



DIGITAL EMC CO., LTD.

683-3, Yubang-Dong, Yongin-Si, Kyunggi-Do, Korea. 449-080
Tel: +82-31-321-2664 Fax: +82-31-321-1664
<http://www.digitalemc.com>

CERTIFICATION OF COMPLIANCE

Zenocom Co., Ltd.

3F Cheong Ryong B/D, 1122-5, Kwangyang-Dong,
Dongan-Ku, Anyang-city, Kyoungki-do, Korea

Dates of Tests: May 13 ~ May 19, 2008

Test Report S/N: DR50110805Z

Test Site : DIGITAL EMC CO., LTD.

FCC ID

RRRI730

APPLICANT

Zenocom Co., Ltd.

FCC Equipment Class	:	Part 15 Low Power Communication Device Transmitter
Device name	:	Remote Control and FM Transmitter With Bluetooth Caller ID
Manufacturer	:	Zenocom Co., Ltd
Model (Brand name)	:	i730
Test Device Serial number	:	Identical prototype
FCC Rule Part(s)	:	FCC Part 15 Subpart C ANSI C-63.4-2003
Frequency Range	:	88.1 ~ 107.9 MHz
Data of issue	:	May 20, 2008

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.



NVLAP LAB CODE 200559-0

TABLE OF CONTENTS

1. GENERAL INFORMATION ----- 3

2. INFORMATION ABOUT TEST ITEM ----- 4

3. TEST REPORT ----- 5

 3.1 SUMMARY OF TESTS ----- 5

 3.2 TEST REQUIREMENTS ----- 6

 3.2.1 FIELD STRENGTH OF FUNDAMENTAL AND EMISSIONS WITHIN PERMITTED BAND. -- 6

 3.2.2 RADIATED EMISSIONS ----- 7

 3.2.3 AC CONDUCTED EMISSION ----- 9

 3.2.4 OCCUPIED CHANNEL BANDWIDTH ----- 10

 3.2.5 ANTENNA REQUIREMENT ----- 13

APPENDIX I TEST EQUIPMENT USED FOR TESTS ----- 14

1. General Information

This report contains the result of tests performed by:

DIGITAL EMC CO., LTD.

Address : 683-3, Yubang-Dong, Yongin-Si, Kyunggi-Do, Korea. 449-080

<http://www.digitalemc.com> E-mail : demc@unitel.co.kr

Tel: +82-31-321-2664 Fax: +82-31-321-1664

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the "General requirements for the competents of calibration and testing laboratory".

This laboratory is accredited by NVLAP and NVLAP Lab. Code is 200559-0.

Test operator: engineer

May 20, 2008

Dong -Chul CHA



Data

Name

Signature

Report Reviewed By: manager

May 20, 2008

Harvey Sung



Data

Name

Signature

Ordering party:

Company name : Zenocom Co., Ltd.

Address : 3F Cheong Ryong B/D, 1122-5, Kwangyang-Dong,, Dongan-Ku

City/town : Anyang-city, Kyoungki-Do

Country : Korea

Date of order : April 08, 2008

2. Information about test item

RRRI730

2.1 Equipment information

Equipment model name	i730
Type of equipment	Remote Control and FM Transmitter With Bluetooth Caller ID
Frequency band	88.1 ~107.9 MHz
Type of antenna	Wire Antenna
Power	DC 5 V (From Cigar Jack)

2.2 Tested environment

Temperature	: 15 ~ 35 (°C)
Relative humidity content	: 20 ~ 75 %
Air pressure	: 86 ~ 103 kPa
Details of power supply	: DC 5 V

2.3 Tested frequency

Frequency	TX	RX
Low frequency	88.1 MHz	-
Middle frequency	98.0 MHz	-
High frequency	107.9 MHz	-

Note 1. The operating frequency range was verified manually using frequency selection button.

2.4 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)
15.239	Field Strength of Fundamental and Emissions within permitted band.	< 250 uV/m @ 3m	Radiated	C
15.209	Radiated Emission	< FCC 15.209 limits	Radiated	C
15.207	AC Conducted Emissions	< FCC 15.207 limits	Line Conducted	NA ^{note 2}
15.239	Occupied channel bandwidth	< 200kHz	Radiated	C
15.203	Antenna Requirement	FCC 15.203	-	C
Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable Note 2: Conducted emission test isn't applicable because the power of the EUT is supplied by cigar jack. Note 3: The sample was tested according to the following specification: FCC Parts 15.239; ANSI C-63.4-2003				

3.2 TEST requirements

3.2.1 Field Strength of Fundamental and Emissions within permitted band.

Procedure:

The field strength of emissions from intentional radiators operated within the bands 88.1 ~107.9MHz was measured in accordance with FCC Part §15.239. The test set-up was made according to ANSI C 63.4:2003.

The EUT was placed on a 0.8m high wooden table inside a shielded semi-anechoic chamber.

An antenna was placed at 3m distance from EUT and measurements of frequencies and amplitudes of field strengths were recorded.

Type of Test : Low Power Communication Device Transmitter
 FCC ID : RRRI730
 Operating Condition : Transmit the rock song.

Measurement Data:

Frequency (MHz)	Detector Mode	Pol	Read Level (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
88.1	PK	V	54.65	8.60	1.20	22.70	41.75	48	6.25
98.0	PK	V	55.61	10.20	1.30	22.60	44.51	48	3.49
107.9	PK	V	55.67	11.00	1.30	22.60	45.37	48	2.63

Note 1: Field Strength Calculation

Level = Read Level + ANT Factor + Cable Loss – Preamp gain

Margin = Limit – Level

Note 2: PK results were meet AV limit. So AV measurements were omitted.

Minimum Standard:

The maximum Field Strength authorized within 200kHz is 250 uV/m@3m

3.2.2 Radiated Emission

Procedure:

The field strength of emissions from intentional radiators operated within the bands 88.1 ~107.9MHz was measured in accordance with FCC Part §15.239. The test set-up was made according to ANSI C 63.4:2003.

The EUT was placed on a 0.8m high wooden table inside a shielded semi-anechoic chamber.

An antenna was placed at 3m distance from EUT and measurements of frequencies and amplitudes of field strengths were recorded.

The spectrum analyzer is set to:

Frequency Range = 30 MHz ~ 10th harmonic.

RBW = 120 kHz (30MHz ~ 1 GHz)

= 1 MHz (1 GHz ~ 10th harmonic)

Trace = max hold

Sweep = auto

VBW ≥ RBW

Detector function = Peak/Average (>1GHz)

Receiver Detector = Quasi-Peak(≤1GHz)

Operating Condition: : Transmit the rock song.

Measurement Data: **Complies**

- Refer to the next page.

Minimum 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.

Measurement Data 1: Harmonics and other emissions of the 88.1 MHz

Frequency (MHz)	Pol	Read Level (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
75.160	V	30.1	6.9	1.1	22.6	15.5	40.0	24.5
288.450	H	42.6	13.6	2.2	23.4	35.0	46.0	11.0
288.460	V	46.6	13.6	2.2	23.4	39.0	46.0	7.0
448.930	H	34.7	16.6	2.7	24.2	29.8	46.0	16.2
520.000	V	35.3	17.5	2.9	24.4	31.5	46.0	14.5

Measurement Data 2: Harmonics and other emissions of the 98.0 MHz

Frequency (MHz)	Pol	Read Level (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
288.490	H	42.5	13.6	2.2	23.4	34.9	46.0	11.1
288.540	V	46.5	13.6	2.2	23.4	38.9	46.0	7.1
381.950	V	35.7	15.6	2.5	24.0	29.8	46.0	16.2
386.000	H	39.7	15.7	2.5	24.0	33.9	46.0	12.1
440.850	H	35.1	16.5	2.7	24.2	30.1	46.0	15.9
520.160	V	34.9	17.5	2.9	24.4	30.9	46.0	15.1
601.370	V	32.1	18.6	3.2	24.4	29.5	46.0	16.5

Measurement Data 3: Harmonics and other emissions of the 107.9 MHz

Frequency (MHz)	Pol	Read Level (dBuV)	Ant. Factor (dB/m)	Cable Loss (dB)	Preamplifier Gain (dB)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
48.000	V	28.8	9.0	0.9	22.6	16.1	40.0	23.9
217.440	V	35.5	11.4	1.9	23.1	25.7	46.0	20.3
254.020	V	35.0	13.1	2.0	23.3	26.8	46.0	19.2
288.550	H	42.5	13.6	2.2	23.4	34.9	46.0	11.1
288.640	V	46.5	13.6	2.2	23.4	38.9	46.0	7.1
382.020	H	40.5	15.6	2.5	24.0	34.6	46.0	11.4
449.030	H	34.8	16.6	2.7	24.2	29.9	46.0	16.1
520.280	V	35.2	17.5	2.9	24.4	31.2	46.0	14.8

Note 1: Field Strength Calculation

$$\text{Level} = \text{Read Level} + \text{ANT Factor} + \text{Cable Loss} - \text{Preamplifier Gain}$$

$$\text{Margin} = \text{Limit} - \text{Level}$$

Note 2 : Up to the 10th harmonics of fundamental were investigated according to 15.239 and the worst-case emissions are reported.

3.2.3 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 normal operating function. Emissions closest to the limit are measured in the quasi-peak mode (QP) 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: **Not Applicable**

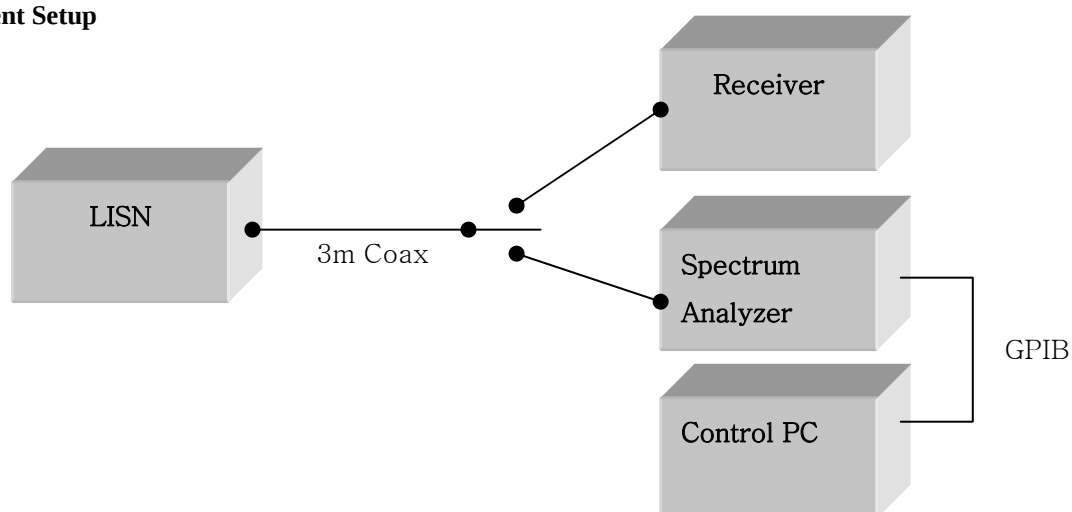
Conducted emission test isn't applicable because the power of the EUT is supplied DC by the cigar jack.

Minimum Standard: FCC Part 15.207(a)/EN 55022

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 Setup



Measurement setup for AC Conducted Emission

3.2.4 Occupied Bandwidth

Procedure:

The occupied channel Bandwidth is defined as the minimum declared bandwidth within which the transmitter's necessary bandwidth can be contained. The transmitter was adjusted to work at the selected channels. The occupied channel BW was measured at an amplitude level reduced from the reference level by the 26dB.

The plot is taken at 30kHz/division frequency span, 10kHz resolution bandwidth and 5dB/division amplitude logarithmic display from a spectrum analyzer.

The spectrum analyzer is set to:

Frequency Range =

RBW = 10 kHz

Trace = max hold

Sweep = auto

VBW $\geq$ RBW

Detector function = Peak

Span = 300 kHz

Operating Condition: Transmit the rock song.

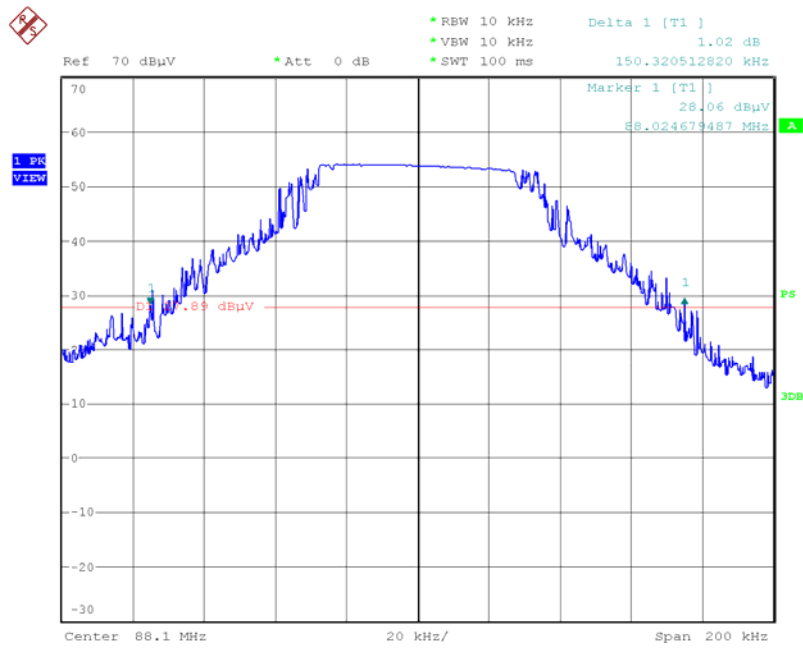
Measurement Data: Complies

Refer to the next page.

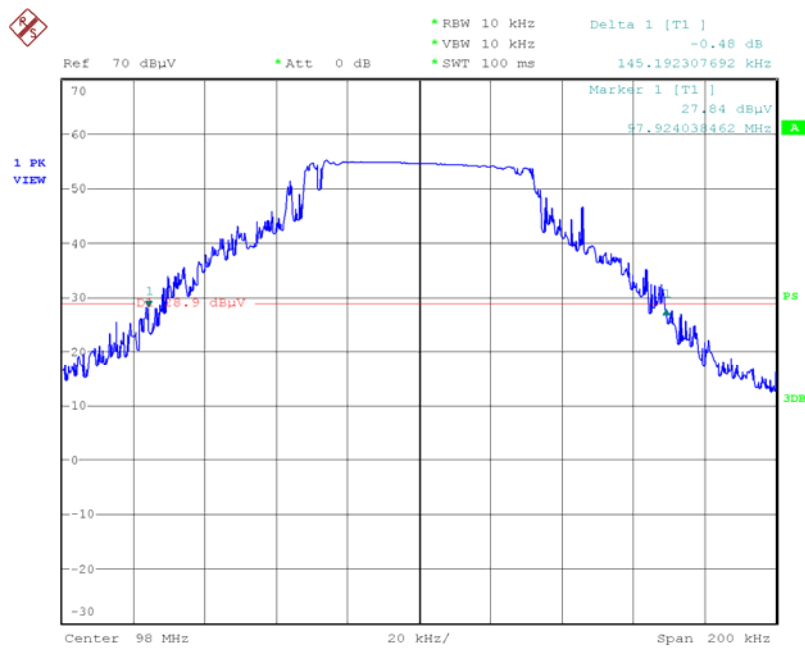
Minimum Standard:

Occupied Bandwidth < 200kHz.

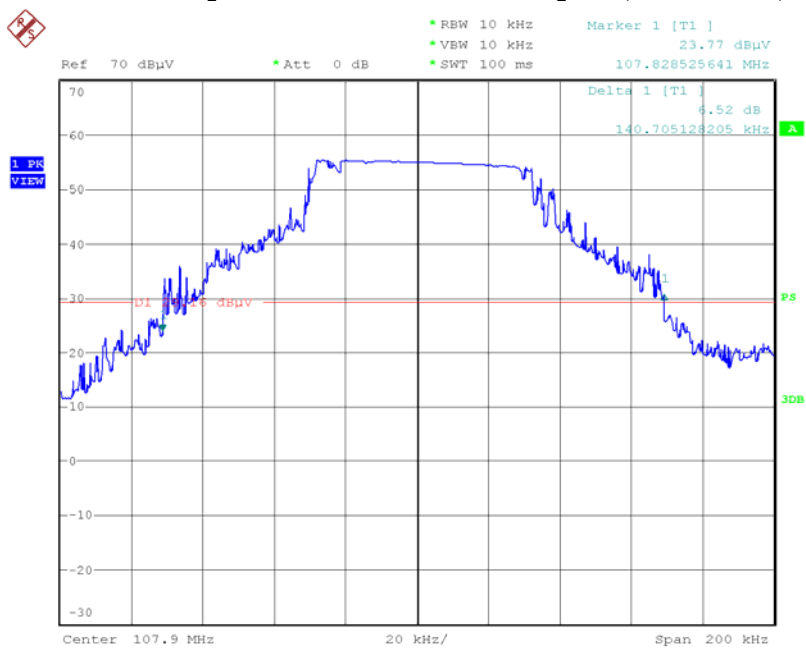
Occupied Channel Bandwidth plot (88.1 MHz)



Occupied Channel Bandwidth plot (98.0 MHz)



Occupied Channel Bandwidth plot (107.9 MHz)



3.2.5 Antenna Requirement

Define:

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

- **The antenna Type** : wire antenna soldered to main PCB.

APPENDIX I

TEST EQUIPMENT USED 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.Due.Date (dd/mm/yy)	Next.Due.Date (dd/mm/yy)	S/N
01	Spectrum Analyzer	Agilent	E4404B	21/03/08	21/03/09	US41061134
02	Spectrum Analyzer	Agilent	E4440A	15/11/07	15/11/08	MY45304199
03	Spectrum Analyzer	H.P	8563E	09/10/07	09/10/09	3551A04634
04	Spectrum Analyzer	Rohde Schwarz	FSP	06/09/07	06/09/08	100385
05	Spectrum Analyzer	H.P	8591E	16/04/08	16/04/09	3649A05889
06	EMI TEST RECEIVER	R&S	ESU	11/01/08	11/01/09	100014
07	EMI TEST RECEIVER	R&S	ESCI	13/05/08	13/05/09	100364
08	Power Meter	H.P	EMP-442A	10/07/07	10/07/08	GB37170413
09	Power Sensor	H.P	8481A	11/03/08	11/03/09	3318A96566
10	Frequency Counter	H.P	5342A	06/09/07	06/09/08	2119A04450
11	Signal Generator	Rohde Schwarz	SMR20	02/04/08	02/04/09	101251
12	Signal Generator	H.P	ESG-3000A	10/07/07	10/07/08	US37230529
13	Vector Signal Generator	Rohde Schwarz	SMJ100A	17/01/08	17/01/09	100148
14	Audio Analyzer	H.P	8903B	10/07/07	10/07/08	3011A09448
15	Modulation Analyzer	H.P	8901B	14/07/07	14/07/08	3028A03029
16	Oscilloscope	Tektronix	TDS3052	02/11/07	02/11/08	B016821
17	Universal Radio Communication tester	Rohde Schwarz	CMU200	02/04/08	02/04/09	107631
18	8960 Series 10 Wireless Comms. Test Set	Agilent	E5515C	18/07/07	18/07/09	GB43461134
19	Universal Radio communication Tester	Rohde Schwarz	CMU 200	02/04/08	02/04/09	107631
20	Bluetooth Tester	TESCOM	TC-3000A	02/11/08	02/11/09	3000A4A0121
21	Power Splitter	WEINSCHEL	1593	05/10/07	05/10/08	332
22	Power Splitter	Anritsu	K241B	19/10/07	19/10/08	020611
23	BAND Reject Filter	Microwave Circuits	N0308372	18/10/07	18/10/08	3125-01DC0312
24	BAND Reject Filter	Wainwright	WRCG1750	18/10/07	18/10/08	SN2
25	AC Power supply	DAEKWANG	5KVA	20/03/08	20/03/09	N/A
26	DC Power Supply	H.P	6622A	20/03/08	20/03/09	465487
27	HORN ANT	EMCO	3115	10/08/07	10/08/08	6419
28	HORN ANT	EMCO	3115	09/10/07	09/10/08	21097
29	HORN ANT	A.H.Systems	SAS-574	20/08/07	20/08/08	154
30	HORN ANT	A.H.Systems	SAS-574	20/08/07	20/08/08	155

	Type	Manufacturer	Model	Cal.Due.Date (dd/mm/yy)	Next.Due.Date (dd/mm/yy)	S/N
31	Dipole Antenna	Schwarzbeck	VHA9103	19/12/07	19/12/08	2116
32	Dipole Antenna	Schwarzbeck	VHA9103	19/12/07	19/12/08	2117
33	Dipole Antenna	Schwarzbeck	UHA9105	20/12/07	20/12/08	2261
34	Dipole Antenna	Schwarzbeck	UHA9105	20/12/07	20/12/08	2262
35	TEMP & HUMIDITY Chamber	JISCO	J-RHC2	02/10/07	02/10/08	021031
36	Log Periodic Antenna	Schwarzbeck	UHALP9108A1	01/10/07	01/10/08	1098
37	Biconical Antenna	Schwarzbeck	VHA9103	08/06/07	08/06/08	2233
38	Digital Multimeter	H.P	34401A	20/03/08	20/03/09	3146A13475
39	Attenuator (10dB)	WEINSCHEL	23-10-34	05/10/07	05/10/08	BP4386
40	Attenuator (10dB)	WEINSCHEL	23-10-34	30/01/08	30/01/09	BP4387
41	High-Pass Filter	ANRITSU	MP526D	08/10/07	08/10/08	MP27756
42	Attenuator (3dB)	Agilent	8491B	12/07/07	12/07/08	58177
43	20dB Attenuator	Aeroflex/Weinschel	86-20-11	25/10/07	25/10/08	432
44	10dB Attenuator	Aeroflex/Weinschel	86-10-11	25/10/07	25/10/08	446
45	10dB Attenuator	Aeroflex/Weinschel	86-10-11	25/10/07	25/10/08	408
46	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0088CAN	05/07/07	05/07/08	788
47	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0185CAN	05/07/07	05/07/08	790
48	Type N Coaxial CIRCULATOR	NOVA MICROWAVE	0215CAN	05/07/07	05/07/08	112
49	Amplifier (25dB)	Agilent	8447D	20/05/08	20/05/09	2944A10144
50	Amplifier (30dB)	Agilent	8449B	25/10/07	25/10/08	3008A01590
51	Amplifier (22dB)	H.P	8447E	27/02/08	27/02/09	2945A02865
52	Position Controller	TOKIN	5901T	N/A	N/A	14173
53	Driver	TOKIN	5902T2	N/A	N/A	14174
54	RFI/FIELD Intensity Meter	Kyorits	KNW-2402	06/09/07	06/09/08	4N-170-3
55	LISN	Kyorits	KNW-407	30/08/07	30/08/08	8-317-8
56	LISN	Kyorits	KNW-242	06/10/07	06/10/08	8-654-15
57	CVCFC	NF Electronic	4400	N/A	N/A	344536 4420064
58	Software	ToYo EMI	EP5/RE	N/A	N/A	Ver 2.0.800
59	Software	ToYo EMI	EP5/CE	N/A	N/A	Ver 2.0.801
60	Software	AUDIX	e3	N/A	N/A	Ver 3.0
61	Software	Agilent	Benchlink	N/A	N/A	A.01.09 021211