PCTEST ENGINEERING LABORATORY, INC.
7185 Oakland Mills Road, Columbia, MD 21046 USA
Tel. 410.290.6652 / Fax 410.290.6654
http://www.pctestlab.com

MEASUREMENT REPORT
FCC Parts 22, 27, 74, 80, and 90 LTE

Applicant Name:
Harris Corporation
221 Jefferson Ridge Parkway
Lynchburg, VA 24501
United States

Date of Testing:
3/11 - 7/1/2016. 7/29/16

Test Site/Location:
PCTEST Lab., Columbia, MD, USA

Test Report Serial No.:
0Y1603030469.BV8

FCC ID :	**BV8BBPBM214**
APPLICANT:	**HARRIS CORPORATION**

Application Type:	Class II Permissive Change
FCC Classification:	PCS Licensed Transmitter (PCB)
FCC Rule Part(s):	§2, §22, §27, §74, §80, and §90
Test Procedure(s):	ANSI/TIA-603-D-2010, KDB 971168 D01 v02r02
EUT Type:	Wireless Module integrated into LMR Radio
Model(s):	PBM-214
Test Device Serial No.:	*identical prototype* [S/N: A40302000148]
Class II Permissive Change	*Integration of PBM-214 module into Host device Harris XL-200P LMR Radio*
Original Grant Date:	*9/10/2015*

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

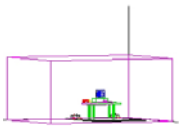
I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Randy Ortanez
President

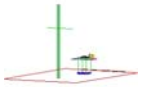
ACCREDITED
TESTING CERT#2041.01

TABLE OF CONTENTS

FCC PART 27 MEASUREMENT REPORT 3
1.0 INTRODUCTION 4
1.1 Scope 4
1.2 Testing Facility 4
2.0 PRODUCT INFORMATION 5
2.1 Equipment Description 5
2.2 Device Capabilities 5
2.3 Test Configuration 5
2.4 EMI Suppression Device(s)/Modifications 5
3.0 DESCRIPTION OF TESTS 6
3.1 Measurement Procedure 6
3.2 Radiated Power and Radiated Spurious Emissions 6
4.0 MEASUREMENT UNCERTAINTY 7
5.0 TEST EQUIPMENT CALIBRATION DATA 8
6.0 SAMPLE CALCULATIONS 9
7.0 TEST RESULTS 10
7.1 Summary 10
7.2 Radiated Spurious Emissions Measurements 11
8.0 CONCLUSION 23



MEASUREMENT REPORT
FCC Parts 2, 22, 27, 74, 80, and 90



§2.1033 General Information

APPLICANT:	Harris Corporation
APPLICANT ADDRESS:	221 Jefferson Ridge Parkway Lynchburg, VA 24501, United States
TEST SITE:	PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS:	7185 Oakland Mills Road, Columbia, MD 21045 USA
FCC RULE PART(S):	§2; §27
BASE MODEL:	PBM-214
FCC ID:	BV8BBPBM214
FCC CLASSIFICATION:	PCS Licensed Transmitter (PCB)
FREQUENCY TOLERANCE:	±0.00025 % (2.5 ppm)
Test Device Serial No.:	A40302000148 ☐ Production ☒ Pre-Production ☐ Engineering
DATE(S) OF TEST:	3/11 - 7/1/2016. 7/29/16
TEST REPORT S/N:	0Y1603030469.BV8

Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.

- PCTEST facility is an FCC registered (PCTEST Reg. No. 159966) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (2451B-1).
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (2451B-1) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.

1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity, the Baltimore-Washington Internt'l (BWI) airport, the city of Baltimore and the Washington, DC area. (See *Figure 1-1*).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The site coordinates are 39º 10'23" N latitude and 76º 49'50" W longitude. The facility is 0.4 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2014 on January 22, 2015.

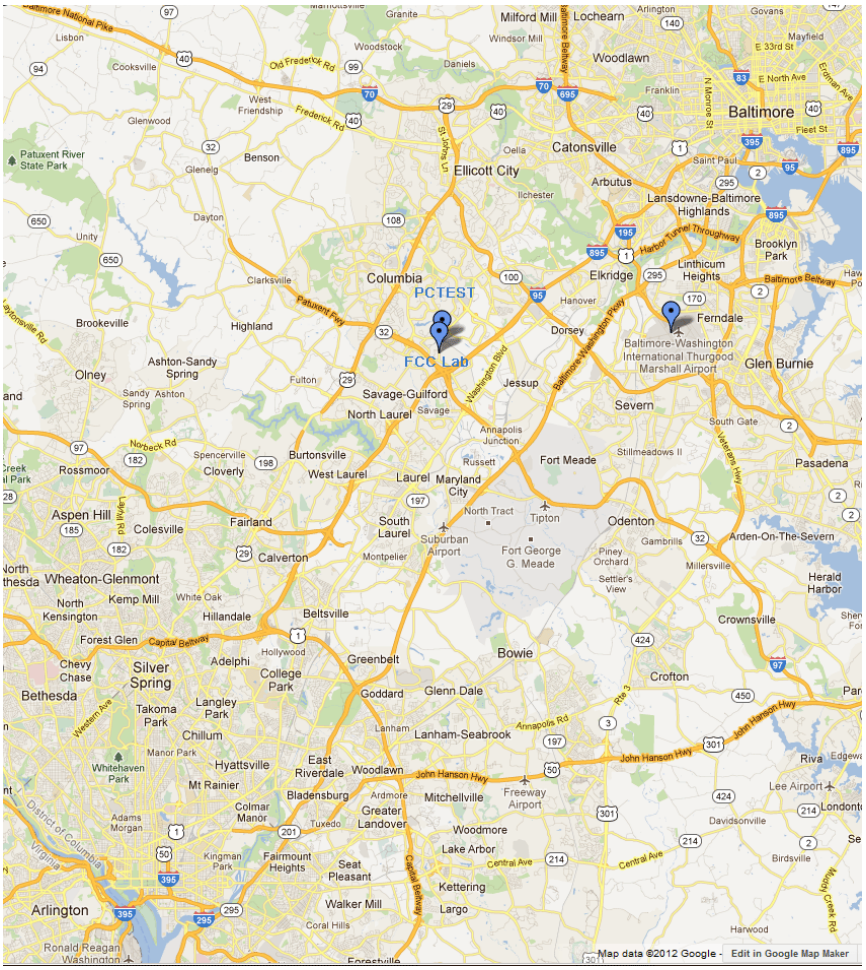


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Harris Wireless Module integrated into LMR Radio FCC ID: BV8BBPBM214**. The wireless LTE module (Harris Corp., FCC ID: BV8BBPBM214) was integrated into a previously certified PTT radio (FCC ID: OWDTR-0133-E). The EUT was evaluated for spurious radiated emissions of the integrated module as well as radiated simultaneous transmission emissions for this permissive change application.

2.2 Device Capabilities

Wireless LTE module (Harris Corp., FCC ID: BV8BBPBM214):
LTE Bands 4/13/14

PTT radio (FCC ID: OWDTR-0133-E):
VHF/UHF/700MHz/800MHz, 802.11b/g/n WLAN, 802.11a UNII, Bluetooth (1x, EDR, LE)

2.3 Test Configuration

The Harris Wireless Module integrated into LMR Radio FCC ID: BV8BBPBM214 was tested while integrated into the host LMR PTT radio per the guidance of ANSI/TIA-603-D-2010 and KDB 971168 D01 v02r02. See Section 7.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

2.4 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

The measurement procedures described in the document titled "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/TIA-603-D-2010) and "Procedures for Compliance Measurement of the Fundamental Emission Power of Licensed Wideband (> 1 MHz) Digital Transmission Systems" (KDB 971168 D01 v02r02) were used in the measurement of the **Harris Wireless Module integrated into LMR Radio FCC ID: BV8BBPBM214.**

3.2 Radiated Power and Radiated Spurious Emissions

§2.1053 §27.50(b.10) §27.50(d.4) §27.53(f) §27.53(h)

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Figure 5.7 of Clause 5 in ANSI C63.4-2014. Absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections for measurements above 1GHz. For measurements below 1GHz, the absorbers are removed. A raised turntable is used for radiated measurement. The turn table is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. A 72.4cm high PVC support structure is placed on top of the turntable. A 3" (~7.6cm) sheet of high density polystyrene is used as the table top and is placed on top of the PVC supports to bring the total height of the table to 80cm.

The equipment under test was transmitting while connected to its integral antenna and is placed on a turntable 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer. Radiated power levels are also investigated with the receive antenna horizontally and vertically polarized. The maximized power level is recorded using the spectrum analyzer "Channel Power" function with the integration band set to the emissions' occupied bandwidth, a RMS detector, RBW = 100kHz, VBW = 300kHz, and a 1 second sweep time over a minimum of 10 sweeps, per the guidelines of KDB 971168 D01 v02r02.

Per the guidance of ANSI/TIA-603-D-2010, a half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

$$P_{d\ [dBm]} = P_{g\ [dBm]} - \text{cable loss}_{\ [dB]} + \text{antenna gain}_{\ [dBd/dBi]}$$

Where, P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_{g\ [dBm]}$ – cable loss $_{[dB]}$.

The calculated P_d levels are then compared to the absolute spurious emission limit of -13dBm which is equivalent to the required minimum attenuation of 43 + $10\log_{10}$(Power $_{[Watts]}$).

4.0 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95% level of confidence. The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Contribution	Expanded Uncertainty (±dB)
Conducted Bench Top Measurements	1.13
Radiated Disturbance (<1GHz)	4.98
Radiated Disturbance (>1GHz)	5.07
Radiated Disturbance (>18GHz)	5.09

5.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST).

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	3/4/2016	Annual	3/4/2017	RE1
Agilent	E8267C	Vector Signal Generator	1/28/2016	Biennial	1/28/2018	US42340152
Agilent	N5183A	MXG Analog Signal Generator	2/24/2016	Biennial	2/24/2018	MY50141900
Agilent	N9020A	MXA Signal Analyzer	11/5/2015	Annual	11/5/2016	US46470561
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	7/30/2015	Biennial	7/30/2017	121034
Com-Power	PAM-103	Pre-Amplifier (1-1000MHz)	2/26/2016	Annual	2/26/2017	441119
Emco	3115	Horn Antenna (1-18GHz)	3/10/2016	Biennial	3/10/2018	9704-5182
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	4/26/2016	Biennial	4/26/2018	125518
ETS Lindgren	3164-08	Quad Ridge Horn Antenna	10/22/2014	Biennial	10/22/2016	128338
Mini Circuits	PWR-SEN-4GHS	USB Power Sensor	3/4/2016	Annual	3/4/2017	11401010036
Mini Circuits	TVA-11-422	RF Power Amp	N/A			QA1317001
Mini-Circuits	SSG-4000HP	Synthesized Signal Generator	N/A			11208010032
PCTEST	-	EMC Switch System	7/11/2016	Annual	7/11/2017	NM2
Rhode & Schwarz	TS-PR18	Pre-Amplifier	3/7/2016	Annual	3/7/2017	101622
Rohde & Schwarz	CMW500	Radio Communication Tester	4/26/2016	Annual	4/26/2017	112347
Rohde & Schwarz	ESU26	EMI Test Receiver (26.5GHz)	5/16/2016	Annual	5/16/2017	100342
Rohde & Schwarz	TS-PR18	1-18 GHz Pre-Amplifier	3/7/2016	Annual	3/7/2017	100071
Seekonk	NC-100	Torque Wrench 5/16", 8" lbs	3/2/2016	Biennial	3/2/2018	N/A
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	3/14/2016	Biennial	3/14/2018	A051107

Table 5-1. Test Equipment

Notes:

1. For equipment listed above that has a calibration date or calibration due date that falls within the test date range, care was taken to ensure that this equipment was used after the calibration date and before the calibration due date.

2. Equipment with a calibration date of “N/A” shown in this list was not used to make direct calibrated measurements.

6.0 SAMPLE CALCULATIONS

Spurious Radiated Emission – LTE Band

Example: Middle Channel LTE Mode 2nd Harmonic (1564 MHz)

The average spectrum analyzer reading at 3 meters with the EUT on the turntable was –81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of –81.0 dBm on the spectrum analzyer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 1564 MHz. So 6.1 dB is added to the signal generator reading of –30.9 dBm yielding –24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-24.80).

7.0 TEST RESULTS

7.1 Summary

Company Name: Harris Corporation
FCC ID: BV8BBPBM214
FCC Classification: PCS Licensed Transmitter (PCB)
Mode(s): LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Result	Reference
TRANSMITTER MODE (TX)					
2.1053, 22.359, 27.53(c), 27.53(h), 90.543	Undesirable Emissions	> 43 + 10log$_{10}$ (P[Watts]) for all out-of-band emissions	RADIATED	PASS	Section 7.2
27.53(f)	Undesirable Emissions (Band 13)	< -70 dBW/MHz (for wideband signals) < -80 dBW (for discrete emissions less than 700Hz BW) For all emissions in the band 1559 – 1610 MHz		PASS	Section 7.2

Table 7-1. Summary of Test Results

Note:

The EUT was investigated in standalone mode and for simultaneous emissions due to the integration of the LTE module into the original host PTT radio. Worst case emissions are shown in the following sections.

7.2 Radiated Spurious Emissions Measurements

§2.1053 §27.53(c) §27.53(f) §27.53(h)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 D01 v02r02 – Section 5.8

ANSI/TIA-603-D-2010 – Section 2.2.12

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW ≥ 3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points ≥ 2 x span / RBW
5. Detector = Peak
6. Trace mode = max hold
7. The trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

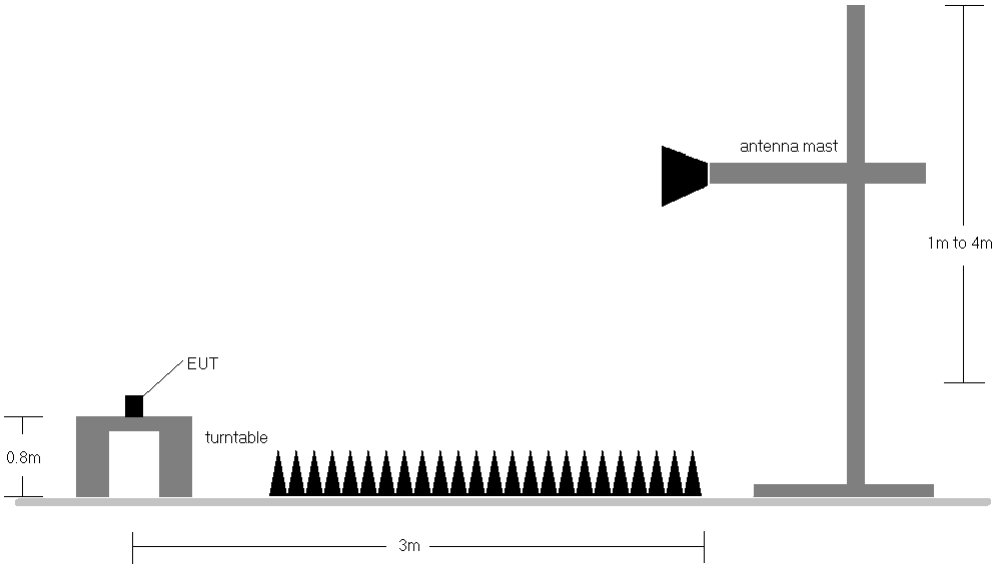


Figure 7-1. Test Instrument & Measurement Setup

Test Notes

1) The EUT was tested in all possible test modes, antennas, and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.

2) This unit was tested with its standard battery.

3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.

4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

6) The PTT button on the radio was keyed while LTE was transmitting to enable simultaneous Tx.

7) The wide spectrum spurious emissions plots shown on the following pages are uncorrected and used only for the purpose of emission identification.

8) Initially, spurious emissions of the integral antenna were checked for operation of LTE Band 13, 14 and 4. Additionally, the worst case LMR antenna was connected to the EUT to ensure LTE spurious emissions compliance.

9) During simultaneous transmission emission investigation, any new intermodulation emissions were measured and included in the table following the plot.

10) Simultaneous transmission was also investigated during operation of Bluetooth and WLAN. Worst case data was noted with 5GHz WLAN operation.

7.2.1 Radiated Spurious Emissions Measurements (LTE)

OPERATING FREQUENCY:	782.00	MHz
CHANNEL:	23230	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	H	3.85	27	-25.89	3.67	-22.22	-9.2
3128.00	H	2.16	312	-54.53	5.17	-49.36	-36.4
3910.00	H	3.73	78	-54.05	6.42	-47.63	-34.6
4692.00	H	-	-	-54.74	7.45	-47.29	-34.3

Table 7-2. Radiated Spurious Data (Band 13 – Mid Channel)

OPERATING FREQUENCY:	782.00	MHz
CHANNEL:	23230	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.00	MHz
DISTANCE:	3	meters
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	H	3.33	234	-51.49	3.80	-47.69	-7.7

Table 7-3. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	H	1.20	204	-51.97	6.57	-45.40	-5.4

Table 7-4. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)
LMR Wideband Whip, UHF, 7/800 MHz (SN: 14035-4420-01)

OPERATING FREQUENCY:	793.00	MHz
CHANNEL:	23330	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Margin [dB]
2379.00	H	2.41	27	-24.63	3.67	-20.96	-8.0
3172.00	H	2.17	305	-53.16	5.17	-47.99	-35.0
3965.00	H	3.21	74	-52.79	6.42	-46.37	-33.4
4758.00	H	-	-	-54.41	7.45	-46.96	-34.0

Table 7-5. Radiated Spurious Data (Band 14 – Mid Channel)

OPERATING FREQUENCY:	793.00	MHz
CHANNEL:	23330	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.00	MHz
DISTANCE:	3	meters
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Margin [dB]
1586.00	H	1.26	336	-51.32	3.86	-47.46	-7.5

Table 7-6. Radiated Spurious Data (Band 14 – 1559-1610MHz Band)

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Margin [dB]
1586.00	H	1.78	251	-53.11	6.64	-46.47	-6.5

Table 7-7. Radiated Spurious Data (Band 14 – 1559-1610MHz Band)
LMR Wideband Whip, UHF, 7/800 MHz (SN: 14035-4420-01)

OPERATING FREQUENCY:	1720.00	MHz
CHANNEL:	20050	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3440.00	H	2.22	79	-47.88	8.20	-39.68	-26.7
5160.00	H	1.95	76	-36.01	10.30	-25.71	-12.7
6880.00	H	-	-	-53.49	11.43	-42.06	-29.1

Table 7-8. Radiated Spurious Data (Band 4 – Low Channel)

OPERATING FREQUENCY:	1732.50	MHz
CHANNEL:	20175	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3465.00	H	2.48	74	-45.44	8.29	-37.15	-24.2
5197.50	H	2.80	104	-36.34	10.35	-25.99	-13.0
6930.00	H	-	-	-54.20	11.49	-42.71	-29.7

Table 7-9. Radiated Spurious Data (Band 4 – Mid Channel)

OPERATING FREQUENCY:	1745.00	MHz
CHANNEL:	20300	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	H	1.84	267	-49.52	8.37	-41.15	-28.1
5235.00	H	1.87	254	-33.88	10.35	-23.52	-10.5
6980.00	H	-	-	-54.17	11.53	-42.64	-29.6

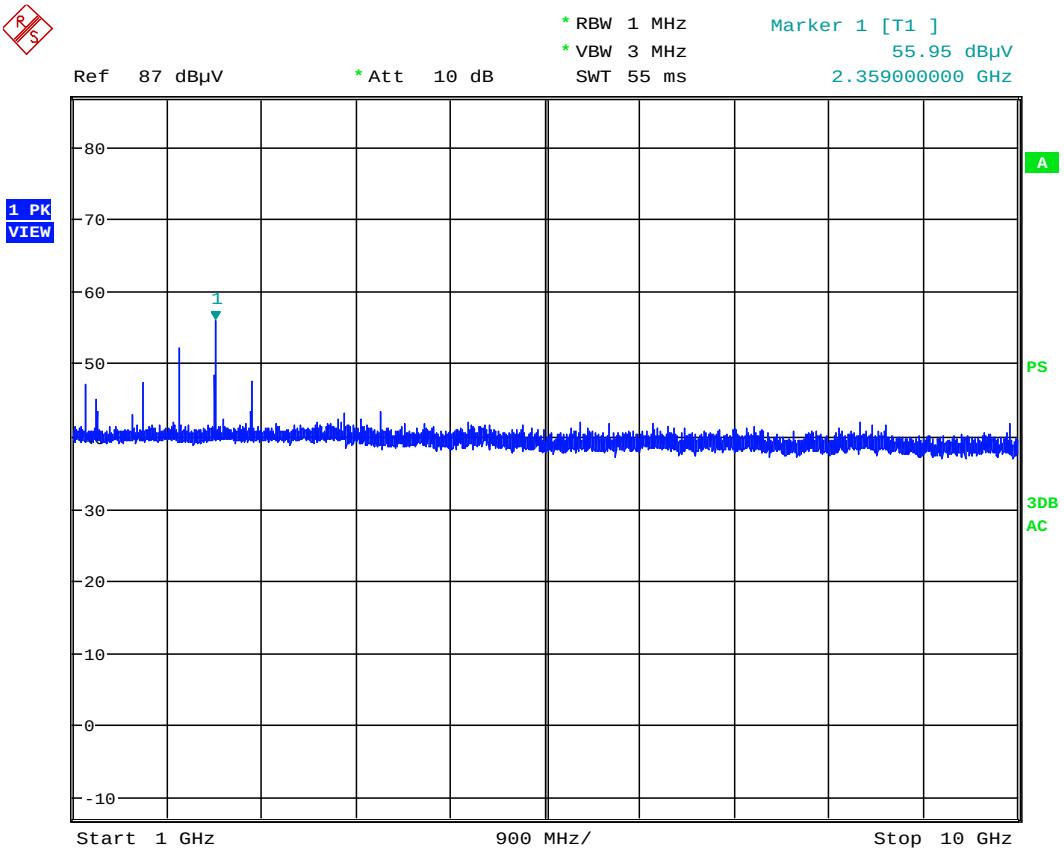
Table 7-10. Radiated Spurious Data (Band 4 – High Channel)

OPERATING FREQUENCY:	1745.00	MHz
CHANNEL:	20300	
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	20.0	MHz
DISTANCE:	3	meters
LIMIT:	-13	dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	H	1.75	258	-50.14	8.37	-41.77	-28.8
5235.00	H	1.77	244	-34.47	10.35	-24.11	-11.1
6980.00	H	-	-	-54.72	11.53	-43.19	-30.2

Table 7-11. Radiated Spurious Data (Band 4 – High Channel)
LMR Wideband Whip, UHF, 7/800 MHz (SN: 14035-4420-01)

7.2.2 Radiated Spurious Emissions Measurements (Simultaneous Tx)



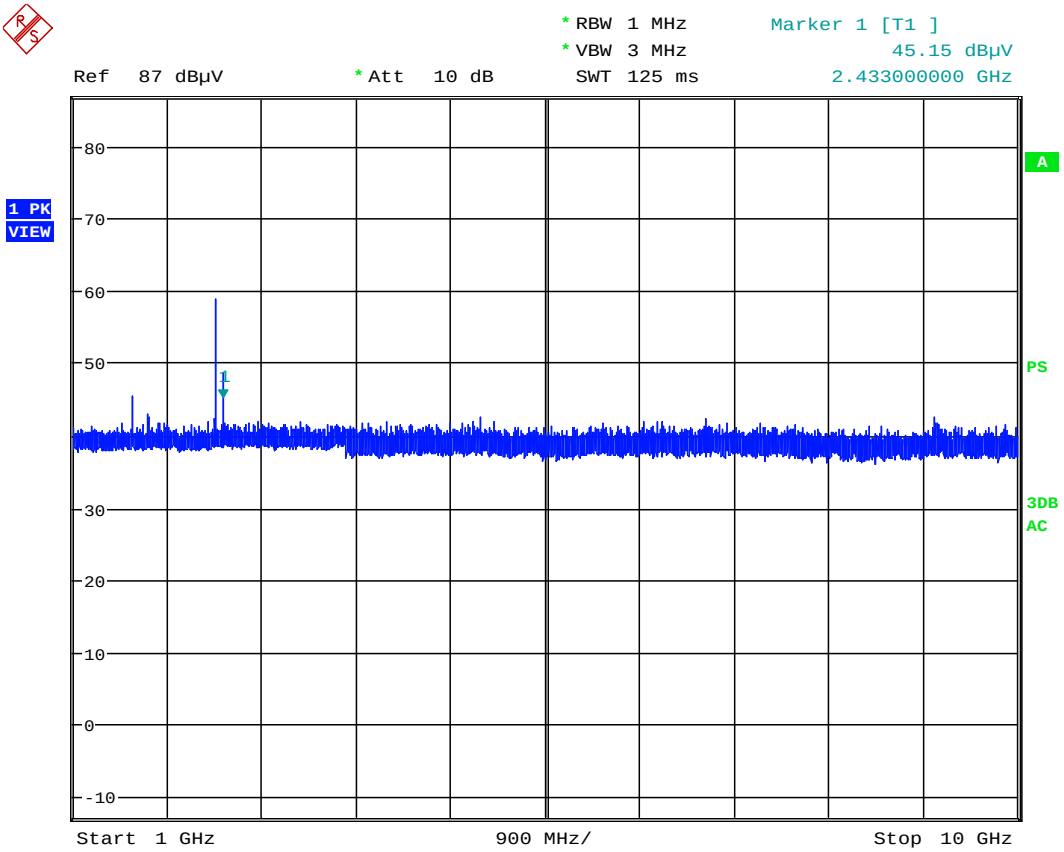
Date: 22.JUL.2016 18:29:23

Plot 7-12. Radiated Spurious Plot from 1GHz – 18GHz (LTE Band 13 + VHF)

MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.00	MHz
DISTANCE:	3	meters
LTE Tx FREQUENCY	782.0	MHz
VHF Tx FREQUENCY	445.00625	MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1129.00	H	1.15	25	-58.79	1.44	-57.35	-13.00	-44.3
1232.00	H	1.24	54	-57.63	1.68	-55.95	-13.00	-42.9
1677.00	H	1.47	76	-53.70	3.50	-50.20	-13.00	-37.2
2019.00	H	1.35	113	-43.08	2.97	-40.11	-13.00	-27.1

Table 7-13. Radiated Spurious Data (LTE Band 13 + VHF)

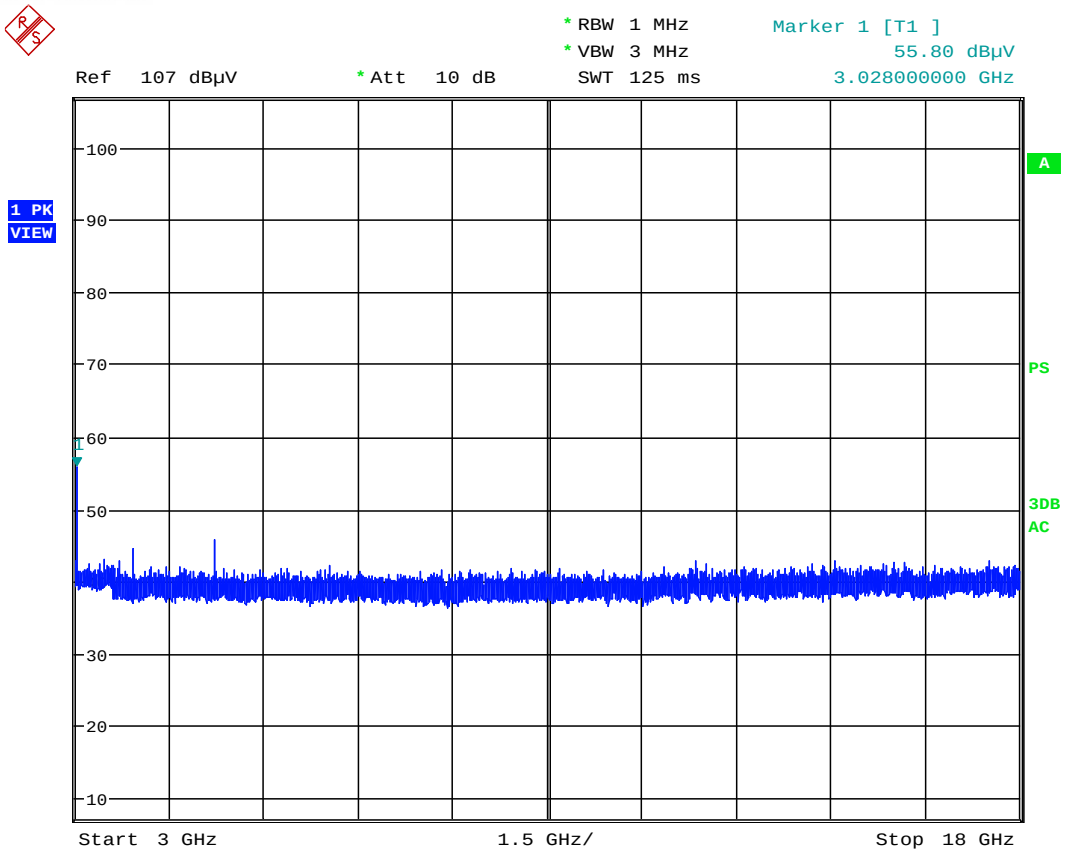


Plot 7-14. Radiated Spurious Plot from 1GHz – 18GHz (LTE Band 13 + 800)

MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.00	MHz
DISTANCE:	3	meters
LTE Tx FREQUENCY	782.0	MHz
VHF Tx FREQUENCY	859.95	MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
2433.00	H	1.19	101	-49.46	3.59	-45.87	-13.00	-32.9

Table 7-15. Radiated Spurious Data (LTE Band 13 + 800)



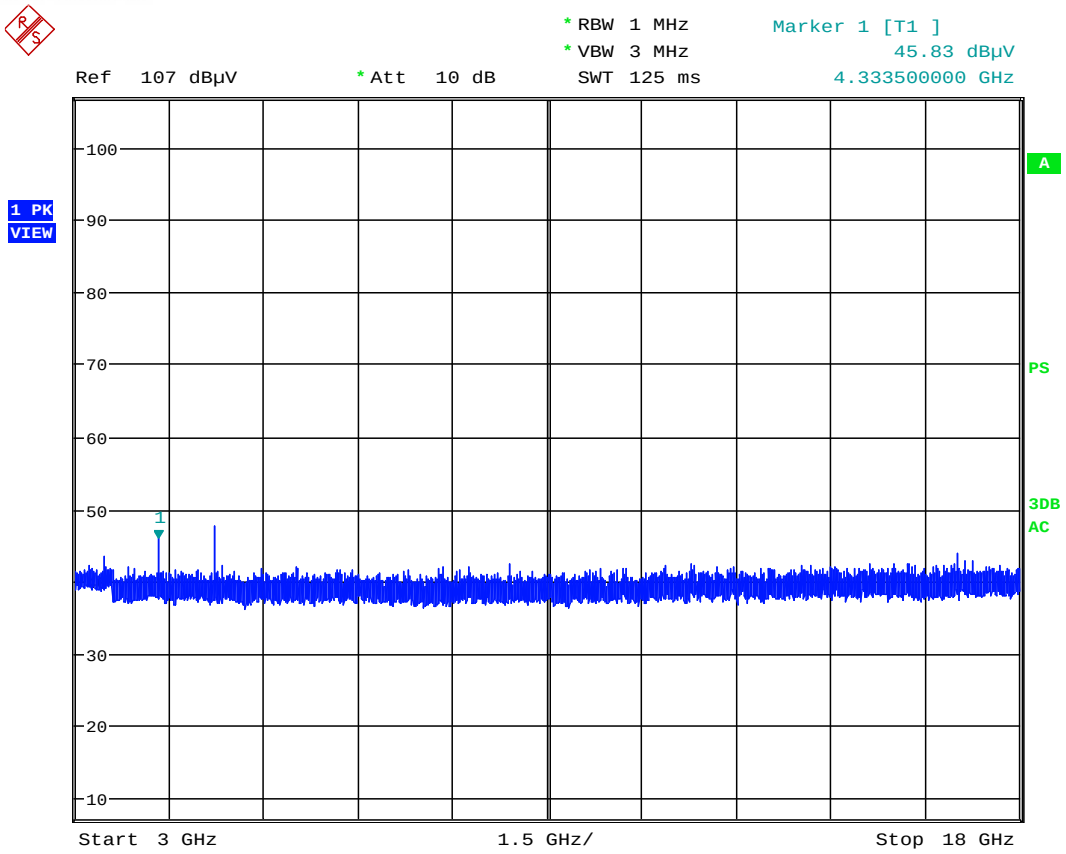
Date: 29.JUL.2016 16:20:33

Plot 7-16. Radiated Spurious Plot from 1GHz – 18GHz (LTE Band 4 + VHF)

MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.00	MHz
DISTANCE:	3	meters
LTE Tx FREQUENCY	1732.5	MHz
VHF Tx FREQUENCY	445.00625	MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3028.00	H	1.41	32	-45.82	7.28	-38.54	-13.00	-25.5
3918.00	H	1.36	49	-38.97	8.74	-30.23	-13.00	-17.2

Table 7-17. Radiated Spurious Data (LTE Band 4 + VHF)

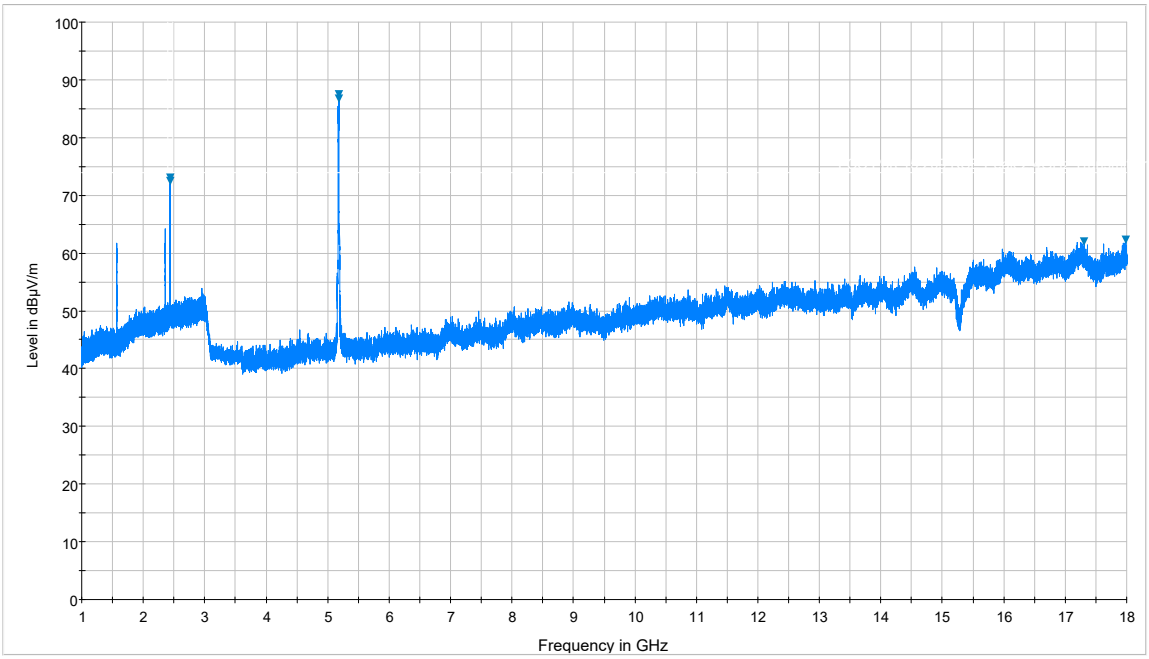


Plot 7-18. Radiated Spurious Plot from 1GHz – 18GHz (LTE Band 4 + 800)

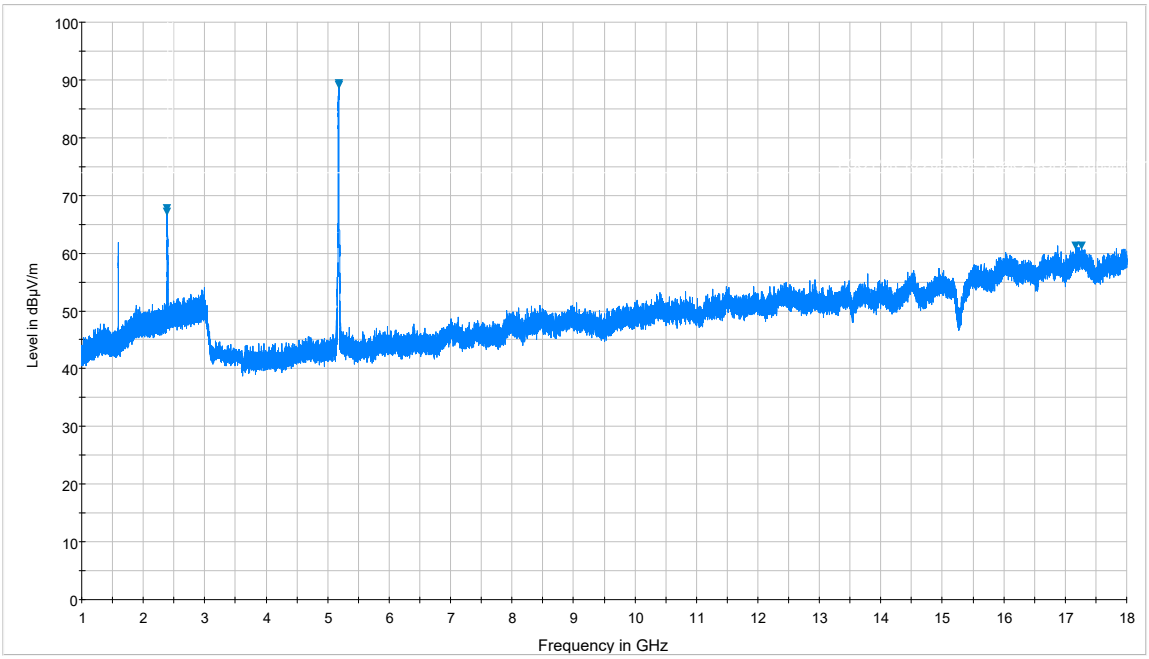
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.00	MHz
DISTANCE:	3	meters
LTE Tx FREQUENCY	1732.5	MHz
VHF Tx FREQUENCY	859.95	MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3454.00	H	1.45	77	-57.27	8.23	-49.04	-13.00	-36.0
4332.00	H	1.18	114	-43.43	9.52	-33.91	-13.00	-20.9

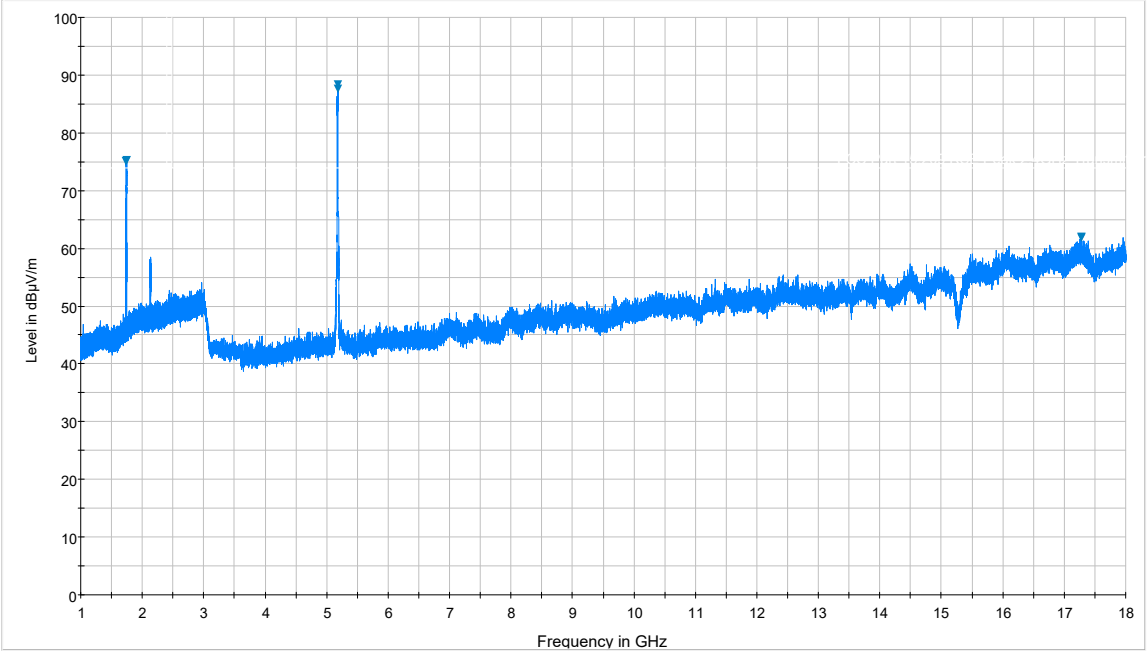
Table 7-19. Radiated Spurious Data (LTE Band 4 + 800)



Plot 7-20. Radiated Spurious Plot from 1GHz – 18GHz (Pol. H, LTE Band 13 + WLAN)



Plot 7-21. Radiated Spurious Plot from 1GHz – 18GHz (Pol. H, LTE Band 14+ WLAN)



Plot 7-22. Radiated Spurious Plot from 1GHz – 18GHz (Pol. H, LTE Band 4 + WLAN)

Frequency [MHz]	Detector	Ant. Pol. [H/V]	Antenna Height [m]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	Limit [dBµV/m]	Margin [dB]
2350.00	Avg	H	1.65	175	-103.48	45.77	49.29	53.98	-4.69
2350.00	Peak	H	1.65	175	-92.10	45.77	60.67	73.98	-13.31

Table 7-23. Radiated Spurious Data (LTE Band 4 + WLAN)

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Harris Wireless Module integrated into LMR Radio FCC ID: BV8BBPBM214** complies with the requirements of Parts 22, 27, 74, 80, and 90 of the FCC rules for simultaneous transmission operation when integrated into the host device Harris model XL-200P LMR radio.