

FCC DOC REPORT

Order No. : G-45-2007-02161
Reference No. : F690501/RF-EMG000748
Applicant : Metrologic Instruments, Inc.
Address of Applicant : P.O.Box 307, Bellmawr, New Jersey, USA
Manufacturer : Inno Teletek, Inc.
Address of Manufacturer : 461-25, Jeonmin-dong, Yuseong-gu, Daejeon, Korea

Equipment Under Test (EUT) :

Name : Industrial Mobile Computer
Model No. : Optimus PDA SP5700 Series

Standards : FCC Part 15, Subpart B, Class B
 ANSI C63.4:2003
 CISPR22:2006
 CISPR16-2:2005

Date of Receipt : 14 November 2007
Date of Test : 25 November 2007 to 11 December 2007
Date of Issue : 09 January 2008

Test Result :	PASS
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In the configuration tested, the EUT complied with the standards specified above.

Remarks :

This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report shall not be reproduced except in full, without the written approval of the laboratory. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.



Jess Kim
EMC DIV. Manager
SGS Testing Korea Co., Ltd.

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1. General Information

1.1 Applicant & Manufacturer Information

Applicant : Metrologic Instruments, Inc.
 Address of Applicant : P. O. Box 307, Bellmawr, New Jersey, USA
 Manufacturer : Inno Teletek Inc.
 Address of Manufacturer : 461-25, Jeonmin-dong, Yuseong-gu, Daejeon, Korea

1.2 General Description of EUT

Product Name : Industrial Mobile Computer
 Model No. : Optimus PDA SP5700 Series
 Serial No : None

1.3 Details of EUT

Tested Power Supply : AC 120 V, 60 Hz
 Description of Operating : Barcode Scanner, Camera, Bluetooth, Wi-Fi, Active Sync.

1.4 Description of Support Units

Product	Model No.	Serial No.	Manufacturer
Notebook Computer	2366	99-LZLR2	LG IBM
Wireless LAN Access Point	TNETWA622	8399	Texas Instruments
Bluetooth Headphone	N/A	N/A	Samsung Electronics
Industrial Mobile Computer	OptimusPDA SP5700 Series	N/A	Inno Teletek Inc.

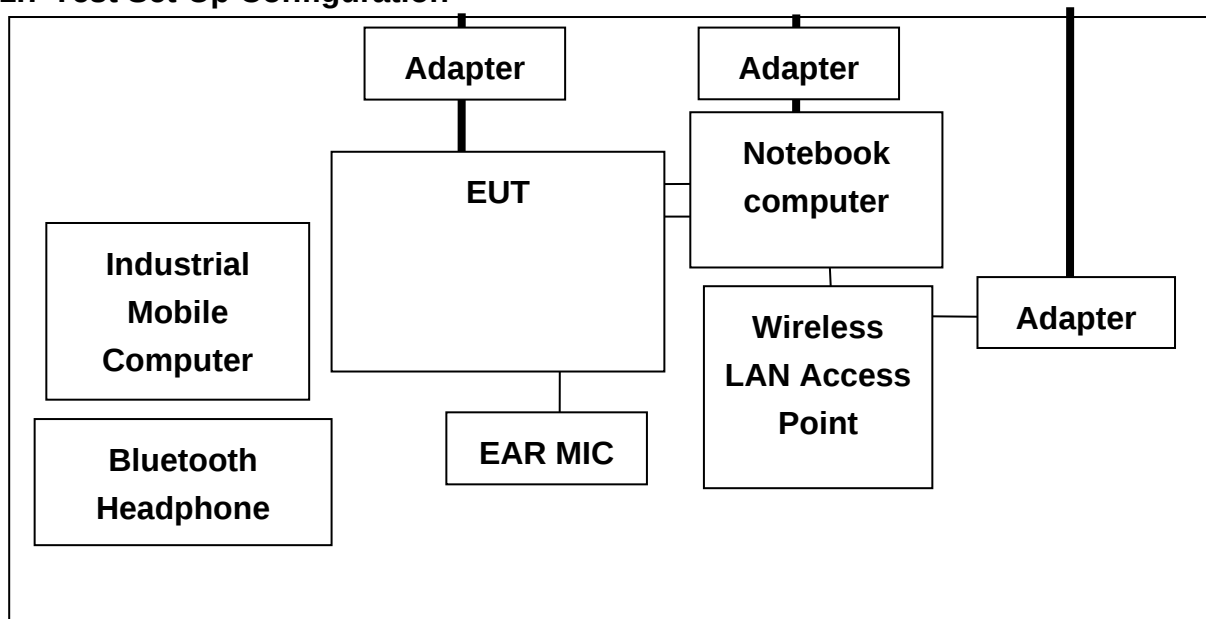
1.5 Cable List

Start		END		Cable Spec	
Name	I/O Port	Name	I/O Port	Length	Shield
EUT	DC IN	Adapter	-	1.7	Unshielded
	USB	Notebook Computer	USB	1.7	Shielded
	I/O	Notebook Computer	Serial	1.7	Shielded
	Earphone	EAR MIC	-	1.5	Unshielded
Notebook Computer	USB	EUT	USB	1.7	Shielded
	LAN	Wireless LAN Access Point	2	3.0	Unshielded
	Serial	EUT	IO	1.7	Shielded
	DC IN	Adapter	-	1.7	Unshielded
Adapter	-	EUT	DC IN	1.7	Unshielded
	-	AC Source	-	-	Unshielded

1.6 System Configuration

Description	Model	Serial No.	Manufacturer
EAR MIC	N/A	N/A	N/A
Cradle	MI5710	3B0726 1340	Metrologic
Adapter	STD-1203	N/A	Sunny Computer Technology Co.,Ltd.
Main Board	MC5000G_Rev0.4	N/A	N/A
Key Pad Board	MC5000_Keypad Rev0.4	N/A	N/A
GSM Module	133851-V02	N/A	SIEMENS
Camera Module	N/A	N/A	N/A
Barcode Reader Module 1	SI-955-1100R	M1K33U84A	SYMBOL TECHNOLOGY
Barcode Reader Module 2	5000SR-110R	07187A1D48	N/A
Barcode Reader Module 3	IS-4910-01	4007400104	Metrologic
LCD PANEL	N/A	TD035STED4 726N1AA04772 28	N/A
Cmos Battery	P040017F29A	N/A	N/A

1.7 Test Set-Up Configuration



1.8 Measurement Procedure

Conducted Emission Testing was performed according ANSI C63.4:2003 in a shielded room with peripherals placed on a table, 0.8m high over a metal floor. It was located more than required distance away from the shielded room wall. Radiated Emission Testing was performed according to ANSI C63.4:2003 at the open field test site. The EUT was placed in a 0.8m high table along with the peripherals. The turn table was separated from the antenna distance 3 meters. Cables were placed in a position to produce maximum emissions as determined by experimentation, and operation mode was selected for maximum. The frequencies and amplitudes of maximum emission were measured at varying azimuths, antenna heights and antenna polarities. Reported are maximized emission levels.

1.9 Standards Applicable for Testing

Table of tests to be carried out under FCC Part 15, Subpart B, CLASS B

Test Standards	Status
FCC Part 15, Subpart B, Class B	Applicable
Deviation from Standard	No Deviation

1.10 Summary of Results

The data collected shows that Model **OptimusPDA SP5700 Serises** complies with of the FCC Part 15, Subpart B Rules.

The highest emission level observed was at 0.19 MHz for Q/P mode conducted emission with a margin of 14.74 dB and at 1.98 MHz for AV mode conducted emission with a margin of 9.80 dB at the scanner 1 mode and at 0.20 MHz for Q/P mode conducted emission with a margin of 17.31 dB and at 0.59 MHz for AV mode conducted emission with a margin of 14.70 dB at the scanner 2 mode and at 0.27 MHz for Q/P mode conducted emission with a margin of 19.92 dB and at 8.86 MHz for AV mode conducted emission with a margin of 18.70 dB at the scanner 3 mode and at 35.62 MHz radiated e mission with a margin of 6.17 dB at the scanner 1 mode and at 35.62 MHz radiated e mission with a margin of 6.17 dB at the scanner 2 mode and. at 668.74 MHz radiated e mission with a margin of 5.82 dB at the scanner 3 mode

Radio Disturbance

2.1 Test Results

	Results
Conducted Emission	PASS
Radiated Emission	PASS

2.2 Frequency Range

Conducted Emission : 150 kHz - 30 MHz

Radiated Emission : 30 MHz - 1000 MHz

2.3 Limits Of Conducted And Radiated Emission

2.3.1 Limit Of Conducted Emission

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi - peak	Average	Quasi - peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

Note : (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 to 0.50 MHz.

(3) All emanation from a class A/B digital device or system, including any network of conductors and apparatus connected there to, shall not exceed the level of field strengths specified above.

2.3.2 Limit Of Radiated Emission

FREQUENCY (MHz)	Class A (at 10m)*	Class B (at 3m)*
	dBuV/m	dBuV/m
30-230	40	40
230-1000	47	47

* Detector Function : Quasi - Peak

2.4 Test of Conducted Emission

2.4.1 Test Equipments

Equipment	Model No.	Manufacturer	Date of Calibration
Test Receiver	ESHS10	Rohde & Schwarz	Sep. 2007
Two-Line V-Network	NNB 41	SCHAFFNER	Sep. 2007
Two-Line V-Network	ENV216	Rohde & Schwarz	Jan. 2007
Shield Room	-	Seoyoung EMC	-

2.4.2 Test Site

Name and address : SGS Testing Korea Co., Ltd.

18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea, 435-041

2.4.3 Operating Environment

Temperature : 20.3 °C Humidity : 41 % RH

Atmospheric Pressure : 100.1 kPa

2.4.4 Measurement Data

Measurement Bandwidth : 9kHz

Date of Test : 25 November, 2007

Scanner 1 Mode

FREQ. (MHz)	LEVEL(dB μ V)		LINE	LIMIT(dB μ V)		MARGIN(dB)	
	Q-Peak	Average		Q-Peak	Average	Q-Peak	Average
0.19	49.30	37.80	H	64.04	54.04	14.74	16.24
0.33	34.10	25.40	N	59.45	49.45	25.35	24.05
1.79	30.20	24.10	N	56.00	46.00	25.80	21.90
1.98	31.20	36.20	N	56.00	46.00	24.80	9.80
14.15	41.20	37.10	N	60.00	50.00	18.80	12.90
14.51	38.90	33.50	N	60.00	50.00	21.10	16.50

Scanner 2 Mode

FREQ. (MHz)	LEVEL(dB μ V)		LINE	LIMIT(dB μ V)		MARGIN(dB)	
	Q-Peak	Average		Q-Peak	Average	Q-Peak	Average
0.20	46.30	34.20	H	63.61	53.61	17.31	19.41
0.27	41.20	33.60	H	61.12	51.12	19.92	17.52
0.59	36.90	31.30	H	56.00	46.00	19.10	14.70
4.21	34.50	30.60	H	56.00	46.00	21.50	15.40
13.77	36.80	32.50	N	60.00	50.00	23.20	17.50
14.03	39.60	32.30	H	60.00	50.00	20.40	17.70

Scanner 3 Mode

FREQ. (MHz)	LEVEL(dB μ V)		LINE	LIMIT(dB μ V)		MARGIN(dB)	
	Q-Peak	Average		Q-Peak	Average	Q-Peak	Average
0.21	42.70	30.20	H	63.21	53.21	20.51	23.01
0.27	41.20	30.50	H	61.12	51.12	19.92	20.62
1.40	31.30	25.80	N	56.00	46.00	24.70	20.20
2.33	25.90	18.90	H	56.00	46.00	30.10	27.10
8.86	37.00	31.30	H	60.00	50.00	23.00	18.70
9.14	38.40	31.20	N	60.00	50.00	21.60	18.80



John Oh / Test Engineer

2.5 Test of Radiated Emission

2.5.1 Test Instruments

Description	Model	Manufacturer	Date of Calibration
Amplifier	8447F	H/P	Sep. 2007
Test Receiver	ESVS10	Rohde & Schwarz	Apr. 2007
Bi-Log Antenna	HL562	Rohde & Schwarz	Sep. 2007
Spectrum Analyzer	8593E	HP	Sep. 2007

2.5.2 Test Site

Name and address : SGS Testing Korea Co., Ltd.

18-34, Sanbon-dong, Gunpo, Gyeonggi-do, Korea, 435-041

2.5.3 Operating Environment

Temperature : 21.1 °C ~ 21.3 °C Humidity : 32 %RH ~ 33 % RH

Atmospheric Pressure : 101.1 kPa ~ 101.2 kPa

2.5.4 Measurement Data

Measurement Bandwidth : 120 kHz

Date of Test : 11 December, 2007

Scanner 1 Mode

FREQ. (MHz)	LEVEL (dB μ V)	POL (H/V)	*AF (dB)	**CL (dB)	F/S (dB μ V/m)	LIMIT (dB μ V/m)	***MARGIN (dB)
35.62	16.30	V	16.76	0.77	33.83	40.00	6.17
82.36	11.50	H	8.08	1.15	20.73	40.00	19.27
116.52	18.50	V	9.78	1.38	29.66	40.00	10.34
179.65	19.60	H	7.92	1.72	29.24	40.00	10.76
405.00	18.70	H	13.52	2.70	34.92	47.00	12.08
668.74	17.40	H	18.12	3.45	38.98	47.00	8.03

* AF = Antenna Factor. ** CL = Cable Loss

*** Margin=Each Frequency Limit Level(dBuV) + AF - (CL)

Scanner 2 Mode

FREQ. (MHz)	LEVEL (dB μ V)	POL (H/V)	*AF (dB)	**CL (dB)	F/S (dB μ V/m)	LIMIT (dB μ V/m)	***MARGIN (dB)
35.62	16.30	V	16.76	0.77	33.83	40.00	6.17
82.36	12.40	H	8.08	1.15	21.63	40.00	18.37
116.52	18.70	V	9.78	1.38	29.86	40.00	10.14
179.65	20.10	H	7.92	1.72	29.74	40.00	10.26
405.00	17.90	H	13.52	2.70	34.12	47.00	12.88
668.74	18.70	H	18.12	3.45	40.28	47.00	6.73

* AF = Antenna Factor. ** CL = Cable Loss
 *** Margin=Each Frequency Limit Level(dBuV) + AF - (CL)

Scanner 3 Mode

FREQ. (MHz)	LEVEL (dB μ V)	POL (H/V)	*AF (dB)	**CL (dB)	F/S (dB μ V/m)	LIMIT (dB μ V/m)	***MARGIN (dB)
35.63	16.30	V	16.75	0.77	33.82	40.00	6.18
82.39	12.40	H	8.08	1.15	21.63	40.00	18.37
116.52	18.70	V	9.78	1.38	29.86	40.00	10.14
179.65	21.10	H	7.92	1.72	30.74	40.00	9.26
405.00	18.70	H	13.52	2.70	34.92	47.00	12.08
668.74	19.60	H	18.12	3.45	41.18	47.00	5.83

* AF = Antenna Factor. ** CL = Cable Loss
 *** Margin=Each Frequency Limit Level(dBuV) + AF - (CL)

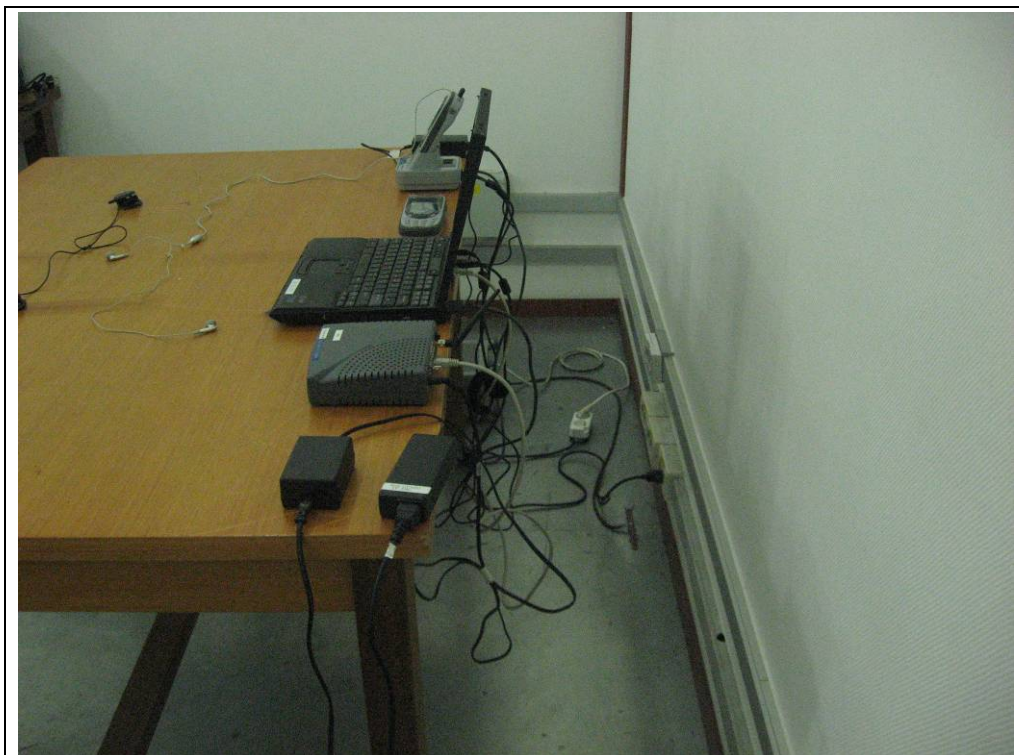
John Oh / Test Engineer

3. Photographs of Test

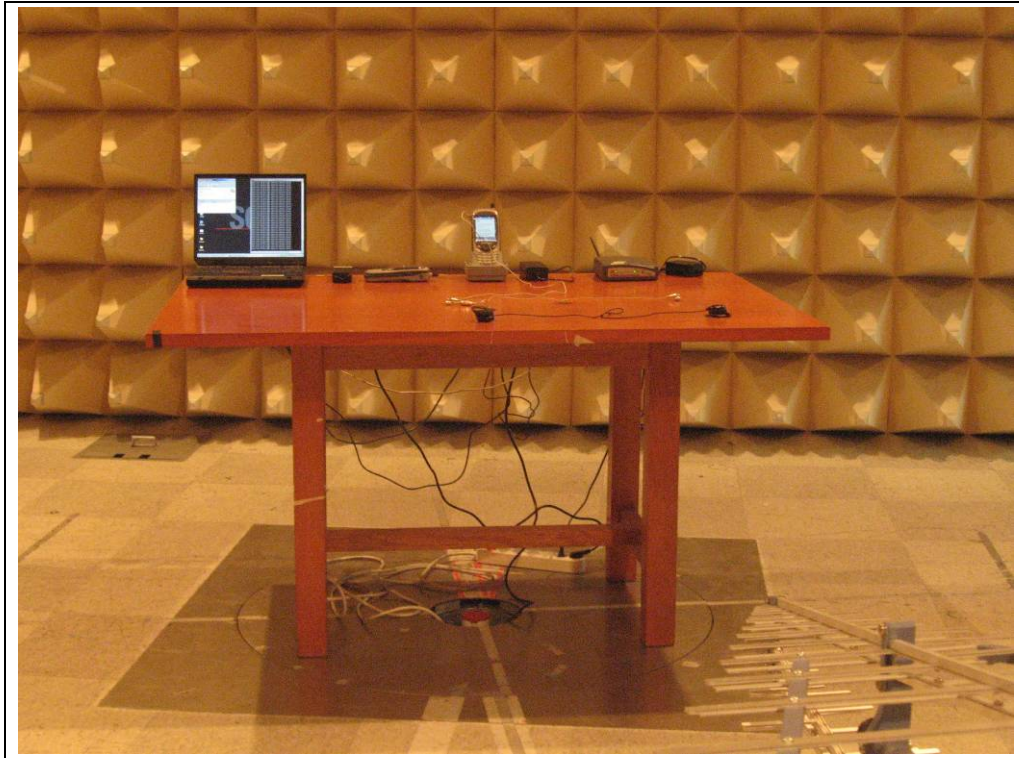
- Front View of Conducted Emission



- Rear View of Conducted Emission



- **Front View of Radiated Emission (Below 1GHz)**



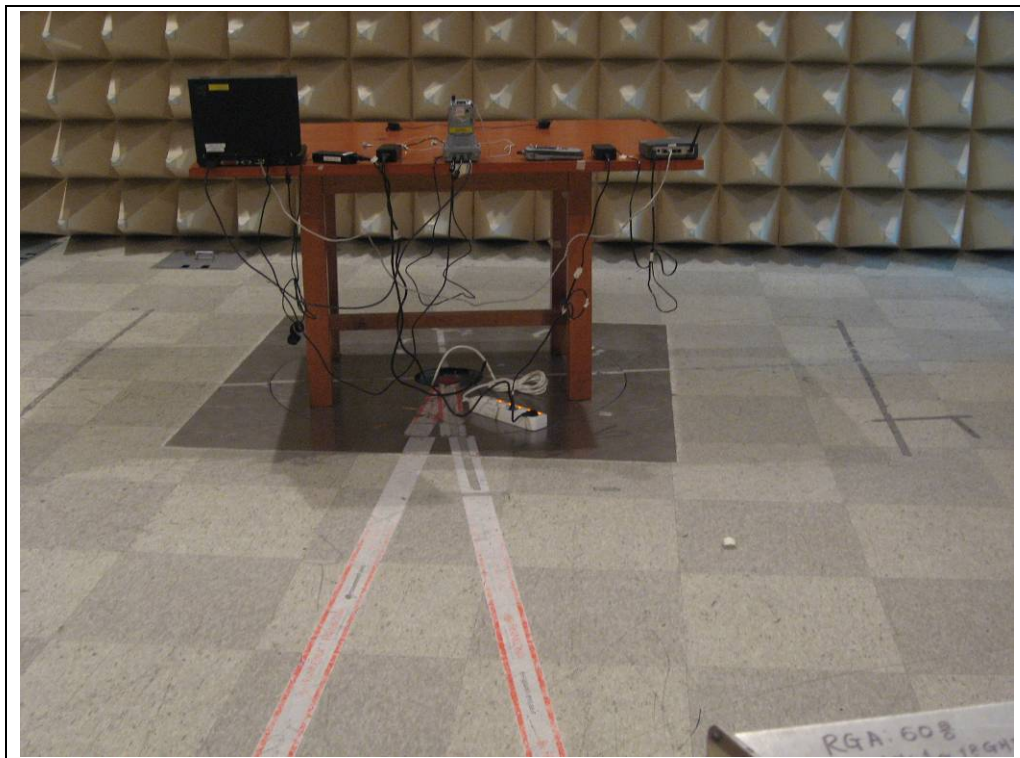
- **Rear View of Radiated Emission**



- **Front View of Radiated Emission (Above 1GHz)**



- **Rear View of Radiated Emission**



4. Photographs of Product

- Top View



- Bottom View



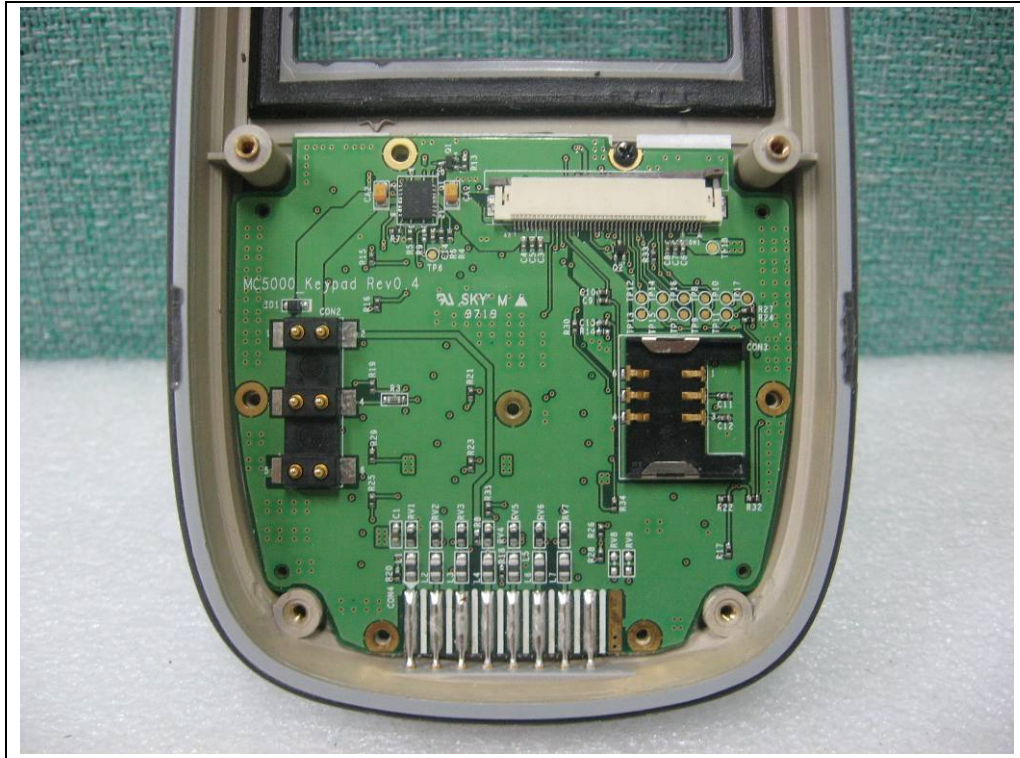
- Inside View



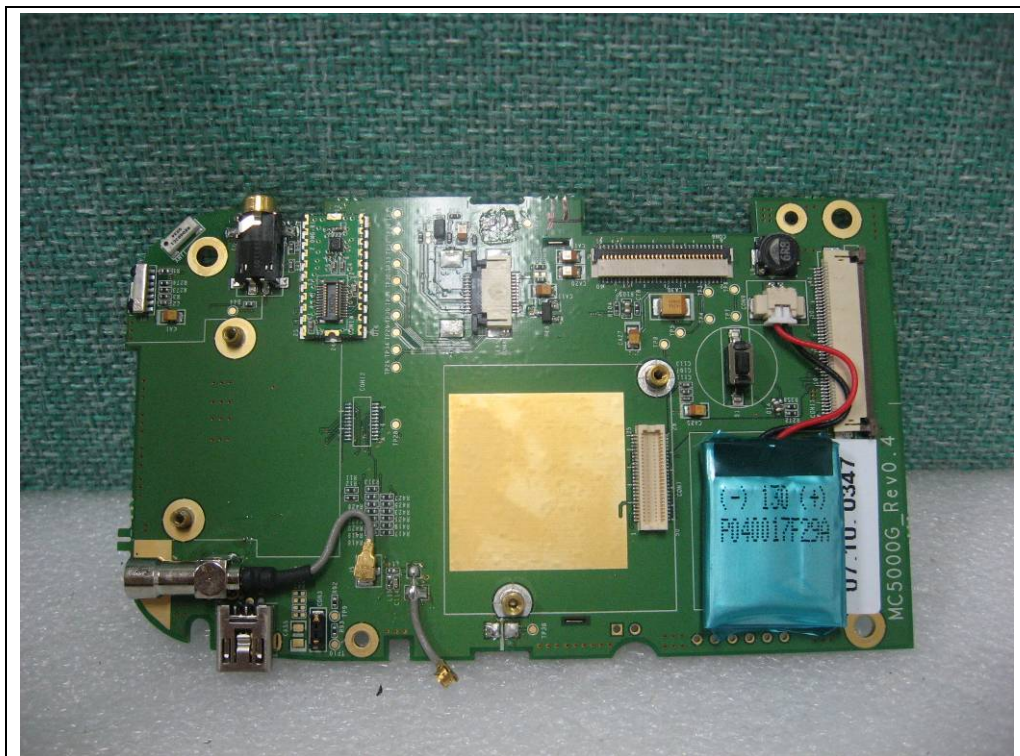
- Top View of Main Board



- Top View of Key Pad Board



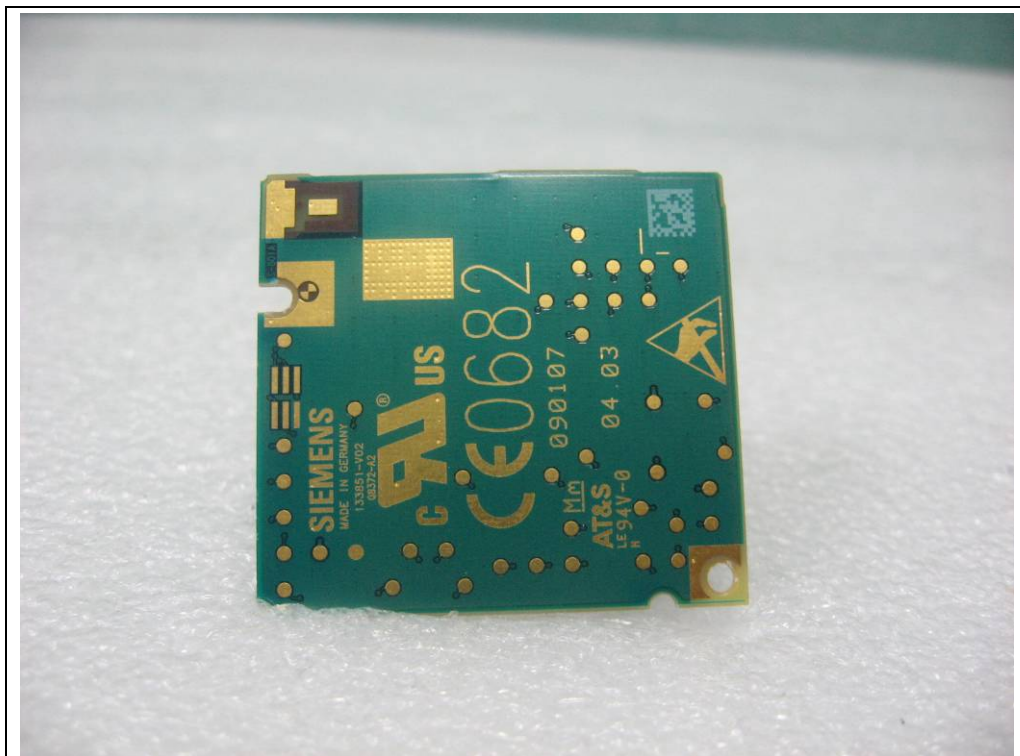
- Bottom View of Key Pad Board



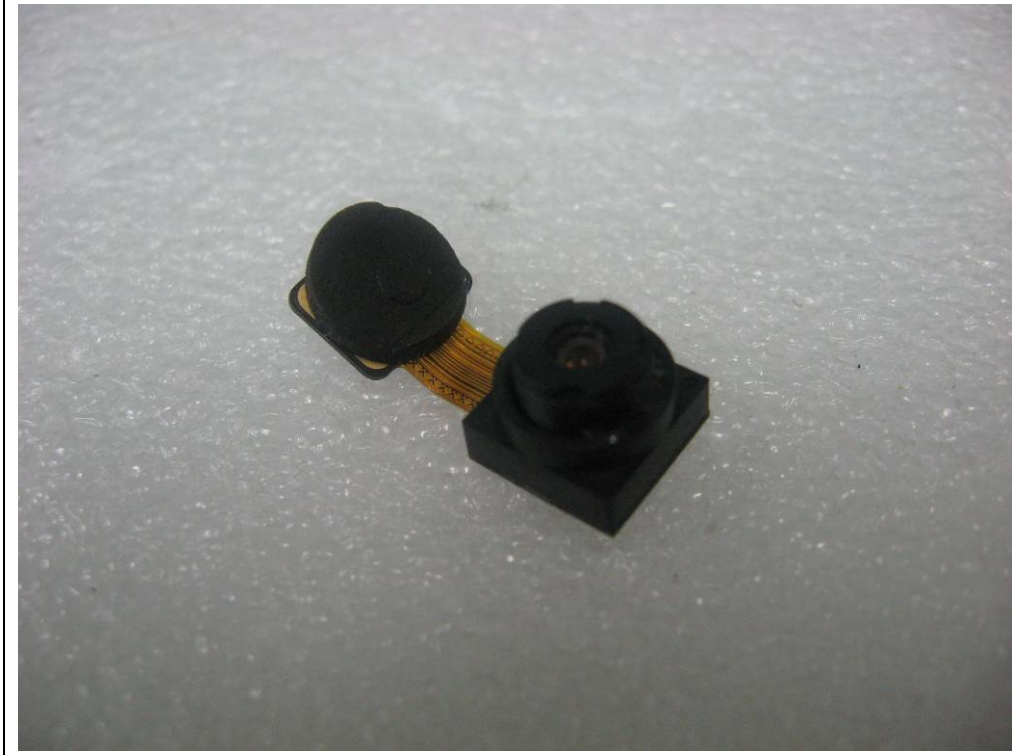
- Top View of GSM Module



- Bottom View of GSM Module



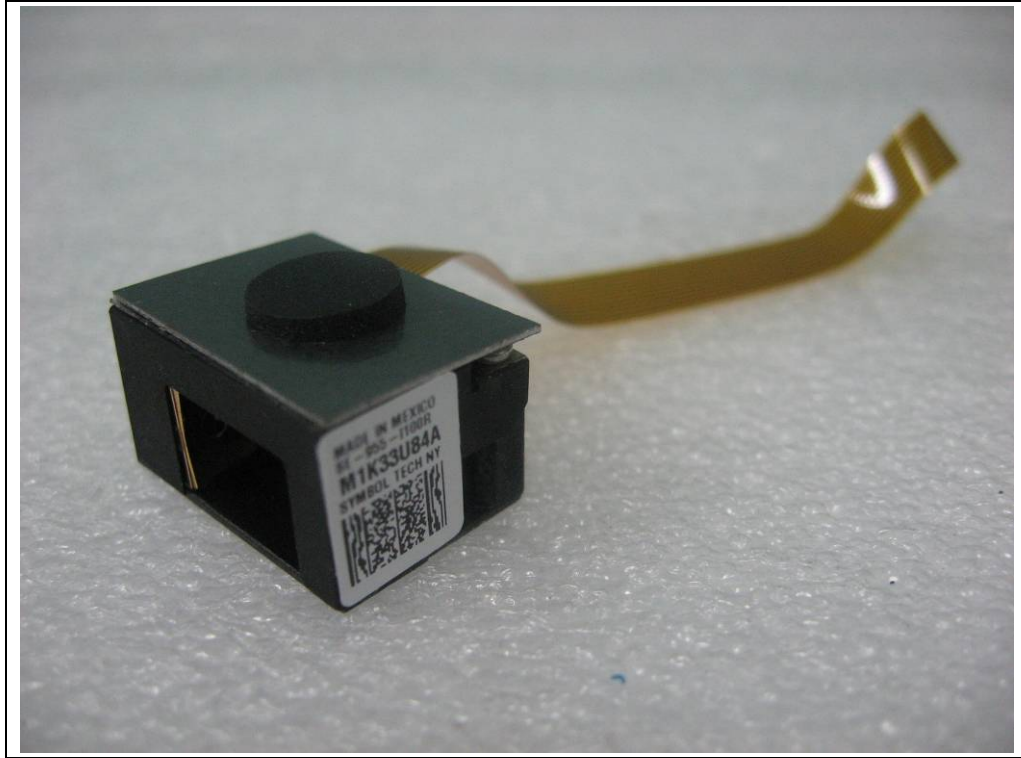
- **Top View of Camera Module**



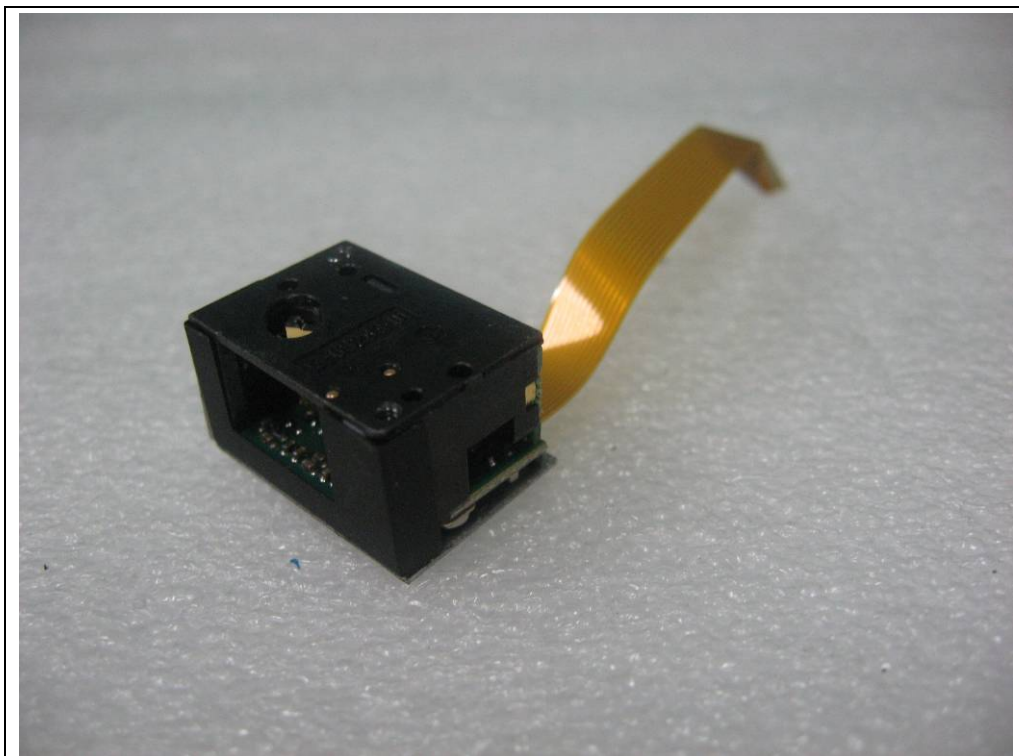
- **Bottom View of Camera Module**



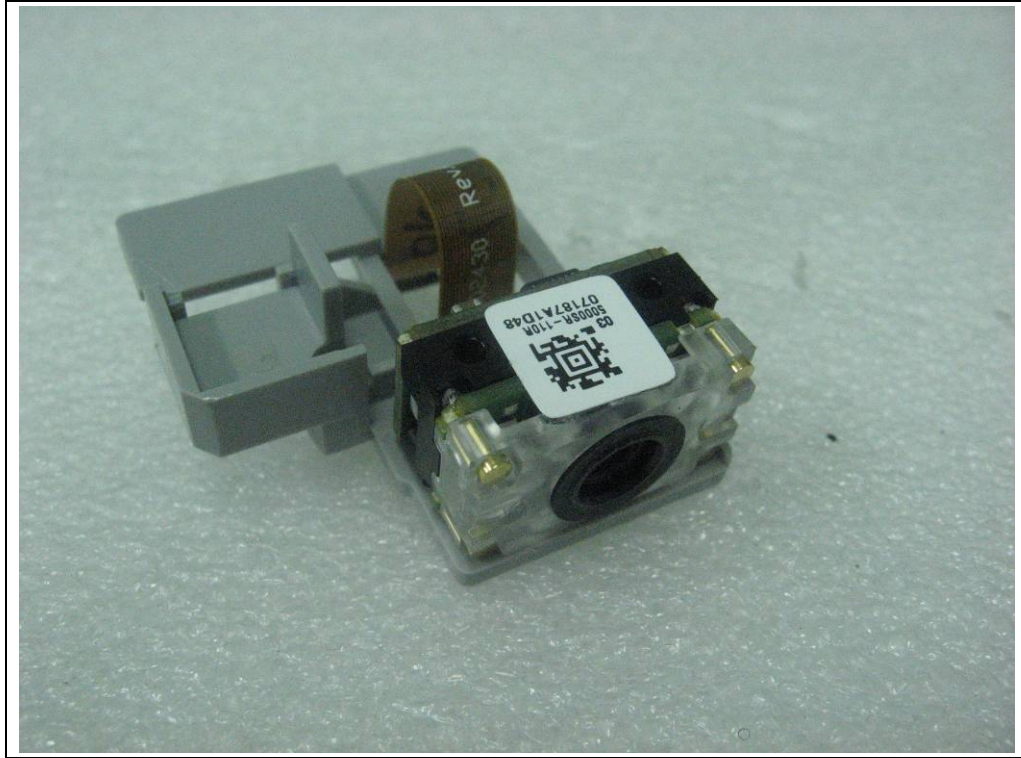
- **Top View of Barcode Reader Module 1**



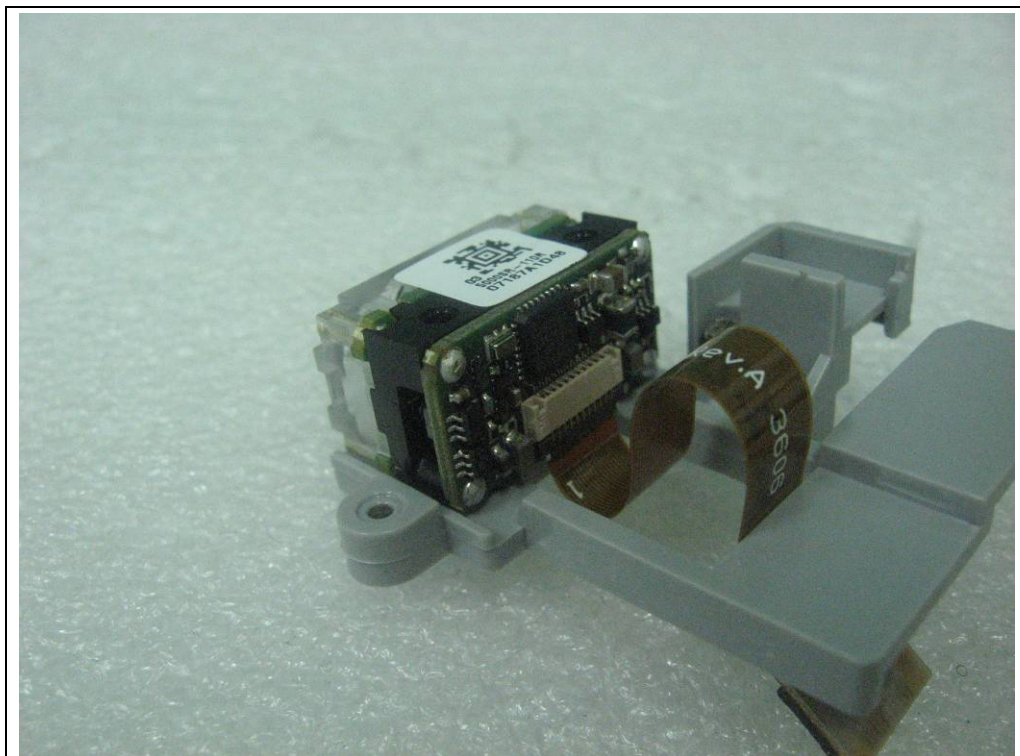
- **Bottom View of Barcode Reader Module 1**



- Top View of Barcode Reader Module 2



- Bottom View of Barcode Reader Module 2



- Top View of Barcode Reader Module 3



- Bottom View of Barcode Reader Module 3



- Top View of LCD PANEL



- Bottom View of LCD PANEL



- **Top View of Cradle**



- **Bottom View of Cradle**



- Adapter



- Ear-MIC

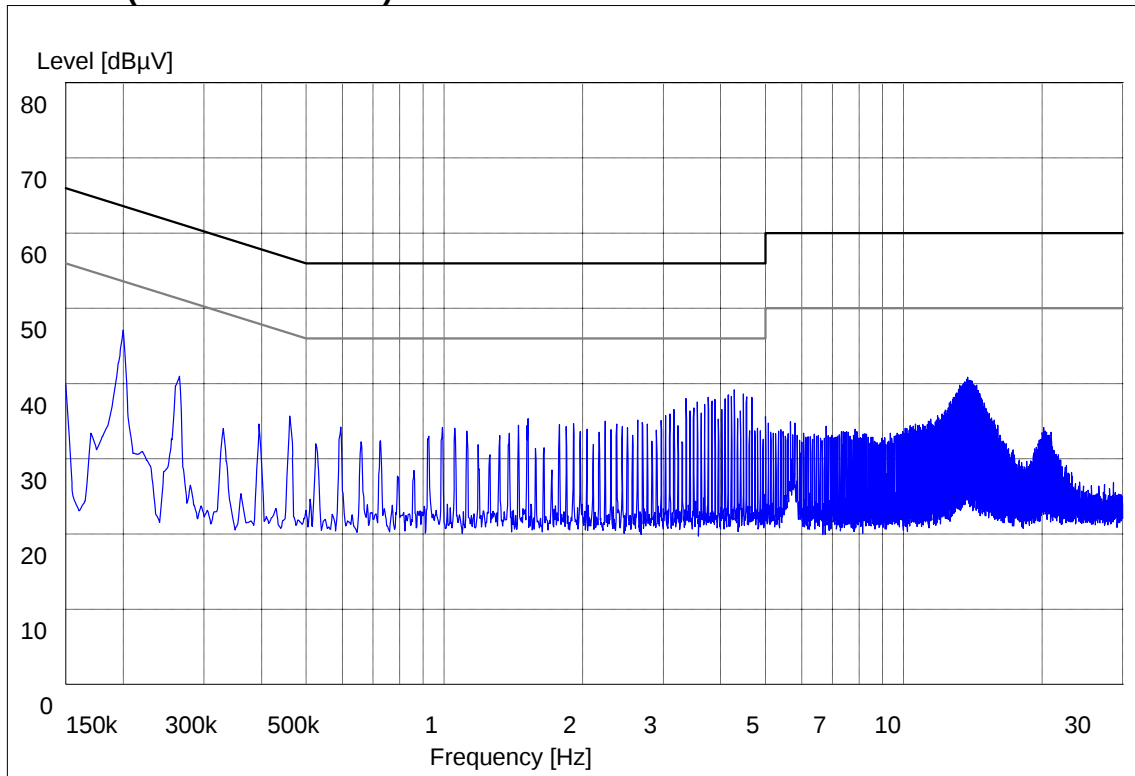


- CMOS Battery

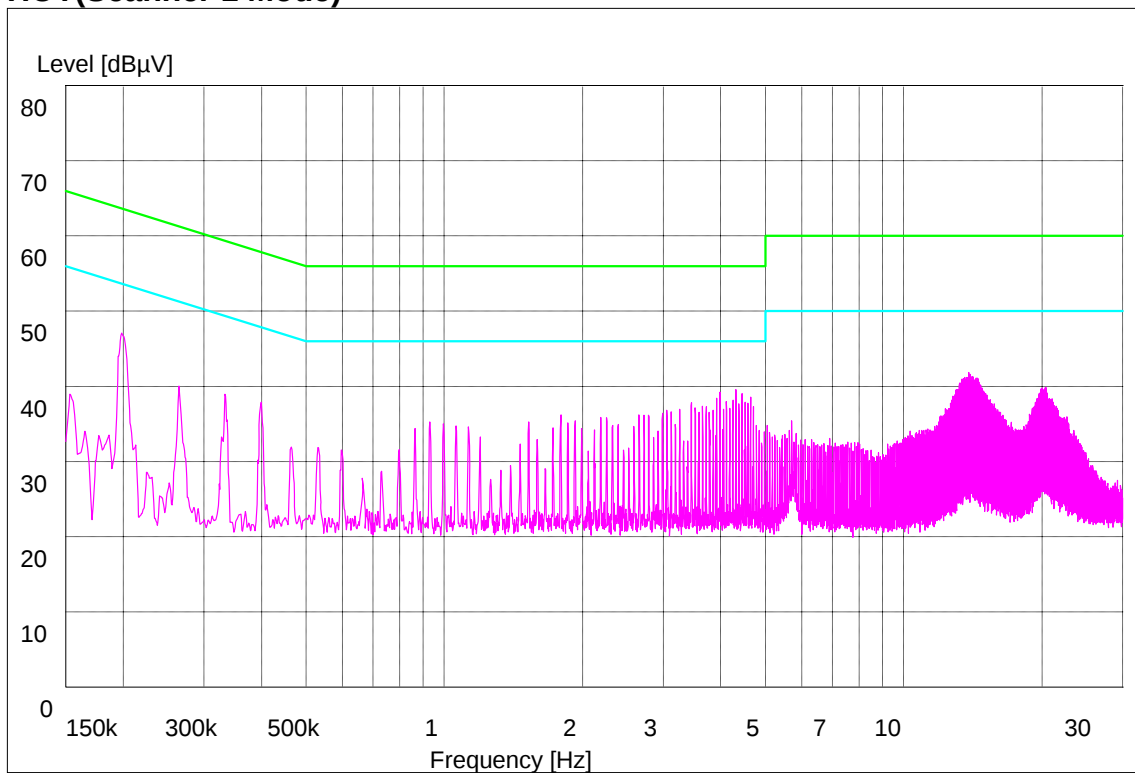


Appendix A : Mains Terminal Continuous Disturbance Voltage Test Data

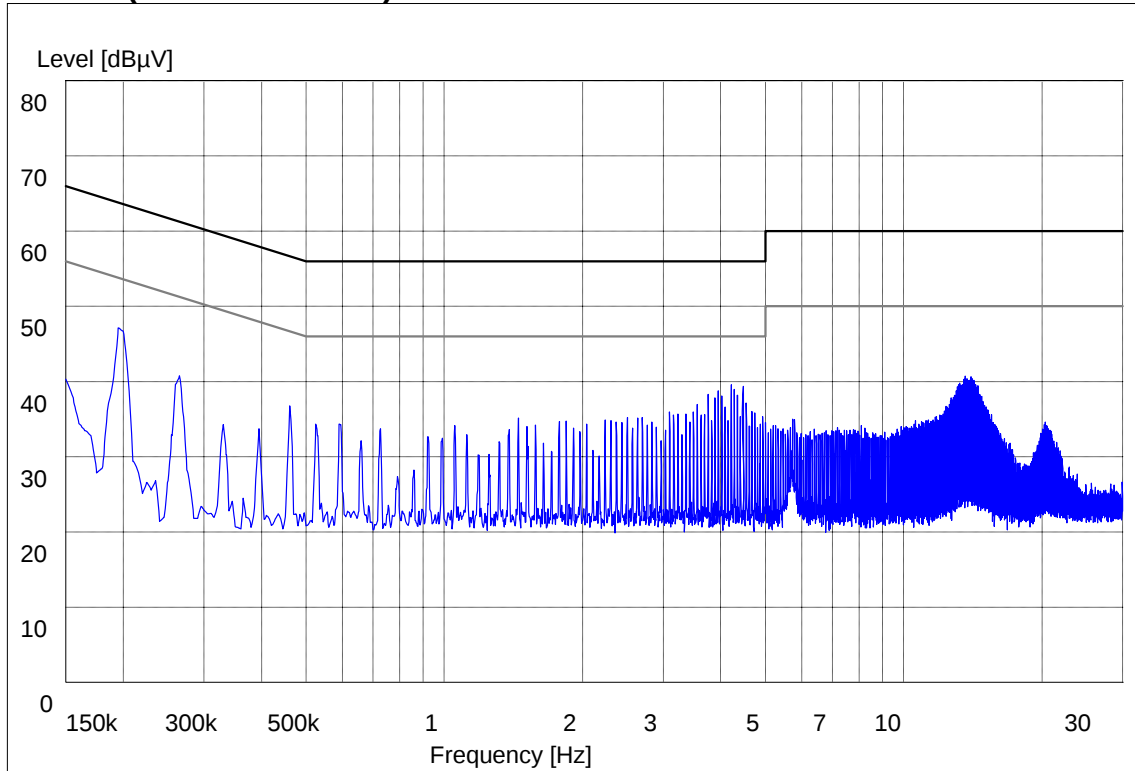
Neutral (Scanner 1 Mode)



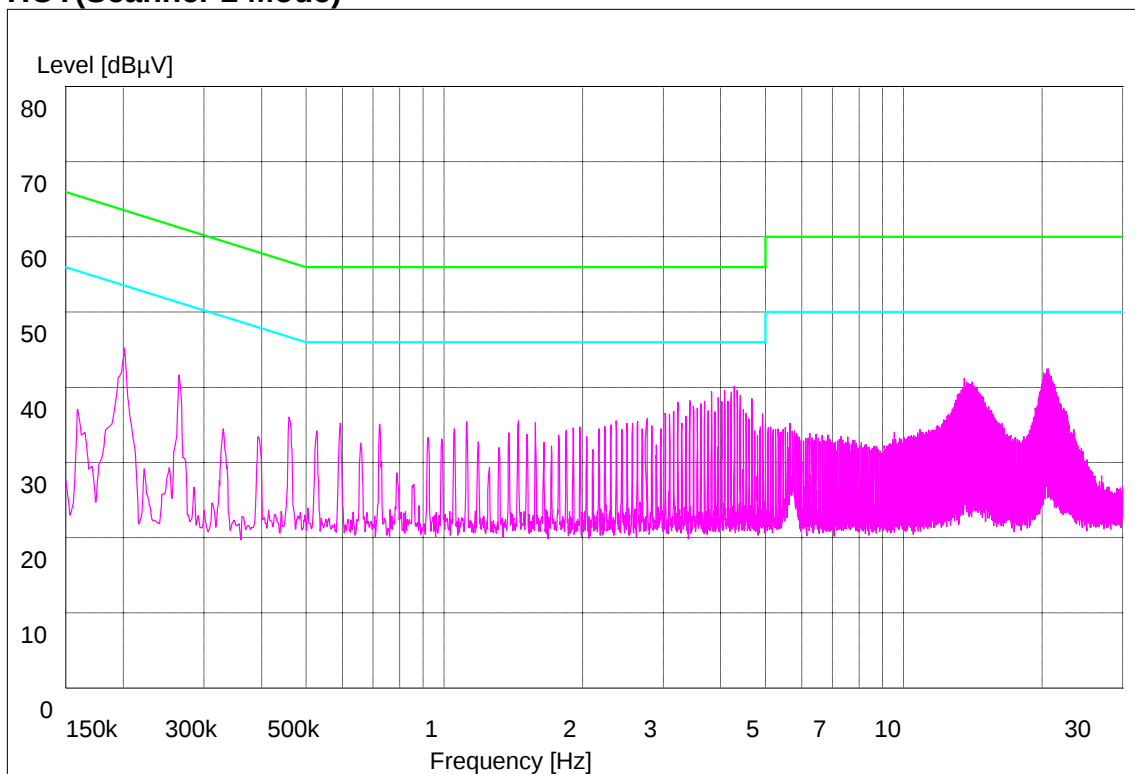
HOT(Scanner 1 Mode)



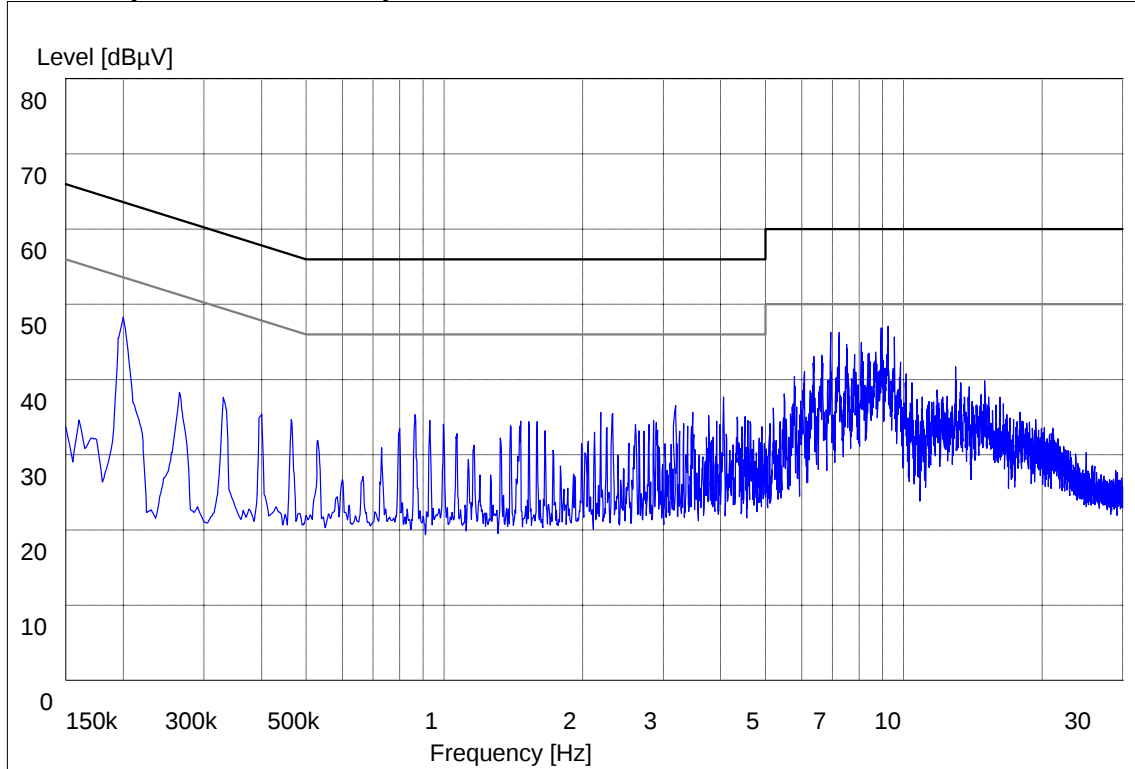
Neutral (Scanner 2 Mode)



HOT(Scanner 2 Mode)



Neutral (Scanner 3 Mode)



HOT(Scanner 3 Mode)

