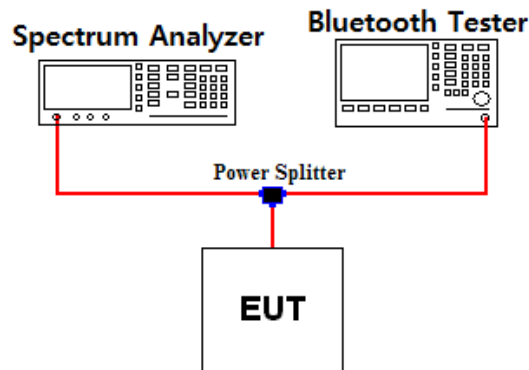


3. 99 % & 20dBc BW

3.1. Test Setup



3.2. Limit

Limit: Not Applicable

3.3. Test Procedure

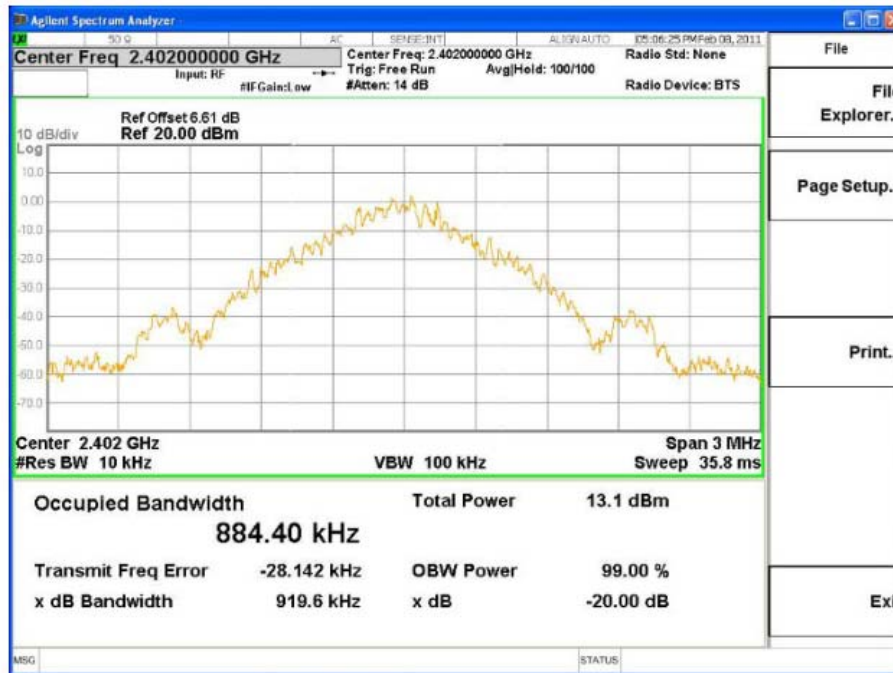
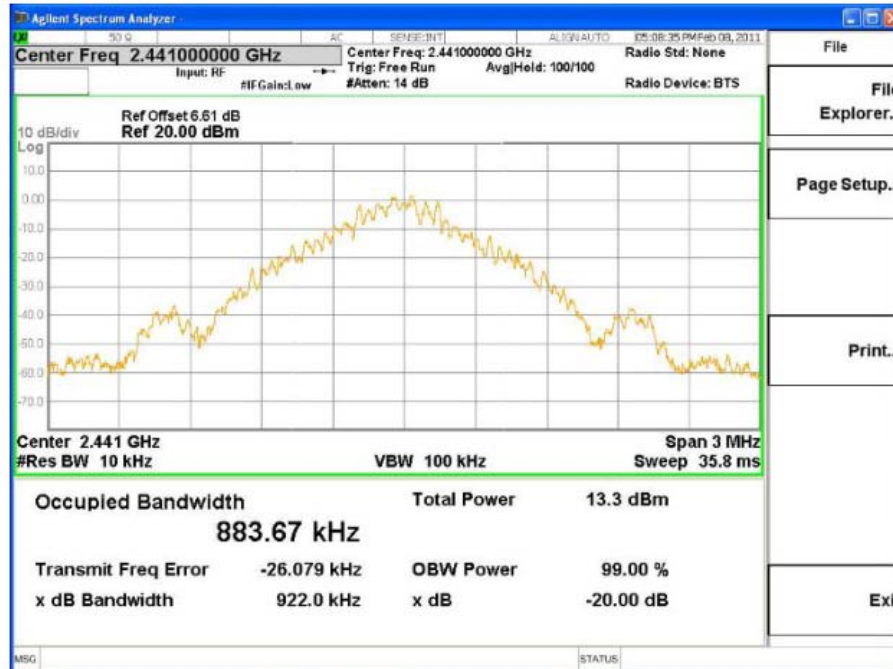
1. The 99% and 20dBc bandwidth were measured with a spectrum analyzer connected to RF antenna connector(conducted measurement) while EUT was operating in transmit mode. The analyzer center frequency was set to the EUT carrier frequency, using the analyzer.
2. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using RBW = 10 kHz, VBW = 100 kHz, Span = 5 MHz.

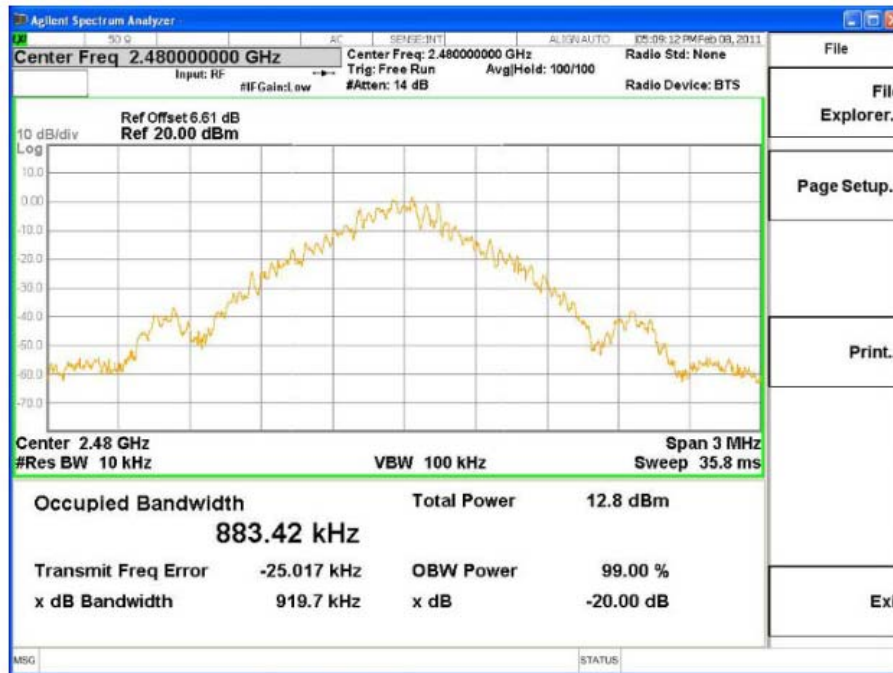
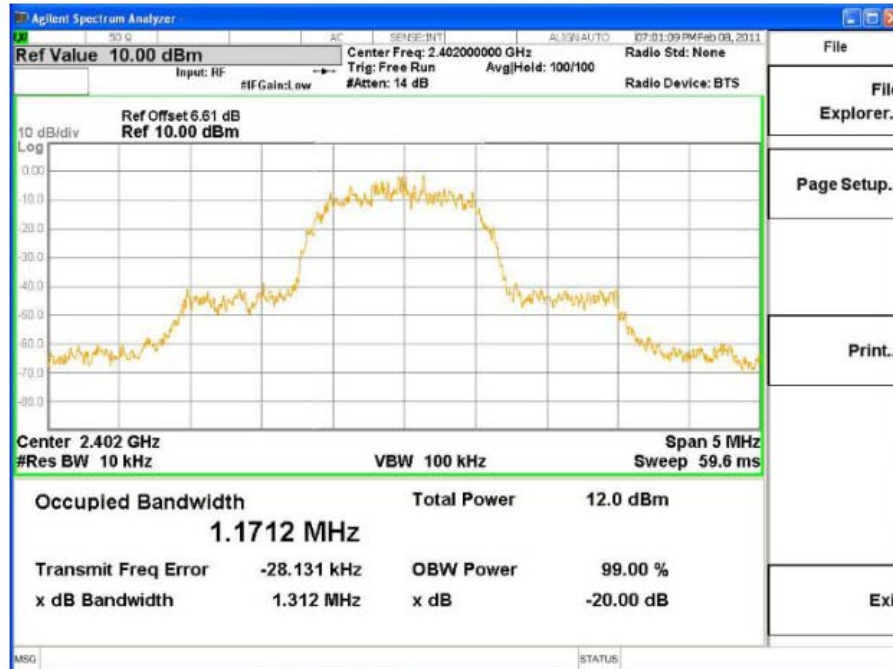
3.4. Test Results

Ambient temperature : 22 °C
Relative humidity : 34%

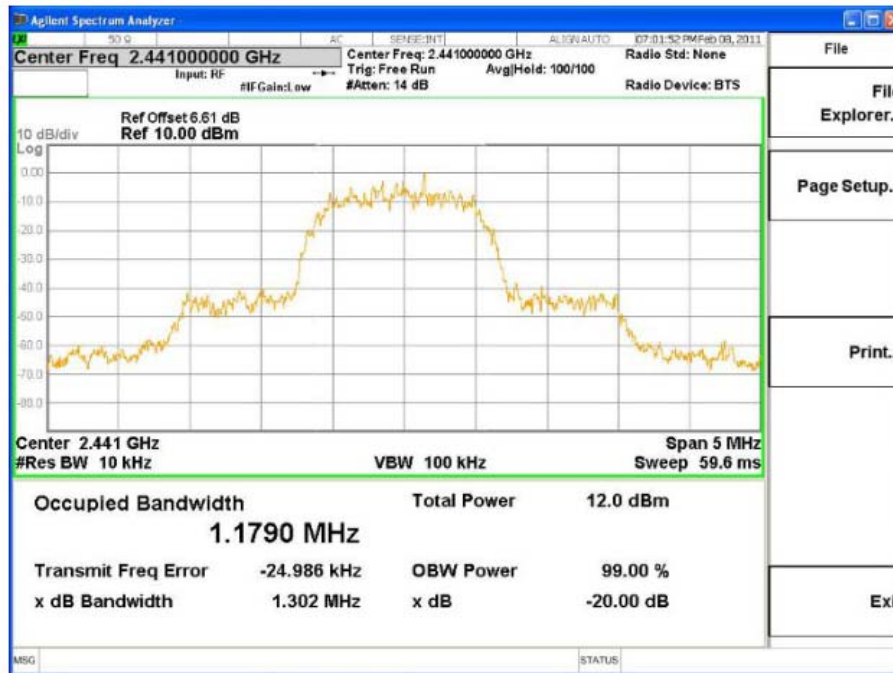
Modulation	Tested Channel	99% BW (MHz)	20dBc BW (MHz)
<u>GFSK</u>	Lowest	0.88440	0.917
	Middle	0.88367	0.922
	Highest	0.88342	0.920
<u>$\pi/4$ DQPSK</u>	Lowest	1.1712	1.312
	Middle	1.1790	1.302
	Highest	1.1717	1.311
<u>8DPSK</u>	Lowest	1.1847	1.265
	Middle	1.1859	1.312
	Highest	1.1744	1.268

Note 1: See next pages for actual measured spectrum plots.

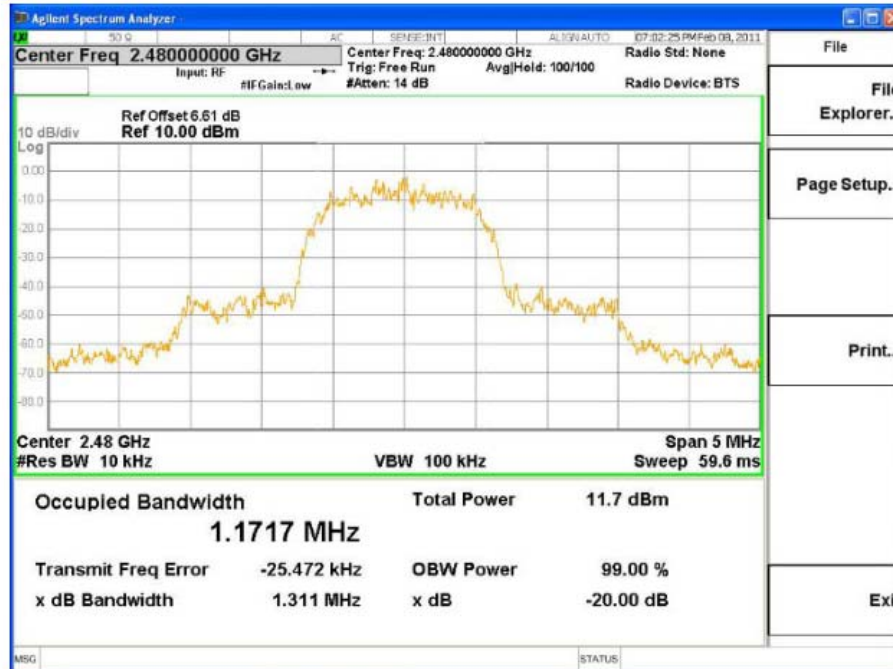
99% & 20dB Bandwidth**Lowest Channel** & Modulation: **GFSK****99% & 20dB Bandwidth****Middle Channel** & Modulation: **GFSK**

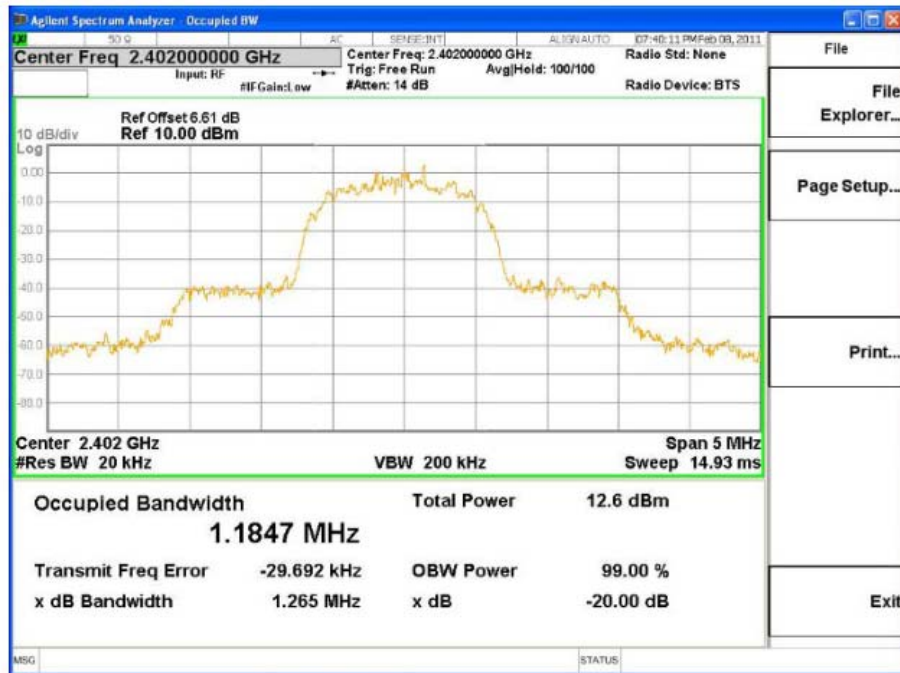
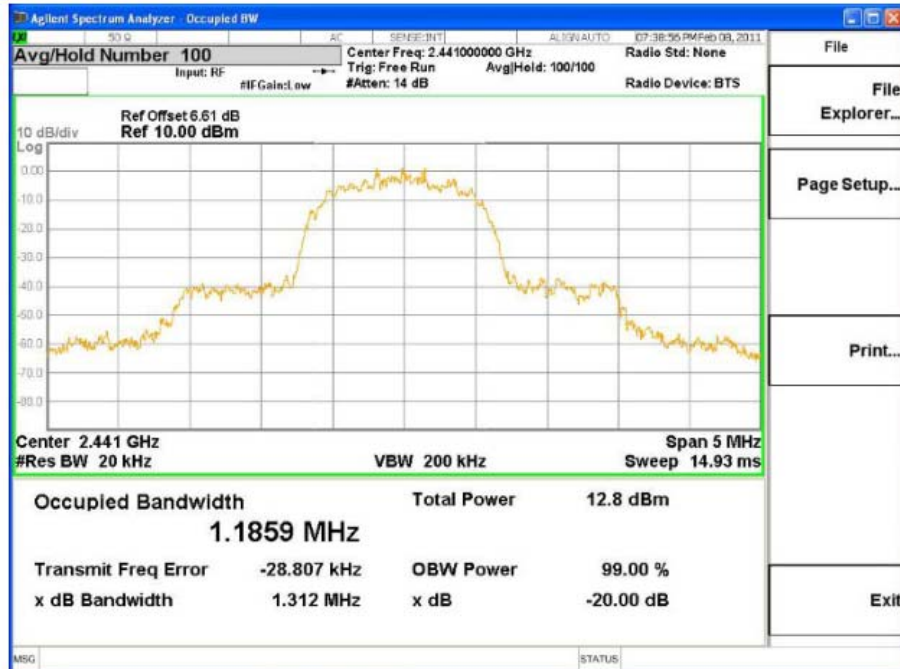
99% & 20dB Bandwidth**Highest Channel** & Modulation: **GFSK****99% & 20dB Bandwidth****Lowest Channel** & Modulation: **$\pi/4$ DQPSK**

99% & 20dB Bandwidth

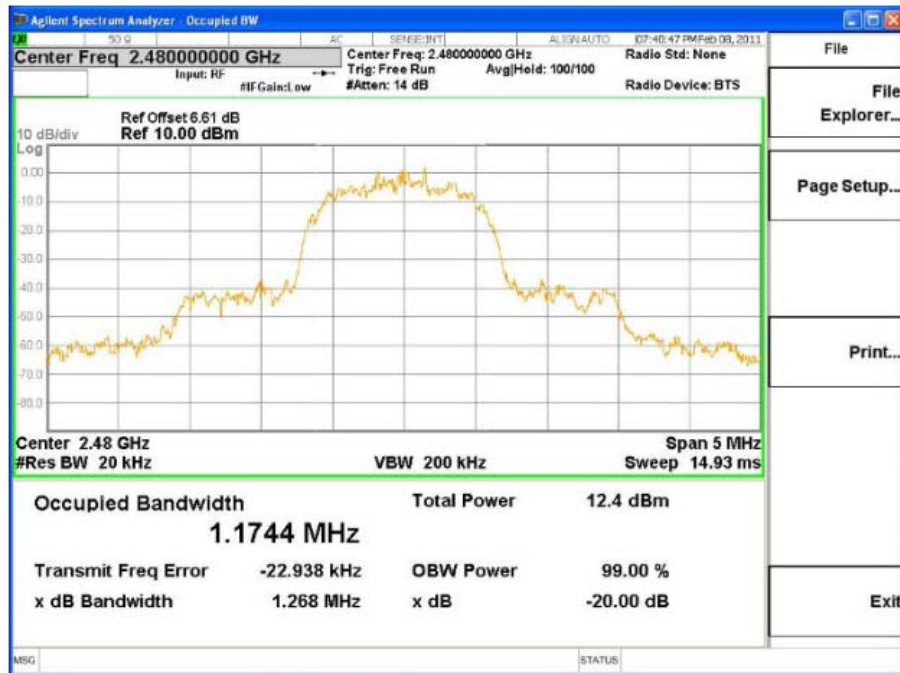
Middle Channel & Modulation: $\pi/4$ DQPSK

99% & 20dB Bandwidth

Highest Channel & Modulation: $\pi/4$ DQPSK

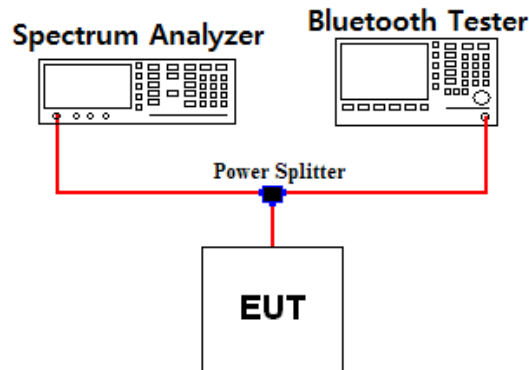
99% & 20dB Bandwidth**Lowest Channel** & Modulation: **8DPSK****99% & 20dB Bandwidth****Middle Channel** & Modulation: **8DPSK**

99% & 20dB Bandwidth

Highest Channel & Modulation: 8DPSK

5. Maximum Peak Output Power Measurement

5.1. Test Setup



5.2. Limit

The maximum peak output power of the intentional radiator shall not exceed the following :

1. §15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.
2. §15.247(b)(1), For frequency hopping systems operating in the 2 400 – 2 483.5 MHz employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5 725 – 5 805 MHz band: 1 Watt.

5.3. Test Procedure

1. The RF power output was measured with a Spectrum analyzer connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate center frequency, A spectrum analyzer was used to record the shape of the transmit signal.
2. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using ;
 Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel
 RBW $\geq$ 20dB BW
 VBW $\geq$ RBW
 Sweep = auto
 Detector function = peak
 Trace = max hold

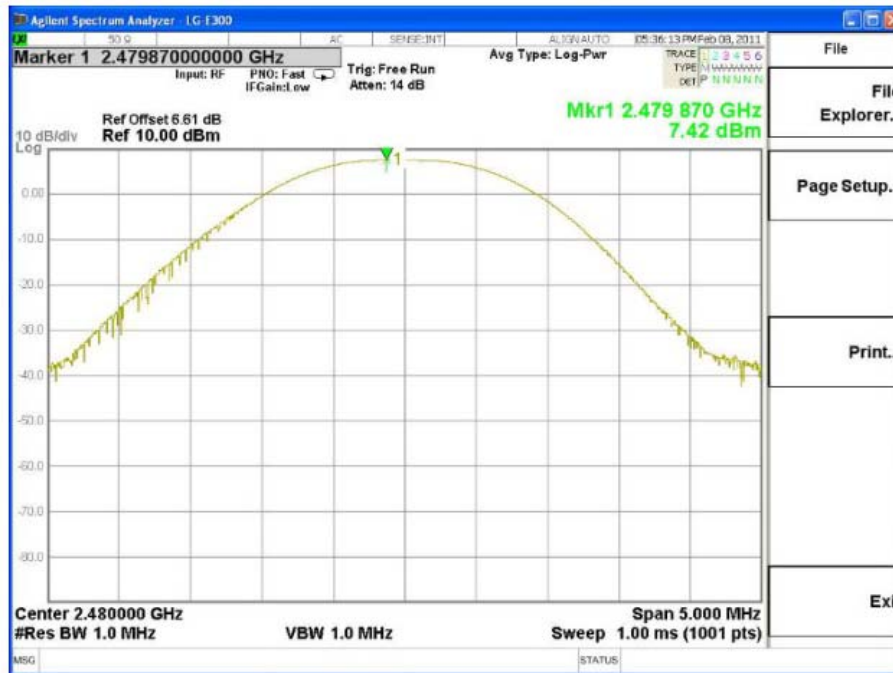
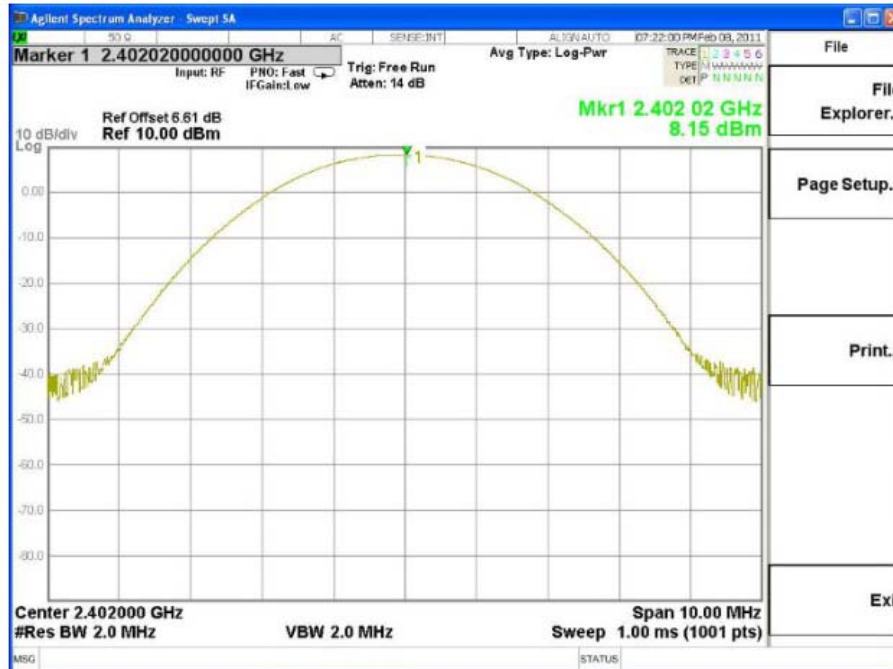
5.4. Test Results

Ambient temperature : 22 °C
Relative humidity : 34%

Modulation	Tested Channel	Peak Output Power	
		dBm	mW
<u>GFSK</u>	Lowest	7.67	5.845
	Middle	7.84	6.086
	Highest	7.42	5.521
<u>$\pi/4$ DQPSK</u>	Lowest	8.15	6.531
	Middle	8.36	6.855
	Highest	7.90	6.166
<u>8DPSK</u>	Lowest	8.64	7.311
	Middle	8.86	7.691
	Highest	8.42	6.949

Note 1: See next pages for actual measured spectrum plots.

Peak Output Power**Lowest Channel** & Modulation: **GFSK****Peak Output Power****Middle Channel** & Modulation: **GFSK**

Peak Output Power**Highest Channel** & Modulation: **GFSK****Peak Output Power****Lowest Channel** & Modulation: **$\pi/4$ DQPSK**

Peak Output Power**Middle Channel** & Modulation: **$\pi/4$ DQPSK****Peak Output Power****Highest Channel** & Modulation: **$\pi/4$ DQPSK**

Peak Output Power**Lowest Channel** & Modulation: **8DPSK****Peak Output Power****Middle Channel** & Modulation: **8DPSK**

Peak Output Power**Highest Channel** & Modulation: **8DPSK**

6. Transmitter AC Power Line Conducted Emission

6.1. Test Setup

Refer to test setup photo.

6.2. Limit

According to §15.207(a) for an intentional radiator that 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 the limits in the following table, as measured using a 50 uH/50 ohm line impedance stabilization network(LISN).

Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequency ranges.

Frequency Range (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15 ~ 0.5	66 to 56 *	56 to 46 *
0.5 ~ 5	56	46
5 ~ 30	60	50

* Decreases with the logarithm of the frequency

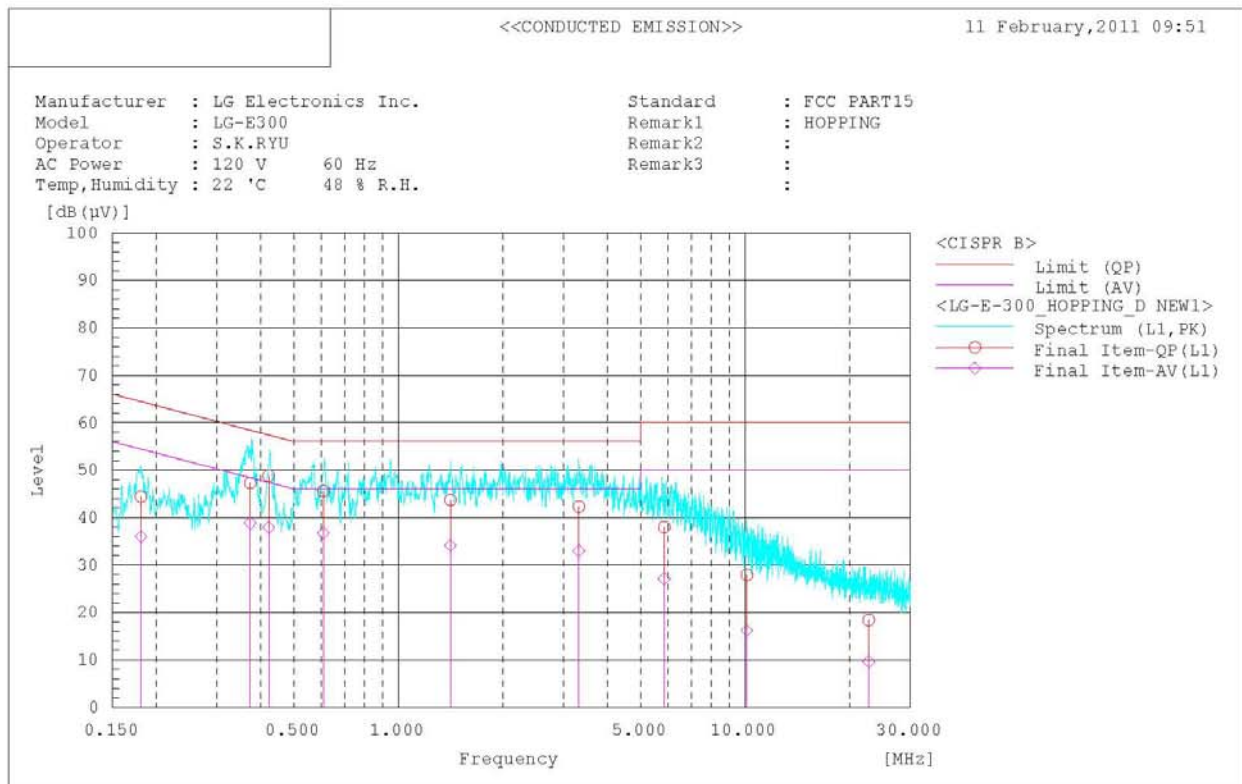
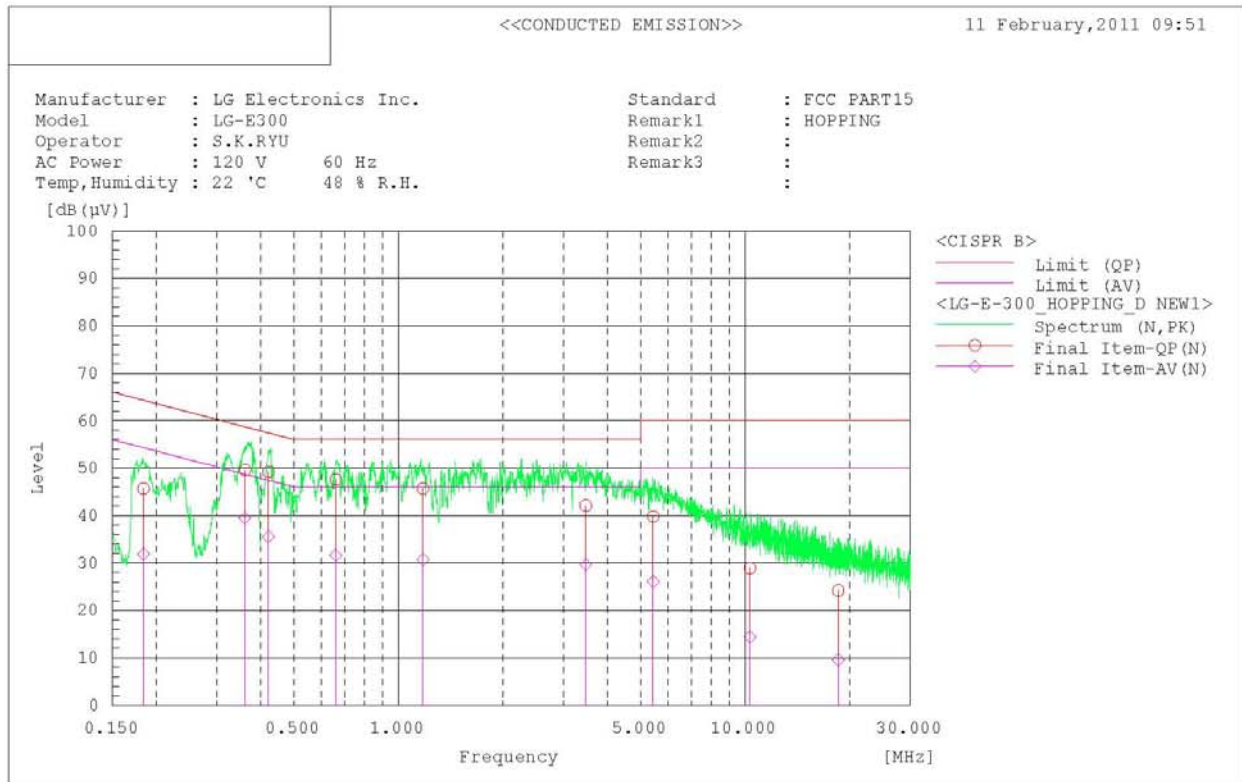
6.3. Test Procedures

Radiated emissions from the EUT were measured according to the dictates of ANSI C63.4:2003

1. The test procedure is performed in a 6.5 m × 3.5 m × 3.5 m (L × W × H) shielded room. The EUT along with its peripherals were placed on a 1.0 m (W) × 1.5 m (L) and 0.8 m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room.
3. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
4. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

6.4. Test Results

AC Line Conducted Emissions (Graph)



AC Line Conducted Emissions (List)

<<CONDUCTED EMISSION>>

11 February, 2011 09:51

Standard : FCC PART15
Manufacturer : LG Electronics Inc.
Model : LG-E300
Operator : S.K.RYU
AC Power : 120 V 60 Hz
Temp, Humidity : 22 °C 48 % R.H.
Remark1 : HOPPING
Remark2 :
Remark3 :

Final Result

--- N Phase ---

No.	Frequency	Reading QP	Reading AV	c.f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV	Remark
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]	
1	0.184	45.6	31.8	0.1	45.7	31.9	64.3	54.3	18.6	22.4	
2	0.361	49.5	39.4	0.1	49.6	39.5	58.7	48.7	9.1	9.2	
3	0.422	49.1	35.4	0.1	49.2	35.5	57.4	47.4	8.2	11.9	
4	0.660	47.5	31.5	0.1	47.6	31.6	56.0	46.0	8.4	14.4	
5	1.178	45.6	30.6	0.1	45.7	30.7	56.0	46.0	10.3	15.3	
6	3.470	41.8	29.4	0.3	42.1	29.7	56.0	46.0	13.9	16.3	
7	5.431	39.4	25.7	0.4	39.8	26.1	60.0	50.0	20.2	23.9	
8	10.329	28.3	13.8	0.6	28.9	14.4	60.0	50.0	31.1	35.6	
9	18.567	23.1	8.5	1.1	24.2	9.6	60.0	50.0	35.8	40.4	

--- L1 Phase ---

No.	Frequency	Reading QP	Reading AV	c.f	Result QP	Result AV	Limit QP	Limit AV	Margin QP	Margin AV	Remark
	[MHz]	[dB(μV)]	[dB(μV)]	[dB]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB(μV)]	[dB]	[dB]	
1	0.181	44.1	35.7	0.3	44.4	36.0	64.4	54.4	20.0	18.4	
2	0.374	47.0	38.5	0.3	47.3	38.8	58.4	48.4	11.1	9.6	
3	0.423	48.5	37.6	0.3	48.8	37.9	57.4	47.4	8.6	9.5	
4	0.608	45.3	36.4	0.3	45.6	36.7	56.0	46.0	10.4	9.3	
5	1.413	43.4	33.8	0.3	43.7	34.1	56.0	46.0	12.3	11.9	
6	3.315	41.9	32.6	0.4	42.3	33.0	56.0	46.0	13.7	13.0	
7	5.846	37.5	26.6	0.5	38.0	27.1	60.0	50.0	22.0	22.9	
8	10.117	27.2	15.5	0.7	27.9	16.2	60.0	50.0	32.1	33.8	
9	22.706	17.1	8.3	1.3	18.4	9.6	60.0	50.0	41.6	40.4	