

HUAWEI TECHNOLOGIES CO., LTD.

Application
For
Certification

FCC ID: QISM220

OTT box

Model: MediaQ M220

WiFi Transceiver

Report No.: 140314011SZN-001

We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-13]

Prepared and Checked by:

Approved by:

Sign on file

Lin Lin
Project Engineer



Digitally signed
by Billy Li
Location: Intertek
Testing Services

Billy Li
Supervisor
Date: 31 March 2014

- The test results reported in this test report shall refer only to the sample actually tested and shall not refer or be deemed to refer to bulk from which such a sample may be said to have been obtained.
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TRF no.: FCC 15C_Tx_b

Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch

6F, D Block, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China
Tel: (86 755) 8601 6288 Fax: (86 755) 8601 6751 Website: www.china.intertek-etlsemko.com

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MEASUREMENT/TECHNICAL REPORT

Huawei Technologies Co.,Ltd - MODEL: MediaQ M220

FCC ID: QISM220

This report concerns (check one) Original Grant ☒ Class II Change ☐

Equipment Type: DTS - Part 15 Digital Transmission Systems (WiFi transmitter portion)

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes ☐ No ☒

If yes, defer until :
date

Company Name agrees to notify the Commission by:
date

of the intended date of announcement of the product so that the grant can be issued on that date.

Transition Rules Request per 15.37? Yes ☐ No ☒

If no, assumed Part 15, Subpart C for intentional radiator - the new 47 CFR [10-01-13 Edition] provision.

Report prepared by:

Billy Li
Intertek Testing Services Shenzhen Ltd.
Kejiyuan Branch
6F, Block D, Huahan Building, Langshan Road,
Nanshan District, Shenzhen, P. R. China
Phone: (86 755) 8614 0645
Fax: (86 755) 8614 6751

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List of attached file

Exhibit Type	File Description	Filename
Cover Letter	Letter of Agency	agency.pdf
Test Report	Test Report	report.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
External Photo	External Photo	external photos.pdf
Internal Photo	Internal Photo	internal photos.pdf
Block Diagram	Block Diagram	block.pdf
Schematics	Circuit Diagram	circuit.pdf
Operation Description	Technical Description	descri.pdf
ID Label/Location	Label Artwork and Location	label.pdf
Cover Letter	Confidentiality Letter	request.pdf
RF Exposure report	RF exposure	RF exposure.pdf
User Manual	User Manual	manual.pdf

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EXHIBIT 1

SUMMARY OF TEST RESULTS

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1.0 Summary of Test

Huawei Technologies Co.,Ltd - MODEL: MediaQ M220

FCC ID: QISM220

TEST	REFERENCE	RESULTS
Max. Output power	15.247(b)	Pass
6 dB Bandwidth	15.247(a)(2)	Pass
Max. Power Density	15.247(e)	Pass
Out of Band Antenna Conducted Emission	15.247(d)	Pass
Radiated Emission in Restricted Bands	15.247(d)	Pass
AC Conducted Emission	15.207	Pass
Antenna Requirement	15.203	Pass (See Notes)

Notes: The EUT uses Integral Antenna which in accordance to Section 15.203 is considered sufficient to comply with the provisions of this section.

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EXHIBIT 2

GENERAL DESCRIPTION

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2.0 General Description

2.1 Product Description

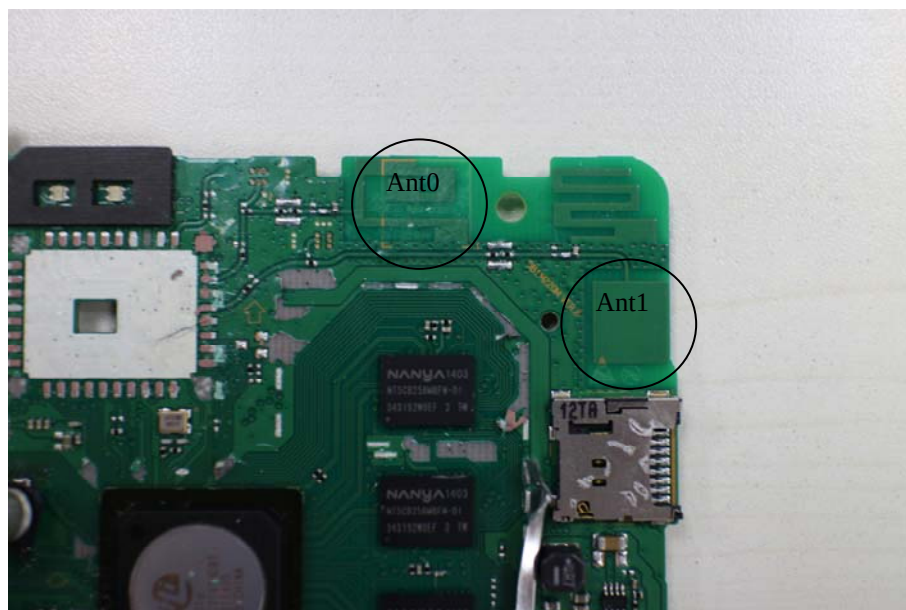
The Equipment Under Test (EUT) is a HDMI player (Android OS), Model: MediaQ M220 operating at 2412-2462MHz for 802.11b/g/n-HT20, 11 channels with 5MHz channel spacing. EUT operated at 2422-2452MHz for 802.11n-HT40, 7 channels with 5MHz channel spacing. It is powered by AC/DC Adapter (Input: 100-240Vac, 50/60Hz; Output: 5V, 2A). The EUT including 2 antennas, the RF IC support 2Tx & 2Rx mode, in 802.11b/g/n-HT20/n-HT40 SISO mode Ant0 transceiver only and in MIMO mode Ant0+Ant1 transceiver. For more detailed features description, please refer to the user's manual.

Antenna distribution diagram:

Ant0 Gain: 2.28dBi; Ant1 Gain: 2.36dBi

Type of Modulation: DBPSK, DQPSK, BPSK, QPSK, 16QAM, 64QAM.

Antenna Type: Integral Antenna.



For electronic filing, the brief circuit description is saved with filename: descri.pdf.

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2.2 Related Submittal(s) Grants

This is an application for certification of:

DTS- Part 15 Digital Transmission Systems (WiFi transmitter portion)

Remaining portions are subject to the following procedures:

1. Receiver portion of WiFi: exempt from technical requirement of this Part.
2. Data Transfer and other function: (Report No.: 140314011SZN-002).

2.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2009) and KDB 558074. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans were performed in the semi-anechoic chamber only to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the “**Justification Section**” of this Application. All other measurements were made in accordance with the procedures in part 2 of CFR 47.

2.4 Test Facility

The Semi-Anechoic chamber and shield room used to collect the radiated data and conducted data are **Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch** and located at 6F, Block D, Huahan Building, Langshan Road, Nanshan District, Shenzhen, P. R. China. This test facility and site measurement data have been fully placed on file with the FCC (Registration Number: 242492).

EXHIBIT 3
SYSTEM TEST CONFIGURATION

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3.0 System Test Configuration

3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions. It was powered by AC/DC Adapter Input: 120Vac, 60Hz during the test. Only the worst case data was reported.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

3.2 EUT Exercising Software

The EUT exercise program (provided by client) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use. The worst case configuration is used in all specified testing.

The parameters of test software setting:

During the test, Channel and power controlling software provided by the applicant was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the application and is going to be fixed on the firmware of the end product.

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3.3 Special Accessories

Shielding HDMI Cable (Length: 150cm), Shielding USB Cable (Length: 150cm)

3.4 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Uncertainty and Compliance – Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value.

3.5 Equipment Modification

Any modifications installed previous to testing by HUAWEI TECHNOLOGIES CO., LTD. will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Kejiyuan Branch.

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3.6 Support Equipment List and Description

This product was tested in the following configuration:

Refer List:

Description	Manufacturer	Model No.	
Router	TP-LINK	TL-MR11U	
Monitor	DELL	U2410f	
USB Disk	Sandisk	USB/4GB	
TF Card	Sandisk	TF/4GB	
iPad 2 with HDMI Kit	Apple	MC769CH/A	
2 x HDMI Cable	HW	Shielding, Length: 150cm	
USB Power Cable	HW	Shielding, Length: 150cm	
SPDIF terminal	N/A	SPDIF optical input Speaker	
AC Adapter	Huawei	BYD	HW-050200U3W Input:100-240V 50/60Hz; Output: 5Vdc, 2A
		Huntkey	
		Note: This production has two AC/DC Adapter suppliers, and had been arranged testing separately, and the worst-case test data was recorded in this report.	

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EXHIBIT 4

MEASUREMENT RESULTS

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Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220

Date of Test: 25 March 2014

4.0 Measurement Results

4.1 Maximum Conducted Output Power at Antenna Terminals, FCC Rules 15.247(b)(3):

- [] The antenna power of the EUT was connected to the input of a spectrum analyzer. Power was read directly and cable loss correction was added to the reading to obtain power at the EUT antenna terminals.
- [x] The antenna port of the EUT was connected to the input of a spectrum analyzer. The analyzer was set according to the FCC KDB 558074 spectrum analyzer's integrated band power measurement function with band limits set equal to the EBW band edges and power was read directly in dBm. External attenuation and cable loss were compensated from the measured value.

For antennas with gains of 6 dBi or less, maximum allowed Transmitter output is 1 watt (+30 dBm).

IEEE 802.11b (Antenna0 Gain = 2.28dBi) (DBPSK, 1Mbps)		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412	12.12	16.29
Middle Channel: 2437	19.47	88.51
High Channel: 2462	12.26	16.83

IEEE 802.11g (Antenna0 Gain = 2.28dBi) (BPSK, 6Mbps)		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412	15.36	34.36
Middle Channel: 2437	22.61	182.39
High Channel: 2462	14.21	26.36

IEEE 802.11n-HT20 (SISO) (Antenna0 Gain = 2.28dBi) (BPSK, 6.5Mbps)		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2412	14.83	30.41
Middle Channel: 2437	22.89	194.54
High Channel: 2462	14.38	27.42

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IEEE 802.11n-HT20 (MIMO) (Antenna Gain = 5.33dBi, Note3) (BPSK, 13Mbps)			
Frequency (MHz)	Output in dBm		Output in mWatt Total power
	Ant0	Ant1	
Low Channel: 2412	13.95	13.35	46.46
Middle Channel: 2437	22.37	21.72	321.18
High Channel: 2462	14.86	13.28	51.90

IEEE 802.11n-HT40 (SISO) (Antenna0 Gain = 2.28dBi) (BPSK, 13.5Mbps)		
Frequency (MHz)	Output in dBm	Output in mWatt
Low Channel: 2422	14.57	28.64
Middle Channel: 2437	14.74	29.79
High Channel: 2452	14.62	28.97

IEEE 802.11n-HT40 (MIMO) (Antenna Gain = 5.33dBi, Note3) (BPSK, 27Mbps)			
Frequency (MHz)	Output in dBm		Output in mWatt Total power
	Ant0	Ant1	
Low Channel: 2422	14.62	13.89	53.46
Middle Channel: 2437	14.86	13.74	54.28
High Channel: 2452	14.32	13.53	49.58

The test plots are attached as below.

Note 1: For MIMO system of 802.11n 20MHz and 40MHz, total power is calculated by combining the output power of each antenna according to KDB662911.

Note 2: Antenna0 Gain: 2.28dBi, Antenna 1 Gain: 2.36dBi

Note 3: In MIMO, Ant0+Ant1 Directional gain

$$= 10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] \text{ dBi} = 5.33\text{dBi}$$

Cable loss, external attenuation has been included in OFFSET function

EUT dBm max. output level = 0.32118W (802.11n-HT20 MIMO, Ant0+Ant1, 2437MHz)

For RF Exposure, the information is saved with filename: RF exposure.pdf.

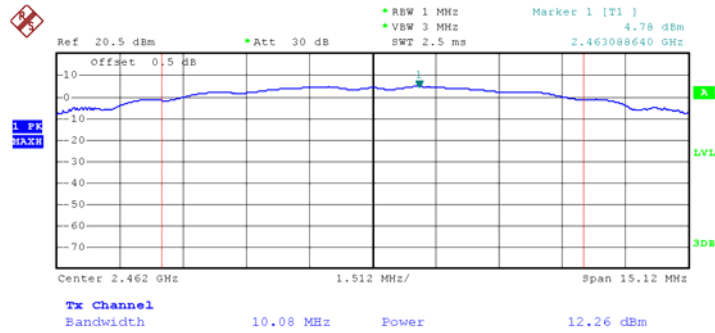
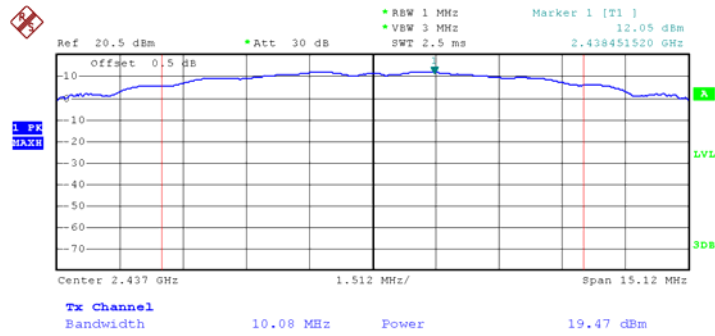
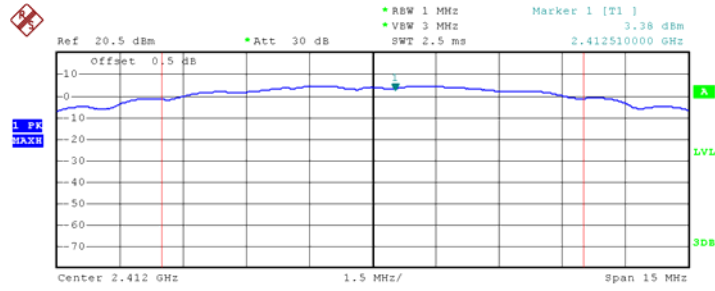
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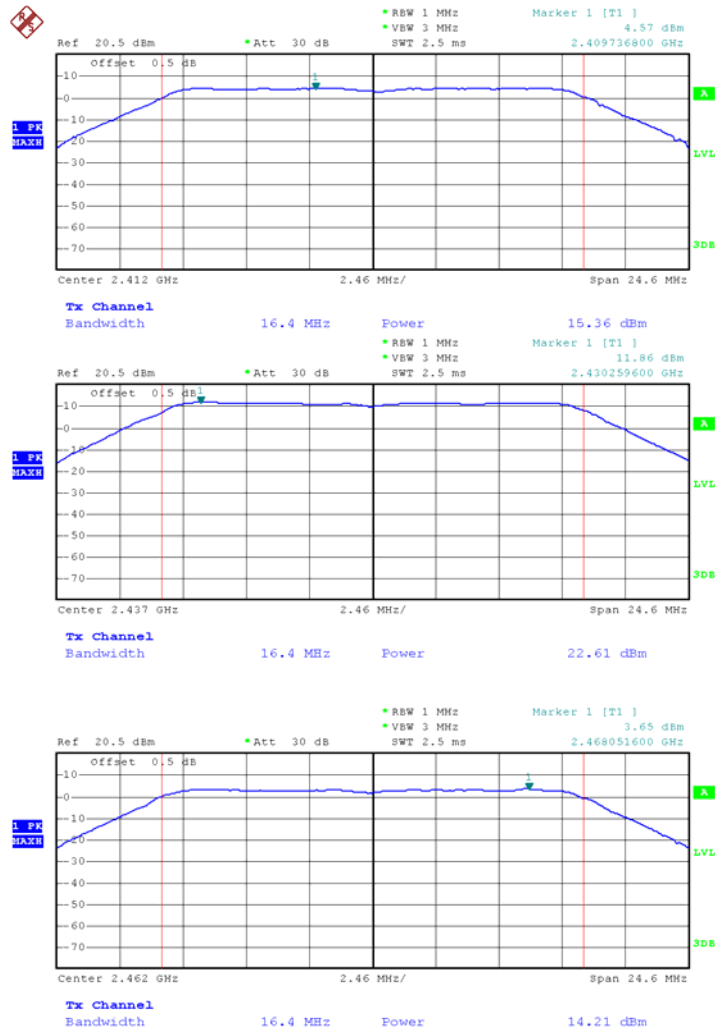
802.11b



TRF no.: FCC 15C_TX_b
FCC ID: QISM220
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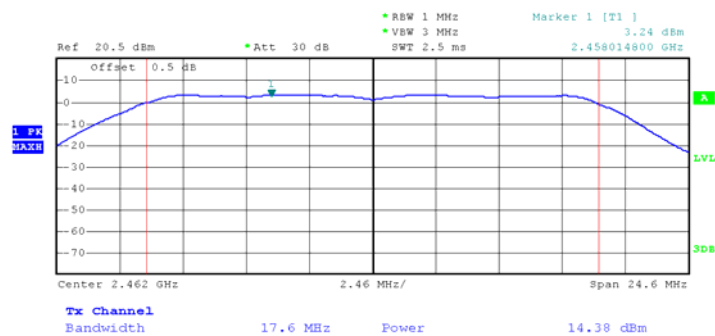
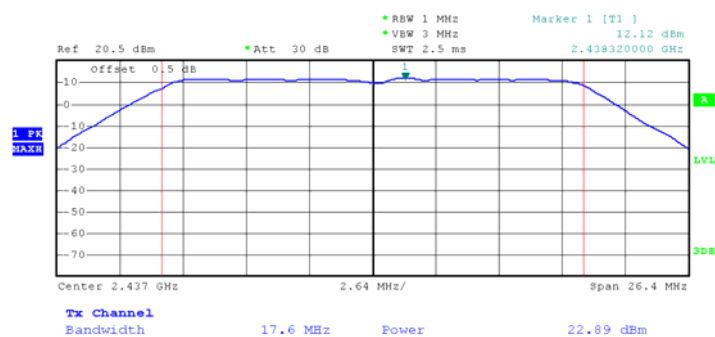
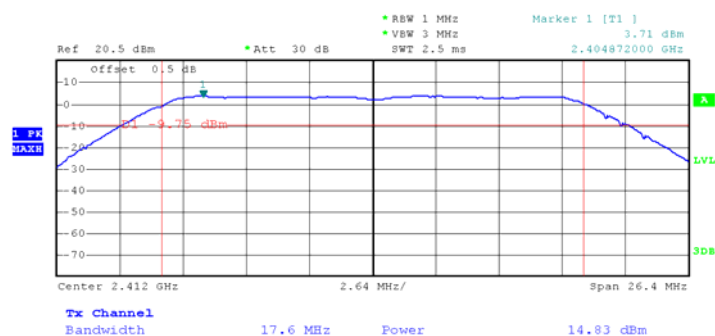
802.11g



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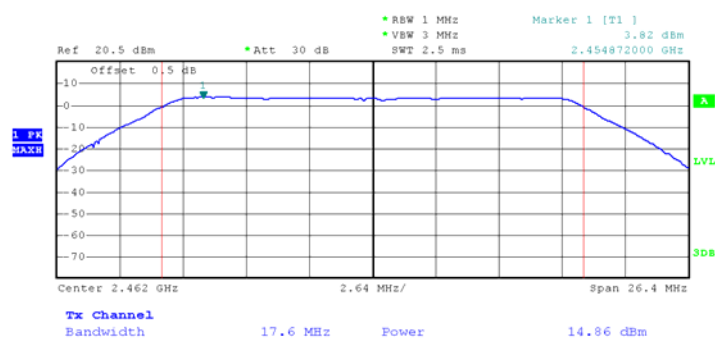
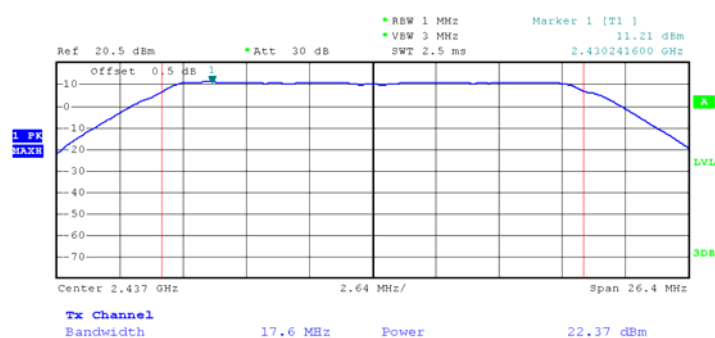
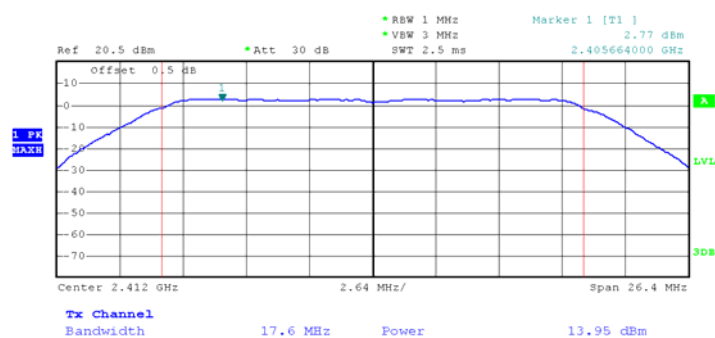
802.11n-HT20 SISO



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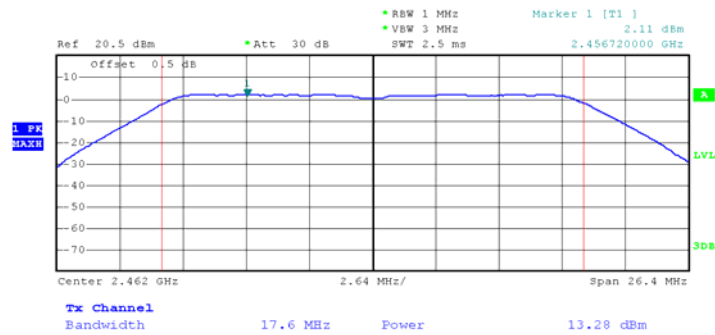
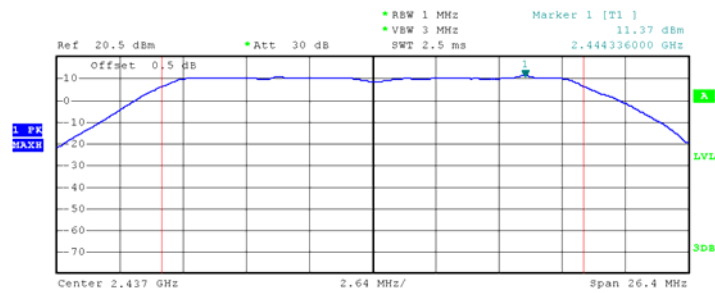
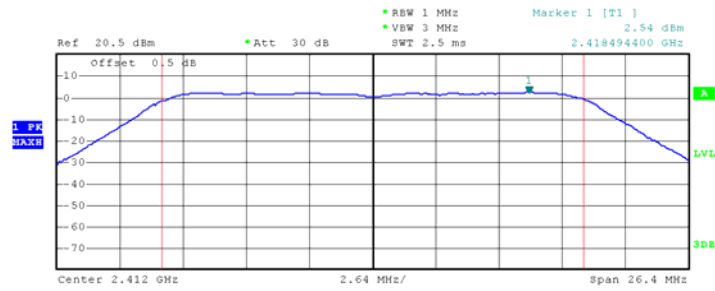
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802.11n-HT20 MIMO Ant0



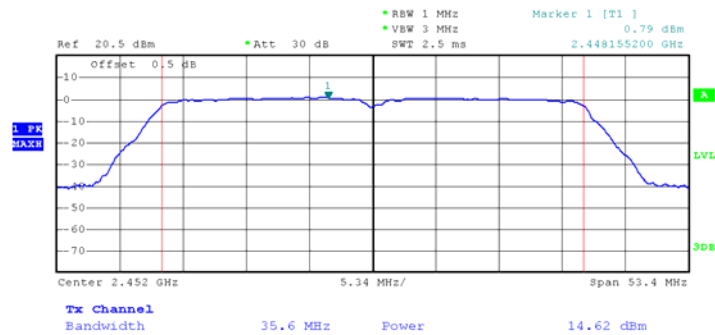
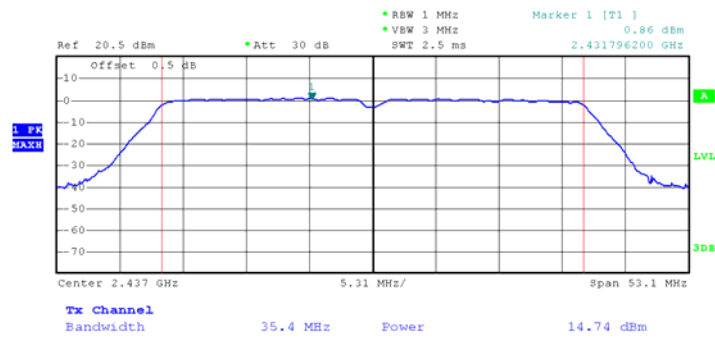
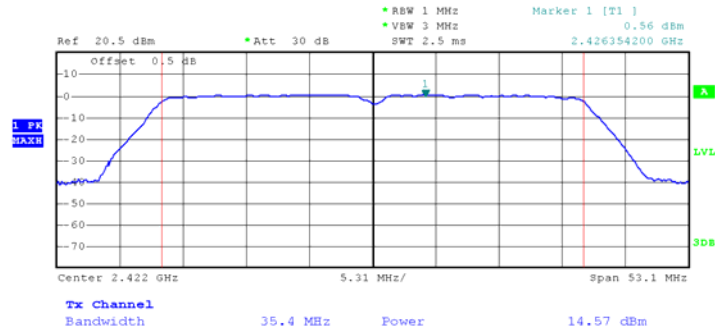
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802.11n-HT20 MIMO Ant1



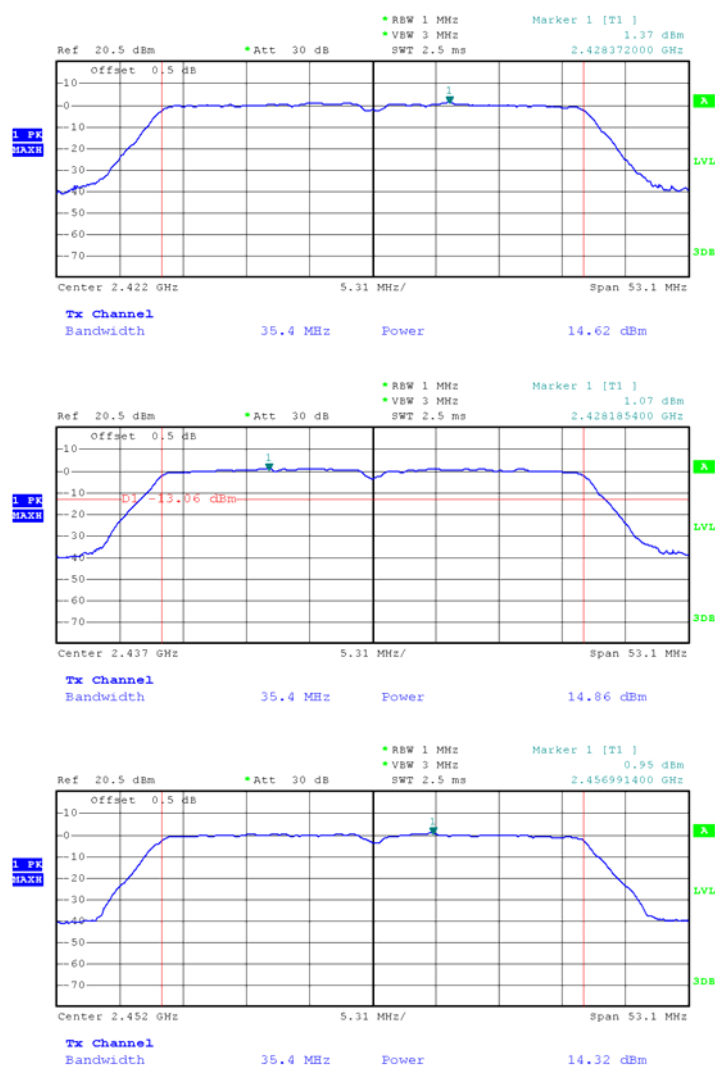
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802.11n-HT40 SISO



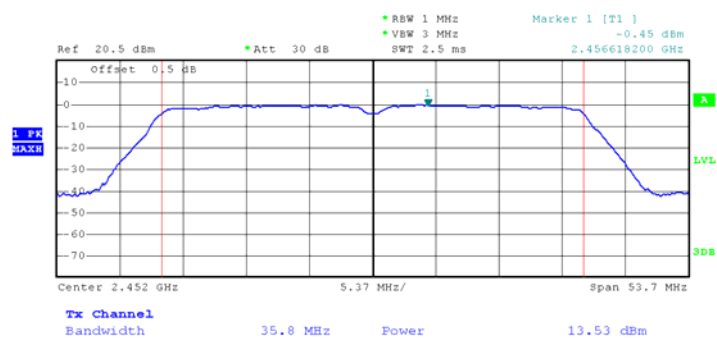
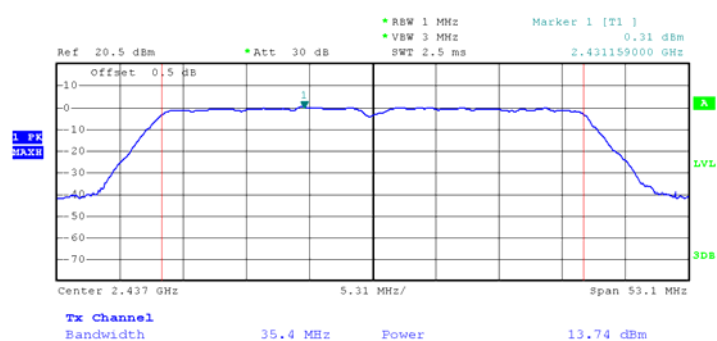
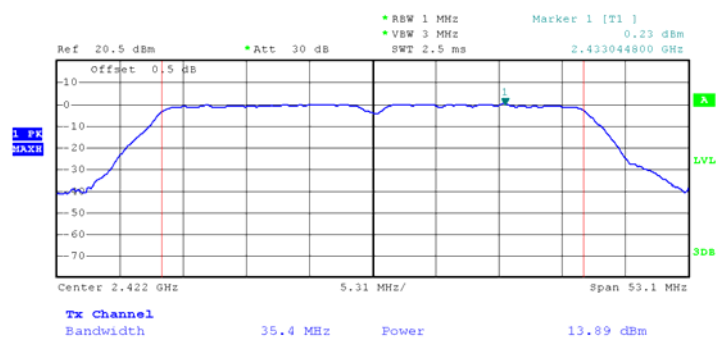
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802.11n-HT40 MIMO Ant0



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802.11n-HT40 MIMO Ant1



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Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220

Date of Test: 25 March 2014

4.2 Minimum 6 dB RF Bandwidth, FCC Rule 15.247(a)(2):

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer RES BW was set to 100 KHz according to FCC KDB 558074. For each RF output channel investigated, the spectrum analyzer center frequency was set to the channel carrier. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

Limit: The 6 dB Bandwidth is at least 500 kHz.

IEEE 802.11b (DBPSK, 1Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	10
2437	10.08
2462	10.08

IEEE 802.11g (BPSK, 6Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	16.4
2437	16.4
2462	16.4

IEEE 802.11n-HT20 SISO(BPSK, 6.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	17.6
2437	17.6
2462	17.6

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IEEE 802.11n-HT20 MIMO Ant0 (BPSK, 13Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	17.6
2437	17.6
2462	17.6

IEEE 802.11n-HT20 MIMO Ant1 (BPSK, 13Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2412	17.6
2437	17.6
2462	17.6

IEEE 802.11n-HT40 SISO(BPSK, 13.5Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2422	35.4
2437	35.4
2452	35.6

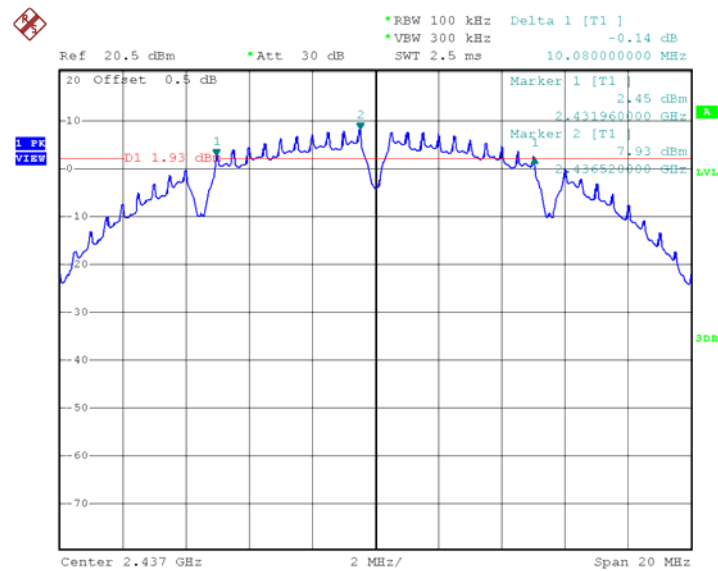
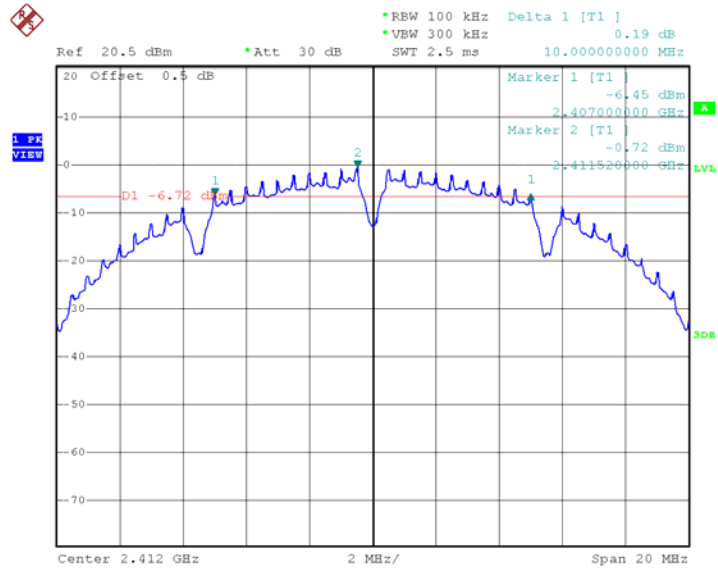
IEEE 802.11n-HT40 MIMO Ant0 (BPSK, 27Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2422	35.4
2437	35.4
2452	35.4

IEEE 802.11n-HT40 MIMO Ant1 (BPSK, 27Mbps)	
Frequency (MHz)	6 dB Bandwidth (MHz)
2422	35.4
2437	35.4
2452	35.8

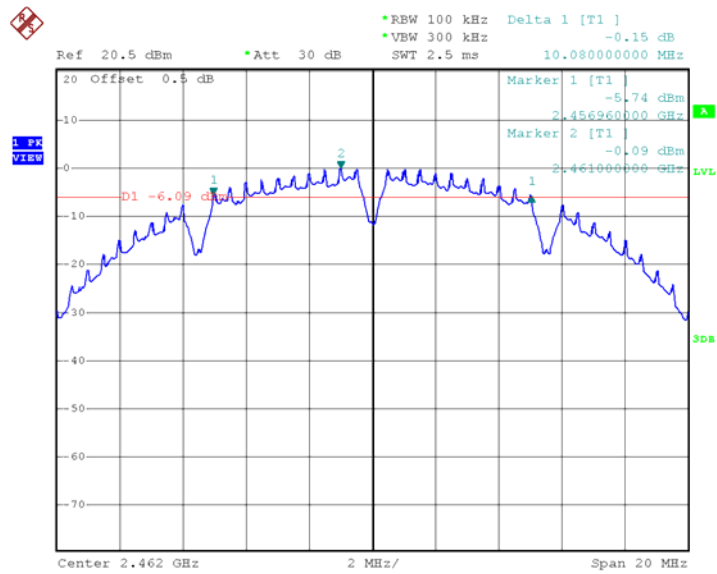
The test plots are attached as below.

INTERTEK TESTING SERVICES

802.11b



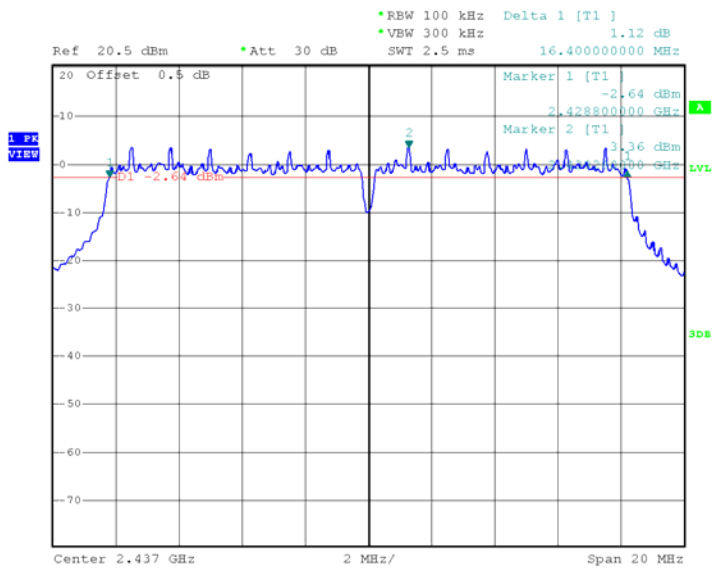
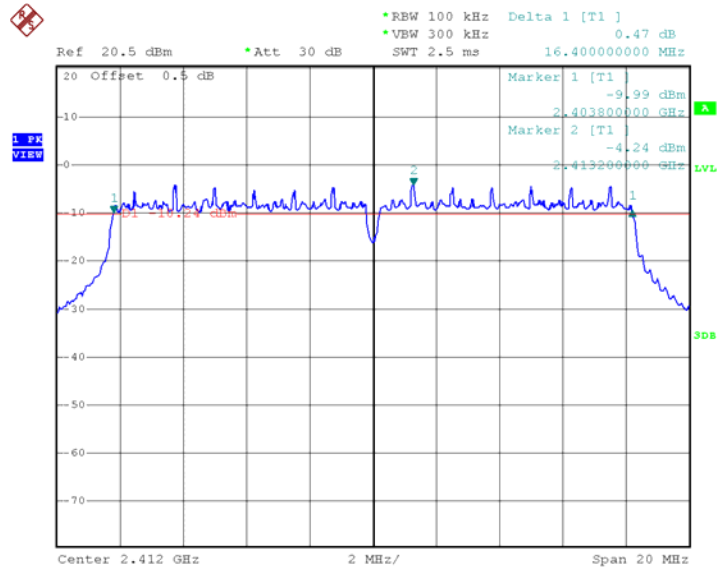
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802.11g

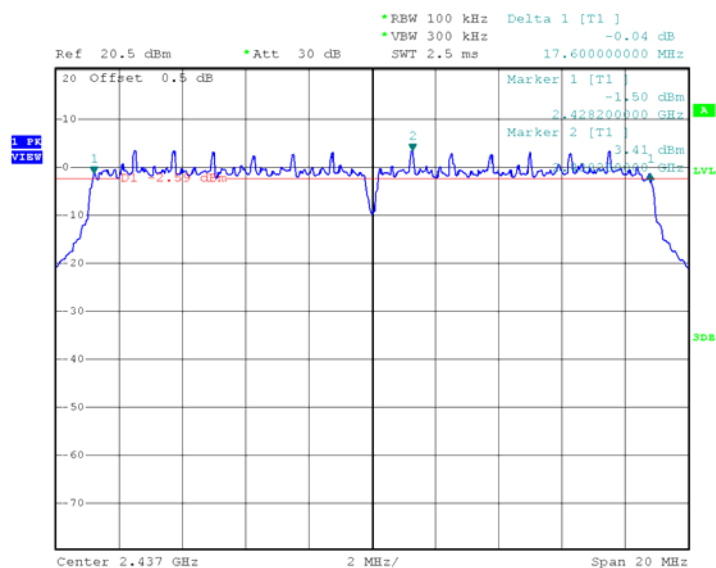
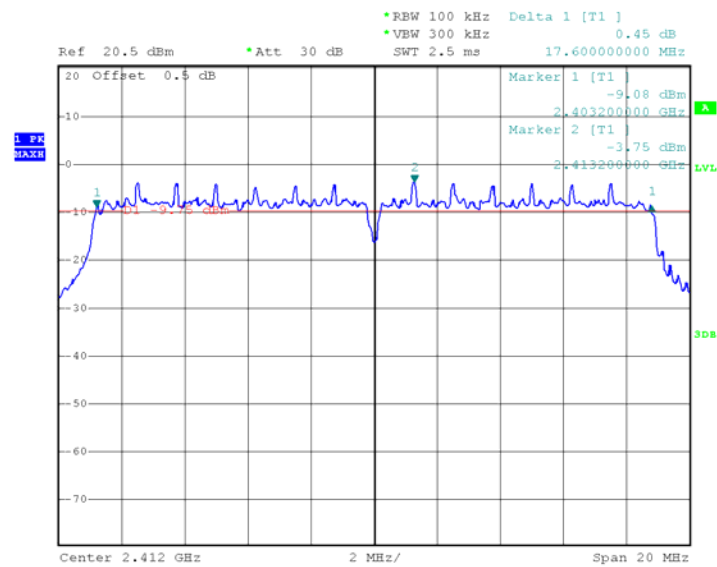


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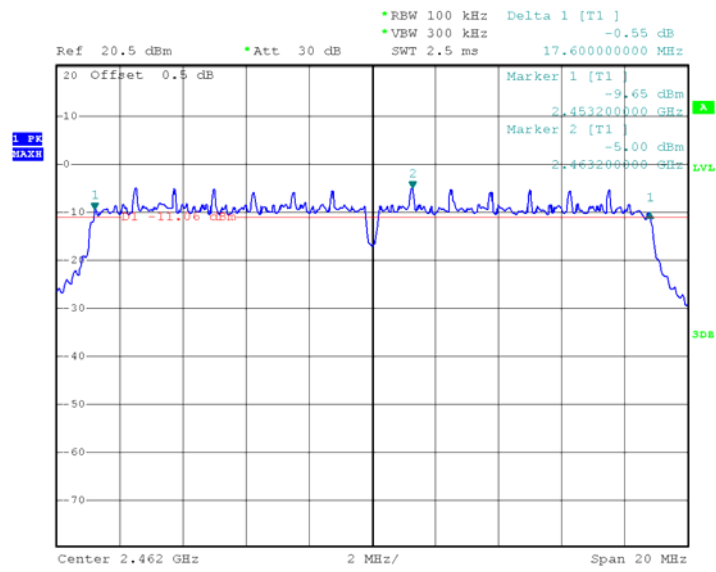
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INTERTEK TESTING SERVICES

802.11n-HT20 SISO

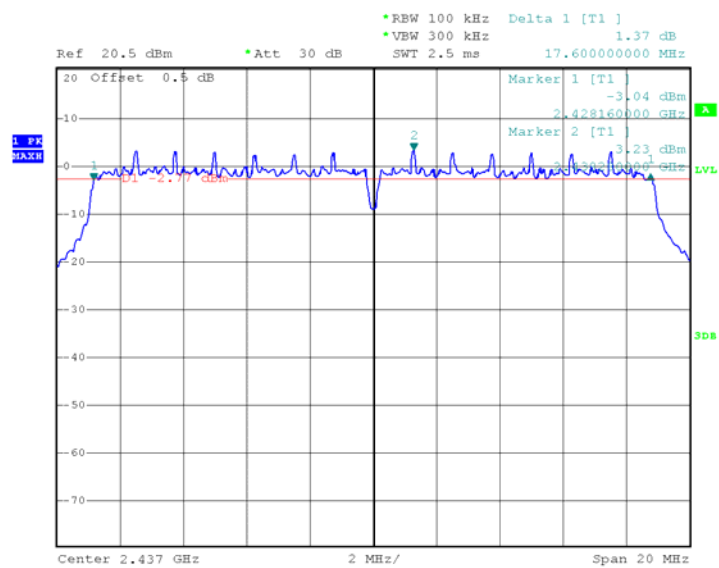
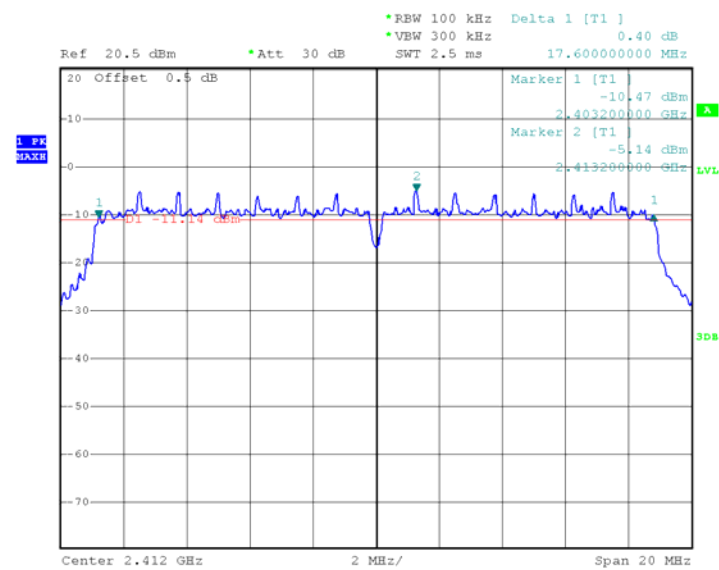


INTERTEK TESTING SERVICES

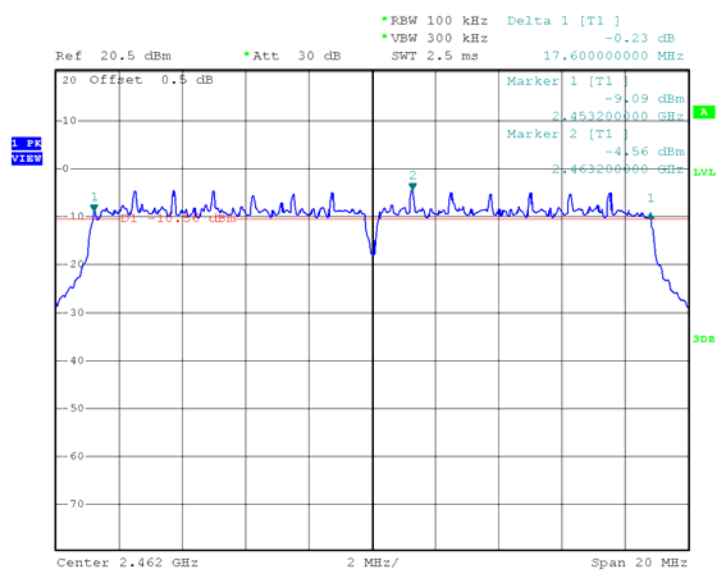


INTERTEK TESTING SERVICES

802.11n-HT20 MIMO Ant0

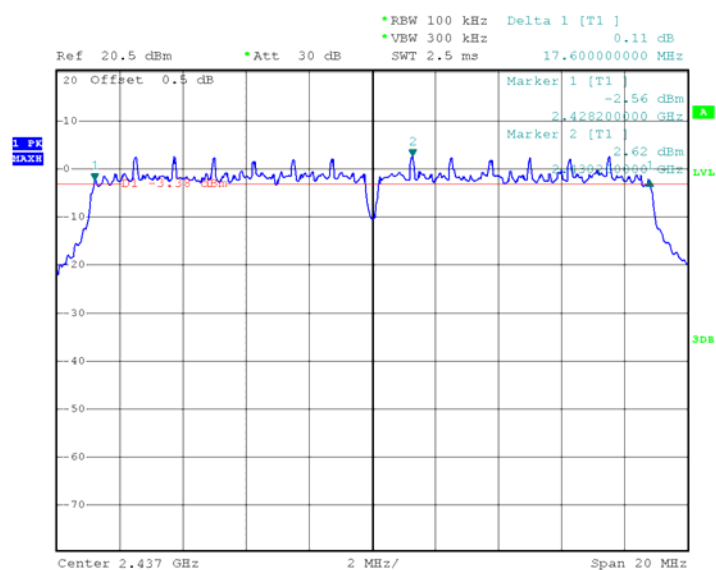
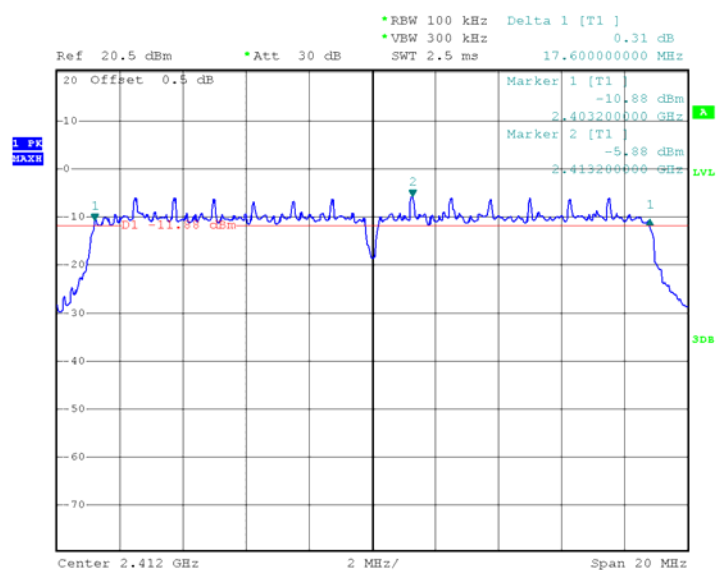


INTERTEK TESTING SERVICES



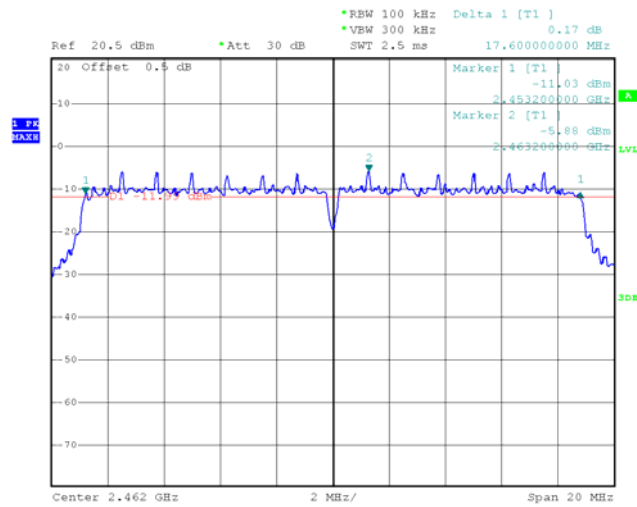
INTERTEK TESTING SERVICES

802.11n-HT20 MIMO Ant1



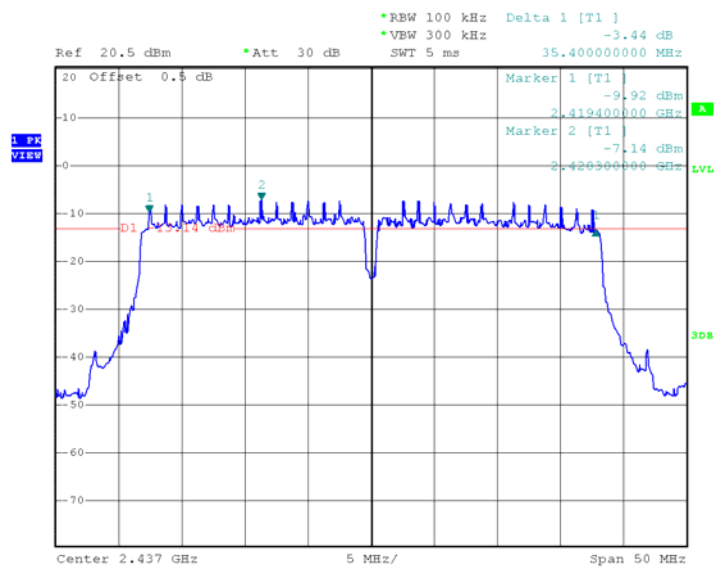
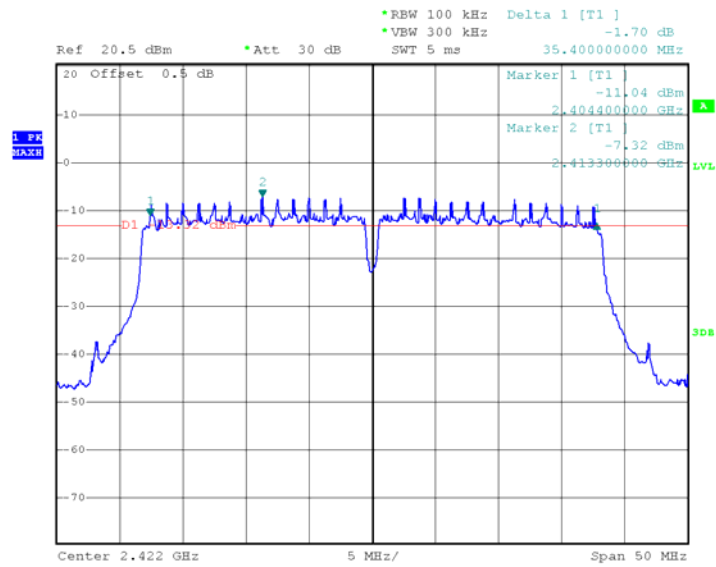
TRF no.: FCC 15C_TX_b
FCC ID: QISM220
Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES



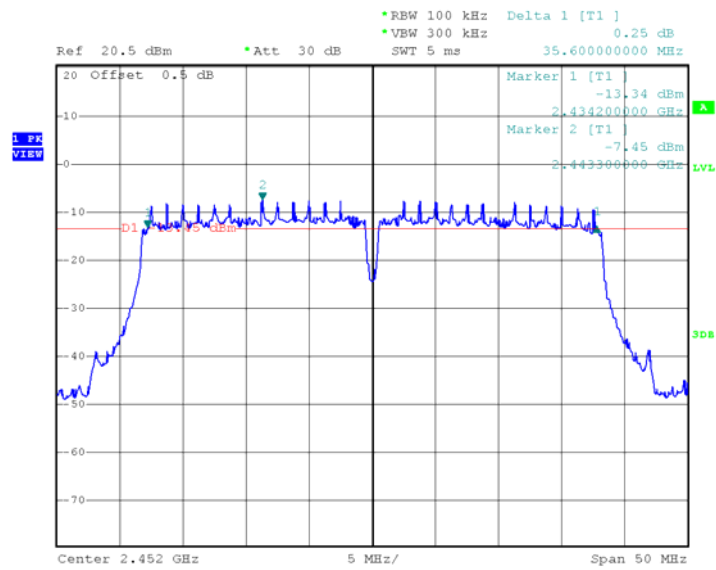
INTERTEK TESTING SERVICES

802.11n-HT40 SISO



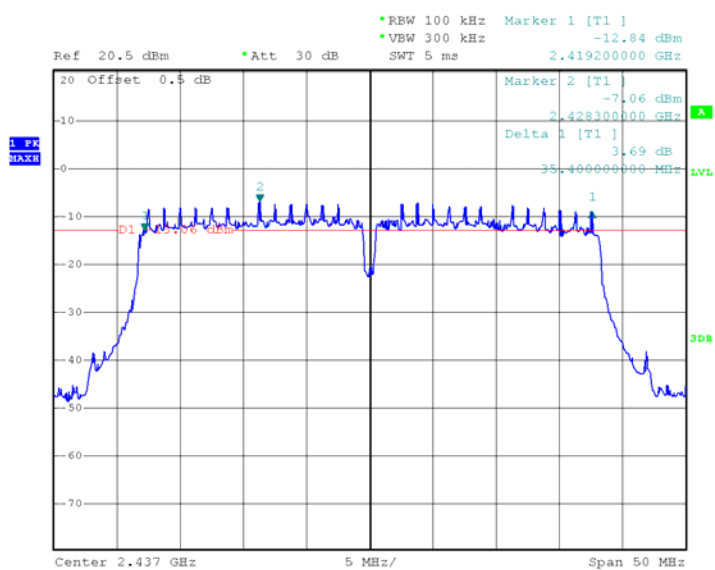
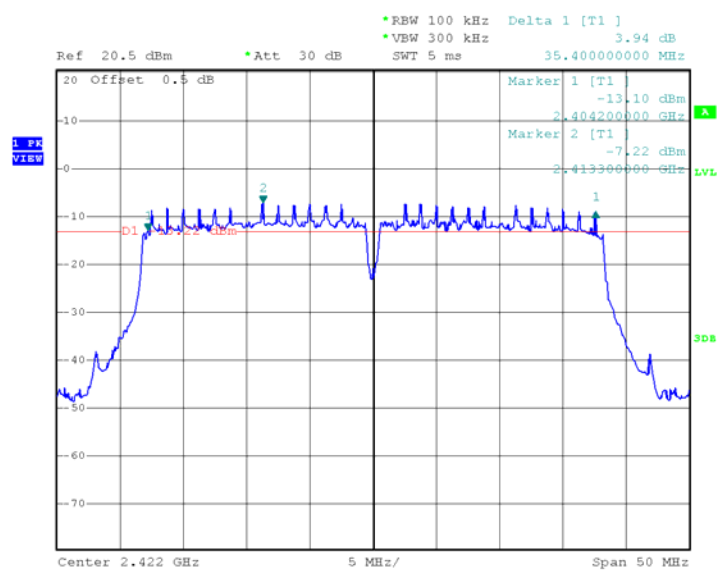
TRF no.: FCC 15C_TX_b
FCC ID: QISM220
Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES



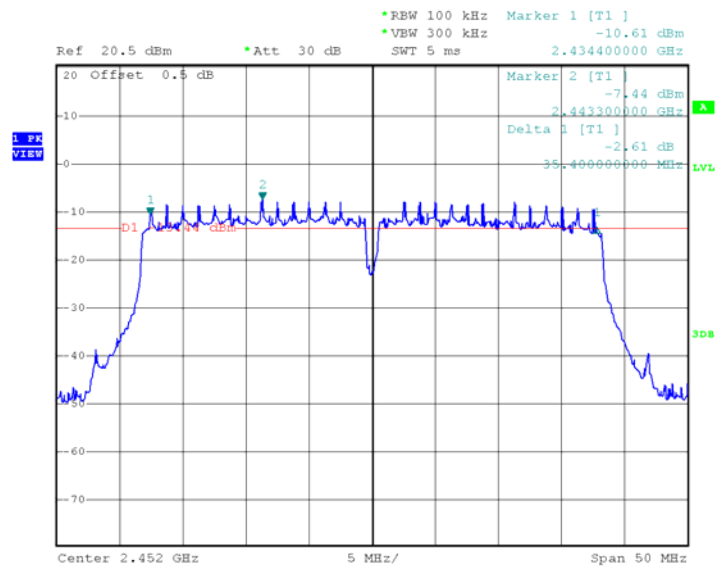
INTERTEK TESTING SERVICES

802.11n-HT40 MIMO Ant0



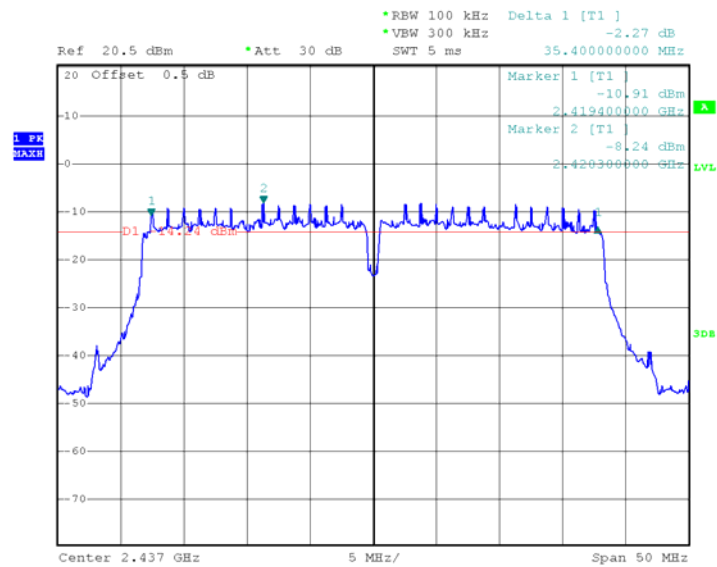
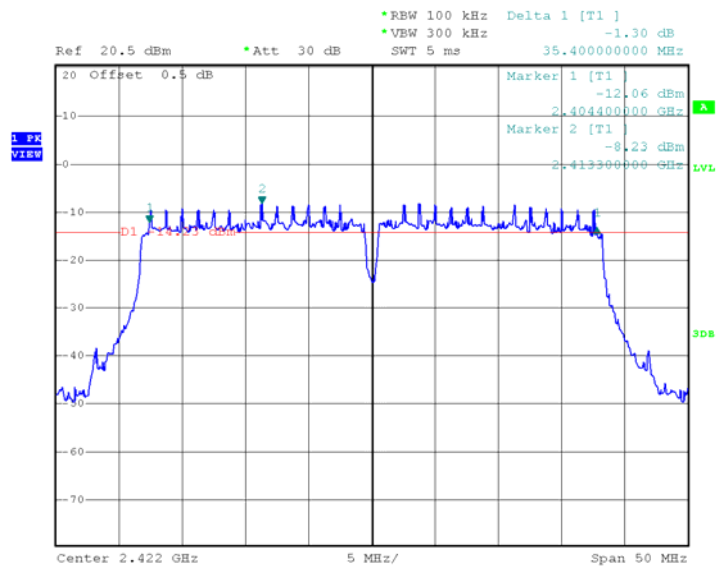
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FCC ID: QISM220
Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES

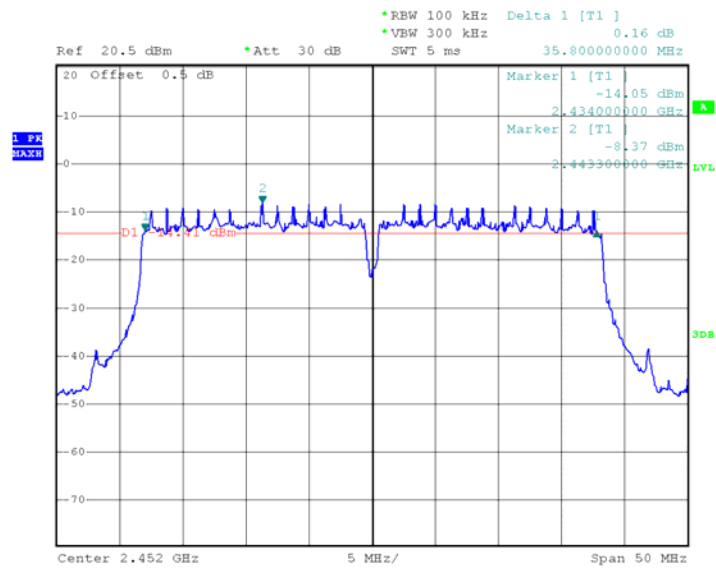


INTERTEK TESTING SERVICES

802.11n-HT40 MIMO Ant1



INTERTEK TESTING SERVICES



INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220

Date of Test: 25 March 2014

4.3 Maximum Power Density Reading, FCC Rule 15.247(e):

The Measurement Procedure PKPSD was set according to the FCC KDB 558074.

Antenna output of the EUT was coupled directly to spectrum analyzer; if an external attenuator and/or cable was used, these losses are compensated for with the analyzer OFFSET function.

For MIMO system, both the antenna ports is checked, the worst case power density is calculated from the method of Measure by adding $10\log N$ according KDB662911.

Limit: The Power Density does not exceed 8dBm/ 3 kHz.

Unit: dBm

IEEE 802.11b (DBPSK, 1Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	0.55
2437	7.78
2462	0.33

IEEE 802.11g (BPSK, 6Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	-4.15
2437	3.41
2462	-5.22

IEEE 802.11n-HT20 SISO (BPSK, 6.5Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2412	-4.76
2437	3.42
2462	-4.93

INTERTEK TESTING SERVICES

Unit: dBm

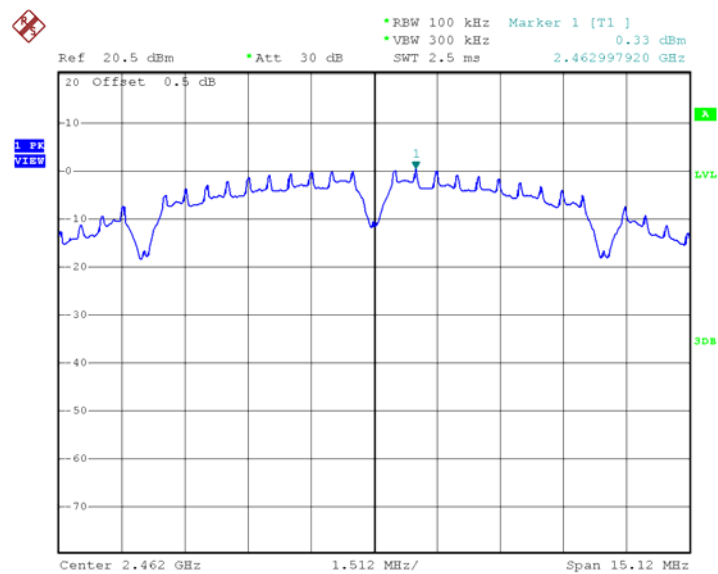
IEEE 802.11n-HT20 MIMO(BPSK, 13Mbps)			
Frequency (MHz)	Power Density with RBW 100KHz		
	ANT0	ANT1	Total
2412	-5.28	-5.90	2.27
2437	3.11	2.36	6.12
2462	-4.70	-6.06	1.69

IEEE 802.11n-HT40 SISO (BPSK, 13.5Mbps)	
Frequency (MHz)	Power Density with RBW 100KHz
2422	-7.52
2437	-7.23
2452	-7.50

IEEE 802.11n-HT40 MIMO(BPSK, 27Mbps)			
Frequency (MHz)	Power Density with RBW 100KHz		
	ANT0	ANT1	Total
2422	-7.26	-8.11	4.25
2437	-7.18	-8.09	4.17
2452	-7.69	-8.46	4.68

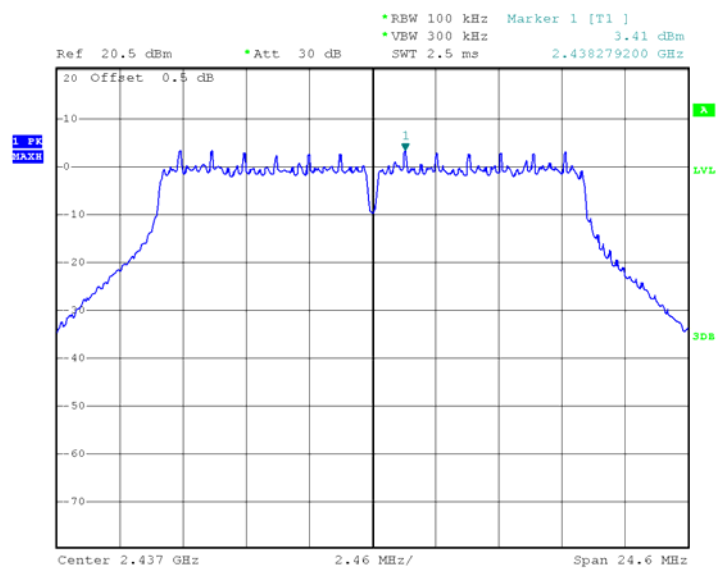
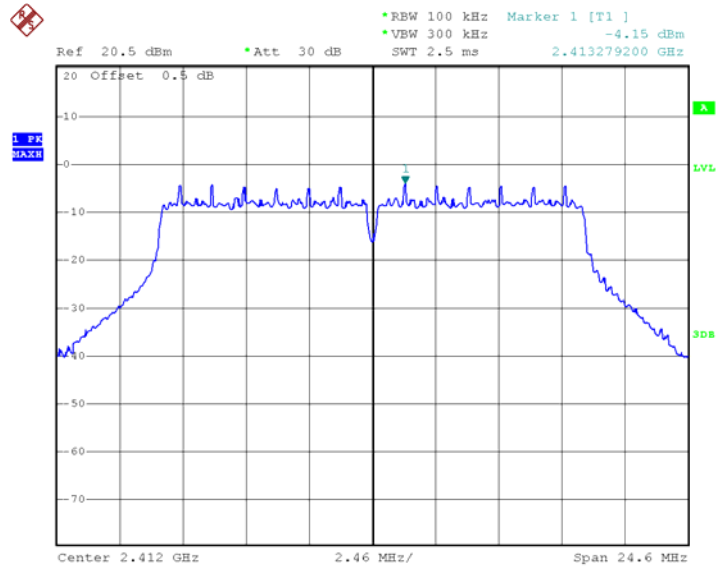
The test plots are attached as below.

INTERTEK TESTING SERVICES



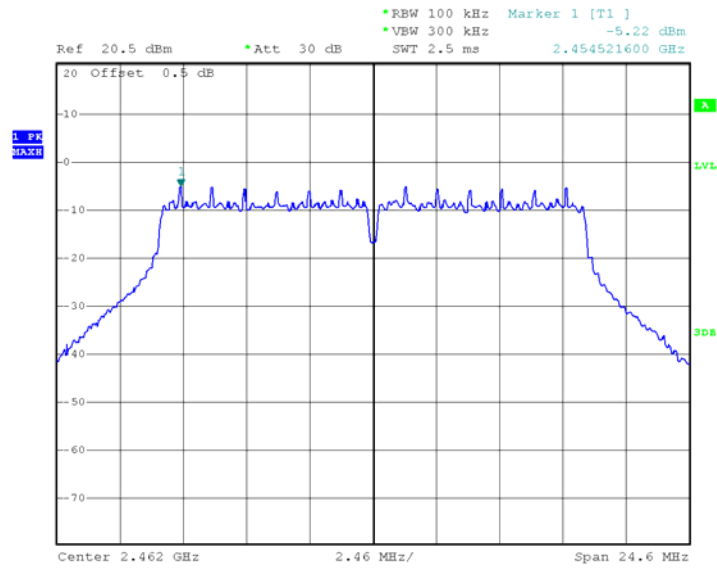
INTERTEK TESTING SERVICES

802.11g



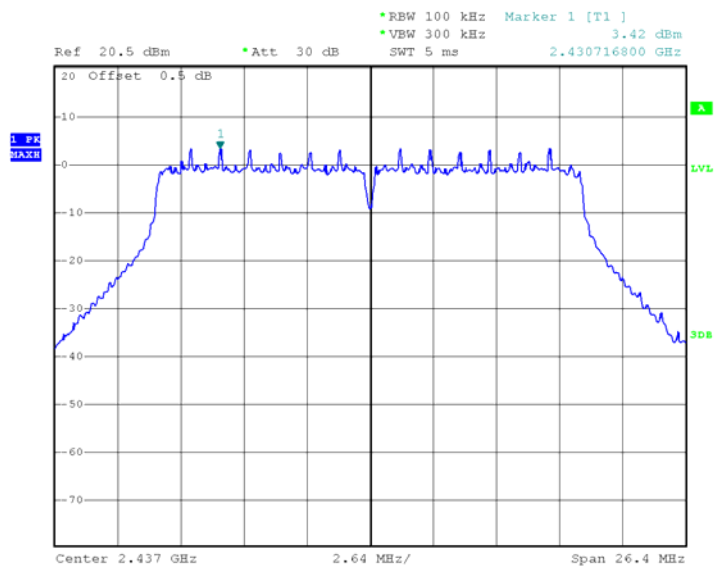
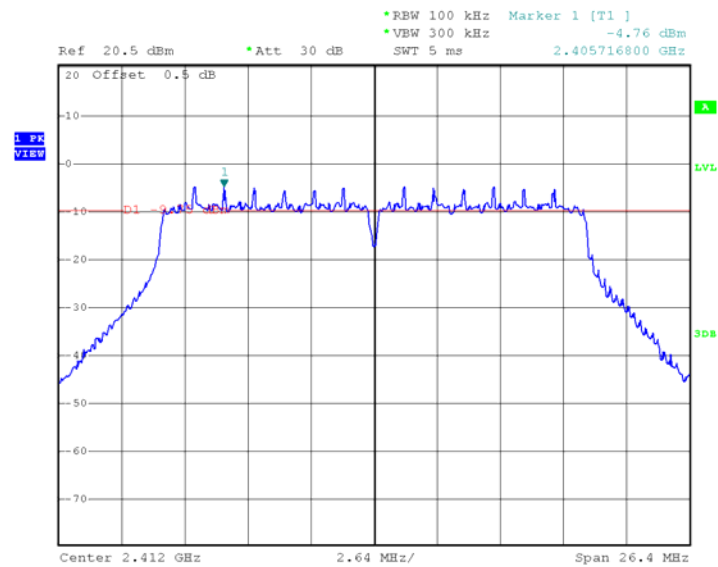
TRF no.: FCC 15C_TX_b
FCC ID: QISM220
Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES



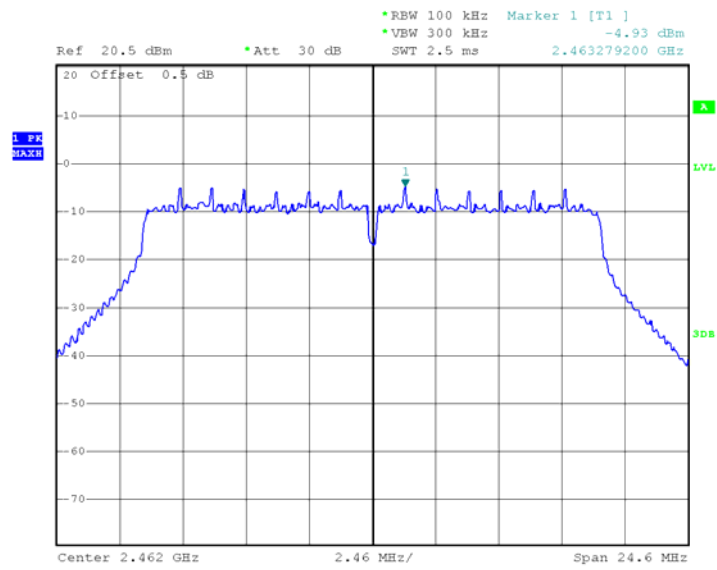
INTERTEK TESTING SERVICES

802.11n-HT20 SISO



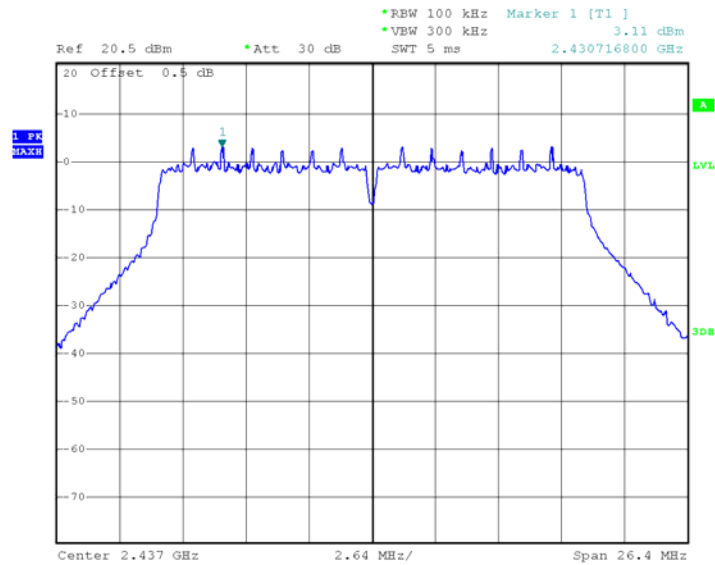
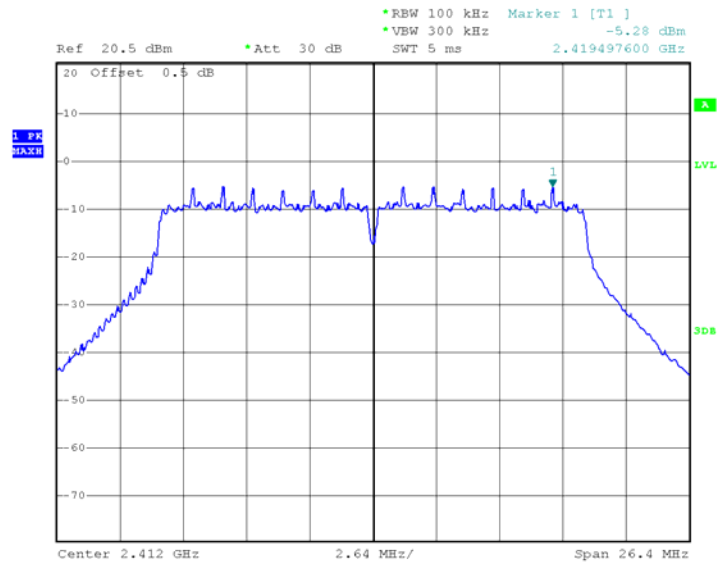
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FCC ID: QISM220
Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES

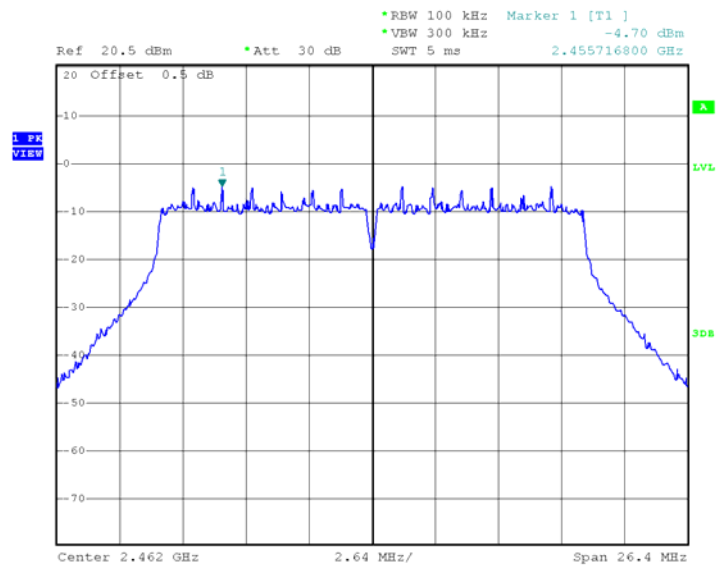


INTERTEK TESTING SERVICES

802.11n-HT20 MIMO Ant0

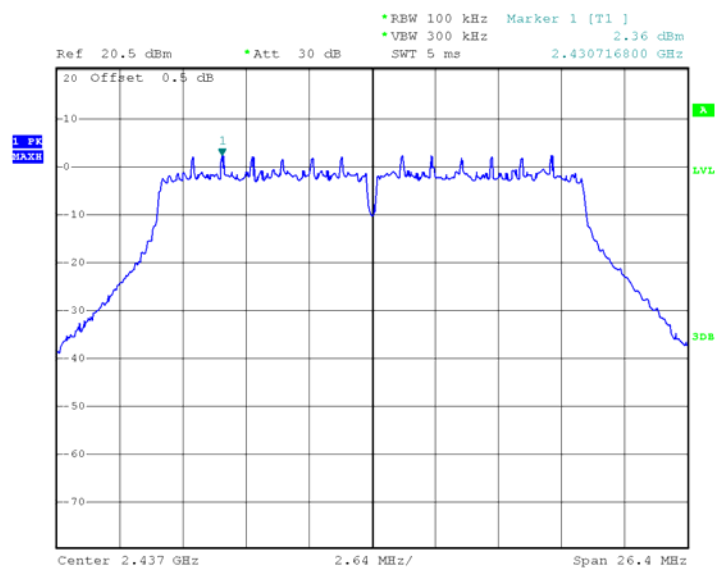
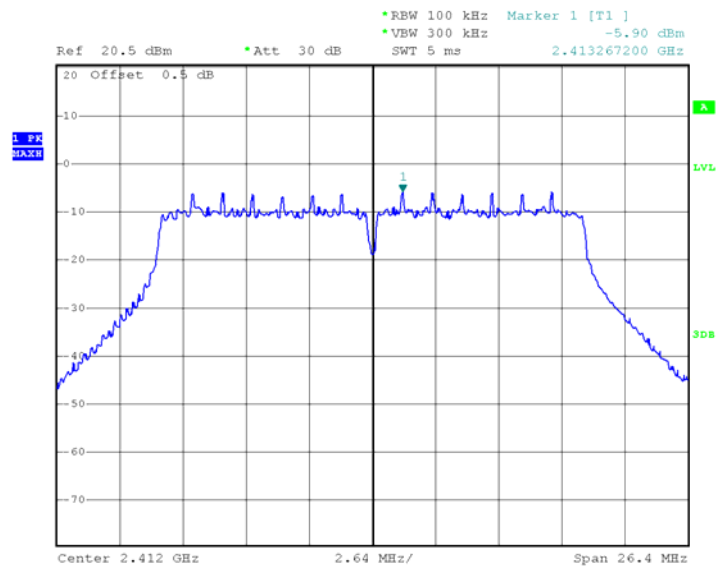


INTERTEK TESTING SERVICES

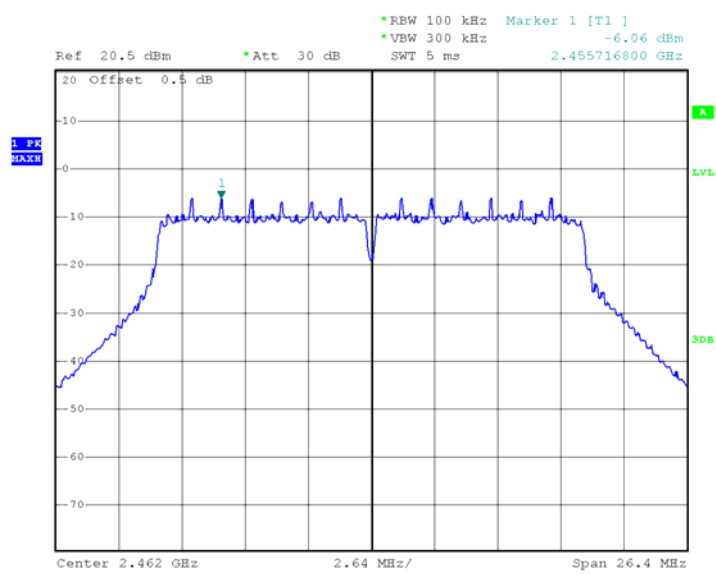


INTERTEK TESTING SERVICES

802.11n-HT20 MIMO Ant1

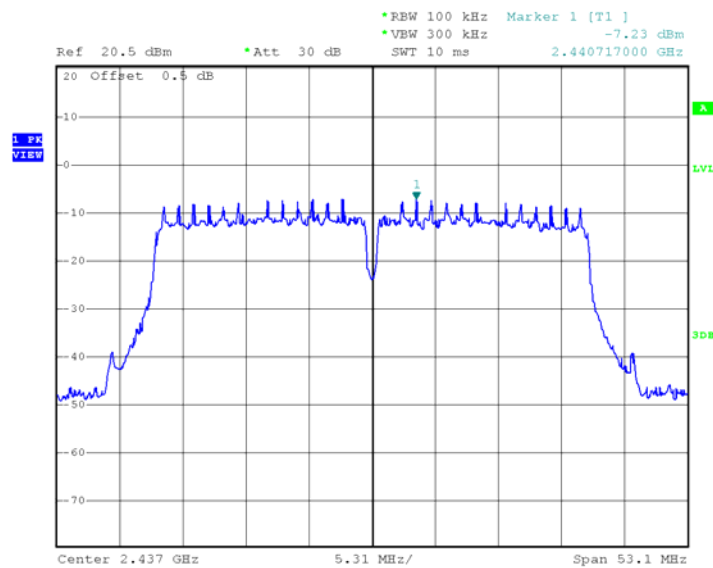
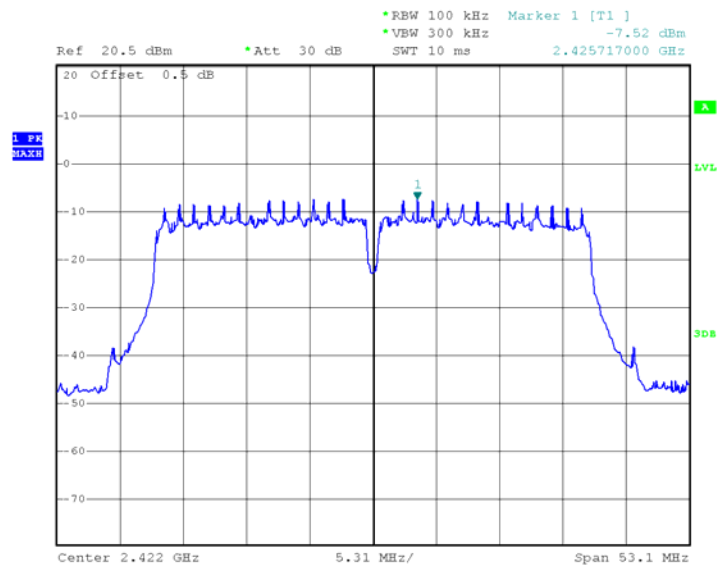


INTERTEK TESTING SERVICES



INTERTEK TESTING SERVICES

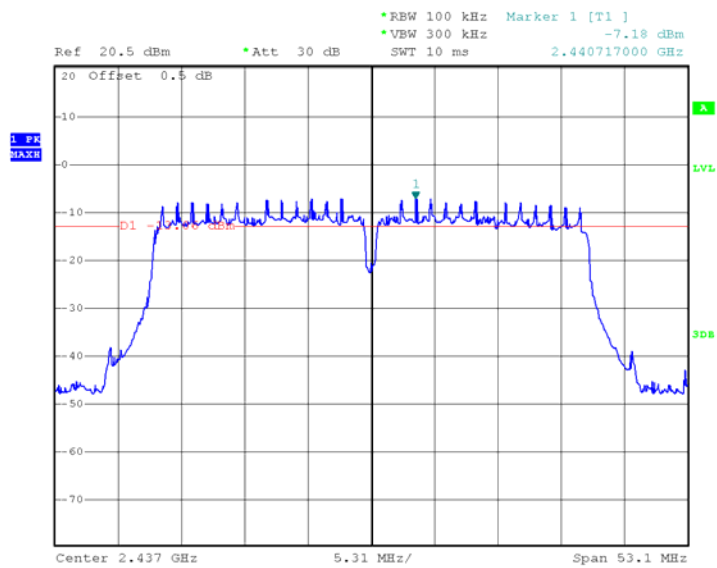
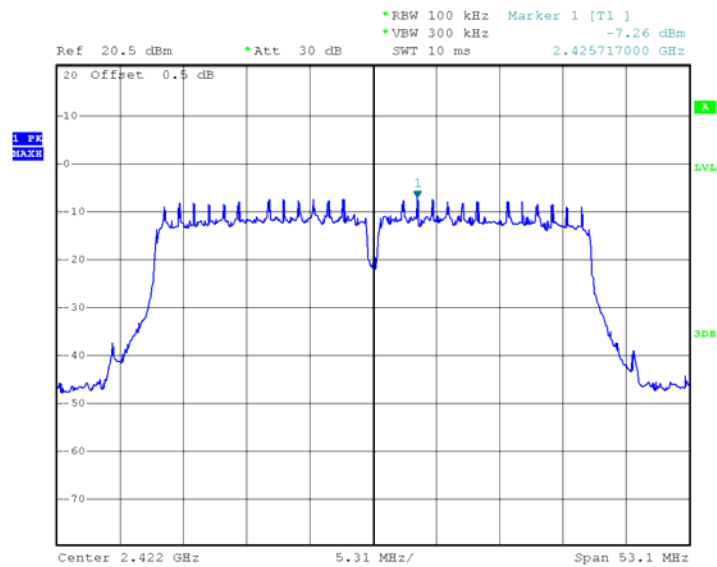
802.11n-HT40 SISO



TRF no.: FCC 15C_TX_b
FCC ID: QISM220
Report No.: 140314011SZN-001

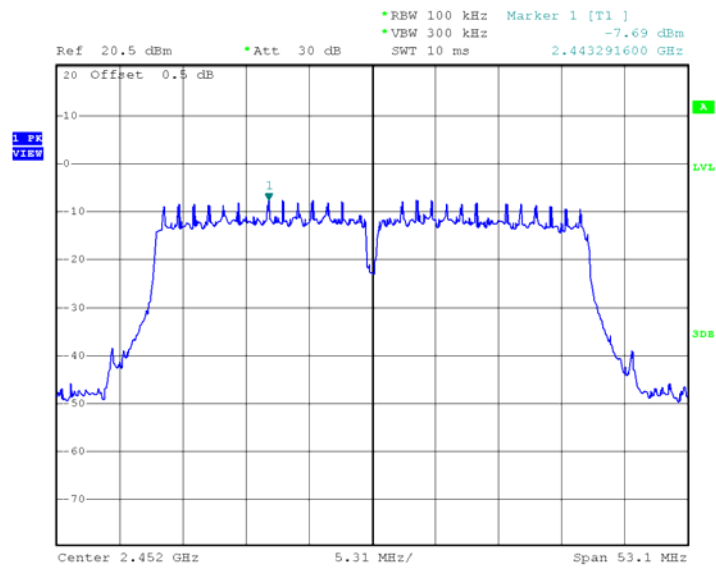
INTERTEK TESTING SERVICES

802.11n-HT40 MIMO Ant0



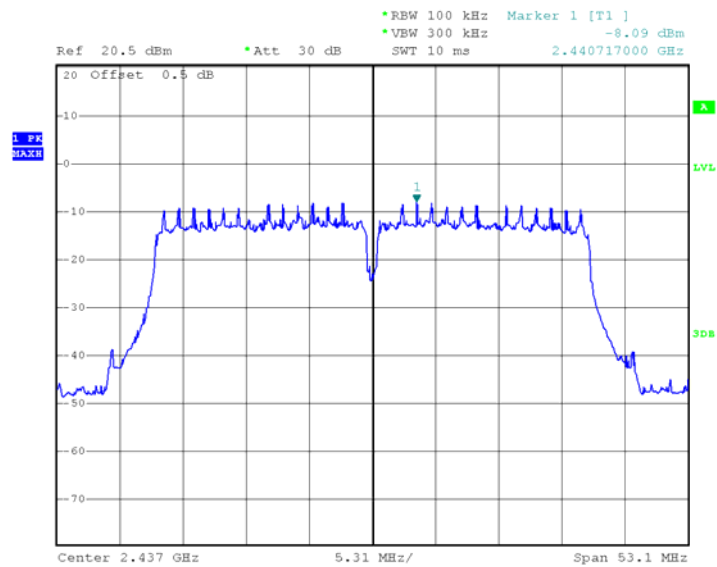
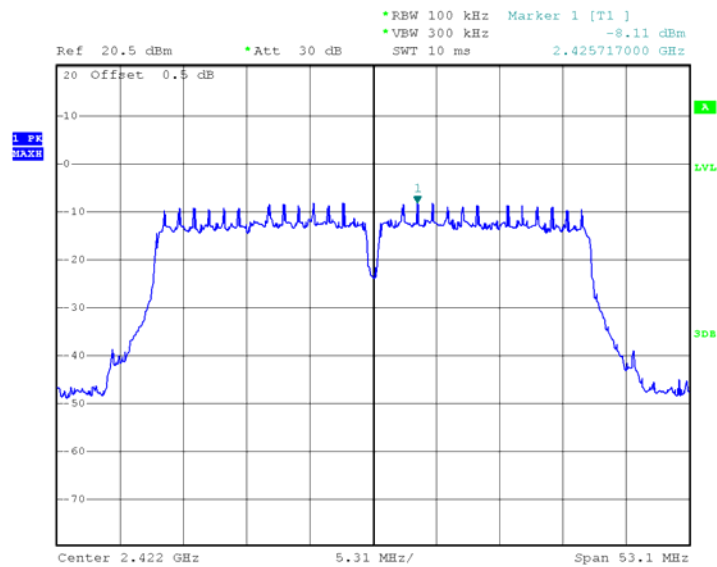
TRF no.: FCC 15C_TX_b
FCC ID: QISM220
Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES



INTERTEK TESTING SERVICES

802.11n-HT40 MIMO Ant1



TRF no.: FCC 15C_TX_b
FCC ID: QISM220
Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220

Date of Test: 25 March 2014

4.4 Out of Band Conducted Emissions, FCC Rule 15.247(d)

In any 100 kHz bandwidth outside the EUT passband, the RF power produced by the modulation products of the spreading sequence, the information sequence, and the carrier frequency shall be at least 20dB below that of the maximum in-band 100 kHz emission, or else shall meet the general limits for radiated emissions at frequencies outside the passband, whichever results in lower attenuation. The Measurement Procedure was set according to the FCC KDB 558074.

All other types of emissions from the EUT shall meet the general limits for radiated frequencies outside the passband.

Refer to the attached test plot for out of band conducted emissions data with rate of 1Mbps for 802.11b, 6Mbps for 802.11g, 6.5Mbps for 802.11n-HT20 SISO, 13.5Mbps for 802.11n-HT40 SISO, 13Mbps for 802.11n-HT20 MIMO and 27Mbps for 802.11n-HT40 MIMO. For MIMO system, both the antenna ports was checked and the worst case are shown, The worst case Out of Band Conducted Emissions is derived from the method of Measure according KDB662911.

The test plots showed all spurious emission and up to the tenth harmonic was measured and they were found to be at least 20 dB below the highest level of the desired power in the passband.

Spectrum Analyzer Setting

RBW=100KHz

VBW=>3 x RBW

Detector=Peak

Sweep point=8001

Sweep time=auto couple

Trace mode=Max hold

Note: the RBW was set to 1MHz rather than 100KHz in order to increase the measurement speed, if found out fail point at 1MHz RBW, we will use reduce the RBW to 100KHz determine the final result.

The test plots are attached as below.

TRF no.: FCC 15C_TX_b

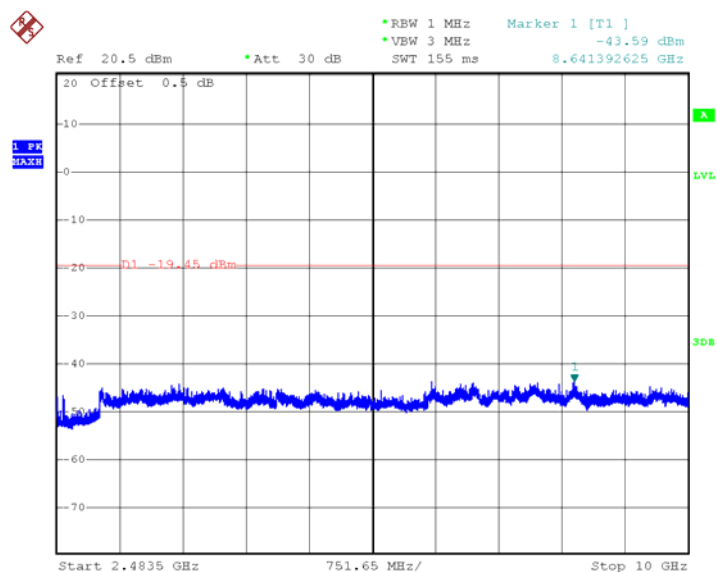
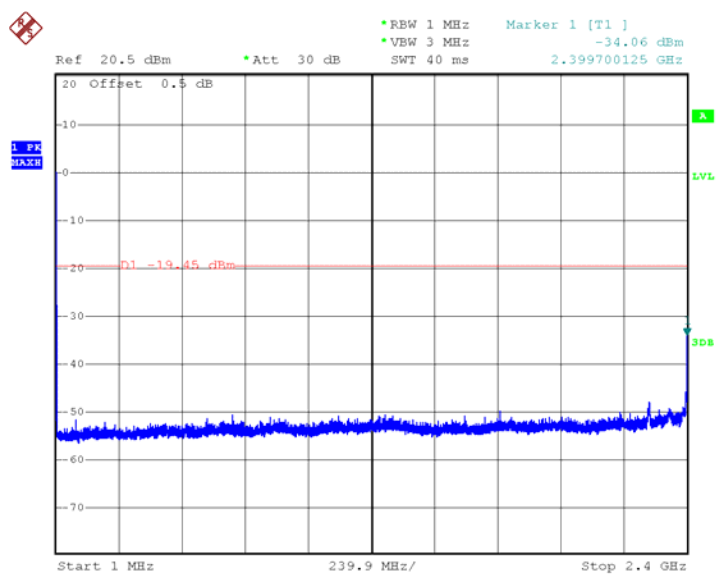
FCC ID: QISM220

Report No.: 140314011SZN-001

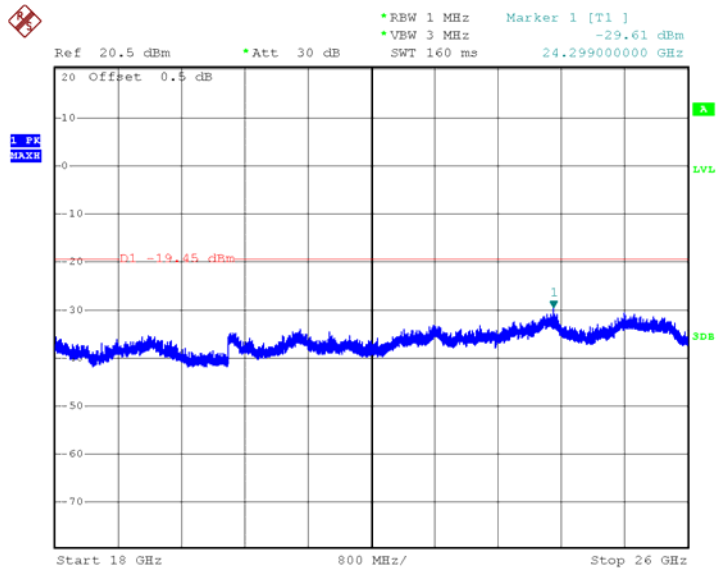
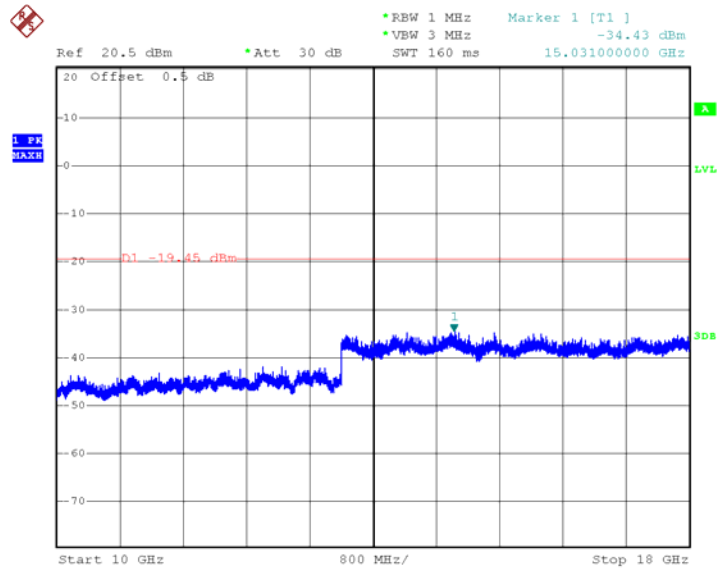
INTERTEK TESTING SERVICES

802.11b

Channel 1 (2412MHz) Reference Level: 0.55dBm

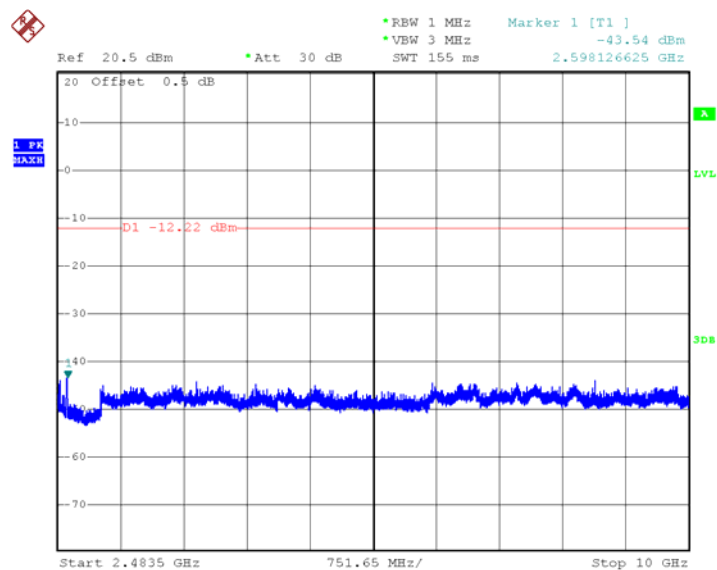
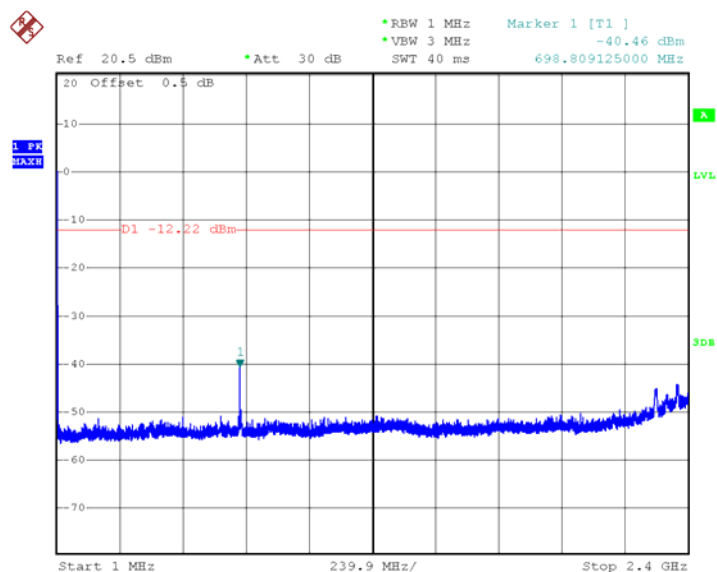


INTERTEK TESTING SERVICES



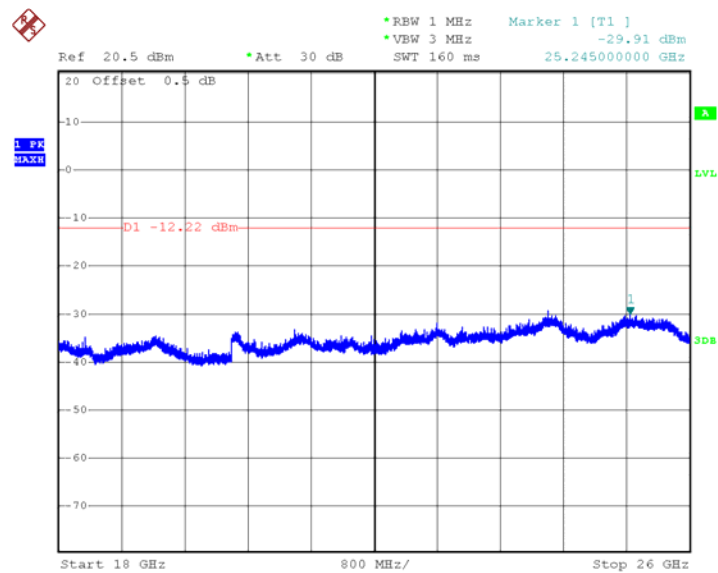
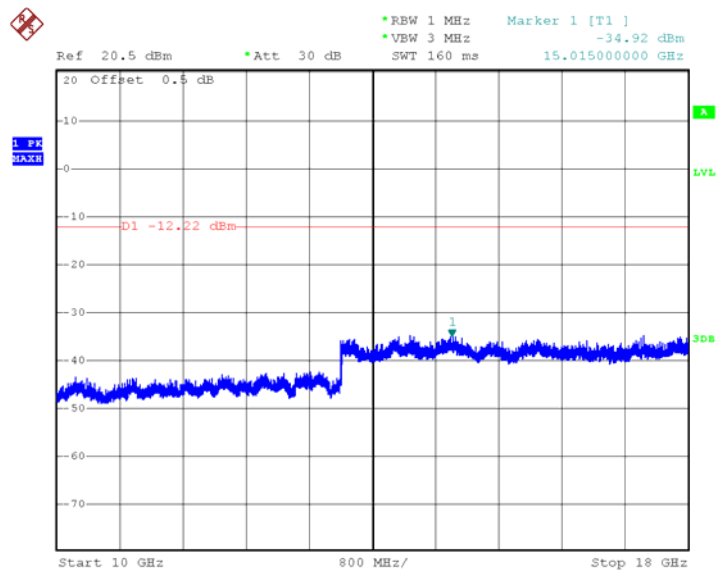
INTERTEK TESTING SERVICES

Channel 6 (2437MHz) Reference Level: 7.78dBm



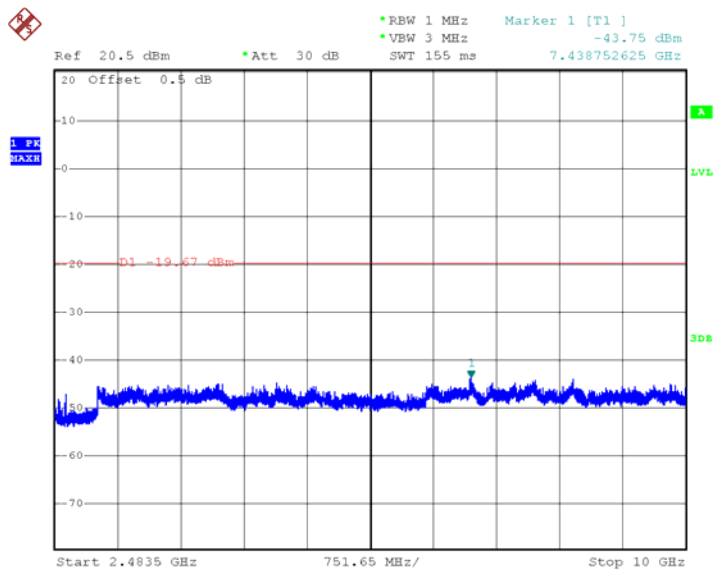
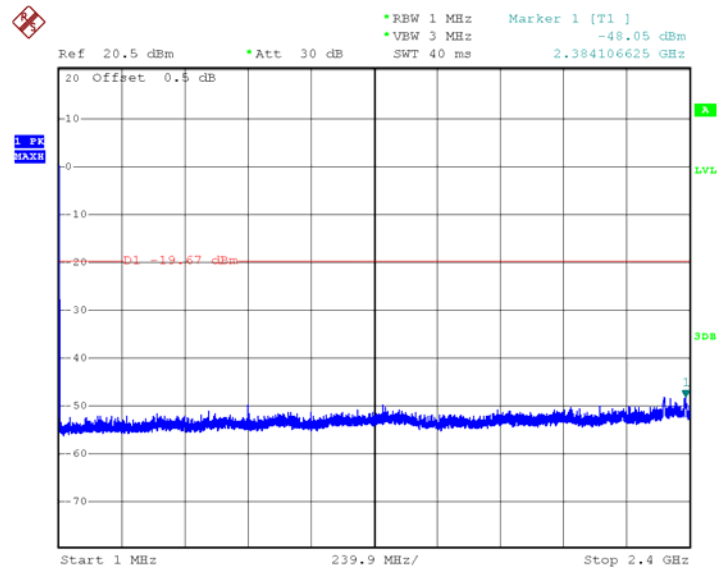
TRF no.: FCC 15C_TX_b
FCC ID: QISM220
Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES



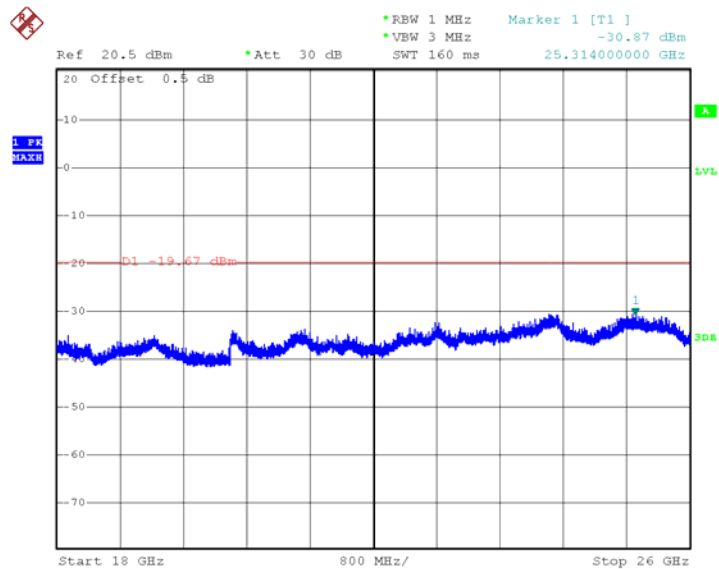
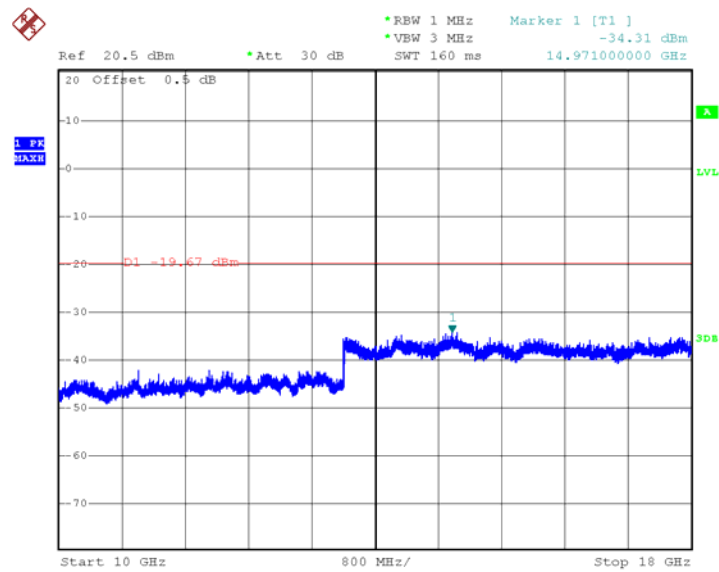
INTERTEK TESTING SERVICES

Channel 11 (2462MHz) Reference Level: 0.33dBm



TRF no.: FCC 15C_TX_b
FCC ID: QISM220
Report No.: 140314011SZN-001

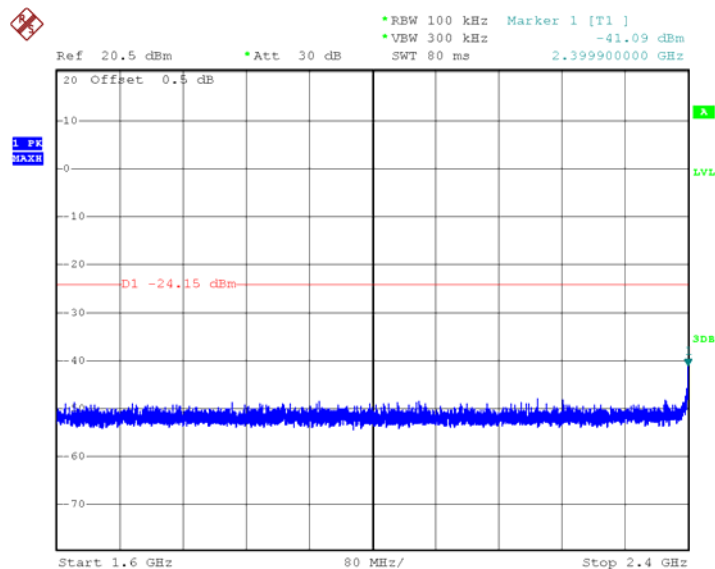
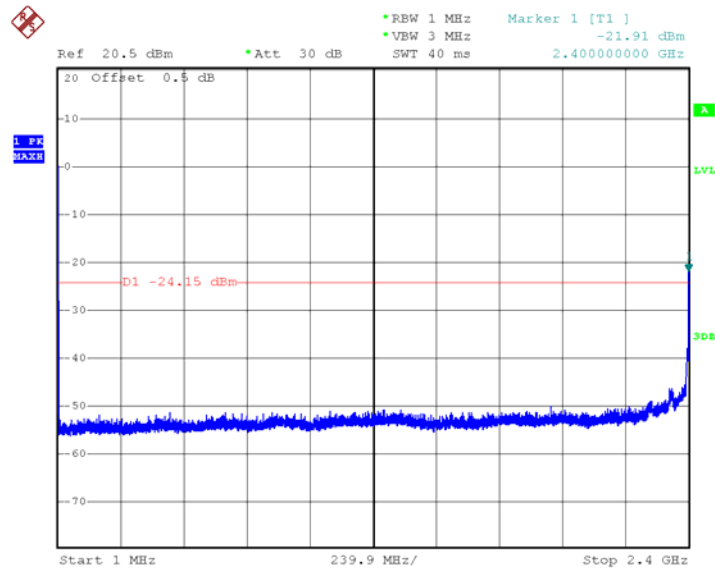
INTERTEK TESTING SERVICES



INTERTEK TESTING SERVICES

802.11g

Channel 1 (2412MHz) Reference Level: -4.15dBm

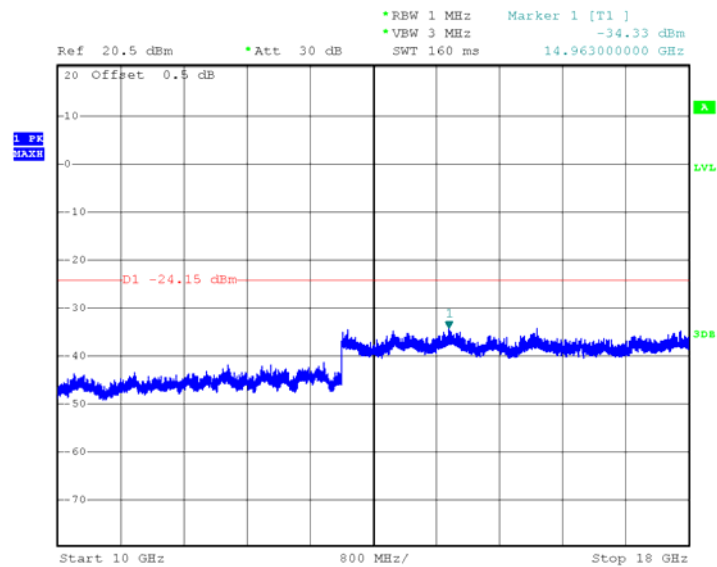
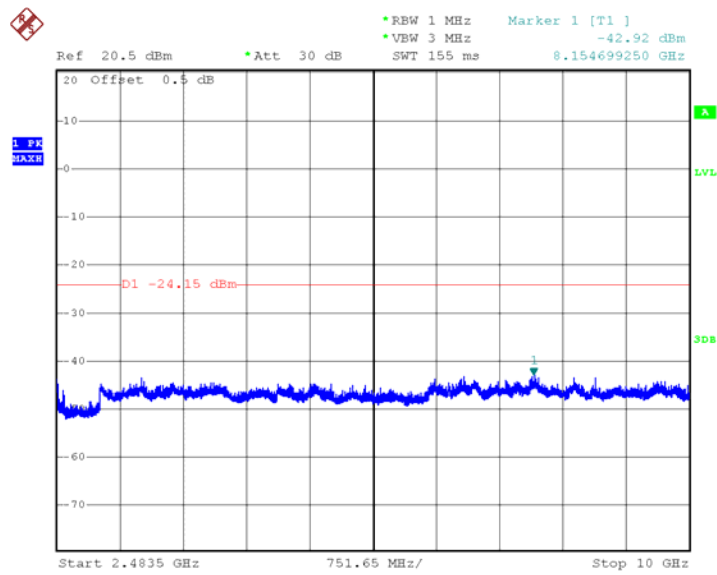


TRF no.: FCC 15C_TX_b

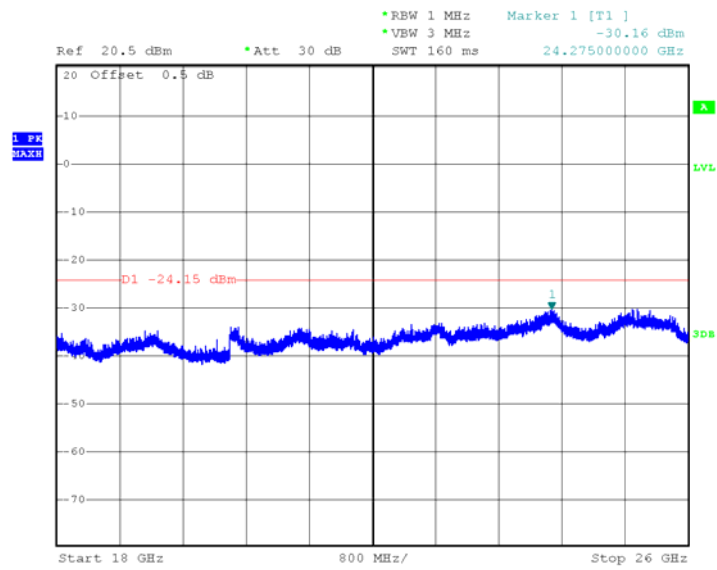
FCC ID: QISM220

Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES

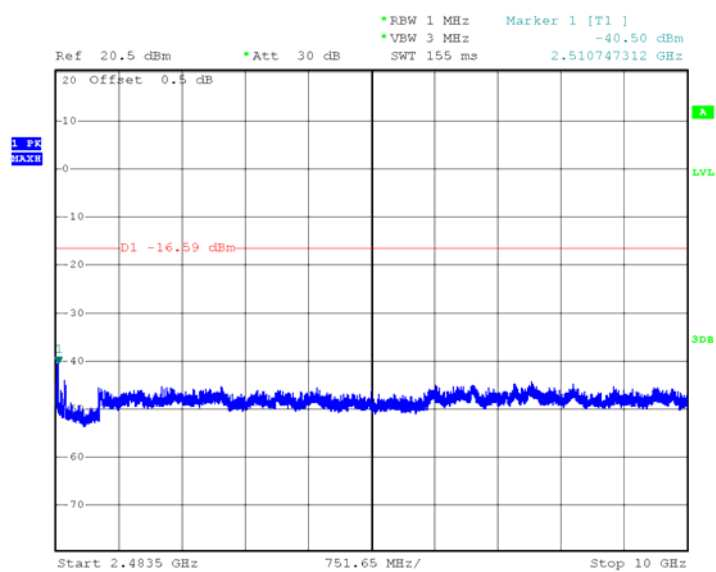
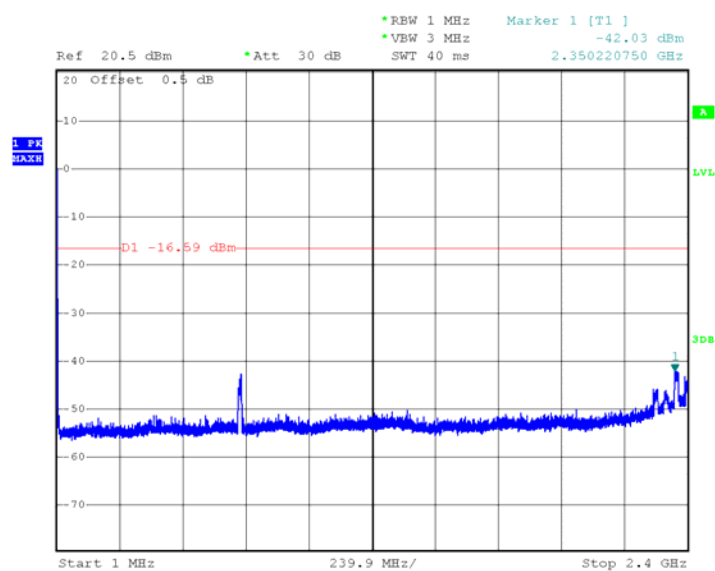


INTERTEK TESTING SERVICES



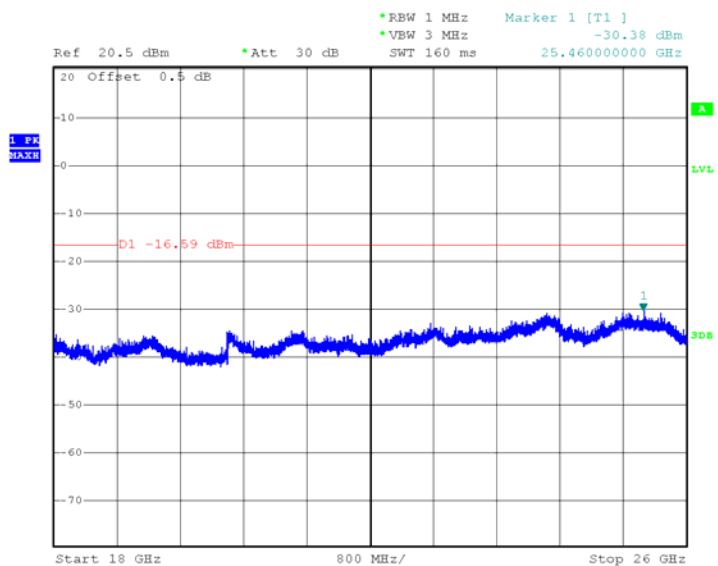
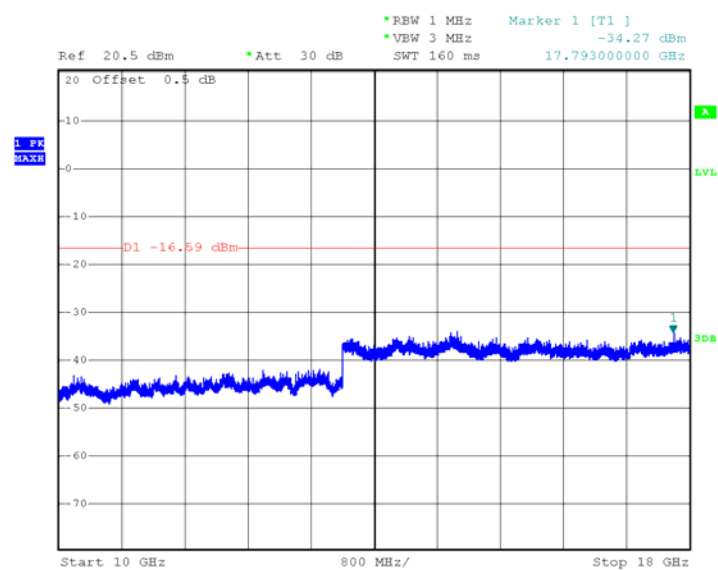
INTERTEK TESTING SERVICES

Channel 6 (2437MHz) Reference Level: 3.41dBm



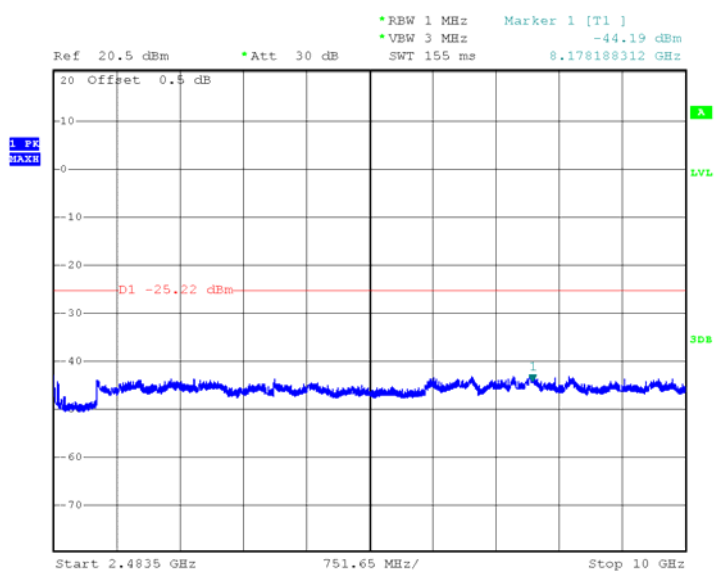
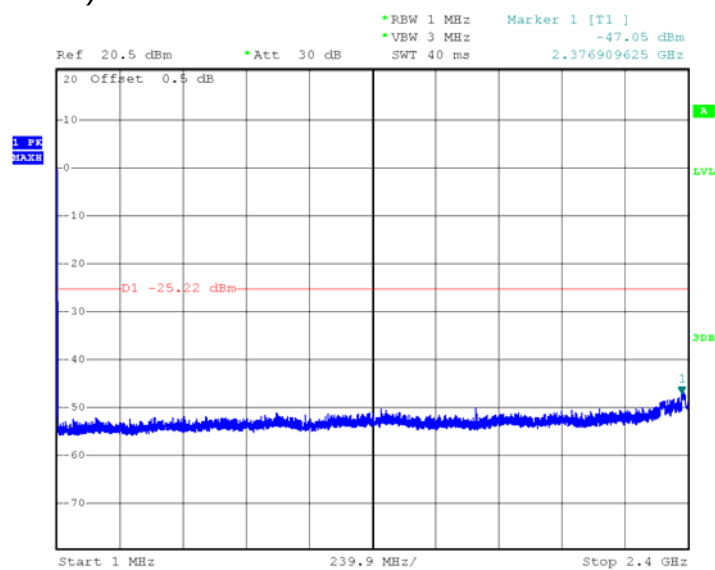
TRF no.: FCC 15C_TX_b
FCC ID: QISM220
Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES



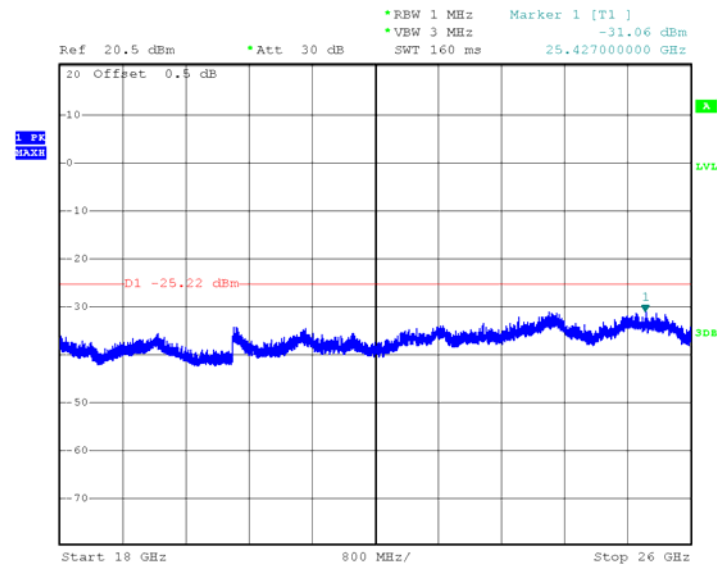
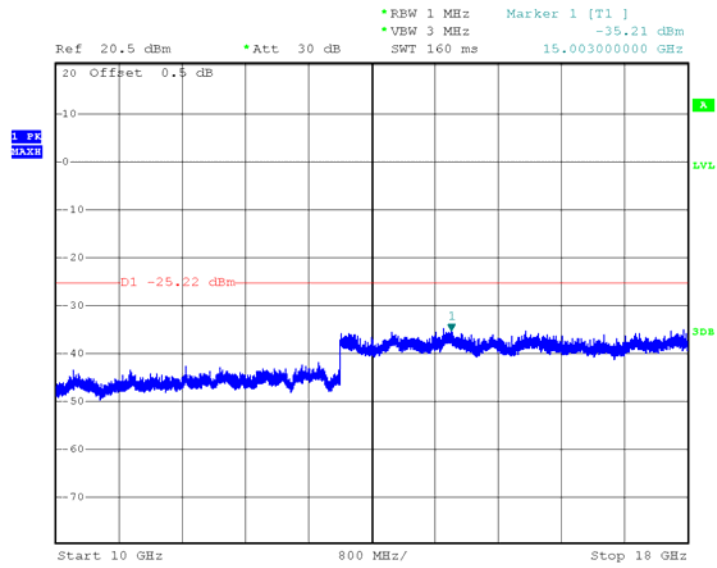
INTERTEK TESTING SERVICES

Channel 11 (2462MHz) Reference Level: -5.22dBm



TRF no.: FCC 15C_TX_b
 FCC ID: QISM220
 Report No.: 140314011SZN-001

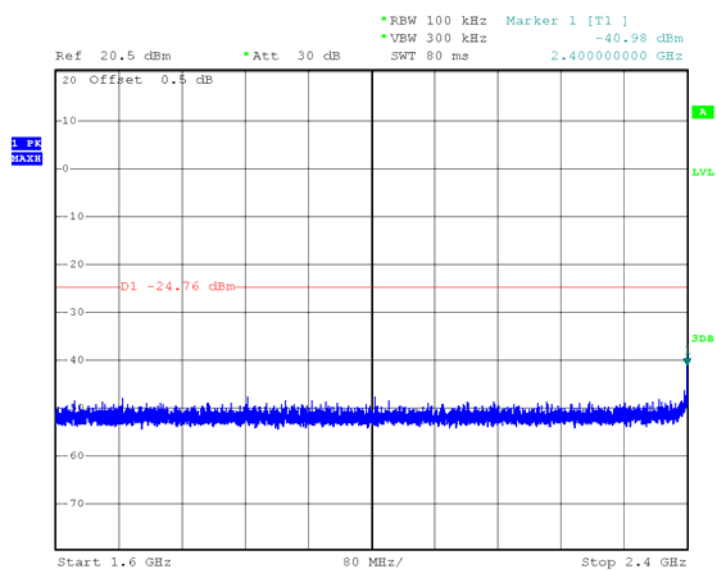
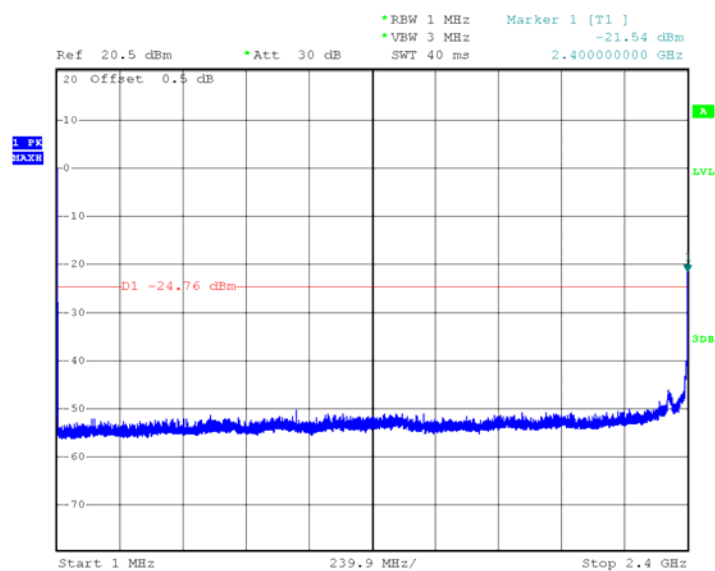
INTERTEK TESTING SERVICES



INTERTEK TESTING SERVICES

802.11n-HT20 SISO

Channel 1 (2412MHz) Reference Level: -4.76dBm

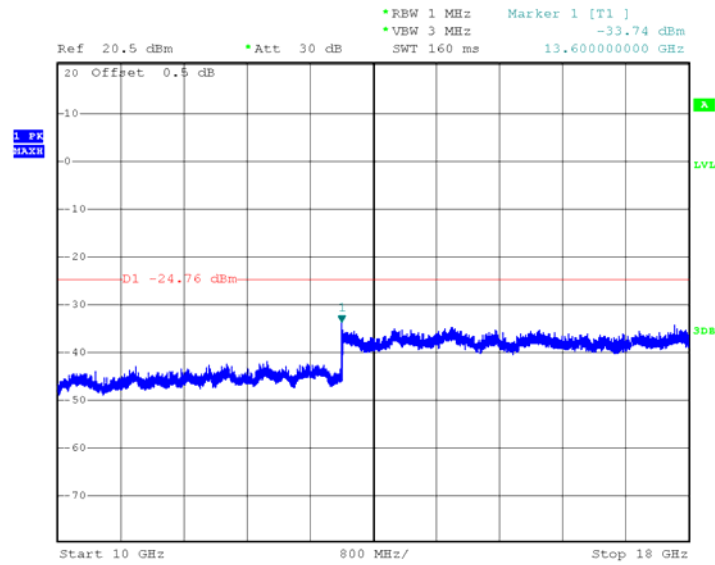
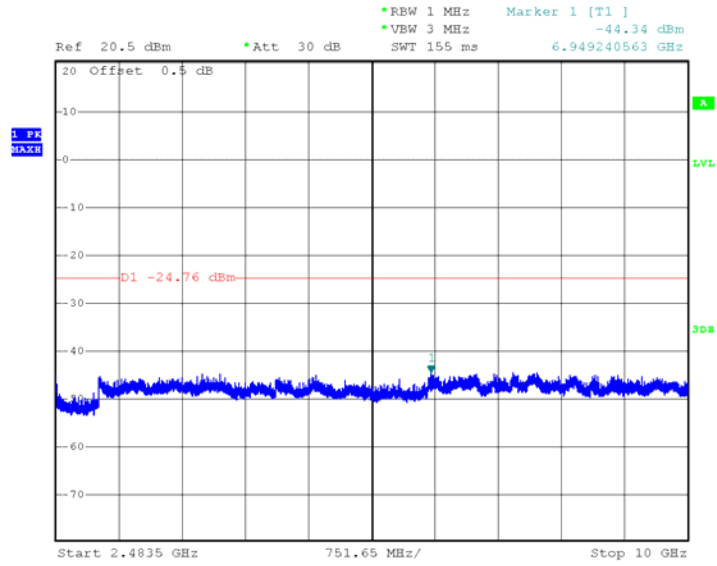


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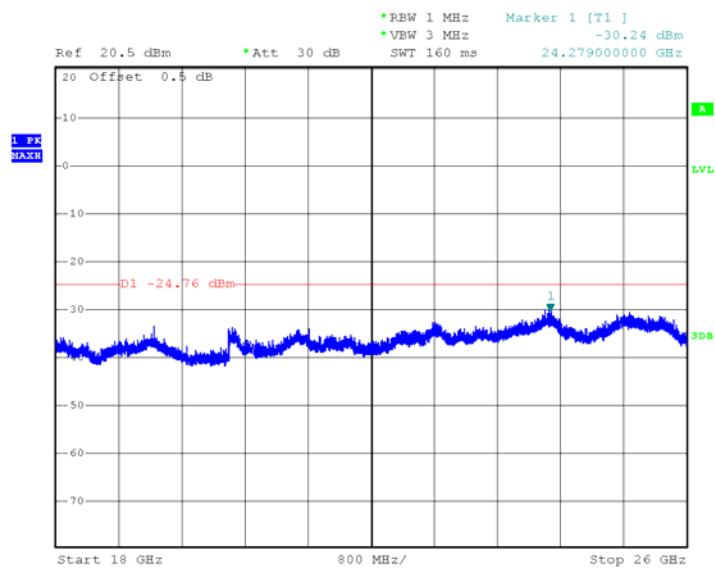
FCC ID: QISM220

Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES

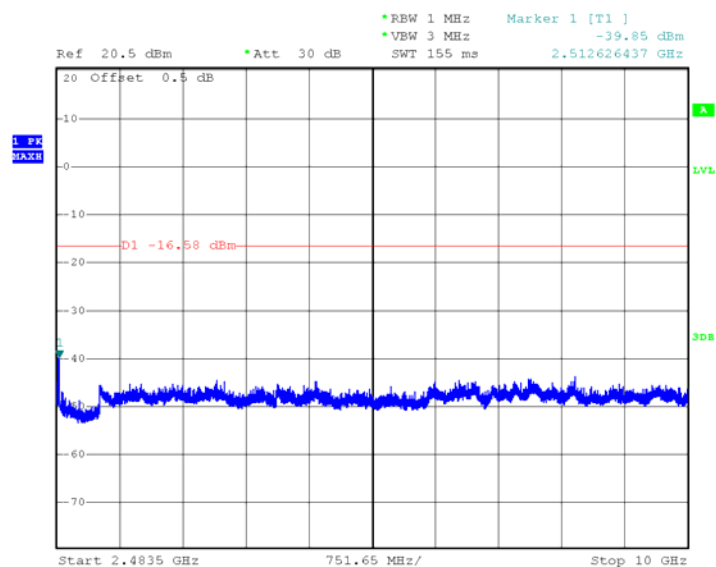
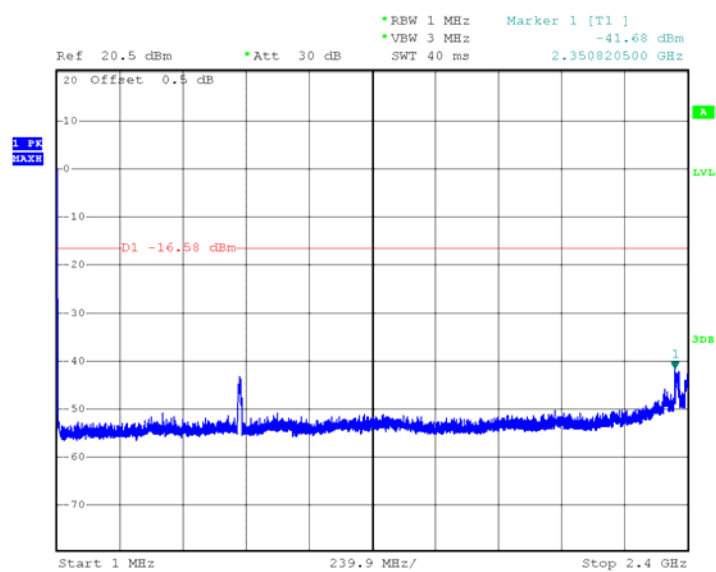


INTERTEK TESTING SERVICES



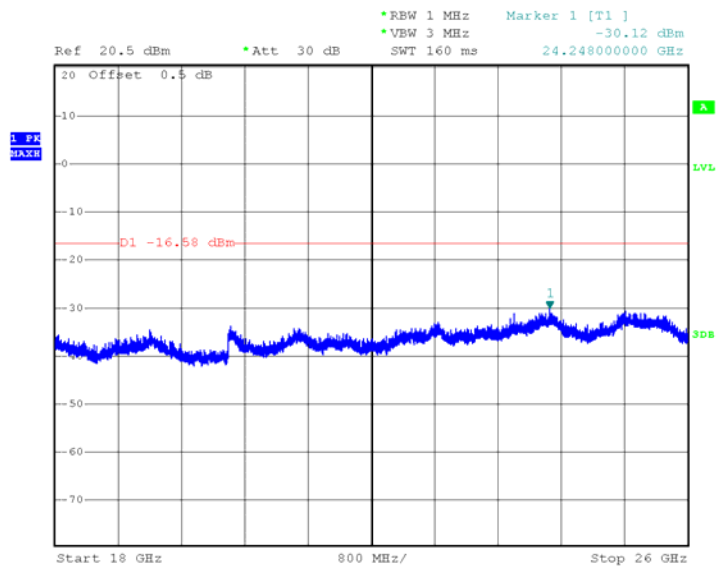
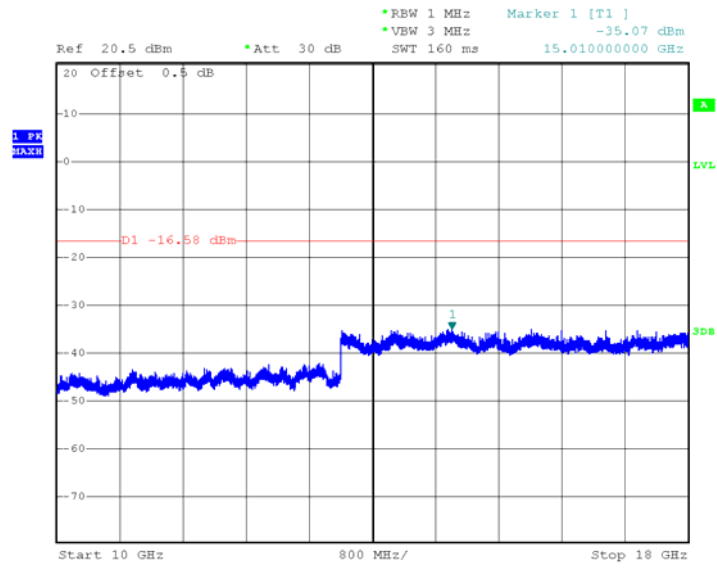
INTERTEK TESTING SERVICES

Channel 6 (2437MHz) Reference Level: 3.42dBm



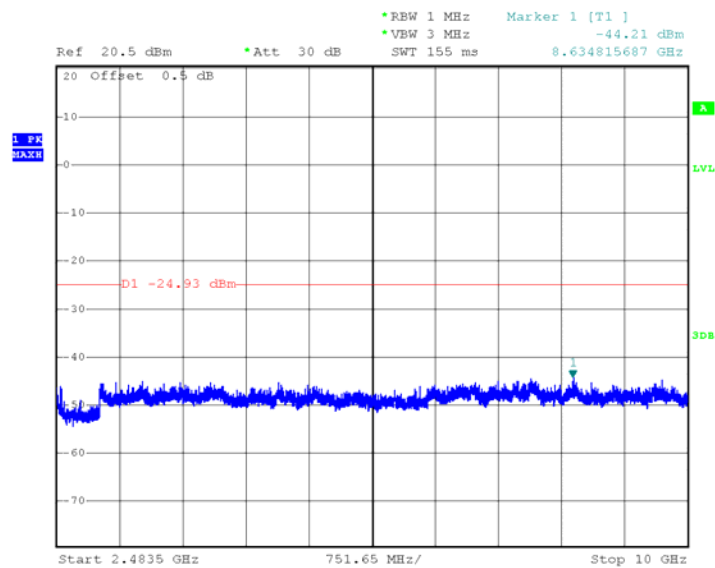
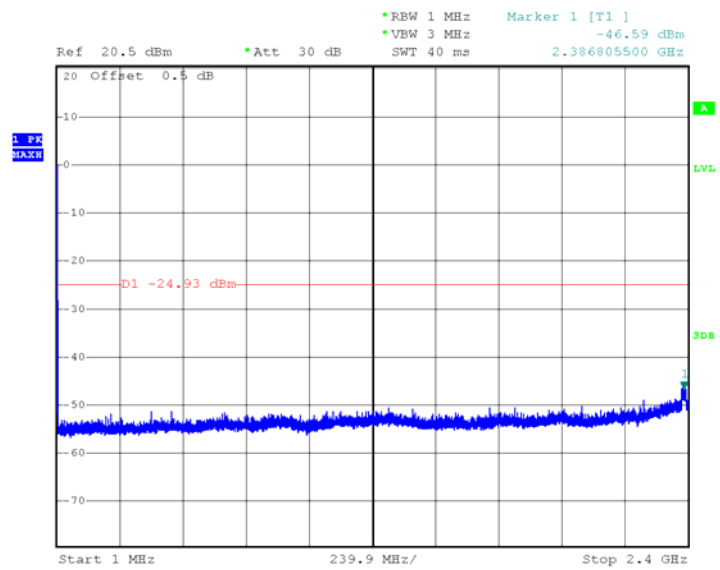
TRF no.: FCC 15C_TX_b
FCC ID: QISM220
Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES



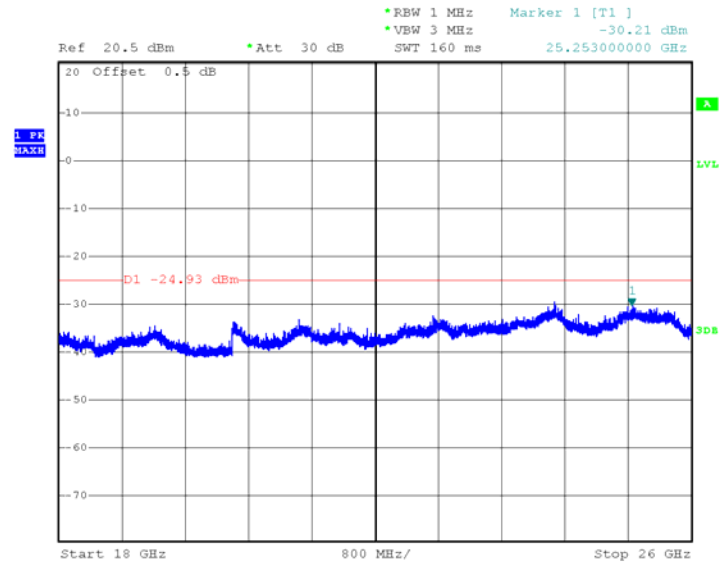
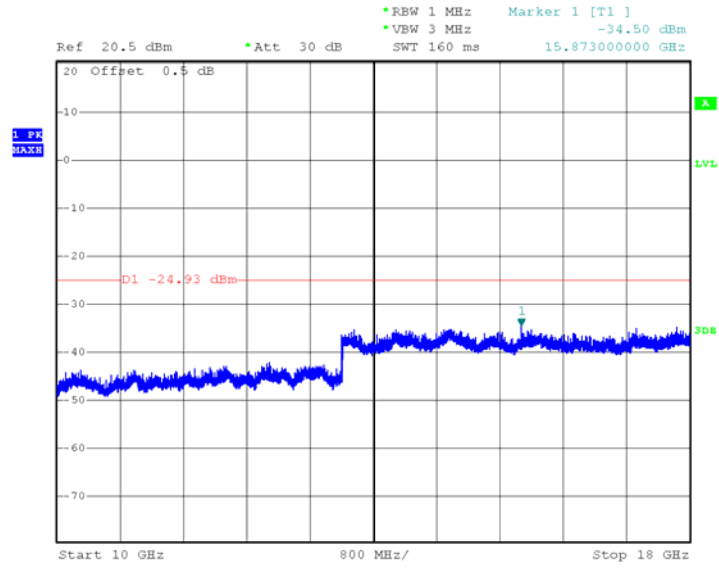
INTERTEK TESTING SERVICES

Channel 11 (2462MHz) Reference Level: -4.93dBm



TRF no.: FCC 15C_TX_b
FCC ID: QISM220
Report No.: 140314011SZN-001

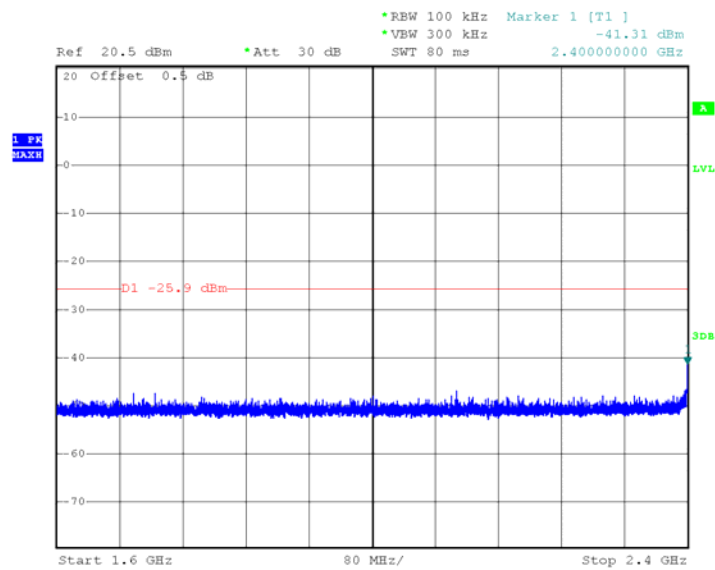
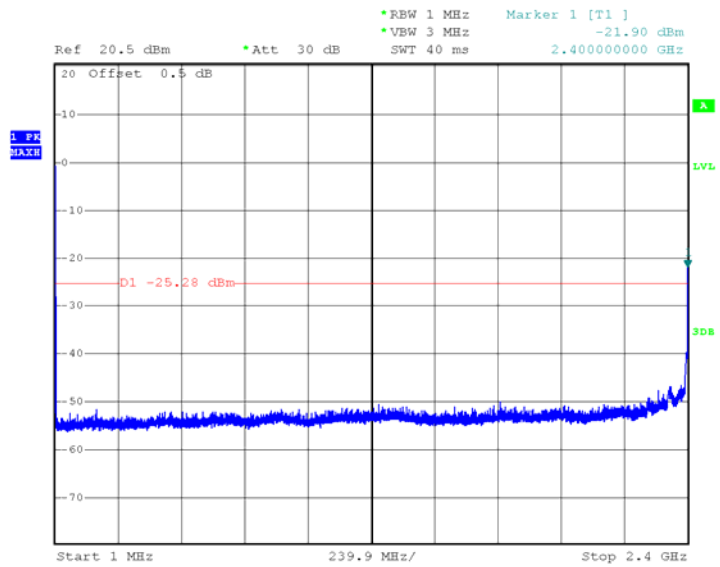
INTERTEK TESTING SERVICES



INTERTEK TESTING SERVICES

802.11n-HT20 MIMO

Channel 1 (2412MHz) Reference Level: -5.28dBm ANT0

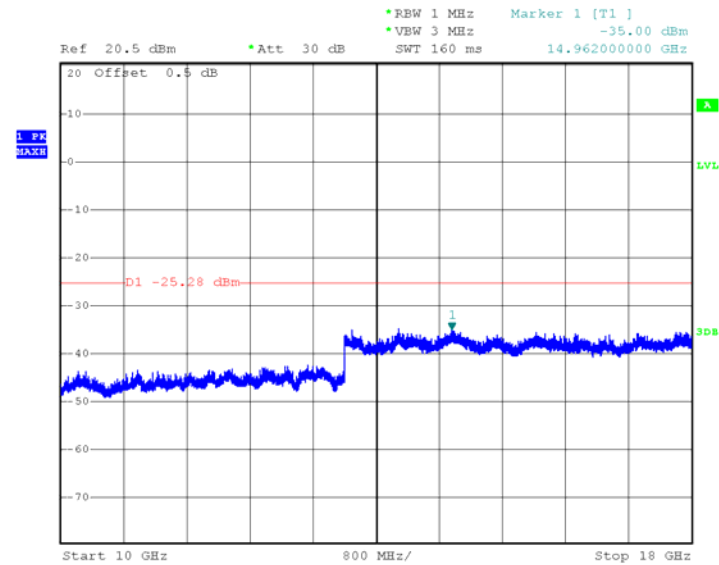
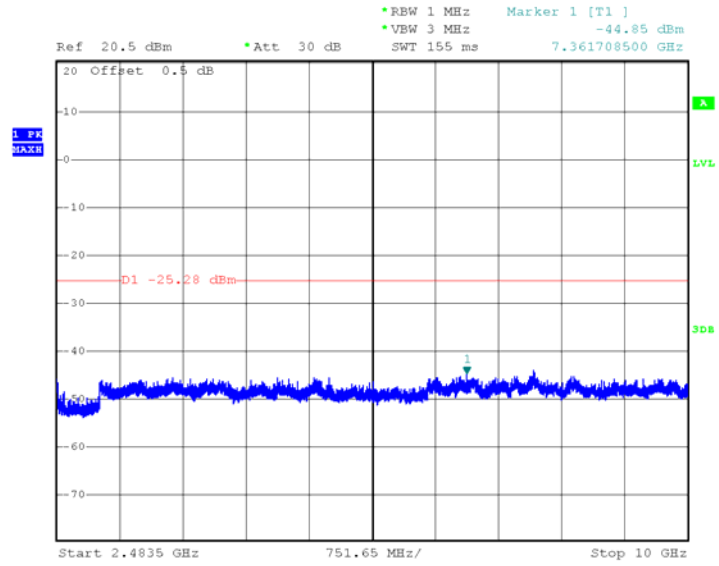


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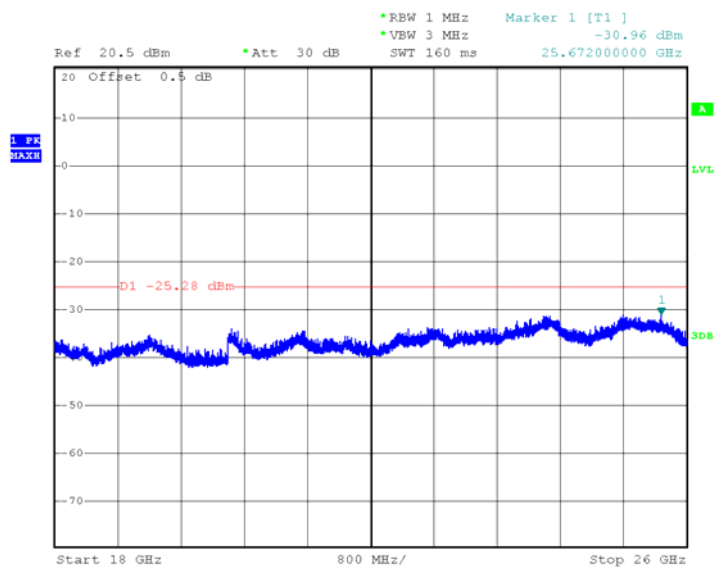
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Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES

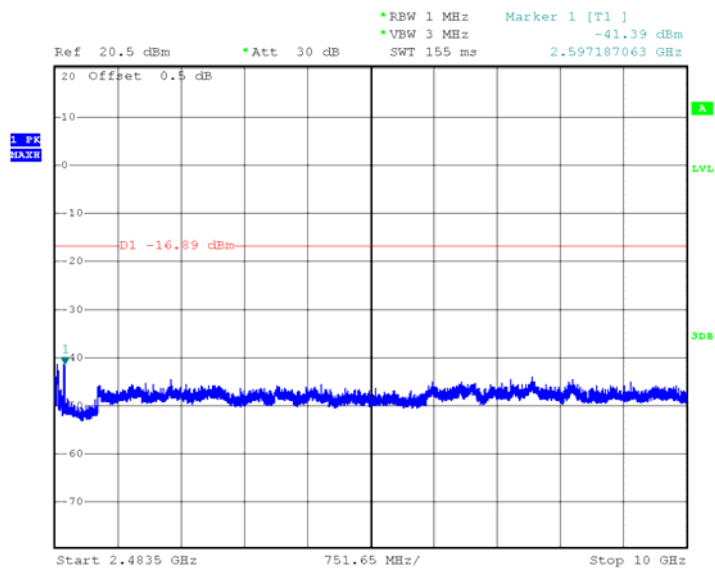
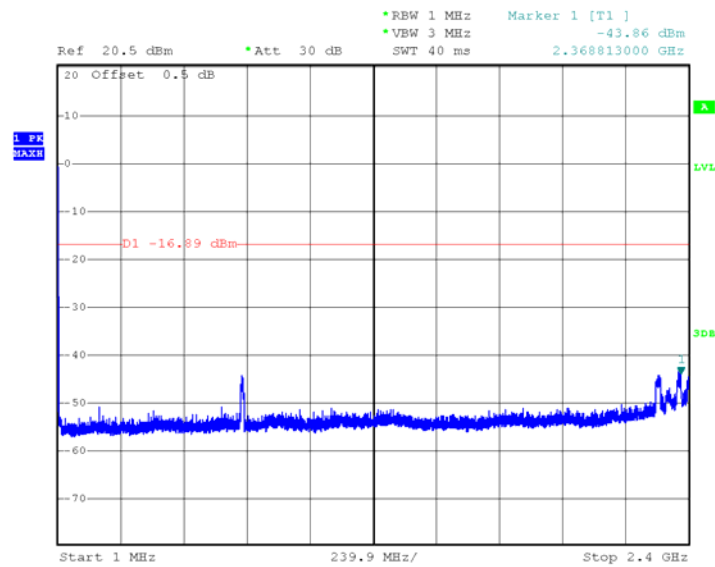


INTERTEK TESTING SERVICES



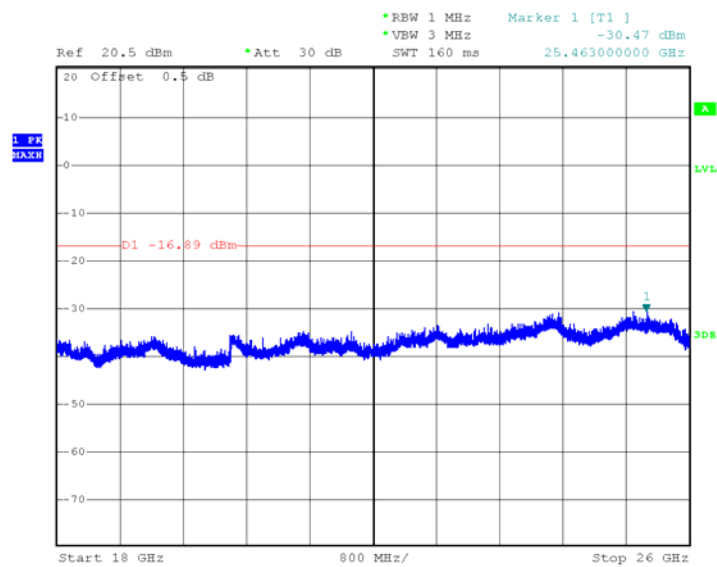
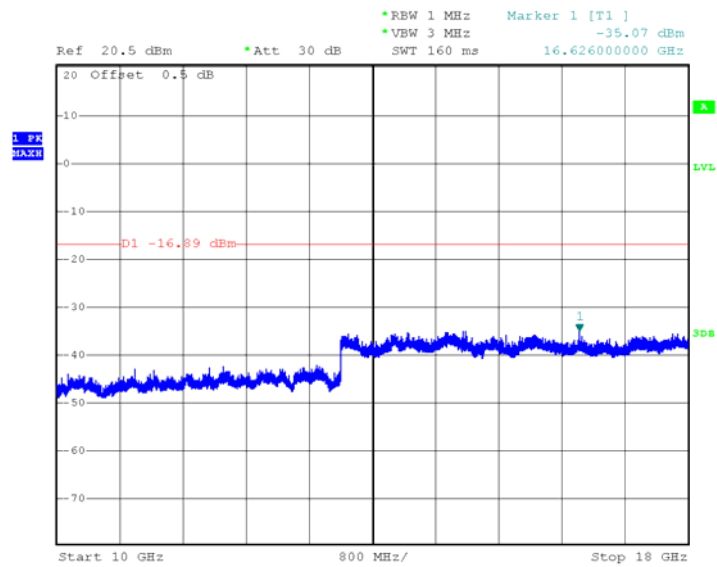
INTERTEK TESTING SERVICES

Channel 6 (2437MHz) Reference Level: 3.11dBm ANT0



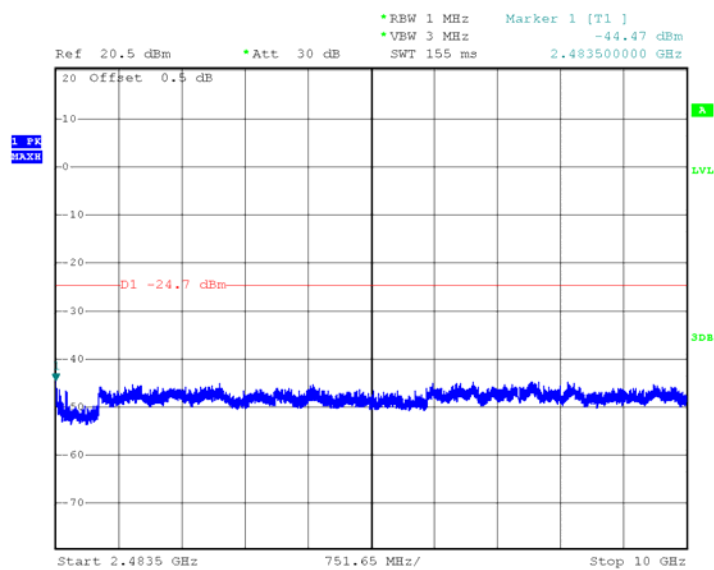
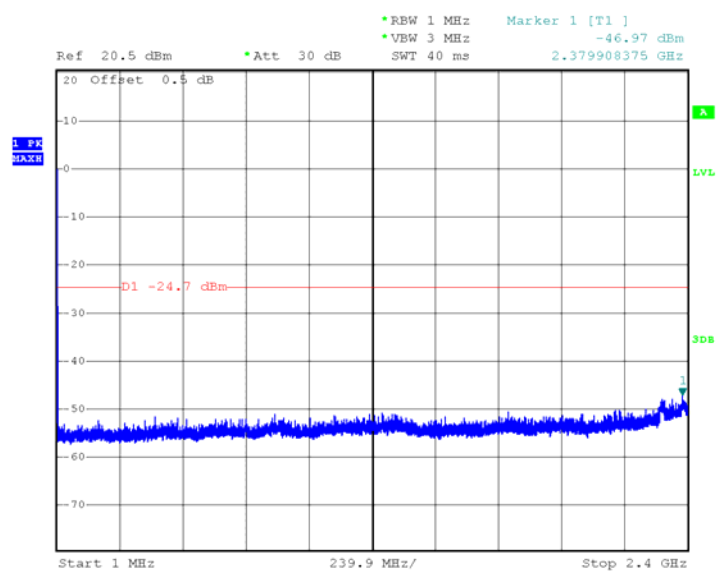
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Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES

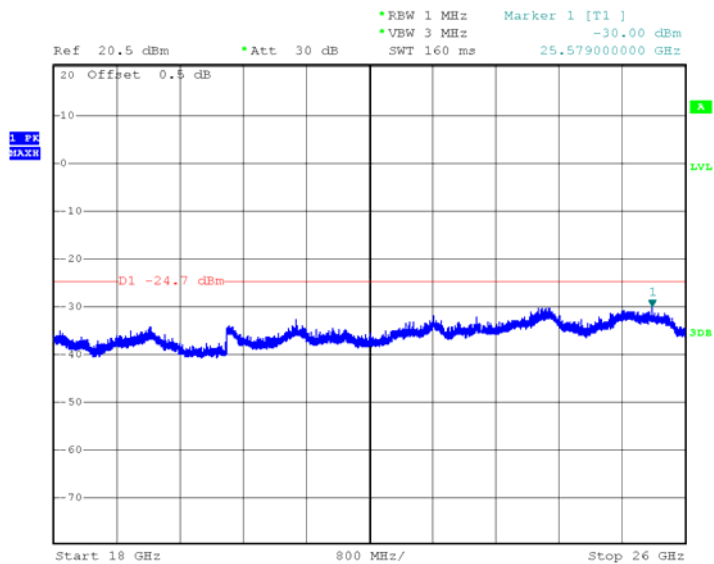
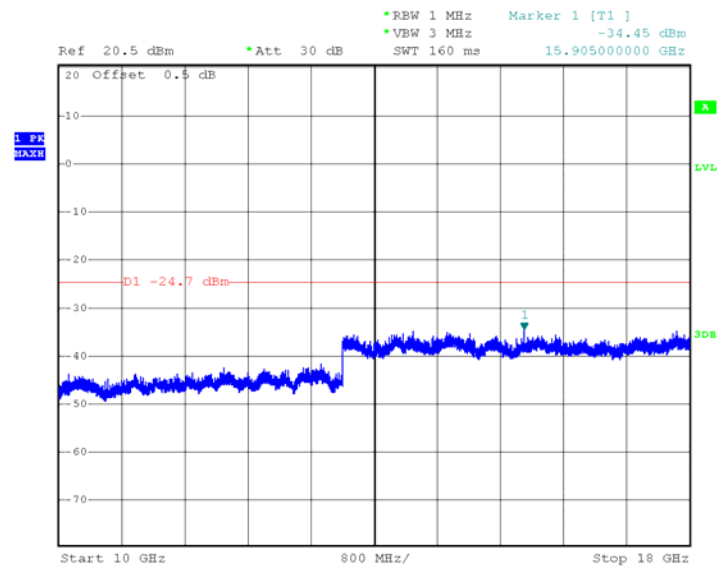


INTERTEK TESTING SERVICES

Channel 11 (2462MHz) Reference Level: -4.70dBm ANT0

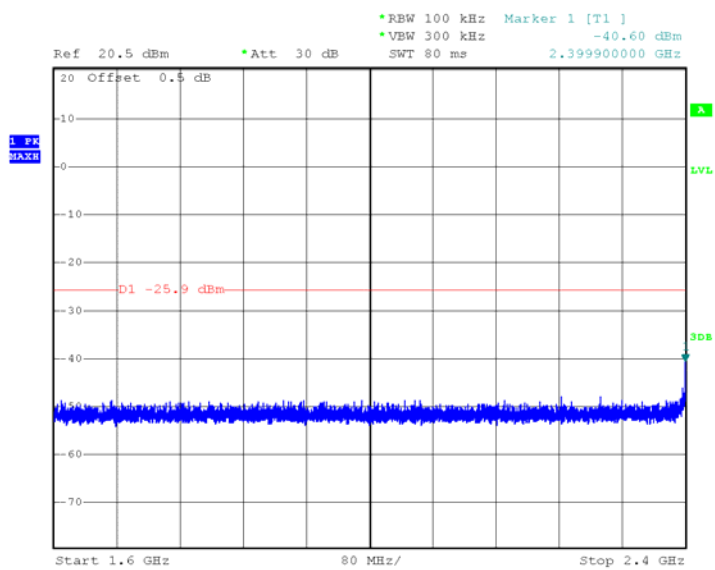
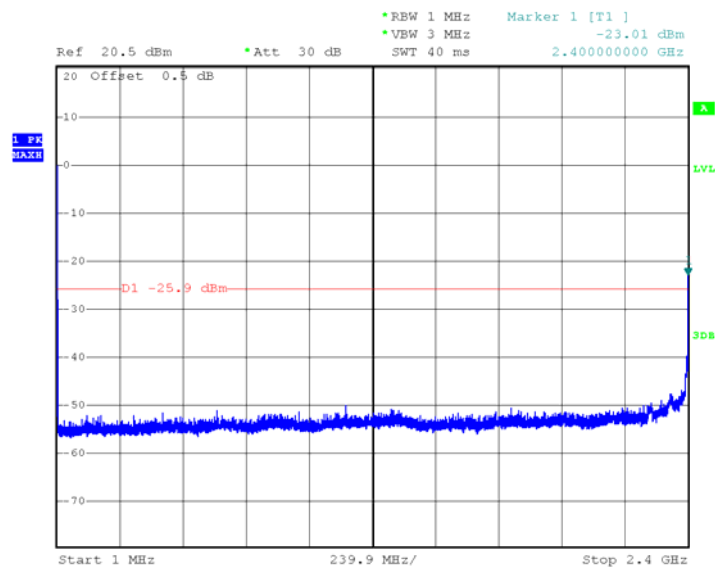


INTERTEK TESTING SERVICES

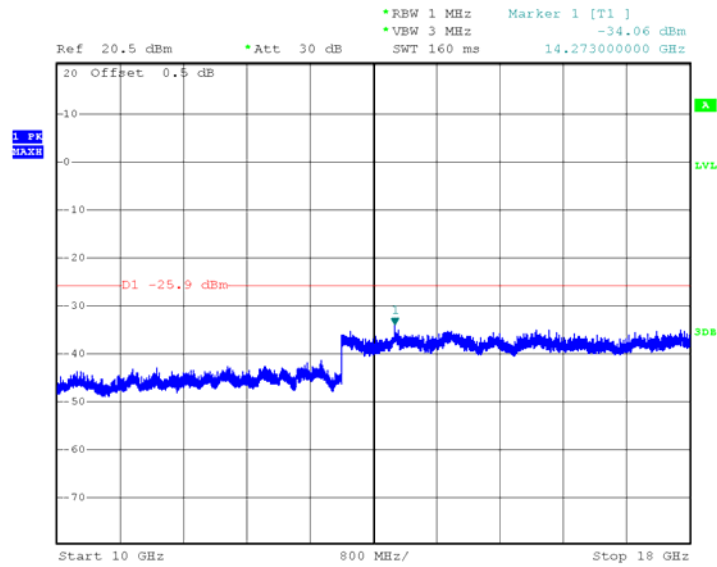
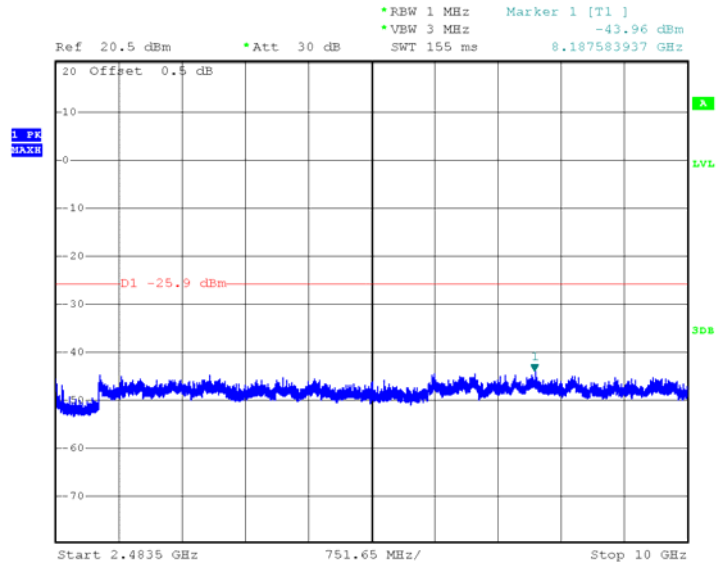


INTERTEK TESTING SERVICES

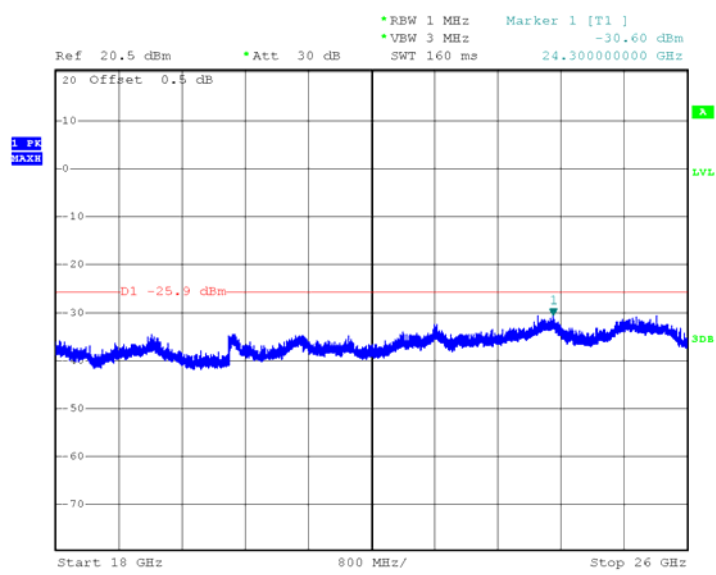
Channel 1 (2412MHz) Reference Level: -5.90dBm ANT1



INTERTEK TESTING SERVICES

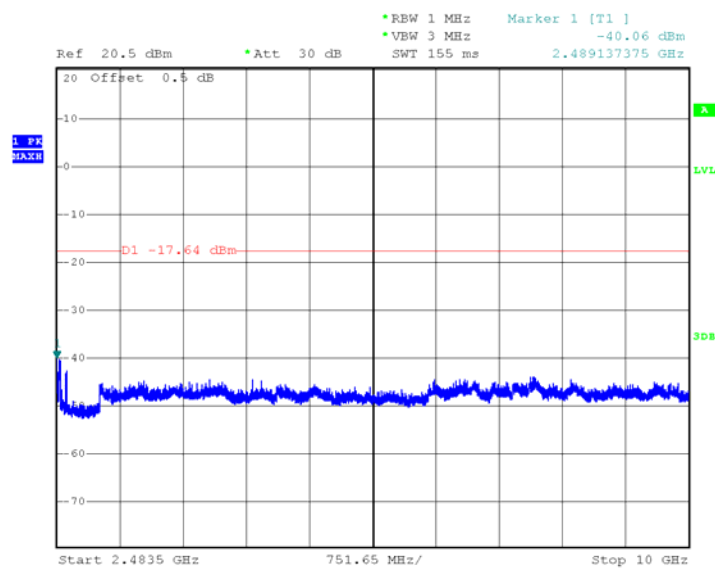
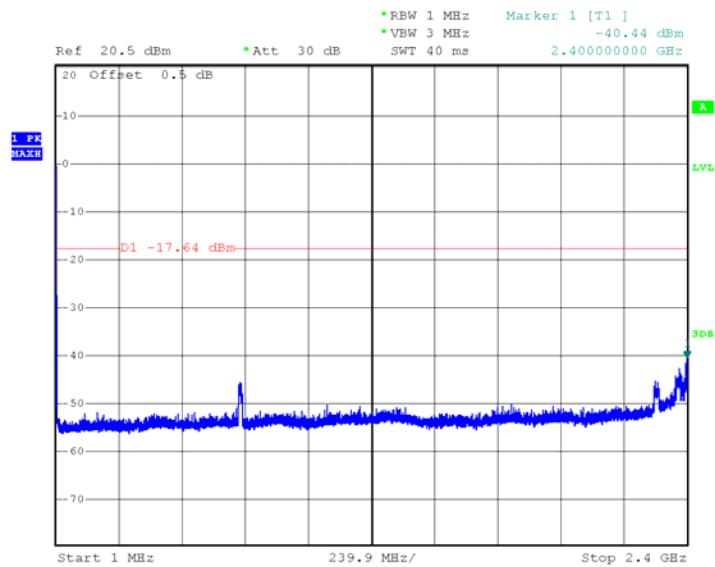


INTERTEK TESTING SERVICES



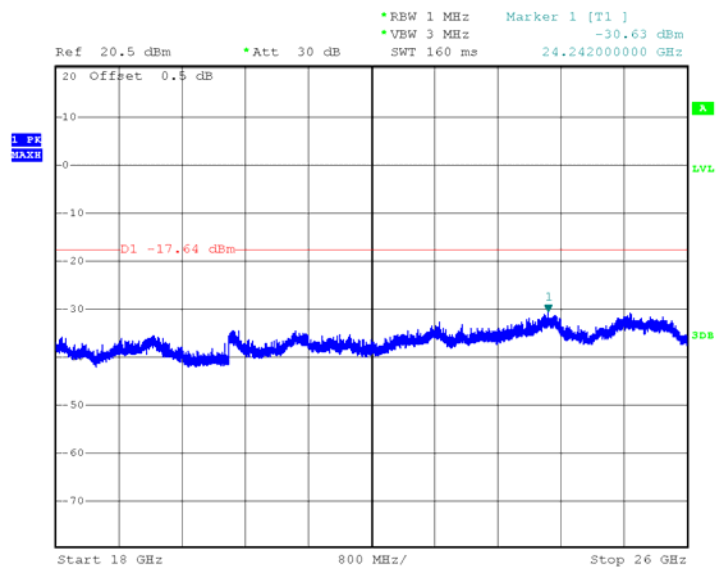
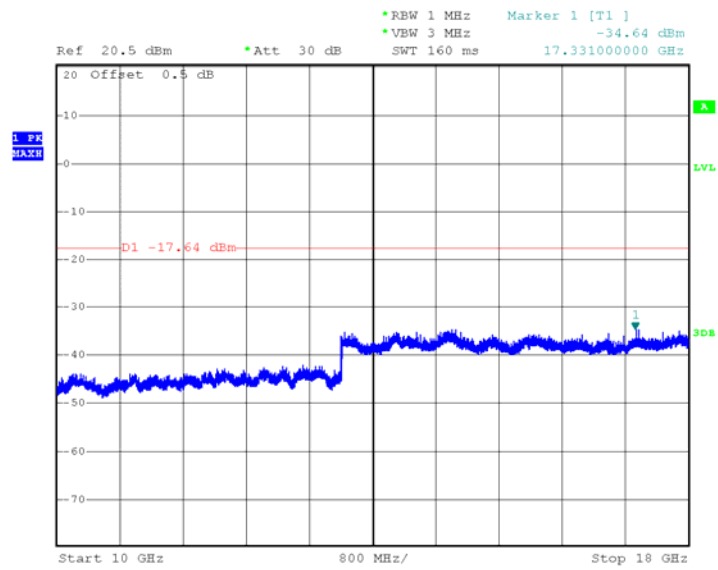
INTERTEK TESTING SERVICES

Channel 6 (2437MHz) Reference Level: 2.36dBm ANT1



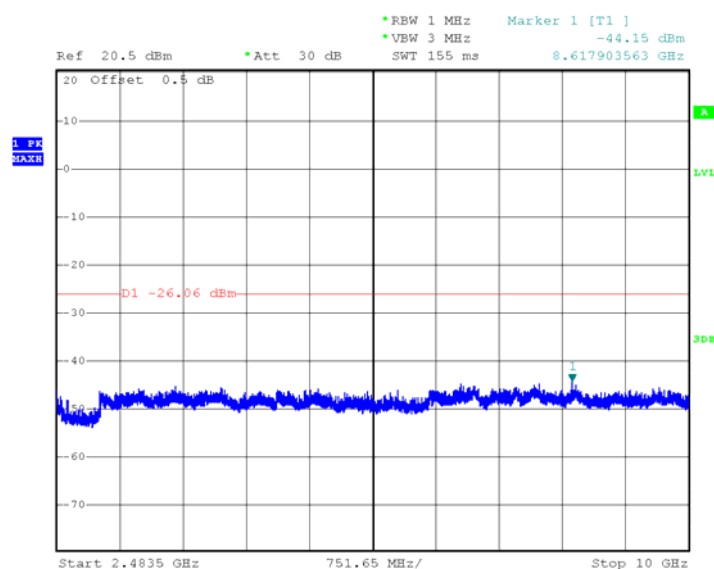
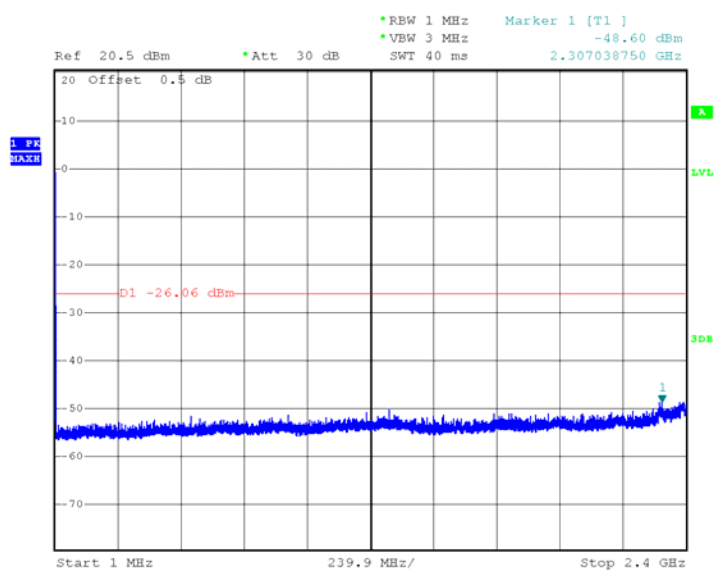
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Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES



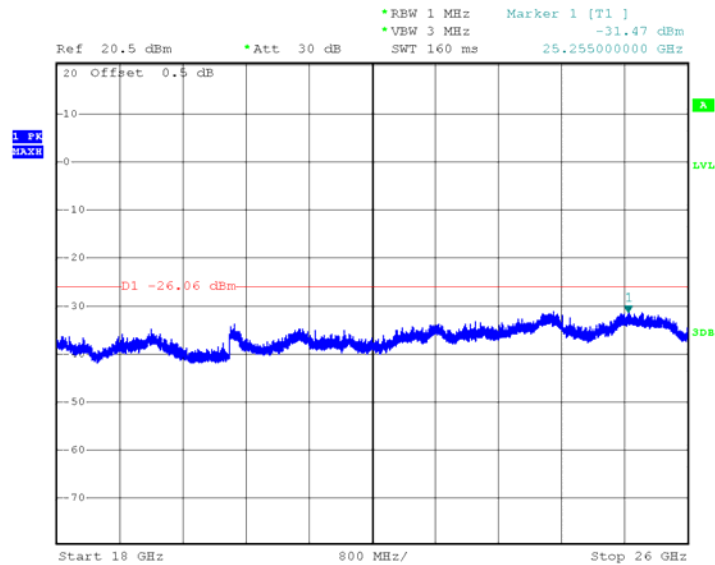
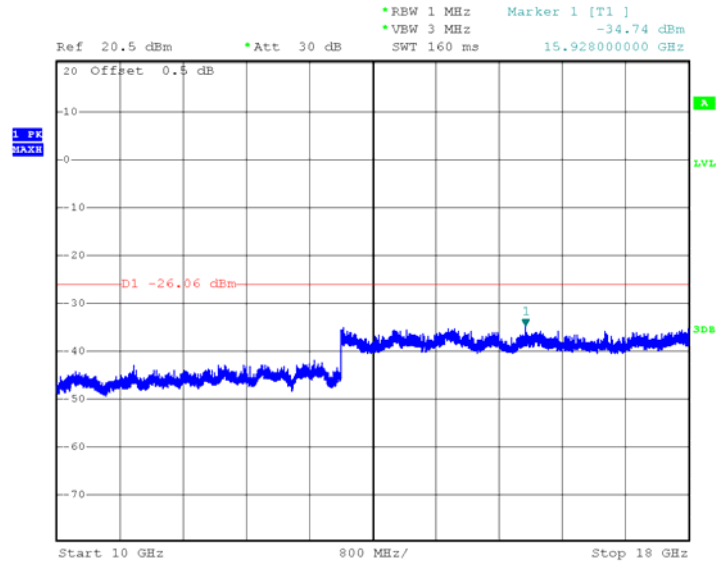
INTERTEK TESTING SERVICES

Channel 11 (2462MHz) Reference Level: -6.06dBm ANT1



TRF no.: FCC 15C_TX_b
FCC ID: QISM220
Report No.: 140314011SZN-001

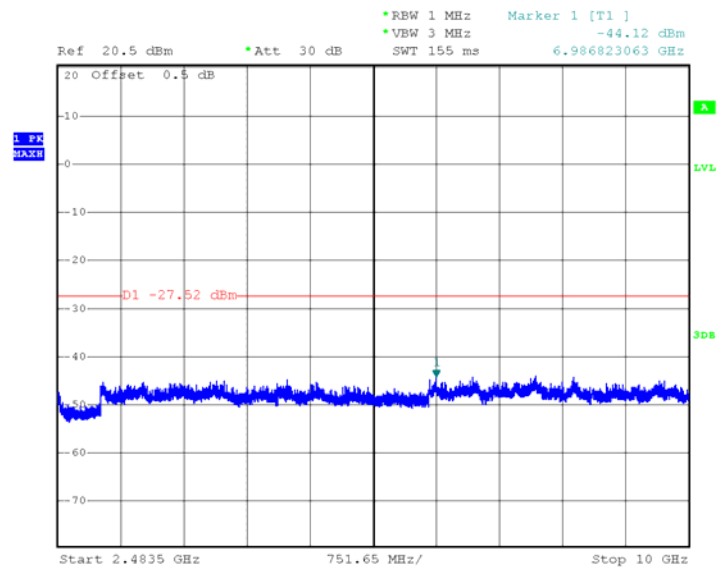
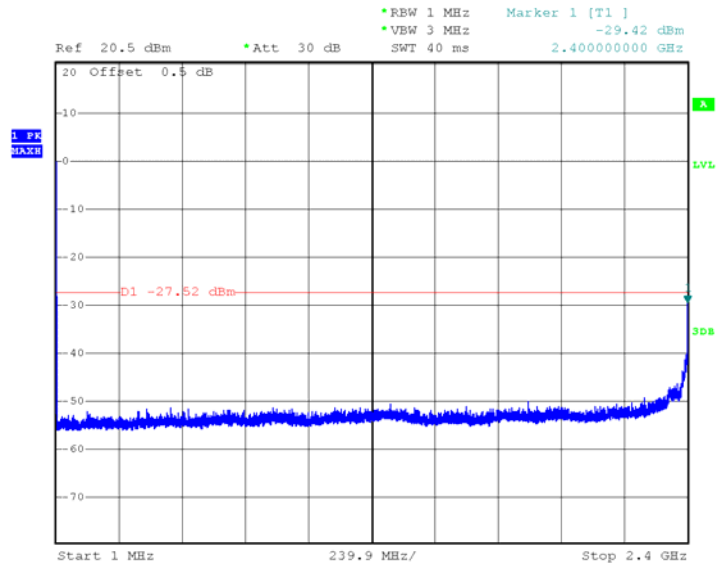
INTERTEK TESTING SERVICES



INTERTEK TESTING SERVICES

802.11n-HT40 SISO

Channel 3 (2422MHz) Reference Level: -7.52dBm

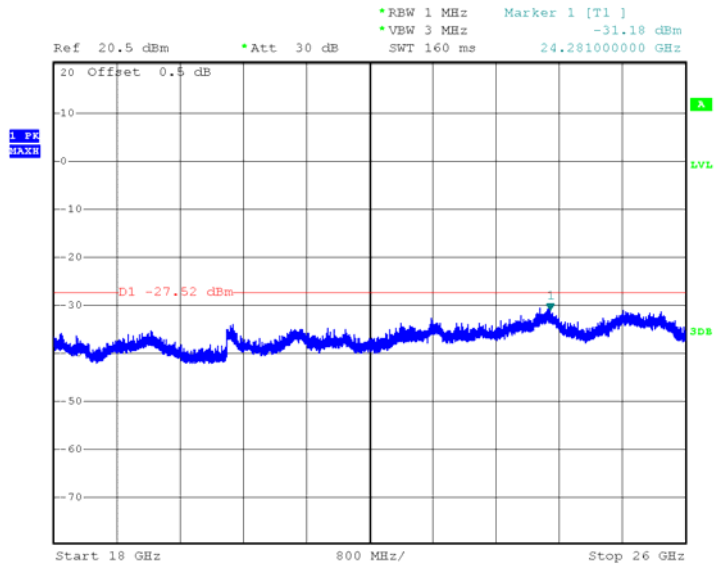
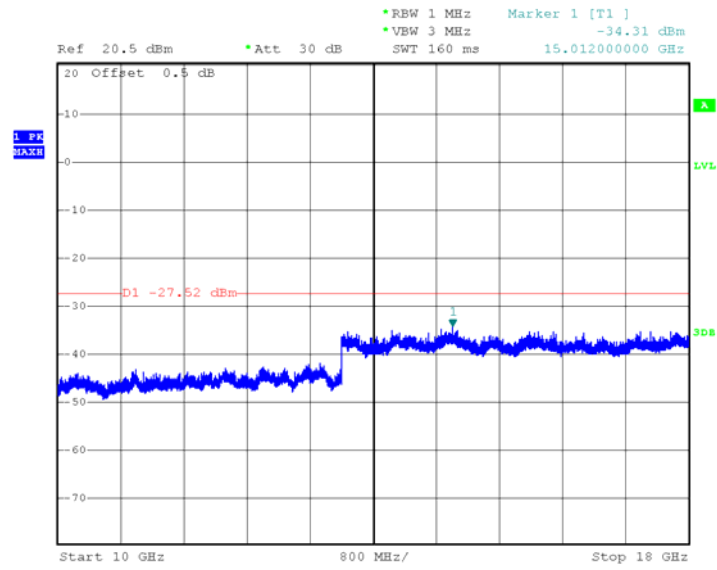


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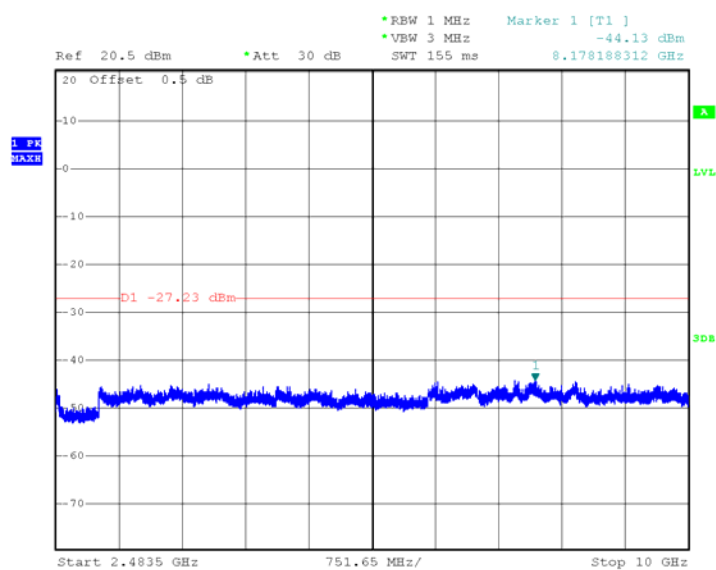
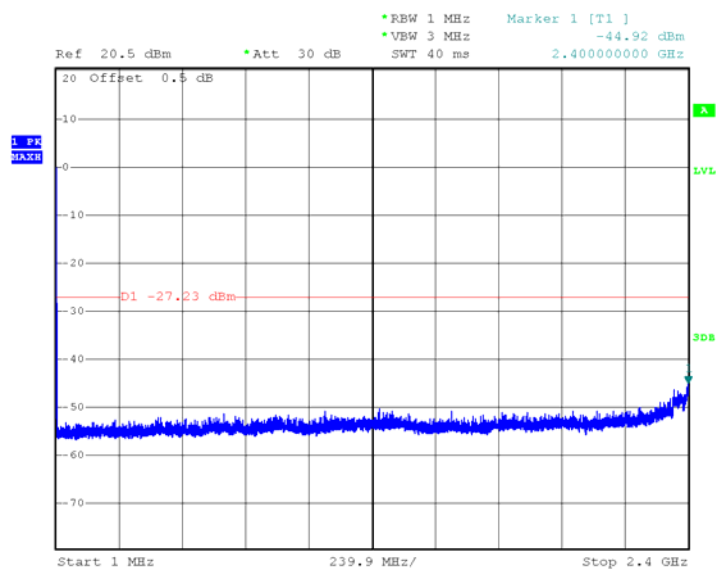
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INTERTEK TESTING SERVICES



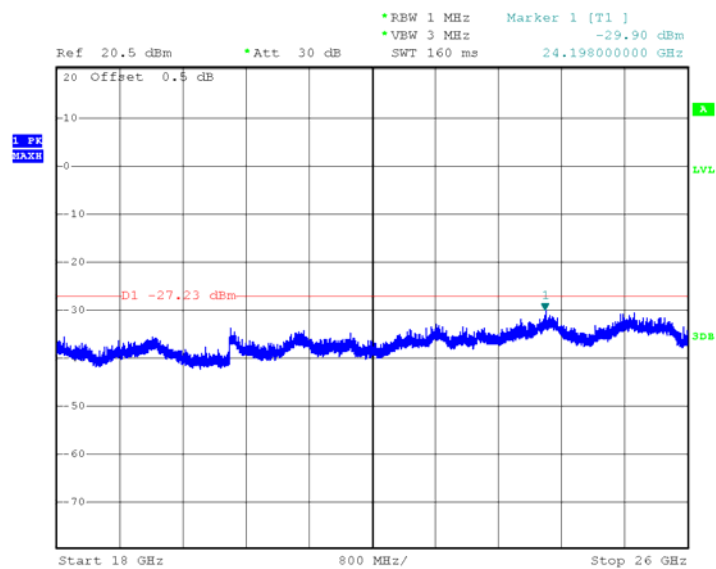
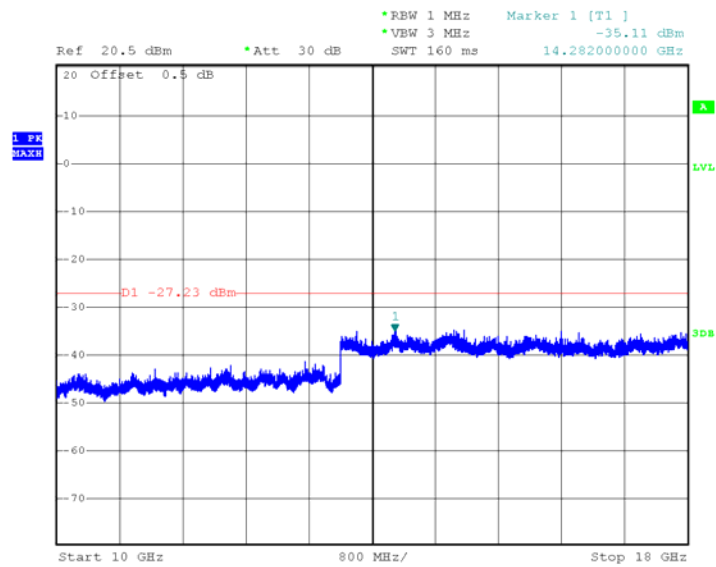
INTERTEK TESTING SERVICES

Channel 6 (2437MHz) Reference Level: -7.23dBm



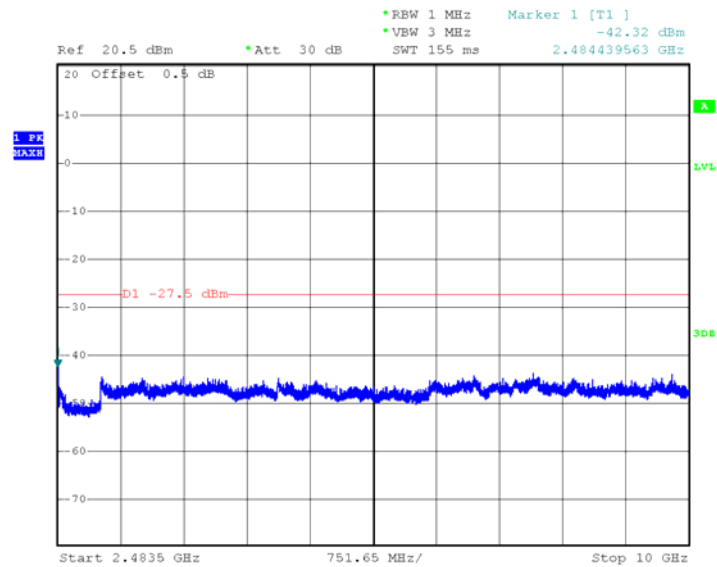
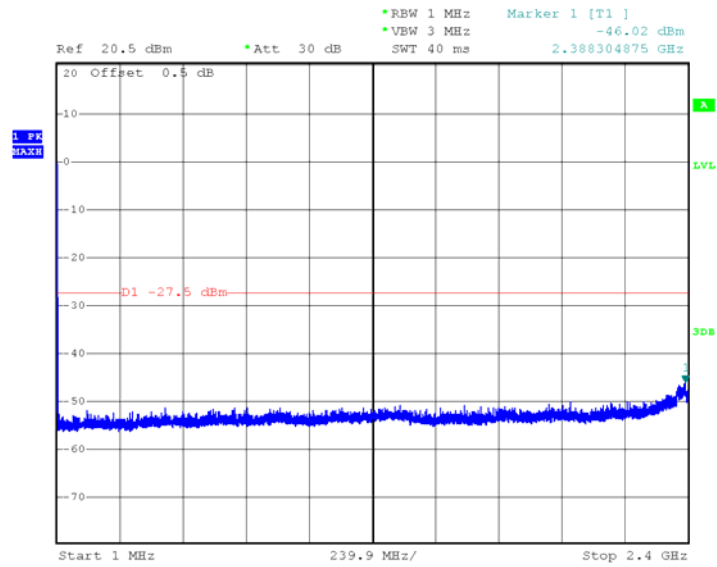
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Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES



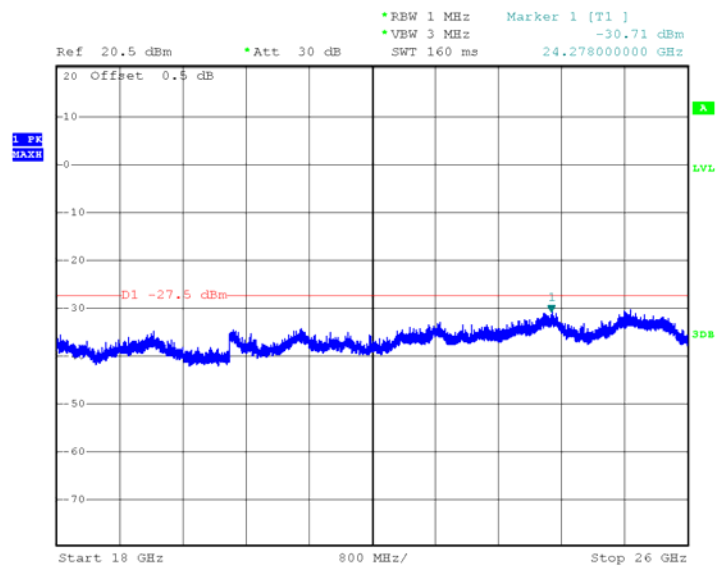
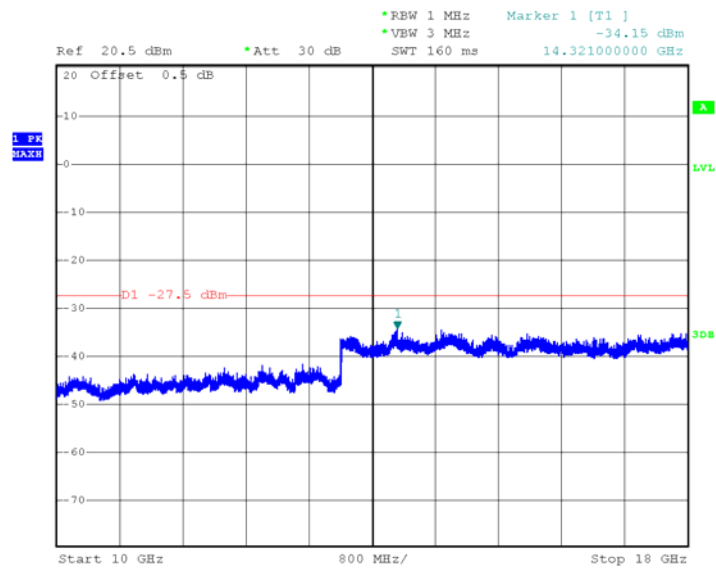
INTERTEK TESTING SERVICES

Channel 9 (2452MHz) Reference Level: -7.50dBm



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Report No.: 140314011SZN-001

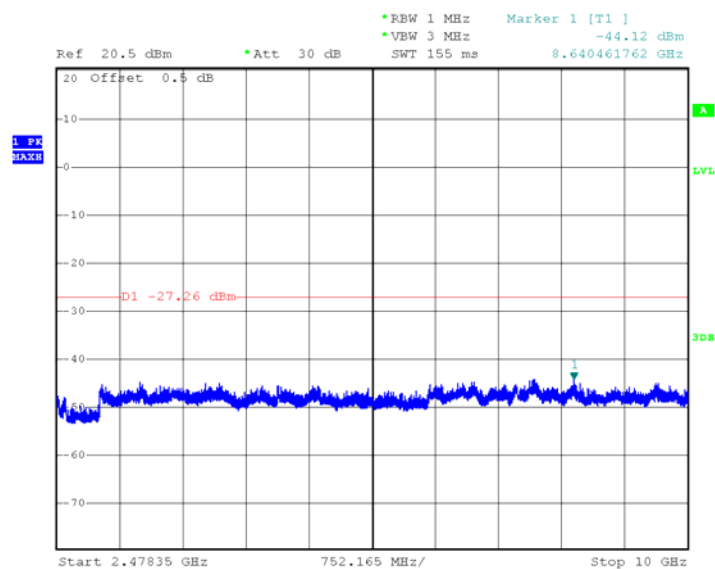
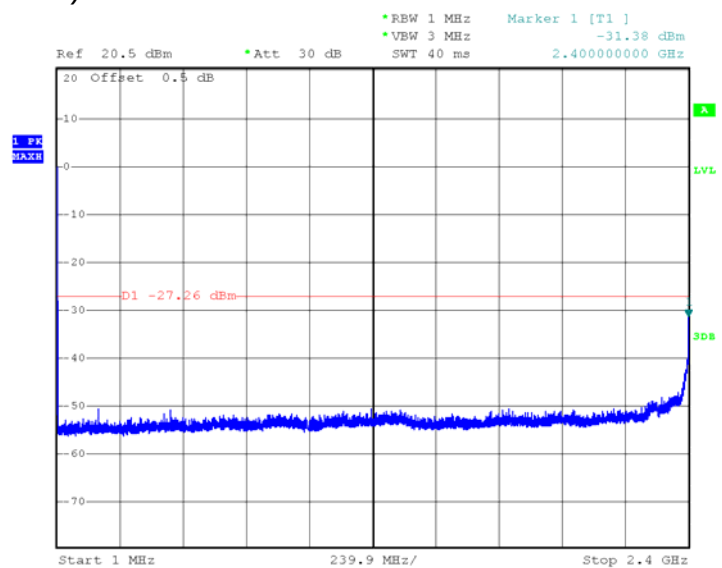
INTERTEK TESTING SERVICES



INTERTEK TESTING SERVICES

802.11n-HT40 MIMO

Channel 3 (2422MHz) Reference Level: -7.26dBm ANT0

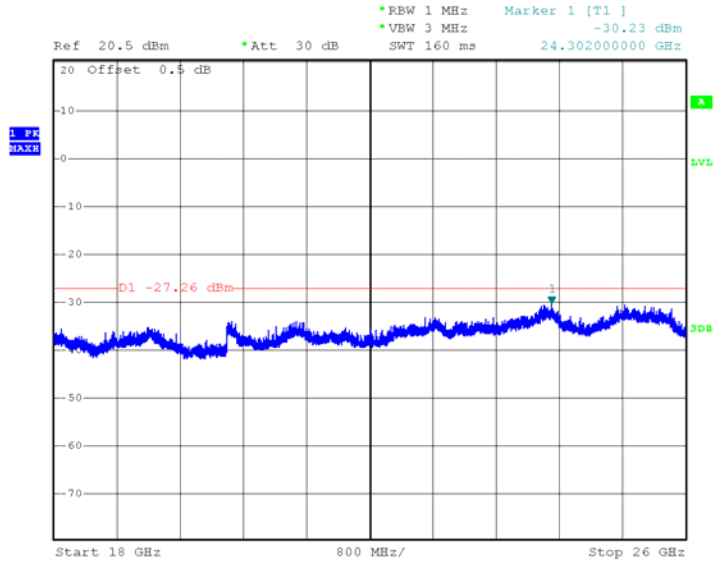
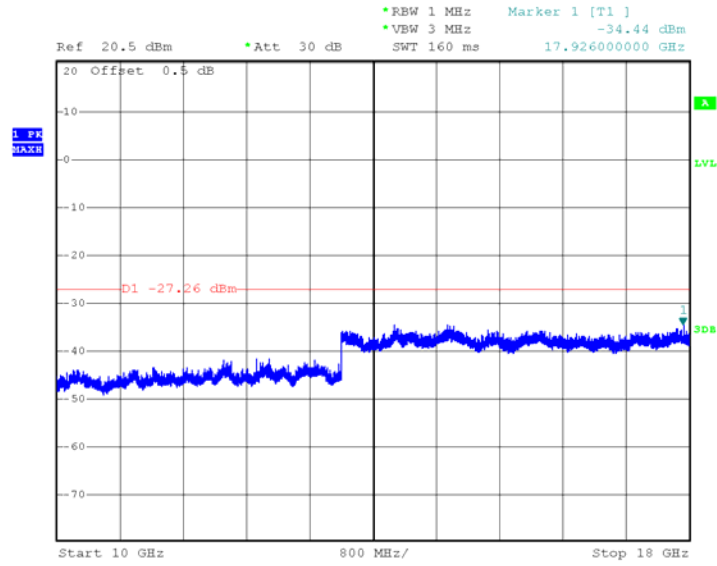


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FCC ID: QISM220

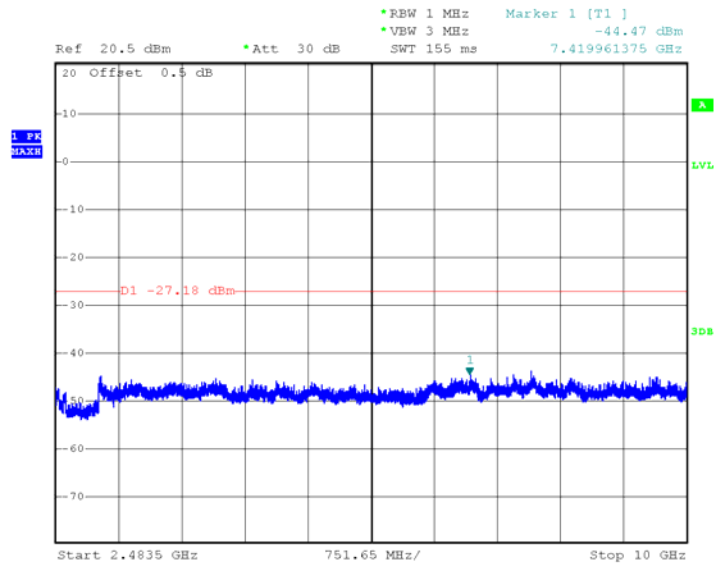
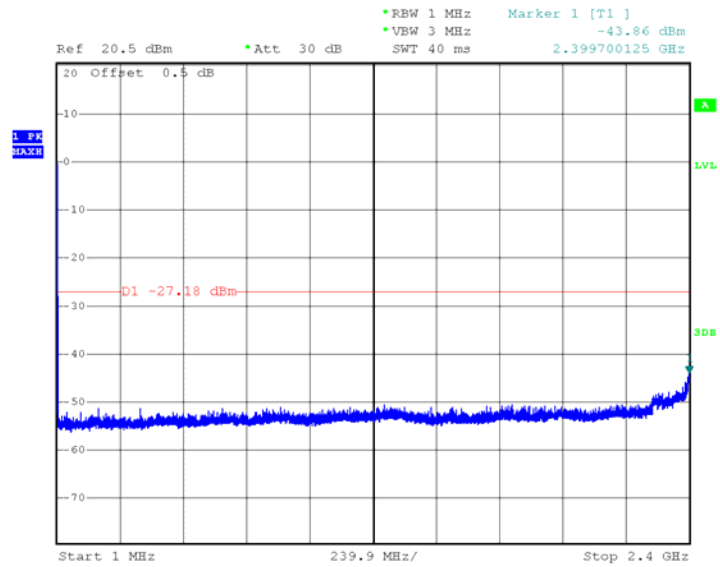
Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES



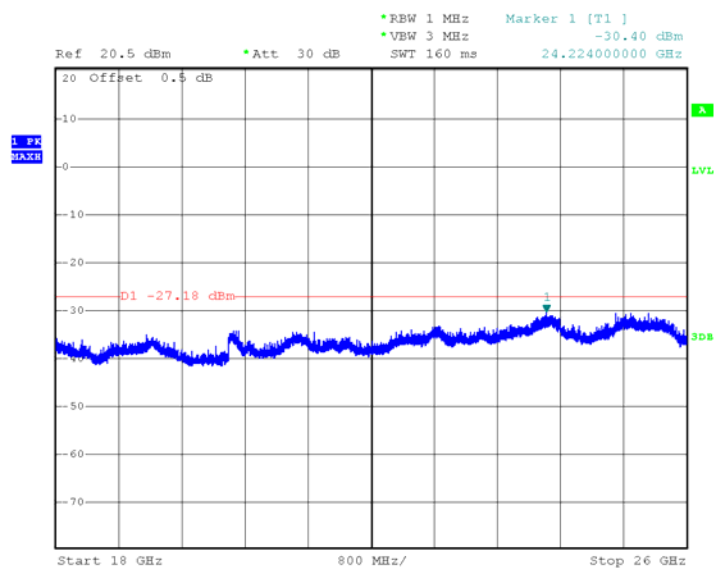
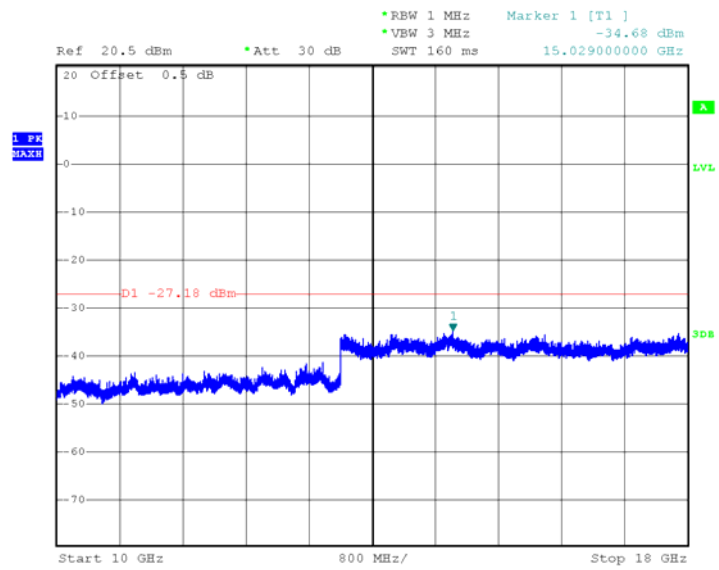
INTERTEK TESTING SERVICES

Channel 6 (2437MHz) Reference Level: -7.18dBm ANT0



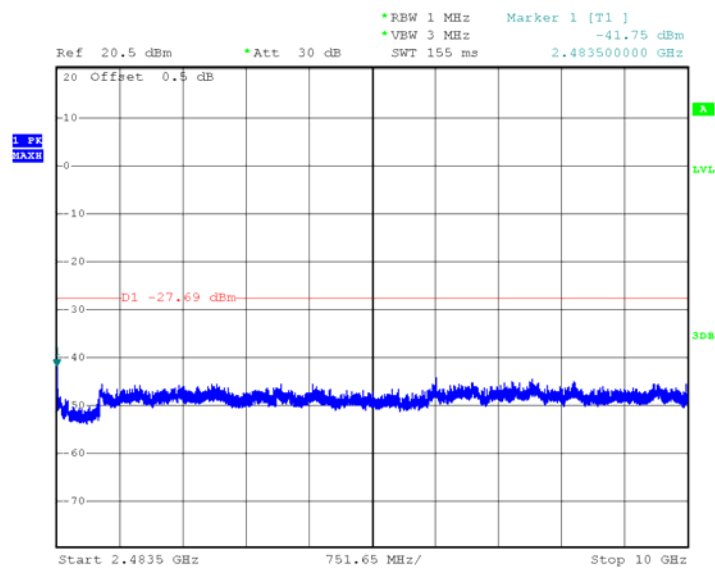
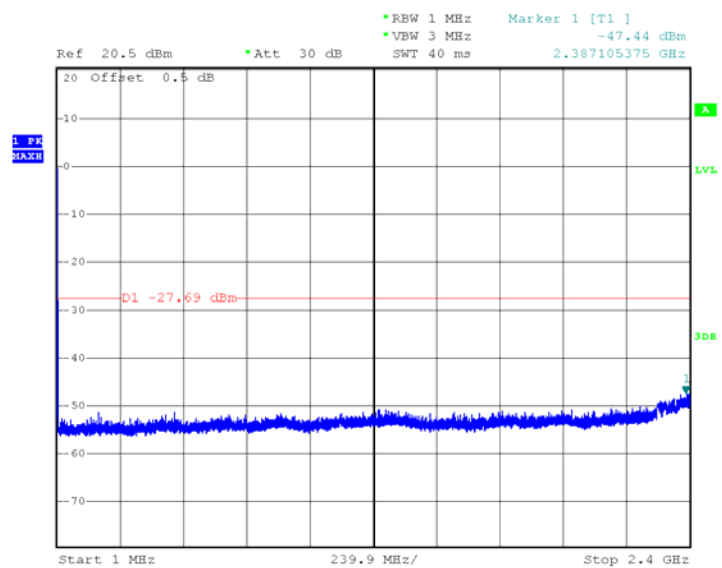
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Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES

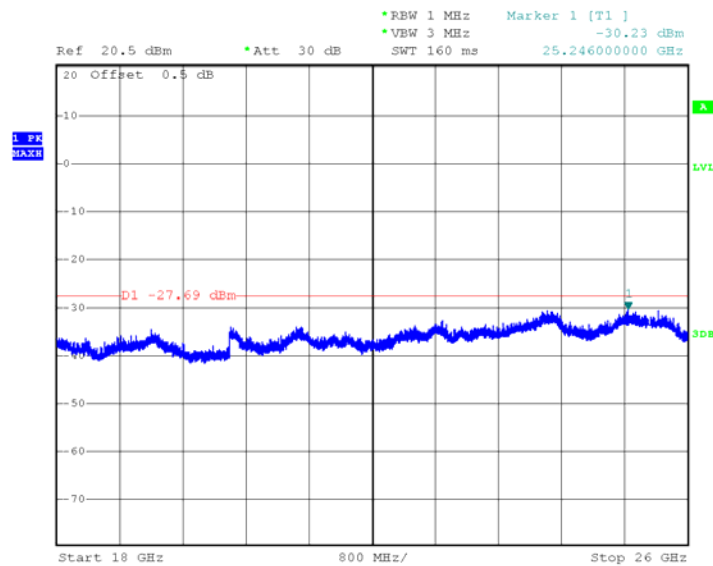
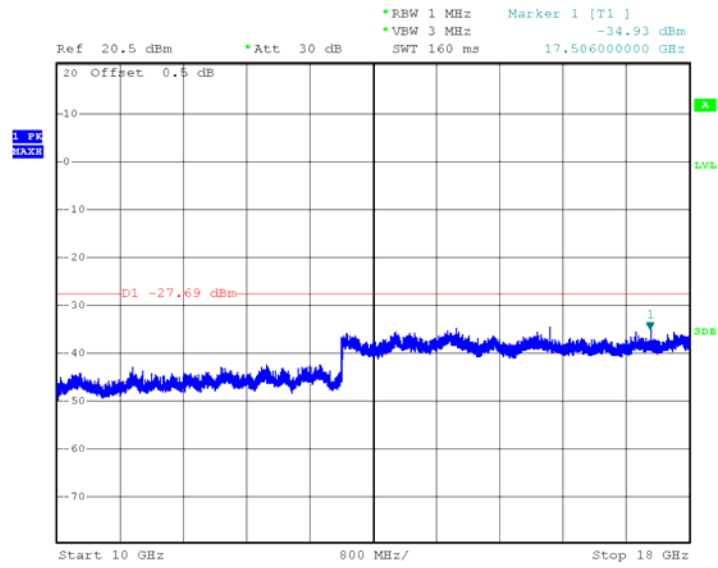


INTERTEK TESTING SERVICES

Channel 9 (2452MHz) Reference Level: -7.69dBm ANT0

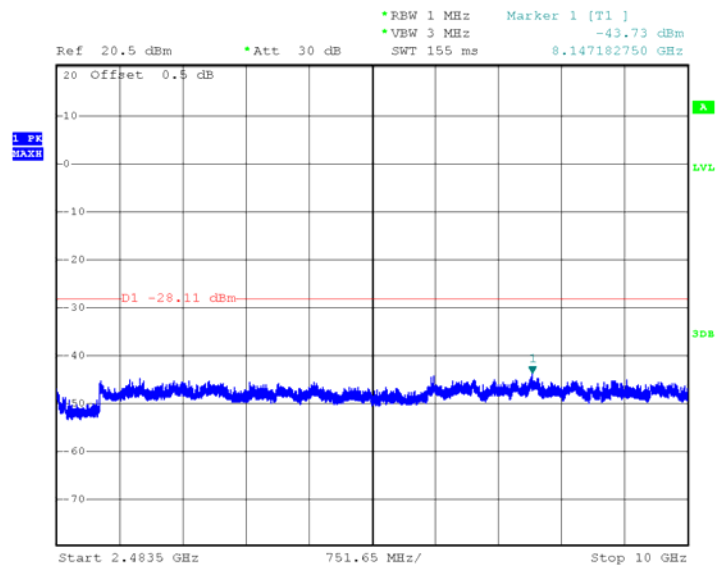
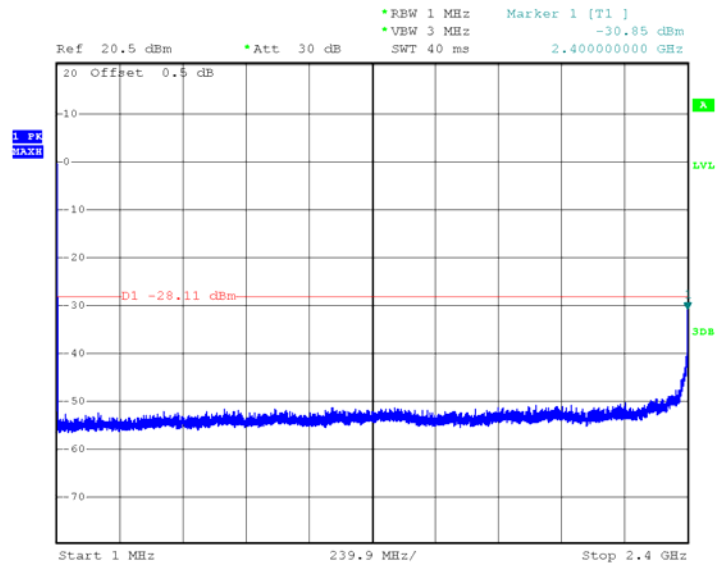


INTERTEK TESTING SERVICES



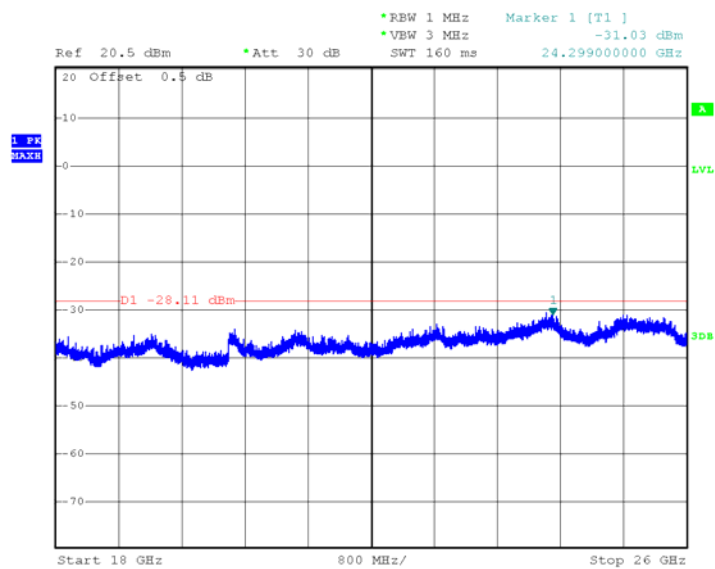
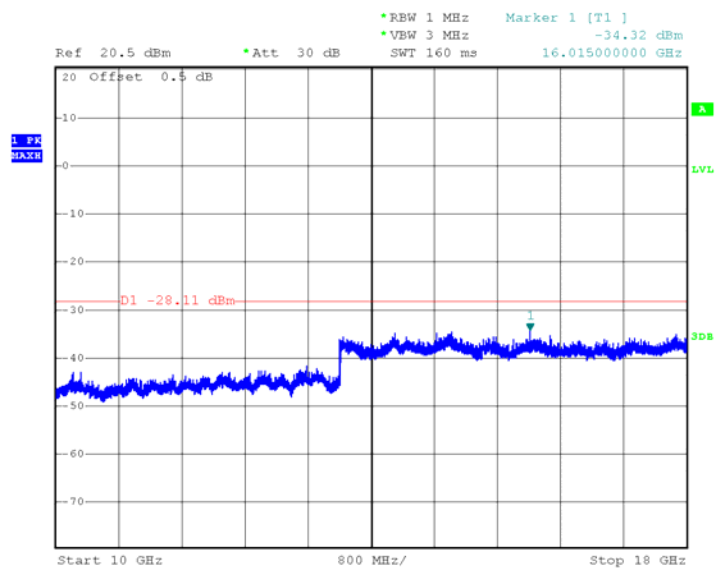
INTERTEK TESTING SERVICES

Channel 3 (2422MHz) Reference Level: -8.11dBm ANT1



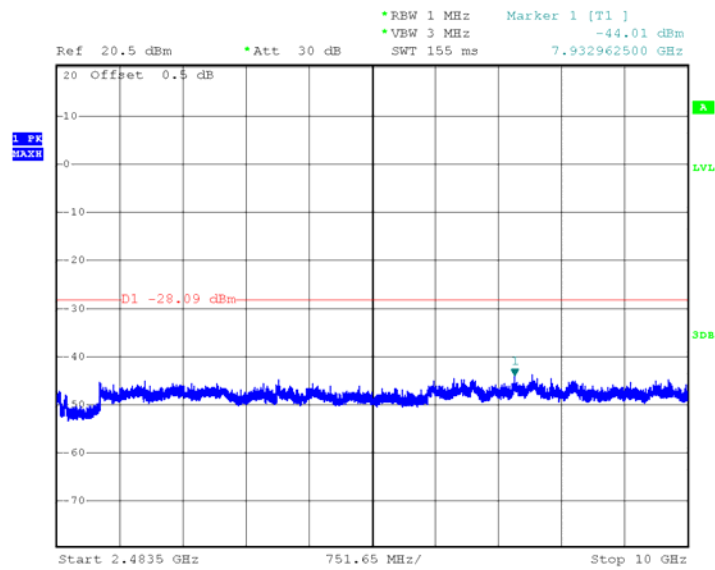
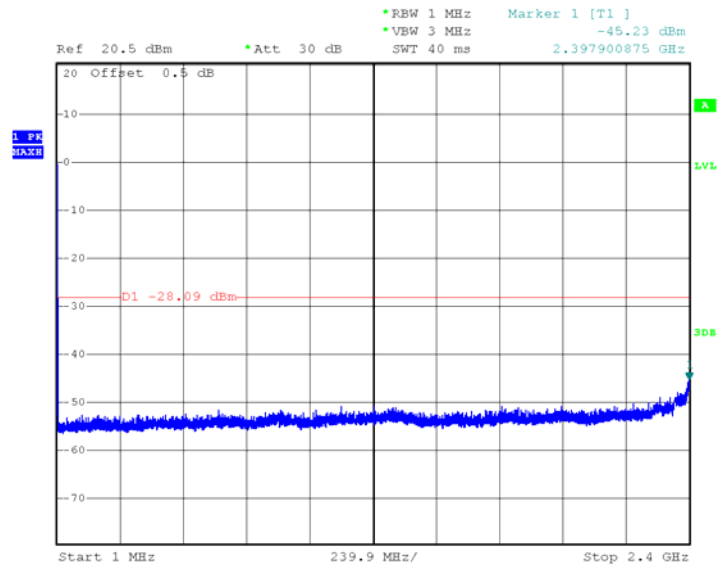
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INTERTEK TESTING SERVICES



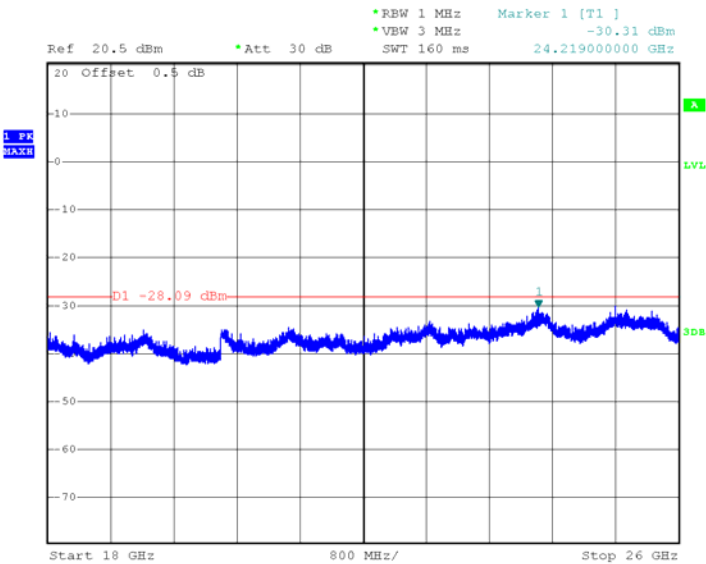
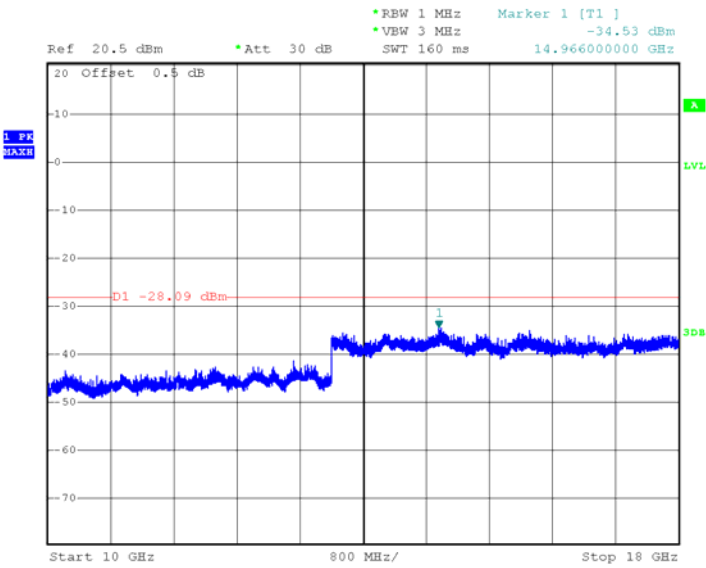
INTERTEK TESTING SERVICES

Channel 6 (2437MHz) Reference Level: -8.09dBm ANT1



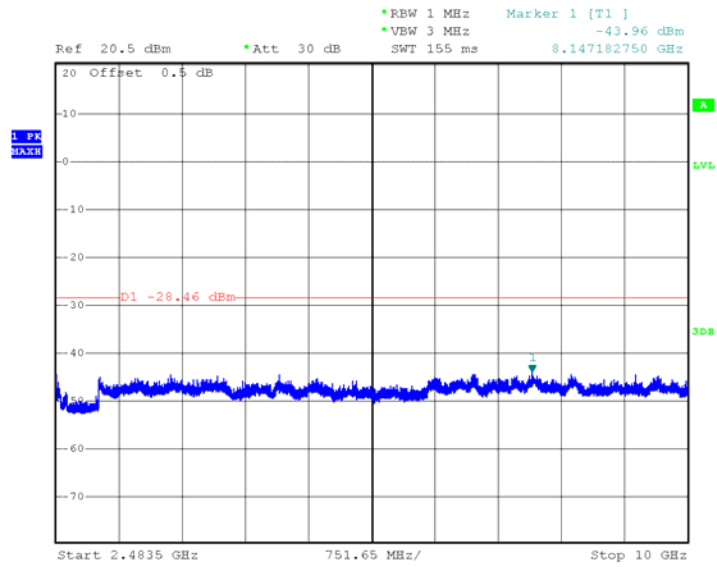
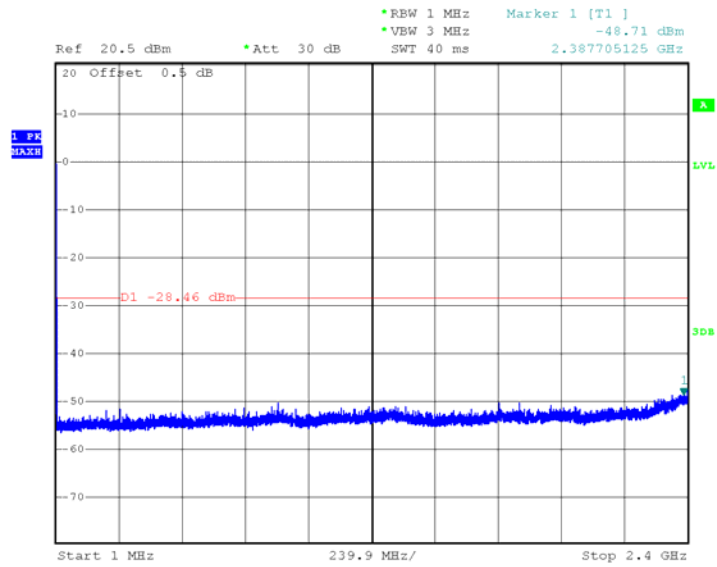
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Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES

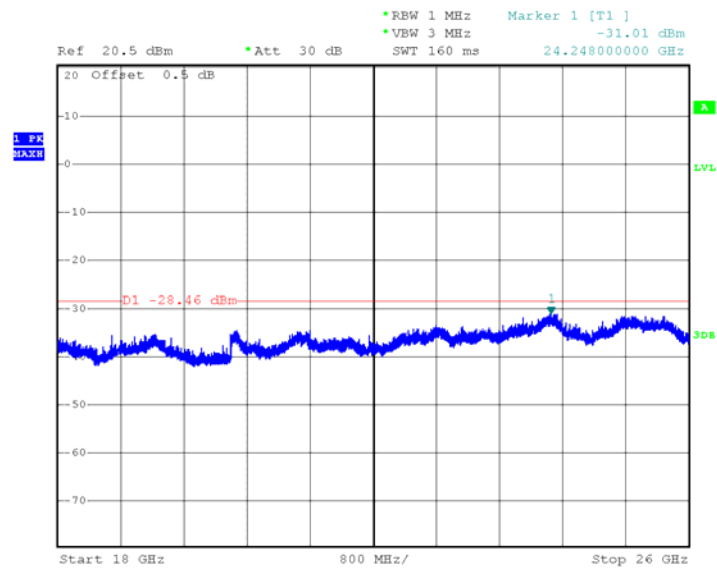
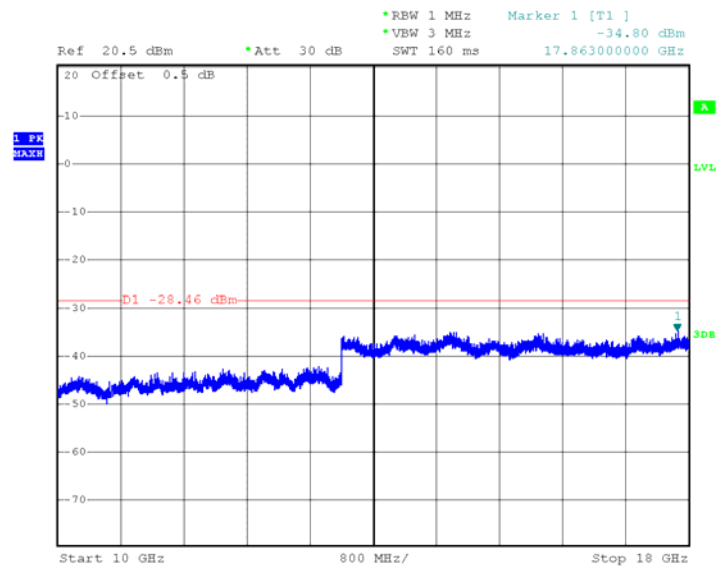


INTERTEK TESTING SERVICES

Channel 9 (2452MHz) Reference Level: -8.46dBm ANT1



INTERTEK TESTING SERVICES



INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220

Date of Test: 25 March 2014

4.5 Out of Band Radiated Emissions (for emissions in 4.4 above that are less than 20dB below carrier), FCC Rule 15.247(d):

For out of band emissions that are close to or that exceed the 20dB attenuation requirement described in the specification, radiated measurements were performed at a 3m separation distance to determine whether these emissions complied with the general radiated emission requirement.

- ☒ Not required, since all emissions are more than 20dB below fundamental
- ☐ See attached data sheet

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220

Date of Test: 25 March 2014

4.6 Transmitter Radiated Emissions in Restricted Bands, FCC Rule 15.35(b), (c):

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included. All measurements were performed with peak detection unless otherwise specified.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220

Date of Test: 25 March 2014

4.7 Field Strength Calculation

The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below.

$$FS = RA + AF + CF - AG + PD$$

Where FS = Field Strength in dB μ V/m
 RA = Receiver Amplitude (including preamplifier) in dB μ V
 CF = Cable Attenuation Factor in dB
 AF = Antenna Factor in dB
 AG = Amplifier Gain in dB

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

$$FS = RA + AF + CF - AG$$

Example

Assume a receiver reading of 62.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB. The net field strength for comparison to the appropriate emission limit is 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

RA = 62.0 dB μ V
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB

$$FS = 62 + 7.4 + 1.6 - 29 = 42 \text{ dB}\mu\text{V/m}$$

$$\text{Level in mV/m} = \text{Common Antilogarithm} [(42 \text{ dB}\mu\text{V/m})/20] = 125.9 \mu\text{V/m}$$

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220

Date of Test: 25 March 2014

4.8 Radiated Spurious Emission

Worst Case Radiated Spurious Emission (802.11n-HT20 MIMO Channel 6) at 30.965 MHz is passed by 5.8 dB margin.

For the electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd

Date of Test: 25 March 2014

Model: MediaQ M220

Worst Case Operating Mode: 802.11n-HT20 MIMO Channel 6

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	32.409	23.8	20.0	17.7	21.5	43.5	-22.0
Horizontal	236.102	45.4	20.0	11.9	37.3	46.0	-8.7
Horizontal	299.645	46.1	20.0	13.2	39.3	46.0	-6.7
Vertical	30.965	35.3	20.0	18.9	34.2	40.0	-5.8
Vertical	112.986	48.3	20.0	8.3	36.6	43.5	-6.9
Vertical	235.627	39.5	20.0	11.9	34.9	46.0	-11.1

- NOTES:
1. Quasi-Peak detector is used except for others stated.
 2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative value in the margin column shows emission below limit.
 4. All emissions are below the QP limit.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220
Mode: 802.11b Channel 1

Date of Test: 25 March 2014

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	50.8	36.1	34.1	48.8	74.0	-25.2
Horizontal	*2388.549	66.4	36.7	27.2	56.9	74.0	-17.1

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	35.6	36.1	34.1	33.6	54.0	-20.4
Horizontal	*2388.549	55.3	36.7	27.2	45.8	54.0	-8.2

- NOTES: 1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220
Mode: 802.11b Channel 6

Date of Test: 25 March 2014

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	51.3	36.1	34.5	49.7	74.0	-24.3
Horizontal	*7311.000	53.3	35.6	37.1	54.8	74.0	-19.2

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	35.3	36.1	34.5	33.7	54.0	-20.3
Horizontal	*7311.000	37.3	35.6	37.1	38.8	54.0	-15.2

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative value in the margin column shows emission below limit.
 4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220
Mode: 802.11b Channel 11

Date of Test: 25 March 2014

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
Horizontal	*4924.000	50.3	36.1	34.7	48.9	74.0	-25.1
Horizontal	*2484.059	64.2	36.7	27.7	55.2	74.0	-18.8

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
Horizontal	*4924.000	35.4	36.1	34.7	34.0	54.0	-20.0
Horizontal	*2484.059	48.5	36.7	27.7	39.5	54.0	-14.5

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative value in the margin column shows emission below limit.
 4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
 Model: MediaQ M220
 Mode: 802.11g Channel 1

Date of Test: 25 March 2014

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	50.6	36.1	34.1	48.6	74.0	-25.4
Horizontal	*2389.952	66.5	36.7	27.2	57.0	74.0	-17.0

Polarization	Frequency (MHz)	Reading (dBμV)	Pre- Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	35.9	36.1	34.1	33.9	54.0	-20.1
Horizontal	*2389.952	48.1	36.7	27.2	38.6	54.0	-15.4

- NOTES: 1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220
Mode: 802.11g Channel 6

Date of Test: 25 March 2014

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	51.8	36.1	34.5	50.2	74.0	-23.8
Horizontal	*7311.000	53.2	35.6	37.1	54.7	74.0	-19.3

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	36.5	36.1	34.5	34.9	54.0	-19.1
Horizontal	*7311.000	37.7	35.6	37.1	39.2	54.0	-14.8

- NOTES: 1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220
Mode: 802.11g Channel 11

Date of Test: 25 March 2014

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4924.000	50.5	36.1	34.7	49.1	74.0	-24.9
Horizontal	*2484.038	64.0	36.7	27.7	55.0	74.0	-19.0

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4924.000	35.9	36.1	34.7	34.5	54.0	-19.5
Horizontal	*2484.038	48.2	36.7	27.7	39.2	54.0	-14.8

- NOTES: 1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220
Mode: 802.11n-HT20 SISO Channel 1

Date of Test: 25 March 2014

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	50.6	36.1	34.1	48.6	74.0	-25.4
Horizontal	*2389.028	67.4	36.7	27.2	57.9	74.0	-16.1

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	35.8	36.1	34.1	33.8	54.0	-20.2
Horizontal	*2389.028	48.3	36.7	27.2	38.8	54.0	-15.2

- NOTES: 1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220
Mode: 802.11n-HT20 SISO Channel 6

Date of Test: 25 March 2014

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	51.5	36.1	34.5	49.9	74.0	-24.1
Horizontal	*7311.000	53.8	35.6	37.1	55.3	74.0	-18.7

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	36.4	36.1	34.5	34.8	54.0	-19.2
Horizontal	*7311.000	37.7	35.6	37.1	39.2	54.0	-14.8

- NOTES: 1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220
Mode: 802.11n-HT20 SISO Channel 11

Date of Test: 25 March 2014

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4924.000	50.6	36.1	34.7	49.2	74.0	-24.8
Horizontal	*2484.983	63.8	36.7	27.7	54.8	74.0	-19.2

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4924.000	36.1	36.1	34.7	34.7	54.0	-19.3
Horizontal	*2484.983	47.8	36.7	27.7	38.8	54.0	-15.2

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative value in the margin column shows emission below limit.
 4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd

Date of Test: 25 March 2014

Model: MediaQ M220

Mode: 802.11n-HT20 MIMO Channel 1 (Ant0+Ant1)

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	51.0	36.1	34.1	49.0	74.0	-25.0
Horizontal	*2389.005	65.1	36.7	27.2	55.6	74.0	-18.4

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4824.000	37.9	36.1	34.1	35.9	54.0	-18.1
Horizontal	*2389.005	49.2	36.7	27.2	39.7	54.0	-14.3

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative value in the margin column shows emission below limit.
 4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd

Date of Test: 25 March 2014

Model: MediaQ M220

Mode: 802.11n-HT20 MIMO Channel 6 (Ant0+Ant1)

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	51.7	36.1	34.5	50.1	74.0	-23.9
Horizontal	*7311.000	55.4	35.6	37.1	56.9	74.0	-17.1

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	36.8	36.1	34.5	35.2	54.0	-18.8
Horizontal	*7311.000	37.5	35.6	37.1	39.0	54.0	-15.0

- NOTES: 1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd

Date of Test: 25 March 2014

Model: MediaQ M220

Mode: 802.11n-HT20 MIMO Channel 11 (Ant0+Ant1)

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4924.000	51.9	36.1	34.7	50.5	74.0	-23.5
Horizontal	*2484.897	65.3	36.7	27.7	56.3	74.0	-17.7

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4924.000	37.4	36.1	34.7	36.0	54.0	-18.0
Horizontal	*2484.897	49.2	36.7	27.7	40.2	54.0	-13.8

- NOTES: 1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220
Mode: 802.11n-HT40 SISO Channel 3

Date of Test: 25 March 2014

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Peak Limit at 3m (dB μ V/m)	Margin (dB)
Horizontal	*4844.000	48.9	36.1	34.6	47.4	74.0	-26.6
Horizontal	*2389.608	64.0	36.7	27.2	54.5	74.0	-19.5

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Average Limit at 3m (dB μ V/m)	Margin (dB)
Horizontal	*4844.000	36.5	36.1	34.6	35.0	54.0	-19.0
Horizontal	*2389.608	51.6	36.7	27.2	42.1	54.0	-11.9

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative value in the margin column shows emission below limit.
 4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
 Model: MediaQ M220
 Mode: 802.11n-HT40 SISO Channel 6

Date of Test: 25 March 2014

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	49.8	36.1	34.5	48.2	74.0	-25.8
Horizontal	*7311.000	53.3	35.6	37.1	54.8	74.0	-19.2

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	35.3	36.1	34.5	33.7	54.0	-20.3
Horizontal	*7311.000	37.3	35.6	37.1	38.8	54.0	-15.2

- NOTES: 1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220
Mode: 802.11n-HT40 SISO Channel 9

Date of Test: 25 March 2014

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4904.000	49.2	36.1	34.8	47.9	74.0	-26.1
Horizontal	*2484.950	64.3	36.7	27.7	55.3	74.0	-18.7

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4904.000	37.3	36.1	34.8	36.0	54.0	-18.0
Horizontal	*2484.950	50.2	36.7	27.7	41.2	54.0	-12.8

- NOTES: 1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd

Date of Test: 25 March 2014

Model: MediaQ M220

Mode: 802.11n-HT40 MIMO Channel 3 (Ant0+Ant1)

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4844.000	43.4	36.1	34.6	41.9	74.0	-32.1
Horizontal	*2389.802	62.0	36.7	27.2	52.5	74.0	-21.5

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4844.000	36.9	36.1	34.6	35.4	54.0	-18.6
Horizontal	*2389.802	51.8	36.7	27.2	42.3	54.0	-11.7

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative value in the margin column shows emission below limit.
 4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd

Date of Test: 25 March 2014

Model: MediaQ M220

Mode: 802.11n-HT40 MIMO Channel 6 (Ant0+Ant1)

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	50.6	36.1	34.5	49.0	74.0	-25.0
Horizontal	*7311.000	53.4	35.6	37.1	54.9	74.0	-19.1

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4874.000	35.5	36.1	34.5	33.9	54.0	-20.1
Horizontal	*7311.000	41.0	35.6	37.1	42.5	54.0	-11.5

- NOTES:
1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
 2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
 3. Negative value in the margin column shows emission below limit.
 4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd

Date of Test: 25 March 2014

Model: MediaQ M220

Mode: 802.11n-HT40 MIMO Channel 9 (Ant0+Ant1)

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Peak Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4904.000	50.8	36.1	34.8	49.5	74.0	-24.5
Horizontal	*2484.792	61.3	36.7	27.7	52.3	74.0	-21.7

Polarization	Frequency (MHz)	Reading (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	*4904.000	37.2	36.1	34.8	35.9	54.0	-18.1
Horizontal	*2484.792	49.6	36.7	27.7	40.6	54.0	-13.4

- NOTES: 1. Peak detector is used for the emission measurement (RBW=1MHz, VBW=3MHz for Peak data; RBW=1MHz, VBW=10Hz for Average data).
2. All measurements were made at 3 meters. Radiated emissions not detected at the 3-meter distance were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other radiated emissions than those reported were detected at a test distance of 0.3-meter.
3. Negative value in the margin column shows emission below limit.
4. Horn antenna used for the emission over 1000MHz.
- * Emission within the restricted band meets the requirement of section 15.205. The corresponding limit as per 15.209 is based on Quasi peak limit for frequencies below 1000 MHz and average limit for frequencies over 1000 MHz. The radio frequency emissions above 1GHz also meet corresponding 20dB permitted peak limit with a peak detector function.

INTERTEK TESTING SERVICES

4.9 Conducted Emission

Worst Case Neutral Line-Conducted emission at 0.643MHz is Passed by 7.5 dB margin

For electronic filing, the worst case conducted emission configuration photograph is saved with filename: conducted photos.pdf.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd

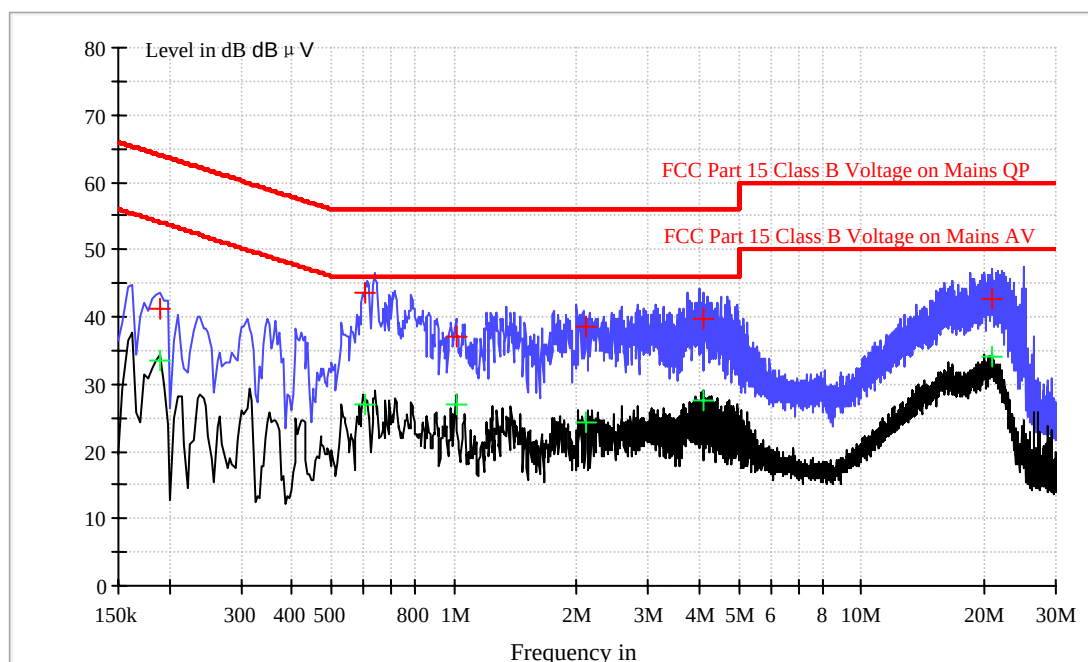
Date of Test: 25 March 2014

Model: MediaQ M220

Worst Case Operating Mode: 802.11n-HT20 MIMO 2442MHz

AC/DC Adapter: BYD

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.190	41.2	L	9.7	22.8	64.0
0.606	43.5	L	9.7	12.5	56.0
1.010	37.1	L	9.8	18.9	56.0
2.114	38.5	L	9.9	17.5	56.0
4.114	39.6	L	9.8	16.4	56.0
20.870	42.7	L	10.3	17.3	60.0

Result Table AV

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.190	33.3	L	9.7	20.7	54.0
0.606	26.9	L	9.7	19.1	46.0
1.010	27.0	L	9.8	19.0	46.0
2.114	24.3	L	9.9	21.7	46.0
4.114	27.7	L	9.8	18.3	46.0
20.870	34.1	L	10.3	15.9	50.0

TRF no.: FCC 15C_TX_b

FCC ID: QISM220

Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd

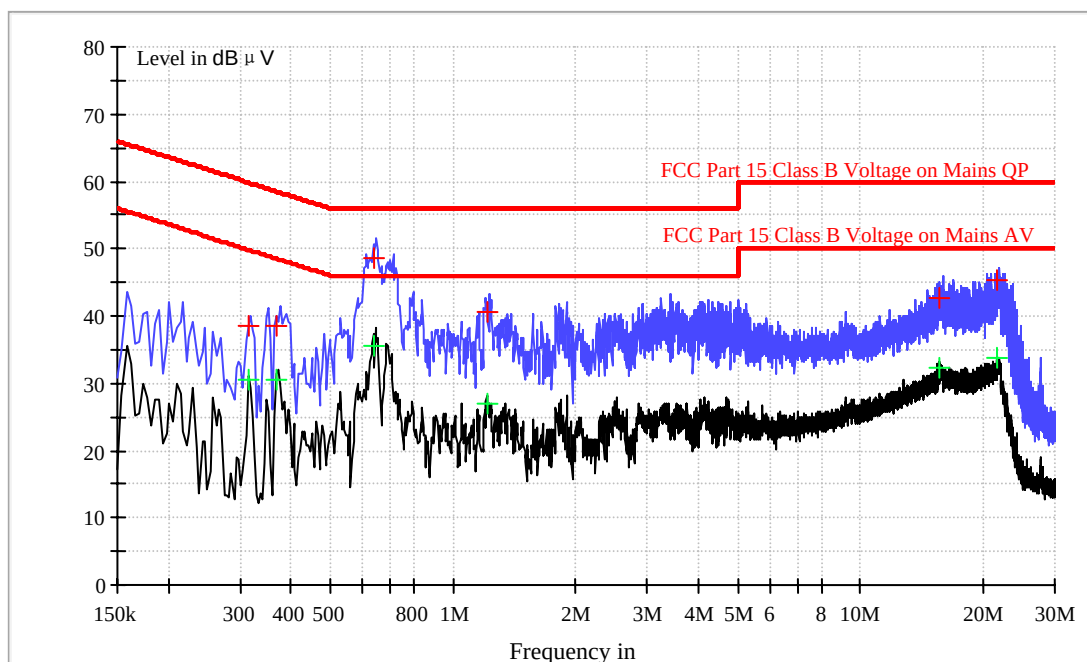
Date of Test: 25 March 2014

Model: MediaQ M220

Worst Case Operating Mode: 802.11n-HT20 MIMO 2442MHz

AC/DC Adapter: BYD

Conducted Emission Test - FCC



Result Table QP

Frequency (MHz)	QuasiPeak (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.314	38.5	N	10.2	21.4	59.9
0.370	38.6	N	10.2	19.9	58.5
0.643	48.5	N	10.2	7.5	56.0
1.210	40.6	N	10.3	15.4	56.0
15.562	42.8	N	10.7	17.2	60.0
21.662	45.3	N	10.7	14.7	60.0

Result Table AV

Frequency (MHz)	Average (dB μ V)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.314	30.5	N	10.2	19.4	49.9
0.370	30.6	N	10.2	17.9	48.5
0.643	35.6	N	10.2	10.4	46.0
1.210	27.1	N	10.3	18.9	46.0
15.562	32.3	N	10.7	17.7	50.0
21.662	33.8	N	10.7	16.2	50.0

TRF no.: FCC 15C_TX_b

FCC ID: QISM220

Report No.: 140314011SZN-001

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220

Date of Test: 25 March 2014

4.10 Radiated Emissions from Digital Section of Transceiver, FCC Ref: 15.109

☐ Not required - No digital part

☐ Test results are attached

☒ Included in the separated report.

INTERTEK TESTING SERVICES

Applicant: Huawei Technologies Co.,Ltd
Model: MediaQ M220

Date of Test: 25 March 2014

4.11 Transmitter Duty Cycle Calculation and Measurements, FCC Rule 15.35(b), (c)

The EUT antenna output port was connected to the input of the spectrum analyzer. The analyzer center frequency was set to EUT RF channel carrier. The SWEP function on the analyzer was set to ZERO SPAN. The Transmitter ON time was determined from the resultant time-amplitude display:

	See attached spectrum analyzer chart (s) for Transmitter timing
	See Transmitter timing diagram provided by manufacturer
x	Not applicable, duty cycle was not used.

INTERTEK TESTING SERVICES

EXHIBIT 5

EQUIPMENT PHOTOGRAPHS

5.0 Equipment Photographs

For electronic filing, the photographs are saved with filename: external photos.doc & internal photos.pdf.

EXHIBIT 6

PRODUCT LABELLING

6.0 **Product Labelling**

For electronic filing, the FCC ID label artwork and location is saved with filename: label.pdf.

INTERTEK TESTING SERVICES

EXHIBIT 7

TECHNICAL SPECIFICATIONS

7.0 Technical Specifications

For electronic filing, the block diagram and circuit diagram are saved with filename: block.pdf and circuit.pdf respectively.

INTERTEK TESTING SERVICES

EXHIBIT 8

INSTRUCTION MANUAL

INTERTEK TESTING SERVICES

8.0 **Instruction Manual**

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

INTERTEK TESTING SERVICES

EXHIBIT 9

CONFIDENTIALITY REQUEST

9.0 **Confidentiality Request**

For electronic filing, the confidentiality request of the tested EUT is saved with filename: request.pdf.

INTERTEK TESTING SERVICES

EXHIBIT 10

MISCELLANEOUS INFORMATION

10.0 **Discussion of Pulse Desensitization**

The determination of pulse desensitivity was made in accordance with Hewlett Packard Application Note 150-2, *Spectrum Analysis ... Pulsed RF*.

Pulse desensitivity is not applicable for this device since the transmitter transmits the RF signal continuously.

EXHIBIT 11
TEST EQUIPMENT LIST

INTERTEK TESTING SERVICES

11.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-03	BiConiLog Antenna	ETS	3142C	00066460	29-Jun-13	29-Jun-14
SZ185-01	EMI Receiver	R&S	ESCI	100547	10-Mar-14	10-Mar-15
SZ061-09	Horn Antenna	ETS	3115	00092346	16-Nov-13	16-Nov-14
SZ061-07	Pyramidal Horn Antenna	ETS	3160-09	00083067	27-Aug-13	27-Aug-14
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	13-May-13	13-May-14
SZ056-03	Spectrum Analyzer	R&S	FSP 30	101148	10-Mar-14	10-Mar-15
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	10-Mar-14	10-Mar-15
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	18-Oct-13	18-Apr-14
SZ062-02	RF Cable	RADIAL	RG 213U	--	8-Jan-14	8-Jul-14
SZ062-05	RF Cable	RADIAL	0.04-26.5GHz	--	8-Jan-14	8-Jul-14
SZ062-12	RF Cable	RADIAL	0.04-26.5GHz	--	8-Jan-14	8-Jul-14
SZ067-04	Notch Filter	Micro-Tronics	BRM5070 2-02	--	21-May-13	21-May-14
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	9-Nov-13	9-Nov-14
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	9-Nov-13	9-Nov-14
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	9-Nov-13	9-Nov-14
SZ188-03	Shielding Room	ETS	RFD-100	4100	23-Aug-13	23-Aug-14