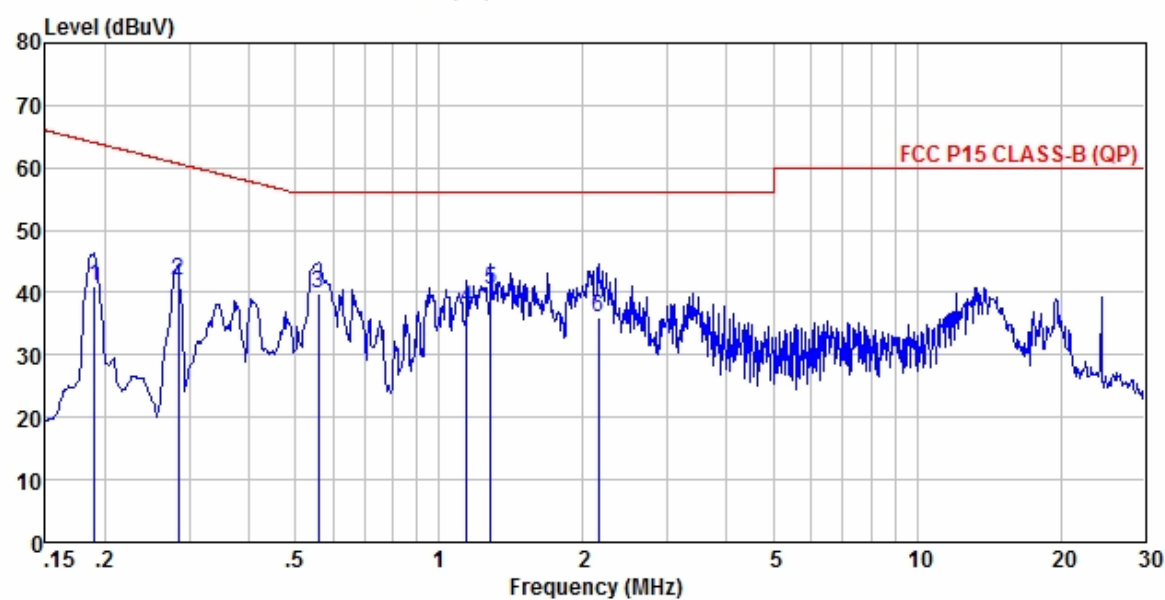
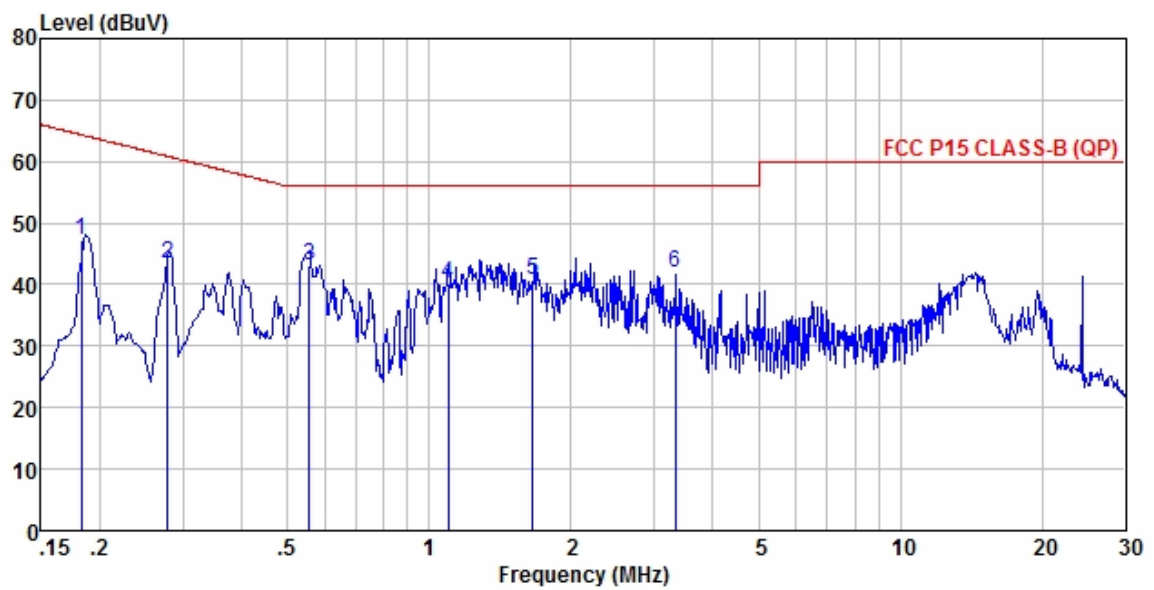


14.4 RESULTS & PERFORMANCE



Site : shielding room 3  
Condition : FCC P15 CLASS-B (QP) ENV216(N)-20120730 NEUTRAL  
EUT : GIS Data collector  
Model Name : loka/XF300/XF200/MG868H  
Temp/Humi : 20°C /56%  
Power Rating: DC 3.8V  
Mode : Bluetooth  
Memo :

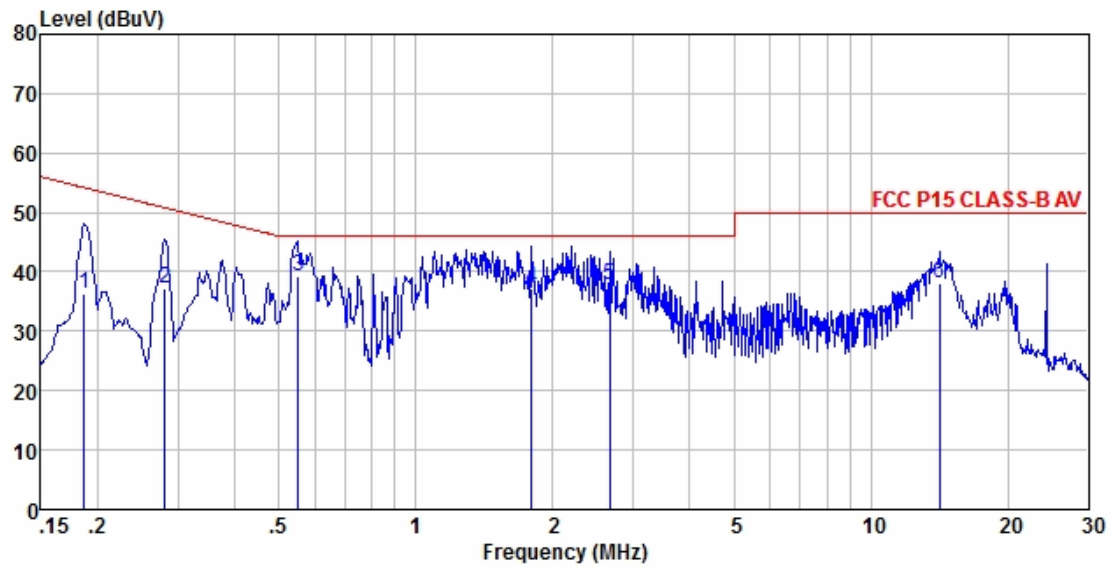
		Read	LISN	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.19	30.54	10.33	0.23	0.00	41.10	64.02	-22.92	QP
2	0.28	31.20	10.43	0.19	0.00	41.82	60.68	-18.86	QP
3	0.56	29.40	10.38	0.11	0.00	39.89	56.00	-16.11	QP
4	1.14	27.15	10.31	0.14	0.00	37.60	56.00	-18.40	QP
5 pp	1.28	30.11	10.31	0.14	0.00	40.56	56.00	-15.44	QP
6	2.16	25.60	10.31	0.15	0.00	36.06	56.00	-19.94	QP



Site : shielding room 3  
 Condition : FCC P15 CLASS-B (QP) ENV216(L)-20120730 LINE  
 EUT : GIS Data collector  
 Model Name : loka/XF300/XF200/MG868H  
 Temp/Humi : 20°C /56%  
 Power Rating: DC 3.8V  
 Mode : Bluetooth  
 Memo :

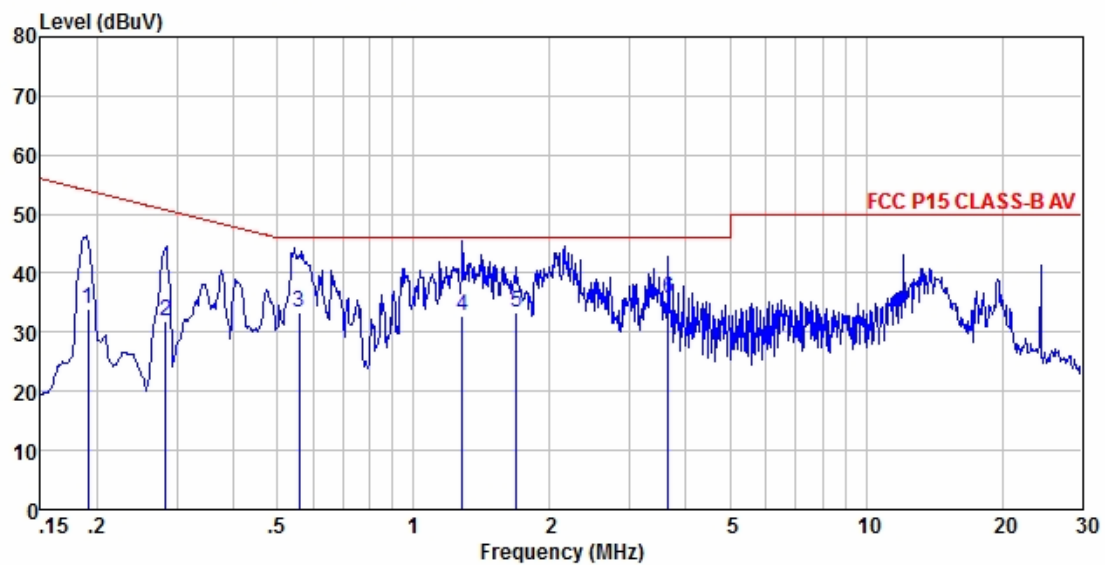
	Freq	Read Level	LISN Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.18	36.37	10.51	0.23	0.00	47.11	64.35	-17.24	QP
2	0.28	32.72	10.47	0.19	0.00	43.38	60.85	-17.47	QP
3 pp	0.56	32.40	10.51	0.11	0.00	43.02	56.00	-12.98	QP
4	1.10	29.50	10.52	0.14	0.00	40.16	56.00	-15.84	QP
5	1.66	30.20	10.52	0.15	0.00	40.87	56.00	-15.13	QP
6	3.33	31.17	10.52	0.15	0.00	41.84	56.00	-14.16	QP

Data: 11 File: H:\20130627.EM6 (12)



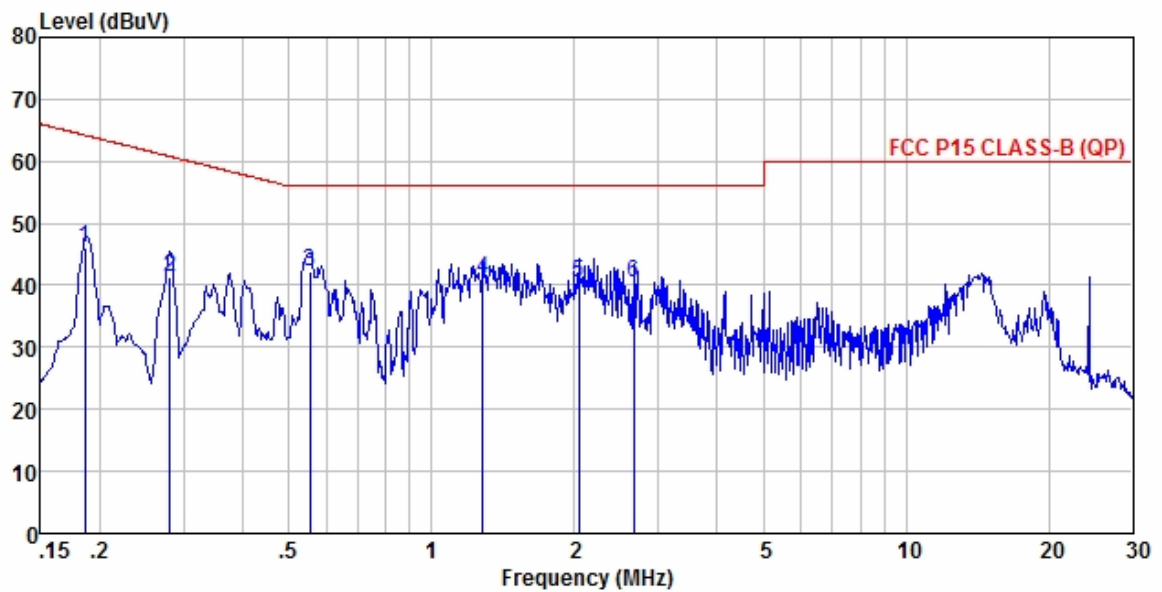
Site : shielding room 3  
 Condition : FCC P15 CLASS-B AV ENV216(L)-20120730 LINE  
 EUT : GIS Data collector  
 Model Name : loka/XF300/XF200/MG868H  
 Temp/Humi : 20°C /56%  
 Power Rating: DC 3.8V  
 Mode : Bluetooth  
 Memo :

	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.19	25.50	10.49	0.23	0.00	36.22	54.20	-17.98	Average
2	0.28	26.60	10.48	0.19	0.00	37.27	50.81	-13.54	Average
3 pp	0.55	28.60	10.51	0.11	0.00	39.22	46.00	-6.78	Average
4	1.80	26.60	10.52	0.15	0.00	37.27	46.00	-8.73	Average
5	2.66	27.20	10.52	0.15	0.00	37.87	46.00	-8.13	Average
6	14.14	27.51	10.50	0.18	0.00	38.19	50.00	-11.81	Average



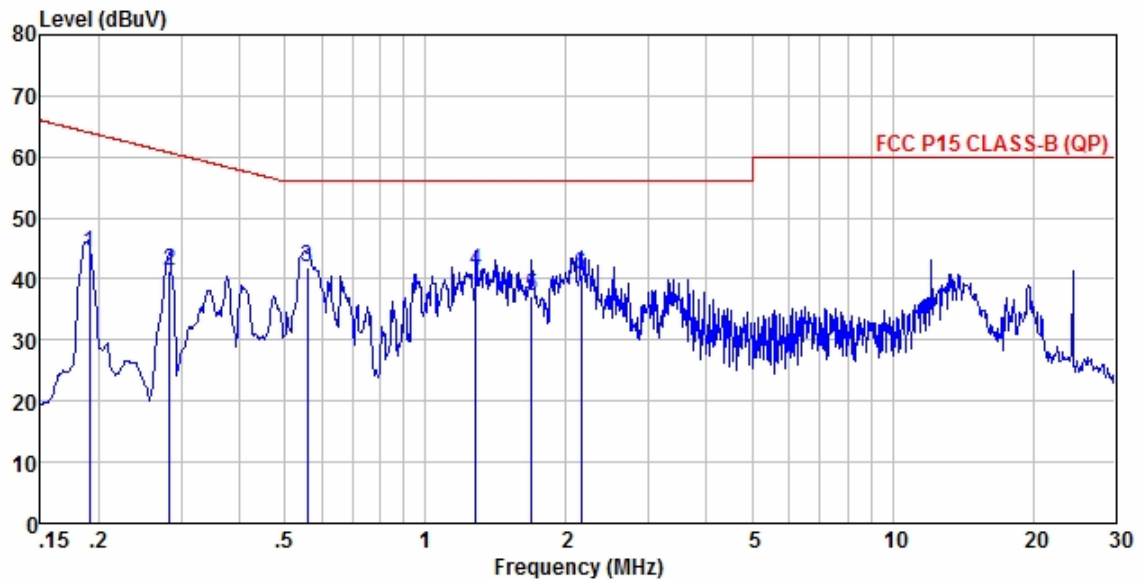
Site : shielding room 3  
 Condition : FCC P15 CLASS-B AV ENV216(N)-20120730 NEUTRAL  
 EUT : GIS Data collector  
 Model Name : loka/XF300/XF200/MG868H  
 Temp/Humi : 20°C /56%  
 Power Rating: DC 3.8V  
 Mode : Bluetooth  
 Memo :

	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.19	23.45	10.34	0.23	0.00	34.02	53.99	-19.97	Average
2	0.28	21.18	10.43	0.19	0.00	31.80	50.70	-18.90	Average
3	0.56	22.84	10.38	0.11	0.00	33.33	46.00	-12.67	Average
4	1.28	22.23	10.31	0.14	0.00	32.68	46.00	-13.32	Average
5	1.69	22.96	10.31	0.15	0.00	33.42	46.00	-12.58	Average
6 pp	3.66	25.17	10.32	0.14	0.00	35.63	46.00	-10.37	Average



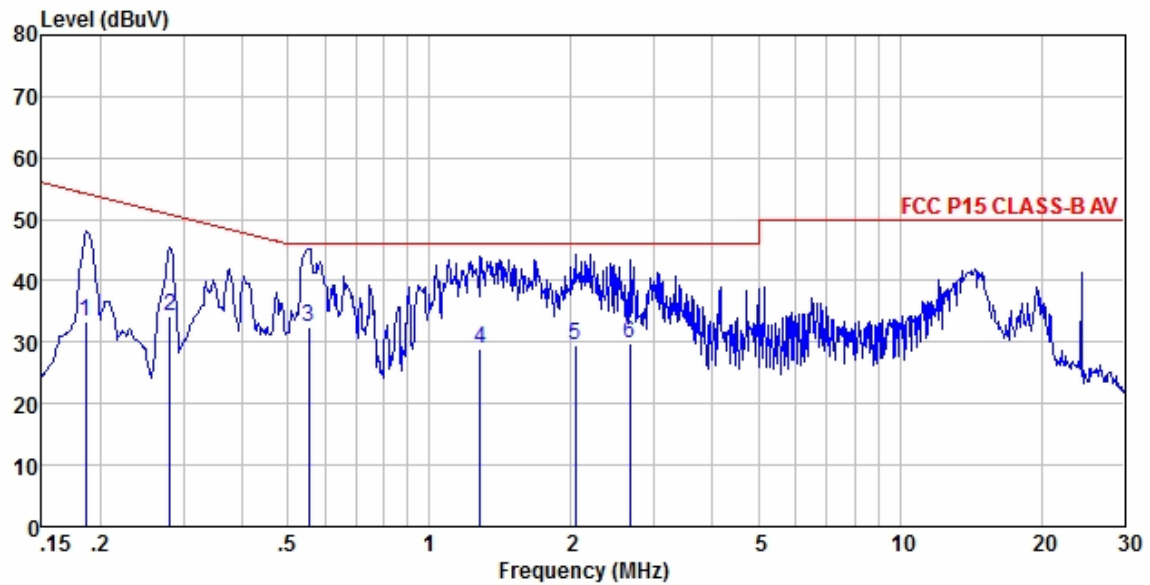
Site : shielding room 3  
 Condition : FCC P15 CLASS-B (QP) ENV216(L)-20120730 LINE  
 EUT : GIS Data collector  
 Model Name : loka/XF300/XF200/MG868H  
 Temp/Humi : 20°C /56%  
 Power Rating: DC 3.8V  
 Mode : data exchanging  
 Memo :

		Read	LISN	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.19	35.37	10.50	0.23	0.00	46.10	64.21	-18.11	QP
2	0.28	30.71	10.48	0.19	0.00	41.38	60.79	-19.41	QP
3 pp	0.56	31.62	10.51	0.11	0.00	42.24	56.00	-13.76	QP
4	1.28	30.44	10.52	0.14	0.00	41.10	56.00	-14.90	QP
5	2.04	29.67	10.52	0.15	0.00	40.34	56.00	-15.66	QP
6	2.66	29.64	10.52	0.15	0.00	40.31	56.00	-15.69	QP



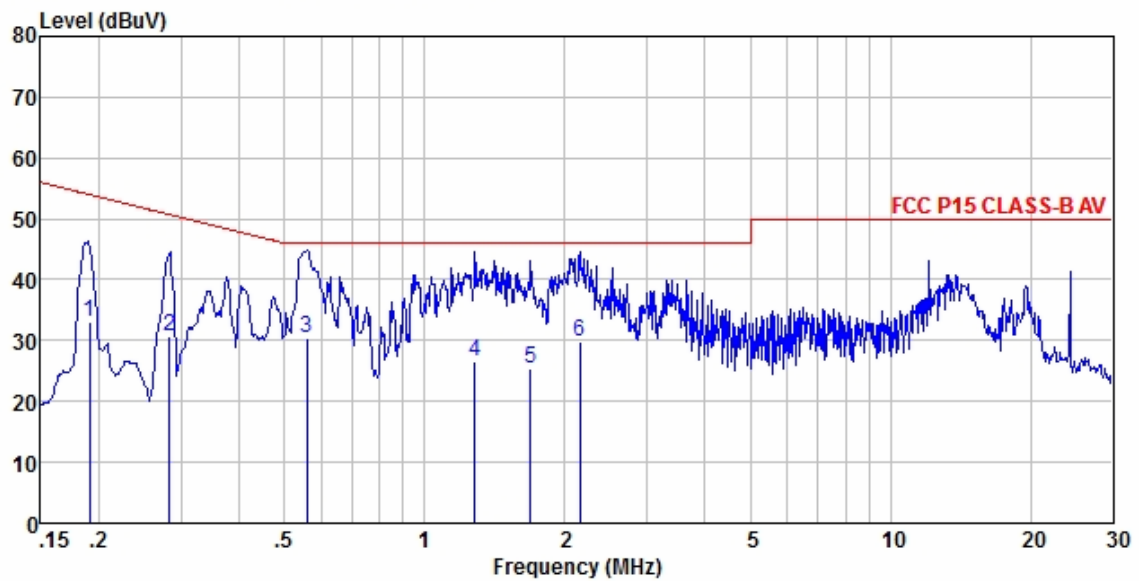
Site : shielding room 3  
 Condition : FCC P15 CLASS-B (QP) ENV216(N)-20120730 NEUTRAL  
 EUT : GIS Data collector  
 Model Name : loka/XF300/XF200/MG868H  
 Temp/Humi : 20°C /56%  
 Power Rating: DC 3.8V  
 Mode : data exchanging  
 Memo :

	Freq	Read Level	LISN Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.19	33.69	10.34	0.23	0.00	44.26	63.99	-19.73	QP
2	0.28	30.82	10.43	0.19	0.00	41.44	60.70	-19.26	QP
3 pp	0.56	31.48	10.38	0.11	0.00	41.97	56.00	-14.03	QP
4	1.28	30.98	10.31	0.14	0.00	41.43	56.00	-14.57	QP
5	1.69	26.62	10.31	0.15	0.00	37.08	56.00	-18.92	QP
6	2.16	30.22	10.31	0.15	0.00	40.68	56.00	-15.32	QP



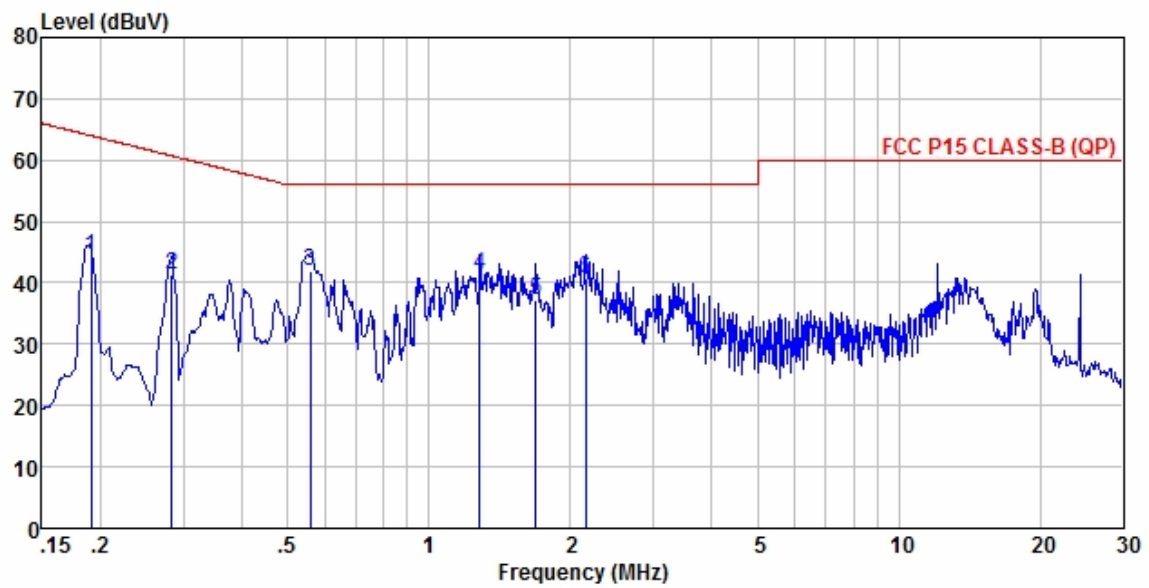
Site : shielding room 3  
 Condition : FCC P15 CLASS-B AV ENV216(L)-20120730 LINE  
 EUT : GIS Data collector  
 Model Name : loka/XF300/XF200/MG868H  
 Temp/Humi : 20°C /56%  
 Power Rating: DC 3.8V  
 Mode : data exchanging  
 Memo :

	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.19	22.53	10.50	0.23	0.00	33.26	54.21	-20.95	Average
2	0.28	23.69	10.48	0.19	0.00	34.36	50.79	-16.43	Average
3 pp	0.56	21.87	10.51	0.11	0.00	32.49	46.00	-13.51	Average
4	1.28	18.35	10.52	0.14	0.00	29.01	46.00	-16.99	Average
5	2.04	18.81	10.52	0.15	0.00	29.48	46.00	-16.52	Average
6	2.66	19.25	10.52	0.15	0.00	29.92	46.00	-16.08	Average



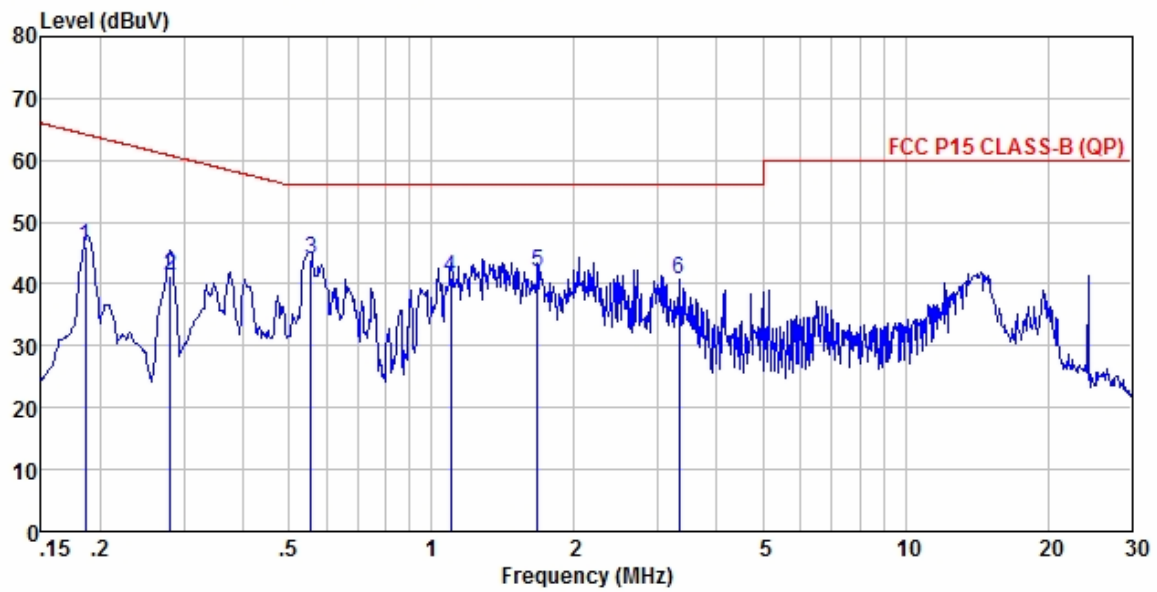
Site : shielding room 3  
 Condition : FCC P15 CLASS-B AV ENV216(N)-20120730 NEUTRAL  
 EUT : GIS Data collector  
 Model Name : loka/XF300/XF200/MG868H  
 Temp/Humi : 20°C /56%  
 Power Rating: DC 3.8V  
 Mode : data exchanging  
 Memo :

	Freq	Read Level	LISN Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.19	22.45	10.34	0.23	0.00	33.02	53.99	-20.97	Average
2	0.28	20.18	10.43	0.19	0.00	30.80	50.70	-19.90	Average
3 pp	0.56	19.84	10.38	0.11	0.00	30.33	46.00	-15.67	Average
4	1.28	16.23	10.31	0.14	0.00	26.68	46.00	-19.32	Average
5	1.69	14.96	10.31	0.15	0.00	25.42	46.00	-20.58	Average
6	2.16	19.37	10.31	0.15	0.00	29.83	46.00	-16.17	Average



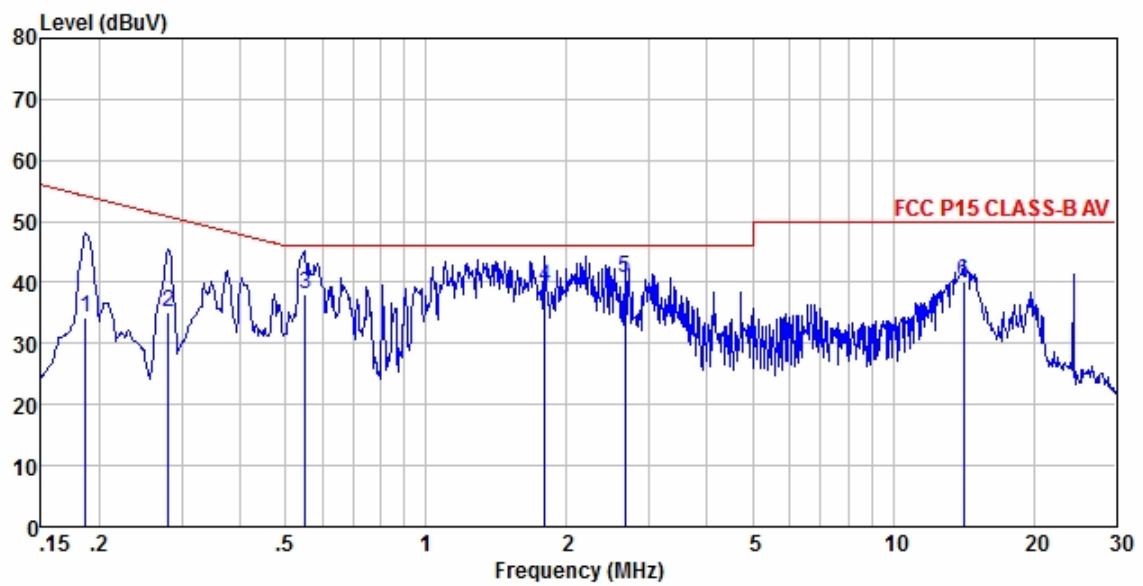
Site : shielding room 3  
 Condition : FCC P15 CLASS-B (QP) ENV216(N)-20120730 NEUTRAL  
 EUT : GIS Data collector  
 Model Name : loka/XF300/XF200/MG868H  
 Temp/Humi : 20°C /56%  
 Power Rating: DC 3.8V  
 Mode : WiFi  
 Memo :

	Freq	Read Level	LISN Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.19	33.69	10.34	0.23	0.00	44.26	63.99	-19.73	QP
2	0.28	30.82	10.43	0.19	0.00	41.44	60.70	-19.26	QP
3 pp	0.56	31.48	10.38	0.11	0.00	41.97	56.00	-14.03	QP
4	1.28	30.98	10.31	0.14	0.00	41.43	56.00	-14.57	QP
5	1.69	26.62	10.31	0.15	0.00	37.08	56.00	-18.92	QP
6	2.16	30.22	10.31	0.15	0.00	40.68	56.00	-15.32	QP



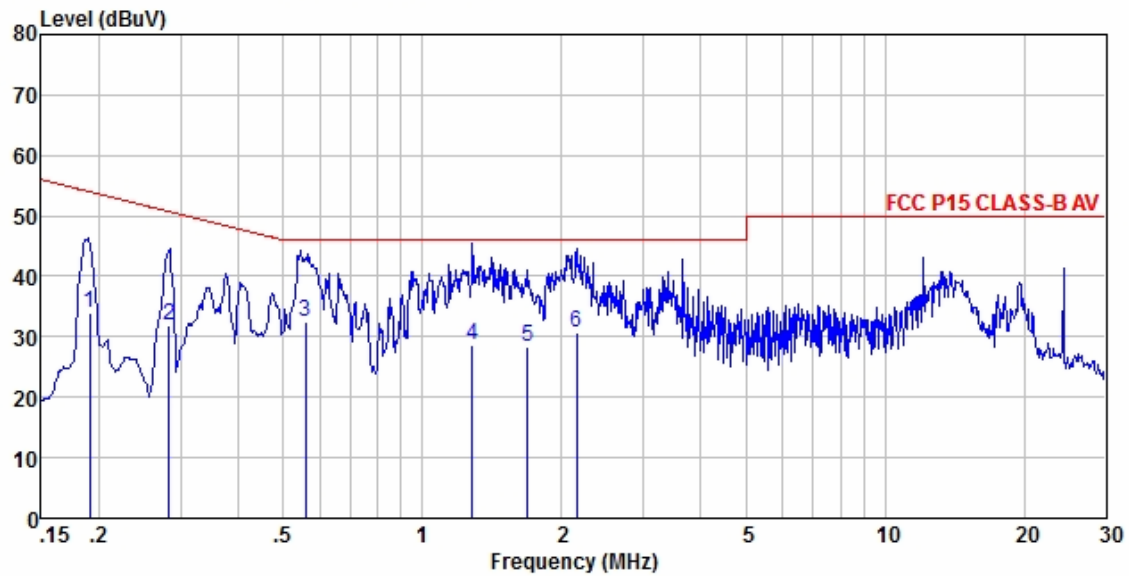
Site : shielding room 3  
 Condition : FCC P15 CLASS-B (QP) ENV216(L)-20120730 LINE  
 EUT : GIS Data collector  
 Model Name : loka/XF300/XF200/MG868H  
 Temp/Humi : 20°C /56%  
 Power Rating: DC 3.8V  
 Mode : WiFi  
 Memo :

	Freq	Read Level	LISN Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.19	35.37	10.50	0.23	0.00	46.10	64.21	-18.11	QP
2	0.28	30.71	10.48	0.19	0.00	41.38	60.79	-19.41	QP
3 pp	0.56	33.40	10.51	0.11	0.00	44.02	56.00	-11.98	QP
4	1.10	30.50	10.52	0.14	0.00	41.16	56.00	-14.84	QP
5	1.67	31.20	10.52	0.15	0.00	41.87	56.00	-14.13	QP
6	3.33	30.17	10.52	0.15	0.00	40.84	56.00	-15.16	QP



Site : shielding room 3  
 Condition : FCC P15 CLASS-B AV ENV216(L)-20120730 LINE  
 EUT : GIS Data collector  
 Model Name : loka/XF300/XF200/MG868H  
 Temp/Humi : 20°C /56%  
 Power Rating: DC 3.8V  
 Mode : WiFi  
 Memo :

	Freq	Read Level	LISN Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.19	23.50	10.49	0.23	0.00	34.22	54.20	-19.98	Average
2	0.28	24.60	10.48	0.19	0.00	35.27	50.81	-15.54	Average
3	0.55	27.60	10.51	0.11	0.00	38.22	46.00	-7.78	Average
4	1.80	28.60	10.52	0.15	0.00	39.27	46.00	-6.73	Average
5 pp	2.66	30.20	10.52	0.15	0.00	40.87	46.00	-5.13	Average
6	14.14	29.51	10.50	0.18	0.00	40.19	50.00	-9.81	Average



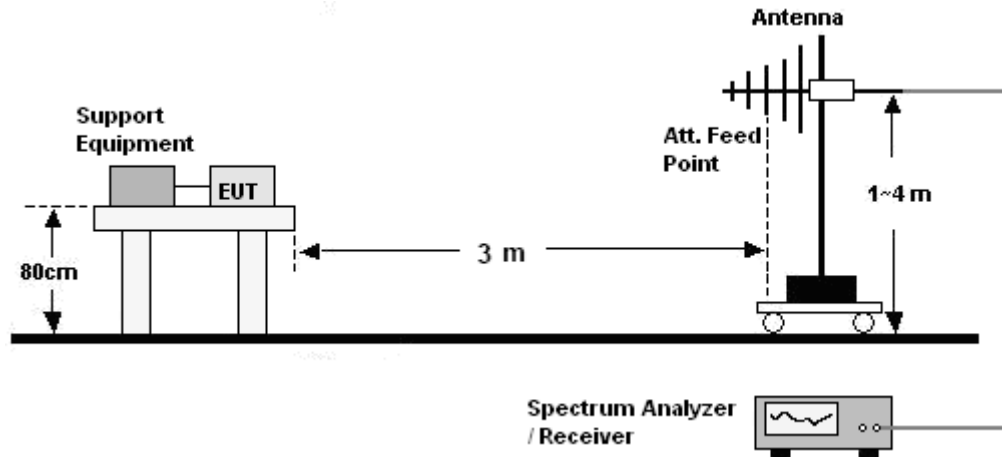
Site : shielding room 3  
 Condition : FCC P15 CLASS-B AV ENV216(N)-20120730 NEUTRAL  
 EUT : GIS Data collector  
 Model Name : loka/XF300/XF200/MG868H  
 Temp/Humi : 20°C /56%  
 Power Rating: DC 3.8V  
 Mode : WiFi  
 Memo :

	Freq	Read Level	LISN Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV	dBuV	dB	
1	0.19	23.45	10.34	0.23	0.00	34.02	53.99	-19.97	Average
2	0.28	21.18	10.43	0.19	0.00	31.80	50.70	-18.90	Average
3 pp	0.56	21.84	10.38	0.11	0.00	32.33	46.00	-13.67	Average
4	1.28	18.23	10.31	0.14	0.00	28.68	46.00	-17.32	Average
5	1.69	17.96	10.31	0.15	0.00	28.42	46.00	-17.58	Average
6	2.16	20.37	10.31	0.15	0.00	30.83	46.00	-15.17	Average

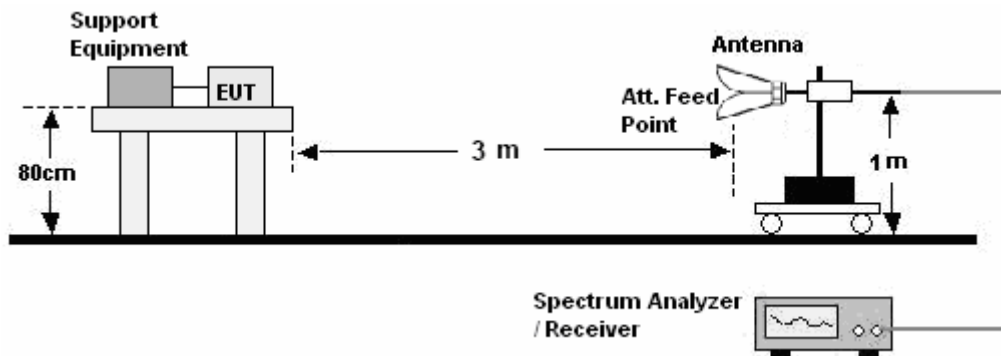
## 15. RADIATED EMISSIONS

### 15.1 TEST SETUP

30MHz ~ 1GHz:



Above 1GHz:



### 15.2 LIMITS

Limits for Class B digital devices

Frequency (MHz)	limits at 3m dB(μV/m)
30-88	40.0
88-216	43.5
216-960	46.0
Above 960	54.0

- NOTE:**
1. The lower limit shall apply at the transition frequency.
  2. The limits shown above are based on measuring equipment employing a CISPR quasi-peak detector function for frequencies below or equal to 1000MHz.
  3. The limits shown above are based on measuring equipment employing an average detector function for frequencies above 1000MHz.

### 15.3 TEST PROCEDURE

#### 30MHz ~ 1GHz:

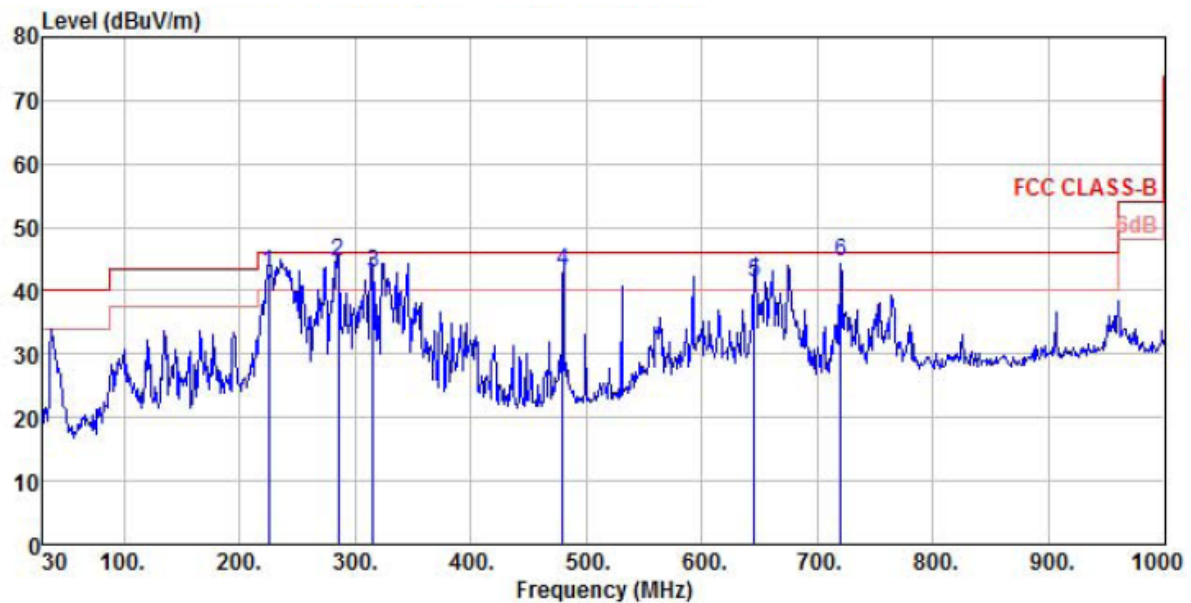
- a. The EUT and support equipment were placed on the non-conductive turntable 0.8/0.1m above the horizontal metal ground plane at a chamber. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. Broadband antenna (Calibrated Bilog Antenna) was used as receiving antenna.
- b. The frequency range from 30MHz to 1GHz was checked. The RBW of the receiver was set at 120kHz. Set the receiver in Peak detector, Max Hold mode. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where EUT radiated the maximum emission, then set the test frequency receiver to QP Detector and record the maximum value.

#### Above 1GHz:

- a. The EUT and support equipment were placed on the non-conductive turntable 0.8/0.1m above the ground at a chamber. The EUT was set 3 meters away from the receiving antenna, which was mounted on an antenna tower. Horn antenna was used as receiving antenna.
- b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 1MHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- c. For each frequency whose maximum record was higher or close to limit, measure its Average value: rotate the turntable from 0 to 360 degrees to find the degree where EUT radiated the maximum emission, then set the test frequency receiver to EMI Average Detector and record the maximum value.

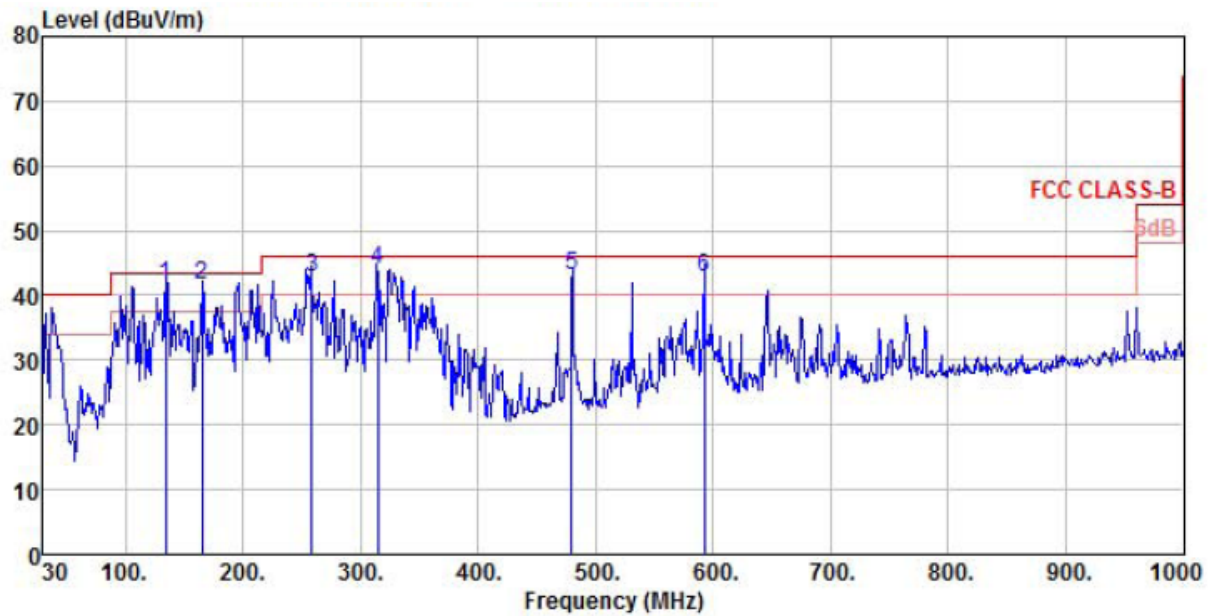
## 15.4 TEST RESULT

### 30MHz ~ 1GHz:



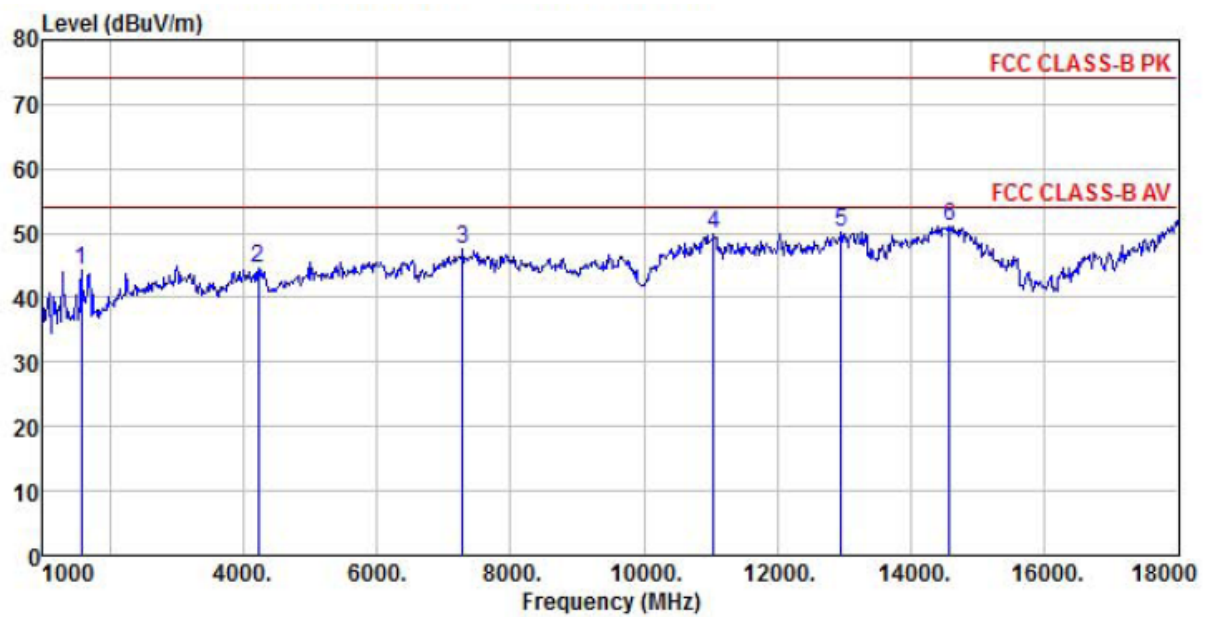
Site : chamber  
 Condition : FCC CLASS-B 3m VULB9160 HORIZONTAL  
 EUT : GIS Data collector  
 Model Name : loka/XF300/XF200/MG868H  
 Temp/Humi : 21°C /52%  
 Power Rating: DC 3.8V  
 Mode : data exchanging  
 Memo :

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 !	225.20	29.86	10.95	2.08	0.00	42.89	46.00	-3.11	QP
2 !	285.20	29.28	12.92	2.23	0.00	44.43	46.00	-1.57	QP
3 !	315.10	26.75	13.56	2.52	0.00	42.83	46.00	-3.17	QP
4 !	480.00	23.29	16.89	3.00	0.00	43.18	46.00	-2.82	QP
5 !	645.70	18.35	19.53	3.53	0.00	41.41	46.00	-4.59	QP
6 pp	720.00	20.23	20.52	3.70	0.00	44.45	46.00	-1.55	QP



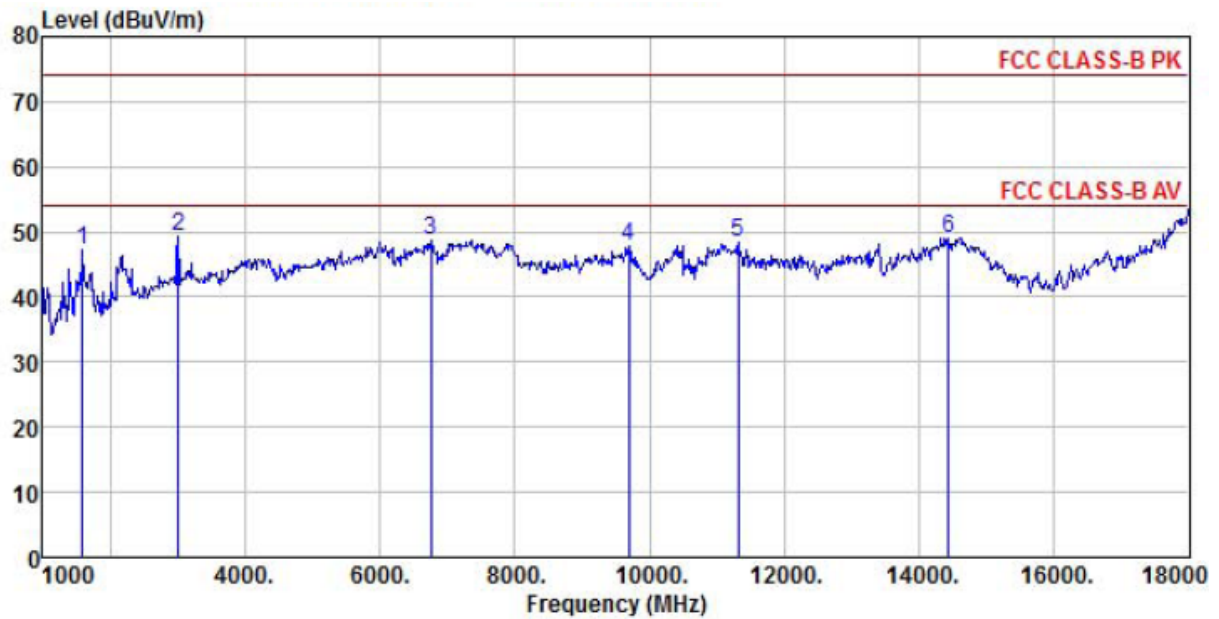
Site : chamber  
 Condition : FCC CLASS-B 3m VULB9160 VERTICAL  
 EUT : GIS Data collector  
 Model Name : loka/XF300/XF200/MG868H  
 Temp/Humi : 21°C /52%  
 Power Rating: DC 3.8V  
 Mode : data exchanging  
 Memo :

		ReadAntenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1 !	134.50	26.97	12.92	1.62	0.00	41.51	43.50	-1.99 QP
2 pp	164.90	26.21	13.55	1.76	0.00	41.52	43.50	-1.98 QP
3 !	258.30	28.56	12.09	2.18	0.00	42.83	46.00	-3.17 QP
4 !	314.60	27.77	13.56	2.52	0.00	43.85	46.00	-2.15 QP
5 !	480.00	23.29	16.89	3.00	0.00	43.18	46.00	-2.82 QP
6 !	592.50	20.49	18.94	3.33	0.00	42.76	46.00	-3.24 QP

**Above 1G:**

Site : chamber  
 Condition : FCC CLASS-B PK 3m BBHA9120D(942) HORIZONTAL  
 EUT : GIS Data collector  
 Model Name : loka/XF300?XF200?MG868H  
 Temp/Humi : 21°C /52%  
 Power Rating: DC 3.8V  
 Mode : data exchanging  
 Memo :

		ReadAntenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1578.00	51.99	25.02	5.73	38.46	44.28	74.00	-29.72 Peak
2	4230.00	42.04	30.28	9.56	37.41	44.47	74.00	-29.53 Peak
3	7290.00	35.69	36.48	12.64	37.31	47.50	74.00	-26.50 Peak
4	11047.00	32.48	40.19	16.10	38.93	49.84	74.00	-24.16 Peak
5	12951.00	31.88	39.38	17.39	38.45	50.20	74.00	-23.80 Peak
6 pp	14583.00	28.15	42.46	18.68	38.12	51.17	74.00	-22.83 Peak



Site : chamber  
 Condition : FCC CLASS-B PK 3m BBHA9120D(942) VERTICAL  
 EUT : GIS Data collector  
 Model Name : loka/XF300?XF200?MG868H  
 Temp/Humi : 21°C /52%  
 Power Rating: DC 3.8V  
 Mode : data exchanging  
 Memo :

		ReadAntenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1595.00	54.94	24.98	5.71	38.46	47.17	74.00	-26.83 Peak
2 pp	3006.00	50.72	28.53	8.07	38.10	49.22	74.00	-24.78 Peak
3	6763.00	38.16	34.47	12.38	36.42	48.59	74.00	-25.41 Peak
4	9687.00	35.24	38.25	14.38	39.96	47.91	74.00	-26.09 Peak
5	11319.00	31.24	40.02	16.11	39.06	48.31	74.00	-25.69 Peak
6	14430.00	26.39	42.52	18.52	38.28	49.15	74.00	-24.85 Peak

## APPENDIX 1 PHOTOGRAPHS OF TEST SETUP

### Peak Output Power Test Setup Photos

Description: Bluetooth measurement setup



Description: WiFi measurement setup



### occupied bandwidth

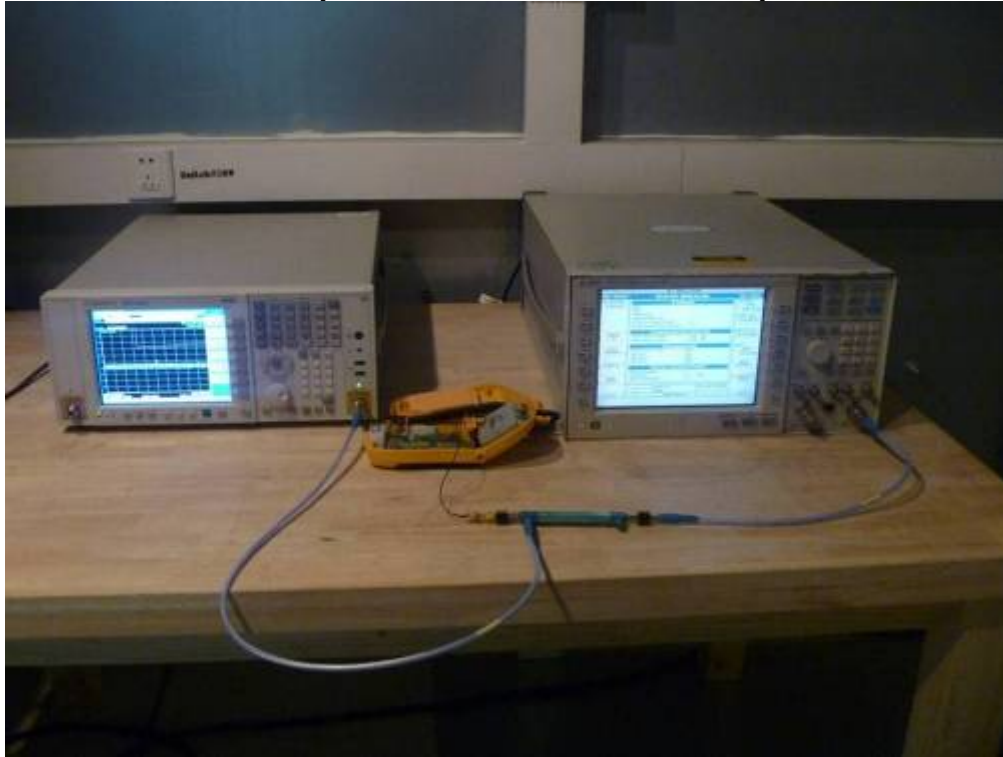
Description: Bluetooth measurement setup



Description: WiFi measurement setup

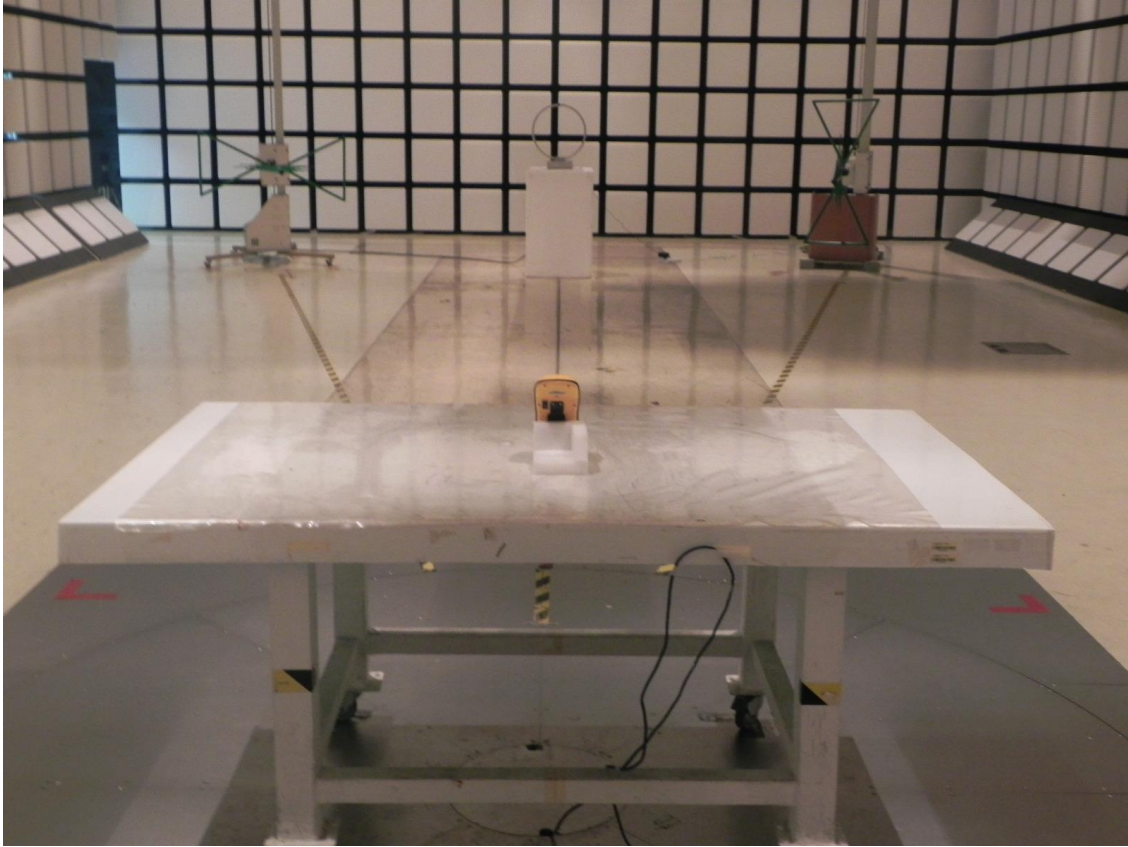


### Conducted Spurious Emissions Test Setup Photos

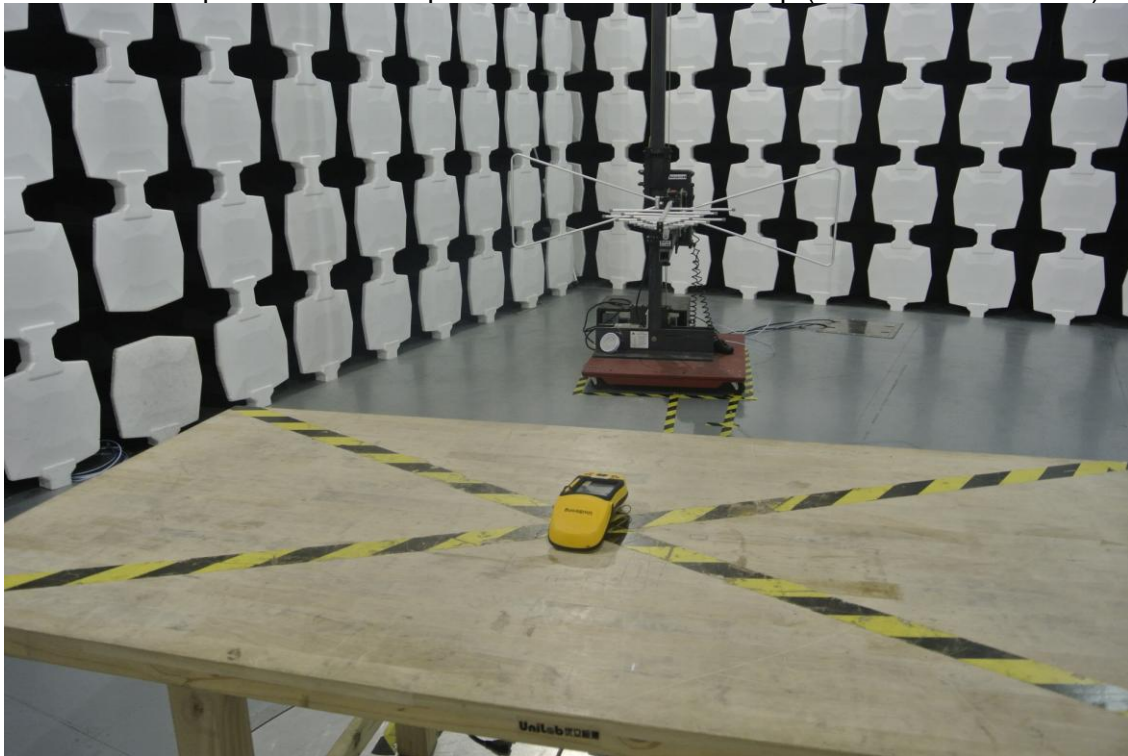


**Spurious Emissions Test Setup Photos**

Description: Radiated Spurious Measurement Setup (From 9KHz to 30MHz)



Description: Radiated Spurious Measurement Setup (From 30MHz to 1GHz)



Description: Radiated Spurious Measurement Setup (Above 1GHz)



**Radiated emission**  
30M-1000M



Above 1G



Conducted emission



## APPENDIX 2 PHOTOGRAPHS OF EUT

View of EUT-1



View of EUT-2



View of EUT-3



View of EUT-4



View of EUT-5



View of EUT-6



View of EUT-7



View of EUT-8



View of EUT-9



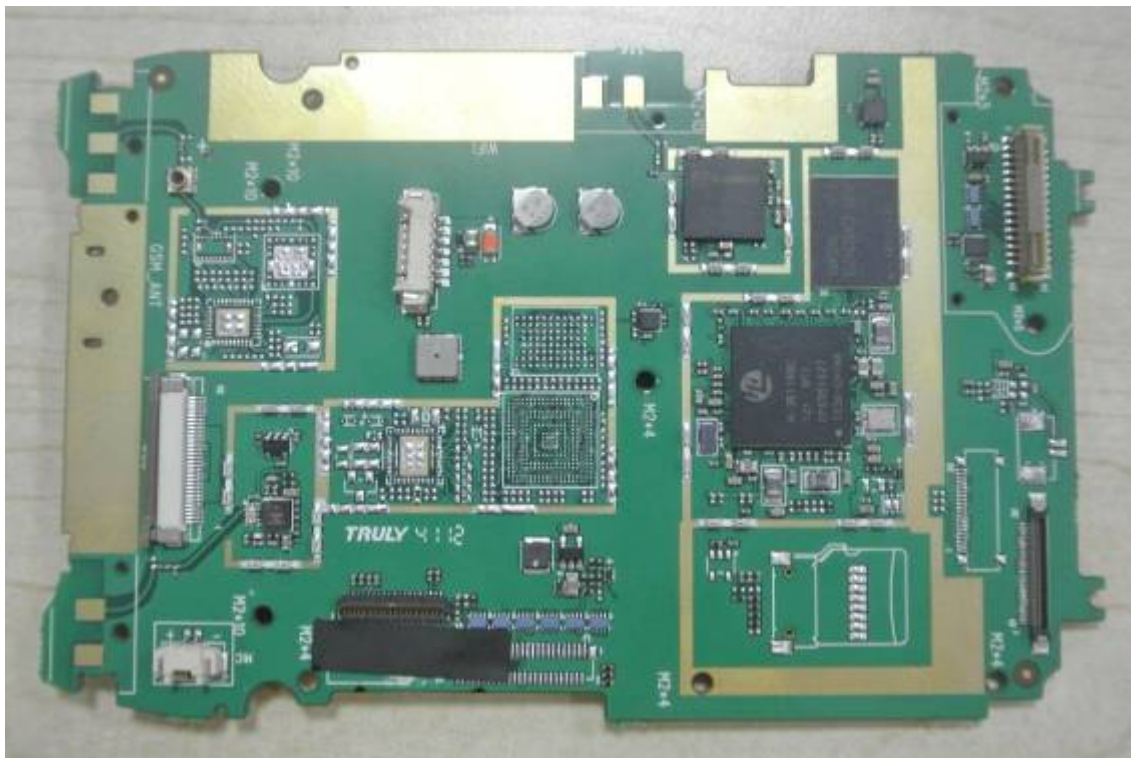
View of EUT-10



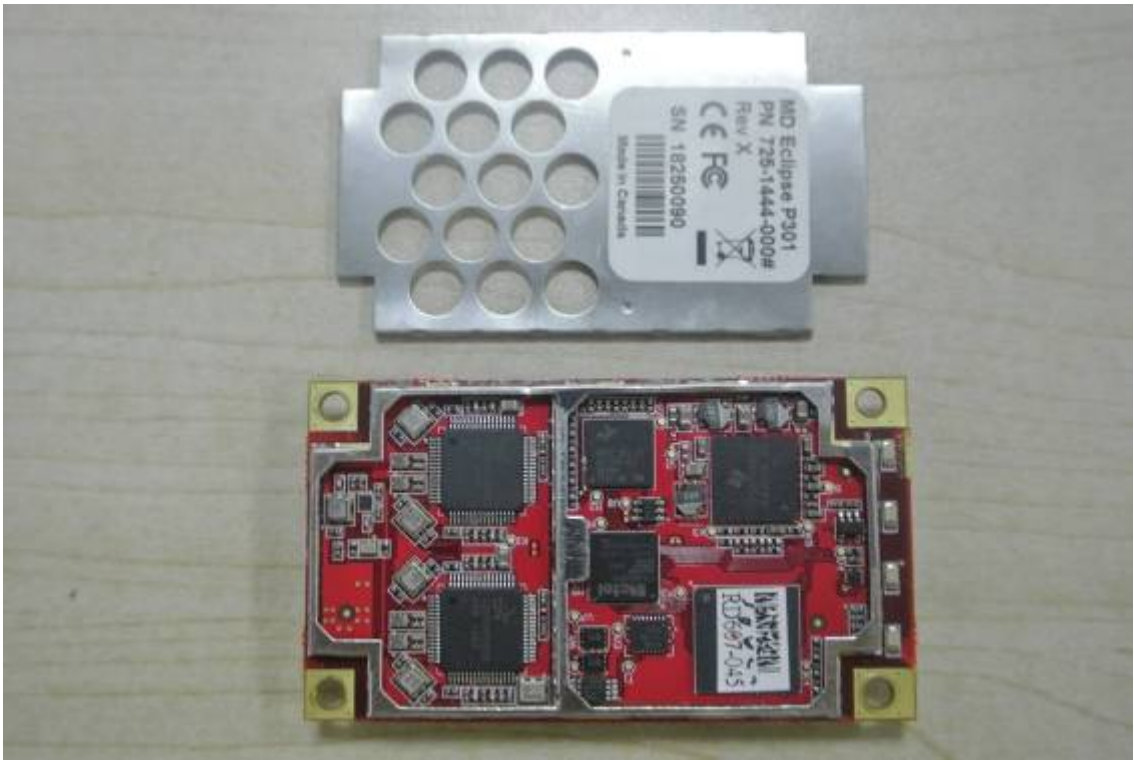
View of EUT-11



View of EUT-12



View of EUT-13



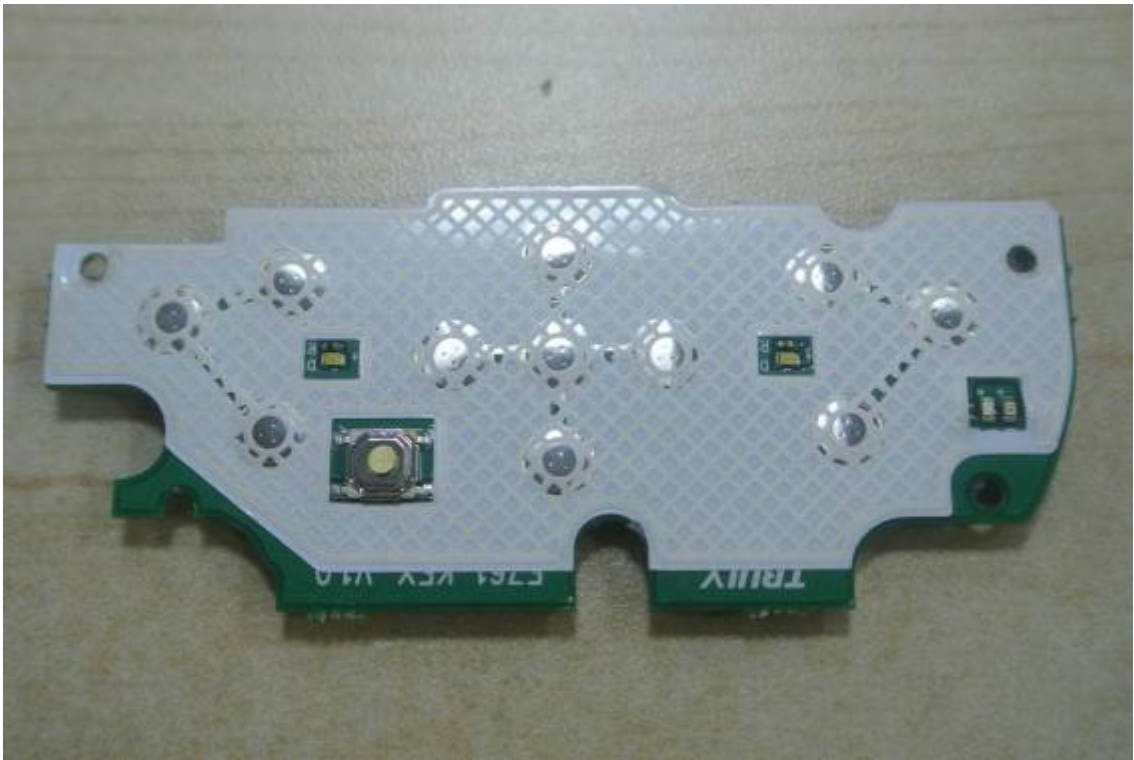
View of EUT-14



View of EUT-15



View of EUT-16



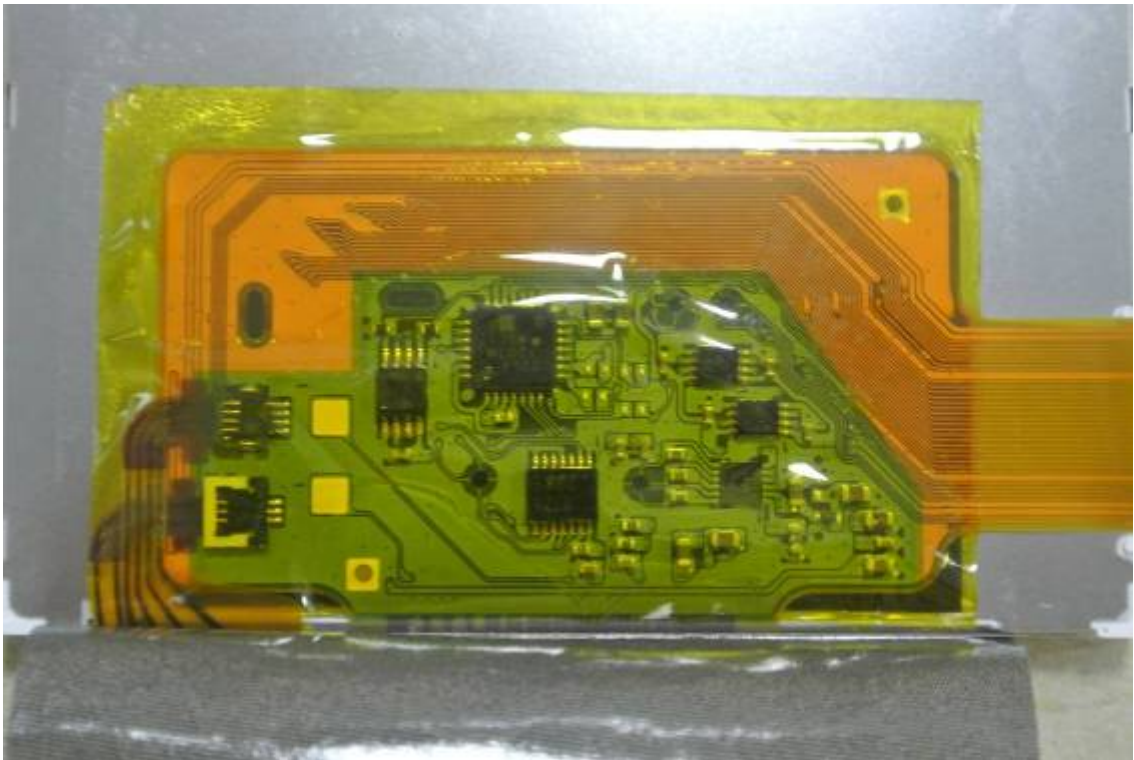
View of EUT-17



View of EUT-18



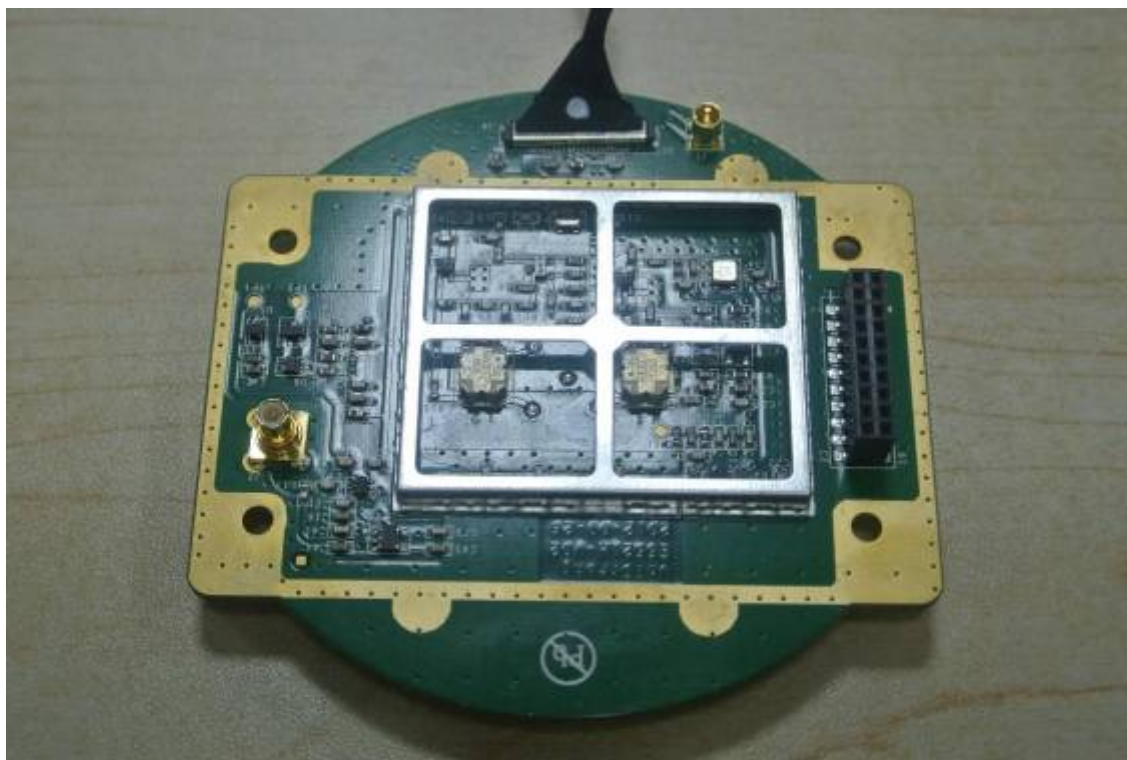
View of EUT-19



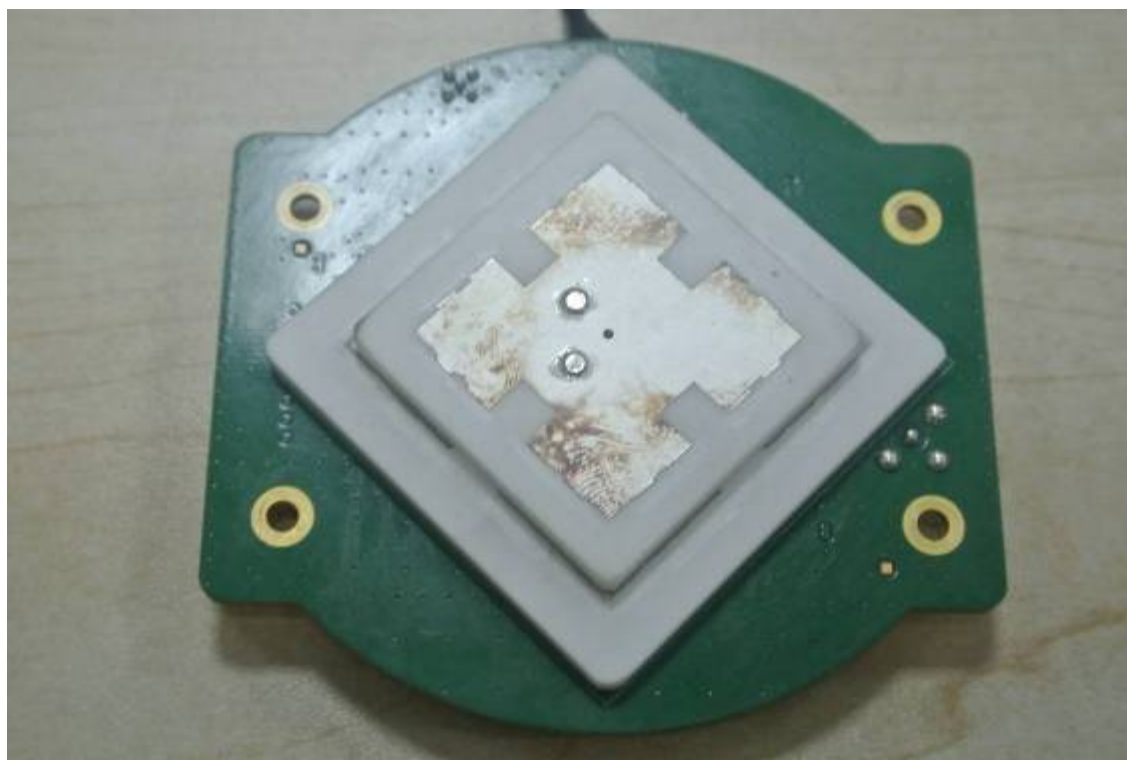
View of EUT-20



View of EUT-21



View of EUT-22



-----End of the report-----