



Modular Approval
Test Report
And Application for Grant of Equipment Authorization

TEST REPORT PERTAINING TO:

Equipment Under Test	Model Number(s)
Wireless Device Server	PremierWave EN

CONFIGURATION
IEEE 802.11a / 802.11b / 802.11g / 802.11n with a Taoglas 5dBi; RP-SMA(M) Hinged 90° Antenna

MEASUREMENTS PERFORMED IN ACCORDANCE WITH THE FOLLOWING STANDARD (S)

Regulatory Standard(s)
47 CFR Part 15, Subpart E Section 15.407 (UNII Devices)
Test Method: ANSI C63.4: 2003 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz



Certificate Number: 1111.01

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Test Report #: LANTR-101029F

Test Report Revision: A1

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		A	B	
PAGES	18	179	1	198

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1.0 REGULATORY COMPLIANCE GUIDELINES

Aegis Labs, Inc. operates as both a Nevada and California Corporation with no organizational or financial relationship with any company, institution, or private individual. Testing and engineering functions provided by Aegis Labs were furnished by RF technicians and engineers with accredited qualifications and training credentials to carry out their duties.

The object of this report was to publish verifiable test results of an EUT subjected to the tests outlined in the standard listed on the cover page of this report.

1.1 Guidelines For Testing To Emissions Standards

This standard for EMC emission requirements apply to electrical equipment for Information Technology Equipment (ITE). Compliance to these standards and in combination with the other standards listed in this test report can be used to demonstrate presumption of compliance with the protection requirements of the appropriate agency standard.

The purpose of this standard is to specify minimum requirements for emissions regarding electromagnetic compatibility (EMC) and protect the radio frequency spectrum 9 kHz. – 400 GHz. from unwanted interference generated from electrical/digital systems that intentionally or unintentionally generated RF energy. The emissions standards, normative documents and/or publications were used to conduct all tests performed on the equipment herein referred to as “Equipment Under Test”.



2.0 SUMMARY OF TEST RESULTS

802.11a Mode (5150-5350 MHz) Antenna 1

EMISSIONS STANDARD			
FCC Part 15 Section	Description	Results	Comments
Operation in the 5.15-5.25 GHz Band			
15.407(d)	Any UNII device shall use a transmitting antenna that is an integral part of the device.	PASSED	The antenna will be integral when installed in a notebook computer
15.407(e)	UNII devices will be restricted to indoor operations.	PASSED	Refer to "User's Manual" Exhibit
15.407(a)(1)	26dB emissions bandwidth in MHz.	N/A	Refer to Plots Section
15.407(a)(1)	Peak transmit power shall not exceed the lesser of 50mW or 4dBm+10logB (where B = 26dB emissions bandwidth).	PASSED	Refer to Output power Section
15.407(a)(1)	The peak power spectral density shall not exceed 4dBm in any 1MHz band.	PASSED	Refer to Plots Section
15.407(a)(1)	Peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the transmitting antenna exceeds 6dBi.	N/A	All antennas tested have less than 6dBi antenna gain (Please see the antenna data sheets)
15.407(b)(6) 15.209	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.	PASSED	See FCC 15.247 report (LANTR-101028F)
15.407(b)(1)	All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.	PASSED	See Data Sheets
Operation in the 5.25-5.35 GHz Band			
15.407(a)(2)	26dB emissions bandwidth in MHz.	N/A	Refer to Plots Section
15.407(a)(2)	Peak transmit power shall not exceed the lesser of 250mW or 11dBm+10logB (where B = 26dB emissions bandwidth).	PASSED	Refer to Output power Section
15.407(a)(2)	The peak power spectral density shall not exceed 11dBm in any 1MHz band.	PASSED	Refer to Plots Section
15.407(a)(2)	Peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the transmitting antenna exceeds 6dBi.	N/A	All antennas tested have less than 6dBi antenna gain (Please see the antenna data sheets)
15.407(b)(6) 15.209	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.	PASSED	See FCC 15.247 report (LANTR-101028F)
15.407(b)(2)	All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz. Must meet all applicable technical requirements for operating in the 5.15-5.25 GHz band.	PASSED	See Data Sheets
General Requirements For All Bands			
15.407(a)(6)	The ratio of the peak excursion of the modulation envelope to the peak transmit power shall not exceed 13dB across any 1 MHz bandwidth or the emissions bandwidth whichever is less.	PASSED	Refer to Plots Section
15.407(f)	Radio frequency radiation exposure requirement.	PASSED	Refer to MPE Calculations
15.407(b)(6) 15.207	UNII devices using AC power line are required to comply with the conducted limits set forth in Section 15.207.	PASSED	See FCC 15.247 report (LANTR-101028F)



2.0 Summary Of Test Results (Continued)

802.11a Mode (5150-5350 MHz) Antenna 2

EMISSIONS STANDARD			
FCC Part 15 Section	Description	Results	Comments
Operation in the 5.15-5.25 GHz Band			
15.407(d)	Any UNII device shall use a transmitting antenna that is an integral part of the device.	PASSED	The antenna will be integral when installed in a notebook computer
15.407(e)	UNII devices will be restricted to indoor operations.	PASSED	Refer to "User's Manual" Exhibit
15.407(a)(1)	26dB emissions bandwidth in MHz.	N/A	Refer to Plots Section
15.407(a)(1)	Peak transmit power shall not exceed the lesser of 50mW or 4dBm+10logB (where B = 26dB emissions bandwidth).	PASSED	Refer to Output power Section
15.407(a)(1)	The peak power spectral density shall not exceed 4dBm in any 1MHz band.	PASSED	Refer to Plots Section
15.407(a)(1)	Peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the transmitting antenna exceeds 6dBi.	N/A	All antennas tested have less than 6dBi antenna gain (Please see the antenna data sheets)
15.407(b)(6) 15.209	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.	PASSED	See FCC 15.247 report (LANTR-101028F)
15.407(b)(1)	All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.	PASSED	See Data Sheets
Operation in the 5.25-5.35 GHz Band			
15.407(a)(2)	26dB emissions bandwidth in MHz.	N/A	Refer to Plots Section
15.407(a)(2)	Peak transmit power shall not exceed the lesser of 250mW or 11dBm+10logB (where B = 26dB emissions bandwidth).	PASSED	Refer to Output power Section
15.407(a)(2)	The peak power spectral density shall not exceed 11dBm in any 1MHz band.	PASSED	Refer to Plots Section
15.407(a)(2)	Peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the transmitting antenna exceeds 6dBi.	N/A	All antennas tested have less than 6dBi antenna gain (Please see the antenna data sheets)
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15.407(b)(2)	All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz. Must meet all applicable technical requirements for operating in the 5.15-5.25 GHz band.	PASSED	See Data Sheets
General Requirements For All Bands			
15.407(a)(6)	The ratio of the peak excursion of the modulation envelope to the peak transmit power shall not exceed 13dB across any 1 MHz bandwidth or the emissions bandwidth whichever is less.	PASSED	Refer to Plots Section
15.407(f)	Radio frequency radiation exposure requirement.	PASSED	Refer to MPE Calculations
15.407(b)(6) 15.207	UNII devices using AC power line are required to comply with the conducted limits set forth in Section 15.207.	PASSED	See FCC 15.247 report (LANTR-101028F)



2.0 Summary Of Test Results (Continued)

802.11n Mode (5150-5350 MHz) Antenna 1

EMISSIONS STANDARD			
FCC Part 15 Section	Description	Results	Comments
Operation in the 5.15-5.25 GHz Band			
15.407(d)	Any UNII device shall use a transmitting antenna that is an integral part of the device.	PASSED	The antenna will be integral when installed in a notebook computer
15.407(e)	UNII devices will be restricted to indoor operations.	PASSED	Refer to "User's Manual" Exhibit
15.407(a)(1)	26dB emissions bandwidth in MHz.	N/A	Refer to Plots Section
15.407(a)(1)	Peak transmit power shall not exceed the lesser of 50mW or 4dBm+10logB (where B = 26dB emissions bandwidth).	PASSED	Refer to Output power Section
15.407(a)(1)	The peak power spectral density shall not exceed 4dBm in any 1MHz band.	PASSED	Refer to Plots Section
15.407(a)(1)	Peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the transmitting antenna exceeds 6dBi.	N/A	All antennas tested have less than 6dBi antenna gain (Please see the antenna data sheets)
15.407(b)(6) 15.209	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.	PASSED	See FCC 15.247 report (LANTR-101028F)
15.407(b)(1)	All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.	PASSED	See Data Sheets
Operation in the 5.25-5.35 GHz Band			
15.407(a)(2)	26dB emissions bandwidth in MHz.	N/A	Refer to Plots Section
15.407(a)(2)	Peak transmit power shall not exceed the lesser of 250mW or 11dBm+10logB (where B = 26dB emissions bandwidth).	PASSED	Refer to Output power Section
15.407(a)(2)	The peak power spectral density shall not exceed 11dBm in any 1MHz band.	PASSED	Refer to Plots Section
15.407(a)(2)	Peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the transmitting antenna exceeds 6dBi.	N/A	All antennas tested have less than 6dBi antenna gain (Please see the antenna data sheets)
15.407(b)(6) 15.209	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.	PASSED	See FCC 15.247 report (LANTR-101028F)
15.407(b)(2)	All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz. Must meet all applicable technical requirements for operating in the 5.15-5.25 GHz band.	PASSED	See Data Sheets
General Requirements For All Bands			
15.407(a)(6)	The ratio of the peak excursion of the modulation envelope to the peak transmit power shall not exceed 13dB across any 1 MHz bandwidth or the emissions bandwidth whichever is less.	PASSED	Refer to Plots Section
15.407(f)	Radio frequency radiation exposure requirement.	PASSED	Refer to MPE Calculations
15.407(b)(6) 15.207	UNII devices using AC power line are required to comply with the conducted limits set forth in Section 15.207.	PASSED	See FCC 15.247 report (LANTR-101028F)



2.0 Summary Of Test Results (Continued)

802.11n Mode (5150-5350 MHz) Antenna 2

EMISSIONS STANDARD			
FCC Part 15 Section	Description	Results	Comments
Operation in the 5.15-5.25 GHz Band			
15.407(d)	Any UNII device shall use a transmitting antenna that is an integral part of the device.	PASSED	The antenna will be integral when installed in a notebook computer
15.407(e)	UNII devices will be restricted to indoor operations.	PASSED	Refer to "User's Manual" Exhibit
15.407(a)(1)	26dB emissions bandwidth in MHz.	N/A	Refer to Plots Section
15.407(a)(1)	Peak transmit power shall not exceed the lesser of 50mW or 4dBm+10logB (where B = 26dB emissions bandwidth).	PASSED	Refer to Output power Section
15.407(a)(1)	The peak power spectral density shall not exceed 4dBm in any 1MHz band.	PASSED	Refer to Plots Section
15.407(a)(1)	Peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the transmitting antenna exceeds 6dBi.	N/A	All antennas tested have less than 6dBi antenna gain (Please see the antenna data sheets)
15.407(b)(6) 15.209	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.	PASSED	See FCC 15.247 report (LANTR-101028F)
15.407(b)(1)	All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.	PASSED	See Data Sheets
Operation in the 5.25-5.35 GHz Band			
15.407(a)(2)	26dB emissions bandwidth in MHz.	N/A	Refer to Plots Section
15.407(a)(2)	Peak transmit power shall not exceed the lesser of 250mW or 11dBm+10logB (where B = 26dB emissions bandwidth).	PASSED	Refer to Output power Section
15.407(a)(2)	The peak power spectral density shall not exceed 11dBm in any 1MHz band.	PASSED	Refer to Plots Section
15.407(a)(2)	Peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the transmitting antenna exceeds 6dBi.	N/A	All antennas tested have less than 6dBi antenna gain (Please see the antenna data sheets)
15.407(b)(6) 15.209	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.	PASSED	See FCC 15.247 report (LANTR-101028F)
15.407(b)(2)	All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz. Must meet all applicable technical requirements for operating in the 5.15-5.25 GHz band.	PASSED	See Data Sheets
General Requirements For All Bands			
15.407(a)(6)	The ratio of the peak excursion of the modulation envelope to the peak transmit power shall not exceed 13dB across any 1 MHz bandwidth or the emissions bandwidth whichever is less.	PASSED	Refer to Plots Section
15.407(f)	Radio frequency radiation exposure requirement.	PASSED	Refer to MPE Calculations
15.407(b)(6) 15.207	UNII devices using AC power line are required to comply with the conducted limits set forth in Section 15.207.	PASSED	See FCC 15.247 report (LANTR-101028F)



2.0 Summary Of Test Results (Continued)

802.11a Mode (5470-5725 MHz) Antenna 1

EMISSIONS STANDARD			
FCC Part 15 Section	Description	Results	Comments
15.407(a)(2)	26dB emissions bandwidth in MHz.	N/A	Refer to Plots Section
15.407(a)(2)	Peak transmit power shall not exceed the lesser of 250mW or 11dBm+10logB (where B = 26dB emissions bandwidth).	PASSED	Refer to Output power Section
15.407(a)(2)	The peak power spectral density shall not exceed 11dBm in any 1MHz band.	PASSED	Refer to Plots Section
15.407(a)(2)	Peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the transmitting antenna exceeds 6dBi.	N/A	All antennas tested have less than 6dBi antenna gain (Please see the antenna data sheets)
15.407(b)(6) 15.209	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.	PASSED	See FCC 15.247 report (LANTR-101028F)
15.407(b)(3)	For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27dBm/MHz.	PASSED	See Data Sheets
General Requirements For All Bands			
15.407(a)(6)	The ratio of the peak excursion of the modulation envelope to the peak transmit power shall not exceed 13dB across any 1 MHz bandwidth or the emissions bandwidth whichever is less.	PASSED	Refer to Plots Section
15.407(f)	Radio frequency radiation exposure requirement.	PASSED	Refer to MPE Calculations
15.407(b)(6) 15.207	UNII devices using AC power line are required to comply with the conducted limits set forth in Section 15.207.	PASSED	See FCC 15.247 report (LANTR-101028F)



2.0 Summary Of Test Results (Continued)

802.11a Mode (5470-5725 MHz) Antenna 2

EMISSIONS STANDARD			
FCC Part 15 Section	Description	Results	Comments
15.407(a)(2)	26dB emissions bandwidth in MHz.	N/A	Refer to Plots Section
15.407(a)(2)	Peak transmit power shall not exceed the lesser of 250mW or 11dBm+10logB (where B = 26dB emissions bandwidth).	PASSED	Refer to Output power Section
15.407(a)(2)	The peak power spectral density shall not exceed 11dBm in any 1MHz band.	PASSED	Refer to Plots Section
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15.407(b)(6) 15.209	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.	PASSED	See FCC 15.247 report (LANTR-101028F)
15.407(b)(3)	For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27dBm/MHz.	PASSED	See Data Sheets
General Requirements For All Bands			
15.407(a)(6)	The ratio of the peak excursion of the modulation envelope to the peak transmit power shall not exceed 13dB across any 1 MHz bandwidth or the emissions bandwidth whichever is less.	PASSED	Refer to Plots Section
15.407(f)	Radio frequency radiation exposure requirement.	PASSED	Refer to MPE Calculations
15.407(b)(6) 15.207	UNII devices using AC power line are required to comply with the conducted limits set forth in Section 15.207.	PASSED	See FCC 15.247 report (LANTR-101028F)



2.0 Summary Of Test Results (Continued)

802.11n Mode (5470-5725 MHz) Antenna 1

EMISSIONS STANDARD			
FCC Part 15 Section	Description	Results	Comments
15.407(a)(2)	26dB emissions bandwidth in MHz.	N/A	Refer to Plots Section
15.407(a)(2)	Peak transmit power shall not exceed the lesser of 250mW or 11dBm+10logB (where B = 26dB emissions bandwidth).	PASSED	Refer to Output power Section
15.407(a)(2)	The peak power spectral density shall not exceed 11dBm in any 1MHz band.	PASSED	Refer to Plots Section
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15.407(b)(6) 15.209	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.	PASSED	See FCC 15.247 report (LANTR-101028F)
15.407(b)(3)	For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27dBm/MHz.	PASSED	See Data Sheets
General Requirements For All Bands			
15.407(a)(6)	The ratio of the peak excursion of the modulation envelope to the peak transmit power shall not exceed 13dB across any 1 MHz bandwidth or the emissions bandwidth whichever is less.	PASSED	Refer to Plots Section
15.407(f)	Radio frequency radiation exposure requirement.	PASSED	Refer to MPE Calculations
15.407(b)(6) 15.207	UNII devices using AC power line are required to comply with the conducted limits set forth in Section 15.207.	PASSED	See FCC 15.247 report (LANTR-101028F)



2.0 Summary Of Test Results (Continued)

802.11n Mode (5470-5725 MHz) Antenna 2

EMISSIONS STANDARD			
FCC Part 15 Section	Description	Results	Comments
15.407(a)(2)	26dB emissions bandwidth in MHz.	N/A	Refer to Plots Section
15.407(a)(2)	Peak transmit power shall not exceed the lesser of 250mW or 11dBm+10logB (where B = 26dB emissions bandwidth).	PASSED	Refer to Output power Section
15.407(a)(2)	The peak power spectral density shall not exceed 11dBm in any 1MHz band.	PASSED	Refer to Plots Section
15.407(a)(2)	Peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the transmitting antenna exceeds 6dBi.	N/A	All antennas tested have less than 6dBi antenna gain (Please see the antenna data sheets)
15.407(b)(6) 15.209	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.	PASSED	See FCC 15.247 report (LANTR-101028F)
15.407(b)(3)	For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27dBm/MHz.	PASSED	See Data Sheets
General Requirements For All Bands			
15.407(a)(6)	The ratio of the peak excursion of the modulation envelope to the peak transmit power shall not exceed 13dB across any 1 MHz bandwidth or the emissions bandwidth whichever is less.	PASSED	Refer to Plots Section
15.407(f)	Radio frequency radiation exposure requirement.	PASSED	Refer to MPE Calculations
15.407(b)(6) 15.207	UNII devices using AC power line are required to comply with the conducted limits set forth in Section 15.207.	PASSED	See FCC 15.247 report (LANTR-101028F)

ANALYSIS AND CONCLUSIONS

Based upon the measurement results we find that this equipment is within the limits of the global standards listed on the cover page of this test report. All results are based on a test of one sample. If any significant changes are made to the unit, the changes shall be evaluated and a retest may be required.

Approval Signatories

Test and Report Completed By:

Johnny Candelas
Test Technician
Aegis Labs, Inc.

01/17/11

Date:

Report Approved By:

Steve Kuiper
Quality Assurance Manager
Aegis Labs, Inc.

08/15/11

Date:



3.0 ADMINISTRATIVE DATA AND TEST DESCRIPTION

DEVICE TESTED:	ITE Type: Wireless Device Server Model Number(s): PremierWave EN Serial Number: 00:20:44:9D:2E:2F FCC ID: R68PEN
DATE EUT RECEIVED:	November 10 th , 2010
TEST DATE(S):	November 10 th – December 30 th , 2010
ORIGIN OF TEST SAMPLE(S):	Production
EQUIPMENT CLASS:	EUT tested as CLASS B device
RESPONSIBLE PARTY:	Lantronix 15353 Barranca Parkway Irvine, California 92618
CLIENT CONTACT:	Mr. Daryl Miller
MANUFACTURER:	Lantronix
TEST LOCATION:	Aegis Labs, Inc. 32231 Trabuco Creek Road Trabuco Canyon, CA 92678 Open Area Test Site #1 & #2
ACCREDITATION CERTIFICATE(S):	A2LA Certificate Number: 1111.01, Valid Through February 29, 2012
PURPOSE OF TEST:	To demonstrate compliance with the standards as described in Sections 1.0 & 2.0 of this report.
UNCERTAINTY BUDGET:	Proficiency Testing and Uncertainty Calculations for all tests indicated in this report have been conducted in accordance with ISO 17025: 2005 requirements Section 5.4.6, and 5.9. Uncertainty Budgets and Proficiency Test results available upon request.
STATEMENT OF CALIBRATION:	All accredited equipment calibrations were performed by Liberty Labs, Inc. and World Cal. with typical calibration uncertainty estimates derived from ISO Guide to the determination of uncertainties with a Coverage Factor of k=2 for 95% level of confidence.



4.0 DESCRIPTION OF EUT CONFIGURATION

4.1 EUT Description

Equipment Under Test (EUT)	
Trade Name:	Wireless Device Server
Model Number:	PremierWave EN
Frequency Range:	802.11a = 5.15-5.35 GHz 802.11n = 5.15-5.35 GHz
Enclosure:	The EUT contains its own shield made of aluminum approximately 2.5cm wide by 2cm deep by 2mm high.
Transfer Rate:	6/36/54 Mbps for 802.11a mode Up to 450 Mbps for 802.11n mode
Antenna Type:	Taoglas: Dipole Ethertronics: Embedded Ceramic
Antenna Gain (See Note 2):	5.00dBi @ 5 GHz 3.20dBi @ 5 GHz
Transmit Output Power:	Please see Appendix A (Data Sheets) for actual output power.
Power Supply:	3.3VDC from external source
Number of External Test Ports Exercised:	2 Antenna Ports (Antenna 1 & 2)

The Wireless Device Server is an embedded IEEE 802.11a/b/g/n wireless network adapter that operates in the 2.4 GHz and 5.0 GHz spectrum. The adapter is capable of delivering up to 450 Mbps Tx/Rx.

NOTE 1: For a more detailed description, please refer to the manufacture's specifications or User's Manual.

NOTE 2: The EUT was tested with a Taoglas & Ethertronics Antennas. (Refer to the antenna information exhibits).

4.2 EUT Configuration

The EUT was tested as a standalone device. It was connected to a host PC via its USB port. The EUT was then connected to an antenna via its Antenna 1 & 2 antenna ports. Data for a Taoglas & Ethertronics Antennas can be found in Appendix A (Data Sheets)

The low, middle, and high channels were tested in 802.11a, b, g, & n modes. Also, the EUT was tested once transmitting from each chain individually (Antenna 1, then 2). The EUT was placed in continuous transmit mode by a program provided by the manufacturer.

4.3 List of EUT, Sub-Assemblies and Host Equipment

Equipment Under Test			
Manufacturer	Equipment Name	Model or Part Number	Serial Number
Lantronix	Wireless Device Server	PremierWave EN	00:20:44:9D:2E:2F

EUT Sub Assemblies			
Manufacturer	Equipment Name	Model or Part Number	Serial Number
Taoglas	Antenna 1	GW.71.5153	N/A
Ethertronics	Antenna 2	M830510	N/A

HOST EQUIPMENT LIST			
Manufacturer	Equipment Name	Model or Part Number	Serial Number
Generic	Host PC	ENG001	None
Logitech	Keyboard	Y-BF37	MCT25200581
Logitech	Mouse	M-BJ58	LNA22802012
Dell	Monitor	E550	MY-07753T-46632-9BR-23D1

NOTE: All the power cords of the above support equipment are standard and non-shielded.

4.4 I/O Cabling Diagram and Description



Signal Line Cable Description

Cable	Length	Construction	Source Connector	Destination Connector	Bundled Length	Ferrite Attached	Note
1	1.5m	Round, Braid & Foil Shielded	Host Computer: USB Port	Keyboard: Hardwired	N/A	N/A	N/A
2	1.5m	Round, Braid & Foil Shielded	Host Computer: USB Port	Mouse: Hardwired	N/A	N/A	N/A
3	1.0m	Flat, Braid & Foil Shielded	EUT: USB Port	Host Computer: USB Port	N/A	N/A	N/A
4	1.0m	Flat, Braid & Foil Shielded	Monitor: VGA Out	Host Computer: DB9 Port	N/A	N/A	N/A



4.5 EMC Test Hardware and Software Measurement Equipment

TEST EQUIPMENT LIST - Emissions					
Equipment Name	Manufacturer	Model Number	Serial Number	Calibration Due Date	Maintenance Calibration Cycle
Spectrum Analyzer	Agilent	8565EC	3946A00245	07/24/11	1 Year
Antenna – Horn	ETS	3117	00057423	03/28/12	1 Year
Preamp	Miteq	JS42-01001800-25-10P	815980	09/21/11	1 Year
28 Foot Coax	Semflex	S1L29BFS1348	608	07/26/11	1 Year
5.15-5.35 GHz Notch Filter	Microwave Circuits	N0452502	3173-01	NCR	NCR
Antenna - 18-26.5 GHz Pre-amplified Horn	Aegis Labs, Inc.	H042	SLK-35-3W	02/08/12	1 Year
Antenna - 26.5-40 GHz Pre-amplified Horn	Aegis Labs, Inc.	H028	GM1260-10	02/08/12	1 Year
EMI Receiver - RF Section	Hewlett Packard	8546A	3325A00137	04/26/12	1 Year
EMI Receiver - RF Filter Section	Hewlett Packard	85460A	3330A00138	04/26/12	1 Year
10 dB Attenuator	Pasternack	PE7014-10	N/A	09/05/11	1 Year
LISN (EUT)	Fisher Custom Communications	FCC-LISN-50-25-2	9931	03/30/12	1 Year
LISN (Access)	EMCO	3825/2	9108-1848	03/30/12	1 Year
Antenna - Biconical	EMCO	3110B	3383	03/20/12	1 Year
Antenna - Log Periodic	EMCO	3148	47943	03/20/12	1 Year
Power Meter	Anritsu	ML2487A	6K00001785	05/29/12	1 Year
Wide Bandwidth Sensor	Anritsu	MA2491A	31193	05/29/12	1 Year
12dB Attenuator	Narda	4779-12	203	06/09/11	1 Year
Temperature/Humidity Monitor	Dickson	TH550	7255185	04/13/12	1 Year

NCR – No Calibration Required.

5.0 CONDITIONS DURING EMISSIONS MEASUREMENTS

5.1 General

All measurements were made according to the procedures defined in or referred to by the standard listed on the cover page of this report. The measurements were made in the operating mode producing the largest emissions consistent with normal operation and connected to the minimum configuration of auxiliary devices.

5.2 Conducted Emissions Test Setup

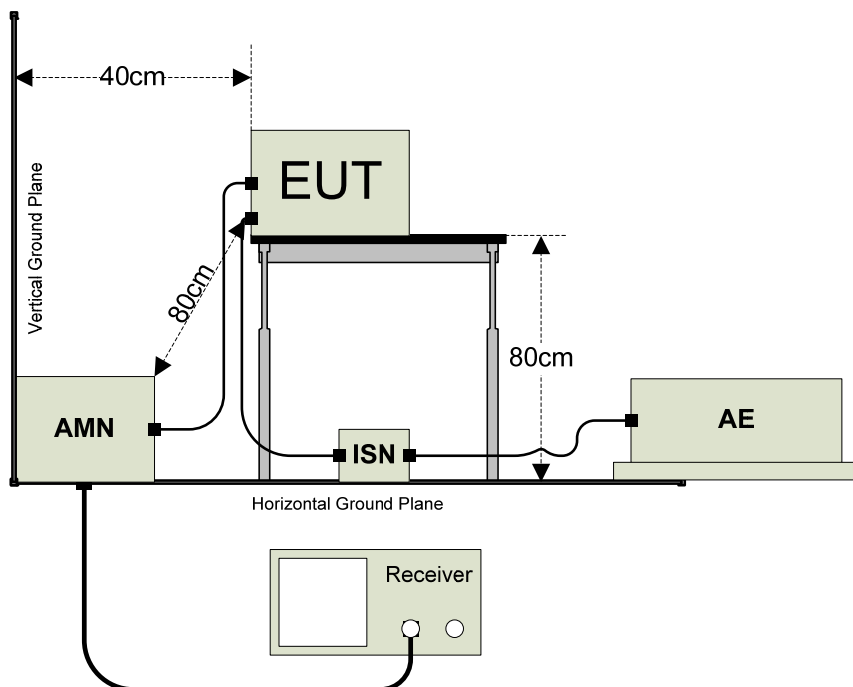
The following was the test configuration.

EUT signal cables that hung closer than 40 cm to the horizontal metal ground plane were folded back and forth forming a bundle 30 cm to 40 cm long. The power cord of the EUT was also bundled in the center and plugged into one of the artificial mains network (AMN). All peripheral equipment was powered from a second AMN via a multiple outlet strip placed at a distance on 10cm from each other. The AMN and ISN were positioned 80cm from the EUT. Signal cables that were not connected to an AE were terminated using the correct termination. If applicable, the current probe was placed at 0.1 m from the ISN.

Peak, quasi-peak and/or average detectors were used for testing performed between 150 kHz and 30 MHz. A swept frequency scan was performed for both Line 1 and Line 2. The six highest readings were compared against the limit and recorded in the data sheet along with a snapshot image of the sweep scan. The graphical scans in Appendix A only reflect peak readings while the tabulated data sheets reflect peak, average, and/or quasi-peak measurements.

Climatic Conditions:

The EUT was tested within its intended operating and climatic conditions.



AMN = Artificial mains network
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

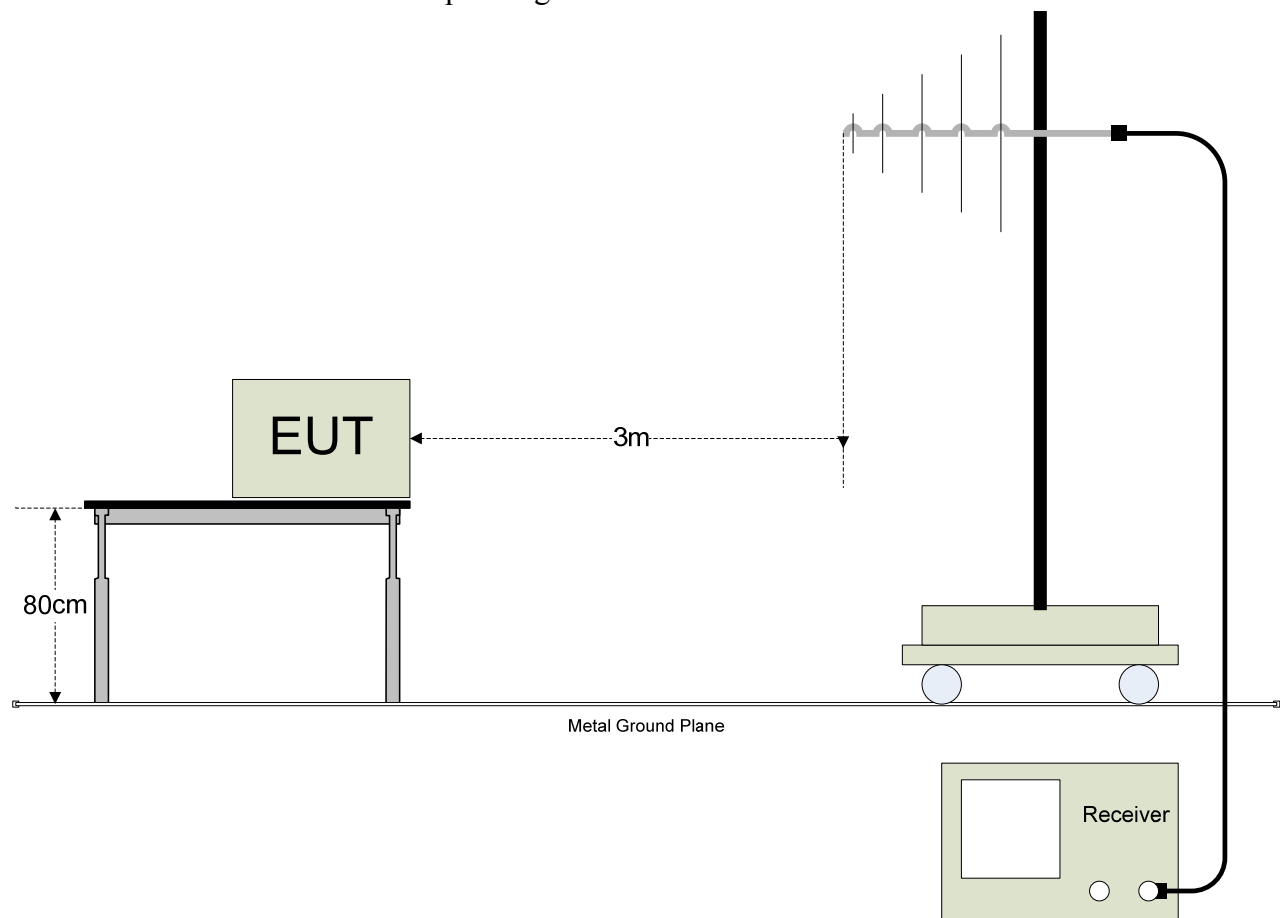
5.3 Radiated Emissions Test Setup

The Open Area Test Site (OATS) was used for radiated emission testing. The receiving (Rx) antenna(s) was placed 3m from the nearest side of the EUT facing the Rx antenna. The EUT (if floor-standing) was placed directly on the flush-mounted 360 degree rotating turntable. The EUT (if table-top) was placed directly on an 80cm high non-metallic table, and the table was placed on the rotating turntable. During the initial EMI scan, all the suspect frequencies, i.e.; harmonics, broadband signals were checked with the Rx broadband antennas in both vertical and horizontal polarities. The biconical Rx, log periodic Rx, and horn Rx antennas were used from 30MHz – 299.99MHz, 300MHz – 1000MHz, and 1GHz – 18GHz respectively.

Upon completion of all harmonic and broadband measurements, the balance of any remaining frequencies was checked between 30MHz – 18GHz. Any signals appearing within 20 dB of the classification limit was measured. Each signal was maximized by first rotating the turntable at least 360 degrees and recording the azimuth in the data sheet. Lastly, the Rx antenna was raised and/or lowered to maximize the signal elevation. If the measured signal was obtained using the peak detector and that signal appeared within 3 dB of the regulatory limit line, then the same signal was re-measured using the quasi-peak detector on the EMI receiver. Both meter readings if necessary were recorded on the data sheet.

Climatic Conditions:

The EUT was tested within its intended operating and climatic conditions.





APPENDIX A

TEST DATA

**RADIATED EMISSIONS TEST RESULTS**

CLIENT:	Lantronix	DATE:	11/17/10
EUT:	Wireless Device Server	PROJECT NUMBER:	LANTR-101028
MODEL NUMBER:	PremierWave EN	TEST ENGINEER:	JC
SERIAL NUMBER:	00:20:44:9D:2E:2F	SITE #:	2
CONFIGURATION:	Tested connected to the host PC in 802.11a (5150-5350 MHz) mode.	TEMPERATURE:	22° C
		HUMIDITY:	39% RH
		TIME:	8:00 AM

Description:	Radiated RF Emissions (1 GHz – 18 GHz)
Results:	PASSED Horizontal and Vertical Antenna Polarizations Class B Limits
Note:	Radiated Emissions Measurements were performed on the EUT with power supply set at the following voltage and frequency. <ul style="list-style-type: none"> • 120VAC / 60 Hz.

Unwanted Spurious Emissions Limits			
Frequency (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m) (Emissions in the restricted bands)	Field Strength (dBm/MHz) (Emissions outside the restricted bands)
Above 960	500	54.00 (Average) 74.00 (Peak)	< -20 dBc

Radiated Emissions Sample Calculations

$$\text{Corrected Meter Reading} = \text{Meter Reading} + F + C - D$$

Where, F = Antenna Factor

C = Cable Factor

G = Amplifier Gain

D = Distance Factor (if applicable)

Therefore, the equation for determining the Corrected Meter Reading Limit (CML) is:

$$\text{CML} = \text{Specification Limit} - F - C + D$$



Radiated Emissions Test Results (Continued)

*Fundamental Measurements in 802.11a mode (5150-5350 MHz)
Channels 36, 40, 48, 52, & 64
Continuous TX at Antenna 1 port with Taoglas Antenna
Aegis Labs, Inc. File #: LANTR-101028-07*

RADIATED EMISSIONS - Horizontal Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
5180.00	65.67	100	135			3.77	34.32	103.76			Ch. 36
5180.00				55.00	A	3.77	34.32	93.09			
5200.00	66.17	100	135			3.78	34.34	104.29			Ch. 40
5200.00				55.83	A	3.78	34.34	93.95			
5240.00	65.83	100	135			3.80	34.39	104.01			Ch. 48
5240.00				55.83	A	3.80	34.39	94.01			
5260.00	66.00	100	135			3.80	34.41	104.22			Ch. 52
5260.00				55.67	A	3.80	34.41	93.89			
5320.00	66.33	100	135			3.83	34.48	104.64			Ch. 64
5320.00				55.50	A	3.83	34.48	93.81			

RADIATED EMISSIONS - Vertical Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
5180.00	60.33	100	225			3.77	34.31	98.41			Ch. 36
5180.00				51.17	A	3.77	34.31	89.25			
5200.00	62.33	100	225			3.78	34.32	100.43			Ch. 40
5200.00				52.50	A	3.78	34.32	90.60			
5240.00	64.00	100	225			3.80	34.34	102.14			Ch. 48
5240.00				54.00	A	3.80	34.34	92.14			
5260.00	66.67	100	225			3.80	34.36	104.83			Ch. 52
5260.00				56.33	A	3.80	34.36	94.49			
5320.00	65.83	100	225			3.83	34.39	104.05			Ch. 64
5320.00				55.67	A	3.83	34.39	93.89			

NOTE: Fundamental signals measured to calculate the band edge field strengths using the “Marker Delta Method”.



Radiated Emissions Test Results (Continued)

*Band Edge Field Strength Measurements in 802.11a mode (5150-5350 MHz)
Channels 36 & 64
Continuous TX at Antenna 1 port with Taoglas Antenna
Aegis Labs, Inc. File #: LANTR-101028-07*

RADIATED EMISSIONS - Horizontal Antenna Polarization										
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>
5150.00							51.09	74.00	-22.91	Ch. 36
5133.33					A		38.42	54.00	-15.58	
5350.00							52.30	74.00	-21.70	Ch. 64
5350.00					A		37.14	54.00	-16.86	

RADIATED EMISSIONS - Vertical Antenna Polarization										
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>
5150.00							45.74	74.00	-28.26	Ch. 36
5133.33					A		34.58	54.00	-19.42	
5350.00							51.71	74.00	-22.29	Ch. 64
5350.00					A		37.22	54.00	-16.78	

NOTE: The “Band Edge Field Strength” was calculated using the “Fundamental” and “Conducted Band Edge” measurements per the “Marker-Delta Method” with the following formula:

$$BE = Fm - \Delta m$$

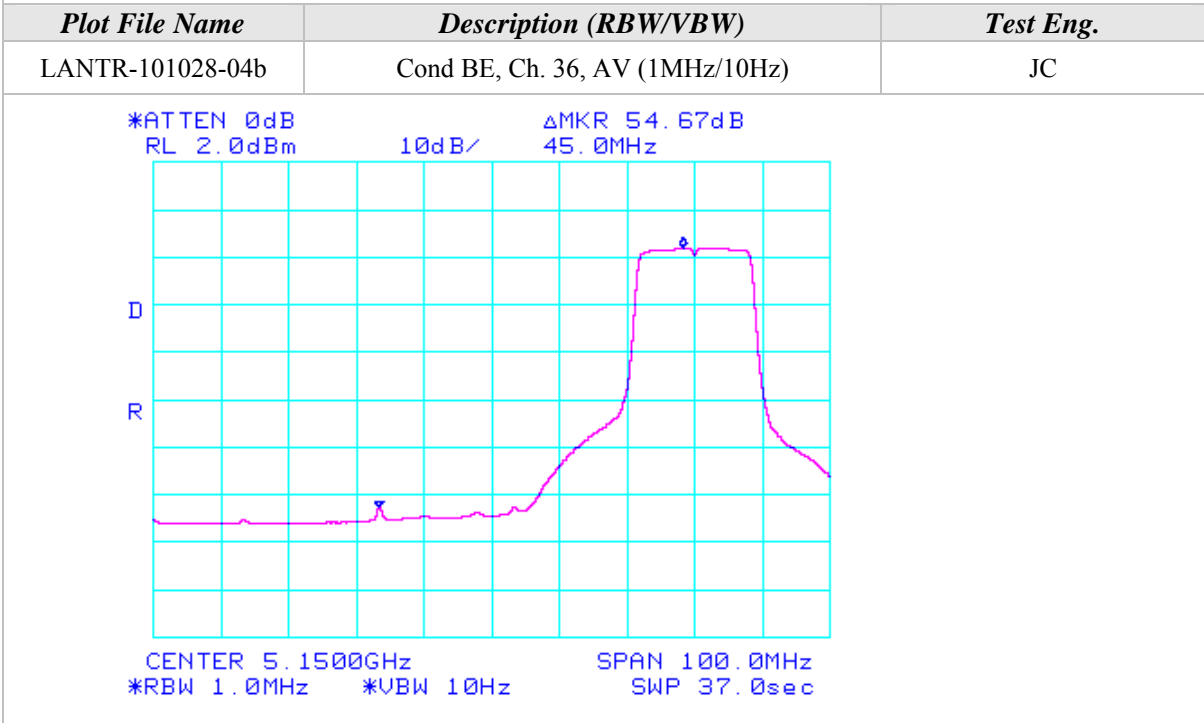
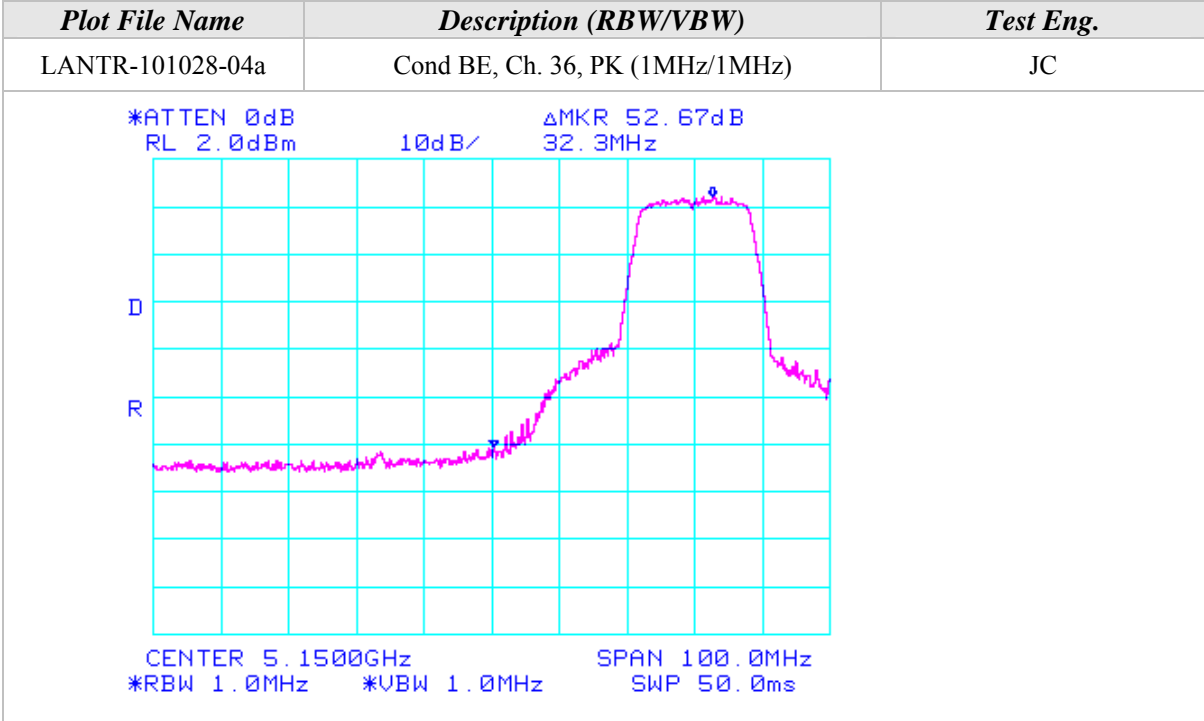
Where

BE = Band Edge Field Strength

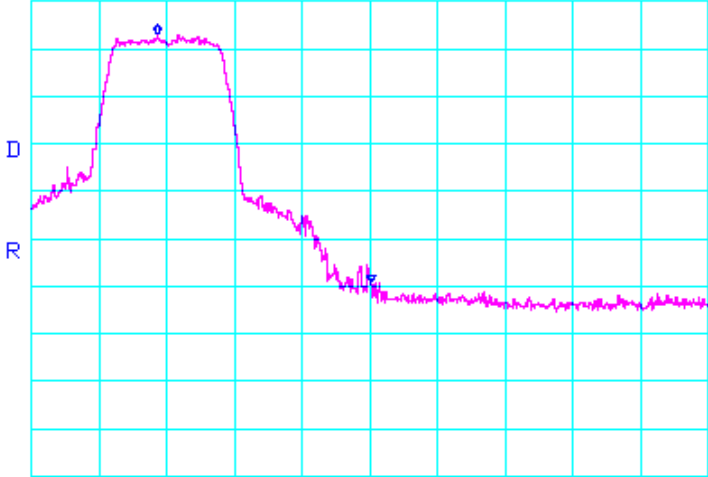
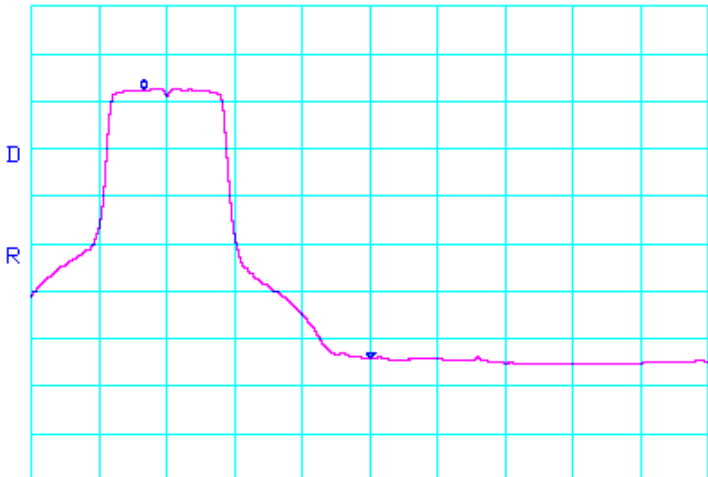
Fm = Measured Fundamental (Peak or Average)

Δm = Measured Conducted Band Edge Delta (Peak or Average)

Band-Edge Plots (Continued)



Band-Edge Plots (Continued)

<i>Plot File Name</i>	<i>Description (RBW/VBW)</i>	<i>Test Eng.</i>
LANTR-101028-04c	Cond BE, Ch. 64, PK (1MHz/1MHz)	JC
<div style="display: flex; justify-content: space-between;"> <div>*ATTEN 0dB RL 2.0dBm</div> <div>10dB/</div> <div>ΔMKR 52.34dB -31.5MHz</div> </div>  <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>CENTER 5.3500GHz *RBW 1.0MHz</div> <div>*VBW 1.0MHz</div> <div>SPAN 100.0MHz SWP 50.0ms</div> </div>		
<i>Plot File Name</i>	<i>Description (RBW/VBW)</i>	<i>Test Eng.</i>
LANTR-101028-04d	Cond BE, Ch. 64, AV (1MHz/10Hz)	JC
<div style="display: flex; justify-content: space-between;"> <div>*ATTEN 0dB RL 2.0dBm</div> <div>10dB/</div> <div>ΔMKR 56.67dB -33.5MHz</div> </div>  <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>CENTER 5.3500GHz *RBW 1.0MHz</div> <div>*VBW 10Hz</div> <div>SPAN 100.0MHz SWP 37.0sec</div> </div>		



Radiated Emissions Test Results (Continued)

*Fundamental Measurements in 802.11a mode (5150-5350 MHz)
Channels 36, 40, 48, 52, & 64
Continuous TX at Antenna 2 port with Ethertronics Antennas
Aegis Labs, Inc. File #: LANTR-101028-08*

RADIATED EMISSIONS - Horizontal Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
5180.00	62.50	100	225			3.77	34.32	100.59			Ch. 36
5180.00				52.33	A	3.77	34.32	90.42			
5200.00	62.17	100	225			3.78	34.34	100.29			Ch. 40
5200.00				52.50	A	3.78	34.34	90.62			
5240.00	65.83	100	225			3.80	34.39	104.01			Ch. 48
5240.00				55.17	A	3.80	34.39	93.35			
5260.00	64.67	100	225			3.80	34.41	102.89			Ch. 52
5260.00				54.67	A	3.80	34.41	92.89			
5320.00	65.50	100	225			3.83	34.48	103.81			Ch. 64
5320.00				55.33	A	3.83	34.48	93.64			

RADIATED EMISSIONS - Vertical Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
5180.00	62.17	100	225			3.77	34.31	100.25			Ch. 36
5180.00				52.00	A	3.77	34.31	90.08			
5200.00	60.67	100	225			3.78	34.32	98.77			Ch. 40
5200.00				51.17	A	3.78	34.32	89.27			
5240.00	63.17	100	225			3.80	34.34	101.31			Ch. 48
5240.00				53.00	A	3.80	34.34	91.14			
5260.00	63.50	100	135			3.80	34.36	101.66			Ch. 52
5260.00				53.67	A	3.80	34.36	91.83			
5320.00	66.17	100	180			3.83	34.39	104.39			Ch. 64
5320.00				55.83	A	3.83	34.39	94.05			

NOTE: Fundamental signals measured to calculate the band edge field strengths using the “Marker Delta Method”.



Radiated Emissions Test Results (Continued)

*Band Edge Field Strength Measurements in 802.11a mode (5150-5350 MHz)
Channels 36 & 64
Continuous TX at Antenna 2 port with Ethertronics Antennas
Aegis Labs, Inc. File #: LANTR-101028-08*

RADIATED EMISSIONS - Horizontal Antenna Polarization										
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>
5150.00							53.76	74.00	-20.24	Ch. 36
5133.33					A		38.42	54.00	-15.58	
5350.00							55.97	74.00	-18.03	Ch. 64
5350.00					A		37.31	54.00	-16.69	

RADIATED EMISSIONS - Vertical Antenna Polarization										
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>
5150.00							48.41	74.00	-25.59	Ch. 36
5133.33					A		34.58	54.00	-19.42	
5350.00							55.38	74.00	-18.62	Ch. 64
5350.00					A		37.39	54.00	-16.61	

NOTE: The “Band Edge Field Strength” was calculated using the “Fundamental” and “Conducted Band Edge” measurements per the “Marker-Delta Method” with the following formula:

$$BE = F_m - \Delta m$$

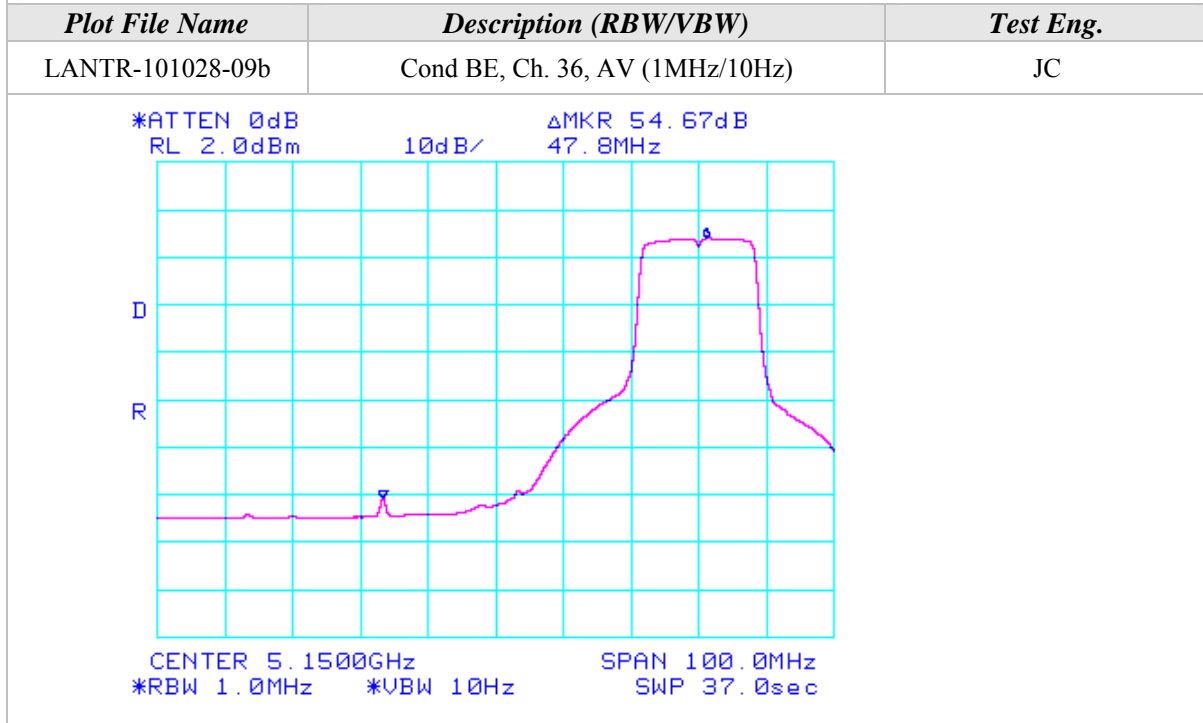
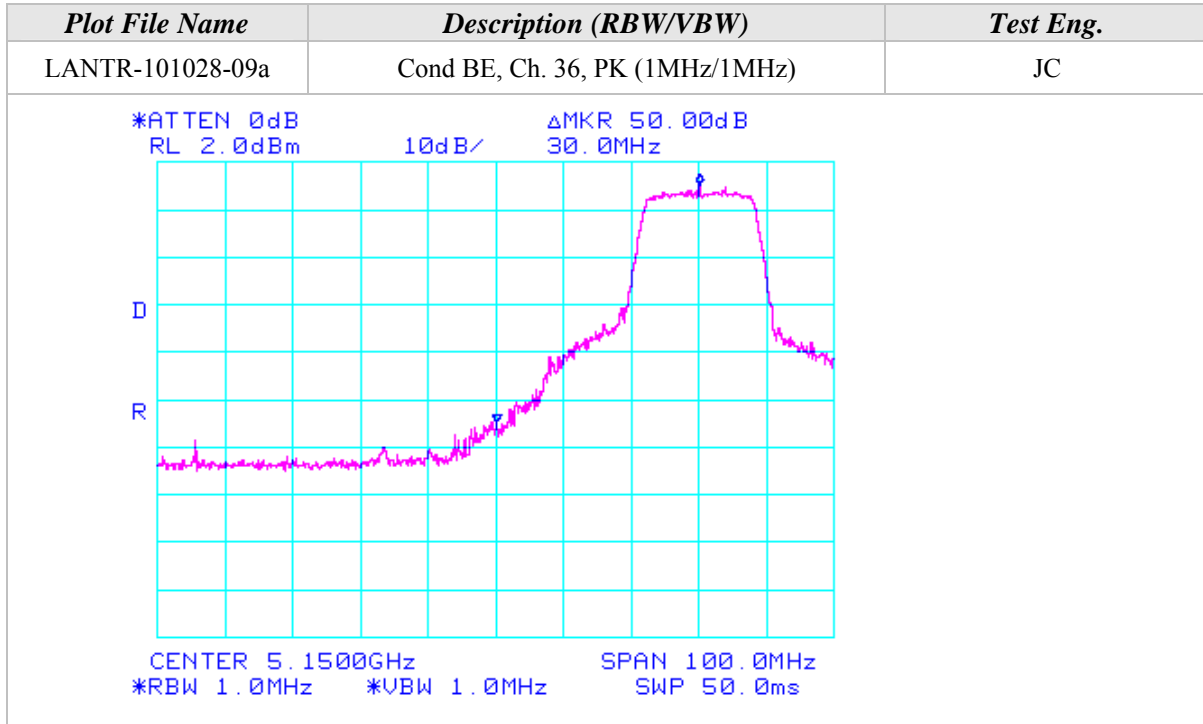
Where

BE = Band Edge Field Strength

F_m = Measured Fundamental (Peak or Average)

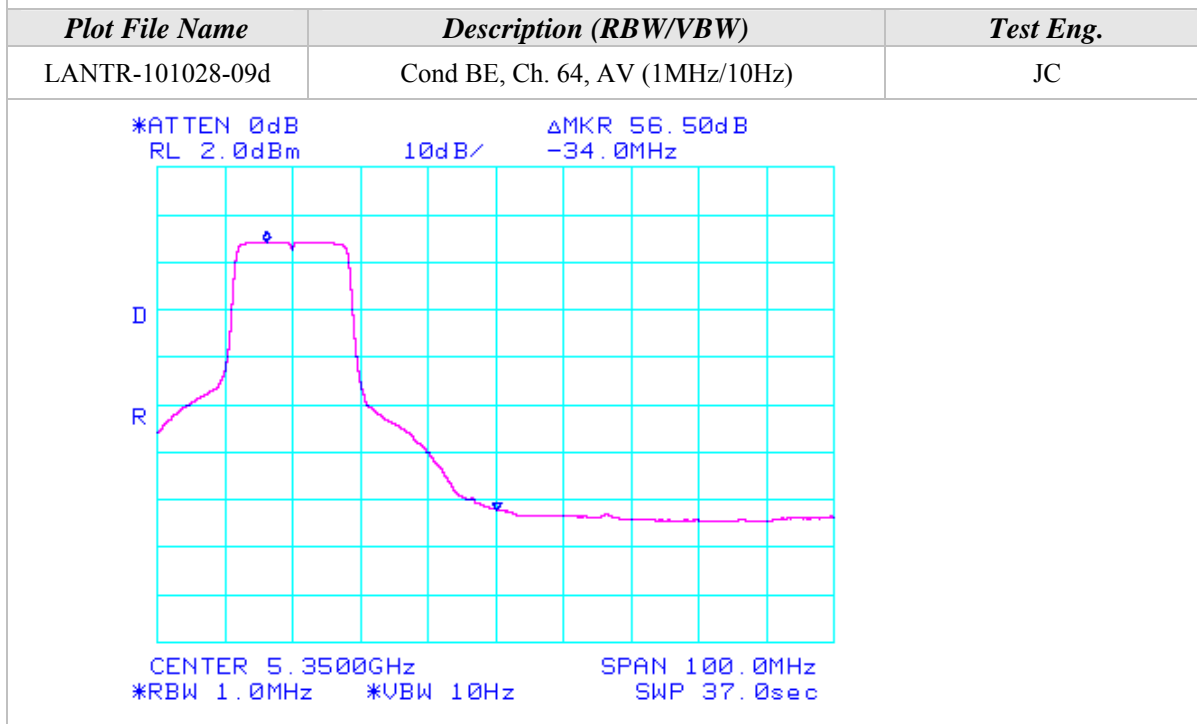
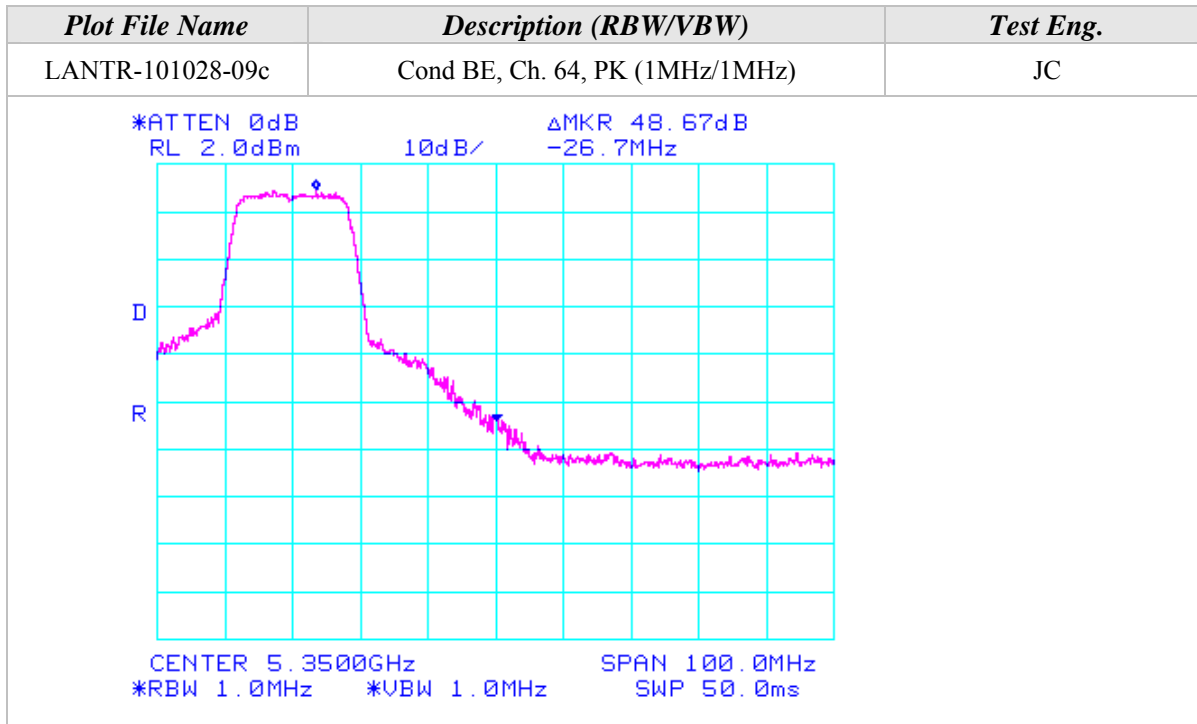
Δ_m = Measured Conducted Band Edge Delta (Peak or Average)

Band-Edge Plots (Continued)





Band-Edge Plots (Continued)





Radiated Emissions Test Results (Continued)

*Spurious Emissions Measurements in 802.11a mode (5150-5350 MHz)
Channels 36, 40, & 48
Continuous TX at Antenna 1 & 2 ports with Taoglas & Ethertronics Antennas
Aegis Labs, Inc. File #: LANTR-101028-45*

RADIATED EMISSIONS - Horizontal Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Channel/ Chain Tested
3466.66	54.00	100	225		46.62	3.06	32.79	43.23	68.00	-24.77	Ch. 40/
6933.33	54.67	100	225		45.05	4.40	35.69	49.71	68.00	-18.29	1
10400.00	51.00	100	225		45.71	5.53	37.44	48.26	68.00	-19.74	
3466.66	53.83	100	225		46.62	3.06	32.79	43.06	68.00	-24.94	Ch. 40/
6933.33	56.83	100	225		45.05	4.40	35.69	51.87	68.00	-16.13	2
10400.00	51.00	100	225		45.71	5.53	37.44	48.26	68.00	-19.74	
3453.33	53.33	100	225		46.62	3.06	32.78	42.56	68.00	-25.44	Ch. 36/
6906.66	59.83	100	180		45.01	4.39	35.68	54.89	68.00	-13.11	2
10359.99	50.67	100	225		45.70	5.52	37.42	47.91	68.00	-20.09	
3493.33	53.00	100	45		46.61	3.06	32.80	42.24	68.00	-25.76	Ch. 48/
6986.66	55.50	100	180		45.12	4.42	35.70	50.51	68.00	-17.49	2
10480.00	51.67	100	45		45.73	5.55	37.49	48.98	68.00	-19.02	

RADIATED EMISSIONS - Vertical Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
3466.66	54.50	100	0		46.62	3.06	32.88	43.82	68.00	-24.18	Ch. 40/
6933.33	58.00	100	180		45.05	4.40	35.60	52.95	68.00	-15.05	1
10400.00	51.67	100	135		45.71	5.53	37.44	48.93	68.00	-19.07	
3466.66	54.83	100	45		46.62	3.06	32.88	44.15	68.00	-23.85	Ch. 40/
6933.33	56.17	100	180		45.05	4.40	35.60	51.12	68.00	-16.88	2
10400.00	50.50	100	180		45.71	5.53	37.44	47.76	68.00	-20.24	
3453.33	52.67	100	225		46.62	3.06	32.87	41.99	68.00	-26.01	Ch. 36/
6906.66	56.50	100	180		45.01	4.39	35.60	51.48	68.00	-16.52	1
10359.99	50.83	100	180		45.70	5.52	37.42	48.07	68.00	-19.93	
3493.33	53.83	100	225		46.61	3.06	32.90	43.17	68.00	-24.83	Ch. 48/
6986.66	55.83	100	90		45.12	4.42	35.60	50.74	68.00	-17.26	1
10480.00	51.17	100	315		45.73	5.55	37.49	48.48	68.00	-19.52	



Radiated Emissions Test Results (Continued)

*Spurious Emissions Measurements in 802.11a mode (5150-5350 MHz)
Channels 52, 56, & 64
Continuous TX at Antenna 1 & 2 ports with Taoglas & Ethertronics Antennas
Aegis Labs, Inc. File #: LANTR-101028-45*

RADIATED EMISSIONS - Horizontal Antenna Polarization												
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Channel/ Chain Tested
3520.00	54.00	100	45			46.61	3.08	32.82	43.30	68.00	-24.70	Ch. 56/
7040.00	52.83	100	270			45.12	4.44	35.72	47.87	68.00	-20.13	1
10560.00	50.17	100	270			45.67	5.57	37.55	47.62	68.00	-20.38	
3520.00	54.17	100	225			46.61	3.08	32.82	43.47	68.00	-24.53	Ch. 56/
7040.00	53.50	100	225			45.12	4.44	35.72	48.54	68.00	-19.46	2
10560.00	52.17	100	180			45.67	5.57	37.55	49.62	68.00	-18.38	
3506.66	54.17	100	225			46.61	3.07	32.81	43.43	68.00	-24.57	Ch. 52/
7013.32	53.83	100	225			45.13	4.43	35.71	48.84	68.00	-19.16	2
10519.98	51.33	100	180			45.71	5.56	37.52	48.70	68.00	-19.30	
3546.66	54.67	100	225			46.61	3.12	32.86	44.04	68.00	-23.96	Ch. 64/
7093.32	52.83	100	225			45.11	4.46	35.76	47.94	68.00	-20.06	2
10639.98	50.50	100	180			45.58	5.59	37.61	48.11	74.00	-25.89	
10639.98				40.01	A	45.58	5.59	37.61	37.62	54.00	-16.38	

RADIATED EMISSIONS - Vertical Antenna Polarization												
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
3520.00	54.33	100	0			46.61	3.08	32.92	43.72	68.00	-24.28	Ch. 56/
7040.00	55.83	100	135			45.12	4.44	35.64	50.79	68.00	-17.21	1
10560.00	51.67	100	180			45.67	5.57	37.55	49.12	68.00	-18.88	
3520.00	55.33	100	45			46.61	3.08	32.92	44.72	68.00	-23.28	Ch. 56/
7040.00	55.50	100	180			45.12	4.44	35.64	50.46	68.00	-17.54	2
10560.00	51.83	100	135			45.67	5.57	37.55	49.28	68.00	-18.72	
3506.66	54.00	100	180			46.61	3.07	32.91	43.36	68.00	-24.64	Ch. 52/
7013.32	58.00	100	180			45.13	4.43	35.61	52.92	68.00	-15.08	1
10520.00	51.83	100	135			45.71	5.56	37.52	49.20	68.00	-18.80	
3546.66	54.33	100	225			46.61	3.12	32.95	43.79	68.00	-24.21	Ch. 64/
7093.32	55.33	100	180			45.11	4.46	35.69	50.37	68.00	-17.63	1
10640.00	50.67	100	135			45.58	5.59	37.61	48.28	74.00	-25.72	
10640.00				40.36	A	45.58	5.59	37.61	37.97	54.00	-16.03	

**RADIATED EMISSIONS TEST RESULTS**

CLIENT:	Lantronix	DATE:	11/17/10
EUT:	Wireless Device Server	PROJECT NUMBER:	LANTR-101028
MODEL NUMBER:	PremierWave EN	TEST ENGINEER:	JC
SERIAL NUMBER:	00:20:44:9D:2E:2F	SITE #:	2
CONFIGURATION:	Tested connected to the host PC in 802.11n (5150-5350 MHz) mode.	TEMPERATURE:	22° C
		HUMIDITY:	39% RH
		TIME:	8:00 AM

Description:	Radiated RF Emissions (1 GHz – 18 GHz)
Results:	PASSED Horizontal and Vertical Antenna Polarizations Class B Limits
Note:	Radiated Emissions Measurements were performed on the EUT with power supply set at the following voltage and frequency. <ul style="list-style-type: none"> • 120VAC / 60 Hz.

Unwanted Spurious Emissions Limits			
Frequency (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m) (Emissions in the restricted bands)	Field Strength (dBm/MHz) (Emissions outside the restricted bands)
Above 960	500	54.00 (Average) 74.00 (Peak)	< -20 dBc

Radiated Emissions Sample Calculations

$$\text{Corrected Meter Reading} = \text{Meter Reading} + F + C - D$$

Where, F = Antenna Factor

C = Cable Factor

G = Amplifier Gain

D = Distance Factor (if applicable)

Therefore, the equation for determining the Corrected Meter Reading Limit (CML) is:

$$\text{CML} = \text{Specification Limit} - F - C + D$$



Radiated Emissions Test Results (Continued)

*Fundamental Measurements in 802.11n mode 20MHz Wide (5150-5350 MHz)
 Channels 36, 40, 48, 52, & 64
 Continuous TX at Antenna 1 port with Taoglas Antenna
 Aegis Labs, Inc. File #: LANTR-101028-07*

RADIATED EMISSIONS - Horizontal Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
5180.00	63.83	100	135			3.77	34.32	101.92			Ch. 36
5180.00				53.83	A	3.77	34.32	91.92			
5200.00	63.33	100	135			3.78	34.34	101.45			Ch. 40
5200.00				53.33	A	3.78	34.34	91.45			
5240.00	64.17	100	135			3.80	34.39	102.35			Ch. 48
5240.00				54.17	A	3.80	34.39	92.35			
5260.00	64.50	100	135			3.80	34.41	102.72			Ch. 52
5260.00				54.17	A	3.80	34.41	92.39			
5320.00	64.33	100	135			3.83	34.48	102.64			Ch. 64
5320.00				53.83	A	3.83	34.48	92.14			

RADIATED EMISSIONS - Vertical Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
5180.00	63.17	100	225			3.77	34.31	101.25			Ch. 36
5180.00				52.67	A	3.77	34.31	90.75			
5200.00	63.00	100	225			3.78	34.32	101.10			Ch. 40
5200.00				53.17	A	3.78	34.32	91.27			
5240.00	64.00	100	225			3.80	34.34	102.14			Ch. 48
5240.00				53.83	A	3.80	34.34	91.97			
5260.00	65.00	100	225			3.80	34.36	103.16			Ch. 52
5260.00				54.50	A	3.80	34.36	92.66			
5320.00	65.17	100	135			3.83	34.39	103.39			Ch. 64
5320.00				55.00	A	3.83	34.39	93.22			

NOTE: Fundamental signals measured to calculate the band edge field strengths using the “Marker Delta Method”.



Radiated Emissions Test Results (Continued)

*Band Edge Field Strength Measurements in 802.11n mode 20MHz Wide (5150-5350 MHz)
Channels 36 & 64
Continuous TX at Antenna 1 port with Taoglas Antenna
Aegis Labs, Inc. File #: LANTR-101028-07*

RADIATED EMISSIONS - Horizontal Antenna Polarization										
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>
5133.33							48.09	74.00	-25.91	Ch. 36
5133.33				A			37.92	54.00	-16.08	
5350.00							48.98	74.00	-25.02	Ch. 64
5350.00				A			35.47	54.00	-18.53	

RADIATED EMISSIONS - Vertical Antenna Polarization										
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>
5133.33							47.42	74.00	-26.58	Ch. 36
5133.33				A			36.75	54.00	-17.25	
5350.00							49.73	74.00	-24.27	Ch. 64
5350.00				A			36.55	54.00	-17.45	

NOTE: The “Band Edge Field Strength” was calculated using the “Fundamental” and “Conducted Band Edge” measurements per the “Marker-Delta Method” with the following formula:

$$BE = Fm - \Delta m$$

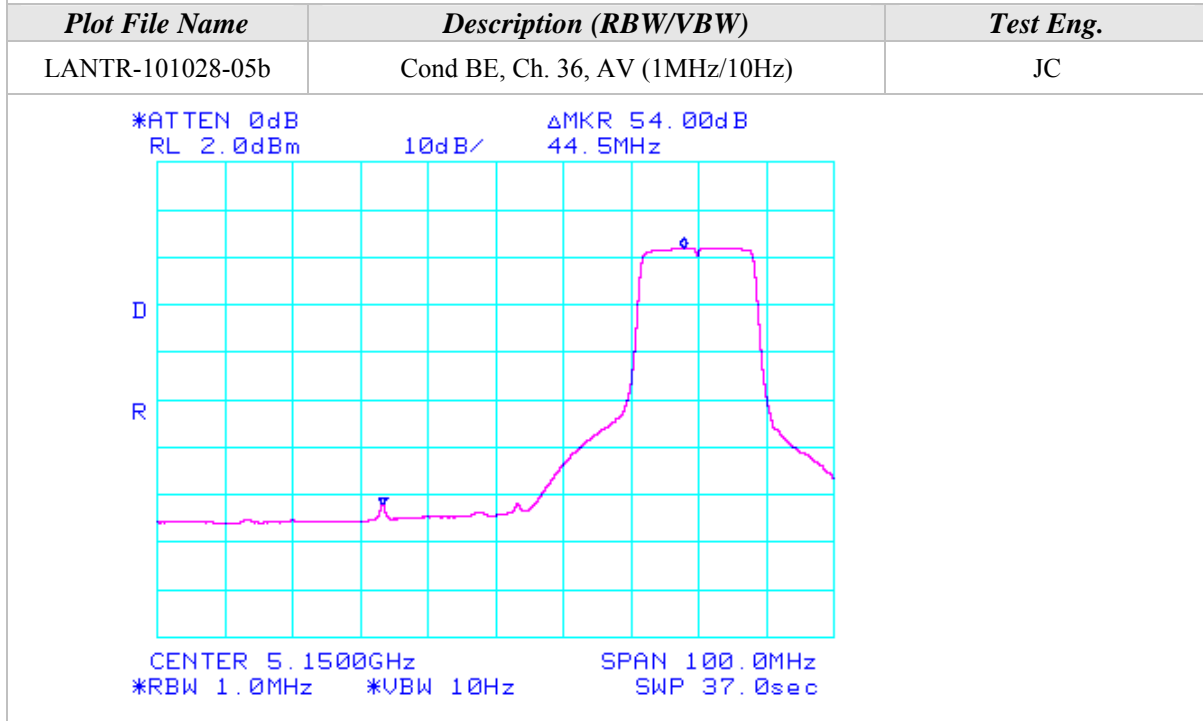
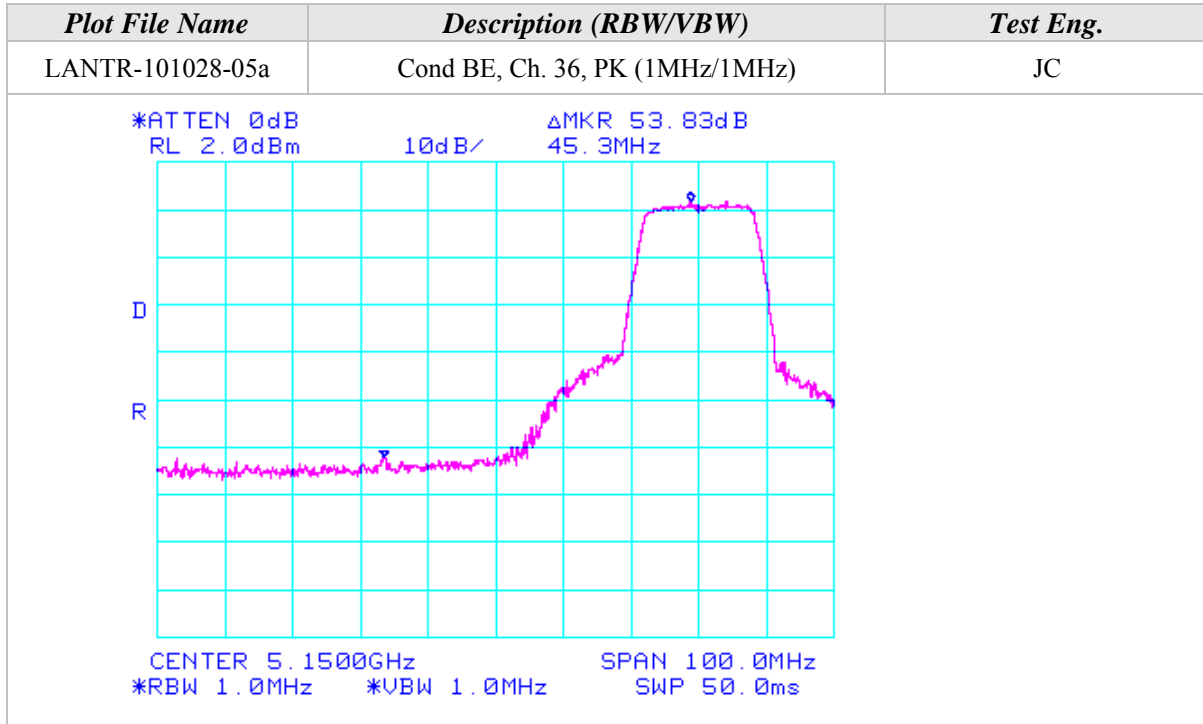
Where

BE = Band Edge Field Strength

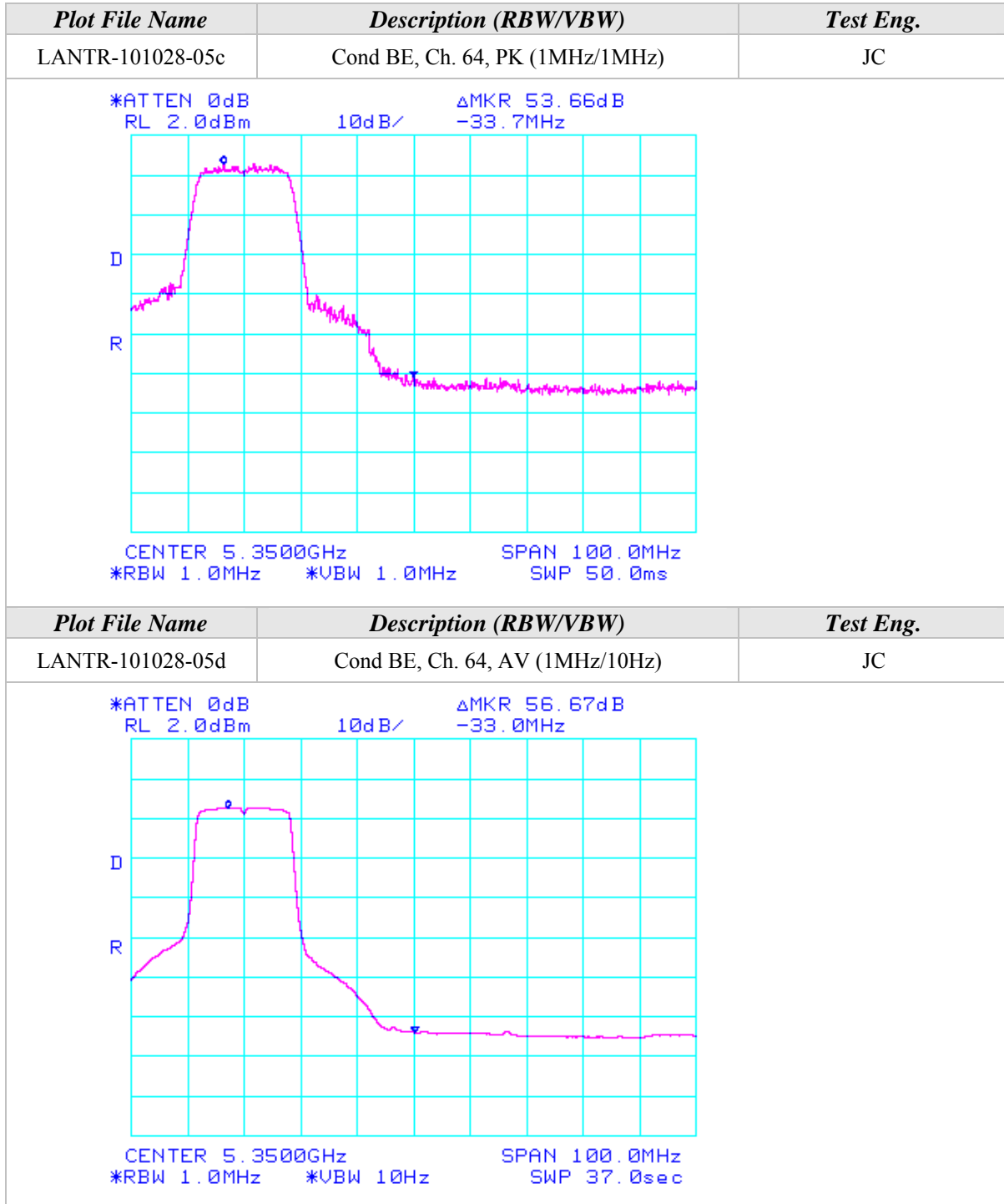
Fm = Measured Fundamental (Peak or Average)

Δm = Measured Conducted Band Edge Delta (Peak or Average)

Band-Edge Plots (Continued)



Band-Edge Plots (Continued)





Radiated Emissions Test Results (Continued)

*Fundamental Measurements in 802.11n mode 20MHz Wide (5150-5350 MHz)
 Channels 36, 40, 48, 52, & 64
 Continuous TX at Antenna 2 port with Ethertronics Antennas
 Aegis Labs, Inc. File #: LANTR-101028-08*

RADIATED EMISSIONS - Horizontal Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
5180.00	64.17	100	225			3.77	34.32	102.26			Ch. 36
5180.00				53.50	A	3.77	34.32	91.59			
5200.00	64.67	100	225			3.78	34.34	102.79			Ch. 40
5200.00				55.33	A	3.78	34.34	93.45			
5240.00	65.17	100	225			3.80	34.39	103.35			Ch. 48
5240.00				55.17	A	3.80	34.39	93.35			
5260.00	64.83	100	225			3.80	34.41	103.05			Ch. 52
5260.00				54.83	A	3.80	34.41	93.05			
5320.00	66.00	100	225			3.83	34.48	104.31			Ch. 64
5320.00				55.50	A	3.83	34.48	93.81			

RADIATED EMISSIONS - Vertical Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
5180.00	62.17	100	225			3.77	34.31	100.25			Ch. 36
5180.00				52.33	A	3.77	34.31	90.41			
5200.00	63.83	100	225			3.78	34.32	101.93			Ch. 40
5200.00				53.00	A	3.78	34.32	91.10			
5240.00	63.83	100	135			3.80	34.34	101.97			Ch. 48
5240.00				53.17	A	3.80	34.34	91.31			
5260.00	64.67	100	135			3.80	34.36	102.83			Ch. 52
5260.00				54.50	A	3.80	34.36	92.66			
5320.00	65.50	100	135			3.83	34.39	103.72			Ch. 64
5320.00				55.67	A	3.83	34.39	93.89			

NOTE: Fundamental signals measured to calculate the band edge field strengths using the “Marker Delta Method”.



Radiated Emissions Test Results (Continued)

*Band Edge Field Strength Measurements in 802.11n mode 20MHz Wide (5150-5350 MHz)
Channels 36 & 64
Continuous TX at Antenna 2 port with Ethertronics Antennas
Aegis Labs, Inc. File #: LANTR-101028-08*

RADIATED EMISSIONS - Horizontal Antenna Polarization										
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>
5150.00							49.92	74.00	-24.08	Ch. 36
5133.33					A		37.58	54.00	-16.42	
5350.00							52.14	74.00	-21.86	Ch. 64
5350.00					A		35.47	54.00	-18.53	

RADIATED EMISSIONS - Vertical Antenna Polarization										
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>
5150.00							49.25	74.00	-24.75	Ch. 36
5133.33					A		36.41	54.00	-17.59	
5350.00							52.89	74.00	-21.11	Ch. 64
5350.00					A		36.55	54.00	-17.45	

NOTE: The “Band Edge Field Strength” was calculated using the “Fundamental” and “Conducted Band Edge” measurements per the “Marker-Delta Method” with the following formula:

$$BE = Fm - \Delta m$$

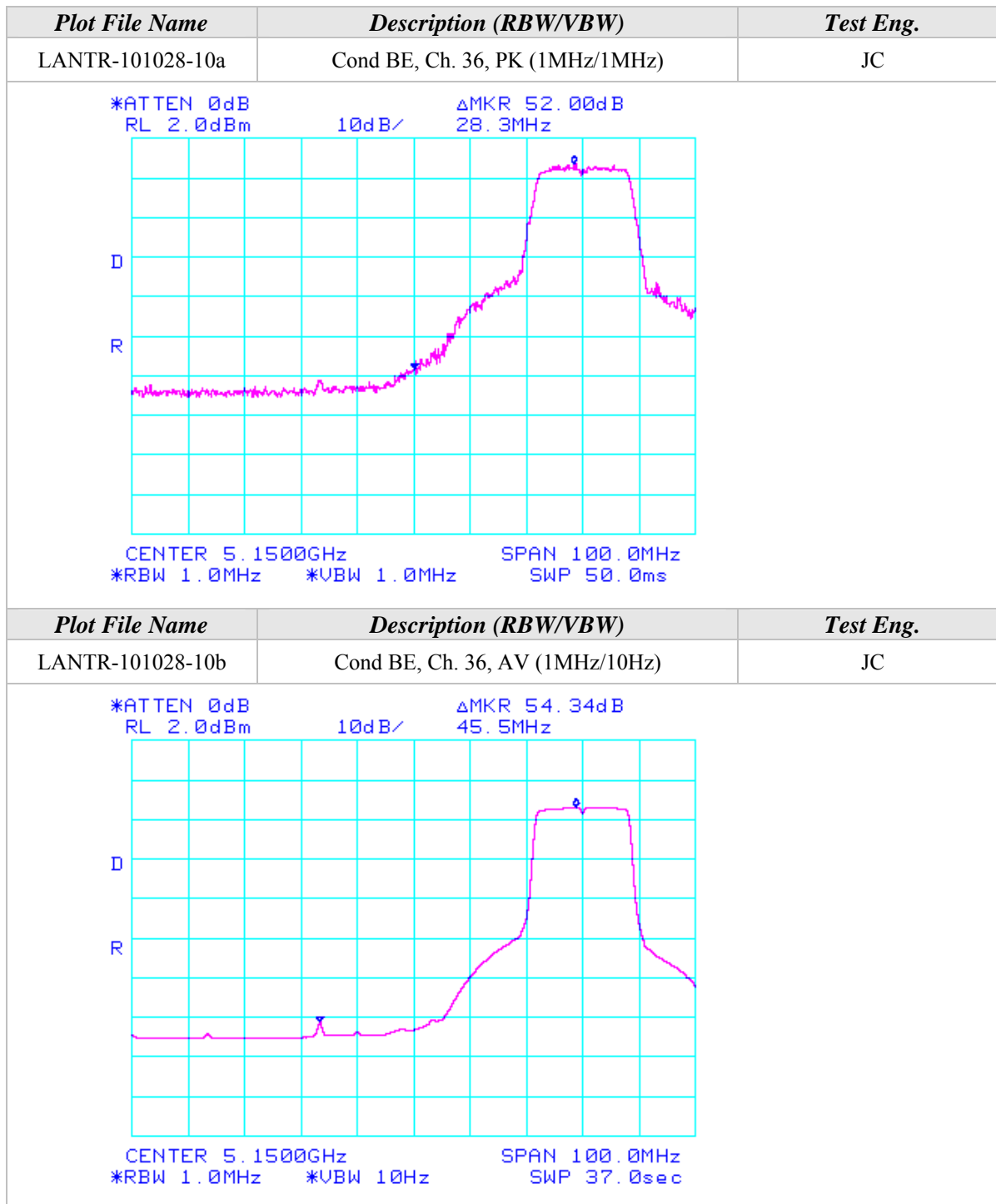
Where

BE = Band Edge Field Strength

Fm = Measured Fundamental (Peak or Average)

Δm = Measured Conducted Band Edge Delta (Peak or Average)

Band-Edge Plots (Continued)





Band-Edge Plots (Continued)

<i>Plot File Name</i>	<i>Description (RBW/VBW)</i>	<i>Test Eng.</i>
LANTR-101028-10c	Cond BE, Ch. 64, PK (1MHz/1MHz)	JC
<p>*ATTEN 0dB RL 2.0dBm 10dB/ ΔMKR 50.50dB -35.7MHz</p> <p>CENTER 5.3500GHz SPAN 100.0MHz *RBW 1.0MHz *VBW 1.0MHz SWP 50.0ms</p>		
<i>Plot File Name</i>	<i>Description (RBW/VBW)</i>	<i>Test Eng.</i>
LANTR-101028-10d	Cond BE, Ch. 64, AV (1MHz/10Hz)	JC
<p>*ATTEN 0dB RL 2.0dBm 10dB/ ΔMKR 56.67dB -34.3MHz</p> <p>CENTER 5.3500GHz SPAN 100.0MHz *RBW 1.0MHz *VBW 10Hz SWP 37.0sec</p>		



Radiated Emissions Test Results (Continued)

*Spurious Emissions Measurements in 802.11n mode 20MHz Wide (5150-5350 MHz)
Channels 36, 40, & 48
Continuous TX at Antenna 1 & 2 ports with Taoglas & Ethertronics Antennas
Aegis Labs, Inc. File #: LANTR-101028-46*

RADIATED EMISSIONS - Horizontal Antenna Polarization

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Channel/ Chain Tested
3466.66	53.50	100	45		50.72	3.06	32.79	38.63	68.00	-29.37	Ch. 40/
6933.33	53.33	100	135		50.48	4.40	35.69	42.94	68.00	-25.06	1
10400.00	50.17	100	135		50.40	5.53	37.44	42.74	68.00	-25.26	
3466.66	53.33	100	45		50.72	3.06	32.79	38.46	68.00	-29.54	Ch. 40/
6933.33	55.50	100	135		50.48	4.40	35.69	45.11	68.00	-22.89	2
10400.00	49.50	100	135		50.40	5.53	37.44	42.07	68.00	-25.93	
3453.33	53.33	100	225		50.71	3.06	32.78	38.47	68.00	-29.53	Ch. 36/
6906.66	58.00	100	180		50.50	4.39	35.68	47.57	68.00	-20.43	2
10359.99	58.33	100	180		50.39	5.52	37.42	50.88	68.00	-17.12	
3493.33	55.17	100	225		50.75	3.06	32.80	40.28	68.00	-27.72	Ch. 48/
6986.66	57.83	100	180		50.44	4.42	35.70	47.51	68.00	-20.49	2
10480.00	50.50	100	180		50.42	5.55	37.49	43.12	68.00	-24.88	

RADIATED EMISSIONS - Vertical Antenna Polarization

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
3466.66	54.00	100	225		50.72	3.06	32.88	39.22	68.00	-28.78	Ch. 40/
6933.33	55.67	100	180		50.48	4.40	35.60	45.19	68.00	-22.81	1
10400.00	50.83	100	135		50.40	5.53	37.44	43.40	68.00	-24.60	
3466.66	55.17	100	0		50.72	3.06	32.88	40.39	68.00	-27.61	Ch. 40/
6933.33	54.83	100	90		50.48	4.40	35.60	44.35	68.00	-23.65	2
10400.00	51.67	100	135		50.40	5.53	37.44	44.24	68.00	-23.76	
3453.33	53.67	100	135		50.71	3.06	32.87	38.90	68.00	-29.10	Ch. 36/
6906.66	56.67	100	225		50.50	4.39	35.60	46.16	68.00	-21.84	1
3493.33	55.17	100	135		50.75	3.06	32.90	40.37	68.00	-27.63	Ch. 48/
6986.66	53.50	100	180		50.44	4.42	35.60	43.08	68.00	-24.92	1



Radiated Emissions Test Results (Continued)

*Spurious Emissions Measurements in 802.11n mode 20MHz Wide (5150-5350 MHz)
Channels 52, 56, & 64
Continuous TX at Antenna 1 & 2 ports with Taoglas & Ethertronics Antennas
Aegis Labs, Inc. File #: LANTR-101028-46*

RADIATED EMISSIONS - Horizontal Antenna Polarization

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Channel/ Chain Tested
3520.00	53.17	100	135		50.74	3.08	32.82	38.34	68.00	-29.66	Ch. 56/
7040.00	53.50	100	225		50.41	4.44	35.72	43.26	68.00	-24.74	1
3520.00	52.67	100	270		50.74	3.08	32.82	37.84	68.00	-30.16	Ch. 56/
7040.00	52.00	100	135		50.41	4.44	35.72	41.76	68.00	-26.24	2
3506.66	53.17	100	315		50.75	3.07	32.81	38.29	68.00	-29.71	Ch. 52/
7013.32	57.83	100	135		50.42	4.43	35.71	47.55	68.00	-20.45	1
3546.66	54.33	100	270		50.71	3.12	32.86	39.59	68.00	-28.41	Ch. 64/
7093.32	54.17	100	135		50.38	4.46	35.76	44.01	68.00	-23.99	1

RADIATED EMISSIONS - Vertical Antenna Polarization

Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)	Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
3520.00	54.00	100	0		50.74	3.08	32.92	39.26	68.00	-28.74	Ch. 56/
7040.00	53.83	100	135		50.41	4.44	35.64	43.50	68.00	-24.50	1
3520.00	53.17	100	180		50.74	3.08	32.92	38.43	68.00	-29.57	Ch. 56/
7040.00	53.00	100	270		50.41	4.44	35.64	42.67	68.00	-25.33	2
10560.00	51.17	100	225		50.43	5.57	37.55	43.86	68.00	-24.14	
3506.66	54.17	100	135		50.75	3.07	32.91	39.39	68.00	-28.61	Ch. 52/
7013.32	54.50	100	135		50.42	4.43	35.61	44.12	68.00	-23.88	2
10520.00	51.33	100	135		50.43	5.56	37.52	43.98	68.00	-24.02	
3546.66	53.83	100	135		50.71	3.12	32.95	39.18	68.00	-28.82	Ch. 64/
7093.32	53.33	100	135		50.38	4.46	35.69	43.10	68.00	-24.90	2

**RADIATED EMISSIONS TEST RESULTS**

CLIENT:	Lantronix	DATE:	11/17/10
EUT:	Wireless Device Server	PROJECT NUMBER:	LANTR-101028
MODEL NUMBER:	PremierWave EN	TEST ENGINEER:	JC
SERIAL NUMBER:	00:20:44:9D:2E:2F	SITE #:	2
CONFIGURATION:	Tested connected to the host PC n 802.11a (5470-5725 MHz) mode.	TEMPERATURE:	22° C
		HUMIDITY:	39% RH
		TIME:	8:00 AM

Description:	Radiated RF Emissions (1 GHz – 18 GHz)
Results:	PASSED Horizontal and Vertical Antenna Polarizations Class B Limits
Note:	Radiated Emissions Measurements were performed on the EUT with power supply set at the following voltage and frequency. <ul style="list-style-type: none"> • 120VAC / 60 Hz.

Unwanted Spurious Emissions Limits			
Frequency (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m) (Emissions in the restricted bands)	Field Strength (dBm/MHz) (Emissions outside the restricted bands)
Above 960	500	54.00 (Average) 74.00 (Peak)	< -20 dBc

Radiated Emissions Sample Calculations

$$\text{Corrected Meter Reading} = \text{Meter Reading} + F + C - D$$

Where, F = Antenna Factor

C = Cable Factor

G = Amplifier Gain

D = Distance Factor (if applicable)

Therefore, the equation for determining the Corrected Meter Reading Limit (CML) is:

$$\text{CML} = \text{Specification Limit} - F - C + D$$

Radiated Emissions Test Results (Continued)

*Fundamental Measurements in 802.11a mode (5470-5725 MHz)
Channels 100, 120, & 140
Continuous TX at Antenna 1 port with Taoglas Antenna
Aegis Labs, Inc. File #: LANTR-101028-07*

RADIATED EMISSIONS - Horizontal Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
5500.00	62.17	100	135			3.89	34.70	100.76			Ch. 100
5500.00				52.50	A	3.89	34.70	91.09			
5600.00	61.33	100	135			3.93	34.86	100.12			Ch. 120
5600.00				51.00	A	3.93	34.86	89.79			
5700.00	62.33	100	135			3.97	35.02	101.32			Ch. 140
5700.00				51.33	A	3.97	35.02	90.32			

RADIATED EMISSIONS - Vertical Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
5500.00	68.67	100	225			3.89	34.50	107.06			Ch. 100
5500.00				58.33	A	3.89	34.50	96.72			
5600.00	69.50	100	225			3.93	34.68	108.11			Ch. 120
5600.00				59.17	A	3.93	34.68	97.78			
5700.00	69.83	100	225			3.97	34.86	108.66			Ch. 140
5700.00				59.33	A	3.97	34.86	98.16			

NOTE: Fundamental signals measured to calculate the band edge field strengths using the “Marker Delta Method”.



Radiated Emissions Test Results (Continued)

*Band Edge Field Strength Measurements in 802.11a mode (5470-5725 MHz)
Channels 100 & 140
Continuous TX at Antenna 1 port with Taoglas Antenna
Aegis Labs, Inc. File #: LANTR-101028-07*

RADIATED EMISSIONS - Horizontal Antenna Polarization										
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>
5460.00							45.43	74.00	-28.57	Ch. 100
5460.00					A		34.26	54.00	-19.74	
5725.00	30.83	100	135			3.98	69.87	81.32	-11.45	Ch. 140

RADIATED EMISSIONS - Vertical Antenna Polarization										
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>
5460.00							51.73	74.00	-22.27	Ch. 100
5460.00					A		39.89	54.00	-14.11	
5725.00	31.33	100	225			3.98	70.21	88.66	-18.45	Ch. 140

NOTE: The “Band Edge Field Strength” was calculated using the “Fundamental” and “Conducted Band Edge” measurements per the “Marker-Delta Method” with the following formula:

$$BE = F_m - \Delta_m$$

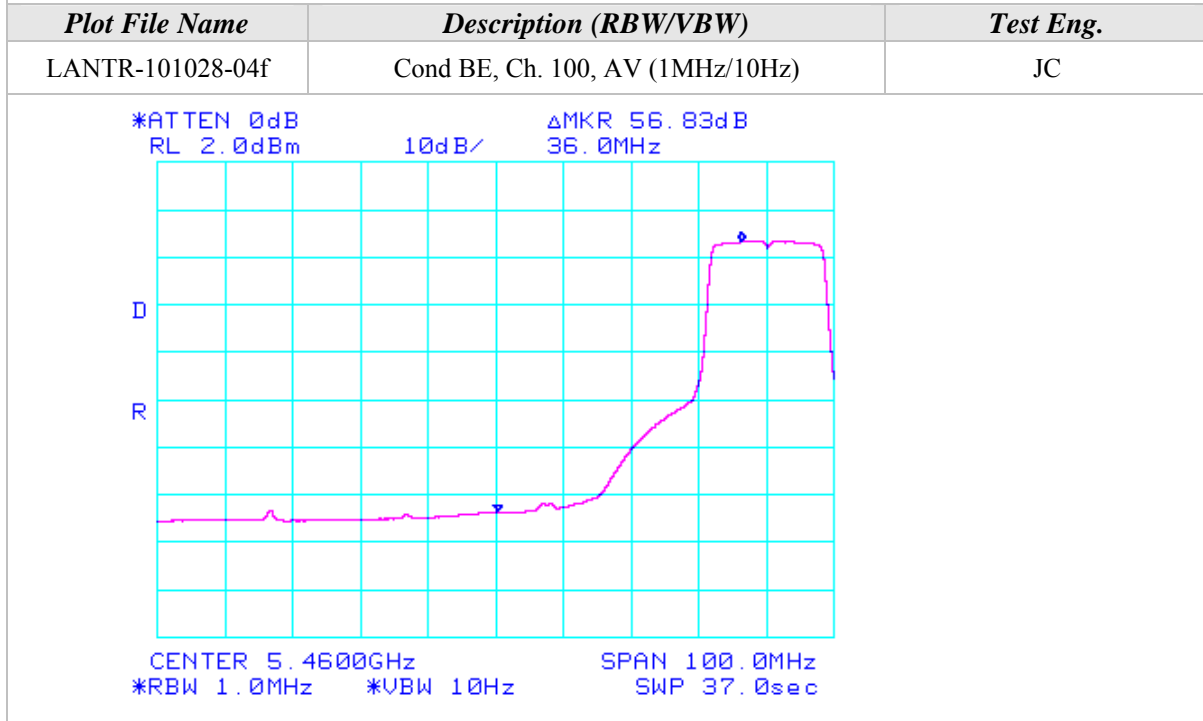
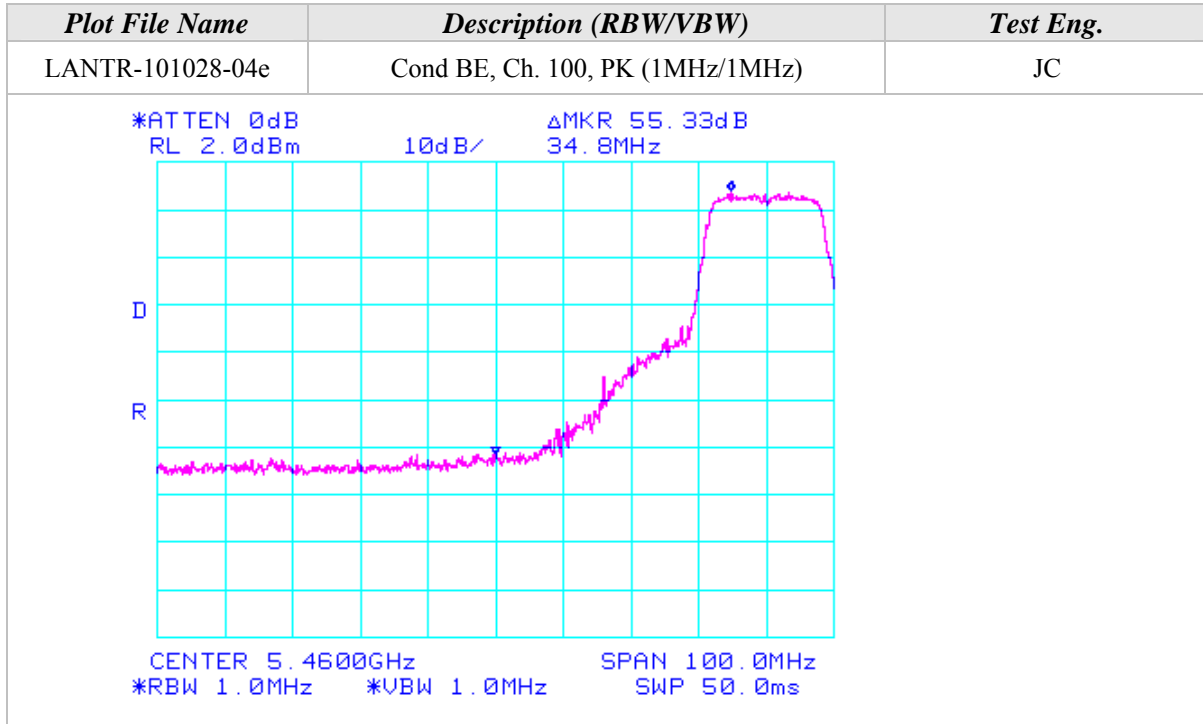
Where

BE = Band Edge Field Strength

F_m = Measured Fundamental (Peak or Average)

Δ_m = Measured Conducted Band Edge Delta (Peak or Average)

Band-Edge Plots (Continued)





Radiated Emissions Test Results (Continued)

*Fundamental Measurements in 802.11a mode (5470-5725 MHz)
Channels 100, 120, & 140
Continuous TX at Antenna 2 port with Ethertronics Antennas
Aegis Labs, Inc. File #: LANTR-101028-08*

RADIATED EMISSIONS - Horizontal Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
5500.00	60.83	100	90			3.89	34.70	99.42			Ch. 100
5500.00				50.50	A	3.89	34.70	89.09			
5600.00	60.17	100	135			3.93	34.86	98.96			Ch. 120
5600.00				49.83	A	3.93	34.86	88.62			
5700.00	63.17	100	135			3.97	35.02	102.16			Ch. 140
5700.00				53.00	A	3.97	35.02	91.99			

RADIATED EMISSIONS - Vertical Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
5500.00	70.17	100	135			3.89	34.50	108.56			Ch. 100
5500.00				59.50	A	3.89	34.50	97.89			
5600.00	71.17	100	180			3.93	34.68	109.78			Ch. 120
5600.00				60.50	A	3.93	34.68	99.11			
5700.00	70.33	100	225			3.97	34.86	109.16			Ch. 140
5700.00				60.50	A	3.97	34.86	99.33			

NOTE: Fundamental signals measured to calculate the band edge field strengths using the “Marker Delta Method”.



Radiated Emissions Test Results (Continued)

*Band Edge Field Strength Measurements in 802.11a mode (5470-5725 MHz)
Channels 100 & 140
Continuous TX at Antenna 2 port with Ethertronics Antennas
Aegis Labs, Inc. File #: LANTR-101028-08*

RADIATED EMISSIONS - Horizontal Antenna Polarization											
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>	
5460.00							45.09	74.00	-28.91	Ch. 100	
5460.00					A		33.92	54.00	-20.08		
5725.00	30.83	100	135			3.98	35.06	69.87	81.32	-11.45	Ch. 140

RADIATED EMISSIONS - Vertical Antenna Polarization											
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>	
5460.00							51.39	74.00	-22.61	Ch. 100	
5460.00					A		39.55	54.00	-14.45		
5725.00	31.33	100	225			3.98	34.91	70.21	88.66	-18.45	Ch. 140

NOTE: The “Band Edge Field Strength” was calculated using the “Fundamental” and “Conducted Band Edge” measurements per the “Marker-Delta Method” with the following formula:

$$BE = Fm - \Delta m$$

Where

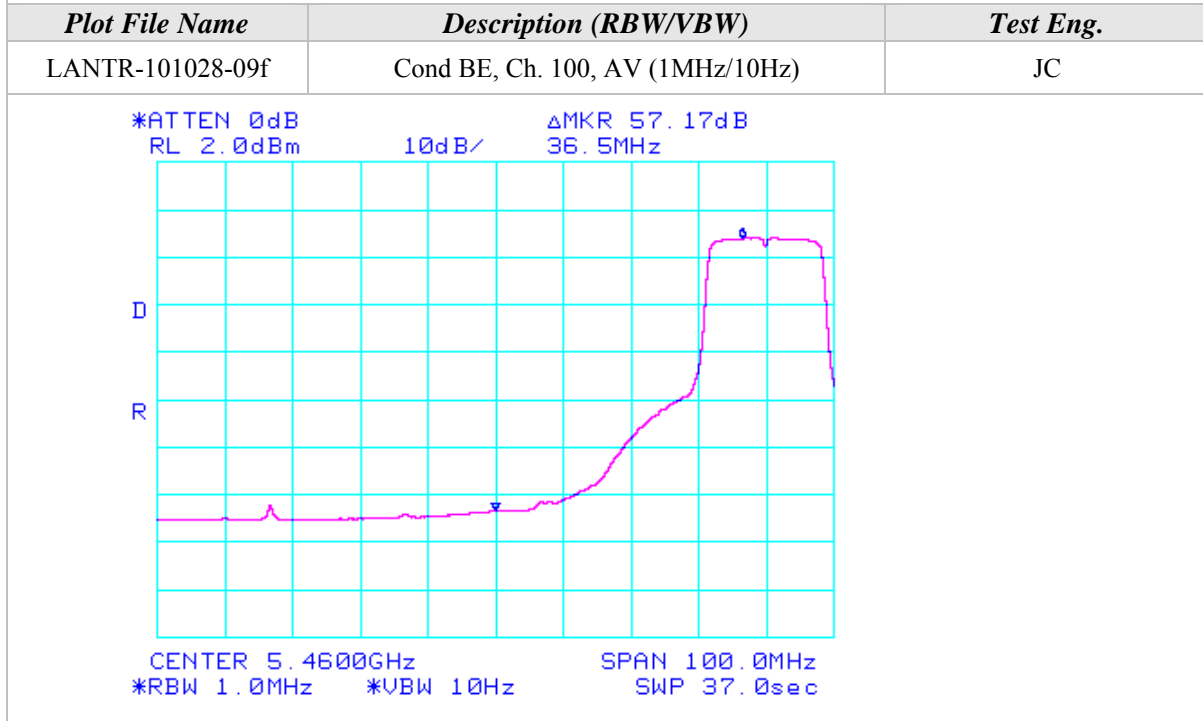
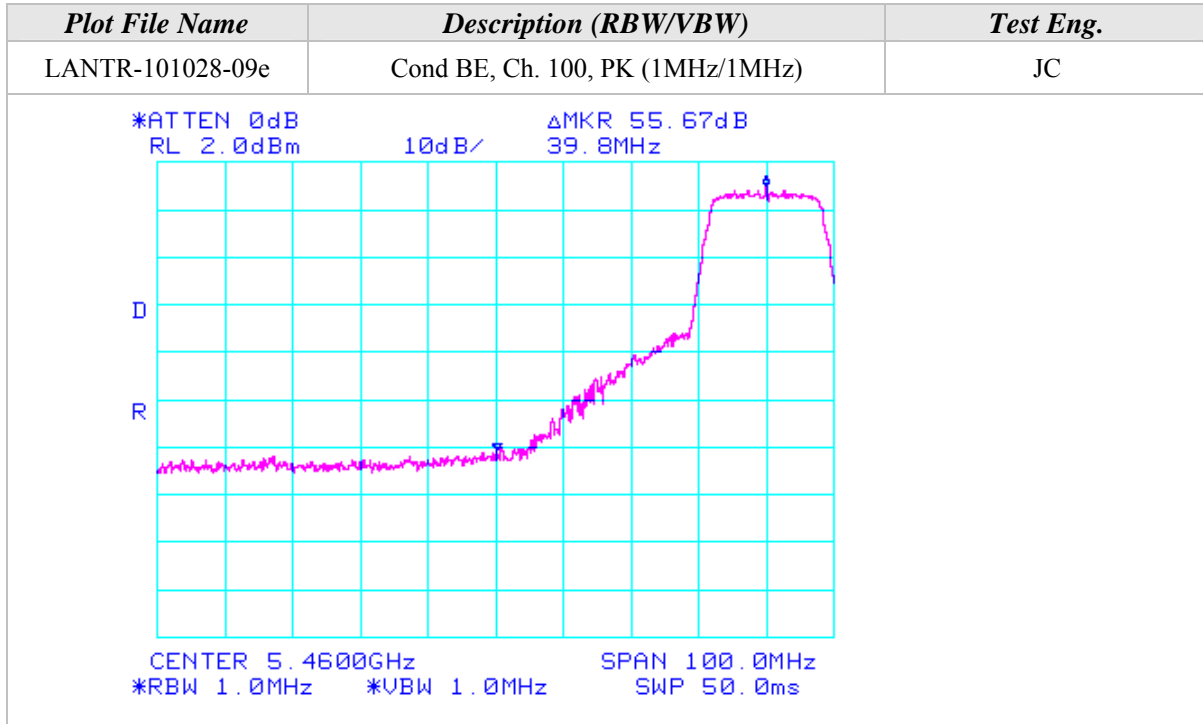
BE = Band Edge Field Strength

Fm = Measured Fundamental (Peak or Average)

Δm = Measured Conducted Band Edge Delta (Peak or Average)



Band-Edge Plots (Continued)





Radiated Emissions Test Results (Continued)

*Spurious Emissions Measurements in 802.11a mode (5470-5725 MHz)
Channels 100, 120, & 140
Continuous TX at Antenna 1 & 2 ports with Taoglas & Ethertronics Antennas
Aegis Labs, Inc. File #: LANTR-101028-45*

RADIATED EMISSIONS - Horizontal Antenna Polarization												
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Channel/ Chain Tested
3733.33	53.83	100	225			46.53	3.19	33.08	43.57	74.00	-30.43	Ch. 120/
3733.33				44.19	A	46.53	3.19	33.08	33.93	54.00	-20.07	1
7466.66	52.33	100	135			45.03	4.60	35.98	47.88	74.00	-26.12	
7466.66				44.32	A	45.03	4.60	35.98	39.87	54.00	-14.13	
11200.00	58.00	100	135			44.96	5.75	38.22	57.02	74.00	-16.98	
11200.00				44.19	A	44.96	5.75	38.22	43.21	54.00	-10.79	
3733.33	53.67	100	135			46.53	3.19	33.08	43.41	74.00	-30.59	Ch. 120/
3733.33				42.92	A	46.53	3.19	33.08	32.66	54.00	-21.34	2
7466.66	52.50	100	225			45.03	4.60	35.98	48.05	74.00	-25.95	
7466.66				43.41	A	45.03	4.60	35.98	38.96	54.00	-15.04	
11200.00	52.50	100	225			44.96	5.75	38.22	51.52	74.00	-22.48	
11200.00				39.90	A	44.96	5.75	38.22	38.92	54.00	-15.08	
3666.66	52.17	100	225			46.56	3.17	33.00	41.78	74.00	-32.22	Ch. 100/
3666.66				42.37	A	46.56	3.17	33.00	31.98	54.00	-22.02	1
7333.33	52.17	100	135			45.06	4.55	35.90	47.56	74.00	-26.44	
7333.33				40.03	A	45.06	4.55	35.90	35.42	54.00	-18.58	
11000.00	50.50	100	225			45.20	5.65	37.90	48.86	74.00	-25.15	
11000.00				39.22	A	45.20	5.65	37.90	37.58	54.00	-16.43	
3800.00	45.17	100	135			46.50	3.24	33.16	35.07	74.00	-38.93	Ch. 140/
3800.00				53.33	A	46.50	3.24	33.16	43.23	54.00	-10.77	1
7600.00	52.17	100	135			44.91	4.64	36.02	47.91	74.00	-26.09	
7600.00				41.32	A	44.91	4.64	36.02	37.06	54.00	-16.94	
11400.00	51.00	100	225			44.72	5.86	38.54	50.68	74.00	-23.32	
11400.00				39.15	A	44.72	5.86	38.54	38.83	54.00	-15.17	



Radiated Emissions Test Results (Continued)

RADIATED EMISSIONS - Vertical Antenna Polarization												
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
3733.33	54.00	100	90			46.53	3.19	33.13	43.80	74.00	-30.20	Ch. 120/
3733.33				41.83	A	46.53	3.19	33.13	31.63	54.00	-22.37	1
7466.66	52.50	100	45			45.03	4.60	36.07	48.14	74.00	-25.86	
7466.66				44.90	A	45.03	4.60	36.07	40.54	54.00	-13.46	
11200.00	57.17	100	90			44.96	5.75	38.10	56.07	74.00	-17.93	
11200.00				43.84	A	44.96	5.75	38.10	42.74	54.00	-11.26	
3733.33	53.00	100	90			46.53	3.19	33.13	42.80	74.00	-31.20	Ch. 120/
3733.33				43.58	A	46.53	3.19	33.13	33.38	54.00	-20.62	2
7466.66	52.50	100	315			45.03	4.60	36.07	48.14	74.00	-25.86	
7466.66				45.66	A	45.03	4.60	36.07	41.30	54.00	-12.70	
11200.00	52.17	100	225			44.96	5.75	38.10	51.07	74.00	-22.93	
11200.00	.			39.57	A	44.96	5.75	38.10	38.47	54.00	-15.53	
3666.66	56.17	100	135			46.56	3.17	33.07	45.85	74.00	-28.15	Ch. 100/
3666.66				43.82	A	46.56	3.17	33.07	33.50	54.00	-20.50	2
7333.33	51.67	100	180			45.06	4.55	35.93	47.09	74.00	-26.91	
7333.33				42.54	A	45.06	4.55	35.93	37.96	54.00	-16.04	
11000.00	51.17	100	180			45.20	5.65	37.90	49.53	74.00	-24.48	
11000.00				39.08	A	45.20	5.65	37.90	37.44	54.00	-16.57	
3800.00	53.83	100	135			46.50	3.24	33.20	43.77	74.00	-30.23	Ch. 140/
3800.00				44.91	A	46.50	3.24	33.20	34.85	54.00	-19.15	2
7600.00	55.00	100	180			44.91	4.64	36.12	50.84	74.00	-23.16	
7600.00				48.56	A	44.91	4.64	36.12	44.40	54.00	-9.60	
11400.00		100	225	53.67		44.72	5.86	38.30	53.11	74.00	-20.89	
11400.00				41.35	A	44.72	5.86	38.30	40.79	54.00	-13.21	

**RADIATED EMISSIONS TEST RESULTS**

CLIENT:	Lantronix	DATE:	11/17/10
EUT:	Wireless Device Server	PROJECT NUMBER:	LANTR-101028
MODEL NUMBER:	PremierWave EN	TEST ENGINEER:	JC
SERIAL NUMBER:	00:20:44:9D:2E:2F	SITE #:	2
CONFIGURATION:	Tested connected to the host PC in 802.11n (5740-5745 MHz) mode.	TEMPERATURE:	22° C
		HUMIDITY:	39% RH
		TIME:	8:00 AM

Description:	Radiated RF Emissions (1 GHz – 18 GHz)
Results:	PASSED Horizontal and Vertical Antenna Polarizations Class B Limits
Note:	Radiated Emissions Measurements were performed on the EUT with power supply set at the following voltage and frequency. <ul style="list-style-type: none"> • 120VAC / 60 Hz.

Unwanted Spurious Emissions Limits			
Frequency (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m) (Emissions in the restricted bands)	Field Strength (dBm/MHz) (Emissions outside the restricted bands)
Above 960	500	54.00 (Average) 74.00 (Peak)	< -20 dBc

Radiated Emissions Sample Calculations

$$\text{Corrected Meter Reading} = \text{Meter Reading} + F + C - D$$

Where, F = Antenna Factor

C = Cable Factor

G = Amplifier Gain

D = Distance Factor (if applicable)

Therefore, the equation for determining the Corrected Meter Reading Limit (CML) is:

$$\text{CML} = \text{Specification Limit} - F - C + D$$



Radiated Emissions Test Results (Continued)

*Fundamental Measurements in 802.11n mode 20MHz Wide (5470-5725 MHz)
Channels 100, 120, & 140
Continuous TX at Antenna 1 port with Taoglas Antenna
Aegis Labs, Inc. File #: LANTR-101028-07*

RADIATED EMISSIONS - Horizontal Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
5500.00	60.83	100	135			3.89	34.70	99.42			Ch. 100
5500.00				50.83	A	3.89	34.70	89.42			
5600.00	60.83	100	135			3.93	34.86	99.62			Ch. 120
5600.00				50.00	A	3.93	34.86	88.79			
5700.00	61.83	100	135			3.97	35.02	100.82			Ch. 140
5700.00				50.83	A	3.97	35.02	89.82			

RADIATED EMISSIONS - Vertical Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Comments
5500.00	68.33	100	225			3.89	34.50	106.72			Ch. 100
5500.00				58.17	A	3.89	34.50	96.56			
5600.00	69.67	100	225			3.93	34.68	108.28			Ch. 120
5600.00				58.67	A	3.93	34.68	97.28			
5700.00	68.50	100	225			3.97	34.86	107.33			Ch. 140
5700.00				57.50	A	3.97	34.86	96.33			

NOTE: Fundamental signals measured to calculate the band edge field strengths using the “Marker Delta Method”.



Radiated Emissions Test Results (Continued)

*Band Edge Field Strength Measurements in 802.11n mode 20MHz Wide (5470-5725 MHz)
Channels 100 & 140
Continuous TX at Antenna 1 port with Taoglas Antenna
Aegis Labs, Inc. File #: LANTR-101028-07*

RADIATED EMISSIONS - Horizontal Antenna Polarization											
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>	
5460.00							43.58	74.00	-30.42	Ch. 100	
5460.00					A		32.59	54.00	-21.41		
5725.00	32.17	100	135			3.98	35.06	71.21	80.82	-9.61	Ch. 140

RADIATED EMISSIONS - Vertical Antenna Polarization											
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>	
5460.00							50.88	74.00	-23.12	Ch. 100	
5460.00					A		39.73	54.00	-14.27		
5725.00	31.50	100	225			3.98	34.91	70.38	87.33	-16.95	Ch. 140

NOTE: The “Band Edge Field Strength” was calculated using the “Fundamental” and “Conducted Band Edge” measurements per the “Marker-Delta Method” with the following formula:

$$BE = Fm - \Delta m$$

Where

BE = Band Edge Field Strength

Fm = Measured Fundamental (Peak or Average)

Δm = Measured Conducted Band Edge Delta (Peak or Average)



Band-Edge Plots (Continued)

<i>Plot File Name</i>	<i>Description (RBW/VBW)</i>	<i>Test Eng.</i>
LANTR-101028-05e	Cond BE, Ch. 100, PK (1MHz/1MHz)	JC
<p>*ATTEN 0dB ΔMKR 55.84dB RL 2.0dBm 10dB/ 41.8MHz</p> <p>CENTER 5.4600GHz SPAN 100.0MHz *RBW 1.0MHz *VBW 1.0MHz SWP 50.0ms</p>		
<i>Plot File Name</i>	<i>Description (RBW/VBW)</i>	<i>Test Eng.</i>
LANTR-101028-05f	Cond BE, Ch. 100, AV (1MHz/10Hz)	JC
<p>*ATTEN 0dB ΔMKR 56.83dB RL 2.0dBm 10dB/ 37.8MHz</p> <p>CENTER 5.4600GHz SPAN 100.0MHz *RBW 1.0MHz *VBW 10Hz SWP 37.0sec</p>		



Radiated Emissions Test Results (Continued)

*Fundamental Measurements in 802.11n mode 20MHz Wide (5470-5725 MHz)
Channels 100, 120, & 140
Continuous TX at Antenna 2 port with Ethertronics Antennas
Aegis Labs, Inc. File #: LANTR-101028-08*

RADIATED EMISSIONS - Horizontal Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
5500.00	59.67	100	180			3.89	34.70	98.26			Ch. 100
5500.00				49.00	A	3.89	34.70	87.59			
5600.00	60.00	100	135			3.93	34.86	98.79			Ch. 120
5600.00				49.67	A	3.93	34.86	88.46			
5700.00	62.17	100	135			3.97	35.02	101.16			Ch. 140
5700.00				51.67	A	3.97	35.02	90.66			

RADIATED EMISSIONS - Vertical Antenna Polarization											
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +=FAIL	Comments
5500.00	70.00	100	135			3.89	34.50	108.39			Ch. 100
5500.00				59.17	A	3.89	34.50	97.56			
5600.00	69.33	100	180			3.93	34.68	107.94			Ch. 120
5600.00				59.33	A	3.93	34.68	97.94			
5700.00	69.67	100	225			3.97	34.86	108.50			Ch. 140
5700.00				59.83	A	3.97	34.86	98.66			

NOTE: Fundamental signals measured to calculate the band edge field strengths using the “Marker Delta Method”.



Radiated Emissions Test Results (Continued)

*Band Edge Field Strength Measurements in 802.11n mode 20MHz Wide (5470-5725 MHz)
Channels 100 & 140
Continuous TX at Antenna 2 port with Ethertronics Antennas
Aegis Labs, Inc. File #: LANTR-101028-08*

RADIATED EMISSIONS - Horizontal Antenna Polarization											
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>	
5460.00							44.25	74.00	-29.75	Ch. 100	
5460.00					A		32.09	54.00	-21.91		
5725.00	32.17	100	135			3.98	35.06	71.21	80.82	-9.61	Ch. 140

RADIATED EMISSIONS - Vertical Antenna Polarization											
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>	
5460.00							51.55	74.00	-22.45	Ch. 100	
5460.00					A		39.23	54.00	-14.77		
5725.00	31.50	100	225			3.98	34.91	70.38	87.33	-16.95	Ch. 140

NOTE: The “Band Edge Field Strength” was calculated using the “Fundamental” and “Conducted Band Edge” measurements per the “Marker-Delta Method” with the following formula:

$$BE = Fm - \Delta m$$

Where

BE = Band Edge Field Strength

Fm = Measured Fundamental (Peak or Average)

Δm = Measured Conducted Band Edge Delta (Peak or Average)



Radiated Emissions Test Results (Continued)

*Spurious Emissions Measurements in 802.11n mode 20MHz Wide (5470-5725 MHz)
Channels 100, 120, & 140
Continuous TX at Antenna 1 & 2 ports with Taoglas & Ethertronics Antennas
Aegis Labs, Inc. File #: LANTR-101028-46*

RADIATED EMISSIONS - Horizontal Antenna Polarization												
Freq. (MHz)	Meter Reading (dBuV)	Antenna Height (cm)	Azimuth (degrees)	Quasi pk or AVG (dBuV)		Preamp Factor (dB)	Cable Factor (dB)	Ant. Factor (dB)	Corrected Reading (dBuV)	Limits (dBuV)	Diff (dB) +/-FAIL	Channel/Chain Tested
3733.33	51.83	100	315			50.76	3.19	33.08	37.34	74.00	-36.66	Ch. 120/
3733.33				41.43	A	50.76	3.19	33.08	26.94	54.00	-27.06	1
7466.66	51.17	100	270			50.20	4.60	35.98	41.55	74.00	-32.45	
7466.66				42.39	A	50.20	4.60	35.98	32.77	54.00	-21.23	
3733.33	52.83	100	225			50.76	3.19	33.08	38.34	74.00	-35.66	Ch. 120/
3733.33				41.26	A	50.76	3.19	33.08	26.77	54.00	-27.23	2
7466.66	53.00	100	225			50.20	4.60	35.98	43.38	74.00	-30.62	
7466.66				42.54	A	50.20	4.60	35.98	32.92	54.00	-21.08	
11199.99	56.00	100	135			50.48	5.75	38.22	49.49	74.00	-24.51	
11199.99				42.94	A	50.48	5.75	38.22	36.43	54.00	-17.57	
3666.66	54.83	100	225			50.75	3.17	33.00	40.25	74.00	-33.75	Ch. 100/
3666.66				42.24	A	50.75	3.17	33.00	27.66	54.00	-26.34	1
7333.33	53.00	100	225			50.26	4.55	35.90	43.19	74.00	-30.81	
7333.33				42.19	A	50.26	4.55	35.90	32.38	54.00	-21.62	
3800.00	54.00	100	225			50.68	3.24	33.16	39.72	74.00	-34.28	Ch. 140/
3800.00				43.55	A	50.68	3.24	33.16	29.27	54.00	-24.73	1
7600.00	52.00	100	225			50.16	4.64	36.02	42.49	74.00	-31.51	
7600.00				40.89	A	50.16	4.64	36.02	31.38	54.00	-22.62	



Radiated Emissions Test Results (Continued)

RADIATED EMISSIONS - Vertical Antenna Polarization												
<i>Freq. (MHz)</i>	<i>Meter Reading (dBuV)</i>	<i>Antenna Height (cm)</i>	<i>Azimuth (degrees)</i>	<i>Quasi pk or AVG (dBuV)</i>		<i>Preamp Factor (dB)</i>	<i>Cable Factor (dB)</i>	<i>Ant. Factor (dB)</i>	<i>Corrected Reading (dBuV)</i>	<i>Limits (dBuV)</i>	<i>Diff (dB) +=FAIL</i>	<i>Comments</i>
3733.33	53.00	100	0			50.76	3.19	33.13	38.57	74.00	-35.43	Ch. 120/
3733.33				43.23	A	50.76	3.19	33.13	28.80	54.00	-25.20	1
7466.66	53.17	100	315			50.20	4.60	36.07	43.64	74.00	-30.36	
7466.66				45.87	A	50.20	4.60	36.07	36.34	54.00	-17.66	
11200.00	55.17	100	225			50.48	5.75	38.10	48.54	74.00	-25.46	
11200.00				42.05	A	50.48	5.75	38.10	35.42	54.00	-18.58	
3733.33	52.00	100	0			50.76	3.19	33.13	37.57	74.00	-36.43	Ch. 120/
3733.33				43.43	A	50.76	3.19	33.13	29.00	54.00	-25.00	2
7466.66	52.00	100	270			50.20	4.60	36.07	42.47	74.00	-31.53	
7466.66				44.40	A	50.20	4.60	36.07	34.87	54.00	-19.13	
11200.00	53.00	100	135			50.48	5.75	38.10	46.37	74.00	-27.63	
11200.00				39.93	A	50.48	5.75	38.10	33.30	54.00	-20.70	
3666.66	57.33	100	180			50.75	3.17	33.07	42.82	74.00	-31.18	Ch. 100/
3666.66				48.75	A	50.75	3.17	33.07	34.24	54.00	-19.76	2
7333.33	51.50	100	225			50.26	4.55	35.93	41.72	74.00	-32.28	
7333.33				42.78	A	50.26	4.55	35.93	33.00	54.00	-21.00	
3800.00	54.50	100	180			50.68	3.24	33.20	40.26	74.00	-33.74	Ch. 140/
3800.00				46.59	A	50.68	3.24	33.20	32.35	54.00	-21.65	2
7600.00	55.00	100	180			50.16	4.64	36.12	45.59	74.00	-28.41	
7600.00				48.17	A	50.16	4.64	36.12	38.76	54.00	-15.24	
11400.00	50.83	100	135	53.67		50.51	5.86	38.30	47.31	74.00	-26.69	
11400.00				40.10	A	50.51	5.86	38.30	33.74	54.00	-20.26	

**PEAK TRANSMIT POWER**

CLIENT:	Lantronix	DATE:	11/11/10
EUT:	Wireless Device Server	PROJECT NUMBER:	LANTR-101028
MODEL NUMBER:	PremierWave EN	TEST ENGINEER:	JC
SERIAL NUMBER:	00:20:44:9D:2E:2F	SITE #:	1
CONFIGURATION:	Tested connected to a host PC	TEMPERATURE:	25 deg. C
		HUMIDITY:	29% RH
		TIME:	9:00 AM

Description:	<p>For the band 5.15-5.25 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 50 mW or $4 \text{ dBm} + 10\log B$, where B is the 26-dB emission bandwidth in MHz.</p> <p>For the band 5.25-5.35 GHz, the peak transmit power over the frequency band of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10\log B$, where B is the 26-dB emission bandwidth in MHz.</p>
Results:	Passed (See Data Sheet)
Note:	<p>Conducted Emissions Measurements were performed on the EUT with power supply set at the following voltage and frequency.</p> <ul style="list-style-type: none">• 120VAC / 60 Hz.



Peak Transmit Power (Continued)

Mode	Channel	Frequency (MHz)	Antenna Port	Data Rate (Mbps)	Total Power (dBm)	Total Power (mW)
802.11a	36	5180	1	6	11.99	15.83
802.11a	40	5200	1	6	12.02	15.94
802.11a	48	5240	1	6	12.07	16.12
802.11a	52	5260	1	6	12.19	16.57
802.11a	56	5280	1	6	12.26	16.84
802.11a	64	5320	1	6	12.14	16.38
802.11a	36	5180	2	6	12.25	16.80
802.11a	40	5200	2	6	12.44	17.55
802.11a	48	5240	2	6	12.40	17.39
802.11a	52	5260	2	6	12.28	16.92
802.11a	56	5280	2	6	12.49	17.76
802.11a	64	5320	2	6	12.65	18.42
802.11n	36	5180	1	6	12.25	16.80
802.11n	40	5200	1	6	12.34	17.15
802.11n	48	5240	1	6	12.20	16.61
802.11n	52	5260	1	6	12.29	16.96
802.11n	56	5280	1	6	12.54	17.96
802.11n	64	5320	1	6	12.50	17.80
802.11n	36	5180	2	6	12.45	17.59
802.11n	40	5200	2	6	12.29	16.96
802.11n	48	5240	2	6	12.36	17.23
802.11n	52	5260	2	6	12.11	16.27
802.11n	56	5280	2	6	12.24	16.76
802.11n	64	5320	2	6	12.23	16.72
802.11a	100	5500	1	6	12.28	16.92
802.11a	120	5600	1	6	12.00	15.86
802.11a	140	5700	1	6	12.17	16.50
802.11a	100	5500	2	6	11.96	15.72
802.11a	120	5600	2	6	12.15	16.42
802.11a	140	5700	2	6	11.90	15.50
802.11n	100	5500	1	6	12.36	17.23
802.11n	120	5600	1	6	12.44	17.55
802.11n	140	5700	1	6	12.41	17.43
802.11n	100	5500	2	6	12.16	16.46
802.11n	120	5600	2	6	12.10	16.23
802.11n	140	5700	2	6	12.05	16.05

NOTE: The output power measurement is conducted.

**26dB EMISSIONS BANDWIDTH**

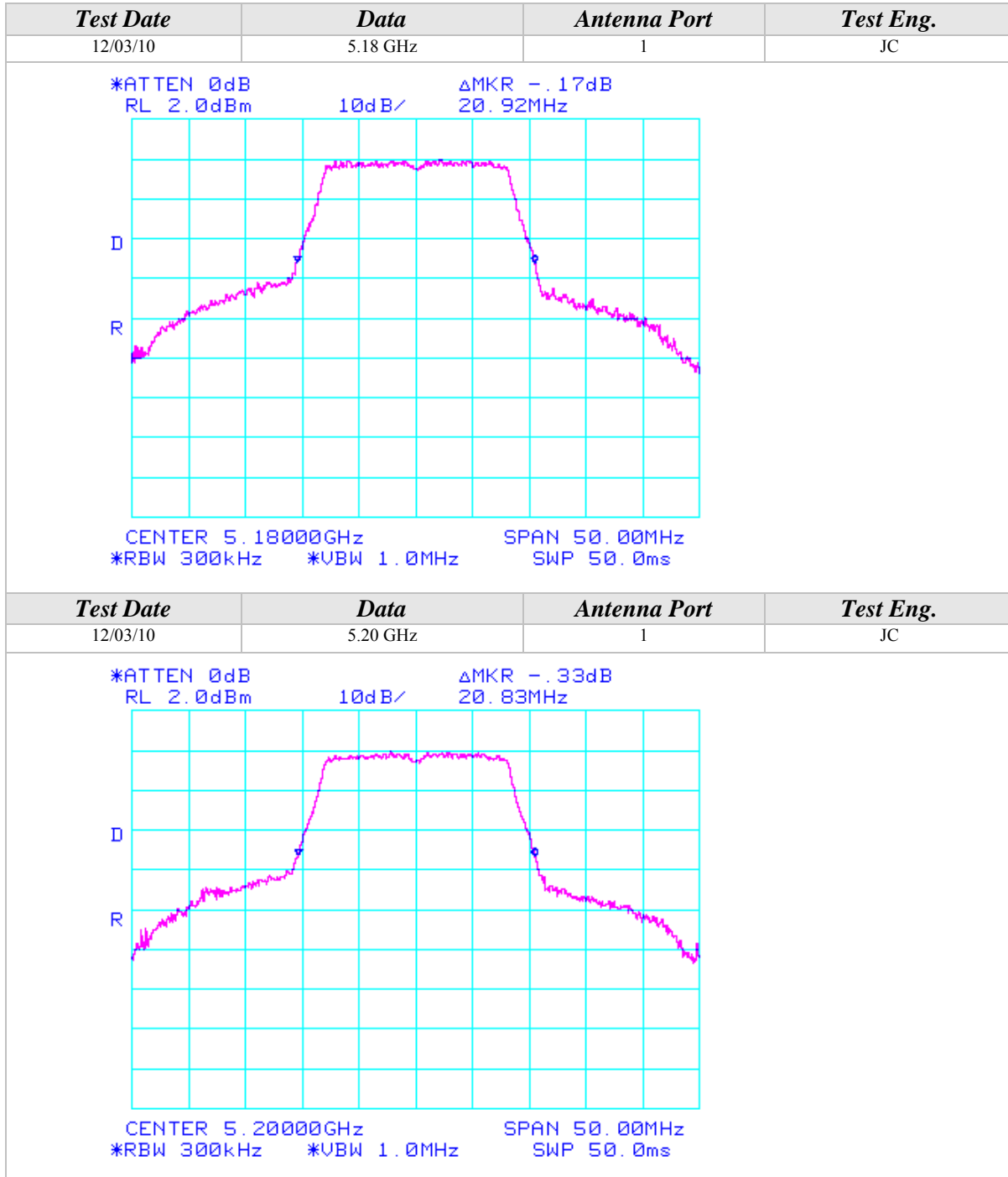
CLIENT:	Lantronix	DATE:	12/03/10
EUT:	Wireless Device Server	PROJECT NUMBER:	LANTR-101028
MODEL NUMBER:	PremierWave EN	TEST ENGINEER:	JC
SERIAL NUMBER:	00:20:44:9D:2E:2F	SITE #:	1
CONFIGURATION:	Tested installed in an evaluation board connected to the host PC via USB port	TEMPERATURE:	21 deg. C
		HUMIDITY:	29% RH
		TIME:	10:30 AM

Description:	26dB emissions bandwidth in MHz.
Results:	See Data Sheet
Note:	Conducted Emissions Measurements were performed on the EUT with power supply set at the following voltage and frequency. <ul style="list-style-type: none">• 120VAC / 60 Hz.



26dB Emissions Bandwidth (Continued)

802.11a Mode



26dB Emissions Bandwidth (Continued)

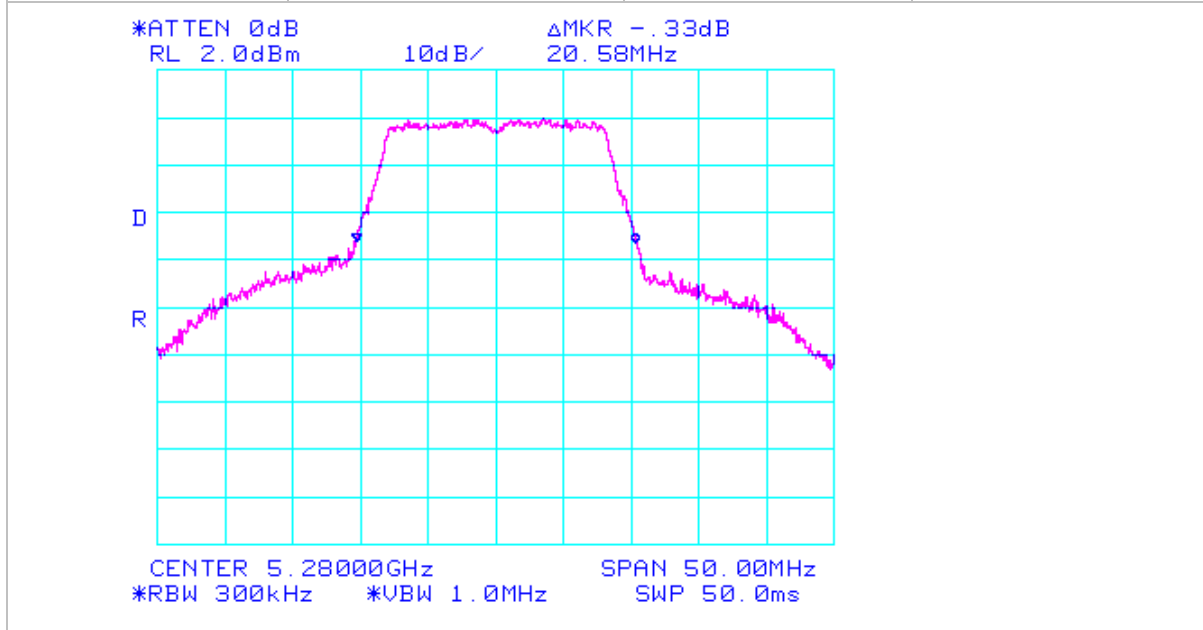
802.11a Mode

Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.24 GHz	1	JC
<p>*ATTEN 0dB ΔMKR 0dB RL 2.0dBm 10dB/ 20.92MHz</p> <p>CENTER 5.24000GHz SPAN 50.00MHz *RBW 300kHz *VBW 1.0MHz SWP 50.0ms</p>			
Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.26 GHz	1	JC
<p>*ATTEN 0dB ΔMKR .33dB RL 2.0dBm 10dB/ 20.67MHz</p> <p>CENTER 5.26000GHz SPAN 50.00MHz *RBW 300kHz *VBW 1.0MHz SWP 50.0ms</p>			

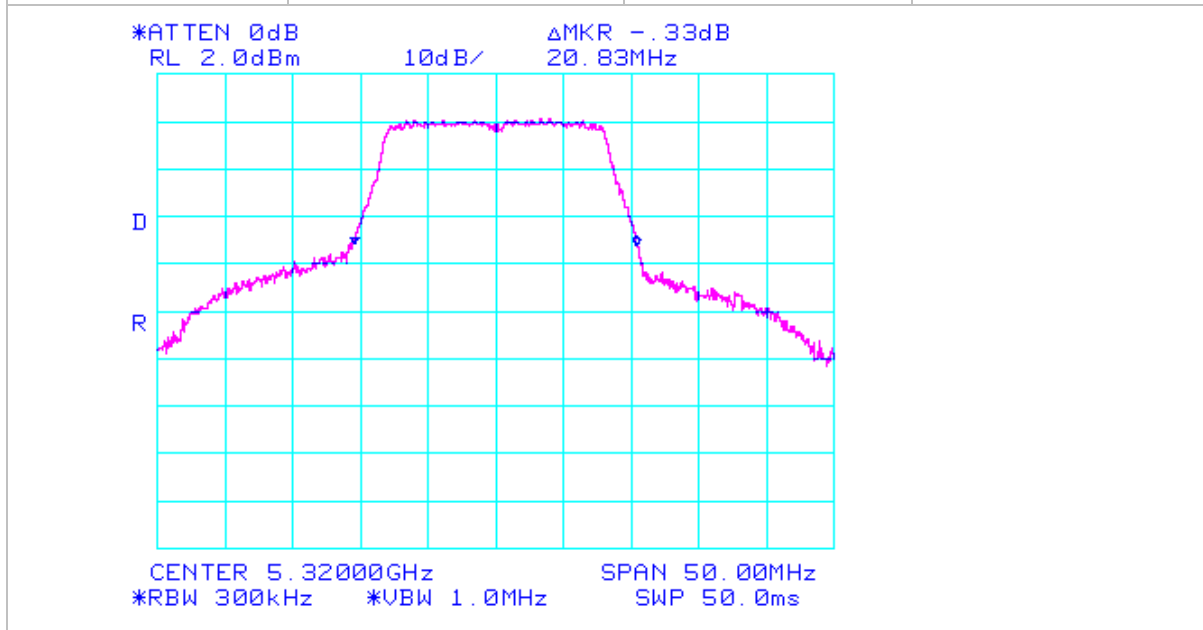
26dB Emissions Bandwidth (Continued)

802.11a Mode

Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.28 GHz	1	JC



Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.32 GHz	1	JC





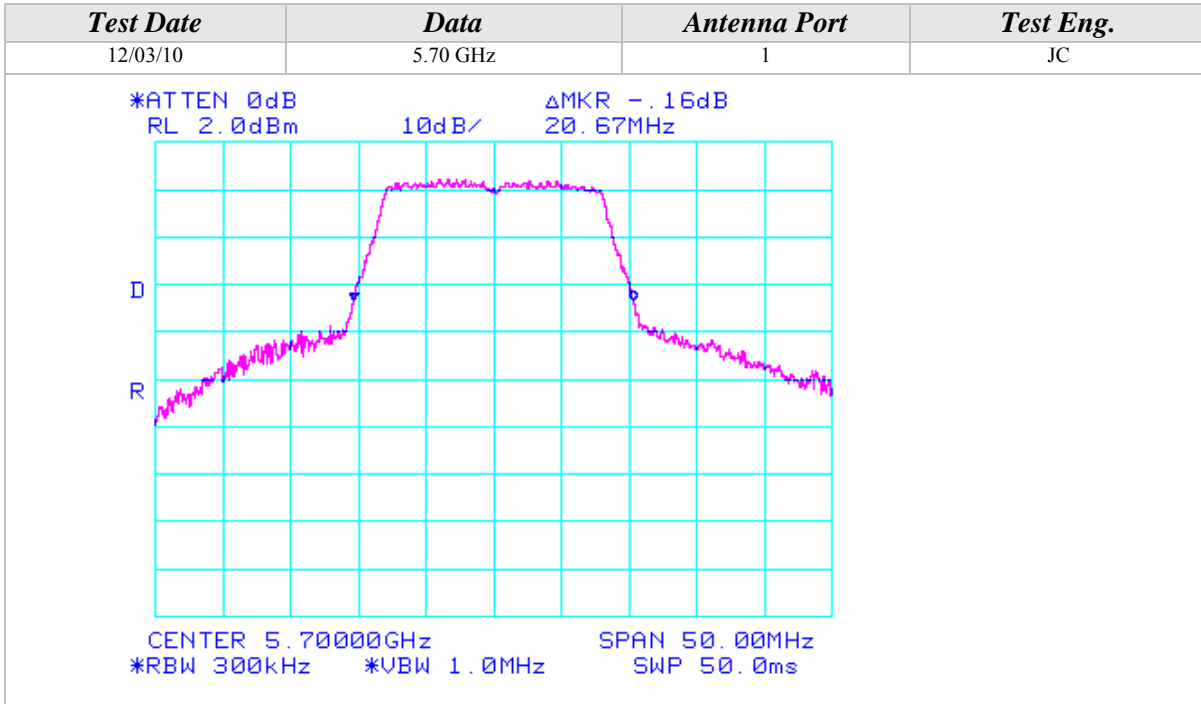
26dB Emissions Bandwidth (Continued)

802.11a Mode

Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.50 GHz	1	JC
<p>*ATTEN 0dB ΔMKR 0dB RL 2.0dBm 10dB/ 20.83MHz</p> <p>CENTER 5.50000GHz SPAN 50.00MHz *RBW 300kHz *VBW 1.0MHz SWP 50.0ms</p>			
Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.60 GHz	1	JC
<p>*ATTEN 0dB ΔMKR 0dB RL 2.0dBm 10dB/ 21.00MHz</p> <p>CENTER 5.60000GHz SPAN 50.00MHz *RBW 300kHz *VBW 1.0MHz SWP 50.0ms</p>			

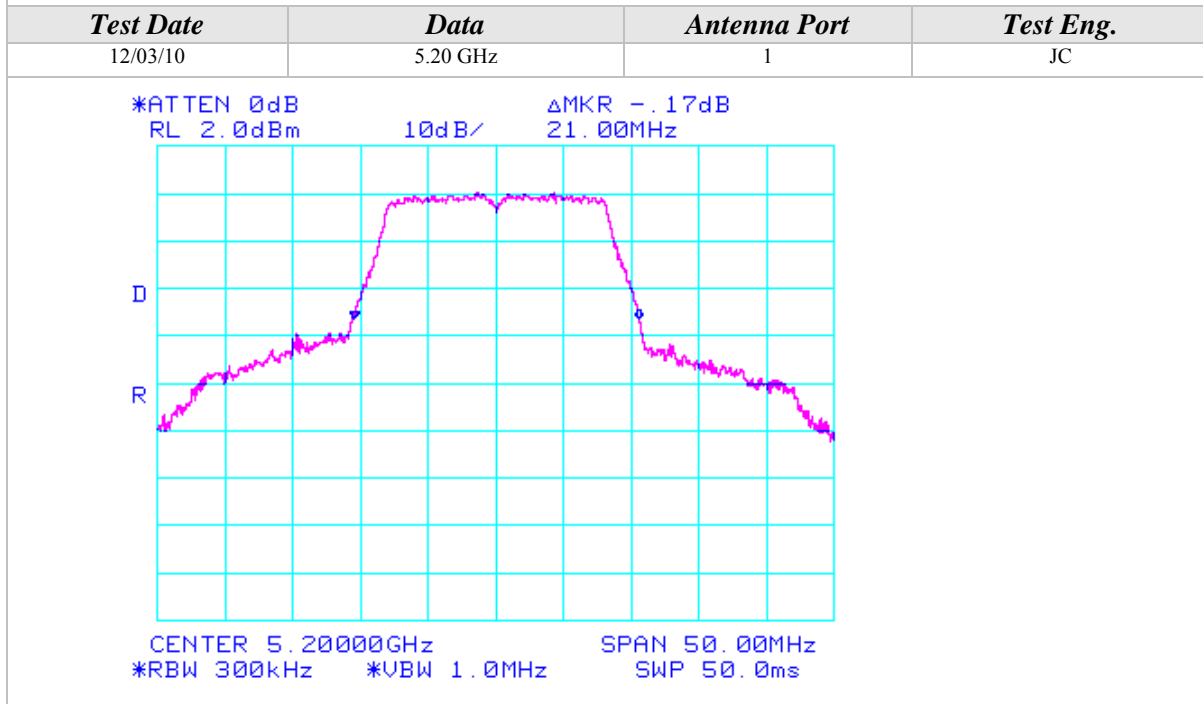
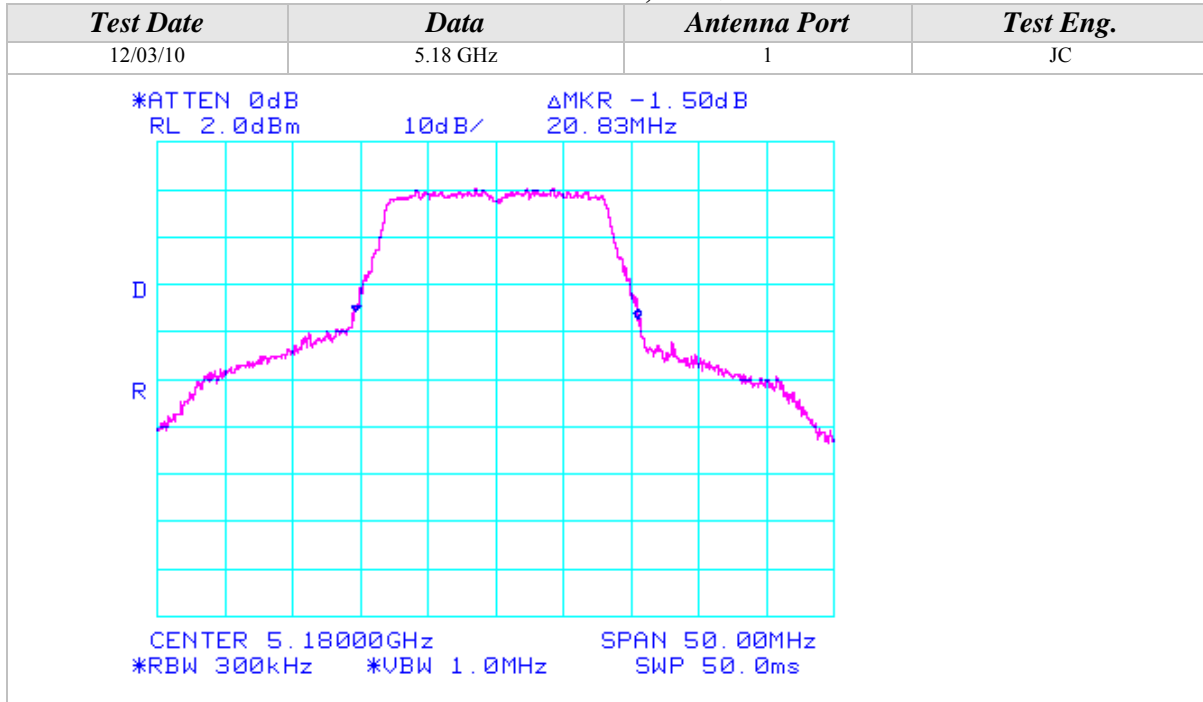
26dB Emissions Bandwidth (Continued)

802.11a Mode



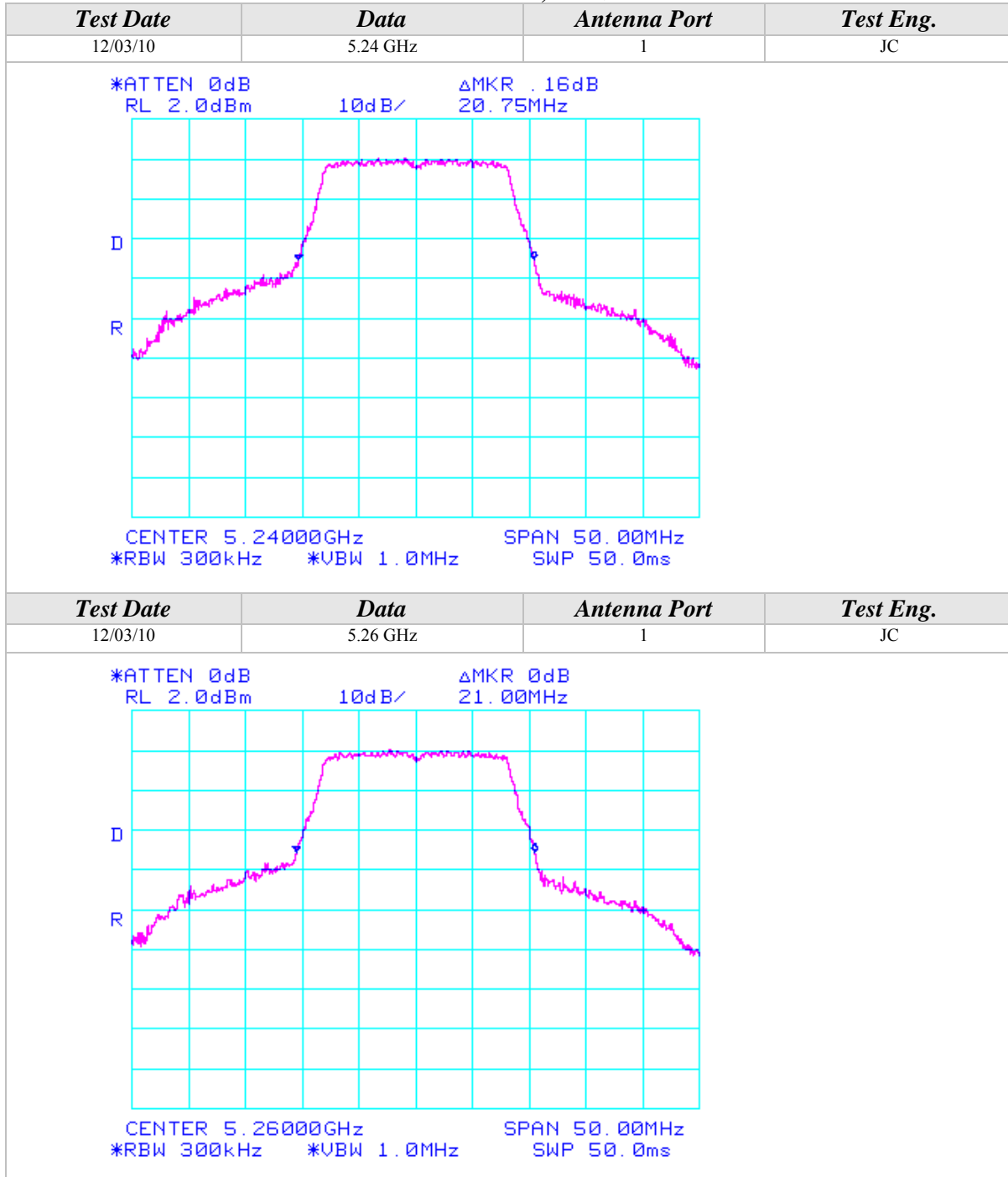
26dB Emissions Bandwidth (Continued)

802.11n Mode, 5GHz



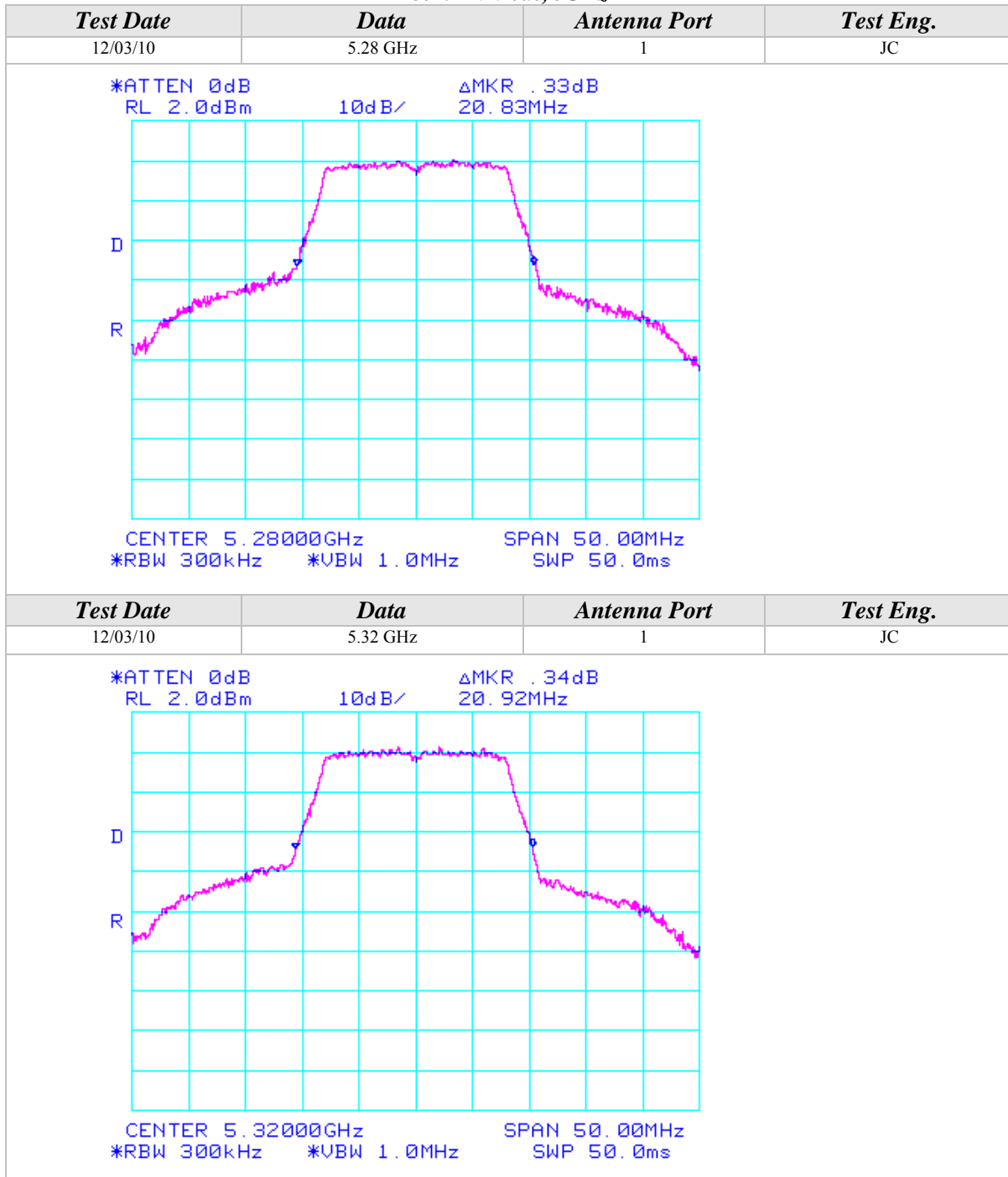
26dB Emissions Bandwidth (Continued)

802.11n Mode, 5GHz



26dB Emissions Bandwidth (Continued)

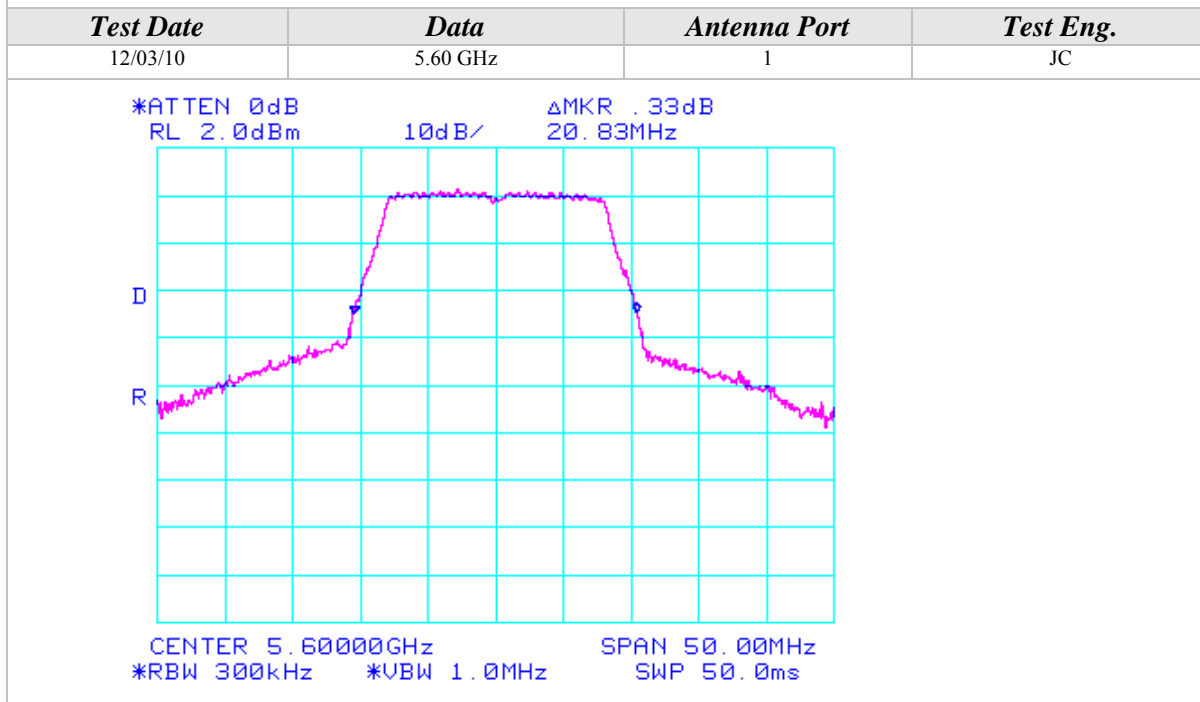
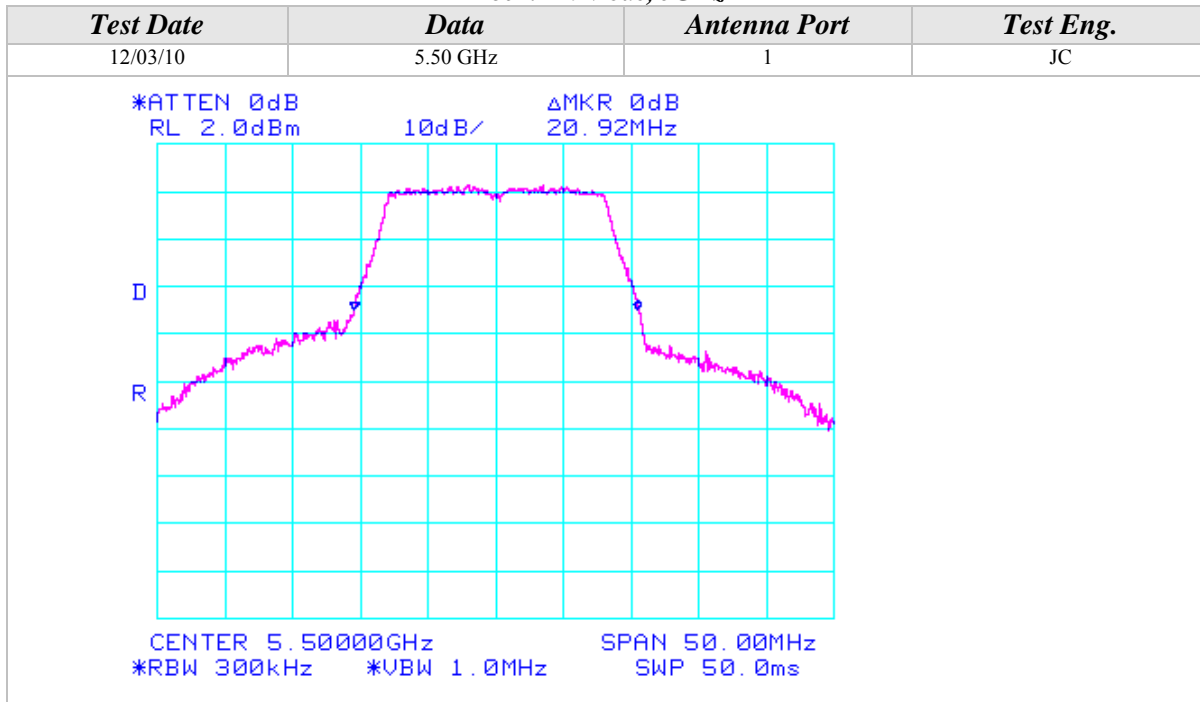
802.11n Mode, 5GHz





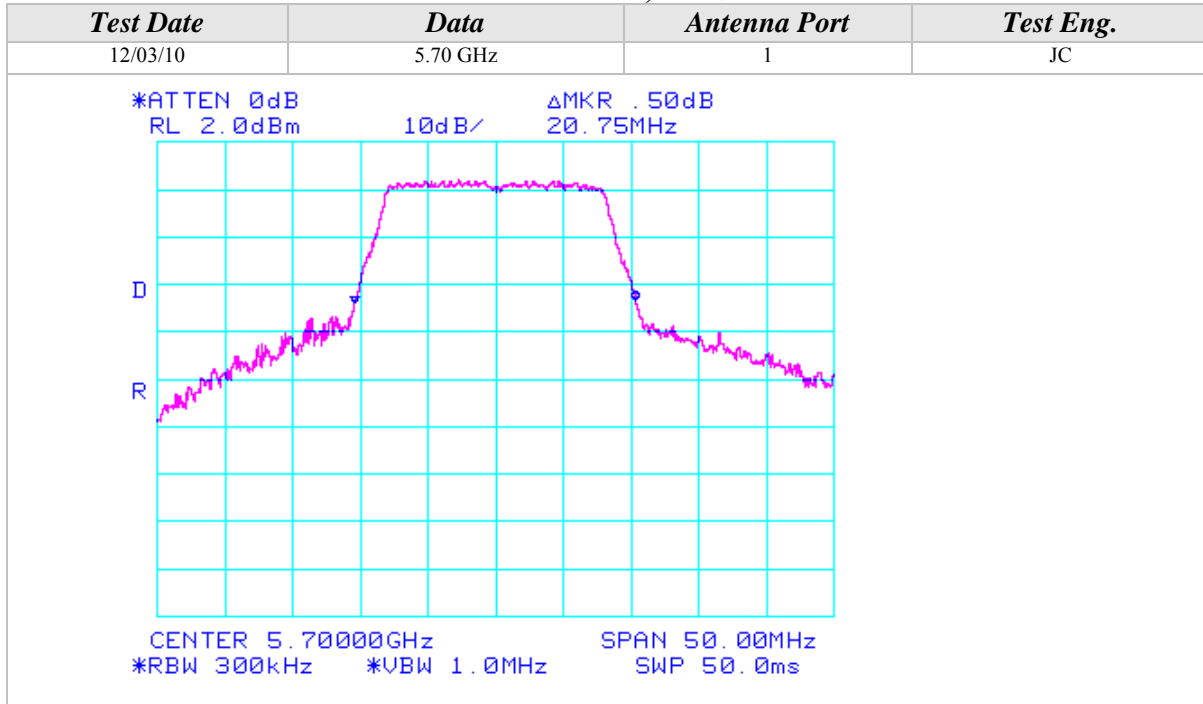
26dB Emissions Bandwidth (Continued)

802.11n Mode, 5GHz



26dB Emissions Bandwidth (Continued)

802.11n Mode, 5GHz



26dB Emissions Bandwidth (Continued)

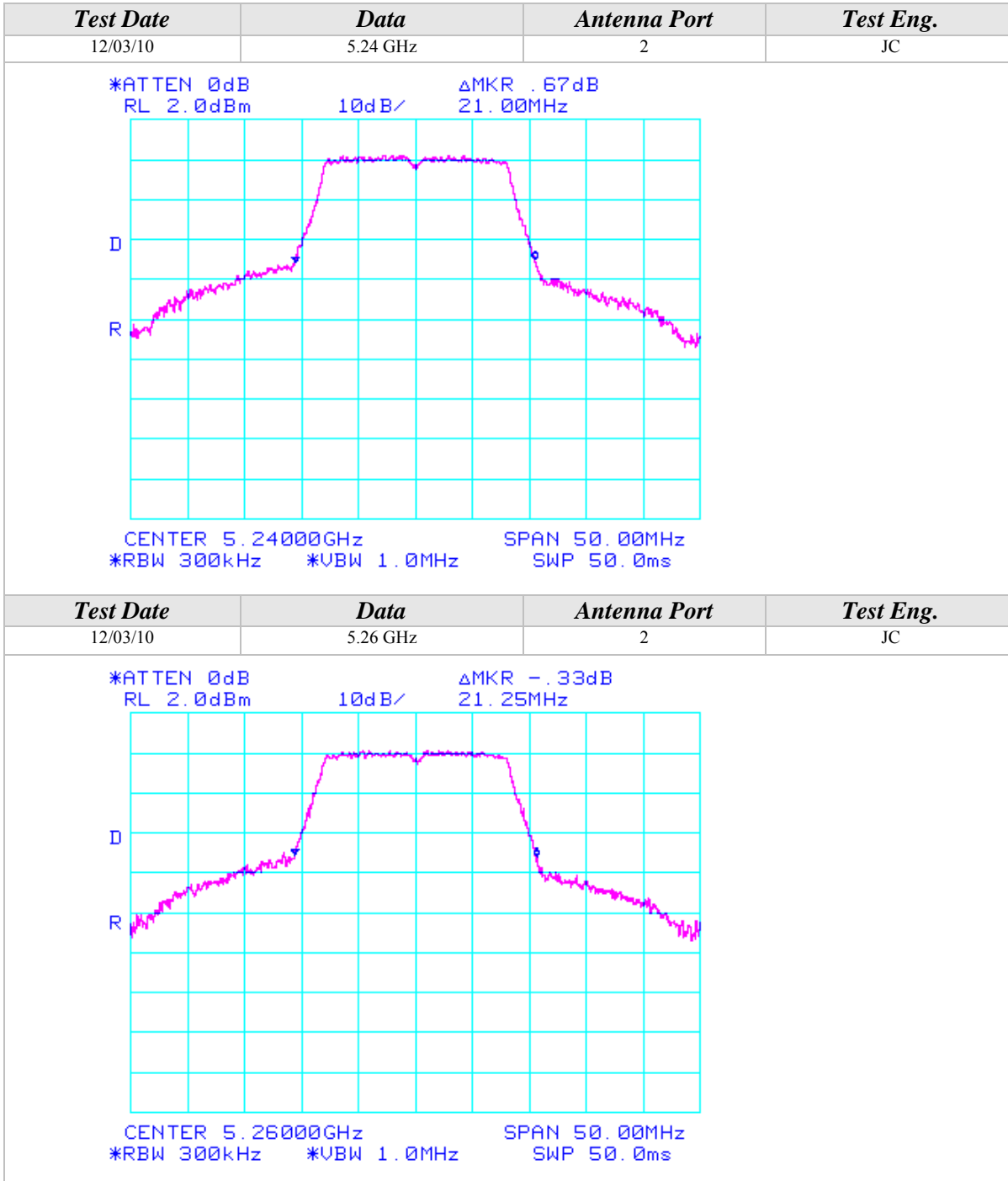
802.11a Mode

<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/03/10	5.18 GHz	2	JC
*ATTEN 0dB ΔMKR -.16dB RL 2.0dBm 10dB/ 21.08MHz			
CENTER 5.18000GHz SPAN 50.00MHz *RBW 300kHz *VBW 1.0MHz SWP 50.0ms			
<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/03/10	5.20 GHz	2	JC
*ATTEN 0dB ΔMKR -.84dB RL 2.0dBm 10dB/ 21.33MHz			
CENTER 5.20000GHz SPAN 50.00MHz *RBW 300kHz *VBW 1.0MHz SWP 50.0ms			



26dB Emissions Bandwidth (Continued)

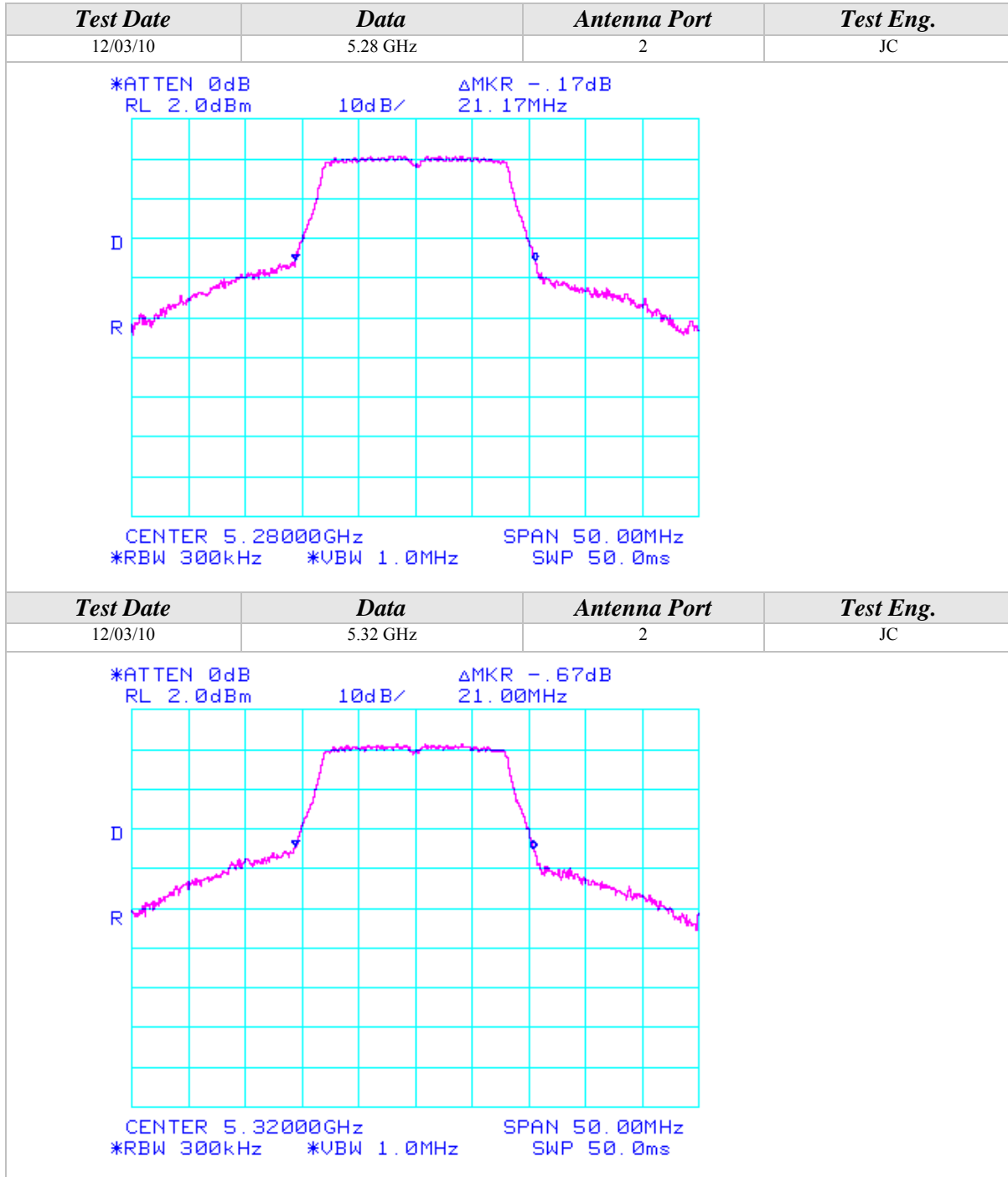
802.11a Mode





26dB Emissions Bandwidth (Continued)

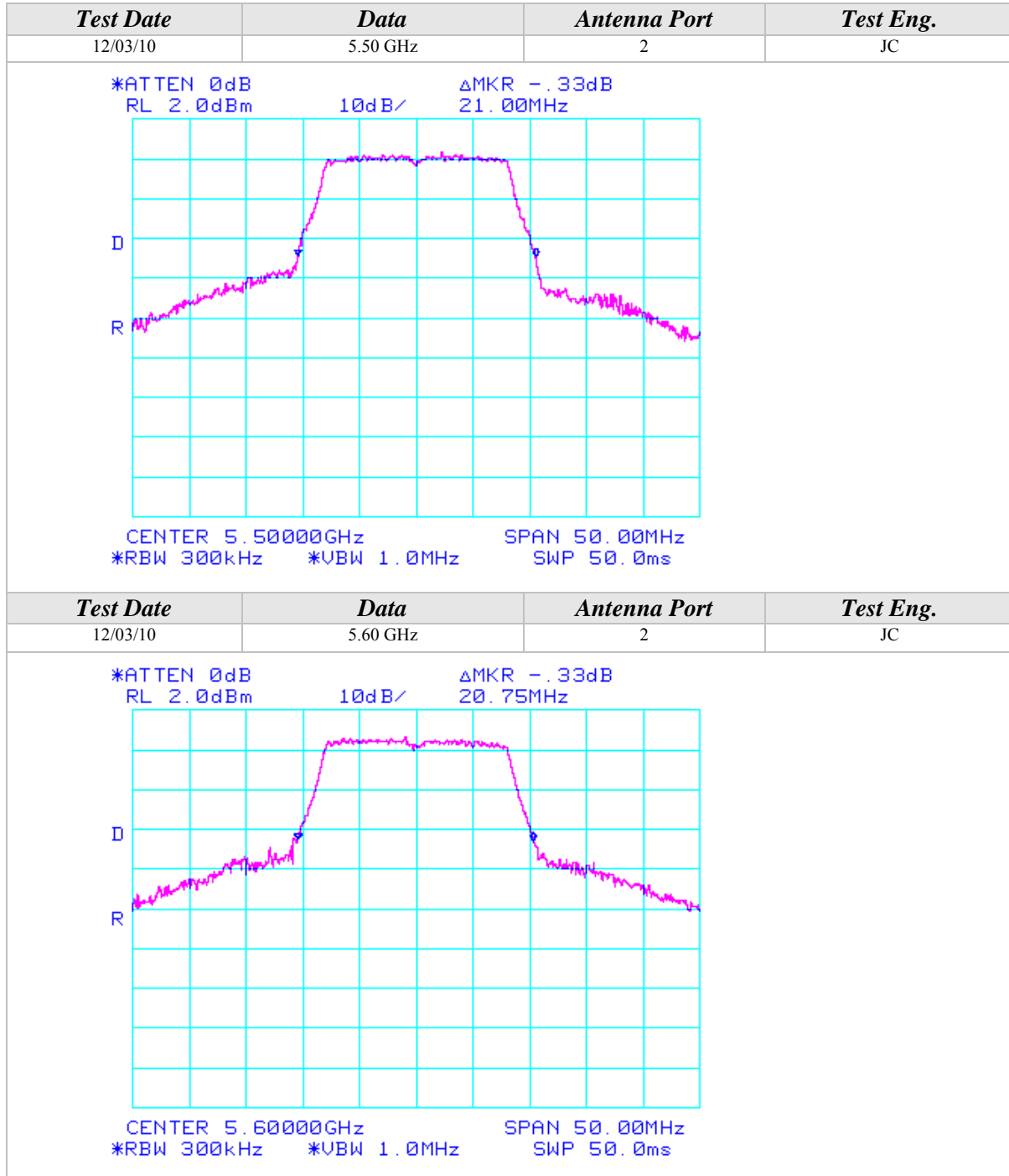
802.11a Mode





26dB Emissions Bandwidth (Continued)

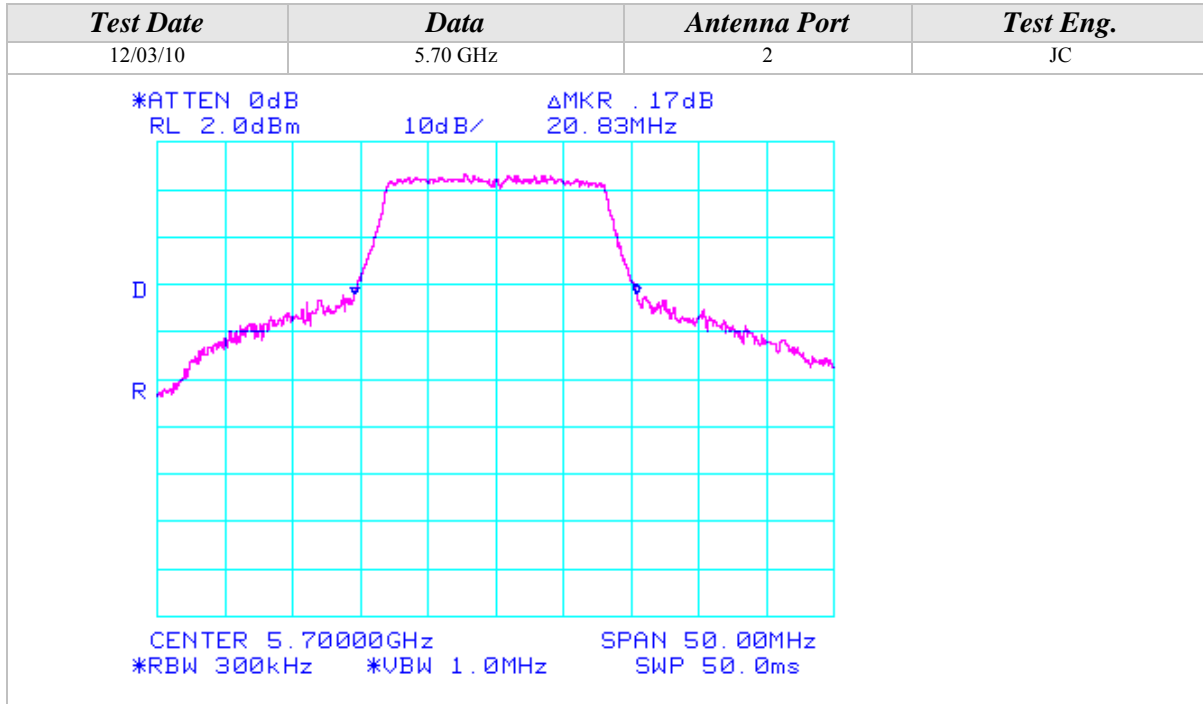
802.11a Mode





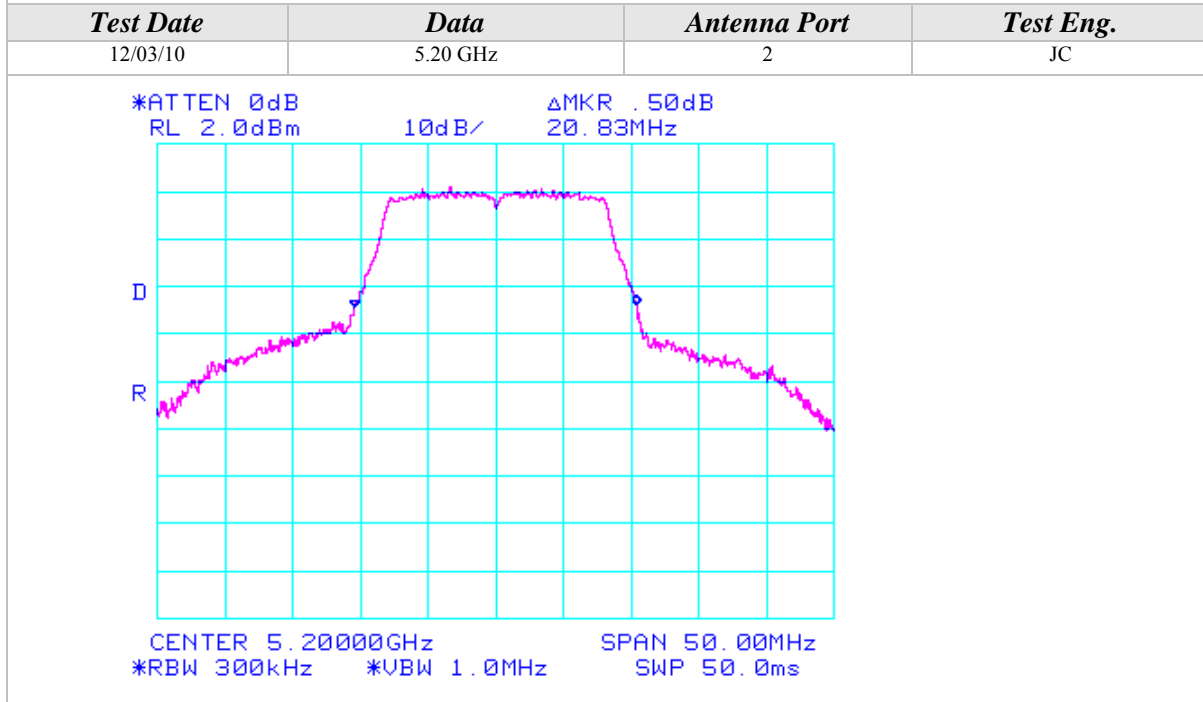
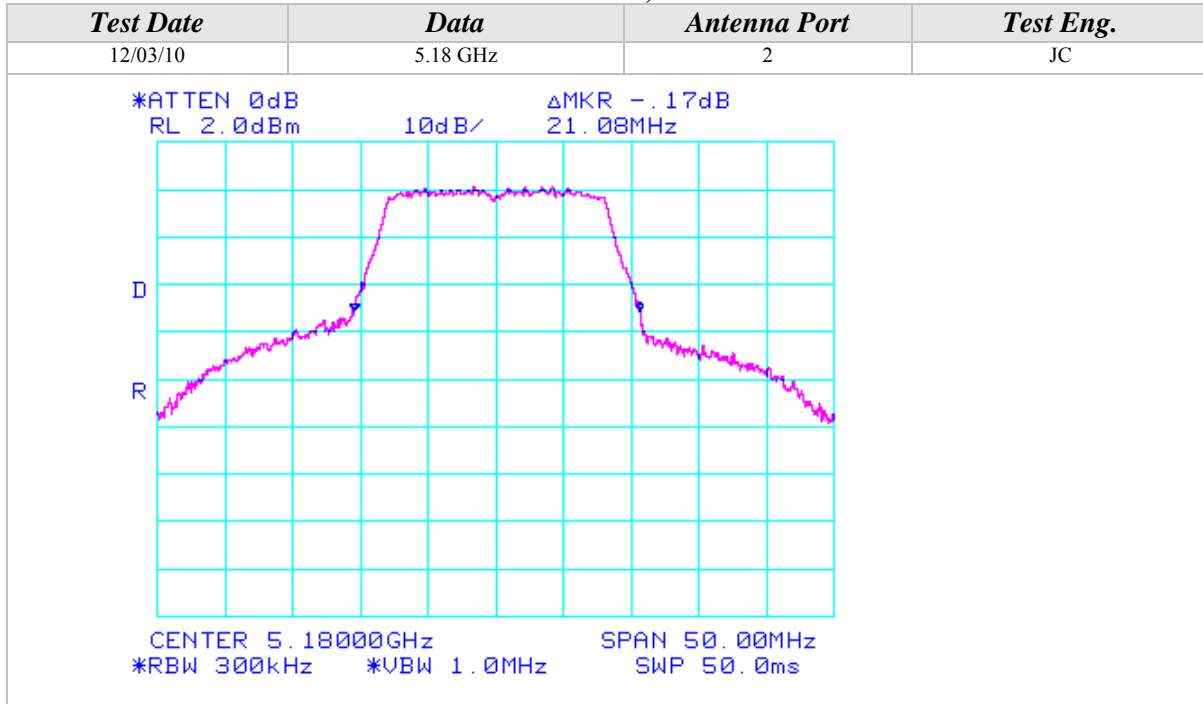
26dB Emissions Bandwidth (Continued)

802.11a Mode



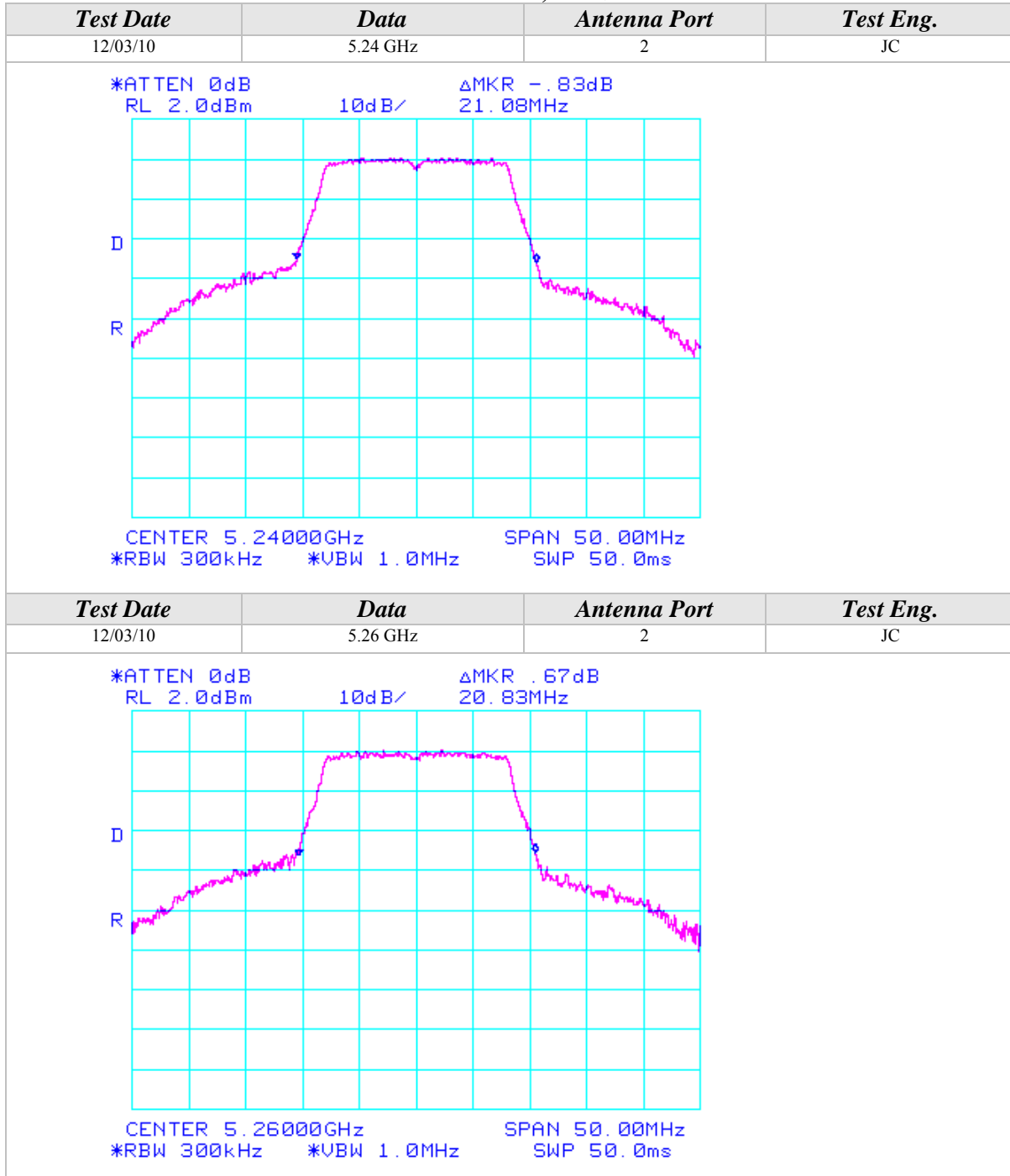
26dB Emissions Bandwidth (Continued)

802.11n Mode, 5GHz



26dB Emissions Bandwidth (Continued)

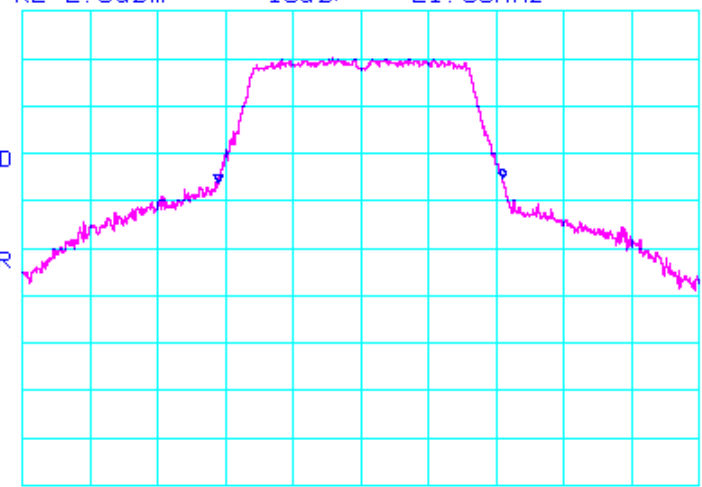
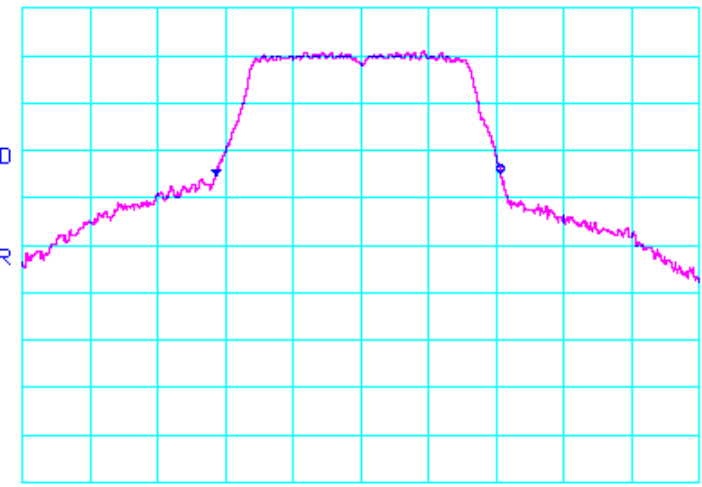
802.11n Mode, 5GHz





26dB Emissions Bandwidth (Continued)

802.11n Mode, 5GHz

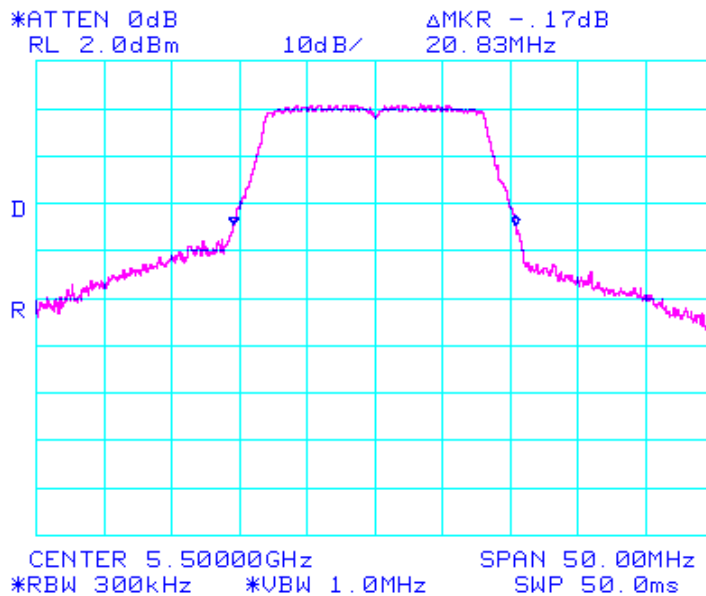
Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.28 GHz	2	JC
<div style="display: flex; justify-content: space-between;"> *ATTEN 0dB ΔMKR .83dB </div> <div style="display: flex; justify-content: space-between;"> RL 2.0dBm 10dB/ 21.00MHz </div>  <div style="display: flex; justify-content: space-between;"> CENTER 5.28000GHz SPAN 50.00MHz </div> <div style="display: flex; justify-content: space-between;"> *RBW 300kHz *VBW 1.0MHz SWP 50.0ms </div>			
Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.32 GHz	2	JC
<div style="display: flex; justify-content: space-between;"> *ATTEN 0dB ΔMKR .50dB </div> <div style="display: flex; justify-content: space-between;"> RL 2.0dBm 10dB/ 21.00MHz </div>  <div style="display: flex; justify-content: space-between;"> CENTER 5.32000GHz SPAN 50.00MHz </div> <div style="display: flex; justify-content: space-between;"> *RBW 300kHz *VBW 1.0MHz SWP 50.0ms </div>			



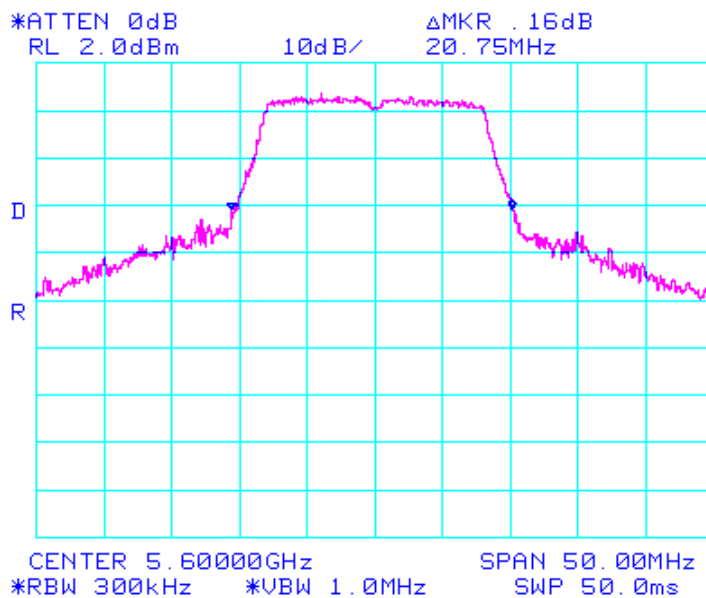
26dB Emissions Bandwidth (Continued)

802.11n Mode, 5GHz

Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.50 GHz	2	JC



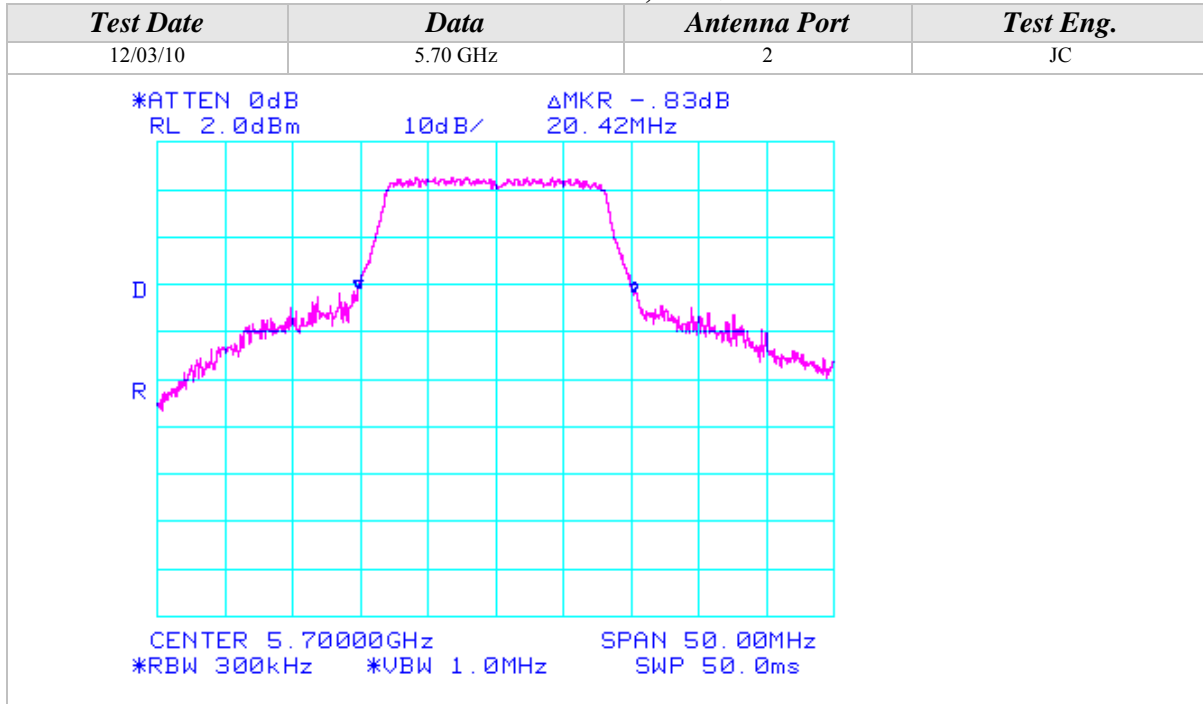
Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.60 GHz	2	JC





26dB Emissions Bandwidth (Continued)

802.11n Mode, 5GHz



**PEAK POWER SPECTRAL DENSITY**

CLIENT:	Lantronix	DATE:	12/07/10
EUT:	Wireless Device Server	PROJECT NUMBER:	LANTR-101028
MODEL NUMBER:	PremierWave EN	TEST ENGINEER:	JC
SERIAL NUMBER:	00:20:44:9D:2E:2F	SITE #:	1
CONFIGURATION:	Tested installed in an evaluation board connected to the host PC via USB port	TEMPERATURE:	18 deg. C
		HUMIDITY:	26% RH
		TIME:	9:00 AM

Description:	For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1-MHz band For the band 5.2 5-5.35 GHz & 5.47-5.725, the peak power spectral density shall not exceed 11 dBm in any 1-MHz band
Results:	See Data Sheet
Note:	Conducted Emissions Measurements were performed on the EUT with power supply set at the following voltage and frequency. <ul style="list-style-type: none"> • 120VAC / 60 Hz.

Peak Power Spectral Density Limits	
Frequency (MHz)	Limit (dBm)
5150-5250	4
5250-5350	11
5470-5725	11

Using “Method 1” of the FCC Public Notice (DA 02-2138) for all frequency bands



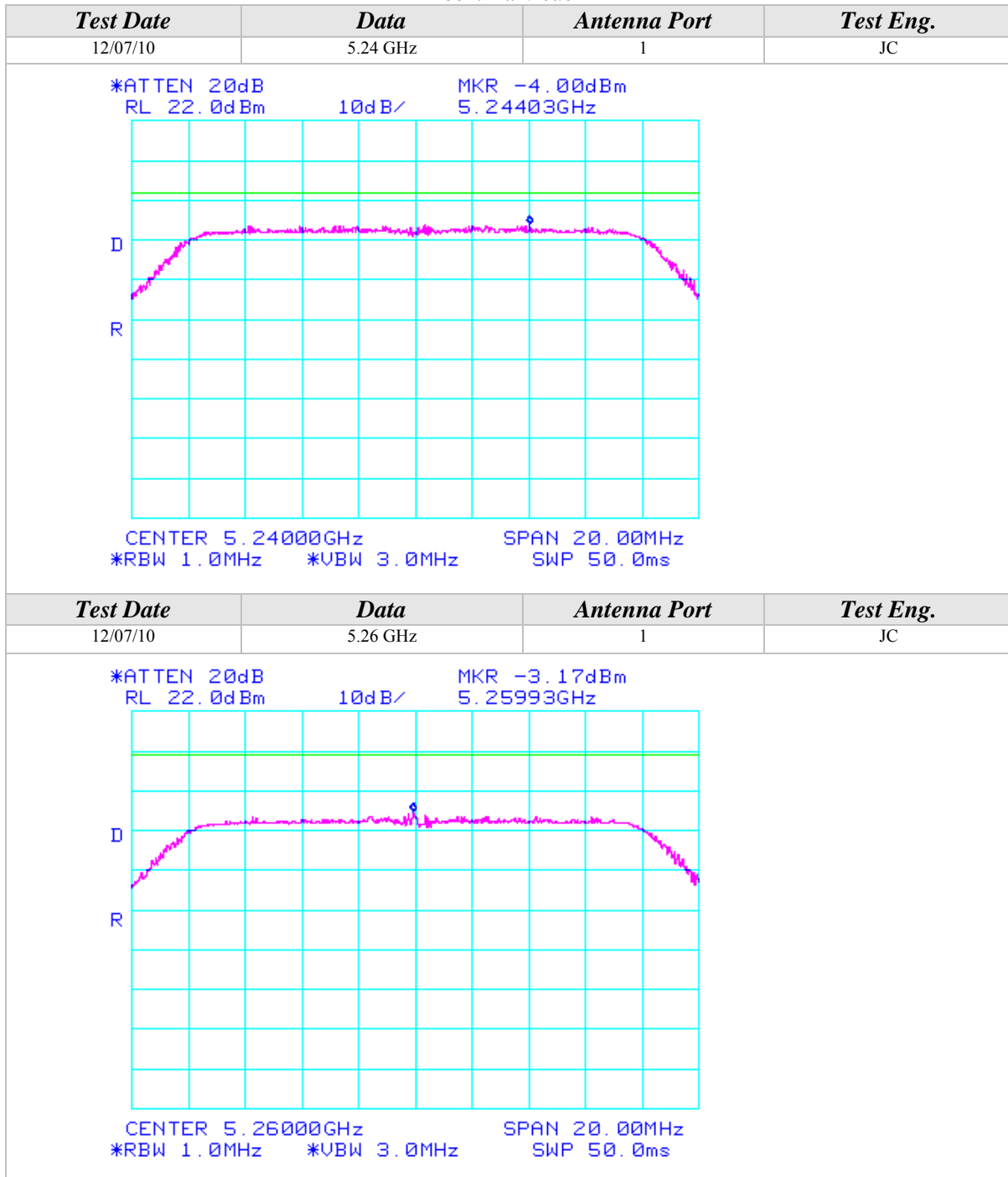
Peak Power Spectral Density (Continued)

802.11a Mode

<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/07/10	5.18 GHz	1	JC
<p>*ATTEN 20dB MKR -3.83dBm RL 22.0dBm 10dB/ 5.18360GHz</p> <p>CENTER 5.18000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms</p>			
<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/07/10	5.20 GHz	1	JC
<p>*ATTEN 20dB MKR -4.50dBm RL 22.0dBm 10dB/ 5.19870GHz</p> <p>CENTER 5.20000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms</p>			

Peak Power Spectral Density (Continued)

802.11a Mode





Peak Power Spectral Density (Continued)

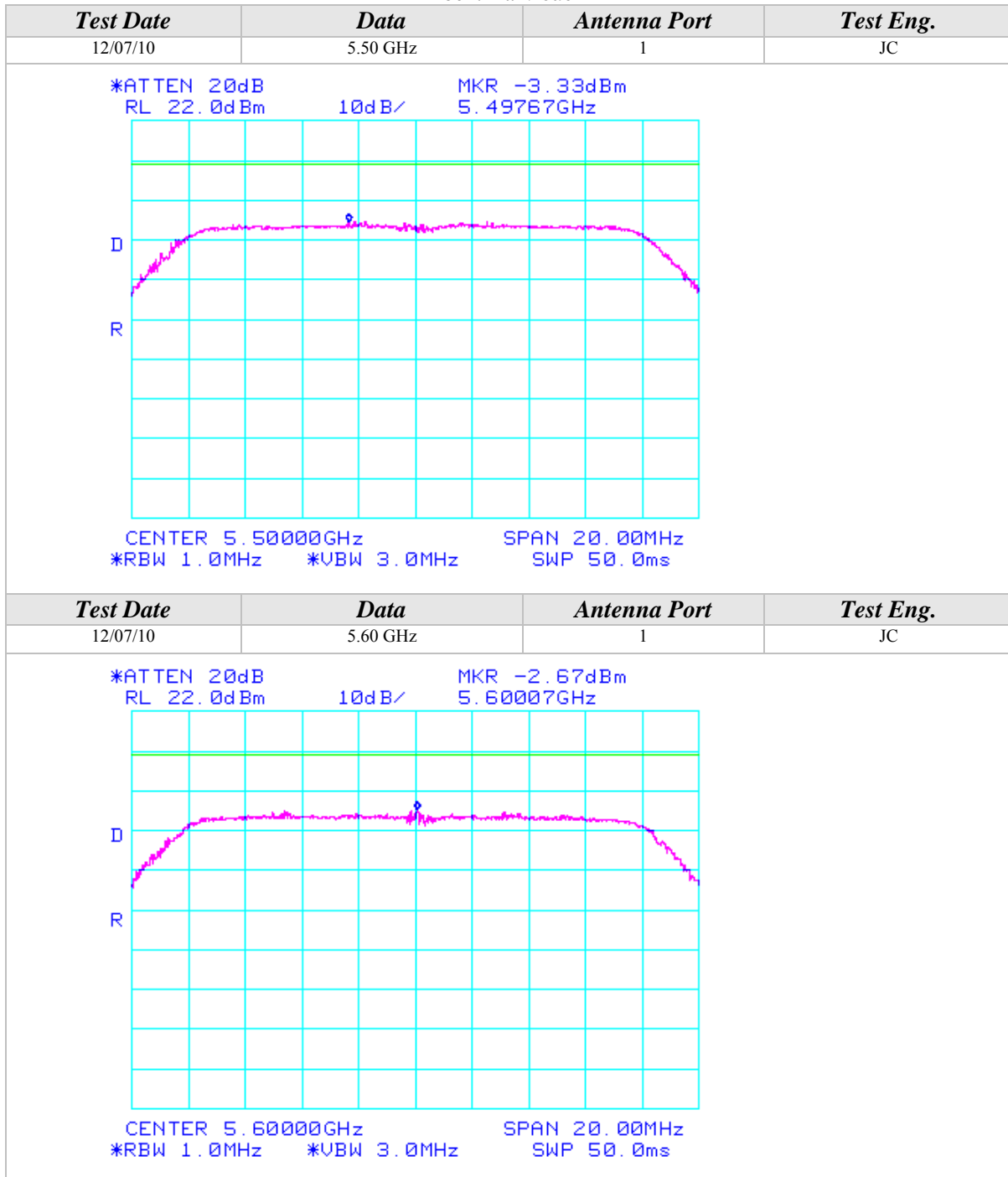
802.11a Mode

Test Date	Data	Antenna Port	Test Eng.
12/07/10	5.28 GHz	1	JC
<p>*ATTEN 20dB RL 22.0dBm 10dB/ MKR -4.00dBm 5.28217GHz</p> <p>CENTER 5.28000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms</p>			
Test Date	Data	Antenna Port	Test Eng.
12/07/10	5.32 GHz	1	JC
<p>*ATTEN 20dB RL 22.0dBm 10dB/ MKR -3.50dBm 5.31667GHz</p> <p>CENTER 5.32000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms</p>			



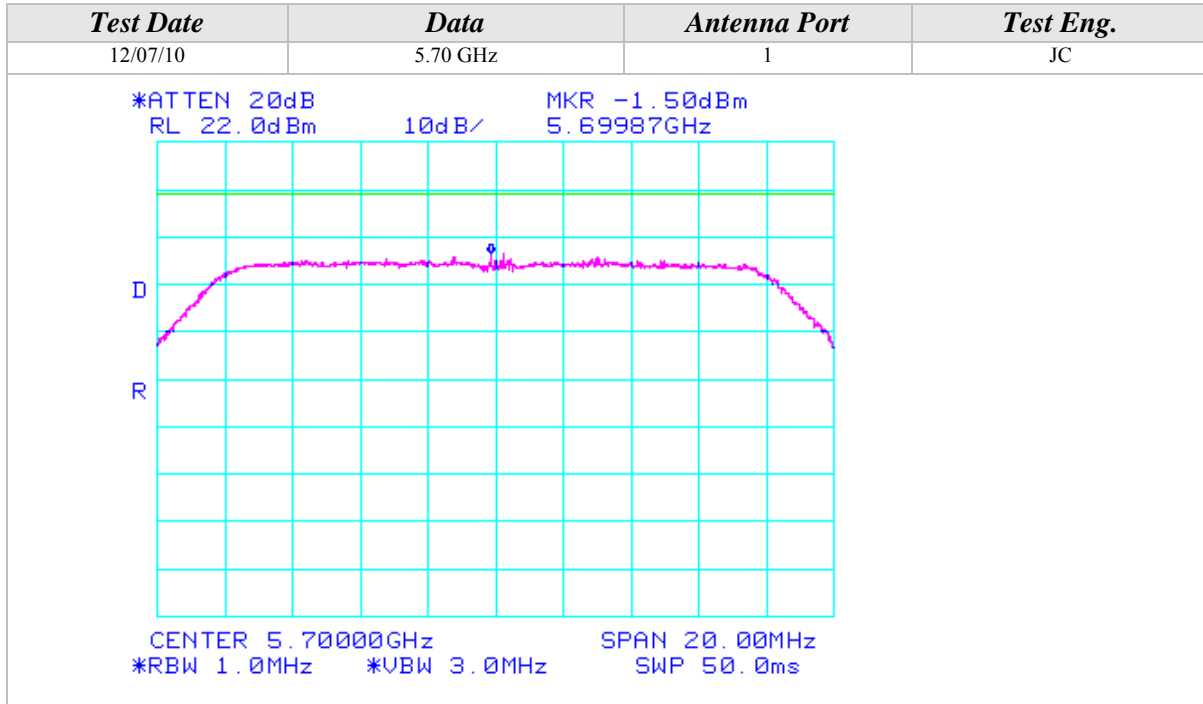
Peak Power Spectral Density (Continued)

802.11a Mode



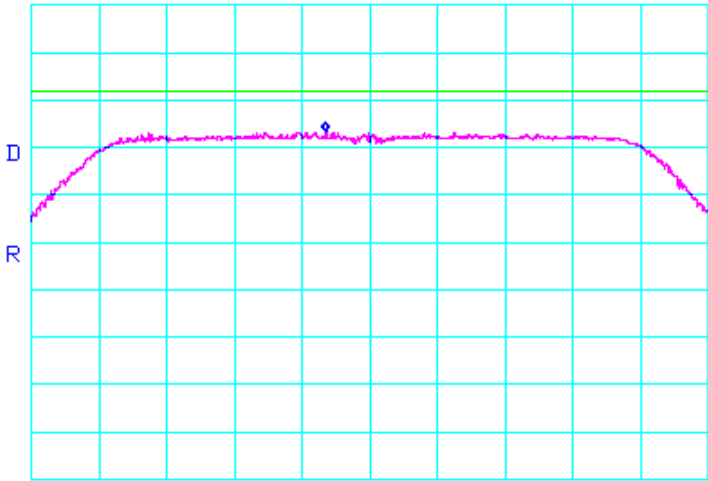
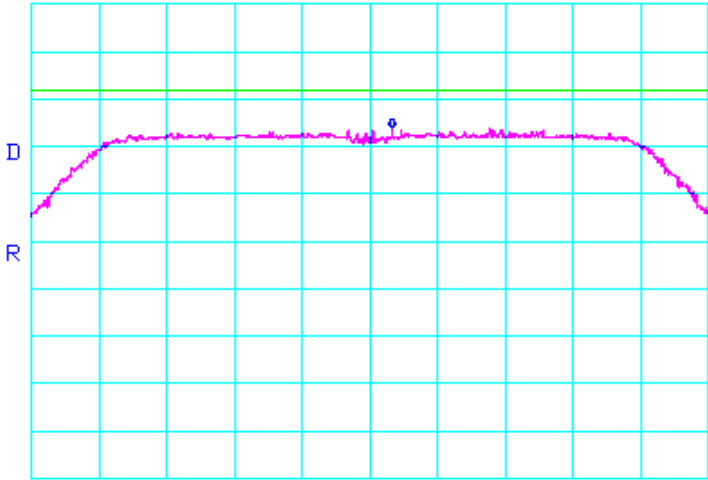
Peak Power Spectral Density (Continued)

802.11a Mode



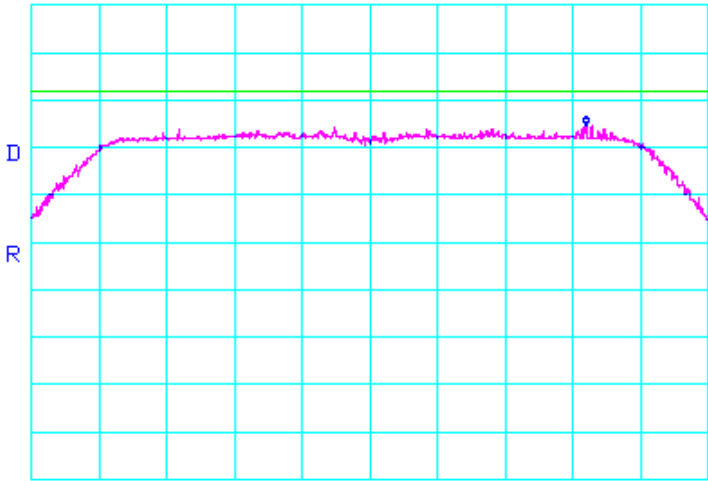
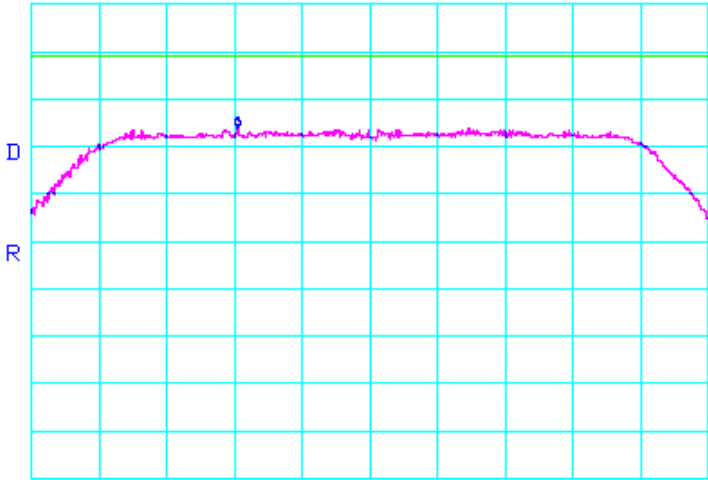
Peak Power Spectral Density (Continued)

802.11n Mode, 5GHz

<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/07/10	5.18 GHz	1	JC
<p>*ATTEN 20dB MKR -4.67dBm RL 22.0dBm 10dB/ 5.17870GHz</p>  <p>CENTER 5.18000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms</p>			
<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/07/10	5.20 GHz	1	JC
<p>*ATTEN 20dB MKR -4.17dBm RL 22.0dBm 10dB/ 5.20067GHz</p>  <p>CENTER 5.20000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms</p>			

Peak Power Spectral Density (Continued)

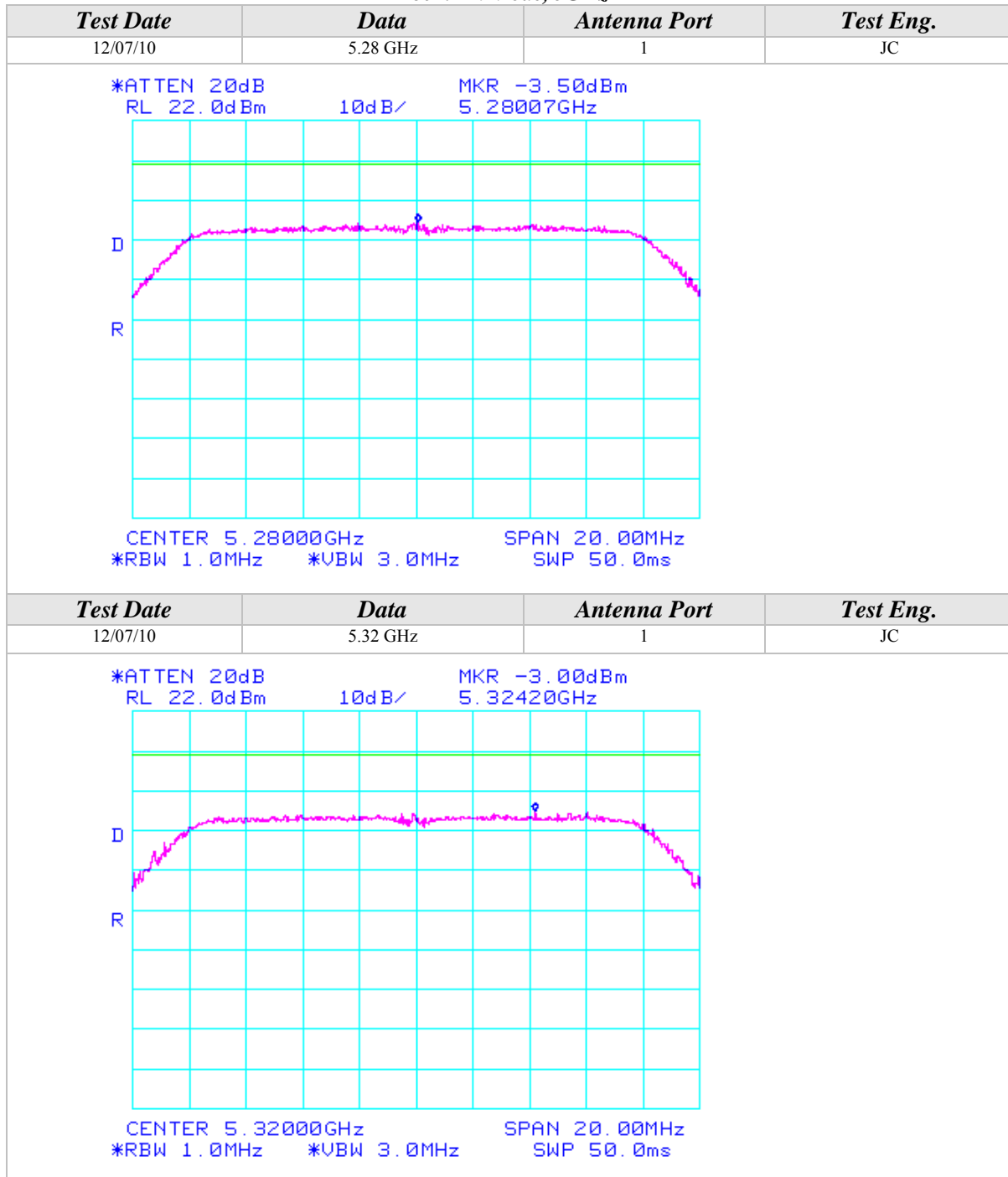
802.11n Mode, 5GHz

Test Date	Data	Antenna Port	Test Eng.
12/07/10	5.24 GHz	1	JC
<p>*ATTEN 20dB MKR -3.33dBm RL 22.0dBm 10dB/ 5.24640GHz</p>  <p>CENTER 5.24000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms</p>			
Test Date	Data	Antenna Port	Test Eng.
12/07/10	5.26 GHz	1	JC
<p>*ATTEN 20dB MKR -4.00dBm RL 22.0dBm 10dB/ 5.25610GHz</p>  <p>CENTER 5.26000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms</p>			



Peak Power Spectral Density (Continued)

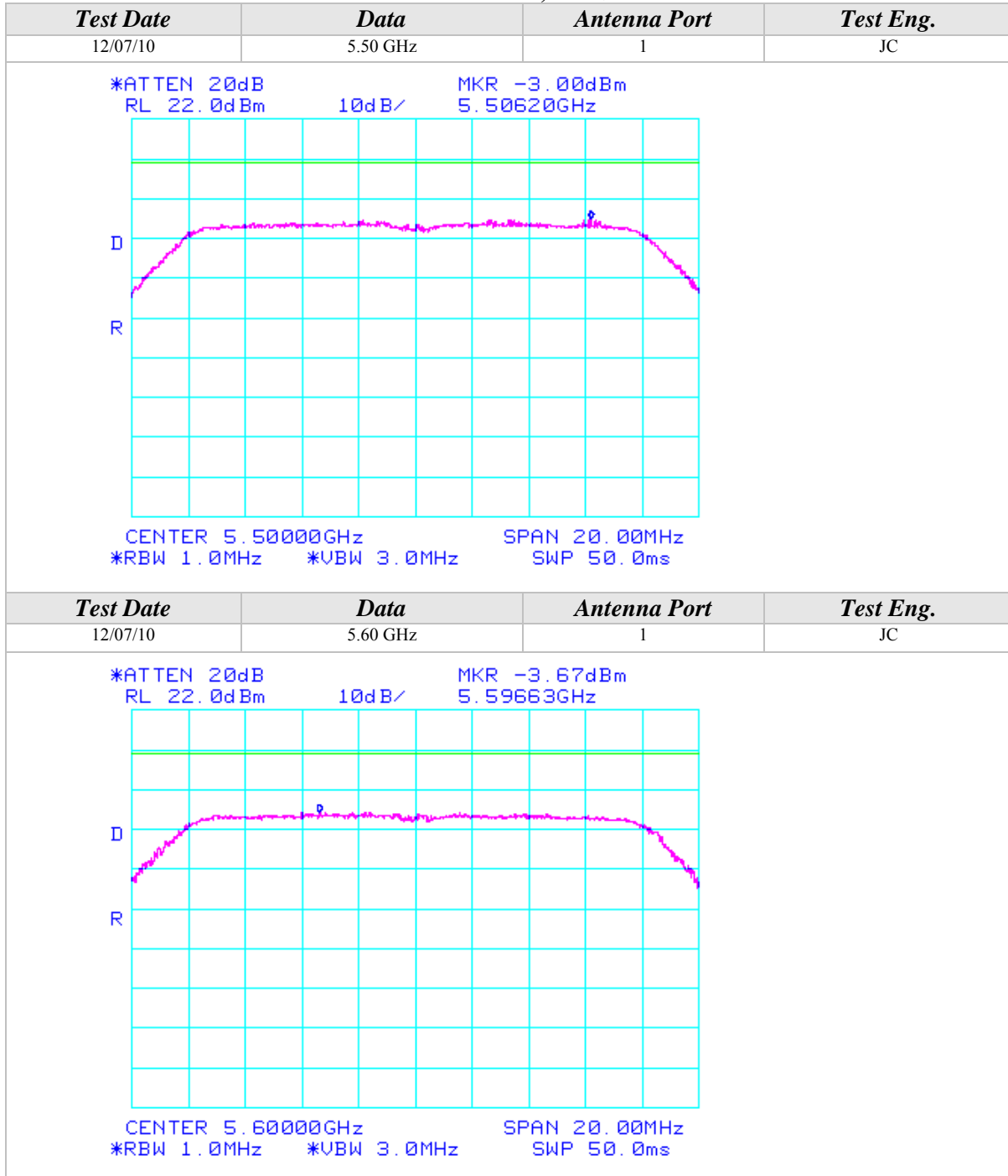
802.11n Mode, 5GHz





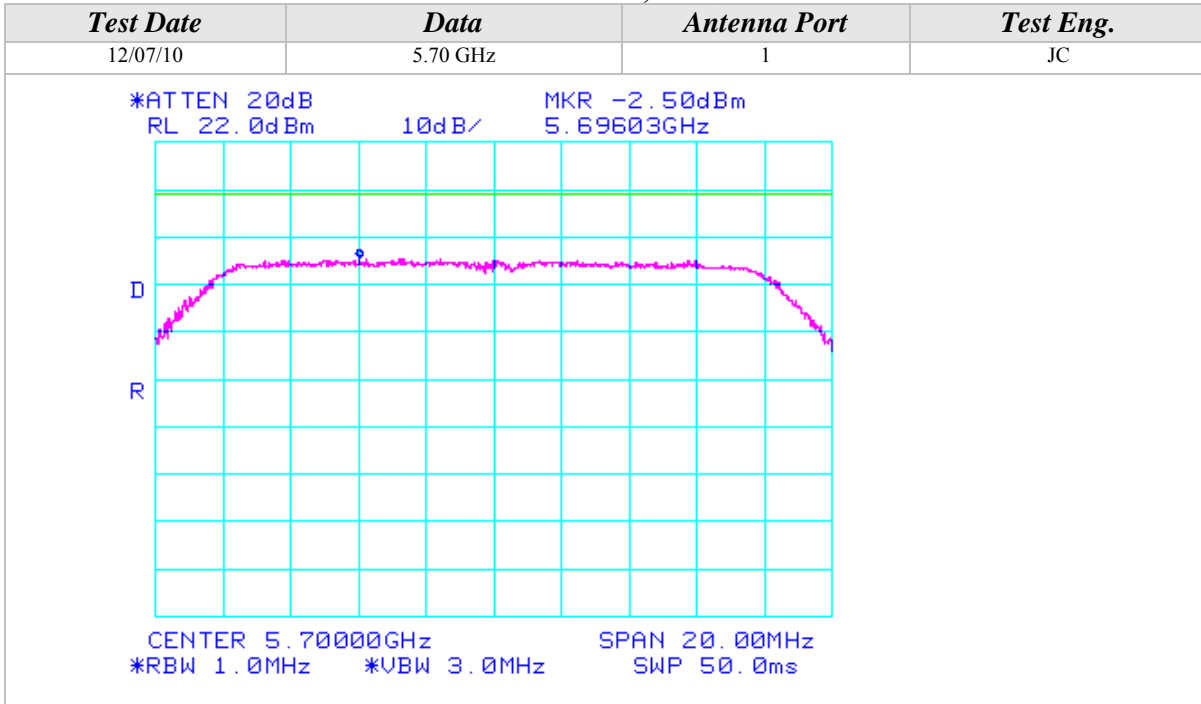
Peak Power Spectral Density (Continued)

802.11n Mode, 5GHz



Peak Power Spectral Density (Continued)

802.11n Mode, 5GHz





Peak Power Spectral Density (Continued)

802.11a Mode

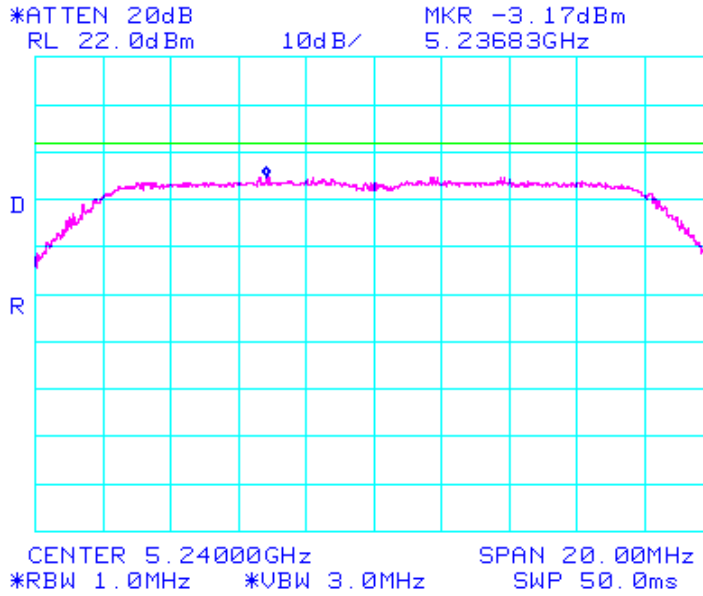
Test Date	Data	Antenna Port	Test Eng.
12/07/10	5.18 GHz	2	JC
<p>*ATTEN 20dB MKR -3.67dBm RL 22.0dBm 10dB/ 5.17877GHz</p> <p>CENTER 5.18000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms</p>			
Test Date	Data	Antenna Port	Test Eng.
12/07/10	5.20 GHz	2	JC
<p>*ATTEN 20dB MKR -3.17dBm RL 22.0dBm 10dB/ 5.19757GHz</p> <p>CENTER 5.20000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms</p>			



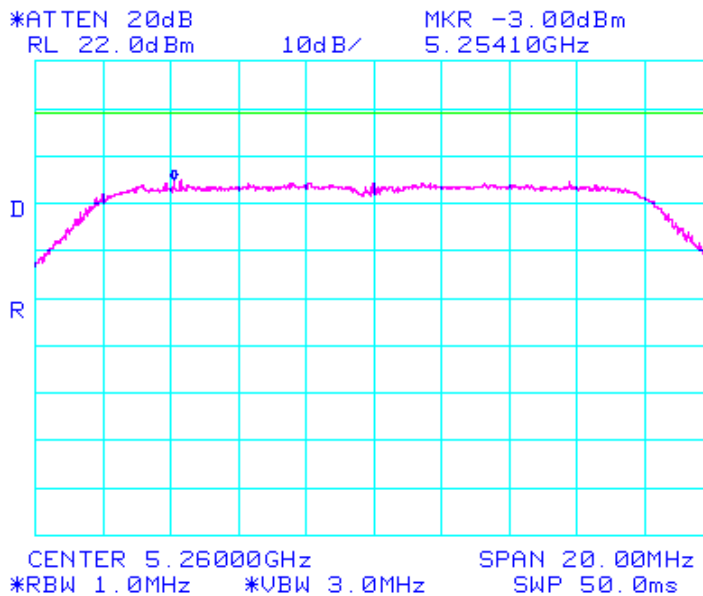
Peak Power Spectral Density (Continued)

802.11a Mode

<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/07/10	5.24 GHz	2	JC



<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/07/10	5.26 GHz	2	JC





Peak Power Spectral Density (Continued)

802.11a Mode

<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/07/10	5.28 GHz	2	JC
<div style="display: flex; justify-content: space-between; font-size: small;"> *ATTEN 20dB RL 22.0dBm 10dB/ MKR -3.00dBm 5.27743GHz </div> <div style="text-align: center;"> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> CENTER 5.28000GHz *RBW 1.0MHz SPAN 20.00MHz *VBW 3.0MHz SWP 50.0ms </div>			
<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/07/10	5.32 GHz	2	JC
<div style="display: flex; justify-content: space-between; font-size: small;"> *ATTEN 20dB RL 22.0dBm 10dB/ MKR -2.17dBm 5.31993GHz </div> <div style="text-align: center;"> </div> <div style="display: flex; justify-content: space-between; font-size: small;"> CENTER 5.32000GHz *RBW 1.0MHz SPAN 20.00MHz *VBW 3.0MHz SWP 50.0ms </div>			

Peak Power Spectral Density (Continued)

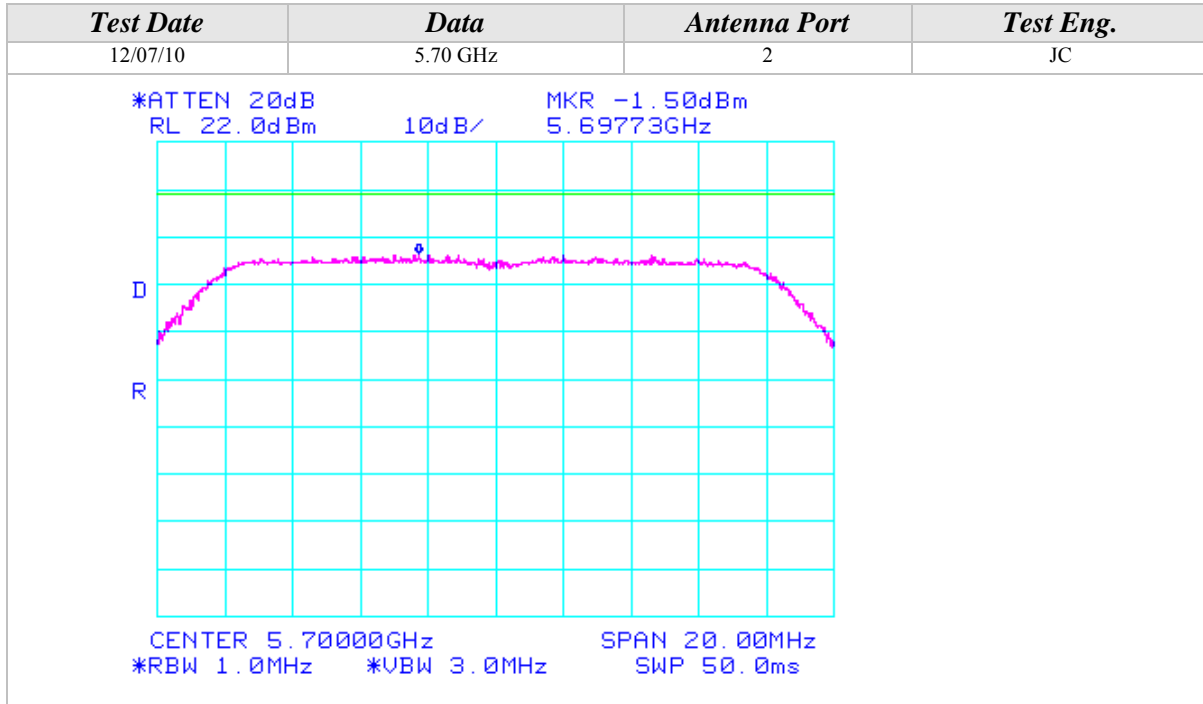
802.11a Mode

Test Date	Data	Antenna Port	Test Eng.
12/07/10	5.50 GHz	2	JC
<p> *ATTEN 20dB MKR -3.50dBm RL 22.0dBm 10dB/ 5.50507GHz </p> <p> CENTER 5.50000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms </p>			
Test Date	Data	Antenna Port	Test Eng.
12/07/10	5.60 GHz	2	JC
<p> *ATTEN 20dB MKR -1.17dBm RL 22.0dBm 10dB/ 5.59920GHz </p> <p> CENTER 5.60000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms </p>			



Peak Power Spectral Density (Continued)

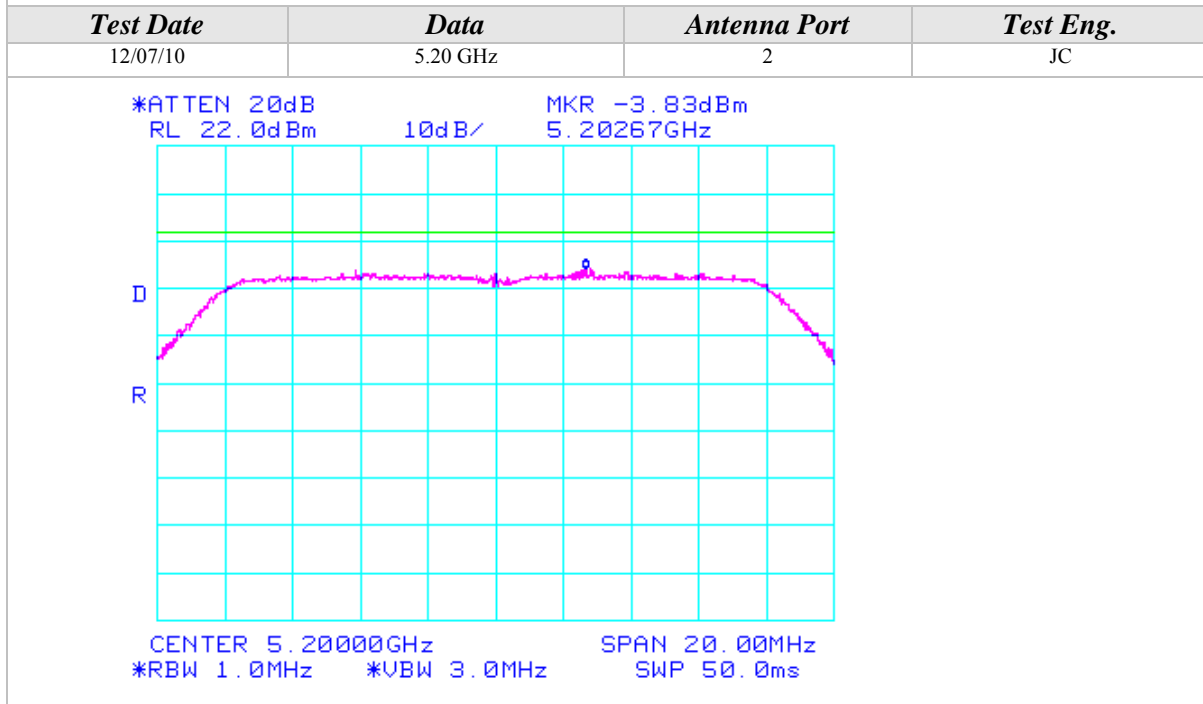
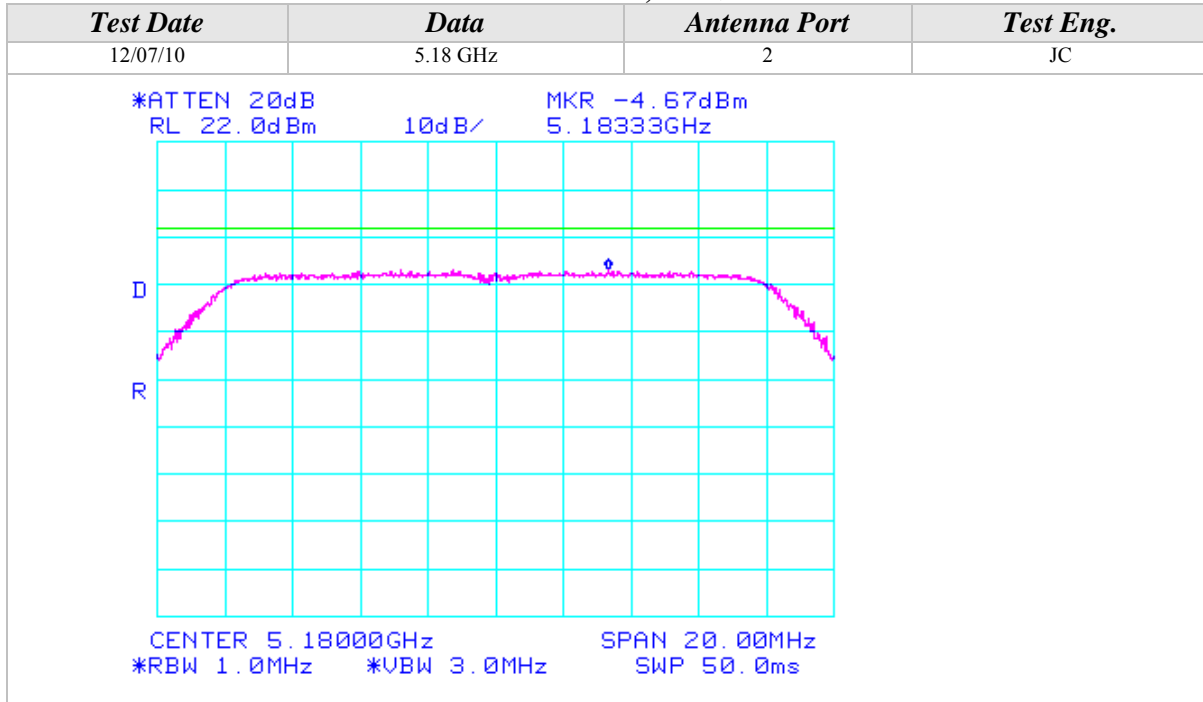
802.11a Mode





Peak Power Spectral Density (Continued)

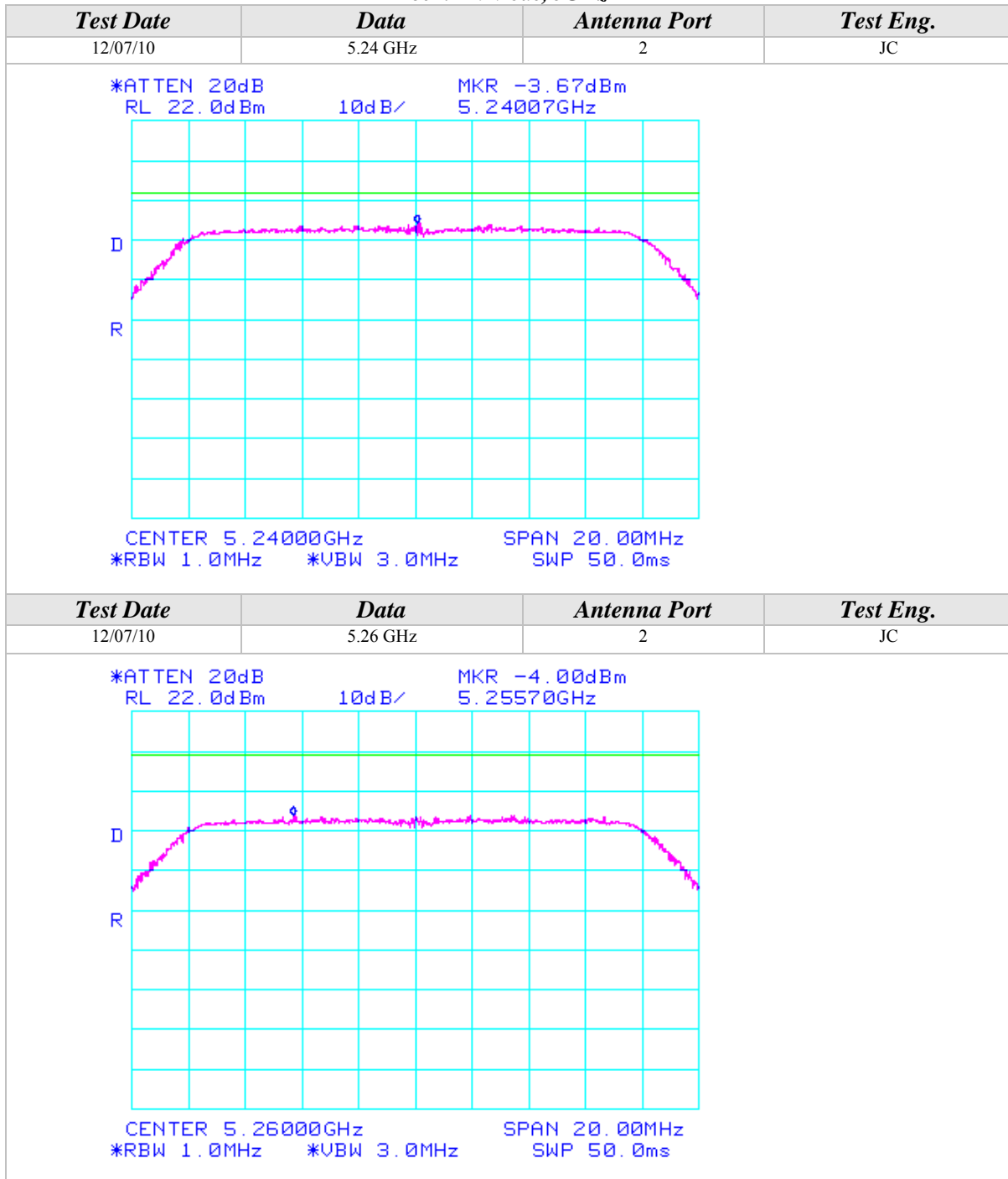
802.11n Mode, 5GHz





Peak Power Spectral Density (Continued)

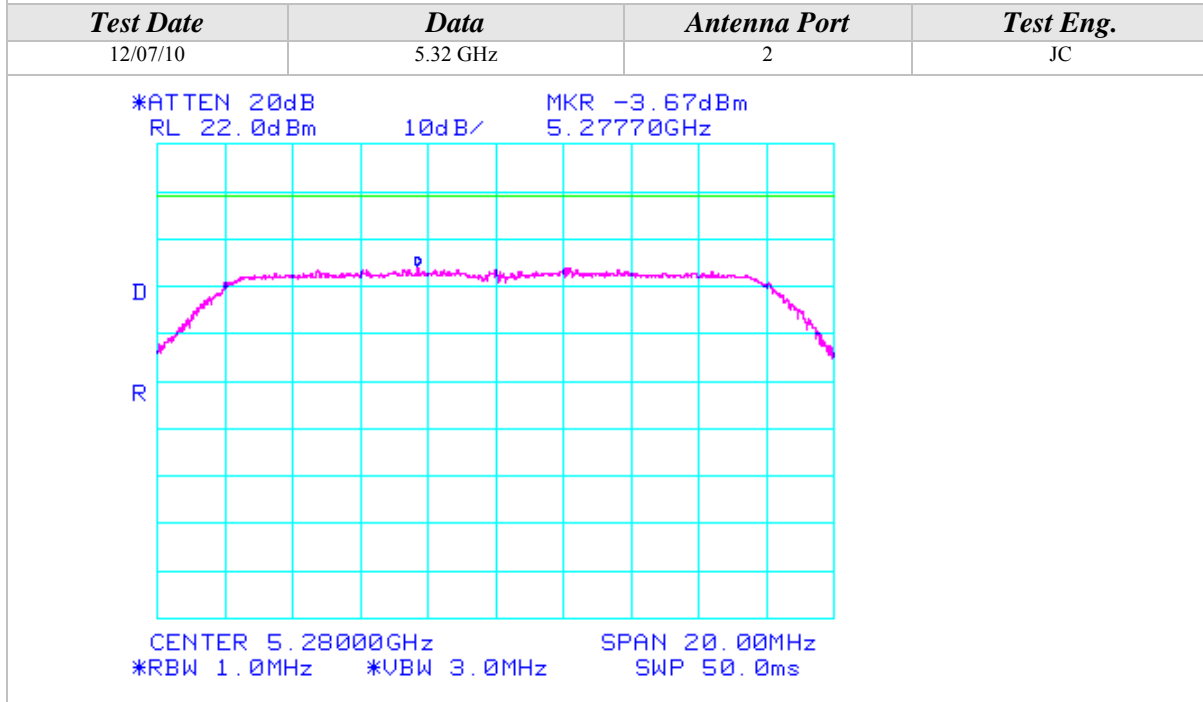
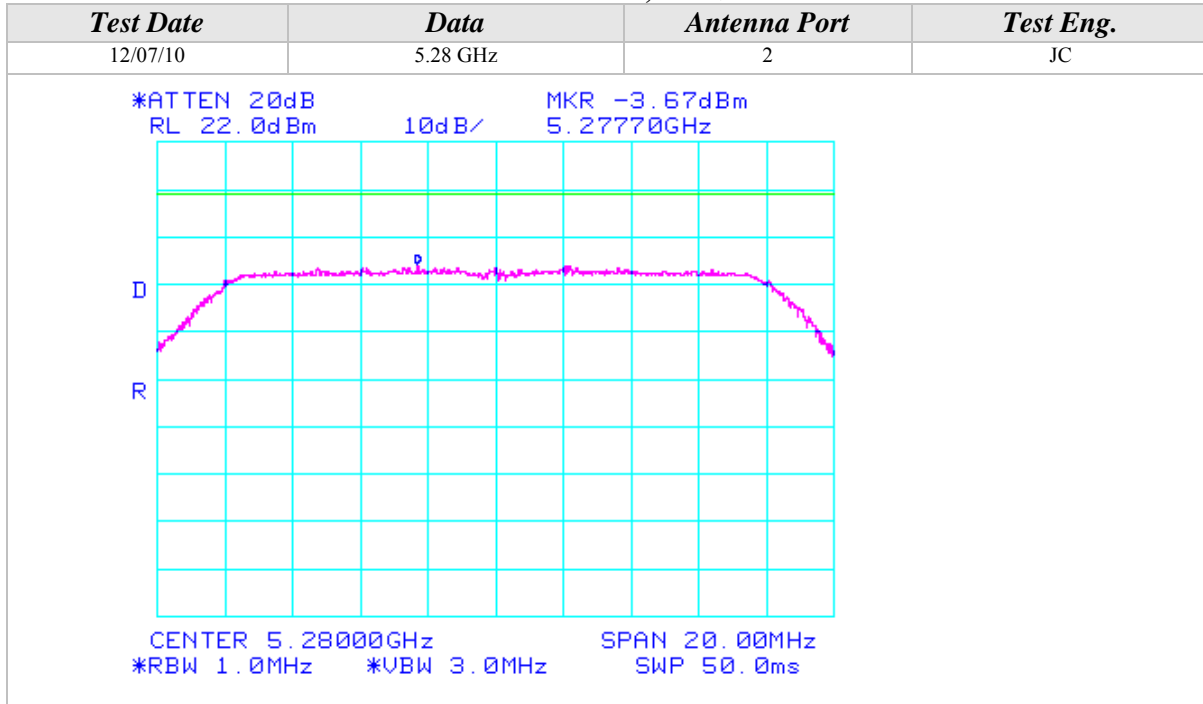
802.11n Mode, 5GHz





Peak Power Spectral Density (Continued)

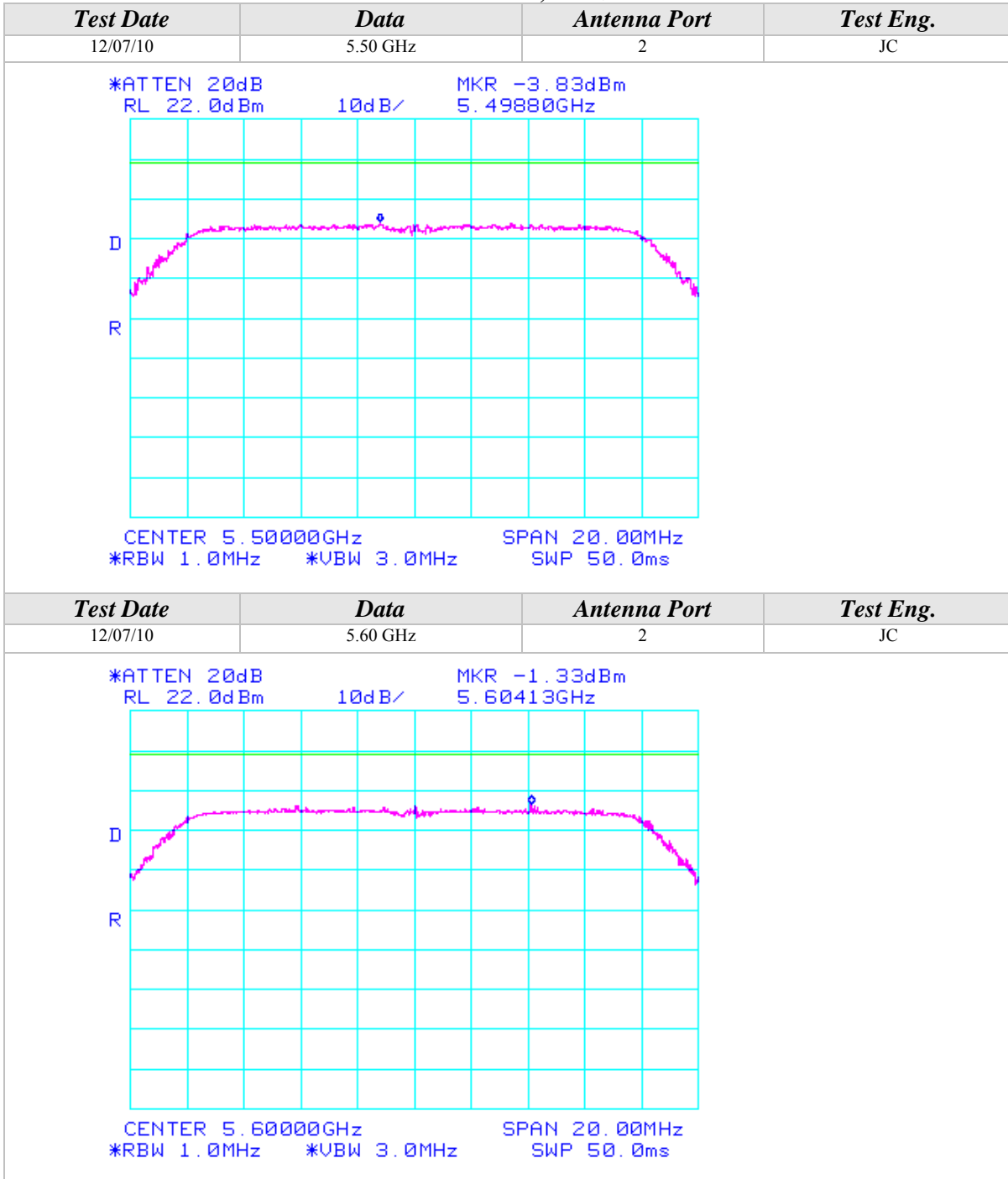
802.11n Mode, 5GHz





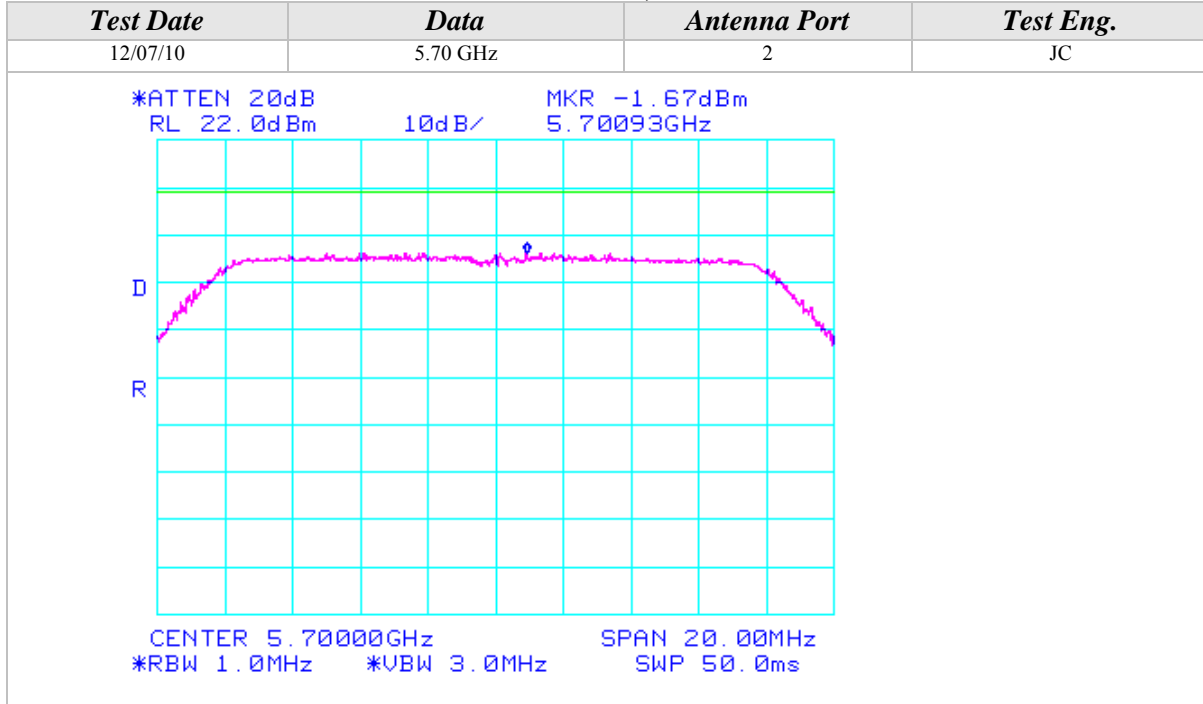
Peak Power Spectral Density (Continued)

802.11n Mode, 5GHz



Peak Power Spectral Density (Continued)

802.11n Mode, 5GHz



**PEAK EXCURSION**

CLIENT:	Lantronix	DATE:	12/03/10
EUT:	Wireless Device Server	PROJECT NUMBER:	LANTR-101028
MODEL NUMBER:	PremierWave EN	TEST ENGINEER:	JC
SERIAL NUMBER:	00:20:44:9D:2E:2F	SITE #:	1
CONFIGURATION:	Tested installed in an evaluation board connected to the host PC via USB port	TEMPERATURE:	21 deg. C
		HUMIDITY:	30% RH
		TIME:	12:00 PM

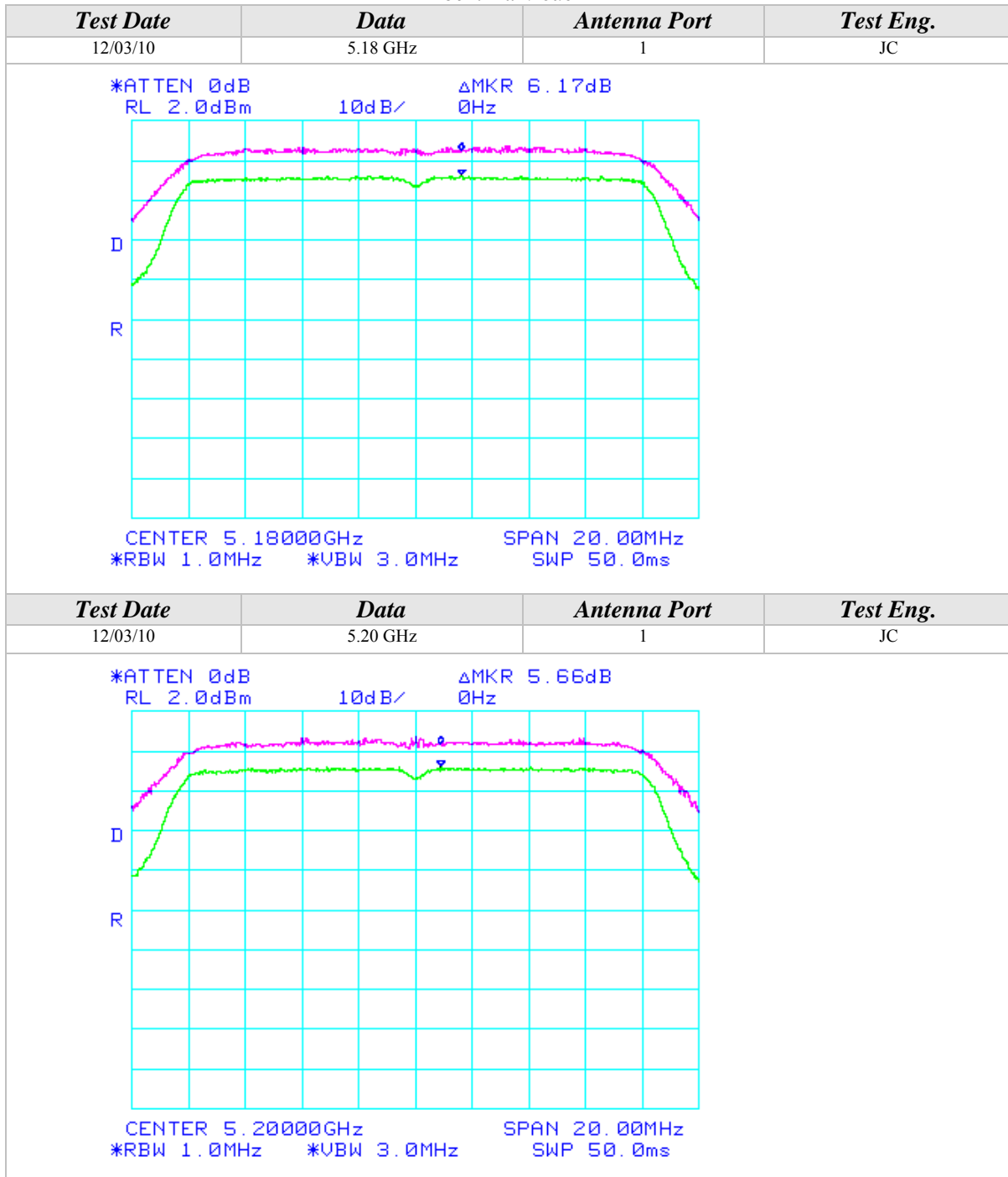
Description:	The ratio of the peak excursion of the modulation envelope to the peak transmit power shall not exceed 13dB across any 1 MHz bandwidth or the emissions bandwidth whichever is less.
Results:	See Data Sheet
Note:	Conducted Emissions Measurements were performed on the EUT with power supply set at the following voltage and frequency. <ul style="list-style-type: none">• 120VAC / 60 Hz.

Peak Power Spectral Density Limits	
Frequency (MHz)	Limit (dBm)
5150-5350	13
5470-5725	13



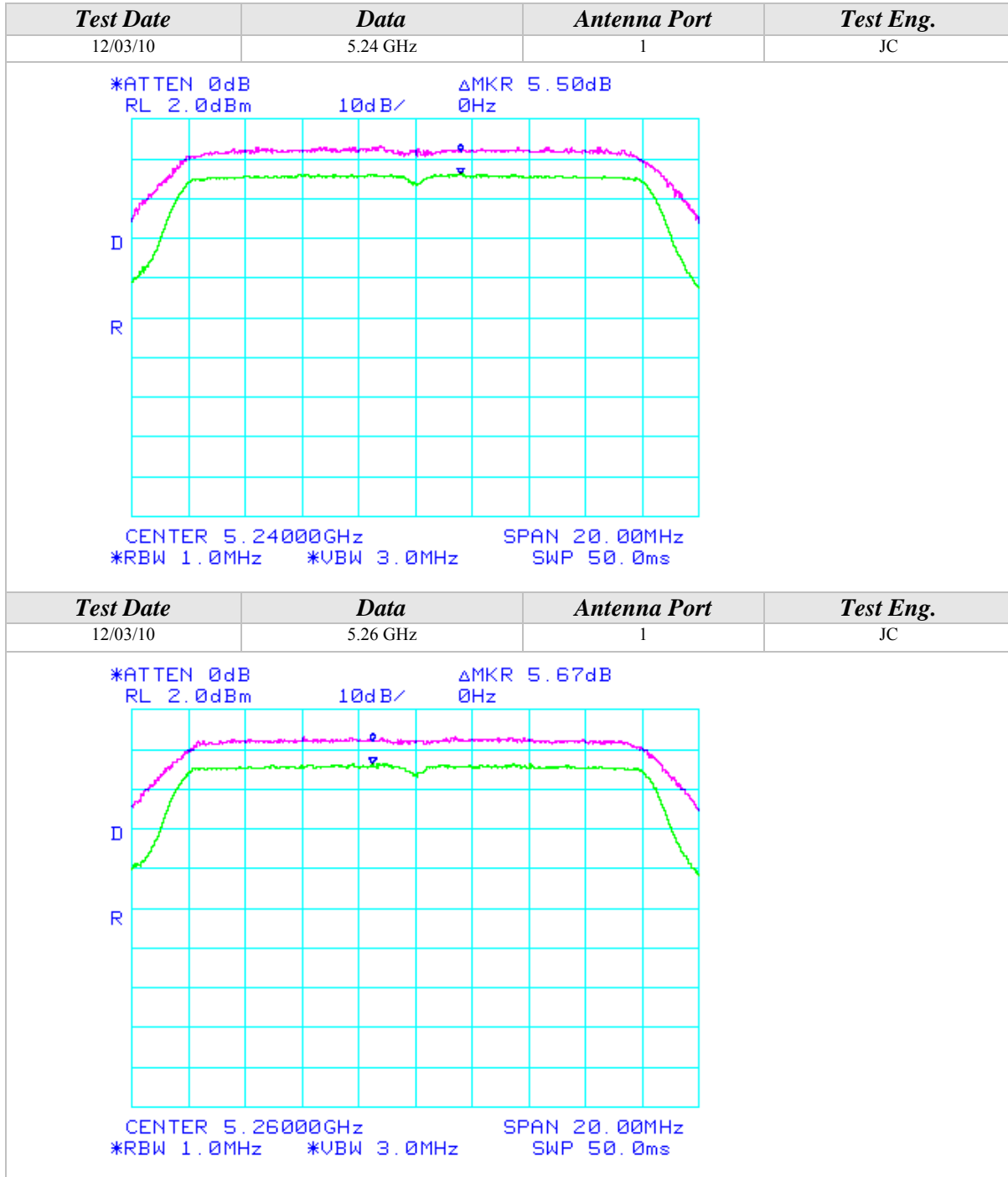
Peak Excursion (Continued)

802.11a Mode



Peak Excursion (Continued)

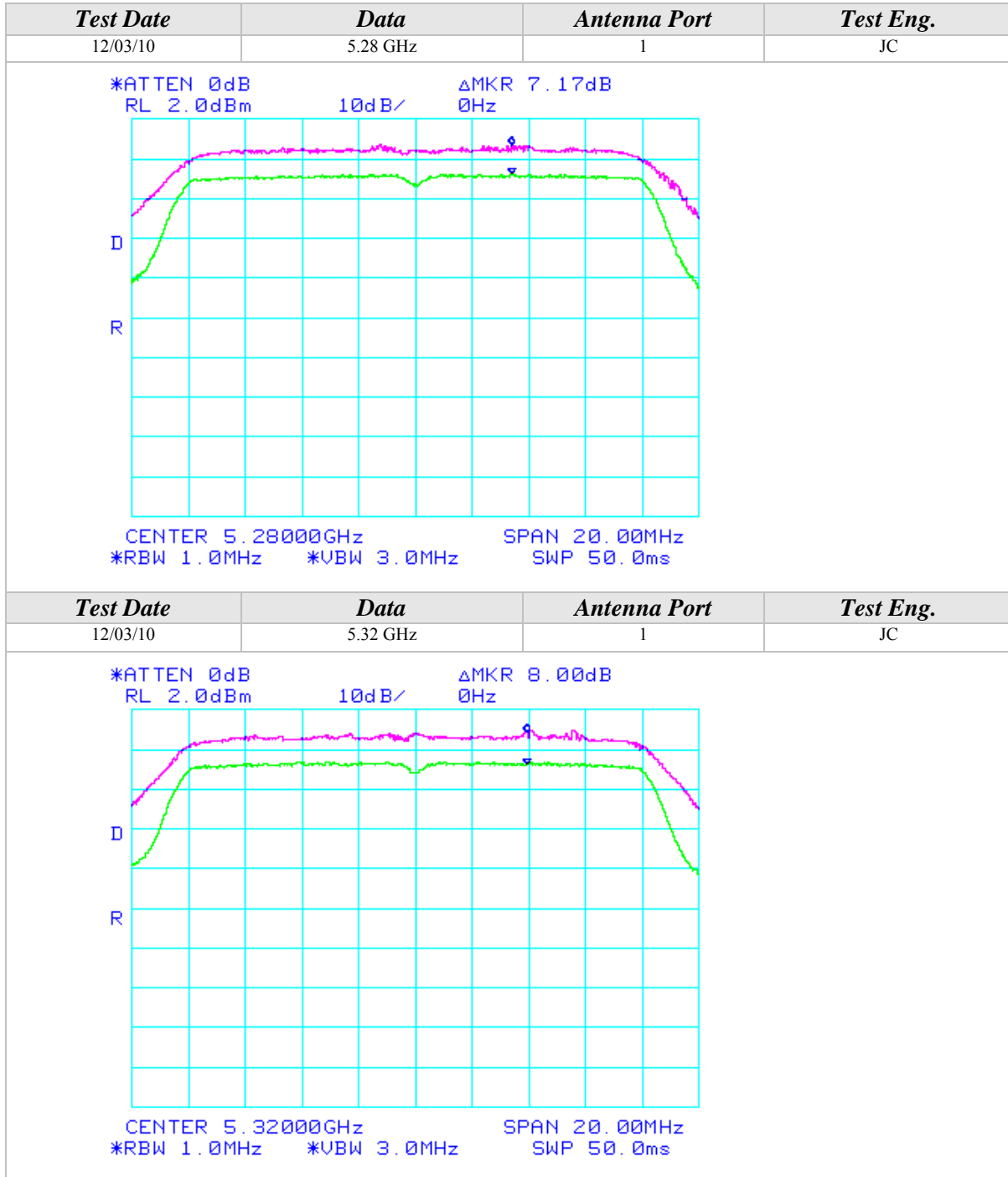
802.11a Mode





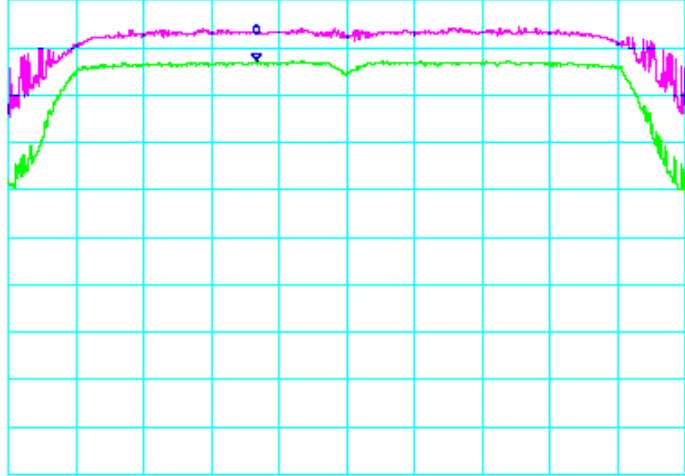
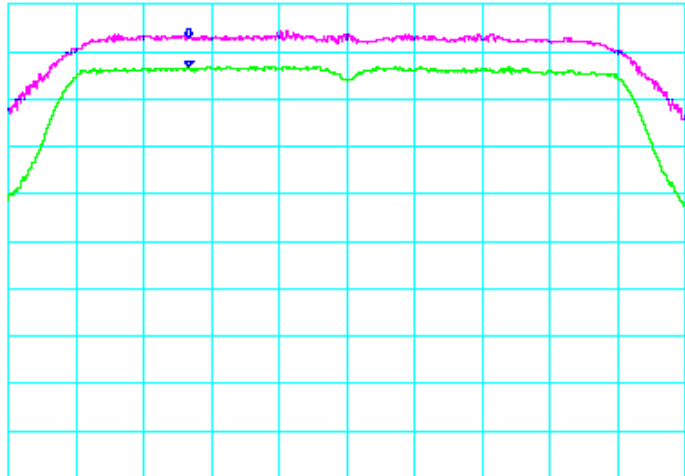
Peak Excursion (Continued)

802.11a Mode



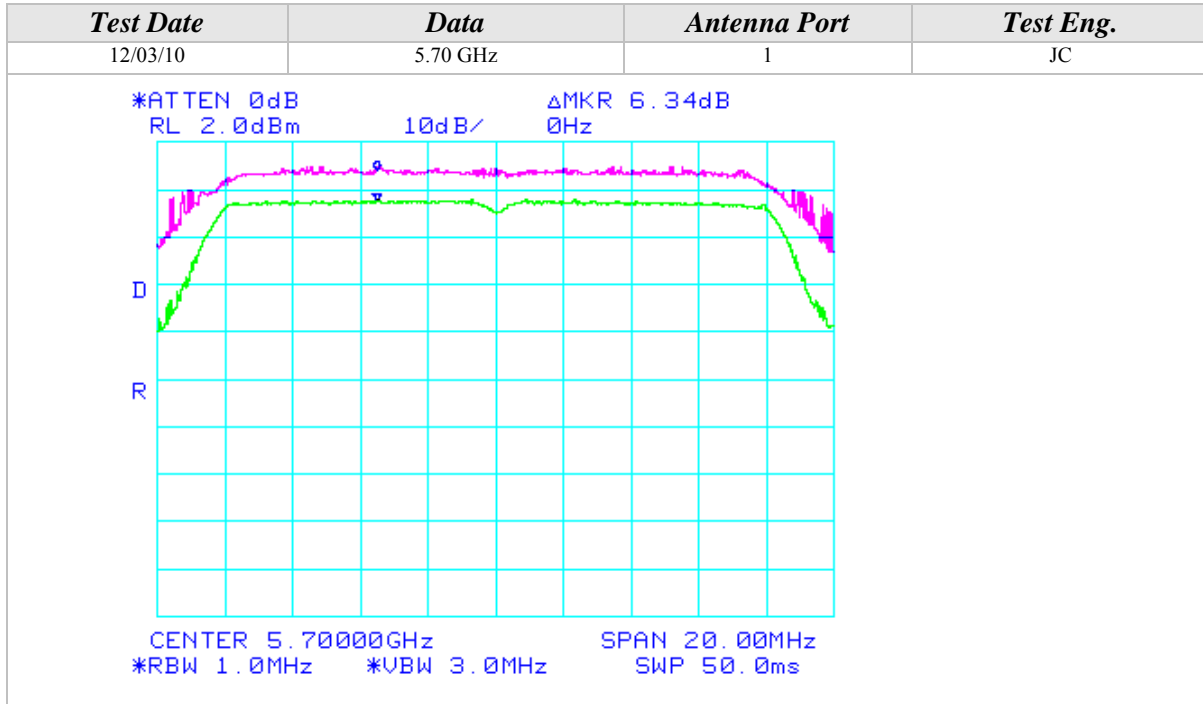
Peak Excursion (Continued)

802.11a Mode

Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.50 GHz	1	JC
<div data-bbox="334 411 933 459"> <p>*ATTEN 0dB ΔMKR 5.50dB RL 2.0dBm 10dB/ 0Hz</p> </div>  <div data-bbox="334 945 1019 993"> <p>CENTER 5.50000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms</p> </div>			
Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.60 GHz	1	JC
<div data-bbox="334 1108 933 1157"> <p>*ATTEN 0dB ΔMKR 6.00dB RL 2.0dBm 10dB/ 0Hz</p> </div>  <div data-bbox="334 1640 1019 1688"> <p>CENTER 5.60000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms</p> </div>			

Peak Excursion (Continued)

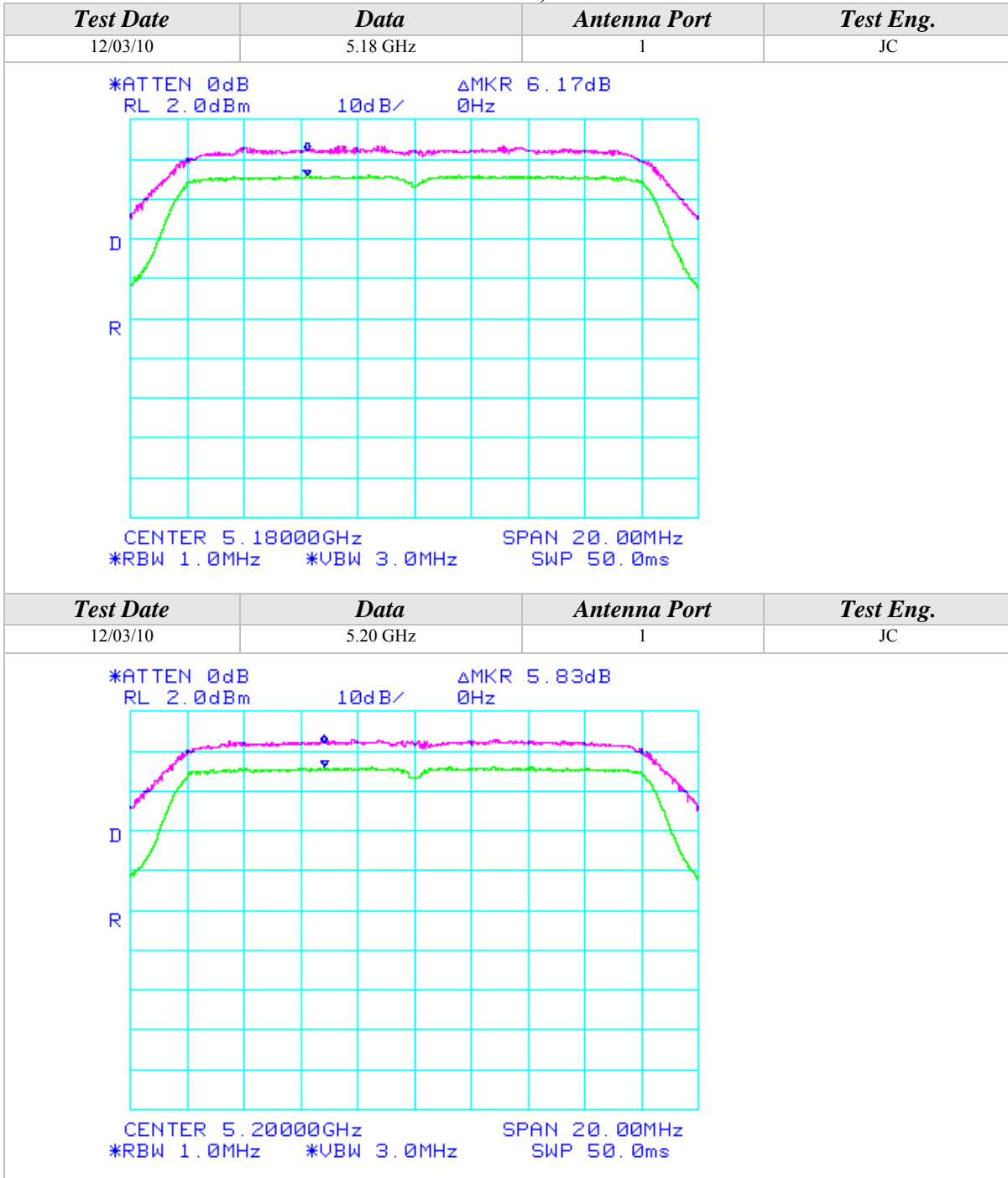
802.11a Mode





Peak Excursion (Continued)

802.11n Mode, 5GHz

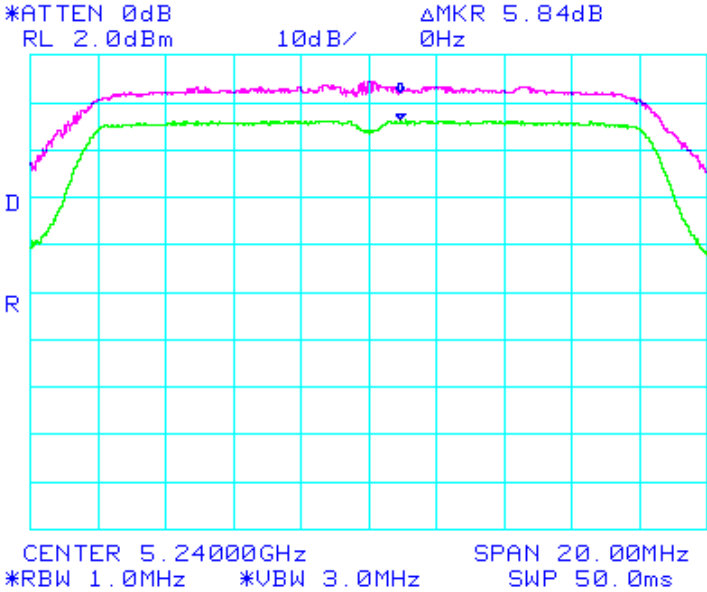




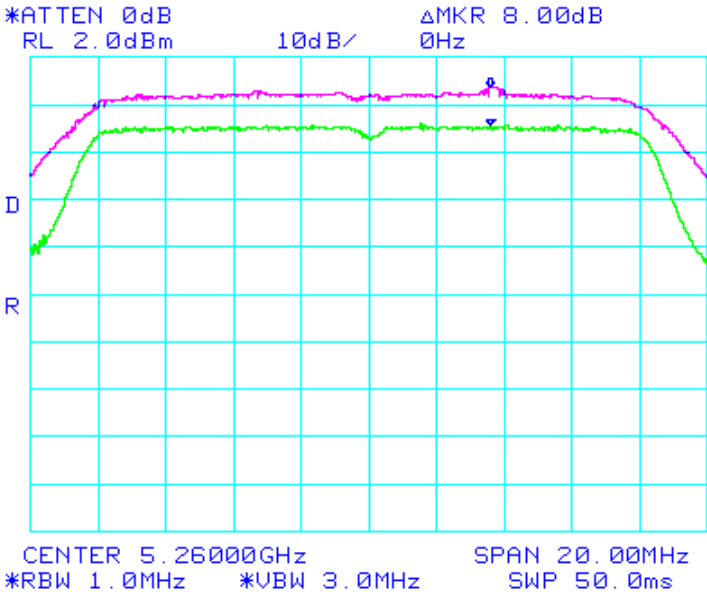
Peak Excursion (Continued)

802.11n Mode, 5GHz

Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.24 GHz	1	JC



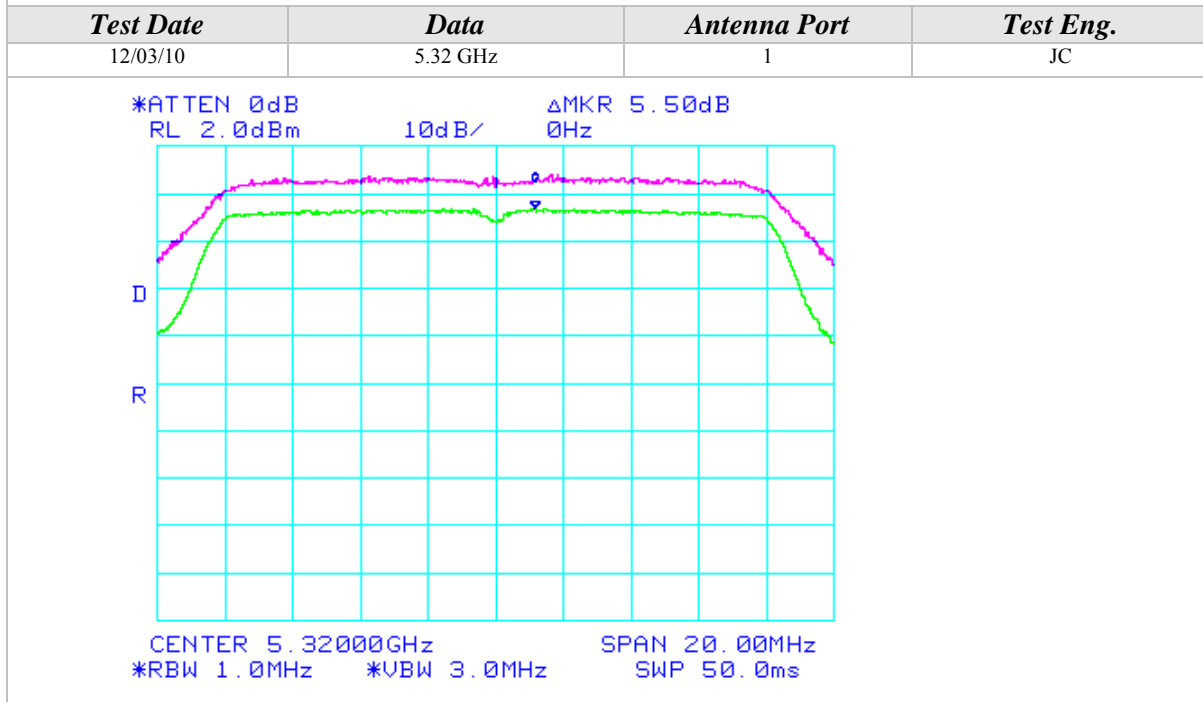
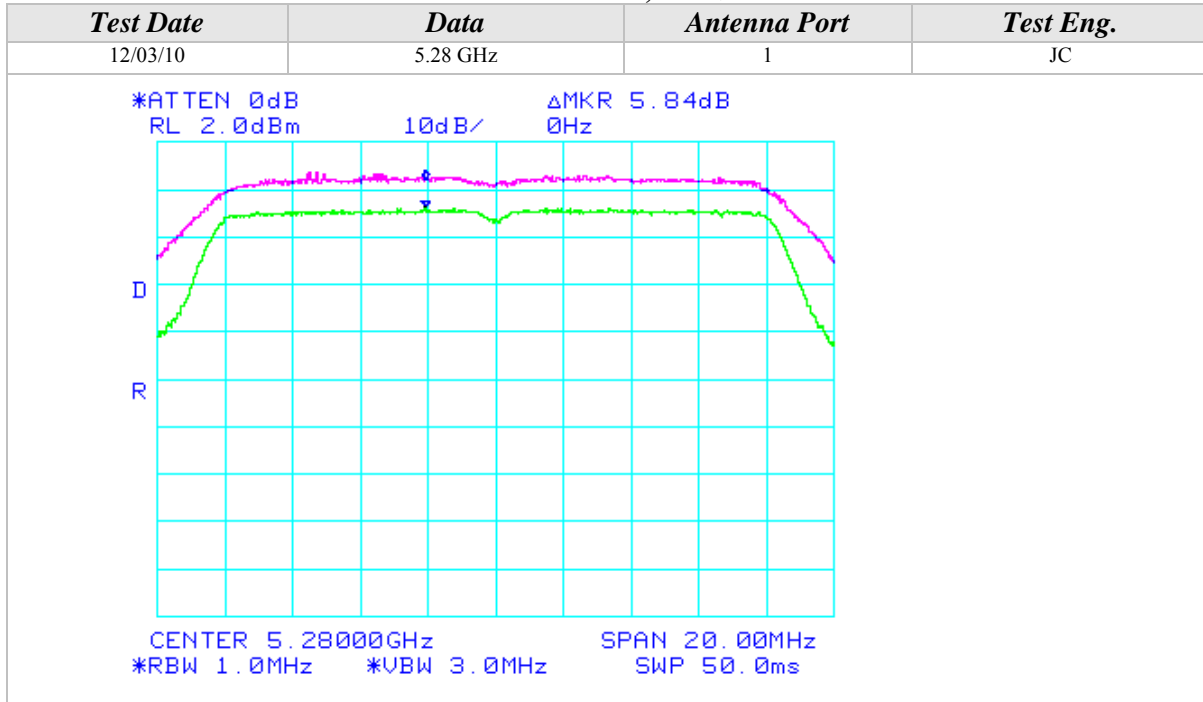
Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.26 GHz	1	JC





Peak Excursion (Continued)

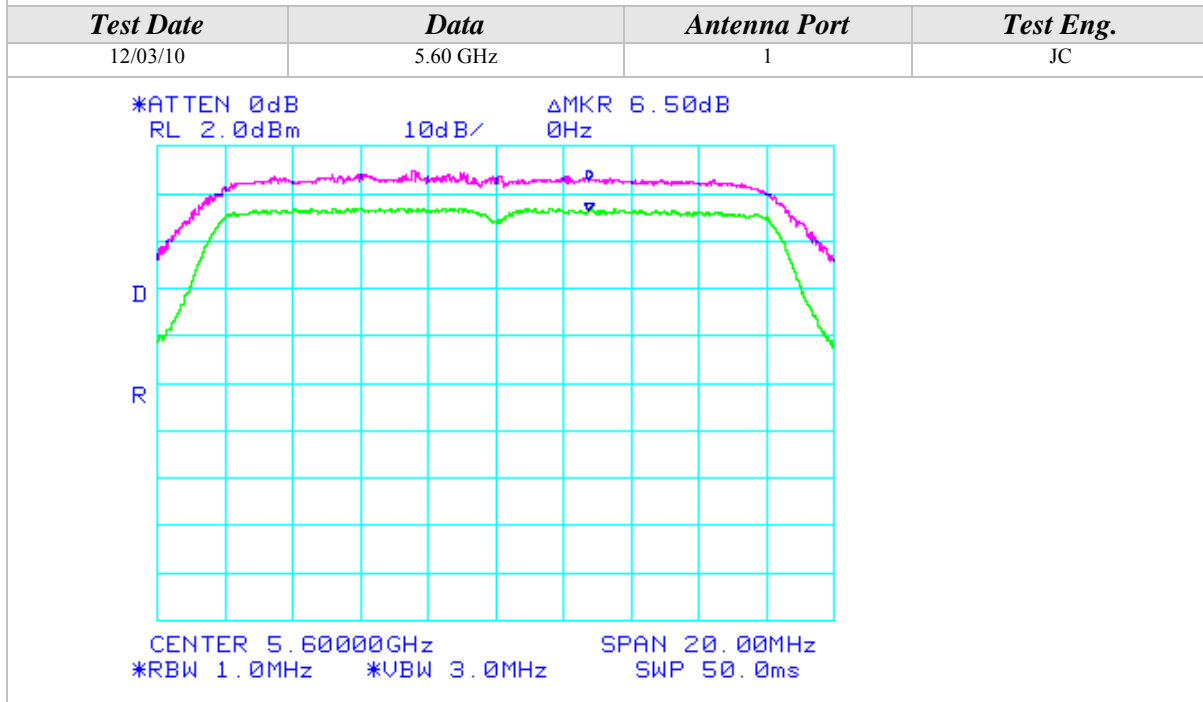
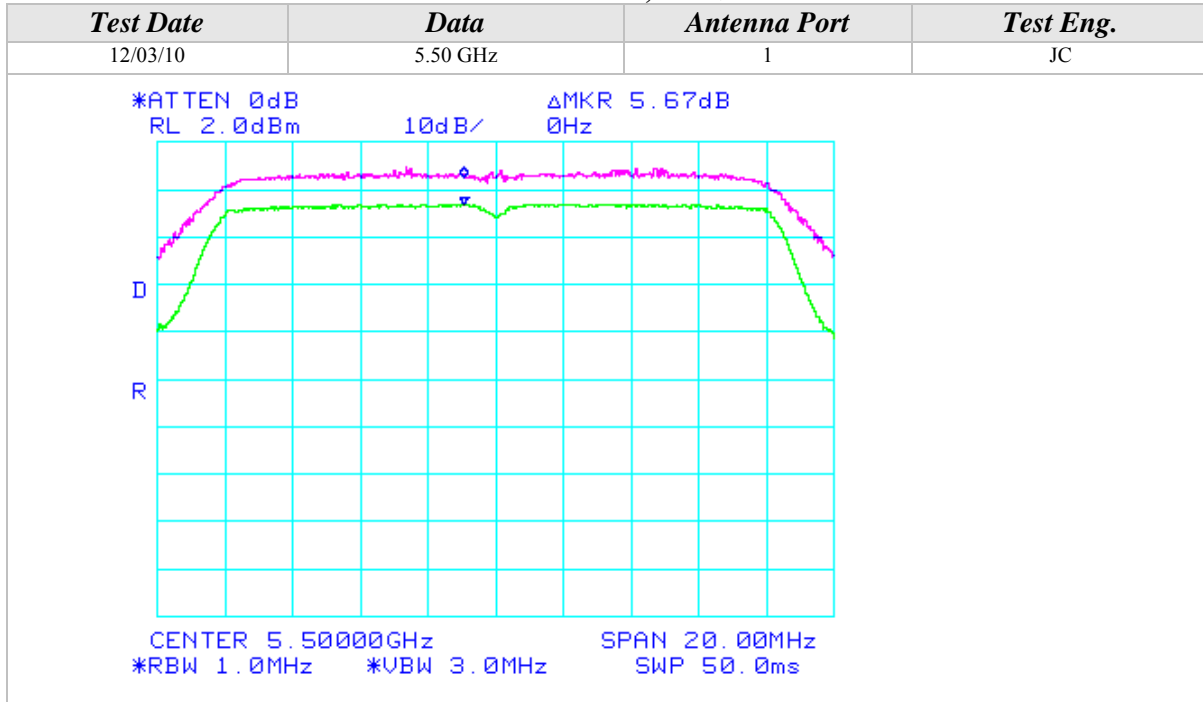
802.11n Mode, 5GHz





Peak Excursion (Continued)

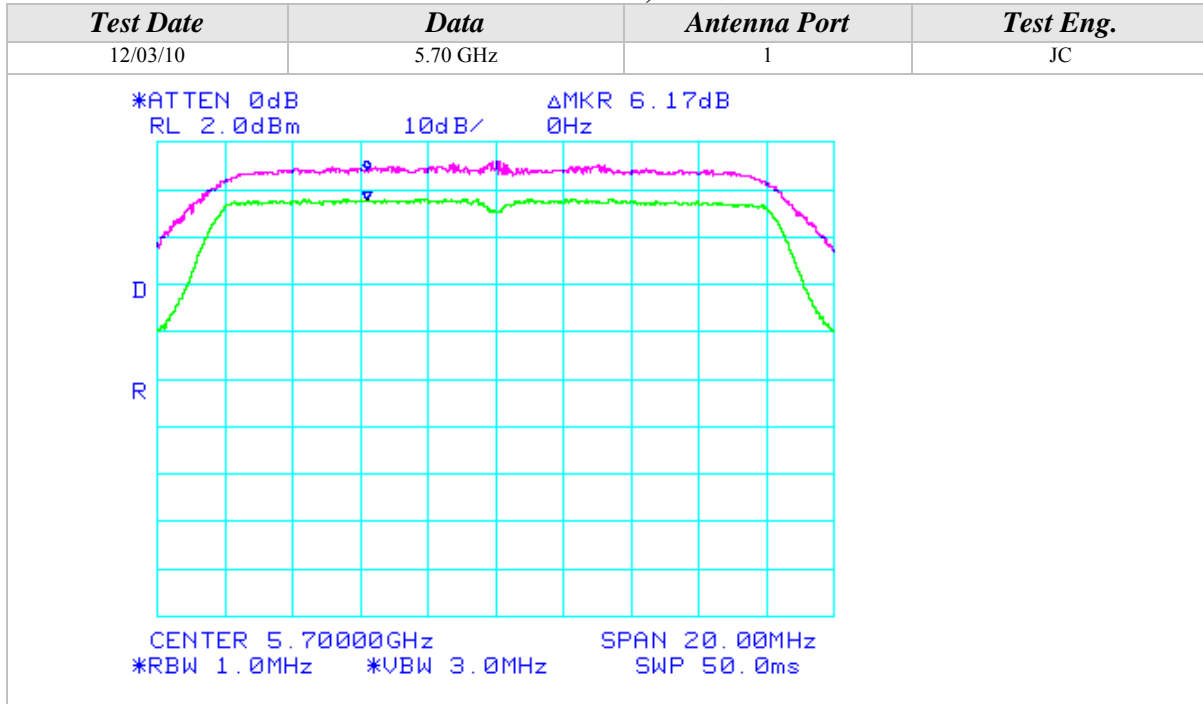
802.11n Mode, 5GHz





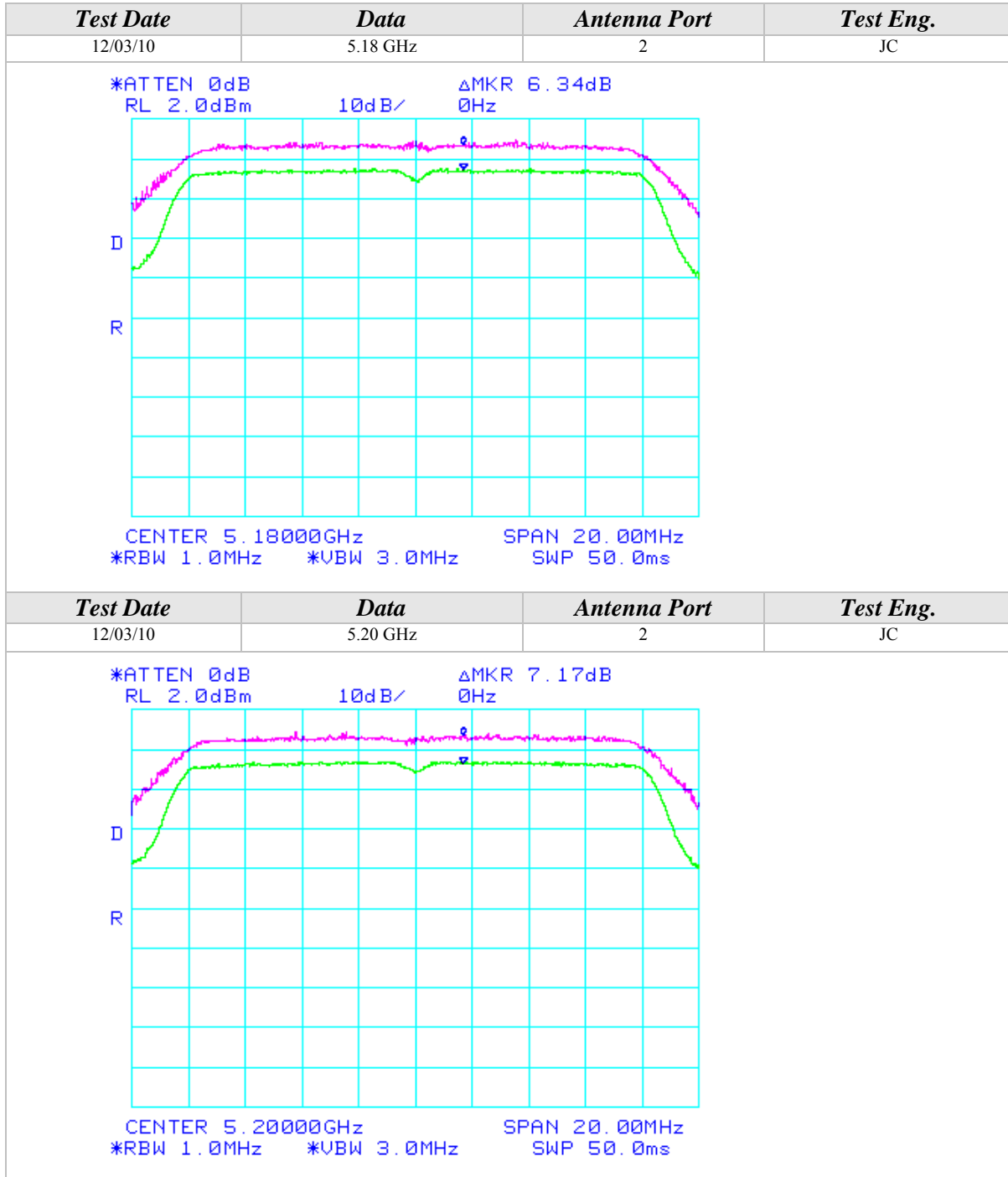
Peak Excursion (Continued)

802.11n Mode, 5GHz



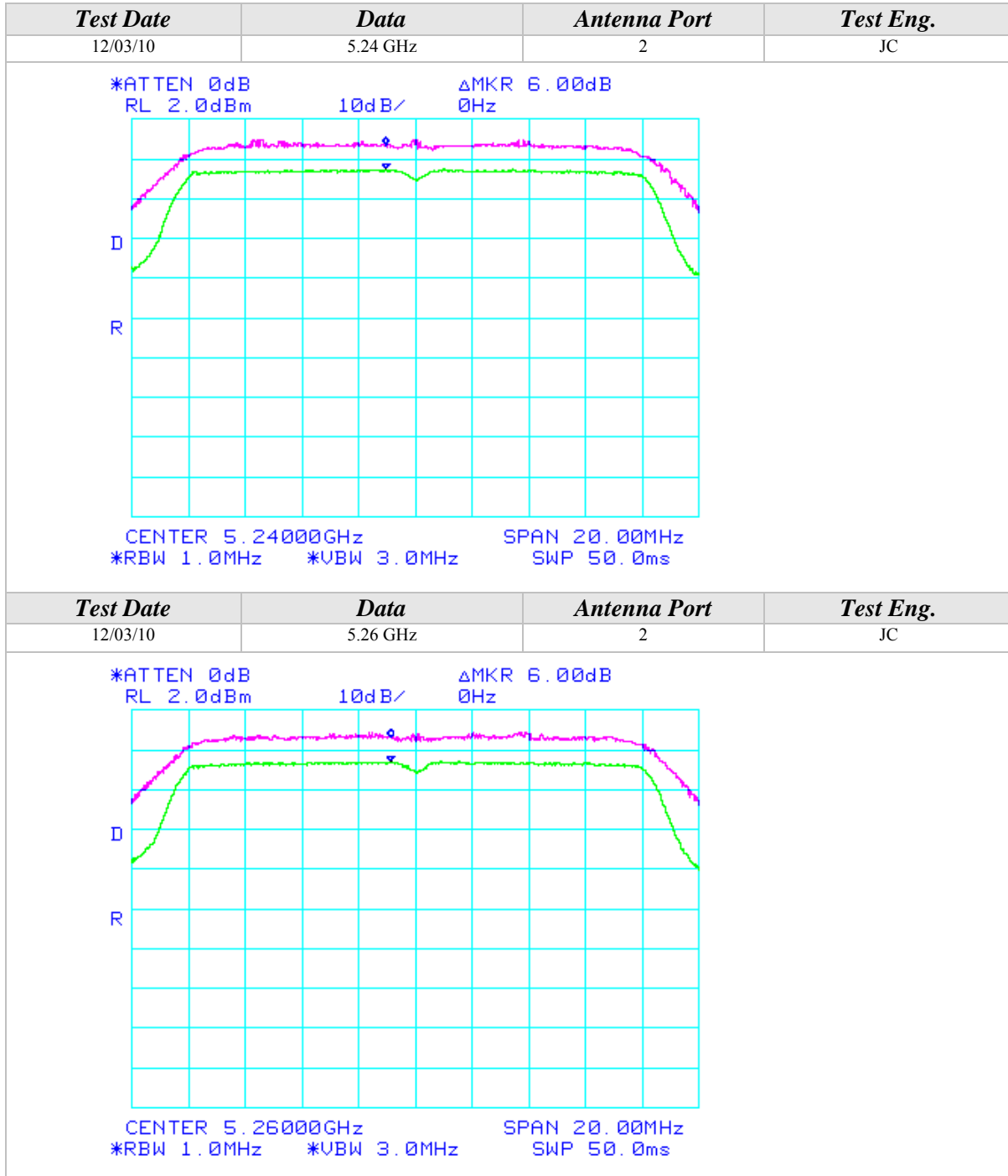
Peak Excursion (Continued)

802.11a Mode



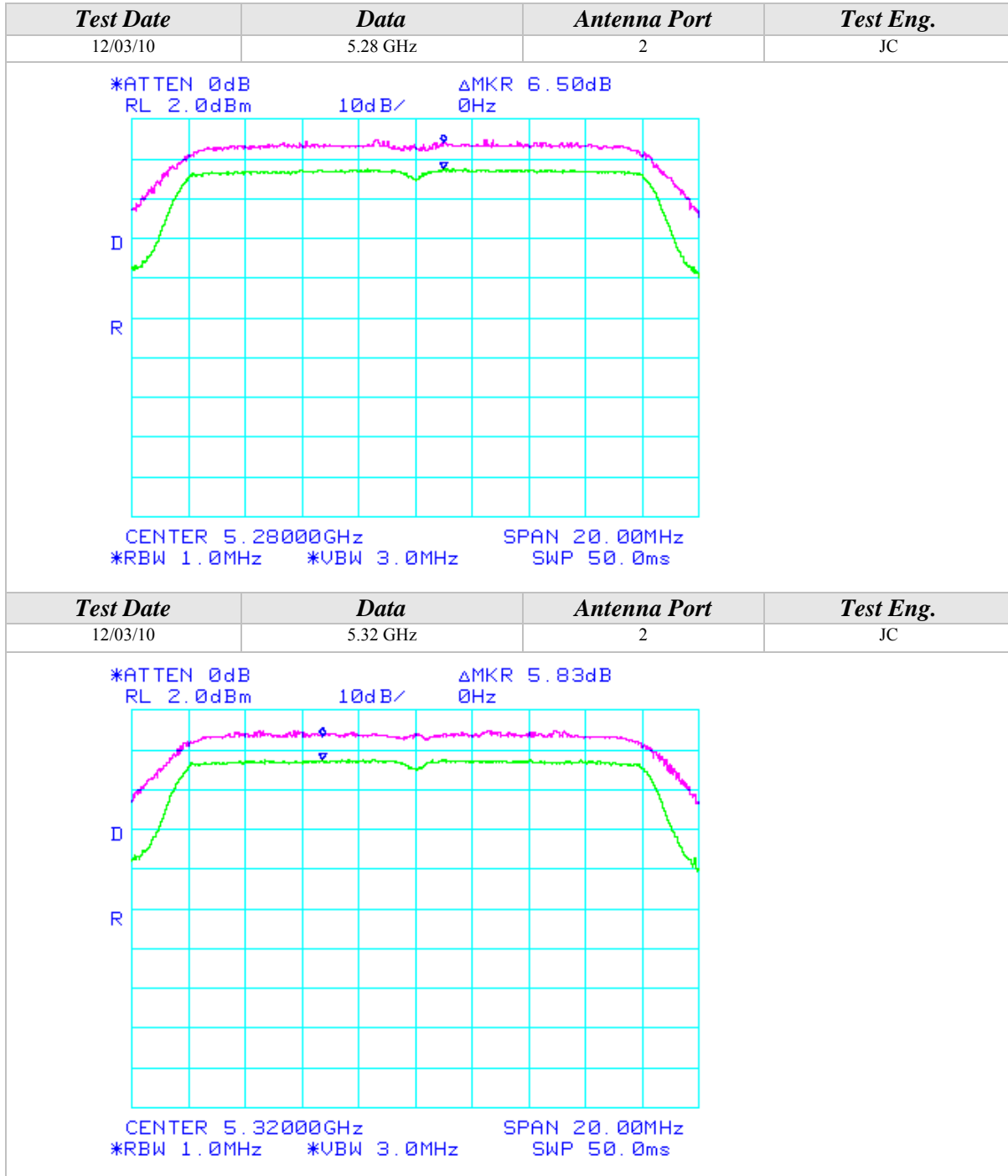
Peak Excursion (Continued)

802.11a Mode



Peak Excursion (Continued)

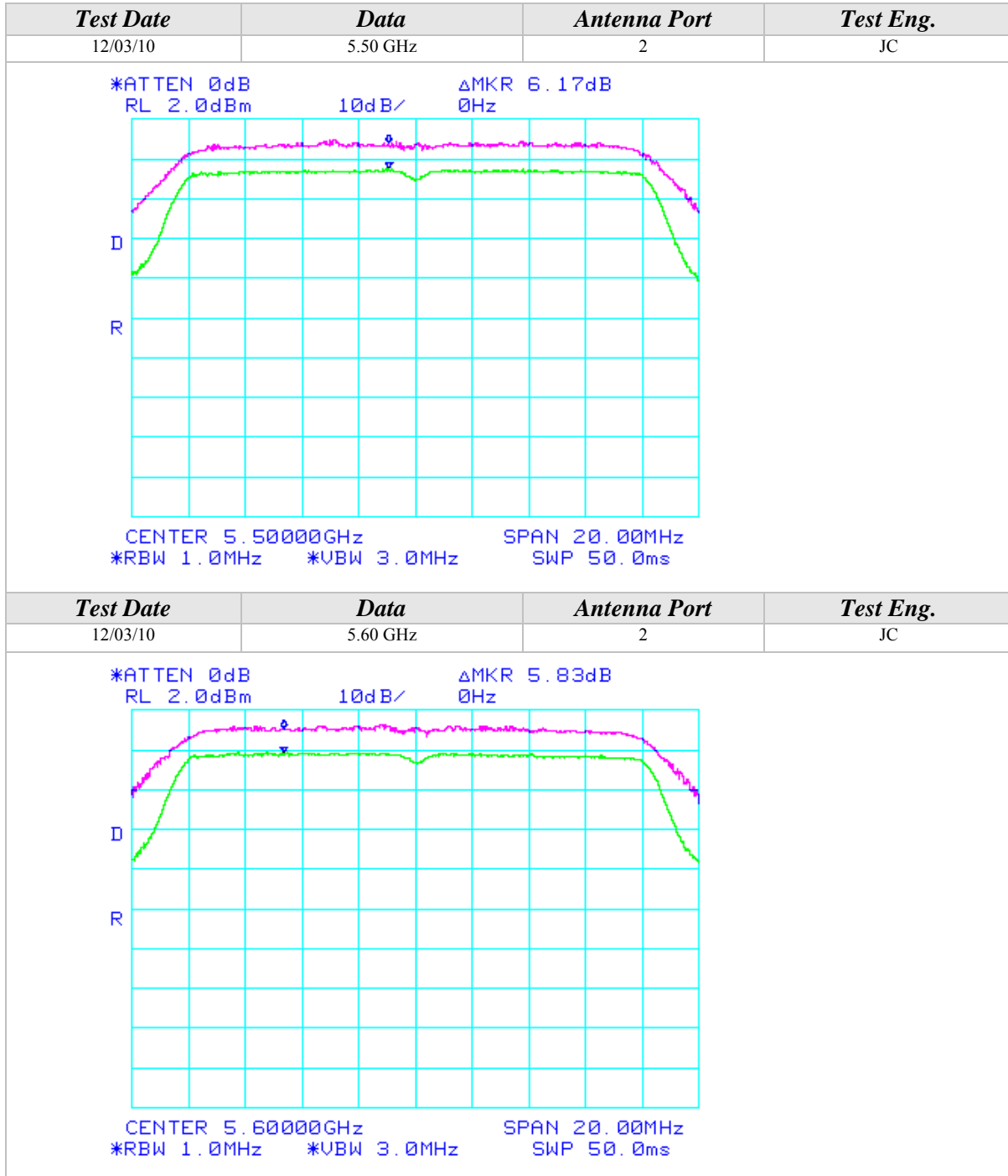
802.11a Mode





Peak Excursion (Continued)

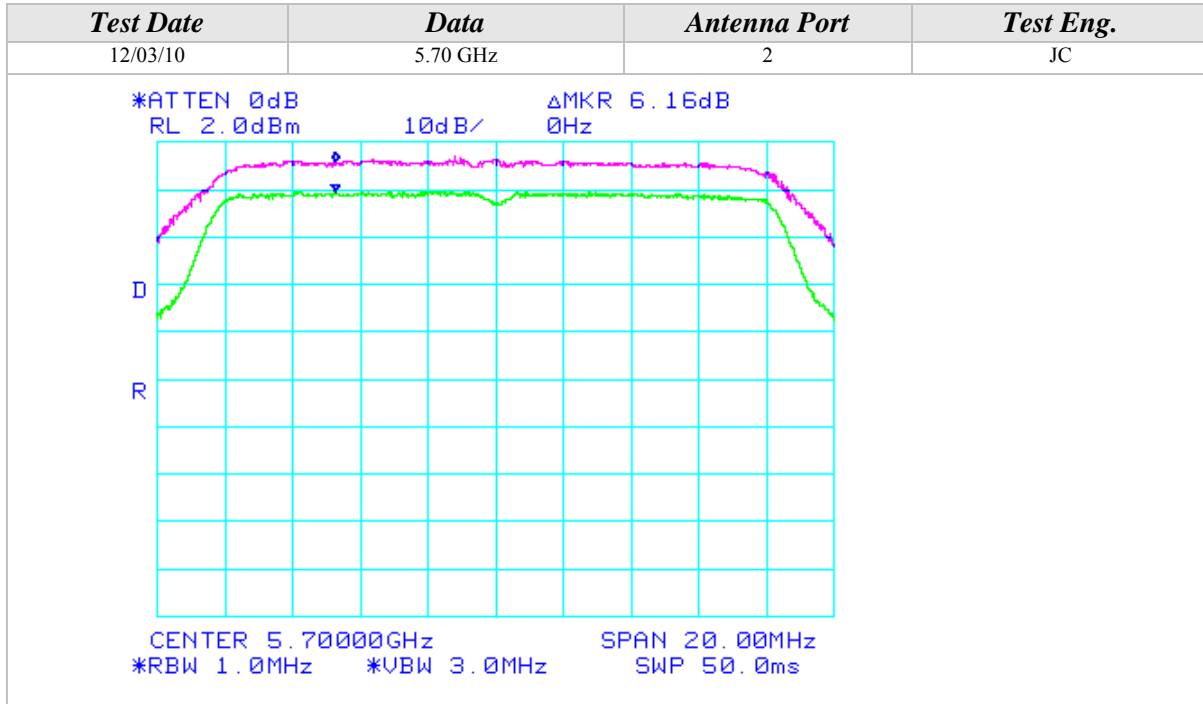
802.11a Mode





Peak Excursion (Continued)

802.11a Mode

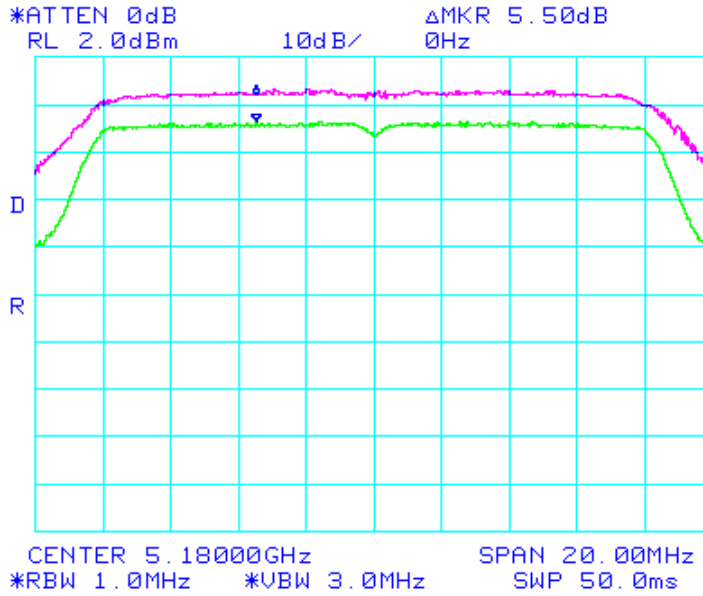




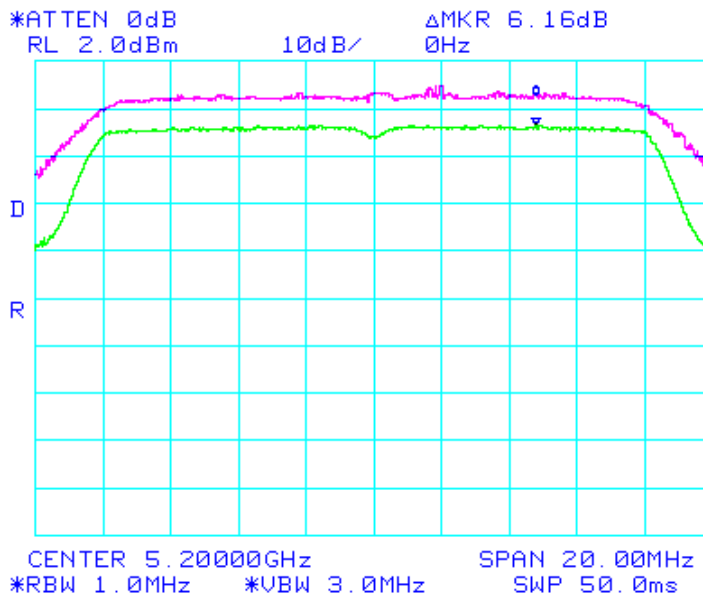
Peak Excursion (Continued)

802.11n Mode, 5GHz

<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/03/10	5.18 GHz	2	JC



<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/03/10	5.20 GHz	2	JC





Peak Excursion (Continued)

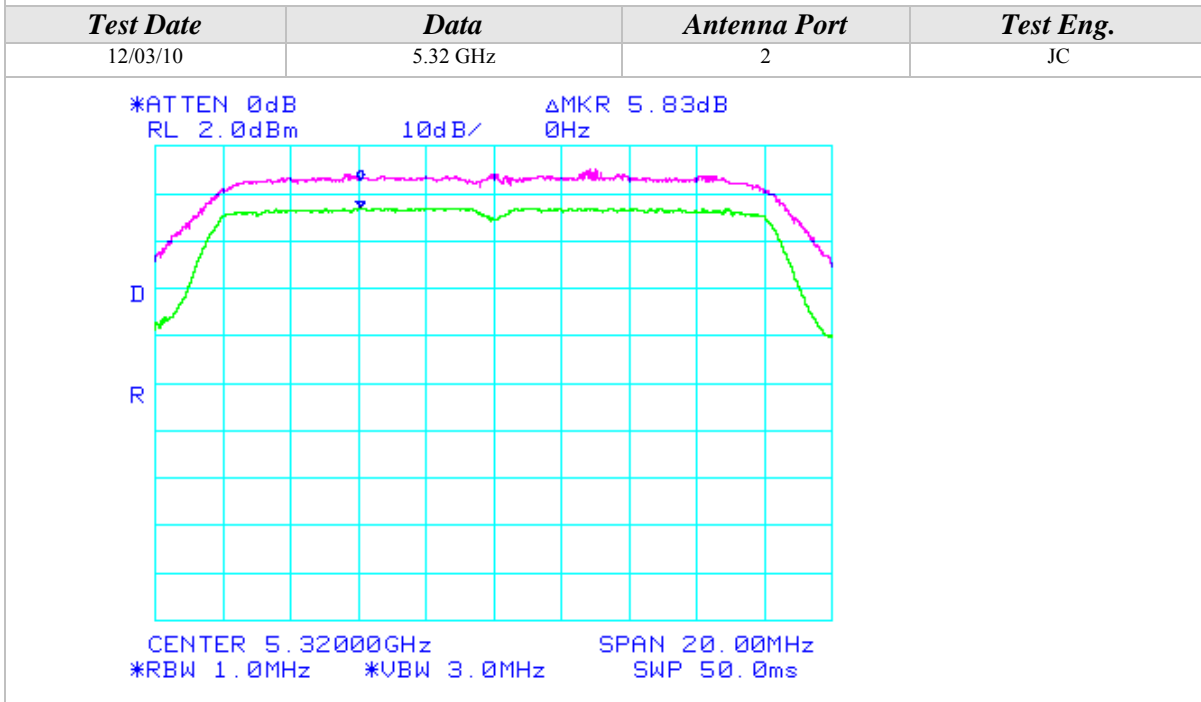
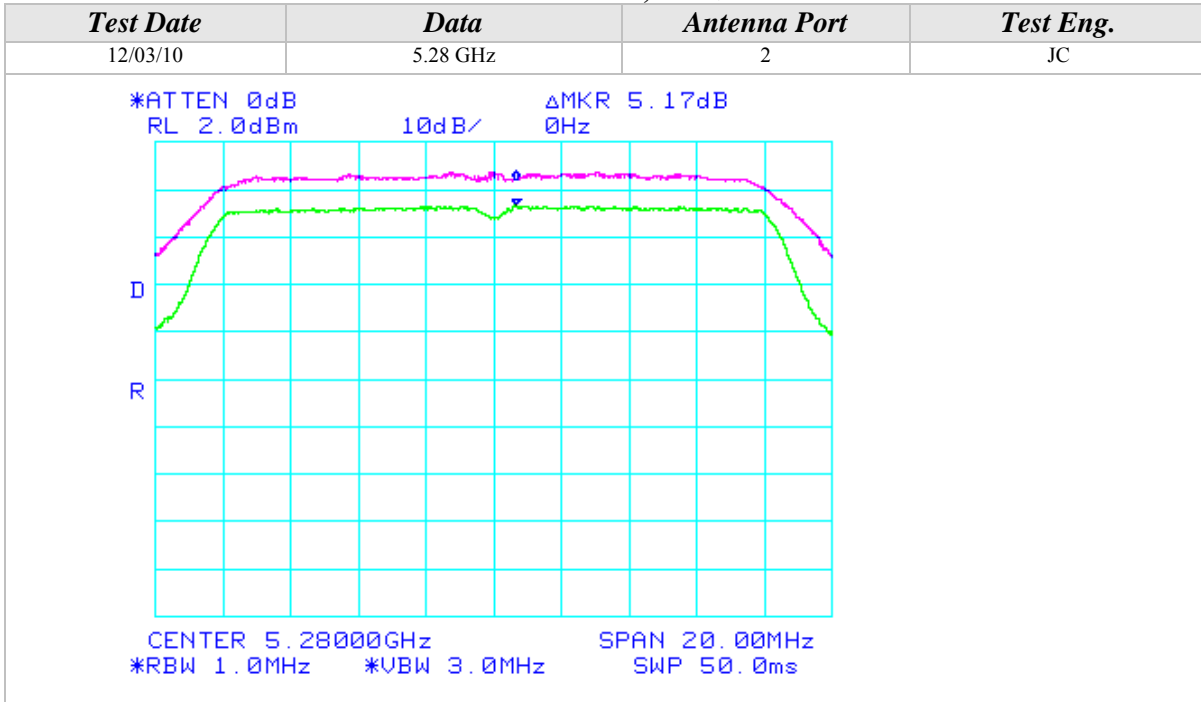
802.11n Mode, 5GHz

Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.24 GHz	2	JC
<p>*ATTEN 0dB ΔMKR 5.67dB RL 2.0dBm 10dB/ 0Hz</p> <p>CENTER 5.24000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms</p>			
Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.26 GHz	2	JC
<p>*ATTEN 0dB ΔMKR 6.17dB RL 2.0dBm 10dB/ 0Hz</p> <p>CENTER 5.26000GHz SPAN 20.00MHz *RBW 1.0MHz *VBW 3.0MHz SWP 50.0ms</p>			



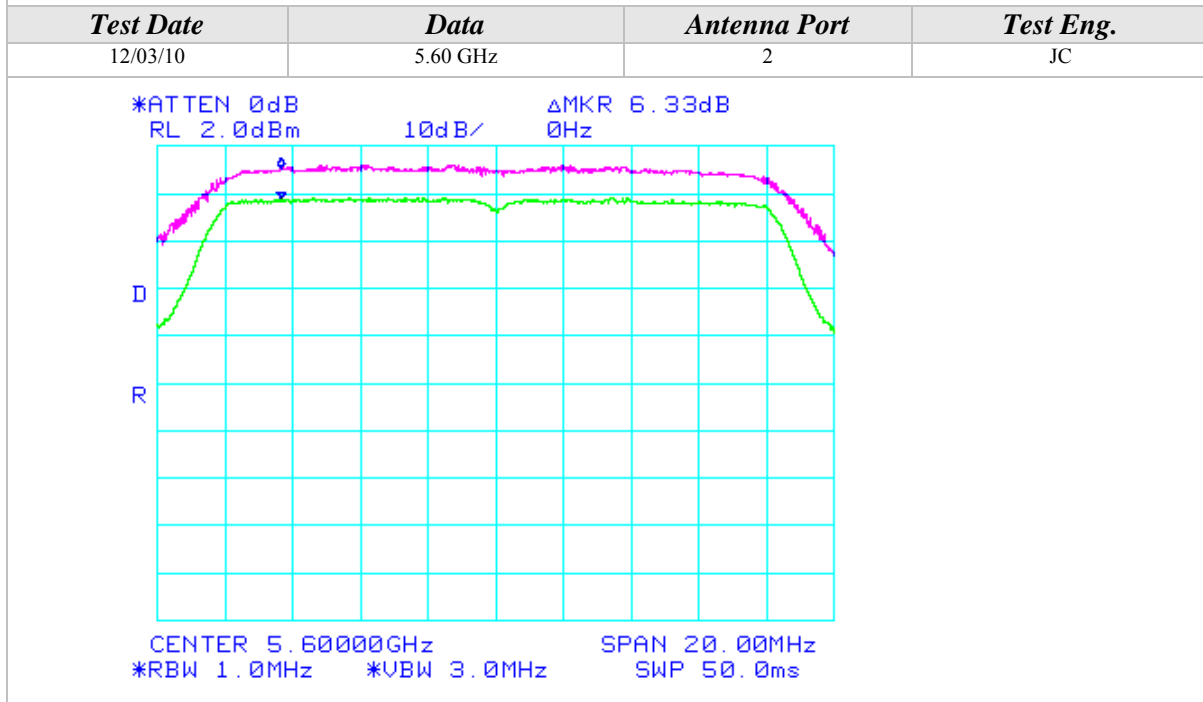
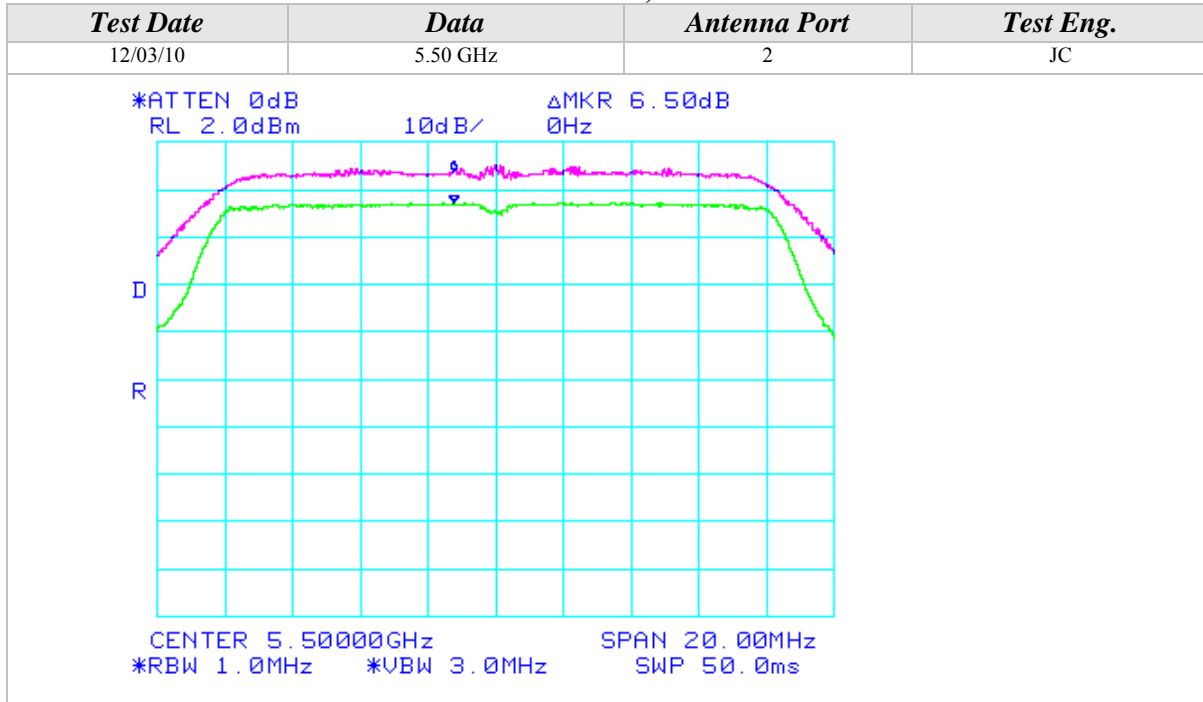
Peak Excursion (Continued)

802.11n Mode, 5GHz



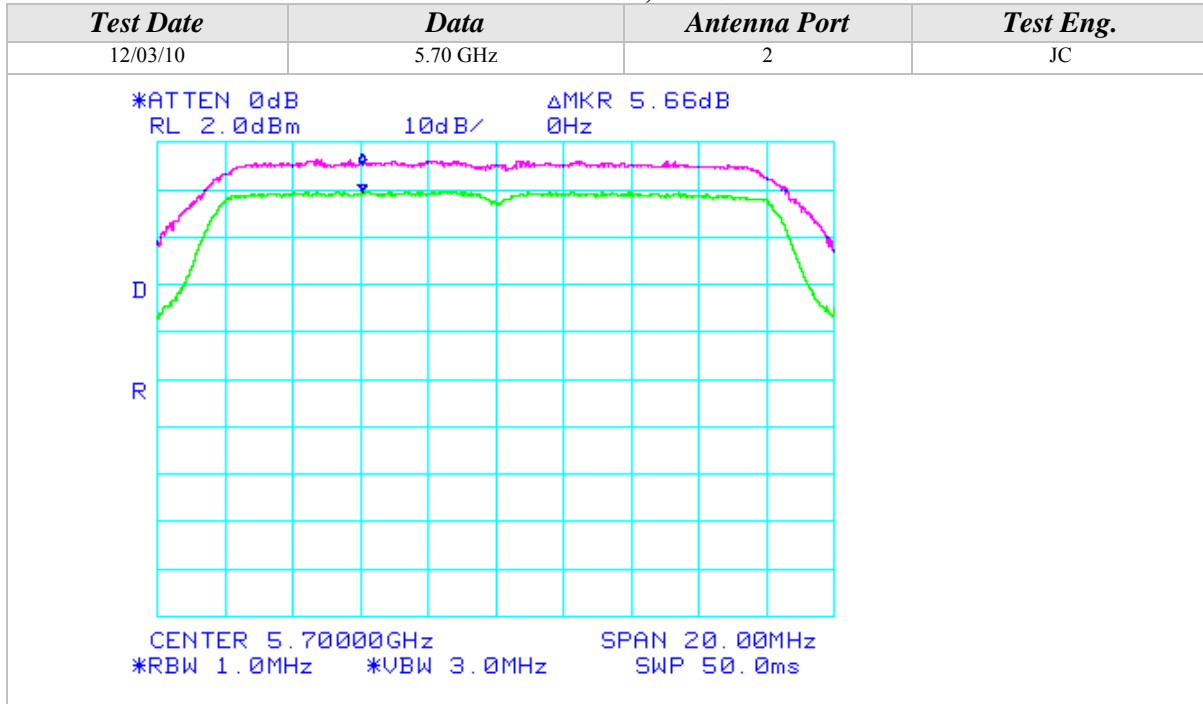
Peak Excursion (Continued)

802.11n Mode, 5GHz



Peak Excursion (Continued)

802.11n Mode, 5GHz



**CONDUCTED OUT OF BAND EMISSIONS**

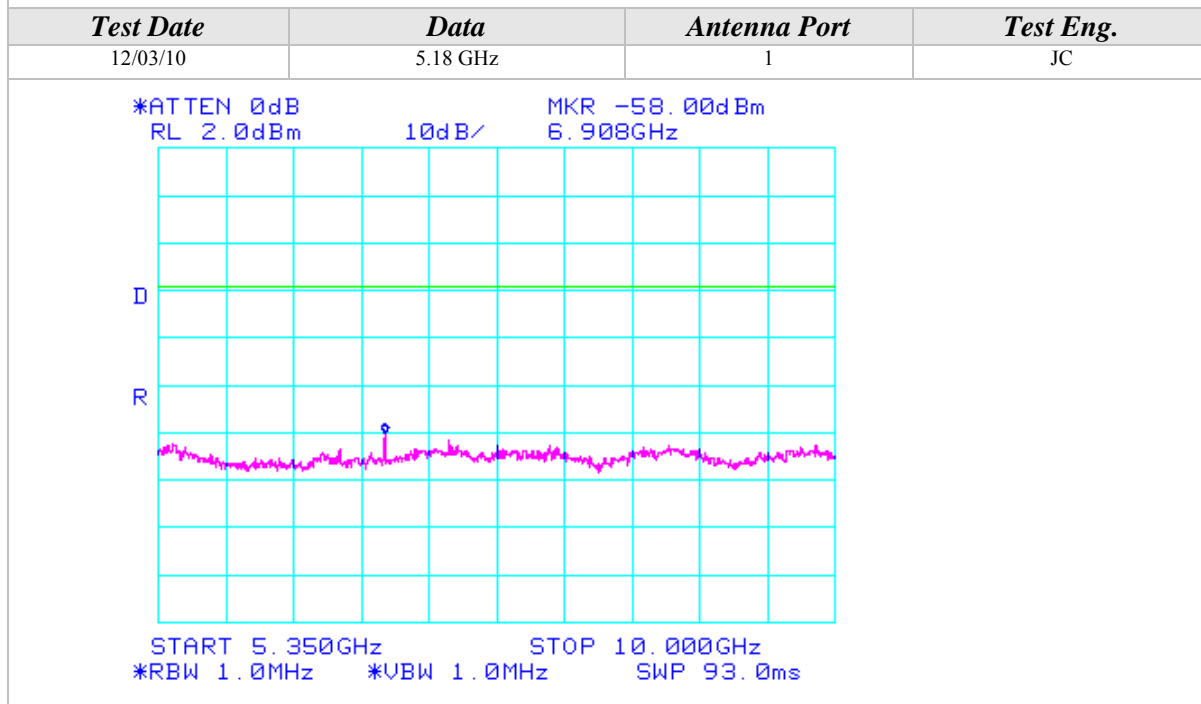
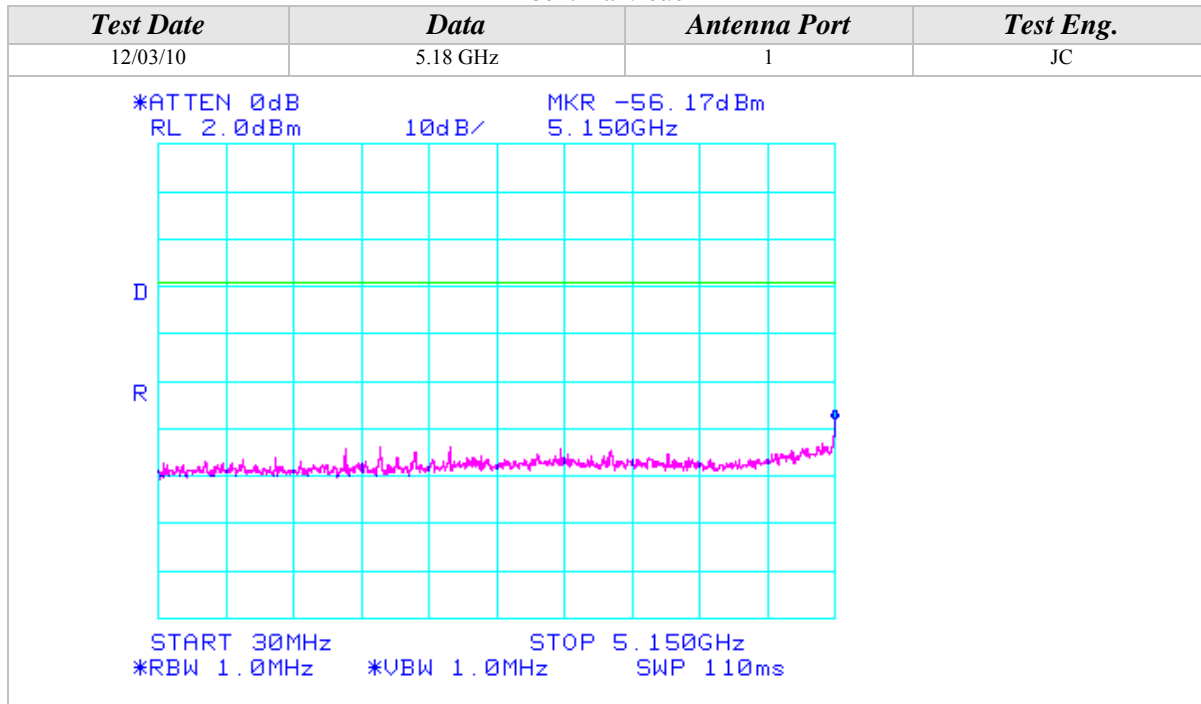
CLIENT:	Lantronix	DATE:	12/03/10
EUT:	Wireless Device Server	PROJECT NUMBER:	LANTR-101028
MODEL NUMBER:	PremierWave EN	TEST ENGINEER:	JC
SERIAL NUMBER:	00:20:44:9D:2E:2F	SITE #:	1
CONFIGURATION:	Tested installed in an evaluation board connected to the host PC via USB port	TEMPERATURE:	22 deg. C
		HUMIDITY:	27% RH
		TIME:	2:00 PM

Description:	<p>For transmitters operating in the 5.15-5.25 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz.</p> <p>For transmitters operating in the 5.25-5.35 GHz band: all emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.</p> <p>For transmitters operating in the 5.47-5.725 GHz band: all emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27dBm/MHz.</p>
Results:	See Data Sheet
Note:	<p>Conducted Emissions Measurements were performed on the EUT with power supply set at the following voltage and frequency.</p> <ul style="list-style-type: none">• 120VAC / 60 Hz.



Conducted Out Of Band Emissions (Continued)

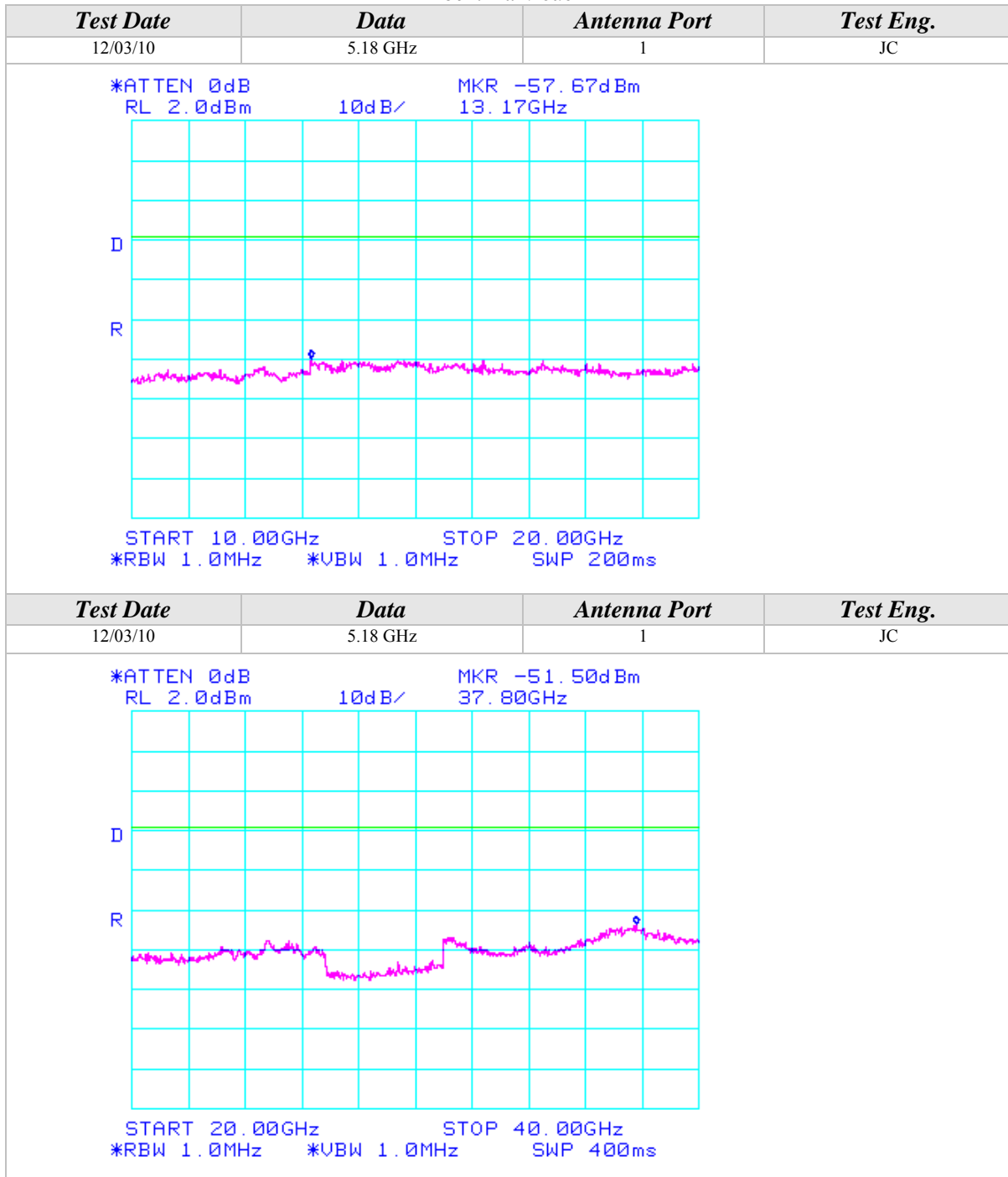
802.11a Mode





Conducted Out Of Band Emissions (Continued)

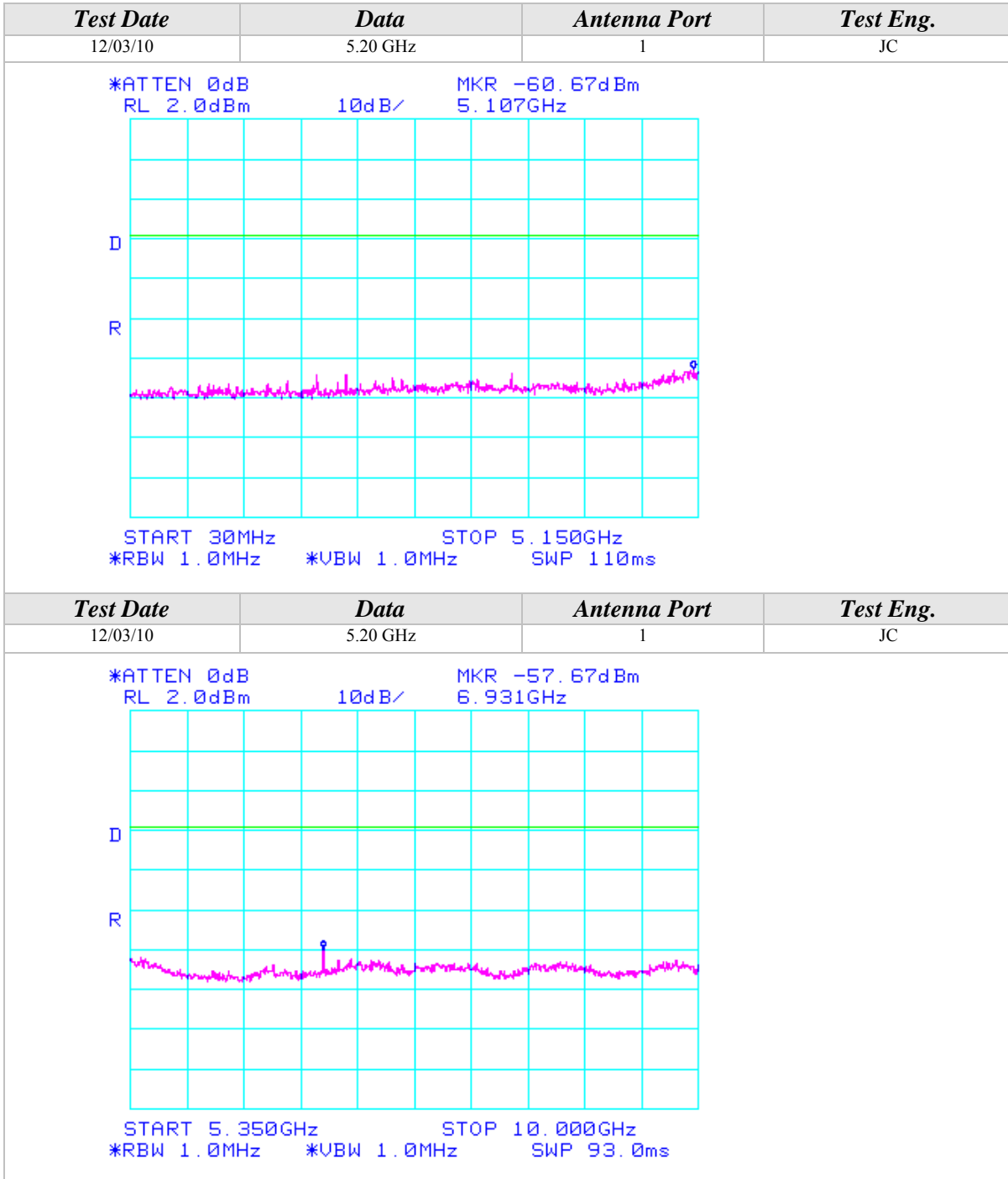
802.11a Mode





Conducted Out Of Band Emissions (Continued)

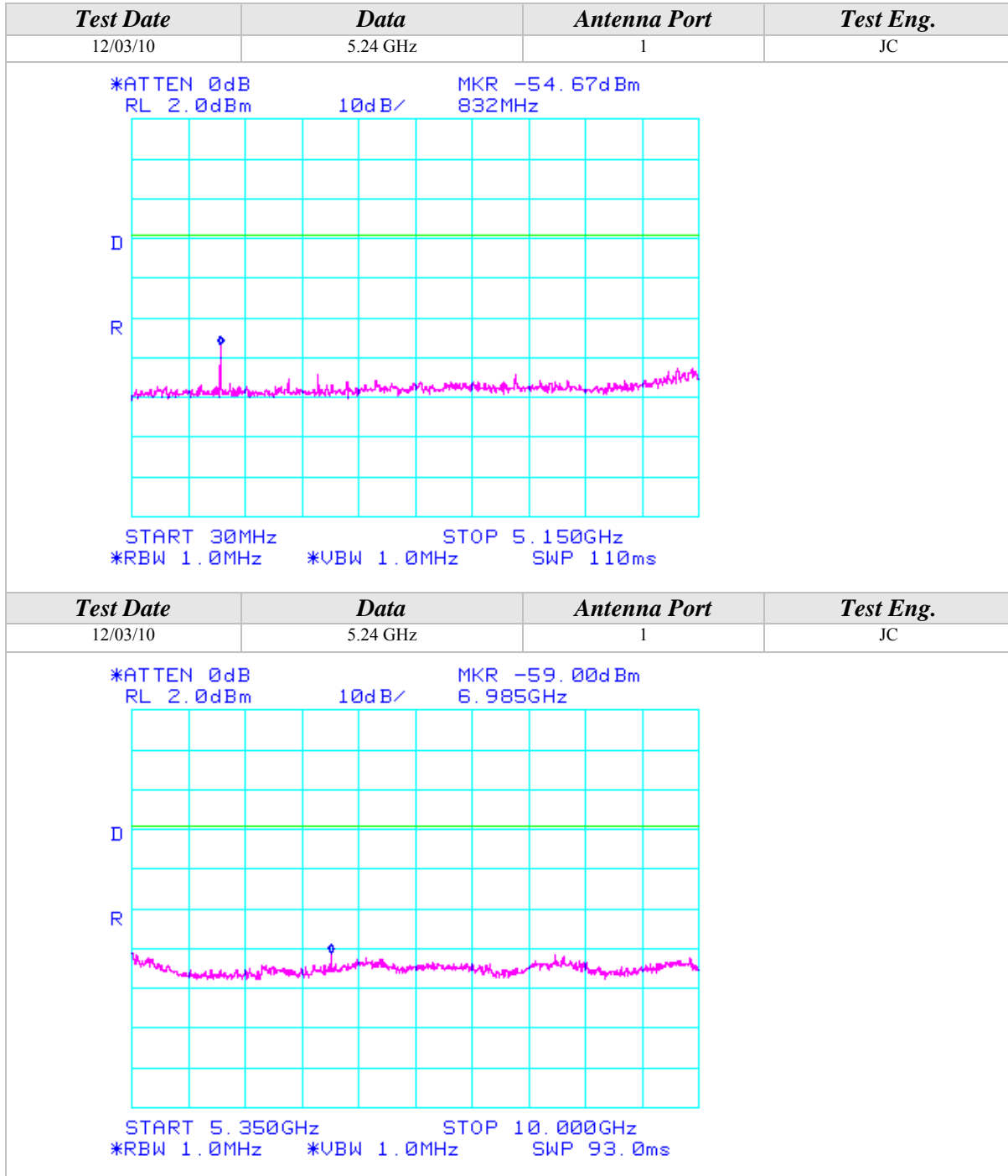
802.11a Mode





Conducted Out Of Band Emissions (Continued)

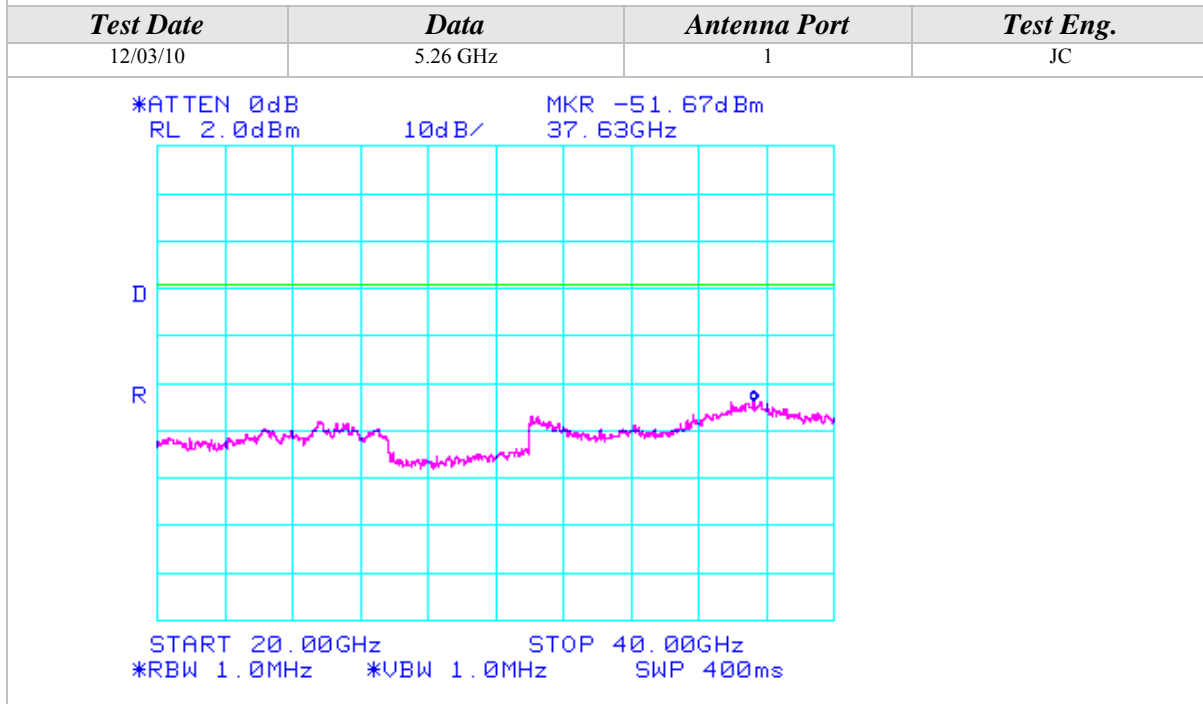
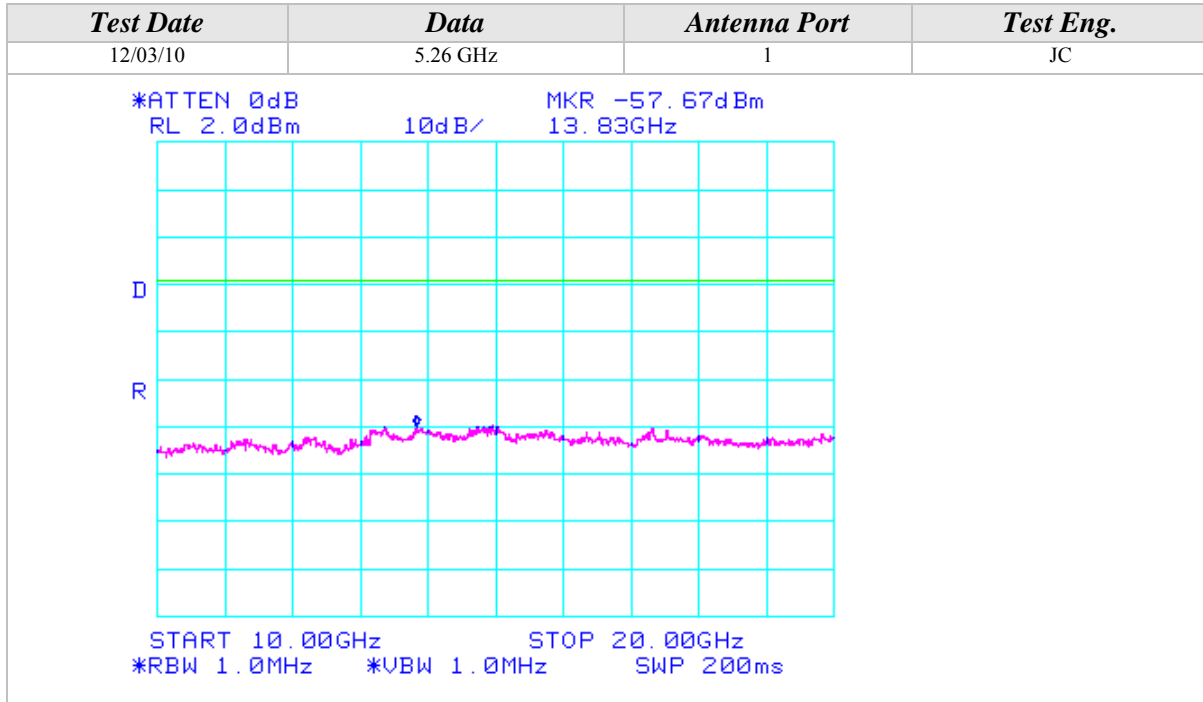
802.11a Mode





Conducted Out Of Band Emissions (Continued)

802.11a Mode



Conducted Out Of Band Emissions (Continued)

802.11a Mode

<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/03/10	5.28 GHz	1	JC
<p>*ATTEN 0dB MKR -52.83dBm RL 2.0dBm 10dB/ 3.520GHz</p> <p>START 30MHz STOP 5.150GHz *RBW 1.0MHz *VBW 1.0MHz SWP 110ms</p>			
<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/03/10	5.28 GHz	1	JC
<p>*ATTEN 0dB MKR -59.00dBm RL 2.0dBm 10dB/ 5.435GHz</p> <p>START 5.350GHz STOP 10.000GHz *RBW 1.0MHz *VBW 1.0MHz SWP 93.0ms</p>			



Conducted Out Of Band Emissions (Continued)

802.11a Mode

Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.28 GHz	1	JC
<p>*ATTEN 0dB RL 2.0dBm 10dB/ MKR -57.50dBm 14.80GHz</p> <p>START 10.00GHz STOP 20.00GHz *RBW 1.0MHz *VBW 1.0MHz SWP 200ms</p>			
Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.28 GHz	1	JC
<p>*ATTEN 0dB RL 2.0dBm 10dB/ MKR -51.83dBm 36.90GHz</p> <p>START 20.00GHz STOP 40.00GHz *RBW 1.0MHz *VBW 1.0MHz SWP 400ms</p>			



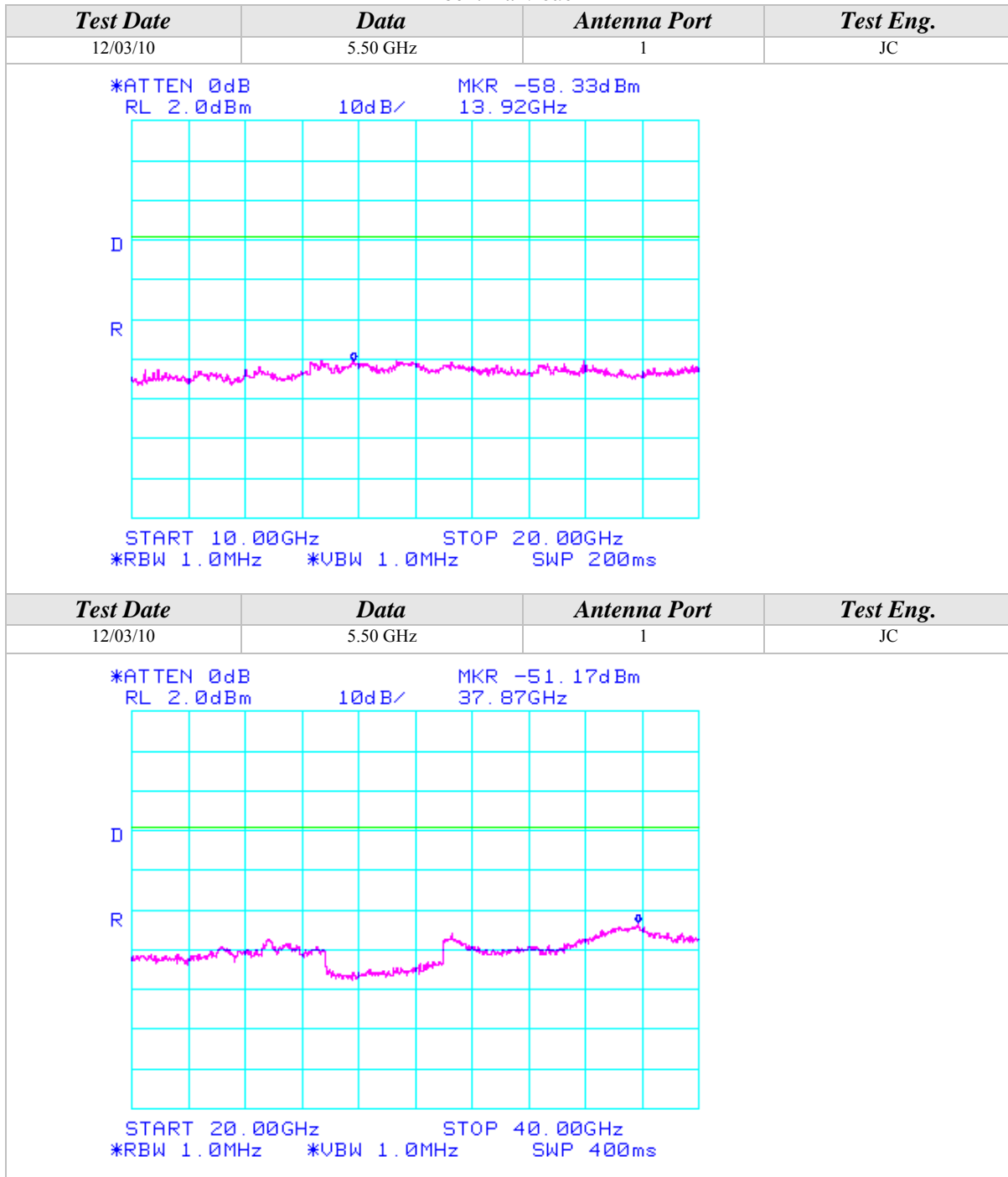
Conducted Out Of Band Emissions (Continued)

802.11a Mode

Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.32 GHz	1	JC
<p>*ATTEN 0dB RL 2.0dBm 10dB/ MKR -58.17dBm 13.15GHz</p> <p>START 10.00GHz STOP 20.00GHz *RBW 1.0MHz *VBW 1.0MHz SWP 200ms</p>			
Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.32 GHz	1	JC
<p>*ATTEN 0dB RL 2.0dBm 10dB/ MKR -51.33dBm 37.97GHz</p> <p>START 20.00GHz STOP 40.00GHz *RBW 1.0MHz *VBW 1.0MHz SWP 400ms</p>			

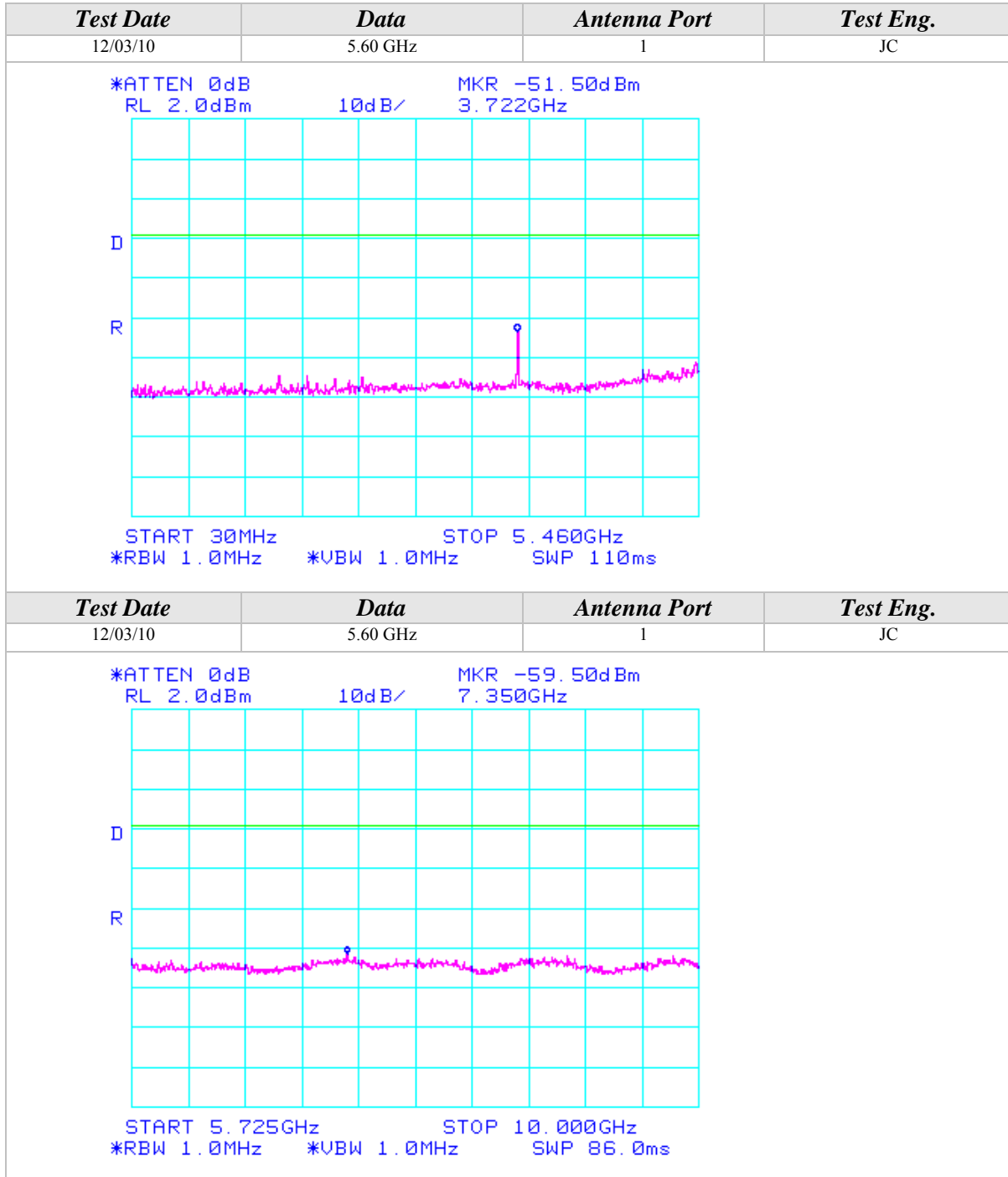
Conducted Out Of Band Emissions (Continued)

802.11a Mode



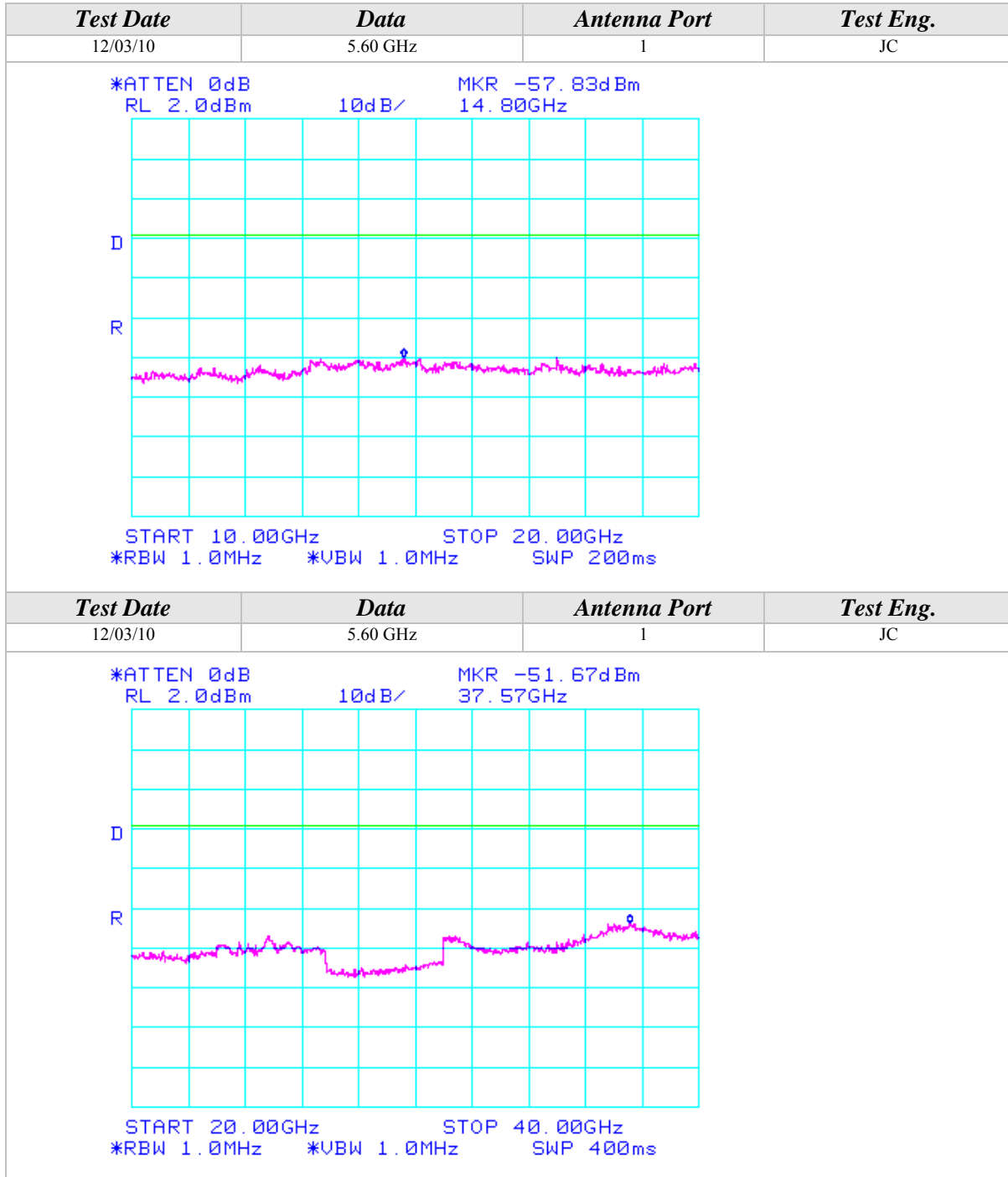
Conducted Out Of Band Emissions (Continued)

802.11a Mode



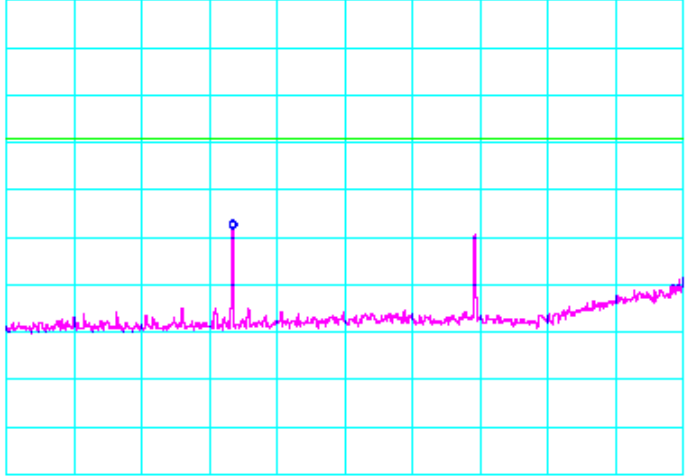
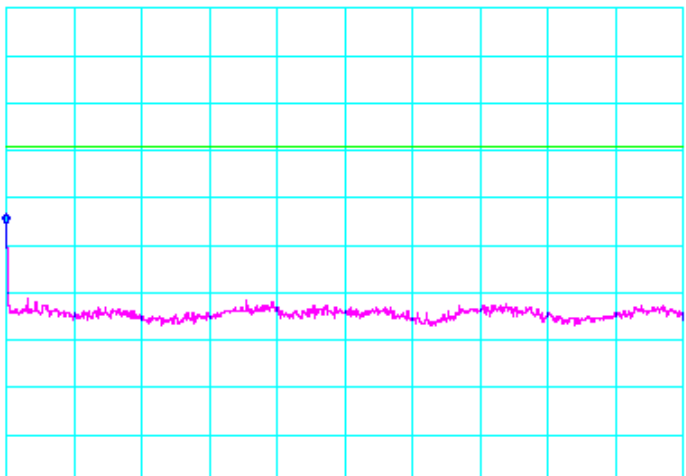
Conducted Out Of Band Emissions (Continued)

802.11a Mode



Conducted Out Of Band Emissions (Continued)

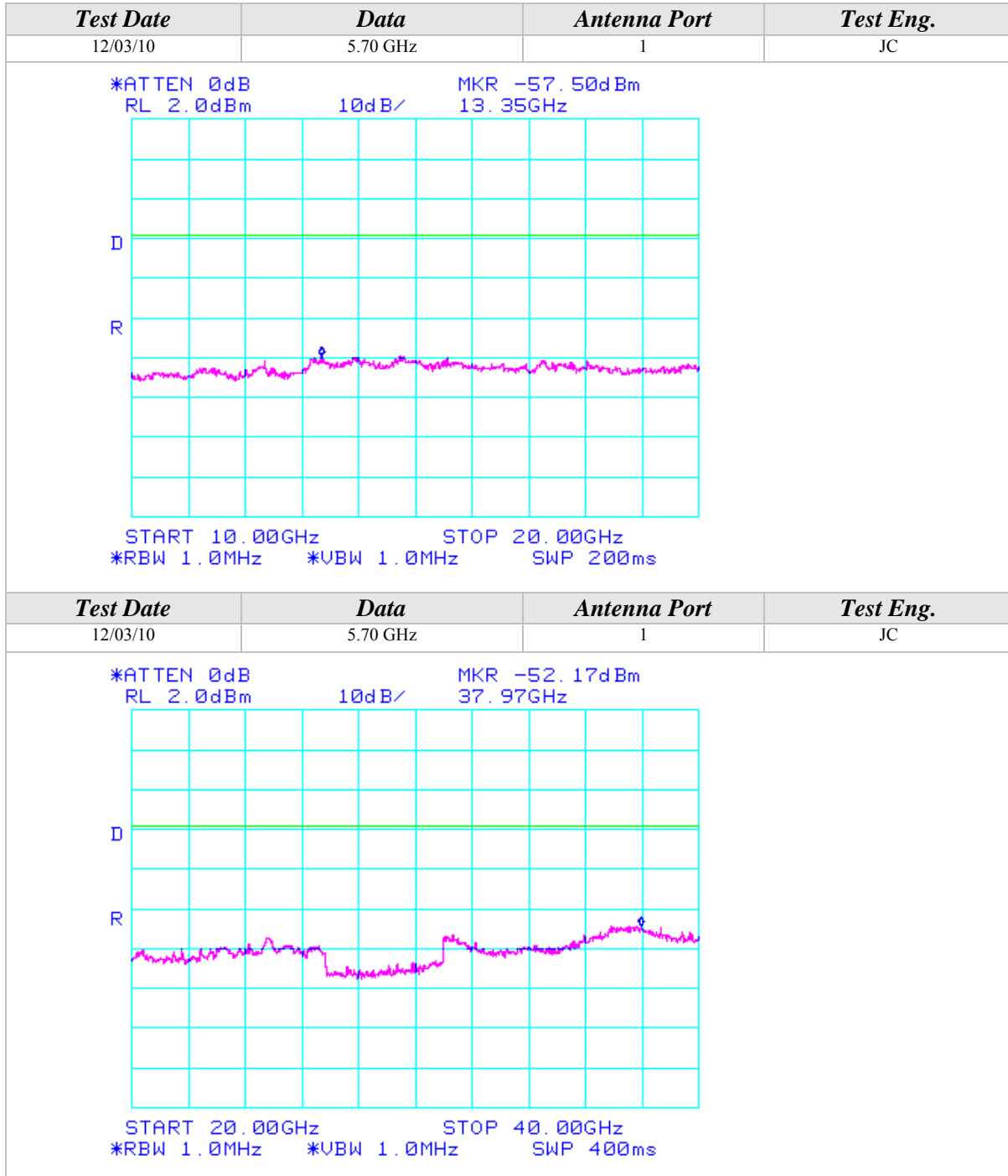
802.11a Mode

Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.70 GHz	1	JC
<div style="display: flex; justify-content: space-between; font-size: small;"> *ATTEN 0dB MKR -46.33dBm </div> <div style="display: flex; justify-content: space-between; font-size: small;"> RL 2.0dBm 10dB/ 1.849GHz </div>  <div style="display: flex; justify-content: space-between; font-size: small; margin-top: 10px;"> START 30MHz STOP 5.460GHz </div> <div style="display: flex; justify-content: space-between; font-size: small;"> *RBW 1.0MHz *VBW 1.0MHz SWP 110ms </div>			
Test Date	Data	Antenna Port	Test Eng.
12/03/10	5.70 GHz	1	JC
<div style="display: flex; justify-content: space-between; font-size: small;"> *ATTEN 0dB MKR -43.33dBm </div> <div style="display: flex; justify-content: space-between; font-size: small;"> RL 2.0dBm 10dB/ 5.725GHz </div>  <div style="display: flex; justify-content: space-between; font-size: small; margin-top: 10px;"> START 5.725GHz STOP 10.000GHz </div> <div style="display: flex; justify-content: space-between; font-size: small;"> *RBW 1.0MHz *VBW 1.0MHz SWP 86.0ms </div>			



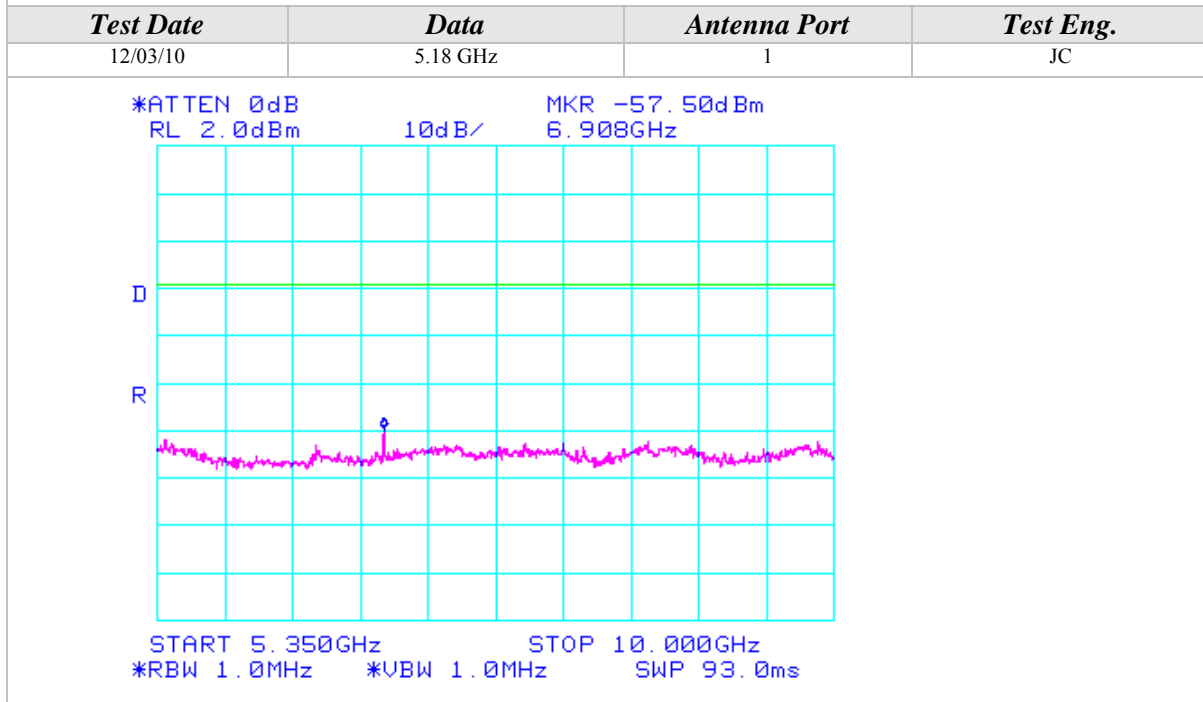
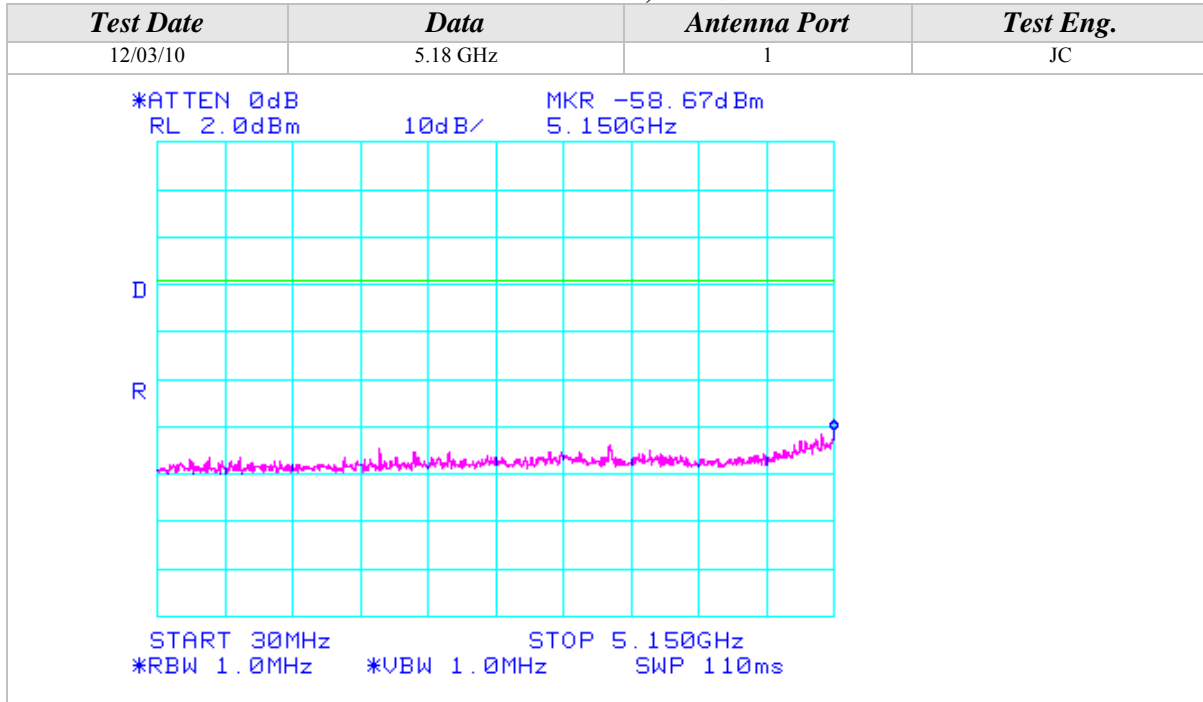
Conducted Out Of Band Emissions (Continued)

802.11a Mode



Conducted Out Of Band Emissions (Continued)

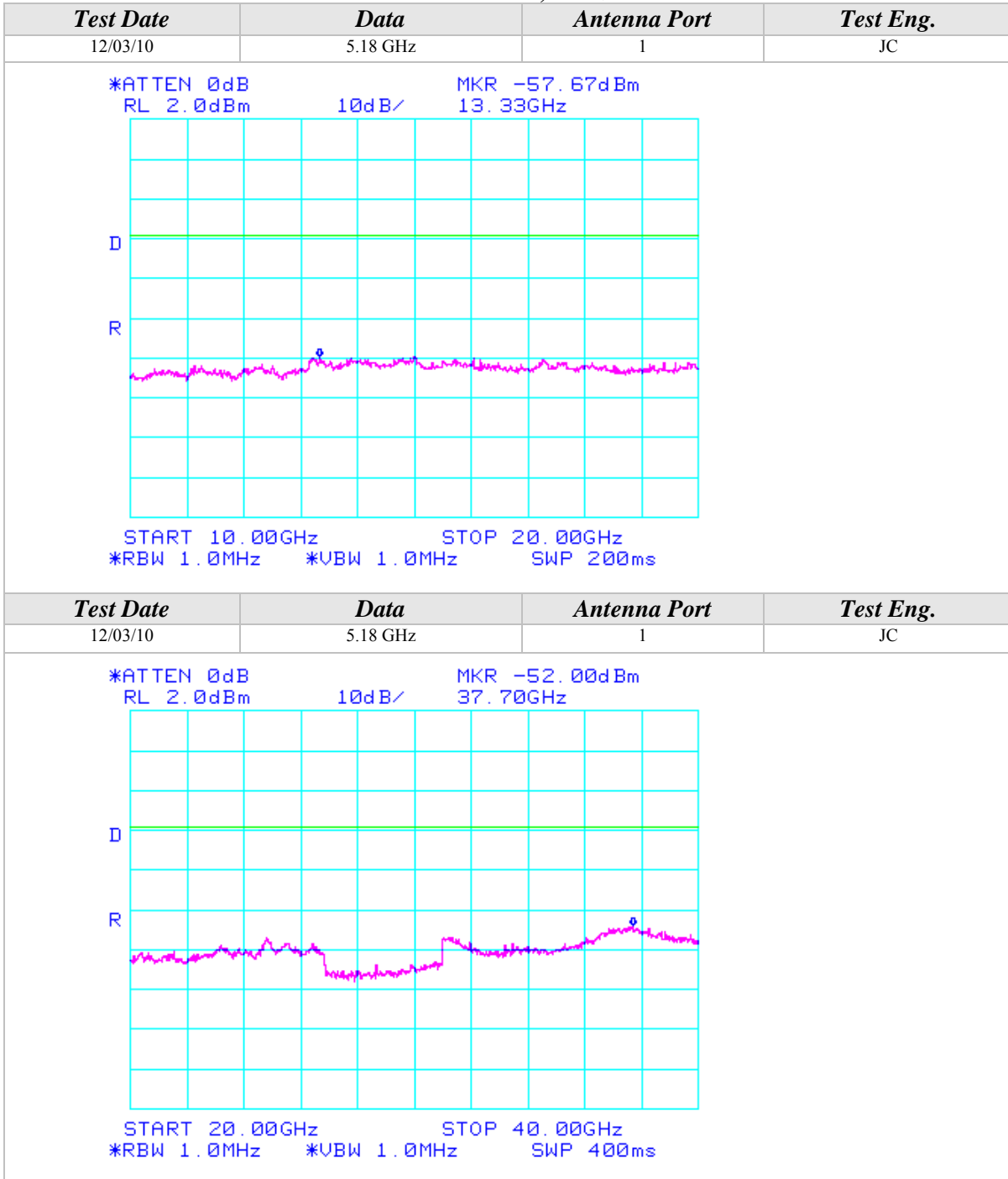
802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

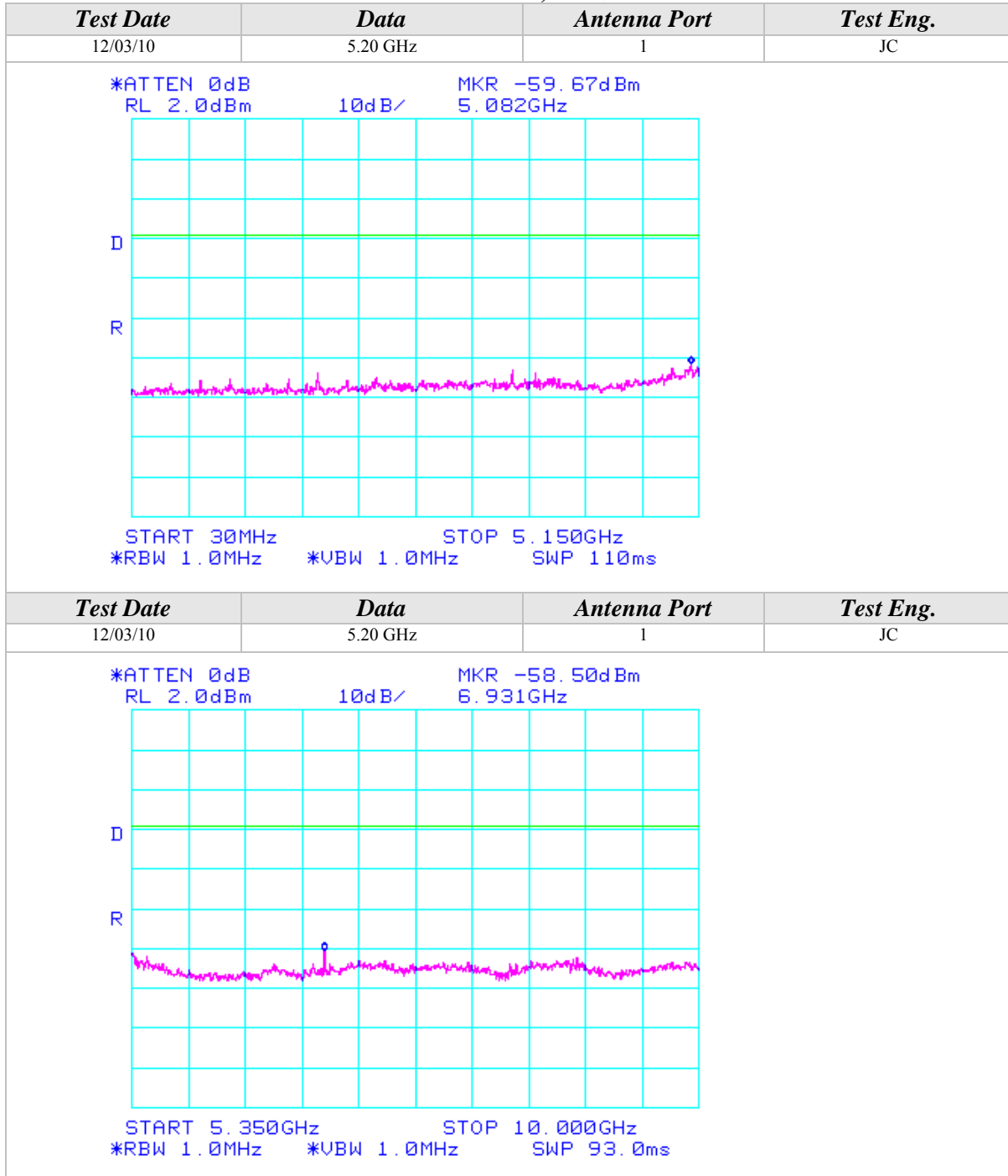
802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

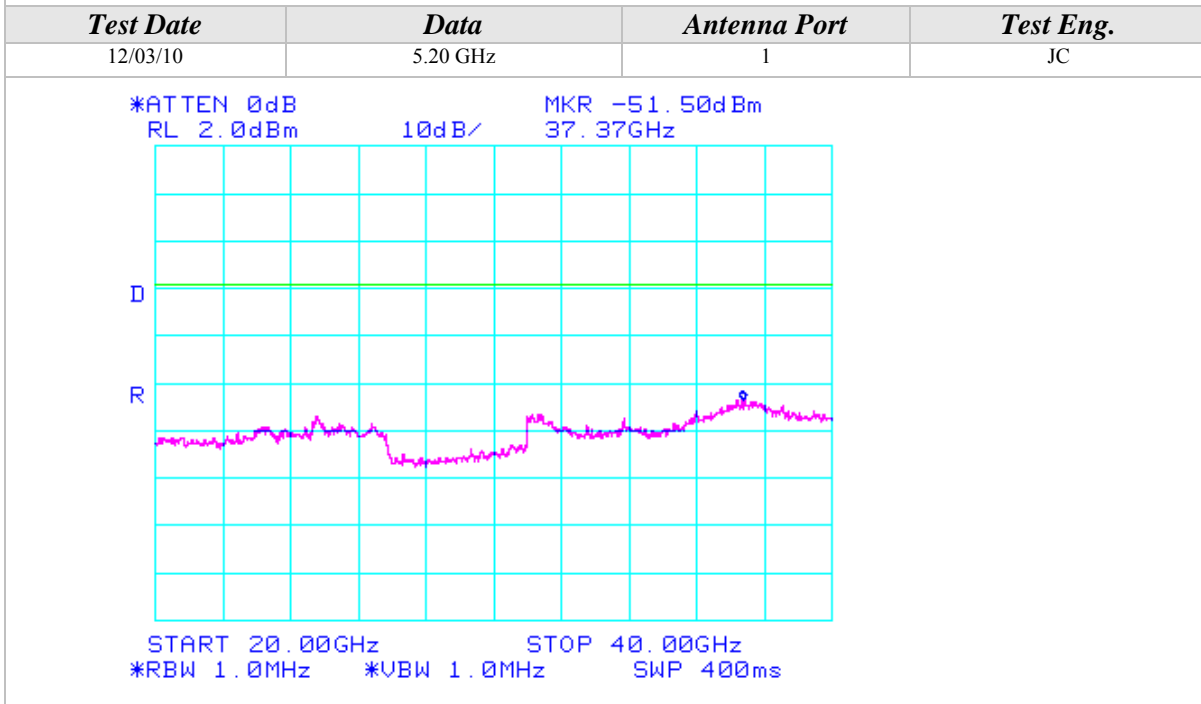
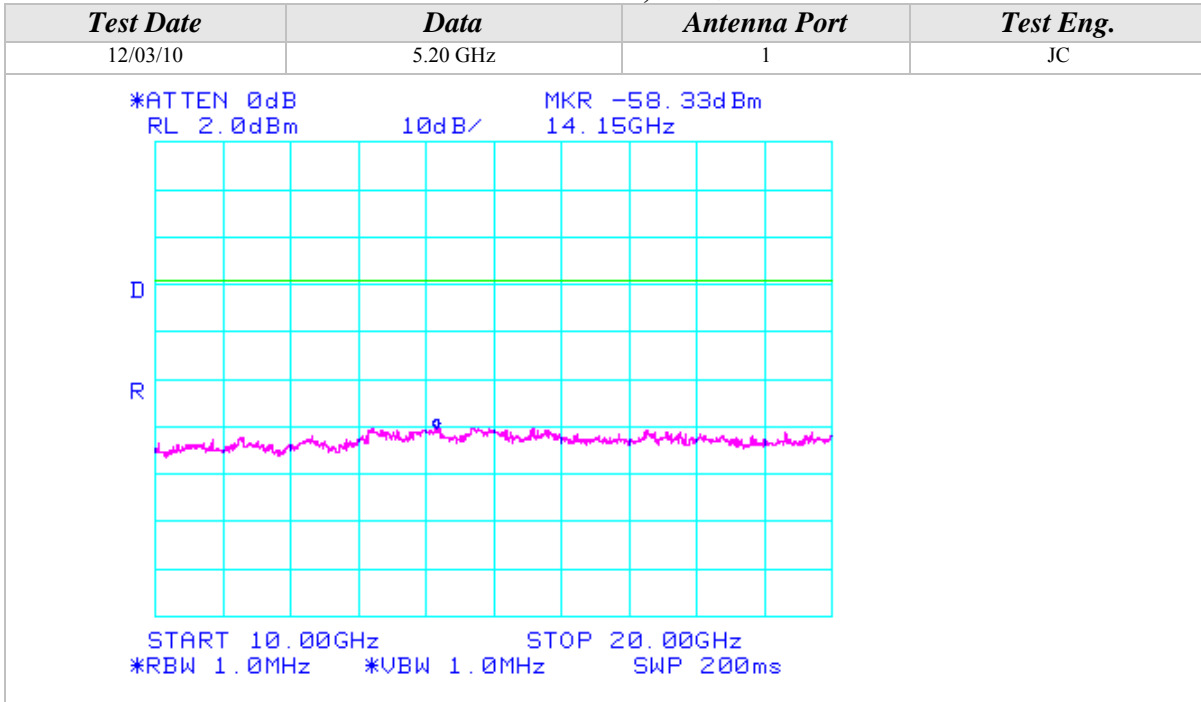
802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

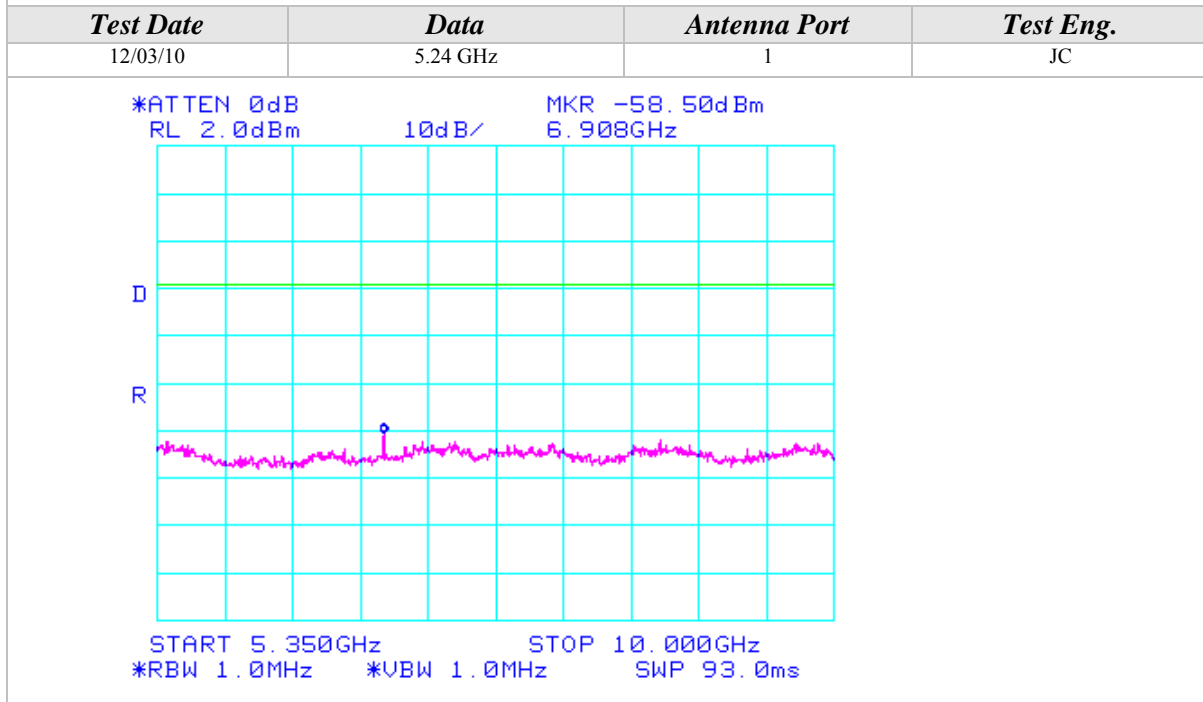
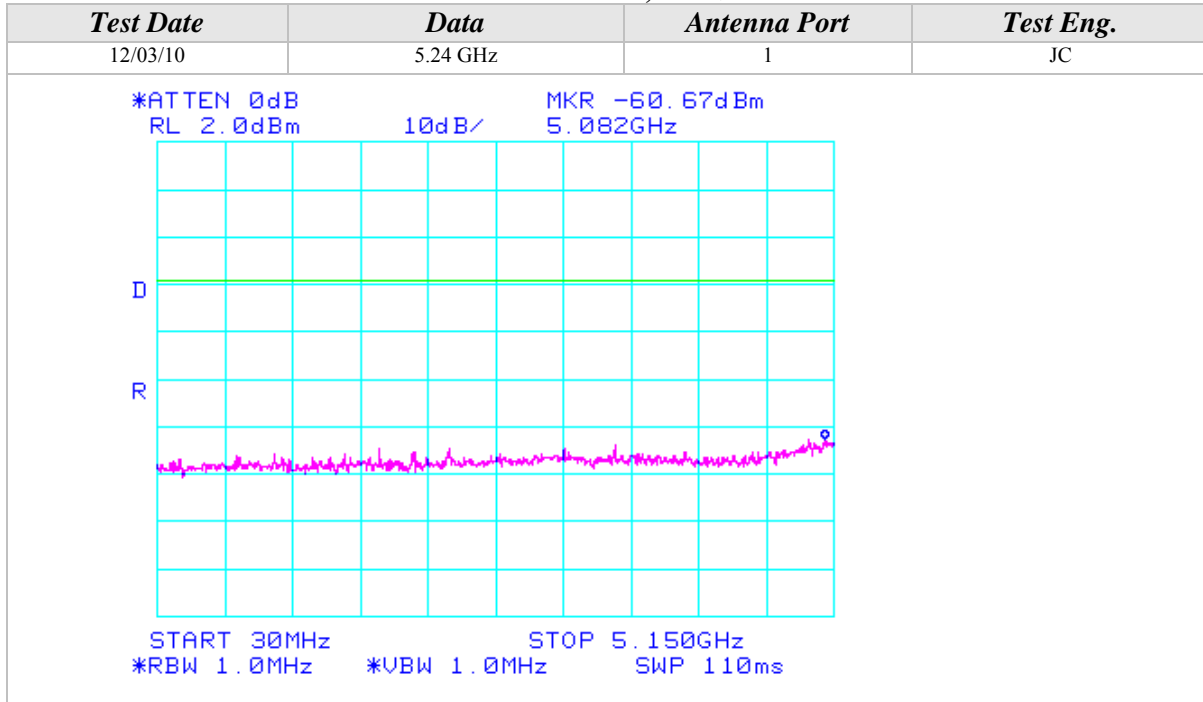
802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

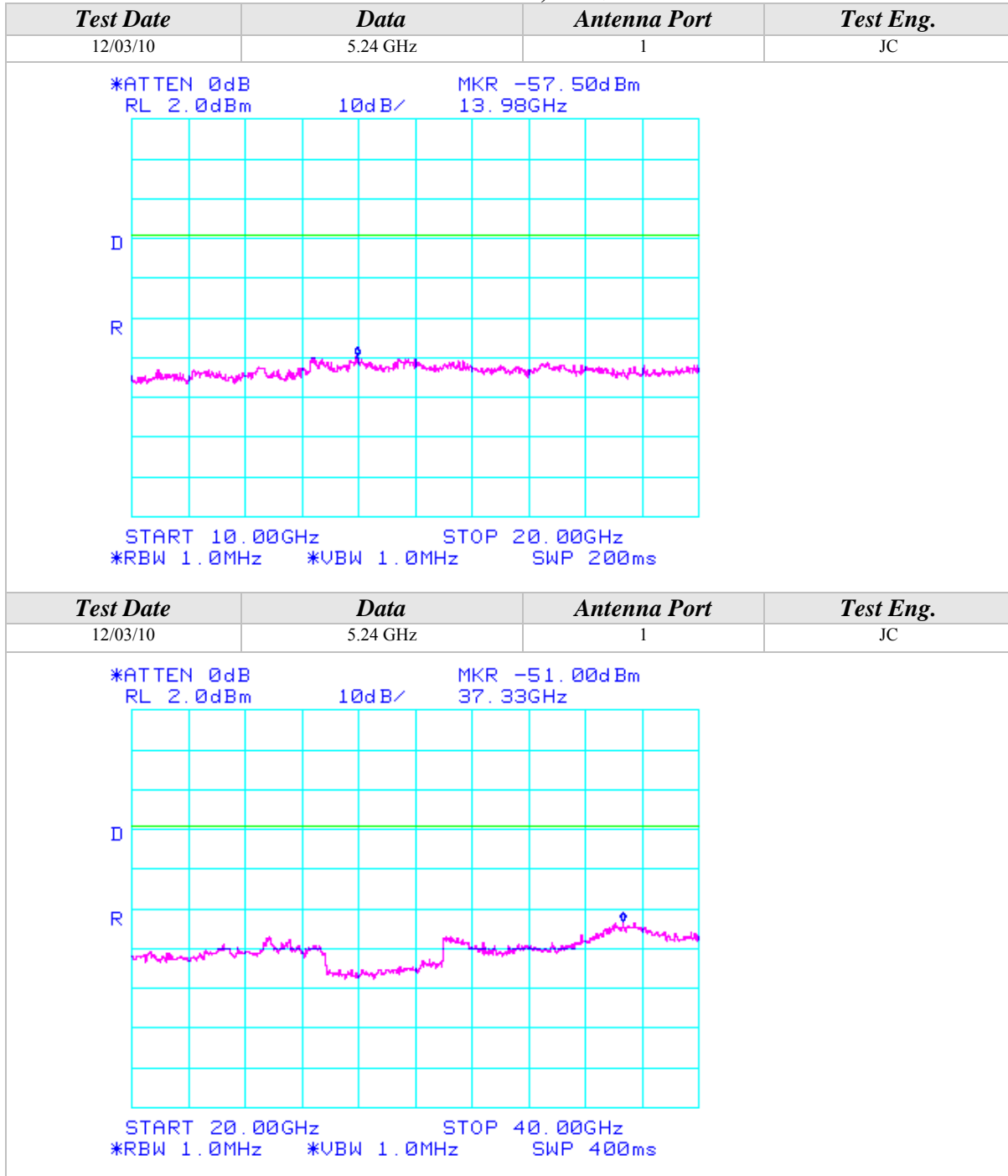
802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

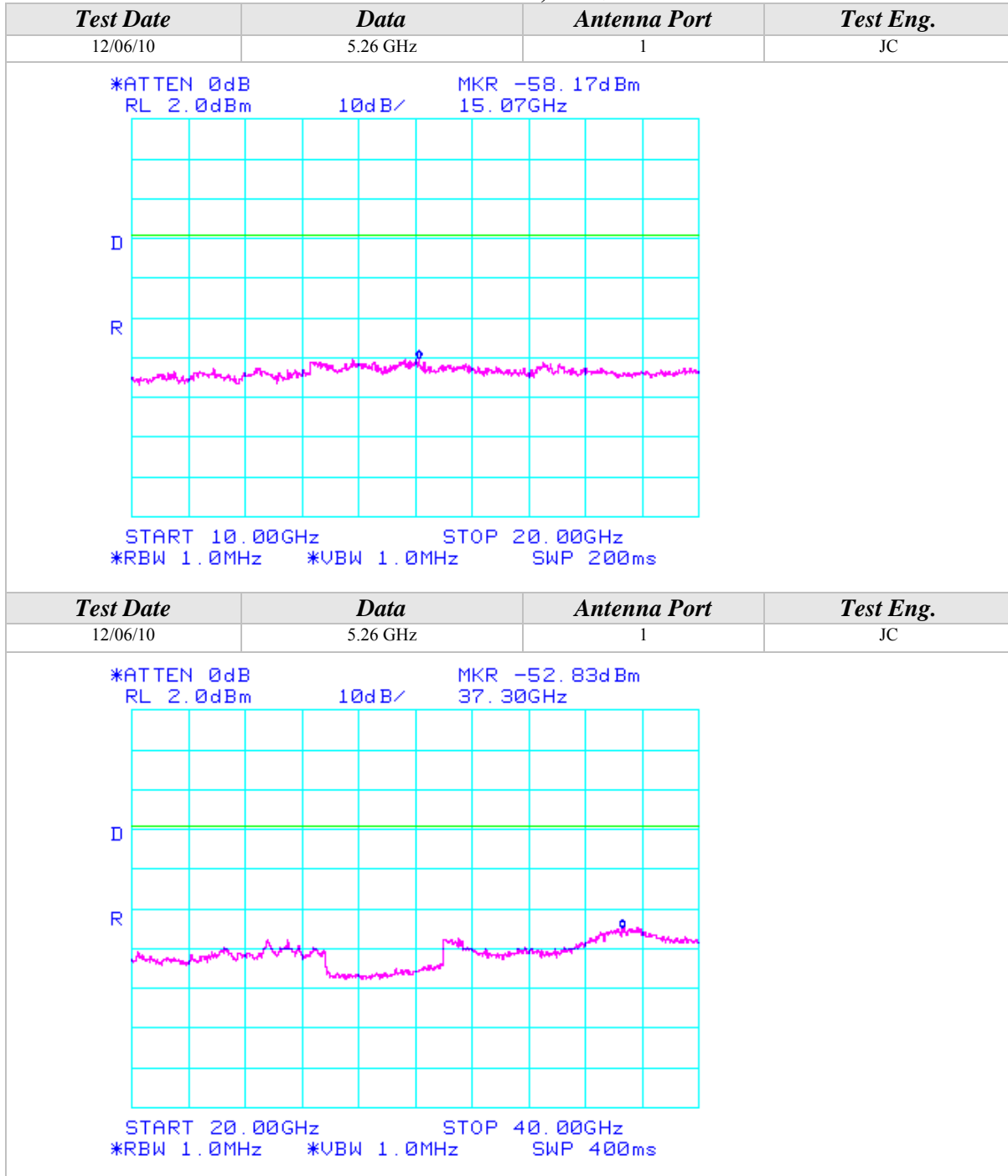
802.11n Mode, 5GHz





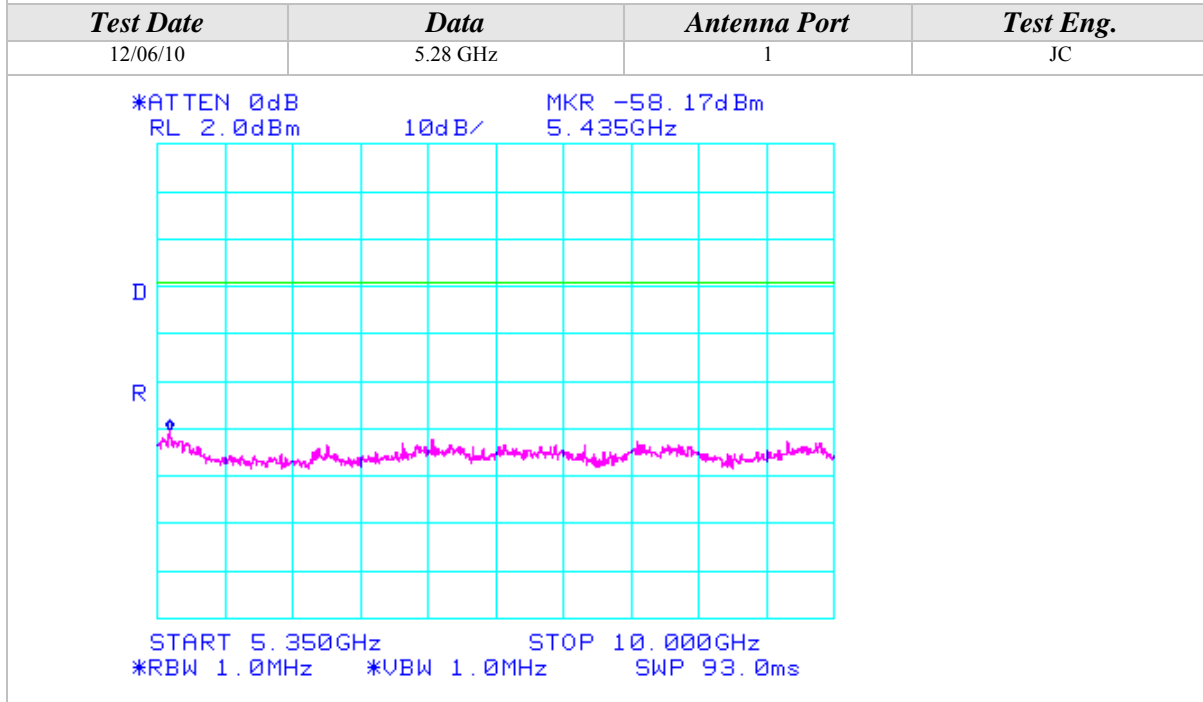
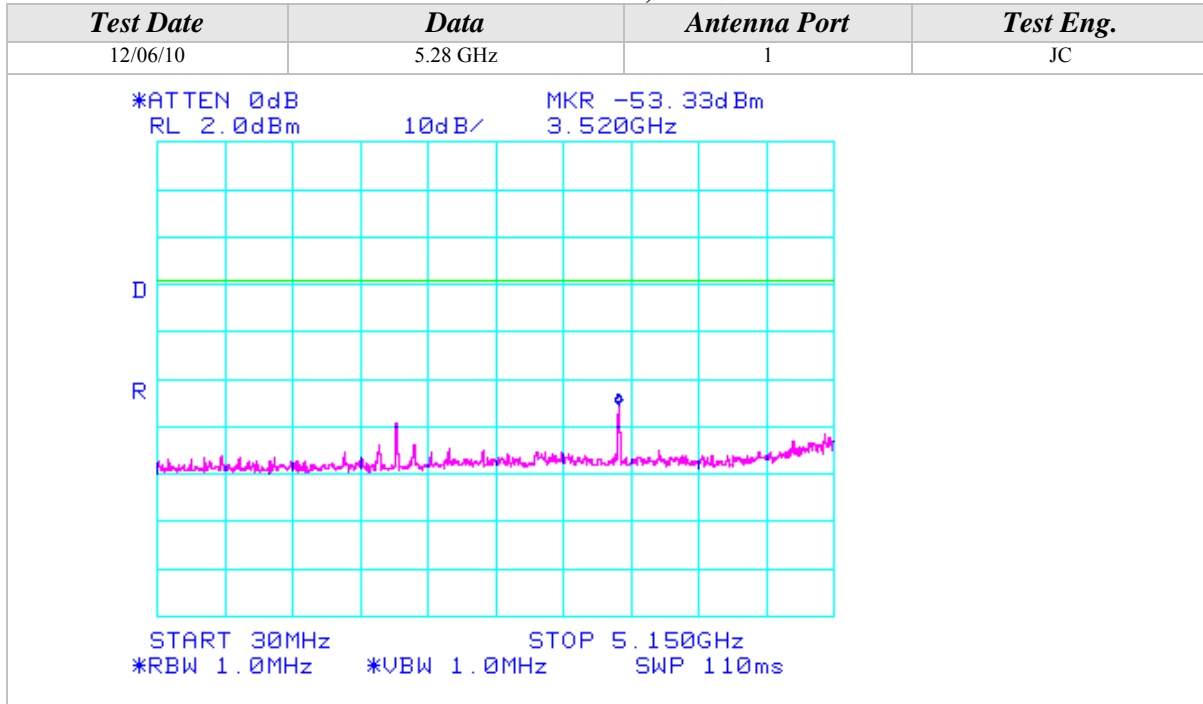
Conducted Out Of Band Emissions (Continued)

802.11n Mode, 5GHz



Conducted Out Of Band Emissions (Continued)

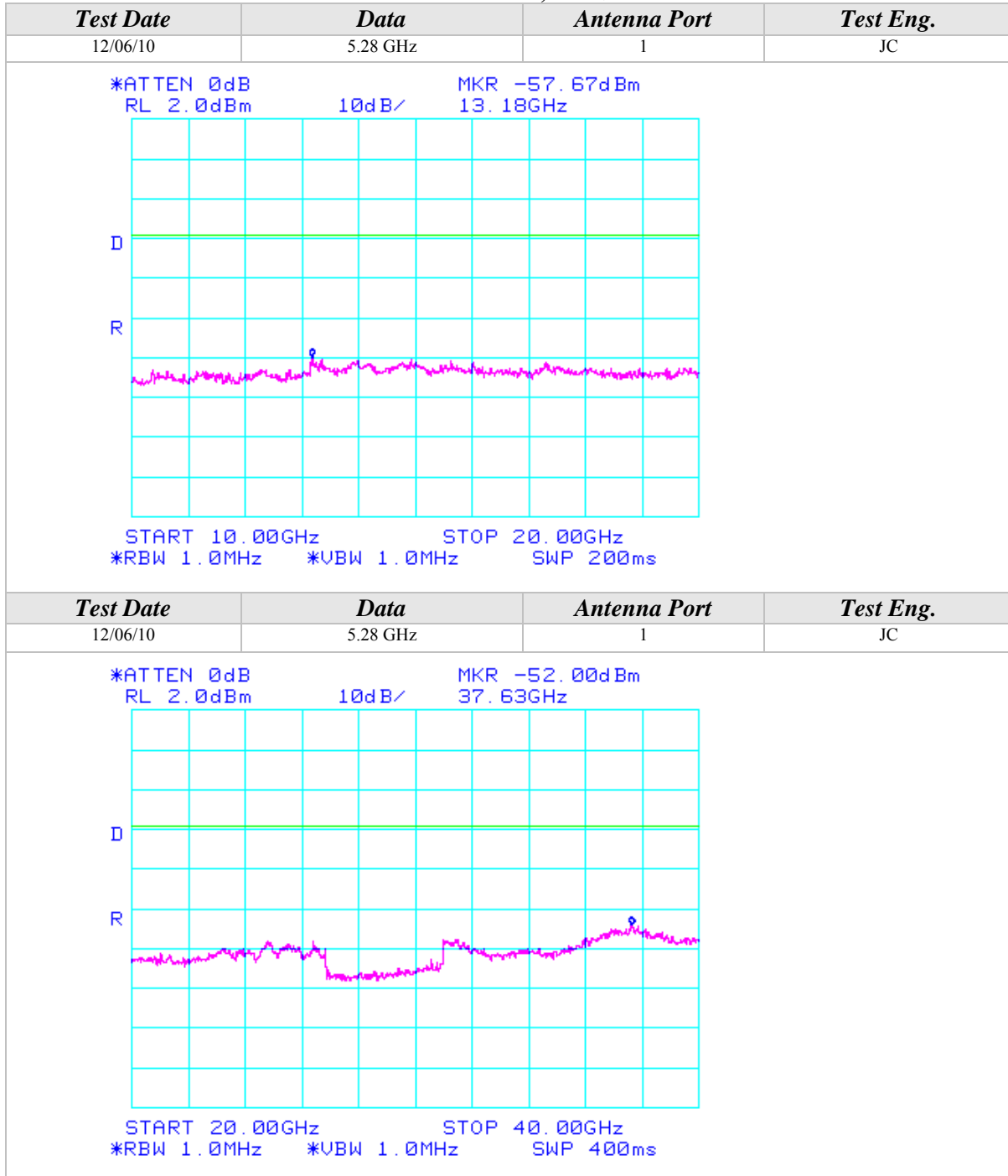
802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

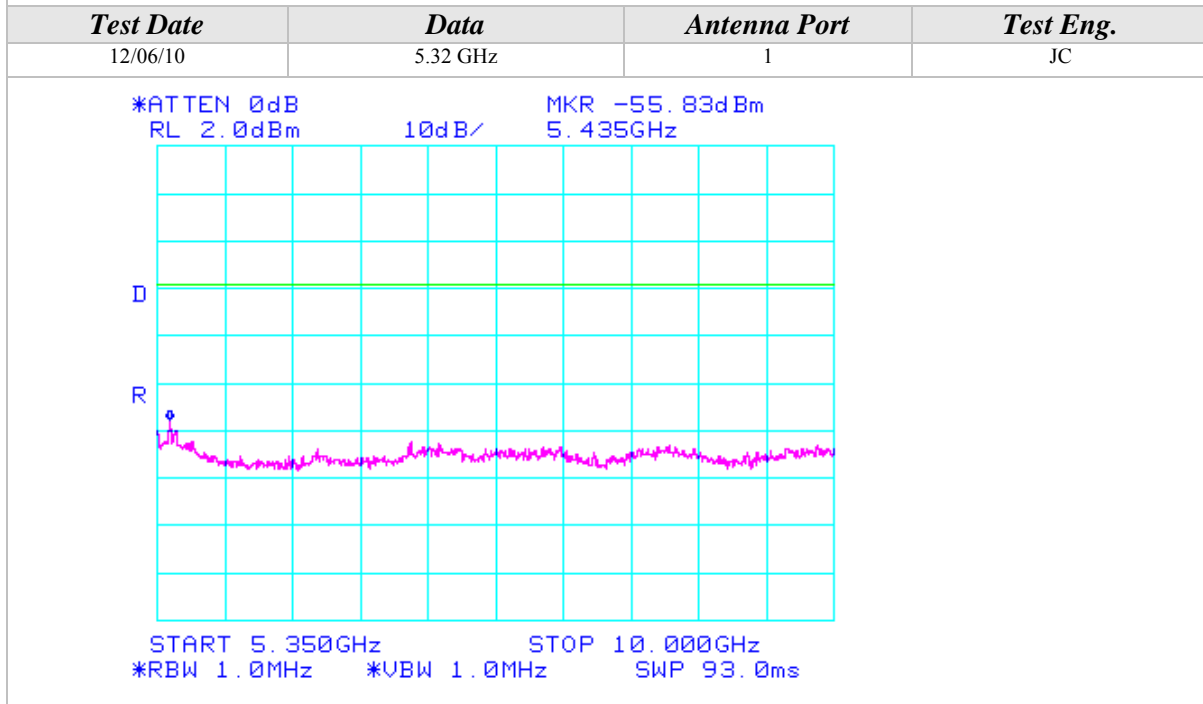
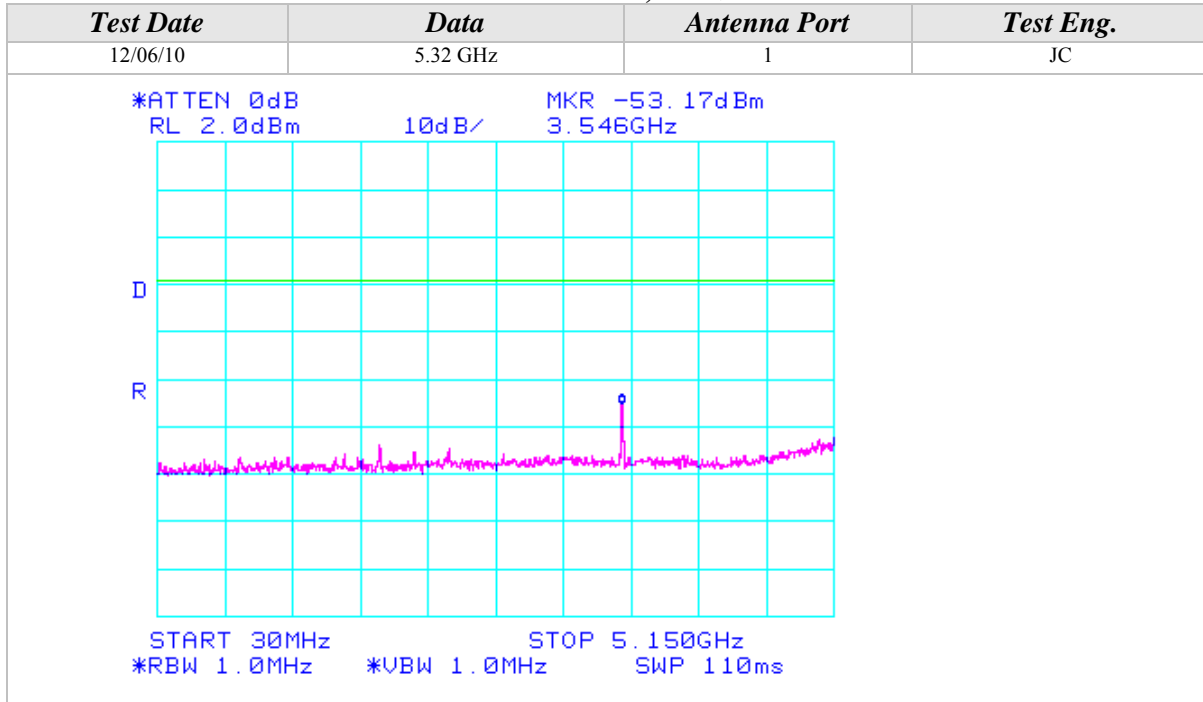
802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

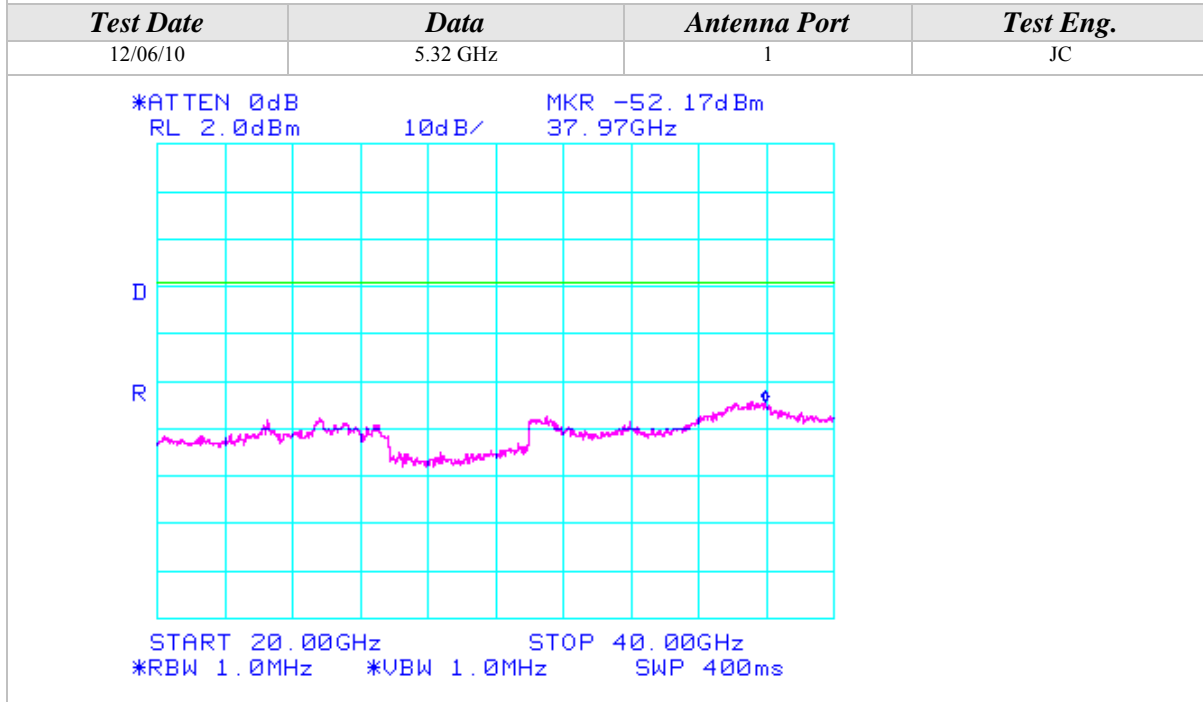
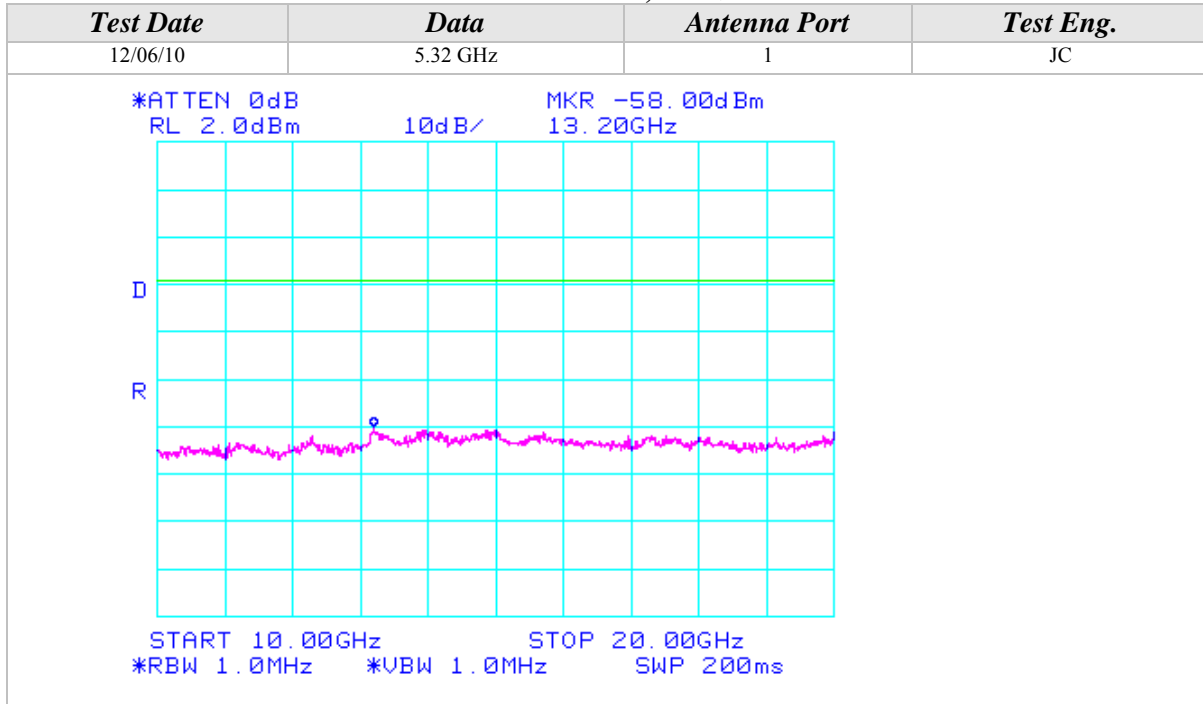
802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

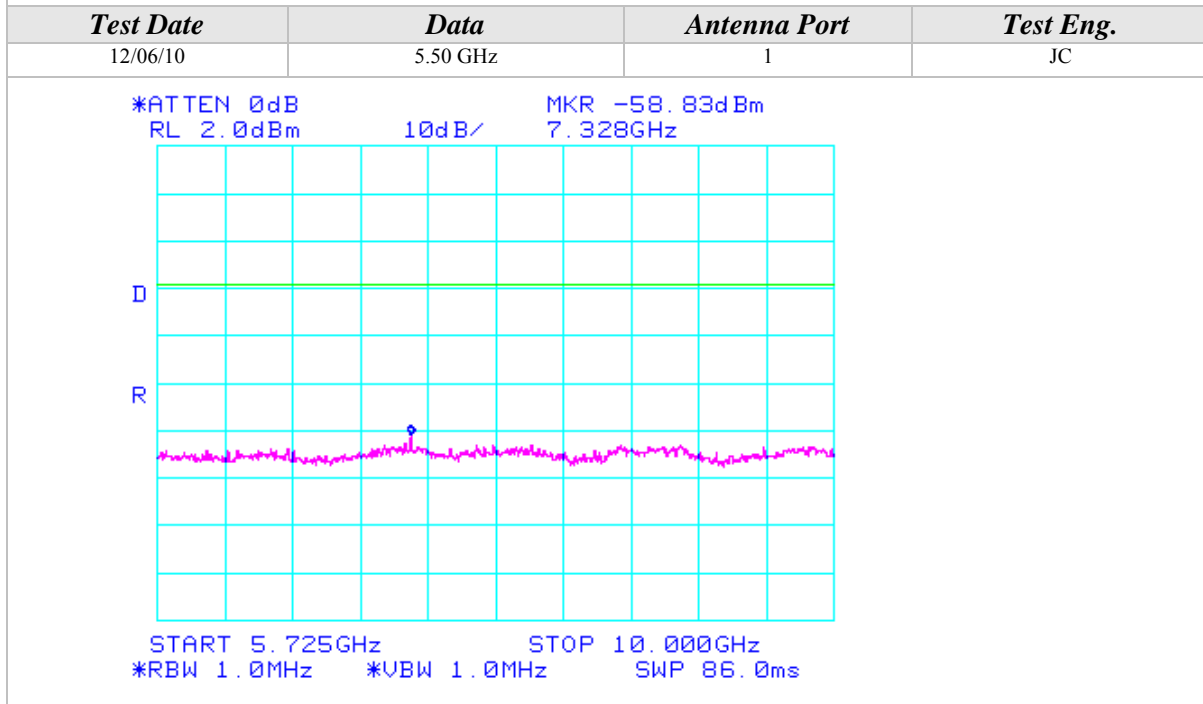
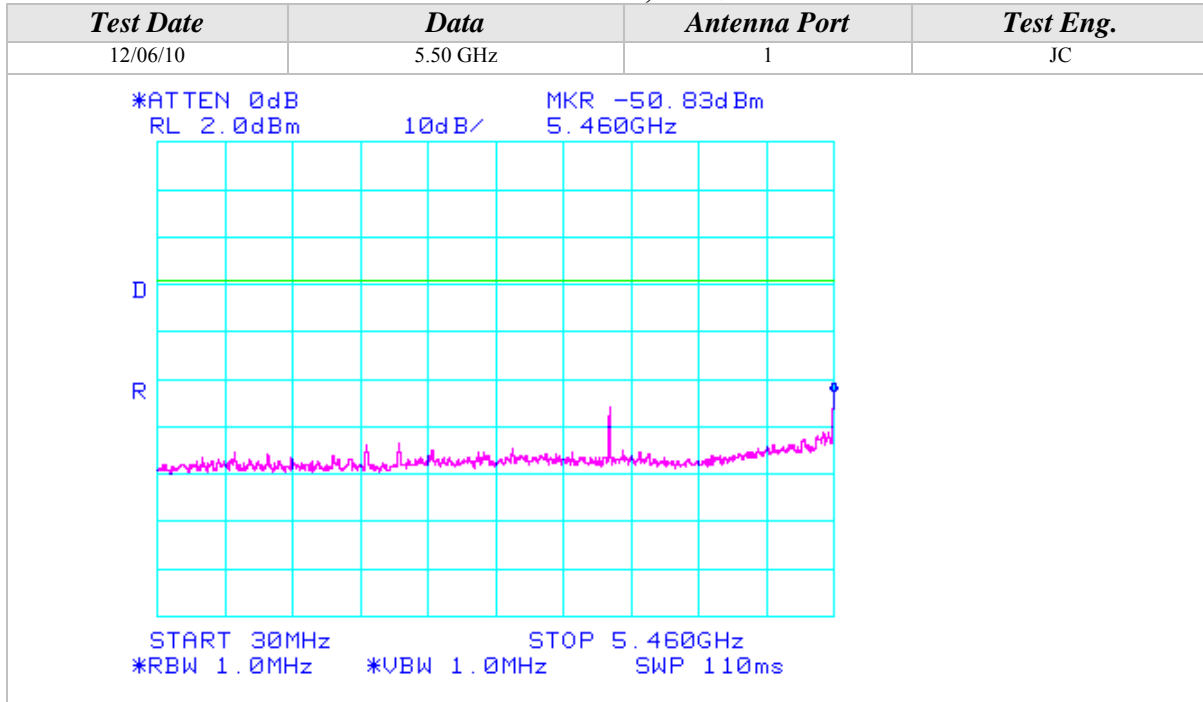
802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

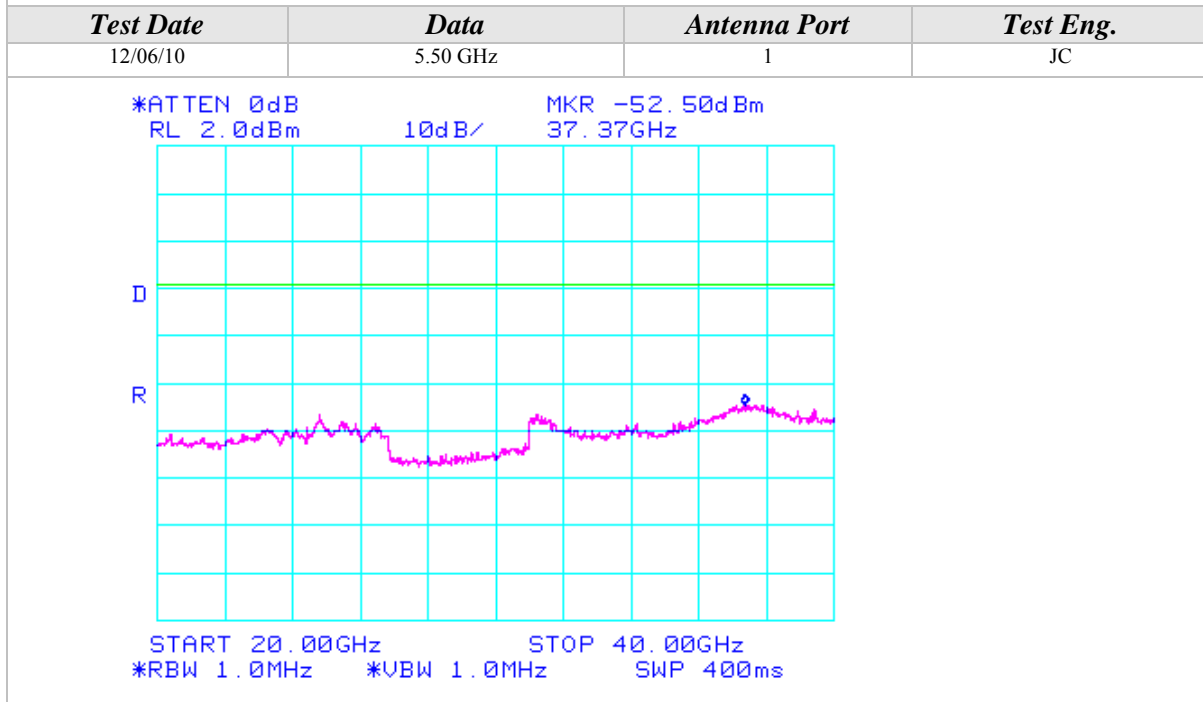
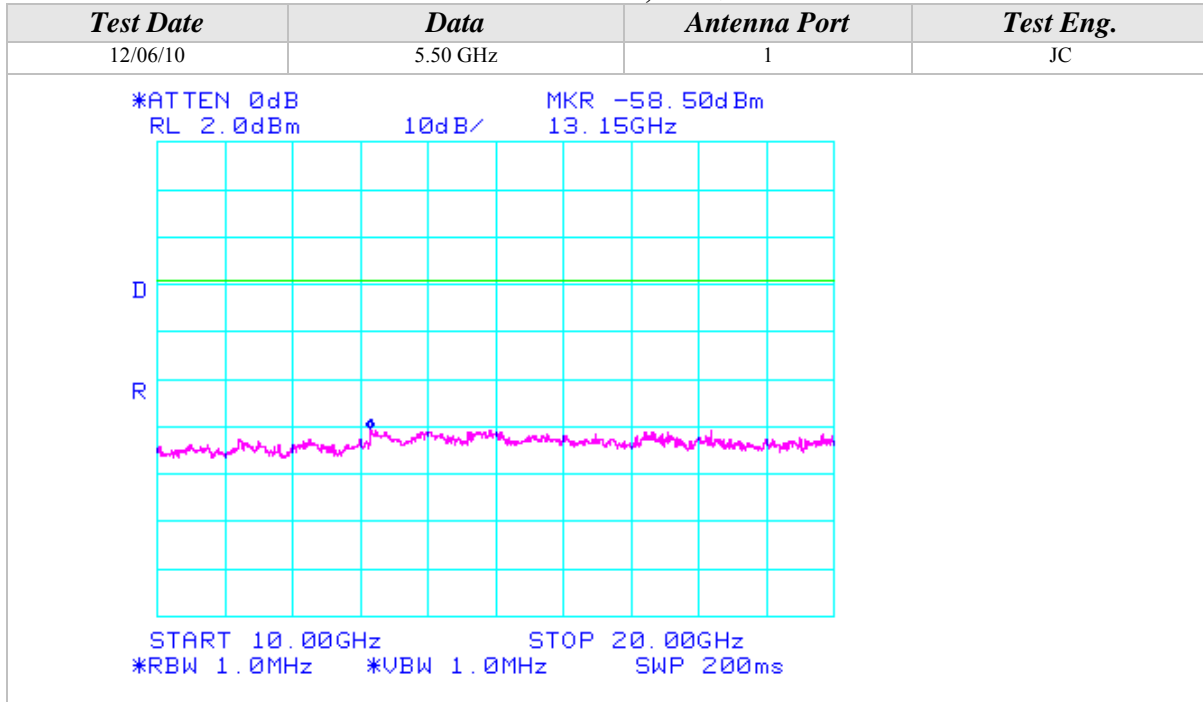
802.11n Mode, 5GHz





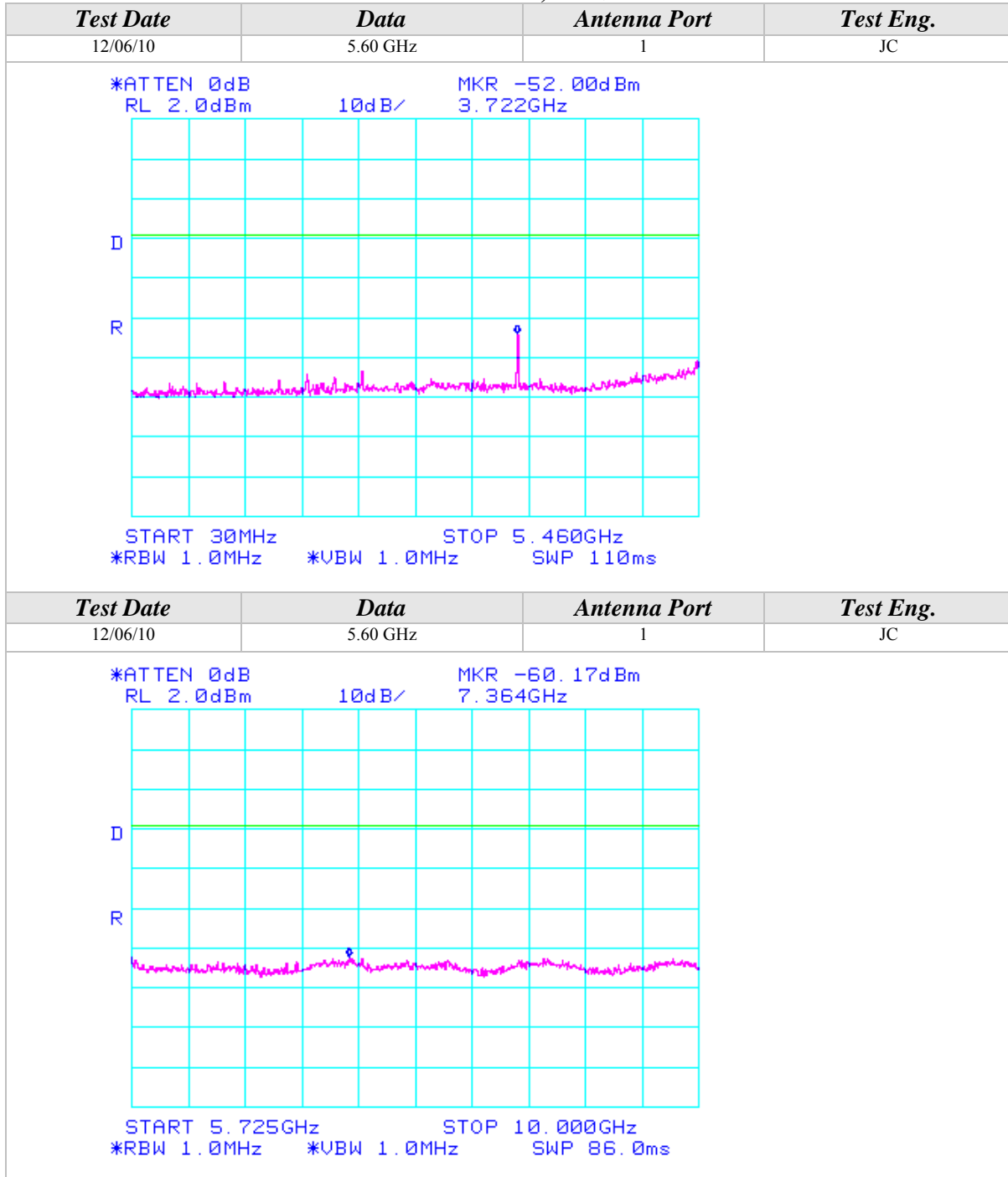
Conducted Out Of Band Emissions (Continued)

802.11n Mode, 5GHz



Conducted Out Of Band Emissions (Continued)

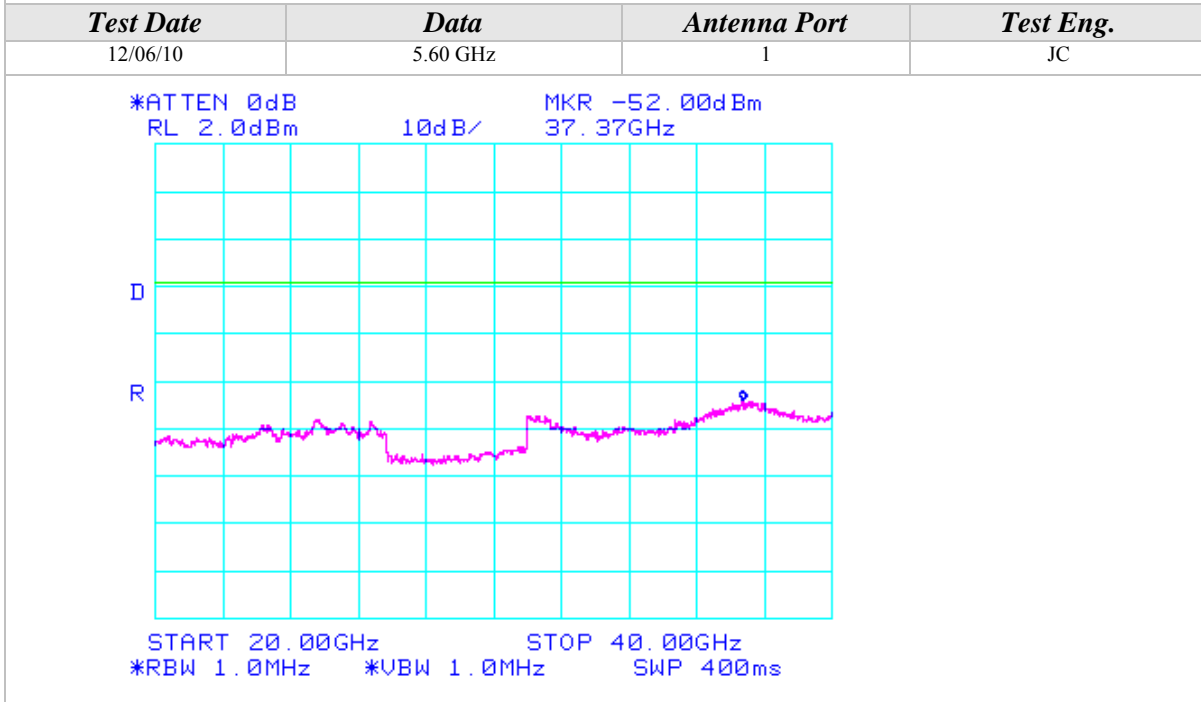
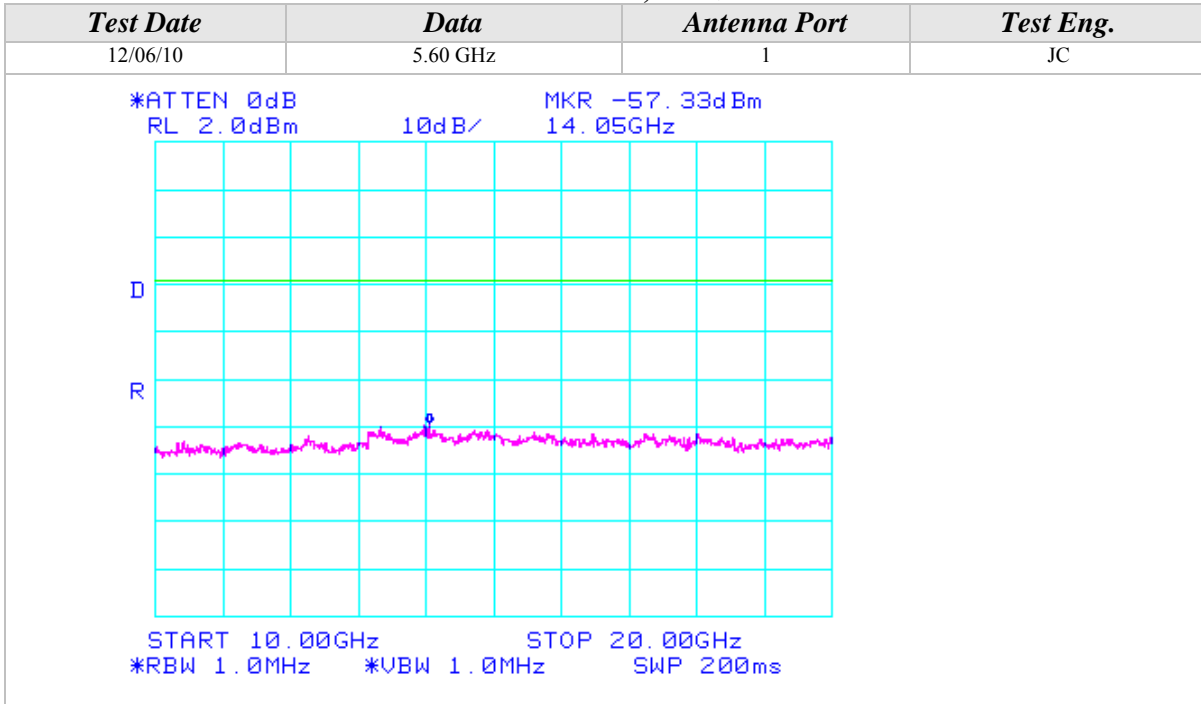
802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

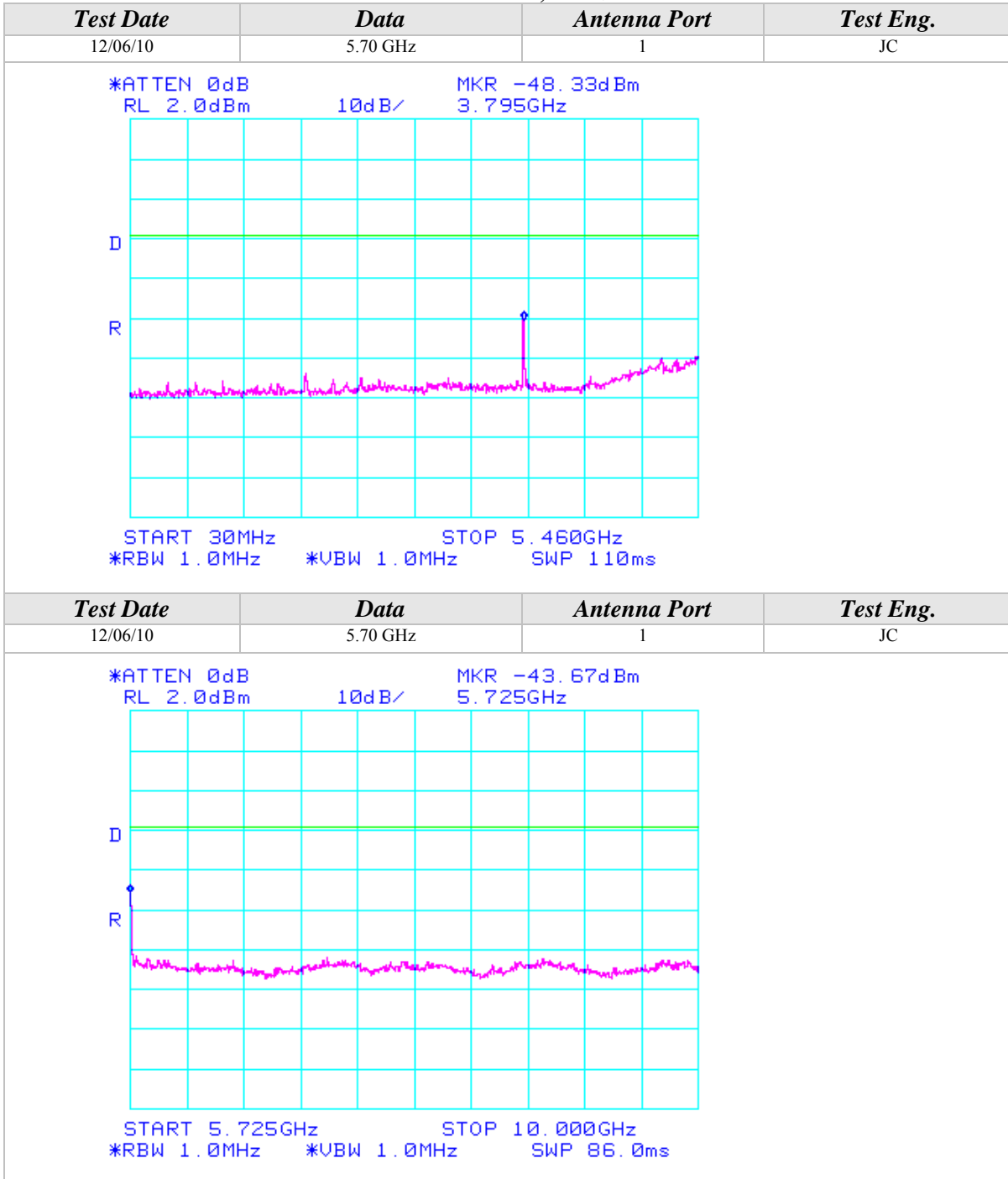
802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

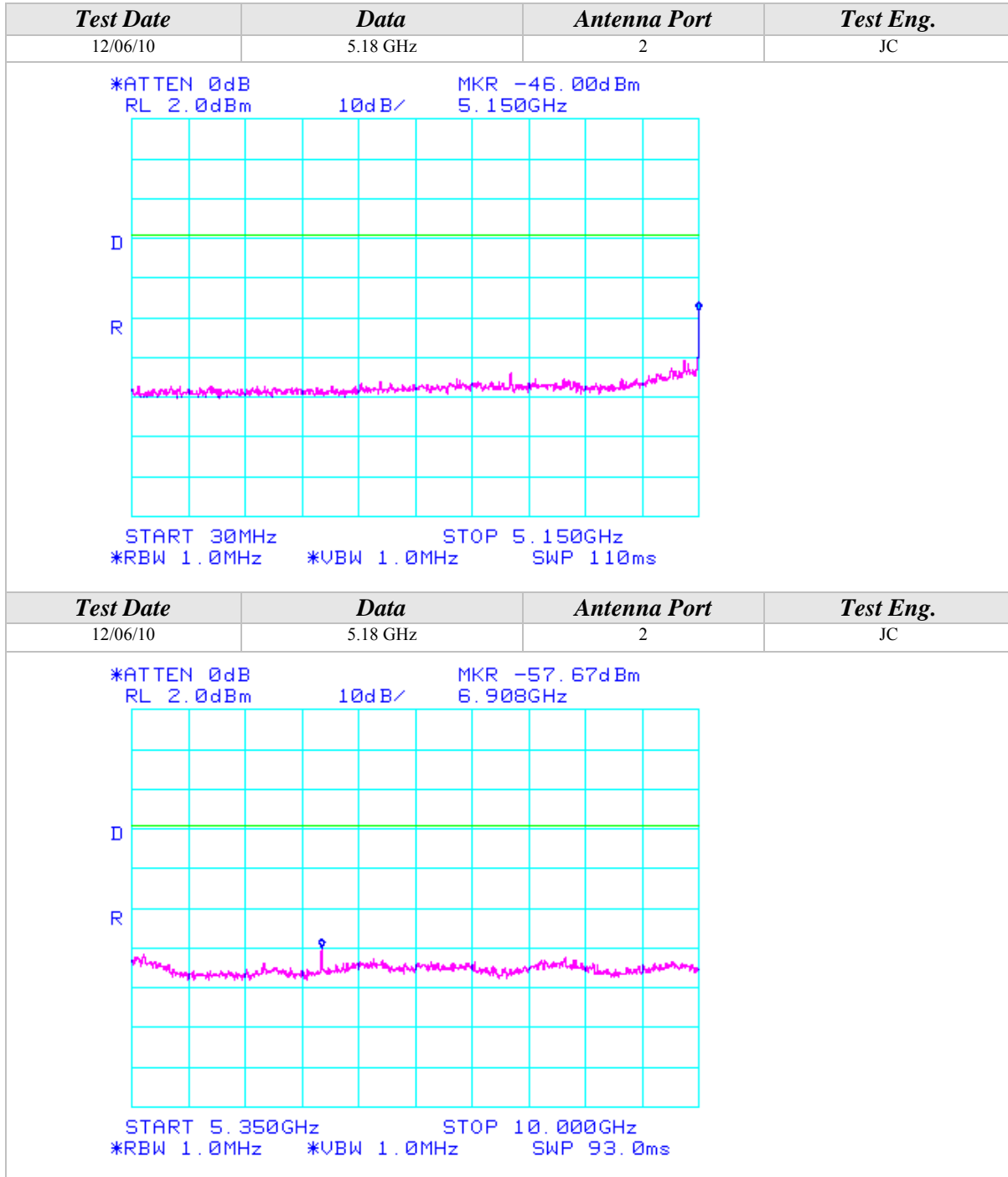
802.11n Mode, 5GHz





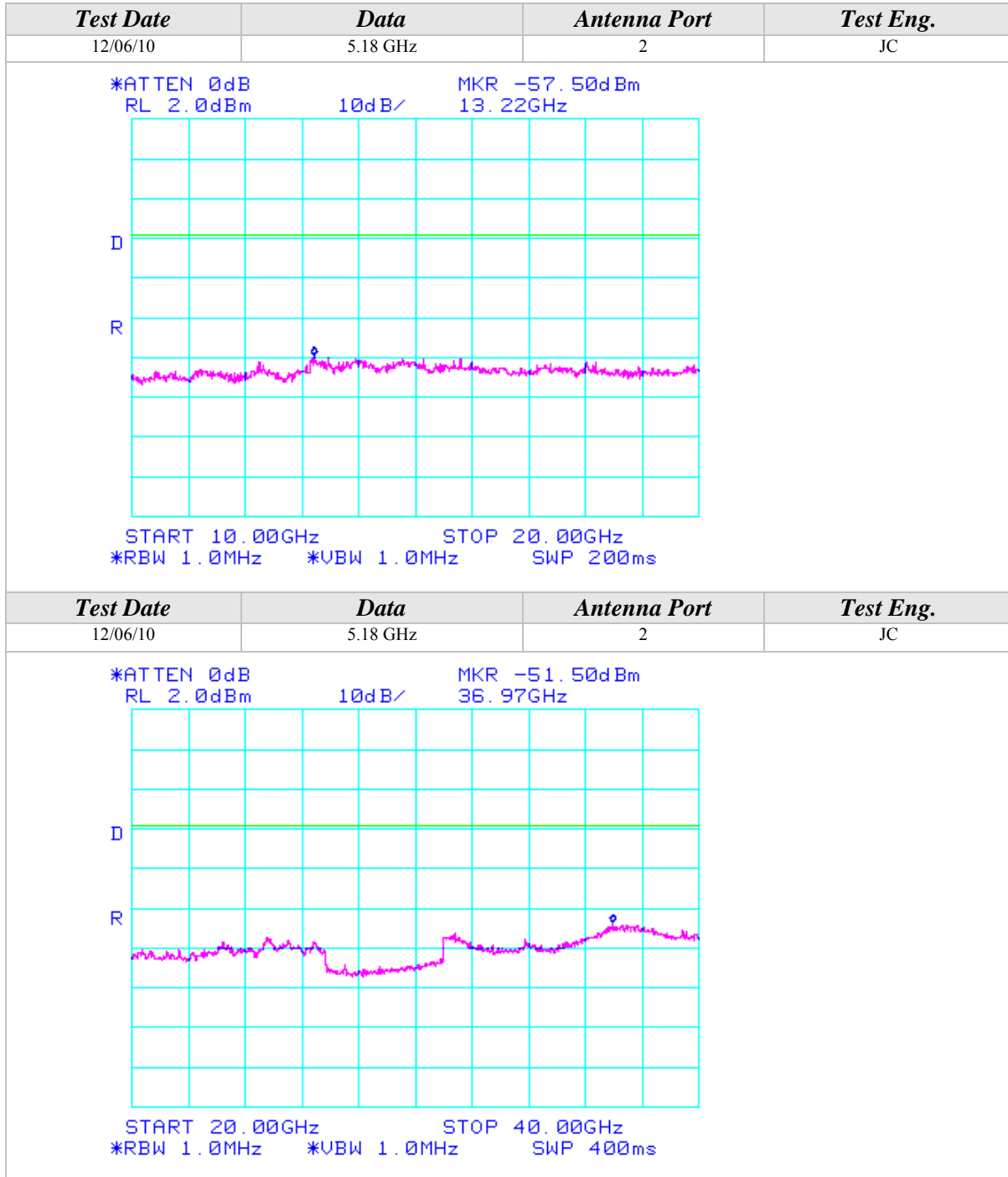
Conducted Out Of Band Emissions (Continued)

802.11a Mode



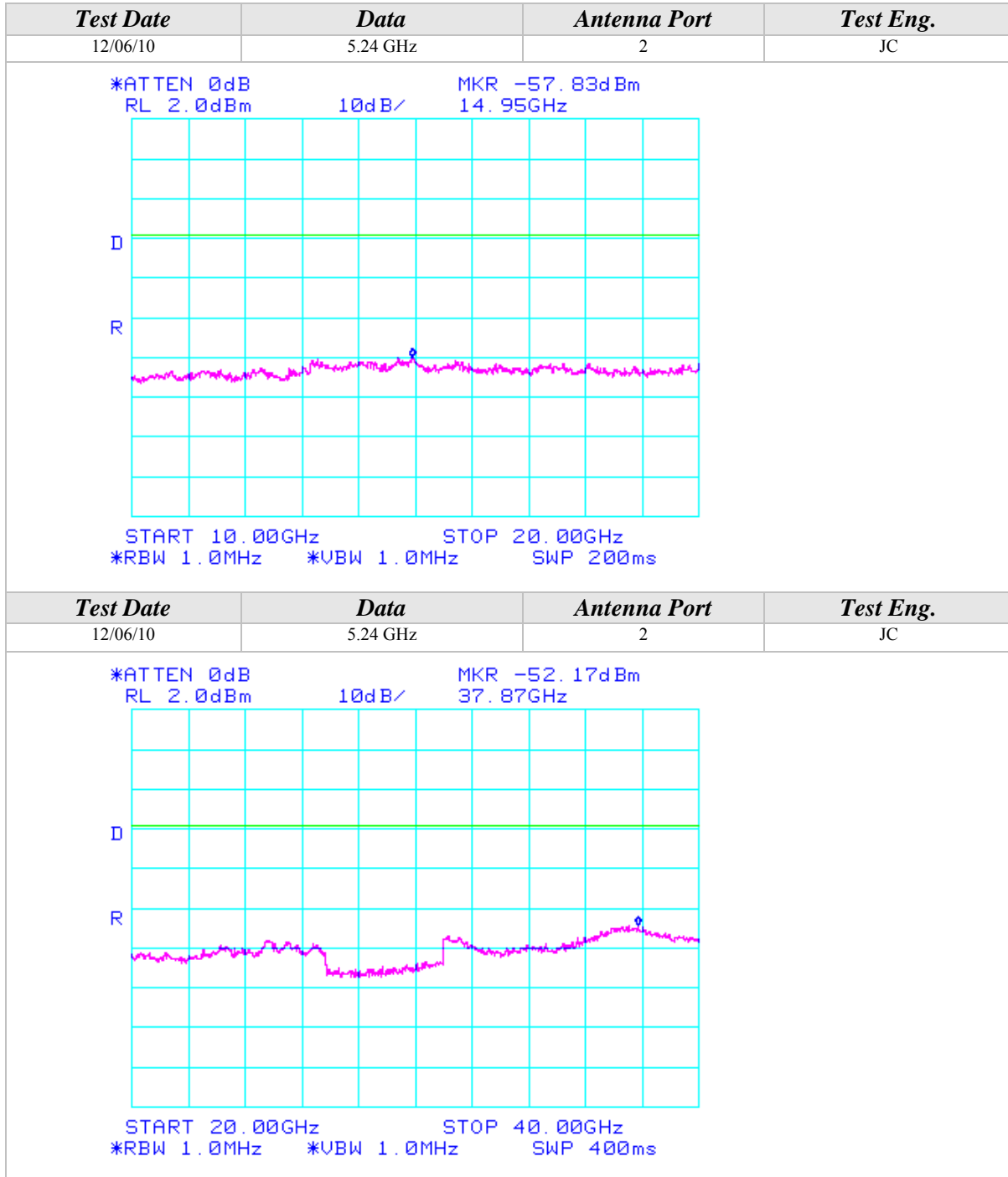
Conducted Out Of Band Emissions (Continued)

802.11a Mode



Conducted Out Of Band Emissions (Continued)

802.11a Mode



Conducted Out Of Band Emissions (Continued)

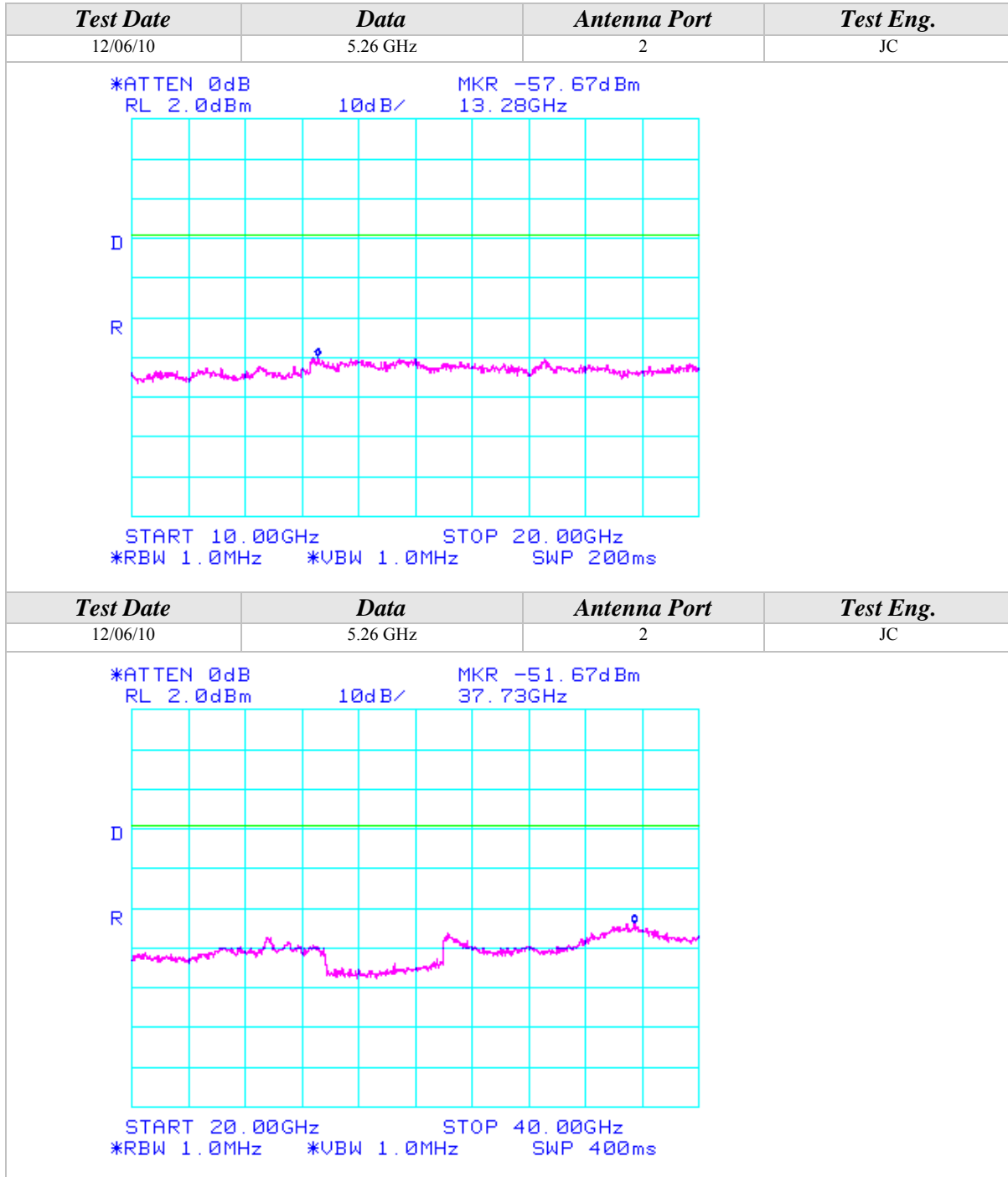
802.11a Mode

<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/06/10	5.26 GHz	2	JC
<p>*ATTEN 0dB MKR -59.67dBm RL 2.0dBm 10dB/ 4.988GHz</p> <p>START 30MHz STOP 5.150GHz *RBW 1.0MHz *VBW 1.0MHz SWP 110ms</p>			
<i>Test Date</i>	<i>Data</i>	<i>Antenna Port</i>	<i>Test Eng.</i>
12/06/10	5.26 GHz	2	JC
<p>*ATTEN 0dB MKR -58.17dBm RL 2.0dBm 10dB/ 5.373GHz</p> <p>START 5.350GHz STOP 10.000GHz *RBW 1.0MHz *VBW 1.0MHz SWP 93.0ms</p>			



Conducted Out Of Band Emissions (Continued)

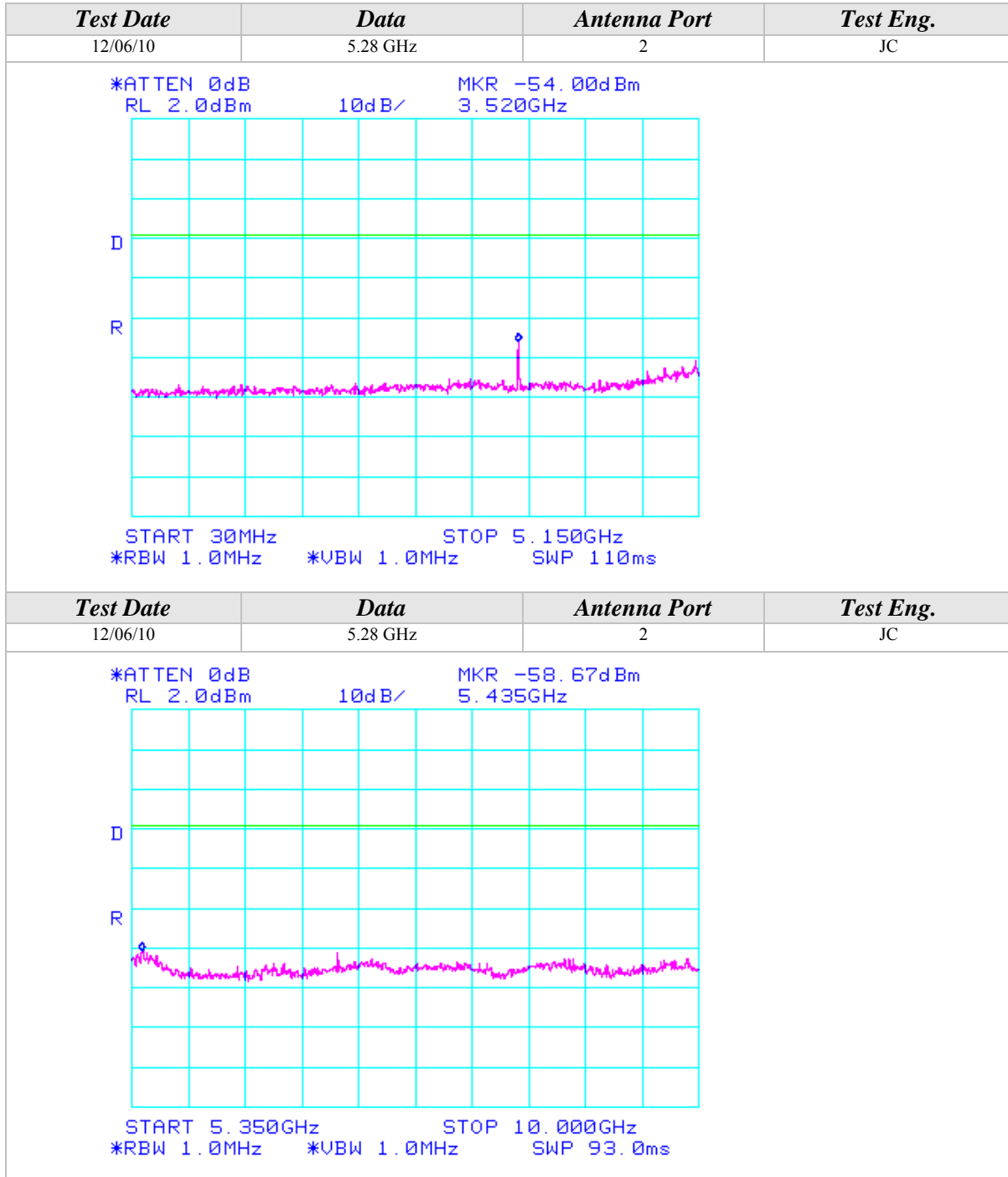
802.11a Mode





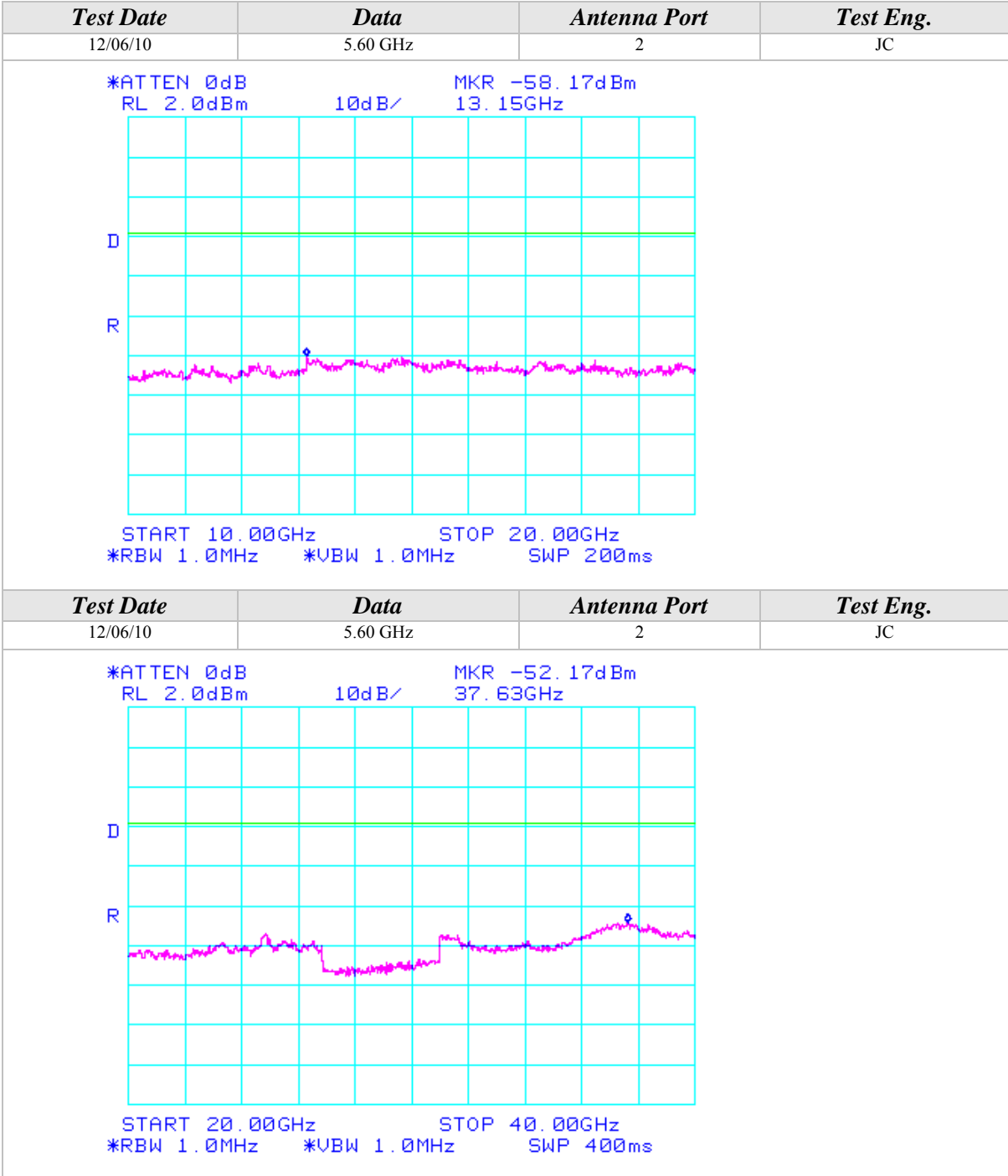
Conducted Out Of Band Emissions (Continued)

802.11a Mode



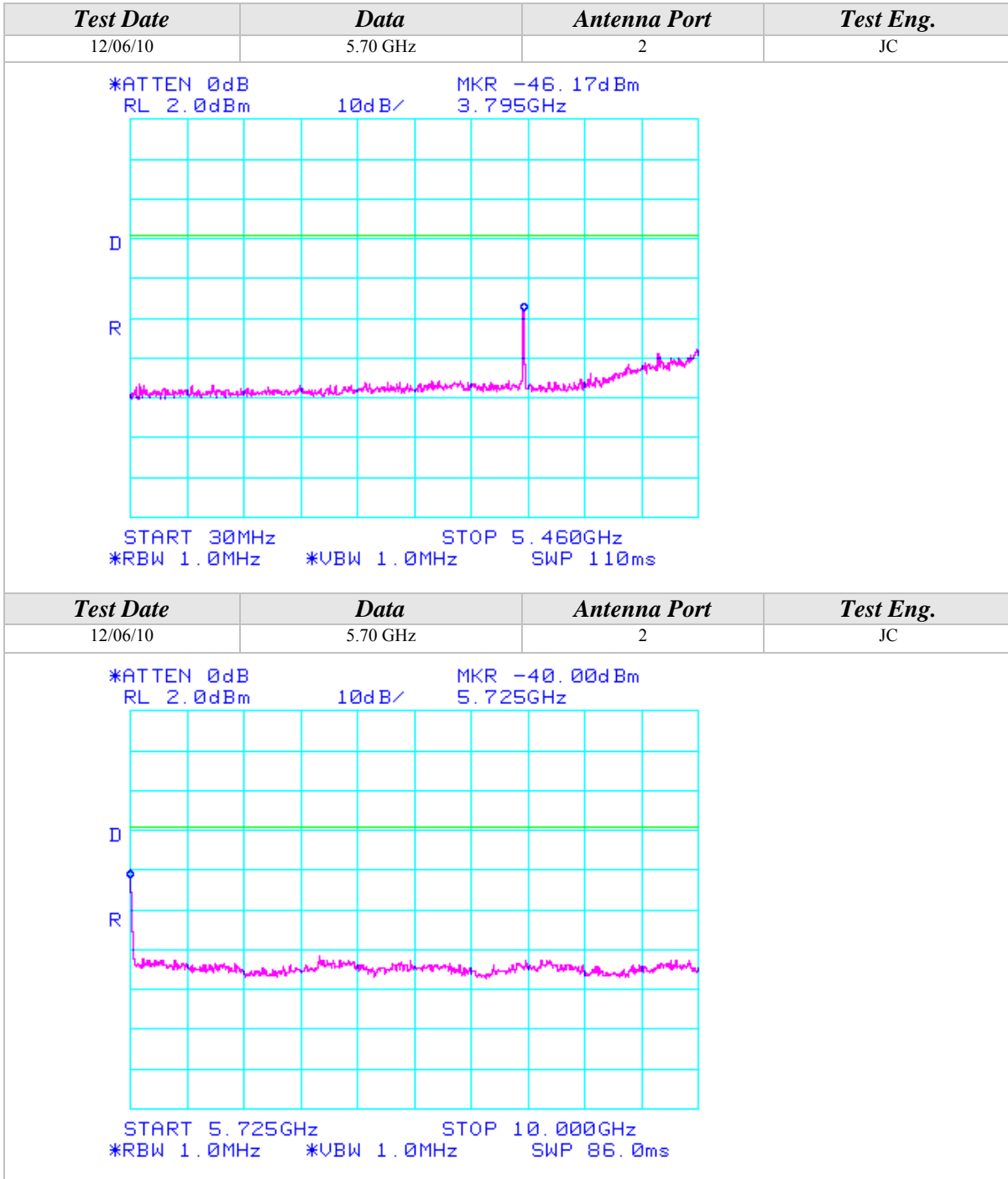
Conducted Out Of Band Emissions (Continued)

802.11a Mode



Conducted Out Of Band Emissions (Continued)

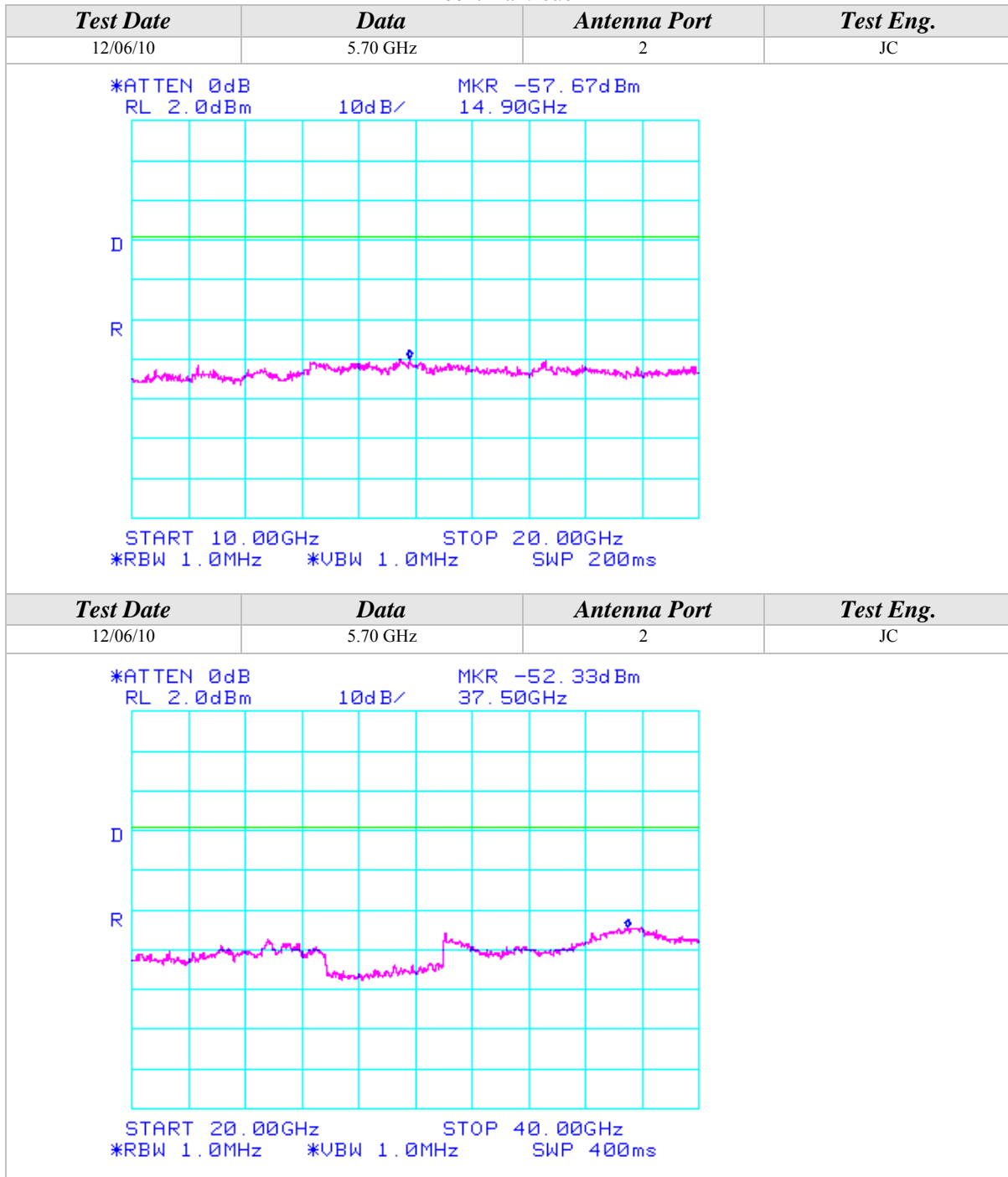
802.11a Mode





Conducted Out Of Band Emissions (Continued)

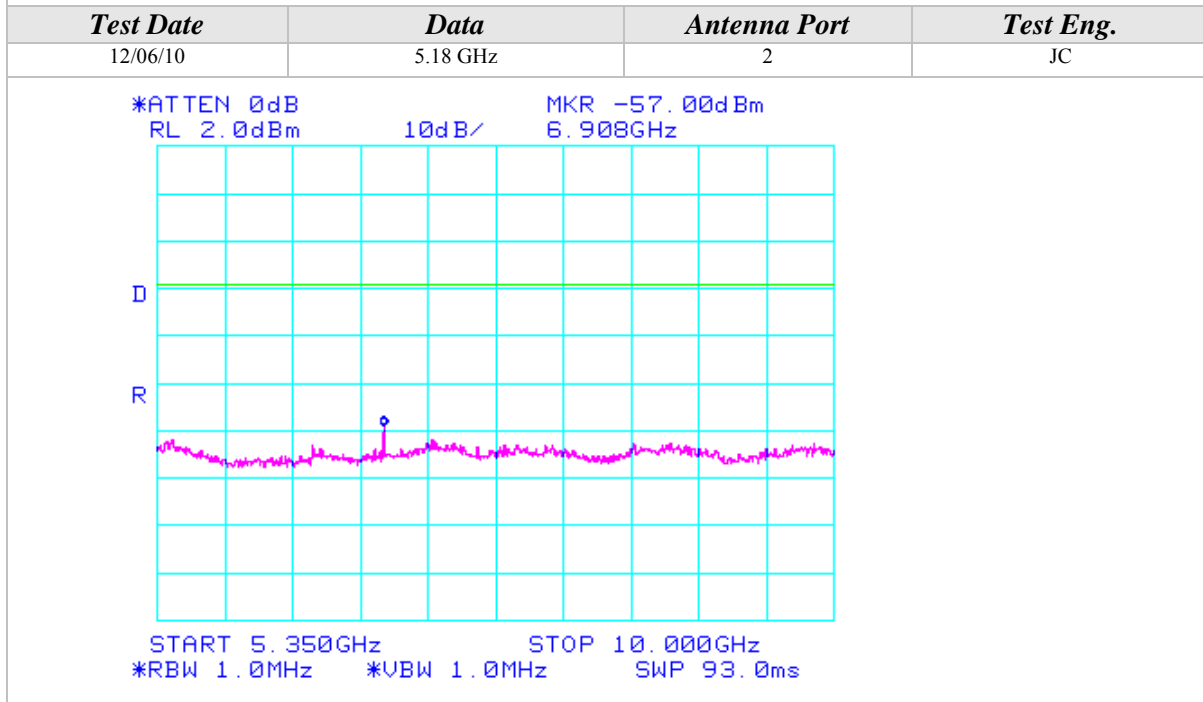
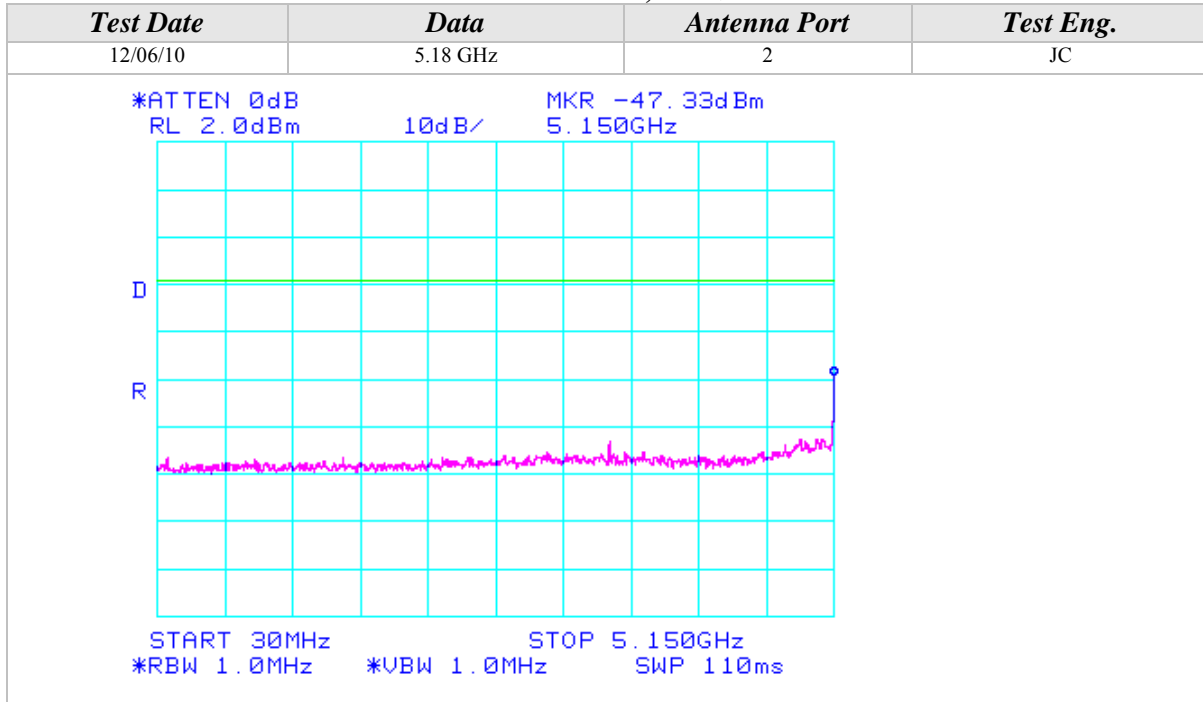
802.11a Mode





Conducted Out Of Band Emissions (Continued)

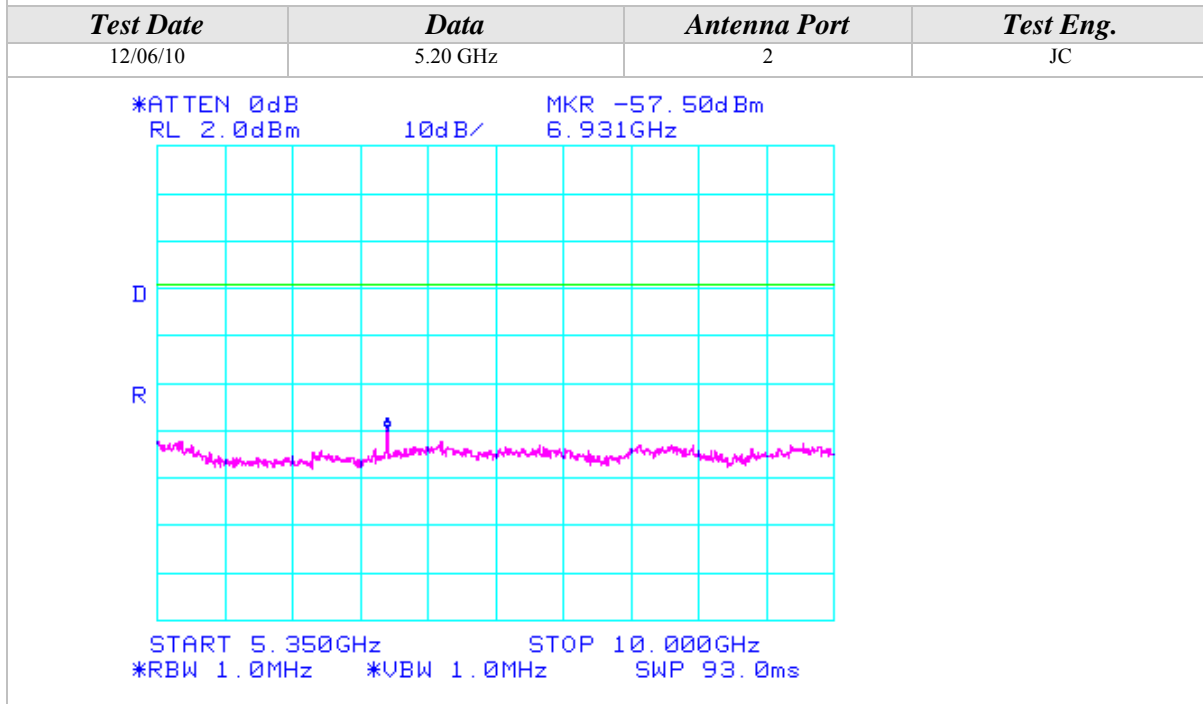
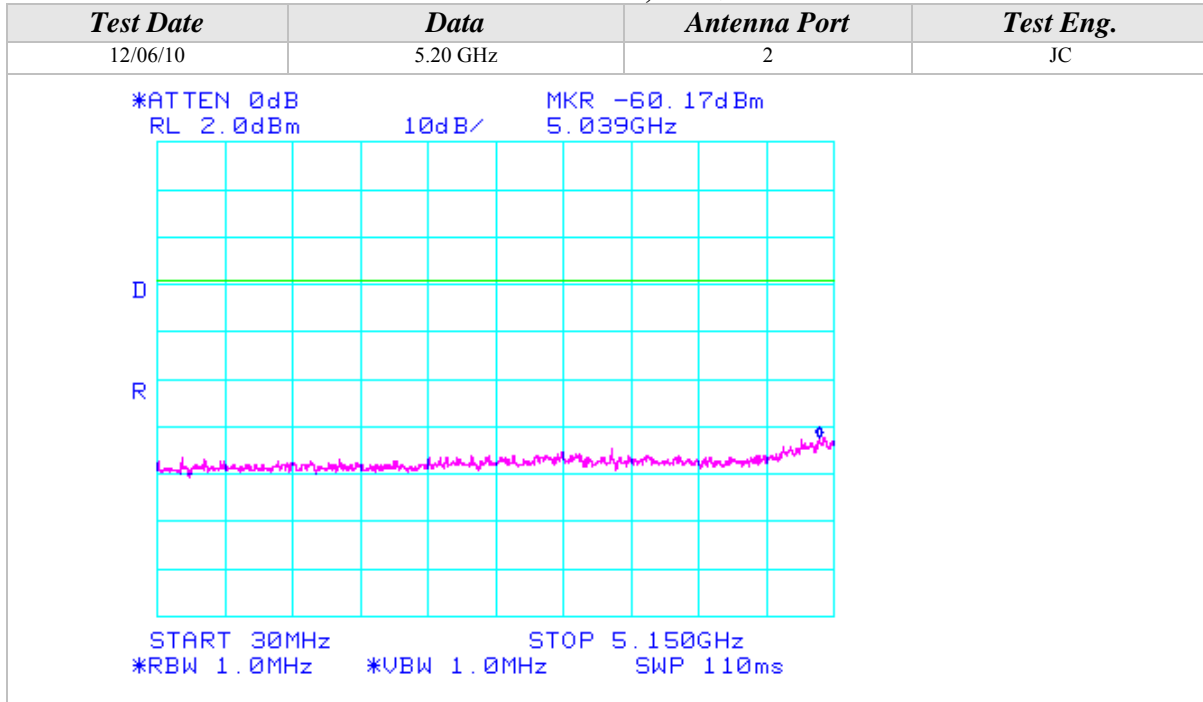
802.11n Mode, 5GHz





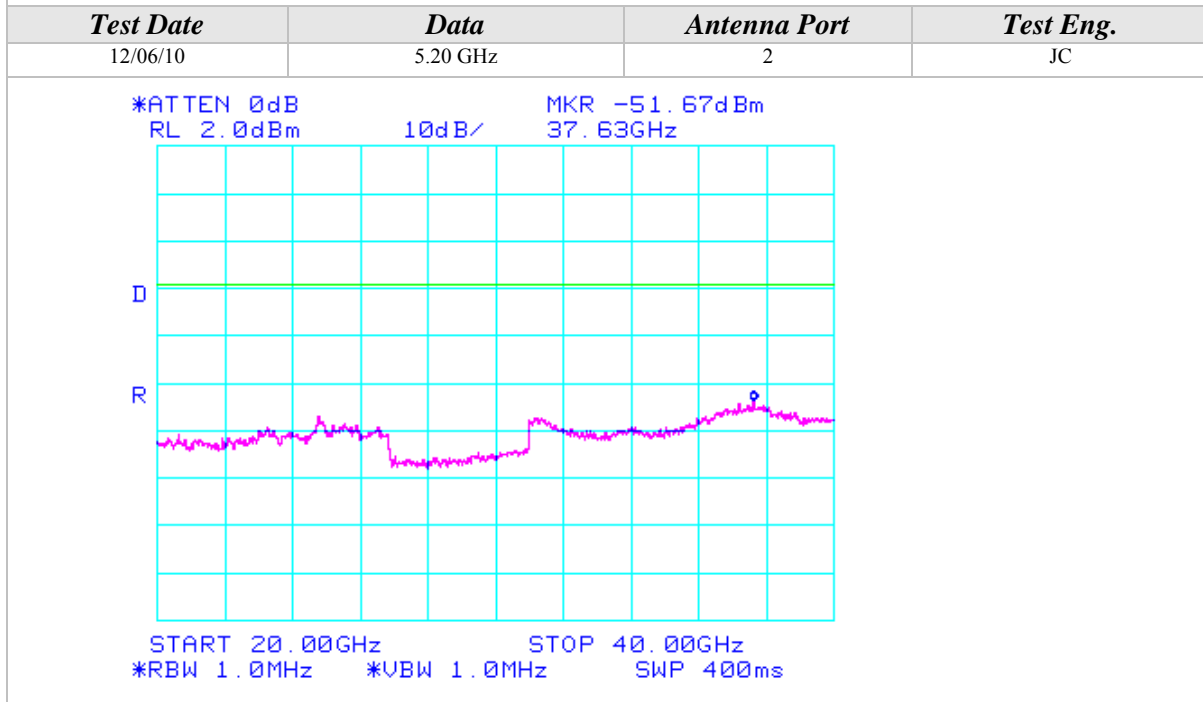
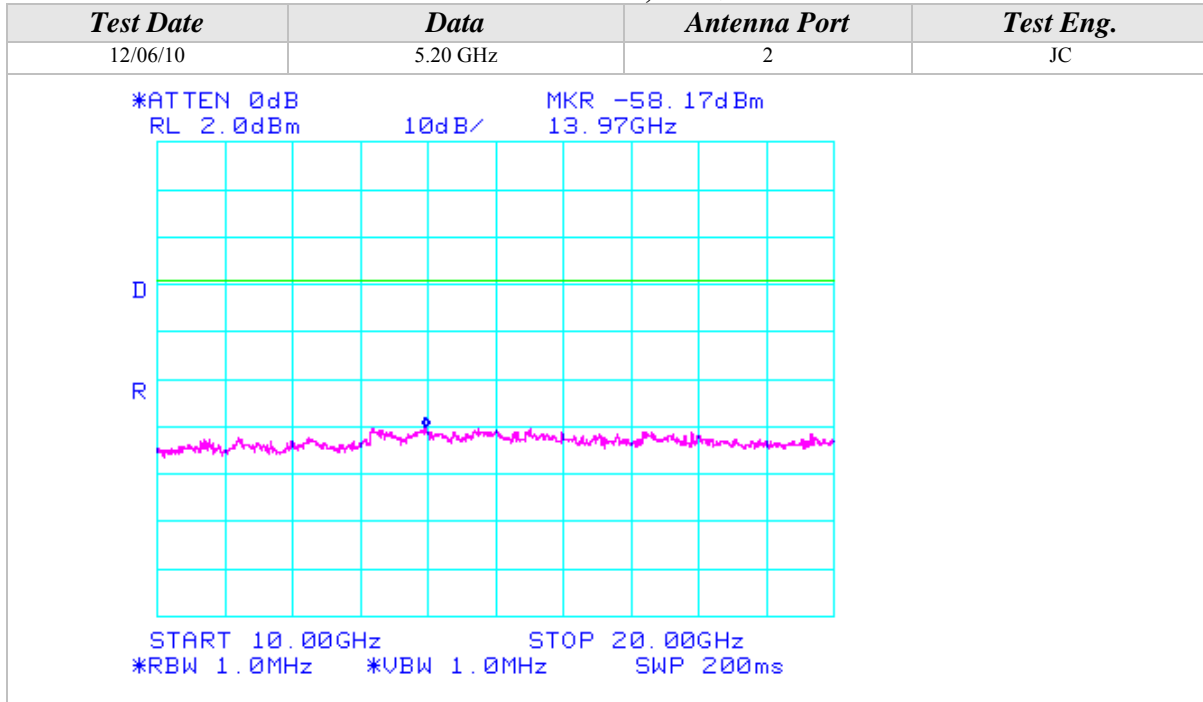
Conducted Out Of Band Emissions (Continued)

802.11n Mode, 5GHz



Conducted Out Of Band Emissions (Continued)

802.11n Mode, 5GHz

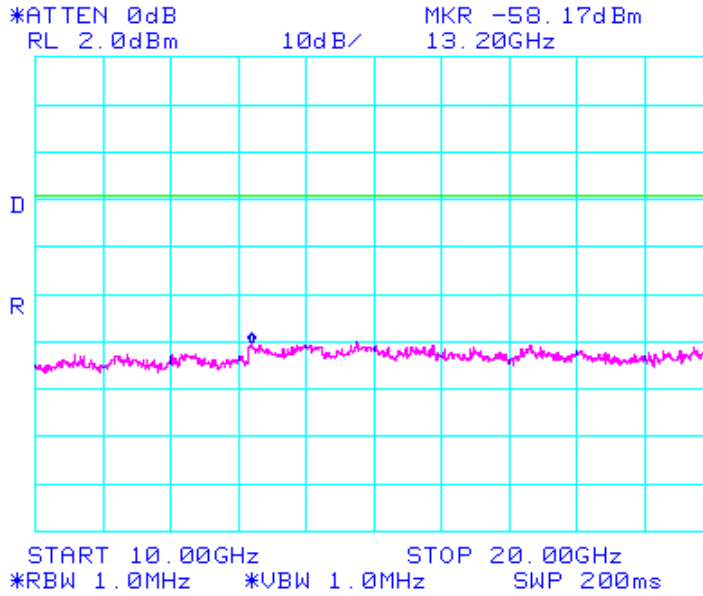




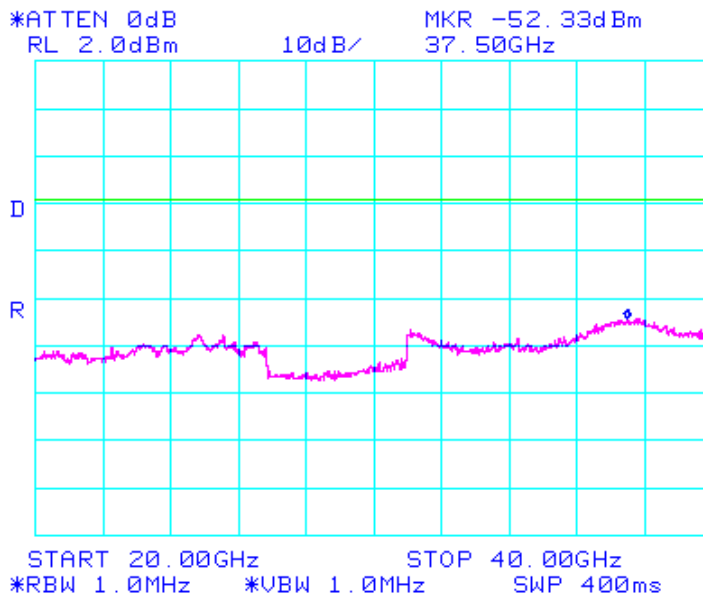
Conducted Out Of Band Emissions (Continued)

802.11n Mode, 5GHz

Test Date	Data	Antenna Port	Test Eng.
12/06/10	5.24 GHz	2	JC



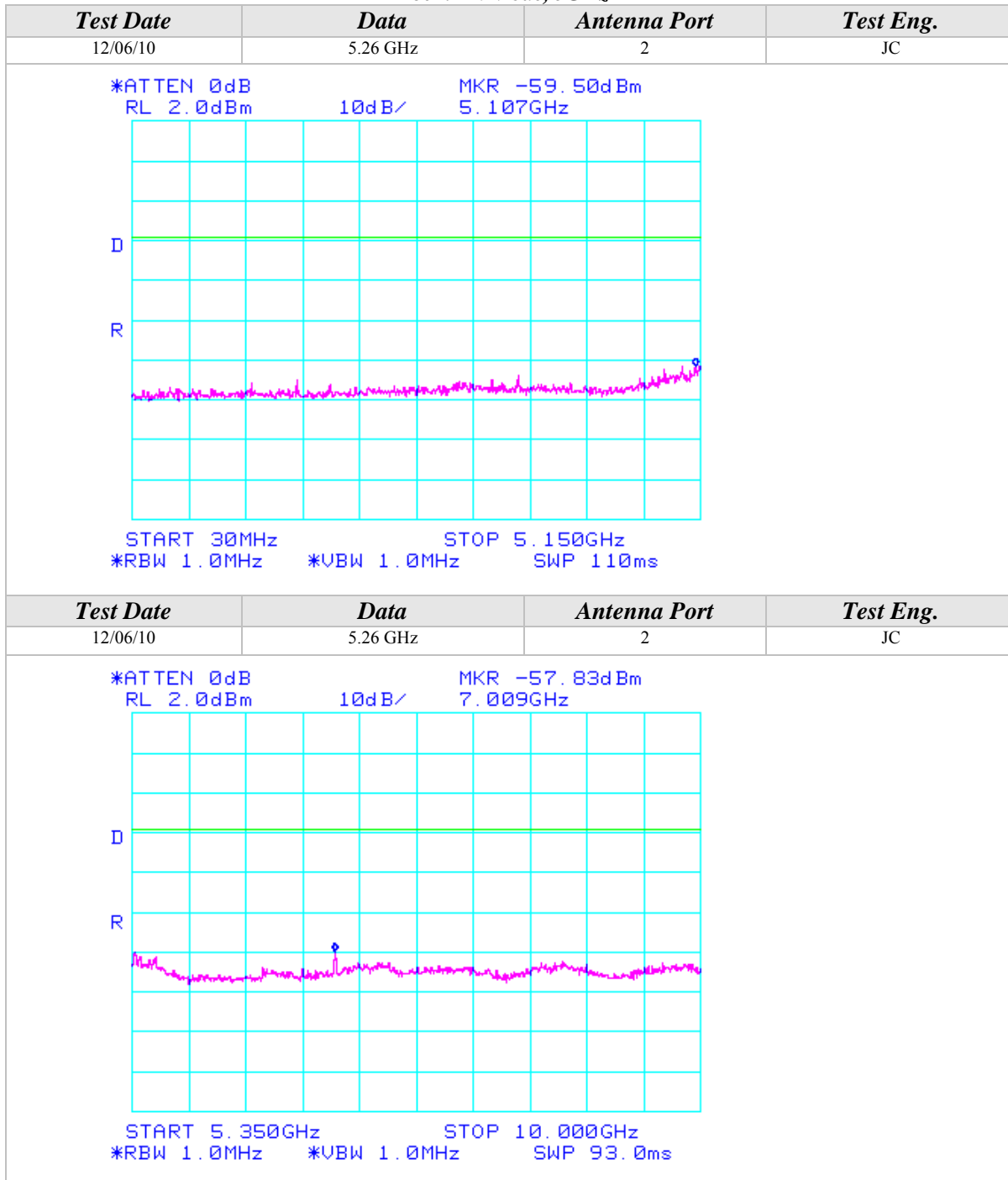
Test Date	Data	Antenna Port	Test Eng.
12/06/10	5.24 GHz	2	JC





Conducted Out Of Band Emissions (Continued)

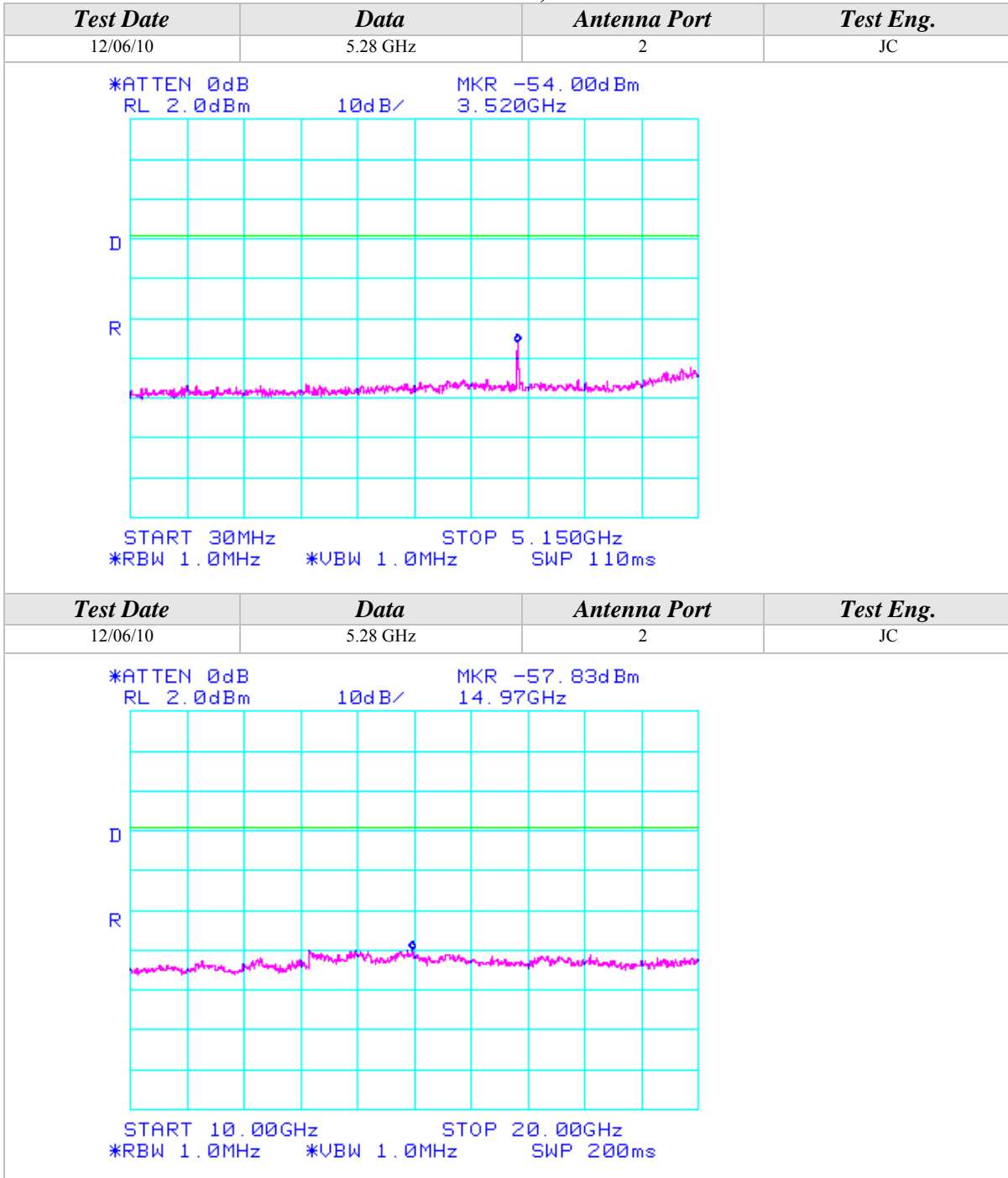
802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

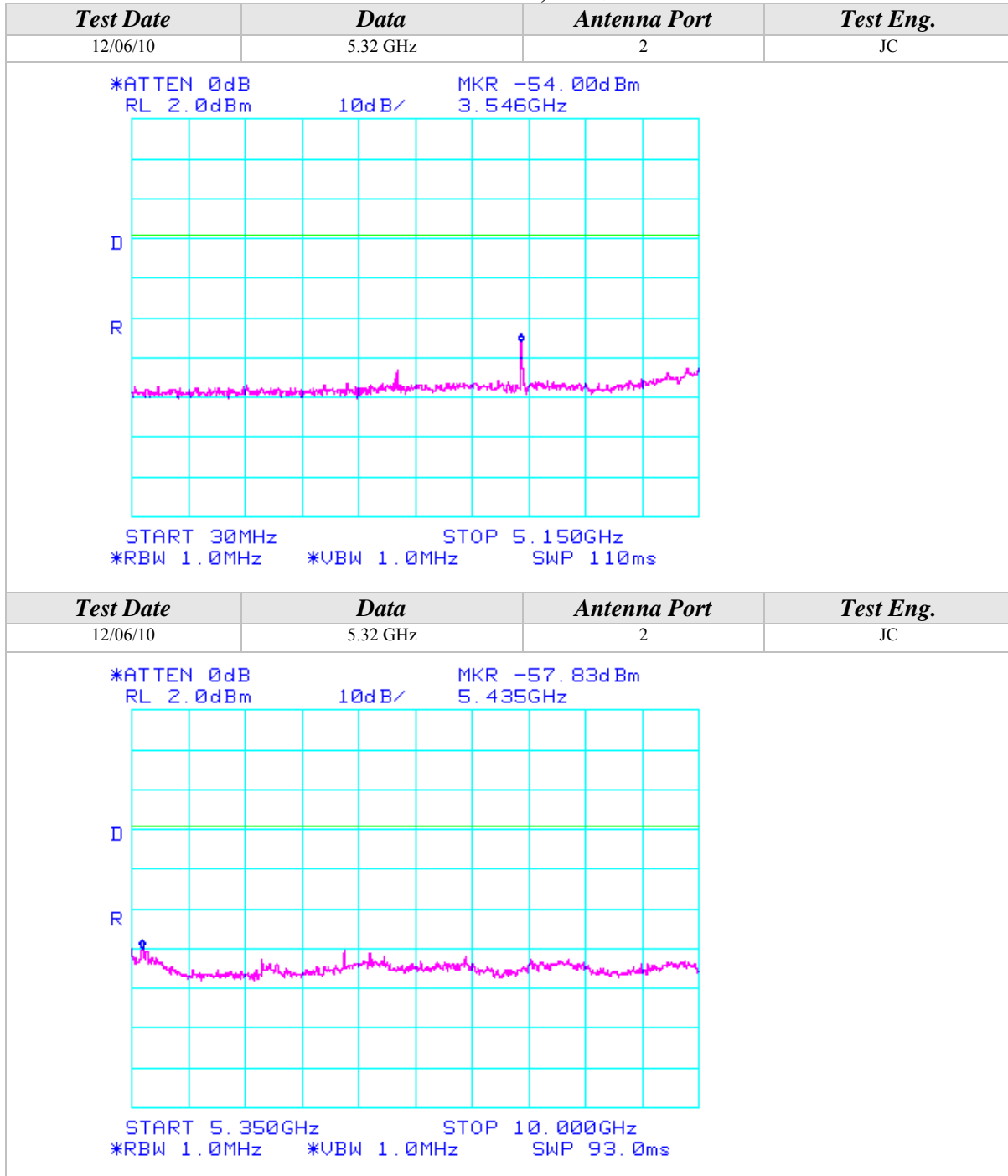
802.11n Mode, 5GHz

Test Date	Data	Antenna Port	Test Eng.
12/06/10	5.28 GHz	2	JC
<p>*ATTEN 0dB RL 2.0dBm 10dB/ MKR -57.83dBm 14.97GHz</p> <p>START 10.00GHz STOP 20.00GHz *RBW 1.0MHz *VBW 1.0MHz SWP 200ms</p>			
Test Date	Data	Antenna Port	Test Eng.
12/06/10	5.28 GHz	2	JC
<p>*ATTEN 0dB RL 2.0dBm 10dB/ MKR -51.83dBm 37.20GHz</p> <p>START 20.00GHz STOP 40.00GHz *RBW 1.0MHz *VBW 1.0MHz SWP 400ms</p>			



Conducted Out Of Band Emissions (Continued)

802.11n Mode, 5GHz





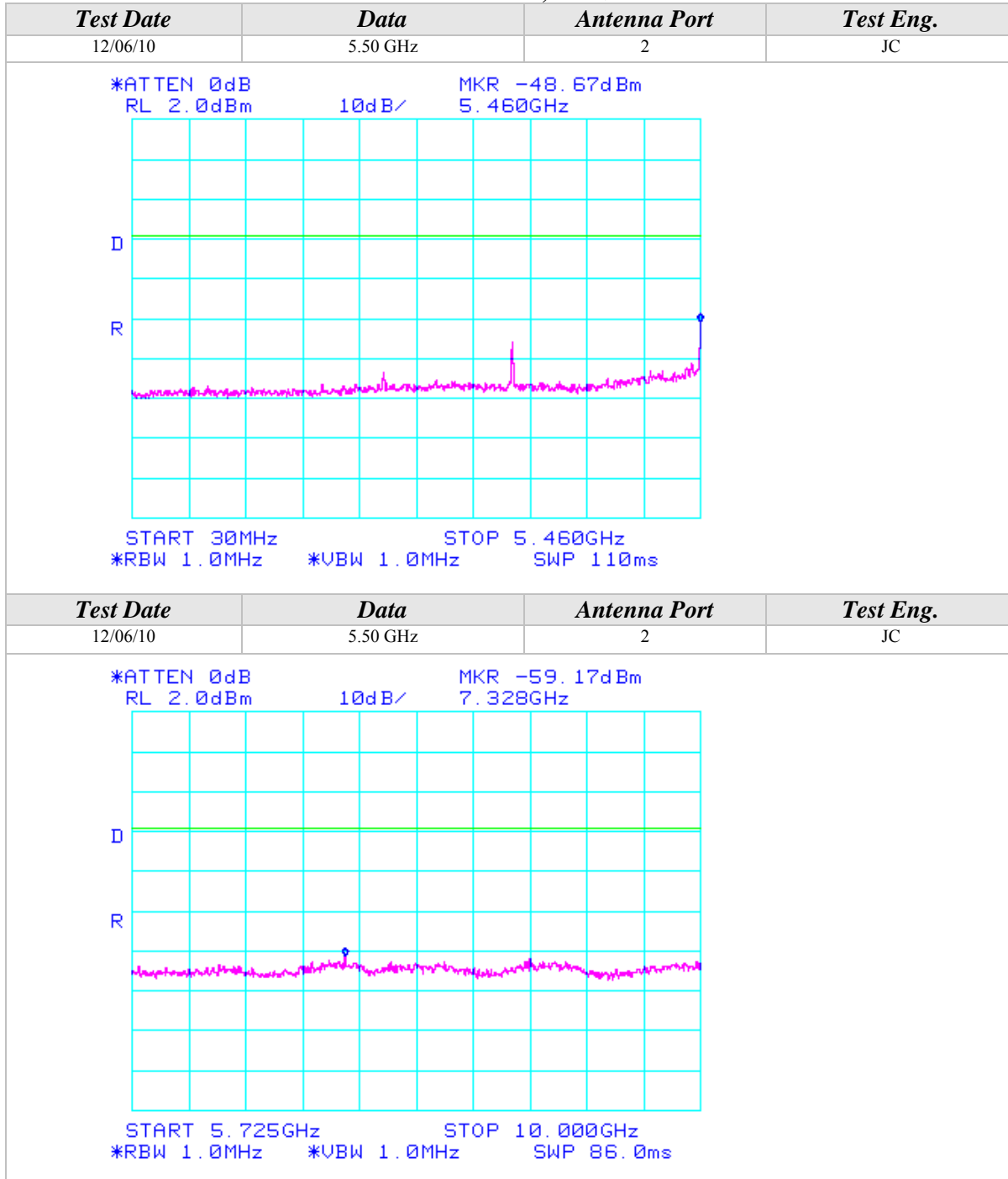
Conducted Out Of Band Emissions (Continued)

802.11n Mode, 5GHz

Test Date	Data	Antenna Port	Test Eng.
12/06/10	5.32 GHz	2	JC
<p>*ATTEN 0dB RL 2.0dBm 10dB/ MKR -57.83dBm 13.22GHz</p> <p>START 10.00GHz STOP 20.00GHz *RBW 1.0MHz *VBW 1.0MHz SWP 200ms</p>			
Test Date	Data	Antenna Port	Test Eng.
12/06/10	5.32 GHz	2	JC
<p>*ATTEN 0dB RL 2.0dBm 10dB/ MKR -52.17dBm 37.20GHz</p> <p>START 20.00GHz STOP 40.00GHz *RBW 1.0MHz *VBW 1.0MHz SWP 400ms</p>			

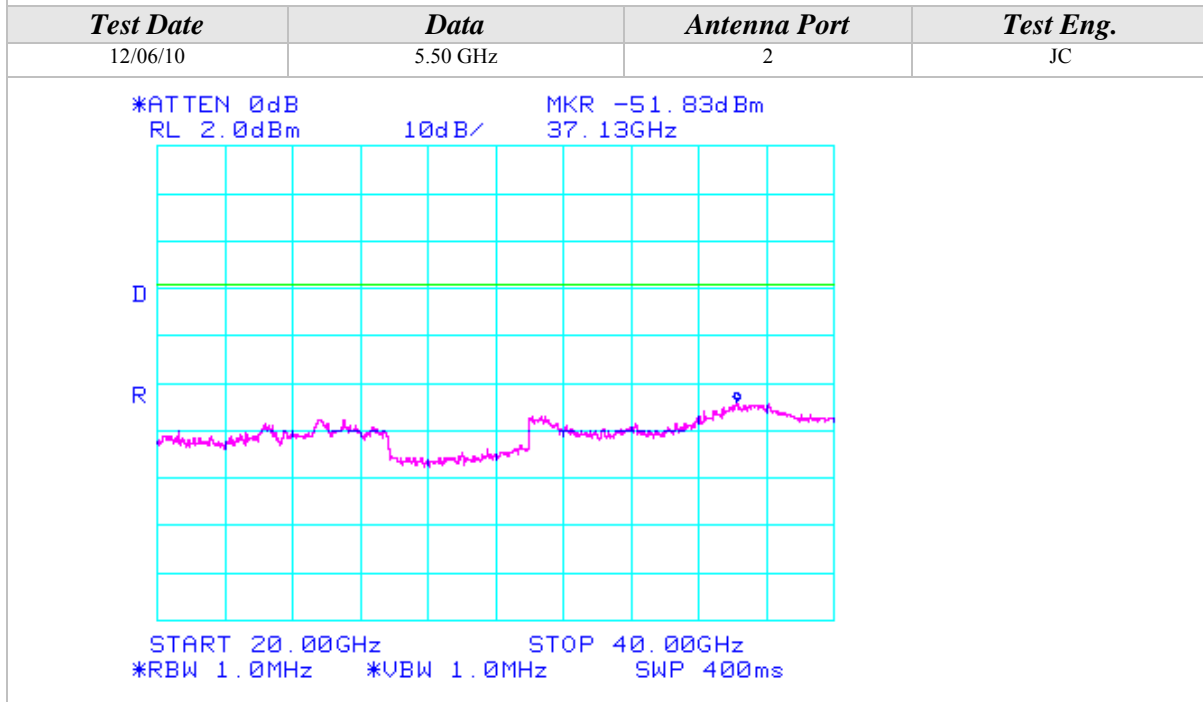
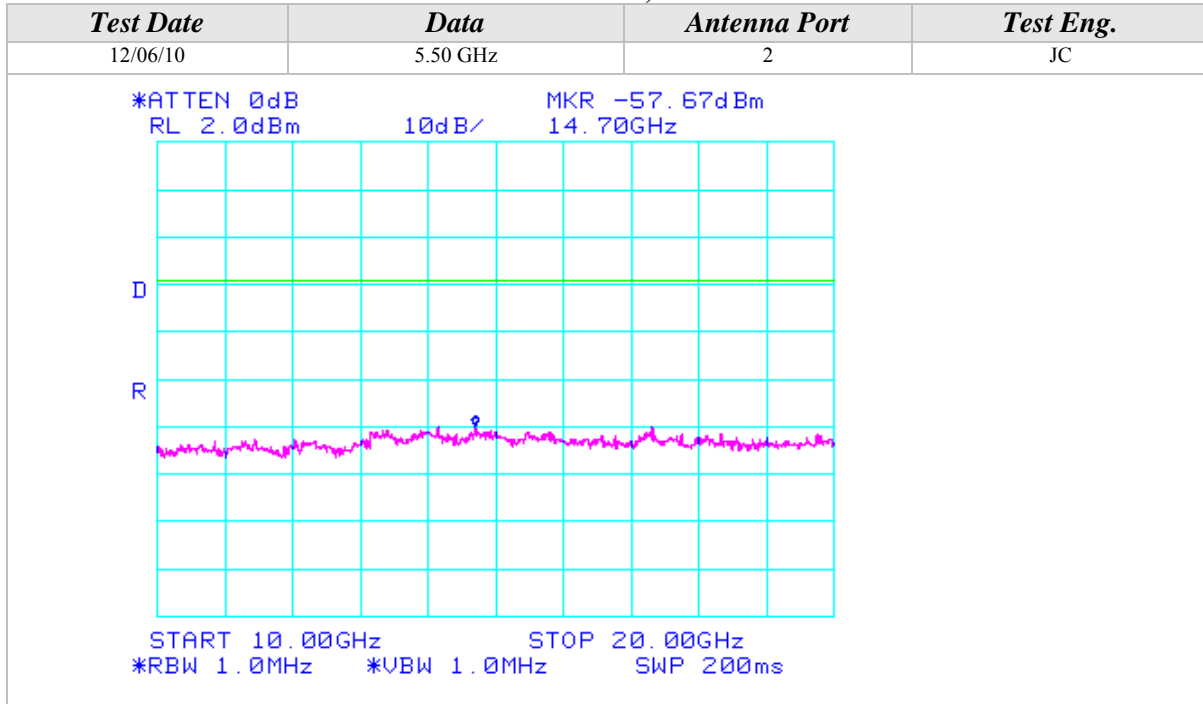
Conducted Out Of Band Emissions (Continued)

802.11n Mode, 5GHz



Conducted Out Of Band Emissions (Continued)

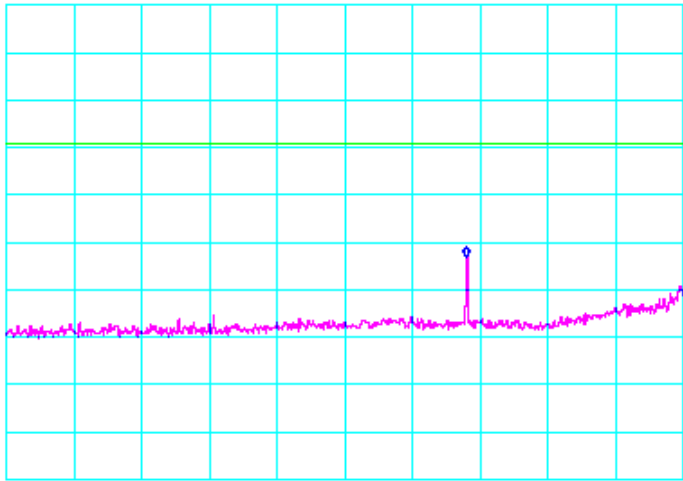
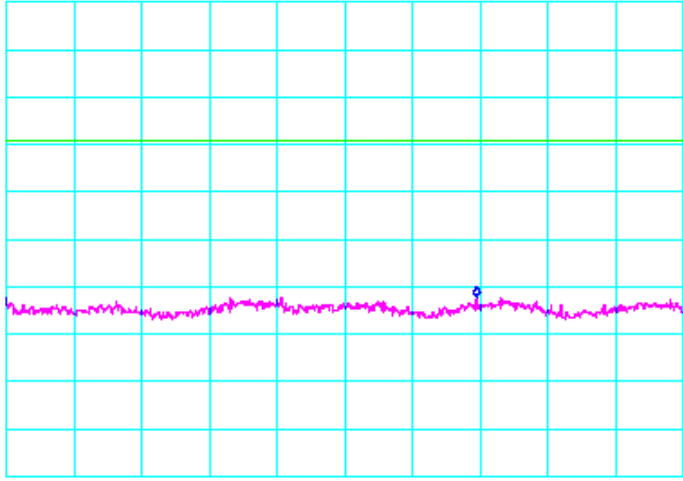
802.11n Mode, 5GHz





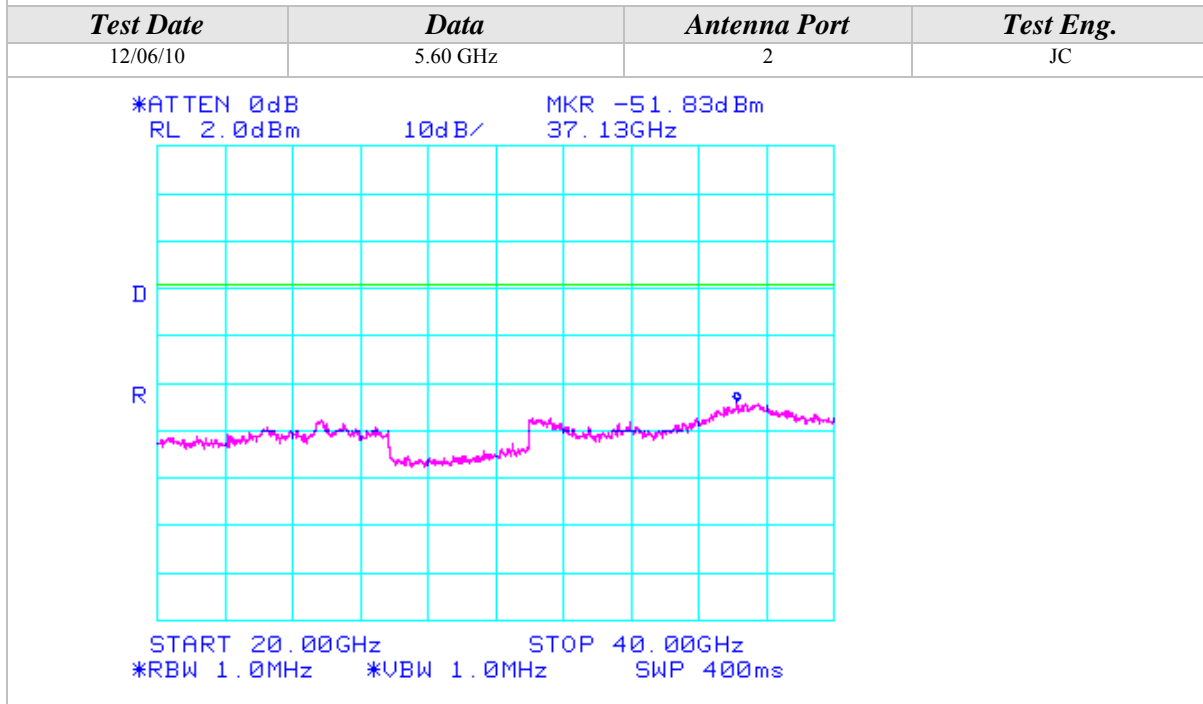
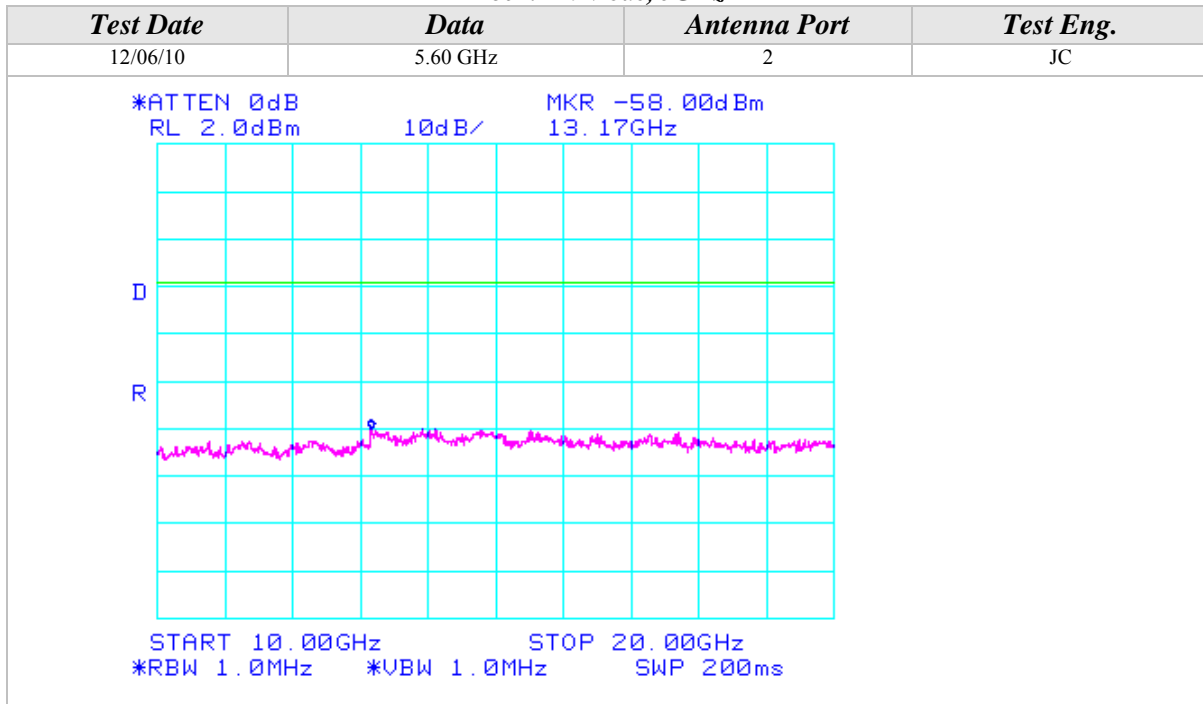
Conducted Out Of Band Emissions (Continued)

802.11n Mode, 5GHz

Test Date	Data	Antenna Port	Test Eng.
12/06/10	5.60 GHz	2	JC
<p>*ATTEN 0dB MKR -51.00dBm RL 2.0dBm 10dB/ 3.722GHz</p>  <p>START 30MHz STOP 5.460GHz *RBW 1.0MHz *VBW 1.0MHz SWP 110ms</p>			
Test Date	Data	Antenna Port	Test Eng.
12/06/10	5.60 GHz	2	JC
<p>*ATTEN 0dB MKR -60.17dBm RL 2.0dBm 10dB/ 8.696GHz</p>  <p>START 5.725GHz STOP 10.000GHz *RBW 1.0MHz *VBW 1.0MHz SWP 86.0ms</p>			

Conducted Out Of Band Emissions (Continued)

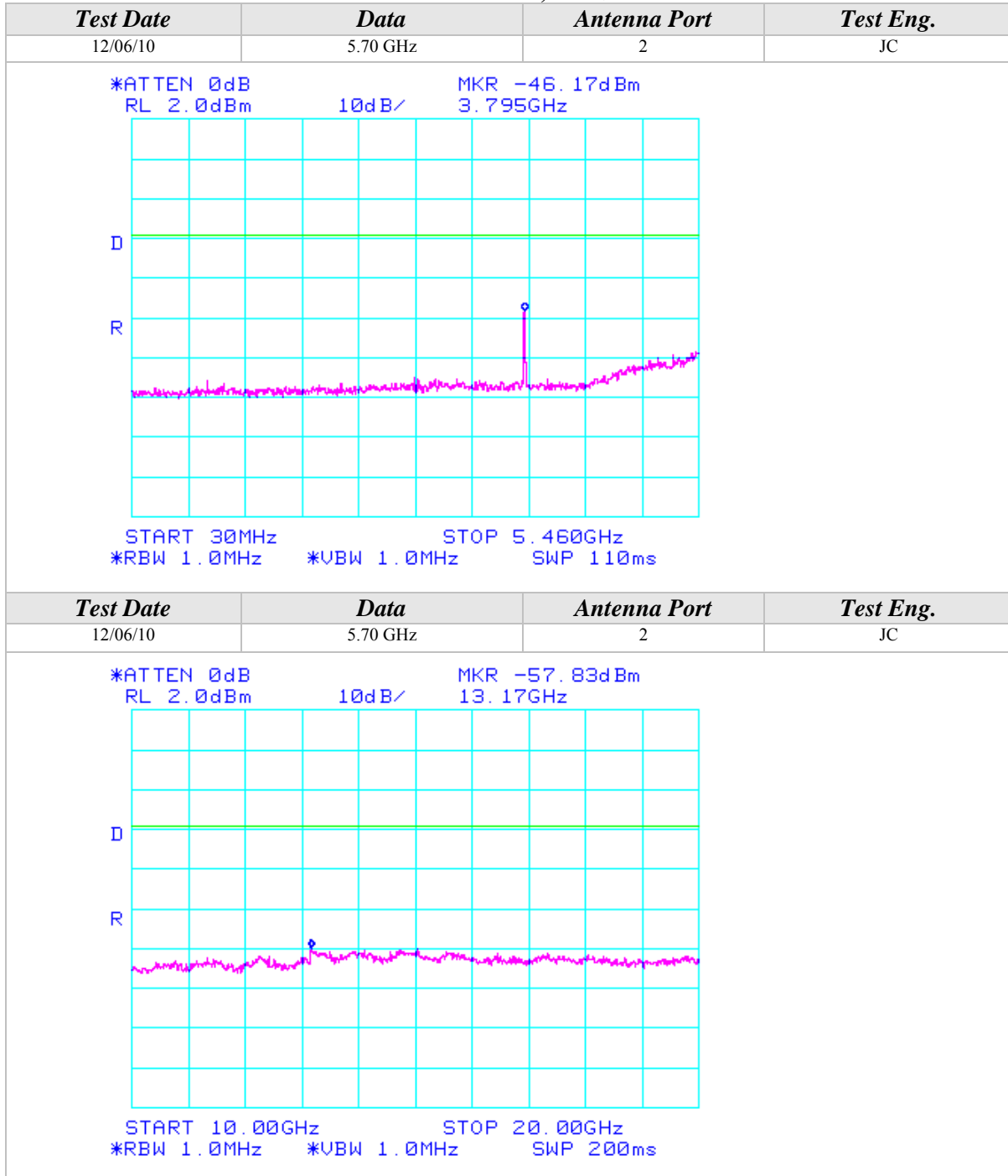
802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

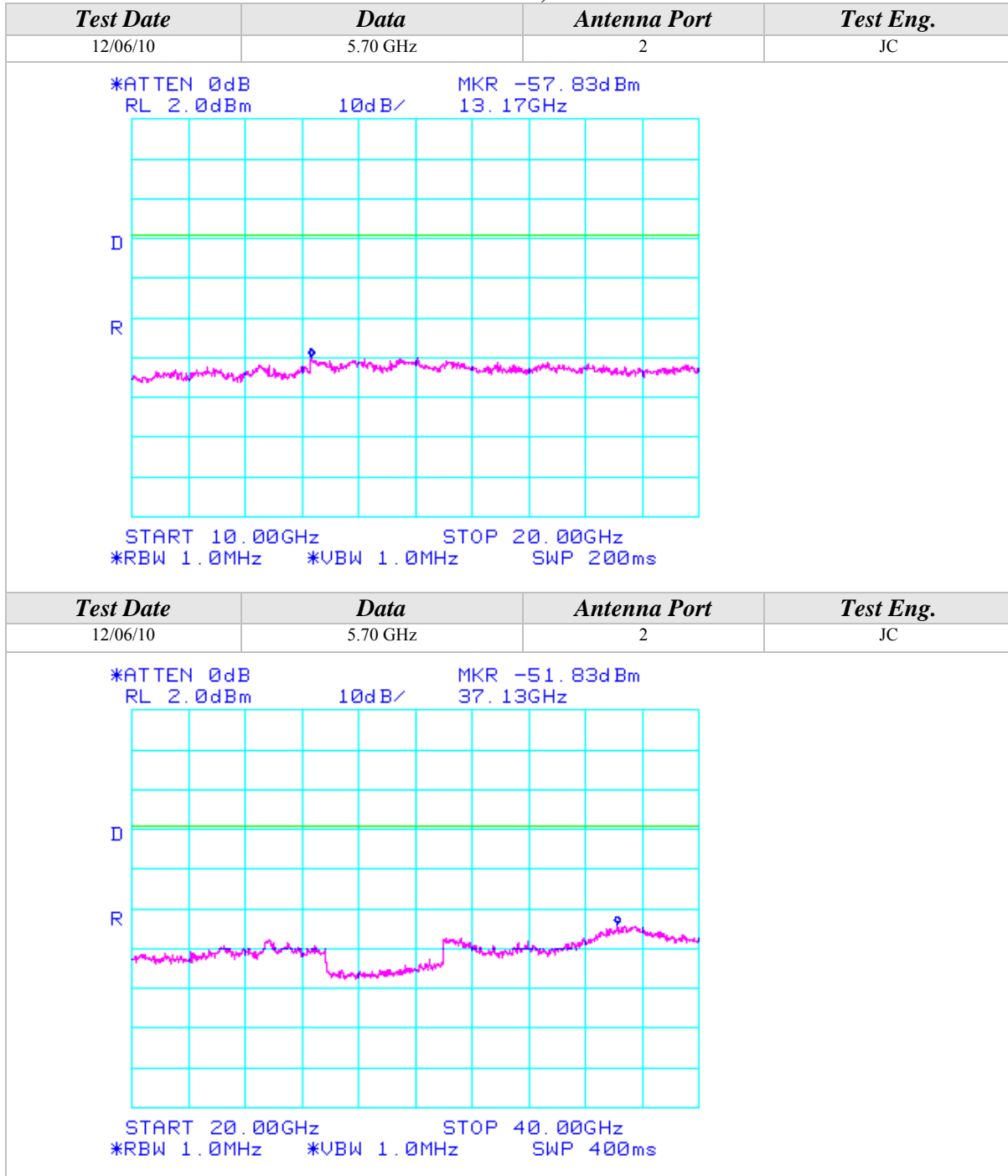
802.11n Mode, 5GHz





Conducted Out Of Band Emissions (Continued)

802.11n Mode, 5GHz





APPENDIX B

MODIFICATIONS AND RECOMMENDATIONS

1.0	NONE