

Test Report Prepared By:

Electronics Test Centre
27 East Lake Hill
Airdrie, Alberta
Canada
T4A 2K3

sales@etc-mpbtech.com
<http://www.etc-mpb.com>

Telephone: 1-403-912-0037

ETC Report #: t29e17a184-1-FCC Release 2

Report date: August 13, 2017

Test Date: June 2, 4, 5, 27, 28 of 2017
August 10, 2017

**EMC testing of the Tektelic Communication Inc. Pearl Mobile Gateway
in accordance with FCC Part 15.247, ANSI C63.4: 2014 and ANSI C63.10: 2013
as referenced by FCC OET KDB 558074 D01 DTS Measurement Guidance v03r02
and DA-00-0705A1 FHSS Filing and Measurement Guidance.**

FCC ID: 2ALEPT0004437

Test Personnel: Imran Akram/ Henry Cookeygam

Prepared for: Tektelic Communication Inc.

7657 10th Street NE
Calgary, Alberta
Canada
T2E 8X2

Telephone: 1-403-338-6910



Imran Akram
iakram@etc-mpbtech.com
EMC Technologist
Electronics Test Centre (Airdrie)



Marc Rousseau
marc.rousseau@mpbc.ca
QA Manager
Electronics Test Centre (Airdrie)

REVISION RECORD

ISSUE	DATE	AUTHOR	REVISIONS
DRAFT 1	2017-06-20	I. Akram	Initial draft submitted for review.
Release 1	2017-07-31	M. Rousseau	Sign off
Release 2	2017-08-13	M. Rousseau I. Akram	Revised test equipment and date in section 2.2, 2.3, 2.4, 2.5. Added FHSS measurement.

TABLE OF CONTENTS

1.0	INTRODUCTION	5
1.1	Scope	5
1.2	Applicant	5
1.3	Test Sample Description	5
1.4	General Test Conditions and Assumptions	5
1.5	Scope of Testing	6
1.5.1	Test Methodology	6
1.5.2	Variations in Test Methodology	6
1.5.3	Test Sample Verification, Configuration & Modifications	6
2.0	TEST CONCLUSION	7
2.1	AC Power Line Conducted Emissions: Transmit Mode	8
2.2	Channel Occupied Bandwidth	9
2.2.1	Test Guidance: ANSI C63.10-2013, Clause 6.9.2 / FCC OET KDB 558074 Section 8 Option 2 / FCC DA-00-0705A1	9
2.2.2	Deviations From The Standard:	9
2.2.3	Test Equipment	9
2.2.4	Test Sample Verification, Configuration & Modifications	10
2.2.5	Channel Occupied Bandwidth Data:	10
2.3	Output Power	15
2.3.1	Test Guidance: ANSI C63.10-2013, Clause 11.9.1.1 / FCC OET KDB 558074 Section 9.2.2.2 / FCC DA-00-0705A1	15
2.3.2	Deviations From The Standard:	15
2.3.3	Test Equipment	15
2.3.4	Test Sample Verification, Configuration & Modifications	16
2.3.5	Peak Output Power Data	16
2.4	Power Spectral Density	22
2.4.1	Test Guidance: ANSI C63.10-2013, Clause 11.10.2 / FCC OET KDB 558074 10.5 22	22
2.4.2	Deviations From The Standard:	22
2.4.3	Test Equipment	22
2.4.4	Test Sample Verification, Configuration & Modifications	23
2.4.5	Peak PSD Data	23
2.5	Band Edge Attenuation	26
2.5.1	Test Guidance: ANSI C63.10-2013 Clause 11.13.2 & 6.0 / FCC OET KDB 558074/ FCC DA-00-0705A1	26
2.5.2	Deviations From The Standard:	26
2.5.3	Test Equipment	27
2.5.4	Test Sample Verification, Configuration & Modifications	27
2.5.5	Band Edge Data	27
2.6	Conducted Spurious Emissions	32
2.6.1	Test Guidance: ANSI C63.10-2013, Clause 6.7 / FCC DA-00-0705A1	32
2.6.2	Deviations From The Standard:	32
2.6.3	Test Equipment	32
2.6.4	Test Sample Verification, Configuration & Modifications	33
2.6.5	Conducted Emissions Data:	33

2.7	Channel Separation	36
2.7.1	Test Guidance: FCC DA-00-0705A1	36
2.7.2	Deviations From The Standard:	36
2.7.3	Test Equipment.....	36
2.7.4	Test Sample Verification, Configuration & Modifications	36
2.7.5	Channel Separation Data:.....	37
2.8	Number of Hopping Channels.....	38
2.8.1	Test Guidance: FCC DA-00-0705A1	38
2.8.2	Deviations From The Standard:	38
2.8.3	Test Equipment.....	38
2.8.4	Test Sample Verification, Configuration & Modifications	39
2.8.5	Hopping Channel Data:.....	39
2.9	Time of Occupancy	41
2.9.1	Test Guidance: FCC DA-00-0705A1	41
2.9.2	Deviations From The Standard:	41
2.9.3	Test Equipment.....	41
2.9.4	Test Sample Verification, Configuration & Modifications	42
2.9.5	Dwell Time Data:.....	42
2.10	EUT Positioning Assessment.....	43
2.11	Radiated Spurious Emissions	44
2.8.1	Test Guidance: ANSI C63.10-2013, Clause 13.4.2/FCC DA-00-0705A1 ...	45
2.8.2	Deviations From The Standard:	45
2.8.3	Uncertainty of Measurement:	45
2.8.4	Test Equipment.....	46
2.8.5	Test Sample Verification, Configuration & Modifications	46
2.8.6	Radiated Emissions Data:.....	47
2.9	RF Exposure	52
3.0	TEST FACILITY	53
3.1	Location.....	53
3.2	Grounding Plan	53
3.3	Power Supply	53
3.4	Emissions Profile	53
	End of Document	54

1.0 INTRODUCTION

1.1 Scope

The purpose of this report is to present the results of compliance testing performed in accordance with FCC Part 15.247 ANSI C63.4-2014 and ANSI C63.10-2013. All test procedures, limits, criteria, and results described in this report apply only to the Tektelic Communication Inc. Pearl Mobile Gateway test sample, referred to herein as the EUT (Equipment Under Test).

This report does not imply product endorsement by the Electronics Test Centre, SCC, NAVLP, A2LA, nor any Canadian Government agency.

1.2 Applicant

This test report has been prepared for Tektelic Communication Inc., located in Calgary, Alberta, Canada.

2018.06 Test Sample Description

As provided to ETC (Airdrie) by Tektelic Communication Inc.:

Product Name:	Pearl Mobile Gateway
EUT Frequency Range	903.65 – 927.5 MHz / 912.31 – 927.0125 MHz
Type of Modulation	500KHz DTS / 125KHz FHSS
Model# / Serial#	T0004437 / 1715K0004
Associated Antenna Gain	(5 dBi), PCTEL BMUF 9115, type: Omni
Power:	12 VDC Nominal

2018.06 General Test Conditions and Assumptions

The EUT was set up and exercised using the configurations, modes of operation and arrangements defined in this report only. All inputs and outputs to and from other equipment associated with the EUT were adequately simulated.

Where relevant, the EUT was only tested using the monitoring methods and test criteria defined in this report.

The environmental conditions are recorded during each test, and are reported in the relevant sections of this document.

1.5 Scope of Testing

Tests were performed in accordance with FCC Part 15.247, ANSI C63.4-2014, and ANSI C63.10-2013 as referenced in FCC KDB 558074 v03r02 for DTS and DA-00-0705A for FHSS.

1.5.1 Test Methodology

Test methods are specified in the Basic Standard as referenced and/or modified by the Product Standard in the part of Section 2 of this report associated with each particular test case.

1.5.2 Variations in Test Methodology

Any variance in methodology or deviation from the reference Standard is documented in the part of Section 2 of this report associated with each particular Test Case.

1.5.3 Test Sample Verification, Configuration & Modifications

EUT setup, configuration, protocols for operation and monitoring of EUT functions, and any modifications performed in order to meet the requirements, are detailed in each Test Case of Section 2 of this report.

2.0 TEST CONCLUSION

STATEMENT OF COMPLIANCE

The customer equipment referred to in this report was found to comply with the requirements, as summarized below.

The EUT was subjected to the following tests. Compliance status is reported as **Compliant** or **Non-compliant**. **N/A** indicates the test was Not Applicable to the EUT.

Note: Maintenance of compliance is the responsibility of the Manufacturer. Any modifications to the product should be assessed to determine their potential impact on the compliance status of the EUT with respect to the standards detailed in this test report.

The following table summarizes the tests performed in terms of the specification, class or performance criterion applied, and the EUT modification state.

Test Case	Test Type	Specification	Test Sample	Modifications	Config.	Result
2.1	AC Conducted Emissions (Tx)	15.207	Pearl Mobile Gateway	none	-	n/a
2.2	Occupied Bandwidth	15.247(a)	Pearl Mobile Gateway	none	see § 2.2	Compliant
2.3	Peak Output	15.247(d)	Pearl Mobile Gateway	none	see § 2.3	Compliant
2.4	PSD	15.247©	Pearl Mobile Gateway	none	see § 2.4	Compliant
2.5	Band Edge	15.247(d)	Pearl Mobile Gateway	none	see § 2.5	Compliant
2.6	Conducted Spurious	15.247(d)	Pearl Mobile Gateway	none	see § 2.6	Compliant
2.7	Minimum Channel Separation	15.247(a)(1)	Pearl Mobile Gateway	none	see § 2.7	Compliant
2.8	Random hopping Sequence	15.247(a)(1)	Pearl Mobile Gateway	none	see § 2.8	Compliant
2.9	Equal Usage of Channel Frequencies	15.247(a)(1)	Pearl Mobile Gateway	none	see § 2.9	Compliant
2.10	EUT Position	ANSI C63.4	Pearl Mobile Gateway	-	-	n/a
2.11	Radiated Spurious	15.205, 15.209 15.247(d)	Pearl Mobile Gateway	none	see § 2.11	Compliant
2.12	RF Exposure	15.247(i)	Pearl Mobile Gateway	none	see § 2.12	Compliant

Refer to the test data for applicable test conditions.

2.1 AC Power Line Conducted Emissions: Transmit Mode

Test Lab: Electronics Test Centre, Airdrie	EUT: Pearl Mobile Gateway
Test Personnel: Imran Akram	Standard: FCC Part 15.207
Date:	Basic Standard: ANSI C63.4: 2014
EUT status: N/A	
Comments: EUT is DC powered. The EUT is intended to be operated in a vehicle only. There is no direct connection to AC main.	

2.2 Channel Occupied Bandwidth

Test Lab: Electronics Test Centre, Airdrie	EUT: Pearl Mobile Gateway
Test Personnel: Imran Akram	Standard: FCC PART 15.247
Date: June 05&27, 2017 August 10, 2017	Basic Standard: ANSI C63.10-2013 FCC OET KDB 558074
(23.6° C,34.5% RH), (20.2° C,46.6% RH)	
EUT status: Compliant	

Specification: FCC Part 15.247 (a, 2), FCC 15.215 ©

Criteria: Systems using digital modulation techniques may operate in the 902-928 MHz bands.
The minimum 6 dB bandwidth shall be at least 500 kHz.
20 dB and 99% Bandwidth for FHSS.

2.2.1 Test Guidance: ANSI C63.10-2013, Clause 6.9.2 & 6.9.3/ FCC OET KDB 558074 Section 8 Option 2 / FCC DA-00-0705A1

This measurement is performed at low, mid and high frequencies, with modulation.

The RF output of EUT with an antenna connector is fed to the input of the spectrum analyzer through appropriate attenuation. The loss from the cable and the attenuator were added on the analyzer as gain offset setting there by allowing direct measurements, with out the need for any further corrections.

For DTS the spectrum analyzer is set for a frequency span $\geq (2 * OBW)$, $\leq (5 * OBW)$, selected to clearly display the channel. The RBW is set to 100 kHz. The VBW is set to $\geq (3 * RBW)$. The Peak detector is used, with the trace set to Max Hold.

For Lora 125 KHz FHSS span approximately 2 to 3 time of 20 dB BW, the RBW is set in the range $\geq 1\%$ of the 20 dB BW and VBW \geq RBW. The Peak detector is used, with the trace set to Max Hold.

The automated 99% BW function of the spectrum analyzer is engaged, and the 6 dB OBW and/or 20 dB OBW is measured with the x dB function.

2.2.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.2.3 Test Equipment

Testing was performed with the following equipment:

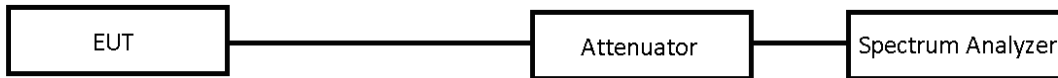
Equipment	Manufacturer	Model #	Asset #	Cal. Date	Cal. Due
EMI receiver	Agilent	N9038A	6130	2016-06-23	2017-06-23
Spectrum analyzer	Agilent	N9010A	6678	2017-05-11	2018-05-11
EMI receiver	Agilent	N9038A	6130	2017-06-20	2018-06-20
Temp/Humidity	Extech	42270	5892	2017-04-06	2018-04-06
Attenuator	JFW	50FH-020-10	-	Monitored	
DC Blocker	MCL	BLK-89-S+	-	Monitored	

2.2.4 Test Sample Verification, Configuration & Modifications

The EUT was set to transmit continuously on a selected channel with test-specific software. The output was modulated as in normal operation. The EUT met the requirements without modification.

Test setup diagrams for Occupied Bandwidth testing:

Conducted:



2.2.5 Channel Occupied Bandwidth Data:

Lora 500 KHz DTS Mode

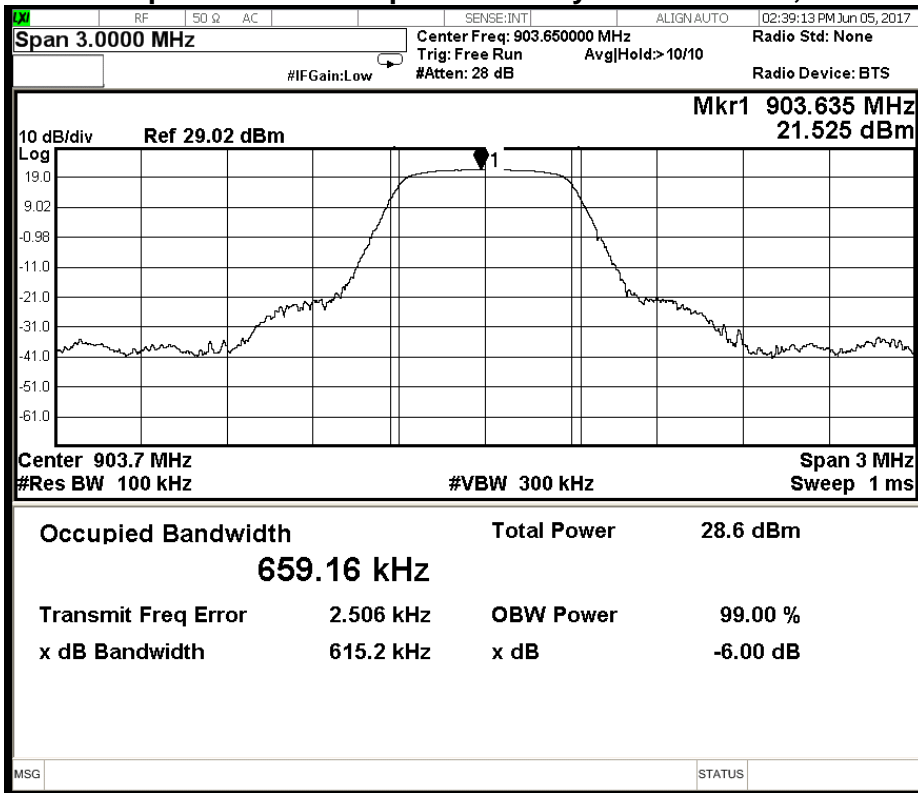
Channel	Freq. [MHz]	6 dB OBW [kHz]	99% OBW [KHz]	Limit 6 dB OBW
Low	903.65	615.2	659.16	≥ 500 KHz
Mid	909.95	613.3	660.59	≥ 500 KHz
High	915.725	612.6	659.57	≥ 500 KHz
High	927.5	615.9	658.52	≥ 500 KHz

Lora 125 KHz FHSS Mode

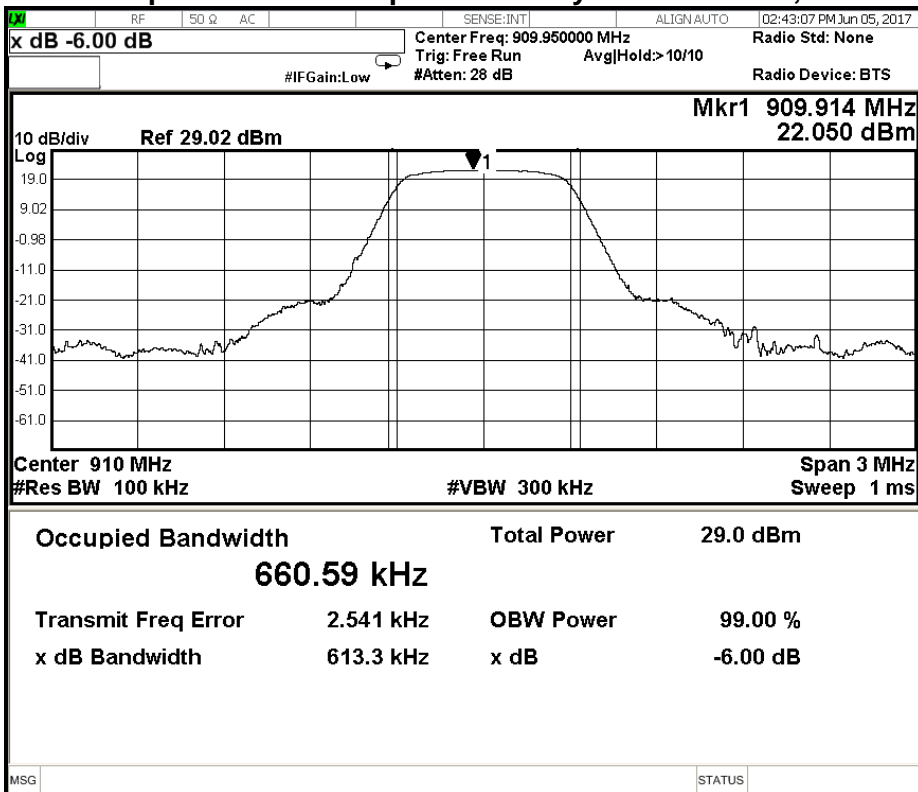
Channel	Freq. [MHz]	20 dB OBW [kHz]	99% OBW [KHz]
Low	912.310	163.2	132.86
Mid	919.5112	163.2	132.51
High	927.0125	165.5	133.27

500 KHz DTS Mode

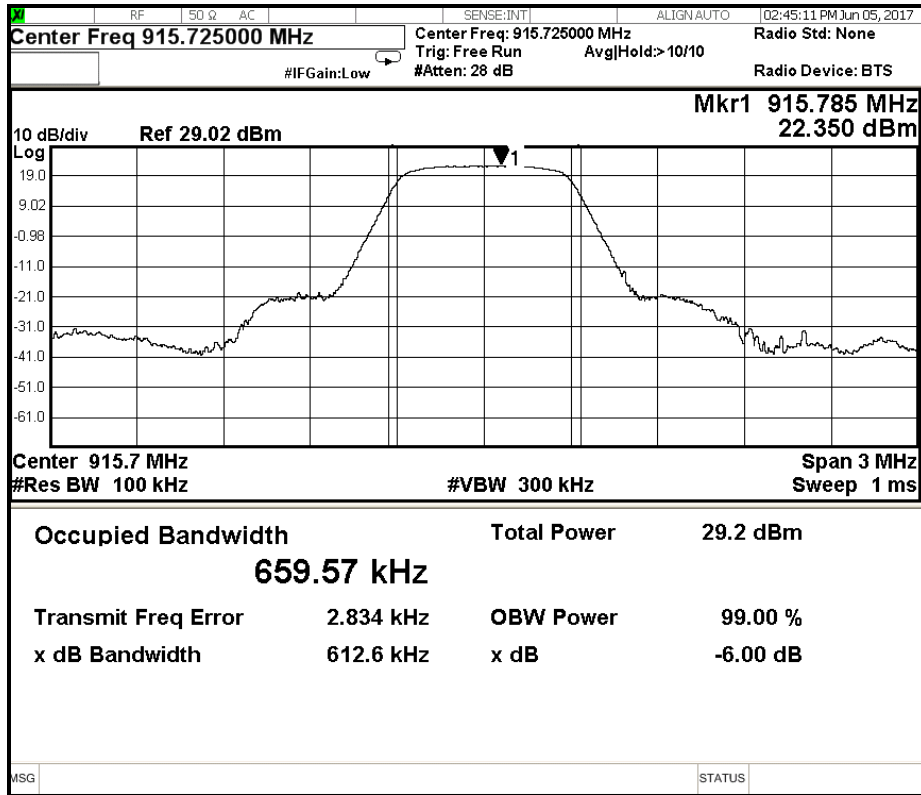
Screen Captures from the spectrum analyzer: 6 dB OBW, 903.65 MHz



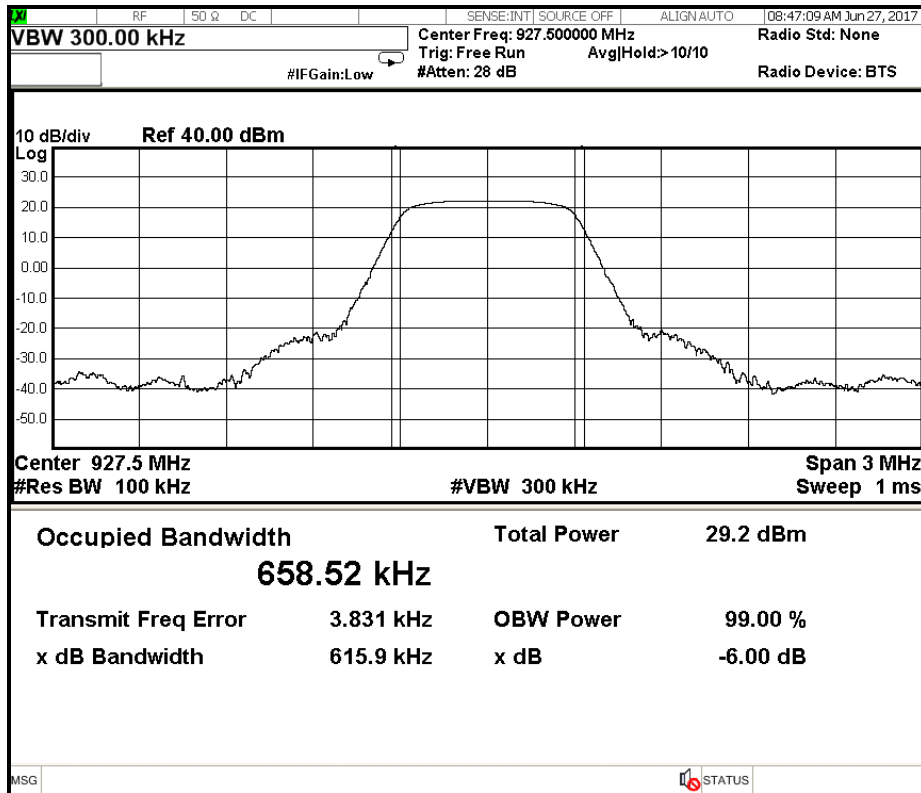
Screen Captures from the spectrum analyzer: 6 dB OBW, 909.95 MHz



Screen Captures from the spectrum analyzer: 6 dB OBW, 915.725 MHz

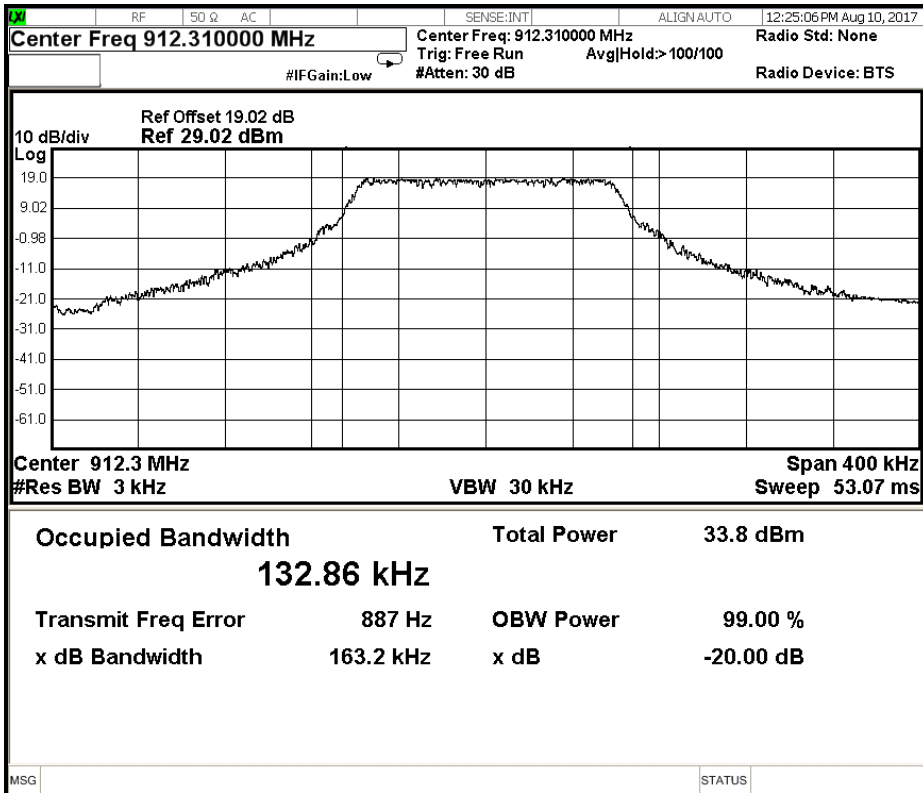


Screen Captures from the spectrum analyzer: 927.5 MHz

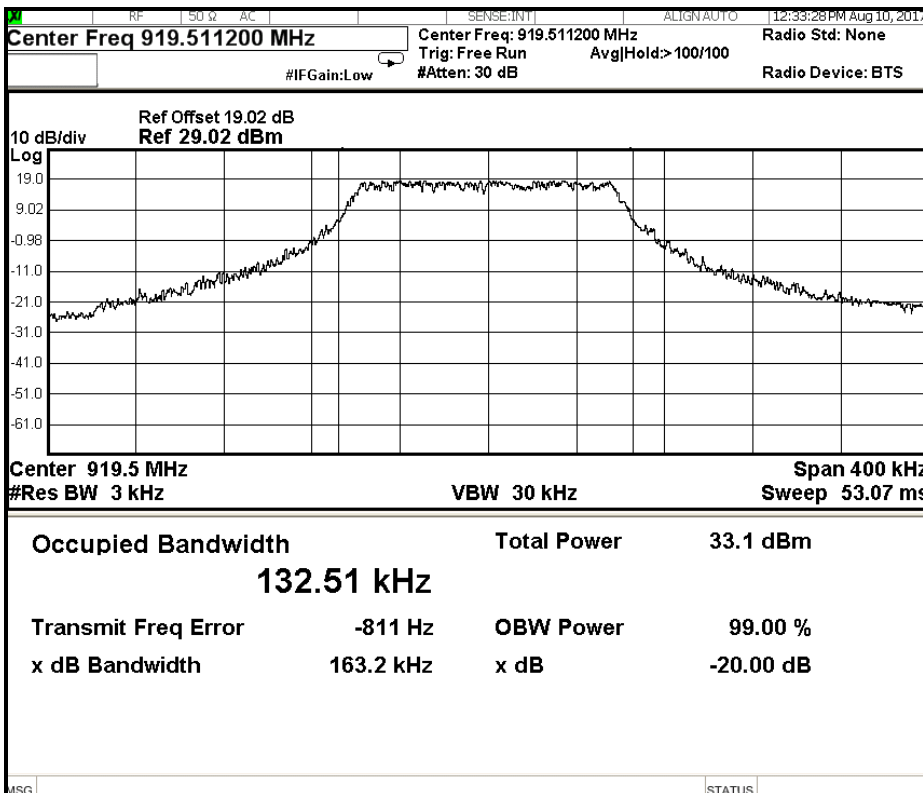


125 KHz FHSS Mode

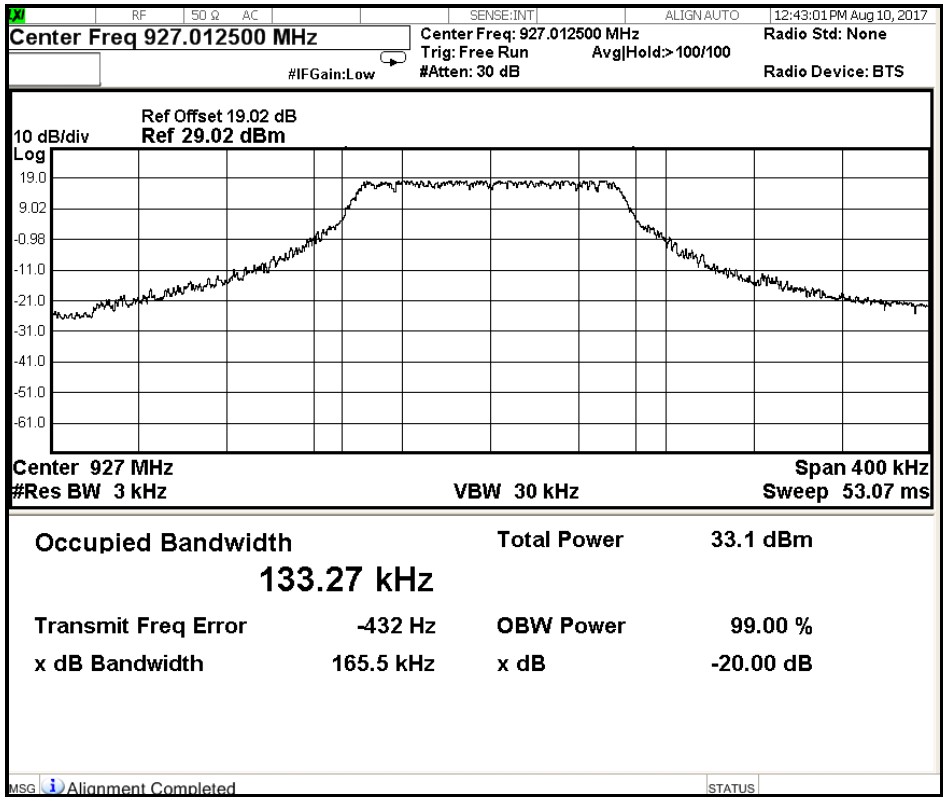
Screen Captures from the spectrum analyzer: 20 dB OBW, 912.31 MHz



Screen Captures from the spectrum analyzer: 20 dB OBW, 919.5112 MHz



Screen Captures from the spectrum analyzer: 20 dB OBW, 927.0125 MHz



2.3 Output Power

Test Lab: Electronics Test Centre, Airdrie	EUT: Pearl Mobile Gateway
Test Personnel: Imran Akram	Standard: FCC PART 15.247
Date: June 28, 2017 August 10, 2017	Basic Standard: ANSI C63.10: 2013 FCC OET KDB 558074
(23.6° C,34.5% RH), (20.2° C,46.6% RH)	
EUT status: Compliant	

Specification: FCC Part 15.247(b, 3), (b, 2), (b, 4)

Criteria	(3) For systems using digital modulation in the 902-928 MHz bands: 1 Watt. (2) For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels
-----------------	--

2.3.1 Test Guidance: ANSI C63.10-2013, Clause 11.9.1.1, Clause 7.8.5 / FCC OET KDB 558074 Section 9.2.2.2 / FCC DA-00-0705A1

This measurement is performed at low, mid and high frequencies, with modulation.

The RF output of EUT with an antenna connector is fed to the input of the spectrum analyzer through appropriate attenuation. The loss from the cable and the attenuator were added on the analyzer as gain offset setting there by allowing direct measurements, with out the need for any further corrections.

Measurement procedure used was FCC KDB 558074 D01 V03r05 AVGSA-1 section 9.2.2.2 for DTS and ANSI 63.10 Section 7.8.5/FCC DA 00-705 was used for Lora 125 KHz FHSS.

2.3.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.3.3 Test Equipment

Testing was performed with the following equipment:

Equipment	Manufacturer	Model #	Asset #	Cal. Date	Cal. Due
EMI receiver	Agilent	N9038A	6130	2017-06-20	2018-06-20
Spectrum analyzer	Agilent	N9010A	6678	2017-05-11	2018-05-11
Temp/Humidity	Extech	42270	5892	2017-04-06	2018-04-06
Attenuator	JFW	50FH-020-10		Monitored	
DC Blocker	MCL	BLK-89-S+		Monitored	

2.3.4 Test Sample Verification, Configuration & Modifications

The EUT was set to a selected channel with test-specific software. The output was modulated as in normal operation. The EUT met the requirements without modification.

Test setup diagrams for Peak Power testing:

Conducted:



2.3.5 Peak Output Power Data

Lora 500 KHz DTS Mode

Channel	Freq. [MHz]	Out Put Power (dBm)	Out Put Power Limit (dBm)	Margin (dB)
Low	903.65	20.92	30	9.098
Mid	909.95	21.28	30	8.715
High	915.725	21.54	30	8.462
High	927.5	21.51	30	8.49

Lora 125 KHz FHSS Mode

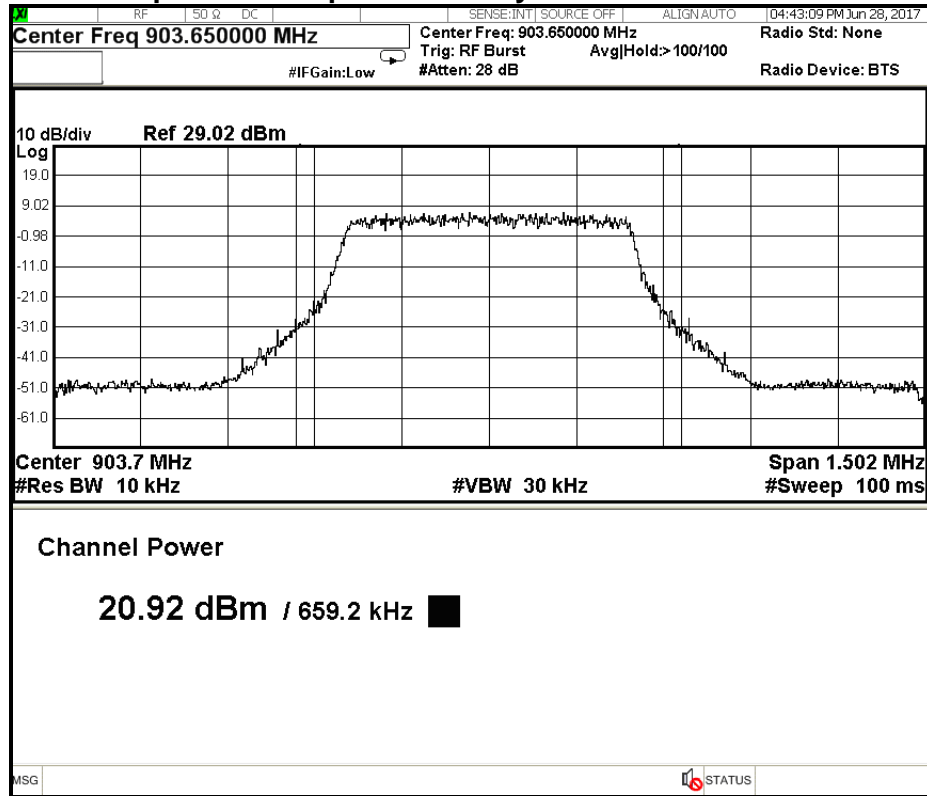
Channel	Freq. [MHz]	Out Put Power (dBm)	Out Put Power Limit (dBm)	Margin (dB)
Low	912.31	21.793	30	8.207
Mid	919.5112	21.665	30	8.335
High	927.0125	21.363	30	8.637

Output Power Method AVGSA-1 For DTS	
Span	≥ 1.5 times the OBW
RBW	1 – 5 % of the OBW, ≤ 1 MHz
VBW	≥ 3 x RBW
Number of Points in sweep	≥ 2 x Span / RBW
Sweep time	Auto
Detector	RMS (Power Averaging)
Sweep trigger	Set to full power pulses
Trace Average	100 traces in power Averaging (RMS)
Power measured	Integrated the spectrum across the OBW of the signal using the S/A band power measurement function, with band limit set equal to the OBW band edge.

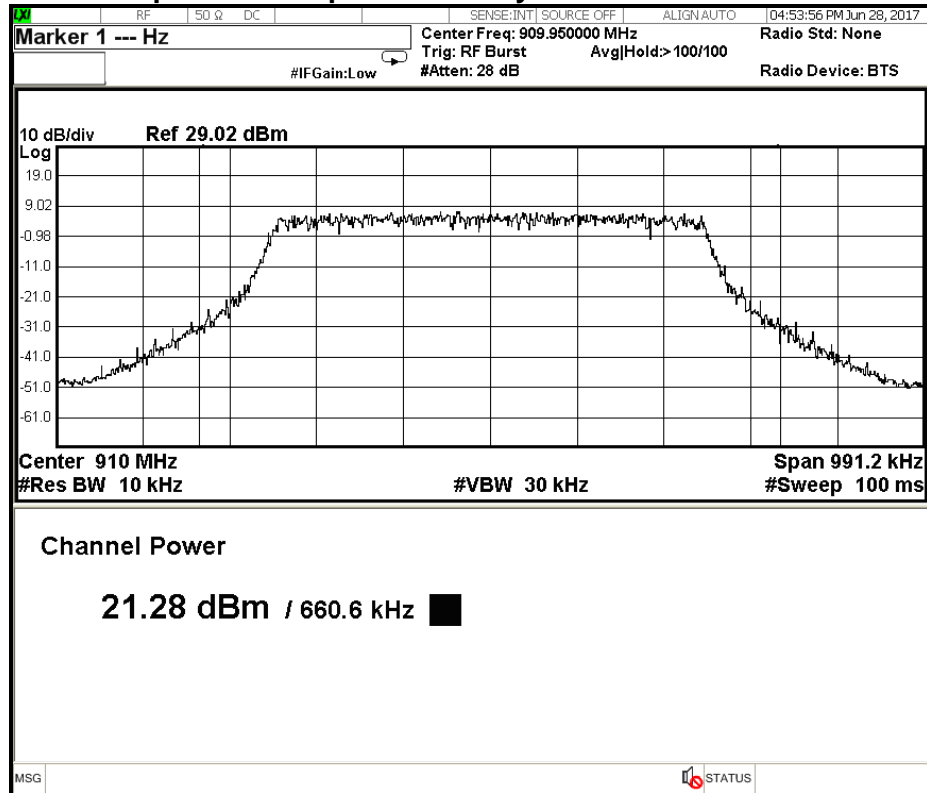
Output Power Method For FHSS	
Span	Approximately 5 times the 20 dB BW
RBW	> 20 dB bandwidth
VBW	≥ RBW
Sweep time	Auto
Detector	Peak
Trace	Max Hold Allowed Trace to stabilize Marker was set to peak of the emission Indicated level was the peak output power

Lora 500 KHz DTS Mode

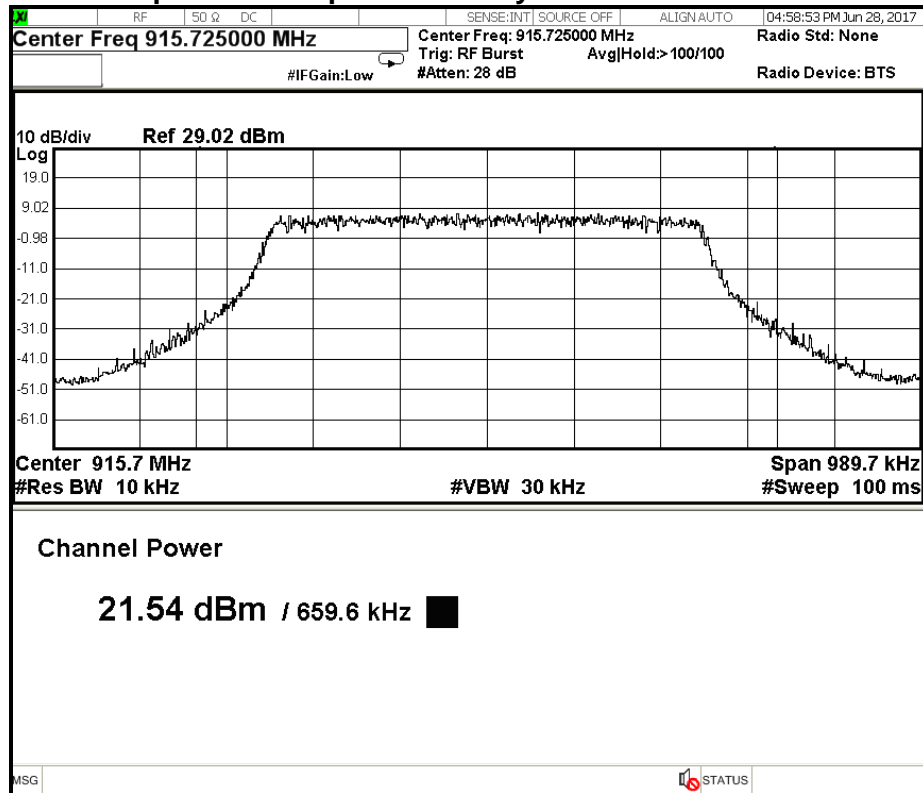
Screen Capture from Spectrum Analyzer: 903.65 MHz



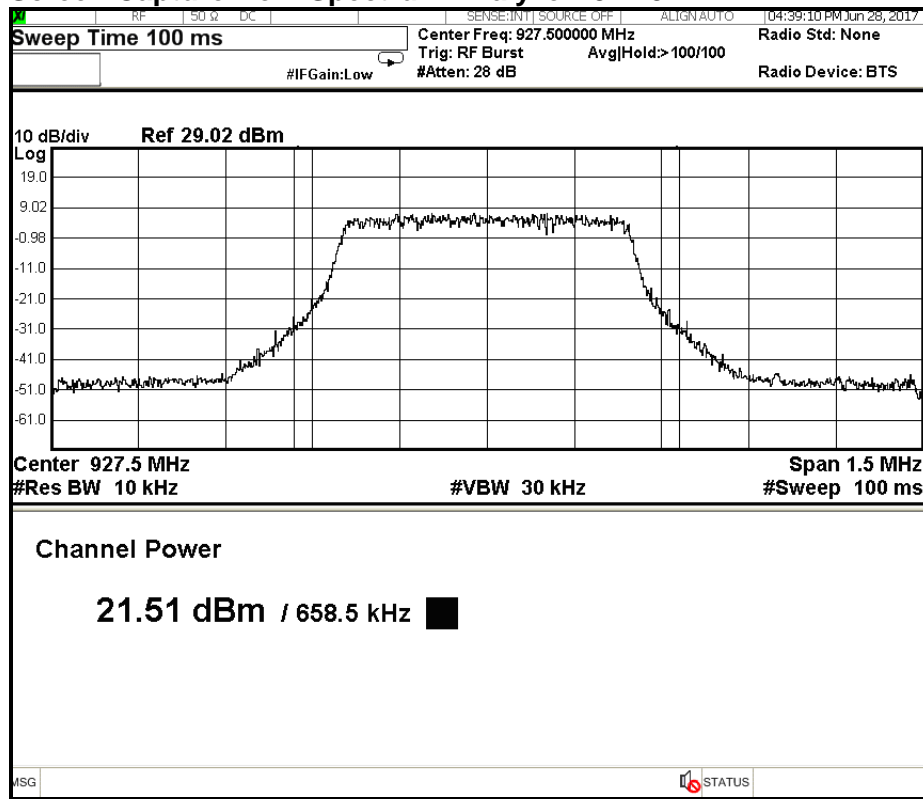
Screen Capture from Spectrum Analyzer: 909.95 MHz



Screen Capture from Spectrum Analyzer: 915.725 MHz

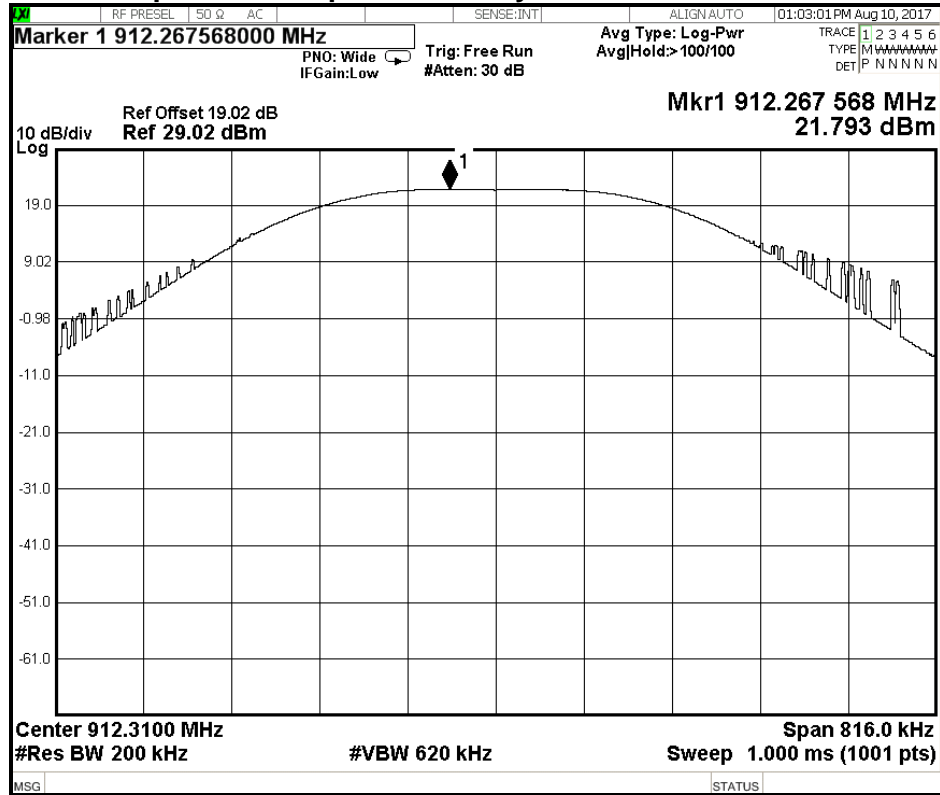


Screen Capture from Spectrum Analyzer: 927.5 MHz

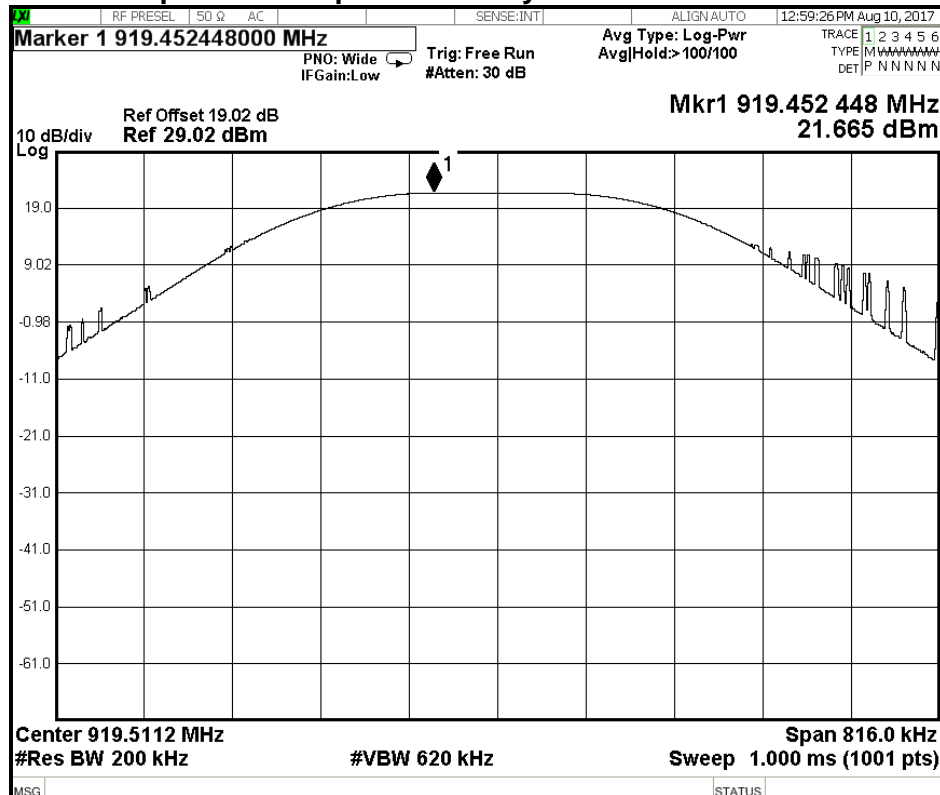


Lora 125 KHz FHSS Mode

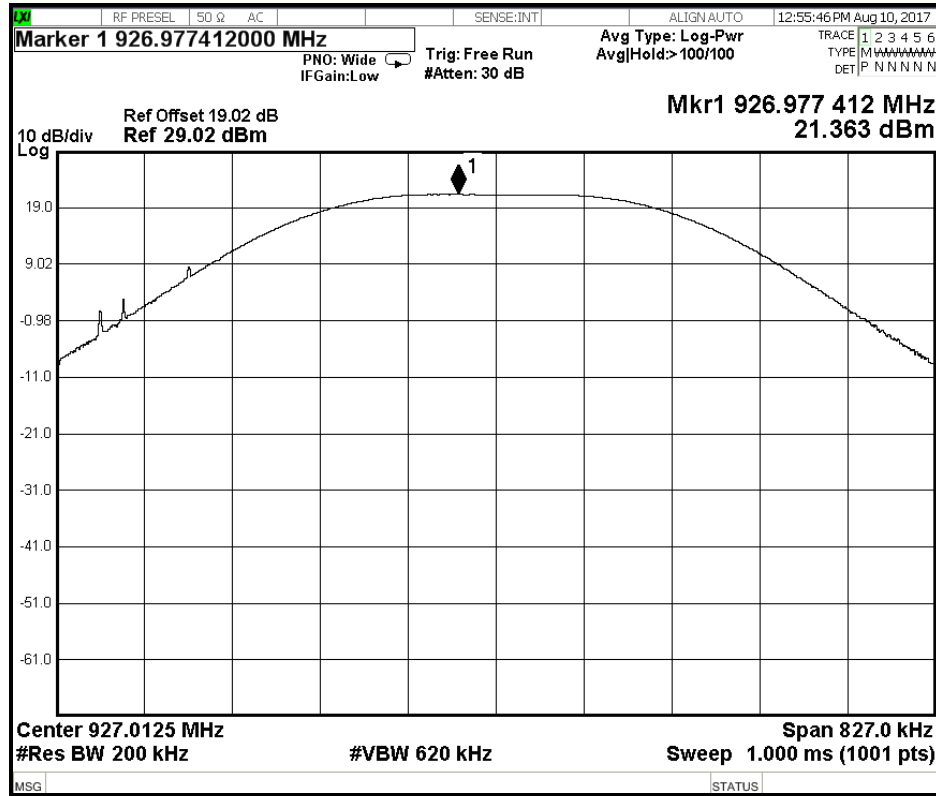
Screen Capture from Spectrum Analyzer 912.310 MHz



Screen Capture from Spectrum Analyzer 919.5112 MHz



Screen Capture from Spectrum Analyzer 927.0125 MHz



2.4 Power Spectral Density

Test Lab: Electronics Test Centre, Airdrie	EUT: Pearl Mobile Gateway
Test Personnel: Imran Akram	Standard: FCC PART 15.247
Date: 2017-06- 28 (20.1° C, 44% RH)	Basic Standard: ANSI C63.10: 2013
EUT status: Compliant	

Specification: FCC Part 15.247(e)

Criteria	For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.
-----------------	---

2.4.1 Test Guidance: ANSI C63.10-2013, Clause 11.10.2 / FCC OET KDB 558074 10.5

This measurement is performed at low, mid and high frequencies, in continuous transmission, with modulation.

The RF output of EUT with an antenna connector is fed to the input of the spectrum analyzer through appropriate attenuation. The loss from the cable and the attenuator were added on the analyzer as gain offset setting there by allowing direct measurements, with out the need for any further corrections.

The spectrum analyzer is set for a frequency span of (1.5*(6dB BW)) centered on a channel. The RBW is set to 3 kHz and VBW is set to 10 kHz. The RMS average detector is used, with the trace set to average Hold. The marker is placed on the highest peak of the resulting trace.

2.4.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.4.3 Test Equipment

Testing was performed with this equipment:

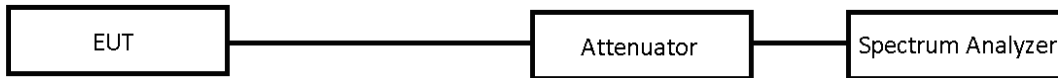
Equipment	Manufacturer	Model #	Asset #	Cal. Date	Cal. Due
Spectrum analyzer	Agilent	N9010A	6678	2017-05-11	2018-05-11
Temp/Humidity	Extech	42270	5892	2017-04-06	2018-04-06
Attenuator	JFW	50FH-020-10		Monitored	
DC Blocker	MCL	BLK-89-S+		Monitored	

2.4.4 Test Sample Verification, Configuration & Modifications

The EUT was set to transmit continuously on a selected channel with test-specific software. The output was modulated as in normal operation. The EUT met the requirements without modification.

Test setup diagrams for Peak Power Spectral Density testing:

Conducted:



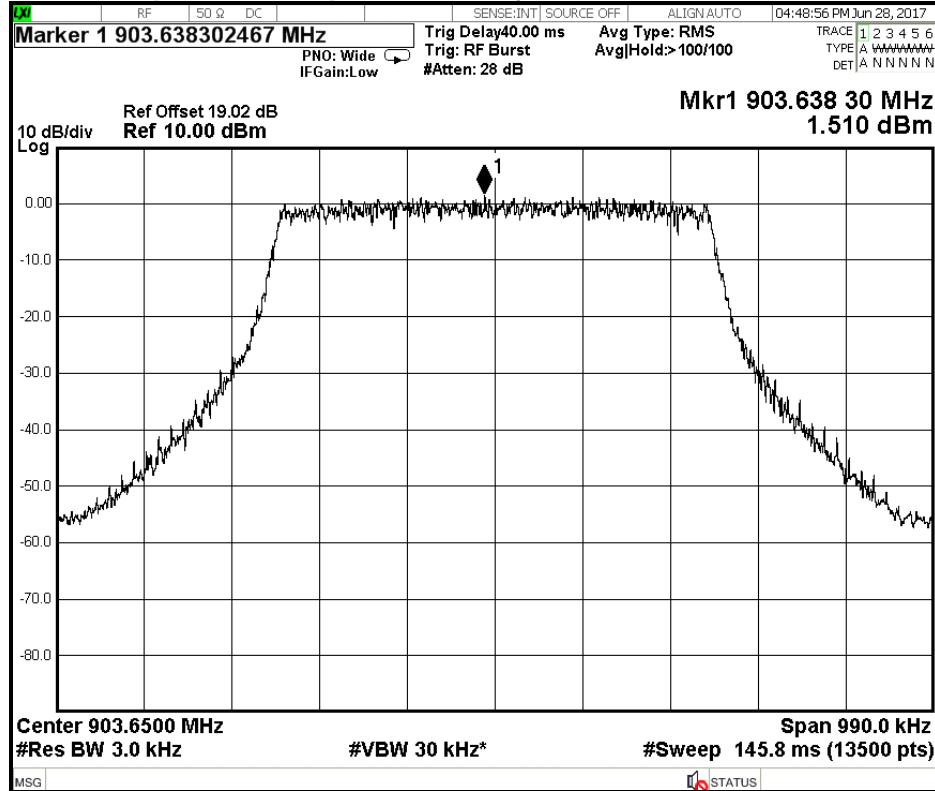
2.4.5 Peak PSD Data

500 KHZ DTS Mode

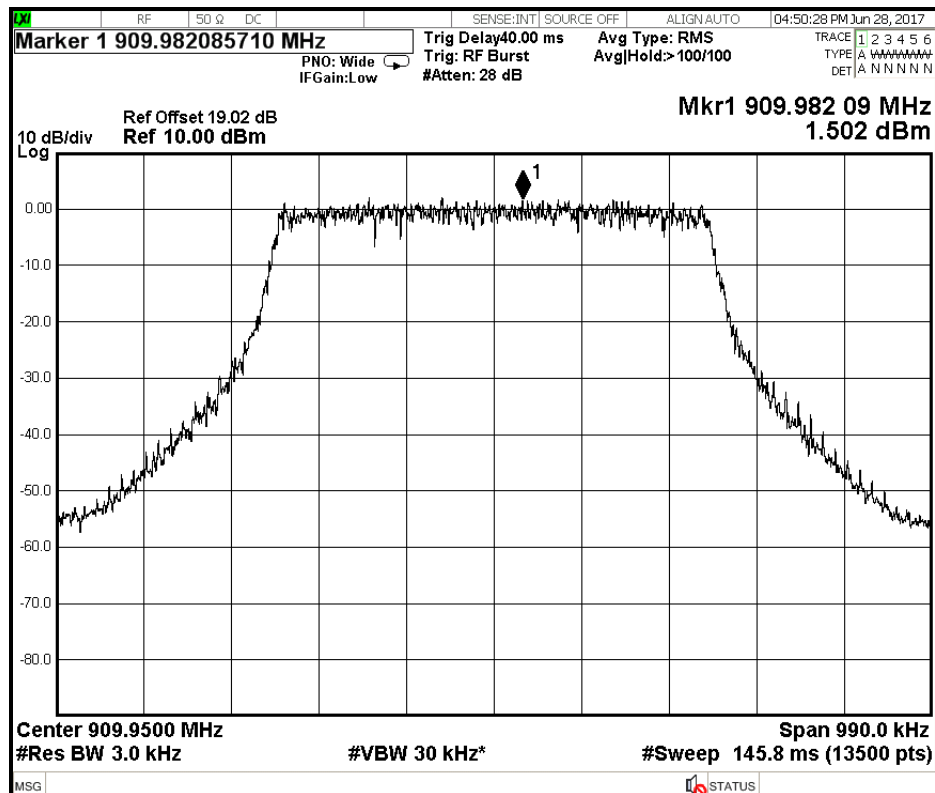
Channel	Freq. [MHz]	PSD (dBm)	PSD Limit (dBm)	Margin (dB)
Low	903.65	1.510	8	6.49
Mid	909.95	1.502	8	6.498
High	915.725	1.029	8	6.971
High	927.5	1.688	8	6.312

Lora 500KHz DTS Mode:

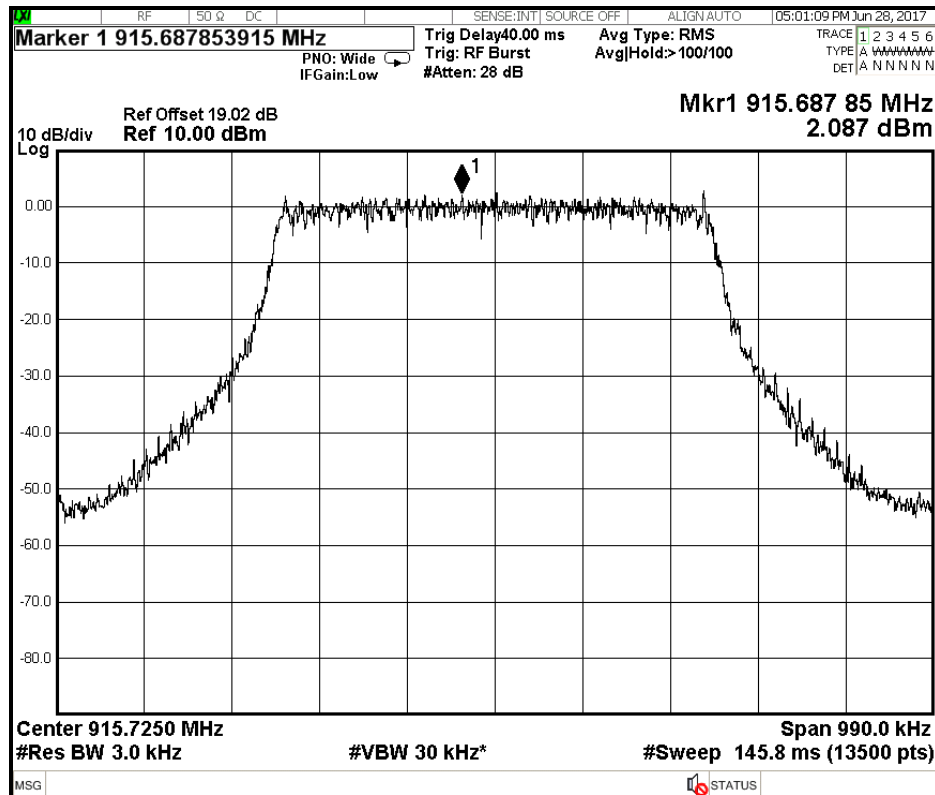
Screen Capture from Spectrum Analyzer 903.65 MHz:



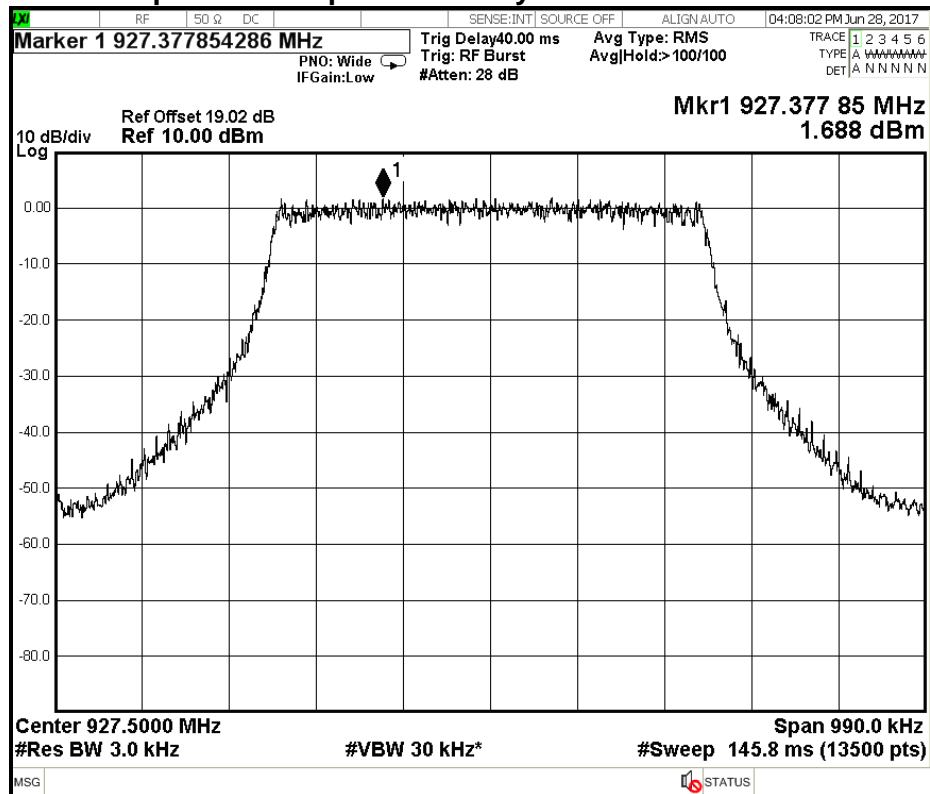
Screen Capture from Spectrum Analyzer 909.95 MHz:



Screen Capture from Spectrum Analyzer 915.725 MHz:



Screen Capture from Spectrum Analyzer 927.5 MHz:



2.5 Band Edge Attenuation

Test Lab: Electronics Test Centre, Airdrie

EUT: Pearl Mobile Gateway

Test Personnel: Imran Akram

Standard: FCC PART 15.247

Date: June 2,5&27, 2017

Basic Standard: ANSI C63.10: 2013

August 10, 2017

(23.6° C,34.5% RH), (20.2° C,46.6% RH)

EUT status: Compliant

Specification: FCC Part 15.247(d)

Criteria: In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

2.5.1 Test Guidance: ANSI C63.10-2013 Clause 11.13.2 & 6.10.4, 6.10.6 / FCC OET KDB 558074/ FCC DA-00-0705A1

This measurement is performed at the low and high frequencies, with modulation.

The RF output of EUT with an antenna connector is fed to the input of the spectrum analyzer through appropriate attenuation. The loss from the cable and the attenuator were added on the analyzer as gain offset setting there by allowing direct measurements, with out the need for any further corrections.

The spectrum analyzer is set for a frequency span to show the band edge and the nearest channel. The RBW is set to ≥ 100 kHz. The VBW is set to $\geq (\text{RBW} * 3)$. The Peak detector is used, with the trace set to Max Hold.

The attenuation is measured with the Marker Delta function.

For the Lora 125 KHz FHSS mode, the measurements were carried out in accordance with ANSI 63.10 Section 6.10 / FCC DA 00-705. The spectrum analyzer is set for a frequency span wide enough to capture the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation. The RBW is 1% of the span and VBW is set to \geq RBW. The Peak detector is used, with the trace set to Max Hold.

The attenuation is measured with the Marker Delta function.

2.5.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.5.3 Test Equipment

Testing was performed with the following equipment:

Equipment	Manufacturer	Model #	Asset #	Calibration Date	Calibration Due
EMI receiver	Agilent	N9038A	6130	2016-06-23	2017-06-23
Spec. analyzer	Agilent	N9010A	6678	2017-05-11	2018-05-11
EMI receiver	Agilent	N9038A	6130	2017-06-20	2018-06-20
Temp/Humidity	Extech	42270	5892	2017-04-06	2018-04-06
Attenuator	JFW	50FH-020-10		Monitored	
DC Blocker	MCL	BLK-89-S+		Monitored	

2.5.4 Test Sample Verification, Configuration & Modifications

The EUT was operating normally, in communication with an iPod. The EUT met the requirements without modification.

Test setup diagrams for Band Edge Attenuation testing:

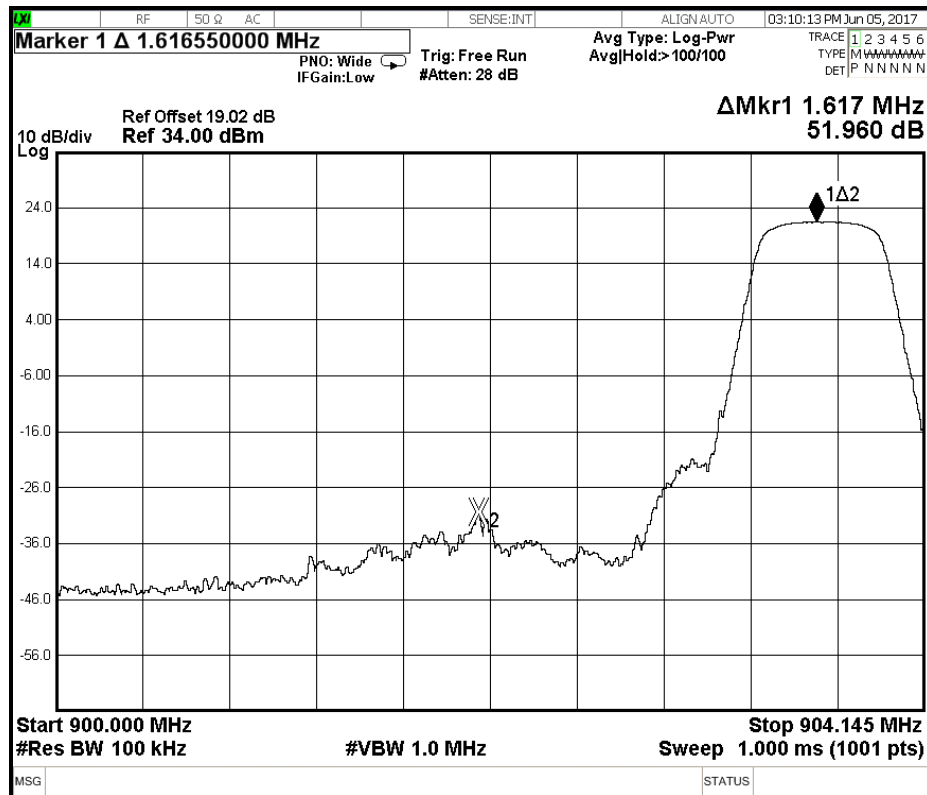
Conducted:



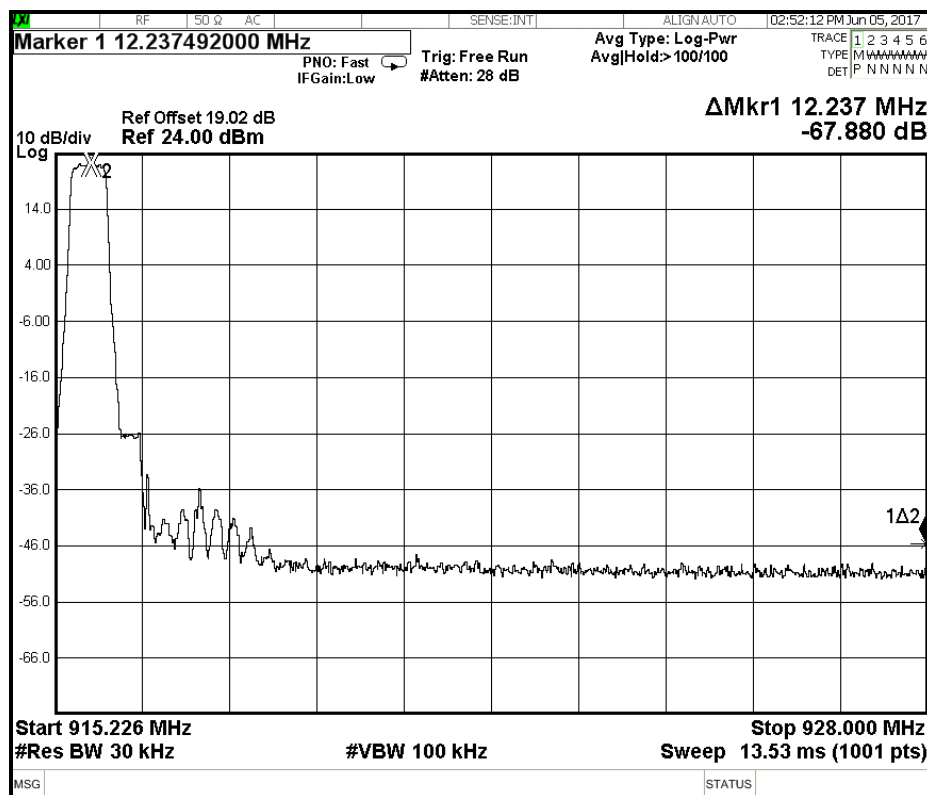
2.5.5 Band Edge Data

Modulation	Channel	Attenuation at Band Edge	Attenuation Limit at Band Edge
Lora 500KHz DTS	903.65 MHz	51.960 dBc	20 dBc
	915.725 MHz	67.880 dBc	20 dBc
	927.5 MHz	44.321 dBc	20 dBc
Lora 125KHz Non - Hopping	912.310 MHz	61.278 dBc	20 dBc
	927.0125 MHz	50.020 dBc	20 dBc
Lora 125KHz (Hopping)	912.310 MHz	50.314 dBc	20 dBc
	927.0125 MHz	52.685 dBc	20 dBc

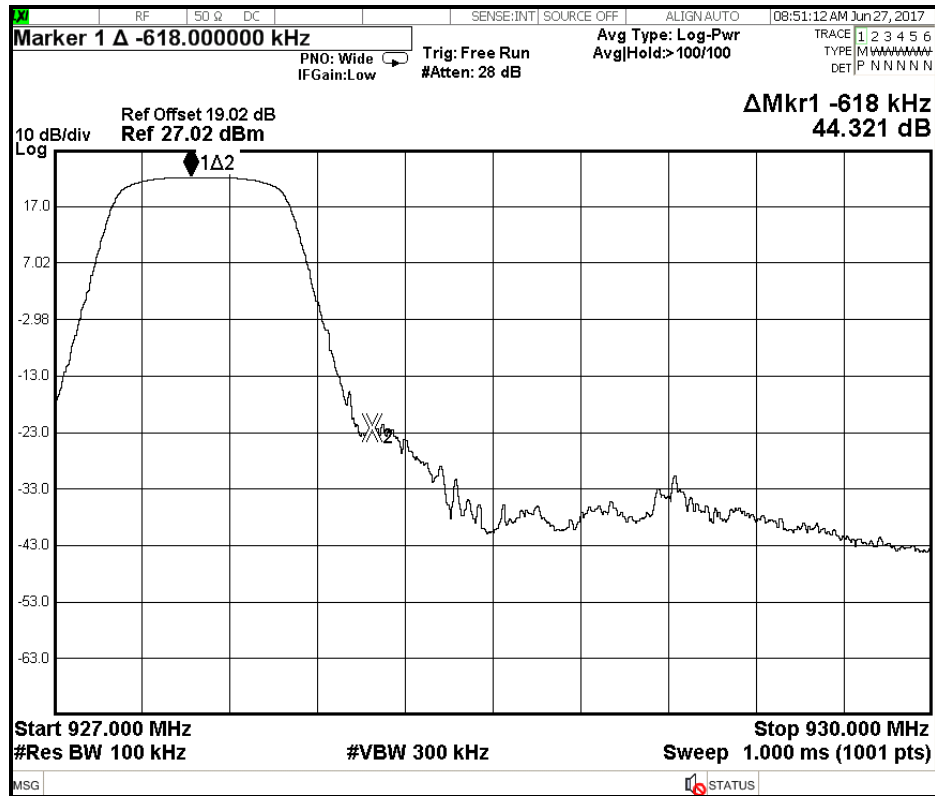
Screen Capture from the spectrum analyzer: Lower Band Edge (DTS)



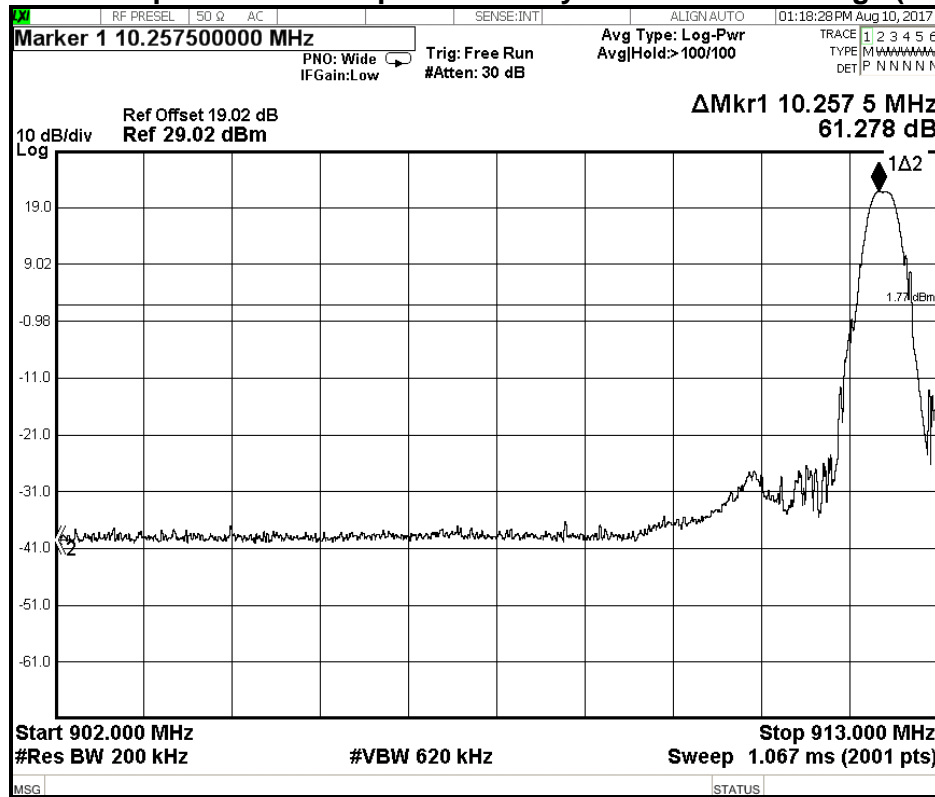
Screen Capture from the spectrum analyzer: Upper Band Edge (DTS)



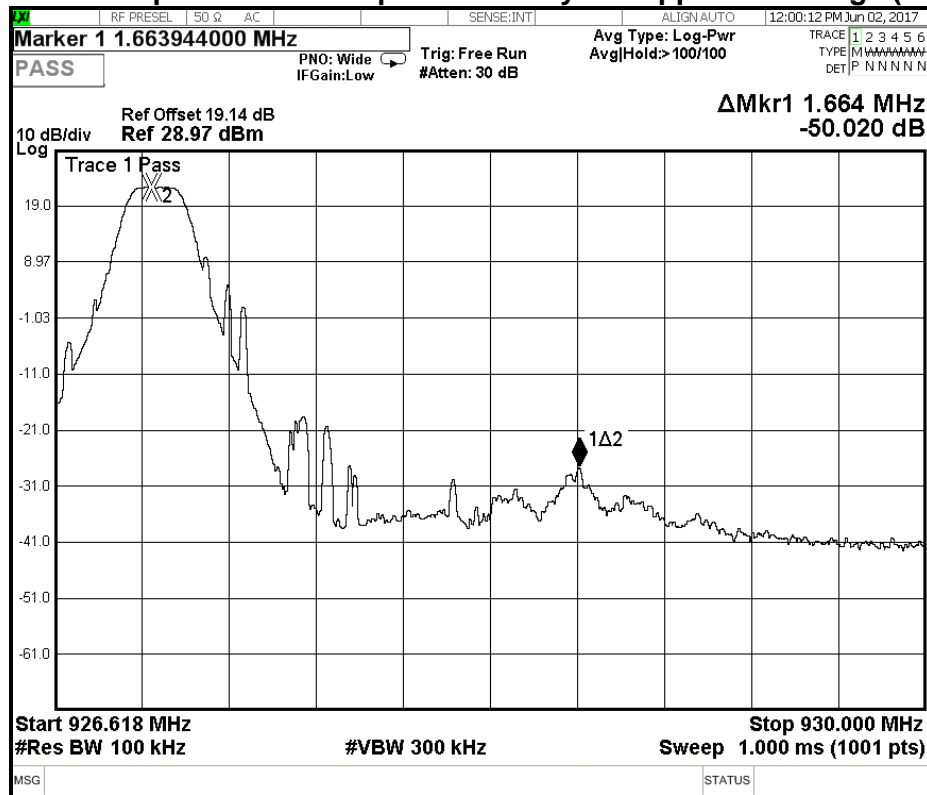
Screen Capture from the spectrum analyzer: Upper Band Edge (DTS)



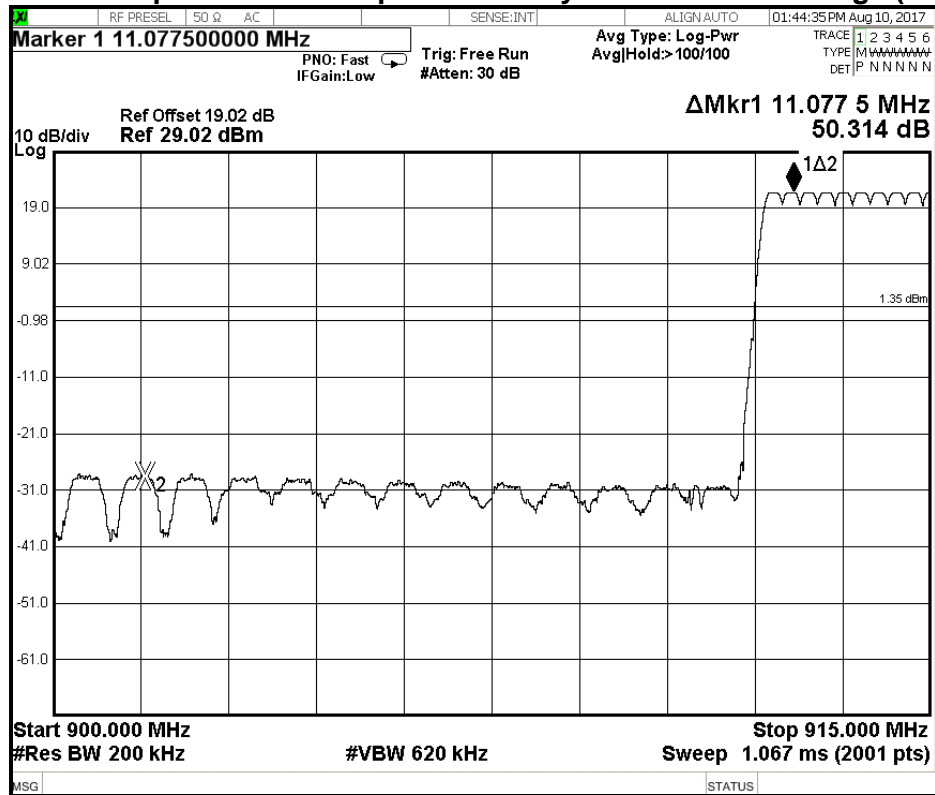
Screen Capture from the spectrum analyzer: Lower Band Edge (Non Hopping)



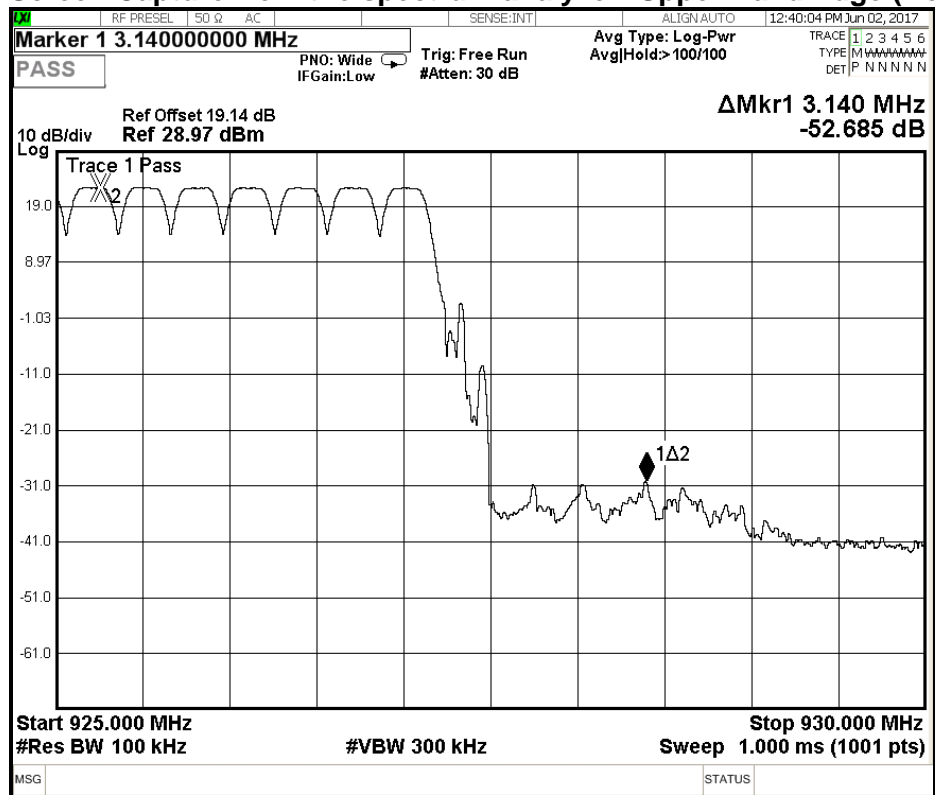
Screen Capture from the spectrum analyzer: Upper Band Edge (Non Hopping)



Screen Capture from the spectrum analyzer: Lower Band Edge (Hopping)



Screen Capture from the spectrum analyzer: Upper Band Edge (Hopping)



2.6 Conducted Spurious Emissions

Test Lab: Electronics Test Centre, Airdrie	EUT: Pearl Mobile Gateway
Test Personnel: Imran Akram	Standard: FCC PART 15.247
Date: 2017-06- 02, 05(23.6° C,34.5% RH)	Basic Standard: ANSI C63.4-2014 FCC OET KDB 558470 v03r05 DTS
EUT status: Compliant	

Specification: FCC Part 15.247(d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

2.6.1 Test Guidance: ANSI C63.10-2013, Clause 6.7 / FCC DA-00-0705A1

This measurement is performed at the low, mid and high frequencies, with modulation.

The RF output of EUT with an antenna connector is fed to the input of the spectrum analyzer through appropriate attenuation. The loss from the cable and the attenuator were added on the analyzer as gain offset setting there by allowing direct measurements, with out the need for any further corrections.

The spectrum analyzer is stepped through the spectrum in frequency spans selected to ensure acceptable frequency resolution. The RBW is set to 100 kHz. The VBW is set to ≥ 300 kHz. The Peak detector is used, with the trace set to Max Hold.

2.6.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.6.3 Test Equipment

Testing was performed with the following equipment:

Equipment	Manufacturer	Model #	Asset #	Calibration Date	Calibration Due
EMI receiver	Agilent	N9038A	6130	2016-06-23	2017-06-23
Temp/Humidity	Extech	42270	5892	2017-04-06	2018-04-06
Attenuator	JFW	50FH-020-10		Monitored	
DC Blocker	MCL	BLK-89-S+		Monitored	

2.6.4 Test Sample Verification, Configuration & Modifications

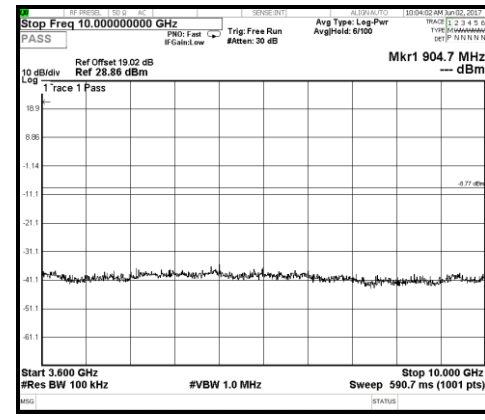
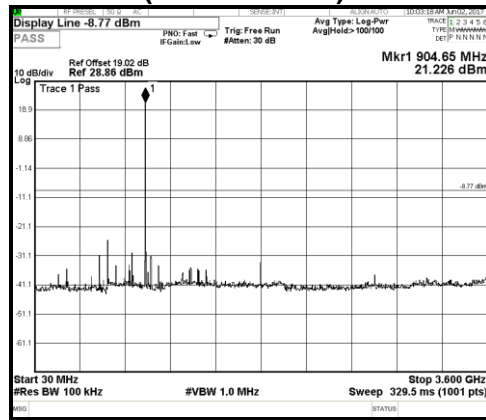
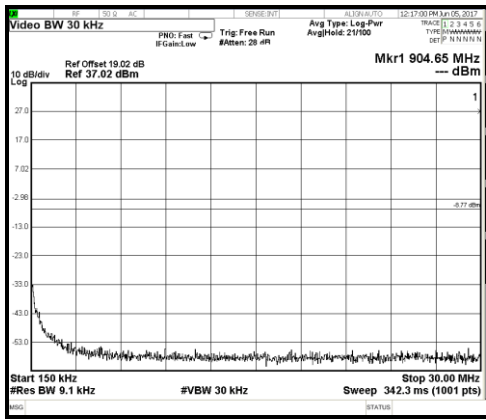
The EUT was set to a selected channel with test-specific software. The output was modulated as in normal operation. The EUT met the requirements without modification.

Test setup diagram for Conducted Spurious Emissions testing:

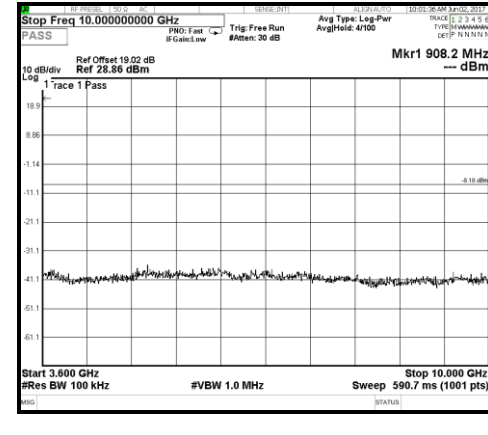
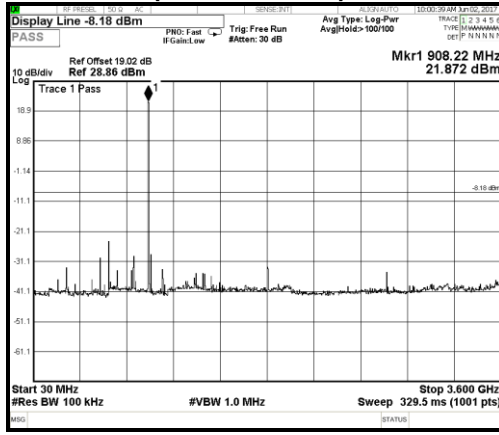
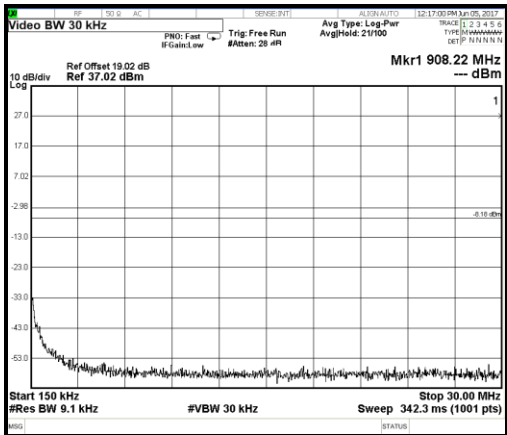


2.6.5 Conducted Emissions Data:

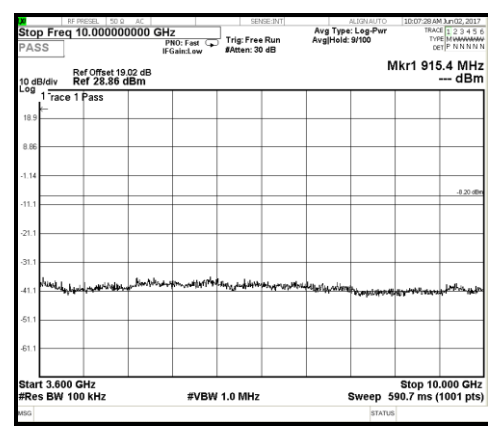
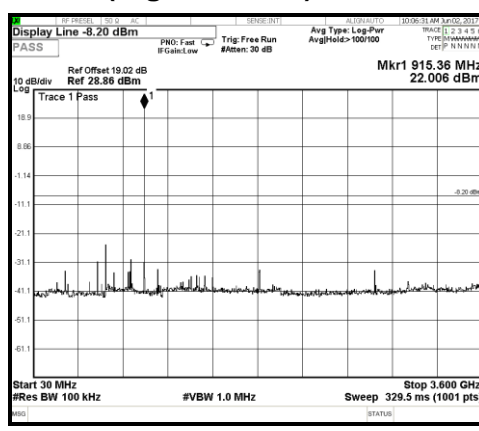
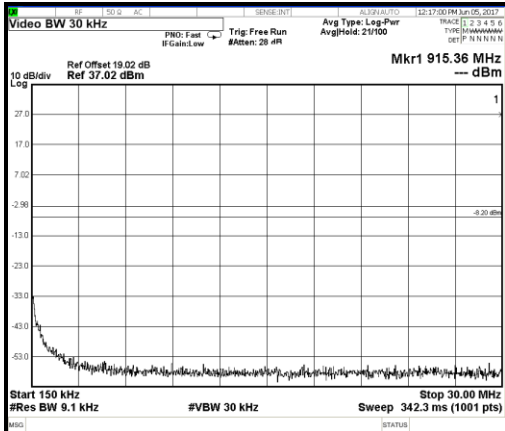
500 KHz DTS Mode (Low Channel)



(MID Channel)

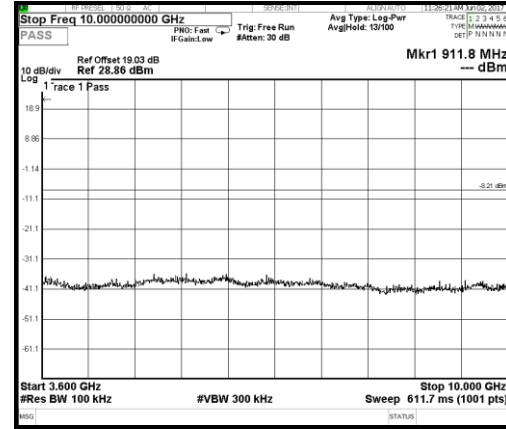
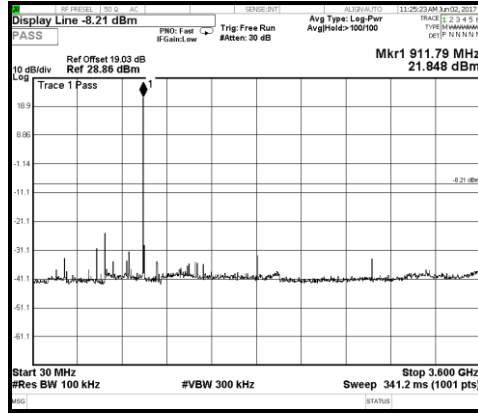


(High Channel)

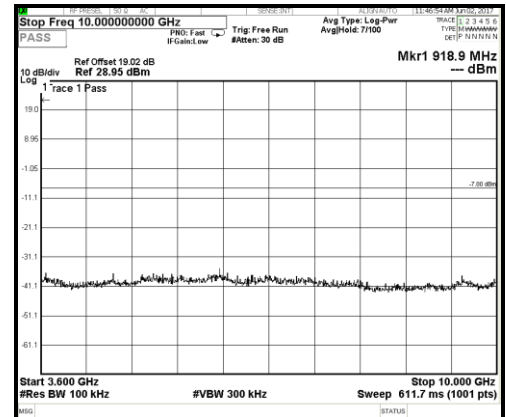
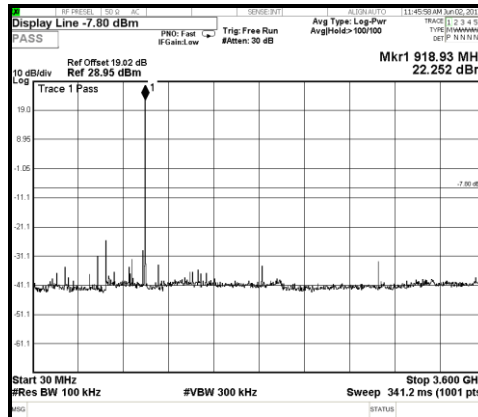


Plot of Conducted Emissions: Lora 125 KHz Mode FHSS

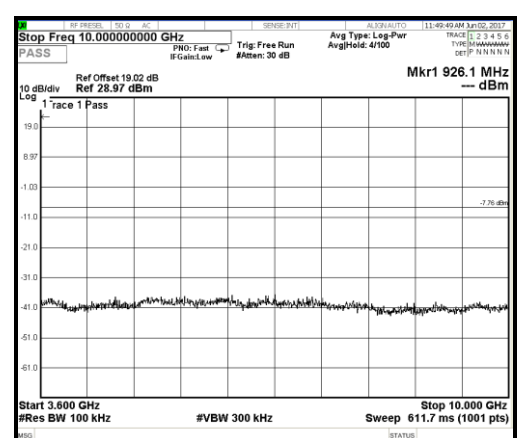
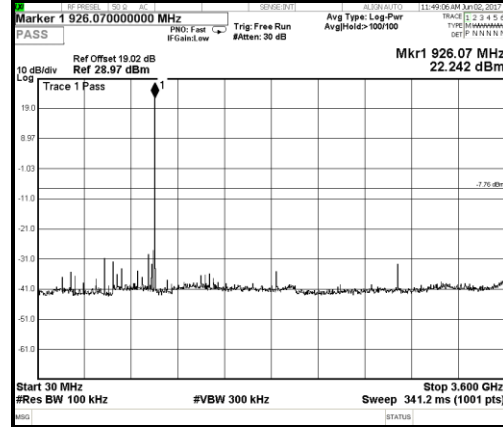
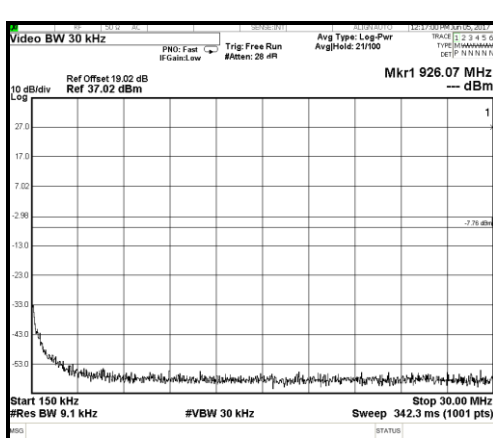
Low Channel



MID Channel



High Channel



2.7 Channel Separation

Test Lab: Electronics Test Centre, Airdrie	EUT: Pearl Mobile Gateway
Test Personnel: Imran Akram	Standard: FCC Part 15.247
Date: June 2, 2017(23.6° C,34.5% RH)	Basic Standard: ANSI C63.10: 2013
EUT status: Compliant	

Specification: FCC Part 15.247(a, 1)

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

2.7.1 Test Guidance: ANSI 63.10 Clause 7.8.2/FCC DA-00-0705A1

This measurement is performed with the EUT transmitter frequency hopping function active.

The RF output of EUT with an antenna connector is fed to the input of the spectrum analyzer through appropriate attenuation. The loss from the cable and the attenuator were added on the analyzer as gain offset setting there by allowing direct measurements, with out the need for any further corrections.

The spectrum analyzer is set for a frequency span wide enough to capture at least two adjacent channels. The RBW is set to at least 1% of the span. The Peak detector is used, with the trace set to Max Hold. Channel Separation is displayed with the Marker Delta function.

2.7.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.7.3 Test Equipment

Testing was performed with the following equipment:

Equipment	Manufacturer	Model #	Asset #	Calibration Date	Calibration Due
EMI receiver	Agilent	N9038A	6130	2016-06-23	2017-06-23
Temp/Humidity	Extech	42270	5892	2017-04-06	2018-04-06
Attenuator	JFW	50FH-020-10		Monitored	
DC Blocker	MCL	BLK-89-S+		Monitored	

2.7.4 Test Sample Verification, Configuration & Modifications

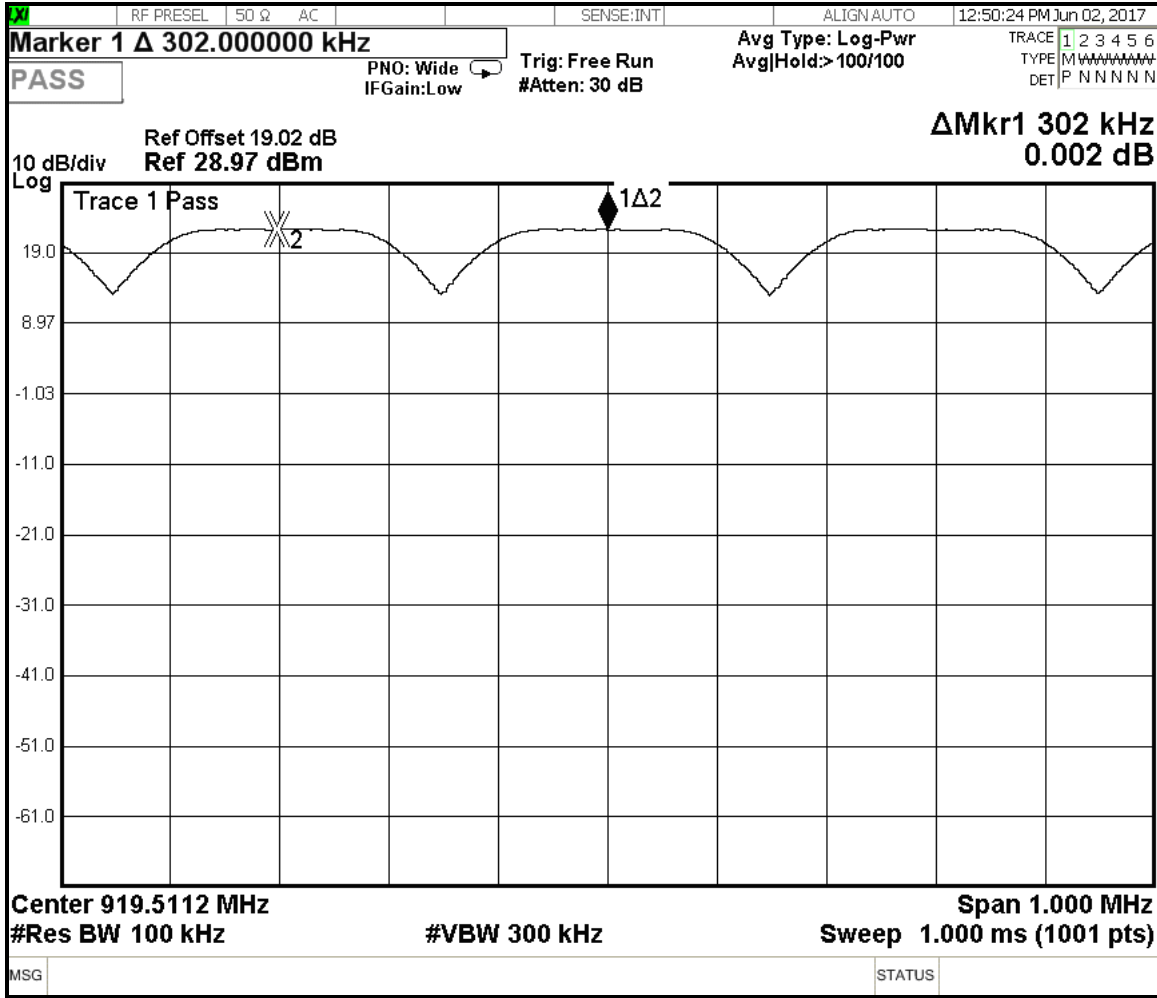
EUT configuration for Channel Separation testing:



2.7.5 Channel Separation Data:

Compliant: The channel separation measured for this device is 302 KHz.

Screen Captures from the spectrum analyzer:



2.8 Number of Hopping Channels

Test Lab: Electronics Test Centre, Airdrie	EUT: Pearl Mobile Gateway
Test Personnel: Imran Akram	Standard: FCC Part 15.247
Date: June 02, 2017(23.6° C,34.5% RH) August 10, 2017(20.2° C,46.6% RH)	Basic Standard: ANSI C63.10: 2013
	Number of Channels: 50
EUT status: Compliant	

Specification: FCC Part 15.247(a, 1, i)

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period.

2.8.1 Test Guidance: ANSI 63.10 Clause 7.8.3 / FCC DA-00-0705A1

This measurement is performed with the EUT transmitter frequency hopping function active.

The RF output of EUT with an antenna connector is fed to the input of the spectrum analyzer through appropriate attenuation. The loss from the cable and the attenuator were added on the analyzer as gain offset setting there by allowing direct measurements, with out the need for any further corrections.

The spectrum analyzer is set for a frequency span selected to clearly display the hopping channels. The RBW is set $\geq 1\%$ of the span or to identify clearly the individual channels set the RBW to less than 30% of the channel spacing or 20dB BW, which ever is smaller. The Peak detector is used, with the trace set to Max Hold.

2.8.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.8.3 Test Equipment

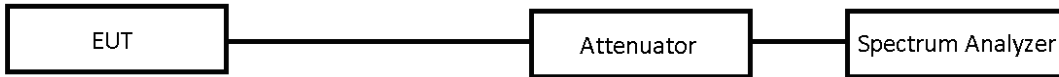
Testing was performed with the following equipment:

Equipment	Manufacturer	Model #	Asset #	Calibration Date	Calibration Due
EMI receiver	Agilent	N9038A	6130	2016-06-23	2017-06-23
EMI receiver	Agilent	N9038A	6130	2017-06-20	2018-06-20
Temp/Humidity	Extech	42270	5892	2017-04-06	2018-04-06
Attenuator	JFW	50FH-020-10		Monitored	
DC Blocker	MCL	BLK-89-S+		Monitored	

2.8.4 Test Sample Verification, Configuration & Modifications

The EUT was operating normally. The EUT met the requirements without modification.

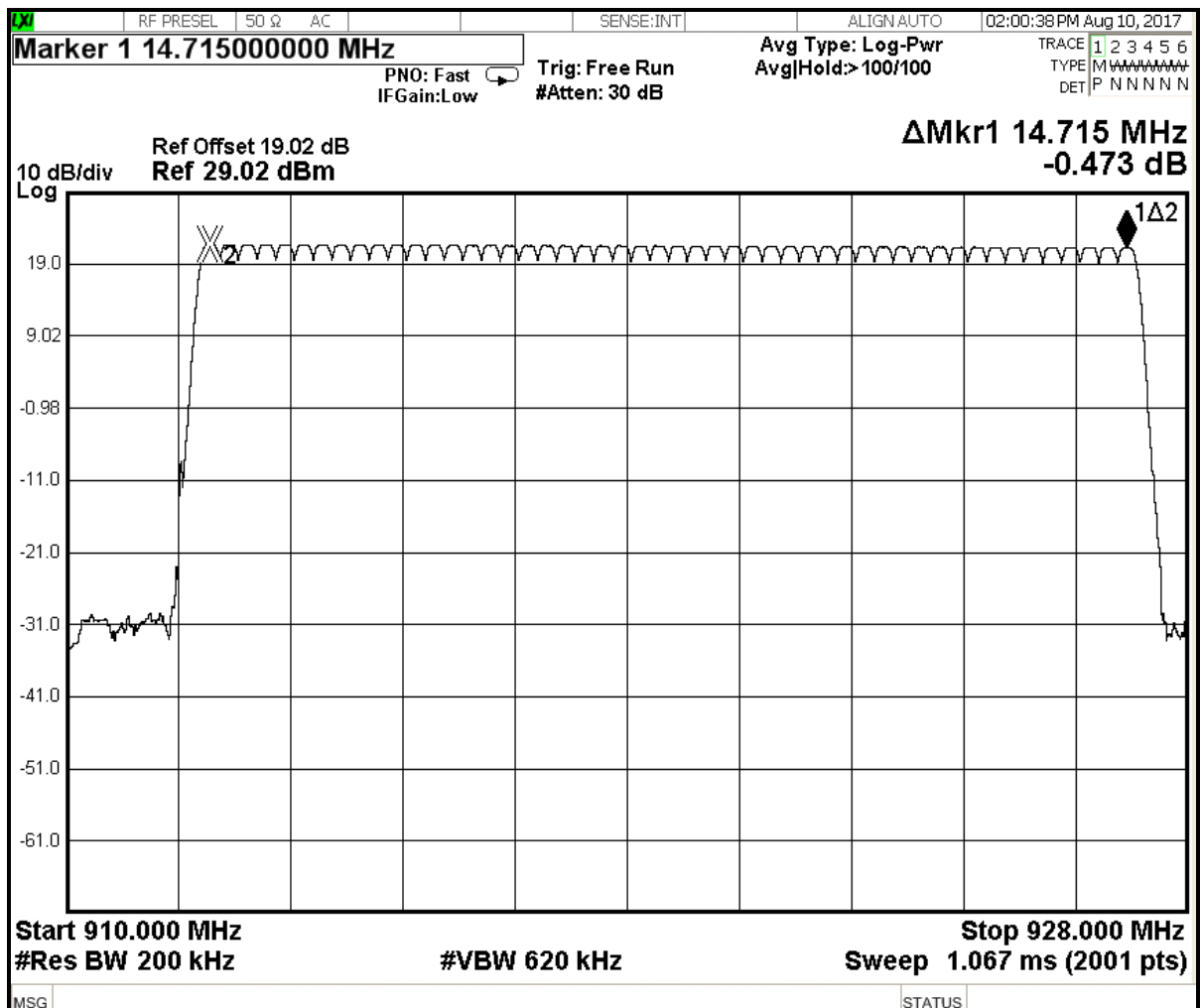
EUT configuration for Radiated Emissions testing:



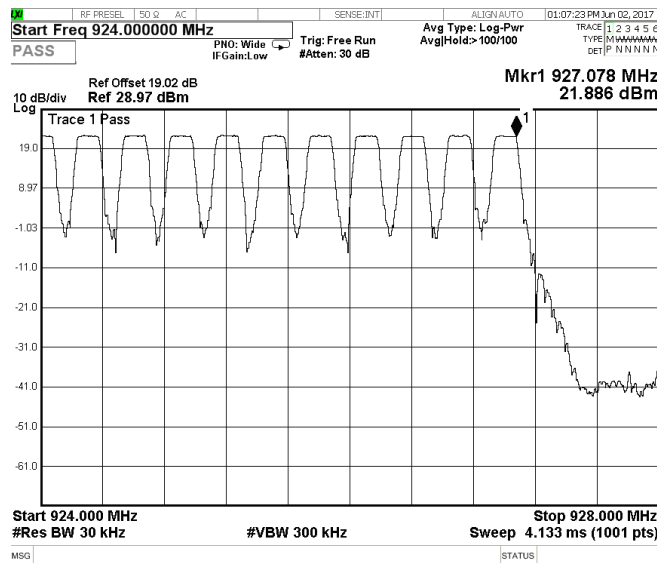
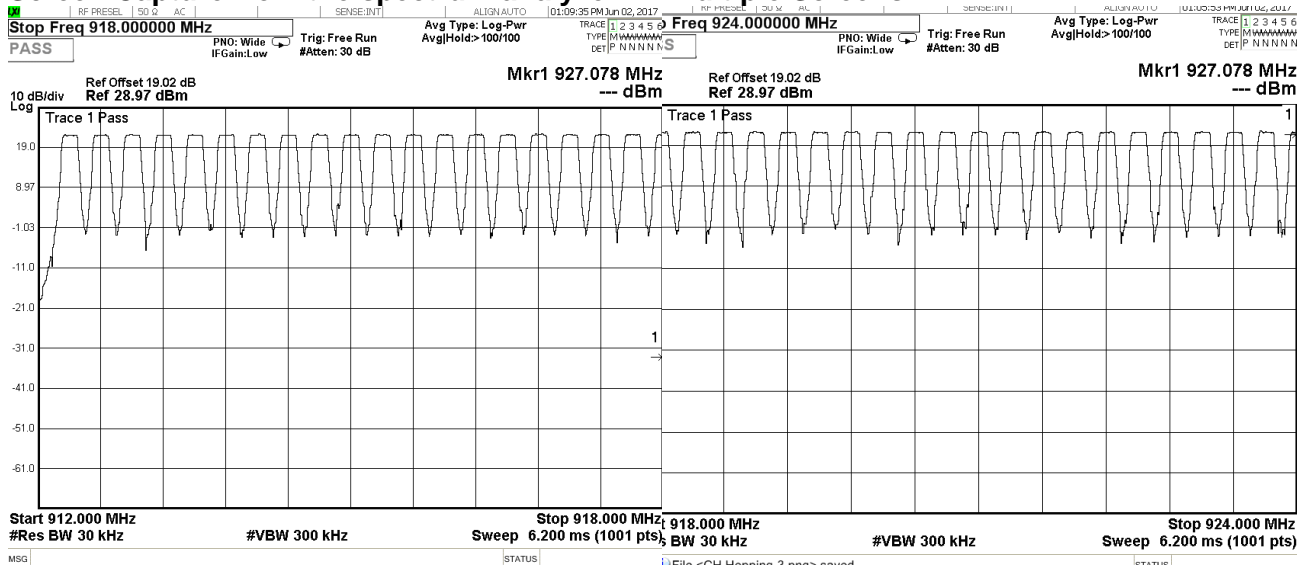
2.8.5 Hopping Channel Data:

Compliant: There are 50 hopping channels

Screen Capture from the spectrum analyzer: 50 Channels



Screen Capture from the spectrum analyzer: In Multiple Screens



2.9 Time of Occupancy

Test Lab: Electronics Test Centre, Airdrie	EUT: Pearl Mobile Gateway
Test Personnel: Imran Akram	Standard: FCC PART 15.247
Date: June 2, 2017(23.6° C,34.5% RH)	Basic Standard: ANSI C63.10: 20013
EUT status: Compliant	

Specification: FCC Part 15.247 (a, 1, i)

For frequency hopping systems operating in the 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period.

2.9.1 Test Guidance: ANSI 63.10 Clause 7.8.4 / FCC DA-00-0705A1

This measurement is performed with the EUT frequency hopping function active.

The RF output of EUT with an antenna connector is fed to the input of the spectrum analyzer through appropriate attenuation. The loss from the cable and the attenuator were added on the analyzer as gain offset setting there by allowing direct measurements, with out the need for any further corrections.

The spectrum analyzer is set for Peak detection over a 0 Hz frequency span (time domain) centered on a hopping channel. The RBW shall be \leq Channel spacing and where possible RBW should be set $\gg 1/T$, where T is the expected dwell time per channel. VBW \geq RBW. The sweep time is adjusted to clearly capture one transmission. The Dwell time is measured with the Marker Delta function.

Another sweep is set to capture enough transmission events to calculate the number of events within the specified period of time. The Peak detector is used, with the trace set to Max Hold.

2.9.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.9.3 Test Equipment

Testing was performed with the following equipment:

Equipment	Manufacturer	Model #	Asset #	Calibration Date	Calibration Due
EMI receiver	Agilent	N9038A	6130	2016-06-23	2017-06-23
Temp/Humidity	Extech	42270	5892	2017-04-06	2018-04-06
Attenuator	JFW	50FH-020-10		Monitored	
DC Blocker	MCL	BLK-89-S+		Monitored	

2.9.4 Test Sample Verification, Configuration & Modifications

The EUT was operating in normal mode. The EUT met the requirements without modification.

EUT configuration for Dwell Time testing:



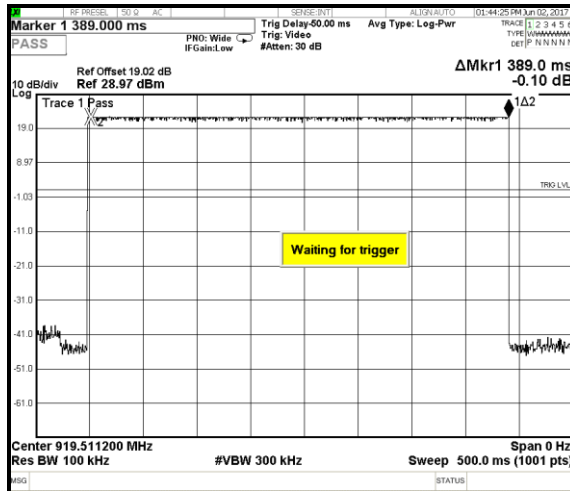
2.9.5 Dwell Time Data:

Measured Dwell time = 389 ms

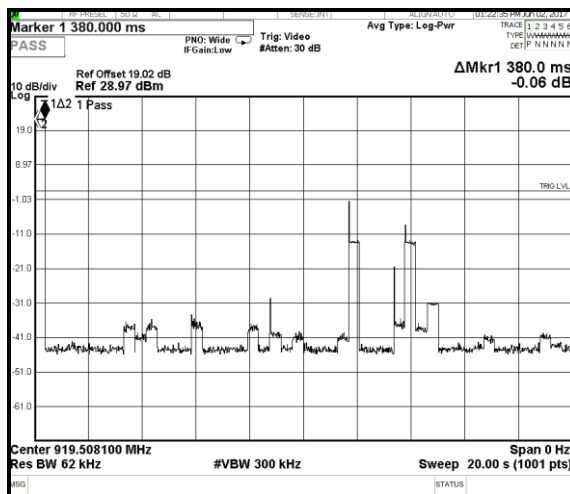
Number of events in 20 s = 1

Margin = 400 – 389 = 11 ms

Screen Capture from the spectrum analyzer: Dwell time in 500ms



Screen Capture from the spectrum analyzer: Dwell Time in 20 Sec



2.10 EUT Positioning Assessment

Test Lab: Electronics Test Centre, Airdrie	EUT: Pearl Mobile Gateway
Test Personnel: Imran Akram	Standard: FCC PART 15.247
Date:	Basic Standard: ANSI C63.4-2014
EUT status: N/A	
Comments: EUT is not a handheld or portable device. It installed in fix one orientation in its final installation.	

Specification: ANSI C63.4-2014, Clause 6.3.2.1

Portable, small, lightweight, or modular devices that may be handheld, worn on the body, or placed on a table during operation shall be positioned on a non-conducting platform, the top of which is 80 cm above the reference ground plane. The preferred area occupied by the EUT arrangement is 1 m by 1.5 m, but it may be larger or smaller to accommodate various sized EUTs (see Figure 6, Figure 7, and Figure 9). For testing purposes, ceiling- and wall-mounted devices also shall be positioned on a tabletop (see also 6.3.4 and 6.3.5). In making any tests involving handheld, body-worn, or ceiling-mounted equipment, it is essential to recognize that the measured levels may be dependent on the orientation (attitude) of the three orthogonal axes of the EUT. Thus, exploratory tests as specified in 8.3.1 shall be carried out for various axes orientations to determine the attitude having maximum or near-maximum emission level.

2.11 Radiated Spurious Emissions

Test Lab: Electronics Test Centre, Airdrie	EUT: Pearl Mobile Gateway
Test Personnel: Imran Akram/Henry Cookeygam	Standard: FCC PART 15.247
Date: 2017-06-02, 04 (23.63° C,34.5 % RH)	Basic Standard: ANSI C63.10-2013
EUT status: Compliant	

Specification: FCC PART 15.247(d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Restricted Bands of Operation:

MHz	MHz	MHz	MHz	MHz	GHz	GHz
0.0900000 – 0.1100000	8.2910000 - 8.2940000	16.804250 - 16.804750	162.01250 - 167.17000	1660.0000 – 1710.0000	3.6000000 – 4.4000000	14.470000 – 14.500000
0.4950000 - 0.5050000	8.3620000 - 8.3660000	25.500000 - 25.670000	167.72000 - 173.20000	1718.8000 – 1722.2000	4.5000000 – 5.1500000	15.350000 – 16.200000
2.1735000 - 2.1905000	8.3762500 - 8.3867500	37.500000 - 38.250000	240.00000 – 285.00000	2200.0000 – 2300.0000	5.3500000 – 5.4600000	17.700000 – 21.400000
4.1250000 - 4.1280000	8.4142500 - 8.4147500	73.000000 - 74.600000	322.00000 - 335.40000	2310.0000 – 2390.0000	7.2500000 – 7.7500000	22.010000 – 23.120000
4.1772500 - 4.1777500	12.290000 - 12.293000	74.800000 - 75.200000	399.90000 – 410.00000	2483.5000 – 2500.0000	8.0250000 – 8.5000000	23.600000 – 24.000000
4.2072500 - 4.2077500	12.519750 - 12.520250	108.00000 - 121.94000	608.00000 – 614.00000	2655.0000 – 2900.0000	9.0000000 – 9.2000000	31.200000 – 31.800000
5.6770000 - 5.6830000	12.576750 - 12.577250	123.00000 - 138.00000	960.00000 – 1240.00000	3260.0000 – 3267.0000	9.3000000 – 9.5000000	36.430000 – 36.500000
6.2150000 - 6.2180000	13.360000 - 13.410000	149.90000 - 150.05000	1300.0000 – 1427.0000	3332.0000 – 3339.0000	10.600000 – 12.700000	Above 38.600000
6.2677500 - 6.2682500	16.420000 - 16.423000	156.52475 - 156.52525	1435.0000 – 1626.5000	3345.8000 – 3358.0000	13.250000 – 13.400000	
6.3117500 - 6.3122500	16.694750 - 16.695250	156.70000 - 156.90000	1645.5000 – 1646.5000	3500.0000 – 3600.0000		

■ US only
 ■ Canada 108 – 138 MHz
 ■ Canada 960 – 1427 MHz
 ■ Canada only

2.8.1 Test Guidance: ANSI C63.10-2013, Clause 13.4.2/FCC DA-00-0705A1

From 9kHz to 150 kHz (resolution bandwidth of 200 Hz) and from 150 kHz to 30 Mhz (resolution bandwidth 9 kHz) measurements are performed with a loop antenna (as per KDB 460108).

From 30 MHz to 1000 MHz, measurements are performed with a broadband biconilog antenna and a resolution bandwidth of 120 kHz.

Above 1000 MHz, measurements are performed with a DRG Horn antenna or a Standard Gain horn, and a resolution bandwidth of 1 MHz. The EUT is raised to 150 cm above the ground plane, and the area between the EUT and the antenna mast is covered with RF absorbent material.

The scan is performed at discreet increments of turntable azimuth and antenna height, which are selected in accordance with the applicable standard in order to assure capture of frequencies of interest. Optimization is performed based on the scan data.

Frequencies having peak emissions within 10dB of the limits are optimized. The EUT is rotated in azimuth over 360 degrees and the direction of maximum emission is noted.

Antenna height is varied from 1 – 4 meters at this azimuth to obtain the maximum emission. Then the maximum level is measured with the appropriate detector and recorded. Up to 1 GHz, measurements are performed with a Quasi-Peak detector. Above 1 GHz, measurements are recorded with Peak and/or Average detectors, as applicable.

2.8.2 Deviations From The Standard:

There were no deviations from the EUT setup or methodology specified in the standard.

2.8.3 Uncertainty of Measurement:

The factors contributing to uncertainty of measurement are identified and calculated in accordance with UKAS (United Kingdom Accreditation Service) document “Lab 34, The Expression of Uncertainty in EMC Testing, Aug 2002.” as based on the “ISO Guide to the Expression of Uncertainty in Measurement, 1995.”

This uncertainty estimate represents an expended uncertainty expressed at approximately 95% confidence using a coverage factor of $k = 2$.

Test Method	Frequency	Uncertainty
Radiated Emissions Level	30 MHz – 1 GHz	±4.6 dB
Radiated Emissions Level	1 GHz – 26.5 GHz	±5.31 dB

2.8.4 Test Equipment

Testing was performed with the following equipment:

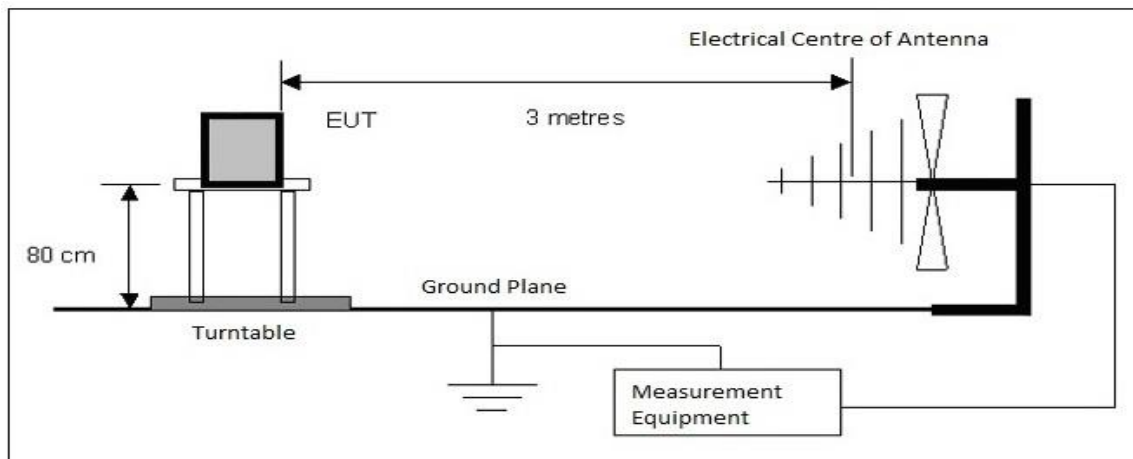
Equipment	Manufacturer	Model #	Asset #	Calibration Date	Calibration Due
EMC Software	UL	Ver. 9.5	ETC-SW-EMC 2.1	N/A	
EMI receiver	Agilent	N9038A	6130	2016-06-23	2017-06-23
Loop Antenna	EMCO	6502	10868	2017-03-29	2019-03-29
Biconilog Antenna	ARA	LPB-2520/A	4318	2016-05-18	2018-05-18
DRG Horn	EMCO	3115	19357	2016-08-24	2018-08-24
Humidity/Temp Logger	Extech Ins. Corp.	42270	5892	2017-04-06	2018-04-06
Low Noise Amplifier (1 – 18 GHz)	MITEQ	JS43-01001800-21-5P	4354	Monitored	

2.8.5 Test Sample Verification, Configuration & Modifications

The EUT was set to a selected channel with test-specific software. The output was modulated as in normal operation.

The EUT met the requirements without modification.

Test setup diagram for Radiated Spurious Emissions testing:



2.8.6 Radiated Emissions Data:

The emissions data are presented in tabular form, showing turntable azimuth, antenna height and polarization, the uncorrected spectrum analyzer reading, the correction factors applied, the net result, the value of the limit at the frequency investigated, and the Delta between the result and the limit.

Meter Reading in dB μ V + Antenna Factor in dB/m + Gain/Loss Factor in dB = Corrected Field Strength in dB μ V/m.

Delta = Field Strength - Limit

Notes:

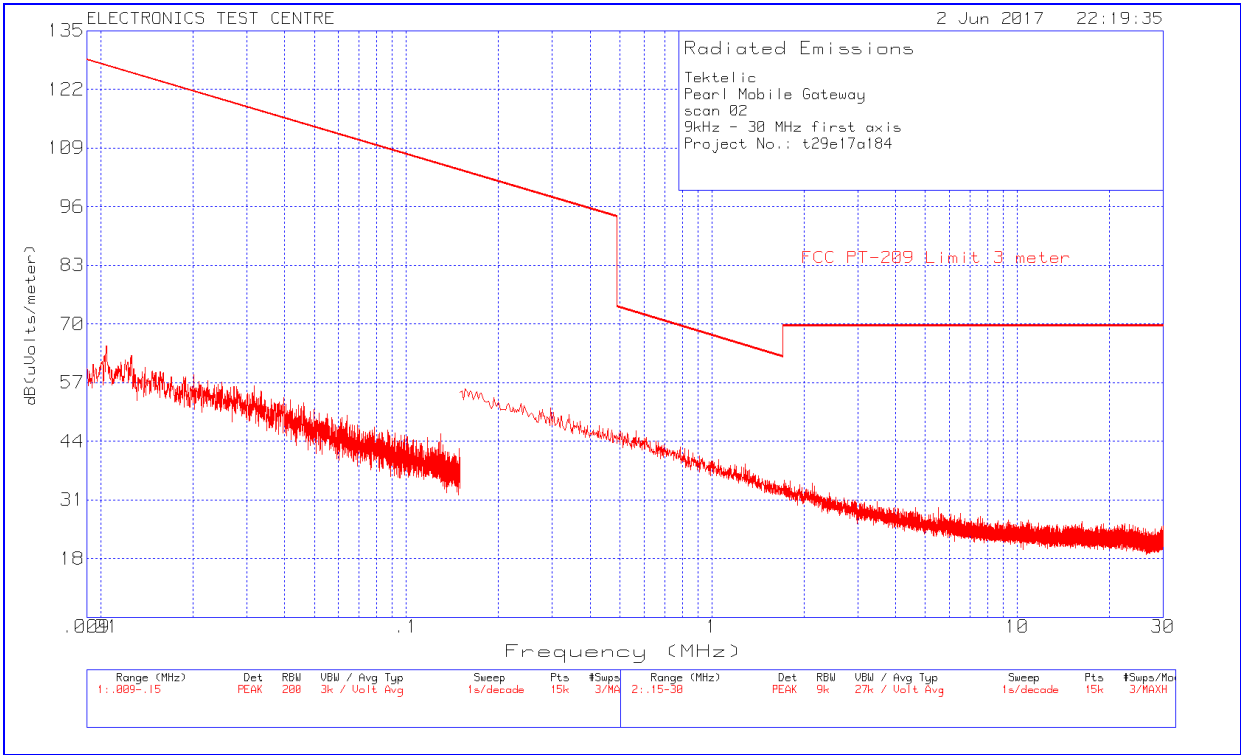
- When a preamp is used, the resulting gain is compensated, producing a negative value for the Cable Loss.
- Measurements reported are the result of adjusting the turntable azimuth and antenna height to obtain the maximum EUT emission. This may produce a different reading than the plot trace. The plot is a Peak Hold function obtained at discreet increments of height and azimuth, while the reported measurement is obtained with the appropriate Quasi Peak or Average detector after the height and azimuth have been adjusted for maximum emission.
- Preliminary scans were performed for all channels in Transmit modes. The mid band channel 919.5112 MHz with 125 KHz modulation was selected as the worst-case condition for detailed examination.
- In Transmit mode, the EUT was assessed up to 10.0 GHz.

Negative values for Delta indicate compliance.

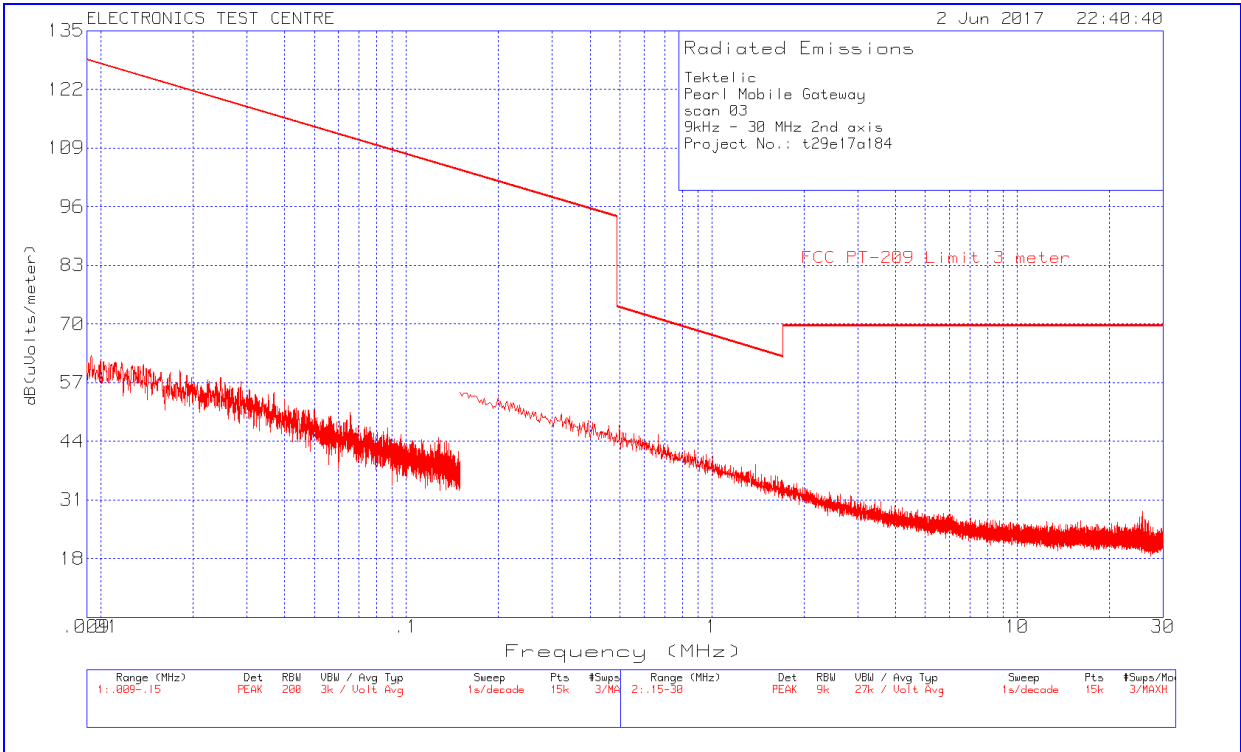
Freq. Marker	Freq. [MHz]	Raw reading [dB μ v]	Det	Antenna Factor [dB/m]	Cable Loss [dB]	Corrected Reading [dB μ v/m]	FCC 15.209 Limit [dB μ v/m]	Delta [dB]	Azimuth [Deg]	Height [cm]	Polarization
1	242.9781	13.5	QP	16.1	3.5	33.1	46.02	-12.92	106	112	Horizontal
1	32.8465	10.79	QP	21.6	1.5	33.89	40	-6.11	3	101	Vertical
1	239.4054	12.64	QP	16.2	3.5	32.34	46.02	-13.68	188	100	Vertical
1	2430.6	28.04	AV	28.7	-34.2	22.54	53.98	-31.44	273	316	Horizontal
1	2430	40.02	PK	28.7	-34.2	34.52	53.98	-19.46	340	249	Horizontal
2	2449.6	27.96	AV	28.7	-34.2	22.46	53.98	-31.32	59	133	Vertical
2	2448.7	39.88	PK	28.7	-34.2	34.38	53.98	-19.63	360	400	Vertical

*** Restricted Band**

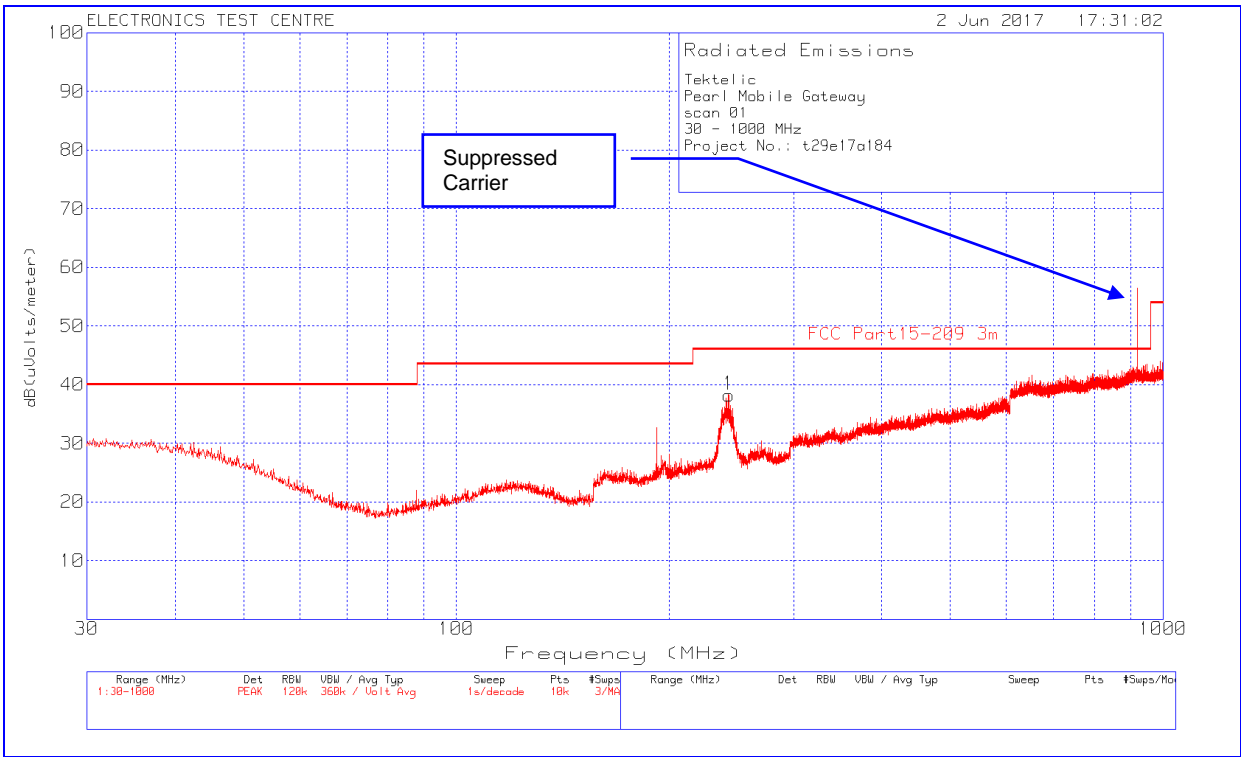
Plot of Radiated Emissions: Measuring Antenna 1st Orientation



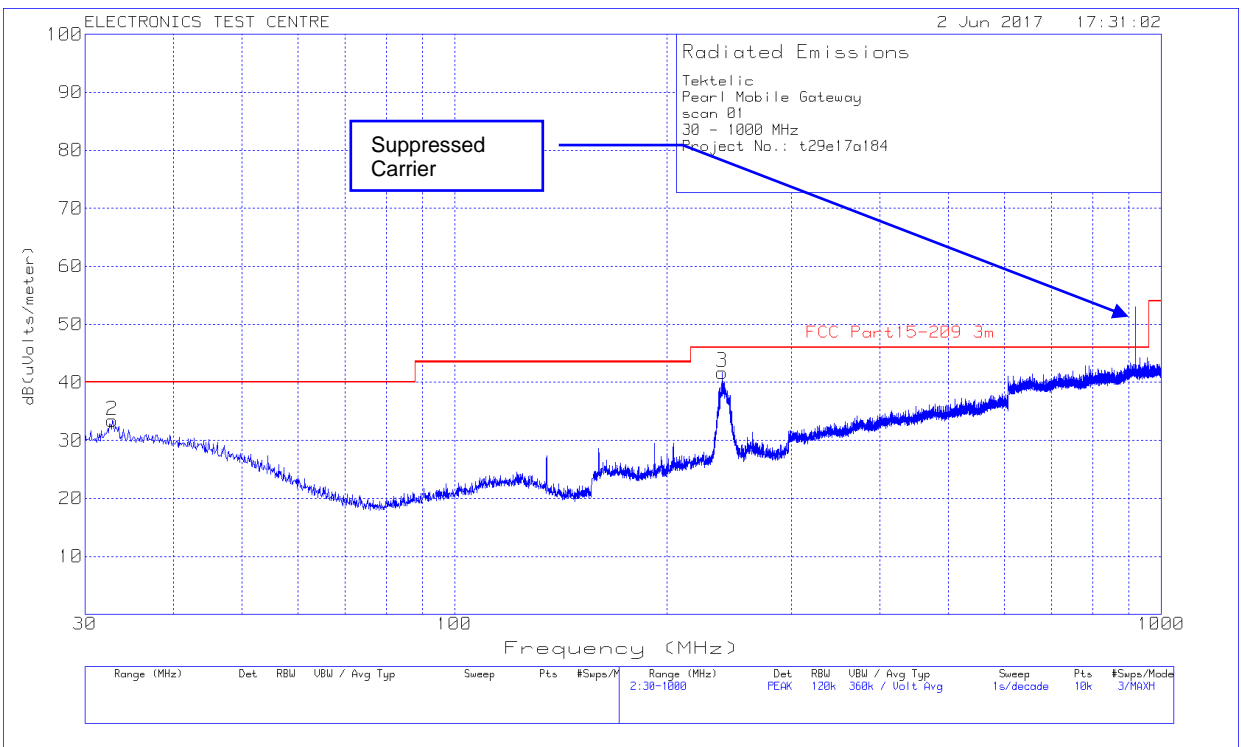
Plot of Radiated Emissions: Measuring Antenna 2nd Orientation



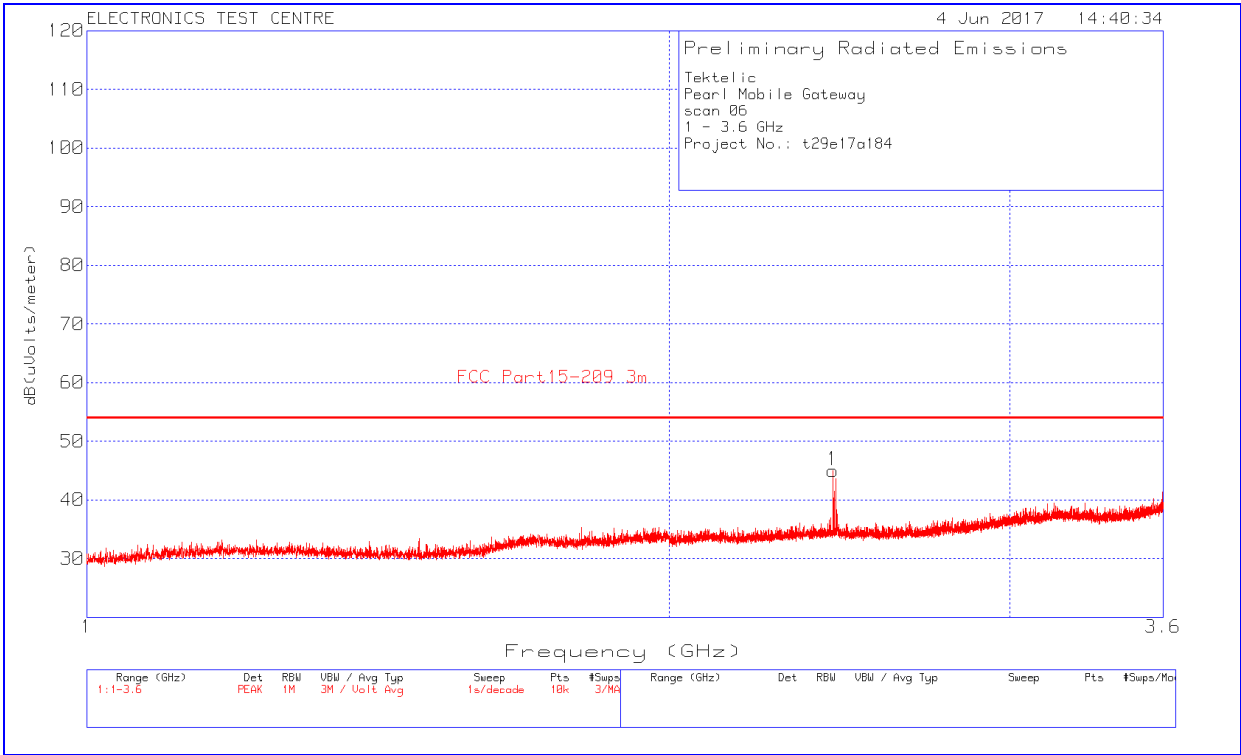
Plot of Radiated Emissions: Horizontal polarization



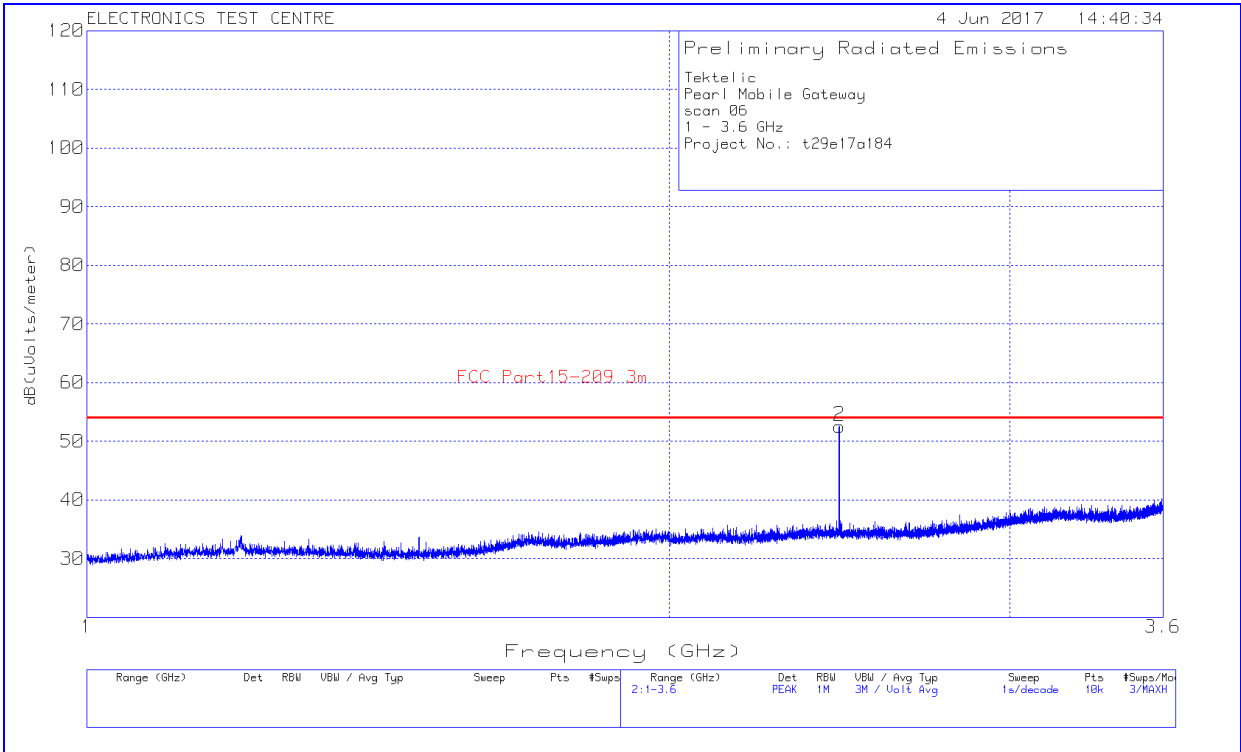
Plot of Radiated Emissions: Vertical polarization



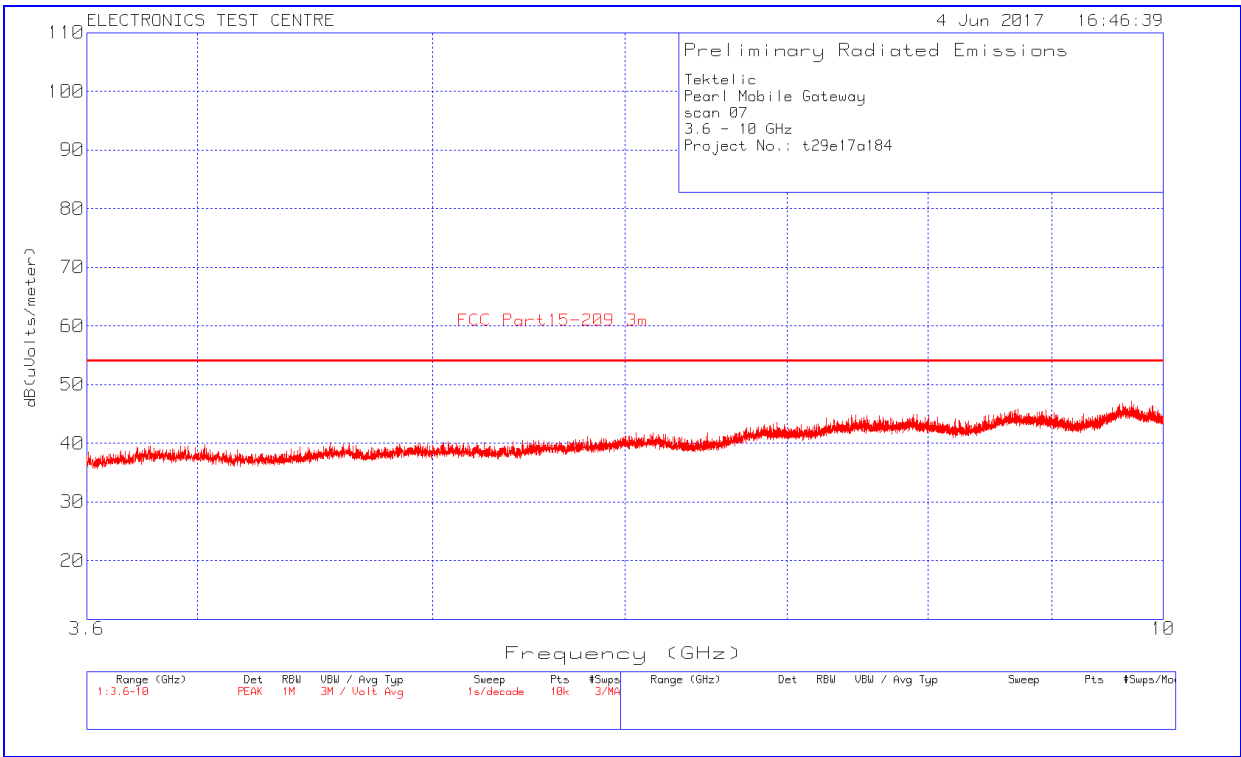
Plot of Radiated Emissions: Horizontal polarization



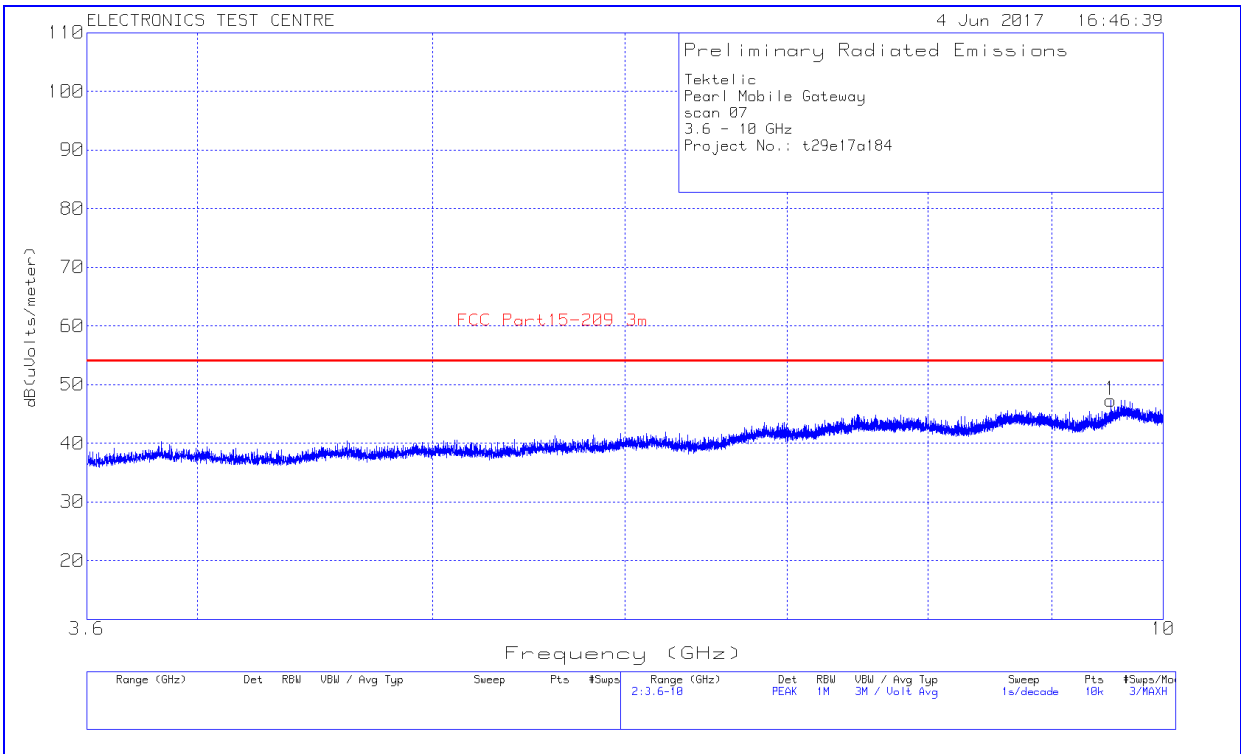
Plot of Radiated Emissions: Vertical polarization



Plot of Radiated Emissions: Horizontal polarization



Plot of Radiated Emissions: Vertical polarization



2.9 RF Exposure

Test Lab: Electronics Test Centre, Airdrie	EUT: Pearl Mobile Gateway
Test Personnel:	Standard: FCC PART 15.247
Date:	
EUT status: Compliant	

Compliant: RF exposure assessment to be provided in a separate Exhibit.

3.0 TEST FACILITY

3.1 Location

The Pearl Mobile Gateway was tested for emissions at the Electronics Test Centre laboratory located in Airdrie, Alberta, Canada. The Radio Frequency Anechoic Chamber (RFAC), identified as Chamber 1, has a usable working space measuring 10.6 m long x 7.3 m wide x 6.5 m high.

Measurements taken at this site are accepted by Industry Canada as evidence of conformity per registration file # 2046A. This site is also listed with the FCC under Registration Number CA2046.

The floor, walls and ceiling consist of annealed steel panels. The walls and ceiling are covered with ferrite tile, augmented by RF absorbant foam material on the end wall nearest the turntable, and on the adjacent walls and the ceiling. The chamber floor supports a 15 cm high internal floor, constructed of annealed steel panels, that forms the ground plane, and is bonded to the chamber walls.

The 3-m diameter turntable is flush-mounted with the floor. A sub-floor cable-way is provided to route cables between the turntable pit and EUT support equipment located in the Control Room. Cables reach the EUT through an opening in the centre of the turntable.

Test instrumentation and EUT support equipment is located in the Control Room, consisting of two shielded vestibules joined together at the side of the main room. Cables are routed through bulkhead panels between the rooms and the test chamber as required. Power feeds are routed into the main room and vestibules through line filters providing at least 100 dB of attenuation between 10 kHz and 10 GHz.

Either floor mounted or table-top equipment can be tested at this facility.

3.2 Grounding Plan

The Pearl Mobile Gateway was placed at the centre of the test chamber turntable on top of an 80-cm high polystyrene foam table. The EUT was grounded according to Tektelic Communication Inc. specifications.

3.3 Power Supply

All EUT power was supplied by an internal rechargeable battery. There is no EUT function while the battery is charging.

3.4 Emissions Profile

Ambient emission profiles were generated throughout the tests and are included in the test data.

End of Document