

EMC TEST REPORT
For
Shenzhen Eview GPS Technology
Personal GPS Tracker
Test Model: EV-07S
List Model No.: EV-07W, EV-07P

Prepared for : Shenzhen Eview GPS Technology
Address : #1203 Building 2, GuoLe Technology Park, Lirong Road,
Dalang, Longhua, Shenzhen, China

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : June 15, 2019
Number of tested samples : 1
Serial number : Prototype
Date of Test : June 15, 2019~June 24, 2019
Date of Report : July 11, 2019



EMC TEST REPORT
ETSI EN 301 489-19 V2.1.1 (2019-04) & Draft ETSI EN 301 489-52 V1.1.0 (2016-11)

Report Reference No. : LCS190613019AEA
Date Of Issue..... : July 11, 2019




Testing Laboratory Name : **Shenzhen LCS Compliance Testing Laboratory Ltd.**
Address..... : 101, 601, Xingyuan Industrial Park, Gushu Community, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Testing Location/ Procedure : Full application of Harmonised standards
 Partial application of Harmonised standards
 Other standard testing method

Applicant's Name..... : **Shenzhen Evview GPS Technology**
Address..... : #1203 Building 2, GuoLe Technology Park, Lirong Road, Dalang, Longhua, Shenzhen, China

Test Specification
Standard..... : ETSI EN 301 489-1 V2.1.1 (2017-02)
 ETSI EN 301 489-19 V2.1.1 (2019-04)
 Draft ETSI EN 301 489-52 V1.1.0 (2016-11)
Test Report Form No. : LCSEMC-1.0
TRF Originator..... : Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF : Dated 2017-06

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Test Item Description..... : **Personal GPS Tracker**
Trade Mark..... : N/A
Test Model : EV-07S
Ratings : DC 3.7V by Rechargeable Li-Polymer Battery(800mAh)
 Rated Input Voltage: DC 5V/1000mA
Result : **Positive**

<p>Compiled by:  _____ Leo Lee/ Administrators</p>	<p>Supervised by:  _____ Aking Jin/ Technique principal</p>	<p>Approved by:  _____ Gavin Liang/ Manager</p>
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EMC -- TEST REPORT

Test Report No. : LCS190613019AEA	<u>July 11, 2019</u> Date of issue
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Test Model.....	: EV-07S
EUT.....	: Personal GPS Tracker
Applicant.....	: Shenzhen Eview GPS Technology
Address.....	: #1203 Building 2, GuoLe Technology Park, Lirong Road, Dalang, Longhua, Shenzhen, China
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Factory.....	: Shenzhen Eview GPS Technology
Address.....	: #1203 Building 2, GuoLe Technology Park, Lirong Road, Dalang, Longhua, Shenzhen, China
Telephone.....	: /
Fax.....	: /

Test Result	Positive
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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.

Revision History

Report Version	Issue Date	Revisions	Revised By
000	July 11, 2019	Initial Issue	Gavin Liang

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1. GENERAL INFORMATION

1.1. Product Description for Equipment Under Test (EUT)

EUT	: Personal GPS Tracker
Model Numebr	: EV-07S, EV-07W, EV-07P
Model Declaration	: PCB board, structure and internal of these model(s) are the same, Only model name and shell color is different for these models.
Test Model	: EV-07S
Power Supply	: DC 3.7V by Rechargeable Li-Polymer Battery(800mAh) Rated Input Voltage: DC 5V/1000mA
Hardware Version	: V1.09
Software Version	: V07S.8601.1921
2G	:
Support Band	: <input checked="" type="checkbox"/> GSM 900 (EU-Band) <input checked="" type="checkbox"/> DCS 1800 (EU-Band) <input checked="" type="checkbox"/> GSM 850 (U.S.-Band) <input checked="" type="checkbox"/> PCS 1900 (U.S.-Band)
Release Version	: R99
GPRS Class	: Class 12
EGPRS Class	: Not support
Uplink	: GSM 900: 880MHz ~ 915MHz DCS 1800: 1710MHz ~ 1785MHz
Downlink	: GSM 900: 925MHz ~ 960MHz DCS 1800: 1805MHz ~ 1880MHz
Type Of Modulation	: GMSK for GSM/GPRS
Antenna Description	: PIFA Antenna; -3.68dBi (max.) For GSM 850; -3.18dBi (max.) For GSM 900; -2.34dBi (max.) For DCS 1800; -1.85dBi (max.) For PCS 1900
Power Class	: GSM 900: Level 5, DCS 1800: Level 0
GPS Receiver	:
Receive Frequency	: 1575.42MHz
Channel Number	: 1
Antenna Description	: Ceramic Antenna

1.2. Objective

ETSI EN 301 489-1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU and the essential requirements of article 6 of Directive 2014/30/EU
ETSI EN 301 489-19 V2.1.1	ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 19: Specific conditions for Receive Only Mobile Earth Stations (ROMES) operating in the 1,5 GHz band providing data communications and GNSS receivers operating in the RNSS band (ROGNSS) providing positioning, navigation, and timing data; Harmonised Standard covering the essential requirements of article 3.1(b) of Directive 2014/53/EU
ETSI EN 301 489-52	Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 52: Specific conditions for Cellular Communication Mobile and portable (UE) radio and ancillary equipment

The objective is to determine compliance with ETSI EN 301 489-1 V2.1.1 (2017-02), ETSI EN 301 489-19 V2.1.1 (2019-04) and Draft ETSI EN 301 489-52 V1.1.0 (2016-11).

1.3. Related Submittal(s)/Grant(s)

No Related Submittals.

1.4. Test Methodology

All measurements contained in this report were conducted with ETSI EN 301 489-1 V2.1.1 (2017-02), ETSI EN 301 489-19 V2.1.1 (2019-04) and Draft ETSI EN 301 489-52 V1.1.0 (2016-11).

1.5. Description of Test Facility

FCC Registration Number is 254912.
 Industry Canada Registration Number is 9642A-1.
 EMSD Registration Number is ARCB0108.
 UL Registration Number is 100571-492.
 TUV SUD Registration Number is SCN1081.
 TUV RH Registration Number is UA 50296516-001.
 NVLAP Accreditation Code is 600167-0.
 FCC Designation Number is CN5024.
 CAB identifier: CN0071

1.6. Support Equipment List

Manufacturer	Description	Model	Serial Number	Certificate
Dongguan MLF Tech. Co.,Ltd	AC Adapter	MLF-A250502000UB	---	CE
Shenzhen Eview GPS Technology	Charging Cradle	DS1	---	CE

1.7. External I/O

I/O Port Description	Quantity	Cable
Charging Interface	1	N/A
USB Interface	1	1.2m, unshielded

1.8. List Of Measuring Equipment

LINE CONDUCTED EMISSION

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Software	AUDIX	E3	/	N/A	N/A
2	EMI Test Receiver	R&S	ESPI	101840	2019-06-11	2020-06-10
3	Artificial Mains	R&S	ENV216	101288	2019-06-12	2020-06-11
4	10dB Attenuator	SCHWARZBECK	MTS-IMP-136	261115-001-0032	2019-06-11	2020-06-10

RADIATED DISTURBANCE

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	EMI Test Software	AUDIX	E3	/	N/A	N/A
2	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2019-06-12	2020-06-11
3	Positioning Controller	MF	MF-7082	/	2019-06-12	2020-06-11
4	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2018-07-26	2019-07-25
5	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2018-07-02	2019-07-01
6	EMI Test Receiver	R&S	ESR 7	101181	2019-06-12	2020-06-11
7	RS SPECTRUM ANALYZER	R&S	FSP40	100503	2018-11-15	2019-11-14
8	AMPLIFIER	QuieTek	QTK	CHM/0809065	2018-11-15	2019-11-14
9	RF Cable-R03m	Jye Bao	RG142	CB021	2019-06-12	2020-06-11
10	RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	2019-06-12	2020-06-11

VOLTAGE FLUCTUATION AND FLICKER/HARMONIC CURRENT EMISSIONS

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Power Analyzer Test System	Voltech	PM6000	200006700523	2019-06-12	2020-06-11

RF ELECTROMAGNETIC FIELD

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	RS Test Software	Tonscend	/	/	N/A	N/A
2	ESG Vector Signal Generator	Agilent	E4438C	MY42081396	2018-11-15	2019-11-14
3	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2019-06-12	2020-06-11
4	RF POWER AMPLIFIER	OPHIR	5225R	1052	NCR	NCR
5	RF POWER AMPLIFIER	OPHIR	5273F	1019	NCR	NCR
6	Stacked Broadband Log Periodic Antenna	SCHWARZBECK	STLP 9128	9128ES-145	NCR	NCR
7	Stacked Mikrowellen Log.-Per Antenna	SCHWARZBECK	STLP 9149	9149-484	NCR	NCR
8	Electric field probe	Narda S.TS./PMM	EP601	611WX80208	2019-03-25	2020-03-24
9	Sound Level meter	BK Precision	735	7350087310010020	2019-06-12	2020-06-11
10	Audio Analyzer	R&S	UPV	1146.2003K02-101 721-UW	2018-11-28	2019-11-27
11	Mouse Simulation	Bruel & Kjaer	4227	A0304216	2019-06-12	2020-06-11
12	Ear Simulation and supply	Bruel & Kjaer	2669.4182.5935	A0305284	2019-06-12	2020-06-11
13	Acoustical Calibrators	Bruel & Kjaer	4231	A0304215	2019-06-12	2020-06-11

ELECTROSTATIC DISCHARGE

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	ESD Simulator	SCHLODER	SESD 230	604035	2019-06-13	2020-06-12

ELECTRICAL FAST TRANSIENT IMMUNITY

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Immunity Simulative Generator	EM TEST	UCS500 M4	0101-34	2019-06-11	2020-06-10

RF COMMON MODE

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Simulator	FRANKONIA	CIT-10/75	A126A1195	2019-06-11	2020-06-10
2	CDN	FRANKONIA	CDN-M2+M3	A2210177	2019-06-11	2020-06-10
3	6dB Attenuator	FRANKONIA	DAM25W	1172040	2019-06-11	2020-06-10

SURGES, LINE TO LINE AND LINE TO GROUND

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Immunity Simulative Generator	EM TEST	UCS500 M4	0101-34	2019-06-11	2020-06-10

VOLTAGE DIPS/INTERRUPTIONS IMMUNITY TEST

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	Voltage dips and up generator	3CTEST	VDG-1105G	EC0171014	2019-06-11	2020-06-10

Note: All equipment is calibrated through CHINA CEPREI LABORATORY and GUANGZHOU LISAI CALIBRATION AND TEST CO., LTD.

NCR --- No calibration requirement.

1.9. Measurement Uncertainty

Item	MU	Remark
Uncertainty for Power point Conducted Emissions Test	2.42dB	
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	3.54dB	Polarize: V
	4.1dB	Polarize: H
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 25GHz)	2.08dB	Polarize: H
	2.56dB	Polarize: V
Uncertainty for radio frequency	0.01ppm	
Uncertainty for conducted RF Power	0.65dB	
Uncertainty for temperature	0.2°C	
Uncertainty for humidity	1%	
Uncertainty for DC and low frequency voltages	0.06%	

1.10. Description Of Test Modes

There was 6 test Modes. TM1 to TM6 were shown below:

- TM1** : Operate in traffic mode GSM 900;
- TM2** : Operate in traffic mode GPRS 900;
- TM3** : Operate in traffic mode DCS 1800;
- TM4** : Operate in traffic mode GPRS 1800;
- TM5** : Operate in GPS(RX) mode;
- TM6** : Idle mode

***Note:

1. The EUT has one SIM card slot only.
2. All test modes were tested, but we only recorded the worst case in this report.

2. SUMMARY OF TEST RESULTS

Rule	Description of Test Items	Result
§7.1	Reference to clause 8.4 of ETSI EN 301 489-1 Conducted Emission (AC mains input/output port)	Compliant
§7.1	Reference to clause 8.3 of ETSI EN 301 489-1 Conducted Emission (DC power input/output port)	N/A*
§7.1	Reference to clause 8.7 of ETSI EN 301 489-1 Conducted Emission (Wired network port)	N/A*
§7.1	Reference to clause 8.2 of ETSI EN 301 489-1 Radiated Emission (Enclosure of ancillary equipment)	Compliant
§7.1	Reference to clause 8.5 of ETSI EN 301 489-1 Harmonic current emissions (AC mains input port)	N/A*
§7.1	Reference to clause 8.6 of ETSI EN 301 489-1 Voltage fluctuations and flicker (AC mains input port)	Compliant
§7.2	Reference to clause 9.3 of ETSI EN 301 489-1 Electrostatic discharge (Enclosure port) (EN 61000-4-2)	Compliant
§7.2	Reference to clause 9.2 of ETSI EN 301 489-1 RF electromagnetic field (80MHz to 6000MHz) (Enclosure port) (EN 61000-4-3)	Compliant
§7.2	Reference to clause 9.4 of ETSI EN 301 489-1 Fast transients common mode (signal, wired network and control ports, DC and AC power ports) (EN 61000-4-4)	Compliant
§7.2	Reference to clause 9.8 of ETSI EN 301 489-1 Surges, line to line and line to ground (AC mains power input ports, wired network ports) (EN 61000-4-5)	Compliant
§7.2	Reference to clause 9.5 of ETSI EN 301 489-1 RF common mode 0.15MHz to 80MHz (signal, wired network and control ports, DC and AC power ports) (EN 61000-4-6)	Compliant
§7.2	Reference to clause 9.6 of ETSI EN 301 489-1 Transients and surges in the vehicular environment (ISO 7637-2)	N/A*
§7.2	Reference to clause 9.7 of ETSI EN 301 489-1 Voltage dips and interruptions (AC mains power input ports) (EN 61000-4-11)	Compliant

3. LINE CONDUCTED EMISSION

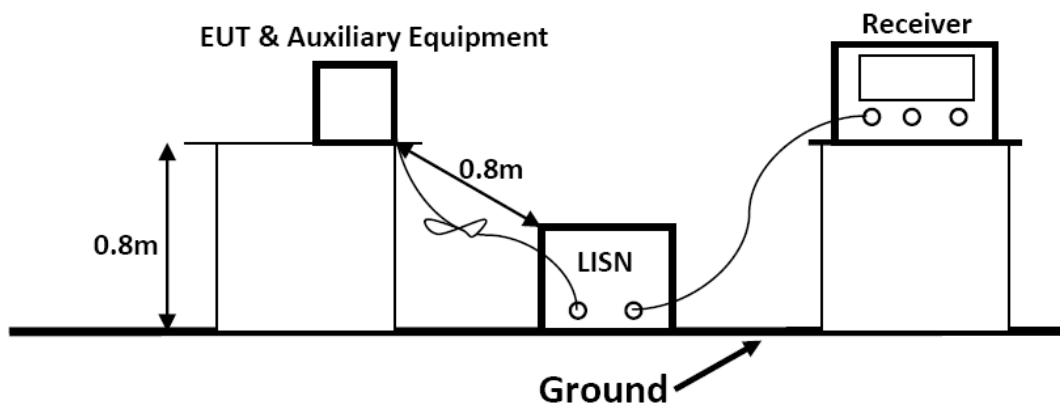
3.1. Conducted Emission Limit

Relevant Standard(s): ETSI EN 301 489-1 V2.1.1 (2017-02)

Limits for Line Conducted Emission		
Frequency (MHz)	Limit (dB μ V)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66.0 ~ 56.0 *	56.0 ~ 46.0 *
0.50 ~ 5.00	56.0	46.0
5.00 ~ 30.00	60.0	50.0

NOTE1-The lower limit shall apply at the transition frequencies.
NOTE2-The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

3.2. Test Configuration



The setup of EUT is according with per ETSI EN 301 489-1 measurement procedure. The specification used was with the ETSI EN 301 489-1 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The EUT received charging power from the adapter which received power through a LISN supplying power of AC 230V/50Hz.

3.3. EMI Test Receiver Setup

During the conducted emission test, the EMI test receiver was set with the following configurations:

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	150KHz ~ 30MHz
(IF)RBW	9kHz

All data was recorded in the Quasi-peak and average detection mode.

3.4. Test Procedure

Power on the EUT, the EUT begins to work. Make sure the EUT operates normally during the test.

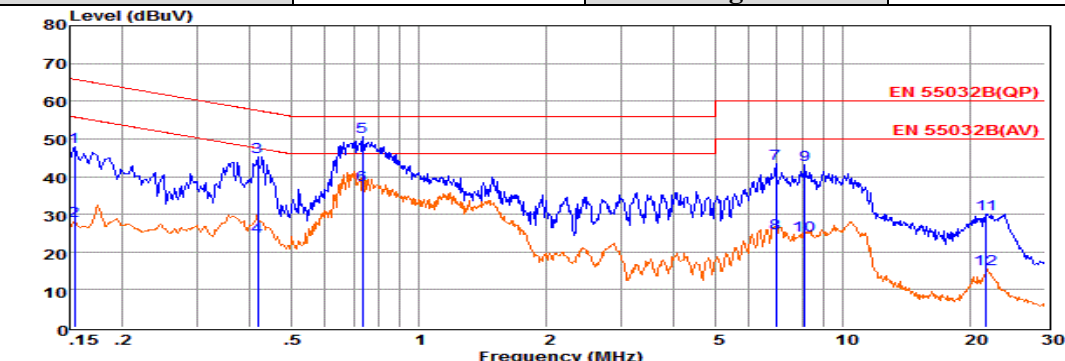
Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

3.5. Test Data

***Note: For pre-scan, the worst case is TM1, and the test data was shown as follow:

Model No.	EV-07S	Test Mode	TM1
Environmental Conditions	23.8°C, 54.1% RH	Test Engineer	Diamond Lu
Pol.	Line	Test Voltage	AC 230V/50Hz

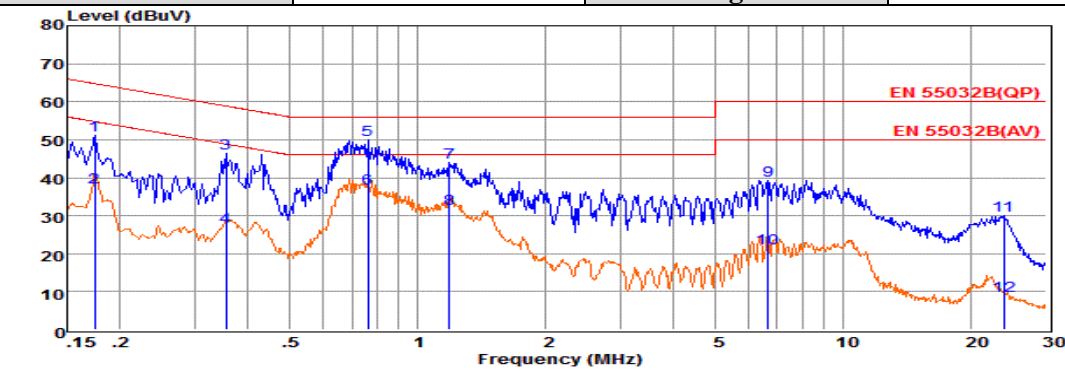


Pol: LINE

	Freq	Reading	LISNFac	CabLos	Aux2Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.15	28.28	9.58	0.02	10.00	47.88	65.78	-17.90	QP
2	0.15	8.65	9.58	0.02	10.00	28.25	55.77	-27.52	Average
3	0.42	25.47	9.62	0.04	10.00	45.13	57.51	-12.38	QP
4	0.42	4.42	9.62	0.04	10.00	24.08	47.50	-23.42	Average
5	0.74	30.94	9.64	0.04	10.00	50.62	56.00	-5.38	QP
6	0.74	18.08	9.64	0.04	10.00	37.76	46.00	-8.24	Average
7	6.95	23.68	9.68	0.07	10.00	43.43	60.00	-16.57	QP
8	6.95	5.17	9.68	0.07	10.00	24.92	50.00	-25.08	Average
9	8.15	23.45	9.68	0.07	10.00	43.20	60.00	-16.80	QP
10	8.15	4.78	9.68	0.07	10.00	24.53	50.00	-25.47	Average
11	21.83	10.27	9.71	0.12	10.00	30.10	60.00	-29.90	QP
12	21.83	-4.43	9.71	0.12	10.00	15.40	50.00	-34.60	Average

Remarks: 1. Measured = Reading + LISNFac + Cable Loss + Aux2 Fac.
 2. The emission levels that are 20dB below the official limit are not reported.

Model No.	EV-07S	Test Mode	TM1
Environmental Conditions	23.8°C, 54.1% RH	Test Engineer	Diamond Lu
Pol.	Neutral	Test Voltage	AC 230V/50Hz



Pol: NEUTRAL

	Freq	Reading	LISNFac	CabLos	Aux2Fac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.17	31.61	9.64	0.02	10.00	51.27	64.77	-13.50	QP
2	0.17	17.79	9.64	0.02	10.00	37.45	54.76	-17.31	Average
3	0.35	26.90	9.61	0.03	10.00	46.54	58.87	-12.33	QP
4	0.35	7.31	9.61	0.03	10.00	26.95	48.87	-21.92	Average
5	0.76	30.20	9.63	0.04	10.00	49.87	56.00	-6.13	QP
6	0.76	17.63	9.63	0.04	10.00	37.30	46.00	-8.70	Average
7	1.18	24.44	9.63	0.05	10.00	44.12	56.00	-11.88	QP
8	1.19	12.09	9.63	0.05	10.00	31.77	46.00	-14.23	Average
9	6.66	19.53	9.69	0.07	10.00	39.29	60.00	-20.71	QP
10	6.66	1.72	9.69	0.07	10.00	21.48	50.00	-28.52	Average
11	23.89	9.97	9.82	0.13	10.00	29.92	60.00	-30.08	QP
12	23.89	-11.03	9.82	0.13	10.00	8.92	50.00	-41.08	Average

Remarks: 1. Measured = Reading + LISNFac + Cable Loss + Aux2 Fac.
 2. The emission levels that are 20dB below the official limit are not reported.

Note: For conducted emission and radiated emission test, a power supply of 230VAC and 120VAC was used for testing respectively, and only recorded the worst case of 230VAC.

4. RADIATED DISTURBANCE

4.1. Radiated Emission Limit

Relevant Standard(s): ETSI EN 301 489-1 V2.1.1 (2017-02)

Limits for Radiated Disturbance Below 1GHz		
Frequency (MHz)	Distance (Meters)	Field Strengths Limit (dB μ V/m)
30 ~ 230	3	40
230 ~ 1000	3	47

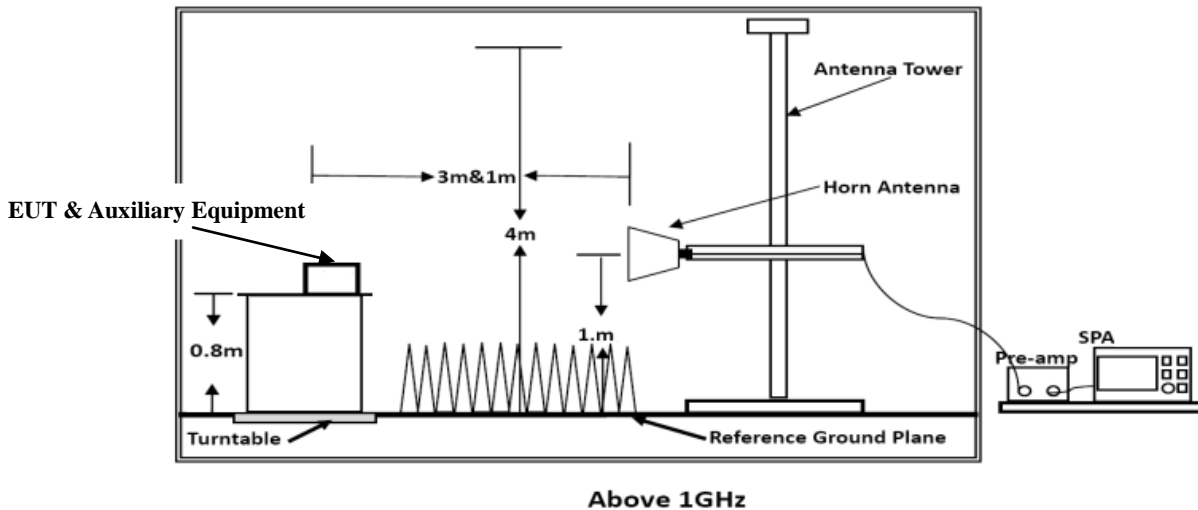
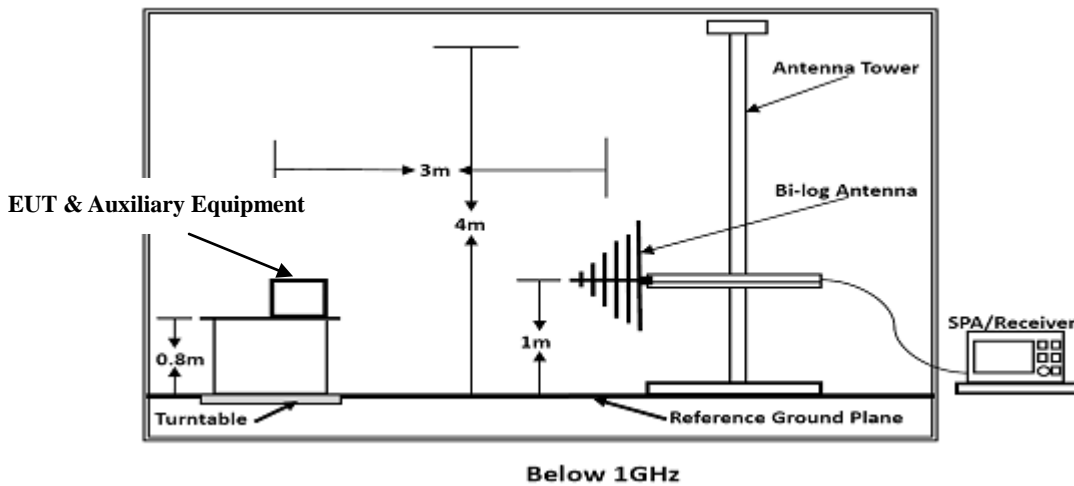
***Note:

- (1) The smaller limit shall apply at the combination point between two frequency bands.
- (2) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the EUT.

Limits for Radiated Disturbance Above 1GHz			
Frequency (MHz)	Distance (Meters)	Peak Limit (dB μ V/m)	Average Limit (dB μ V/m)
1000 ~ 3000	3	70	50
3000 ~ 6000	3	74	54

***Note: The lower limit applies at the transition frequency.

4.2. Test Configuration



4.3. Test Procedure

1) Sequence of testing 30 MHz to 1 GHz

Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

Pre-measurement:

- The turntable rotates from 0 ° to 315 ° using 45 ° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height changes from 1 to 4 meter.
- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position ($\pm 45^\circ$) and antenna movement between 1 and 4 meter.
- The final measurement will be done with QP detector with an EMI receiver.
- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre-measurement with marked maximum final measurements and the limit will be stored.

2) Sequence of testing 1 GHz to 6 GHz

Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

Pre-measurement:

- The turntable rotates from 0 ° to 315 ° using 45 ° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height scan range is 1 meter to 4 meter.
- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of pre-measurement the software maximize the peaks by changing turntable position ($\pm 45^\circ$) and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.
- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre-measurement with marked maximum final measurements and the limit will be stored.

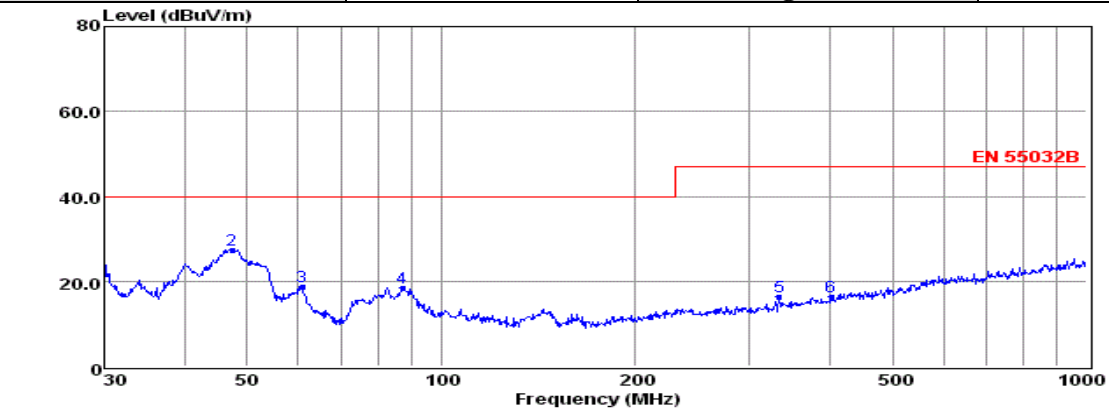
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	30MHz~1000MHz / RBW 100kHz for QP

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	6000 MHz
RBW / VBW	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average

4.4. Test Data

The worst test mode of the EUT was TM1, and its test data was showed as the follow:

Model No.	EV-07S	Test Mode	TM1
Environmental Conditions	24.5°C, 53.7% RH	Test Engineer	Diamond Lu
Pol.	Vertical	Detector Function	Quasi-peak
Distance	3m	Test Voltage	AC 230V/50Hz

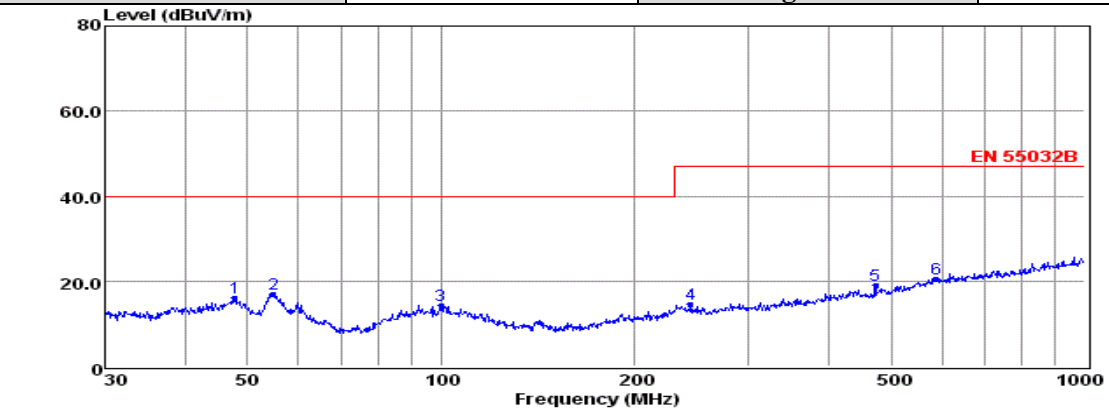


pol: VERTICAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	30.00	10.67	0.39	12.33	23.39	40.00	-16.61	QP
2	47.33	13.75	0.35	13.41	27.51	40.00	-12.49	QP
3	60.92	5.96	0.49	12.33	18.78	40.00	-21.22	QP
4	87.11	6.99	0.47	10.98	18.44	40.00	-21.56	QP
5	333.69	1.37	1.11	13.87	16.35	47.00	-30.65	QP
6	401.84	0.06	1.20	15.10	16.36	47.00	-30.64	QP

Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that are 20db below the official limit are not reported

Model No.	EV-07S	Test Mode	TM1
Environmental Conditions	24.5°C, 53.7% RH	Test Engineer	Diamond Lu
Pol.	Horizontal	Detector Function	Quasi-peak
Distance	3m	Test Voltage	AC 230V/50Hz



pol: HORIZONTAL

	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	47.83	2.41	0.35	13.38	16.14	40.00	-23.86	QP
2	54.83	3.61	0.46	13.03	17.10	40.00	-22.90	QP
3	99.88	0.65	0.60	13.15	14.40	40.00	-25.60	QP
4	244.23	1.57	0.90	12.08	14.55	47.00	-32.45	QP
5	473.83	1.67	1.38	15.92	18.97	47.00	-28.03	QP
6	586.84	0.82	1.50	18.20	20.52	47.00	-26.48	QP

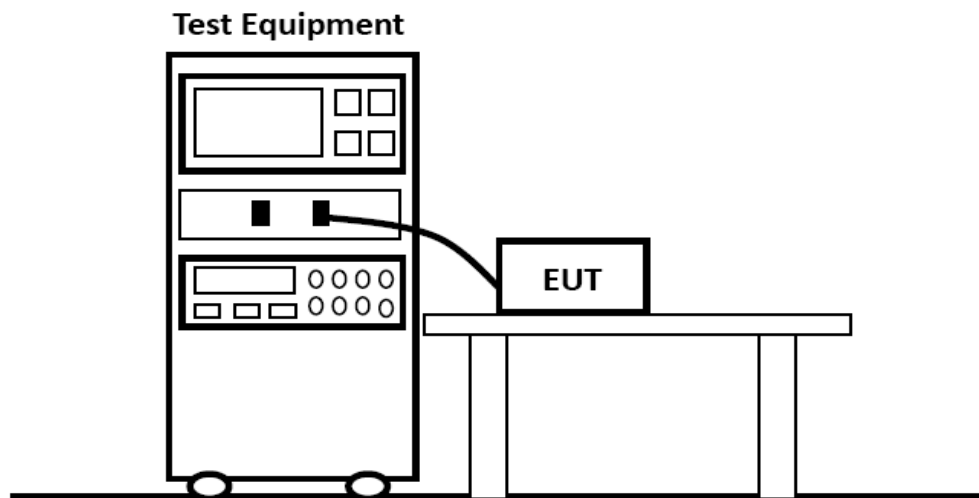
Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that are 20db below the official limit are not reported

Test Mode: TM1 (Above 1GHz)				Tested by: Diamond Lu			
Test Voltage: AC 230V/50Hz				Test Distance: 3m			
Detector Function: Peak + AV				Test Results: Passed			
Polarization	Frequency (MHz)	Emission Level (dB μ V/m)		Limit (dB μ V/m)		Margin (dB)	
Horizontal	1356.28	55.07	35.46	70.00	50.00	-14.93	-14.54
	1835.28	51.05	39.41	70.00	50.00	-18.95	-10.59
	2218.65	51.82	36.79	70.00	50.00	-18.18	-13.21
	3391.55	55.47	33.96	74.00	54.00	-18.53	-20.04
	4305.93	57.95	35.82	74.00	54.00	-16.05	-18.18
	5748.38	54.69	34.00	74.00	54.00	-19.31	-20.00
Vertical	1355.64	55.73	35.52	70.00	50.00	-14.27	-14.48
	1834.88	50.81	38.97	70.00	50.00	-19.19	-11.03
	2218.70	51.57	37.60	70.00	50.00	-18.43	-12.40
	3391.86	56.18	33.94	74.00	54.00	-17.82	-20.06
	4305.23	58.27	35.47	74.00	54.00	-15.73	-18.53
	5748.51	53.88	34.93	74.00	54.00	-20.12	-19.07

1. Field strength limits for frequency above 1000MHz are based on average limits. However, Peak mode field strength shall not exceed the average limits specified plus 20dB.
2. Measurements above show only up to 6 maximum emissions noted.
3. Data of measurement within this frequency range shown “ -- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

5. HARMONIC CURRENT EMISSIONS

5.1. Test Configuration



5.2. Test Standard

According to ETSI EN 301 489-1 V2.1.1 (2017-02) & EN 61000-3-2: 2014

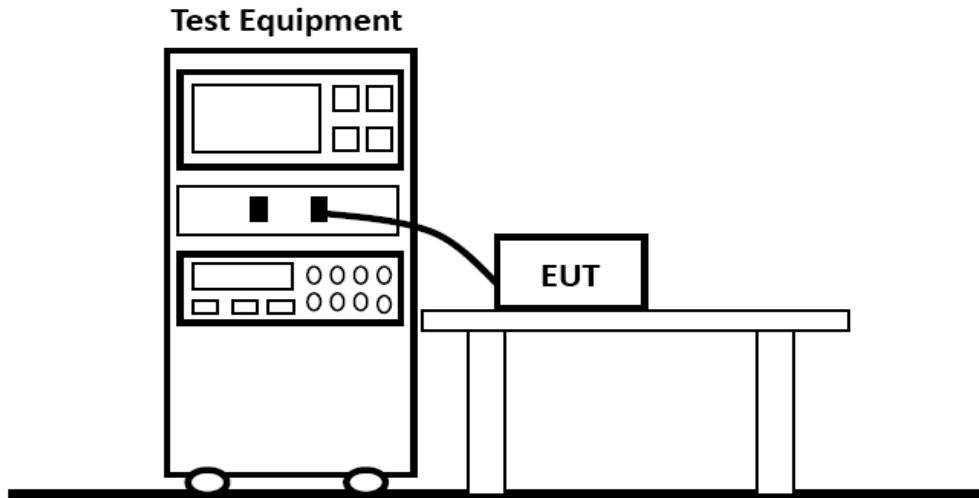
5.3. Test Data

Test Model	EV-07S	Test Engineer	Diamond Lu
Environmental Conditions	23.8°C, 52.9% RH	Test Voltage	AC 230V/50Hz

Because power of EUT less than 75W, According standard EN 61000-3-2, Harmonic current unnecessary to test.

6. VOLTAGE FLUCTUATION AND FLICKER

6.1. Test Configuration



6.2. Test Standard

According to ETSI EN 301 489-1 V2.1.1 (2017-02) & EN 61000-3-3: 2013

6.3. Test Data

Test Model	EV-07S	Test Engineer	Diamond Lu
Environmental Conditions	23.8°C, 52.9% RH	Test Voltage	AC 230V/50Hz

Voltech IEC61000-3 Windows Software 1.14.06RC1		Test Date: 2019 Jun 21 09:46
Type of Test:	Flickermeter Test - Table	
Power Analyzer:	Voltech PM6000 SN: 200006700523 Firmware Version: v1.21.07RC2	
Channel(s):	1. SN: 090015502053, 28 Adjusted Date: 22 JUN 2011. 2. SN:None Adjusted Date:None	
	3. SN:None Adjusted Date:None 4. SN:None Adjusted Date:None	
	5. SN:None Adjusted Date:None 6. SN:None Adjusted Date:None	
Shunt(s):	1. SN: 091024301916, 4 Adjusted Date: 23 JUN 2011. 2. SN:None Adjusted Date:None	
	3. SN:None Adjusted Date:None 4. SN:None Adjusted Date:None	
	5. SN:None Adjusted Date:None 6. SN:None Adjusted Date:None	
AC Source:	Mains / Manual Source	
Overall Result:	Notes:	
PASS	Measurement method - Voltage	

	Pst	dc (%)	dmax (%)	d(t) > 3.3%(ms)
Limit	1.000	3.300	4.000	500
Reading 1	0.089	0.006	0.125	0

7. GENERAL PERFORMANCE CRITERIA FOR IMMUNITY TEST

7.1. Performance criteria for Continuous phenomena applied to Transmitter (CT)

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.

7.2. Performance criteria for Transient phenomena applied to Transmitter (TT)

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.

7.3. Performance criteria for Continuous phenomena applied to Receiver (CR)

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.

7.4. Performance criteria for Transient phenomena applied to Receiver (TR)

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.

Performance criteria for ETSI EN 301 489-19 V2.1.1 (2019-04)

1) General performance criteria

If the EUT is of a non specialized nature or the EUT is combined with an ancillary equipment, the test modulation, test arrangements, etc. as required in clause 4 shall apply. The EUT, for all immunity tests according to the present document, except the spot frequency test of the immunity test with radiated RF electromagnetic fields (see ETSI EN 301 489-1 [1], clause 9.2), shall be assessed for:

- the storage of messages in the memory of the EUT at the start of the test;
- unintentional responses of the EUT during the test;
- the maintenance of the EUT memory assessed at the conclusion of the test;
- the ability to receive and store messages at the conclusion of the test.

For the spot frequency test of the immunity test with radiated RF electromagnetic fields (see ETSI EN 301 489-1 [1], clause 9.2) the EUT shall be assessed by monitoring the accuracy of the call received alert signal.

2) Performance criteria for Continuous phenomena applied to ROMES and ROGNSS receivers (CR)

For the EUT, excluding spot frequency tests as part of the immunity test with radiated RF electromagnetic fields (see ETSI EN 301 489-1 [1], clause 9.2):

- the general performance criteria set out in clause 6.1;
- during the test no false calls shall occur;
- at the conclusion of the test comprising the series of individual exposures the EUT shall operate as intended with no loss of functions or stored data (messages), as declared by the manufacturer.

For the spot frequency test as part of the immunity test with radiated RF electromagnetic fields (see ETSI EN 301 489-1 [1], clause 9.2) the EUT shall be assessed by monitoring the accuracy of the call received alert signal

3) Performance criteria for Transient phenomena applied to ROMES and ROGNSS receivers (TR)

For the EUT:

- the general performance criteria set out in clause 6.1;
- during the test no false calls shall occur;
- at the conclusion of the test comprising the series of individual exposures, the EUT shall operate as intended with no loss of function and/or stored data (messages), as declared by the manufacturer.

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

The provision of ETSI EN 301 489-1 [1], clause 6.3 shall apply with the following modifications.

For EUTs of a specialized nature and/or ancillary equipment tested on a stand alone basis the manufacturer shall define the method of test to determine the acceptable level of performance or degradation of performance during and/or after the test. Under these circumstances the manufacturer will also provide the following information:

- the primary functions of the equipment to be tested during and after EMC stress;
- the intended functions of the EUT which shall be in accordance with the documentation accompanying the equipment;
- the pass/failure criteria for the equipment;
- the method of observing a degradation of performance of the equipment.

The assessment of the performance or the degradation of performance which shall be carried out during and/or at the conclusion of the tests, shall be simple, but at the same time give adequate proof that the primary functions of the equipment are operational.

Performance criteria for Draft ETSI EN 301 489-52 V1.1.0 (2016-11)

1) Performance criteria for Continuous phenomena applied to Transmitters (CT)

A communication link shall be established at the start of the test, and maintained during the test, see clauses 4.2.3 and 4.2.4. During the test, the uplink speech output level shall be at least 35 dB less than the previously recorded reference levels, when measured through an audio band pass filter of width 200 Hz, centred on 1 kHz (audio breakthrough check). NOTE: When there is a high level background noise present the filter bandwidth can be reduced down to a minimum of 40 Hz. At the conclusion of the test, the EUT shall operate as intended with no loss of user control functions or stored data, and the communication link shall have been maintained. In addition to confirming the above performance during a call, the test shall also be performed in idle mode, and the transmitter shall not unintentionally operate.

2) Performance criteria for Transient phenomena applied to Transmitters (TT)

A communications link shall be established at the start of the test, see appropriate clauses 4.2 to 4.2.4. At the conclusion of each exposure the EUT shall operate with no user noticeable loss of the communication link. At the conclusion of the total test comprising the series of individual exposures, the EUT shall operate as intended with no loss of user control functions or stored data, as declared by the manufacturer, and the communication link shall have been maintained. In addition to confirming the above performance during a call, the test shall also be performed in idle mode, and the transmitter shall not unintentionally operate.

3) Performance criteria for Continuous phenomena applied to Receivers (CR)

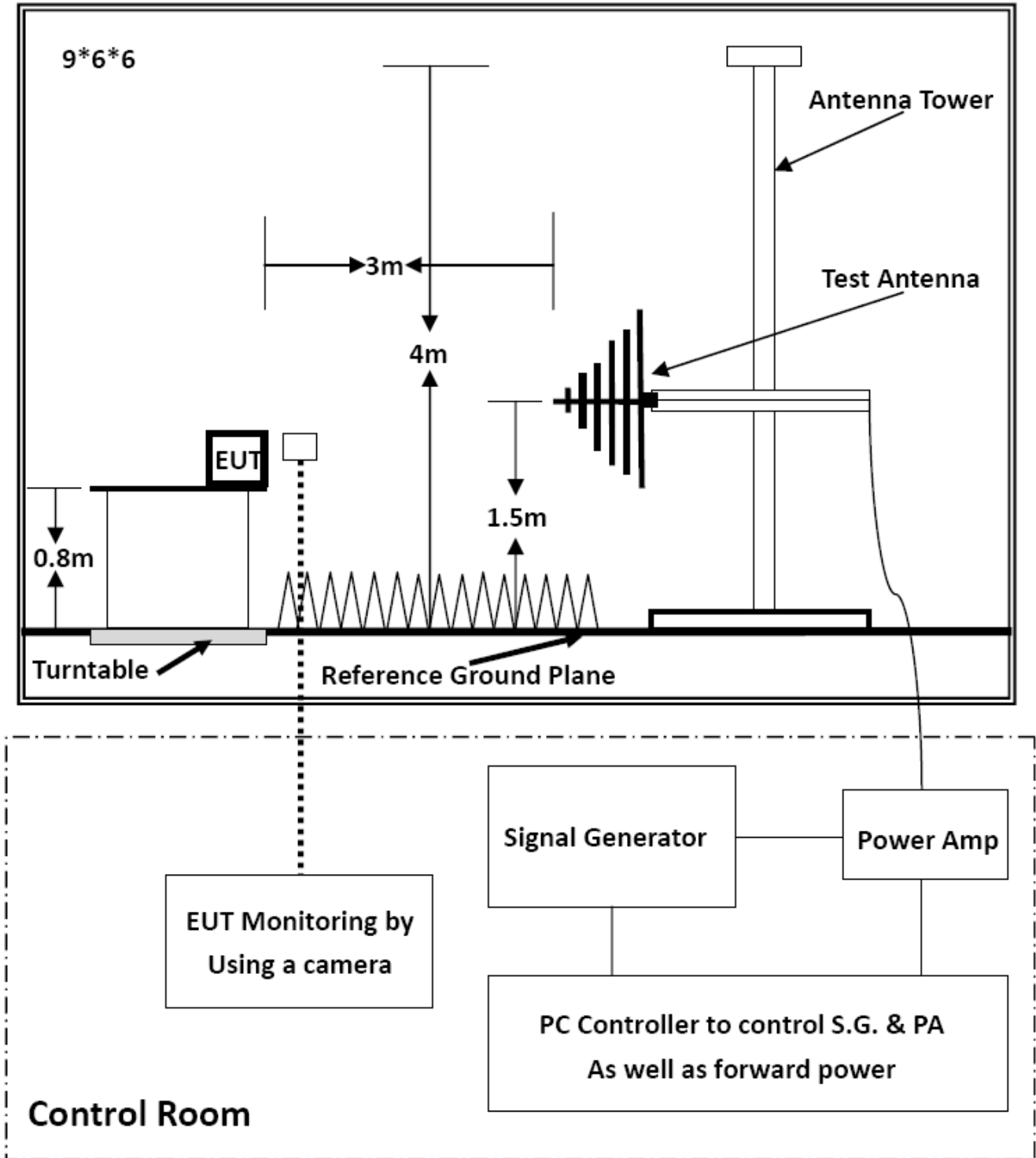
A communications link shall be established at the start of the test, see appropriate clauses 4.2 to 4.2.6. During the test, the RXQUAL of the downlink shall not exceed the value of three, measured during each individual exposure in the test sequence. During the test, the downlink speech output level shall be at least 35 dB less than the previously recorded reference levels, when measured through an audio band pass filter of width 200 Hz, centred on 1 kHz (audio breakthrough check). NOTE: When there is a high level background noise present the filter bandwidth can be reduced down to a minimum of 40 Hz. At the conclusion of the test, the EUT shall operate as intended with no loss of user control functions or stored data, and the communication link shall have been maintained.

4) Performance criteria for Transient phenomena applied to Receivers (TR)

A communications link shall be established at the start of the test, see appropriate clauses 4.2. to 4.2.6. At the conclusion of each exposure the EUT shall operate with no user noticeable loss of the communication link. At the conclusion of the total test comprising the series of individual exposures, the EUT shall operate as intended with no loss of user control functions or stored data, as declared by the manufacturer, and the communication link shall have been maintained.

8. RF ELECTROMAGNETIC FIELD (80 MHz - 6000 MHz)

8.1. Test Configuration



8.2. Test Standard

ETSI EN 301 489-1, ETSI EN 301489-19 & ETSI EN 301 489-52 / (EN 61000-4-3: 2006+A2: 2010)

Test level 2 at 3V/m.

8.3. Severity Level

Level	Field Strength (V/m)
1	1
2	3
3	10
X	Special
Performance Criterion: A	

8.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. EUT is set 3 meter away from the transmitting antenna which is mounted on an antenna tower. Both horizontal and vertical polarization of the antenna are set on test. Each of the four sides of EUT must be faced this transmitting antenna and measured individually. In order to judge the EUT performance, a CCD camera is used to monitor EUT screen. All the scanning conditions are as follows:

Condition of Test	Remark
Fielded Strength	3 V/m (Severity Level 2)
Radiated Signal	Unmodulated
Scanning Frequency	80-6000MHz
Dwell time of radiated	0.0015 decade/s
Waiting Time	3 Sec.

8.5. Test Result

Test Model	EV-07S	Test Engineer	Diamond Lu
Environmental Conditions	24.5°C, 53.7% RH	Test Voltage	AC 230V/50Hz

MS Test Result:

EUT Working Mode	Antenna Polarity	Frequency (MHz)	Fielded Strength (V/m)	Observation	Position	Conclusion
GSM/GPRS 900 MHz, Traffic	Vertical	80-6000	3	CT, CR	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	CT, CR	Front, Right, Left, Back	Pass
GSM/GPRS 900 MHz, Idle	Vertical	80-6000	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	See Note	Front, Right, Left, Back	Pass
DCS/GPRS 1800 MHz, Traffic	Vertical	80-6000	3	CT,CR	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	CT,CR	Front, Right, Left, Back	Pass
DCS/GPRS 1800 MHz, Idle	Vertical	80-6000	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	See Note	Front, Right, Left, Back	Pass

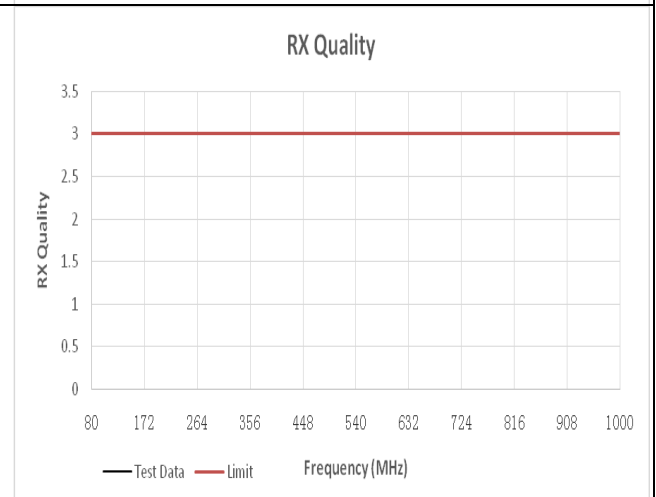
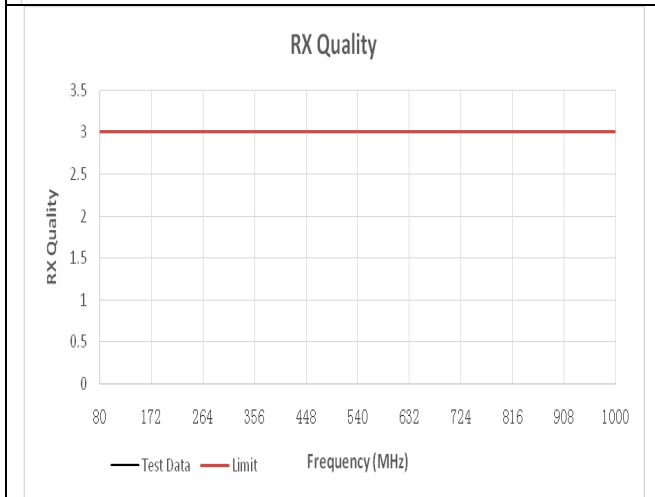
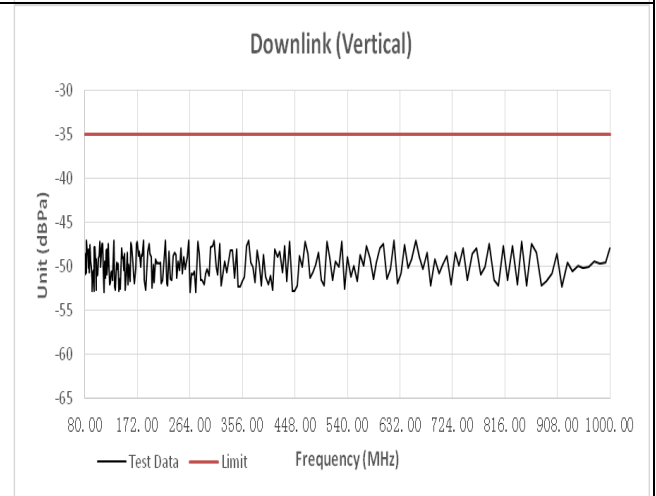
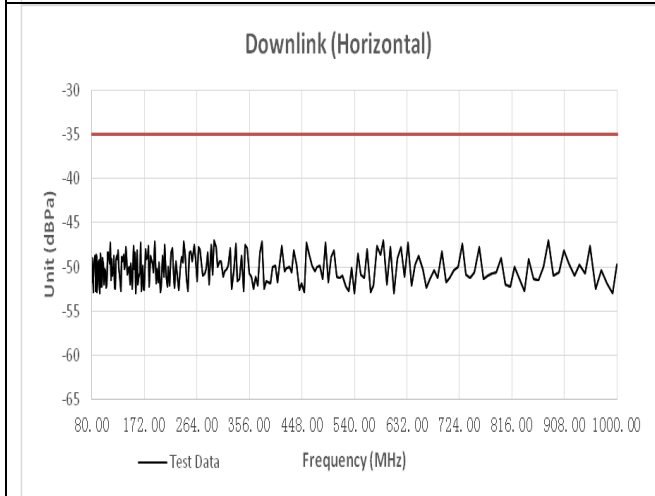
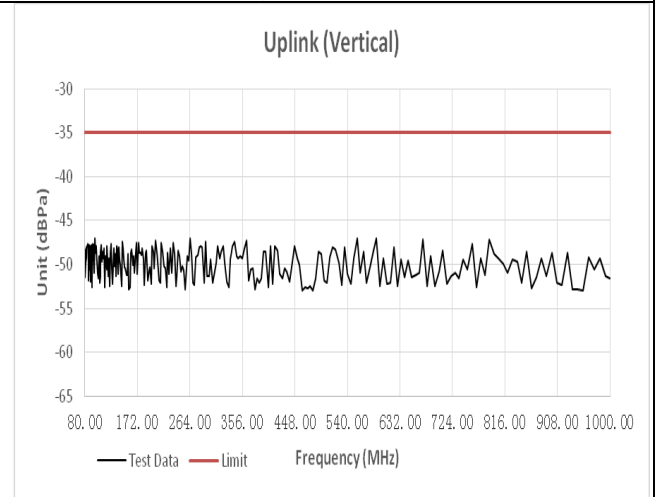
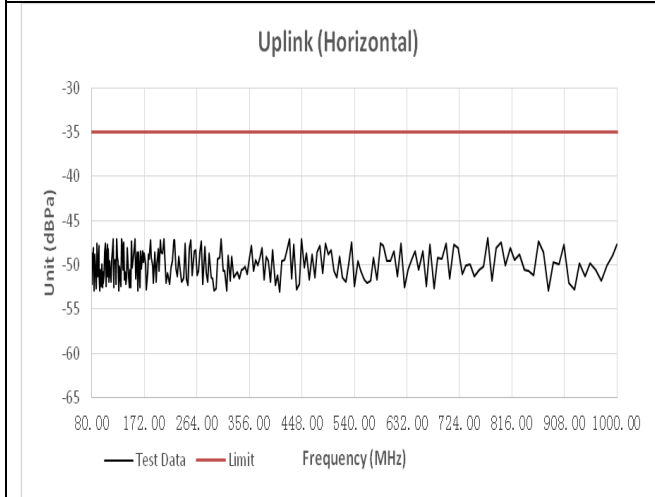
GPS Test Result:

EUT Working Mode	Antenna Polarity	Frequency (MHz)	Fielded Strength (V/m)	Observation	Position	Conclusion
Operating Mode	Vertical	80-6000	3	CR	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	CR	Front, Right, Left, Back	Pass
	Vertical	80MHz;104MHz;136MHz;165MHz;200MHz;260MHz;330MHz;430MHz;560MHz;715MHz ± 1MHz;920MHz ± 1MHz (spot test)	3	CR	Front, Right, Left, Back	Pass
	Horizontal	80MHz;104MHz;136MHz;165MHz;200MHz;260MHz;330MHz;430MHz;560MHz;715MHz ± 1MHz;920MHz ± 1MHz (spot test)	3	CR	Front, Right, Left, Back	Pass
Idle	Vertical	80-6000	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80-6000	3	See Note	Front, Right, Left, Back	Pass
	Vertical	80MHz;104MHz;136MHz;165MHz;200MHz;260MHz;330MHz;430MHz;560MHz;715MHz ± 1MHz;920MHz ± 1MHz (spot test)	3	See Note	Front, Right, Left, Back	Pass
	Horizontal	80MHz;104MHz;136MHz;165MHz;200MHz;260MHz;330MHz;430MHz;560MHz;715MHz ± 1MHz;920MHz ± 1MHz (spot test)	3	See Note	Front, Right, Left, Back	Pass

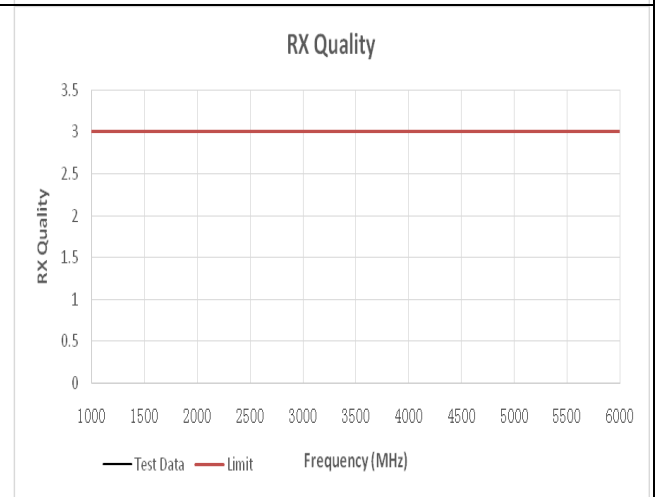
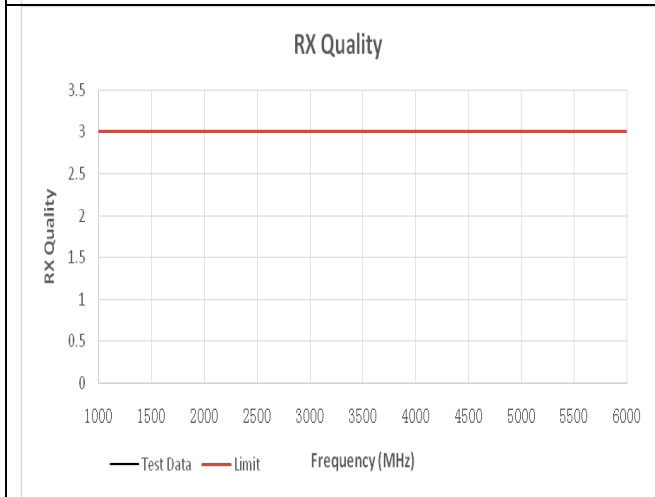
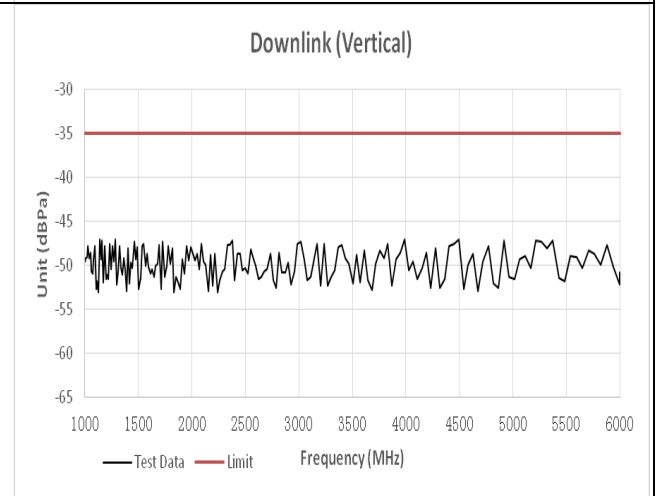
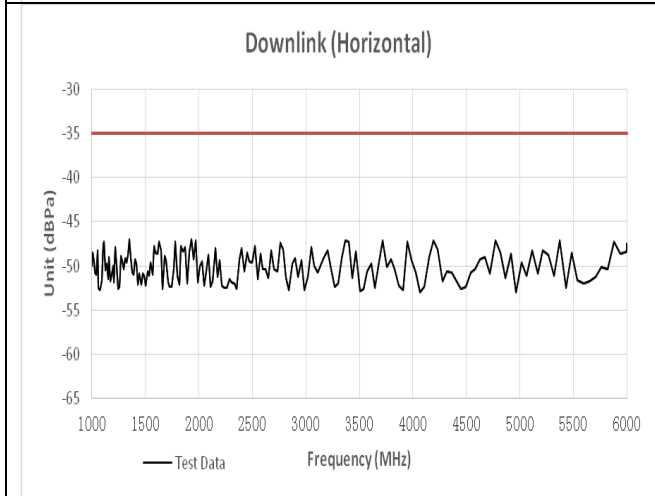
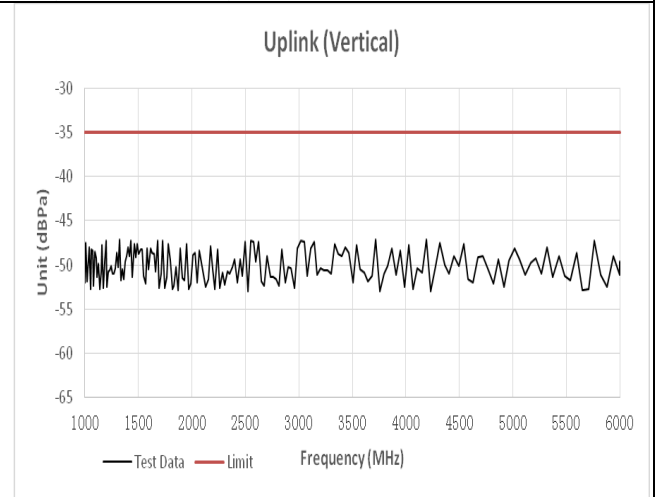
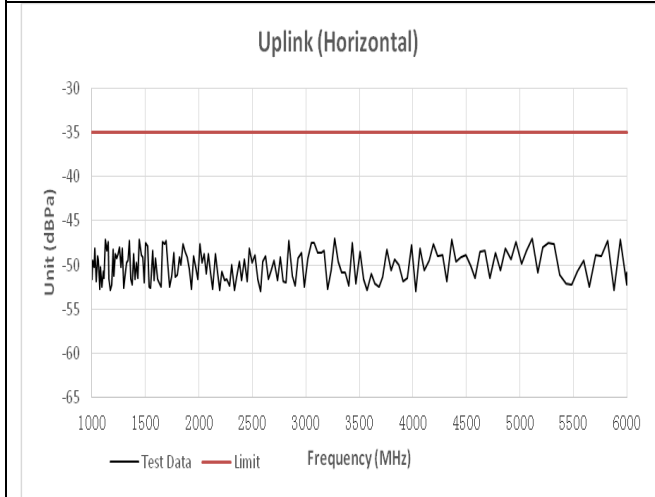
Special conditions for EMC immunity tests

EUT Operating Mode		Polarity	Conclusion
GSM 900	Uplink	H	Pass
		V	Pass
	Downlink	H	Pass
		V	Pass
	RX Quality	H	Pass
		V	Pass
DCS 1800	Uplink	H	Pass
		V	Pass
	Downlink	H	Pass
		V	Pass
	RX Quality	H	Pass
		V	Pass

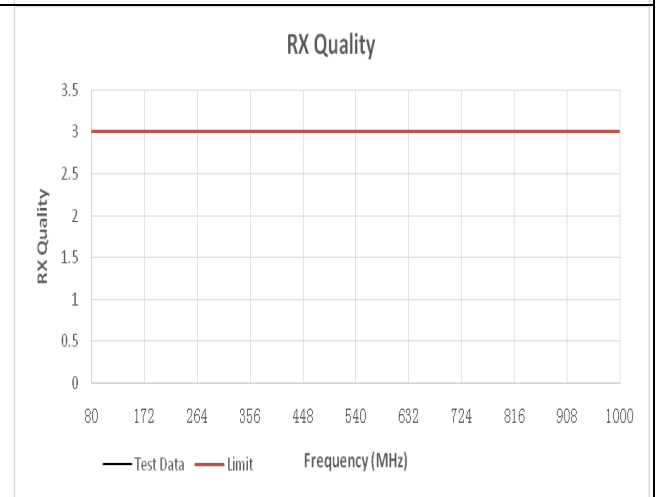
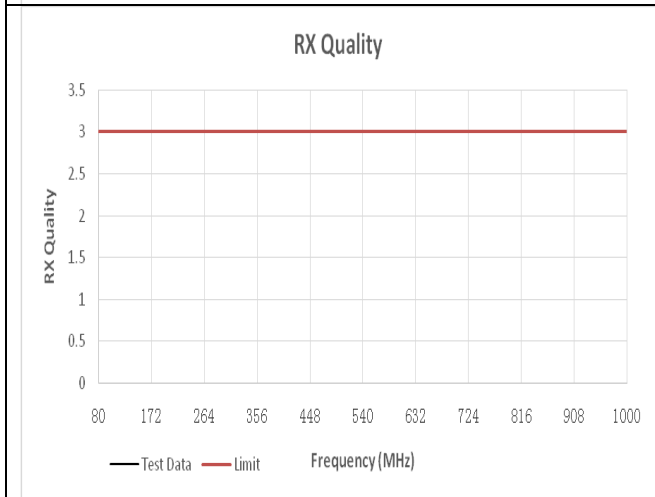
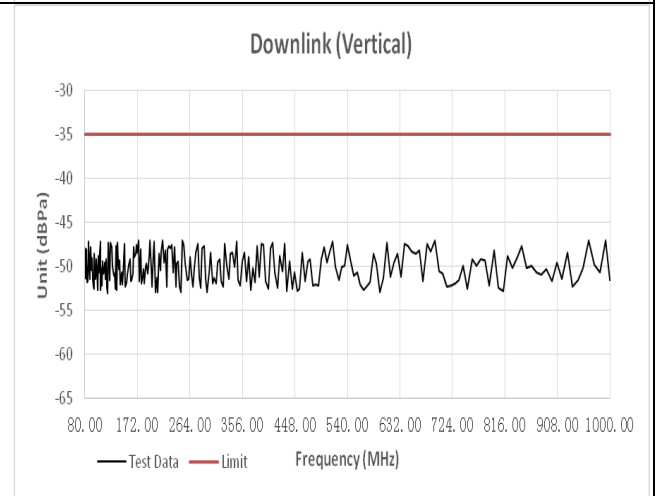
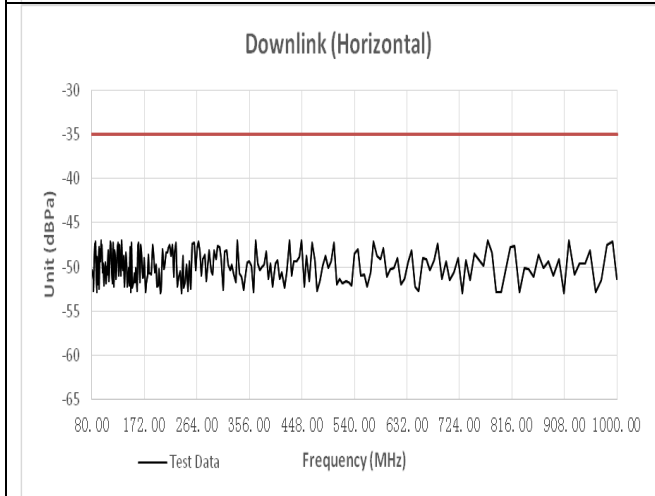
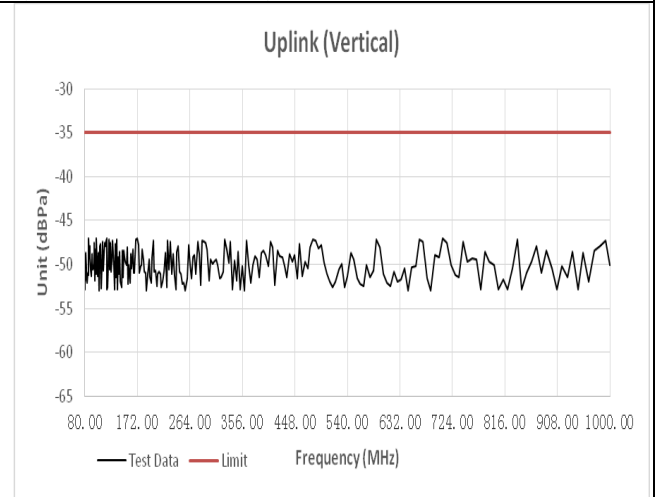
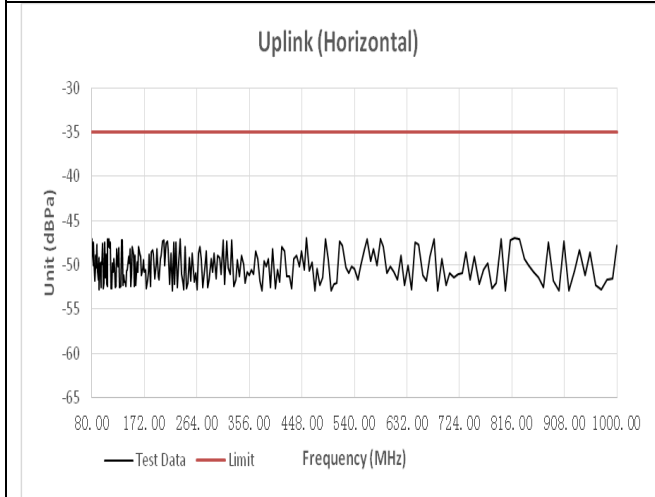
Test Plots for GSM 900 (80MHz ~ 1000MHz)

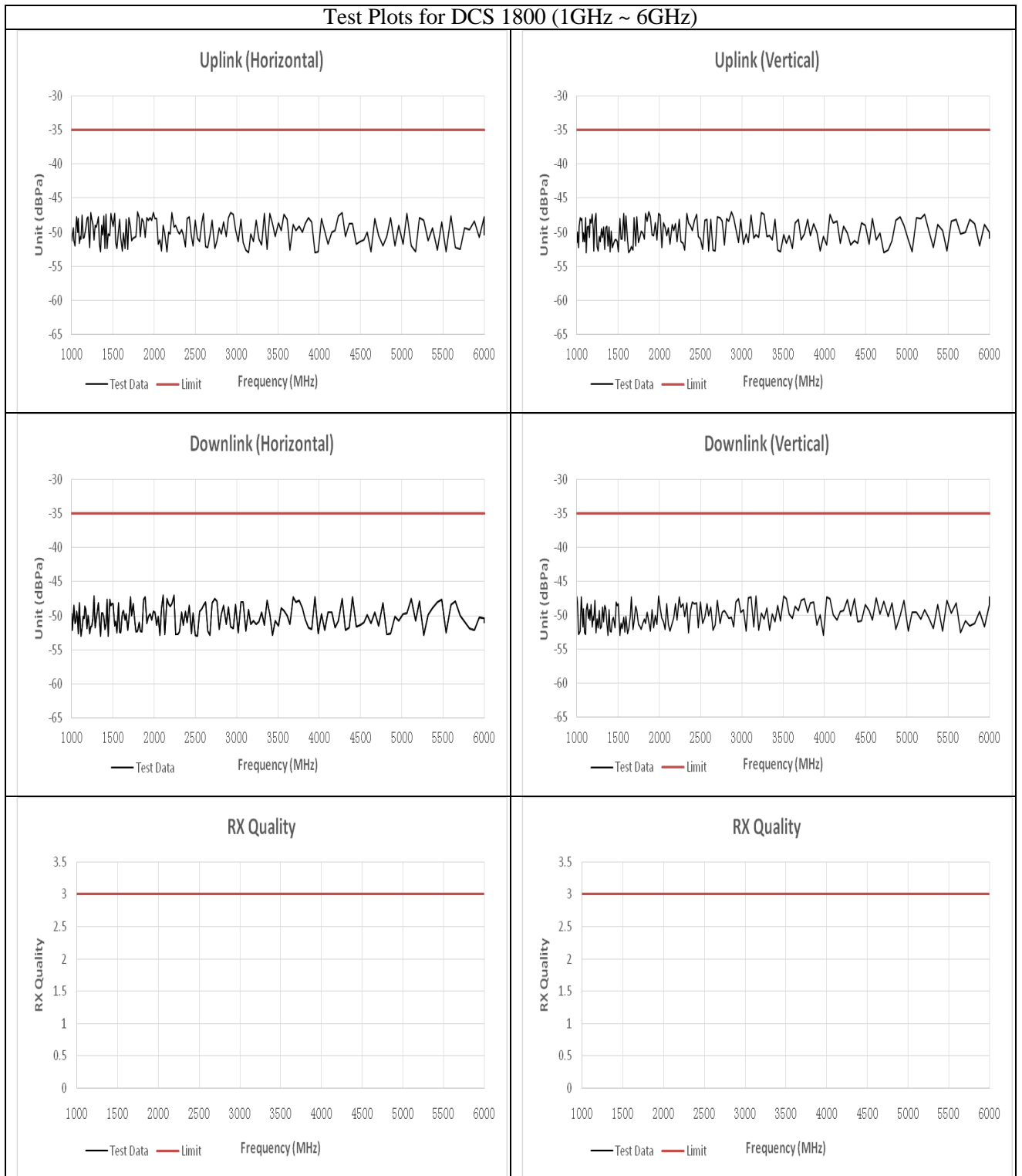


Test Plots for GSM 900 (1GHz ~ 6GHz)



Test Plots for DCS 1800 (80MHz ~ 1000MHz)





Note: The EUT performance complied with performance criteria for CT&CR to MS Function and there is no any degradation of performance and function.

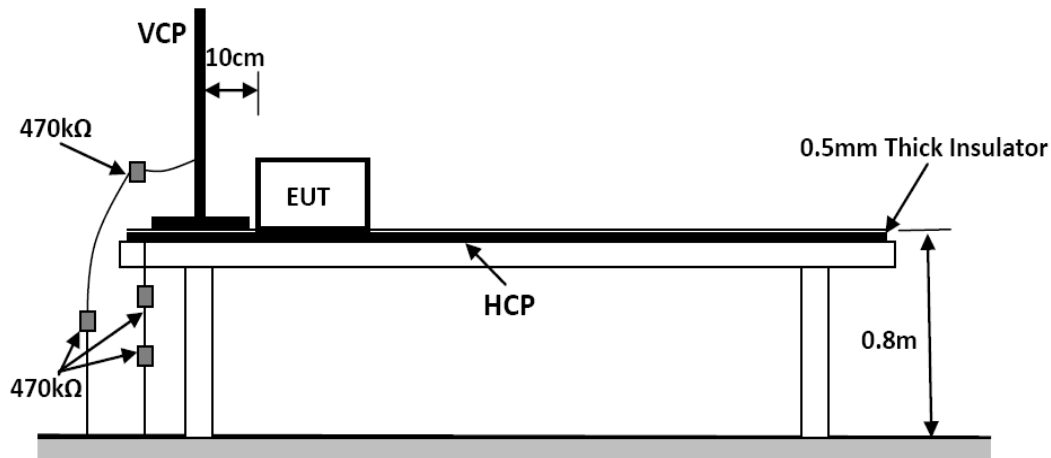
During the test, the Maximum Bit Error Ratio was less than 0.001

During the test, the Maximum Block Error Ratio was less than 0.01

9. ELECTROSTATIC DISCHARGE

Please refer to ETSI EN 301 489-1 and EN 61000-4-2.

9.1. Test Configuration



EN 61000-4-2 specifies that a tabletop EUT shall be placed on a non-conducting table which is 80 centimeters above a ground reference plane and that floor mounted equipment shall be placed on a insulating support approximately 10 centimeters above a ground plane. During the tests, the EUT is positioned over a ground reference plane in conformance with this requirement.

For tabletop equipment, a 1.5 by 1.0-meter metal sheet (HCP) is placed on the table and connected to the ground plane via a metal strap with two 470 k Ohms resistors in series. The EUT and attached cables are isolated from this metal sheet by 0.5-millimeter thick insulating material. A Vertical Coupling Plane (VCP) grounded on the ground plane through the same configuration as in the HCP is used.

9.2. Test Procedure

ETSI EN 301 489-1 V2.1.1 (2017-02) / EN 61000-4-2: 2009

Test level 3 for Air Discharge at ± 8 kV

Test level 2 for Contact Discharge at ± 4 kV

9.2.1. Air Discharge

This test is done on a non-conductive surface. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the discharge electrode shall be removed from the EUT. The generator is then re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure shall be repeated until all the air discharge completed.

9.2.2. Contact Discharge

All the procedure shall be same as Section 9.2.1. except that the tip of the discharge electrode shall touch the EUT before the discharge switch is operated.

9.2.3. Indirect Discharge For Horizontal Coupling Plane

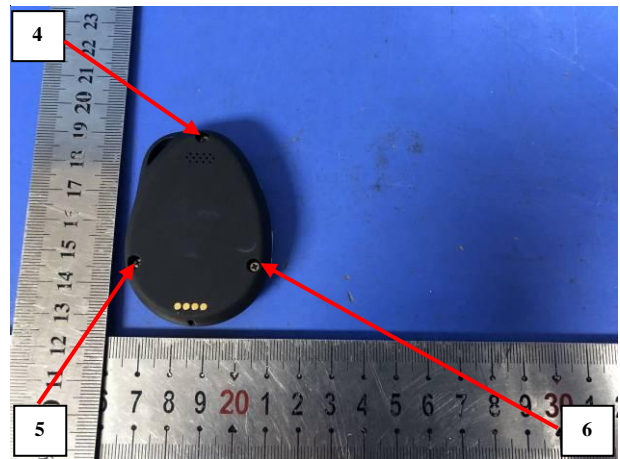
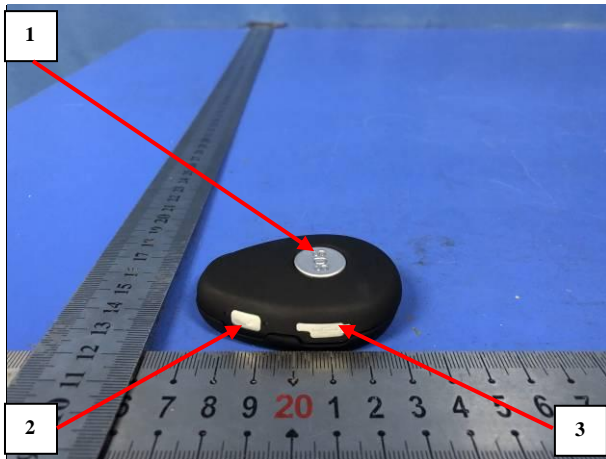
At least 10 single discharges (in the most sensitive polarity) shall be applied at the front edge of each HCP opposite the center point of each unit (if applicable) of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge.

9.2.4. Indirect Discharge For Vertical Coupling Plane

At least 10 single discharges (in the most sensitive polarity) shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.

9.3. Test Data

PASS.



***Note: The contact discharge points are 4, 5 and 6.
The air discharge points are 1, 2 and 3.

Electrostatic Discharge Test Results

Standard	<input type="checkbox"/> IEC 61000-4-2 <input checked="" type="checkbox"/> EN 61000-4-2		
Applicant	Shenzhen Eview GPS Technology		
EUT	Personal GPS Tracker	Temperature	23.8°C
M/N	EV-07S	Humidity	54.1%
Criterion	B	Pressure	1021mbar
Test Mode	TM1-TM6	Test Date	June 24, 2019
Test Engineer	Diamond Lu		

TEST RESULT OF MS

Test Voltage	Coupling	Observation	Result (Pass/Fail)
±2KV, ±4kV	Contact Discharge	CT, CR	Pass
±2KV, ±4kV, ±8kV	Air Discharge	CT, CR	Pass
±2KV, ±4kV	Indirect Discharge HCP	CT, CR	Pass
±2KV, ±4kV	Indirect Discharge VCP	CT, CR	Pass

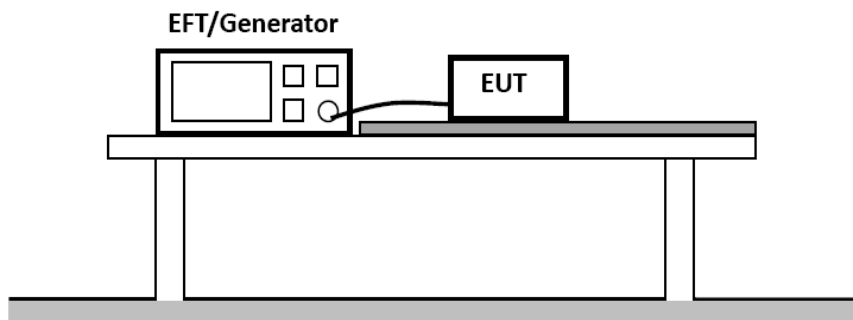
TEST RESULT OF GPS

Test Voltage	Coupling	Observation	Result (Pass/Fail)
±2KV, ±4kV	Contact Discharge	CR	Pass
±2KV, ±4kV, ±8kV	Air Discharge	CR	Pass
±2KV, ±4kV	Indirect Discharge HCP	CR	Pass
±2KV, ±4kV	Indirect Discharge VCP	CR	Pass

Note: The EUT performance complied with performance criteria for CT&CR to MS Function and there is no any degradation of performance and function.

10. ELECTRICAL FAST TRANSIENT IMMUNITY

10.1. Test Configuration



10.2. Test Standard

ETSI EN 301 489-1 V2.1.1 (2017-02)/ EN61000-4-4: 2012

Test level 2 at 1 kV

Test Level		
Open Circuit Output Test Voltage $\pm 10\%$		
Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1	0.5 kV	0.25 kV
2	1 kV	0.5 kV
3	2 kV	1 kV
4	4 kV	2 kV
X	Special	Special
Performance Criterion: B		

10.3. Test Procedure

The EUT is put on the table, which is 0.8 meter high above the ground. This reference ground plane shall project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.

10.3.1. For input and output AC power ports:

The EUT is connected to the power mains by using a coupling device, which couples the EFT interference signal to AC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test is 2 minutes.

10.3.2. For signal lines and control lines ports: No I/O ports. It's unnecessary to test.

10.3.3. For DC output line ports: It's unnecessary to test.

10.4. Test Data

PASS.

Please refer to the following page.

Electrical Fast Transient/Burst Test Results

Standard	<input type="checkbox"/> IEC 61000-4-4 <input checked="" type="checkbox"/> EN 61000-4-4		
Applicant	Shenzhen Eview GPS Technology		
EUT	Personal GPS Tracker	Temperature	23.8°C
M/N	EV-07S	Humidity	52.9%
Test Mode	TM1-TM6	Criterion	B
Test Engineer	Diamond Lu	Test Date	June 24, 2019

TEST RESULT OF MS

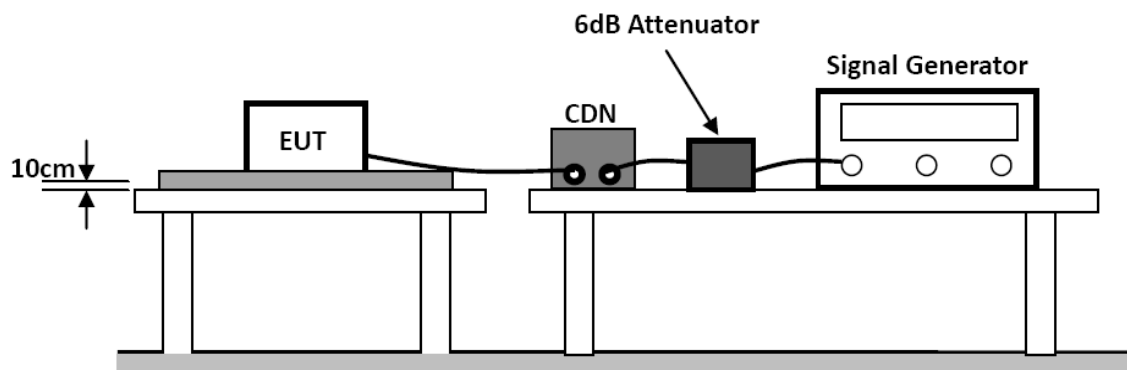
Line	Test Voltage	Polarity	Observation	Result (Pass/Fail)
L	1KV	+/-	CT, CR	Pass
N	1KV	+/-	CT, CR	Pass
L-N	1KV	+/-	CT, CR	Pass

TEST RESULT OF GPS

Line	Test Voltage	Polarity	Observation	Result (Pass/Fail)
L	1KV	+/-	CR	Pass
N	1KV	+/-	CR	Pass
L-N	1KV	+/-	CR	Pass

11. RF COMMON MODE

11.1. Test Configuration



11.2. Test Standard

ETSI EN 301 489-1 V2.1.1 (2017-02)/ EN 61000-4-6: 2014

Test level 2 at 3 V (r.m.s.), 0.15 MHz ~ 80 MHz,

Modulation type: AM

Modulation depth: 80%

Modulation signal: 1 kHz

Test Level	
Level	Voltage Level (r.m.s.) (V)
1	1
2	3
3	10
X	Special
Performance Criterion: A	

11.3. Test Procedure

11.3.1. Let the EUT work in test mode and test it.

11.3.2. The EUT are placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) is placed on the ground plane about 0.3m from EUT. Cables between CDN and EUT are as short as possible, and their height above the ground reference plane shall be between 30 and 50mm (where possible).

11.3.3. The disturbance signal described below is injected to EUT through CDN.

11.3.4. The EUT operates within its operational mode(s) under intended climatic conditions after power on.

11.3.5. The frequency range is swept from 150kHz to 80MHz using 3V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.

11.3.6. The rate of sweep shall not exceed 1.5×10^{-3} decades/s. Where the frequency is swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.

11.3.7. Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

11.4. Test Data

PASS.

Please refer to the following page.

Injected Currents Susceptibility Test Results

Standard	<input type="checkbox"/> IEC 61000-4-6 <input checked="" type="checkbox"/> EN 61000-4-6		
Applicant	Shenzhen Eview GPS Technology		
EUT	Personal GPS Tracker	Temperature	24.6°C
M/N	EV-07S	Humidity	53.9%
Test Mode	TM1-TM6	Criterion	A
Test Engineer	Diamond Lu	Test Date	June 24, 2019

TEST RESULT OF MS (GSM)

Frequency Range (MHz)	Strength (Unmodulated)	Injected Position	Observation	Result (Pass/Fail)
0.15 ~ 80	3V	AC Mains	CT, CR	Pass

TEST RESULT OF GPS

Frequency Range (MHz)	Strength (Unmodulated)	Injected Position	Observation	Result (Pass/Fail)
0.15 ~ 80	3V	AC Mains	CR	Pass

Remark:

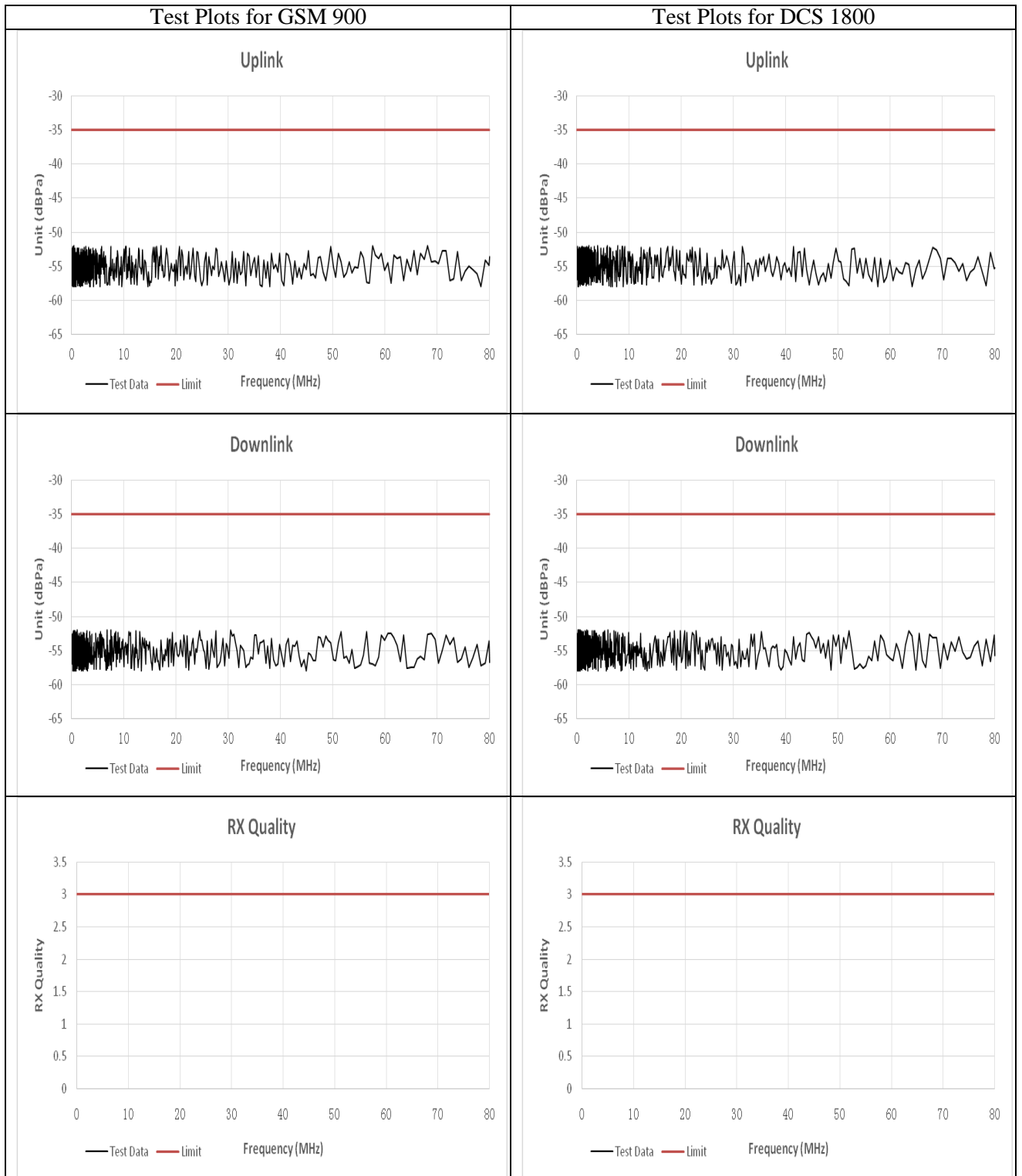
1. Modulation Signal: 1kHz 80% AM

2. Measurement Equipment :

Simulator: CIT-10 (FRANKONIA)

CDN : CDN-M2 (FRANKONIA)

CDN-M3 (FRANKONIA)



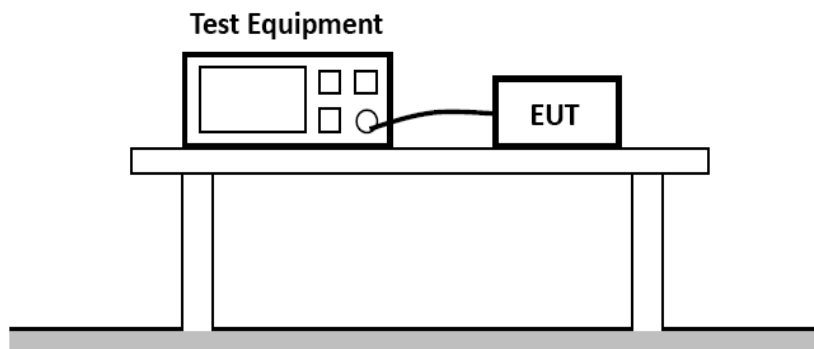
Note: The EUT performance complied with performance criteria for CT&CR to MS Function and there is no any degradation of performance and function.

During the test, the Maximum Bit Error Ratio was less than 0.001

During the test, the Maximum Block Error Ratio was less than 0.01

12. SURGES, LINE TO LINE AND LINE TO GROUND

12.1. Test Configuration



12.2. Test Standard

ETSI EN 301 489-1 V2.1.1 (2017-02) / EN 61000-4-5: 2014

L-N: Test level 2 at 1 kV

L-PE, N-PE Test Level 3 at 2kV

Test Level		
Open Circuit Output Test Voltage $\pm 10\%$		
Level	On Power Supply Lines	On I/O (Input/Output) Signal data and control lines
1	0.5 kV	0.25 kV
2	1 kV	0.5 kV
3	2 kV	1 kV
4	4 kV	2 kV
X	Special	Special
Performance Criterion: B		

12.3. Test Procedure

- 12.3.1. For line to line coupling mode, provide a 0.5 kV 1.2/50us voltage surge (at open-circuit condition).
- 12.3.2. At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate are conducted during test.
- 12.3.3. Different phase angles are done individually.
- 12.3.4. Record the EUT operating situation during compliance test and decide the EUT immunity criterion for above each test.

12.4. Test Data

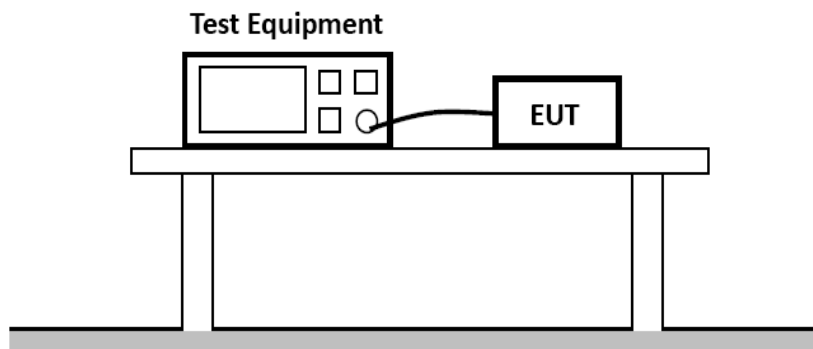
Surge Immunity Test Result			
Standard	<input type="checkbox"/> IEC 61000-4-5 <input checked="" type="checkbox"/> EN 61000-4-5		
Applicant	Shenzhen Eview GPS Technology		
EUT	Personal GPS Tracker	Temperature	23.8°C
M/N	EV-07S	Humidity	52.9%
Test Mode	TM1-TM6	Criterion	A
Test Engineer	Diamond Lu	Test Date	June 24, 2019

TEST RESULT OF MS						
Location	Polarity	Phase Angle	Number of Pulse	Pulse Voltage (KV)	Observation	Result (Pass/Fail)
L-N	+	0°, 90°, 180°, 270°	5	1.0	CT, CR	Pass
	-	0°, 90°, 180°, 270°	5	1.0	CT, CR	Pass

TEST RESULT OF GPS						
Location	Polarity	Phase Angle	Number of Pulse	Pulse Voltage (KV)	Observation	Result (Pass/Fail)
L-N	+	0°, 90°, 180°, 270°	5	1.0	CR	Pass
	-	0°, 90°, 180°, 270°	5	1.0	CR	Pass

13. VOLTAGE DIPS/INTERRUPTIONS IMMUNITY TEST

13.1. Test Configuration



13.2. Test Standard

ETSI EN 301 489-1 V2.1.1 (2017-02)/ EN 61000-4-11: 2004+A1:2017

Test levels and Performance Criterion

Test Level		
Voltage Reduction %U _T	Voltage Dips %U _T	Duration (in Period)
100	0	0.5
100	0	1
30	70	5
Voltage Reduction %U _T	Voltage Dips %U _T	Duration (in Period)
100	0	250

Performance Criterion: B&C

13.3. Test Procedure

13.3.1. The interruption is introduced at selected phase angles with specified duration.

13.3.2. Record any degradation of performance.

13.4. Test Data

Voltage Dips And Interruptions Test Results			
Standard	<input type="checkbox"/> IEC 61000-4-11 <input checked="" type="checkbox"/> EN 61000-4-11		
Applicant	Shenzhen Eview GPS Technology		
EUT	Personal GPS Tracker	Temperature	23.8°C
M/N	EV-07S	Humidity	52.9%
Test Mode	TM1-TM6	Criterion	A
Test Engineer	Diamond Lu	Test Date	June 24, 2019

TEST RESULT OF MS				
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Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in periods)	Observation	Result (Pass/Fail)
0	100	0.5P	CT, CR	Pass
0	100	1P	CT, CR	Pass
70	30	25P	CT, CR	Pass
0	100	250P	CT, CR	Pass

TEST RESULT OF GPS				
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Test Level % U _T	Voltage Dips & Short Interruptions % U _T	Duration (in periods)	Observation	Result (Pass/Fail)
0	100	0.5P	CR	Pass
0	100	1P	CR	Pass
70	30	25P	CR	Pass
0	100	250P	CR	Pass

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14. PHOTOGRAPHS OF TEST SETUP

Please refer to separated files **Appendix A** for Photographs of Test Setup.

15. PHOTOGRAPHS OF THE EUT

Please refer to separated files **Appendix B** for Photographs of The EUT.

-----THE END OF REPORT-----

Appendix A

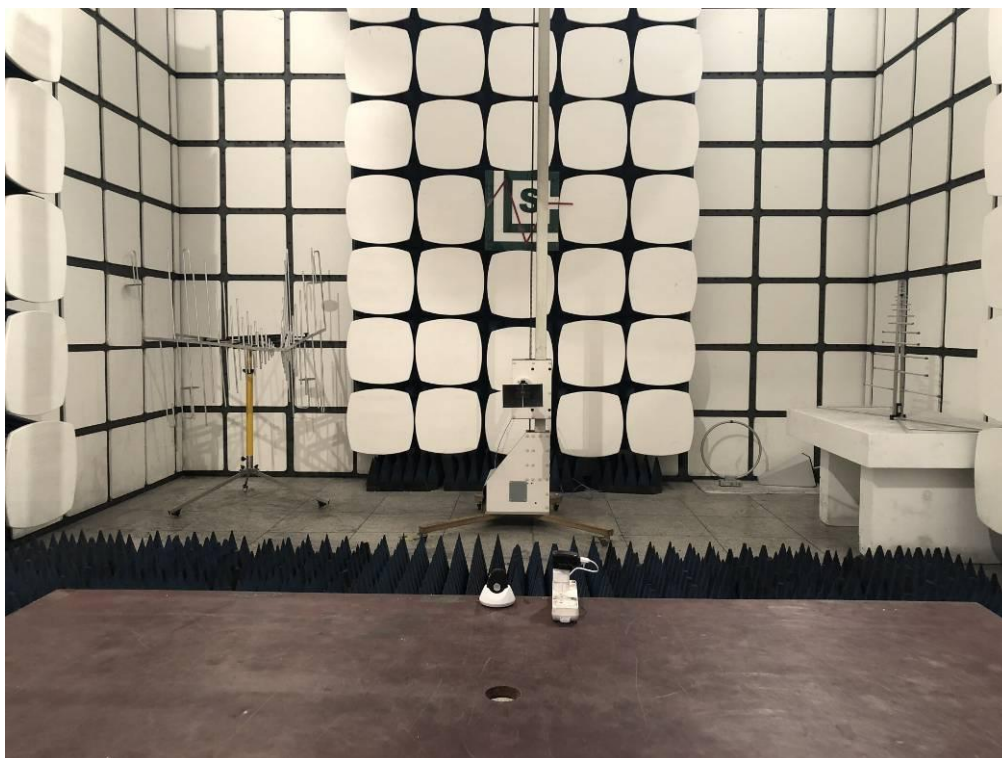
Photographs of Test Setup



Power Line Conducted Emission



Radiated Emission Below 1 GHz



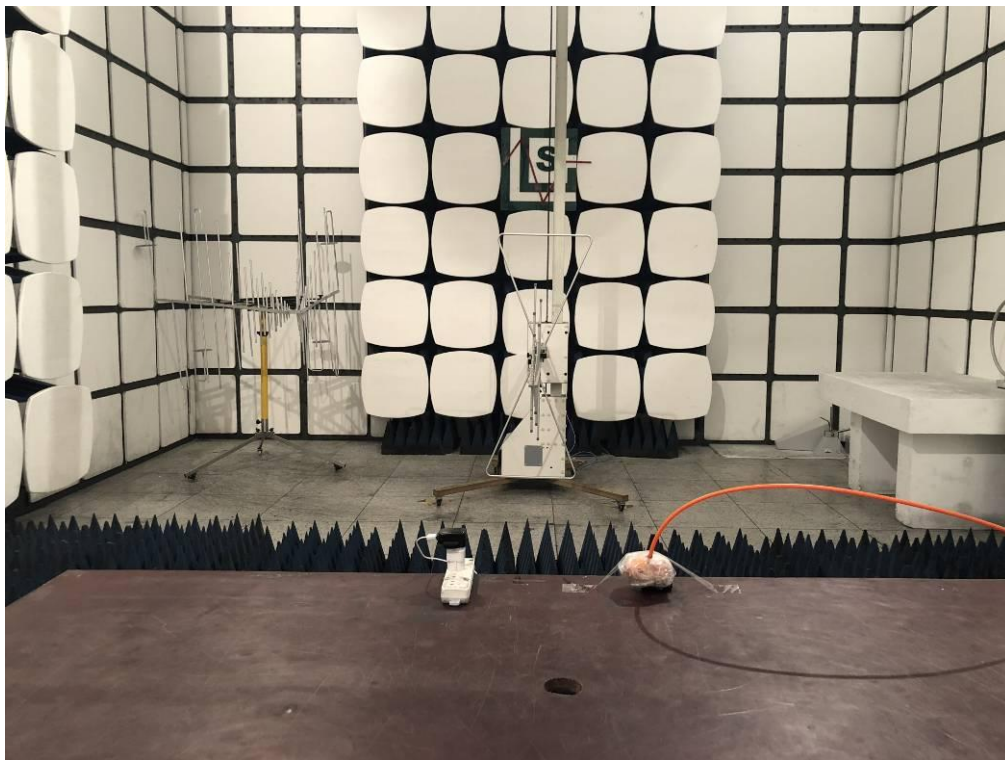
Radiated Emission Above 1 GHz



Voltage Fluctuations and Flicker



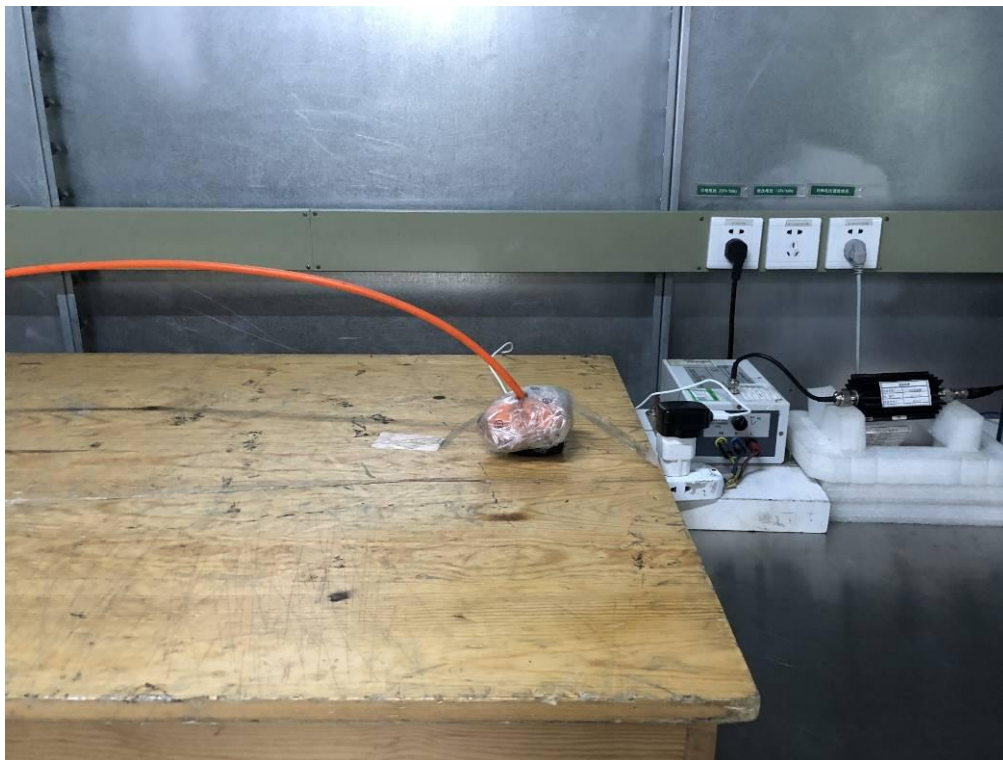
Electrostatic Discharge



RF Electromagnetic Field (80MHz to 6 000MHz)



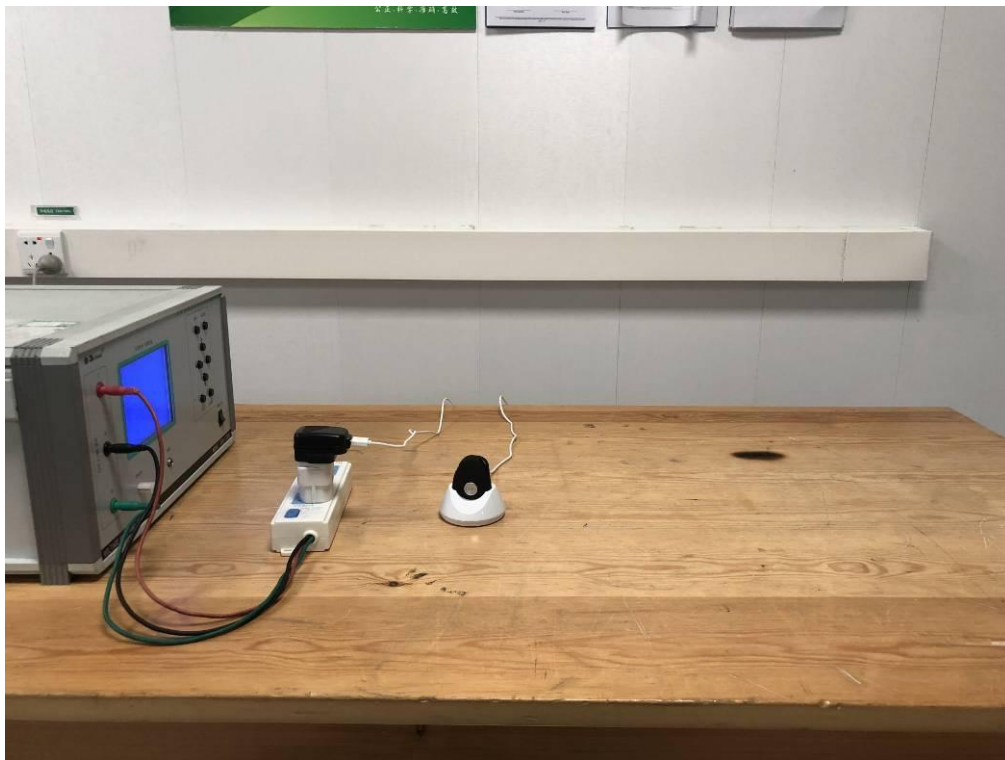
Fast Transients Common Mode



RF Common Mode (0.15 MHz to 80MHz)



Surges



Voltage Dips and Interruptions

Appendix B

Photographs of The EUT

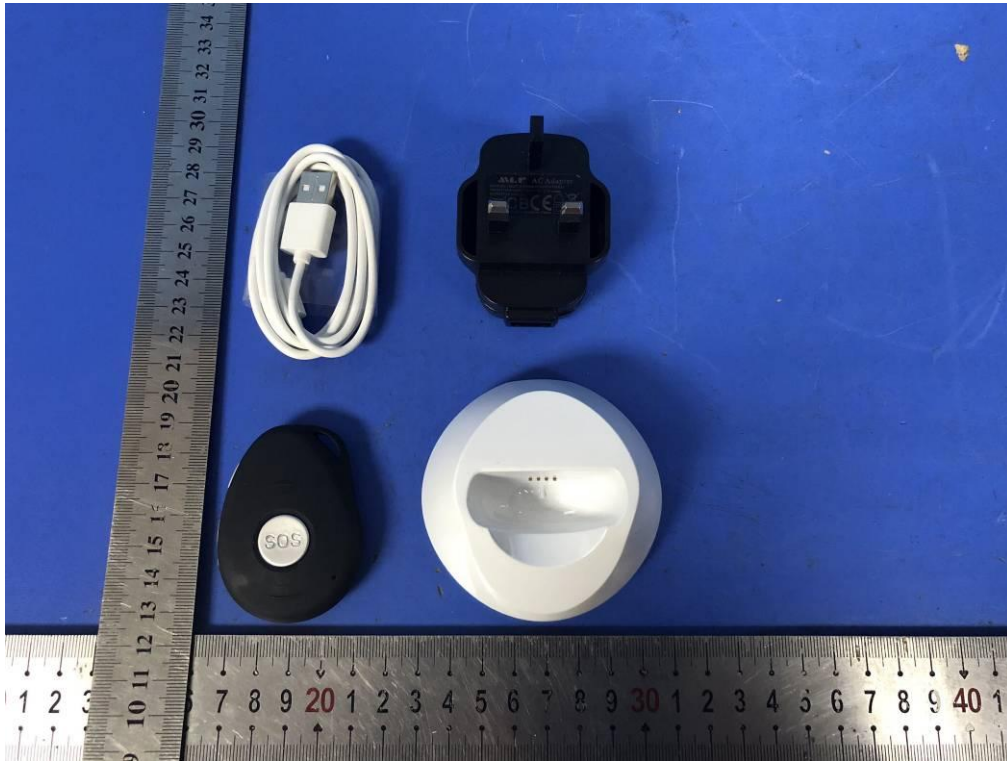


Fig.1

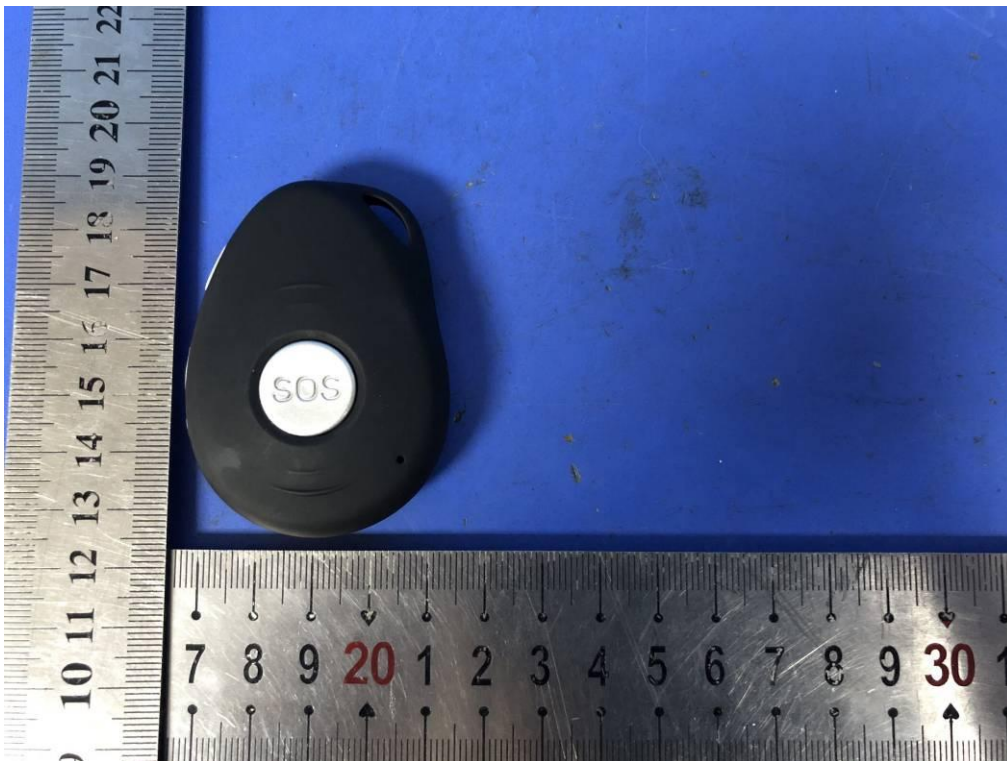


Fig.2

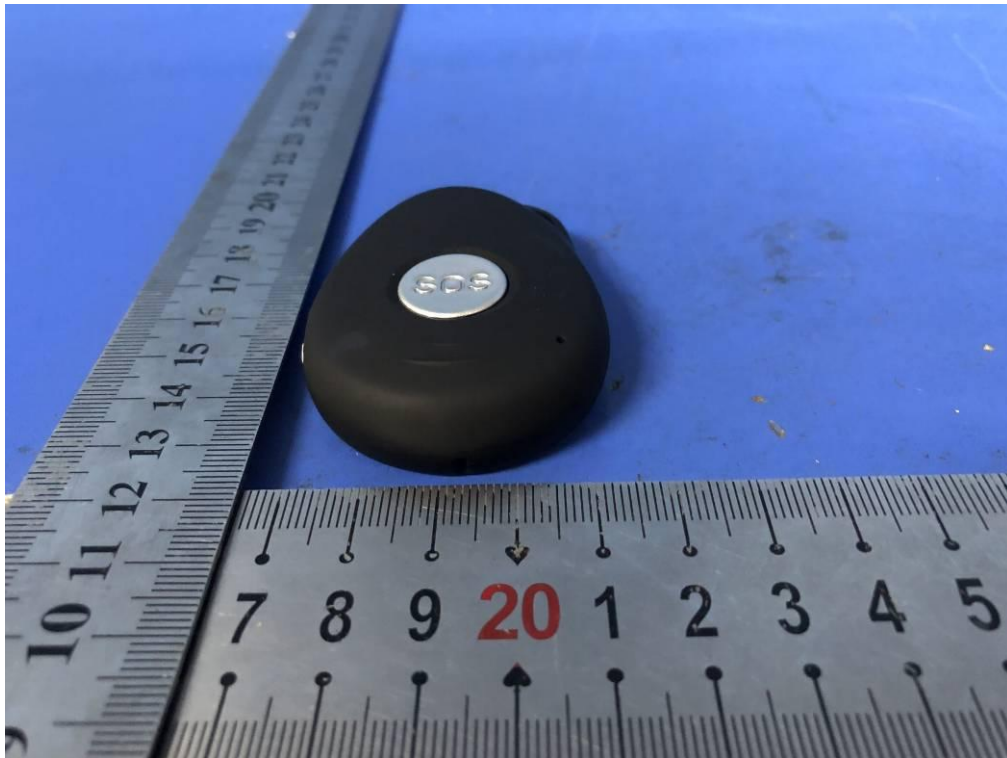


Fig.3

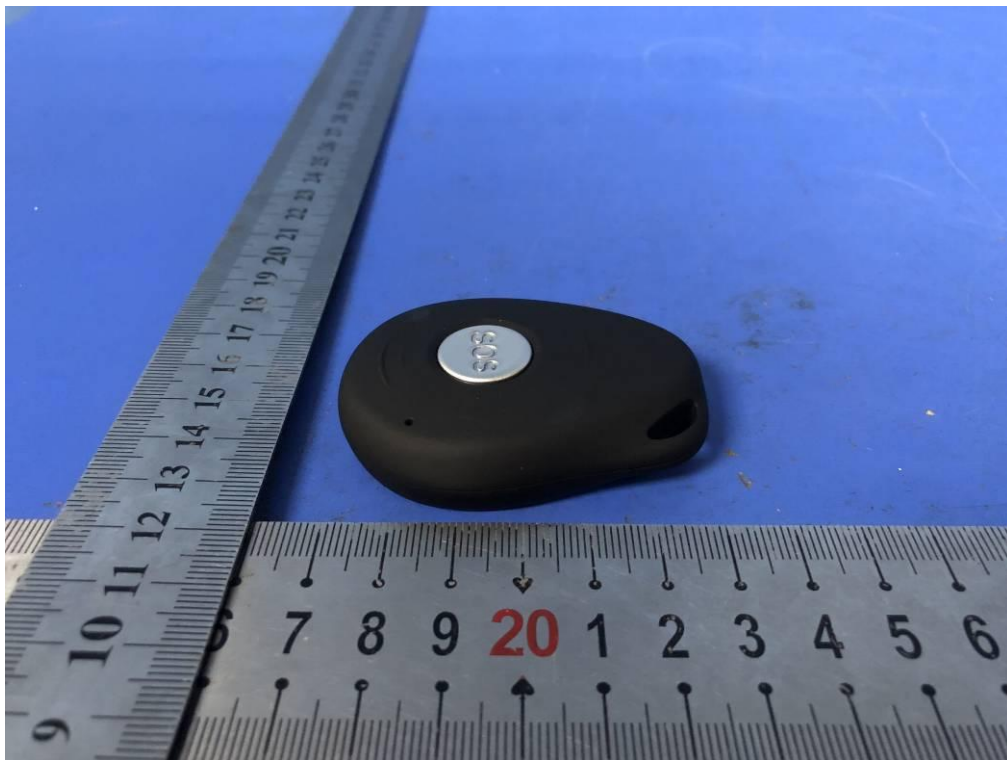


Fig.4



Fig.5

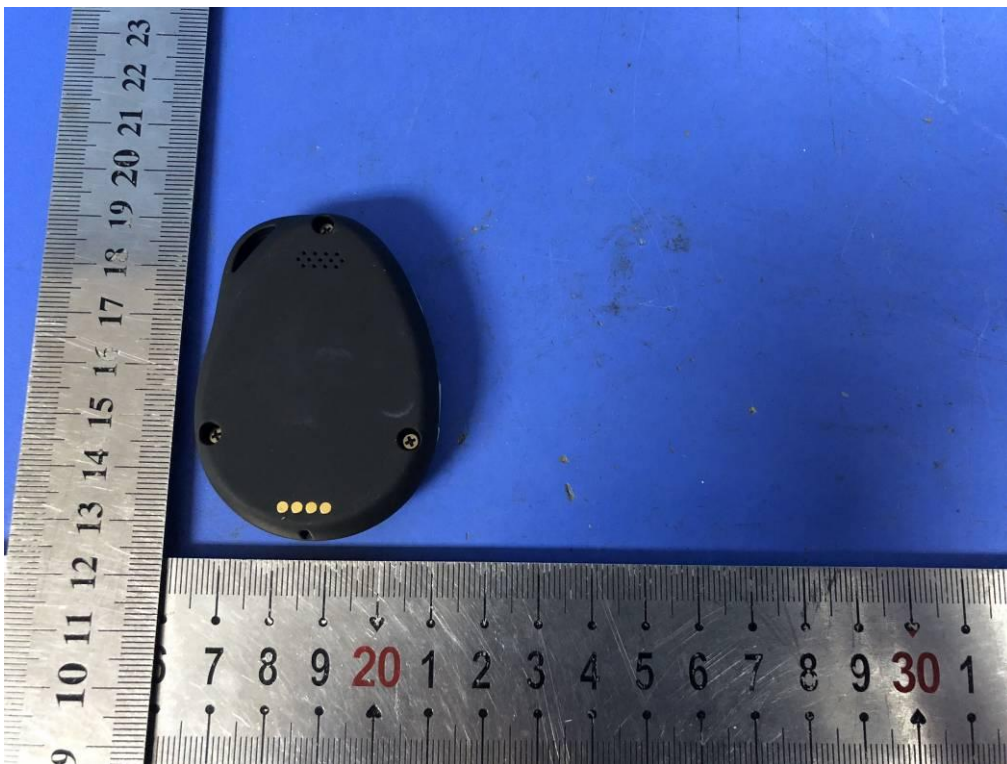


Fig.6

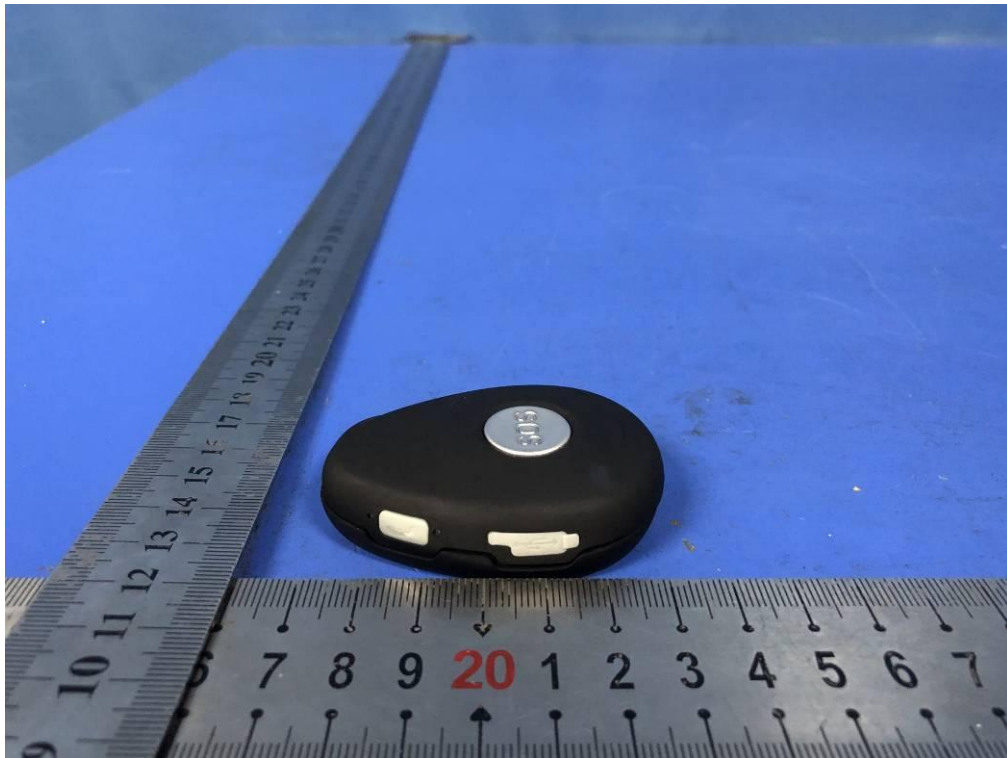


Fig.7

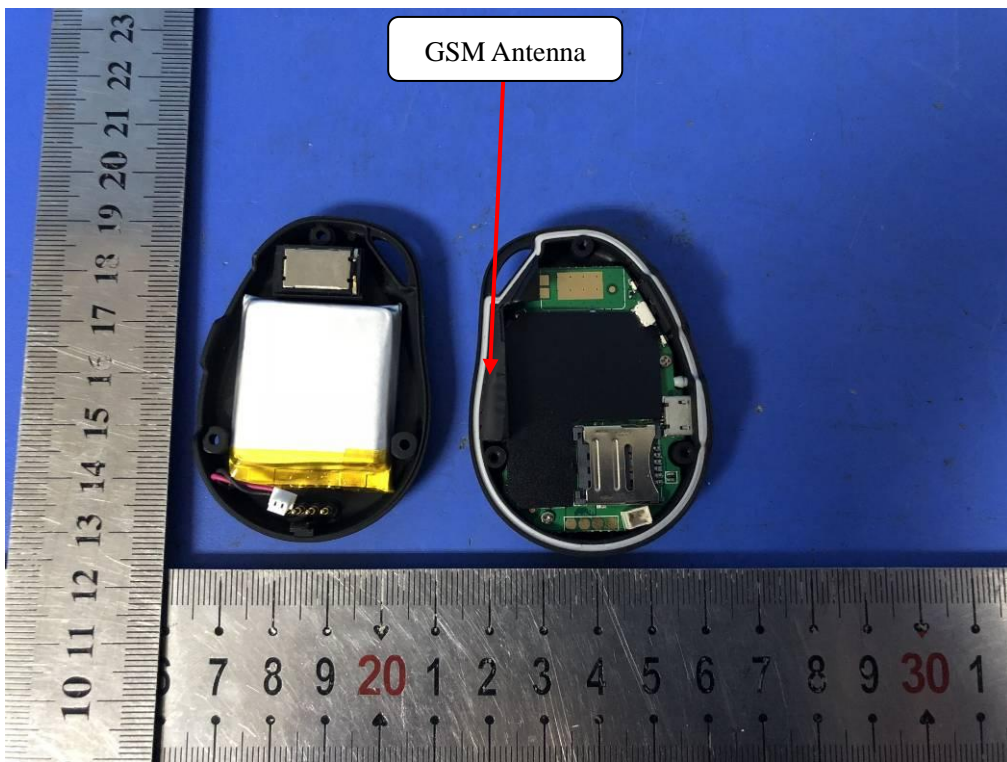


Fig.8

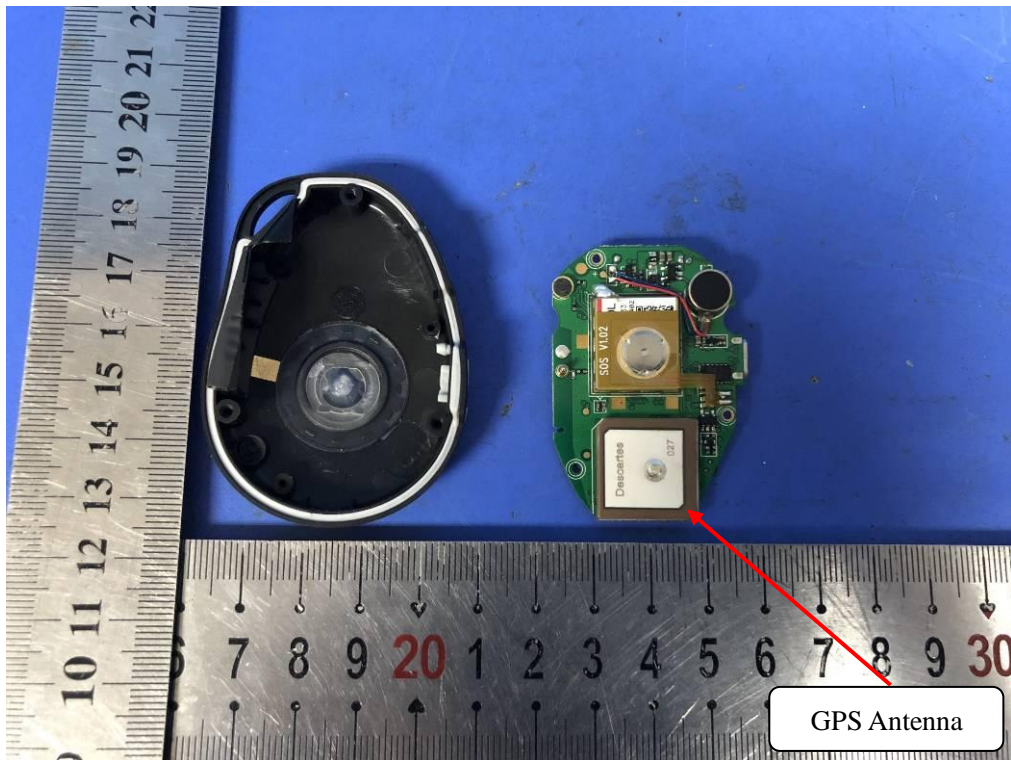


Fig.9

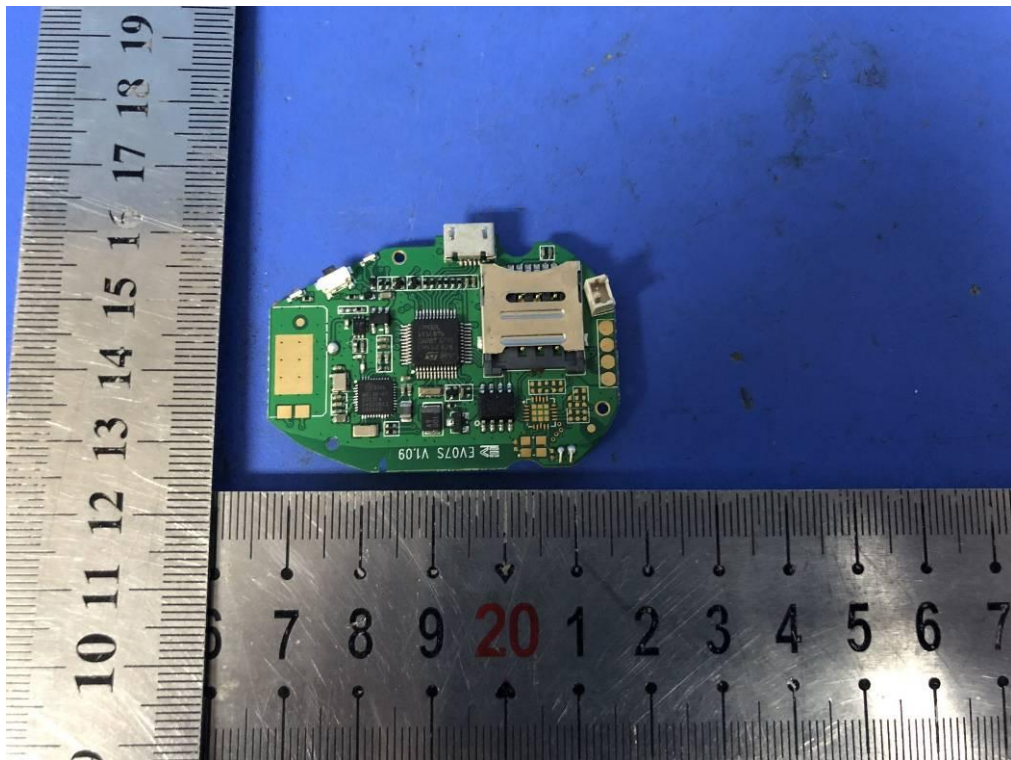


Fig.10

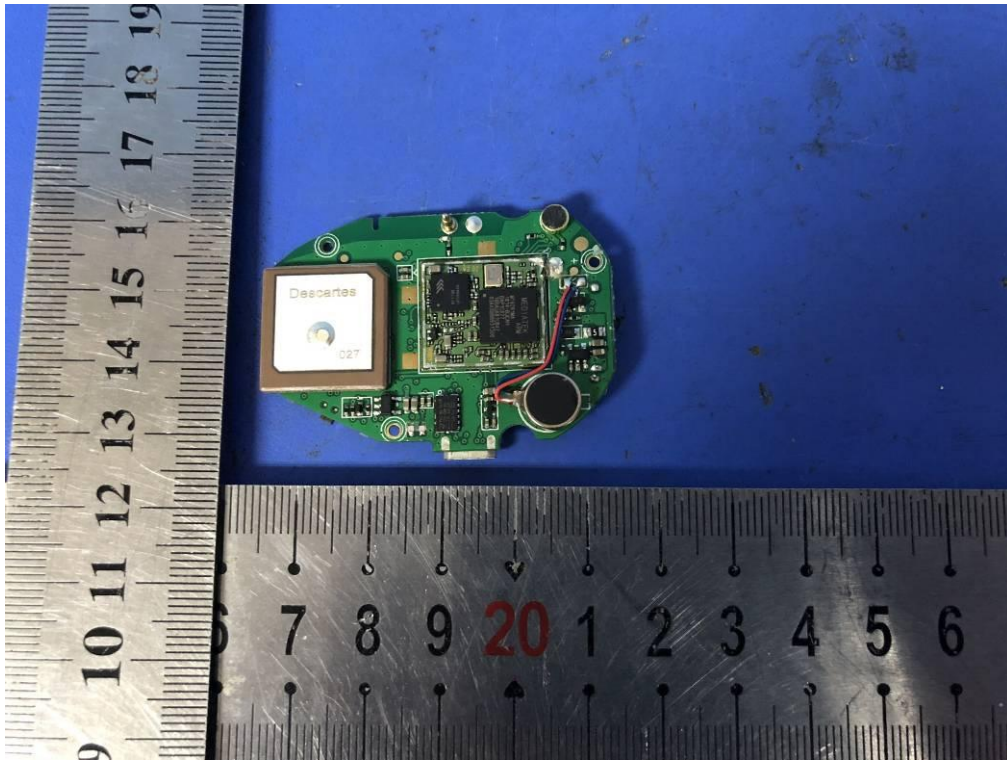


Fig.11

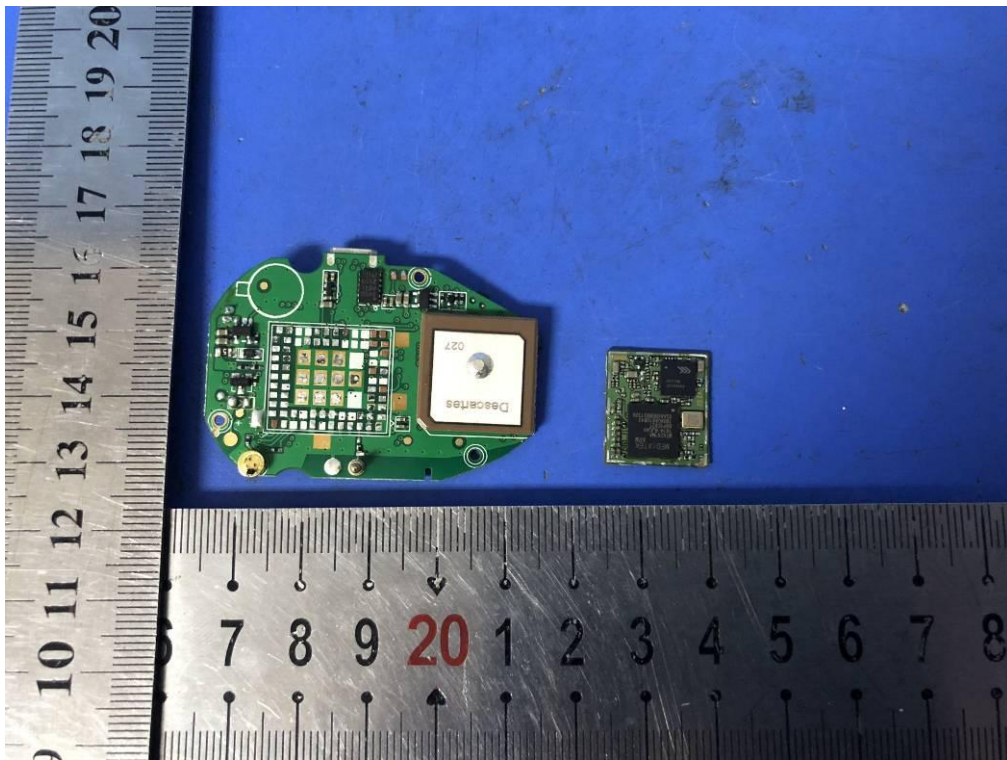


Fig.12

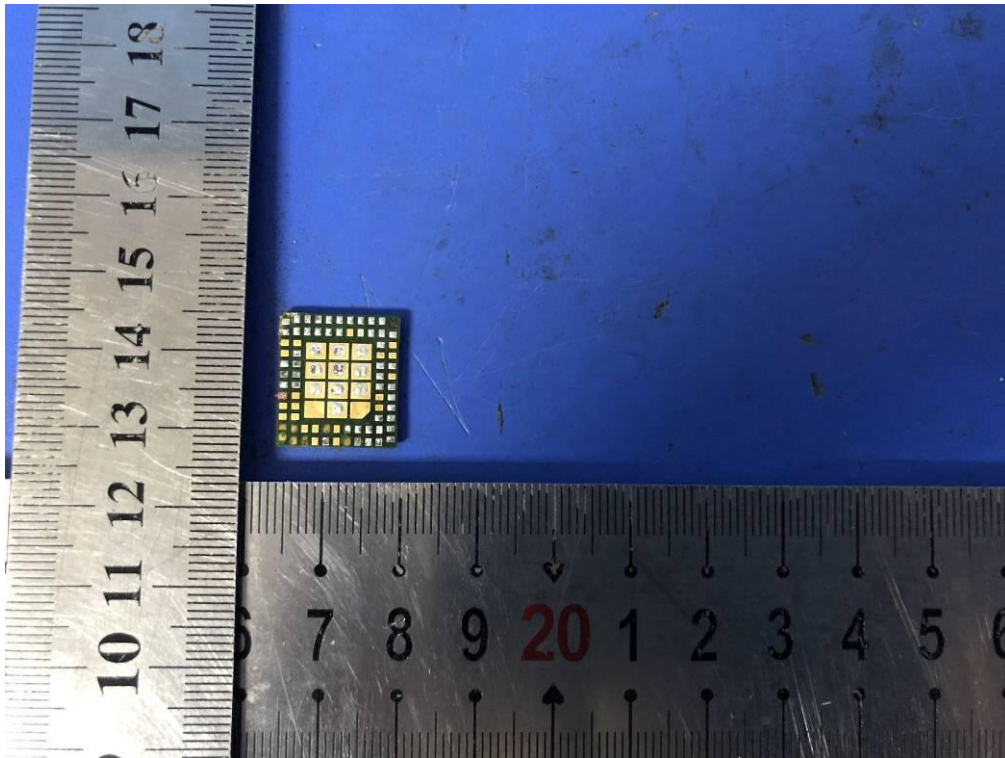


Fig.13



Fig.14

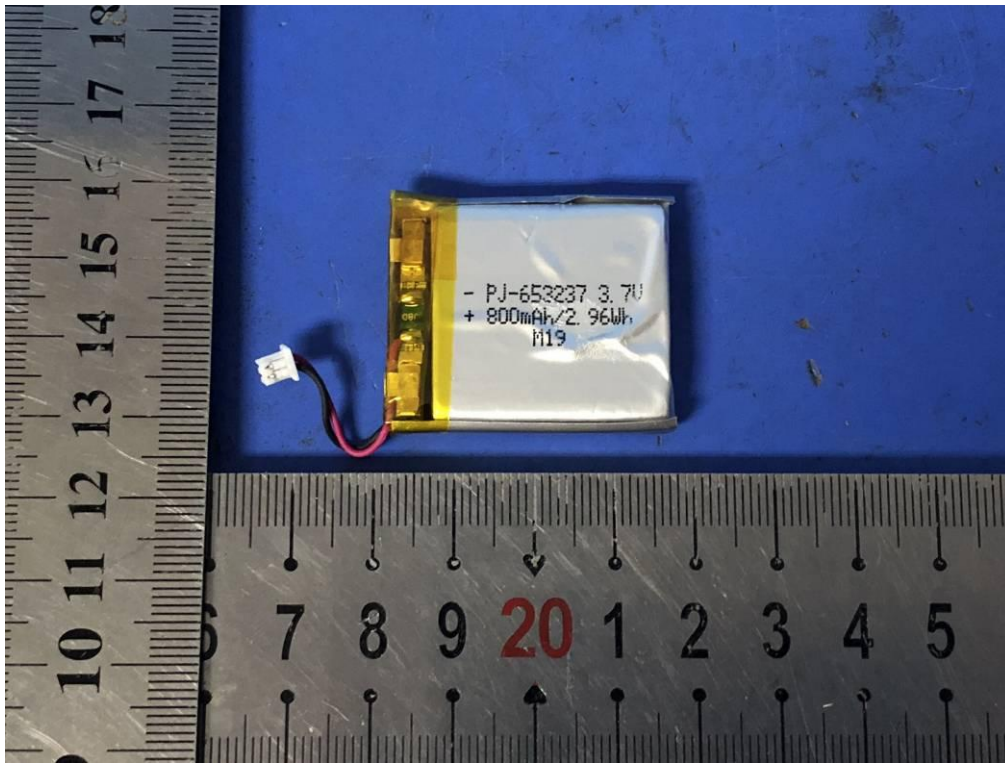


Fig.15

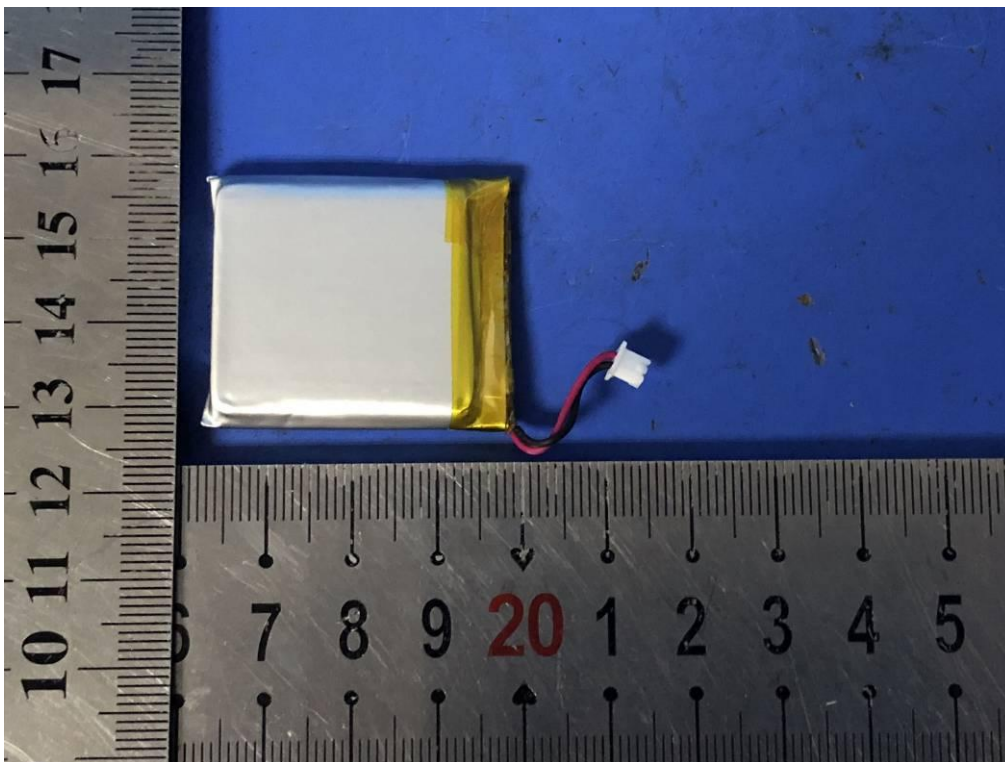


Fig.16