

RF TEST REPORT

Test item : Touch Pen
Model No. : AN-TP200
Order No. : 1103-00271
Date of receipt : 2011-03-02
Test duration : 2011-03-17~ 2011-03-24
Date of issue : 2011-03-31
Use of report : FCC Original Grant

Applicant : LG Electronics USA.
1000 Sylvan Avenue Englewood Cliffs, New Jersey, United States

Test laboratory : Digital EMC Co., Ltd.
683-3, Yubang-Dong, Cheoin-Gu, Yongin-Si, Kyunggi-Do, 449-080, Korea

Test specification : FCC Part 15.249 Subpart C
ANSI C63.4-2003

Test environment : See appended test report

Test result : ☒ Pass ☐ Fail

The test results presented in this test report are limited only to the sample supplied by applicant and the use of this test report is inhibited other than its purpose. This test report shall not be reproduced except in full, without the written approval of DIGITAL EMC CO., LTD.

Tested by:



Engineer
S.K.Ryu

Witnessed by:



N/A

Reviewed by:



Manager
W.J. Lee

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1. Equipment information

1.1 Equipment description

FCC Equipment Class	Part 15 Low Power Communication Device Transmitter
Equipment type	Touch Pen
Equipment model name	AN-TP200
Equipment add model name	N/A
Equipment serial no.	Identical prototype
Frequency band	2402 ~ 2480MHz
Power	DC 3.7 V
Antenna type	Internal Type: Chip Antenna (Max. peak gain: 1.99dBi)

1.2 Ancillary equipment

Equipment	Model No.	Serial No.	Manufacturer	Note
USB Cable	-	-	-	100cm
-	-	-	-	-

2. Information about test items

2.1 Test mode

This device was tested in maximum duty mode at maximum power.

Test Case 1	EUT
Test Case 2	EUT + Notebook
Test Case 3	-

2.2 Auxiliary equipment

Equipment	Model No.	Serial No.	Manufacturer	Note
Notebook	X51RL	85N0AS318314227	ASUS	-
-	-	-	-	-

2.3 Tested frequency

	TX Frequency (MHz)	RX Frequency (MHz)
Lowest Channel	2402	2402
Middle Channel	2439	2439
Highest Channel	2480	2480

2.4 Tested environment

Temperature	: 21 ~ 23 °C
Relative humidity content	: 36 ~ 55 % R.H.
Details of power supply	: DC 3.7 V

2.5 EMI Suppression Device(s)/Modifications

EMI suppression device(s) added and/or modifications made during testing

→ None

3. Test Report

3.1 Summary of tests

FCC Part Section(s)	Parameter	Limit (Using in 2400 ~ 2483.5MHz)	Test Condition	Status Note 1
I. Transmit mode (Tx)				
15.249 (a)	Field Strength Limits	Refer to the FCC 15.249(a)	Radiated	C Note.2
15.205, 15.209	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)	< FCC 15.209 limits	Radiated	C Note.2
15.207	AC Conducted Emissions	< FCC 15.207 limits	Line Conducted	C Note.3
Note 1: C=Comply NC=Not Comply NT=Not Tested NA=Not Applicable Note 2: Both test case1 and test case 2 were performed and the worst case data was reported. Note 3: This test item was performed at test case2 only.				

The sample was tested according to the following specification:
ANSI C-63.4-2003

3.2 Transmitter requirements

3.2.1 AC Conducted Emissions

- Procedure:

The conducted emissions are measured in the shielded room with a spectrum analyzer in peak hold. While the measurement, EUT had its hopping function disabled at the middle channels in line with Section 15.31(m). Emissions closest to the limit are measured in the quasi-peak and average detector mode with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation and Exerciser operation. The highest emissions relative to the limit are listed.

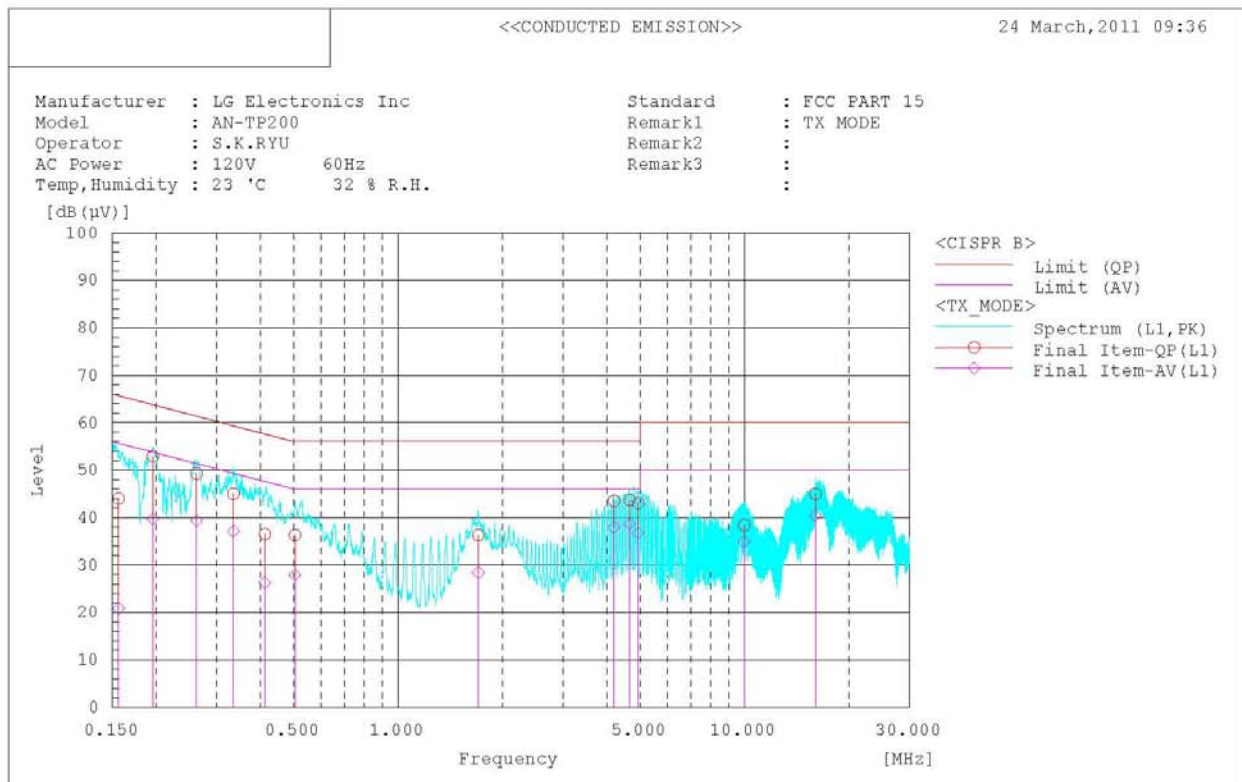
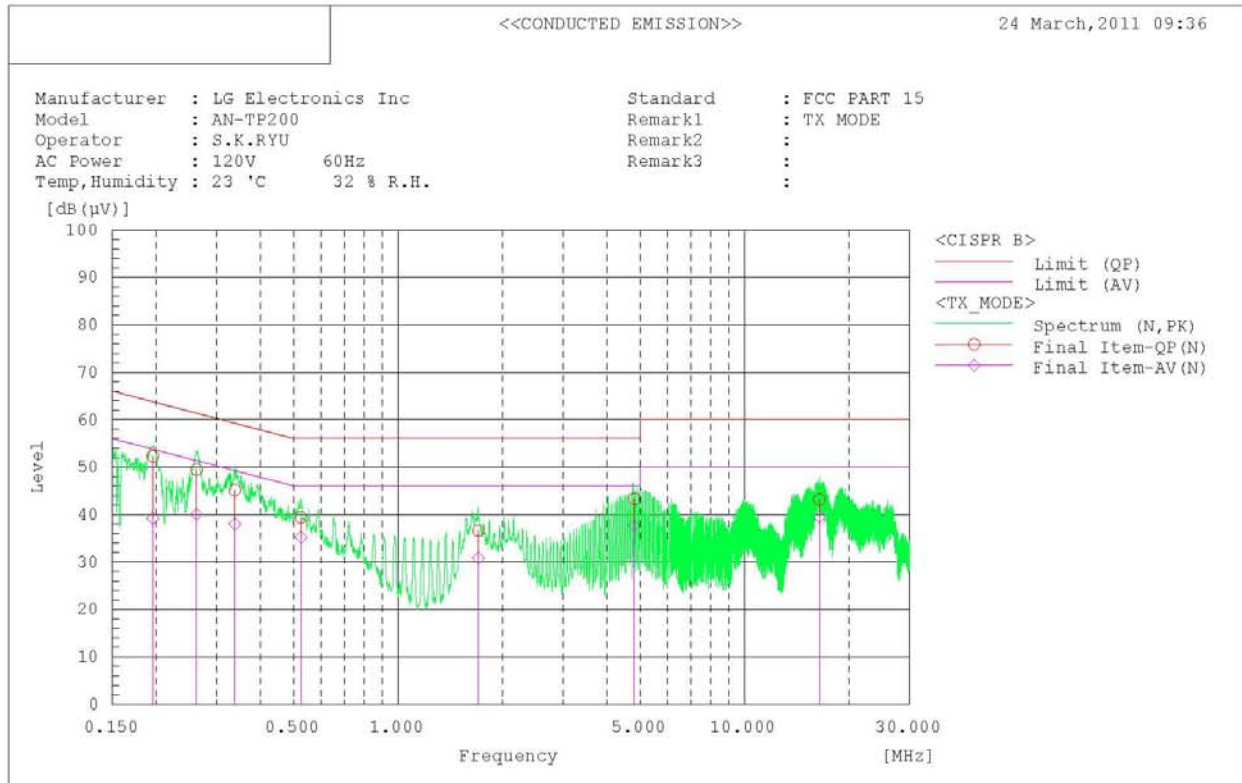
- Measurement Data: Comply

Minimum Standard: FCC Part 15.207(a)

Frequency Range (MHz)	Conducted 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

AC Line Conducted Emissions (Graph)



AC Line Conducted Emissions (Data List)

<<CONDUCTED EMISSION>>

24 March, 2011 09:36

Standard : FCC PART 15

Manufacturer : LG Electronics Inc

Model : AN-TF200

Operator : S.K.RYU

AC Power : 120V 60Hz

Temp, Humidity : 23 °C 32 % R.H.

Remark1 : TX MODE

Remark2 :

Remark3 :

Final Result

--- N Phase ---

No.	Frequency	Reading QP	Reading AV	c.f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV	Remark
	[MHz]	[dB (μV)]	[dB (μV)]	[dB]	[dB (μV)]	[dB (μV)]	[dB (μV)]	[dB (μV)]	[dB]	[dB]	
1	0.196	52.2	39.1	0.1	52.3	39.2	63.8	53.8	11.5	14.6	
2	0.262	49.4	39.9	0.1	49.5	40.0	61.4	51.4	11.9	11.4	
3	0.338	45.1	37.9	0.1	45.2	38.0	59.3	49.3	14.1	11.3	
4	0.525	39.3	35.1	0.1	39.4	35.2	56.0	46.0	16.6	10.8	
5	1.706	36.4	30.6	0.2	36.6	30.8	56.0	46.0	19.4	15.2	
6	4.798	43.0	37.4	0.3	43.3	37.7	56.0	46.0	12.7	8.3	
7	16.434	42.3	38.6	0.9	43.2	39.5	60.0	50.0	16.8	10.5	

--- L1 Phase ---

No.	Frequency	Reading QP	Reading AV	c.f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV	Remark
	[MHz]	[dB (μV)]	[dB (μV)]	[dB]	[dB (μV)]	[dB (μV)]	[dB (μV)]	[dB (μV)]	[dB]	[dB]	
1	0.156	43.7	20.6	0.3	44.0	20.9	65.7	55.7	21.7	34.8	
2	0.196	52.6	39.4	0.3	52.9	39.7	63.8	53.8	10.9	14.1	
3	0.262	49.0	39.1	0.3	49.3	39.4	61.4	51.4	12.1	12.0	
4	0.335	44.7	36.8	0.3	45.0	37.1	59.3	49.3	14.3	12.2	
5	0.413	36.2	26.0	0.3	36.5	26.3	57.6	47.6	21.1	21.3	
6	0.504	36.0	27.6	0.3	36.3	27.9	56.0	46.0	19.7	18.1	
7	1.705	36.0	28.1	0.3	36.3	28.4	56.0	46.0	19.7	17.6	
8	4.201	43.0	37.4	0.5	43.5	37.9	56.0	46.0	12.5	8.1	
9	4.661	43.2	38.2	0.5	43.7	38.7	56.0	46.0	12.3	7.3	
10	4.926	42.6	36.3	0.5	43.1	36.8	56.0	46.0	12.9	9.2	
11	9.983	37.7	34.2	0.7	38.4	34.9	60.0	50.0	21.6	15.1	
12	16.029	44.0	39.4	1.0	45.0	40.4	60.0	50.0	15.0	9.6	

3.2.2 Radiated Emission

- Procedure:

The EUT was placed on a 0.8m high wooden table inside a semi anechoic chamber. An antenna was placed at 3m distance from the EUT. Measurements of frequencies and amplitudes of field strengths were recorded for reference during final measurements. For final radiated testing, measurements were performed on OATS. Measurements were performed with the EUT oriented in 3 orthogonal axis and rotated 360 degrees to determine worst-case orientation for maximum emissions

The spectrum analyzer is set to:

Frequency Range = 30 MHz ~ 10th harmonic.

RBW = 100 kHz (30MHz ~ 1 GHz)

= 1 MHz (1 GHz ~ 10th harmonic)

Distance = 3m

Trace = max hold

VBW ≥ RBW

Detector function = peak

Sweep = auto

Measurement Data: **Comply**

Note 1: See next pages for actual measured spectrum plots and data.

Fundamental / Harmonics emission: FCC Part 15.249(a)

Frequency (MHz)	Limit @ 3m	
	Fundamental (mV/m)	Harmonics (uV/m)
2400 ~ 2483.5	50	500

General Standard: FCC Part 15.209(a)

Frequency (MHz)	Limit (uV/m) @ 3m
30 ~ 88	100 **
88 ~ 216	150 **
216 ~ 960	200 **
Above 960	500

** Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88MHz, 174-216MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

▪ FCC Part 15.205 (a): Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	MHz	GHz	GHz
0.009 ~ 0.110	12.29 ~ 12.293	149.9 ~ 150.05	1645.5 ~ 1646.5	4.5 ~ 5.15	14.47 ~ 14.5
0.495 ~ 0.505	12.51975 ~ 12.52025	156.52475 ~ 156.52525	1660 ~ 1710	5.35 ~ 5.46	15.35 ~ 16.2
2.1735 ~ 2.1905	12.57675 ~ 12.57725	156.7 ~ 156.9	1718.8 ~ 1722.2	7.25 ~ 7.75	17.7 ~ 21.4
4.125 ~ 4.128	13.36 ~ 13.41	162.0125 ~ 167.17	2200 ~ 2300	8.025 ~ 8.5	22.01 ~ 23.12
4.17725 ~ 4.17775	16.42 ~ 16.423	167.72 ~ 173.2	2310 ~ 2390	9.0 ~ 9.2	23.6 ~ 24.0
4.20725 ~ 4.20775	16.69475 ~ 16.69525	240 ~ 285	2483.5 ~ 2500	9.3 ~ 9.5	31.2 ~ 31.8
6.215 ~ 6.218	16.80425 ~ 16.80475	322 ~ 335.4	2655 ~ 2900	10.6 ~ 12.7	36.43 ~ 36.5
6.26775 ~ 6.26825	25.5 ~ 25.67	399.90 ~ 410	3260 ~ 3267	13.25 ~ 13.4	Above 38.6
6.31175 ~ 6.31225	37.5 ~ 38.25	608 ~ 614	3332 ~ 3339		
8.291 ~ 8.294	73 ~ 74.6	960 ~ 1240	3345.8 ~ 3358		
8.362 ~ 8.366	74.8 ~ 75.2	1300 ~ 1427	3600 ~ 4400		
8.37625 ~ 8.38675	108 ~ 121.94	1435 ~ 1626.5			
8.41425 ~ 8.41475	123 ~ 138				

▪ **FCC Part 15.205(b):** The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in §15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in §15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in §15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in §15.35 apply to these measurements.

30MHz ~ 25GHz Radiated Spurious Emissions

▪ Lowest Channel

Freq. (MHz)	ANT Pol	The worst case EUT Position	Detector Mode	Reading (dBuV)	T.F (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
199.030	H	Y axis	QP	43.20	-7.89	35.31	43.50	8.19
2402.005	H	X axis	PK	86.58	-2.91	83.67	114.00	30.33
2402.025	H	X axis	AV	61.70	-2.91	58.79	94.00	35.21
2402.350	V	X axis	PK	84.23	-2.91	81.32	114.00	32.68
2402.010	V	X axis	AV	60.68	-2.91	57.77	94.00	36.23
2389.040	H	X axis	PK	51.32	-2.81	48.51	74.00	25.49
2387.600	H	X axis	AV	32.73	-2.81	29.92	54.00	24.08
2389.120	V	Y axis	PK	49.04	-2.81	46.23	74.00	27.77
2389.440	V	X axis	AV	32.81	-2.81	30.00	54.00	24.00
4804.030	H	Z axis	PK	47.20	5.14	52.34	74.00	21.66
4804.005	H	Z axis	AV	34.87	5.14	40.01	54.00	13.99
4803.800	V	X axis	PK	47.87	5.14	53.01	74.00	20.99
4804.005	V	X axis	AV	35.08	5.14	40.22	54.00	13.78

Note.

- No other spurious and harmonic emissions were detected greater than listed emissions on above table.
And above listed data is the worst case data.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$

Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain

30MHz ~ 25GHz Radiated Spurious Emissions

▪ Middle Channel

Freq. (MHz)	ANT Pol	The worst case EUT Position	Detector Mode	Reading (dBuV)	T.F (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
199.029	H	Z axis	QP	43.40	-7.89	35.51	43.50	7.99
2438.945	H	Z axis	PK	87.32	-2.82	84.50	114.00	29.50
2439.035	H	X axis	AV	62.75	-2.82	59.93	94.00	34.07
2438.620	V	X axis	PK	86.57	-2.82	83.75	114.00	30.25
2438.995	V	X axis	AV	62.35	-2.82	59.53	94.00	34.47
4878.725	H	Z axis	PK	46.91	5.32	52.23	74.00	21.77
4878.010	H	Z axis	AV	34.13	5.32	39.45	54.00	14.55
4877.215	V	Y axis	PK	47.01	5.32	52.33	74.00	21.67
4878.045	V	Y axis	AV	34.34	5.32	39.66	54.00	14.34

Note.

- No other spurious and harmonic emissions were detected greater than listed emissions on above table. And above listed data is the worst case data.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$
 Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain

30MHz ~ 25GHz Radiated Spurious Emissions

▪ Highest Channel

Freq. (MHz)	ANT Pol	The worst case EUT Position	Detector Mode	Reading (dBuV)	T.F (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
199.022	H	Y axis	QP	42.90	-7.89	35.01	43.50	8.49
2479.625	H	Y axis	PK	89.65	-2.72	86.93	114.00	27.07
2480.030	H	Y axis	AV	63.33	-2.72	60.61	94.00	33.39
2480.335	V	X axis	PK	91.37	-2.72	88.65	114.00	25.35
2480.030	V	X axis	AV	64.14	-2.72	61.42	94.00	32.58
2483.620	H	Y axis	PK	64.54	-2.46	62.08	74.00	11.92
2483.500	H	Y axis	AV	33.08	-2.46	30.62	54.00	23.38
2483.500	V	X axis	PK	66.55	-2.46	64.09	74.00	9.91
2483.500	V	X axis	AV	33.58	-2.46	31.12	54.00	22.88
4959.810	H	X axis	PK	45.25	5.90	51.15	74.00	22.85
4960.005	V	Z axis	AV	32.75	5.90	38.65	54.00	15.35
4960.680	V	X axis	PK	45.11	5.90	51.01	74.00	22.99
4960.005	H	Y axis	AV	32.81	5.90	38.71	54.00	15.29

Note.

- No other spurious and harmonic emissions were detected greater than listed emissions on above table.
And above listed data is the worst case data.
- Sample Calculation.

$$\text{Margin} = \text{Limit} - \text{Result} \quad / \quad \text{Result} = \text{Reading} + \text{T.F} \quad / \quad \text{T.F} = \text{AF} + \text{CL} - \text{AG}$$

Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain

3.2.3 Antenna Requirements

- Procedure:

Describe how the EUT complies with the requirement that either its antenna is permanently attached, or that it employs a unique antenna connector, for every antenna proposed for use with the EUT.

- Conclusion: Comply

The antenna is permanently attached by soldering. (Refer to Internal Photo file.)

- Minimum Standard:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions.

APPENDIX

TEST EQUIPMENT FOR TESTS

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment.

	Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
☒	Spectrum Analyzer	Agilent	E4440A	10/09/30	11/09/30	MY45304199
☐	Spectrum Analyzer	Rohde Schwarz	FSQ26	11/01/11	12/01/11	200445
☐	Spectrum analyzer	Agilent	E4404B	11/03/08	12/03/08	US41061134
☐	Spectrum Analyzer(RE)	H.P	8563E	10/10/04	11/10/04	3551A04634
☐	MXA Signal Analyzer	Agilent Technologies, Inc	N9020A	11/01/07	12/01/07	MY49100833
☐	Power Meter	H.P	EPM-442A	10/07/01	11/07/01	GB37170413
☐	Power Sensor	H.P	8481A	10/07/01	11/07/01	3318A96332
☐	Power Divider	Agilent	11636B	10/10/05	11/10/05	56471
☐	4-Way Power Divider	ET Industries	D-0526-4	10/12/24	11/12/24	210195001
☐	Power Splitter	Anritsu	K241B	10/10/05	11/10/05	020611
☐	Power Splitter	Anritsu	K241B	10/07/01	11/07/01	017060
☐	Power Splitters & Dividers	Aeroflex/Weinschel	1594	11/02/21	12/02/21	1177
☐	Frequency Counter	H.P	5342A	10/07/01	11/07/01	2119A04450
☐	TEMP & HUMIDITY Chamber	JISCO	KR-100/J-RHC2	10/10/04	11/10/04	30604493/021031
☐	Digital Multimeter	H.P	34401A	11/03/07	12/03/07	3146A13475, US36122178
☐	Multifunction Synthesizer	HP	8904A	10/10/11	11/10/11	3633A08404
☐	Signal Generator	Rohde Schwarz	SMR20	11/03/08	12/03/08	101251
☐	Signal Generator	H.P	ESG-3000A	10/07/01	11/07/01	US37230529
☐	Vector Signal Generator	Rohde Schwarz	SMJ100A	11/01/11	12/01/11	100148
☐	Vector Signal Generator	Rohde Schwarz	SMBV100A	11/01/11	12/01/11	255571
☐	Audio Analyzer	H.P	8903B	10/07/02	11/07/02	3011A09448
☐	Modulation Analyzer	H.P	8901B	10/07/01	11/07/01	3028A03029
☐	8960 Series 10 Wireless Comms. Test Set	Agilent	E5515C	11/03/07	12/03/07	GB43461134
☐	Universal Radio communication Tester	Rohde Schwarz	CMU200	11/03/07	12/03/07	106760
☐	Bluetooth Tester	TESCOM	TC-3000B	10/07/01	11/07/01	3000B000268
☐	Thermo hygrometer	BODYCOM	BJ5478	11/01/13	12/01/13	090205-3
☐	Thermo hygrometer	BODYCOM	BJ5478	11/01/13	12/01/13	090205-2
☐	Thermo hygrometer	BODYCOM	BJ5478	11/01/13	12/01/13	090205-4
☐	AC Power supply	DAEKWANG	5KVA	11/03/08	12/03/08	20060321-1
☐	DC Power Supply	HP	6622A	11/03/07	12/03/07	3448A03760
☐	DC Power Supply	HP	6633A	11/03/07	12/03/07	3524A06634
☐	DC Power Supply	Protek	PWS-3010D	10/10/04	11/10/04	4072702
☐	BAND Reject Filter	Microwave Circuits	N0308372	10/10/05	11/10/05	3125-01DC0352
☐	BAND Reject Filter	Wainwright	WRCG1750	10/10/05	11/10/05	2
☐	High-Pass Filter	ANRITSU	MP526D	10/10/04	11/10/04	M27756
☐	High-pass filter	Wainwright	WHNX2.1	N/A	N/A	1
☒	High-pass filter	Wainwright	WHNX3.0	N/A	N/A	9
☐	High-pass filter	Wainwright	WHNX5.0	N/A	N/A	8

	Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
☐	High-Pass Filter	Wainwright	WHKX8.5	N/A	N/A	1
☐	High-Pass Filter	Wainwright	D82346	N/A	N/A	9
☐	Tunable Notch Filter	Wainwright	WRCT800.0 /960.0-0.2/40-8SSK	N/A	N/A	32
☐	Tunable Notch Filter	Wainwright	WRCD1700.0 /2000.0-0.2/40-10SSK	N/A	N/A	53
☐	Tunable Notch Filter	Wainwright	WRCT1900.0/ 2200.0-5/40-10SSK	N/A	N/A	30
☒	HORN ANT	ETS	3115	10/10/04	11/10/04	21097
☐	HORN ANT	ETS	3115	10/07/14	11/07/14	6419
☐	HORN ANT	A.H.Systems	SAS-574	09/06/10	11/06/10	154
☐	HORN ANT	A.H.Systems	SAS-574	09/06/10	11/06/10	155
☐	HORN ANT	SCHWARZBECK	BBHA9120A	10/04/13	12/04/13	322
☐	Dipole Antenna	Schwarzbeck	VHA9103	10/11/29	11/11/29	2116
☐	Dipole Antenna	Schwarzbeck	VHA9103	10/11/29	11/11/29	2117
☐	Dipole Antenna	Schwarzbeck	UHA9105	10/11/29	11/11/29	2261
☐	Dipole Antenna	Schwarzbeck	UHA9105	10/11/29	11/11/29	2262
☐	LOOP Antenna	ETS	6502	10/11/29	11/11/29	3471
☐	Coaxial Fixed Attenuators	Agilent	8491B	10/07/01	11/07/01	MY39260700
☐	Attenuator (3dB)	WEINSCHTEL	56-3	10/10/05	11/10/05	Y2342
☐	Attenuator (3dB)	WEINSCHTEL	56-3	10/10/05	11/10/05	Y2370
☐	Attenuator (10dB)	WEINSCHTEL	23-10-34	10/10/01	11/10/01	BP4386
☐	Attenuator (10dB)	WEINSCHTEL	23-10-34	11/01/11	12/01/11	BP4387
☐	Attenuator (10dB)	WEINSCHTEL	86-10-11	10/10/05	11/10/05	446
☐	Attenuator (10dB)	WEINSCHTEL	86-10-11	10/10/05	11/10/05	408
☐	Attenuator (20dB)	WEINSCHTEL	86-20-11	10/10/05	11/10/05	432
☐	Attenuator (30dB)	JFW	50FH-030-300	11/03/07	12/03/07	060320-1
☐	Attenuator (40dB)	WEINSCHTEL	57-40-33	10/10/01	11/10/01	NN837
☐	Termination	H.P	HP-909D	10/07/02	11/07/02	02750
☐	Termination	H.P	HP-909D	10/07/02	11/07/02	02702
☐	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0088CAN	10/07/01	11/07/01	788
☐	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0185CAN	10/07/01	11/07/01	790
☐	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0215CAN	10/07/01	11/07/01	112
☒	Amplifier (30dB)	Agilent	8449B	11/03/07	12/03/07	3008A01590
☐	Amplifier (30dB)	H.P	8449B	11/03/07	12/03/07	3008A00370
☐	Amplifier	EMPOWER	BBS3Q7ELU	10/10/04	11/10/04	1020
☐	RF Power Amplifier	OPHIRRF	5069F	10/07/01	11/07/01	1006
☒	EMI TEST RECEIVER	R&S	ESU	11/01/20	12/01/20	100014
☐	BILOG ANTENNA	SCHAFFNER	CBL6112B	10/07/14	11/07/14	2737
☐	Amplifier (22dB)	H.P	8447E	11/01/11	12/01/11	2945A02865
☐	EMI TEST RECEIVER	R&S	ESCI	11/03/08	12/03/08	100364

	Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
☒	BICONICAL ANT.	Schwarzbeck	VHA 9103	10/11/29	11/11/29	91032789
☒	LOG-PERIODIC ANT.	Schwarzbeck	UHALP9108A1	10/11/29	12/11/29	1098
☐	BICONICAL ANT.	Schwarzbeck	VHA 9103	10/12/21	12/12/21	91031946
☐	LOG-PERIODIC ANT.	Schwarzbeck	UHALP9108A1	10/07/07	11/07/07	0590
☒	Low Noise Pre Amplifier	TSJ	MLA-100K01-B01-2	11/03/07	12/03/07	1252741
☐	Low Noise Pre Amplifier	TSJ	MLA-00108-B02-36	11/01/11	12/01/11	1518831
☐	Amplifier (25dB)	Agilent	8447D	11/03/07	12/03/07	2944A10144
☐	Amplifier (25dB)	Agilent	8447D	10/07/01	11/07/01	2648A04922
☒	Spectrum Analyzer(CE)	H.P	8591E	11/03/07	12/03/07	3649A05889
☐	LISN	Kyoritsu	KNW-407	11/01/11	12/01/11	8-317-8
☒	LISN	Kyoritsu	KNW-242	10/07/02	11/07/02	8-654-15
☒	CVCF	NF Electronic	4420	11/03/08	12/03/08	304935/337980
☒	50 ohm Terminator	HME	CT-01	11/01/11	12/01/11	N/A
☒	RFI/FIELD Intensity Meter	Kyoritsu	KNM-2402	10/07/02	11/07/02	4N-170-3
☐	Wideband Radio Communication Tester	R&S	CMW500	10/10/21	11/10/21	100988