Report on Intermodulation Testing

For

Gas Control Equipment Limited

On

Zeno Clarity 4G

Report no. TRA-047787-47-06C

8 March 2021

RF915 4.0

Report Number: TRA-047787-47-06C
Issue: C

REPORT ON THE INTERMODULATION TESTING OF A
Gas Control Equipment Limited
Zeno Clarity 4G
WITH RESPECT TO SPECIFICATIONS
47CFR PARTS 15, 22H, 24E, 27
INTERMODULATION EMISSIONS INVESTIGATION

TEST DATE: 2020-06-23 to 2020-12-02

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Date:	8 March 2021	

Disclaimers:

[1] THIS DOCUMENT MAY BE REPRODUCED ONLY IN ITS ENTIRETY AND WITHOUT CHANGE
[2] THE RESULTS CONTAINED IN THIS DOCUMENT RELATE ONLY TO THE ITEM(S) TESTED

RF915 4.0

1 Revision Record

Issue Number	*Issue Date*	*Revision History*
A	8 August 2020	Original
B	11 January 2021	Added results for GSM850,GSM1900 and WCDMA bands 2, 4 and 5 – general updates.
C	08 March 2021	Updated GSM results in section 11

2 Summary

TEST REPORT NUMBER:	TRA-047787-47-06C
WORKS ORDER NUMBER:	TRA-047787-01
PURPOSE OF TEST:	USA: Testing of radio frequency equipment per the relevant authorization procedure of chapter 47 of CFR (code of federal regulations) Part 2, subpart J.
TEST SPECIFICATION(S):	Intermodulation emissions investigation using 47CFR Parts 15, 22H, 24E, 27
EQUIPMENT UNDER TEST (EUT):	Zeno Clarity 4G
EUT SERIAL NUMBER:	ZC101001
MANUFACTURER/AGENT:	Gas Control Equipment Limited
ADDRESS:	100 Empress ParkwayFarrington Way Eastwood Nottingham Nottinghamshire NG16 3AG United Kingdom
CLIENT CONTACT:	Will Turner ☎ 01942 292962 ✉ will.turner@gcegroup.com
ORDER NUMBER:	UK-1929
TEST DATE:	2020-06-23 to 2020-12-02
TESTED BY:	Steven Garwell Element

2.1 Test Summary

Test Method and Description	*Requirement Clause*	*Applicable to this equipment*	*Result / Note*
	47CFR		
Intermodulation spurious emissions	Parts 15, 22H, 24E, 27	☒	*PASS*

Notes:

The results contained in this report relate only to the items tested, in the condition at time of test, and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

The apparatus was set up and exercised using the configurations, modes of operation and arrangements defined in this report only. Any modifications made are identified in Section 8 of this report.

Particular operating modes, apparatus monitoring methods and performance criteria required by the standards tested to have been performed except where identified in Section 5.2 of this test report (Deviations from Test Standards).

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4 Introduction

This report TRA-047787-47-06C presents the results of the Radio testing on a Gas Control Equipment Limited, Zeno Clarity 4G.

The Zeno Clarity 4G contains Pre-approved Radio modules that are able to operate simultaneously.

The testing was carried out for Gas Control Equipment Limited by Element, at the address detailed below.

☐	Element Hull Unit E South Orbital Trading Park Hedon Road Hull HU9 1NJ UK	☒	Element Skelmersdale Unit 1 Pendle Place Skemersdale West Lancashire WN8 9PN UK

This report details the configuration of the equipment, the test methods used and any relevant modifications where appropriate.

All test and measurement equipment under the control of the laboratory and requiring calibration is subject to an established programme and procedures to control and maintain measurement standards. The quality management system meets the principles of ISO 9001, and has quality control procedures for monitoring the validity of tests undertaken. Records and sufficient detail are retained to establish an audit trail of calibration records relating to its test results for a defined period. Under control of the established calibration programme, key quantities or values of the test & measurement instrumentation are within specification and comply with the relevant traceable internationally recognised and appropriate standard specifications, which are UKAS calibrated as such where these properties have a significant effect on results. Participation in inter-laboratory comparisons and proficiency testing ensures satisfactory correlation of results conform to Elements own procedures, as well as statistical techniques for analysis of test data providing the appropriate confidence in measurements.

Throughout this report EUT denotes equipment under test.

FCC Site Listing:
Element is accredited for the above sites under the US-EU MRA, Designation number UK0009.

The test site requirements of ANSI C63.4-2014 are met up to 1GHz.

The test site SVSWR requirements of CISPR 16-1-4:2010 are met over the frequency range 1 GHz to 18 GHz.

5 Glossary of Terms

§	denotes a section reference from the standard, not this document
AC	Alternating Current
ANSI	American National Standards Institute
BW	bandwidth
C	Celsius
CFR	Code of Federal Regulations
CW	Continuous Wave
dB	decibel
dBm	dB relative to 1 milliwatt
DC	Direct Current
DSSS	Direct Sequence Spread Spectrum
EIRP	Equivalent Isotropically Radiated Power
ERP	Effective Radiated Power
EUT	Equipment Under Test
FCC	Federal Communications Commission
FHSS	Frequency Hopping Spread Spectrum
Hz	hertz
IC	Industry Canada
ITU	International Telecommunication Union
LBT	Listen Before Talk
m	metre
max	maximum
MIMO	Multiple Input and Multiple Output
min	minimum
MRA	Mutual Recognition Agreement
N/A	Not Applicable
PCB	Printed Circuit Board
PDF	Portable Document Format
Pt-mpt	Point-to-multipoint
Pt-pt	Point-to-point
RF	Radio Frequency
RH	Relative Humidity
RMS	Root Mean Square
Rx	receiver
s	second
SVSWR	Site Voltage Standing Wave Ratio
Tx	transmitter
UKAS	United Kingdom Accreditation Service
V	volt
W	watt
Ω	ohm

6 Equipment Under Test

6.1 EUT Identification

- Name: Zeno Clarity 4G
- Serial Number: ZC101001
- Model Number: RS-00500C
- Software Revision: Not Applicable
- Build Level / Revision Number: Not Applicable

Module Details: LTE

- Manufacturer: Gas Control Equipment Limited
- Model Number: RS500C4G1
- FCC ID: 2AOL9-RS500C4G1

Module Details: BTLE

- Manufacturer: Silicon Labs
- Model Number: BGM13S
- FCC ID: QOQ13

6.2 System Equipment

Equipment listed below forms part of the overall test setup and is required for equipment functionality and/or monitoring during testing. The compliance levels achieved in this report relate only to the EUT and not items given in the following list.

1: Rohde & Schwartz CMW 500 Communications test set; serial number: 112969
2: Laptop

6.3 EUT Mode of Operation

6.3.1 Transmission

The mode of operation for transmitter tests was as follows:

Radios were set to transmit permanently in various combinations, the spectrum was checked to determine if any intermodulation products were generated due to multiple radios operating simultaneously. The worst case emission plots are shown in this document.

EUT was operated with worst case modes of operation for each radio device.

6.4 EUT Description

The EUT is a portable oxygen concentrator for patients requiring supplementary oxygen. The device has multiple wireless connections. This report covers intermodulations produced by the simultaneous transitions between the LTE module and the Bluetooth LE

7 EUT Radio Parameters

7.1 General

Radio:	GSM	WCDMA	LTE	BTLE
Band(s) of operation:	GSM850, GSM1900	2,4 and 5	2, 4, 5, 7 and 12	2402 MHz to 2480 MHz
Modulation type:	GMSK, 8PSK	QPSK	OFDM	GFSK
Channel bandwidth:	200 kHz	5 MHz	10 MHz	1 MHz
Declared output power:	30 dBm	24 dBm	24 dBm	<10 dBm
Antenna type:	Antenova m2m SRFL029	Antenova m2m SRFL029	Antenova m2m SRFL029	PCB Trace
Nominal Supply Voltage:	24 Vdc	24 Vdc	24 Vdc	24 Vdc

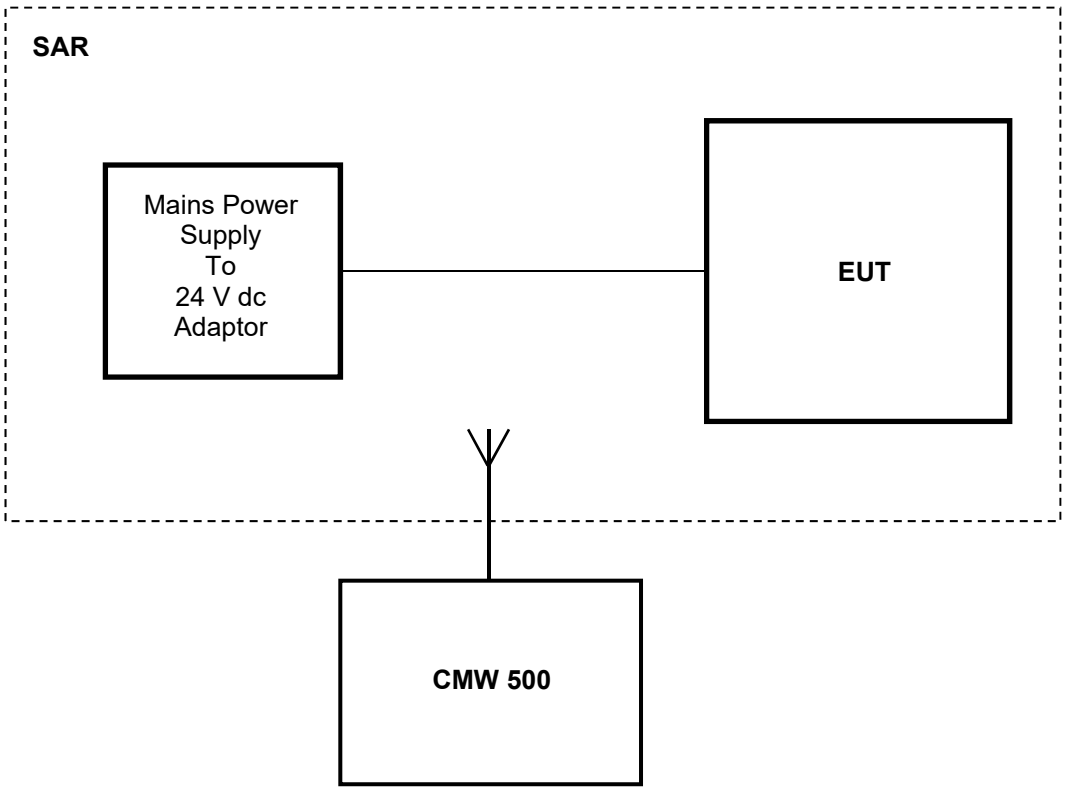
8 Modifications

No modifications were performed during this assessment.

9 EUT Test Setup

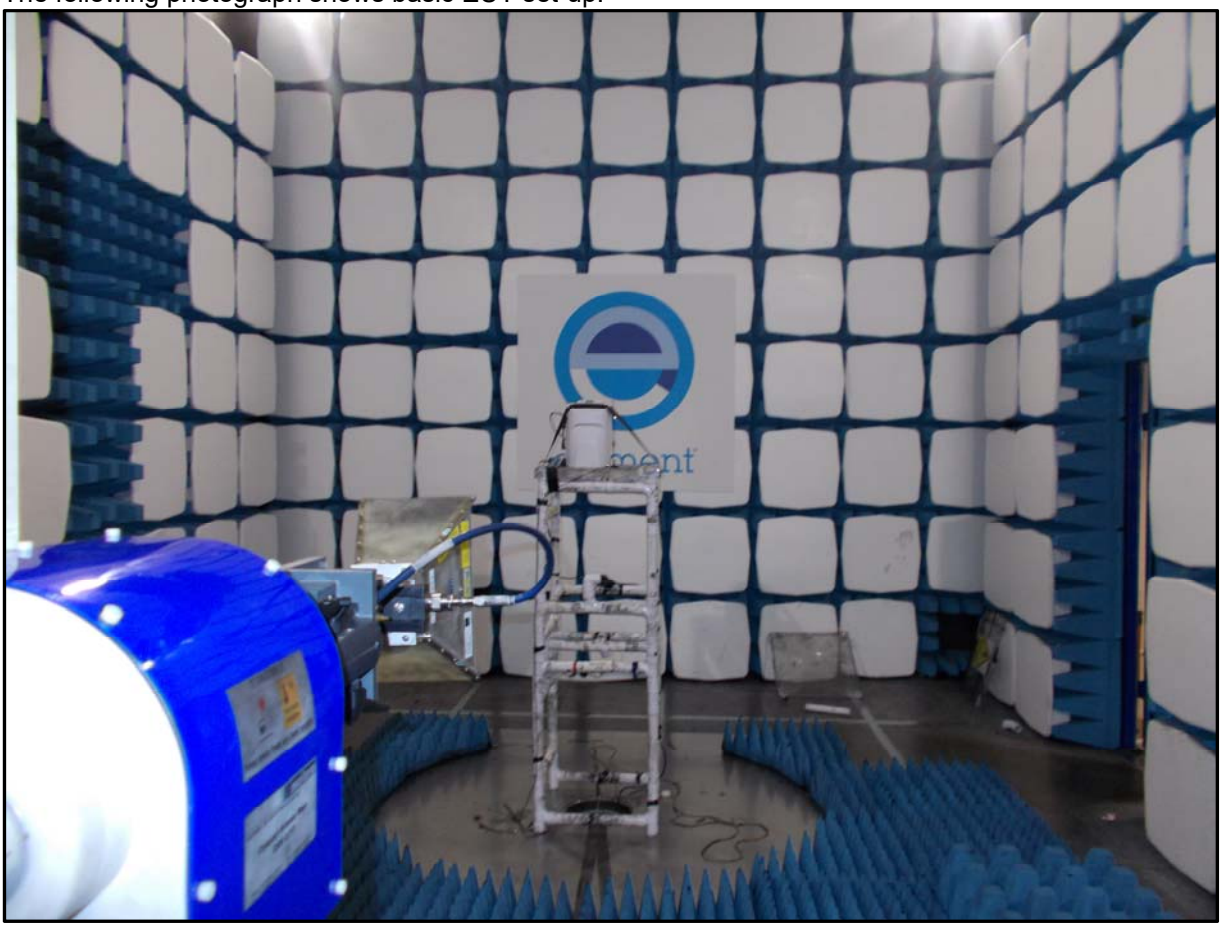
9.1 Block Diagram

The following diagram shows basic EUT interconnections with cable type and cable lengths identified:



9.2 General Set-up Photograph

The following photograph shows basic EUT set-up:



9.3 Measurement software

Where applicable, the following software was used to perform measurements contained within this report.

Element Emissions R5 (See Note)
Element Transmitter Bench Test (See Note)
ETS Lindgren EMPower V1.0.4.2

Note:

The version of the Element software used is recorded in the results sheets contained within this report.

10 General Technical Parameters

10.1 Normal Conditions

The Zeno Clarity 4G was tested under the normal environmental conditions of the test laboratory, except where otherwise stated. The normal power source applied was mains via a 24 Vdc adaptor.

11 Radiated emissions, intermodulation products

11.1 Definitions

Spurious emissions
Emissions on a frequency or frequencies, which are outside the necessary bandwidth and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions, intermodulation products and frequency conversion products, but exclude out-of-band emissions.

Intermodulation products
Emissions of two or more electromagnetic waves transmitted simultaneously through a nonlinear electronic system.

11.2 Test Parameters

Test Location:	Element Skelmersdale
Test Chamber:	SK03 Radio Chamber
Test Standard and Clause:	ANSI C63.10-2013, Clause 6.5 and 6.6
Deviations From Standard:	None
Measurement BW:	30 MHz to 1 GHz: 120 kHz Above 1 GHz: 1 MHz
Measurement Detector:	Up to 1 GHz: quasi-peak Above 1 GHz: RMS average and Peak

Environmental Conditions (Normal Environment)

Temperature: 24 °C	+15 ºC to +35 ºC (as declared)
Humidity: 51% RH	20 % RH to 75 % RH (as declared)
Supply: 24 Vdc	24 Vdc (as declared)

11.3 Test Limits

Part 15

Unwanted emissions that fall within the restricted frequency bands shall comply with the limits specified:

General Field Strength Limits for License-Exempt Transmitters at Frequencies above 30 MHz

Frequency (MHz)	*Field Strength (µV/m at 3 m)*
30 to 88	100
88 to 216	150
216 to 960	200
Above 960	500

Part 22 & Part 24 & Part 27

At least 43 + 10 log P dB

$(10\log P_{watts}) – (43+10\log (P_{watts} * 1000)) = LIMIT =-13$ dBm

Test Method

With the EUT setup as per section 9 of this report and connected as per Figure i, the emissions from the EUT were measured on a spectrum analyzer / EMI receiver.

Radiated electromagnetic emissions from the EUT are checked first by preview scans. Preview scans for all spectrum and modulation characteristics are checked, using a peak detector and where applicable worst-case determined for function, operation, orientation, etc. for both vertical and horizontal polarisations. Pre-scan plots are shown with a peak detector and 100 kHz RBW.

If the EUT connects to auxiliary equipment and is table or floor standing, the configurations prescribed in ANSI C63.10 are followed. Alternatively, a layout closest to normal use (as declared by the provider) is employed, (see EUT setup photographs for more detail).

Emissions between 30 MHz and 1 GHz are measured using calibrated broadband antennas. Emissions above 1 GHz are characterized using standard gain horn antennas. Pre-amplifiers and filters are used where required. Care is taken to ensure that test receiver resolution bandwidth, video bandwidth and detector type(s) meet the regulatory requirements.

For both horizontal and vertical polarizations, the EUT is then rotated through 360 degrees in azimuth until the highest emission is detected. At the previously determined azimuth the test antenna is raised and lowered from 1 to 4 m in height until a maximum emission level is detected, this maximum value is recorded.

Power values measured on the test receiver / analyzer are converted to field strength, FS, in dBµV/m at the regulatory distance, using:

$$FS = PR + CL + AF - PA + DC - CF$$

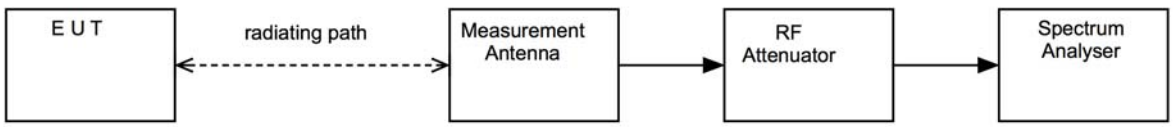
$$Factor = CL + AF - PA$$

Where,

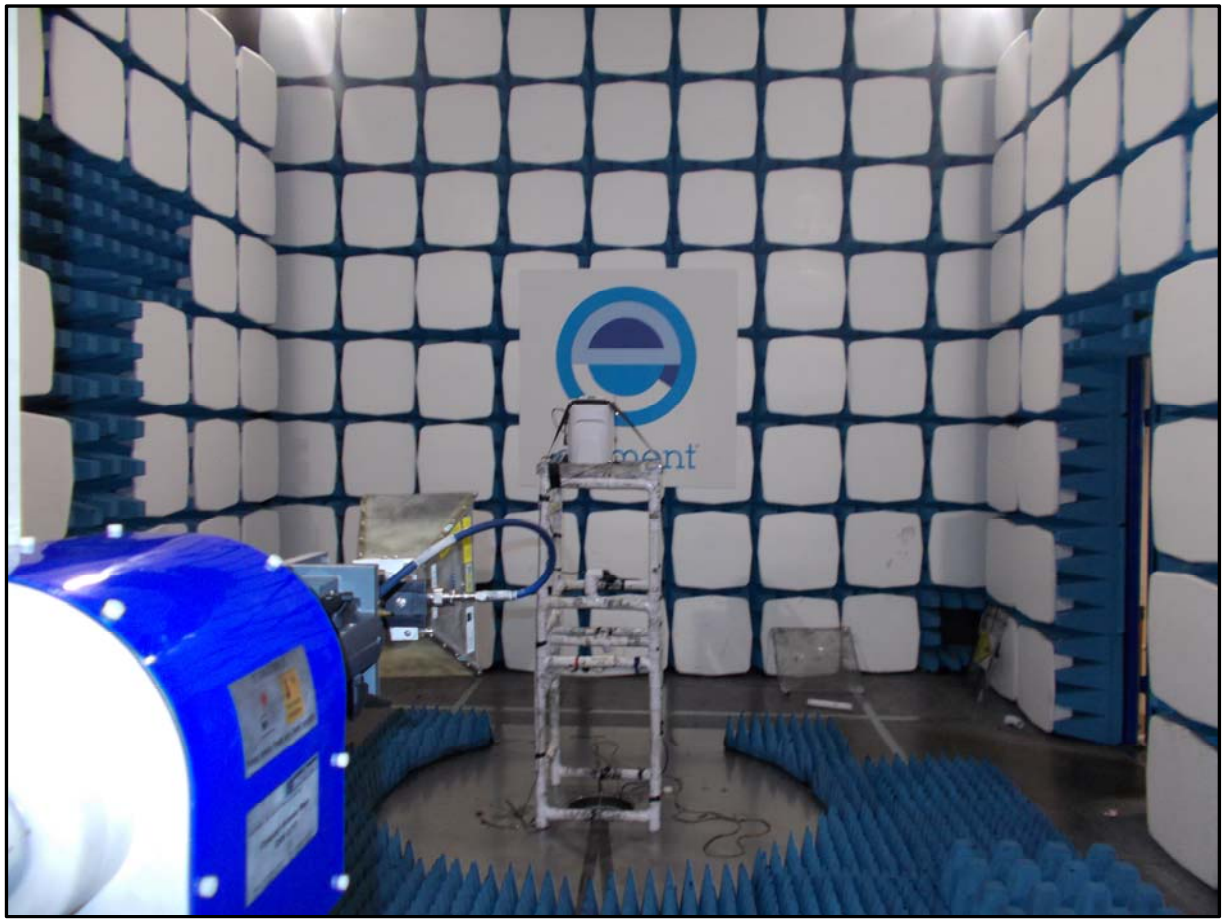
PR is the power recorded on the receiver / spectrum analyzer in dBµV;
CL is the cable loss in dB;
AF is the test antenna factor in dB/m;
PA is the pre-amplifier gain in dB (where used);
DC is the duty correction factor in dB (where used, e.g. harmonics of pulsed fundamental);
CF is the distance factor in dB (where measurement distance different to limit distance);

This field strength value is then compared with the regulatory limit.

Figure i Test Setup



11.4 Test Set-up Photograph

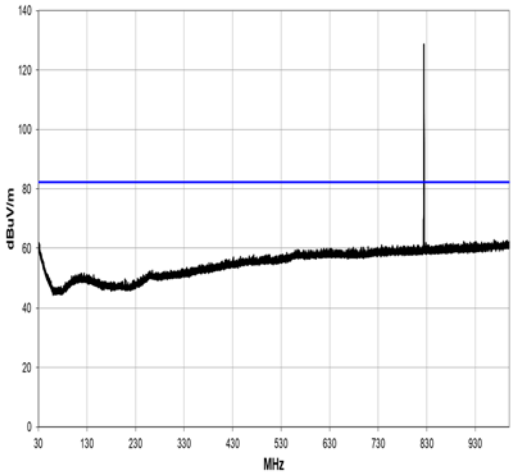


11.5 Test Equipment

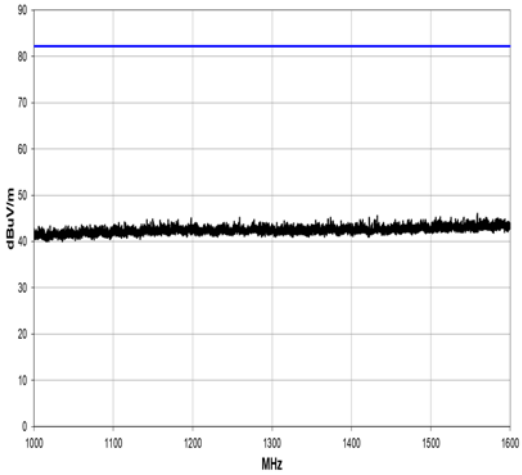
Equipment Description	*Manufacturer*	*Equipment Type*	*Element No*	*Due For Calibration*
EMI Receiver	R&S	ESR26	U489	2020-12-18
EMI Receiver	R&S	FSW	Loan	2021-06-23
Bilog	Chase	CBL611/A	U573	2021-09-19
Log Periodic Ant	Schwarzbeck	UALP 9108	U028	2021-07-02
Pre Amp	Watkins Johnson	6201-69	U372	2021-02-26
Pre Amp	Agilent	8449B	L572	2021-10-19
1-18GHz Horn	EMCO	3115	L139	2021-07-16
1-18GHz Horn	EMCO	3115	U223	2021-11-05
Horn 18-26GHz (&U330)	Flann	20240-20	L300	2022-04-23
Bilog	Chase	CBL6112	U420	2023-01-28
High Pass Filter	MiniCircuits	VHF-1500+	U519	2022-01-30
High Pass Filter	Atlantic Microwave	AFH-07000	U558	2022-01-30
High Pass Filter	BSC	SH4141	REF977	2022-01-30
Attenuator	Marconi	10dB	-	Cal in use
Attenuator	Radiall	6dB	U332	Cal in use
Radio Chamber - PP	Rainford EMC	ATS	REF940	2021-12-09

11.6 Results

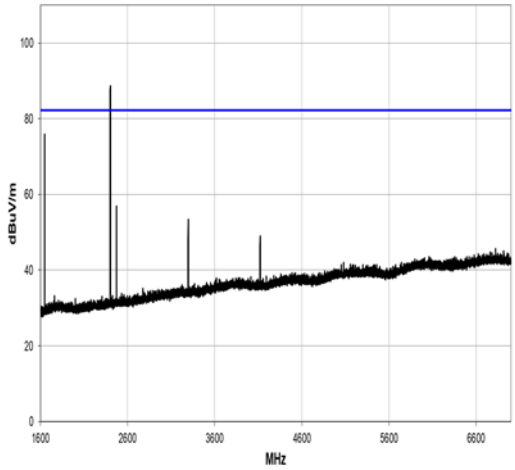
GSM850 (GPRS); UL ARFCN: 128; FREQ: 824.2 MHz + BLE 2402 MHz



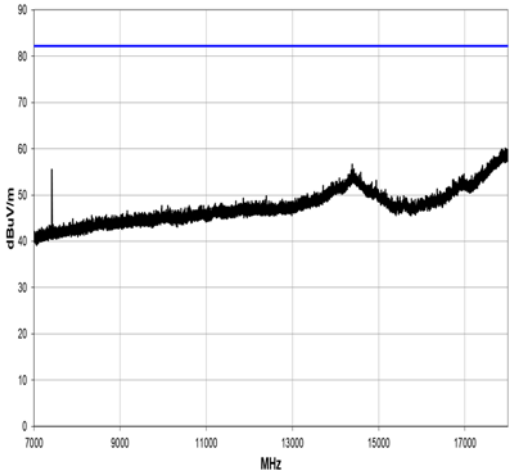
30 MHz to 1 GHz



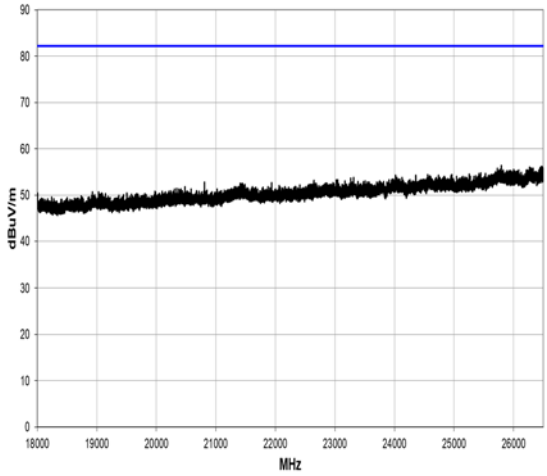
1 GHz to 1.6 GHz



1.6 GHz to 7 GHz



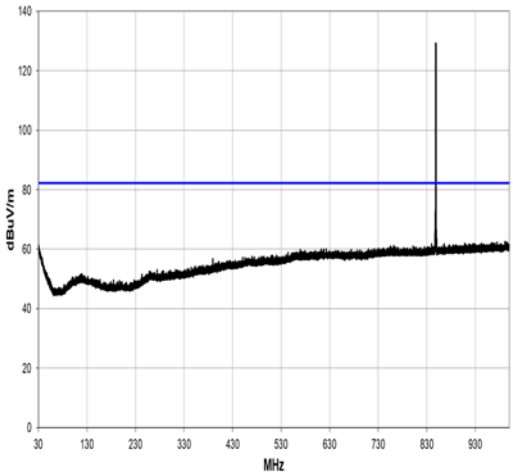
7 GHz to 18 GHz



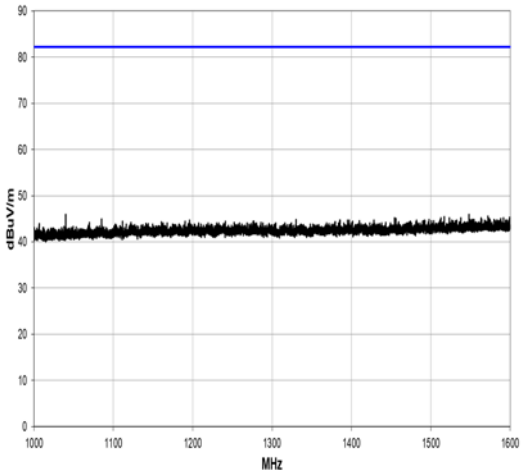
18 GHz to 26.5 GHz

UL ARFCN: 128; FREQ: 824.2 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

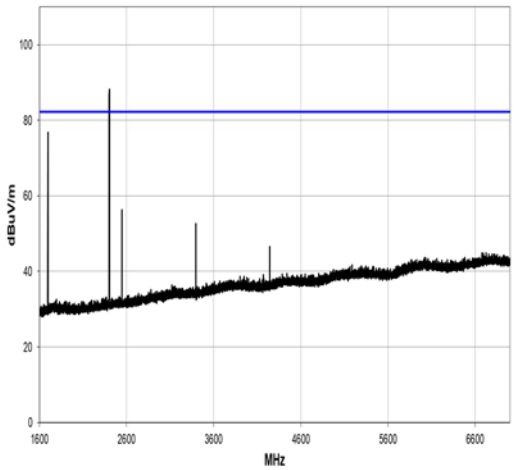
GSM850 (GPRS); UL ARFCN: 251; FREQ: 848.8 MHz + BLE 2402 MHz



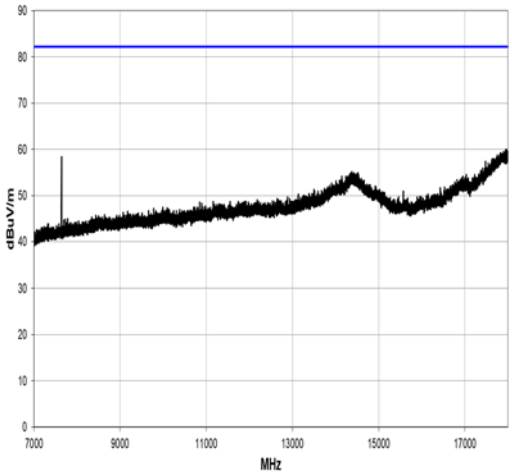
30 MHz to 1 GHz



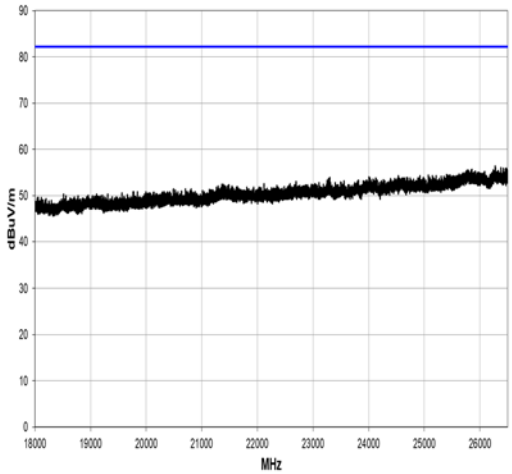
1 GHz to 1.6 GHz



1.6 GHz to 7 GHz



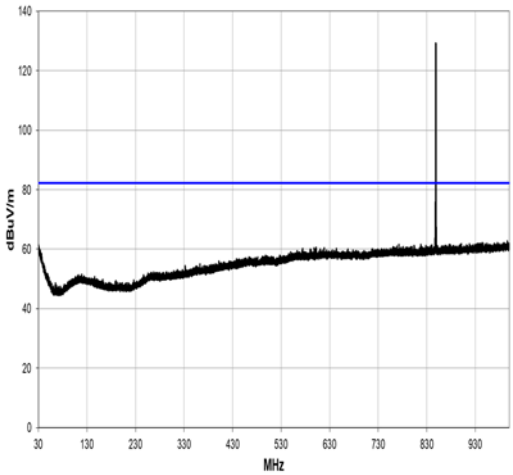
7 GHz to 18 GHz



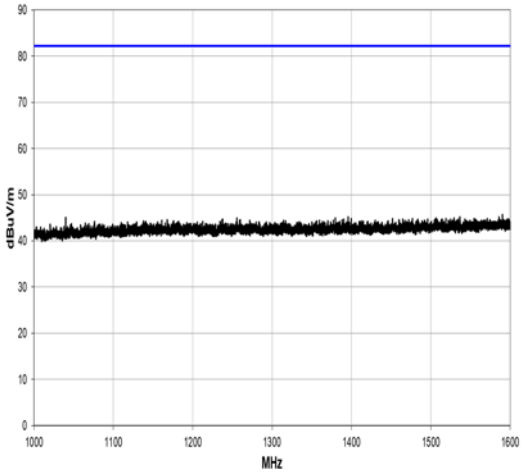
18 GHz to 26.5 GHz

UL ARFCN: 251; FREQ: 848.8 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

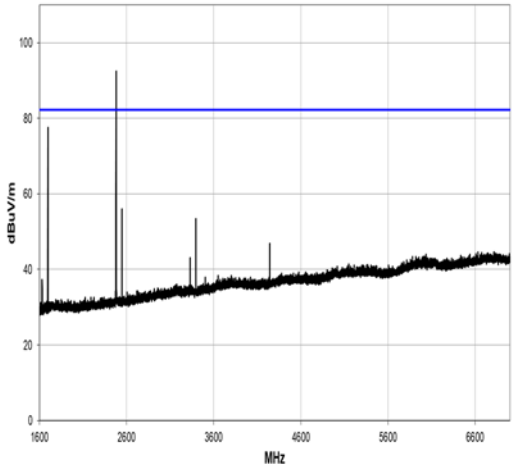
GSM850 (GPRS); UL ARFCN: 251; FREQ: 848.8 MHz + BLE 2480 MHz



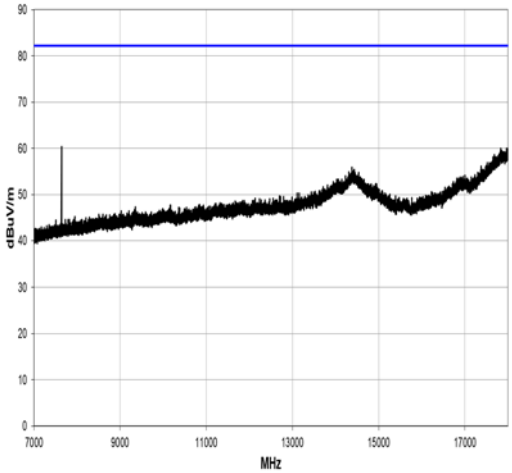
30 MHz to 1 GHz



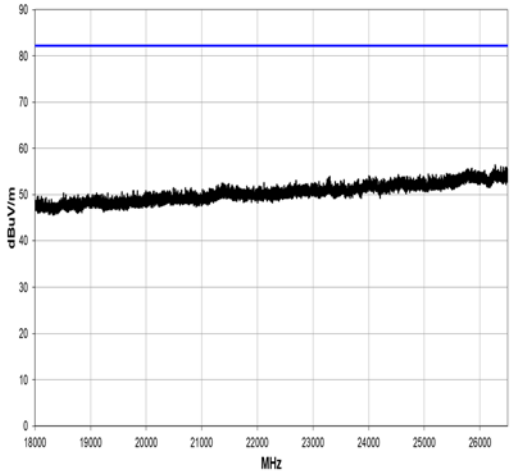
1 GHz to 1.6 GHz



1.6 GHz to 7 GHz



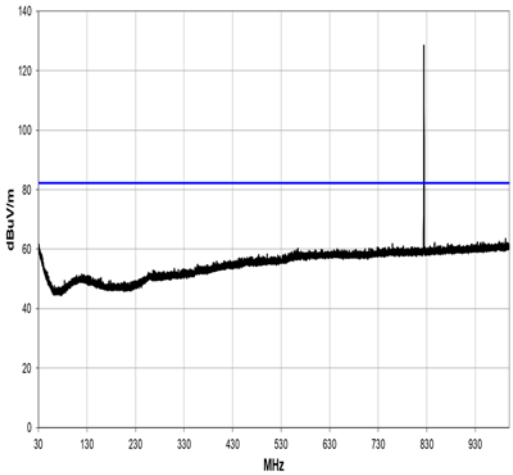
7 GHz to 18 GHz



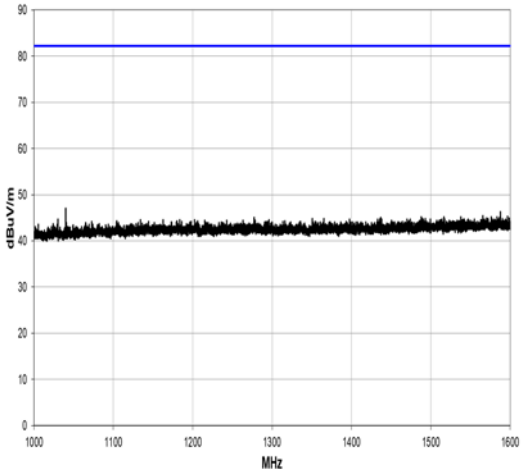
18 GHz to 26.5 GHz

UL ARFCN: 251; FREQ: 848.8 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

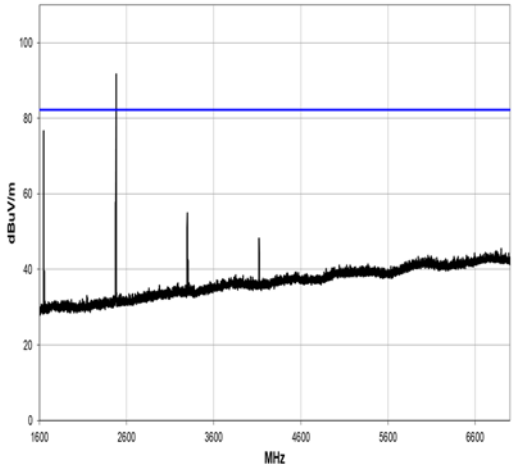
GSM850 (GPRS); UL ARFCN: 128; FREQ: 824.2 MHz + BLE 2480 MHz



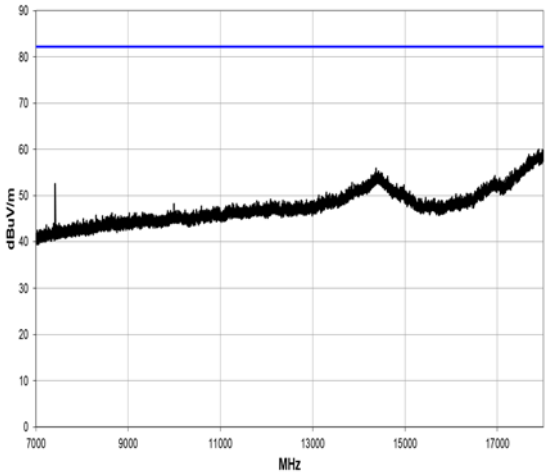
30 MHz to 1 GHz



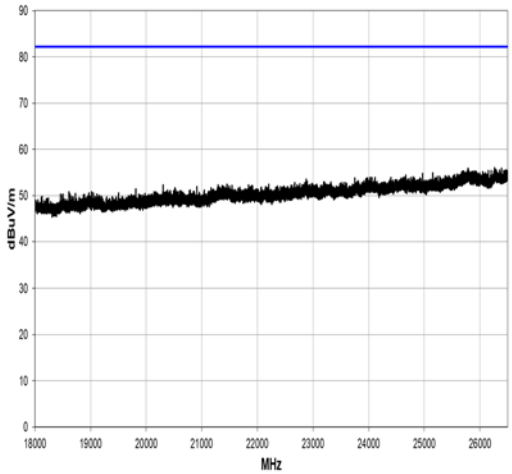
1 GHz to 1.6 GHz



1.6 GHz to 7 GHz



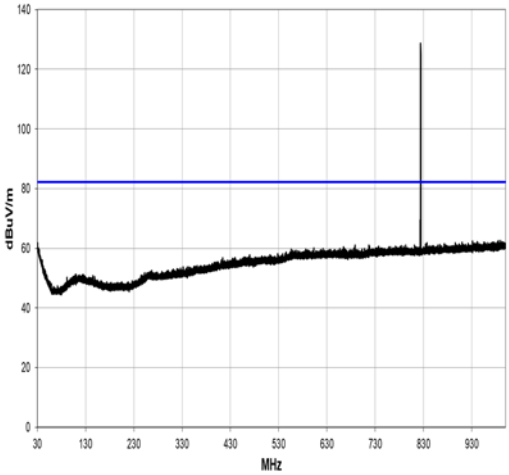
7 GHz to 18 GHz



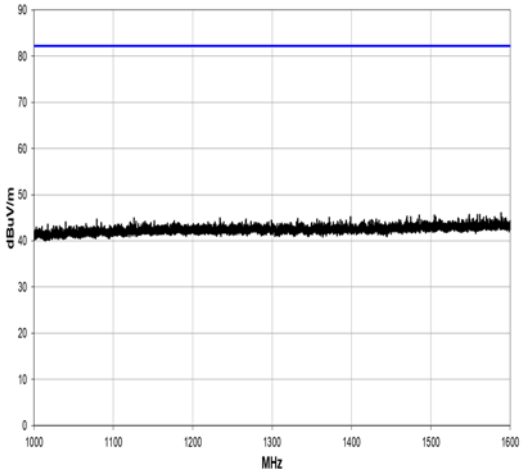
18 GHz to 26.5 GHz

UL ARFCN: 128; FREQ: 824.2 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

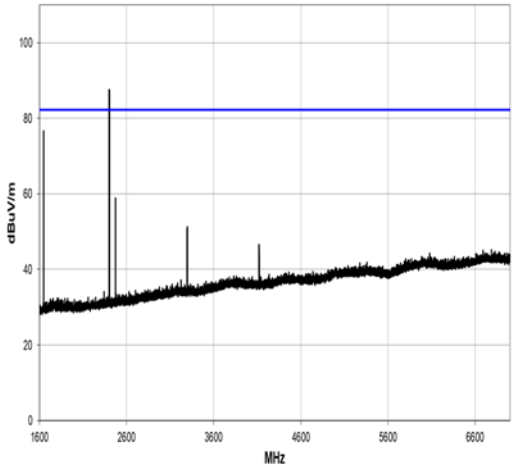
GSM850 (EDGE); UL ARFCN: 128; FREQ: 824.2 MHz + BLE 2402 MHz



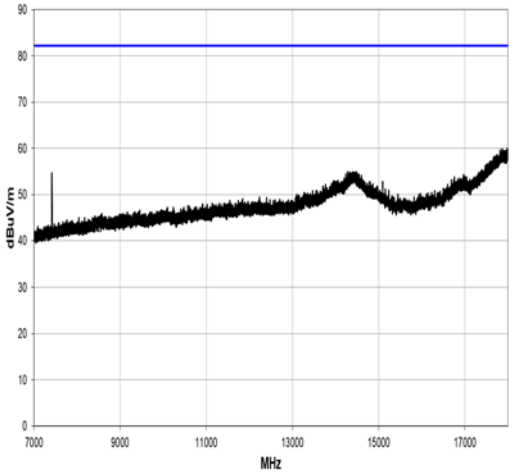
30 MHz to 1 GHz



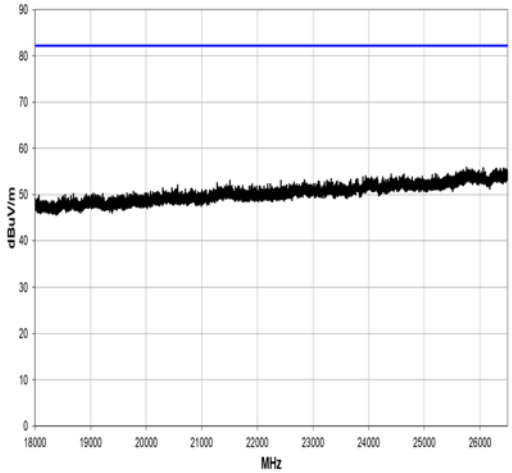
1 GHz to 1.6 GHz



1.6 GHz to 7 GHz



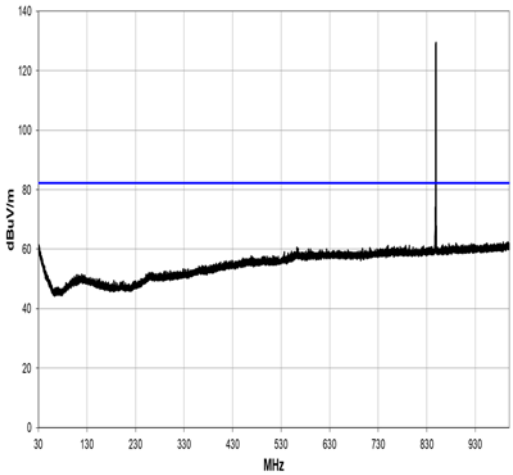
7 GHz to 18 GHz



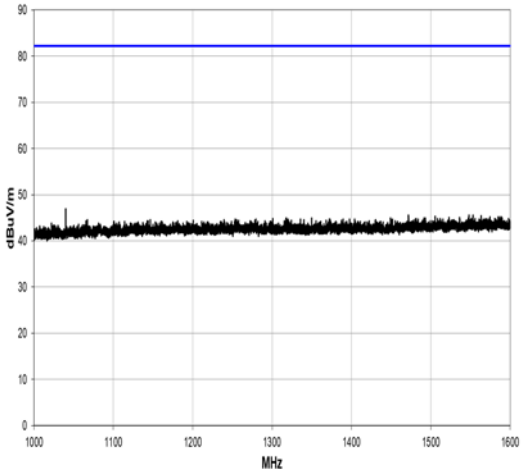
18 GHz to 26.5 GHz

UL ARFCN: 128; FREQ: 824.2 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

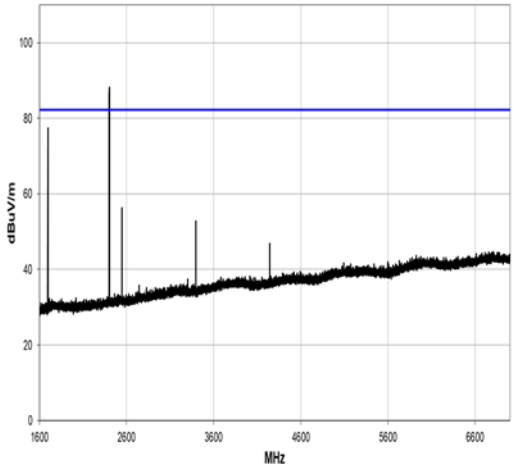
GSM850 (EDGE); UL ARFCN: 251; FREQ: 848.8 MHz + BLE 2402 MHz



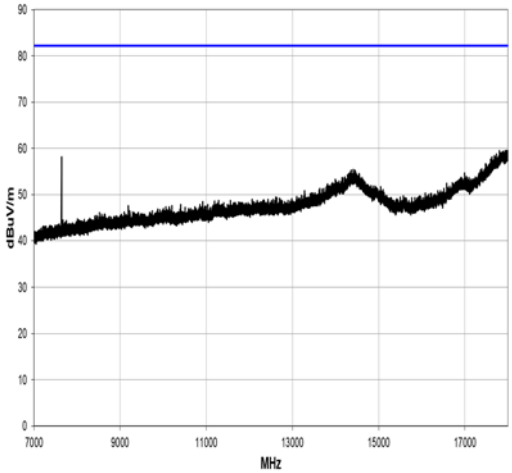
30 MHz to 1 GHz



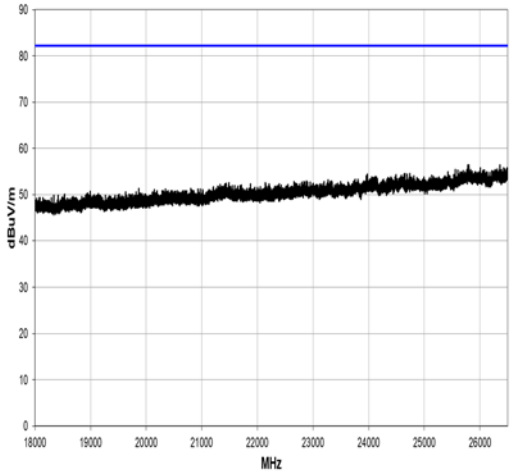
1 GHz to 1.6 GHz



1.6 GHz to 7 GHz



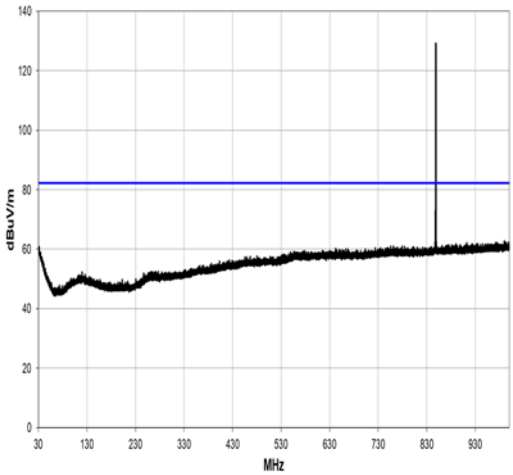
7 GHz to 18 GHz



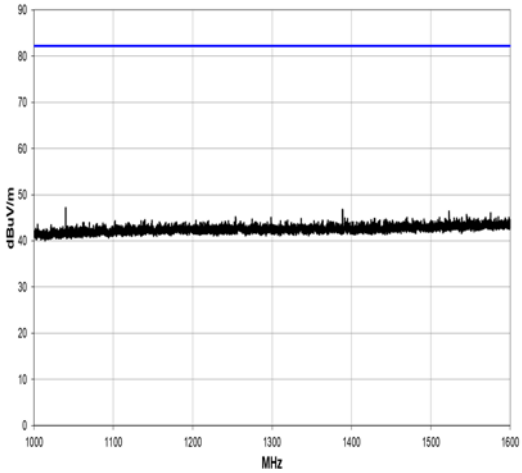
18 GHz to 26.5 GHz

UL ARFCN: 251; FREQ: 848.8 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

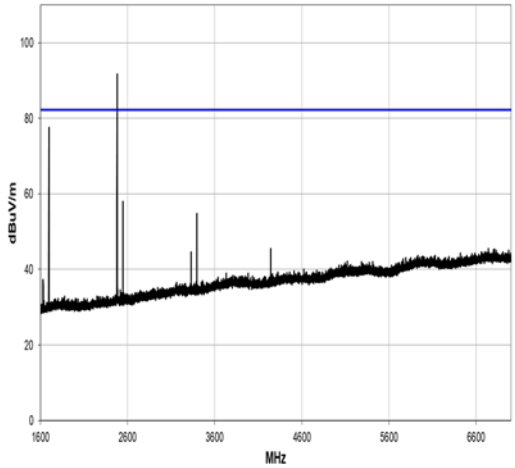
GSM850 (EDGE); UL ARFCN: 251; FREQ: 848.8 MHz + BLE 2480 MHz



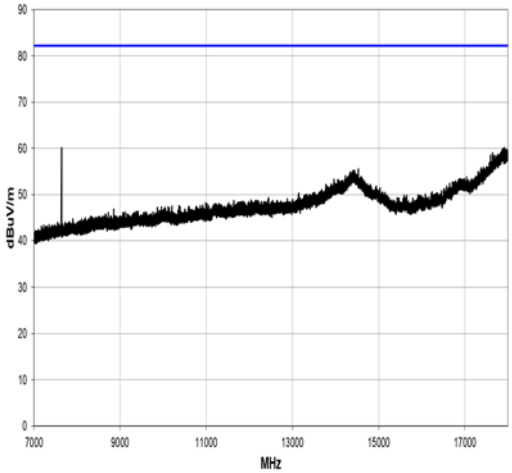
30 MHz to 1 GHz



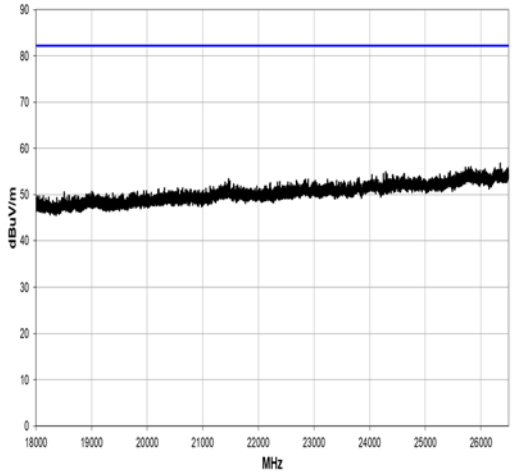
1 GHz to 1.6 GHz



1.6 GHz to 7 GHz



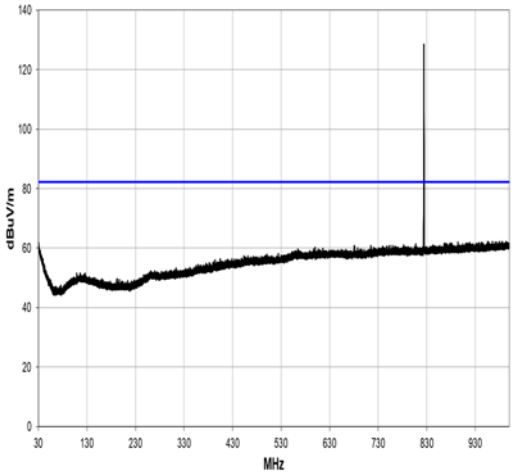
7 GHz to 18 GHz



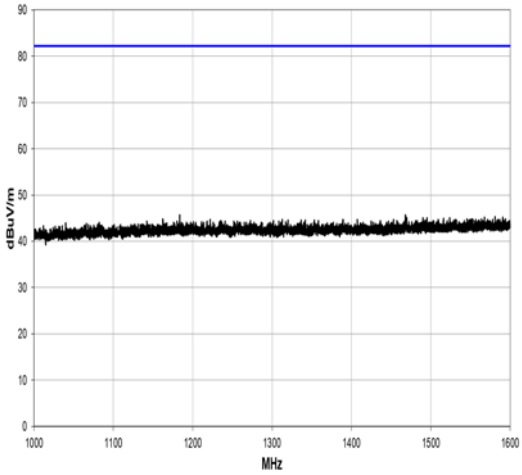
18 GHz to 26.5 GHz

UL ARFCN: 251; FREQ: 848.8 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

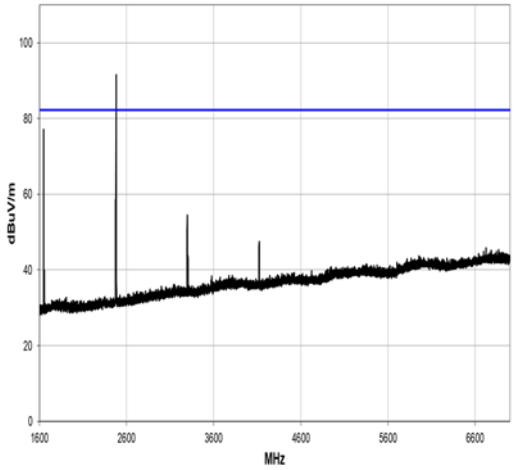
GSM850 (EDGE); UL ARFCN: 128; FREQ: 824.2 MHz + BLE 2480 MHz



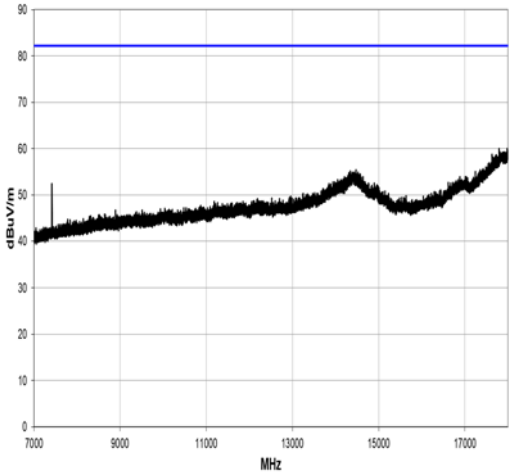
30 MHz to 1 GHz



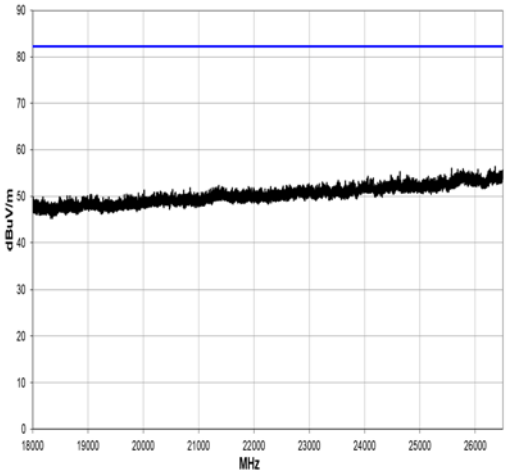
1 GHz to 1.6 GHz



1.6 GHz to 7 GHz



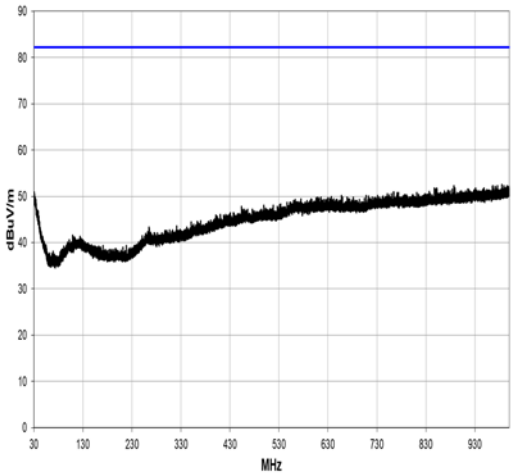
7 GHz to 18 GHz



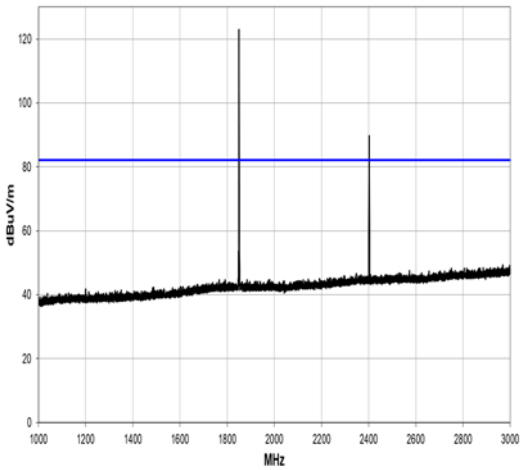
18 GHz to 26.5 GHz

UL ARFCN: 128; FREQ: 848.8 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

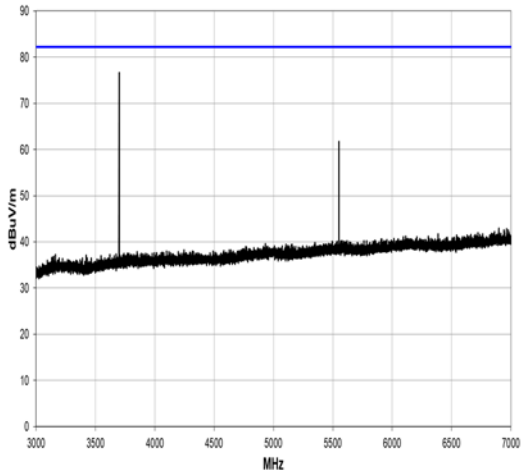
GSM1900 (GPRS); UL ARFCN: 512; FREQ: 1850.2 MHz + BLE 2402 MHz



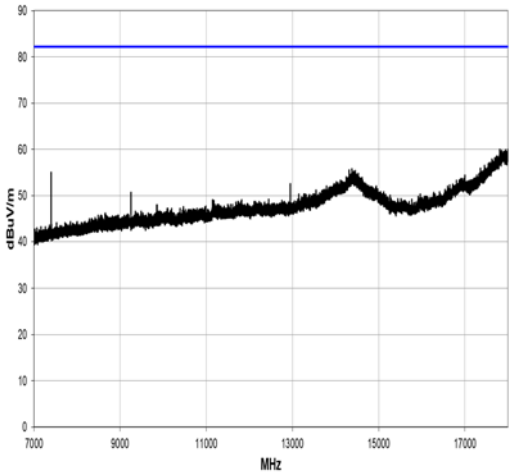
30 MHz to 1 GHz



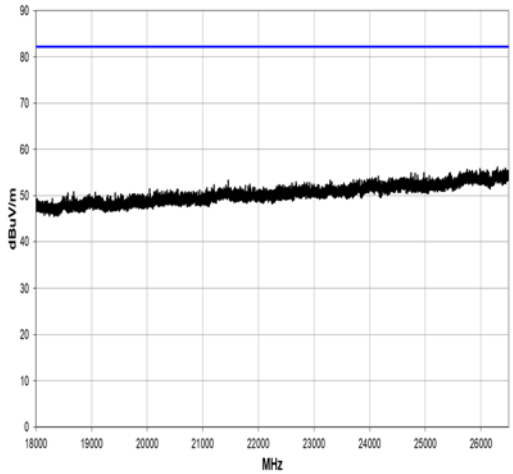
1 GHz to 3 GHz



3 GHz to 7 GHz



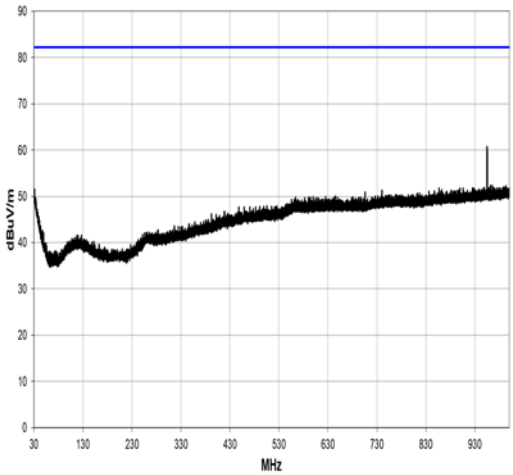
7 GHz to 18 GHz



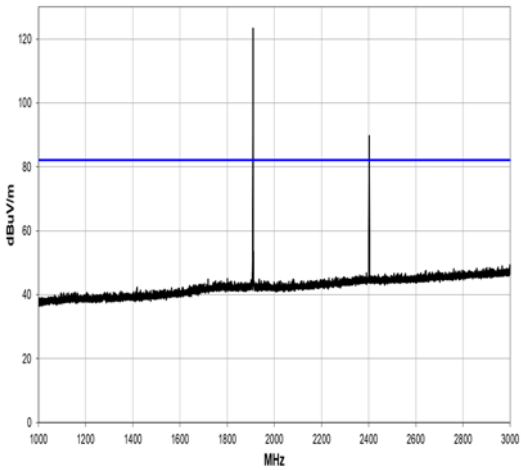
18 GHz to 26.5 GHz

UL ARFCN: 512; FREQ: 1850.2 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

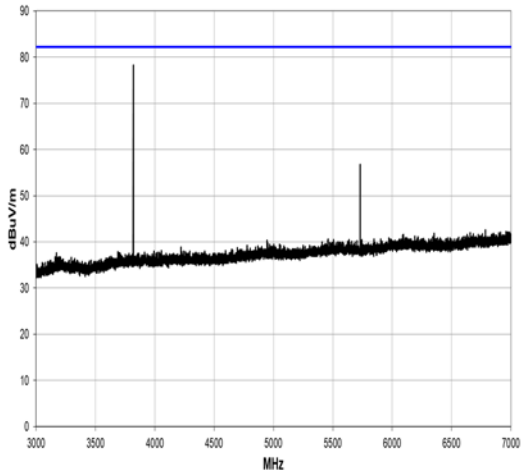
GSM1900 (GPRS); UL ARFCN: 810; FREQ: 1909.8 MHz + BLE 2402 MHz



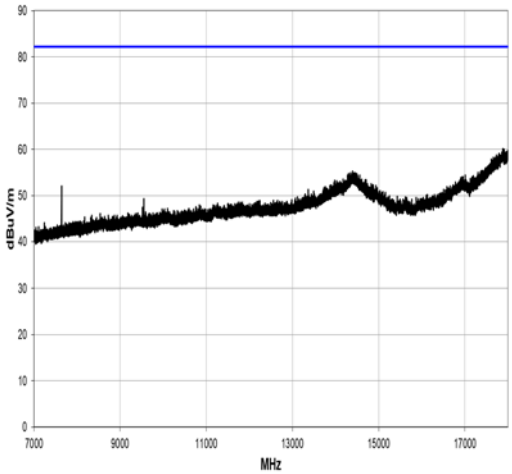
30 MHz to 1 GHz



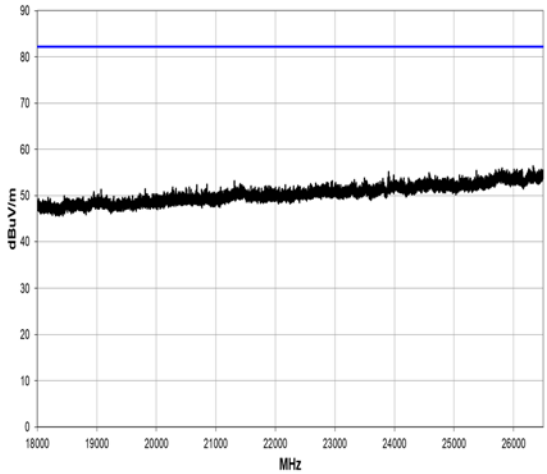
1 GHz to 3 GHz



3 GHz to 7 GHz



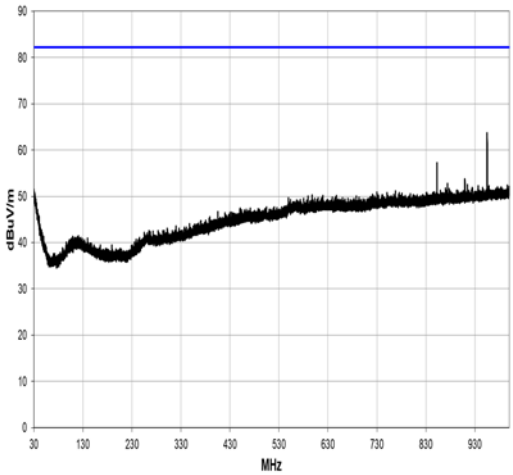
7 GHz to 18 GHz



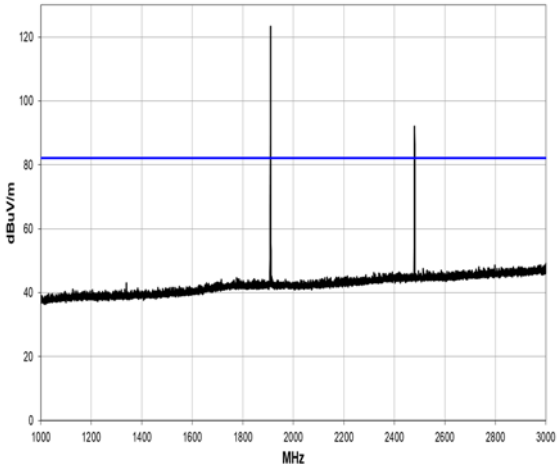
18 GHz to 26.5 GHz

UL ARFCN: 810; FREQ: 1909.8 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

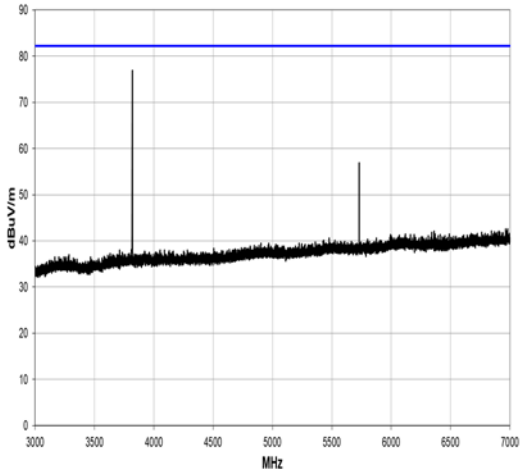
GSM1900 (GPRS); UL ARFCN: 810; FREQ: 1909.8 MHz + BLE 2480 MHz



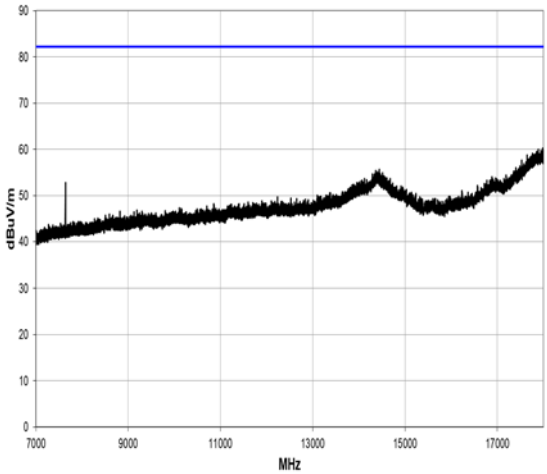
30 MHz to 1 GHz



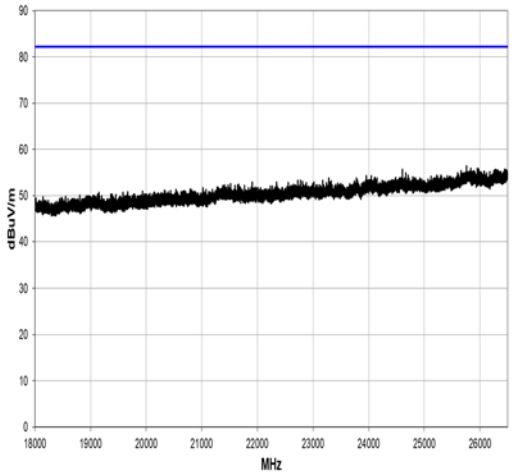
1 GHz to 3 GHz



3 GHz to 7 GHz



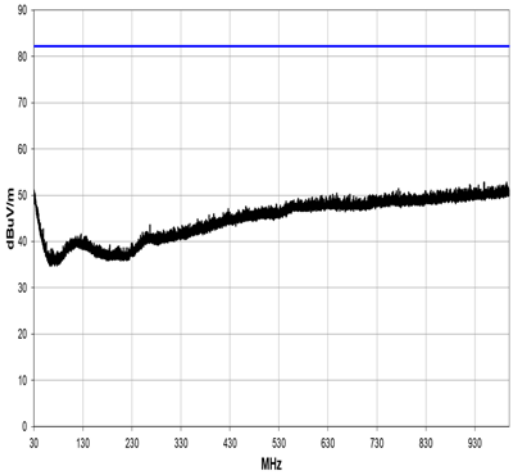
7 GHz to 18 GHz



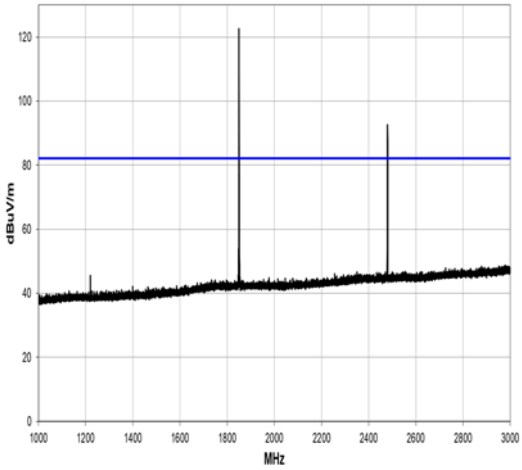
18 GHz to 26.5 GHz

UL ARFCN: 810; FREQ: 1909.8 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

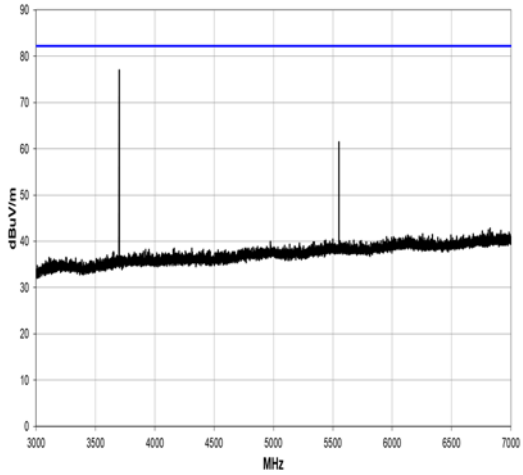
GSM1900 (GPRS); UL ARFCN: 512; FREQ: 1850.2 MHz + BLE 2480 MHz



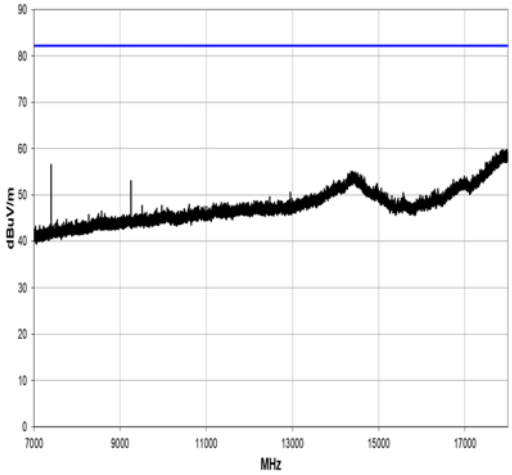
30 MHz to 1 GHz



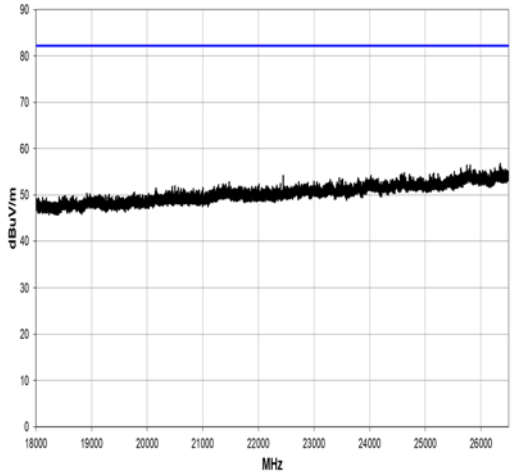
1 GHz to 3 GHz



3 GHz to 7 GHz



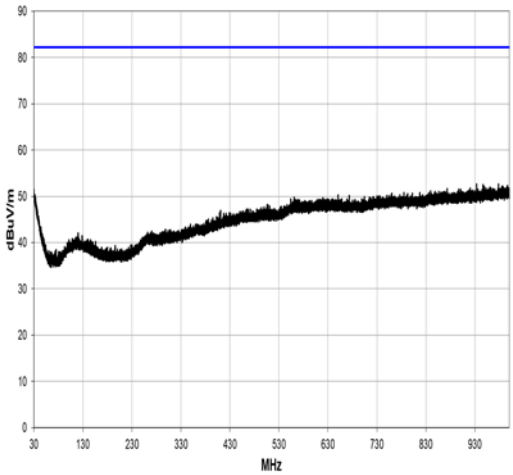
7 GHz to 18 GHz



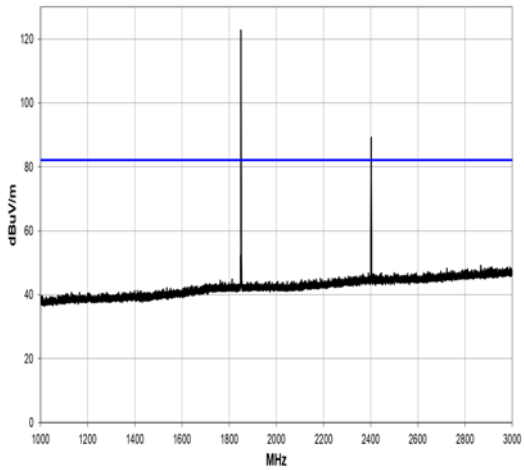
18 GHz to 26.5 GHz

UL ARFCN: 512; FREQ: 1850.2 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

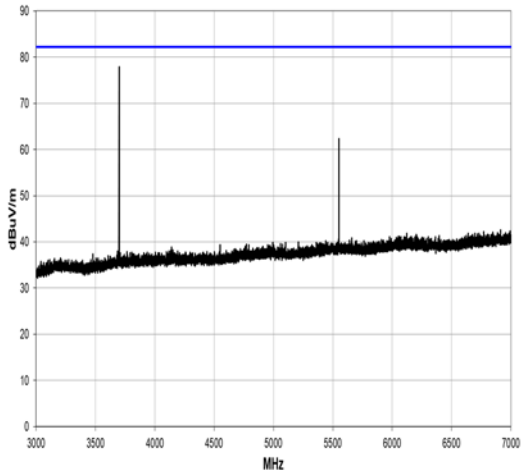
GSM1900 (EDGE); UL ARFCN: 512; FREQ: 1850.2 MHz + BLE 2402 MHz



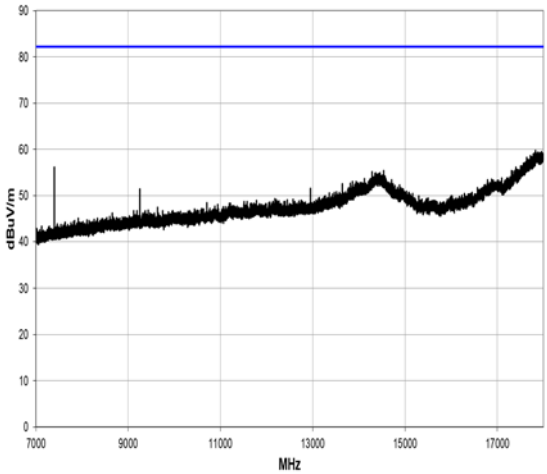
30 MHz to 1 GHz



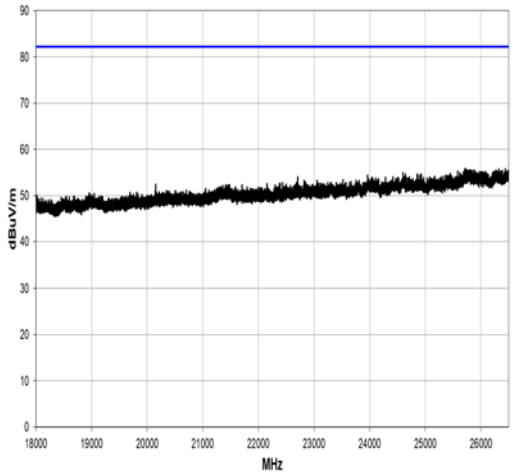
1 GHz to 3 GHz



3 GHz to 7 GHz



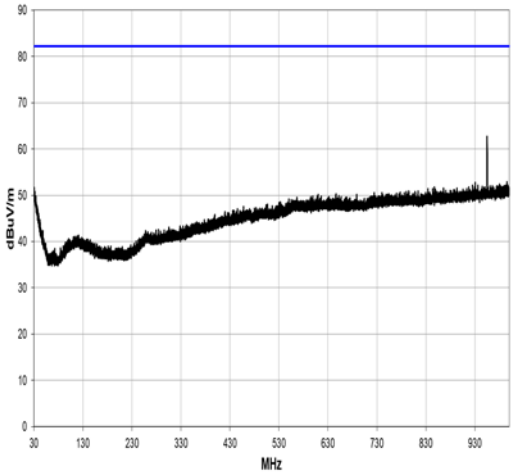
7 GHz to 18 GHz



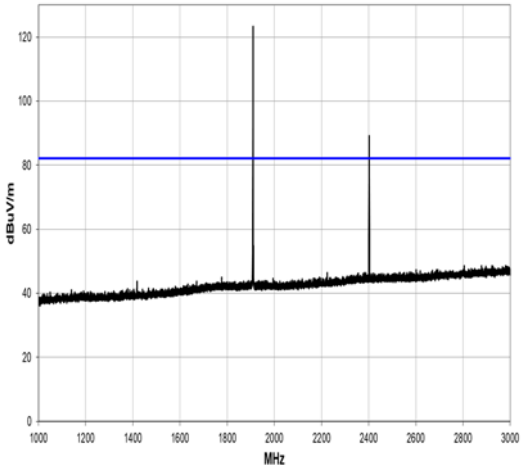
18 GHz to 26.5 GHz

UL ARFCN: 512; FREQ: 1850.2 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

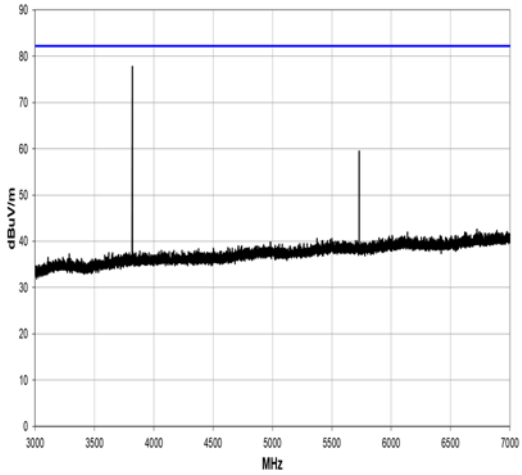
GSM1900 (EDGE); UL ARFCN: 810; FREQ: 1909.8 MHz + BLE 2402 MHz



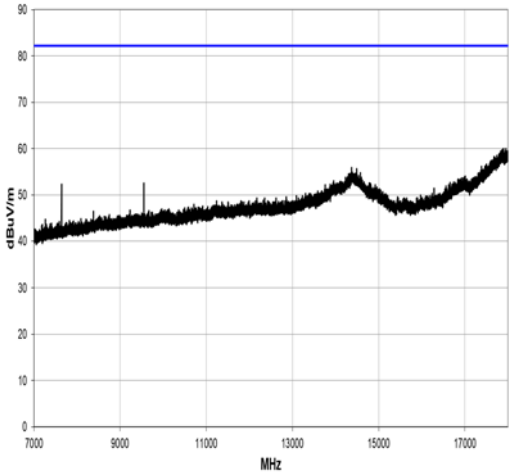
30 MHz to 1 GHz



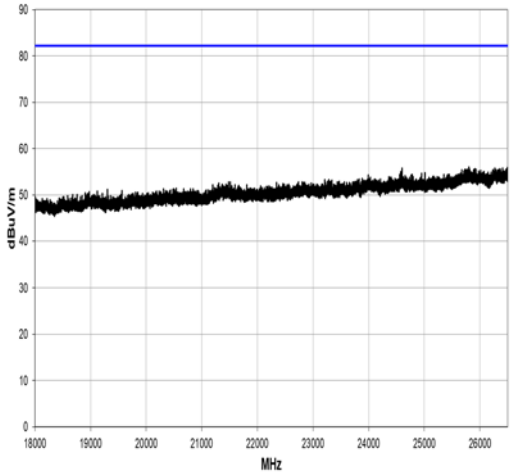
1 GHz to 3 GHz



3 GHz to 7 GHz



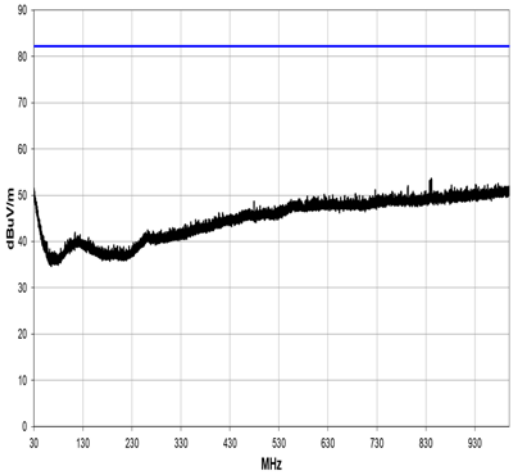
7 GHz to 18 GHz



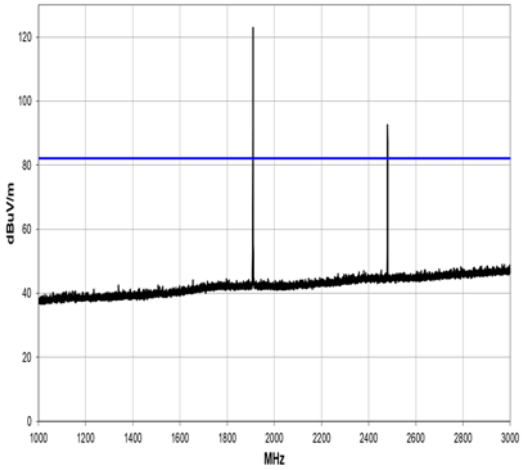
18 GHz to 26.5 GHz

UL ARFCN: 810; FREQ: 1909.8 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

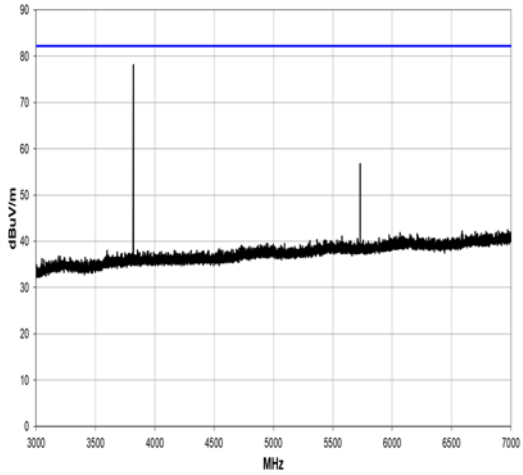
GSM1900 (EDGE); UL ARFCN: 810; FREQ: 1909.8 MHz + BLE 2480 MHz



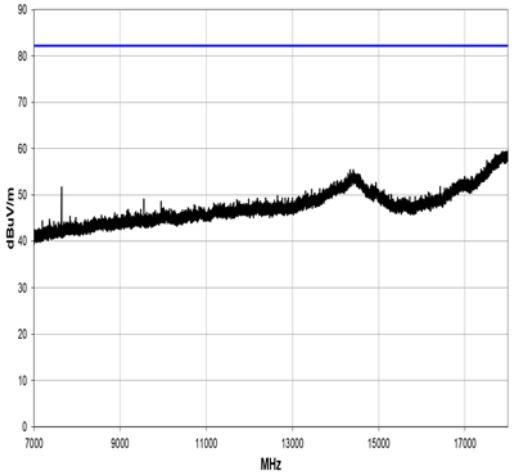
30 MHz to 1 GHz



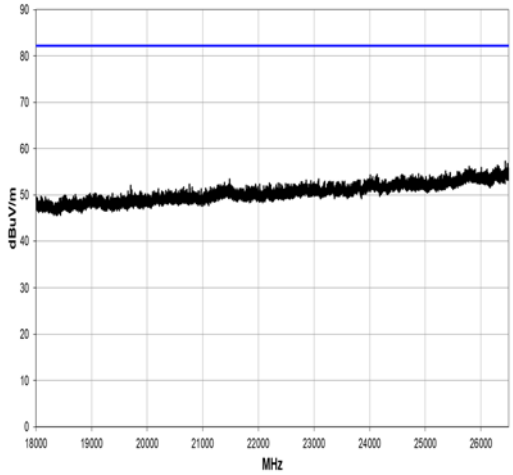
1 GHz to 3 GHz



3 GHz to 7 GHz



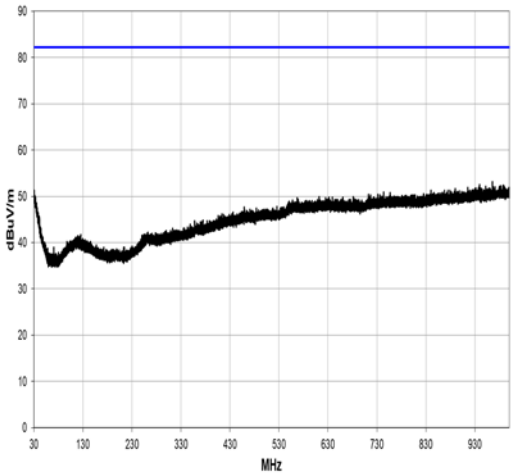
7 GHz to 18 GHz



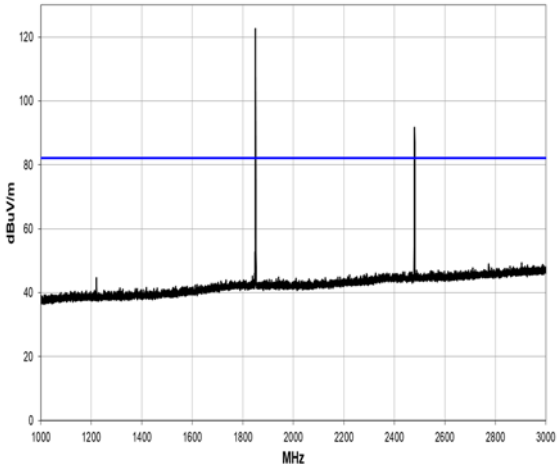
18 GHz to 26.5 GHz

UL ARFCN: 810; FREQ: 1909.8 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

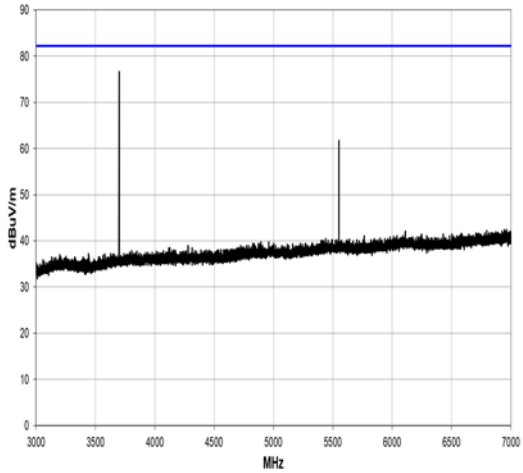
GSM1900 (EDGE); UL ARFCN: 512; FREQ: 1850.2 MHz + BLE 2480 MHz



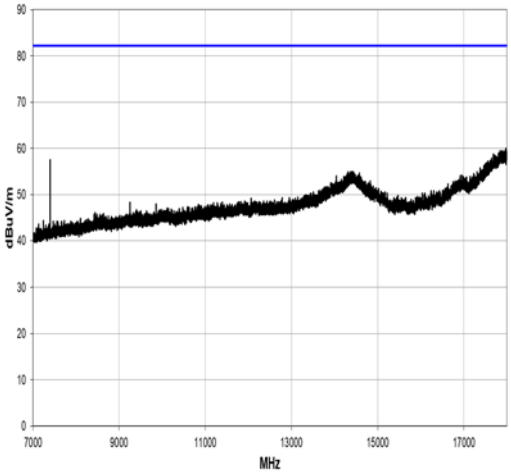
30 MHz to 1 GHz



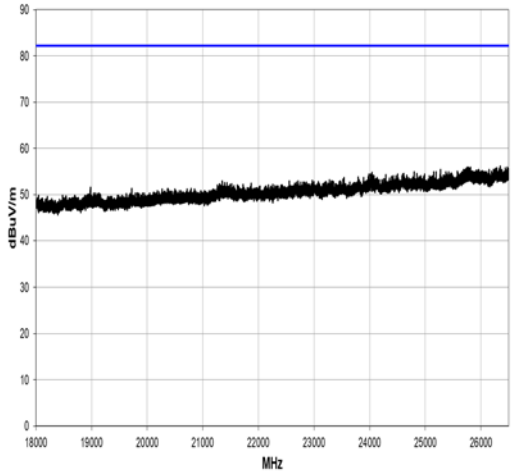
1 GHz to 3 GHz



3 GHz to 7 GHz



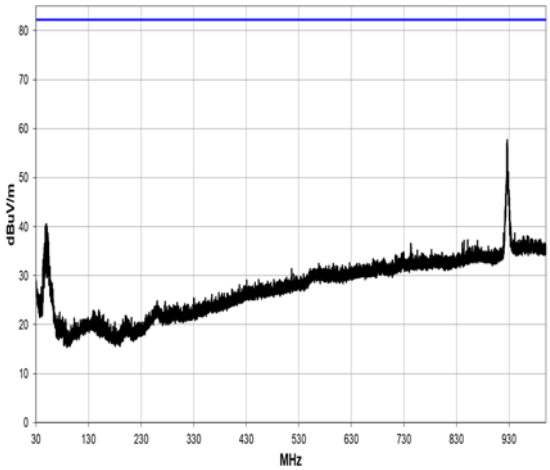
7 GHz to 18 GHz



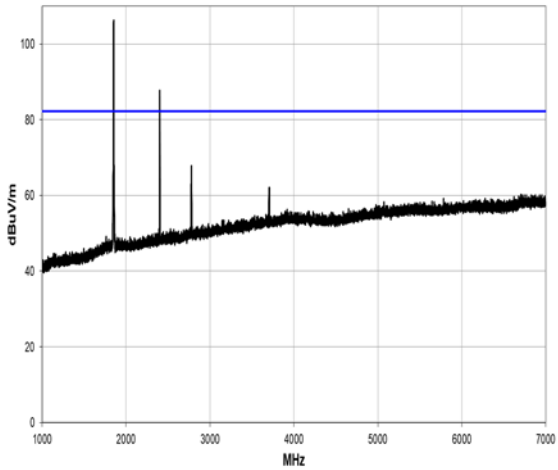
18 GHz to 26.5 GHz

UL ARFCN: 512; FREQ: 1850.2 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

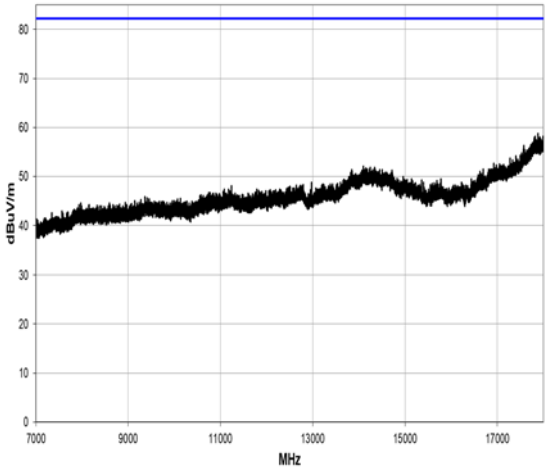
WCDMA BAND 2; UL ARFCN: 9262; FREQ: 1852.4 MHz + BLE 2402 MHz



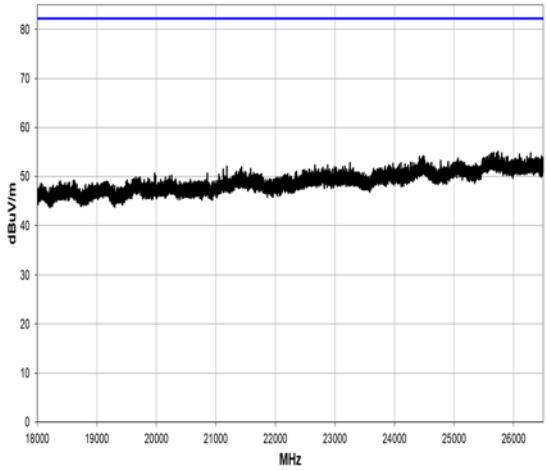
30 MHz to 1 GHz



1 GHz to 7 GHz



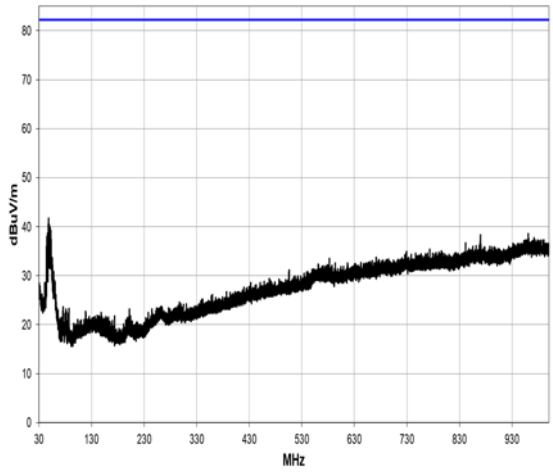
7 GHz to 18 GHz



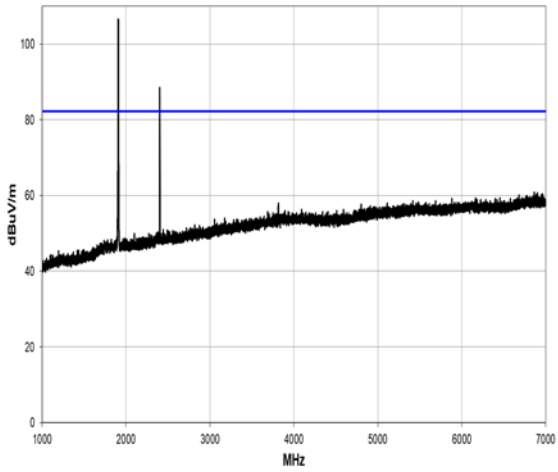
18 GHz to 26.5 GHz

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
2780.033	68.6	-2.5	1.83	288.2	3.0	10.0	Vert	PK	0.0	76.1	82.2	-6.1
2779.908	67.1	-2.5	1.51	242.8	3.0	10.0	Horz	PK	0.0	74.6	82.2	-7.6

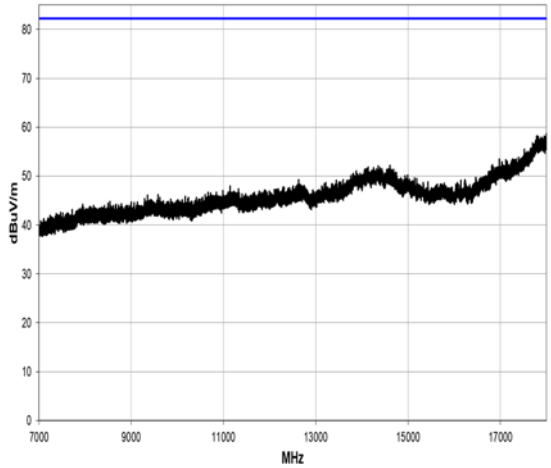
WCDMA BAND 2; UL ARFCN: 9538; FREQ: 1907.6 MHz + BLE 2402 MHz



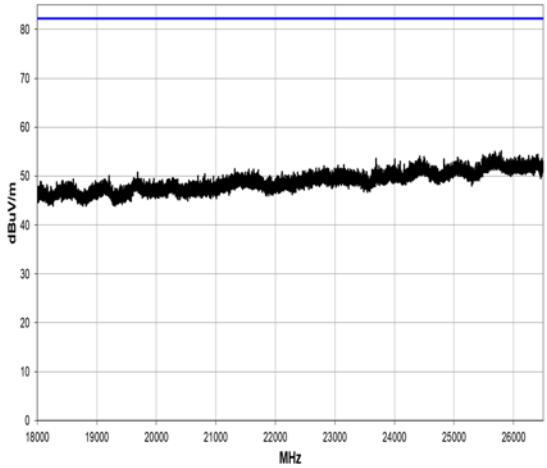
30 MHz to 1 GHz



1 GHz to 7 GHz



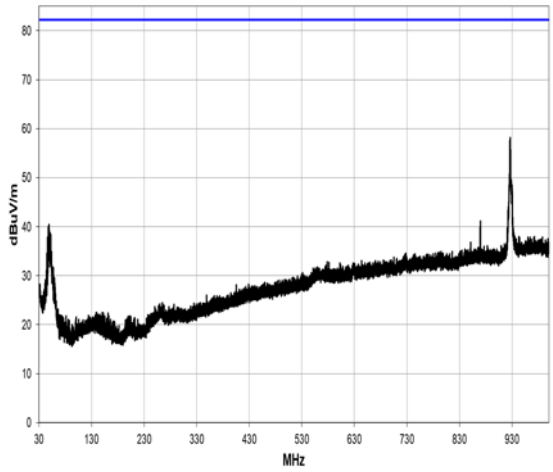
7 GHz to 18 GHz



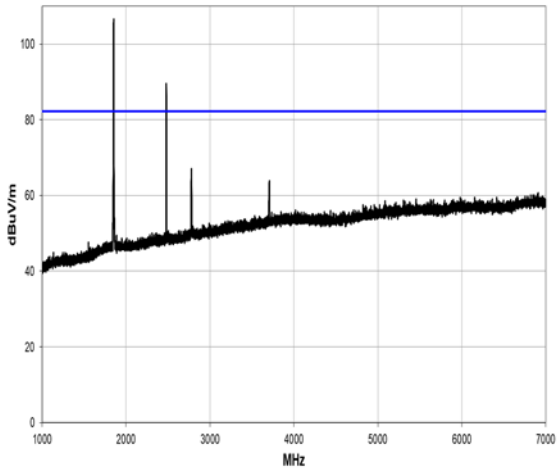
18 GHz to 26.5 GHz

UL ARFCN: 9538; FREQ: 1907.6 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

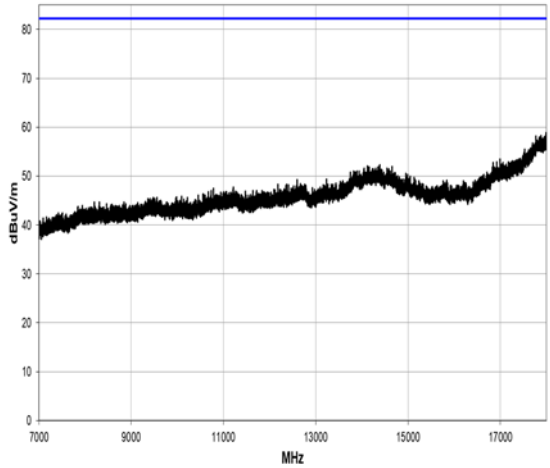
WCDMA BAND 2; UL ARFCN: 9262; FREQ: 1852.4 MHz + BLE 2480 MHz



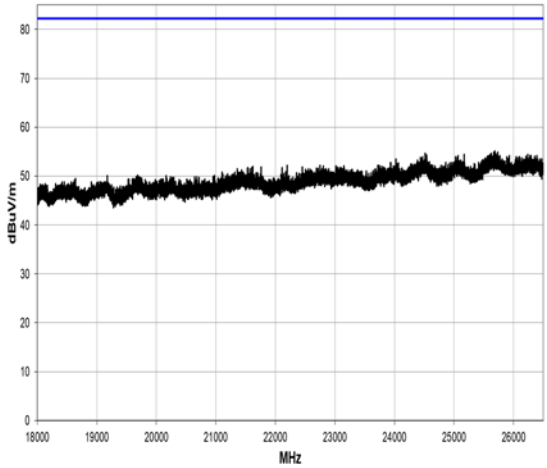
30 MHz to 1 GHz



1 GHz to 7 GHz



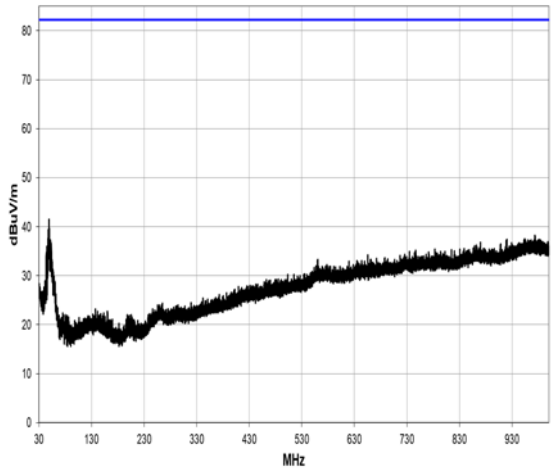
7 GHz to 18 GHz



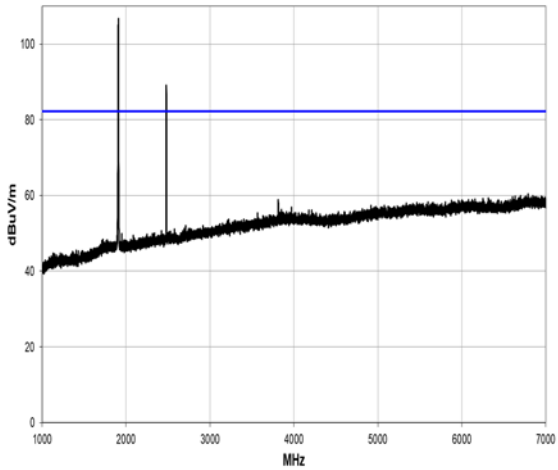
18 GHz to 26.5 GHz

Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/ Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)
2779.992	69.6	-2.5	1.6	288.8	3.0	10.0	Vert	PK	0.0	77.1	82.2	-5.1
2779.908	68.1	-2.5	1.5	245.0	3.0	10.0	Horz	PK	0.0	75.6	82.2	-6.6

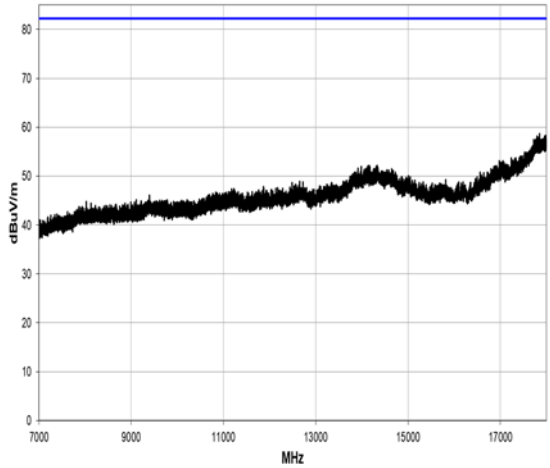
WCDMA BAND 2; UL ARFCN: 9538; FREQ: 1907.6 MHz + BLE 2480 MHz



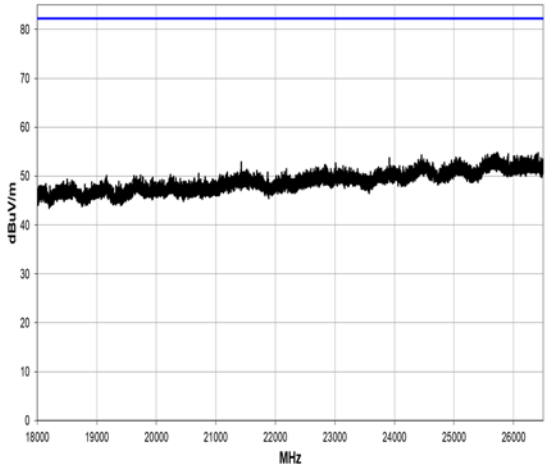
30 MHz to 1 GHz



1 GHz to 7 GHz



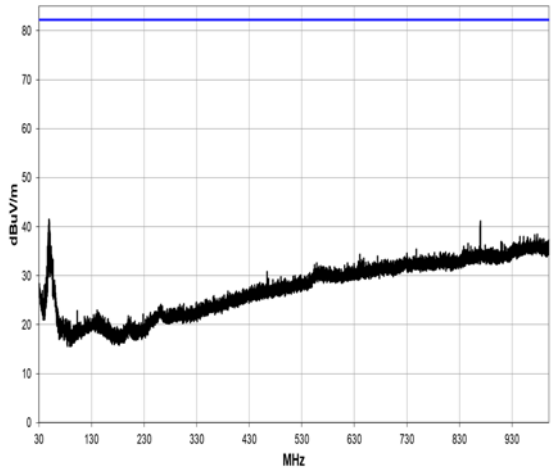
7 GHz to 18 GHz



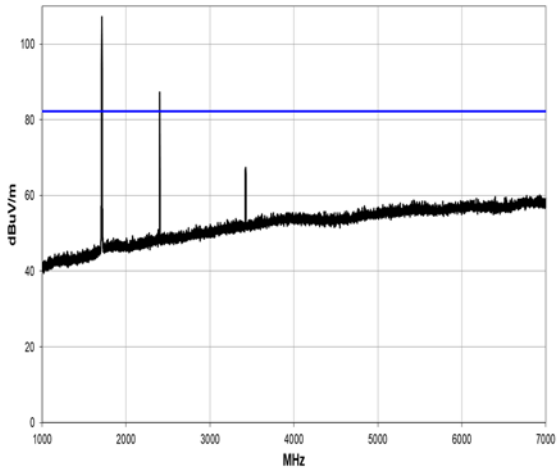
18 GHz to 26.5 GHz

UL ARFCN: 9538; FREQ: 1907.6 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

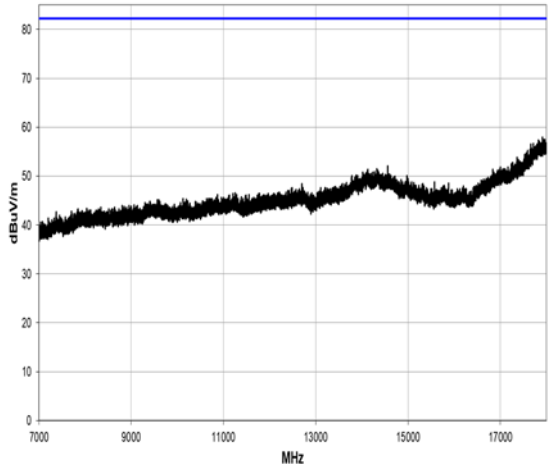
WCDMA BAND 4; UL ARFCN: 1312; FREQ: 1712.4 MHz + BLE 2402 MHz



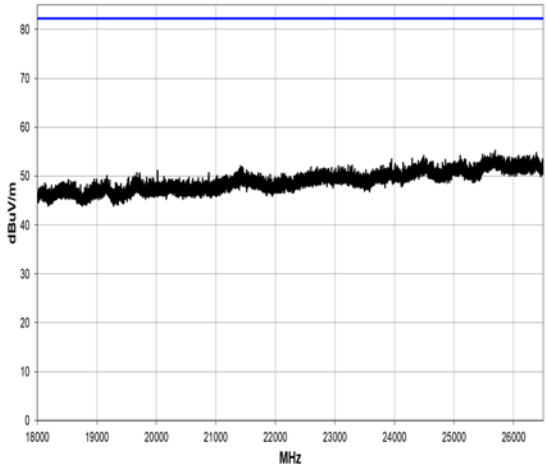
30 MHz to 1 GHz



1 GHz to 7 GHz



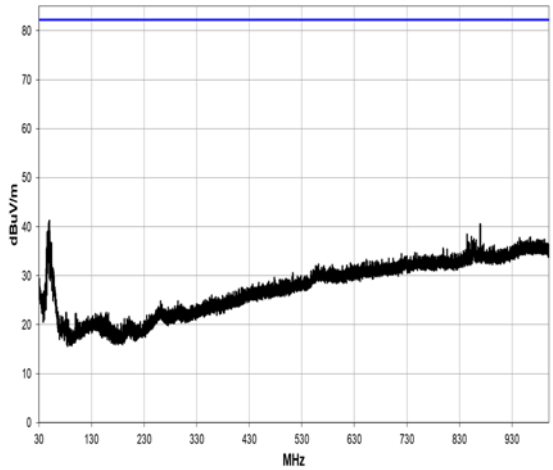
7 GHz to 18 GHz



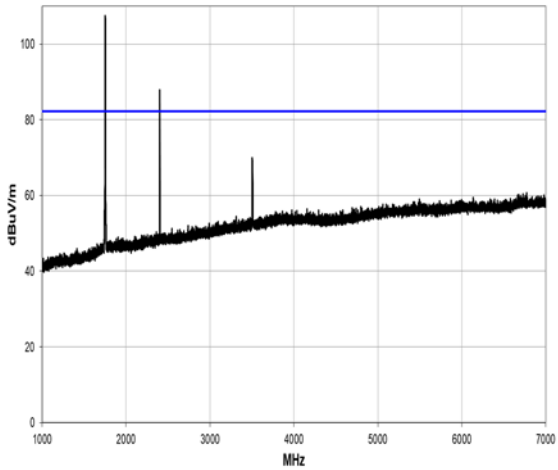
18 GHz to 26.5 GHz

UL ARFCN: 1312; FREQ: 1712.4 MHz + BLE 2402										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

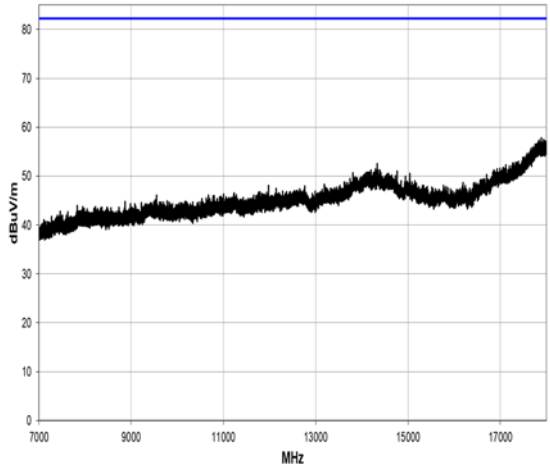
WCDMA BAND 4; UL ARFCN: 1513; FREQ: 1752.6 MHz + BLE 2402 MHz



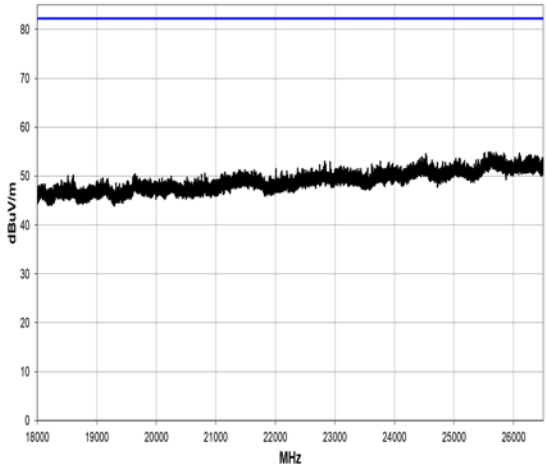
30 MHz to 1 GHz



1 GHz to 7 GHz



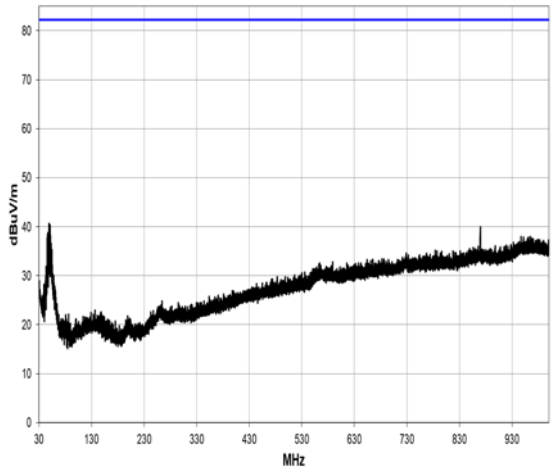
7 GHz to 18 GHz



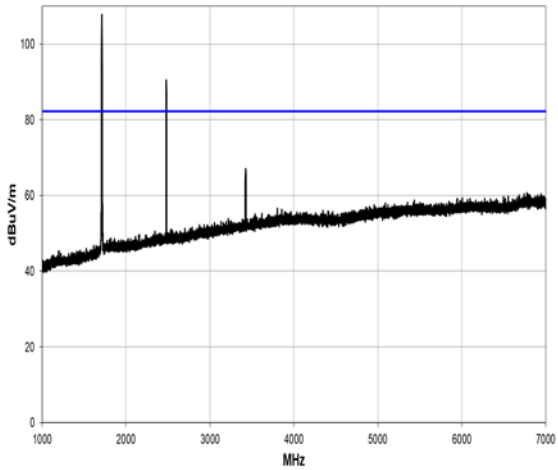
18 GHz to 26.5 GHz

UL ARFCN: 1513; FREQ: 1752.6 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

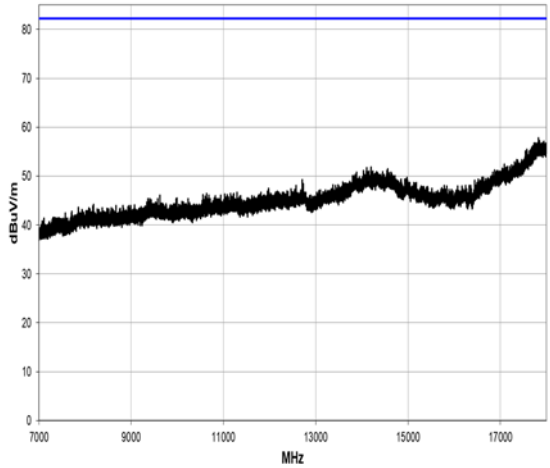
WCDMA BAND 4; UL ARFCN: 1312; FREQ: 1712.4 MHz + BLE 2480 MHz



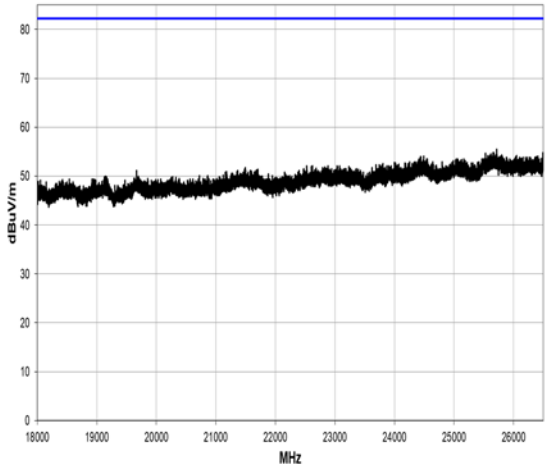
30 MHz to 1 GHz



1 GHz to 7 GHz



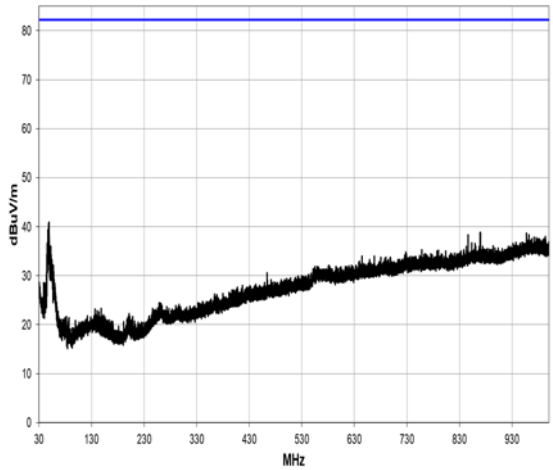
7 GHz to 18 GHz



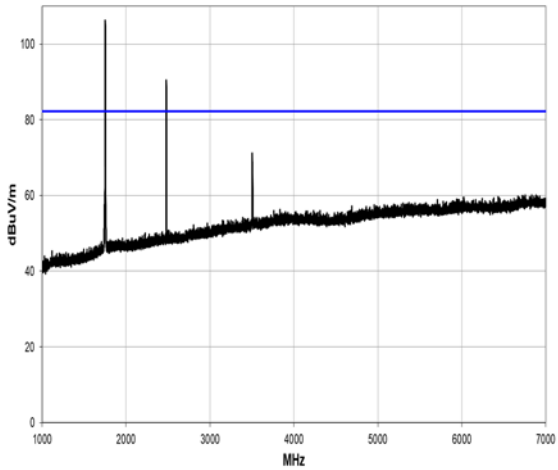
18 GHz to 26.5 GHz

UL ARFCN: 1312; FREQ: 1712.4 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

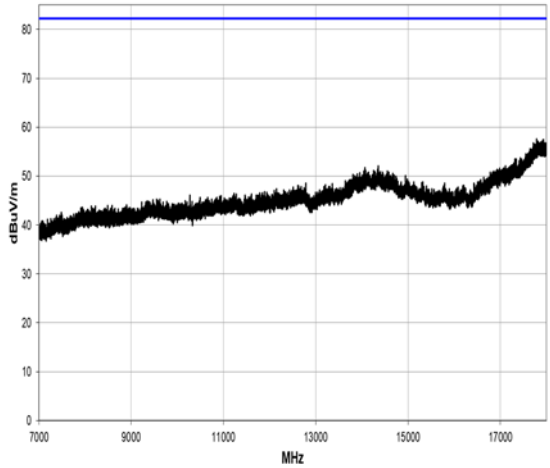
WCDMA BAND 4; UL ARFCN: 1513; FREQ: 1752.6 MHz + BLE 2480 MHz



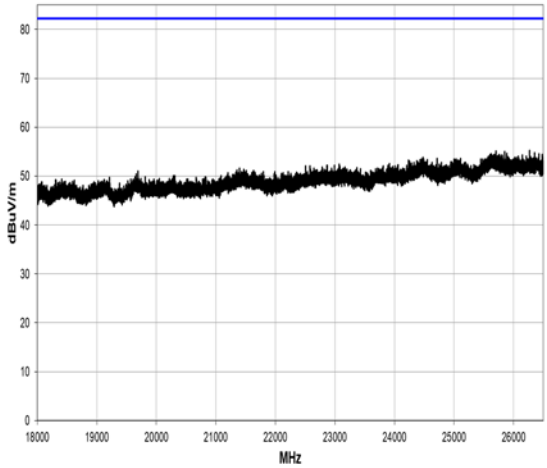
30 MHz to 1 GHz



1 GHz to 7 GHz



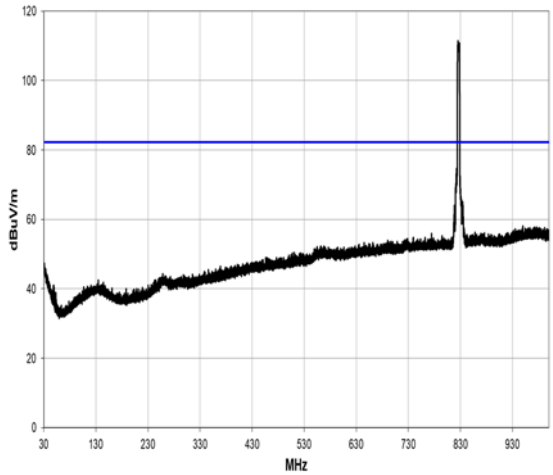
7 GHz to 18 GHz



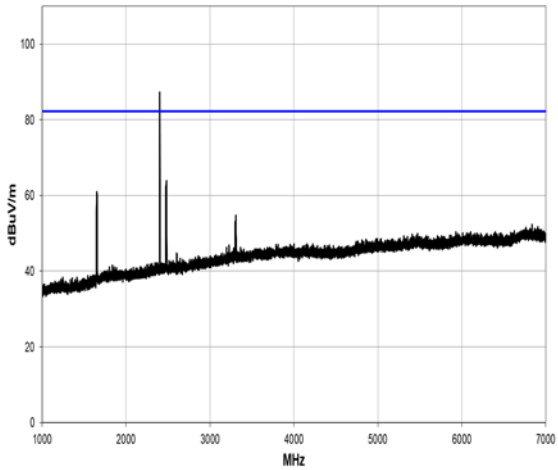
18 GHz to 26.5 GHz

UL ARFCN: 1513; FREQ: 1752.6 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

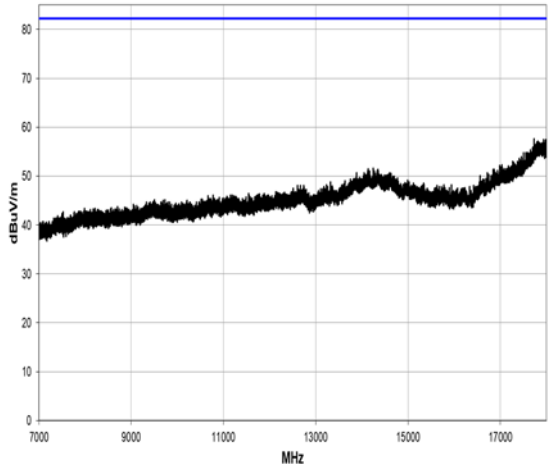
WCDMA BAND 5; UL ARFCN: 4132; FREQ: 826.4 MHz + BLE 2402 MHz



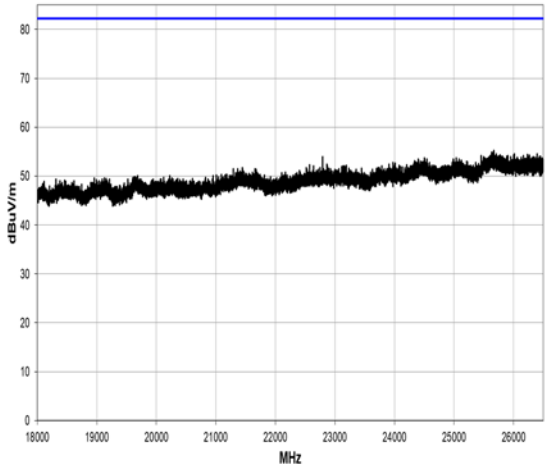
30 MHz to 1 GHz



1 GHz to 7 GHz



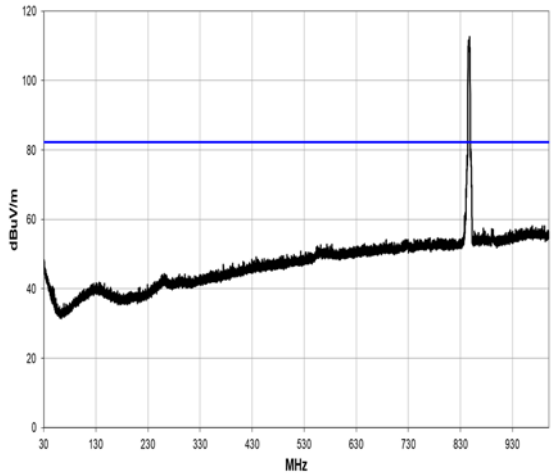
7 GHz to 18 GHz



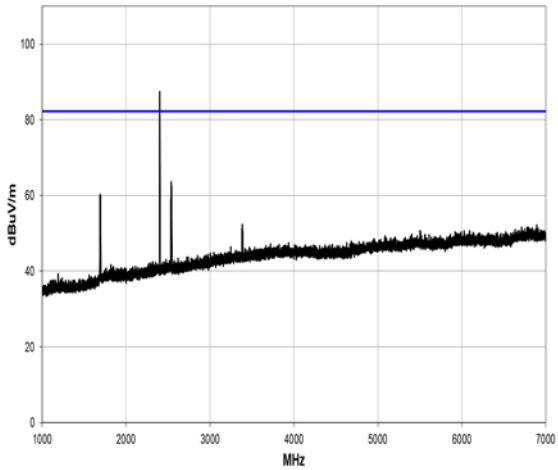
18 GHz to 26.5 GHz

UL ARFCN: 4132; FREQ: 826.4 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

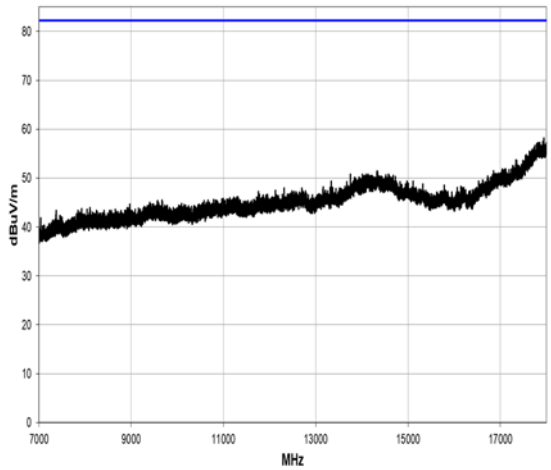
WCDMA BAND 5; UL ARFCN: 4233; FREQ: 846.6 MHz + BLE 2402 MHz



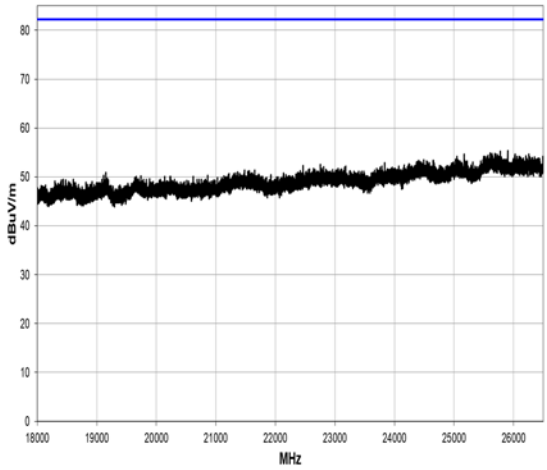
30 MHz to 1 GHz



1 GHz to 7 GHz



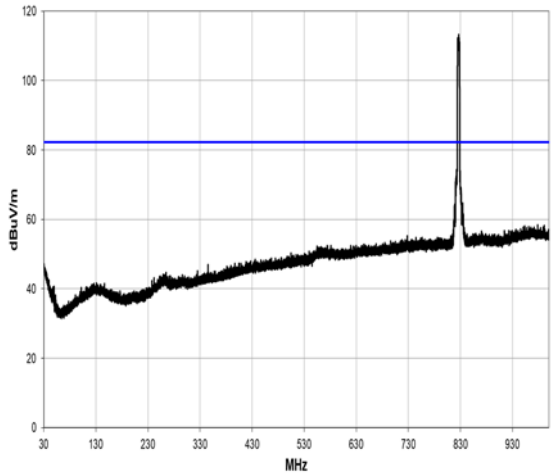
7 GHz to 18 GHz



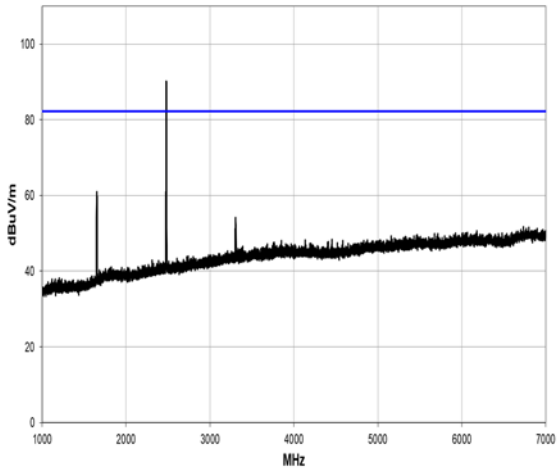
18 GHz to 26.5 GHz

UL ARFCN: 4233; FREQ: 846.6 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

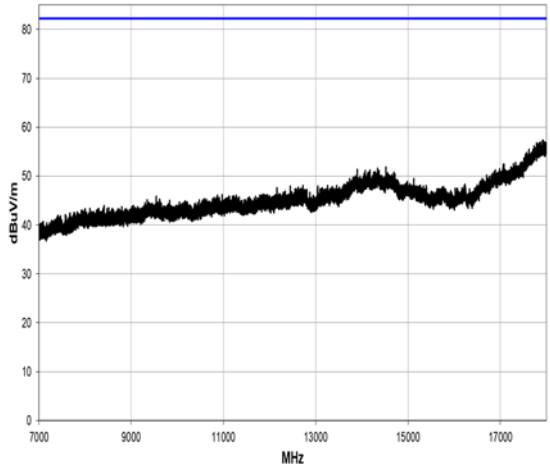
WCDMA BAND 5; UL ARFCN: 4132; FREQ: 826.4 MHz + BLE 2480 MHz



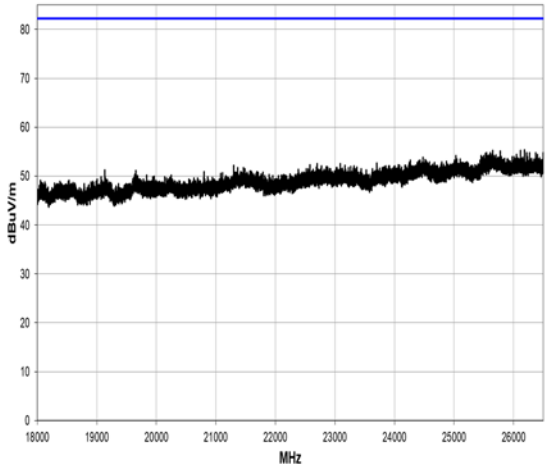
30 MHz to 1 GHz



1 GHz to 7 GHz



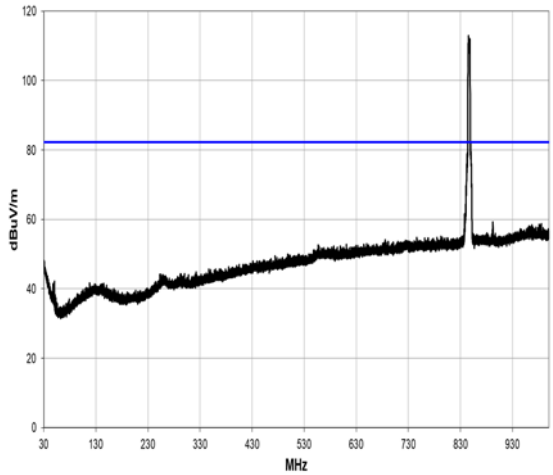
7 GHz to 18 GHz



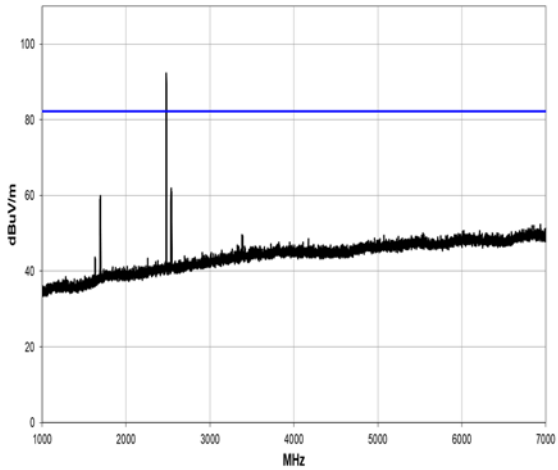
18 GHz to 26.5 GHz

UL ARFCN: 4132; FREQ: 826.4 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

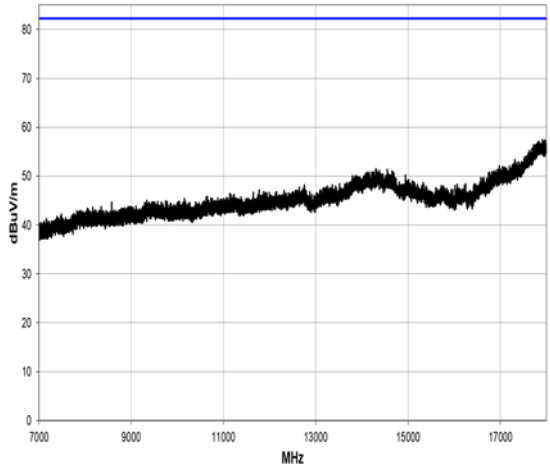
WCDMA BAND 5; UL ARFCN: 4233; FREQ: 846.6 MHz + BLE 2480 MHz



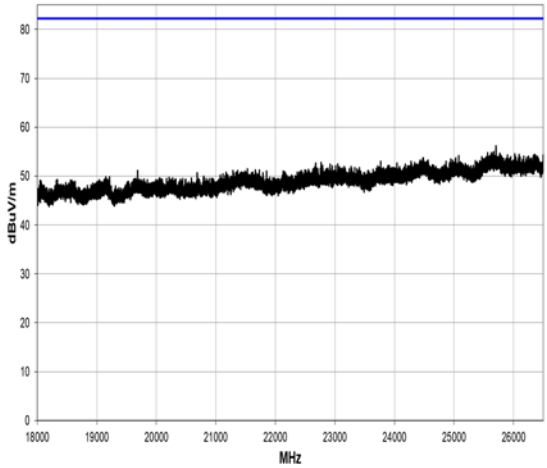
30 MHz to 1 GHz



1 GHz to 7 GHz



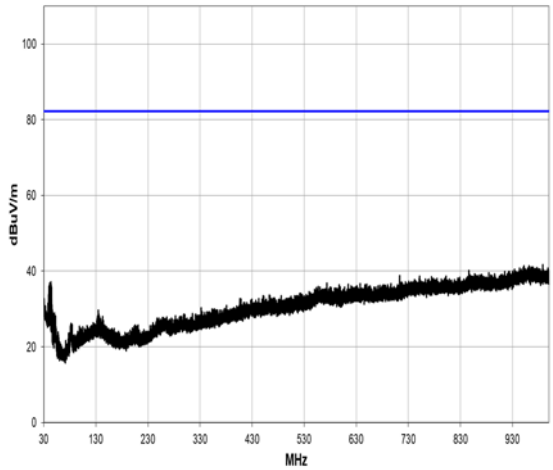
7 GHz to 18 GHz



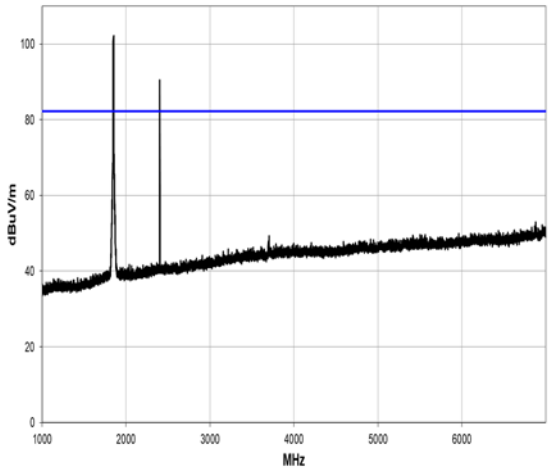
18 GHz to 26.5 GHz

UL ARFCN: 4233; FREQ: 846.6 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions within 20 dB of the limit										PASS

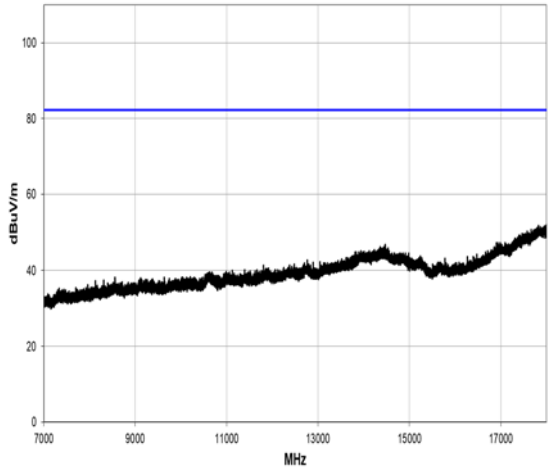
LTE BAND: 2; UL ARFCN: 18600; FREQ: 1850 MHz + BLE 2402 MHz



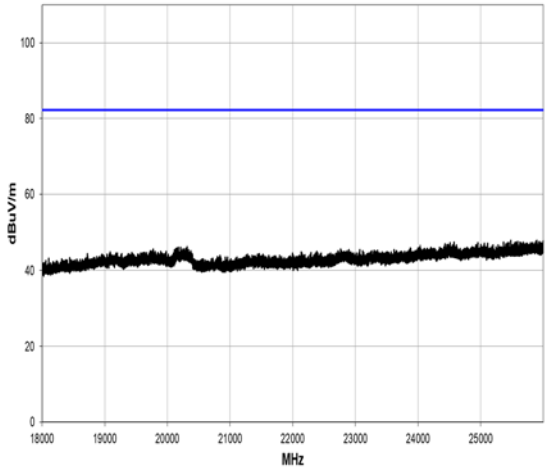
30 MHz to 1 GHz



1 GHz to 7 GHz



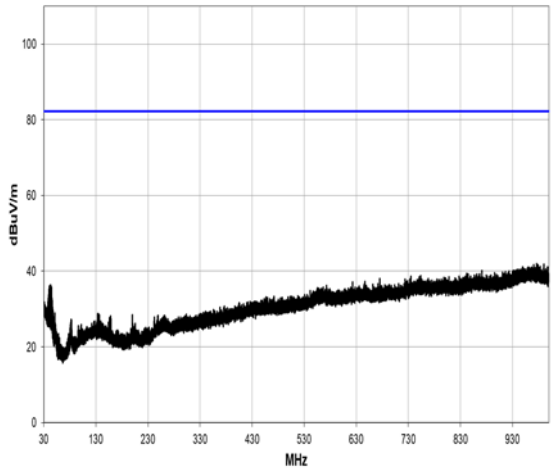
7 GHz to 18 GHz



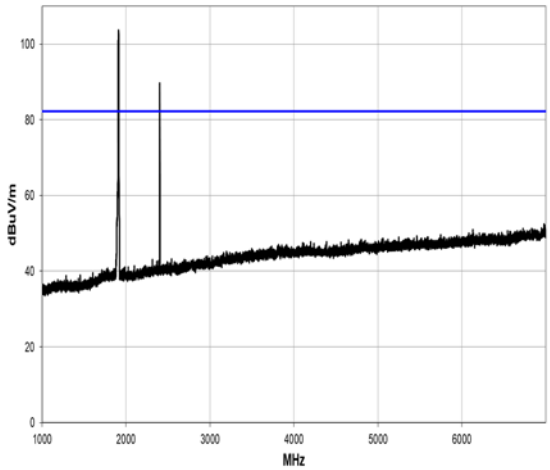
18 GHz to 26.5 GHz

UL ARFCN: 18600; FREQ: 1850 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

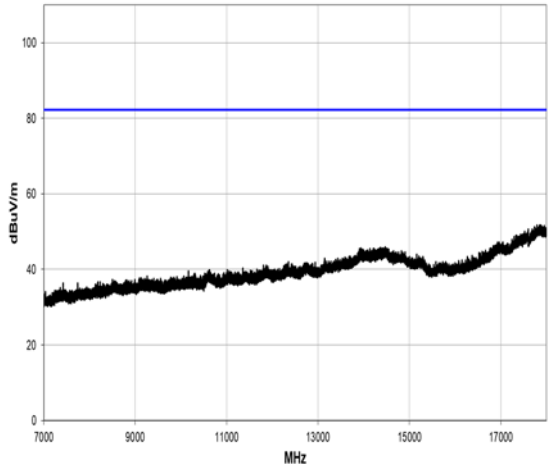
LTE BAND: 2; UL ARFCN: 19199; FREQ: 1910 MHz + BLE 2402 MHz



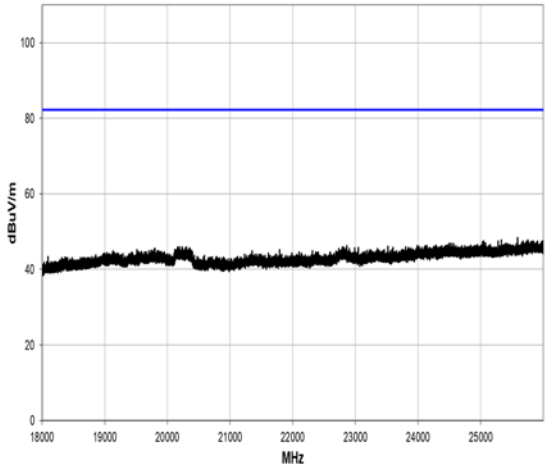
30 MHz to 1 GHz



1 GHz to 7 GHz



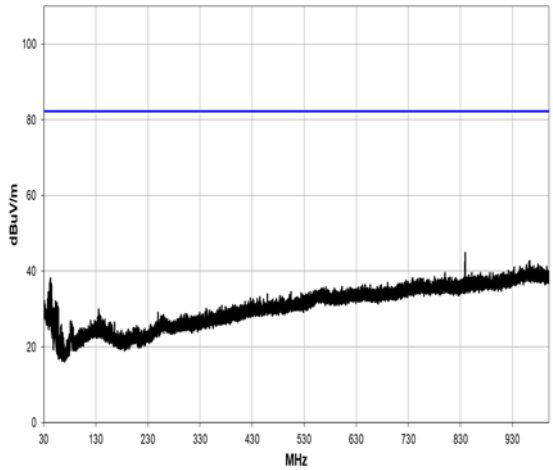
7 GHz to 18 GHz



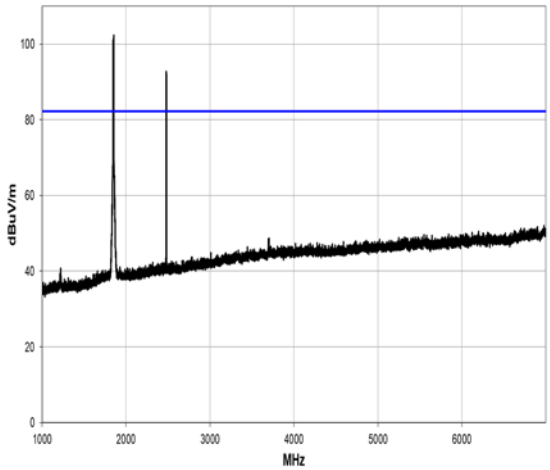
18 GHz to 26.5 GHz

UL ARFCN: 19199; FREQ: 1910 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

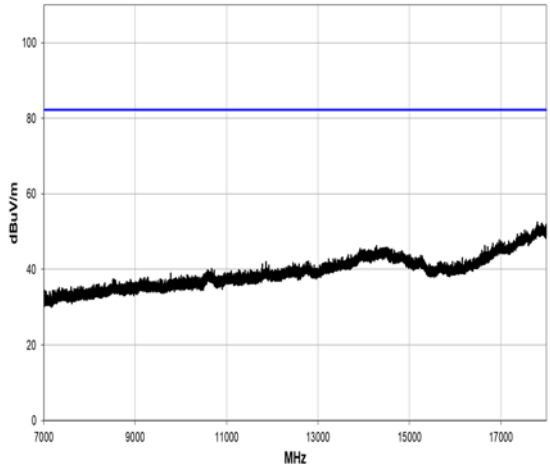
LTE BAND: 2; UL: 18600; FREQ: 1850 MHz + BLE 2480 MHz



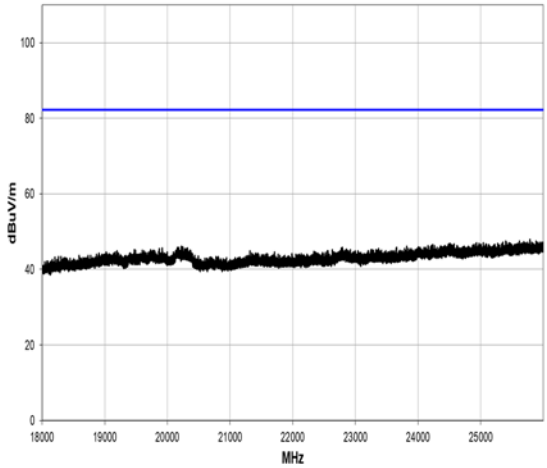
30 MHz to 1 GHz



1 GHz to 7 GHz



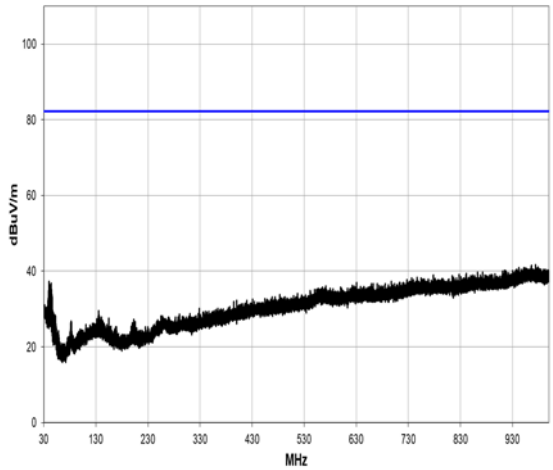
7 GHz to 18 GHz



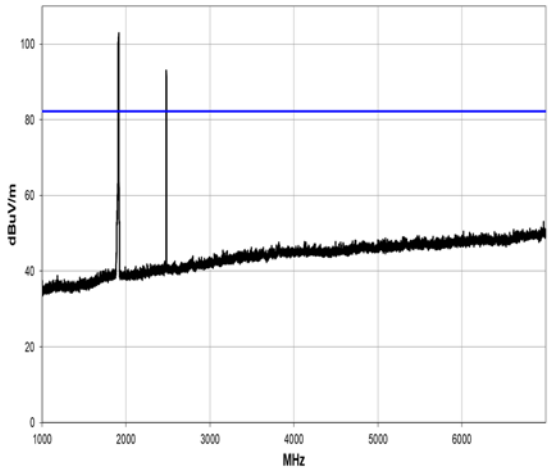
18 GHz to 26.5 GHz

UL ARFCN: 18600; FREQ: 1850 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

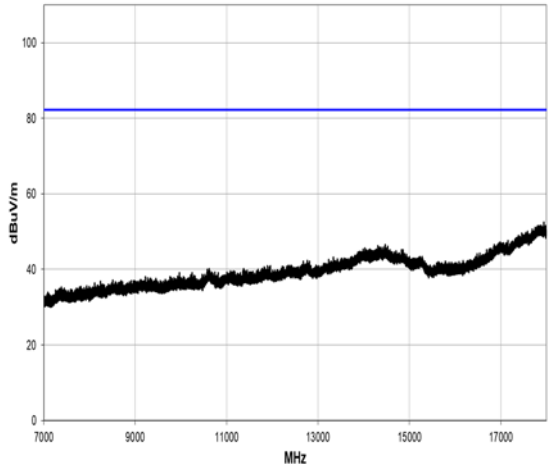
LTE BAND: 2; UL ARFCN: 19199; FREQ: 1910 MHz + BLE 2480 MHz



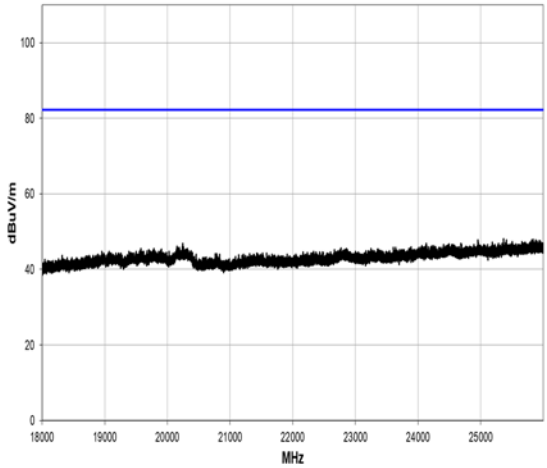
30 MHz to 1 GHz



1 GHz to 7 GHz



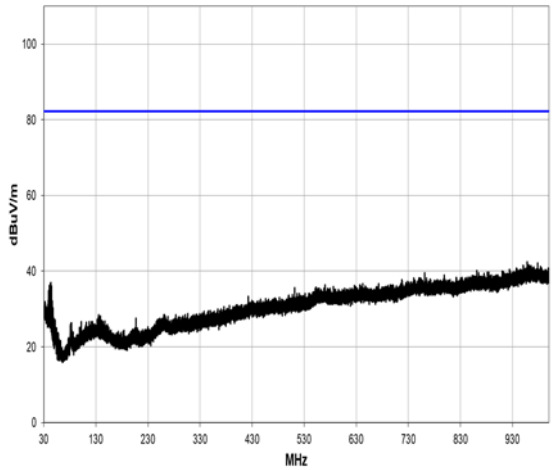
7 GHz to 18 GHz



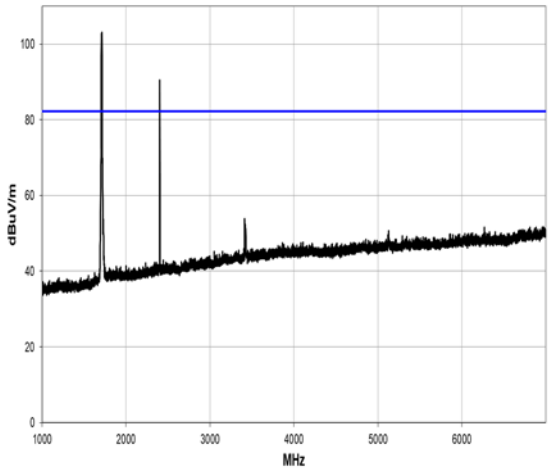
18 GHz to 26.5 GHz

UL ARFCN: 19199; FREQ: 1910 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

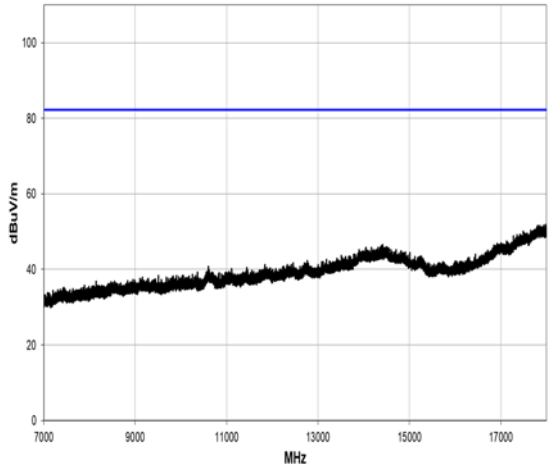
LTE BAND: 4; UL ARFCN: 19950; FREQ: 1710 MHz + BLE 2402 MHz



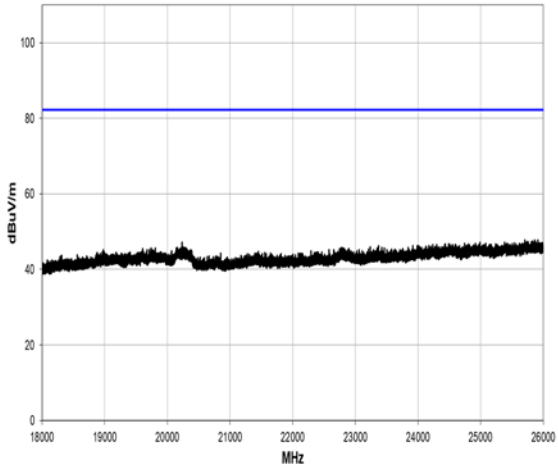
30 MHz to 1 GHz



1 GHz to 7 GHz



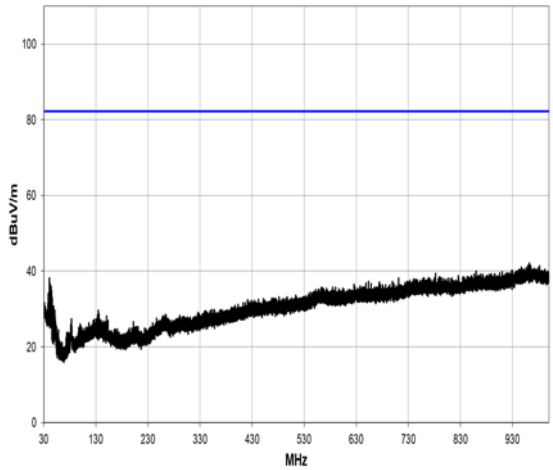
7 GHz to 18 GHz



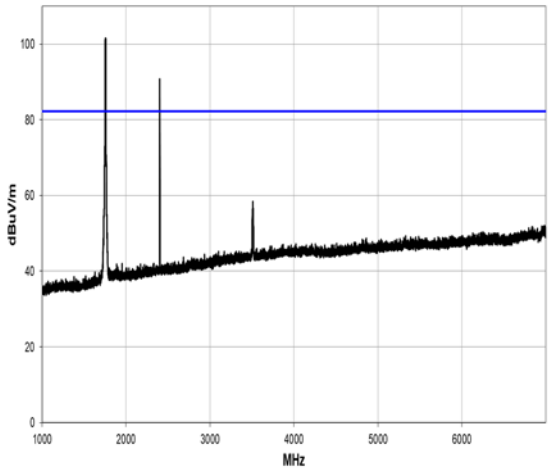
18 GHz to 26.5 GHz

UL ARFCN: 19950; FREQ: 1710 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

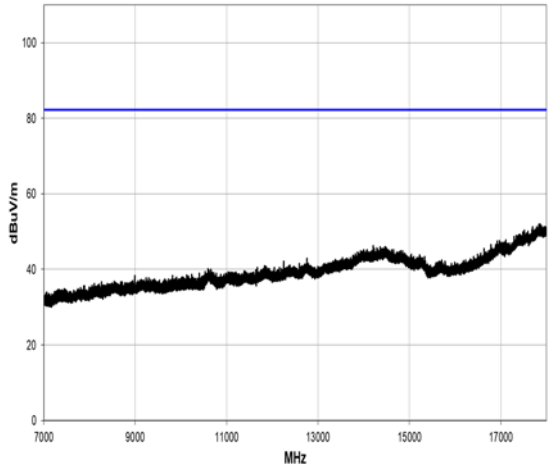
LTE BAND: 4; UL ARFCN: 20399; FREQ: 1755 MHz + BLE 2402 MHz



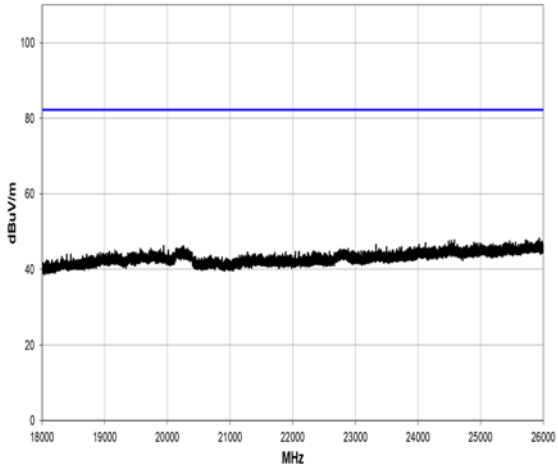
30 MHz to 1 GHz



1 GHz to 7 GHz



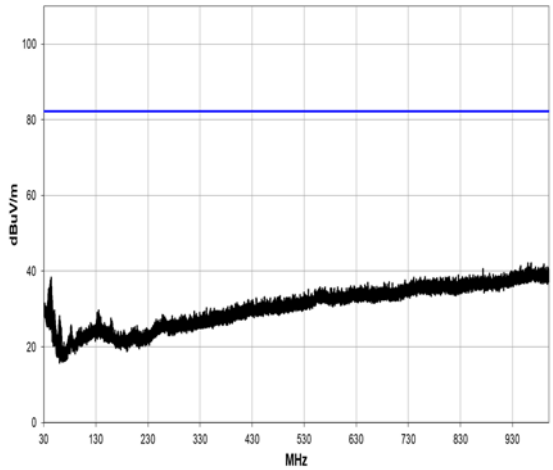
7 GHz to 18 GHz



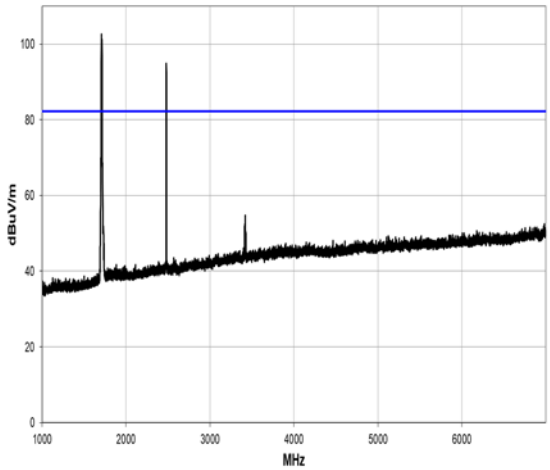
18 GHz to 26.5 GHz

UL ARFCN: 20399; FREQ: 1755 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

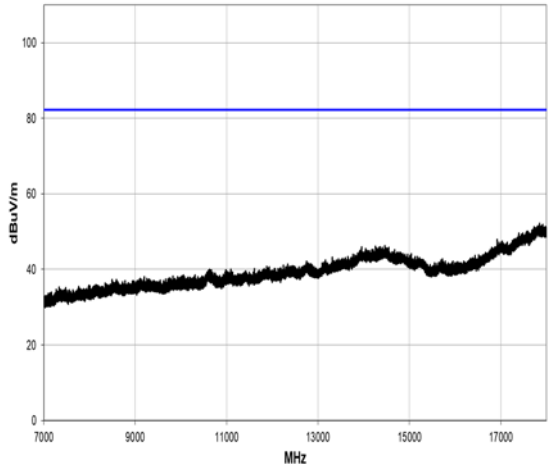
LTE BAND: 4; UL ARFCN: 19950; FREQ: 1710 MHz + BLE 2480 MHz



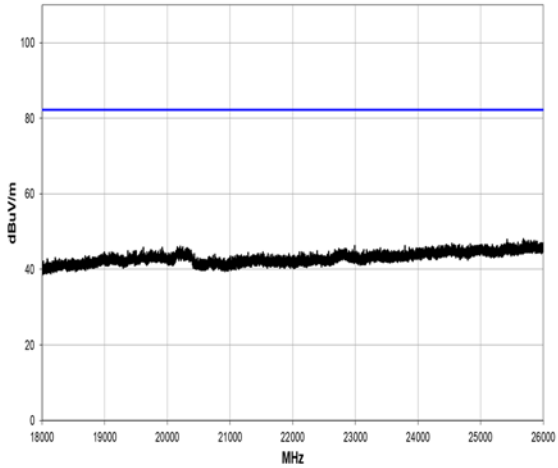
30 MHz to 1 GHz



1 GHz to 7 GHz



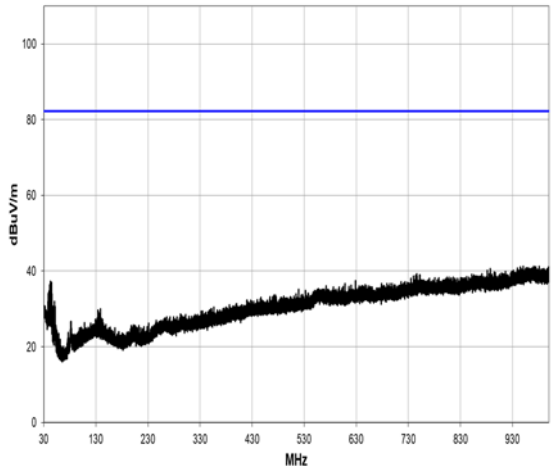
7 GHz to 18 GHz



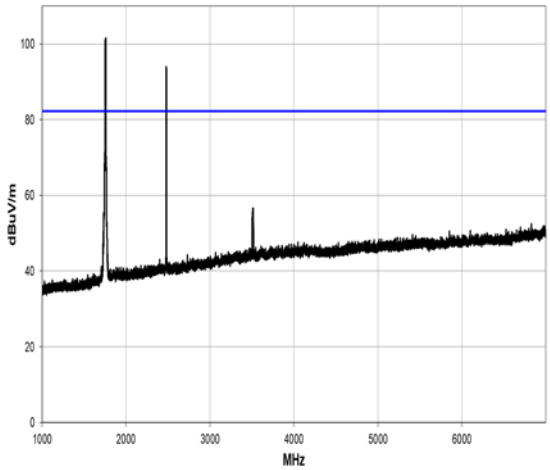
18 GHz to 26.5 GHz

UL ARFCN: 19950; FREQ: 1710 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

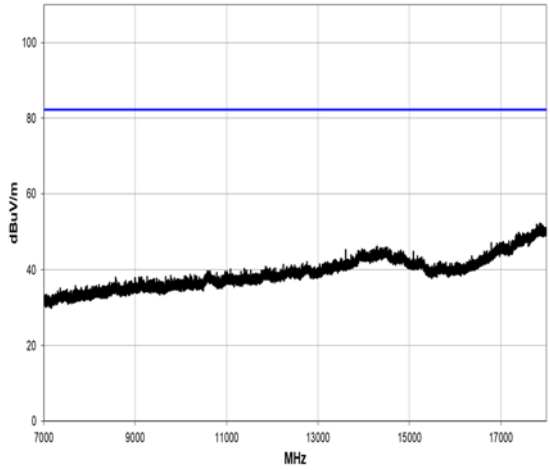
LTE BAND: 4; UL ARFCN: 20399; FREQ: 1755 MHz + BLE 2480 MHz



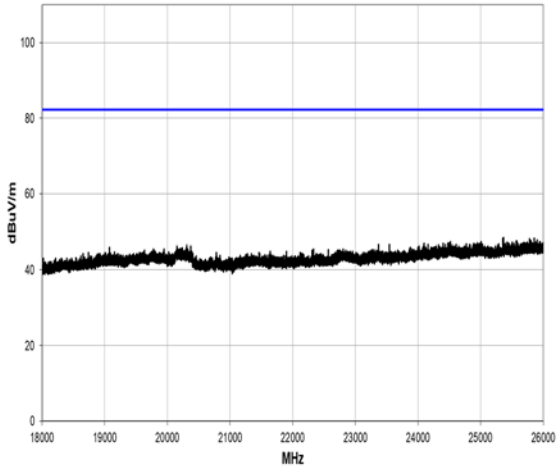
30 MHz to 1 GHz



1 GHz to 7 GHz



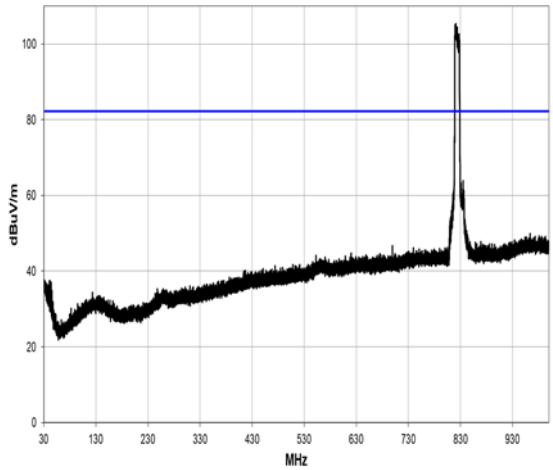
7 GHz to 18 GHz



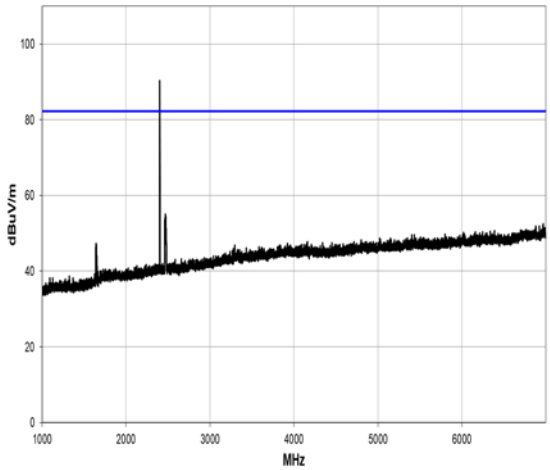
18 GHz to 26.5 GHz

UL ARFCN: 20399; FREQ: 1755 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

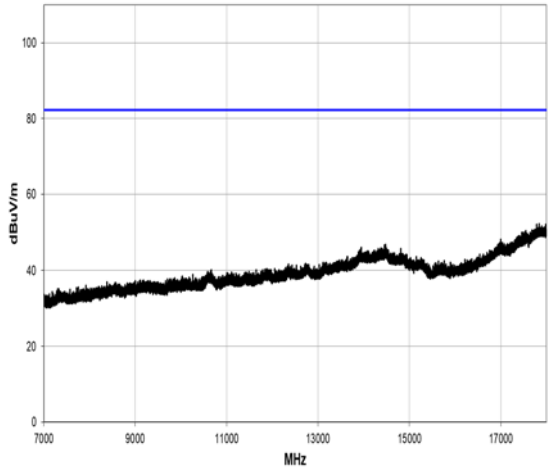
LTE BAND: 5; UL ARFCN: 20400; FREQ: 824 MHz + BLE 2402 MHz



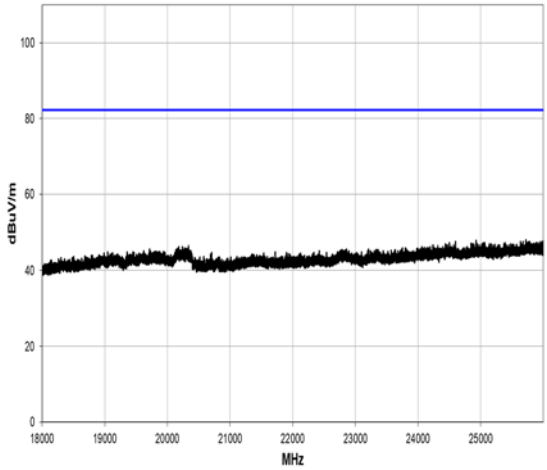
30 MHz to 1 GHz



1 GHz to 7 GHz



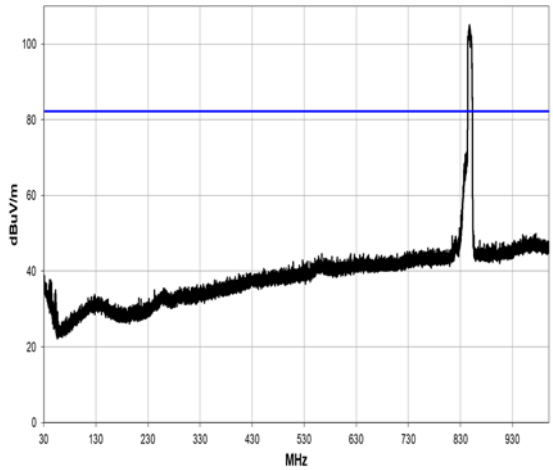
7 GHz to 18 GHz



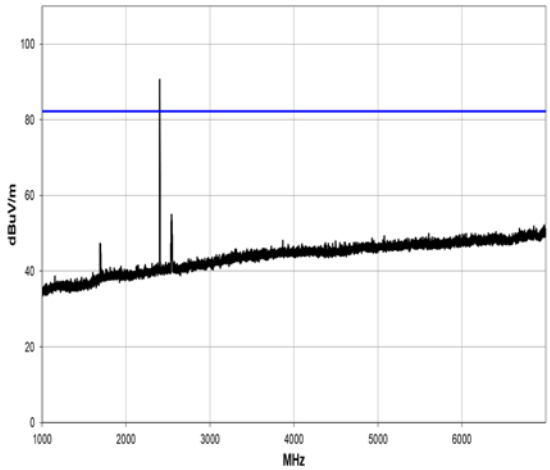
18 GHz to 26.5 GHz

UL ARFCN: 20400; FREQ: 824 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

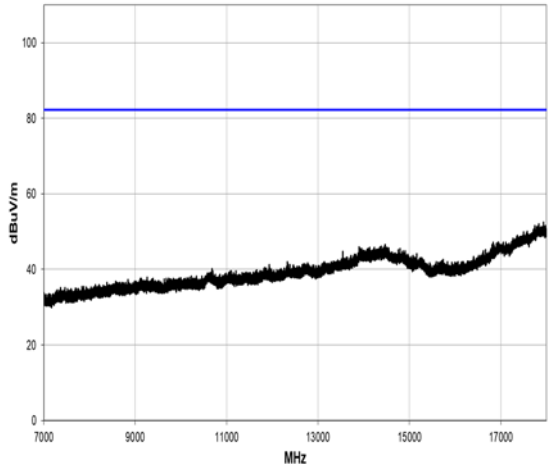
LTE BAND: 5; UL ARFCN: 20649; FREQ: 849 MHz + BLE 2402 MHz



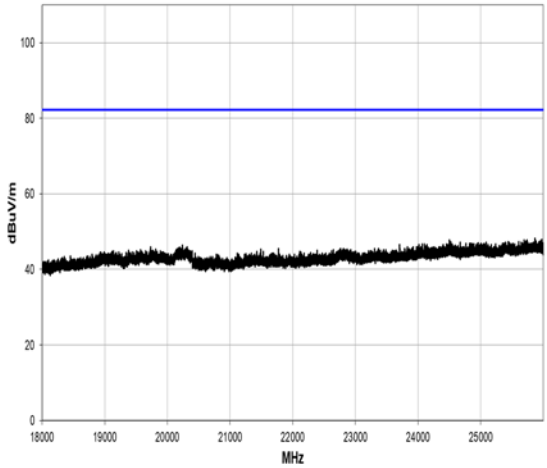
30 MHz to 1 GHz



1 GHz to 7 GHz



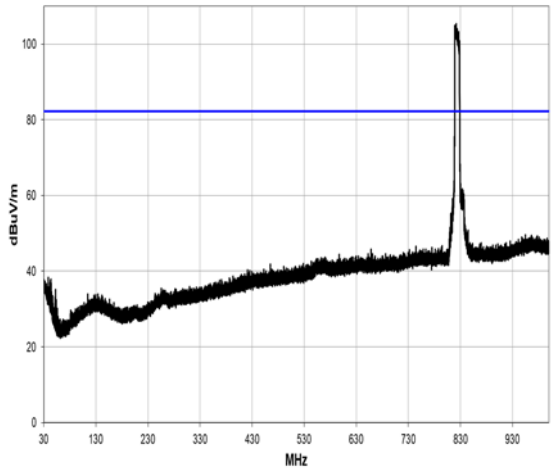
7 GHz to 18 GHz



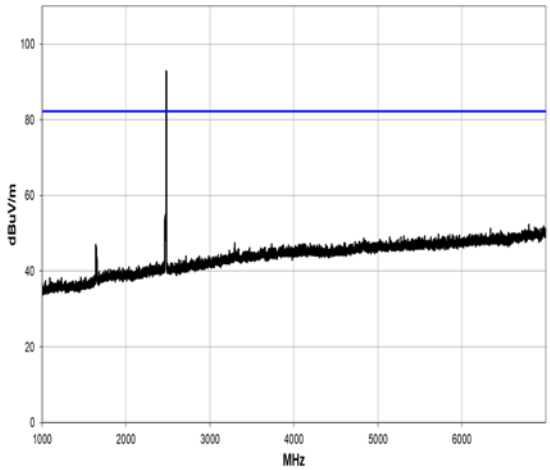
18 GHz to 26.5 GHz

UL ARFCN: 20649; FREQ: 849 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

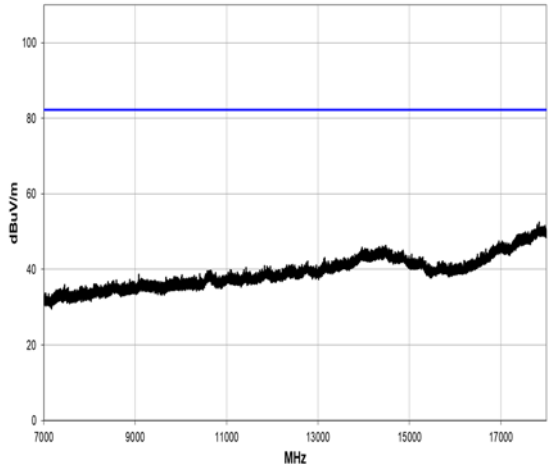
LTE BAND: 5; UL ARFCN: 20649; FREQ: 849 MHz + BLE 2480 MHz



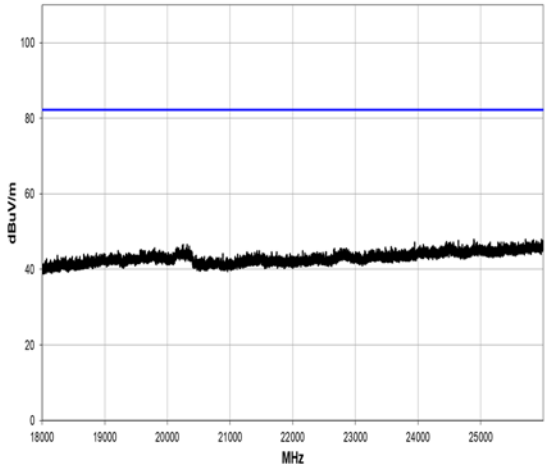
30 MHz to 1 GHz



1 GHz to 7 GHz



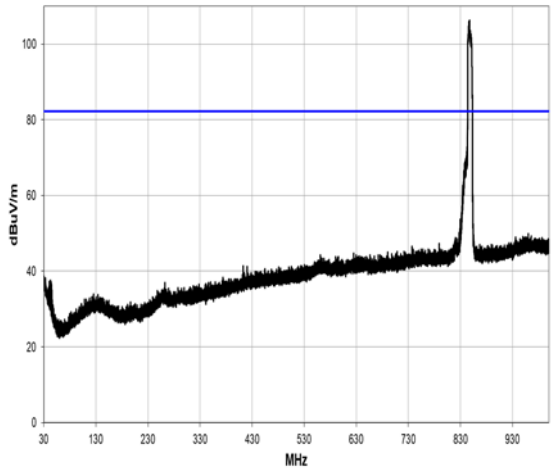
7 GHz to 18 GHz



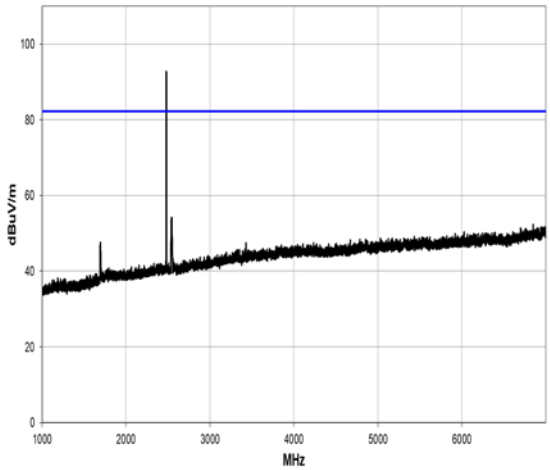
18 GHz to 26.5 GHz

UL ARFCN: 20649; FREQ: 849 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

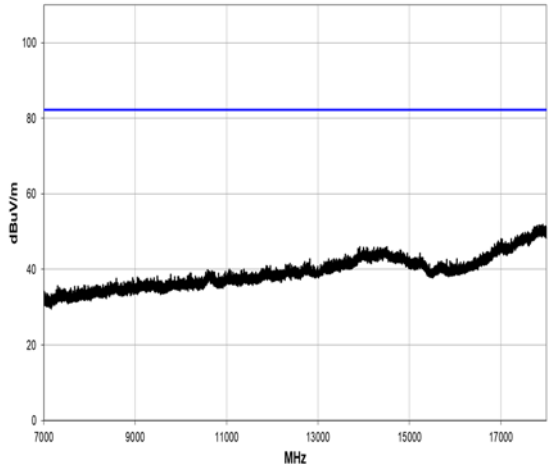
LTE BAND: 5; UL ARFCN: 20649; FREQ: 849 MHz + BLE 2480 MHz



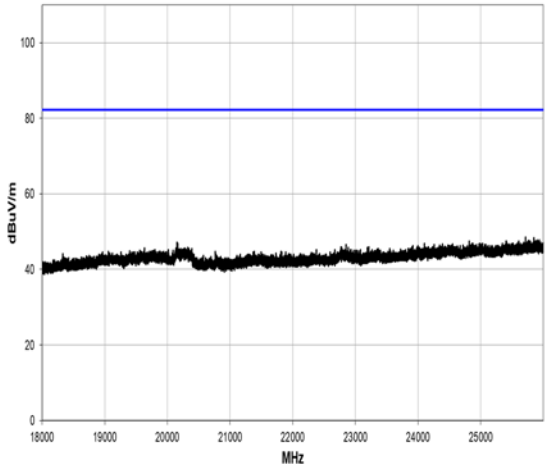
30 MHz to 1 GHz



1 GHz to 7 GHz



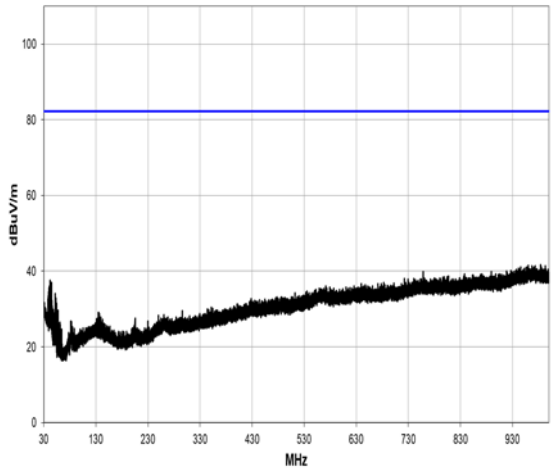
7 GHz to 18 GHz



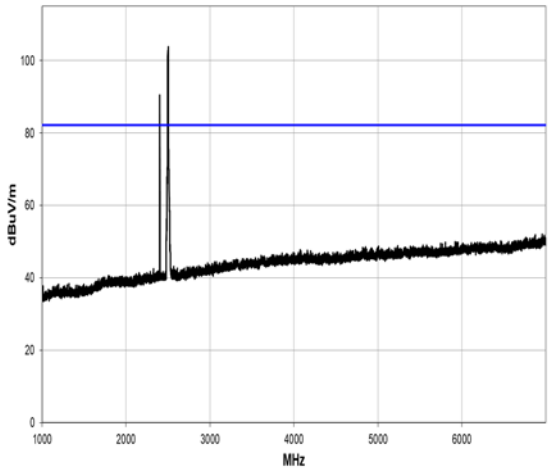
18 GHz to 26.5 GHz

UL ARFCN: 20649; FREQ: 849 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

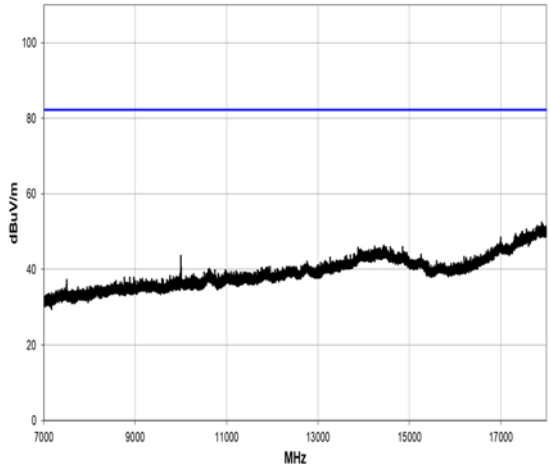
LTE BAND: 7; UL ARFCN: 20750; FREQ: 2500 MHz + BLE 2402 MHz



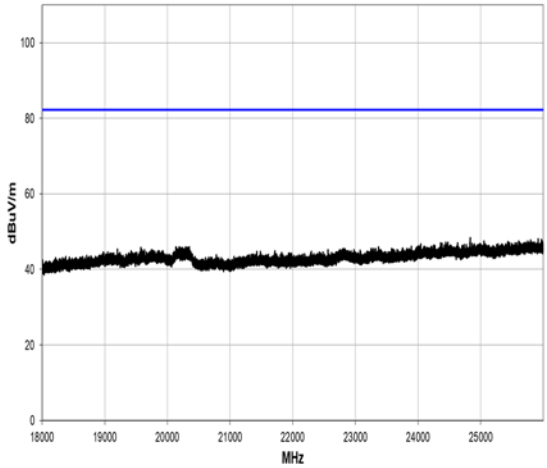
30 MHz to 1 GHz



1 GHz to 7 GHz



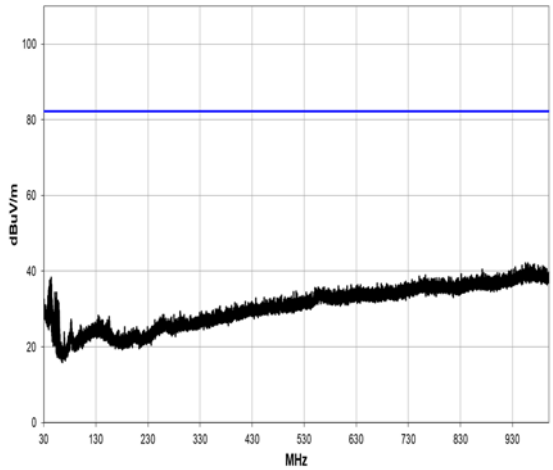
7 GHz to 18 GHz



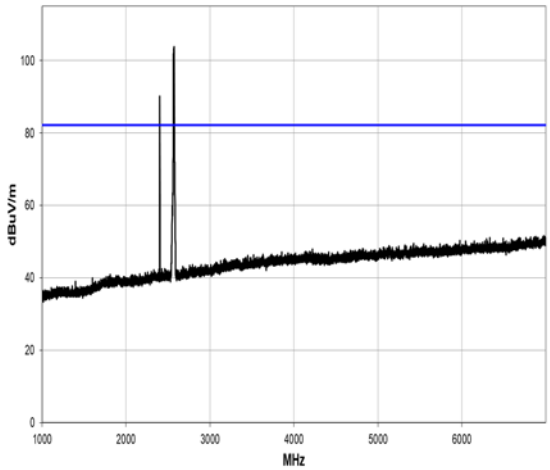
18 GHz to 26.5 GHz

UL ARFCN: 20750; FREQ: 2500 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

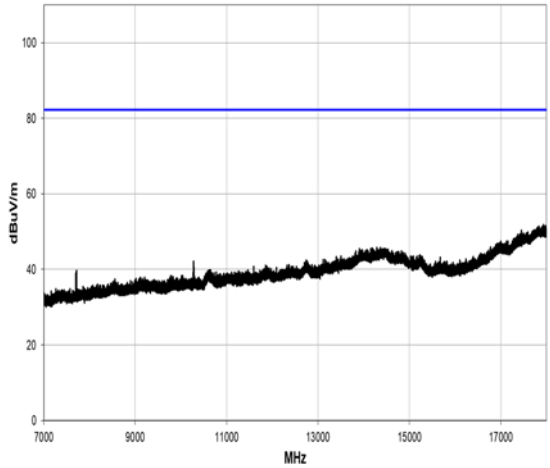
LTE BAND: 7; UL ARFCN: 21449; FREQ: 2570 MHz + BLE 2402 MHz



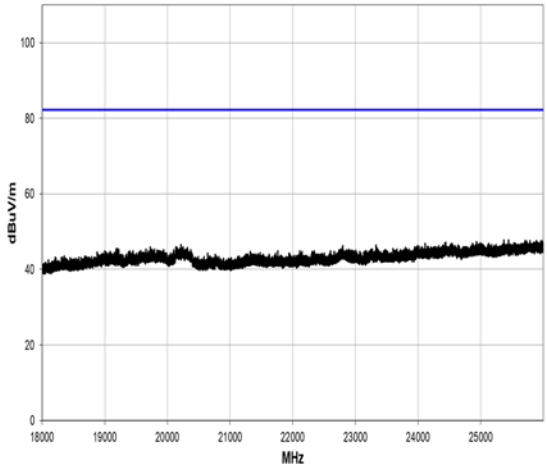
30 MHz to 1 GHz



1 GHz to 7 GHz



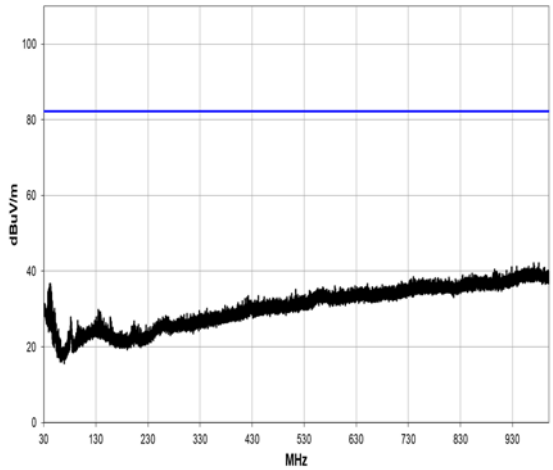
7 GHz to 18 GHz



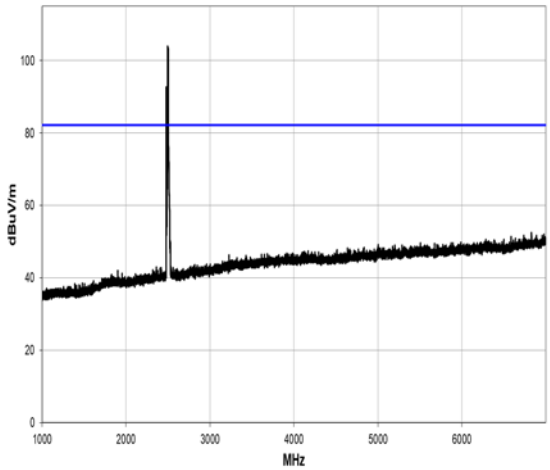
18 GHz to 26.5 GHz

UL ARFCN: 21449; FREQ: 2570 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

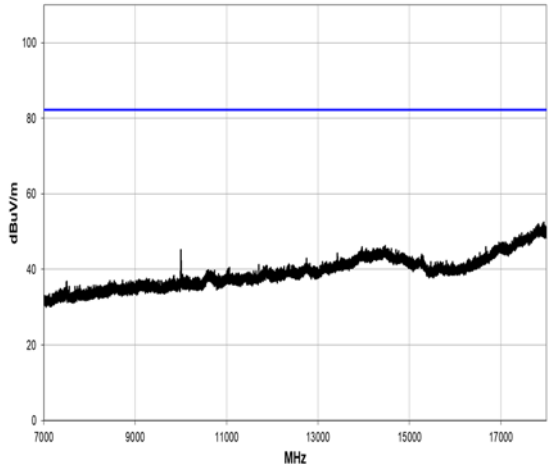
LTE BAND: 7; UL ARFCN: 20750; FREQ: 2500 MHz + BLE 2480 MHz



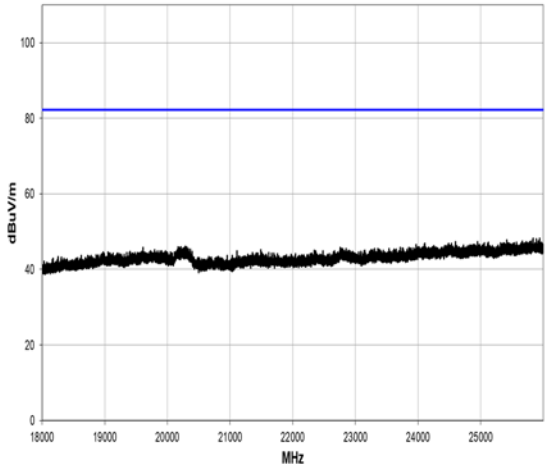
30 MHz to 1 GHz



1 GHz to 7 GHz



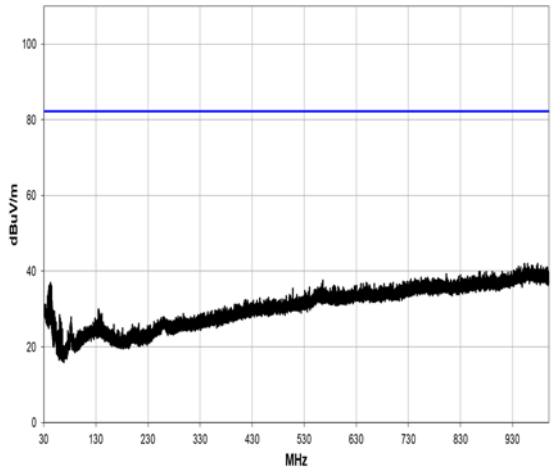
7 GHz to 18 GHz



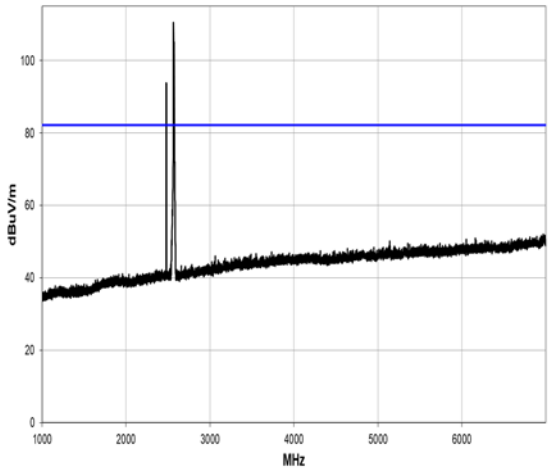
18 GHz to 26.5 GHz

UL ARFCN: 20750; FREQ: 2500 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

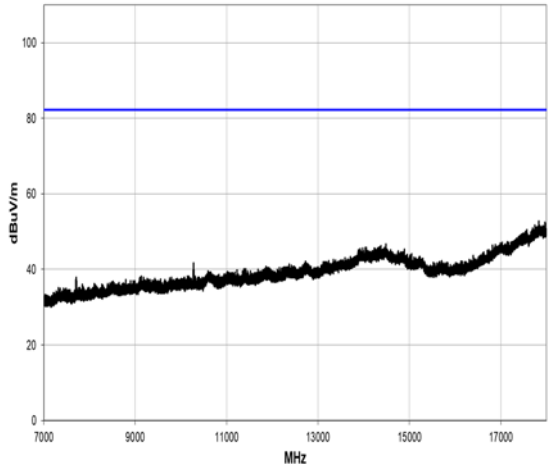
LTE BAND: 7; UL ARFCN: 21449; FREQ: 2570 MHz + BLE 2480 MHz



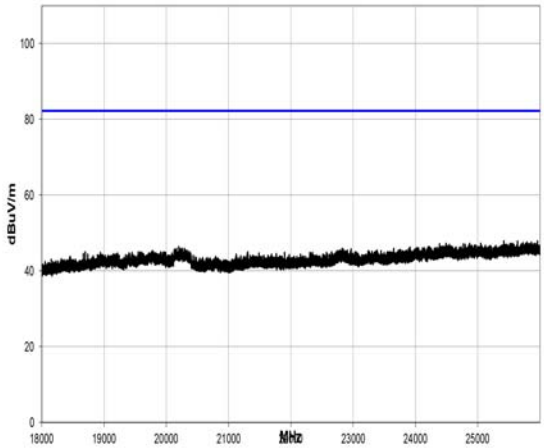
30 MHz to 1 GHz



1 GHz to 7 GHz



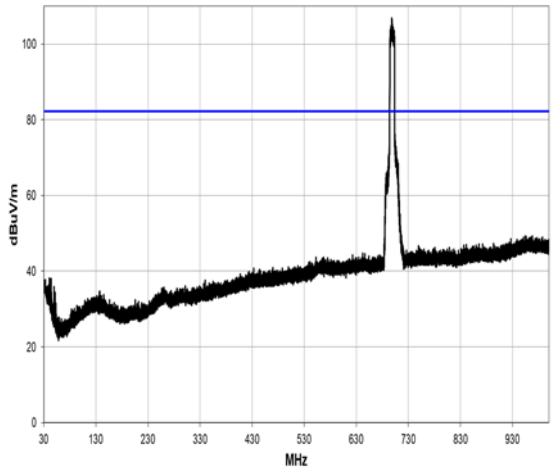
7 GHz to 18 GHz



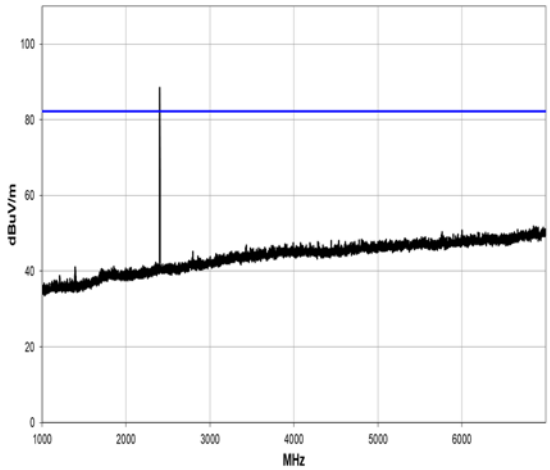
18 GHz to 26.5 GHz

UL ARFCN: 21449; FREQ: 2570 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

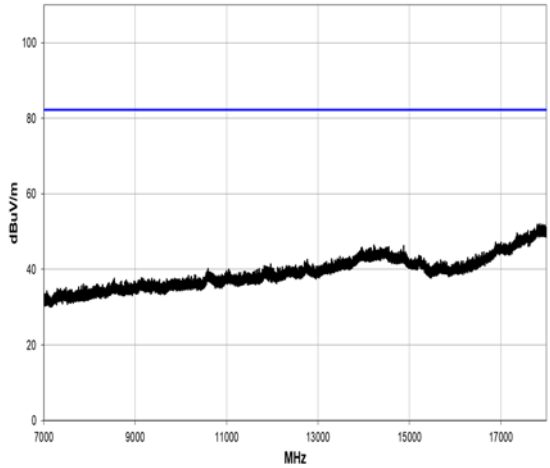
LTE BAND: 12; UL ARFCN: 23010; FREQ: 699 MHz + BLE 2402 MHz



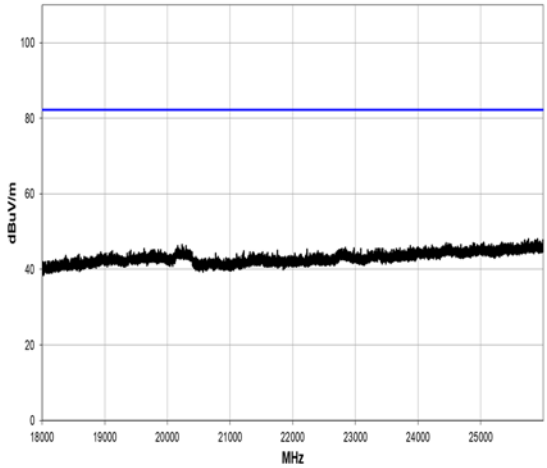
30 MHz to 1 GHz



1 GHz to 7 GHz



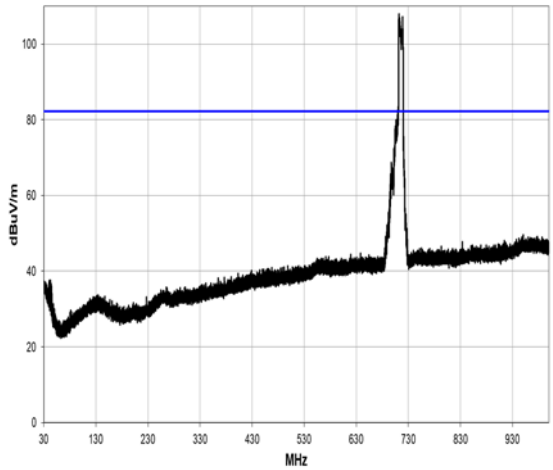
7 GHz to 18 GHz



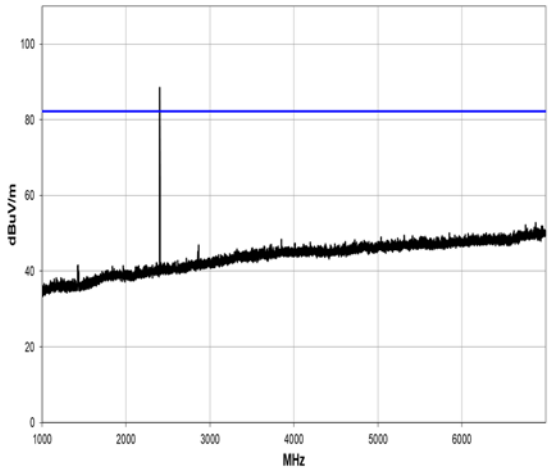
18 GHz to 26.5 GHz

UL ARFCN: 23010; FREQ: 699 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

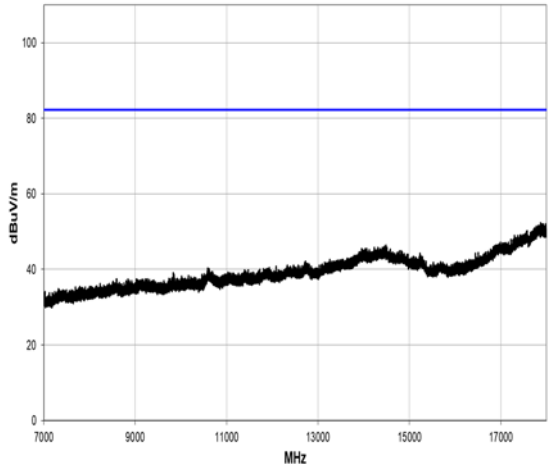
LTE BAND: 12; UL ARFCN: 23179; FREQ: 716 MHz + BLE 2402 MHz



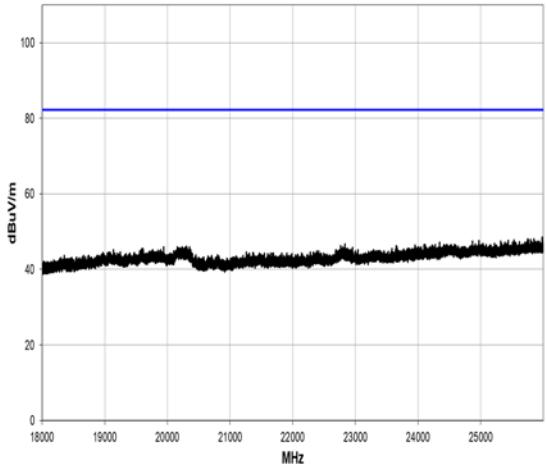
30 MHz to 1 GHz



1 GHz to 7 GHz



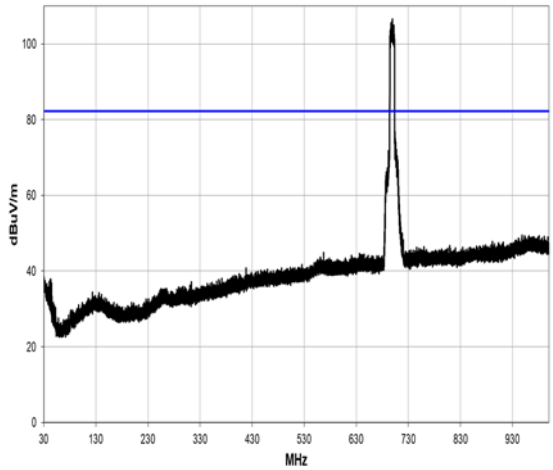
7 GHz to 18 GHz



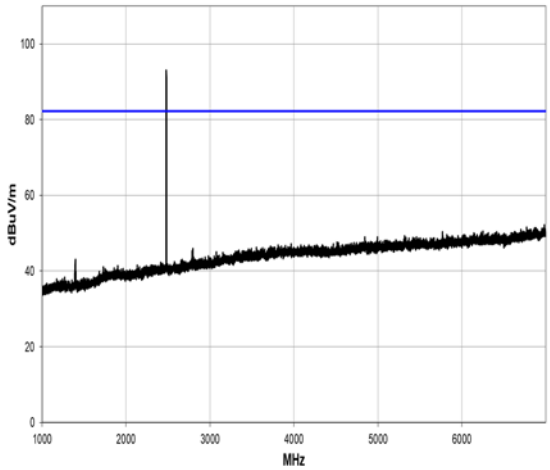
18 GHz to 26.5 GHz

UL ARFCN: 23179; FREQ: 716 MHz + BLE 2402 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

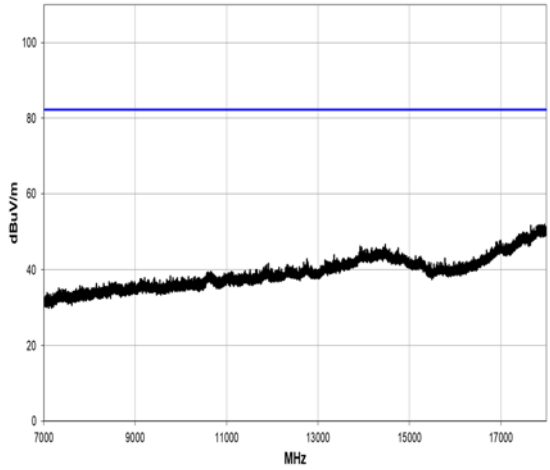
LTE BAND: 12; UL ARFCN: 23010; FREQ: 699 MHz + BLE 2480 MHz



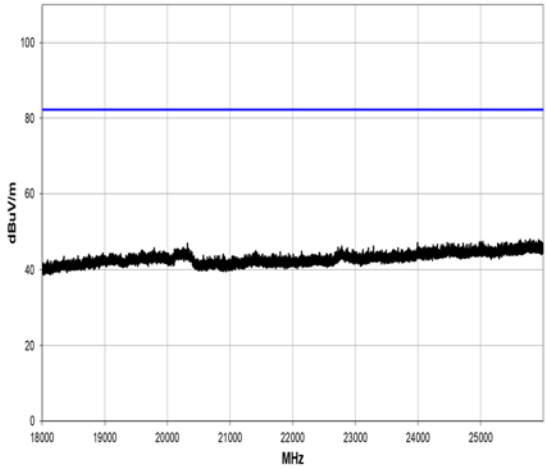
30 MHz to 1 GHz



1 GHz to 7 GHz



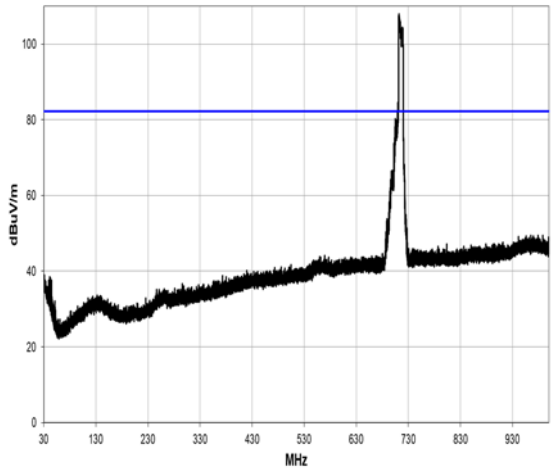
7 GHz to 18 GHz



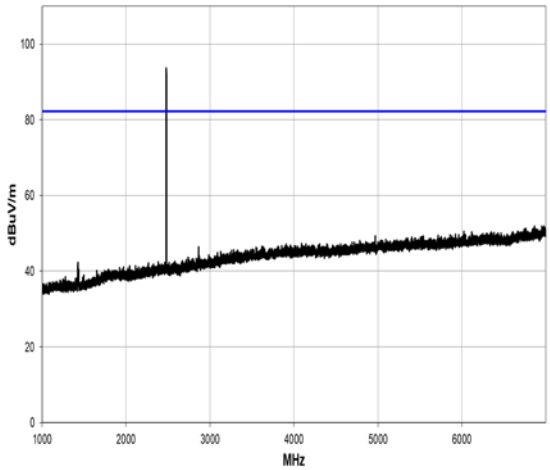
18 GHz to 26.5 GHz

UL ARFCN: 23010; FREQ: 699 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

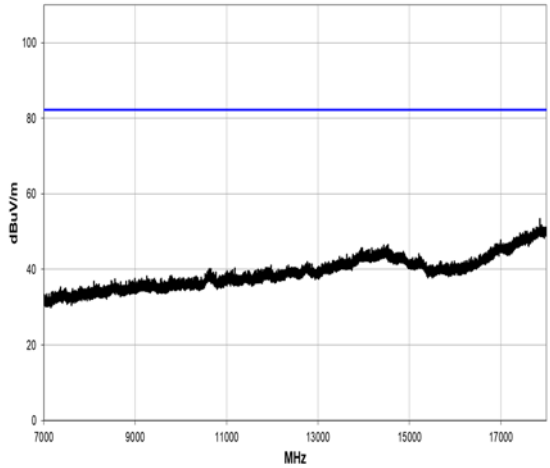
LTE BAND: 12; UL ARFCN: 23179; FREQ: 716 MHz + BLE 2480 MHz



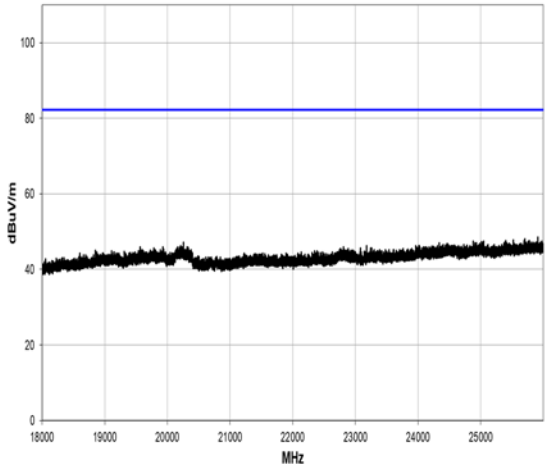
30 MHz to 1 GHz



1 GHz to 7 GHz



7 GHz to 18 GHz



18 GHz to 26.5 GHz

UL ARFCN: 23179; FREQ: 716 MHz + BLE 2480 MHz										
Detector	***Freq. (MHz)***	***Meas'd Emission (dBµV)***	***Cable Loss (dB)***	***Antenna Factor (dB/m)***	***Pre-amp Gain (dB)***	***Duty Cycle Corr'n (dB)***	***Distance Extrap'n Factor (dB)***	***Field Strength (dBµV/m)***	***Field Strength (µV/m)***	***Limit (µV/m)***
No significant intermodulation emissions										PASS

12 Measurement Uncertainty

Calculated Measurement Uncertainties

All statements of uncertainty are expanded standard uncertainty using a coverage factor of 1.96 to give a 95 % confidence:

[1] Radiated spurious emissions

Uncertainty in test result (30 MHz to 1 GHz) = **4.6 dB**
Uncertainty in test result (1 GHz to 18 GHz) = **4.7 dB**