RF TEST REPORT

Test item	:	Industrial PDA
Model No.	:	BIP-1500
Order No.	:	1202-00288
Date of receipt	:	2012-02-24
Test duration	:	2012-03-29 ~ 2012-04-04
Date of issue	:	2012-04-09
Use of report	:	FCC Original Grant

Applicant : Bluebird Soft Inc.
558-5, Sinsa-dong, Kangnam-gu, Seoul, Korea

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

Test specification	:	FCC Part 15.225 Subpart C
Test environment	:	See appended test report
Test result	:	☒ Pass ☐ Fail

Tested by:	Witnessed by:	Reviewed by:
Engineer S.K.Ryu	N/A	Technical Director Harvey Sung

CONTENTS

1. Equipment information

1.1 Equipment description

FCC Equipment Class	Low Power Communications Device Transmitter(DXX)
Equipment type	Industrial PDA
Equipment model name	BIP-1500
Equipment add model name	N/A
Equipment serial no.	Identical prototype
Frequency band	13.56MHz
Modulation type	ASK
Channel	1
Power	Li-ion polymer Battery: DC 7.4V AC-DC Adaptor: AC 120V 60Hz
Antenna type	Loop Antenna

1.2 Ancillary equipment

Equipment	Model No.	Serial No.	Manufacturer	Note
-	-	-	-	-
-	-	-	-	-

2. Information about test items

2.1 Test mode

Test mode	Continuous transmitting mode

Note: For the test mode, a test program was supported by manufacturer.

2.2 Auxiliary equipment

Equipment	Model No.	Serial No.	Manufacturer	Note
-	-	-	-	-
-	-	-	-	-

2.3 Tested frequency

	TX Frequency (MHz)	RX Frequency (MHz)
Lowest Channel	13.56	13.56
Middle Channel	-	-
Highest Channel	-	-

2.4 Tested environment

Temperature	:	20 ~ 26 °C
Relative humidity content	:	32 ~ 42 % R.H.
Details of power supply	:	Battery: DC 7.4 V AC 120V 60Hz

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	Test Condition	Status Note 1
I. Test Items				
2.1049	20 dB Bandwidth	N/A	Radiated	C
15.225 (a)	In-Band Emissions	15,848μN/m @ 30m 15.553 – 13.567 MHz		C
15.225 (b)	In-Band Emissions	334μN/m @ 30m 13.410 – 13.553 MHz 13.567 – 13.710 MHz		C
15.225 (c)	In-Band Emissions	106μN/m @ 30m 13.110 – 13.410 MHz 13.710 – 14.010 MHz		C
15.225 (d) 15.205 15.209	Out-of Band Emissions	Emissions outside of the specified band (13.110-14.010 MHz) must meet the radiated limits detailed in 15.209		C
15.225 (e)	Frequency Stability Tolerance	±0.01% of operating frequency	Conducted	C
15.207	AC Conducted Emissions	EN 55022	AC Line Conducted	C
15.203	Antenna requirements	FCC Part 15.203	-	C

Note 1: **C**=Comply **NC**=Not Comply **NT**=Not Tested **NA**=Not Applicable

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

3.2 Transmitter requirements

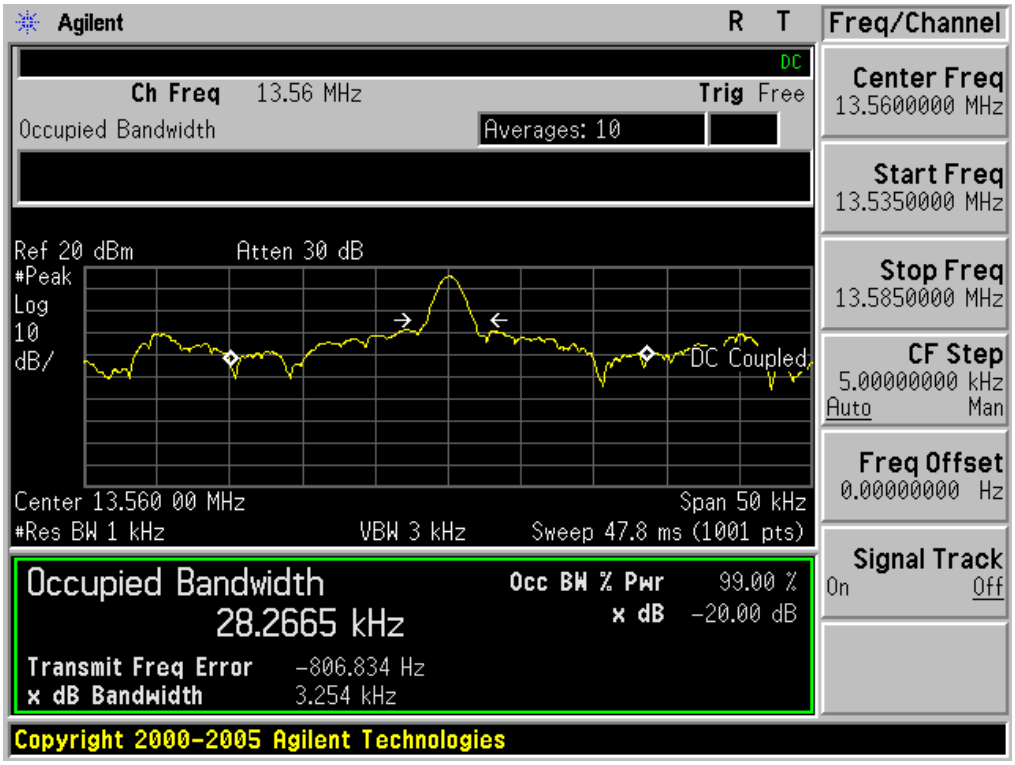
3.2.1 20dB Bandwidth Measurement (§2.1049)

- Procedure:

The 20dB Bandwidth is measured with a spectrum analyzer connected via a receive antenna placed near the EUT while the EUT is operating in transmission mode.

- Measurement Data: Comply

Tested Frequency(MHz)	Test Results(KHz)
13.56	3.254



- Minimum Standard:

None

3.2.2 In-Band Radiated Spurious Emission (§15.225(a), (b), (c))

- Procedure:

The EUT was placed on a 0.8m high wooden table inside a 10m semi anechoic chamber. An antenna was placed at 3 m distance from the EUT Measurements were performed with the EUT oriented in 3 orthogonal axis and rotated 360 degrees to determine worst-case orientation for maximum emissions. A loop antenna was used for this test item. And this test item was performed for both vertical and horizontal polarization.

- Measurement Data: Comply

Frequency Band [MHz]	Frequency [MHz]	EUT Posi.	Reading Level [dBuV]	T.F	Field Strength @3m [dBuV/m]	Field Strength @30m [dBuV/m]	Limit [dBuV/m]	Margin [dB]
13.110 ~ 13.410	13.408	Y	56.15	-12.90	43.25	3.25	40.51	37.26
13.410 ~ 13.553	13.551	Y	67.08	-13.00	54.08	14.08	50.47	36.39
13.553 ~ 13.567	13.560	Y	89.98	-13.00	76.98	36.98	84.00	47.02
13.567 ~ 13.710	13.570	Y	66.28	-13.00	53.28	13.28	50.47	37.19
13.710 ~ 14.010	14.000	Y	56.56	-13.00	43.56	3.56	40.51	36.95

Note 1. This test item was performed using a loop antenna.

Note 2. This test item was performed at 3 m and the data were extrapolated to the specified measurement distance of 30m using the square of an inverse linear distance extrapolation factor (40 dB/decade) as specified in §15.31(f)2.

- Extrapolation Factor = 20 $\log_{10}(30/3)^2$ = 40dB

Note 3. All data were recorded using a spectrum analyzer employing a peak detector.
If PK results were meet Quasi-peak limit, Quasi-peak measurements were omitted.

Note 4. Sample Calculation.
Margin = Limit – Field Strength @ 30m / Field Strength @ 30m = Field Strength @ 3m – 40
Field Strength @ 3m = Reading + T.F / T.F = AF + CL – AG
Where, T.F = Total Factor, AF = Antenna Factor, CL = Cable Loss, AG = Amplifier Gain

- Minimum Standard

Frequency Band [MHz]	Limit	
	[uV/m]	[dBuV/m]
13.553-13.567	15,848	84.00
13.410-13.553 13.567-13.710	334	50.47
13.110-13.410 13.710-14.010	106	40.51

3.2.3 Radiated Spurious Emission Measurements, Out-of-Band (§15.225(d) / §15.205 and 209)

- Procedure:

The EUT was tested from 9kHz up to the 1GHz excluding the band 13.110-14.010MHz. All measurements were recorded with spectrum analyzer employing a peak detector for emissions below 30MHz. Above 30MHz a Quasi-peak detector was used. All out-of-band emissions must not exceed the limits §15.209. A loop antenna was used for searching for emissions below 30MHz.

- Measurement Data: Comply (refer to the next page)

- Minimum Standard

▪ **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	8.41425 ~ 8.41475	108 ~ 121.94	1300 ~ 1427	3.6 ~ 4.4	14.47 ~ 14.5
0.495 ~ 0.505	12.29 ~ 12.293	123 ~ 138	1435 ~ 1626.5	4.5 ~ 5.15	15.35 ~ 16.2
2.1735 ~ 2.1905	12.51975 ~ 12.52025	149.9 ~ 150.05	1645.5 ~ 1646.5	5.35 ~ 5.46	17.7 ~ 21.4
4.125 ~ 4.128	12.57675 ~ 12.57725	156.52475 ~ 156.52525	1660 ~ 1710	7.25 ~ 7.75	22.01 ~ 23.12
4.17725 ~ 4.17775	13.36 ~ 13.41	156.7 ~ 156.9	1718.8 ~ 1722.2	8.025 ~ 8.5	23.6 ~ 24.0
4.20725 ~ 4.20775	16.42 ~ 16.423	162.0125 ~ 167.17	2200 ~ 2300	9.0 ~ 9.2	31.2 ~ 31.8
6.215 ~ 6.218	16.69475 ~ 16.69525	167.72 ~ 173.2	2310 ~ 2390	9.3 ~ 9.5	36.43 ~ 36.5
6.26775 ~ 6.26825	16.80425 ~ 16.80475	240 ~ 285	2483.5 ~ 2500	10.6 ~ 12.7	Above 38.6
6.31175 ~ 6.31225	25.5 ~ 25.67	322 ~ 335.4	2655 ~ 2900	13.25 ~ 13.4	
8.291 ~ 8.294	37.5 ~ 38.25	399.90 ~ 410	3260 ~ 3267		
8.362 ~ 8.366	73 ~ 74.6	608 ~ 614	3332 ~ 3339		
8.37625 ~ 8.38675	74.8 ~ 75.2	960 ~ 1240	3345.8 ~ 3358		

▪ **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.

▪ **FCC Part 15.209(a):**

Frequency [MHz]	Field Strength [uV/m]	Measurement Distance [Meters]
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30	30	30
30 ~ 88	100 **	3
88 ~ 216	150 **	3
216 ~ 960	200 **	3
Above 960	200	3

** 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 15.209(b):**

In the emission table above, the tighter limit applies at the band edges.

- Measurement Data:

Tested Frequency : **13.56MHz**

Measurement Distance : **3 Meters**

Frequency [MHz]	EUT Posi.	ANT Pol	Reading [dBuV]	T.F [dB/m]	Distance factor	Field Strength [dBuV/m]	Limit [dBuV/m]	Margin [dB]
15.225	Y	N/A	36.80	-12.60	40	-15.80	29.54	45.34
26.810	Y	N/A	39.80	-14.80	40	-15.00	29.54	44.54
83.350	Y	V	24.30	8.30	N/A	32.60	40.00	7.40
110.025	Y	V	25.60	12.10	N/A	37.70	43.50	5.80
257.950	Y	V	28.30	13.30	N/A	41.60	46.00	4.40
393.750	Y	V	21.80	17.70	N/A	39.50	46.00	6.50

Note 1. All measurements were recorded using a spectrum analyzer employing a peak detector for blew 30MHz and a Quasi-peak detector for above 30MHz.

Note 2. Both Vertical and Horizontal polarities of the receiver antenna were evaluated with the worst case emissions being reported.

Note 3. The worst-case emissions are reported.

Note 4. No other spurious and harmonic emissions were reported greater than listed emissions above table.

Note 5. Sample calculation

Margin = Limit – Field Strength / T.F = AF + CL – AG

Distance factor = 20log(Measurement distance / The measured distance)^2

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

3.2.4 Frequency Stability (§15.225(e))

- Procedure:

Part 15.225 requires that devices operating in the 13.553 – 13.567 MHz shall maintain the carrier frequency within 0.01% of the operating frequency over the temperature variation of -20 degrees to + 50 degrees C at normal supply voltage.

- Measurement Data: Comply

Operating Frequency : **13,560,000 Hz**

VOLTAGE (%)	POWER (VDC)	TEMP (℃)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100%	7.400	+23(ref)	13,560,022	22	0.000162
100%		-20	13,560,217	217	0.001600
100%		-10	13,560,142	142	0.001047
100%		0	13,560,125	125	0.000922
100%		+10	13,560,108	108	0.000796
100%		+20	13,560,125	125	0.000922
100%		+30	13,560,083	83	0.000612
100%		+40	13,560,117	117	0.000863
100%		+50	13,560,108	108	0.000796
85%	6.290	+25	13,560,100	100	0.000737
115%	8.510	+25	13,560,100	100	0.000737
BATT.ENDPOINT	5.800	+25	13,560,092	92	0.000678

- Minimum Standard

The frequency tolerance of the carrier signal shall be maintained within ±0.01% of the operating frequency.

3.2.5 AC Line Conducted Emissions (§15.207/EN 55022)

- 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 15.21(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.

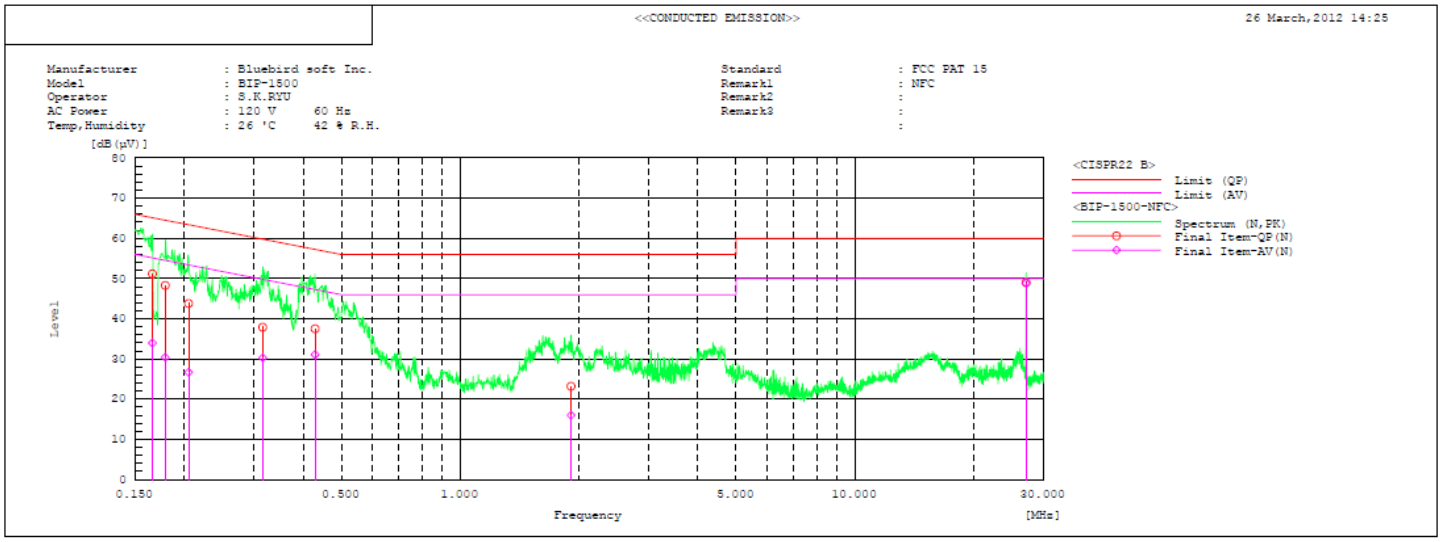
- Measurement Data: Comply (refer to the next page)

- 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

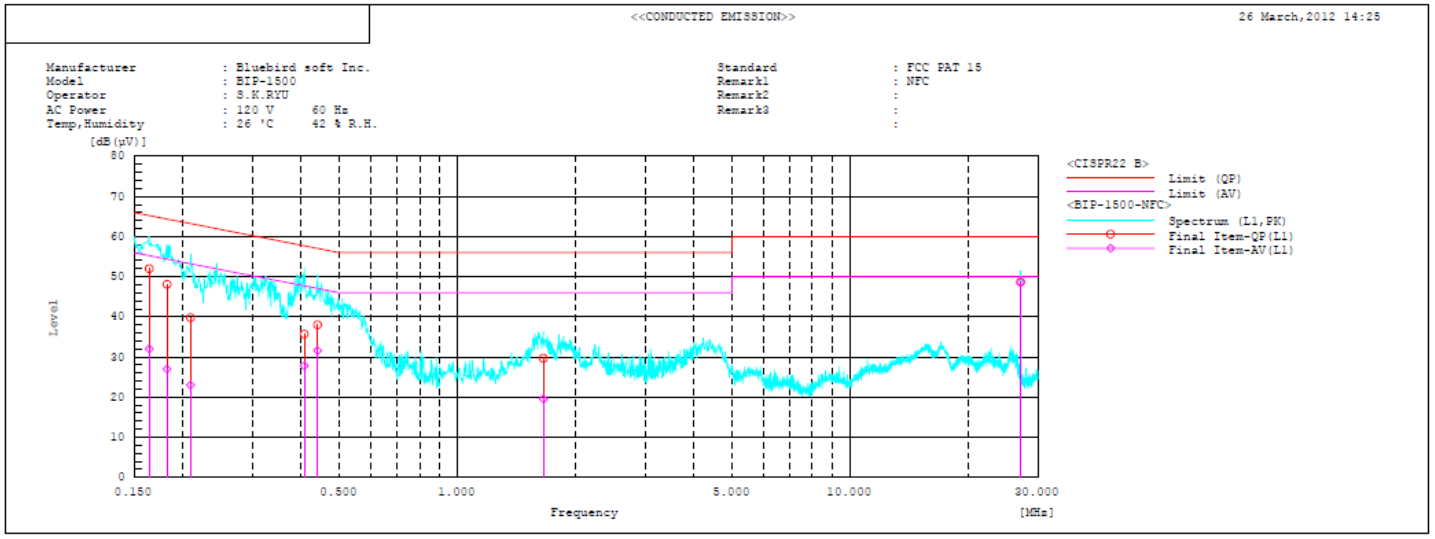
- Measurement Data:



Final Result

--- N Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]	Remark
1	0.166	51.1	33.9	0.1	51.2	34.0	65.2	55.2	14.0	21.2	
2	0.179	48.2	30.3	0.1	48.3	30.4	64.5	54.5	16.2	24.1	
3	0.205	43.7	26.6	0.1	43.8	26.7	63.4	53.4	19.6	26.7	
4	0.316	37.8	30.2	0.1	37.9	30.3	59.8	49.8	21.9	19.5	
5	0.429	37.4	31.0	0.1	37.5	31.1	57.3	47.3	19.8	16.2	
6	1.909	23.0	15.8	0.2	23.2	16.0	56.0	46.0	32.8	30.0	
7	27.130	47.6	47.5	1.4	49.0	48.9	60.0	50.0	11.0	1.1	



Final Result

--- L1 Phase ---

No.	Frequency [MHz]	Reading QP [dB(μV)]	Reading AV [dB(μV)]	c.f [dB]	Result QP [dB(μV)]	Result AV [dB(μV)]	Limit QP [dB(μV)]	Limit AV [dB(μV)]	Margin QP [dB]	Margin AV [dB]	Remark
1	0.164	51.8	31.8	0.2	52.0	32.0	65.3	55.3	13.3	23.3	
2	0.182	47.9	26.8	0.2	48.1	27.0	64.4	54.4	16.3	27.4	
3	0.209	39.6	22.8	0.2	39.8	23.0	63.2	53.2	23.4	30.2	
4	0.407	35.5	27.6	0.2	35.7	27.8	57.7	47.7	22.0	19.9	
5	0.440	37.8	31.4	0.2	38.0	31.6	57.1	47.1	19.1	15.5	
6	1.653	29.5	19.3	0.2	29.7	19.5	56.0	46.0	26.3	26.5	
7	27.130	47.3	47.2	1.4	48.7	48.6	60.0	50.0	11.3	1.4	

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	11/09/30	12/09/30	MY45304199
☐	Spectrum Analyzer	Rohde Schwarz	FSQ26	12/01/09	13/01/09	200445
☐	Spectrum analyzer	Agilent	E4404B	11/03/08	12/03/08	US41061134
☐	Spectrum Analyzer(RE)	H.P	8563E	11/10/04	12/10/04	3551A04634
☒	MXA Signal Analyzer	Agilent Technologies, Inc	N9020A	12/01/09	13/01/09	MY49100833
☐	Power Meter	H.P	EPM-442A	11/07/01	12/07/01	GB37170413
☐	Power Sensor	H.P	8481A	11/07/01	12/07/01	3318A96332
☐	Wideband Power Sensor	Rohde Schwarz	NRP-Z81	11/06/04	12/06/04	1137.9009.02-101001
☐	Virtual Power Meter(S/W)	Rohde Schwarz	R&S Power Viewer Plus	-	-	V 4.1.0
☐	Power Divider	Agilent	11636B	11/09/30	12/09/30	56471
☐	4-Way Power Divider	ET Industries	D-0526-4	11/12/01	12/12/01	210195001
☐	Power Splitter	Anritsu	K241B	11/09/30	12/09/30	020611
☐	Power Splitter	Anritsu	K241B	11/07/01	12/07/01	017060
☐	Power Splitters & Dividers	Aeroflex/Weinschel	1594	11/02/21	12/02/21	1177
☐	Frequency Counter	H.P	5342A	11/07/01	12/07/01	2119A04450
☒	TEMP & HUMIDITY Chamber	JISCO	KR-100/J-RHC2	11/09/30	12/09/30	30604493/021031
☒	Digital Multimeter	H.P	34401A	11/03/07	12/03/07	3146A13475, US36122178
☐	Multifunction Synthesizer	HP	8904A	11/10/06	12/10/06	3633A08404
☐	Signal Generator	Rohde Schwarz	SMR20	11/03/08	12/03/08	101251
☐	Signal Generator	H.P	ESG-3000A	11/07/01	12/07/01	US37230529
☒	Vector Signal Generator	Rohde Schwarz	SMJ100A	12/01/09	13/01/09	100148
☐	Vector Signal Generator	Rohde Schwarz	SMBV100A	12/01/09	13/01/09	255571
☐	Audio Analyzer	H.P	8903B	11/07/02	12/07/02	3011A09448
☐	Modulation Analyzer	H.P	8901B	11/07/01	12/07/01	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	11/07/01	12/07/01	3000B000268
☐	Thermo hygrometer	BODYCOM	BJ5478	12/01/13	13/01/13	090205-3
☒	Thermo hygrometer	BODYCOM	BJ5478	12/01/13	13/01/13	090205-2
☐	Thermo hygrometer	BODYCOM	BJ5478	12/01/13	13/01/13	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	11/09/30	12/09/30	4072702
☐	DC Power Supply	SM techno	SDP30-5D	11/05/20	12/05/20	305DKA013
☐	BAND Reject Filter	Microwave Circuits	N0308372	11/09/30	12/09/30	3125-01DC0352
☐	BAND Reject Filter	Wainwright	WRCG1750	11/09/30	12/09/30	2
☐	High-Pass Filter	ANRITSU	MP526D	11/09/30	12/09/30	M27756

	Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
☐	High-pass filter	Wainwright	WHNX2.1	11/09/30	12/09/30	1
☐	High-pass filter	Wainwright	WHNX3.0	11/09/30	12/09/30	9
☐	High-pass filter	Wainwright	WHNX5.0	11/09/19	12/09/19	8
☐	High-Pass Filter	Wainwright	WHKX8.5	11/09/19	12/09/19	1
☐	High-Pass Filter	Wainwright	WHKX1.0	11/09/30	12/09/30	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	11/09/06	12/09/06	21097
☐	HORN ANT	ETS	3115	11/03/22	12/03/22	6419
☐	HORN ANT	A.H.Systems	SAS-574	11/03/25	13/03/25	154
☐	HORN ANT	A.H.Systems	SAS-574	11/03/25	13/03/25	155
☐	HORN ANT	SCHWARZBECK	BBHA9120A	10/04/13	12/04/13	322
☐	Dipole Antenna	Schwarzbeck	VHA9103	11/11/22	12/11/22	2116
☐	Dipole Antenna	Schwarzbeck	VHA9103	11/11/22	12/11/22	2117
☐	Dipole Antenna	Schwarzbeck	UHA9105	11/11/22	12/11/22	2261
☐	Dipole Antenna	Schwarzbeck	UHA9105	11/11/22	12/11/22	2262
☒	LOOP Antenna	ETS	6502	10/10/29	12/10/29	3471
☐	Coaxial Fixed Attenuators	Agilent	8491B	11/07/02	12/07/02	MY39260700
☐	Attenuator (3dB)	WEINSCHEL	56-3	11/09/30	12/09/30	Y2342
☐	Attenuator (3dB)	WEINSCHEL	56-3	11/09/30	12/09/30	Y2370
☐	Attenuator (10dB)	WEINSCHEL	23-10-34	11/09/30	12/09/30	BP4386
☐	Attenuator (10dB)	WEINSCHEL	23-10-34	12/01/09	13/01/09	BP4387
☐	Attenuator (10dB)	WEINSCHEL	86-10-11	11/09/30	12/09/30	446
☐	Attenuator (10dB)	WEINSCHEL	86-10-11	11/09/30	12/09/30	408
☐	Attenuator (20dB)	WEINSCHEL	86-20-11	11/09/30	12/09/30	432
☐	Attenuator (30dB)	JFW	50FH-030-300	11/03/07	12/03/07	060320-1
☐	Attenuator (40dB)	WEINSCHEL	57-40-33	11/09/30	12/09/30	NN837
☐	Termination	H.P	HP-909D	11/07/02	12/07/02	02750
☐	Termination	H.P	HP-909D	11/07/02	12/07/02	02702
☐	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0088CAN	11/07/01	12/07/01	788
☐	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0185CAN	11/07/01	12/07/01	790
☐	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	11/09/30	12/09/30	1020
☐	RF Power Amplifier	OPHIRRF	5069F	11/07/01	12/07/01	1006
☒	EMI TEST RECEIVER	R&S	ESU	12/01/09	13/01/09	100014

	Type	Manufacturer	Model	Cal.Date (yy/mm/dd)	Next.Cal.Date (yy/mm/dd)	S/N
☒	BILOG ANTENNA	SCHAFFNER	CBL6112B	10/07/14	12/07/14	2737
☒	Amplifier (22dB)	H.P	8447E	12/01/09	13/01/09	2945A02865
☐	EMI TEST RECEIVER	R&S	ESCI	11/03/08	12/03/08	100364
☐	BICONICAL ANT.	Schwarzbeck	VHA 9103	10/11/29	12/11/29	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	12/07/07	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	12/01/09	13/01/09	1518831
☐	Amplifier (25dB)	Agilent	8447D	11/03/07	12/03/07	2944A10144
☐	Amplifier (25dB)	Agilent	8447D	11/07/01	12/07/01	2648A04922
☒	Spectrum Analyzer(CE)	H.P	8591E	11/03/07	12/03/07	3649A05889
☒	LISN	Kyoritsu	KNW-407	12/01/09	13/01/09	8-317-8
☒	LISN	Kyoritsu	KNW-242	11/07/02	12/07/02	8-654-15
☒	CVCF	NF Electronic	4420	11/09/15	12/19/15	304935/4420023
☒	50 ohm Terminator	HME	CT-01	12/01/09	13/01/09	N/A
☒	RFI/FIELD Intensity Meter	Kyoritsu	KNM-2402	11/07/02	12/07/02	4N-170-3
☐	EMI Test Receiver	R&S	ECSI	11/03/08	12/03/08	100364
☐	LISN	R&S	ESH2-Z5	11/09/30	12/09/30	8287391006
☐	CVCF	NF Electronic	4420	11/03/08	12/03/08	304935/337980
☐	RFI/FIELD Intensity Meter	ES4152	424059	11/09/30	12/09/30	424059
☐	Wideband Radio Communication Tester	R&S	CMW500	11/09/30	12/09/30	100989