RF Exposure Lab

802 N. Twin Oaks Valley Road, Suite 105 • San Marcos, CA 92069 • U.S.A.
TEL (760) 471-2100 • FAX (760) 471-2121
http://www.rfexposurelab.com

CERTIFICATE OF COMPLIANCE
SAR EVALUATION

Inseego		Dates of Test:	May 31-July 26, 2018 & Feb. 19-28, 2019
9645 Scranton Road, Suite 205		Test Report Number:	SAR.20190210
San Diego, CA 92121			Revision B

FCC ID:	PKRISGMIFI8000
IC Certificate:	3229A-MIFI8000
Model(s):	MIFI8000
Test Sample:	Engineering Unit Same as Production
FID Number:	AZ280418A00067, AZ80418A00039 & AT071218B00105
Equipment Type:	Wireless Hotspot Modem
Classification:	Portable Transmitter Next to Body
TX Frequency Range:	699 – 716 MHz, 777 – 787 MHz, 788 – 798 MHz, 814 – 848 MHz; 1710 – 1780 MHz; 1850 – 1915 MHz, 2300 -2400 MHz, 2496 – 2690 MHz, 3400 – 3700 MHz, 2412 – 2462 MHz, 5150 – 5250 MHz, 5745 – 5825 MHz
Frequency Tolerance:	± 2.5 ppm
Maximum RF Output:	750 MHz (LTE) – 24.0 dBm, 850 MHz (WCDMA) – 24.0 dBm, 850 MHz (LTE) – 24.0 dBm, 1750 MHz (WCDMA) – 24.0 dBm, 1750 MHz (LTE) – 24.0 dBm, 1900 MHz (WCDMA) – 24.0 dBm, 1900 MHz (LTE) – 24.0 dBm, 2300 MHz (LTE) – 24.0 dBm, 2500 MHz (LTE) – 25.0 dBm, 2600 MHz (LTE) – 23.0 dBm, 3600 MHz (LTE) – 24.0 dBm, 2450 MHz (b) – 18.0 dBm, 2450 MHz(g/n) – 15.0 dBm, 5100 MHz (an/ac) – 12.0 dBm, 5800 MHz (an/ac) – 20.0 dBm Conducted
Signal Modulation:	WCDMA, QPSK, 16QAM, DSSS, OFDM
Antenna Type:	WWAN – Novatel Wireless, P/N 12023237 (Ant0), P/N 12023239 (Ant1), P/N 12023241 (Ant3), P/N Itched on PCB (Ant2, Ant4, Ant5) WLAN – Novatel Wireless, P/N 12023243 (WLAN0), P/N 12023242 (WLAN1)
Application Type:	Certification
FCC Rule Parts:	Part 2, 15C, 15E, 22, 24, 27
KDB Test Methodology:	KDB 447498 D01 v06, KDB 248227 v02r02, KDB 941225 D01 v03r01, D02 v02r01, D05 v02r01 & D06 v01
Industry Canada:	RSS-102 Issue 5, Safety Code 6
Max. Stand Alone SAR Value:	1.44 W/kg Reported
Max. Simultaneous SAR Value:	0.04 Separation Ratio
Separation Distance:	10 mm

This wireless mobile and/or portable device has been shown to be compliant for localized specific absorption rate (SAR) for uncontrolled environment/general exposure limits specified in ANSI/IEEE Std. C95.1-1992 and had been tested in accordance with the measurement procedures specified in IEEE 1528-2013 and IEC 62209-2:2010 (See test report).

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

RF Exposure Lab, LLC certifies that no party to this application is subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 853(a).

Jay M. Moulton
Vice President

ACCREDITED
Testing Cert. # 2387.01

© 2019 RF Exposure Lab, LLC
This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Table of Contents

1. Introduction 3
SAR Definition [5] 4
2. SAR Measurement Setup 5
Robotic System 5
System Hardware 5
System Electronics 6
Probe Measurement System 6
3. Probe and Dipole Calibration 13
4. Phantom & Simulating Tissue Specifications 14
Head & Body Simulating Mixture Characterization 14
5. ANSI/IEEE C95.1 – 1992 RF Exposure Limits [2] 15
Uncontrolled Environment 15
Controlled Environment 15
6. Measurement Uncertainty 16
7. System Validation 17
Tissue Verification 17
Test System Verification 18
8. LTE Document Checklist 19
9. SAR Test Data Summary 25
Procedures Used To Establish Test Signal 25
Device Test Condition 25
Figure 10.1 26
10. FCC 3G Measurement Procedures 27
10.1 Procedures Used to Establish RF Signal for SAR 27
10.2 SAR Measurement Conditions for WCDMA/HSDPA/HSUPA 27
10.5 SAR Measurement Conditions for LTE Bands 48
SAR Data Summary – 750 MHz Body – LTE Band 12 144
SAR Data Summary – 750 MHz Body – LTE Band 17 145
SAR Data Summary – 750 MHz Body – LTE Band 13 146
SAR Data Summary – 750 MHz Body – LTE Band 14 147
SAR Data Summary – 835 MHz Body - WCDMA 148
SAR Data Summary – 835 MHz Body – LTE Band 5 149
SAR Data Summary – 835 MHz Body – LTE Band 26 150
SAR Data Summary – 1750 MHz Body - WCDMA 151
SAR Data Summary – 1750 MHz Body – LTE Band 66 152
SAR Data Summary – 1900 MHz Body - WCDMA 153
SAR Data Summary – 1900 MHz Body – LTE Band 2 154
SAR Data Summary – 1900 MHz Body – LTE Band 25 155
SAR Data Summary – 2300 MHz Body – LTE Band 30 156
SAR Data Summary – 2300 MHz Body – LTE Band 40 157
SAR Data Summary – 2550 MHz Body – LTE Band 7 158
SAR Data Summary – 2500 MHz Body – LTE Band 41 159
SAR Data Summary – 3500 MHz Body – LTE Band 42 160
SAR Data Summary – 3600 MHz Body – LTE Band 48 161
SAR Data Summary – 2450 MHz Body 802.11b 162
SAR Data Summary – 5200 MHz Body 802.11a 163
SAR Data Summary – 5800 MHz Body 802.11a 164
SAR Data Summary – Simultaneous Transmit (Worst Case) Ant 0 – WiFi 165
SAR Data Summary – Simultaneous Transmit (Worst Case) Ant 2 – WiFi 166
SAR Data Summary – Simultaneous Transmit (Worst Case) Ant 4 – WiFi 167
SAR Data Summary – Simultaneous Transmit (Uplink CA) 168
11. Test Equipment List 169
12. Conclusion 170
13. References 171
Appendix A – System Validation Plots and Data 172
Appendix B – SAR Test Data Plots 223
Appendix C – SAR Test Setup Photos 249
Appendix D – Probe Calibration Data Sheets 258
Appendix E – Dipole Calibration Data Sheets 308
Appendix F – Phantom Calibration Data Sheets 437
Appendix G – Validation Summary 439

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

1. Introduction

This measurement report shows compliance of the Inseego Model MIFI8000 FCC ID: PKRISGMIFI8000 with FCC Part 2, 1093, ET Docket 93-62 Rules for mobile and portable devices and IC Certificate: 3229A-MIFI8000 with RSS102 Issue 5 & Safety Code 6. The FCC has adopted the guidelines for evaluating the environmental effects of radio frequency radiation in ET Docket 93-62 on August 6, 1996 to protect the public and workers from the potential hazards of RF emissions due to FCC regulated portable devices. [1], [6]

The test results recorded herein are based on a single type test of Inseego Model MIFI8000 and therefore apply only to the tested sample.

The test procedures, as described in ANSI C95.1 – 1999 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz [2], ANSI C95.3 – 2002 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields [3], IEEE Std.1528 – 2013 Recommended Practice [4], and Industry Canada Safety Code 6 Limits of Human Exposure to Radiofrequency Electromagnetic Fields in the Frequency Range from 3kHz to 300 GHz were employed.

The following table indicates all the wireless technologies operating in the MIFI8000 wireless modem. The table also shows the tolerance for the power level for each mode.

Band	Technology	Class	3GPP Nominal Power dBm	Calibrated Nominal Power dBm	Tolerance dBm	Lower Tolerance dBm	Upper Tolerance dBm
Band 2 – 1900 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 4 – 1750 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 5 – 835 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 7 – 2550 MHz	LTE	3	23.0	22.5	+0.5/-1.2	21.3	23.0
Band 12 – 750 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 13 – 750 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 14 – 750 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 17 – 750 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 25 – 1900 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 26 – 835 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 30 – 2300 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 40 – 2300 MHz TDD	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 41 – 2600 MHz TDD	LTE	2 & 3	23.0	24.0	+1.0/-1.7	22.3	25.0
Band 42 – 3500 MHz TDD	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 66 – 1750 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 48 – 3600 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 2 – 1900 MHz	WCDMA/HSPA	3	23.0	23.0	+1.0/-2.0	21.0	24.0
Band 4 – 1750 MHz	WCDMA/HSPA	3	23.0	23.0	+1.0/-2.0	21.0	24.0
Band 5 – 850 MHz	WCDMA/HSPA	3	23.0	23.0	+1.0/-2.0	21.0	24.0
WLAN – 2.4 GHz	802.11b	N/A	N/A	14.0	±4.0	10.0	18.0
WLAN – 2.4 GHz	802.11g/n	N/A	N/A	11.0	±4.0	7.0	15.0
WLAN – 5.2 GHz	802.11an/ac	N/A	N/A	8.0	±4.0	4.0	12.0
WLAN – 5.8 GHz	802.11an/ac	N/A	N/A	16.0	±4.0	12.0	20.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

SAR Definition [5]

Specific Absorption Rate is defined as the time derivative (rate) of the incremental energy (*dW*) absorbed by (dissipated in) an incremental mass (*dm*) contained in a volume element (*dV*) of a given density (ρ).

$$SAR = \frac{d}{dt}\left(\frac{dW}{dm}\right) = \frac{d}{dt}\left(\frac{dW}{\rho dV}\right)$$

SAR is expressed in units of watts per kilogram (W/kg). *SAR* can be related to the electric field at a point by

$$SAR = \frac{\sigma \mid E \mid^2}{\rho}$$

where:

σ = conductivity of the tissue (S/m)

ρ = mass density of the tissue (kg/m^3)

E = rms electric field strength (V/m)

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

2. SAR Measurement Setup

Robotic System

These measurements are performed using the DASY52 automated dosimetric assessment system. The DASY52 is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland and consists of high precision robotics system (Staubli), robot controller, Intel Core2 computer, near-field probe, probe alignment sensor, and the generic twin phantom containing the brain equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF) (see Fig. 2.1).

System Hardware

A cell controller system contains the power supply, robot controller teach pendant (Joystick), and a remote control used to drive the robot motors. The PC consists of the HP Intel Core2 computer with Windows XP system and SAR Measurement Software DASY52, A/D interface card, monitor, mouse, and keyboard. The Staubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit that performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

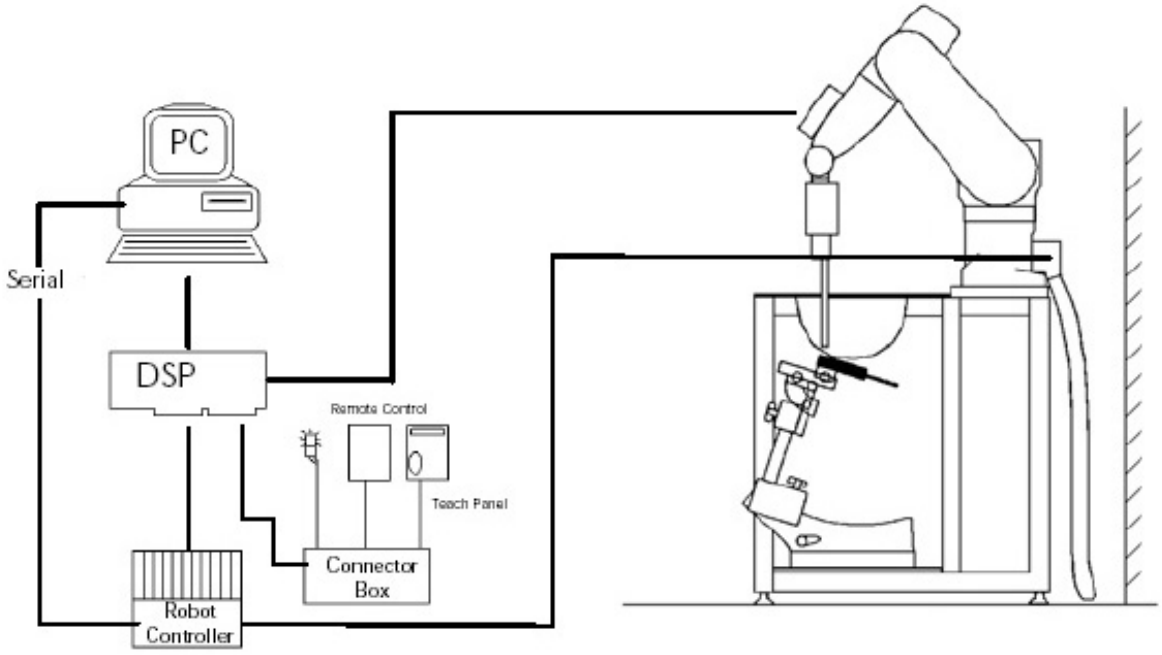


Figure 2.1 SAR Measurement System Setup

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

System Electronics

The DAE4 consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer. The system is described in detail in.

Probe Measurement System

The SAR measurements were conducted with the dosimetric probe EX3DV4, designed in the classical triangular configuration (see Fig. 2.2) and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multi fiber line ending at the front of the probe tip. (see Fig. 2.3) It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY52 software reads the reflection during a software approach and looks for the maximum using a 2nd order fitting. The approach is stopped at reaching the maximum.

DAE System

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Probe Specifications

Calibration: In air from 10 MHz to 6.0 GHz
In brain and muscle simulating tissue at Frequencies of 450 MHz, 835 MHz, 1750 MHz, 1900 MHz, 2450 MHz, 2600 MHz, 3500 MHz, 5200 MHz, 5300 MHz, 5600 MHz, 5800 MHz

Frequency: 10 MHz to 6 GHz

Linearity: ±0.2dB (30 MHz to 6 GHz)

Dynamic: 10 mW/kg to 100 W/kg

Range: Linearity: ±0.2dB

Dimensions: Overall length: 330 mm

Tip length: 20 mm

Body diameter: 12 mm

Tip diameter: 2.5 mm

Distance from probe tip to sensor center: 1 mm

Application: SAR Dosimetry Testing
Compliance tests of wireless device

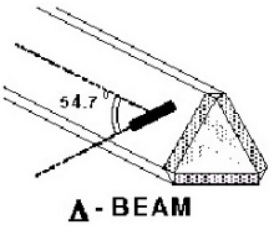


Figure 2.2 Triangular Probe Configurations

Figure 2.3 Probe Thick-Film Technique

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Probe Calibration Process

Dosimetric Assessment Procedure

Each probe is calibrated according to a dosimetric assessment procedure described in with accuracy better than +/- 10%. The spherical isotropy was evaluated with the procedure described in and found to be better than +/-0.25dB. The sensitivity parameters (Norm X, Norm Y, Norm Z), the diode compression parameter (DCP) and the conversion factor (Conv F) of the probe is tested.

Free Space Assessment

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies below 1 GHz, and in a waveguide above 1GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity at the proper orientation with the field. The probe is then rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1 mW/cm^2.

Temperature Assessment *

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium, correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor based temperature probe is used in conjunction with the E-field probe

$$SAR = C\frac{\Delta T}{\Delta t} \qquad SAR = \frac{|E|^2 \cdot \sigma}{\rho}$$

where:

Δt = exposure time (30 seconds),

C = heat capacity of tissue (brain or muscle),

ΔT = temperature increase due to RF exposure.

where:

σ = simulated tissue conductivity,

ρ = Tissue density (1.25 g/cm^3 for brain tissue)

SAR is proportional to ΔT / Δt , the initial rate of tissue heating, before thermal diffusion takes place.
Now it's possible to quantify the electric field in the simulated tissue by equating the thermally derived SAR to the E- field;

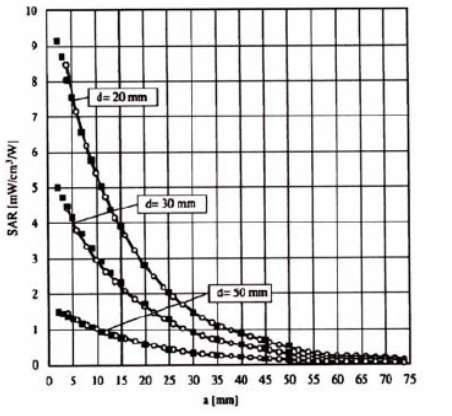


Figure 2.4 E-Field and Temperature Measurements at 900MHz

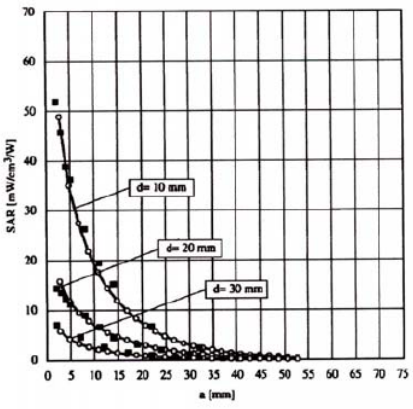


Figure 2.5 E-Field and Temperature Measurements at 1800MHz

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Data Extrapolation

The DASY52 software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given like below;

$$V_i = U_i + U_i^2 \cdot \frac{cf}{dcp_i}$$

with
- V_i = compensated signal of channel i (i=x,y,z)
- U_i = input signal of channel i (i=x,y,z)
- cf = crest factor of exciting field (DASY parameter)
- dcp_i = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes:

$$E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}$$

with
- V_i = compensated signal of channel i (i = x,y,z)
- $Norm_i$ = sensor sensitivity of channel i (i = x,y,z) $\mu V/(V/m)^2$ for E-field probes
- ConvF = sensitivity of enhancement in solution
- E_i = electric field strength of channel i in V/m

The RSS value of the field components gives the total field strength (Hermetian magnitude):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

$$SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1000}$$

with
- SAR = local specific absorption rate in W/g
- E_{tot} = total field strength in V/m
- σ = conductivity in [mho/m] or [Siemens/m]
- ρ = equivalent tissue density in g/cm^3

The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{pwe} = \frac{E_{tot}^2}{3770}$$

with
- P_{pwe} = equivalent power density of a plane wave in W/cm^2
- E_{tot} = total electric field strength in V/m

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Scanning procedure

- The DASY installation includes predefined files with recommended procedures for measurements and system check. They are read-only document files and destined as fully defined but unmeasured masks. All test positions (head or body-worn) are tested with the same configuration of test steps differing only in the grid definition for the different test positions.

- The „reference“ and „drift“ measurements are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the DUT's output power and should vary max. +/- 5 %.

- The highest integrated SAR value is the main concern in compliance test applications. These values can mostly be found at the inner surface of the phantom and cannot be measured directly due to the sensor offset in the probe. To extrapolate the surface values, the measurement distances to the surface must be known accurately. A distance error of 0.5mm could produce SAR errors of 6% at 1800 MHz. Using predefined locations for measurements is not accurate enough. Any shift of the phantom (e.g., slight deformations after filling it with liquid) would produce high uncertainties. For an automatic and accurate detection of the phantom surface, the DASY5 system uses the mechanical surface detection. The detection is always at touch, but the probe will move backward from the surface the indicated distance before starting the measurement.

- The „area scan“ measures the SAR above the DUT or verification dipole on a parallel plane to the surface. It is used to locate the approximate location of the peak SAR with 2D spline interpolation. The robot performs a stepped movement along one grid axis while the local electrical field strength is measured by the probe. The probe is touching the surface of the SAM during acquisition of measurement values. The scan uses different grid spacings for different frequency measurements. Standard grid spacing for head measurements in frequency ranges≤ 2GHz is 15 mm in x - and y-dimension. For higher frequencies a finer resolution is needed, thus for the grid spacing is reduced according the following table:

Area scan grid spacing for different frequency ranges	
Frequency range	Grid spacing
≤ 2 GHz	≤ 15 mm
2 – 4 GHz	≤ 12 mm
4 – 6 GHz	≤ 10 mm

Grid spacing and orientation have no influence on the SAR result. For special applications where the standard scan method does not find the peak SAR within the grid, e.g. mobile phones with flip cover, the grid can be adapted in orientation. Results of this coarse scan are shown in annex B.

- A „zoom scan” measures the field in a volume around the 2D peak SAR value acquired in the previous „coarse“ scan. It uses a fine meshed grid where the robot moves the probe in steps along all the 3 axis (x,y and z-axis) starting at the bottom of the Phantom. The grid spacing for the cube measurement is varied according to the measured frequency range, the dimensions are given in the following table:

Zoom scan grid spacing and volume for different frequency ranges			
Frequency range	Grid spacing for x, y axis	Grid spacing for z axis	Minimum zoom scan volume
≤ 2 GHz	≤ 8 mm	≤ 5 mm	≥ 30 mm
2 – 3 GHz	≤ 5 mm	≤ 5 mm	≥ 28 mm
3 – 4 GHz	≤ 5 mm	≤ 4 mm	≥ 28 mm
4 – 5 GHz	≤ 4 mm	≤ 3 mm	≥ 25 mm
5 – 6 GHz	≤ 4 mm	≤ 2 mm	≥ 22 mm

DASY is also able to perform repeated zoom scans if more than 1 peak is found during area scan. In this document, the evaluated peak 1g and 10g averaged SAR values are shown in the 2D-graphics in annex B. Test results relevant for the specified standard (see section 3) are shown in table form in section 7.

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Spatial Peak SAR Evaluation

The spatial peak SAR - value for 1 and 10 g is evaluated after the Cube measurements have been done. The basis of the evaluation are the SAR values measured at the points of the fine cube grid consisting of all points in the three directions x, y and z. The algorithm that finds the maximal averaged volume is separated into three different stages.

- The data between the dipole center of the probe and the surface of the phantom are extrapolated. This data cannot be measured since the center of the dipole is 1 to 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is about 1 mm (see probe calibration sheet). The extrapolated data from a cube measurement can be visualized by selecting 'Graph Evaluated'.

- The maximum interpolated value is searched with a straight-forward algorithm. Around this maximum the SAR - values averaged over the spatial volumes (1g or 10 g) are computed using the 3d-spline interpolation algorithm. If the volume cannot be evaluated (i.e., if a part of the grid was cut off by the boundary of the measurement area) the evaluation will be started on the corners of the bottom plane of the cube.

- All neighbouring volumes are evaluated until no neighbouring volume with a higher average value is found.

Extrapolation

The extrapolation is based on a least square algorithm [W. Gander, Computermathematik, p.168-180]. Through the points in the first 3 cm along the z-axis, polynomials of order four are calculated. These polynomials are then used to evaluate the points between the surface and the probe tip. The points, calculated from the surface, have a distance of 1 mm from each other.

Interpolation

The interpolation of the points is done with a 3d-Spline. The 3d-Spline is composed of three one-dimensional splines with the "Not a knot"-condition [W. Gander, Computermathematik, p.141-150] (x, y and z -direction) [Numerical Recipes in C, Second Edition, p.123ff].

Volume Averaging

At First the size of the cube is calculated. Then the volume is integrated with the trapezoidal algorithm. 8000 points (20x20x20) are interpolated to calculate the average.

Advanced Extrapolation

DASY uses the advanced extrapolation option which is able to compensate boundary effects on E-field probes.

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

SAM PHANTOM

The SAM Twin Phantom V4.0 is constructed of a fiberglass shell integrated in a wooden table. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90% of all users. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot. (see Fig. 2.6)

Phantom Specification

Phantom: SAM Twin Phantom (V4.0)
Shell Material: Vivac Composite
Thickness: 2.0 ± 0.2 mm

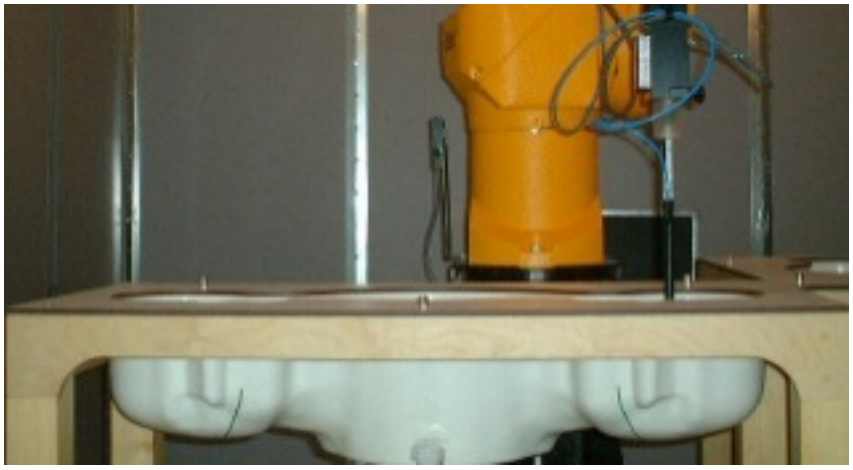


Figure 2.6 SAM Twin Phantom

Device Holder for Transmitters

In combination with the SAM Twin Phantom V4.0 the Mounting Device (see Fig. 2.7), enables the rotation of the mounted transmitter in spherical coordinates whereby the rotation point is the ear opening. The devices can be easily, accurately, and repeat ably be positioned according to the FCC, CENELEC, IEC and IEEE specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).

Figure 2.7 Mounting Device

Note: A simulating human hand is not used due to the complex anatomical and geometrical structure of the hand that may produce infinite number of configurations. To produce the worst-case condition (the hand absorbs antenna output power), the hand is omitted during the tests.

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

3. Probe and Dipole Calibration

See Appendix D and E.

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

4. Phantom & Simulating Tissue Specifications

Head & Body Simulating Mixture Characterization

The head and body mixtures consist of the material based on the table listed below. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the desired tissue. Body tissue parameters that have not been specified in IEEE1528 – 2013 are derived from the issue dielectric parameters computed from the 4-Cole-Cole equations.

Table 4.1 Typical Composition of Ingredients for Tissue

Ingredients		Simulating Tissue							
		750 MHz Body	835 MHz Body	1900 MHz Body	2300 MHz Body	2450 MHz Body	1750 MHz Body	2550 MHz Body	3-5 GHz Body
Mixing Percentage									
Water		Proprietary Purchased From Speag	52.50	69.91	Proprietary Purchased From Speag	73.20	Proprietary Purchased From Speag	Proprietary Purchased From Speag	Proprietary Purchased From Speag
Sugar			45.00	0.00		0.00			
Salt			1.40	0.13		0.10			
HEC			1.00	0.00		0.00			
Bactericide			0.10	0.00		0.00			
DGBE			0.00	29.96		26.70			
Dielectric Constant	Target	55.50	55.20	53.30	52.90	52.70	53.4	52.57	Various
Conductivity (S/m)	Target	0.96	0.97	1.52	1.81	1.95	1.49	2.09	Various

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

5. ANSI/IEEE C95.1 – 1992 RF Exposure Limits [2]

Uncontrolled Environment

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.

Controlled Environment

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Table 5.1 Human Exposure Limits

	UNCONTROLLED ENVIRONMENT General Population (W/kg) or (mW/g)	CONTROLLED ENVIROMENT Professional Population (W/kg) or (mW/g)
SPATIAL PEAK SAR[1] Head	1.60	8.00
SPATIAL AVERAGE SAR[2] Whole Body	0.08	0.40
SPATIAL PEAK SAR[3] Hands, Feet, Ankles, Wrists	4.00	20.00

[1] The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
[2] The Spatial Average value of the SAR averaged over the whole body.
[3] The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

6. Measurement Uncertainty

Measurement uncertainty table is not required per KDB 865664 D01 v01r04 section 2.8.2 page 12. SAR measurement uncertainty analysis is required in the SAR report only when the highest measured SAR in a frequency band is ≥ 1.5 W/kg for 1-g SAR. The equivalent ratio (1.5/1.6) should be applied to extremity and occupational exposure conditions. The highest reported value is less than 1.5 W/kg. Therefore, the measurement uncertainty table is not required.

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

7. System Validation

Tissue Verification

Table 7.1 Measured Tissue Parameters

		750 MHz Body		750 MHz Body		750 MHz Body	
Date(s)		June 6, 2018		July 26, 2018		Feb. 19, 2019	
Liquid Temperature (˚C)	20.0	Target	Measured	Target	Measured	Target	Measured
Dielectric Constant: ε		55.53	55.57	55.53	55.38	55.53	55.38
Conductivity: σ		0.96	0.99	0.96	0.98	0.96	0.99
		835 MHz Body		835 MHz Body		1750 MHz Body	
Date(s)		June 1, 2018		Feb. 18, 2019		June 5, 2018	
Liquid Temperature (˚C)	20.0	Target	Measured	Target	Measured	Target	Measured
Dielectric Constant: ε		55.20	55.91	55.20	54.73	53.43	53.32
Conductivity: σ		0.97	0.99	0.97	0.99	1.49	1.52
		1750 MHz Body		1750 MHz Body		1900 MHz Body	
Date(s)		July 26, 2018		Feb. 21, 2019		May 31, 2018	
Liquid Temperature (˚C)	20.0	Target	Measured	Target	Measured	Target	Measured
Dielectric Constant: ε		53.43	53.27	53.43	52.68	53.30	52.07
Conductivity: σ		1.49	1.51	1.49	1.53	1.52	1.47
		1900 MHz Body		1900 MHz Body		2300 MHz Body	
Date(s)		July 26, 2018		Feb 27, 2019		Feb. 14, 2019	
Liquid Temperature (˚C)	20.0	Target	Measured	Target	Measured	Target	Measured
Dielectric Constant: ε		53.30	53.17	53.30	52.31	52.90	52.63
Conductivity: σ		1.52	1.54	1.52	1.56	1.81	1.84
		2550 MHz Body		2550 MHz Body		3500 MHz Body	
Date(s)		July 9, 2018		Feb. 25, 2019		June 11, 2018	
Liquid Temperature (˚C)	20.0	Target	Measured	Target	Measured	Target	Measured
Dielectric Constant: ε		52.57	52.47	52.57	52.18	51.32	51.23
Conductivity: σ		2.09	2.12	2.09	2.11	3.32	3.35
		3500 MHz Body		3700 MHz Body		2450 MHz Body	
Date(s)		Feb. 25, 2019		June 11, 2018		July 2, 2018	
Liquid Temperature (˚C)	20.0	Target	Measured	Target	Measured	Target	Measured
Dielectric Constant: ε		51.32	51.11	51.05	50.92	52.70	52.77
Conductivity: σ		3.32	3.34	3.55	3.57	1.95	1.92
		5200 MHz Body		5800 MHz Body			
Date(s)		June 28, 2018		June 28, 2018			
Liquid Temperature (˚C)	20.0	Target	Measured	Target	Measured		
Dielectric Constant: ε		49.01	49.07	48.20	48.17		
Conductivity: σ		5.30	5.21	6.00	5.99		

See Appendix A for data printout.

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Test System Verification

Prior to assessment, the system is verified to the ±10% of the specifications at the test frequency by using the system kit. Power is normalized to 1 watt. (Graphic Plots Attached)

Table 7.2 System Dipole Validation Target & Measured

	Test Frequency	Targeted SAR_{1g} (W/kg)	Measure SAR_{1g} (W/kg)	Tissue Used for Verification	Deviation (%)	Plot Number
06-Jun-2018	750 MHz	8.47	8.65	Body	+ 2.13	1
26-Jul-2018	750 MHz	8.47	8.52	Body	+ 0.59	2
19-Feb-2019	750 MHz	8.55	8.59	Body	+ 0.47	3
01-Jun-2018	835 MHz	9.28	9.53	Body	+ 2.69	4
18-Feb-2019	835 MHz	9.57	9.63	Body	+ 0.63	5
05-Jun-2018	1750 MHz	37.70	38.50	Body	+ 2.12	6
26-Jul-2018	1750 MHz	37.70	38.10	Body	+ 1.06	7
21-Feb-2019	1750 MHz	36.50	36.90	Body	+ 1.10	8
31-May-2018	1900 MHz	40.40	39.80	Body	- 1.49	9
26-Jul-2018	1900 MHz	40.40	40.20	Body	- 0.50	10
27-Feb-2019	1900 MHz	39.90	40.60	Body	+ 1.75	11
14-Feb-2019	2300 MHz	47.30	48.20	Body	+ 1.90	12
09-Jul-2018	2550 MHz	54.80	54.10	Body	- 1.28	13
25-Feb-2019	2550 MHz	52.40	53.30	Body	+ 1.72	14
11-Jun-2018	3500 MHz	65.10	65.50	Body	+ 0.61	15
25-Feb-2019	3500 MHz	65.10	65.70	Body	+ 0.92	16
11-Jun-2018	3700 MHz	65.50	65.90	Body	+ 0.61	17
27-Jul-2016	2450 MHz	52.10	52.20	Body	+ 0.19	18
28-Jul-2016	5200 MHz	77.40	81.30	Body	+ 5.04	19
28-Jul-2016	5800 MHz	78.80	79.90	Body	+ 1.40	20

See Appendix A for data plots.

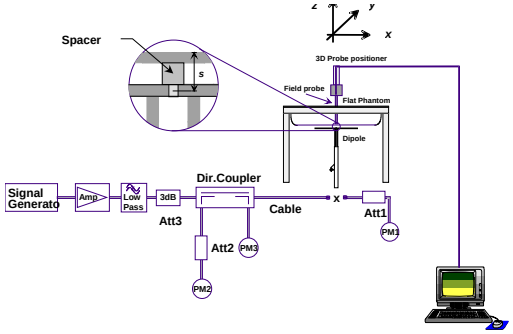


Figure 7.1 Dipole Validation Test Setup

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

8. LTE Document Checklist

1) Identify the operating frequency range of each LTE transmission band used by the device

LTE Operating Band	Uplink (transmit) Low - high	Downlink (Receive) Low - high	Duplex mode (FDD/TDD)
2	1850-1910	1930-1990	FDD
4	1710-1755	2110-2155	FDD
5	824-849	869-894	FDD
7	2500-2570	2620-2690	FDD
12	699-716	729-746	FDD
13	777-787	746-756	FDD
14	788-798	758-768	FDD
17	704-716	734-746	FDD
25	1850-1915	1930-1995	FDD
26	814-849	859-894	FDD
30	2305-2315	2350-2360	FDD
40	2300-2400	2300-2400	TDD
41	2496-2690	2496-2690	TDD
42	3400-3600	3400-3600	TDD
48	3550-3700	3550-3700	TDD
66	1710-1780	2110-2200	FDD

2) Identify the channel bandwidths used in each frequency band; 1.4, 3, 5, 10, 15, 20 MHz etc

LTE Band Class	Bandwidth (MHz)	Frequency or Freq. Band (MHz)
2	1.4, 3, 5, 10, 15, 20	1850-1910 MHz
4	1.4, 3, 5, 10, 15, 20	1710-1755 MHz
5	1.4, 3, 5, 10	824-849 MHz
7	5,10,15,20	2500-2570 MHz
12	1.4, 3, 5, 10	699-716 MHz
13	5, 10	777-787 MHz
14	5, 10	788-798 MHz
17	5, 10	704-716 MHz
25	1.4, 3, 5, 10, 15, 20	1850-1915 MHz
26	1.4, 3, 5, 10, 15	814-849 MHz
30	5, 10	2305-2315 MHz
40	5, 10, 15, 20	2300-2400 MHz
41	5, 10, 15, 20	2496-2690 MHz
42	5, 10, 15, 20	3400-3600 MHz
48	5, 10, 15, 20	3550-3700 MHz
66	1.4, 3, 5, 10, 15, 20	1710-1780 MHz

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

3) Identify the high, middle and low (H, M, L) channel numbers and frequencies in each LTE frequency band

LTE Band Class	Bandwidth (MHz)	Frequency (MHz)/Channel #					
		Low		Mid		High	
2	1.4	1850.7	18607	1880.0	18900	1909.3	19193
2	3	1851.5	18615	1880.0	18900	1908.5	19185
2	5	1852.5	18625	1880.0	18900	1907.5	19175
2	10	1855.0	18650	1880.0	18900	1905.0	19150
2	15	1857.5	18675	1880.0	18900	1902.5	19125
2	20	1860.0	18700	1880.0	18900	1900.0	19100
4	1.4	1710.7	19957	1732.5	20175	1754.3	20393
4	3	1711.5	19965	1732.5	20175	1753.5	20385
4	5	1712.5	19975	1732.5	20175	1752.5	20375
4	10	1715.0	20000	1732.5	20175	1750.0	20350
4	15	1717.5	20025	1732.5	20175	1747.5	20325
4	20	1720.0	20050	1732.5	20175	1745.0	20300
5	1.4	824.7	20407	836.5	20525	848.3	20643
5	3	825.5	20415	836.5	20525	847.5	20635
5	5	826.5	20425	836.5	20525	846.5	20625
5	10	829.0	20450	836.5	20525	844.0	20600
7	5	2502.5	20775	2535.0	21100	2567.5	21425
7	10	2505.0	20800	2535.0	21100	2565.0	21400
7	15	2507.5	20825	2535.0	21100	2562.5	21375
7	20	2510.0	20850	2535.0	21100	2560.0	21350
12	1.4	699.7	23017	707.5	23095	715.3	23173
12	3	700.5	23025	707.5	23095	714.5	23165
12	5	701.5	23035	707.5	23095	713.5	23155
12	10	704.0	23060	707.5	23095	711.0	23129
13	5	779.5	23205	782.0	23230	784.5	23225
13	10	-----	-----	782.0	23230	-----	-----
14	5	790.5	23305	793.0	23330	795.5	23355
14	10	-----	-----	793.0	23330	-----	-----
17	5	706.5	23755	710.0	23790	713.5	23824
17	10	709.0	23780	710.0	23790	711.0	23799
25	1.4	1850.7	26047	1882.5	26365	1914.3	26683
25	3	1851.5	26055	1882.5	26365	1913.5	26675
25	5	1852.5	26065	1882.5	26365	1912.5	26665
25	10	1855.0	26090	1882.5	26365	1910.0	26640
25	15	1857.5	26115	1882.5	26365	1907.5	26615
25	20	1860.0	26140	1882.5	26365	1905.0	26590
26	1.4	814.7	26697	831.5	26865	848.3	27033
26	3	815.5	26705	831.5	26865	847.5	27025
26	5	816.5	26715	831.5	26865	846.5	27015
26	10	819.0	26740	831.5	26865	844.0	26990
26	15	821.5	24765	831.5	26865	841.5	26995
30	5	2307.5	27685	2310	27710	2312.5	27735
30	10	-----	-----	2310	27710	-----	-----
40	5	2302.5	38675	2350.0	39150	2397.5	39625
40	10	2305.0	38700	2350.0	39150	2395.0	39600
40	15	2307.5	38725	2350.0	39150	2392.5	39575
40	20	2310.0	38750	2350.0	39150	2390.0	39550

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

LTE Band Class	Bandwidth (MHz)	Frequency (MHz)/Channel #					
		Low		Mid		High	
41	5	2498.5	39675	2593	40620	2687.5	41565
41	10	2501.0	39700	2593	40620	2685.0	41540
41	15	2503.5	39725	2593	40620	2682.5	41515
41	20	2506.0	39750	2593	40620	2680.0	41490
42	5	3402.5	41615	3500.0	42590	3597.5	43565
42	10	3405.0	41640	3500.0	42590	3595.0	43540
42	15	3207.5	41665	3500.0	42590	3592.5	43515
42	20	3410.0	41690	3500.0	42590	3590.0	43490
48	5	3552.5	55265	3526.0	55990	3697.5	56715
48	10	3555.0	55290	3526.0	55990	3695.0	56690
48	15	3557.5	55315	3526.0	55990	3692.5	56665
48	20	3560.0	55340	3526.0	55990	3690.0	56640
66	5	1712.5	131997	1755.0	132422	1777.4	132646
66	10	1716.1	132033	1755.0	132422	1774.9	132621
66	15	1717.5	132047	1755.0	132422	1772.4	132596
66	20	1720.0	132072	1755.0	132422	1769.9	132571

4) Specify the UE category and uplink modulations used:
   - UE Category: 3
   - Uplink modulations: QPSK and 16QAM

5) Include descriptions of the LTE transmitter and antenna implementation; and also identify whether it is a standalone transmitter operating independently of other wireless transmitters in the device or sharing hardware components and/or antenna(s) with other transmitters etc

   The MIFI8000 has 8 antennas:
   - #0 WWAN Antenna (Transmit and Receive) Antenna (B2, B4, B5, B12, B13, B14, B17, B25, B26, B66)
   - #1 WWAN Antenna (Receive Only)
   - #2 WWAN Antenna (B7, B30, B40, B41)
   - #3 WWAN Antenna (Receive Only)
   - #4 WWAN Antenna (B42, B48)
   - #5 WWAN Antenna (Receive Only)
   - #6 WLAN0 (Transmit and Receive)
   - #7 WLAN1 (Transmit and Receive)

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Transmission relationship

- All transmission (TX) is limited to the WWAN and WLAN antennas only
- The device is unable to transmit WCDMA/HSPA and LTE simultaneously.
- The Diversity antenna is receive only antenna which is reserved for the WWAN operation.
- Rx is simultaneous
- Simultaneous Tx with the WWAN and WLAN is allows active.

Antenna port	WCDMA/HSPA		LTE		802.11 b/g/n		GPS
	TX	RX	TX	RX	TX	RX	RX
#0 WWAN Antenna	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No
#1 WWAN Antenna	No	No	No	**Yes**	No	No	No
#2 WWAN Antenna	No	No	**Yes**	**Yes**	No	No	No
#3 WWAN Antenna	No	No	No	**Yes**	No	No	No
#4 WWAN Antenna	No	No	**Yes**	**Yes**	No	No	No
#5 WWAN Antenna	No	No	No	**Yes**	No	No	No
#6 WLAN Main	No	No	No	No	**Yes**	**Yes**	No
#7 WLAN Aux	No	No	No	No	**Yes**	**Yes**	No

6) Identify the LTE voice/data requirements in each operating mode and exposure condition with respect to head and body test configurations, antenna locations, handset flip-cover or slide positions, antenna diversity conditions etc

The MIFI8800L is a data only hotspot device. Data mode was tested in each operating mode and exposure condition in the body configuration. See test setup photos to see all configurations tested.

7) Identify if Maximum Power Reduction (MPR) is optional or mandatory, i.e. built-in by design:

a) Only mandatory MPR may be considered during SAR testing, when the maximum output power is permanently limited by the MPR implemented within the UE; and only for the applicable RB (resource block) configurations specified in LTE standards

MPR is mandatory, built-in by design on all production units. It was enabled during testing.

Modulation	Channel Bandwidth/transmission Bandwidth Configuration (RB)						MPR (dB)
	1.4 MHz	3.0 MHZ	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

b) A-MPR (additional MPR) must be disabled
c) A-MPR was disabled during testing.

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

8) Include the maximum average conducted output power measured on the required test channels for each channel bandwidth and UL modulation used in each frequency band:

The maximum average conducted output power measured for the testing is listed on pages 49-99 of this report. The below table shows the factory set point with the allowable tolerance.

Band	Technology	Class	3GPP Nominal Power dBm	Calibrated Nominal Power dBm	Tolerance dBm	Lower Tolerance dBm	Upper Tolerance dBm
Band 2 – 1900 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 4 – 1750 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 5 – 835 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 7 – 2550 MHz	LTE	3	23.0	22.5	+0.5/-1.2	21.3	23.0
Band 12 – 750 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 13 – 750 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 14 – 750 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 17 – 750 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 25 – 1900 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 26 – 835 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 30 – 2300 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 40 – 2300 MHz TDD	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 41 – 2600 MHz TDD	LTE	3	23.0	24.0	+1.0/-1.7	22.3	25.0
Band 42 – 3500 MHz TDD	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 66 – 1750 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0
Band 48 – 3600 MHz	LTE	3	23.0	23.0	+1.0/-1.7	21.3	24.0

9) Identify all other U.S. wireless operating modes (3G, Wi-Fi, WiMax, Bluetooth etc), device/exposure configurations (head and body, antenna and handset flip-cover or slide positions, antenna diversity conditions etc.) and frequency bands used for these modes

Other wireless modes:

Band	Technology	Class	3GPP Nominal Power dBm	Calibrated Nominal Power dBm	Tolerance dBm	Lower Tolerance dBm	Upper Tolerance dBm
Band 2 – 1900 MHz	WCDMA/HSPA	3	23.0	23.0	+1.0/-2.0	21.0	24.0
Band 4 – 1750 MHz	WCDMA/HSPA	3	23.0	23.0	+1.0/-2.0	21.0	24.0
Band 5 – 850 MHz	WCDMA/HSPA	3	23.0	23.0	+1.0/-2.0	21.0	24.0
WLAN – 2.4 GHz	802.11b	N/A	N/A	14.0	±4.0	10.0	18.0
WLAN – 2.4 GHz	802.11g/n	N/A	N/A	11.0	±4.0	7.0	15.0
WLAN – 5.2 GHz	802.11an/ac	N/A	N/A	8.0	±4.0	4.0	12.0
WLAN – 5.8 GHz	802.11an/ac	N/A	N/A	16.0	±4.0	12.0	20.0

10) Include the maximum average conducted output power measured for the other wireless modes and frequency bands.

The maximum average conducted output power measured for the testing is listed on pages 28-40 of this report. The table in item 9 shows the factory set point with the allowable tolerance.

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

11) Identify the simultaneous transmission conditions for the voice and data configurations supported by all wireless modes, device configurations and frequency bands, for the head and body exposure conditions and device operating configurations (handset flip or cover positions, antenna diversity conditions etc.)

The device is unable to transmit WCDMA and LTE simultaneously.

The MIFI8000 is able to transmit WWAN and WLAN simultaneously.

TX Modes	WCDMA	LTE	802.11 b/g/n
1	**ON**	OFF	**ON**
2	OFF	**ON**	**ON**

12) When power reduction is applied to certain wireless modes to satisfy SAR compliance for simultaneous transmission conditions, other equipment certification or operating requirements, include the maximum average conducted output power measured in each power reduction mode applicable to the simultaneous voice/data transmission configurations for such wireless configurations and frequency bands; and also include details of the power reduction implementation and measurement setup

Power reduction is not required to satisfy SAR compliance.

13) Include descriptions of the test equipment, test software, built-in test firmware etc. required to support testing the device when power reduction is applied to one or more transmitters/antennas for simultaneous voice/data transmission

Power reduction is not required to satisfy SAR compliance.

14) When appropriate, include a SAR test plan proposal with respect to the above

Power reduction is not required to satisfy SAR compliance.

15) If applicable, include preliminary SAR test data and/or supporting information in laboratory testing inquiries to address specific issues and concerns or for requesting further test reduction considerations appropriate for the device; for example, simultaneous transmission configurations.

Not applicable.

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

9. SAR Test Data Summary

See Measurement Result Data Pages

See Appendix B for SAR Test Data Plots.
See Appendix C for SAR Test Setup Photos.

Procedures Used To Establish Test Signal

The device was either placed into simulated transmit mode using the manufacturer's test codes or the actual transmission is activated through a base station simulator or similar equipment. See data pages for actual procedure used in measurement.

Device Test Condition

In order to verify that the device was tested at full power, conducted output power measurements were performed before and after each SAR measurement to confirm the output power unless otherwise noted. If a conducted power deviation of more than 5% occurred, the test was repeated. The power drift of each test is measured at the start of the test and again at the end of the test. The drift percentage is calculated by the formula ((end/start)-1)*100 and rounded to three decimal places. The drift percentage is calculated into the resultant SAR value on the data sheet for each test.

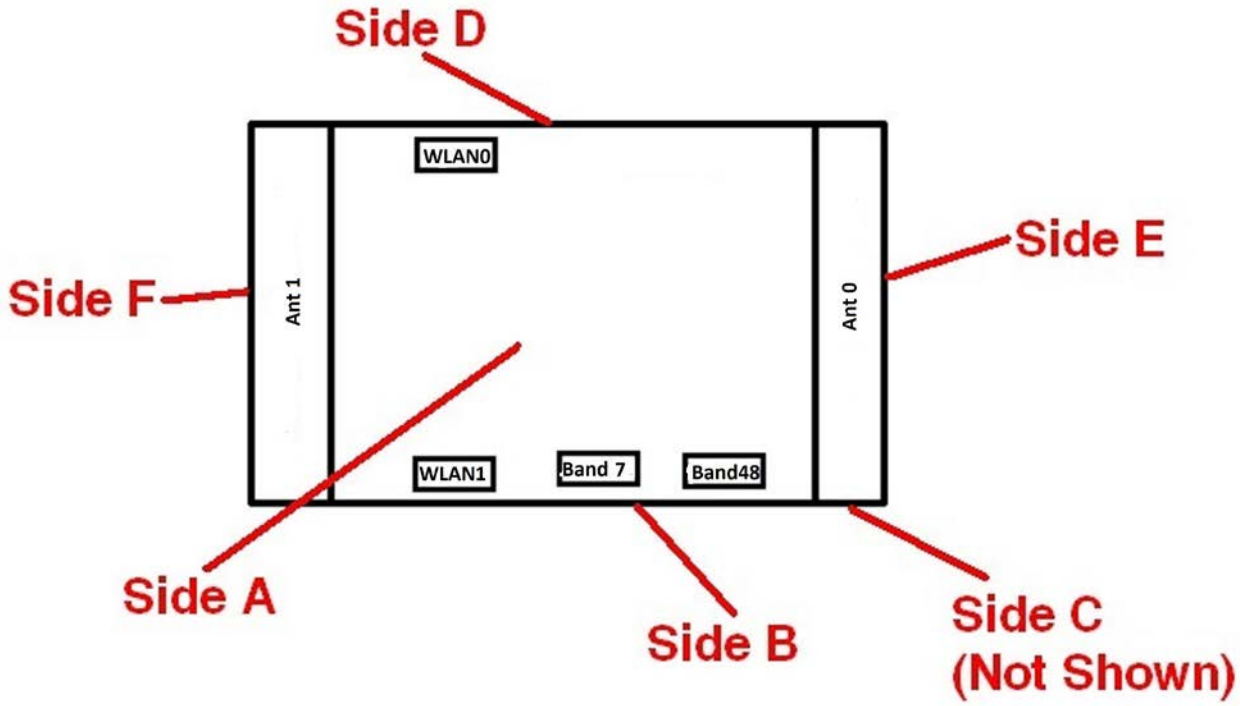
The testing was conducted on all edges closest to each antenna. Side A, Side B, Side C, Side D and Side E testing was conducted for the WWAN antenna for WCDMA and LTE Bands B2, B4, B5, B12, B13, B14, B17, B25, B26 and B66. The Side F were not tested as the WWAN for WCDMA and these LTE bands as the antenna was more than 2.5 cm from this side. Side A, Side C and Side D testing was conducted for the WWAN antenna for LTE Band B7, B30, B40 and B41. Side B, Side E and Side F were not tested as the WWAN antenna for B7 was more than 2.5 cm from these sides. Side A, Side C, Side D and Side E testing was conducted for the WWAN antenna for LTE Bands B42 and B48. Side B and Side F were not tested as the WWAN antenna for B48 was more than 2.5 cm from these sides. The Side A, Side C, and Side F were tested for both WLAN antennas. Side B was tested for WLAN Tx0 antenna and Side D was tested for WLAN Tx1 antenna. Side D and Side E were not tested for Tx0 as the antenna was more than 2.5 cm from these sides. Side B and Side E were not tested for Tx1 as the antenna was more than 2.5 cm from these sides. All further test reductions are shown on page 47 for WCDMA bands, page 41-46 for WLAN and pages 100-143 for LTE bands. All testing was conducted per KDB 941225 D06. See the photo in Appendix C for a pictorial of the setups, labeling of the sides tested and antenna locations.

The WCDMA testing was conducted using 12.2 kbps RMC configured in Test Loop Mode 1. The HSPA testing was conducted with HS-DPCCH, E-DPCCH and E-DPDCH all enabled and a 12.2 kbps RMC. FRC was configured according to HS-DPCCH Sub-Test 1 using H-set 1 and QPSK.

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Figure 10.1
SAR Location Diagram of Modem Testing



Antenna Distances

WWAN Ant0 to WLAN (Chain 0) (mm):	80 mm
WWAN Ant0 to WLAN (Chain 1) (mm):	80 mm
WWAN Ant2 to WLAN (Chain 0) (mm):	85 mm
WWAN Ant2 to WLAN (Chain 1) (mm):	85 mm
WWAN Ant4 to WLAN (Chain 0) (mm):	76 mm
WWAN Ant4 to WLAN (Chain 1) (mm):	80 mm

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

10. FCC 3G Measurement Procedures

Power measurements were performed using a base station simulator under average power.

10.1 Procedures Used to Establish RF Signal for SAR

The device was placed into a simulated call using a base station simulator in a screen room. Such test signals offer a consistent means for testing SAR and recommended for evaluating SAR. The SAR measurement software calculates a reference point at the start and end of the test to check for power drifts. If conducted power deviations of more than 5% occurred, the tests were repeated.

10.2 SAR Measurement Conditions for WCDMA/HSDPA/HSUPA

Configure the call box 8960 to support all WCDMA tests in respect to the 3GPP 34.121 (listed in Table below). Measure the power at Ch4132, 4182 and 4233 for US cell; Ch9262, 9400 and 9538 for US PCS band.

For Rel99

- Set a Test Mode 1 loop back with a 12.2kbps Reference Measurement Channel (RMC).
- Set and send continuously Up power control commands to the device
- Measure the power at the device antenna connector using the power meter with average detector.

For HSDPA Rel 6

- Establish a Test Mode 1 look back with both 1 12.2kbps RMC channel and a H-Set1 Fixed Reference Channel (FRC). With the 8960 this is accomplished by setting the signal Channel Coding to “Fixed Reference Channel” and configuring for HSET-1 QKSP.
- Set beta values and HSDPA settings for HSDPA Subtest1 according to Table below.
- Send continuously Up power control commands to the device
- Measure the power at the device antenna connector using the power meter with modulated average detector.
- Repeat the measurement for the HSDPA Subtest2, 3 and 4 as given in Table below.

For HSUPA Rel 6

- Use UL RMC 12.2kbps and FRC H-Set1 QPSK, Test Mode 1 loop back. With the 8960 this is accomplished by setting the signal Channel Coding to “E-DCH Test Channel” and configuring the equipment category to Cat5_10ms.
- Set the Absolute Grant for HSUPA Subtest1 according to Table below.
- Set the device power to be at least 5dB lower than the Maximum output power
- Send power control bits to give one TPC_cmd = +1 command to the device. If device doesn’t send any E-DPCH data with decreased E-TFCI within 500ms, then repeat this process until the decreased E-TFCI is reported.
- Confirm that the E-TFCI transmitted by the device is equal to the target E-TFCI in Table below. If the E-TFCI transmitted by the device is not equal to the target E-TFCI, then send power control bits to give one TPC_cmd = -1 command to the UE. If UE sends any E-DPCH data with decreased E-TFCI within 500 ms, send new power control bits to give one TPC_cmd = -1 command to the UE. Then confirm that the E-TFCI transmitted by the UE is equal to the target E-TFCI in Table below.
- Measure the power using the power meter with modulated average detector.
- Repeat the measurement for the HSUPA Subtest2, 3, 4 and 5 as given in Table below.

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

3GPP Release Version	Mode	Cellular Band [dBm]			Sub-Test (See Table Below)	MPR
		4132	4183	4233		
99	WCDMA	23.42	23.13	23.16	-	-
6	HSDPA	23.36	23.07	23.09	1	0
6		23.32	23.09	23.05	2	0
6		22.99	22.92	22.89	3	0.5
6		22.94	22.99	22.90	4	0.5
6	HSUPA	23.40	23.10	23.13	1	0
6		21.45	21.49	21.46	2	2
6		22.47	22.48	22.49	3	1
6		21.46	21.41	21.44	4	2
6		23.32	23.04	23.07	5	0

3GPP Release Version	Mode	AWS Band [dBm]			Sub-Test (See Table Below)	MPR
		1312	1413	1513		
99	WCDMA	22.56	22.77	23.32	-	-
6	HSDPA	22.39	22.48	23.27	1	0
6		22.38	22.49	23.25	2	0
6		21.93	22.22	22.92	3	0.5
6		21.78	22.18	22.91	4	0.5
6	HSUPA	22.37	22.25	23.25	1	0
6		20.44	20.88	21.28	2	2
6		21.43	21.92	22.39	3	1
6		20.36	19.82	21.41	4	2
6		22.26	22.68	23.28	5	0

3GPP Release Version	Mode	PCS Band [dBm]			Sub-Test (See Table Below)	MPR
		9262	9400	9538		
99	WCDMA	23.67	23.89	23.71	-	-
6	HSDPA	23.02	23.00	23.31	1	0
6		23.01	22.99	23.28	2	0
6		22.56	22.52	22.66	3	0.5
6		22.41	22.31	22.52	4	0.5
6	HSUPA	23.00	22.98	23.21	1	0
6		21.07	21.01	21.12	2	2
6		22.06	22.05	22.23	3	1
6		20.99	20.95	22.03	4	2
6		22.89	22.91	23.05	5	0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Sub-Test Setup for Release 6 HSDPA

Sub-Test	β_c	β_d	B_c/β_d	β_{hs}
1	2/15	15/15	2/15	4/15
2	12/15	15/15	15/15	24/15
3	15/15	8/15	15/8	30/15
4	15/15	4/15	15/4	30/15
Δ_{ack}, Δ_{nack} and Δ_{cqi} = 8				

Sub-Test Setup for Release 6 HSUPA

Sub-Test	β_c	β_d	B_c/β_d	β_{hs}	B_{ec}	B_{ed}	MPR	AG Index	E-TFCI
1	11/15	15/15	11/15	22/15	209/225	1039/225	0.0	20	75
2	6/15	15/15	6/15	12/15	12/15	94/75	2.0	12	67
3	15/15	9/15	15/9	30/15	30/15	47/15	1.0	15	92
4	2/15	15/15	2/15	4/15	2/15	56/15	2.0	17	71
5	15/15	15/15	15/15	30/15	24/15	134/15	0.0	21	81
Δ_{ack}, Δ_{nack} and Δ_{cqi} = 8									

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	Data Rate	Antenna	Avg Power (dBm)	Tune-up Pwr (dBm)
2450 MHz	802.11b	20	1	2412	1 Mbps	Tx0	17.1	18.0
			6	2437			17.7	18.0
			11	2462			17.6	18.0
			1	2412		Tx1	17.7	18.0
			6	2437			17.1	18.0
			11	2462			17.8	18.0
			1	2412	2 Mbps	Tx0	17.9	18.0
			6	2437			17.6	18.0
			11	2462			17.4	18.0
			1	2412		Tx1	17.8	18.0
			6	2437			17.2	18.0
			11	2462			17.9	18.0
			1	2412	5.5 Mbps	Tx0	17.9	18.0
			6	2437			17.6	18.0
			11	2462			17.4	18.0
			1	2412		Tx1	16.8	18.0
			6	2437			17.5	18.0
			11	2462			16.7	18.0
			1	2412	11 Mbps	Tx0	17.7	18.0
			6	2437			17.3	18.0
			11	2462			17.2	18.0
			1	2412		Tx1	17.7	18.0
			6	2437			17.0	18.0
			11	2462			17.8	18.0
	802.11g	20	1	2412	6 Mbps	Tx0	14.7	15.0
			6	2437			14.4	15.0
			11	2462			14.3	15.0
			1	2412		Tx1	14.0	15.0
			6	2437			14.5	15.0
			11	2462			14.1	15.0
			1	2412	9 Mbps	Tx0	14.6	15.0
			6	2437			14.3	15.0
			11	2462			14.1	15.0
			1	2412		Tx1	14.1	15.0
			6	2437			14.4	15.0
			11	2462			14.0	15.0
			1	2412	12 Mbps	Tx0	14.5	15.0
			6	2437			14.1	15.0
			11	2462			14.8	15.0
			1	2412		Tx1	14.7	15.0
			6	2437			14.4	15.0
			11	2462			14.2	15.0
			1	2412	18 Mbps	Tx0	14.6	15.0
			6	2437			14.5	15.0
			11	2462			14.4	15.0
			1	2412		Tx1	14.3	15.0
			6	2437			14.8	15.0
			11	2462			14.5	15.0
			1	2412	24 Mbps	Tx0	14.4	15.0
			6	2437			14.2	15.0
			11	2462			14.2	15.0
			1	2412		Tx1	14.9	15.0
			6	2437			14.4	15.0
			11	2462			14.2	15.0
			1	2412	36 Mbps	Tx0	14.9	15.0
			6	2437			14.7	15.0
			11	2462			14.4	15.0
			1	2412		Tx1	14.6	15.0
			6	2437			14.0	15.0
			11	2462			14.7	15.0
			1	2412	48 Mbps	Tx0	14.5	15.0
			6	2437			14.5	15.0
			11	2462			14.2	15.0
			1	2412		Tx1	14.4	15.0
			6	2437			14.9	15.0
			11	2462			14.4	15.0
			1	2412	54 Mbps	Tx0	14.3	15.0
			6	2437			14.3	15.0
			11	2462			14.0	15.0
			1	2412		Tx1	14.1	15.0
			6	2437			14.6	15.0
			11	2462			14.2	15.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	Data Rate	Antenna	Avg Power (dBm)	Tune-up Pwr (dBm)
2450 MHz	802.11n	20	1	2412	7.2 Mbps	Tx0	14.5	15.0
			6	2437			14.3	15.0
			11	2462			14.1	15.0
			1	2412		Tx1	13.8	15.0
			6	2437			14.4	15.0
			11	2462			14.1	15.0
			1	2412	14.4 Mbps	Tx0	14.2	15.0
			6	2437			14.1	15.0
			11	2462			14.7	15.0
			1	2412		Tx1	14.7	15.0
			6	2437			14.1	15.0
			11	2462			14.7	15.0
			1	2412	21.7 Mbps	Tx0	14.8	15.0
			6	2437			14.7	15.0
			11	2462			14.5	15.0
			1	2412		Tx1	14.3	15.0
			6	2437			14.8	15.0
			11	2462			14.7	15.0
			1	2412	28.9 Mbps	Tx0	14.4	15.0
			6	2437			14.4	15.0
			11	2462			14.0	15.0
			1	2412		Tx1	14.1	15.0
			6	2437			14.4	15.0
			11	2462			14.4	15.0
			1	2412	43.3 Mbps	Tx0	14.0	15.0
			6	2437			14.8	15.0
			11	2462			14.6	15.0
			1	2412		Tx1	14.5	15.0
			6	2437			14.2	15.0
			11	2462			14.6	15.0
			1	2412	57.8 Mbps	Tx0	14.6	15.0
			6	2437			14.4	15.0
			11	2462			14.1	15.0
			1	2412		Tx1	14.3	15.0
			6	2437			14.8	15.0
			11	2462			14.5	15.0
			1	2412	65.0 Mbps	Tx0	14.5	15.0
			6	2437			14.4	15.0
			11	2462			14.0	15.0
			1	2412		Tx1	14.2	15.0
			6	2437			14.8	15.0
			11	2462			14.2	15.0
			1	2412	72.2 Mbps	Tx0	14.3	15.0
			6	2437			14.2	15.0
			11	2462			14.8	15.0
			1	2412		Tx1	14.1	15.0
			6	2437			14.4	15.0
			11	2462			14.0	15.0
5.15-5.25 GHz	802.11a	20	36	5180	6 Mbps	Tx0	11.4	12.0
			40	5200			11.1	12.0
			44	5220			11.0	12.0
			48	5240			11.0	12.0
			36	5180		Tx1	11.5	12.0
			40	5200			11.3	12.0
			44	5220			11.4	12.0
			48	5240			11.2	12.0
			36	5180	9 Mbps	Tx0	11.1	12.0
			40	5200			11.9	12.0
			44	5220			11.9	12.0
			48	5240			10.9	12.0
			36	5180		Tx1	11.4	12.0
			40	5200			11.2	12.0
			44	5220			11.2	12.0
			48	5240			11.1	12.0
			36	5180	12 Mbps	Tx0	11.0	12.0
			40	5200			11.8	12.0
			44	5220			11.8	12.0
			48	5240			10.8	12.0
			36	5180		Tx1	11.3	12.0
			40	5200			11.3	12.0
			44	5220			11.0	12.0
			48	5240			11.2	12.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	Data Rate	Antenna	Avg Power (dBm)	Tune-up Pwr (dBm)
5.15-5.25 GHz	802.11a	20	36	5180	18 Mbps	Tx0	11.5	12.0
			40	5200			11.4	12.0
			44	5220			11.3	12.0
			48	5240			11.2	12.0
			36	5180		Tx1	11.9	12.0
			40	5200			11.8	12.0
			44	5220			11.8	12.0
			48	5240			11.8	12.0
			36	5180	24 Mbps	Tx0	11.2	12.0
			40	5200			11.1	12.0
			44	5220			11.1	12.0
			48	5240			10.9	12.0
			36	5180		Tx1	11.6	12.0
			40	5200			11.5	12.0
			44	5220			11.5	12.0
			48	5240			11.5	12.0
			36	5180	36 Mbps	Tx0	11.9	12.0
			40	5200			11.7	12.0
			44	5220			11.6	12.0
			48	5240			11.7	12.0
			36	5180		Tx1	11.3	12.0
			40	5200			11.2	12.0
			44	5220			11.2	12.0
			48	5240			11.8	12.0
			36	5180	48 Mbps	Tx0	11.6	12.0
			40	5200			11.5	12.0
			44	5220			11.4	12.0
			48	5240			11.5	12.0
			36	5180		Tx1	11.9	12.0
			40	5200			11.8	12.0
			44	5220			11.6	12.0
			48	5240			11.6	12.0
			36	5180	54 Mbps	Tx0	11.6	12.0
			40	5200			11.4	12.0
			44	5220			11.3	12.0
			48	5240			11.2	12.0
			36	5180		Tx1	11.8	12.0
			40	5200			11.7	12.0
			44	5220			11.4	12.0
			48	5240			11.5	12.0
	802.11n	20	36	5180	7.2 Mbps	Tx0	11.2	12.0
			40	5200			11.1	12.0
			44	5220			11.0	12.0
			48	5240			10.9	12.0
			36	5180		Tx1	11.4	12.0
			40	5200			11.3	12.0
			44	5220			11.3	12.0
			48	5240			11.2	12.0
			36	5180	14.4 Mbps	Tx0	11.9	12.0
			40	5200			11.8	12.0
			44	5220			11.7	12.0
			48	5240			11.6	12.0
			36	5180		Tx1	11.2	12.0
			40	5200			11.1	12.0
			44	5220			11.0	12.0
			48	5240			11.0	12.0
			36	5180	21.7 Mbps	Tx0	11.7	12.0
			40	5200			11.6	12.0
			44	5220			11.4	12.0
			48	5240			11.4	12.0
			36	5180		Tx1	11.8	12.0
			40	5200			11.8	12.0
			44	5220			11.8	12.0
			48	5240			11.8	12.0
			36	5180	28.9 Mbps	Tx0	11.0	12.0
			40	5200			11.1	12.0
			44	5220			11.0	12.0
			48	5240			11.0	12.0
			36	5180		Tx1	11.7	12.0
			40	5200			11.4	12.0
			44	5220			11.4	12.0
			48	5240			11.3	12.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	Data Rate	Antenna	Avg Power (dBm)	Tune-up Pwr (dBm)
5.15-5.25 GHz	802.11n	20	36	5180	43.3 Mbps	Tx0	11.9	12.0
			40	5200			11.8	12.0
			44	5220			11.6	12.0
			48	5240			11.7	12.0
			36	5180		Tx1	11.0	12.0
			40	5200			11.0	12.0
			44	5220			11.1	12.0
			48	5240			11.0	12.0
			36	5180	57.8 Mbps	Tx0	11.8	12.0
			40	5200			11.4	12.0
			44	5220			11.5	12.0
			48	5240			11.3	12.0
			36	5180		Tx1	11.8	12.0
			40	5200			11.6	12.0
			44	5220			11.6	12.0
			48	5240			11.6	12.0
			36	5180	65.0 Mbps	Tx0	11.4	12.0
			40	5200			11.3	12.0
			44	5220			11.2	12.0
			48	5240			11.2	12.0
			36	5180		Tx1	11.6	12.0
			40	5200			11.5	12.0
			44	5220			11.5	12.0
			48	5240			11.4	12.0
			36	5180	72.2 Mbps	Tx0	11.3	12.0
			40	5200			11.2	12.0
			44	5220			11.0	12.0
			48	5240			11.1	12.0
			36	5180		Tx1	11.4	12.0
			40	5200			11.4	12.0
			44	5220			11.3	12.0
			48	5240			11.4	12.0
	802.11n	40	38	5190	15 Mbps	Tx0	11.9	12.0
			46	5230			11.9	12.0
			38	5190		Tx1	11.7	12.0
			46	5230			11.6	12.0
			38	5190	30 Mbps	Tx0	11.3	12.0
			46	5230			11.2	12.0
			38	5190		Tx1	11.3	12.0
			46	5230			11.1	12.0
			38	5190	45 Mbps	Tx0	11.8	12.0
			46	5230			11.5	12.0
			38	5190		Tx1	11.8	12.0
			46	5230			11.7	12.0
			38	5190	60 Mbps	Tx0	11.6	12.0
			46	5230			11.4	12.0
			38	5190		Tx1	11.4	12.0
			46	5230			11.3	12.0
			38	5190	90 Mbps	Tx0	11.8	12.0
			46	5230			11.6	12.0
			38	5190		Tx1	11.9	12.0
			46	5230			11.8	12.0
			38	5190	120 Mbps	Tx0	11.4	12.0
			46	5230			11.1	12.0
			38	5190		Tx1	11.5	12.0
			46	5230			11.3	12.0
			38	5190	135 Mbps	Tx0	11.1	12.0
			46	5230			11.0	12.0
			38	5190		Tx1	11.3	12.0
			46	5230			11.1	12.0
			38	5190	150 Mbps	Tx0	11.1	12.0
			46	5230			11.0	12.0
			38	5190		Tx1	11.2	12.0
			46	5230			11.1	12.0
	802.11ac	20	36	5180	7.2 Mbps	Tx0	11.2	12.0
			40	5200			11.2	12.0
			44	5220			11.2	12.0
			48	5240			11.3	12.0
			36	5180		Tx1	9.7	10.0
			40	5200			9.4	10.0
			44	5220			9.3	10.0
			48	5240			9.3	10.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	Data Rate	Antenna	Avg Power (dBm)	Tune-up Pwr (dBm)
5.15-5.25 GHz	802.11ac	20	36	5180	14.4 Mbps	Tx0	11.9	12.0
			40	5200			11.7	12.0
			44	5220			11.7	12.0
			48	5240			11.8	12.0
			36	5180		Tx1	9.3	10.0
			40	5200			9.2	10.0
			44	5220			9.0	10.0
			48	5240			9.2	10.0
			36	5180	21.7 Mbps	Tx0	11.8	12.0
			40	5200			11.5	12.0
			44	5220			11.4	12.0
			48	5240			11.5	12.0
			36	5180		Tx1	9.8	10.0
			40	5200			9.7	10.0
			44	5220			9.7	10.0
			48	5240			9.6	10.0
			36	5180	28.9 Mbps	Tx0	11.2	12.0
			40	5200			11.0	12.0
			44	5220			11.1	12.0
			48	5240			11.0	12.0
			36	5180		Tx1	9.8	10.0
			40	5200			9.6	10.0
			44	5220			9.5	10.0
			48	5240			9.6	10.0
			36	5180	43.3 Mbps	Tx0	11.9	12.0
			40	5200			11.8	12.0
			44	5220			11.7	12.0
			48	5240			11.7	12.0
			36	5180		Tx1	9.5	10.0
			40	5200			9.1	10.0
			44	5220			10.0	10.0
			48	5240			9.9	10.0
			36	5180	57.8 Mbps	Tx0	11.7	12.0
			40	5200			11.4	12.0
			44	5220			11.5	12.0
			48	5240			11.5	12.0
			36	5180		Tx1	9.9	10.0
			40	5200			9.8	10.0
			44	5220			9.8	10.0
			48	5240			9.8	10.0
			36	5180	65.0 Mbps	Tx0	11.6	12.0
			40	5200			11.3	12.0
			44	5220			11.3	12.0
			48	5240			11.4	12.0
			36	5180		Tx1	9.9	10.0
			40	5200			9.7	10.0
			44	5220			9.7	10.0
			48	5240			9.7	10.0
			36	5180	72.2 Mbps	Tx0	11.5	12.0
			40	5200			11.2	12.0
			44	5220			11.3	12.0
			48	5240			11.2	12.0
			36	5180		Tx1	9.7	10.0
			40	5200			9.6	10.0
			44	5220			9.5	10.0
			48	5240			9.6	10.0
			36	5180	86.7 Mbps	Tx0	11.2	12.0
			40	5200			11.1	12.0
			44	5220			11.0	12.0
			48	5240			11.1	12.0
			36	5180		Tx1	9.7	10.0
			40	5200			9.4	10.0
			44	5220			9.3	10.0
			48	5240			9.2	10.0
	802.11ac	40	38	5190	15 Mbps	Tx0	11.9	12.0
			46	5230			11.8	12.0
			38	5190		Tx1	9.8	10.0
			46	5230			9.7	10.0
			38	5190	30 Mbps	Tx0	11.5	12.0
			46	5230			11.2	12.0
			38	5190		Tx1	9.5	10.0
			46	5230			9.3	10.0
			38	5190	45 Mbps	Tx0	11.9	12.0
			46	5230			11.8	12.0
			38	5190		Tx1	9.9	10.0
			46	5230			9.8	10.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	Data Rate	Antenna	Avg Power (dBm)	Tune-up Pwr (dBm)
5.15-5.25 GHz	802.11ac	40	38	5190	60 Mbps	Tx0	11.6	12.0
			46	5230			11.5	12.0
			38	5190		Tx1	9.6	10.0
			46	5230			9.5	10.0
			38	5190	90 Mbps	Tx0	11.9	12.0
			46	5230			11.7	12.0
			38	5190		Tx1	9.1	10.0
			46	5230			9.0	10.0
			38	5190	120 Mbps	Tx0	11.6	12.0
			46	5230			11.3	12.0
			38	5190		Tx1	9.8	10.0
			46	5230			9.6	10.0
			38	5190	135 Mbps	Tx0	11.4	12.0
			46	5230			11.2	12.0
			38	5190		Tx1	9.6	10.0
			46	5230			9.4	10.0
			38	5190	150 Mbps	Tx0	11.0	12.0
			46	5230			11.1	12.0
			38	5190		Tx1	9.5	10.0
			46	5230			9.3	10.0
			38	5190	180 Mbps	Tx0	11.9	12.0
			46	5230			11.8	12.0
			38	5190		Tx1	9.3	10.0
			46	5230			9.1	10.0
			38	5190	200 Mbps	Tx0	11.7	12.0
			46	5230			11.5	12.0
			38	5190		Tx1	9.9	10.0
			46	5230			9.7	10.0
	802.11ac	80	42	5210	32.5 Mbps	Tx0	11.5	12.0
						Tx1	9.5	10.0
			42	5210	65.0 Mbps	Tx0	11.7	12.0
						Tx1	9.7	10.0
			42	5210	97.5 Mbps	Tx0	11.9	12.0
						Tx1	9.9	10.0
			42	5210	130.0 Mbps	Tx0	11.6	12.0
						Tx1	9.6	10.0
			42	5210	195.0 Mbps	Tx0	11.9	12.0
						Tx1	9.1	10.0
			42	5210	260.0 Mbps	Tx0	11.6	12.0
						Tx1	9.8	10.0
			42	5210	292.5 Mbps	Tx0	11.6	12.0
						Tx1	9.6	10.0
			42	5210	325.0 Mbps	Tx0	11.5	12.0
						Tx1	9.4	10.0
			42	5210	390.0 Mbps	Tx0	11.9	12.0
						Tx1	9.5	10.0
			42	5210	433.3 Mbps	Tx0	11.9	12.0
						Tx1	9.3	10.0
5800 MHz	802.11a	20	149	5745	6 Mbps	Tx0	19.9	20.0
			153	5765			19.9	20.0
			157	5785			19.8	20.0
			161	5805			19.8	20.0
			165	5825			19.9	20.0
			149	5745		Tx1	17.7	18.0
			153	5765			17.6	18.0
			157	5785			17.6	18.0
			161	5805			17.3	18.0
			165	5825			17.8	18.0
			149	5745	9 Mbps	Tx0	19.9	20.0
			153	5765			19.6	20.0
			157	5785			19.6	20.0
			161	5805			19.7	20.0
			165	5825			19.7	20.0
			149	5745		Tx1	17.4	18.0
			153	5765			17.4	18.0
			157	5785			17.2	18.0
			161	5805			17.1	18.0
			165	5825			17.2	18.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	Data Rate	Antenna	Avg Power (dBm)	Tune-up Pwr (dBm)
5800 MHz	801.11a	20	149	5745	12 Mbps	Tx0	19.7	20.0
			153	5765			19.5	20.0
			157	5785			19.5	20.0
			161	5805			19.6	20.0
			165	5825			19.7	20.0
			149	5745		Tx1	17.5	18.0
			153	5765			17.4	18.0
			157	5785			17.1	18.0
			161	5805			17.1	18.0
			165	5825			17.1	18.0
			149	5745	18 Mbps	Tx0	19.2	20.0
			153	5765			19.2	20.0
			157	5785			19.1	20.0
			161	5805			19.1	20.0
			165	5825			19.1	20.0
			149	5745		Tx1	17.9	18.0
			153	5765			17.9	18.0
			157	5785			17.5	18.0
			161	5805			17.5	18.0
			165	5825			17.5	18.0
			149	5745	24 Mbps	Tx0	19.8	20.0
			153	5765			19.9	20.0
			157	5785			19.6	20.0
			161	5805			19.5	20.0
			165	5825			19.7	20.0
			149	5745		Tx1	17.7	18.0
			153	5765			17.6	18.0
			157	5785			17.3	18.0
			161	5805			17.3	18.0
			165	5825			17.3	18.0
			149	5745	36 Mbps	Tx0	19.5	20.0
			153	5765			19.5	20.0
			157	5785			19.2	20.0
			161	5805			19.2	20.0
			165	5825			19.4	20.0
			149	5745		Tx1	17.3	18.0
			153	5765			17.3	18.0
			157	5785			16.9	18.0
			161	5805			16.9	18.0
			165	5825			17.0	18.0
			149	5745	48 Mbps	Tx0	19.1	20.0
			153	5765			19.2	20.0
			157	5785			19.0	20.0
			161	5805			19.0	20.0
			165	5825			19.0	20.0
			149	5745		Tx1	17.3	18.0
			153	5765			17.2	18.0
			157	5785			17.0	18.0
			161	5805			16.9	18.0
			165	5825			17.0	18.0
			149	5745	54 Mbps	Tx0	19.0	20.0
			153	5765			19.1	20.0
			157	5785			18.8	20.0
			161	5805			18.7	20.0
			165	5825			18.9	20.0
			149	5745		Tx1	17.2	18.0
			153	5765			17.1	18.0
			157	5785			16.8	18.0
			161	5805			16.7	18.0
			165	5825			16.7	18.0
	802.11n	20	149	5745	7.2 Mbps	Tx0	19.9	20.0
			153	5765			19.9	20.0
			157	5785			19.7	20.0
			161	5805			19.8	20.0
			165	5825			19.9	20.0
			149	5745		Tx1	17.6	18.0
			153	5765			17.4	18.0
			157	5785			17.3	18.0
			161	5805			17.3	18.0
			165	5825			17.3	18.0

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	Data Rate	Antenna	Avg Power (dBm)	Tune-up Pwr (dBm)
5800 MHz	802.11n	20	149	5745	14.4 Mbps	Tx0	19.7	20.0
			153	5765			19.7	20.0
			157	5785			19.3	20.0
			161	5805			19.5	20.0
			165	5825			19.6	20.0
			149	5745		Tx1	17.4	18.0
			153	5765			17.2	18.0
			157	5785			17.0	18.0
			161	5805			17.0	18.0
			165	5825			17.0	18.0
			149	5745	21.7 Mbps	Tx0	19.5	20.0
			153	5765			19.3	20.0
			157	5785			19.2	20.0
			161	5805			19.3	20.0
			165	5825			19.4	20.0
			149	5745		Tx1	17.9	18.0
			153	5765			17.7	18.0
			157	5785			17.5	18.0
			161	5805			17.5	18.0
			165	5825			17.5	18.0
			149	5745	28.9 Mbps	Tx0	19.9	20.0
			153	5765			19.9	20.0
			157	5785			19.6	20.0
			161	5805			19.7	20.0
			165	5825			19.8	20.0
			149	5745		Tx1	17.6	18.0
			153	5765			17.6	18.0
			157	5785			17.3	18.0
			161	5805			17.3	18.0
			165	5825			17.3	18.0
			149	5745	43.3 Mbps	Tx0	19.5	20.0
			153	5765			19.5	20.0
			157	5785			19.3	20.0
			161	5805			19.3	20.0
			165	5825			19.3	20.0
			149	5745		Tx1	17.4	18.0
			153	5765			17.1	18.0
			157	5785			17.0	18.0
			161	5805			17.0	18.0
			165	5825			17.0	18.0
			149	5745	57.8 Mbps	Tx0	19.3	20.0
			153	5765			19.1	20.0
			157	5785			18.9	20.0
			161	5805			19.1	20.0
			165	5825			19.1	20.0
			149	5745		Tx1	17.5	18.0
			153	5765			17.4	18.0
			157	5785			17.0	18.0
			161	5805			17.0	18.0
			165	5825			17.0	18.0
			149	5745	65.0 Mbps	Tx0	19.0	20.0
			153	5765			19.0	20.0
			157	5785			18.8	20.0
			161	5805			18.9	20.0
			165	5825			19.0	20.0
			149	5745		Tx1	17.5	18.0
			153	5765			17.3	18.0
			157	5785			17.0	18.0
			161	5805			17.0	18.0
			165	5825			16.9	18.0
			149	5745	72.2 Mbps	Tx0	19.0	20.0
			153	5765			18.9	20.0
			157	5785			18.7	20.0
			161	5805			18.7	20.0
			165	5825			18.8	20.0
			149	5745		Tx1	17.3	18.0
			153	5765			17.2	18.0
			157	5785			17.0	18.0
			161	5805			16.9	18.0
			165	5825			16.8	18.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	Data Rate	Antenna	Avg Power (dBm)	Tune-up Pwr (dBm)
5800 MHz	802.11n	40	151	5755	15 Mbps	Tx0	19.9	20.0
			159	5795			19.8	20.0
			151	5755		Tx1	18.0	18.0
			159	5795			17.8	18.0
			151	5755	30 Mbps	Tx0	19.5	20.0
			159	5795			19.5	20.0
			151	5755		Tx1	17.7	18.0
			159	5795			17.4	18.0
			151	5755	45 Mbps	Tx0	19.9	20.0
			159	5795			19.8	20.0
			151	5755		Tx1	17.4	18.0
			159	5795			17.1	18.0
			151	5755	60 Mbps	Tx0	19.8	20.0
			159	5795			19.5	20.0
			151	5755		Tx1	17.1	18.0
			159	5795			16.9	18.0
			151	5755	90 Mbps	Tx0	19.4	20.0
			159	5795			19.1	20.0
			151	5755		Tx1	16.8	18.0
			159	5795			16.3	18.0
			151	5755	120 Mbps	Tx0	19.0	20.0
			159	5795			18.9	20.0
			151	5755		Tx1	16.4	18.0
			159	5795			16.1	18.0
			151	5755	135 Mbps	Tx0	18.9	20.0
			159	5795			18.7	20.0
			151	5755		Tx1	16.4	18.0
			159	5795			16.0	18.0
			151	5755	150 Mbps	Tx0	18.9	20.0
			159	5795			18.4	20.0
			151	5755		Tx1	16.2	18.0
			159	5795			16.0	18.0
	802.11ac	20	149	5745	7.2 Mbps	Tx0	19.9	20.0
			153	5765			19.9	20.0
			157	5785			19.6	20.0
			161	5805			19.8	20.0
			165	5825			19.8	20.0
			149	5745		Tx1	17.7	18.0
			153	5765			17.7	18.0
			157	5785			17.2	18.0
			161	5805			17.2	18.0
			165	5825			17.4	18.0
			149	5745	14.4 Mbps	Tx0	19.6	20.0
			153	5765			19.5	20.0
			157	5785			19.4	20.0
			161	5805			19.4	20.0
			165	5825			19.5	20.0
			149	5745		Tx1	17.5	18.0
			153	5765			17.2	18.0
			157	5785			17.0	18.0
			161	5805			17.0	18.0
			165	5825			17.0	18.0
			149	5745	21.7 Mbps	Tx0	19.4	20.0
			153	5765			19.2	20.0
			157	5785			19.2	20.0
			161	5805			19.1	20.0
			165	5825			19.3	20.0
			149	5745		Tx1	17.9	18.0
			153	5765			17.8	18.0
			157	5785			17.6	18.0
			161	5805			17.6	18.0
			165	5825			17.6	18.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	Data Rate	Antenna	Avg Power (dBm)	Tune-up Pwr (dBm)
5800 MHz	802.11ac	20	149	5745	28.9 Mbps	Tx0	19.8	20.0
			153	5765			19.8	20.0
			157	5785			19.6	20.0
			161	5805			19.5	20.0
			165	5825			19.8	20.0
			149	5745		Tx1	17.6	18.0
			153	5765			17.8	18.0
			157	5785			17.5	18.0
			161	5805			17.5	18.0
			165	5825			17.4	18.0
			149	5745	43.3 Mbps	Tx0	19.4	20.0
			153	5765			19.5	20.0
			157	5785			19.3	20.0
			161	5805			19.3	20.0
			165	5825			19.5	20.0
			149	5745		Tx1	17.7	18.0
			153	5765			16.9	18.0
			157	5785			17.5	18.0
			161	5805			17.2	18.0
			165	5825			17.1	18.0
			149	5745	57.8 Mbps	Tx0	19.2	20.0
			153	5765			19.2	20.0
			157	5785			19.0	20.0
			161	5805			19.0	20.0
			165	5825			19.2	20.0
			149	5745		Tx1	17.4	18.0
			153	5765			17.2	18.0
			157	5785			17.1	18.0
			161	5805			17.0	18.0
			165	5825			17.0	18.0
			149	5745	65.0 Mbps	Tx0	19.2	20.0
			153	5765			19.0	20.0
			157	5785			19.0	20.0
			161	5805			19.0	20.0
			165	5825			19.1	20.0
			149	5745		Tx1	17.6	18.0
			153	5765			17.4	18.0
			157	5785			17.0	18.0
			161	5805			17.1	18.0
			165	5825			17.0	18.0
			149	5745	72.2 Mbps	Tx0	19.9	20.0
			153	5765			19.8	20.0
			157	5785			19.7	20.0
			161	5805			19.8	20.0
			165	5825			20.0	20.0
			149	5745		Tx1	17.3	18.0
			153	5765			17.2	18.0
			157	5785			17.0	18.0
			161	5805			17.0	18.0
			165	5825			16.9	18.0
			149	5745	86.7 Mbps	Tx0	19.9	20.0
			153	5765			19.7	20.0
			157	5785			19.8	20.0
			161	5805			19.6	20.0
			165	5825			19.9	20.0
			149	5745		Tx1	17.2	18.0
			153	5765			17.1	18.0
			157	5785			16.8	18.0
			161	5805			16.8	18.0
			165	5825			16.7	18.0
	802.11ac	40	151	5755	15 Mbps	Tx0	19.9	20.0
			159	5795			19.8	20.0
			151	5755		Tx1	17.8	18.0
			159	5795			17.7	18.0
			151	5755	30 Mbps	Tx0	19.5	20.0
			159	5795			19.4	20.0
			151	5755		Tx1	17.7	18.0
			159	5795			17.4	18.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Mode	Bandwidth (MHz)	Channel	Frequency (MHz)	Data Rate	Antenna	Avg Power (dBm)	Tune-up Pwr (dBm)
5800 MHz	802.11ac	40	151	5755	45 Mbps	Tx0	19.9	20.0
			159	5795			19.7	20.0
			151	5755		Tx1	17.3	18.0
			159	5795			17.1	18.0
			151	5755	60 Mbps	Tx0	19.7	20.0
			159	5795			19.5	20.0
			151	5755		Tx1	17.0	18.0
			159	5795			16.9	18.0
			151	5755	90 Mbps	Tx0	19.2	20.0
			159	5795			19.2	20.0
			151	5755		Tx1	17.8	18.0
			159	5795			17.4	18.0
			151	5755	120 Mbps	Tx0	19.0	20.0
			159	5795			18.7	20.0
			151	5755		Tx1	16.4	18.0
			159	5795			16.1	18.0
			151	5755	135 Mbps	Tx0	19.0	20.0
			159	5795			18.7	20.0
			151	5755		Tx1	16.3	18.0
			159	5795			16.1	18.0
			151	5755	150 Mbps	Tx0	18.8	20.0
			159	5795			18.5	20.0
			151	5755		Tx1	16.1	18.0
			159	5795			16.0	18.0
			151	5755	180 Mbps	Tx0	18.7	20.0
			159	5795			18.5	20.0
			151	5755		Tx1	16.0	18.0
			159	5795			16.0	18.0
			151	5755	200 Mbps	Tx0	18.5	20.0
			159	5795			18.2	20.0
			151	5755		Tx1	16.0	18.0
			159	5795			16.0	18.0
	802.11ac	80	155	5775	32.5 Mbps	Tx0	19.6	20.0
						Tx1	17.2	18.0
			155	5775	65.0 Mbps	Tx0	19.2	20.0
						Tx1	16.5	18.0
			155	5775	97.5 Mbps	Tx0	19.9	20.0
						Tx1	16.3	18.0
			155	5775	130.0 Mbps	Tx0	19.6	20.0
						Tx1	16.0	18.0
			155	5775	195.0 Mbps	Tx0	19.1	20.0
						Tx1	15.6	18.0
			155	5775	260.0 Mbps	Tx0	19.0	20.0
						Tx1	15.4	18.0
			155	5775	292.5 Mbps	Tx0	18.9	20.0
						Tx1	16.2	18.0
			155	5775	325.0 Mbps	Tx0	18.7	20.0
						Tx1	16.1	18.0
			155	5775	390.0 Mbps	Tx0	18.6	20.0
						Tx1	15.8	18.0
			155	5775	433.3 Mbps	Tx0	18.5	20.0
						Tx1	15.9	18.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Figure 10.1 Test Reduction Table – WiFi 2.4 GHz Chain 0

Mode	Side	Required Channel	Tested/Reduced
802.11b	Side A	1 – 2412 MHz	Reduced[1]
		6 – 2437 MHz	Tested
		11 – 2462 MHz	Reduced[1]
	Side B	1 – 2412 MHz	Reduced[1]
		6 – 2437 MHz	Tested
		11 – 2462 MHz	Reduced[1]
	Side C	1 – 2412 MHz	Reduced[1]
		6 – 2437 MHz	Tested
		11 – 2462 MHz	Reduced[1]
	Side D	1 – 2412 MHz	Reduced[3]
		6 – 2437 MHz	Reduced[3]
		11 – 2462 MHz	Reduced[3]
	Side E	1 – 2412 MHz	Reduced[3]
		6 – 2437 MHz	Reduced[3]
		11 – 2462 MHz	Reduced[3]
	Side F	1 – 2412 MHz	Reduced[1]
		6 – 2437 MHz	Tested
		11 – 2462 MHz	Reduced[1]
802.11g	Side A	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side B	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side C	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side D	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side E	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side F	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
802.11n	Side A	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side B	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side C	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side D	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side E	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side F	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]

Reduced[1] – When the reported SAR is ≤ 0.4 W/kg, SAR is not required for the remaining test configuration per KDB 248227 D01 v02r02 section 5.1.1 1) page 9.
Reduced[2] – When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required per KDB 248227 D01 v02r02 section 5.2.2 2) page 10.
Reduced[3] – When the antenna is more than 25 mm from a side, the test can be reduced per KDB447498 D01 v06 section 4.3.1 1) page 11. See below for calculations.

Maximum power: 63.1 mW
Closest Distance to Side D: 57 mm
Closest Distance to Side E: 49 mm

The closest distance is from Side E. Therefore, if Side E is excluded then Side D would also be excluded.

[(63.1 mW)/(49 mm)]*√2.462=2.02 which is equal to or less than 3.0.

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Figure 10.2 Test Reduction Table – WiFi 2.4 GHz Chain 1

Mode	Side	Required Channel	Tested/Reduced
802.11b	Side A	1 – 2412 MHz	Reduced[1]
		6 – 2437 MHz	Tested
		11 – 2462 MHz	Reduced[1]
	Side B	1 – 2412 MHz	Reduced[3]
		6 – 2437 MHz	Reduced[3]
		11 – 2462 MHz	Reduced[3]
	Side C	1 – 2412 MHz	Reduced[1]
		6 – 2437 MHz	Tested
		11 – 2462 MHz	Reduced[1]
	Side D	1 – 2412 MHz	Reduced[1]
		6 – 2437 MHz	Tested
		11 – 2462 MHz	Reduced[1]
	Side E	1 – 2412 MHz	Reduced[3]
		6 – 2437 MHz	Reduced[3]
		11 – 2462 MHz	Reduced[3]
	Side F	1 – 2412 MHz	Reduced[3]
		6 – 2437 MHz	Reduced[3]
		11 – 2462 MHz	Reduced[3]
802.11g	Side A	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side B	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side C	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side D	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side E	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side F	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
802.11n	Side A	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side B	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side C	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side D	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side E	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]
	Side F	1 – 2412 MHz	Reduced[2]
		6 – 2437 MHz	Reduced[2]
		11 – 2462 MHz	Reduced[2]

Reduced[1] – When the reported SAR is ≤ 0.4 W/kg, SAR is not required for the remaining test configuration per KDB 248227 D01 v02r02 section 5.1.1 1) page 9.
Reduced[2] – When the highest reported SAR for DSSS is adjusted by the ratio of OFDM to DSSS specified maximum output power and the adjusted SAR is ≤ 1.2 W/kg, SAR is not required per KDB 248227 D01 v02r02 section 5.2.2 2) page 10.
Reduced[3] – When the antenna is more than 25 mm from a side, the test can be reduced per KDB447498 D01 v06 section 4.3.1 1) page 11. See below for calculations.

Maximum power: 63.1 mW
Closest Distance to Side B: 57 mm
Closest Distance to Side E: 49 mm

The closest distance is from Side E. Therefore, if Side E is excluded then Side B would also be excluded.

[(63.1 mW)/(49 mm)]*√2.462=2.02 which is equal to or less than 3.0.

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Figure 10.3 Test Reduction Table – WiFi 5.1 GHz Chain 0

Mode	Side	Required Channel	Tested/Reduced
802.11a 5150 MHz	Side A	36 – 5180 MHz	Reduced[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Tested
		48 – 5240 MHz	Reduced[1]
	Side B	36 – 5180 MHz	Reduced[3]
		40 – 5200 MHz	Tested
		44 – 5220 MHz	Tested
		48 – 5240 MHz	Reduced[3]
	Side C	36 – 5180 MHz	Reduced[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Tested
		48 – 5240 MHz	Reduced[1]
	Side D	36 – 5180 MHz	Reduced[2]
		40 – 5200 MHz	Reduced[2]
		44 – 5220 MHz	Reduced[2]
		48 – 5240 MHz	Reduced[2]
	Side E	36 – 5180 MHz	Reduced[2]
		40 – 5200 MHz	Reduced[2]
		44 – 5220 MHz	Reduced[2]
		48 – 5240 MHz	Reduced[2]
	Side F	36 – 5180 MHz	Reduced[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Tested
		48 – 5240 MHz	Reduced[1]
802.11n 5150 MHz	Side A	36 – 5180 MHz	Reduced[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Reduced[1]
		48 – 5240 MHz	Reduced[1]
	Side B	36 – 5180 MHz	Reduced[3]
		40 – 5200 MHz	Reduced[3]
		44 – 5220 MHz	Reduced[3]
		48 – 5240 MHz	Reduced[3]
	Side C	36 – 5180 MHz	Reduced[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Reduced[1]
		48 – 5240 MHz	Reduced[1]
	Side D	36 – 5180 MHz	Reduced[2]
		40 – 5200 MHz	Reduced[2]
		44 – 5220 MHz	Reduced[2]
		48 – 5240 MHz	Reduced[2]
	Side E	36 – 5180 MHz	Reduced[2]
		40 – 5200 MHz	Reduced[2]
		44 – 5220 MHz	Reduced[2]
		48 – 5240 MHz	Reduced[2]
	Side F	36 – 5180 MHz	Reduced[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Reduced[1]
		48 – 5240 MHz	Reduced[1]

Reduced[1] – When the reported SAR is ≤ 0.4 W/kg, SAR is not required for the remaining test configuration per KDB 248227 D01 v02r02 section 5.1.1 1) page 9.
Reduced[2] – When the antenna is more than 25 mm from a side, the test can be reduced per KDB447498 D01 v06 section 4.3.1 1) page 11. See below for calculations.
Reduced[3] – When the reported SAR is >0.4 W/kg, test the next highest configuration until the SAR value is ≤ 0.8 W/kg per KDB 248227 D01 v02r02 section 5.1.1 2) page 9.

Maximum power: 15.8 mW
Closest Distance to Side D: 57 mm
Closest Distance to Side E: 49 mm

The closest distance is from Side E. Therefore, if Side E is excluded then Side D would also be excluded.

[(15.8 mW)/(49 mm)]*√5.24=0.74 which is equal to or less than 3.0.

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Figure 10.4 Test Reduction Table – WiFi 5.1 GHz Chain 1

Mode	Side	Required Channel	Tested/Reduced
802.11a 5150 MHz	Side A	36 – 5180 MHz	Reduced[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Tested
		48 – 5240 MHz	Reduced[1]
	Side B	36 – 5180 MHz	Reduced[2]
		40 – 5200 MHz	Reduced[2]
		44 – 5220 MHz	Reduced[2]
		48 – 5240 MHz	Reduced[2]
	Side C	36 – 5180 MHz	Reduced[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Tested
		48 – 5240 MHz	Reduced[1]
	Side D	36 – 5180 MHz	Reduced[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Tested
		48 – 5240 MHz	Reduced[1]
	Side E	36 – 5180 MHz	Reduced[2]
		40 – 5200 MHz	Reduced[2]
		44 – 5220 MHz	Reduced[2]
		48 – 5240 MHz	Reduced[2]
	Side F	36 – 5180 MHz	Reduced[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Tested
		48 – 5240 MHz	Reduced[1]
802.11n 5150 MHz	Side A	36 – 5180 MHz	Reduced[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Reduced[1]
		48 – 5240 MHz	Reduced[1]
	Side B	36 – 5180 MHz	Reduced[2]
		40 – 5200 MHz	Reduced[2]
		44 – 5220 MHz	Reduced[2]
		48 – 5240 MHz	Reduced[2]
	Side C	36 – 5180 MHz	Reduced[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Reduced[1]
		48 – 5240 MHz	Reduced[1]
	Side D	36 – 5180 MHz	Reduced[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Reduced[1]
		48 – 5240 MHz	Reduced[1]
	Side E	36 – 5180 MHz	Reduced[2]
		40 – 5200 MHz	Reduced[2]
		44 – 5220 MHz	Reduced[2]
		48 – 5240 MHz	Reduced[2]
	Side F	36 – 5180 MHz	Reduced[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Reduced[1]
		48 – 5240 MHz	Reduced[1]

Reduced[1] – When the reported SAR is ≤ 0.4 W/kg, SAR is not required for the remaining test configuration per KDB 248227 D01 v02r02 section 5.1.1 1) page 9.
Reduced[2] – When the antenna is more than 25 mm from a side, the test can be reduced per KDB447498 D01 v06 section 4.3.1 1) page 11. See below for calculations.

Maximum power: 15.8 mW
Closest Distance to Side B: 57 mm
Closest Distance to Side E: 49 mm

The closest distance is from Side E. Therefore, if Side E is excluded then Side B would also be excluded.

[(15.8 mW)/(49 mm)]*√5.24=0.74 which is equal to or less than 3.0.

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Figure 10.5 Test Reduction Table – WiFi 5.8 GHz Chain 0

Mode	Side	Required Channel	Tested/Reduced
802.11a 5800 MHz	Side A	149 – 5745 MHz	Reduced[3]
		157 – 5785 MHz	Tested
		165 – 5825 MHz	Tested
	Side B	149 – 5745 MHz	Tested
		157 – 5785 MHz	Tested
		165 – 5825 MHz	Tested
	Side C	149 – 5745 MHz	Reduced[4]
		157 – 5785 MHz	Tested
		165 – 5825 MHz	Tested
	Side D	149 – 5745 MHz	Reduced[1]
		157 – 5785 MHz	Tested
		165 – 5825 MHz	Reduced[1]
	Side E	149 – 5745 MHz	Reduced[1]
		157 – 5785 MHz	Tested
		165 – 5825 MHz	Reduced[1]
	Side F	149 – 5745 MHz	Reduced[1]
		157 – 5785 MHz	Tested
		165 – 5825 MHz	Reduced[1]
802.11n 5800 MHz	Side A	149 – 5745 MHz	Reduced[3]
		157 – 5785 MHz	Reduced[3]
		165 – 5825 MHz	Reduced[3]
	Side B	149 – 5745 MHz	Reduced[3]
		157 – 5785 MHz	Reduced[3]
		165 – 5825 MHz	Reduced[3]
	Side C	149 – 5745 MHz	Reduced[4]
		157 – 5785 MHz	Reduced[4]
		165 – 5825 MHz	Reduced[4]
	Side D	149 – 5745 MHz	Reduced[1]
		157 – 5785 MHz	Reduced[1]
		165 – 5825 MHz	Reduced[1]
	Side E	149 – 5745 MHz	Reduced[1]
		157 – 5785 MHz	Reduced[1]
		165 – 5825 MHz	Reduced[1]
	Side F	149 – 5745 MHz	Reduced[1]
		157 – 5785 MHz	Reduced[1]
		165 – 5825 MHz	Reduced[1]

Reduced[1] – When the reported SAR is ≤ 0.4 W/kg, SAR is not required for the remaining test configuration per KDB 248227 D01 v02r02 section 5.1.1 1) page 9.
Reduced[2] – When the antenna is more than 25 mm from a side, the test can be reduced per KDB447498 D01 v06 section 4.3.1 1) page 11. See below for calculations.
Reduced[3] – When the reported SAR is >0.8 W/kg, test the next highest configuration until the SAR value is ≤ 1.2 W/kg per KDB 248227 D01 v02r02 section 5.1.1 3) page 9.
Reduced[4] – When the reported SAR is >0.4 W/kg, test the next highest configuration until the SAR value is ≤ 0.8 W/kg per KDB 248227 D01 v02r02 section 5.1.1 2) page 9.

Maximum power: 100.0 mW

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Figure 10.6 Test Reduction Table – WiFi 5.8 GHz Chain 1

Mode	Side	Required Channel	Tested/Reduced
802.11a 5800 MHz	Side A	149 – 5745 MHz	Reduced[4]
		157 – 5785 MHz	Tested
		165 – 5825 MHz	Tested
	Side B	149 – 5745 MHz	Reduced[1]
		157 – 5785 MHz	Tested
		165 – 5825 MHz	Reduced[1]
	Side C	149 – 5745 MHz	Reduced[1]
		157 – 5785 MHz	Tested
		165 – 5825 MHz	Reduced[1]
	Side D	149 – 5745 MHz	Tested
		157 – 5785 MHz	Tested
		165 – 5825 MHz	Tested
	Side E	149 – 5745 MHz	Reduced[1]
		157 – 5785 MHz	Tested
		165 – 5825 MHz	Reduced[1]
	Side F	149 – 5745 MHz	Reduced[1]
		157 – 5785 MHz	Reduced[1]
		165 – 5825 MHz	Reduced[1]
802.11n 5800 MHz	Side A	149 – 5745 MHz	Reduced[4]
		157 – 5785 MHz	Reduced[4]
		165 – 5825 MHz	Reduced[4]
	Side B	149 – 5745 MHz	Reduced[1]
		157 – 5785 MHz	Reduced[1]
		165 – 5825 MHz	Reduced[1]
	Side C	149 – 5745 MHz	Reduced[1]
		157 – 5785 MHz	Reduced[1]
		165 – 5825 MHz	Reduced[1]
	Side D	149 – 5745 MHz	Reduced[3]
		157 – 5785 MHz	Reduced[3]
		165 – 5825 MHz	Reduced[3]
	Side E	149 – 5745 MHz	Reduced[1]
		157 – 5785 MHz	Reduced[1]
		165 – 5825 MHz	Reduced[1]
	Side F	149 – 5745 MHz	Reduced[1]
		157 – 5785 MHz	Reduced[1]
		165 – 5825 MHz	Reduced[1]

Reduced[1] – When the reported SAR is ≤ 0.4 W/kg, SAR is not required for the remaining test configuration per KDB 248227 D01 v02r02 section 5.1.1 1) page 9.
Reduced[2] – When the antenna is more than 25 mm from a side, the test can be reduced per KDB447498 D01 v06 section 4.3.1 1) page 11. See below for calculations.
Reduced[3] – When the reported SAR is >0.8 W/kg, test the next highest configuration until the SAR value is ≤ 1.2 W/kg per KDB 248227 D01 v02r02 section 5.1.1 3) page 9.
Reduced[4] – When the reported SAR is >0.4 W/kg, test the next highest configuration until the SAR value is ≤ 0.8 W/kg per KDB 248227 D01 v02r02 section 5.1.1 2) page 9.

Maximum power: 63.1 mW

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Figure 10.7 Test Reduction Table – 3G 850 MHz

Band/ Frequency (MHz)	Technology	Side	Required Channel	Tested/ Reduced
Band 5 824-849 MHz	WCDMA	Side A	4132	Reduced[1]
			4183	Tested
			4233	Reduced[1]
		Side B	4132	Reduced[1]
			4183	Tested
			4233	Reduced[1]
		Side C	4132	Reduced[1]
			4183	Tested
			4233	Reduced[1]
		Side D	4132	Reduced[1]
			4183	Tested
			4233	Reduced[1]
		Side E	4132	Reduced[1]
			4183	Tested
			4233	Reduced[1]
		Side F	4132	Reduced[2]
			4183	Reduced[2]
			4233	Reduced[2]
Band 4 1710-1755 MHz		Side A	1312	Tested
			1413	Tested
			1513	Tested
		Side B	1312	Reduced[1]
			1413	Tested
			1513	Reduced[1]
		Side C	1312	Reduced[1]
			1413	Tested
			1513	Reduced[1]
		Side D	1312	Reduced[1]
			1413	Tested
			1513	Reduced[1]
		Side E	1312	Reduced[1]
			1413	Tested
			1513	Reduced[1]
		Side F	1312	Reduced[2]
			1413	Reduced[2]
			1513	Reduced[2]
Band 2 1850-1910 MHz		Side A	9262	Tested
			9400	Tested
			9538	Tested
		Side B	9262	Reduced[1]
			9400	Tested
			9538	Reduced[1]
		Side C	9262	Tested
			9400	Tested
			9538	Tested
		Side D	9262	Reduced[1]
			9400	Tested
			9538	Reduced[1]
		Side E	9262	Reduced[1]
			9400	Tested
			9538	Reduced[1]
		Side F	9262	Reduced[2]
			9400	Reduced[2]
			9538	Reduced[2]

Reduced[1] – When the mid channel is 3 dB below the limit, the remaining channels are not required per KDB 447498 D01 v06 section 4.3.3 page 14.
Reduced[2] – When the antenna is more than 25 mm from a side, the test can be reduced per KDB447498 D01 v06 section 4.3.1 1) page 11. See below for calculations.

Maximum power: 251.2 mW
Closest Distance to Side F: 97 mm

[{[(3.0)/(√0.849)]*50 mm}]+[{97-50 mm}*10]=632 mW which is greater than 251.2 mW
[{[(3.0)/(√1.755)]*50 mm}]+[{97-50 mm}*10]=583 mW which is greater than 251.2 mW
[{[(3.0)/(√1.91)]*50 mm}]+[{97-50 mm}*10]=578 mW which is greater than 251.2 mW

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

10.5 SAR Measurement Conditions for LTE Bands

10.5.1 LTE Functionality

The follow table identifies all the channel bandwidths in each frequency band supported by this device.

LTE Band Class	Bandwidth (MHz)	Frequency or Freq. Band (MHz)
2	1.4, 3, 5, 10, 15, 20	1850-1910 MHz
4	1.4, 3, 5, 10, 15, 20	1710-1755 MHz
5	1.4, 3, 5, 10	824-849 MHz
7	5,10,15,20	2500-2570 MHz
12	1.4, 3, 5, 10	699-716 MHz
13	5, 10	777-787 MHz
14	5, 10	788-798 MHz
17	5, 10	704-716 MHz
25	1.4, 3, 5, 10, 15, 20	1850-1915 MHz
26	1.4, 3, 5, 10, 15	814-849 MHz
30	5, 10	2305-2315 MHz
40	5, 10, 15, 20	2300-2400 MHz
41	5, 10, 15, 20	2496-2690 MHz
42	5, 10, 15, 20	3400-3600 MHz
48	5, 10, 15, 20	3550-3700 MHz
66	1.4, 3, 5, 10, 15, 20	1710-1780 MHz

10.5.2 Test Conditions

All SAR measurements for LTE were performed using the Anritsu MT8820C. A closed loop power control setting allowed the UE to transmit at the maximum output power during the SAR measurements. The Figure 11.1 table indicates all the test reduction utilized for this report.

MPR was enabled for this device. A-MPR was disabled for all SAR test measurements.

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Table 10.5.1 LTE Power Measurements

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
2	QPSK	1.4 MHz	6	0	19957	1710.7	23.2
					20175	1732.5	23.1
					20393	1754.3	23.2
			3	1	19957	1710.7	24.0
					20175	1732.5	24.0
					20393	1754.3	24.0
			1	0	19957	1710.7	24.0
					20175	1732.5	23.9
					20393	1754.3	23.9
			1	5	19957	1710.7	24.0
					20175	1732.5	24.0
					20393	1754.3	23.9
		3 MHz	15	0	19965	1711.5	23.3
					20175	1732.5	23.4
					20385	1753.5	23.2
			8	3	19965	1711.5	23.1
					20175	1732.5	23.1
					20385	1753.5	23.2
			1	0	19965	1711.5	24.0
					20175	1732.5	24.0
					20385	1753.5	23.9
			1	14	19965	1711.5	24.0
					20175	1732.5	24.0
					20385	1753.5	24.0
		5 MHz	25	0	19975	1712.5	23.3
					20175	1732.5	23.3
					20375	1752.5	23.2
			12	6	19975	1712.5	23.1
					20175	1732.5	23.3
					20375	1752.5	23.2
			1	0	19975	1712.5	24.0
					20175	1732.5	24.0
					20375	1752.5	24.0
			1	24	19975	1712.5	24.0
					20175	1732.5	24.0
					20375	1752.5	23.9

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
2	QPSK	10 MHz	50	0	20000	1715	23.1
					20175	1732.5	23.2
					20350	1750	23.3
			25	12	20000	1715	23.2
					20175	1732.5	23.3
					20350	1750	23.4
			1	0	20000	1715	24.0
					20175	1732.5	24.0
					20350	1750	24.0
			1	24	20000	1715	24.0
					20175	1732.5	24.0
					20350	1750	24.0
		15 MHz	75	0	20025	1717.5	23.1
					20175	1732.5	23.2
					20325	1747.5	23.2
			36	19	20025	1717.5	23.2
					20175	1732.5	23.2
					20325	1747.5	23.2
			1	0	20025	1717.5	24.0
					20175	1732.5	24.0
					20325	1747.5	24.0
			1	74	20025	1717.5	24.0
					20175	1732.5	24.0
					20325	1747.5	24.0
		20 MHz	100	0	20050	1720	23.2
					20175	1732.5	23.2
					20300	1745	23.3
			50	25	20050	1720	23.1
					20175	1732.5	23.1
					20300	1745	23.3
			1	0	20050	1720	24.0
					20175	1732.5	24.0
					20300	1745	24.0
			1	49	20050	1720	24.0
					20175	1732.5	24.0
					20300	1745	24.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
2	16QAM	1.4 MHz	6	0	19957	1710.7	22.0
					20175	1732.5	22.0
					20393	1754.3	22.2
			3	1	19957	1710.7	23.1
					20175	1732.5	23.1
					20393	1754.3	23.2
			1	0	19957	1710.7	23.0
					20175	1732.5	23.0
					20393	1754.3	23.1
			1	5	19957	1710.7	23.1
					20175	1732.5	23.0
					20393	1754.3	23.1
		3 MHz	15	0	19965	1711.5	22.2
					20175	1732.5	22.3
					20385	1753.5	22.4
			8	3	19965	1711.5	22.1
					20175	1732.5	22.3
					20385	1753.5	22.2
			1	0	19965	1711.5	23.1
					20175	1732.5	23.0
					20385	1753.5	23.1
			1	14	19965	1711.5	23.3
					20175	1732.5	23.2
					20385	1753.5	23.4
		5 MHz	25	0	19975	1712.5	22.3
					20175	1732.5	22.2
					20375	1752.5	22.1
			12	6	19975	1712.5	22.3
					20175	1732.5	22.2
					20375	1752.5	22.4
			1	0	19975	1712.5	23.0
					20175	1732.5	23.0
					20375	1752.5	23.1
			1	24	19975	1712.5	23.0
					20175	1732.5	23.0
					20375	1752.5	23.1

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
2	16QAM	10 MHz	50	0	20000	1715	22.2
					20175	1732.5	22.1
					20350	1750	22.3
			25	12	20000	1715	22.3
					20175	1732.5	22.2
					20350	1750	22.4
			1	0	20000	1715	23.3
					20175	1732.5	23.2
					20350	1750	23.2
			1	24	20000	1715	23.3
					20175	1732.5	23.1
					20350	1750	23.2
		15 MHz	75	0	20025	1717.5	22.1
					20175	1732.5	22.0
					20325	1747.5	22.1
			36	19	20025	1717.5	22.3
					20175	1732.5	22.3
					20325	1747.5	22.2
			1	0	20025	1717.5	23.2
					20175	1732.5	23.3
					20325	1747.5	23.3
			1	74	20025	1717.5	23.1
					20175	1732.5	23.0
					20325	1747.5	23.2
		20 MHz	100	0	20050	1720	22.2
					20175	1732.5	22.1
					20300	1745	22.3
			50	25	20050	1720	22.1
					20175	1732.5	22.0
					20300	1745	22.2
			1	0	20050	1720	23.3
					20175	1732.5	23.4
					20300	1745	23.2
			1	99	20050	1720	23.1
					20175	1732.5	23.2
					20300	1745	23.2

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
25	QPSK	1.4 MHz	6	0	26047	1850.7	22.99
					26365	1882.5	22.15
					26683	1914.3	22.96
			3	1	26047	1850.7	24.00
					26365	1882.5	23.31
					26683	1914.3	23.26
			1	0	26047	1850.7	23.91
					26365	1882.5	23.13
					26683	1914.3	23.12
			1	5	26047	1850.7	23.87
					26365	1882.5	23.14
					26683	1914.3	23.09
		3 MHz	15	0	26055	1851.5	22.95
					26365	1882.5	22.01
					26675	1913.5	22.36
			8	3	26055	1851.5	22.82
					26365	1882.5	21.95
					26675	1913.5	22.31
			1	0	26055	1851.5	23.84
					26365	1882.5	22.59
					26675	1913.5	23.10
			1	14	26055	1851.5	23.71
					26365	1882.5	22.78
					26675	1913.5	23.16
		5 MHz	25	0	26065	1852.5	22.79
					26365	1882.5	22.01
					26665	1912.5	22.36
			12	6	26065	1852.5	22.81
					26365	1882.5	21.93
					26665	1912.5	22.30
			1	0	26065	1852.5	23.88
					26365	1882.5	22.86
					26665	1912.5	23.21
			1	24	26065	1852.5	23.66
					26365	1882.5	22.77
					26665	1912.5	23.16

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
25	QPSK	10 MHz	50	0	26090	1855.0	22.88
					26365	1882.5	21.86
					26640	1910.5	22.30
			25	12	26090	1855.0	22.73
					26365	1882.5	21.91
					26640	1910.5	22.37
			1	0	26090	1855.0	23.91
					26365	1882.5	22.88
					26640	1910.5	22.96
			1	49	26090	1855.0	23.43
					26365	1882.5	22.81
					26640	1910.5	23.26
		15 MHz	75	0	26115	1857.5	22.72
					26365	1882.5	21.97
					26615	1907.5	22.29
			36	19	26115	1857.5	22.71
					26365	1882.5	21.99
					26615	1907.5	22.33
			1	0	26115	1857.5	23.94
					26365	1882.5	22.91
					26615	1907.5	23.12
			1	74	26115	1857.5	23.20
					26365	1882.5	22.65
					26615	1907.5	23.08
		20 MHz	100	0	26140	1860.0	22.66
					26365	1882.5	22.09
					26590	1905.0	22.24
			50	25	26140	1860.0	22.60
					26365	1882.5	21.95
					26590	1905.0	22.29
			1	0	26140	1860.0	23.89
					26365	1882.5	23.12
					26590	1905.0	23.26
			1	49	26140	1860.0	23.46
					26365	1882.5	22.70
					26590	1905.0	23.20

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
25	16QAM	1.4 MHz	6	0	26047	1850.7	22.07
					26365	1882.5	21.33
					26683	1914.3	21.44
			3	1	26047	1850.7	23.02
					26365	1882.5	22.08
					26683	1914.3	22.32
			1	0	26047	1850.7	22.97
					26365	1882.5	21.99
					26683	1914.3	22.29
			1	5	26047	1850.7	22.86
					26365	1882.5	21.96
					26683	1914.3	22.23
		3 MHz	15	0	26055	1851.5	21.93
					26365	1882.5	21.39
					26675	1913.5	21.39
			8	3	26055	1851.5	21.35
					26365	1882.5	21.36
					26675	1913.5	21.39
			1	0	26055	1851.5	23.31
					26365	1882.5	22.14
					26675	1913.5	22.67
			1	14	26055	1851.5	22.89
					26365	1882.5	22.22
					26675	1913.5	22.78
		5 MHz	25	0	26065	1852.5	21.87
					26365	1882.5	21.32
					26665	1912.5	21.31
			12	6	26065	1852.5	21.82
					26365	1882.5	21.34
					26665	1912.5	21.37
			1	0	26065	1852.5	23.13
					26365	1882.5	21.94
					26665	1912.5	22.32
			1	24	26065	1852.5	23.14
					26365	1882.5	22.02
					26665	1912.5	22.49

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
25	16QAM	10 MHz	50	0	26090	1855.0	21.78
					26365	1882.5	21.38
					26640	1910.5	21.34
			25	12	26090	1855.0	21.86
					26365	1882.5	21.38
					26640	1910.5	21.33
			1	0	26090	1855.0	23.41
					26365	1882.5	22.13
					26640	1910.5	22.60
			1	24	26090	1855.0	23.31
					26365	1882.5	22.27
					26640	1910.5	22.80
		15 MHz	75	0	26115	1857.5	21.64
					26365	1882.5	21.34
					26615	1907.5	21.36
			36	19	26115	1857.5	21.78
					26365	1882.5	21.38
					26615	1907.5	21.30
			1	0	26115	1857.5	22.87
					26365	1882.5	21.70
					26615	1907.5	22.35
			1	74	26115	1857.5	22.29
					26365	1882.5	21.75
					26615	1907.5	22.14
		20 MHz	100	0	26140	1860.0	21.68
					26365	1882.5	21.30
					26590	1905.0	21.34
			50	25	26140	1860.0	21.61
					26365	1882.5	21.35
					26590	1905.0	21.31
			1	0	26140	1860.0	23.44
					26365	1882.5	22.10
					26590	1905.0	22.34
			1	99	26140	1860.0	22.20
					26365	1882.5	21.93
					26590	1905.0	22.36

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
4	QPSK	1.4 MHz	6	0	19957	1710.7	23.2
					20175	1732.5	23.1
					20393	1754.3	23.2
			3	1	19957	1710.7	24.0
					20175	1732.5	24.0
					20393	1754.3	24.0
			1	0	19957	1710.7	24.0
					20175	1732.5	23.9
					20393	1754.3	23.9
			1	5	19957	1710.7	24.0
					20175	1732.5	24.0
					20393	1754.3	23.9
		3 MHz	15	0	19965	1711.5	23.3
					20175	1732.5	23.4
					20385	1753.5	23.2
			8	3	19965	1711.5	23.1
					20175	1732.5	23.1
					20385	1753.5	23.2
			1	0	19965	1711.5	24.0
					20175	1732.5	24.0
					20385	1753.5	23.9
			1	14	19965	1711.5	24.0
					20175	1732.5	24.0
					20385	1753.5	24.0
		5 MHz	25	0	19975	1712.5	23.3
					20175	1732.5	23.3
					20375	1752.5	23.2
			12	6	19975	1712.5	23.1
					20175	1732.5	23.3
					20375	1752.5	23.2
			1	0	19975	1712.5	24.0
					20175	1732.5	24.0
					20375	1752.5	24.0
			1	24	19975	1712.5	24.0
					20175	1732.5	24.0
					20375	1752.5	23.9

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
4	QPSK	10 MHz	50	0	20000	1715	23.1
					20175	1732.5	23.2
					20350	1750	23.3
			25	12	20000	1715	23.2
					20175	1732.5	23.3
					20350	1750	23.4
			1	0	20000	1715	24.0
					20175	1732.5	24.0
					20350	1750	24.0
			1	24	20000	1715	24.0
					20175	1732.5	24.0
					20350	1750	24.0
		15 MHz	75	0	20025	1717.5	23.1
					20175	1732.5	23.2
					20325	1747.5	23.2
			36	19	20025	1717.5	23.2
					20175	1732.5	23.2
					20325	1747.5	23.2
			1	0	20025	1717.5	24.0
					20175	1732.5	24.0
					20325	1747.5	24.0
			1	74	20025	1717.5	24.0
					20175	1732.5	24.0
					20325	1747.5	24.0
		20 MHz	100	0	20050	1720	23.2
					20175	1732.5	23.2
					20300	1745	23.3
			50	25	20050	1720	23.1
					20175	1732.5	23.1
					20300	1745	23.3
			1	0	20050	1720	24.0
					20175	1732.5	24.0
					20300	1745	24.0
			1	99	20050	1720	24.0
					20175	1732.5	24.0
					20300	1745	24.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
4	16QAM	1.4 MHz	6	0	19957	1710.7	22.0
					20175	1732.5	22.0
					20393	1754.3	22.2
			3	1	19957	1710.7	23.1
					20175	1732.5	23.1
					20393	1754.3	23.2
			1	0	19957	1710.7	23.0
					20175	1732.5	23.0
					20393	1754.3	23.1
			1	5	19957	1710.7	23.1
					20175	1732.5	23.0
					20393	1754.3	23.1
		3 MHz	15	0	19965	1711.5	22.2
					20175	1732.5	22.3
					20385	1753.5	22.4
			8	3	19965	1711.5	22.1
					20175	1732.5	22.3
					20385	1753.5	22.2
			1	0	19965	1711.5	23.1
					20175	1732.5	23.0
					20385	1753.5	23.1
			1	14	19965	1711.5	23.3
					20175	1732.5	23.2
					20385	1753.5	23.4
		5 MHz	25	0	19975	1712.5	22.3
					20175	1732.5	22.2
					20375	1752.5	22.1
			12	6	19975	1712.5	22.3
					20175	1732.5	22.2
					20375	1752.5	22.4
			1	0	19975	1712.5	23.0
					20175	1732.5	23.0
					20375	1752.5	23.1
			1	24	19975	1712.5	23.0
					20175	1732.5	23.0
					20375	1752.5	23.1

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
4	16QAM	10 MHz	50	0	20000	1715	22.2
					20175	1732.5	22.1
					20350	1750	22.3
			25	12	20000	1715	22.3
					20175	1732.5	22.2
					20350	1750	22.4
			1	0	20000	1715	23.3
					20175	1732.5	23.2
					20350	1750	23.2
			1	24	20000	1715	23.3
					20175	1732.5	23.1
					20350	1750	23.2
		15 MHz	75	0	20025	1717.5	22.1
					20175	1732.5	22.0
					20325	1747.5	22.1
			36	19	20025	1717.5	22.3
					20175	1732.5	22.3
					20325	1747.5	22.2
			1	0	20025	1717.5	23.2
					20175	1732.5	23.3
					20325	1747.5	23.3
			1	74	20025	1717.5	23.1
					20175	1732.5	23.0
					20325	1747.5	23.2
		20 MHz	100	0	20050	1720	22.2
					20175	1732.5	22.1
					20300	1745	22.3
			50	25	20050	1720	22.1
					20175	1732.5	22.0
					20300	1745	22.2
			1	0	20050	1720	23.3
					20175	1732.5	23.4
					20300	1745	23.2
			1	99	20050	1720	23.1
					20175	1732.5	23.2
					20300	1745	23.2

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
5	QPSK	1.4 MHz	6	0	20407	824.7	23.0
					20525	836.5	23.0
					20643	848.3	23.1
			3	1	20407	824.7	24.0
					20525	836.5	23.9
					20643	848.3	24.0
			1	0	20407	824.7	23.9
					20525	836.5	24.0
					20643	848.3	24.0
			1	5	20407	824.7	24.0
					20525	836.5	23.9
					20643	848.3	24.0
		3 MHz	15	0	20415	825.5	23.0
					20525	836.5	22.9
					20635	847.5	23.1
			8	3	20415	825.5	23.0
					20525	836.5	23.1
					20635	847.5	23.1
			1	0	20415	825.5	23.9
					20525	836.5	24.0
					20635	847.5	24.0
			1	14	20415	825.5	24.0
					20525	836.5	24.0
					20635	847.5	24.0
		5 MHz	25	0	20425	826.5	23.1
					20525	836.5	22.9
					20625	846.5	23.1
			12	6	20425	826.5	23.0
					20525	836.5	23.1
					20625	846.5	23.1
			1	0	20425	826.5	23.8
					20525	836.5	24.0
					20625	846.5	24.0
			1	24	20425	826.5	24.0
					20525	836.5	24.0
					20625	846.5	24.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
5	QPSK	10 MHz	50	0	20450	829	22.9
					20525	836.5	22.8
					20600	844	22.8
			25	12	20450	829	23.0
					20525	836.5	22.9
					20600	844	23.0
			1	0	20450	829	24.0
					20525	836.5	24.0
					20600	844	23.9
			1	24	20450	829	23.9
					20525	836.5	24.0
					20600	844	24.0
	16QAM	1.4 MHz	6	0	20407	824.7	22.1
					20525	836.5	22.2
					20643	848.3	22.2
			3	1	20407	824.7	22.9
					20525	836.5	23.0
					20643	848.3	23.1
			1	0	20407	824.7	23.1
					20525	836.5	23.2
					20643	848.3	23.2
			1	5	20407	824.7	23.2
					20525	836.5	23.2
					20643	848.3	23.4
		3 MHz	15	0	20415	825.5	22.0
					20525	836.5	22.1
					20635	847.5	22.1
			8	3	20415	825.5	21.9
					20525	836.5	22.1
					20635	847.5	22.0
			1	0	20415	825.5	23.0
					20525	836.5	23.1
					20635	847.5	23.1
			1	14	20415	825.5	23.4
					20525	836.5	23.3
					20635	847.5	23.4

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
5	16QAM	5 MHz	25	0	20425	826.5	21.9
					20525	836.5	21.9
					20625	846.5	21.9
			12	6	20425	826.5	22.1
					20525	836.5	22.1
					20625	846.5	22.3
			1	0	20425	826.5	23.0
					20525	836.5	23.2
					20625	846.5	23.2
			1	24	20425	826.5	23.3
					20525	836.5	23.3
					20625	846.5	23.4
		10 MHz	50	0	20450	829	21.8
					20525	836.5	21.8
					20600	844	21.9
			25	12	20450	829	21.9
					20525	836.5	21.9
					20600	844	21.9
			1	0	20450	829	23.1
					20525	836.5	23.4
					20600	844	23.2
			1	24	20450	829	23.1
					20525	836.5	23.3
					20600	844	23.3

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
26	QPSK	1.4 MHz	6	0	26697	814.7	22.04
					26865	831.5	22.23
					27033	848.3	22.21
			3	1	26697	814.7	23.26
					26865	831.5	23.35
					27033	848.3	23.34
			1	0	26697	814.7	23.13
					26865	831.5	23.14
					27033	848.3	23.35
			1	5	26697	814.7	23.08
					26865	831.5	23.15
					27033	848.3	23.21
		3 MHz	15	0	26705	815.5	22.24
					26865	831.5	22.29
					27025	847.5	22.34
			8	3	26705	815.5	22.25
					26865	831.5	22.38
					27025	847.5	22.25
			1	0	26705	815.5	23.02
					26865	831.5	23.09
					27025	847.5	23.32
			1	14	26705	815.5	22.97
					26865	831.5	23.01
					27025	847.5	23.20
		5 MHz	25	0	26715	816.5	22.28
					26865	831.5	22.15
					27015	846.5	22.32
			12	6	26715	816.5	22.21
					26865	831.5	22.32
					27015	846.5	22.35
			1	0	26715	816.5	23.09
					26865	831.5	23.03
					27015	846.5	23.21
			1	24	26715	816.5	23.10
					26865	831.5	23.18
					27015	846.5	23.19

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
26	QPSK	10 MHz	50	0	26740	819.0	22.36
					26865	831.5	22.26
					26990	844.0	22.35
			25	12	26740	819.0	22.39
					26865	831.5	22.24
					26990	844.0	22.32
			1	0	26740	819.0	23.17
					26865	831.5	23.26
					26990	844.0	23.13
			1	24	26740	819.0	23.14
					26865	831.5	23.19
					26990	844.0	23.30
		15 MHz	75	0	26765	821.5	22.60
					26865	831.5	22.43
					26965	841.5	22.39
			36	19	26765	821.5	22.37
					26865	831.5	22.20
					26965	841.5	22.35
			1	0	26765	821.5	23.45
					26865	831.5	23.57
					26965	841.5	23.58
			1	74	26765	821.5	23.49
					26865	831.5	23.43
					26965	841.5	23.61

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
26	16QAM	1.4 MHz	6	0	26697	814.7	21.35
					26865	831.5	21.39
					27033	848.3	21.53
			3	1	26697	814.7	22.24
					26865	831.5	22.39
					27033	848.3	22.47
			1	0	26697	814.7	22.44
					26865	831.5	22.28
					27033	848.3	22.53
			1	5	26697	814.7	22.22
					26865	831.5	22.64
					27033	848.3	22.11
		3 MHz	15	0	26705	815.5	21.33
					26865	831.5	21.37
					27025	847.5	21.36
			8	3	26705	815.5	21.33
					26865	831.5	21.39
					27025	847.5	21.35
			1	0	26705	815.5	22.46
					26865	831.5	22.62
					27025	847.5	22.67
			1	14	26705	815.5	22.18
					26865	831.5	22.56
					27025	847.5	22.35
		5 MHz	25	0	26715	816.5	21.35
					26865	831.5	21.33
					27015	846.5	21.41
			12	6	26715	816.5	21.39
					26865	831.5	21.38
					27015	846.5	21.41
			1	0	26715	816.5	22.29
					26865	831.5	22.07
					27015	846.5	22.34
			1	24	26715	816.5	22.25
					26865	831.5	22.33
					27015	846.5	22.13

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
26	16QAM	10 MHz	50	0	26740	819.0	21.47
					26865	831.5	21.34
					26990	844.0	21.35
			25	12	26740	819.0	21.41
					26865	831.5	21.37
					26990	844.0	21.35
			1	0	26740	819.0	22.29
					26865	831.5	22.33
					26990	844.0	22.18
			1	24	26740	819.0	22.53
					26865	831.5	22.44
					26990	844.0	22.49
		15 MHz	75	0	26765	821.5	21.55
					26865	831.5	21.40
					26965	841.5	21.44
			36	19	26765	821.5	21.46
					26865	831.5	21.33
					26965	841.5	21.40
			1	0	26765	821.5	22.97
					26865	831.5	23.03
					26965	841.5	23.16
			1	74	26765	821.5	23.16
					26865	831.5	23.08
					26965	841.5	23.15

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
12	QPSK	1.4 MHz	6	0	23017	699.7	22.00
					23095	707.5	22.00
					23173	715.3	21.98
			3	1	23017	699.7	23.08
					23095	707.5	23.08
					23173	715.3	23.17
			1	0	23017	699.7	22.82
					23095	707.5	22.85
					23173	715.3	23.03
			1	5	23017	699.7	22.93
					23095	707.5	22.99
					23173	715.3	23.03
		3 MHz	15	0	23025	700.5	22.02
					23095	707.5	22.11
					23165	714.5	22.16
			8	3	23025	700.5	22.12
					23095	707.5	22.16
					23165	714.5	22.26
			1	0	23025	700.5	22.83
					23095	707.5	23.00
					23165	714.5	22.90
			1	14	23025	700.5	22.96
					23095	707.5	23.00
					23165	714.5	23.11
		5 MHz	25	0	23035	701.5	22.25
					23095	707.5	22.14
					23155	713.5	22.11
			12	6	23035	701.5	22.08
					23095	707.5	22.24
					23155	713.5	22.14
			1	0	23035	701.5	22.96
					23095	707.5	22.96
					23155	713.5	23.00
			1	24	23035	701.5	23.05
					23095	707.5	23.02
					23155	713.5	22.95

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
12	QPSK	10 MHz	50	0	23060	704.0	22.07
					23095	707.5	22.10
					23103	711.0	22.04
			25	12	23060	704.0	22.21
					23095	707.5	22.23
					23103	711.0	22.28
			1	0	23060	704.0	22.69
					23095	707.5	22.72
					23103	711.0	22.90
			1	24	23060	704.0	23.14
					23095	707.5	23.00
					23103	711.0	23.07
	16QAM	1.4 MHz	6	0	23017	699.7	21.30
					23095	707.5	21.31
					23173	715.3	21.39
			3	1	23017	699.7	21.87
					23095	707.5	22.03
					23173	715.3	21.99
			1	0	23017	699.7	21.94
					23095	707.5	22.13
					23173	715.3	22.14
			1	5	23017	699.7	22.31
					23095	707.5	22.18
					23173	715.3	22.09
		3 MHz	15	0	23025	700.5	21.31
					23095	707.5	21.38
					23165	714.5	21.34
			8	3	23025	700.5	21.31
					23095	707.5	21.33
					23165	714.5	21.37
			1	0	23025	700.5	22.22
					23095	707.5	22.26
					23165	714.5	22.11
			1	14	23025	700.5	22.29
					23095	707.5	22.17
					23165	714.5	22.08

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
12	16QAM	5 MHz	25	0	23035	701.5	21.38
					23095	707.5	21.33
					23155	713.5	21.37
			12	6	23035	701.5	21.54
					23095	707.5	21.39
					23155	713.5	21.49
			1	0	23035	701.5	22.23
					23095	707.5	22.10
					23155	713.5	21.88
			1	24	23035	701.5	22.50
					23095	707.5	22.09
					23155	713.5	22.02
		10 MHz	50	0	23060	704.0	21.38
					23095	707.5	21.35
					23103	711.0	21.38
			25	12	23060	704.0	21.38
					23095	707.5	21.37
					23103	711.0	21.31
			1	0	23060	704.0	21.92
					23095	707.5	21.98
					23103	711.0	22.04
			1	24	23060	704.0	21.95
					23095	707.5	22.20
					23103	711.0	22.09

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
13	QPSK	5 MHz	25	0	23205	779.5	23.35
					23230	782.0	23.45
					23255	784.5	23.35
			12	6	23205	779.5	23.46
					23230	782.0	23.42
					23255	784.5	23.47
			1	0	23205	779.5	23.45
					23230	782.0	23.39
					23255	784.5	23.40
			1	24	23205	779.5	23.49
					23230	782.0	23.47
					23255	784.5	23.44
		10 MHz	50	0	23230	782.0	23.26
			25	13	23230	782.0	23.51
			1	0	23230	782.0	23.48
			1	49	23230	782.0	23.48
	16QAM	5 MHz	25	0	23205	779.5	22.33
					23230	782.0	22.36
					23255	784.5	22.32
			12	6	23205	779.5	22.58
					23230	782.0	22.69
					23255	784.5	22.66
			1	0	23205	779.5	23.48
					23230	782.0	23.57
					23255	784.5	23.55
			1	24	23205	779.5	23.64
					23230	782.0	23.32
					23255	784.5	23.57
		10 MHz	50	0	23230	782.0	22.20
			25	13	23230	782.0	22.48
			1	0	23230	782.0	23.38
			1	49	23230	782.0	23.30

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
17	QPSK	5 MHz	25	0	23755	706.5	22.14
					23790	710.0	22.07
					23825	713.5	22.12
			12	6	23755	706.5	22.16
					23790	710.0	22.09
					23825	713.5	22.01
			1	0	23755	706.5	22.95
					23790	710.0	23.02
					23825	713.5	23.02
			1	24	23755	706.5	23.00
					23790	710.0	22.95
					23825	713.5	23.04
		10 MHz	50	0	23780	709.0	22.11
					23790	710.0	22.11
					23800	711.0	22.17
			25	12	23780	709.0	22.17
					23790	710.0	22.13
					23800	711.0	22.13
			1	0	23780	709.0	22.94
					23790	710.0	22.92
					23800	711.0	22.83
			1	24	23780	709.0	23.11
					23790	710.0	23.09
					23800	711.0	23.02

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
17	16QAM	5 MHz	25	0	23755	706.5	21.33
					23790	710.0	21.32
					23825	713.5	21.36
			12	6	23755	706.5	21.36
					23790	710.0	21.31
					23825	713.5	21.36
			1	0	23755	706.5	22.24
					23790	710.0	21.93
					23825	713.5	21.79
			1	24	23755	706.5	21.97
					23790	710.0	21.76
					23825	713.5	21.90
		10 MHz	50	0	23780	709.0	21.36
					23790	710.0	21.35
					23800	711.0	21.34
			25	12	23780	709.0	21.30
					23790	710.0	21.38
					23800	711.0	21.30
			1	0	23780	709.0	22.00
					23790	710.0	22.26
					23800	711.0	21.93
			1	24	23780	709.0	22.04
					23790	710.0	22.10
					23800	711.0	22.12

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
14	QPSK	5 MHz	25	0	23305	790.5	23.37
					23330	793.0	23.46
					23355	795.5	23.32
			12	6	23305	790.5	23.41
					23330	793.0	23.49
					23355	795.5	23.45
			1	0	23305	790.5	23.43
					23330	793.0	23.46
					23355	795.5	23.42
			1	24	23305	790.5	23.52
					23330	793.0	23.55
					23355	795.5	23.47
		10 MHz	50	0	23330	793.0	23.37
			25	13	23330	793.0	23.54
			1	0	23330	793.0	23.43
			1	49	23330	793.0	23.45
	16QAM	5 MHz	25	0	23305	790.5	22.36
					23330	793.0	22.39
					23355	795.5	22.34
			12	6	23305	790.5	22.59
					23330	793.0	22.60
					23355	795.5	22.54
			1	0	23305	790.5	23.43
					23330	793.0	23.41
					23355	795.5	23.43
			1	24	23305	790.5	23.51
					23330	793.0	23.54
					23355	795.5	23.50
		10 MHz	50	0	23330	793.0	22.23
			25	13	23330	793.0	22.49
			1	0	23330	793.0	23.39
			1	49	23330	793.0	23.34

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
66	QPSK	1.4 MHz	6	0	26047	1850.7	23.2
					26365	1882.5	23.1
					26683	1914.3	23.0
			3	1	26047	1850.7	24.0
					26365	1882.5	24.0
					26683	1914.3	23.8
			1	0	26047	1850.7	24.0
					26365	1882.5	24.0
					26683	1914.3	23.9
			1	5	26047	1850.7	24.0
					26365	1882.5	24.0
					26683	1914.3	23.8
		3 MHz	15	0	26055	1851.5	23.1
					26365	1882.5	23.1
					26675	1913.5	22.9
			8	3	26055	1851.5	23.4
					26365	1882.5	23.3
					26675	1913.5	23.2
			1	0	26055	1851.5	24.0
					26365	1882.5	24.0
					26675	1913.5	23.9
			1	14	26055	1851.5	24.0
					26365	1882.5	24.0
					26675	1913.5	23.9
		5 MHz	25	0	26065	1852.5	23.1
					26365	1882.5	23.0
					26665	1912.5	22.9
			12	6	26065	1852.5	23.2
					26365	1882.5	23.0
					26665	1907.5	23.1
			1	0	26065	1852.5	24.0
					26365	1882.5	24.0
					26665	1907.5	24.0
			1	24	26065	1852.5	24.0
					26365	1882.5	24.0
					26665	1907.5	23.8

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
66	QPSK	10 MHz	50	0	26090	1855	23.2
					26365	1882.5	23.0
					26640	1910	23.0
			25	12	26090	1855	23.2
					26365	1882.5	23.0
					26640	1910	23.1
			1	0	26090	1855	24.0
					26365	1882.5	24.0
					26640	1910	24.0
			1	24	26090	1855	24.0
					26365	1882.5	24.0
					26640	1910	23.9
		15 MHz	75	0	26115	1857.5	23.2
					26365	1882.5	23.0
					26615	1907.5	23.1
			36	19	26115	1857.5	23.2
					26365	1882.5	23.0
					26615	1907.5	23.0
			1	0	26115	1857.5	24.0
					26365	1882.5	24.0
					26615	1907.5	24.0
			1	74	26115	1857.5	24.0
					26365	1882.5	24.0
					26615	1907.5	23.8
		20 MHz	100	0	26140	1860	23.0
					26365	1882.5	23.0
					26590	1905	23.2
			50	25	26140	1860	22.9
					26365	1882.5	23.0
					26590	1905	23.1
			1	0	26140	1860	24.0
					26365	1882.5	24.0
					26590	1905	24.0
			1	99	26140	1860	24.0
					26365	1882.5	24.0
					26590	1905	23.9

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
66	16QAM	1.4 MHz	6	0	26047	1850.7	22.1
					26365	1882.5	21.9
					26683	1914.3	22.0
			3	1	26047	1850.7	23.0
					26365	1882.5	22.9
					26683	1914.3	23.0
			1	0	26047	1850.7	23.2
					26365	1882.5	23.3
					26683	1914.3	23.1
			1	5	26047	1850.7	23.0
					26365	1882.5	22.9
					26683	1914.3	23.0
		3 MHz	15	0	26055	1851.5	22.2
					26365	1882.5	22.0
					26675	1913.5	22.2
			8	3	26055	1851.5	22.2
					26365	1882.5	21.9
					26675	1913.5	22.1
			1	0	26055	1851.5	23.2
					26365	1882.5	23.3
					26675	1913.5	23.1
			1	14	26055	1851.5	23.0
					26365	1882.5	23.2
					26675	1913.5	23.1
		5 MHz	25	0	26065	1852.5	22.3
					26365	1882.5	22.2
					26665	1912.5	22.2
			12	6	26065	1852.5	22.0
					26365	1882.5	22.0
					26665	1907.5	22.2
			1	0	26065	1852.5	23.1
					26365	1882.5	23.0
					26665	1907.5	23.0
			1	24	26065	1852.5	22.9
					26365	1882.5	23.1
					26665	1907.5	23.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
66	16QAM	10 MHz	50	0	26090	1855	22.2
					26365	1882.5	22.3
					26640	1910	22.1
			25	12	26090	1855	22.3
					26365	1882.5	22.2
					26640	1910	22.1
			1	0	26090	1855	23.1
					26365	1882.5	23.3
					26640	1910	23.2
			1	24	26090	1855	23.2
					26365	1882.5	23.0
					26640	1910	23.0
		15 MHz	75	0	26115	1857.5	22.0
					26365	1882.5	22.1
					26615	1907.5	21.9
			36	19	26115	1857.5	22.1
					26365	1882.5	22.1
					26615	1907.5	21.9
			1	0	26115	1857.5	23.2
					26365	1882.5	23.3
					26615	1907.5	23.3
			1	74	26115	1857.5	23.1
					26365	1882.5	23.2
					26615	1907.5	23.0
		20 MHz	100	0	26140	1860	22.1
					26365	1882.5	22.0
					26590	1905	21.9
			50	25	26140	1860	22.1
					26365	1882.5	22.2
					26590	1905	22.1
			1	0	26140	1860	23.3
					26365	1882.5	23.3
					26590	1905	23.2
			1	99	26140	1860	23.1
					26365	1882.5	23.2
					26590	1905	23.0

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
7	QPSK	5 MHz	25	0	20775	2502.5	21.3
					21100	2535.0	21.3
					21425	2567.5	21.2
			12	6	20775	2502.5	21.1
					21100	2535.0	21.3
					21425	2567.5	21.2
			1	0	20775	2502.5	22.4
					21100	2535.0	22.7
					21425	2567.5	22.1
			1	24	20775	2502.5	22.4
					21100	2535.0	22.6
					21425	2567.5	22.9

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
7	QPSK	10 MHz	50	0	20800	2505.0	21.1
					21100	2535.0	21.2
					21400	2565.0	21.3
			25	12	20800	2505.0	21.2
					21100	2535.0	21.3
					21400	2565.0	21.4
			1	0	20800	2505.0	22.1
					21100	2535.0	22.3
					21400	2565.0	22.0
			1	24	20800	2505.0	22.6
					21100	2535.0	22.9
					21400	2565.0	22.3
		15 MHz	75	0	20825	2507.5	21.1
					21100	2535.0	21.2
					21375	2562.5	21.2
			36	19	20825	2507.5	21.2
					21100	2535.0	21.2
					21375	2562.5	21.2
			1	0	20825	2507.5	21.8
					21100	2535.0	21.9
					21375	2562.5	21.7
			1	74	20825	2507.5	21.6
					21100	2535.0	21.8
					21375	2562.5	21.5
		20 MHz	100	0	20850	2510.0	21.2
					21100	2535.0	21.2
					21350	2560.0	21.3
			50	25	20850	2510.0	21.1
					21100	2535.0	21.1
					21350	2560.0	21.3
			1	0	20850	2510.0	22.1
					21100	2535.0	22.2
					21350	2560.0	22.0
			1	49	20850	2510.0	22.4
					21100	2535.0	22.6
					21350	2560.0	22.2

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
7	16QAM	5 MHz	25	0	20775	2502.5	20.3
					21100	2535.0	20.2
					21425	2567.5	20.1
			12	6	20775	2502.5	20.3
					21100	2535.0	20.2
					21425	2567.5	20.4
			1	0	20775	2502.5	21.0
					21100	2535.0	21.0
					21425	2567.5	21.1
			1	24	20775	2502.5	21.0
					21100	2535.0	21.0
					21425	2567.5	21.1

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
7	16QAM	10 MHz	50	0	20800	2505.0	20.2
					21100	2535.0	20.1
					21400	2565.0	20.3
			25	12	20800	2505.0	20.3
					21100	2535.0	20.2
					21400	2565.0	20.4
			1	0	20800	2505.0	21.3
					21100	2535.0	21.2
					21400	2565.0	21.2
			1	24	20800	2505.0	21.3
					21100	2535.0	21.1
					21400	2565.0	21.2
		15 MHz	75	0	20825	2507.5	20.1
					21100	2535.0	20.0
					21375	2562.5	20.1
			36	19	20825	2507.5	20.3
					21100	2535.0	20.3
					21375	2562.5	22.2
			1	0	20825	2507.5	21.2
					21100	2535.0	21.3
					21375	2562.5	21.3
			1	74	20825	2507.5	21.1
					21100	2535.0	21.0
					21375	2562.5	21.2
		20 MHz	100	0	20850	2510.0	20.2
					21100	2535.0	20.1
					21350	2560.0	20.3
			50	25	20850	2510.0	20.1
					21100	2535.0	20.0
					21350	2560.0	20.2
			1	0	20850	2510.0	21.3
					21100	2535.0	21.4
					21350	2560.0	21.2
			1	99	20850	2510.0	21.1
					21100	2535.0	21.2
					21350	2560.0	21.2

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
30	QPSK	5 MHz	25	0	27685	2307.5	22.72
					27710	2310.0	22.58
					27735	2312.5	22.55
			12	6	27685	2307.5	22.77
					27710	2310.0	22.55
					27735	2312.5	22.61
			1	0	27685	2307.5	22.84
					27710	2310.0	23.14
					27735	2312.5	23.12
			1	24	27685	2307.5	23.04
					27710	2310.0	23.01
					27735	2312.5	22.89
		10 MHz	50	0	27710	2310.0	22.75
			25	13	27710	2310.0	22.42
			1	0	27710	2310.0	23.21
			1	49	27710	2310.0	23.46
	16QAM	5 MHz	25	0	27685	2307.5	21.70
					27710	2310.0	21.60
					27735	2312.5	21.69
			12	6	27685	2307.5	21.85
					27710	2310.0	21.86
					27735	2312.5	21.88
			1	0	27685	2307.5	22.46
					27710	2310.0	22.23
					27735	2312.5	21.55
			1	24	27685	2307.5	22.37
					27710	2310.0	21.98
					27735	2312.5	21.41
		10 MHz	50	0	27710	2310.0	21.75
			25	13	27710	2310.0	21.71
			1	0	27710	2310.0	22.01
			1	49	27710	2310.0	21.67

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
40	QPSK	5 MHz	25	0	38675	2302.5	23.19
					38992	2334.2	22.35
					39309	2365.9	22.78
					39625	2397.5	22.66
			12	6	38675	2302.5	23.25
					38992	2334.2	22.54
					39309	2365.9	22.83
					39625	2397.5	22.44
			1	0	38675	2302.5	23.07
					38992	2334.2	23.21
					39309	2365.9	23.50
					39625	2397.5	23.50
			1	24	38675	2302.5	22.85
					38992	2334.2	23.24
					39309	2365.9	23.42
					39625	2397.5	23.38
		10 MHz	50	0	38700	2305.0	23.13
					39000	2335.0	22.54
					39300	2365.0	22.79
					39600	2395.0	22.68
			25	12	38700	2305.0	23.31
					39000	2335.0	22.61
					39300	2365.0	22.81
					39600	2395.0	22.68
			1	0	38700	2305.0	23.01
					39000	2335.0	23.38
					39300	2365.0	23.91
					39600	2395.0	23.49
			1	24	38700	2305.0	23.08
					39000	2335.0	23.39
					39300	2365.0	23.69
					39600	2395.0	23.46

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
40	QPSK	15 MHz	75	0	38725	2307.5	23.18
					39008	2335.8	22.39
					39291	2364.1	22.65
					39575	2392.5	22.71
			36	19	38725	2307.5	23.17
					39008	2335.8	22.45
					39291	2364.1	22.73
					39575	2392.5	22.81
			1	0	38725	2307.5	23.16
					39008	2335.8	23.61
					39291	2364.1	23.80
					39575	2392.5	23.48
			1	74	38725	2307.5	22.47
					39008	2335.8	23.27
					39291	2364.1	23.19
					39575	2392.5	23.36
		20 MHz	100	0	38750	2310.0	23.14
					39017	2336.7	22.55
					39284	2363.4	22.72
					39550	2390.0	22.64
			50	25	38750	2310.0	23.09
					39017	2336.7	22.38
					39284	2363.4	22.75
					39550	2390.0	22.68
			1	0	38750	2310.0	22.88
					39017	2336.7	23.65
					39284	2363.4	22.67
					39550	2390.0	22.52
			1	49	38750	2310.0	23.42
					39017	2336.7	23.44
					39284	2363.4	23.61
					39550	2390.0	23.59

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
40	16QAM	5 MHz	25	0	38675	2302.5	22.43
					38992	2334.2	21.74
					39309	2365.9	21.86
					39625	2397.5	21.87
			12	6	38675	2302.5	22.51
					38992	2334.2	21.76
					39309	2365.9	21.85
					39625	2397.5	21.90
			1	0	38675	2302.5	21.97
					38992	2334.2	22.66
					39309	2365.9	22.80
					39625	2397.5	22.78
			1	24	38675	2302.5	21.50
					38992	2334.2	22.63
					39309	2365.9	22.73
					39625	2397.5	22.77
		10 MHz	50	0	38700	2305.0	22.30
					39000	2335.0	21.50
					39300	2365.0	21.88
					39600	2395.0	21.73
			25	12	38700	2305.0	22.41
					39000	2335.0	21.73
					39300	2365.0	21.92
					39600	2395.0	21.86
			1	0	38700	2305.0	22.50
					39000	2335.0	22.74
					39300	2365.0	22.60
					39600	2395.0	22.87
			1	24	38700	2305.0	21.32
					39000	2335.0	22.67
					39300	2365.0	22.82
					39600	2395.0	22.97

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
40	16QAM	15 MHz	75	0	38725	2307.5	22.20
					39008	2335.8	21.42
					39291	2364.1	21.66
					39575	2392.5	21.80
			36	19	38725	2307.5	22.27
					39008	2335.8	21.39
					39291	2364.1	21.71
					39575	2392.5	21.75
			1	0	38725	2307.5	22.57
					39008	2335.8	22.81
					39291	2364.1	22.37
					39575	2392.5	22.84
			1	74	38725	2307.5	22.97
					39008	2335.8	21.57
					39291	2364.1	22.55
					39575	2392.5	22.77
		20 MHz	100	0	38750	2310.0	22.08
					39017	2336.7	21.59
					39284	2363.4	21.75
					39550	2390.0	21.78
			50	25	38750	2310.0	22.17
					39017	2336.7	21.56
					39284	2363.4	21.78
					39550	2390.0	21.82
			1	0	38750	2310.0	21.46
					39017	2336.7	21.89
					39284	2363.4	21.38
					39550	2390.0	21.83
			1	49	38750	2310.0	22.42
					39017	2336.7	22.66
					39284	2363.4	22.94
					39550	2390.0	22.86

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
41	QPSK	5 MHz	25	0	39675	2498.5	23.78
					40148	2545.8	23.49
					40620	2593.0	23.64
					41093	2440.0	23.41
					41565	2687.5	23.74
			12	6	39675	2498.5	23.93
					40148	2545.8	23.68
					40620	2593.0	23.72
					41093	2440.0	23.49
					41565	2687.5	23.82
			1	0	39675	2498.5	24.44
					40148	2545.8	24.40
					40620	2593.0	24.43
					41093	2440.0	23.48
					41565	2687.5	24.63
			1	24	39675	2498.5	24.49
					40148	2545.8	24.14
					40620	2593.0	24.45
					41093	2440.0	24.15
					41565	2687.5	24.51
		10 MHz	50	0	39700	2501.0	23.80
					40160	2547.0	23.63
					40620	2593.0	23.57
					41080	2639.0	23.24
					41540	2685.0	23.81
			25	12	39700	2501.0	23.72
					40160	2547.0	23.53
					40620	2593.0	23.76
					41080	2639.0	23.31
					41540	2685.0	23.76
			1	0	39700	2501.0	24.44
					40160	2547.0	24.31
					40620	2593.0	24.46
					41080	2639.0	24.84
					41540	2685.0	23.54
			1	24	39700	2501.0	24.56
					40160	2547.0	24.28
					40620	2593.0	24.44
					41080	2639.0	24.13
					41540	2685.0	24.55

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
41	QPSK	15 MHz	75	0	39725	2503.5	23.73
					40173	2548.3	23.63
					40620	2593.0	23.53
					40963	2627.3	23.18
					41515	2682.5	23.77
			36	19	39725	2503.5	23.78
					40173	2548.3	23.74
					40620	2593.0	23.58
					40963	2627.3	23.30
					41515	2682.5	23.81
			1	0	39725	2503.5	24.61
					40173	2548.3	24.41
					40620	2593.0	24.43
					40963	2627.3	23.45
					41515	2682.5	24.48
			1	74	39725	2503.5	24.34
					40173	2548.3	24.23
					40620	2593.0	24.24
					40963	2627.3	24.73
					41515	2682.5	24.38
		20 MHz	100	0	39750	2506.0	23.81
					40185	2549.5	23.74
					40620	2593.0	23.73
					41055	2636.5	23.46
					41490	2680.0	23.71
			50	25	39750	2506.0	23.80
					40185	2549.5	23.86
					40620	2593.0	23.59
					41055	2636.5	23.33
					41490	2680.0	23.77
			1	0	39750	2506.0	24.59
					40185	2549.5	24.43
					40620	2593.0	24.36
					41055	2636.5	23.74
					41490	2680.0	23.40
			1	49	39750	2506.0	24.58
					40185	2549.5	24.37
					40620	2593.0	24.42
					41055	2636.5	24.01
					41490	2680.0	23.40

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
41	16QAM	5 MHz	25	0	39675	2498.5	22.95
					40148	2545.8	22.80
					40620	2593.0	22.72
					41093	2440.0	22.59
					41565	2687.5	22.94
			12	6	39675	2498.5	22.88
					40148	2545.8	22.85
					40620	2593.0	22.88
					41093	2440.0	22.59
					41565	2687.5	23.00
			1	0	39675	2498.5	23.82
					40148	2545.8	23.78
					40620	2593.0	23.77
					41093	2440.0	23.52
					41565	2687.5	23.87
			1	24	39675	2498.5	23.82
					40148	2545.8	23.70
					40620	2593.0	23.78
					41093	2440.0	23.51
					41565	2687.5	23.86
		10 MHz	50	0	39700	2501.0	22.88
					40160	2547.0	22.89
					40620	2593.0	22.81
					41080	2639.0	22.52
					41540	2685.0	22.96
			25	12	39700	2501.0	22.97
					40160	2547.0	22.76
					40620	2593.0	22.90
					41080	2639.0	22.52
					41540	2685.0	22.95
			1	0	39700	2501.0	23.90
					40160	2547.0	23.93
					40620	2593.0	23.81
					41080	2639.0	24.38
					41540	2685.0	24.02
			1	24	39700	2501.0	23.93
					40160	2547.0	23.78
					40620	2593.0	23.80
					41080	2639.0	23.61
					41540	2685.0	23.96

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
41	16QAM	15 MHz	75	0	39725	2503.5	22.98
					40173	2548.3	22.77
					40620	2593.0	22.68
					40963	2627.3	22.59
					41515	2682.5	22.87
			36	19	39725	2503.5	22.90
					40173	2548.3	22.83
					40620	2593.0	22.75
					40963	2627.3	22.55
					41515	2682.5	22.92
			1	0	39725	2503.5	23.94
					40173	2548.3	24.02
					40620	2593.0	23.93
					40963	2627.3	22.58
					41515	2682.5	23.90
			1	74	39725	2503.5	23.78
					40173	2548.3	23.68
					40620	2593.0	23.68
					40963	2627.3	23.23
					41515	2682.5	23.84
		20 MHz	100	0	39750	2506.0	23.00
					40185	2549.5	22.86
					40620	2593.0	22.78
					41055	2636.5	22.72
					41490	2680.0	22.79
			50	25	39750	2506.0	22.96
					40185	2549.5	22.89
					40620	2593.0	22.82
					41055	2636.5	22.56
					41490	2680.0	22.92
			1	0	39750	2506.0	24.04
					40185	2549.5	23.98
					40620	2593.0	23.86
					41055	2636.5	23.18
					41490	2680.0	22.95
			1	49	39750	2506.0	24.05
					40185	2549.5	23.88
					40620	2593.0	23.80
					41055	2636.5	23.49
					41490	2680.0	22.93

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
42	QPSK	5 MHz	25	0	41615	3402.5	22.51
					42103	3451.3	22.87
					42590	3500.0	22.15
					43078	3548.8	22.86
					43565	3597.5	22.76
			12	6	41615	3402.5	22.63
					42103	3451.3	22.91
					42590	3500.0	22.37
					43078	3548.8	22.89
					43565	3597.5	22.90
			1	0	41615	3402.5	23.53
					42103	3451.3	23.66
					42590	3500.0	23.28
					43078	3548.8	23.73
					43565	3597.5	23.48
			1	24	41615	3402.5	23.37
					42103	3451.3	23.50
					42590	3500.0	22.98
					43078	3548.8	23.57
					43565	3597.5	23.52
		10 MHz	50	0	41640	3405.0	22.84
					42115	3452.5	22.93
					42590	3500.0	22.35
					43065	3547.5	22.97
					43540	3595.0	22.99
			25	12	41640	3405.0	22.54
					42115	3452.5	22.74
					42590	3500.0	22.24
					43065	3547.5	22.86
					43540	3595.0	22.91
			1	0	41640	3405.0	23.53
					42115	3452.5	23.69
					42590	3500.0	23.24
					43065	3547.5	23.61
					43540	3595.0	23.77
			1	24	41640	3405.0	23.52
					42115	3452.5	23.55
					42590	3500.0	22.99
					43065	3547.5	23.76
					43540	3595.0	23.84

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
42	QPSK	15 MHz	75	0	41665	3407.5	22.77
					42128	3453.8	22.80
					42590	3500.0	22.35
					43053	3546.3	22.96
					43515	3592.5	23.02
			36	19	41665	3407.5	22.73
					42128	3453.8	22.76
					42590	3500.0	22.31
					43053	3546.3	22.92
					43515	3592.5	22.99
			1	0	41665	3407.5	23.56
					42128	3453.8	23.81
					42590	3500.0	23.57
					43053	3546.3	23.87
					43515	3592.5	23.85
			1	74	41665	3407.5	23.47
					42128	3453.8	23.08
					42590	3500.0	22.95
					43053	3546.3	23.56
					43515	3592.5	23.62
		20 MHz	100	0	41690	3410.0	22.91
					42140	3455.0	22.76
					42590	3500.0	22.47
					43040	3545.0	23.07
					43490	3590.0	23.12
			50	25	41690	3410.0	22.80
					42140	3455.0	22.73
					42590	3500.0	22.42
					43040	3545.0	23.03
					43490	3590.0	23.11
			1	0	41690	3410.0	23.57
					42140	3455.0	23.74
					42590	3500.0	23.59
					43040	3545.0	23.98
					43490	3590.0	24.00
			1	49	41690	3410.0	23.45
					42140	3455.0	23.63
					42590	3500.0	22.96
					43040	3545.0	23.64
					43490	3590.0	23.93

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
42	16QAM	5 MHz	25	0	41615	3402.5	21.70
					42103	3451.3	21.97
					42590	3500.0	21.35
					43078	3548.8	21.96
					43565	3597.5	21.98
			12	6	41615	3402.5	21.79
					42103	3451.3	21.97
					42590	3500.0	21.35
					43078	3548.8	21.86
					43565	3597.5	21.88
			1	0	41615	3402.5	22.62
					42103	3451.3	22.95
					42590	3500.0	22.49
					43078	3548.8	23.01
					43565	3597.5	22.88
			1	24	41615	3402.5	22.64
					42103	3451.3	22.77
					42590	3500.0	22.16
					43078	3548.8	22.86
					43565	3597.5	22.88
		10 MHz	50	0	41640	3405.0	21.71
					42115	3452.5	21.91
					42590	3500.0	21.52
					43065	3547.5	22.05
					43540	3595.0	21.98
			25	12	41640	3405.0	21.80
					42115	3452.5	21.81
					42590	3500.0	21.42
					43065	3547.5	22.05
					43540	3595.0	21.89
			1	0	41640	3405.0	22.79
					42115	3452.5	23.13
					42590	3500.0	22.57
					43065	3547.5	23.06
					43540	3595.0	23.21
			1	24	41640	3405.0	22.77
					42115	3452.5	22.91
					42590	3500.0	22.36
					43065	3547.5	22.93
					43540	3595.0	23.00

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
42	16QAM	15 MHz	75	0	41665	3407.5	21.83
					42128	3453.8	21.86
					42590	3500.0	21.52
					43053	3546.3	22.03
					43515	3592.5	22.08
			36	19	41665	3407.5	21.73
					42128	3453.8	21.77
					42590	3500.0	21.41
					43053	3546.3	21.93
					43515	3592.5	22.09
			1	0	41665	3407.5	22.83
					42128	3453.8	22.99
					42590	3500.0	22.75
					43053	3546.3	23.24
					43515	3592.5	23.23
			1	74	41665	3407.5	22.83
					42128	3453.8	22.46
					42590	3500.0	22.24
					43053	3546.3	22.94
					43515	3592.5	22.90
		20 MHz	100	0	41690	3410.0	21.87
					42140	3455.0	21.71
					42590	3500.0	21.53
					43040	3545.0	22.13
					43490	3590.0	22.09
			50	25	41690	3410.0	21.94
					42140	3455.0	21.78
					42590	3500.0	21.47
					43040	3545.0	21.98
					43490	3590.0	22.06
			1	0	41690	3410.0	22.82
					42140	3455.0	23.09
					42590	3500.0	22.85
					43040	3545.0	23.43
					43490	3590.0	23.41
			1	49	41690	3410.0	22.78
					42140	3455.0	22.88
					42590	3500.0	22.40
					43040	3545.0	23.08
					43490	3590.0	23.18

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
48	QPSK	5 MHz	25	0	55265	3552.5	23.3
					55990	3526.0	23.3
					56715	3697.5	23.2
			12	6	55265	3552.5	23.1
					55990	3526.0	23.3
					56715	3697.5	23.2
			1	0	55265	3552.5	23.6
					55990	3526.0	23.7
					56715	3697.5	23.4
			1	24	55265	3552.5	23.4
					55990	3526.0	23.2
					56715	3697.5	23.5

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
48	QPSK	10 MHz	50	0	55290	3555.0	23.1
					55990	3526.0	23.2
					56690	3695.0	23.3
			25	12	55290	3555.0	23.2
					55990	3526.0	23.3
					56690	3695.0	23.4
			1	0	55290	3555.0	23.2
					55990	3526.0	23.3
					56690	3695.0	23.3
			1	24	55290	3555.0	23.7
					55990	3526.0	23.4
					56690	3695.0	23.1
		15 MHz	75	0	55315	3557.5	23.1
					55990	3626.0	23.2
					56665	3692.5	23.2
			36	19	55315	3557.5	23.2
					55990	3626.0	23.2
					56665	3692.5	23.2
			1	0	55315	3557.5	23.1
					55990	3626.0	23.1
					56665	3692.5	23.3
			1	74	55315	3557.5	23.5
					55990	3626.0	23.4
					56665	3692.5	23.2
		20 MHz	100	0	55340	3560.0	23.2
					55990	3526.0	23.2
					56640	3690.0	23.3
			50	25	55340	3560.0	23.1
					55990	3526.0	23.1
					56640	3690.0	23.3
			1	0	55340	3560.0	23.2
					55990	3526.0	23.4
					56640	3690.0	23.1
			1	49	55340	3560.0	23.4
					55990	3526.0	23.6
					56640	3690.0	23.3

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
48	16QAM	5 MHz	25	0	55265	3552.5	22.3
					55990	3526.0	22.2
					56715	3697.5	22.1
			12	6	55265	3552.5	22.3
					55990	3526.0	22.2
					56715	3697.5	22.4
			1	0	55265	3552.5	23.0
					55990	3526.0	23.0
					56715	3697.5	23.1
			1	24	55265	3552.5	23.0
					55990	3526.0	23.0
					56715	3697.5	23.1

© 2019 RF Exposure Lab, LLC

This report shall not be reproduced except in full without the written approval of RF Exposure Lab, LLC.