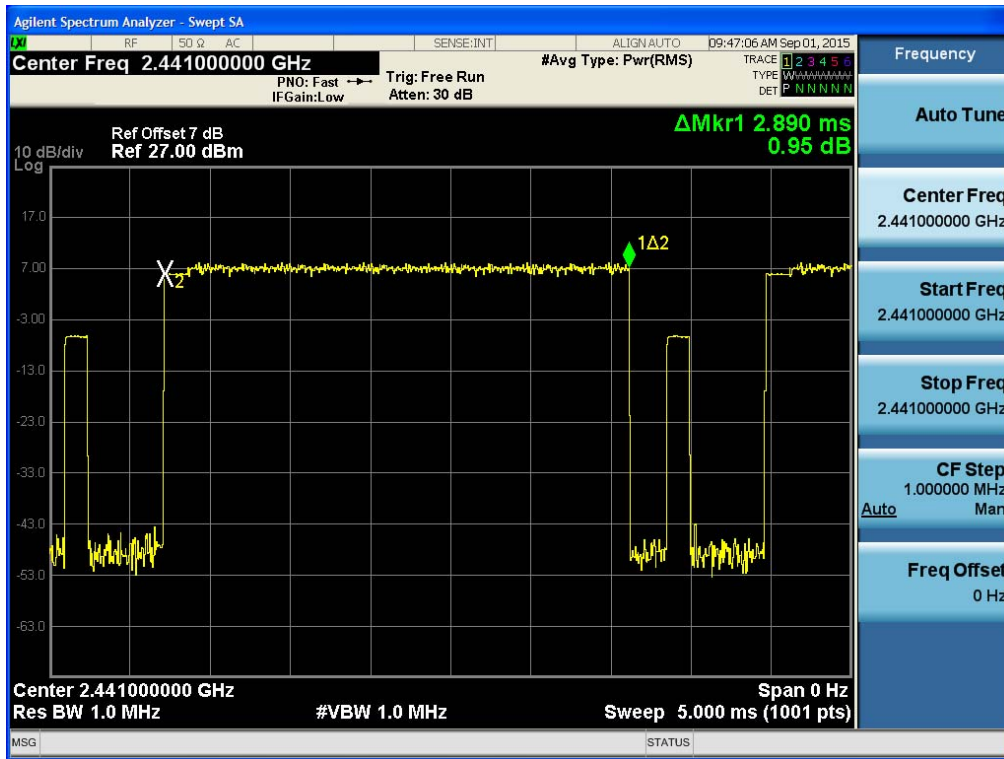
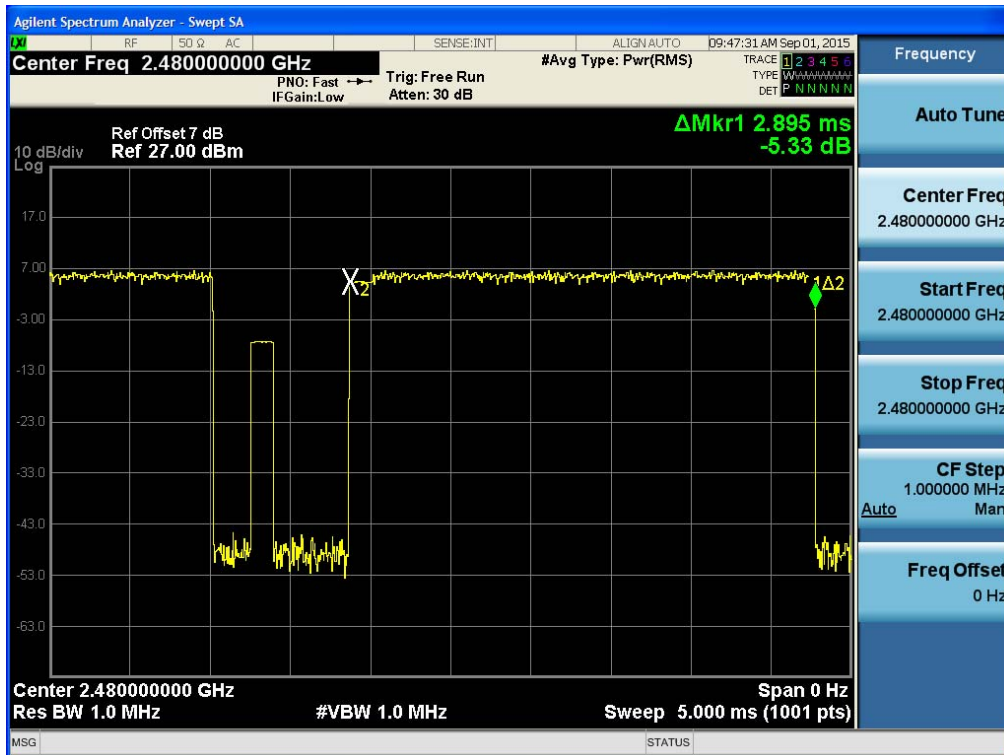


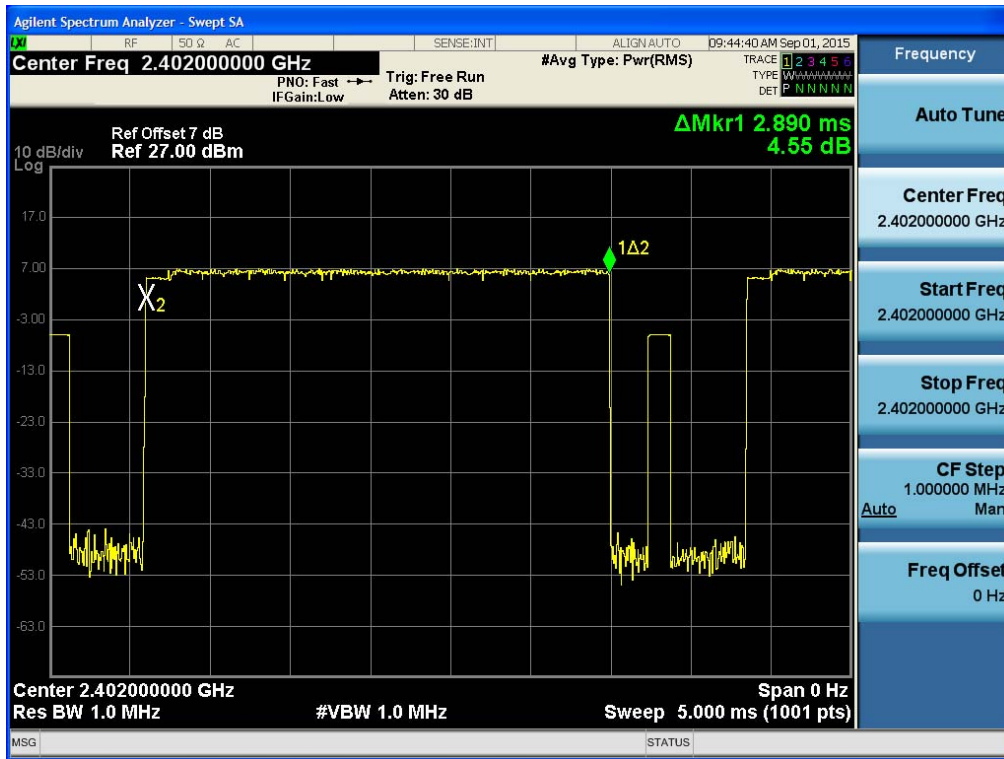
Test Plots (8DPSK)  
Dwell Time (Mid-CH)



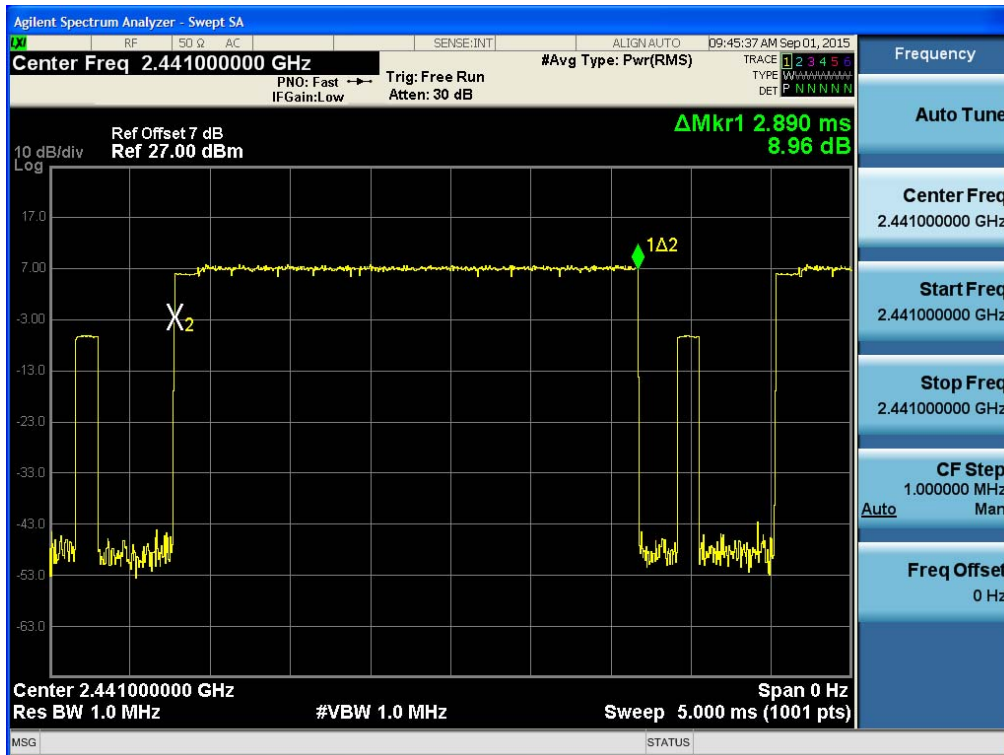
Test Plots (8DPSK)  
Dwell Time (High-CH)



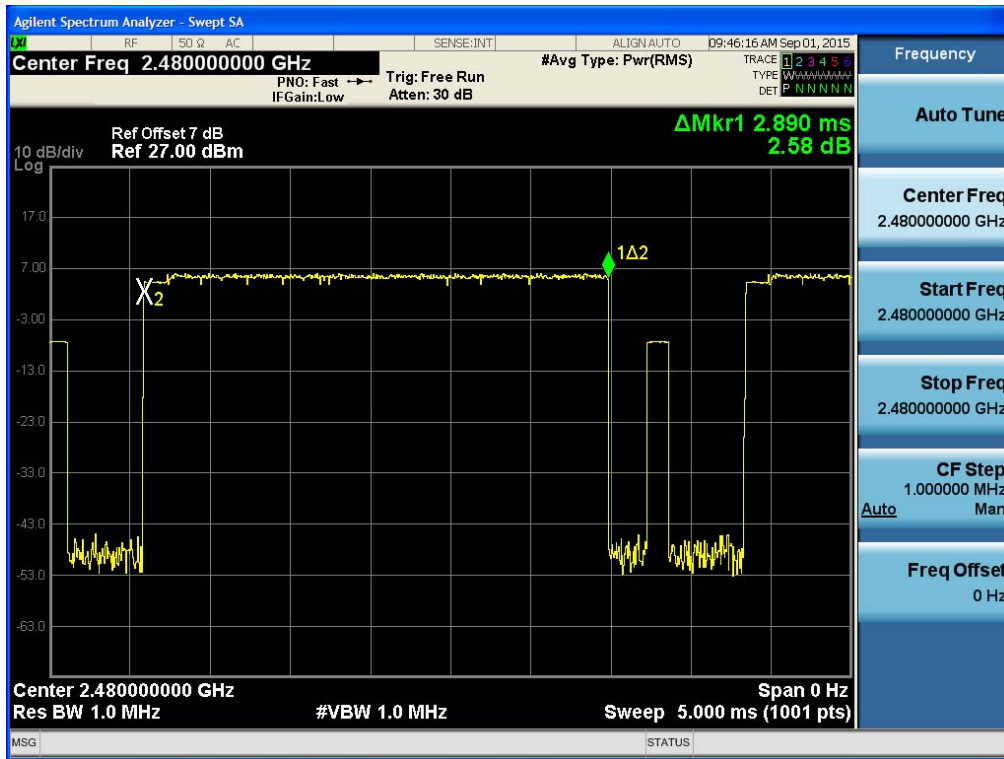
Test Plots ( $\pi/4$ DQPSK)  
Dwell Time (Low-CH)



Test Plots ( $\pi/4$ DQPSK)  
Dwell Time (Mid-CH)



Test Plots ( $\pi/4$ DQPSK)  
Dwell Time (High-CH)



## 8.6 SPURIOUS EMISSIONS

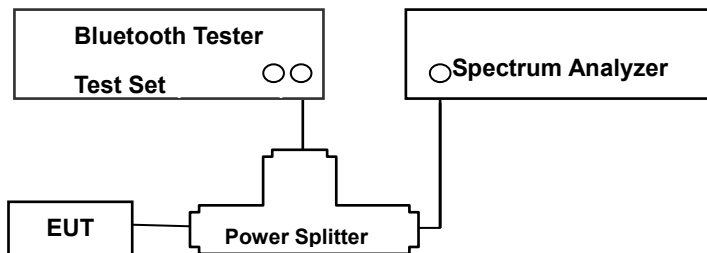
### 8.6.1 CONDUCTED SPURIOUS EMISSIONS

#### 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 § 15.209(a) (see § 15.205(c)).

**Limit : 20 dBc**

#### Test Configuration



#### TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer.

The Spectrum Analyzer is set to (7.8.8 in ANSI 63.10-2013)

- 1) Span: 30 MHz to 10 times the operating frequency in GHz.
- 2) RBW: 100 kHz
- 3) VBW: 300 kHz
- 4) Sweep: Coupled
- 5) Detector: Peak

Measurements are made over the 30 MHz to 26 GHz range with the transmitter set to the lowest, middle, and highest channels.

This test is performed with hopping off.

**TEST RESULTS**

No non-compliance noted.

Note : In order to simplify the report, attached plots were only the worst case channel and data rate.

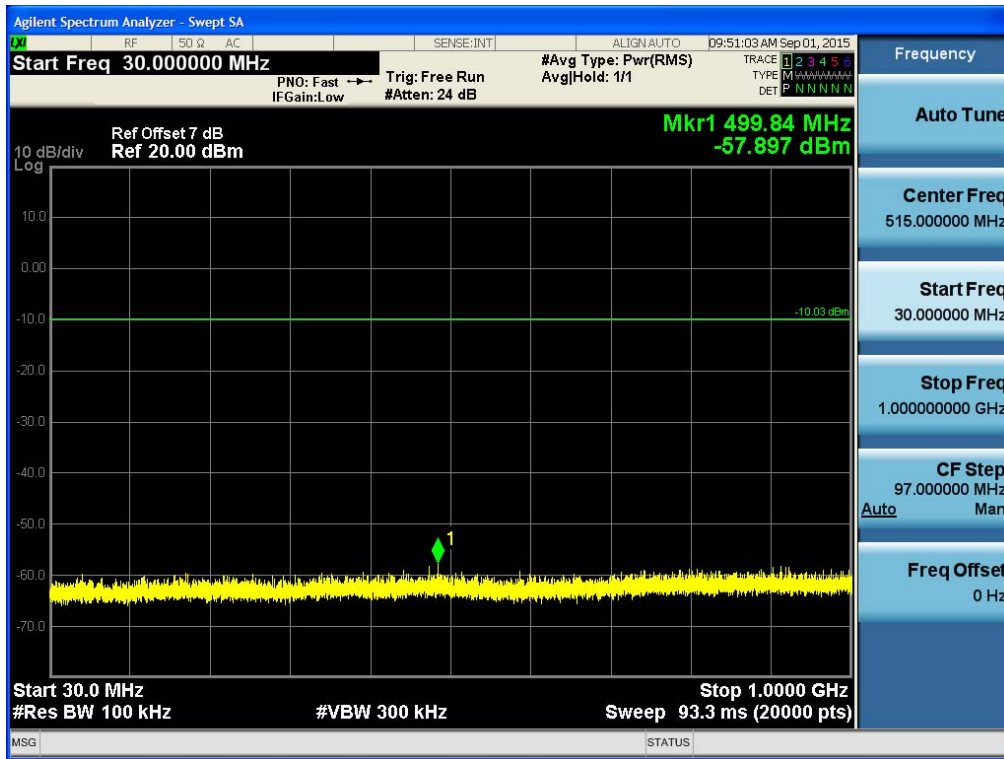
**FACTORS FOR FREQUENCY**

Freq(MHz)	Factor(dB)
30	10.01
100	10.02
200	10.10
300	10.09
400	10.13
500	10.21
600	10.13
700	10.31
800	10.18
900	10.30
1000	10.17
2000	8.53
2400*	6.51
2500*	6.54
3000	8.59
4000	10.02
5000	9.88
6000	5.70
7000	10.21
8000	6.13
9000	8.79
10000	12.46
11000	8.11
12000	9.52
13000	8.98
14000	8.13
15000	11.82
16000	6.92
17000	13.23
18000	10.25
19000	10.28
20000	9.10
21000	10.94
22000	11.54
23000	8.81
24000	11.71
25000	9.37
26000	9.34

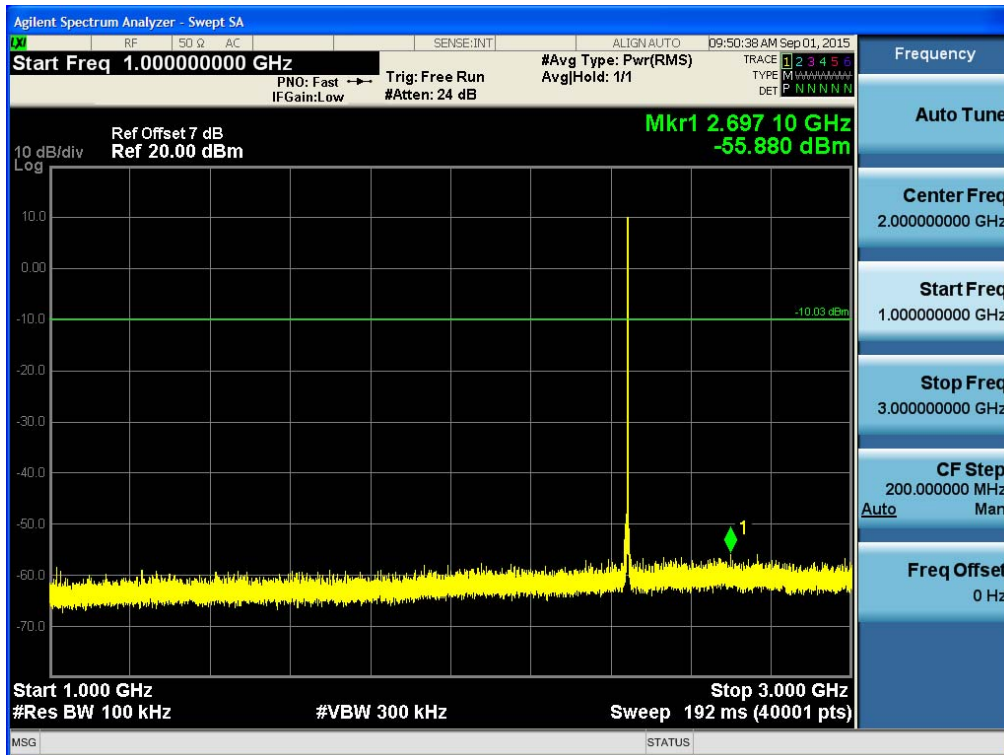
Note : 1. \*\* is fundamental frequency range.

2. Factor = Cable loss + Splitter loss

Test Plots (GFSK)- 30 MHz - 1 GHz  
Spurious Emission (Mid-CH)

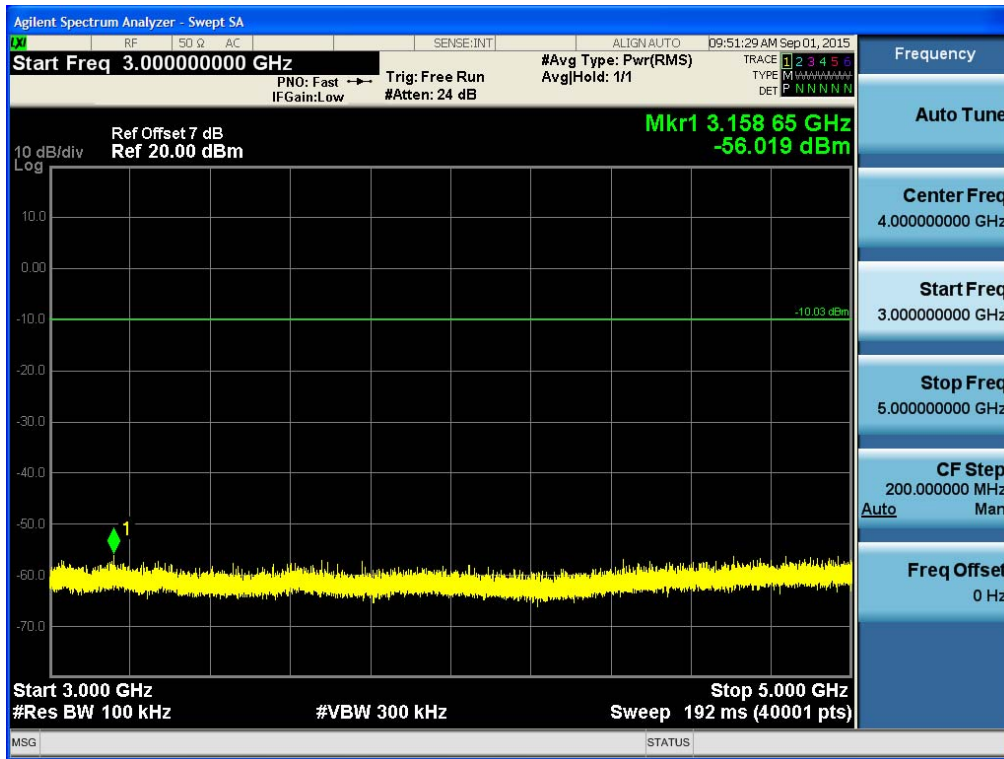


Test Plots (GFSK)- 1 GHz – 3 GHz  
Spurious Emission (Mid-CH)

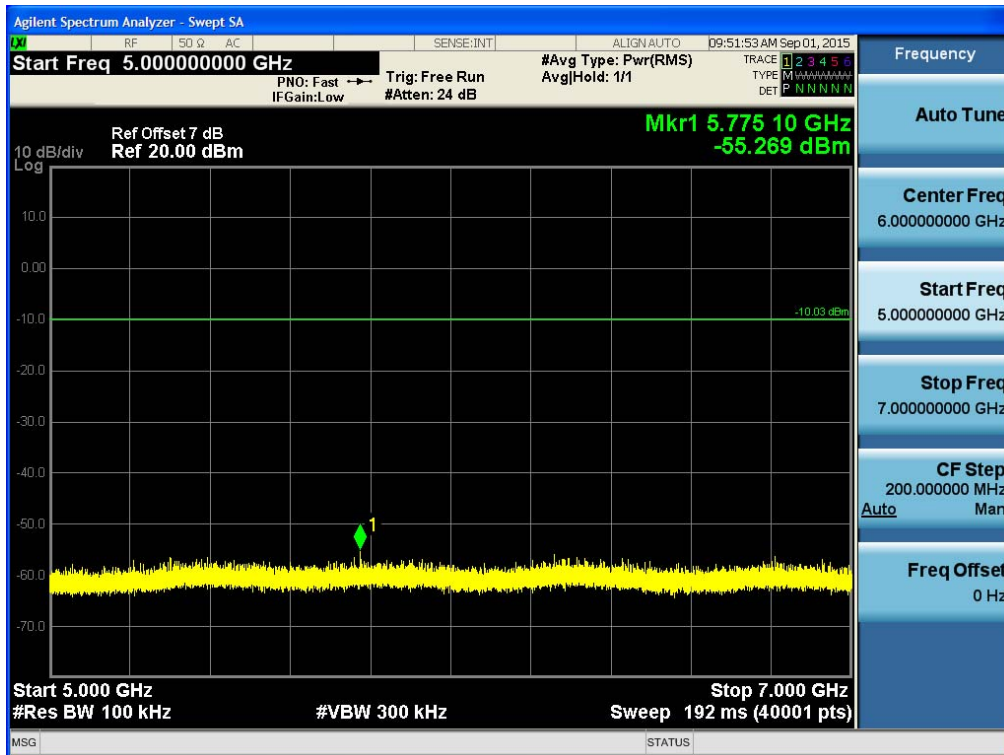




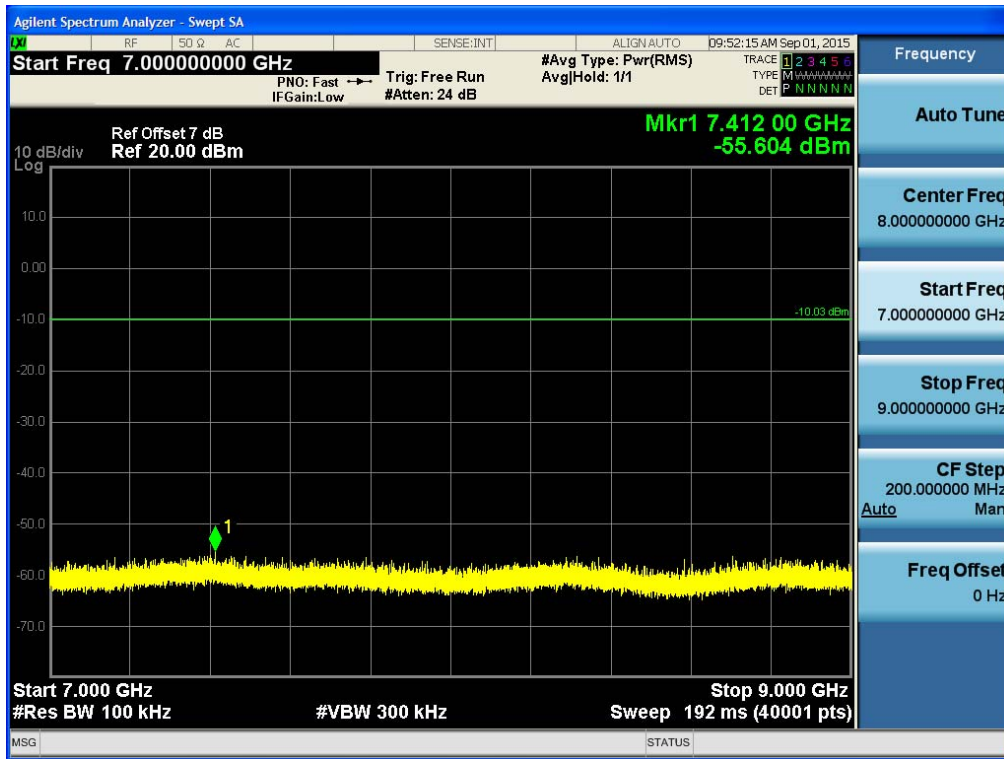
Test Plots (GFSK)- 3 GHz - 5 GHz  
Spurious Emission (Mid-CH)



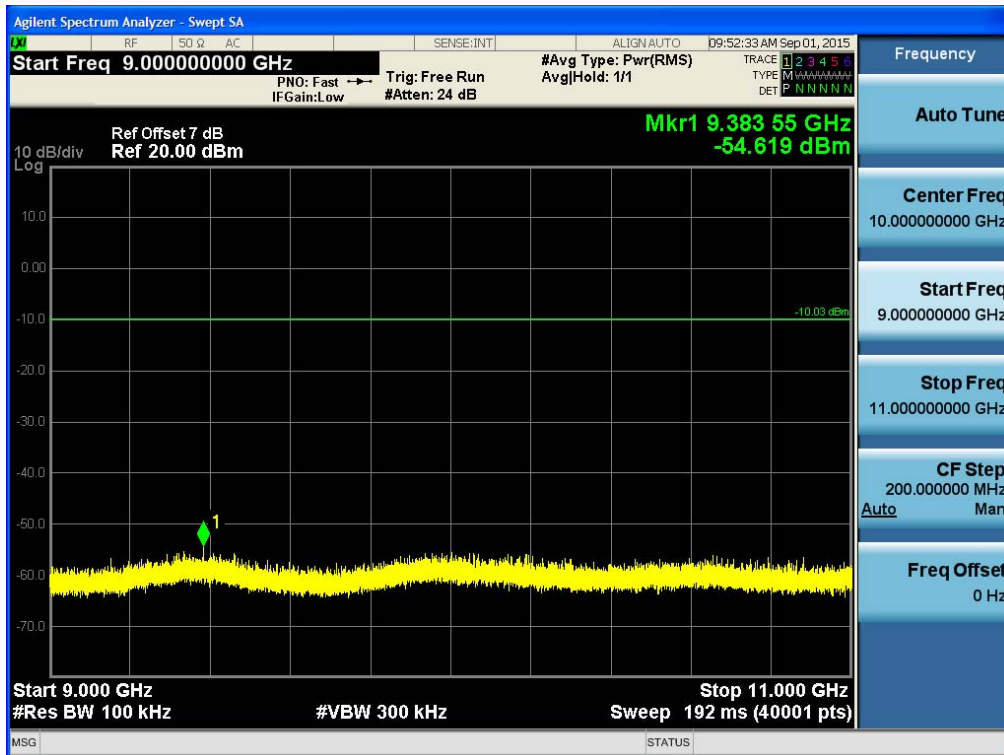
Test Plots (GFSK)- 5 GHz - 7 GHz  
Spurious Emission (Mid-CH)



Test Plots (GFSK)- 7 GHz - 9 GHz  
Spurious Emission (Mid-CH)

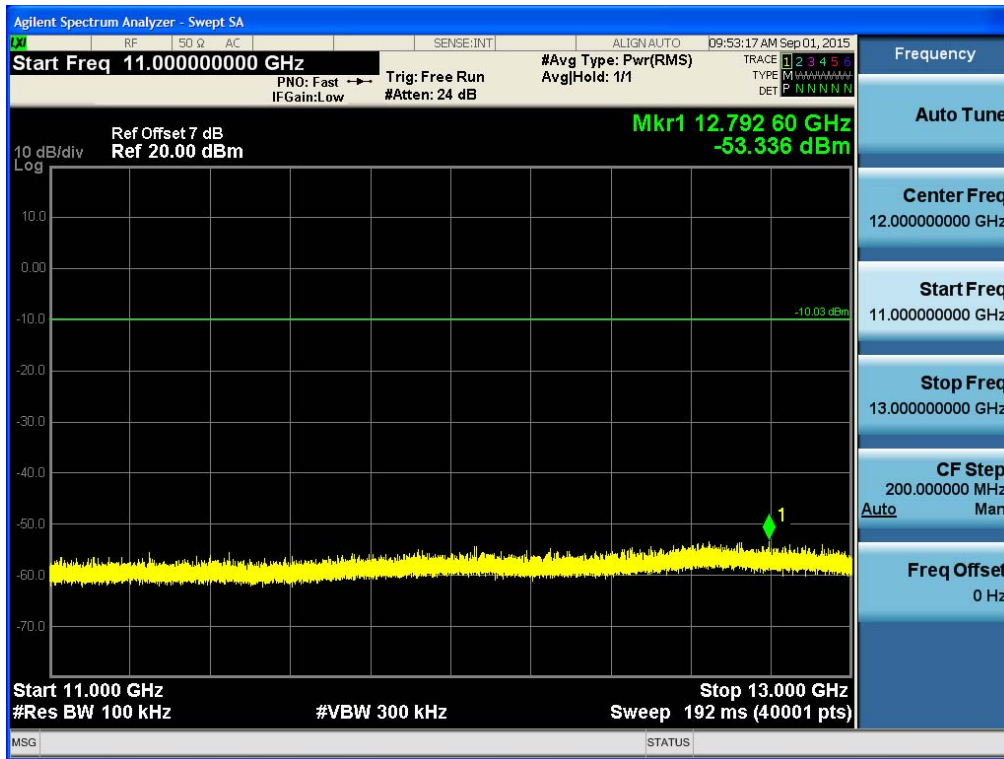


Test Plots (GFSK)- 9 GHz - 11 GHz  
Spurious Emission (Mid-CH)

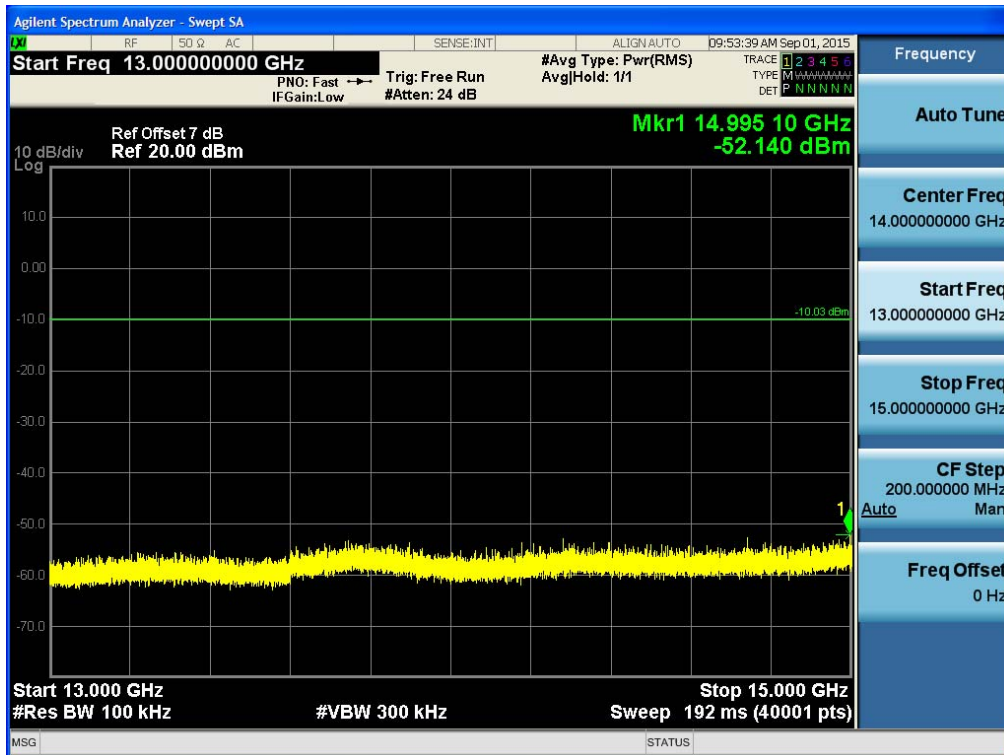




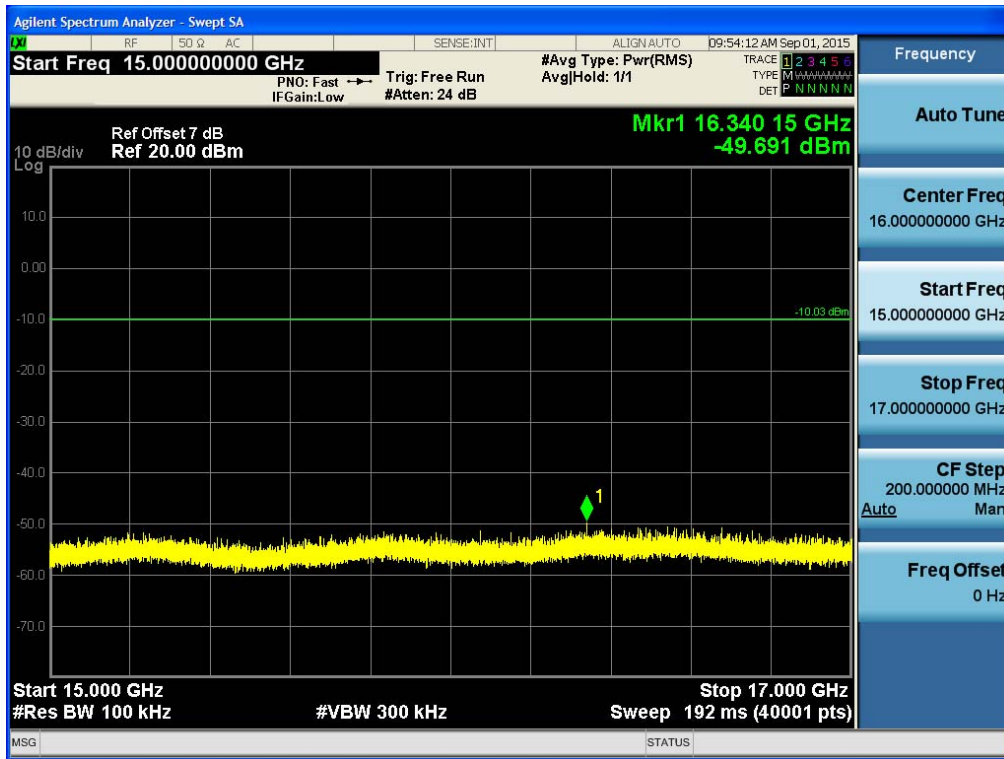
Test Plots (GFSK)- 11 GHz - 13 GHz  
Spurious Emission (Mid-CH)



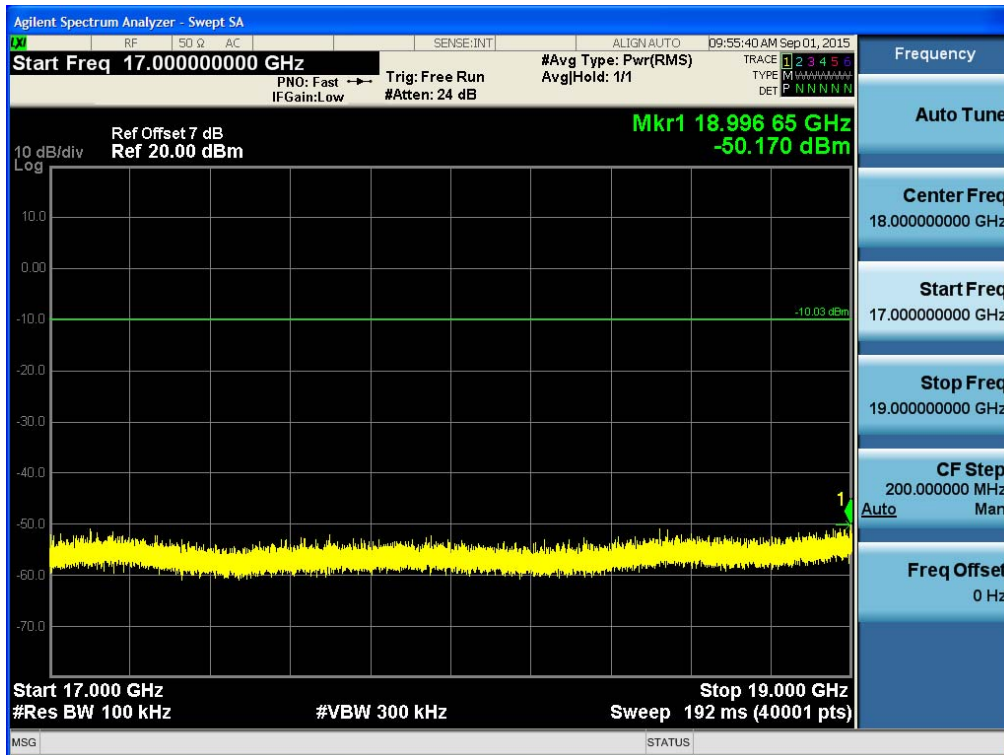
Test Plots (GFSK)- 13 GHz – 15 GHz  
Spurious Emission (Mid-CH)



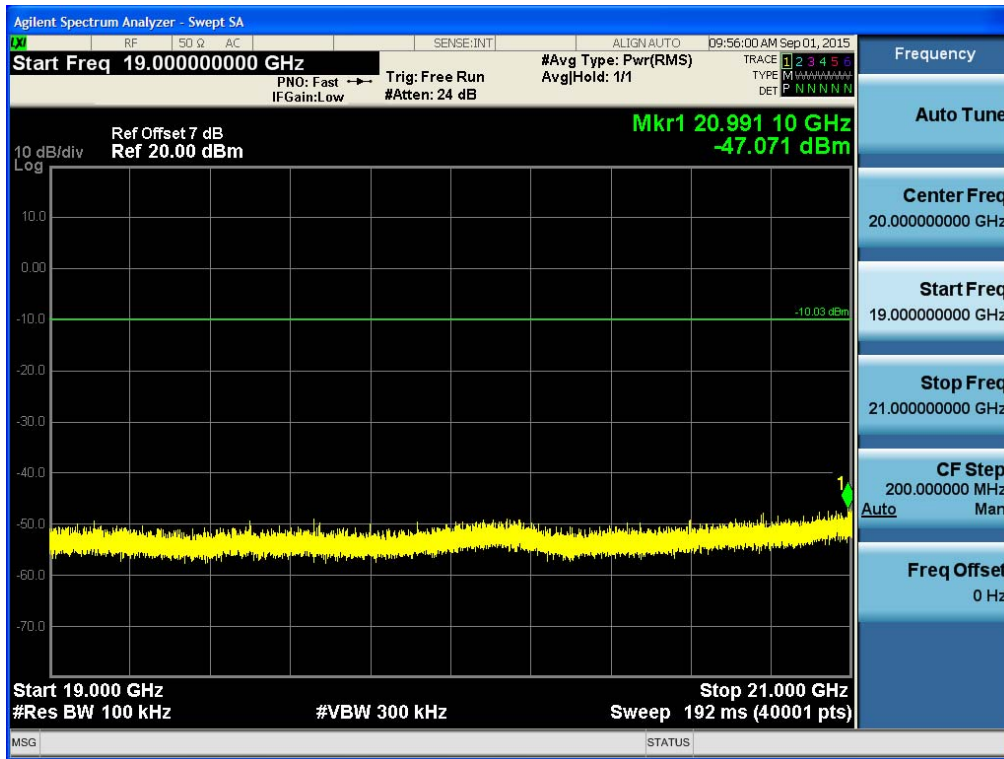
Test Plots (GFSK)- 15 GHz - 17 GHz  
Spurious Emission (Mid-CH)



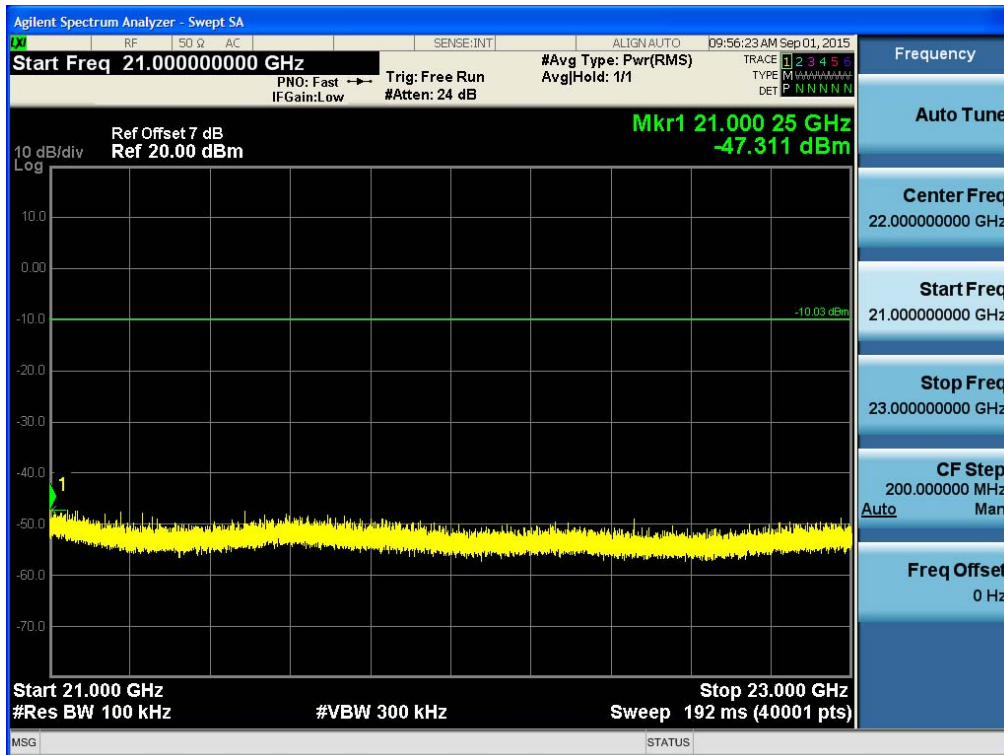
Test Plots (GFSK)- 17 GHz - 19 GHz  
Spurious Emission (Mid-CH)



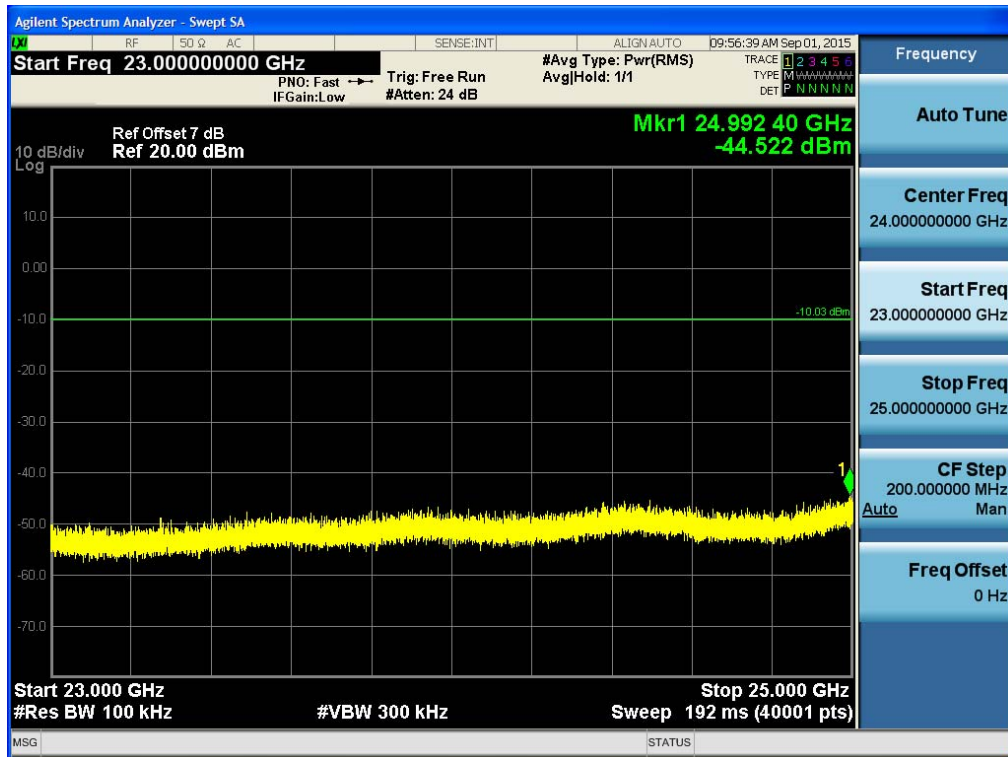
Test Plots (GFSK)- 19 GHz - 21 GHz  
Spurious Emission (Mid-CH)



Test Plots (GFSK)- 21 GHz - 23 GHz  
Spurious Emission (Mid-CH)



Test Plots (GFSK)- 23 GHz - 25 GHz  
Spurious Emission (Mid-CH)



## 8.6.2 RADIATED SPURIOUS EMISSIONS

### LIMIT : §15.205, §15.209

1. 20dBc in any 100kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

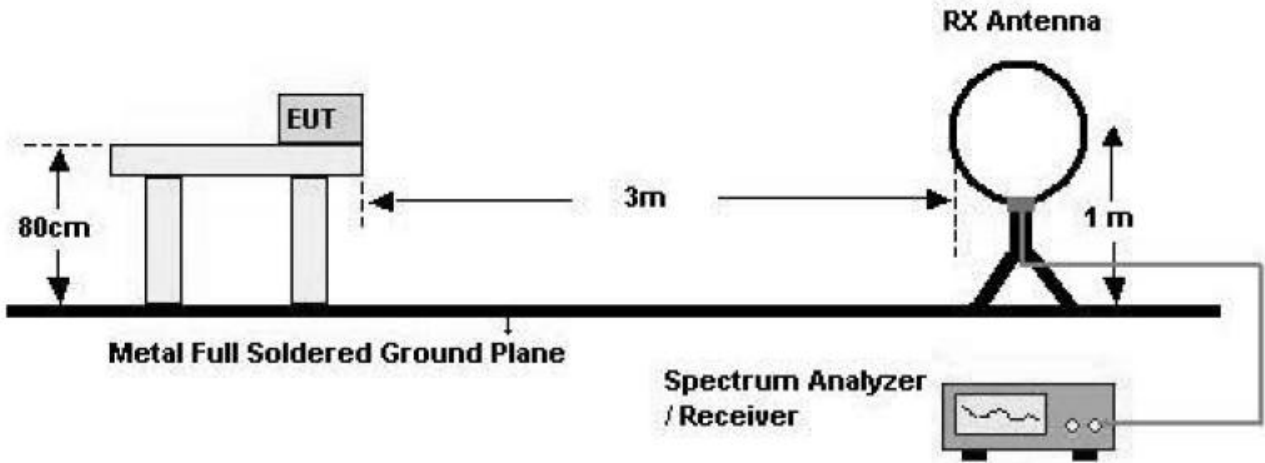
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

### Test Mode

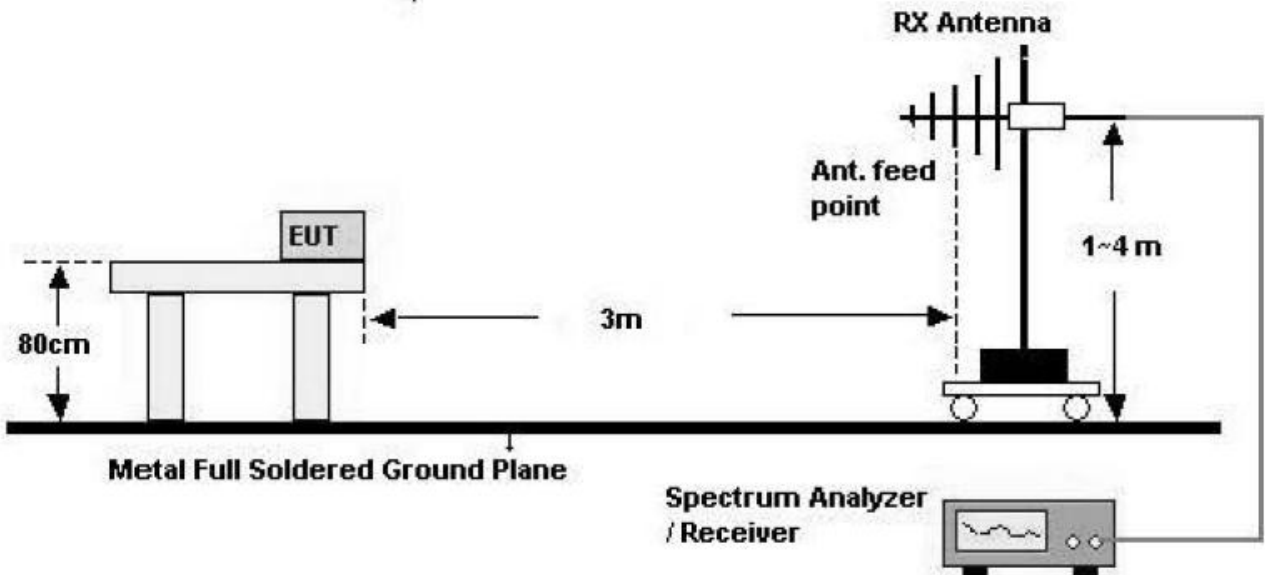
- Standalone with normal cover
- Standalone with wireless charging cover
- With wireless charging pad(WCD-110)
- With wireless charging pad(CT 06801)

### Test Configuration

#### Below 30 MHz

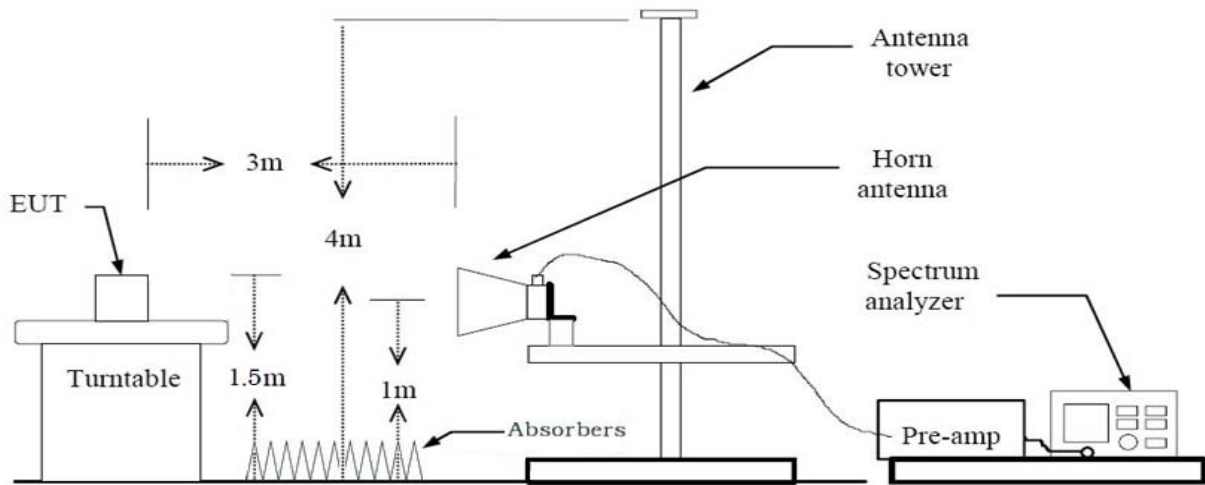


#### 30 MHz - 1 GHz





**Above 1 GHz**



**TEST PROCEDURE**

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. Spectrum Setting
  - a. Peak: 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 3 \cdot RBW$
  - b. Average: 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 1/\tau$  Hz, where  $\tau$  = pulse width in seconds.

Note :

1. We are performed the RSE and radiated band edge using standard radiated method.
2. The duty cycle factor for BT mode.

BT Mode	$T_{on}$	VBW(1/T)	The actual setting value
	(ms)	(Hz)	of VBW (Hz)
	2.895	345	1000

**TEST RESULTS**

**9 kHz – 30MHz**

**Operation Mode:** Normal Mode

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

**Notes:**

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. This test is performed with hopping off.
6. 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	dB $\mu$ V	dB /m	dB	(H/V)	dB $\mu$ V/m	dB $\mu$ V/m	dB
No Critical peaks found							

**Notes:**

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. This test is performed with hopping off.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

**Standalone with normal cover**

Above 1 GHz

Operation Mode: CH Low(GFSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	48.92	-2.16	V	46.76	73.98	27.22	PK
4804	35.37	-2.16	V	33.21	53.98	20.77	AV
7206	45.95	7.31	V	53.26	73.98	20.72	PK
7206	32.51	7.31	V	39.82	53.98	14.16	AV
4804	49.06	-2.16	H	46.9	73.98	27.08	PK
4804	35.44	-2.16	H	33.28	53.98	20.70	AV
7206	46.05	7.31	H	53.36	73.98	20.62	PK
7206	32.56	7.31	H	39.87	53.98	14.11	AV

Operation Mode: CH Low(8DPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	48.86	-2.16	V	46.70	73.98	27.28	PK
4804	35.33	-2.16	V	33.17	53.98	20.81	AV
7206	45.90	7.31	V	53.21	73.98	20.77	PK
7206	32.48	7.31	V	39.79	53.98	14.19	AV
4804	50.00	-2.16	H	47.84	73.98	26.14	PK
4804	35.41	-2.16	H	33.25	53.98	20.73	AV
7206	45.97	7.31	H	53.28	73.98	20.70	PK
7206	32.52	7.31	H	39.83	53.98	14.15	AV

Operation Mode: CH Low( $\pi/4$ DQPSK)

Frequency [MHz]	Reading DBuV	※A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	48.88	-2.16	V	46.72	73.98	27.26	PK
4804	35.34	-2.16	V	33.18	53.98	20.80	AV
7206	45.92	7.31	V	53.23	73.98	20.75	PK
7206	32.49	7.31	V	39.8	53.98	14.18	AV
4804	50.03	-2.16	H	47.87	73.98	26.11	PK
4804	35.43	-2.16	H	33.27	53.98	20.71	AV
7206	46.00	7.31	H	53.31	73.98	20.67	PK
7206	32.54	7.31	H	39.85	53.98	14.13	AV

※ A:F: ANTENNA FACTOR  
 C:L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

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 1000 MHz 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. Spectrum setting:
  - a. Peak Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. Average Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 1/\tau$  Hz, where  $\tau$  = pulse width in seconds.  
 We performed using a reduced video BW method was done with the analyzer in linear mode.
6. FYI : Duty Cycle Correction Factor (79 channel hopping)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 79 channels = 229.100 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 1$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 2.900$  ms
  - d. Duty Cycle Correction =  $20 \log (\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -30.752 dB
7. Duty Cycle Correction Factor(AFH mode – minimum channel number case - 20 channels)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 2$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 5.800$  ms

- d. Duty Cycle Correction(AFH) =  $20\log(\text{Worst Case Dwell Time}/ 100\text{ms}) \text{ dB} = -24.7314 \text{ dB}$
- e. We applied DCCF in the test result which hopping channel number is 20.
- 8. We have done Normal Mode and EDR Mode test.
- 9. This test is performed with hopping off.
- 10. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.



Operation Mode: CH Mid(GFSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	49.62	-1.95	V	47.67	73.98	26.31	PK
4882	35.93	-1.95	V	33.98	53.98	20.00	AV
7323	46.01	7.34	V	53.35	73.98	20.63	PK
7323	32.70	7.34	V	40.04	53.98	13.94	AV
4882	49.76	-1.95	H	47.81	73.98	26.17	PK
4882	35.98	-1.95	H	34.03	53.98	19.95	AV
7323	46.39	7.34	H	53.73	73.98	20.25	PK
7323	32.78	7.34	H	40.12	53.98	13.86	AV

Operation Mode: CH Mid(8DPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	49.56	-1.95	V	47.61	73.98	26.37	PK
4882	35.90	-1.95	V	33.95	53.98	20.03	AV
7323	45.94	7.34	V	53.28	73.98	20.70	PK
7323	32.67	7.34	V	40.01	53.98	13.97	AV
4882	49.71	-1.95	H	47.76	73.98	26.22	PK
4882	35.96	-1.95	H	34.01	53.98	19.97	AV
7323	46.02	7.34	H	53.36	73.98	20.62	PK
7323	32.72	7.34	H	40.06	53.98	13.92	AV

Operation Mode: CH Mid( $\pi/4$ DQPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	49.59	-1.95	V	47.64	73.98	26.34	PK
4882	35.92	-1.95	V	33.97	53.98	20.01	AV
7323	45.96	7.34	V	53.3	73.98	20.68	PK
7323	32.67	7.34	V	40.01	53.98	13.97	AV
4882	49.70	-1.95	H	47.75	73.98	26.23	PK
4882	35.96	-1.95	H	34.01	53.98	19.97	AV
7323	46.07	7.34	H	53.41	73.98	20.57	PK
7323	32.73	7.34	H	40.07	53.98	13.91	AV

\* A:F: ANTENNA FACTOR  
 C:L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

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 1000 MHz 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. Spectrum setting:
  - a. Peak Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. Average Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 1/\tau$  Hz, where  $\tau$  = pulse width in seconds.  
 We performed using a reduced video BW method was done with the analyzer in linear mode.
6. FYI : Duty Cycle Correction Factor (79 channel hopping)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 79 channels = 229.100 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 1$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 2.900$  ms
  - d. Duty Cycle Correction =  $20\log(\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -30.752 dB
7. Duty Cycle Correction Factor(AFH mode – minimum channel number case - 20 channels)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 2$

- c. Worst Case Dwell Time =  $\tau$  [ms] x  $H'$  = 5.800 ms
  - d. Duty Cycle Correction(AFH) =  $20\log$  (Worst Case Dwell Time/ 100ms) dB = -24.7314 dB
  - e. We applied DCCF in the test result which hopping channel number is 20.
8. We have done Normal Mode and EDR Mode test.
  9. This test is performed with hopping off.
  10. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Operation Mode: CH High(GFSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.33	-1.84	V	48.49	73.98	25.49	PK
4960	36.20	-1.84	V	34.36	53.98	19.62	AV
7440	46.41	7.13	V	53.54	73.98	20.44	PK
7440	32.39	7.13	V	39.52	53.98	14.46	AV
4960	50.41	-1.84	H	48.57	73.98	25.41	PK
4960	36.26	-1.84	H	34.42	53.98	19.56	AV
7440	46.52	7.13	H	53.65	73.98	20.33	PK
7440	32.43	7.13	H	39.56	53.98	14.42	AV

Operation Mode: CH High(8DPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.23	-1.84	V	48.39	73.98	25.59	PK
4960	36.15	-1.84	V	34.31	53.98	19.67	AV
7440	46.38	7.13	V	53.51	73.98	20.47	PK
7440	32.37	7.13	V	39.50	53.98	14.48	AV
4960	50.33	-1.84	H	48.49	73.98	25.49	PK
4960	36.22	-1.84	H	34.38	53.98	19.60	AV
7440	46.51	7.13	H	53.64	73.98	20.34	PK
7440	32.40	7.13	H	39.53	53.98	14.45	AV

Operation Mode: CH High ( $\pi/4$ DQPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.28	-1.84	V	48.44	73.98	25.54	PK
4960	36.17	-1.84	V	34.33	53.98	19.65	AV
7440	46.37	7.13	V	53.50	73.98	20.48	PK
7440	32.36	7.13	V	39.49	53.98	14.49	AV
4960	50.31	-1.84	H	48.47	73.98	25.51	PK
4960	36.23	-1.84	H	34.39	53.98	19.59	AV
7440	46.49	7.13	H	53.62	73.98	20.36	PK
7440	32.39	7.13	H	39.52	53.98	14.46	AV

\* A:F: ANTENNA FACTOR  
 C:L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

Notes:

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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.
- Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
- Spectrum setting:
  - Peak Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - Average Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 1/\tau$  Hz, where  $\tau$  = pulse width in seconds.  
 We performed using a reduced video BW method was done with the analyzer in linear mode.
- FYI : Duty Cycle Correction Factor (79 channel hopping)
  - Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 79 channels = 229.100 ms, where  $\tau$  = pulse width
  - $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 1$
  - Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 2.900$  ms
  - Duty Cycle Correction =  $20 \log (\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -30.752 dB
- Duty Cycle Correction Factor (AFH mode – minimum channel number case - 20 channels)
  - Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width
  - $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 2$
  - Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 5.800$  ms

d. Duty Cycle Correction(AFH) =  $20\log(\text{Worst Case Dwell Time}/ 100\text{ms}) \text{ dB} = -24.7314 \text{ dB}$

e. We applied DCCF in the test result which hopping channel number is 20.

8. We have done Normal Mode and EDR Mode test.

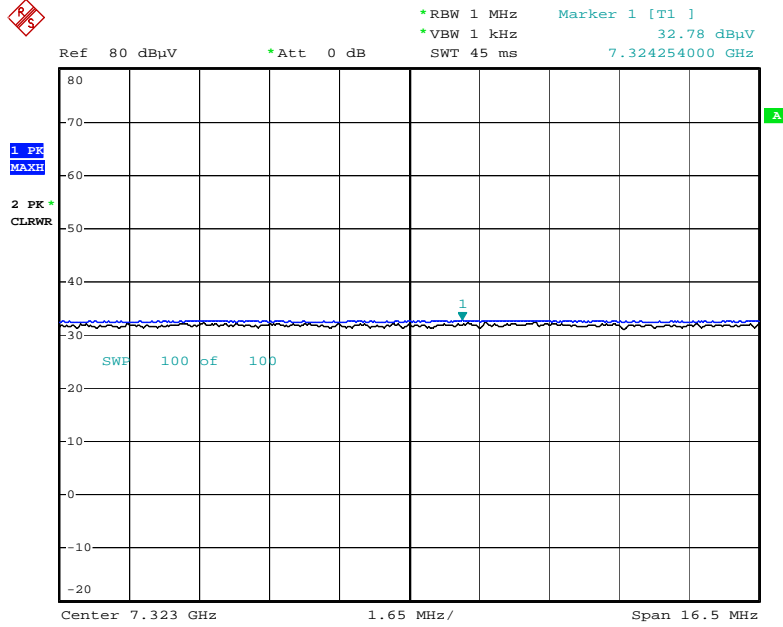
9. This test is performed with hopping off.

10. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.



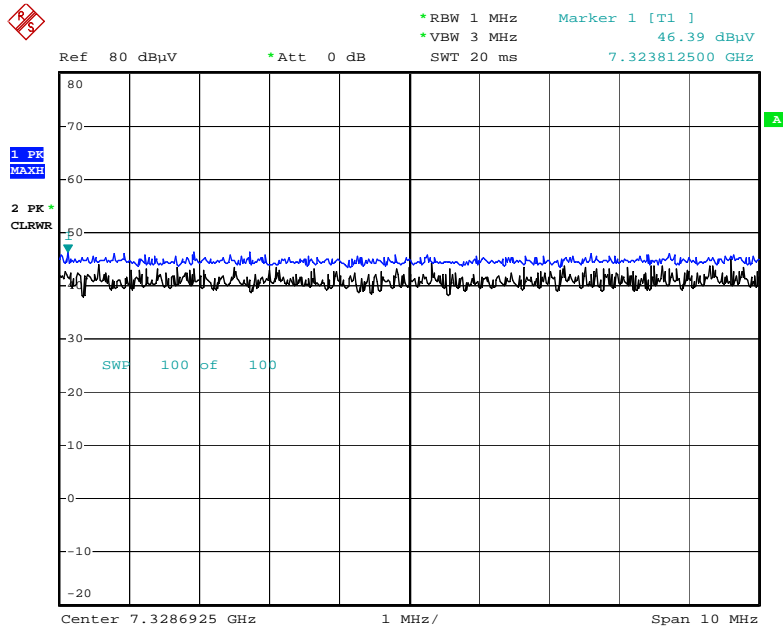
■ **RESULT PLOTS**

**Radiated Spurious Emissions plot – Average Reading (GFSK, Ch.39 3rd Harmonic)**



Date: 2.SEP.2015 06:46:50

**Radiated Spurious Emissions plot – Peak Reading (GFSK, Ch.39 3rd Harmonic)**



Date: 2.SEP.2015 06:52:54

**Note : Only the worst case plots for Radiated Spurious Emissions.**

**Standalone with wireless charging cover**

Above 1 GHz

Operation Mode: CH Low(GFSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	48.92	-2.16	V	46.76	73.98	27.22	PK
4804	35.37	-2.16	V	33.21	53.98	20.77	AV
7206	45.95	7.31	V	53.26	73.98	20.72	PK
7206	32.51	7.31	V	39.82	53.98	14.16	AV
4804	48.99	-2.16	H	46.83	73.98	27.15	PK
4804	35.43	-2.16	H	33.27	53.98	20.71	AV
7206	45.98	7.31	H	53.29	73.98	20.69	PK
7206	32.55	7.31	H	39.86	53.98	14.12	AV

Operation Mode: CH Low(8DPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	48.86	-2.16	V	46.70	73.98	27.28	PK
4804	35.33	-2.16	V	33.17	53.98	20.81	AV
7206	45.90	7.31	V	53.21	73.98	20.77	PK
7206	32.48	7.31	V	39.79	53.98	14.19	AV
4804	49.93	-2.16	H	47.77	73.98	26.21	PK
4804	35.40	-2.16	H	33.24	53.98	20.74	AV
7206	45.90	7.31	H	53.21	73.98	20.77	PK
7206	32.51	7.31	H	39.82	53.98	14.16	AV

Operation Mode: CH Low( $\pi/4$ DQPSK)

Frequency [MHz]	Reading DBuV	※A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	48.88	-2.16	V	46.72	73.98	27.26	PK
4804	35.34	-2.16	V	33.18	53.98	20.80	AV
7206	45.92	7.31	V	53.23	73.98	20.75	PK
7206	32.49	7.31	V	39.8	53.98	14.18	AV
4804	49.96	-2.16	H	47.8	73.98	26.18	PK
4804	35.42	-2.16	H	33.26	53.98	20.72	AV
7206	45.93	7.31	H	53.24	73.98	20.74	PK
7206	32.53	7.31	H	39.84	53.98	14.14	AV

※ A:F: ANTENNA FACTOR  
 C:L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

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 1000 MHz 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. Spectrum setting:
  - a. Peak Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. Average Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 1/\tau$  Hz, where  $\tau$  = pulse width in seconds.  
 We performed using a reduced video BW method was done with the analyzer in linear mode.
6. FYI : Duty Cycle Correction Factor (79 channel hopping)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 79 channels = 229.100 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 1$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 2.900$  ms
  - d. Duty Cycle Correction =  $20 \log (\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -30.752 dB
7. Duty Cycle Correction Factor (AFH mode – minimum channel number case - 20 channels)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 2$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 5.800$  ms

- d. Duty Cycle Correction(AFH) =  $20\log(\text{Worst Case Dwell Time}/ 100\text{ms}) \text{ dB} = -24.7314 \text{ dB}$
- e. We applied DCCF in the test result which hopping channel number is 20.
- 8. We have done Normal Mode and EDR Mode test.
- 9. This test is performed with hopping off.
- 10. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Operation Mode: CH Mid(GFSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	49.62	-1.95	V	47.67	73.98	26.31	PK
4882	35.93	-1.95	V	33.98	53.98	20.00	AV
7323	46.01	7.34	V	53.35	73.98	20.63	PK
7323	32.70	7.34	V	40.04	53.98	13.94	AV
4882	49.69	-1.95	H	47.74	73.98	26.24	PK
4882	35.97	-1.95	H	34.02	53.98	19.96	AV
7323	46.40	7.34	H	53.74	73.98	20.24	PK
7323	32.79	7.34	H	40.13	53.98	13.85	AV

Operation Mode: CH Mid(8DPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	49.56	-1.95	V	47.61	73.98	26.37	PK
4882	35.90	-1.95	V	33.95	53.98	20.03	AV
7323	45.94	7.34	V	53.28	73.98	20.70	PK
7323	32.67	7.34	V	40.01	53.98	13.97	AV
4882	49.64	-1.95	H	47.69	73.98	26.29	PK
4882	35.95	-1.95	H	34	53.98	19.98	AV
7323	45.95	7.34	H	53.29	73.98	20.69	PK
7323	32.71	7.34	H	40.05	53.98	13.93	AV

Operation Mode: CH Mid( $\pi/4$ DQPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	49.59	-1.95	V	47.64	73.98	26.34	PK
4882	35.92	-1.95	V	33.97	53.98	20.01	AV
7323	45.96	7.34	V	53.30	73.98	20.68	PK
7323	32.67	7.34	V	40.01	53.98	13.97	AV
4882	49.63	-1.95	H	47.68	73.98	26.30	PK
4882	35.95	-1.95	H	34.00	53.98	19.98	AV
7323	46.00	7.34	H	53.34	73.98	20.64	PK
7323	32.72	7.34	H	40.06	53.98	13.92	AV

\* A.F: ANTENNA FACTOR  
 C.L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

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 1000 MHz 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. Spectrum setting:
  - a. Peak Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. Average Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 1/\tau$  Hz, where  $\tau$  = pulse width in seconds.  
 We performed using a reduced video BW method was done with the analyzer in linear mode.
6. FYI : Duty Cycle Correction Factor (79 channel hopping)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 79 channels = 229.100 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 1$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 2.900$  ms
  - d. Duty Cycle Correction =  $20\log(\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -30.752 dB
7. Duty Cycle Correction Factor(AFH mode – minimum channel number case - 20 channels)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 2$

- c. Worst Case Dwell Time =  $\tau$  [ms] x  $H'$  = 5.800 ms
- d. Duty Cycle Correction(AFH) =  $20\log$  (Worst Case Dwell Time/ 100ms) dB = -24.7314 dB
- e. We applied DCCF in the test result which hopping channel number is 20.
- 8. We have done Normal Mode and EDR Mode test.
- 9. This test is performed with hopping off.
- 10. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Operation Mode: CH High(GFSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.33	-1.84	V	48.49	73.98	25.49	PK
4960	36.20	-1.84	V	34.36	53.98	19.62	AV
7440	46.41	7.13	V	53.54	73.98	20.44	PK
7440	32.39	7.13	V	39.52	53.98	14.46	AV
4960	50.34	-1.84	H	48.50	73.98	25.48	PK
4960	36.25	-1.84	H	34.41	53.98	19.57	AV
7440	46.45	7.13	H	53.58	73.98	20.40	PK
7440	32.42	7.13	H	39.55	53.98	14.43	AV

Operation Mode: CH High(8DPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.23	-1.84	V	48.39	73.98	25.59	PK
4960	36.15	-1.84	V	34.31	53.98	19.67	AV
7440	46.38	7.13	V	53.51	73.98	20.47	PK
7440	32.37	7.13	V	39.50	53.98	14.48	AV
4960	50.26	-1.84	H	48.42	73.98	25.56	PK
4960	36.21	-1.84	H	34.37	53.98	19.61	AV
7440	46.44	7.13	H	53.57	73.98	20.41	PK
7440	32.39	7.13	H	39.52	53.98	14.46	AV



Operation Mode: CH High ( $\pi/4$ DQPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.28	-1.84	V	48.44	73.98	25.54	PK
4960	36.17	-1.84	V	34.33	53.98	19.65	AV
7440	46.37	7.13	V	53.50	73.98	20.48	PK
7440	32.36	7.13	V	39.49	53.98	14.49	AV
4960	50.24	-1.84	H	48.40	73.98	25.58	PK
4960	36.22	-1.84	H	34.38	53.98	19.60	AV
7440	46.42	7.13	H	53.55	73.98	20.43	PK
7440	32.38	7.13	H	39.51	53.98	14.47	AV

\* A:F: ANTENNA FACTOR  
 C:L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

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 1000 MHz 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. Spectrum setting:
  - a. Peak Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. Average Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 1/\tau$  Hz, where  $\tau$  = pulse width in seconds.  
 We performed using a reduced video BW method was done with the analyzer in linear mode.
6. FYI : Duty Cycle Correction Factor (79 channel hopping)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 79 channels = 229.100 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 1$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 2.900$  ms
  - d. Duty Cycle Correction =  $20 \log (\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -30.752 dB
7. Duty Cycle Correction Factor (AFH mode – minimum channel number case - 20 channels)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 2$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 5.800$  ms

d. Duty Cycle Correction(AFH) =  $20\log(\text{Worst Case Dwell Time}/100\text{ms}) \text{ dB} = -24.7314 \text{ dB}$

e. We applied DCCF in the test result which hopping channel number is 20.

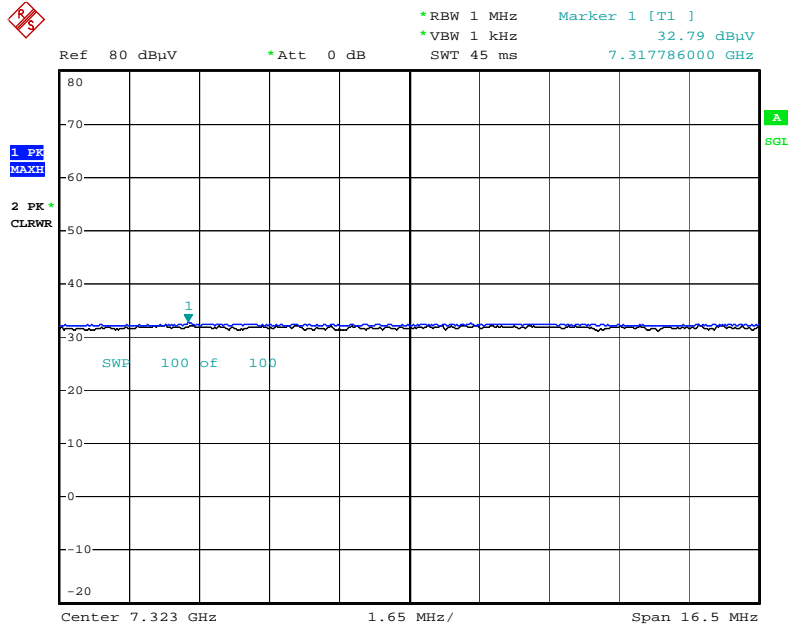
8. We have done Normal Mode and EDR Mode test.

9. This test is performed with hopping off.

10. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

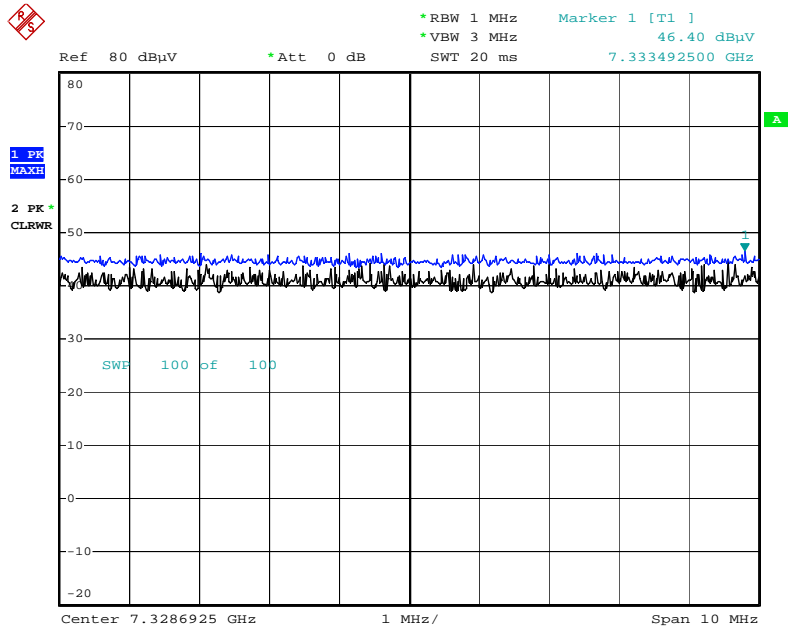
■ RESULT PLOTS

**Radiated Spurious Emissions plot – Average Reading (GFSK, Ch.39 3rd Harmonic)**



Date: 2.SEP.2015 06:49:01

**Radiated Spurious Emissions plot – Peak Reading (GFSK, Ch.39 3rd Harmonic)**



Date: 2.SEP.2015 06:53:21

**Note : Only the worst case plots for Radiated Spurious Emissions.**

**With wireless charging pad(WCD-110)**

Above 1 GHz

Operation Mode: CH Low(GFSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	48.90	-2.16	V	46.74	73.98	27.24	PK
4804	35.35	-2.16	V	33.19	53.98	20.79	AV
7206	45.93	7.31	V	53.24	73.98	20.74	PK
7206	32.49	7.31	V	39.80	53.98	14.18	AV
4804	49.01	-2.16	H	46.85	73.98	27.13	PK
4804	35.41	-2.16	H	33.25	53.98	20.73	AV
7206	46.00	7.31	H	53.31	73.98	20.67	PK
7206	32.53	7.31	H	39.84	53.98	14.14	AV

Operation Mode: CH Low(8DPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	48.84	-2.16	V	46.68	73.98	27.30	PK
4804	35.31	-2.16	V	33.15	53.98	20.83	AV
7206	45.88	7.31	V	53.19	73.98	20.79	PK
7206	32.46	7.31	V	39.77	53.98	14.21	AV
4804	49.95	-2.16	H	47.79	73.98	26.19	PK
4804	35.38	-2.16	H	33.22	53.98	20.76	AV
7206	45.92	7.31	H	53.23	73.98	20.75	PK
7206	32.49	7.31	H	39.80	53.98	14.18	AV

Operation Mode: CH Low( $\pi/4$ DQPSK)

Frequency [MHz]	Reading DBuV	※A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	48.86	-2.16	V	46.70	73.98	27.28	PK
4804	35.32	-2.16	V	33.16	53.98	20.82	AV
7206	45.90	7.31	V	53.21	73.98	20.77	PK
7206	32.47	7.31	V	39.78	53.98	14.20	AV
4804	49.98	-2.16	H	47.82	73.98	26.16	PK
4804	35.40	-2.16	H	33.24	53.98	20.74	AV
7206	45.95	7.31	H	53.26	73.98	20.72	PK
7206	32.51	7.31	H	39.82	53.98	14.16	AV

※ A:F: ANTENNA FACTOR  
 C:L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

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 1000 MHz 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. Spectrum setting:
  - a. Peak Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. Average Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 1/\tau$  Hz, where  $\tau$  = pulse width in seconds.  
 We performed using a reduced video BW method was done with the analyzer in linear mode.
6. FYI : Duty Cycle Correction Factor (79 channel hopping)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 79 channels = 229.100 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 1$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 2.900$  ms
  - d. Duty Cycle Correction =  $20 \log (\text{Worst Case Dwell Time} / 100\text{ms}) \text{ dB} = -30.752 \text{ dB}$
7. Duty Cycle Correction Factor(AFH mode – minimum channel number case - 20 channels)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 2$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 5.800$  ms

- d. Duty Cycle Correction(AFH) =  $20\log(\text{Worst Case Dwell Time}/ 100\text{ms}) \text{ dB} = -24.7314 \text{ dB}$
- e. We applied DCCF in the test result which hopping channel number is 20.
- 8. We have done Normal Mode and EDR Mode test.
- 9. This test is performed with hopping off.
- 10. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Operation Mode: CH Mid(GFSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	49.60	-1.95	V	47.65	73.98	26.33	PK
4882	35.91	-1.95	V	33.96	53.98	20.02	AV
7323	45.99	7.34	V	53.33	73.98	20.65	PK
7323	32.68	7.34	V	40.02	53.98	13.96	AV
4882	49.71	-1.95	H	47.76	73.98	26.22	PK
4882	35.95	-1.95	H	34	53.98	19.98	AV
7323	46.27	7.34	H	53.61	73.98	20.37	PK
7323	32.72	7.34	H	40.06	53.98	13.92	AV

Operation Mode: CH Mid(8DPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	49.54	-1.95	V	47.59	73.98	26.39	PK
4882	35.88	-1.95	V	33.93	53.98	20.05	AV
7323	45.92	7.34	V	53.26	73.98	20.72	PK
7323	32.65	7.34	V	39.99	53.98	13.99	AV
4882	49.66	-1.95	H	47.71	73.98	26.27	PK
4882	35.93	-1.95	H	33.98	53.98	20.00	AV
7323	45.97	7.34	H	53.31	73.98	20.67	PK
7323	32.69	7.34	H	40.03	53.98	13.95	AV

Operation Mode: CH Mid( $\pi/4$ DQPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	49.57	-1.95	V	47.62	73.98	26.36	PK
4882	35.90	-1.95	V	33.95	53.98	20.03	AV
7323	45.94	7.34	V	53.28	73.98	20.70	PK
7323	32.65	7.34	V	39.99	53.98	13.99	AV
4882	49.65	-1.95	H	47.70	73.98	26.28	PK
4882	35.93	-1.95	H	33.98	53.98	20.00	AV
7323	46.02	7.34	H	53.36	73.98	20.62	PK
7323	32.70	7.34	H	40.04	53.98	13.94	AV

\* A.F: ANTENNA FACTOR  
 C.L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

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 1000 MHz 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. Spectrum setting:
  - a. Peak Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. Average Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 1/\tau$  Hz, where  $\tau$  = pulse width in seconds.  
 We performed using a reduced video BW method was done with the analyzer in linear mode.
6. FYI : Duty Cycle Correction Factor (79 channel hopping)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 79 channels = 229.100 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 1$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 2.900$  ms
  - d. Duty Cycle Correction =  $20\log(\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -30.752 dB
7. Duty Cycle Correction Factor(AFH mode – minimum channel number case - 20 channels)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 2$



- c. Worst Case Dwell Time =  $\tau$  [ms] x  $H'$  = 5.800 ms
  - d. Duty Cycle Correction(AFH) =  $20\log$  (Worst Case Dwell Time/ 100ms) dB = -24.7314 dB
  - e. We applied DCCF in the test result which hopping channel number is 20.
8. We have done Normal Mode and EDR Mode test.
  9. This test is performed with hopping off.
  10. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Operation Mode: CH High(GFSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.31	-1.84	V	48.47	73.98	25.51	PK
4960	36.18	-1.84	V	34.34	53.98	19.64	AV
7440	46.39	7.13	V	53.52	73.98	20.46	PK
7440	32.37	7.13	V	39.50	53.98	14.48	AV
4960	50.36	-1.84	H	48.52	73.98	25.46	PK
4960	36.23	-1.84	H	34.39	53.98	19.59	AV
7440	46.47	7.13	H	53.60	73.98	20.38	PK
7440	32.40	7.13	H	39.53	53.98	14.45	AV

Operation Mode: CH High(8DPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.21	-1.84	V	48.37	73.98	25.61	PK
4960	36.13	-1.84	V	34.29	53.98	19.69	AV
7440	46.36	7.13	V	53.49	73.98	20.49	PK
7440	32.35	7.13	V	39.48	53.98	14.50	AV
4960	50.28	-1.84	H	48.44	73.98	25.54	PK
4960	36.19	-1.84	H	34.35	53.98	19.63	AV
7440	46.46	7.13	H	53.59	73.98	20.39	PK
7440	32.37	7.13	H	39.50	53.98	14.48	AV

Operation Mode: CH High ( $\pi/4$ DQPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.26	-1.84	V	48.42	73.98	25.56	PK
4960	36.15	-1.84	V	34.31	53.98	19.67	AV
7440	46.35	7.13	V	53.48	73.98	20.50	PK
7440	32.34	7.13	V	39.47	53.98	14.51	AV
4960	50.26	-1.84	H	48.42	73.98	25.56	PK
4960	36.20	-1.84	H	34.36	53.98	19.62	AV
7440	46.44	7.13	H	53.57	73.98	20.41	PK
7440	32.36	7.13	H	39.49	53.98	14.49	AV

\* A:F: ANTENNA FACTOR  
 C:L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

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 1000 MHz 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. Spectrum setting:
  - a. Peak Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. Average Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 1/\tau$  Hz, where  $\tau$  = pulse width in seconds.  
 We performed using a reduced video BW method was done with the analyzer in linear mode.
6. FYI : Duty Cycle Correction Factor (79 channel hopping)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 79 channels = 229.100 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 1$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 2.900$  ms
  - d. Duty Cycle Correction =  $20 \log (\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -30.752 dB
7. Duty Cycle Correction Factor (AFH mode – minimum channel number case - 20 channels)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 2$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 5.800$  ms

d. Duty Cycle Correction(AFH) =  $20\log(\text{Worst Case Dwell Time}/ 100\text{ms}) \text{ dB} = -24.7314 \text{ dB}$

e. We applied DCCF in the test result which hopping channel number is 20.

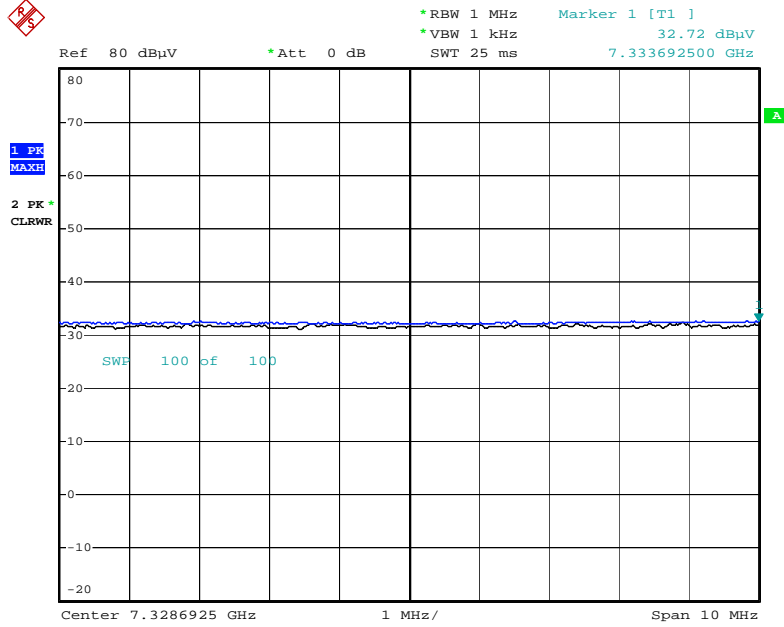
8. We have done Normal Mode and EDR Mode test.

9. This test is performed with hopping off.

10. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

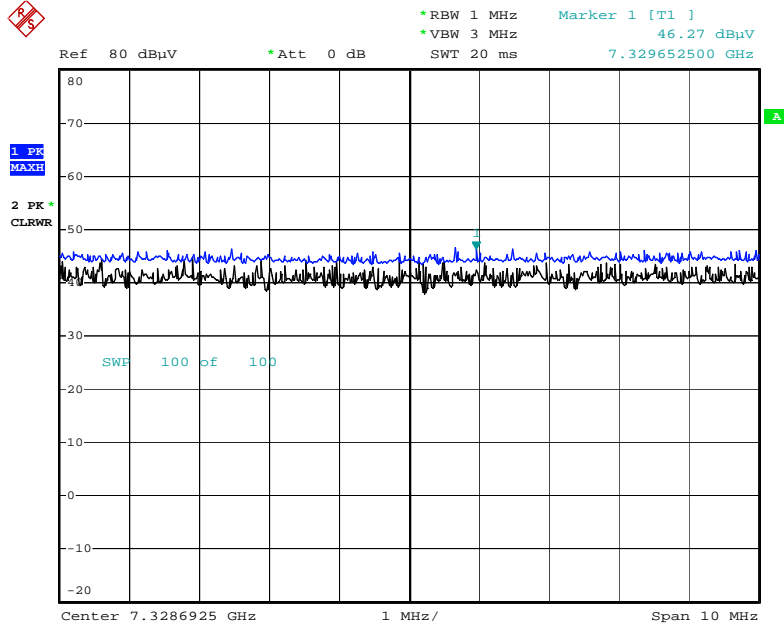
RESULT PLOTS

Radiated Spurious Emissions plot – Average Reading (GFSK, Ch.39 3rd Harmonic)



Date: 2.SEP.2015 06:52:24

Radiated Spurious Emissions plot – Peak Reading (GFSK, Ch.39 3rd Harmonic)



Date: 2.SEP.2015 06:53:42

Note : Only the worst case plots for Radiated Spurious Emissions.

**With wireless charging pad(CT 06801)**

Above 1 GHz

Operation Mode: CH Low(GFSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	48.89	-2.16	V	46.73	73.98	27.25	PK
4804	35.34	-2.16	V	33.18	53.98	20.80	AV
7206	45.92	7.31	V	53.23	73.98	20.75	PK
7206	32.48	7.31	V	39.79	53.98	14.19	AV
4804	48.96	-2.16	H	46.80	73.98	27.18	PK
4804	35.40	-2.16	H	33.24	53.98	20.74	AV
7206	45.95	7.31	H	53.26	73.98	20.72	PK
7206	32.52	7.31	H	39.83	53.98	14.15	AV

Operation Mode: CH Low(8DPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	48.83	-2.16	V	46.67	73.98	27.31	PK
4804	35.30	-2.16	V	33.14	53.98	20.84	AV
7206	45.87	7.31	V	53.18	73.98	20.80	PK
7206	32.45	7.31	V	39.76	53.98	14.22	AV
4804	49.90	-2.16	H	47.74	73.98	26.24	PK
4804	35.37	-2.16	H	33.21	53.98	20.77	AV
7206	45.87	7.31	H	53.18	73.98	20.80	PK
7206	32.48	7.31	H	39.79	53.98	14.19	AV

Operation Mode: CH Low( $\pi/4$ DQPSK)

Frequency [MHz]	Reading DBuV	※A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	48.85	-2.16	V	46.69	73.98	27.29	PK
4804	35.31	-2.16	V	33.15	53.98	20.83	AV
7206	45.89	7.31	V	53.20	73.98	20.78	PK
7206	32.46	7.31	V	39.77	53.98	14.21	AV
4804	49.93	-2.16	H	47.77	73.98	26.21	PK
4804	35.39	-2.16	H	33.23	53.98	20.75	AV
7206	45.90	7.31	H	53.21	73.98	20.77	PK
7206	32.50	7.31	H	39.81	53.98	14.17	AV

※ A:F: ANTENNA FACTOR  
 C:L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

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 1000 MHz 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. Spectrum setting:
  - a. Peak Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. Average Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 1/\tau$  Hz, where  $\tau$  = pulse width in seconds.  
 We performed using a reduced video BW method was done with the analyzer in linear mode.
6. FYI : Duty Cycle Correction Factor (79 channel hopping)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 79 channels = 229.100 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 1$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 2.900$  ms
  - d. Duty Cycle Correction =  $20 \log (\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -30.752 dB
7. Duty Cycle Correction Factor (AFH mode – minimum channel number case - 20 channels)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 2$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 5.800$  ms

- d. Duty Cycle Correction(AFH) =  $20\log(\text{Worst Case Dwell Time}/ 100\text{ms}) \text{ dB} = -24.7314 \text{ dB}$
- e. We applied DCCF in the test result which hopping channel number is 20.
- 8. We have done Normal Mode and EDR Mode test.
- 9. This test is performed with hopping off.
- 10. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.



Operation Mode: CH Mid(GFSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	49.59	-1.95	V	47.64	73.98	26.34	PK
4882	35.90	-1.95	V	33.95	53.98	20.03	AV
7323	45.98	7.34	V	53.32	73.98	20.66	PK
7323	32.67	7.34	V	40.01	53.98	13.97	AV
4882	49.66	-1.95	H	47.71	73.98	26.27	PK
4882	35.94	-1.95	H	33.99	53.98	19.99	AV
7323	46.01	7.34	H	53.35	73.98	20.63	PK
7323	32.72	7.34	H	40.06	53.98	13.92	AV

Operation Mode: CH Mid(8DPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	49.53	-1.95	V	47.58	73.98	26.40	PK
4882	35.87	-1.95	V	33.92	53.98	20.06	AV
7323	45.91	7.34	V	53.25	73.98	20.73	PK
7323	32.64	7.34	V	39.98	53.98	14.00	AV
4882	49.61	-1.95	H	47.66	73.98	26.32	PK
4882	35.92	-1.95	H	33.97	53.98	20.01	AV
7323	45.92	7.34	H	53.26	73.98	20.72	PK
7323	32.68	7.34	H	40.02	53.98	13.96	AV

Operation Mode: CH Mid( $\pi/4$ DQPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	49.56	-1.95	V	47.61	73.98	26.37	PK
4882	35.89	-1.95	V	33.94	53.98	20.04	AV
7323	45.93	7.34	V	53.27	73.98	20.71	PK
7323	32.64	7.34	V	39.98	53.98	14.00	AV
4882	49.60	-1.95	H	47.65	73.98	26.33	PK
4882	35.92	-1.95	H	33.97	53.98	20.01	AV
7323	45.97	7.34	H	53.31	73.98	20.67	PK
7323	32.69	7.34	H	40.03	53.98	13.95	AV

\* A.F: ANTENNA FACTOR  
 C.L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

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 1000 MHz 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. Spectrum setting:
  - a. Peak Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. Average Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 1/\tau$  Hz, where  $\tau$  = pulse width in seconds.  
 We performed using a reduced video BW method was done with the analyzer in linear mode.
6. FYI : Duty Cycle Correction Factor (79 channel hopping)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 79 channels = 229.100 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 1$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 2.900$  ms
  - d. Duty Cycle Correction =  $20\log(\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -30.752 dB
7. Duty Cycle Correction Factor(AFH mode – minimum channel number case - 20 channels)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 2$

- c. Worst Case Dwell Time =  $\tau$  [ms] x  $H'$  = 5.800 ms
- d. Duty Cycle Correction(AFH) =  $20\log$  (Worst Case Dwell Time/ 100ms) dB = -24.7314 dB
- e. We applied DCCF in the test result which hopping channel number is 20.
- 8. We have done Normal Mode and EDR Mode test.
- 9. This test is performed with hopping off.
- 10. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Operation Mode: CH High(GFSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.30	-1.84	V	48.46	73.98	25.52	PK
4960	36.17	-1.84	V	34.33	53.98	19.65	AV
7440	46.38	7.13	V	53.51	73.98	20.47	PK
7440	32.36	7.13	V	39.49	53.98	14.49	AV
4960	50.31	-1.84	H	48.47	73.98	25.51	PK
4960	36.22	-1.84	H	34.38	53.98	19.60	AV
7440	46.42	7.13	H	53.55	73.98	20.43	PK
7440	32.39	7.13	H	39.52	53.98	14.46	AV

Operation Mode: CH High(8DPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.20	-1.84	V	48.36	73.98	25.62	PK
4960	36.12	-1.84	V	34.28	53.98	19.70	AV
7440	46.35	7.13	V	53.48	73.98	20.50	PK
7440	32.34	7.13	V	39.47	53.98	14.51	AV
4960	50.23	-1.84	H	48.39	73.98	25.59	PK
4960	36.18	-1.84	H	34.34	53.98	19.64	AV
7440	46.41	7.13	H	53.54	73.98	20.44	PK
7440	32.36	7.13	H	39.49	53.98	14.49	AV

Operation Mode: CH High ( $\pi/4$ DQPSK)

Frequency [MHz]	Reading DBuV	*A.F+CL-AMP GAIN [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.25	-1.84	V	48.41	73.98	25.57	PK
4960	36.14	-1.84	V	34.30	53.98	19.68	AV
7440	46.34	7.13	V	53.47	73.98	20.51	PK
7440	32.33	7.13	V	39.46	53.98	14.52	AV
4960	50.21	-1.84	H	48.37	73.98	25.61	PK
4960	36.19	-1.84	H	34.35	53.98	19.63	AV
7440	46.39	7.13	H	53.52	73.98	20.46	PK
7440	32.35	7.13	H	39.48	53.98	14.50	AV

\* A:F: ANTENNA FACTOR  
 C:L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

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 1000 MHz 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. Spectrum setting:
  - a. Peak Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. Average Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 1/\tau$  Hz, where  $\tau$  = pulse width in seconds.  
 We performed using a reduced video BW method was done with the analyzer in linear mode.
6. FYI : Duty Cycle Correction Factor (79 channel hopping)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 79 channels = 229.100 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 1$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 2.900$  ms
  - d. Duty Cycle Correction =  $20 \log (\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -30.752 dB
7. Duty Cycle Correction Factor (AFH mode – minimum channel number case - 20 channels)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 2$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 5.800$  ms

d. Duty Cycle Correction(AFH) =  $20\log(\text{Worst Case Dwell Time}/ 100\text{ms}) \text{ dB} = -24.7314 \text{ dB}$

e. We applied DCCF in the test result which hopping channel number is 20.

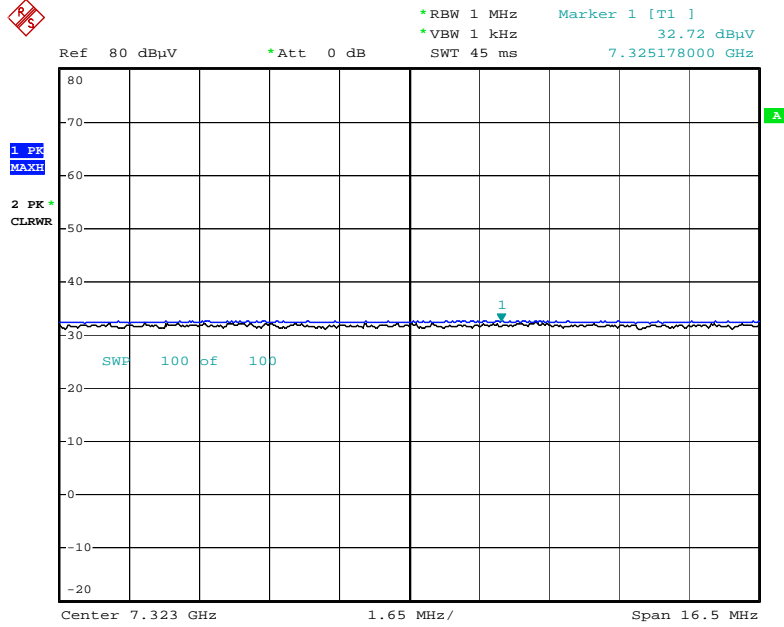
8. We have done Normal Mode and EDR Mode test.

9. This test is performed with hopping off.

10. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

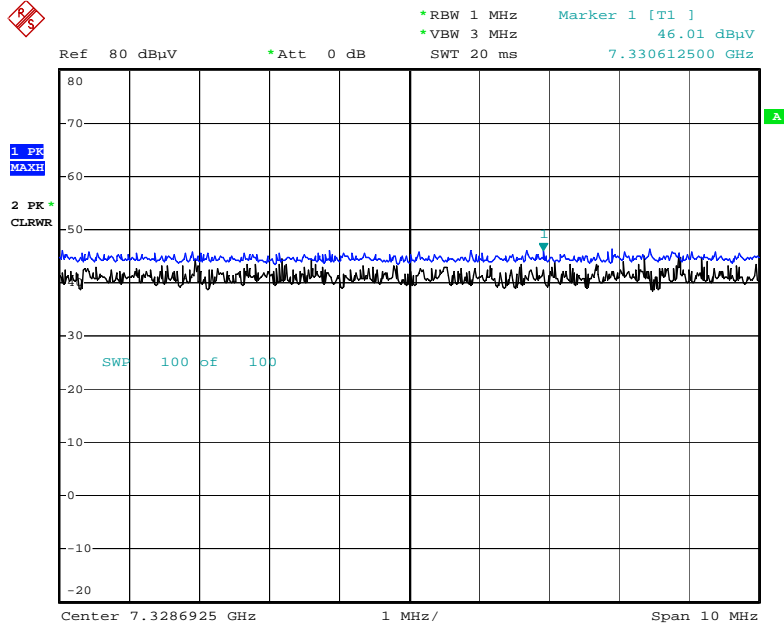
■ **RESULT PLOTS**

**Radiated Spurious Emissions plot – Average Reading (GFSK, Ch.39 3rd Harmonic)**



Date: 2.SEP.2015 06:48:19

**Radiated Spurious Emissions plot – Peak Reading (GFSK, Ch.39 3rd Harmonic)**



Date: 2.SEP.2015 06:54:07

**Note : Only the worst case plots for Radiated Spurious Emissions.**

### 8.6.3 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)).

#### Standalone with normal cover

Operation Mode	Normal(GFSK)
Operating Frequency	2402 MHz, 2480 MHz
Channel No	CH 0, CH 78

Frequency [MHz]	Reading dBuV	※ A.F.+CL [dB]	Ant. Pol. [H/V]	Duty Cycle Correction [dB]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	25.54	31.47	H	0	57.01	73.98	16.97	PK
2390.0	13.20	31.47	H	-24.73	19.93	53.98	34.05	AV
2390.0	25.13	31.47	V	0	56.60	73.98	17.38	PK
2390.0	12.75	31.47	V	-24.73	19.48	53.98	34.50	AV
2483.5	29.03	31.46	H	0	60.49	73.98	13.49	PK
2483.5	23.80	31.46	H	-24.73	30.53	53.98	23.45	AV
2483.5	28.54	31.46	V	0	60.00	73.98	13.98	PK
2483.5	23.11	31.46	V	-24.73	29.84	53.98	24.14	AV



Operation Mode	EDR(8DPSK)
Operating Frequency	2402 MHz , 2480 MHz
Channel No	CH 0, CH 78

Frequency [MHz]	Reading dBuV	※ A.F.+CL [dB]	Ant. Pol. [H/V]	Duty Cycle Correction [dB]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	24.77	31.47	H	0	56.24	73.98	17.74	PK
2390.0	12.15	31.47	H	-24.73	18.88	53.98	35.10	AV
2390.0	24.55	31.47	V	0	56.02	73.98	17.96	PK
2390.0	12.06	31.47	V	-24.73	18.79	53.98	35.19	AV
2483.5	28.29	31.46	H	0	59.75	73.98	14.23	PK
2483.5	20.78	31.46	H	-24.73	27.51	53.98	26.47	AV
2483.5	27.53	31.46	V	0	58.99	73.98	14.99	PK
2483.5	20.05	31.46	V	-24.73	26.78	53.98	27.20	AV

Operation Mode	EDR( $\pi$ /4DQPSK)
Operating Frequency	2402 MHz , 2480 MHz
Channel No	CH 0, CH 78

Frequency [MHz]	Reading dBuV	※ A.F.+CL [dB]	Ant. Pol. [H/V]	Duty Cycle Correction [dB]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	24.84	31.47	H	0	56.31	73.98	17.67	PK
2390.0	12.20	31.47	H	-24.73	18.93	53.98	35.05	AV
2390.0	24.69	31.47	V	0	56.16	73.98	17.82	PK
2390.0	12.10	31.47	V	-24.73	18.83	53.98	35.15	AV
2483.5	28.34	31.46	H	0	59.80	73.98	14.18	PK
2483.5	20.80	31.46	H	-24.73	27.53	53.98	26.45	AV
2483.5	27.65	31.46	V	0	59.11	73.98	14.87	PK
2483.5	20.10	31.46	V	-24.73	26.83	53.98	27.15	AV

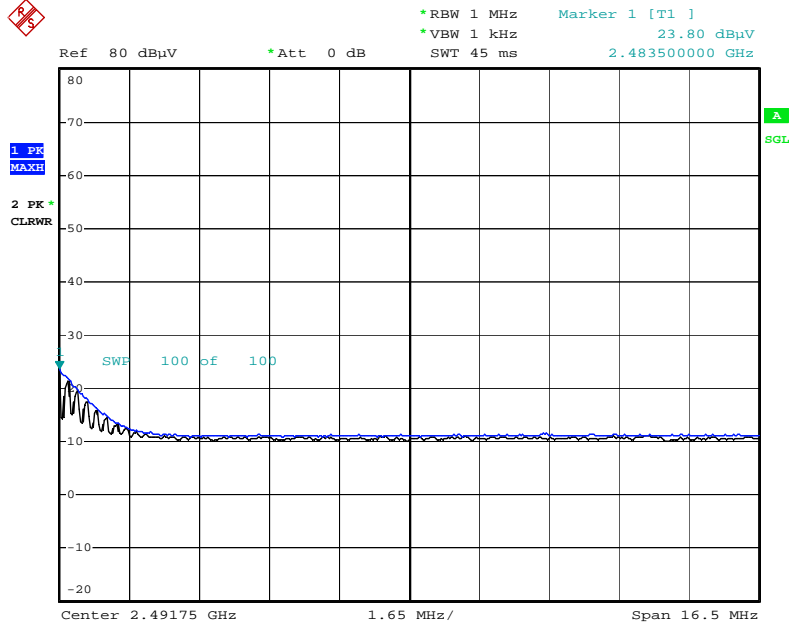
※ A:F: ANTENNA FACTOR  
 C:L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

**Notes:**

1. Frequency range of measurement = 2483.5 MHz ~ 2500 MHz
2. Total = Reading Value + Antenna Factor + Cable Loss + Duty Cycle Correction Factor
3. Spectrum setting:
  - a. Peak Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. Average Setting 1 GHz – 25 GHz, RBW = 1 MHz, VBW  $\geq 1/\tau$  Hz, where  $\tau$  = pulse width in seconds.  
We performed using a reduced video BW method was done with the analyzer in linear mode.
4. FYI : Duty Cycle Correction Factor (79 channel hopping)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 79 channels = 229.100 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 1$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 2.900$  ms
  - d. Duty Cycle Correction =  $20\log(\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -30.752 dB
5. Duty Cycle Correction Factor(AFH mode – minimum channel number case - 20 channels)
  - a. Time to cycle through all channels=  $\Delta t = \tau$  [ms] x 20 channels = 58.00 ms, where  $\tau$  = pulse width
  - b.  $100 \text{ ms} / \Delta t$  [ms] =  $H \rightarrow$  Round up to next highest integer,  $H' = 2$
  - c. Worst Case Dwell Time =  $\tau$  [ms] x  $H' = 5.800$  ms
  - d. Duty Cycle Correction(AFH) =  $20\log(\text{Worst Case Dwell Time} / 100\text{ms})$  dB = -24.7314 dB
  - e. We applied DCCF in the test result which hopping channel number is 20.
6. We have done Normal Mode, EDR Mode.
7. This test is performed with hopping off.
8. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

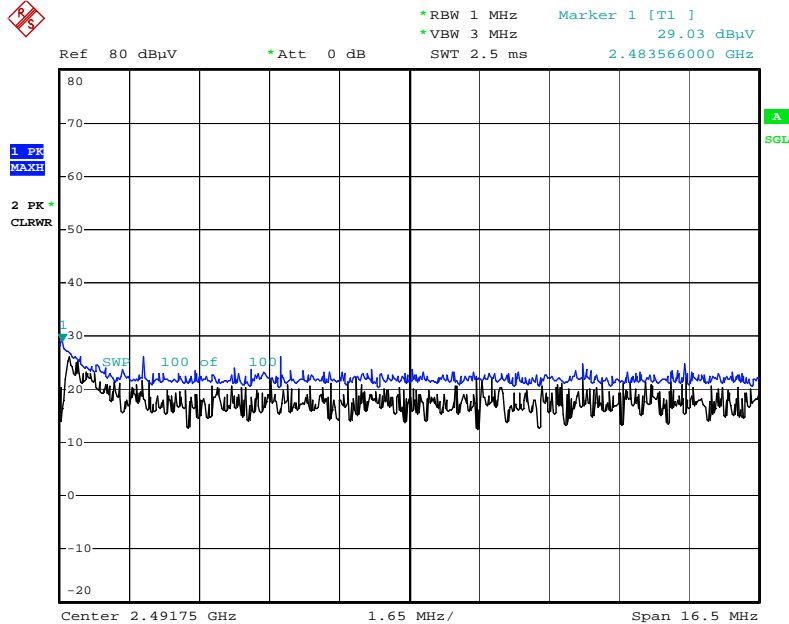
■ **RESULT PLOTS**

**Radiated Restricted Band Edges plot – Average Reading (GFSK, Ch.78)**



Date: 2.SEP.2015 06:10:54

**Radiated Restricted Band Edges plot – Peak Reading (GFSK, Ch.78)**



Date: 2.SEP.2015 06:08:19

**Note : Only the worst case plots for Radiated Restricted Band Edges.**

**Standalone with wireless charging cover**

Operation Mode                      Normal(GFSK)  
Operating Frequency                2402 MHz, 2480 MHz  
Channel No                            CH 0, CH 78

Frequency [MHz]	Reading dBuV	* A.F.+CL [dB]	Ant. Pol. [H/V]	Duty Cycle Correction [dB]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	25.78	31.47	H	0	57.25	73.98	16.73	PK
2390.0	12.25	31.47	H	-24.73	18.98	53.98	35.00	AV
2390.0	25.32	31.47	V	0	56.79	73.98	17.19	PK
2390.0	12.17	31.47	V	-24.73	18.90	53.98	35.08	AV
2483.5	28.16	31.46	H	0	59.62	73.98	14.36	PK
2483.5	23.59	31.46	H	-24.73	30.32	53.98	23.66	AV
2483.5	27.34	31.46	V	0	58.80	73.98	15.18	PK
2483.5	22.88	31.46	V	-24.73	29.61	53.98	24.37	AV

Operation Mode EDR(8DPSK)  
 Operating Frequency 2402 MHz , 2480 MHz  
 Channel No CH 0, CH 78

Frequency [MHz]	Reading dBuV	※ A.F.+CL [dB]	Ant. Pol. [H/V]	Duty Cycle Correction [dB]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	24.81	31.47	H	0	56.28	73.98	17.70	PK
2390.0	12.18	31.47	H	-24.73	18.91	53.98	35.07	AV
2390.0	24.79	31.47	V	0	56.26	73.98	17.72	PK
2390.0	12.05	31.47	V	-24.73	18.78	53.98	35.20	AV
2483.5	25.98	31.46	H	0	57.44	73.98	16.54	PK
2483.5	20.19	31.46	H	-24.73	26.92	53.98	27.06	AV
2483.5	25.78	31.46	V	0	57.24	73.98	16.74	PK
2483.5	19.68	31.46	V	-24.73	26.41	53.98	27.57	AV

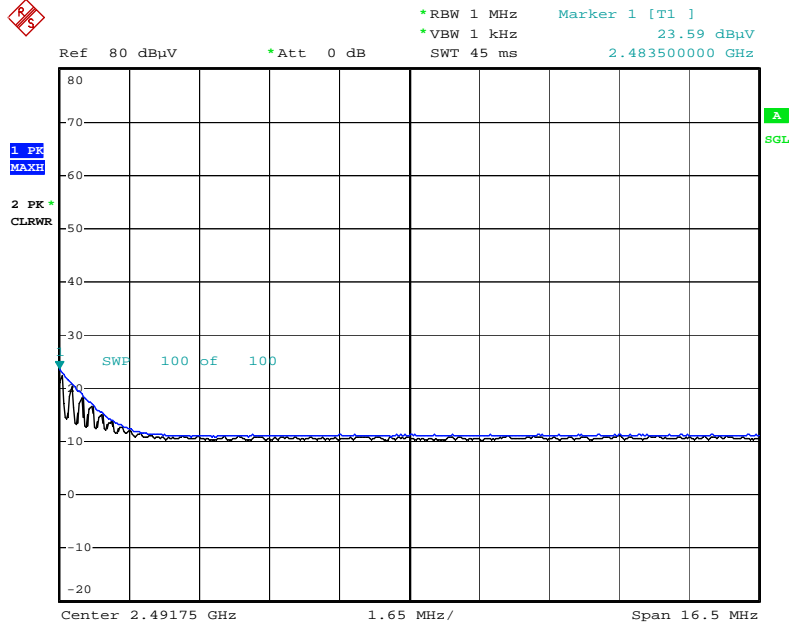
Operation Mode EDR( $\pi$ /4DQPSK)  
 Operating Frequency 2402 MHz , 2480 MHz  
 Channel No CH 0, CH 78

Frequency [MHz]	Reading dBuV	※ A.F.+CL [dB]	Ant. Pol. [H/V]	Duty Cycle Correction [dB]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	24.93	31.47	H	0	56.40	73.98	17.58	PK
2390.0	12.21	31.47	H	-24.73	18.94	53.98	35.04	AV
2390.0	25.01	31.47	V	0	56.48	73.98	17.50	PK
2390.0	12.18	31.47	V	-24.73	18.91	53.98	35.07	AV
2483.5	26.11	31.46	H	0	57.57	73.98	16.41	PK
2483.5	20.21	31.46	H	-24.73	26.94	53.98	27.04	AV
2483.5	25.84	31.46	V	0	57.30	73.98	16.68	PK
2483.5	19.74	31.46	V	-24.73	26.47	53.98	27.51	AV

※ A:F: ANTENNA FACTOR  
 C:L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

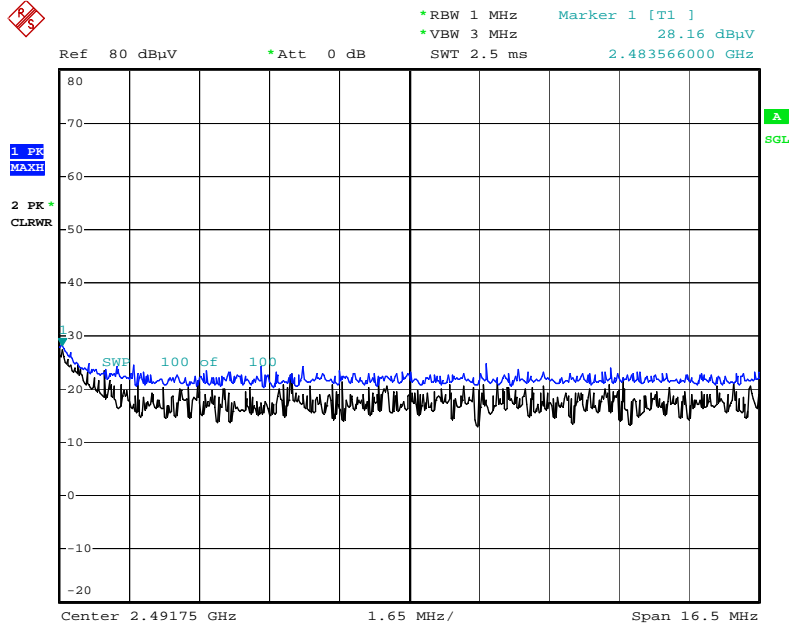
■ **RESULT PLOTS**

**Radiated Restricted Band Edges plot – Average Reading (GFSK, Ch.78)**



Date: 2.SEP.2015 06:11:24

**Radiated Restricted Band Edges plot – Peak Reading (GFSK, Ch.78)**



Date: 2.SEP.2015 06:13:02

**Note : Only the worst case plots for Radiated Restricted Band Edges.**

### With wireless charging pad(WCD-110)

Operation Mode	Normal(GFSK)
Operating Frequency	2402 MHz, 2480 MHz
Channel No	CH 0, CH 78

Frequency [MHz]	Reading dBuV	* A.F.+CL [dB]	Ant. Pol. [H/V]	Duty Cycle Correction [dB]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	24.88	31.47	H	0	56.35	73.98	17.63	PK
2390.0	12.20	31.47	H	-24.73	18.93	53.98	35.05	AV
2390.0	24.68	31.47	V	0	56.15	73.98	17.83	PK
2390.0	12.14	31.47	V	-24.73	18.87	53.98	35.11	AV
2483.5	30.20	31.46	H	0	61.66	73.98	12.32	PK
2483.5	26.54	31.46	H	-24.73	33.27	53.98	20.71	AV
2483.5	26.43	31.46	V	0	57.89	73.98	16.09	PK
2483.5	21.53	31.46	V	-24.73	28.26	53.98	25.72	AV

Operation Mode	EDR(8DPSK)
Operating Frequency	2402 MHz , 2480 MHz
Channel No	CH 0, CH 78

Frequency [MHz]	Reading dBuV	※ A.F.+CL [dB]	Ant. Pol. [H/V]	Duty Cycle Correction [dB]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	24.68	31.47	H	0	56.15	73.98	17.83	PK
2390.0	12.12	31.47	H	-24.73	18.85	53.98	35.13	AV
2390.0	24.43	31.47	V	0	55.90	73.98	18.08	PK
2390.0	12.06	31.47	V	-24.73	18.79	53.98	35.19	AV
2483.5	27.68	31.46	H	0	59.14	73.98	14.84	PK
2483.5	22.41	31.46	H	-24.73	29.14	53.98	24.84	AV
2483.5	25.68	31.46	V	0	57.14	73.98	16.84	PK
2483.5	18.90	31.46	V	-24.73	25.63	53.98	28.35	AV

Operation Mode	EDR( $\pi$ /4DQPSK)
Operating Frequency	2402 MHz , 2480 MHz
Channel No	CH 0, CH 78

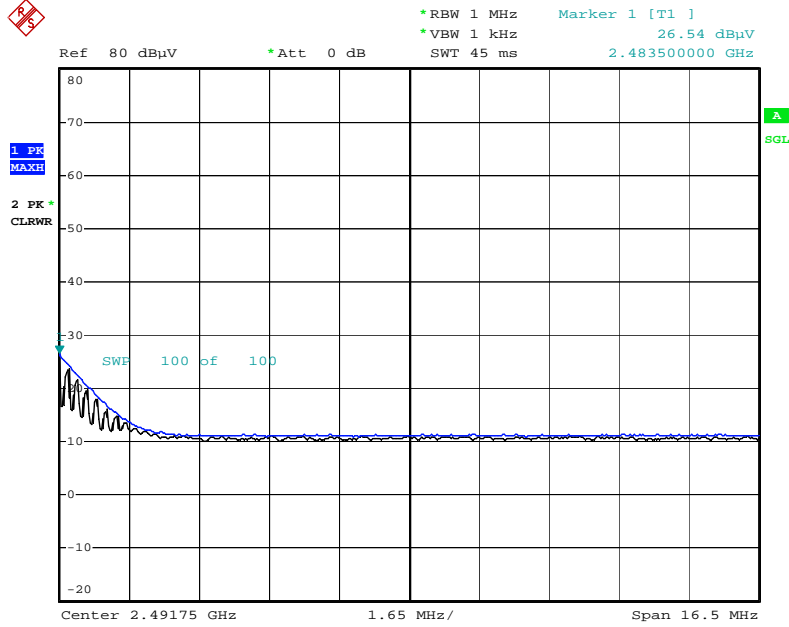
Frequency [MHz]	Reading dBuV	※ A.F.+CL [dB]	Ant. Pol. [H/V]	Duty Cycle Correction [dB]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	24.70	31.47	H	0	56.17	73.98	17.81	PK
2390.0	12.13	31.47	H	-24.73	18.86	53.98	35.12	AV
2390.0	24.54	31.47	V	0	56.01	73.98	17.97	PK
2390.0	12.08	31.47	V	-24.73	18.81	53.98	35.17	AV
2483.5	27.75	31.46	H	0	59.21	73.98	14.77	PK
2483.5	22.45	31.46	H	-24.73	29.18	53.98	24.80	AV
2483.5	25.73	31.46	V	0	57.19	73.98	16.79	PK
2483.5	18.95	31.46	V	-24.73	25.68	53.98	28.30	AV

※ A:F: ANTENNA FACTOR  
 C:L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN



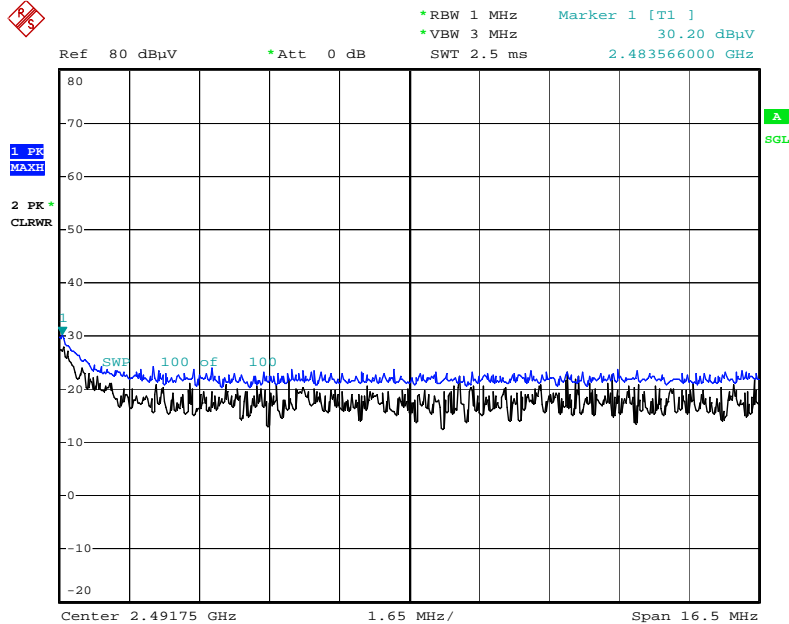
■ **RESULT PLOTS**

**Radiated Restricted Band Edges plot – Average Reading (GFSK, Ch.78)**



Date: 2.SEP.2015 06:16:10

**Radiated Restricted Band Edges plot – Peak Reading (GFSK, Ch.78)**



Date: 2.SEP.2015 06:13:42

**Note : Only the worst case plots for Radiated Restricted Band Edges.**



Operation Mode	EDR(8DPSK)
Operating Frequency	2402 MHz , 2480 MHz
Channel No	CH 0, CH 78

Frequency [MHz]	Reading dBuV	※ A.F.+CL [dB]	Ant. Pol. [H/V]	Duty Cycle Correction [dB]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	24.89	31.47	H	0	56.36	73.98	17.62	PK
2390.0	12.16	31.47	H	-24.73	18.89	53.98	35.09	AV
2390.0	25.13	31.47	V	0	56.60	73.98	17.38	PK
2390.0	12.21	31.47	V	-24.73	18.94	53.98	35.04	AV
2483.5	25.16	31.46	H	0	56.62	73.98	17.36	PK
2483.5	17.40	31.46	H	-24.73	24.13	53.98	29.85	AV
2483.5	25.43	31.46	V	0	56.89	73.98	17.09	PK
2483.5	17.76	31.46	V	-24.73	24.49	53.98	29.49	AV

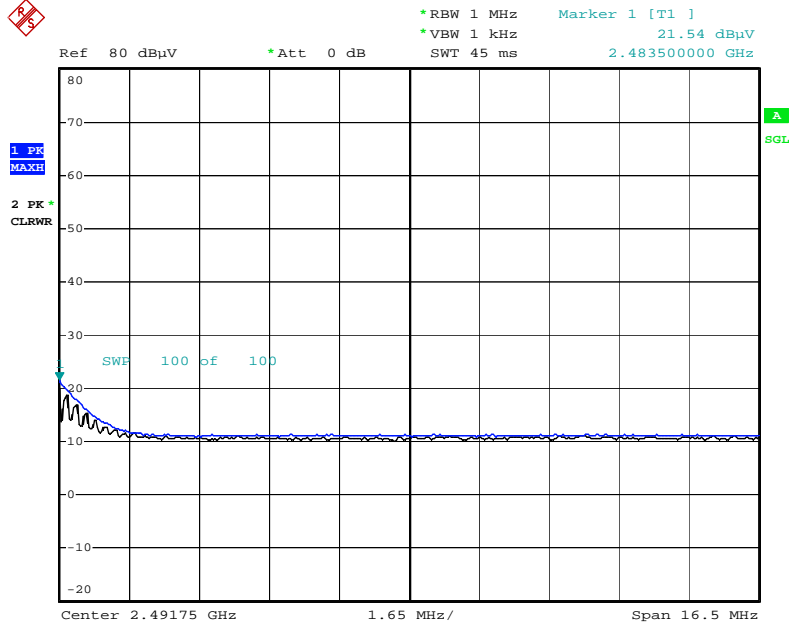
Operation Mode	EDR( $\pi$ /4DQPSK)
Operating Frequency	2402 MHz , 2480 MHz
Channel No	CH 0, CH 78

Frequency [MHz]	Reading dBuV	※ A.F.+CL [dB]	Ant. Pol. [H/V]	Duty Cycle Correction [dB]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	25.01	31.47	H	0	56.48	73.98	17.50	PK
2390.0	12.18	31.47	H	-24.73	18.91	53.98	35.07	AV
2390.0	25.24	31.47	V	0	56.71	73.98	17.27	PK
2390.0	12.24	31.47	V	-24.73	18.97	53.98	35.01	AV
2483.5	25.21	31.46	H	0	56.67	73.98	17.31	PK
2483.5	17.43	31.46	H	-24.73	24.16	53.98	29.82	AV
2483.5	25.50	31.46	V	0	56.96	73.98	17.02	PK
2483.5	17.80	31.46	V	-24.73	24.53	53.98	29.45	AV

※ A:F: ANTENNA FACTOR  
 C:L: CABLE LOSS  
 AMP GAIN: AMPLIFIER GAIN

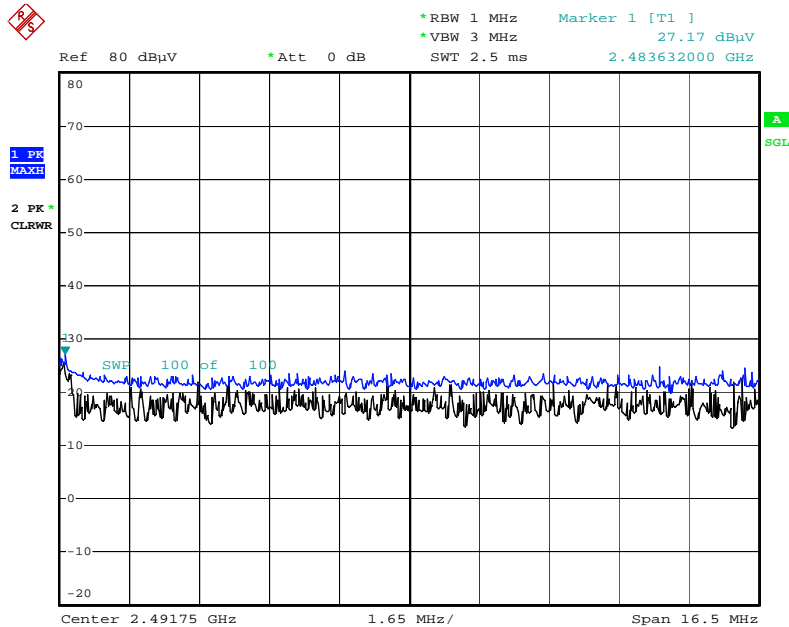
■ RESULT PLOTS

**Radiated Restricted Band Edges plot – Average Reading (GFSK, Ch.78)**



Date: 2.SEP.2015 06:16:47

**Radiated Restricted Band Edges plot – Peak Reading (GFSK, Ch.78)**



Date: 2.SEP.2015 06:17:12

**Note : Only the worst case plots for Radiated Restricted Band Edges.**

## 8.7 POWERLINE CONDUCTED EMISSIONS

### LIMIT

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 microvolt (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:

Frequency Range (MHz)	Limits (dBµV)	
	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.

### Sample Calculation

Quasi-peak(Final Result) = Reading Value + Correction Factor

RESULT PLOTS

Standalone with normal cover

Conducted Emissions (Line 1)

EMI Auto Test(10)

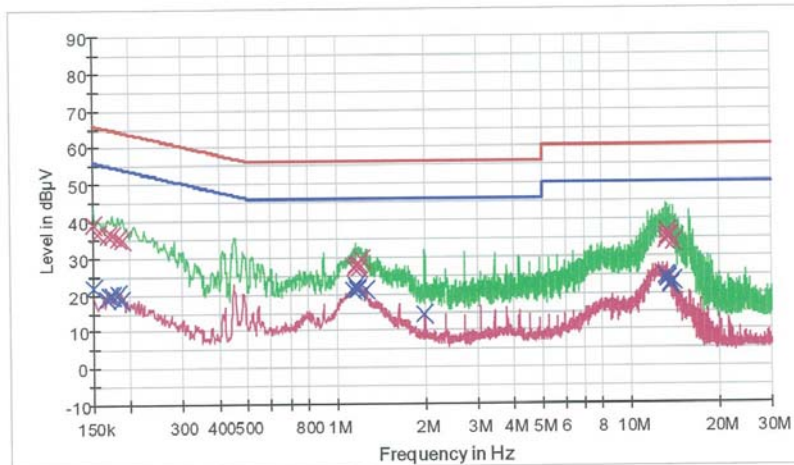
1 / 2

### HCT TEST Report

Common Information

EUT: LG-H960  
 Manufacturer: LG  
 Test Site: SHIELD ROOM  
 Operating Conditions: BT MODE  
 Operator Name: KS KANG

FCC CLASS B



— FCCCLASS B\_QP      — FCCCLASS B\_AV      — Preview Result 1-PK\*  
— Preview Result 2-AVG      x Final Result 1-QPK      x Final Result 2-CAV

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	39.3	9.000	Off	N	9.6	26.7	66.0
0.156000	36.6	9.000	Off	N	9.6	29.1	65.7
0.168000	36.2	9.000	Off	N	9.6	28.9	65.1
0.174000	36.2	9.000	Off	N	9.6	28.6	64.8
0.182000	35.3	9.000	Off	N	9.6	29.1	64.4
0.188000	34.9	9.000	Off	N	9.6	29.2	64.1
1.162000	26.8	9.000	Off	N	9.7	29.2	56.0
1.162000	27.9	9.000	Off	N	9.7	28.1	56.0
1.174000	27.8	9.000	Off	N	9.7	28.2	56.0
1.192000	28.2	9.000	Off	N	9.7	27.8	56.0
1.196000	26.9	9.000	Off	N	9.7	29.1	56.0
1.212000	29.3	9.000	Off	N	9.7	26.7	56.0
13.180000	34.0	9.000	Off	N	10.1	26.0	60.0
13.218000	36.8	9.000	Off	N	10.1	23.2	60.0
13.250000	35.5	9.000	Off	N	10.1	24.5	60.0
13.254000	35.1	9.000	Off	N	10.1	24.9	60.0

9/1/2015

9:17:33

EMI Auto Test(10)

2 / 2

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
13.608000	35.5	9.000	Off	N	10.1	24.5	60.0
13.962000	33.9	9.000	Off	N	10.1	26.1	60.0

**Final Result 2**

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	21.8	9.000	Off	N	9.6	34.2	56.0
0.166000	19.0	9.000	Off	N	9.6	36.2	55.2
0.170000	20.0	9.000	Off	N	9.6	35.0	55.0
0.174000	19.8	9.000	Off	N	9.6	35.0	54.8
0.182000	20.2	9.000	Off	N	9.6	34.2	54.4
0.186000	18.6	9.000	Off	N	9.6	35.6	54.2
1.136000	21.0	9.000	Off	N	9.7	25.0	46.0
1.162000	22.3	9.000	Off	N	9.7	23.7	46.0
1.172000	21.2	9.000	Off	N	9.7	24.8	46.0
1.182000	21.3	9.000	Off	N	9.7	24.7	46.0
1.266000	21.2	9.000	Off	N	9.7	24.8	46.0
1.992000	14.4	9.000	Off	N	9.7	31.6	46.0
13.176000	24.3	9.000	Off	N	10.1	25.7	50.0
13.244000	24.2	9.000	Off	N	10.1	25.8	50.0
13.250000	23.7	9.000	Off	N	10.1	26.3	50.0
13.604000	22.2	9.000	Off	N	10.1	27.8	50.0
13.608000	22.0	9.000	Off	N	10.1	28.0	50.0
13.880000	23.2	9.000	Off	N	10.1	26.8	50.0

**Conducted Emissions (Line 2)**

EMI Auto Test(10)

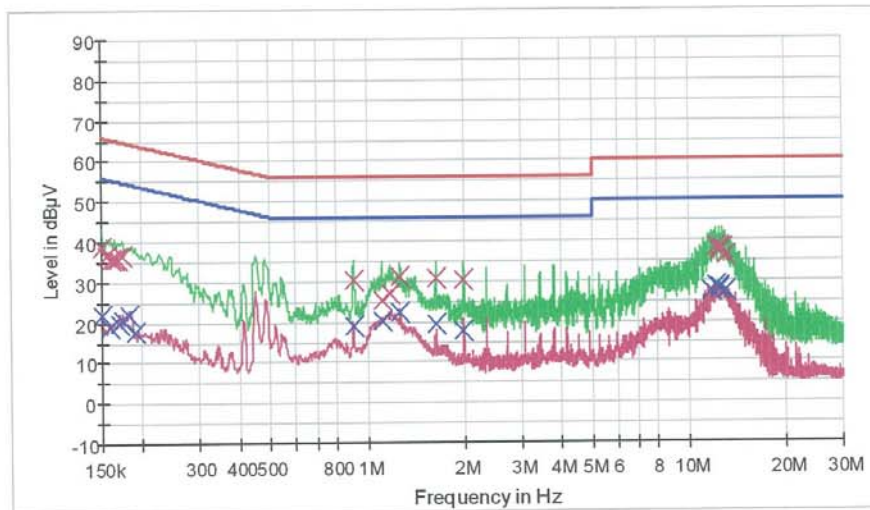
1 / 2

**HCT TEST Report**

**Common Information**

EUT: LG-H960  
 Manufacturer: LG  
 Test Site: SHIELD ROOM  
 Operating Conditions: BT MODE  
 Operator Name: KS KANG

FCC CLASS B



— FCC CLASS B\_QP     
 — FCC CLASS B\_AV     
 — Preview Result 1-PK+  
— Preview Result 2-AVG     
 x Final Result 1-QPK     
 x Final Result 2-CAV

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	38.7	9.000	Off	L1	9.6	27.3	66.0
0.156000	36.8	9.000	Off	L1	9.6	28.9	65.7
0.160000	35.9	9.000	Off	L1	9.6	29.6	65.5
0.164000	35.9	9.000	Off	L1	9.6	29.4	65.3
0.168000	36.0	9.000	Off	L1	9.6	29.1	65.1
0.174000	36.5	9.000	Off	L1	9.6	28.3	64.8
0.906000	30.1	9.000	Off	L1	9.7	25.9	56.0
1.108000	25.2	9.000	Off	L1	9.7	30.8	56.0
1.172000	27.2	9.000	Off	L1	9.7	28.8	56.0
1.264000	31.1	9.000	Off	L1	9.7	24.9	56.0
1.630000	30.6	9.000	Off	L1	9.7	25.4	56.0
1.990000	30.5	9.000	Off	L1	9.7	25.5	56.0
12.078000	38.5	9.000	Off	L1	10.0	21.5	60.0
12.110000	38.2	9.000	Off	L1	10.0	21.8	60.0
12.382000	37.1	9.000	Off	L1	10.0	22.9	60.0
12.388000	37.7	9.000	Off	L1	10.0	22.3	60.0

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9:27:05



EMI Auto Test(10)

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Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
12.656000	37.9	9.000	Off	L1	10.1	22.1	60.0
12.956000	36.4	9.000	Off	L1	10.1	23.6	60.0

**Final Result 2**

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	21.9	9.000	Off	L1	9.6	34.1	56.0
0.158000	19.2	9.000	Off	L1	9.6	36.4	55.6
0.170000	19.8	9.000	Off	L1	9.6	35.2	55.0
0.174000	20.5	9.000	Off	L1	9.6	34.3	54.8
0.182000	22.0	9.000	Off	L1	9.6	32.4	54.4
0.190000	17.7	9.000	Off	L1	9.6	36.3	54.0
0.906000	19.0	9.000	Off	L1	9.7	27.0	46.0
1.108000	20.1	9.000	Off	L1	9.7	25.9	46.0
1.264000	22.4	9.000	Off	L1	9.7	23.6	46.0
1.628000	19.3	9.000	Off	L1	9.7	26.7	46.0
1.988000	17.6	9.000	Off	L1	9.7	28.4	46.0
1.992000	17.8	9.000	Off	L1	9.7	28.2	46.0
11.764000	27.4	9.000	Off	L1	10.0	22.6	50.0
11.778000	27.4	9.000	Off	L1	10.0	22.6	50.0
12.078000	28.5	9.000	Off	L1	10.0	21.5	50.0
12.382000	28.2	9.000	Off	L1	10.0	21.8	50.0
12.388000	28.0	9.000	Off	L1	10.0	22.0	50.0
12.956000	27.4	9.000	Off	L1	10.1	22.6	50.0

**Standalone with wireless charging cover**

**Conducted Emissions (Line 1)**

BT 2.4G\_N\_ChargeCase

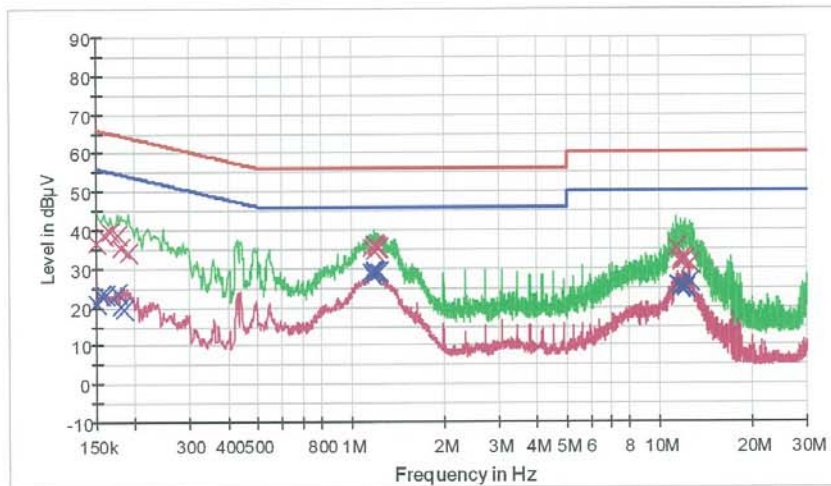
1 / 2

## HCT TEST Report

### Common Information

EUT: LG-H960  
 Manufacturer: LG  
 Test Site: SHIELD ROOM  
 Operating Conditions: BT MODE (WIRELESS CHARGE CASE)  
 Operator Name: KS KANG

FCC CLASS B



— FCCCLASS B\_OP     
 — FCCCLASS B\_AV     
 — Preview Result 1-PK+  
— Preview Result 2-AVG     
 X Final Result 1-CPK     
 X Final Result 2-CAV

### Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	36.6	9.000	Off	N	9.6	29.4	66.0
0.158000	38.9	9.000	Off	N	9.6	26.7	65.6
0.166000	39.7	9.000	Off	N	9.6	25.5	65.2
0.176000	38.9	9.000	Off	N	9.6	25.8	64.7
0.180000	35.5	9.000	Off	N	9.6	29.0	64.5
0.190000	34.3	9.000	Off	N	9.6	29.7	64.0
1.166000	35.3	9.000	Off	N	9.7	20.7	56.0
1.190000	36.3	9.000	Off	N	9.7	19.7	56.0
1.196000	34.4	9.000	Off	N	9.7	21.6	56.0
1.210000	36.0	9.000	Off	N	9.7	20.0	56.0
1.222000	35.5	9.000	Off	N	9.7	20.5	56.0
1.232000	35.4	9.000	Off	N	9.7	20.6	56.0
11.388000	35.6	9.000	Off	N	10.0	24.4	60.0
11.680000	32.5	9.000	Off	N	10.0	27.5	60.0
11.738000	31.5	9.000	Off	N	10.0	28.5	60.0
12.054000	32.0	9.000	Off	N	10.0	28.0	60.0

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4:18:10

BT 2.4G\_N\_ChargeCase

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Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
12.066000	32.6	9.000	Off	N	10.0	27.4	60.0
12.602000	31.4	9.000	Off	N	10.0	28.6	60.0

**Final Result 2**

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	21.0	9.000	Off	N	9.6	35.0	56.0
0.156000	23.1	9.000	Off	N	9.6	32.6	55.7
0.160000	23.3	9.000	Off	N	9.6	32.2	55.5
0.176000	23.8	9.000	Off	N	9.6	30.9	54.7
0.180000	20.1	9.000	Off	N	9.6	34.5	54.5
0.184000	19.5	9.000	Off	N	9.6	34.8	54.3
1.166000	29.2	9.000	Off	N	9.7	16.8	46.0
1.180000	28.3	9.000	Off	N	9.7	17.7	46.0
1.186000	29.2	9.000	Off	N	9.7	16.8	46.0
1.190000	29.7	9.000	Off	N	9.7	16.3	46.0
1.210000	29.2	9.000	Off	N	9.7	16.8	46.0
1.238000	29.0	9.000	Off	N	9.7	17.0	46.0
11.448000	25.8	9.000	Off	N	10.0	24.2	50.0
11.680000	25.4	9.000	Off	N	10.0	24.6	50.0
11.738000	24.9	9.000	Off	N	10.0	25.1	50.0
12.066000	24.8	9.000	Off	N	10.0	25.2	50.0
12.114000	25.4	9.000	Off	N	10.0	24.6	50.0
12.602000	26.6	9.000	Off	N	10.0	23.4	50.0

**Conducted Emissions (Line 2)**

BT 2.4G\_H\_ChargeCase

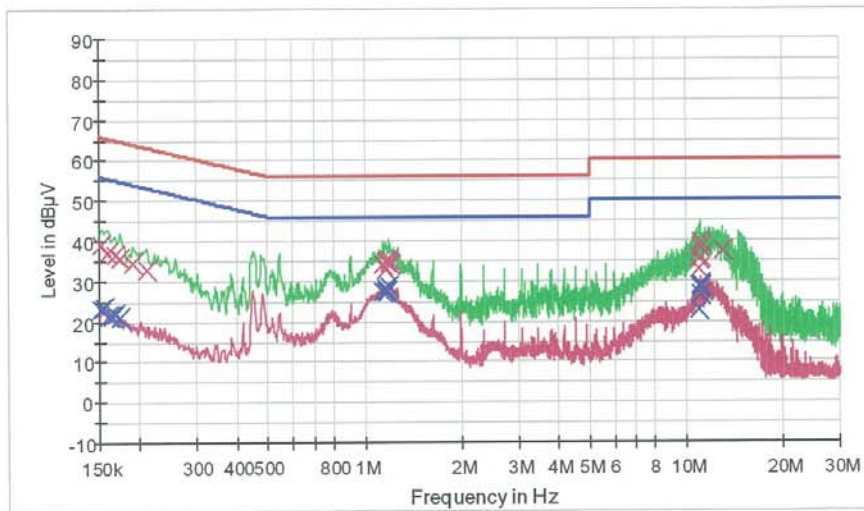
1 / 2

**HCT TEST Report**

**Common Information**

EUT: LG-H960  
 Manufacturer: LG  
 Test Site: SHIELD ROOM  
 Operating Conditions: BT MODE (WIRELESS CHARGE CASE)  
 Operator Name: KS KANG

FCC CLASS B



— FCCCLASS B\_QP      — FCCCLASS B\_AV      — Preview Result 1-PK+  
— Preview Result 2-AVG      x Final Result 1-QPK      x Final Result 2-CAV

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.152000	39.4	9.000	Off	L1	9.6	26.5	65.9
0.158000	37.0	9.000	Off	L1	9.6	28.6	65.6
0.168000	36.6	9.000	Off	L1	9.6	28.5	65.1
0.174000	35.9	9.000	Off	L1	9.6	28.9	64.8
0.190000	34.6	9.000	Off	L1	9.6	29.4	64.0
0.210000	32.9	9.000	Off	L1	9.6	30.3	63.2
1.140000	33.9	9.000	Off	L1	9.7	22.1	56.0
1.160000	32.7	9.000	Off	L1	9.7	23.3	56.0
1.164000	34.9	9.000	Off	L1	9.7	21.1	56.0
1.188000	35.3	9.000	Off	L1	9.7	20.7	56.0
1.192000	34.4	9.000	Off	L1	9.7	21.6	56.0
1.198000	34.1	9.000	Off	L1	9.7	21.9	56.0
10.928000	33.1	9.000	Off	L1	10.0	26.9	60.0
10.988000	35.4	9.000	Off	L1	10.0	24.6	60.0
11.062000	35.7	9.000	Off	L1	10.0	24.3	60.0
11.072000	39.5	9.000	Off	L1	10.0	20.5	60.0

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BT 2.4G\_H\_ChargeCase

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Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
11.078000	38.4	9.000	Off	L1	10.0	21.6	60.0
12.994000	37.3	9.000	Off	L1	10.1	22.7	60.0

**Final Result 2**

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.152000	23.3	9.000	Off	L1	9.6	32.6	55.9
0.156000	23.8	9.000	Off	L1	9.6	31.9	55.7
0.160000	21.5	9.000	Off	L1	9.6	34.0	55.5
0.164000	21.4	9.000	Off	L1	9.6	33.9	55.3
0.168000	21.9	9.000	Off	L1	9.6	33.2	55.1
0.174000	21.2	9.000	Off	L1	9.6	33.6	54.8
1.140000	27.5	9.000	Off	L1	9.7	18.5	46.0
1.164000	28.4	9.000	Off	L1	9.7	17.6	46.0
1.168000	27.3	9.000	Off	L1	9.7	18.7	46.0
1.180000	27.2	9.000	Off	L1	9.7	18.8	46.0
1.188000	28.5	9.000	Off	L1	9.7	17.5	46.0
1.192000	28.6	9.000	Off	L1	9.7	17.4	46.0
11.006000	22.8	9.000	Off	L1	10.0	27.2	50.0
11.062000	26.4	9.000	Off	L1	10.0	23.6	50.0
11.066000	28.9	9.000	Off	L1	10.0	21.1	50.0
11.070000	28.6	9.000	Off	L1	10.0	21.4	50.0
11.074000	28.8	9.000	Off	L1	10.0	21.2	50.0
11.078000	28.0	9.000	Off	L1	10.0	22.0	50.0



**With wireless charging pad(WCD-110)**

**Conducted Emissions (Line 1)**

EMI Auto Test(10)

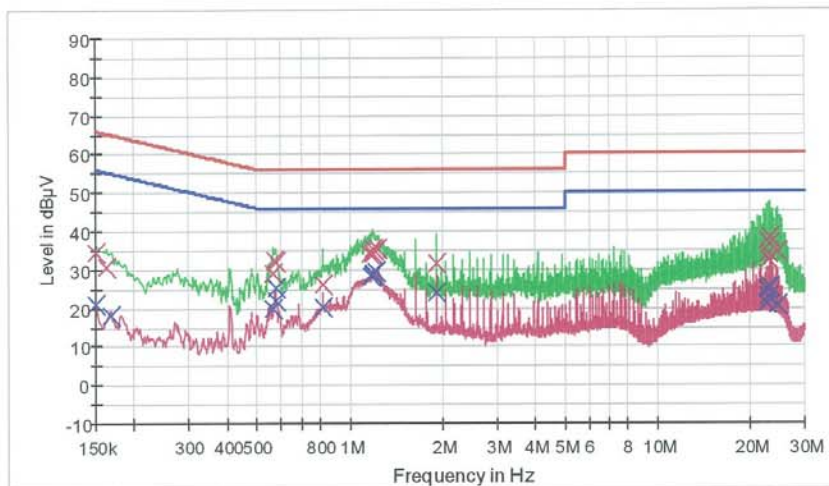
1 / 2

**HCT TEST Report**

**Common Information**

EUT: LG-H960  
 Manufacturer: LG  
 Test Site: SHIELD ROOM  
 Operating Conditions: BT MODE (WIRELESS CHARGE PAD\_#1)  
 Operator Name: KS KANG

FCC CLASS B



— FCCCLASS B\_OP     
 — FCCCLASS B\_AV     
 — Preview Result 1-PK\*  
— Preview Result 2-AVG     
 x Final Result 1-QPK     
 x Final Result 2-CAV

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	34.5	9.000	Off	N	9.6	31.5	66.0
0.162000	30.8	9.000	Off	N	9.6	34.6	65.4
0.566000	28.9	9.000	Off	N	9.6	27.1	56.0
0.572000	32.5	9.000	Off	N	9.6	23.5	56.0
0.578000	32.1	9.000	Off	N	9.6	23.9	56.0
0.822000	26.0	9.000	Off	N	9.7	30.0	56.0
1.158000	33.9	9.000	Off	N	9.7	22.1	56.0
1.188000	34.2	9.000	Off	N	9.7	21.8	56.0
1.194000	35.2	9.000	Off	N	9.7	20.8	56.0
1.202000	35.1	9.000	Off	N	9.7	20.9	56.0
1.226000	35.3	9.000	Off	N	9.7	20.7	56.0
1.912000	31.8	9.000	Off	N	9.7	24.2	56.0
22.504000	37.4	9.000	Off	N	10.3	22.6	60.0
22.800000	32.6	9.000	Off	N	10.3	27.4	60.0
22.916000	34.1	9.000	Off	N	10.3	25.9	60.0
23.048000	36.7	9.000	Off	N	10.3	23.3	60.0

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EMI Auto Test(10)

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Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
23.182000	38.3	9.000	Off	N	10.3	21.7	60.0
24.552000	34.5	9.000	Off	N	10.4	25.5	60.0

**Final Result 2**

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	21.2	9.000	Off	N	9.6	34.8	56.0
0.168000	18.4	9.000	Off	N	9.6	36.7	55.1
0.566000	20.0	9.000	Off	N	9.6	26.0	46.0
0.574000	25.2	9.000	Off	N	9.6	20.8	46.0
0.578000	21.9	9.000	Off	N	9.6	24.1	46.0
0.822000	20.4	9.000	Off	N	9.7	25.6	46.0
1.174000	28.3	9.000	Off	N	9.7	17.7	46.0
1.186000	28.9	9.000	Off	N	9.7	17.1	46.0
1.190000	29.0	9.000	Off	N	9.7	17.0	46.0
1.194000	29.3	9.000	Off	N	9.7	16.7	46.0
1.218000	29.5	9.000	Off	N	9.7	16.5	46.0
1.910000	24.1	9.000	Off	N	9.7	21.9	46.0
22.504000	24.9	9.000	Off	N	10.3	25.1	50.0
22.674000	21.3	9.000	Off	N	10.3	28.7	50.0
22.802000	22.6	9.000	Off	N	10.3	27.4	50.0
22.916000	22.6	9.000	Off	N	10.3	27.4	50.0
23.048000	25.2	9.000	Off	N	10.3	24.8	50.0
24.552000	20.5	9.000	Off	N	10.4	29.5	50.0

**Conducted Emissions (Line 2)**

EMI Auto Test(10)

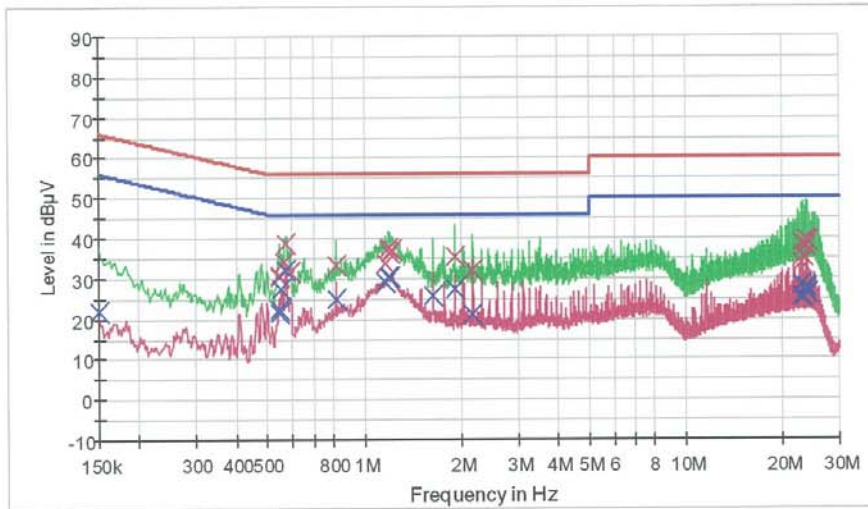
1 / 2

**HCT TEST Report**

**Common Information**

EUT: LG-H960  
 Manufacturer: LG  
 Test Site: SHIELD ROOM  
 Operating Conditions: BT MODE (WIRELESS CHARGE PAD\_#1)  
 Operator Name: KS KANG

FCC CLASS B



— FCCCLASS B\_OP      — FCCCLASS B\_AV      — Preview Result 1-PK+  
— Preview Result 2-AVG      x Final Result 1-CPK      x Final Result 2-CAV

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.544000	30.7	9.000	Off	L1	9.7	25.3	56.0
0.548000	30.5	9.000	Off	L1	9.7	25.5	56.0
0.566000	34.3	9.000	Off	L1	9.7	21.7	56.0
0.572000	38.8	9.000	Off	L1	9.7	17.2	56.0
0.588000	31.7	9.000	Off	L1	9.7	24.3	56.0
0.818000	33.1	9.000	Off	L1	9.7	22.9	56.0
1.170000	33.8	9.000	Off	L1	9.7	22.2	56.0
1.188000	37.4	9.000	Off	L1	9.7	18.6	56.0
1.202000	36.4	9.000	Off	L1	9.7	19.6	56.0
1.212000	37.0	9.000	Off	L1	9.7	19.0	56.0
1.912000	35.2	9.000	Off	L1	9.7	20.8	56.0
2.178000	32.0	9.000	Off	L1	9.7	24.0	56.0
22.768000	38.6	9.000	Off	L1	10.3	21.4	60.0
22.900000	33.6	9.000	Off	L1	10.3	26.4	60.0
23.172000	35.4	9.000	Off	L1	10.3	24.6	60.0
23.586000	39.7	9.000	Off	L1	10.3	20.3	60.0

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EMI Auto Test(10)

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Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
23.730000	37.9	9.000	Off	L1	10.3	22.1	60.0
23.996000	39.4	9.000	Off	L1	10.3	20.6	60.0

**Final Result 2**

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	21.8	9.000	Off	L1	9.6	34.2	56.0
0.544000	21.7	9.000	Off	L1	9.7	24.3	46.0
0.548000	22.3	9.000	Off	L1	9.7	23.7	46.0
0.554000	27.2	9.000	Off	L1	9.7	18.8	46.0
0.572000	32.1	9.000	Off	L1	9.7	13.9	46.0
0.818000	24.8	9.000	Off	L1	9.7	21.2	46.0
1.170000	28.9	9.000	Off	L1	9.7	17.1	46.0
1.188000	30.5	9.000	Off	L1	9.7	15.5	46.0
1.202000	30.2	9.000	Off	L1	9.7	15.8	46.0
1.636000	25.8	9.000	Off	L1	9.7	20.2	46.0
1.912000	27.3	9.000	Off	L1	9.7	18.7	46.0
2.178000	21.1	9.000	Off	L1	9.7	24.9	46.0
22.768000	28.1	9.000	Off	L1	10.3	21.9	50.0
22.900000	25.3	9.000	Off	L1	10.3	24.7	50.0
23.172000	25.4	9.000	Off	L1	10.3	24.6	50.0
23.586000	27.8	9.000	Off	L1	10.3	22.2	50.0
23.730000	26.8	9.000	Off	L1	10.3	23.2	50.0
23.996000	26.2	9.000	Off	L1	10.3	23.8	50.0

**With wireless charging pad(CT 06801)**

**Conducted Emissions (Line 1)**

EMI Auto Test(10)

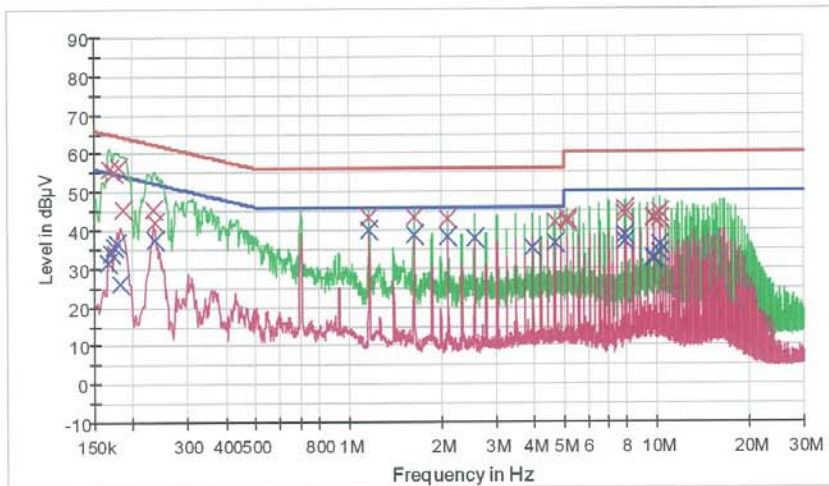
1 / 2

## HCT TEST Report

**Common Information**

EUT: LG-H960  
 Manufacturer: LG  
 Test Site: SHIELD ROOM  
 Operating Conditions: BT MODE (WIRELESS CHARGE PAD\_#2)  
 Operator Name: KS KANG

FCC CLASS B



— FCCCLASS B\_OP      — FCCCLASS B\_AV      — Preview Result 1-PK+  
— Preview Result 2-AVG      X Final Result 1-GPK      X Final Result 2-CAV

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.168000	56.1	9.000	Off	N	9.6	9.0	65.1
0.174000	55.2	9.000	Off	N	9.6	9.6	64.8
0.180000	56.3	9.000	Off	N	9.6	8.2	64.5
0.186000	45.6	9.000	Off	N	9.6	18.6	64.2
0.232000	45.6	9.000	Off	N	9.6	16.8	62.4
0.236000	42.3	9.000	Off	N	9.6	19.9	62.2
1.168000	43.4	9.000	Off	N	9.7	12.6	56.0
1.632000	43.4	9.000	Off	N	9.7	12.6	56.0
2.100000	42.8	9.000	Off	N	9.7	13.2	56.0
4.664000	42.0	9.000	Off	N	9.8	14.0	56.0
5.130000	43.0	9.000	Off	N	9.8	17.0	60.0
5.136000	41.9	9.000	Off	N	9.8	18.1	60.0
7.924000	44.3	9.000	Off	N	9.9	15.7	60.0
7.932000	45.3	9.000	Off	N	9.9	14.7	60.0
9.790000	43.4	9.000	Off	N	10.0	16.6	60.0
9.806000	42.9	9.000	Off	N	10.0	17.1	60.0

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Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
10.264000	44.7	9.000	Off	N	10.0	15.3	60.0
10.272000	43.1	9.000	Off	N	10.0	16.9	60.0

**Final Result 2**

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.166000	31.7	9.000	Off	N	9.6	23.5	55.2
0.170000	34.2	9.000	Off	N	9.6	20.8	55.0
0.174000	35.8	9.000	Off	N	9.6	19.0	54.8
0.178000	36.8	9.000	Off	N	9.6	17.8	54.6
0.182000	26.0	9.000	Off	N	9.6	28.4	54.4
0.236000	37.7	9.000	Off	N	9.6	14.5	52.2
1.166000	39.9	9.000	Off	N	9.7	6.1	46.0
1.634000	38.6	9.000	Off	N	9.7	7.4	46.0
2.100000	38.2	9.000	Off	N	9.7	7.8	46.0
2.566000	37.9	9.000	Off	N	9.7	8.1	46.0
3.968000	35.3	9.000	Off	N	9.8	10.7	46.0
4.664000	36.8	9.000	Off	N	9.8	9.2	46.0
7.924000	37.1	9.000	Off	N	9.9	12.9	50.0
7.932000	38.6	9.000	Off	N	9.9	11.4	50.0
9.790000	32.8	9.000	Off	N	10.0	17.2	50.0
9.806000	32.4	9.000	Off	N	10.0	17.6	50.0
10.264000	36.0	9.000	Off	N	10.0	14.0	50.0
10.270000	34.0	9.000	Off	N	10.0	16.0	50.0

**Conducted Emissions (Line 2)**

EMI Auto Test(10)

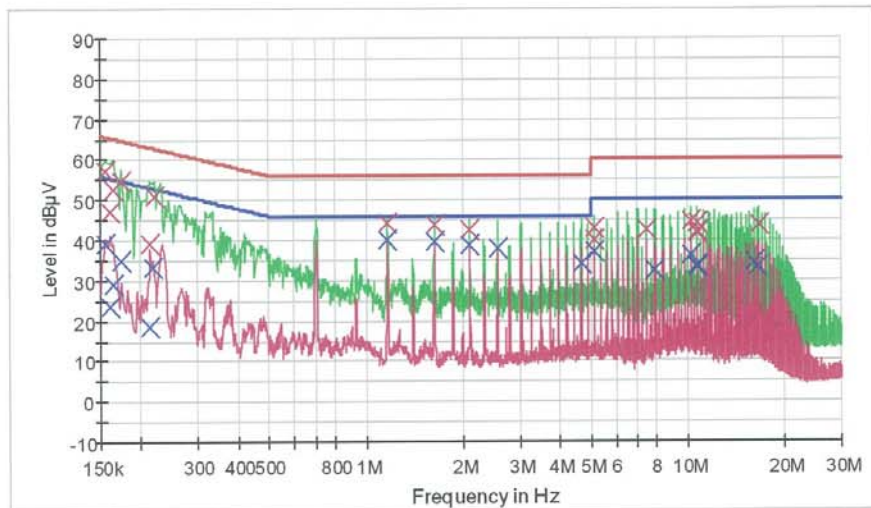
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**HCT TEST Report**

**Common Information**

EUT: LG-H960  
 Manufacturer: LG  
 Test Site: SHIELD ROOM  
 Operating Conditions: BT MODE (WIRELESS CHARGE PAD\_#2)  
 Operator Name: KS KANG

FCC CLASS B



— FCC CLASS B\_OP      — FCC CLASS B\_AV      — Preview Result 1-1PK  
— Preview Result 2-AVG      x Final Result 1-1PK      x Final Result 2-CAV

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.156000	57.2	9.000	Off	L1	9.6	8.5	65.7
0.160000	46.9	9.000	Off	L1	9.6	18.6	65.5
0.164000	52.5	9.000	Off	L1	9.6	12.8	65.3
0.174000	54.5	9.000	Off	L1	9.6	10.3	64.8
0.214000	39.1	9.000	Off	L1	9.6	23.9	63.0
0.220000	50.9	9.000	Off	L1	9.6	11.9	62.8
1.166000	44.2	9.000	Off	L1	9.7	11.8	56.0
1.632000	43.9	9.000	Off	L1	9.7	12.1	56.0
2.100000	42.6	9.000	Off	L1	9.7	13.4	56.0
5.128000	43.1	9.000	Off	L1	9.8	16.9	60.0
5.132000	42.9	9.000	Off	L1	9.8	17.1	60.0
5.138000	40.1	9.000	Off	L1	9.8	19.9	60.0
7.466000	42.5	9.000	Off	L1	9.9	17.5	60.0
10.266000	44.7	9.000	Off	L1	10.0	15.3	60.0
10.720000	44.2	9.000	Off	L1	10.0	15.8	60.0
10.728000	41.8	9.000	Off	L1	10.0	18.2	60.0

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EMI Auto Test(10)

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Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
10.736000	42.1	9.000	Off	L1	10.0	17.9	60.0
16.570000	43.6	9.000	Off	L1	10.2	16.4	60.0

**Final Result 2**

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.156000	39.0	9.000	Off	L1	9.6	16.7	55.7
0.160000	23.7	9.000	Off	L1	9.6	31.8	55.5
0.164000	29.0	9.000	Off	L1	9.6	26.3	55.3
0.174000	35.0	9.000	Off	L1	9.6	19.8	54.8
0.214000	18.5	9.000	Off	L1	9.6	34.5	53.0
0.218000	33.4	9.000	Off	L1	9.6	19.5	52.9
1.166000	39.9	9.000	Off	L1	9.7	6.1	46.0
1.632000	39.4	9.000	Off	L1	9.7	6.6	46.0
2.100000	38.6	9.000	Off	L1	9.7	7.4	46.0
2.566000	37.9	9.000	Off	L1	9.7	8.1	46.0
4.668000	34.0	9.000	Off	L1	9.8	12.0	46.0
5.132000	37.2	9.000	Off	L1	9.8	12.8	50.0
7.924000	32.5	9.000	Off	L1	9.9	17.5	50.0
10.266000	36.1	9.000	Off	L1	10.0	13.9	50.0
10.720000	33.5	9.000	Off	L1	10.0	16.5	50.0
10.728000	33.9	9.000	Off	L1	10.0	16.1	50.0
16.090000	34.6	9.000	Off	L1	10.2	15.4	50.0
16.550000	33.4	9.000	Off	L1	10.2	16.6	50.0

## 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	03/18/2015	Annual	US45303008
Agilent	N9020A / SIGNAL ANALYZER	06/30/2015	Annual	MY51110085
Agilent	N9020A / SIGNAL ANALYZER	07/02/2015	Annual	MY50510304
Agilent	N1911A/Power Meter	07/09/2015	Annual	MY45100523
Agilent	N1921A /POWER SENSOR	07/09/2015	Annual	MY45241059
Agilent	87300B/Directional Coupler	12/08/2014	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	04/30/2015	Annual	11275
ITECH	IT6720 / DC POWER SUPPLY	11/04/2014	Annual	010002156287001199
Agilent	8493C / Attenuator(10 dB)	07/21/2015	Annual	07560
Rohde & Schwarz	CBT / BLUETOOTH TESTER	04/06/2015	Annual	100422

**9.2 LIST OF TEST EQUIPMENT(Radiated Test)**

Manufacturer	Model / Equipment	Calibration Date	Calibration 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
CERNEX	CBL18265035 / POWER AMP	07/27/2015	Annual	22966
Schwarzbeck	BBHA 9120D/ Horn Antenna	05/07/2015	Biennial	937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	04/30/2015	Biennial	BBHA9170124
Rohde & Schwarz	FSP / Spectrum Analyzer	10/23/2014	Annual	836650/016
Wainwright Instrument	WHF3.0/18G-10EF / High Pass Filter	06/28/2015	Annual	8
Wainwright Instrument	WRCJ2400/2483.5-2370/2520-60/14SS / Band Reject Filter	06/15/2015	Annual	1
Rohde & Schwarz	LOOP ANTENNA	09/03/2014	Biennial	1513-175
CERNEX	CBL06185030 / POWER AMP	07/21/2015	Annual	22965
CERNEX	CBLU1183540 / POWER AMP	07/21/2015	Annual	22964
Rohde & Schwarz	CBT / BLUETOOTH TESTER	04/06/2015	Annual	100422