, the stepped frequency increments shall be 10 % of the momentary used test frequency in the frequency range 5 MHz to 80 MHz.
9.7.3: Performance criteria; Voltage dips and interruptions	<p>Attention:The performance criteria are equipment class dependent:</p> <p>For a voltage dip corresponding to a reduction of the supply voltage of 30 % for 10 ms the performance criteria CT or CR specified in clauses 6.4 or 6.6 shall apply as appropriate.</p> <p>For a voltage dip corresponding to a reduction of the supply voltage of 60 % for 100 ms the following class-dependent performance criteria shall apply:</p> <ul style="list-style-type: none"> - for transmitters, belonging to class 1 equipment, the performance criteria CT (see clause 6.4); - for transmitters, belonging to class 2 or 3 equipment, the performance criteria TT (see clause 6.5); - for receivers, belonging to class 1 equipment, the performance criteria CR (see clause 6.6); - for receivers, belonging to class 2 or 3 equipment, the performance criteria TR (see clause 6.7). <p>For a voltage interruption corresponding to a reduction of the supply voltage of > 95 % for 5 000 ms the performance criteria TT or TR specified in clauses 6.5 or 6.7 shall apply as appropriate.</p>

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen CTL Electromagnetic Technology Co., Ltd.
Floor 1-A, Baisha Technology Park, No.3011, Shahehexi Road, Nanshan District, Shenzhen, China 518055

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 22/EN 55022 requirements.

3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

IC Registration No.: 9618A

The 3m alternate test site of Shenzhen CTL Electromagnetic Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 7618A on May, 2011.

FCC-Registration No.: 807767

Shenzhen CTL Electromagnetic Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 807767, June 27, 2011.

3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	22-25 ° C
Humidity:	40-54 %
Atmospheric pressure:	950-1050mbar

3.4. Test Description

ETSI EN 301 489-1 V1.9.2 (2011-09)			
Clause	Test Parameter	Remarks	Result
EMISSIONS REQUIREMENTS			
8.2	Radiated emission	Applicable	Pass
8.3	DC power input/output ports	Not Applicable	N/A
8.4	AC mains power input/output ports(AC Conducted emission)	Applicable	Pass
8.5	Harmonic current emissions (AC mains input port)	Applicable	Pass
8.6	Voltage fluctuations and flicker (AC mains input port)	Applicable	Pass
8.7	Telecommunication ports	Applicable	Pass

IMMUNITY REQUIREMENTS			
9.2	Radio frequency electromagnetic field	Applicable	Pass
9.3	Electrostatic discharge	Applicable	Pass
9.4	Fast transients,common mode	Applicable	Pass
9.5	Radio frequency,common mode	Applicable	Pass
9.6	Transients and surges in the vehicular environment	Applicable	Pass
9.7	Voltage dips and interruptions	Applicable	Pass
9.8	Surges	Applicable	Pass

Remark: The measurement uncertainty is not included in the test result.

3.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen CTL Electromagnetic Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	$\pm 4.10\text{dB}$	(1)
Radiated Emission	1~12.75GHz	$\pm 4.32\text{dB}$	(1)
Conducted Emission	0.15~30MHz	$\pm 3.22\text{dB}$	(1)

- (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.6. Equipments Used during the Test

Radiated Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ULTRA-BROADBAND ANTENNA	ROHDE & SCHWARZ	HL562	100015	2013/04
2	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESI 26	100009	2013/04
3	RF TEST PANEL	ROHDE & SCHWARZ	TS / RSP	335015/ 0017	2013/04
4	TURNTABLE	ETS	2088	2149	2013/04
5	ANTENNA MAST	ETS	2075	2346	2013/04
6	EMI TEST SOFTWARE	ROHDE & SCHWARZ	ESK1	N/A	2013/04

Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCS30	100038	2013/04
2	Artificial Mains	ROHDE & SCHWARZ	ESH2-Z5	100028	2013/04
3	Pulse Limiter	ROHDE & SCHWARZ	ESHSZ2	100044	2013/04
4	EMI Test Software	ROHDE & SCHWARZ	ESK1	N/A	2013/04

Harmonic Current					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Purified Power Source	CALIFORNIA INSTRUMENTS	HFS500	54513	2013/04
2	Harmonic And Flicker Analyzer	EM TEST	DPA503S1	0500-10	2013/04

Voltage Fluctuation and Flicker					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Purified Power Source	CALIFORNIA INSTRUMENTS	HFS500	54513	2013/04
2	Harmonic And Flicker Analyzer	EM TEST	DPA503S1	0500-10	2013/04

Electrostatic Discharge					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ESD Simulator	EM TEST	DITOC0103Z	0301-04	2013/04

RF Field Strength Susceptibility					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	SIGNAL GENERATOR	IFR	2032	203002/100	2013/04
2	AMPLIFIER	AR	150W1000	301584	2013/04
3	DUAL DIRECTIONAL COUPLER	AR	DC6080	301508	2013/04
4	POWER HEAD	AR	PH2000	301193	2013/04
5	POWER METER	AR	PM2002	302799	2013/04

Electrical Fast Transient/Burst					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Ultra Compact Simulator	EM TEST	UCS500M6	0500-19	2013/04

Surge					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ULTRA COMPACT SIMULATOR	EM TEST	UCS500M6	0500-19	2013/04

Conducted Susceptibility					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Signal Generator	IFR	2023A	202304/060	2013/04
2	Amplifier	AR	75A250	302205	2013/04
3	Dual Directional Coupler	AR	DC2600	302389	2013/04
4	6db Attenuator	EMTEST	ATT6/75	0010230A	2013/04
5	EM CLAMP	LÜTHI	EM101	335625	2013/04
6	CDN	EMTEST	CDN M3	0802-03	2013/04

Power Frequency Magnetic Field Susceptibility					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ULTRA COMPACT SIMULATOR	EM TEST	UCS500M6	202304/060	2013/04
2	MOTOR DRIVEN VOLTAGE TRANSFORMER	EM TEST	MV2616	302205	2013/04
3	CURRENT TRANSFORMER	EM TEST	MC2630	302389	2013/04
4	MAGNETIC COIL	EM TEST	MS100	0010230A	2013/04

Voltage Dips and Interruptions					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Ultra Compact Simulator	EM TEST	UCS500M6	0500-19	2013/04
2	Motor Driven Voltage Transformer	EM TEST	MV2616	0301-11	2013/04

Mark: The cal due is one year.

4. TEST CONDITIONS AND RESULTS

4.1. Radiated Emission (Not applicable to this device)

For test instruments and accessories used see section 3.6.

4.1.1. Description of the test location

Test location: Shielded room No. 2

4.1.2. Limits of disturbance(EN55022 B)

Please refer to ETSI EN 301 489-1 Clause 8.2.3, Table 4 and EN 55022 Clause 6, Table 6, Class B

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dB μ V/m)
30 ~ 230	3	40
230 ~ 1000	3	47

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

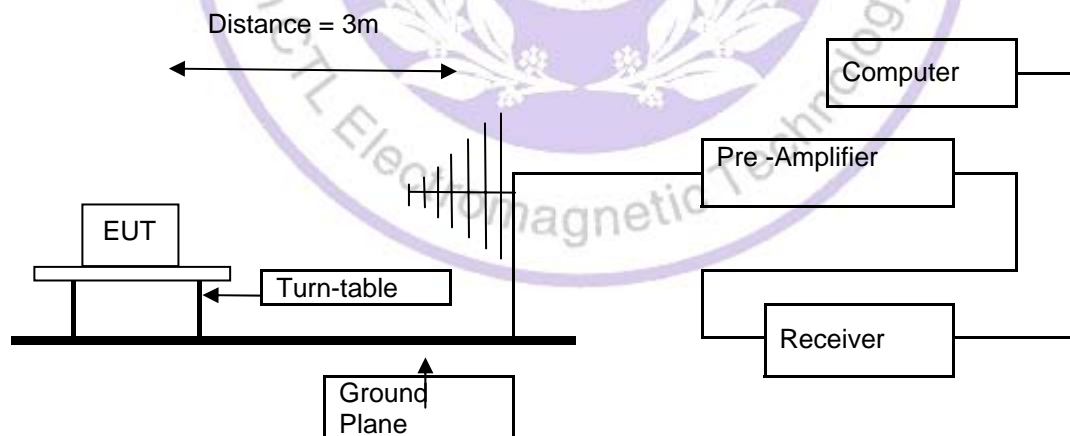
(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

4.1.3. Description of the test set-up

4.1.3.1. Operating Condition

The EUT is set to work shall be carried out with normal working mode during the test, and the maximum emanating results are recorded.

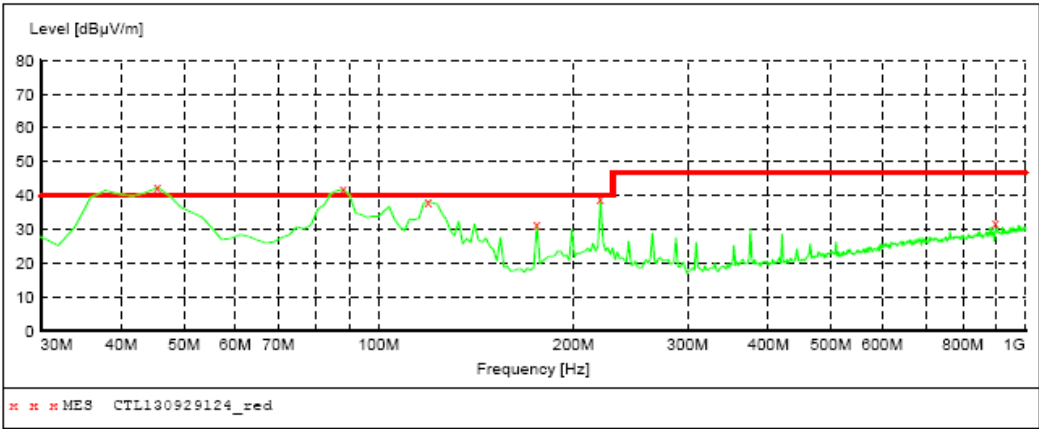
4.1.3.2. Configuration of test setup



4.1.4. Test result

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	120 kHz	JB1



MEASUREMENT RESULT: "CTL130929124_red"

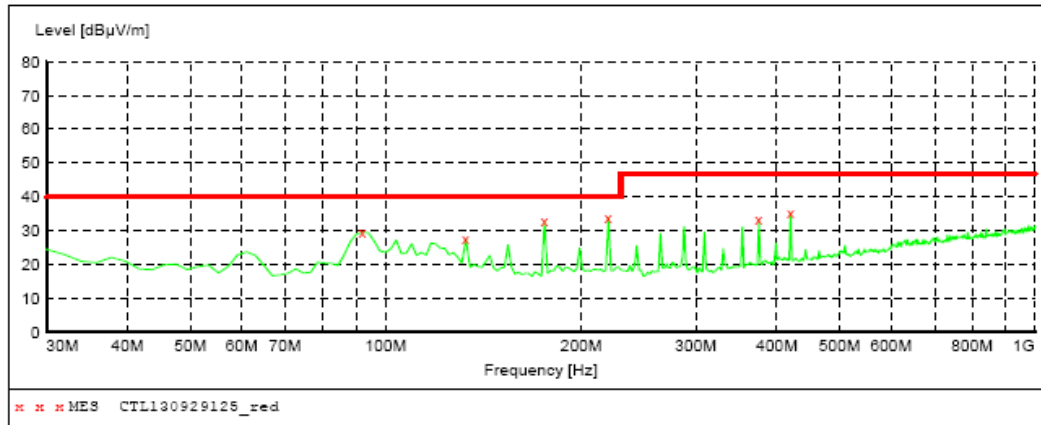
9/29/2013 11:00AM

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
45.520000	38.40	10.0	40.0	1.6	QP	0.0	0.00	VERTICAL
88.200000	35.60	9.5	40.0	3.4	QP	0.0	0.00	VERTICAL
119.240000	38.30	15.2	40.0	1.7	---	0.0	0.00	VERTICAL
175.500000	31.40	13.2	40.0	8.6	---	0.0	0.00	VERTICAL
220.120000	36.00	14.2	40.0	4.0	QP	0.0	0.00	VERTICAL
899.120000	32.20	26.1	47.0	14.8	---	0.0	0.00	VERTICAL



SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency	Time	Bandw.		
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	120 kHz	JB1

***MEASUREMENT RESULT: "CTL130929125_red"***

9/29/2013 11:02AM

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
92.080000	29.50	10.0	40.0	10.5	---	0.0	0.00	HORIZONTAL
132.820000	27.60	14.8	40.0	12.4	---	0.0	0.00	HORIZONTAL
175.500000	32.80	13.2	40.0	7.2	---	0.0	0.00	HORIZONTAL
220.120000	33.90	14.2	40.0	6.1	---	0.0	0.00	HORIZONTAL
375.320000	33.20	17.7	47.0	13.8	---	0.0	0.00	HORIZONTAL
419.940000	35.20	18.7	47.0	11.8	---	0.0	0.00	HORIZONTAL



4.2. Conducted disturbance

For test instruments and accessories used see section 3.6.

4.2.1. Description of the test location

Test location: Shielded room No. 1

4.2.2. Limits of disturbance

Please refer to ETSI EN 301 489-1 Clause 8.4.3, Table 8 and EN 55022 Clause 5, Table 2, Class B

Limit of disturbance voltage at the mains terminals

Frequency Range (MHz)	Limits (dBuV)	
	Quasi-Peak	Average
0.150~0.500	66~56	56~46
0.500~5.000	56	46
5.000~30.00	60	50

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

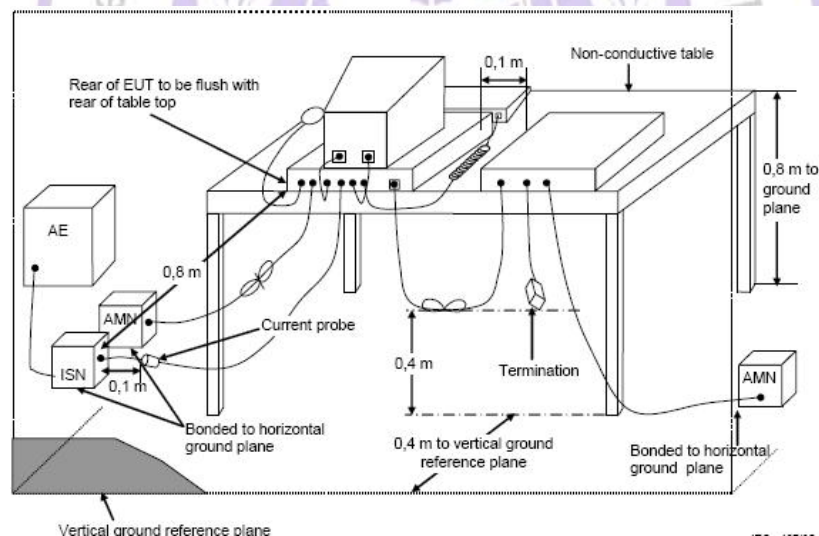
4.2.3. Description of the test set-up

4.2.3.1. Operating Condition

The EUT is set to normal working mode during the test, and the maximum emanating results are recorded.

4.2.3.2. Configuration of test setup

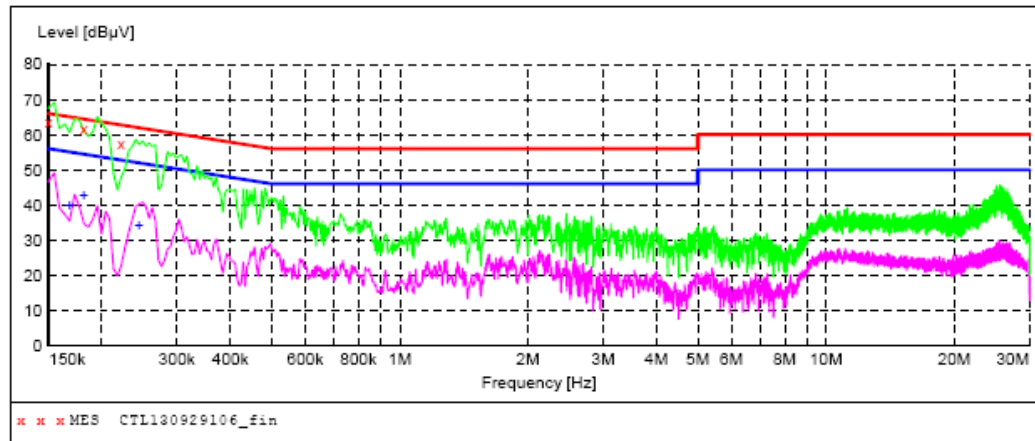
Mains terminals:



4.2.4. Test result

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "CTL130929106_fin"**

9/29/2013 11:40AM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.150000	63.60	9.8	66	2.4	QP	L1	GND
0.181500	61.90	9.8	64	2.5	QP	L1	GND
0.222000	57.40	9.8	63	5.3	QP	L1	GND

MEASUREMENT RESULT: "CTL130929106_fin2"

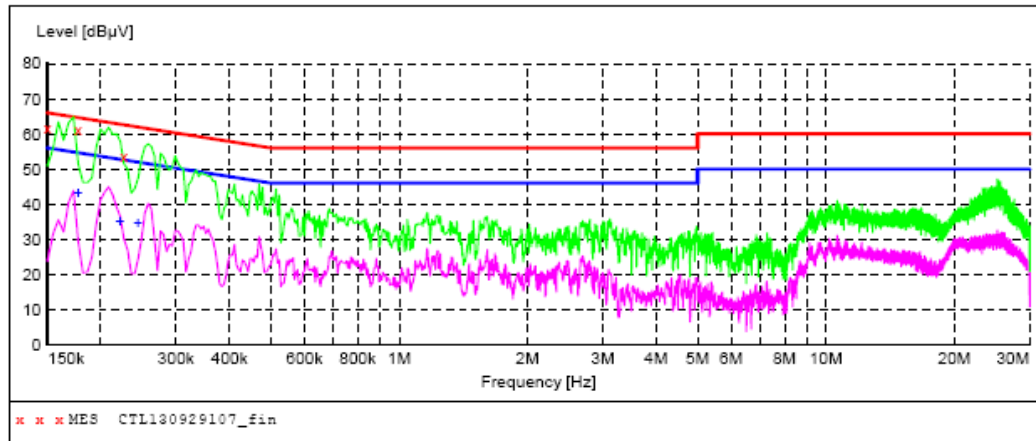
9/29/2013 11:40AM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.168000	39.90	9.8	55	15.2	AV	L1	GND
0.181500	42.90	9.8	54	11.5	AV	L1	GND
0.244500	34.20	9.8	52	17.7	AV	L1	GND



SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "CTL130929107_fin"**

9/29/2013 11:43AM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.150000	61.80	9.8	66	4.2	QP	N	GND
0.177000	61.40	9.8	65	3.2	QP	N	GND
0.226500	53.60	9.8	63	9.0	QP	N	GND

MEASUREMENT RESULT: "CTL130929107_fin2"

9/29/2013 11:43AM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.177000	43.20	9.8	55	11.4	AV	N	GND
0.222000	35.20	9.8	53	17.5	AV	N	GND
0.244500	34.80	9.8	52	17.1	AV	N	GND



4.3. AC Mains Harmonic Current Emission

For test instruments and accessories used see section 3.6.

4.3.1. Description of the test location

Test location: Shielded room No. 3

4.3.2. Limits of Harmonic Current

Test configuration and procedure see clause 7.1 of standard EN 61000-3-2.

4.3.3. Description of the test set-up

4.3.3.1. Operating Condition

The EUT is Normal working mode during the test, and the maximum emanating results are recorded.

4.3.3.2. Test Configuration and Procedure

Test configuration and procedure see clause 6.2.2 and Appendix C of standard EN 61000-3-2.

4.3.4. Test result

E. U. T. Result

Check harmonics 2..40 [exception odd 21..39]:

Harmonic(s) > 150%:	
Order (n):	None
Harmonic(s) with average > 100%:	
Order (n):	None

Check odd harmonics 21..39:

All Partial Odd Harmonics below partial limits.	
Harmonic(s) > 150%:	
Order (n):	None
Harmonic(s) with average > 150%:	
Order (n):	None

Power Source Result

First dataset out of limit:	
DS (time):	None
Harmonic(s) out of limit:	
Order (n):	None

Average harmonic current results

Hn	I _{eff} [A]	I _{eff} [%]	Limit [A]	Result
1	17.518E-3	100.000		
2	314.641E-6	1.796	1.08	PASS
3	16.619E-3	94.872	2.30	PASS
4	356.790E-6	2.037	430.00E-3	PASS
5	15.632E-3	89.236	1.14	PASS
6	315.221E-6	1.799	300.00E-3	PASS
7	14.474E-3	82.624	770.00E-3	PASS
8	330.385E-6	1.886	230.00E-3	PASS
9	13.098E-3	74.767	400.00E-3	PASS
10	335.702E-6	1.916	184.00E-3	PASS
11	11.569E-3	66.040	330.00E-3	PASS
12	333.611E-6	1.904	153.33E-3	PASS
13	9.921E-3	56.634	210.00E-3	PASS
14	326.367E-6	1.863	131.43E-3	PASS
15	8.239E-3	47.030	150.00E-3	PASS
16	285.628E-6	1.631	115.00E-3	PASS
17	6.609E-3	37.726	132.35E-3	PASS
18	242.659E-6	1.385	102.22E-3	PASS
19	5.112E-3	29.180	118.42E-3	PASS
20	217.901E-6	1.244	92.00E-3	PASS
21	3.820E-3	21.805	160.71E-3	PASS
22	186.902E-6	1.067	83.64E-3	PASS
23	2.809E-3	16.034	146.74E-3	PASS
24	181.302E-6	1.035	76.66E-3	PASS
25	2.144E-3	12.241	135.00E-3	PASS
26	186.816E-6	1.066	70.77E-3	PASS
27	1.839E-3	10.497	124.99E-3	PASS
28	188.991E-6	1.079	65.71E-3	PASS
29	1.773E-3	10.123	116.39E-3	PASS
30	195.379E-6	1.115	61.33E-3	PASS
31	1.776E-3	10.136	108.87E-3	PASS
32	196.559E-6	1.122	57.50E-3	PASS
33	1.734E-3	9.897	102.27E-3	PASS
34	191.656E-6	1.094	54.12E-3	PASS
35	1.611E-3	9.198	96.44E-3	PASS
36	178.949E-6	1.022	51.11E-3	PASS
37	1.417E-3	8.089	91.21E-3	PASS
38	167.229E-6	0.955	48.42E-3	PASS
39	1.183E-3	6.750	86.53E-3	PASS
40	164.792E-6	0.941	46.00E-3	PASS

Maximum harmonic current results

Hn	I _{eff} [A]	I _{eff} [%]	Limit [A]	Result
1	17.614E-3	100.000		
2	502.893E-6	2.855	1.62	PASS
3	16.700E-3	94.810	3.45	PASS
4	624.315E-6	3.544	645.00E-3	PASS
5	15.702E-3	89.141	1.71	PASS
6	570.848E-6	3.241	450.00E-3	PASS
7	14.519E-3	82.424	1.15	PASS
8	548.987E-6	3.117	345.00E-3	PASS
9	13.134E-3	74.564	600.00E-3	PASS
10	507.688E-6	2.882	276.00E-3	PASS
11	11.623E-3	65.983	495.00E-3	PASS
12	487.630E-6	2.768	229.99E-3	PASS
13	9.995E-3	56.744	315.00E-3	PASS
14	474.755E-6	2.695	197.15E-3	PASS
15	8.322E-3	47.246	225.00E-3	PASS
16	432.428E-6	2.455	172.50E-3	PASS
17	6.701E-3	38.045	198.52E-3	PASS
18	375.821E-6	2.134	153.33E-3	PASS
19	5.208E-3	29.569	177.63E-3	PASS
20	323.992E-6	1.839	138.00E-3	PASS
21	3.922E-3	22.266	160.71E-3	PASS
22	295.273E-6	1.676	125.46E-3	PASS
23	2.897E-3	16.448	146.74E-3	PASS
24	281.178E-6	1.596	114.99E-3	PASS
25	2.217E-3	12.588	135.00E-3	PASS
26	278.326E-6	1.580	106.16E-3	PASS
27	1.895E-3	10.757	124.99E-3	PASS
28	290.803E-6	1.651	98.57E-3	PASS
29	1.805E-3	10.249	116.39E-3	PASS
30	291.648E-6	1.656	92.00E-3	PASS
31	1.807E-3	10.259	108.87E-3	PASS
32	286.958E-6	1.629	86.25E-3	PASS
33	1.767E-3	10.033	102.27E-3	PASS
34	286.730E-6	1.628	81.18E-3	PASS
35	1.647E-3	9.352	96.44E-3	PASS
36	254.782E-6	1.446	76.66E-3	PASS
37	1.444E-3	8.199	91.21E-3	PASS
38	241.275E-6	1.370	72.63E-3	PASS
39	1.208E-3	6.858	86.53E-3	PASS
40	228.813E-6	1.299	69.00E-3	PASS

Maximum harmonic voltage results

Hn	Ueff [V]	Ueff [%]	Limit [%]	Result
1	230.05	100.021		
2	155.73E-3	0.068	0.2	PASS
3	384.16E-3	0.167	0.9	PASS
4	57.98E-3	0.025	0.2	PASS
5	20.36E-3	0.009	0.4	PASS
6	43.46E-3	0.019	0.2	PASS
7	24.20E-3	0.011	0.3	PASS
8	24.08E-3	0.010	0.2	PASS
9	16.79E-3	0.007	0.2	PASS
10	23.82E-3	0.010	0.2	PASS
11	19.28E-3	0.008	0.1	PASS
12	15.87E-3	0.007	0.1	PASS
13	13.47E-3	0.006	0.1	PASS
14	13.87E-3	0.006	0.1	PASS
15	16.09E-3	0.007	0.1	PASS
16	18.58E-3	0.008	0.1	PASS
17	11.22E-3	0.005	0.1	PASS
18	19.40E-3	0.008	0.1	PASS
19	18.65E-3	0.008	0.1	PASS
20	17.84E-3	0.008	0.1	PASS
21	11.40E-3	0.005	0.1	PASS
22	13.33E-3	0.006	0.1	PASS
23	13.96E-3	0.006	0.1	PASS
24	12.39E-3	0.005	0.1	PASS
25	13.98E-3	0.006	0.1	PASS
26	13.59E-3	0.006	0.1	PASS
27	10.97E-3	0.005	0.1	PASS
28	12.79E-3	0.006	0.1	PASS
29	11.90E-3	0.005	0.1	PASS
30	13.29E-3	0.006	0.1	PASS
31	9.28E-3	0.004	0.1	PASS
32	12.52E-3	0.005	0.1	PASS
33	11.48E-3	0.005	0.1	PASS
34	9.75E-3	0.004	0.1	PASS
35	9.37E-3	0.004	0.1	PASS
36	8.76E-3	0.004	0.1	PASS
37	10.78E-3	0.005	0.1	PASS
38	9.03E-3	0.004	0.1	PASS
39	7.95E-3	0.003	0.1	PASS
40	12.84E-3	0.006	0.1	PASS

4.4. AC Mains Voltage Fluctuation and Flicker

For test instruments and accessories used see section 3.6.

4.4.1. Description of the test location

Test location: Shielded room No. 3

4.4.2. Limits of Voltage Fluctuation and Flicker

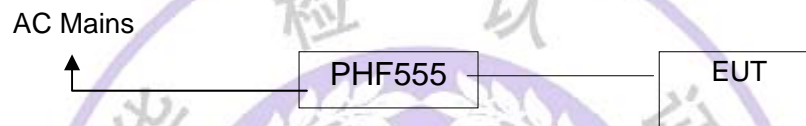
Test configuration and procedure see clause 5 of standard EN 61000-3-3.

4.4.3. Description of the test set-up

4.4.3.1. Operating Condition

The EUT is set to work shall be carried out with normal working mode during the test, and the maximum emanating results are recorded.

4.4.3.2. Configuration of test setup



4.4.4. Test result

Maximum Flicker results

	EUT values	Limit	Result
Pst	0.028	1.00	PASS
Plt	0.028	0.65	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.127	4.00	PASS
dt [s]	0.000	0.50	PASS

Detail Flicker data

Flicker measurement 1	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.127	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 2	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.093	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 3	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.093	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 4	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.091	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 5	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.092	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 6	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.095	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 7	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.091	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 8	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.094	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 9	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.093	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 10	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.094	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 11	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.095	4.00	PASS
dt [s]	0.000	0.50	PASS

Flicker measurement 12	EUT values	Limit	Result
Pst	0.028	1.00	PASS
dc [%]	0.000	3.30	PASS
dmax [%]	0.093	4.00	PASS
dt [s]	0.000	0.50	PASS

4.5. Electrostatic discharge

For test instruments and accessories used see section 3.6.

4.5.1. Description of the test location and date

Test location: Shielded room No. 3

Date of test: Sept. 28, 2013

Operator: NADA

4.5.2. Severity levels of electrostatic discharge

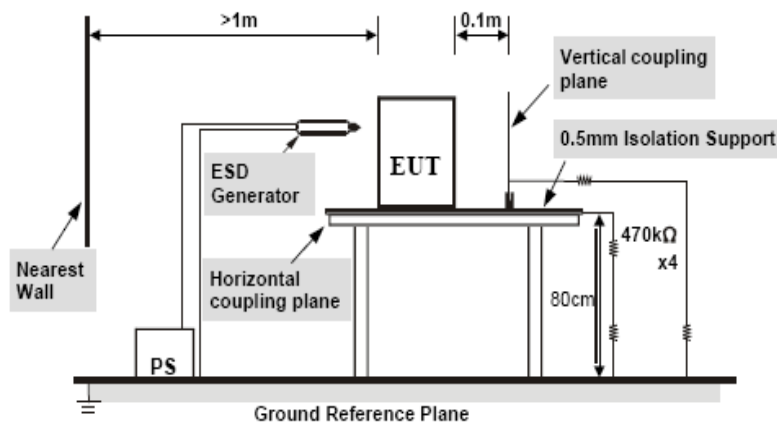
Level	Test Voltage Contact Discharge (KV)	Test Voltage Air Discharge (KV)
1	2	2
2	4	4
3	6	8
4	8	15
X	Special	Special

4.5.3. Description of the test set-up

4.5.3.1. Operating Condition

The EUT is set to work shall be carried out with normal working mode during the test, and the maximum emanating results are recorded.

4.5.3.2. Configuration of test setup



4.5.4. Test specification:

Contact discharge voltage:

■ 2 kV ■ 4 kV

■ 4 kV

Air discharge voltage:

■ 2 kV ■ 4 kV ■ 8 kV

■ 4 kV

■ 8 kV

Number of discharges:

□ ≥ 10 ■ ≥ 25

■ ≥ 25

Type of discharge:

Direct discharge

- Air discharge

- Contact discharge

Indirect discharge

- Contact discharge

Polarity:

- Positive

- Negative

Discharge location:

- see photo documentation of the test set-up

- all external locations accessible by hand

- horizontal plate (HCP)

- vertical coupling plate (VCP)

4.5.5. Test result

The requirements are **Fulfilled**

Performance Criterion: **B**

E. U. T.: GSM Alarm system/ GSM+PSTN Alarm system
M/N: DY-10B

Remarks: During the test no deviation was detected to the selected operation mode(s).

4.6. RF Electromagnetic Field

For test instruments and accessories used see section 3.6.

4.6.1. Description of the test location and date

Test location: Shielded room No. 2

Date of test: Sept. 28, 2013

Operator: Bove

4.6.2. Severity levels of radiated, radio-frequency, electromagnetic field

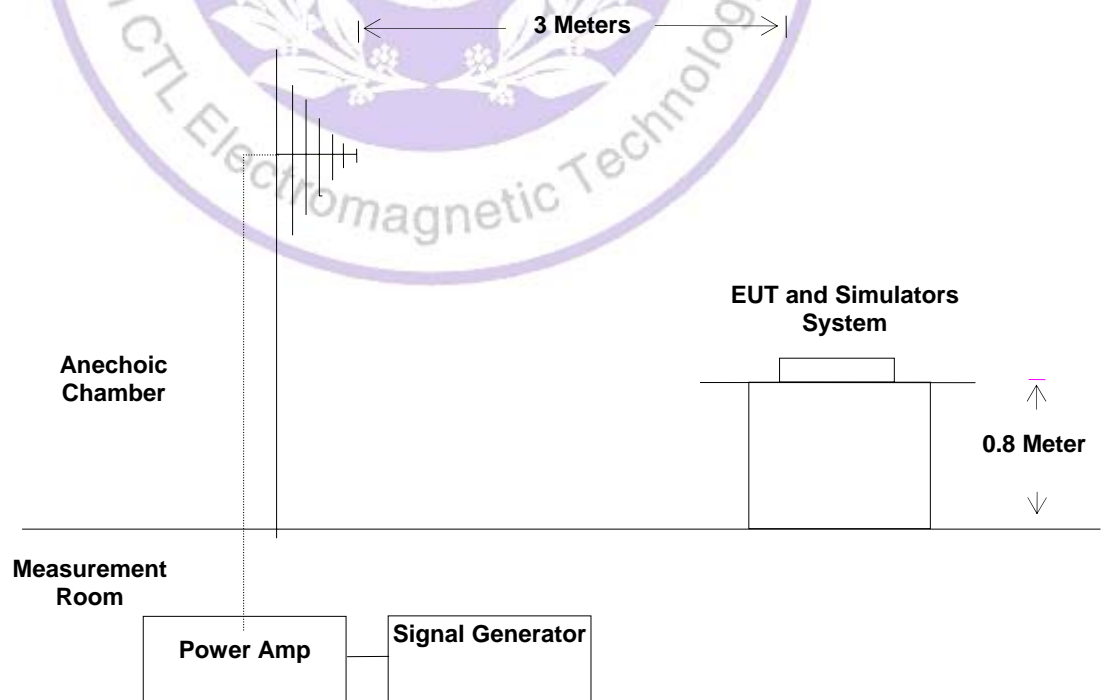
Level	Field Strength (V/m)
1.	1
2.	3
3.	10
X	Special

4.6.3. Description of the test set-up

4.6.3.1. Operating Condition

The EUT is set to work shall be carried out normal working mode during the test, and the maximum emanating results are recorded.

4.6.3.2. Configuration of test setup



4.6.4. Test specification:

<u>Frequency range:</u>	■ 80 MHz to 2700 MHz
<u>Field strength:</u>	■ 3 V/m
<u>EUT - antenna separation:</u>	■ 3 m
<u>Modulation:</u>	■ AM: 80 % ■ sinusoidal 1000Hz
<u>Frequency step:</u>	■ 1 % with 3 s dwell time
<u>Antenna polarisation:</u>	■ horizontal ■ vertical

4.6.5. Test resultThe requirements are **Fulfilled**Performance Criterion: **A****☒ Description of Preliminary Test (Operating & Standby (Receiving) Modes)**

	Freq. Range (MHz)	Field	Modulation	Polarity	Position (°)	Selection for the final test
1	80-1000	6V/m	Yes	H / V	Front	
	1400-2700	6V/m	Yes	H / V	Front	
2	80-1000	6V/m	Yes	H / V	Right	
	1400-2700	6V/m	Yes	H / V	Right	
3	80-1000	6V/m	Yes	H / V	Back	☒
	1400-2700	6V/m	Yes	H / V	Back	☒
4	80-1000	6V/m	Yes	H / V	Left	
	1400-2700	6V/m	Yes	H / V	Left	

☒ Result of Final Tests (Operating Mode & Standby(Receiving) Mode)

Freq. Range (MHz)	Field	Modulation	Polarity	Position	Mode	Result (Pass/Fail)
1400-2700	3V/m	Yes	H / V	Back	Normal Operating	PASS
80-1000	3V/m	Yes	H / V	Back		PASS

PERFORMANCE CRITERIA	
Criteria requested	☒ A / ☐ B / ☐ C
Criteria meet	☒ A / ☐ B / ☐ C

E. U. T.: GSM Alarm system/ GSM+PSTN Alarm system
M/N: DY-10B

Remarks: During the test no deviation was detected to the selected operation mode(s).

4.7. Fast Transients- Common Mode

For test instruments and accessories used see section 3.6.

4.7.1. Description of the test location

Test location: Shielded room No. 2

Date of test: Sept. 28, 2013

Operator: Bove

4.7.2. Severity levels of electrical fast transients / Burst

Severity level: $\pm 1000\text{V}$ for AC power supply lines and $\pm 500\text{V}$ for the signal lines

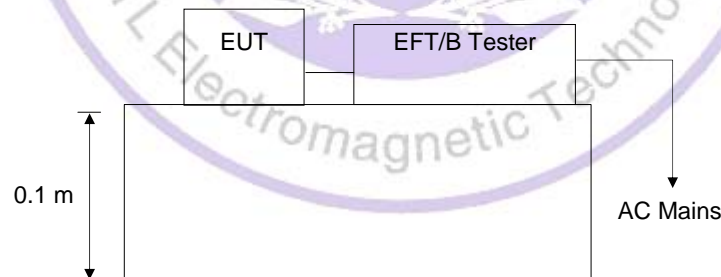
Open Circuit Output Test Voltage $\pm 10\%$				
Level	For Power Supply Lines		For I / O (Input / Output) Signal Data and Control Lines	
	V peak(KV)	Repetition Frequency (KHz)	V peak(KV)	Repetition Frequency (KHz)
1	0.5	5 or 100	0.25	5 or 100
2	1	5 or 100	0.5	5 or 100
3	2	5 or 100	1	5 or 100
4	4	5 or 100	2	5 or 100
X	Special	Special	Special	Special

4.7.3. Description of the test set-up

4.7.3.1. Operating Condition

The EUT is set to work shall be carried out respectively with normal working mode during the test, and the maximum emanating results are recorded.

4.7.3.2. Configuration of test setup



4.7.4. Test specification:

Coupling network:

☒ 0.5 kV ☒ 1 kV ☐ 2 kV

Coupling clamp:

☐ 0.5 kV ☐ 1 kV ☐ 2 kV

Burst frequency:

☒ 5.0 kHz

Coupling duration:

☒ ≥ 60 s

Polarity:

☒ positive ☒ negative

4.7.5. Coupling points

Cable description:

AC power line : L, N, L+N,

Screening:

o screened

■ unscreened

Status:

o passive

■ active

Signal transmission:

■ analogue

o digital

Length:

■ 1.5 m

4.7.6. Test result**☒ Results of Final Tests (Operating Mode)**

Impulse Frequency: 5 kHz

Tr/Th: 5/50ns

Burst Duration: 15ms

Burst Period: 3Hz

Injection Line	Voltage (kV)	Injected Method	Result (Pass / Fail)
<input checked="" type="checkbox"/> Line	± 1	Direct	Pass
<input checked="" type="checkbox"/> Neutral	± 1	Direct	Pass
<input type="checkbox"/> PE	± 1	Direct	Pass
<input checked="" type="checkbox"/> Line + Neutral	± 1	Direct	Pass
<input type="checkbox"/> L + PE	± 1	Direct	Pass
<input type="checkbox"/> N + PE	± 1	Direct	Pass
<input type="checkbox"/> L + N + PE	± 1	Direct	Pass
<input type="checkbox"/> RJ45 port (LAN cable)	± 0.5	Clamp	Pass
<input checked="" type="checkbox"/> RJ11 port (Line cable)	± 0.5	Clamp	Pass

E. U. T.: GSM Alarm system/ GSM+PSTN Alarm system
M/N: DY-10B

Remarks: During the test no deviation was detected to the selected operation mode(s).

4.8. Surge

For test instruments and accessories used see section 3.6.

4.8.1. Description of the test location

Test location: Shielded room No. 2

Date of test: Sept. 28, 2013

Operator: Bove

4.8.2. Severity levels of surge

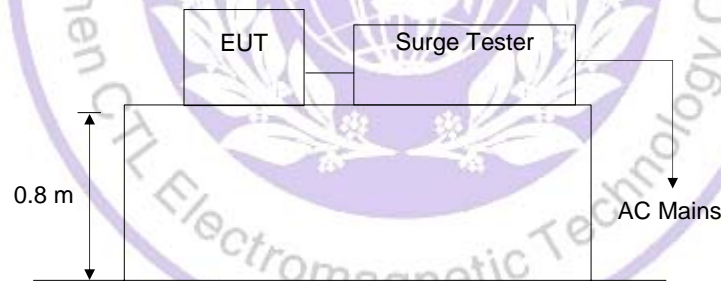
Level	Test Voltage (KV)
1	0.5
2	1.0
3	2.0
4	4.0
*	Special

4.8.3. Description of the test set-up

4.8.3.1. Operating Condition

The EUT is set to work shall be carried out normal working mode during the test, and the maximum emanating results are recorded.

4.8.3.2. Configuration of test setup



4.8.4. Test specification:

Pulse amplitude-Power line sym.:
Source impedance: $2\ \Omega + 18\mu\text{F}$

☒ 0.5 kV ☒ 1 kV ☒ 2 kV ☐ 4 kV

Pulse amplitude-Power line un sym:
Source impedance: $12\ \Omega + 9\mu\text{F}$

☒ 0.5 kV ☒ 1 kV ☒ 2 kV ☐ 4 kV

Signal line:

☐ 0.5 kV ☐ 1 kV ☐ 2 kV ☐ 4 kV

Number of surges:

☒ 5 Surges/Phase angle

Phase angle:

☒ 0 ° ☒ 90 ° ☒ 180 ° ☒ 270 °

Repetition rate:

☒ 60 s

Polarity:

☒ positive ☒ negative

4.8.5. Coupling points

Cable description:

AC power line: L+N

Screening:

o screened

■ unscreened

Status:

o passive

■ active

Signal transmission:

■ analogue

o digital

Length:

■ 1.5 m

4.8.6. Test result**☒ Results of Final Tests (Operating Mode)**

Voltage Waveform: 1.2/50 us, Current Waveform: 8/20 us, Polarity: Positive/Negative,

Phase angle: 0°, 90°, 180°, 270°

Coupling Line	Voltage (kV)	Polarity	Coupling Method	Result (Pass/Fail)
<input checked="" type="checkbox"/> Line + Neutral	1	Pos./ Neg.	Capacitive	Pass
<input type="checkbox"/> L + PE	1	Pos./ Neg.	Capacitive	Pass
<input type="checkbox"/> N + PE	1	Pos./ Neg.	Capacitive	Pass
<input type="checkbox"/> T, R-Ground	0.5	Pos./ Neg.	Capacitive	Pass
<input type="checkbox"/> RJ45 port (LAN)	0.5	Pos./ Neg.	Capacitive	Pass
<input checked="" type="checkbox"/> RJ11 port (Line cable)	0.5	Pos./ Neg.	Capacitive	Pass

E. U. T.:

GSM Alarm system/ GSM+PSTN Alarm system

M/N: DY-10B

Remarks:

During the test no deviation was detected to the selected operation mode(s).

4.9. RF- Common Mode

For test instruments and accessories used see section 3.6.

4.9.1. Description of the test location

Test location: Shielded room No. 2

Date of test: Sept. 28, 2013

Operator: Bove

4.9.2. Severity levels of conducted disturbances

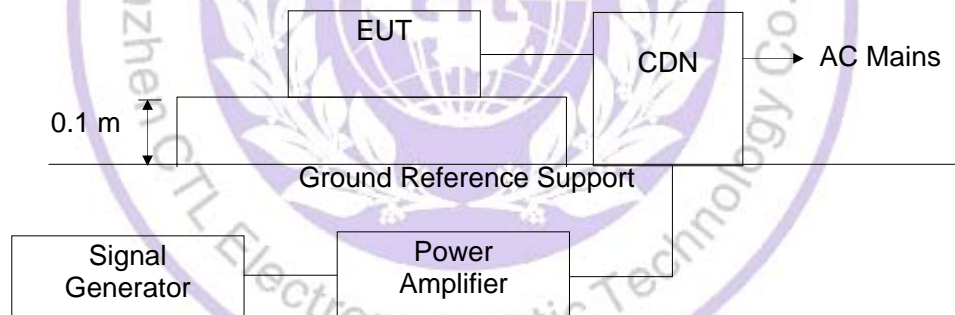
Level	Field Strength (V)
1.	1
2.	3
3.	10
X	Special

4.9.3. Description of the test set-up

4.9.3.1. Operating Condition

The EUT is set to work shall be carried out with network play mode during the test, and the maximum emanating results are recorded.

4.9.3.2. Configuration of test setup



4.9.4. Test specification:

- Frequency range: ■ 0.15 MHz to 80 MHz
- Test voltage: ■ 3 V
- Modulation: ■ AM: 80 %
■ sinusoidal 1000Hz
- Frequency step: ■ 1 % with 3 s dwell time

4.9.5. Coupling points

Cable description

AC power line

- | | | |
|----------------------|---|---|
| Screening: | <input type="radio"/> screened | <input checked="" type="radio"/> unscreened |
| Status: | <input type="radio"/> passive | <input checked="" type="radio"/> active |
| Signal transmission: | <input checked="" type="radio"/> analogue | <input type="radio"/> digital |
| Length: | <input checked="" type="radio"/> 1.5 m | |

4.9.6. Test result**☒ Results of Final Tests(Operating Mode)**

Frequency Range: 0.15MHz~80MHz

Frequency Step: 1% of fundamental

Dwell time: 3 Sec.

☒ 80% A.M., 400 Hz Sine wave (Field Strength: 3 V)☒ Coupling type: ☒ CDN / ☐ RF Current Probe

Freq. Range (MHz)	Test Level	Observation	Mode	Result (Pass/Fail)
0.15-80	3V	Note 1	Mode1	PASS

E. U. T.: GSM Alarm system/ GSM+PSTN Alarm system
M/N: DY-10B

Remarks: During the test no deviation was detected to the selected operation mode(s).



4.10. Voltage Dips and Interruptions

For test instruments and accessories used see section 3.6.

4.10.1. Description of the test location

Test location: Shielded room No. 2

Date of test: Sept. 28, 2013

Operator: Bove

4.10.2. Severity levels of electrostatic discharge

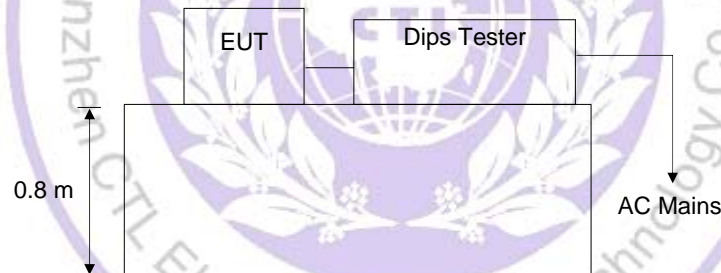
Test Level (%Ut)	Voltage Dip And Short Interruptions (%Ut)	Performance Criterion	Duration (In Period)
0	100	B	0.5
0	100	C	250
70	30	C	25

4.10.3. Description of the test set-up

4.10.3.1. Operating Condition

The EUT is set to work shall be carried out normal working mode during the test, and the maximum emanating results are recorded.

4.10.3.2. Configuration of test setup



4.10.4. Test specification:

Nominal Mains Voltage (V_N):	■ 230 V AC
Number of voltage fluctuations:	■ 3
Level of reduction(dip) / duration:	■ 100 % / 10ms ■ 30 % / 500ms
Nominal Mains Voltage (V_N):	■ 230 V AC
Number of Interruptions:	■ 3
Duration of the Interruption:	■ 5000 ms

4.10.5. Test result(Operating Mode)

☒ Voltage Dips

Test Level (% UT)	Reduction (%)	Duration (ms)	Observation	Result
0	100%	10	Note 1	PASS

0	100%	20	Note 1	PASS
70	30%	500	Note 1	PASS

☒ *Voltage Interruption*

Test Level (% UT)	Reduction (%)	Duration (ms)	Observation	Result
0	100%	5000	Note 1, 2	PASS

Note 1: The EUT performance complied with performance criteria A. There is no any degradation of performance and function.

Note 2: The power consumption of EUT has changed from adapter to battery during the test, but self-recoverable after the test.

E. U. T.: GSM Alarm system/ GSM+PSTN Alarm system

M/N: DY-10B

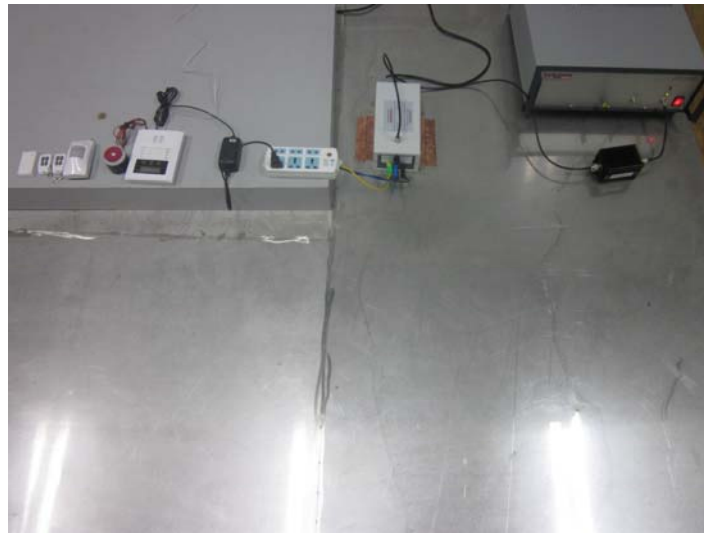
Remarks: During the test no deviation was detected to the selected operation mode(s).



5. Test Setup Photos







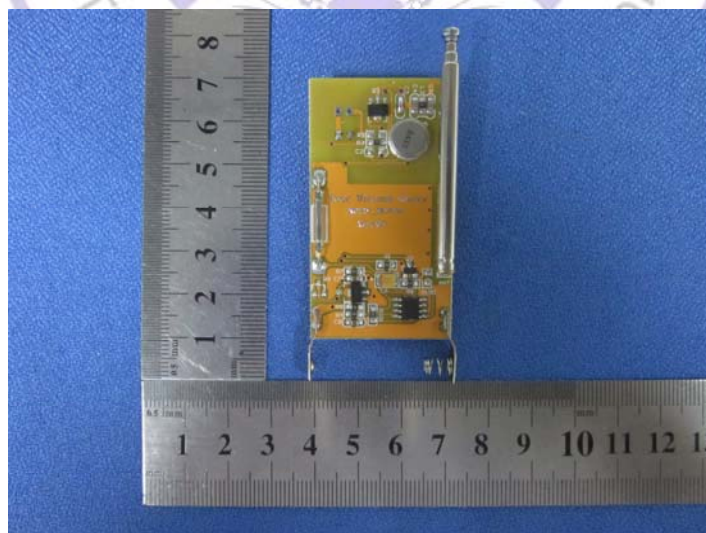
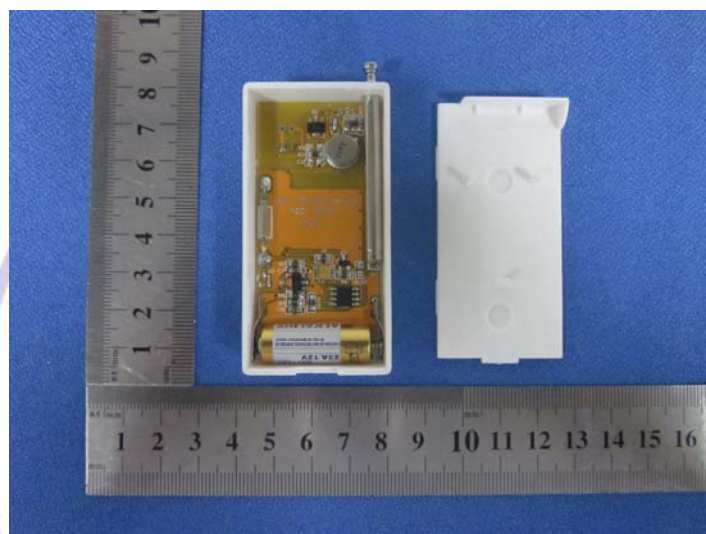
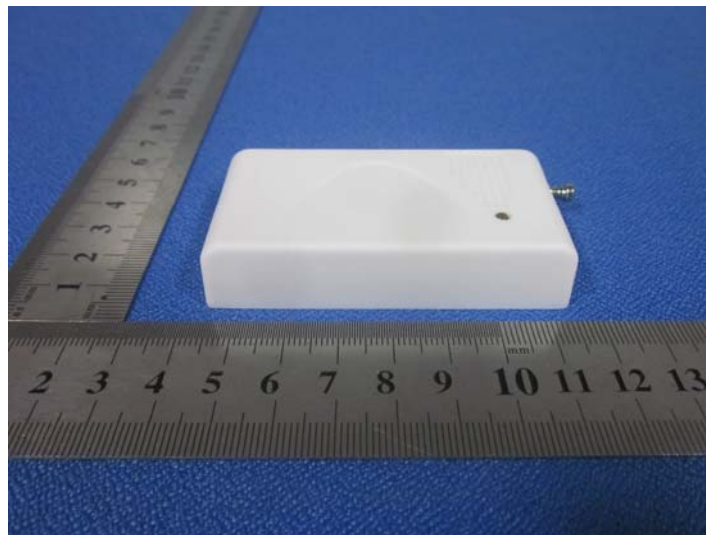
6. Photos of the EUT

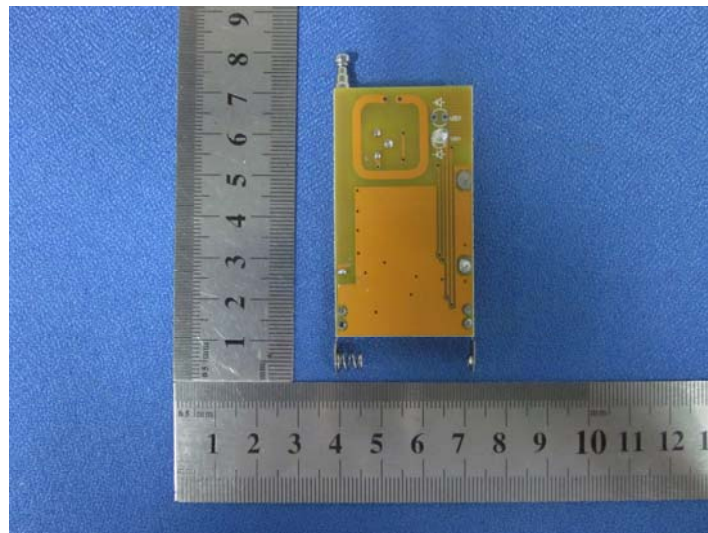


Transmitter 1





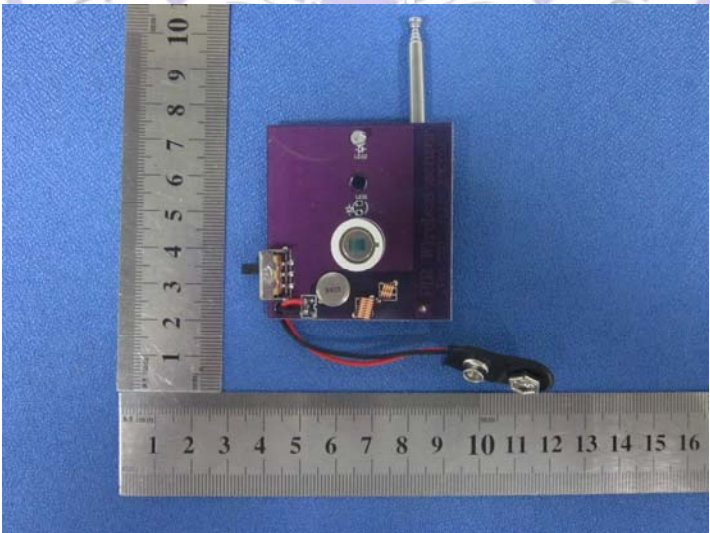
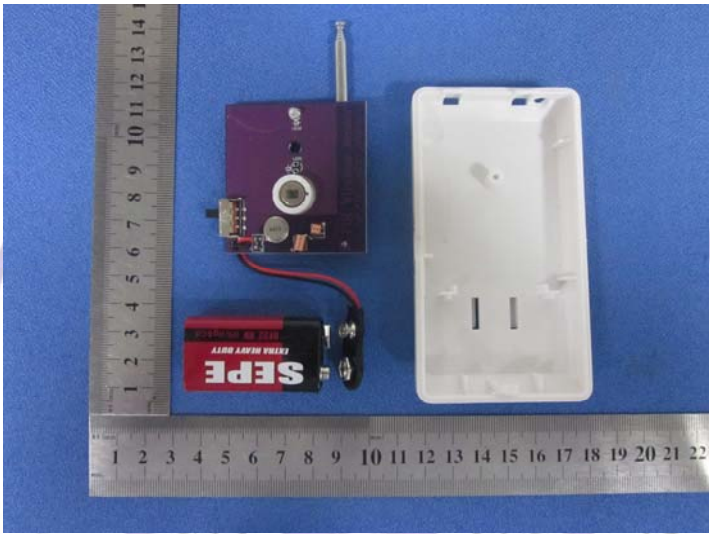


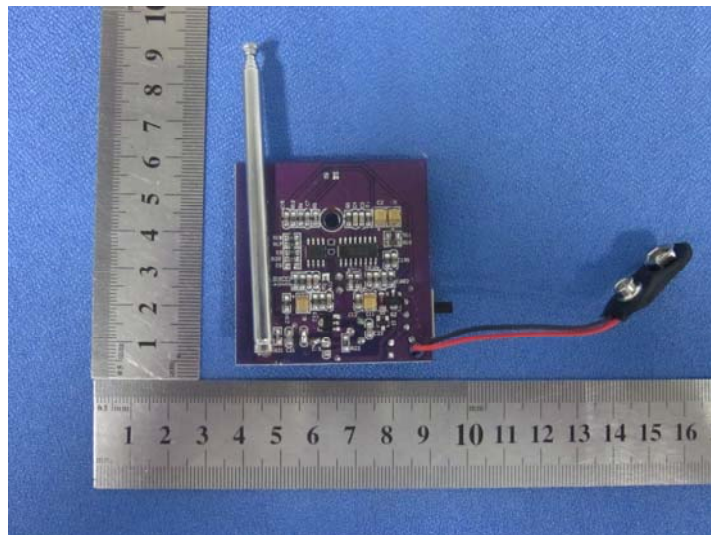


Transmitter 2







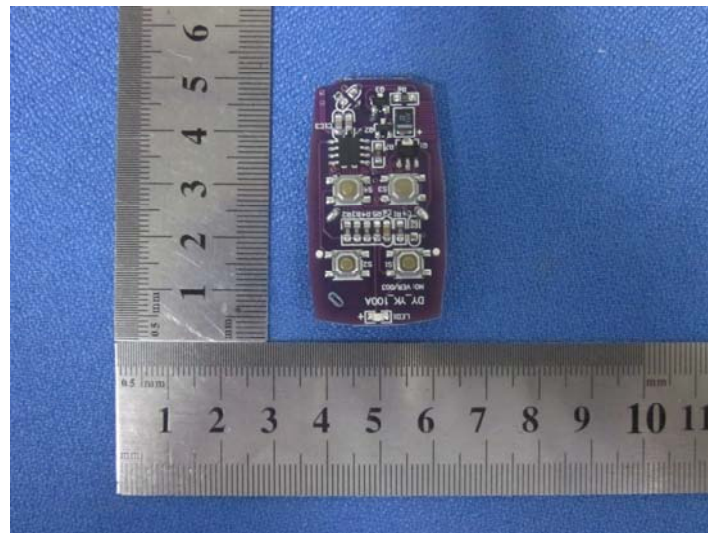


Transmitter 3

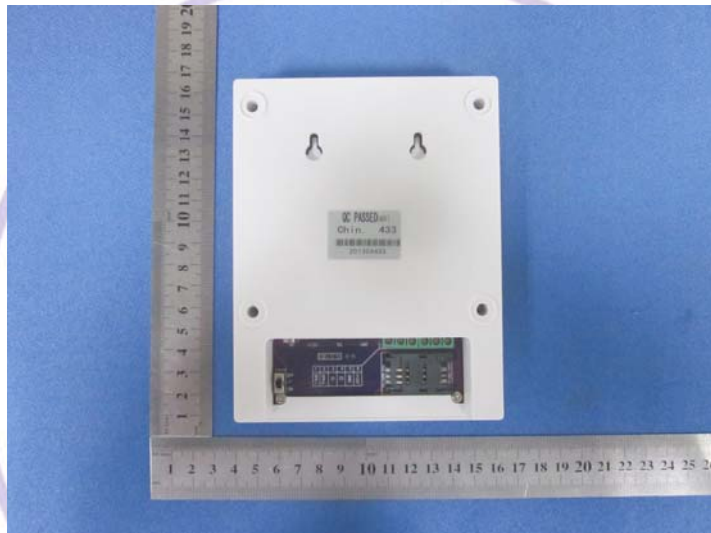


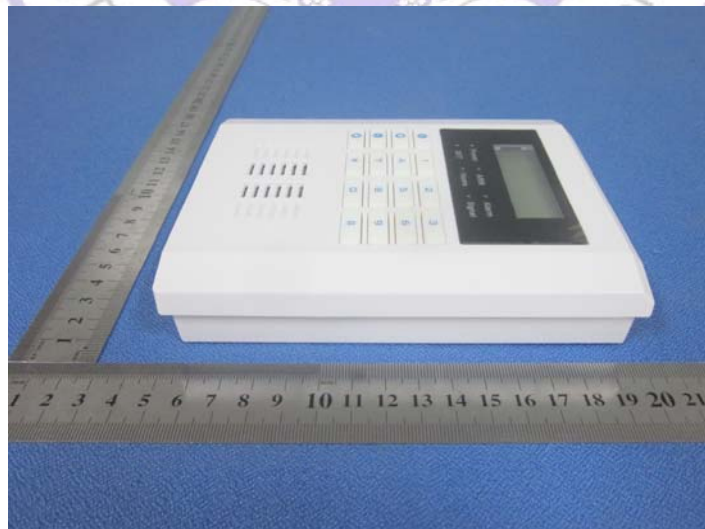


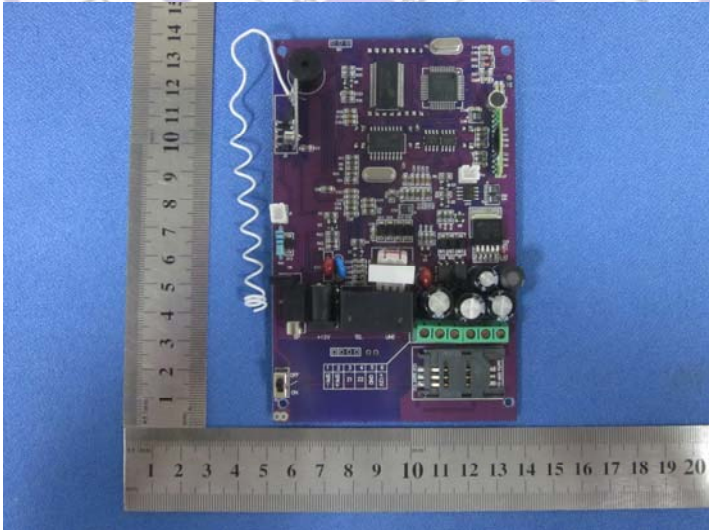
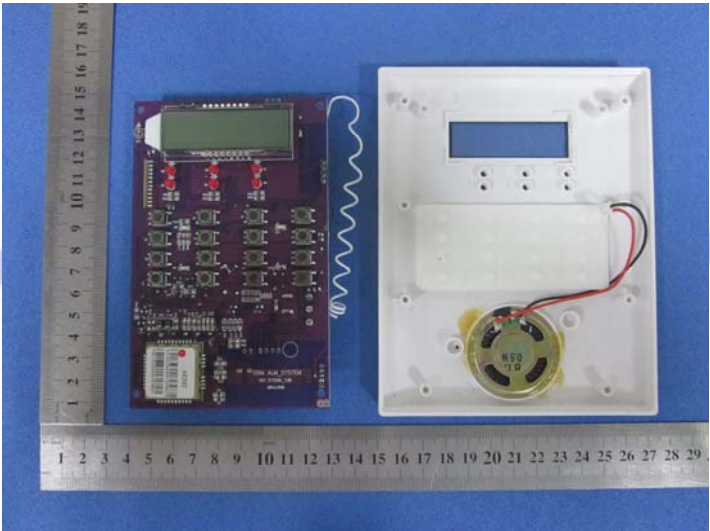
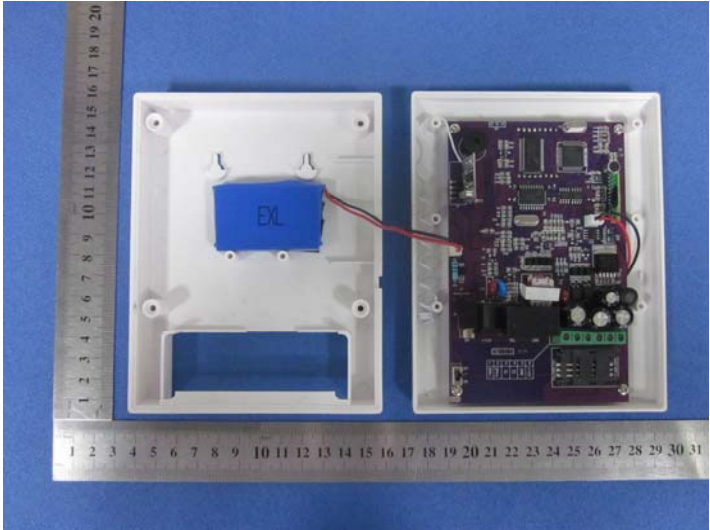


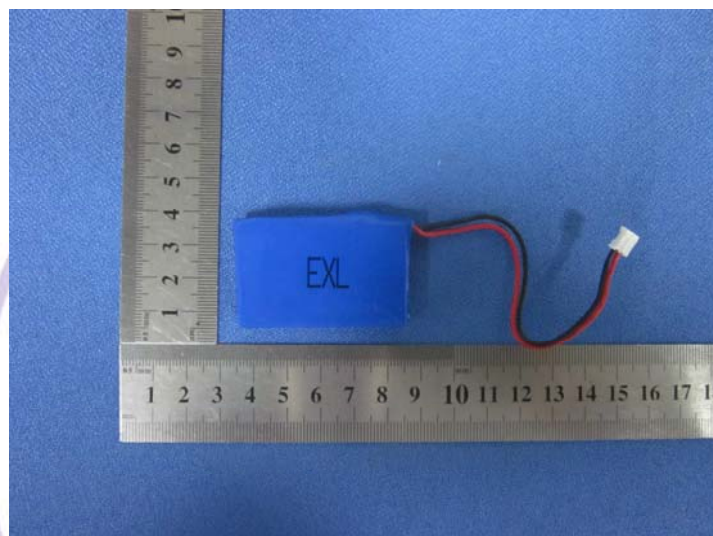
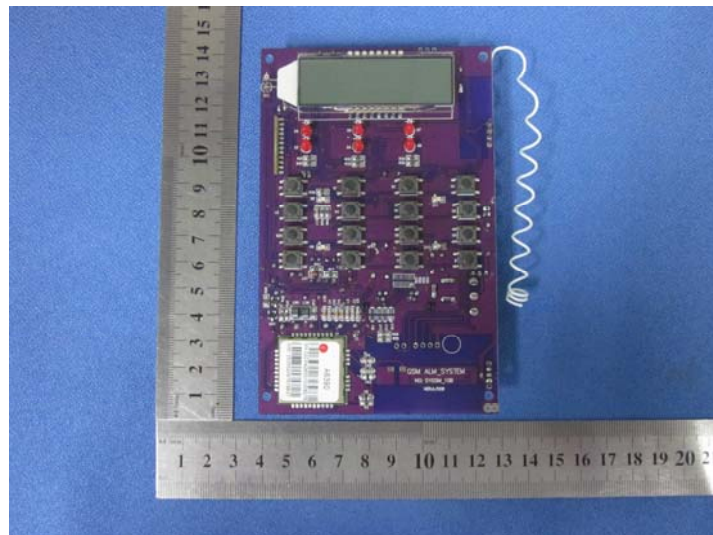


Receiver









..... End Of Report.....

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