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LP-009

Test report

Number:	**T251-0113/18**	Project file:	C20171201
		Date:	2018-02-28
		Pages:	238
Product:	**WiFi Dongle**		
Type reference:	**Itron Riva Dev Mini**		
Ratings:	5 Vdc powered via USB Operating frequencies: 902.4 MHz - 927.6 MHz Protection class: III		
Trademark:	Itron Riva		
Applicant:	**Itron Inc.** **2111 N Molter Road, Liberty Lake, WA 99019, USA**		
Manufacturer:	Itron Inc. 2111 N Molter Road, Liberty Lake, WA 99019, USA		
Place of manufacture:	see page 3 for details		

Summary of testing

Testing method:	FCC Part 15, Subpart C, §15.247
Testing location:	SIQ Ljubljana, Mašera-Spasićeva ulica 10, SI-1000 Ljubljana, Slovenia
Remarks:	Date of receipt of test items: 2017-09-22 Number of items tested: 2 Date of performance of tests: 2018-01-16 - 2018-02-09 The test results presented in this report relate only to the items tested. The product complies with the requirements of the testing methods. /

Tested by: Andrej Škof

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1 GENERAL

History sheet			
Date	Report No.	Change	Revision
2018-02-13	T251-0113/18	Initial Test Report issued.	--

Environmental conditions:
Ambient temperature: 15°C to 35°C
Relative humidity: 30% to 60%
Atmospheric pressure: 860 mbar to 1060 mbar

Places of manufacture:
1) Instrumentation Technologies d.d.,
Velika pot 22, SI-5250 Solkan, Slovenia

2) Cicor Electronics Solutions, S.C. Systronics S.R.L.,
I-Zona industrial Arad Vest, NR 10, RO-310580 Arad, Romania

1.1 Equipment under test

WiFi Dongle
Type: **Itron Riva Dev Mini**
FCC ID: 2ANHYMINI1

Tested samples:
- Sample S20180152; SN: 8760003377: sample used for Radiated measurements
- Sample S20181077; SN: 8760003364: sample used for Conducted RF measurements

1.2 General product information

Serial number:	Prototype
Supply voltage:	5 VDC
Rated RF output power:	29 dBm
Modulation type:	FSK: 75kbps OFDM: 50kbps, 200 kbps, 600kbs DSSS: 6.25kbsp, 12.5kbsp, 25kbps, 50kbps
Operating frequency:	902.4 MHz – 927.6 MHz
Number of channels:	64
Antenna type:	Monopole, 1.91 dBi (Manufacture: Taoglas Limited, Model: TG.22.0111)

2 TEST SUMMARY

STANDARD	Tested yes	Tested no	Sample pass	Sample not pass
FCC 47 CFR Part 15, Subpart C, §15.247 Note: All tests were conducted using ANSI C63.10-2013	☑	☐	☑	☐

Test	Section within the report	Conclusion
§15.203 Antenna requirements	3.1	PASS
§15.207 Conducted emission	3.2	PASS
§15.247 (a) (1) 20 dB Bandwidth	3.3	PASS
§15.247 (a) (1) Time of Occupancy (Dwell Time)	3.4	PASS
§15.247 (a) (1) Number of Hopping Frequencies	3.5	PASS
§15.247 (a) (1) Carrier Frequency Separation	3.6	PASS
§15.247 (a) (1) Pseudorandom Frequency Hopping Sequence and Equal Hooping Frequency Use	3.7	PASS
§15.247 (b) Peak Power Output	3.8	PASS
§15.247 (d) Spurious RF Conducted Emissions	3.9	PASS
§15.247 Radiated Spurious Emissions	3.10	PASS
§15.247 (d) Band-edge Compliance of RF Conducted Emissions	3.11	PASS
§15.247 (i) RF Exposure Compliance Requirements	3.12	PASS

2.1 Operating voltages/frequencies used for testing

Test	Operating conditions
§15.207 Conducted emission	5 Vdc
§15.247 (a) (1) 20 dB Bandwidth	5 Vdc
§15.247 (a) (1) Time of Occupancy (Dwell Time)	5 Vdc
§15.247 (a) (1) Number of Hopping Frequencies	5 Vdc
§15.247 (a) (1) Carrier Frequency Separation	5 Vdc
§15.247 (b) Peak Power Output	5 Vdc
§15.247 (d) Spurious RF Conducted Emissions	5 Vdc
§15.247 Radiated Spurious Emissions	5 Vdc
§15.247 (d) Band-edge Compliance of RF Conducted Emissions	5 Vdc

Note: Tested with AC/DC adapter Model: PSAA10A-050QL6, Manufacturer: SWITCHING POWER SUPPLY. Supply voltage of AC/DC adapter was 120 V, 60 Hz.

3 EMISSION TESTS (Intentional Radiators)

3.1 §15.203 Antenna requirements

Requirement
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

Conclusion:
PASS

See ItronRivaDevMiniHWUsersGuideRev1, Chapter RF Connector and Cable:

- *This device must be professionally installed.*
- *Only specified antennas listed in this document may be used for integration of the OEM module to comply with FCC emission limits!*

Listed antenna:

- *Model: 931-1040-ND, Manufacturer: Taoglas Limited*

Listed cable assembly:

- *Model: 931-1186-ND , Manufacturer: Taoglas Limited*

3.2 §15.207 Conducted emission

Requirement

Frequency Range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.5	66 – 56*	56 – 46*
0.5 to 5.0	56	46
5.0 to 30.0	60	50

* Decreases with the logarithm of the frequency.

The shown limits in table shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

- For carrier current systems containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.
- For all other carrier current systems: 1000 µV within the frequency band 535-1705 kHz, as measured using a 50 µH/50 ohms LISN.
- Carrier current systems operating below 30 MHz are also subject to the radiated emission limits as appropriate.

Test procedure:

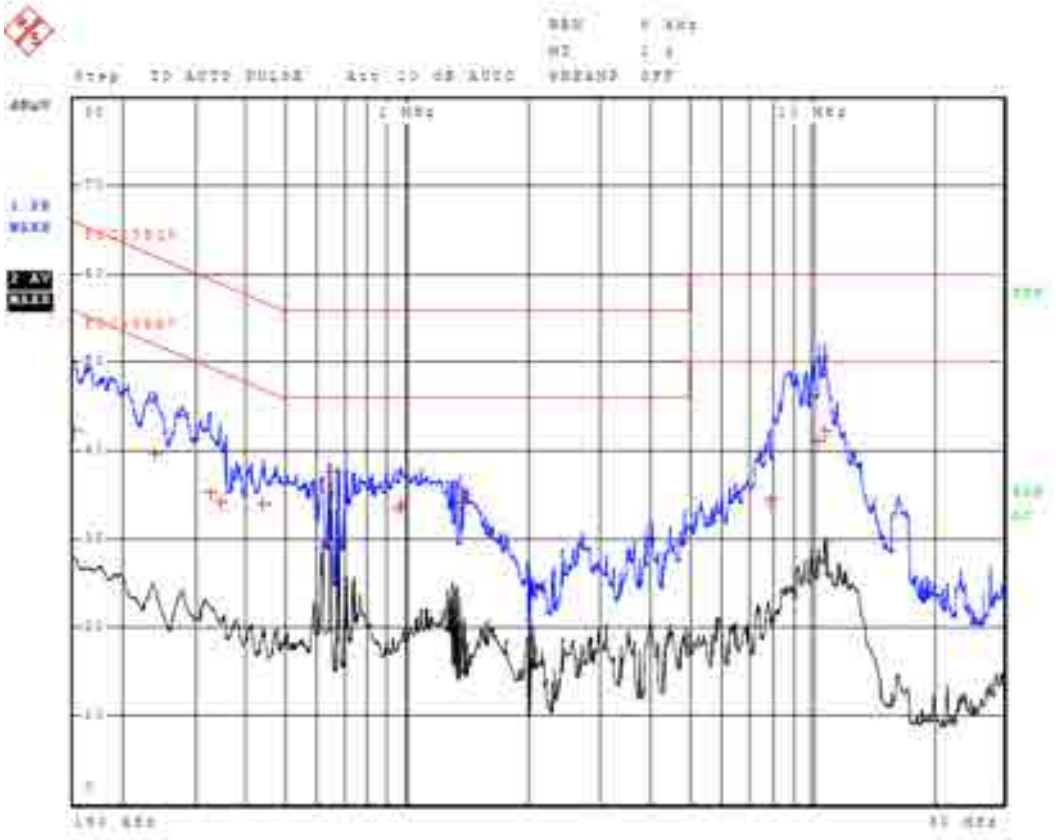
As per clause 6.2 from ANSI C63.10-2013.

Test results

Meas Type	CONDUCTED EMISSION
Equipment under Test	Itron Riva Dev Mini
OP Condition	Uin: 120 V, 60 Hz; FSK 75K

Test Spec

PHASE



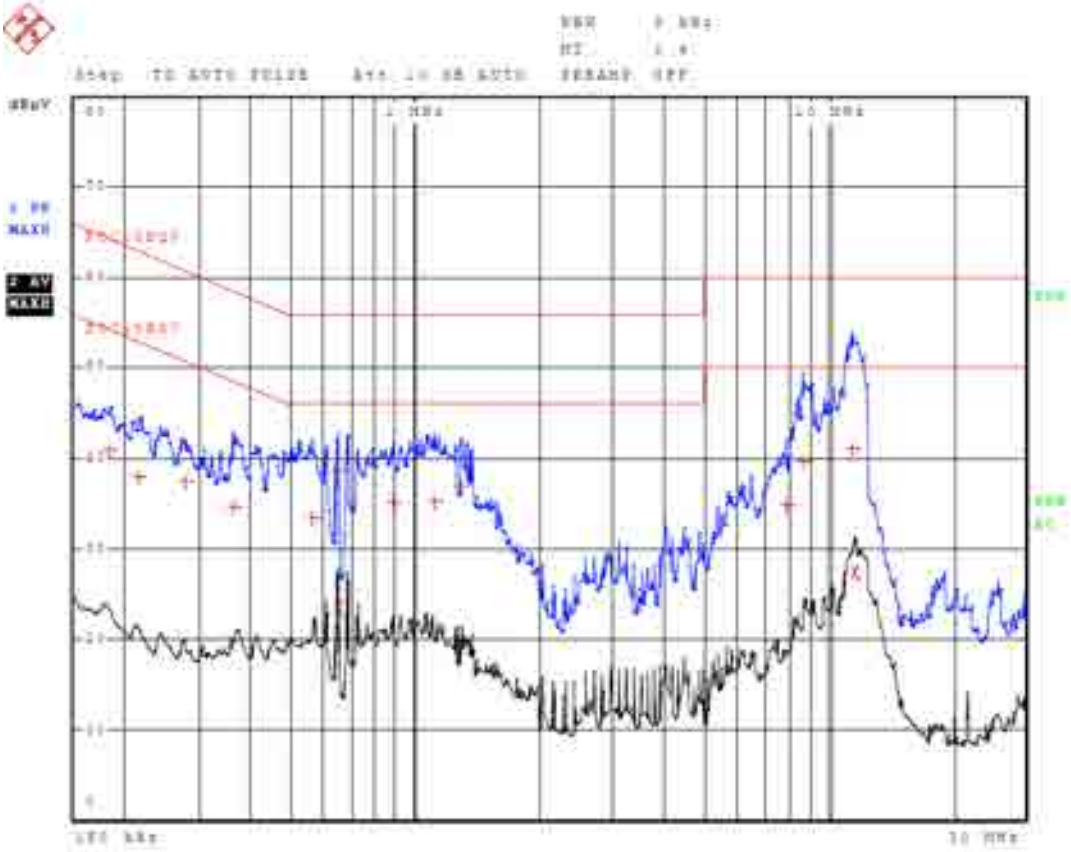
Final Measurement

Meas Time:	1 s
Margin:	20 dB
Subranges:	13

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	645.000000000 kHz	35.76	CISPR Averag	-10.24
1	10.000250000 MHz	42.21	Quasi Peak	-17.79
1	645.000000000 kHz	37.53	Quasi Peak	-18.47
1	10.396500000 MHz	41.06	Quasi Peak	-18.94
1	1.351500000 MHz	33.99	Quasi Peak	-22.01
1	968.000000000 kHz	33.79	Quasi Peak	-22.21
1	851.000000000 kHz	33.37	Quasi Peak	-22.63
1	235.500000000 kHz	39.55	Quasi Peak	-22.70
1	440.250000000 kHz	33.87	Quasi Peak	-23.18
1	150.000000000 kHz	42.25	Quasi Peak	-23.75
1	325.250000000 kHz	35.17	Quasi Peak	-24.45
1	343.500000000 kHz	34.14	Quasi Peak	-24.98
1	7.935000000 MHz	34.31	Quasi Peak	-25.69

Meas Type	CONDUCTED EMISSION
Equipment under Test	Itron Riva Dev Mini
OP Condition	Uin: 120 V, 60 Hz; FSK 75K

Test Spec
NEUTRAL

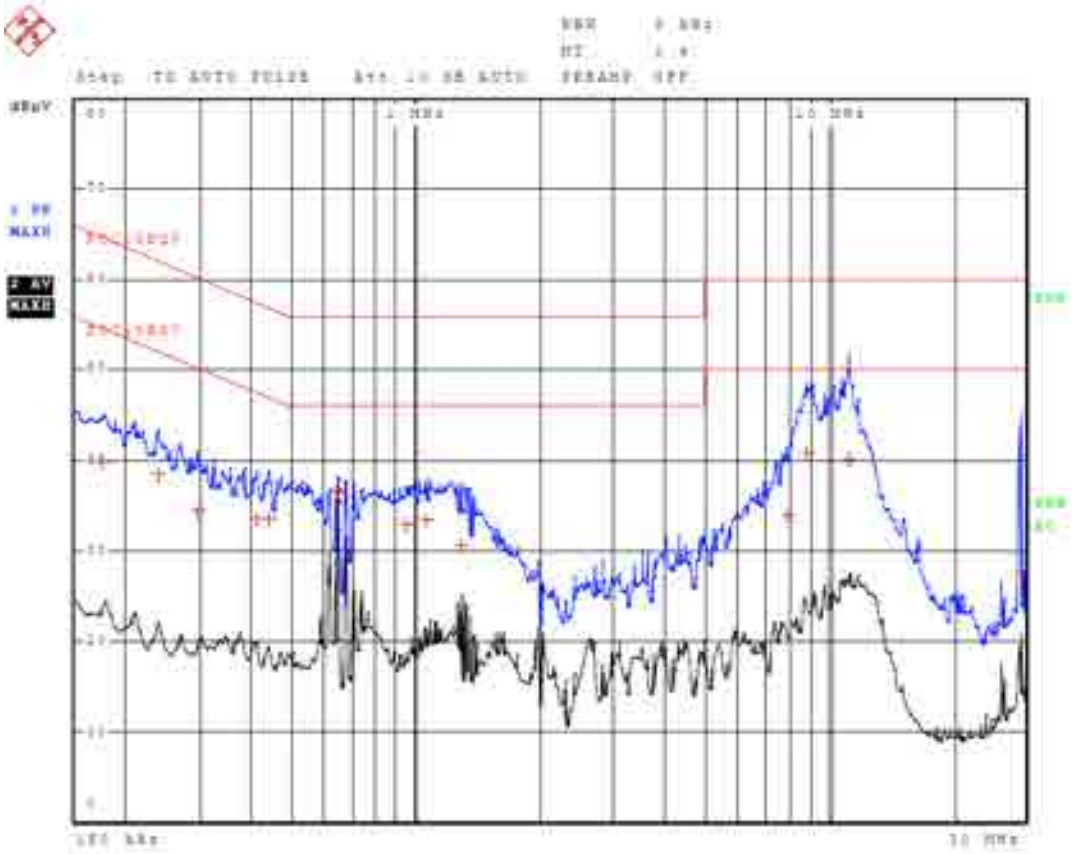


Final Measurement

Meas Time:	1 s
Margin:	20 dB
Subranges:	14

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	647.250000000 kHz	38.60	Quasi Peak	-17.40
1	11.431500000 MHz	41.04	Quasi Peak	-18.96
1	1.295250000 MHz	36.07	Quasi Peak	-19.93
1	8.715750000 MHz	39.53	Quasi Peak	-20.47
1	1.106250000 MHz	35.25	Quasi Peak	-20.75
1	879.000000000 kHz	35.10	Quasi Peak	-20.90
1	561.750000000 kHz	33.42	Quasi Peak	-22.58
2	647.250000000 kHz	23.36	CISPR Averag	-22.64
2	11.582250000 MHz	27.36	CISPR Averag	-22.64
1	183.750000000 kHz	40.65	Quasi Peak	-23.46
1	276.000000000 kHz	37.38	Quasi Peak	-23.56
1	361.500000000 kHz	34.52	Quasi Peak	-24.17
1	215.250000000 kHz	37.92	Quasi Peak	-25.08
1	7.962000000 MHz	34.87	Quasi Peak	-25.13

Meas Type CONDUCTED EMISSION
Equipment under Test Itron Riva Dev Mini
OP Condition Uin: 120 V, 60 Hz; OFDM 600K
Test Spec
PHASE



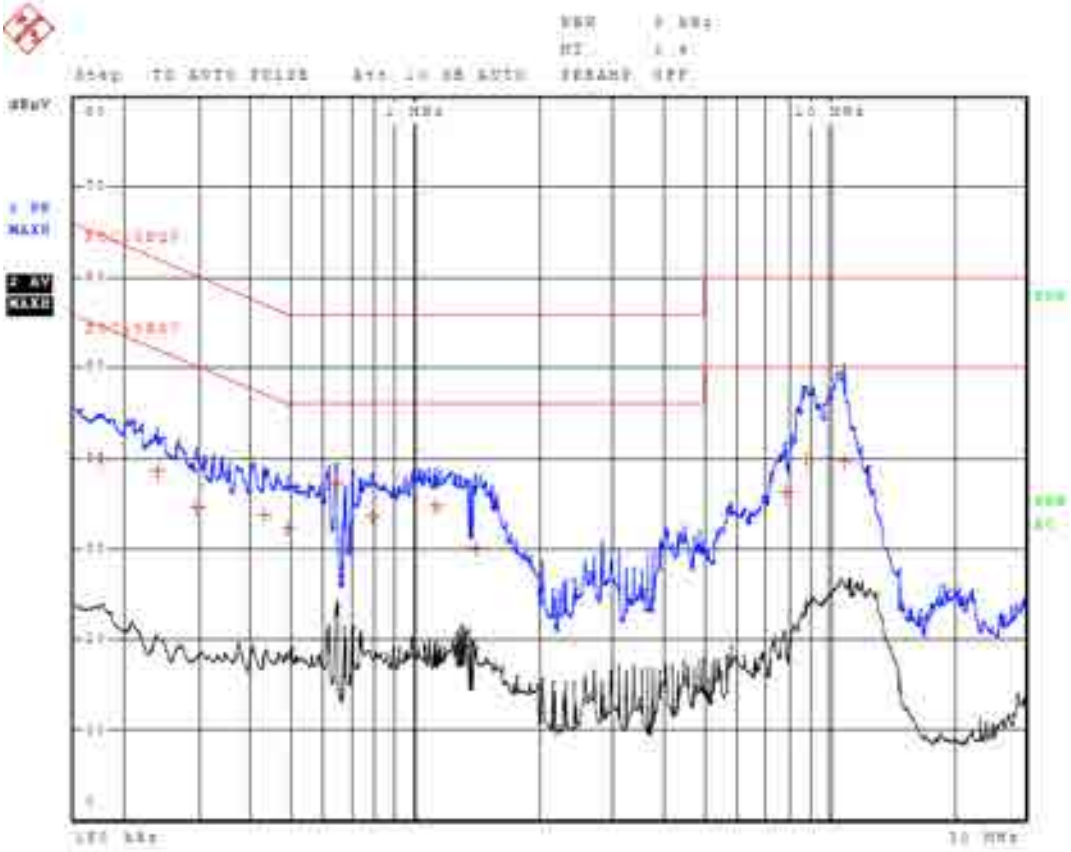
Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 14

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	645.000000000 kHz	36.02	CISPR Average	-9.98
1	8.866500000 MHz	40.84	Quasi Peak	-19.16
1	645.000000000 kHz	36.53	Quasi Peak	-19.47
1	11.193000000 MHz	40.11	Quasi Peak	-19.89
1	1.052250000 MHz	33.29	Quasi Peak	-22.71
1	842.000000000 kHz	32.79	Quasi Peak	-23.21
1	440.250000000 kHz	33.54	Quasi Peak	-23.51
1	235.500000000 kHz	38.46	Quasi Peak	-23.80
1	411.000000000 kHz	33.45	Quasi Peak	-24.17
1	174.750000000 kHz	39.75	Quasi Peak	-24.95
1	1.291750000 MHz	30.43	Quasi Peak	-25.57
1	294.000000000 kHz	34.35	Quasi Peak	-26.06
1	7.955250000 MHz	33.87	Quasi Peak	-26.13
1	29.251500000 MHz	27.60	Quasi Peak	-32.40

Meas Type	CONDUCTED EMISSION
Equipment under Test	Itron Riva Dev Mini
OP Condition	Uin: 120 V, 60 Hz; OFDM 600K

Test Spec
NEUTRAL

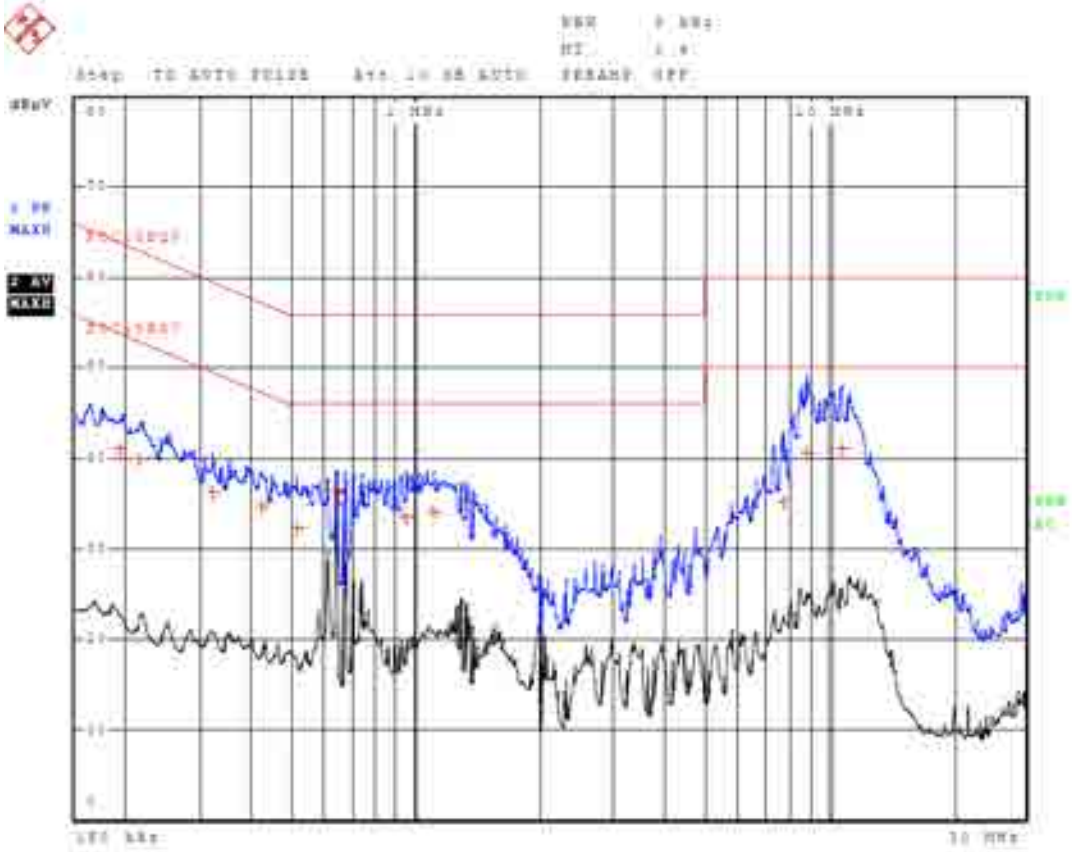


Final Measurement

Meas Time:	1 s
Margin:	20 dB
Subranges:	12

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	645.000000000 kHz	37.31	Quasi Peak	-18.69
1	8.825250000 MHz	39.97	Quasi Peak	-20.03
1	10.893750000 MHz	39.64	Quasi Peak	-20.36
1	1.115250000 MHz	34.66	Quasi Peak	-21.34
1	702.250000000 kHz	33.48	Quasi Peak	-22.52
1	429.000000000 kHz	35.77	Quasi Peak	-23.51
1	235.500000000 kHz	38.58	Quasi Peak	-23.67
1	7.842750000 MHz	36.15	Quasi Peak	-23.85
1	492.000000000 kHz	32.21	Quasi Peak	-23.94
1	174.750000000 kHz	39.90	Quasi Peak	-24.83
1	294.000000000 kHz	34.53	Quasi Peak	-25.88
1	1.394250000 MHz	30.00	Quasi Peak	-26.00

Meas Type CONDUCTED EMISSION
Equipment under Test Itron Riva Dev Mini
OP Condition Uin: 120 V, 60 Hz; DSSS 50K
Test Spec
PHASE



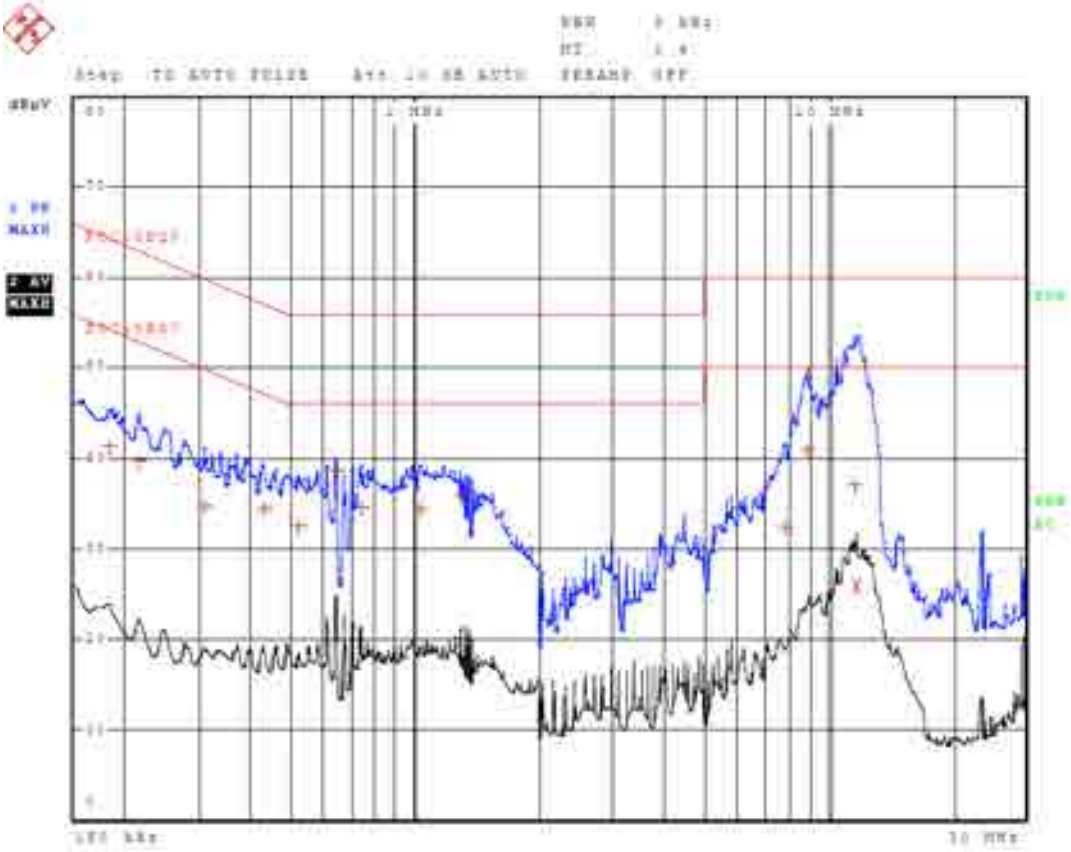
Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 13

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	642.750000000 kHz	35.50	CISPR Average	-10.50
1	10.716000000 MHz	41.04	Quasi Peak	-18.96
1	8.823750000 MHz	40.54	Quasi Peak	-19.46
1	640.500000000 kHz	36.41	Quasi Peak	-19.59
1	1.315500000 MHz	35.25	Quasi Peak	-20.75
1	1.069500000 MHz	34.03	Quasi Peak	-21.97
1	946.500000000 kHz	33.61	Quasi Peak	-22.39
1	420.000000000 kHz	34.69	Quasi Peak	-22.76
1	192.750000000 kHz	41.07	Quasi Peak	-22.88
1	215.250000000 kHz	39.83	Quasi Peak	-23.17
1	321.000000000 kHz	36.29	Quasi Peak	-23.38
1	510.000000000 kHz	32.17	Quasi Peak	-23.83
1	7.759500000 MHz	35.13	Quasi Peak	-24.87

Meas Type	CONDUCTED EMISSION
Equipment under Test	Itron Riva Dev Mini
OP Condition	Uin: 120 V, 60 Hz; DSSS 50K

Test Spec
NEUTRAL



Final Measurement

Meas Time:	1 s
Margin:	20 dB
Subranges:	13

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	642.750000000 kHz	38.53	Quasi Peak	-17.47
1	8.871000000 MHz	40.97	Quasi Peak	-19.03
1	1.281750000 MHz	35.95	Quasi Peak	-20.05
1	737.250000000 kHz	34.49	Quasi Peak	-21.51
1	1.025250000 MHz	34.45	Quasi Peak	-21.55
1	11.608250000 MHz	37.13	Quasi Peak	-22.87
1	429.000000000 kHz	34.40	Quasi Peak	-22.87
1	193.750000000 kHz	41.32	Quasi Peak	-22.98
1	213.000000000 kHz	39.71	Quasi Peak	-23.38
1	519.000000000 kHz	32.59	Quasi Peak	-23.41
2	11.715000000 MHz	25.76	CISPR Averag	-24.24
1	305.250000000 kHz	34.75	Quasi Peak	-25.35
1	7.856250000 MHz	32.39	Quasi Peak	-27.61

3.3 §15.247 (a) (1) 20 dB Bandwidth

Requirement

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

Test procedure:
As per Clause 6.9.2 from ANSI C63.10-2013 and FCC/DA-00-705

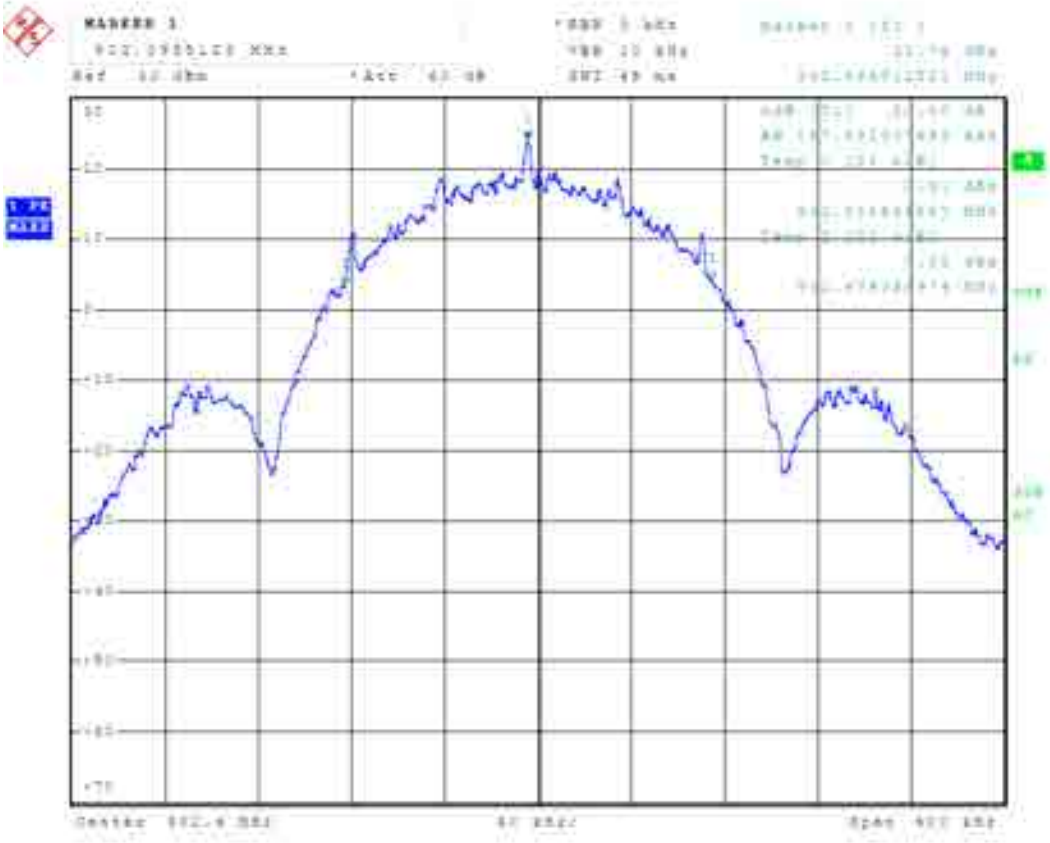
Tabulated test results

Frequency (MHz)	Modulation	Occupied bandwidth (kHz)	Limit (kHz)	Conclusion
902.4 (CH1)	FSK75K	158	500	PASS
915.2 (CH32)	FSK75K	178	500	PASS
927.6 (CH64)	FSK75K	161	500	PASS
902.4 (CH1)	OFDM50K	317	500	PASS
915.2 (CH32)	OFDM50K	314	500	PASS
927.6 (CH64)	OFDM50K	313	500	PASS
902.4 (CH1)	OFDM600K	309	500	PASS
915.2 (CH32)	OFDM600K	311	500	PASS
927.6 (CH64)	OFDM600K	309	500	PASS
902.4 (CH1)	DSSS6.25K	97	500	PASS
915.2 (CH32)	DSSS6.25K	97	500	PASS
927.6 (CH64)	DSSS6.25K	96	500	PASS
902.4 (CH1)	DSSS12.5K	121	500	PASS
915.2 (CH32)	DSSS12.5K	128	500	PASS
927.6 (CH64)	DSSS12.5K	122	500	PASS
902.4 (CH1)	DSSS25K	125	500	PASS
915.2 (CH32)	DSSS25K	125	500	PASS
927.6 (CH64)	DSSS25K	123	500	PASS
902.4 (CH1)	DSSS50K	122	500	PASS
915.2 (CH32)	DSSS50K	123	500	PASS
927.6 (CH64)	DSSS50K	122	500	PASS

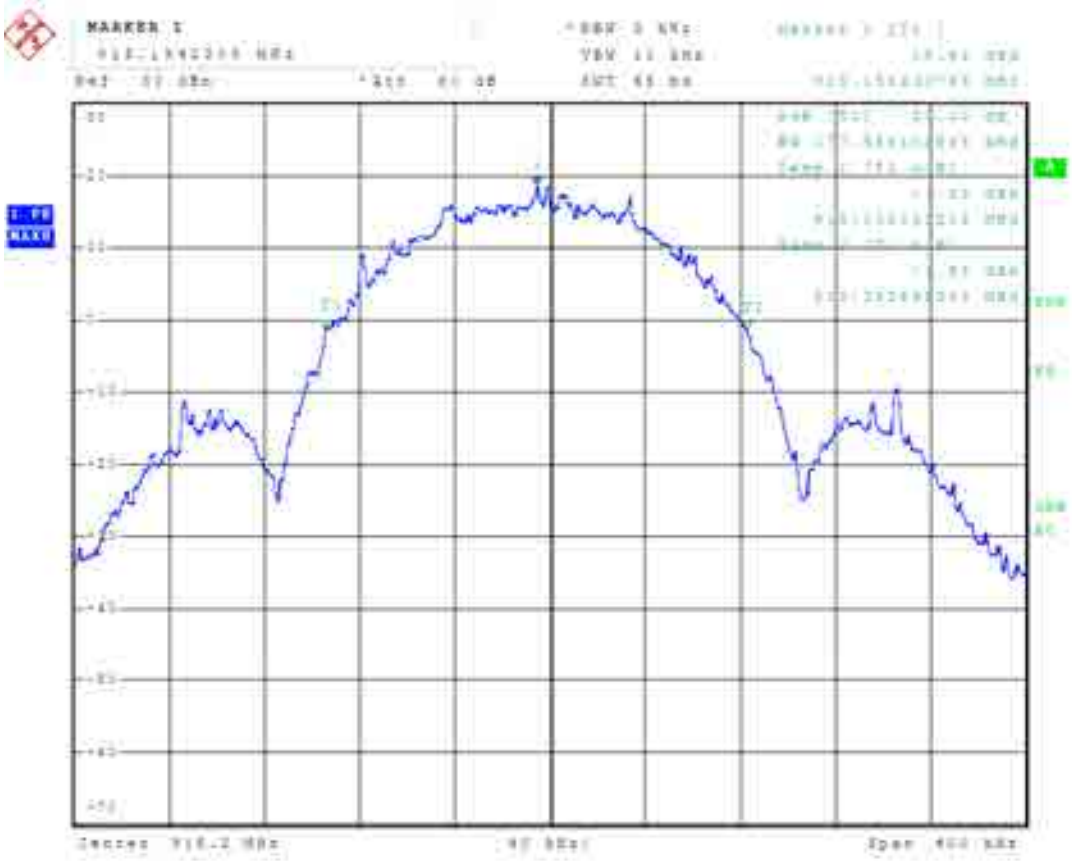
Test results

Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 FSK 75K

Test Spec
CONDUCTED

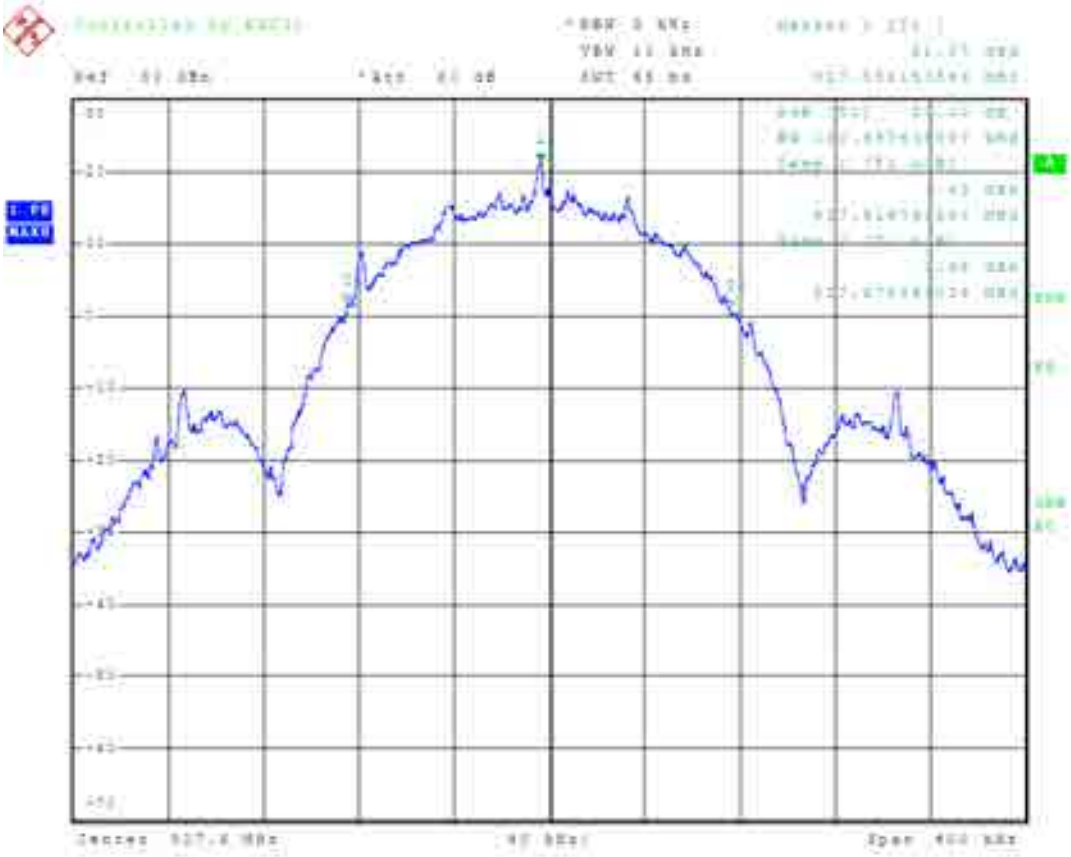


Meas Type 20 dB BANDWIDTH
Equipment under Test Itron Riva Dev Mini
OP Condition CH32 FSK 75K
Test Spec
CONDUCTED

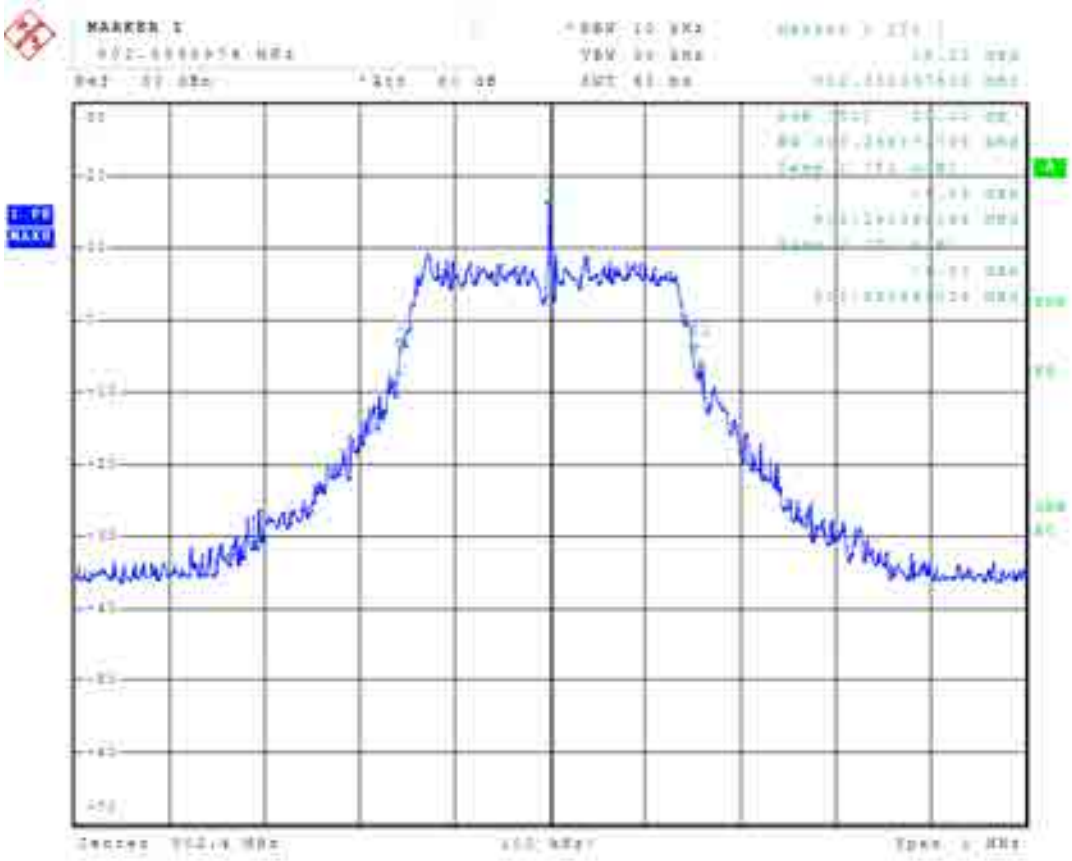


Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64, FSK 75K

Test Spec
CONDUCTED

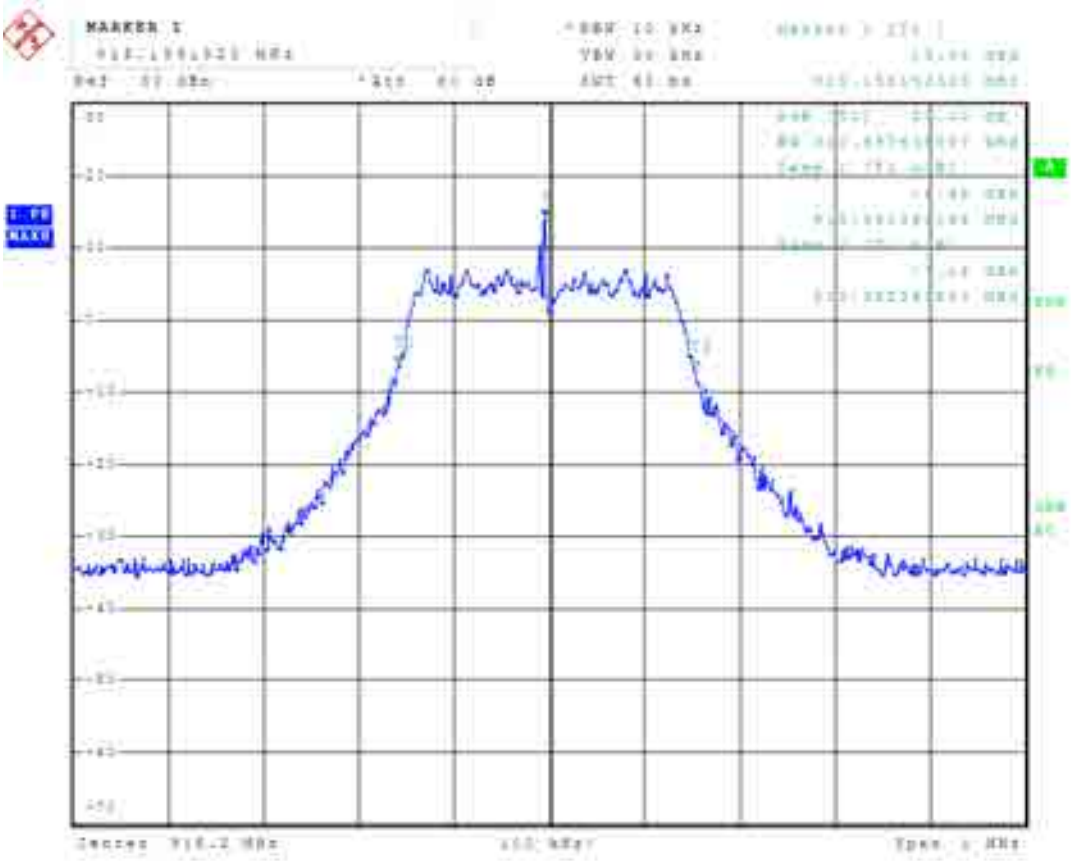


Meas Type 20 dB BANDWIDTH
Equipment under Test Itron Riva Dev Mini
OP Condition CH1 OFDM 600K
Test Spec
CONDUCTED



Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH32 OFDM 600K

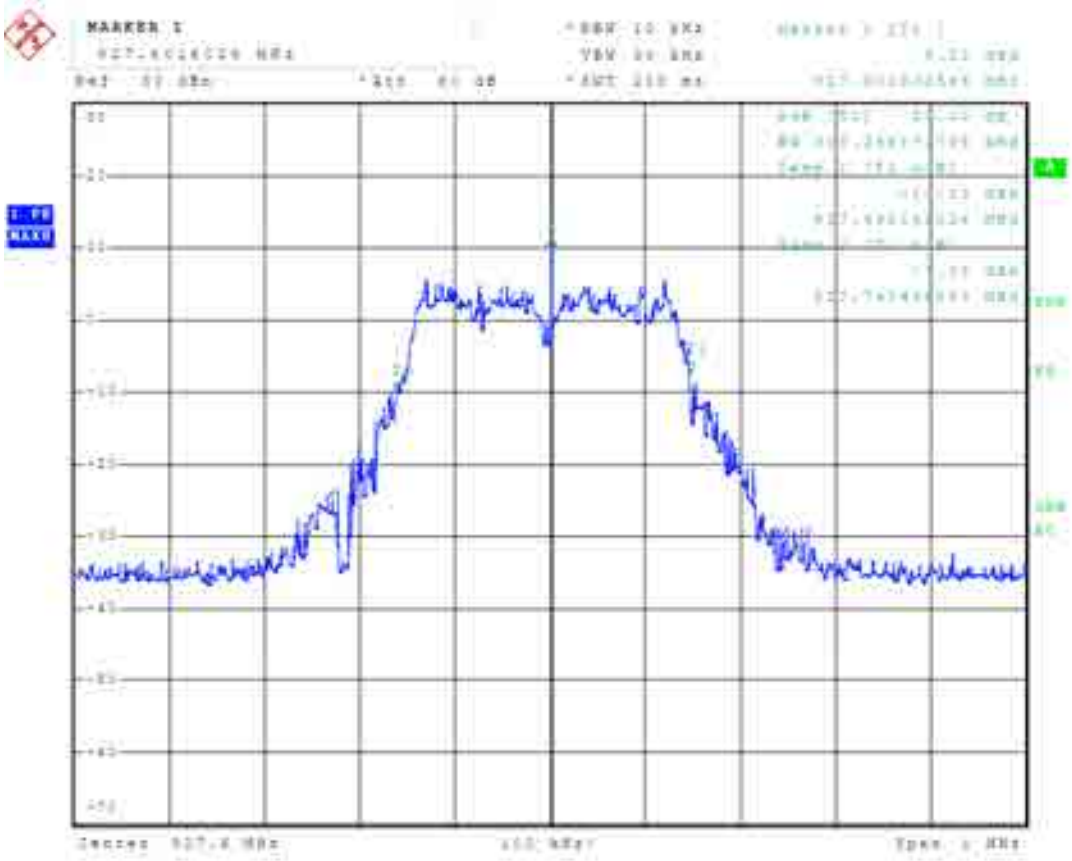
Test Spec
CONDUCTED



Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64 OFDM 600K

Test Spec

CONDUCTED



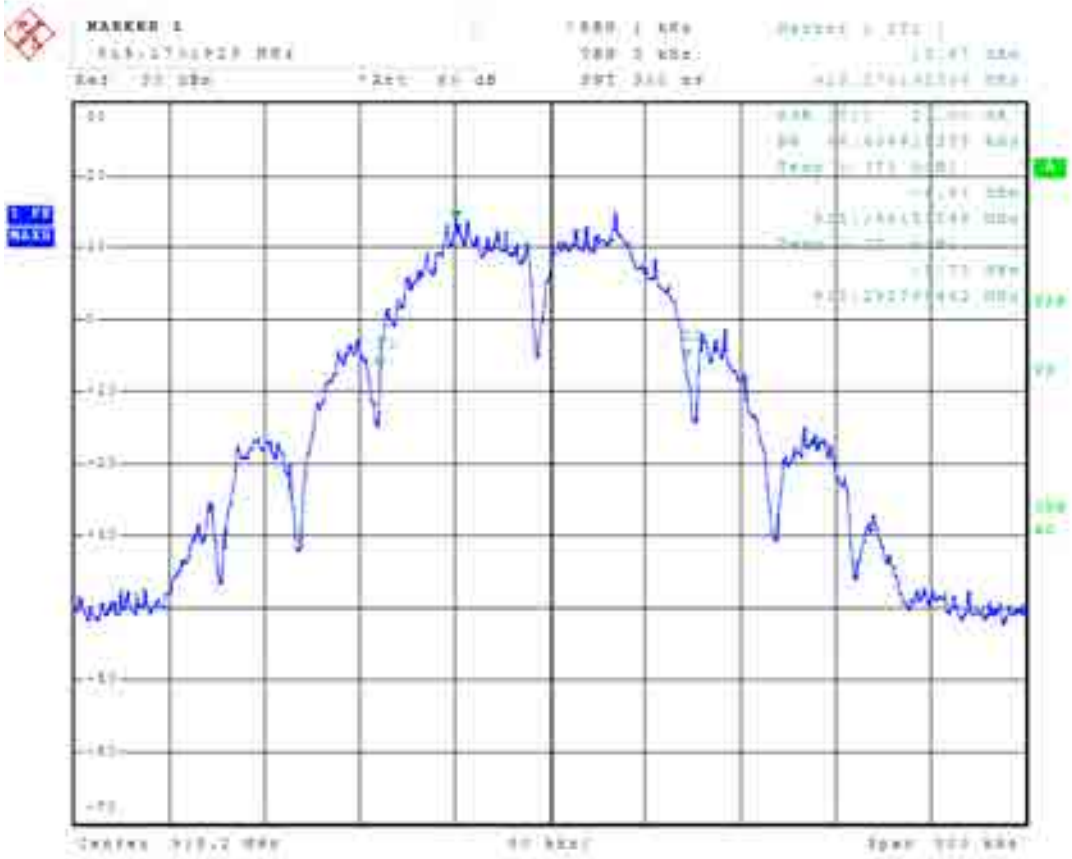
Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 DSSS 6.25K

Test Spec
CONDUCTED

Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH32 DSSS 6.25K
Test Spec	
CONDUCTED	

Sweep Settings Screen A

Center Frequency	915.200000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	300.000000 kHz	Ref Position	100.000 %
Start Frequency	915.050000 MHz	Level Range	100.000 dB
Stop Frequency	915.350000 MHz	RF Att	40.000 dB
RBW	1.000000 kHz		
VBW	3.000000 kHz	X-Axis	LIN
Sweep Time	300.00 ms	Y-Axis	LOG

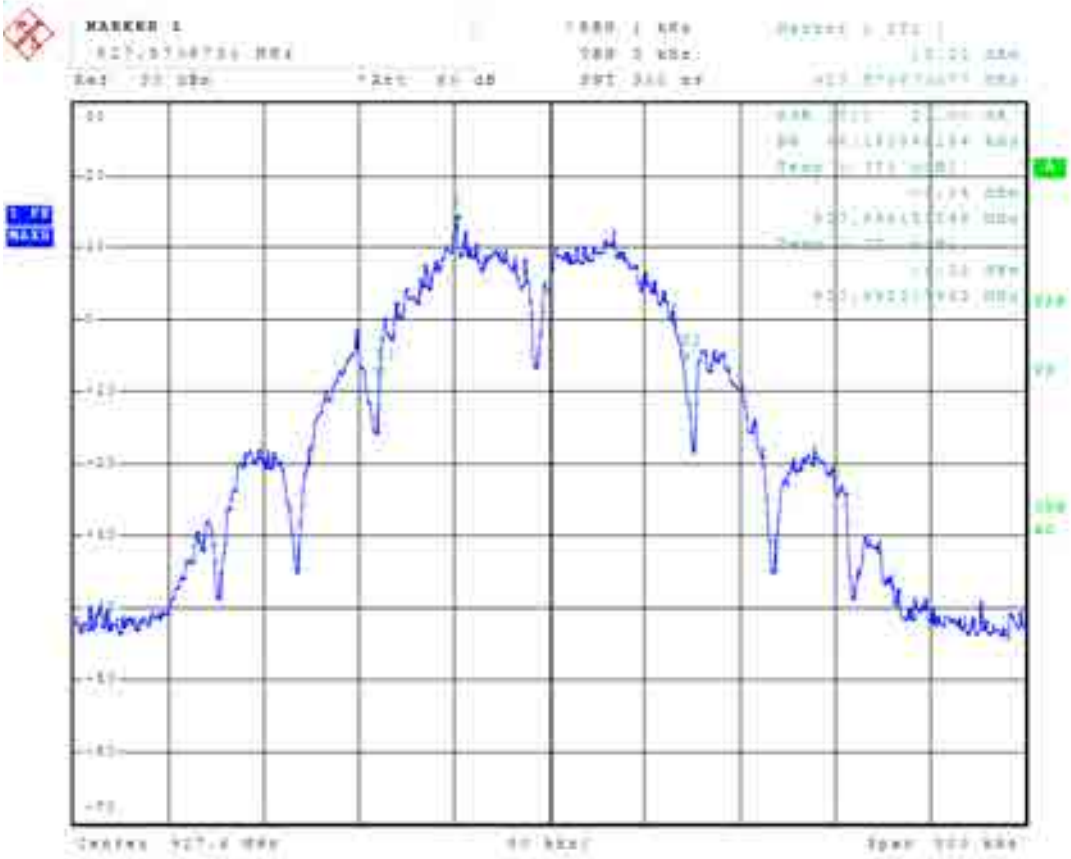


Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64 DSSS 6.25K

Test Spec
CONDUCTED

Sweep Settings Screen A

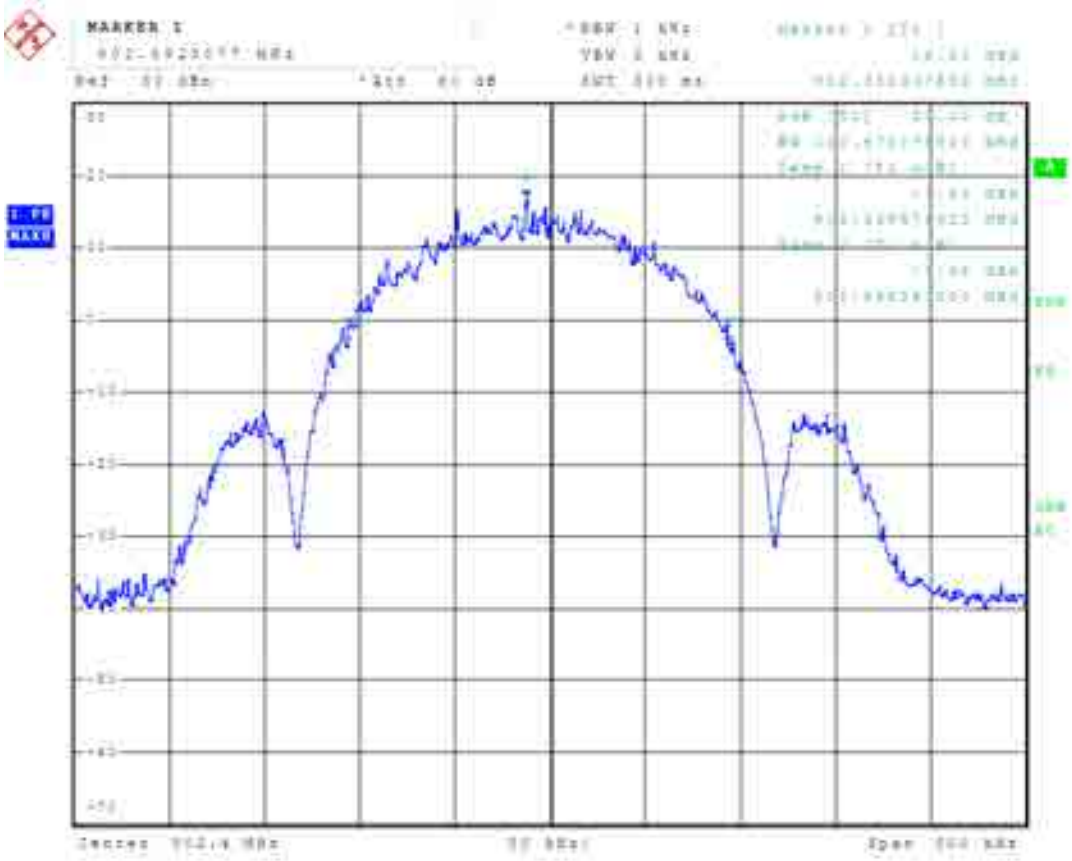
Center Frequency	927.600000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	300.000000 kHz	Ref Position	100.000 %
Start Frequency	927.450000 MHz	Level Range	100.000 dB
Stop Frequency	927.750000 MHz	RF Att	40.000 dB
RBW	1.000000 kHz		
VBW	3.000000 kHz	X-Axis	LIN
Sweep Time	300.00 ms	Y-Axis	LOG



Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 DSSS 12.5K

Test Spec

CONDUCTED

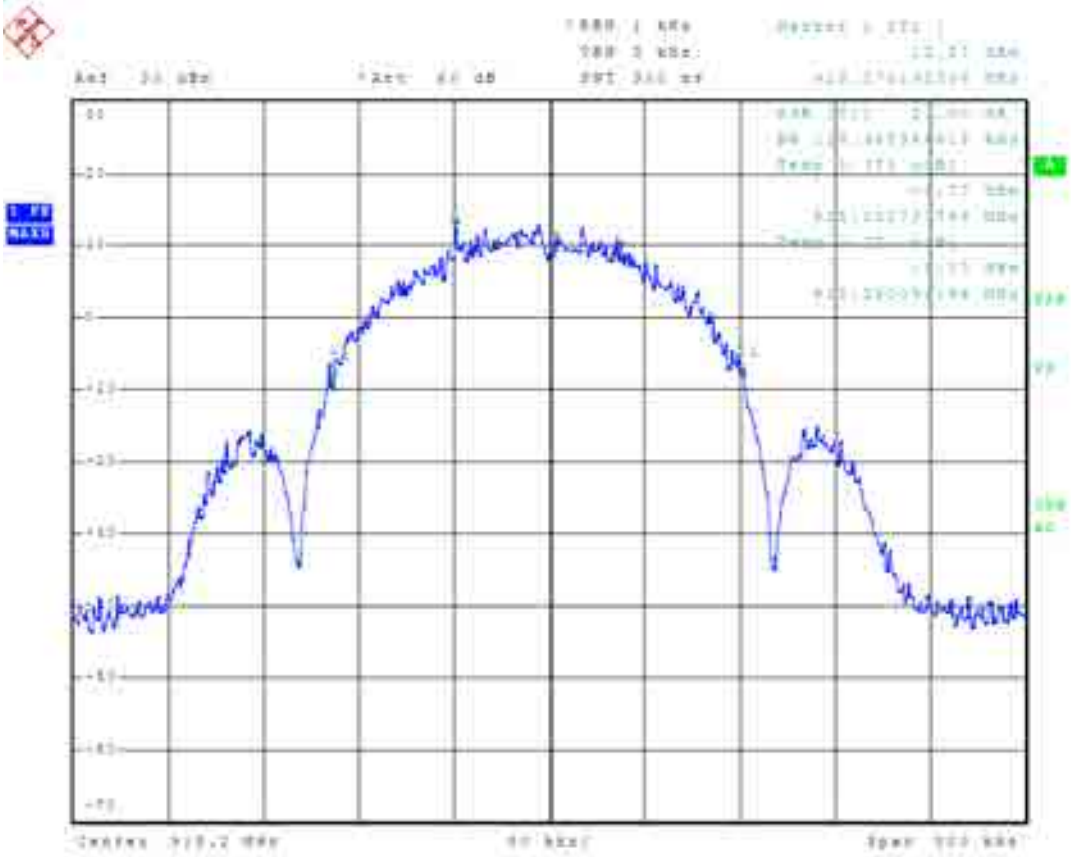


Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH32 DSSS 12.5K

Test Spec
CONDUCTED

Sweep Settings Screen A

Center Frequency	915.200000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	300.000000 kHz	Ref Position	100.000 %
Start Frequency	915.050000 MHz	Level Range	100.000 dB
Stop Frequency	915.350000 MHz	RF Att	40.000 dB
RBW	1.000000 kHz		
VBW	3.000000 kHz	X-Axis	LIN
Sweep Time	300.00 ms	Y-Axis	LOG

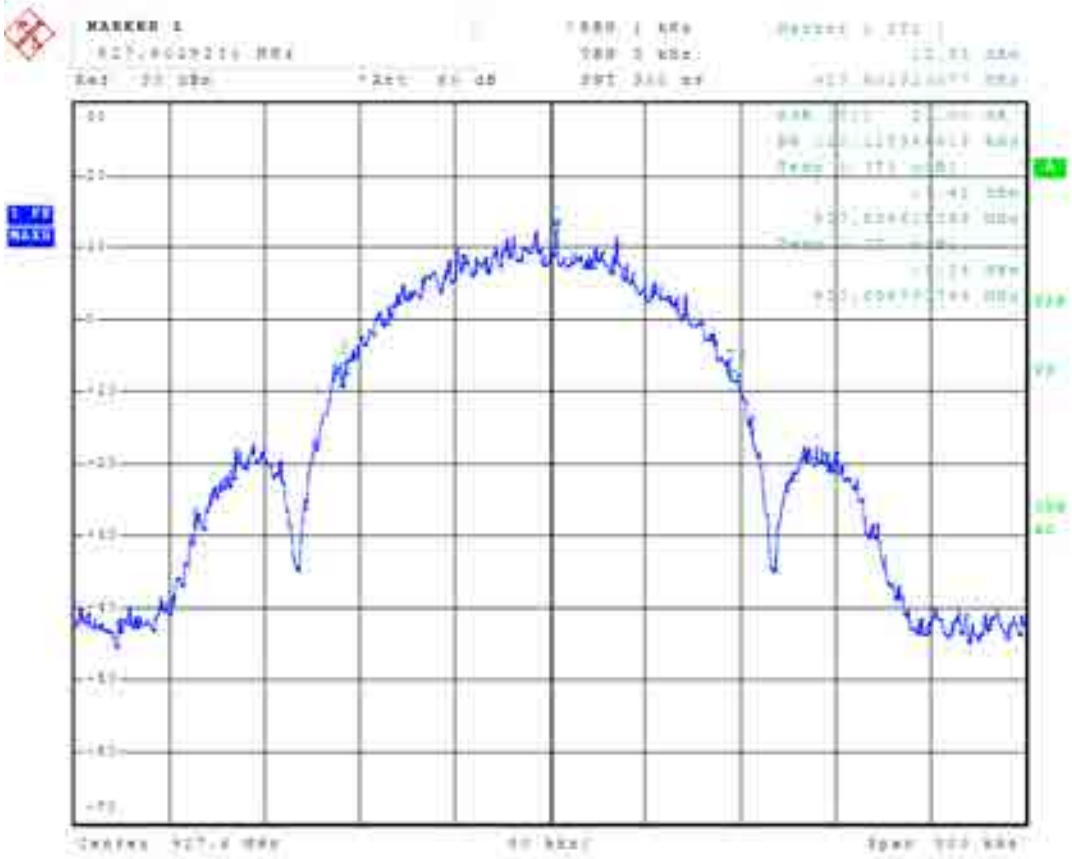


Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64 DSSS 12.5K

Test Spec
CONDUCTED

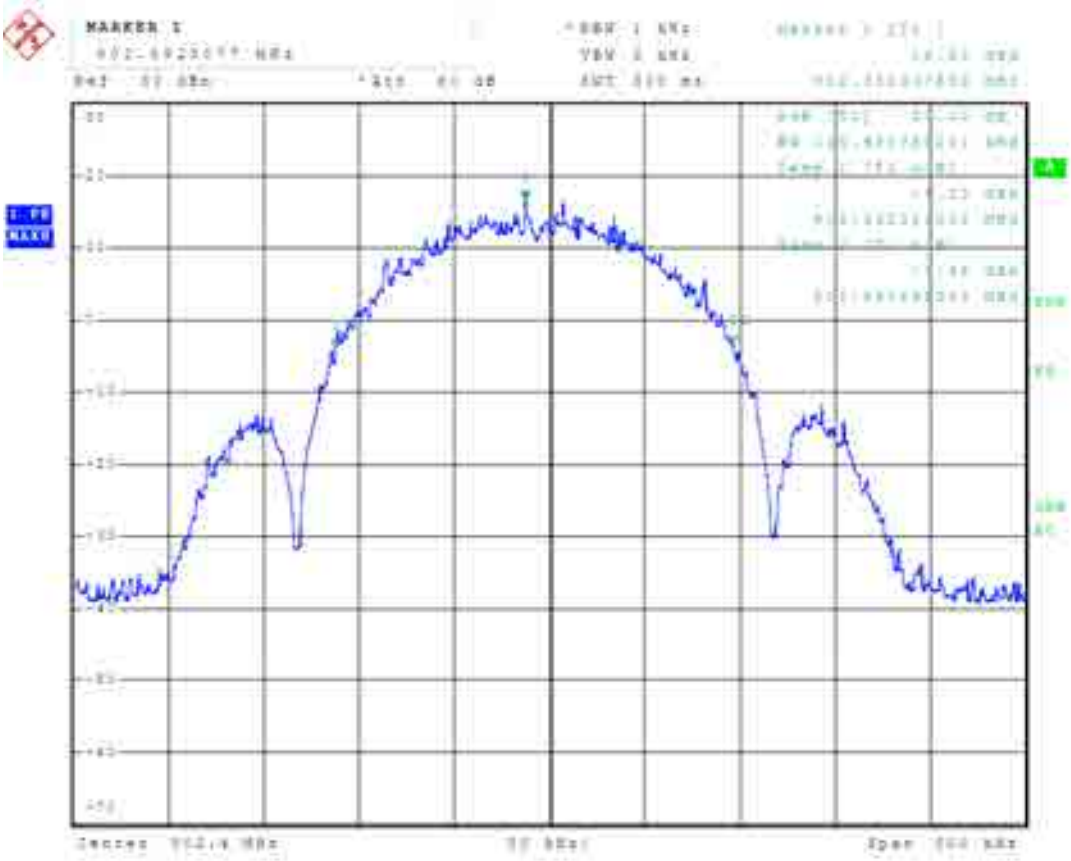
Sweep Settings Screen A

Center Frequency	927.600000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	300.000000 kHz	Ref Position	100.000 %
Start Frequency	927.450000 MHz	Level Range	100.000 dB
Stop Frequency	927.750000 MHz	RF Att	40.000 dB
RBW	1.000000 kHz		
VBW	3.000000 kHz	X-Axis	LIN
Sweep Time	300.00 ms	Y-Axis	LOG



Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 DSSS 25K

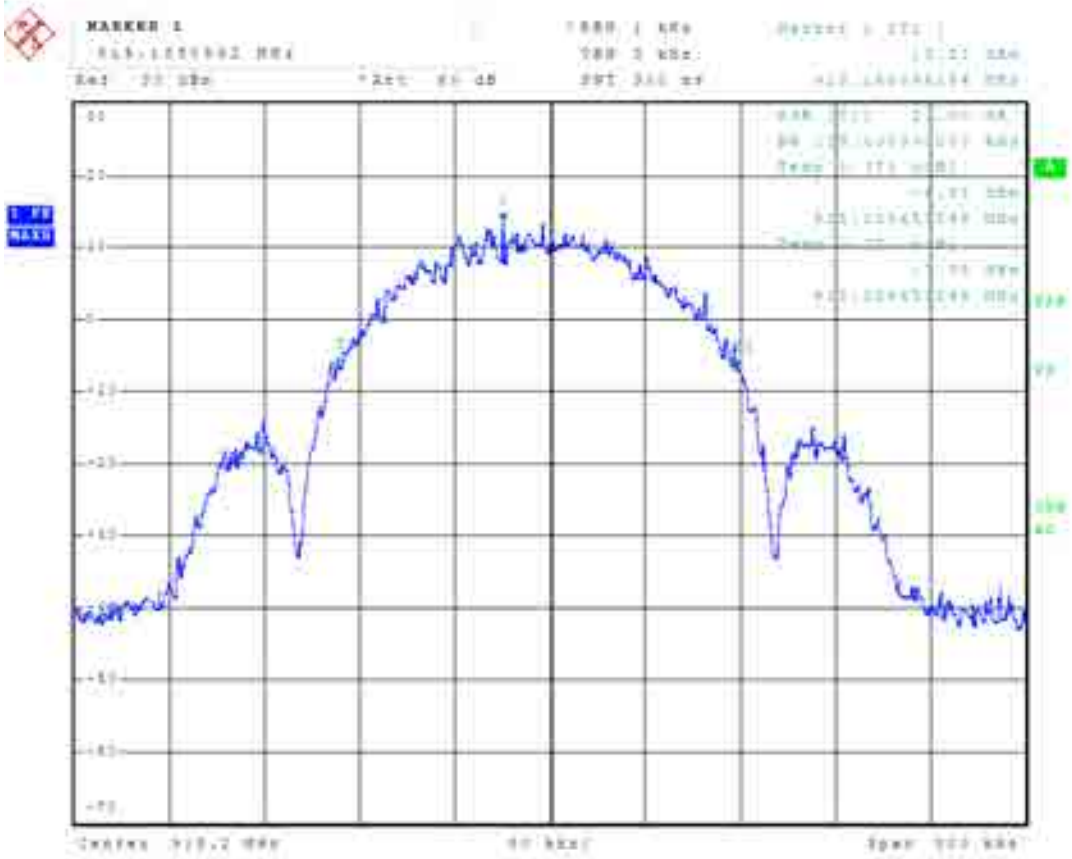
Test Spec
CONDUCTED



Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH32 DSSS 25K
Test Spec	
CONDUCTED	

Sweep Settings Screen A

Center Frequency	915.200000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	300.000000 kHz	Ref Position	100.000 %
Start Frequency	915.050000 MHz	Level Range	100.000 dB
Stop Frequency	915.350000 MHz	RF Att	40.000 dB
RBW	1.000000 kHz		
VBW	3.000000 kHz	X-Axis	LIN
Sweep Time	300.00 ms	Y-Axis	LOG

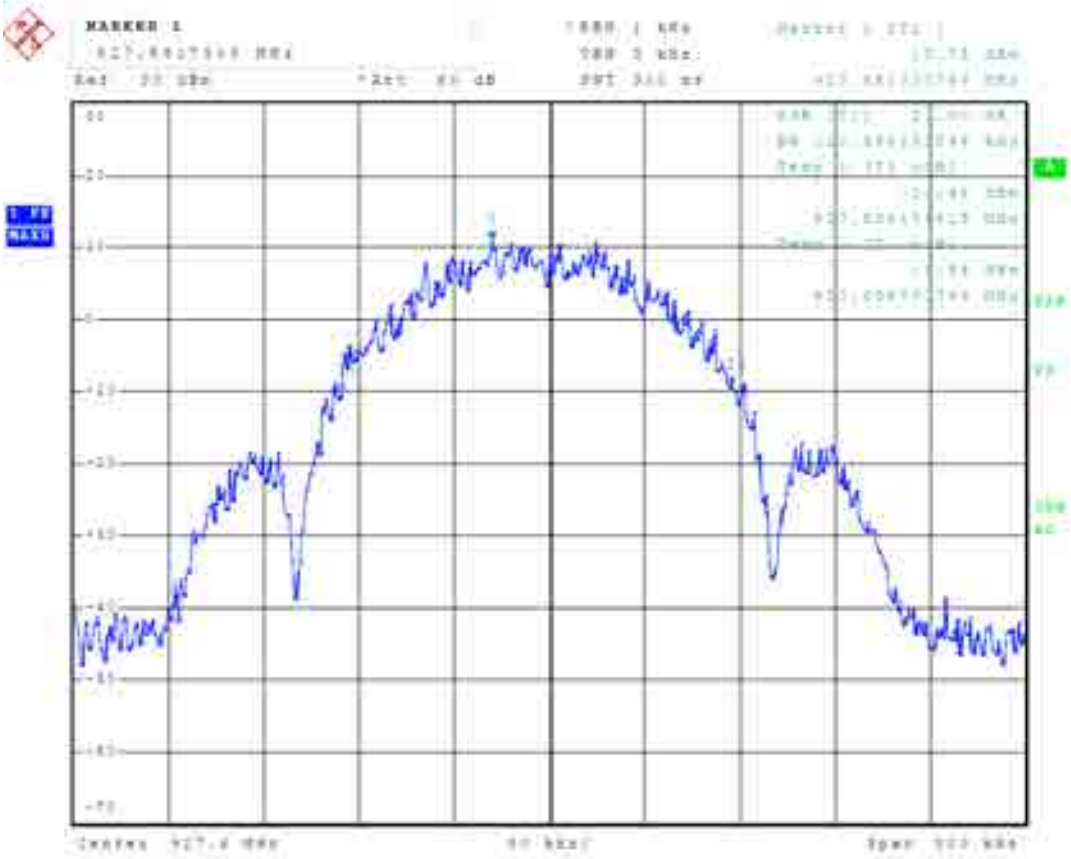


Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64 DSSS 25K

Test Spec
CONDUCTED

Sweep Settings Screen A

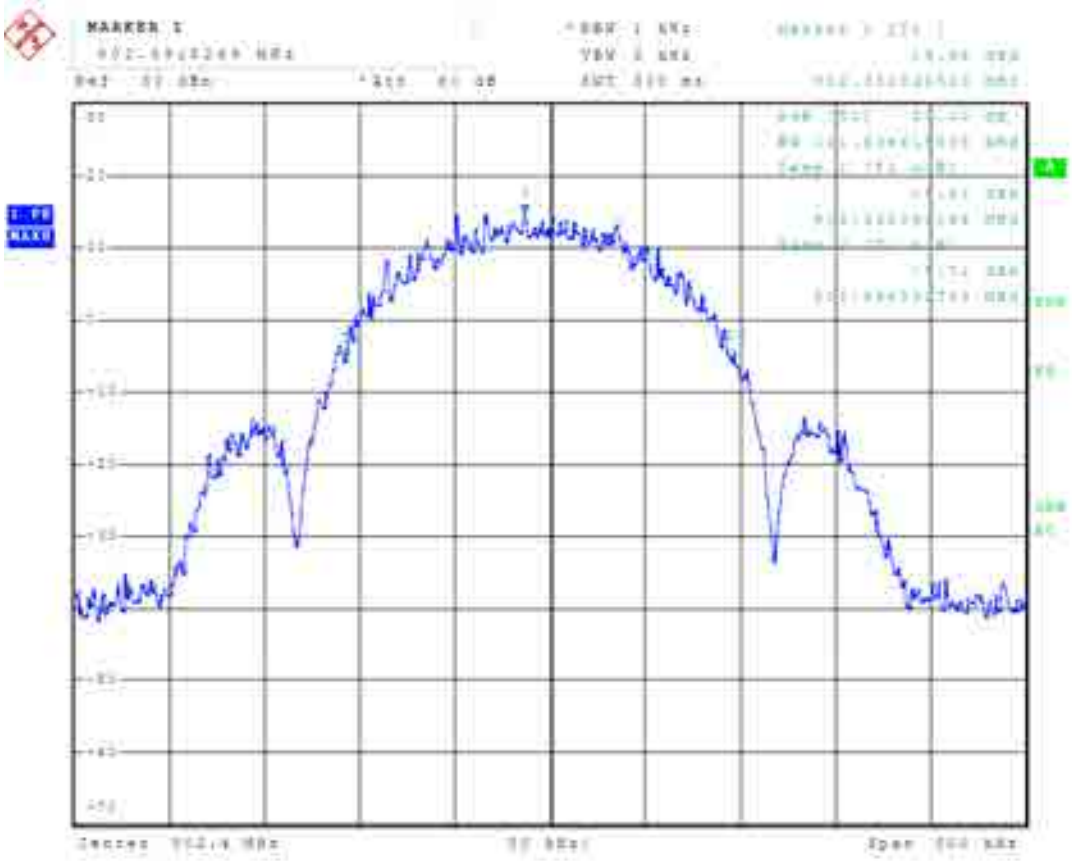
Center Frequency	927.600000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	300.000000 kHz	Ref Position	100.000 %
Start Frequency	927.450000 MHz	Level Range	100.000 dB
Stop Frequency	927.750000 MHz	RF Att	40.000 dB
RBW	1.000000 kHz		
VBW	3.000000 kHz	X-Axis	LIN
Sweep Time	300.00 ms	Y-Axis	LOG



Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 DSSS 50K

Test Spec

CONDUCTED

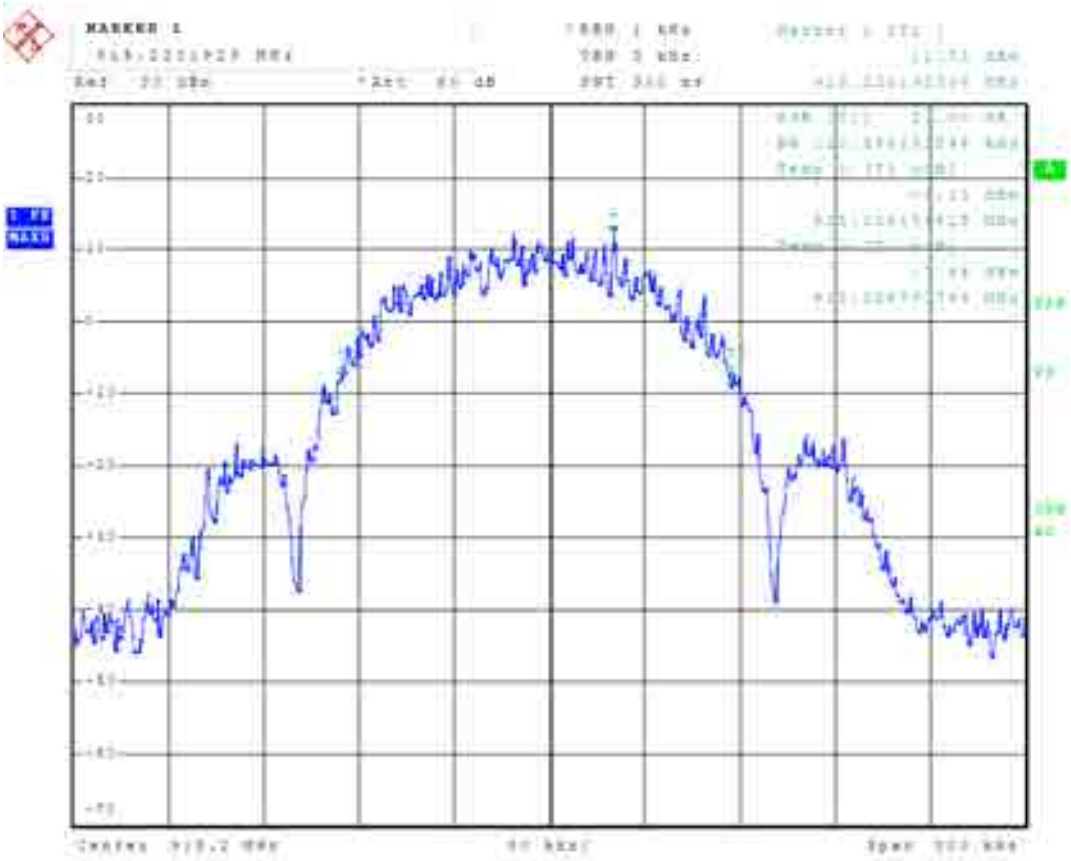


Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH32 DSSS 50K

Test Spec
CONDUCTED

Sweep Settings Screen A

Center Frequency	915.200000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	300.000000 kHz	Ref Position	100.000 %
Start Frequency	915.050000 MHz	Level Range	100.000 dB
Stop Frequency	915.350000 MHz	RF Att	40.000 dB
RBW	1.000000 kHz		
VBW	3.000000 kHz	X-Axis	LIN
Sweep Time	300.00 ms	Y-Axis	LOG

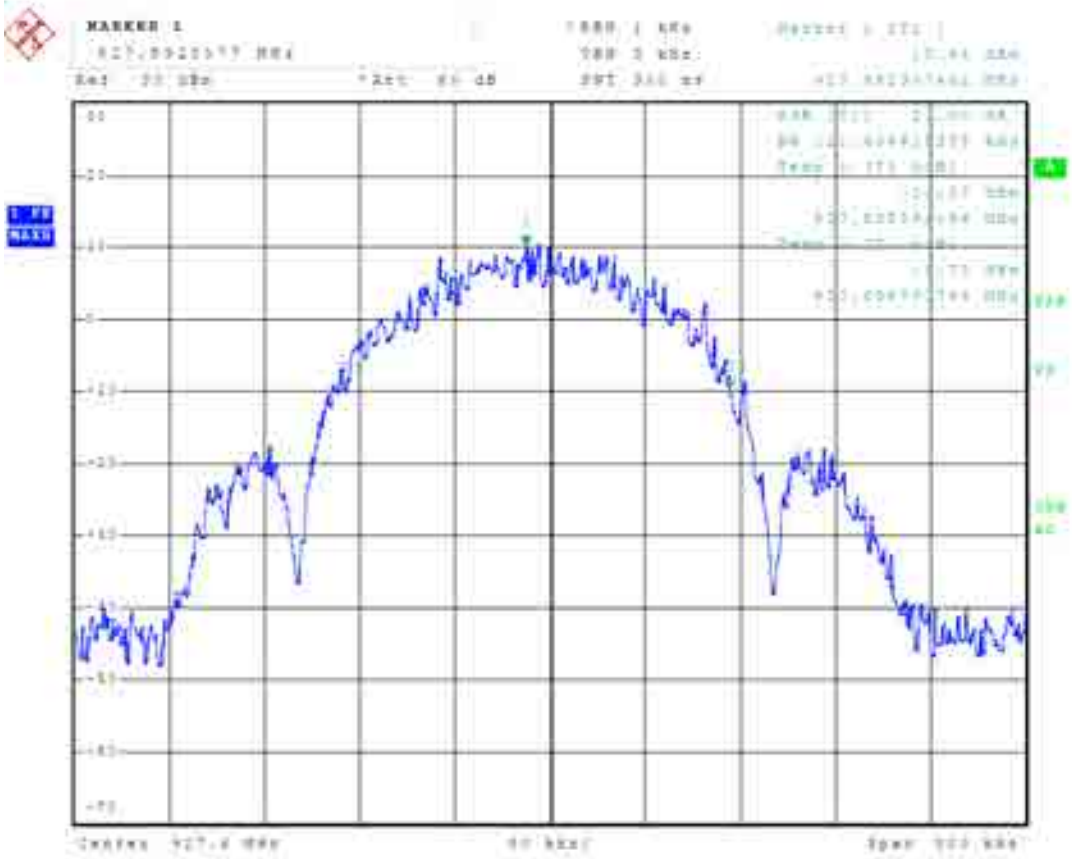


Meas Type	20 dB BANDWIDTH
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64 DSSS 50K

Test Spec
CONDUCTED

Sweep Settings Screen A

Center Frequency	927.600000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	300.000000 kHz	Ref Position	100.000 %
Start Frequency	927.450000 MHz	Level Range	100.000 dB
Stop Frequency	927.750000 MHz	RF Att	40.000 dB
RBW	1.000000 kHz		
VBW	3.000000 kHz	X-Axis	LIN
Sweep Time	300.00 ms	Y-Axis	LOG



3.4 §15.247 (a) (1) Time of Occupancy (Dwell Time)

Requirement
If the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.

Test procedure:
As per Clause 7.8.4 from ANSI C63.10-2013 and FCC/DA-00-705

Result:
The EUT was not capable of producing a worst-case channel dwell time. A detailed analysis of the channel dwell time is available in the Itron Riva Dev Mini Technical Specification document, Chapter 5.

3.5 §15.247 (a) (1) Number of Hopping Frequencies

Requirement
For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies

Test procedure:
As per Clause 7.8.3 from ANSI C63.10-2013 and FCC/DA-00-705

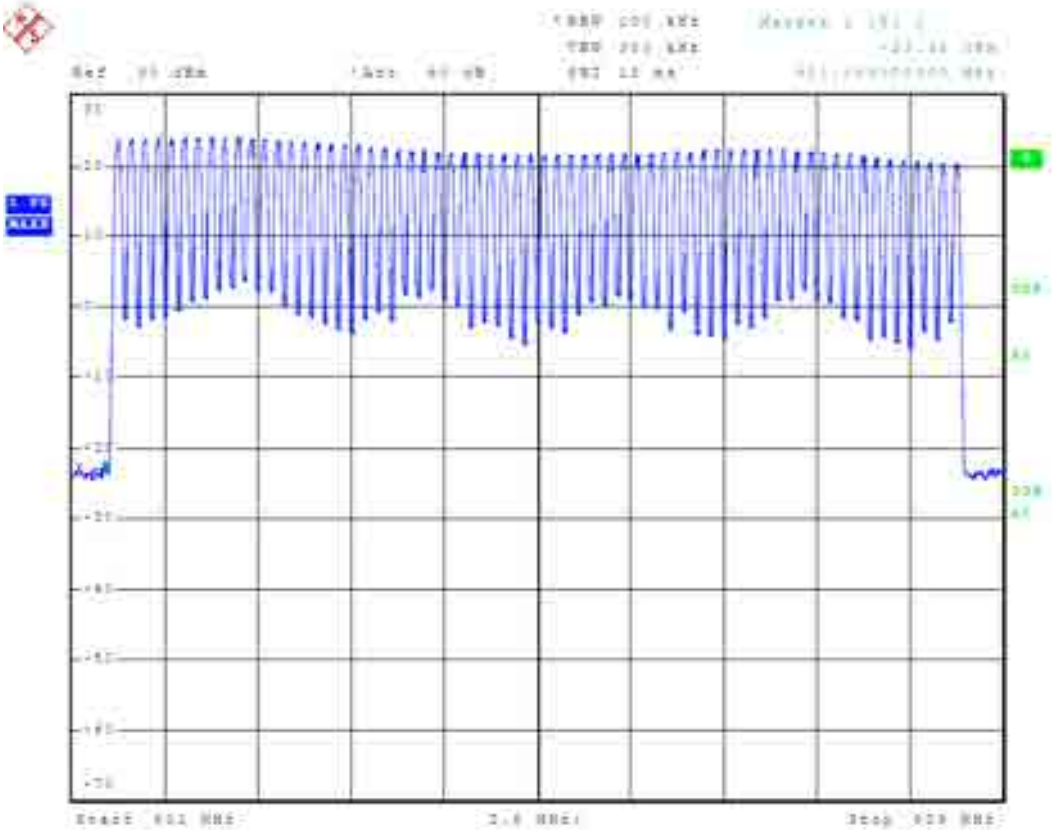
Test results

Meas Type	NUMBER OF CHANNELS
Equipment under Test	Itron Riva Dev Mini
OP Condition	FSK 75K

Test Spec
CONDUCTED

Sweep Settings Screen A

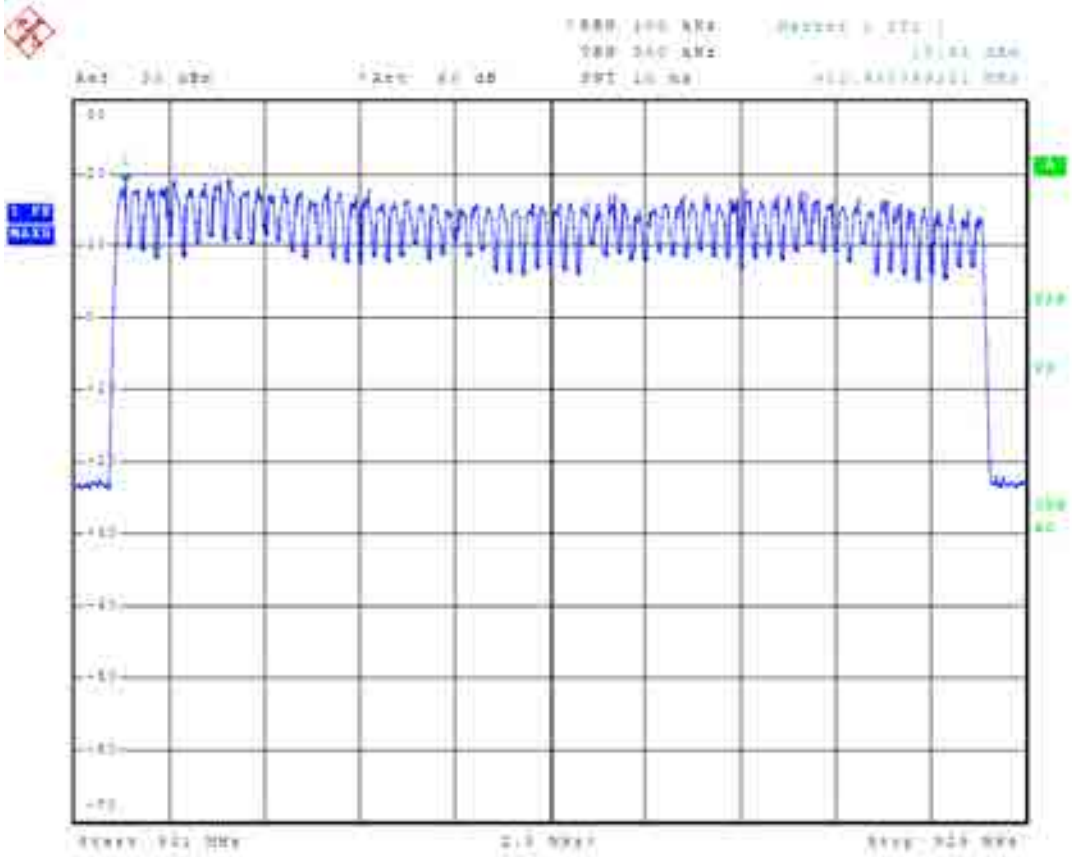
Center Frequency	915.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	28.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	929.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	10.00 ms	Y-Axis	LOG



Meas Type	NUMBER OF CHANNELS
Equipment under Test	Itron Riva Dev Mini
OP Condition	OFDM 50K
Test Spec	
CONDUCTED	

Sweep Settings Screen A

Center Frequency	915.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	28.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	929.000000 MHz	RF Att	40.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	10.00 ms	Y-Axis	LOG

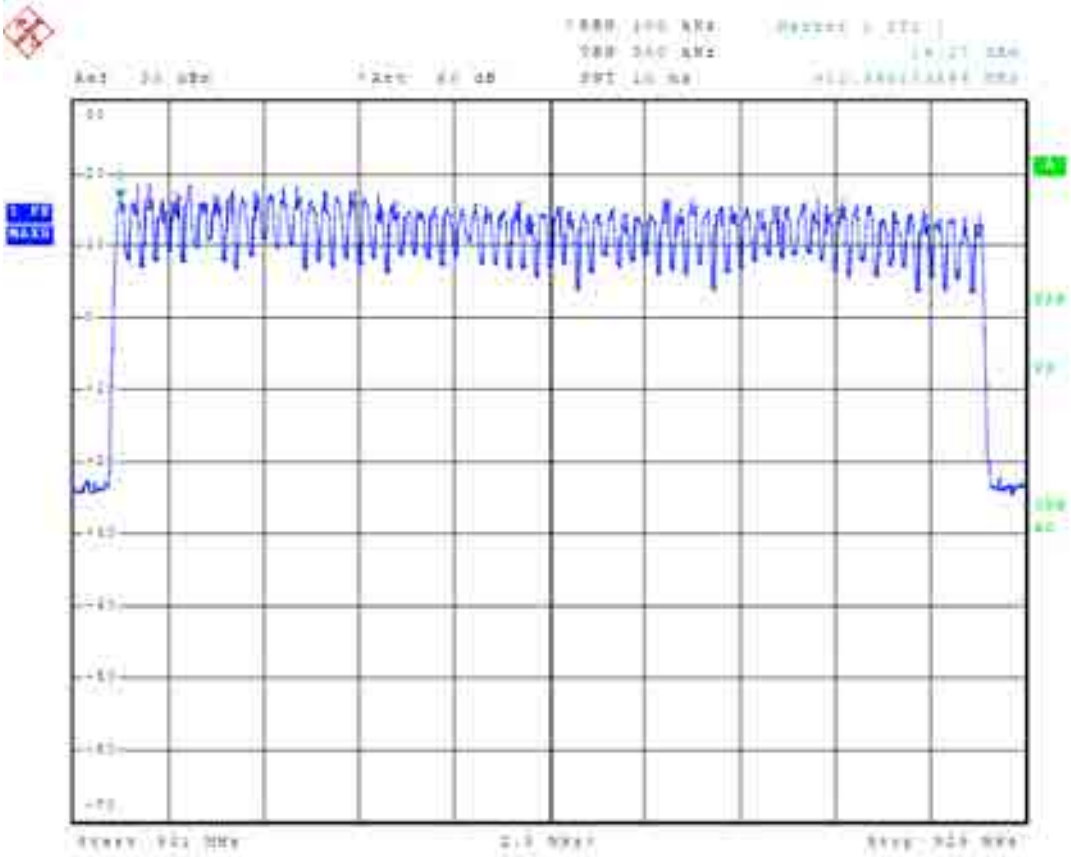


Meas Type	NUMBER OF CHANNELS
Equipment under Test	Itron Riva Dev Mini
OP Condition	OFDM 600K

Test Spec
CONDUCTED

Sweep Settings Screen A

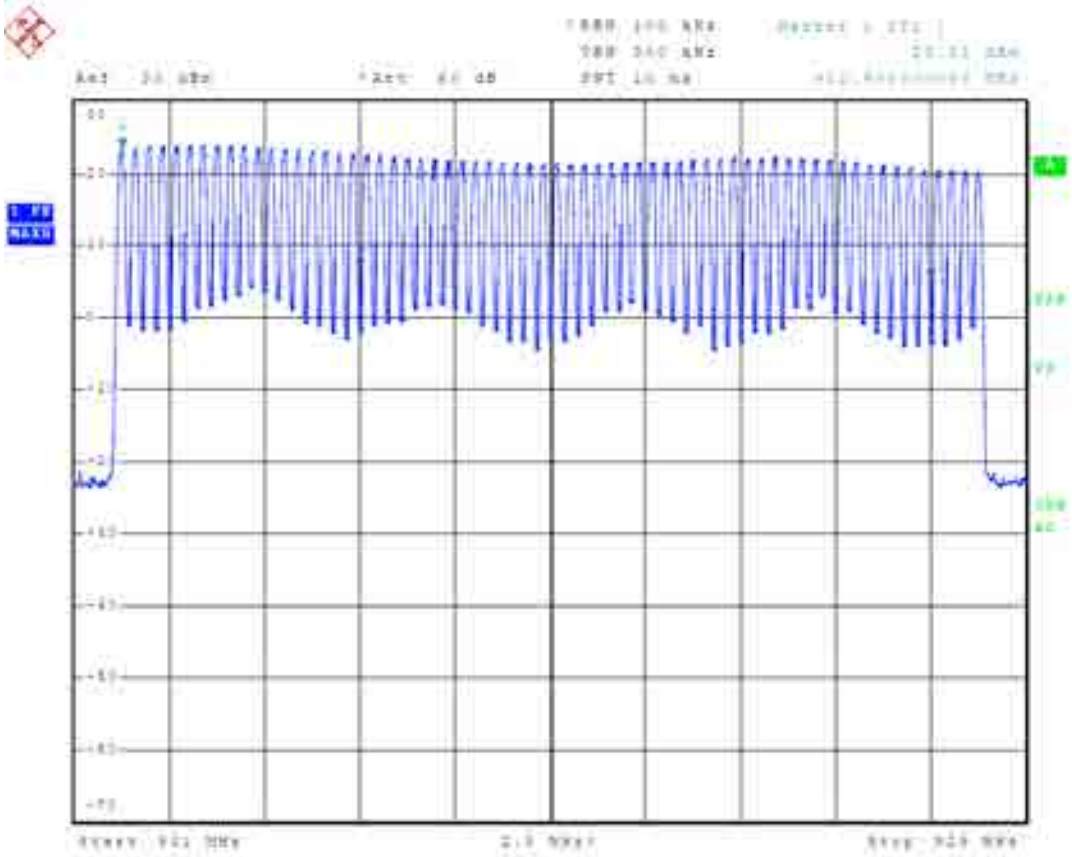
Center Frequency	915.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	28.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	929.000000 MHz	RF Att	40.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	10.00 ms	Y-Axis	LOG



Meas Type NUMBER OF CHANNELS
Equipment under Test Itron Riva Dev Mini
OP Condition DSSS 6.25K
Test Spec
CONDUCTED

Sweep Settings Screen A

Center Frequency	915.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	28.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	929.000000 MHz	RF Att	40.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	10.00 ms	Y-Axis	LOG

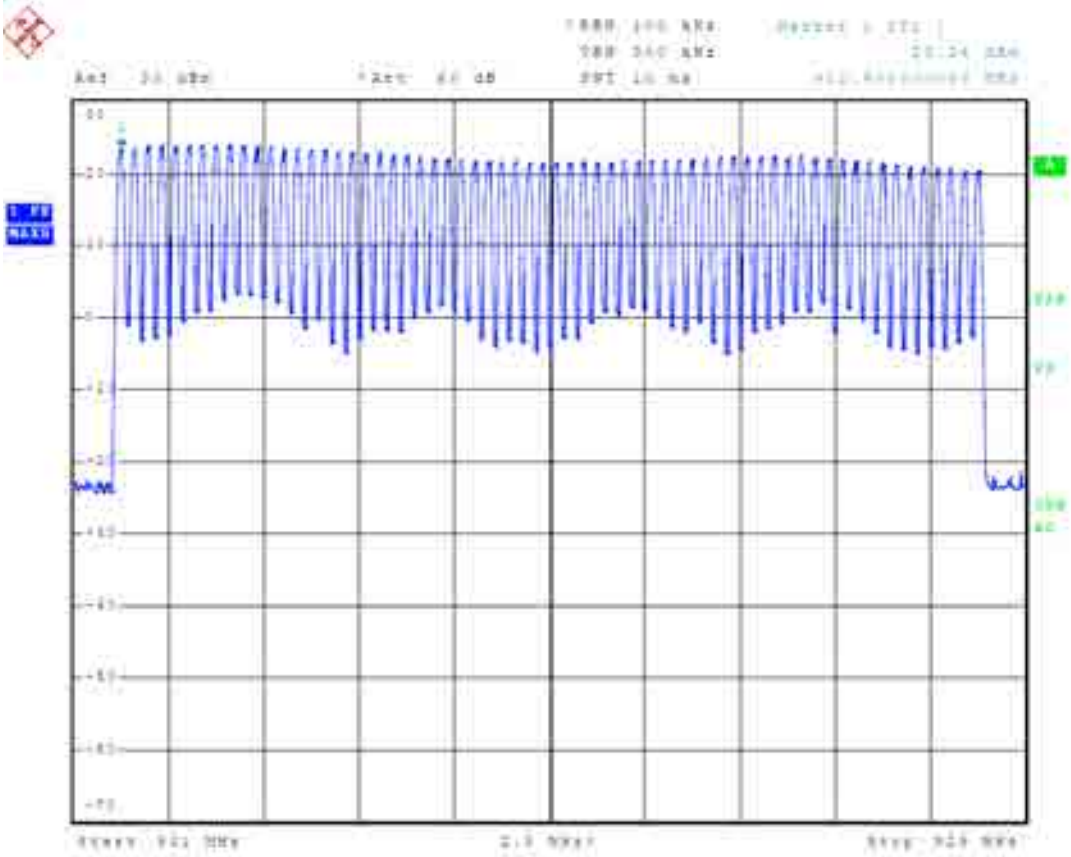


Meas Type	NUMBER OF CHANNELS
Equipment under Test	Itron Riva Dev Mini
OP Condition	DSSS 50K

Test Spec
CONDUCTED

Sweep Settings Screen A

Center Frequency	915.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	28.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	929.000000 MHz	RF Att	40.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	10.00 ms	Y-Axis	LOG



Conclusion:
Number of channels: 64
PASS

3.6 §15.247 (a) (1) Carrier Frequency Separation

Requirement
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

Procedure
As per Clause 7.8.2 from ANSI C63.10-2013 and FCC/DA-00-705

Tabulated test results

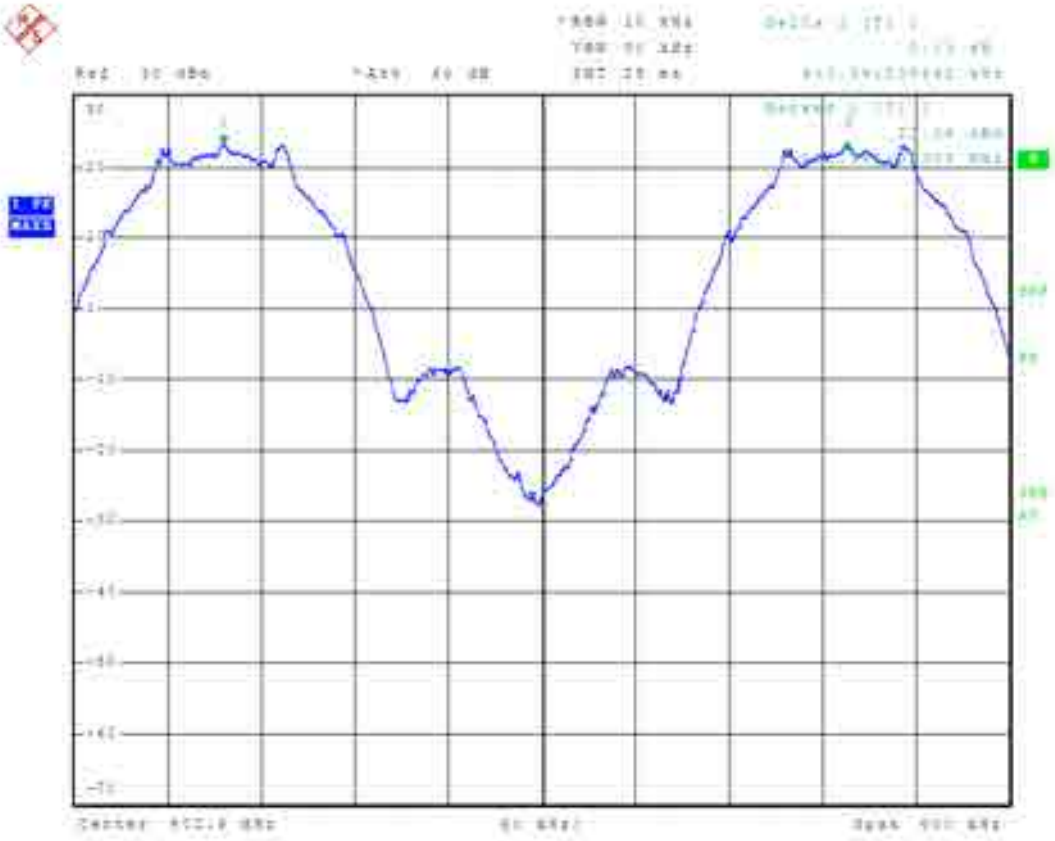
Channel selection	Modulation	Channel Separation (kHz)	Limit (kHz)	Conclusion
902.4 (CH1)	FSK75K	401	158	PASS
915.2 (CH32)	FSK75K	400	178	PASS
927.6 (CH64)	FSK75K	400	161	PASS
902.4 (CH1)	OFDM50K	401	317	PASS
915.2 (CH32)	OFDM50K	396	314	PASS
927.6 (CH64)	OFDM50K	400	313	PASS
902.4 (CH1)	OFDM600K	399	309	PASS
915.2 (CH32)	OFDM600K	399	311	PASS
927.6 (CH64)	OFDM600K	401	309	PASS
902.4 (CH1)	DSSS6.25K	403	97	PASS
915.2 (CH32)	DSSS6.25K	400	97	PASS
927.6 (CH64)	DSSS6.25K	400	96	PASS
902.4 (CH1)	DSSS50K	405	122	PASS
915.2 (CH32)	DSSS50K	401	123	PASS
927.6 (CH64)	DSSS50K	401	122	PASS

Test results

Meas Type	FREQUENCY SEPARATION
Equipment under Test	Itron Riva Dev Mini
OP Condition	FSK 75K
Test Spec	
CONDUCTED	

Sweep Settings **Screen A**

Center Frequency	902.600000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	400.000000 kHz	Ref Position	100.000 %
Start Frequency	902.300000 MHz	Level Range	100.000 dB
Stop Frequency	902.900000 MHz	RF Att	60.000 dB
RBW	10.000000 kHz		
VBW	30.000000 kHz	X-Axis	LIN
Sweep Time	25.00 ms	Y-Axis	LOG

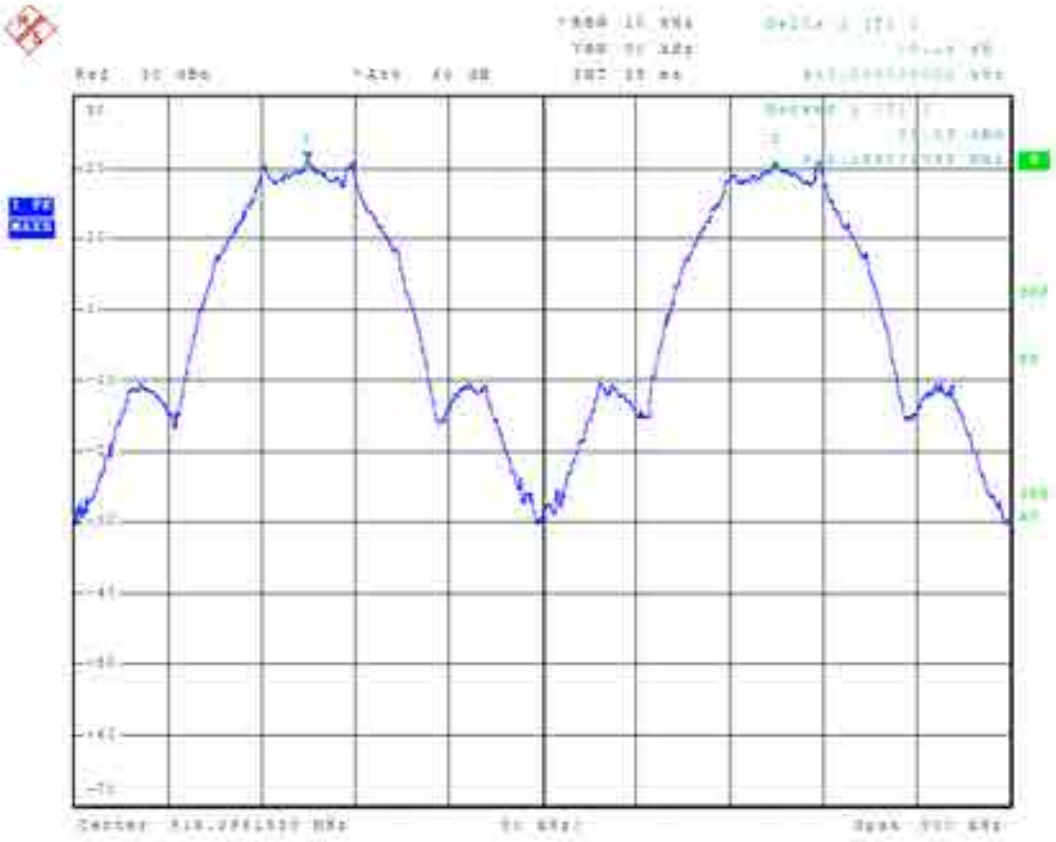


Meas Type	FREQUENCY SEPARATION
Equipment under Test	Itron Riva Dev Mini
OP Condition	FSK 75K
Test Spec	

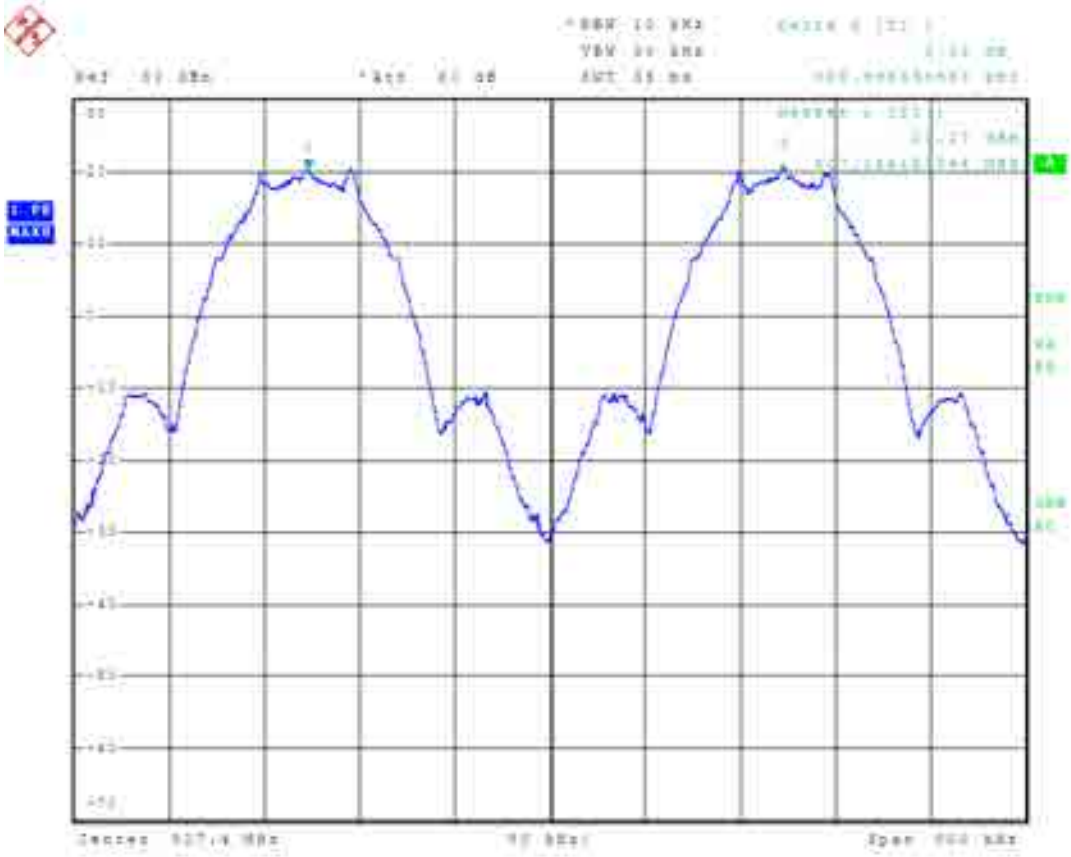
CONDUCTED

Sweep Settings **Screen A**

Center Frequency	915.396154 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	800.000000 kHz	Ref Position	100.000 %
Start Frequency	914.996154 MHz	Level Range	100.000 dB
Stop Frequency	915.796154 MHz	RF Att	60.000 dB
RBW	10.000000 kHz		
VBW	30.000000 kHz	X-Axis	LIN
Sweep Time	35.00 ms	Y-Axis	LOG



Meas Type FREQUENCY SEPARATION
Equipment under Test Itron Riva Dev Mini
OP Condition FSK 75K
Test Spec
CONDUCTED

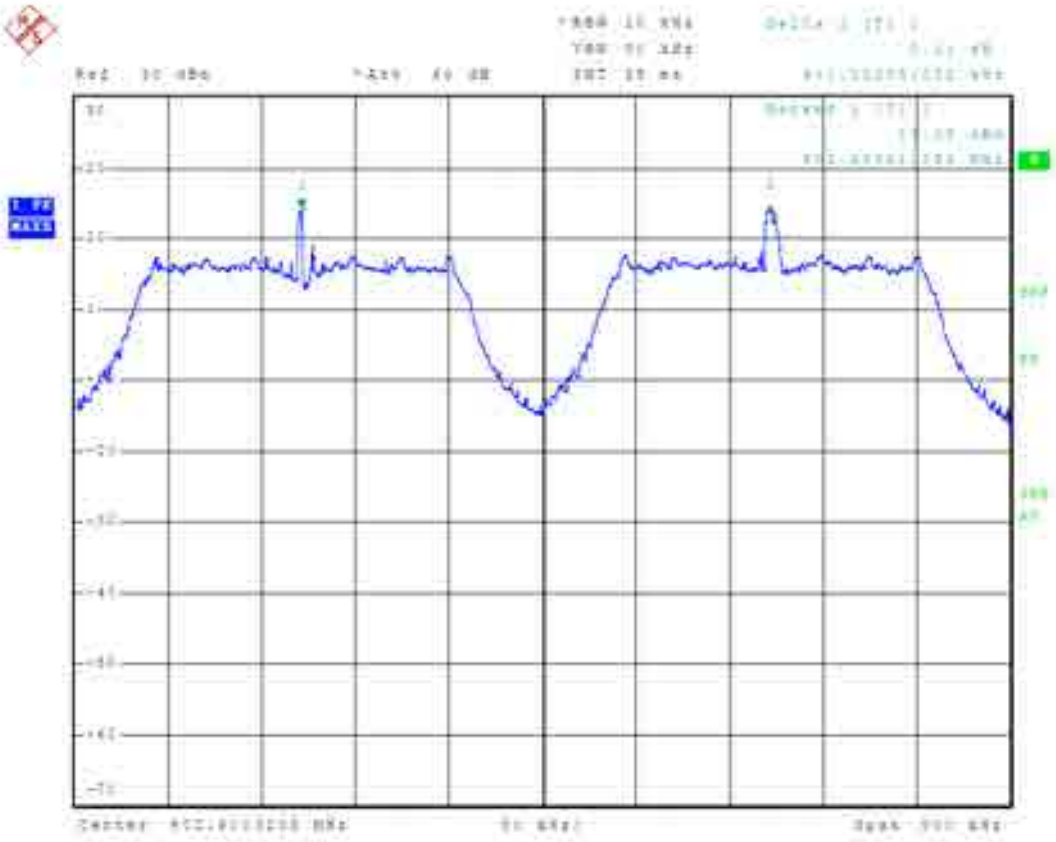


Meas Type	FREQUENCY SEPARATION
Equipment under Test	Itron Riva Dev Mini
OP Condition	OFDM 50K

Test Spec
CONDUCTED

Sweep Settings Screen A

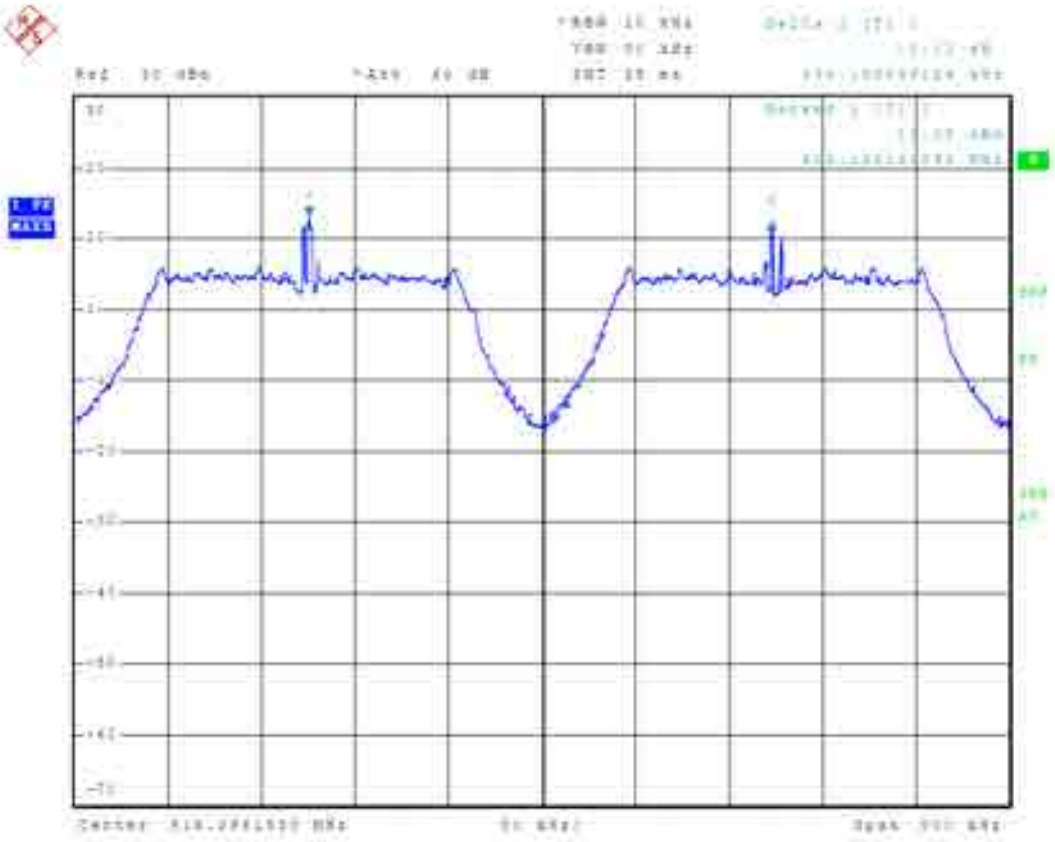
Center Frequency	902.600321 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	800.000000 kHz	Ref Position	100.000 %
Start Frequency	902.200321 MHz	Level Range	100.000 dB
Stop Frequency	903.000321 MHz	RF Att	60.000 dB
RBW	10.000000 kHz		
VBW	30.000000 kHz	X-Axis	LIN
Sweep Time	35.00 ms	Y-Axis	LOG



Meas Type	FREQUENCY SEPARATION
Equipment under Test	Itron Riva Dev Mini
OP Condition	OFDM 50K
Test Spec	
CONDUCTED	

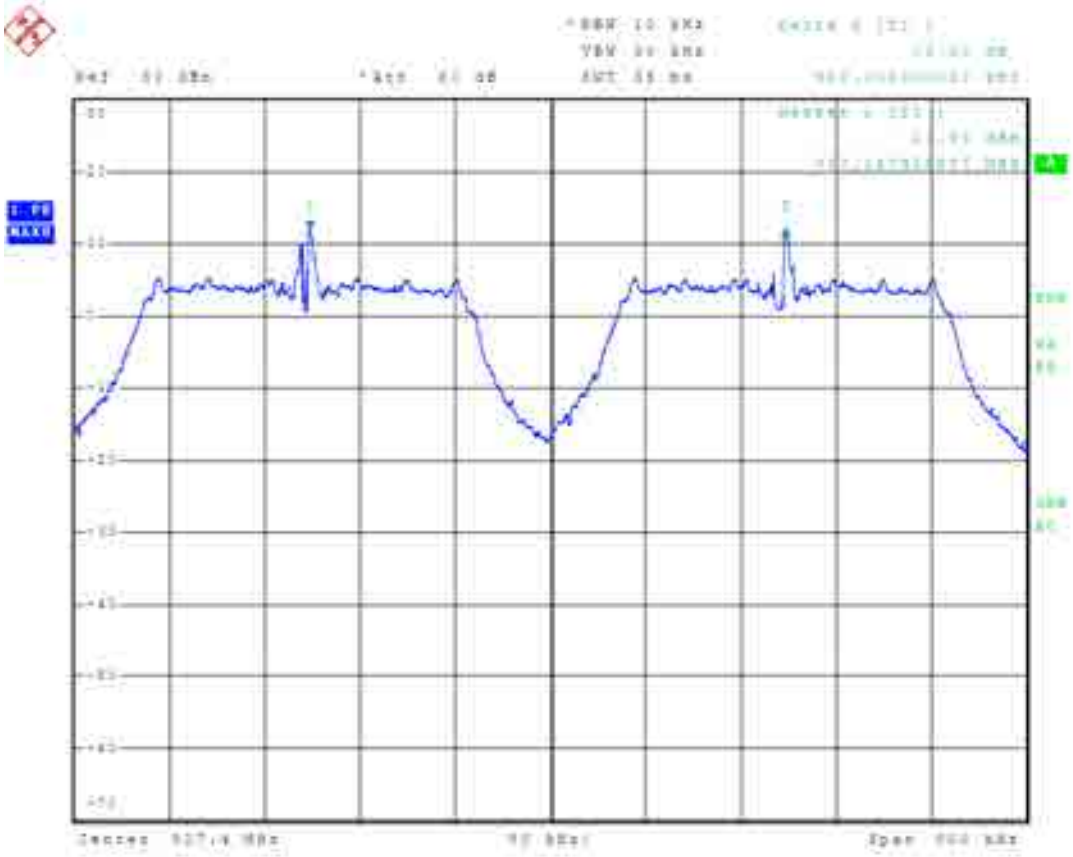
Sweep Settings **Screen A**

Center Frequency	915.196154 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	800.000000 kHz	Ref Position	100.000 %
Start Frequency	914.996154 MHz	Level Range	100.000 dB
Stop Frequency	915.796154 MHz	RF Att	60.000 dB
RBW	10.000000 kHz		
VBW	30.000000 kHz	X-Axis	LIN
Sweep Time	35.00 ms	Y-Axis	LOG



Meas Type	FREQUENCY SEPARATION
Equipment under Test	Itron Riva Dev Mini
OP Condition	OFDM 50K

Test Spec
CONDUCTED

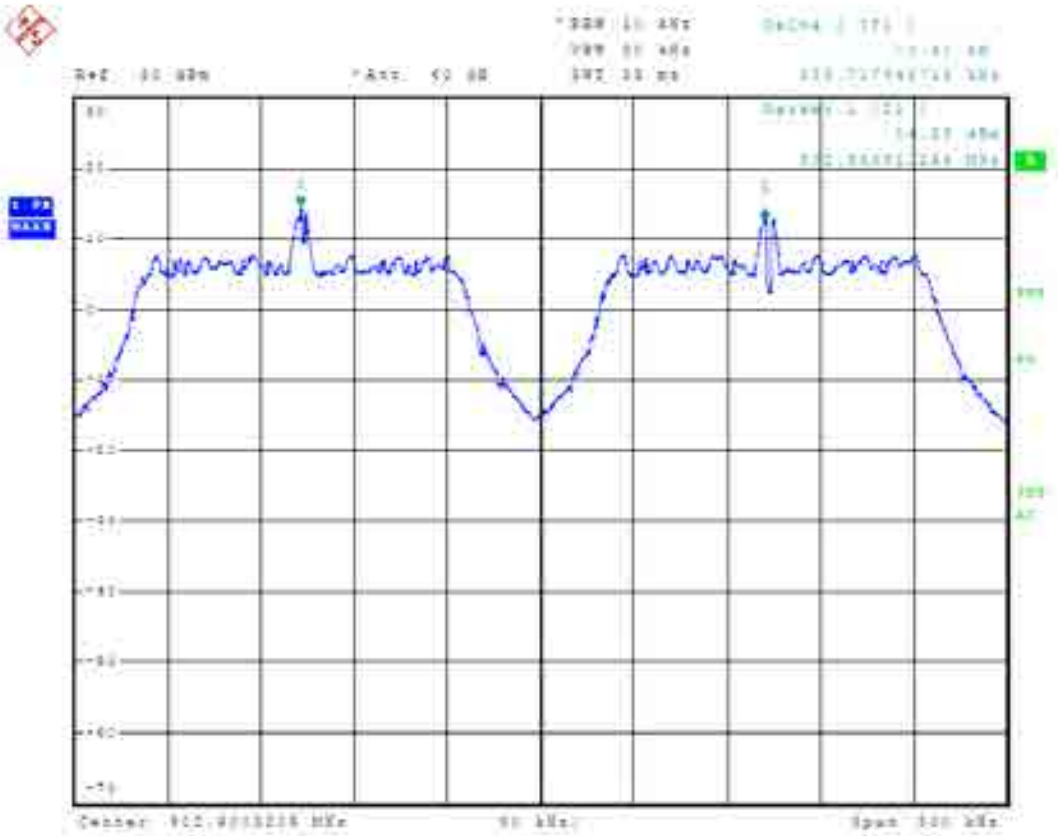


Meas Type	FREQUENCY SEPARATION
Equipment under Test	Ilron Riva Dev Mini
OP Condition	OFDM 600K
Test Spec	

CONDUCTED

Sweep Settings — Screen A

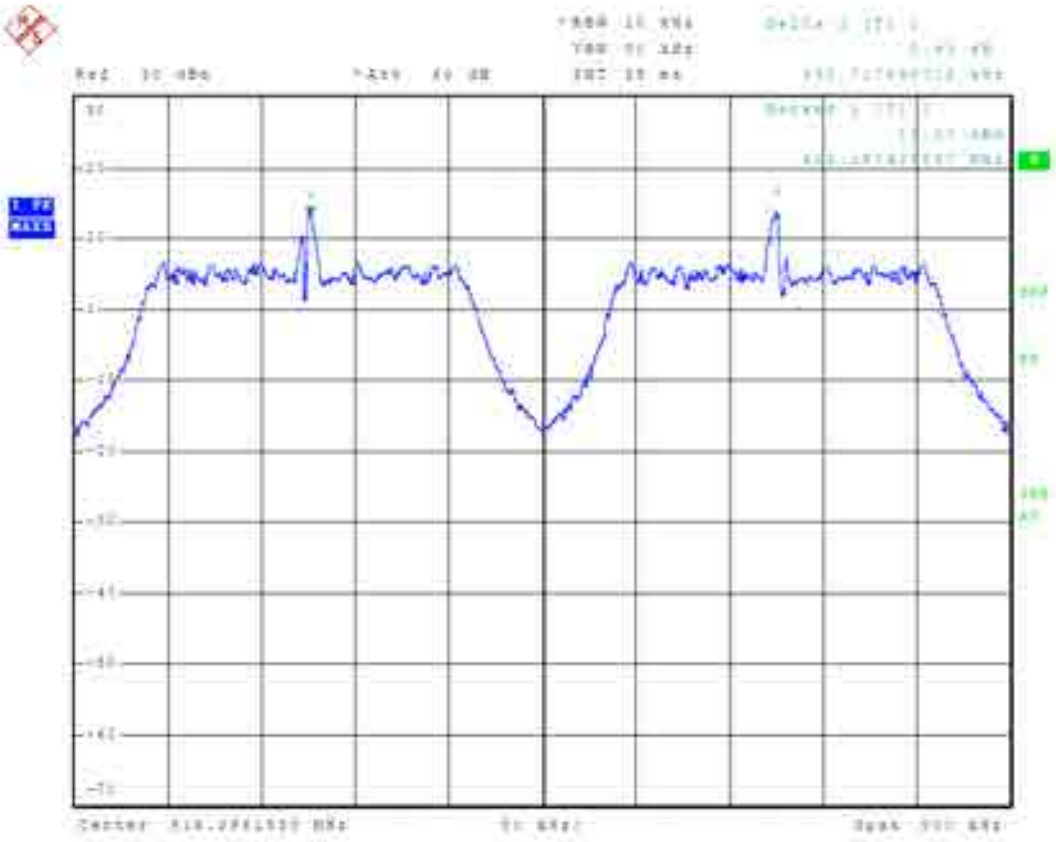
Center Frequency	902.600321 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	800.000000 kHz	Ref Position	100.000 %
Start Frequency	902.200321 MHz	Level Range	100.000 dB
Stop Frequency	903.000321 MHz	RF Att	60.000 dB
RBW	10.000000 kHz		
VBW	30.000000 kHz	X-Axis	LIN
Sweep Time	35.00 ms	Y-Axis	LOG



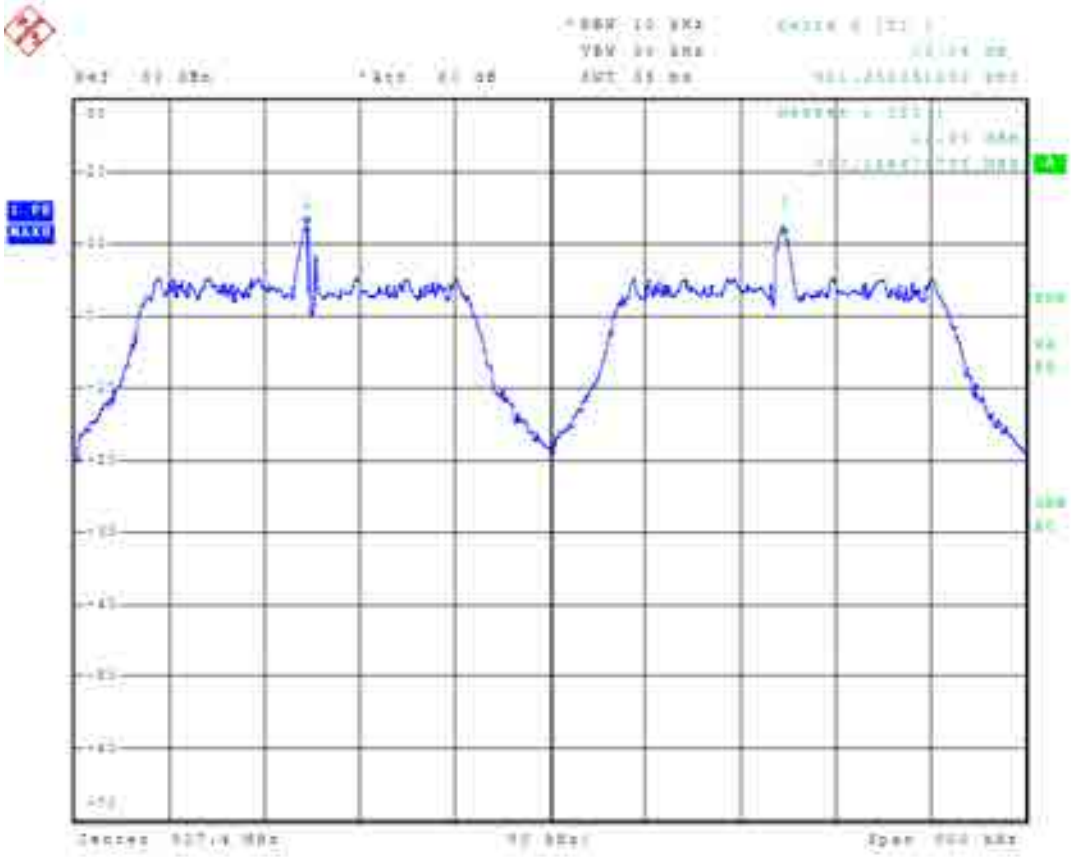
Meas Type	FREQUENCY SEPARATION
Equipment under Test	Itron Riva Dev Mini
OP Condition	OFDM 600K
Test Spec	
CONDUCTED	

Sweep Settings — Screen A

Center Frequency	915.196154 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	800.000000 kHz	Ref Position	100.000 %
Start Frequency	914.996154 MHz	Level Range	100.000 dB
Stop Frequency	915.796154 MHz	RF Att	60.000 dB
RBW	10.000000 kHz		
VBW	30.000000 kHz	X-Axis	LIN
Sweep Time	35.00 ms	Y-Axis	LOG



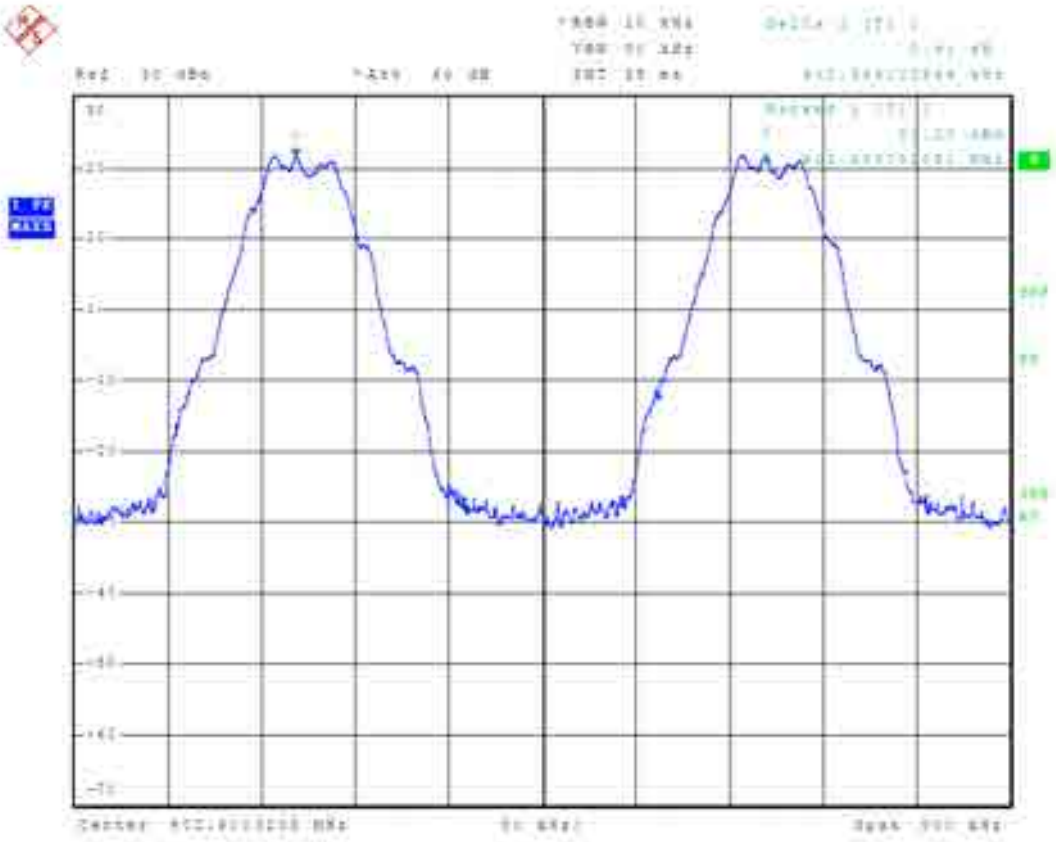
Meas Type FREQUENCY SEPARATION
Equipment under Test Itron Riva Dev Mini
OP Condition OFDM 600K
Test Spec
CONDUCTED



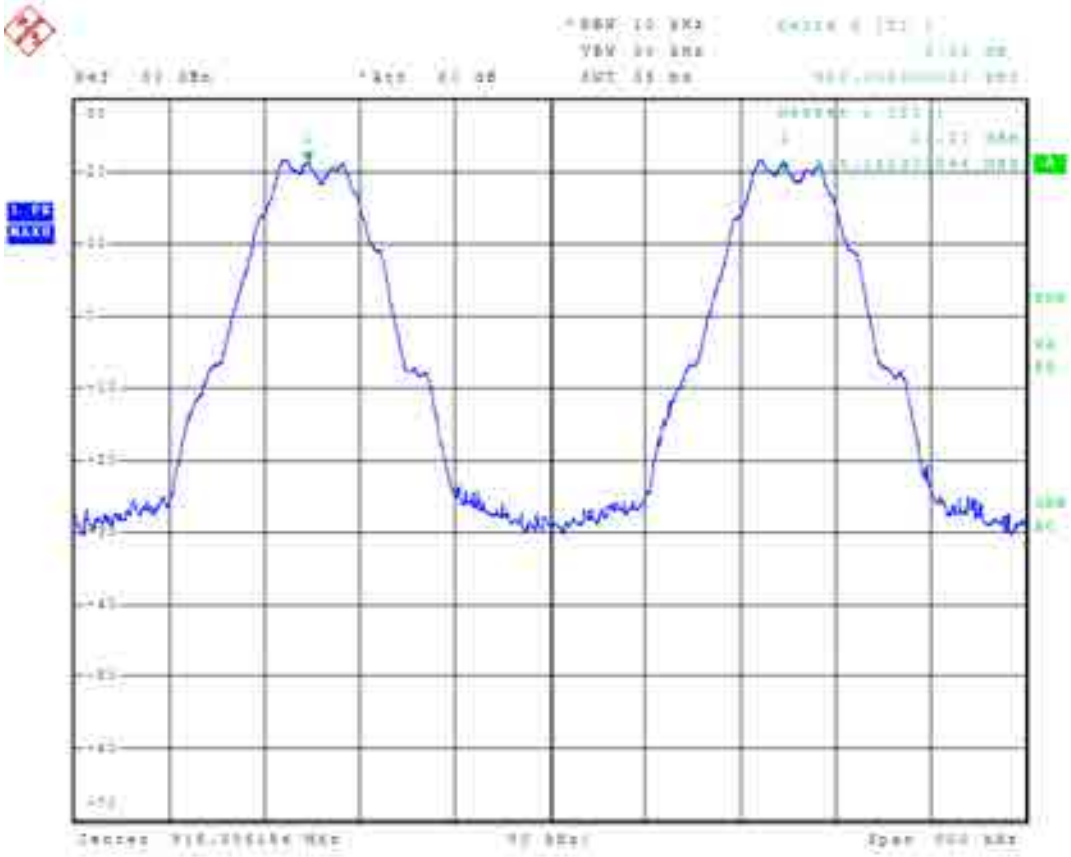
Meas Type	FREQUENCY SEPARATION
Equipment under Test	Itron Riva Dev Mini
OP Condition	DSSS 6.25K
Test Spec	
CONDUCTED	

Sweep Settings **Screen A**

Center Frequency	902.600321 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	800.000000 kHz	Ref Position	100.000 %
Start Frequency	902.200321 MHz	Level Range	100.000 dB
Stop Frequency	903.000321 MHz	RF Att	60.000 dB
RBW	10.000000 kHz		
VBW	30.000000 kHz	X-Axis	LIN
Sweep Time	35.00 ms	Y-Axis	LOG

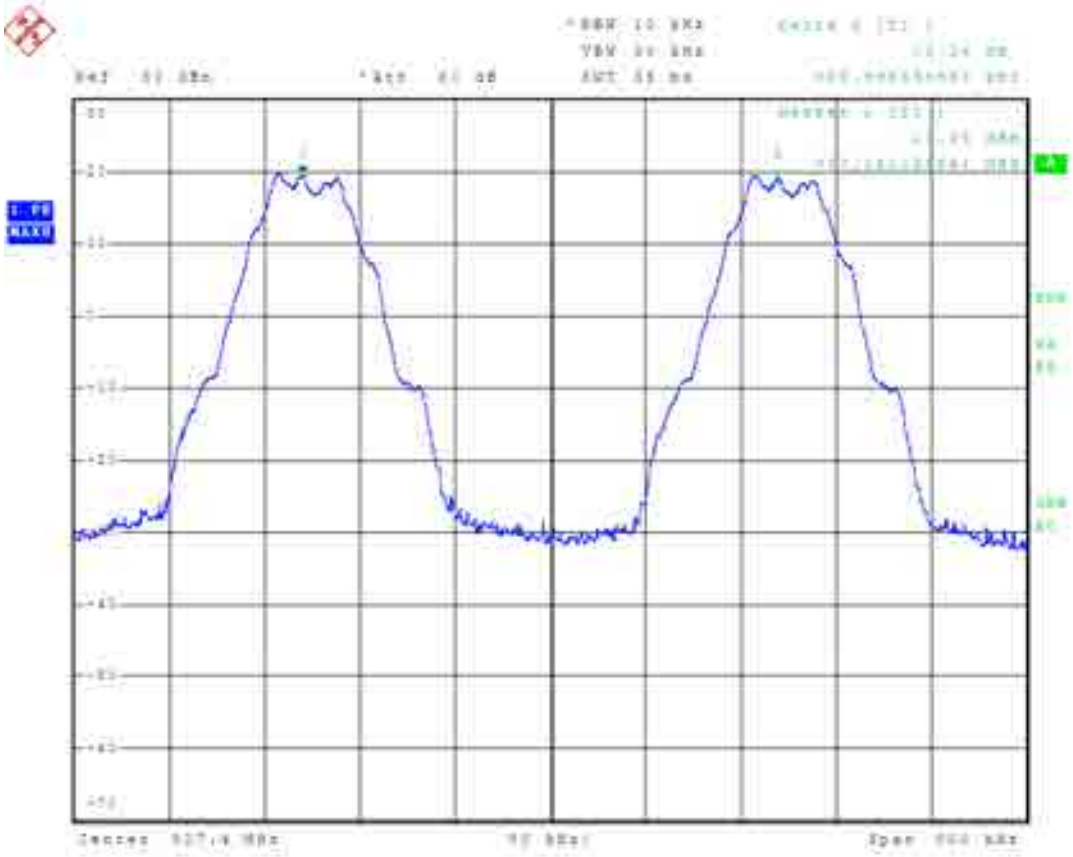


Meas Type FREQUENCY SEPARATION
Equipment under Test Itron Riva Dev Mini
OP Condition DSSS 6.25K
Test Spec
CONDUCTED



Meas Type	FREQUENCY SEPARATION
Equipment under Test	Itron Riva Dev Mini
OP Condition	DSSS 6.25K

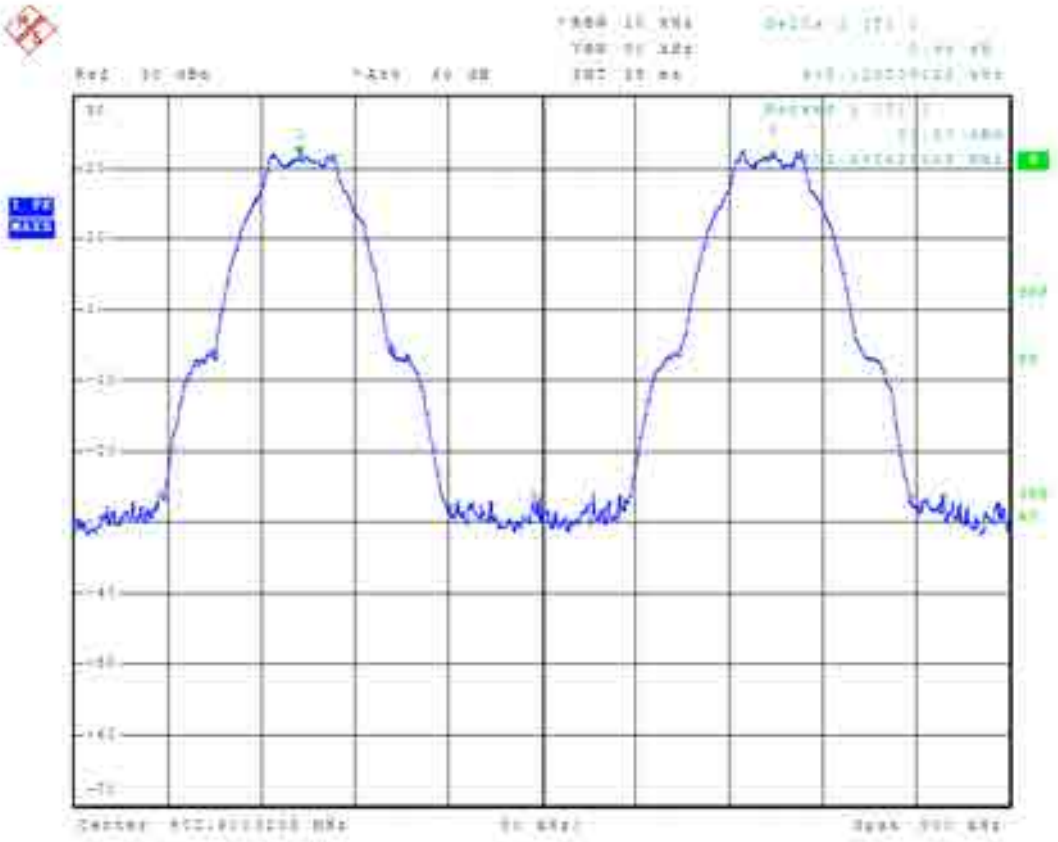
Test Spec
CONDUCTED



Meas Type	FREQUENCY SEPARATION
Equipment under Test	Itron Riva Dev Mini
OP Condition	DSSS 50K
Test Spec	
CONDUCTED	

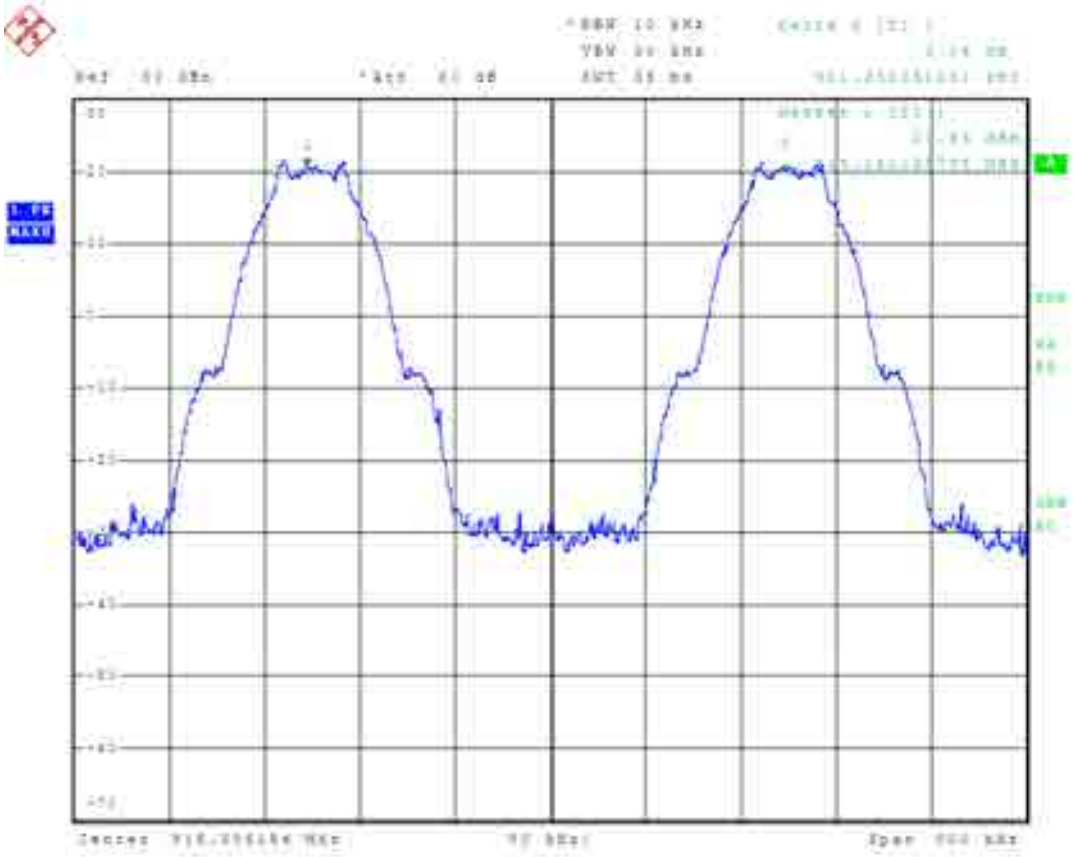
Sweep Settings **Screen A**

Center Frequency	902.600321 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	800.000000 kHz	Ref Position	100.000 %
Start Frequency	902.200321 MHz	Level Range	100.000 dB
Stop Frequency	903.000321 MHz	RF Att	60.000 dB
RBW	10.000000 kHz		
VBW	30.000000 kHz	X-Axis	LIN
Sweep Time	35.00 ms	Y-Axis	LOG

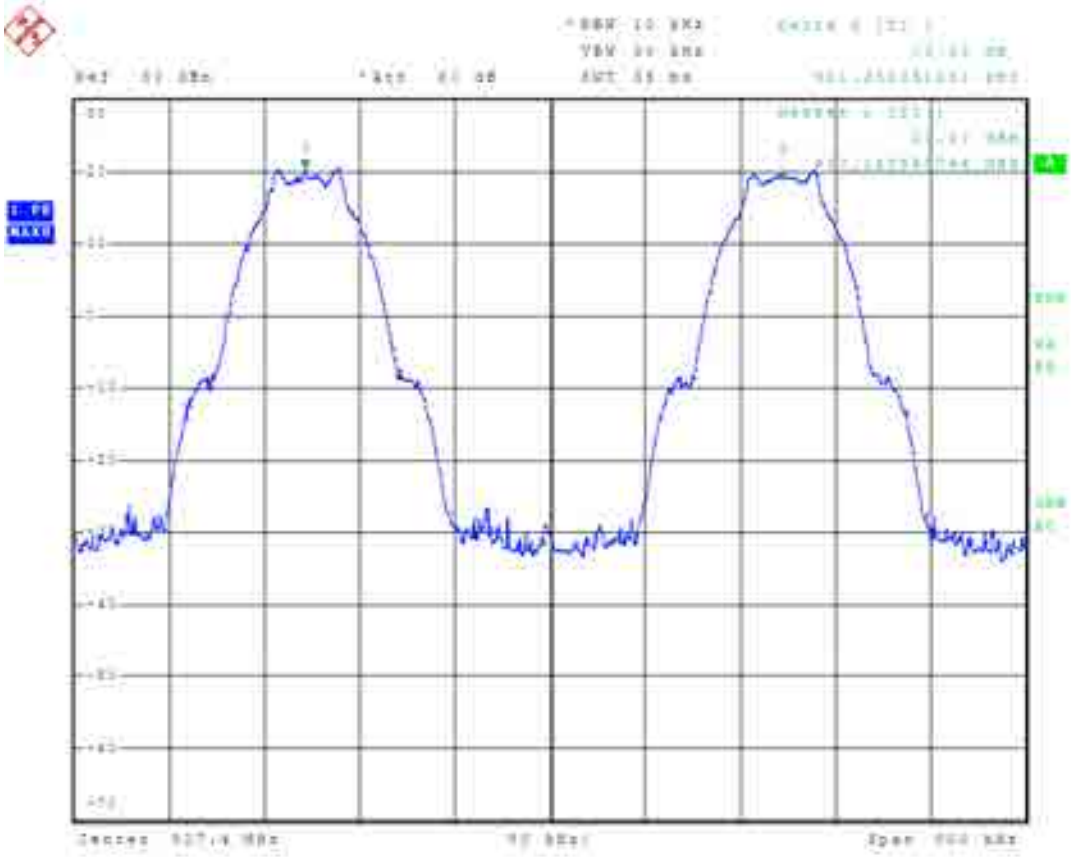


Meas Type	FREQUENCY SEPARATION
Equipment under Test	Itron Riva Dev Mini
OP Condition	DSSS 50K

Test Spec
CONDUCTED



Meas Type FREQUENCY SEPARATION
Equipment under Test Itron Riva Dev Mini
OP Condition DSSS 50K
Test Spec
CONDUCTED



3.7 §15.247 (a) (1) Pseudorandom Frequency Hopping Sequence and Equal Hooping Frequency Use

Analysis of the Pseudorandom Frequency Hopping Sequence and Equal Hopping is available in the Itron Riva Dev Mini Technical Specification document, Chapter 7.

3.8 §15.247 (b) Peak Power Output

Requirement
The maximum peak conducted output power of the intentional radiator shall not exceed the following:
For frequency hopping systems operating in the 902-928 MHz band: 1 watt (30 dBm) for systems employing at least 50 hopping channels.

Test Procedure
As per Clause 7.8.5 from ANSI C63.10-2013 and FCC/DA-00-705

Calculation of final measurements:

Conducted power (W) = Receiver reading (dBm) + AG (dB)

where:

Conducted power = Final measurement result
Receiver Reading = Uncorrected amplitude measured by the receiver
AG = Antenna Gain

Frequency (MHz)	Modulation	Field Strength (dBm)	Antenna Gain (dBi)	Conducted power (W)	Limit (W)	Conclusion
902.4 (CH1)	FSK75K	24.06	1.91	0.39	1	**PASS**
915.2 (CH32)	FSK75K	22.23	1.91	0.26	1	**PASS**
927.6 (CH64)	FSK75K	21.10	1.91	0.20	1	**PASS**
902.4 (CH1)	OFDM50K	22.57	1.91	0.28	1	**PASS**
915.2 (CH32)	OFDM50K	21.82	1.91	0.24	1	**PASS**
927.6 (CH64)	OFDM50K	20.23	1.91	0.16	1	**PASS**
902.4 (CH1)	OFDM600K	22.67	1.91	0.29	1	**PASS**
915.2 (CH32)	OFDM600K	20.60	1.91	0.18	1	**PASS**
927.6 (CH64)	OFDM600K	19.94	1.91	0.15	1	**PASS**
902.4 (CH1)	DSSS50K	24.17	1.91	0.40	1	**PASS**
915.2 (CH32)	DSSS50K	21.89	1.91	0.24	1	**PASS**
927.6 (CH64)	DSSS50K	20.88	1.91	0.19	1	**PASS**
902.4 (CH1)	DSSS600K	24.09	1.91	0.40	1	**PASS**
915.2 (CH32)	DSSS600K	22.23	1.91	0.26	1	**PASS**
927.6 (CH64)	DSSS600K	20.96	1.91	0.19	1	**PASS**

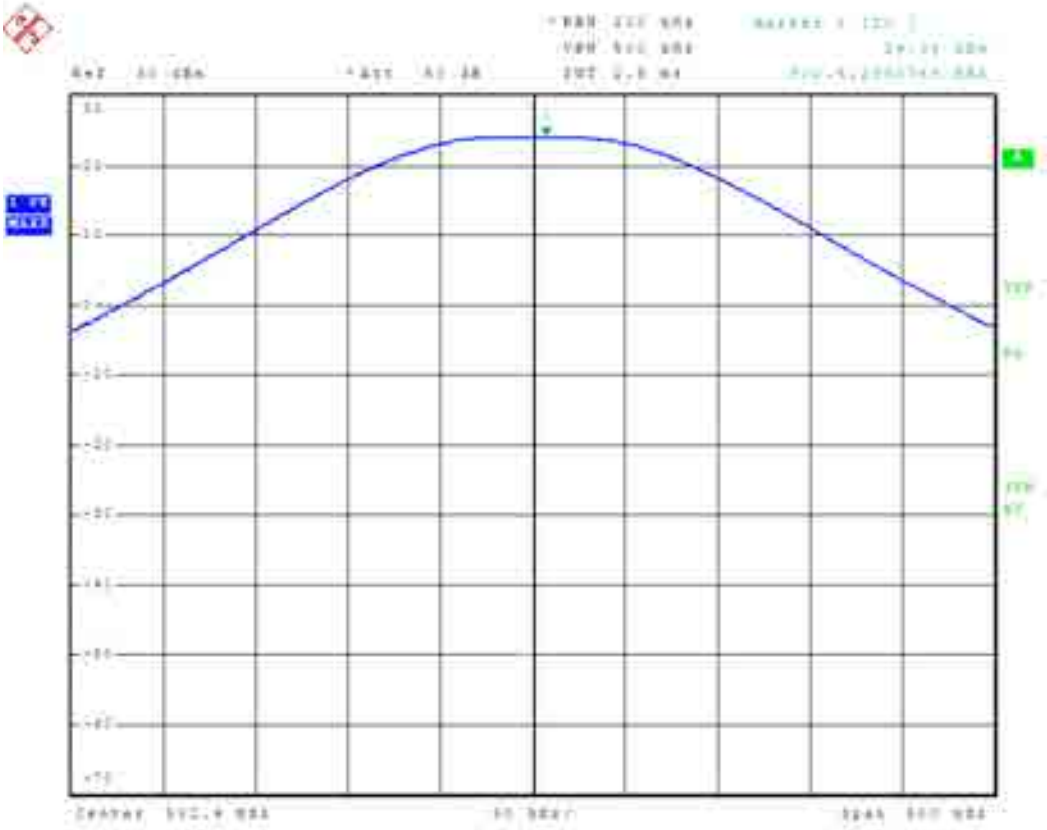
Test results

Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 FSK 75K
Test Spec	

CONDUCTED

Sweep Settings Screen A

Center Frequency	902.400000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	900.000000 kHz	Ref Position	100.000 %
Start Frequency	901.950000 MHz	Level Range	100.000 dB
Stop Frequency	902.850000 MHz	RF Att	40.000 dB
RBW	300.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH32 FSK 75K
Test Spec	
CONDUCTED	

Sweep Settings Screen A

Center Frequency	915.200000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	900.000000 kHz	Ref Position	100.000 %
Start Frequency	914.750000 MHz	Level Range	100.000 dB
Stop Frequency	915.650000 MHz	RF Att	40.000 dB
RBW	200.000000 kHz		
VBW	500.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64 FSK 75K

Test Spec
CONDUCTED

Sweep Settings Screen A

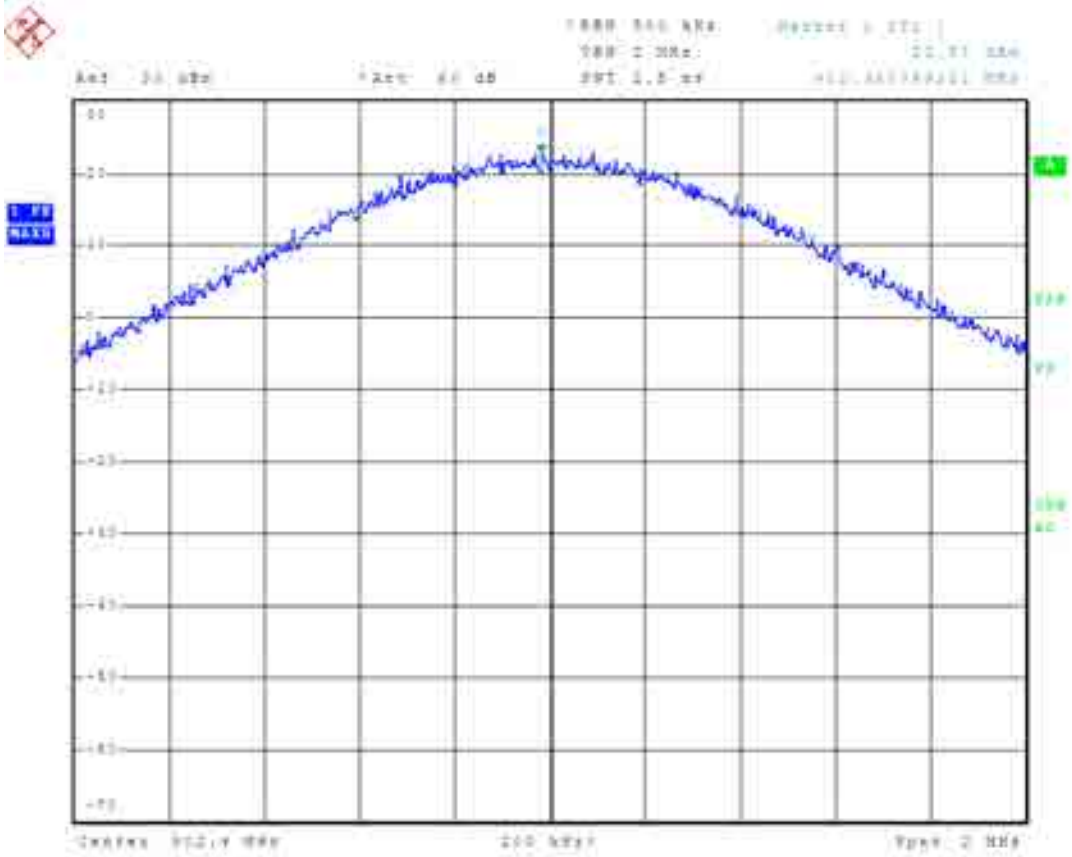
Center Frequency	927.600000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	900.000000 kHz	Ref Position	100.000 %
Start Frequency	927.150000 MHz	Level Range	100.000 dB
Stop Frequency	928.050000 MHz	RF Att	40.000 dB
RBW	200.000000 kHz		
VBW	500.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 OFDM 50K

Test Spec
CONDUCTED

Sweep Settings Screen A

Center Frequency	902.400000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	901.400000 MHz	Level Range	100.000 dB
Stop Frequency	903.400000 MHz	RF Att	40.000 dB
RBW	500.000000 kHz		
VBW	2.000000 MHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

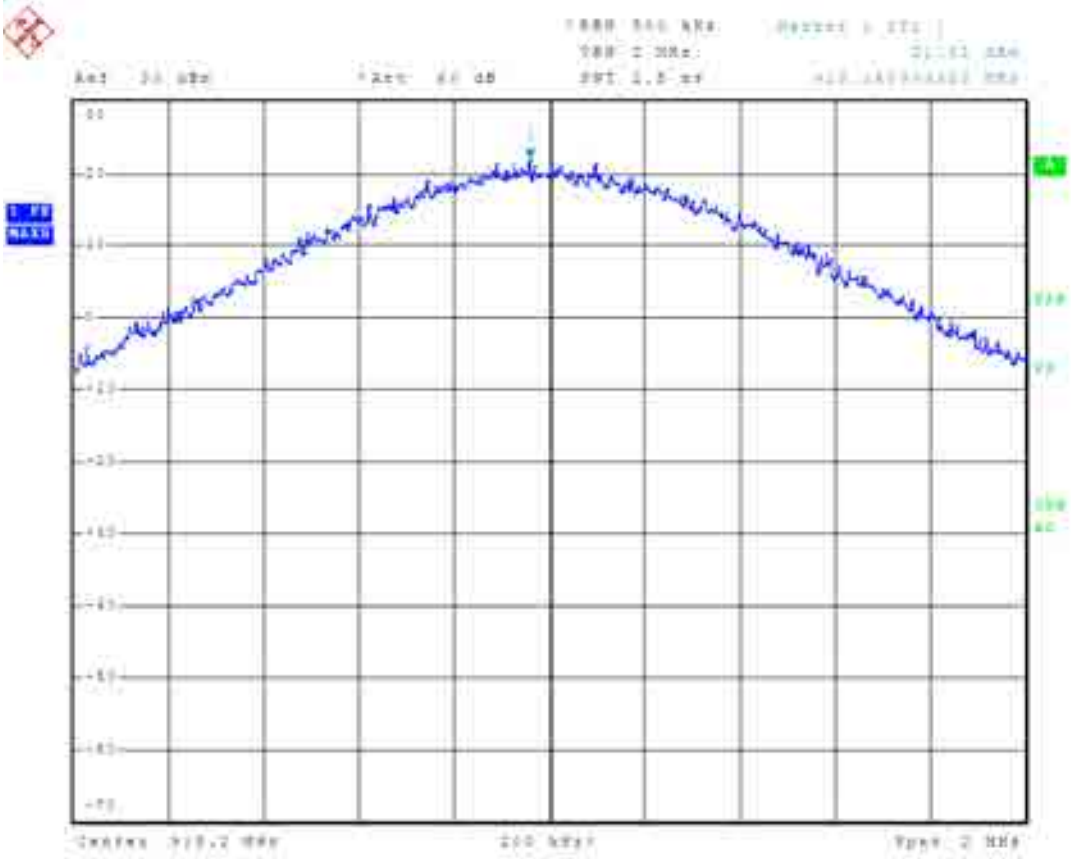


Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH32 OFDM 50K

Test Spec
CONDUCTED

Sweep Settings Screen A

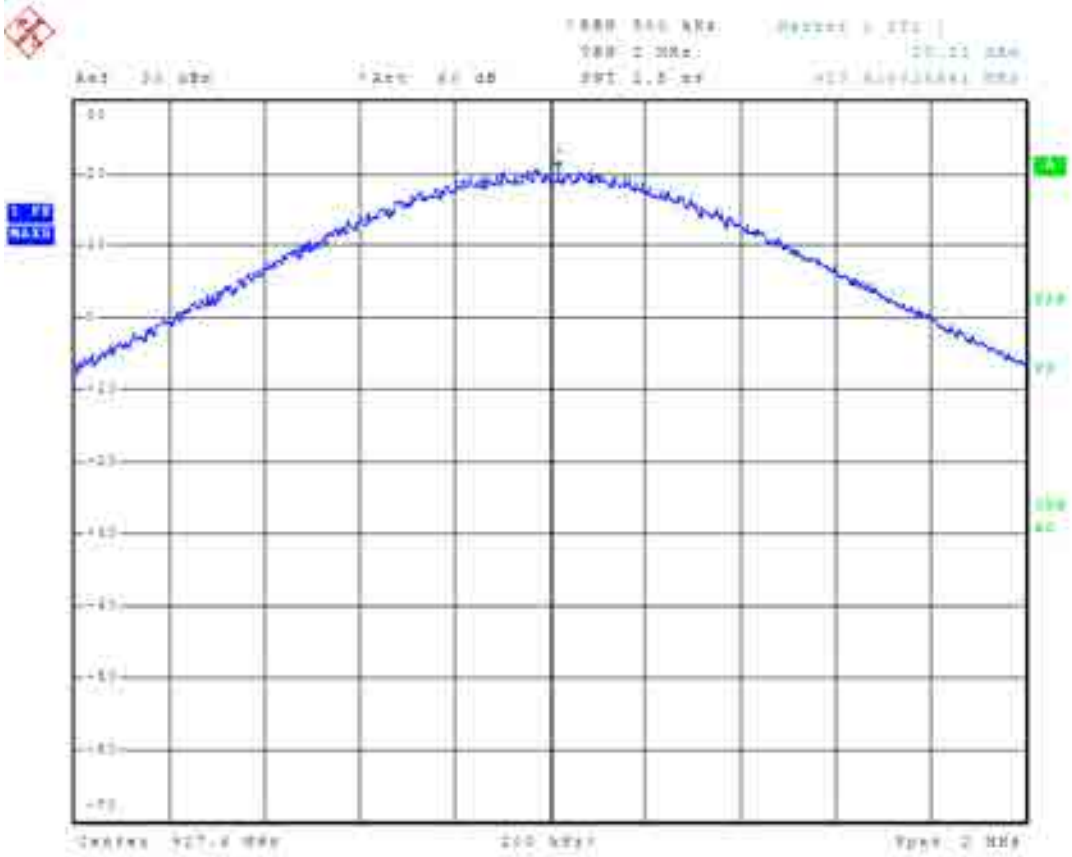
Center Frequency	915.200000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	914.200000 MHz	Level Range	100.000 dB
Stop Frequency	916.200000 MHz	RF Att	40.000 dB
RBW	500.000000 kHz		
VBW	2.000000 MHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64 OFDM 50K
Test Spec	
CONDUCTED	

Sweep Settings Screen A

Center Frequency	927.600000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	926.600000 MHz	Level Range	100.000 dB
Stop Frequency	928.600000 MHz	RF Att	40.000 dB
RBW	500.000000 kHz		
VBW	2.000000 MHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

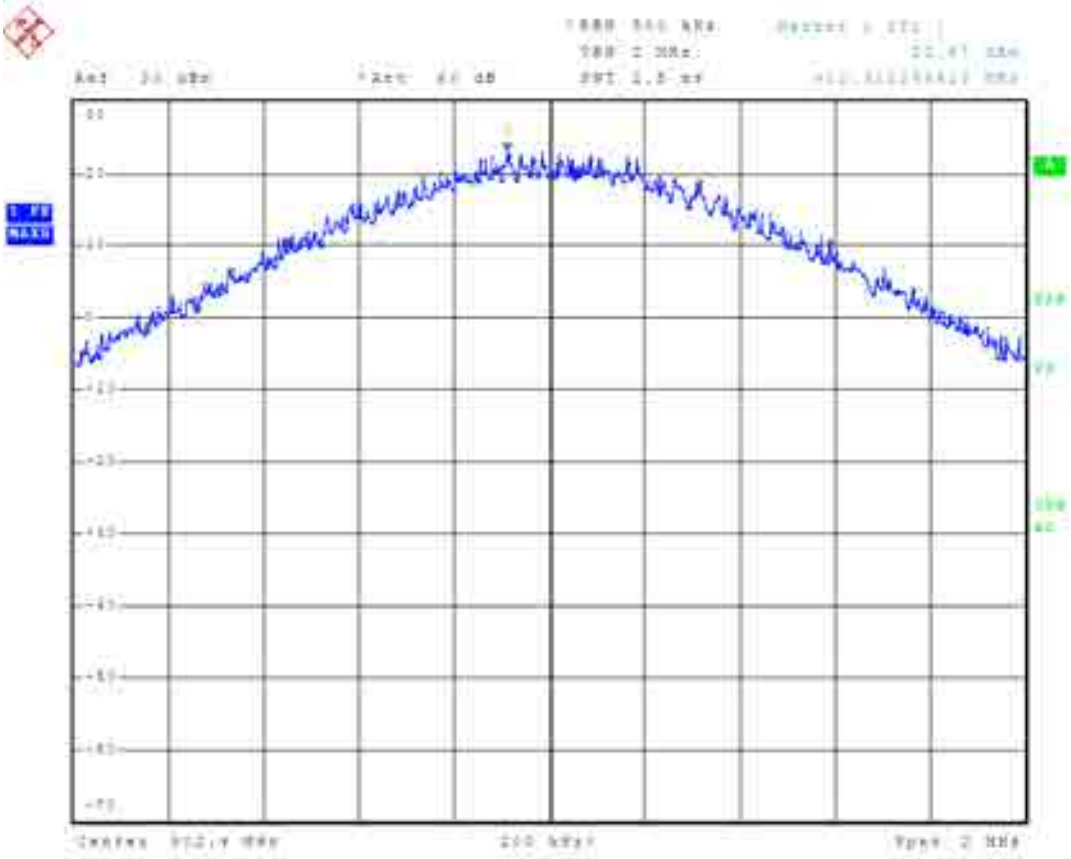


Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 OFDM.600K

Test Spec
CONDUCTED

Sweep Settings Screen A

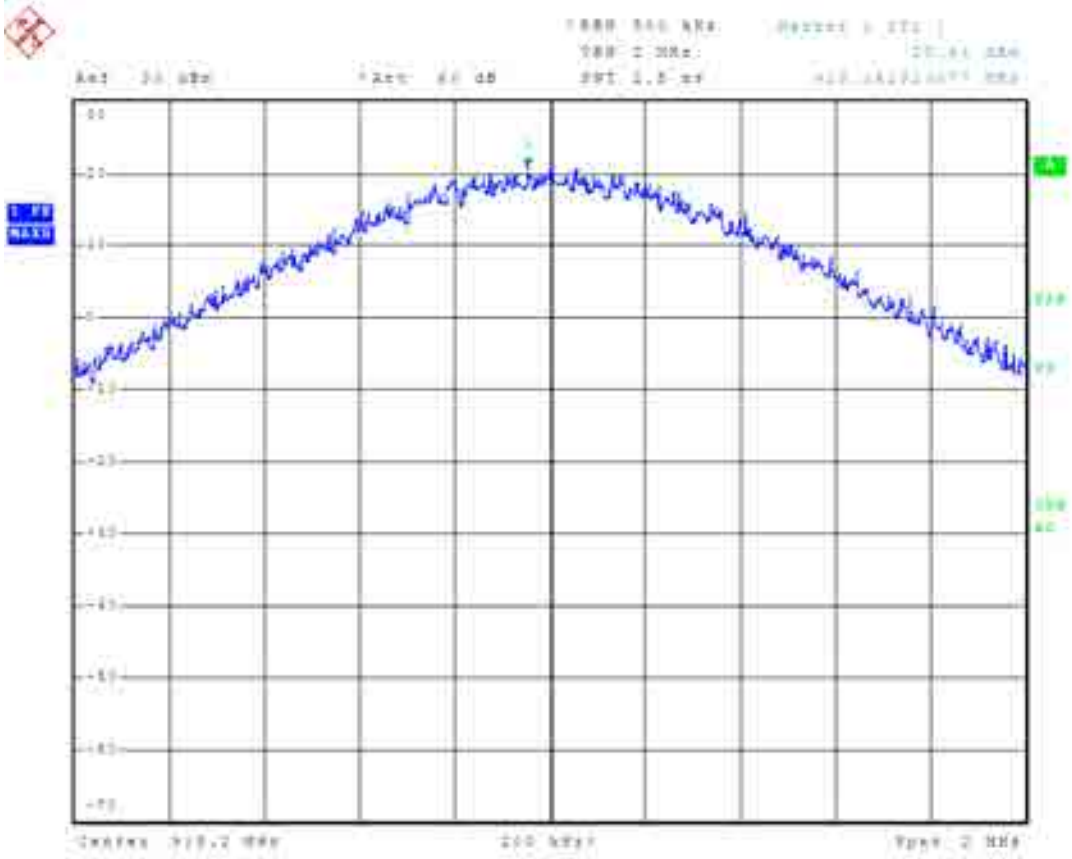
Center Frequency	902.400000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	901.400000 MHz	Level Range	100.000 dB
Stop Frequency	903.400000 MHz	RF Att	40.000 dB
RBW	500.000000 kHz		
VBW	2.000000 MHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH32 OFDM 600K
Test Spec	
CONDUCTED	

Sweep Settings Screen A

Center Frequency	915.200000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	914.200000 MHz	Level Range	100.000 dB
Stop Frequency	916.200000 MHz	RF Att	40.000 dB
RBW	500.000000 kHz		
VBW	2.000000 MHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

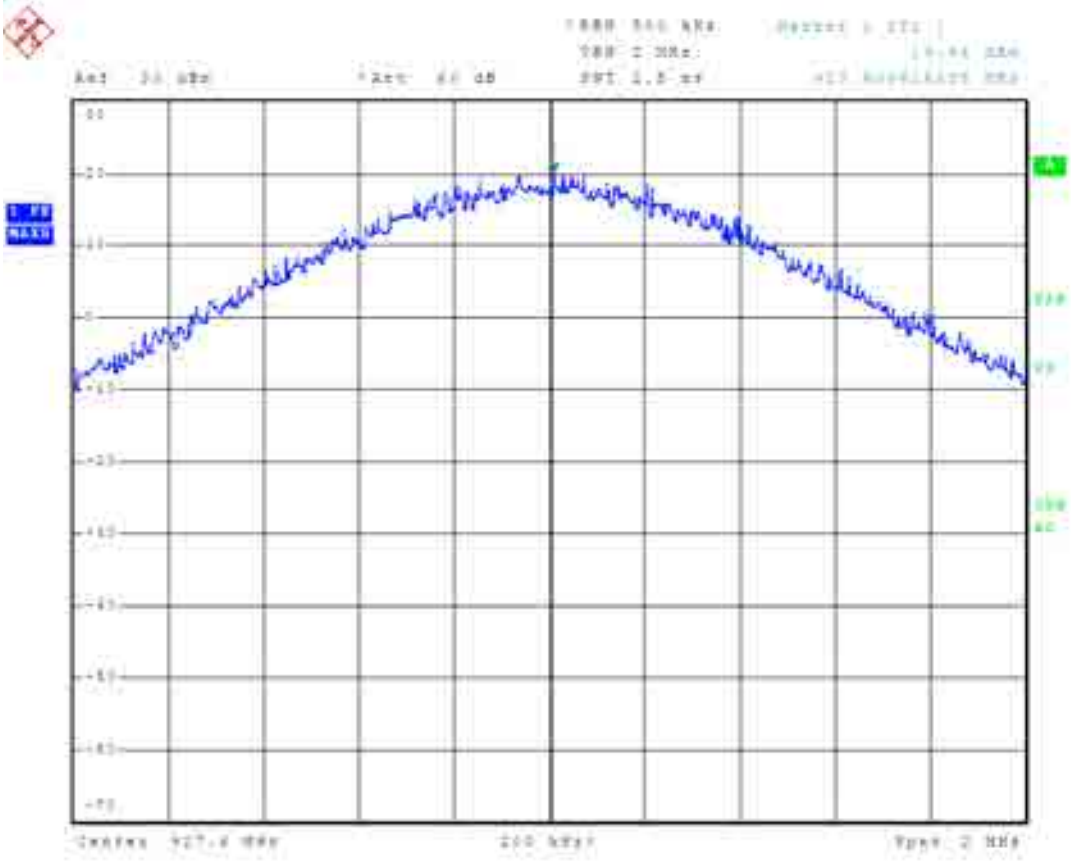


Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64 OFDM 600K

Test Spec
CONDUCTED

Sweep Settings Screen A

Center Frequency	927.600000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	926.600000 MHz	Level Range	100.000 dB
Stop Frequency	928.600000 MHz	RF Att	40.000 dB
RBW	500.000000 kHz		
VBW	2.000000 MHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 DSSS 6.25K
Test Spec	
CONDUCTED	

Sweep Settings Screen A

Center Frequency	902.600000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	1.000000 MHz	Ref Position	100.000 %
Start Frequency	902.000000 MHz	Level Range	100.000 dB
Stop Frequency	903.000000 MHz	RF Att	40.000 dB
RBW	200.000000 kHz		
VBW	500.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH32 DSSS 6.25K

Test Spec
CONDUCTED

Sweep Settings Screen A

Center Frequency	915.200000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	1.000000 MHz	Ref Position	100.000 %
Start Frequency	914.700000 MHz	Level Range	100.000 dB
Stop Frequency	915.700000 MHz	RF Att	40.000 dB
RBW	200.000000 kHz		
VBW	500.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64 DSSS 6.25K
Test Spec	
CONDUCTED	

Sweep Settings Screen A

Center Frequency	927.600000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	1.000000 MHz	Ref Position	100.000 %
Start Frequency	927.100000 MHz	Level Range	100.000 dB
Stop Frequency	928.100000 MHz	RF Att	40.000 dB
RBW	200.000000 kHz		
VBW	500.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 DSSS 50K

Test Spec
CONDUCTED

Sweep Settings Screen A

Center Frequency	902.400000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	1.000000 MHz	Ref Position	100.000 %
Start Frequency	901.900000 MHz	Level Range	100.000 dB
Stop Frequency	902.900000 MHz	RF Att	60.000 dB
RBW	200.000000 kHz		
VBW	500.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH32 DSSS 50K
Test Spec	
CONDUCTED	

Sweep Settings Screen A

Center Frequency	915.200000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	1.000000 MHz	Ref Position	100.000 %
Start Frequency	914.700000 MHz	Level Range	100.000 dB
Stop Frequency	915.700000 MHz	RF Att	60.000 dB
RBW	200.000000 kHz		
VBW	500.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

Meas Type	PEAK OUTPUT POWER
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64 DSSS 50K

Test Spec
CONDUCTED

Sweep Settings Screen A

Center Frequency	927.600000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	1.000000 MHz	Ref Position	100.000 %
Start Frequency	927.100000 MHz	Level Range	100.000 dB
Stop Frequency	928.100000 MHz	RF Att	60.000 dB
RBW	200.000000 kHz		
VBW	500.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

3.9 §15.247 (c) Spurious RF Conducted Emissions

Since EUT has integrated antenna and antenna conducted tests cannot be performed. Due to that alternative test procedure was used acc. to the FCC/DA-00-705. Radiated tests were done to show compliance with the spurious RF conducted emission limit specified is section 15.247 (c). For the test results see Radiated Spurious Emission test results in chapter 3.10.

Conclusion: PASS

Test results

3.10 §15.247 Radiated Spurious Emissions

Requirements

§15.35 Measurement detector functions and bandwidths

(b) Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, e.g., see §§15.250, 15.252, 15.253(d), 15.255, 15.256, and 15.509 through 15.519 of this part, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device, e.g., the total peak power level. Note that the use of a pulse desensitization correction factor may be needed to determine the total peak emission level. The instruction manual or application note for the measurement instrument should be consulted for determining pulse desensitization factors, as necessary.

§15.209 Radiated emission limit

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency Range (MHz)	Limits (dBµV/m)	Test distance (m)
0,009 to 0,490	20*log(2400/F(kHz))	300
0,490 to 1,705	20*log(24000/F(kHz))	30
1,705 to 30,0	30	30
30 to 88	40**	3
88 to 216	43.5**	3
216 to 960	46**	3
Above 960	54	3

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

§15.205 Restricted bands of operation

Requirement
Except as shown in paragraph (d) of §15.205 only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2]Above 38.6

Test procedure
As per Clauses 6.3, 6.4, 6.5 and 6.6 from ANSI C63.10-2013 and FCC/DA-00-705

Test results

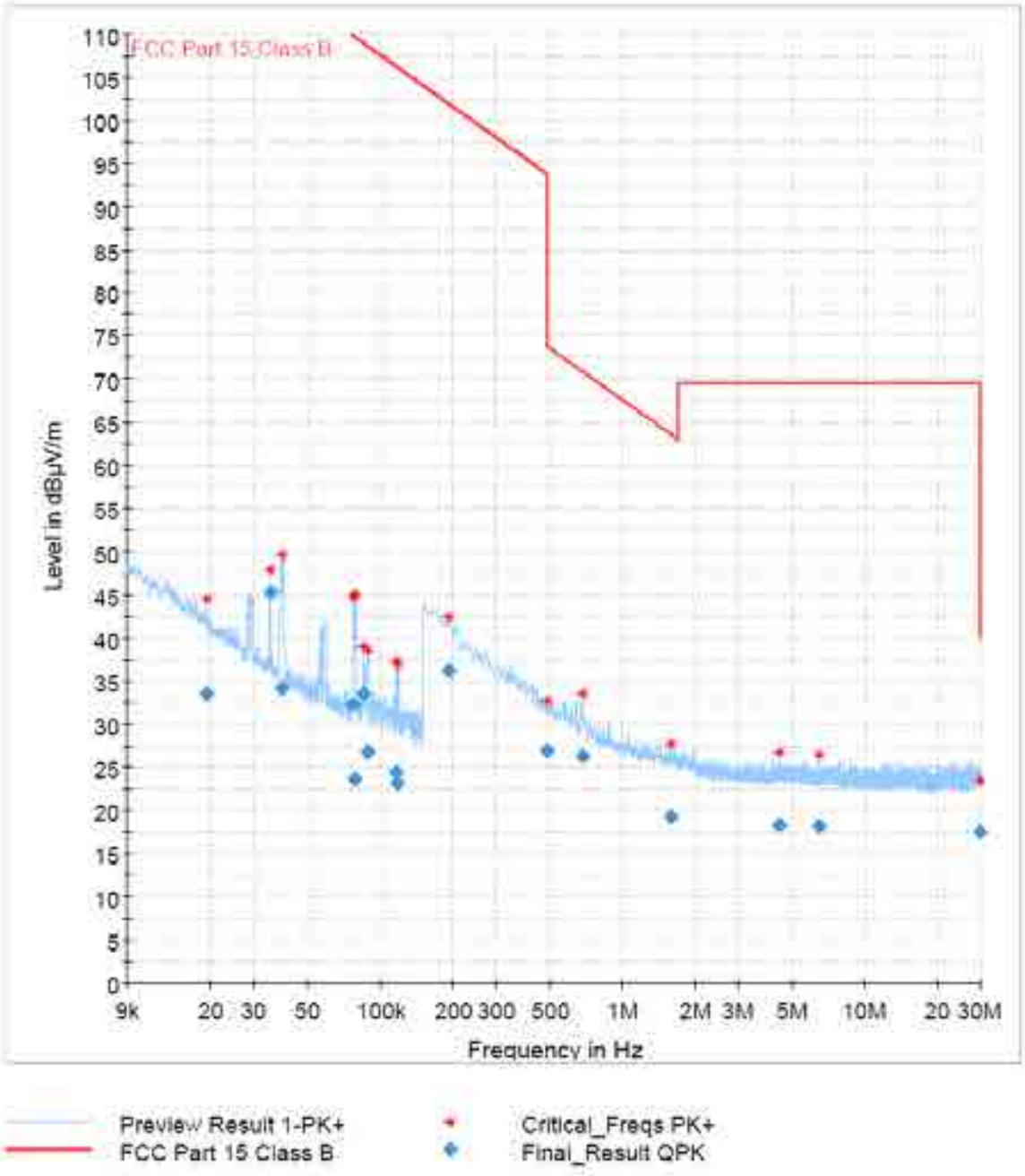
Riva 9k-30M fsk75k CH1 1 / 2

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH1, FSK 75K

Full Spectrum



Riva 9k-30M fsk75k CH1 2 / 2

Final_Result

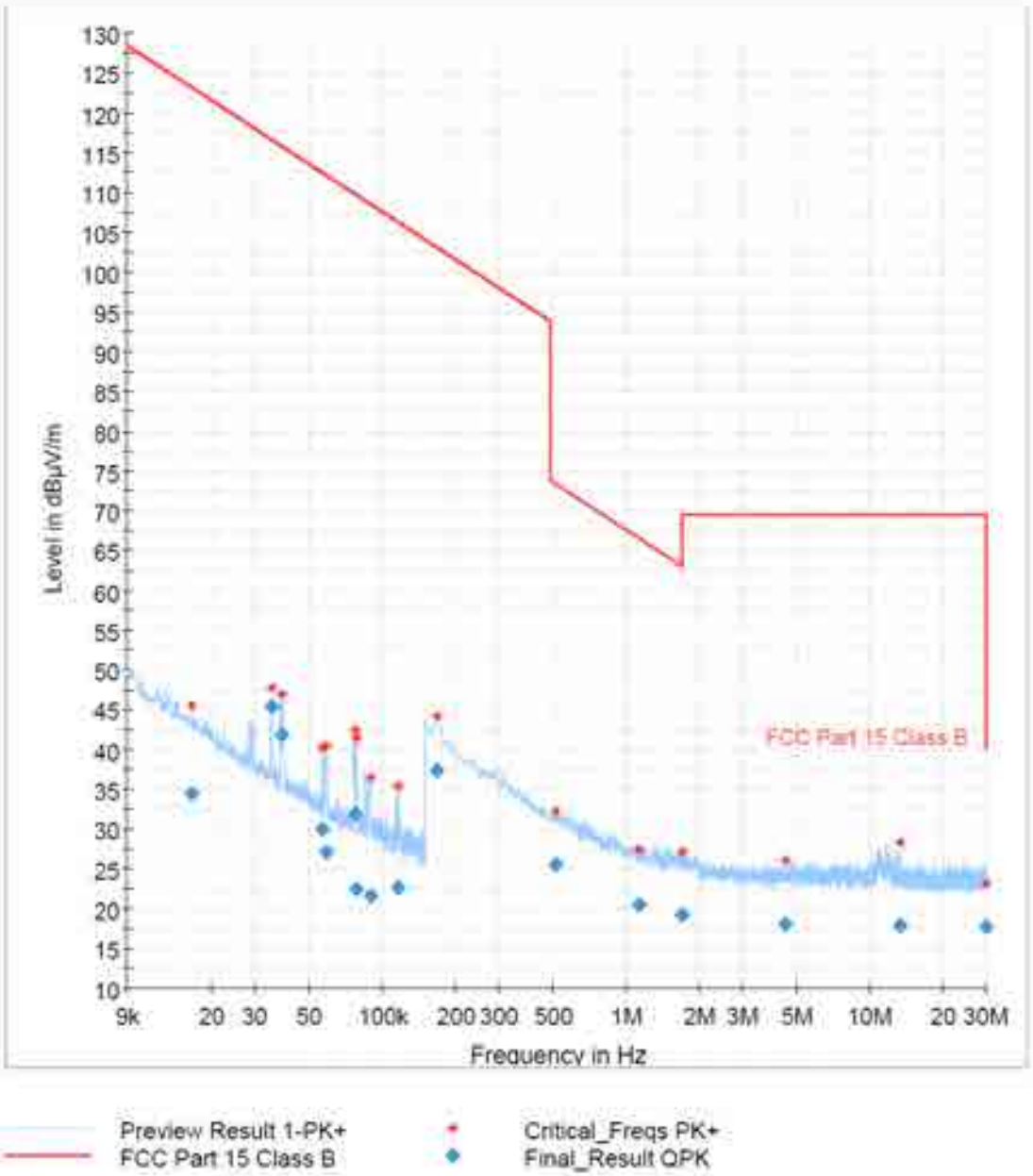
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
30.000000	17.61	40.00	22.39	174.0
1.594500	19.25	63.58	44.33	218.0
0.685500	26.38	70.89	44.51	174.0
0.492000	26.88	73.77	46.89	129.0
4.438500	18.29	69.50	51.21	129.0
6.497250	18.11	69.50	51.39	129.0
0.192750	36.26	101.90	65.64	356.0
0.035250	45.27	116.65	71.38	181.0
0.085650	33.51	108.94	75.43	356.0
0.077450	32.34	109.82	77.48	141.0
0.039500	34.16	115.66	81.50	141.0
0.116600	24.48	106.26	81.78	4.0
0.089100	26.78	108.60	81.82	141.0
0.118650	23.14	106.11	82.97	141.0
0.079100	23.71	109.63	85.92	141.0
0.019250	33.54	121.90	88.36	181.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH32, FSK 75K

Full Spectrum



Riva 9k-30M fsk75k CH32 2 / 2

Final_Result

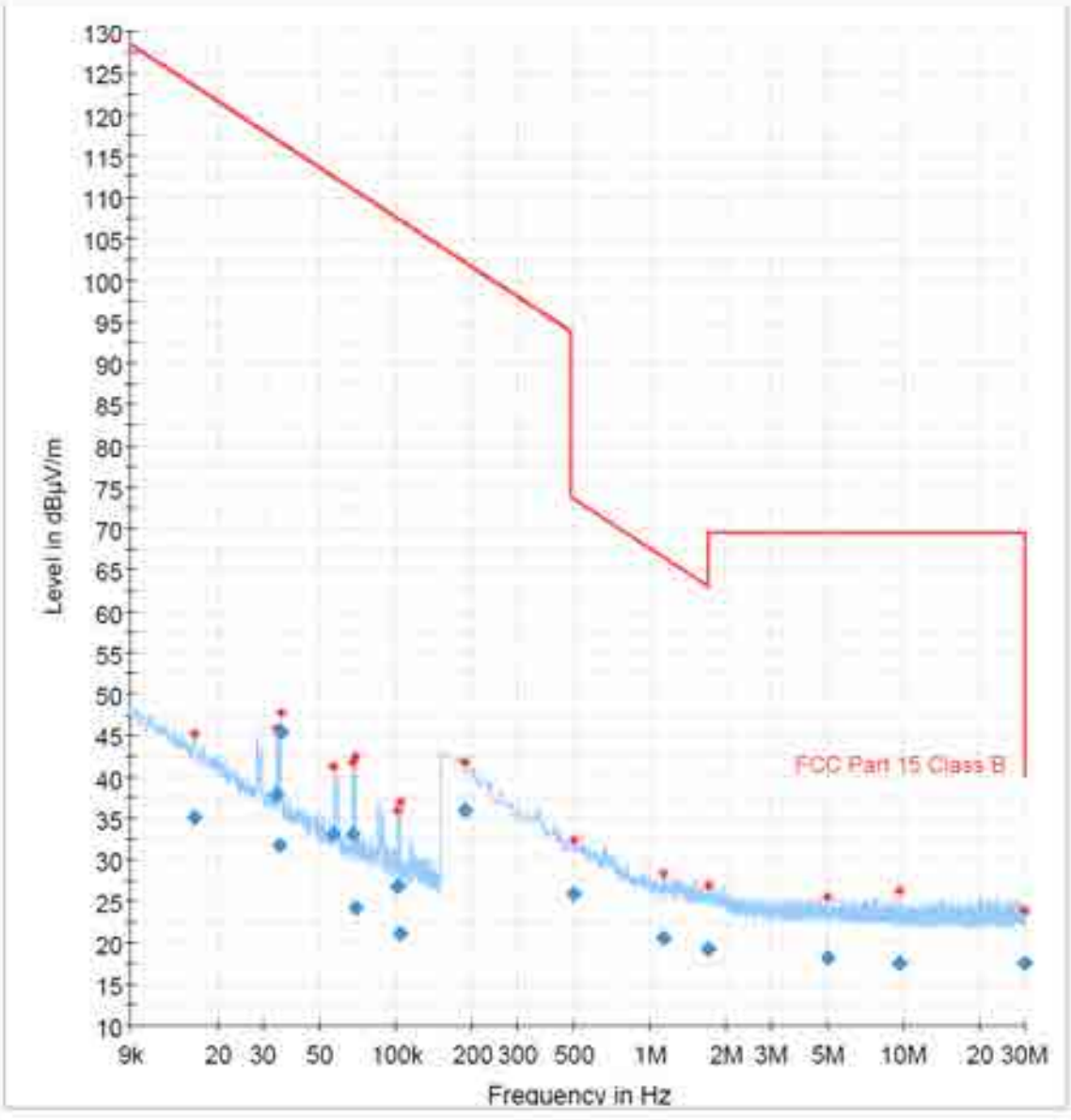
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
30.000000	17.71	40.00	22.29	52.0
1.691250	19.22	63.07	43.86	96.0
1.128750	20.42	66.57	46.15	274.0
0.514500	25.53	73.38	47.85	52.0
4.497000	18.03	69.50	51.47	5.0
13.303500	17.93	69.50	51.57	5.0
0.168000	37.28	103.09	65.81	52.0
0.035250	45.30	116.65	71.34	334.0
0.038600	41.79	115.86	74.07	65.0
0.077100	31.84	109.85	78.01	85.0
0.057150	30.05	112.45	82.41	65.0
0.115900	22.61	106.32	83.70	65.0
0.059050	27.14	112.17	85.03	85.0
0.089450	21.64	108.56	86.92	44.0
0.078650	22.55	109.68	87.13	210.0
0.016550	34.51	123.21	88.71	23.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH64, FSK 75K

Full Spectrum



Riva 9k-30M fsk75k CH64 2 / 2

Final_Result

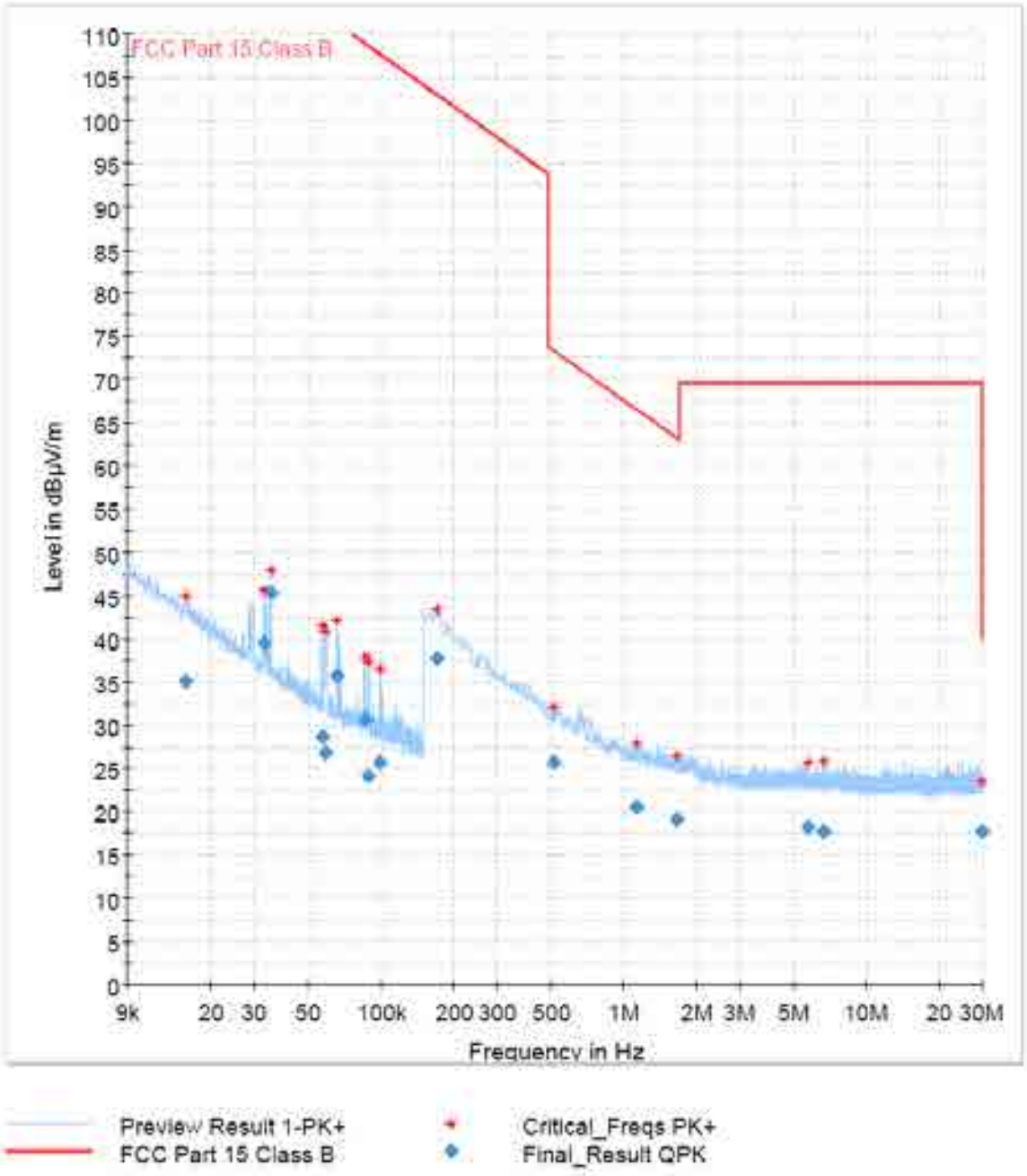
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
30.000000	17.48	40.00	22.52	101.0
1.700250	19.26	63.02	43.77	279.0
1.133250	20.53	66.54	46.01	279.0
0.503250	25.82	73.57	47.75	7.0
4.992000	18.15	69.50	51.35	190.0
9.656250	17.50	69.50	52.00	101.0
0.186000	36.04	102.21	66.17	7.0
0.035250	45.41	116.65	71.23	195.0
0.067950	33.04	110.95	77.91	195.0
0.033950	37.78	116.97	79.19	30.0
0.057100	33.09	112.46	79.37	195.0
0.102050	26.83	107.42	80.59	0.0
0.034850	31.71	116.75	85.04	195.0
0.104250	21.03	107.24	86.20	195.0
0.069500	24.16	110.76	86.60	195.0
0.016100	35.11	123.45	88.34	0.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH1, OFDM 50K

Full Spectrum



Riva 9k-30M OFDM50K CH1 2 / 2

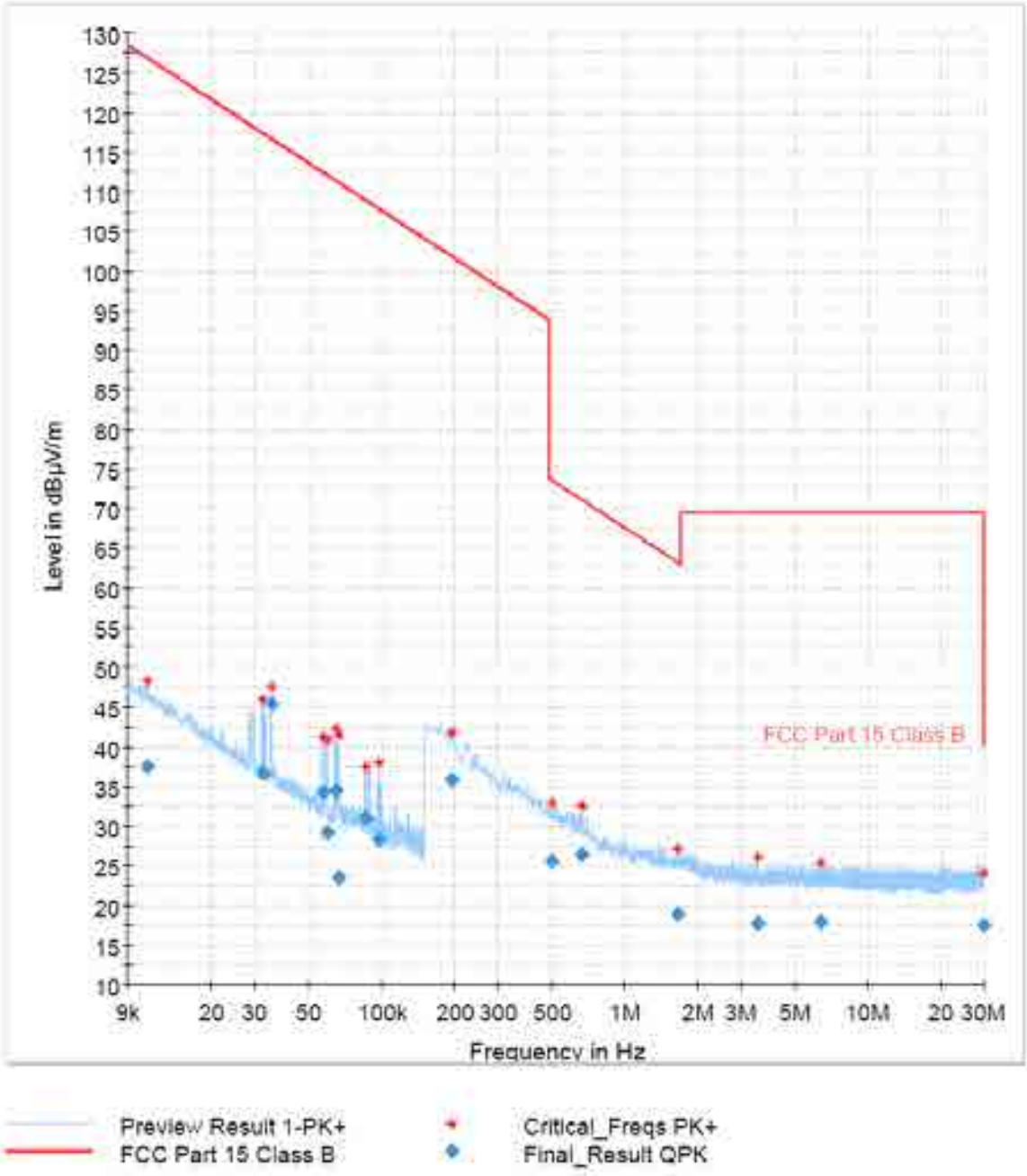
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
30.000000	17.72	40.00	22.28	359.0
1.659750	19.19	63.23	44.04	274.0
1.128750	20.49	66.57	46.08	359.0
0.519000	25.74	73.30	47.56	186.0
5.763750	18.11	69.50	51.39	359.0
6.706500	17.73	69.50	51.77	5.0
0.170250	37.82	102.98	65.16	186.0
0.035200	45.25	116.96	71.41	354.0
0.066250	39.78	111.17	75.39	184.0
0.033050	39.54	117.21	77.67	14.0
0.085800	30.78	108.93	78.15	184.0
0.099350	25.66	107.65	81.99	184.0
0.057250	28.72	112.44	83.72	184.0
0.089150	24.15	108.59	84.44	56.0
0.059150	26.86	112.16	85.29	14.0
0.015700	39.04	123.67	84.63	354.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH32, OFDM 50K

Full Spectrum



Riva 9k-30M OFDM50K CH32 2 / 2

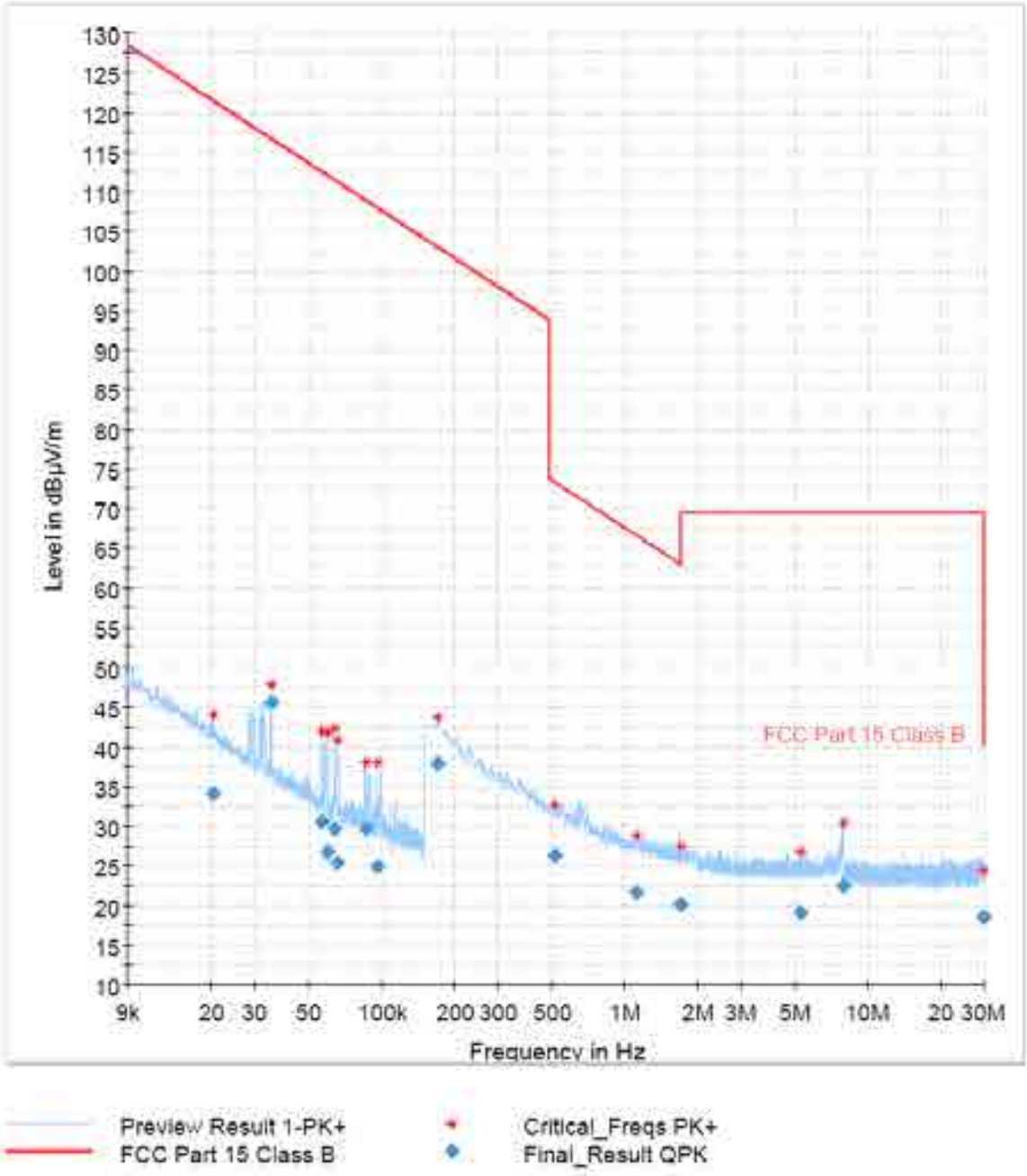
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
30.000000	17.46	40.00	22.54	4.0
1.648500	18.94	63.29	44.35	96.0
0.667500	26.36	71.12	44.76	184.0
0.505500	25.53	73.53	48.00	184.0
6.432000	17.79	69.50	51.71	358.0
3.513750	17.67	69.50	51.83	4.0
0.195000	35.85	101.80	65.95	358.0
0.035200	45.33	116.66	71.33	271.0
0.064800	34.51	111.36	76.86	192.0
0.055850	31.11	108.92	77.81	192.0
0.057200	34.31	112.45	78.14	192.0
0.097100	28.21	107.85	79.65	192.0
0.032400	36.70	117.38	80.68	192.0
0.060000	29.08	112.03	82.95	192.0
0.066700	23.56	111.11	87.57	192.0
0.010850	37.54	126.88	89.34	231.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH64, OFDM 50K

Full Spectrum



Riva 9k-30M OFDM50K CH64 2 / 2

Final_Result

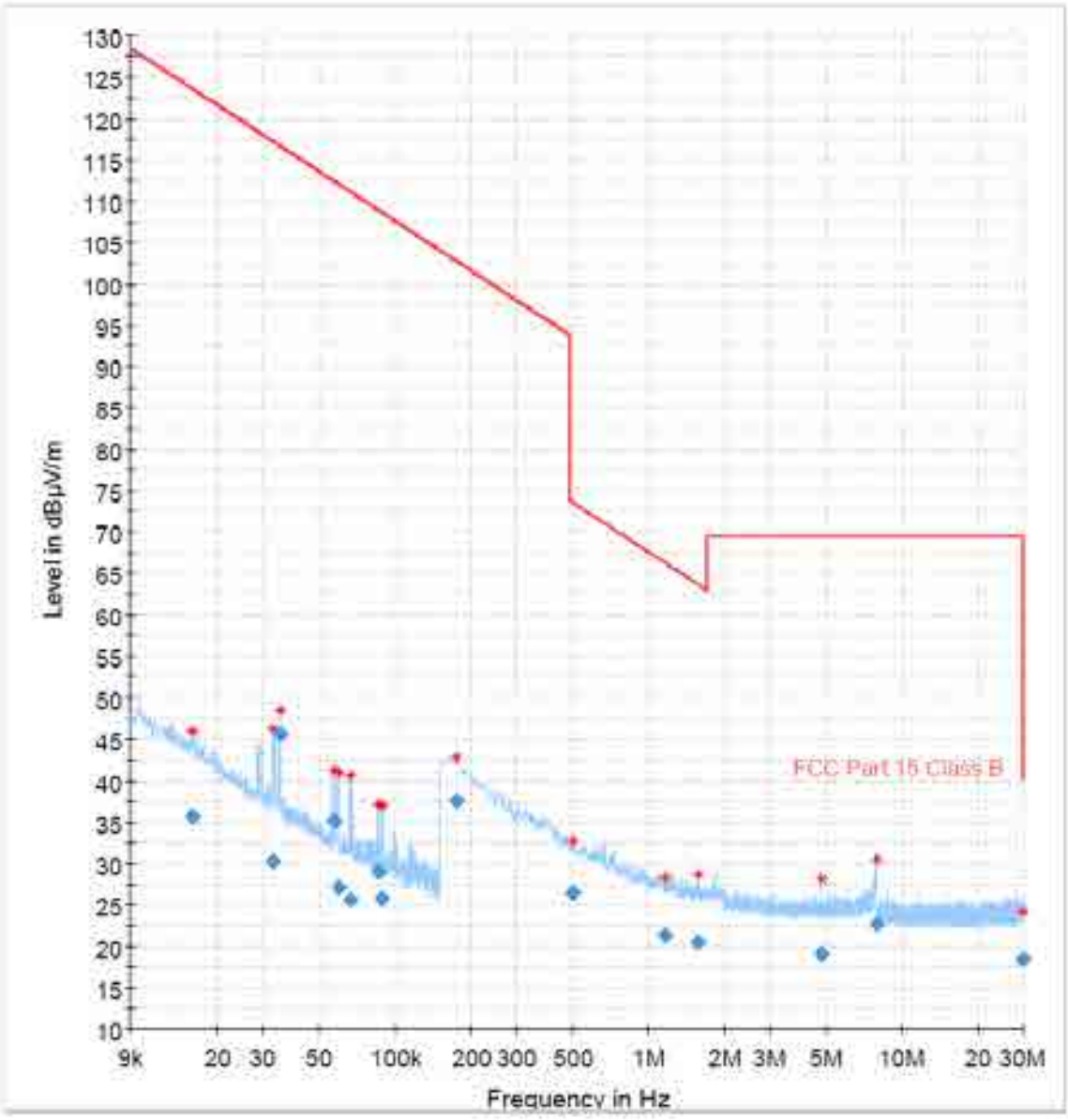
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
30.000000	18.49	40.00	21.51	6.0
1.691250	20.06	63.07	43.01	275.0
1.124250	21.54	66.61	45.06	187.0
7.966750	22.43	69.50	47.07	6.0
0.516750	26.18	73.34	47.16	6.0
5.320500	19.08	69.50	50.42	0.0
0.170250	37.89	102.98	65.09	6.0
0.035200	45.53	116.66	71.13	187.0
0.085800	29.58	108.93	79.34	187.0
0.064150	29.66	111.45	81.79	187.0
0.057150	30.56	112.45	81.89	187.0
0.096200	24.86	107.93	83.08	187.0
0.059600	26.71	112.09	85.38	187.0
0.065800	25.31	111.23	85.92	187.0
0.020150	34.14	121.50	87.36	268.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH1, OFDM 600K

Full Spectrum



Riva 9k-30M OFDM600K CH1 2 / 2

Final_Result

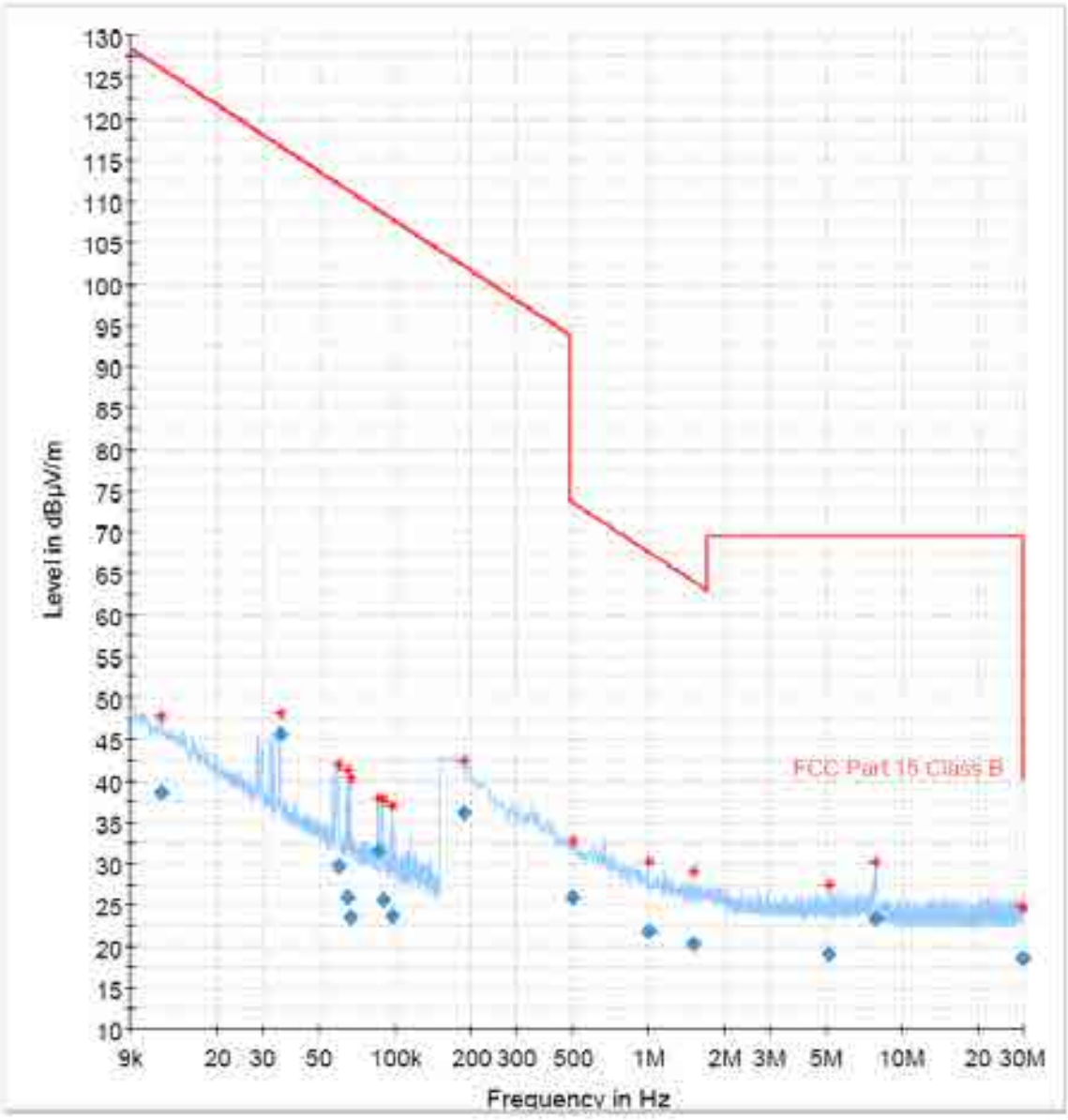
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
30.000000	18.37	40.00	21.63	5.0
1.565250	20.39	63.74	43.35	186.0
1.155750	21.32	66.37	45.05	97.0
7.948500	22.68	69.50	46.82	5.0
0.501000	26.34	73.61	47.26	5.0
4.830000	19.00	69.50	50.50	274.0
0.174750	37.51	102.75	65.24	5.0
0.035200	45.55	116.66	71.11	61.0
0.057250	35.06	112.44	77.38	186.0
0.085950	29.04	108.91	79.88	186.0
0.089100	25.71	108.60	82.89	186.0
0.059650	27.05	112.08	85.03	186.0
0.066350	25.52	111.16	85.64	186.0
0.033150	30.14	117.18	87.04	186.0
0.015950	35.63	123.53	87.90	104.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH32, OFDM 600K

Full Spectrum



Riva 9k-30M OFDM600K CH32 2 / 2

Final_Result

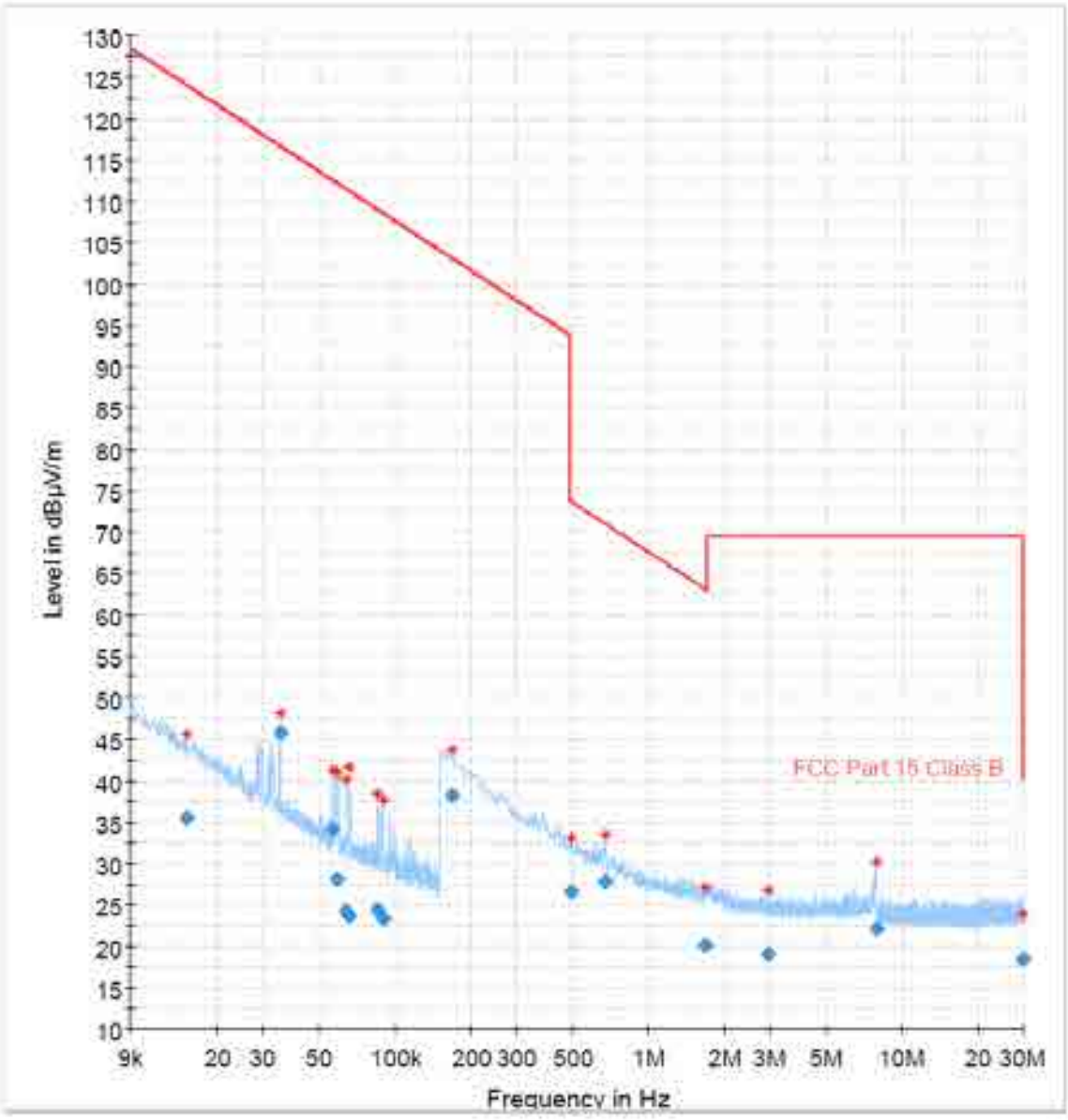
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Azimuth (deg)
30.000000	18.60	40.00	21.40	H	186.0
1.506750	20.32	64.07	43.75	H	359.0
1.000500	21.79	67.62	45.82	H	186.0
7.881000	23.37	69.50	46.13	H	359.0
0.503250	25.97	73.57	47.60	H	97.0
5.158500	19.01	69.50	50.49	H	275.0
0.186000	36.11	102.21	66.10	H	5.0
0.035200	45.62	116.66	71.04	H	229.0
0.085800	31.54	108.93	77.39	H	0.0
0.060050	29.65	112.02	82.37	H	188.0
0.090000	25.48	108.51	83.03	H	188.0
0.097200	23.66	107.84	84.18	H	188.0
0.064850	25.82	111.36	85.53	H	188.0
0.012000	38.50	126.00	87.50	H	271.0
0.066700	23.49	111.11	87.62	H	65.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH64, OFDM 600K

Full Spectrum



Riva 9k-30M OFDM600K CH64 2 / 2

Final_Result

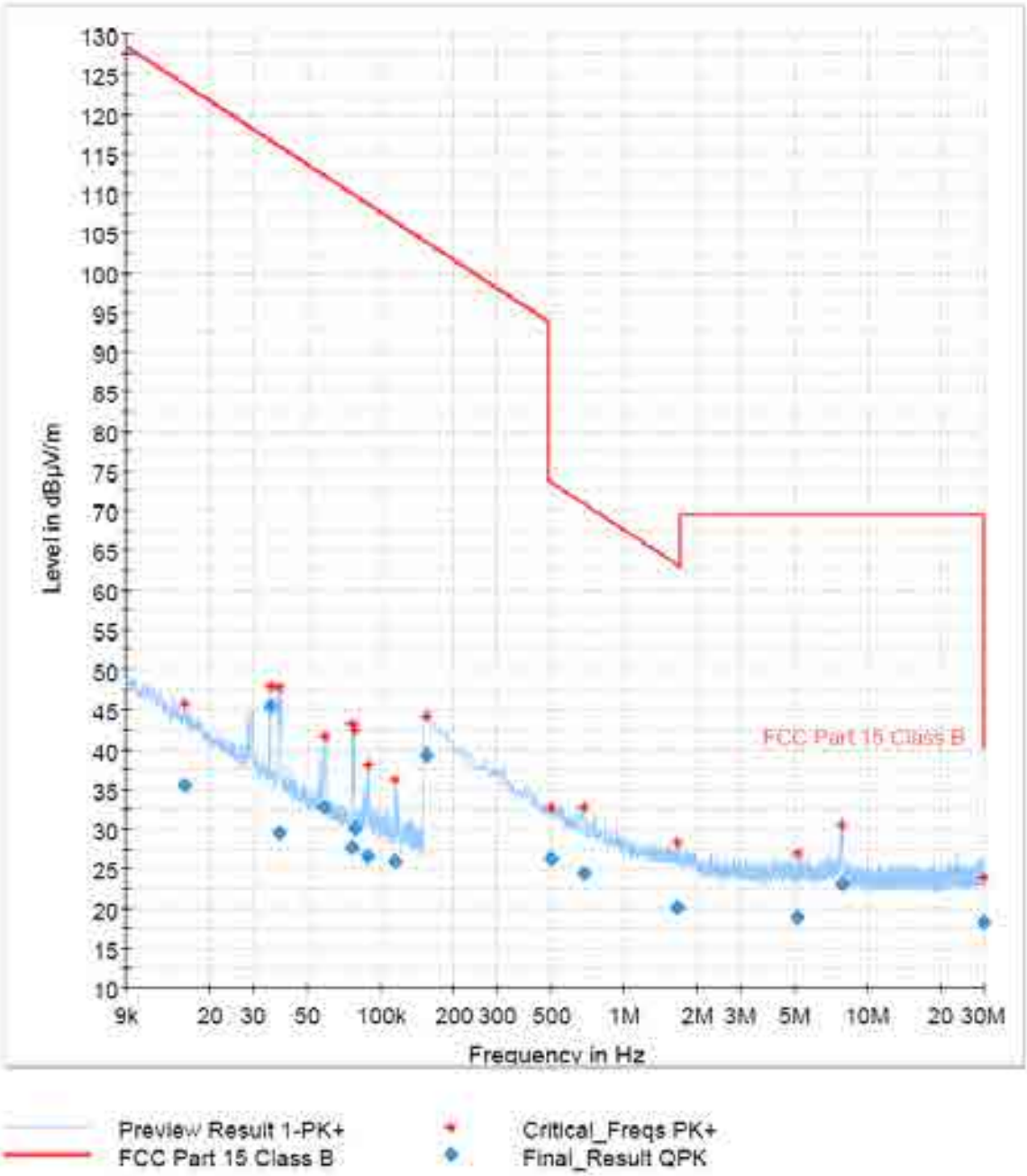
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
30.000000	18.40	40.00	21.60	184.0
1.684500	20.02	63.11	43.09	96.0
0.676500	27.73	71.01	43.28	4.0
0.494250	26.62	73.73	47.11	184.0
7.980000	22.16	69.50	47.34	359.0
2.990500	19.01	69.50	50.49	96.0
0.168000	38.13	103.09	64.97	4.0
0.035200	45.65	116.66	71.01	315.0
0.057100	34.17	112.46	78.29	194.0
0.059200	28.14	112.15	84.01	30.0
0.085450	24.29	108.96	84.67	194.0
0.089750	23.31	108.54	85.23	194.0
0.063850	24.14	111.49	87.35	194.0
0.066200	23.65	111.18	87.53	30.0
0.015100	35.40	124.01	88.60	194.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH1, DSSS 6.25K

Full Spectrum



Final_Result

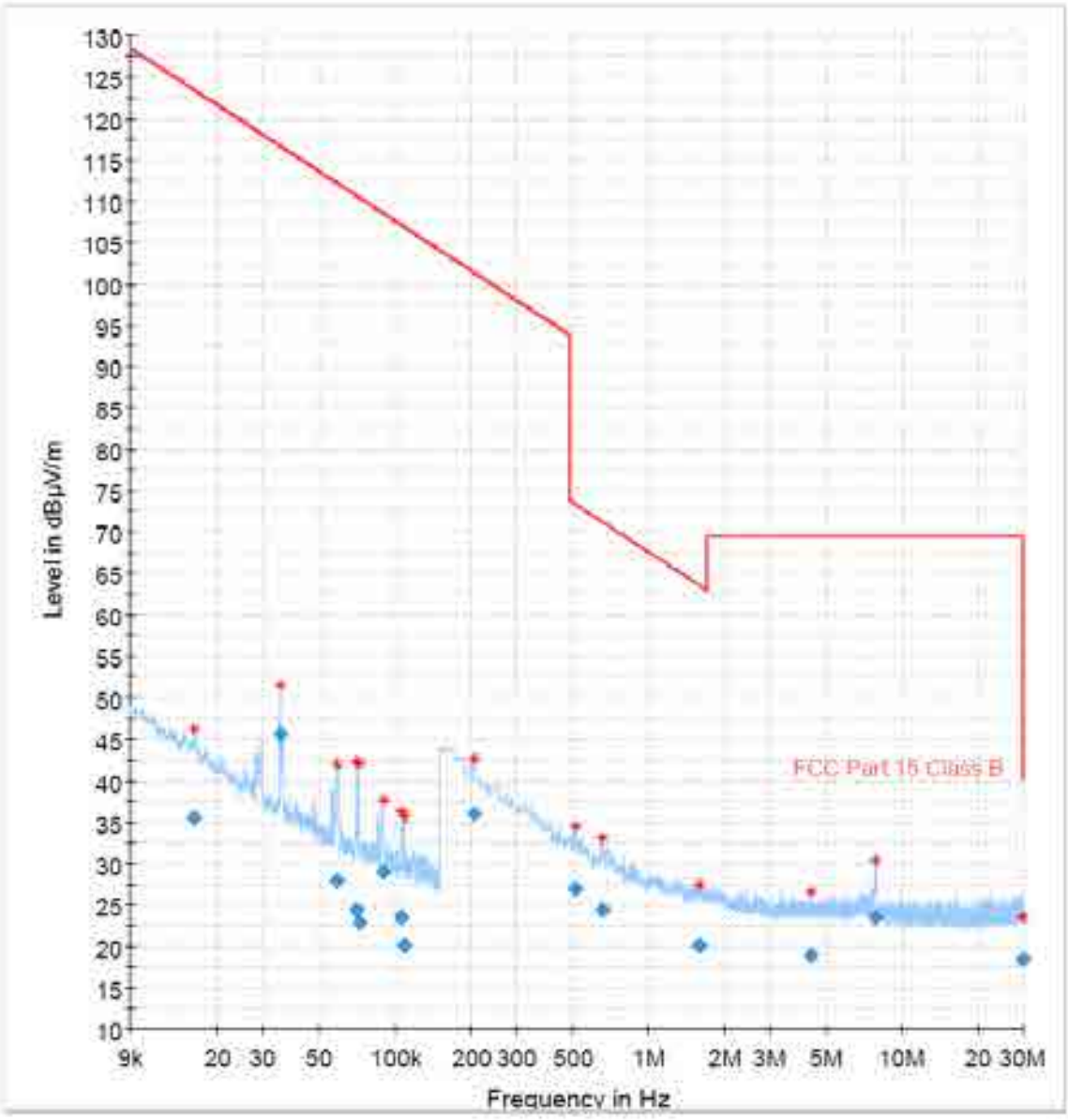
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
30.000000	18.27	40.00	21.73	359.0
1.664250	20.14	63.21	43.07	4.0
7.845000	23.07	69.50	46.43	186.0
0.685500	24.29	70.89	46.60	186.0
0.501000	26.24	73.61	47.36	186.0
5.181000	18.89	69.50	50.61	96.0
0.154500	39.30	103.82	64.52	186.0
0.035250	45.46	116.65	71.19	186.0
0.059400	32.79	112.12	79.33	186.0
0.078050	30.07	109.75	79.68	359.0
0.114550	25.85	106.42	80.57	0.0
0.088950	26.53	108.61	82.09	186.0
0.076500	27.60	109.92	82.33	359.0
0.038250	29.56	115.94	86.38	359.0
0.015700	35.51	123.67	88.16	268.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH32, DSSS 6.25K

Full Spectrum



Riva 9k-30M DSSS6.25K CH32 2 / 2

Final_Result

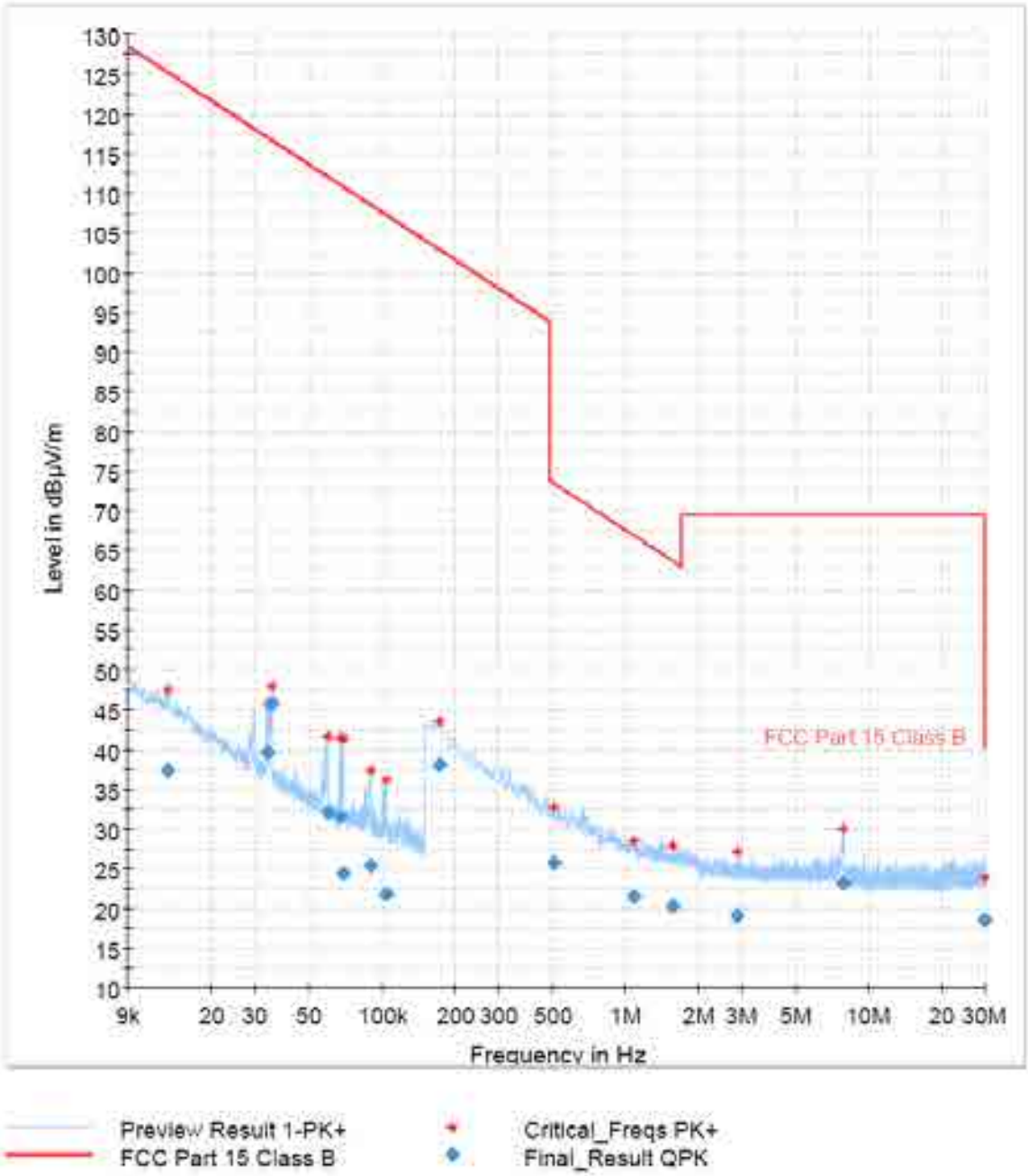
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
30.000000	18.38	40.00	21.62	188.0
1.587750	20.10	63.62	43.52	276.0
7.856250	23.44	69.50	46.06	6.0
0.514500	26.89	73.38	46.49	6.0
0.656250	24.32	71.27	46.95	0.0
4.366500	18.93	69.50	50.57	188.0
0.206250	35.91	101.31	65.40	6.0
0.035200	45.64	116.66	71.02	10.0
0.089950	28.94	108.52	79.58	181.0
0.105750	23.42	107.11	83.69	10.0
0.059500	27.90	112.10	84.21	181.0
0.070400	24.42	110.64	86.22	10.0
0.108500	20.09	106.89	86.80	225.0
0.072500	22.82	110.39	87.57	10.0
0.016150	35.54	123.42	87.88	354.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH64, DSSS 6.25K

Full Spectrum



Final_Result

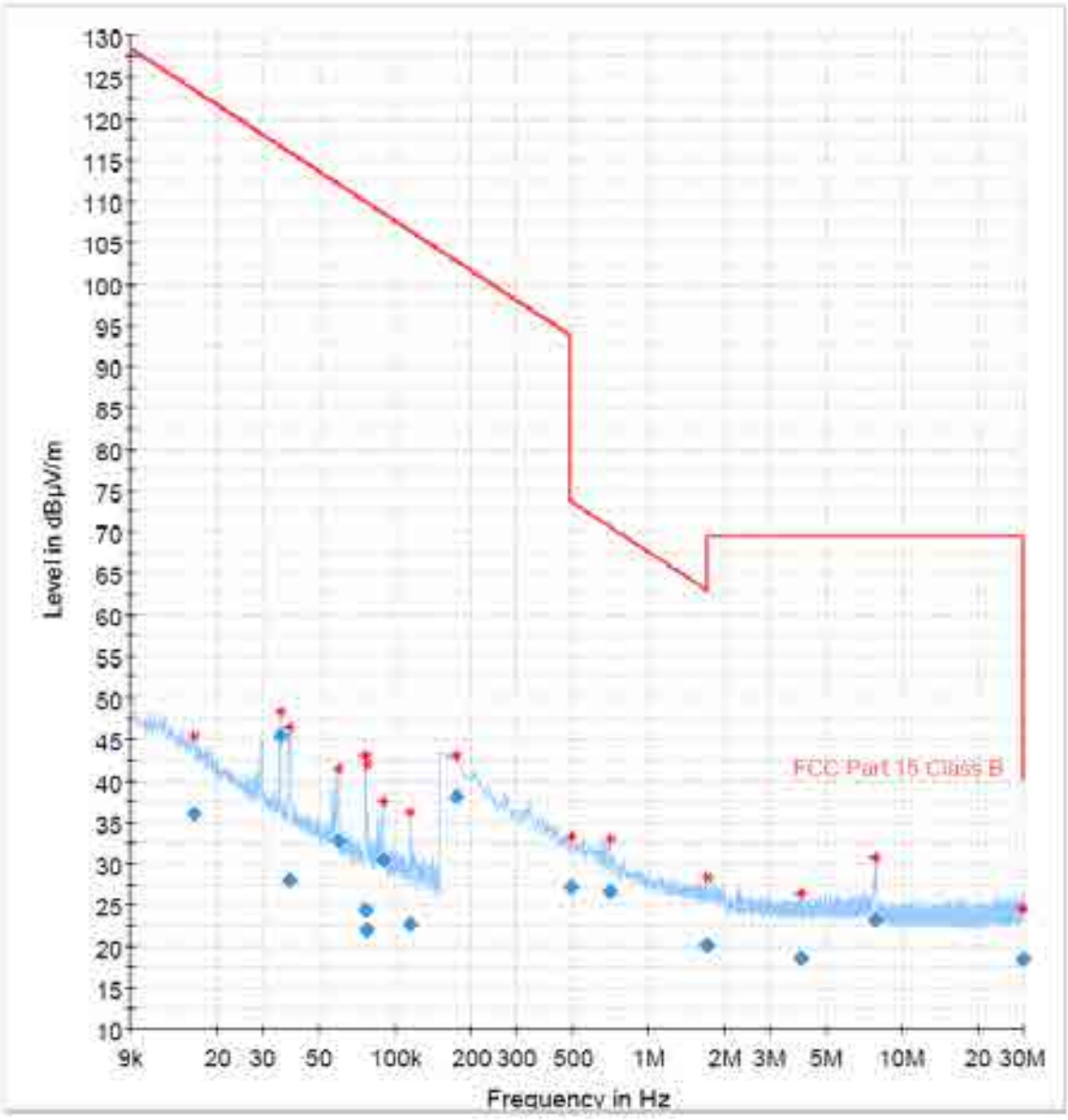
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
30.000000	18.59	40.00	21.41	276.0
1.574250	20.24	63.69	43.46	98.0
1.092750	21.53	66.85	45.32	187.0
7.856250	23.12	69.50	46.38	276.0
0.507750	25.80	73.49	47.69	276.0
2.877000	19.05	69.50	50.45	276.0
0.172500	38.03	102.86	64.83	5.0
0.035200	45.65	116.66	71.01	145.0
0.033750	39.53	117.03	77.49	0.0
0.067600	31.54	111.00	79.46	0.0
0.059900	32.09	112.05	79.96	187.0
0.089800	25.34	108.53	83.19	187.0
0.104700	21.74	107.20	85.46	0.0
0.069850	24.40	110.71	86.31	0.0
0.013200	37.30	125.18	87.87	187.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH1, DSSS 50K

Full Spectrum



Final_Result

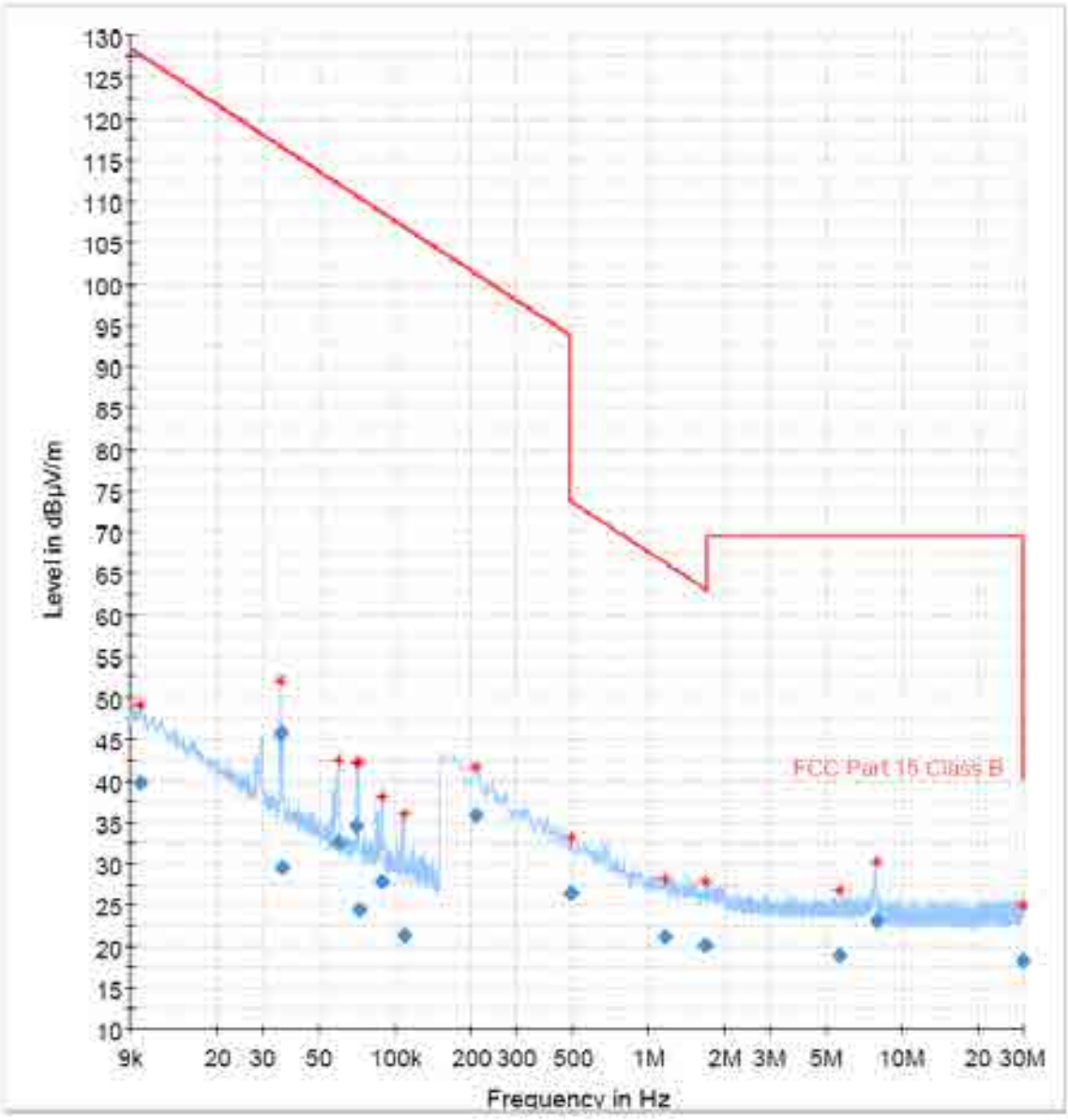
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
30.000000	18.40	40.00	21.60	359.0
1.689000	20.05	63.08	43.03	275.0
0.701250	26.65	70.70	44.05	359.0
7.896750	23.12	69.50	46.38	275.0
0.494250	27.03	73.73	46.70	5.0
3.995250	18.56	69.50	50.94	275.0
0.174750	38.01	102.75	64.74	187.0
0.035250	45.47	116.65	71.18	316.0
0.090100	30.29	108.50	78.21	192.0
0.059750	32.76	112.07	79.30	192.0
0.114850	22.64	106.39	83.75	152.0
0.076650	24.41	109.91	85.50	152.0
0.016150	35.92	123.42	87.50	29.0
0.077800	22.01	109.78	87.77	69.0
0.038200	27.89	115.95	88.06	69.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH32, DSSS 50K

Full Spectrum



Final_Result

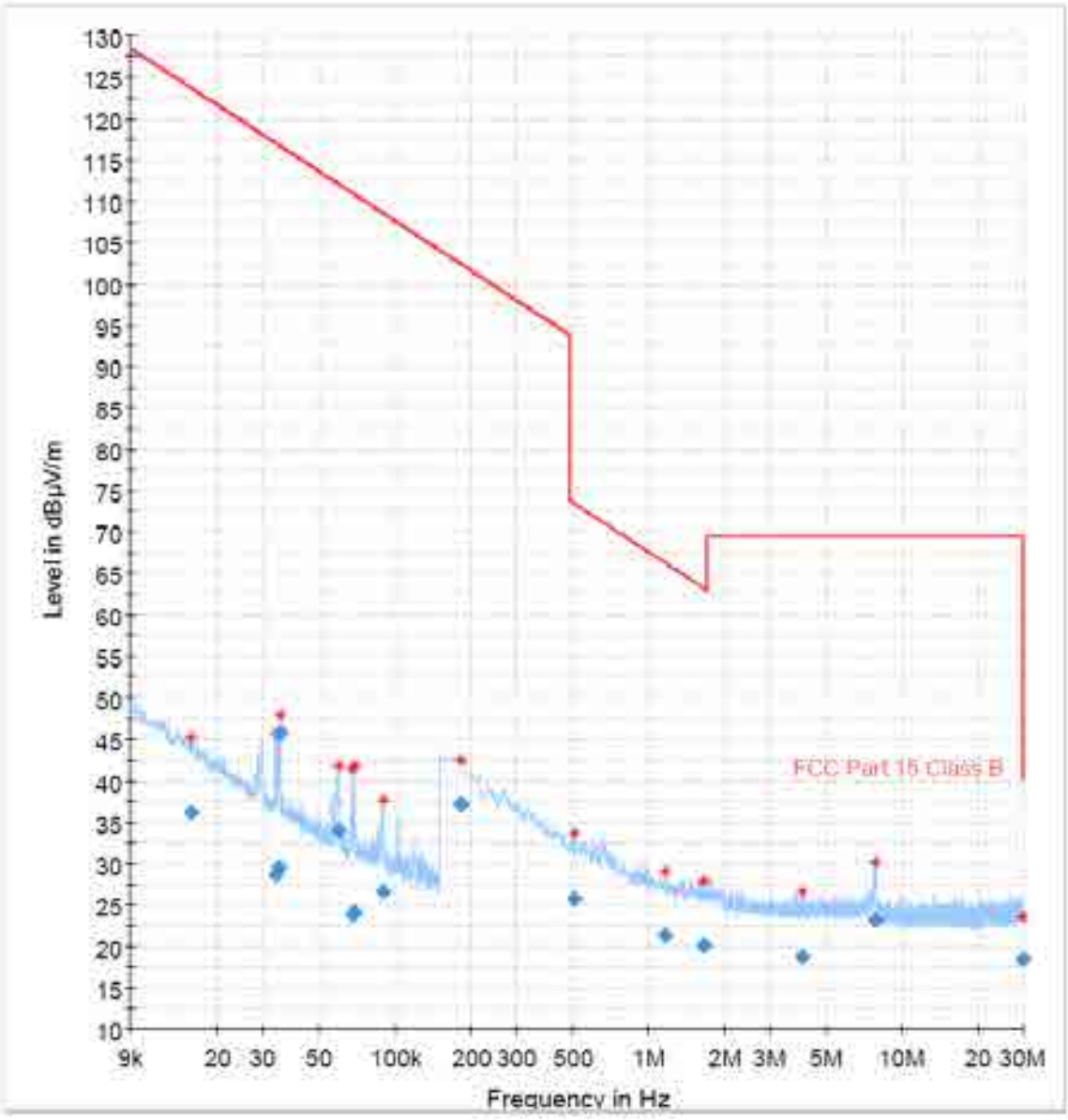
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
30.000000	18.26	40.00	21.74	5.0
1.680000	20.14	63.13	42.99	0.0
1.164750	21.03	66.30	45.27	0.0
7.930500	23.02	69.50	46.48	98.0
0.496500	26.37	73.69	47.32	5.0
5.705250	18.81	69.50	50.69	0.0
0.208500	35.74	101.22	65.48	188.0
0.035200	45.63	116.66	71.03	0.0
0.070600	34.43	110.62	76.19	34.0
0.059700	32.49	112.07	79.58	191.0
0.089000	27.72	108.61	80.89	191.0
0.108050	21.31	106.92	85.61	359.0
0.072050	24.34	110.44	86.10	359.0
0.036050	29.52	116.45	86.93	359.0
0.009950	39.72	127.63	87.91	232.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH64, DSSS 50K

Full Spectrum



Riva 9k-30M DSSS50K CH64 2 / 2

Final_Result

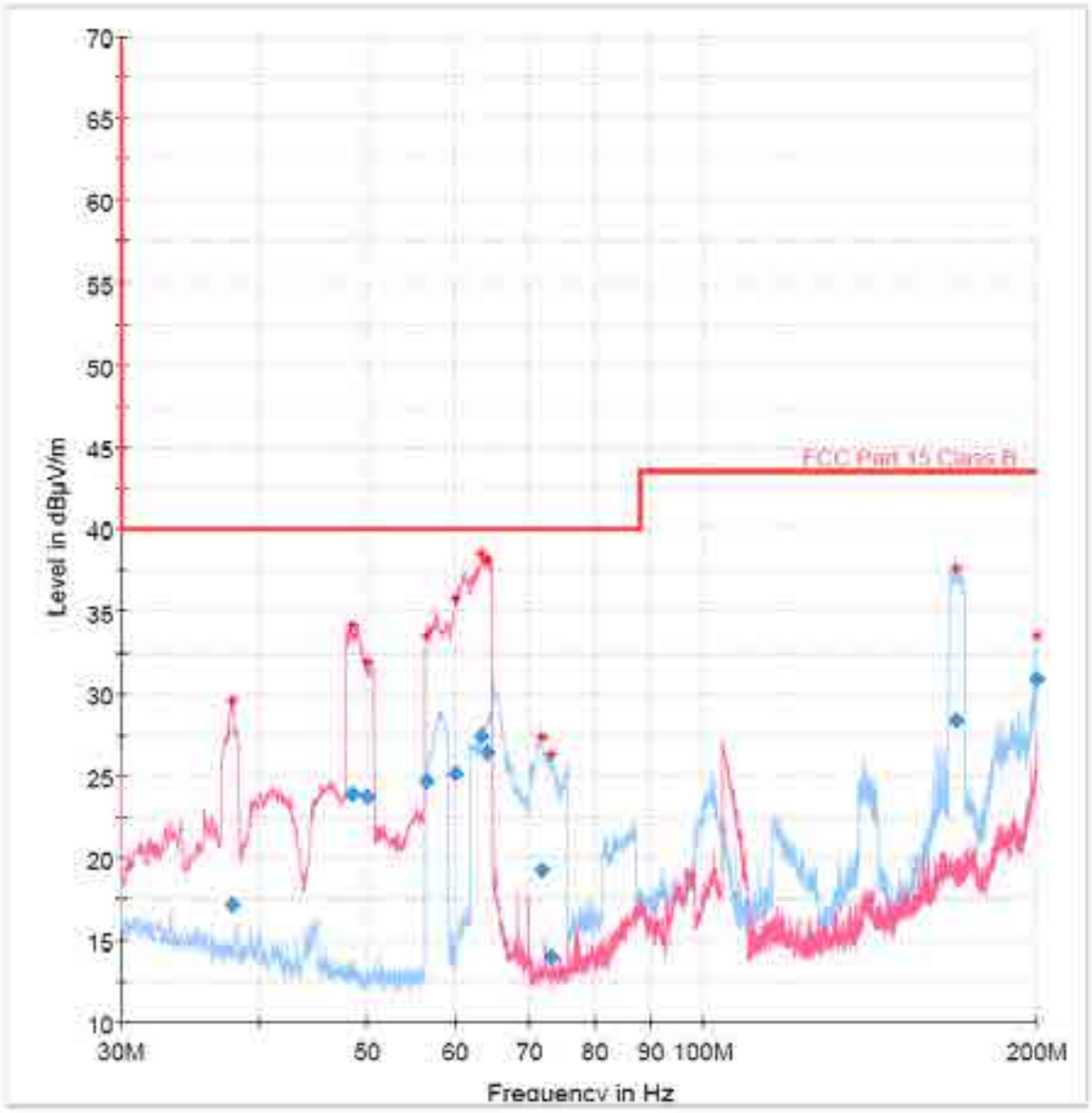
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
30.000000	18.30	40.00	21.70	277.0
1.646250	20.09	63.30	43.21	189.0
1.158000	21.31	66.35	45.04	0.0
7.842750	23.18	69.50	46.32	189.0
0.507750	25.70	73.49	47.80	277.0
4.042500	18.72	69.50	50.78	189.0
0.181500	37.13	102.42	65.30	5.0
0.035200	45.65	116.66	71.01	38.0
0.060100	33.90	112.02	78.12	197.0
0.090150	26.61	108.50	81.88	197.0
0.069450	24.08	110.76	86.69	157.0
0.067750	23.82	110.98	87.16	0.0
0.034650	29.52	116.80	87.28	157.0
0.015750	36.08	123.64	87.56	236.0
0.033850	28.71	117.00	88.29	0.0

Radiated emission

EUT Information

EUT	Itron Riva Dev Mini
OP Condition	CH1, FSK 75K

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

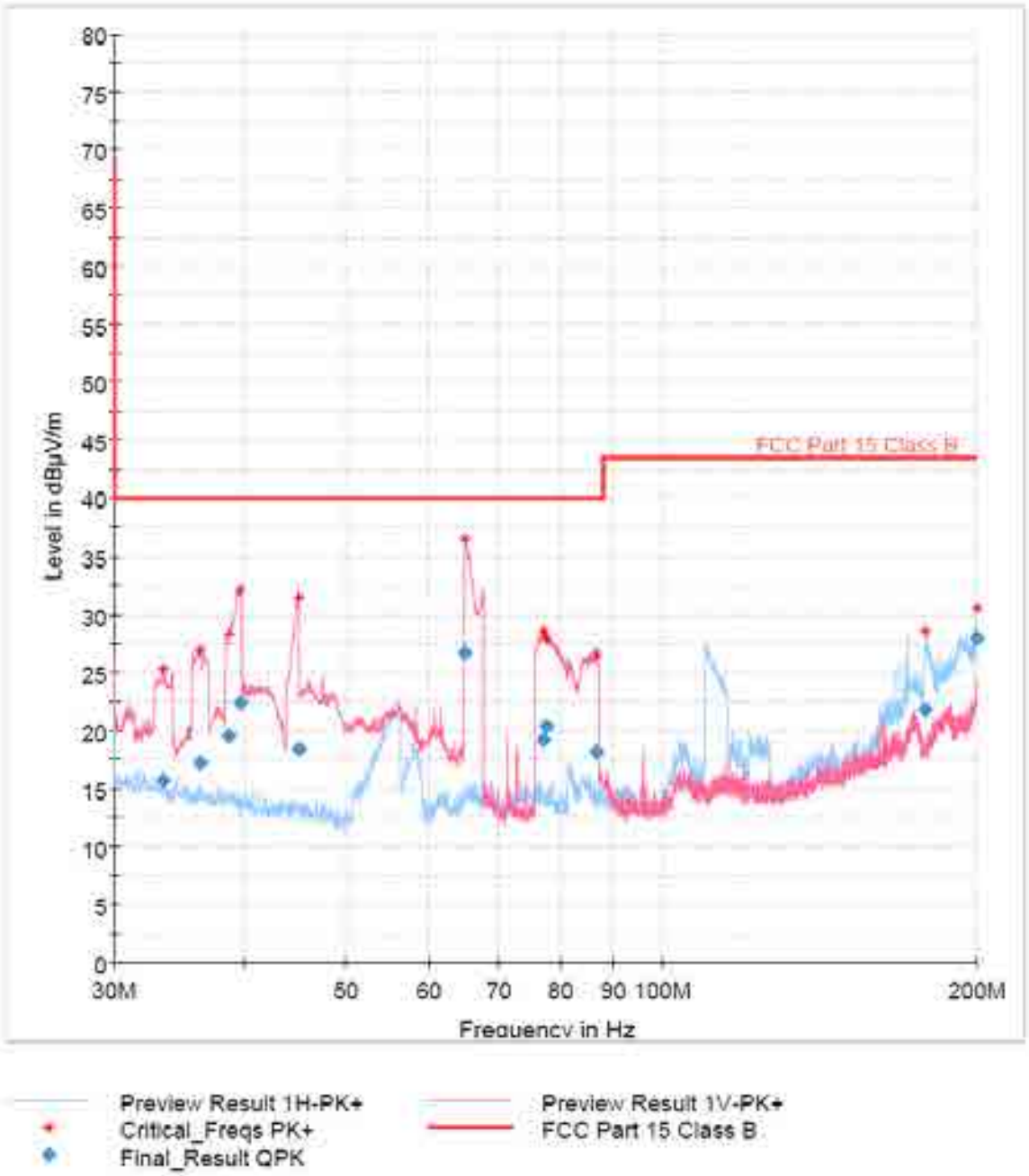
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
200.000000	30.87	43.50	12.63	100.0	H	104.0
63.260000	27.35	40.00	12.65	143.0	V	4.0
64.130000	26.40	40.00	13.60	100.0	V	4.0
59.990000	25.12	40.00	14.88	100.0	V	188.0
169.190000	28.34	43.50	15.17	123.0	H	171.0
56.420000	24.62	40.00	15.38	100.0	V	0.0
48.410000	23.83	40.00	16.17	100.0	V	351.0
49.910000	23.67	40.00	16.33	100.0	V	351.0
71.810000	19.19	40.00	20.81	214.0	H	353.0
37.790000	17.11	40.00	22.89	100.0	V	118.0
72.980000	13.95	40.00	26.05	250.0	H	353.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH32, FSK 75K

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

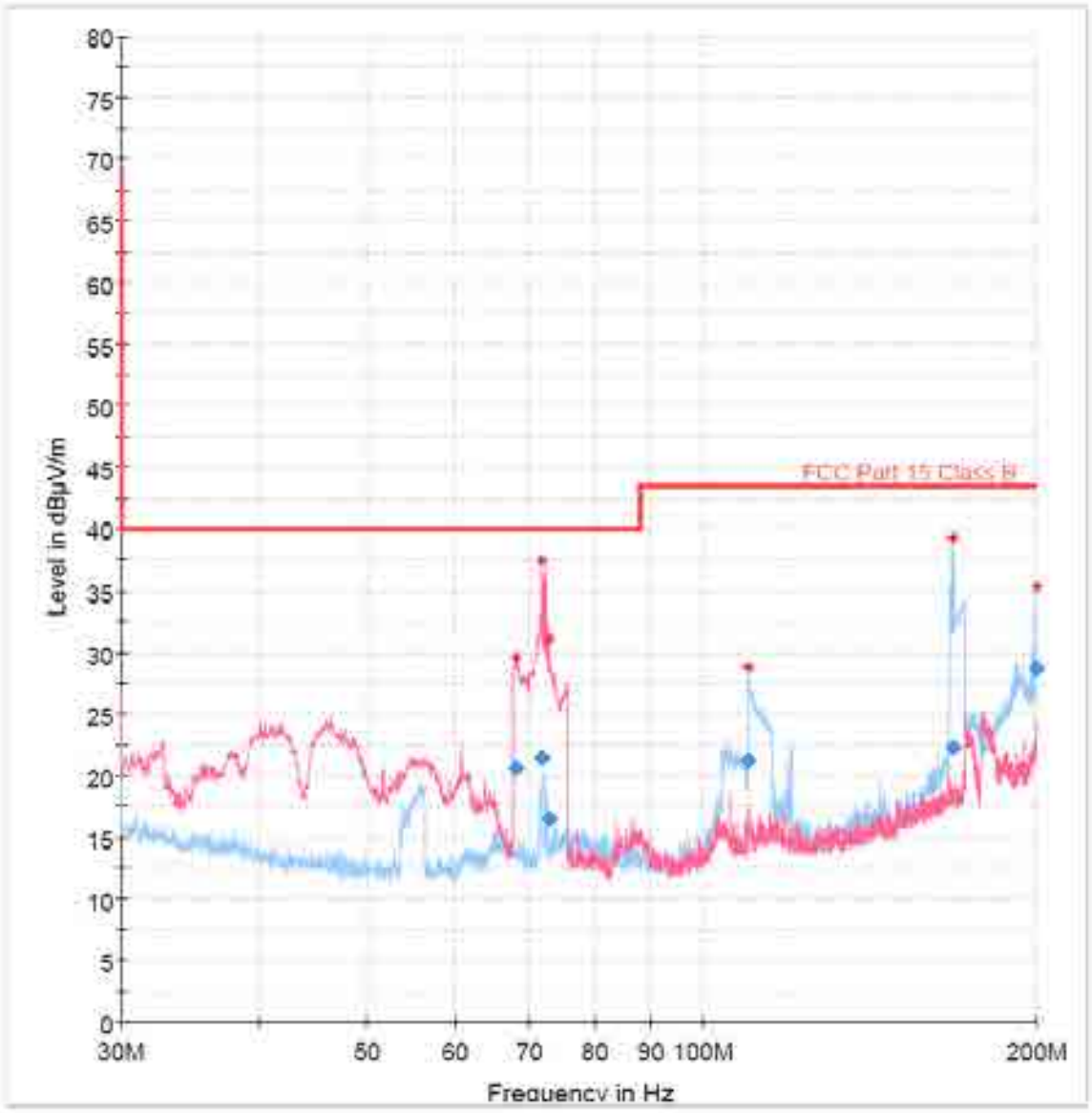
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
64.910000	26.65	40.00	13.35	150.0	V	8.0
200.000000	27.96	43.50	15.54	100.0	H	95.0
39.560000	22.33	40.00	17.67	105.0	V	262.0
77.480000	20.39	40.00	19.61	100.0	V	192.0
38.600000	19.51	40.00	20.49	104.0	V	262.0
77.000000	19.12	40.00	20.88	100.0	V	192.0
44.960000	18.37	40.00	21.63	150.0	V	31.0
178.340000	21.80	43.50	21.70	105.0	H	256.0
86.600000	18.08	40.00	21.92	100.0	V	169.0
36.200000	17.21	40.00	22.79	100.0	V	354.0
33.410000	15.72	40.00	24.28	104.0	V	308.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH64 FSK 75K

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

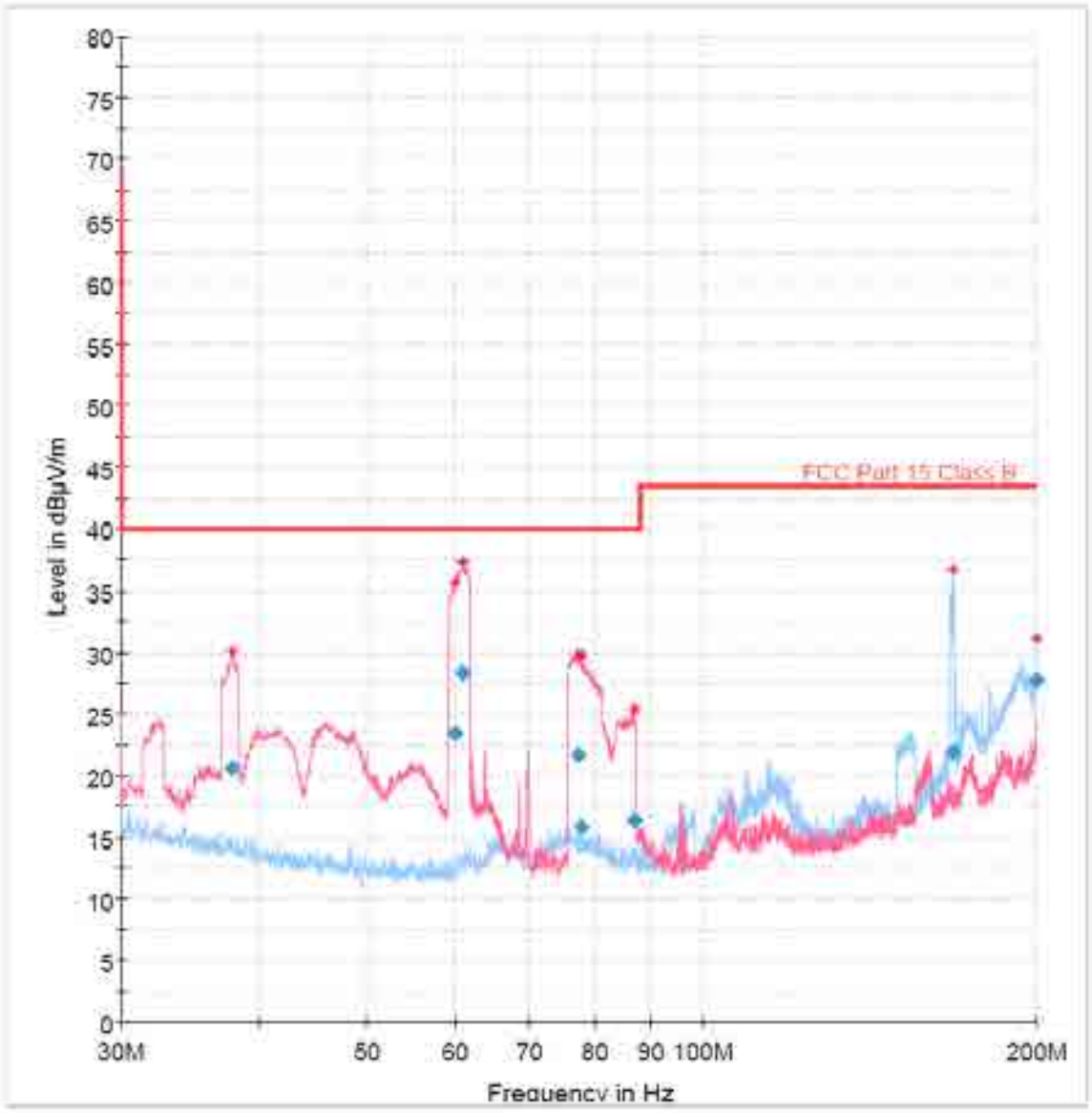
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
200.000000	28.63	43.50	14.87	100.0	H	107.0
71.720000	21.41	40.00	18.59	100.0	V	153.0
68.030000	20.55	40.00	19.45	100.0	V	225.0
168.140000	22.18	43.50	21.32	130.0	H	0.0
109.910000	21.22	43.50	22.28	150.0	H	0.0
72.630000	16.44	40.00	23.56	150.0	V	153.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH1, OFDM 50K

Full Spectrum



Riva 300-200M ODSM50K CH1 2 / 2

Final_Result

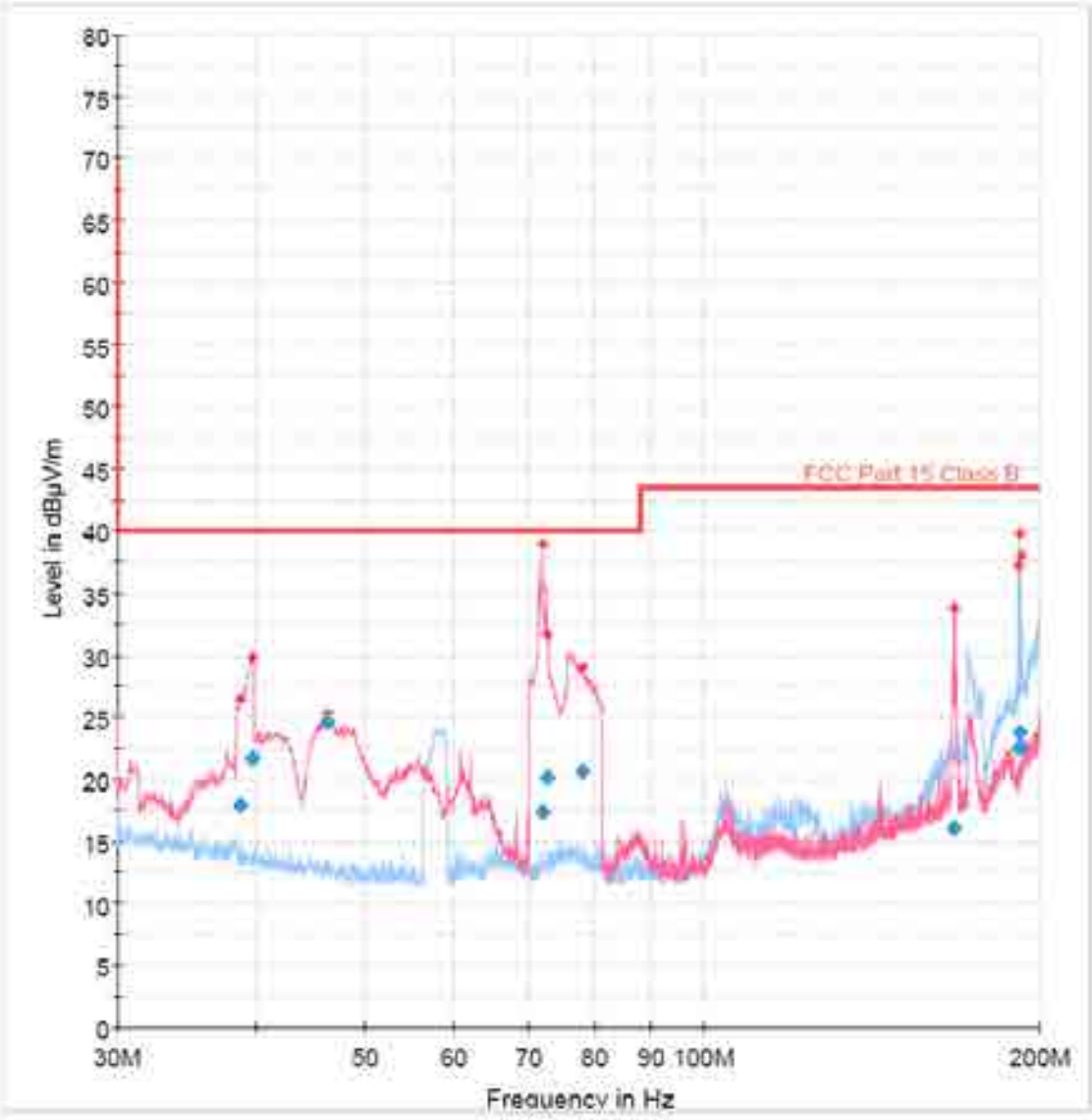
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
60.650000	28.26	40.00	11.74	105.0	V	313.0
199.970000	27.67	43.50	15.83	100.0	H	108.0
59.990000	23.44	40.00	16.56	131.0	V	313.0
77.240000	21.63	40.00	18.37	100.0	V	138.0
37.760000	20.60	40.00	19.40	100.0	V	211.0
168.020000	21.91	43.50	21.59	150.0	H	20.0
86.930000	16.43	40.00	23.57	104.0	V	298.0
77.720000	15.80	40.00	24.20	100.0	V	138.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH32, OFDM 50K

Full Spectrum



Riva 300-200M OFDM50K CH32 2 / 2

Final_Result

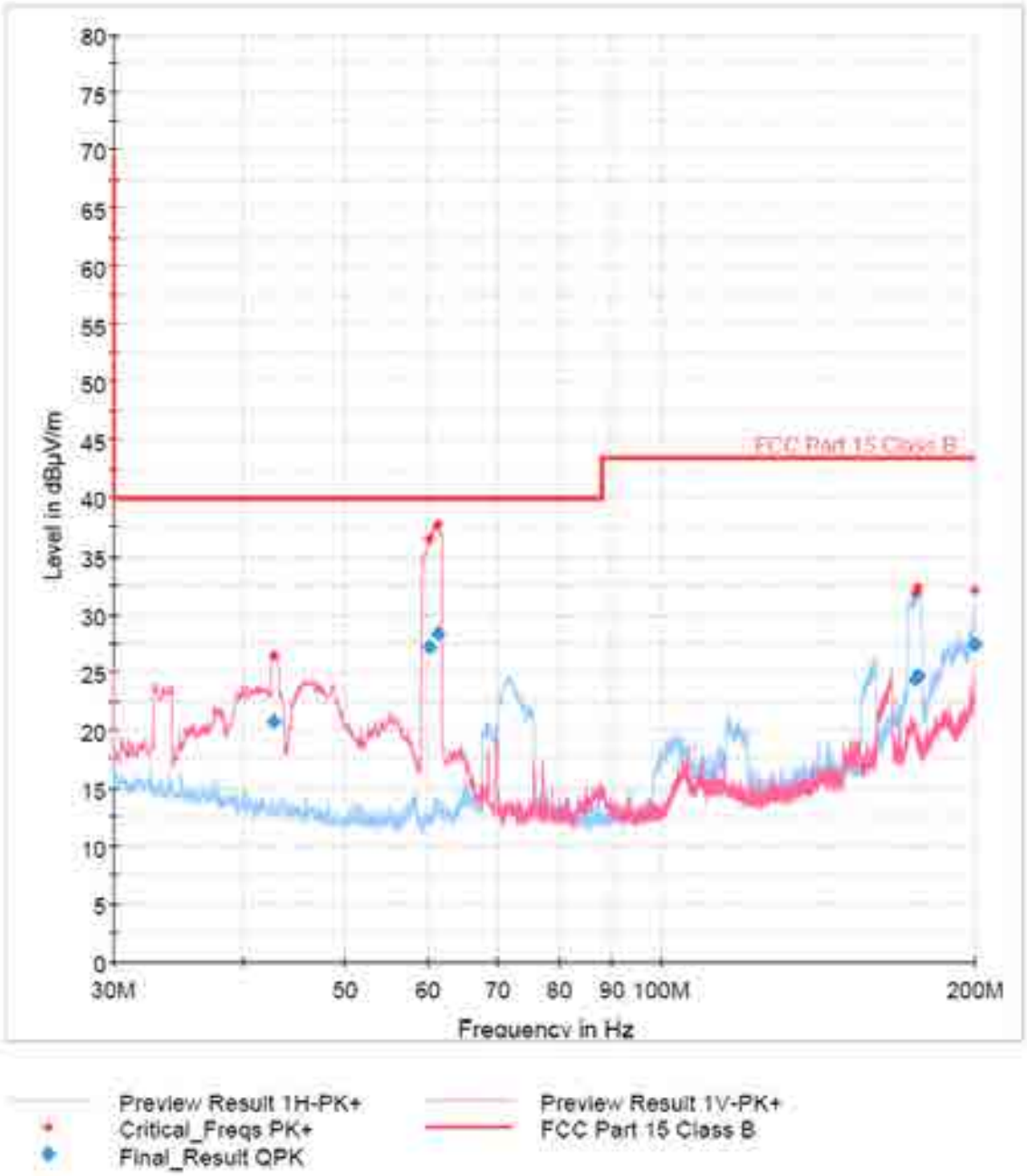
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
46.160000	24.53	40.00	15.47	100.0	V	4.0
39.620000	21.60	40.00	18.40	105.0	V	48.0
78.050000	20.60	40.00	19.40	100.0	V	0.0
192.020000	23.77	43.50	19.73	100.0	H	135.0
72.710000	20.13	40.00	19.87	150.0	V	0.0
192.590000	22.52	43.50	20.98	100.0	H	135.0
191.450000	22.42	43.50	21.08	100.0	H	135.0
38.600000	17.85	40.00	22.15	100.0	V	48.0
71.990000	17.28	40.00	22.72	100.0	V	355.0
167.720000	16.04	43.50	27.46	150.0	V	33.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH64, OFDM 50K

Full Spectrum



Riva 300-200M OFDM50K CH64 2 / 2

Final_Result

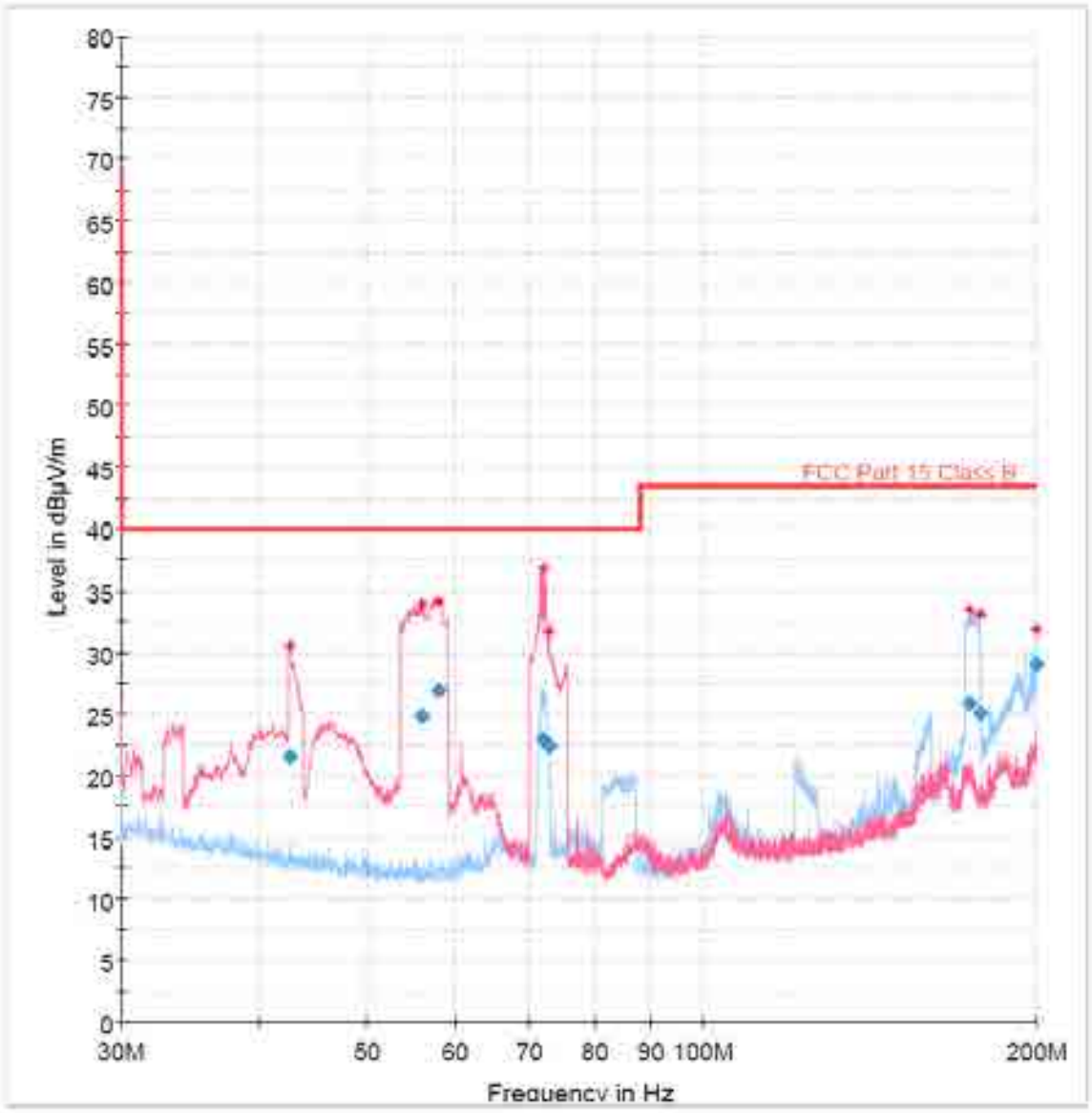
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
61.220000	28.28	40.00	11.72	100.0	V	152.0
60.050000	27.14	40.00	12.86	133.0	V	182.0
199.970000	27.32	43.50	16.18	100.0	H	91.0
176.600000	24.63	43.50	18.87	103.0	H	249.0
175.220000	24.35	43.50	19.15	150.0	H	249.0
42.650000	20.69	40.00	19.31	130.0	V	254.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH1, OFDM 600K

Full Spectrum



Riva 300-200M OFDM600K CH1 2 / 2

Final_Result

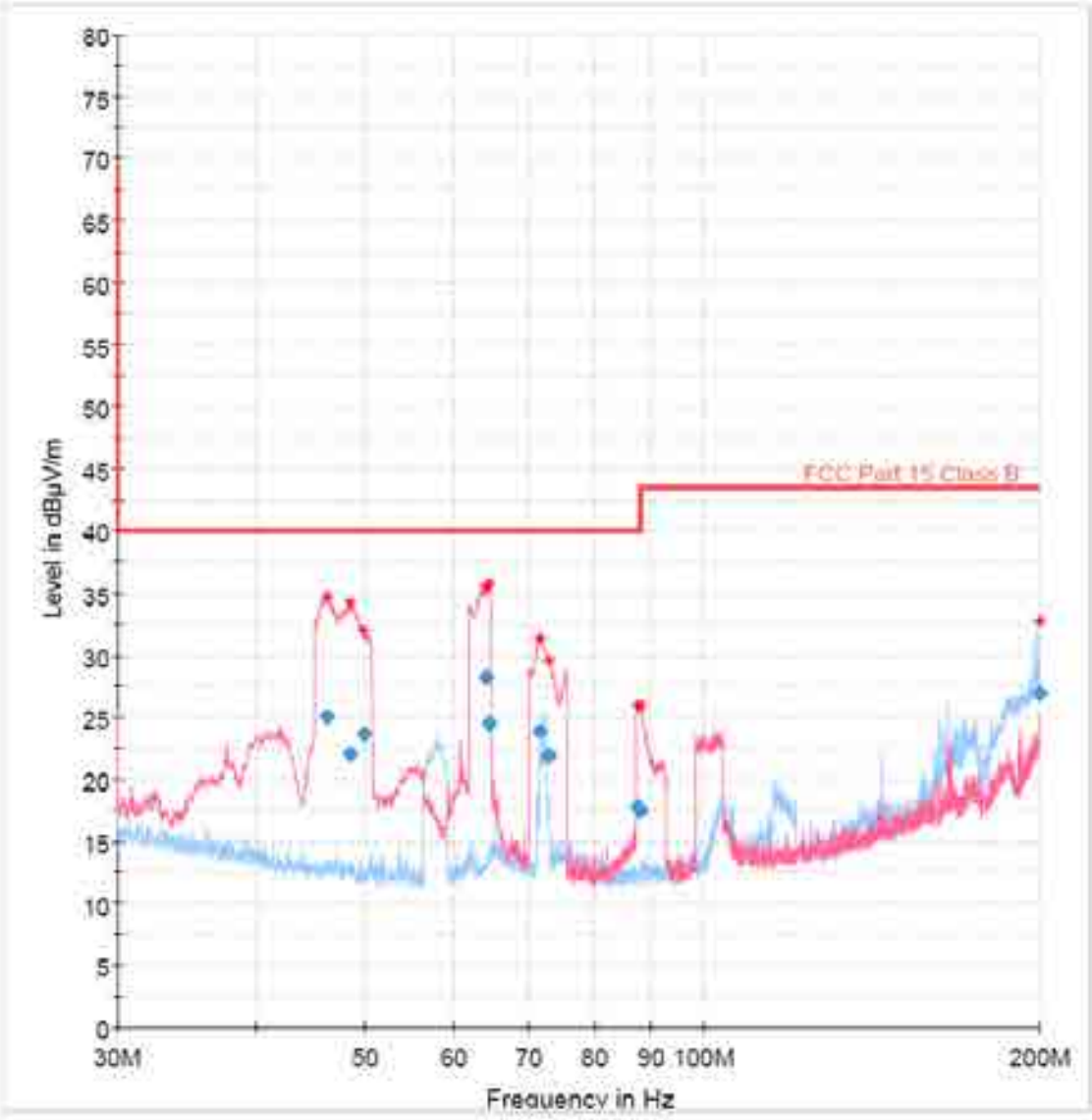
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
57.690000	26.93	40.00	13.07	100.0	V	119.0
200.000000	28.99	43.50	14.51	100.0	H	107.0
55.910000	24.75	40.00	15.25	102.0	V	221.0
71.870000	22.96	40.00	17.04	100.0	V	61.0
174.050000	25.87	43.50	17.63	132.0	H	180.0
72.740000	22.30	40.00	17.70	100.0	V	61.0
42.500000	21.56	40.00	18.44	100.0	V	192.0
178.100000	25.02	43.50	18.48	100.0	H	180.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH32, OFDM 600K

Full Spectrum



Riva 300-200M OFDM600K CH32 2 / 2

Final_Result

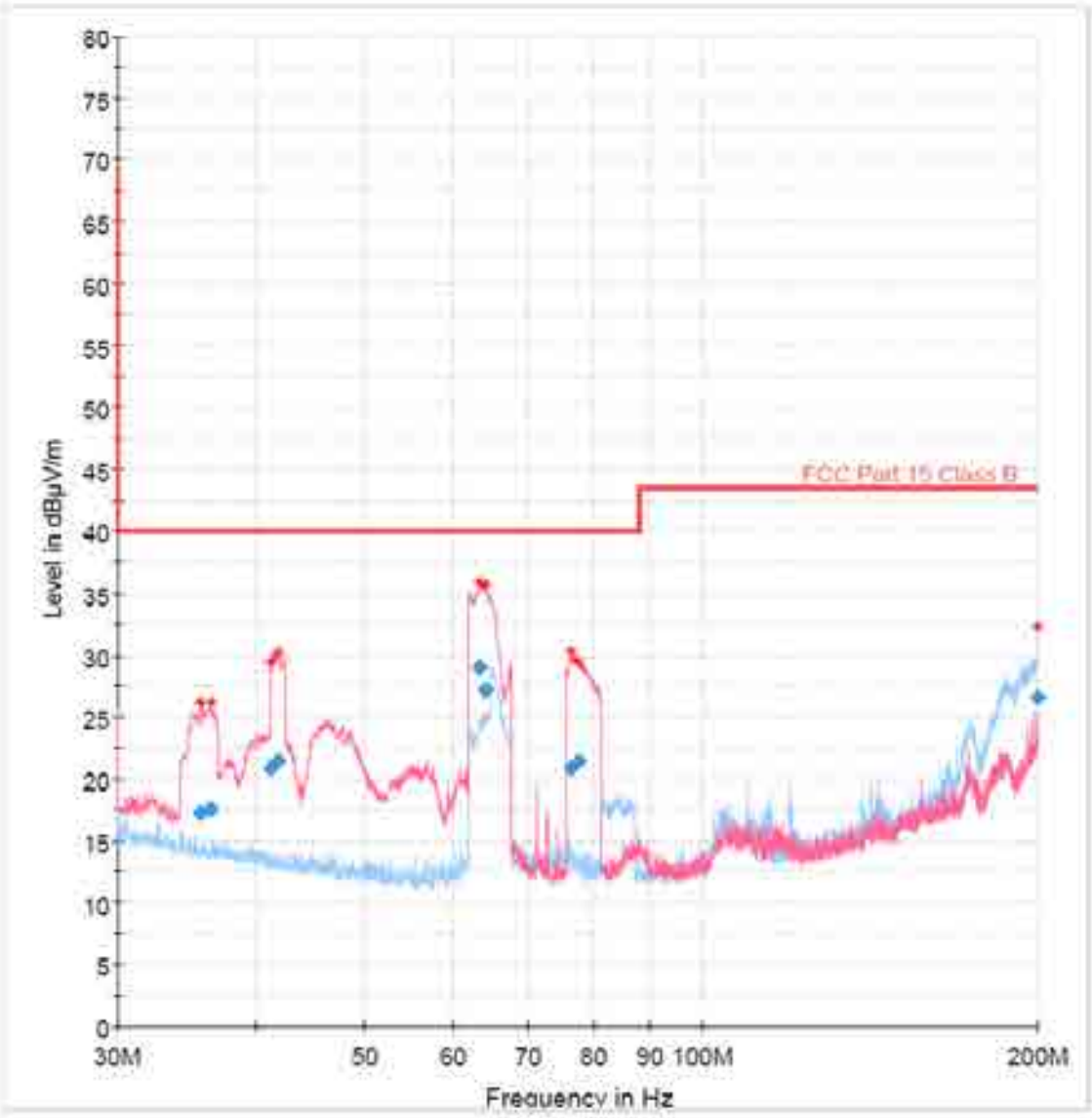
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
53.980000	28.15	40.00	11.84	106.0	V	180.0
46.190000	25.03	40.00	14.97	107.0	V	269.0
64.430000	24.47	40.00	15.53	103.0	V	180.0
71.480000	23.89	40.00	16.11	102.0	V	21.0
49.790000	23.62	40.00	16.38	102.0	V	36.0
199.970000	26.95	43.50	16.55	102.0	H	93.0
48.410000	21.93	40.00	18.07	102.0	V	36.0
72.860000	21.90	40.00	18.10	102.0	V	21.0
87.410000	17.81	40.00	22.19	102.0	V	165.0
87.980000	17.45	40.00	22.55	102.0	V	165.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH64, OFDM 600K

Full Spectrum



Riva 300-200M OFDM600K CH64 2 / 2

Final_Result

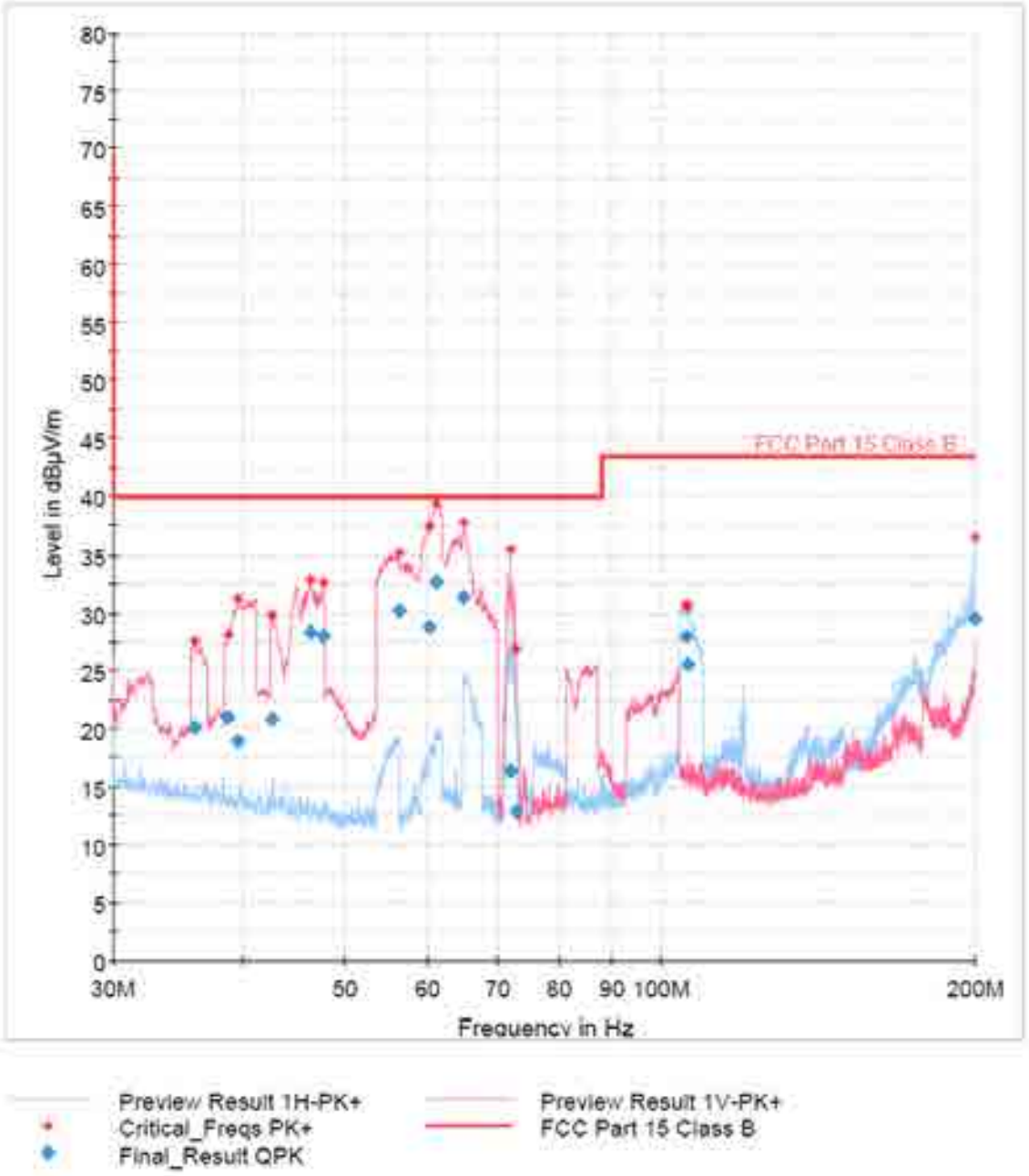
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
63.290000	29.00	40.00	11.00	100.0	V	181.0
64.100000	27.11	40.00	12.89	100.0	V	181.0
200.000000	26.51	43.50	16.99	100.0	H	107.0
77.480000	21.39	40.00	18.61	100.0	V	137.0
41.720000	21.38	40.00	18.62	100.0	V	108.0
41.060000	20.82	40.00	19.18	100.0	V	108.0
76.310000	20.77	40.00	19.23	100.0	V	137.0
36.290000	17.50	40.00	22.50	100.0	V	0.0
35.570000	17.24	40.00	22.76	100.0	V	0.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH1, DSSS 6.25K

Full Spectrum



Final_Result

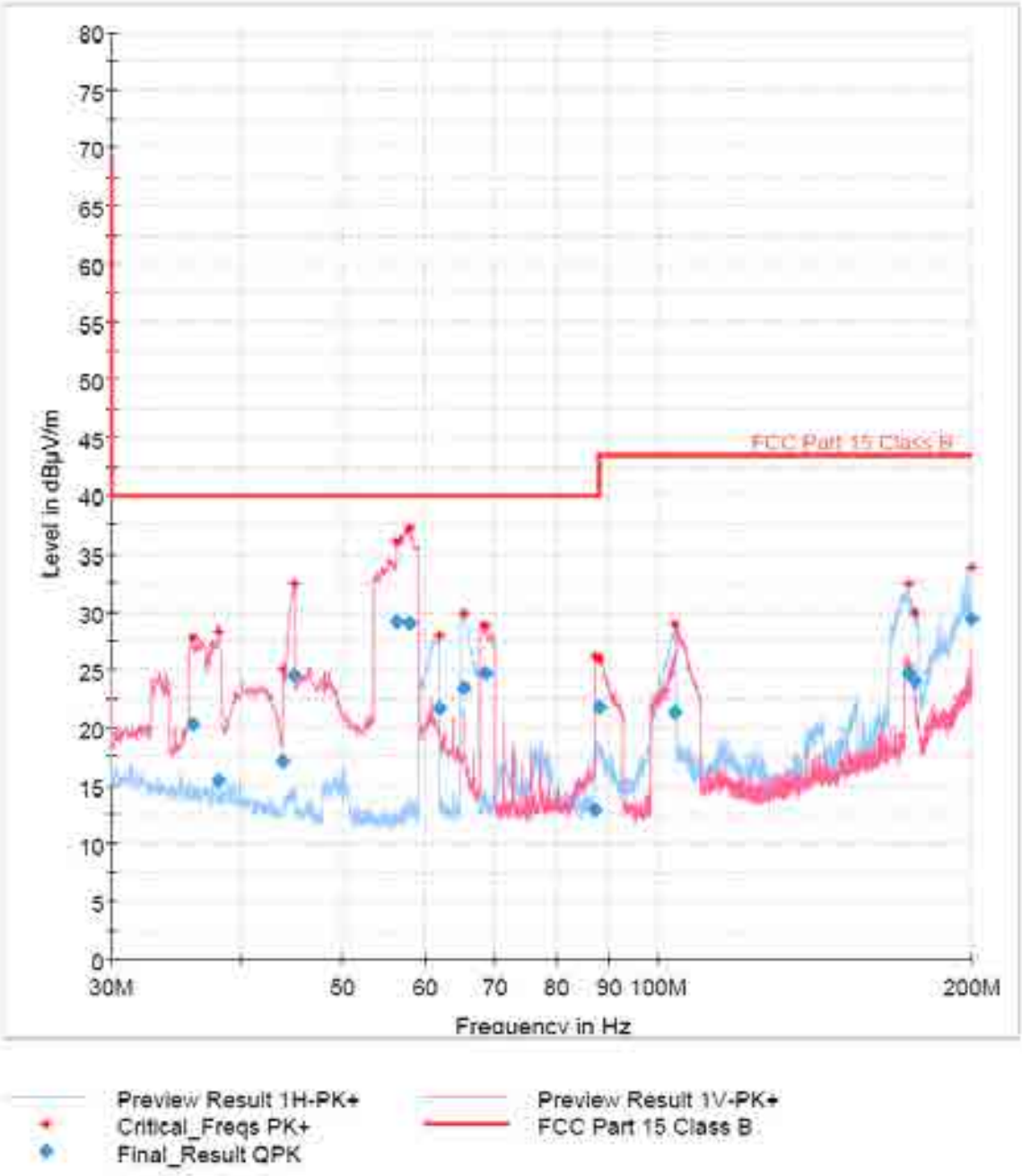
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
61.100000	32.63	40.00	7.37	130.0	V	50.0
64.790000	31.31	40.00	8.69	150.0	V	122.0
56.240000	30.14	40.00	9.86	104.0	V	166.0
60.050000	28.79	40.00	11.21	105.0	V	50.0
46.280000	28.35	40.00	11.65	100.0	V	35.0
47.600000	28.00	40.00	12.00	100.0	V	35.0
200.000000	29.48	43.50	14.02	150.0	H	106.0
105.980000	27.90	43.50	15.60	150.0	H	151.0
106.340000	25.52	43.50	17.98	104.0	H	151.0
38.600000	20.93	40.00	19.07	100.0	V	224.0
42.500000	20.77	40.00	19.23	104.0	V	93.0
35.840000	20.14	40.00	19.86	105.0	V	0.0
39.500000	19.00	40.00	21.00	105.0	V	224.0
71.990000	16.39	40.00	23.61	150.0	V	282.0
72.770000	12.89	40.00	27.11	128.0	V	297.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH32, DSSS 6.25K

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

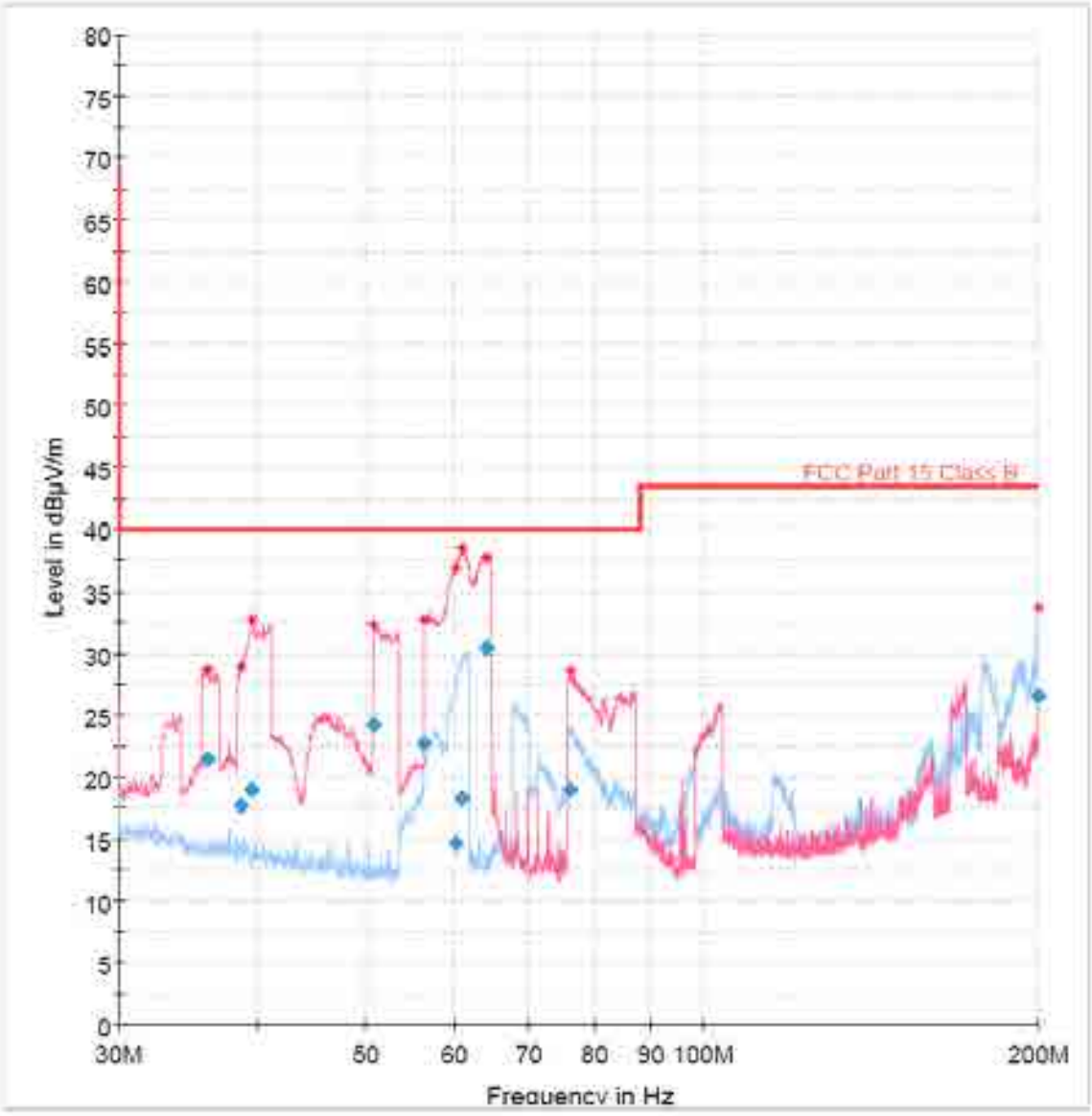
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
56.330000	29.17	40.00	10.83	100.0	V	124.0
57.860000	29.01	40.00	10.99	100.0	V	124.0
200.000000	29.31	43.50	14.19	100.0	H	122.0
68.480000	24.64	40.00	15.36	100.0	V	241.0
44.900000	24.41	40.00	15.59	100.0	V	6.0
65.240000	23.44	40.00	16.56	100.0	H	0.0
87.950000	21.72	40.00	18.28	100.0	V	0.0
61.910000	21.60	40.00	18.40	100.0	H	34.0
173.990000	24.72	43.50	18.78	100.0	H	296.0
176.240000	23.99	43.50	19.51	100.0	H	296.0
35.840000	20.26	40.00	19.74	100.0	V	327.0
104.030000	21.24	43.50	22.26	100.0	H	122.0
43.820000	17.07	40.00	22.93	100.0	V	6.0
38.030000	15.45	40.00	24.55	100.0	V	94.0
87.290000	12.87	40.00	27.13	100.0	V	0.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH64, DSSS 6.25K

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

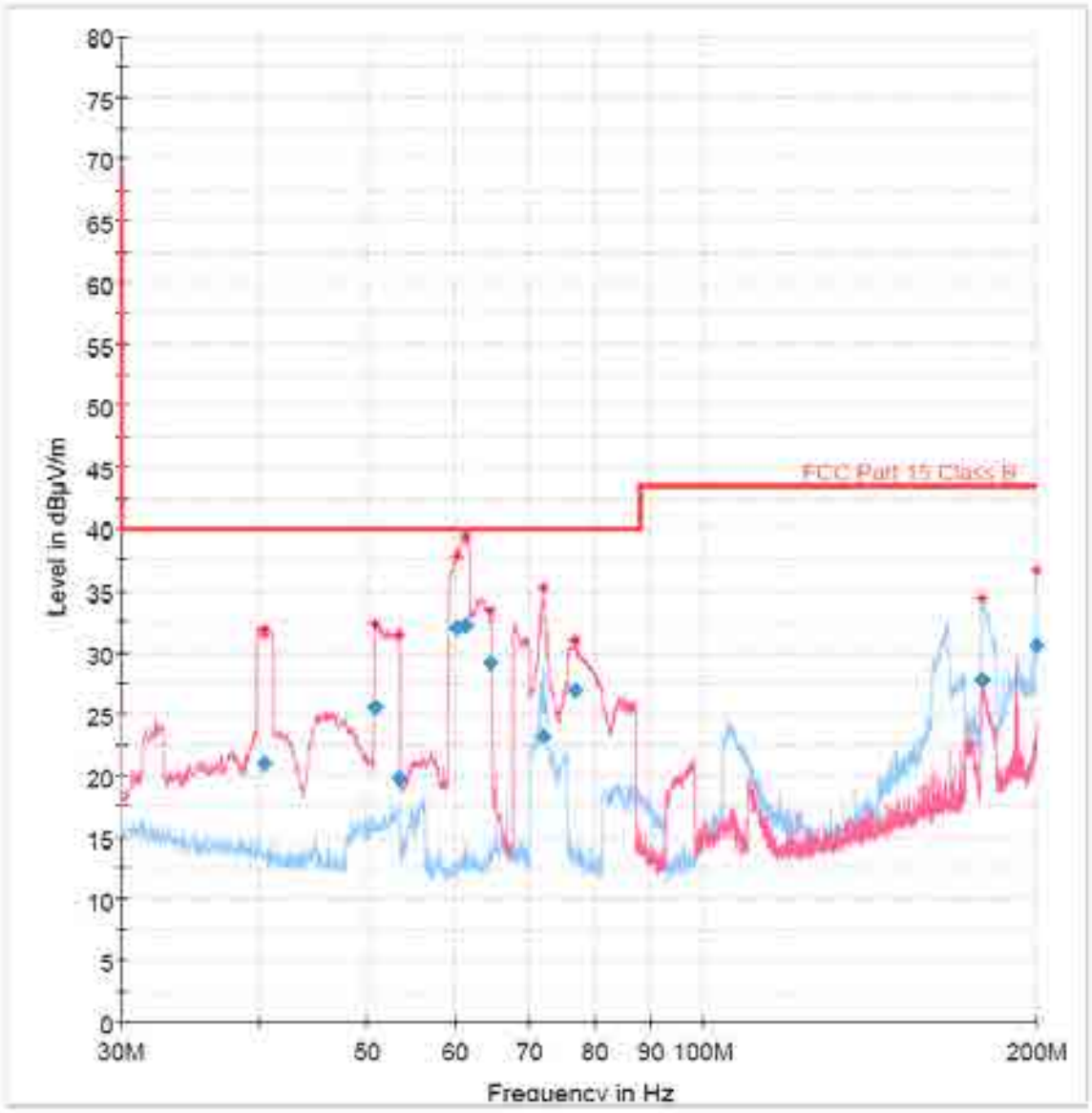
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
64.100000	30.36	40.00	9.64	100.0	V	133.0
50.660000	24.22	40.00	15.78	100.0	V	294.0
199.940000	26.56	43.50	16.94	100.0	H	139.0
56.360000	22.65	40.00	17.35	100.0	V	294.0
36.020000	21.39	40.00	18.61	100.0	V	193.0
76.070000	18.94	40.00	21.06	100.0	V	207.0
39.500000	18.93	40.00	21.07	100.0	V	294.0
60.980000	18.23	40.00	21.77	100.0	V	0.0
38.600000	17.63	40.00	22.37	100.0	V	294.0
60.050000	14.61	40.00	25.39	100.0	V	0.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH1, DSSS 50K

Full Spectrum



Riva 300-200M DSSS50K CH1 2 / 2

Final_Result

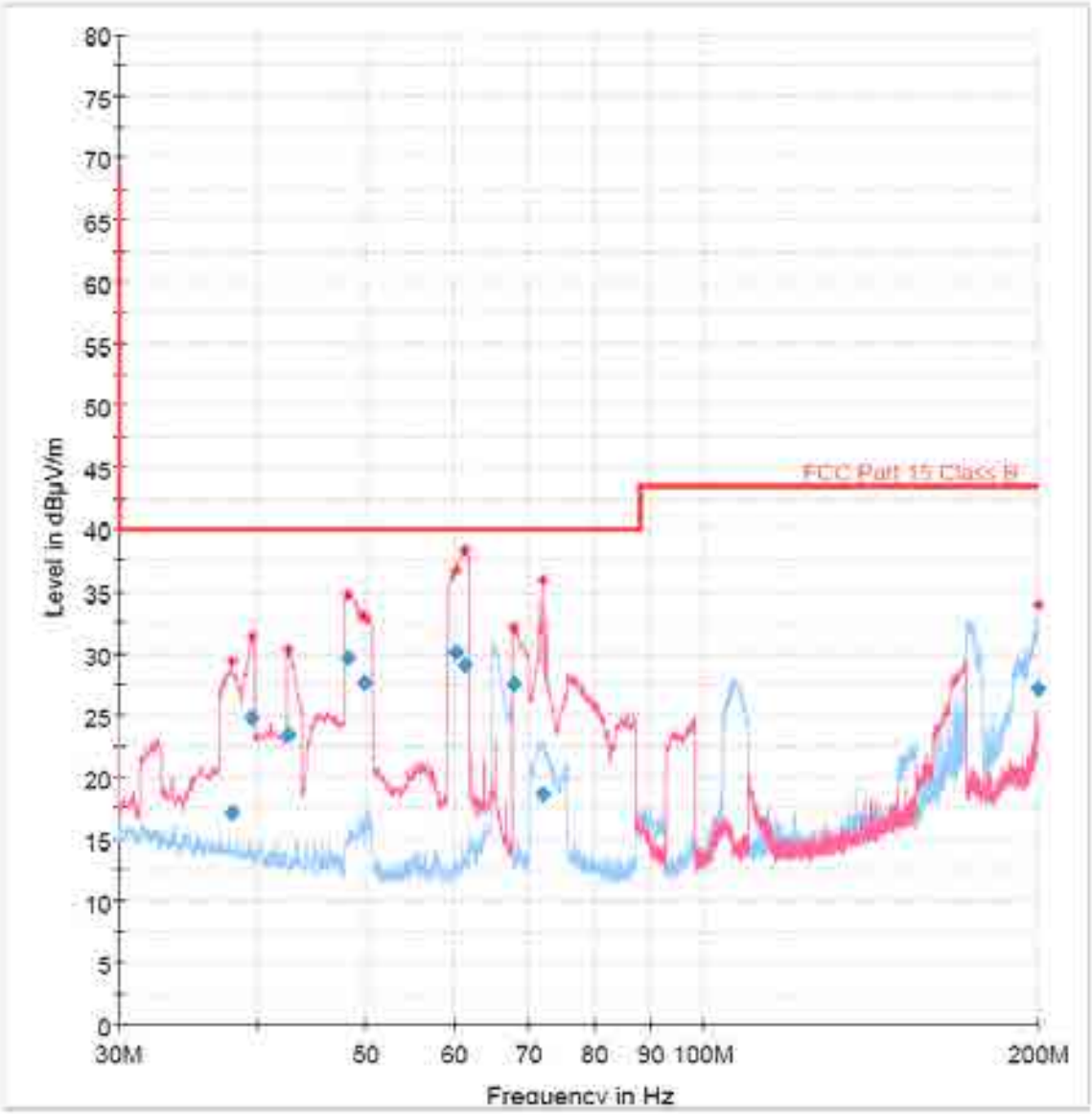
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
61.190000	32.13	40.00	7.87	100.0	V	80.0
60.110000	31.96	40.00	8.04	100.0	V	80.0
64.340000	29.15	40.00	10.85	100.0	V	284.0
200.000000	30.48	43.50	13.02	100.0	H	106.0
76.790000	26.88	40.00	13.12	100.0	V	95.0
50.810000	25.49	40.00	14.51	100.0	V	240.0
178.700000	27.75	43.50	15.75	100.0	H	121.0
71.990000	23.14	40.00	16.86	100.0	V	240.0
40.340000	20.91	40.00	19.09	100.0	V	0.0
53.330000	19.78	40.00	20.22	100.0	V	284.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH32, DSSS 50K

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

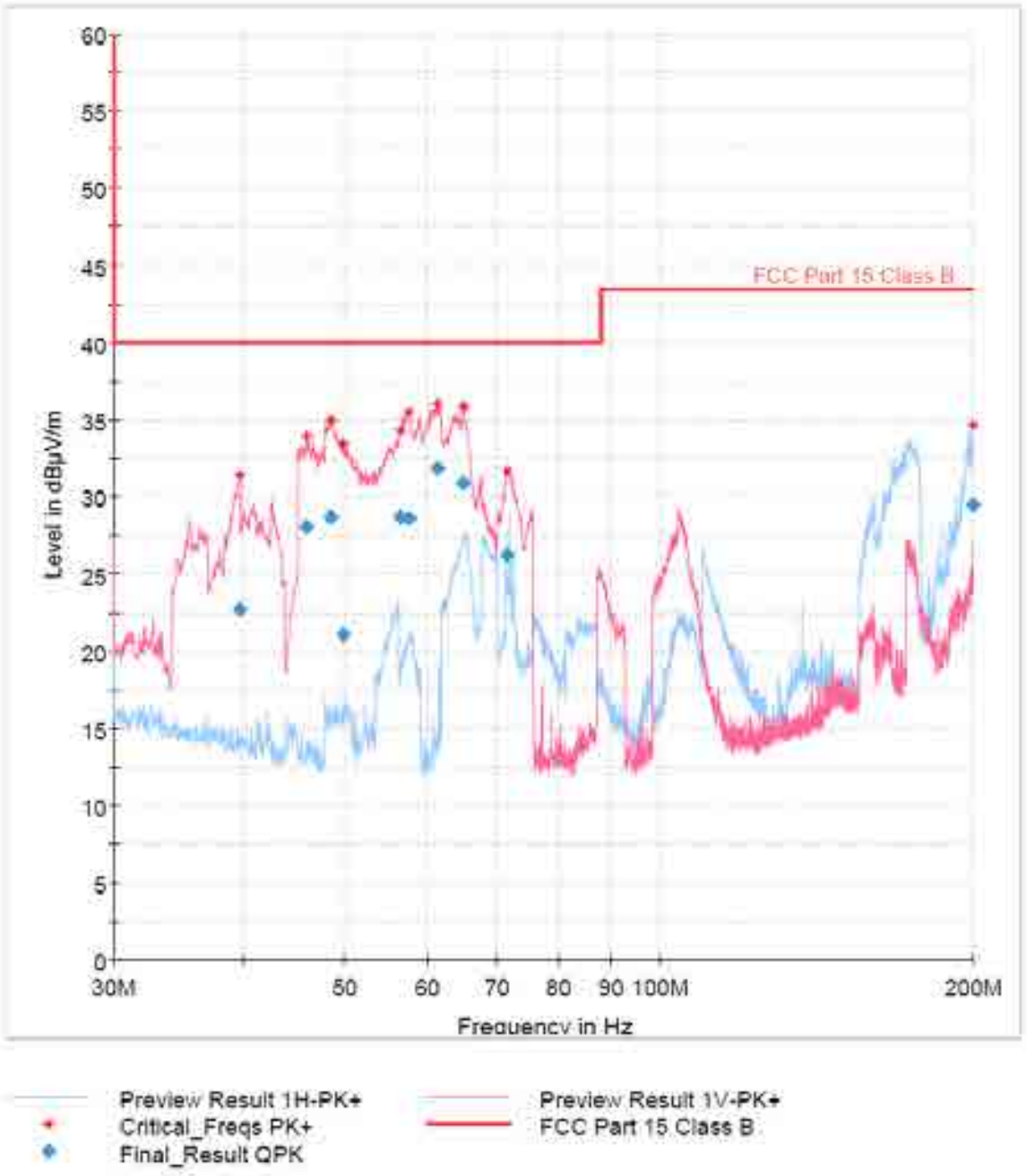
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
60.110000	30.02	40.00	9.98	100.0	V	0.0
48.140000	29.56	40.00	10.44	100.0	V	283.0
61.310000	28.98	40.00	11.02	100.0	V	0.0
49.750000	27.65	40.00	12.35	100.0	V	283.0
67.670000	27.51	40.00	12.49	100.0	V	78.0
39.440000	24.81	40.00	15.19	100.0	V	64.0
200.000000	27.11	43.50	16.39	100.0	H	77.0
42.500000	23.39	40.00	16.61	100.0	V	269.0
71.990000	18.57	40.00	21.43	100.0	V	210.0
37.850000	17.12	40.00	22.88	100.0	V	64.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH64, DSSS 50K

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

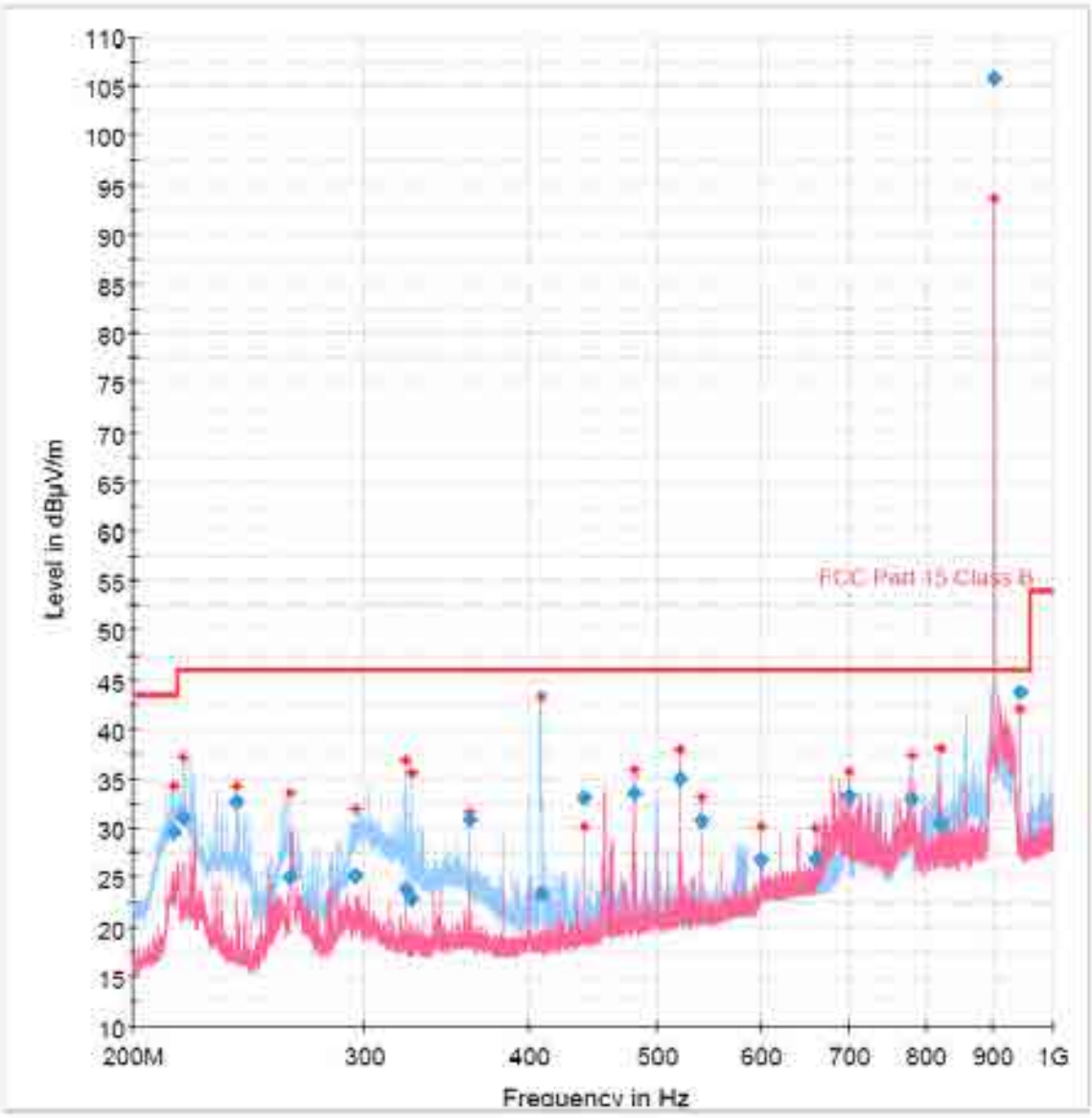
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
61.220000	31.82	40.00	8.18	131.0	V	298.0
64.910000	30.86	40.00	9.14	250.0	V	307.0
56.390000	28.66	40.00	11.34	100.0	V	96.0
48.410000	28.65	40.00	11.35	150.0	V	153.0
57.500000	28.64	40.00	11.36	100.0	V	96.0
45.860000	28.06	40.00	11.94	150.0	V	255.0
71.600000	26.22	40.00	13.78	128.0	V	96.0
200.000000	29.51	43.50	13.99	100.0	H	107.0
39.590000	22.69	40.00	17.31	150.0	V	139.0
49.790000	21.02	40.00	18.98	150.0	V	153.0

Radiated emission

EUT Information

Model:	Itron Dev Mini
OP Condition	CH1, FSK 75k

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

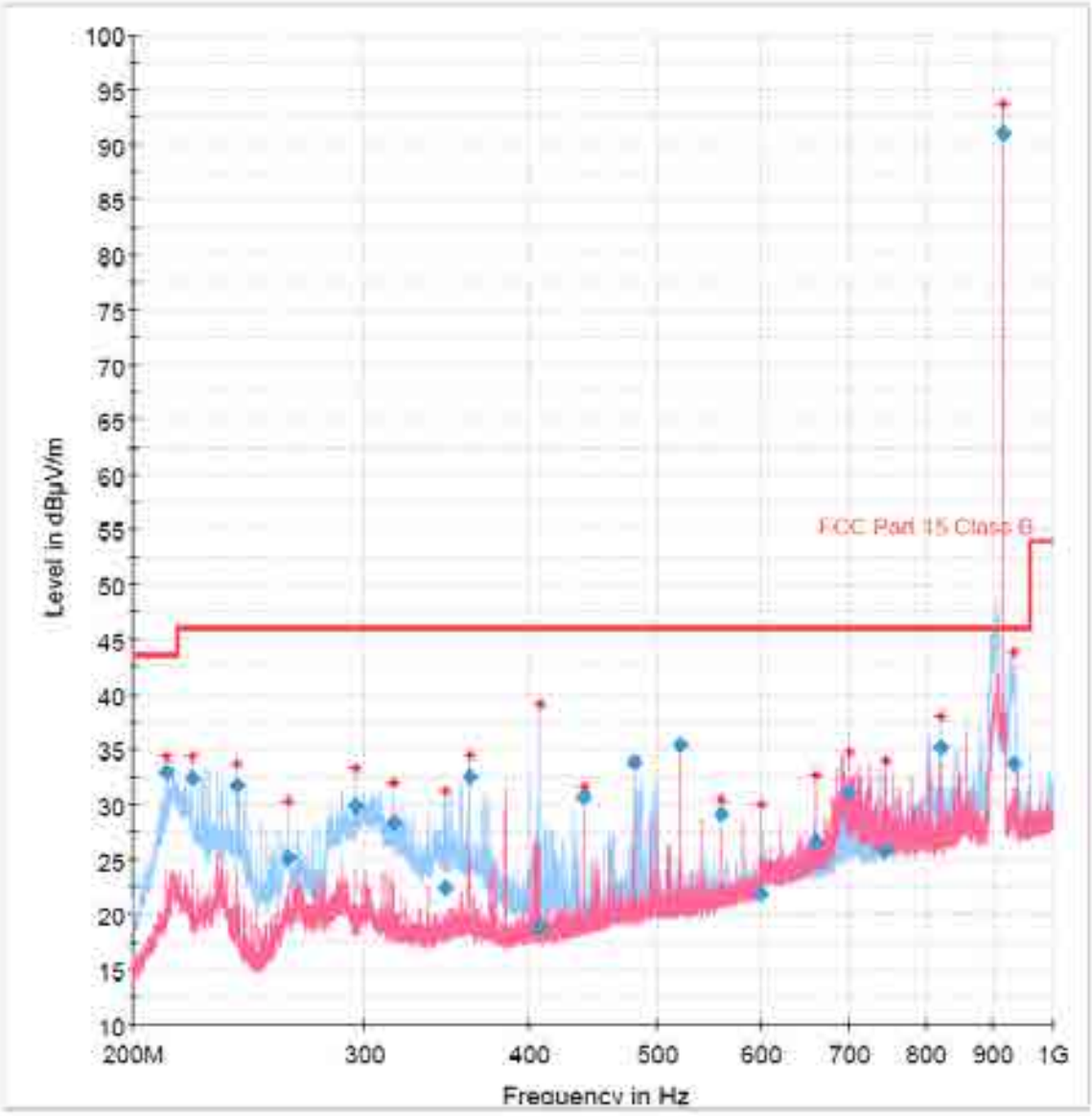
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
902.340000	105.74	46.00	-59.74	350.0	V	327.0
942.360000	43.75	46.00	2.25	100.0	H	69.0
519.990000	35.07	46.00	10.93	100.0	V	234.0
480.000000	33.48	46.00	12.52	100.0	V	263.0
699.990000	33.24	46.00	12.76	100.0	V	34.0
440.010000	33.04	46.00	12.96	100.0	H	296.0
780.000000	32.94	46.00	13.06	103.0	H	69.0
240.000000	32.68	46.00	13.32	100.0	H	97.0
214.650000	29.64	43.50	13.86	105.0	H	69.0
218.250000	31.00	46.00	15.00	155.0	H	92.0
360.000000	30.85	46.00	15.15	100.0	H	97.0
540.000000	30.73	46.00	15.27	100.0	V	234.0
819.990000	30.42	46.00	15.58	102.0	H	296.0
660.000000	26.93	46.00	19.07	275.0	H	0.0
600.000000	26.78	46.00	19.22	100.0	V	62.0
294.930000	25.20	46.00	20.80	104.0	H	0.0
263.250000	25.01	46.00	20.99	150.0	H	296.0
321.900000	23.92	46.00	22.08	100.0	H	69.0
408.000000	23.26	46.00	22.74	100.0	H	296.0
325.410000	22.88	46.00	23.12	100.0	H	69.0

Radiated emission

EUT Information

Model:	Itron Dev Mini
OP Condition	CH32, FSK 75K

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

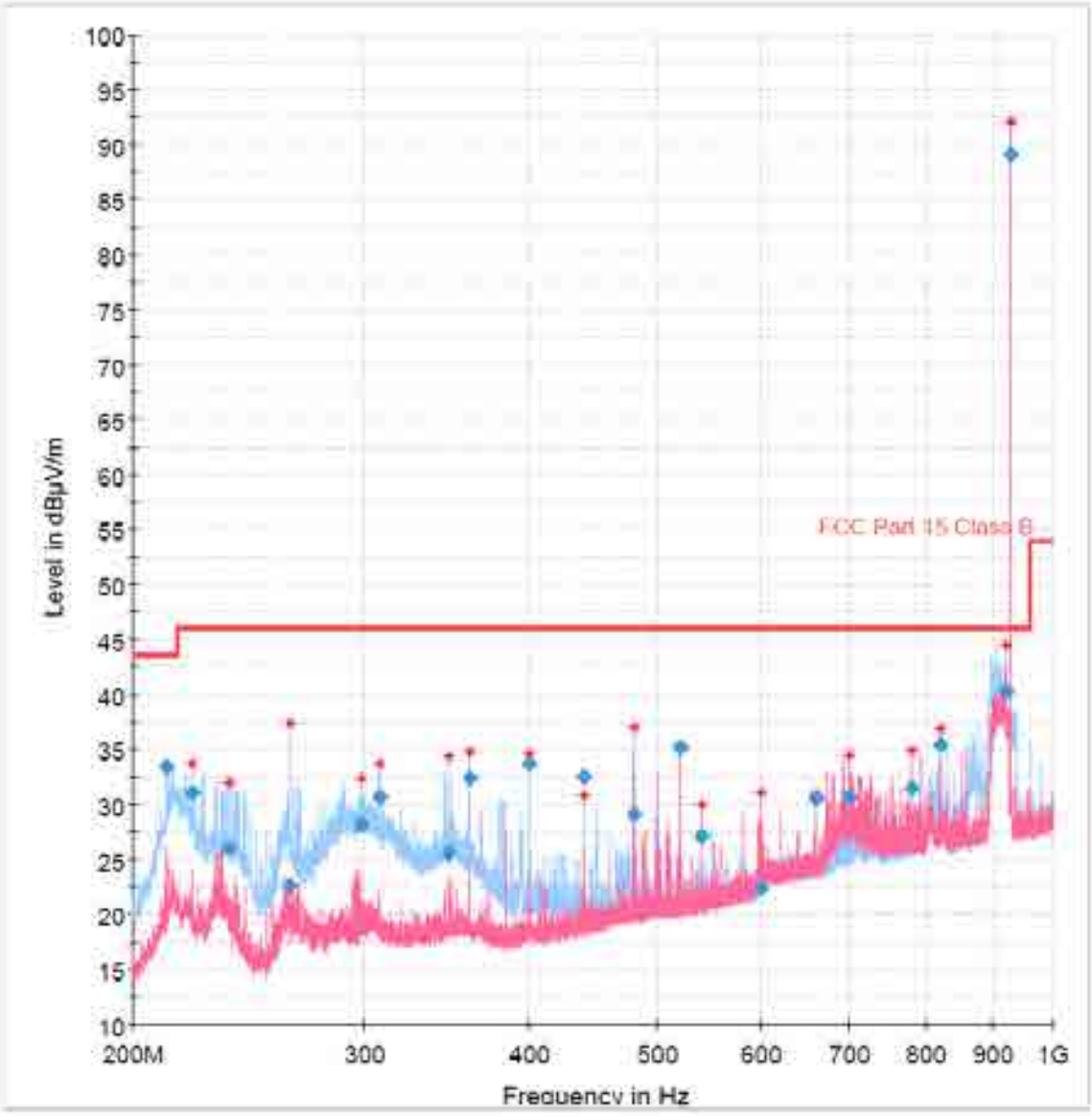
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
915.240000	91.10	46.00	-45.10	400.0	V	319.0
519.990000	35.38	46.00	10.62	100.0	V	238.0
212.340000	32.85	43.50	10.65	102.0	H	95.0
819.990000	35.10	46.00	10.90	105.0	H	353.0
480.000000	33.85	46.00	12.15	194.0	H	96.0
932.580000	33.66	46.00	12.34	100.0	H	239.0
360.000000	32.50	46.00	13.50	100.0	H	211.0
221.850000	32.39	46.00	13.61	103.0	H	95.0
240.000000	31.66	46.00	14.34	125.0	H	95.0
699.990000	31.04	46.00	14.96	145.0	V	326.0
440.010000	30.70	46.00	15.30	250.0	H	297.0
295.200000	29.85	46.00	16.15	104.0	H	325.0
560.010000	29.06	46.00	16.94	100.0	V	326.0
315.240000	28.27	46.00	17.73	100.0	H	34.0
660.000000	26.55	46.00	19.45	150.0	V	96.0
746.190000	25.85	46.00	20.15	100.0	H	5.0
262.380000	25.07	46.00	20.93	100.0	H	0.0
345.750000	22.35	46.00	23.65	105.0	H	34.0
600.000000	21.88	46.00	24.12	145.0	V	96.0
407.310000	18.84	46.00	27.16	100.0	H	325.0

Radiated emission

EUT Information

Model:	Itron Dev Mini
OP Condition	CH64, FSK 75k

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
927.630000	89.12	46.00	-43.12	350.0	V	288.0
919.980000	40.28	46.00	5.72	100.0	H	0.0
212.340000	33.47	43.50	10.03	150.0	H	93.0
819.990000	35.40	46.00	10.60	100.0	H	61.0
519.990000	35.15	46.00	10.85	100.0	V	241.0
400.020000	33.63	46.00	12.37	100.0	H	292.0
440.010000	32.46	46.00	13.54	100.0	H	292.0
360.000000	32.38	46.00	13.62	100.0	H	206.0
780.000000	31.47	46.00	14.53	100.0	V	241.0
221.760000	31.06	46.00	14.94	146.0	H	91.0
307.590000	30.71	46.00	15.29	100.0	H	6.0
699.990000	30.68	46.00	15.32	100.0	V	100.0
660.000000	30.47	46.00	15.53	100.0	V	241.0
480.000000	29.13	46.00	16.87	214.0	H	38.0
298.050000	28.22	46.00	17.78	103.0	H	0.0
540.000000	27.15	46.00	18.85	124.0	V	354.0
236.250000	26.02	46.00	19.98	250.0	H	260.0
347.250000	25.50	46.00	20.50	100.0	H	91.0
263.340000	22.58	46.00	23.42	150.0	H	354.0
600.000000	22.31	46.00	23.69	150.0	V	73.0

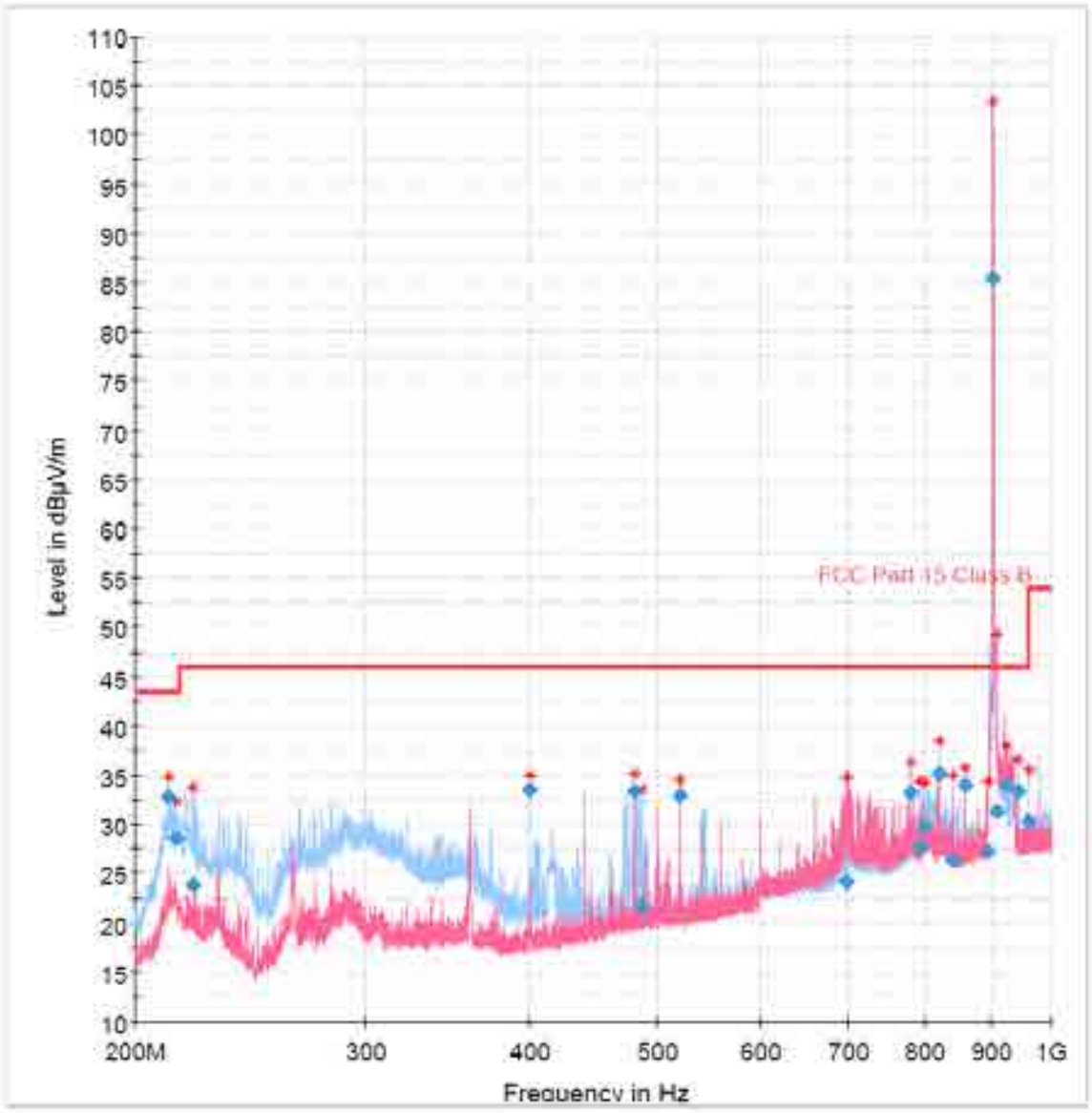
EMI Auto Test(1) 1 / 2

Radiated emission

EUT Information

Model:	Itron Dev Mini
OP Condition	CH1, OFDM 50K

Full Spectrum



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Final_Result

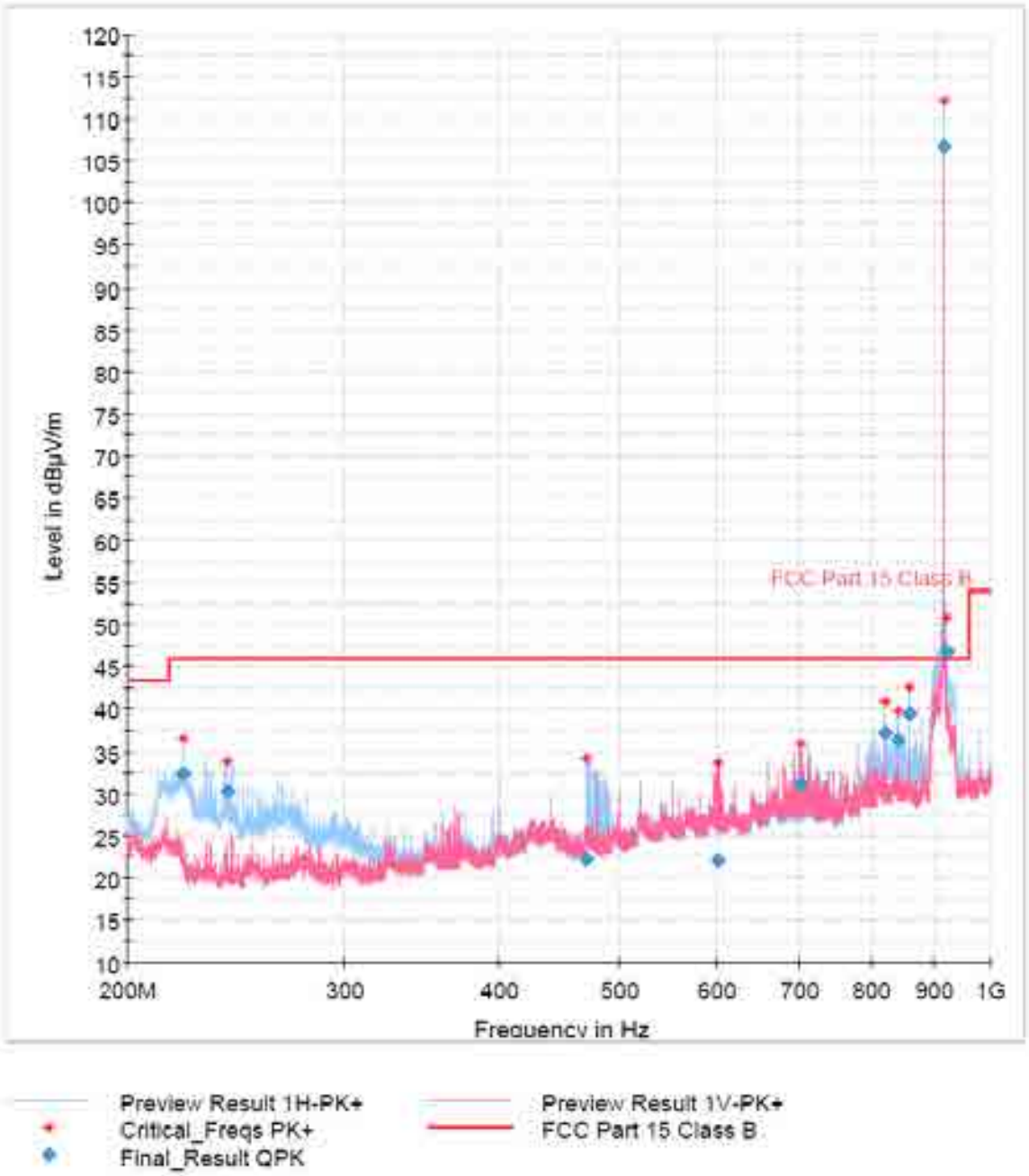
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
902.430000	85.48	46.00	-39.48	253.0	V	354.0
212.340000	32.75	43.50	10.75	106.0	H	95.0
819.990000	36.17	46.00	10.83	100.0	H	7.0
860.010000	33.99	46.00	12.01	100.0	H	0.0
923.880000	33.93	46.00	12.07	105.0	V	0.0
400.020000	33.54	46.00	12.46	100.0	H	290.0
480.000000	33.45	46.00	12.55	193.0	H	296.0
942.330000	33.45	46.00	12.55	100.0	H	95.0
780.000000	33.31	46.00	12.69	100.0	V	239.0
519.990000	32.97	46.00	13.03	100.0	V	354.0
908.310000	31.36	46.00	14.64	104.0	V	182.0
214.710000	28.64	43.50	14.86	154.0	H	296.0
959.970000	30.37	46.00	15.63	100.0	H	35.0
799.980000	29.78	46.00	16.22	100.0	H	7.0
794.040000	27.66	46.00	18.34	100.0	H	7.0
893.340000	27.32	46.00	18.68	252.0	H	35.0
840.000000	26.45	46.00	19.55	196.0	H	296.0
698.790000	24.15	46.00	21.85	145.0	V	38.0
221.280000	23.83	46.00	22.17	152.0	H	149.0
486.750000	21.75	46.00	24.25	176.0	H	3.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH32, OFDM 50K

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

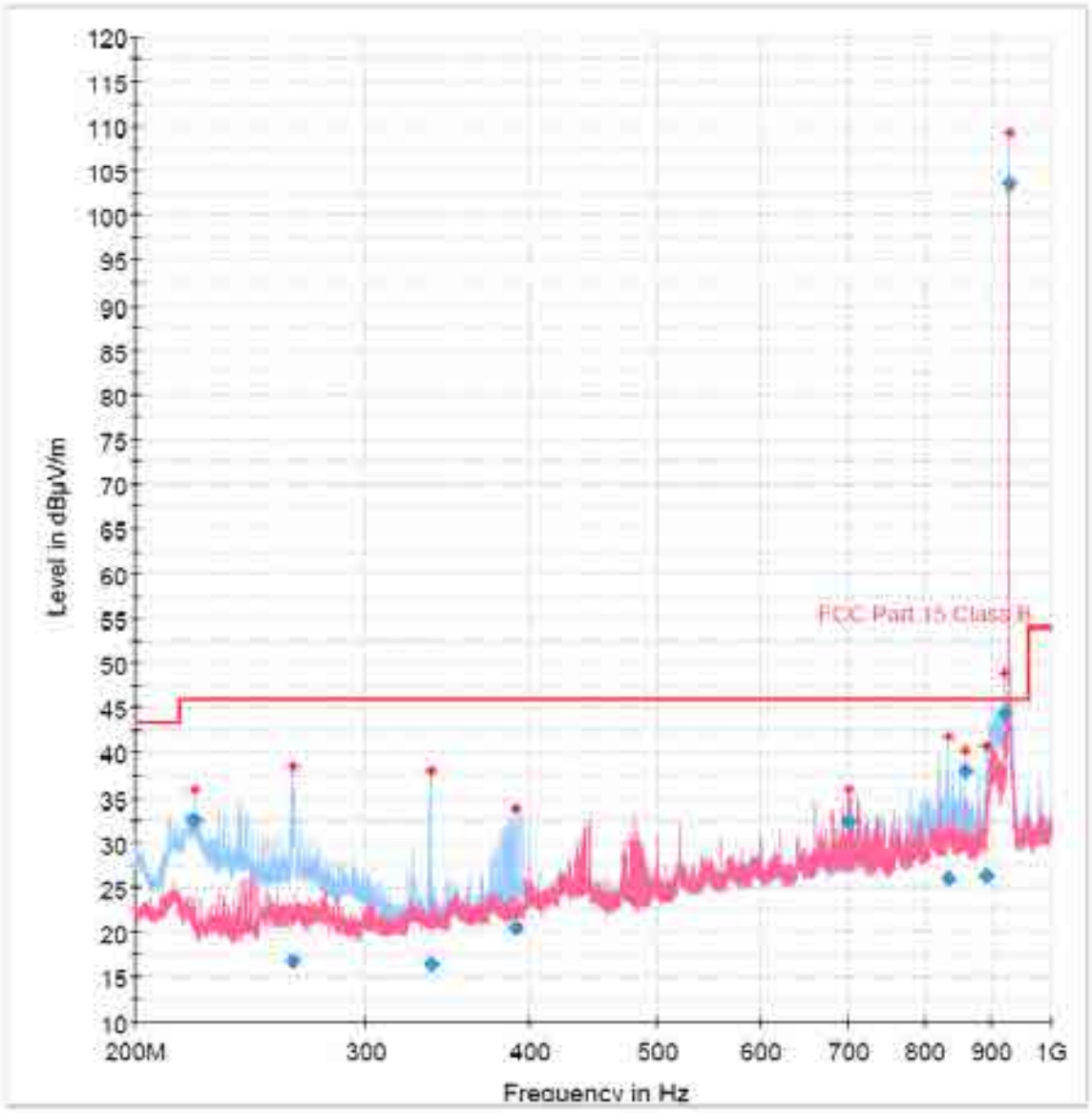
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
915.120000	106.62	46.00	-60.62	100.0	H	124.0
920.010000	46.89	46.00	-0.89	100.0	H	135.0
860.010000	39.36	46.00	6.64	100.0	H	124.0
819.990000	37.23	46.00	8.77	100.0	H	135.0
840.000000	36.35	46.00	9.65	100.0	H	102.0
221.820000	32.33	46.00	13.67	100.0	H	118.0
701.070000	31.25	46.00	14.75	100.0	V	310.0
240.810000	30.34	46.00	15.66	100.0	H	118.0
470.250000	22.21	46.00	23.79	100.0	H	135.0
600.540000	22.12	46.00	23.88	100.0	V	283.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH64, OFDM 50K

Full Spectrum



1_RIVA_200M-1G_OFMD50K CH64 2 / 2

Final_Result

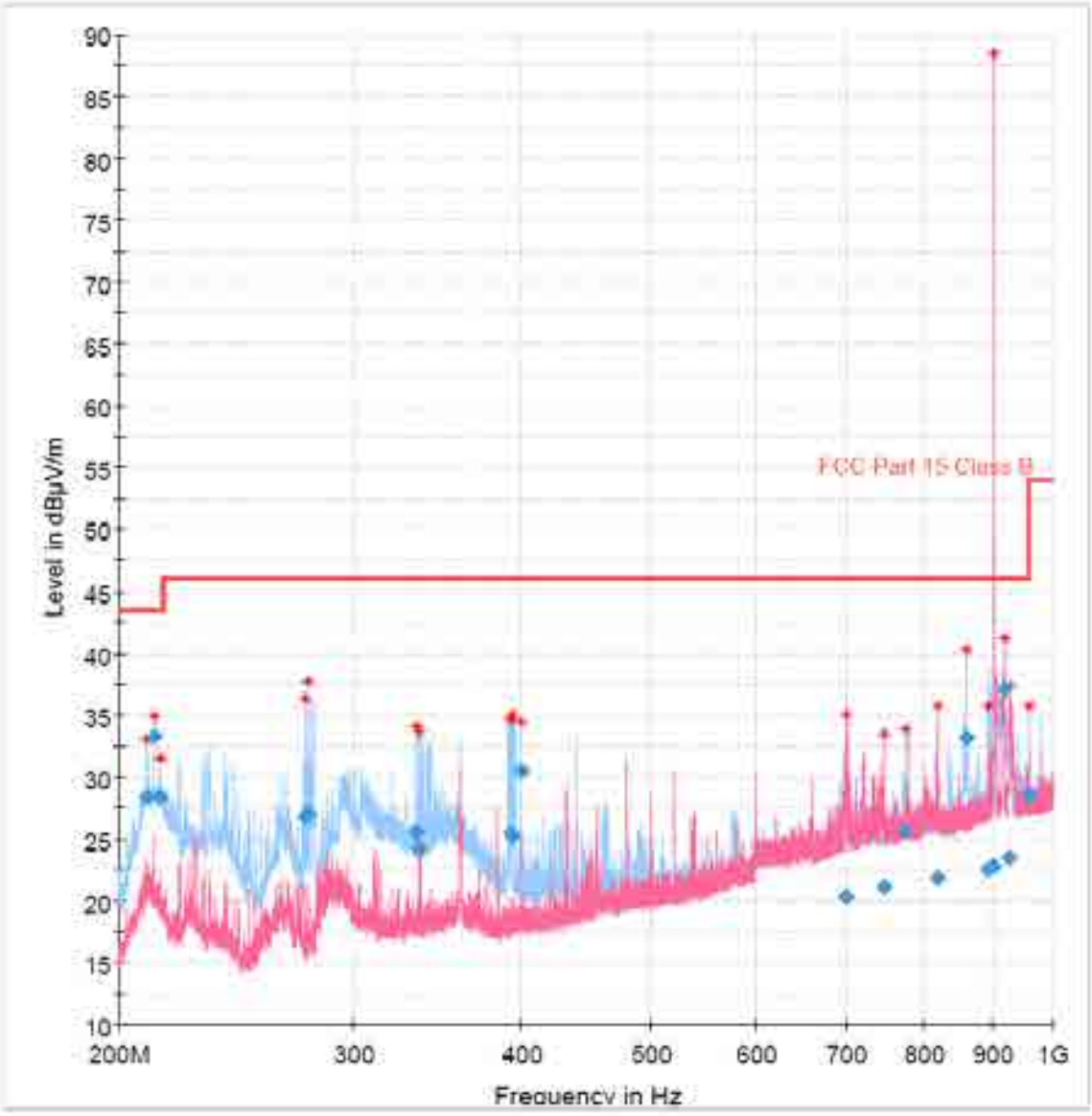
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
221.850000	32.46	46.00	13.54	100.0	H	115.0
264.000000	16.75	46.00	29.25	100.0	H	0.0
335.030000	16.41	46.00	29.59	100.0	H	228.0
390.720000	20.51	46.00	25.49	100.0	H	358.0
700.020000	32.32	46.00	13.68	100.0	V	313.0
834.390000	25.90	46.00	20.10	100.0	H	183.0
859.980000	37.94	46.00	8.06	100.0	H	121.0
890.640000	26.26	46.00	19.74	100.0	H	292.0
920.010000	44.47	46.00	1.53	100.0	H	205.0
927.570000	103.64	46.00	-57.64	100.0	H	205.0

Radiated emission

EUT Information

Model:	Itron Dev Mini
OP Condition	CH1, OFDM 600K

Full Spectrum



Riva RE 200M-1G OFDM600K CH1 2 / 2

Final_Result

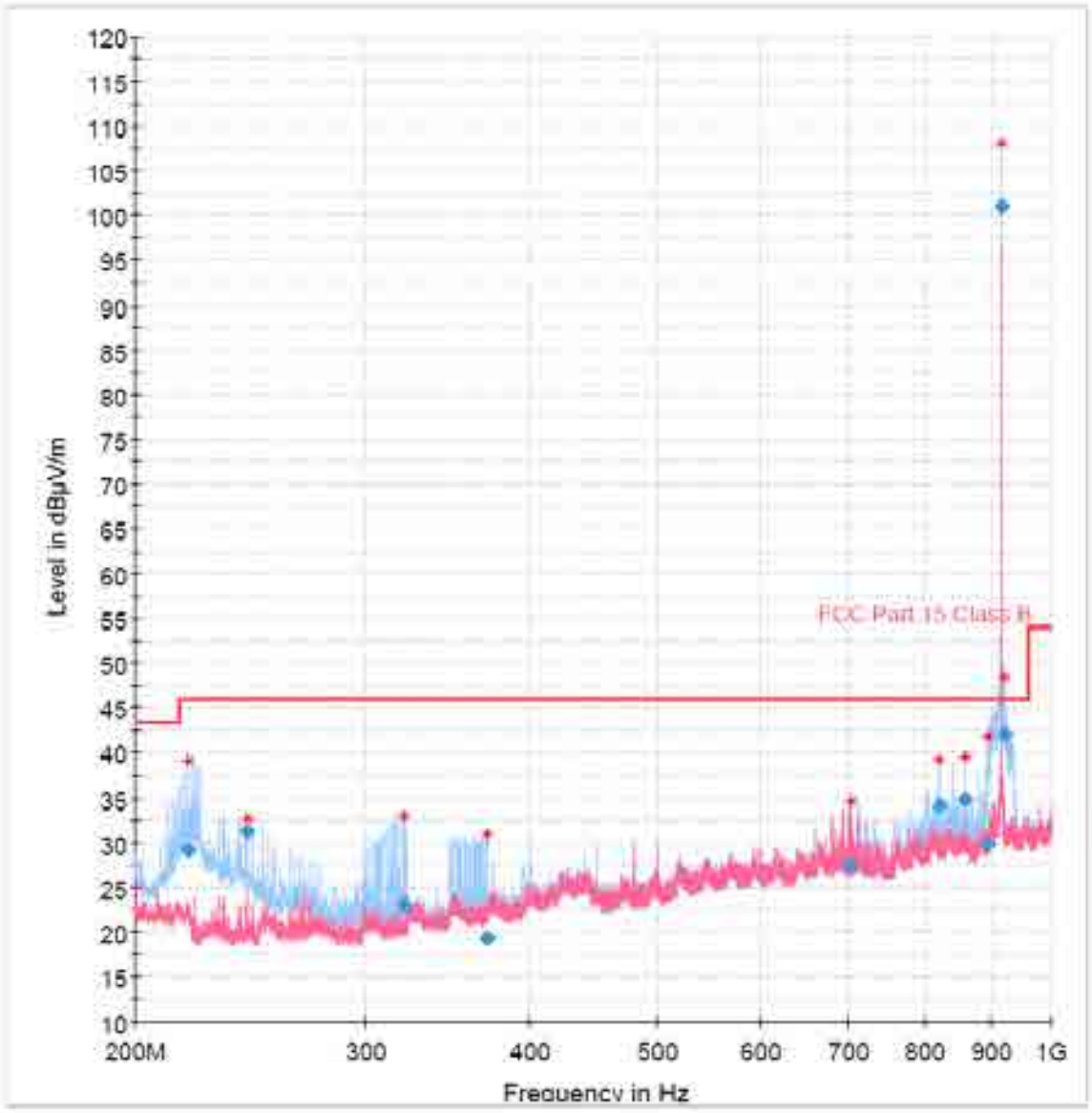
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
209.880000	28.32	43.50	15.18	126.0	H	266.0
212.310000	33.25	43.50	10.25	150.0	H	84.0
214.710000	28.34	43.50	15.16	104.0	H	266.0
275.250000	26.87	46.00	19.13	105.0	H	241.0
276.720000	26.99	46.00	19.01	146.0	H	241.0
333.750000	25.53	46.00	20.47	105.0	H	0.0
335.250000	24.20	46.00	21.80	100.0	H	0.0
392.220000	25.38	46.00	20.62	100.0	H	321.0
393.720000	25.17	46.00	20.83	100.0	H	321.0
400.020000	30.51	46.00	15.49	100.0	H	294.0
699.990000	20.25	46.00	25.75	100.0	V	157.0
746.430000	21.07	46.00	24.93	100.0	V	243.0
774.960000	25.60	46.00	20.40	104.0	H	5.0
819.990000	21.84	46.00	24.16	250.0	H	277.0
860.010000	33.10	46.00	12.90	100.0	H	31.0
893.400000	22.53	46.00	23.47	150.0	H	346.0
902.310000	22.74	46.00	23.26	353.0	V	256.0
919.980000	37.11	46.00	8.89	100.0	H	5.0
926.100000	23.49	46.00	22.51	103.0	V	0.0
959.970000	28.44	46.00	17.56	100.0	H	31.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH32, OFDM 600K

Full Spectrum



1_RIVA_200M-1G_OFDM600K CH32 2 / 2

Final_Result

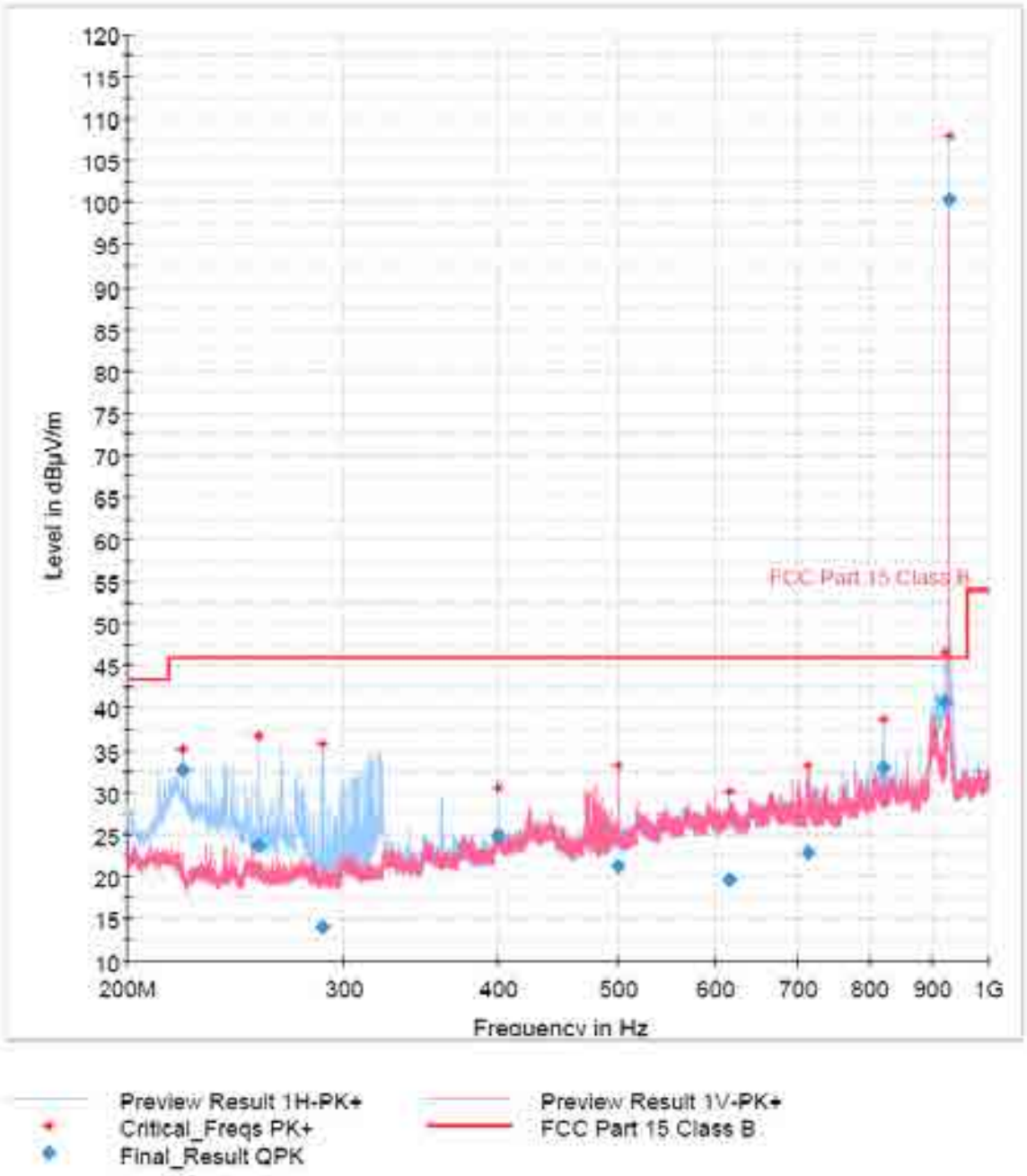
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
219.750000	29.14	46.00	16.86	100.0	H	112.0
243.360000	31.16	46.00	14.84	100.0	H	106.0
320.250000	23.05	46.00	22.95	100.0	H	14.0
371.220000	19.40	46.00	26.60	100.0	H	194.0
703.530000	27.38	46.00	18.62	100.0	H	241.0
819.990000	34.06	46.00	11.94	100.0	H	289.0
860.010000	34.80	46.00	11.20	100.0	H	143.0
893.370000	29.81	46.00	16.19	100.0	H	106.0
915.300000	101.07	46.00	-55.07	100.0	H	106.0
920.010000	42.08	46.00	3.92	100.0	H	106.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH64, OFDM 600K

Full Spectrum



1_RIVA_200M-1G_OFMD600K CH32 2 / 2

Final_Result

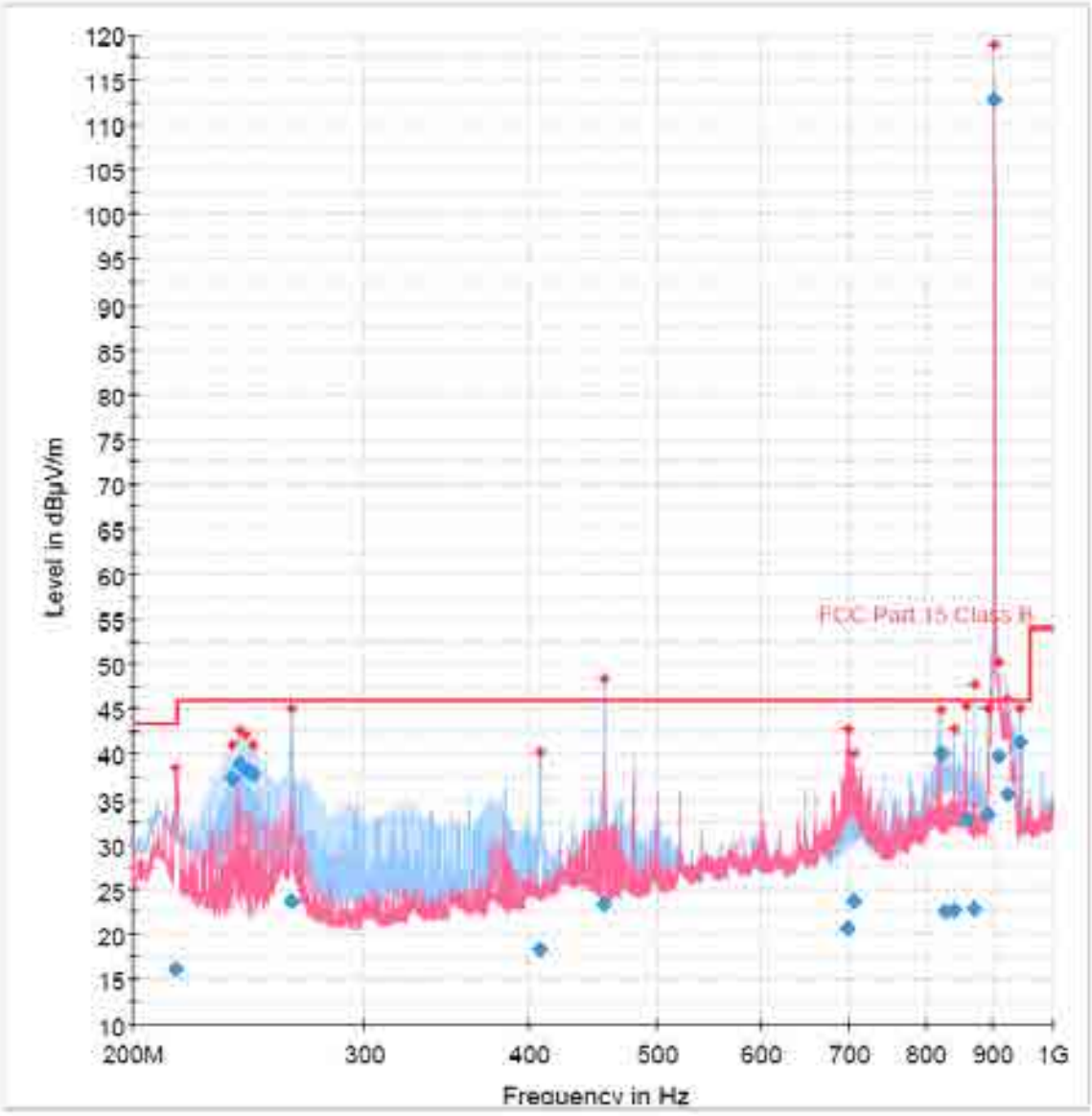
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
221.880000	32.66	46.00	13.34	100.0	H	111.0
255.540000	23.59	46.00	22.41	100.0	H	105.0
288.000000	14.10	46.00	31.90	100.0	H	164.0
399.990000	24.76	46.00	21.24	100.0	H	6.0
499.920000	21.30	46.00	24.70	100.0	V	197.0
615.750000	19.70	46.00	26.30	100.0	H	239.0
712.800000	22.83	46.00	23.17	100.0	H	297.0
820.020000	32.99	46.00	13.01	100.0	H	292.0
920.010000	40.74	46.00	5.26	100.0	H	92.0
927.510000	100.35	46.00	-54.35	100.0	H	92.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH1, DSSS 6.25K

Full Spectrum



Final_Result

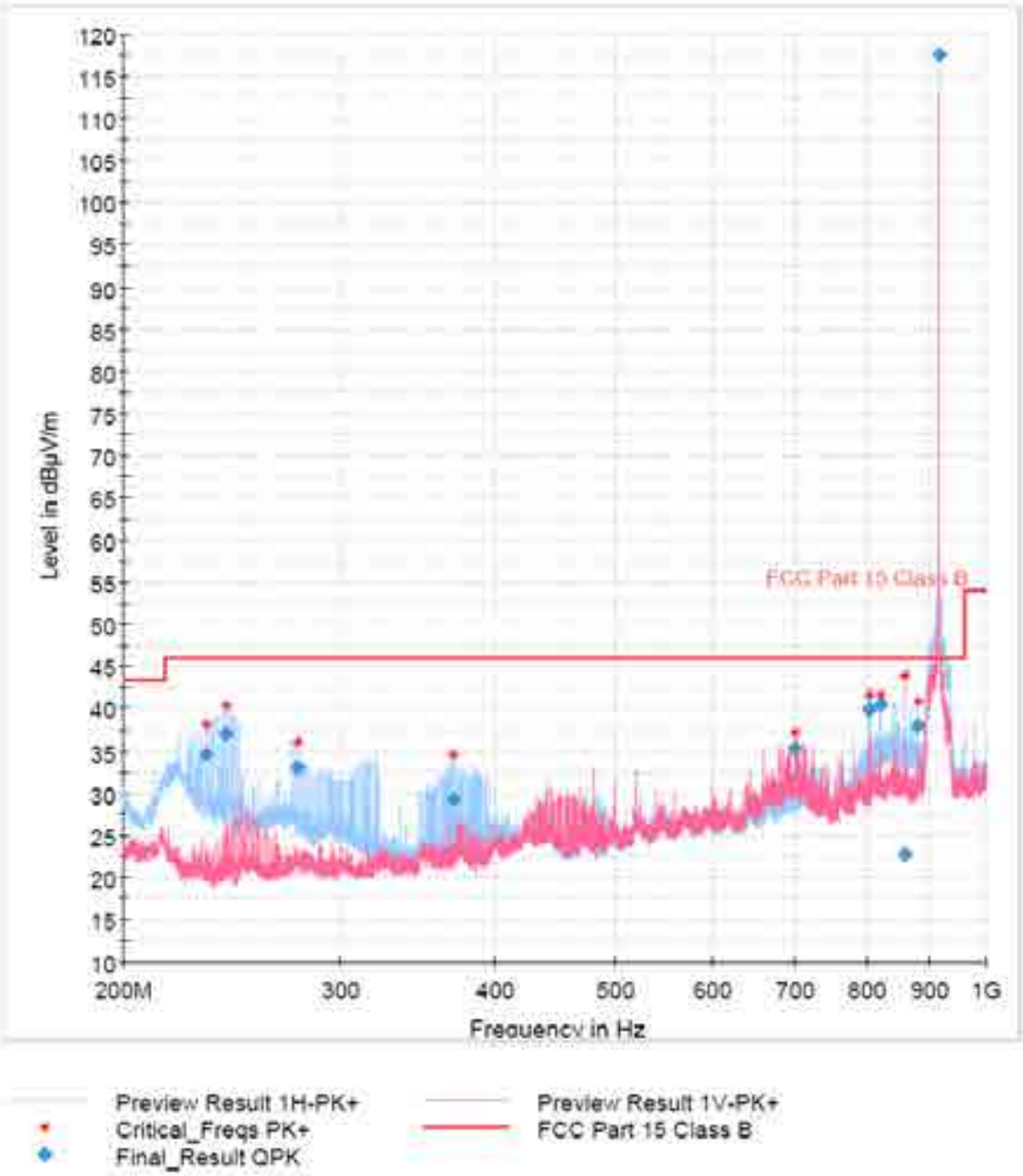
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
215.730000	16.16	43.50	27.34	233.0	V	0.0
237.750000	37.26	46.00	8.74	104.0	H	109.0
240.750000	38.88	46.00	7.12	150.0	H	109.0
243.750000	38.28	46.00	7.72	150.0	H	109.0
246.750000	37.88	46.00	8.12	150.0	H	109.0
263.880000	23.68	46.00	22.32	100.0	H	187.0
407.820000	18.44	46.00	27.56	100.0	H	20.0
456.030000	23.41	46.00	22.59	100.0	H	146.0
698.190000	20.58	46.00	25.42	106.0	V	338.0
704.700000	23.67	46.00	22.33	145.0	V	338.0
820.020000	40.06	46.00	5.94	100.0	H	102.0
828.660000	22.53	46.00	23.47	150.0	H	102.0
840.000000	22.66	46.00	23.34	150.0	H	102.0
860.010000	32.76	46.00	13.24	143.0	H	102.0
870.990000	22.89	46.00	23.11	103.0	H	102.0
892.860000	33.25	46.00	12.75	143.0	H	102.0
902.370000	112.78	46.00	-66.78	144.0	H	102.0
908.400000	39.79	46.00	6.21	100.0	H	102.0
923.370000	35.59	46.00	10.41	150.0	H	102.0
942.390000	41.29	46.00	4.71	100.0	H	102.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH32, DSSS6.25K

Full Spectrum



1_RIVA_200M-1G_DSSS8.25K CH32 2 / 2

Final_Result

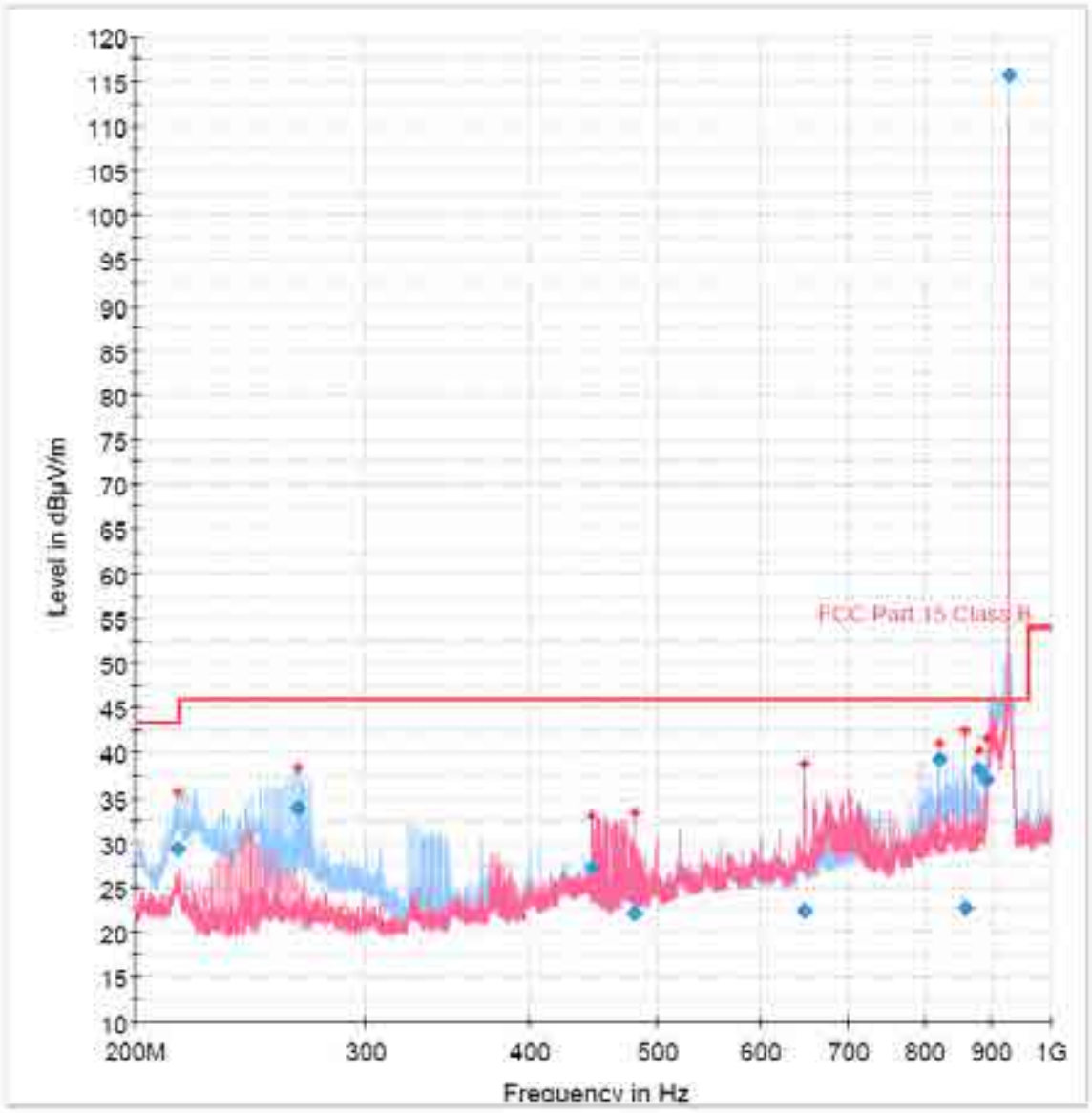
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
233.250000	34.57	46.00	11.43	100.0	H	82.0
242.250000	36.94	46.00	9.06	100.0	H	82.0
275.750000	32.96	46.00	13.04	100.0	H	99.0
369.750000	29.33	46.00	16.67	100.0	H	155.0
699.990000	35.23	46.00	10.77	100.0	V	322.0
804.780000	39.99	46.00	6.01	100.0	H	111.0
819.990000	40.61	46.00	5.39	100.0	H	111.0
859.980000	22.77	46.00	23.23	100.0	H	111.0
879.990000	38.00	46.00	8.00	100.0	H	111.0
915.180000	117.63	46.00	-71.63	100.0	H	139.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH64, DSSS 6.25K

Full Spectrum



1_RIVA_200M-1G_DSSS8.25K CH64 2 / 2

Final_Result

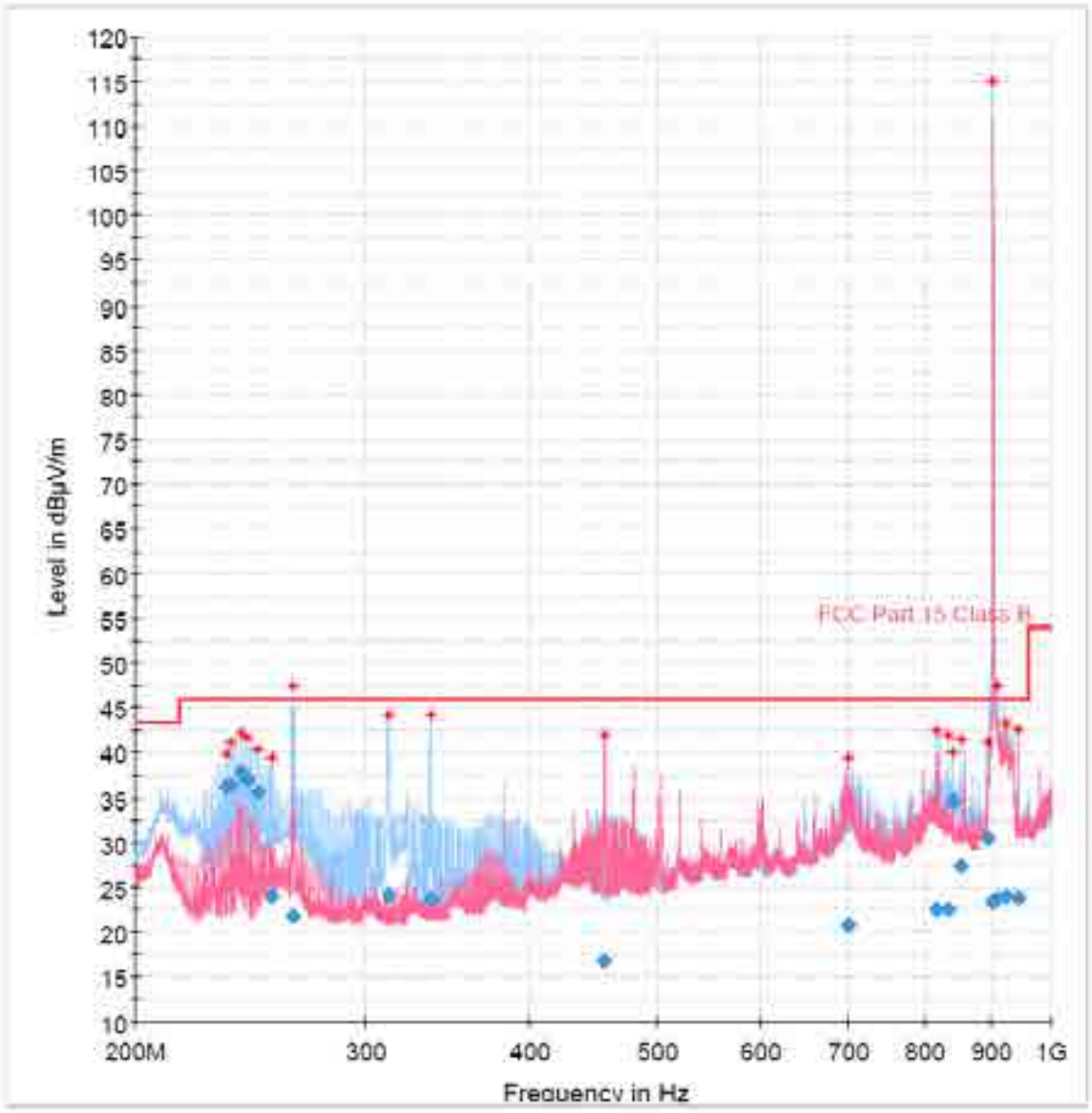
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
215.250000	29.30	43.50	14.20	100.0	H	88.0
266.250000	33.88	46.00	12.12	100.0	H	71.0
445.250000	27.21	46.00	18.79	100.0	V	108.0
480.000000	22.11	46.00	23.89	100.0	V	0.0
647.850000	22.41	46.00	23.59	100.0	V	285.0
819.990000	39.26	46.00	6.74	100.0	H	119.0
859.980000	22.72	46.00	23.28	100.0	H	119.0
879.990000	38.13	46.00	7.87	100.0	H	119.0
892.830000	36.96	46.00	9.04	100.0	H	119.0
927.570000	115.68	46.00	-69.68	100.0	H	142.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH1, DSSS 50K

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

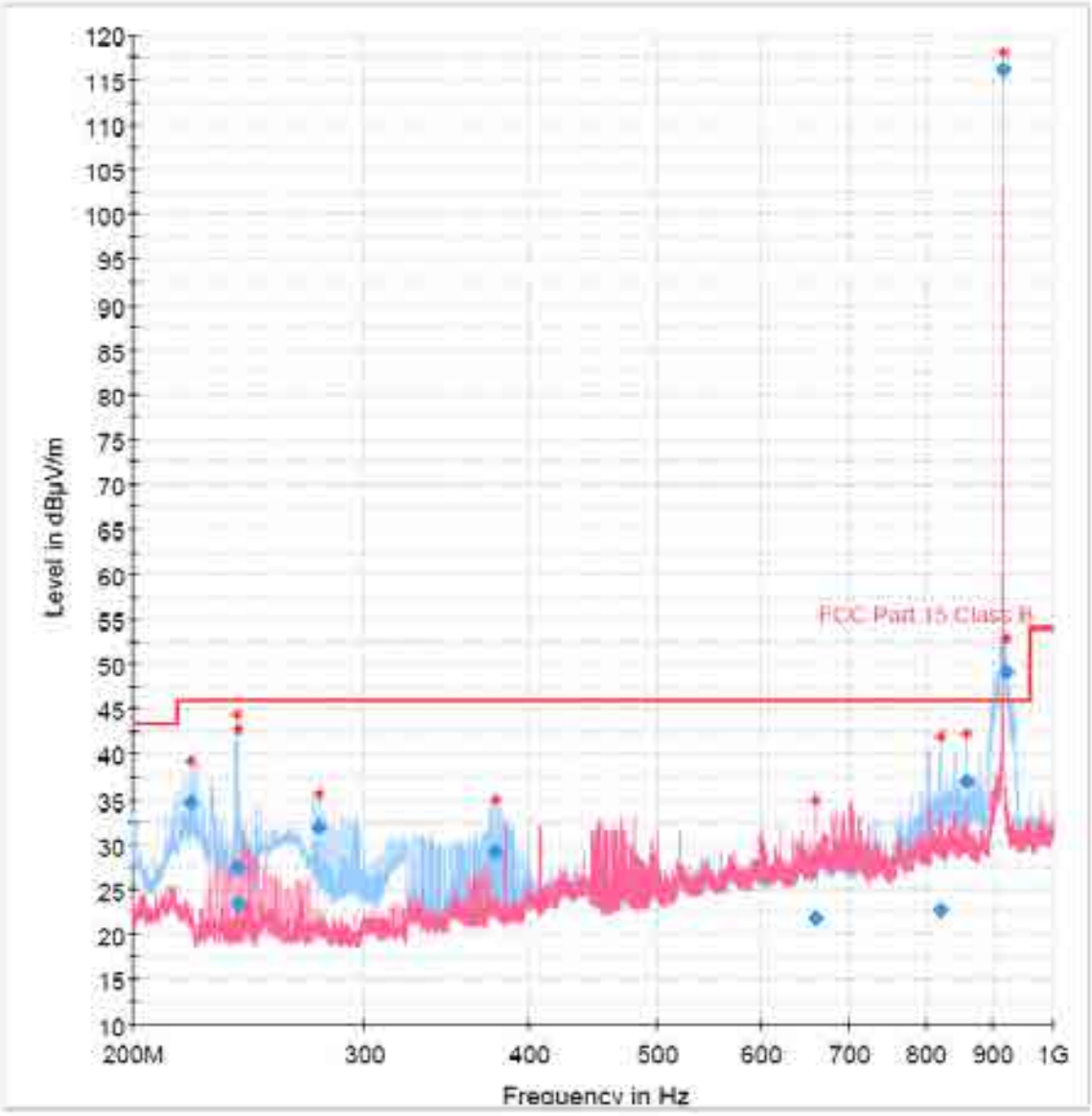
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
240.750000	37.76	46.00	8.24	150.0	H	131.0
243.750000	36.99	46.00	9.01	146.0	H	131.0
236.250000	36.32	46.00	9.68	124.0	H	131.0
234.750000	36.23	46.00	9.77	124.0	H	131.0
248.280000	35.61	46.00	10.39	124.0	H	131.0
840.000000	34.62	46.00	11.38	100.0	H	94.0
892.950000	30.41	46.00	15.59	100.0	H	0.0
853.110000	27.41	46.00	18.59	100.0	H	94.0
312.300000	24.10	46.00	21.90	100.0	H	73.0
923.010000	24.01	46.00	21.99	144.0	V	137.0
254.070000	23.99	46.00	22.01	123.0	H	324.0
942.420000	23.87	46.00	22.13	100.0	H	136.0
336.030000	23.74	46.00	22.26	100.0	H	73.0
908.040000	23.70	46.00	22.30	100.0	H	136.0
902.370000	23.41	46.00	22.59	150.0	H	0.0
834.390000	22.55	46.00	23.45	100.0	H	34.0
817.590000	22.48	46.00	23.52	100.0	H	34.0
264.030000	21.71	46.00	24.29	100.0	H	324.0
700.020000	20.79	46.00	25.21	150.0	V	175.0
456.000000	16.75	46.00	29.25	122.0	V	142.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH32, DSSS 50K

Full Spectrum



1_RIVA_200M-1G_DSSS50K CH32 2 / 2

Final_Result

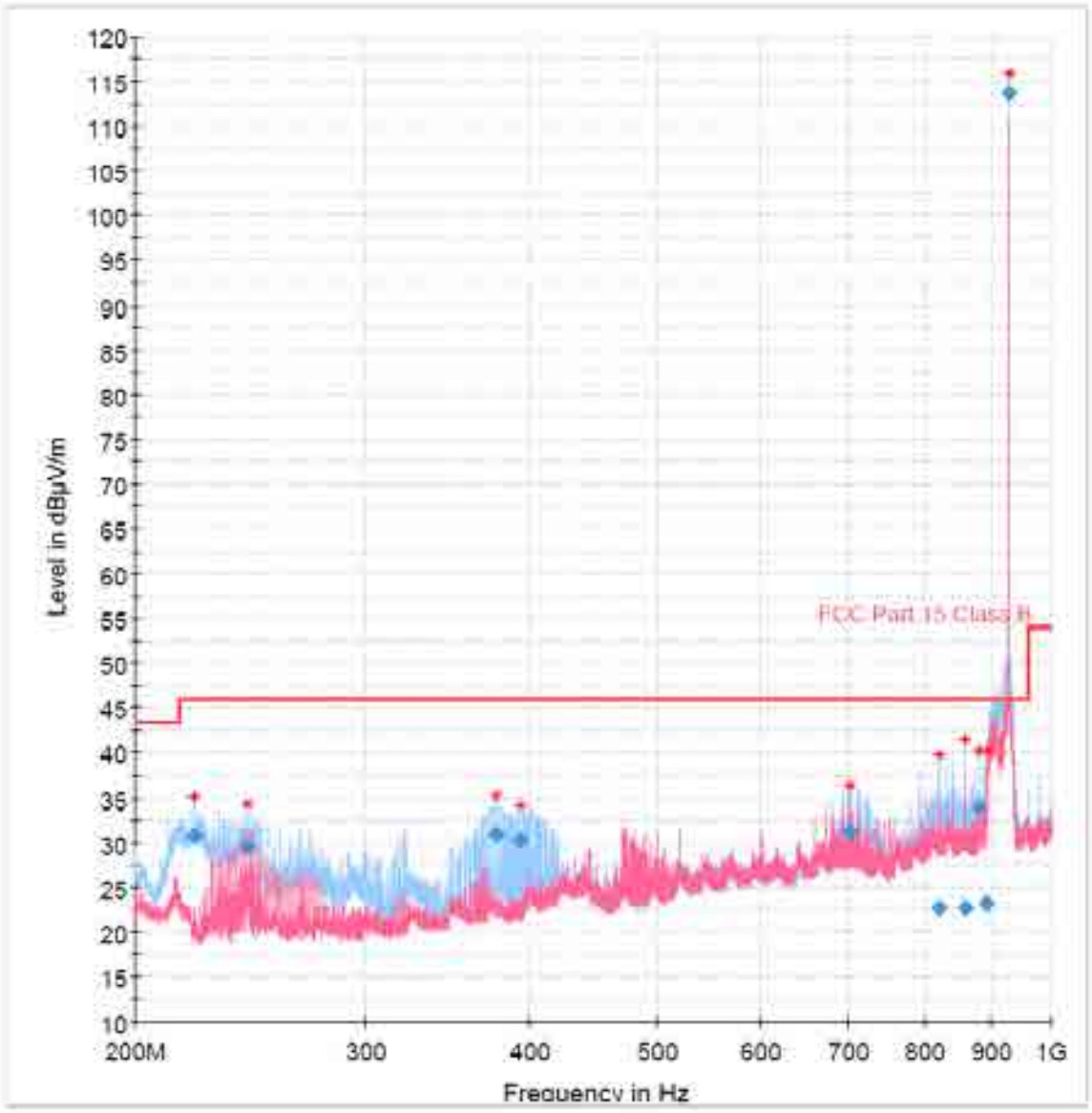
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
221.250000	34.62	46.00	11.38	100.0	H	125.0
240.000000	27.45	46.00	18.55	100.0	H	71.0
240.570000	23.31	46.00	22.69	100.0	H	71.0
276.750000	31.95	46.00	14.05	100.0	H	71.0
377.250000	29.10	46.00	16.90	100.0	H	157.0
660.000000	21.78	46.00	24.22	100.0	V	291.0
820.020000	22.64	46.00	23.36	100.0	H	132.0
860.010000	37.05	46.00	8.95	100.0	H	132.0
915.180000	116.11	46.00	-70.11	100.0	H	132.0
919.980000	49.11	46.00	-3.11	100.0	H	132.0

Radiated emission

EUT Information

EUT	Iron Riva Dev Mini
OP Condition	CH64, DSSS 50K

Full Spectrum



1_RIVA_200M-1G_DSSS50K CH64 2 / 2

Final_Result

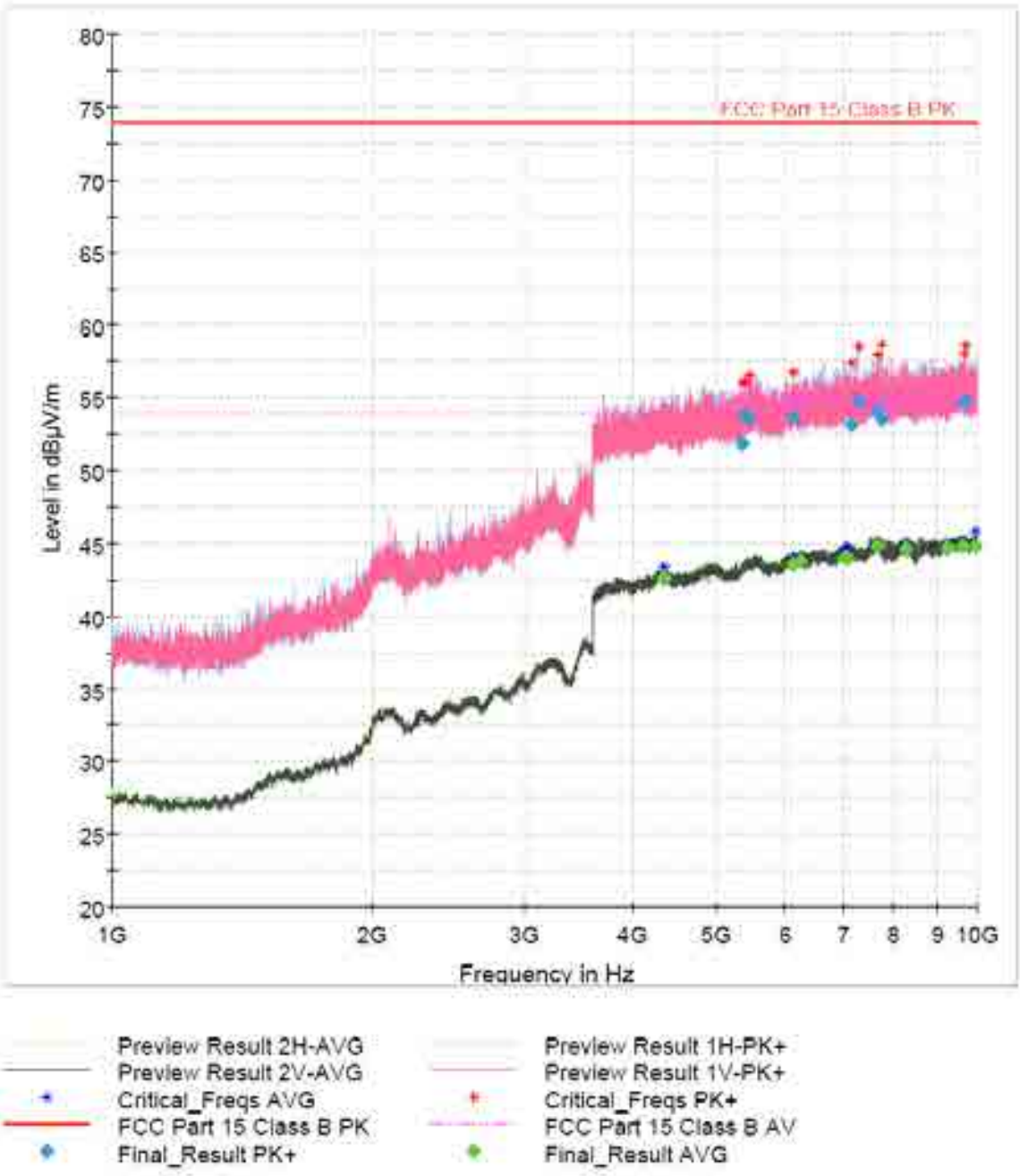
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
221.790000	30.81	46.00	15.19	100.0	H	104.0
243.360000	29.50	46.00	16.50	100.0	H	120.0
377.250000	30.89	46.00	15.11	100.0	H	155.0
393.750000	30.28	46.00	15.72	100.0	H	348.0
701.070000	31.25	46.00	14.75	100.0	H	219.0
819.990000	22.78	46.00	23.22	100.0	H	165.0
859.980000	22.77	46.00	23.23	100.0	H	165.0
879.990000	33.93	46.00	12.07	100.0	H	165.0
892.560000	23.23	46.00	22.77	100.0	H	219.0
927.570000	113.80	46.00	-67.80	100.0	H	219.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH1, FSK 75K

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

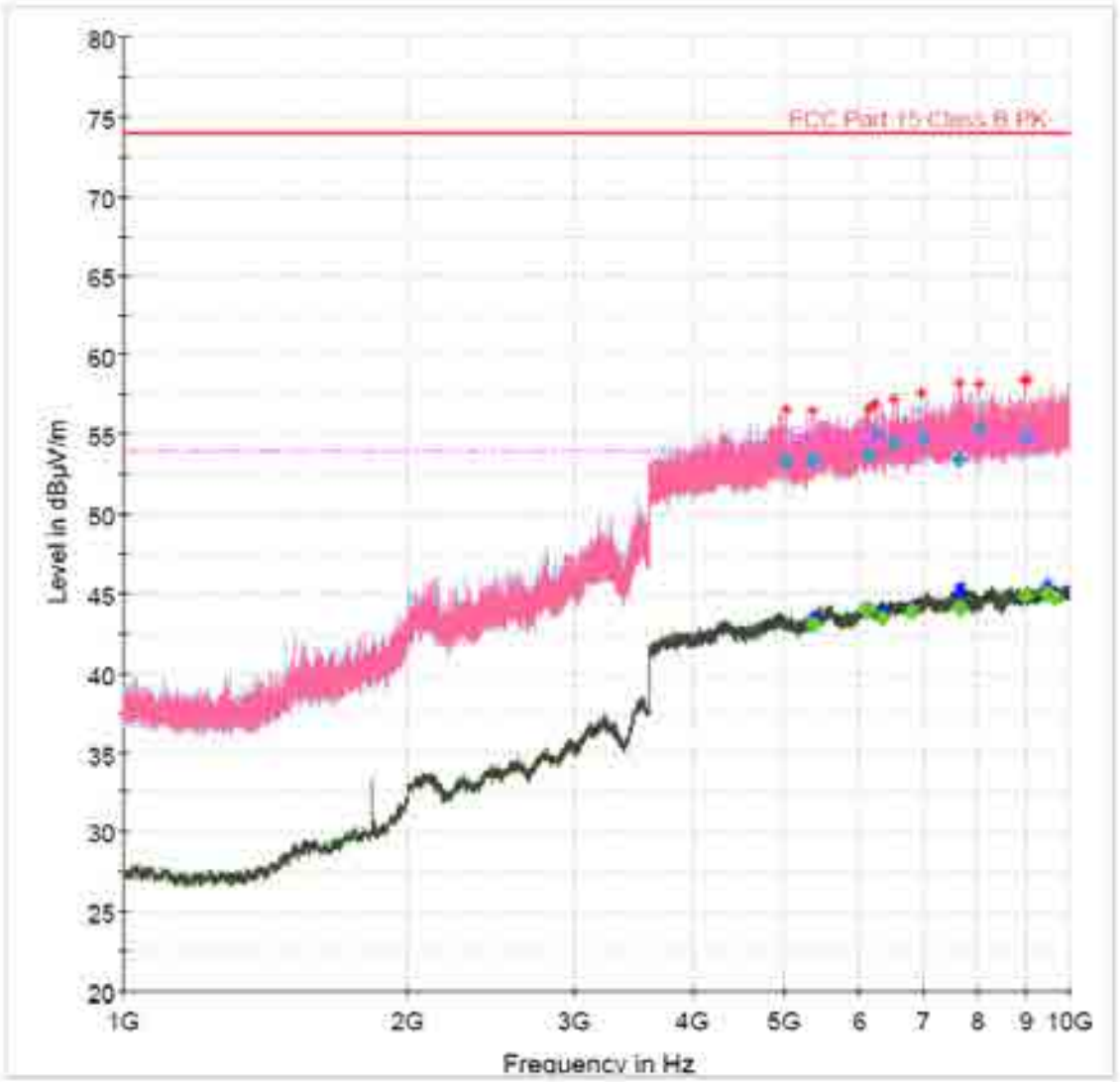
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
9972.000000	---	44.82	54.00	9.18	150.0	V	0.0
7676.500000	---	44.81	54.00	9.19	150.0	H	0.0
9619.750000	---	44.76	54.00	9.24	150.0	V	0.0
9237.500000	---	44.72	54.00	9.28	150.0	V	0.0
8274.000000	---	44.61	54.00	9.39	150.0	V	0.0
7086.500000	---	44.00	54.00	10.00	150.0	H	0.0
7033.250000	---	43.94	54.00	10.06	150.0	H	0.0
6259.000000	---	43.76	54.00	10.24	150.0	H	0.0
6146.500000	---	43.60	54.00	10.40	150.0	H	0.0
4343.500000	---	42.54	54.00	11.46	150.0	H	0.0
9718.000000	54.81	---	74.00	19.19	150.0	V	0.0
9653.500000	54.74	---	74.00	19.26	150.0	V	0.0
7289.000000	54.73	---	74.00	19.27	150.0	H	0.0
7679.250000	54.14	---	74.00	19.86	150.0	V	0.0
5399.000000	53.78	---	74.00	20.22	150.0	H	0.0
6146.500000	53.69	---	74.00	20.31	150.0	H	0.0
5454.500000	53.59	---	74.00	20.41	150.0	H	0.0
7760.250000	53.50	---	74.00	20.50	150.0	V	0.0
7158.750000	53.17	---	74.00	20.83	150.0	H	0.0
5345.750000	51.83	---	74.00	22.17	150.0	V	0.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH32, FSK 75K

Full Spectrum



1_RIVA 1-10G FSK75K CH32 2 / 2

Final_Result

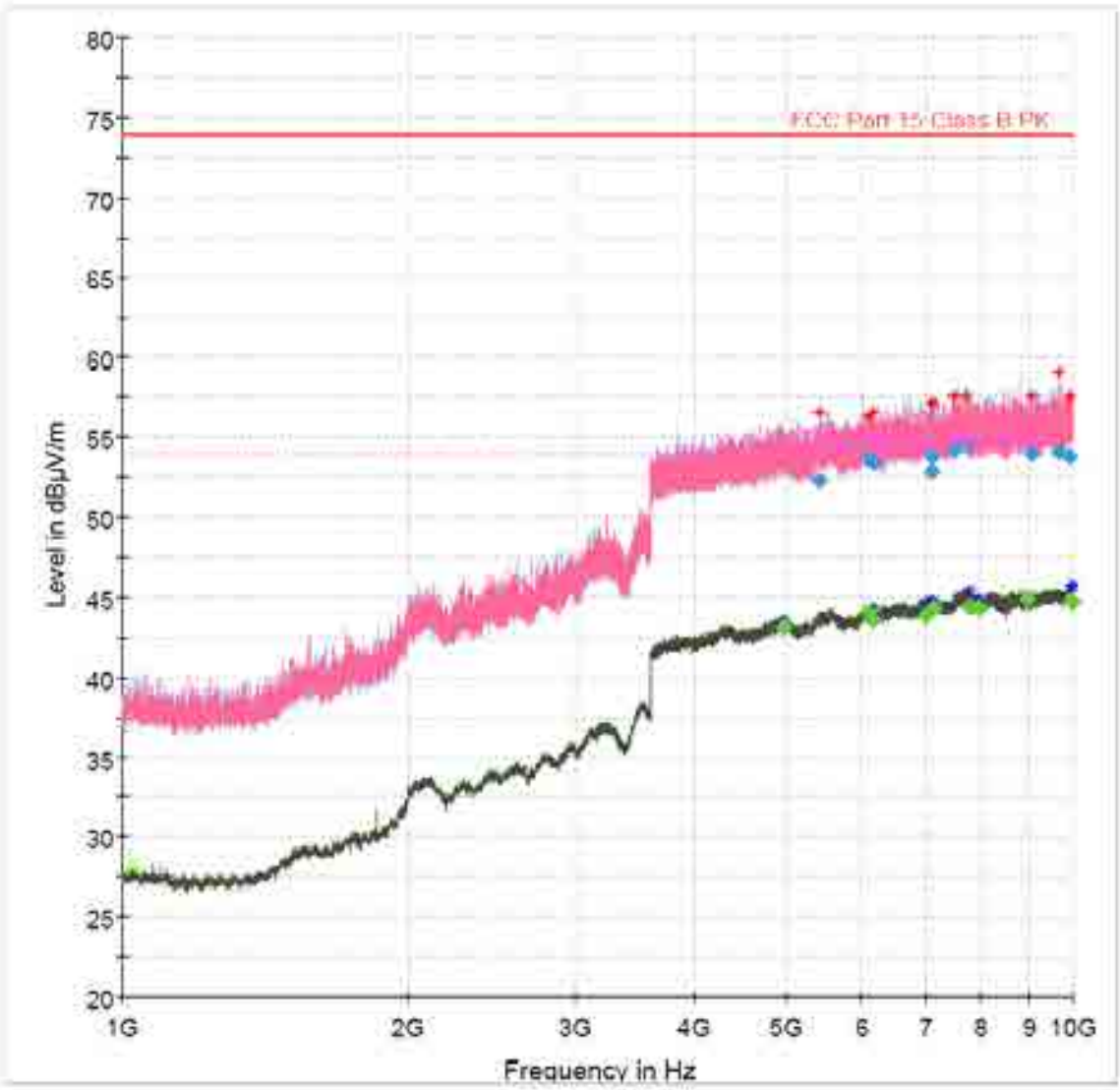
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
9479.500000	---	45.02	54.00	8.98	150.0	V	0.0
9009.750000	---	44.85	54.00	9.15	150.0	V	0.0
9662.000000	---	44.74	54.00	9.26	150.0	H	0.0
7646.000000	---	44.14	54.00	9.86	150.0	V	0.0
6130.250000	---	44.03	54.00	9.97	150.0	H	0.0
7679.500000	---	44.03	54.00	9.97	150.0	V	0.0
6085.000000	---	43.94	54.00	10.06	150.0	V	0.0
6833.750000	---	43.89	54.00	10.11	150.0	V	0.0
6340.500000	---	43.48	54.00	10.52	150.0	V	0.0
5377.500000	---	42.99	54.00	11.01	150.0	V	0.0
8016.250000	55.34	---	74.00	18.66	150.0	V	0.0
6218.500000	54.98	---	74.00	19.02	150.0	V	0.0
8999.750000	54.89	---	74.00	19.11	150.0	V	0.0
6987.250000	54.75	---	74.00	19.25	150.0	H	0.0
9009.750000	54.75	---	74.00	19.25	150.0	V	0.0
6523.250000	54.49	---	74.00	19.51	150.0	V	0.0
6130.250000	53.69	---	74.00	20.31	150.0	H	0.0
5362.500000	53.48	---	74.00	20.52	150.0	H	0.0
7645.750000	53.45	---	74.00	20.55	150.0	V	0.0
5012.500000	53.38	---	74.00	20.62	150.0	V	0.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH64, FSK 75K

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

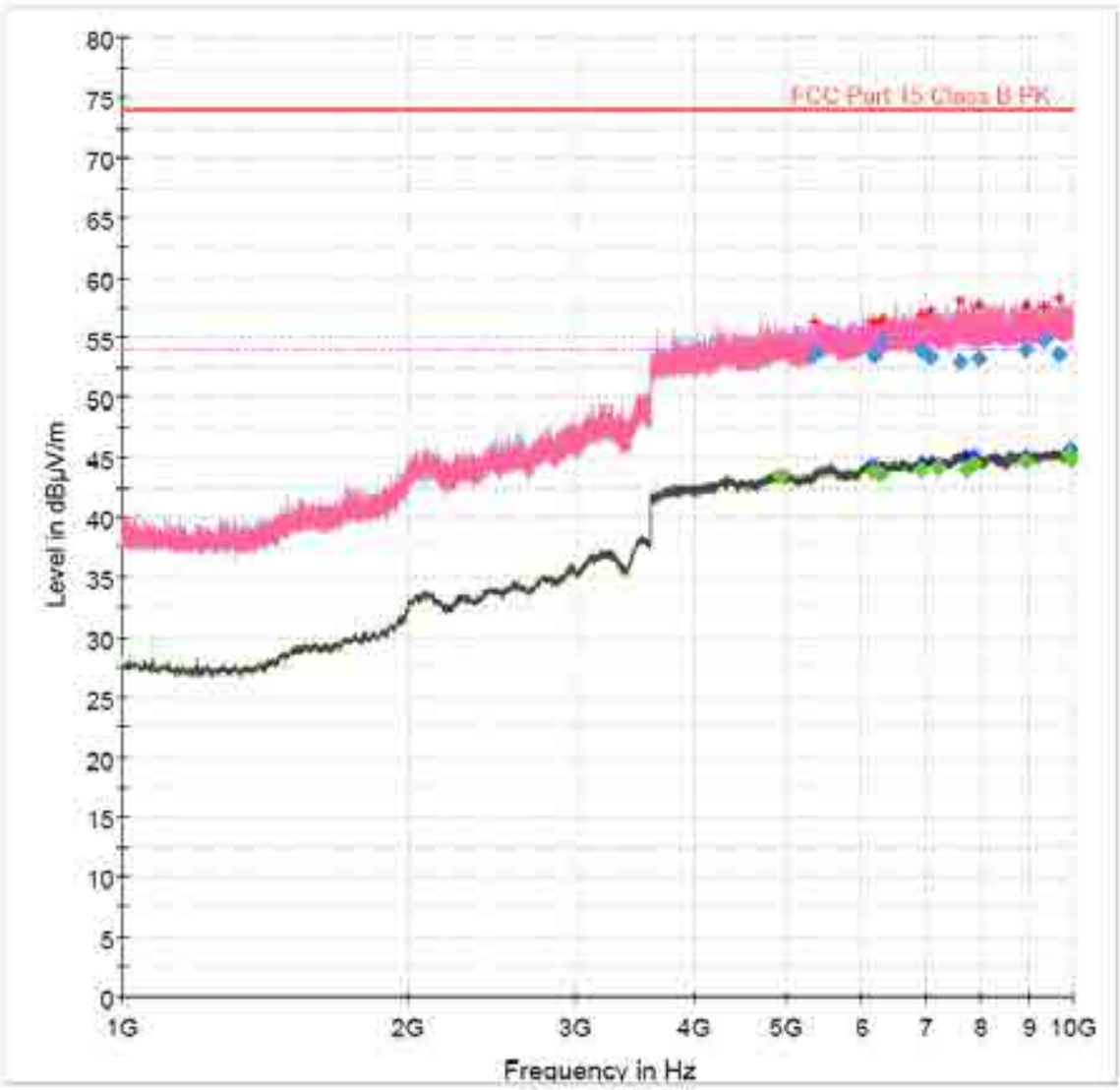
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
4962.000000	---	43.17	54.00	10.83	167.0	H	0.0
5405.250000	52.30	---	74.00	21.70	132.0	H	0.0
6078.500000	53.76	---	74.00	20.25	129.0	H	0.0
6098.250000	---	44.02	54.00	9.98	150.0	V	0.0
6165.250000	---	43.61	54.00	10.39	150.0	V	0.0
6186.500000	53.41	---	74.00	20.59	146.0	V	0.0
7001.250000	---	43.91	54.00	10.09	148.0	H	0.0
7106.500000	53.85	---	74.00	20.15	164.0	H	0.0
7119.500000	52.88	---	74.00	21.12	171.0	V	0.0
7134.000000	---	44.35	54.00	9.65	125.0	V	0.0
7488.750000	54.15	---	74.00	19.85	158.0	V	0.0
7725.750000	54.53	---	74.00	19.47	165.0	V	0.0
7775.750000	---	44.46	54.00	9.54	125.0	H	0.0
7975.500000	---	44.37	54.00	9.63	149.0	H	0.0
8965.750000	---	44.89	54.00	9.11	166.0	V	0.0
9065.500000	54.02	---	74.00	19.98	143.0	H	0.0
9662.000000	54.12	---	74.00	19.88	166.0	V	0.0
9925.000000	53.81	---	74.00	20.19	175.0	V	0.0
9947.750000	---	44.82	54.00	9.18	175.0	V	0.0
9986.000000	---	44.67	54.00	9.33	145.0	V	0.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH1, OFDM 50K

Full Spectrum



Preview Result 2H-AVG
Preview Result 2V-AVG
Critical_Freqs AVG
FCC Part 15 Class B PK
Final_Result PK+
Preview Result 1H-PK+
Preview Result 1V-PK+
Critical_Freqs PK+
FCC Part 15 Class B AV
Final_Result AVG

EMI Auto Test(1) 2 / 2

Final_Result

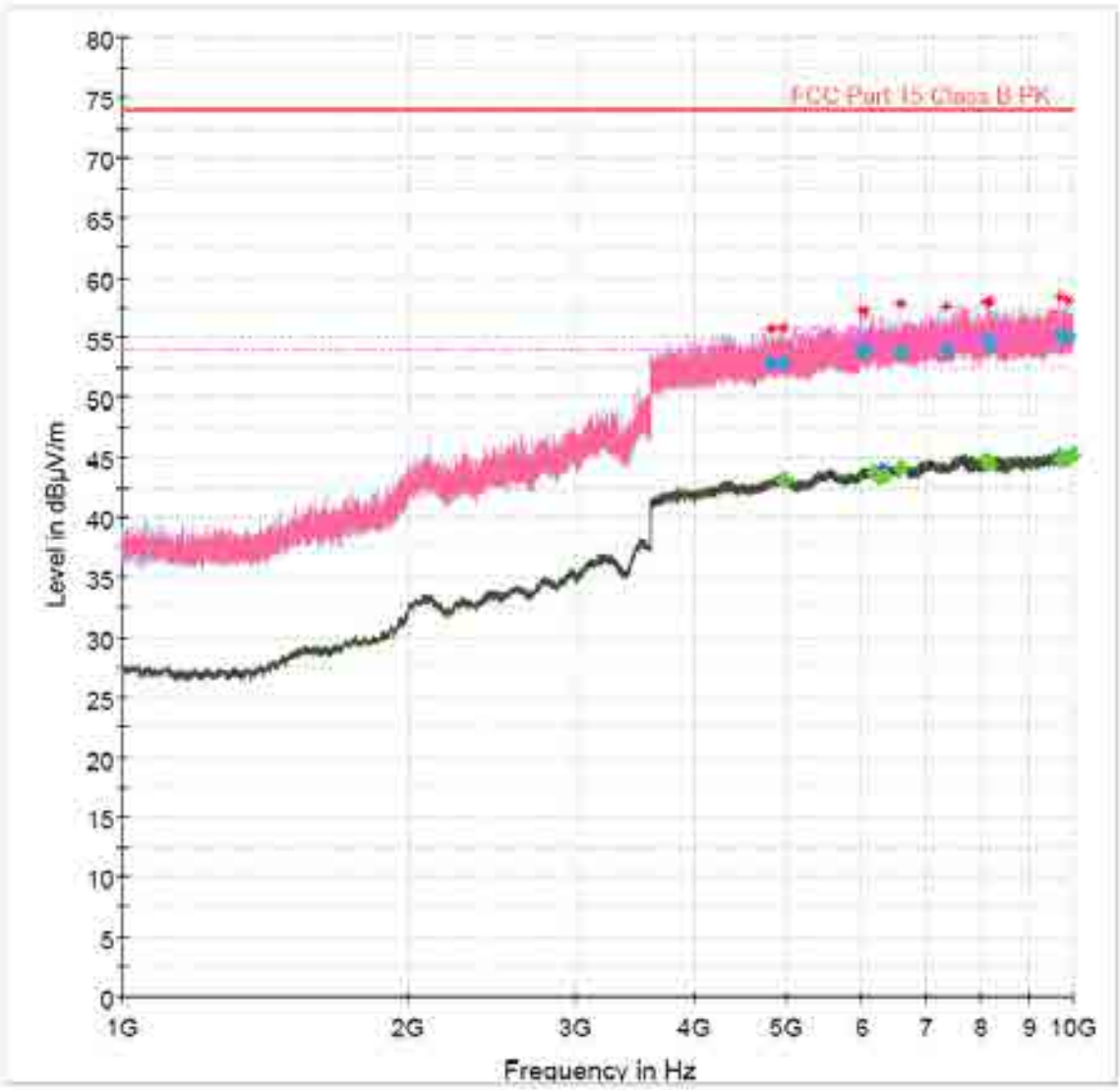
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
4923.500000	---	43.41	54.00	10.59	175.0	H	0.0
5355.000000	53.65	---	74.00	20.35	153.0	V	0.0
6165.500000	---	43.82	54.00	10.18	126.0	V	0.0
6178.750000	53.47	---	74.00	20.53	158.0	V	0.0
6267.250000	---	43.59	54.00	10.41	175.0	V	0.0
6307.000000	54.80	---	74.00	19.20	125.0	H	0.0
6932.250000	---	43.95	54.00	10.05	169.0	V	0.0
6932.250000	54.03	---	74.00	19.97	164.0	V	0.0
7082.250000	53.43	---	74.00	20.57	125.0	H	0.0
7212.500000	---	44.12	54.00	9.88	143.0	V	0.0
7616.500000	53.04	---	74.00	20.96	154.0	H	0.0
7742.000000	---	43.98	54.00	10.02	167.0	H	0.0
7871.750000	---	44.51	54.00	9.49	168.0	V	0.0
7954.000000	53.25	---	74.00	20.75	166.0	V	0.0
8915.500000	---	44.77	54.00	9.23	160.0	H	0.0
8915.500000	53.98	---	74.00	20.02	130.0	H	0.0
9326.500000	54.83	---	74.00	19.17	134.0	V	0.0
9665.250000	53.68	---	74.00	20.32	143.0	H	36.0
9925.750000	---	45.39	54.00	8.61	153.0	H	0.0
9978.750000	---	44.88	54.00	9.12	156.0	V	0.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH32, OFDM 50K

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

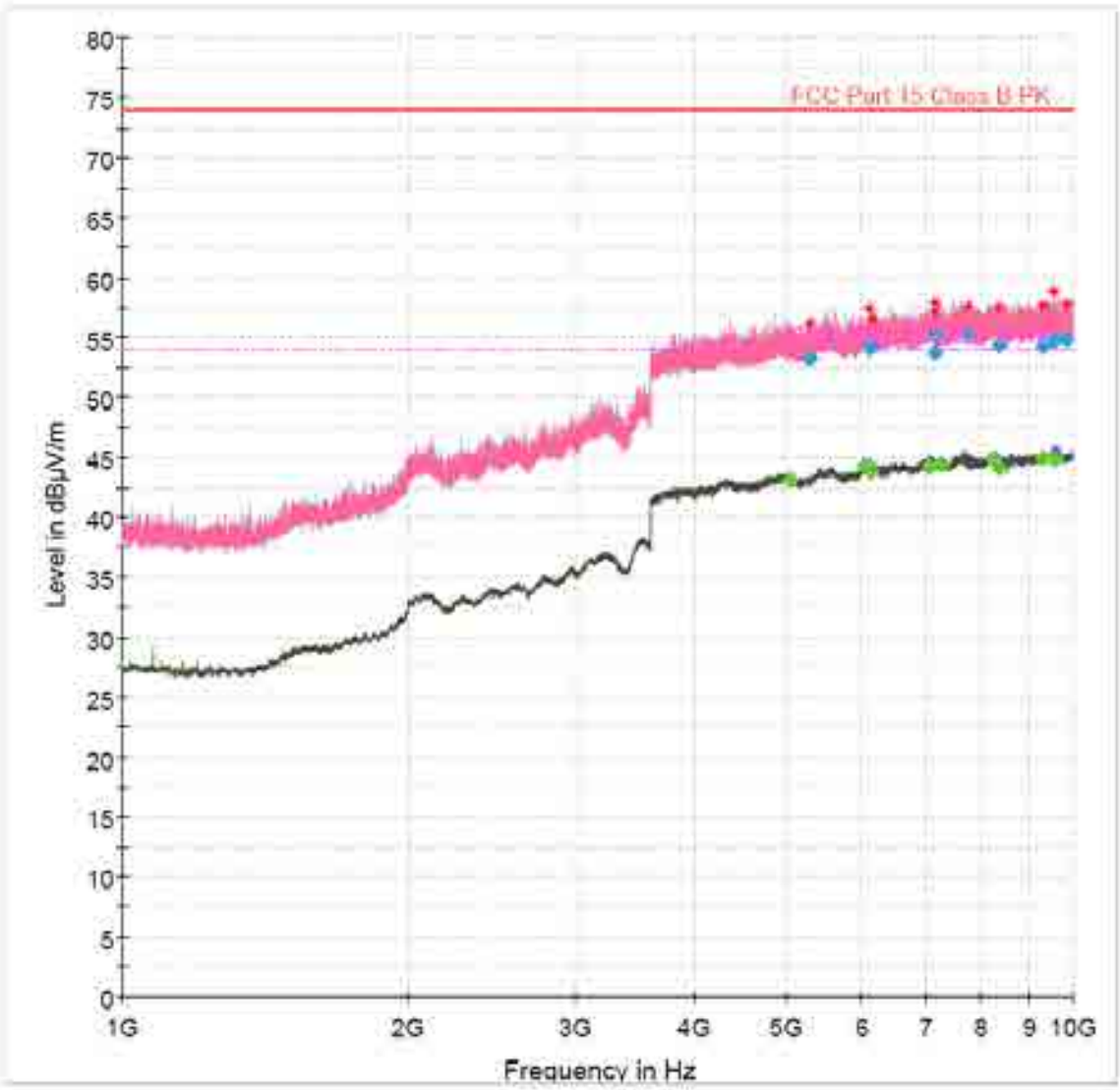
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
9989.250000	---	45.14	54.00	8.86	150.0	V	0.0
9875.750000	---	44.95	54.00	9.06	150.0	H	0.0
9707.250000	---	44.87	54.00	9.13	150.0	V	0.0
8134.000000	---	44.77	54.00	9.23	150.0	H	0.0
8153.250000	---	44.44	54.00	9.56	150.0	H	0.0
6593.750000	---	44.11	54.00	9.89	150.0	H	0.0
6182.750000	---	43.76	54.00	10.24	150.0	H	0.0
6330.000000	---	43.49	54.00	10.51	150.0	V	0.0
6275.750000	---	43.38	54.00	10.62	150.0	V	0.0
4969.000000	---	43.11	54.00	10.89	150.0	V	0.0
9876.000000	55.11	---	74.00	18.89	150.0	H	0.0
9707.250000	55.07	---	74.00	18.93	150.0	V	0.0
8134.000000	54.97	---	74.00	19.03	150.0	H	0.0
8188.750000	54.43	---	74.00	19.57	150.0	H	0.0
6050.250000	53.94	---	74.00	20.06	150.0	H	0.0
7349.750000	53.92	---	74.00	20.08	150.0	H	0.0
5997.250000	53.85	---	74.00	20.15	150.0	V	0.0
6593.500000	53.78	---	74.00	20.22	150.0	H	0.0
4969.000000	52.91	---	74.00	21.09	150.0	V	0.0
4818.750000	52.87	---	74.00	21.13	150.0	H	0.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH64, OFDM 50K

Full Spectrum



1_RIVA 1-10G OFDM50K CH64 2 / 2

Final_Result

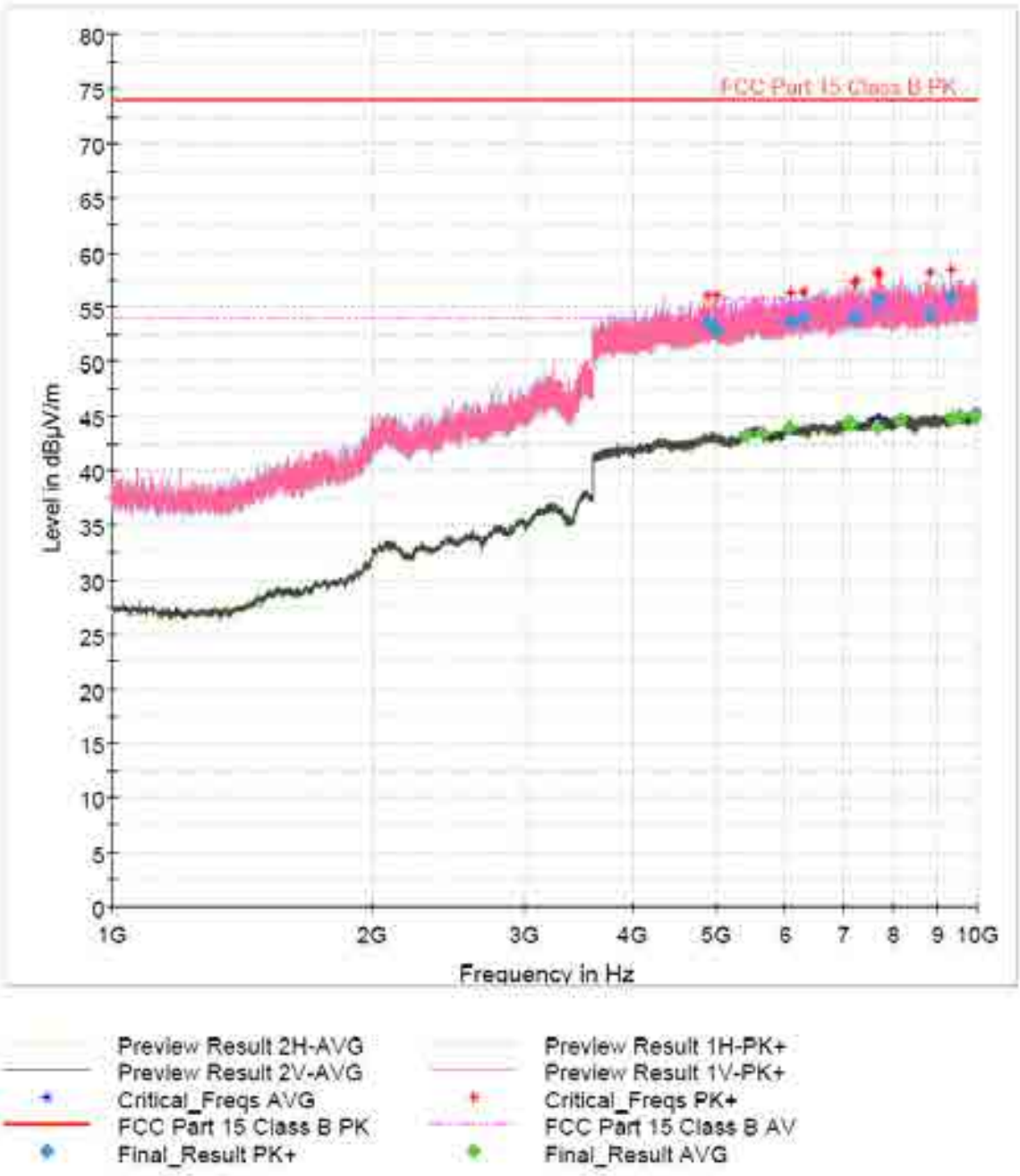
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
9544.500000	---	44.97	54.00	9.03	133.0	H	172.0
9297.000000	---	44.95	54.00	9.05	175.0	H	172.0
9581.500000	---	44.84	54.00	9.16	139.0	H	172.0
8234.000000	---	44.81	54.00	9.19	175.0	V	172.0
7271.500000	---	44.42	54.00	9.58	125.0	H	172.0
6037.750000	---	44.30	54.00	9.70	134.0	V	172.0
7063.500000	---	44.16	54.00	9.84	175.0	V	172.0
8377.000000	---	44.13	54.00	9.87	144.0	V	172.0
6144.000000	---	43.80	54.00	10.20	168.0	H	172.0
5039.500000	---	43.09	54.00	10.91	164.0	V	172.0
7769.250000	55.26	---	74.00	18.74	175.0	H	0.0
7154.250000	55.21	---	74.00	18.79	175.0	H	0.0
9857.500000	54.90	---	74.00	19.11	148.0	V	0.0
9544.750000	54.77	---	74.00	19.23	150.0	V	172.0
8377.000000	54.35	---	74.00	19.65	155.0	V	0.0
6161.250000	54.34	---	74.00	19.66	136.0	V	0.0
9286.750000	54.28	---	74.00	19.72	161.0	H	0.0
6117.250000	54.15	---	74.00	19.85	125.0	V	0.0
7170.500000	53.80	---	74.00	20.20	146.0	H	0.0
5286.000000	53.20	---	74.00	20.80	132.0	V	0.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH1, OFDM 600K

Full Spectrum



EMI Auto Test(1) 2 / 2

Final_Result

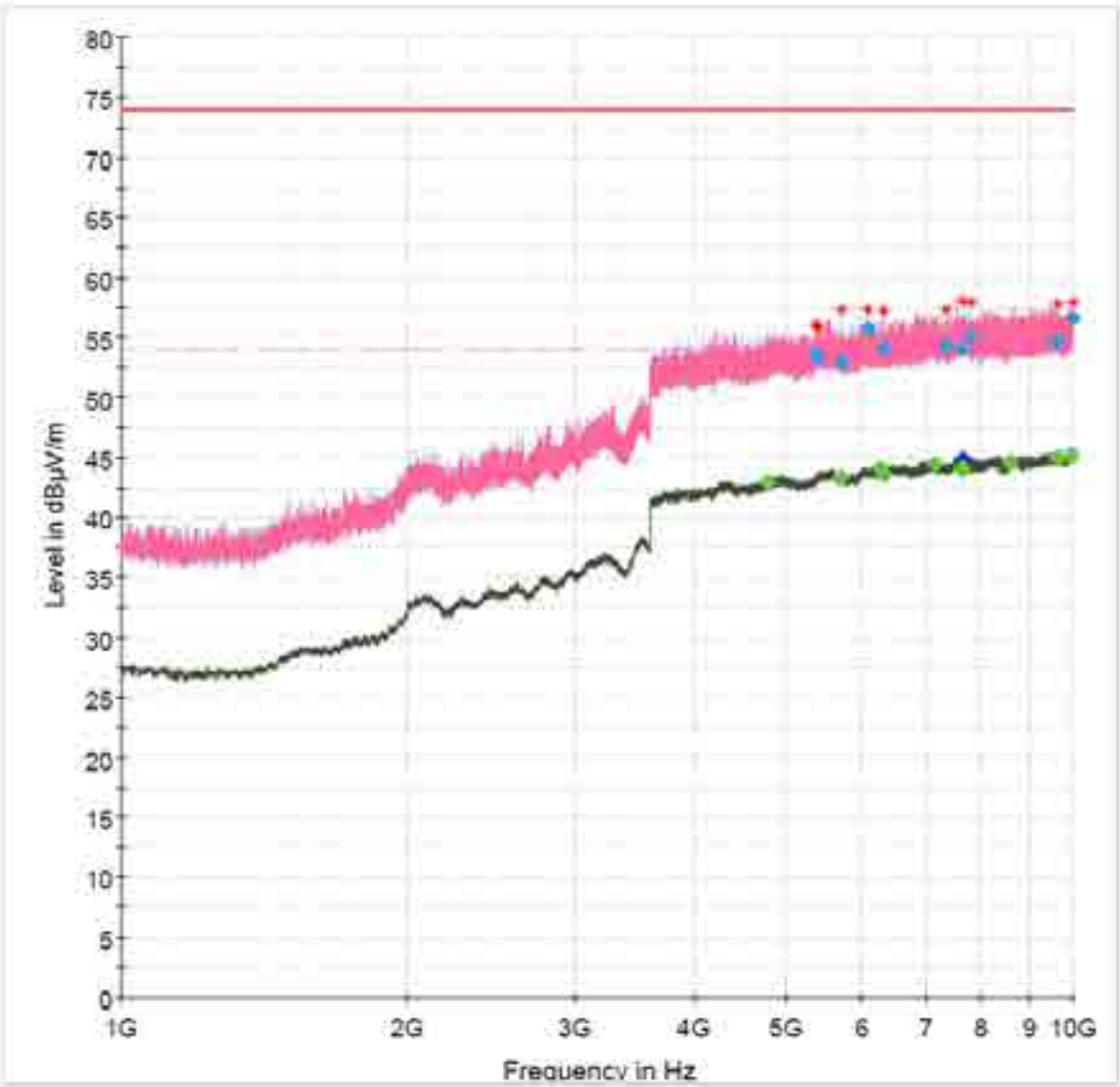
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
4884.500000	53.62	---	74.00	20.38	150.0	V	0.0
5007.250000	52.84	---	74.00	21.16	150.0	V	0.0
5409.500000	---	43.27	54.00	10.73	150.0	H	0.0
5638.750000	---	43.51	54.00	10.49	150.0	V	0.0
6068.750000	---	44.00	54.00	10.00	150.0	H	0.0
6081.000000	53.64	---	74.00	20.36	150.0	V	0.0
6305.750000	54.00	---	74.00	20.00	150.0	H	0.0
7114.000000	---	44.17	54.00	9.83	150.0	H	0.0
7120.750000	---	44.50	54.00	9.50	150.0	H	0.0
7208.250000	54.04	---	74.00	19.96	150.0	V	0.0
7249.250000	54.29	---	74.00	19.71	150.0	H	0.0
7665.250000	---	44.02	54.00	9.98	150.0	V	0.0
7665.250000	55.04	---	74.00	18.96	150.0	V	0.0
7700.750000	55.79	---	74.00	18.21	150.0	V	0.0
8153.750000	---	44.72	54.00	9.28	150.0	V	0.0
8835.500000	54.38	---	74.00	19.62	150.0	H	0.0
9331.750000	55.80	---	74.00	18.20	150.0	V	0.0
9370.750000	---	44.75	54.00	9.25	150.0	V	0.0
9545.750000	---	45.13	54.00	8.87	150.0	H	0.0
9971.750000	---	44.91	54.00	9.09	150.0	V	0.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH32, OFDM 600K

Full Spectrum



1_RIVA 1-10G OFDM600K CH32 2 / 2

Final_Result

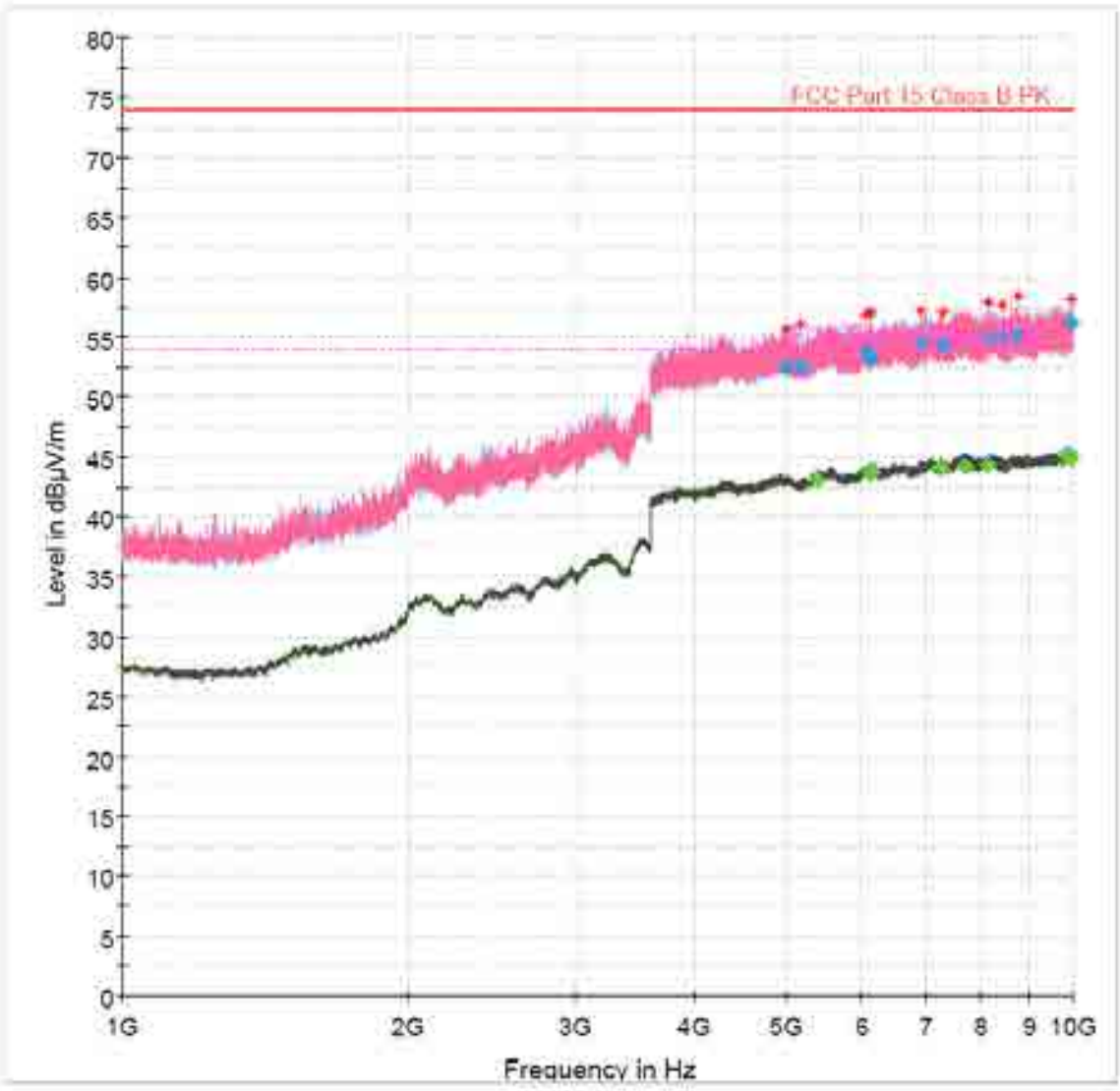
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
9947.500000	---	45.09	54.00	8.91	150.0	H	0.0
9623.000000	---	45.01	54.00	8.99	150.0	V	0.0
8579.750000	---	44.59	54.00	9.41	150.0	V	0.0
7169.750000	---	44.47	54.00	9.53	150.0	V	0.0
7642.750000	---	44.14	54.00	9.86	150.0	H	0.0
6274.750000	---	44.07	54.00	9.93	150.0	V	0.0
7640.000000	---	43.93	54.00	10.07	150.0	H	0.0
6314.250000	---	43.63	54.00	10.37	150.0	V	0.0
5719.750000	---	43.33	54.00	10.67	150.0	H	0.0
4775.000000	---	42.96	54.00	11.04	150.0	H	0.0
9997.500000	56.65	---	74.00	17.35	150.0	V	0.0
6095.500000	55.72	---	74.00	18.28	150.0	H	0.0
7817.000000	55.16	---	74.00	18.84	150.0	H	0.0
9623.000000	54.59	---	74.00	19.41	150.0	V	0.0
7345.750000	54.19	---	74.00	19.81	150.0	V	0.0
6314.250000	53.96	---	74.00	20.04	150.0	V	0.0
7642.750000	53.94	---	74.00	20.06	150.0	H	0.0
5383.750000	53.50	---	74.00	20.50	150.0	V	0.0
5389.250000	53.38	---	74.00	20.62	150.0	H	0.0
5719.750000	52.91	---	74.00	21.09	150.0	H	0.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH64, OFDM 600K

Full Spectrum



Preview Result 2H-AVG
Preview Result 2V-AVG
Critical_Freqs AVG
FCC Part 15 Class B PK
Final_Result PK+
Preview Result 1H-PK+
Preview Result 1V-PK+
Critical_Freqs PK+
FCC Part 15 Class B AV
Final_Result AVG

1_RIVA 1-10G OFDM600K CH64 2 / 2

Final_Result

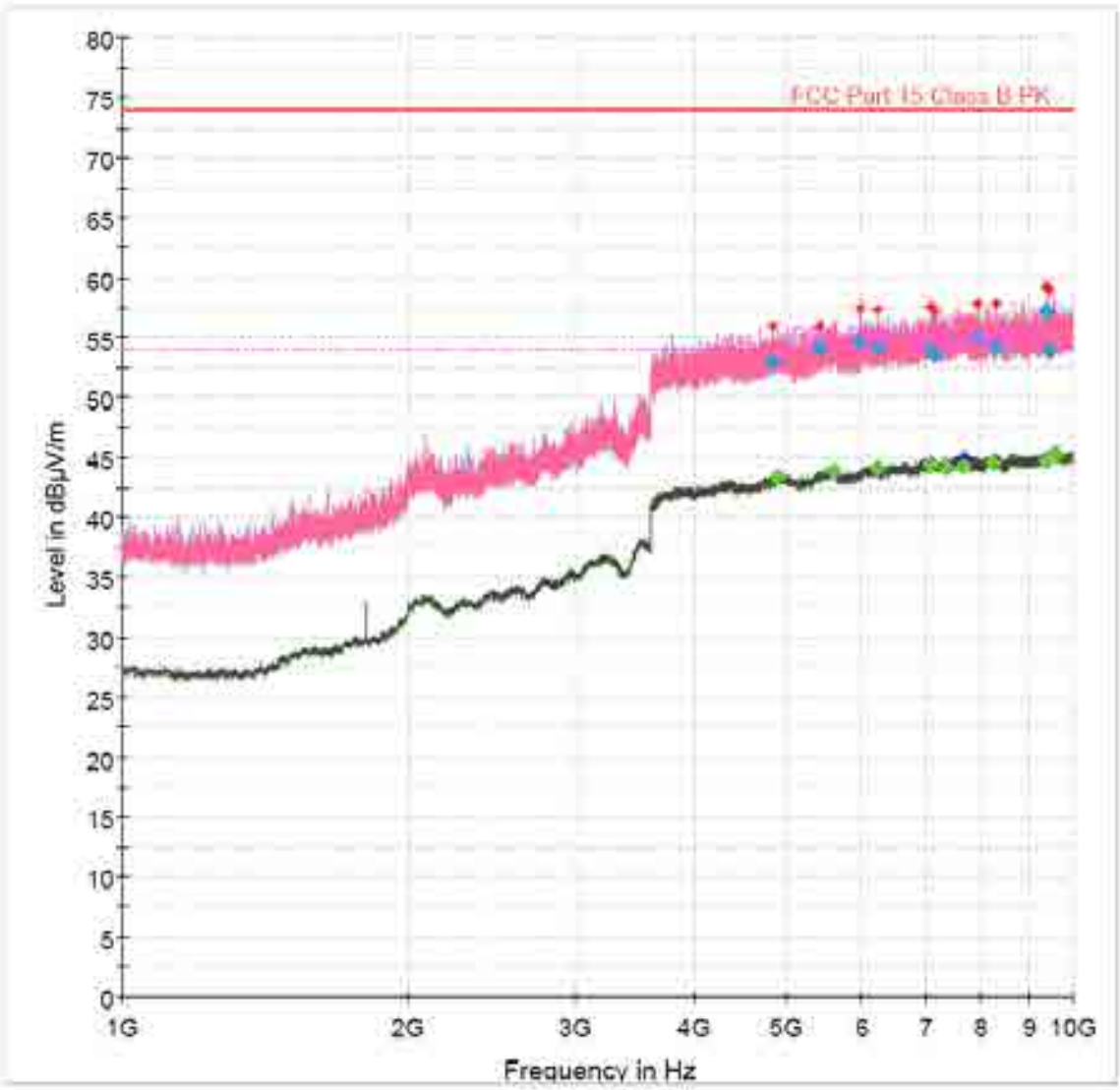
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
5007.250000	52.53	---	74.00	21.47	150.0	H	0.0
5165.250000	52.55	---	74.00	21.45	150.0	H	0.0
5403.000000	---	43.15	54.00	10.85	150.0	H	0.0
6060.500000	53.75	---	74.00	20.25	150.0	V	0.0
6104.250000	---	43.73	54.00	10.27	150.0	H	0.0
6142.000000	53.15	---	74.00	20.85	150.0	H	0.0
6166.500000	---	43.74	54.00	10.26	150.0	H	0.0
6930.000000	54.61	---	74.00	19.39	150.0	H	0.0
7237.500000	---	44.11	54.00	9.89	150.0	H	0.0
7279.500000	---	44.13	54.00	9.87	150.0	H	0.0
7291.750000	54.33	---	74.00	19.67	150.0	H	0.0
7709.500000	---	44.21	54.00	9.79	150.0	V	0.0
8139.000000	55.04	---	74.00	18.96	150.0	H	0.0
8139.000000	---	44.37	54.00	9.63	150.0	H	0.0
8441.500000	54.94	---	74.00	19.06	150.0	H	0.0
8771.250000	55.13	---	74.00	18.87	150.0	V	0.0
9863.750000	---	45.06	54.00	8.94	150.0	H	0.0
9944.250000	---	45.00	54.00	9.00	150.0	V	0.0
9944.250000	56.22	---	74.00	17.78	150.0	V	0.0
9966.750000	---	44.90	54.00	9.10	150.0	V	0.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH1, DSSS 6.25K

Full Spectrum



Preview Result 2H-AVG
Preview Result 2V-AVG
Critical_Freqs AVG
FCC Part 15 Class B PK
Final_Result PK+
Preview Result 1H-PK+
Preview Result 1V-PK+
Critical_Freqs PK+
FCC Part 15 Class B AV
Final_Result AVG

EMI Auto Test(1) 2 / 2

Final_Result

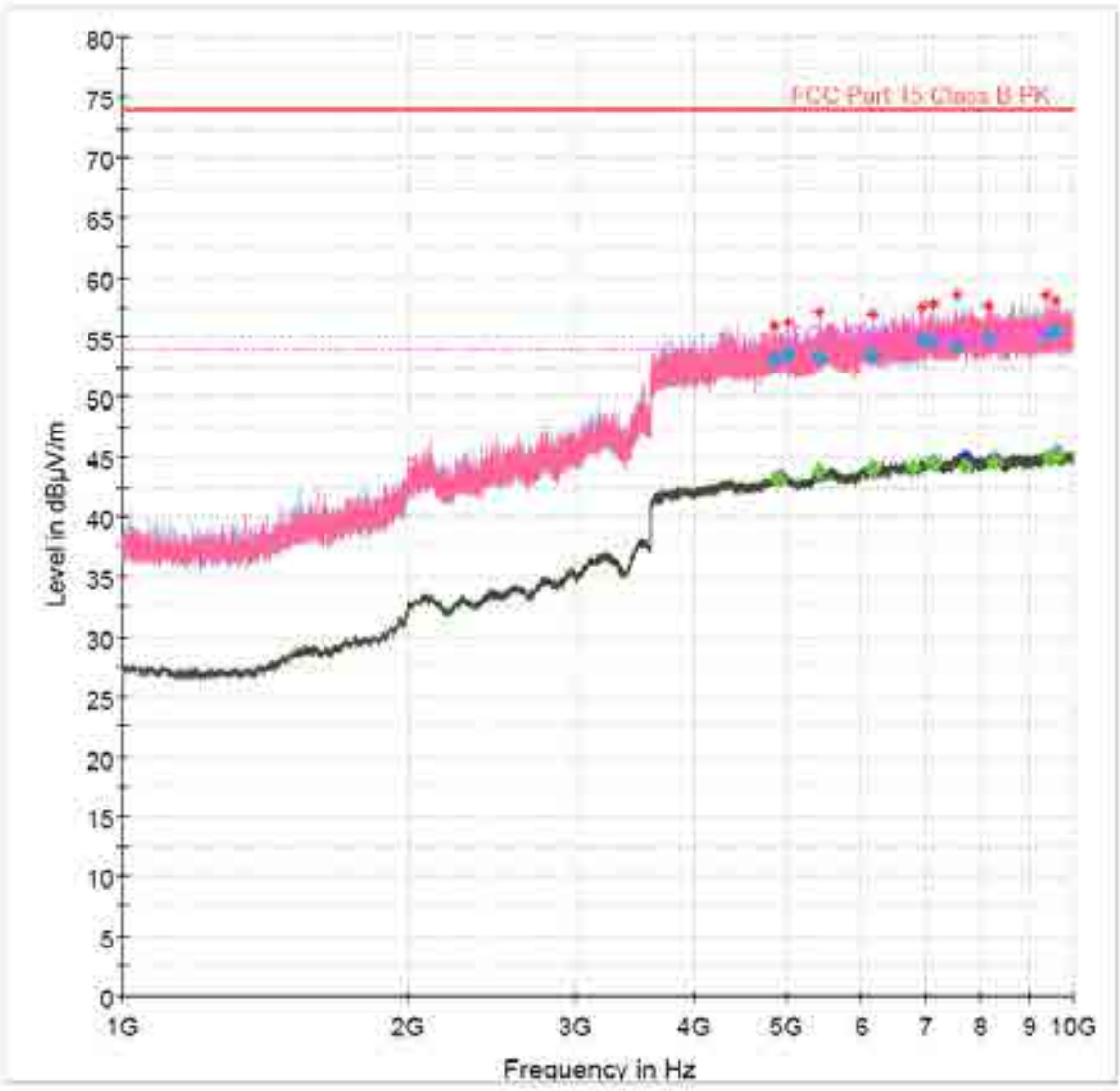
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
9583.250000	---	45.19	54.00	8.81	150.0	V	0.0
9451.500000	---	44.90	54.00	9.10	150.0	V	0.0
9377.500000	---	44.77	54.00	9.23	150.0	H	0.0
8241.500000	---	44.53	54.00	9.47	150.0	V	0.0
7094.500000	---	44.31	54.00	9.69	150.0	H	0.0
7684.250000	---	44.19	54.00	9.81	150.0	H	0.0
7356.000000	---	44.12	54.00	9.88	150.0	H	0.0
6225.000000	---	44.09	54.00	9.91	150.0	V	0.0
5611.250000	---	43.84	54.00	10.16	150.0	V	0.0
4894.750000	---	43.33	54.00	10.67	150.0	V	0.0
9377.750000	57.21	---	74.00	16.79	150.0	H	0.0
7925.500000	55.08	---	74.00	18.92	150.0	V	0.0
5975.000000	54.73	---	74.00	19.27	150.0	V	0.0
8292.250000	54.30	---	74.00	19.70	150.0	V	0.0
6225.250000	54.14	---	74.00	19.86	150.0	V	0.0
5405.750000	54.07	---	74.00	19.93	150.0	H	0.0
9451.500000	53.86	---	74.00	20.14	150.0	V	0.0
7094.250000	53.84	---	74.00	20.16	150.0	H	0.0
7167.250000	53.63	---	74.00	20.37	150.0	V	0.0
4826.250000	53.01	---	74.00	20.99	150.0	V	0.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH32, DSSS 6.25K

Full Spectrum



Preview Result 2H-AVG
Preview Result 2V-AVG
Critical_Freqs AVG
FCC Part 15 Class B PK
Final_Result PK+
Preview Result 1H-PK+
Preview Result 1V-PK+
Critical_Freqs PK+
FCC Part 15 Class B AV
Final_Result AVG

1_RIVA 1-10G DSSS6.25K CH32 2 / 2

Final_Result

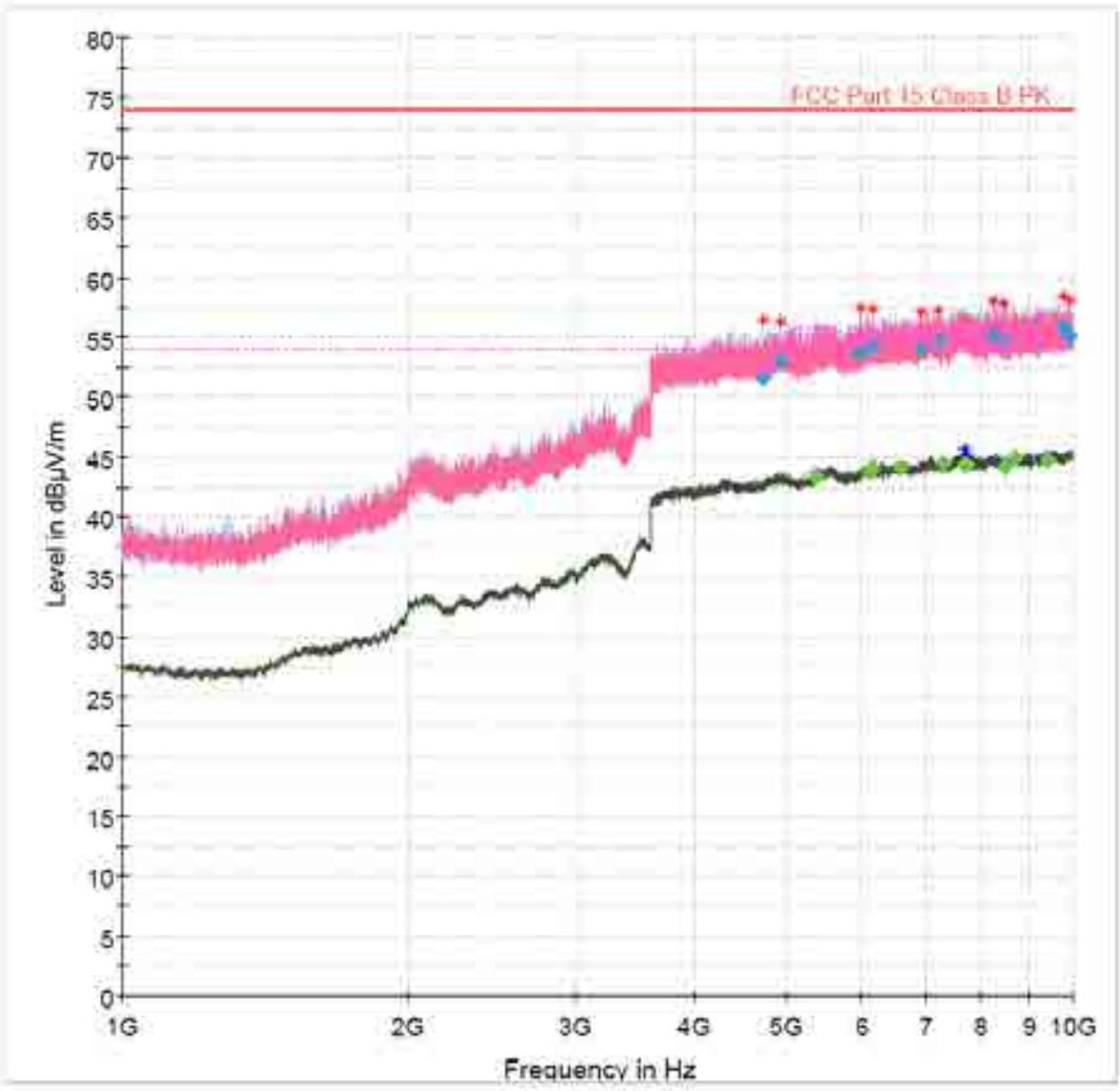
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
4848.500000	53.08	---	74.00	20.92	150.0	V	0.0
4907.500000	---	43.07	54.00	10.93	150.0	H	0.0
5011.750000	53.64	---	74.00	20.36	150.0	V	0.0
5422.000000	53.35	---	74.00	20.65	150.0	V	0.0
5422.250000	---	43.79	54.00	10.21	150.0	V	0.0
6157.750000	---	43.92	54.00	10.08	150.0	V	0.0
6166.250000	53.54	---	74.00	20.46	150.0	V	0.0
6783.750000	---	44.05	54.00	9.95	150.0	V	0.0
6949.500000	54.82	---	74.00	19.18	150.0	V	0.0
7134.500000	54.59	---	74.00	19.41	150.0	H	0.0
7134.750000	---	44.47	54.00	9.53	150.0	H	0.0
7565.250000	54.24	---	74.00	19.76	150.0	H	0.0
7702.250000	---	44.17	54.00	9.83	150.0	V	0.0
8145.750000	54.84	---	74.00	19.16	150.0	H	0.0
8267.750000	---	44.59	54.00	9.41	150.0	H	0.0
9387.000000	55.17	---	74.00	18.83	150.0	V	0.0
9442.500000	---	44.96	54.00	9.04	150.0	H	0.0
9578.500000	---	45.04	54.00	8.96	150.0	H	0.0
9578.750000	55.46	---	74.00	18.54	150.0	H	0.0
9623.750000	---	45.05	54.00	8.95	150.0	H	0.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH64, DSSS 6.25K

Full Spectrum



Preview Result 2H-AVG
Preview Result 2V-AVG
Critical_Freqs AVG
FCC Part 15 Class B PK
Final_Result PK+
Preview Result 1H-PK+
Preview Result 1V-PK+
Critical_Freqs PK+
FCC Part 15 Class B AV
Final_Result AVG

1_RIVA 1-10G DSSS6.25K CH64 2 / 2

Final_Result

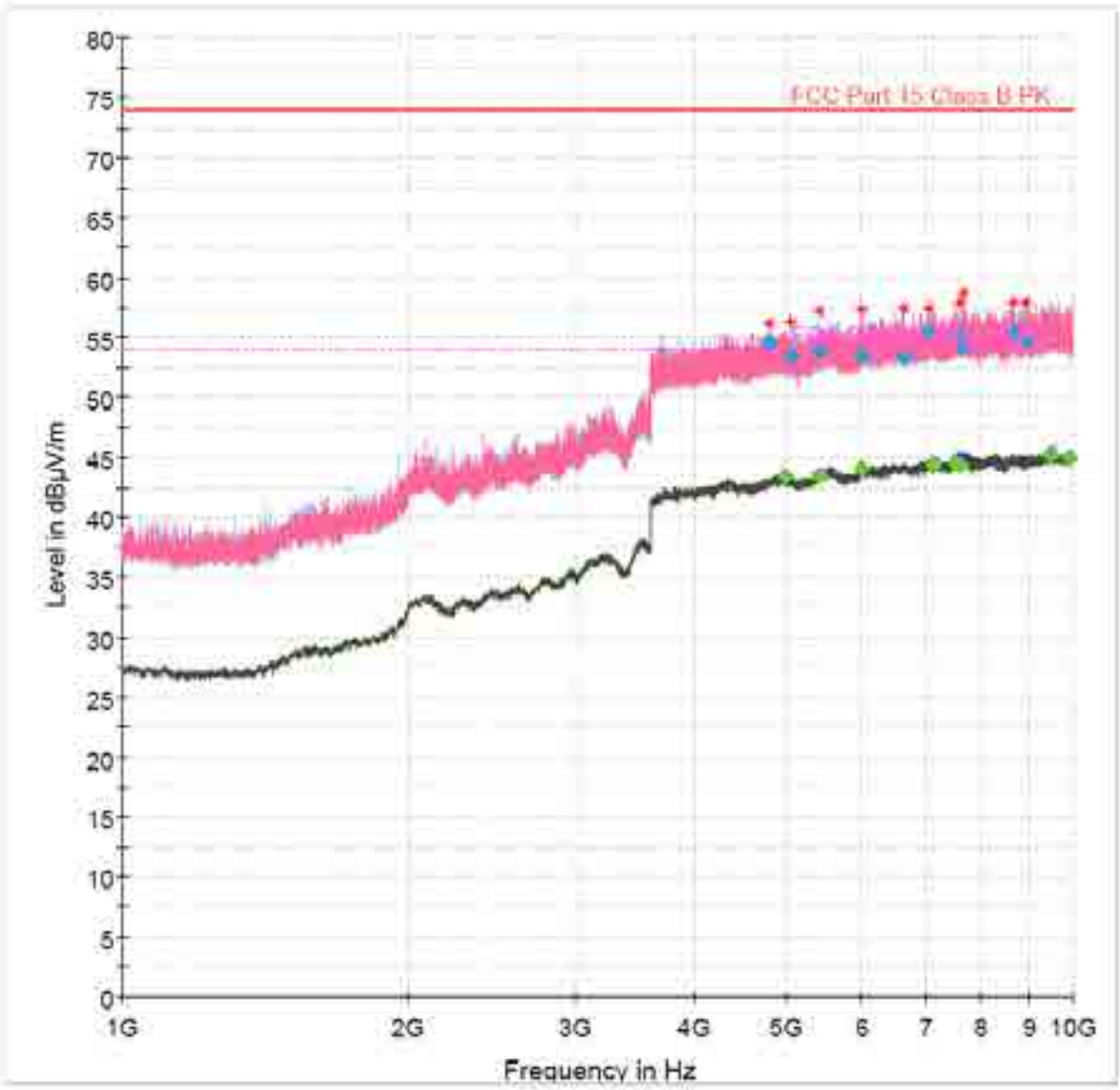
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
4717.000000	51.68	---	74.00	22.32	150.0	H	0.0
4917.750000	53.05	---	74.00	20.95	150.0	H	0.0
5363.500000	---	43.30	54.00	10.70	150.0	H	0.0
5976.500000	53.72	---	74.00	20.28	150.0	V	0.0
6111.250000	---	43.84	54.00	10.16	150.0	H	0.0
6147.250000	---	43.99	54.00	10.01	150.0	H	0.0
6169.500000	54.38	---	74.00	19.62	150.0	H	0.0
6591.500000	---	44.07	54.00	9.93	150.0	H	0.0
6927.500000	54.00	---	74.00	20.00	150.0	V	0.0
7225.250000	54.72	---	74.00	19.28	150.0	H	0.0
7309.750000	---	44.46	54.00	9.54	150.0	H	0.0
7703.500000	---	44.37	54.00	9.63	150.0	H	0.0
7719.250000	---	44.33	54.00	9.67	150.0	V	0.0
8238.000000	55.28	---	74.00	18.72	150.0	H	0.0
8460.000000	54.83	---	74.00	19.17	150.0	H	0.0
8481.500000	---	44.18	54.00	9.82	150.0	V	0.0
8696.500000	---	44.97	54.00	9.03	150.0	V	0.0
9395.500000	---	44.66	54.00	9.34	150.0	H	0.0
9785.000000	55.82	---	74.00	18.18	150.0	H	0.0
9923.250000	55.16	---	74.00	18.84	150.0	H	0.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH1, DSSS 50K

Full Spectrum



Preview Result 2H-AVG
Preview Result 2V-AVG
Critical_Freqs AVG
FCC Part 15 Class B PK
Final_Result PK+
Preview Result 1H-PK+
Preview Result 1V-PK+
Critical_Freqs PK+
FCC Part 15 Class B AV
Final_Result AVG

EMI Auto Test(1) 2 / 2

Final_Result

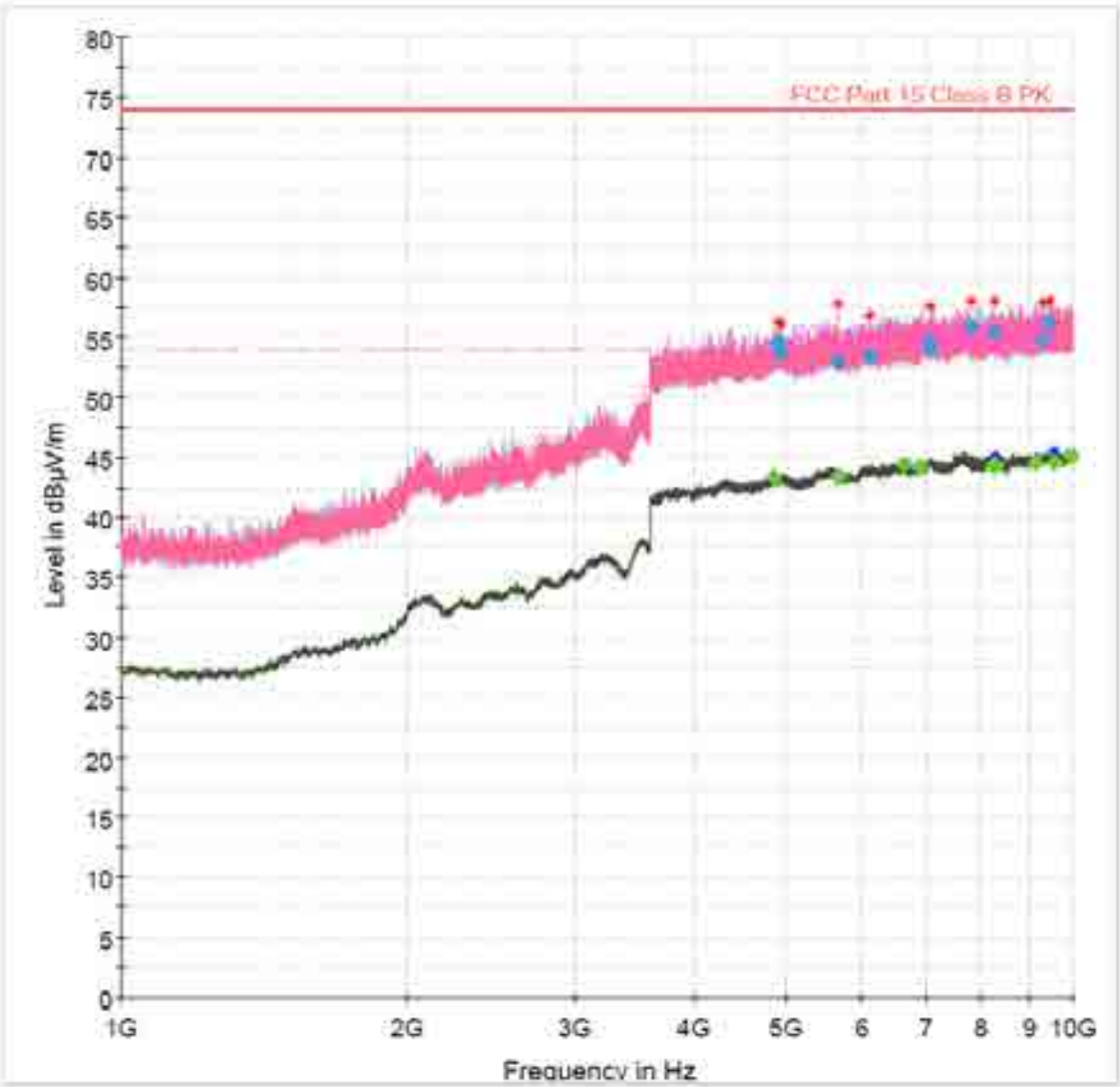
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
4793.000000	54.57	---	74.00	19.43	150.0	V	0.0
4974.500000	---	43.47	54.00	10.53	150.0	V	0.0
5051.500000	53.44	---	74.00	20.56	150.0	H	0.0
5423.250000	53.87	---	74.00	20.13	150.0	H	0.0
5423.500000	---	43.50	54.00	10.50	150.0	H	0.0
5994.750000	53.48	---	74.00	20.52	150.0	V	0.0
6005.250000	---	44.06	54.00	9.94	150.0	H	0.0
6648.250000	53.35	---	74.00	20.65	150.0	V	0.0
7057.000000	55.44	---	74.00	18.56	150.0	V	0.0
7130.500000	---	44.31	54.00	9.69	150.0	V	0.0
7146.000000	---	44.36	54.00	9.64	150.0	H	0.0
7523.500000	---	44.57	54.00	9.43	150.0	V	0.0
7602.000000	---	44.32	54.00	9.68	150.0	H	0.0
7602.000000	55.28	---	74.00	18.72	150.0	H	0.0
7673.250000	54.12	---	74.00	19.88	150.0	H	0.0
8675.250000	55.52	---	74.00	18.48	150.0	V	0.0
8942.750000	54.79	---	74.00	19.21	150.0	H	0.0
9472.750000	---	45.22	54.00	8.78	150.0	V	0.0
9497.500000	---	45.17	54.00	8.83	150.0	V	0.0
9935.750000	---	45.01	54.00	8.99	150.0	V	0.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH32, DSSS 50K

Full Spectrum



1_RIVA 1-10G DSSS50K CH32 2 / 2

Final_Result

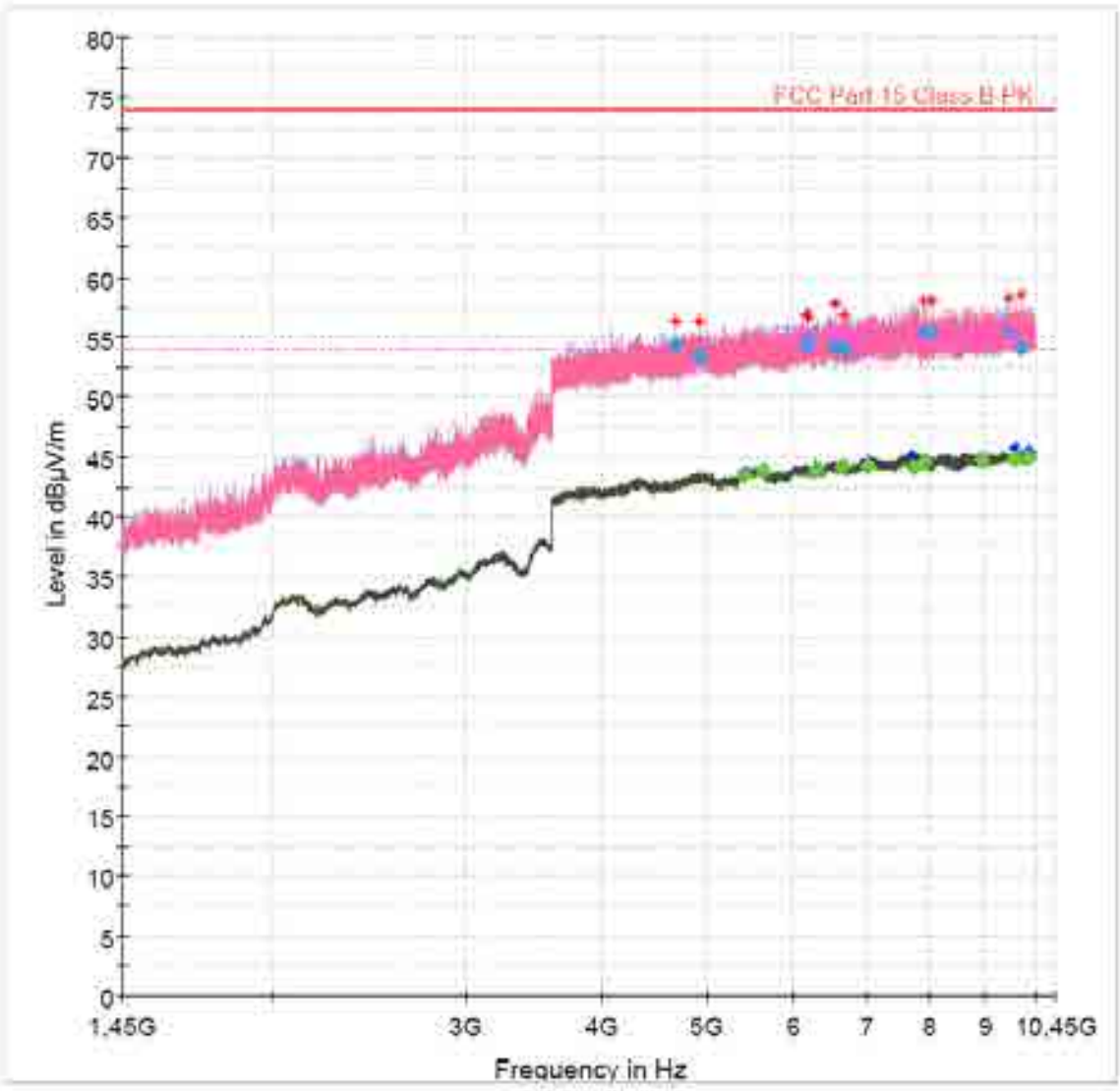
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
4847.000000	---	43.32	54.00	10.68	150.0	V	0.0
4904.750000	54.63	---	74.00	19.37	150.0	V	0.0
4922.500000	53.63	---	74.00	20.37	150.0	H	0.0
5674.750000	52.89	---	74.00	21.11	150.0	V	0.0
5675.000000	---	43.39	54.00	10.61	150.0	V	0.0
5676.000000	---	43.39	54.00	10.61	150.0	V	0.0
6122.250000	53.41	---	74.00	20.59	150.0	V	0.0
6849.750000	---	44.41	54.00	9.59	150.0	H	0.0
6906.750000	---	44.19	54.00	9.81	150.0	V	0.0
7078.000000	54.86	---	74.00	19.14	150.0	V	0.0
7086.000000	53.98	---	74.00	20.02	150.0	H	0.0
7822.250000	55.83	---	74.00	18.17	150.0	H	0.0
8267.000000	55.44	---	74.00	18.56	150.0	H	0.0
8267.250000	---	44.47	54.00	9.53	150.0	H	0.0
8290.500000	---	44.22	54.00	9.78	150.0	H	0.0
9142.000000	---	44.55	54.00	9.45	150.0	V	0.0
9300.750000	54.91	---	74.00	19.09	150.0	H	0.0
9461.000000	56.16	---	74.00	17.84	150.0	V	0.0
9564.000000	---	44.63	54.00	9.37	150.0	V	0.0
9962.250000	---	45.11	54.00	8.89	150.0	H	0.0

Radiated emission

EUT Information

Model:	Itron Riva Dev Mini
OP Condition	CH64, DSSS 50K

Full Spectrum



Preview Result 2H-AVG
Preview Result 2V-AVG
Critical_Freqs AVG
FCC Part 15 Class B PK
Final_Result PK+
Preview Result 1H-PK+
Preview Result 1V-PK+
Critical_Freqs PK+
FCC Part 15 Class B AV
Final_Result AVG

1_RIVA 1-10G DSSS50K CH64 2 / 2

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
4672.250000	54.32	---	74.00	19.68	150.0	H	0.0
4913.750000	53.51	---	74.00	20.49	150.0	V	0.0
5410.500000	---	43.46	54.00	10.54	150.0	H	0.0
5625.500000	---	43.86	54.00	10.14	150.0	H	0.0
6174.500000	54.25	---	74.00	19.75	150.0	H	0.0
6192.000000	54.86	---	74.00	19.14	150.0	H	0.0
6292.250000	---	43.78	54.00	10.22	150.0	V	0.0
6559.250000	54.26	---	74.00	19.74	150.0	H	0.0
6660.500000	---	44.19	54.00	9.81	150.0	H	0.0
6688.250000	53.84	---	74.00	20.16	150.0	H	0.0
7031.500000	---	44.21	54.00	9.79	150.0	H	0.0
7725.250000	---	44.04	54.00	9.96	150.0	V	0.0
7901.750000	---	44.53	54.00	9.47	150.0	V	0.0
7902.000000	55.51	---	74.00	18.50	150.0	V	0.0
8047.250000	55.42	---	74.00	18.58	150.0	H	0.0
8957.250000	---	44.71	54.00	9.29	150.0	V	0.0
9457.000000	55.48	---	74.00	18.52	150.0	V	0.0
9581.500000	---	44.80	54.00	9.20	150.0	V	0.0
9704.000000	54.15	---	74.00	19.85	150.0	H	0.0
9863.250000	---	44.90	54.00	9.10	150.0	V	0.0

Calculation of final measurements:
Final Measurement (dBµV/m) = Receiver Reading (dBµV/m) + AF (dB) + CL (dB) + Atten (dB) + Preamp (dB)

where:

Final Measurement = Final measurement result
Receiver Reading = Uncorrected amplitude measured by the receiver
AF = Antenna Factor
CL = Cable Loss
Atten = Attenuator correction
Preamp = Preamplifier correction

3.11 §15.247 (d) Band-edge Compliance of RF Conducted Emissions

Requirement
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)).

Test Procedure
As per Clause 7.8.6 from ANSI C63.10-2013 and FCC/DA-00-705.

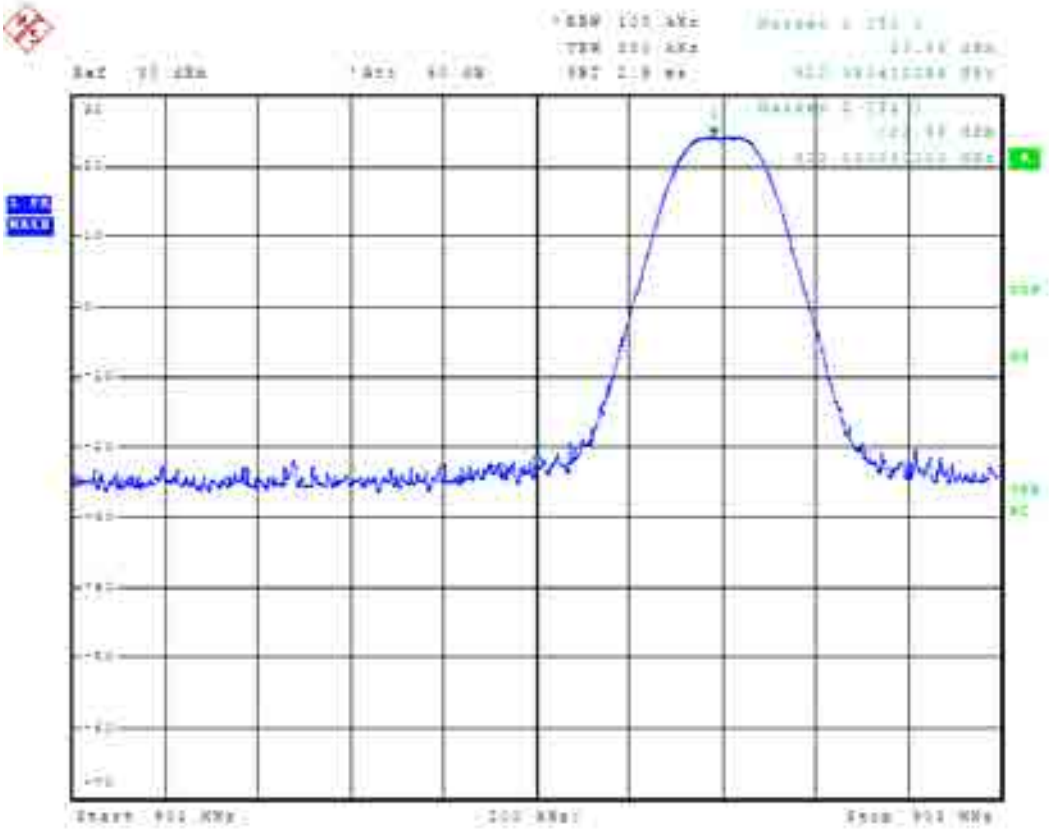
Test results

Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 FSK 75K, NON-HOPPING MODE

Test Spec
CONDUCTED

Sweep Settings Screen A

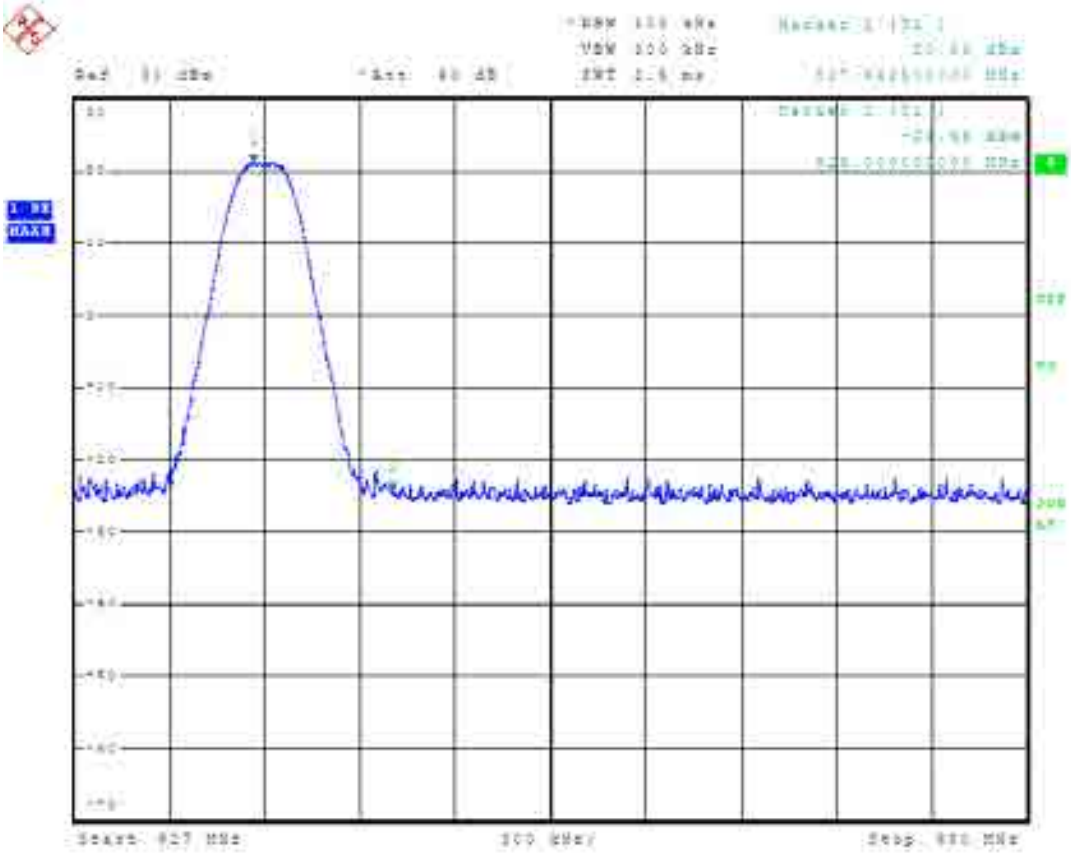
Center Frequency	902.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	903.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



Meas Type BAND EDGE
Equipment under Test Itron Riva Dev Mini
OP Condition CH64 FSK75K, NON-HOPPING MODE
Test Spec
CONDUCTED

Sweep Settings Screen A

Center Frequency	928.500000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	3.000000 MHz	Ref Position	100.000 %
Start Frequency	927.000000 MHz	Level Range	100.000 dB
Stop Frequency	930.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

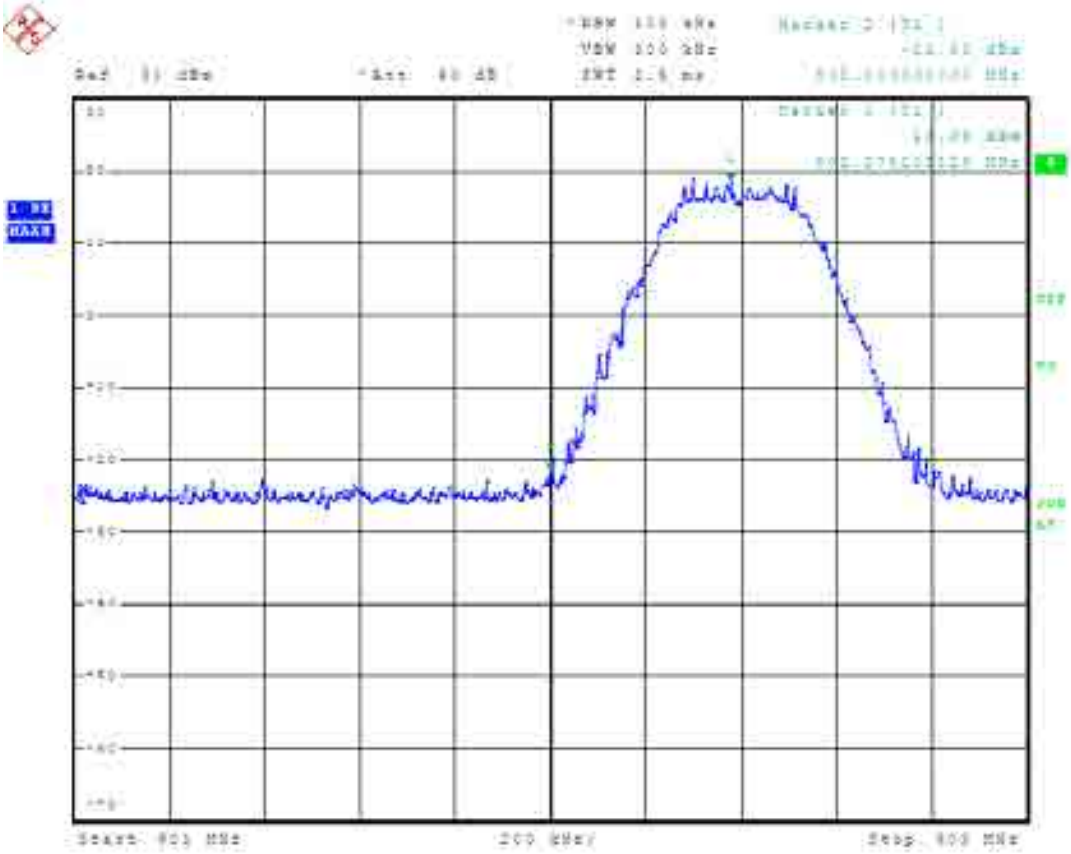


Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 OFDM 50K, NON-HOPPING MODE

Test Spec
CONDUCTED

Sweep Settings Screen A

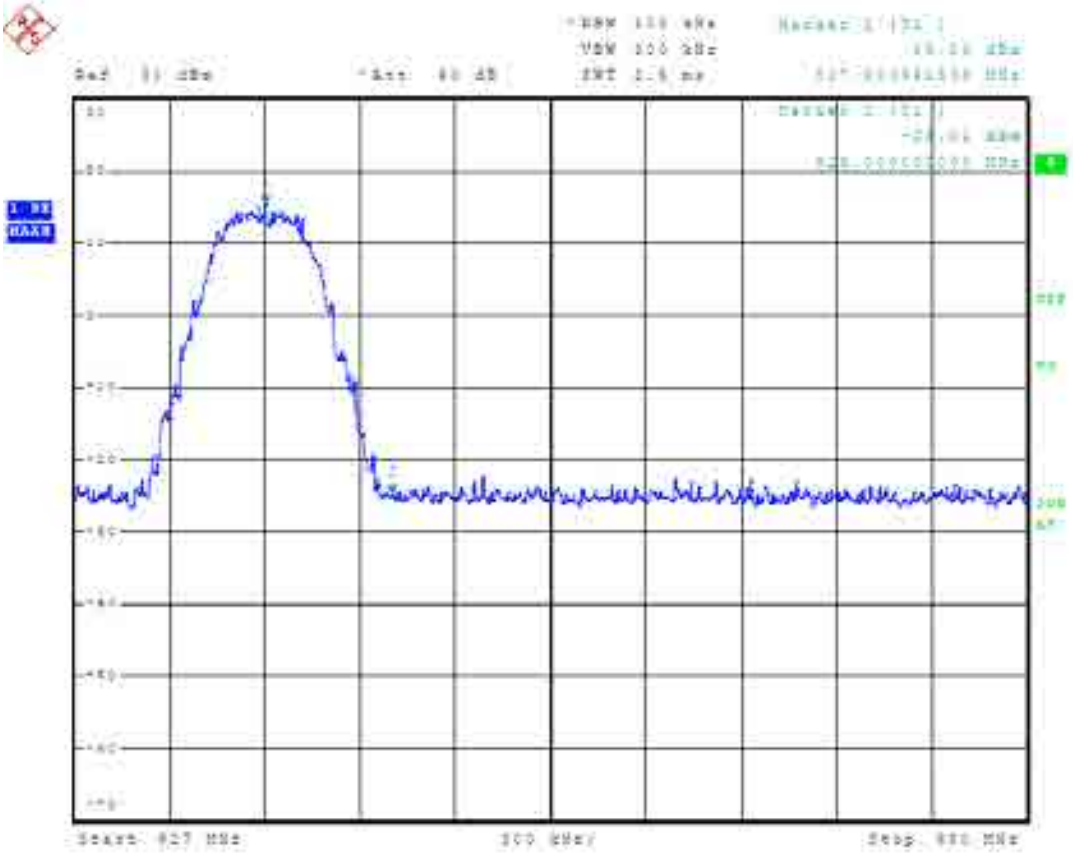
Center Frequency	902.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	903.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64 OFDM 50K, NON-HOPPING MODE
Test Spec	
CONDUCTED	

Sweep Settings Screen A

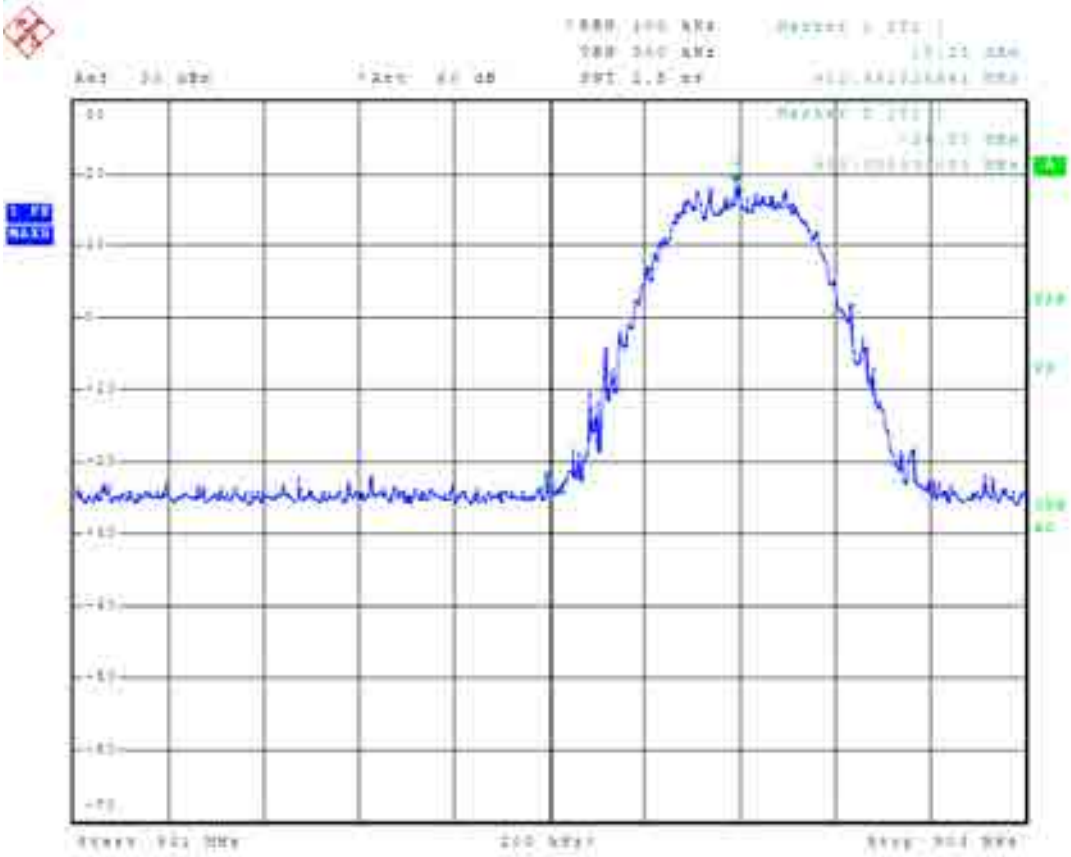
Center Frequency	928.500000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	3.000000 MHz	Ref Position	100.000 %
Start Frequency	927.000000 MHz	Level Range	100.000 dB
Stop Frequency	930.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 OFDM.600K, NON-HOPPING MODE
Test Spec	
CONDUCTED	

Sweep Settings Screen A

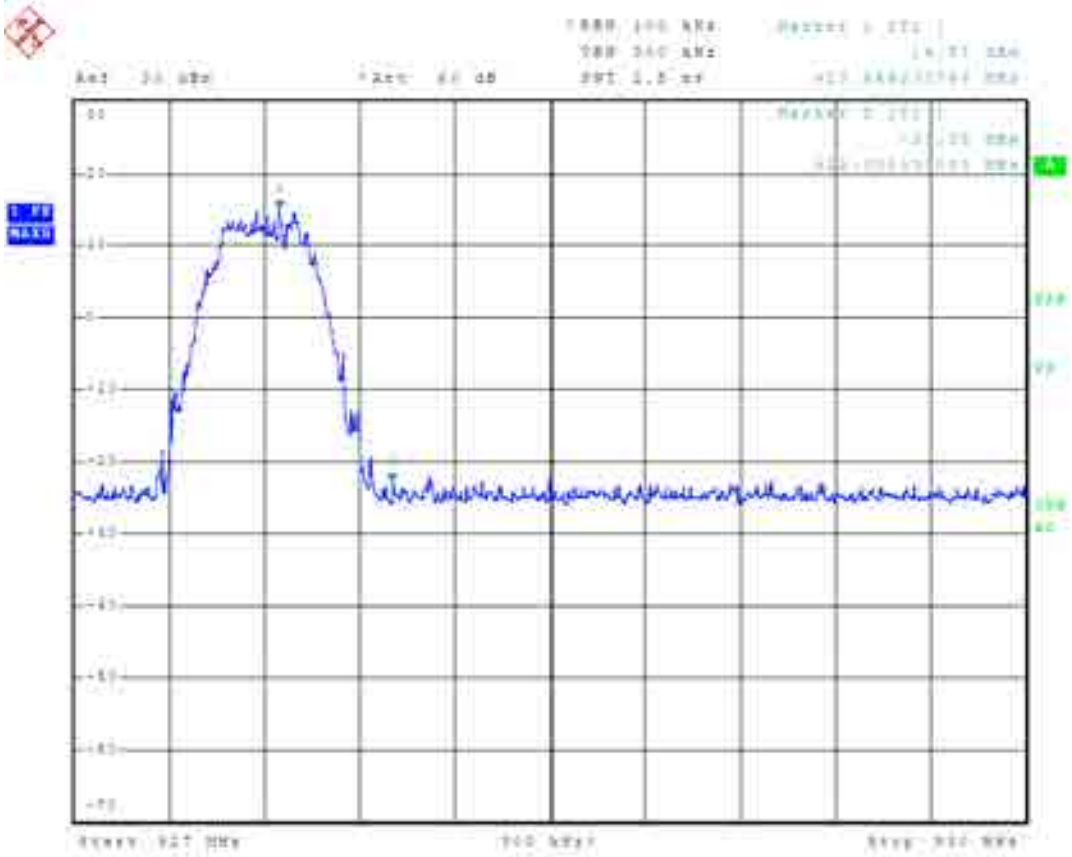
Center Frequency	902.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	903.000000 MHz	RF Att	40.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64 OFDM 600K, NON-HOPPING MODE
Test Spec	
CONDUCTED	

Sweep Settings — Screen A

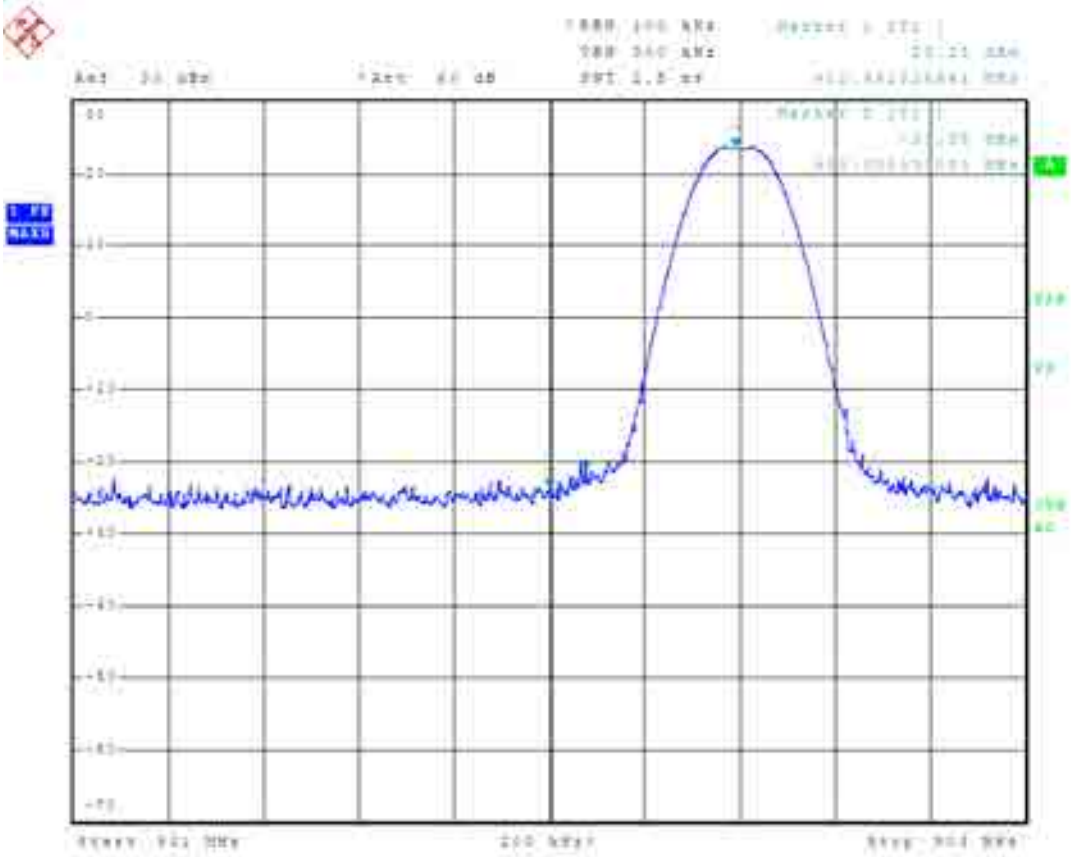
Center Frequency	920.500000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	3.000000 MHz	Ref Position	100.000 %
Start Frequency	919.000000 MHz	Level Range	100.000 dB
Stop Frequency	922.000000 MHz	RF Att	40.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 DSSS 6.25K, NON-HOPPING MODE
Test Spec	
CONDUCTED	

Sweep Settings Screen A

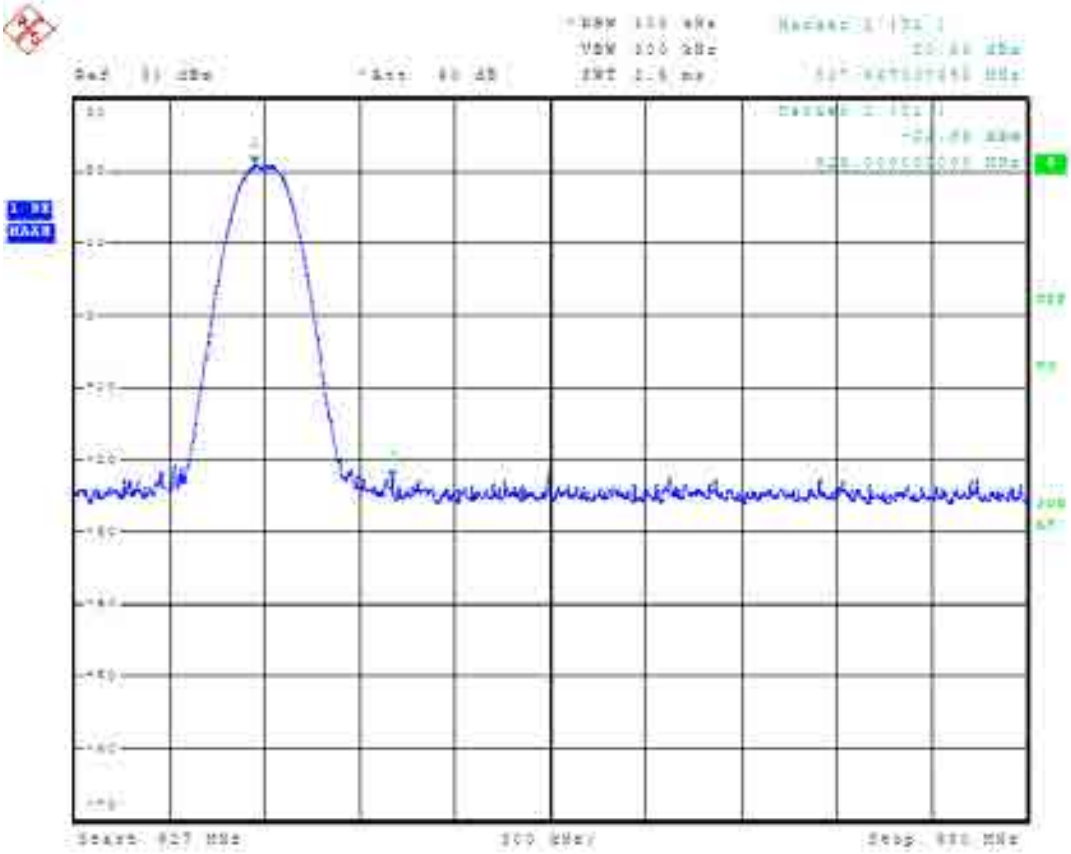
Center Frequency	902.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	903.000000 MHz	RF Att	40.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64 DSSS 6.25K, NON-HOPPING MODE
Test Spec	
CONDUCTED	

Sweep Settings Screen A

Center Frequency	928.500000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	3.000000 MHz	Ref Position	100.000 %
Start Frequency	927.000000 MHz	Level Range	100.000 dB
Stop Frequency	930.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

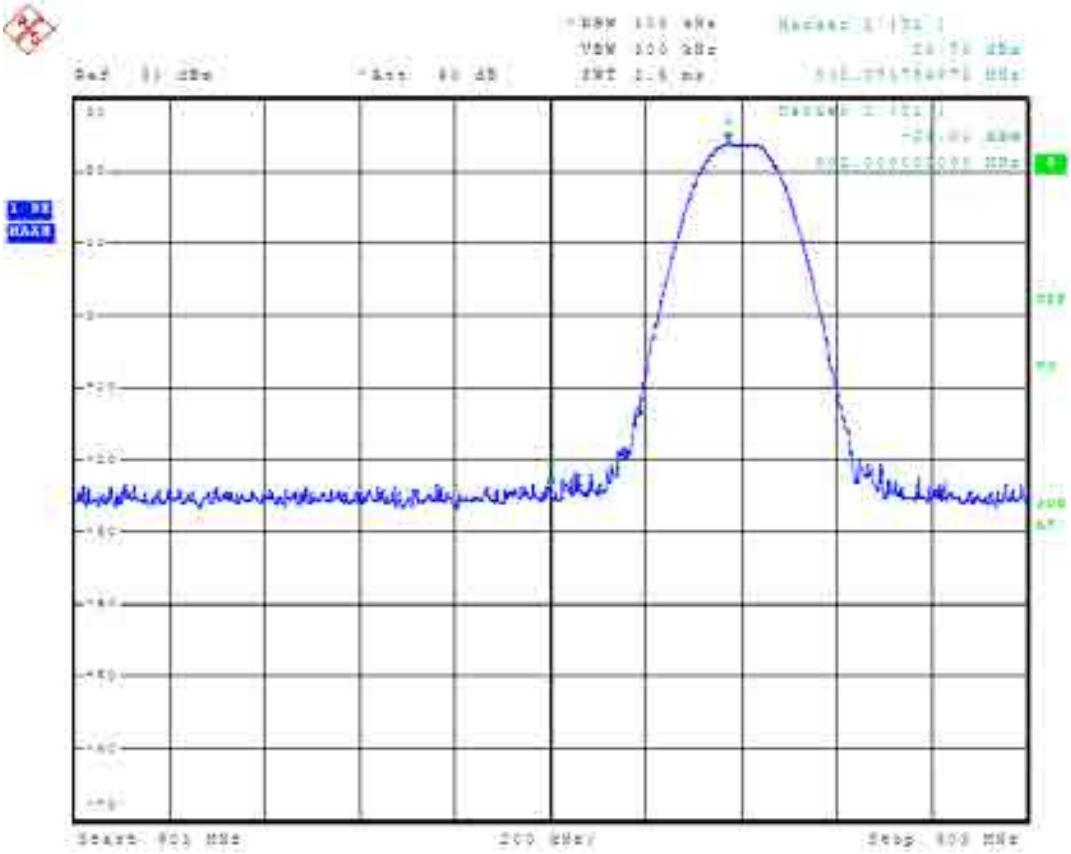


Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH1 DSSS 50K, NON-HOPPING MODE

Test Spec
CONDUCTED

Sweep Settings Screen A

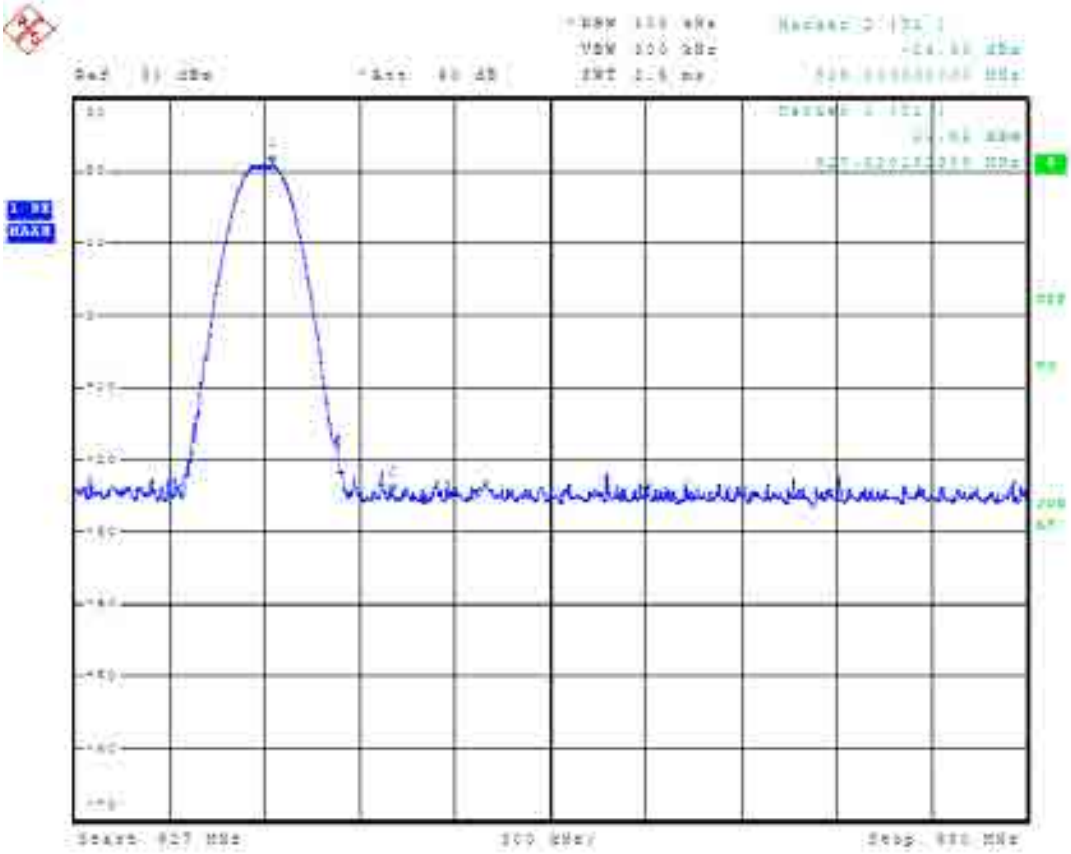
Center Frequency	902.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	903.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	CH64 DSSS 50K, NON-HOPPING MODE
Test Spec	
CONDUCTED	

Sweep Settings — Screen A

Center Frequency	928.500000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	3.000000 MHz	Ref Position	100.000 %
Start Frequency	927.000000 MHz	Level Range	100.000 dB
Stop Frequency	930.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

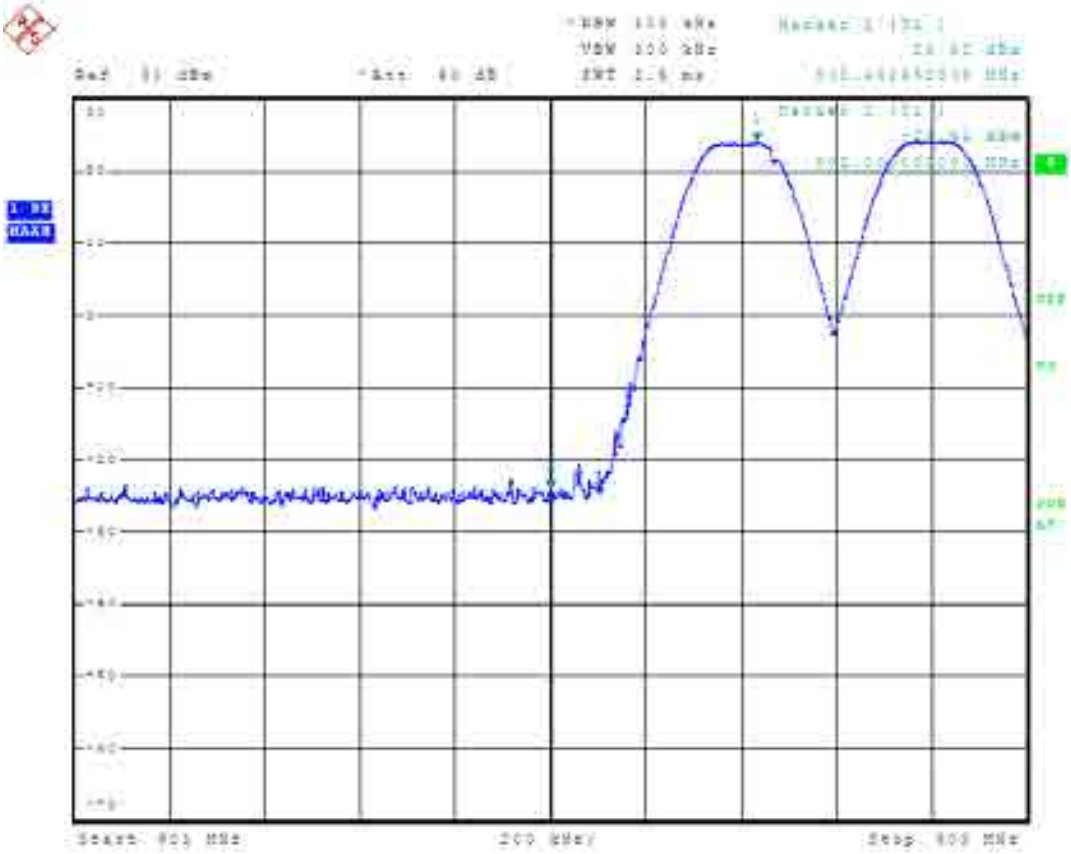


Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	FSK75K, HOPPING MODE

Test Spec
CONDUCTED

Sweep Settings Screen A

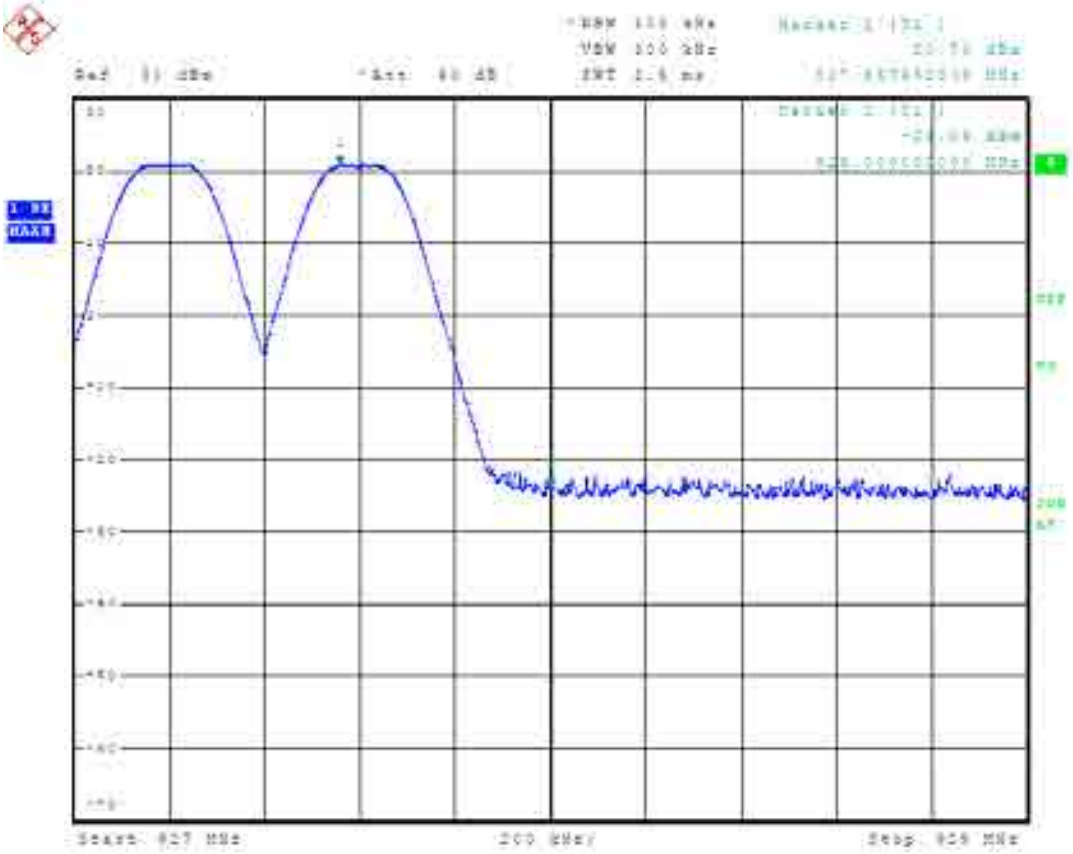
Center Frequency	902.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	903.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



Meas Type BAND EDGE
Equipment under Test Itron Riva Dev Mini
OP Condition FSK 75K, HOPPING MODE
Test Spec
CONDUCTED

Sweep Settings Screen A

Center Frequency	928.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	927.000000 MHz	Level Range	100.000 dB
Stop Frequency	929.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

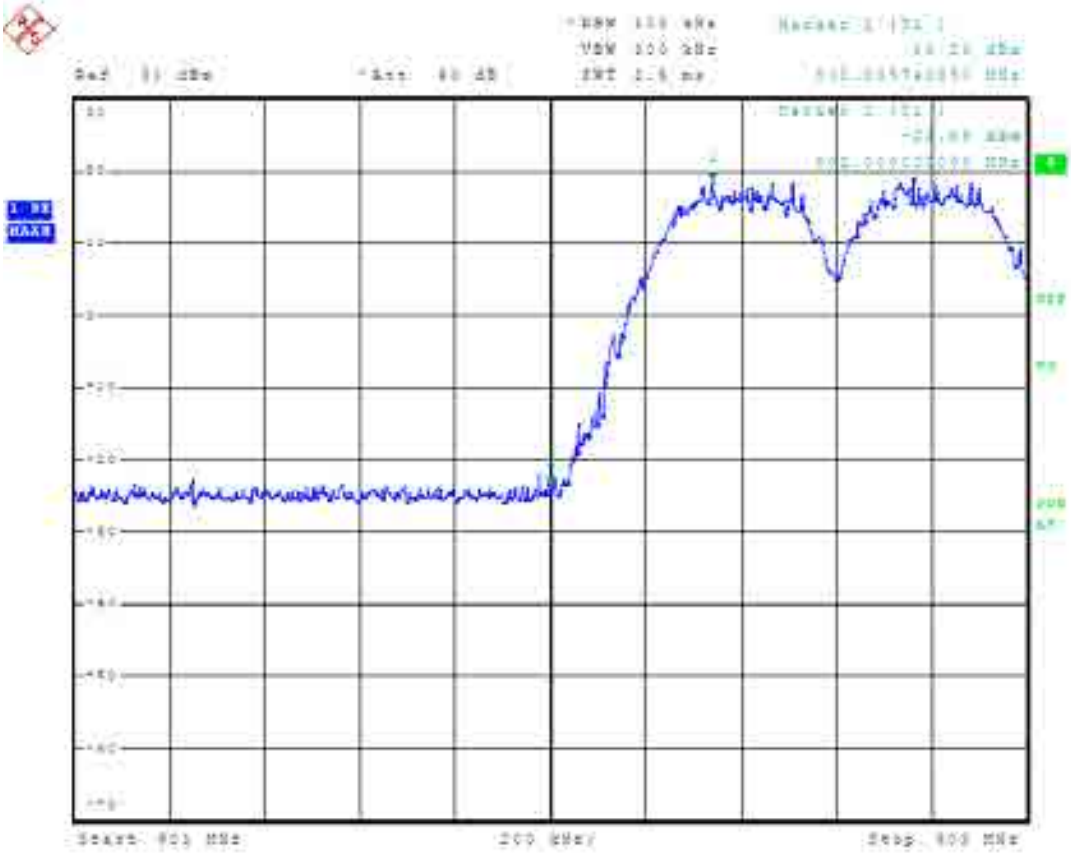


Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	OFDM 50K, HOPPING MODE

Test Spec
CONDUCTED

Sweep Settings Screen A

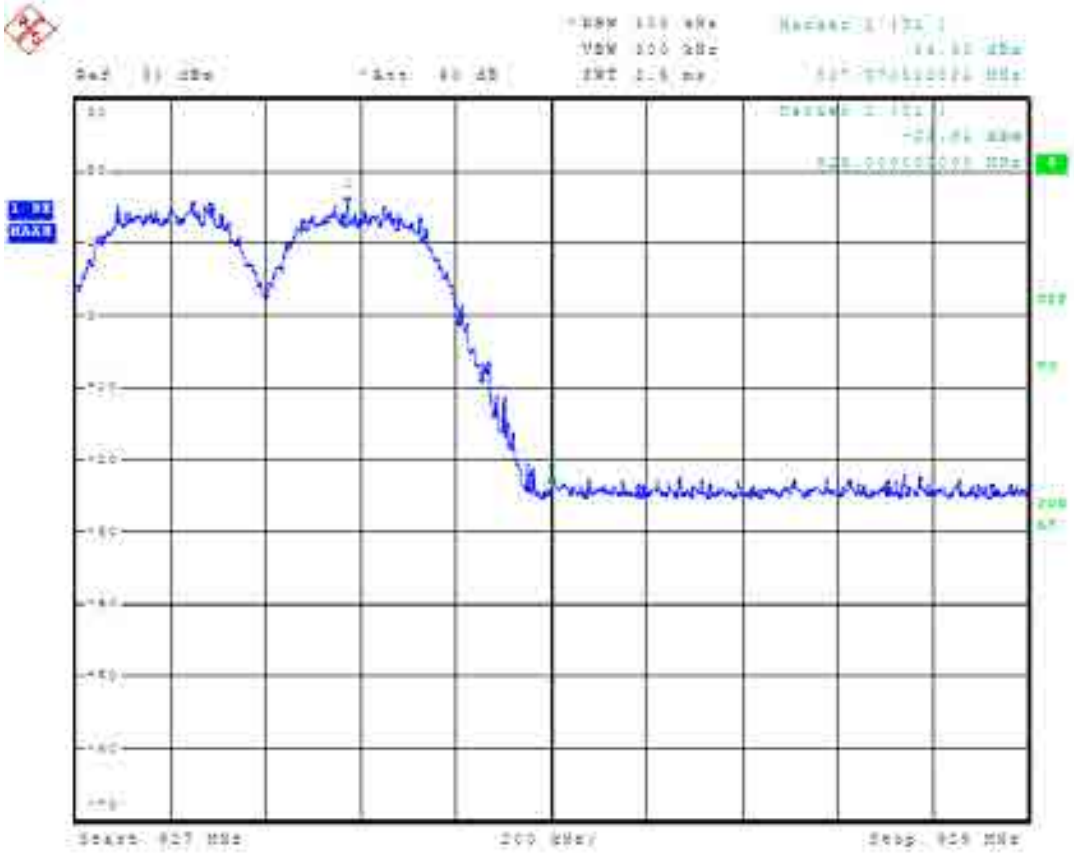
Center Frequency	902.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	903.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	OFDM 50K, HOPPING MODE
Test Spec	
CONDUCTED	

Sweep Settings Screen A

Center Frequency	928.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	927.000000 MHz	Level Range	100.000 dB
Stop Frequency	929.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	OFDM 600K, HOPPING MODE

Test Spec
CONDUCTED

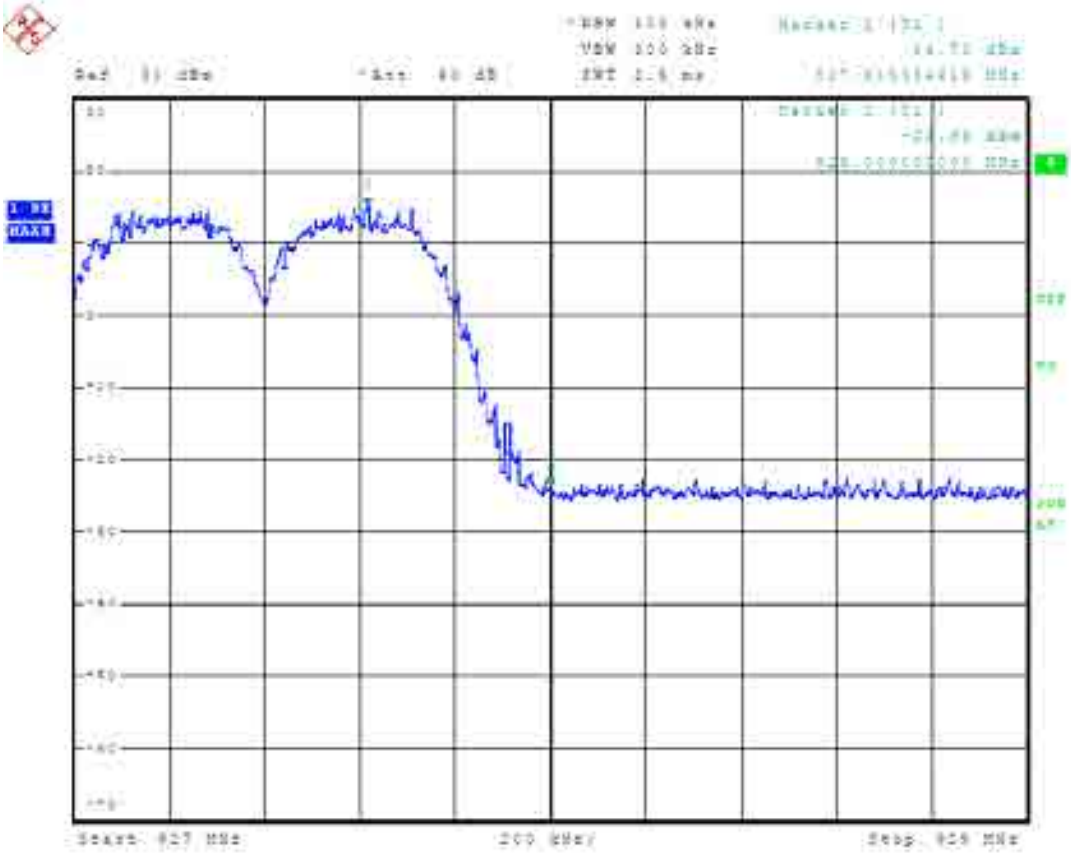
Sweep Settings Screen A

Center Frequency	902.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	903.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	OFDM 600K, HOPPING MODE
Test Spec	
CONDUCTED	

Sweep Settings Screen A

Center Frequency	928.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	927.000000 MHz	Level Range	100.000 dB
Stop Frequency	929.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

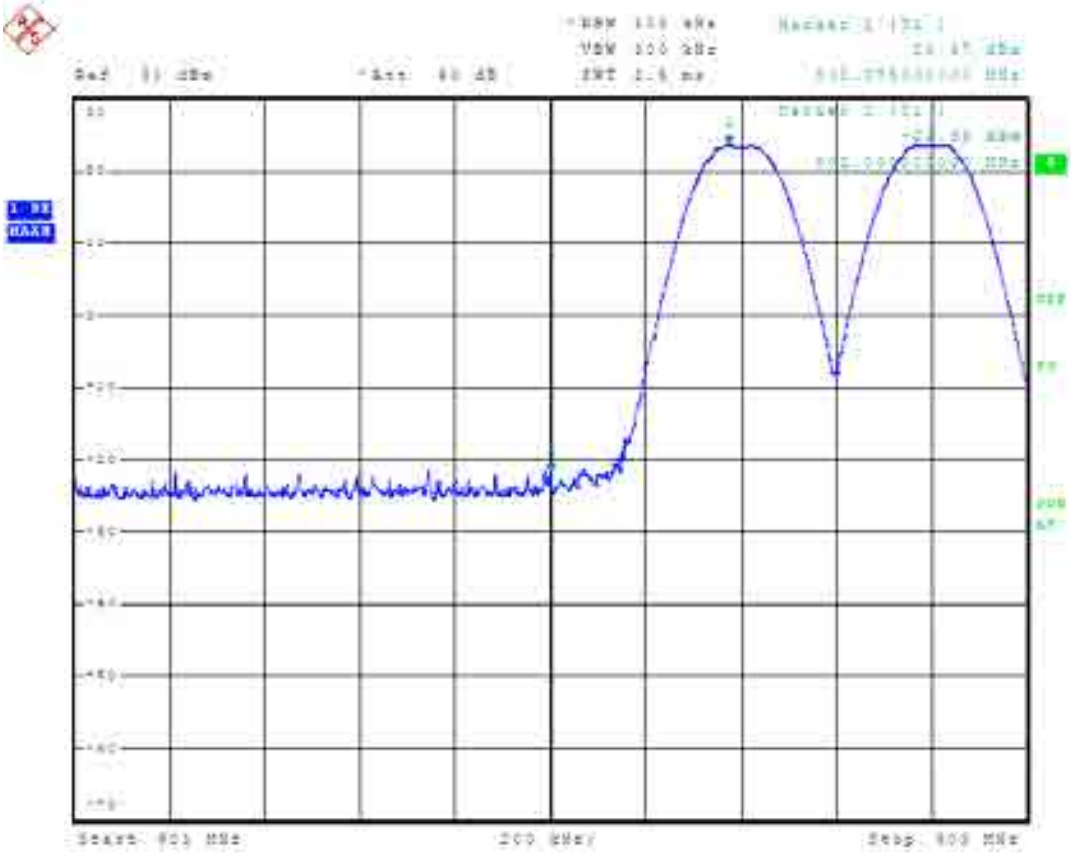


Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	DSSS 6.25K, HOPPING MODE

Test Spec
CONDUCTED

Sweep Settings Screen A

Center Frequency	902.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	903.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

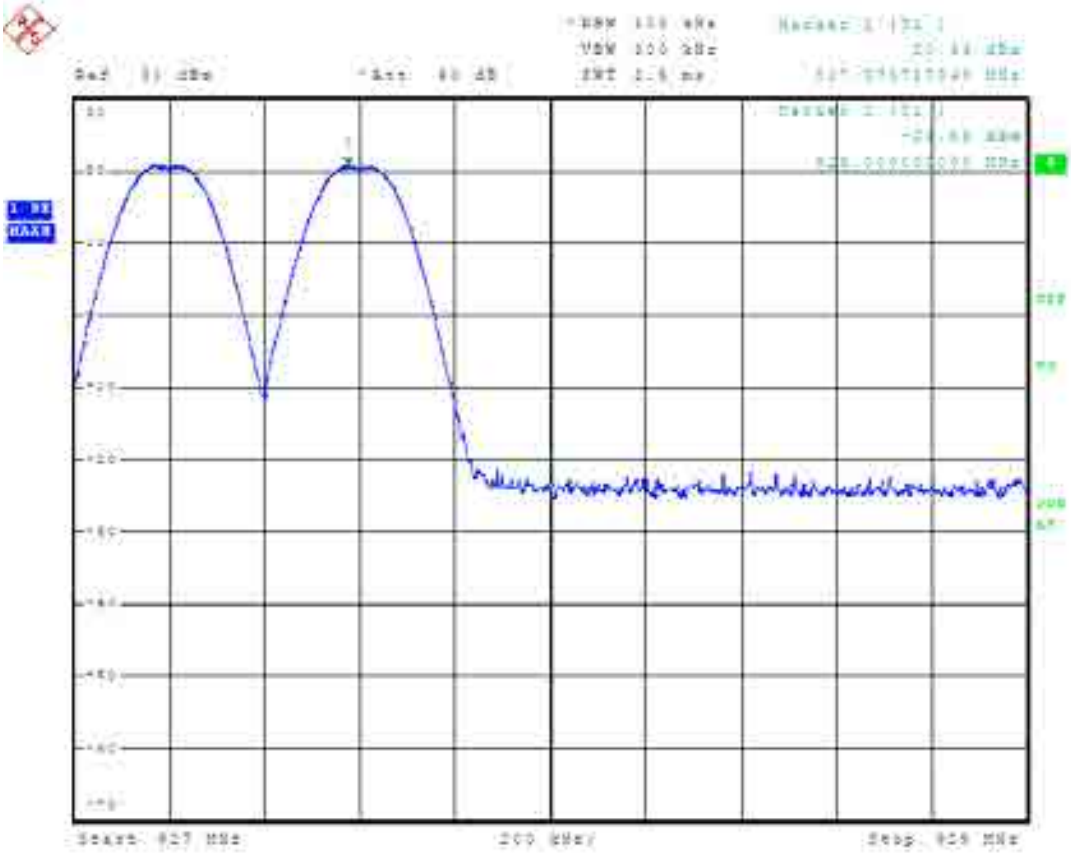


Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	DSSS 6.25K, HOPPING MODE
Test Spec	

CONDUCTED

Sweep Settings — Screen A

Center Frequency	928.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	927.000000 MHz	Level Range	100.000 dB
Stop Frequency	929.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

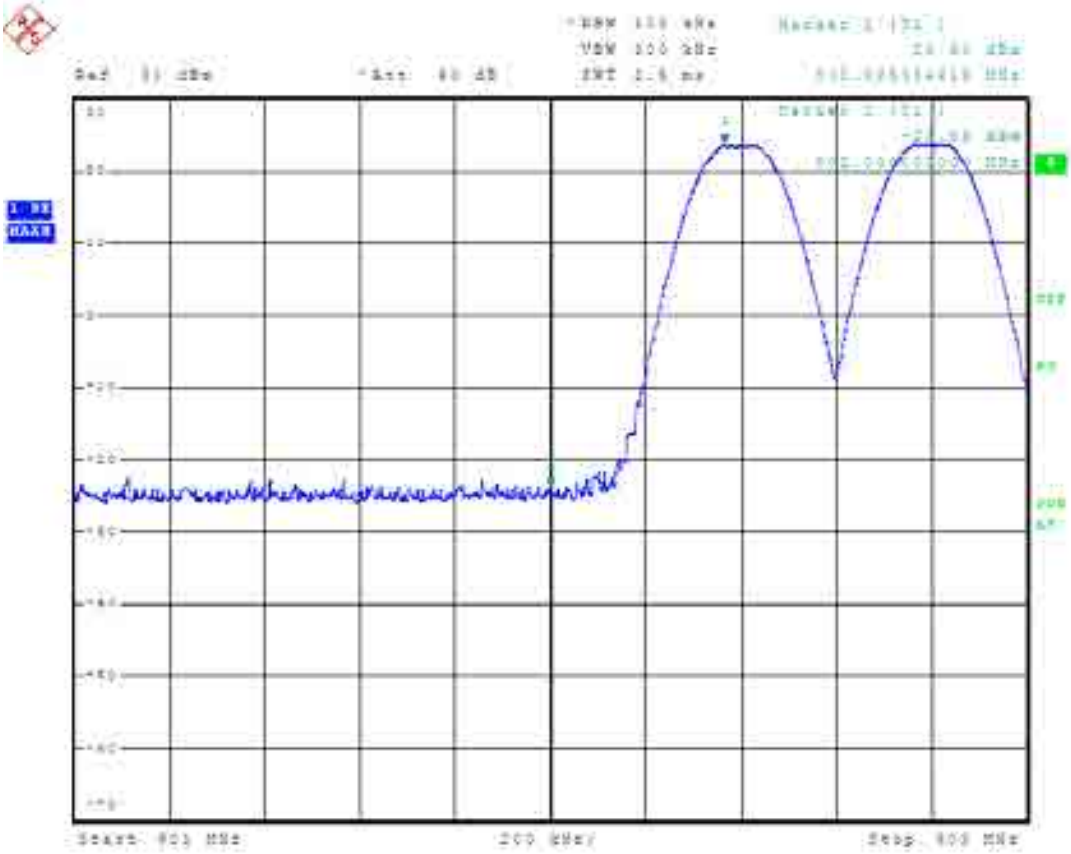


Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	DSSS 50K, HOPPING MODE

Test Spec
CONDUCTED

Sweep Settings Screen A

Center Frequency	902.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	901.000000 MHz	Level Range	100.000 dB
Stop Frequency	903.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG

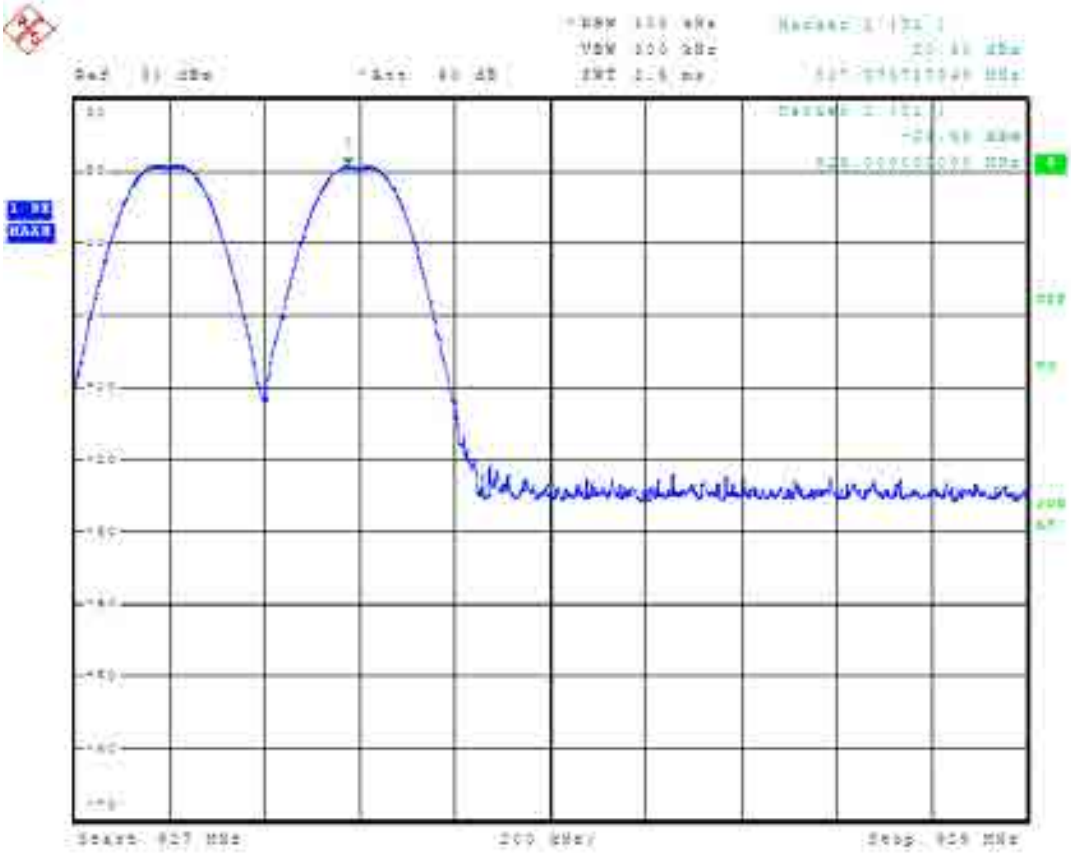


Meas Type	BAND EDGE
Equipment under Test	Itron Riva Dev Mini
OP Condition	DSSS 50K, HOPPING MODE
Test Spec	

CONDUCTED

Sweep Settings Screen A

Center Frequency	928.000000 MHz	Ref Level	30.000 dBm
Frequency Offset	0.000000 Hz	Ref Level Offset	0.000 dB
Span	2.000000 MHz	Ref Position	100.000 %
Start Frequency	927.000000 MHz	Level Range	100.000 dB
Stop Frequency	929.000000 MHz	RF Att	60.000 dB
RBW	100.000000 kHz		
VBW	300.000000 kHz	X-Axis	LIN
Sweep Time	2.50 ms	Y-Axis	LOG



3.12 §15.247 (i) RF Exposure Compliance Requirements

Requirement
Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. *See* §1.1307(b)(1) of this chapter
Limits for Limits for Maximum Permissible Exposure from §1.1310 for General Population/Uncontrolled Exposure: 0.6 mW/cm^2

Calculation procedure
OET 65 (Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields:

$S = PG / 4\pi R^2$

where:
S = power density (mW/cm^2)
P = Power Input to Antenna (mW)
G = Antenna Gain (numeric)
R = distance to the center of radiation of the antenna (cm)

Values:
P = 400 mW
G = 1.55
R = 20 cm

Result:
S = 0.1233 mW/cm^2

Conclusion: PASS

4 TEST EQUIPMENT

Description	Model No.	SIQ No.	Last calibration	Calibrated until	Calibration period	Used
Rohde-Schwarz, RFI receiver	ESU8	105187	2017-11	2019-11	24 months	
Rohde-Schwarz, RFI receiver	ESU26	100428	2016-02	2018-02	24 months	X
Rohde & Schwarz, Artificial main network	ESH2-Z5	106899	2017-05	2019-05	24 months	
Rohde & Schwarz, Artificial main network	ENV216	106765	2016-09	2018-09	24 months	X
Comtest Engineering, Semi Anechoic Chamber SAC 1	SAC 3m	NPS001	2017-05	2019-05	24 months	X
Comtest Engineering, Semi Anechoic Chamber SAC 2	SAC 3m	NPS003	2017-05	2019-05	24 months	
Rohde & Schwarz, Horn Antenna	HF907 (SN 102508)	102508	2016-03	2018-03	24 months	X
Rohde & Schwarz, Ultra Broadband Antenna	HL562E (SN 100842)	102842	2016-03	2018-03	24 months	X
Schwarzbeck, Biconical antenna	VHBB9124	105112	2016-11	2018-11	24 months	X
Schwarzbeck, Active loop antenna	FMZB 1519 B	/	2016-08	2018-08	24 months	X
Rohde & Schwarz, Horn Antenna	HF907 (SN 102494)	102494	2016-03	2018-03	24 months	
Rohde & Schwarz, Ultra Broadband Antenna	HL562E (SN 100843)	102843	2016-03	2018-03	24 months	
Maturo, Turn table (2 m diameter)	TT 2.0 SI	/	N/A	N/A	N/A	X
Maturo, Bore-sight antenna mast	BAM-4.0-P	/	N/A	N/A	N/A	X
Maturo, Multi-channel positioning equipment	Maturo NCD	/	N/A	N/A	N/A	X

5 CABLE LOSS AND ATTENUATION OF RADIATED EMISSION

5.1.1 Conducted emission cable (SIQ-070)

Frequency (MHz)	Loss (MHz)
0,009	0,0
1	0,0
5	0,1
10	0,2
15	0,2
20	0,2
25	0,3
30	0,3

5.1.2 Conducted RF emission cable (LU7-133-1000, ID 002)

Frequency (GHz)	Loss (MHz)
0,001	0,0
0,053	0,2
3,975	0,6
8,003	0,8
11,987	1,1
18,020	1,3

5.1.3 Radiated emission cable (104+105)

Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)
0,009	0,01	2600	3,77	5600	5,83	8600	7,48	13000	9,77
5	0,17	2700	3,85	5700	5,88	8600	7,48	13200	9,82
10	0,29	2800	3,93	5800	5,94	8700	7,56	13200	9,82
30	0,40	2900	4,01	5900	6,00	8800	7,63	13400	9,91
50	0,50	3000	4,07	6000	6,06	8900	7,69	13600	10,04
100	0,69	3100	4,15	6100	6,13	9000	7,73	13800	10,15
200	0,96	3200	4,23	6200	6,19	9100	7,77	14000	10,23
300	1,20	3300	4,30	6300	6,23	9200	7,81	14200	10,30
400	1,40	3400	4,38	6400	6,28	9300	7,85	14400	10,39
500	1,57	3500	4,45	6500	6,33	9400	7,89	14600	10,55
600	1,72	3600	4,53	6600	6,39	9500	7,93	14800	10,72
700	1,86	3700	4,59	6700	6,45	9600	7,99	15000	10,83
800	2,00	3800	4,66	6800	6,52	9700	8,06	15200	10,91
900	2,13	3900	4,72	6900	6,57	9800	8,14	15400	10,98
1000	2,25	4000	4,79	7000	6,63	9900	8,21	15600	11,05
1100	2,37	4100	4,86	7100	6,69	10000	8,28	15800	11,16
1200	2,48	4200	4,93	7200	6,74	10200	8,38	16000	11,29
1300	2,59	4300	4,99	7300	6,80	10400	8,48	16200	11,40
1400	2,70	4400	5,06	7400	6,84	10600	8,60	16400	11,51
1500	2,80	4500	5,12	7500	6,88	10800	8,69	16600	11,61
1600	2,89	4600	5,19	7600	6,92	11000	8,77	16800	11,70
1700	2,99	4700	5,26	7700	6,96	11200	8,88	17000	11,78
1800	3,08	4800	5,33	7800	7,02	11400	8,99	17200	11,87
1900	3,17	4900	5,39	7900	7,08	11600	9,09	17400	11,97
2000	3,26	5000	5,45	8000	7,15	11800	9,18	17600	12,09
2100	3,35	5100	5,50	8100	7,21	12000	9,22	17800	12,31
2200	3,44	5200	5,56	8200	7,26	12200	9,28	18000	12,80
2300	3,52	5300	5,63	8300	7,31	12400	9,42		
2400	3,60	5400	5,70	8400	7,36	12600	9,57		
2500	3,68	5500	5,77	8500	7,42	12800	9,69		

5.1.4 Antenna HL562E

Frequency (MHz)	Antenna factor HL562E (SN 100842)	Antenna factor HL562E (SN 100843)
30	18.12	18.17
32	17.08	17.07
34	16.01	16
36	14.91	14.94
38	13.76	13.75
40	12.64	12.61
42	11.43	11.4
44	10.17	10.15
46	8.86	8.81
48	7.42	7.44
50	6.01	5.96
52	4.59	4.56
54	3.38	3.37
56	2.84	2.85
58	3.06	3.14
60	3.78	3.76
62	4.44	4.4
64	5.36	5.32
66	6.19	6.18
68	6.96	6.92
70	7.56	7.52
72	8.04	8.01
74	8.38	8.35
76	8.67	8.64
78	8.88	8.85
80	9.04	9.03
82	9.14	9.09
84	9.2	9.14
86	9.22	9.16
88	9.22	9.17
90	9.21	9.17
92	9.22	9.15
94	9.22	9.16
96	9.21	9.16
98	9.22	9.17
100	9.33	9.05
105	9.38	9.39
110	9.67	9.74
115	9.55	10.33
120	10.51	9.88
125	10.15	9.87
130	9.23	9.13
135	8.79	8.71
140	8.4	8.4
145	7.93	7.82
150	7.74	7.75
155	7.68	7.76
160	7.86	7.78
165	8.47	8.33
170	9.83	9.66
175	10.29	10.3
180	7.86	7.93

185	7.19	7.27
190	7.54	7.21
195	7.32	7.2
200	7.56	7.49
205	7.56	7.68
210	7.71	7.95
215	8.68	8.29
220	8.43	8.49
225	8.51	8.62
230	8.85	8.82
235	9.1	9.05
240	9.31	9.29
245	9.33	9.33
250	9.5	9.45
255	9.71	9.64
260	9.86	9.81
265	9.95	9.9
270	10	10.02
275	10.15	10.15
280	10.37	10.36
285	10.58	10.61
290	10.76	10.8
295	10.84	10.9
300	10.83	11.12
305	11.38	11.37
310	11.36	11.32
315	11.53	11.48
320	11.7	11.67
325	11.84	11.81
330	11.98	11.94
335	12.32	12.13
340	12.19	12.22
345	12.29	12.35
350	12.43	12.47
355	12.59	12.61
360	12.72	12.73
365	12.83	12.81
370	12.99	12.99
375	13.08	13.1
380	13.12	13.11
385	13.21	13.2
390	13.38	13.33
395	13.54	13.5
400	13.65	13.63
405	13.74	13.73
410	13.84	13.83
415	14.14	13.96
420	14.1	14
425	14.13	14.08
430	14.24	14.2
435	14.4	14.4
440	14.55	14.49
445	14.7	14.65
450	14.82	14.79
455	14.89	14.91
460	14.9	15.09
465	15.16	15.19

470	15.24	15.22
475	15.31	15.25
480	15.38	15.32
485	15.48	15.43
490	15.58	15.52
495	15.66	15.6
500	15.72	15.7
505	15.74	15.75
510	15.83	15.82
515	16.05	15.92
520	15.95	15.93
525	15.97	15.97
530	16.05	16.01
535	16.09	16.07
540	16.16	16.15
545	16.21	16.21
550	16.29	16.3
555	16.38	16.41
560	16.51	16.53
565	16.67	16.68
570	16.78	16.85
575	16.87	17.02
580	17.03	17.11
585	17.06	17.08
590	17.1	17.09
595	17.15	17.13
600	17.22	17.18
605	17.28	17.25
610	17.35	17.33
615	17.42	17.37
620	17.41	17.42
625	17.48	17.48
630	17.56	17.55
635	17.67	17.65
640	17.8	17.79
645	17.94	17.95
650	18.08	18.13
655	18.16	18.12
660	18.18	18.03
665	18.12	17.99
670	18.13	18.01
675	18.19	18.09
680	18.26	18.24
685	18.42	18.41
690	18.56	18.56
695	18.62	18.61
700	18.67	18.67
705	18.7	18.74
710	18.74	18.79
715	18.81	18.86
720	18.89	18.95
725	19.09	19.09
730	19.22	19.26
735	19.17	19.23
740	19.19	19.14
745	19.14	19.1
750	19.13	19.09

755	19.17	19.1
760	19.19	19.15
765	19.24	19.21
770	19.34	19.29
775	19.37	19.36
780	19.36	19.36
785	19.43	19.41
790	19.51	19.48
795	19.59	19.56
800	19.7	19.66
805	19.83	19.79
810	19.98	19.95
815	20.07	20.04
820	20.1	19.96
825	20.11	19.92
830	20.09	19.94
835	20.09	19.96
840	20.14	20.05
845	20.19	20.11
850	20.27	20.2
855	20.36	20.29
860	20.42	20.37
865	20.46	20.44
870	20.5	20.51
875	20.52	20.55
880	20.59	20.61
885	20.7	20.69
890	20.82	20.77
895	20.89	20.83
900	20.88	20.92
905	20.83	21.08
910	20.93	21.21
915	21.19	21.17
920	21.22	21.1
925	21.09	21.03
930	20.98	21
935	20.95	21
940	20.96	21.01
945	21	21.04
950	21.05	21.06
955	21.09	21.07
960	21.15	21.13
965	21.23	21.2
970	21.27	21.26
975	21.31	21.3
980	21.36	21.37
985	21.43	21.44
990	21.52	21.53
995	21.63	21.64
1000	21.73	21.73

5.1.5 Antenna HF907

Frequency (GHz)	Antenna factor HF907 (SN 102508)	Antenna factor HF907 (SN 102494)
1	24.36	24.36
1.01	24.34	24.38
1.02	24.53	24.55
1.03	24.6	24.63
1.04	24.46	24.51
1.05	24.35	24.41
1.06	24.48	24.49
1.07	24.51	24.56
1.08	24.32	24.37
1.09	24.26	24.29
1.1	24.33	24.35
1.11	24.38	24.44
1.12	24.23	24.25
1.13	24.18	24.19
1.14	24.23	24.24
1.15	24.35	24.38
1.16	24.3	24.3
1.17	24.23	24.26
1.18	24.37	24.4
1.19	24.56	24.57
1.2	24.52	24.55
1.21	24.39	24.42
1.22	24.51	24.52
1.23	24.66	24.7
1.24	24.64	24.68
1.25	24.51	24.54
1.26	24.53	24.55
1.27	24.69	24.72
1.28	24.65	24.65
1.29	24.46	24.47
1.3	24.48	24.52
1.31	24.66	24.68
1.32	24.64	24.65
1.33	24.49	24.5
1.34	24.53	24.53
1.35	24.75	24.75
1.36	24.73	24.76
1.37	24.62	24.65
1.38	24.74	24.76
1.39	24.96	24.99
1.4	25.02	25.05
1.41	24.94	24.95
1.42	25.02	25.03
1.43	25.31	25.37
1.44	25.39	25.43
1.45	25.27	25.29
1.46	25.37	25.42
1.47	25.7	25.7
1.48	25.77	25.76
1.49	25.66	25.67
1.5	25.76	25.77
1.51	26.04	26.03

1.52	26.12	26.12
1.53	26.01	26.03
1.54	26.06	26.03
1.55	26.29	26.29
1.56	26.35	26.36
1.57	26.25	26.25
1.58	26.27	26.27
1.59	26.41	26.45
1.6	26.51	26.5
1.61	26.37	26.36
1.62	26.33	26.33
1.63	26.48	26.52
1.64	26.58	26.57
1.65	26.42	26.44
1.66	26.35	26.37
1.67	26.51	26.53
1.68	26.64	26.59
1.69	26.46	26.47
1.7	26.36	26.34
1.71	26.52	26.5
1.72	26.7	26.7
1.73	26.54	26.53
1.74	26.4	26.38
1.75	26.62	26.64
1.76	26.85	26.83
1.77	26.72	26.73
1.78	26.59	26.57
1.79	26.75	26.8
1.8	27.08	27.07
1.81	26.92	26.92
1.82	26.77	26.76
1.83	27	27
1.84	27.26	27.23
1.85	27.09	27.06
1.86	26.92	26.88
1.87	27.17	27.14
1.88	27.4	27.35
1.89	27.27	27.22
1.9	27.14	27.12
1.91	27.43	27.38
1.92	27.72	27.71
1.93	27.59	27.56
1.94	27.55	27.52
1.95	27.9	27.9
1.96	28.25	28.24
1.97	28.13	28.1
1.98	28.06	28.04
1.99	28.43	28.44
2	28.67	28.63
2.01	28.5	28.45
2.02	28.37	28.39
2.03	28.67	28.63
2.04	28.76	28.76
2.05	28.48	28.46
2.06	28.37	28.36
2.07	28.49	28.48
2.08	28.52	28.51

2.09	28.31	28.29
2.1	28.16	28.14
2.11	28.24	28.23
2.12	28.28	28.27
2.13	28.15	28.13
2.14	28.01	28
2.15	28.1	28.09
2.16	28.22	28.21
2.17	28.14	28.1
2.18	28.02	28
2.19	28.11	28.08
2.2	28.29	28.28
2.21	28.24	28.21
2.22	28.11	28.08
2.23	28.21	28.18
2.24	28.37	28.36
2.25	28.31	28.28
2.26	28.16	28.13
2.27	28.21	28.19
2.28	28.4	28.38
2.29	28.37	28.35
2.3	28.21	28.19
2.31	28.28	28.25
2.32	28.46	28.43
2.33	28.47	28.44
2.34	28.35	28.33
2.35	28.41	28.38
2.36	28.56	28.54
2.37	28.62	28.59
2.38	28.54	28.49
2.39	28.56	28.55
2.4	28.73	28.71
2.41	28.77	28.74
2.42	28.72	28.69
2.43	28.74	28.72
2.44	28.86	28.85
2.45	28.9	28.89
2.46	28.86	28.84
2.47	28.89	28.88
2.48	29.02	29.01
2.49	29.08	29.07
2.5	29.05	29.03
2.51	29.1	29.09
2.52	29.3	29.29
2.53	29.39	29.39
2.54	29.38	29.35
2.55	29.39	29.38
2.56	29.58	29.57
2.57	29.74	29.73
2.58	29.65	29.62
2.59	29.54	29.52
2.6	29.71	29.68
2.61	29.9	29.87
2.62	29.71	29.68
2.63	29.53	29.5
2.64	29.67	29.65
2.65	29.87	29.84

2.66	29.72	29.66
2.67	29.5	29.48
2.68	29.6	29.58
2.69	29.82	29.79
2.7	29.71	29.69
2.71	29.51	29.48
2.72	29.59	29.55
2.73	29.77	29.76
2.74	29.72	29.68
2.75	29.56	29.51
2.76	29.59	29.56
2.77	29.74	29.71
2.78	29.69	29.63
2.79	29.53	29.48
2.8	29.54	29.51
2.81	29.65	29.61
2.82	29.6	29.55
2.83	29.44	29.42
2.84	29.49	29.47
2.85	29.63	29.6
2.86	29.6	29.56
2.87	29.49	29.47
2.88	29.59	29.57
2.89	29.79	29.78
2.9	29.79	29.77
2.91	29.73	29.71
2.92	29.88	29.86
2.93	30.1	30.09
2.94	30.16	30.14
2.95	30.08	30.06
2.96	30.23	30.21
2.97	30.54	30.52
2.98	30.57	30.55
2.99	30.46	30.43
3	30.58	30.56
3.05	31.17	31.18
3.1	31.68	31.64
3.15	31.58	31.55
3.2	31.75	31.72
3.25	31.89	31.85
3.3	31.71	31.68
3.35	31.64	31.6
3.4	31.7	31.67
3.45	31.84	31.83
3.5	31.95	31.91
3.55	32.01	31.96
3.6	32.09	32.07
3.65	32.32	32.29
3.7	32.52	32.48
3.75	32.62	32.57
3.8	32.85	32.8
3.85	32.93	32.89
3.9	32.94	32.91
3.95	33.02	32.98
4	32.97	32.91
4.05	33.07	33.01
4.1	33.21	33.17

4.15	33.33	33.31
4.2	33.48	33.43
4.25	33.71	33.66
4.3	33.87	33.83
4.35	34.02	33.99
4.4	33.83	33.82
4.45	33.57	33.53
4.5	33.61	33.58
4.55	33.61	33.59
4.6	33.51	33.49
4.65	33.44	33.39
4.7	33.6	33.58
4.75	33.93	33.92
4.8	34.06	34.05
4.85	34.13	34.13
4.9	34.27	34.25
4.95	34.38	34.36
5	34.38	34.34
5.05	34.19	34.17
5.1	33.99	33.97
5.15	33.93	33.93
5.2	33.97	33.96
5.25	33.92	33.91
5.3	33.93	33.93
5.35	34.17	34.18
5.4	34.37	34.38
5.45	34.43	34.44
5.5	34.38	34.38
5.55	34.42	34.42
5.6	34.45	34.45
5.65	34.28	34.28
5.7	34.05	34.04
5.75	34.04	34.05
5.8	34.2	34.2
5.85	34.31	34.31
5.9	34.35	34.35
5.95	34.47	34.49
6	34.69	34.7
6.05	34.87	34.86
6.1	34.82	34.82
6.15	34.75	34.75
6.2	34.78	34.79
6.25	34.77	34.79
6.3	34.68	34.69
6.35	34.66	34.68
6.4	34.84	34.87
6.45	35.03	35.07
6.5	35.13	35.14
6.55	35.13	35.13
6.6	35.26	35.26
6.65	35.36	35.36
6.7	35.29	35.29
6.75	35.17	35.16
6.8	35.16	35.15
6.85	35.26	35.28
6.9	35.37	35.38
6.95	35.35	35.36

7	35.44	35.45
7.05	35.59	35.61
7.1	35.74	35.76
7.15	35.73	35.74
7.2	35.61	35.63
7.25	35.65	35.66
7.3	35.65	35.67
7.35	35.64	35.64
7.4	35.63	35.64
7.45	35.71	35.74
7.5	35.89	35.9
7.55	35.99	36.01
7.6	36.09	36.1
7.65	36.18	36.21
7.7	36.23	36.25
7.75	36.26	36.29
7.8	36.21	36.22
7.85	36.2	36.2
7.9	36.14	36.16
7.95	36.16	36.17
8	36.14	36.15
8.05	36.19	36.19
8.1	36.3	36.32
8.15	36.46	36.47
8.2	36.5	36.5
8.25	36.51	36.53
8.3	36.51	36.5
8.35	36.48	36.48
8.4	36.46	36.45
8.45	36.4	36.39
8.5	36.41	36.4
8.55	36.45	36.45
8.6	36.56	36.58
8.65	36.7	36.71
8.7	36.71	36.7
8.75	36.79	36.83
8.8	36.85	36.88
8.85	36.88	36.85
8.9	36.79	36.75
8.95	36.79	36.81
9	36.87	36.84
9.05	36.82	36.75
9.1	36.85	36.81
9.15	36.9	36.88
9.2	36.89	36.9
9.25	36.92	36.91
9.3	36.97	36.97
9.35	37.07	37.07
9.4	37.11	37.11
9.45	37.14	37.16
9.5	37.2	37.19
9.55	37.1	37.08
9.6	37.06	37.03
9.65	37.04	37.05
9.7	36.96	36.97
9.75	36.93	36.93
9.8	37	37

9.85	37.15	37.16
9.9	37.23	37.24
9.95	37.25	37.22
10	37.31	37.3
10.05	37.31	37.3
10.1	37.23	37.2
10.15	37.15	37.13
10.2	37.11	37.13
10.25	37.11	37.15
10.3	37.11	37.13
10.35	37.15	37.19
10.4	37.21	37.24
10.45	37.25	37.27
10.5	37.27	37.28
10.55	37.24	37.24
10.6	37.18	37.18
10.65	37.17	37.19
10.7	37.19	37.19
10.75	37.16	37.17
10.8	37.16	37.18
10.85	37.26	37.26
10.9	37.32	37.32
10.95	37.33	37.32
11	37.36	37.35
11.05	37.34	37.33
11.1	37.34	37.36
11.15	37.35	37.34
11.2	37.34	37.33
11.25	37.29	37.29
11.3	37.28	37.29
11.35	37.34	37.31
11.4	37.31	37.3
11.45	37.32	37.33
11.5	37.38	37.39
11.55	37.41	37.42
11.6	37.44	37.43
11.65	37.44	37.42
11.7	37.43	37.42
11.75	37.48	37.48
11.8	37.39	37.38
11.85	37.4	37.38
11.9	37.45	37.39
11.95	37.45	37.43
12	37.48	37.47
12.05	37.51	37.5
12.1	37.54	37.51
12.15	37.58	37.58
12.2	37.59	37.6
12.25	37.62	37.6
12.3	37.62	37.6
12.35	37.61	37.62
12.4	37.61	37.65
12.45	37.65	37.63
12.5	37.67	37.66
12.55	37.71	37.71
12.6	37.8	37.76
12.65	37.86	37.82

12.7	37.89	37.86
12.75	37.92	37.9
12.8	38	37.98
12.85	38.05	38.02
12.9	38.06	38.02
12.95	38.09	38.05
13	38.14	38.1
13.05	38.21	38.19
13.1	38.29	38.24
13.15	38.36	38.35
13.2	38.44	38.47
13.25	38.57	38.55
13.3	38.63	38.59
13.35	38.68	38.67
13.4	38.77	38.73
13.45	38.84	38.77
13.5	38.9	38.8
13.55	38.92	38.88
13.6	39.03	39
13.65	39.15	39.11
13.7	39.3	39.23
13.75	39.42	39.33
13.8	39.53	39.49
13.85	39.66	39.59
13.9	39.74	39.65
13.95	39.81	39.7
14	39.89	39.83
14.05	39.96	39.92
14.1	40.02	39.96
14.15	40.08	40.04
14.2	40.16	40.11
14.25	40.25	40.18
14.3	40.33	40.27
14.35	40.37	40.28
14.4	40.44	40.32
14.45	40.5	40.4
14.5	40.62	40.56
14.55	40.7	40.61
14.6	40.77	40.64
14.65	40.83	40.71
14.7	40.86	40.77
14.75	40.83	40.72
14.8	40.79	40.65
14.85	40.76	40.65
14.9	40.84	40.76
14.95	40.87	40.77
15	40.89	40.79
15.05	40.95	40.85
15.1	41.03	40.94
15.15	41.08	40.96
15.2	41.02	40.93
15.25	40.99	40.88
15.3	41.01	40.91
15.35	41.04	40.88
15.4	41.08	40.92
15.45	41.12	40.96
15.5	41.15	40.97

15.55	41.18	41
15.6	41.14	41.01
15.65	41.05	40.99
15.7	40.99	40.95
15.75	40.99	40.92
15.8	41.03	41
15.85	41.14	41.11
15.9	41.18	41.15
15.95	41.27	41.22
16	41.34	41.33
16.05	41.4	41.36
16.1	41.39	41.34
16.15	41.33	41.32
16.2	41.31	41.31
16.25	41.4	41.37
16.3	41.47	41.43
16.35	41.53	41.52
16.4	41.66	41.66
16.45	41.77	41.75
16.5	41.82	41.77
16.55	41.84	41.87
16.6	41.83	41.95
16.65	41.85	41.94
16.7	41.91	42
16.75	42.09	42.2
16.8	42.23	42.35
16.85	42.36	42.39
16.9	42.5	42.49
16.95	42.61	42.59
17	42.63	42.6
17.05	42.63	42.57
17.1	42.64	42.54
17.15	42.76	42.58
17.2	42.82	42.63
17.25	42.86	42.75
17.3	43.02	42.9
17.35	43.15	42.98
17.4	43.28	43.1
17.45	43.3	43.17
17.5	43.32	43.16
17.55	43.37	43.19
17.6	43.39	43.23
17.65	43.5	43.35
17.7	43.52	43.41
17.75	43.62	43.49
17.8	43.74	43.6
17.85	43.89	43.69
17.9	43.92	43.81
17.95	44.02	43.89
18	44.18	43.98

5.1.6 Antenna VHBB9124 (SN0317)

Frequency (MHz)	Antenna factor	Frequency (MHz)	Antenna factor	Frequency (MHz)	Antenna factor	Frequency (MHz)	Antenna factor
20	15,3	61	9,0	104	9,7	186	186
21	15,1	62	8,9	106	9,9	188	188
22	14,8	63	8,9	108	10,0	190	190
23	14,5	64	8,8	110	10,2	192	192
24	14,3	65	8,8	112	10,2	194	194
25	14,1	66	8,8	114	10,3	196	196
26	13,8	67	8,9	116	10,4	198	198
27	13,6	68	8,9	118	10,5	200	200
28	13,3	69	8,9	120	10,5		
29	13,1	70	8,9	122	10,7		
30	12,6	71	8,9	124	10,7		
31	12,4	72	8,9	126	10,8		
32	12,2	73	8,9	128	10,9		
33	12,0	74	8,9	130	11,0		
34	11,8	75	8,9	132	11,1		
35	11,7	76	8,9	134	11,2		
36	11,4	77	8,9	136	11,4		
37	11,3	78	8,9	138	11,5		
38	11,1	79	9,0	140	11,6		
39	11,0	80	9,0	142	11,8		
40	10,8	81	9,0	144	11,8		
41	10,7	82	9,1	146	12,0		
42	10,5	83	9,0	148	11,9		
43	10,3	84	9,0	150	12,0		
44	10,2	85	9,0	152	12,1		
45	10,1	86	9,1	154	12,4		
46	9,9	87	9,1	156	12,6		
47	9,9	88	9,2	158	12,8		
48	9,7	89	9,2	160	12,9		
49	9,7	90	9,3	162	12,9		
50	9,5	91	9,3	164	13,0		
51	9,5	92	9,3	166	13,0		
52	9,3	93	9,3	168	12,8		
53	9,3	94	9,3	170	12,8		
54	9,2	95	9,3	172	12,9		
55	9,1	96	9,4	174	13,0		
56	9,0	97	9,4	176	13,2		
57	9,0	98	9,5	178	13,3		
58	9,0	99	9,5	180	13,4		
59	9,0	100	9,6	182	13,5		
60	9,0	102	9,7	184	13,5		

5.1.7 Radiated emission cable (C004+C005)

Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)
0,009	0,29	2600	3,77	5600	5,80	8600	7,43	13000	9,60
5	0,40	2700	3,85	5700	5,86	8600	7,50	13200	9,65
10	0,49	2800	3,93	5800	5,91	8700	7,58	13400	9,74
30	0,68	2900	4,00	5900	5,98	8800	7,63	13600	9,88
50	0,96	3000	4,08	6000	6,04	8900	7,68	13800	9,97
100	1,21	3100	4,14	6100	6,10	9000	7,71	14000	10,04
200	1,40	3200	4,22	6200	6,16	9100	7,75	14200	10,12
300	1,57	3300	4,30	6300	6,21	9200	7,78	14400	10,20
400	1,73	3400	4,37	6400	6,26	9300	7,82	14600	10,35
500	1,86	3500	4,45	6500	6,31	9400	7,86	14800	10,52
600	2,00	3600	4,52	6600	6,36	9500	7,92	15000	10,61
700	2,13	3700	4,59	6700	6,43	9600	7,99	15200	10,68
800	2,25	3800	4,65	6800	6,49	9700	8,07	15400	10,75
900	2,37	3900	4,71	6900	6,55	9800	8,14	15600	10,83
1000	2,48	4000	4,78	7000	6,61	9900	8,21	15800	10,94
1100	2,58	4100	4,85	7100	6,67	10000	8,29	16000	11,07
1200	2,69	4200	4,92	7200	6,73	10200	8,39	16200	11,17
1300	2,79	4300	4,98	7300	6,78	10400	8,50	16400	11,26
1400	2,89	4400	5,05	7400	6,82	10600	8,59	16600	11,35
1500	2,98	4500	5,11	7500	6,86	10800	8,67	16800	11,44
1600	3,08	4600	5,18	7600	6,90	11000	8,76	17000	11,51
1700	3,16	4700	5,24	7700	6,95	11200	8,85	17200	11,61
1800	3,26	4800	5,31	7800	7,00	11400	8,95	17400	11,73
1900	3,34	4900	5,37	7900	7,05	11600	9,04	17600	11,88
2000	3,44	5000	5,43	8000	7,11	11800	9,07	17800	12,11
2100	3,52	5100	5,48	8100	7,16	12000	9,13	18000	12,41
2200	3,60	5200	5,54	8200	7,21	12200	9,26		
2300	3,68	5300	5,61	8300	7,25	12400	9,40		
2400	0,29	5400	5,68	8400	7,30	12600	9,51		
2500	0,40	5500	5,74	8500	7,36	12800	7,43		

5.1.8 Loop antenna FMZB 1519

Frequency (MHz)	Antenna factor (dB)
0,009	-30,60
0,010	-30,80
0,020	-31,80
0,030	-32,00
0,040	-32,10
0,050	-32,20
0,060	-32,20
0,070	-32,20
0,080	-32,20
0,090	-32,30
0,100	-32,30
0,150	-32,30
0,200	-32,40
0,300	-32,40
0,400	-32,40
0,500	-32,40
0,600	-32,40
0,700	-32,50
0,800	-32,50
0,900	-32,50
1,000	-32,50
2,000	-32,50
3,000	-32,50
4,000	-32,50
5,000	-32,50
6,000	-32,50
7,000	-32,50
8,000	-32,50
9,000	-32,50
10,000	-32,50
11,000	-32,50
12,000	-32,50
13,000	-32,50
14,000	-32,40
15,000	-32,40
16,000	-32,40
17,000	-32,40
18,000	-32,30
19,000	-32,30
20,000	-32,20
21,000	-32,10
22,000	-32,10
23,000	-32,00
24,000	-31,90
25,000	-31,80
26,000	-31,70
27,000	-31,60
28,000	-31,50
29,000	-31,40
30,000	-31,30

6 CONVERSION FACTORS AND ALL OTHER FORMULAS

Unit	Conversion unit	Formula of conversion
dBµV	dBµV/m	dBµV/m = dBµV + AF
µV/m	dBµV/m	dBµV/m = 20log(X(µV/m)/1µV)

	Test distance stated in standard	Test distance of measurement	Conversion factor
Class B	3 m	3 m	/
Class A	10 m	3 m	20dB/decade