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FCC PART 15B

ANALOGUE SCANNING RECEIVER

TEST REPORT

Applicant	YAESU MUSEN CO., LTD.
Address	TENNOZU PARKSIDE BUILDING 2-5-8 HIGASHI-SHINAGAWA, SHINAGAWA-KU, TOKYO, 140-0002 JAPAN
FCC ID:	K6620695X20
Model Number	FT-4XR
Product Description	FM DUAL BAND TRANSCEIVER
Date Sample Received	1/24/2018
Final Test Date	1/30/2018
Tested By	Tim Royer
Approved By	Franklin Rose
Test Results	☒ PASS ☐ FAIL

Report Number	Version Number	Description	Issue Date
110AUT18TestReport	Rev1	Initial Issue	1/30/2018
	Rev2	Added test site information	2/22/2018

THE ATTACHED REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT
THE WRITTEN APPROVAL OF TIMCO ENGINEERING, INC.

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GENERAL REMARKS

The attached report shall not be reproduced except in full without the written permission of Timco Engineering Inc.

Summary

The device under test does:

- ☒ Fulfill the general approval requirements as identified in this test report and was selected by the customer.
- ☐ Not fulfill the general approval requirements as identified in this test report

Attestations

This equipment has been tested in accordance with the standards identified in this test report. To the best of my knowledge and belief, these tests were performed using the measurement procedures described in this report.

All instrumentation and accessories used to test products for compliance to the indicated standards are calibrated regularly in accordance with ISO 17025 requirements.

I attest that the necessary measurements were made at:

Timco Engineering Inc.
849 NW State Road 45
Newberry, FL 32669



Sr. EMC Engineer
EMC-003838-NE



Tested by:

Name and Title: Tim Royer, Project Manager/Testing Engineer

Date: 2/16/2018



Reviewed and approved by:

Name and Title: Franklin Rose, Project Manager / Testing Technician

Date: 02/16/2018

GENERAL INFORMATION

The test results relate only to the items tested.	
EUT Description	FM DUAL BAND TRANSCEIVER
FCC ID	K6620695X20
Model Number	FT-4XR
Range	136-174, 400-480MHz
Antenna Connector	SMA
EUT Power Source	☐ 110–120Vac/50– 60Hz
	☐ 12.6 VDC Nominal
	☒ Battery Operated Exclusively
Test Item	☐ Prototype
	☐ Pre-Production
	☒ Production
Modifications required for Testing	None
Test Site	Timco Engineering, Inc. 849 NW State Road 45 Newberry, FL 32669 Designation #: US1070

REPORT SUMMARY

Regulatory Standard	CFR Title 47 FCC Rule part 15B § 15.109, 15.111, & 15.121
Test Procedures	FCC Part 15.31, 15.33, 15.35 ANSI C63.4 – 2014
Operational Modes	Stopped at the Lowest, middle, and highest frequency of tuning range. In addition scanning all frequencies of tuning range
Test Frequencies	Low: 136.0, 400 MHz
	Middle: 154.0, 440 MHz
	High: 174.0, 480 MHz
	Scan: 136.0 – 174.0, 400-480 MHz
Setup	For radiated test the ant terminal was connected to 50Ω non radiating load through a 50 Ω coaxial cable
	For conducted test the ant terminal was connected to a EMI receiver through 50 Ω coaxial cable
Environmental Condition in the laboratory	Temperature: 24-26°C Relative humidity: 50-65% Barometric Pressure:
Deviation from the standard / procedure	No deviation

RESULTS SUMMARY

Requirement	Limit	Pass / Fail
15.109 Radiated Spurious Emissions	15.109(a)	Pass
15.111 Receiver Conducted Power	15.111(a)	NA ⁽¹⁾
15.121 38 dB Rejection	38 dB	NA ⁽²⁾

Notes:

- 1) EUT is not intended for connection with AC Mains.
- 2) Manufacturer provided attestation letter, no test required.

RADIATED SPURIOUS EMISSIONS

Rule Part No.: FCC Part 15 Subpart B

Requirements: FCC Part 15.109(a) Radiated Emission Limit

Class B Field Strength Limits @ 3 Meters	
Frequency (MHz)	Level (dBuV / m)
30 – 88	40.0
80 – 216	43.5
216 – 960	46.0
Above 960	54.0

FCC Part 15.109(f) Radiated Emission Limit

For a receiver which employs terminals for the connection of an external receiving antenna, the receiver shall be tested to demonstrate compliance with the provisions of this section with an antenna connected to the antenna terminals unless the antenna conducted power is measured as specified in §15.111(a).

Procedure: FCC Part 15.33(b)(3) Frequency range of radiated measurements

FCC Part 15.35(a) Measurement detector functions and bandwidths

ANSI C63.4 Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment 9 kHz to 40 GHz

§ 6.2 Operating conditions

§ 6.3 Arrangement of EUT

§ 8.3.1 Exploratory radiated emissions measurements

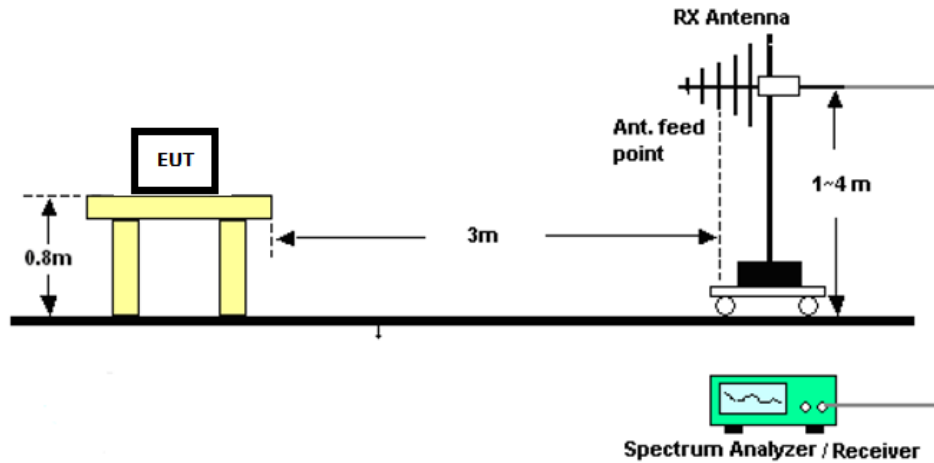
§ 8.3.2 Final radiated emission measurements

Configuration: The scanner receiver spurious emissions are to be measured when the receiver is in the scanning mode and repeated when the scanning is stopped, all while the antenna terminals are terminated into a non-radiating 50 Ω load.

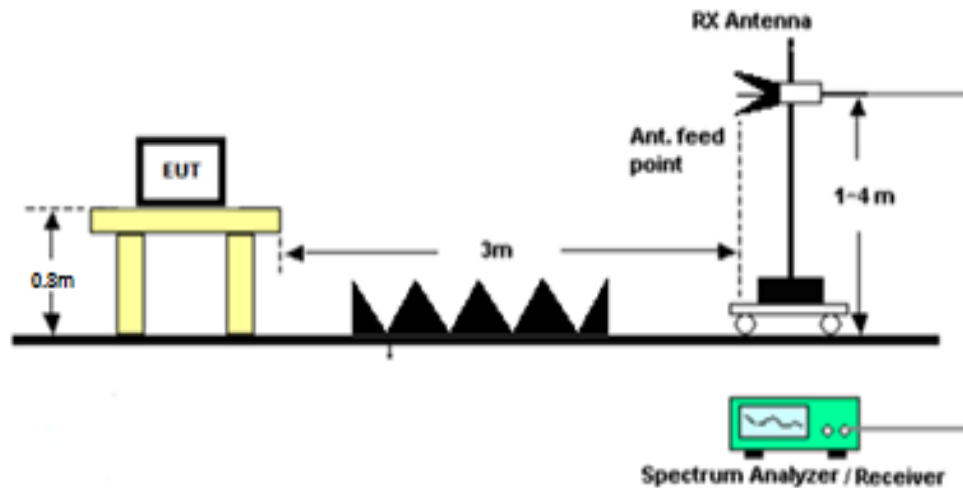
RADIATED SPURIOUS EMISSIONS

Setup:

Emissions 30 – 1000 MHz



Emissions above 1 GHz



RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (136MHz) 30 – 200 MHz Vertical Peak Plot



09.Feb 18 08:07

Test Spec CISPR 22 Radiated Disturbances

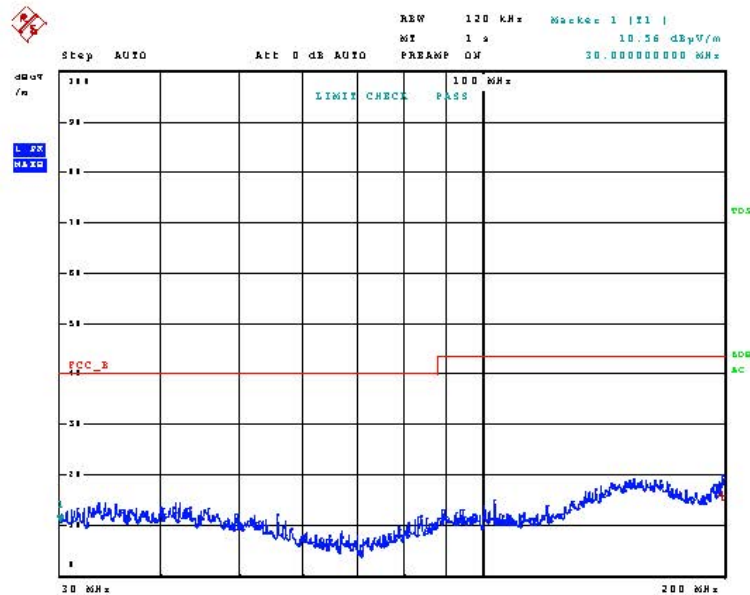
Polarity

Vertical

Stepped Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 200 MHz
Detector: Trace 1: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	200.000000 MHz	40.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



Final Measurement

Meas Time: 1 s
Margin: 25 dB
Subranges: 1

Trace	Frequency	Level (dBμV/m)	Detector	Delta Limit/dB
1	198.96000000 MHz	15.93	Quasi Peak	-27.57

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (136MHz) 30 – 200 MHz Horizontal Peak Plot



09.Feb 18 08:08

Test Spec CISPR 22 Radiated Disturbances

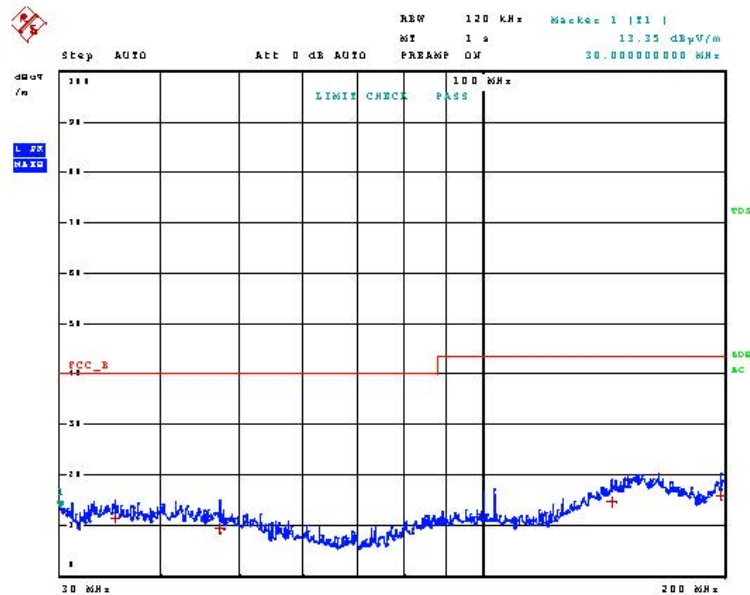
Polarity

Vertical

Stepped Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 200 MHz
Detector: Trace 1: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	200.000000 MHz	40.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (136MHz) 30 – 200 MHz Horizontal Peak Plot Cont.

09.Feb 18 08:08

Test Spec CISPR 22 Radiated Disturbances

Polarity

Vertical

Final Measurement

Meas Time: 1 s
Margin: 25 dB
Subranges: 4

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	35.00000000 MHz	11.45	Quasi Peak	-28.55
1	47.32000000 MHz	9.27	Quasi Peak	-30.73
1	144.88000000 MHz	14.65	Quasi Peak	-28.85
1	198.04000000 MHz	15.76	Quasi Peak	-27.74

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Results Meets Requirements

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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (150MHz) 30 – 200 MHz Vertical Peak Plot



09.Feb 18 08:09

Test Spec CISPR 22 Radiated Disturbances

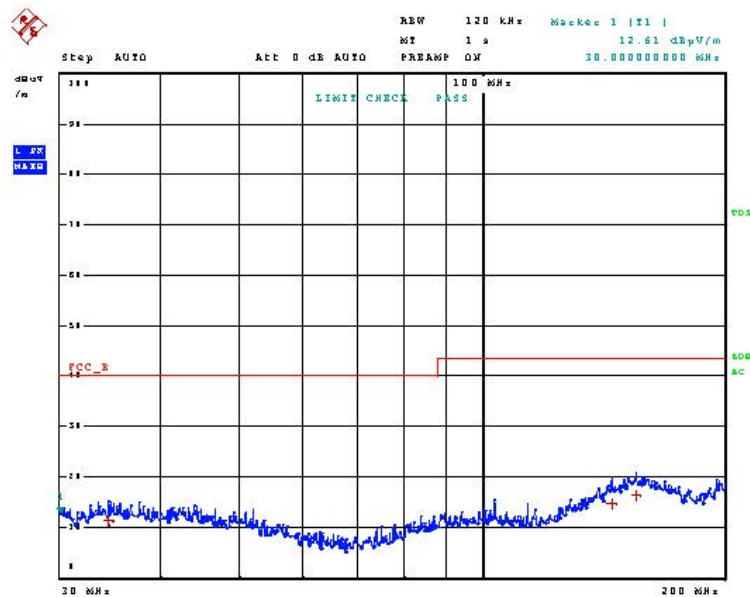
Polarity

Vertical

Stepped Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 200 MHz
Detector: Trace 1: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	200.000000 MHz	40.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (150MHz) 30 – 200 MHz Vertical Peak Plot Cont.

09.Feb 18 08:09

Test Spec CISPR 22 Radiated Disturbances

Polarity

Vertical

Final Measurement

Meas Time: 1 s
Margin: 25 dB
Subranges: 3

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	34.400000000 MHz	11.15	Quasi Peak	-28.85
1	144.920000000 MHz	14.70	Quasi Peak	-28.80
1	155.560000000 MHz	16.18	Quasi Peak	-27.32

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Results Meets Requirements

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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (150MHz) 30 – 200 MHz Horizontal Peak Plot



09.Feb 18 08:09

Test Spec CISPR 22 Radiated Disturbances

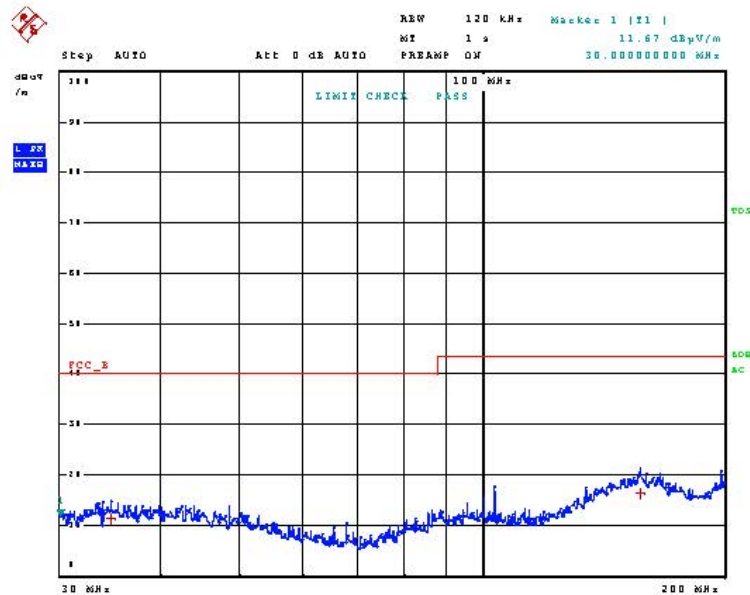
Polarity

Vertical

Stepped Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 200 MHz
Detector: Trace 1: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	200.000000 MHz	40.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (150MHz) 30 – 200 MHz Horizontal Peak Plot Cont.

09.Feb 18 08:09

Test Spec CISPR 22 Radiated Disturbances

Polarity

Vertical

Final Measurement

Meas Time: 1 s

Margin: 25 dB

Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	34.520000000 MHz	11.23	Quasi Peak	-28.77
1	157.400000000 MHz	16.28	Quasi Peak	-27.22

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Results Meets Requirements

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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (174MHz) 30 – 200 MHz Vertical Peak Plot



09.Feb 18 08:11

Test Spec CISPR 22 Radiated Disturbances

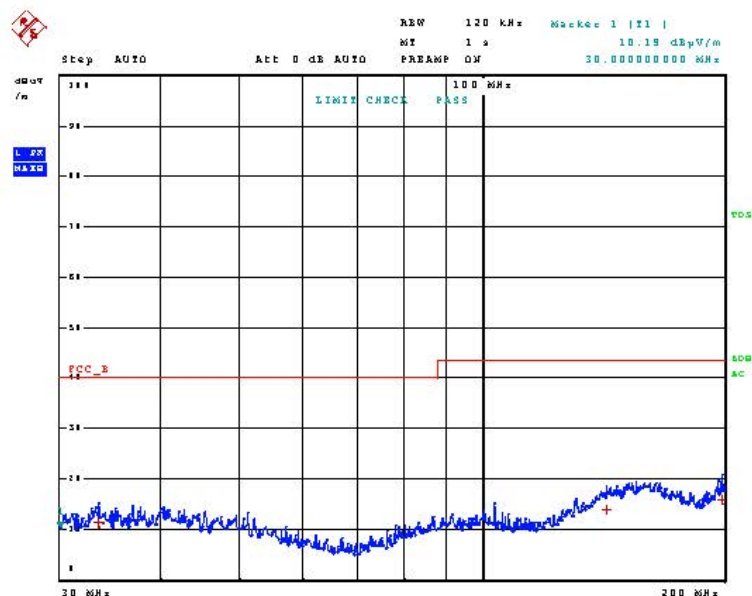
Polarity

Vertical

Stepped Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 200 MHz
Detector: Trace 1: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	200.000000 MHz	40.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (174MHz) 30 – 200 MHz Vertical Peak Plot Cont.

09.Feb 18 08:11

Test Spec CISPR 22 Radiated Disturbances

Polarity

Vertical

Final Measurement

Meas Time: 1 s
Margin: 25 dB
Subranges: 3

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	33.40000000 MHz	11.26	Quasi Peak	-28.74
1	142.48000000 MHz	13.97	Quasi Peak	-29.53
1	198.52000000 MHz	15.84	Quasi Peak	-27.66

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Results Meets Requirements

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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (174MHz) 30 – 200 MHz Horizontal Peak Plot



09.Feb 18 08:12

Test Spec CISPR 22 Radiated Disturbances

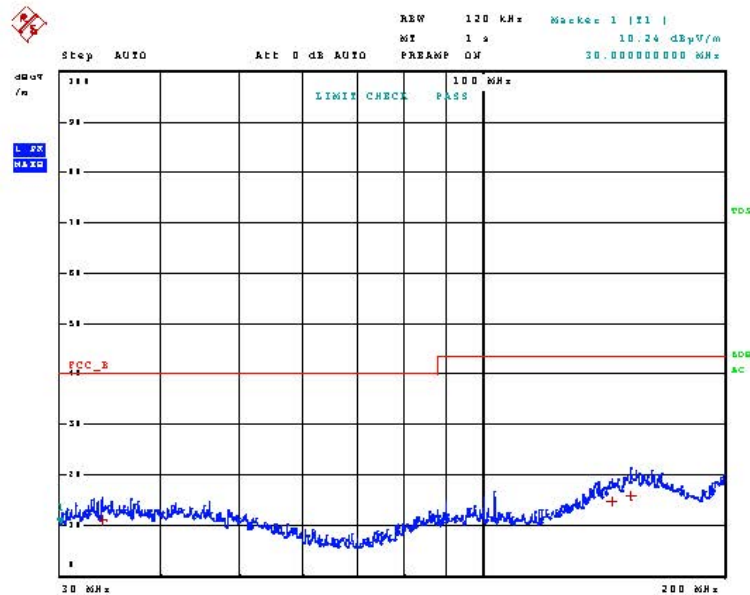
Polarity

Vertical

Stepped Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 200 MHz
Detector: Trace 1: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	200.000000 MHz	40.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (174MHz) 30 – 200 MHz Horizontal Peak Plot Cont.

09.Feb 18 08:12

Test Spec CISPR 22 Radiated Disturbances
Polarity
Vertical

Final Measurement

Meas Time: 1 s
Margin: 25 dB
Subranges: 3

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	33.760000000 MHz	11.13	Quasi Peak	-28.87
1	145.080000000 MHz	14.72	Quasi Peak	-28.78
1	152.920000000 MHz	15.83	Quasi Peak	-27.67

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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (400MHz) 30 – 200 MHz Vertical Peak Plot



09.Feb 18 08:17

Test Spec CISPR 22 Radiated Disturbances

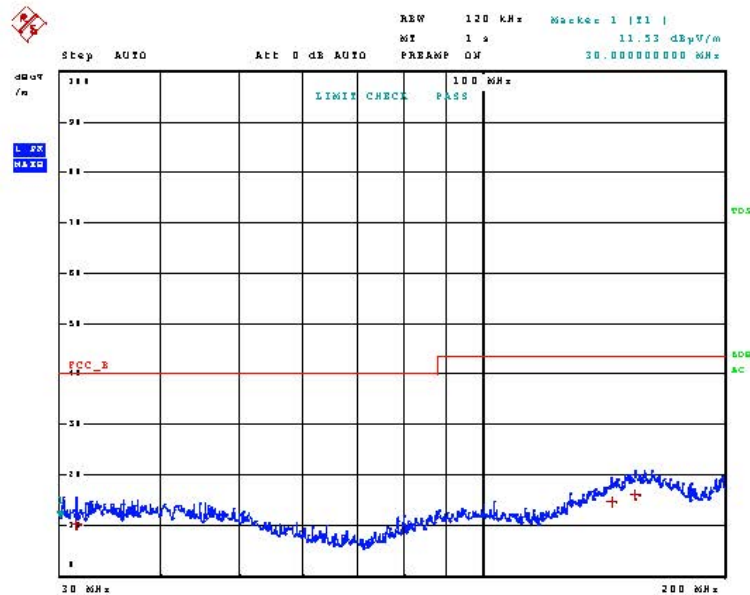
Polarity

Vertical

Stepped Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 200 MHz
Detector: Trace 1: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	200.000000 MHz	40.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (400MHz) 30 – 200 MHz Vertical Peak Plot Cont.

09.Feb 18 08:17

Test Spec CISPR 22 Radiated Disturbances
Polarity
Vertical

Final Measurement

Meas Time: 1 s
Margin: 25 dB
Subranges: 3

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	31.320000000 MHz	10.08	Quasi Peak	-29.92
1	144.760000000 MHz	14.63	Quasi Peak	-28.87
1	154.920000000 MHz	16.14	Quasi Peak	-27.36

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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (400MHz) 30 – 200 MHz Horizontal Peak Plot



09.Feb 18 08:13

Test Spec CISPR 22 Radiated Disturbances

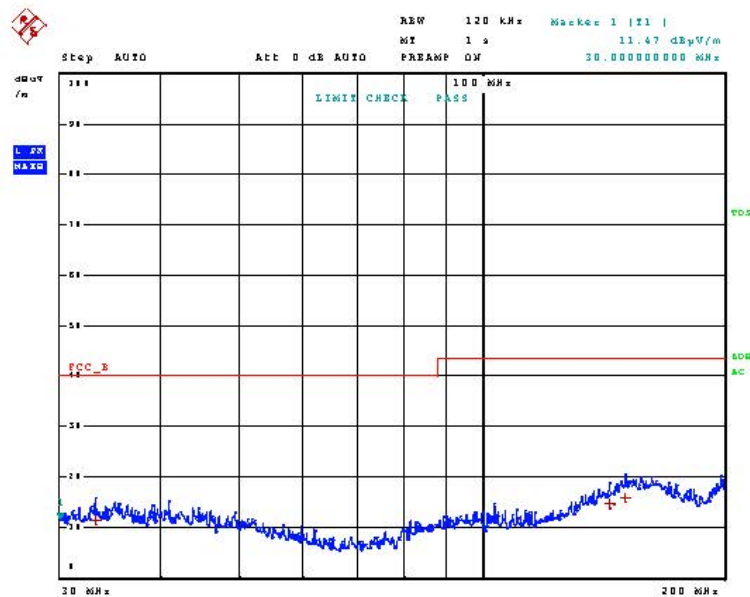
Polarity

Vertical

Stepped Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 200 MHz
Detector: Trace 1: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	200.000000 MHz	40.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (400MHz) 30 – 200 MHz Horizontal Peak Plot Cont.

09.Feb 18 08:13

Test Spec CISPR 22 Radiated Disturbances

Polarity

Vertical

Final Measurement

Meas Time: 1 s

Margin: 25 dB

Subranges: 3

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	33.120000000 MHz	11.38	Quasi Peak	-28.62
1	144.200000000 MHz	14.53	Quasi Peak	-28.97
1	150.920000000 MHz	15.84	Quasi Peak	-27.66

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Results Meets Requirements

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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (440MHz) 30 – 200 MHz Vertical Peak Plot



09.Feb 18 08:14

Test Spec CISPR 22 Radiated Disturbances

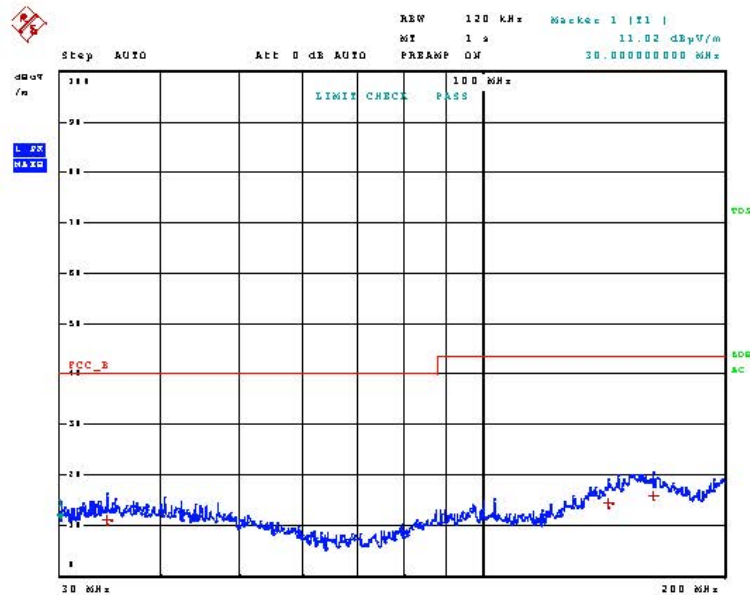
Polarity

Vertical

Stepped Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 200 MHz
Detector: Trace 1: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	200.000000 MHz	40.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (440MHz) 30 – 200 MHz Vertical Peak Plot Cont.

09.Feb 18 08:14

Test Spec CISPR 22 Radiated Disturbances

Polarity

Vertical

Final Measurement

Meas Time: 1 s

Margin: 25 dB

Subranges: 3

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	34.240000000 MHz	11.07	Quasi Peak	-28.93
1	143.680000000 MHz	14.33	Quasi Peak	-29.17
1	163.280000000 MHz	15.76	Quasi Peak	-27.74

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (440MHz) 30 – 200 MHz Horizontal Peak Plot



09.Feb 18 08:15

Test Spec CISPR 22 Radiated Disturbances

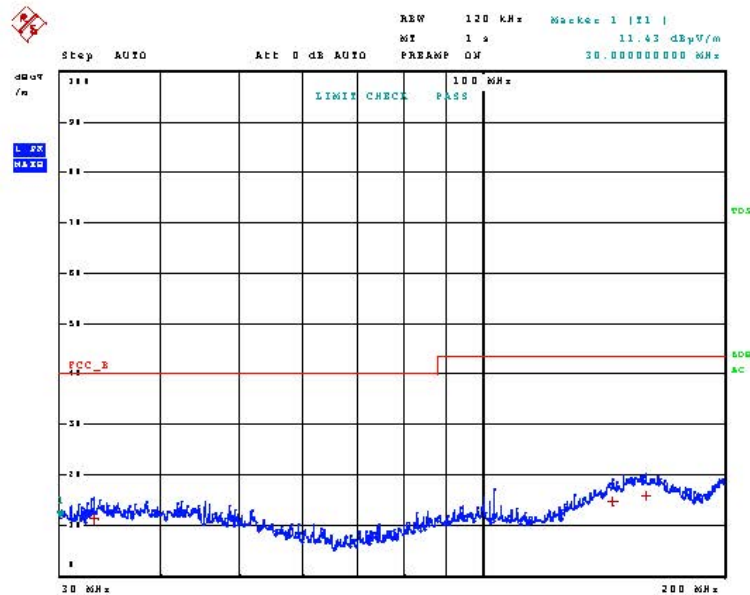
Polarity

Vertical

Stepped Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 200 MHz
Detector: Trace 1: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	200.000000 MHz	40.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (440MHz) 30 – 200 MHz Horizontal Peak Plot Cont.

09.Feb 18 08:15

Test Spec CISPR 22 Radiated Disturbances

Polarity

Vertical

Final Measurement

Meas Time: 1 s

Margin: 25 dB

Subranges: 3

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	32.880000000 MHz	11.28	Quasi Peak	-28.72
1	145.200000000 MHz	14.84	Quasi Peak	-28.66
1	159.520000000 MHz	15.92	Quasi Peak	-27.58

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (480MHz) 30 – 200 MHz Vertical Peak Plot



09.Feb 18 08:17

Test Spec CISPR 22 Radiated Disturbances

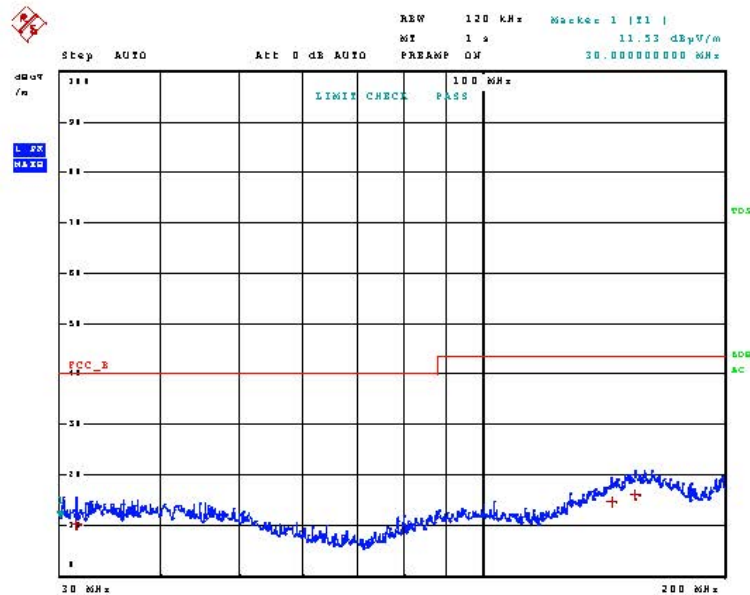
Polarity

Vertical

Stepped Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 200 MHz
Detector: Trace 1: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	200.000000 MHz	40.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (480MHz) 30 – 200 MHz Vertical Peak Plot Cont.

09.Feb 18 08:17

Test Spec CISPR 22 Radiated Disturbances
Polarity
Vertical

Final Measurement

Meas Time: 1 s
Margin: 25 dB
Subranges: 3

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	31.320000000 MHz	10.08	Quasi Peak	-29.92
1	144.760000000 MHz	14.63	Quasi Peak	-28.87
1	154.920000000 MHz	16.14	Quasi Peak	-27.36

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (480MHz) 30 – 200 MHz Horizontal Peak Plot



09.Feb 18 08:16

Test Spec CISPR 22 Radiated Disturbances

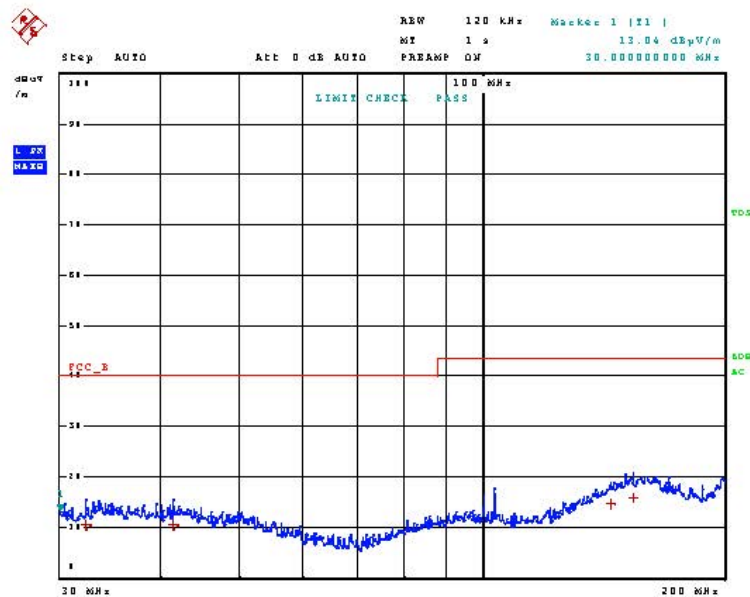
Polarity

Vertical

Stepped Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 200 MHz
Detector: Trace 1: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	200.000000 MHz	40.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (480MHz) 30 – 200 MHz Horizontal Peak Plot Cont.

09.Feb 18 08:16

Test Spec CISPR 22 Radiated Disturbances

Polarity

Vertical

Final Measurement

Meas Time: 1 s
Margin: 25 dB
Subranges: 4

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	32.200000000 MHz	10.36	Quasi Peak	-29.64
1	41.360000000 MHz	10.48	Quasi Peak	-29.52
1	144.280000000 MHz	14.51	Quasi Peak	-28.99
1	153.880000000 MHz	15.96	Quasi Peak	-27.54

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
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RADIATED SPURIOUS EMISSIONS

Test Data: Scanning (136 - 174MHz) 30 – 200 MHz Vertical Peak Plot



09.Feb 18 07:57

Test Spec CISPR 22 Radiated Disturbances

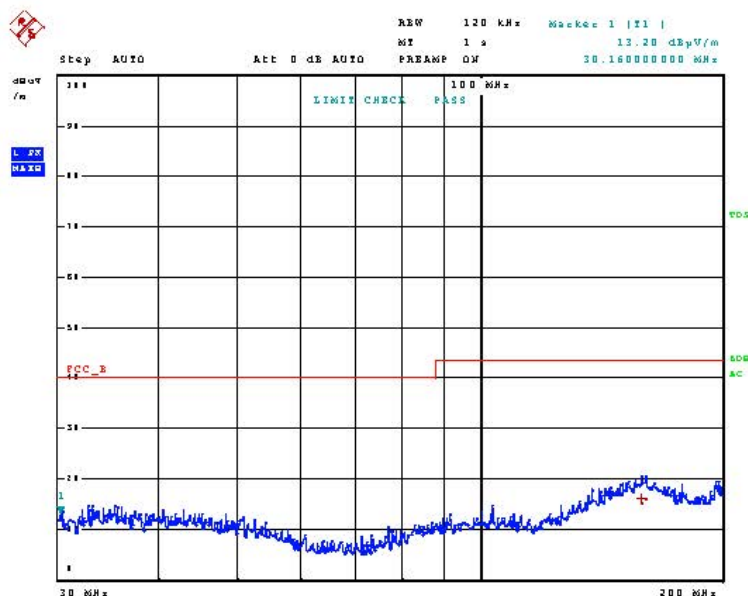
Polarity

Vertical

Stepped Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 200 MHz
Detector: Trace 1: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	200.000000 MHz	40.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



Final Measurement

Meas Time: 1 s
Margin: 25 dB
Subranges: 1

Trace	Frequency	Level (dBμV/m)	Detector	Delta Limit/dB
1	158.680000000 MHz	16.10	Quasi Peak	-27.40

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Scanning (136 - 174MHz) 30 – 200 MHz Horizontal Peak Plot



09.Feb 18 07:58

Test Spec CISPR 22 Radiated Disturbances

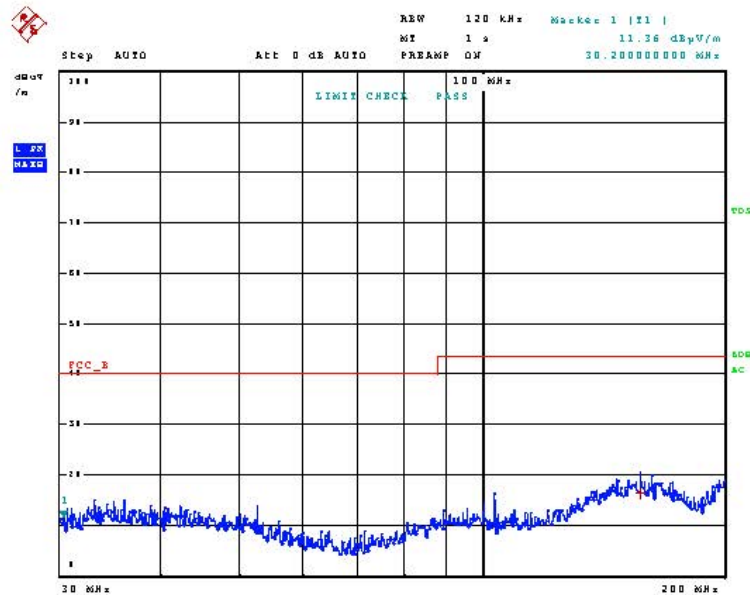
Polarity

Vertical

Stepped Scan (1 Range)

Scan Start: 30 MHz
Scan Stop: 200 MHz
Detector: Trace 1: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
30.000000 MHz	200.000000 MHz	40.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



Final Measurement

Meas Time: 1 s
Margin: 25 dB
Subranges: 1

Trace	Frequency	Level (dB μ V/m)	Detector	Delta Limit/dB
1	157.12000000 MHz	16.28	Quasi Peak	-27.22

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (136MHz) 200 – 1000 MHz Vertical Peak Plot Cont.

09.Feb 18 07:44

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Final Measurement

Meas Time: 1 s

Margin: 20 dB

Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	761.480000000 MHz	24.08	Quasi Peak	-21.92
1	958.400000000 MHz	27.23	Quasi Peak	-18.77

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (136MHz) 200 – 1000 MHz Horizontal Peak Plot



09.Feb 18 07:45

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Time Domain Scan (1 Range)

Scan Start: 200 MHz

Scan Stop: 1 GHz

Detector: Trace 1: MAX PEAK

Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
200.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (136MHz) 200 – 1000MHz Horizontal Peak Plot Cont.

09.Feb 18 07:45

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Final Measurement

Meas Time: 1 s

Margin: 20 dB

Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	754.130000000 MHz	24.09	Quasi Peak	-21.91
1	955.880000000 MHz	26.97	Quasi Peak	-19.03

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (150MHz) 200 – 1000 MHz Vertical Peak Plot Cont.

09.Feb 18 07:43

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Final Measurement

Meas Time: 1 s

Margin: 20 dB

Subranges: 2

Trace	Frequency	Level (dBμV/m)	Detector	Delta Limit/dB
1	761.750000000 MHz	24.15	Quasi Peak	-21.85
1	959.540000000 MHz	27.38	Quasi Peak	-18.62

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (150MHz) 200 – 1000 MHz Horizontal Peak Plot Cont.

09.Feb 18 07:43

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Final Measurement

Meas Time: 1 s

Margin: 20 dB

Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	761.75000000 MHz	24.15	Quasi Peak	-21.85
1	959.54000000 MHz	27.38	Quasi Peak	-18.62

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (174MHz) 200 – 1000 MHz Vertical Peak Plot Cont.

09.Feb 18 07:41

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Final Measurement

Meas Time: 1 s

Margin: 20 dB

Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	754.40000000 MHz	24.12	Quasi Peak	-21.88
1	959.18000000 MHz	27.30	Quasi Peak	-18.70

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (174MHz) 200 – 1000 MHz Horizontal Peak Plot



09.Feb 18 07:42

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Time Domain Scan (1 Range)

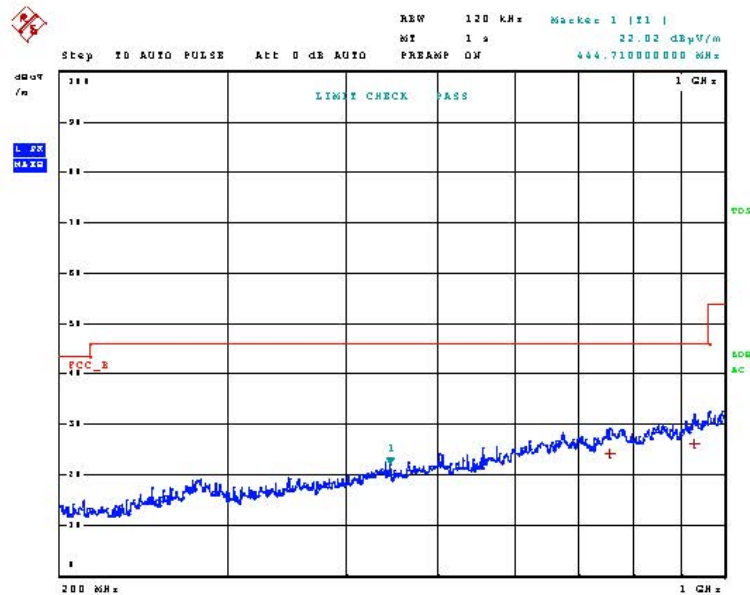
Scan Start: 200 MHz

Scan Stop: 1 GHz

Detector: Trace 1: MAX PEAK

Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
200.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
 FCC ID: K6620695X20
 Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (174MHz) 200–1000MHz Horizontal Peak Plot Cont.

09.Feb 18 07:42

Test Spec CISPR 22 Radiated Disturbances
Polarity
Horizontal

Final Measurement

Meas Time: 1 s
Margin: 20 dB
Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	756.770000000 MHz	24.18	Quasi Peak	-21.82
1	930.560000000 MHz	26.07	Quasi Peak	-19.93

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (400MHz) 200 – 1000 MHz Vertical Peak Plot



09.Feb 18 07:40

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Time Domain Scan (1 Range)

Scan Start: 200 MHz

Scan Stop: 1 GHz

Detector: Trace 1: MAX PEAK

Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
200.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (400MHz) 200 – 1000 MHz Vertical Peak Plot Cont.

09.Feb 18 07:40

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Final Measurement

Meas Time: 1 s

Margin: 20 dB

Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	759.800000000 MHz	24.15	Quasi Peak	-21.85
1	922.730000000 MHz	26.16	Quasi Peak	-19.84

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (400MHz) 200–1000 MHz Horizontal Peak Plot Cont.

09.Feb 18 07:40

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Final Measurement

Meas Time: 1 s

Margin: 20 dB

Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	746.81000000 MHz	23.56	Quasi Peak	-22.44
1	866.81000000 MHz	25.00	Quasi Peak	-21.00

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (440MHz) 200 – 1000 MHz Vertical Peak Plot



09.Feb 18 07:38

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Time Domain Scan (1 Range)

Scan Start: 200 MHz

Scan Stop: 1 GHz

Detector: Trace 1: MAX PEAK

Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
200.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
 FCC ID: K6620695X20
 Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (440MHz) 200 – 1000 MHz Vertical Peak Plot Cont.

09.Feb 18 07:38

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Final Measurement

Meas Time: 1 s

Margin: 20 dB

Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	758.510000000 MHz	24.17	Quasi Peak	-21.83
1	959.510000000 MHz	27.42	Quasi Peak	-18.58

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (440MHz) 200 – 1000 MHz Horizontal Peak Plot



09.Feb 18 07:39

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Time Domain Scan (1 Range)

Scan Start: 200 MHz

Scan Stop: 1 GHz

Detector: Trace 1: MAX PEAK

Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
200.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (440MHz) 200 – 1000 MHz Horizontal Peak Plot Cont.

09.Feb 18 07:39

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Final Measurement

Meas Time: 1 s

Margin: 20 dB

Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	757.880000000 MHz	24.15	Quasi Peak	-21.85
1	920.060000000 MHz	25.97	Quasi Peak	-20.03

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (480MHz) 200 – 1000 MHz Vertical Peak Plot

09.Feb 18 07:37

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Final Measurement

Meas Time: 1 s

Margin: 20 dB

Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	703.190000000 MHz	23.75	Quasi Peak	-22.25
1	925.160000000 MHz	26.32	Quasi Peak	-19.68

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (480MHz) 200 – 1000 MHz Horizontal Peak Plot



09.Feb 18 07:36

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Time Domain Scan (1 Range)

Scan Start: 200 MHz

Scan Stop: 1 GHz

Detector: Trace 1: MAX PEAK

Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
200.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (480MHz) 200–1000 MHz Horizontal Peak Plot Cont.



09.Feb 18 07:36

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Time Domain Scan (1 Range)

Scan Start: 200 MHz

Scan Stop: 1 GHz

Detector: Trace 1: MAX PEAK

Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
200.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
 FCC ID: K6620695X20
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RADIATED SPURIOUS EMISSIONS

Test Data: Scanning 200 – 1000 MHz Vertical Peak Plot Cont.

09.Feb 18 07:36

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Final Measurement

Meas Time: 1 s

Margin: 20 dB

Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	749.210000000 MHz	23.79	Quasi Peak	-22.21
1	921.710000000 MHz	26.17	Quasi Peak	-19.83

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Scanning 200 – 1000 MHz Horizontal Peak Plot



09.Feb 18 07:35

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Time Domain Scan (1 Range)

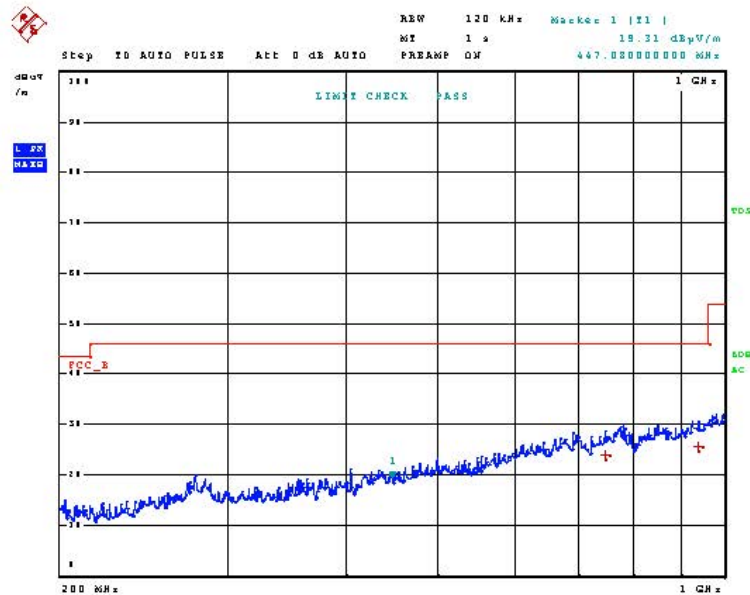
Scan Start: 200 MHz

Scan Stop: 1 GHz

Detector: Trace 1: MAX PEAK

Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
200.000000 MHz	1.000000 GHz	30.00 kHz	120.00 kHz	50 μ s	Auto	20 dB	INPUT1



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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
 FCC ID: K6620695X20
 Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

Test Data: Scanning 200 – 1000 MHz Horizontal Peak Plot Cont.

09.Feb 18 07:34

Test Spec CISPR 22 Radiated Disturbances

Polarity

Horizontal

Final Measurement

Meas Time: 1 s

Margin: 20 dB

Subranges: 2

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	762.380000000 MHz	24.19	Quasi Peak	-21.81
1	927.650000000 MHz	26.28	Quasi Peak	-19.72

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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
Report: 110AUT18TestRepor_Rev1

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RADIATED SPURIOUS EMISSIONS

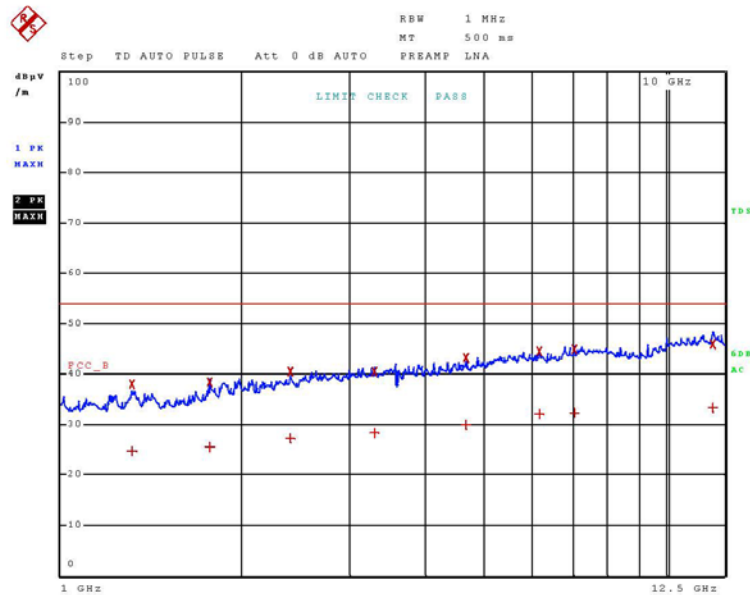
Test Data: Low End of Band (136MHz) 1 – 12.5 GHz Vertical Peak Plot

09.Feb 18 06:52

Time Domain Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 12.5 GHz
Detector: Trace 1: MAX PEAK Trace 2: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	12.500000 GHz	250.00 kHz	1.00 MHz	100 μ s	Auto	35 dB	INPUT1



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Results Meets Requirements

Applicant: YAESU MUSEN CO., LTD.
FCC ID: K6620695X20
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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (136MHz) 1 – 12.5 GHz Vertical Peak Plot Cont.

09.Feb 18 06:52

Final Measurement

Meas Time: 500 ms
Margin: 40 dB
Subranges: 16

Trace	Frequency	Level (dBμV/m)	Detector	Delta Limit/dB
1	1.311500000 GHz	24.69	CISPR Averag	-29.31
2	1.311500000 GHz	37.94	Max Peak	
1	1.760500000 GHz	25.58	CISPR Averag	-28.42
2	1.760500000 GHz	38.28	Max Peak	
1	2.393750000 GHz	27.13	CISPR Averag	-26.87
2	2.393750000 GHz	40.46	Max Peak	
1	3.296250000 GHz	28.18	CISPR Averag	-25.82
2	3.296250000 GHz	40.41	Max Peak	
1	4.673250000 GHz	30.03	CISPR Averag	-23.97
2	4.673250000 GHz	43.25	Max Peak	
1	6.180000000 GHz	31.94	CISPR Averag	-22.06
2	6.180000000 GHz	44.37	Max Peak	
1	7.061500000 GHz	32.33	CISPR Averag	-21.67
2	7.061500000 GHz	44.90	Max Peak	
1	11.952500000 GHz	33.31	CISPR Averag	-20.69
2	11.952500000 GHz	45.99	Max Peak	

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Results Meets Requirements

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RADIATED SPURIOUS EMISSIONS

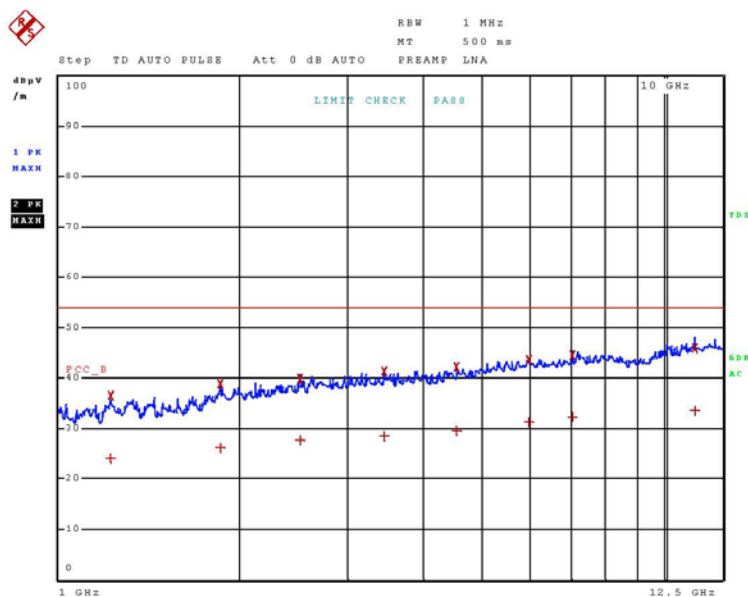
Test Data: Low End of Band (136MHz) 1 – 12.5 GHz Horizontal Peak Plot

09.Feb 18 06:55

Time Domain Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 12.5 GHz
Detector: Trace 1: MAX PEAK Trace 2: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	12.500000 GHz	250.00 kHz	1.00 MHz	100 μ s	Auto	35 dB	INPUT1



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Test Data: Low End of Band (136MHz) 1 – 12.5 GHz Horizontal Peak Plot Cont.

09.Feb 18 06:55

Final Measurement

Meas Time: 500 ms
Margin: 40 dB
Subranges: 16

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	1.218750000 GHz	24.15	CISPR Averag	-29.85
2	1.218750000 GHz	36.36	Max Peak	
1	1.847250000 GHz	26.05	CISPR Averag	-27.95
2	1.847250000 GHz	38.72	Max Peak	
1	2.503000000 GHz	27.65	CISPR Averag	-26.35
2	2.503000000 GHz	39.91	Max Peak	
1	3.448500000 GHz	28.41	CISPR Averag	-25.59
2	3.448500000 GHz	41.24	Max Peak	
1	4.540000000 GHz	29.43	CISPR Averag	-24.57
2	4.540000000 GHz	42.11	Max Peak	
1	5.981000000 GHz	31.11	CISPR Averag	-22.89
2	5.981000000 GHz	43.55	Max Peak	
1	7.063500000 GHz	32.15	CISPR Averag	-21.85
2	7.063500000 GHz	44.51	Max Peak	
1	11.273000000 GHz	33.57	CISPR Averag	-20.43
2	11.273000000 GHz	45.95	Max Peak	

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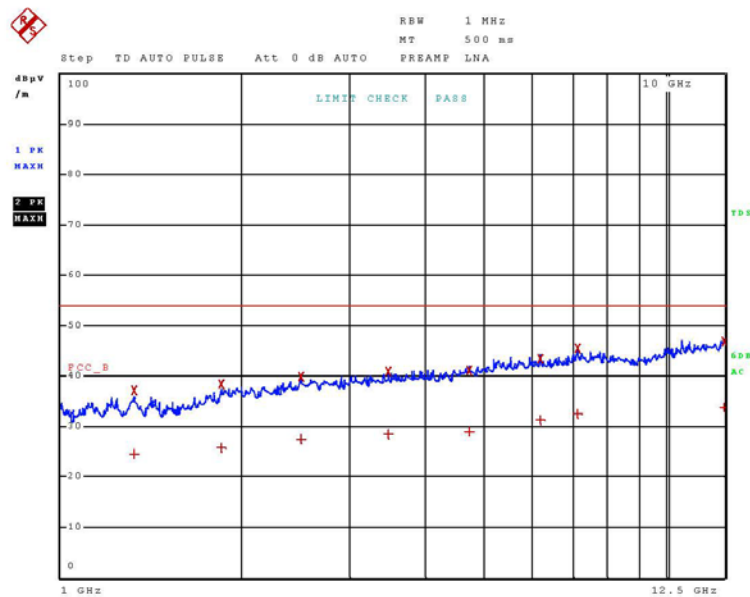
Test Data: Middle of Band (150MHz) 1 – 12.5 GHz Vertical Peak Plot

09.Feb 18 06:59

Time Domain Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 12.5 GHz
Detector: Trace 1: MAX PEAK Trace 2: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	12.500000 GHz	250.00 kHz	1.00 MHz	100 μ s	Auto	35 dB	INPUT1



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Test Data: Middle of Band (150MHz) 1 – 12.5 GHz Vertical Peak Plot Cont.

09.Feb 18 06:59

Final Measurement

Meas Time: 500 ms
Margin: 40 dB
Subranges: 16

Trace	Frequency	Level (dBμV/m)	Detector	Delta Limit/dB
1	1.322500000 GHz	24.55	CISPR Averag	-29.45
2	1.322500000 GHz	37.01	Max Peak	
1	1.843750000 GHz	25.80	CISPR Averag	-28.20
2	1.843750000 GHz	38.36	Max Peak	
1	2.498750000 GHz	27.44	CISPR Averag	-26.56
2	2.498750000 GHz	39.74	Max Peak	
1	3.479250000 GHz	28.48	CISPR Averag	-25.52
2	3.479250000 GHz	40.87	Max Peak	
1	4.731750000 GHz	28.93	CISPR Averag	-25.07
2	4.731750000 GHz	41.17	Max Peak	
1	6.206500000 GHz	31.26	CISPR Averag	-22.74
2	6.206500000 GHz	43.47	Max Peak	
1	7.153750000 GHz	32.51	CISPR Averag	-21.49
2	7.153750000 GHz	45.56	Max Peak	
1	12.491250000 GHz	33.80	CISPR Averag	-20.20
2	12.491250000 GHz	46.73	Max Peak	

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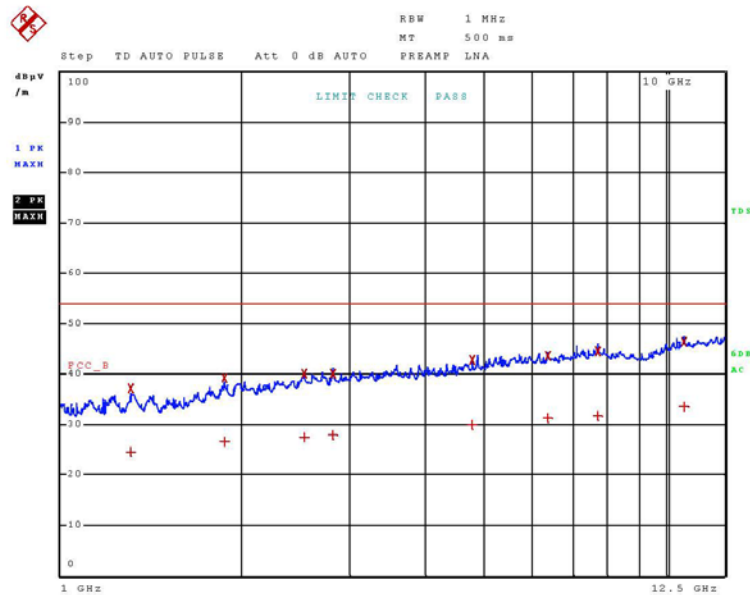
Test Data: Middle of Band (150MHz) 1 – 12.5 GHz Horizontal Peak Plot

09.Feb 18 06:57

Time Domain Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 12.5 GHz
Detector: Trace 1: MAX PEAK Trace 2: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	12.500000 GHz	250.00 kHz	1.00 MHz	100 μ s	Auto	35 dB	INPUT1



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Test Data: Middle of Band (150MHz) 1 – 12.5 GHz Horizontal Peak Plot Cont.

09.Feb 18 06:57

Final Measurement

Meas Time: 500 ms
Margin: 40 dB
Subranges: 16

Trace	Frequency	Level (dBμV/m)	Detector	Delta Limit/dB
1	1.308250000 GHz	24.39	CISPR Averag	-29.61
2	1.308250000 GHz	37.12	Max Peak	
1	1.866000000 GHz	26.50	CISPR Averag	-27.50
2	1.866000000 GHz	39.15	Max Peak	
1	2.527500000 GHz	27.49	CISPR Averag	-26.51
2	2.527500000 GHz	39.94	Max Peak	
1	2.815000000 GHz	27.84	CISPR Averag	-26.16
2	2.815000000 GHz	40.09	Max Peak	
1	4.794750000 GHz	29.95	CISPR Averag	-24.05
2	4.794750000 GHz	42.83	Max Peak	
1	6.371500000 GHz	31.27	CISPR Averag	-22.73
2	6.371500000 GHz	43.57	Max Peak	
1	7.712250000 GHz	31.63	CISPR Averag	-22.37
2	7.712250000 GHz	44.45	Max Peak	
1	10.709500000 GHz	33.57	CISPR Averag	-20.43
2	10.709500000 GHz	46.39	Max Peak	

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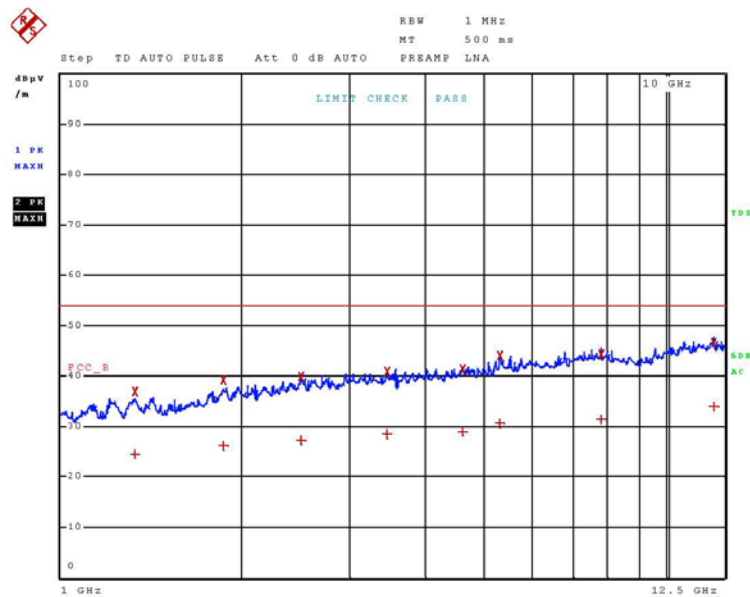
Test Data: High End of Band (174MHz) 1 – 12.5 GHz Vertical Peak Plot

09.Feb 18 07:01

Time Domain Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 12.5 GHz
Detector: Trace 1: MAX PEAK Trace 2: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	12.500000 GHz	250.00 kHz	1.00 MHz	100 μ s	Auto	35 dB	INPUT1



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Test Data: High End of Band (174MHz) 1 – 12.5 GHz Vertical Peak Plot Cont.

09.Feb 18 07:01

Final Measurement

Meas Time: 500 ms
Margin: 40 dB
Subranges: 16

Trace	Frequency	Level (dBμV/m)	Detector	Delta Limit/dB
1	1.328750000 GHz	24.40	CISPR Averag	-29.60
2	1.328750000 GHz	36.94	Max Peak	
1	1.855000000 GHz	26.25	CISPR Averag	-27.75
2	1.855000000 GHz	39.22	Max Peak	
1	2.491250000 GHz	27.22	CISPR Averag	-26.78
2	2.491250000 GHz	39.86	Max Peak	
1	3.464750000 GHz	28.46	CISPR Averag	-25.54
2	3.464750000 GHz	40.81	Max Peak	
1	4.621250000 GHz	28.94	CISPR Averag	-25.06
2	4.621250000 GHz	41.24	Max Peak	
1	5.315250000 GHz	30.47	CISPR Averag	-23.53
2	5.315250000 GHz	43.95	Max Peak	
1	7.828750000 GHz	31.39	CISPR Averag	-22.61
2	7.828750000 GHz	44.30	Max Peak	
1	11.983250000 GHz	34.00	CISPR Averag	-20.00
2	11.983250000 GHz	46.51	Max Peak	

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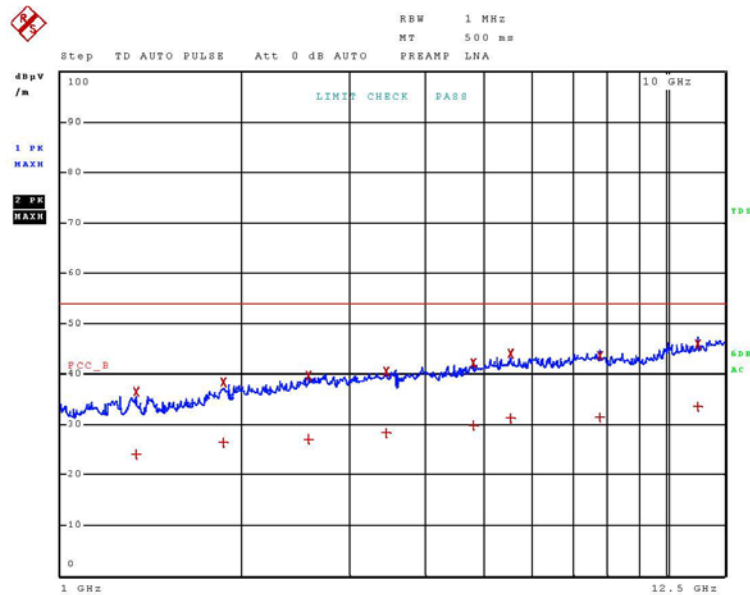
Test Data: High End of Band (174MHz) 1 – 12.5 GHz Horizontal Peak Plot

09.Feb 18 07:02

Time Domain Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 12.5 GHz
Detector: Trace 1: MAX PEAK Trace 2: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	12.500000 GHz	250.00 kHz	1.00 MHz	100 μ s	Auto	35 dB	INPUT1



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Test Data: High End of Band (174MHz) 1 – 12.5 GHz Horizontal Peak Plot Cont.

09.Feb 18 07:02

Final Measurement

Meas Time: 500 ms
Margin: 40 dB
Subranges: 16

Trace	Frequency	Level (dBμV/m)	Detector	Delta Limit/dB
1	1.334000000 GHz	24.05	CISPR Averag	-29.95
2	1.334000000 GHz	36.39	Max Peak	
1	1.861000000 GHz	26.26	CISPR Averag	-27.74
2	1.861000000 GHz	38.40	Max Peak	
1	2.565000000 GHz	26.90	CISPR Averag	-27.10
2	2.565000000 GHz	39.68	Max Peak	
1	3.456250000 GHz	28.35	CISPR Averag	-25.65
2	3.456250000 GHz	40.48	Max Peak	
1	4.800750000 GHz	29.80	CISPR Averag	-24.20
2	4.800750000 GHz	42.19	Max Peak	
1	5.532500000 GHz	31.25	CISPR Averag	-22.75
2	5.532500000 GHz	43.91	Max Peak	
1	7.793250000 GHz	31.49	CISPR Averag	-22.51
2	7.793250000 GHz	43.68	Max Peak	
1	11.277000000 GHz	33.49	CISPR Averag	-20.51
2	11.277000000 GHz	45.93	Max Peak	

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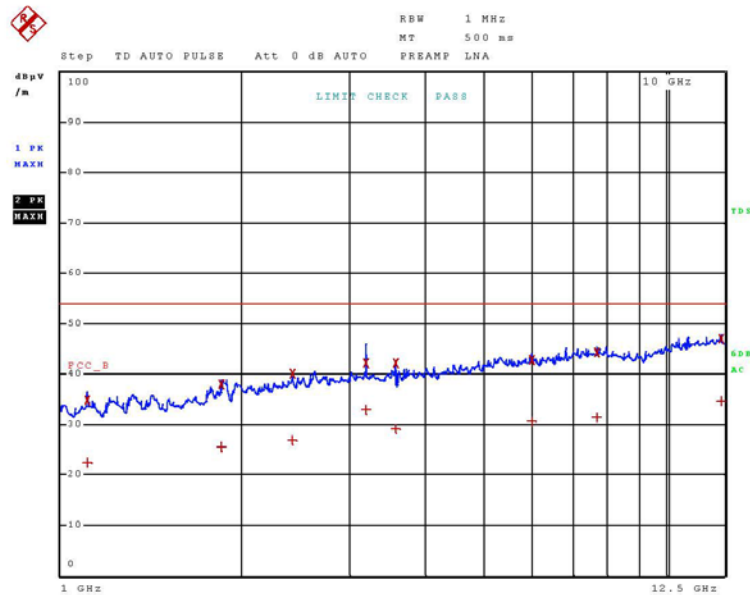
Test Data: Low End of Band (400MHz) 1 – 12.5 GHz Vertical Peak Plot

09.Feb 18 07:09

Time Domain Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 12.5 GHz
Detector: Trace 1: MAX PEAK Trace 2: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	12.500000 GHz	250.00 kHz	1.00 MHz	100 μ s	Auto	35 dB	INPUT1



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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (400MHz) 1 – 12.5 GHz Vertical Peak Plot Cont.

09.Feb 18 07:09

Final Measurement

Meas Time: 500 ms
Margin: 40 dB
Subranges: 16

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	1.107500000 GHz	22.43	CISPR Averag	-31.57
2	1.107500000 GHz	34.73	Max Peak	
1	1.843000000 GHz	25.44	CISPR Averag	-28.56
2	1.843000000 GHz	38.00	Max Peak	
1	2.419500000 GHz	26.70	CISPR Averag	-27.30
2	2.419500000 GHz	40.02	Max Peak	
1	3.200000000 GHz	32.86	CISPR Averag	-21.14
2	3.200000000 GHz	42.11	Max Peak	
1	3.587000000 GHz	29.15	CISPR Averag	-24.85
2	3.587000000 GHz	42.16	Max Peak	
1	6.001750000 GHz	30.63	CISPR Averag	-23.37
2	6.001750000 GHz	42.82	Max Peak	
1	7.685750000 GHz	31.42	CISPR Averag	-22.58
2	7.685750000 GHz	44.16	Max Peak	
1	12.341250000 GHz	34.65	CISPR Averag	-19.35
2	12.341250000 GHz	47.05	Max Peak	

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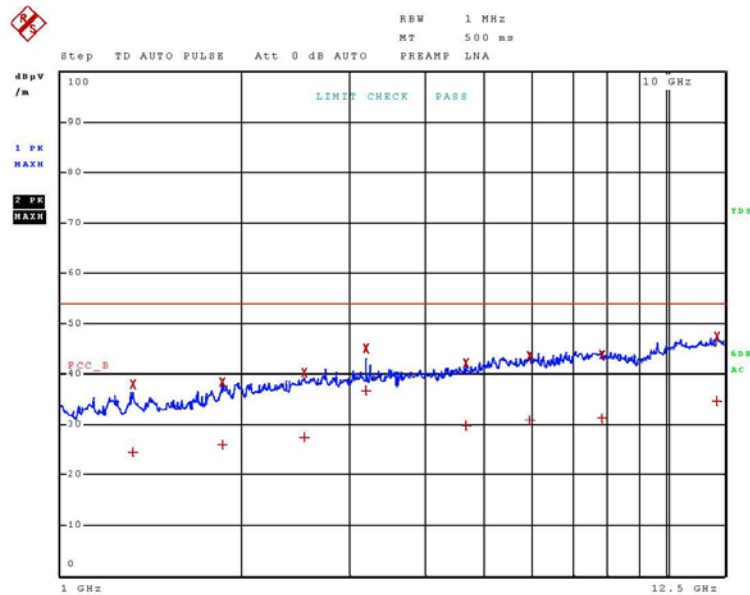
Test Data: Low End of Band (400MHz) 1 – 12.5 GHz Horizontal Peak Plot

09.Feb 18 07:04

Time Domain Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 12.5 GHz
Detector: Trace 1: MAX PEAK Trace 2: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	12.500000 GHz	250.00 kHz	1.00 MHz	100 μ s	Auto	35 dB	INPUT1



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RADIATED SPURIOUS EMISSIONS

Test Data: Low End of Band (400MHz) 1 – 12.5 GHz Horizontal Peak Plot Cont.

09.Feb 18 07:04

Final Measurement

Meas Time: 500 ms
Margin: 40 dB
Subranges: 16

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	1.317500000 GHz	24.56	CISPR Averag	-29.44
2	1.317500000 GHz	37.94	Max Peak	
1	1.852250000 GHz	26.03	CISPR Averag	-27.97
2	1.852250000 GHz	38.36	Max Peak	
1	2.530250000 GHz	27.36	CISPR Averag	-26.64
2	2.530250000 GHz	40.25	Max Peak	
1	3.199750000 GHz	36.59	CISPR Averag	-17.41
2	3.199750000 GHz	45.06	Max Peak	
1	4.683250000 GHz	29.74	CISPR Averag	-24.26
2	4.683250000 GHz	42.04	Max Peak	
1	5.964000000 GHz	30.85	CISPR Averag	-23.15
2	5.964000000 GHz	43.53	Max Peak	
1	7.834000000 GHz	31.24	CISPR Averag	-22.76
2	7.834000000 GHz	43.80	Max Peak	
1	12.141250000 GHz	34.65	CISPR Averag	-19.35
2	12.141250000 GHz	47.37	Max Peak	

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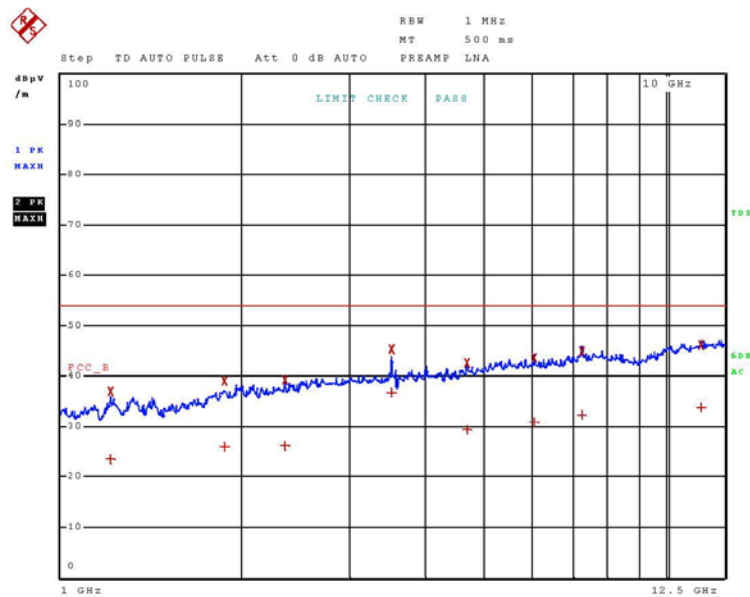
Test Data: Middle of Band (440MHz) 1 – 12.5 GHz Vertical Peak Plot

09.Feb 18 07:12

Time Domain Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 12.5 GHz
Detector: Trace 1: MAX PEAK Trace 2: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	12.500000 GHz	250.00 kHz	1.00 MHz	100 μ s	Auto	35 dB	INPUT1



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Test Data: Middle of Band (440MHz) 1 – 12.5 GHz Vertical Peak Plot Cont.

09.Feb 18 07:12

Final Measurement

Meas Time: 500 ms
Margin: 40 dB
Subranges: 16

Trace	Frequency	Level (dBμV/m)	Detector	Delta Limit/dB
1	1.208000000 GHz	23.49	CISPR Averag	-30.51
2	1.208000000 GHz	36.79	Max Peak	
1	1.861500000 GHz	26.04	CISPR Averag	-27.96
2	1.861500000 GHz	38.98	Max Peak	
1	2.350750000 GHz	26.05	CISPR Averag	-27.95
2	2.350750000 GHz	39.13	Max Peak	
1	3.520000000 GHz	36.67	CISPR Averag	-17.33
2	3.520000000 GHz	45.31	Max Peak	
1	4.689250000 GHz	29.32	CISPR Averag	-24.68
2	4.689250000 GHz	42.44	Max Peak	
1	6.066000000 GHz	30.88	CISPR Averag	-23.12
2	6.066000000 GHz	43.52	Max Peak	
1	7.259000000 GHz	32.21	CISPR Averag	-21.79
2	7.259000000 GHz	44.78	Max Peak	
1	11.441750000 GHz	33.80	CISPR Averag	-20.20
2	11.441750000 GHz	46.21	Max Peak	

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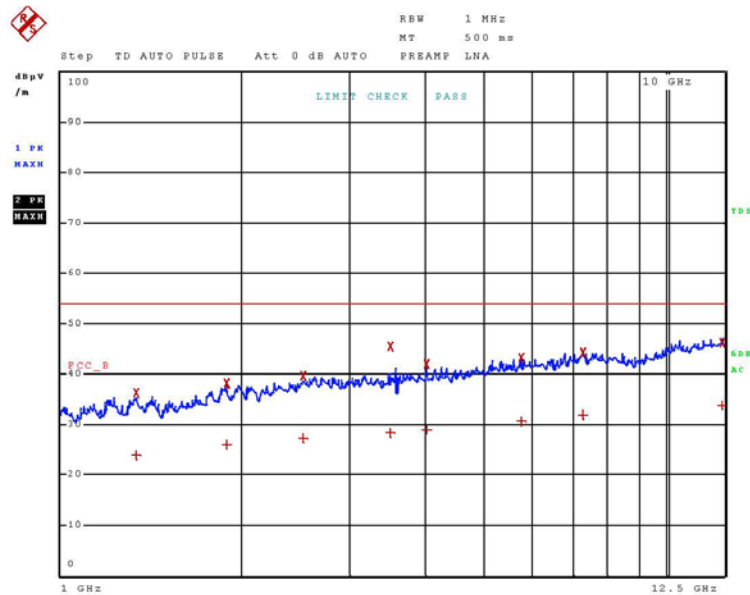
Test Data: Middle of Band (440MHz) 1 – 12.5 GHz Horizontal Peak Plot

09.Feb 18 07:14

Time Domain Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 12.5 GHz
Detector: Trace 1: MAX PEAK Trace 2: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	12.500000 GHz	250.00 kHz	1.00 MHz	100 μ s	Auto	35 dB	INPUT1



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RADIATED SPURIOUS EMISSIONS

Test Data: Middle of Band (440MHz) 1 – 12.5 GHz Horizontal Peak Plot Cont.

09.Feb 18 07:14

Final Measurement

Meas Time: 500 ms
Margin: 40 dB
Subranges: 16

Trace	Frequency	Level (dBμV/m)	Detector	Delta Limit/dB
1	1.332750000 GHz	23.79	CISPR Averag	-30.21
2	1.332750000 GHz	36.29	Max Peak	
1	1.877750000 GHz	25.95	CISPR Averag	-28.05
2	1.877750000 GHz	38.19	Max Peak	
1	2.516500000 GHz	27.19	CISPR Averag	-26.81
2	2.516500000 GHz	39.62	Max Peak	
1	3.508750000 GHz	28.34	CISPR Averag	-25.66
2	3.508750000 GHz	45.40	Max Peak	
1	4.019250000 GHz	28.94	CISPR Averag	-25.06
2	4.019250000 GHz	41.86	Max Peak	
1	5.763500000 GHz	30.54	CISPR Averag	-23.46
2	5.763500000 GHz	43.23	Max Peak	
1	7.284250000 GHz	31.84	CISPR Averag	-22.16
2	7.284250000 GHz	44.16	Max Peak	
1	12.405500000 GHz	33.68	CISPR Averag	-20.32
2	12.405500000 GHz	46.19	Max Peak	

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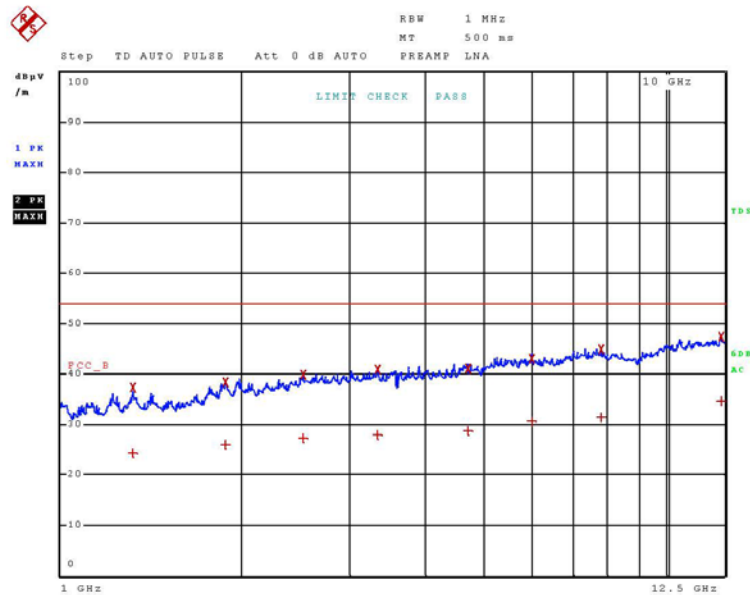
Test Data: High End of Band (480MHz) 1 – 12.5 GHz Vertical Peak Plot

09.Feb 18 07:16

Time Domain Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 12.5 GHz
Detector: Trace 1: MAX PEAK Trace 2: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	12.500000 GHz	250.00 kHz	1.00 MHz	100 μ s	Auto	35 dB	INPUT1



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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (480MHz) 1 – 12.5 GHz Vertical Peak Plot Cont.

09.Feb 18 07:16

Final Measurement

Meas Time: 500 ms
Margin: 40 dB
Subranges: 16

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	1.318000000 GHz	24.30	CISPR Averag	-29.70
2	1.318000000 GHz	37.24	Max Peak	
1	1.876250000 GHz	25.97	CISPR Averag	-28.03
2	1.876250000 GHz	38.30	Max Peak	
1	2.518750000 GHz	27.17	CISPR Averag	-26.83
2	2.518750000 GHz	39.72	Max Peak	
1	3.334500000 GHz	27.78	CISPR Averag	-26.22
2	3.334500000 GHz	40.81	Max Peak	
1	4.721250000 GHz	28.66	CISPR Averag	-25.34
2	4.721250000 GHz	41.07	Max Peak	
1	6.002750000 GHz	30.52	CISPR Averag	-23.48
2	6.002750000 GHz	42.96	Max Peak	
1	7.815000000 GHz	31.40	CISPR Averag	-22.60
2	7.815000000 GHz	44.85	Max Peak	
1	12.353750000 GHz	34.61	CISPR Averag	-19.39
2	12.353750000 GHz	47.36	Max Peak	

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Results Meets Requirements

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RADIATED SPURIOUS EMISSIONS

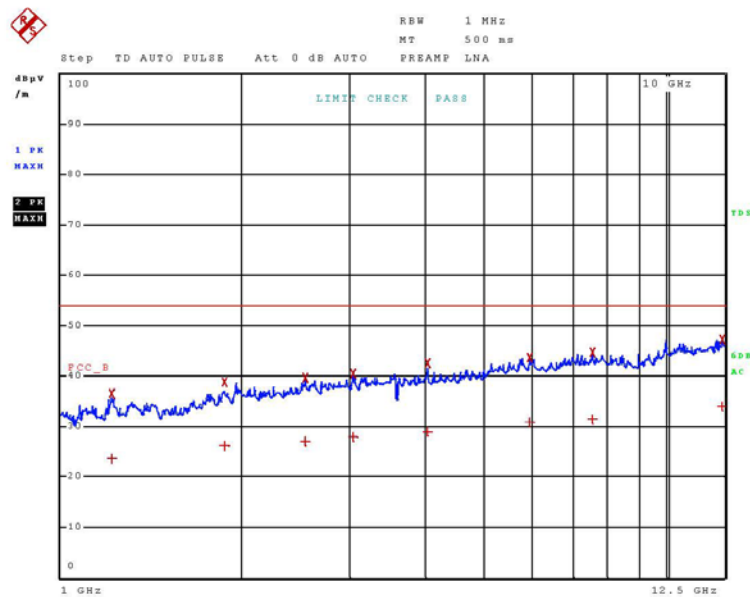
Test Data: High End of Band (480MHz) 1 – 12.5 GHz Horizontal Peak Plot

09.Feb 18 07:15

Time Domain Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 12.5 GHz
Detector: Trace 1: MAX PEAK Trace 2: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	12.500000 GHz	250.00 kHz	1.00 MHz	100 μ s	Auto	35 dB	INPUT1



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RADIATED SPURIOUS EMISSIONS

Test Data: High End of Band (480MHz) 1 – 12.5 GHz Horizontal Peak Plot Cont.

09.Feb 18 07:15

Final Measurement

Meas Time: 500 ms
Margin: 40 dB
Subranges: 16

Trace	Frequency	Level (dBμV/m)	Detector	Delta Limit/dB
1	1.214500000 GHz	23.61	CISPR Averag	-30.39
2	1.214500000 GHz	36.48	Max Peak	
1	1.863500000 GHz	26.09	CISPR Averag	-27.91
2	1.863500000 GHz	38.74	Max Peak	
1	2.535500000 GHz	27.10	CISPR Averag	-26.90
2	2.535500000 GHz	39.63	Max Peak	
1	3.038750000 GHz	27.91	CISPR Averag	-26.09
2	3.038750000 GHz	40.45	Max Peak	
1	4.034750000 GHz	28.86	CISPR Averag	-25.14
2	4.034750000 GHz	42.61	Max Peak	
1	5.968500000 GHz	30.76	CISPR Averag	-23.24
2	5.968500000 GHz	43.61	Max Peak	
1	7.572000000 GHz	31.50	CISPR Averag	-22.50
2	7.572000000 GHz	44.62	Max Peak	
1	12.389250000 GHz	33.99	CISPR Averag	-20.01
2	12.389250000 GHz	47.14	Max Peak	

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RADIATED SPURIOUS EMISSIONS

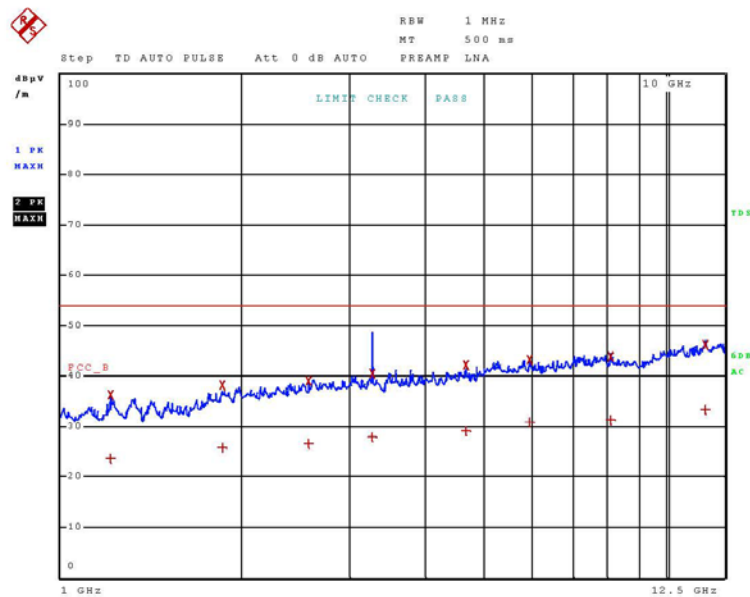
Test Data: Scanning 1 – 12.5 GHz Vertical Peak Plot

09.Feb 18 07:24

Time Domain Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 12.5 GHz
Detector: Trace 1: MAX PEAK Trace 2: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	12.500000 GHz	250.00 kHz	1.00 MHz	100 μ s	Auto	35 dB	INPUT1



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RADIATED SPURIOUS EMISSIONS

Test Data: Scanning 1 – 12.5 GHz Vertical Peak Plot Cont.

09.Feb 18 07:24

Final Measurement

Meas Time: 500 ms
Margin: 40 dB
Subranges: 16

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	1.210250000 GHz	23.57	CISPR Averag	-30.43
2	1.210250000 GHz	36.31	Max Peak	
1	1.852250000 GHz	25.77	CISPR Averag	-28.23
2	1.852250000 GHz	38.09	Max Peak	
1	2.563750000 GHz	26.58	CISPR Averag	-27.42
2	2.563750000 GHz	38.98	Max Peak	
1	3.273250000 GHz	27.79	CISPR Averag	-26.21
2	3.273250000 GHz	40.47	Max Peak	
1	4.682000000 GHz	29.20	CISPR Averag	-24.80
2	4.682000000 GHz	42.13	Max Peak	
1	5.965750000 GHz	30.85	CISPR Averag	-23.15
2	5.965750000 GHz	43.27	Max Peak	
1	8.100000000 GHz	31.10	CISPR Averag	-22.90
2	8.100000000 GHz	43.91	Max Peak	
1	11.611500000 GHz	33.25	CISPR Averag	-20.75
2	11.611500000 GHz	46.18	Max Peak	

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RADIATED SPURIOUS EMISSIONS

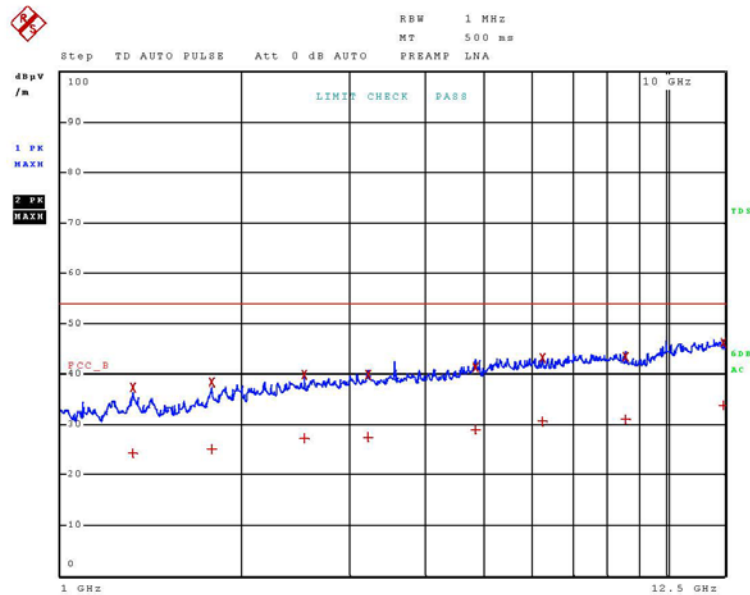
Test Data: Scanning 1 – 12.5 GHz Horizontal Peak Plot

09.Feb 18 07:22

Time Domain Scan (1 Range)

Scan Start: 1 GHz
Scan Stop: 12.5 GHz
Detector: Trace 1: MAX PEAK Trace 2: MAX PEAK
Transducer: TDS_01

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
1.000000 GHz	12.500000 GHz	250.00 kHz	1.00 MHz	100 μ s	Auto	35 dB	INPUT1



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RADIATED SPURIOUS EMISSIONS

Test Data: Scanning 1 – 12.5 GHz Horizontal Peak Plot Cont.

09.Feb 18 07:22

Final Measurement

Meas Time: 500 ms
Margin: 40 dB
Subranges: 16

Trace	Frequency	Level (dBµV/m)	Detector	Delta Limit/dB
1	1.314250000 GHz	24.24	CISPR Averag	-29.76
2	1.314250000 GHz	37.21	Max Peak	
1	1.773500000 GHz	25.14	CISPR Averag	-28.86
2	1.773500000 GHz	38.35	Max Peak	
1	2.525250000 GHz	27.15	CISPR Averag	-26.85
2	2.525250000 GHz	39.75	Max Peak	
1	3.218250000 GHz	27.43	CISPR Averag	-26.57
2	3.218250000 GHz	39.87	Max Peak	
1	4.847000000 GHz	28.97	CISPR Averag	-25.03
2	4.847000000 GHz	41.20	Max Peak	
1	6.254500000 GHz	30.62	CISPR Averag	-23.38
2	6.254500000 GHz	43.21	Max Peak	
1	8.595250000 GHz	30.98	CISPR Averag	-23.02
2	8.595250000 GHz	43.41	Max Peak	
1	12.458750000 GHz	33.68	CISPR Averag	-20.32
2	12.458750000 GHz	46.09	Max Peak	

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ANTENNA CONDUCTED POWER

Rule Part No.: FCC Part 15 Subpart B

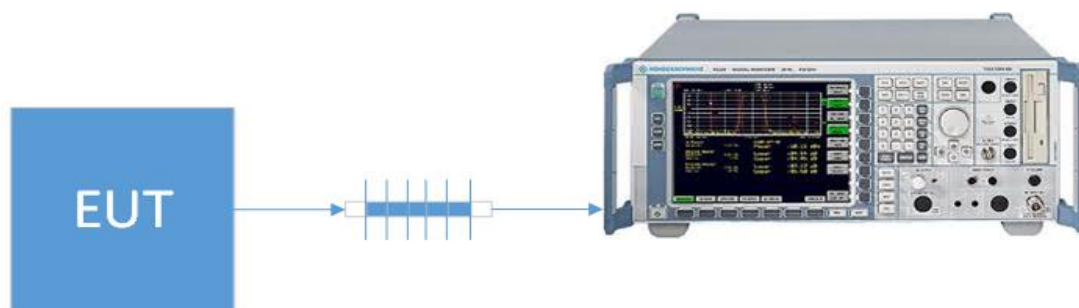
Requirements: FCC Part 15.111(a) Antenna power conduction limits for receivers
In addition to the radiated emission limits. Receivers that operate (tune) in the frequency range 30 to 960 MHz and CB receivers that provide terminals for the connection of an external receiving antenna may be tested to demonstrate compliance with the provisions of §15.109 with the antenna terminals shielded and terminated with a resistive termination equal to the impedance specified for the antenna. Provided these receivers also comply with the following: With the receiver antenna terminal connected to a resistive termination equal to the impedance specified or employed for the antenna, the power at the antenna terminal at any frequency within the range of measurements specified in §15.33 shall not exceed 2.0 nanowatts.

Procedure: FCC Part 15.33(b)(3) Frequency range of radiated measurements
FCC Part 15.35(a) Measurement detector functions and bandwidths
ANSI C63.4 Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment 9 kHz to 40 GHz
§ 12.2.2 Operating conditions
§ 12.2.6 Antenna-conducted power measurements

Configuration: The scanner receiver spurious emissions are to be measured when the receiver is in the scanning mode and repeated when the scanning is stopped, all while the antenna terminals are connected to a EMI receiver through a 50 Ω coaxial cable.

Setup:

Results: **N/A. EUT is not intended for connection with AC Mains.**



TEST EQUIPMENT LIST

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
Antenna: Biconical 1057	Eaton	94455-1	1057	12/13/17	12/13/19
Antenna: Log-Periodic 1243	Eaton	96005	1243	02/09/16	02/09/18
Coaxial Cable - Chamber 3 cable set (backup)	Micro-Coax	Chamber 3 cable set (backup)	KMKM-0244-02 ; KMKM-0670-01; KFKF-0197-00	N/A	N/A
CHAMBER	Panashield	3M	N/A	04/25/16	1/31/18
Antenna: Double-Ridged Horn/ETS Horn 1	ETS-Lindgren	3117	00035923	01/30/17	01/30/19
EMI Test Receiver R & S ESU 40 Chamber	Rohde & Schwarz	ESU 40	100320	04/01/16	04/01/18
Bore-sight Antenna Positioning Tower	Sunol Sciences	TLT2	N/A	N/A	N/A

*EMI RECEIVER SOFTWARE VERSION

The receiver firmware used was version 4.43 Service Pack 3

END OF TEST REPORT