15.247(d) RF Conducted Emissions & Band Edge

Test Setup / Conditions / Data

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**Digital Path, Inc.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102618**	Date:	7/29/2019
Test Type:	**Conducted Emissions**	Time:	9:00:23 AM
Tested By:	Benny Lovan	Sequence#:	10
Software:	EMITest 5.03.12		13VDC

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Conducted Spurious Emissions
Frequency Range:9kHz to 10000MHz
Test Method: ANSI C63.10 (2013)

Application: Putty Serial Program Version 0001
Temperature: 21°C
Relative Humidity: 42 %
Atmospheric Pressure: 100.7 kPa

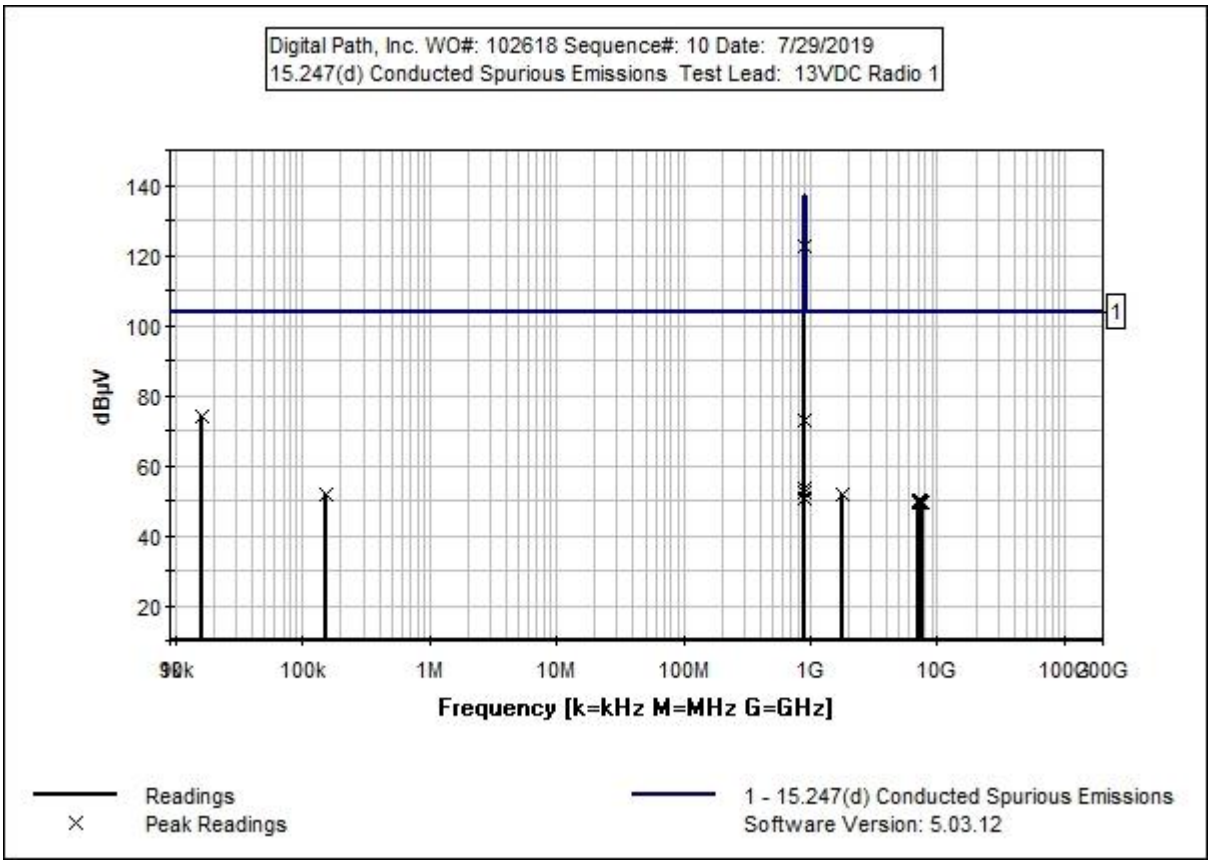
High Clock: 80MHz
Transmitting operating frequency= 902.5, 915 and 927MHz for ISM

Gain of the antenna for ISM=
OL-3043-2 = 2.5dBi
FG9026 = 6dBi
Sector09011V = 11dBi

RBW=100kHz
VBW=300kHz

The EUT is placed on the table and set as set continuously transmitting or receiving as intended. The EUT is transmitting out of port 1 which is the radio that has a band pass filter. The analyzer is connected directly to the antenna port through 10dB of attenuation.

Low Channel – Radio 1


Digital Path, Inc. WO#: 102618 Sequence#: 10 Date: 7/29/2019
15.247(d) Conducted Spurious Emissions Test Lead: 13VDC Radio 1
140
120
100
80
60
40
20
dBµV
1
100k
1M
10M
100M
1G
10G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
1 - 15.247(d) Conducted Spurious Emissions
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03357	Cable	32022-2-29094K-36TC	3/14/2019	3/14/2021
	AN03470	Spectrum Analyzer	E4440A	5/2/2019	5/2/2021
T2	ANANP07365	Attenuator	54A-10	3/26/2019	3/26/2021

Measurement Data: Reading listed by margin. Test Lead: Radio 1

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	902.550M	112.5	+0.5	+9.8			+0.0	122.8	137.0	-14.2	Radio
2	15.808k	64.0	+0.0	+9.8			+0.0	73.8	104.0	-30.2	Radio
3	901.950M	62.5	+0.5	+9.8			+0.0	72.8	104.0	-31.2	Radio
4	899.749M	43.3	+0.5	+9.8			+0.0	53.6	104.0	-50.4	Radio
5	899.149M	42.2	+0.5	+9.8			+0.0	52.5	104.0	-51.5	Radio
6	1804.862M	41.6	+0.5	+9.8			+0.0	51.9	104.0	-52.1	Radio
7	154.861k	42.0	+0.0	+9.8			+0.0	51.8	104.0	-52.2	Radio
8	897.449M	40.5	+0.5	+9.8			+0.0	50.8	104.0	-53.2	Radio
9	897.849M	40.5	+0.5	+9.8			+0.0	50.8	104.0	-53.2	Radio
10	7138.029M	39.3	+1.2	+9.6			+0.0	50.1	104.0	-53.9	Radio
11	7456.069M	39.3	+1.2	+9.5			+0.0	50.0	104.0	-54.0	Radio
12	7142.830M	39.0	+1.2	+9.6			+0.0	49.8	104.0	-54.2	Radio
13	7182.635M	39.0	+1.2	+9.6			+0.0	49.8	104.0	-54.2	Radio
14	7222.640M	39.0	+1.2	+9.6			+0.0	49.8	104.0	-54.2	Radio
15	7295.349M	39.0	+1.2	+9.6			+0.0	49.8	104.0	-54.2	Radio
16	7213.938M	38.9	+1.2	+9.6			+0.0	49.7	104.0	-54.3	Radio
17	7269.146M	38.9	+1.2	+9.6			+0.0	49.7	104.0	-54.3	Radio
18	7712.401M	38.8	+1.3	+9.6			+0.0	49.7	104.0	-54.3	Radio
19	7267.945M	38.8	+1.2	+9.6			+0.0	49.6	104.0	-54.4	Radio
20	7279.947M	38.8	+1.2	+9.6			+0.0	49.6	104.0	-54.4	Radio

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**Digital Path, Inc.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102618**	Date:	7/29/2019
Test Type:	**Conducted Emissions**	Time:	9:16:38 AM
Tested By:	Benny Lovan	Sequence#:	11
Software:	EMITest 5.03.12		13VDC

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Conducted Spurious Emissions
Frequency Range:9kHz to 10000MHz
Test Method: ANSI C63.10 (2013)

Application: Putty Serial Program Version 0001
Temperature: 21°C
Relative Humidity: 42 %
Atmospheric Pressure: 100.7 kPa

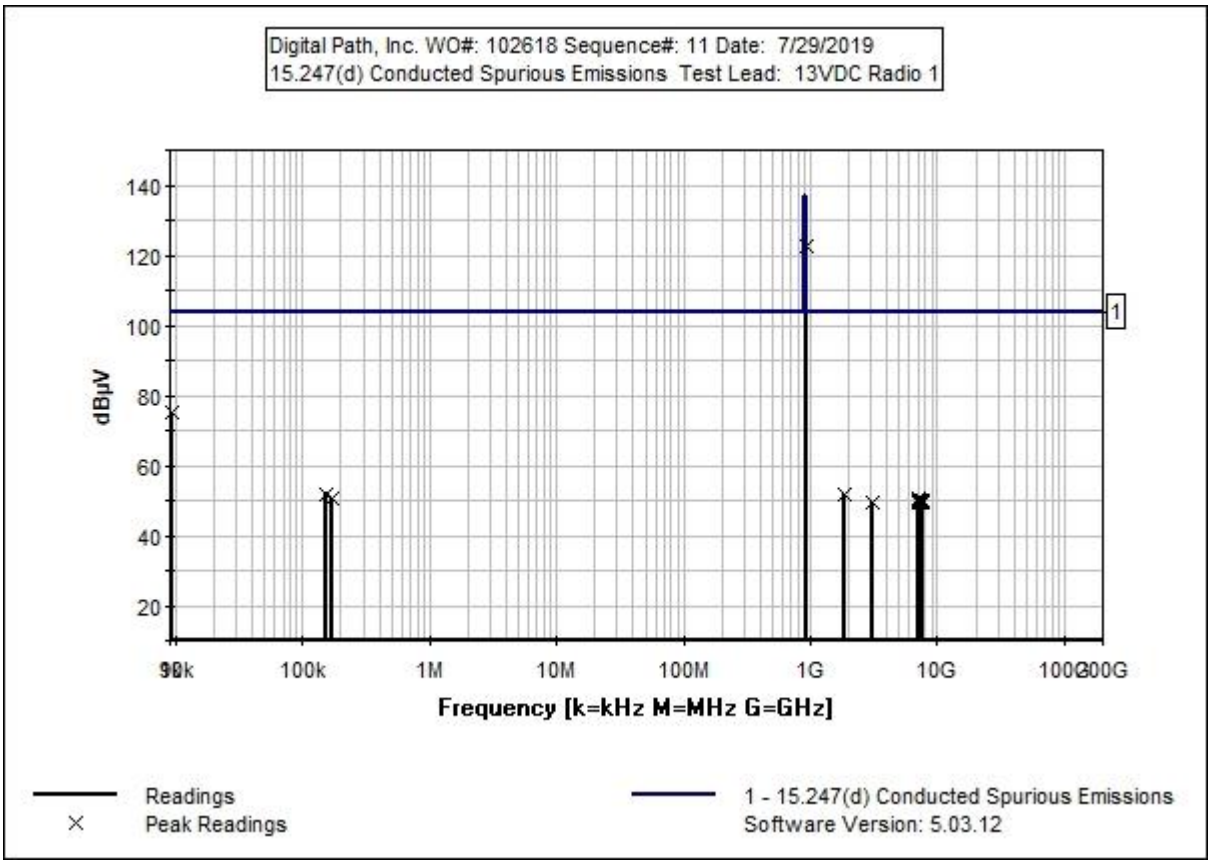
High Clock: 80MHz
Transmitting operating frequency= 902.5, 915 and 927MHz for ISM

Gain of the antenna for ISM=
OL-3043-2 = 2.5dBi
FG9026 = 6dBi
Sector09011V = 11dBi

RBW=100kHz
VBW=300kHz

The EUT is placed on the table and set as set continuously transmitting or receiving as intended. The EUT is transmitting out of port 1 which is the radio that has a band pass filter. The analyzer is connected directly to the antenna port through 10dB of attenuation.

Mid Channel – Radio 1


Digital Path, Inc. WO#: 102618 Sequence#: 11 Date: 7/29/2019
15.247(d) Conducted Spurious Emissions Test Lead: 13VDC Radio 1
140
120
100
80
60
40
20
dBµV
1
100k
1M
10M
100M
1G
10G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
1 - 15.247(d) Conducted Spurious Emissions
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03357	Cable	32022-2-29094K-36TC	3/14/2019	3/14/2021
	AN03470	Spectrum Analyzer	E4440A	5/2/2019	5/2/2021
T2	ANANP07365	Attenuator	54A-10	3/26/2019	3/26/2021

Measurement Data: Reading listed by margin. Test Lead: Radio 1

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	914.951M	112.1	+0.5	+9.8			+0.0	122.4	137.0	-14.6	Radio
2	9.231k	65.1	+0.0	+9.8			+0.0	74.9	104.0	-29.1	Radio
3	155.207k	42.1	+0.0	+9.8			+0.0	51.9	104.0	-52.1	Radio
4	1829.866M	41.5	+0.5	+9.8			+0.0	51.8	104.0	-52.2	Radio
5	168.593k	40.5	+0.0	+9.8			+0.0	50.3	104.0	-53.7	Radio
6	7119.427M	39.4	+1.2	+9.7			+0.0	50.3	104.0	-53.7	Radio
7	7165.732M	39.3	+1.2	+9.6			+0.0	50.1	104.0	-53.9	Radio
8	7274.046M	39.3	+1.2	+9.6			+0.0	50.1	104.0	-53.9	Radio
9	7230.041M	39.2	+1.2	+9.6			+0.0	50.0	104.0	-54.0	Radio
10	7404.262M	39.2	+1.2	+9.5			+0.0	49.9	104.0	-54.1	Radio
11	7685.897M	39.0	+1.3	+9.6			+0.0	49.9	104.0	-54.1	Radio
12	7064.420M	38.9	+1.2	+9.7			+0.0	49.8	104.0	-54.2	Radio
13	7195.436M	39.0	+1.2	+9.6			+0.0	49.8	104.0	-54.2	Radio
14	7243.542M	39.0	+1.2	+9.6			+0.0	49.8	104.0	-54.2	Radio
15	7313.451M	38.9	+1.2	+9.6			+0.0	49.7	104.0	-54.3	Radio
16	7067.320M	38.7	+1.2	+9.7			+0.0	49.6	104.0	-54.4	Radio
17	3077.822M	38.9	+0.7	+9.9			+0.0	49.5	104.0	-54.5	Radio
18	7676.896M	38.6	+1.3	+9.6			+0.0	49.5	104.0	-54.5	Radio
19	7196.036M	38.6	+1.2	+9.6			+0.0	49.4	104.0	-54.6	Radio
20	7308.750M	38.6	+1.2	+9.6			+0.0	49.4	104.0	-54.6	Radio

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**Digital Path, Inc.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102618**	Date:	7/29/2019
Test Type:	**Conducted Emissions**	Time:	9:27:47 AM
Tested By:	Benny Lovan	Sequence#:	12
Software:	EMITest 5.03.12		13VDC

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Conducted Spurious Emissions
Frequency Range:9kHz to 10000MHz
Test Method: ANSI C63.10 (2013)

Application: Putty Serial Program Version 0001
Temperature: 21°C
Relative Humidity: 42 %
Atmospheric Pressure: 100.7 kPa

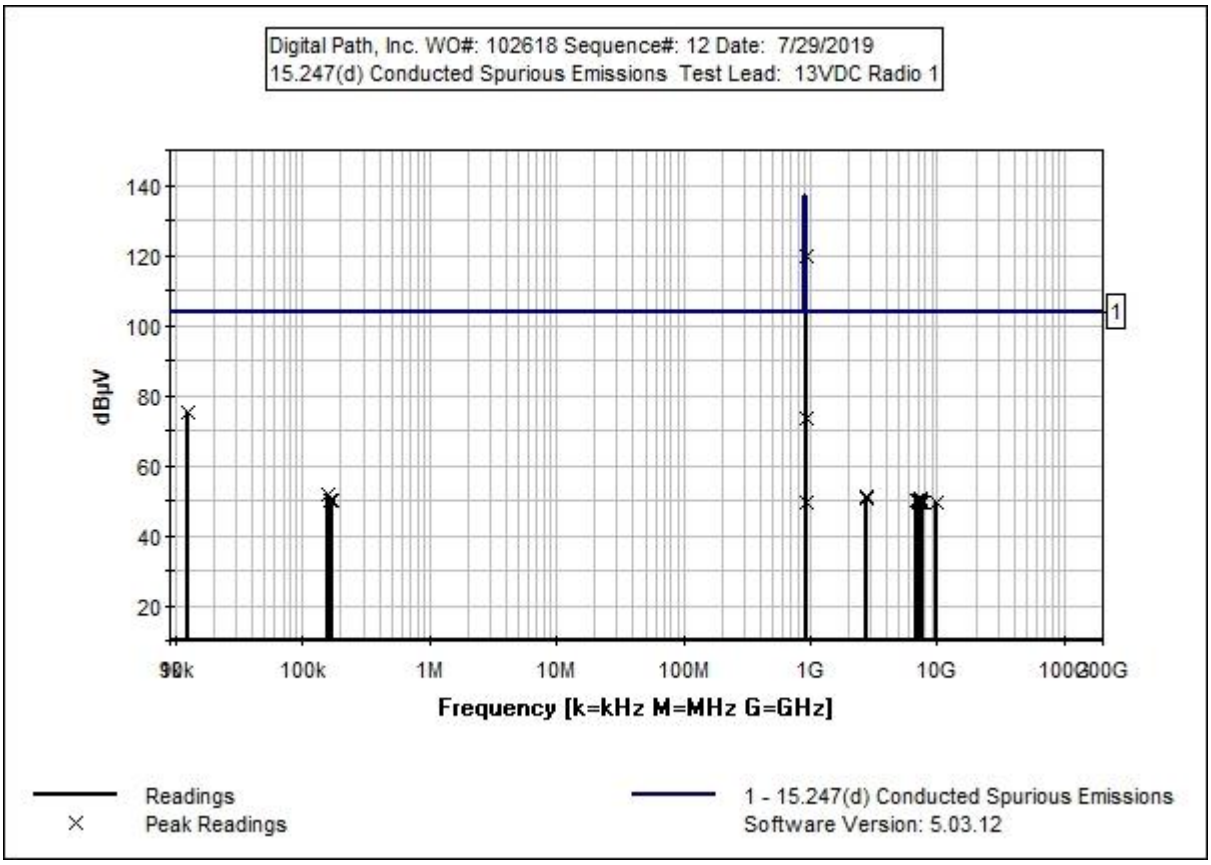
High Clock: 80MHz
Transmitting operating frequency= 902.5, 915 and 927MHz for ISM

Gain of the antenna for ISM=
OL-3043-2 = 2.5dBi
FG9026 = 6dBi
Sector09011V = 11dBi

RBW=100kHz
VBW=300kHz

The EUT is placed on the table and set as set continuously transmitting or receiving as intended. The EUT is transmitting out of port 1 which is the radio that has a band pass filter. The analyzer is connected directly to the antenna port through 10dB of attenuation.

High Channel – Radio 1


Digital Path, Inc. WO#: 102618 Sequence#: 12 Date: 7/29/2019
15.247(d) Conducted Spurious Emissions Test Lead: 13VDC Radio 1
140
120
100
80
60
40
20
dBµV
1
100k
1M
10M
100M
1G
10G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
1 - 15.247(d) Conducted Spurious Emissions
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03357	Cable	32022-2-29094K-36TC	3/14/2019	3/14/2021
	AN03470	Spectrum Analyzer	E4440A	5/2/2019	5/2/2021
T2	ANANP07365	Attenuator	54A-10	3/26/2019	3/26/2021

Measurement Data: Reading listed by margin. Test Lead: Radio 1

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	927.453M	109.7	+0.5	+9.8			+0.0	120.0	137.0	-17.0	Radio
2	12.693k	65.6	+0.0	+9.8			+0.0	75.4	104.0	-28.6	Radio
3	928.053M	63.0	+0.5	+9.8			+0.0	73.3	104.0	-30.7	Radio
4	156.592k	42.0	+0.0	+9.8			+0.0	51.8	104.0	-52.2	Radio
5	2782.285M	40.4	+0.7	+9.8			+0.0	50.9	104.0	-53.1	Radio
6	2782.685M	40.1	+0.7	+9.8			+0.0	50.6	104.0	-53.4	Radio
7	7227.940M	39.7	+1.2	+9.6			+0.0	50.5	104.0	-53.5	Radio
8	166.862k	40.4	+0.0	+9.8			+0.0	50.2	104.0	-53.8	Radio
9	168.824k	40.2	+0.0	+9.8			+0.0	50.0	104.0	-54.0	Radio
10	7086.522M	39.1	+1.2	+9.7			+0.0	50.0	104.0	-54.0	Radio
11	7327.252M	39.2	+1.2	+9.6			+0.0	50.0	104.0	-54.0	Radio
12	7450.768M	39.2	+1.2	+9.5			+0.0	49.9	104.0	-54.1	Radio
13	6888.498M	38.9	+1.2	+9.7			+0.0	49.8	104.0	-54.2	Radio
14	7113.926M	38.9	+1.2	+9.7			+0.0	49.8	104.0	-54.2	Radio
15	932.553M	39.3	+0.5	+9.8			+0.0	49.6	104.0	-54.4	Radio
16	7071.921M	38.7	+1.2	+9.7			+0.0	49.6	104.0	-54.4	Radio
17	7313.751M	38.7	+1.2	+9.6			+0.0	49.5	104.0	-54.5	Radio
18	7532.378M	38.7	+1.3	+9.5			+0.0	49.5	104.0	-54.5	Radio
19	7422.064M	38.7	+1.2	+9.5			+0.0	49.4	104.0	-54.6	Radio
20	9962.785M	38.2	+1.5	+9.7			+0.0	49.4	104.0	-54.6	Radio

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**Digital Path, Inc.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102618**	Date:	7/26/2019
Test Type:	**Conducted Emissions**	Time:	10:23:05 AM
Tested By:	Benny Lovan	Sequence#:	7
Software:	EMITest 5.03.12		13VDC

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Conducted Spurious Emissions
Frequency Range:9kHz to 10000MHz
Test Method: ANSI C63.10 (2013)

Application: Putty Serial Program Version 0001
Temperature: 21°C
Relative Humidity: 42 %
Atmospheric Pressure: 100.7 kPa

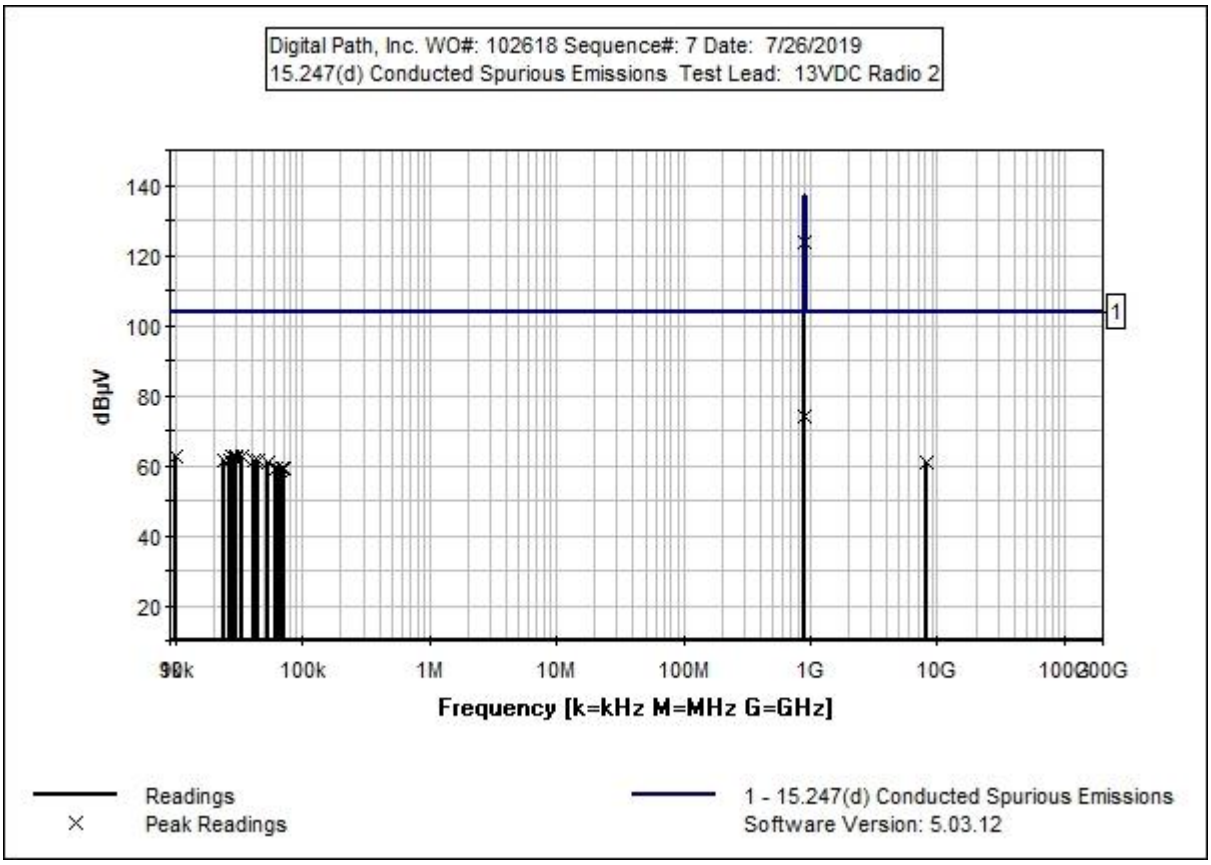
High Clock: 80MHz
Transmitting operating frequency= 902.5, 915 and 927MHz for ISM

Gain of the antenna for ISM=
OL-3043-2 = 2.5dBi
FG9026 = 6dBi
Sector09011V = 11dBi

RBW=100kHz
VBW=300kHz

The EUT is placed on the table and set as set continuously transmitting or receiving as intended. The EUT is transmitting out of port 2 which is the radio that has no band pass filter. The analyzer is connected directly to the antenna port through 10dB of attenuation.

Low Channel – Radio 2


Digital Path, Inc. WO#: 102618 Sequence#: 7 Date: 7/26/2019
15.247(d) Conducted Spurious Emissions Test Lead: 13VDC Radio 2
140
120
100
80
60
40
20
dBµV
1
100k
1M
10M
100M
1G
10G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
1 - 15.247(d) Conducted Spurious Emissions
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03357	Cable	32022-2-29094K-36TC	3/14/2019	3/14/2021
	AN03470	Spectrum Analyzer	E4440A	5/2/2019	5/2/2021
T2	ANANP07365	Attenuator	54A-10	3/26/2019	3/26/2021

Measurement Data: Reading listed by margin. Test Lead: Radio 2

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	902.450M	113.4	+0.5	+9.8			+0.0	123.7	137.0	-13.3	Radio
2	901.950M	63.5	+0.5	+9.8			+0.0	73.8	104.0	-30.2	Radio
3	32.887k	52.8	+0.0	+9.8			+0.0	62.6	104.0	-41.4	Radio
4	10.039k	52.7	+0.0	+9.8			+0.0	62.5	104.0	-41.5	Radio
5	27.925k	52.5	+0.0	+9.8			+0.0	62.3	104.0	-41.7	Radio
6	29.541k	52.5	+0.0	+9.8			+0.0	62.3	104.0	-41.7	Radio
7	28.733k	52.2	+0.0	+9.8			+0.0	62.0	104.0	-42.0	Radio
8	30.233k	52.1	+0.0	+9.8			+0.0	61.9	104.0	-42.1	Radio
9	27.233k	51.8	+0.0	+9.8			+0.0	61.6	104.0	-42.4	Radio
10	23.655k	51.7	+0.0	+9.8			+0.0	61.5	104.0	-42.5	Radio
11	44.657k	51.5	+0.0	+9.8			+0.0	61.3	104.0	-42.7	Radio
12	40.965k	51.4	+0.0	+9.8			+0.0	61.2	104.0	-42.8	Radio
13	8122.052M	49.9	+1.3	+9.7			+0.0	60.9	104.0	-43.1	Radio
14	8122.952M	49.8	+1.3	+9.7			+0.0	60.8	104.0	-43.2	Radio
15	53.658k	50.9	+0.0	+9.8			+0.0	60.7	104.0	-43.3	Radio
16	62.544k	49.4	+0.0	+9.8			+0.0	59.2	104.0	-44.8	Radio
17	68.314k	49.3	+0.0	+9.8			+0.0	59.1	104.0	-44.9	Radio
18	71.776k	49.1	+0.0	+9.8			+0.0	58.9	104.0	-45.1	Radio
19	65.198k	48.8	+0.0	+9.8			+0.0	58.6	104.0	-45.4	Radio
20	66.006k	48.8	+0.0	+9.8			+0.0	58.6	104.0	-45.4	Radio

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**Digital Path, Inc.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102618**	Date:	7/26/2019
Test Type:	**Conducted Emissions**	Time:	10:10:55 AM
Tested By:	Benny Lovan	Sequence#:	6
Software:	EMITest 5.03.12		13VDC

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Conducted Spurious Emissions
Frequency Range:9kHz to 10000MHz
Test Method: ANSI C63.10 (2013)

Application: Putty Serial Program Version 0001
Temperature: 21°C
Relative Humidity: 42 %
Atmospheric Pressure: 100.7 kPa

High Clock: 80MHz
Transmitting operating frequency= 902.5, 915 and 927MHz for ISM

Gain of the antenna for ISM=
OL-3043-2 = 2.5dBi
FG9026 = 6dBi
Sector09011V = 11dBi

RBW=100kHz
VBW=300kHz

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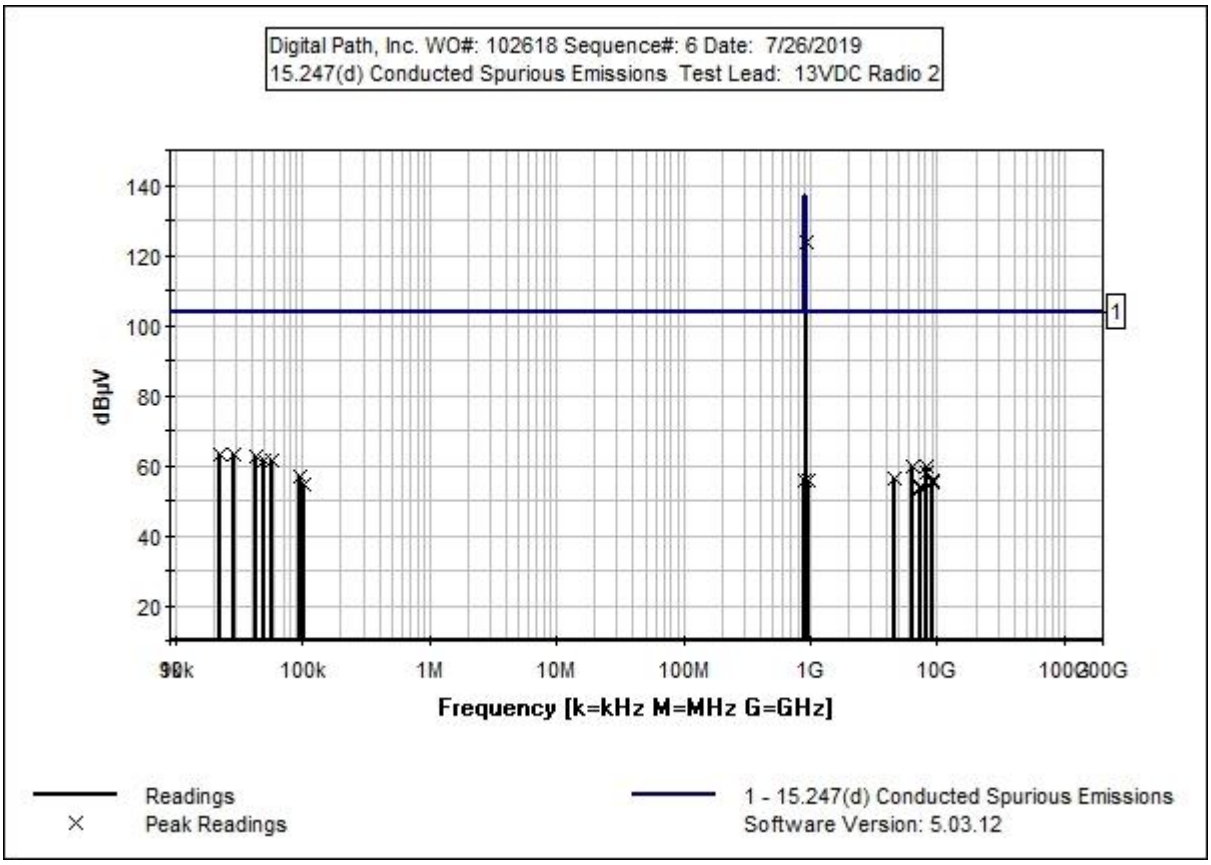
Mid Channel – Radio 2


Digital Path, Inc. WO#: 102618 Sequence#: 6 Date: 7/26/2019
15.247(d) Conducted Spurious Emissions Test Lead: 13VDC Radio 2
140
120
100
80
60
40
20
dBµV
1
100k
1M
10M
100M
1G
10G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
1 - 15.247(d) Conducted Spurious Emissions
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03357	Cable	32022-2-29094K-36TC	3/14/2019	3/14/2021
	AN03470	Spectrum Analyzer	E4440A	5/2/2019	5/2/2021
T2	ANANP07365	Attenuator	54A-10	3/26/2019	3/26/2021

Measurement Data: Reading listed by margin. Test Lead: Radio 2

#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	914.951M	113.3	+0.5	+9.8			+0.0	123.6	137.0	-13.4	Radio
2	22.271k	53.5	+0.0	+9.8			+0.0	63.3	104.0	-40.7	Radio
3	29.079k	53.1	+0.0	+9.8			+0.0	62.9	104.0	-41.1	Radio
4	42.927k	52.6	+0.0	+9.8			+0.0	62.4	104.0	-41.6	Radio
5	50.312k	51.8	+0.0	+9.8			+0.0	61.6	104.0	-42.4	Radio
6	56.774k	51.7	+0.0	+9.8			+0.0	61.5	104.0	-42.5	Radio
7	6404.637M	48.9	+1.1	+9.8			+0.0	59.8	104.0	-44.2	Radio
8	6405.337M	48.9	+1.1	+9.8			+0.0	59.8	104.0	-44.2	Radio
9	8234.466M	48.6	+1.3	+9.6			+0.0	59.5	104.0	-44.5	Radio
10	8235.466M	47.2	+1.3	+9.6			+0.0	58.1	104.0	-45.9	Radio
11	94.739k	46.8	+0.0	+9.8			+0.0	56.6	104.0	-47.4	Radio
12	4574.708M	45.6	+0.9	+9.9			+0.0	56.4	104.0	-47.6	Radio
13	4575.208M	45.4	+0.9	+9.9			+0.0	56.2	104.0	-47.8	Radio
14	882.947M	45.4	+0.5	+9.8			+0.0	55.7	104.0	-48.3	Radio
15	9150.480M	44.6	+1.4	+9.6			+0.0	55.6	104.0	-48.4	Radio
16	946.955M	45.2	+0.5	+9.8			+0.0	55.5	104.0	-48.5	Radio
17	9149.480M	44.4	+1.4	+9.6			+0.0	55.4	104.0	-48.6	Radio
18	102.240k	45.0	+0.0	+9.8			+0.0	54.8	104.0	-49.2	Radio
19	7319.552M	43.3	+1.2	+9.6			+0.0	54.1	104.0	-49.9	Radio
20	7320.352M	42.6	+1.2	+9.6			+0.0	53.4	104.0	-50.6	Radio

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**Digital Path, Inc.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102618**	Date:	7/26/2019
Test Type:	**Conducted Emissions**	Time:	9:55:15 AM
Tested By:	Benny Lovan	Sequence#:	5
Software:	EMITest 5.03.12		13VDC

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Conducted Spurious Emissions
Frequency Range:9kHz to 10000MHz
Test Method: ANSI C63.10 (2013)

Application: Putty Serial Program Version 0001
Temperature: 21°C
Relative Humidity: 42 %
Atmospheric Pressure: 100.7 kPa

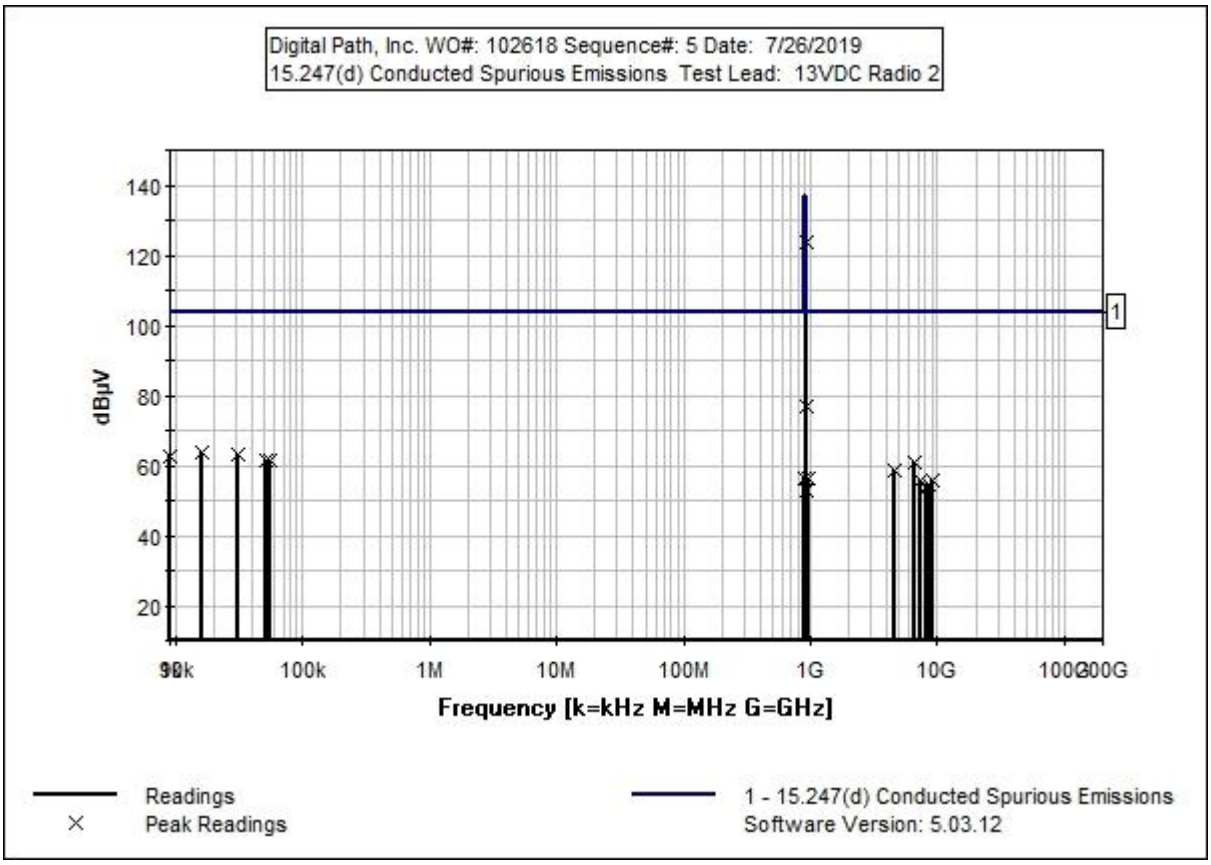
High Clock: 80MHz
Transmitting operating frequency= 902.5, 915 and 927MHz for ISM

Gain of the antenna for ISM=
OL-3043-2 = 2.5dBi
FG9026 = 6dBi
Sector09011V = 11dBi

RBW=100kHz
VBW=300kHz

The EUT is placed on the table and set as set continuously transmitting or receiving as intended. The EUT is transmitting out of port 2 which is the radio that has no band pass filter. The analyzer is connected directly to the antenna port through 10dB of attenuation.

High Channel- Radio 2


Digital Path, Inc. WO#: 102618 Sequence#: 5 Date: 7/26/2019
15.247(d) Conducted Spurious Emissions Test Lead: 13VDC Radio 2
140
120
100
80
60
40
20
dBµV
1
100k
1M
10M
100M
1G
10G
Frequency [k=kHz M=MHz G=GHz]
Readings
Peak Readings
1 - 15.247(d) Conducted Spurious Emissions
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN03357	Cable	32022-2-29094K-36TC	3/14/2019	3/14/2021
	AN03470	Spectrum Analyzer	E4440A	5/2/2019	5/2/2021
T2	ANANP07365	Attenuator	54A-10	3/26/2019	3/26/2021

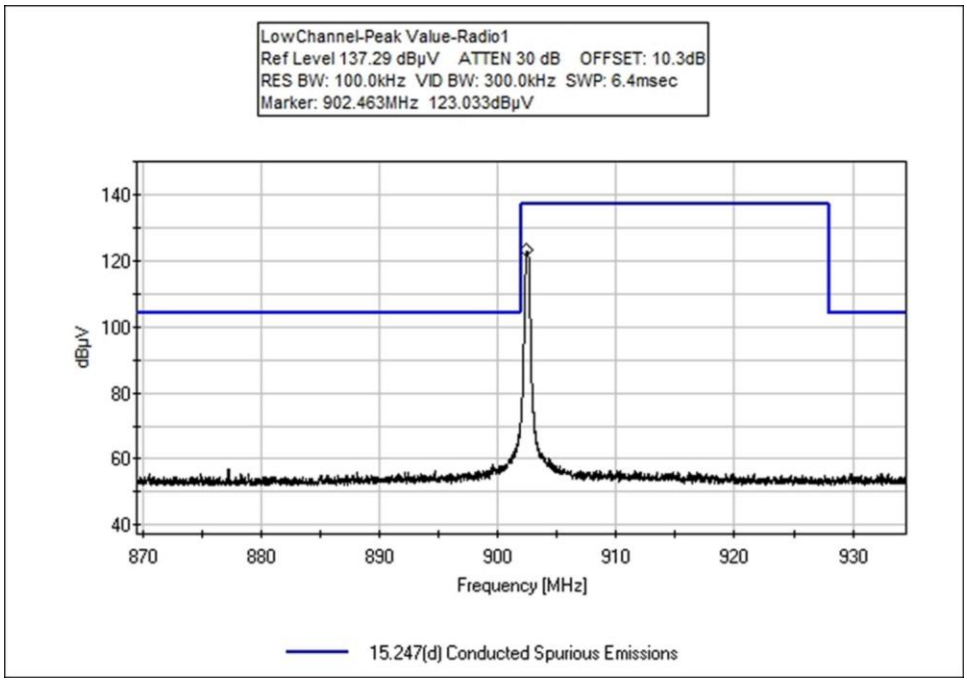
Measurement Data: Reading listed by margin. Test Lead: Radio 2

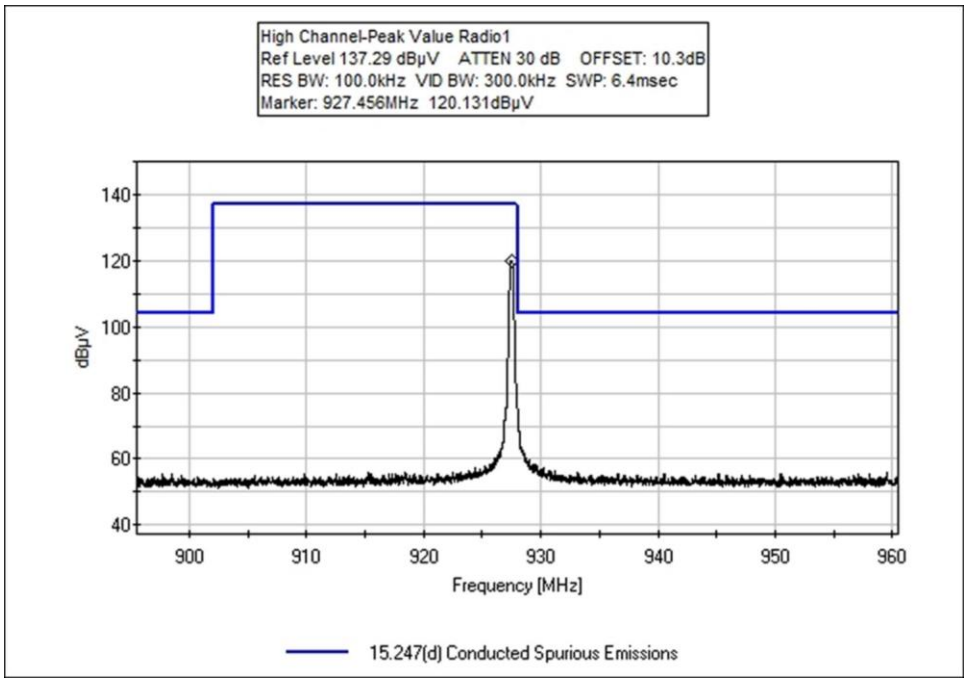
#	Freq MHz	Rdng dBµV	T1 dB	T2 dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	927.453M	113.4	+0.5	+9.8			+0.0	123.7	137.0	-13.3	Radio
2	928.053M	66.6	+0.5	+9.8			+0.0	76.9	104.0	-27.1	Radio
3	15.924k	53.7	+0.0	+9.8			+0.0	63.5	104.0	-40.5	Radio
4	31.156k	53.3	+0.0	+9.8			+0.0	63.1	104.0	-40.9	Radio
5	9.000k	52.9	+0.0	+9.8			+0.0	62.7	104.0	-41.3	Radio
6	55.043k	51.9	+0.0	+9.8			+0.0	61.7	104.0	-42.3	Radio
7	51.466k	51.5	+0.0	+9.8			+0.0	61.3	104.0	-42.7	Radio
8	6492.848M	49.8	+1.1	+9.8			+0.0	60.7	104.0	-43.3	Radio
9	6492.148M	49.7	+1.1	+9.8			+0.0	60.6	104.0	-43.4	Radio
10	4637.716M	47.7	+0.9	+9.9			+0.0	58.5	104.0	-45.5	Radio
11	4637.216M	47.6	+0.9	+9.9			+0.0	58.4	104.0	-45.6	Radio
12	895.549M	45.9	+0.5	+9.8			+0.0	56.2	104.0	-47.8	Radio
13	959.457M	45.8	+0.5	+9.8			+0.0	56.1	104.0	-47.9	Radio
14	7419.564M	45.3	+1.2	+9.5			+0.0	56.0	104.0	-48.0	Radio
15	9274.496M	44.8	+1.5	+9.6			+0.0	55.9	104.0	-48.1	Radio
16	7420.364M	45.1	+1.2	+9.5			+0.0	55.8	104.0	-48.2	Radio
17	9275.496M	44.7	+1.5	+9.6			+0.0	55.8	104.0	-48.2	Radio
18	8347.880M	43.6	+1.3	+9.4			+0.0	54.3	104.0	-49.7	Radio
19	8347.080M	43.0	+1.3	+9.4			+0.0	53.7	104.0	-50.3	Radio
20	932.353M	42.5	+0.5	+9.8			+0.0	52.8	104.0	-51.2	Radio

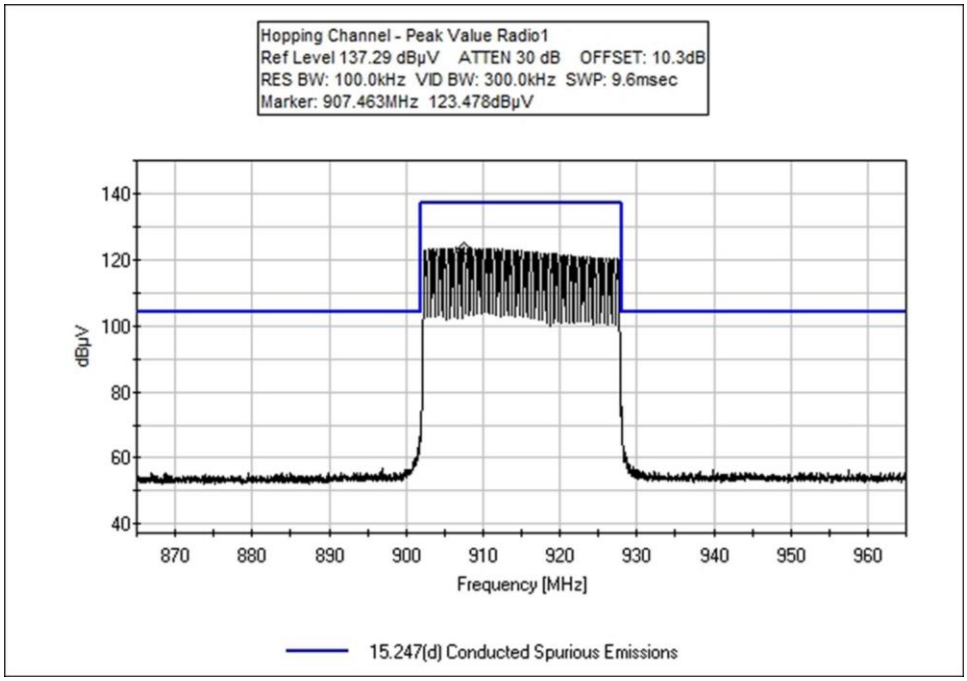
Band Edge

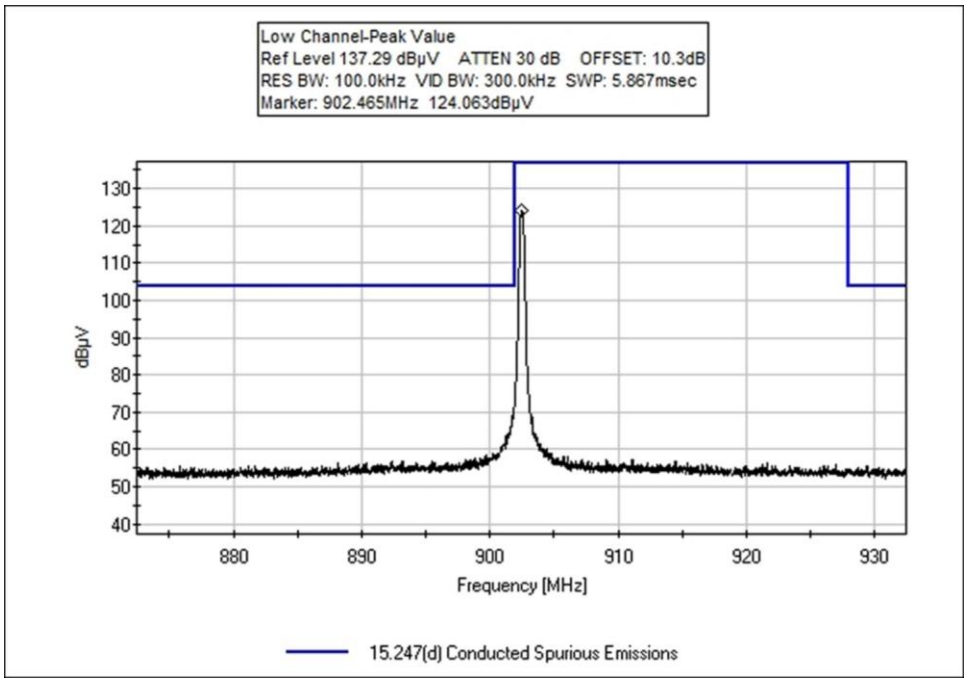
Band Edge Summary				
Limit applied: Max Power/100kHz - 20dB.				
Frequency (MHz)	**Modulation**	**Measured (dBuV)**	**Limit (dBuV)**	**Results**
902	FSK/Radio 1	73.7	<104	Pass
902	FSK/Radio 2	75.0	<104	Pass
928	FSK/Radio 1	73.6	<104	Pass
928	FSK/Radio 2	80.1	<104	Pass

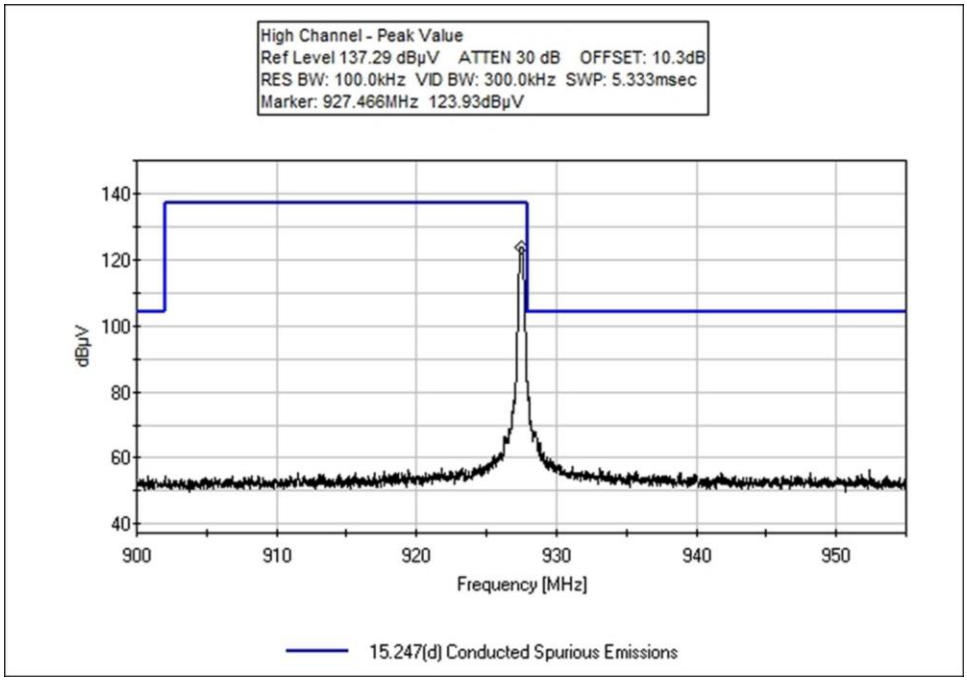
Band Edge Plots

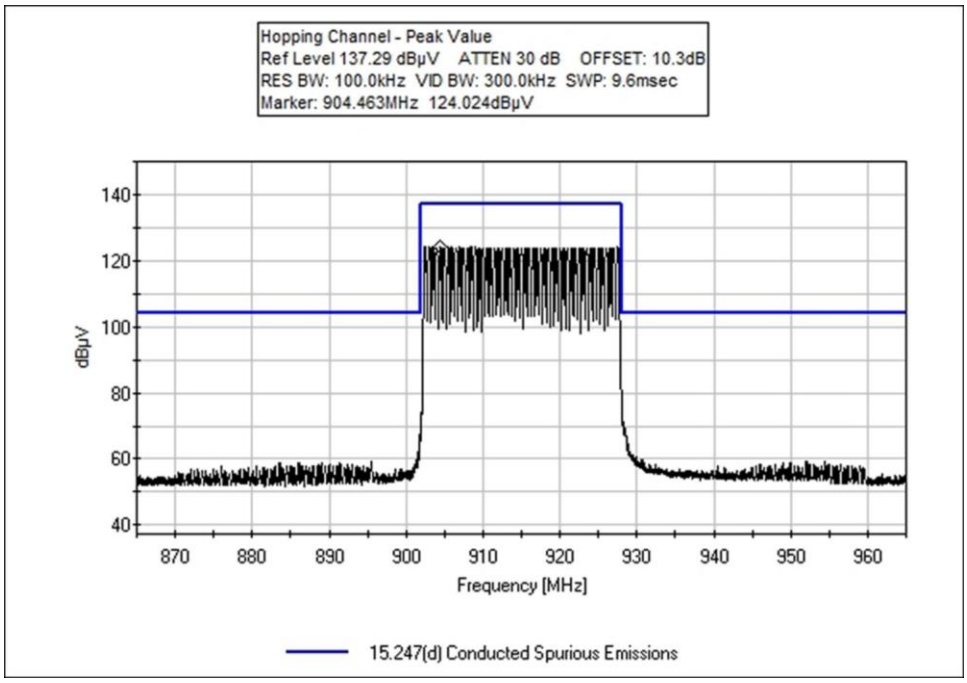



High Channel-Peak Value Radio1
Ref Level 137.29 dBµV ATTEN 30 dB OFFSET: 10.3dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 6.4msec
Marker: 927.456MHz 120.131dBµV
140
120
100
80
60
40
dBµV
900
910
920
930
940
950
960
Frequency [MHz]
15.247(d) Conducted Spurious Emissions


Hopping Channel - Peak Value Radio1
Ref Level 137.29 dBµV ATTEN 30 dB OFFSET: 10.3dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 9.6msec
Marker: 907.463MHz 123.478dBµV
140
120
100
80
60
40
dBµV
870
880
890
900
910
920
930
940
950
960
Frequency [MHz]
15.247(d) Conducted Spurious Emissions


Low Channel-Peak Value
Ref Level 137.29 dBµV ATTEN 30 dB OFFSET: 10.3dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 5.867msec
Marker: 902.465MHz 124.063dBµV
dBµV
130
120
110
100
90
80
70
60
50
40
880
890
900
910
920
930
Frequency [MHz]
15.247(d) Conducted Spurious Emissions


High Channel - Peak Value
Ref Level 137.29 dBµV ATTEN 30 dB OFFSET: 10.3dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 5.333msec
Marker: 927.466MHz 123.93dBµV
dBµV
140
120
100
80
60
40
900
910
920
930
940
950
Frequency [MHz]
15.247(d) Conducted Spurious Emissions


Hopping Channel - Peak Value
Ref Level 137.29 dBµV ATTEN 30 dB OFFSET: 10.3dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 9.6msec
Marker: 904.463MHz 124.024dBµV
140
120
100
80
60
40
dBµV
870
880
890
900
910
920
930
940
950
960
Frequency [MHz]
15.247(d) Conducted Spurious Emissions

Test Setup / Conditions / Data

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**Digital Path, Inc.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102618**	Date:	7/29/2019
Test Type:	**Conducted Emissions**	Time:	08:53:58
Tested By:	Benny Lovan	Sequence#:	3
Software:	EMITest 5.03.12		13VDC

Equipment Tested:

Device	Manufacturer	Model #	S/N

Support Equipment:

Device	Manufacturer	Model #	S/N

Test Conditions / Notes:

Conducted Band Edge Measurements
Frequency Range:.902-928MHz

Method: ANSI C63.10 2013

KDB: 558074 D01 15.247 MeasGuidance v05r02, April 2, 2019

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	ANP07365	Attenuator	54A-10	3/26/2019	3/26/2021
	AN03357	Cable	32022-2-29094K-36TC	3/14/2019	3/14/2021

Measurement Data: Reading listed by margin. Test Lead: Radio 1

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	928.000M	80.1					+0.0	80.1	104.0 Rate 6, PwrSetting31	-23.9	Radio
2	902.000M	75.0					+0.0	75.0	104.0 Rate 6, PwrSetting31	-29.0	Radio
3	902.000M	73.7					+0.0	73.7	104.0 Rate 6, PwrSetting31	-30.3	Radio
4	928.000M	73.6					+0.0	73.6	104.0 Rate 6, PwrSetting31	-30.4	Radio

Test Setup Photo(s)

15.247(d) Radiated Emissions & Band Edge

Test Setup / Conditions / Data

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**Digital Path, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102618**	Date:	8/8/2019
Test Type:	**Maximized Emissions**	Time:	15:32:22
Tested By:	Benny Lovan	Sequence#:	3
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emissions
Frequency Range:.009-1000MHz

Method: ANSI C63.10 2013

Temperature: 20.2°C
Relative Humidity: 37 %
Atmospheric Pressure: 101.1 kPa

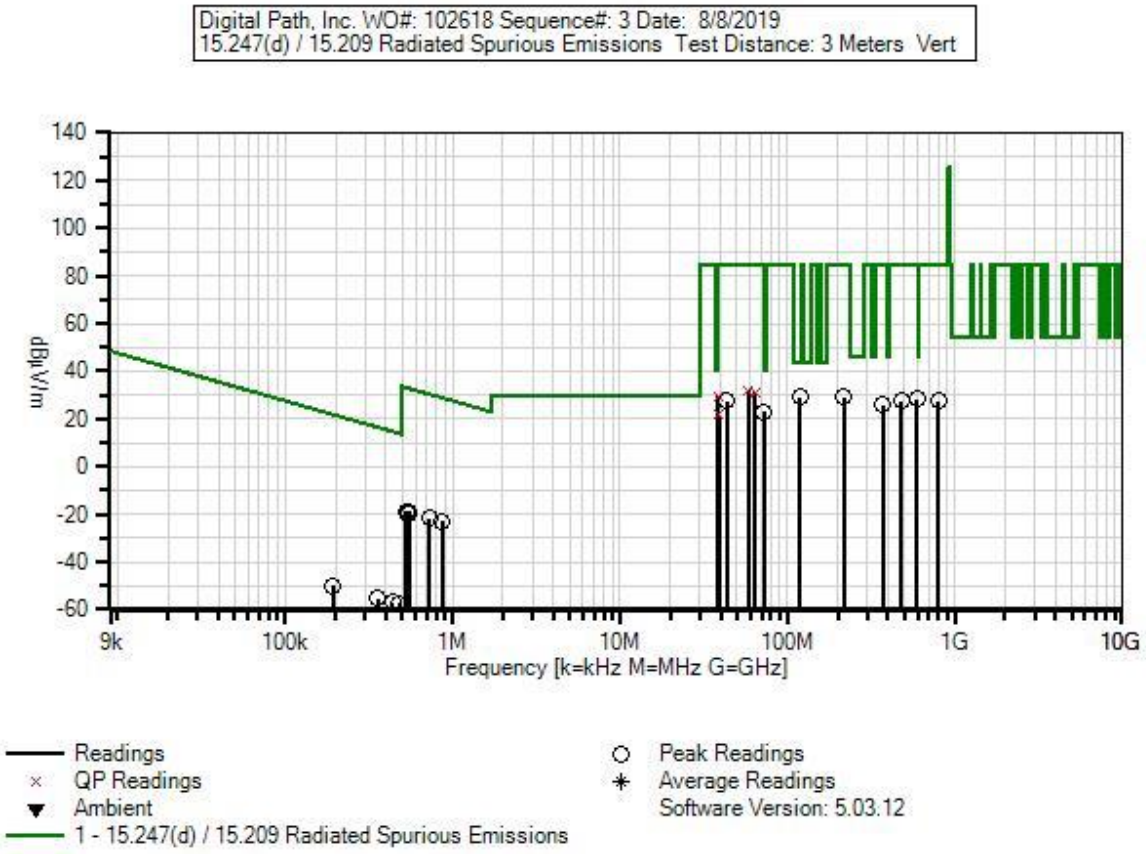
Application: Putty Serial Program Version 0001
High Clock: 80MHz
Transmitting operating frequency= 902.5MHz

Gain of the antennas for ISM=
OL-3043-2 = 2.5dBi
FG9026 = 6dBi
Sector09011V = 11dBi

The data herein demonstrates compliance with the limits utilizing each antenna described above.

The EUT is placed on the table and set as continuously transmitting or receiving as intended. The EUT is transmitting out of port 2 which is the radio that has no band pass filter.
ISM on TX Mode at Low Channel. The EUT is connected to a laptop running the Putty serial program via USB.
Emissions were verified against port1 to ensure that the worse case emissions were reported.
Vertical polarity verified to be the worse-case polarity.

Low Channel – All Antennas
Modification #1 was in place during testing.


Digital Path, Inc. WO#: 102618 Sequence#: 3 Date: 8/8/2019
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Vert
140
120
100
80
60
40
20
0
-20
-40
-60
dBµV/m
9k
100k
1M
10M
100M
1G
10G
Frequency [k=kHz M=MHz G=GHz]
Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020
T7	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	118.500M	42.0	-32.1 +0.4	+6.0 +11.6	+1.0 +0.0	+0.2	+0.0	29.1	43.5	-14.4	Vert
2	862.929k	33.1	-32.1 +0.0	+5.9 +0.0	+0.1 +10.2	+0.0	-40.0	-22.8	28.9	-51.7	Z-Axi
3	547.233k	37.0	-32.1 +0.0	+5.9 +0.0	+0.0 +10.3	+0.0	-40.0	-18.9	32.8	-51.7	Perpe
4	724.943k	34.3	-32.1 +0.0	+5.9 +0.0	+0.1 +10.2	+0.0	-40.0	-21.6	30.4	-52.0	Z-Axi
5	526.326k	37.0	-32.1 +0.0	+5.9 +0.0	+0.0 +10.3	+0.0	-40.0	-18.9	33.2	-52.1	Paral
6	549.324k	35.8	-32.1 +0.0	+5.9 +0.0	+0.0 +10.3	+0.0	-40.0	-20.1	32.8	-52.9	Paral
7	58.630M QP	50.4	-32.1 +0.3	+6.0 +6.5	+0.7 +0.0	+0.1	+0.0	31.9	84.8	-52.9	Vert
^	58.630M	54.6	-32.1 +0.3	+6.0 +6.5	+0.7 +0.0	+0.1	+0.0	36.1	84.8	-48.7	Vert
9	64.020M QP	49.8	-32.1 +0.3	+6.0 +6.2	+0.7 +0.0	+0.1	+0.0	31.0	84.8	-53.8	Vert
^	64.020M	56.1	-32.1 +0.3	+6.0 +6.2	+0.7 +0.0	+0.1	+0.0	37.3	84.8	-47.5	Vert
11	38.600M QP	39.8	-32.1 +0.2	+5.9 +15.2	+0.5 +0.0	+0.1	+0.0	29.6	84.8	-55.2	Vert
^	38.600M	47.4	-32.1 +0.2	+5.9 +15.2	+0.5 +0.0	+0.1	+0.0	37.2	84.8	-47.6	Vert
13	216.320M	42.4	-32.0 +0.6	+6.0 +10.3	+1.4 +0.0	+0.3	+0.0	29.0	84.8	-55.8	Horiz
14	592.960M	30.8	-32.2 +1.0	+6.0 +19.6	+2.6 +0.0	+0.6	+0.0	28.4	84.8	-56.4	Horiz
15	801.800M	26.6	-32.2 +1.2	+6.0 +22.1	+3.1 +0.0	+0.8	+0.0	27.6	84.8	-57.2	Horiz
16	43.460M	40.1	-32.1 +0.2	+6.0 +12.7	+0.6 +0.0	+0.1	+0.0	27.6	84.8	-57.2	Vert
17	479.820M	32.4	-32.0 +0.8	+6.0 +17.5	+2.3 +0.0	+0.5	+0.0	27.5	84.8	-57.3	Horiz

18	371.560M	33.4	-32.0	+6.0	+2.0	+0.4	+0.0	25.7	84.8	-59.1	Horiz
			+0.7	+15.2	+0.0						
19	72.620M	41.1	-32.1	+5.9	+0.8	+0.1	+0.0	22.8	84.8	-62.0	Horiz
			+0.3	+6.7	+0.0						
20	38.860M	32.2	-32.1	+5.9	+0.5	+0.1	+0.0	21.9	84.8	-62.9	Horiz
	QP		+0.2	+15.1	+0.0						
^	38.860M	37.8	-32.1	+5.9	+0.5	+0.1	+0.0	27.5	84.8	-57.3	Horiz
			+0.2	+15.1	+0.0						
22	480.330k	38.3	-32.1	+5.9	+0.0	+0.0	-80.0	-57.5	14.0	-71.5	Paral
			+0.0	+0.0	+10.4						
23	193.904k	45.6	-32.1	+5.9	+0.0	+0.0	-80.0	-49.8	21.8	-71.6	Perpe
			+0.0	+0.0	+10.8						
24	359.070k	40.3	-32.1	+5.9	+0.0	+0.0	-80.0	-55.3	16.5	-71.8	Perpe
			+0.0	+0.0	+10.6						
25	438.516k	38.7	-32.2	+5.9	+0.0	+0.0	-80.0	-57.1	14.8	-71.9	Z-Axi
			+0.0	+0.0	+10.5						

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**Digital Path, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102618**	Date:	8/8/2019
Test Type:	**Maximized Emissions**	Time:	15:50:09
Tested By:	Benny Lovan	Sequence#:	3
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emissions
Frequency Range:.009-1000MHz

Method: ANSI C63.10 2013

Temperature: 20.2°C
Relative Humidity: 37 %
Atmospheric Pressure: 101.1 kPa

Application: Putty Serial Program Version 0001
High Clock: 80MHz
Transmitting operating frequency= 915MHz

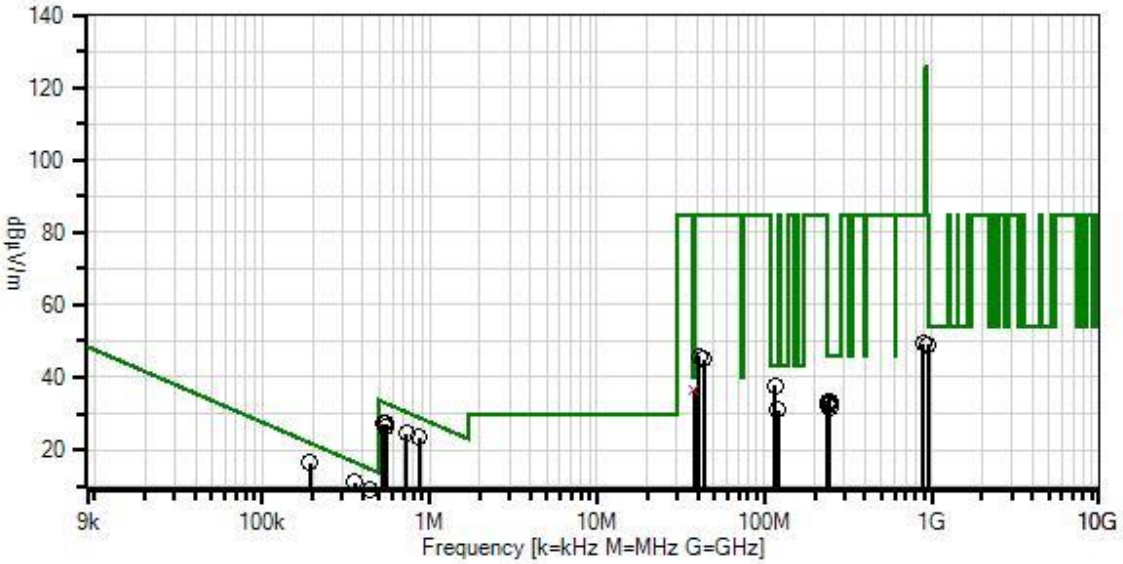
Gain of the antennas for ISM=
OL-3043-2 = 2.5dBi
FG9026 = 6dBi
Sector09011V = 11dBi

The data herein demonstrates compliance with the limits utilizing each antenna described above.

The EUT is placed on the table and set as continuously transmitting or receiving as intended. The EUT is transmitting out of port 2 which is the radio that has no band pass filter.
ISM on TX Mode at Low Channel. The EUT is connected to a laptop running the Putty serial program via USB.
Emissions were verified against port1 to ensure that the worse case emissions were reported.
Vertical polarity verified to be the worse-case polarity.

Mid Channel – All Antennas
Modification #1 was in place during testing.

Digital Path, Inc. WO#: 102618 Sequence#: 3 Date: 8/8/2019
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Vert



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T6	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020
	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	38.172M	46.6	-32.1	+5.9	+0.5	+0.1	+0.0	36.6	40.0	-3.4	Vert
	QP		+0.2	+15.4							
^	38.172M	50.5	-32.1	+5.9	+0.5	+0.1	+0.0	40.5	40.0	+0.5	Vert
			+0.2	+15.4							
3	480.330k	38.3	+0.0	+0.0	+0.0	+0.0	-40.0	8.7	14.0	-5.3	Paral
			+0.0	+0.0							
4	193.904k	45.6	+0.0	+0.0	+0.0	+0.0	-40.0	16.4	21.8	-5.4	Perpe
			+0.0	+0.0							
5	547.233k	37.0	+0.0	+0.0	+0.0	+0.0	-20.0	27.3	32.8	-5.5	Perpe
			+0.0	+0.0							
6	862.929k	33.1	+0.0	+0.0	+0.1	+0.0	-20.0	23.4	28.9	-5.5	Z-Axi
			+0.0	+0.0							
7	438.516k	38.7	+0.0	+0.0	+0.0	+0.0	-40.0	9.2	14.8	-5.6	Z-Axi
			+0.0	+0.0							
8	359.070k	40.3	+0.0	+0.0	+0.0	+0.0	-40.0	10.9	16.5	-5.6	Perpe
			+0.0	+0.0							
9	116.128M	50.9	-32.1	+6.0	+1.0	+0.2	+0.0	37.8	43.5	-5.7	Vert
			+0.4	+11.4							
10	724.943k	34.3	+0.0	+0.0	+0.1	+0.0	-20.0	24.6	30.4	-5.8	Z-Axi
			+0.0	+0.0							
11	526.326k	37.0	+0.0	+0.0	+0.0	+0.0	-20.0	27.3	33.2	-5.9	Paral
			+0.0	+0.0							
12	549.324k	35.8	+0.0	+0.0	+0.0	+0.0	-20.0	26.1	32.8	-6.7	Paral
			+0.0	+0.0							
13	120.213M	43.7	-32.1	+6.0	+1.0	+0.2	+0.0	30.9	43.5	-12.6	Horiz
			+0.4	+11.7							
14	244.777M	44.6	-32.0	+6.0	+1.5	+0.3	+0.0	33.3	46.0	-12.7	Horiz
			+0.6	+12.3							
15	241.294M	44.8	-32.0	+6.0	+1.5	+0.3	+0.0	33.2	46.0	-12.8	Horiz
			+0.6	+12.0							
16	240.092M	44.5	-32.0	+6.0	+1.5	+0.3	+0.0	32.8	46.0	-13.2	Horiz
			+0.6	+11.9							
17	240.453M	43.6	-32.0	+6.0	+1.5	+0.3	+0.0	32.0	46.0	-14.0	Horiz
			+0.6	+12.0							

18	245.137M	43.1	-32.0 +0.6	+6.0 +12.3	+1.5	+0.3	+0.0	31.8	46.0	-14.2	Horiz
19	882.975M	47.1	-31.9 +1.4	+5.9 +22.7	+3.3	+0.9	+0.0	49.4	84.8	-35.4	Vert
20	946.968M	45.4	-31.4 +1.3	+5.9 +23.5	+3.4	+0.9	+0.0	49.0	84.8	-35.8	Vert
21	40.382M	56.7	-32.1 +0.2	+5.9 +14.5	+0.5	+0.1	+0.0	45.8	84.8	-39.0	Vert
22	43.709M	57.5	-32.1 +0.2	+6.0 +12.6	+0.6	+0.1	+0.0	44.9	84.8	-39.9	Vert

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**Digital Path, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102618**	Date:	8/1/2019
Test Type:	**Radiated Scan**	Time:	09:11:56
Tested By:	Benny Lovan	Sequence#:	3
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emissions
Frequency Range:.009-1000MHz

Method: ANSI C63.10 2013

Temperature: 20.2°C
Relative Humidity: 37 %
Atmospheric Pressure: 101.1 kPa

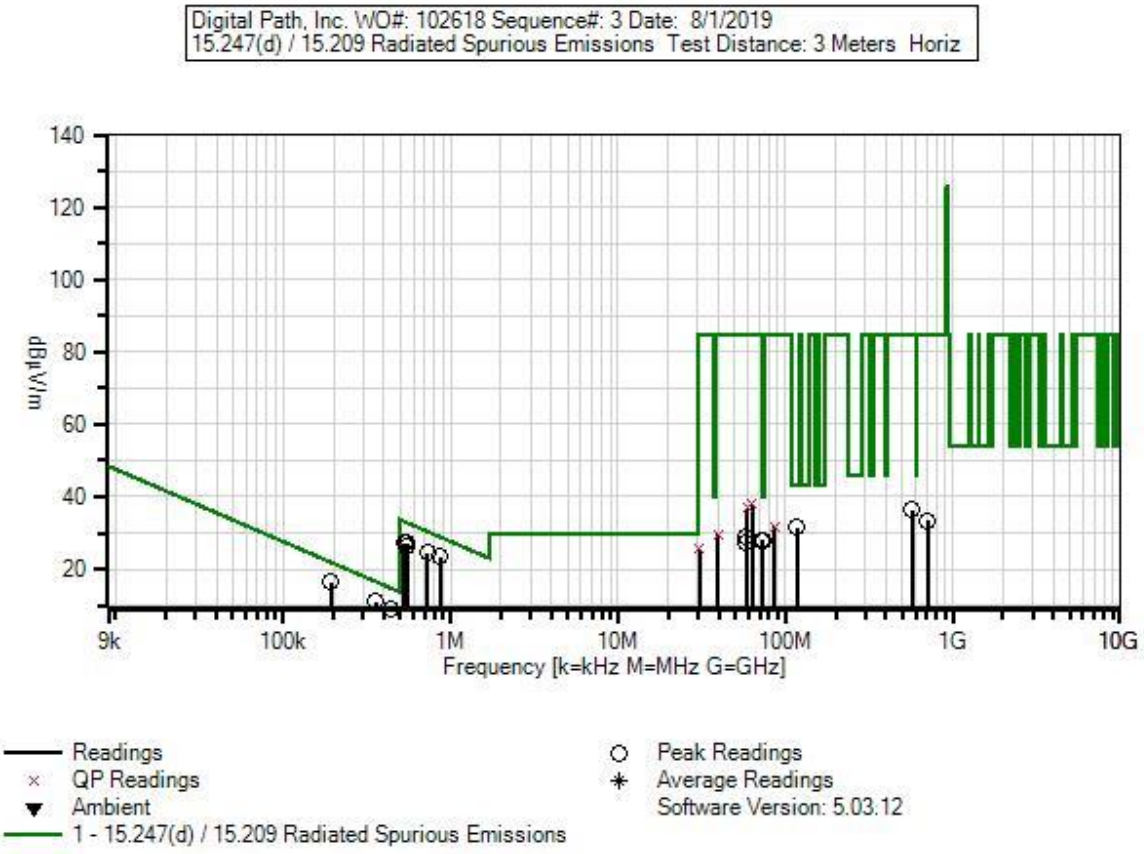
Application: Putty Serial Program Version 0001
High Clock: 80MHz
Transmitting operating frequency= 927.5MHz

Gain of the antennas for ISM=
OL-3043-2 = 2.5dBi
FG9026 = 6dBi
Sector09011V = 11dBi

The data herein demonstrates compliance with the limits utilizing each antenna described above.

The EUT is placed on the table and set as continuously transmitting or receiving as intended. The EUT is transmitting out of port 2 which is the radio that has no band pass filter.
ISM on TX Mode at Low Channel. The EUT is connected to a laptop running the Putty serial program via USB. Emissions were verified against port1 to ensure that the worse case emissions were reported.
Vertical polarity verified to be the worse-case polarity.

High Channel – All Antennas
Modification #1 was in place during testing.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP05656	Attenuator	PE7004-6	1/18/2018	1/18/2020
T2	ANP06229	Cable	CXTA04A-50	3/13/2018	3/13/2020
T3	AN01993	Biconilog Antenna	CBL6111C	6/11/2019	6/11/2021
T4	AN00282	Preamp	8447D	1/9/2018	1/9/2020
T5	ANP06884	Cable	LMR195-FR-4	8/1/2017	8/1/2019
T6	ANP06885	Cable	P06885	9/6/2017	9/6/2019
T7	ANMD3M	Cable		3/13/2018	3/13/2020
	AN03470	Spectrum Analyzer	E4440A	5/2/2019	5/2/2021
T8	AN00226	Loop Antenna	6502	6/1/2018	6/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1	T2	T3	T4	Dist	Corr	Spec	Margin	Polar
			T5	T6	T7	T8					
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	480.330k	38.3	+0.0	+0.0	+0.0	+0.0	-40.0	8.7	14.0	-5.3	Paral
			+0.0	+0.0	+0.0	+10.4					

2	193.904k	45.6	+0.0 +0.0	+0.0 +0.0	+0.0 +0.0	+0.0 +10.8	-40.0	16.4	21.8	-5.4	Perpe
3	547.233k	37.0	+0.0 +0.0	+0.0 +0.0	+0.0 +0.0	+0.0 +10.3	-20.0	27.3	32.8	-5.5	Perpe
4	862.929k	33.1	+0.0 +0.0	+0.0 +0.0	+0.1 +0.0	+0.0 +10.2	-20.0	23.4	28.9	-5.5	Z-Axi
5	438.516k	38.7	+0.0 +0.0	+0.0 +0.0	+0.0 +0.0	+0.0 +10.5	-40.0	9.2	14.8	-5.6	Z-Axi
6	359.070k	40.3	+0.0 +0.0	+0.0 +0.0	+0.0 +0.0	+0.0 +10.6	-40.0	10.9	16.5	-5.6	Perpe
7	724.943k	34.3	+0.0 +0.0	+0.0 +0.0	+0.1 +0.0	+0.0 +10.2	-20.0	24.6	30.4	-5.8	Z-Axi
8	526.326k	37.0	+0.0 +0.0	+0.0 +0.0	+0.0 +0.0	+0.0 +10.3	-20.0	27.3	33.2	-5.9	Paral
9	549.324k	35.8	+0.0 +0.0	+0.0 +0.0	+0.0 +0.0	+0.0 +10.3	-20.0	26.1	32.8	-6.7	Paral
10	117.870M	39.3	+6.0 +0.3	+1.1 +0.3	+11.1 +0.9	-27.5 +0.0	+0.0	31.5	43.5	-12.0	Vert
11	63.540M QP	51.5	+6.0 +0.2	+0.8 +0.2	+6.3 +0.7	-27.7 +0.0	+0.0	38.0	84.8	-46.8	Vert
^	63.540M	57.5	+6.0 +0.2	+0.8 +0.2	+6.3 +0.7	-27.7 +0.0	+0.0	44.0	84.8	-40.8	Vert
13	59.370M QP	50.5	+6.0 +0.2	+0.8 +0.2	+6.4 +0.6	-27.7 +0.0	+0.0	37.0	84.8	-47.8	Vert
^	59.370M	54.6	+6.0 +0.2	+0.8 +0.2	+6.4 +0.6	-27.7 +0.0	+0.0	41.1	84.8	-43.7	Vert
15	568.740M	33.8	+6.0 +0.5	+2.7 +0.5	+19.1 +2.0	-28.3 +0.0	+0.0	36.3	84.8	-48.5	Vert
16	712.130M	28.0	+6.0 +0.5	+3.1 +0.6	+21.1 +2.3	-28.3 +0.0	+0.0	33.3	84.8	-51.5	Horiz
17	86.330M QP	42.8	+6.0 +0.3	+1.0 +0.2	+8.4 +0.8	-27.6 +0.0	+0.0	31.9	84.8	-52.9	Vert
^	86.330M	46.1	+6.0 +0.3	+1.0 +0.2	+8.4 +0.8	-27.6 +0.0	+0.0	35.2	84.8	-49.6	Vert
19	39.330M QP	35.3	+6.0 +0.2	+0.6 +0.2	+14.5 +0.5	-27.8 +0.0	+0.0	29.5	84.8	-55.3	Horiz
^	39.330M	41.4	+6.0 +0.2	+0.6 +0.2	+14.5 +0.5	-27.8 +0.0	+0.0	35.6	84.8	-49.2	Horiz
21	58.410M	42.2	+6.0 +0.2	+0.8 +0.2	+6.7 +0.6	-27.7 +0.0	+0.0	29.0	84.8	-55.8	Horiz
22	72.940M	40.7	+6.0 +0.3	+0.9 +0.2	+6.8 +0.7	-27.7 +0.0	+0.0	27.9	84.8	-56.9	Horiz
23	71.980M	40.8	+6.0 +0.2	+0.9 +0.2	+6.7 +0.7	-27.7 +0.0	+0.0	27.8	84.8	-57.0	Horiz
24	58.480M	40.7	+6.0 +0.2	+0.8 +0.2	+6.6 +0.6	-27.7 +0.0	+0.0	27.4	84.8	-57.4	Horiz
25	30.630M QP	26.5	+6.0 +0.2	+0.6 +0.1	+19.5 +0.5	-27.8 +0.0	+0.0	25.6	84.8	-59.2	Vert

16	568.740M	33.8	+6.0	+2.7	+19.1	-28.3	+0.0	36.3	46.0	-9.7	Vert
			+0.5	+0.5	+2.0	+0.0					
17	39.330M	35.3	+6.0	+0.6	+14.5	-27.8	+0.0	29.5	40.0	-10.5	Horiz
	QP		+0.2	+0.2	+0.5	+0.0					
^	39.330M	41.4	+6.0	+0.6	+14.5	-27.8	+0.0	35.6	40.0	-4.4	Horiz
			+0.2	+0.2	+0.5	+0.0					
19	58.410M	42.2	+6.0	+0.8	+6.7	-27.7	+0.0	29.0	40.0	-11.0	Horiz
			+0.2	+0.2	+0.6	+0.0					
20	117.870M	39.3	+6.0	+1.1	+11.1	-27.5	+0.0	31.5	43.5	-12.0	Vert
			+0.3	+0.3	+0.9	+0.0					
21	72.940M	40.7	+6.0	+0.9	+6.8	-27.7	+0.0	27.9	40.0	-12.1	Horiz
			+0.3	+0.2	+0.7	+0.0					
22	71.980M	40.8	+6.0	+0.9	+6.7	-27.7	+0.0	27.8	40.0	-12.2	Horiz
			+0.2	+0.2	+0.7	+0.0					
23	58.480M	40.7	+6.0	+0.8	+6.6	-27.7	+0.0	27.4	40.0	-12.6	Horiz
			+0.2	+0.2	+0.6	+0.0					
24	712.130M	28.0	+6.0	+3.1	+21.1	-28.3	+0.0	33.3	46.0	-12.7	Horiz
			+0.5	+0.6	+2.3	+0.0					
25	30.630M	26.5	+6.0	+0.6	+19.5	-27.8	+0.0	25.6	40.0	-14.4	Vert
	QP		+0.2	+0.1	+0.5	+0.0					

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**Digital Path, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102618**	Date:	8/8/2019
Test Type:	**Maximized Emissions**	Time:	16:08:11
Tested By:	Benny Lovan	Sequence#:	5
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emissions
Frequency Range:1-10GHz

Method: ANSI C63.10 2013

Temperature: 20.2°C
Relative Humidity: 37 %
Atmospheric Pressure: 101.1 kPa

Application: Putty Serial Program Version 0001
High Clock: 80MHz
Transmitting operating frequency= 902.5MHz

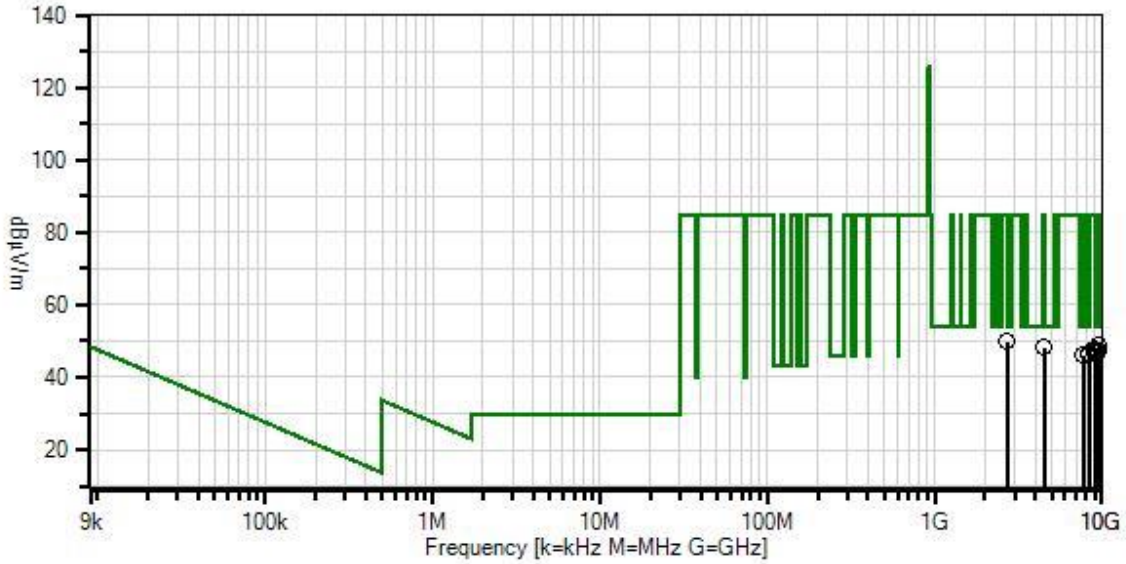
Gain of the antenna for ISM=
OL-3043-2 = 2.5dBi
FG9026 = 6dBi
Sector09011V = 11dBi

The data herein demonstrates compliance with the limits utilizing each antenna described above.

The EUT is placed on the table and set as continuously transmitting or receiving as intended. The EUT is transmitting out of port 2 which is the radio that has no band pass filter.
ISM on TX Mode at Low Channel. The EUT is connected to a laptop running the Putty serial program via USB. Emissions were verified against port1 to ensure that the worse case emissions were reported.
Vertical polarity verified to be the worse-case polarity.

Low Channel – All Antennas
Modification #1 was in place during testing.

Digital Path, Inc. WO#: 102618 Sequence#: 5 Date: 8/8/2019
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Vert



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/15/2019	1/15/2021
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	12/18/2018	12/18/2020
T4	ANP06900	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T5	AN03713	Preamp	01001800-221055-202525	5/22/2019	5/22/2021
	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T6	AN03172	High Pass Filter	HM1155-11SS	4/5/2018	4/5/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2708.000M	73.9	+29.5 -58.5	+1.4 +0.2	+2.7	+0.7	+0.0	49.9	54.0	-4.1	Vert
2	9497.056M	55.9	+39.1 -55.9	+2.7 +0.1	+5.5	+1.4	+0.0	48.8	54.0	-5.2	Vert
3	4512.509M	66.5	+32.4 -57.3	+1.8 +0.2	+3.6	+0.9	+0.0	48.1	54.0	-5.9	Vert
4	9088.352M	56.6	+38.6 -56.7	+2.6 +0.1	+5.4	+1.3	+0.0	47.9	54.0	-6.1	Vert
5	9162.752M	55.9	+38.7 -56.6	+2.6 +0.1	+5.4	+1.3	+0.0	47.4	54.0	-6.6	Horiz
6	9096.288M	56.0	+38.6 -56.7	+2.6 +0.1	+5.4	+1.3	+0.0	47.3	54.0	-6.7	Horiz
7	9476.224M	54.4	+39.1 -55.9	+2.7 +0.1	+5.5	+1.4	+0.0	47.3	54.0	-6.7	Horiz
8	9495.072M	54.3	+39.1 -55.9	+2.7 +0.1	+5.5	+1.4	+0.0	47.2	54.0	-6.8	Horiz
9	9002.995M	56.1	+38.5 -56.9	+2.6 +0.1	+5.4	+1.3	+0.0	47.1	54.0	-6.9	Vert
10	9004.997M	55.7	+38.5 -56.9	+2.6 +0.1	+5.4	+1.3	+0.0	46.7	54.0	-7.3	Horiz
11	8342.335M	57.8	+37.0 -57.4	+2.5 +0.1	+5.2	+1.3	+0.0	46.5	54.0	-7.5	Vert
12	8350.343M	57.4	+37.0 -57.3	+2.5 +0.1	+5.2	+1.3	+0.0	46.2	54.0	-7.8	Horiz
13	7669.663M	57.7	+37.0 -57.4	+2.4 +0.1	+5.0	+1.2	+0.0	46.0	54.0	-8.0	Vert

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**Digital Path, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102618**	Date:	8/8/2019
Test Type:	**Maximized Emissions**	Time:	16:08:11
Tested By:	Benny Lovan	Sequence#:	5
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emissions
Frequency Range:1-10GHz

Method: ANSI C63.10 2013

Temperature: 20.2°C
Relative Humidity: 37 %
Atmospheric Pressure: 101.1 kPa

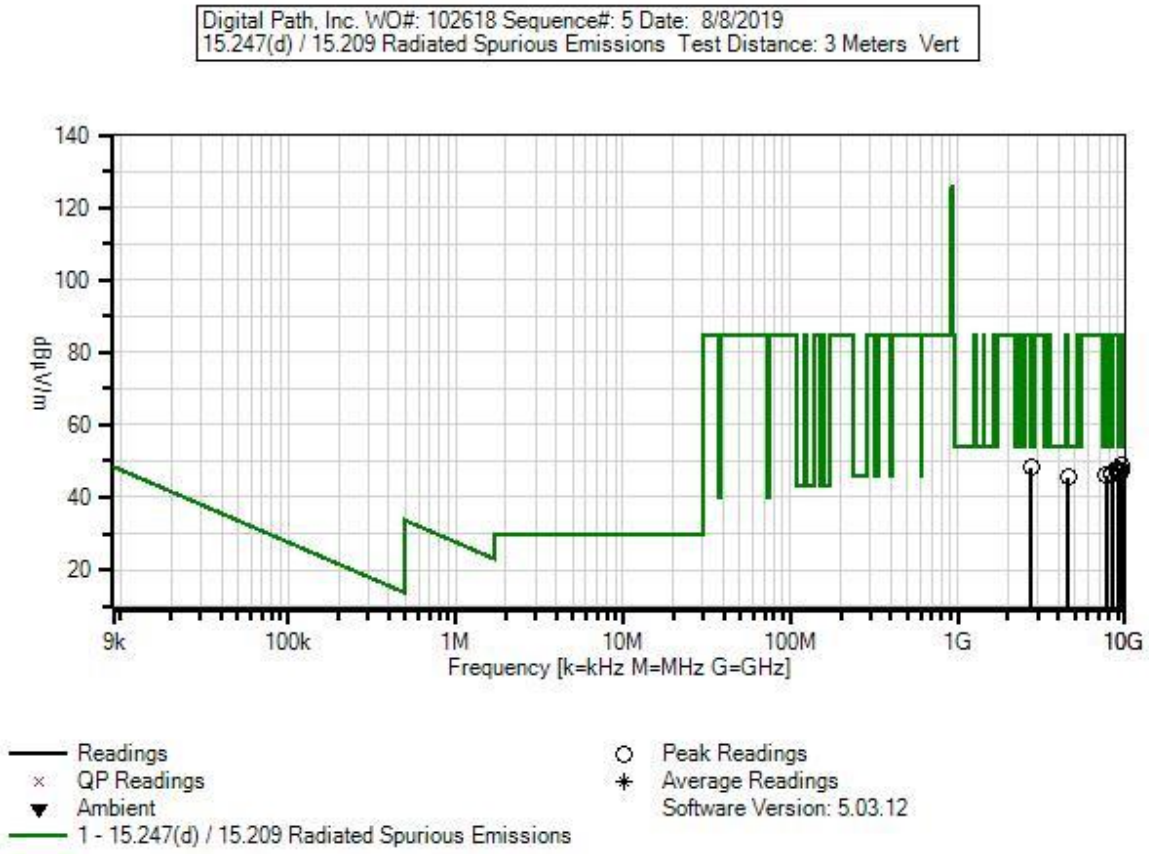
Application: Putty Serial Program Version 0001
High Clock: 80MHz
Transmitting operating frequency= 915MHz

Gain of the antenna for ISM=
OL-3043-2 = 2.5dBi
FG9026 = 6dBi
Sector09011V = 11dBi

The data herein demonstrates compliance with the limits utilizing each antenna described above.

The EUT is placed on the table and set as continuously transmitting or receiving as intended. The EUT is transmitting out of port 2 which is the radio that has no band pass filter.
ISM on TX Mode at Low Channel. The EUT is connected to a laptop running the Putty serial program via USB. Emissions were verified against port1 to ensure that the worse case emissions were reported.
Vertical polarity verified to be the worse-case polarity.

Mid Channel – All Antennas
Modification #1 was in place during testing.


Digital Path, Inc. WO#: 102618 Sequence#: 5 Date: 8/8/2019
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Vert
140
120
100
80
60
40
20
dBµV/m
9k
100k
1M
10M
100M
1G
10G
Frequency [k=kHz M=MHz G=GHz]
Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/15/2019	1/15/2021
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	12/18/2018	12/18/2020
T4	ANP06900	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T5	AN03713	Preamp	01001800-221055-202525	5/22/2019	5/22/2021
T6	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T7	AN03172	High Pass Filter	HM1155-11SS	4/5/2018	4/5/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9497.056M	55.9	+39.1 -55.9	+2.7 +0.0	+5.5 +0.1	+1.4	+0.0	48.8	54.0	-5.2	Vert
2	2745.000M	72.1	+29.6 -58.5	+1.4 +0.0	+2.8 +0.2	+0.7	+0.0	48.3	54.0	-5.7	Vert
3	9088.352M	56.6	+38.6 -56.7	+2.6 +0.0	+5.4 +0.1	+1.3	+0.0	47.9	54.0	-6.1	Vert
4	9162.752M	55.9	+38.7 -56.6	+2.6 +0.0	+5.4 +0.1	+1.3	+0.0	47.4	54.0	-6.6	Horiz
5	9096.288M	56.0	+38.6 -56.7	+2.6 +0.0	+5.4 +0.1	+1.3	+0.0	47.3	54.0	-6.7	Horiz
6	9476.224M	54.4	+39.1 -55.9	+2.7 +0.0	+5.5 +0.1	+1.4	+0.0	47.3	54.0	-6.7	Horiz
7	9495.072M	54.3	+39.1 -55.9	+2.7 +0.0	+5.5 +0.1	+1.4	+0.0	47.2	54.0	-6.8	Horiz
8	9002.995M	56.1	+38.5 -56.9	+2.6 +0.0	+5.4 +0.1	+1.3	+0.0	47.1	54.0	-6.9	Vert
9	9004.997M	55.7	+38.5 -56.9	+2.6 +0.0	+5.4 +0.1	+1.3	+0.0	46.7	54.0	-7.3	Horiz
10	8342.335M	57.8	+37.0 -57.4	+2.5 +0.0	+5.2 +0.1	+1.3	+0.0	46.5	54.0	-7.5	Vert
11	8350.343M	57.4	+37.0 -57.3	+2.5 +0.0	+5.2 +0.1	+1.3	+0.0	46.2	54.0	-7.8	Horiz
12	7669.663M	57.7	+37.0 -57.4	+2.4 +0.0	+5.0 +0.1	+1.2	+0.0	46.0	54.0	-8.0	Vert
13	4575.904M	63.5	+32.6 -57.2	+1.8 +0.0	+3.7 +0.2	+0.9	+0.0	45.5	54.0	-8.5	Vert

Test Location:	CKC Laboratories Inc. • 5046 Sierra Pines Dr. • Mariposa, CA 95338 • 209-966-5240		
Customer:	**Digital Path, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102618**	Date:	8/8/2019
Test Type:	**Maximized Emissions**	Time:	16:08:11
Tested By:	Benny Lovan	Sequence#:	5
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Emissions
Frequency Range:1-10GHz

Method: ANSI C63.10 2013

Temperature: 20.2°C
Relative Humidity: 37 %
Atmospheric Pressure: 101.1 kPa

Application: Putty Serial Program Version 0001
High Clock: 80MHz
Transmitting operating frequency= 927.5MHz

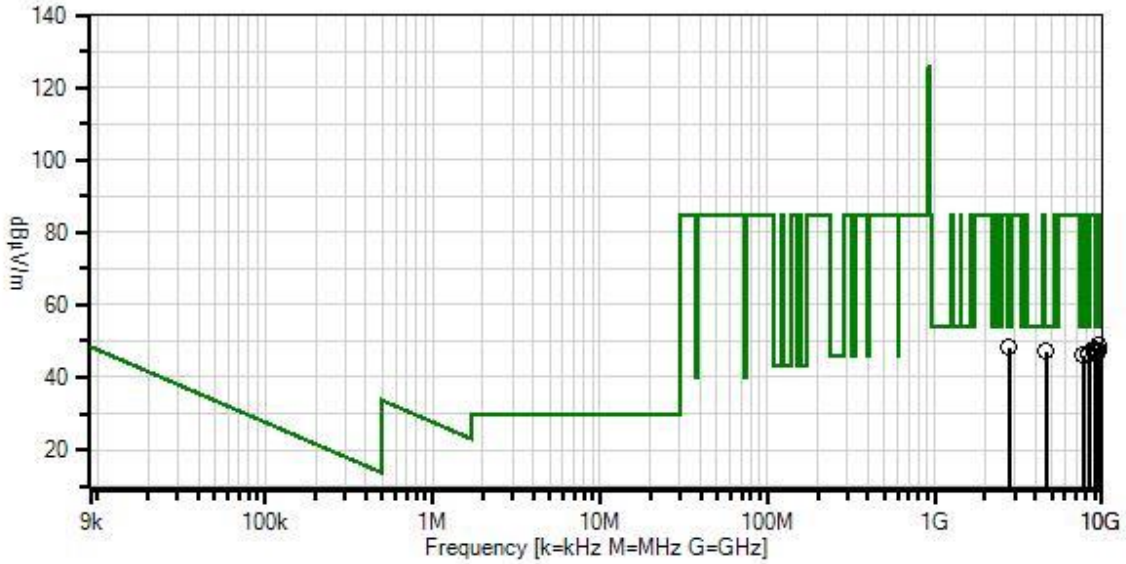
Gain of the antenna for ISM=
OL-3043-2 = 2.5dBi
FG9026 = 6dBi
Sector09011V = 11dBi

The data herein demonstrates compliance with the limits utilizing each antenna described above.

The EUT is placed on the table and set as continuously transmitting or receiving as intended. The EUT is transmitting out of port 2 which is the radio that has no band pass filter.
ISM on TX Mode at Low Channel. The EUT is connected to a laptop running the Putty serial program via USB.
Emissions were verified against port1 to ensure that the worse case emissions were reported.
Vertical polarity verified to be the worse-case polarity.

High Channel – All Antennas
Modification #1 was in place during testing.

Digital Path, Inc. WO#: 102618 Sequence#: 5 Date: 8/8/2019
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Vert



Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02157	Horn Antenna-ANSI C63.5	3115	1/15/2019	1/15/2021
T2	AN03302	Cable	32026-29094K-29094K-72TC	1/15/2018	1/15/2020
T3	ANP01210	Cable	FSJ1P-50A-4A	12/18/2018	12/18/2020
T4	ANP06900	Cable	32022-29094K-29094K-36TC	1/4/2018	1/4/2020
T5	AN03713	Preamp	01001800-221055-202525	5/22/2019	5/22/2021
T6	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T7	AN03172	High Pass Filter	HM1155-11SS	4/5/2018	4/5/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	9497.056M	55.9	+39.1 -55.9	+2.7 +0.0	+5.5 +0.1	+1.4	+0.0	48.8	54.0	-5.2	Vert
2	2782.512M	71.8	+29.7 -58.5	+1.4 +0.0	+2.8 +0.2	+0.7	+0.0	48.1	54.0	-5.9	Vert
3	9088.352M	56.6	+38.6 -56.7	+2.6 +0.0	+5.4 +0.1	+1.3	+0.0	47.9	54.0	-6.1	Vert
4	9162.752M	55.9	+38.7 -56.6	+2.6 +0.0	+5.4 +0.1	+1.3	+0.0	47.4	54.0	-6.6	Horiz
5	9096.288M	56.0	+38.6 -56.7	+2.6 +0.0	+5.4 +0.1	+1.3	+0.0	47.3	54.0	-6.7	Horiz
6	9476.224M	54.4	+39.1 -55.9	+2.7 +0.0	+5.5 +0.1	+1.4	+0.0	47.3	54.0	-6.7	Horiz
7	9495.072M	54.3	+39.1 -55.9	+2.7 +0.0	+5.5 +0.1	+1.4	+0.0	47.2	54.0	-6.8	Horiz
8	9002.995M	56.1	+38.5 -56.9	+2.6 +0.0	+5.4 +0.1	+1.3	+0.0	47.1	54.0	-6.9	Vert
9	4637.805M	64.8	+32.8 -57.1	+1.8 +0.0	+3.7 +0.2	+0.9	+0.0	47.1	54.0	-6.9	Vert
10	9004.997M	55.7	+38.5 -56.9	+2.6 +0.0	+5.4 +0.1	+1.3	+0.0	46.7	54.0	-7.3	Horiz
11	8342.335M	57.8	+37.0 -57.4	+2.5 +0.0	+5.2 +0.1	+1.3	+0.0	46.5	54.0	-7.5	Vert
12	8350.343M	57.4	+37.0 -57.3	+2.5 +0.0	+5.2 +0.1	+1.3	+0.0	46.2	54.0	-7.8	Horiz
13	7669.663M	57.7	+37.0 -57.4	+2.4 +0.0	+5.0 +0.1	+1.2	+0.0	46.0	54.0	-8.0	Vert

Band Edge

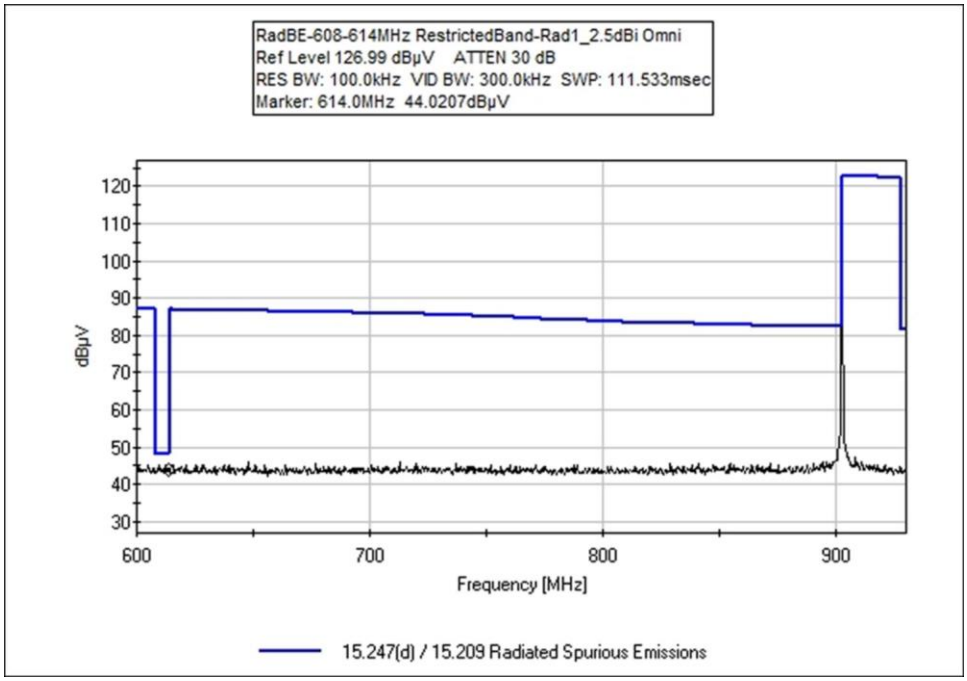
Band Edge Summary					
Frequency (MHz)	**Modulation**	**Ant. Type**	**Field Strength (dBuV/m @3m)**	**Limit (dBuV/m @3m)**	**Results**
Radio 1 (With Band Pass Filter)					
614	FSK	2.5 dBi Omni	41.8	<54	Pass
902	FSK	2.5 dBi Omni	68.6	<84.8	Pass
928	FSK	2.5 dBi Omni	67.4	< 84.8	Pass
960	FSK	2.5 dBi Omni	46.8	<54	Pass
614	FSK	6 dBi Omni	40.6	<54	Pass
902	FSK	6 dBi Omni	69.9	<84.8	Pass
928	FSK	6 dBi Omni	69.2	< 84.8	Pass
960	FSK	6 dBi Omni	44.9	<54	Pass
614	FSK	11dBi Sector	41.9	<54	Pass
902	FSK	11dBi Sector	69.1	<84.8	Pass
928	FSK	11dBi Sector	70.2	< 84.8	Pass
960	FSK	11dBi Sector	47.1	<54	Pass
Radio 2 (Without Band Pass Filter)					
614	FSK	2.5 dBi Omni	40.4	<54	Pass
902	FSK	2.5 dBi Omni	60.7	<84.8	Pass
928	FSK	2.5 dBi Omni	66.1	< 84.8	Pass
960	FSK	2.5 dBi Omni	46.8	<54	Pass
614	FSK	6 dBi Omni	42.3	<54	Pass
902	FSK	6 dBi Omni	71.4	<84.8	Pass
928	FSK	6 dBi Omni	73.8	< 84.8	Pass
960	FSK	6 dBi Omni	46.3	<54	Pass
614	FSK	11dBi Sector	33.2	<54	Pass
902	FSK	11dBi Sector	71.4	<84.8	Pass
928	FSK	11dBi Sector	74.6	< 84.8	Pass
960	FSK	11dBi Sector	44.9	<54	Pass

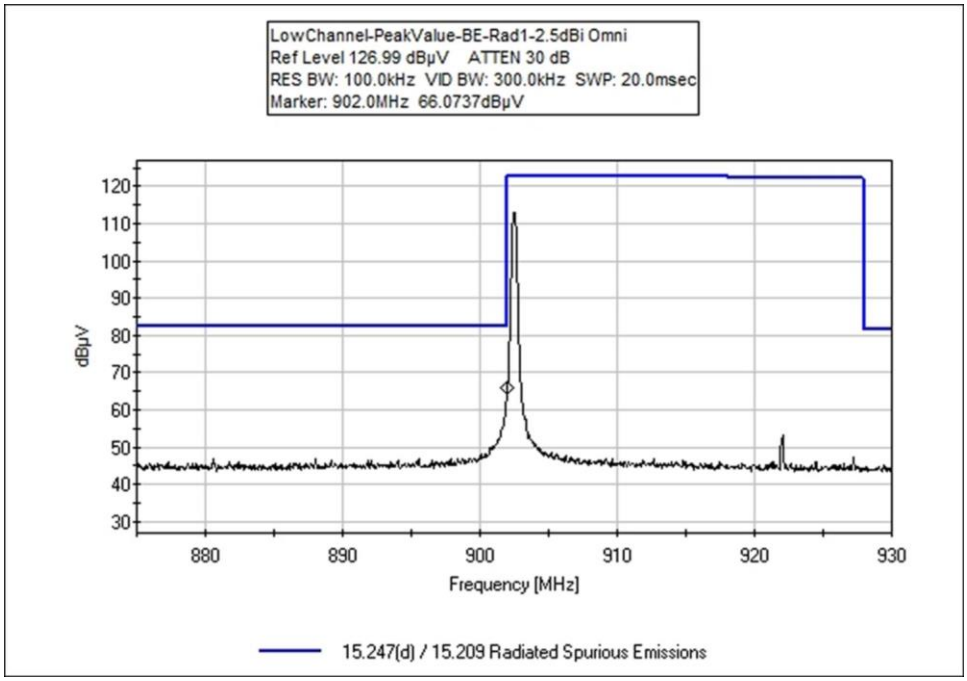
Note: The Band Edge plots show amplitudes that are uncorrected. The following correction factors are applied at each frequency to match the declared band edge reading in the table above.

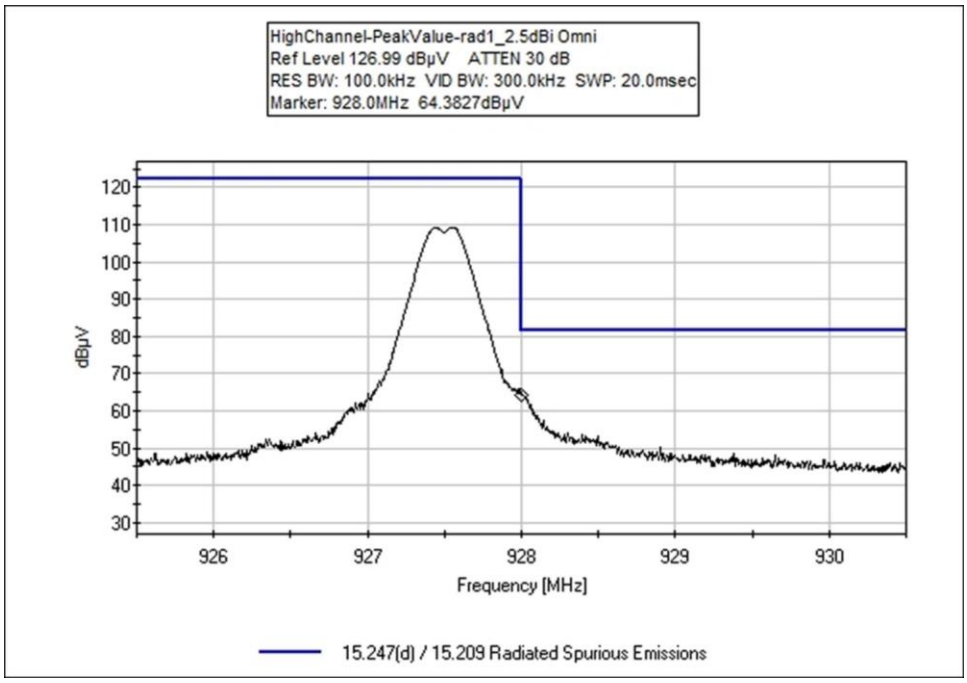
Correction Factor
614 MHz = -2.2dB
902 MHz = 2.5dB
928 MHz = 3dB
960 MHz = 4dB

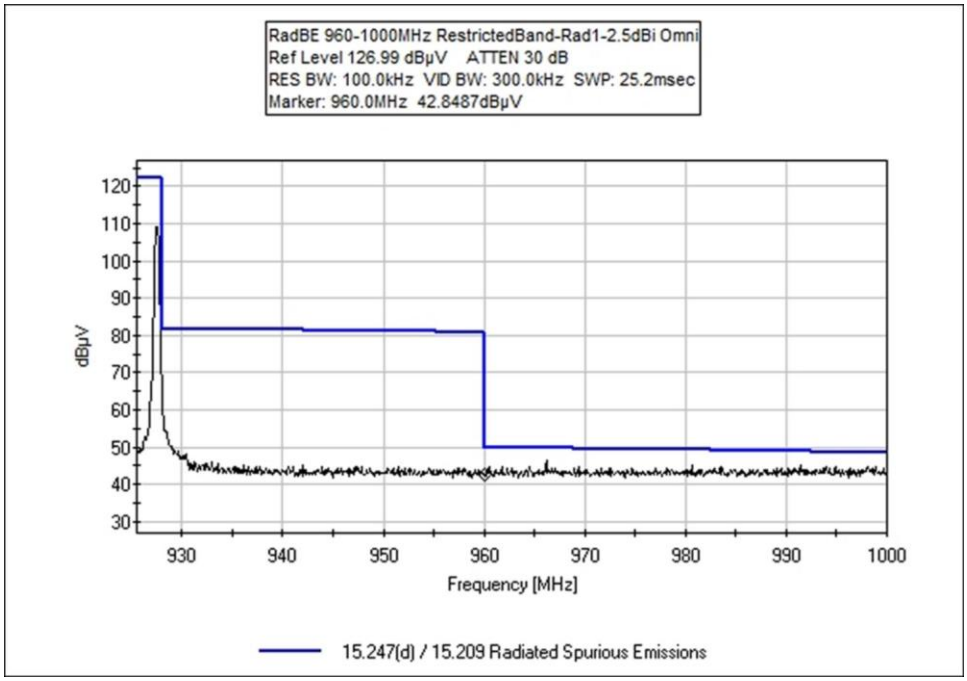
Band Edge Plots

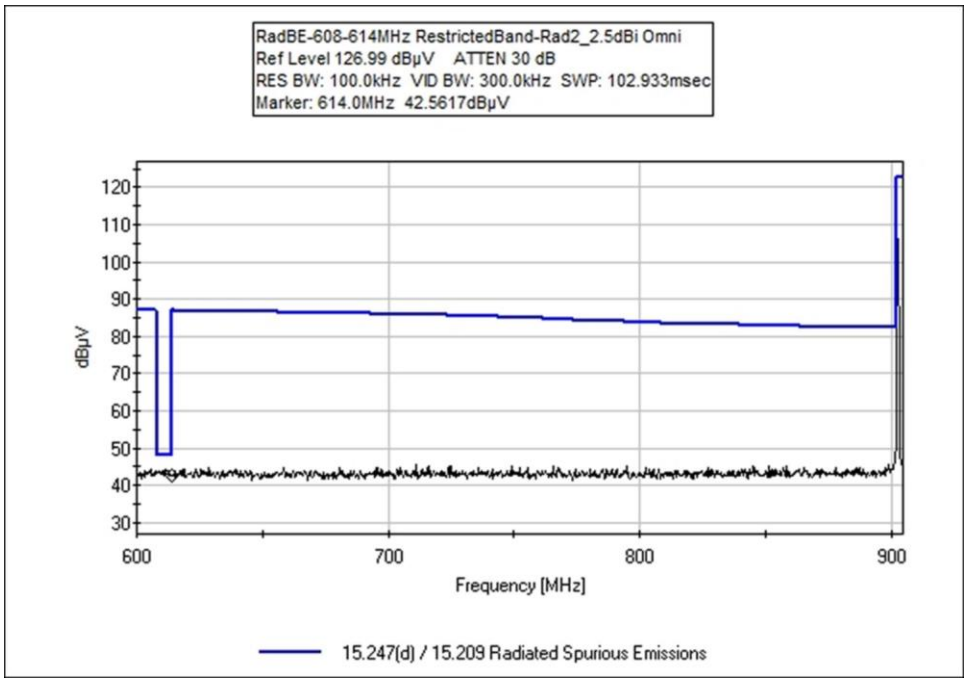
2.5dBi Omni

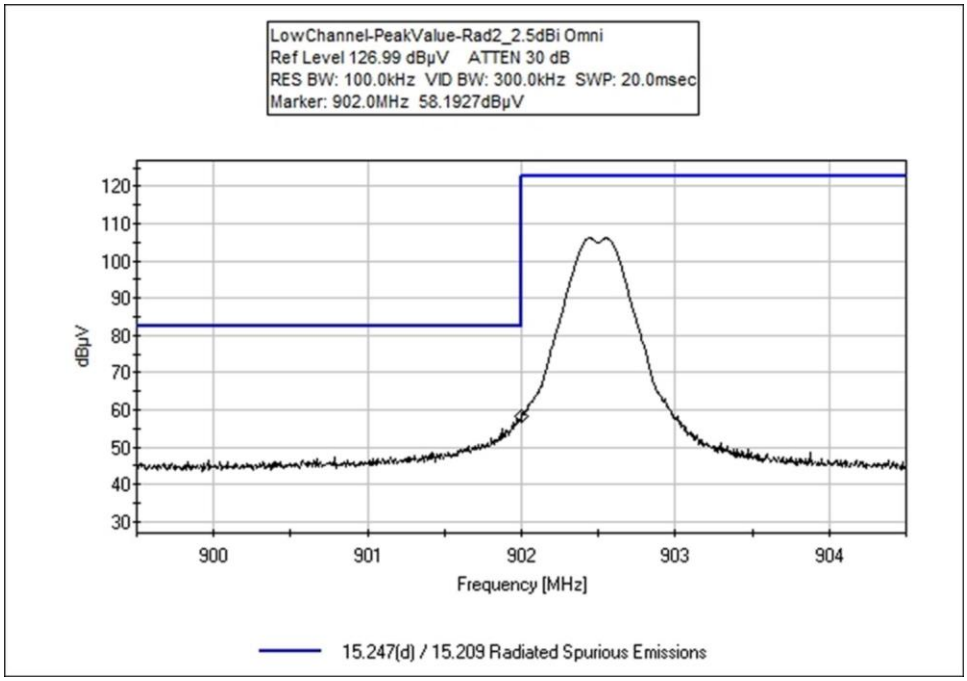


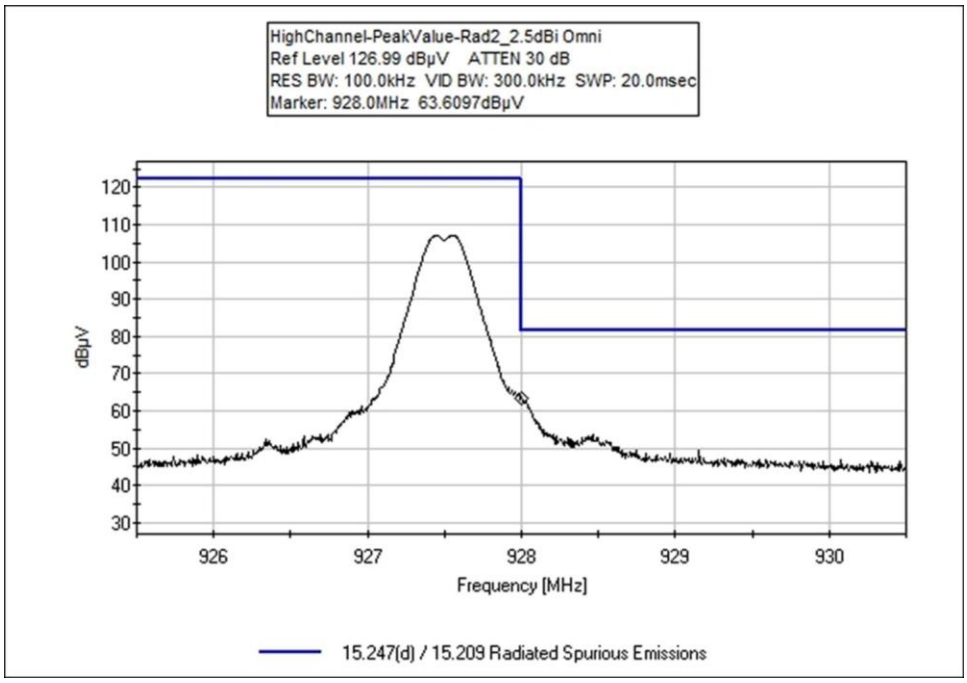


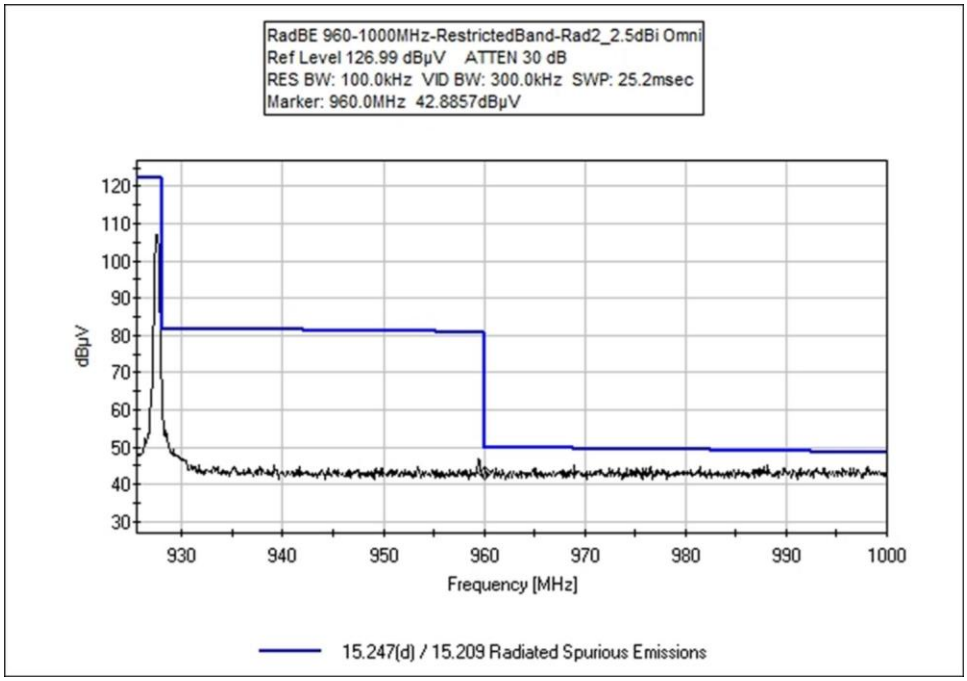

HighChannel-PeakValue-rad1_2.5dBi Omni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 928.0MHz 64.3827dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
926
927
928
929
930
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


RadBE 960-1000MHz RestrictedBand-Rad1-2.5dBi Omni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 25.2msec
Marker: 960.0MHz 42.8487dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
930
940
950
960
970
980
990
1000
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

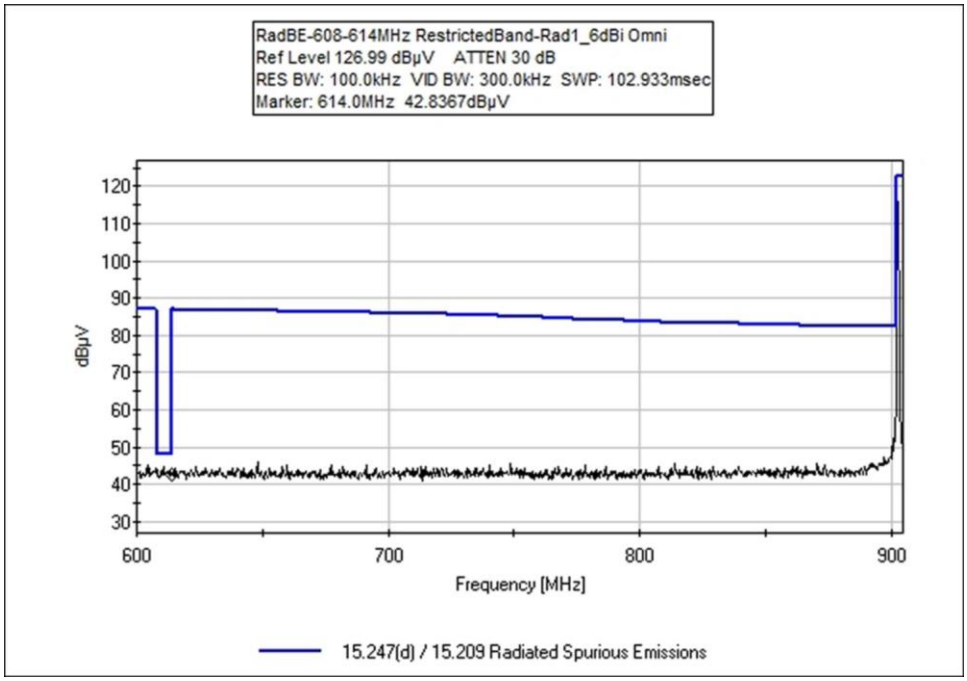

RadBE-608-614MHz RestrictedBand-Rad2_2.5dBi Omni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 102.933msec
Marker: 614.0MHz 42.5617dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
600
700
800
900
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

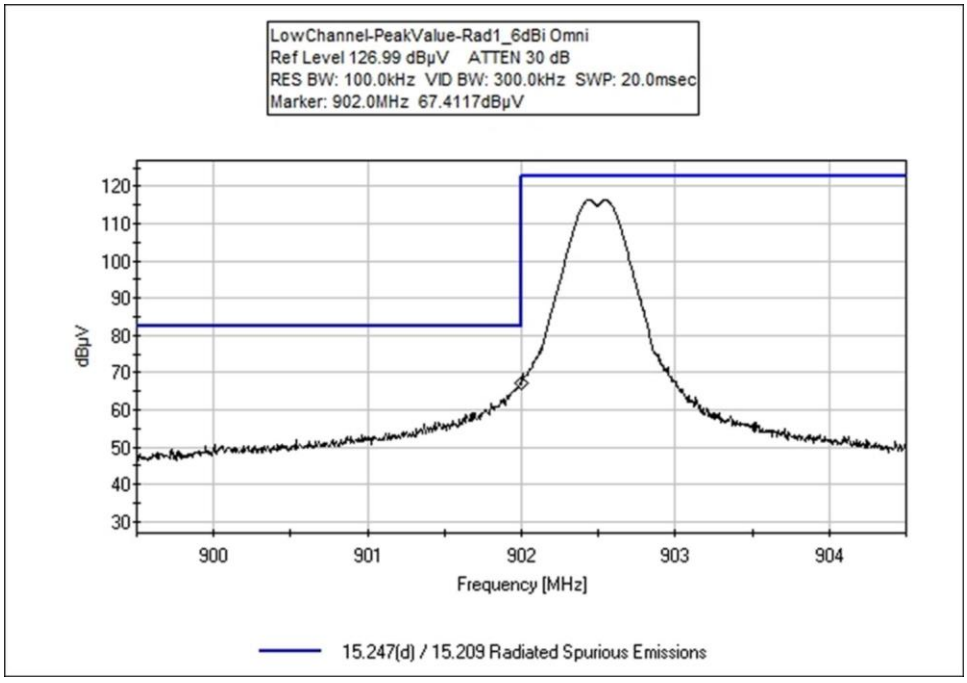

LowChannel-PeakValue-Rad2_2.5dBi Omni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 902.0MHz 58.1927dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
900
901
902
903
904
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

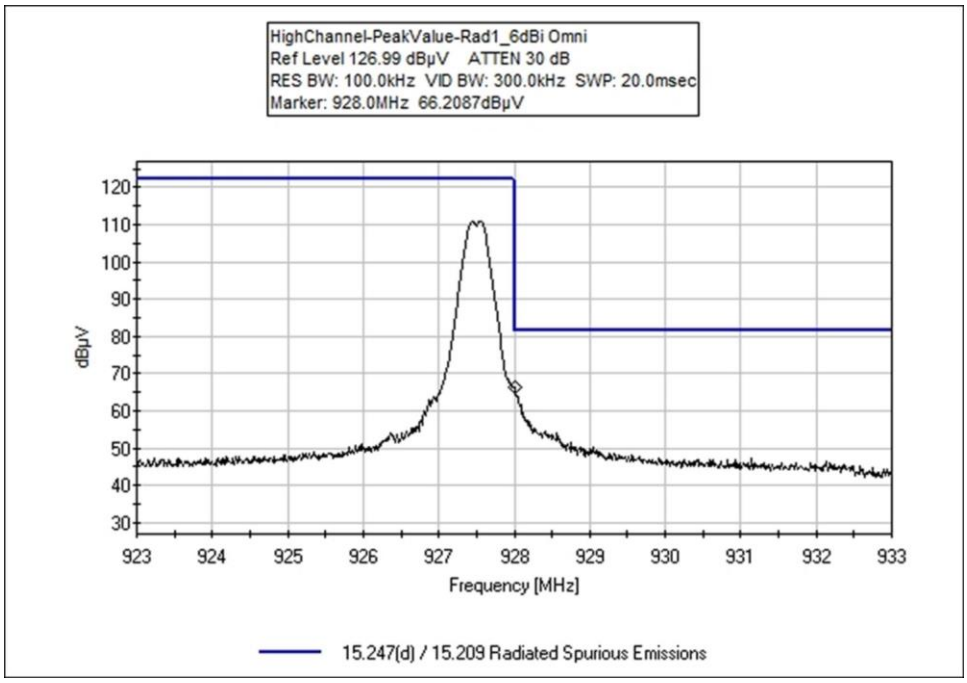

HighChannel-PeakValue-Rad2_2.5dBi Omni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 928.0MHz 63.6097dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
926
927
928
929
930
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

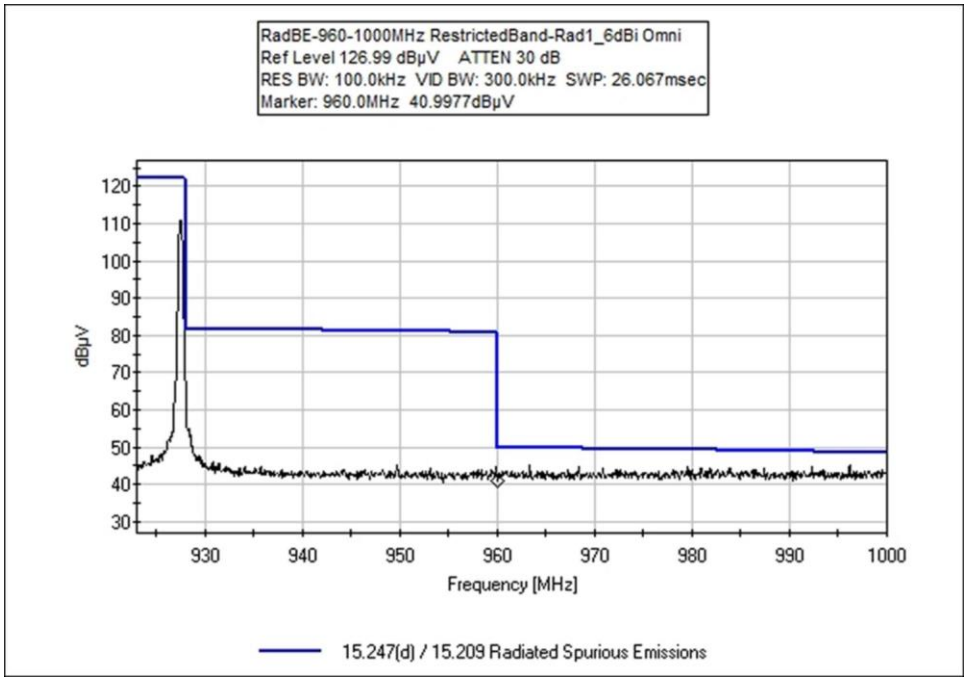

RadBE 960-1000MHz-RestrictedBand-Rad2_2.5dBi Omni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 25.2msec
Marker: 960.0MHz 42.8857dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
930
940
950
960
970
980
990
1000
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

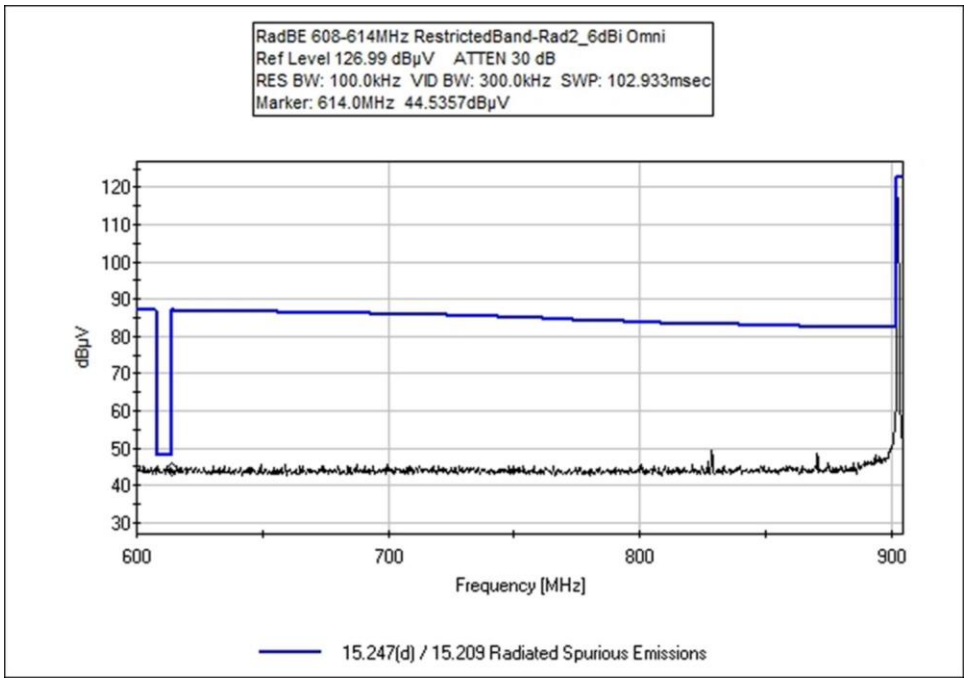
6dBi Omni

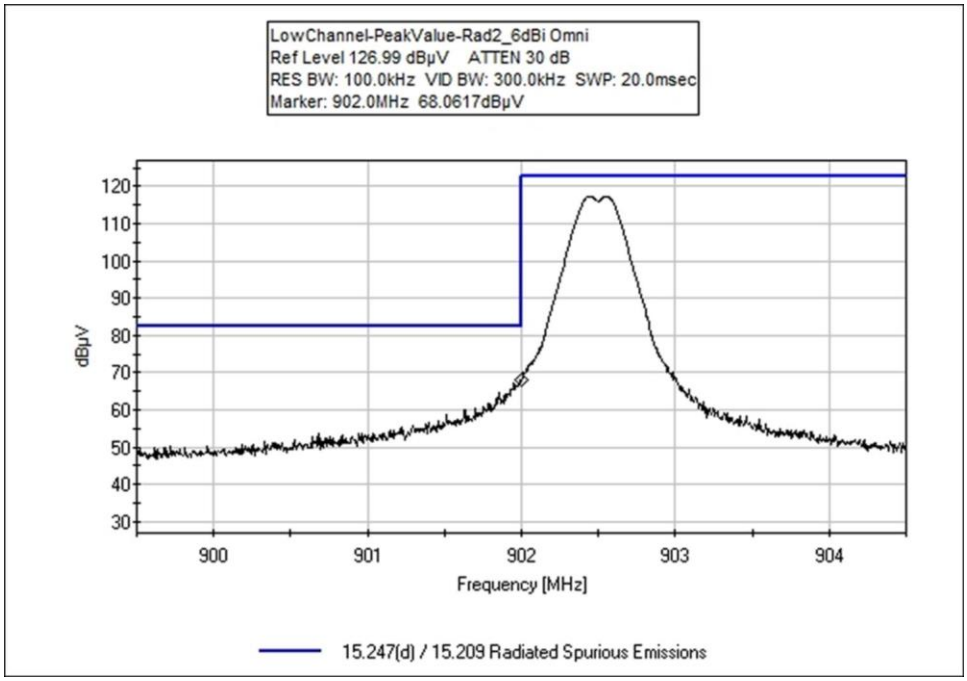

RadBE-608-614MHz RestrictedBand-Rad1_6dBi Omni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 102.933msec
Marker: 614.0MHz 42.8367dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
600
700
800
900
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

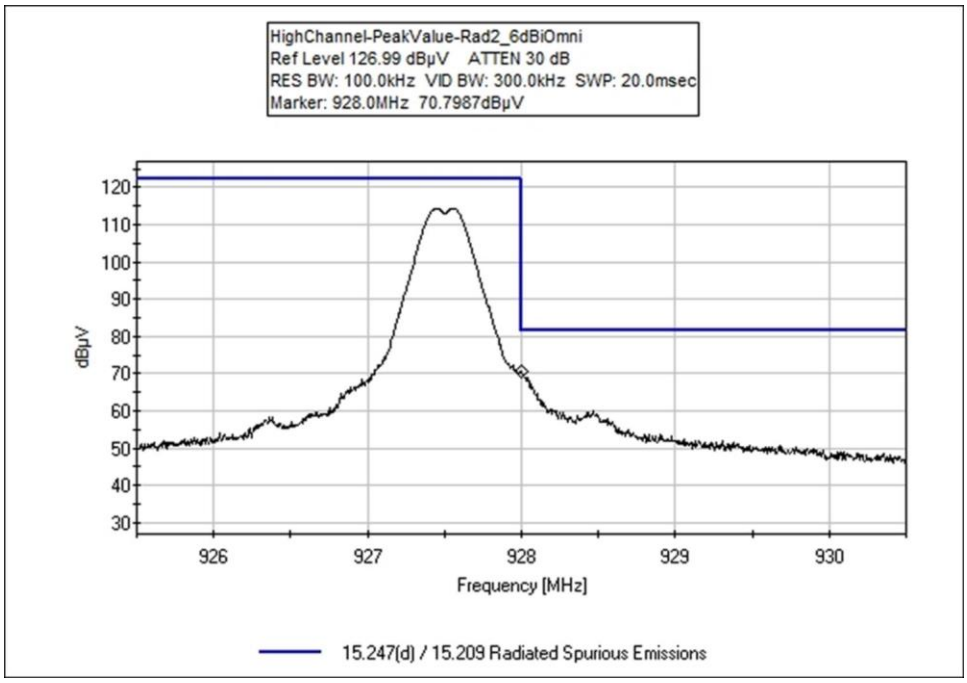

LowChannel-PeakValue-Rad1_6dBi Omni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 902.0MHz 67.4117dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
900
901
902
903
904
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

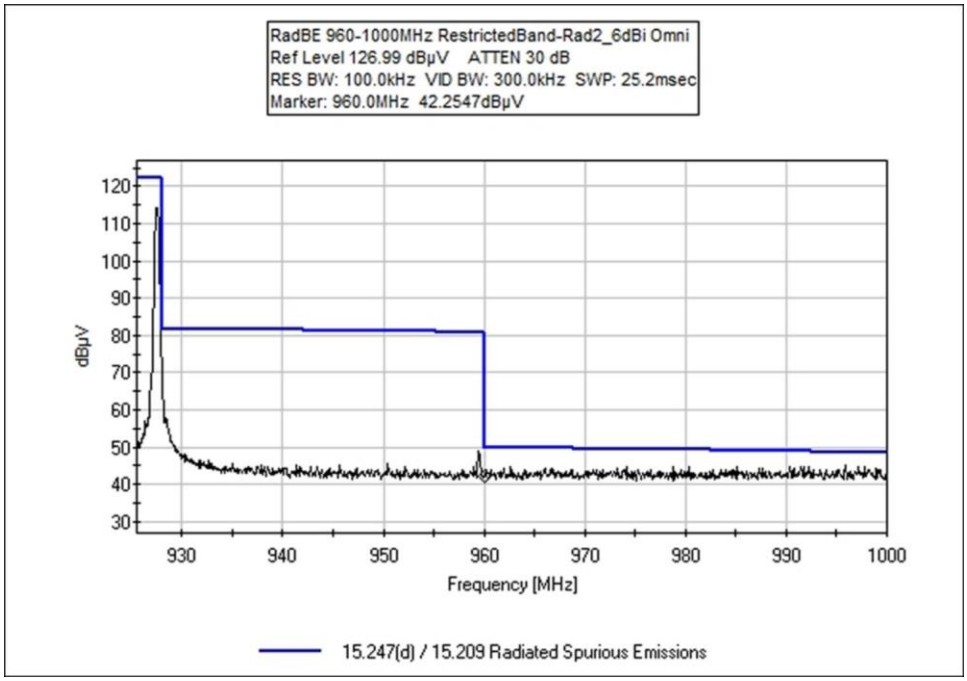

HighChannel-PeakValue-Rad1_6dBi Omni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 928.0MHz 66.2087dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
923
924
925
926
927
928
929
930
931
932
933
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


RadBE-960-1000MHz RestrictedBand-Rad1_6dBi Omni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 26.067msec
Marker: 960.0MHz 40.9977dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
930
940
950
960
970
980
990
1000
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

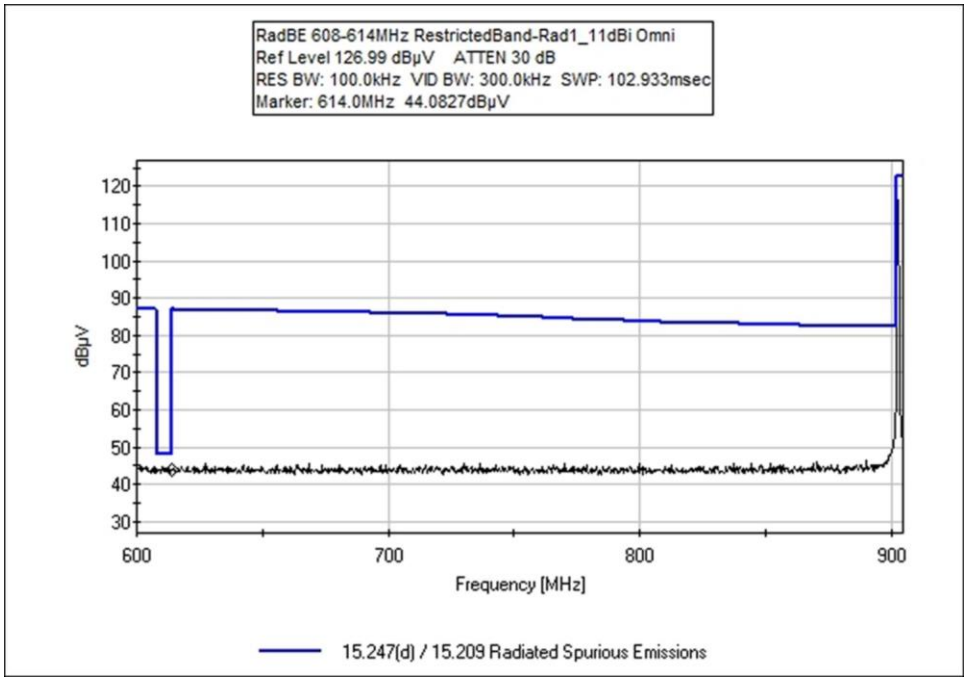

RadBE 608-614MHz RestrictedBand-Rad2_6dBi Omni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 102.933msec
Marker: 614.0MHz 44.5357dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
600
700
800
900
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

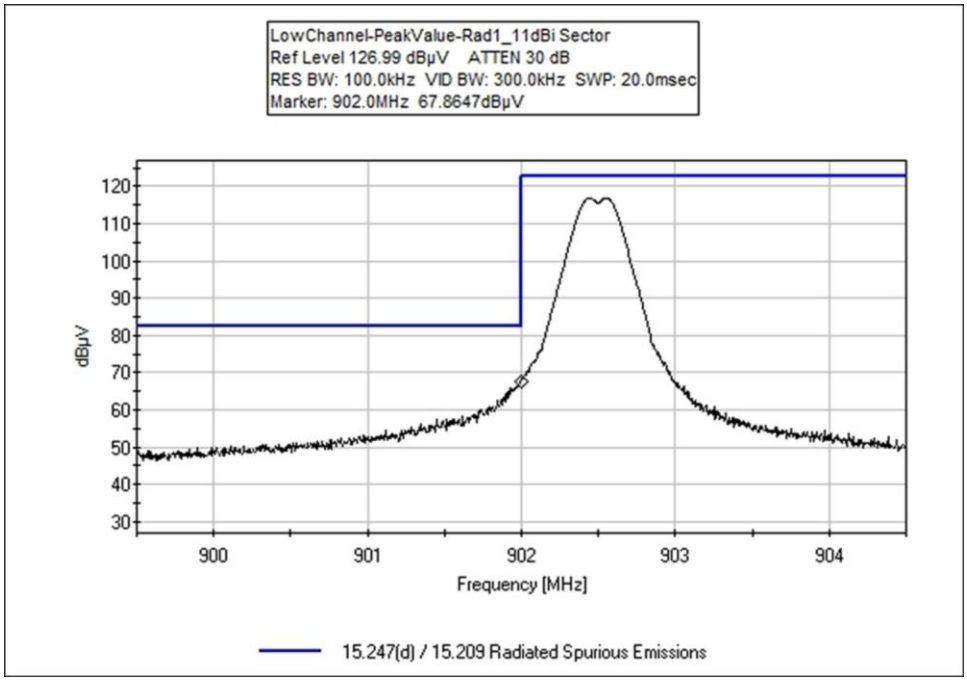

LowChannel-PeakValue-Rad2_6dBi Omni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 902.0MHz 68.0617dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
900
901
902
903
904
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

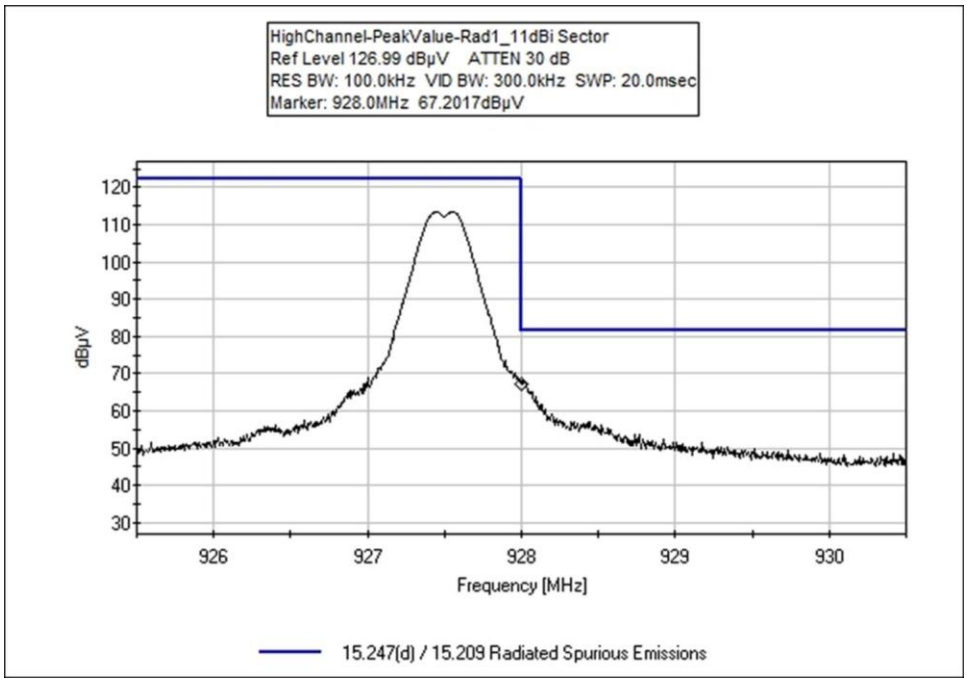

HighChannel-PeakValue-Rad2_6dBiOmni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 928.0MHz 70.7987dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
926
927
928
929
930
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

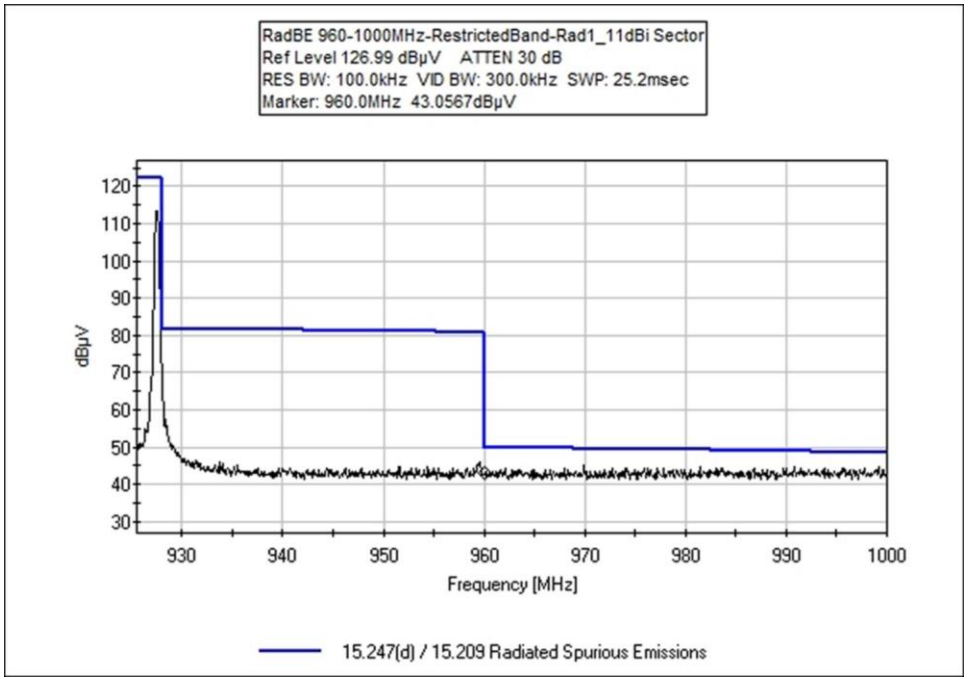

RadBE 960-1000MHz RestrictedBand-Rad2_6dBi Omni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 25.2msec
Marker: 960.0MHz 42.2547dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
930
940
950
960
970
980
990
1000
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

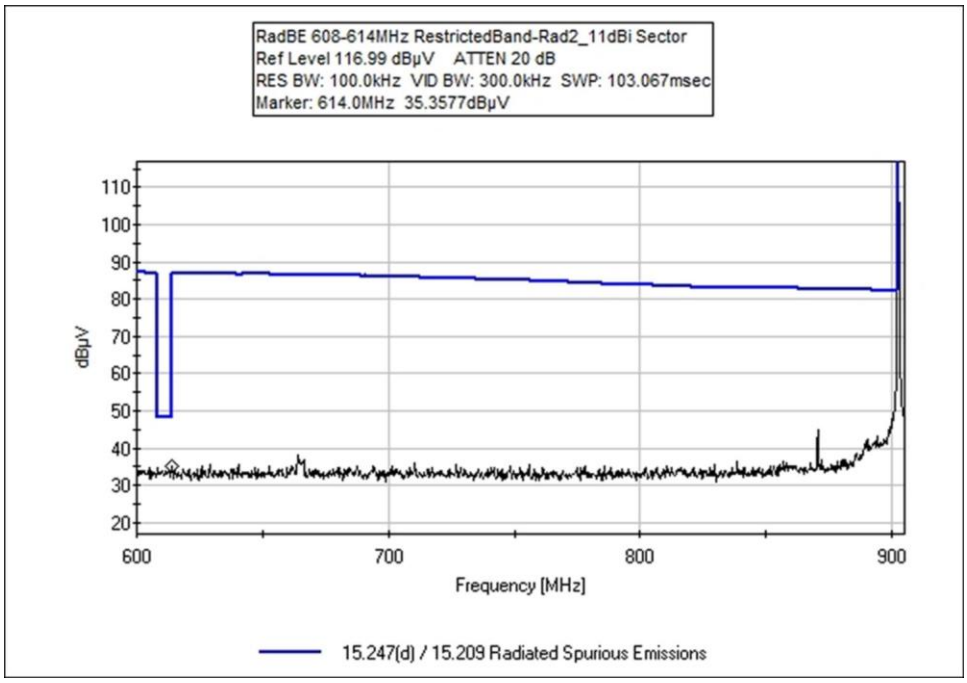
11dBi Sector

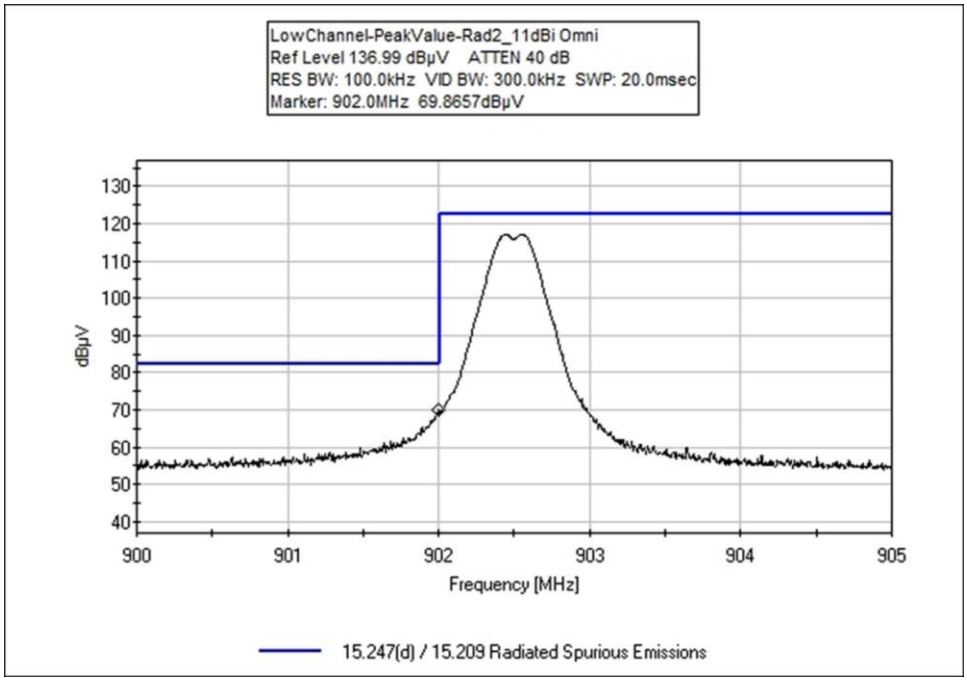


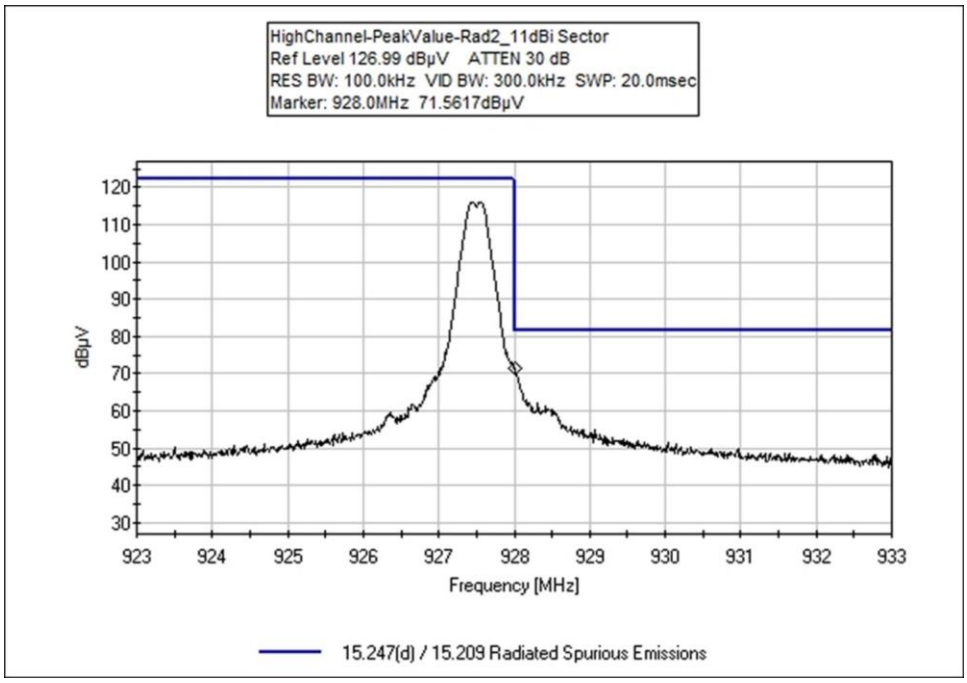


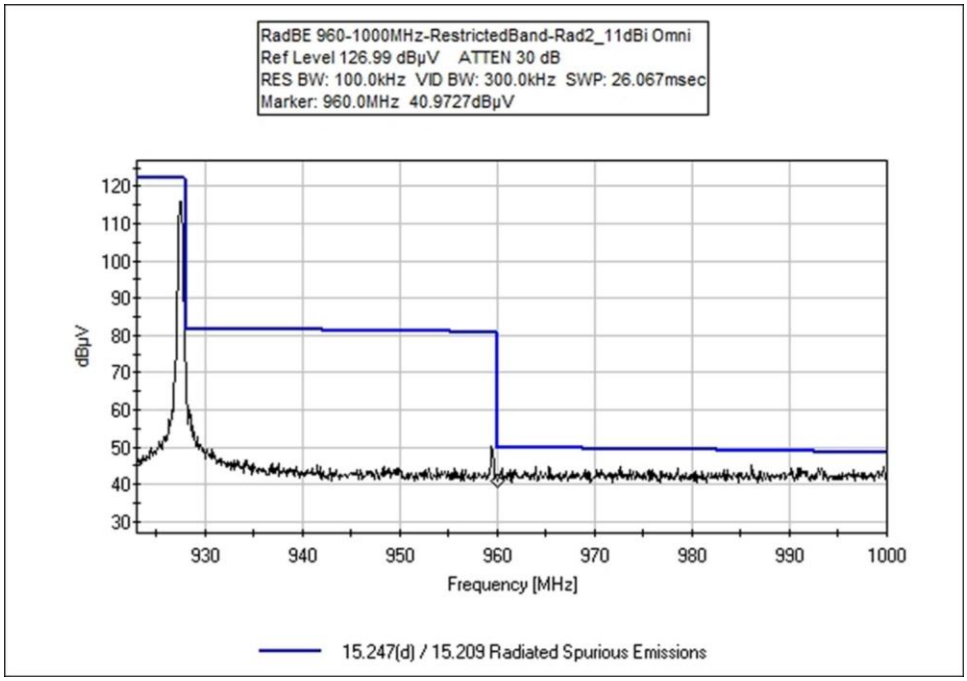

HighChannel-PeakValue-Rad1_11dBi Sector
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 928.0MHz 67.2017dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
926
927
928
929
930
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


RadBE 960-1000MHz-RestrictedBand-Rad1_11dBi Sector
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 25.2msec
Marker: 960.0MHz 43.0567dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
930
940
950
960
970
980
990
1000
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


RadBE 608-614MHz RestrictedBand-Rad2_11dBi Sector
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 103.067msec
Marker: 614.0MHz 35.3577dBµV
dBµV
110
100
90
80
70
60
50
40
30
20
600
700
800
900
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


LowChannel-PeakValue-Rad2_11dBi Omni
Ref Level 136.99 dBµV ATTEN 40 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 902.0MHz 69.8657dBµV
dBµV
130
120
110
100
90
80
70
60
50
40
900
901
902
903
904
905
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


HighChannel-PeakValue-Rad2_11dBi Sector
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 928.0MHz 71.5617dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
923
924
925
926
927
928
929
930
931
932
933
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


RadBE 960-1000MHz-RestrictedBand-Rad2_11dBi Omni
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 26.067msec
Marker: 960.0MHz 40.9727dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
930
940
950
960
970
980
990
1000
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

Test Setup / Conditions / Data

Test Location:	CKC Laboratories Inc. • 1120 Fulton Place • Fremont, CA 94539 • 510 249-1170		
Customer:	**Digital Path, Inc.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102618**	Date:	8/2/2019
Test Type:	**Radiated Scan**	Time:	10:01:27
Tested By:	Benny Lovan	Sequence#:	3
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Radiated Band Edge
Frequency Range:.902-928MHz
Method: ANSI C63.10 2013
KDB: 558074 D01 15.247 MeasGuidance v05r02, April 2, 2019

Temperature: 20.2°C
Relative Humidity: 37 %
Atmospheric Pressure: 101.1 kPa

Application: Putty Serial Program Version 0001
High Clock: 80MHz
Transmitting operating frequency= 927.5MHz

Gain of the antenna for ISM=
OL-3043-2 = 2.5dBi
FG9026 = 6dBi
Sector09011V = 11dBi
The data herein demonstrates compliance with the limits utilizing each antenna listed.

The EUT is placed on the table and set as continuously transmitting or receiving as intended. The EUT is transmitting out of port 2 which is the radio that has no band pass filter.
ISM on TX Mode at Low Channel. The EUT is connected to a laptop running the Putty serial program via USB.
Emissions were verified against port1 to ensure that the worse case emissions were reported.
Vertical polarity verified to be the worse-case polarity.

Modification #1 was in place during testing.

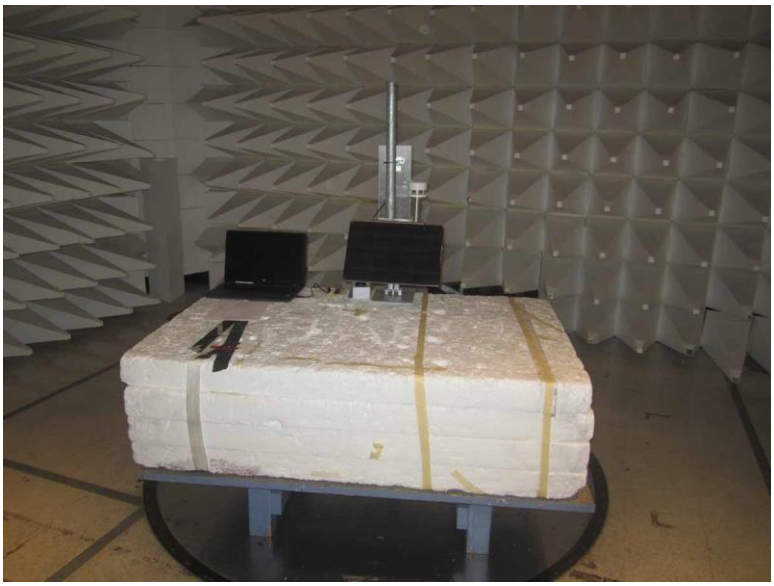
Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	ANP07508	Preamp	310N	10/15/2018	10/15/2020
T2	ANP06049	Attenuator	PE7002-6	5/14/2018	5/14/2020
T3	ANP00880	Cable	RG214U	5/14/2018	5/14/2020
T4	ANP01187	Cable	CNT-195	8/20/2018	8/20/2020
T5	ANP06691	Cable	PE3062-180	5/14/2018	5/14/2020
T6	AN02660	Spectrum Analyzer	E4446A	10/19/2018	10/19/2020
T7	AN00852	Biconilog Antenna	CBL 6111C	5/1/2018	5/1/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

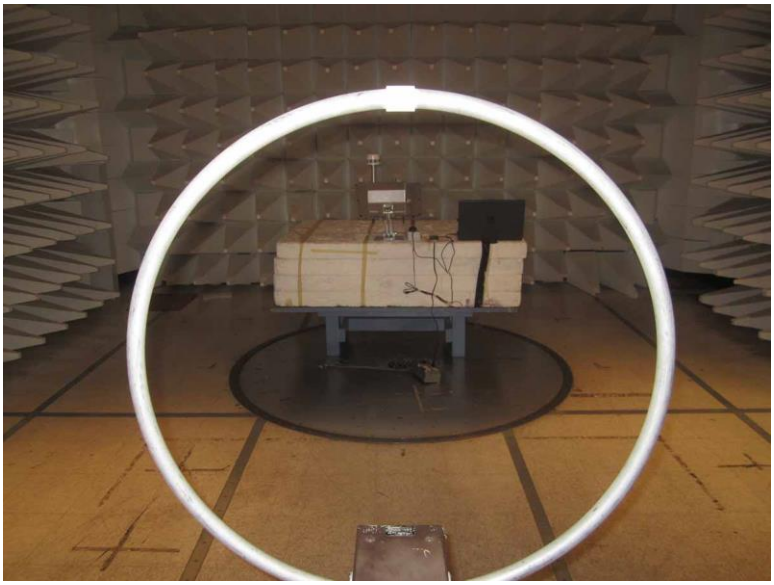
#	Freq	Rdng	T1 T5	T2 T6	T3 T7	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	928.000M	71.6	-31.6 +1.3	+5.9 +0.0	+3.3 +23.2	+0.9	+0.0	74.6	84.8 HC-11dBi Sector-Rad2	-10.2	Vert
2	928.000M	70.8	-31.6 +1.3	+5.9 +0.0	+3.3 +23.2	+0.9	+0.0	73.8	84.8 HC-6dBi Omni-Rad2	-11.0	Vert
3	902.000M	68.9	-31.8 +1.4	+5.9 +0.0	+3.3 +22.8	+0.9	+0.0	71.4	84.8 LC-6dBi Omni Rad2	-13.4	Vert
4	902.000M	68.9	-31.8 +1.4	+5.9 +0.0	+3.3 +22.8	+0.9	+0.0	71.4	84.8 LC-11dBi Sector-Rad2	-13.4	Vert
5	928.000M	67.2	-31.6 +1.3	+5.9 +0.0	+3.3 +23.2	+0.9	+0.0	70.2	84.8 HC-11dBi Sector-Rad1	-14.6	Vert
6	902.000M	67.4	-31.8 +1.4	+5.9 +0.0	+3.3 +22.8	+0.9	+0.0	69.9	84.8 LC-6dBi Omni-Rad1	-14.9	Vert
7	928.000M	66.2	-31.6 +1.3	+5.9 +0.0	+3.3 +23.2	+0.9	+0.0	69.2	84.8 HC-6dBi Omni-Rad1	-15.6	Vert
8	902.000M	66.6	-31.8 +1.4	+5.9 +0.0	+3.3 +22.8	+0.9	+0.0	69.1	84.8 LC-11dBi Sector-Rad1	-15.7	Vert
9	902.000M	66.1	-31.8 +1.4	+5.9 +0.0	+3.3 +22.8	+0.9	+0.0	68.6	84.8 LC- 2.5dBi Omni - Rad1	-16.2	Vert
10	928.000M	64.4	-31.6 +1.3	+5.9 +0.0	+3.3 +23.2	+0.9	+0.0	67.4	84.8 HC-2.5dBi Omni-Rad1	-17.4	Vert
11	928.000M	63.1	-31.6 +1.3	+5.9 +0.0	+3.3 +23.2	+0.9	+0.0	66.1	84.8 HC-2.5dBi Omni-Rad2	-18.7	Vert
12	902.000M	58.2	-31.8 +1.4	+5.9 +0.0	+3.3 +22.8	+0.9	+0.0	60.7	84.8 LC-2.5dBi Omni-Rad2	-24.1	Vert

Test Setup Photo(s)

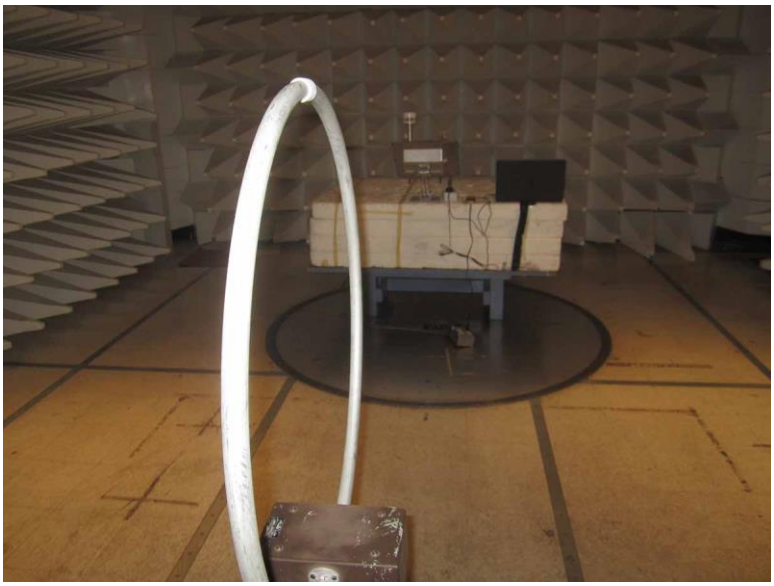


Below 1GHz Test Setup

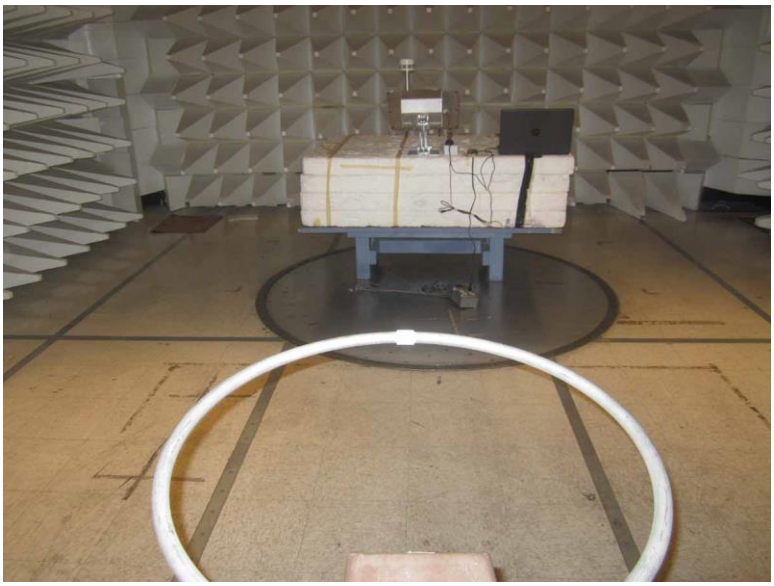
2.5dBi Omni



9kHz-30MHz, Parallel



9kHz-30MHz, Perpendicular



9kHz-30MHz, Z Axis