

IC REPORT

Applicant: Pointer Telocation Inc.

Address of Applicant: Pointer Telocation 7751 NW 48th street suite 395 Doral Florida
33166 Doral USA

Manufacturer/Factory: Pointer Telocation Inc.

**Address of
Manufacturer/Factory:** Pointer Telocation 7751 NW 48th street suite 395 Doral Florida
33166 Doral USA

Equipment Under Test (EUT)

Product Name: Cello Family

Model No.: Cello-CANiQ 3G NA K-Line - CT7800148-000,
Cello-CANiQ 3G NA AUX - CT7800149-000,
Cello-CANiQ 3G NA - CT7800145-000,
Cello CANiQ 3G NA (DTCO) - CT7800147-000

Trade Mark: Pointer

Contains IC: 5131A-UE910NA

Applicable standards: ICES-003: Issue 6, January 2016

Date of sample receipt: July 03, 2018

Date of Test: July 04-11, 2018

Date of report issued: July 12, 2018

Test Result : PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



The stamp is circular with the text 'GLOBAL TECHNOLOGY SERVICES CO.' around the perimeter and 'GTS' in the center. Below 'GTS' is the text 'GLOBAL TESTING'. The signature is written in black ink over the stamp.

Robinson Lo
Laboratory Manager

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

2 Version

Version No.	Date	Description
00	July 12, 2018	Original

Prepared By:



Date:

July 12, 2018

Project Engineer

Check By:



Date:

July 12, 2018

Reviewer

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4 Test Summary

Test Item	Test Requirement	Test Method	Class / Severity	Result
Conducted Emission	ICES-003	ANSI C63.4	Class B	PASS
Radiated Emissions	ICES-003	ANSI C63.4	Class B	PASS

Pass: The EUT complies with the essential requirements in the standard.

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	± 4.34dB	(1)
Radiated Emission	30MHz ~ 1000MHz	± 4.24dB	(1)
Radiated Emission	1GHz ~ 26.5GHz	± 4.68dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.45dB	(1)

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.
 Remark: Test according to ANSI C63.4:2014

5 General Information

5.1 General Description of EUT

Product Name:	Cello Family
Model No.:	Cello-CANiQ 3G NA K-Line - CT7800148-000, Cello-CANiQ 3G NA AUX - CT7800149-000, Cello-CANiQ 3G NA - CT7800145-000, Cello CANiQ 3G NA (DTCO) - CT7800147-000
Test Model No:	Cello-CANiQ 3G NA K-Line - CT7800148-000
<p><i>Differences between the variants Parents (most complicated) and Suns :</i></p> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> Parent - Cello-CANiQ 3G NA K-Line P\n: CT7800148-000 Modem:3G NA </div> <div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid black; padding: 5px; width: 30%; text-align: center;"> Sun - Cello CANiQ 3G NA (DTCO) P\n: CT7800147-000 Delta: DTCO input instead of output . </div> <div style="border: 1px solid black; padding: 5px; width: 30%; text-align: center;"> Sun - Cello-CANiQ (3G) NA P\n: CT7800145-000 Delta: No K-line connection. Additional output instead. </div> <div style="border: 1px solid black; padding: 5px; width: 30%; text-align: center;"> Sun - Cello-CANiQ 3G NA AUX P\n: CT7800149-000 Delta: No K-line connection. Additional output instead, we not supporting full Audio device only Microphone </div> </div> </div>	
Serial No.:	2192983
Test sample(s) ID:	GTS201807000020-1
Sample(s) Status:	Normal sample
Hardware Version:	A
Software Version:	38
Power supply:	DC 9-32V or DC 3.7V, 3.7Wh, 1000mAh by Lithium Ion Polymer Battery

5.2 Test mode and Test voltage

Test mode:	
On mode	Keep the EUT in operation mode
Test voltage:	
AC120V 60Hz	

5.3 Test Facility

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

- **FCC —Registration No.: 381383**

Global United Technology Services Co., Ltd., Shenzhen 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 files. Registration 381383, January 08, 2018.

- **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, August 15, 2016

5.4 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.
 No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China
 Tel: 0755-27798480
 Fax: 0755-27798960

5.5 Description of Support Units

Manufacturer	Description	Model	Serial Number
MEILI	DC POWER SUPPLY	MCH-305A	011121168
Lenovo	PC	N/A	N/A
DELL	KEYBOARD	SK-8115	GTS237-2
DELL	MOUSE	MOC5UO	GTS237-3

5.6 Deviation from Standards

None.

5.7 Abnormalities from Standard Conditions

None.

6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 27 2018	June. 26 2019
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 27 2018	June. 26 2019
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June. 27 2018	June. 26 2019
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 27 2018	June. 26 2019
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 27 2018	June. 26 2019
9	Coaxial Cable	GTS	N/A	GTS211	June. 27 2018	June. 26 2019
10	Coaxial cable	GTS	N/A	GTS210	June. 27 2018	June. 26 2019
11	Coaxial Cable	GTS	N/A	GTS212	June. 27 2018	June. 26 2019
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 27 2018	June. 26 2019
13	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	June. 27 2018	June. 26 2019
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 27 2018	June. 26 2019
15	Band filter	Amindeon	82346	GTS219	June. 27 2018	June. 26 2019
16	Power Meter	Anritsu	ML2495A	GTS540	June. 27 2018	June. 26 2019
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 27 2018	June. 26 2019
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS588	June. 27 2018	June. 26 2019
19	Splitter	Agilent	11636B	GTS237	June. 27 2018	June. 26 2019
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June 28 2017	June 27 2018

Conducted Emission						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.16 2014	May.15 2019
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 27 2018	June. 26 2019
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 27 2018	June. 26 2019
4	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June. 27 2018	June. 26 2019
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Thermo meter	KTJ	TA328	GTS233	June. 27 2018	June. 26 2019
8	Absorbing clamp	Elektronik-Feinmechanik	MDS21	GTS229	June. 27 2018	June. 26 2019

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Humidity/ Temperature Indicator	Shanghai	ZJ1-2B	GTS243	June. 27 2018	June. 26 2019
2	Barometer	ChangChun	DYM3	GTS255	June. 27 2018	June. 26 2019

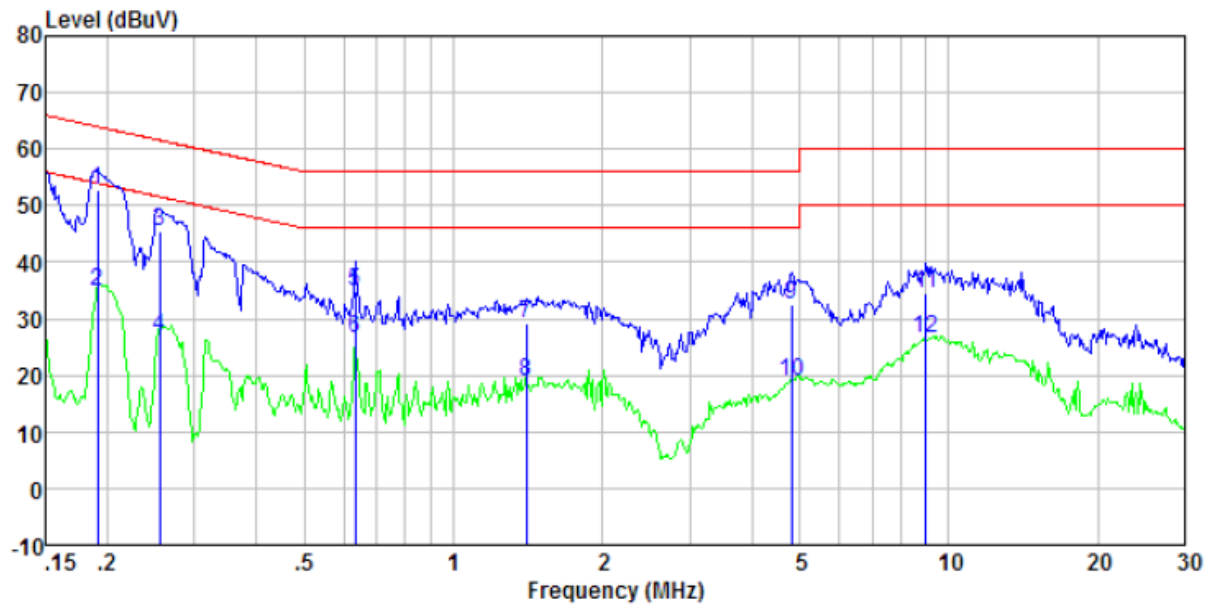
7 Test results and Measurement Data

7.1 Conducted Emissions

Test Requirement:	ICES-003		
Test Method:	ANSI C63.4:2014		
Test Frequency Range:	150KHz to 30MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test setup:			
	<p><i>Remark</i> E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p>		
Test procedure:	<ol style="list-style-type: none"> 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4:2014 on conducted measurement. 		
Test Instruments:	Refer to section 6.0 for details		
Test mode:	Refer to section 5.2 for details		
Test results:	Pass		

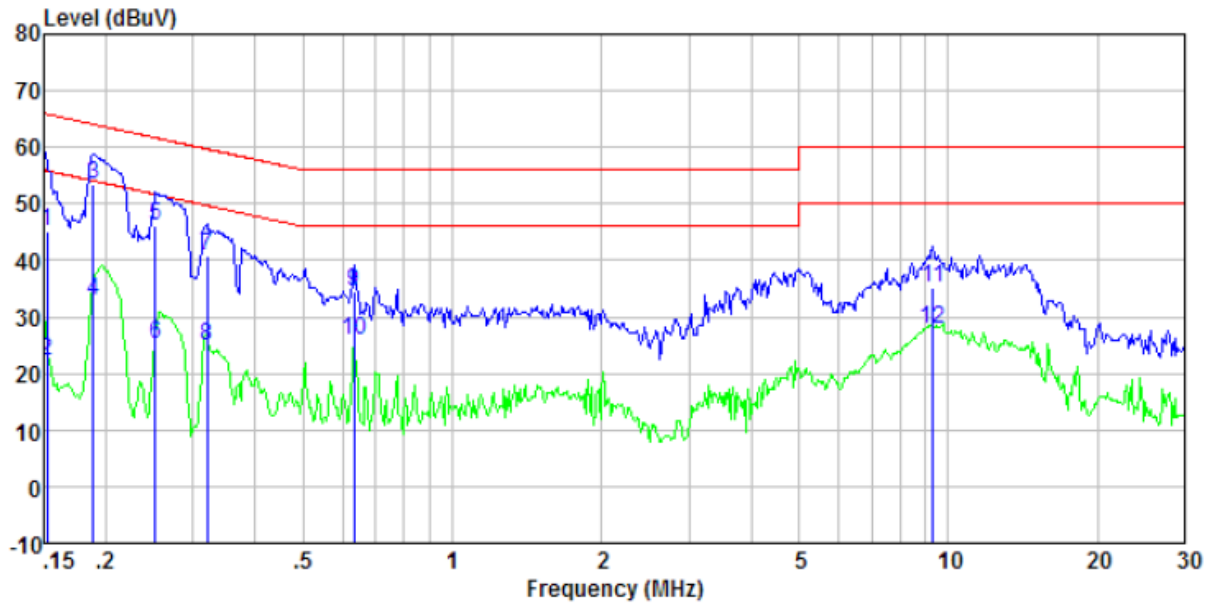
Measurement data

Test mode:	On mode	Phase Polarity:	Line
Temp.:	35°C	Humidity:	55%



Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.19	52.22	0.40	0.10	52.72	63.98	-11.26	QP
0.19	34.22	0.40	0.10	34.72	53.98	-19.26	Average
0.25	44.96	0.40	0.10	45.46	61.60	-16.14	QP
0.25	26.26	0.40	0.10	26.76	51.60	-24.84	Average
0.63	34.41	0.28	0.12	34.81	56.00	-21.19	QP
0.63	26.03	0.28	0.12	26.43	46.00	-19.57	Average
1.40	28.98	0.20	0.16	29.34	56.00	-26.66	QP
1.40	18.50	0.20	0.16	18.86	46.00	-27.14	Average
4.82	32.16	0.20	0.17	32.53	56.00	-23.47	QP
4.82	18.67	0.20	0.17	19.04	46.00	-26.96	Average
9.01	34.06	0.20	0.20	34.46	60.00	-25.54	QP
9.01	26.28	0.20	0.20	26.68	50.00	-23.32	Average

Test mode:	On mode	Phase Polarity:	Neutral
Temp.:	35°C	Humidity:	55%

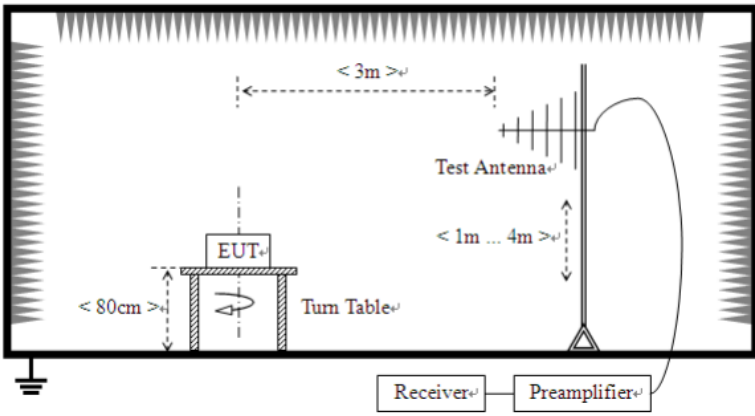
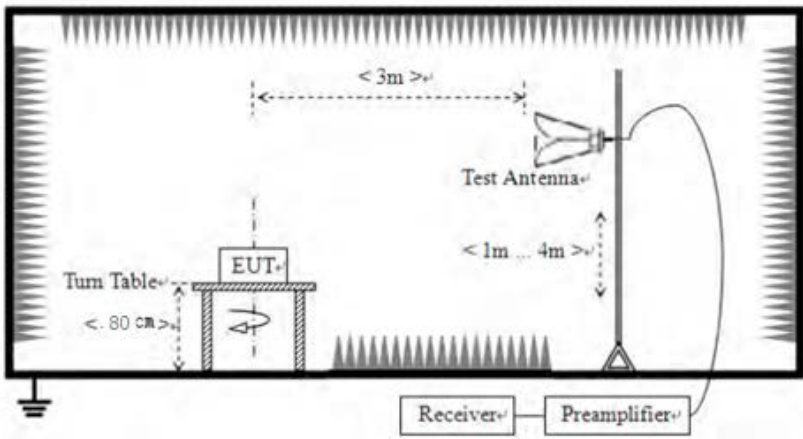


Freq MHz	Reading level dBuV	LISN/ISN factor dB/m	Cable loss dB	Level dBuV	Limit level dBuV	Over limit dB	Remark
0.15	44.70	0.40	0.07	45.17	65.87	-20.70	QP
0.15	21.86	0.40	0.07	22.33	55.87	-33.54	Average
0.19	53.05	0.40	0.10	53.55	64.11	-10.56	QP
0.19	32.20	0.40	0.10	32.70	54.11	-21.41	Average
0.25	45.68	0.40	0.10	46.18	61.69	-15.51	QP
0.25	24.70	0.40	0.10	25.20	51.69	-26.49	Average
0.32	40.37	0.39	0.10	40.86	59.71	-18.85	QP
0.32	24.53	0.39	0.10	25.02	49.71	-24.69	Average
0.63	34.10	0.28	0.12	34.50	56.00	-21.50	QP
0.63	25.63	0.28	0.12	26.03	46.00	-19.97	Average
9.30	34.90	0.20	0.20	35.30	60.00	-24.70	QP
9.30	27.45	0.20	0.20	27.85	50.00	-22.15	Average

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

7.2 Radiated Emission Method

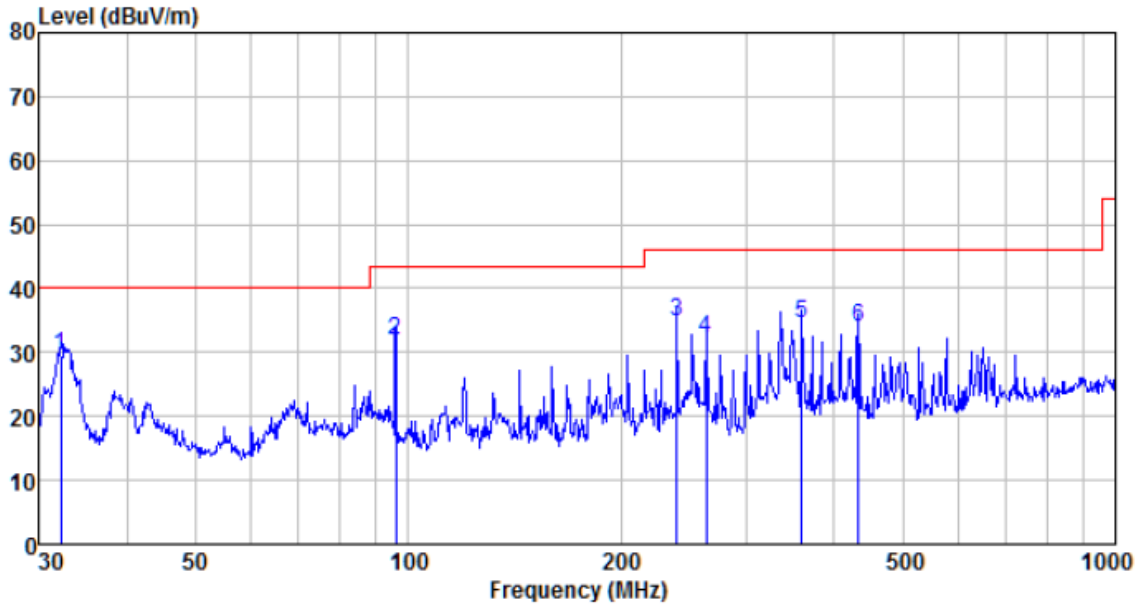
Test Requirement:	ICES-003				
Test Method:	ANSI C63.4:2014				
Test Frequency Range:	30MHz to 6000MHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
Limit: (Spurious Emissions)	Frequency	Limit (dBuV/m @3m)		Remark	
	30MHz-88MHz	40.00		Quasi-peak Value	
	88MHz-216MHz	43.50		Quasi-peak Value	
	216MHz-960MHz	46.00		Quasi-peak Value	
	960MHz-1GHz	54.00		Quasi-peak Value	
	Above 1GHz	54.00		Average Value	
		74.00		Peak Value	
Test setup:	Below 1GHz				
					
Test setup:	Above 1GHz				
					
Test Procedure:	1. The EUT was placed on the top of a rotating table 0.8 meters above the				

	<p>ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</p> <ol style="list-style-type: none"> 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement data

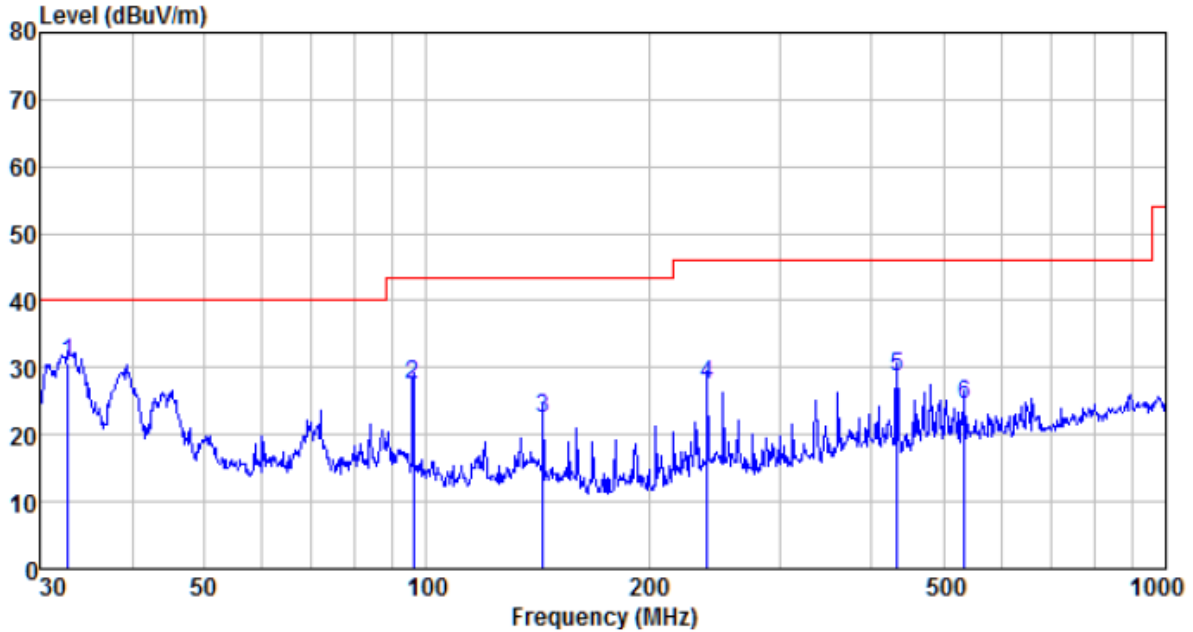
Below 1GHz:

Test mode:	On mode	Antenna Polarity:	Horizontal
Temp.:	35°C	Humidity:	54%



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
32.293	52.83	11.25	0.58	35.17	29.49	40.00	-10.51	QP
96.099	55.80	11.65	1.16	36.69	31.92	43.50	-11.58	QP
239.987	58.37	11.85	2.07	37.37	34.92	46.00	-11.08	QP
263.819	54.70	12.58	2.19	37.39	32.08	46.00	-13.92	QP
360.448	54.57	14.70	2.67	37.48	34.46	46.00	-11.54	QP
432.546	52.60	15.99	3.01	37.52	34.08	46.00	-11.92	QP

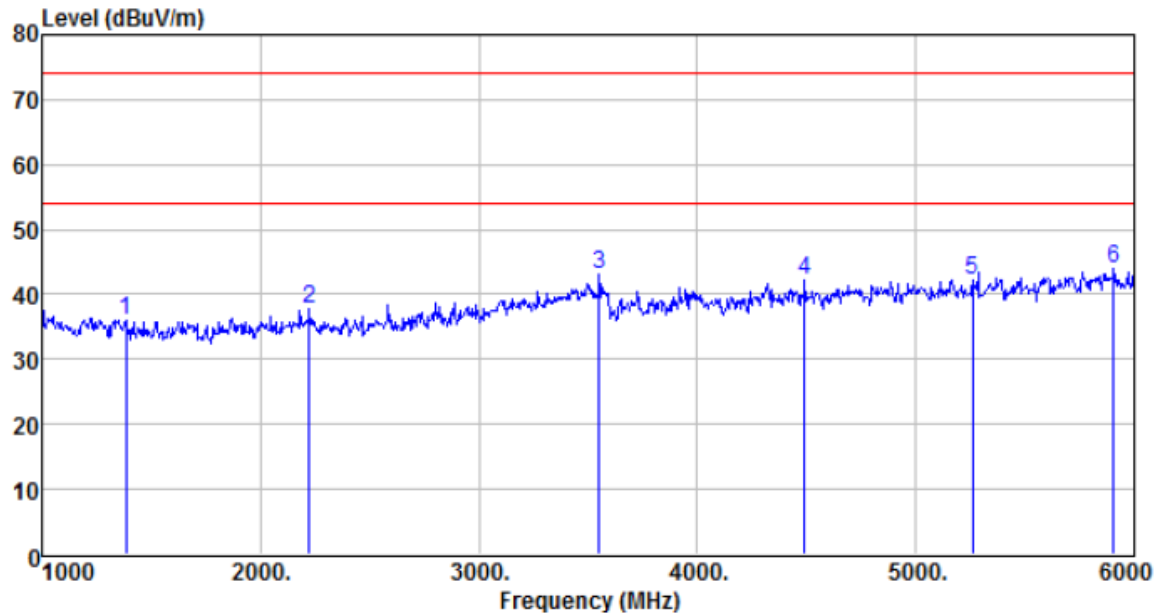
Test mode:	On mode	Antenna Polarity:	Vertical
Temp.:	35°C	Humidity:	54%



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
32.749	53.95	11.26	0.58	35.20	30.59	40.00	-9.41	QP
96.099	51.20	11.65	1.16	36.69	27.32	43.50	-16.18	QP
143.830	50.59	7.47	1.53	37.04	22.55	43.50	-20.95	QP
239.987	50.86	11.85	2.07	37.37	27.41	46.00	-18.59	QP
432.546	47.09	15.99	3.01	37.52	28.57	46.00	-17.43	QP
533.832	40.43	18.07	3.46	37.52	24.44	46.00	-21.56	QP

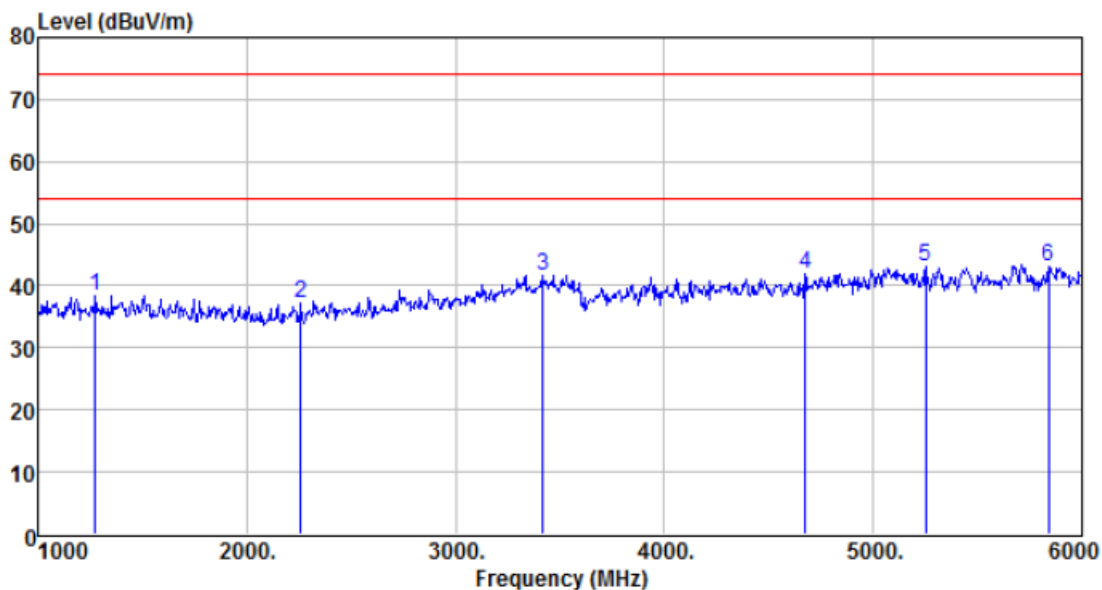
Above 1GHz

Test mode:	On mode	Antenna Polarity:	Horizontal
Temp.:	35°C	Humidity:	54%



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
1385.000	39.28	25.62	4.61	33.42	36.09	74.00	-37.91	Peak
2225.000	38.92	27.99	5.21	34.21	37.91	74.00	-36.09	Peak
3550.000	39.56	29.08	7.05	32.69	43.00	74.00	-31.00	Peak
4490.000	34.61	31.32	8.33	31.93	42.33	74.00	-31.67	Peak
5260.000	33.63	31.79	9.15	32.31	42.26	74.00	-31.74	Peak
5905.000	33.34	32.78	10.06	32.18	44.00	74.00	-30.00	Peak

Test mode:	On mode	Antenna Polarity:	Vertical
Temp.:	35°C	Humidity:	54%



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV	Limit level dBuV/m	Over limit dB	Remark
1275.000	41.44	25.58	4.52	33.21	38.33	74.00	-35.67	Peak
2260.000	38.02	28.01	5.25	34.17	37.11	74.00	-36.89	Peak
3420.000	39.12	28.67	6.80	32.85	41.74	74.00	-32.26	Peak
4675.000	33.94	31.63	8.49	32.02	42.04	74.00	-31.96	Peak
5250.000	34.33	31.84	9.15	32.31	43.01	74.00	-30.99	Peak
5840.000	32.61	32.70	9.99	32.22	43.08	74.00	-30.92	Peak

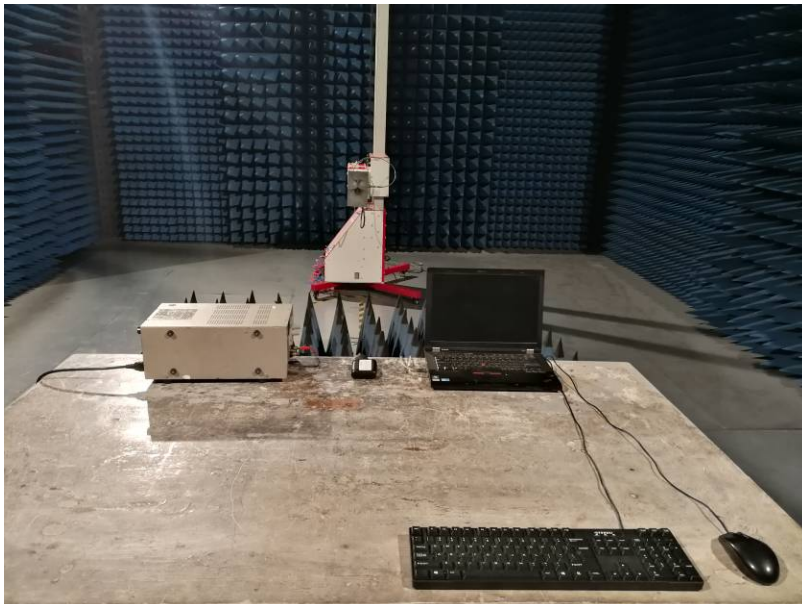
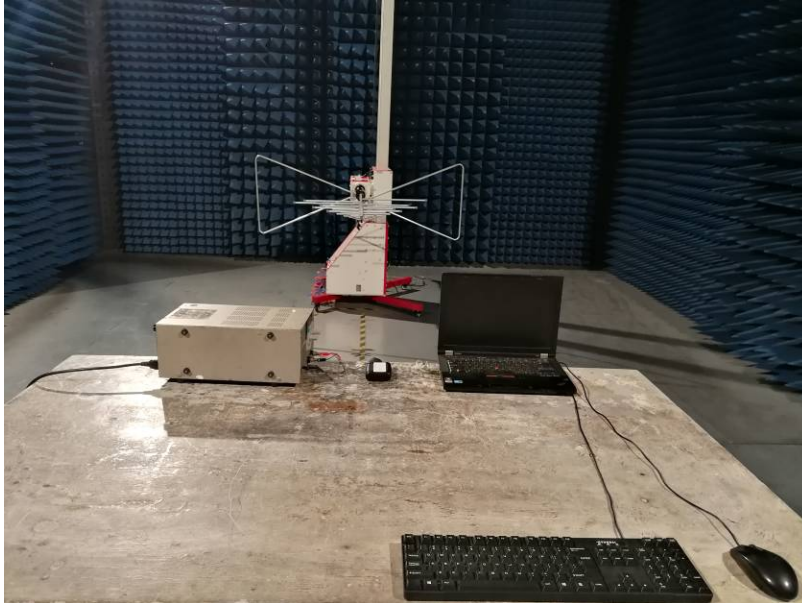
Note:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Pre-amplifier. The basic equation with a sample calculation is as follows:

$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Pre-amplifier Factor}$$

8 Test Setup Photo

Radiated Emission



Conducted Emission



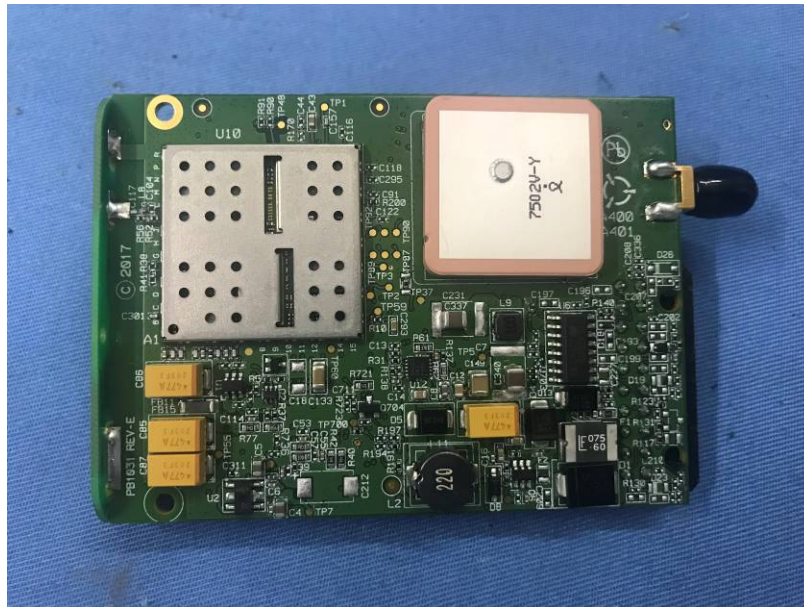
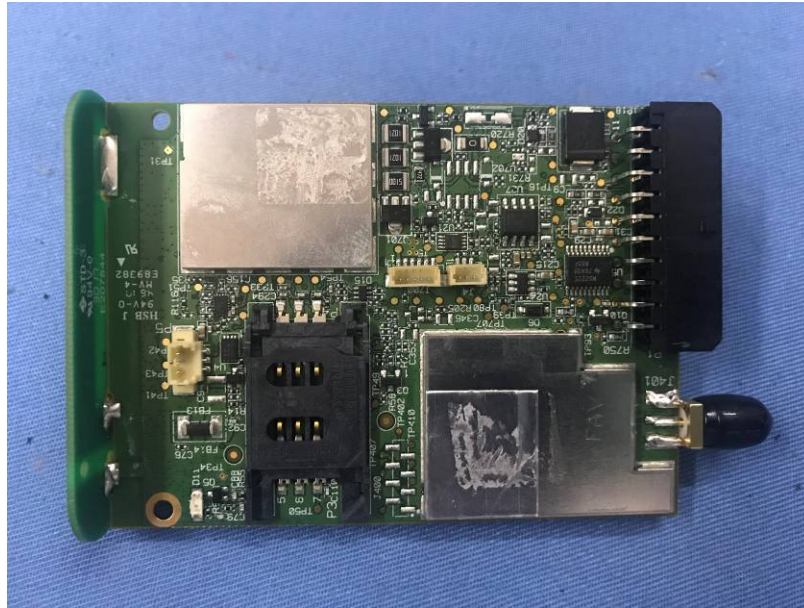
9 EUT Constructional Details

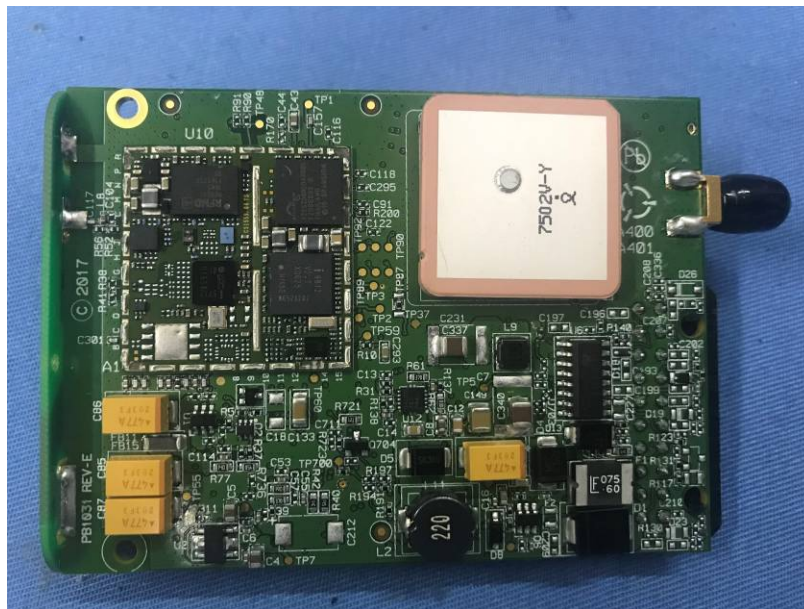


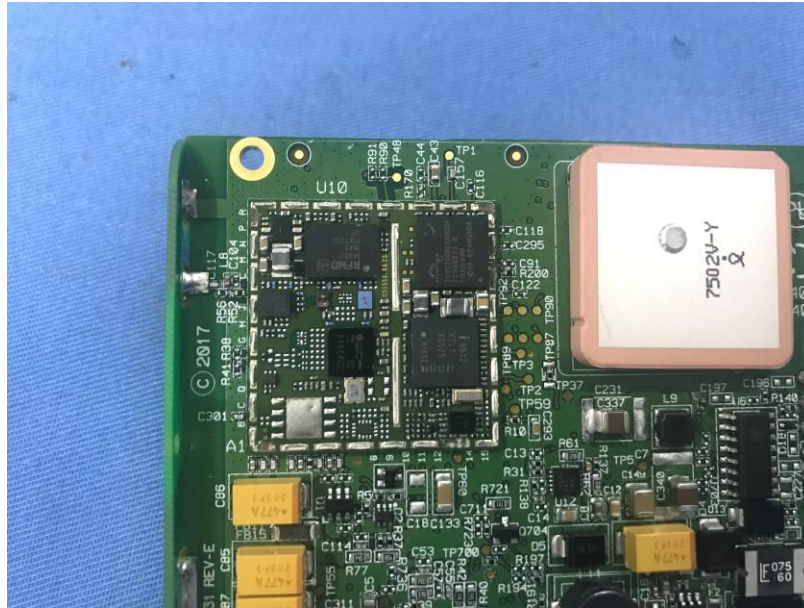












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