

TEST REPORT

Report Number: R14275554-E4

Applicant : InfoBionic, Inc
400 Totten Pond Rd STE 315
Waltham, MA, 02451, U.S.A

Model : MOME ARC GATEWAY

Contains FCC ID : 2AHLC01856

EUT Description : GATEWAY

Test Standard(s) : FCC CFR47 Part 2, Part 22, Part 24, Part 27, Part 90

Date Of Issue:

2023-12-13

Prepared by:

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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2022-10-10	Initial Review	Noah Bennett
V2	2023-09-30	Added Additional Radiated Test Data for all supported bands.	Noah Bennett
V3	2023-10-17	Corrected EUT Description on title page and Section 1.	Noah Bennett
V4	2023-11-30	Added power and EIRP sections to report Clarified verbiage throughout report.	Noah Bennett
V5	2023-12-06	Added Statement to section 2 and 6.5 clarifying data leveraging	Noah Bennett
V6	2023-12-07	Corrected Emission Designators Added UL SAR Report reference to section 6.2 and 6.5	Noah Bennett
V7	2023-12-13	Section 6.2 Emission Designator Corrections	Noah Bennett

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	4
2. SUMMARY OF TEST RESULTS	5
3. TEST METHODOLOGY	5
4. FACILITIES AND ACCREDITATION	5
5. DECISION RULES AND MEASUREMENT UNCERTAINTY	6
5.1. METROLOGICAL TRACEABILITY	6
5.2. DECISION RULES	6
5.3. MEASUREMENT UNCERTAINTY.....	6
5.4. SAMPLE CALCULATION.....	6
6. EQUIPMENT UNDER TEST	7
6.1. DESCRIPTION OF EUT	7
6.2. MAXIMUM OUTPUT POWER	7
6.3. SOFTWARE AND FIRMWARE	7
6.4. MAXIMUM ANTENNA GAIN.....	10
6.5. WORST-CASE CONFIGURATION AND MODE.....	11
6.6. DESCRIPTION OF TEST SETUP	12
7. TEST AND MEASUREMENT EQUIPMENT	14
7.1.1. Testing performed from 2022-08-29 to 2022-08-31:	14
7.1.2. Testing Performed from 2023-09-22 to 2023-09-26	15
8. RADIATED TEST RESULTS	16
8.1. FIELD STRENGTH OF SPURIOUS RADIATION ABOVE 1GHz.....	34
8.1.1. WCDMA BAND 2.....	35
8.1.2. WCDMA BAND 4.....	39
8.1.3. WCDMA BAND 5.....	44
8.1.4. LTE2	48
8.1.5. LTE5	52
8.1.6. LTE12.....	56
8.1.7. LTE13.....	60
8.1.8. LTE14.....	62
8.1.9. LTE66.....	64
8.1.10. LTE71	68
9. SETUP PHOTOS	72

1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	InfoBionic, Inc 400 Totten Pond Rd STE 315 Waltham, MA, 02451, U.S.A	
Model	MoMe ARC Gateway	
Contains FCC ID	2AHL01856	
EUT Description	GATEWAY	
Serial Number	MIB1033	
Sample Receipt Date	2022-08-15; 2023-09-22; 2023-09-25	
Date Tested	2022-08-29 to 2022-08-31; 2023-09-22 to 2023-09-26	
Applicable Standards	FCC CFR47 Part 22, Part 24, Part 27, Part 90	
Test Results	COMPLIES	
<p>UL LLC. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.</p> <p>The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.</p> <p>This document may not be altered or revised in any way unless done so by UL LLC. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC. will constitute fraud and shall nullify the document.</p>		
Reviewed By:	Prepared By:	
		
Jeff Moser Operations Manager UL LLC.	Noah Bennett Electrical Engineer UL LLC.	

2. SUMMARY OF TEST RESULTS

This report contains data provided by the customer which can impact the validity of results. UL LLC. is only responsible for the validity of results after the integration of the data provided by the customer.

Requirement Description	Requirement Clause Number (FCC)	Result	Remarks
Field Strength of Spurious Radiation	2.1053, 22.917 (a), 24.238 (a), 27.53 (c) (f) (h) (g), 90.543 (e) (f)	See Remarks	See Note 1.

Note 1: Previously tested. This test report covers the assessment of the WWAN Radio of the MOME ARC GATEWAY host product via full radiated emissions testing to verify continued compliance. It is the responsibility of the end product manufacturer to provide the original module reports to show full compliance to the FCC requirements. Additionally, this report leverages conducted test data from the original manufacturers certification. The client has declared that the original test data is still representative of this module's emissions/performance and all current FCC Rule Parts have been met.

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the following:

- ANSI C63.26:2015
- FCC CFR 47 Part 2, Part 22, Part 24, Part 27, Part 90.
- [FCC KDB 971168 D01 v03r01](#): Power Meas License Digital Systems
- [FCC KDB 971168 D02 v02r01](#): Misc Rev Approv License Devices
- [FCC KDB 412172 D01 v01r01](#). Determining ERP and EIRP
- FCC KDB 996369 D04 Module Integration Guide v02

4. FACILITIES AND ACCREDITATION

UL LLC is accredited by A2LA, Certificate Number # 0751.06, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
<input checked="" type="checkbox"/>	Building 2800 Suite Perimeter Park Dr. Suite B Morrisville, NC 27560, U.S.A	US0067	27265	825374

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U_{Lab}
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 db

Uncertainty figures are valid to a confidence level of 95%.

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.

$$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$$

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The EUT is a BLE to Cellular Gateway that contains a BLE, WPT and WWAN radio. This report covers the full radiated emissions testing for the WWAN radio.

6.2. MAXIMUM OUTPUT POWER

EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015

KDB 971168 D01 Section 5.6

$$ERP/EIRP = P_{Meas} + GT - LC$$

where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as P_{Meas}, typically dBW or dBm);

P_{Meas} = measured transmitter output power or PSD, in dBm or dBW;

GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

The transmitter has a maximum average conducted and ERP / EIRP output powers as follows:

Note: The conducted output power measurements are equal to or lower than the original module report to meet RF Exposure requirements. Please reference UL Report R14275554-S1 FCC SAR Report for full details, declared tune-up, and measurement equipment.

WCDMA MODE

Part 22 Band 5								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
826.4-846.6	REL 99	23.20	-0.30	7.0	20.75	0.119	4139	4M14G7W
	HSDPA	23.20			20.75	0.119	4193	4M19D7W
Part 24 Band 2								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1852.4-1907.6	REL 99	22.40	1.70	2.0	24.10	0.257	4138	4M14G7W
	HSDPA	22.20			23.90	0.245	4133	4M13D7W
Part 27 Band 4								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1712.4-1752.6	REL 99	23.70	0.42	1.0	24.12	0.258	4135	4M14G7W
	HSDPA	22.40			22.82	0.191	4127	4M13D7W

LTE BAND 2

Part 24								
EIRP Limit (W)		2.00						
Antenna Gain (dBi)		1.70						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	1850.7	1909.3	21.80	23.50	0.224	1096	1M10G7W
	16QAM			20.40	22.10	0.162	1096	1M10D7W
3.0	QPSK	1851.5	1908.5	21.50	23.20	0.209	2685	2M69G7W
	16QAM			20.20	21.90	0.155	2688	2M69D7W
5.0	QPSK	1852.5	1907.5	21.70	23.40	0.219	4477	4M48G7W
	16QAM			20.00	21.70	0.148	4481	4M48D7W
10.0	QPSK	1855.0	1905.0	21.90	23.60	0.229	8933	8M93G7W
	16QAM			20.60	22.30	0.170	8927	8M93D7W
15.0	QPSK	1857.5	1902.5	22.10	23.80	0.240	13387	13M4G7W
	16QAM			20.80	22.50	0.178	13384	13M4D7W
20.0	QPSK	1860.0	1900.0	22.00	23.70	0.234	17818	17M8G7W
	16QAM			20.20	21.90	0.155	17806	17M8D7W

LTE BAND 5

Part 22H								
ERP Limit (W)		7.00						
Antenna Gain (dBi)		-0.30						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	824.7	848.3	23.70	21.25	0.133	1094	1M09G7W
	16QAM			22.90	20.45	0.111	1098	1M10D7W
3.0	QPSK	825.5	847.5	23.50	21.05	0.127	2687	2M69G7W
	16QAM			22.80	20.35	0.108	2687	2M69D7W
5.0	QPSK	826.5	846.5	24.00	21.55	0.143	4476	4M48G7W
	16QAM			23.10	20.65	0.116	4475	4M48D7W
10.0	QPSK	829.0	844.0	23.50	21.05	0.127	8944	8M94G7W
	16QAM			22.50	20.05	0.101	8934	8M93D7W

LTE BAND 12

Part 27								
ERP Limit (W)		3.00						
Antenna Gain (dBi)		-0.70						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	699.7	715.3	24.00	21.15	0.130	1094	1M09G7W
	16QAM			23.40	20.55	0.114	1097	1M10D7W
3.0	QPSK	700.5	714.5	23.80	20.95	0.124	2683	2M68G7W
	16QAM			23.40	20.55	0.114	2683	2M68D7W
5.0	QPSK	701.5	713.5	23.80	20.95	0.124	4479	4M48G7W
	16QAM			22.60	19.75	0.094	4477	4M48D7W
10.0	QPSK	704.0	711.0	23.90	21.05	0.127	8943	8M94G7W
	16QAM			23.00	20.15	0.104	8937	8M94D7W

LTE BAND 13

Part 27								
ERP Limit (W)		3.00						
Antenna Gain (dBi)		-0.10						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	779.5	784.5	23.70	21.45	0.140	4462	4M46G7W
	16QAM			23.40	21.15	0.130	4459	4M46D7W
10.0	QPSK	782.0	782.0	23.70	21.45	0.140	8904	8M90G7W
	16QAM			23.70	21.45	0.140	8907	8M91D7W

LTE BAND 14

Part 90R								
ERP Limit (W)		3.00						
Antenna Gain (dBi)		-0.70						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	790.5	795.5	24.10	21.25	0.133	4469	4M47G7W
	16QAM			22.50	19.65	0.092	4467	4M47D7W
10.0	QPSK	793.0	793.0	23.20	20.35	0.108	8903	8M90G7W
	16QAM			23.00	20.15	0.104	8911	8M91D7W

LTE BAND 66

Part 27								
EIRP Limit (W)		1.00						
Antenna Gain (dBi)		0.42						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	EIRP Average (dBm)	EIRP Average (W)	99% BW (kHz)	Emission Designator
1.4	QPSK	1710.7	1779.3	23.60	24.02	0.252	1093	1M09G7W
	16QAM			23.00	23.42	0.220	1098	1M10D7W
3.0	QPSK	1711.5	1778.5	23.30	23.72	0.236	2687	2M69G7W
	16QAM			22.80	23.22	0.210	2689	2M69D7W
5.0	QPSK	1712.5	1777.5	23.60	24.02	0.252	4474	4M47G7W
	16QAM			22.80	23.22	0.210	4476	4M48D7W
10.0	QPSK	1715.0	1775.0	23.70	24.12	0.258	8927	8M93G7W
	16QAM			23.30	23.72	0.236	8933	8M93D7W
15.0	QPSK	1717.5	1772.5	24.60	25.02	0.318	13402	13M4G7W
	16QAM			23.40	23.82	0.241	13396	13M4D7W
20.0	QPSK	1720.0	1770.0	24.00	24.42	0.277	17.826	17K8G7W
	16QAM			23.60	24.02	0.252	17.822	17K8D7W

LTE BAND 71

Part 27								
ERP Limit (W)		3.00						
Antenna Gain (dBi)		-1.00						
Bandwidth (MHz)	Modulation	Low Frequency (MHz)	Upper Frequency (MHz)	Conducted Average (dBm)	ERP Average (dBm)	ERP Average (W)	99% BW (kHz)	Emission Designator
5.0	QPSK	665.5	695.5	23.30	20.15	0.104	4464	4M46G7W
	16QAM			22.90	19.75	0.094	4467	4M47D7W
10.0	QPSK	668.0	693.0	23.40	20.25	0.106	8897	8M90G7W
	16QAM			23.30	20.15	0.104	8889	8M89D7W
15.0	QPSK	670.5	690.5	23.30	20.15	0.104	13321	13M3G7W
	16QAM			22.30	19.15	0.082	13306	13M3D7W
20.0	QPSK	673.0	688.0	23.60	20.45	0.111	17718	17M7G7W
	16QAM			23.10	19.95	0.099	17698	17M7D7W

6.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was Gateway Nordic Bootloader + App: V00.1355, Gateway STM Bootloader: V00.1350.

The test software used was Gateway STM App: V00.1344, Gateway GUI: V00.1212..

6.4. MAXIMUM ANTENNA GAIN

The antenna(s) gain and type, as provided by the manufacturer' are as follows:

Frequency Range (MHz)	Antenna Gain (dBi)
LTE2,1850 - 1910 MHz	1.70
LTE4,1710 - 1755 MHz	0.42
LTE5,824 - 849 MHz	-0.30
LTE12,699 - 716 MHz	-0.70
LTE13,777 - 787 MHz	-0.10
LTE14,788 - 798 MHz	-0.70
LTE66,1710 - 1780 MHz	0.42
LTE71,663 - 698 MHz	-1.00

6.5. WORST-CASE CONFIGURATION AND MODE

The EUT supports Cellular Bands of:

WCDMA 2, WCDMA 4, WCDMA 5, LTE Band 2, Band 4, Band 5, Band 12, Band 13, Band 14, Band 66 and Band 71.

LTE Band 4 is covered by LTE Band 66, as LTE Band 4 is a subset of Band 66, in which it has the same or lower measured power values.

The worst-case scenario for all measurements is based on the average conducted output power measurement from previous certification reports. It was found that QPSK results were worst case for LTE and Rel 99 was worst case for WCDMA. All testing was performed using QPSK (LTE) modulation and REL99 (WCDMA) to represent the worst case. The EUT has an antenna for BLE, and a separate antenna for WWAN.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, for Low Band, and Mid Band. It was determined that X orientation was WC for both Low Band, and Mid Band. Therefore, all testing was performed in the X Orientation.

The Module was tested at maximum bandwidth, lowest RB setting and QPSK/Rel 99 modulation to represent worst case. 16QAM, HDSPA modes were tested, but only the worst-case margin modulations are reported.

The EUT was tested from 9kHz-30MHz, 30MHz-1000MHz, and 18-26.5GHz on the worst-case configuration based upon conducted average power. No emissions within 20dB were observed (ref. ANSI C63.26 Section 5.1.1.c.).

For A1G Spurious testing, the EUT was tested while positioned on the MOME charger base, charging via WPT. For Scans BL1G, the EUT was tested on the charger base as well as the MOMO sensor, to represent worst-case.

This report leverages conducted test data from the original manufacturers certification. The client has declared that the original test data is still representative of this module's emissions/performance and all current FCC Rule Parts have been met.

Note: The conducted output power measurements are equal to or lower than the original module report to meet RF Exposure requirements. Please reference UL Report R14275554-S1 FCC SAR Report for full details, declared tune-up, and measurement equipment.

6.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	HDP	HDP12-MD05024U	N/A	N/A

I/O CABLES

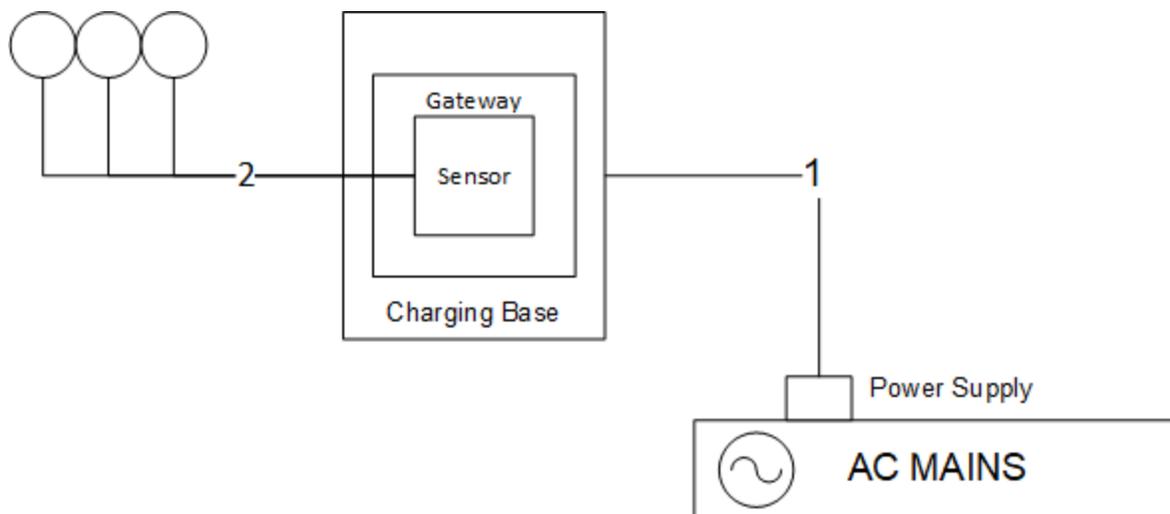
I/O Cable List						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB	1	USB	Shielded	<3m	Power Cable
2	N/A	3	Leads	Shielded	<3m	Lead Cables

TEST SETUP

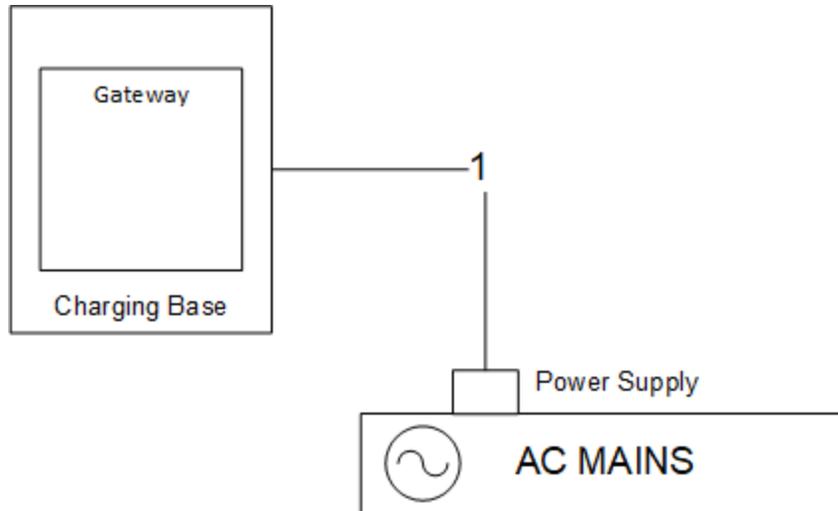
The EUT was connected to a Base Station simulator for the entirety of the test.

SETUP DIAGRAMS

BL1G Setup:



A1G Setup:



7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

7.1.1. Testing performed from 2022-08-29 to 2022-08-31:

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 2)

Equip. ID	Description	Manufacturer/Brand	Model Number	Last Cal.	Next Cal.
	1-18 GHz				
206211	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2022-03-21	2023-03-21
	Gain-Loss Chains				
C2-SAC03	Gain-loss string: 1-18GHz	Various	Various	2022-05-10	2023-05-10
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2022-03-08	2023-03-08
SA0020	Spectrum Analyzer	Agilent	E4446A	2022-06-08	2023-06-08
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
200540	Environmental Meter	Fisher Scientific	15-077-963 (s/n 181474409)	2021-09-27	2022-09-27
BRF010	1.85-1.97GHz notch filter, 2W, F _{high} = 9GHz	Micro-Tronics	BRM50714-01	2022-02-17	2023-02-17
BRF008	1710-1785MHz notch filter, 2W, F _{high} = 9GHz	Micro-Tronics	BRM50713-01	2022-02-17	2023-02-17

NOTES:

- * Testing is completed before equipment expiration date.
- Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

7.1.2. Testing Performed from 2023-09-22 to 2023-09-26

Test Equipment Used - Radiated Disturbance Emissions Test Equipment (Morrisville – Chamber 4)

Equip. ID	Description	Manufacturer/ Brand	Model Number	Last Cal.	Next Cal.
	0.009-30MHz				
135144	Active Loop Antenna	ETS-Lindgren	6502	2023-01-17	2024-01-17
	30-1000 MHz				
90629	Hybrid Broadband Antenna	Sunol Sciences Corp.	JB3	2023-01-06	2024-01-06
	1-18 GHz				
89509	Double-Ridged Waveguide Horn Antenna, 1 to 18 GHz	ETS Lindgren	3117	2023-05-23	2025-05-23
	18-40 GHz				
204704	Horn Antenna, 18-26.5GHz	Com-Power	AH-826	2023-07-20	2025-07-20
	Gain-Loss Chains				
207638	Gain-loss string: 0.009-30MHz	Various	Various	2023-09-18	2024-09-18
207639	Gain-loss string: 25-1000MHz	Various	Various	2023-09-18	2024-09-18
207640	Gain-loss string: 1-18GHz	Various	Various	2023-05-17	2024-05-17
225795	Gain-loss string: 18-40GHz	Various	Various	2023-05-17	2024-05-17
	Receiver & Software				
197955	Spectrum Analyzer	Rohde & Schwarz	ESW44	2023-04-10	2024-04-10
90416	Spectrum Analyzer	Keysight	N9030A	2023-06-09	2024-06-30
SOFTEMI	EMI Software	UL	Version 9.5 (18 Oct 2021)		
	Additional Equipment used				
200540	Environmental Meter	Fisher Scientific	15-077-963	2022-10-05	2023-10-05
208721	Wideband Radio Communications Tester	Rohde and Schwarz	CMW500	2023-06-06	2024-06-06
169106 (BRF008)	1710-1785MHz notch filter, 2W, Fhigh = 9GHz	Micro-Tronics	BRM50713-01	2023-02-15	2024-02-29
150716 (LPF008)	DC-1000MHz low-pass filter	Pasternack	PE8720	2023-02-15	2024-02-29
82635 (HPF009)	1GHz high-pass filter, 2W, Fhigh =10GHz	Micro-Tronics	HPM17672	2023-02-15	2024-02-29
198917	1GHz high-pass filter, 2W, Fhigh =18GHz	Micro-Tronics	HPM18129-02	2023-07-20	2024-07-20
169108 (BRF010)	1.85-1.97GHz notch filter, 2W, Fhigh = 9GHz	Micro-Tronics	BRM50714-01	2023-02-15	2024-02-29

8. Conducted Output Power Measurements

8.1. W-CDMA

Per KDB 941225 D01 3G SAR Procedures for W-CDMA:

Maximum output power is verified on the high, middle and low channels and using the appropriate 12.2 kbps RMC with TPC (transmit power control) set to all "1's"

Release 99 Setup Procedures used to establish the test signals

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1. A summary of these settings is illustrated below:

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 2
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	β_c/β_d	8/15

HSDPA Setup Procedures used to establish the test signals

The following 4 Sub-tests were completed according to procedures in table C.10.1.4 of 3GPP TS 34.121-1. A summary of these settings is illustrated below:

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$, and $\Delta_{CQI} = 24/15$ with $\beta_{HS} = 24/15 * \beta_c$.

Note 3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{HS}/\beta_c = 24/15$. For all other combinations of DPCCH, DPCCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

HSUPA Setup Procedures used to establish the test signals

The following 5 Sub-tests were completed according to procedures in table C.11.1.3 of 3GPP TS 34.121-1. A summary of these settings is illustrated below:

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{HS} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 5/15$ with $\beta_{HS} = 5/15 * \beta_c$.

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{HS}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

DC-HSDPA Setup Procedures used to establish the test signals

The following 4 Sub-tests for DC-HSDPA were completed according to procedures in table C08.1.12 of 3GPP TS 34.121-1. A summary of subtest settings is illustrated below:

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1:	The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.	
Note 2:	Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.	

W-CDMA Band II Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)		
				Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	9262	1852.4	22.4	N/A	22.4
		9400	1880.0	22.4		
		9538	1907.6	22.3		
HSDPA	Subtest 1	9262	1852.4	22.1	0	22.4
		9400	1880.0	22.2		
		9538	1907.6	22.0		
	Subtest 2	9262	1852.4	22.1	0	22.4
		9400	1880.0	22.2		
		9538	1907.6	22.0		
	Subtest 3	9262	1852.4	21.6	0.5	21.9
		9400	1880.0	21.6		
		9538	1907.6	21.4		
	Subtest 4	9262	1852.4	21.5	0.5	21.9
		9400	1880.0	21.5		
		9538	1907.6	21.4		
HSUPA	Subtest 1	9262	1852.4	21.7	0	22.4
		9400	1880.0	21.1		
		9538	1907.6	21.5		
	Subtest 2	9262	1852.4	20.2	2	20.4
		9400	1880.0	20.0		
		9538	1907.6	20.1		
	Subtest 3	9262	1852.4	20.4	1	21.4
		9400	1880.0	20.7		
		9538	1907.6	20.4		
	Subtest 4	9262	1852.4	20.3	2	20.4
		9400	1880.0	20.4		
		9538	1907.6	20.4		
	Subtest 5	9262	1852.4	21.4	0	22.4
		9400	1880.0	21.5		
		9538	1907.6	21.5		
DC-HSDPA	Subtest 1	9262	1852.4	21.7	0	22.4
		9400	1880.0	21.8		
		9538	1907.6	21.7		
	Subtest 2	9262	1852.4	21.8	0	22.4
		9400	1880.0	22.0		
		9538	1907.6	21.9		
	Subtest 3	9262	1852.4	21.4	0.5	21.9
		9400	1880.0	21.5		
		9538	1907.6	21.4		
	Subtest 4	9262	1852.4	21.4	0.5	21.9
		9400	1880.0	21.5		
		9538	1907.6	21.4		

W-CDMA Band IV Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)		
				Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	1312	1712.4	23.4	N/A	23.8
		1413	1732.6	23.7		
		1513	1752.6	23.6		
HSDPA	Subtest 1	1312	1712.4	22.1	0	23.8
		1413	1732.6	22.2		
		1513	1752.6	22.1		
	Subtest 2	1312	1712.4	22.2	0	23.8
		1413	1732.6	22.4		
		1513	1752.6	22.3		
	Subtest 3	1312	1712.4	21.7	0.5	23.3
		1413	1732.6	21.9		
		1513	1752.6	21.7		
	Subtest 4	1312	1712.4	21.7	0.5	23.3
		1413	1732.6	21.8		
		1513	1752.6	21.7		
HSUPA	Subtest 1	1312	1712.4	21.8	0	23.8
		1413	1732.6	21.9		
		1513	1752.6	21.9		
	Subtest 2	1312	1712.4	21.2	2	21.8
		1413	1732.6	21.2		
		1513	1752.6	20.7		
	Subtest 3	1312	1712.4	21.1	1	22.8
		1413	1732.6	20.9		
		1513	1752.6	21.1		
	Subtest 4	1312	1712.4	21.6	2	21.8
		1413	1732.6	21.6		
		1513	1752.6	21.0		
	Subtest 5	1312	1712.4	21.9	0	23.8
		1413	1732.6	22.1		
		1513	1752.6	21.8		
DC-HSDPA	Subtest 1	1312	1712.4	22.2	0	23.8
		1413	1732.6	22.2		
		1513	1752.6	22.2		
	Subtest 2	1312	1712.4	22.2	0	23.8
		1413	1732.6	22.3		
		1513	1752.6	22.2		
	Subtest 3	1312	1712.4	21.7	0.5	23.3
		1413	1732.6	21.8		
		1513	1752.6	21.8		
	Subtest 4	1312	1712.4	21.8	0.5	23.3
		1413	1732.6	21.8		
		1513	1752.6	21.7		

W-CDMA Band V Measured Results

Mode		UL Ch No.	Freq. (MHz)	Maximum Average Power (dBm)		
				Measured Pwr	MPR	Tune-up Limit
Release 99	Rel 99 (RMC, 12.2 kbps)	4132	826.4	23.2	N/A	25.0
		4183	836.6	23.2		
		4233	846.6	23.2		
HSDPA	Subtest 1	4132	826.4	21.7	0	25.0
		4183	836.6	21.8		
		4233	846.6	21.7		
	Subtest 2	4132	826.4	21.8	0	25.0
		4183	836.6	21.9		
		4233	846.6	21.7		
	Subtest 3	4132	826.4	21.3	0.5	24.5
		4183	836.6	21.3		
		4233	846.6	21.2		
	Subtest 4	4132	826.4	21.3	0.5	24.5
		4183	836.6	21.3		
		4233	846.6	21.2		
HSUPA	Subtest 1	4132	826.4	21.1	0	25.0
		4183	836.6	21.7		
		4233	846.6	21.2		
	Subtest 2	4132	826.4	20.8	2	23.0
		4183	836.6	20.5		
		4233	846.6	20.6		
	Subtest 3	4132	826.4	20.4	1	24.0
		4183	836.6	20.6		
		4233	846.6	20.4		
	Subtest 4	4132	826.4	20.9	2	23.0
		4183	836.6	20.7		
		4233	846.6	21.0		
	Subtest 5	4132	826.4	21.4	0	25.0
		4183	836.6	21.4		
		4233	846.6	21.3		
DC-HSDPA	Subtest 1	4132	826.4	21.7	0	25.0
		4183	836.6	21.8		
		4233	846.6	21.7		
	Subtest 2	4132	826.4	21.8	0	25.0
		4183	836.6	21.9		
		4233	846.6	21.7		
	Subtest 3	4132	826.4	21.2	0.5	24.5
		4183	836.6	21.3		
		4233	846.6	21.2		
	Subtest 4	4132	826.4	21.3	0.5	24.5
		4183	836.6	21.4		
		4233	846.6	21.3		

8.2. LTE

The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 1, 2 and 3

Modulation	Channel bandwidth / Transmission bandwidth (N _{RB})						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2
64 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 2
64 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 3
256 QAM	≥ 1						≤ 5

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of “NS_01”.

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (subclause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N _{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	N/A

LTE Band 2 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				18700	18900	19100	MPR	Tune-up Limit
				1860 MHz	1880 MHz	1900 MHz		
20 MHz	QPSK	1	0	21.3	21.3	21.6	0	22.1
		1	49	21.8	21.8	22.0	0	22.1
		1	99	21.4	21.2	21.2	0	22.1
		50	0	20.4	20.7	20.4	1	21.1
		50	24	20.5	20.7	20.5	1	21.1
		50	50	20.6	20.5	20.4	1	21.1
		100	0	20.6	20.7	20.5	1	21.1
	16QAM	1	0	19.9	20.2	19.9	1	21.1
		1	49	20.0	19.9	20.2	1	21.1
		1	99	19.9	19.6	19.5	1	21.1
		12	0	19.7	20.1	20.1	2	20.1
		12	44	20.1	20.0	20.1	2	20.1
		12	88	20.0	20.0	19.8	2	20.1
		27	0	18.7	19.1	19.5	2	20.1
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				18675	18900	19125	MPR	Tune-up Limit
				1857.5 MHz	1880 MHz	1902.5 MHz		
15 MHz	QPSK	1	0	21.6	21.5	21.5	0	22.1
		1	37	21.9	22.1	21.6	0	22.1
		1	74	21.7	21.4	21.3	0	22.1
		36	0	20.6	20.6	20.4	1	21.1
		36	20	20.6	20.6	20.4	1	21.1
		36	39	20.6	20.4	20.3	1	21.1
		75	0	20.5	20.6	20.3	1	21.1
	16QAM	1	0	20.5	20.2	19.8	1	21.1
		1	37	20.6	20.1	20.2	1	21.1
		1	74	20.8	20.1	19.6	1	21.1
		12	0	19.7	20.0	20.0	2	20.1
		12	31	19.9	20.0	20.0	2	20.1
		12	63	20.0	19.9	20.0	2	20.1
		27	0	18.9	19.1	19.2	2	20.1
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				18650	18900	19150	MPR	Tune-up Limit
				1855 MHz	1880 MHz	1905 MHz		
10 MHz	QPSK	1	0	21.5	21.6	21.3	0	22.1
		1	25	21.7	21.9	21.3	0	22.1
		1	49	21.6	21.6	21.2	0	22.1
		25	0	20.4	20.7	20.4	1	21.1
		25	12	20.5	20.7	20.4	1	21.1
		25	25	20.5	20.5	20.3	1	21.1
		50	0	20.4	20.6	20.3	1	21.1
	16QAM	1	0	19.9	20.0	20.1	1	21.1
		1	25	20.0	20.6	20.1	1	21.1
		1	49	19.8	20.0	19.6	1	21.1
		12	0	19.8	20.0	20.1	2	20.1
		12	19	20.0	20.1	20.1	2	20.1
		12	38	20.1	20.1	19.9	2	20.1
		27	0	19.0	19.3	19.0	2	20.1

LTE Band 2 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				18625	18900	19175	MPR	Tune-up Limit
				1852.5 MHz	1880 MHz	1907.5 MHz		
5 MHz	QPSK	1	0	21.1	21.6	21.5	0	22.1
		1	12	21.2	21.7	21.5	0	22.1
		1	24	21.1	21.4	21.4	0	22.1
		12	0	20.4	20.8	20.5	1	21.1
		12	7	20.5	20.7	20.5	1	21.1
		12	13	20.5	20.7	20.7	1	21.1
		25	0	20.4	20.7	20.6	1	21.1
	16QAM	1	0	19.8	19.9	20.0	1	21.1
		1	12	19.7	19.6	19.8	1	21.1
		1	24	19.7	19.6	19.6	1	21.1
		12	0	18.7	19.0	18.8	2	20.1
		12	7	18.8	18.9	18.8	2	20.1
		12	13	18.8	18.8	18.9	2	20.1
		25	0	18.9	19.1	19.1	2	20.1
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				18615	18900	19185	MPR	Tune-up Limit
				1851.5 MHz	1880 MHz	1908.5 MHz		
3 MHz	QPSK	1	0	21.3	21.5	21.0	0	22.1
		1	8	21.3	21.4	21.1	0	22.1
		1	14	21.4	21.5	20.8	0	22.1
		8	0	20.4	20.7	20.1	1	21.1
		8	4	20.5	20.6	20.2	1	21.1
		8	7	20.4	20.5	20.2	1	21.1
		15	0	20.4	20.5	20.1	1	21.1
	16QAM	1	0	19.9	20.1	20.0	1	21.1
		1	8	20.2	19.9	20.0	1	21.1
		1	14	20.0	20.1	19.7	1	21.1
		8	0	19.0	18.8	19.0	2	20.1
		8	4	18.9	18.9	19.0	2	20.1
		8	7	19.1	19.1	19.1	2	20.1
		15	0	18.8	19.2	19.0	2	20.1
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				18607	18900	19193	MPR	Tune-up Limit
				1850.7 MHz	1880 MHz	1909.3 MHz		
1.4 MHz	QPSK	1	0	21.7	21.7	21.5	0	22.1
		1	3	21.5	21.7	21.6	0	22.1
		1	5	21.4	21.7	21.3	0	22.1
		3	0	21.5	21.7	21.4	0	22.1
		3	1	21.4	21.8	21.5	0	22.1
		3	3	21.6	21.7	21.6	0	22.1
		6	0	20.5	20.7	20.4	1	21.1
	16QAM	1	0	19.9	19.9	19.6	1	21.1
		1	3	20.3	20.2	19.6	1	21.1
		1	5	20.1	19.8	19.4	1	21.1
		3	0	20.1	19.8	19.7	1	21.1
		3	1	20.3	20.2	19.6	1	21.1
		3	3	20.4	20.3	19.6	1	21.1
		6	0	18.7	19.0	19.1	2	20.1

LTE Band 5 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				20525			MPR	Tune-up Limit
				836.5 MHz				
10 MHz	QPSK	1	0				0	25
		1	25				0	25
		1	49				0	25
		25	0				1	24
		25	12				1	24
		25	25				1	24
		50	0				1	24
	16QAM	1	0				1	24
		1	25				1	24
		1	49				1	24
		12	0				2	23
		12	12				2	23
		12	25				2	23
		27	0				2	23
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				20425	20525	20625	MPR	Tune-up Limit
				826.5 MHz				
5 MHz	QPSK	1	0	23.1	23.7	23.4	0	25
		1	12	24.0	23.6	23.6	0	25
		1	24	23.4	23.5	23.1	0	25
		12	0	22.5	22.5	22.5	1	24
		12	7	22.6	22.6	22.4	1	24
		12	13	22.6	22.5	22.4	1	24
		25	0	22.5	22.4	22.3	1	24
	16QAM	1	0	22.1	22.1	23.1	1	24
		1	12	22.7	22.3	23.0	1	24
		1	24	22.5	22.2	22.8	1	24
		12	0	21.3	21.3	21.3	2	23
		12	7	21.5	21.4	21.3	2	23
		12	13	21.5	21.5	21.2	2	23
		25	0	21.5	21.3	21.3	2	23
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				20415	20525	20635	MPR	Tune-up Limit
				825.5 MHz				
3 MHz	QPSK	1	0	23.5	23.5	23.5	0	25
		1	8	23.5	23.3	23.3	0	25
		1	14	23.5	23.2	23.4	0	25
		8	0	22.4	22.3	22.5	1	24
		8	4	22.5	22.2	22.4	1	24
		8	7	22.5	22.3	22.3	1	24
		15	0	22.5	22.3	22.4	1	24
	16QAM	1	0	22.2	22.1	22.8	1	24
		1	8	22.8	22.0	22.7	1	24
		1	14	22.8	22.1	22.7	1	24
		8	0	21.3	21.1	21.9	2	23
		8	4	21.6	21.1	21.5	2	23
		8	7	21.3	21.2	21.5	2	23
		15	0	21.4	21.1	21.4	2	23

LTE Band 5 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				20407	20525	20643	MPR	Tune-up Limit
				824.7 MHz	836.5 MHz	848.3 MHz		
1.4 MHz	QPSK	1	0	23.6	23.1	23.3	0	25
		1	3	23.7	23.1	23.1	0	25
		1	5	23.5	23.2	23.1	0	25
		3	0	23.4	23.1	23.3	0	25
		3	1	23.4	23.1	23.2	0	25
		3	3	23.4	23.0	23.3	0	25
		6	0	22.6	22.0	22.2	1	24
	16QAM	1	0	22.1	22.3	22.9	1	24
		1	3	22.5	22.4	22.7	1	24
		1	5	22.3	22.2	22.8	1	24
		3	0	22.5	22.1	22.6	1	24
		3	1	22.6	22.0	22.2	1	24
		3	3	22.7	22.0	22.1	1	24
		6	0	21.5	21.1	21.4	2	23

LTE Band 12 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)						
				23095	707.5 MHz	MPR	Tune-up Limit			
10 MHz	QPSK	1	0	23.9			0	25		
		1	25	23.8			0	25		
		1	49	23.9			0	25		
		25	0	22.8			1	24		
		25	12	22.8			1	24		
		25	25	22.8			1	24		
	16QAM	50	0	22.8			1	24		
		1	0	23.0			1	24		
		1	25	22.5			1	24		
		1	49	22.5			1	24		
		12	0	22.7			2	23		
		12	12	22.5			2	23		
		12	25	22.8			2	23		
		27	0	21.8			2	23		
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit		
				23035	23095	23155				
5 MHz	QPSK	1	0	23.2	23.5	23.4	0	25		
		1	12	23.4	23.8	23.5	0	25		
		1	24	23.3	23.3	23.3	0	25		
		12	0	22.3	22.5	22.5	1	24		
		12	7	22.3	22.6	22.6	1	24		
		12	13	22.4	22.4	22.5	1	24		
	16QAM	25	0	22.3	22.5	22.6	1	24		
		1	0	22.2	22.5	22.2	1	24		
		1	12	22.3	22.5	22.6	1	24		
		1	24	22.1	22.3	22.2	1	24		
		12	0	21.2	21.3	21.6	2	23		
		12	7	21.3	21.6	21.8	2	23		
		12	13	21.3	21.3	21.8	2	23		
		25	0	21.3	21.5	21.7	2	23		
		BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
						23025	23095	23165		
3 MHz	QPSK	1	0	23.0	23.5	23.8	0	25		
		1	8	23.0	23.4	23.7	0	25		
		1	14	23.1	23.5	23.5	0	25		
		8	0	22.2	22.5	22.7	1	24		
		8	4	22.2	22.5	22.6	1	24		
		8	7	22.3	22.6	22.6	1	24		
		15	0	22.1	22.5	22.7	1	24		
	16QAM	1	0	22.7	23.0	23.1	1	24		
		1	8	23.3	22.9	23.1	1	24		
		1	14	23.4	22.3	22.9	1	24		
		8	0	21.0	21.4	22.1	2	23		
		8	4	21.0	21.3	22.1	2	23		
		8	7	21.1	21.2	22.1	2	23		
		15	0	21.2	21.6	21.9	2	23		

LTE Band 12 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				23017	23095	23173	MPR	Tune-up Limit
				699.7 MHz	707.5 MHz	715.3 MHz		
1.4 MHz	QPSK	1	0	24.0	23.5	23.6	0	25
		1	3	23.8	23.6	23.7	0	25
		1	5	23.8	23.7	23.5	0	25
		3	0	23.5	23.5	23.6	0	25
		3	1	23.4	23.8	23.8	0	25
		3	3	23.5	23.6	23.7	0	25
		6	0	22.5	22.5	22.7	1	24
	16QAM	1	0	22.5	22.3	23.4	1	24
		1	3	22.4	22.6	23.1	1	24
		1	5	22.5	22.4	22.8	1	24
		3	0	22.3	22.7	22.7	1	24
		3	1	22.6	22.8	22.6	1	24
		3	3	22.4	22.7	22.4	1	24
		6	0	21.4	21.5	21.7	2	23

LTE Band 13 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			
				23230	782 MHz	MPR	Tune-up Limit
10 MHz	QPSK	1	0	23.1	0	25	
		1	25	23.7	0	25	
		1	49	23.4	0	25	
		25	0	22.4	1	24	
		25	12	22.6	1	24	
		25	25	22.7	1	24	
		50	0	22.7	1	24	
	16QAM	1	0	22.6	1	24	
		1	25	23.7	1	24	
		1	49	23.1	1	24	
		12	0	22.5	2	23	
		12	12	22.8	2	23	
		12	25	22.8	2	23	
		27	0	21.5	2	23	
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			
				23230	782 MHz	MPR	Tune-up Limit
5 MHz	QPSK	1	0	23.1	0	25	
		1	12	23.7	0	25	
		1	24	23.5	0	25	
		12	0	22.4	1	24	
		12	7	22.6	1	24	
		12	13	22.6	1	24	
		25	0	22.6	1	24	
	16QAM	1	0	23.0	1	24	
		1	12	23.3	1	24	
		1	24	23.4	1	24	
		12	0	21.5	2	23	
		12	7	21.6	2	23	
		12	13	21.5	2	23	
		25	0	21.7	2	23	

LTE Band 14 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			
				23330	793 MHz	MPR	Tune-up Limit
10 MHz	QPSK	1	0	23.1	0	25	
		1	25	23.1	0	25	
		1	49	23.2	0	25	
		25	0	22.3	1	24	
		25	12	22.4	1	24	
		25	25	22.3	1	24	
		50	0	22.3	1	24	
	16QAM	1	0	23.0	1	24	
		1	25	22.0	1	24	
		1	49	22.8	1	24	
		12	0	22.4	2	23	
		12	12	22.5	2	23	
		12	25	22.3	2	23	
		27	0	21.6	2	23	
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			
				23330	793 MHz	MPR	Tune-up Limit
5 MHz	QPSK	1	0	23.7	0	25	
		1	12	24.1	0	25	
		1	24	23.6	0	25	
		12	0	22.8	1	24	
		12	7	22.6	1	24	
		12	13	22.6	1	24	
		25	0	22.5	1	24	
	16QAM	1	0	22.3	1	24	
		1	12	22.5	1	24	
		1	24	22.3	1	24	
		12	0	21.8	2	23	
		12	7	21.7	2	23	
		12	13	21.6	2	23	
		25	0	21.6	2	23	

LTE Band 66 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				132072	132322	132572	MPR	Tune-up Limit
				1720 MHz	1745 MHz	1770 MHz		
20 MHz	QPSK	1	0	23.4	23.9	23.8	0	25
		1	49	23.3	24.0	23.5	0	25
		1	99	23.1	23.7	23.3	0	25
		50	0	22.3	22.9	22.8	1	24
		50	24	22.2	22.6	22.1	1	24
		50	50	22.3	22.7	22.6	1	24
		100	0	22.2	22.6	22.4	1	24
	16QAM	1	0	22.8	23.1	23.2	1	24
		1	49	23.0	23.6	23.3	1	24
		1	99	22.7	23.1	22.8	1	24
		12	0	22.4	22.5	22.2	2	23
		12	24	22.3	22.6	21.9	2	23
		12	50	22.3	22.4	21.8	2	23
27	0	21.4	21.6	21.2	2	23		
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				132047	132322	132597	MPR	Tune-up Limit
				1717.5 MHz	1745 MHz	1772.5 MHz		
15 MHz	QPSK	1	0	23.6	24.1	23.3	0	25
		1	37	23.8	24.6	23.2	0	25
		1	74	23.4	24.3	23.8	0	25
		36	0	22.4	23.2	22.6	1	24
		36	20	22.5	23.1	22.6	1	24
		36	39	22.4	23.0	22.5	1	24
		75	0	22.4	23.0	22.4	1	24
	16QAM	1	0	22.7	23.4	22.7	1	24
		1	37	23.7	23.1	22.9	1	24
		1	74	22.9	23.0	22.3	1	24
		12	0	22.6	22.9	22.4	2	23
		12	20	22.6	22.9	22.4	2	23
		12	39	22.8	22.9	22.3	2	23
27	0	21.8	21.8	21.5	2	23		
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				132022	132322	132622	MPR	Tune-up Limit
				1715 MHz	1745 MHz	1775 MHz		
10 MHz	QPSK	1	0	23.1	23.2	23.7	0	25
		1	25	23.3	23.3	23.6	0	25
		1	49	23.1	23.3	23.4	0	25
		25	0	22.2	22.5	22.4	1	24
		25	12	22.2	22.3	22.4	1	24
		25	25	22.1	22.2	22.3	1	24
		50	0	22.1	22.3	22.3	1	24
	16QAM	1	0	22.7	22.7	22.5	1	24
		1	25	23.3	23.2	23.0	1	24
		1	49	22.8	22.7	22.2	1	24
		12	0	22.2	22.5	22.3	2	23
		12	12	22.3	22.5	22.2	2	23
		12	25	22.3	22.3	22.2	2	23
27	0	21.5	21.4	21.3	2	23		

LTE Band 66 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				131997	132322	132647	MPR	Tune-up Limit
				1712.5 MHz	1745 MHz	1777.5 MHz		
5 MHz	QPSK	1	0	23.4	23.3	23.6	0	25
		1	12	23.6	23.2	23.6	0	25
		1	24	23.3	23.1	23.2	0	25
		12	0	22.5	22.3	22.3	1	24
		12	7	22.4	22.3	22.3	1	24
		12	13	22.3	22.4	22.2	1	24
		25	0	22.4	22.3	22.2	1	24
	16QAM	1	0	22.7	22.7	22.7	1	24
		1	12	22.5	22.6	22.8	1	24
		1	24	22.6	22.5	22.6	1	24
		12	0	21.4	21.6	21.1	2	23
		12	7	21.4	21.8	21.1	2	23
		12	13	21.3	21.6	21.0	2	23
		25	0	21.5	21.6	21.1	2	23
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				131987	132322	132657	MPR	Tune-up Limit
				1711.5 MHz	1745 MHz	1778.5 MHz		
3 MHz	QPSK	1	0	23.2	23.3	23.3	0	25
		1	8	23.1	23.1	23.3	0	25
		1	14	23.0	23.2	23.1	0	25
		8	0	22.1	22.3	22.2	1	24
		8	4	22.2	22.3	22.2	1	24
		8	7	22.2	22.3	22.3	1	24
		15	0	22.1	22.4	22.2	1	24
	16QAM	1	0	22.7	22.8	22.4	1	24
		1	8	22.7	22.6	22.6	1	24
		1	14	22.6	22.5	22.3	1	24
		8	0	21.3	21.2	21.2	2	23
		8	4	21.2	21.7	21.2	2	23
		8	7	21.2	21.3	21.2	2	23
		15	0	21.2	21.3	21.1	2	23
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				131979	132322	132665	MPR	Tune-up Limit
				1710.7 MHz	1745 MHz	1779.3 MHz		
1.4 MHz	QPSK	1	0	23.5	23.5	23.3	0	25
		1	3	23.4	23.5	23.1	0	25
		1	5	23.3	23.6	23.1	0	25
		3	0	23.4	23.2	23.3	0	25
		3	1	23.4	23.3	23.1	0	25
		3	3	23.5	23.3	23.0	0	25
		6	0	22.4	22.4	22.3	1	24
	16QAM	1	0	23.0	22.7	22.7	1	24
		1	3	22.9	22.5	22.6	1	24
		1	5	22.9	22.3	22.5	1	24
		3	0	22.6	22.5	22.3	1	24
		3	1	22.2	22.6	22.1	1	24
		3	3	22.7	22.4	22.2	1	24
		6	0	21.1	21.2	21.4	2	23

LTE Band 71 Measured Results

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				133297	680.5 MHz	MPR	Tune-up Limit	
20 MHz	QPSK	1	0				0	25
		1	49				0	25
		1	99				0	25
		50	0				1	24
		50	24				1	24
		50	50				1	24
		100	0				1	24
	16QAM	1	0				1	24
		1	49				1	24
		1	99				1	24
		12	0				2	23
		12	24				2	23
		12	50				2	23
		27	0				2	23
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				133297	680.5 MHz	MPR	Tune-up Limit	
15 MHz	QPSK	1	0				0	25
		1	37				0	25
		1	74				0	25
		36	0				1	24
		36	20				1	24
		36	39				1	24
		75	0				1	24
	16QAM	1	0				1	24
		1	37				1	24
		1	74				1	24
		12	0				2	23
		12	20				2	23
		12	39				2	23
		27	0				2	23
BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)			MPR	Tune-up Limit
				133172	133297	133422		
10 MHz	QPSK	1	0	23.1	23.2	23.0	0	25
		1	25	23.0	23.1	23.4	0	25
		1	49	23.1	23.0	23.0	0	25
		25	0	22.1	22.1	22.0	1	24
		25	12	22.1	22.0	22.1	1	24
		25	25	22.2	22.1	22.1	1	24
		50	0	22.2	22.1	22.1	1	24
	16QAM	1	0	22.7	22.5	22.3	1	24
		1	25	23.3	22.5	22.9	1	24
		1	49	23.1	22.6	22.1	1	24
		12	0	22.2	22.2	22.3	2	23
		12	12	21.9	22.2	22.4	2	23
		12	25	22.1	21.9	22.3	2	23
		27	0	21.0	21.1	21.3	2	23

LTE Band 71 Measured Results (continued)

BW (MHz)	Mode	RB Allocation	RB offset	Maximum Average Power (dBm)				
				133147	133297	133447	MPR	Tune-up Limit
				665.5 MHz	680.5 MHz	695.5 MHz		
5 MHz	QPSK	1	0	23.1	23.1	23.3	0	25
		1	12	23.1	23.0	23.2	0	25
		1	24	23.1	23.0	23.1	0	25
		12	0	22.2	22.2	22.2	1	24
		12	7	22.2	22.2	22.1	1	24
		12	13	22.1	22.1	22.1	1	24
	16QAM	25	0	22.1	22.2	22.2	1	24
		1	0	22.8	22.7	22.2	1	24
		1	12	22.9	22.7	22.2	1	24
		1	24	22.7	22.5	22.1	1	24
		12	0	21.0	21.0	21.1	2	23
		12	7	21.1	21.1	21.2	2	23
		12	13	21.0	21.2	21.0	2	23
		25	0	21.1	21.2	21.1	2	23

9. RADIATED TEST RESULTS

9.1. FIELD STRENGTH OF SPURIOUS RADIATION ABOVE 1GHz

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53 (c), (f), (g), (h) and §90.543 (e) (f).

LIMITS

FCC: §22.917(a), §24.238(a), §27.53 (c), (f), (g), (h) and §90.543 (e) (f).

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

Note – Additionally, for §27.53 (f) and §90.543 (f), Emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

TEST PROCEDURE

KDB 971168 D01 v02r02/D02 v01

RESULTS

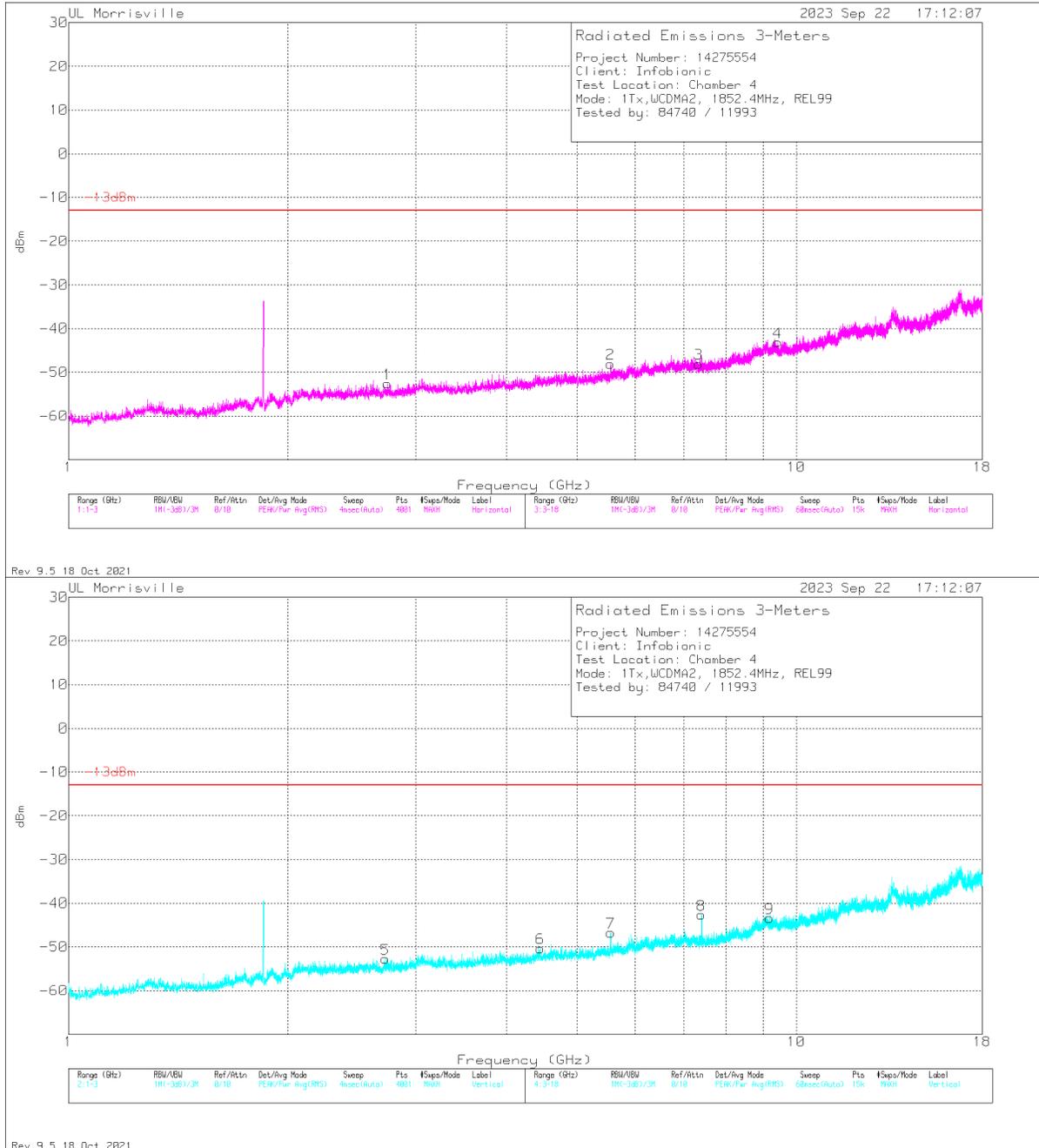
9.1.1. WCDMA BAND 2

LIMITS

FCC: §24.238(a)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

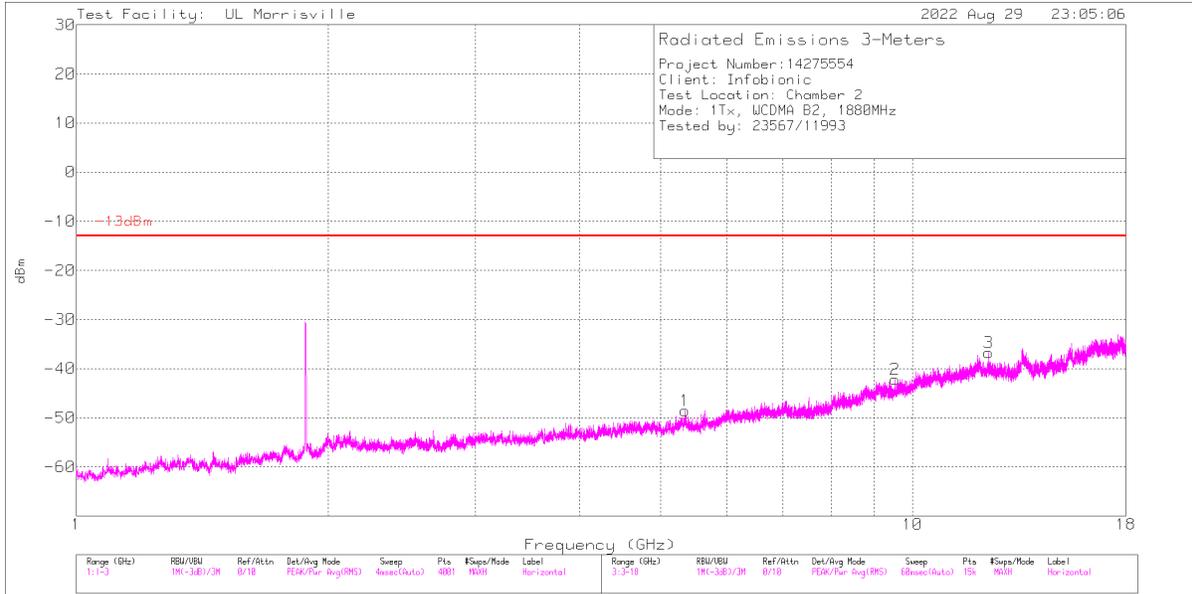
Low Channel, 1852.4MHz, Rel 99



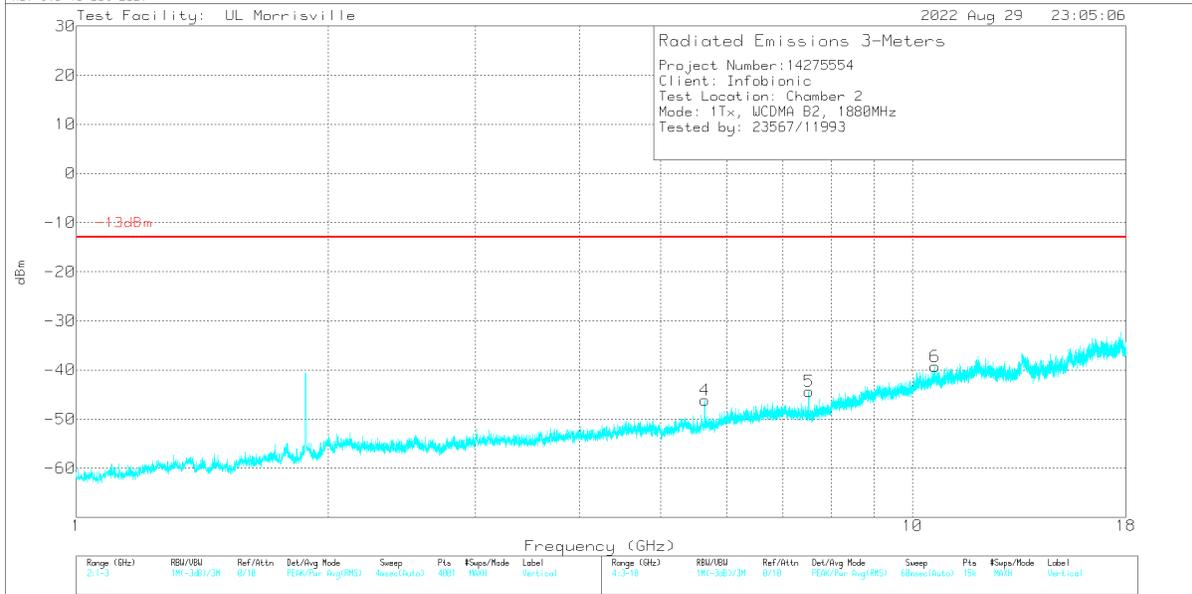
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	CF (dB)	Filter (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	2.7215	-61.53	Pk	32.4	-35.8	11.8	.4	-52.73	-13	-39.73	0-360	300	V
1	2.74	-61.57	Pk	32.5	-35.8	11.8	.5	-52.57	-13	-39.57	0-360	100	H
6	4.445	-64.68	Pk	33.7	-31.1	11.8	0	-50.28	-13	-37.28	0-360	300	V
2	5.553	-63.14	Pk	34.6	-31.3	11.8	0	-48.04	-13	-35.04	0-360	100	H
7	5.558	-61.89	Pk	34.6	-31.2	11.8	0	-46.69	-13	-33.69	0-360	200	V
3	7.335	-67.84	Pk	35.6	-27.6	11.8	0	-48.04	-13	-35.04	0-360	100	H
8	7.406	-62.03	Pk	35.6	-28	11.8	0	-42.63	-13	-29.63	0-360	300	V
9	9.186	-65.58	Pk	36.4	-26	11.8	0	-43.38	-13	-30.38	0-360	300	V
4	9.427	-66.01	Pk	36.7	-25.6	11.8	0	-43.11	-13	-30.11	0-360	100	H

Pk - Peak detector

Mid Channel, 1880MHz, Rel 99



Rev 9.5 18 Oct 2021

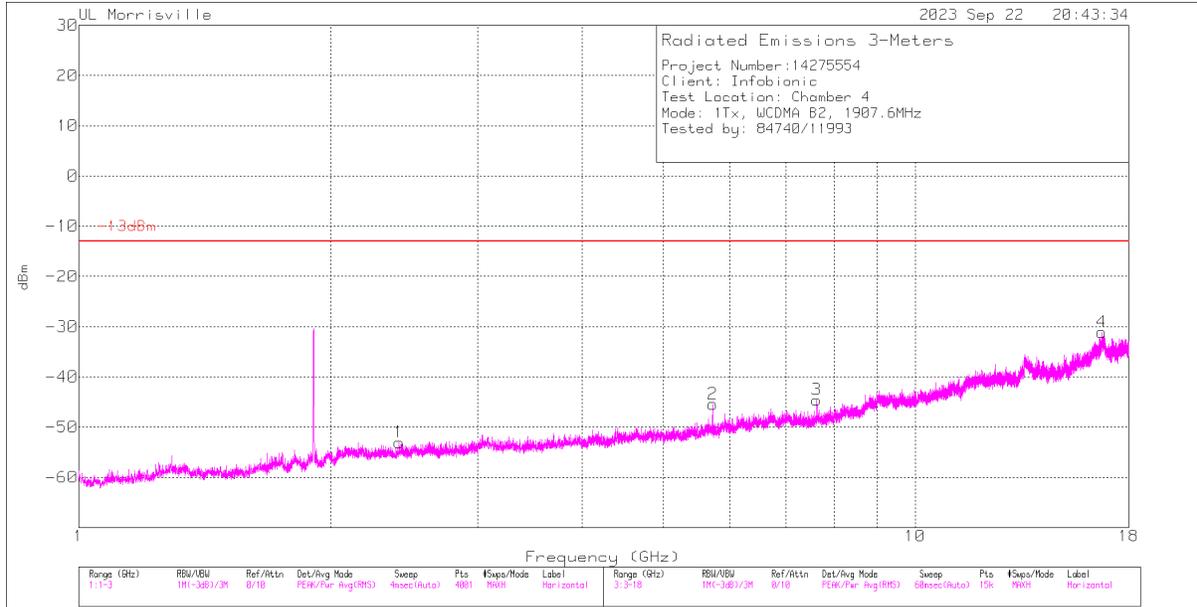


Rev 9.5 18 Oct 2021

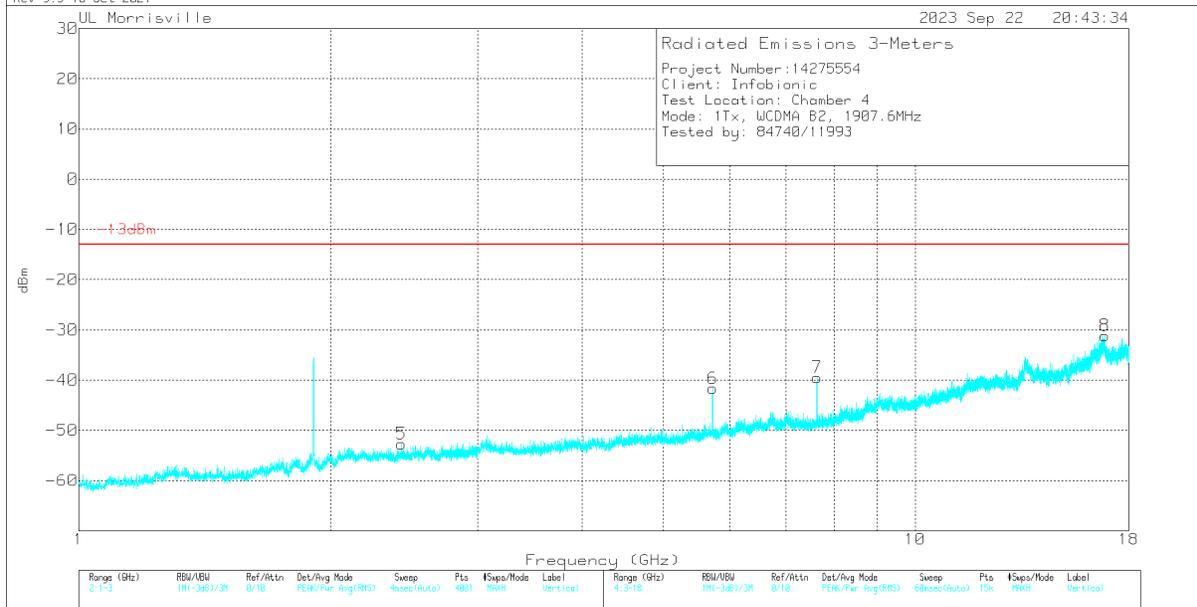
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Gain/Loss (dB)	CF (dB)	Filter (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.344	-66.29	Pk	34.6	-28.7	11.8	0	-48.59	-13	-35.59	0-360	101	H
4	5.642	-63.24	Pk	34.5	-29.2	11.8	0	-46.14	-13	-33.14	0-360	101	V
5	7.525	-64.03	Pk	35.7	-27.8	11.8	0	-44.33	-13	-31.33	0-360	200	V
2	9.538	-65.27	Pk	36.6	-25.3	11.8	0	-42.17	-13	-29.17	0-360	299	H
6	10.634	-64.94	Pk	37.6	-23.7	11.8	0	-39.24	-13	-26.24	0-360	200	V
3	12.345	-63.94	Pk	38.9	-23.5	11.8	0	-36.74	-13	-23.74	0-360	101	H

Pk - Peak detector

High Channel, 1907.6MHz, Rel 99



Rev 9.5 18 Oct 2021



Rev 9.5 18 Oct 2021

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	CF (dB)	Filter (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.4155	-61.42	Pk	32	-36	11.8	.6	-53.02	-13	-40.02	0-360	200	H
5	2.431	-61.17	Pk	32.2	-36	11.8	.5	-52.67	-13	-39.67	0-360	200	V
2	5.725	-62.41	Pk	34.7	-29.5	11.8	0	-45.41	-13	-32.41	0-360	100	H
6	5.725	-58.62	Pk	34.7	-29.5	11.8	0	-41.62	-13	-28.62	0-360	200	V
3	7.626	-64.45	Pk	35.7	-27.6	11.8	0	-44.55	-13	-31.55	0-360	100	H
7	7.633	-59.46	Pk	35.7	-27.5	11.8	0	-39.46	-13	-26.46	0-360	300	V
4	16.719	-64.79	Pk	41.8	-19.9	11.8	0	-31.09	-13	-18.09	0-360	100	H
8	16.847	-65.72	Pk	41.9	-19.1	11.8	0	-31.12	-13	-18.12	0-360	200	V

Pk - Peak detector

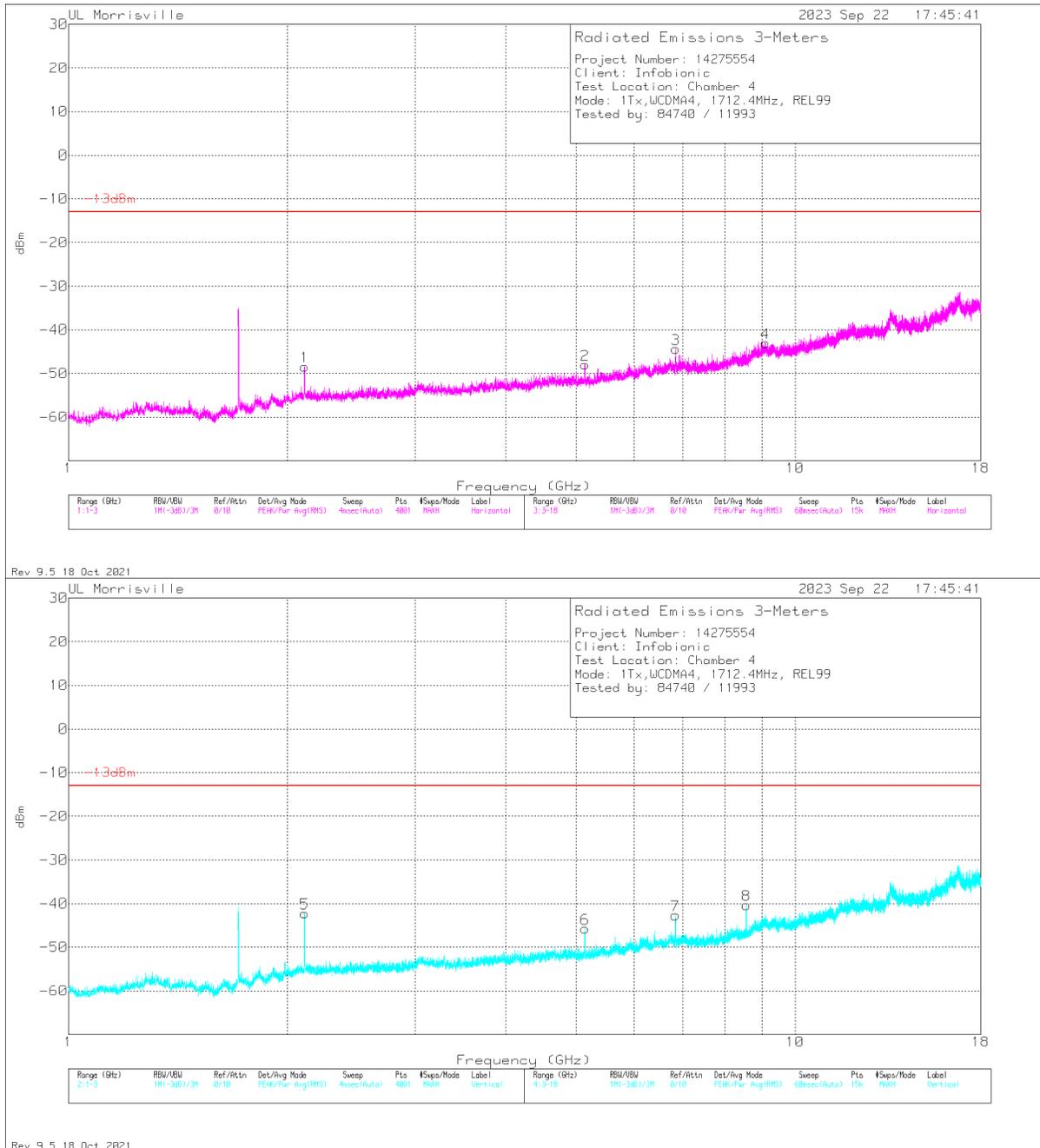
9.1.2. WCDMA BAND 4

LIMITS

FCC: §27.53(h)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

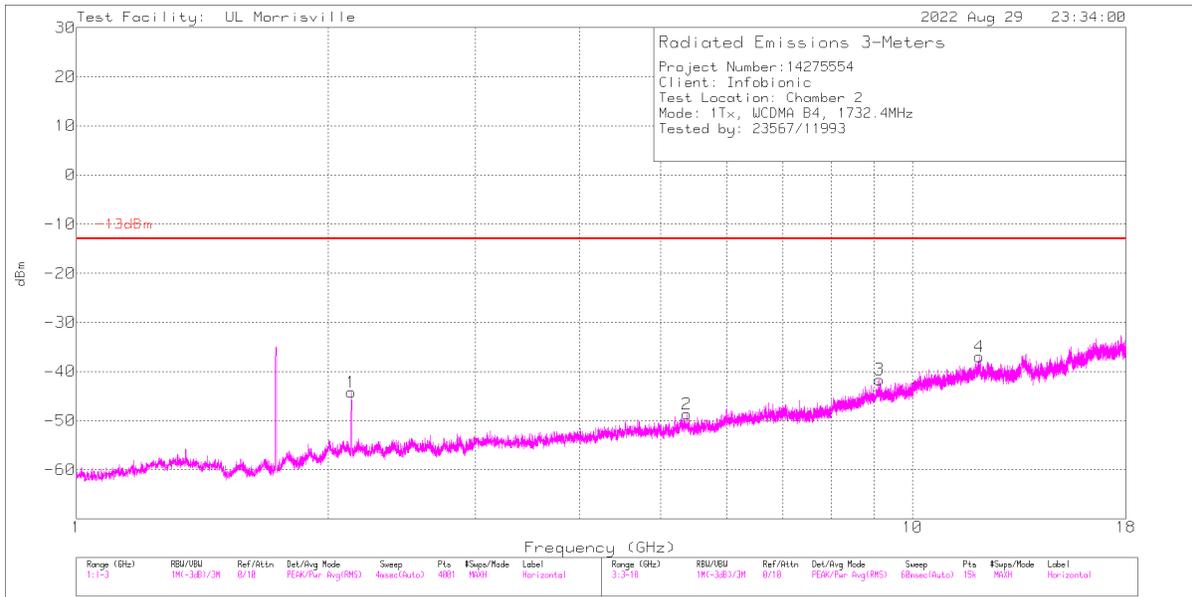
Low Channel, 1712.4MHz, Rel 99



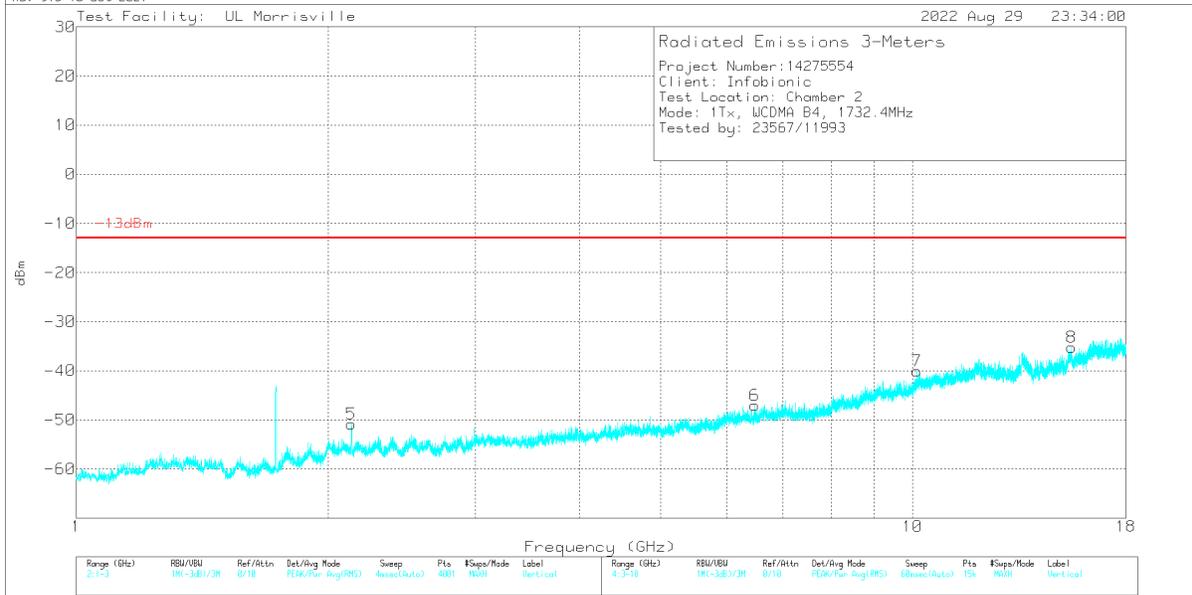
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	CF (dB)	Filter (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	2.113 (DL)	-50.6	Pk	31.6	-36.2	11.8	1.2	-42.2	-	-	0-360	200	V
1	2.1135 (DL)	-56.91	Pk	31.6	-36.1	11.8	1.2	-48.41	-	-	0-360	100	H
2	5.139	-62.68	Pk	34.2	-31.3	11.8	0	-47.98	-13	-34.98	0-360	200	H
6	5.14	-60.44	Pk	34.2	-31.3	11.8	0	-45.74	-13	-32.74	0-360	100	V
7	6.844	-61.85	Pk	35.4	-28	11.8	0	-42.65	-13	-29.65	0-360	100	V
3	6.853	-63.49	Pk	35.4	-28.1	11.8	0	-44.39	-13	-31.39	0-360	200	H
8	8.566	-61.89	Pk	35.8	-26	11.8	0	-40.29	-13	-27.29	0-360	100	V
4	9.1	-66.34	Pk	36.3	-24.8	11.8	0	-43.04	-13	-30.04	0-360	200	H

Pk - Peak detector

Mid Channel, 1732.5MHz, Rel 99



Rev 9.5 18 Oct 2021

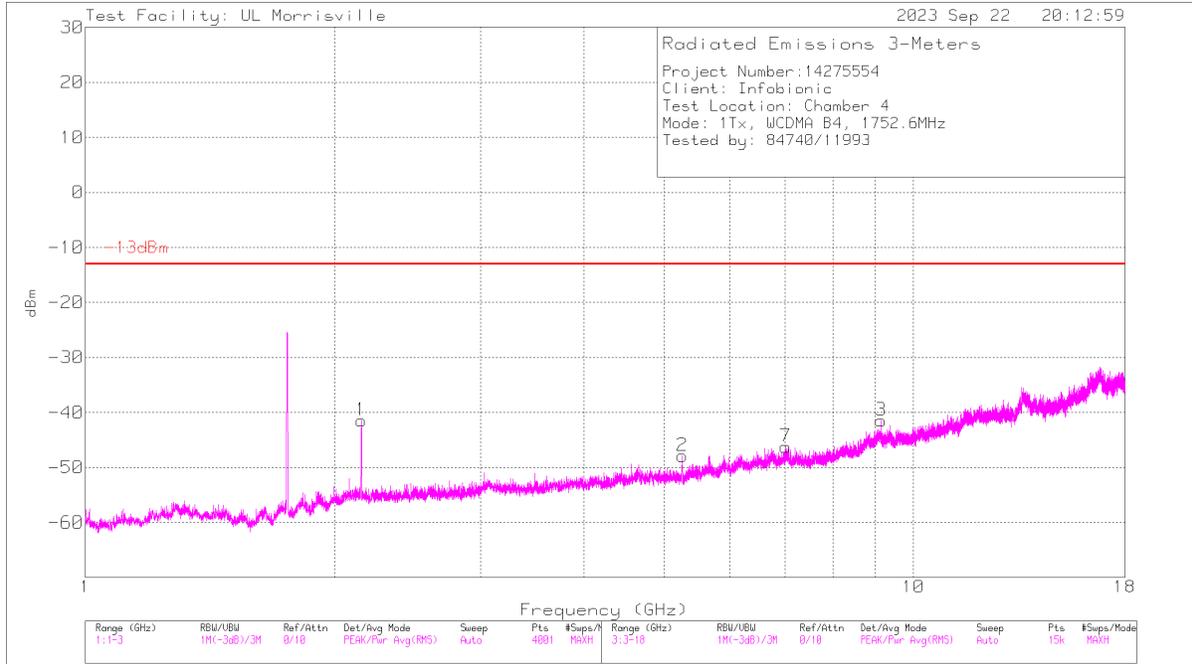


Rev 9.5 18 Oct 2021

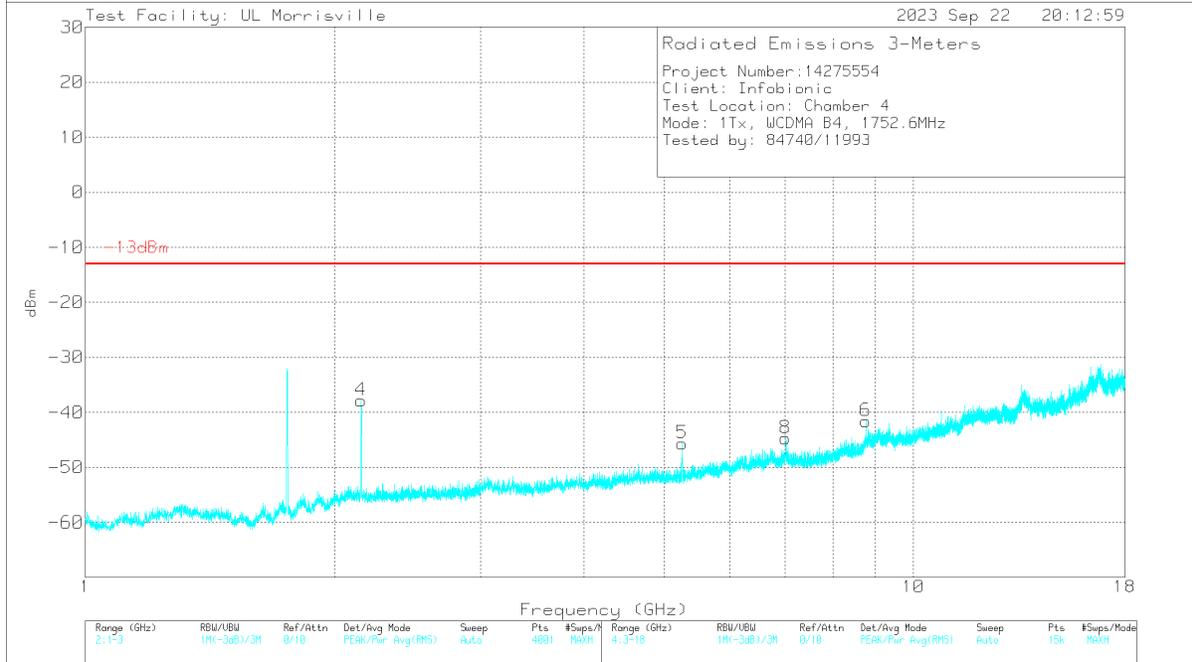
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Gain/Loss (dB)	CF (dB)	Filter (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.1325	-54.18	Pk	31.4	-34.2	11.8	1	-44.18	-13	-31.18	0-360	200	H
5	2.1335	-60.79	Pk	31.4	-34.2	11.8	1	-50.79	-13	-37.79	0-360	300	V
2	5.371	-65.83	Pk	34.5	-29.1	11.8	0	-48.63	-13	-35.63	0-360	199	H
6	6.473	-65.84	Pk	35.6	-28.6	11.8	0	-47.04	-13	-34.04	0-360	299	V
3	9.138	-64.72	Pk	36.2	-24.9	11.8	0	-41.62	-13	-28.62	0-360	199	H
7	10.128	-64.59	Pk	37.3	-24.6	11.8	0	-40.09	-13	-27.09	0-360	101	V
4	12.023	-65.04	Pk	38.6	-22.4	11.8	0	-37.04	-13	-24.04	0-360	300	H
8	15.506	-64.9	Pk	40.2	-22.3	11.8	0	-35.2	-13	-22.2	0-360	299	V

Pk - Peak detector

High Channel, 1752.6MHz, Rel 99



Rev 9.5 18 Oct 2021



Rev 9.5 18 Oct 2021

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	CF (dB)	Filter (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.1525 (DL)	-46.15	Pk	31.6	-36.2	11.8	1.1	-37.85	-	-	0-360	200	V
1	2.154 (DL)	-49.64	Pk	31.6	-36.3	11.8	1.1	-41.44	-	-	0-360	100	H
5	5.257	-60.14	Pk	34.2	-31.5	11.8	0	-45.64	-13	-32.64	0-360	200	V
2	5.26	-62.35	Pk	34.2	-31.5	11.8	0	-47.85	-13	-34.85	0-360	100	H
8	7.007	-64.19	Pk	35.5	-27.8	11.8	0	-44.69	-13	-31.69	0-360	300	V
7	7.01	-65.6	Pk	35.5	-27.9	11.8	0	-46.2	-13	-33.2	0-360	200	H
6	8.756	-63.63	Pk	36	-25.7	11.8	0	-41.53	-13	-28.53	0-360	200	V
3	9.14	-64.09	Pk	36.3	-25.5	11.8	0	-41.49	-13	-28.49	0-360	200	H

Pk - Peak detector

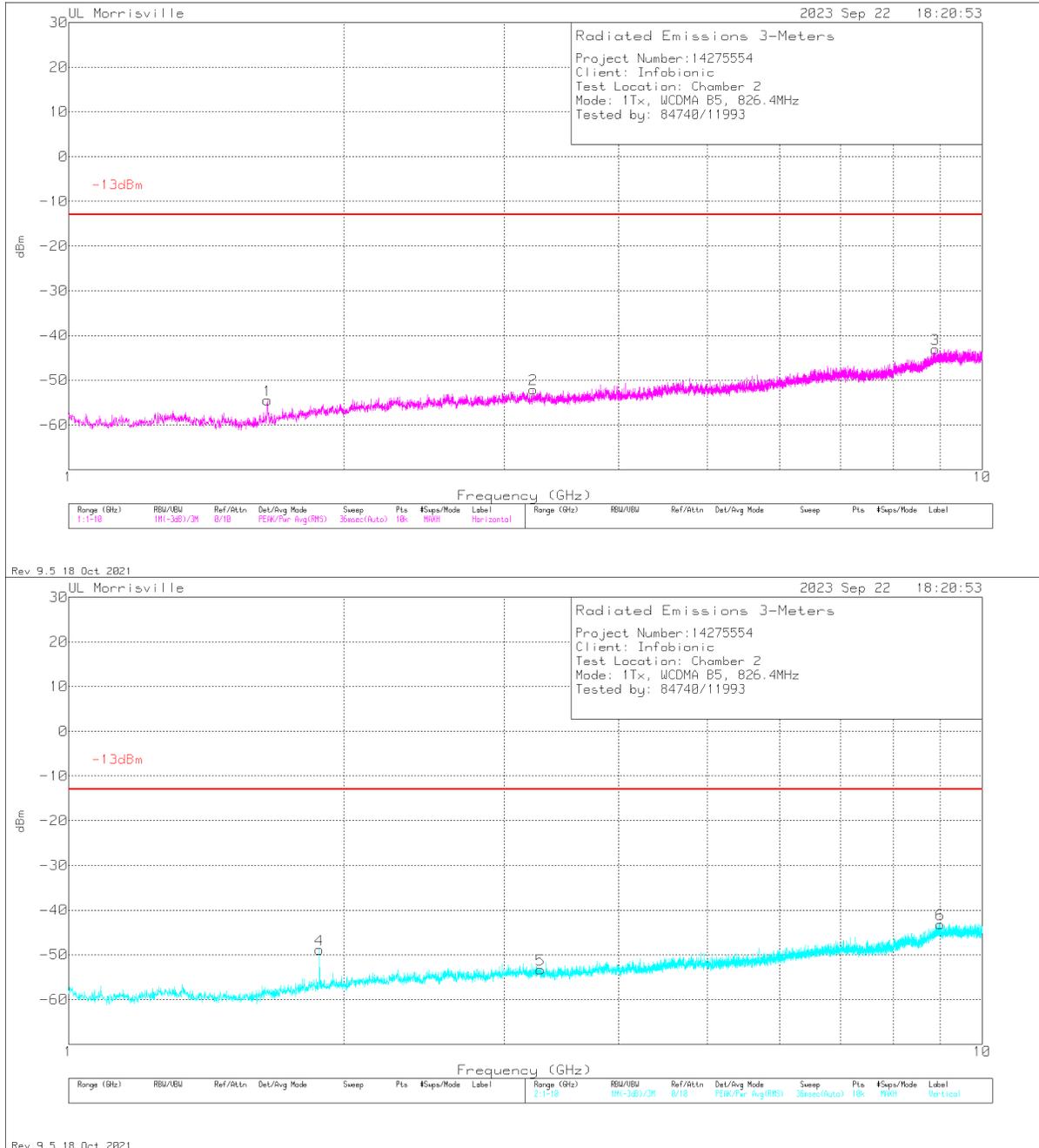
9.1.3. WCDMA BAND 5

LIMITS

FCC: §22.917 (a)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

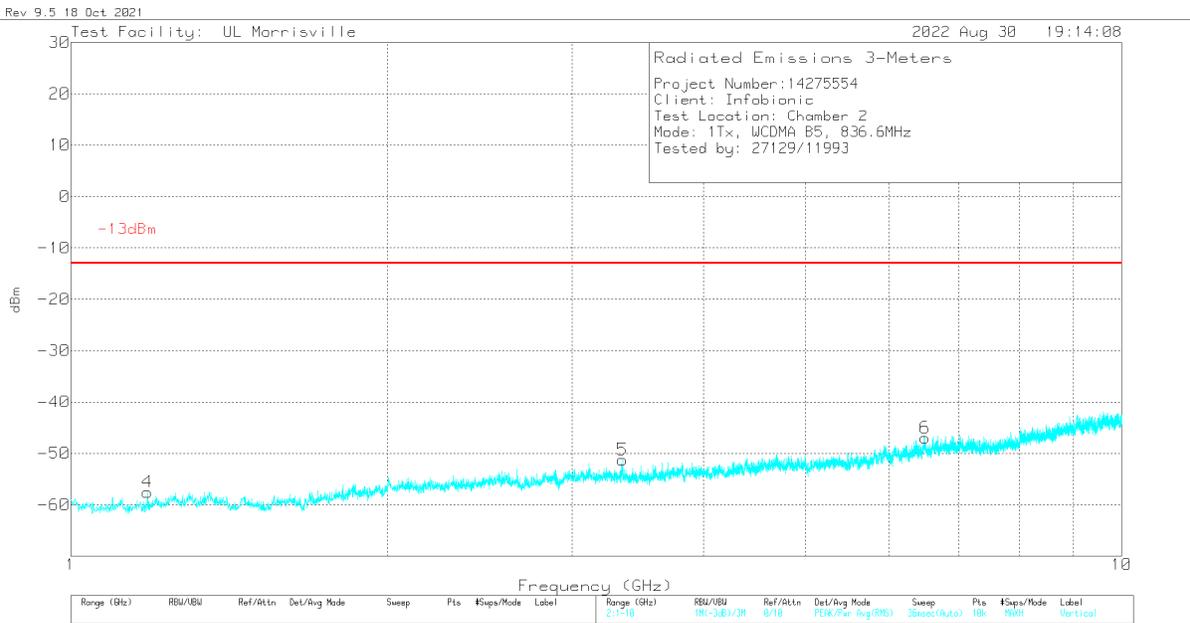
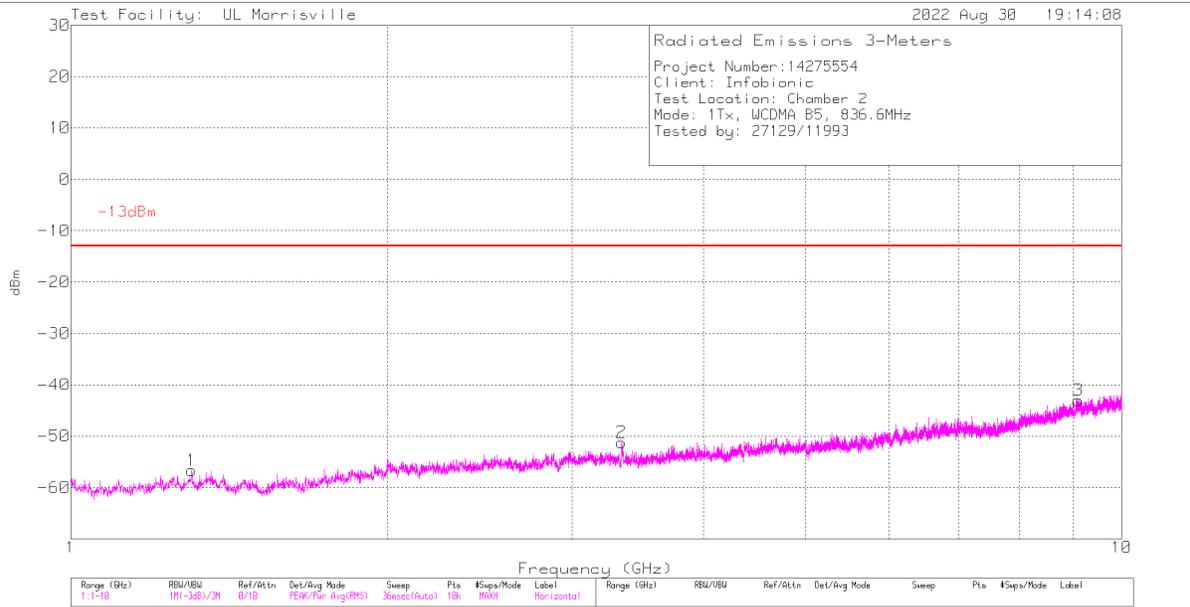
Low Channel, 826.4MHz, Rel 99



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	198917_1GHz HPF	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.6507	-59.67	Pk	28.7	-36	.7	11.8	-54.47	-13	-41.47	0-360	100	H
4	1.882	-55.67	Pk	30.7	-36	.3	11.8	-48.87	-13	-35.87	0-360	100	V
2	3.2239	-62.15	Pk	32.8	-35	.5	11.8	-52.05	-13	-39.05	0-360	200	H
5	3.2851	-63.61	Pk	32.9	-34.9	.5	11.8	-53.31	-13	-40.31	0-360	100	V
3	8.8849	-65.24	Pk	36.2	-26.2	.4	11.8	-43.04	-13	-30.04	0-360	100	H
6	8.9929	-65.86	Pk	36.2	-25.7	.4	11.8	-43.16	-13	-30.16	0-360	100	V

PK - Peak detector

Mid Channel, 836.6MHz, Rel 99

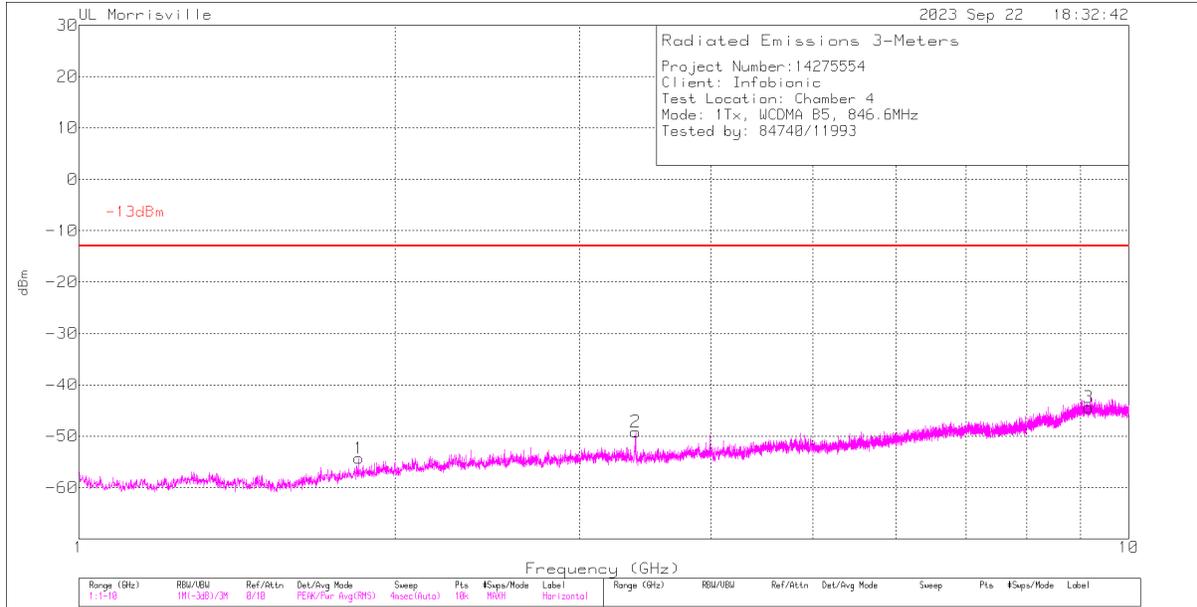


Rev 9.5 18 Oct 2021

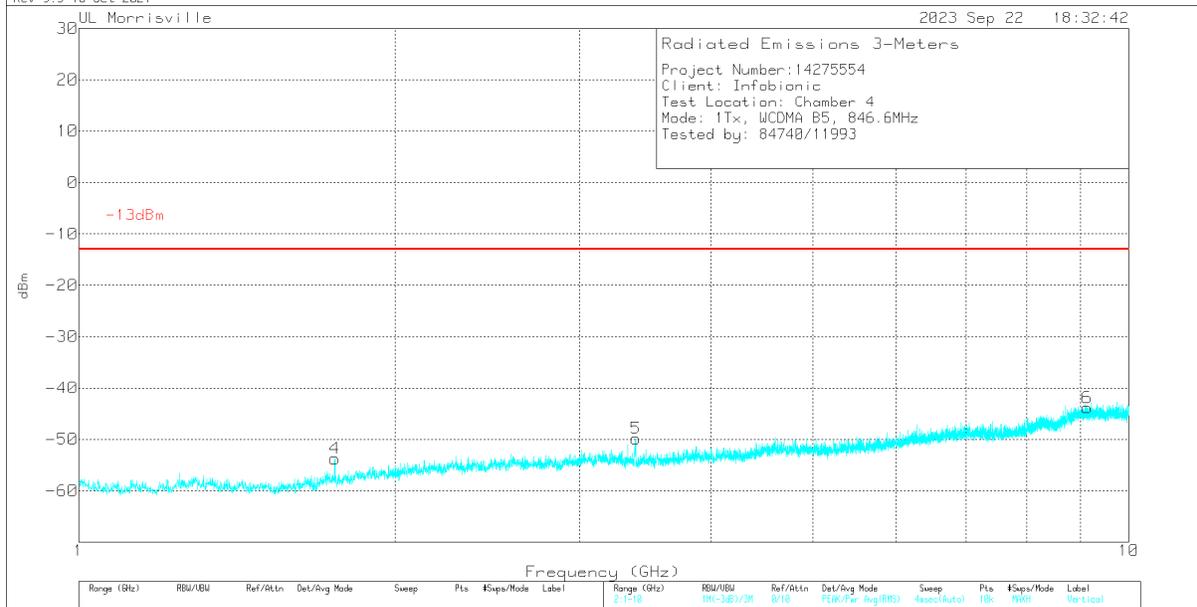
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Gain/Loss (dB)	Filter (dB)	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	1.1827	-63.34	Pk	27.9	-35	1.1	11.8	-57.54	-13	-44.54	0-360	299	V
1	1.3033	-63.37	Pk	28.7	-34.8	1	11.8	-56.67	-13	-43.67	0-360	200	H
2	3.3418	-63.11	Pk	32.6	-33.2	.7	11.8	-51.21	-13	-38.21	0-360	299	H
5	3.349	-63.15	Pk	32.5	-33.1	.7	11.8	-51.25	-13	-38.25	0-360	101	V
6	6.4999	-66.67	Pk	35.6	-28.4	.7	11.8	-46.97	-13	-33.97	0-360	299	V
3	9.0901	-65.53	Pk	36.1	-26.1	.7	11.8	-43.03	-13	-30.03	0-360	200	H

Pk - Peak detector

High Channel, 846.6MHz, Rel 99



Rev 9.5 18 Oct 2021



Rev 9.5 18 Oct 2021

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	198917_1GHz HPF	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	1.7533	-59.45	Pk	29.7	-36.1	.3	11.8	-53.75	-13	-40.75	0-360	200	V
1	1.8478	-60.92	Pk	30.5	-36.1	.4	11.8	-54.32	-13	-41.32	0-360	200	H
2	3.3913	-59.26	Pk	32.6	-34.6	.3	11.8	-49.16	-13	-36.16	0-360	200	H
5	3.3922	-60.05	Pk	32.6	-34.5	.3	11.8	-49.85	-13	-36.85	0-360	200	V
6	9.1261	-66.13	Pk	36.3	-26.2	.4	11.8	-43.83	-13	-30.83	0-360	200	V
3	9.1594	-66.61	Pk	36.3	-26.3	.4	11.8	-44.41	-13	-31.41	0-360	100	H

Pk - Peak detector

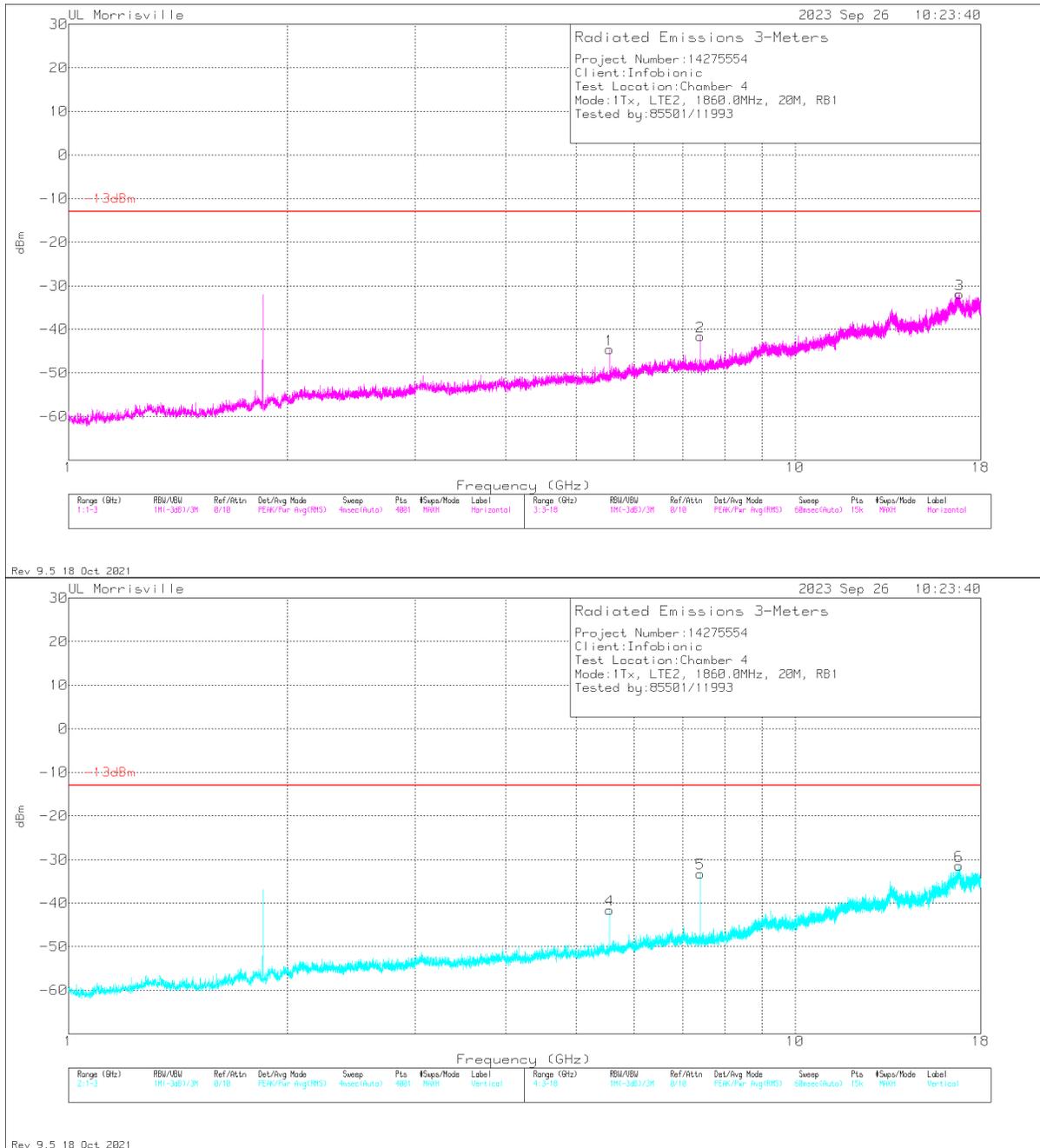
9.1.4. LTE2

LIMITS

FCC: §24.238(a)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

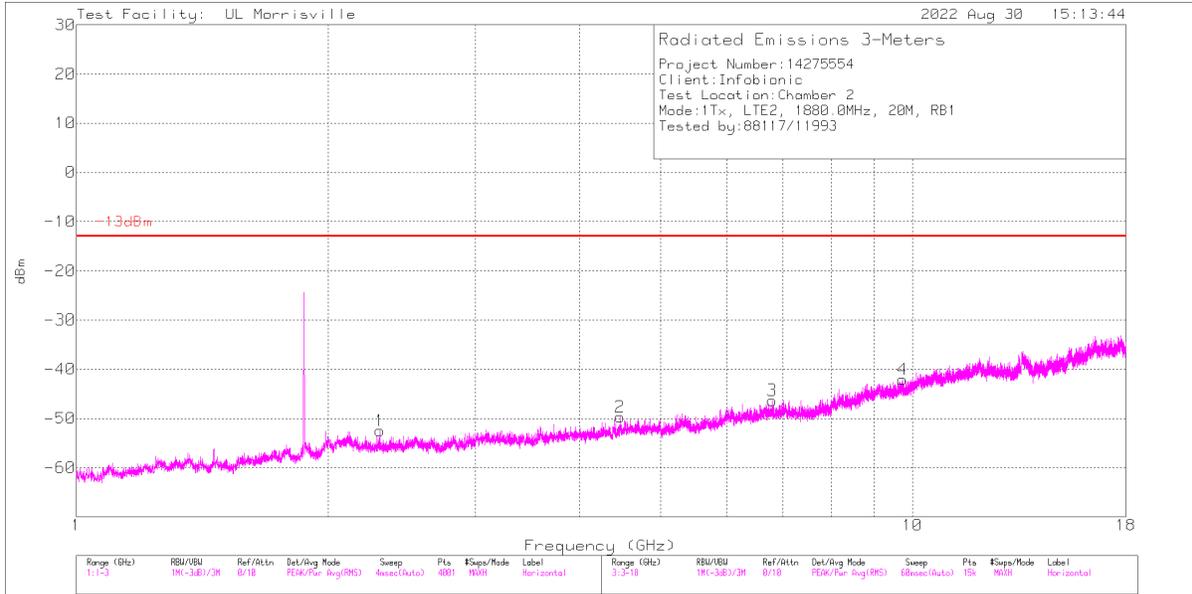
Low Channel, 1860MHz, QPSK



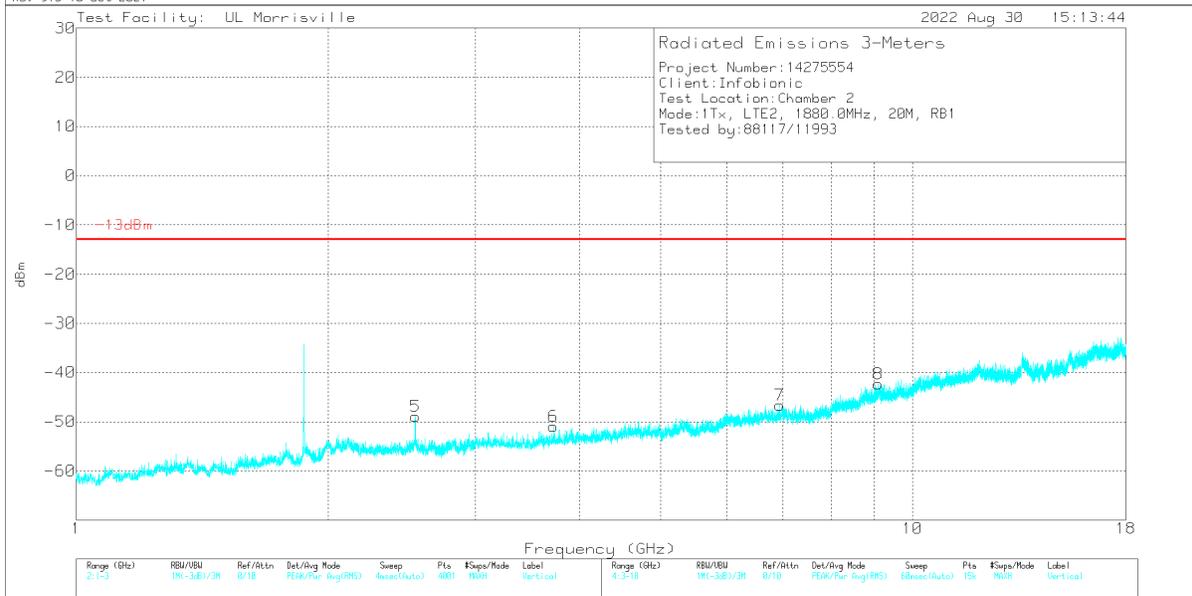
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	CF (dB)	Filter (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.553	-59.71	Pk	34.6	-31.3	11.8	0	-44.61	-13	-31.61	0-360	100	H
4	5.553	-56.66	Pk	34.6	-31.3	11.8	0	-41.56	-13	-28.56	0-360	200	V
2	7.404	-61.15	Pk	35.6	-27.9	11.8	0	-41.65	-13	-28.65	0-360	200	H
5	7.404	-52.72	Pk	35.6	-27.9	11.8	0	-33.22	-13	-20.22	0-360	300	V
6	16.802	-66.09	Pk	41.9	-19	11.8	0	-31.39	-13	-18.39	0-360	300	V
3	16.826	-66.42	Pk	41.9	-19.2	11.8	0	-31.92	-13	-18.92	0-360	100	H

PK - Peak detector

Mid Channel, 1880MHz, QPSK



Rev 9.5 18 Oct 2021

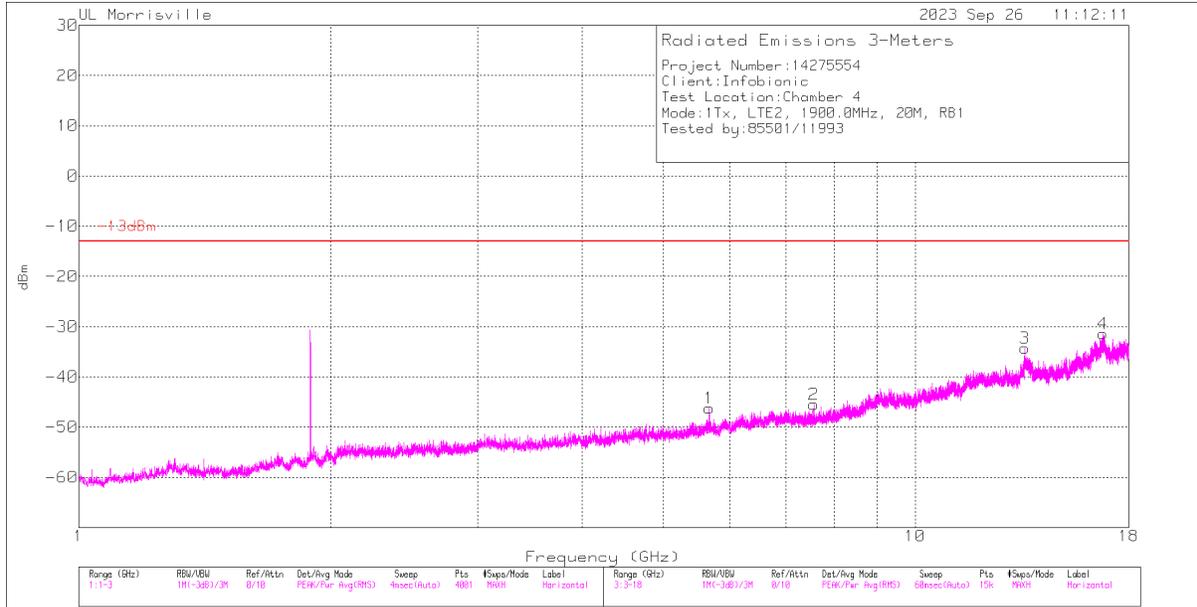


Rev 9.5 18 Oct 2021

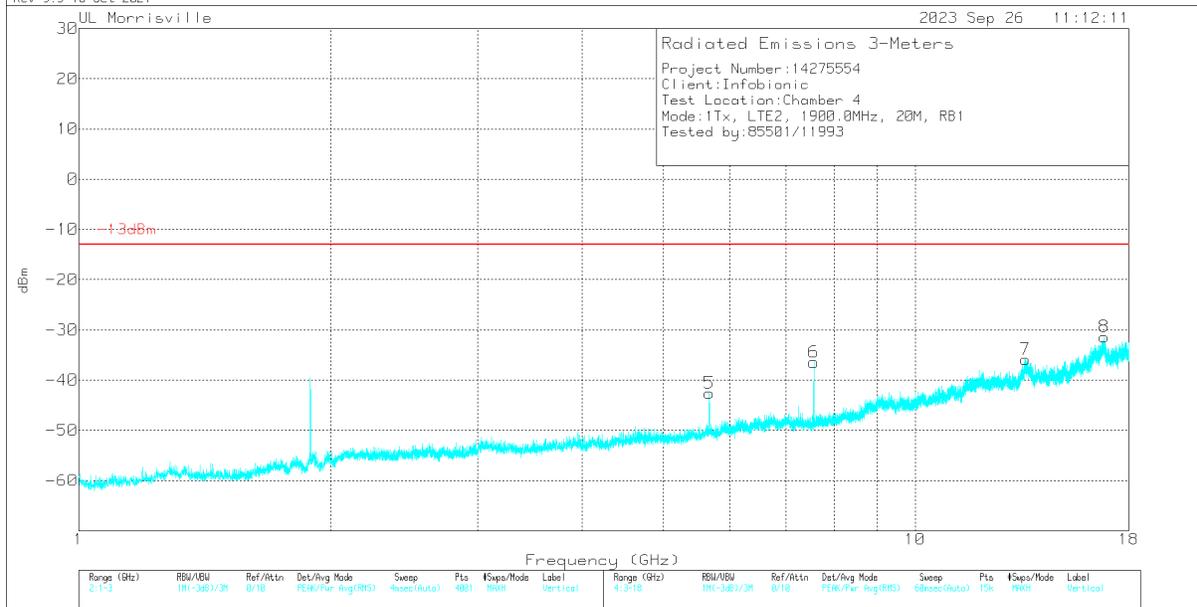
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Gain/Loss (dB)	CF (dB)	Filter (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.306	-62.93	Pk	31.8	-33.8	11.8	.7	-52.43	-13	-39.43	0-360	299	H
5	2.543	-60.17	Pk	32.5	-33.7	11.8	.6	-48.97	-13	-35.97	0-360	299	V
6	3.719	-63.57	Pk	33.2	-32.4	11.8	0	-50.97	-13	-37.97	0-360	200	V
2	4.467	-64.12	Pk	33.8	-31.2	11.8	0	-49.72	-13	-36.72	0-360	300	H
3	6.799	-65.72	Pk	35.6	-28	11.8	0	-46.32	-13	-33.32	0-360	200	H
7	6.943	-66.5	Pk	35.6	-27.5	11.8	0	-46.6	-13	-33.6	0-360	300	V
8	9.104	-64.84	Pk	36.2	-25.5	11.8	0	-42.34	-13	-29.34	0-360	300	V
4	9.734	-65.3	Pk	36.8	-25.4	11.8	0	-42.1	-13	-29.1	0-360	101	H

Pk - Peak detector

High Channel, 1900MHz, QPSK



Rev 9.5 18 Oct 2021



Rev 9.5 18 Oct 2021

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	CF (dB)	Filter (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.673	-63.14	Pk	34.7	-29.6	11.8	0	-46.24	-13	-33.24	0-360	100	H
5	5.673	-59.49	Pk	34.7	-29.6	11.8	0	-42.59	-13	-29.59	0-360	200	V
2	7.564	-65.4	Pk	35.7	-27.6	11.8	0	-45.5	-13	-32.5	0-360	100	H
6	7.565	-56.33	Pk	35.7	-27.6	11.8	0	-36.43	-13	-23.43	0-360	300	V
3	13.523	-63.37	Pk	38.8	-21.5	11.8	0	-34.27	-13	-21.27	0-360	200	H
7	13.554	-64.37	Pk	38.8	-22.1	11.8	0	-35.87	-13	-22.87	0-360	200	V
4	16.781	-65.02	Pk	41.9	-20.1	11.8	0	-31.42	-13	-18.42	0-360	100	H
8	16.82	-66.56	Pk	41.9	-18.5	11.8	0	-31.36	-13	-18.36	0-360	300	V

Pk - Peak detector

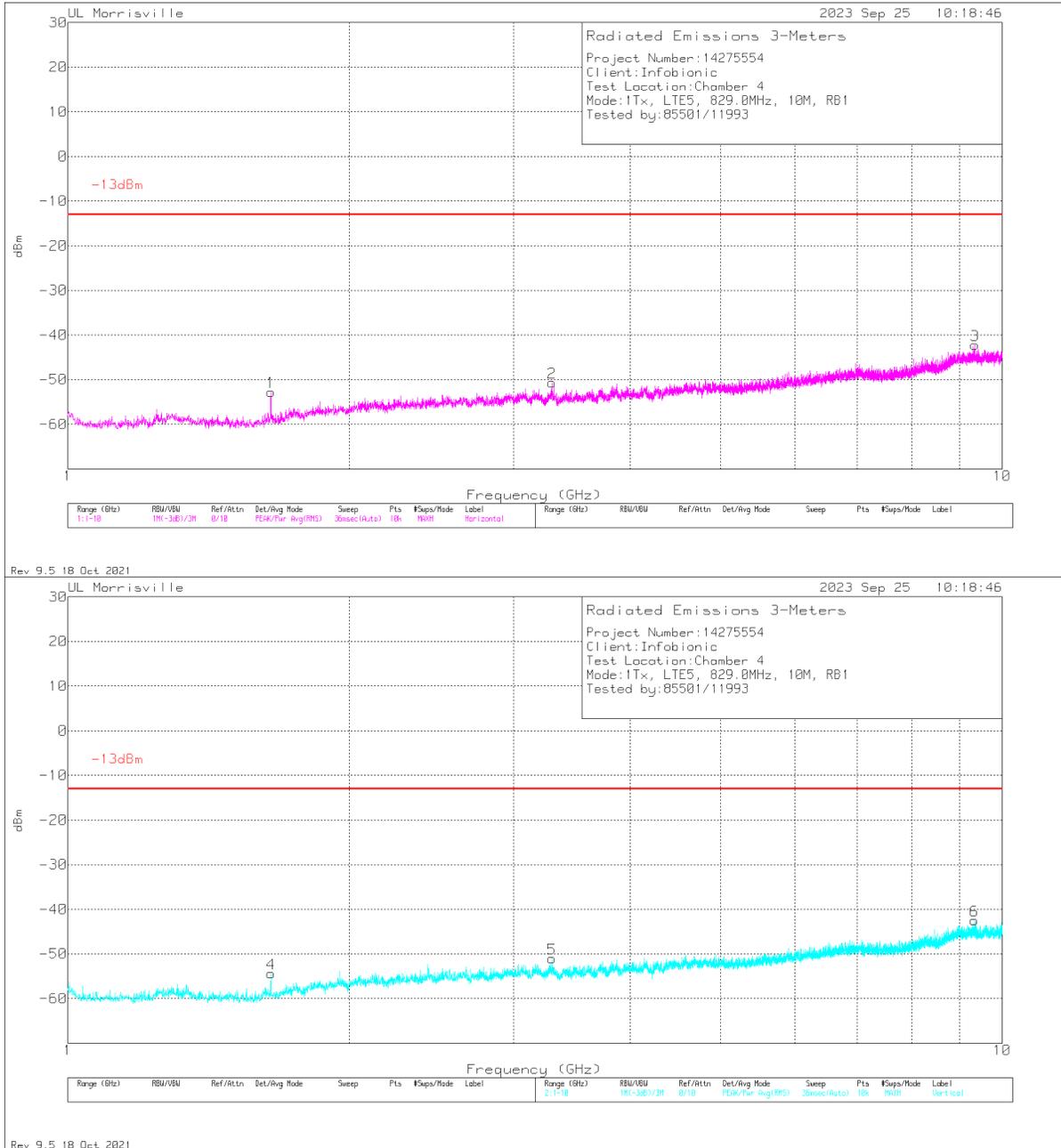
9.1.5. LTE5

LIMITS

FCC: §22.917 (a)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

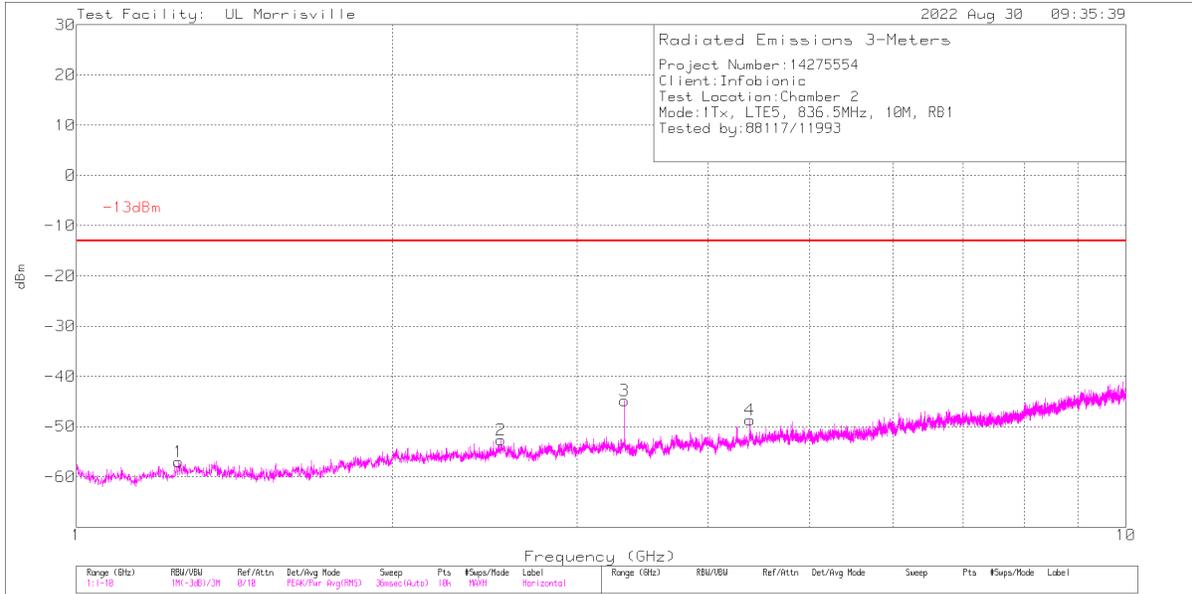
Low Channel, 829MHz, QPSK



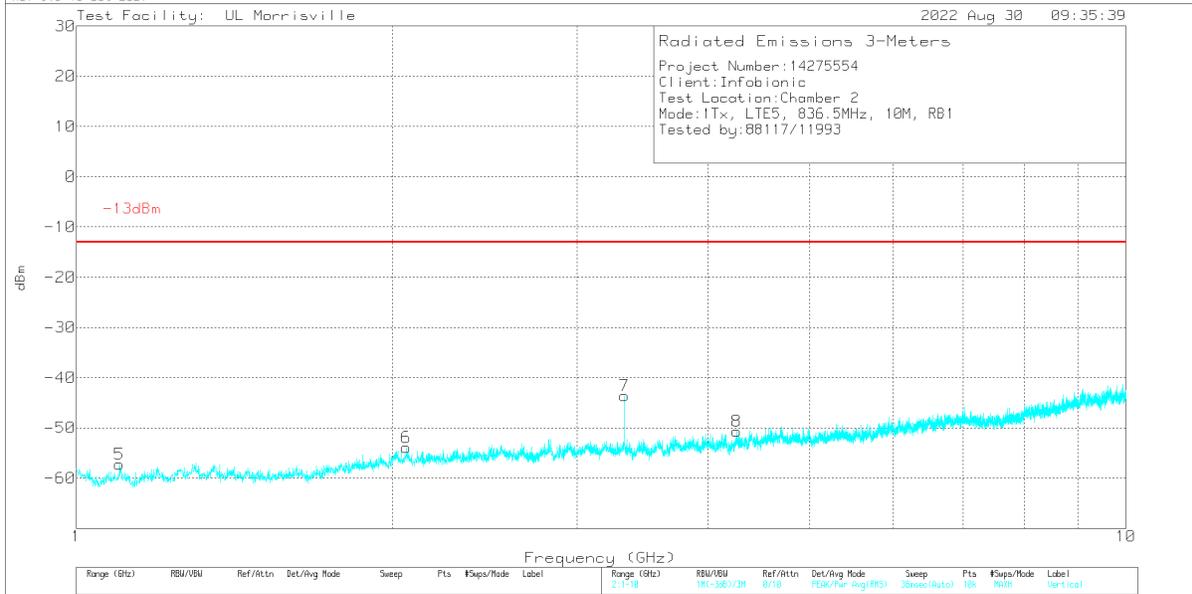
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	Filter (dB)	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.6489	-57.62	Pk	28.7	-36	.4	11.8	-52.72	-13	-39.72	0-360	100	H
4	1.6489	-59.24	Pk	28.7	-36	.4	11.8	-54.34	-13	-41.34	0-360	300	V
2	3.2977	-61.22	Pk	33	-35	.7	11.8	-50.72	-13	-37.72	0-360	100	H
5	3.2977	-61.5	Pk	33	-35	.7	11.8	-51	-13	-38	0-360	300	V
6	9.3322	-65.71	Pk	36.5	-25.7	.6	11.8	-42.51	-13	-29.51	0-360	200	V
3	9.3547	-65.18	Pk	36.5	-25.8	.5	11.8	-42.18	-13	-29.18	0-360	100	H

Pk - Peak detector

Mid Channel, 836.5MHz, QPSK



Rev 9.5 18 Oct 2021

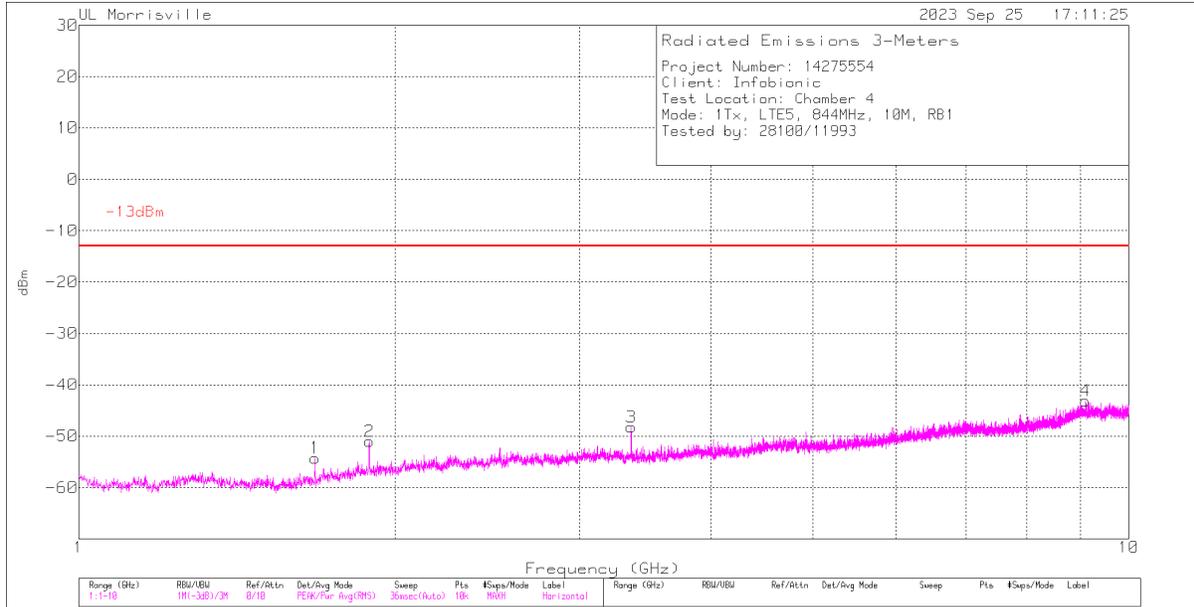


Rev 9.5 18 Oct 2021

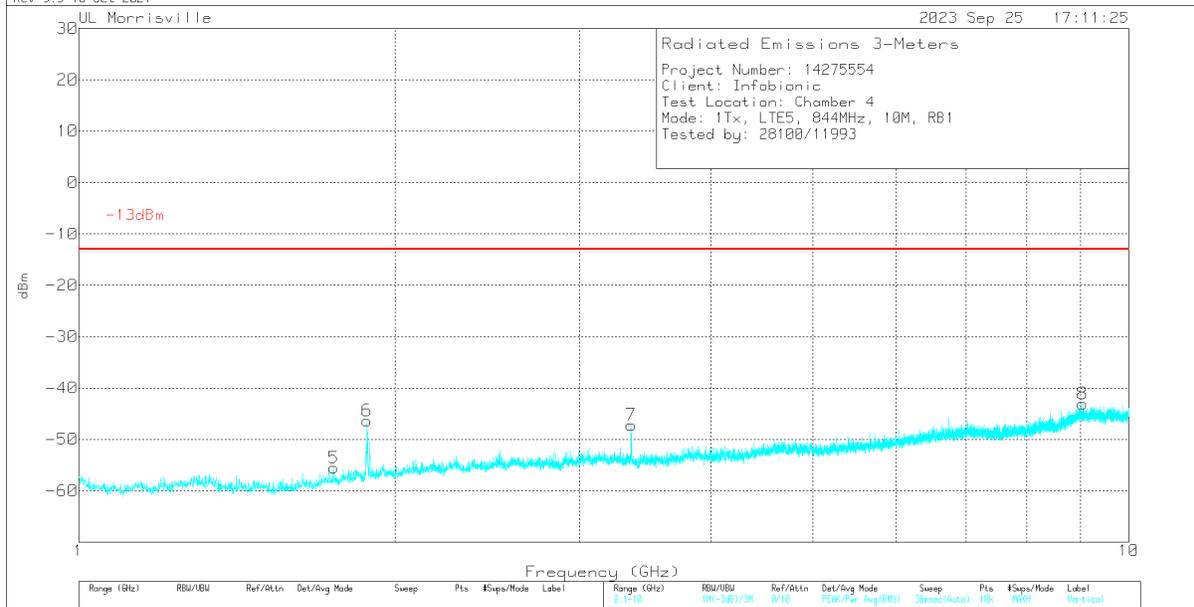
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Gain/Loss (dB)	Filter (dB)	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
5	1.099	-62.48	Pk	27.3	-35.1	1.2	11.8	-57.28	-13	-44.28	0-360	101	V
1	1.252	-63.29	Pk	28.6	-35	.9	11.8	-56.99	-13	-43.99	0-360	199	H
6	2.062	-63.31	Pk	31.6	-34.4	.4	11.8	-53.91	-13	-40.91	0-360	300	V
2	2.539	-63.8	Pk	32.6	-33.8	.5	11.8	-52.7	-13	-39.7	0-360	299	H
3	3.3283	-57.19	Pk	32.7	-32.9	.8	11.8	-44.79	-13	-31.79	0-360	101	H
7	3.3283	-55.96	Pk	32.7	-32.9	.8	11.8	-43.56	-13	-30.56	0-360	300	V
8	4.258	-64.98	Pk	33.3	-31.3	.5	11.8	-50.68	-13	-37.68	0-360	101	V
4	4.3849	-63.37	Pk	33.6	-31.1	.4	11.8	-48.67	-13	-35.67	0-360	199	H

Pk - Peak detector

High Channel, 844MHz, QPSK



Rev 9.5 18 Oct 2021



Rev 9.5 18 Oct 2021

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	198917_1GHz HPF	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.6786	-59.08	Pk	28.9	-36.3	.4	11.8	-54.28	-13	-41.28	0-360	100	H
5	1.7488	-61.43	Pk	29.7	-35.9	.3	11.8	-55.53	-13	-42.53	0-360	200	V
6	1.8811	-53.15	Pk	30.7	-36	.3	11.8	-46.35	-13	-33.35	0-360	300	V
2	1.8919	-57.62	Pk	30.7	-36.2	.3	11.8	-51.02	-13	-38.02	0-360	200	H
3	3.358	-58.32	Pk	32.8	-34.8	.3	11.8	-47.21	-13	-34.21	0-360	200	V
7	3.358	-57.31	Pk	32.8	-34.8	.3	11.8	-47.21	-13	-34.21	0-360	200	V
8	9.0406	-65.57	Pk	36.2	-25.9	.4	11.8	-43.07	-13	-30.07	0-360	200	V
4	9.0964	-65.75	Pk	36.3	-25.9	.4	11.8	-43.15	-13	-30.15	0-360	100	H

Pk - Peak detector

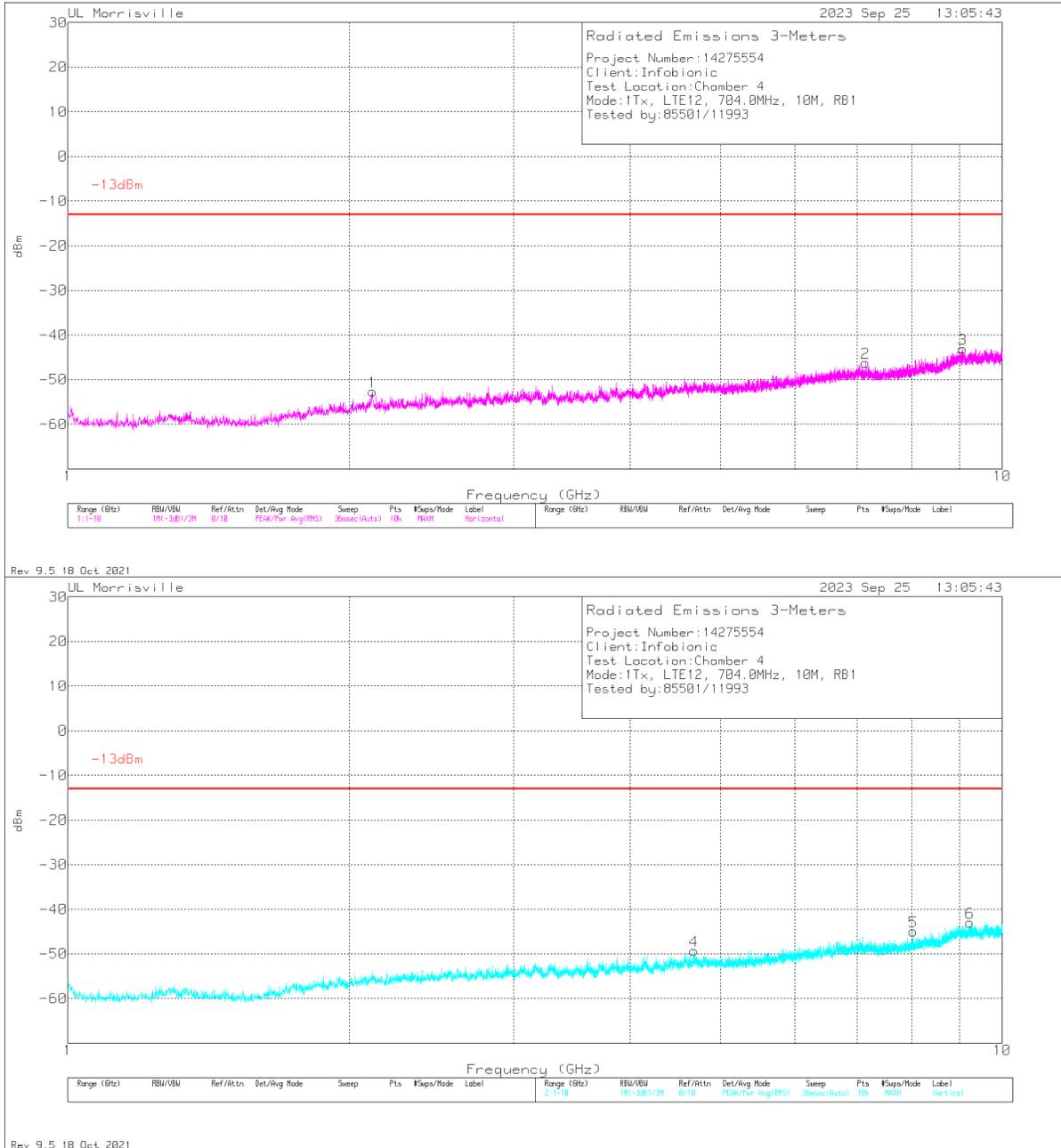
9.1.6. LTE12

LIMITS

FCC: §27.53 (g)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

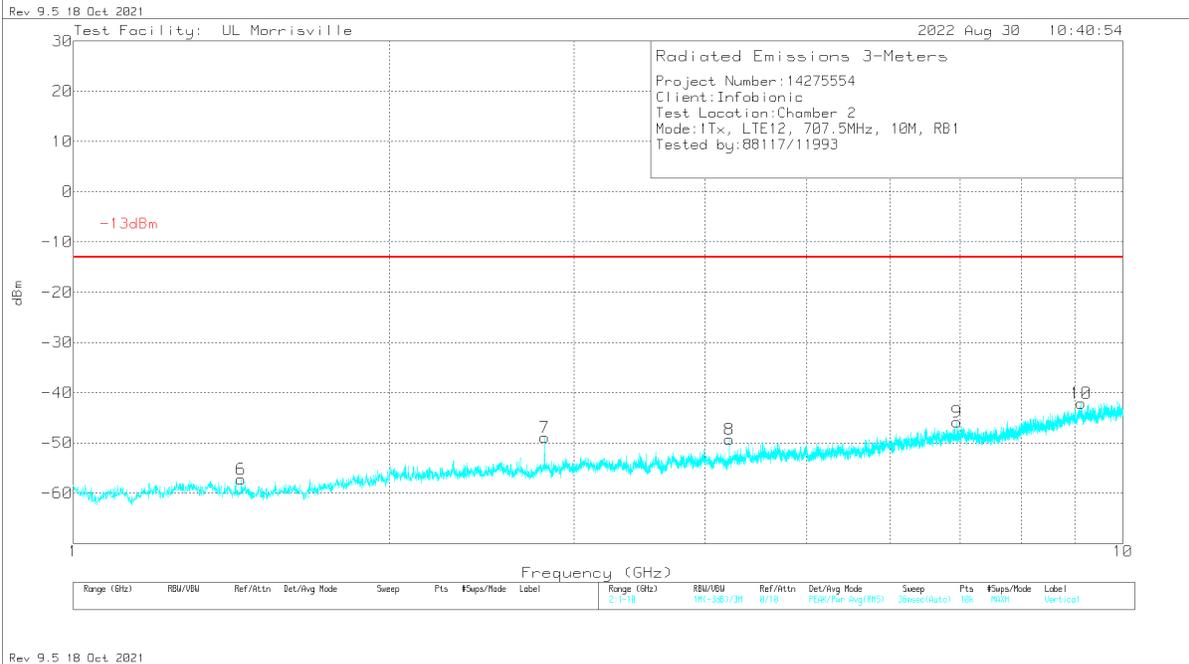
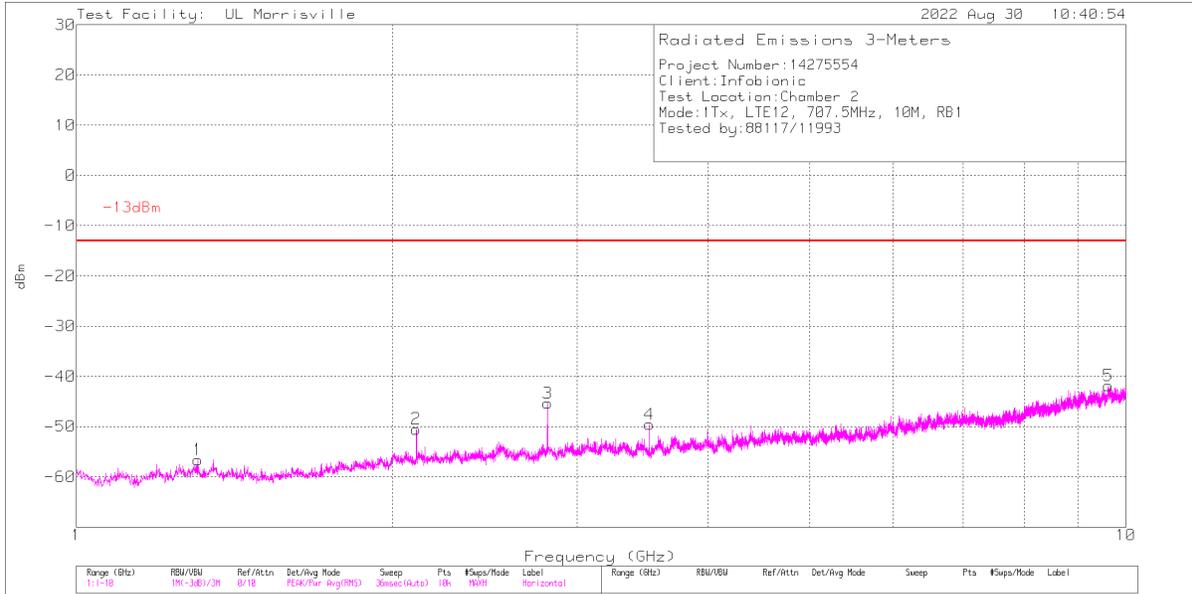
Low Channel, 704MHz, QPSK



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	Filter (dB)	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.1187	-60.61	Pk	31.6	-35.9	.4	11.8	-52.71	-13	-39.71	0-360	200	H
4	4.6819	-63.65	Pk	34.1	-32.1	.5	11.8	-49.35	-13	-36.35	0-360	200	V
2	7.138	-65.56	Pk	35.6	-28.4	.4	11.8	-46.16	-13	-33.16	0-360	200	H
5	8.0308	-65.02	Pk	35.8	-27.9	.4	11.8	-44.92	-13	-31.92	0-360	200	V
3	9.0694	-65.44	Pk	36.2	-26	.4	11.8	-43.04	-13	-30.04	0-360	100	H
6	9.2377	-65.71	Pk	36.4	-26	.5	11.8	-43.01	-13	-30.01	0-360	300	V

PK - Peak detector

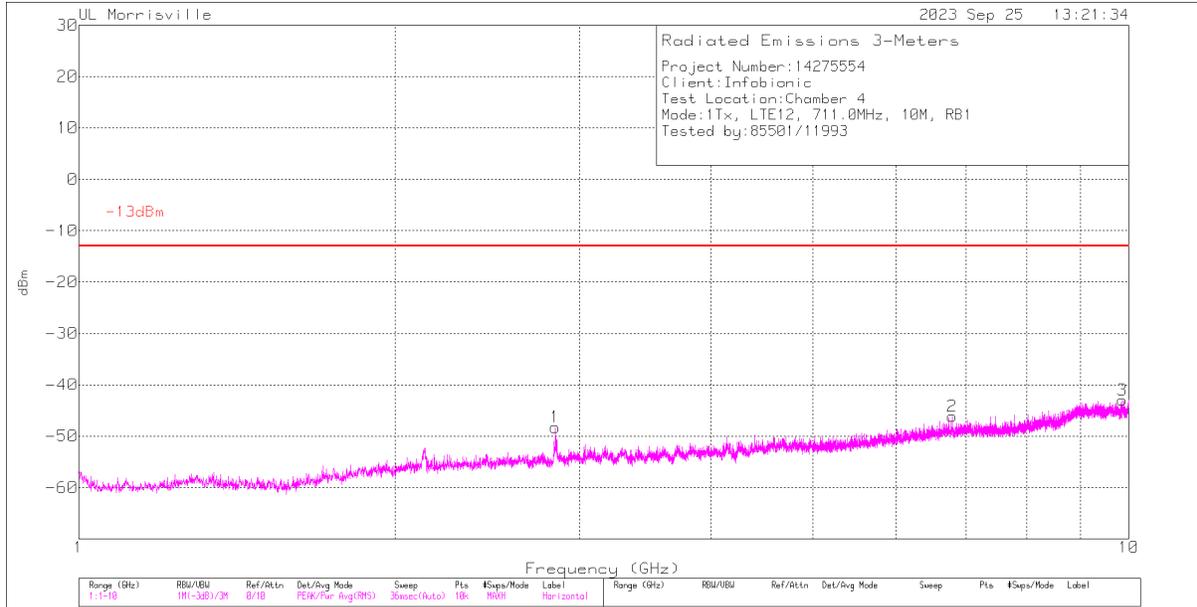
Mid Channel, 707.5MHz, QPSK



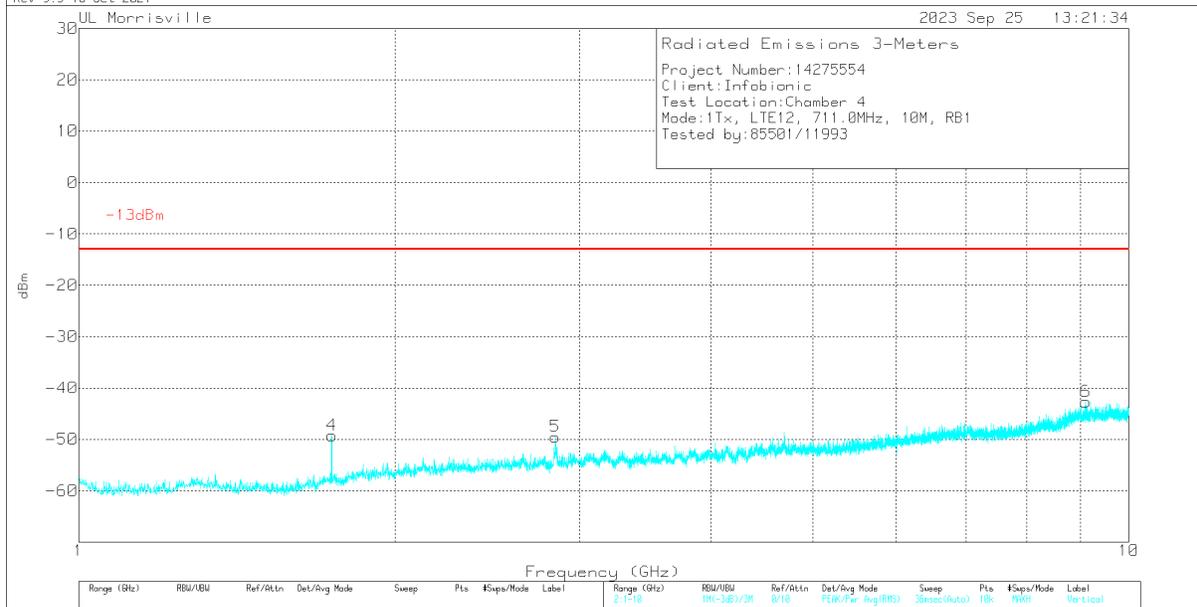
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Gain/Loss (dB)	Filter (dB)	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.306	-63.27	Pk	28.7	-34.8	1	11.8	-56.57	-13	-43.57	0-360	199	H
6	1.4455	-63.14	Pk	28.1	-34.9	.9	11.8	-57.24	-13	-44.24	0-360	101	V
2	2.1088	-60.18	Pk	31.4	-33.9	.4	11.8	-50.48	-13	-37.48	0-360	101	H
3	2.8126	-56.56	Pk	32.3	-33.5	.6	11.8	-45.36	-13	-32.36	0-360	101	H
7	2.8126	-60.13	Pk	32.3	-33.5	.6	11.8	-48.93	-13	-35.93	0-360	101	V
4	3.5155	-61.44	Pk	32.6	-32.9	.4	11.8	-49.54	-13	-36.54	0-360	101	H
8	4.2184	-62.73	Pk	33.2	-31.9	.3	11.8	-49.33	-13	-36.33	0-360	300	V
9	6.9481	-65.57	Pk	35.6	-28.3	.6	11.8	-45.87	-13	-32.87	0-360	101	V
10	9.1198	-64.54	Pk	36.2	-26.2	.6	11.8	-42.14	-13	-29.14	0-360	101	V
5	9.6202	-65.58	Pk	36.7	-25.7	.9	11.8	-41.88	-13	-28.88	0-360	199	H

Pk - Peak detector

High Channel, 711MHz, QPSK



Rev 9.5 18 Oct 2021



Rev 9.5 18 Oct 2021

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	Filter (dB)	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	1.7416	-54.83	Pk	29.5	-36.2	.5	11.8	-49.23	-13	-36.23	0-360	200	V
1	2.8441	-57.07	Pk	32.3	-35.6	.3	11.8	-48.27	-13	-35.27	0-360	100	H
5	2.8441	-58.29	Pk	32.3	-35.6	.3	11.8	-49.49	-13	-36.49	0-360	200	V
2	6.7915	-65.44	Pk	35.4	-28.3	.4	11.8	-46.14	-13	-33.14	0-360	100	H
6	9.1009	-65.36	Pk	36.3	-25.9	.5	11.8	-42.66	-13	-29.66	0-360	300	V
3	9.8587	-66.29	Pk	36.9	-26.4	1	11.8	-42.99	-13	-29.99	0-360	100	H

PK - Peak detector

9.1.7. LTE13

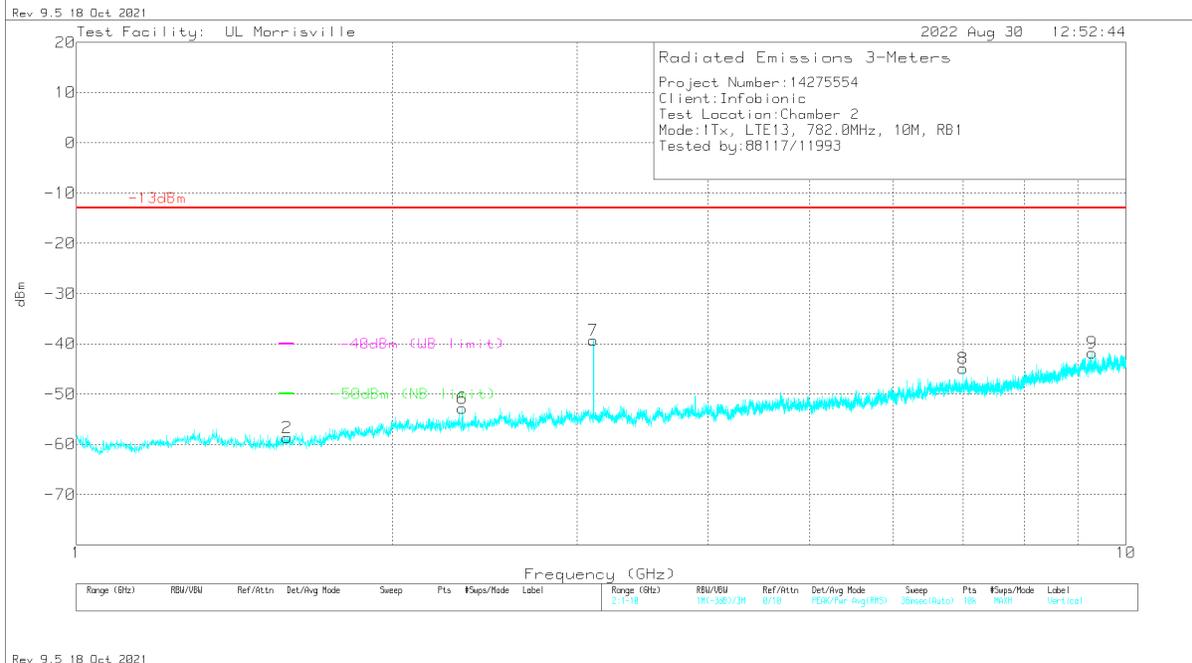
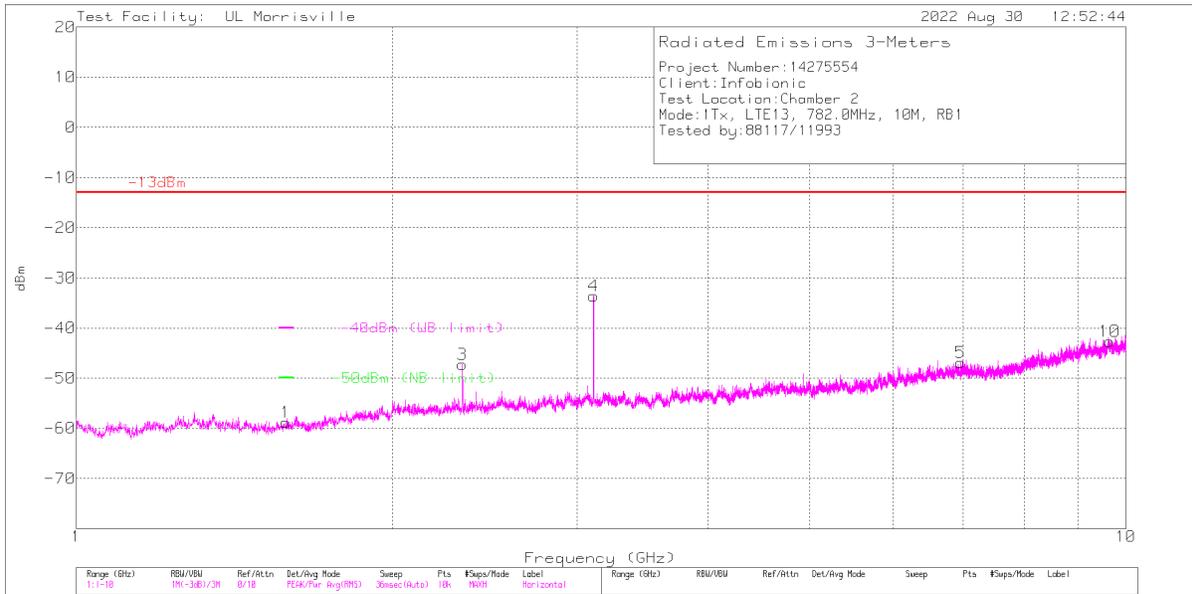
LIMITS

FCC: §27.53

(c) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

(f) Emissions in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth.

Mid Channel, 782MHz, QPSK



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Gain/Loss (dB)	Filter (dB)	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	-40dBm (WB limit)	Margin (dB)	-50dBm (NB limit)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.5832	-65.26	Pk	28.5	-34.5	.6	11.8	-58.86	-13	-45.86	-40	-18.86	-50	-8.86	0-360	199	H
2	1.5886	-64.96	Pk	28.6	-34.7	.6	11.8	-58.66	-13	-45.66	-40	-18.66	-50	-8.66	0-360	201	V
3	2.3329	-57.01	Pk	31.8	-34.3	.4	11.8	-47.31	-13	-34.31	-	-	-	-	0-360	101	H
6	2.3329	-62.55	Pk	31.8	-34.3	.4	11.8	-52.85	-13	-39.85	-	-	-	-	0-360	101	V
7	3.1096	-51.48	Pk	32.9	-33	.5	11.8	-39.28	-13	-26.28	-	-	-	-	0-360	299	V
4	3.1105	-45.81	Pk	32.9	-33	.5	11.8	-33.61	-13	-20.61	-	-	-	-	0-360	101	H
5	6.9589	-66.22	Pk	35.6	-28.7	.6	11.8	-46.92	-13	-33.92	-	-	-	-	0-360	299	H
8	6.9985	-64.75	Pk	35.6	-28	.5	11.8	-44.85	-13	-31.85	-	-	-	-	0-360	101	V
9	9.289	-64.35	Pk	36.4	-26.2	.5	11.8	-41.85	-13	-28.85	-	-	-	-	0-360	299	V
10	9.6481	-66.6	Pk	36.7	-25.5	.9	11.8	-42.7	-13	-29.7	-	-	-	-	0-360	299	H

Pk - Peak detector

9.1.8. LTE14

LIMITS

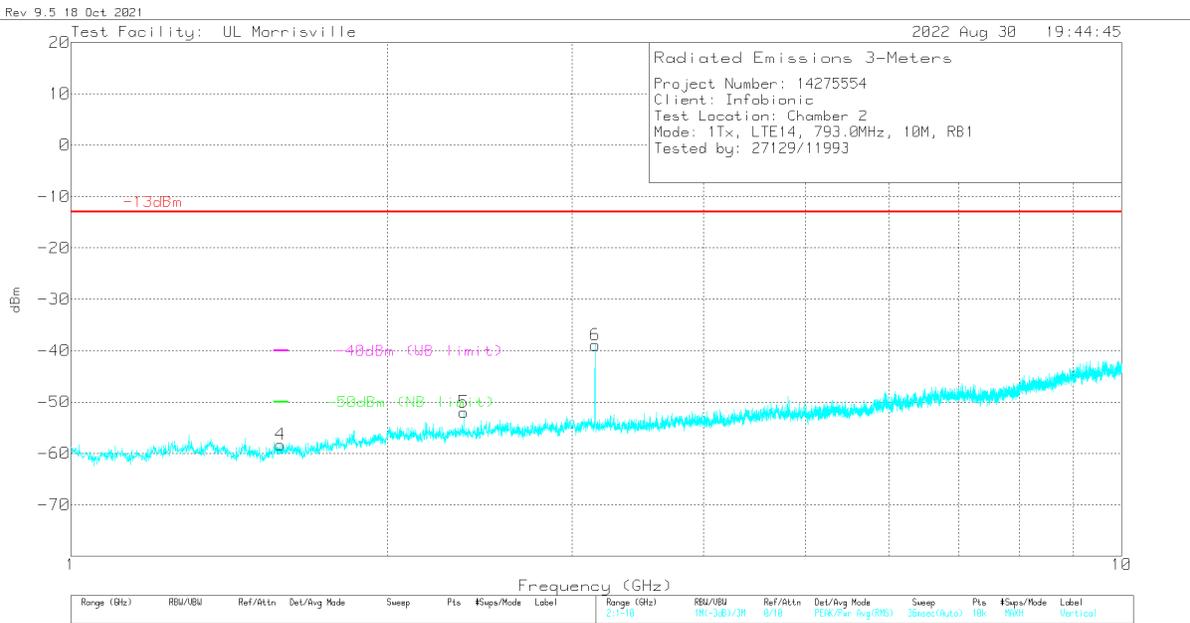
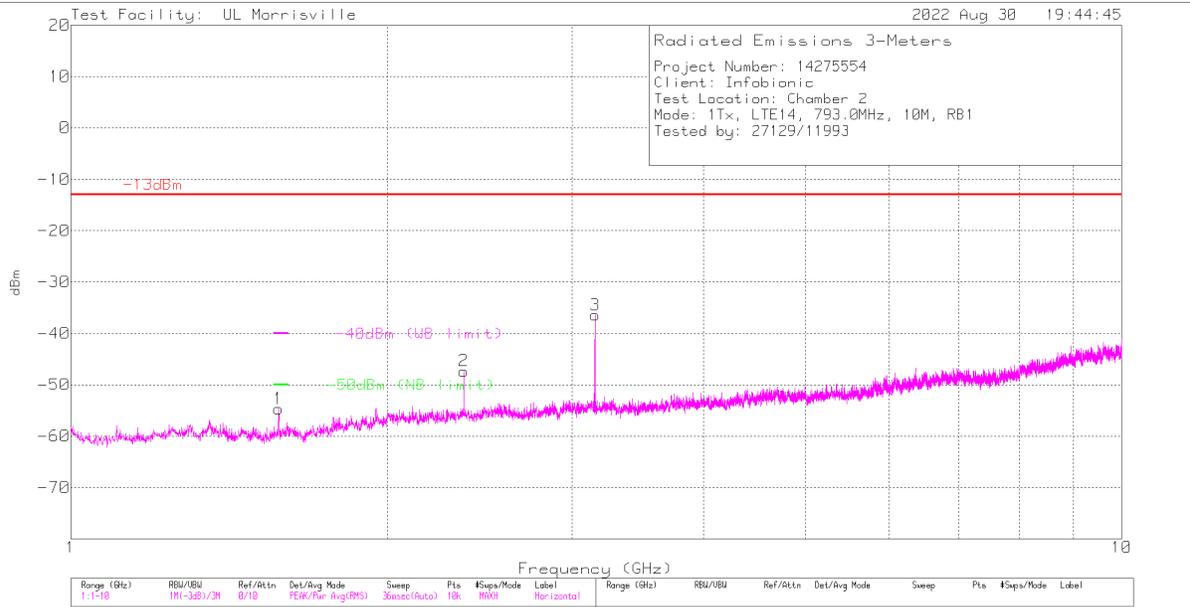
FCC: §90.543 Emission Limitations. (Band 14)

(e) For operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least $43 + 10 \log (P)$ dB.

(f) For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation

Mid Channel, 793MHz, QPSK



Rev 9.5 18 Oct 2021

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Gain/Loss (dB)	Filter (dB)	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	-40dBm (WB limit)	Margin (dB)	-50dBm (NB limit)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.57737	-59.46	Pk	28.4	-34.4	.6	11.8	-53.06	-13	-40.06	-40	-13.06	-50	-3.06	9	237	H
4	1.5832	-64.68	Pk	28.5	-34.5	.6	11.8	-58.28	-13	-45.28	-40	-18.28	-50	-8.28	0-360	101	V
2	2.3653	-57.31	Pk	32	-34.2	.4	11.8	-47.31	-13	-34.31	-	-	-	-	0-360	101	H
5	2.3653	-61.99	Pk	32	-34.2	.4	11.8	-51.99	-13	-38.99	-	-	-	-	0-360	200	V
6	3.1537	-50.49	Pk	32.8	-33.5	.5	11.8	-38.89	-13	-25.89	-	-	-	-	0-360	299	V
3	3.15415	-48.04	Pk	32.8	-33.5	.5	11.8	-36.44	-13	-23.44	-	-	-	-	0-360	101	H

Pk - Peak detector

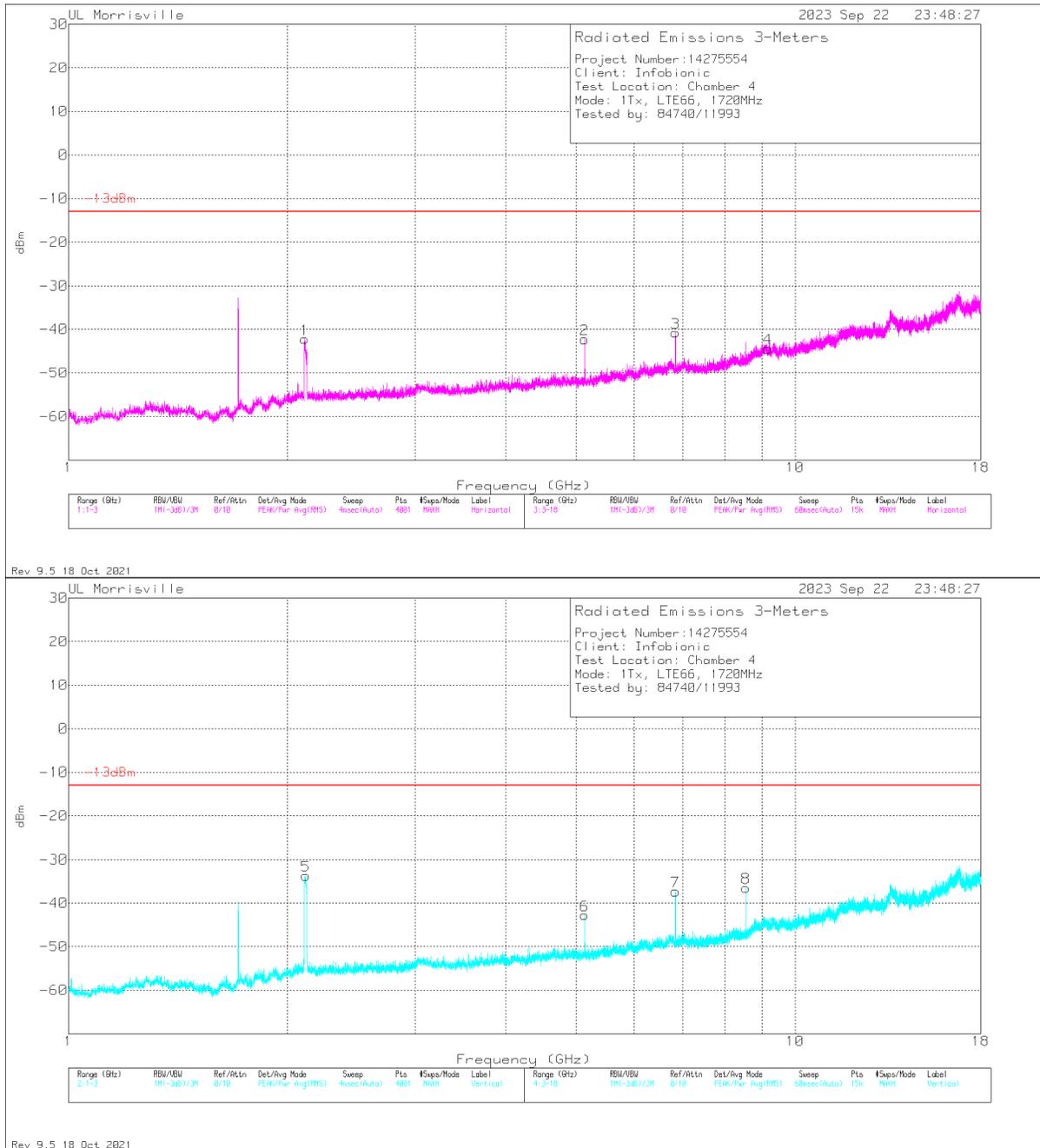
9.1.9. LTE66

LIMITS

FCC: §27.53(h)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

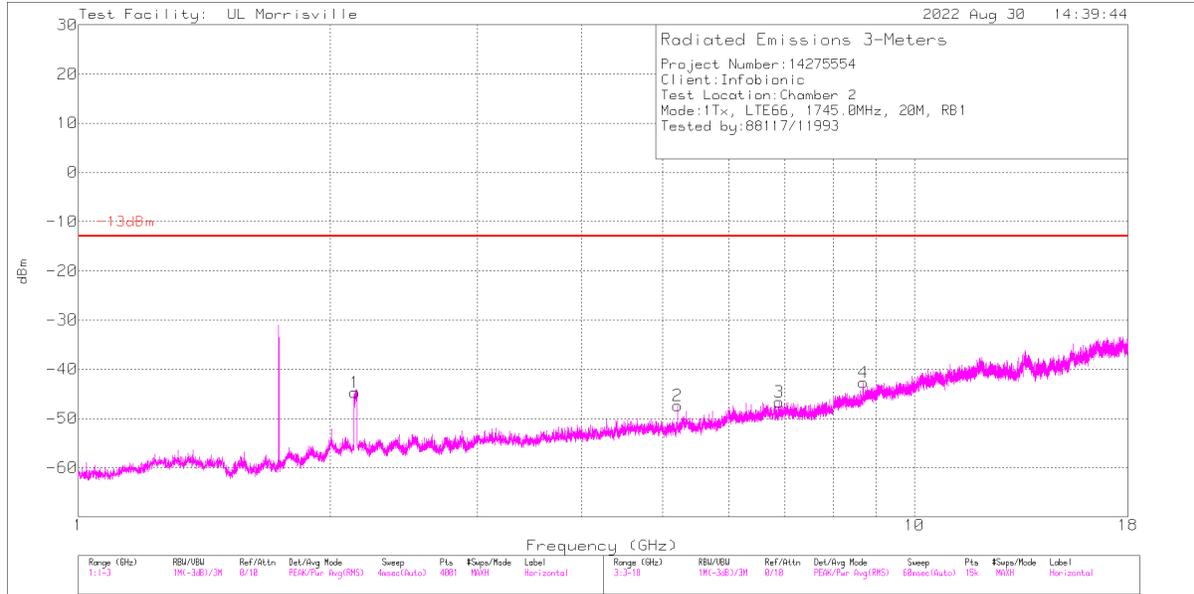
Low Channel, 1720MHz, QPSK



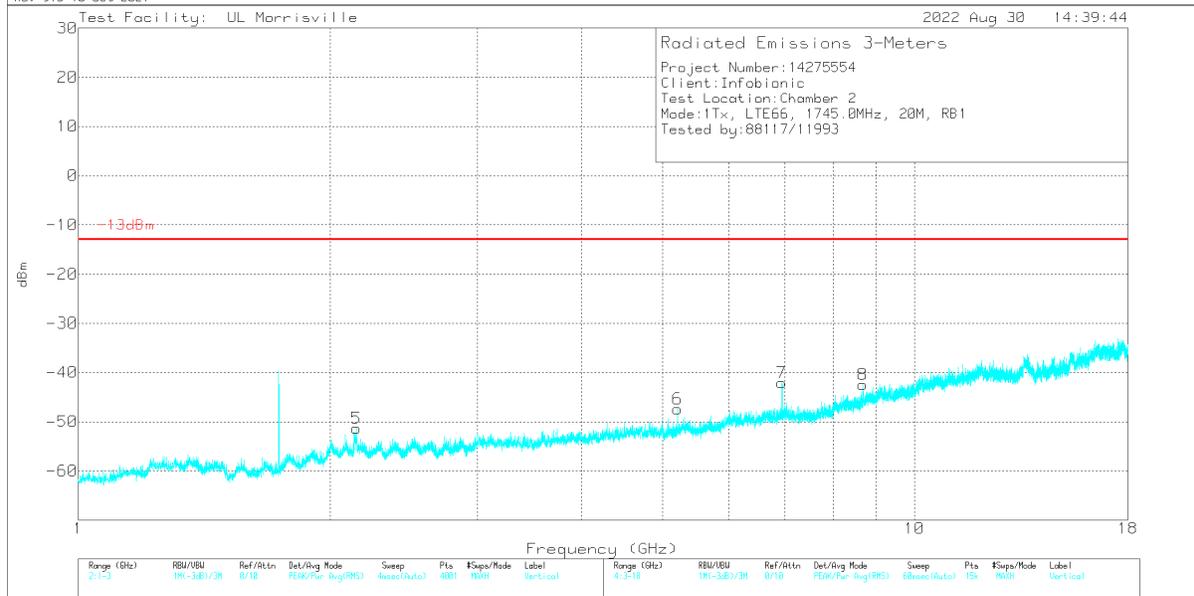
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	CF (dB)	Filter (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.114 (DL)	-50.76	Pk	31.6	-36.1	11.8	1.2	-42.26	-13	-29.26	0-360	100	H
5	2.12 (DL)	-42.29	Pk	31.6	-36	11.8	1.2	-33.69	-13	-20.69	0-360	200	V
2	5.133	-56.98	Pk	34.2	-31.3	11.8	0	-42.28	-13	-29.28	0-360	100	H
6	5.133	-57.44	Pk	34.2	-31.3	11.8	0	-42.74	-13	-29.74	0-360	200	V
3	6.844	-59.95	Pk	35.4	-28	11.8	0	-40.75	-13	-27.75	0-360	100	H
7	6.844	-56.51	Pk	35.4	-28	11.8	0	-37.31	-13	-24.31	0-360	200	V
8	8.555	-57.87	Pk	35.8	-26.2	11.8	0	-36.47	-13	-23.47	0-360	300	V
4	9.171	-66.81	Pk	36.3	-25.7	11.8	0	-44.41	-13	-31.41	0-360	100	H

Pk - Peak detector

Mid Channel, 1745MHz, QPSK



Rev 9.5 18 Oct 2021

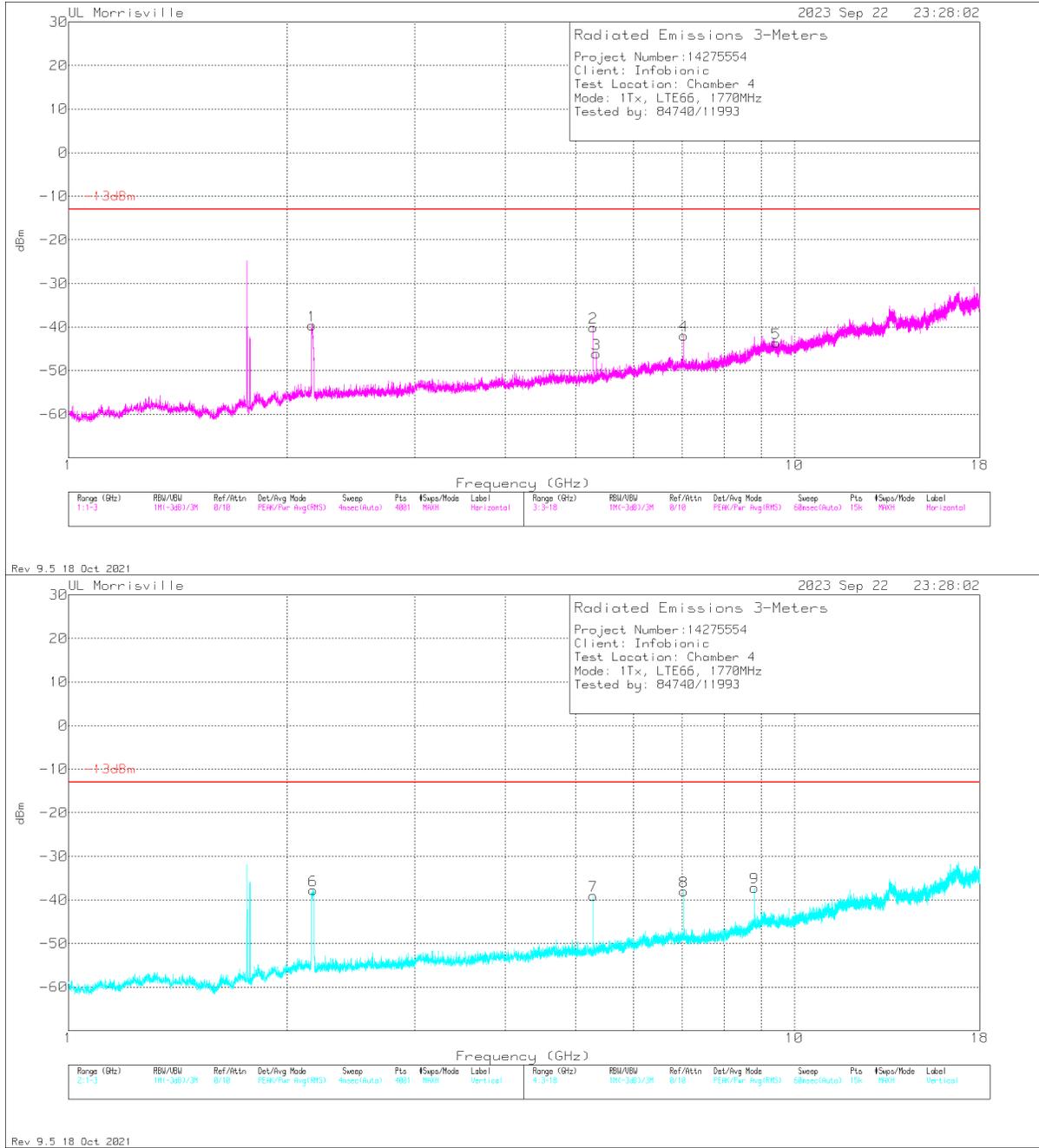


Rev 9.5 18 Oct 2021

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Gain/Loss (dB)	CF (dB)	Filter (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.1415	-54.38	Pk	31.5	-34.7	11.8	1	-44.78	-13	-31.78	0-360	101	H
5	2.15	-61.33	Pk	31.5	-34.3	11.8	1	-51.33	-13	-38.33	0-360	300	V
2	5.208	-62.95	Pk	34.3	-30.5	11.8	0	-47.35	-13	-34.35	0-360	101	H
6	5.208	-63.01	Pk	34.3	-30.5	11.8	0	-47.41	-13	-34.41	0-360	101	V
3	6.894	-66.06	Pk	35.6	-28	11.8	0	-46.66	-13	-33.66	0-360	300	H
7	6.944	-62.11	Pk	35.6	-27.4	11.8	0	-42.11	-13	-29.11	0-360	101	V
8	8.68	-64.12	Pk	36	-26.1	11.8	0	-42.42	-13	-29.42	0-360	300	V
4	8.685	-64.47	Pk	36	-26	11.8	0	-42.67	-13	-29.67	0-360	101	H

Pk - Peak detector

High Channel, 1770MHz, QPSK



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	CF (dB)	Filter (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.1645 (DL)	-47.93	Pk	31.6	-36.1	11.8	1	-39.63	-	-	0-360	100	H
6	2.1725 (DL)	-46.19	Pk	31.6	-36	11.8	1	-37.79	-	-	0-360	200	V
2	5.283	-54.42	Pk	34.3	-31.8	11.8	0	-40.12	-13	-27.12	0-360	100	H
7	5.283	-53.36	Pk	34.3	-31.8	11.8	0	-39.06	-13	-26.06	0-360	200	V
3	5.334	-60.72	Pk	34.4	-31.6	11.8	0	-46.12	-13	-33.12	0-360	100	H
4	7.044	-61.85	Pk	35.6	-27.5	11.8	0	-41.95	-13	-28.95	0-360	100	H
8	7.044	-57.93	Pk	35.6	-27.5	11.8	0	-38.03	-13	-25.03	0-360	300	V
9	8.806	-59.69	Pk	36.1	-25.4	11.8	0	-37.19	-13	-24.19	0-360	300	V
5	9.442	-66.83	Pk	36.7	-25.3	11.8	0	-43.63	-13	-30.63	0-360	200	H

Pk - Peak detector

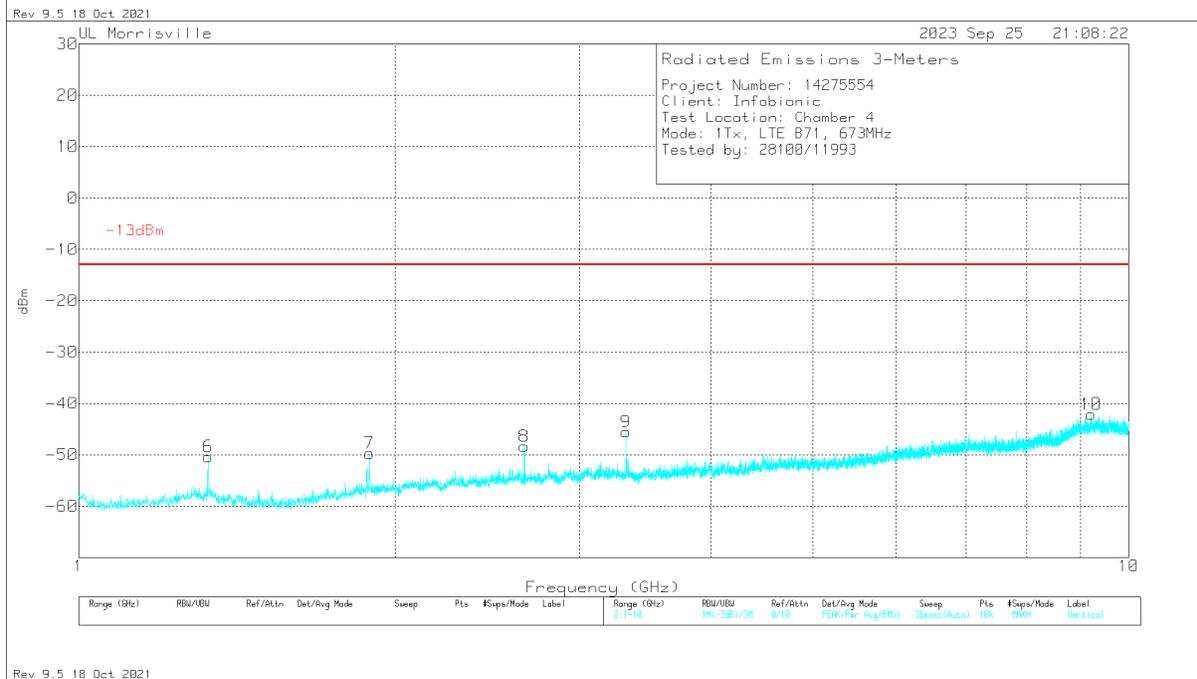
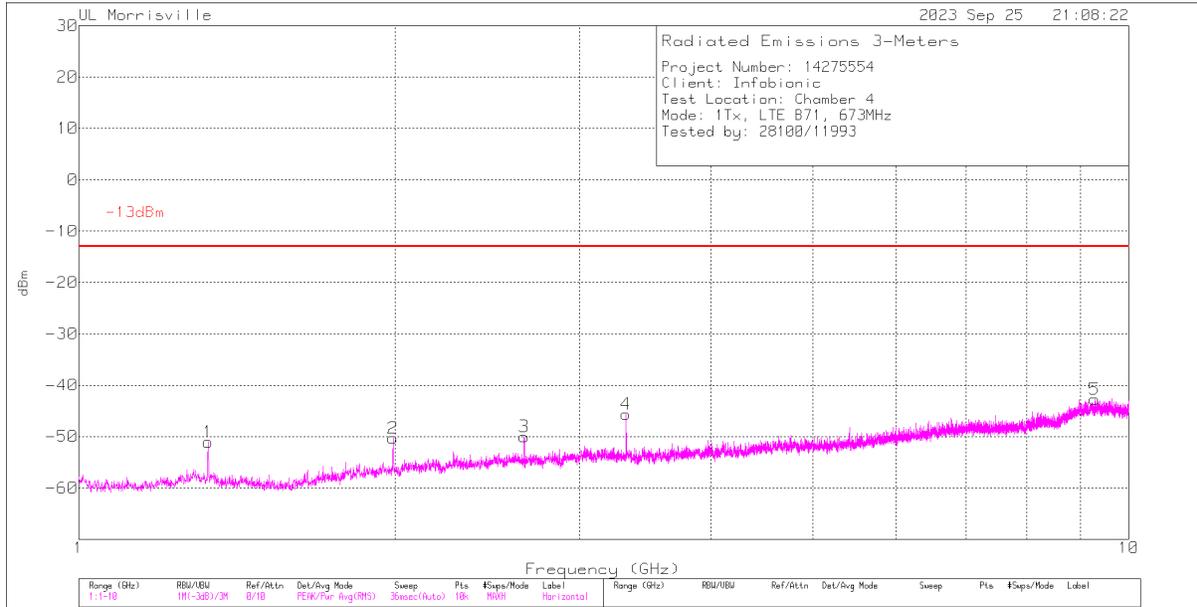
9.1.10. LTE71

LIMITS

FCC: §27.53 (g)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

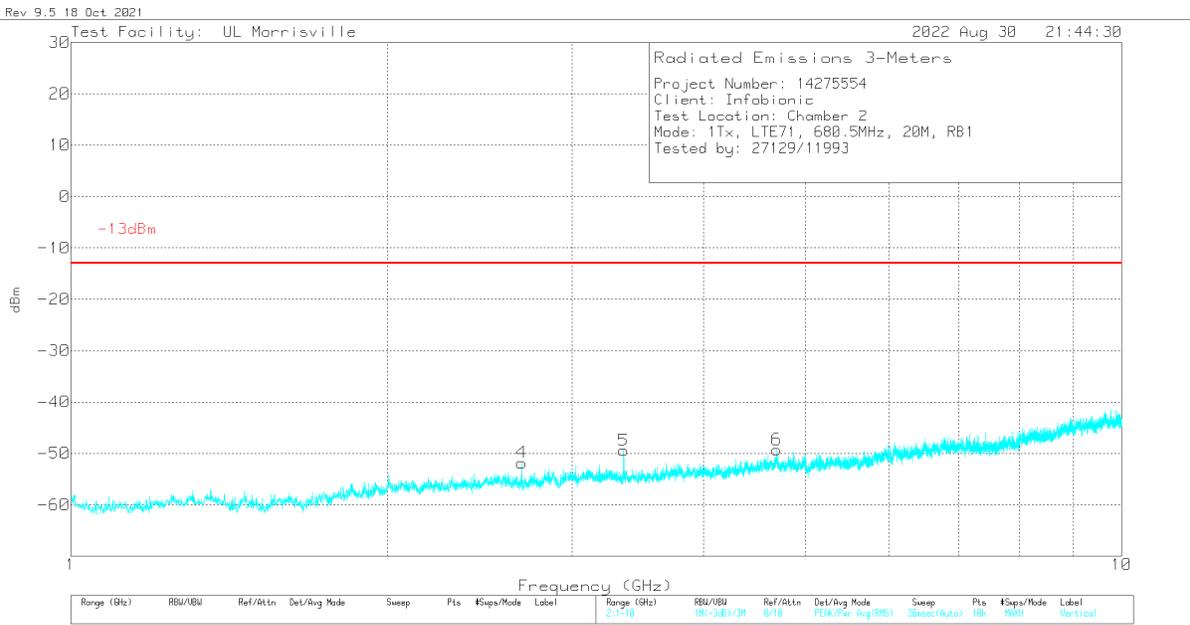
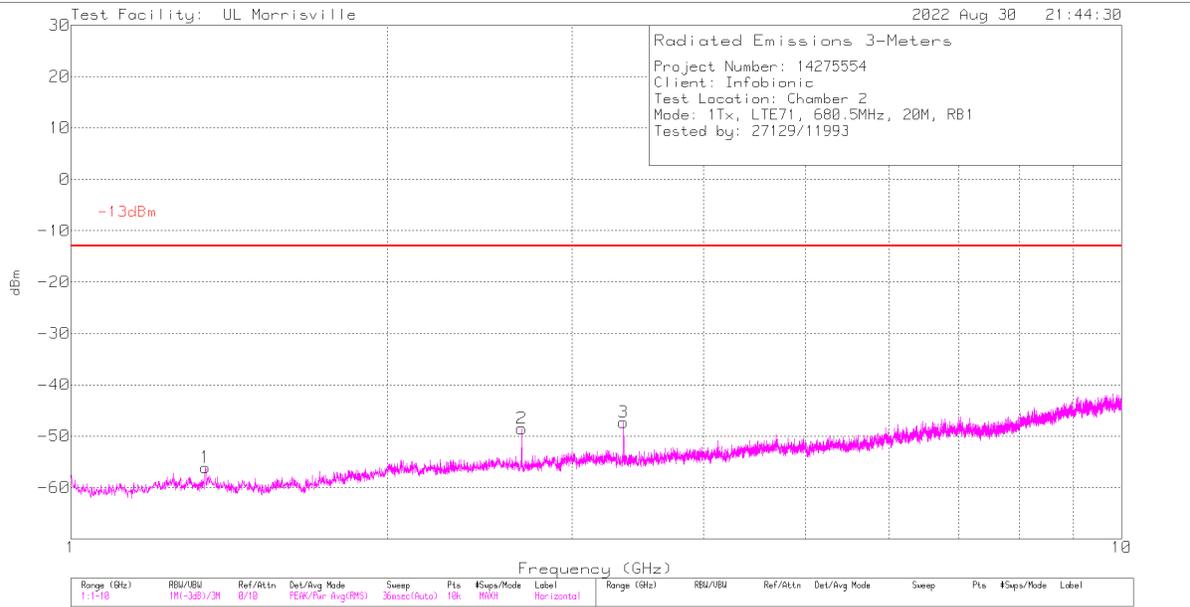
Low Channel, 673MHz, QPSK



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	Filter (dB)	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.3276	-56.76	Pk	29	-36	.9	11.8	-51.06	-13	-38.06	0-360	100	H
6	1.3276	-56.1	Pk	29	-36	.9	11.8	-50.4	-13	-37.4	0-360	300	V
7	1.891	-56.43	Pk	30.7	-36.2	.4	11.8	-49.73	-13	-36.73	0-360	300	V
2	1.9918	-56.9	Pk	30.9	-36.5	.4	11.8	-50.3	-13	-37.3	0-360	100	H
3	2.656	-58.82	Pk	32.4	-35.9	.5	11.8	-50.02	-13	-37.02	0-360	200	H
8	2.656	-57.15	Pk	32.4	-35.9	.5	11.8	-48.35	-13	-35.35	0-360	200	V
4	3.3202	-55.95	Pk	32.9	-35.1	.7	11.8	-45.65	-13	-32.65	0-360	200	H
9	3.3202	-55.86	Pk	32.9	-35.1	.7	11.8	-45.56	-13	-32.56	0-360	300	V
10	9.2089	-65.41	Pk	36.4	-26.1	1.2	11.8	-42.11	-13	-29.11	0-360	200	V
5	9.2791	-65.65	Pk	36.4	-26.2	.9	11.8	-42.75	-13	-29.75	0-360	200	H

Pk - Peak detector

Mid Channel, 680.5MHz, QPSK

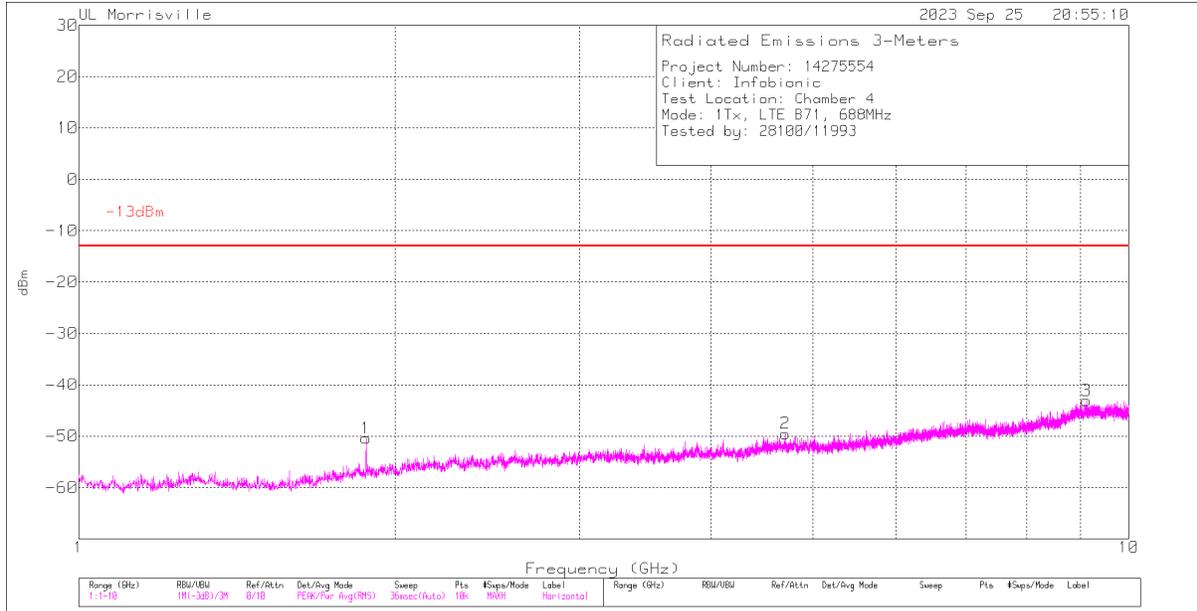


Rev 9.5 18 Oct 2021

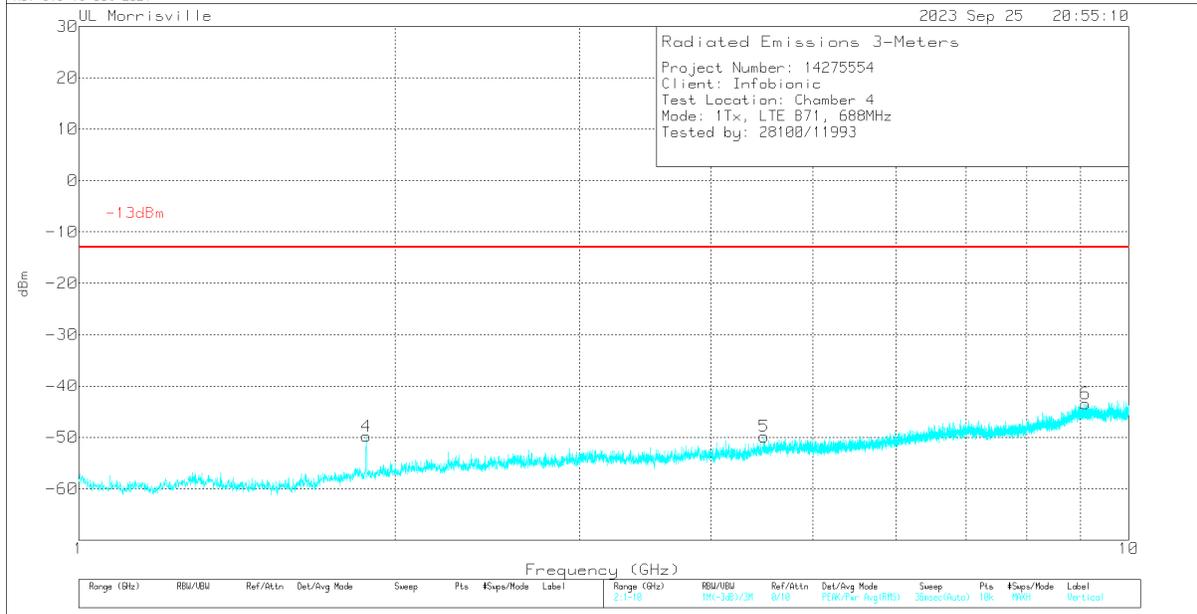
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	206211 (dB/m)	Gain/Loss (dB)	Filter (dB)	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.3429	-62.8	Pk	29.2	-35.2	.9	11.8	-56.1	-13	-43.1	0-360	200	H
2	2.6857	-58.91	Pk	31.8	-33.7	.5	11.8	-48.51	-13	-35.51	0-360	101	H
4	2.6857	-62.21	Pk	31.8	-33.7	.5	11.8	-51.81	-13	-38.81	0-360	101	V
3	3.3571	-59.39	Pk	32.5	-32.8	.6	11.8	-47.29	-13	-34.29	0-360	101	H
5	3.358	-61.56	Pk	32.5	-32.8	.6	11.8	-49.46	-13	-36.46	0-360	300	V
6	4.6954	-64.58	Pk	34.1	-30.9	.3	11.8	-49.28	-13	-36.28	0-360	300	V

Pk - Peak detector

High Channel, 688MHz, QPSK



Rev 9.5 18 Oct 2021

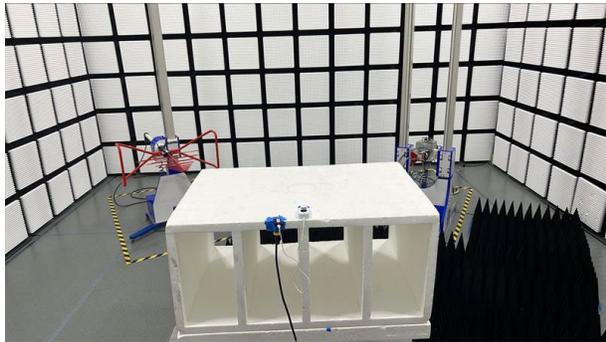
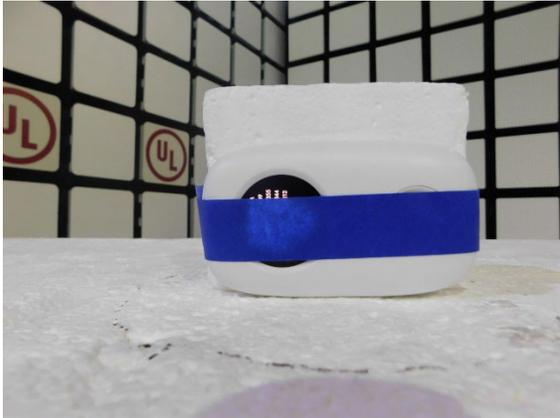
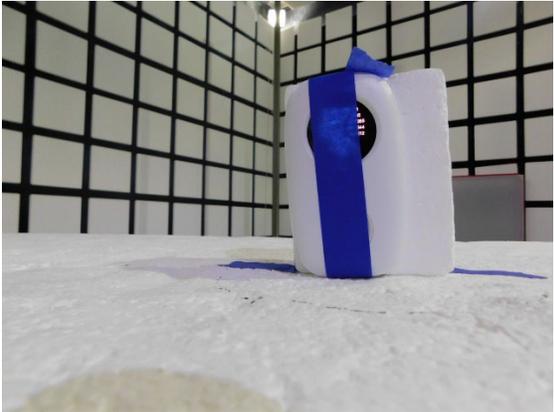


Rev 9.5 18 Oct 2021

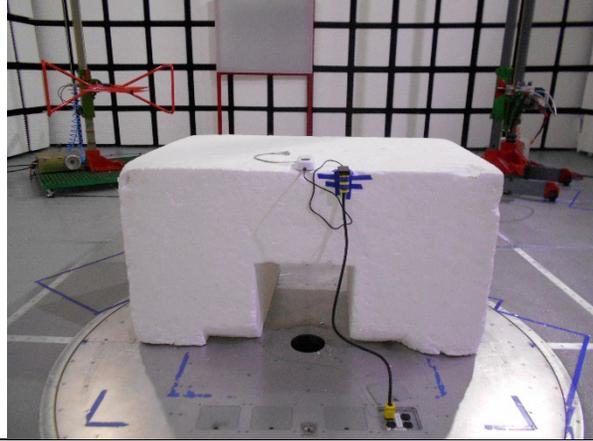
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	89509 ACF (dB/m)	Gain/Loss (dB)	198917_1GHz HPF	CF (dB)	Corrected Reading dBm	-13dBm	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.8775	-57.33	Pk	30.7	-36	.4	11.8	-50.43	-13	-37.43	0-360	200	H
4	1.8793	-56.8	Pk	30.7	-35.9	.4	11.8	-49.8	-13	-36.8	0-360	300	V
5	4.4947	-63.94	Pk	33.8	-31.9	.4	11.8	-49.84	-13	-36.84	0-360	200	V
2	4.7089	-63.69	Pk	34.1	-32	.3	11.8	-49.49	-13	-36.49	0-360	200	H
6	9.0937	-66.12	Pk	36.3	-25.8	.4	11.8	-43.42	-13	-30.42	0-360	200	V
3	9.1144	-65.71	Pk	36.3	-25.9	.4	11.8	-43.11	-13	-30.11	0-360	100	H

PK - Peak detector

10. SETUP PHOTOS

RADIATED RF MEASUREMENT SETUP	
	
A1G RADIATED SETUP PHOTO BACK	A1G RADIATED SETUP PHOTO FRONT
	
X-AXIS PHOTO	Y-AXIS PHOTO
	LEFT INTENTIONALLY BLANK
Z-AXIS FRONT PHOTO	

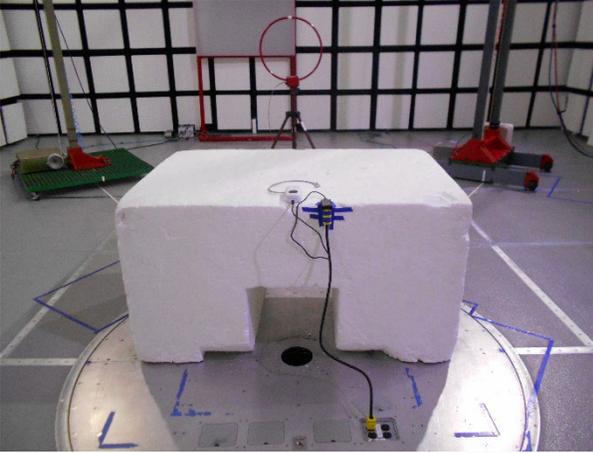
RADIATED RF MEASUREMENT SETUP



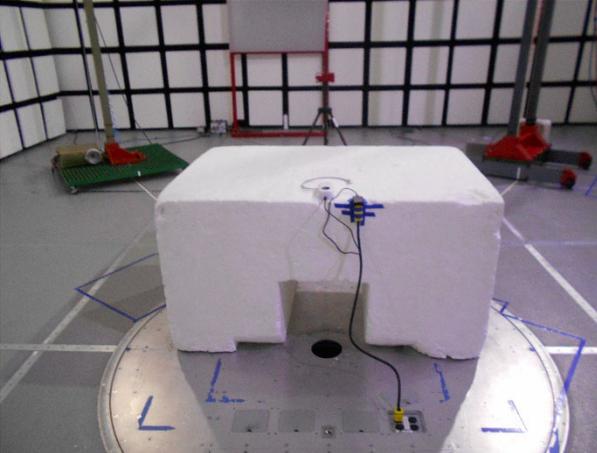
BL1G RADIATED SETUP PHOTO BACK



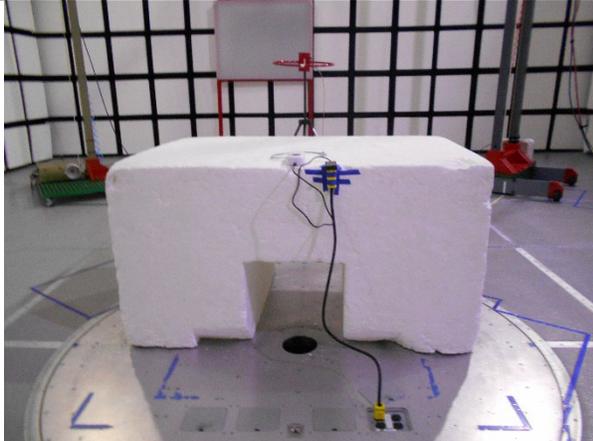
BL1G RADIATED SETUP PHOTO FRONT



BL30 RADIATED SETUP PHOTO BACK 0 Deg



BL30 RADIATED SETUP PHOTO BACK 90 Deg



BL30 RADIATED SETUP PHOTO BACK FLAT



BL30 RADIATED SETUP PHOTO FRONT

END OF REPORT