Application for Certification of
RS-485 wireless transceiver

Quest Technical Sales and Marketing, Inc.

Model: QTS0000LINK
HVIN: vC1
FCC ID: 2AHWAQTS0000LINK
IC ID: 21176-QTS0000LINK

REPORT # RV68056-004

This report was prepared in accordance with the requirements of the FCC Rules and Regulations Part 2, Subpart J, 2.1033, Part 15.247 and other applicable sections of the rules as indicated herein.

Prepared By:

DNB Engineering, Inc.
5969 Robinson Avenue
Riverside, CA 92503

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Paragraph numbers in this report follow the application section numbers found in the FCC Rules and Regulations, Part 2, Subpart J for Certification of electronic equipment.

1.0 ADMINISTRATIVE DATA

1.1 Certifications and Qualifications

I certify that DNB Engineering, Inc conducted the tests performed in order to obtain the technical data presented in this application. Also, based on the results of the enclosed data, I have concluded that the equipment tested meets or exceeds the requirements of the Rules and Regulations governing this application.

1.2 Measurement Repeatability Information

The test data presented in this report has been acquired using the guidelines set forth in FCC Part 2.1031 through 2.1057, Part 15. The test results presented in this document are valid only for the equipment identified herein under the test conditions described. Repeatability of these test results will only be achieved with identical measurement conditions. These conditions include: The made test distance, EUT Height, Measurement Sit Characteristics, and the same EUT System Components. The system must have the same interconnecting Cables arranged in identical placement to that in the test setup, with the system and/or EUT functioning in the identical mode of operation (i.e. software and so on) as on the date of the test. Any deviation from the test conditions and the environment on the date of the test may result in measurement repeatability difficulties.

All changes made to the EUT during the course of testing as identified in this test report must be incorporated into the EUT or identical models to ensure compliance with the FCC regulations.

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FCC 2.1033 (b) (1), IC RSS-Gen 3.1 Application for Certification

Name of Applicant:	Quest Technical Sales and Marketing, Inc.
Applicant is:	Manufacturer
Name of Manufacturer:	Quest Technical Sales and Marketing, Inc.
Description:	RS-485 wireless transceiver
Model Number:	QTS0000LINK
Anticipated Production Quantity:	Multiple Units
15.247 Frequency Bands:	902 – 928 MHz
15.247 Rated Power:	10 mW
Type of Signal:	FHSS
Test Procedure:	ANSI C63.10-2013, C63.4-2014

FCC 2.1033 (b) (2), IC RSS-Gen 3.1 FCC and IC Identifiers

FCC ID: 2AHWAQTS0000LINK

IC ID: 21176-QTS0000LINK

FCC 2.1033 (b) (3), IC RSS-Gen 3.2(a) Installation and Operating Instructions

To be filed as a separate attachment

FCC 2.1033 (b) (4), IC RSS-Gen 3.2(g) Brief Description of Circuit Function

To be filed as a separate attachment.

FCC 2.1033 (b) (5), IC RSS-Gen 3.2(a) Block Diagram

To be filed as a separate attachment.

FCC 2.1033 (b) (6), IC RSS-Gen 3.2(j) Report of Measurements

FCC 15.207 Conducted Emissions (General Provisions)
ANSI C63.10-2013, C63.4-2014

Equipment List:

Asset	Equipment	Manufacturer	Model #	Serial #	Location	Cal date	Days	Due date
844	QP Adapter	HP	85650A	2811A01240	Riverside	9 Jul 15	730	9 Jul 17
1108	CRT Display	HP	85662A	238AG5252	Riverside	9 Jul 15	730	9 Jul 17
1242	Spectrum Analyzer	HP	8568B	2503A01257	Riverside	9 Jul 15	730	9 Jul 17
2180	LISN	Fisher	FCC-LISN	04077	Riverside	25 Jun 15	730	25 Jun 17

Procedure:

The EUT was placed on a wooden support .8m above the ground plane and connected to an Artificial Mains Network (AMN). The equipment was powered by 115Vac 60Hz. The emissions were measured from 150 kHz to 30 MHz

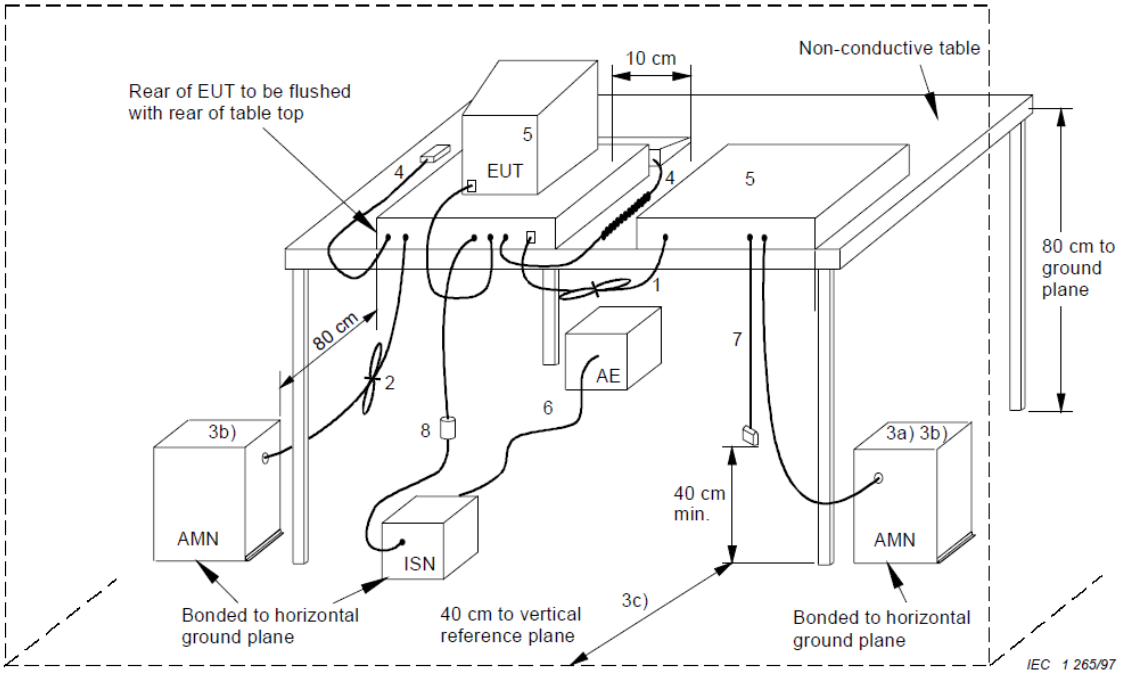
Analyzer settings:

RBW = 9kHz
VBW = 100kHz
Detector = Peak
Trace = Max Hold

EUT Operating Conditions:

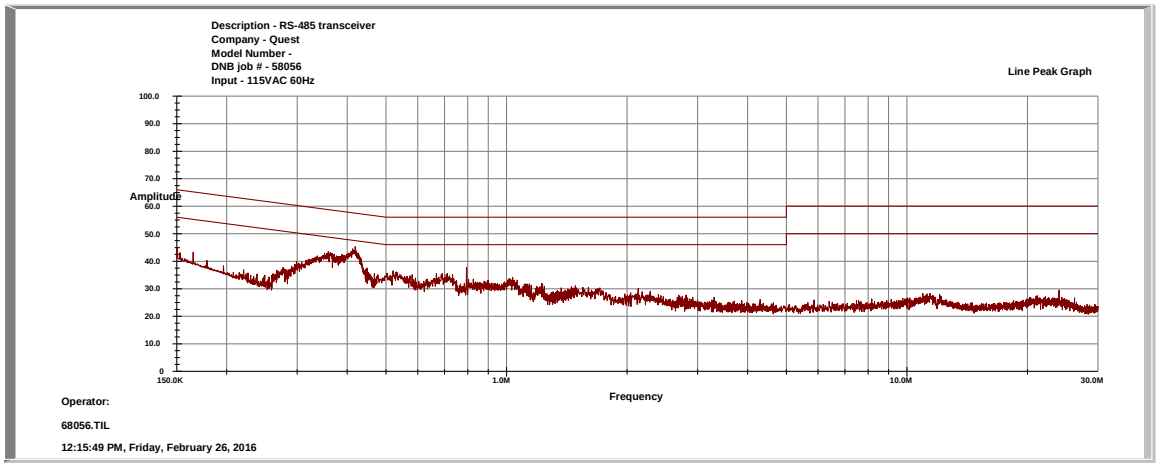
Transmitting, frequency hopping enabled.

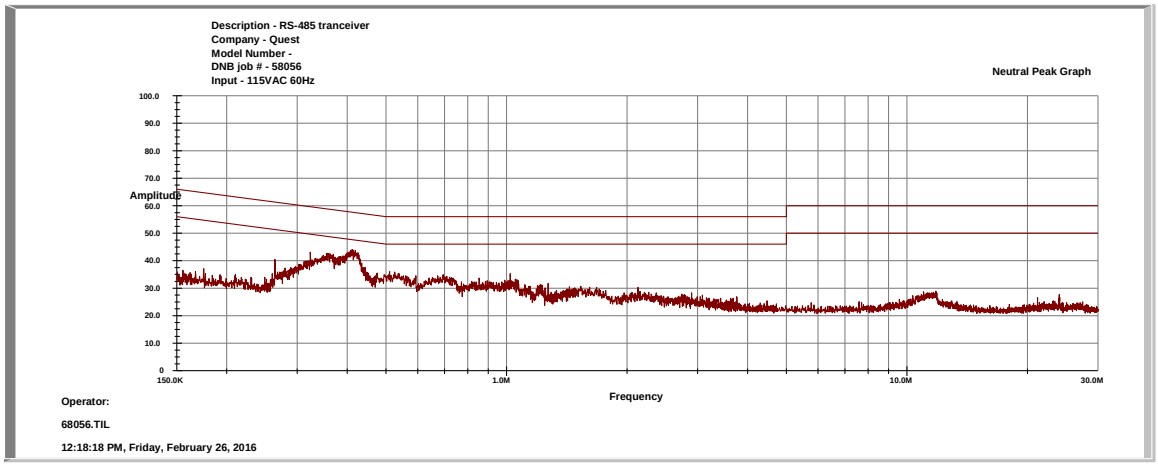
Test Setup:



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

	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Conducted Emissions**	
DNB Job Number:	68056	Date:	2-26-2016
Customer:	Quest Technical Sales and Marketing, Inc.		
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		**FCC 15.207**
Conducted Emissions 150kHz-30MHz	Frequency Hopping Enabled		





FCC 15.209, IC RSS-Gen 8.9 Radiated Emissions (general provisions)
ANSI C63.10-2013, C63.4-2014

Equipment List:

Asset	Equipment	Manufacturer	Model #	Serial #	Location	Cal date	Days	Due date
1965	QP Adapter	HP	85650A	2043A00277	Riverside	2 Nov 15	730	2 Nov 17
1234	CRT Display	HP	85662A	238AG5252	Riverside	2 Nov 15	730	2 Nov 17
1430	Analyzer	HP	8568B	2732A03600	Riverside	2 Nov 15	730	2 Nov 17
2264	Analyzer	Agilent	E4407B	MY45103462	Riverside	16 Aug 15	730	2 Nov 17
1758	Biconical Antenna	AH Systems	2052	524	Riverside	15 Oct 15	730	15 Oct 17
31	Log-periodic Antenna	EMCO	3146	1284	Riverside	22 Oct 15	730	22 Oct 17
11	DRG Antenna	EMCO	3115	2281	Riverside	27 May 15	730	27 May 17

Test Procedure:

The EUT was measured on an open area test site (OATS)

A measuring distance of 3m was used for measurements.

The EUT shall be placed upon a non-conductive table .8 meters above the ground plane for measurements in the 30MHz to 1GHz range and 1.5 meters for measurements above 1GHz. For measurements above 1GHz RF absorbent material shall be placed on the ground plane as described in ANSI C63.4-2014. The EUT shall be placed in the "worst case" transmitting mode. The EUT shall be rotated 360 degrees to find the azimuth maxima. The receive antenna shall then be raised and lowered between 1 to 4 meters taking into account the antenna beam width above 1GHz. The maximum signal emanating from the EUT shall then be recorded on the data sheets.

Analyzer settings 30MHz to 1GHz:

Quasi Peak RBW = 120kHz
Analyzer RBW = 1MHz
Analyzer VBW = 1MHz
Frequency Span = 1MHz
Sweep Time = auto

Analyzer setting above 1GHz:

RBW = 1MHz
VBW = 1MHz
Span = 1MHz
Sweep Time = auto

EUT Operating Conditions:
Continuously transmitting at the low, mid, and upper channels respectively.

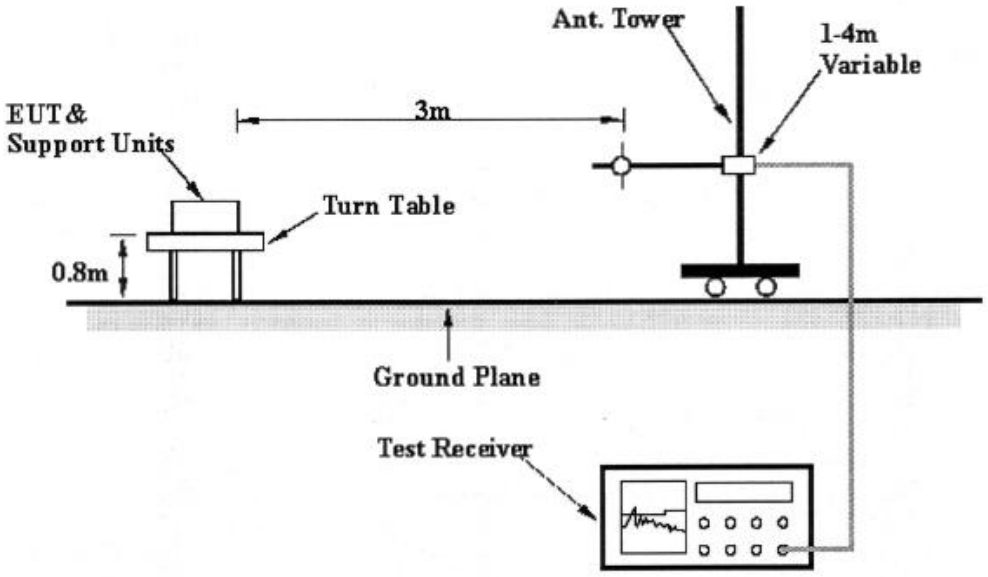
Limits:

Frequency (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measurement Distance (meters)
.009 – 0.490	2400/f(kHz)	20*(Log10(2400/f(kHz)	300
0.490 – 1.705	24000/f(kHz)	20*(Log10(24000/f(kHz)	30
1.705 – 30.0	30	29.5	30
30 – 88	100	40	3
88 – 216	150	43.5	3
216 – 960	200	46.0	3
Above 960	500	54.0	3

Sample Calculation:

Corrected = Meter Reading + Cable1 Loss + Cable2 Loss + Antenna Factor – Amp Gain
Margin = Corrected – Limit

Test Setup:


Ant. Tower
1-4m
Variable
EUT &
Support Units
3m
Turn Table
0.8m
Ground Plane
Test Receiver

	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Radiated Emissions** (spurious)	
DNB Job Number:	68056	Date:	2-25-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-210 2.6** **FCC 15.209**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Peak Measurements 30MHz – 1000MHz	Low Channel 903MHz		

Frequency (MHz)	Meter (dBuV)	Antenna (dB)	Cable (dB)	Pre-amp (dB)	Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table	Polarity
32.202	38.8	13	1.3	-21.9	31.2	40	-8.8	PK	140	V
34.58	41.8	12.9	1.3	-21.9	34.1	40	-5.9	PK	60	V
34.81	36.9	12.9	1.3	-21.9	29.2	40	-10.8	QP	0	V
41.563	37	11.5	1.4	-21.9	28	40	-12	PK	0	V
50.405	39.3	10.3	1.5	-21.8	29.3	40	-10.7	PK	0	V
52.13	43.2	10.1	1.5	-21.8	33	40	-7	PK	0	V
61.669	41.6	9.5	1.6	-21.8	30.9	40	-9.1	PK	0	V
65.844	43.3	9.4	1.7	-21.8	32.6	40	-7.4	PK	0	V
82.082	44.9	9.1	1.8	-21.9	33.9	40	-6.1	PK	0	V
82	41.1	9.1	1.8	-21.9	30.1	40	-9.9	QP	0	V
83.985	42	9.2	1.8	-21.9	31.1	40	-8.9	PK	0	V
90.459	32.5	9.3	1.9	-21.9	21.8	43.5	-21.7	PK	0	V
95.788	38.7	9.5	2	-21.9	28.3	43.5	-15.2	PK	0	V
109.714	35.4	10.2	2.1	-21.9	25.8	43.5	-17.7	PK	0	V
149.814	28.5	12.4	2.5	-21.9	21.5	43.5	-22	PK	0	V
196.194	28	14.3	3	-21.8	23.5	43.5	-20	PK	0	V
31.126	22.8	13.1	1.2	-21.9	15.2	40	-24.8	PK	183	H
40.528	28.2	11.7	1.4	-21.9	19.4	40	-20.6	PK	183	H
47.86	30.5	10.6	1.5	-21.8	20.8	40	-19.2	PK	183	H
51.082	32.7	10.2	1.5	-21.8	22.6	40	-17.4	PK	183	H
63.288	28.8	9.4	1.6	-21.8	18	40	-22	PK	183	H
65.574	33.3	9.4	1.7	-21.8	22.6	40	-17.4	PK	183	H
71.075	34.5	9.4	1.7	-21.8	23.8	40	-16.2	PK	183	H
73.444	36.8	9.3	1.7	-21.8	26	40	-14	PK	183	H
75.994	43.8	9.3	1.8	-21.9	33	40	-7	PK	183	H
82.03	41.2	9.1	1.8	-21.9	30.2	40	-9.8	PK	179	H
87.019	43.4	9.2	1.9	-21.9	32.6	40	-7.4	PK	179	H

Frequency (MHz)	Meter (dBuV)	Antenna (dB)	Cable (dB)	Pre-amp (dB)	Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table	Polarity
90.46	35.6	9.3	1.9	-21.9	24.9	43.5	-18.6	PK	179	H
95.795	37.3	9.5	2	-21.9	26.9	43.5	-16.6	PK	179	H
109.741	22.4	10.2	2.1	-21.9	12.8	43.5	-30.7	PK	179	H
149.953	22.9	12.4	2.5	-21.9	15.9	43.5	-27.6	PK	179	H
196.626	25.6	14.4	3	-21.8	21.2	43.5	-22.3	PK	179	H
209.022	24.8	10.7	3.1	-21.8	16.8	43.5	-26.7	PK	179	H
299.565	19.2	13.7	3.7	-21.6	15	46	-31	PK	179	H
399.674	25.4	15	4.5	-21.4	23.5	46	-22.5	PK	179	H
500.8	24.7	17.4	5.2	-21.2	26.1	46	-19.9	PK	179	H
608.858	23.4	18.8	5.6	-21.2	26.6	46	-19.4	PK	179	H
700.398	25.9	21.2	6	-21.2	31.9	46	-14.1	PK	179	H
799.946	23.2	20.2	6.3	-21.3	28.4	46	-17.6	PK	179	H
900.095	30.2	21.5	6.7	-21.3	37.1	46	-8.9	PK	179	H
999.598	23.3	23.7	7.1	-21.3	32.8	54	-21.2	PK	179	H
204.99	25.4	10.9	3	-21.8	17.5	43.5	-26	PK	179	V
299.949	-23	13.7	3.7	-21.6	-27.2	46	-73.2	PK	179	V
400.212	24.5	15	4.5	-21.4	22.6	46	-23.4	PK	179	V
500.123	21.2	17.4	5.2	-21.2	22.6	46	-23.4	PK	179	V
610.354	24.1	18.8	5.6	-21.2	27.3	46	-18.7	PK	179	V
700.1	22.5	21.2	6	-21.2	28.5	46	-17.5	PK	179	V
800.142	22.7	20.2	6.3	-21.3	27.9	46	-18.1	PK	179	V
899.663	32.4	21.5	6.7	-21.3	39.3	46	-6.7	PK	179	V
999.402	23.7	23.7	7.1	-21.3	33.2	54	-20.8	PK	179	V

	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Radiated Emissions** (spurious)	
DNB Job Number:	68056	Date:	2-25-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-210 2.6** **FCC 15.209**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Peak Measurements 30MHz – 1000MHz	Mid Channel 915MHz		

Frequency (MHz)	Meter (dBuV)	Antenna (dB)	Cable (dB)	Pre-amp (dB)	Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table	Polarity
31.796	40.4	13	1.3	-21.9	32.8	40	-7.2	PK	170	V
34.485	41	12.9	1.3	-21.9	33.3	40	-6.7	PK	280	V
40.485	37.3	11.7	1.4	-21.9	28.5	40	-11.5	PK	360	V
51.095	41	10.2	1.5	-21.8	30.9	40	-9.1	PK	360	V
55.947	38.4	9.7	1.6	-21.8	27.9	40	-12.1	PK	176	V
62.292	39.9	9.5	1.6	-21.8	29.2	40	-10.8	PK	176	V
65.33	39.2	9.4	1.7	-21.8	28.5	40	-11.5	PK	176	V
71.062	43.2	9.4	1.7	-21.8	32.5	40	-7.5	PK	176	V
74.6	41.9	9.3	1.7	-21.8	31.1	40	-8.9	PK	175	V
82.606	42.9	9.2	1.8	-21.9	32	40	-8	PK	175	V
84.103	46.2	9.2	1.8	-21.9	35.3	40	-4.7	PK	175	V
84.004	45.6	9.2	1.8	-21.9	34.7	40	-5.3	QP	175	V
87.1	38.5	9.2	1.9	-21.9	27.7	40	-12.3	PK	175	V
90.506	36.4	9.3	1.9	-21.9	25.7	43.5	-17.8	PK	175	V
109.515	28.4	10.2	2.1	-21.9	18.8	43.5	-24.7	PK	175	V
149.632	31.1	12.4	2.5	-21.9	24.1	43.5	-19.4	PK	175	V
192.78	24.4	14.3	2.9	-21.8	19.8	43.5	-23.7	PK	175	V
32.12	35.7	13	1.3	-21.9	28.1	40	-11.9	PK	235	H
37.026	33.8	12.5	1.3	-21.9	25.7	40	-14.3	PK	359	H
40.036	31.6	11.8	1.4	-21.9	22.9	40	-17.1	PK	359	H
58.956	35.5	9.6	1.6	-21.8	24.9	40	-15.1	PK	359	H
70.609	28.5	9.4	1.7	-21.8	17.8	40	-22.2	PK	359	H
150.159	22.4	12.4	2.5	-21.8	15.5	43.5	-28	PK	359	H
196.188	27	14.3	3	-21.8	22.5	43.5	-21	PK	359	H
209.99	24.7	10.7	3.1	-21.8	16.7	43.5	-26.8	PK	359	H
300.04	25.5	13.7	3.7	-21.6	21.3	46	-24.7	PK	359	H
399.988	24.7	15	4.5	-21.4	22.8	46	-23.2	PK	359	H

Frequency (MHz)	Meter (dBuV)	Antenna (dB)	Cable (dB)	Pre-amp (dB)	Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table	Polarity
501.354	24.6	17.4	5.2	-21.2	26	46	-20	PK	359	H
700.553	23.5	21.1	6	-21.2	29.4	46	-16.6	PK	359	H
800.528	25.5	20.2	6.3	-21.3	30.7	46	-15.3	PK	359	H
899.735	23.2	21.5	6.7	-21.3	30.1	46	-15.9	PK	359	H
999.564	21.6	23.7	7.1	-21.3	31.1	54	-22.9	PK	359	H
208.73	24.5	10.7	3.1	-21.8	16.5	43.5	-27	PK	359	V
299.572	26.9	13.7	3.7	-21.6	22.7	46	-23.3	PK	359	V
400.348	27.8	15	4.5	-21.4	25.9	46	-20.1	PK	359	V
500.686	27.2	17.4	5.2	-21.2	28.6	46	-17.4	PK	359	V
401.02	26.4	15	4.5	-21.4	24.5	46	-21.5	PK	359	V
609.03	23.2	18.8	5.6	-21.2	26.4	46	-19.6	PK	359	V
700.512	25.2	21.1	6	-21.2	31.1	46	-14.9	PK	359	V
801.056	22.5	20.2	6.3	-21.3	27.7	46	-18.3	PK	359	V
901.294	31.4	21.6	6.7	-21.3	38.4	46	-7.6	PK	359	V
998.718	23.8	23.7	7.1	-21.3	33.3	54	-20.7	PK	359	V

	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Radiated Emissions** (spurious)	
DNB Job Number:	68056	Date:	2-25-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-210 2.6** **FCC 15.209**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Peak Measurements 30MHz – 1000MHz	High Channel 927.5MHz		

Frequency (MHz)	Meter (dBuV)	Antenna (dB)	Cable (dB)	Pre-amp (dB)	Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (dB)	Table	Polarity
30.667	30.3	13.1	1.2	-21.9	22.7	40	-17.3	PK	181	V
31.764	36.9	13	1.3	-21.9	29.3	40	-10.7	PK	181	V
34.444	40.9	12.9	1.3	-21.9	33.2	40	-6.8	PK	181	V
34.454	37.1	12.9	1.3	-21.9	29.4	40	-10.6	QP	181	V
42.757	34.7	11.3	1.4	-21.8	25.6	40	-14.4	PK	181	V
51.017	36.8	10.2	1.5	-21.8	26.7	40	-13.3	PK	181	V
61.15	44.2	9.5	1.6	-21.8	33.5	40	-6.5	PK	181	V
70.469	43	9.4	1.7	-21.8	32.3	40	-7.7	PK	181	V
73.999	47.5	9.3	1.7	-21.8	36.7	40	-3.3	PK	181	V
73.999	44.8	9.3	1.7	-21.8	34	40	-6	QP	181	V
82.106	44.3	9.1	1.8	-21.9	33.3	40	-6.7	PK	181	V
82.106	38	9.1	1.8	-21.9	27	40	-13	QP	181	V
85.99	34.7	9.2	1.9	-21.9	23.9	40	-16.1	PK	181	V
90.999	20.3	9.3	1.9	-21.9	9.6	43.5	-33.9	PK	181	V
103.002	42.6	9.8	2	-21.9	32.5	43.5	-11	PK	181	V
109.978	29.5	10.2	2.1	-21.9	19.9	43.5	-23.6	PK	181	V
149.961	24.6	12.4	2.5	-21.9	17.6	43.5	-25.9	PK	181	V
197.761	24.5	14.4	3	-21.8	20.1	43.5	-23.4	PK	181	V
30.811	25.2	13.1	1.2	-21.9	17.6	40	-22.4	PK	181	H
37.817	25.8	12.3	1.3	-21.9	17.5	40	-22.5	PK	177	H
48.03	29.9	10.5	1.5	-21.8	20.1	40	-19.9	PK	177	H
56.53	34.2	9.7	1.6	-21.8	23.7	40	-16.3	PK	177	H
59.816	31.7	9.5	1.6	-21.8	21	40	-19	PK	177	H
73.974	35.2	9.3	1.7	-21.8	24.4	40	-15.6	PK	177	H
75.514	38.1	9.3	1.8	-21.9	27.3	40	-12.7	PK	177	H
113.991	32.7	10.5	2.1	-21.9	23.4	43.5	-20.1	PK	177	H
149.578	27.4	12.4	2.5	-21.9	20.4	43.5	-23.1	PK	177	H
197.762	26.2	14.4	3	-21.8	21.8	43.5	-21.7	PK	177	H

Frequency (MHz)	Meter (dBuV)	Antenna (dB)	Cable (dB)	Pre-amp (dB)	Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector (dB)	Table	Polarity
204.556	24.6	10.9	3	-21.8	16.7	43.5	-26.8	PK	359	H
299.536	22.3	13.7	3.7	-21.6	18.1	46	-27.9	PK	359	H
400.168	23.3	15	4.5	-21.4	21.4	46	-24.6	PK	359	H
501.364	23.8	17.4	5.2	-21.2	25.2	46	-20.8	PK	359	H
609.304	24	18.8	5.6	-21.2	27.2	46	-18.8	PK	359	H
702.086	22.8	21	6	-21.2	28.6	46	-17.4	PK	359	H
799.656	23	20.2	6.3	-21.3	28.2	46	-17.8	PK	359	H
900.048	23.3	21.5	6.7	-21.3	30.2	46	-15.8	PK	359	H
999.072	22.9	23.7	7.1	-21.3	32.4	54	-21.6	PK	359	H
204.627	23.8	10.9	3	-21.8	15.9	43.5	-27.6	PK	359	V
299.982	24	13.7	3.7	-21.6	19.8	46	-26.2	PK	359	V
399.9	23.8	15	4.5	-21.4	21.9	46	-24.1	PK	359	V
500.57	24.1	17.4	5.2	-21.2	25.5	46	-20.5	PK	359	V
609.068	24.2	18.8	5.6	-21.2	27.4	46	-18.6	PK	359	V
700.48	25.4	21.1	6	-21.2	31.3	46	-14.7	PK	359	V

	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Radiated Emissions** (spurious)	
DNB Job Number:	68056	Date:	3-31-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-210 2.6** **FCC 15.209**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Above 1 GHz	Low Channel 903MHz		

Frequency (MHz)	Meter (dBuV)	Antenna (dB)	Cable (dB)	Pre-Amp (dB)	Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table	Polarity
1806	20.87	27.48	0.8	31.8	17.35	54	-36.65	P	360	V
2709	16.54	29.26	1	32.1	14.7	54	-39.3	P	360	V
3612	25.78	31.95	1.2	31.1	27.83	54	-26.17	P	360	V
4515	22.89	32.8	1.4	28.6	28.49	54	-25.51	P	360	V
5418	14.98	34.47	1.6	29.3	21.75	54	-32.25	P	360	V
6321	14.75	34.91	1.7	29.1	22.26	54	-31.74	P	360	V
7224	15.09	36.53	1.8	29.6	23.82	54	-30.18	P	360	V
8127	14.66	37.31	1.9	29.2	24.67	54	-29.33	P	360	V
9030	24.02	37.78	2.1	28.9	35	54	-19	P	360	V
1806	28.45	27.48	0.8	31.8	24.93	54	-29.07	P	360	H
2709	24.5	29.26	1	32.1	22.66	54	-31.34	P	360	H
3612	32.59	31.95	1.2	31.1	34.64	54	-19.36	P	360	H
4515	27.81	32.8	1.4	28.6	33.41	54	-20.59	P	360	H
5418	21.59	34.47	1.6	29.3	28.36	54	-25.64	P	360	H
6321	11.6	34.91	1.7	29.1	19.11	54	-34.89	P	360	H
7224	12.78	36.53	1.8	29.6	21.51	54	-32.49	P	360	H
8127	12.42	37.31	1.9	29.2	22.43	54	-31.57	P	360	H
9030	12.37	37.78	2.1	28.9	23.35	54	-30.65	P	360	H

	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Radiated Emissions** (spurious)	
DNB Job Number:	68056	Date:	3-31-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-210 2.6** **FCC 15.209**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Above 1 GHz	Mid Channel 915MHz		

Frequency (MHz)	Meter (dBuV)	Antenna (dB)	Cable (dB)	Pre-Amp (dB)	Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Table	Polarity
1830	26.21	27.48	0.8	31.8	22.69	54	-31.31	P	360	V
2745	21.95	29.26	1	32.1	20.11	54	-33.89	P	360	V
3660	31.77	31.95	1.2	31.1	33.82	54	-20.18	P	360	V
4575	28.11	32.8	1.4	28.6	33.71	54	-20.29	P	360	V
5490	23.51	34.47	1.6	29.3	30.28	54	-23.72	P	360	V
6405	12.01	34.91	1.7	29.1	19.52	54	-34.48	P	360	V
7320	13.55	36.53	1.8	29.6	22.28	54	-31.72	P	360	V
8235	14.89	37.31	1.9	29.2	24.9	54	-29.1	P	360	V
9150	16.31	37.78	2.1	28.9	27.29	54	-26.71	P	360	V
1830	21.99	27.48	0.8	31.8	18.47	54	-35.53	P	360	H
2745	17.5	29.26	1	32.1	15.66	54	-38.34	P	360	H
3660	24.07	31.95	1.2	31.1	26.12	54	-27.88	P	360	H
4575	25.93	32.8	1.4	28.6	31.53	54	-22.47	P	360	H
5490	19.44	34.47	1.6	29.3	26.21	54	-27.79	P	360	H
6405	12.87	34.91	1.7	29.1	20.38	54	-33.62	P	360	H
7320	12.26	36.53	1.8	29.6	20.99	54	-33.01	P	360	H
8235	12.44	37.31	1.9	29.2	22.45	54	-31.55	P	360	H
9150	12.52	37.78	2.1	28.9	23.5	54	-30.5	P	360	H

	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Radiated Emissions** (spurious)	
DNB Job Number:	68056	Date:	3-31-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-210 2.6** **FCC 15.209**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Above 1 GHz	High Channel 927.5MHz		

Frequency (MHz)	Meter (dBuV)	Antenna (dB)	Cable (dB)	Pre-Amp (dB)	Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1855	27.28	27.48	0.8	31.8	23.76	54	-30.24	P
2783	14.96	29.26	1	32.1	13.12	54	-40.88	P
3710	25.99	31.95	1.2	31.1	28.04	54	-25.96	P
4638	23.95	32.8	1.4	28.6	29.55	54	-24.45	P
5565	12.32	34.47	1.6	29.3	19.09	54	-34.91	P
6492	21.49	34.91	1.7	29.1	29	54	-25	P
7420	13.57	36.53	1.8	29.6	22.3	54	-31.7	P
8348	14.03	37.31	1.9	29.2	24.04	54	-29.96	P
9275	14.86	37.78	2.1	28.9	25.84	54	-28.16	P
1855	25.32	27.48	0.8	31.8	21.8	54	-32.2	P
2783	25.82	29.26	1	32.1	23.98	54	-30.02	P
3710	29.36	31.95	1.2	31.1	31.41	54	-22.59	P
4638	25.07	32.8	1.4	28.6	30.67	54	-23.33	P
5565	22.39	34.47	1.6	29.3	29.16	54	-24.84	P
6492	12.96	34.91	1.7	29.1	20.47	54	-33.53	P
7420	12.15	36.53	1.8	29.6	20.88	54	-33.12	P
8348	12.06	37.31	1.9	29.2	22.07	54	-31.93	P
9275	12.89	37.78	2.1	28.9	23.87	54	-30.13	P

FCC 15.247, RSS-247 5.1 Occupied Bandwidth
ANSI C63.10-2013

Equipment List:

Asset	Equipment	Manufacturer	Model #	Serial #	Location	Cal date	Days	Due date
2264	Analyzer	Agilent	E4407B	MY45103462	Riverside	16 Aug 15	730	2 Nov 17

Test Procedure:

Use the occupied bandwidth measurement function on the spectrum analyzer to record the 20dB and 99% bandwidths of the emission.

Use the following spectrum analyzer settings:

RBW = 10kHz
VBW = 30KHz
Span = 3-4 x Occupied Bandwidth
Sweep = auto
Detector = Peak
Trace = Max hold

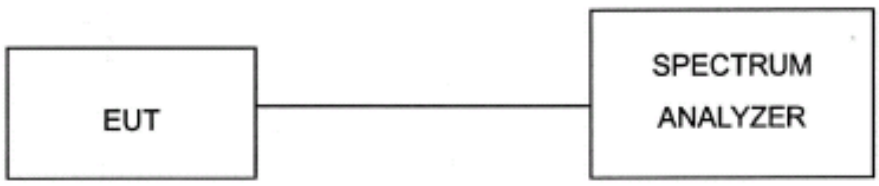
Requirement:

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

EUT Operating Conditions:

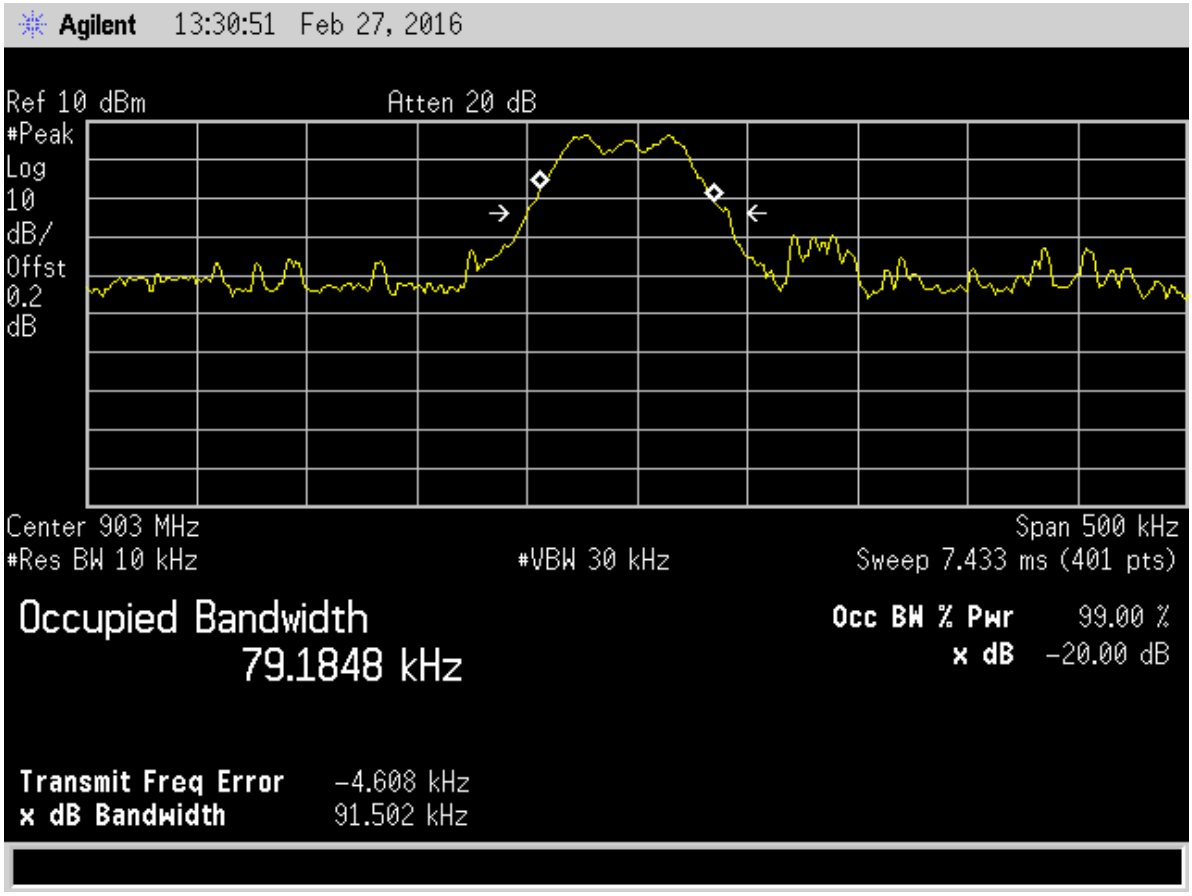
continuously transmitting at the low, mid, and upper channels respectively.

Test Setup:



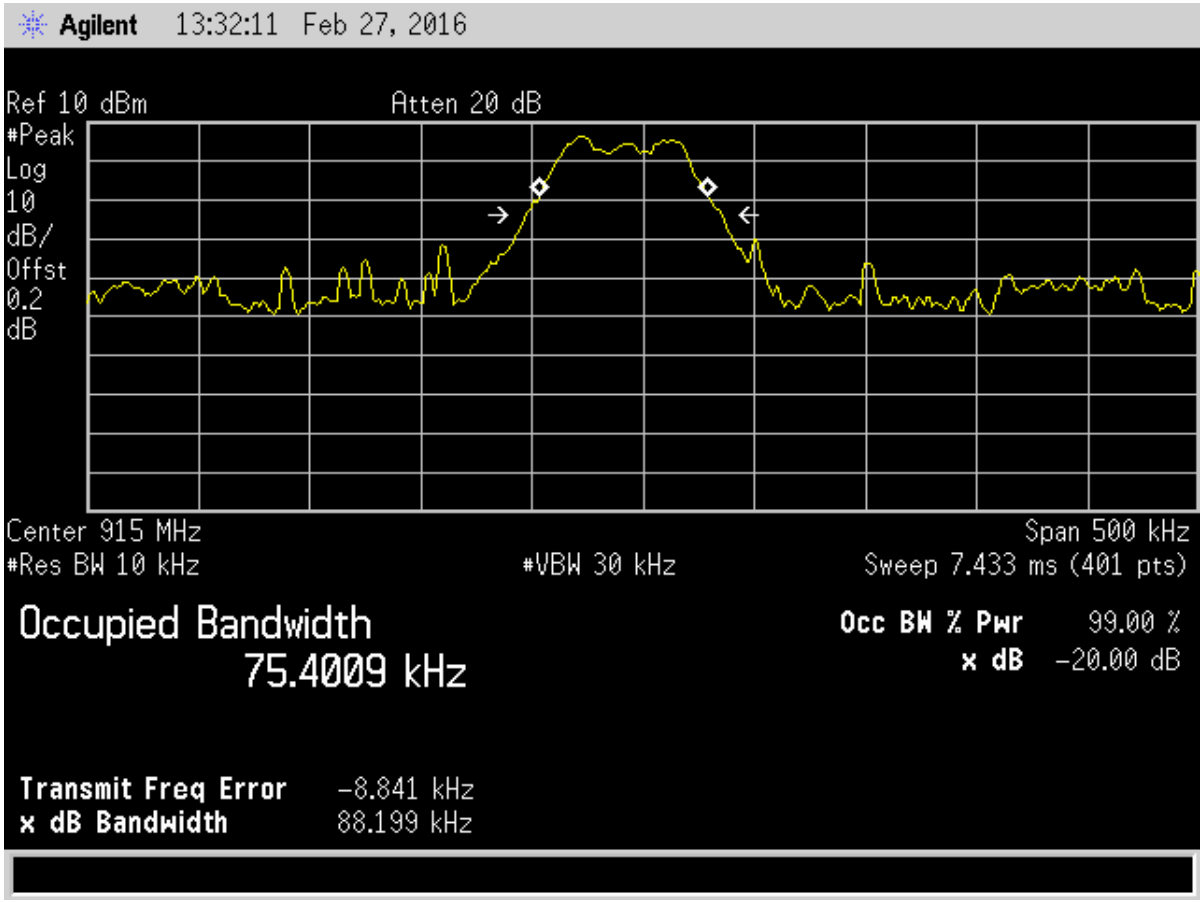
	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Occupied Bandwidth (conducted)**	
DNB Job Number:	68056	Date:	2-27-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Occupied BW	Low Channel 903MHz		

Channel	Mode	Frequency (MHz)	20dB BW (kHz)	Minimum (kHz)	Result
Low	Transmit	903	91.502	N/A	Pass



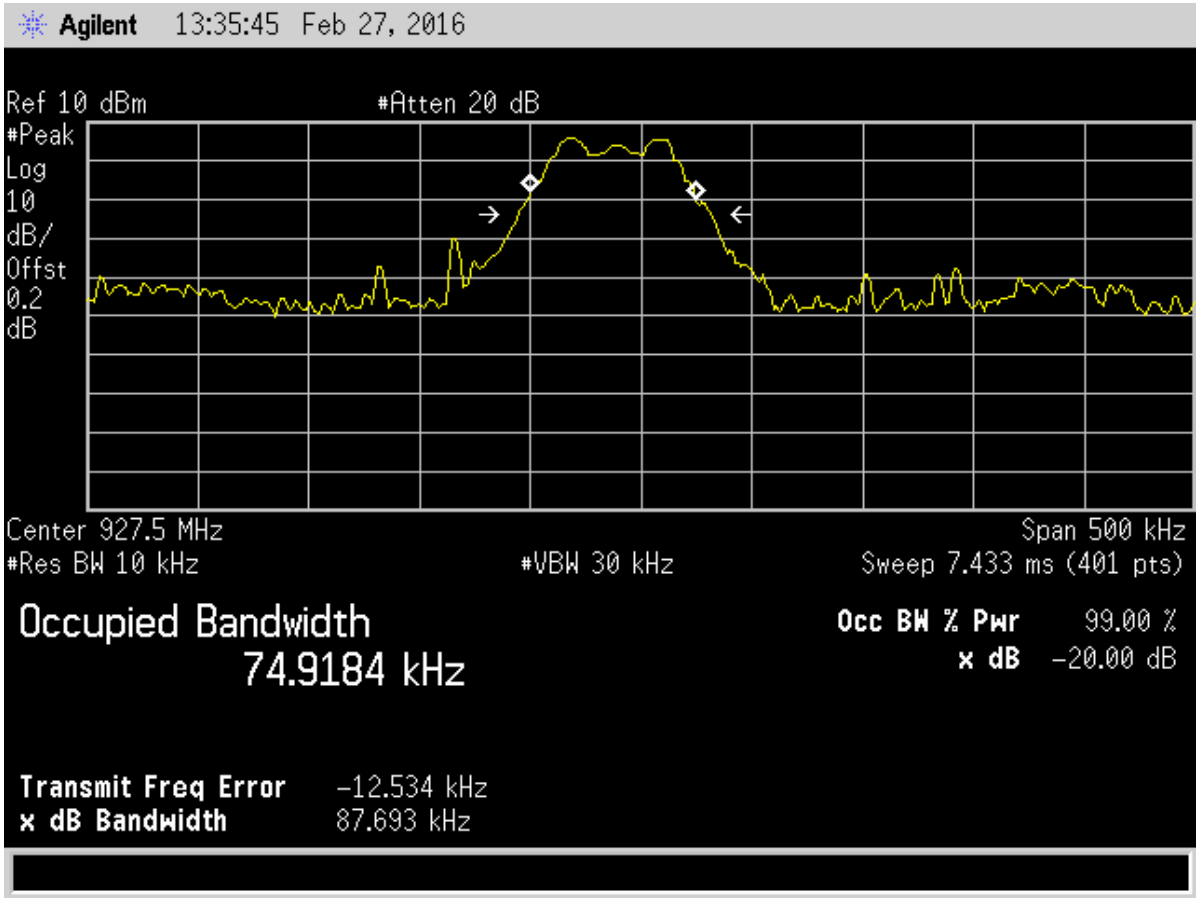
	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Occupied Bandwidth (conducted)**	
DNB Job Number:	68056	Date:	2-27-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Occupied BW	Mid Channel 915MHz		

Channel	Mode	Frequency (MHz)	20dB BW (kHz)	Minimum (kHz)	Result
Mid	Transmit	915	88.199	N/A	Pass



	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Occupied Bandwidth (conducted)**	
DNB Job Number:	68056	Date:	2-27-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Occupied BW	High Channel 927.5MHz		

Channel	Mode	Frequency (MHz)	20dB BW (kHz)	Minimum (kHz)	Result
Mid	Transmit	927.5	87.693	N/A	Pass



FCC 15.24, RSS-247 5.1 Output Power (Conducted)
ANSI C63.10-2013

Equipment List:

Asset #	Equipment	Manufacturer	Model #	Serial #	Location	Cal date	Interval	Due date
2264	Analyzer	Agilent	E4407B	MY45103462	Riverside	16 Aug 15	730	2 Nov 17

Test Procedure:

Connect the spectrum analyzer directly to antenna terminals. Use peak detector on max hold. Allow trace to stabilize. Use marker to peak function to set the marker on the peak emission. Record analyzer plot.

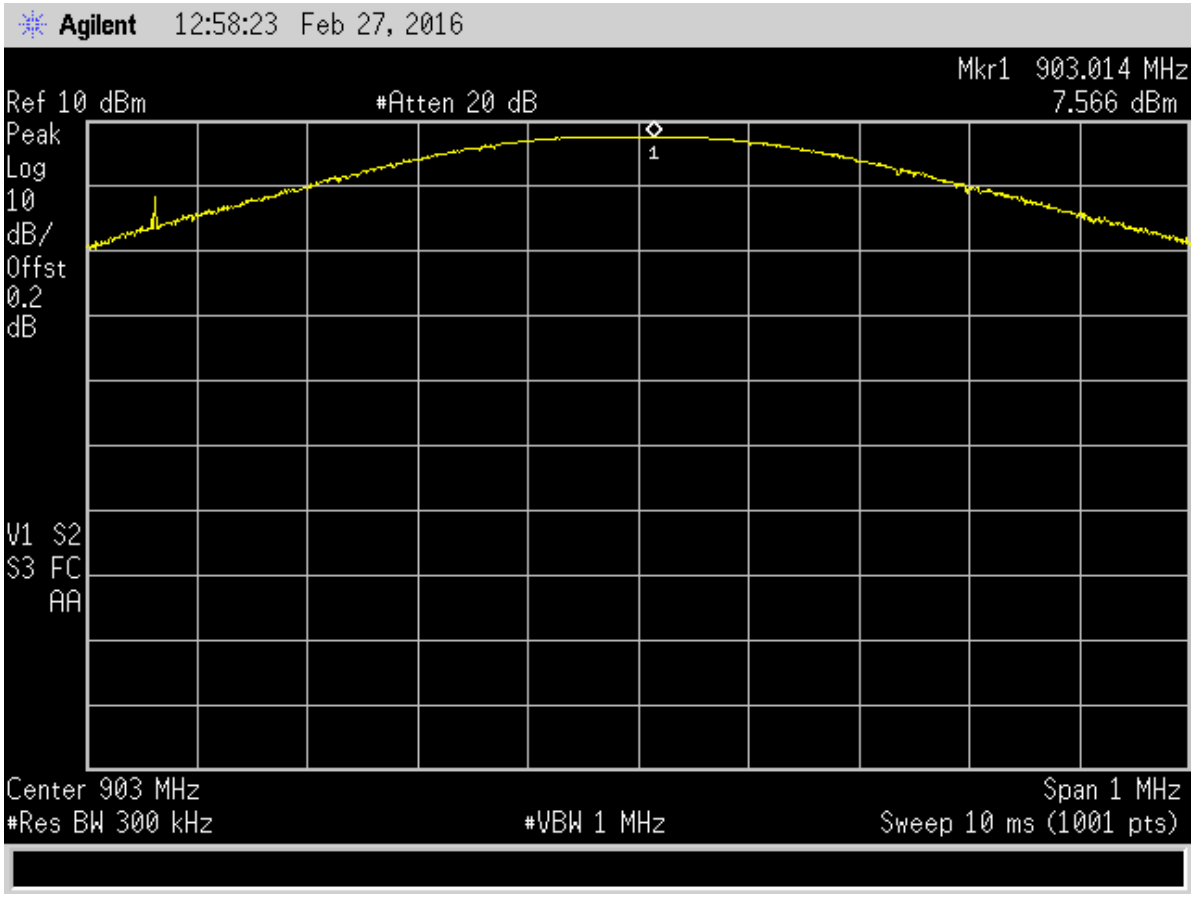
Use the following analyzer settings:

Span	=	approximately five times 20dB bandwidth
RBW	=	> 20dB bandwidth
VBW	=	> the RBW
Sweep	=	auto
Trace	=	max hold

Test Setup:

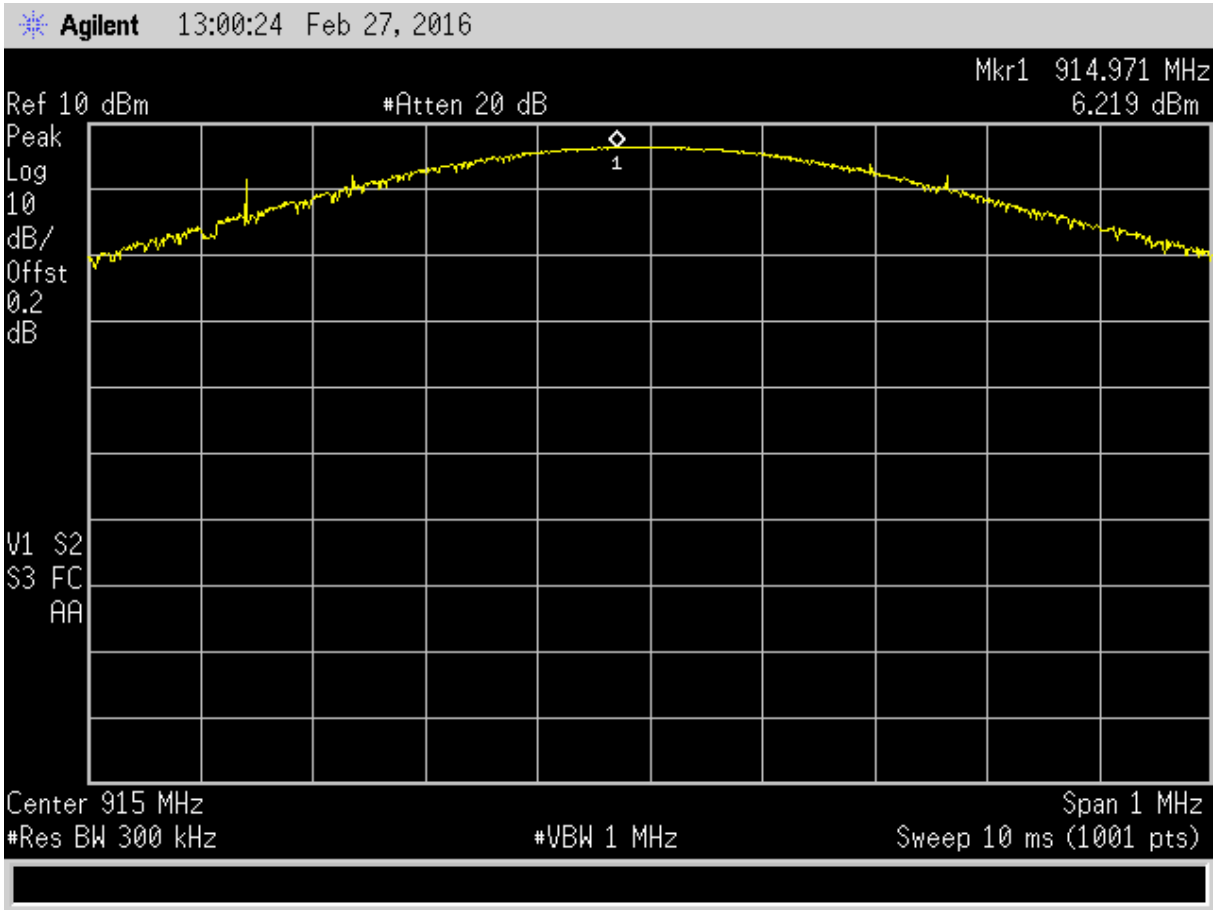
	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Peak Power (Conducted)**	
DNB Job Number:	68056	Date:	2-27-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Peak Output Power	Low Channel 903MHz		

Channel	Mode	Frequency (MHz)	Analyzer (dBm)	Limit (dBm)	Margin (dB)	Pass/Fail
Low	Transmit	903	7.566	30	-22.434	Pass



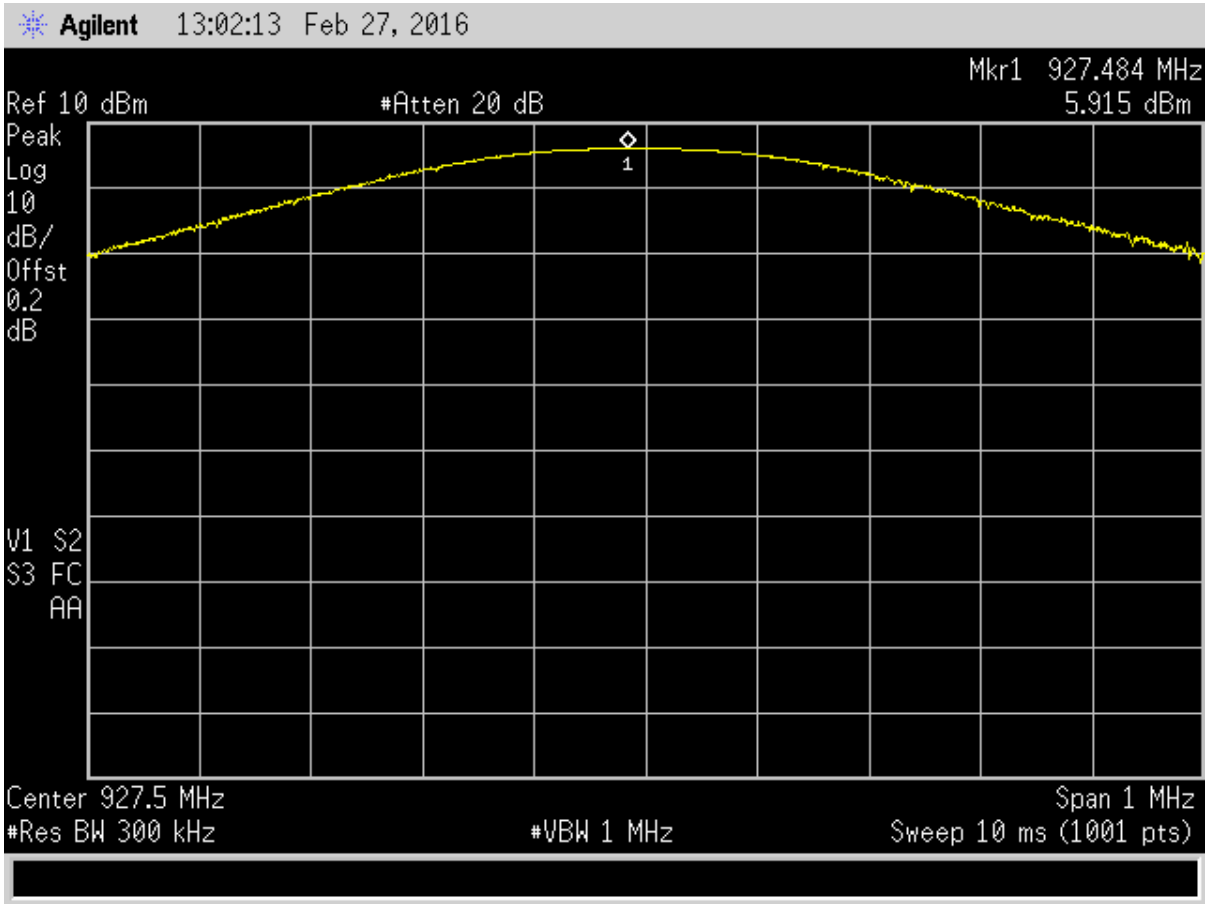
	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Peak Power (Conducted)**	
DNB Job Number:	68056	Date:	2-27-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Peak Output Power	Mid Channel 915MHz		

Channel	Mode	Frequency (MHz)	Analyzer (dBm)	Limit (dBm)	Margin (dB)	Pass/Fail
Mid	Transmit	915	6.218	30	-23.782	Pass



	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Peak Power (Conducted)**	
DNB Job Number:	68056	Date:	2-27-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Peak Output Power	High Channel 927.5MHz		

Channel	Mode	Frequency (MHz)	Analyzer (dBm)	Limit (dBm)	Margin (dB)	Pass/Fail
High	Transmit	927.5	5.915	30	-24.085	Pass



FCC 15.247, RSS-247 5.1 Antenna Port Conducted Emissions
ANSI C63.10-2013

Equipment List:

Asset #	Equipment	Manufacturer	Model #	Serial #	Location	Cal date	Interval	Due date
2264	Analyzer	Agilent	E4407B	MY45103462	Riverside	16 Aug 15	730	2 Nov 17

Test Procedure:

Testing shall be done on a lab bench in a shielded room, or in another suitable location. The unlicensed wireless device active antenna port shall be connected to the spectrum analyzer, after applying appropriate precautions to protect the instrumentation

Use the following spectrum analyzer settings:

Span	=	Wide enough to capture the peak level of the in-band emission and all spurious emissions.
RBW	=	100kHz
VBW	=	100kHz
Sweep	=	auto
Detector	=	peak
Trace	=	max. hold

Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded.

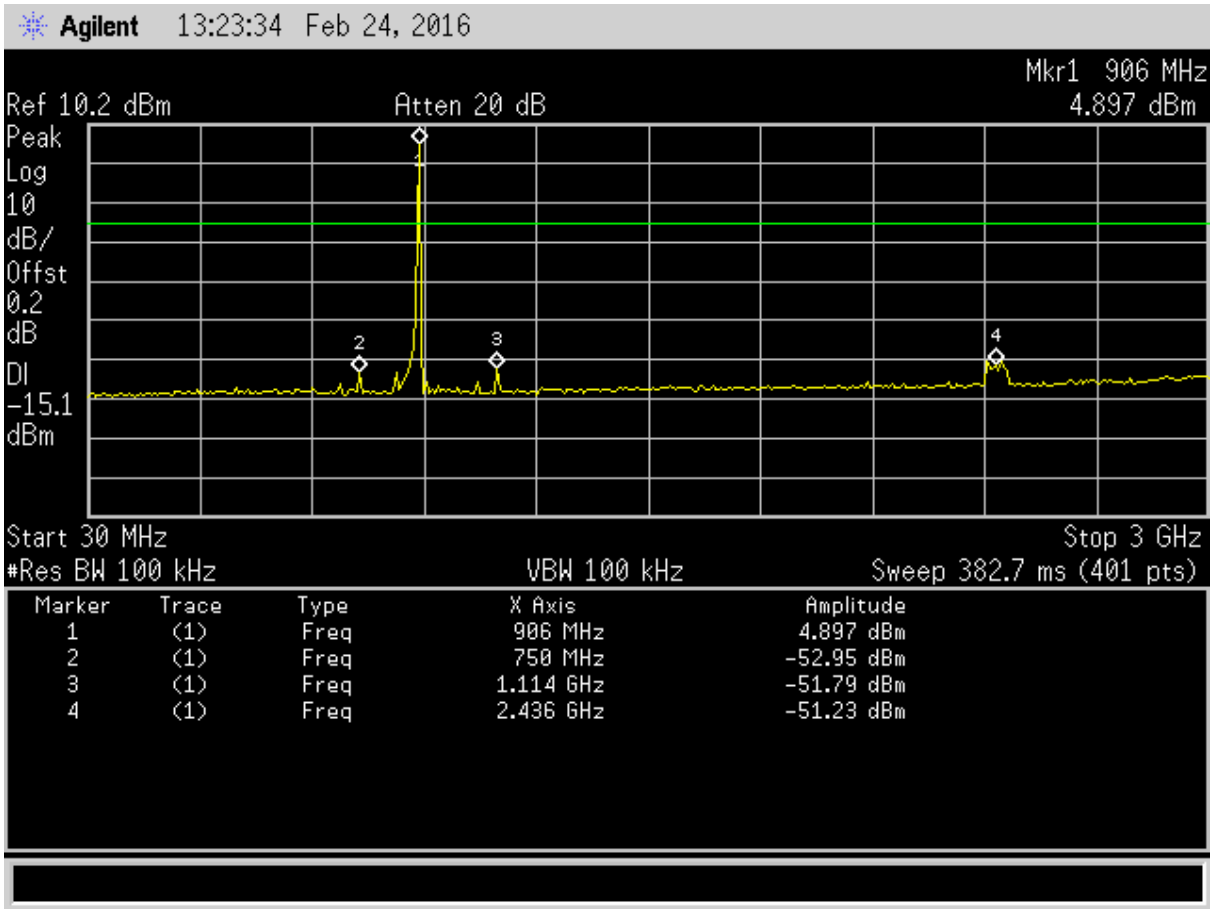
Requirement:

The maximum out-of-band emissions shall not exceed 20dBc

Test Setup:

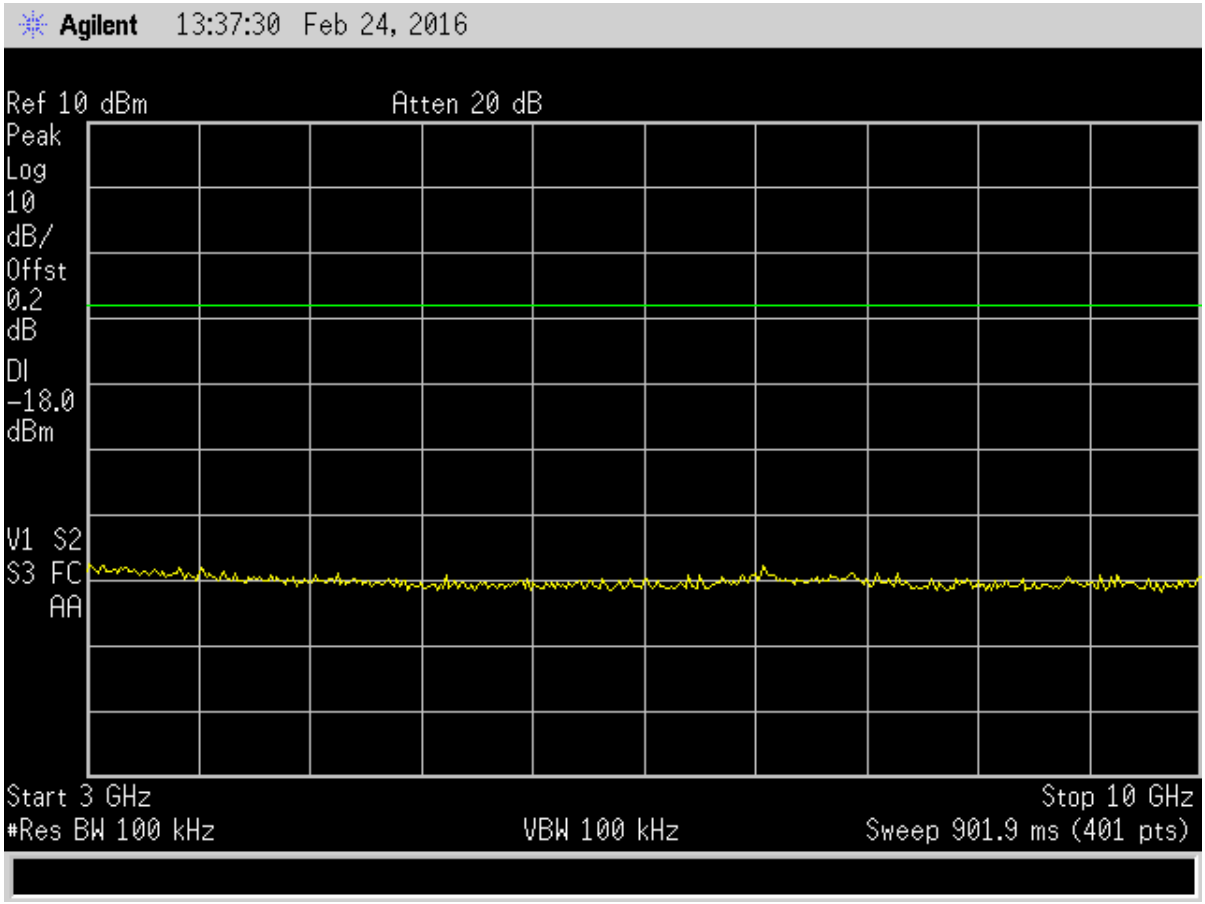
	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Antenna Port Conducted Emissions**	
DNB Job Number:	68056	Date:	2-24-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Conducted Emissions	Low High Channel 903MHz		

Channel	Mode	Frequency (MHz)	Sweep (MHz)	Result
Low	Transmit	903	30 - 3000	Pass



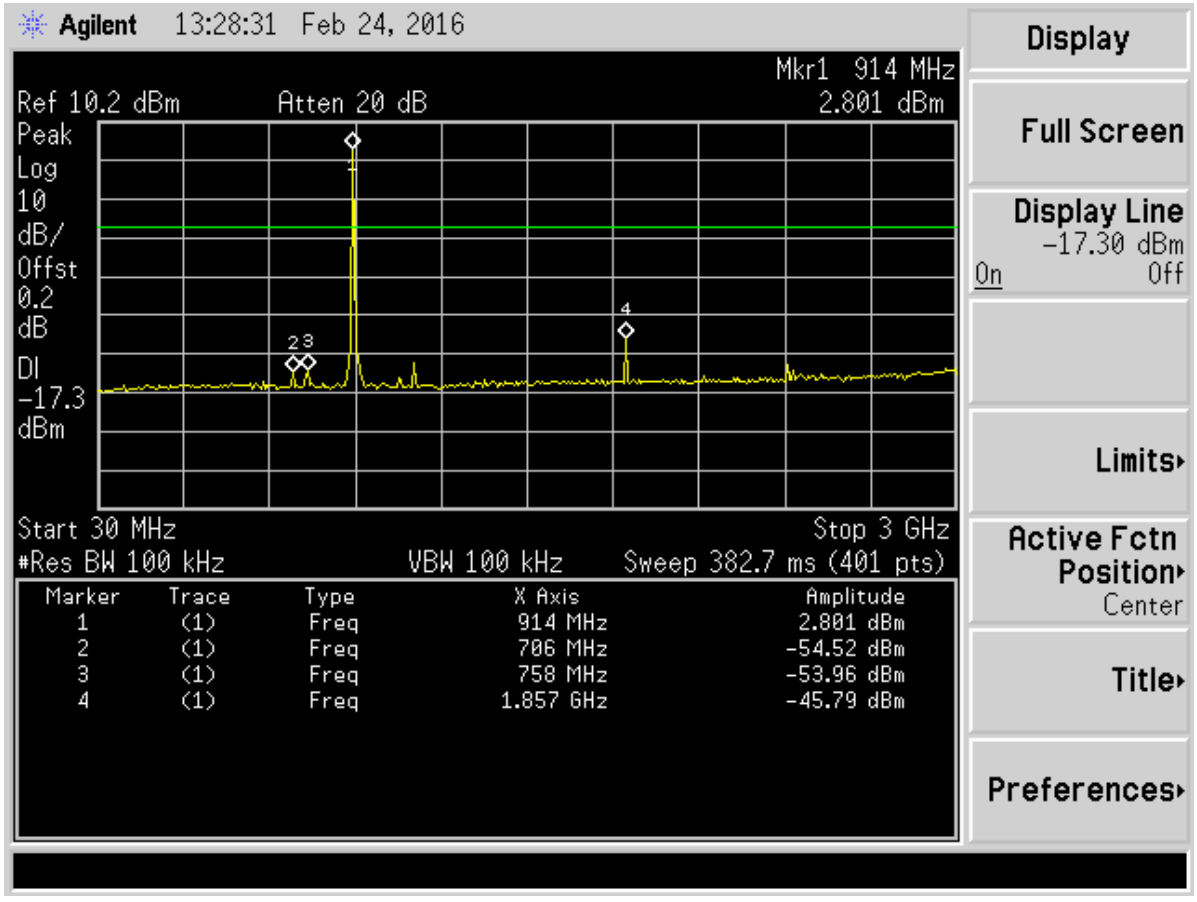
	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Antenna Port Conducted Emissions**	
DNB Job Number:	68056	Date:	2-24-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Conducted Emissions	Low High Channel 903MHz		

Channel	Mode	Frequency (MHz)	Sweep (MHz)	Result
Low	Transmit	903	3000 - 10000	Pass



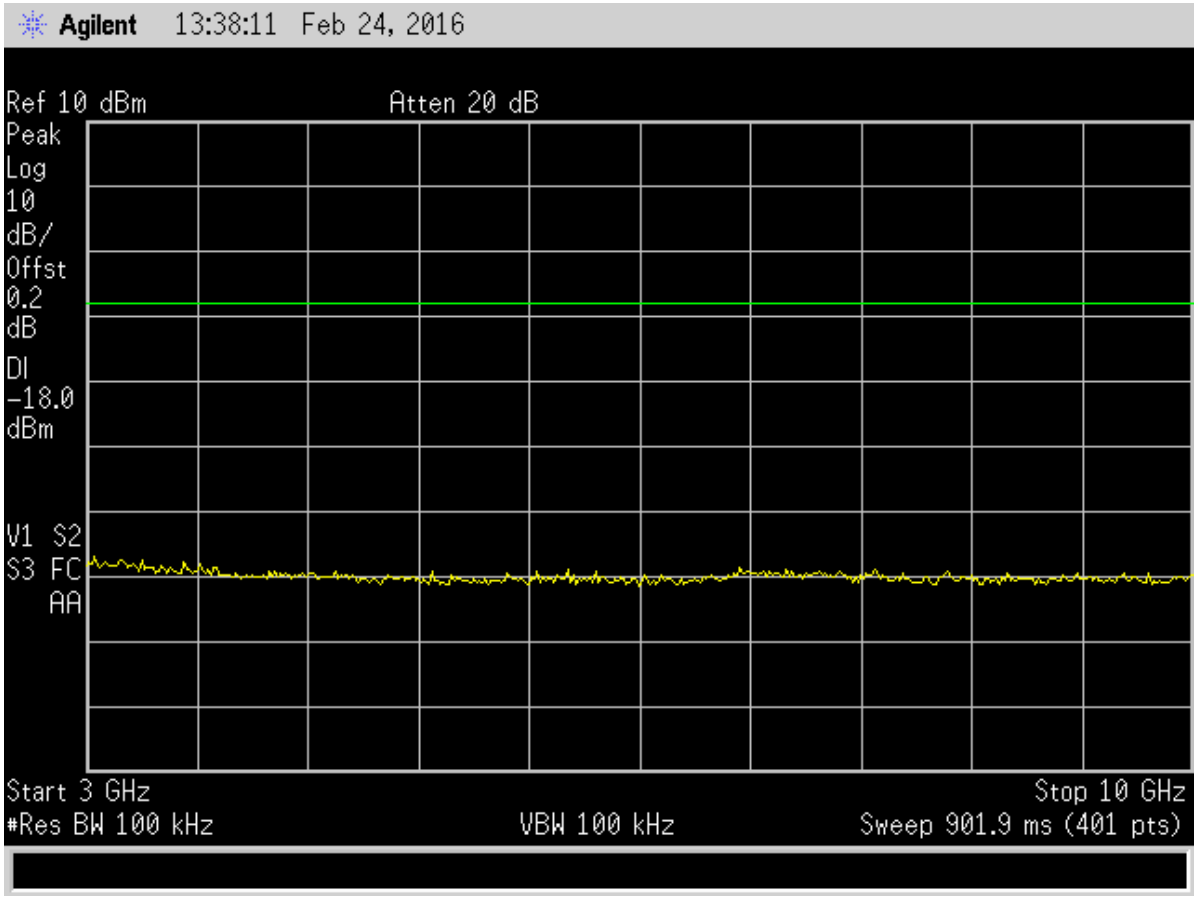
	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Antenna Port Conducted Emissions**	
DNB Job Number:	68056	Date:	2-24-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Conducted Emissions	Mid High Channel 915MHz		

Channel	Mode	Frequency (MHz)	Sweep (MHz)	Result
Mid	Transmit	915	30 - 3000	Pass



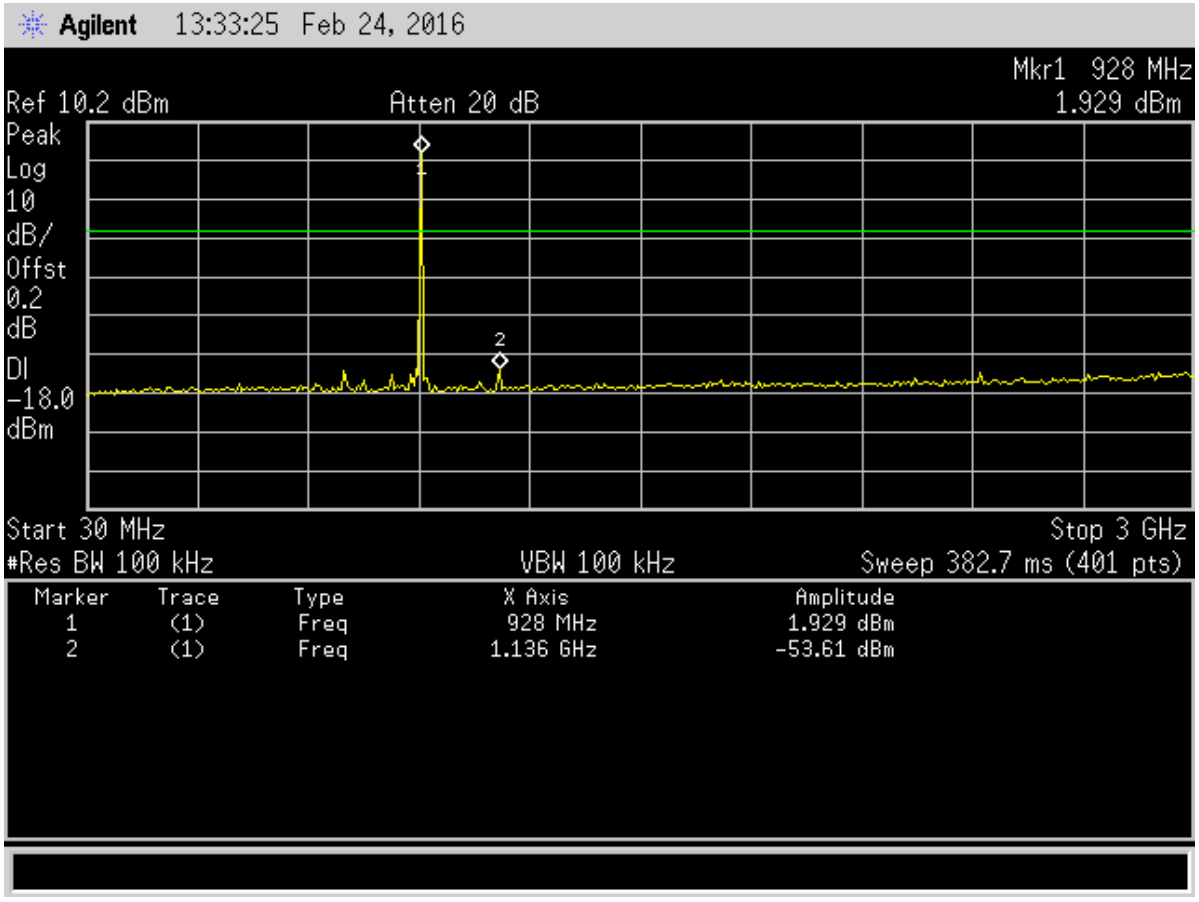
	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Antenna Port Conducted Emissions**	
DNB Job Number:	68056	Date:	2-24-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Conducted Emissions	Mid High Channel 915MHz		

Channel	Mode	Frequency (MHz)	Sweep (MHz)	Result
Mid	Transmit	915	3000 - 10000	Pass



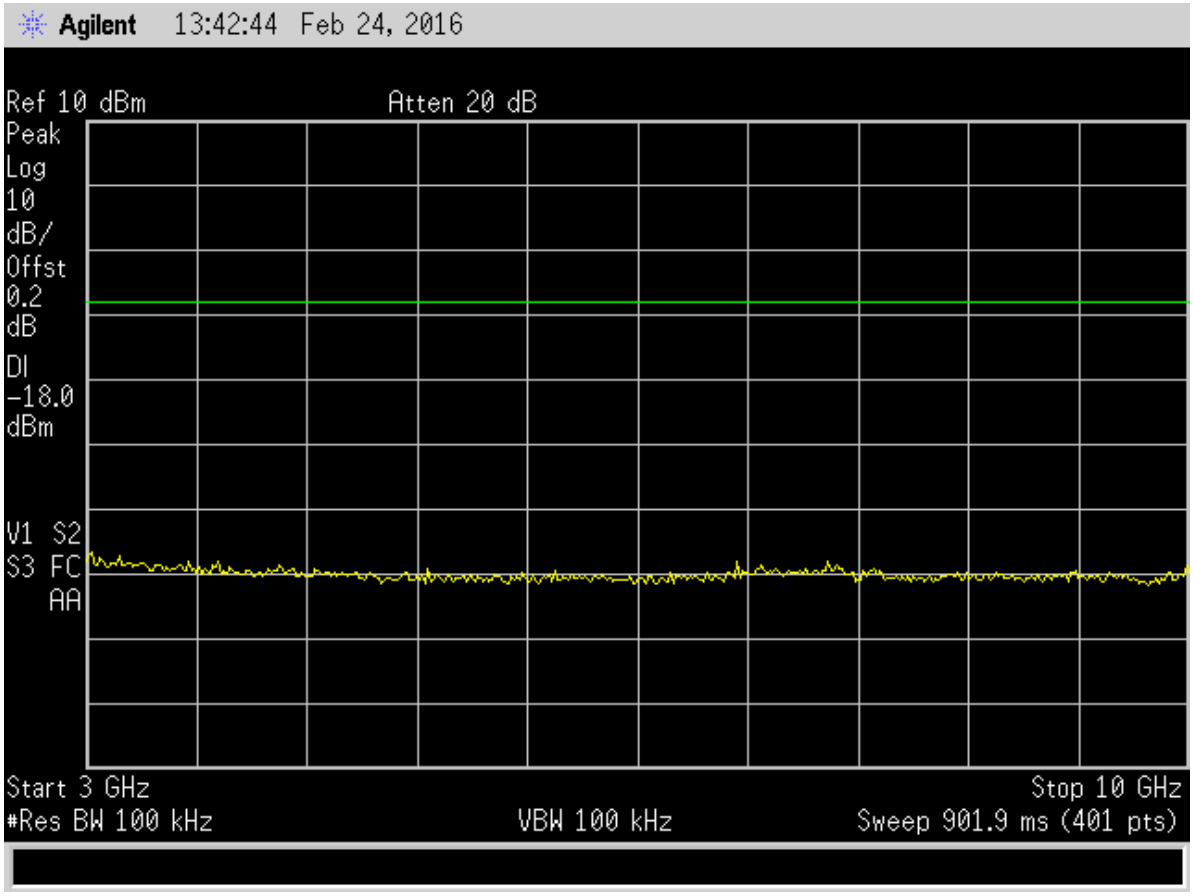
	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Antenna Port Conducted Emissions**	
DNB Job Number:	68056	Date:	2-24-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Conducted Emissions	High Channel 927.5MHz		

Channel	Mode	Frequency (MHz)	Sweep (MHz)	Result
High	Transmit	927.5	30 - 3000	Pass



	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Antenna Port Conducted Emissions**	
DNB Job Number:	68056	Date:	2-24-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Conducted Emissions	Mid High Channel 927.5MHz		

Channel	Mode	Frequency (MHz)	Sweep (MHz)	Result
High	Transmit	927.5	3000 - 10000	Pass



FCC 15.247, RSS-247 5.1 Band Edge Measurements
ANSI C63.10-2013

Equipment List:

Asset #	Equipment	Manufacturer	Model #	Serial #	Location	Cal date	Interval	Due date
2264	Analyzer	Agilent	E4407B	MY45103462	Riverside	16 Aug 15	730	2 Nov 17

Procedure:

Connect the antenna port of the EUT to the spectrum analyzer input using adequate attenuation to protect the measurement instrument.

Use the following spectrum analyzer settings:

Span = 50MHz
RBW = 100kHz
VBW = 300kHz
Sweep = auto
Detector = peak
Trace = max hold

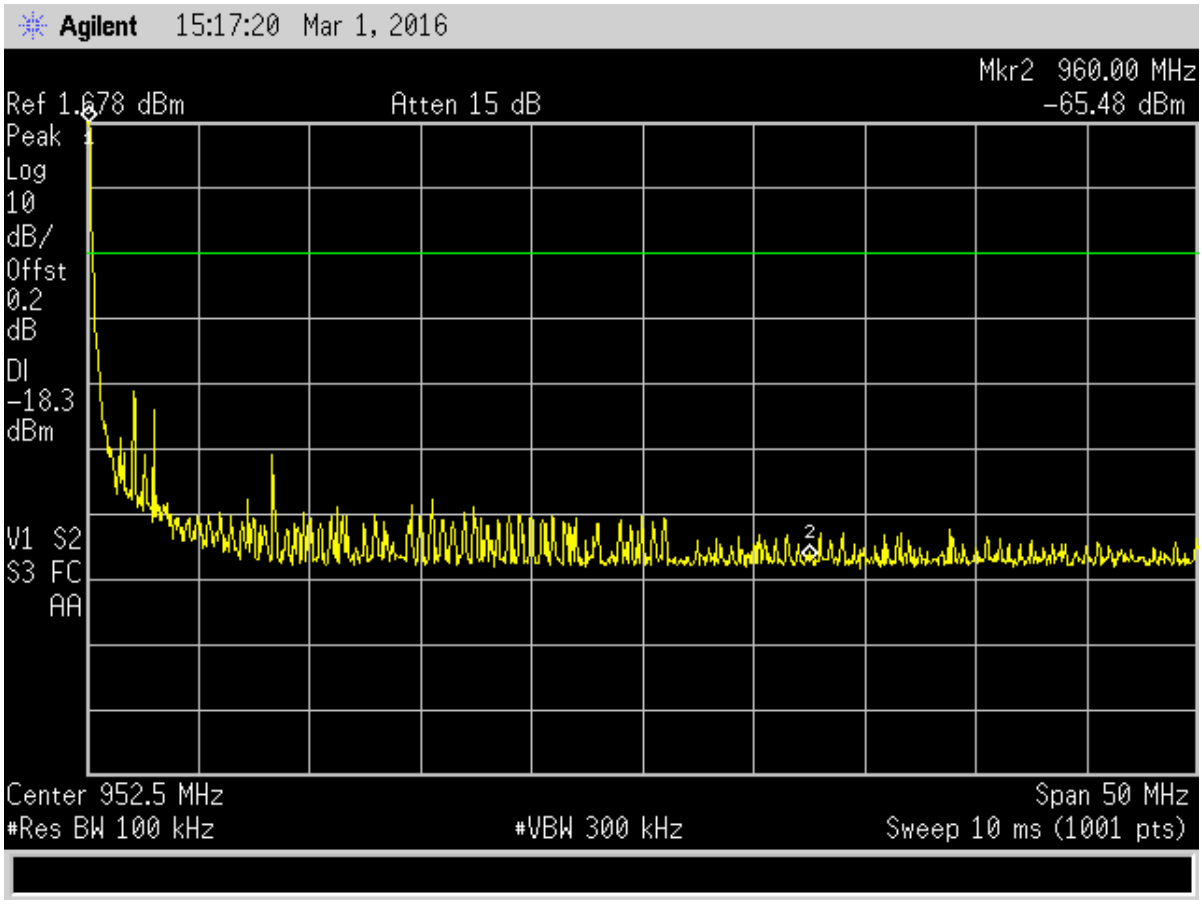
Place a marker at the end of the restricted band closest to the transmit frequency to show compliance.

Requirement: The maximum out-of-band emissions shall not exceed 20dBc

Test Setup:

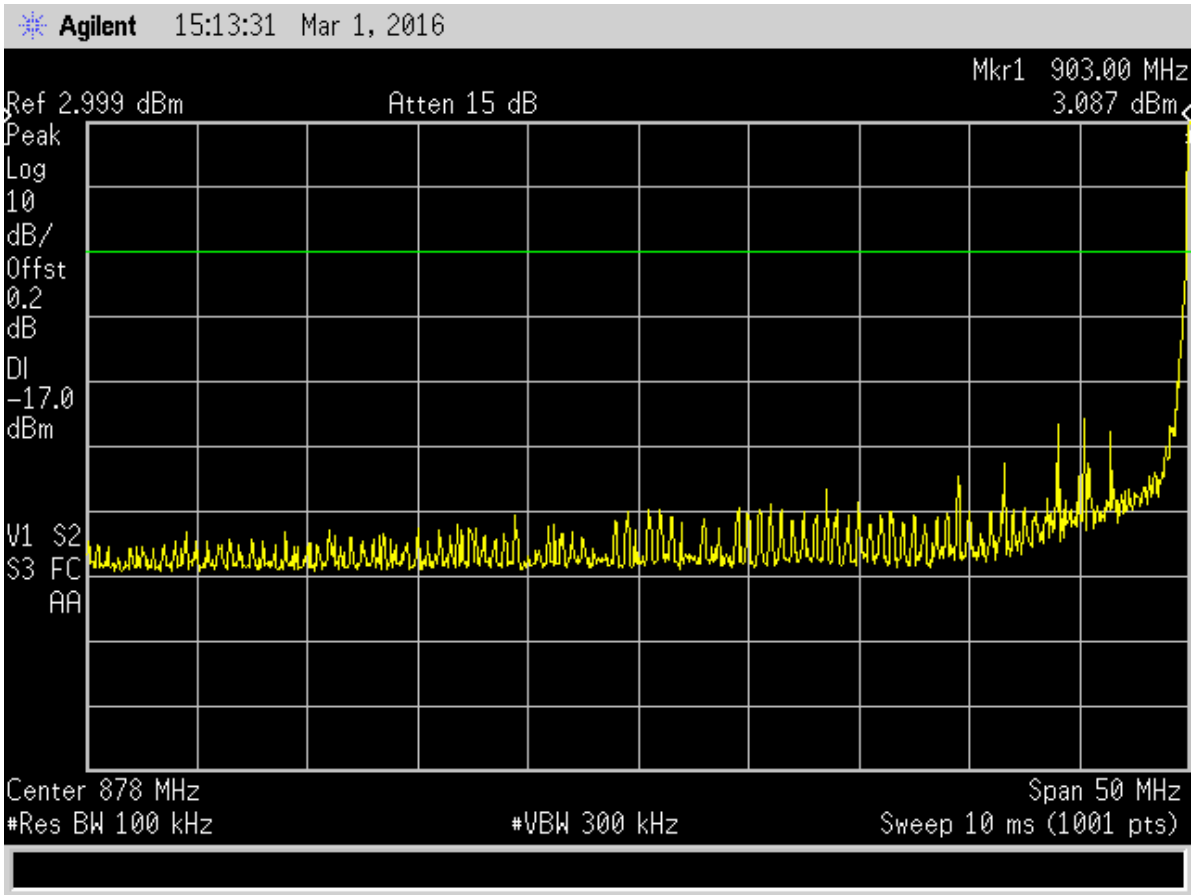
	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Band Edge (Conducted)**	
DNB Job Number:	68056	Date:	3-1-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Band Edge	High Channel 927.5MHz		

Channel	Mode	Start Frequency (MHz)	Stop Frequency (MHz)	Span (MHz)	Result
High	Transmit	927.5	977.5	50	Pass



	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Band Edge (Conducted)**	
DNB Job Number:	68056	Date:	3-1-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Band Edge	Low Channel 903MHz		

Channel	Mode	Start Frequency (MHz)	Stop Frequency (MHz)	Span (MHz)	Result
Low	Transmit	853	903	50	Pass



FCC 15.247, RSS-247 5.1 Hopping Channels

Equipment List:

Asset #	Equipment	Manufacturer	Model #	Serial #	Location	Cal date	Interval	Due date
2264	Analyzer	Agilent	E4407B	MY45103462	Riverside	16 Aug 15	730	2 Nov 17

Procedure:

Connect the antenna port to be measured to the spectrum analyzer input. Configure the spectrum analyzer as described below.

Span	=	Wide enough to view all channels
RBW	=	100kHz
VBW	=	100kHz
Sweep Time	=	auto
Trace	=	max hold

Allow trace to stabilize. Record analyzer plot.

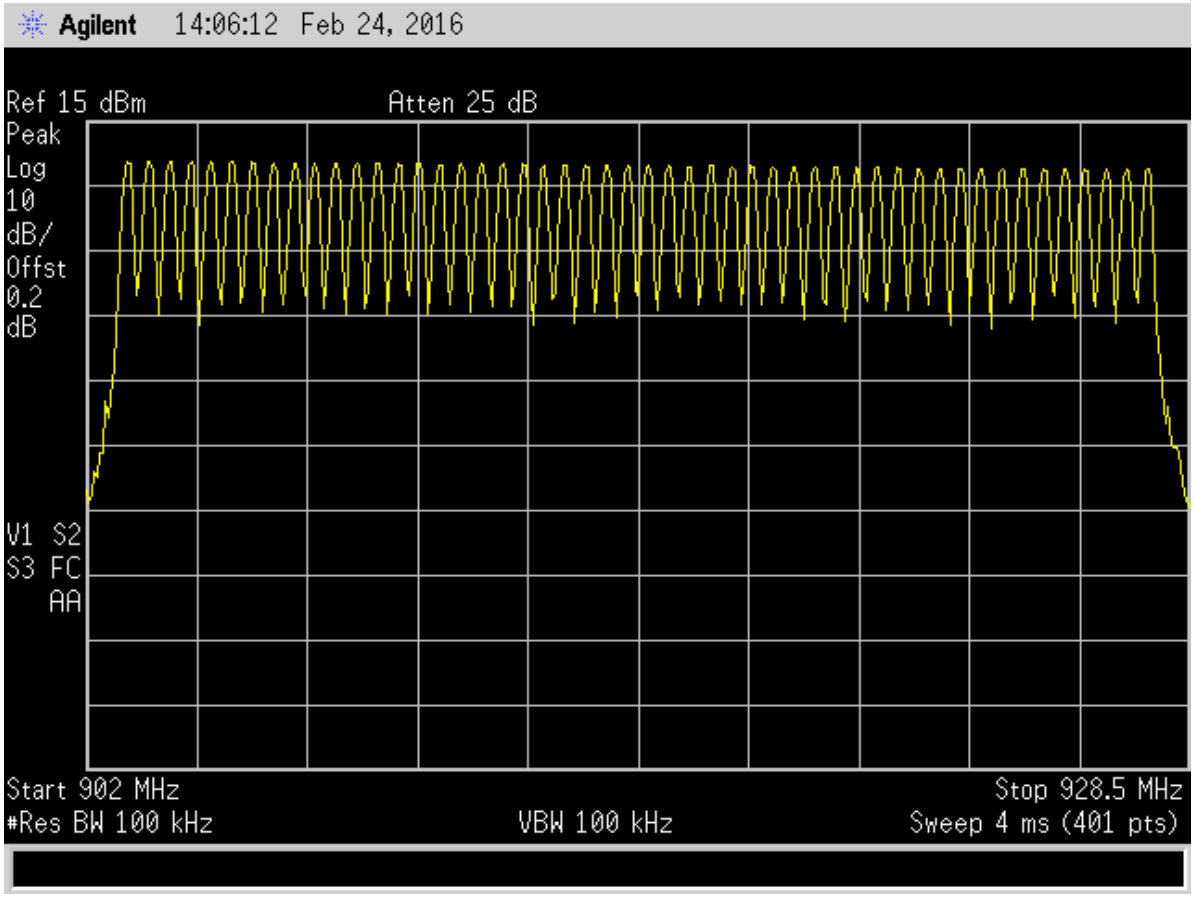
Requirement:

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

Test Setup:

	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Hopping Channels**	
DNB Job Number:	68056	Date:	2-24-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Hopping Channels	Frequency Hopping Enabled		

Channel	Mode	Channels Required	Channels Used	Result
All	Transmit	50	50	Pass



FCC 15.247, RSS-247 5.1 Channel Separtation

Equipment List:

Asset #	Equipment	Manufacturer	Model #	Serial #	Location	Cal date	Interval	Due date
2264	Analyzer	Agilent	E4407B	MY45103462	Riverside	16 Aug 15	730	2 Nov 17

Procedure:

Connect the antenna port to be measured to the spectrum analyzer input. Configure the spectrum analyzer as described below.

Span	=	Wide enough to view at least 2 consecutive channels
RBW	=	100kHz
VBW	=	100kHz
Sweep Time	=	auto
Trace	=	max hold

Allow trace to stabilize. Use delta marker function to determine channel spacing. Record Analyzer plot.

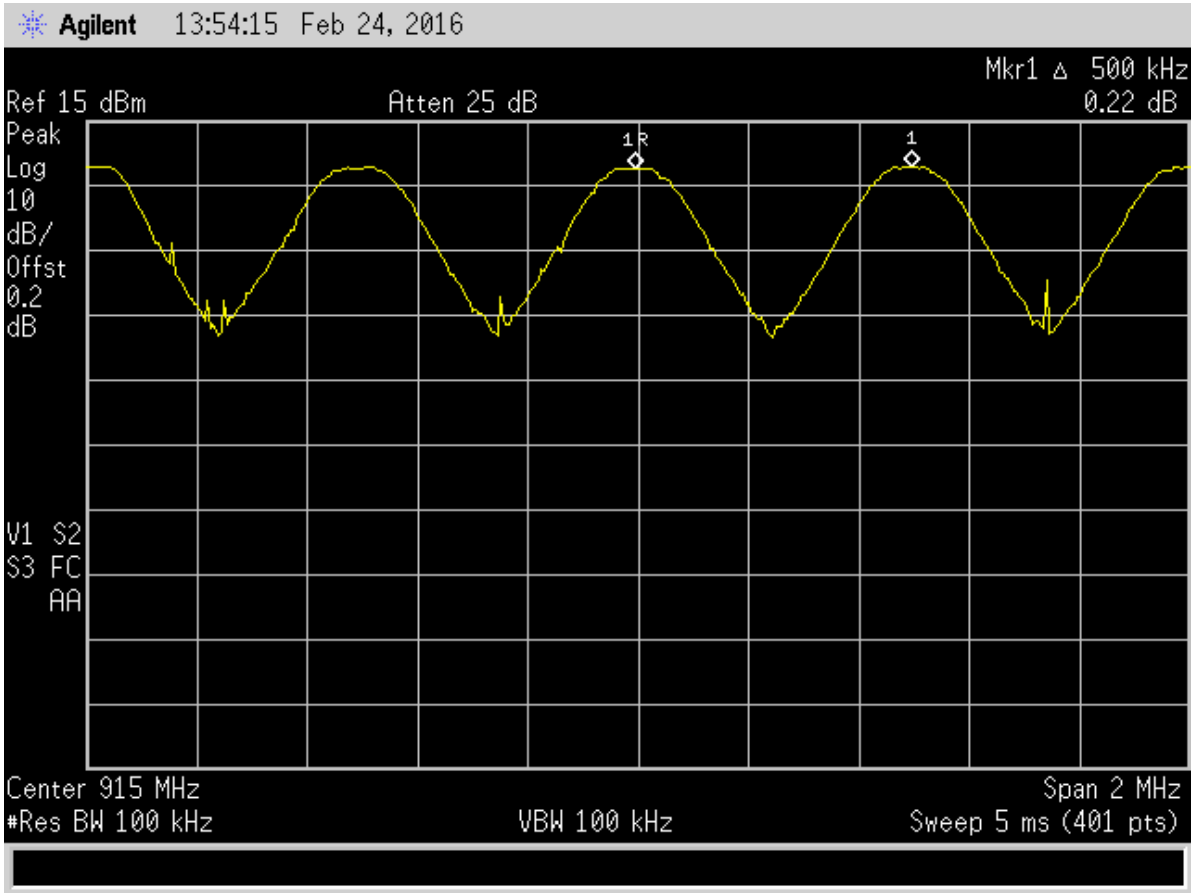
Requirement:

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

Test Setup:

	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Channel Spacing**	
DNB Job Number:	68056	Date:	2-24-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Hopping Channels	Frequency Hopping Enabled		

Channel	Mode	Spacing Required (kHz)	Spacing Measured (kHz)	Result
All	Transmit	91	500	Pass



FCC 15.247, RSS-247 5.1 Dwell Time

Equipment List:

Asset #	Equipment	Manufacturer	Model #	Serial #	Location	Cal date	Interval	Due date
2264	Analyzer	Agilent	E4407B	MY45103462	Riverside	16 Aug 15	730	2 Nov 17

Procedure:

Connect the antenna port to be measured to the spectrum analyzer input. Configure the spectrum analyzer as described below.

Span	=	Wide enough to view at least 2 consecutive channels
RBW	=	100kHz
VBW	=	100kHz
Sweep Time	=	auto
Trace	=	max hold

Allow trace to stabilize. Use delta marker function to determine channel spacing. Record Analyzer plot.

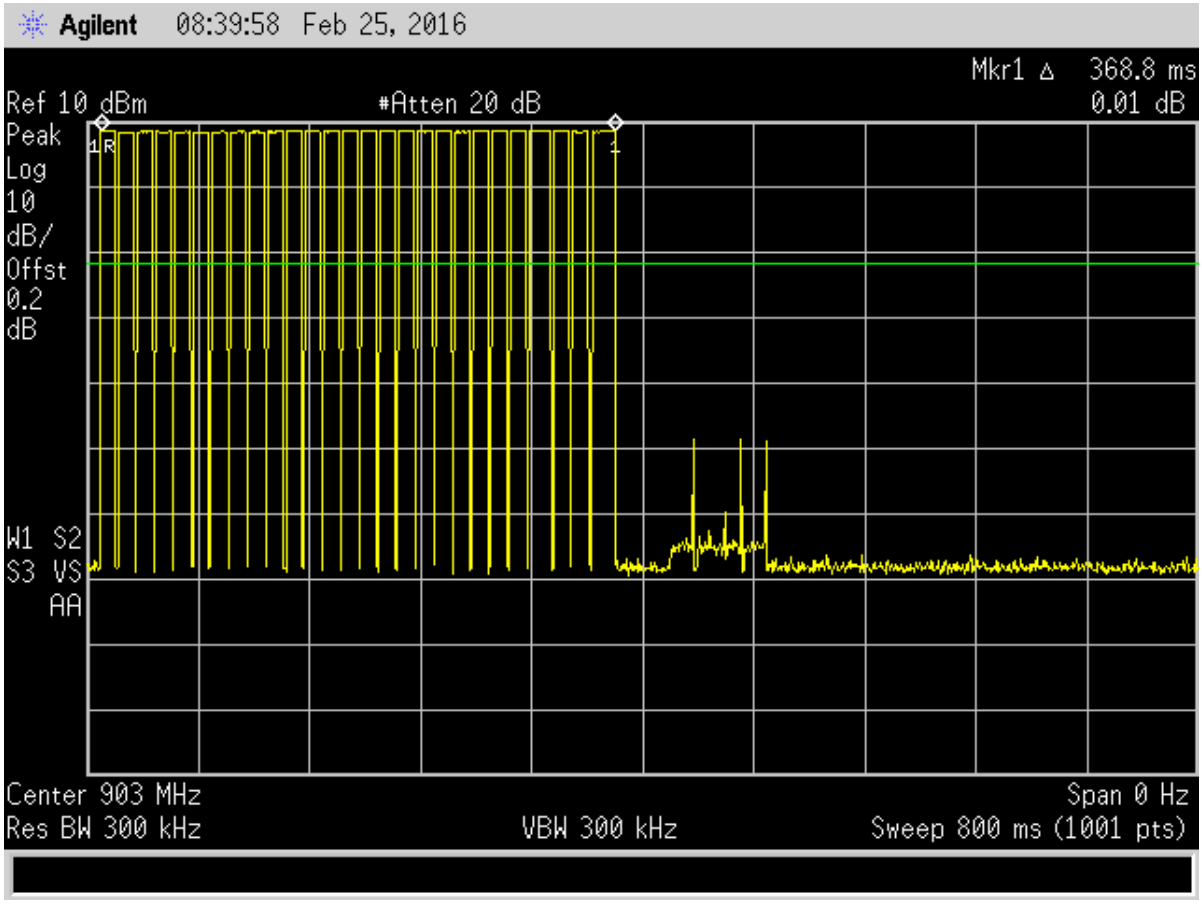
Requirement:

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

Test Setup:

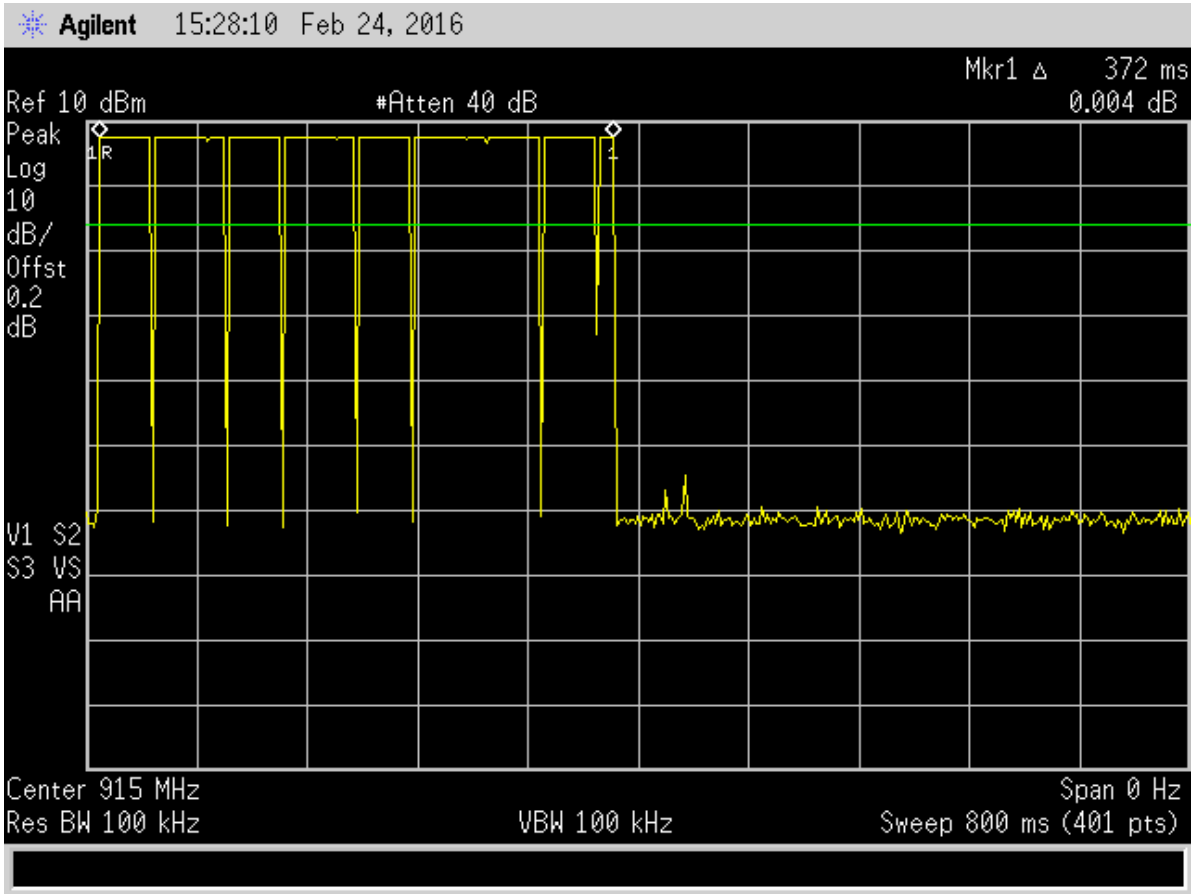
	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Dwell Time**	
DNB Job Number:	68056	Date:	2-25-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Dwell Time	Low Channel 903MHz		

Channel	Mode	Frequency (MHz)	Max Dwell Time (mS)	Dwell Time (mS)	Result
Low	Transmit	903	400	369	Pass



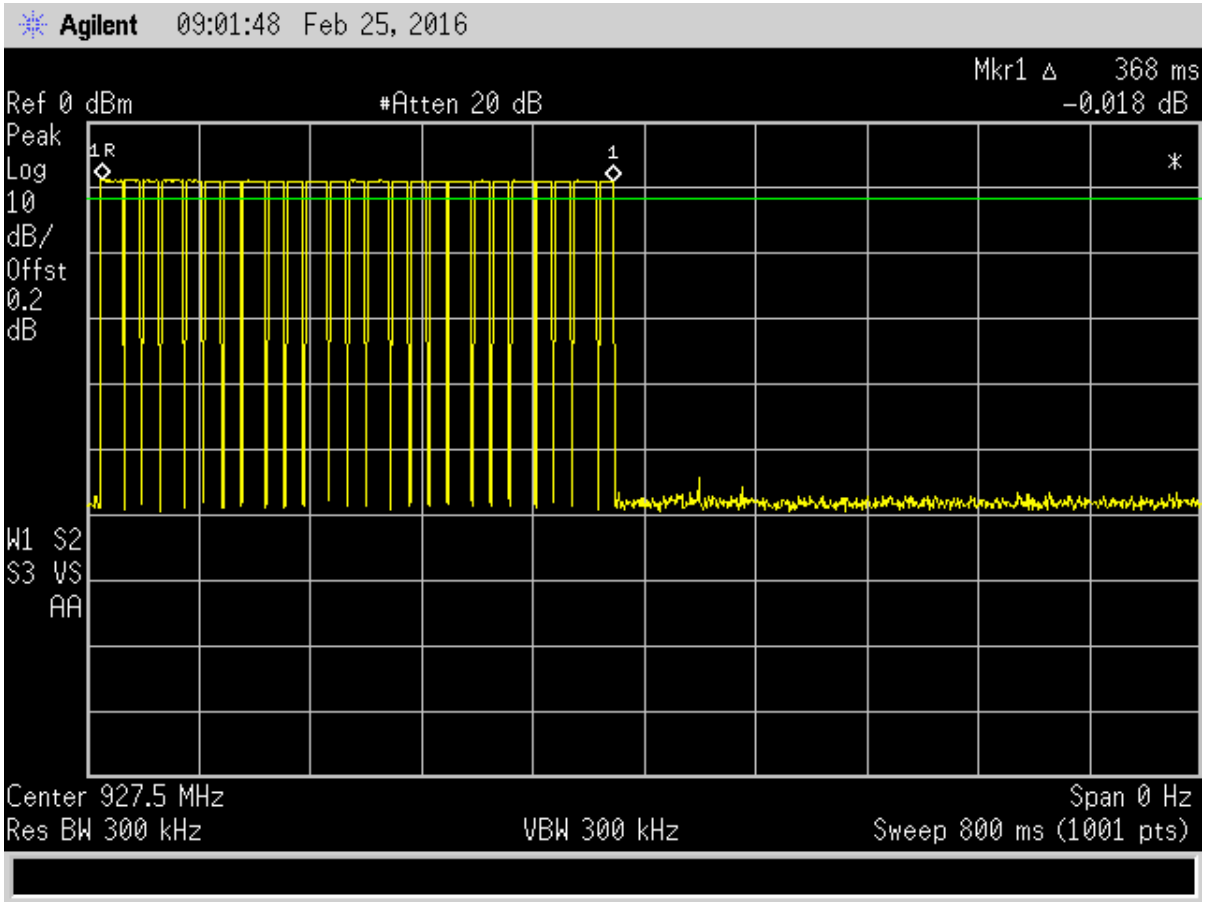
	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Dwell Time**	
DNB Job Number:	68056	Date:	2-24-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Dwell Time	Mid Channel 915 MHz		

Channel	Mode	Frequency (MHz)	Max Dwell Time (mS)	Dwell Time (mS)	Result
Low	Transmit	915	400	372	Pass



	5969 Robinson Ave. Riverside, CA 92503 (951)637-2630	**Dwell Time**	
DNB Job Number:	68056	Date:	3-1-2016
Customer:	Quest Technical Sales and Marketing, Inc.		**RSS-247 5.1** **FCC 15.247**
Model Number:		Specification:	
Description:	RS-485 Wireless Transceiver		
Dwell Time	High Channel 927.5 MHz		

Channel	Mode	Frequency (MHz)	Max Dwell Time (mS)	Dwell Time (mS)	Result
Low	Transmit	927.5	400	368	Pass



FCC 2.1033 (b) (7) Equipment Photographs

To be filed as a separate attachment.

End of Report