

FCC BT LE REPORT

Certification

Applicant Name:

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

Address:

1000 Sylvan Avenue, Englewood Cliffs NJ 07632

Date of Issue: February 12, 2015 Test Site/Location: HCT CO., LTD., 74, Seoicheon-ro 578beon-gil, Majangmyeon, Icheon-si, Gyeonggi-do, Korea Report No.: HCT-R-1502-F007-2

HCT FRN: 0005866421

FCC ID : ZNFH340F

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

FCC Model(s): Additional Model(s):	LG-H340f LGH340f, H340f, LG-H340F, LGH340F, H340F,LG-H342f, LGH342f, H342f, LG-H342F, LGH342F, H342F,LG-H340AR, LGH340AR, H340AR
EUT Type:	Cellular/PCS GSM/WCDMA/LTE Phone with WLAN and Bluetooth
Peak RF Output Power:	-0.829 dBm (0.826 mW)
Frequency Range:	2402 MHz -2480 MHz(BT 4.1_Low Energy Mode)
Modulation type	GFSK
FCC Classification:	Digital Transmission System(DTS)
FCC Rule Part(s):	Part 15.247

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this

equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

Report prepared by : Jong Seok Lee Test Engineer of RF Team

Approved by : Sang Jun Lee Manager of RF Team

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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-R-1502-F007	February 04, 2015	- First Approval Report
HCT-R-1502-F007-1	February 06, 2015	-Add Model name
HCT-R-1502-F007-2	February 12, 2015	-Revised the Version of Bluetooth on Page 1 and 4



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Model: LG-H340f

1. GENERAL INFORMATION

Applicant:	LG Electronics MobileComm U.S.A., Inc.
Address:	1000 Sylvan Avenue, Englewood Cliffs NJ 07632
FCC ID:	ZNFH340F
EUT Type:	Cellular/PCS GSM/WCDMA/LTE Phone with WLAN and Bluetooth
Model name(s):	LG-H340f
Additional Model(s):	LGH340f, H340f, LG-H340F, LGH340F, H340F,LG-H342f, LGH342f, H342f, LG-H342F, LGH342F,
	H342F,LG-H340AR, LGH340AR, H340AR
Date(s) of Tests:	January 19, 2015 ~ January 29, 2015
Place of Tests:	HCT Co., Ltd. 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea (IC Recognition No. : 5944A-3)

2. EUT DESCRIPTION

FCC Model Name	LG-H340f		
Additional Model	LGH340f, H340f,	LG-H340F, LGH340F, H340F,LG-H342f, LGH342f, H342f, LG-H342F, LGH342F,	
	H342F,LG-H340A	AR, LGH340AR, H340AR	
EUT Type	Cellular/PCS GSI	M/WCDMA/LTE Phone with WLAN and Bluetooth	
Power Supply	DC 3.8 V		
Battery type	Li-ion Battery(Sta	ndard)	
Frequency Range	TX: 2402 MHz ~ 2	2480 MHz	
	RX: 2402 MHz ~	2480 MHz	
Max. RF Output Power	Peak	-0.829 dBm (0.826 mW)	
	Average	-1.256dBm (0.749mW)	
BT Operating Mode	BT 4.1_Low Ener	gy Mode	
Modulation Type	GFSK		
Number of Channels	40 Channels		
Antenna Specification	Manufacturer: Ac Antenna type: Int Peak Gain : -0.80	ernal Antenna	



3. TEST METHODOLOGY

FCC KDB 558074 D01 DTS Meas Guidance v03r02 dated June 05, 2014 entitled "Guidance for Performing Compliance Measurements on Digital Transmission Systems(DTS) and the measurement procedure described in the American National Standard for Testing Unlicensed Wireless Devices(ANSI C63.4-2003) Operating Under §15.247" were used in the measurement.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4. (Version :2003) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4. (Version: 2003)

Conducted Antenna Terminal

See Section from 9.1 to 9.2.(KDB 558074)

3.4 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Channel low, mid and high with highest data rate (worst case) is chosen for full testing.



4. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipments, which is traceable to recognized national standards.

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Korea. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2003) and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated February 28, 2014 (Registration Number: 90661)

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements. Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

6. ANTENNA REQUIREMENTS

According to FCC 47 CFR §15.203:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can 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 of this section."

* The antennas of this E.U.T are permanently attached.

*The E.U.T Complies with the requirement of §15.203



7. SUMMARY TEST OF RESULTS

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
6 dB Bandwidth	§15.247(a)(2)	> 500 kHz		PASS
Conducted Maximum Peak Output Power	§15.247(b)(3)	< 1 Watt		PASS
Power Spectral Density	§15.247(e)	< 8 dBm / 3 kHz Band	CONDUCTED	PASS
Band Edge(Out of Band Emissions)	§15.247(d)	Conducted > 20 dBc		PASS
AC Power line Conducted Emissions	§15.207	cf. Section 8.7		PASS
Radiated Spurious Emissions	§15.205, 15.209	cf. Section 8.6.1	RADIATED	PASS
Radiated Restricted Band Edge	§15.247(d), 15.205, 15.209	cf. Section 8.6.2	RADIATED	PASS

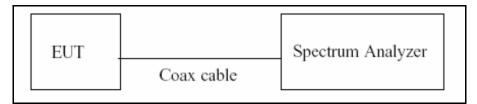


8. TEST RESULT 8.1 DUTY CYCLE

TEST PROCEDURE

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set RBW \geq OBW if possible; otherwise, set RBW to the largest available value. Set VBW \geq RBW. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if T \leq 16.7 microseconds.)

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer. We tested accroding to the zerospan measurement method, 6.0)b) in KDB 558074(issued 06/05/2014)

The largest available value of RBW is 8 MHz and VBW is 50 MHz. The zero-span method of measuring duty cycle shall not be used if T \leq 6.25 microseconds. (50/6.25 = 8)

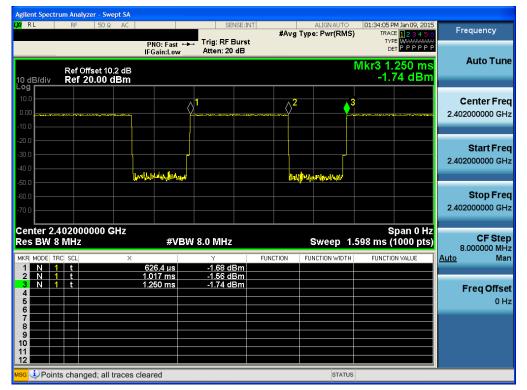
The zero-span method was used because all measured T data are > 6.25 microseconds and both RBW and VBW are > 50/T.

- 1. RBW = 8 MHz (the largest available value)
- 2. VBW = 8 MHz (≥ RBW)
- 3. SPAN = 0 Hz
- 4. Detector = Peak
- 5. Number of points in sweep > 100
- 6. Trace mode = Clear write
- 7. Measure T_{total} and T_{on}
- 8. Calculate Duty Cycle = T_{on}/T_{total} and Duty Cycle Factor = 10*log(1/Duty Cycle)

LE Mode	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
	0.3904	0.6240	0.6256	2.04



RESULT PLOTS





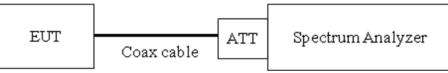
8.2 6dB BANDWIDTH MEASUREMENT

Test Requirements and limit, §15.247(a)(2)

The bandwidth at 6dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the receive antenna while the EUT is operating in transmission mode at the appropriate frequencies.

The minimum permissible 6dB bandwidth is 500 kHz.

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to (Page 5 in KDB 558074, issued 06/05/2014)

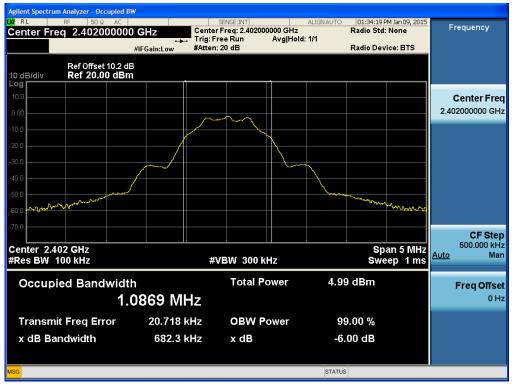
RBW = 100 kHz VBW ≥ 3 x RBW Detector = Peak Trace mode = max hold Sweep = auto couple Allow the trace to stabilize

Note : We tested 6 dB bandwidth using the automatic bandwidth measurement capability of a spectrum analyzer. X dB is set 6 dB.

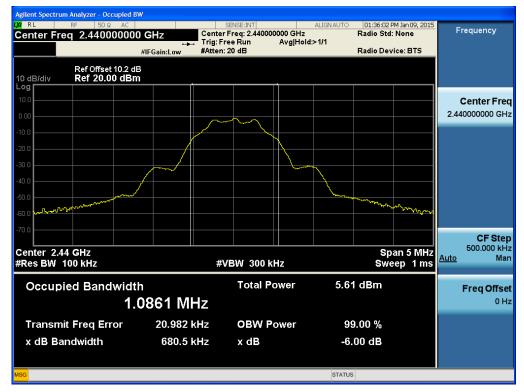


RESULT PLOTS

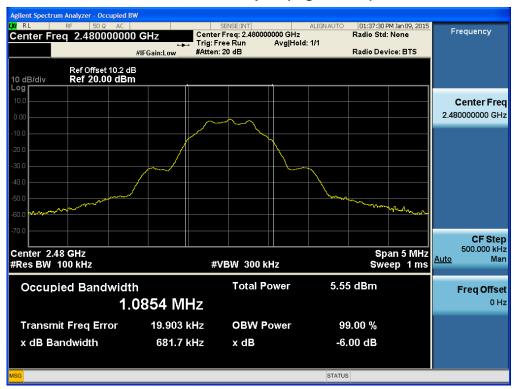
6dB Bandwidth plot (Low-CH 0)



6dB Bandwidth plot (Mid-CH 19)







6dB Bandwidth plot (High-CH 39)



8.3 OUTPUT POWER MEASUREMENT

Test Requirements and limit, §15.247(b)(3)

A transmitter antenna terminal of EUT is connected to the input of a Spectrum Analyzer.

Measurement is made while the EUT is operating in transmission mode at the appropriate frequencies.

The maximum permissible conducted output power is 1 Watt.

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer. We use the spectrum analyzer's integrated band power measurement function.

This EUT TX condition is actual operating mode by BT LE mode test program.

The Spectrum Analyzer is set to

- Peak Power (Procedure 9.1.1 in KDB 558074, issued 06/05/2014)
 - RBW ≥ DTS Bandwidth
 - VBW ≥ 3 x RBW
 - SPAN ≥ 3 x RBW
 - Detector Mode = Peak
 - Sweep = auto couple

Trace Mode = max hold

Allow trace to fully stabilize.

Use peak marker function to determine the peak amplitude level

• Average Power (Procedure 9.2.2.4 in KDB 558074, issued 06/05/2014)

Measure the duty cycle

Set span to at least 1.5 times the OBW

RBW = 1-5 % of the OBW, not to exceed 1 MHz.

VBW \geq 3 x RBW.

Number of points in sweep $\ge 2 \times \text{span} / \text{RBW}$. (This gives bin-to-bin spacing $\le \text{RBW}/2$,

so that narrowband signals are not lost between frequency bins.)

Sweep time = auto.

Detector = RMS(i.e., power averaging)

Do not use sweep triggering. Allow the sweep to "free run".



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Trace average at least 100 traces in power averaging(RMS) mode.

Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges.

Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Sample Calculation

Output Power = Reading Value + ATT loss + Cable loss(1 ea) + Duty Cycle Factor Output Power = 10 dBm + 10 dB + 0.8 dB + 0.2 dB = 21.0 dBm

Note :

- 1. Spectrum reading values are not plot data. The power results in plot is already including the actual values of loss for the attenuator and cable combination.
- 2. Spectrum offset = Attenuator loss + Cable loss
- 3. We apply to the offset in the 2.4 GHz range that was rounded off to the closest tenth dB. So, 10.2 dB is offset for 2.4 GHz Band.



TEST RESULTS-Peak

Conducted Output Power Measurements

LE M	ode	Measured	Limit
Frequency[MHz]	Channel No.	Power(dBm)	(dBm)
2402	0	-1.417	30
2440	19	-0.829	30
2480	39	-0.896	30

TEST RESULTS-Average

Conducted Output Power Measurements

LE Mode			Duty Cycle	Measured		
Frequency[MHz]	Channel No.	Measured Power(dBm)	Duty Cycle Factor (dB)	Power(dBm) + Duty Cycle Factor(dB)	Limit (dBm)	
2402	0	-3.811	2.04	-1.774	30	
2440	19	-3.293	2.04	-1.256	30	
2480	39	-3.345	2.04	-1.308	30	



RESULT PLOTS-Peak

Conducted Output Power (Low-CH 0)

nt Spectrum Analyzer - Swept SA RL SENSE:INT 4:32 PM Jan 09, 2015 #Avg Type: Pwr(RMS) Avg|Hold: 1/1 Frequency TRACE 123456 TYPE MWWWWW DET PPPPP Trig: Free Run Atten: 20 dB PNO: Fast +++ IFGain:Low Mkr1 2.402 236 GHz -1.417 dBm Auto Tune Ref Offset 10.2 dB Ref 20.00 dBm 10 dB/div **Center Freq** 2.402000000 GHz Start Freq 2.400500000 GHz Stop Freq 2.403500000 GHz CF Step 300.000 kHz <u>Auto</u> Man **Freq Offset** 0 Hz Span 3.000 MHz Sweep 1.07 ms (1000 pts) Center 2.402000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Points changed; all traces cleared STATUS

Conducted Output Power (Mid-CH 19)





	um Analyzer - Swe										
LXU RL	RF 50 Ω	AC		SE	VSE:INT		ALIGNAUTO e: Pwr(RMS	TRAG	PM Jan 09, 2015	Frequency	
			PNO: Fast ++- IFGain:Low	Trig: Free Atten: 20		Avg Hold:	1/1	TYI D	PE MWWWWW ET P P P P P P	Auto Tu	ine
10 dB/div Log	Ref Offset 10. Ref 20.00 d	2 dB IBM						-0.8	'61 GHz 96 dBm		
10.0										Center Fr	
				1						2.480000000 G	iHz
0.00				_						Start Fr	eq
-10.0										2.478500000 G	Hz
-20.0										Stop Fr	ea
-30.0										2.481500000 G	
(2.2)										CF St	an
-40.0										300.000 k	
-50.0											
-60.0										Freq Offs	set Hz
-70.0										, v	112
Center 2.4 #Res BW	80000 GHz 1.0 MHz		#VBW	3.0 MHz			Sweep	Span 3 1.07 ms (.000 MHz 1000 pts)		
мsg 🗼 Point	s changed; all t	races cle	eared				STATUS	•			

Conducted Output Power (High-CH 39)



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RL ALIGN 01:34:45 PM Jan 09, 2015 Center Freq: 2.402000000 GHz Trig: Free Run Avg|Hold #Atten: 20 dB Frequency Center Freq 2.402000000 GHz Radio Std: None Avg|Hold: 100/100 Radio Device: BTS #IFGain:Low Ref Offset 10.2 dB Ref 20.00 dBm 10 dB/div .og **Center Freq** 2.402000000 GHz CF Step 217.388 kHz Center 2.402 GHz #Res BW 33 kHz Span 2.174 MHz Sweep 2.467 ms <u>Auto</u> Man #VBW 100 kHz **Freq Offset Channel Power Power Spectral Density** 0 Hz -64.17 dBm /Hz -3.81 dBm / 1.087 MHz STATUS

Conducted Output Power (Mid-CH 19)





nt Spectrum Analyzer - Cha

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Conducted Output Power (High-CH 39)



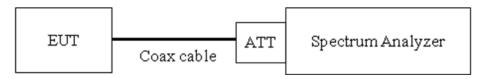
8.4 POWER SPECTRAL DENSITY

Test Requirements and limit, §15.247(e)

The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.

Minimum Standard – The transmitter power density average over 1-second interval shall not be greater than 8dBm in any 3kHz BW.

TEST CONFIGURATION



TEST PROCEDURE

We tested according to Procedure 10.2 in KDB 558074, issued 06/05/2014

The spectrum analyzer is set to :

Set analyzer center frequency to DTS channel center frequency.

Span = 1.5 times the DTS channel bandwidth.

 $RBW = 3 kHz \le RBW \le 100 kHz.$

VBW \geq 3 x RBW.

Sweep = auto couple

Detector = peak

Trace Mode = max hold

Allow trace to fully stabilize.

Use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Sample Calculation

PSD = Reading Value + ATT loss + Cable loss(1 ea) Output Power = -5 dBm + 10 dB + 0.8 dB = 5.8 dBm Note :

- 1. Spectrum reading values are not plot data. The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.
- 2. Spectrum offset = Attenuator loss + Cable loss
- 3. We apply to the offset in the 2.4 GHz range that was rounded off to the closest tenth dB. So,10.2 dB is offset for 2.4 GHz Band.



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TEST RESULTS

Frequency	Channel		Test F	Result	
(MHz)	No.	Mode	PSD	Limit	Pass/
(11112)	NO.		(dBm)	(dBm)	Fail
2402	0		-16.939	8	Pass
2440	19	LE	-16.245	8	Pass
2480	39		-16.319	8	Pass

Conducted Power Density Measurements



RESULT PLOTS

Power Spectral Density (Low-CH 0)

Frequency #Avg Type: Pwr(RMS) Avg|Hold: 1/1 Trig: Free Run PNO: Far IFGain:Low PPPPPI Atten: 20 dB Auto Tune Mkr1 2.401 993 3 GHz -16.939 dBm Ref Offset 10.2 dB Ref 20.00 dBm 10 dB/div **Center Freq** 2.402000000 GHz Start Fred 2.401488256 GHz MMMMMMMMMM Mad May Ann paral mar Ann Man Mark Mark Stop Freq 2.402511744 GHz CF Step 102.349 kHz <u>Auto</u> Man Freq Offset 0 Hz Center 2.4020000 GHz #Res BW 3.0 kHz Span 1.023 MHz Sweep 109 ms (1000 pts) #VBW 9.1 kHz Points changed; all traces cleared

Power Spectral Density (Mid-CH 19)







Power Spectral Density (High-CH 39)

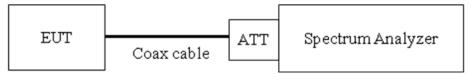


8.5 OUT OF BAND EMISSIONS AT THE BAND EDGE/ CONDUCTED SPURIOUS EMISSIONS Test Requirements and limit, §15.247(d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.205(c)).

Limit : 20 dBc

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. (Procedure 11.0 in KDB 558074, issued 06/05/2014)

RBW = 100 kHz

VBW ≥ 3 x RBW

Set span to encompass the spectrum to be examined

Detector = Peak

Trace Mode = max hold

Sweep time = auto couple

Ensure that the number of measurement points \geq 2*Span/RBW

Allow trace to fully stabilize.

Use peak marker function to determine the maximum amplitude level.

Measurements are made over the 30 MHz to 10th harmonic range with the transmitter set to the lowest, middle, and highest channels.

Note :

1. The band edge results in plot is already including the actual values of loss for the attenuator and cable combination.



- 2. Spectrum offset = Attenuator loss + Cable loss
- 3. We apply to the offset in the 2.4 GHz range that was rounded off to the closest tenth dB. So, 10.2 dB is offset for 2.4 GHz Band.
- 4. In case of conducted spurious emissions test, please check factors blow table.
- 5. In order to simplify the report, attached plots were only the worst case channel and data rate.

FACTORS FOR FREQUENCY

Freq(MHz)	Factor(dB)
30	9.95
100	10.01
200	10.03
300	10.04
400	10.05
500	10.04
600	10.03
700	10.09
800	10.10
900	10.08
1000	10.11
2000	10.25
2400*	10.19
2500*	10.24
3000	10.27
4000	10.22
5000	10.48
5700*	10.42
5800*	10.48
6000	10.48
7000	10.57
8000	10.45
9000	10.50
10000	10.64
11000	10.69
12000	10.75
13000	10.92
14000	11.90



Model: LG-H340f

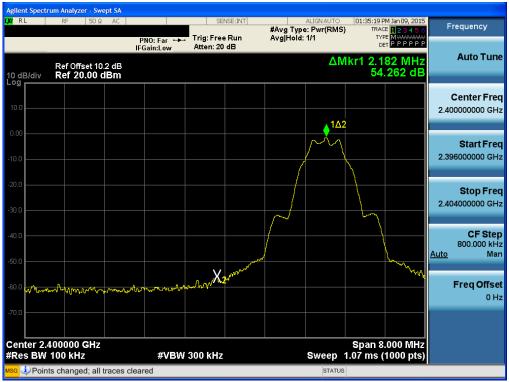
15000	11.00
16000	11.03
17000	10.93
18000	10.96
19000	10.85
20000	12.11
21000	11.17
22000	10.99
23000	11.12
24000	11.10
25000	11.42

Note : 1. '*' is fundamental frequency range.

2. Factor = Cable loss + Attenuator loss

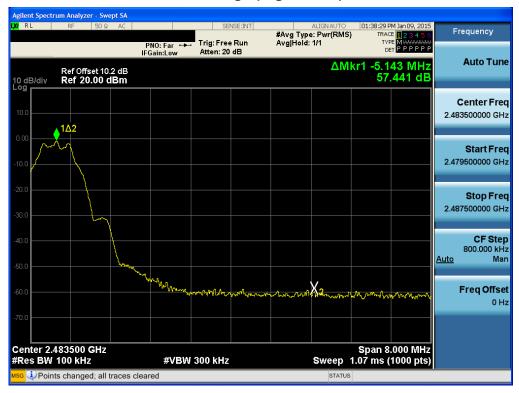


RESULT PLOTS



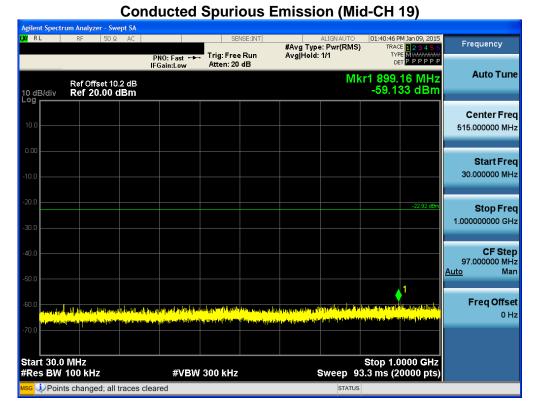
BandEdge (Low-CH 0)

BandEdge (High-CH 39)





30 MHz ~ 1 GHz

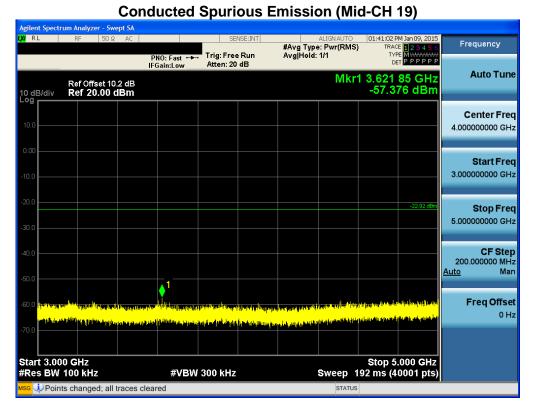


1 GHz ~ 3 GHz

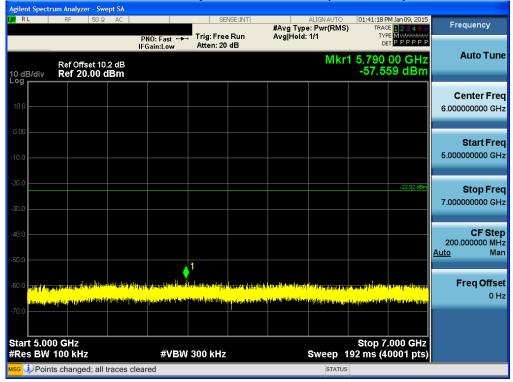
	um Analyzer - Swe									
LXU/RL	RF 50 Ω	AC		SEI	NSE:INT		ALIGNAUTO : Pwr(RMS) TRAC	PM Jan 09, 2015	Frequency
			PNO: Fast ↔→ Gain:Low	Trig: Free Atten: 20		Avg Hold:	1/1	TYI	PE MWWWWW ET P P P P P P	
10 dB/div Log	Ref Offset 10. Ref 20.00 d						Mkr	1 2.641 -56.5	30 GHz 07 dBm	Auto Tune
10.0										Center Freq 2.000000000 GHz
-10.0										Start Freq 1.000000000 GHz
-20.0									-22.92 dBm	Stop Freq 3.000000000 GHz
-40.0										CF Step 200.000000 MHz <u>Auto</u> Man
-60.0	sha da da marting inda blat	n filmen an filme	werde Prostant ernstattig	- Tenter (Alama Ten	rand an a sub-			n i la nata da cara da Cara da cara da		Freq Offset 0 Hz
	ning gala dina pina dina pina di dana mila.	la di cine y privind	n et de la segue de la secta de la sec							
Start 1.00 #Res BW			#VBW	300 kHz			Sweep	Stop 3 192 ms (4	.000 GHz 0001 pts)	
<mark>мsg</mark> 🔱 Point	s changed; all t	races clea	ared				STATUS	6		



3 GHz ~ 5 GHz



5 GHz ~ 7 GHz



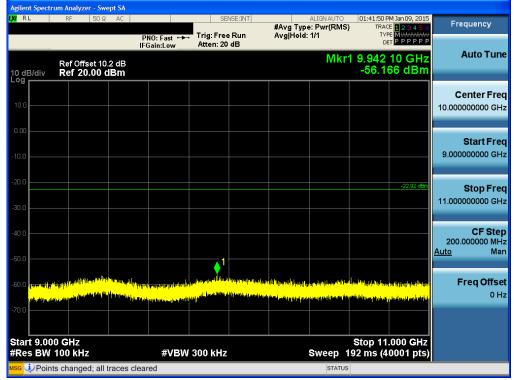


7 GHz ~ 9 GHz

RL 34 PM Jan 09, 2015 Frequency #Avg Type: Pwr(RMS) Avg|Hold: 1/1 123456 M W W W W W P P P P P P Trig: Free Run TYF PNO: Fast ↔→ IFGain:Low DEI Atten: 20 dB Auto Tune Mkr1 7.914 65 GHz -57.373 dBm Ref Offset 10.2 dB Ref 20.00 dBm 10 dB/div Log **Center Freq** 8.00000000 GHz Start Freq 7.000000000 GHz Stop Freq 9.000000000 GHz **CF** Step 200.000000 MHz <u>Auto</u> Man ▲1 Freq Offset 0 Hz Stop 9.000 GHz Sweep 192 ms (40001 pts) Start 7.000 GHz #Res BW 100 kHz #VBW 300 kHz Points changed; all traces cleared

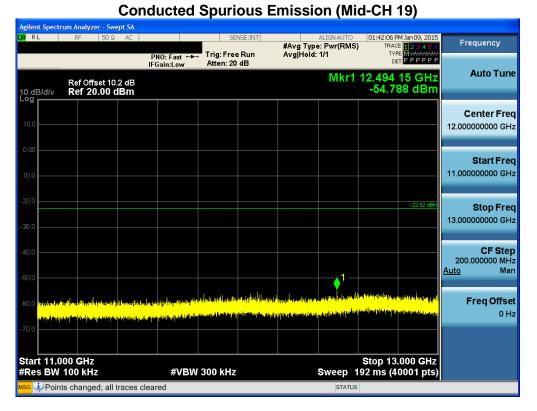
Conducted Spurious Emission (Mid-CH 19)

9 GHz ~ 11 GHz





11 GHz ~ 13 GHz



13 GHz ~ 15 GHz

	m Analyzer - Swe									
L XI RL	RF 50 Ω	AC		SEI	NSE:INT		ALIGNAUTO : Pwr(RMS)) TRAC	M Jan 09, 2015	Frequency
			NO: Fast 🔸 Gain:Low	Trig: Free Atten: 20		Avg Hold:	1/1	TYF	E MWWWWW T P P P P P P	
	Ref Offset 10.2 Ref 20.00 d						Mkr1	13.793 -54.8	05 GHz 70 dBm	Auto Tune
10.0										Center Freq 14.00000000 GHz
-10.0										Start Freq 13.000000000 GHz
-20.0									-22.92 dBm	Stop Freq 15.000000000 GHz
-40.0				.1						CF Step 200.000000 MHz <u>Auto</u> Man
-60.0 Marcalla	ata ya di dita se di kara jinda ya ya Mana kata ya mata			A COMPANY OF A COMPANY	A DATE OF THE PARTY OF THE PART	e population (state) population (state)		all at the second	a buya samfa n-conceanto	Freq Offset
-70.0										
Start 13.00 #Res BW 1			#VBW	300 kHz			Sweep_1	Stop 15 92 ms (4	.000 GHz 0001 pts)	
мsg 🗼 Points	changed; all tr	races clear	ed				STATUS			



15 GHz ~ 17 GHz

									/	
Agilent Spectr	um Analyzer - Sw	ept SA								
LXI RL	RF 50 Ω	AC		SE	NSE:INT		ALIGN AUTO	01:42:38 P	M Jan 09, 2015	_
						#Avg Type	e: Pwr(RMS)	TRAC	123456	Frequency
		F	NO: Fast 🔸	📕 Trig: Free		Avg Hold:	1/1 ` ´	TYP	E M WWWWWW	
			Gain:Low	Atten: 20	dB			DE	TPPPPP	
							Miland	46 520	85 GHz	Auto Tun
	Ref Offset 10						IVINI			
10 dB/div	Ref 20.00 c	dBm						-52.73	59 dBm	
Log										
										Center Fre
10.0										
10.0										16.000000000 GH
0.00										
										Start Fre
-10.0										15.000000000 GH
-20.0									-22.92 dBm	Stop Fre
-30.0										17.000000000 GH
-30.0										
-40.0										CF Ste
40.0										200.000000 MH
							▲ 1			<u>Auto</u> Ma
-50.0							└── \ '			<u>rato</u> ma
	And all the source of		والمرابلة أسلالهم والمرار	utables of a	acha i i	an madatrian	and day this difference	athread as a	المراجع المراجع	
a hall a second	a sa a na a na a ana a a a a a a a a a a	and and states in	of adding to the second	1.11	the transfer of			1.1	I the state of the second s	Erog Offor
-60.0	<mark>y ha a tha an an</mark>	http://www.weiter	مسلم وملكا أسرون المعادية	h <mark>hili hanan kasa</mark>	وحاشرته للوباة فطلة أفرقه مشدا	INHAM DATE	بطحقته وتقتر فيعواو وكال	والمدرع وحاركته أأتنا	والشرائية والمتعاد والمتعالية وأفتته	Freq Offse
10.0		the state of the second	1. J. I.		·					0 H
70.0										
-70.0										
Start 15.000 GHz Stop 17.000 GHz						000 GHz				
#Res BW	100 kHz		#VBW	300 kHz			Sweep 1			
									/	
MSG Point	s changed; all	traces clea	ired				STATUS			

Conducted Spurious Emission (Mid-CH 19)

17 GHz ~ 19 GHz

	um Analyzer - Swe									
LXI RL	RF 50 Ω	AC		SEM	NSE:INT		ALIGNAUTO : Pwr(RMS)		M Jan 09, 2015 E <mark>1 2 3 4 5 6</mark>	Frequency
			NO: Fast ↔→ Gain:Low	Trig: Free Atten: 20		Avg Hold:		TYF	E M WWWWWW T P P P P P P	
10 dB/div Log	Ref Offset 10. Ref 20.00 d						Mkr1		00 GHz 07 dBm	Auto Tune
10.0										Center Freq 18.00000000 GHz
-10.0										Start Freq 17.000000000 GHz
-20.0									-22.92 dBm	Stop Freq 19.000000000 GHz
-40.0									1	CF Step 200.000000 MHz <u>Auto</u> Man
and the state	ladad di singka pilada (n. 1947). Mari ng pangang kang bang pangang pangang pangang pangang pangang pangang pang						n an an the first of the first		allanandari Kapanganana	Freq Offset 0 Hz
-70.0 Start 17.0 #Res BW			#\/D\\	200 kH=			Swoon-4	Stop 19	.000 GHz	
	ts changed; all t	races clea		300 kHz			Sweep 1	92 ms (4	0001 pts)	



19 GHz ~ 21 GHz



Conducted Spurious Emission (Mid-CH 19)

21 GHz ~ 23 GHz

Agilent Spectr	um Analyzer - Swept SA								
LXI RL	RF 50 Ω AC		SENS	E:INT		ALIGNAUTO : Pwr(RMS		M Jan 09, 2015 E <mark>1 2 3 4 5 6</mark>	Frequency
		PNO: Fast 🔸	Trig: Free F Atten: 20 d	Run /	Avg Hold:		TYF	E MWWWWW F P P P P P P	
10 dB/div Log	Ref Offset 10.2 dB Ref 20.00 dBm					Mkr1		45 GHz 33 dBm	Auto Tune
10.0									Center Freq 22.000000000 GHz
0.00									
-10.0									Start Freq 21.000000000 GHz
-20.0								-22.92 dBm	Stop Freq
-30.0									23.000000000 GHz
-40.0									CF Step 200.000000 MHz <u>Auto</u> Man
	la de la company de la desta de la contra de l La ferta de la contra							ala da korbada 	Freq Offset
-60.0						ara la população de Jacio			0 Hz
-70.0									
Start 21.0 #Res BW		#VBW	300 kHz			Sweep	Stop 23	.000 GHz 0001 pts)	
мsg 🗼 Point	ts changed; all traces	cleared				STATUS	_		



23 GHz ~ 25 GHz

				,	
Agilent Spectrum Analyzer - Swe	ept SA				
LX/RL RF 50Ω	AC	SENSE:INT	ALIGNAUTO	01:43:59 PM Jan 09, 2015	Frequency
	PNO: Fast ↔ IFGain:Low	Trig: Free Run Atten: 20 dB	#Avg Type: Pwr(RMS) Avg Hold: 1/1	TRACE 123456 TYPE MWWWWW DET PPPPP	Frequency
Ref Offset 10. 10 dB/div Ref 20.00 d	.2 dB IBM		Mkr1	24.989 40 GHz -46.647 dBm	Auto Tune
10.0					Center Freq 24.000000000 GHz
-10.0					Start Freq 23.000000000 GHz
-20.0				-22.92 dBm	Stop Freq 25.000000000 GHz
-40.0	a to a second state of the	na jereset for or the termination of the termination of the	p par se (de se de se de la de se de s	and in the same spirit benefit to the state of the state	CF Step 200.000000 MHz <u>Auto</u> Man
-60.0 <mark>dina basa dala panging kanala pangina</mark>	, and a second	<mark>a ya milanda ka pansa ku yi u sang na ya ka ku yu</mark>	an ha an	<mark>il superna da kan superna da kan s</mark>	Freq Offset 0 Hz
-70.0					0112
Start 23.000 GHz #Res BW 100 kHz	#VBV	V 300 kHz	Sweep 1	Stop 25.000 GHz 92 ms (40001 pts)	
мsg 🗼 Points changed; all t	traces cleared		STATUS		



8.6 RADIATED MEASUREMENT. 8.6.1 RADIATED SPURIOUS EMISSIONS.

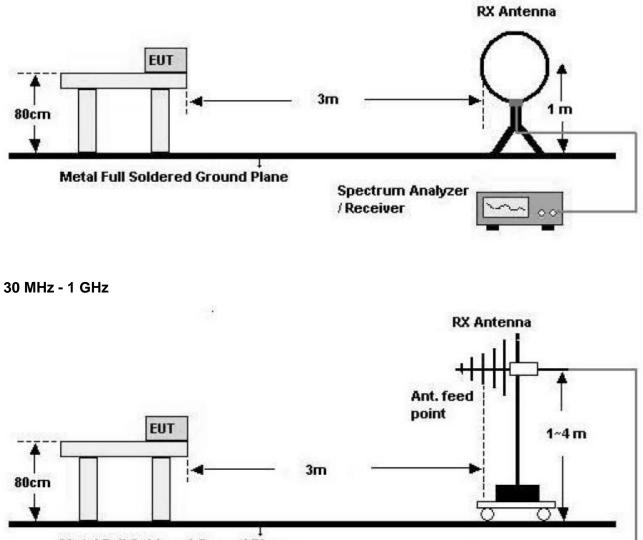
Test Requirements and limit, §15.205, §15.209

Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
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	500	3



Test Configuration

Below 30 MHz

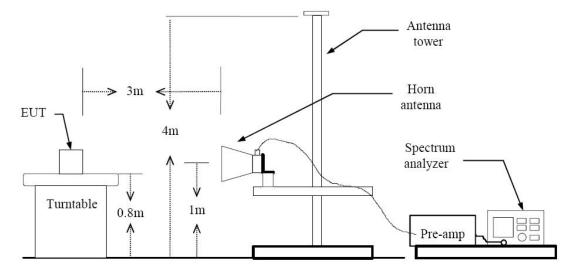


Metal Full Soldered Ground Plane

Spectrum Analyzer / Receiver



Above 1 GHz



TEST PROCEDURE USED

Method 12.1 in KDB 558074, issued 06/05/2014

Spectrum Setting

- Peak

Peak emission levels are measured by setting the instrument as follows:

RBW = cf. Table 1.

VBW \geq 3 x RBW.

Detector = Peak.

Sweep time = auto.

Trace mode = max hold.

Allow sweeps to continue until the trace stabilizes.

(Note that the required measurement time may be longer for low duty cycle applications).

	nequency
Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

Table 1 — RBW as a function of frequency



- Average

Set RBW = 1 MHz

Set VBW \geq 1/T.(at least 100 times less than the resolution bandwidth, but no less than 10 Hz.)

Select spectrum analyzer linear display mode.

Detector = Peak.

Sweep time = auto.

Trace mode = max hold.

Note :

1. We are performed the RSE and radiated band edge using standard radiated method.

2. The actual setting value of VBW for BT LE mode.

BT LE Mode	T _{on} (ms)	T _{total} (ms)	Duty Cycle (%)	VBW(1/T) (Hz)	The actual setting value of VBW (Hz)
	0.3904	0.6240	62.56	2561	3000



TEST RESULTS

9 kHz – 30MHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin	
MHz	dBµN/m	dBm /m	dBm	(H/V)	dBµN/m	dBµN/m	dB	
No Critical peaks found								

- 1. Measuring frequencies from 9 kHz to the 30MHz.
- 2. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
- 3. Distance extrapolation factor = 40 log (specific distance / test distance) (dB)
- 4. Limit line = specific Limits (dBuV) + Distance extrapolation factor
- 5. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.



TEST RESULTS

Below 1 GHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin	
MHz	dBµN/m	dBm /m	dBm	(H/V)	dBµN/m	dBµN/m	dB	
No Critical peaks found								

- 1. Measuring frequencies from 30 MHz to the 1 GHz.
- 2. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.
- 3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.



Model: LG-H340f

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Above 1 GHz

Operation Mode: CH Low(LE Mode)

Frequency	Reading	AN.+CL-AMP G	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBuV/m]	[dBm]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Туре
4804	52.96	-2.16	V	50.80	73.98	23.18	PK
4804	43.39	-2.16	V	41.23	53.98	12.75	AV
7206	46.77	7.31	V	54.08	73.98	19.90	PK
7206	34.53	7.31	V	41.84	53.98	12.14	AV
4804	53.06	-2.16	Н	50.9	73.98	23.08	PK
4804	43.45	-2.16	Н	41.29	53.98	12.69	AV
7206	48.61	7.31	Н	55.92	73.98	18.06	PK
7206	37.41	7.31	Н	44.72	53.98	9.26	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.



Model: LG-H340f

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Frequency	Reading	AN.+CL-AMP G	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBuV/m]	[dBm]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Туре
4880	52.28	-1.87	V	50.41	73.98	23.57	PK
4880	41.82	-1.87	V	39.95	53.98	14.03	AV
7320	47.11	7.35	V	54.46	73.98	19.52	PK
7320	35.47	7.35	V	42.82	53.98	11.16	AV
4880	52.39	-1.87	Н	50.52	73.98	23.46	PK
4880	41.84	-1.87	Н	39.97	53.98	14.01	AV
7320	49.05	7.35	Н	56.4	73.98	17.58	PK
7320	38.08	7.35	Н	45.43	53.98	8.55	AV

Operation Mode: CH Mid(LE Mode)

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.



Model: LG-H340f

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Frequency	Reading	AN.+CL-AMP G	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBuV/m]	[dBm]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Туре
4960	52.13	-1.84	V	50.29	73.98	23.69	PK
4960	40.94	-1.84	V	39.10	53.98	14.88	AV
7440	46.60	7.13	V	53.73	73.98	20.25	PK
7440	33.92	7.13	V	41.05	53.98	12.93	AV
4960	52.35	-1.84	Н	50.51	73.98	23.47	PK
4960	41.05	-1.84	Н	39.21	53.98	14.77	AV
7440	48.27	7.13	Н	55.4	73.98	18.58	PK
7440	36.44	7.13	Н	43.57	53.98	10.41	AV

Operation Mode: CH High(LE Mode)

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

- 2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
- 3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. Total = Reading Value + Antenna Factor + Cable Loss Amp Gain
- 5. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.



8.6.2 RADIATED RESTRICTED BAND EDGES

Test Requirements and limit, §15.247(d) §15.205, §15.209

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a) (See section 15.205(c)).

Operation Mode	BT 4.0_LE
Operating Frequency	2402 MHz
Channel No	0 Ch

Frequency [MHz]	Reading [dBuV/m]	A.F.+CL [dBm]	Ant. Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	25.74	31.47	H	57.21	73.98	16.77	PK
		-				-	
2390.0	13.03	31.47	H	44.50	53.98	9.48	AV
2390.0	25.51	31.47	V	56.98	73.98	17.00	PK
2390.0	12.96	31.47	V	44.43	53.98	9.55	AV

- 1. Frequency range of measurement = 2310 MHz ~ 2390 MHz
- 2. Total = Reading Value + Antenna Factor + Cable Loss
- 3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
- 4. The radiated restricted band edge measurements are measured with a spectrum analyzer connected to the receive antenna while the EUT is transmitting.



Operation Mode	BT 4.0_LE
Operating Frequency	2480 MHz
Channel No	39 Ch

Frequency	Reading	A.F.+CL	Ant. Pol.	Total	Limit	Margin	Measurement
[MHz]	[dBuV/m]	[dBm]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Туре
2483.5	25.57	31.46	Н	57.03	73.98	16.95	PK
2483.5	18.34	31.46	н	49.80	53.98	4.18	AV
2483.5	25.23	31.46	V	56.69	73.98	17.29	PK
2483.5	18.12	31.46	V	49.58	53.98	4.40	AV

- 1. Frequency range of measurement = 2483.5 MHz ~ 2500 MHz
- 2. Total = Reading Value + Antenna Factor + Cable Loss
- 3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
- 4. The radiated restricted band edge measurements are measured with a spectrum analyzer connected to the receive antenna while the EUT is transmitting.



8.7 POWERLINE CONDUCTED EMISSIONS

Test Requirements and limit, §15.207

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

	Limits	(dBµV)
Frequency Range (MHz)	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration

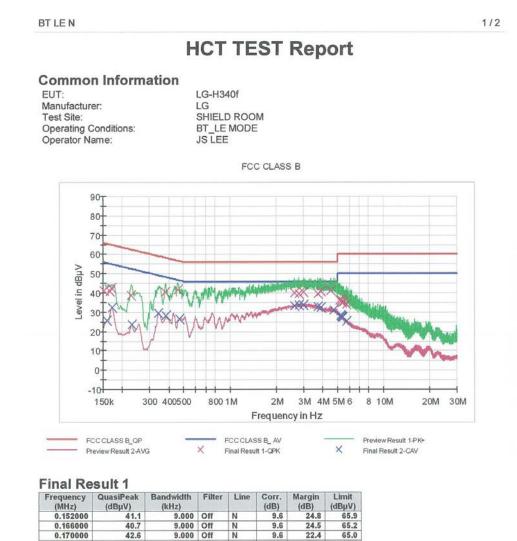
See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

- 1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
- 2. The EUT is connected via LISN to a test power supply.
- 3. The measurement results are obtained as described below:
- 4. Detectors Quasi Peak and Average Detector.
- 5. We are performed the AC Power Line Conducted Emission test for Ch.19 on BT 4.0 LE mode. Because Ch.19 on BT 4.0 LE mode is worst case.



RESULT PLOTSConducted Emissions (Line 1)



	(MHz)	(dBµV)	(kHz)			(dB)	(dB)	(dBµV)
	0.152000	41.1	9.000	Off	N	9.6	24.8	65.9
1	0.166000	40.7	9.000	Off	N	9.6	24.5	65.2
ľ	0.170000	42.6	9.000	Off	N	9.6	22.4	65.0
ſ	0.228000	38.7	9.000	Off	N	9.6	23.8	62.5
Î	0.380000	40.3	9.000	Off	N	9.7	18.0	58.3
Ì	0.458000	41.8	9.000	Off	N	9.7	14.9	56.7
Î	2.638000	39.8	9.000	Off	N	9.8	16.2	56.0
Ì	2.810000	39.7	9.000	Off	N	9.8	16.3	56.0
1	3.000000	40.4	9.000	Off	N	9.8	15.6	56.0
1	3.730000	39.4	9.000	Off	N	9.8	16.6	56.0
1	3.914000	40.6	9.000	Off	N	9.8	15.4	56.0
1	4.518000	41.1	9.000	Off	N	9.9	14.9	56.0
Ì	5.168000	36.4	9.000	Off	N	9.9	23.6	60.0
t	5.276000	36.4	9.000	Off	N	9.9	23.6	60.0
1	5.304000	35.7	9.000	Off	N	9.9	24.3	60.0
Ì	5.374000	35.0	9.000	Off	N	9.9	25.0	60.0

1/27/2015

3:08:04



2/2

BT LE N

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
5.506000	35.3	9.000	Off	N	9.9	24.7	60.0
5.746000	34.1	9.000	Off	N	9.9	25.9	60.0

Final Result 2

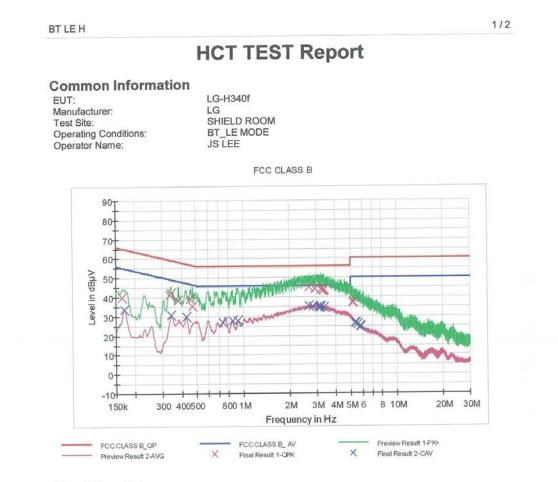
Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.158000	25.5	9.000	Off	N	9.6	30.1	55.6
0.172000	32.4	9.000	Off	N	9.6	22.5	54.9
0.230000	23.7	9.000	Off	N	9.6	28.7	52.4
0.342000	29.5	9.000	Off	N	9.7	19.7	49.2
0.384000	28.3	9.000	Off	N	9.7	19.9	48.2
0.470000	26.6	9.000	Off	N	9.7	19.9	46.5
2.638000	33.5	9.000	Off	N	9.8	12.5	46.0
2.810000	33.6	9.000	Off	N	9.8	12.4	46.0
3.000000	33.8	9.000	Off	N	9.8	12.2	46.0
3.730000	32.7	9.000	Off	N	9.8	13.3	46.0
3.914000	32.4	9.000	Off	N	9.8	13.6	46.0
4.754000	31.4	9.000	Off	N	9.9	14.6	46.0
5.276000	28.1	9.000	Off	N	9.9	21.9	50.0
5.304000	27.9	9.000	Off	N	9.9	22.1	50.0
5.374000	27.2	9.000	Off	N	9.9	22.8	50.0
5.420000	27.2	9.000	Off	N	9.9	22.8	50.0
5.434000	27.3	9.000	Off	N	9.9	22.7	50.0
5.746000	25.3	9.000	Off	N	9.9	24.7	50.0

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Conducted Emissions (Line 2)



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.164000	40.2	9.000	Off	L1	9.6	25.1	65.3
0.336000	41.3	9.000	Off	L1	9.7	18.0	59.3
0.342000	42.1	9.000	Off	L1	9.7	17.1	59.2
0.380000	38.4	9.000	Off	L1	9.7	19.9	58.3
0.454000	39.1	9.000	Off	L1	9.7	17.7	56.8
0.472000	35.2	9,000	Off	L1	9.7	21.3	56.5
2.692000	44.9	9.000	Off	L1	9.8	11.1	56.0
2.948000	44.4	9.000	Off	L1	9.8	11.6	56.0
3.222000	43.9	9.000	Off	L1	9.8	12.1	56.0
3,236000	43.7	9.000	Off	L1	9.8	12.3	56.0
3.330000	43.2	9.000	Off	L1	9.8	12.8	56.0
3,378000	43.6	9.000	Off	L1	9.8	12.4	56.0
5,168000	36.9	9.000	Off	L1	9.9	23.1	60.0
5.174000	37.6	9.000	Off	L1	9.9	22.4	60.0
5,182000	37.4	9.000	Off	L1	9.9	22.6	60.0
5,208000	37.7	9.000	Off	L1	9.9	22.3	60.0

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Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
5.212000	37.3	9,000	Off	L1	9.9	22.7	60.0
5.216000	37.0	9.000	Off	L1	9.9	23.0	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.170000	33.8	9.000	Off	L1	9.6	21.2	55.0
0.342000	30.6	9.000	Off	L1	9.7	18.6	49.2
0.428000	30.0	9.000	Off	L1	9.7	17.3	47.3
0.744000	27.0	9.000	Off	L1	9.7	19.0	46.0
0.854000	27.6	9.000	Off	L1	9.7	18.4	46.0
0.928000	27.7	9.000	Off	L1	9.7	18.3	46.0
2.692000	35.2	9.000	Off	L1	9.8	10.8	46.0
2.856000	35.0	9.000	Off	L1	9.8	11.0	46.0
3.110000	34.7	9.000	Off	L1	9.8	11.3	46.0
3,142000	34.9	9.000	Off	L1	9.8	11.1	46.0
3,236000	34.9	9.000	Off	L1	9.8	11.1	46.0
3.378000	34.7	9.000	Off	L1	9.8	11.3	46.0
5,398000	26.7	9.000	Off	L1	9.9	23.3	50.0
5,442000	26.5	9.000	Off	L1	9.9	23.5	50.0
5,458000	26.4	9.000	Off	L1	9.9	23.6	50.0
5,528000	25.8	9.000	Off	L1	9.9	24.2	50.0
5.794000	24.3	9.000	Off	L1	9.9	25.7	50.0
5.818000	24.8	9.000	Off	L1	9.9	25.2	50.0

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9. LIST OF TEST EQUIPMENT 9.1 LIST OF TEST EQUIPMENT(Conducted Test)

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Rohde & Schwarz	ENV216/ LISN	01/13/2015	Annual	100073
Agilent	E4440A/ Spectrum Analyzer	04/09/2014	Annual	US45303008
Agilent	N9020A/ SIGNAL ANALYZER	05/23/2014	Annual	MY51110063
Agilent	N1911A/Power Meter	01/15/2015	Annual	MY45100523
Agilent	N1921A /POWER SENSOR	07/09/2014	Annual	MY45241059
Agilent	87300B/Directional Coupler	12/08/2014	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	05/19/2014	Annual	11275
ITECH	IT6720 / DC POWER SUPPLY	11/04/2014	Annual	010002156287001199
TESCOM	TC-3000C / BLUETOOTH TESTER	04/11/2014	Annual	3000C000276
Rohde & Schwarz	CBT / BLUETOOTH TESTER	05/07/2014	Annual	100422
Agilent	8493C / Attenuator(10 dB)	07/21/2014	Annual	76649



9.2 LIST OF TEST EQUIPMENT(Radiated Test)

		Calibration	Calibration		
Manufacturer	Model / Equipment	Date	Interval	Serial No.	
Schwarzbeck	VULB 9160/ TRILOG Antenna	10/10/2014	Biennial	3368	
HD	MA240/ Antenna Position Tower	N/A	N/A	556	
EMCO	1050/ Turn Table	N/A	N/A	114	
HD GmbH	HD 100/ Controller	N/A	N/A	13	
HD GmbH	KMS 560/ SlideBar	N/A	N/A	12	
Rohde & Schwarz	SCU-18/ Signal Conditioning Unit	09/04/2014	Annual	10094	
CERNEX	CBL18265035 / POWER AMP	07/23/2014	Annual	22966	
CERNEX	CBL26405040 / POWER AMP	04/04/2014	Annual	19660	
Schwarzbeck	BBHA 9120D/ Horn Antenna	07/05/2013	Biennial	1151	
Cohwarzhook	BBHA9170 / Horn Antenna(15 GHz ~ 40	07/05/2012	Diamaial		
Schwarzbeck	GHz)	07/05/2013	Biennial	BBHA9170541	
Rohde & Schwarz	FSP / Spectrum Analyzer	10/13/2014	Annual	836650/016	
Wainwright	WHE2 0/19C 10EE / High Doog Eiltor	02/02/2014	Appuol	F6	
Instrument	WHF3.0/18G-10EF / High Pass Filter	02/03/2014	Annual	го	
Wainwright	WHNX6.0/26.5G-6SS / High Pass Filter	04/09/2014	Annual	1	
Instrument	WHINA0.0/20.30-033 / High Pass Filler	04/09/2014	Annuai		
Wainwright	WUNYZ 0/49C 955 / Uigh Doog Filter	04/04/2014	Appual	20	
Instrument	WHNX7.0/18G-8SS / High Pass Filter	04/04/2014	Annual	29	
Wainwright	WRCJ2400/2483.5-2370/2520-60/14SS	06/17/2014	Appual	1	
Instrument	/ Band Reject Filter	06/17/2014	Annual	1	
TESCOM	TC-3000C / BLUETOOTH TESTER	04/11/2014	Annual	3000C000276	
Rohde & Schwarz	CBT / BLUETOOTH TESTER	05/07/2014	Annual	100422	
Rohde & Schwarz	LOOP ANTENNA	09/03/2014	Biennial	1513-175	
CERNEX	CBL06185030 / POWER AMP	07/21/2014	Annual	22965	
CERNEX	CBLU1183540 / POWER AMP	07/21/2014	Annual	22964	