

Dongguan Newmen Electronics Technology CO.,LTD

Application
For
Certification

FCC ID: V4P-MX-225C

Dongle

Model: MX-225C
Band Name: Lenovo

2.4GHz Transceiver

Report No.: 150409001SZN-004

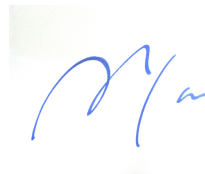
We hereby certify that the sample of the above item is considered to comply with the requirements of FCC Part 15, Subpart C for Intentional Radiator, mention 47 CFR [10-1-13]

Prepared and Checked by:

Approved by:

Sign on file

Leo Lai
Project Engineer



Digitally signed
by Andy Yan
Location: Intertek
Testing Services

Andy Yan
Senior Project Engineer
Date: May 27, 2015

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TRF No.: FCC 15C_TX_b

INTERTEK TESTING SERVICES

LIST OF EXHIBITS

INTRODUCTION

<i>EXHIBIT 1:</i>	General Description
<i>EXHIBIT 2:</i>	System Test Configuration
<i>EXHIBIT 3:</i>	Emission Results
<i>EXHIBIT 4:</i>	Equipment Photographs
<i>EXHIBIT 5:</i>	Product Labelling
<i>EXHIBIT 6:</i>	Technical Specifications
<i>EXHIBIT 7:</i>	Instruction Manual
<i>EXHIBIT 8:</i>	Miscellaneous Information
<i>EXHIBIT 9:</i>	Confidentiality Request
<i>EXHIBIT 10:</i>	Test Equipment List

INTERTEK TESTING SERVICES

MEASUREMENT/TECHNICAL REPORT

Dongguan Newmen Electronics Technology CO.,LTD

MODEL: MX-225C

Dongle

FCC ID: V4P-MX-225C

This report concerns (check one:) Original Grant X Class II Change _____

Equipment Type: DXX - Part 15 Low Power Communication Device Transmitter

Deferred grant requested per 47 CFR 0.457(d)(1)(ii)? Yes _____ No X

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 X

If no, assumed Part 15, Subpart C for intentional radiator – the new 47 CFR [10-1-13 Edition] provision.

Report prepared by:

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Table of Contents

1.0 General Description	2
1.1 Product Description	2
1.2 Related Submittal(s) Grants	2
1.3 Test Methodology	3
1.4 Test Facility	3
2.0 System Test Configuration	5
2.1 Justification	5
2.2 EUT Exercising Software	5
2.3 Special Accessories	5
2.4 Equipment Modification	5
2.5 Measurement Uncertainty	6
2.6 Support Equipment List and Description	6
3.0 Emission Results	8
3.1 Radiated Test Results	9
3.1.1 Field Strength Calculation	9
3.1.2 Radiated Emission Configuration Photograph	10
3.1.3 Radiated Emissions	10
3.1.4 Transmitter Spurious Emissions	12
3.2 Conducted Emissions at Mains Terminal	16
3.2.1 Conducted Emissions Configuration Photograph	16
3.2.2 Conducted Emissions	17
4.0 Equipment Photographs	21
5.0 Product Labelling	23
6.0 Technical Specifications	25
7.0 Instruction Manual	27
8.0 Miscellaneous Information	29
8.1 Bandedge Plot	30
8.2 Discussion of Pulse Desensitization	32
8.3 Emissions Test Procedures	33
9.0 Confidentiality Request	36
10.0 Test Equipment List	38

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List of attached file

Exhibit type	File Description	Filename
Test Report	Test Report	report.pdf
Test Setup Photo	Conducted Emission	conducted photos.pdf
Test Setup Photo	Radiated Emission	radiated photos.pdf
Test Report	Bandedge Plot	bandedge.pdf
Test Report	20dB BW Plot	bw.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
User Manual	User Manual	manual.pdf
Cover Letter	Confidentiality Letter	request.pdf
Cover Letter	Letter of Agency	agency.pdf

EXHIBIT 1

GENERAL DESCRIPTION

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1.0 General Description

1.1 Product Description

The Equipment under Test (EUT) is a Dongle operating at 2403MHz – 2478MHz. For more detail please refer to user manual.

Antenna Type: Integral antenna

Modulation Type: GFSK

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

1.2 Related Submittal(s) Grants

This is an application for certification of a transceiver for the Dongle, and the corresponding Mouse unit (2.4GHz transceiver) is subjected to certification with FCC ID: V4P-MS-436.

1.3 Test Methodology

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.4 (2009). 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.

1.4 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 2
SYSTEM TEST CONFIGURATION

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2.0 System Test Configuration

2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4 (2009).

The EUT was powered by PC USB port (PC is powered through AC 120V/60Hz) during the test. Only the worst case data was reported.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.

The rear of unit shall be flushed with the rear of the table.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was placed on a turn table, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

2.2 EUT Exercising Software

The EUT exercise program (provided by client) used during testing was designed to exercise the various system components in a manner similar to a typical use.

2.3 Special Accessories

No special accessories used.

2.4 Equipment Modification

Any modifications installed previous to testing by Dongguan Newmen Electronics Technology 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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2.5 Measurement Uncertainty

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

2.6 Support Equipment List and Description

Description	Manufacturer	Model No.
Laptop	Lenovo	X1
Hard Disk	N/A	Smart. drive
USB Cable	N/A	unshielded, Length: 120cm
RJ45 Cable	N/A	5.0m
Router	TP-LINK	TL- SF1008+

EXHIBIT 3
EMISSION RESULTS

3.0 Emission Results

Data is included worst-case configuration (the configuration which resulted in the highest emission levels).

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3.1 Radiated Test Results

A sample calculation, configuration photographs and data tables of the emissions are included.

3.1.1 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.

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

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:

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

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 net field strength for comparison to the appropriate emission limit is 42 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

$$FS = 62 + 7.4 + 1.6 - 29 + 0 = 42 \text{ dB}\mu\text{V/m}$$

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

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3.1.2 Radiated Emission Configuration Photograph

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

3.1.3 Radiated Emissions

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Worst Case Radiated Emission
at
950.045 MHz

Judgement: Passed by 10.7 dB

TEST PERSONNEL:

Sign on file

Leo Lai Project Engineer
Typed/Printed Name

April 20, 2015
Date

INTERTEK TESTING SERVICES

Applicant: Dongguan Newmen Electronics Technology CO.,LTD

Date of Test: April 20, 2015

Model: MX-225C

Sample: 1/1

Worst Case Operating Mode: Transmit

Table 1

Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB μ V)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dB μ V/m)	Limit at 3m (dB μ V/m)	Margin (dB)
Horizontal	145.430	23.3	20.0	18.4	21.7	43.5	-21.8
Horizontal	224.000	26.8	20.0	20.1	26.9	46.0	-19.1
Horizontal	950.045	33.2	20.0	22.1	35.3	46.0	-10.7
Vertical	83.350	30.1	20.0	17.5	27.6	40.0	-12.4
Vertical	230.790	19.4	20.0	25.7	25.1	46.0	-20.9
Vertical	941.800	27.3	20.0	27.8	35.1	46.0	-10.9

- 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.

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3.1.4 Transmitter Spurious Emissions (Radiated)

Worst Case Radiated Emission
at
7209.000 MHz

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

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgement: Passed by 3.4 dB

TEST PERSONNEL:

Sign on file

Leo Lai Project Engineer
Typed/Printed Name

April 20, 2015
Date

INTERTEK TESTING SERVICES

Applicant: Dongguan Newmen Electronics Technology CO.,LTD
Date of Test: April 20, 2015
Model: MX-225C
Sample: 1/1
Mode: Transmit (2403MHz)

Table 2

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	2403.000	97.6	36.7	28.5	89.4	114.0	-24.6
Horizontal	7209.000	63.3	36.1	33.1	60.3	74.0	-13.7
Horizontal	9612.000	55.8	36.2	37.8	57.4	74.0	-16.6

Polarization	Frequency (MHz)	Reading Average (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	2403.000	86.0	36.7	28.5	77.8	94.0	-16.2
Horizontal	7209.000	53.6	36.1	33.1	50.6	54.0	-3.4
Horizontal	9612.000	44.5	36.2	37.8	46.1	54.0	-7.9

- Notes: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average value; RBW 3MHz used for fundamental emission.
2. All measurements were made at 3 meter. Harmonic 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 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. Horn antenna is used for the emission over 1000MHz.

Test Engineer: Leo Lai

INTERTEK TESTING SERVICES

Applicant: Dongguan Newmen Electronics Technology CO.,LTD
Date of Test: April 20, 2015
Model: MX-225C
Sample: 1/1
Mode: Transmit (2440MHz)

Table 3

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	2440.000	97.2	36.7	28.5	89.0	114.0	-25.0
Horizontal	7320.000	63.8	36.1	33.1	60.8	74.0	-13.2
Horizontal	9760.000	56.8	36.2	37.8	58.4	74.0	-15.6

Polarization	Frequency (MHz)	Reading Average (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	2440.000	83.5	36.7	28.5	75.3	94.0	-18.7
Horizontal	7320.000	52.4	36.1	33.1	49.4	54.0	-4.6
Horizontal	9760.000	44.1	36.2	37.8	45.7	54.0	-8.3

- Notes: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average value; RBW 3MHz used for fundamental emission.
2. All measurements were made at 3 meter. Harmonic 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 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. Horn antenna is used for the emission over 1000MHz.

Test Engineer: Leo Lai

INTERTEK TESTING SERVICES

Applicant: Dongguan Newmen Electronics Technology CO.,LTD
Date of Test: April 20, 2015
Model: MX-225C
Sample: 1/1
Mode: Transmit (2478MHz)

Table 4

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	2478.000	96.2	36.7	28.6	88.1	114.0	-25.9
Horizontal	7434.000	62.3	36.1	33.4	59.6	74.0	-14.4
Horizontal	9912.000	54.6	36.3	38.2	56.5	74.0	-17.5

Polarization	Frequency (MHz)	Reading Average (dBμV)	Pre-Amp Gain (dB)	Antenna Factor (dB)	Net at 3m (dBμV/m)	Average Limit at 3m (dBμV/m)	Margin (dB)
Horizontal	2478.000	82.7	36.7	28.6	74.6	94.0	-19.4
Horizontal	7434.000	51.4	36.1	33.4	48.7	54.0	-5.3
Horizontal	9912.000	42.6	36.3	38.2	44.5	54.0	-9.5

- Notes: 1. Peak detector Data unless otherwise stated. Above 1000 MHz, RBW=1MHz, VBW=3MHz is used for Peak measurement, RBW=1MHz, VBW=10Hz is used for Average value; RBW 3MHz used for fundamental emission.
2. All measurements were made at 3 meter. Harmonic 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 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. Horn antenna is used for the emission over 1000MHz.

Test Engineer: Leo Lai

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3.2 Conducted Emission at Mains Terminal

3.2.1 Conducted Emissions Configuration Photograph

For tabletop equipment, the EUT along with its peripherals were placed on a 1.0m(W)×1.5m(L) and 0.8m in height wooden table. The EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN), which provided 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. The excess power cable between the EUT and the LISN was bundled.

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

INTERTEK TESTING SERVICES

3.2.2 Conducted Emissions

Worst Case Conducted Configuration
at
0.402 MHz

Judgement: Passed by 14.7 dB margin

TEST PERSONNEL:

Sign on file

Leo Lai Project Engineer
Typed/Printed Name

April 20, 2015
Date

INTERTEK TESTING SERVICES

Applicant: Dongguan Newmen Electronics Technology CO.,LTD

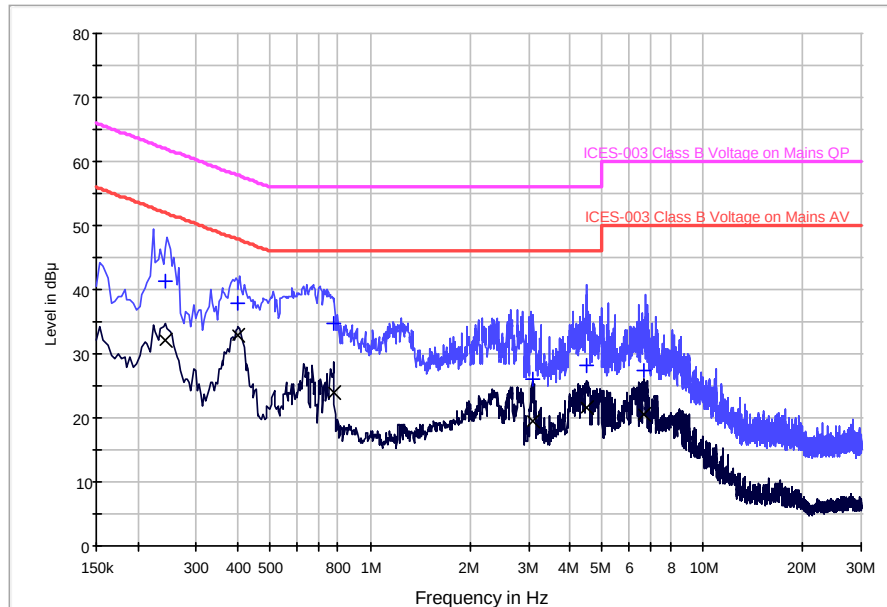
Date of Test: April 20, 2015

Model: MX-225C

Sample: 1/1

Worst Case Operating Mode: Transmit

Conducted Emission Test - FCC



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBuV)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.242000	41.2	L1	9.9	20.8	62.0
0.402000	37.9	L1	9.9	19.9	57.8
0.778000	34.8	L1	10.0	21.2	56.0
3.066000	26.1	L1	10.0	29.9	56.0
4.466000	28.3	L1	10.0	27.7	56.0
6.674000	27.3	L1	10.0	32.7	60.0

Limit and Margin AV

Frequency (MHz)	Average (dBuV)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.242000	32.2	L1	9.9	19.8	52.0
0.402000	32.8	L1	9.9	15.0	47.8
0.778000	24.0	L1	10.0	22.0	46.0
3.066000	19.5	L1	10.0	26.5	46.0
4.466000	21.5	L1	10.0	24.5	46.0
6.674000	20.6	L1	10.0	29.4	50.0

TRF No.: FCC 15C_TX_b

FCC ID: V4P-MX-225C

Report: 150409001SZN-004

INTERTEK TESTING SERVICES

Applicant: Dongguan Newmen Electronics Technology CO.,LTD

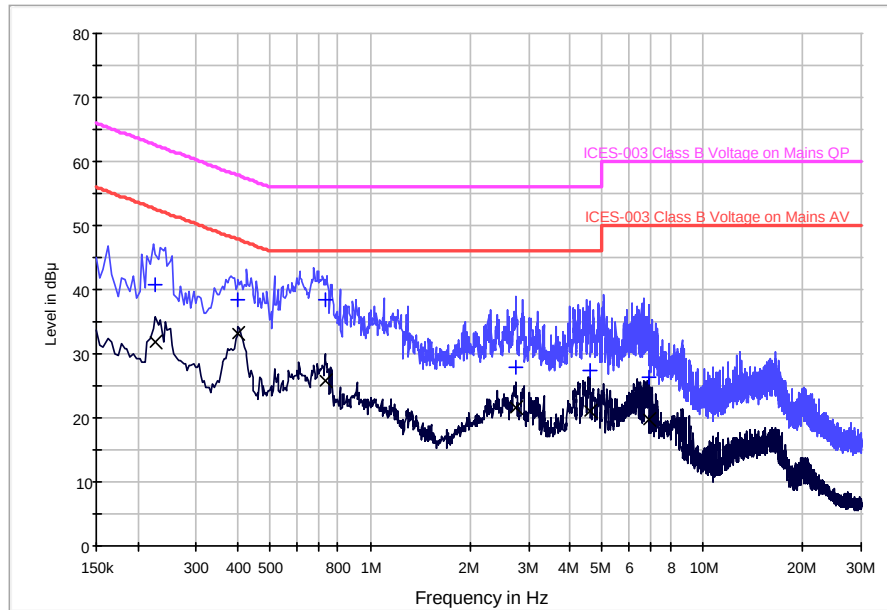
Date of Test: April 20, 2015

Model: MX-225C

Sample: 1/1

Worst Case Operating Mode: Transmit

Conducted Emission Test - FCC



Limit and Margin QP

Frequency (MHz)	QuasiPeak (dBuV)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.226000	40.8	N	10.2	21.8	62.6
0.402000	38.3	N	10.2	19.5	57.8
0.730000	38.3	N	10.3	17.7	56.0
2.738000	27.8	N	10.3	28.2	56.0
4.598000	27.2	N	10.3	28.8	56.0
6.862000	26.4	N	10.3	33.6	60.0

Limit and Margin AV

Frequency (MHz)	Average (dBuV)	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.226000	31.8	N	10.2	20.8	52.6
0.402000	33.1	N	10.2	14.7	47.8
0.730000	25.7	N	10.3	20.3	46.0
2.738000	21.4	N	10.3	24.6	46.0
4.598000	21.1	N	10.3	24.9	46.0
6.862000	19.6	N	10.3	30.4	50.0

TRF No.: FCC 15C_TX_b

FCC ID: V4P-MX-225C

Report: 150409001SZN-004

EXHIBIT 4
EQUIPMENT PHOTOGRAPHS

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4.0 Equipment Photographs

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

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EXHIBIT 5

PRODUCT LABELLING

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5.0 **Product Labelling**

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

EXHIBIT 6
TECHNICAL SPECIFICATIONS

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6.0 Technical Specifications

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

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EXHIBIT 7

INSTRUCTION MANUAL

INTERTEK TESTING SERVICES

7.0 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.

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EXHIBIT 8

MISCELLANEOUS INFORMATION

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8.0 Miscellaneous Information

This miscellaneous information includes details of the measured bandedge, the test procedure and calculation of factor such as pulse desensitization.

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8.1 Bandedge Plot

For electronic filing, the plot shows the fundamental emission when modulated is saved with filename: bandedge.pdf. From the plot, the field strength of any emissions outside of the specified frequency band are attenuated to the general radiated emission limits in section 15.209. It fulfils the requirement of 15.249(d).

Peak Measurement

Bandedge compliance is determined by applying marker-delta method, i.e (Bandedge Plot).

(i) Lower channel 2403MHz:

Peak Resultant field strength = Fundamental emissions (peak value) – delta from the bandedge plot

$$\begin{aligned} &= 89.4\text{dB}\mu\text{v/m} - 41.2\text{dB} \\ &= 48.2\text{dB}\mu\text{v/m} \end{aligned}$$

(ii) Upper channel 2478MHz:

Peak Resultant field strength = Fundamental emissions (Quasi-peak value) – delta from the bandedge plot

$$\begin{aligned} &= 88.1\text{dB}\mu\text{v/m} - 39.2\text{dB} \\ &= 48.9\text{dB}\mu\text{v/m} \end{aligned}$$

The resultant field strength meets the general radiated emission limit in section 15.209, which does not exceed 74dB μ v/m (Peak Limit) and 54dB μ v/m (Average Limit).

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8.1 Bandedge Plot (cont'd)

Pursuant to FCC part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over excepted variations in temperature and supply voltage were considered.

Figure 8.1 Bandwidth

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8.2 Discussion of Pulse Desensitization

Pulse desensitivity is not applicable for this device. With a resolution bandwidth (3dB) of 1MHz, the pulse desensitivity factor is 0dB.

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8.3 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of transmitters operating under Part 15, Subpart C rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 - 2009.

The transmitting equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately one meter in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The EUT is adjusted through all three orthogonal axes to obtain maximum emission levels. The antenna height and polarization are varied during the testing to search for maximum signal levels.

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings.

The frequency range scanned is from 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 40 GHz, whichever is lower.

Detector function for conducted emissions is in QP & AV mode and IFBW setting is 9 kHz from the frequency band 150 kHz to 30MHz.

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8.3 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

Conducted measurements are made as described in ANSI C63.4 - 2009.

The IF bandwidth used for measurement of radiated signal strength was 10 kHz for emission below 30 MHz and 120 kHz for emission from 30 MHz to 1000 MHz. Where pulsed transmissions of short enough pulse duration warrant, a greater bandwidth is selected according to the recommendations of Hewlett Packard Application Note 150-2. Above 1000 MHz, a resolution bandwidth of 1 MHz (RBW 3MHz for fundamental emission) is used.

Transmitter measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the restricted bands and above 1 GHz, signals are acquired at a distance of one meter or less. All measurements are extrapolated to three meters using inverse scaling, but those measurements taken at a closer distance are so marked.

INTERTEK TESTING SERVICES

EXHIBIT 9

CONFIDENTIALITY REQUEST

INTERTEK TESTING SERVICES

9.0 **Confidentiality Request**

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

INTERTEK TESTING SERVICES

EXHIBIT10 TEST EQUIPMENT LIST

INTERTEK TESTING SERVICES

10.0 Test Equipment List

Equipment No.	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due Date
SZ061-12	BiConiLog Antenna	ETS	3142E	00166158	2-Sep-14	2-Sep-15
SZ185-01	EMI Receiver	R&S	ESCI	100547	07-Feb-15	07-Feb-16
SZ061-07	Pyramidal Horn Antenna	ETS	3160-09	00083067	3-Sep-14	3-Sep-15
SZ061-08	Horn Antenna	ETS	3115	00092346	19-Oct-14	19-Oct-15
SZ061-06	Active Loop Antenna	Electro-Metrics	EM-6876	217	07-Feb-15	07-Feb-16
EM031-03	Spectrum Analyzer	R&S	FSV40	101148	9-Jun-14	9-Jun-15
SZ181-04	Preamplifier	Agilent	8449B	3008A02474	7-Feb-15	7-Feb-16
SZ188-01	Anechoic Chamber	ETS	RFD-F/A-100	4102	19-Apr-14	19-Apr-16
SZ062-02	RF Cable	RADIAL	RG 213U	--	31-Dec-14	30-Jun-15
SZ062-06	RF Cable	RADIAL	0.04-26.5GHz	--	31-Dec-14	30-Jun-15
SZ062-12	RF Cable	RADIAL	0.04-26.5GHz	--	7-Apr-15	7-Oct-15
SZ067-04	Notch Filter	Micro-Tronics	BRM5070 2-02	--	21-May-14	21-May-15
SZ185-02	EMI Test Receiver	R&S	ESCI	100692	1-Nov-14	1-Nov-15
SZ187-01	Two-Line V-Network	R&S	ENV216	100072	1-Nov-14	1-Nov-15
SZ187-02	Two-Line V-Network	R&S	ENV216	100073	1-Nov-14	1-Nov-15
SZ188-03	Shielding Room	ETS	RFD-100	4100	23-Aug-14	23-Aug-15