



HCT CO., LTD.

CERTIFICATION DIVISION

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EMI CERTIFICATION REPORT

Applicant:

LG Electronics MobileComm U.S.A., Inc.

1000 Sylvan Avenue, Englewood Cliffs NJ 07632

Date of Issue: December 06, 2013

Test Report No.: HCTE1312FE02

Test Site: HCT CO., LTD.

HCT FRN: 0005-8664-21

FCC ID:

ZNFD950

Rule Part(s) / Standard(s) : FCC PART 15 Subpart B Class B
Equipment Type : Multi-Band GSM/EDGE/WCDMA/LTE Phone with WLAN, Bluetooth,
and RFID
Model Name : LG-D950, LGD950
Port / Connector(s) : USB / Earphone Port
Date of Test : December 04, 2013 - December 06, 2013

The device bearing the trade name and model specified above, has been shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4/2003. (See Test Report if any modifications were made for compliance)

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.

HCT certifies that no party to application has been subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C 862


Report prepared by

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DOCUMENT HISTORY

The revision history for this document is shown in table.

Version	Date	Description
HCTE1312FE02	December 06, 2013	Initial Release

TABLE OF CONTENTS

	PAGE
1. GENERAL INFORMATION	4
1.1 Product Description	4
1.2 Related Submittal(s) / Grant(s).....	4
1.3 Tested System Details.....	5
1.4 Cable Description	6
1.5 Noise Suppression Parts on Cable. (I/O cable)	6
1.6 Test Methodology	7
1.7 Test Facility	7
1.8 Frequency Range of Radiated Measurements	7
2. SYSTEM TEST CONFIGURATION.....	8
2.1 Configuration of Test System.....	8
3. PRELIMINARY TEST.....	9
3.1 Conducted Emission Test	9
3.2 Radiated Emission Test	9
4. CONDUCTED AND RADIATED EMISSION TEST SUMMARY	10
4.1 Conducted Emission Test	10
4.2 Radiated Emission Test	11
5. FIELD STRENGTH CALCULATION	34
6. TEST EQUIPMENT.....	35
7. CONCLUSION	36

ATTACHMENT: TEST SETUP PHOTOGRAPHS

1. GENERAL INFORMATION

1.1 Product Description

Equipment Under Test is **EUT type: Multi-Band GSM/EDGE/WCDMA/LTE Phone with WLAN, Bluetooth, and RFID, Model: D950** manufactured by **LG Electronics MobileComm U.S.A., Inc.** Its basic purpose is used for communications.

Model Name	LG-D950, LGD950
FCC ID	ZNFD950
EUT Type	Multi-Band GSM/EDGE/WCDMA/LTE Phone with WLAN, Bluetooth, and RFID
TX Frequency	824.20 MHz to 848.80 MHz (GSM 850) 1 850.20 MHz to 1 909.80 MHz (GSM 1 900) 826.40 MHz to 846.60 MHz (WCDMA 850) 1 852.4 MHz to 1 907.6 MHz (WCDMA 1 900) 1 850 MHz to 1 910 MHz (LTE B2) 1 710 MHz to 1 755 MHz (LTE B4) 824 MHz to 849 MHz (LTE B5) 2 500 MHz to 2 570 MHz (LTE B7) 704 MHz to 716 MHz (LTE B17)
RX Frequency	869.20 MHz to 893.80 MHz (GSM 850) 1 930.20 MHz to 1 989.80 MHz (GSM 1 900) 871.40 MHz to 891.60 MHz (WCDMA 850) 1 932.4 MHz to 1 987.6 MHz (WCDMA 1 900) 1 930 MHz to 1 990 MHz (LTE B2) 2 110 MHz to 2 155 MHz (LTE B4) 869 MHz to 894 MHz (LTE B5) 2 620 MHz to 2 690 MHz (LTE B7) 734 MHz to 746 MHz (LTE B17)

1.2 Related Submittal(s) / Grant(s)

Original submittal only.

1.3 Tested System Details

All equipment descriptions used in the tested system (including inserted cards) are:

Device Type	Model Name	Manufacturer	FCC ID / DoC	Connected To
EUT	D950	LG	ZNFD950	Notebook PC Ear-phone
USB cable (USB2.0)	EAD62588801	CRESYN	-	E.U.T Notebook PC
USB cable (USB2.0)	EAD62329305	BROAD	-	E.U.T Notebook PC
USB cable (USB2.0)	EAD62329304	KSD	-	E.U.T Notebook PC
USB cable (USB3.0)	EAD62488701	BROAD	-	E.U.T Notebook PC
Ear-phone	EAB62950101	LG	-	E.U.T
Notebook PC	ProBook6570b	H.P	DoC	EUT Notebook PC adaptor
Notebook PC adaptor	PPP012D-S	DELTA Electronics (JIANGSU)LTD	-	Notebook PC
Gateway	MV440	Axesstel	PH7MV440	Notebook PC, Adaptor
Mouse	Serial 2 batten mouse	Radio shack	FSUGMZE3	Notebook PC
Adaptor	DA-60M12	Yang Ming Industrial	-	Gateway
RJ45 cable	-	-	-	Notebook PC, Gateway

1.4 Cable Description

Product Name	Port	Power Cord Shielded (Y/N)	I/O Cable Shielded (Y/N)	Length (m)
EUT	Micro USB (USB2.0)	Y	Y	(P,D)1.2
	Micro USB (USB3.0)	Y	Y	(P,D)0.1
	Ear-phone	N/A	Y	(D)1.2
Notebook PC	RJ 45	N/A	N	(D)1.5
	Serial (Mouse)	N/A	Y	(D)1.8
	DC in	N	N/A	(P)1.8
Gateway	DC in	N	N/A	(P)1.8

* The marked "(D)" means the data cable and "(P)" means the power cable.

1.5 Noise Suppression Parts on Cable. (I/O cable)

Product Name	Port	Ferrite Bead (Y/N)	Location	Metal Hood (Y/N)	Location
EUT	Micro USB (USB2.0)	N	N/A	Y	Both End
	Micro USB (USB3.0)	N	N/A	Y	Both End
	Ear-phone	N	N/A	Y	EUT End
Notebook PC	RJ 45	N	N/A	N	N/A
	Serial (Mouse)	N	N/A	Y	Notebook PC End

1.6 Test Methodology

Both Conducted and Radiated testing was performed according to the procedures in ANSI C63.4/2003. Radiated testing was performed at an antenna to EUT distance of 3 m.

1.7 Test Facility

Chamber used to collect the test data is located at the 74, SEOICHEON-RO, 578BEON-GIL, MAJANG-MYEON, ICHEON-SI, GYEONGGI-DO, KOREA. Those measurement facilities are constructed in conformance with the requirements of C63.4/2003.

Measurement Facilities	Reg. No.
Radiated Field strength measurement facility (3m)	90661 (June 21, 2011)
Radiated Field strength measurement facility (10m)	90661 (June 21, 2011)

1.8 Frequency Range of Radiated Measurements

An unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a Radiated Emission limit is specified, up to the frequency shown in the following table

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 to 108	1 000
108 to 500	2 000
500 to 1 000	5 000
Above 1 000	5 th harmonic of the highest frequency or 40 GHz, whichever is lower

2. SYSTEM TEST CONFIGURATION

2.1 Configuration of Test System

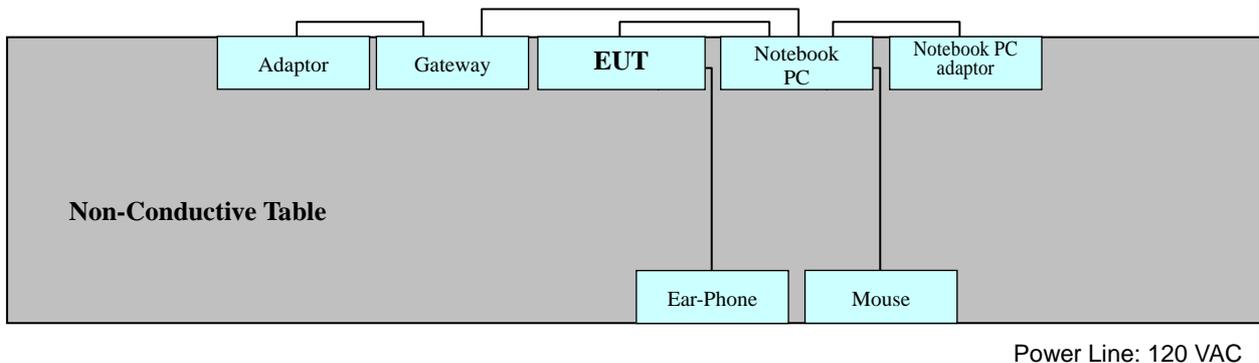
2.1.1 Conducted Emission Test

EUT was connected to LISN via Notebook PC adaptor and Base Station. Preliminary Power Line Conducted Emission tests were performed by using the procedure in ANSI C63.4/2003 7.2.3 to determine the worst operating conditions.

2.1.2 Radiated Emission Test

Preliminary Radiated Emission tests were performed by using the procedure in ANSI C63.4/2003 8.3.1.1 to determine the worst operating condition. Final Radiated Emission tests were performed at 3 m semi-anechoic chamber.

[Configuration of Tested System]



3. PRELIMINARY TEST

3.1 Conducted Emission Test

- It was tested Data Communication mode, after connecting all peripheral devices.

Operation Mode: Data Communication mode

3. 2 Radiated Emission Test

- It was tested Data Communication mode, after connecting all peripheral devices.

Operation Mode: Data Communication mode

4. CONDUCTED AND RADIATED EMISSION TEST SUMMARY

4.1 Conducted Emission Test

The following table shows the highest levels of conducted emissions on both polarization of hot and neutral line.

Limit Apply to	: FCC PART 15 Subpart B Class B
Detector	: Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)
Operation Mode	: Data Communication mode
USB Cable	: CRESYN (EAD62588801)
Temperature	: 19.7°C
Humidity Level	: 40.2 %
Test Date	: December 06, 2013

Frequency (MHz)	Transd (dB)	Conductor	Quasi-Peak			Average		
			Limit	Measurement Level	Result Level	Limit	Measurement Level	Result Level
			(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV]
0.150	10.0	N	66	39.6	49.6	56	-	-
0.158	9.8	H	66	37.7	47.5	56	-	-
0.454	10.0	N	57	30.5	40.5	47	-	-
0.490	9.8	H	56	29.9	39.7	46	-	-
0.500	9.8	H	56	28.7	38.5	46	13.4	23.2
0.500	10.0	N	56	29.6	39.6	46	-	-

※ **NOTE:** Refer to page 11 to page 14 for details.

1. Line H = Hot, Line N = Neutral
2. Transd = LISN factor + Cable Loss factor

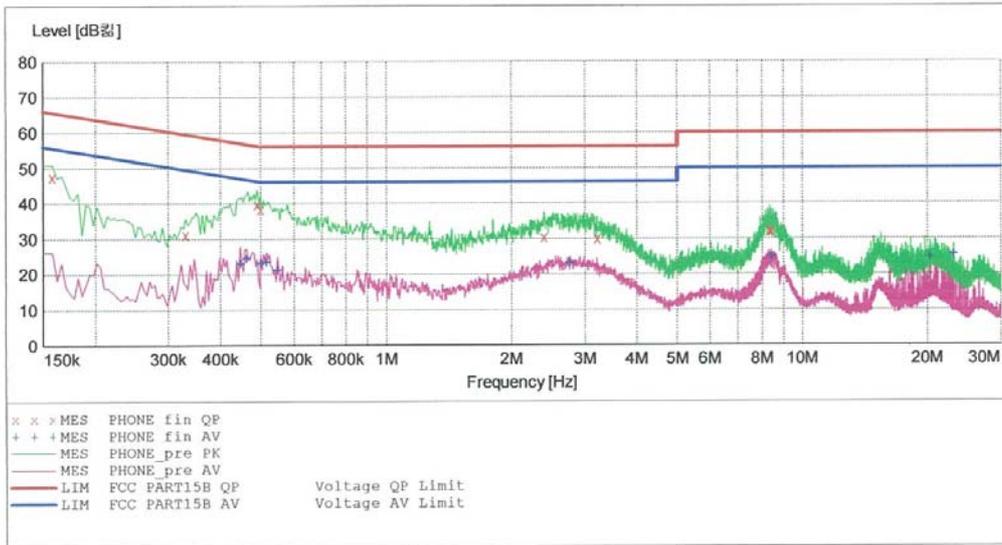
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EMC

EUT: D950
 Manufacturer: LG
 Operating Condition: DATA MODE
 Test Site: SHIELD ROOM
 Operator: GC YOON
 Test Specification: FCC PART15B
 Comment: H (CRESYN CABLE)
 Start of Test: 2013-12-06 / 8:54:14오전

SCAN TABLE: "FCC CLASS B(H)"

Short Description:			FCC CLASS B(H)			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



MEASUREMENT RESULT: "PHONE_fin QP"

2013-12-06 8:56오전

Frequency MHz	Level dB	Transd dB	Limit dB	Margin dB	Line	PE
0.158001	47.50	9.8	66	18.0	---	---
0.330001	31.20	9.8	60	28.2	---	---
0.490001	39.70	9.8	56	16.5	---	---
0.500000	38.50	9.8	56	17.5	---	---
2.400000	30.50	10.0	56	25.5	---	---
3.212000	30.00	10.1	56	26.0	---	---
8.336000	32.10	10.4	60	27.9	---	---
8.380000	32.20	10.4	60	27.8	---	---
8.428000	32.00	10.4	60	28.0	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

2013-12-06 8:56오전

Frequency MHz	Level dB _{μV}	Transd dB	Limit dB _{μV}	Margin dB	Line	PE
0.446001	22.90	9.8	47	24.0	---	---
0.462001	24.50	9.8	47	22.1	---	---
0.500000	23.20	9.8	46	22.8	---	---
0.516000	23.50	9.8	46	22.5	---	---
0.548000	21.30	9.8	46	24.7	---	---
2.764000	22.90	10.0	46	23.1	---	---
8.428000	24.80	10.4	50	25.2	---	---
20.260000	24.60	10.9	50	25.4	---	---
23.128000	25.50	11.1	50	24.5	---	---

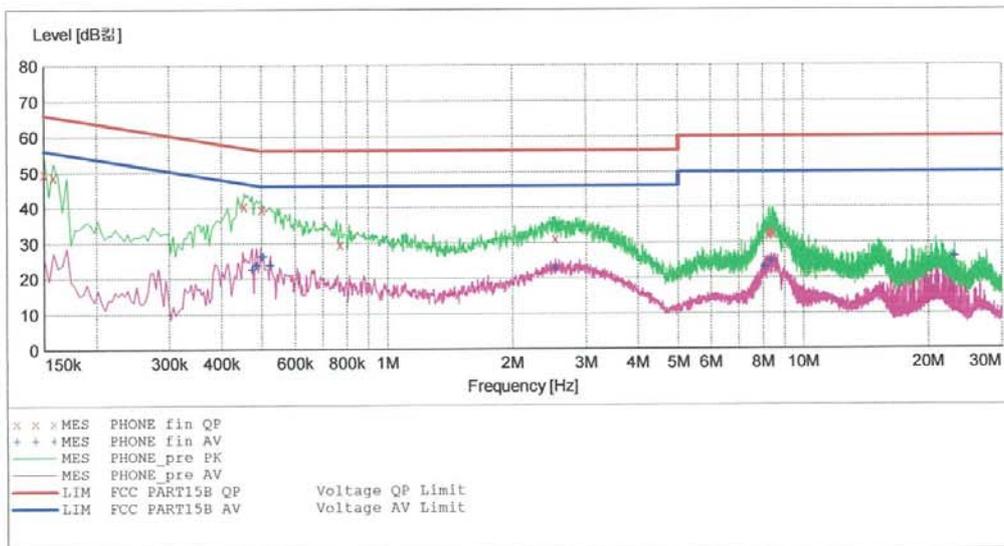
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EMC

EUT: D950
 Manufacturer: LG
 Operating Condition: DATA MODE
 Test Site: SHIELD ROOM
 Operator: GC YOON
 Test Specification: FCC PART15B
 Comment: N (CRESYN CABLE)
 Start of Test: 2013-12-06 / 8:57:35오전

SCAN TABLE: "FCC CLASS B(N)"

Short Description:			FCC CLASS B(N)				
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer	
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				



MEASUREMENT RESULT: "PHONE_fin QP"

2013-12-06 9:00오전

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150001	49.60	10.0	66	16.4	---	---
0.158001	48.70	10.0	66	16.9	---	---
0.454001	40.50	10.0	57	16.3	---	---
0.500000	39.60	10.0	56	16.4	---	---
0.772000	29.70	10.0	56	26.3	---	---
2.536000	31.10	10.2	56	24.9	---	---
8.252000	32.20	10.6	60	27.8	---	---
8.292000	32.70	10.6	60	27.3	---	---
8.452000	32.50	10.6	60	27.5	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

2013-12-06 9:00오전

Frequency MHz	Level dB _{μV}	Transd dB	Limit dB _{μV}	Margin dB	Line	PE
0.474001	22.50	10.0	46	24.0	---	---
0.486001	23.70	10.0	46	22.5	---	---
0.498001	26.20	10.0	46	19.8	---	---
0.504000	26.20	10.0	46	19.8	---	---
0.524000	23.70	10.0	46	22.3	---	---
2.540000	22.80	10.2	46	23.2	---	---
8.092000	22.90	10.6	50	27.1	---	---
8.356000	24.70	10.6	50	25.3	---	---
23.128000	25.90	11.4	50	24.1	---	---

Limit Apply to : FCC PART 15 Subpart B Class B

Detector : Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)

Operation Mode : Data Communication mode

USB Cable : BROAD (EAD62329305)

Temperature : 19.7°C

Humidity Level : 40.2 %

Test Date : December 06, 2013

Frequency	Transd	Conductor	Quasi-Peak			Average		
			Limit	Measurement Level	Result Level	Limit	Measurement Level	Result Level
(MHz)	(dB)		(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV]
0.150	9.8	H	66	39.1	48.9	56	-	-
0.154	10.0	N	66	38.9	48.9	56	-	-
0.462	10.0	N	57	29.2	39.2	47	-	-
0.470	9.8	H	57	29.9	39.7	47	15.3	25.1
0.504	9.8	H	56	27.8	37.6	46	-	-
0.528	10.0	N	56	27.2	37.2	46	-	-

※ **NOTE:** Refer to page 16 to page 19 for details.

1. Line H = Hot, Line N = Neutral
2. Transd = LISN factor + Cable Loss factor

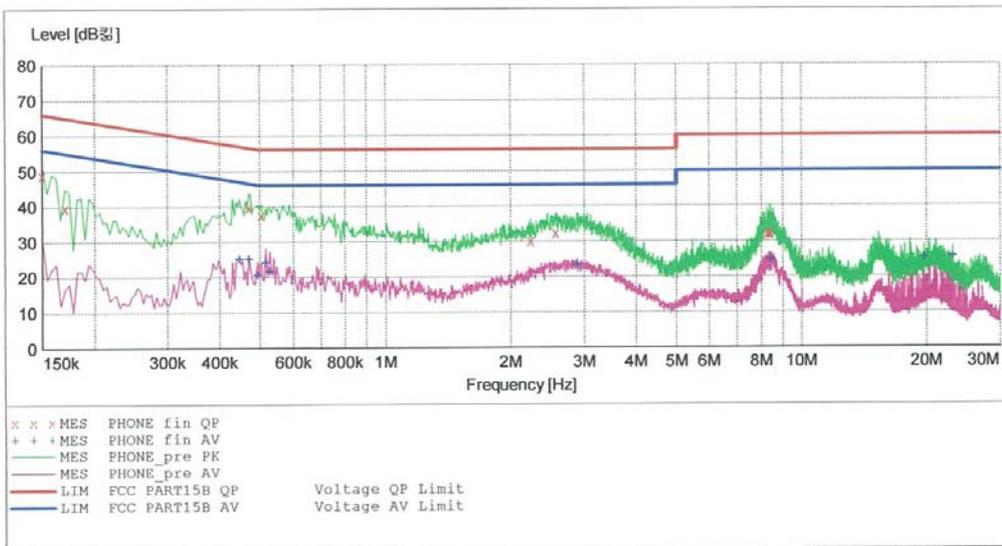
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EMC

EUT: D950
 Manufacturer: LG
 Operating Condition: DATA MODE
 Test Site: SHIELD ROOM
 Operator: GC YOON
 Test Specification: FCC PART15B
 Comment: H (BROAD CABLE)
 Start of Test: 2013-12-06 / 8:51:05오전

SCAN TABLE: "FCC CLASS B(H)"

Short Description:			FCC CLASS B(H)				Transducer
Start	Stop	Step	Detector	Meas. Time	IF Bandw.		
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				



MEASUREMENT RESULT: "PHONE_fin QP"

2013-12-06 8:53오전

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150001	48.90	9.8	66	17.1	---	---
0.170001	39.50	9.8	65	25.5	---	---
0.470001	39.70	9.8	57	16.8	---	---
0.504000	37.60	9.8	56	18.4	---	---
2.236000	30.10	10.0	56	25.9	---	---
2.568000	32.30	10.0	56	23.7	---	---
8.272000	32.10	10.4	60	27.9	---	---
8.384000	32.10	10.4	60	27.9	---	---
8.432000	32.20	10.4	60	27.8	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

2013-12-06 8:53오전

Frequency MHz	Level dB _{μV}	Transd dB	Limit dB _{μV}	Margin dB	Line	PE
0.446001	25.20	9.8	47	21.8	---	---
0.470001	25.10	9.8	47	21.4	---	---
0.494001	20.70	9.8	46	25.4	---	---
0.516000	24.10	9.8	46	21.9	---	---
0.528000	21.70	9.8	46	24.3	---	---
2.892000	23.30	10.0	46	22.7	---	---
8.432000	24.70	10.4	50	25.3	---	---
19.708000	25.10	10.9	50	24.9	---	---
23.128000	25.50	11.1	50	24.5	---	---

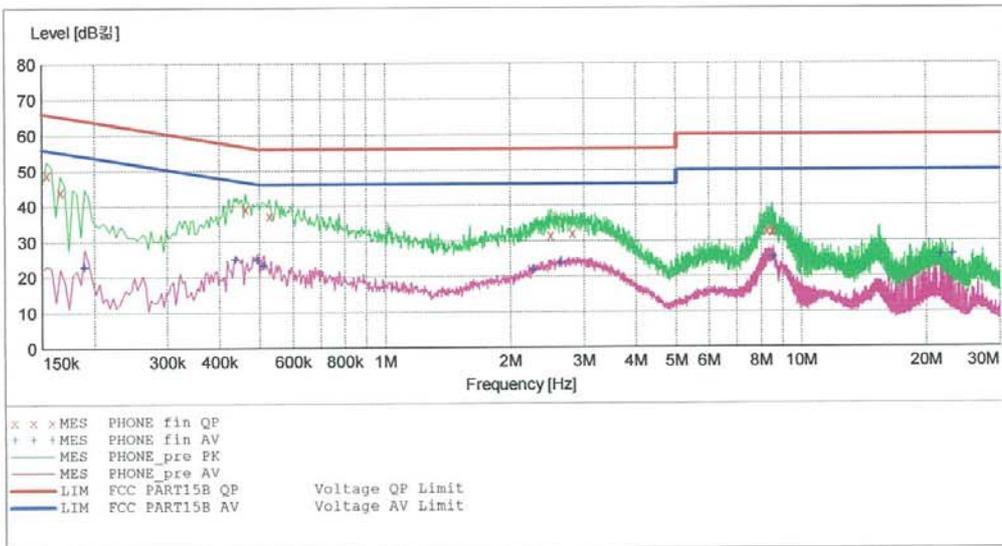
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EMC

EUT: D950
 Manufacturer: LG
 Operating Condition: DATA MODE
 Test Site: SHIELD ROOM
 Operator: GC YOON
 Test Specification: FCC PART15B
 Comment: N (BROAD CABLE)
 Start of Test: 2013-12-06 / 8:47:20오전

SCAN TABLE: "FCC CLASS B(N)"

Short Description:			FCC CLASS B(N)				Transducer
Start	Stop	Step	Detector	Meas. Time	IF Bandw.		
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				



MEASUREMENT RESULT: "PHONE_fin QP"

2013-12-06 8:50오전

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.154001	48.90	10.0	66	16.9	---	---
0.166001	44.00	10.0	65	21.2	---	---
0.462001	39.20	10.0	57	17.4	---	---
0.528000	37.20	10.0	56	18.8	---	---
2.508000	31.60	10.2	56	24.4	---	---
2.828000	32.20	10.2	56	23.8	---	---
8.272000	32.70	10.6	60	27.3	---	---
8.528000	32.70	10.6	60	27.3	---	---
8.560000	32.60	10.6	60	27.4	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

2013-12-06 8:50오전

Frequency MHz	Level dB _{μV}	Transd dB	Limit dB _{μV}	Margin dB	Line	PE
0.190001	22.80	10.0	54	31.3	---	---
0.438001	24.80	10.0	47	22.3	---	---
0.494001	24.60	10.0	46	21.5	---	---
0.512000	23.20	10.0	46	22.8	---	---
2.276000	21.90	10.2	46	24.1	---	---
2.648000	23.90	10.2	46	22.1	---	---
8.584000	25.30	10.6	50	24.7	---	---
21.664000	26.00	11.3	50	24.0	---	---
23.128000	26.10	11.4	50	23.9	---	---

Limit Apply to : FCC PART 15 Subpart B Class B

Detector : Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)

Operation Mode : Data Communication mode

USB Cable : KSD (EAD62329304)

Temperature : 19.7°C

Humidity Level : 40.2 %

Test Date : December 06, 2013

Frequency	Transd	Conductor	Quasi-Peak			Average		
			Limit	Measurement Level	Result Level	Limit	Measurement Level	Result Level
(MHz)	(dB)		(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV]
0.150	9.8	H	66	39.0	48.8	56	-	-
0.150	10.0	N	66	40.8	50.8	56	16.9	26.9
0.162	10.0	N	65	37.4	47.4	55	-	-
0.450	9.8	H	57	29.5	39.3	47	14.6	24.4
0.458	10.0	N	57	31.0	41.0	47	-	-
0.482	9.8	H	56	28.1	37.9	46	13.4	23.2

※ **NOTE:** Refer to page 21 to page 24 for details.

1. Line H = Hot, Line N = Neutral
2. Transd = LISN factor + Cable Loss factor

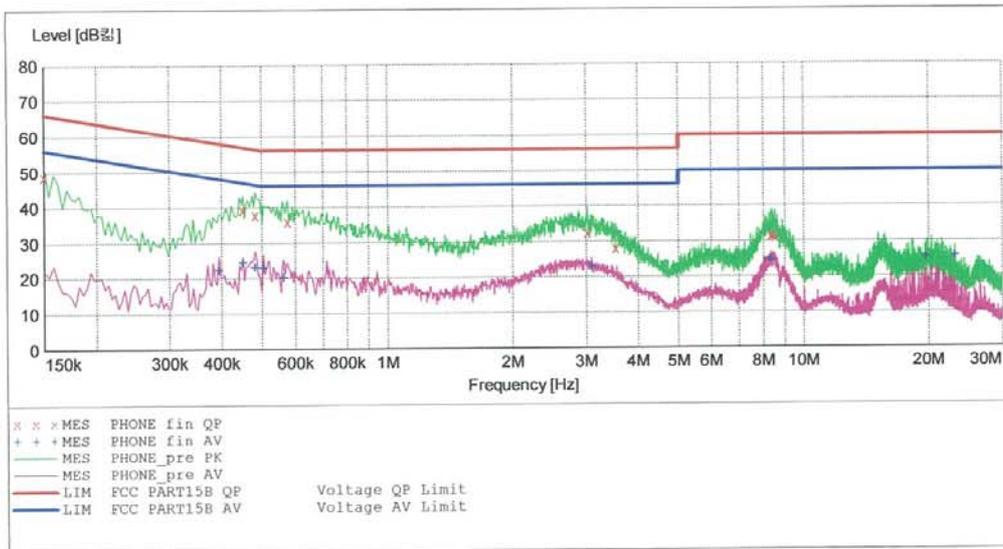
HCT

EMC

EUT: D950
 Manufacturer: LG
 Operating Condition: DATA MODE
 Test Site: SHIELD ROOM
 Operator: GC YOON
 Test Specification: FCC PART15B
 Comment: H (KSD CABLE)
 Start of Test: 2013-12-06 / 8:40:42오전

SCAN TABLE: "FCC CLASS B(H)"

Short Description:			FCC CLASS B(H)			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



MEASUREMENT RESULT: "PHONE_fin QP"

2013-12-06 8:43오전

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150001	48.80	9.8	66	17.2	---	---
0.450001	39.30	9.8	57	17.6	---	---
0.482001	37.90	9.8	56	18.4	---	---
0.576000	35.90	9.8	56	20.1	---	---
3.028000	32.40	10.1	56	23.6	---	---
3.544000	28.10	10.1	56	27.9	---	---
8.344000	31.50	10.4	60	28.5	---	---
8.404000	31.70	10.4	60	28.3	---	---
8.544000	31.20	10.4	60	28.8	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

2013-12-06 8:43오전

Frequency MHz	Level dB _{μV}	Transd dB	Limit dB _{μV}	Margin dB	Line	PE
0.394001	22.20	9.8	48	25.8	---	---
0.450001	24.40	9.8	47	22.5	---	---
0.482001	23.20	9.8	46	23.1	---	---
0.504000	23.00	9.8	46	23.0	---	---
0.564000	20.20	9.8	46	25.8	---	---
3.096000	23.00	10.1	46	23.0	---	---
8.348000	24.70	10.4	50	25.3	---	---
19.708000	25.20	10.9	50	24.8	---	---
23.128000	25.70	11.1	50	24.3	---	---

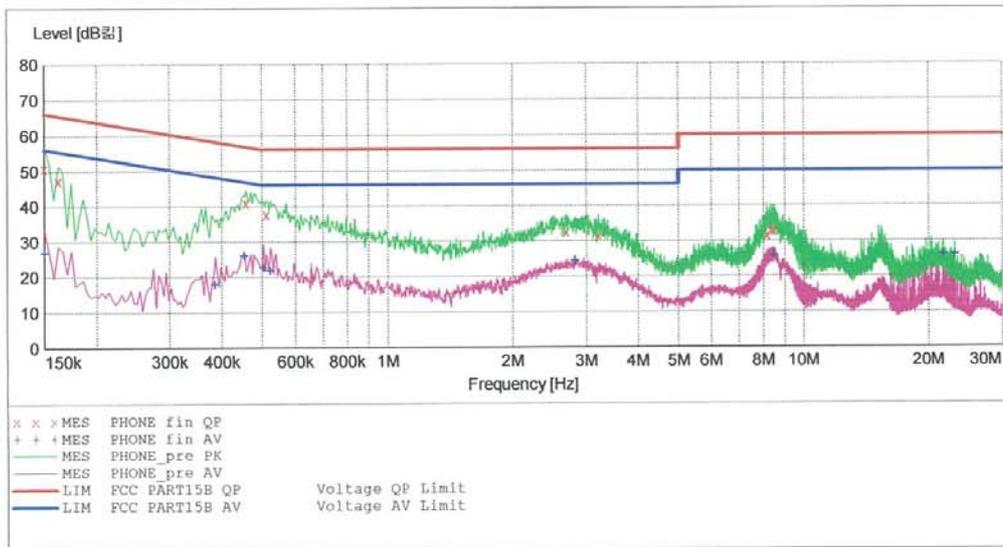
HCT

EMC

EUT: D950
 Manufacturer: LG
 Operating Condition: DATA MODE
 Test Site: SHIELD ROOM
 Operator: GC YOON
 Test Specification: FCC PART15B
 Comment: N (KSD CABLE)
 Start of Test: 2013-12-06 / 8:44:09오전

SCAN TABLE: "FCC CLASS B(N)"

Short Description:			FCC CLASS B(N)			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



MEASUREMENT RESULT: "PHONE_fin QP"

2013-12-06 8:46오전

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150001	50.80	10.0	66	15.2	---	---
0.162001	47.40	10.0	65	18.0	---	---
0.458001	41.00	10.0	57	15.8	---	---
0.512000	37.70	10.0	56	18.3	---	---
2.688000	32.50	10.2	56	23.5	---	---
3.220000	31.40	10.3	56	24.6	---	---
8.152000	31.60	10.6	60	28.4	---	---
8.396000	32.90	10.6	60	27.1	---	---
8.500000	32.90	10.6	60	27.1	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

2013-12-06 8:46오전

Frequency MHz	Level dB _{μV}	Transd dB	Limit dB _{μV}	Margin dB	Line	PE
0.150001	26.90	10.0	56	29.1	---	---
0.386001	17.80	10.0	48	30.3	---	---
0.454001	26.10	10.0	47	20.7	---	---
0.504000	22.60	10.0	46	23.4	---	---
0.524000	21.90	10.0	46	24.1	---	---
2.824000	24.50	10.2	46	21.5	---	---
8.476000	26.00	10.6	50	24.0	---	---
21.664000	26.10	11.3	50	23.9	---	---
23.128000	26.10	11.4	50	23.9	---	---

Limit Apply to : FCC PART 15 Subpart B Class B

Detector : Quasi-Peak, Average (6 dB Bandwidth: 9 kHz)

Operation Mode : Data Communication mode

USB Cable : BROAD (EAD62488701)

Temperature : 19.7°C

Humidity Level : 40.2 %

Test Date : December 06, 2013

Frequency	Transd	Conductor	Quasi-Peak			Average		
			Limit	Measurement Level	Result Level	Limit	Measurement Level	Result Level
(MHz)	(dB)		(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dBuV]
0.150	9.8	H	66	38.8	48.6	56	-	-
0.154	10.0	N	66	39.9	49.9	56	-	-
0.166	10.0	N	65	36.7	46.7	55	12.6	22.6
0.454	9.8	H	57	29.8	39.6	47	-	-
0.462	10.0	N	57	29.5	39.5	47	-	-
0.508	9.8	H	56	28.1	37.9	46	14.8	24.6

※ **NOTE:** Refer to page 26 to page 29 for details.

1. Line H = Hot, Line N = Neutral
2. Transd = LISN factor + Cable Loss factor

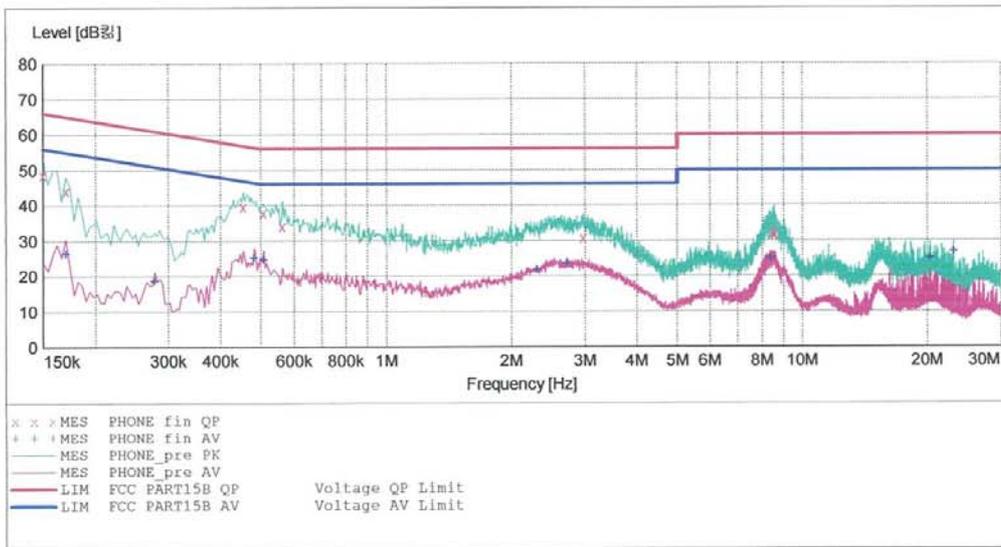
HCT

EMC

EUT: D950
 Manufacturer: LG
 Operating Condition: DATA MODE (USB 3.0)
 Test Site: SHIELD ROOM
 Operator: GC YOON
 Test Specification: FCC PART15B
 Comment: H
 Start of Test: 2013-12-06 / 9:05:54오전

SCAN TABLE: "FCC CLASS B(H)"

Short Description:			FCC CLASS B(H)			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



MEASUREMENT RESULT: "PHONE_fin QP"

2013-12-06 9:08오전

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.150001	48.60	9.8	66	17.4	---	---
0.170001	44.10	9.8	65	20.8	---	---
0.454001	39.60	9.8	57	17.2	---	---
0.508000	37.90	9.8	56	18.1	---	---
0.564000	34.00	9.8	56	22.0	---	---
2.980000	30.80	10.0	56	25.2	---	---
8.504000	32.10	10.4	60	27.9	---	---
8.544000	32.20	10.4	60	27.8	---	---
8.568000	31.60	10.4	60	28.4	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

2013-12-06 9:08오전

Frequency MHz	Level dB _{μV}	Transd dB	Limit dB _{μV}	Margin dB	Line	PE
0.170001	26.30	9.8	55	28.7	---	---
0.278001	18.70	9.8	51	32.2	---	---
0.482001	25.10	9.8	46	21.2	---	---
0.508000	24.60	9.8	46	21.4	---	---
2.304000	21.90	10.0	46	24.1	---	---
2.720000	23.50	10.0	46	22.5	---	---
8.380000	25.00	10.4	50	25.0	---	---
20.260000	24.90	10.9	50	25.1	---	---
23.128000	26.80	11.1	50	23.2	---	---

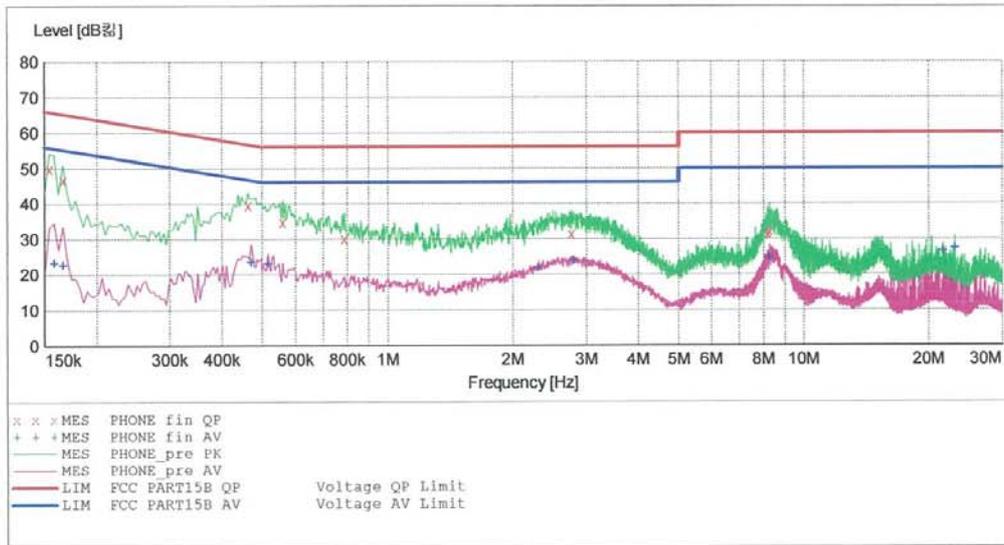
HCT

EMC

EUT: D950
 Manufacturer: LG
 Operating Condition: DATA MODE (USB 3.0)
 Test Site: SHIELD ROOM
 Operator: GC YOON
 Test Specification: FCC PART15B
 Comment: N
 Start of Test: 2013-12-06 / 9:02:30오전

SCAN TABLE: "FCC CLASS B(N)"

Short Description:			FCC CLASS B(N)				
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer	
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None	
			Average				



MEASUREMENT RESULT: "PHONE_fin QP"

2013-12-06 9:05오전

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.154001	49.90	10.0	66	15.8	---	---
0.166001	46.70	10.0	65	18.5	---	---
0.462001	39.50	10.0	57	17.1	---	---
0.560000	34.80	10.0	56	21.2	---	---
0.788000	30.10	10.0	56	25.9	---	---
2.764000	31.50	10.2	56	24.5	---	---
8.172000	31.40	10.6	60	28.6	---	---
8.196000	31.50	10.6	60	28.5	---	---
8.276000	32.10	10.6	60	27.9	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

2013-12-06 9:05오전

Frequency MHz	Level dB _{μV}	Transd dB	Limit dB _{μV}	Margin dB	Line	PE
0.158001	23.30	10.0	56	32.3	---	---
0.166001	22.60	10.0	55	32.5	---	---
0.470001	23.50	10.0	47	23.0	---	---
0.516000	23.20	10.0	46	22.8	---	---
2.308000	22.00	10.2	46	24.0	---	---
2.800000	23.90	10.2	46	22.1	---	---
8.276000	24.90	10.6	50	25.1	---	---
21.664000	26.50	11.3	50	23.5	---	---
23.128000	27.40	11.4	50	22.6	---	---

4.2 Radiated Emission Test

The following table shows the highest levels of Radiated Emissions on both polarization of horizontal and vertical.

-For measurement below 1 GHz

Limit Apply to : FCC PART 15 Subpart B Class B

Detector : Quasi-Peak (6 dB Bandwidth: 120 kHz)

Operation Mode : Data Communication mode

Temperature : 20.0°C

Humidity Level : 32.4 %

Test Date : December 04, 2013

[USB Cable: CRESYN (EAD62588801)]

Frequency (MHz)	Reading (dBuV)	Polarity (H/V)	Antenna Height (m)	Correction Factor		Limit (dBuV/m)	Level (dBuV/m)	Margin (dB)
				Antenna (dB/m)	Cable (dB)			
125.2	14.19	1.0	V	12.02	3.90	43.5	30.11	13.39
375.0	15.35	1.0	V	15.08	4.79	46.0	35.22	10.78
625.2	10.21	1.0	V	19.97	5.39	46.0	35.57	10.43

[USB Cable: BROAD (EAD62329305)]

Frequency (MHz)	Reading (dBuV)	Polarity (H/V)	Antenna Height (m)	Correction Factor		Limit (dBuV/m)	Level (dBuV/m)	Margin (dB)
				Antenna (dB/m)	Cable (dB)			
258.0	18.78	1.0	H	12.03	4.38	46.0	35.19	10.81
480.2	13.28	1.0	V	17.23	5.08	46.0	35.59	10.41
625.0	15.24	1.0	H	19.97	5.39	46.0	40.60	5.40

[USB Cable: KSD (EAD62329304)]

Frequency (MHz)	Reading (dBuV)	Polarity (H/V)	Antenna Height (m)	Correction Factor		Limit (dBuV/m)	Level (dBuV/m)	Margin (dB)
				Antenna (dB/m)	Cable (dB)			
125.9	14.15	1.0	V	12.06	3.90	43.5	30.11	13.39
255.0	21.84	1.0	V	11.93	4.37	46.0	38.14	7.86
625.0	10.73	1.0	V	19.97	5.39	46.0	36.09	9.91

[USB Cable: BROAD (EAD62488701)]

Frequency (MHz)	Reading (dBuV)	Polarity (H/V)	Antenna Height (m)	Correction Factor		Limit (dBuV/m)	Level (dBuV/m)	Margin (dB)
				Antenna (dB/m)	Cable (dB)			
260.0	19.46	1.0	V	12.10	4.39	46.0	35.95	10.05
350.4	18.87	1.5	V	14.53	4.71	46.0	38.11	7.89
625.0	10.91	1.0	V	19.97	5.39	46.0	36.27	9.73

※ **NOTE:** Polarity H = Horizontal, Polarity V = Vertical

-For measurement above 1 GHz

Limit Apply to : FCC PART 15 Subpart B Class B

Detector : Peak mode: Peak (RBW: 1 MHz, VBW: 1 MHz)
 : Average mode: Peak (RBW: 1 MHz, VBW: 10 Hz)

Operation Mode : Data Communication mode

Temperature : 20.0°C

Humidity Level : 32.4 %

Test Date : December 04, 2013

[USB Cable: CRESYN (EAD62588801)]

Frequency (GHz)	Peak			POL	Average		
	Total (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)		Total (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
2.2405	55.4	74	18.6	V	38.2	54	15.8

[USB Cable: BROAD (EAD62329305)]

Frequency (GHz)	Peak			POL	Average		
	Total (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)		Total (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
2.2491	53.2	74	20.8	V	38.0	54	16.0

[USB Cable: KSD (EAD62329304)]

Frequency (GHz)	Peak			POL	Average		
	Total (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)		Total (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
2.2466	54.7	74	19.3	V	37.6	54	16.4

[USB Cable: BROAD (EAD62488701)]

Frequency (GHz)	Peak			POL	Average		
	Total (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)		Total (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
2.4582	62.8	74	11.2	H	31.7	54	22.3
2.5204	61.0	74	13.0	H	31.7	54	22.3
2.9956	52.9	74	21.1	H	31.3	54	22.7

※ NOTE:

1. Measurement above 1 GHz was performed from 1 GHz to the 5th harmonic of highest fundamental frequency. Test was measured by 12 GHz.

5. FIELD STRENGTH CALCULATION

The field strength is calculated by adding the antenna factor and cable factor.
 The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF$$

Where FS = Field Strength

RA = Receiver Amplitude

AF = Antenna Factor

CF = Cable Attenuation Factor

Assume a receiver reading of 21.5 dB μ V is obtained. The antenna factor of 7.4 dB/m and a cable factor of 1.1 dB are added. The 30 dB μ V/m value is mathematically converted to its corresponding level in μ V/m.

$$FS = 21.5 + 7.4 + 1.1 = 30 \text{ dB}\mu\text{V/m}$$

[Radiated Emission Limits]

Frequency of Emission (MHz)	Field Strength	
	μ V/m	dB μ V/m
30 to 88	100	40.0
88 to 216	150	43.5
216 to 960	200	46.0
Above 960	500	54.0

6. TEST EQUIPMENT

<u>Type</u>	<u>Manufacturer</u>	<u>Model Name</u>	<u>Serial Number</u>	<u>Calibration Cycle</u>	<u>Next CAL Date</u>
<u>Conducted Emission</u>					
<input checked="" type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESCI	100584	1 year	2014.04.25
<input checked="" type="checkbox"/> LISN	EMCO	3816/2SH	9706-1070	1 year	2014.04.26
<input checked="" type="checkbox"/> LISN	Rohde & Schwarz	ENV216	100073	1 year	2014.02.06
<input type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESCI	100033	1 year	2014.06.23
<input type="checkbox"/> LISN	Rohde & Schwarz	ESH3-Z5	100282	1 year	2014.07.03
<input type="checkbox"/> Attenuator	Rohde & Schwarz	ESH3-Z2	357.8810.352	1 year	2014.07.03
<u>Radiated Emission (30 Mhz to 1 GHz)</u>					
<input checked="" type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESI40	831564103	1 year	2014.04.16
<input checked="" type="checkbox"/> Trilog Antenna	Schwarzbeck	VULB9160	3301	2 year	2014.12.17
<input checked="" type="checkbox"/> Antenna master	HD GmbH	MA240	240/520	N/A	-
<input checked="" type="checkbox"/> Turn Table	HD GmbH	2090	9702/1224	N/A	-
<input type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESU 26	100241	1 year	2014.07.01
<input type="checkbox"/> Trilog Antenna	Schwarzbeck	VULB9168	185	2 year	2015.04.16
<input type="checkbox"/> Antenna master	INNCO Systems	MA4000-EP	MA4000/283	N/A	-
<input type="checkbox"/> Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-
<u>Radiated Emission (1 GHz to 12 GHz)</u>					
<input checked="" type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESI40	831564103	1 year	2014.04.16
<input checked="" type="checkbox"/> Antenna master	HD GmbH	MA240	240/520	N/A	-
<input checked="" type="checkbox"/> Turn Table	HD GmbH	2090	9702/1224	N/A	-
<input checked="" type="checkbox"/> Power Amplifier	CERNEX	CBLU1183540	21690	1 year	2014.07.12
<input checked="" type="checkbox"/> Horn Antenna	Schwarzbeck	BBHA 9120D	296	2 year	2014.12.13
<input type="checkbox"/> EMI Test Receiver	Rohde & Schwarz	ESU 26	100241	1 year	2014.07.01
<input type="checkbox"/> Antenna master	INNCO Systems	MA4000-EP	MA4000/283	N/A	-
<input type="checkbox"/> Turn Table	INNCO Systems	DT3000-3T	DT3000/69	N/A	-

7. CONCLUSION

The data collected shows that the **EUT type: Multi-Band GSM/EDGE/WCDMA/LTE Phone with WLAN, Bluetooth, and RFID, FCC ID: ZNFD950, Model: D950** complies with §15.107 and §15.109 of the FCC rules.