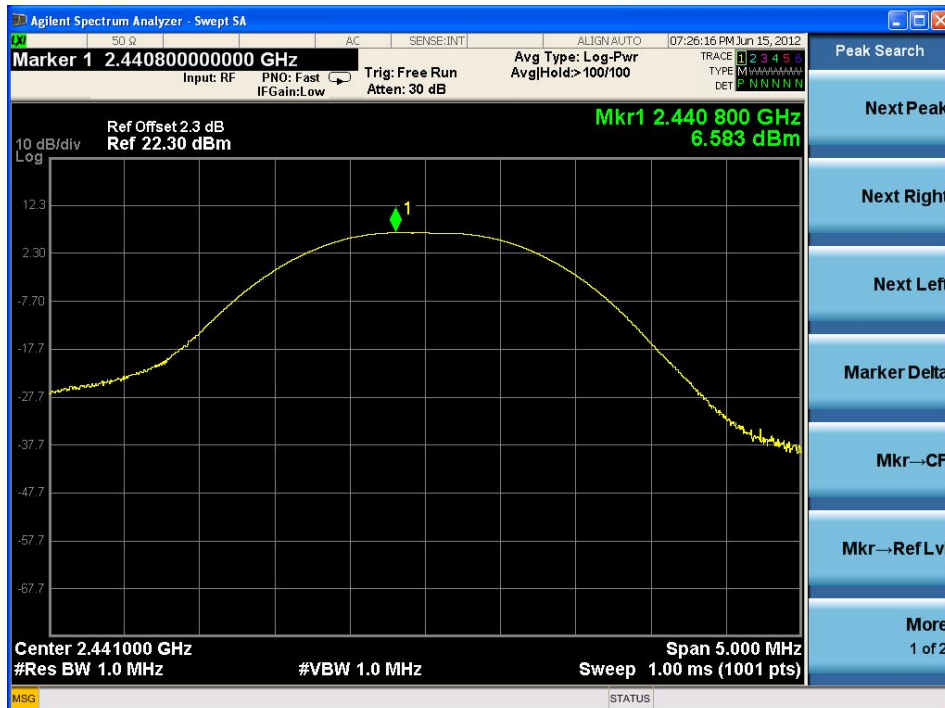
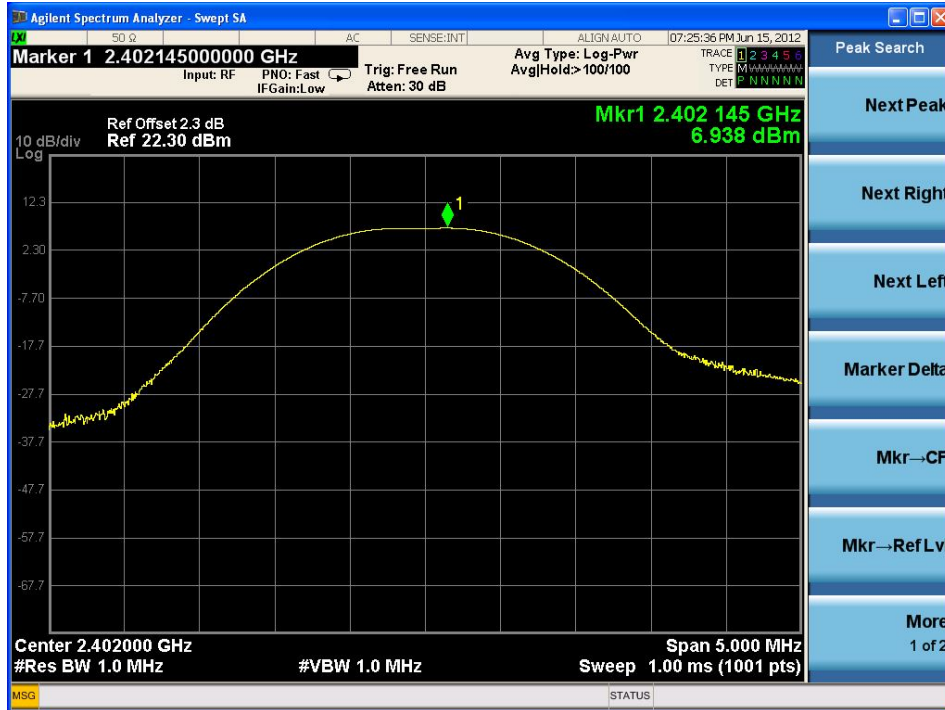


**Maximum peak Conducted Output Power - GFSK**





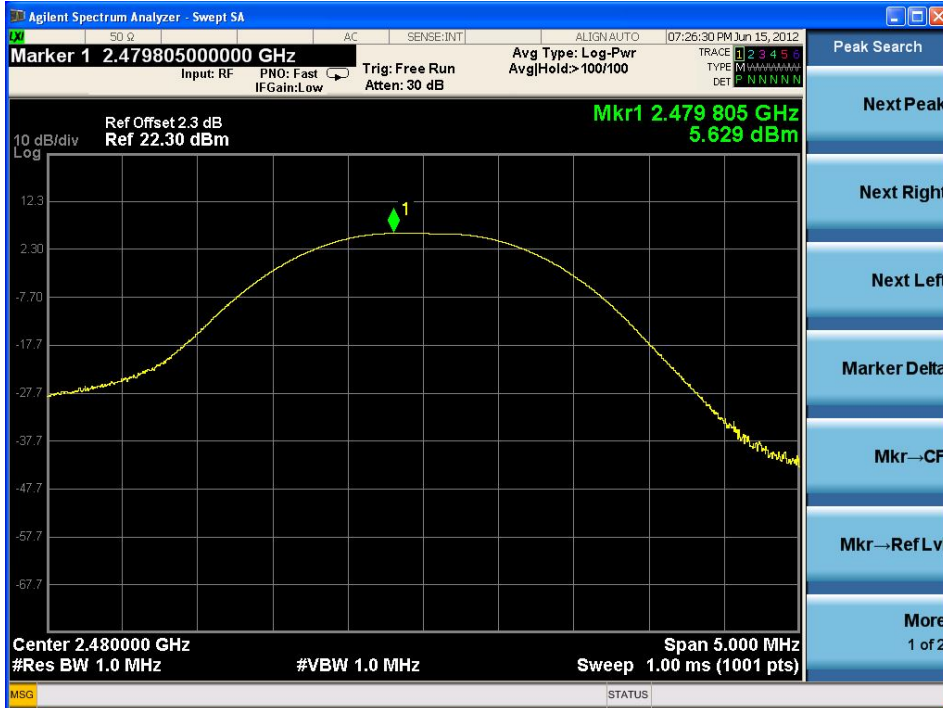
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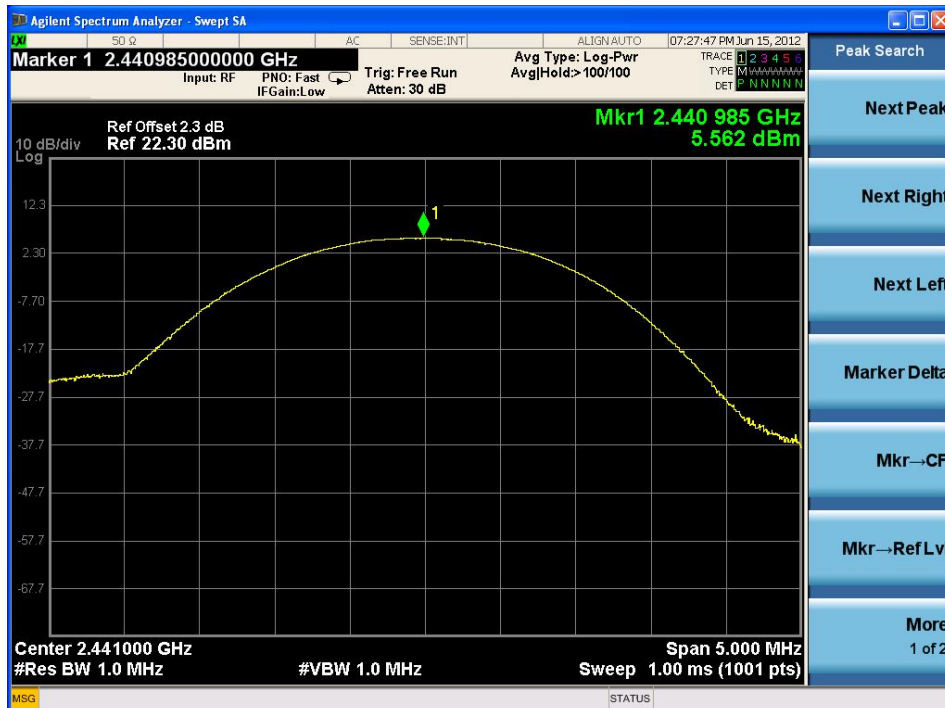
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**Maximum peak Conducted Output Power - 8-DPSK**





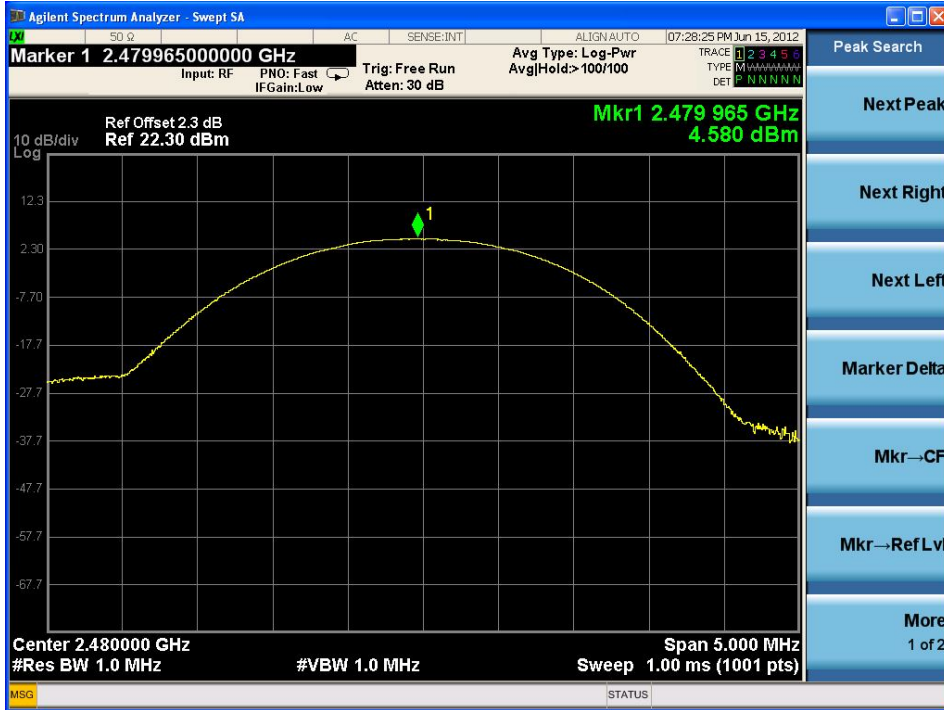
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## 2.1.6 Band-edge

### Test Location

RF Test Room

### Test Procedures

The bandwidth at 20 dB down from the highest inband spectral density was measured with a spectrum analyzer connected to the antenna terminal, while EUT has its hopping function disabled at the highest, middle and the lowest available channels.

The spectrum analyzer is set to:

Center frequency = the highest, middle, and the lowest channels

RBW = 100 kHz

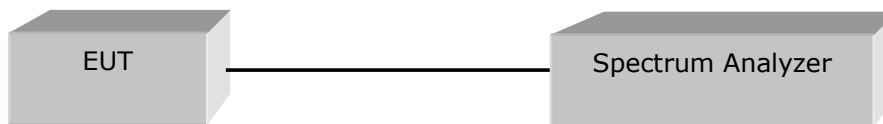
VBW = 100 kHz ( $\geq$  RBW)

Span = 10 MHz

Trace = max hold

Detector function = peak

Sweep = auto



### Limit

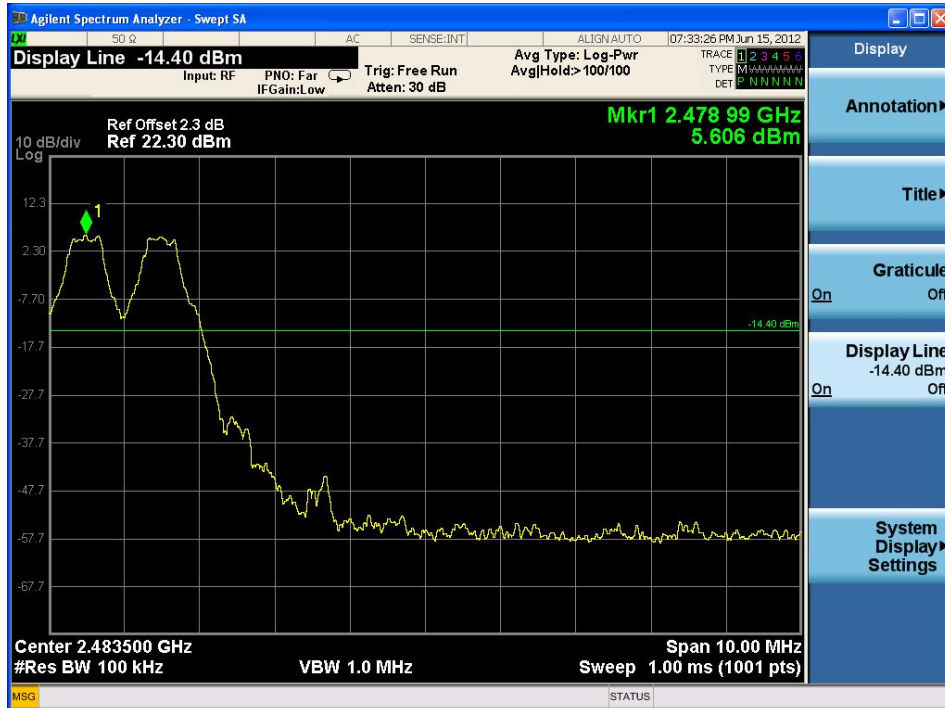
> 20 dBc

### Test Results

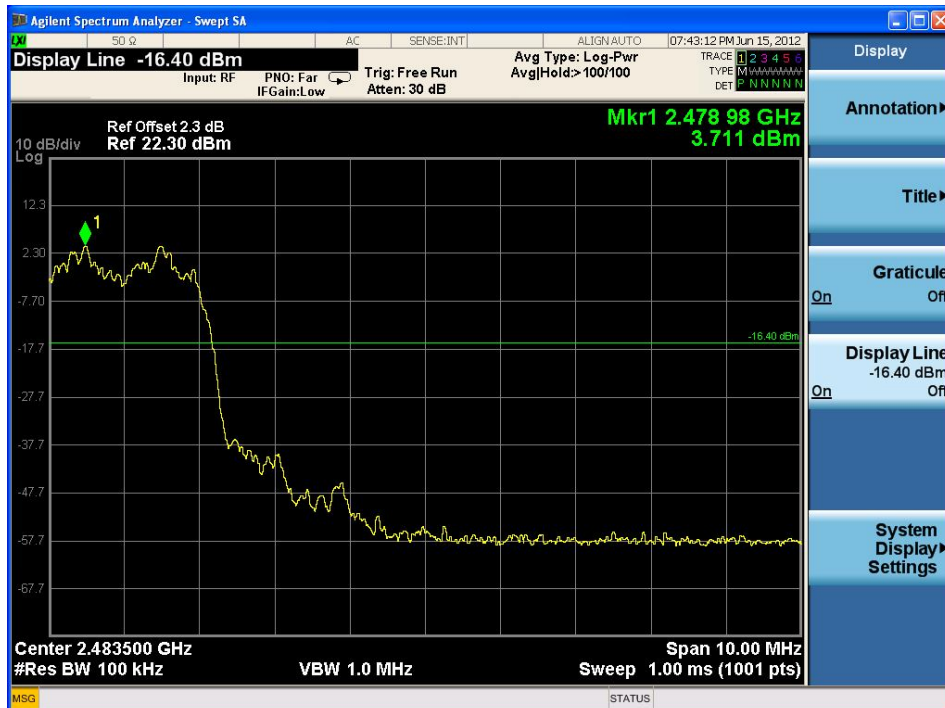
All conducted emission in any 100 kHz bandwidth outside of the spectrum band was at least 20 dB lower than the highest level of the inband spectral density. Therefore the applying equipment meets the requirement.

See next pages for actual measured spectrum plots.

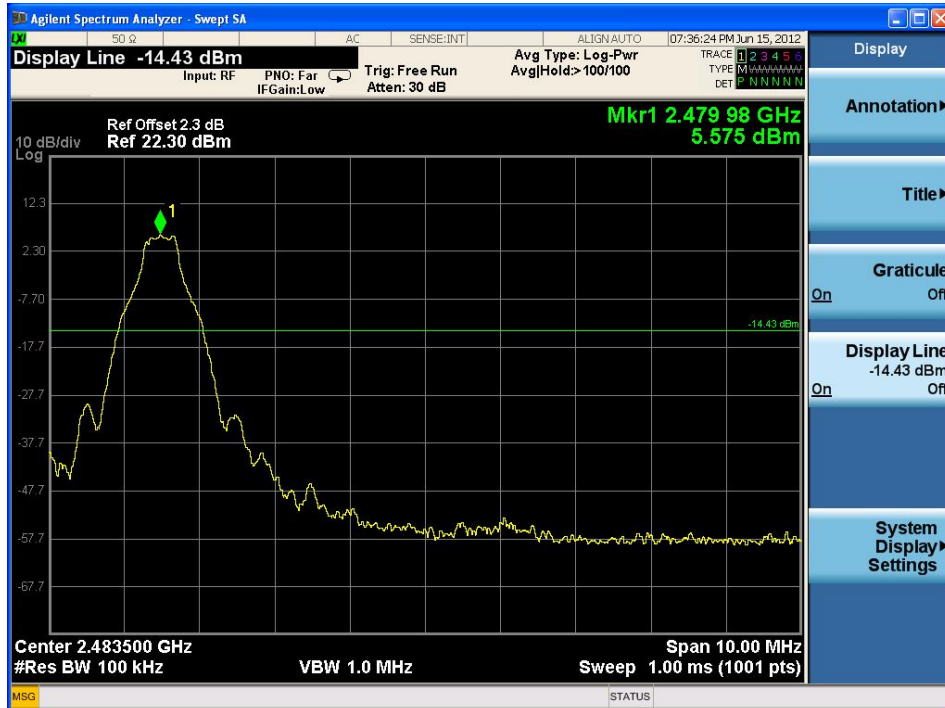
**Band - edge (with Hopping) - GFSK**



**Band - edge (with Hopping) - 8-DPSK**

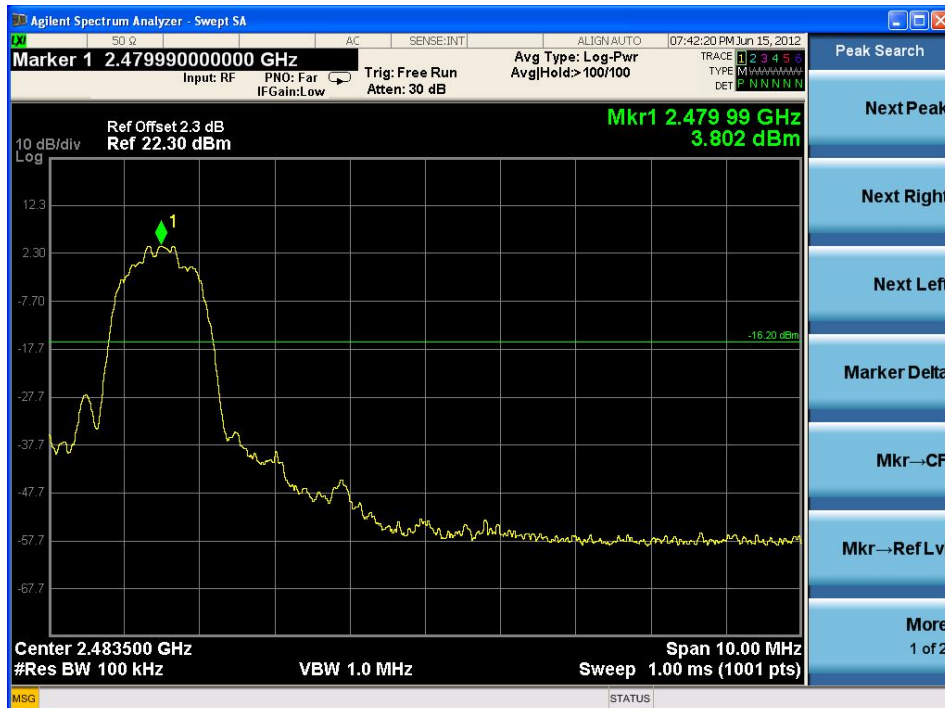
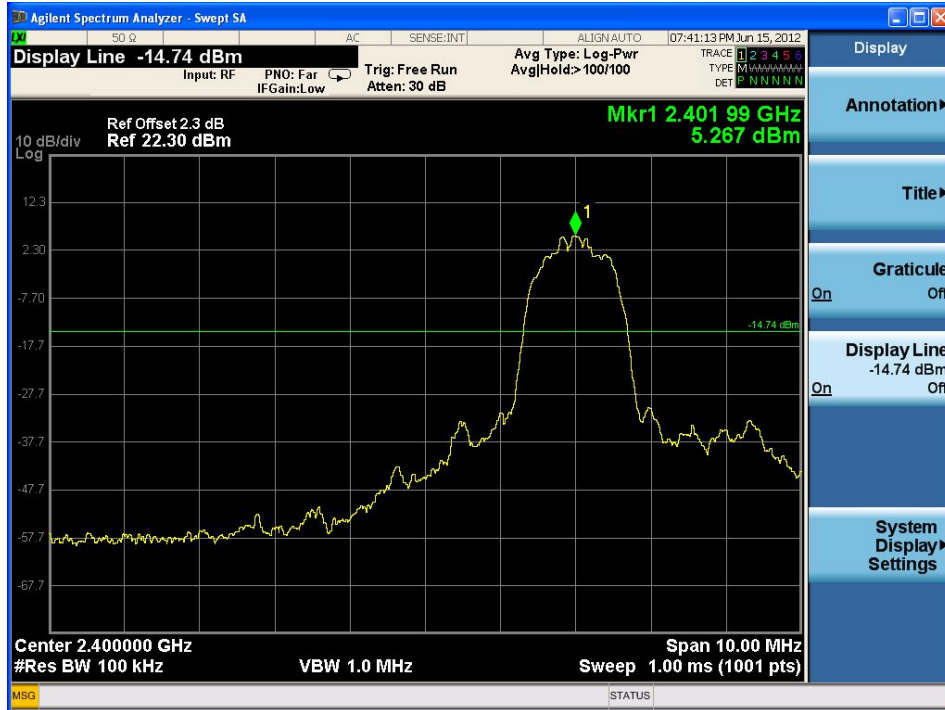


**Band – edge (without Hopping) - GFSK**

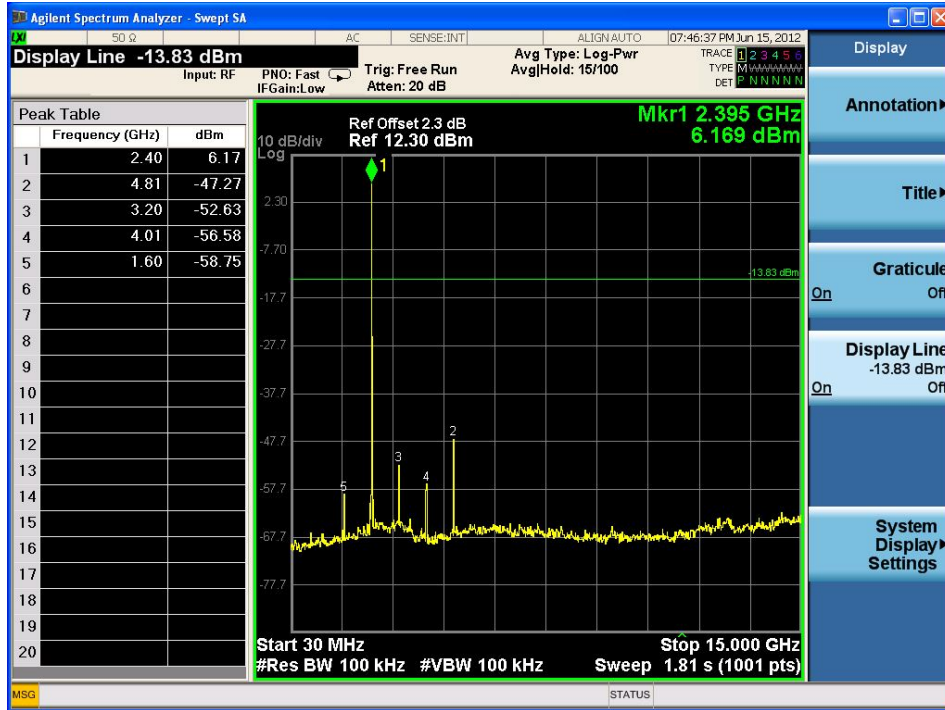




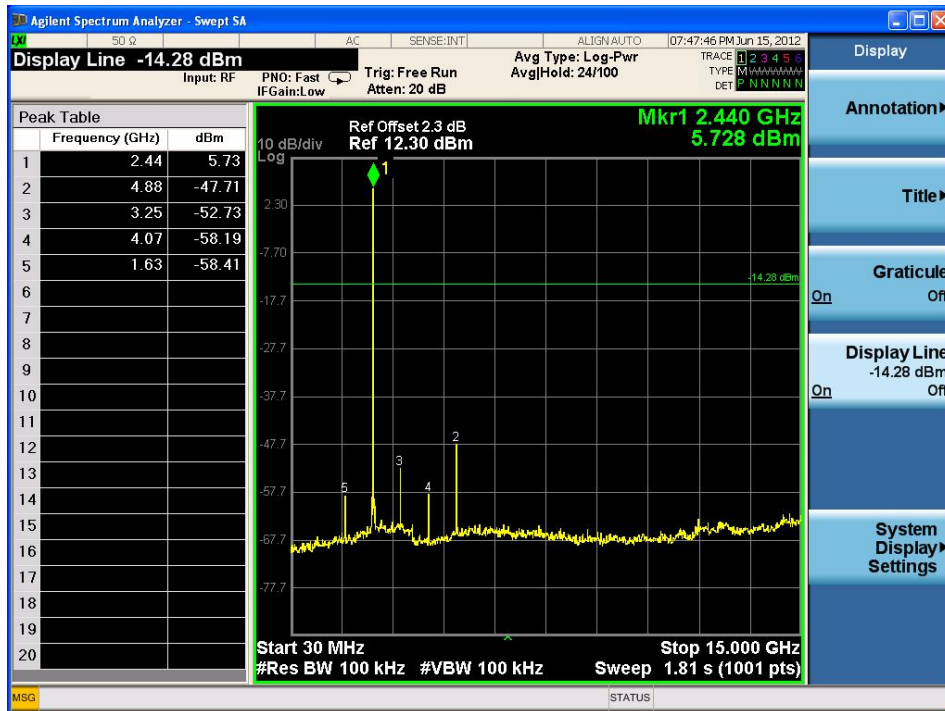
**Band – edge (without Hopping) - 8-DPSK**



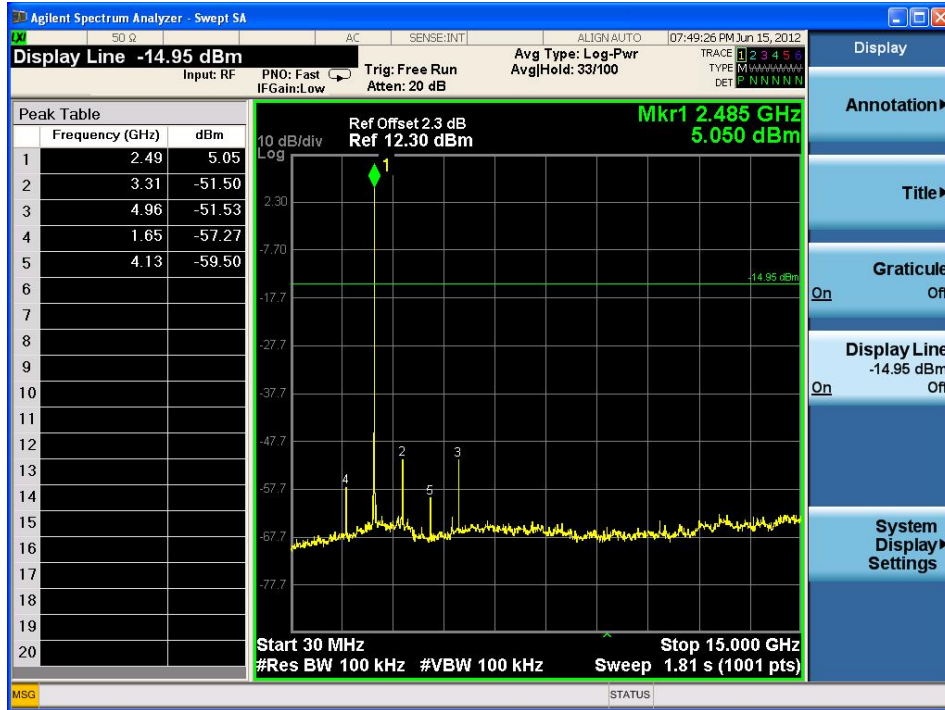
**Band – edge (at 20 dB blow) – Low channel  
 Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic  
 (GFSK : Worst-Case)**



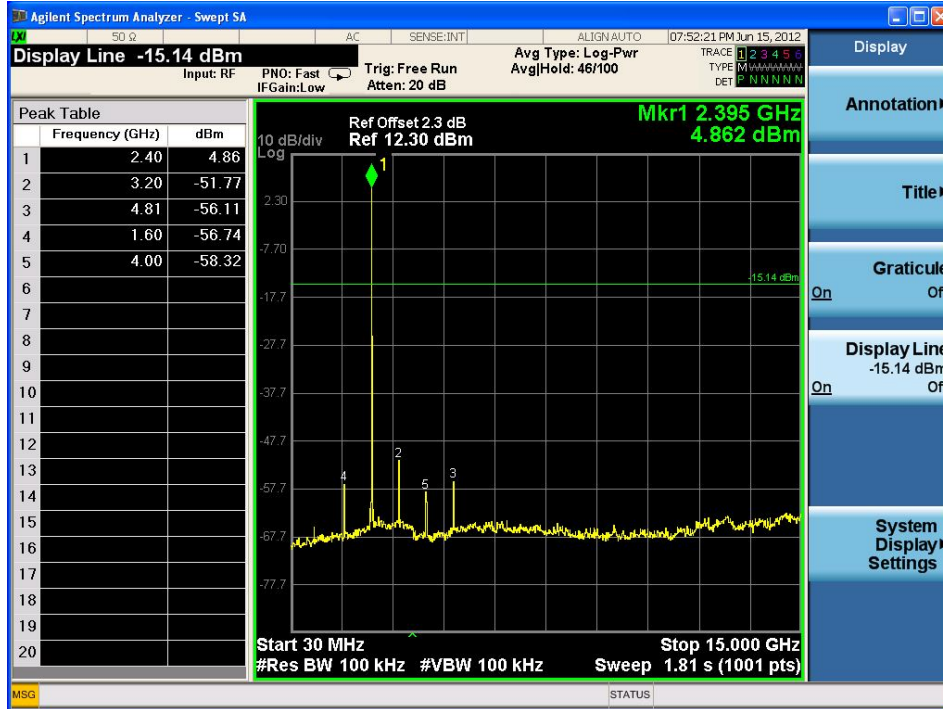
**Band – edge (at 20 dB blow) – Mid channel  
 Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic  
 (GFSK : Worst-Case)**



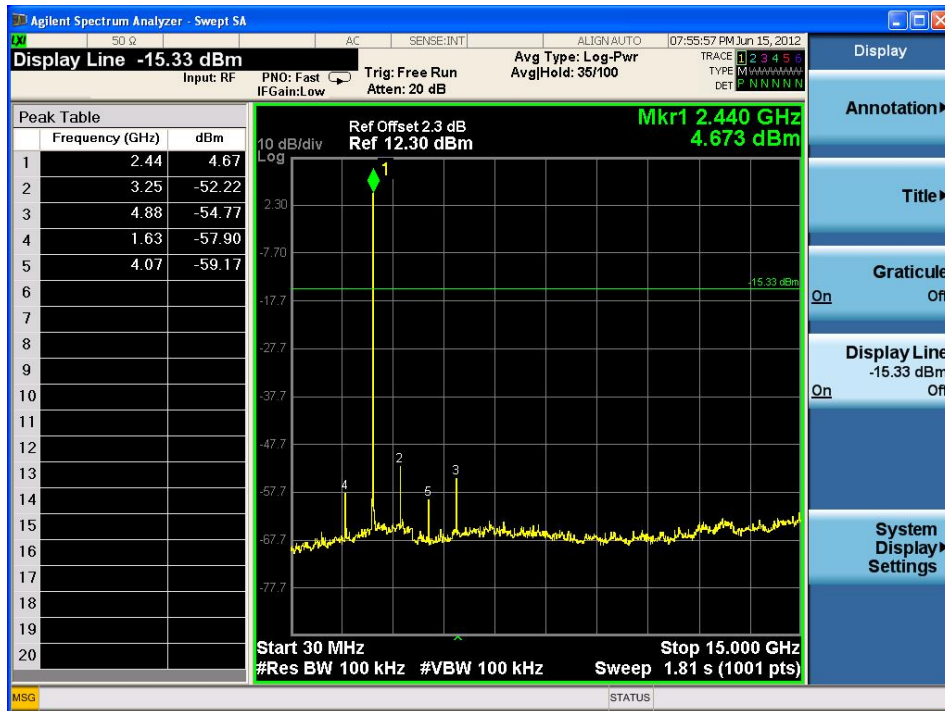
**Band – edge (at 20 dB blow) – High channel  
 Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic  
 (GFSK : Worst-Case)**



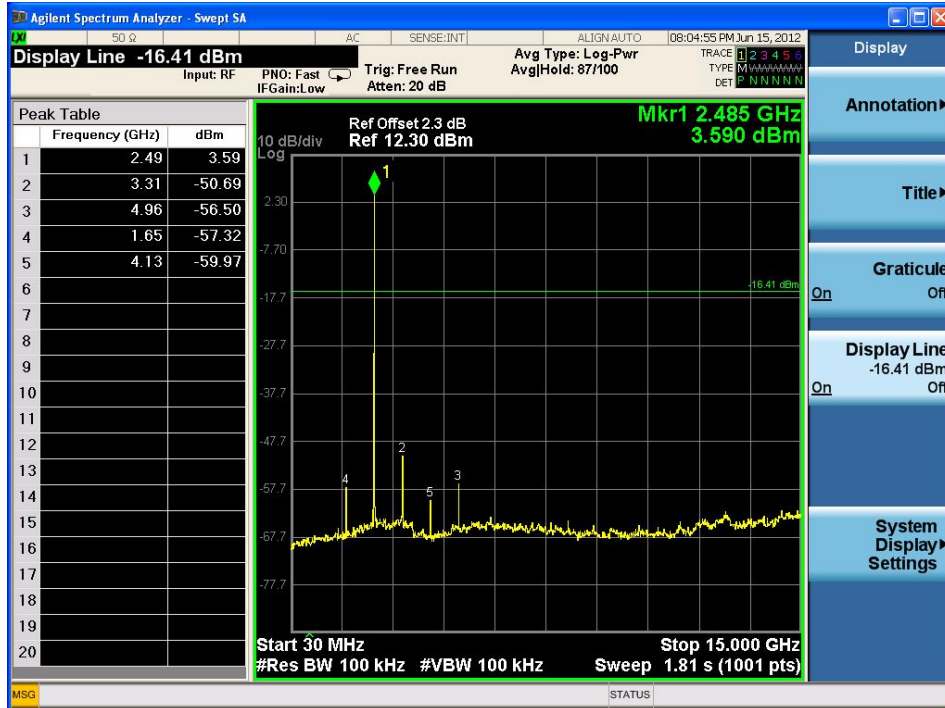
**Band – edge (at 20 dB blow) – Low channel  
 Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic  
 (8-DPSK : Worst-Case)**



**Band – edge (at 20 dB blow) – Mid channel  
 Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic  
 (8-DPSK : Worst-Case)**



**Band – edge (at 20 dB blow) – High channel  
 Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic  
 (8-DPSK : Worst-Case)**



## 2.1.7 Field Strength of Emissions

### Test Location

Testing was performed at a test distance of 3 meter SAC

### Test Procedures

The height of the measuring antenna was varied between 1 to 4 m and the table was rotated a full revolution in order to obtain maximum values of the electric field intensity. The measurement was made in both the vertical and horizontal polarization, and the maximum value is presented in the report.

The spectrum analyzer is set to:

Center frequency = the worst channel

Frequency Range = 30 MHz ~ 10<sup>th</sup> harmonic

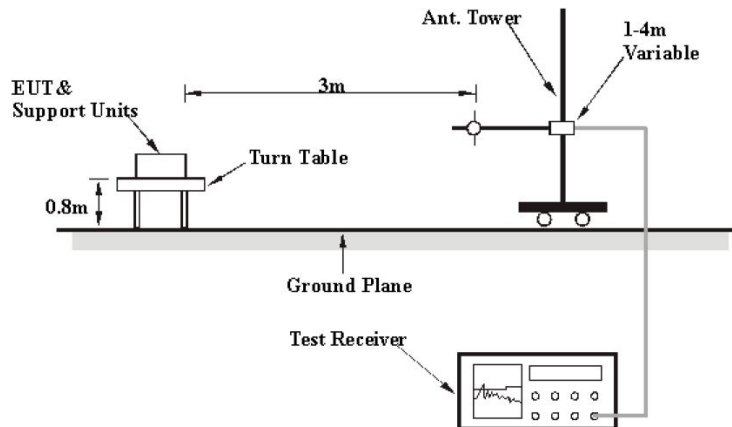
RBW = 120 kHz (30 MHz ~ 1 GHz) VBW ≥ RBW

= 1 MHz (1 GHz ~ 10<sup>th</sup> harmonic)

Span = 100 MHz

Detector function = Quasi-peak

Trace = max hold



### Limit

#### - 15.209(a)

Frequency(MHz)	Field Strength uV/m@3m	Field Strength dBuV/m@3m
30-88	100**	40
88-216	150**	43.5
216-960	200**	46
Above 960	500	54

\*\* Except as provided in 15.209(g).fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72MHz, 76-88MHz, 174-216MHz, 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g.15.231 and 15.241.





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## Test Results

**Test mode : Hopping(GFSK), CFG PKT Packet Type : 15 Packet Size : 339(DH5)**

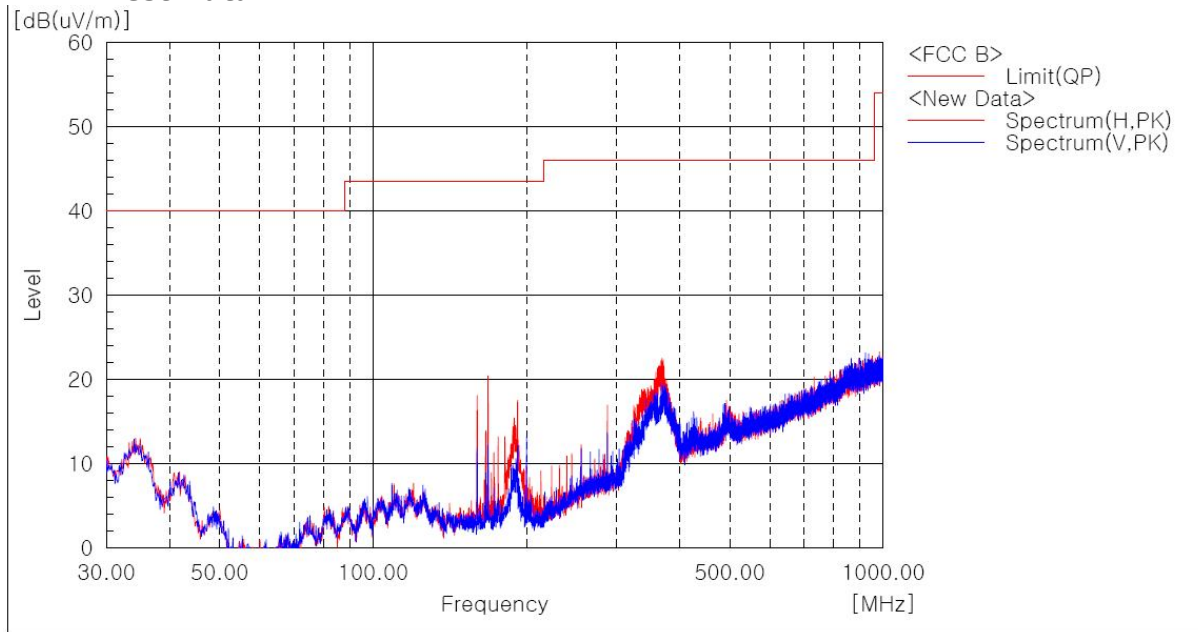
EUT	Bluetooth stereo Headset	Measurement Detail	
Model	AH-NCW500	Frequency Range	Below 1000MHz
Test mode	GFSK (Worst case)	Detector function	Quasi-Peak

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
No emissions were detected at a level greater than 20dB below limit.			

## Test Data



Spectrum Selection

No.	Frequency (P)	Reading	c.f	Height	Angle
	[MHz]	[dB(uV)]	[dB(1/m)]	[cm]	[deg]

### Remark :

1. The field strength of spurious emission was measured in the following position: EUT stand-up position(Z axis), lie-down position(X,Y axis). The worst emission was found in stand-up position(X axis) and the worst case was recorded.



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## Test Results

**Test mode : GFSK, CFG PKT Packet Type : 15 Packet Size : 339(DH5)**

EUT	Bluetooth stereo Headset	Measurement Detail	
Model	AH-NCW500	Frequency Range	1-25GHz
Test Mode	GFSK (Worst case)	Detector function	Peak

## Remarks

We have tested three mode (X, Y, Z). The worst mode (X axis) for final test.

The requirements are:

Complies

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
4888	37.6 / 53.0	16.5 / 21.0	Average / Peak

## Test Data

Frequency [MHz]	Reading [dBuV/m]		Pol.	Height [m]	Correction Factor			Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
	AV	Peak			Antenna	Amp. Gain	Cable	AV	Peak	AV	Peak	AV	Peak
4888.00	28.4	43.8	V	1.1	32.7	34.9	11.4	54.0	74.0	37.6	53.0	16.4	21.0

## Restricted band edge test data

Measured frequency range : 2310-2390 MHz, 2483.5-2500 MHz

Frequency [MHz]	Reading [dBuV/m]		Pol.	Height [m]	Correction Factor			Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
	AV	Peak			Antenna	Amp. Gain	Cable	AV	Peak	AV	Peak	AV	Peak
2483.50	47.5	48.8	V	1.1	28.2	35.3	7.4	54.0	74.0	47.8	49.1	6.2	24.9

## 2.1.8 AC Conducted Emissions

### Test Location

Shielded Room

### Frequency Range of Measurement

150 kHz to 30 MHz

### Instrument Settings

IF Band Width: 9 kHz

### Test Procedures

The EUT was placed on a non-metallic table 0.8m above the metallic, grounded floor and 0.4m from the reference ground plane wall. The distance to other metallic surfaces was at least 0.8m.

Amplitude measurements were performed with a quasi-peak detector and an average detector.

### Limit

#### - 15.207(a)

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

\* Decreases with the logarithm of the frequency.

### Test Results

The requirements are:

Complies

**Test mode :** Hopping mode(Worst Case)

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
2.647500	41.8	4.2	Average



**Test Data**

[HOT]

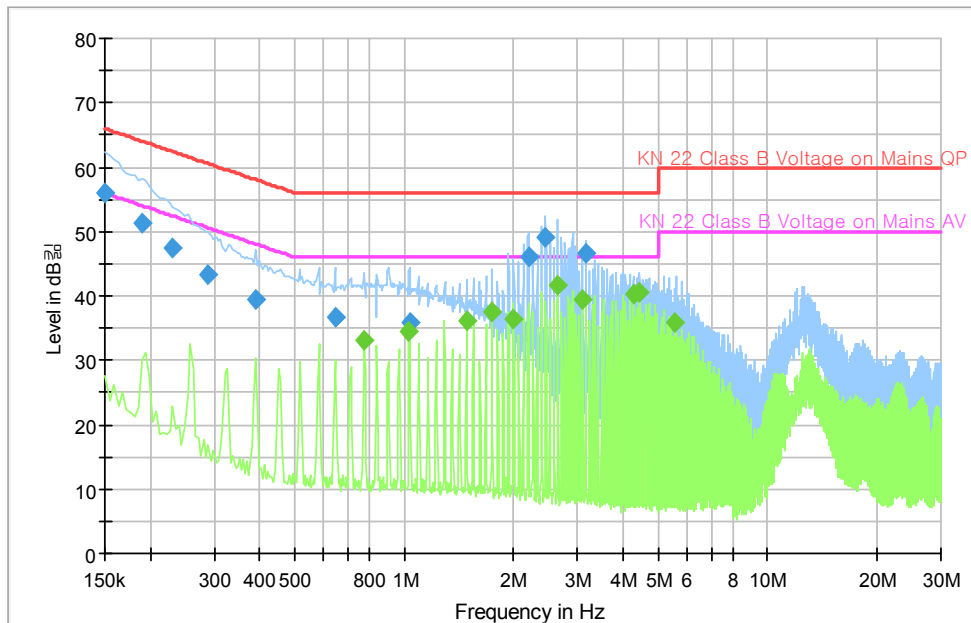
**Final Result 1**

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.150000	56.0	1000.0	9.000	On	L1	10.2	10.0	66.0
0.190500	51.2	1000.0	9.000	On	L1	10.0	12.8	64.0
0.231000	47.6	1000.0	9.000	On	L1	10.1	14.9	62.4
0.289500	43.3	1000.0	9.000	On	L1	10.1	17.3	60.5
0.388500	39.3	1000.0	9.000	On	L1	10.0	18.8	58.1
0.645000	36.7	1000.0	9.000	On	L1	10.1	19.3	56.0
1.036500	35.9	1000.0	9.000	On	L1	10.0	20.1	56.0
2.197500	46.2	1000.0	9.000	On	L1	9.9	9.8	56.0
2.454000	49.0	1000.0	9.000	On	L1	9.9	7.0	56.0
3.165000	46.7	1000.0	9.000	On	L1	9.8	9.3	56.0

**Final Result 2**

Frequency (MHz)	Average (dB $\mu$ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.775500	33.2	1000.0	9.000	On	L1	10.1	12.8	46.0
1.032000	34.6	1000.0	9.000	On	L1	10.0	11.4	46.0
1.486500	36.1	1000.0	9.000	On	L1	9.9	9.9	46.0
1.743000	37.6	1000.0	9.000	On	L1	9.9	8.4	46.0
2.004000	36.5	1000.0	9.000	On	L1	9.9	9.5	46.0
2.647500	41.8	1000.0	9.000	On	L1	9.9	4.2	46.0
3.102000	39.5	1000.0	9.000	On	L1	9.9	6.5	46.0
4.263000	40.3	1000.0	9.000	On	L1	9.8	5.7	46.0
4.456500	40.5	1000.0	9.000	On	L1	9.8	5.5	46.0
5.554500	36.0	1000.0	9.000	On	L1	9.8	14.0	50.0

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## [NEUTRAL]

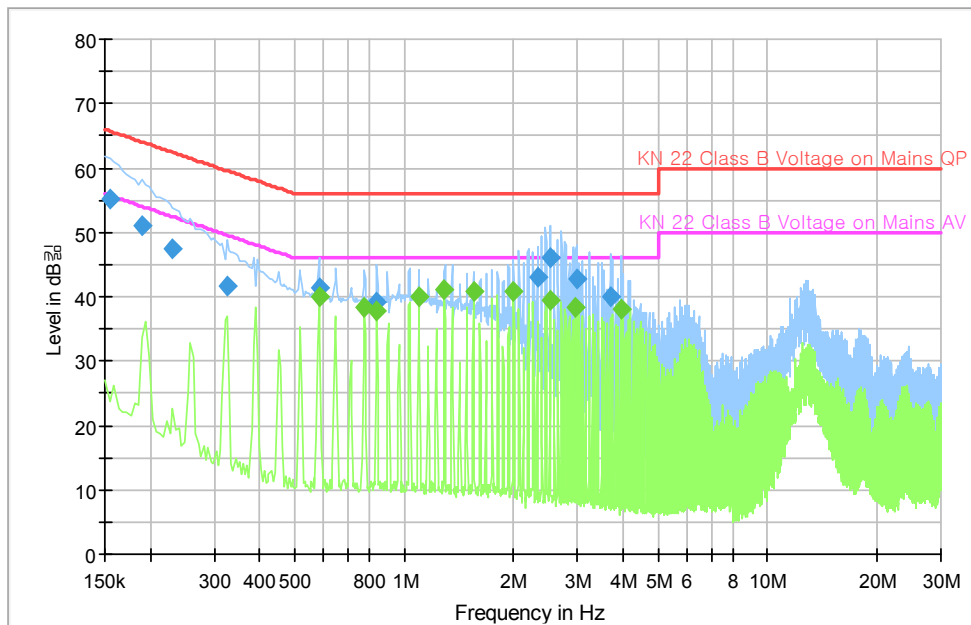
### Final Result 1

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.154500	55.1	1000.0	9.000	On	N	10.1	10.6	65.8
0.190500	51.1	1000.0	9.000	On	N	10.1	12.9	64.0
0.231000	47.4	1000.0	9.000	On	N	10.2	15.0	62.4
0.325500	41.7	1000.0	9.000	On	N	10.0	17.9	59.6
0.582000	41.3	1000.0	9.000	On	N	10.0	14.7	56.0
0.843000	39.3	1000.0	9.000	On	N	10.0	16.7	56.0
2.328000	43.1	1000.0	9.000	On	N	9.9	12.9	56.0
2.521500	46.1	1000.0	9.000	On	N	9.9	9.9	56.0
2.976000	42.8	1000.0	9.000	On	N	9.9	13.2	56.0
3.687000	40.1	1000.0	9.000	On	N	9.8	15.9	56.0

### Final Result 2

Frequency (MHz)	Average (dB $\mu$ V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)
0.582000	40.0	1000.0	9.000	On	N	10.0	6.0	46.0
0.775500	38.4	1000.0	9.000	On	N	10.1	7.6	46.0
0.843000	37.9	1000.0	9.000	On	N	10.0	8.1	46.0
1.099500	40.0	1000.0	9.000	On	N	10.0	6.0	46.0
1.293000	41.0	1000.0	9.000	On	N	10.0	5.0	46.0
1.549500	40.9	1000.0	9.000	On	N	9.9	5.1	46.0
2.004000	40.7	1000.0	9.000	On	N	9.9	5.3	46.0
2.521500	39.5	1000.0	9.000	On	N	9.9	6.5	46.0
2.971500	38.4	1000.0	9.000	On	N	9.9	7.6	46.0
3.943500	38.0	1000.0	9.000	On	N	9.8	8.0	46.0

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## APPENDIX A – Test Equipment Used For Tests

	Name of Equipment	Manufacturer	Model No.	Serial No.	Due Date
1	Signal Analyzer	Agilent	N9020A	MY48011598	2012-11-10
2	Spectrum Analyzer	Rohde & Schwarz	FSP-30	100994	2012-11-10
3	EMI Test Receiver	Rohde & Schwarz	ESVS30	826638/008	2012-07-07
4	ULTRA Broadband Antenna	Rohde & Schwarz	HL562	361324/014	2013-11.03
5	LOOP ANTENNA	EMCO	6502	9107-2652	2012-10-29
6	Attenuator	HP	8498A	1801A06913	2012-11-14
7	EPM Series Power Meter	HP	E4418A	GB38272734	2012-11-10
8	Power Sensor	HP	8487A	3318A03524	2012-07-07
9	Audio Analyzer	HP	8903B	2747A03432	2012-11-10
10	ESG-D Series Signal Generator	Agilent	E4432B	US40054094	2012-11-21
11	SYNTHESIZED SWEEPER	HP	8341B	2819A01563	2012-11-10
12	Modulation Analyzer	HP	8901B	3438A05228	2012-11-18
13	Attenuator	HP	8494A	3308A33351	2012-11-14
14	Temp&Humi Chamber	Kunpoong	JT-TH-556-1	9QE5-002	2013-01-12
15	DC POWER SUPPLY	Agilent	E3632A	MY40011638	2012-11-10
16	EMC Analyzer	Agilent	E7405A	MY45110859	2013-02-13
17	Horn Antenna	ETS-Lindgren	3115	00078894	2013-03-22
18	Horn Antenna	ETS-Lindgren	3115	00078895	2013-03-22
19	Dipole Antenna	SCHWARZBECK	VHA 9103	VHA91032557	2013-11-04
20	Dipole Antenna	SCHWARZBECK	UHA 9105	UHA91052417	2013-11-04
21	OPT H64 AMPLIFIER	HP	8447F	3113A06814	2013-03-27
22	PREAMPLIFIER	Agilent	8449B	3008A02307	2012-11-17
23	Radio Communication Tester	Rohde & Schwarz	CMU200	106765	2013-02-09
24	LISN	Rohde & Schwarz	ENV216	101235	2012-08-18
25	LISN	Rohde & Schwarz	ENV216	101236	2012-08-18
26	DC POWER SUPPLY	Agilent	E3632A	MY40011638	2012-11-10
27	EMI Test Receiver	Rohde & Schwarz	ESC13	100032	2013-02-09