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CERTIFICATE OF COMPLIANCE
SAR EVALUATION

Novatel Wireless 9645 Scranton Road, Suite 205 San Diego, CA 92121	Dates of Test: May 22 – June 2, Dec. 18-19, 2014, February 17, 2015 Test Report Number: SAR.20141207 Revision D

FCC ID:	PKRNVWMIFI6630
IC Certificate:	3229A-MIFI6630
Model(s):	MIFI6630
Test Sample:	Engineering Unit Same as Production
FID Number:	SH181114900016
Equipment Type:	Wireless Hotspot Modem
Classification:	Portable Transmitter Next to Body
TX Frequency Range:	699 – 716 MHz, 824 – 848 MHz; 1850 – 1909 MHz; 1710 – 1755 MHz, 2412 – 2462 MHz, 5150 – 5250 MHz, 5745 – 5825 MHz
Frequency Tolerance:	± 2.5 ppm
Maximum RF Output:	750 MHz (LTE) – 23.2 dBm, 850 MHz (GSM) – 32.5 dBm, 850 MHz (WCDMA) – 24.0 dBm, 850 MHz (LTE) – 23.2 dBm, 1900 MHz (GSM) – 29.5 dBm, 1900 MHz (WCDMA) – 23.9 dBm, 1900 MHz (LTE) – 24.0 dBm, 1735 MHz (LTE) – 24.0 dBm, 2450 MHz – 18.0 dBm, 5100 MHz – 8.0 dBm, 5800 MHz – 8.0 dBm Conducted
Signal Modulation:	WCDMA, GMSK, 8-PSK, CDMA, QPSK, 16QAM, DSSS, OFDM
Antenna Type:	WWAN – Novatel Wireless, P/N NVTL DA-01020345 (Main) WLAN – Novatel Wireless, P/N NVTL 12023203
Application Type:	Certification
FCC Rule Parts:	Part 2, 15C, 15E, 22, 24, 27
KDB Test Methodology:	KDB 447498, KDB 248227, KDB 941225 D01, D02, D03, D05 & D06
Industry Canada:	RSS-102, Safety Code 6
Max. Stand Alone SAR Value:	1.44 W/kg Reported
Max. Simultaneous SAR Value:	1.60 W/kg Reported
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
Certificate # 2387.01

Table of Contents

1. Introduction

This measurement report shows compliance of the Novatel Wireless Model MIFI6630 FCC ID: PKRNVWMIFI6630 with FCC Part 2, 1093, ET Docket 93-62 Rules for mobile and portable devices and IC Certificate: 3229A-MIFI6630 with RSS102 & 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 Novatel Wireless Model MIFI6630 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 MIFI6630 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	22.0	24.0
Band 4 – 1750 MHz	LTE	3	23.0	23.0	±1.0	22.0	24.0
Band 5 – 835 MHz	LTE	3	23.0	23.0	±1.0	22.0	24.0
Band 12 – 750 MHz	LTE	3	23.0	23.0	±1.0	22.0	24.0
Band 17 – 750 MHz	LTE	3	23.0	23.0	±1.0	22.0	24.0
Band 2 – 1900 MHz	WCDMA/HSPA	3	23.0	23.0	±1.0	22.0	24.0
Band 5 – 850 MHz	WCDMA/HSPA	3	23.0	23.0	±1.0	22.0	24.0
Band 5 – 850 MHz	GPRS	4	32.0	32.0	±1.0	31.0	33.0
Band 5 – 850 MHz	EDGE	E2	26.0	26.0	±1.0	25.0	27.0
Band 2 – 1900 MHz	GPRS	1	29.0	29.0	±1.0	28.0	30.0
Band 2 – 1900 MHz	EDGE	E2	25.0	25.0	±1.0	24.0	26.0
WLAN – 2.4 GHz	802.11b	N/A	N/A	14	±4.0	10	18
WLAN – 2.4 GHz	802.11g/n (Ch. 1,11)	N/A	N/A	9	+2.0/-4.0	5	11
WLAN – 2.4 GHz	802.11g/n (Ch. 2-10)	N/A	N/A	11	±4.0	7	15
WLAN – 2.4 GHz – MIMO	802.11g/n	N/A	N/A	11	±4.0	7	15
WLAN – 5.0 GHz	802.11a	N/A	N/A	4	±4.0	0	8
WLAN – 5.0 GHz	802.11n	N/A	N/A	4	±4.0	0	8
WLAN – 5.0 GHz – MIMO	802.11n	N/A	N/A	7	±4.0	3	11

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

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

where:

σ = conductivity of the tissue (S/m)
ρ = mass density of the tissue (kg/m^3)
E = rms electric field strength (V/m)

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.

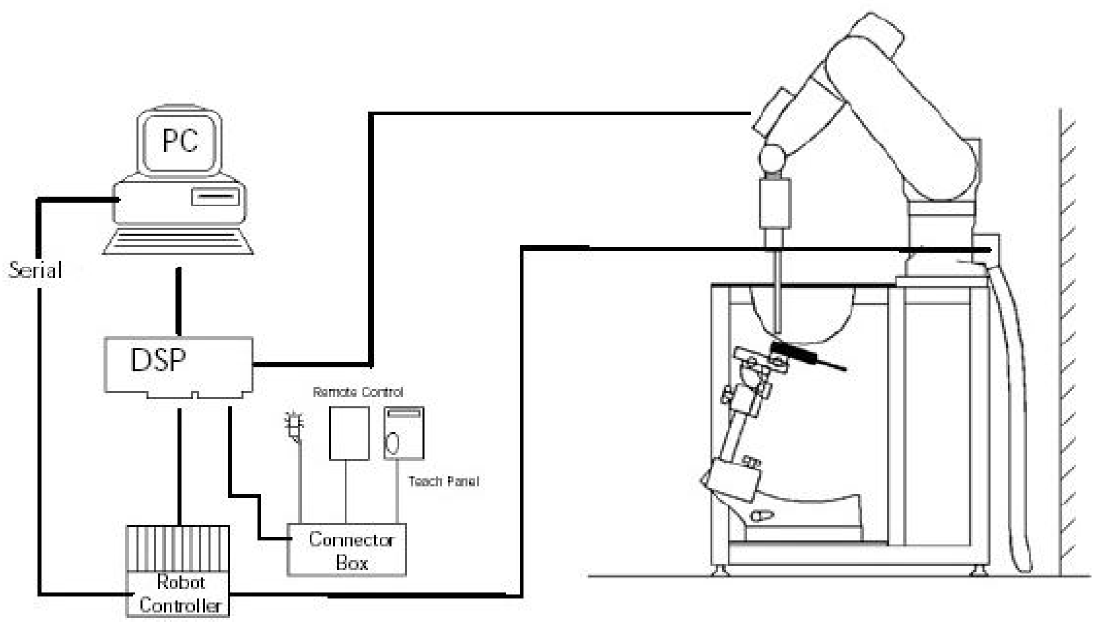


Figure 2.1 SAR Measurement System Setup

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

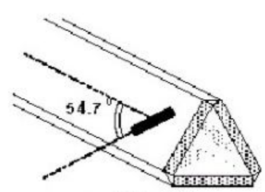
The SAR measurements were conducted with the dosimetric probe EX3DV4, designed in the classical triangular configuration (see Fig. 2.2) and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped 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

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



Δ - BEAM

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

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

$$SAR = C\frac{\Delta T}{\Delta t}$$

where:

Δt = exposure time (30 seconds),

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

ΔT = temperature increase due to RF exposure.

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

where:

σ = simulated tissue conductivity,

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

SAR is proportional to $\Delta T / \Delta t$, 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;

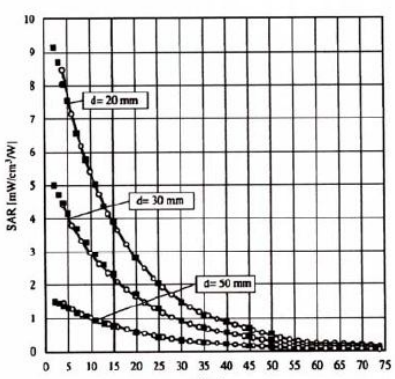


Figure 2.4 E-Field and Temperature Measurements at 900MHz

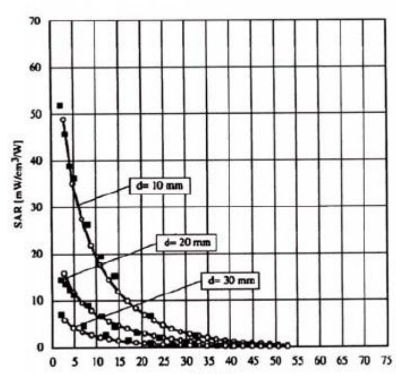


Figure 2.5 E-Field and Temperature Measurements at 1800MHz

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

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.

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.

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

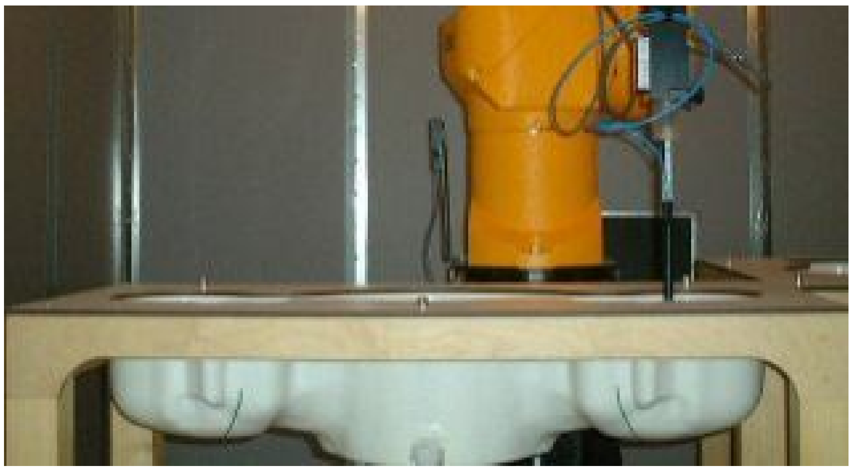


Figure 2.6 SAM Twin Phantom

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.

3. Probe and Dipole Calibration

See Appendix D and E.

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	2450 MHz Body	1750 MHz Body	5 GHz Body
Mixing Percentage							
Water		Proprietary Purchased From Speag	52.50	69.91	73.20	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	52.70	53.4	Various
Conductivity (S/m)	Target	0.96	0.97	1.52	1.95	1.49	Various

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.

6. Measurement Uncertainty

Measurement uncertainty table is not required per KDB 865664 D01 v01 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.

7. System Validation

Tissue Verification

Table 7.1 Measured Tissue Parameters

		750 MHz Body		835 MHz Body		1750 MHz Body	
Date(s)		May 27, 2014		May 24, 2014		May 23, 2014	
Liquid Temperature (˚C)	20.0	Target	Measured	Target	Measured	Target	Measured
Dielectric Constant: ε		55.35	54.69	55.20	54.37	53.43	52.68
Conductivity: σ		0.96	0.94	0.97	0.98	1.49	1.56
		1900 MHz Body		2450 MHz Body		5200 MHz Body	
Date(s)		May 25, 2014		Feb. 17, 2015		May 31, 2014	
Liquid Temperature (˚C)	20.0	Target	Measured	Target	Measured	Target	Measured
Dielectric Constant: ε		53.30	53.17	52.70	52.53	49.01	49.07
Conductivity: σ		1.52	1.54	1.95	1.96	5.30	5.21
		5800 MHz Body		750 MHz Body		835 MHz Body	
Date(s)		May 31, 2014		Dec. 18, 2014		Dec. 18, 2014	
Liquid Temperature (˚C)	20.0	Target	Measured	Target	Measured	Target	Measured
Dielectric Constant: ε		48.20	48.17	55.35	55.24	55.20	54.93
Conductivity: σ		6.00	5.99	0.96	0.97	0.97	0.99

See Appendix A for data printout.

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
27-May-2014	750 MHz	8.74	8.65	Body	- 1.03	1
24-May-2014	835 MHz	9.51	9.43	Body	- 0.84	2
23-May-2014	1750 MHz	37.30	38.50	Body	+ 3.22	3
25-May-2014	1900 MHz	40.20	40.20	Body	+ 0.00	4
17-Feb-2015	2450 MHz	51.50	52.20	Body	+ 1.36	5
31-May-2014	5200 MHz	73.40	76.30	Body	+ 3.95	6
31-May-2014	5800 MHz	72.90	74.90	Body	+ 2.74	7
18-Dec-2014	750 MHz	8.74	8.81	Body	+ 0.80	8
18-Dec-2014	835 MHz	9.51	9.51	Body	+ 0.00	9

See Appendix A for data plots.

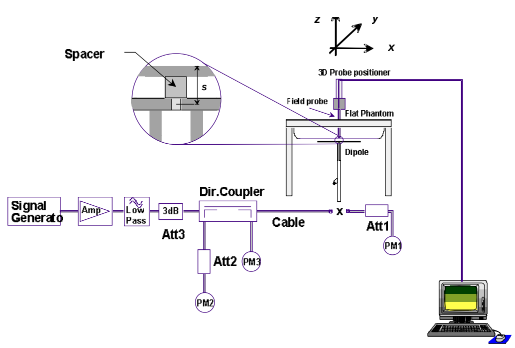


Figure 7.1 Dipole Validation Test Setup

8. LTE Document Checklist

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

LTE Operating Band	Uplink (transmit)	Downlink (Receive)	Duplex mode (FDD/TDD)
	Low - high	Low - high	
2	1850-1910	1930-1990	FDD
4	1710-1755	2110-2155	FDD
5	824-849	869-894	FDD
12	699-716	729-746	FDD
17	704-716	734-746	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	5, 10	824-849 MHz
12	5, 10	699-716 MHz
17	5, 10	704-716 MHz

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	5	826.5	20425	836.5	20525	846.5	20625
5	10	829.0	20450	836.5	20525	844.0	20600
12	5	701.5	23035	707.5	23095	713.5	23155
12	10	704.0	23060	707.5	23095	711.0	23129
17	5	706.5	23755	710.0	23790	713.5	23825
17	10	709.0	23780	710.0	23790	711.0	23800

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 MiFi 6630 has 4 antennas:

- WWAN Main (Transmit and Receive) Antenna
- WLAN Main and Aux (Transmit and Receive) Antenna
- Diversity (Receive Only) Antenna with GPS (Receive Only) capabilities

Transmission relationship

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

Antenna port	CDMA/EDGE/GPRS/ WCDMA/HSPA		LTE		802.11 b/g/n		GPS
	TX	RX	TX	RX	TX	RX	RX
#1 WWAN Main	**Yes**	**Yes**	**Yes**	**Yes**	No	No	No
#2 WLAN Main	No	No	No	No	**Yes**	**Yes**	No
#3 WLAN Aux	No	No	No	No	**Yes**	**Yes**	No
#4 (Diversity/GPS)	No	**Yes**	No	**Yes**	No	No	**Yes**

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 MiFi 6630 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.

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 40-53 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	22.0	24.0
Band 4 – 1750 MHz	LTE	3	23.0	23.0	±1.0	22.0	24.0
Band 5 – 835 MHz	LTE	3	23.0	23.0	±1.0	22.0	24.0
Band 12 – 750 MHz	LTE	3	23.0	23.0	±1.0	22.0	24.0
Band 17 – 750 MHz	LTE	3	23.0	23.0	±1.0	22.0	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	22.0	24.0
Band 5 – 850 MHz	WCDMA/HSPA	3	23.0	23.0	±1.0	22.0	24.0
Band 5 – 850 MHz	GPRS	4	32.0	32.0	±1.0	31.0	33.0
Band 5 – 850 MHz	EDGE	E2	26.0	26.0	±1.0	25.0	27.0
Band 2 – 1900 MHz	GPRS	1	29.0	29.0	±1.0	28.0	30.0
Band 2 – 1900 MHz	EDGE	E2	25.0	25.0	±1.0	24.0	26.0
WLAN – 2.4 GHz	802.11b	N/A	N/A	3	±4.0	-1	7
WLAN – 2.4 GHz	802.11g	N/A	N/A	8	±4.0	4	12
WLAN – 2.4 GHz	802.11n	N/A	N/A	6	±4.0	2	10
WLAN – 2.4 GHz – MIMO	802.11n	N/A	N/A	9	±4.0	5	13
WLAN – 5.0 GHz	802.11a	N/A	N/A	4	±4.0	0	8
WLAN – 5.0 GHz	802.11n	N/A	N/A	4	±4.0	0	8
WLAN – 5.0 GHz – MIMO	802.11n	N/A	N/A	7	±4.0	3	11

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 25-30 of this report. The table in item 9 shows the factory set point with the allowable tolerance.

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/GPRS/EDGE/CDMA and LTE simultaneously.

The MiFi 6630 is able to transmit WWAN and WLAN simultaneously.

TX Modes	WCDMA/GPRS/EDGE/CDMA	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.

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

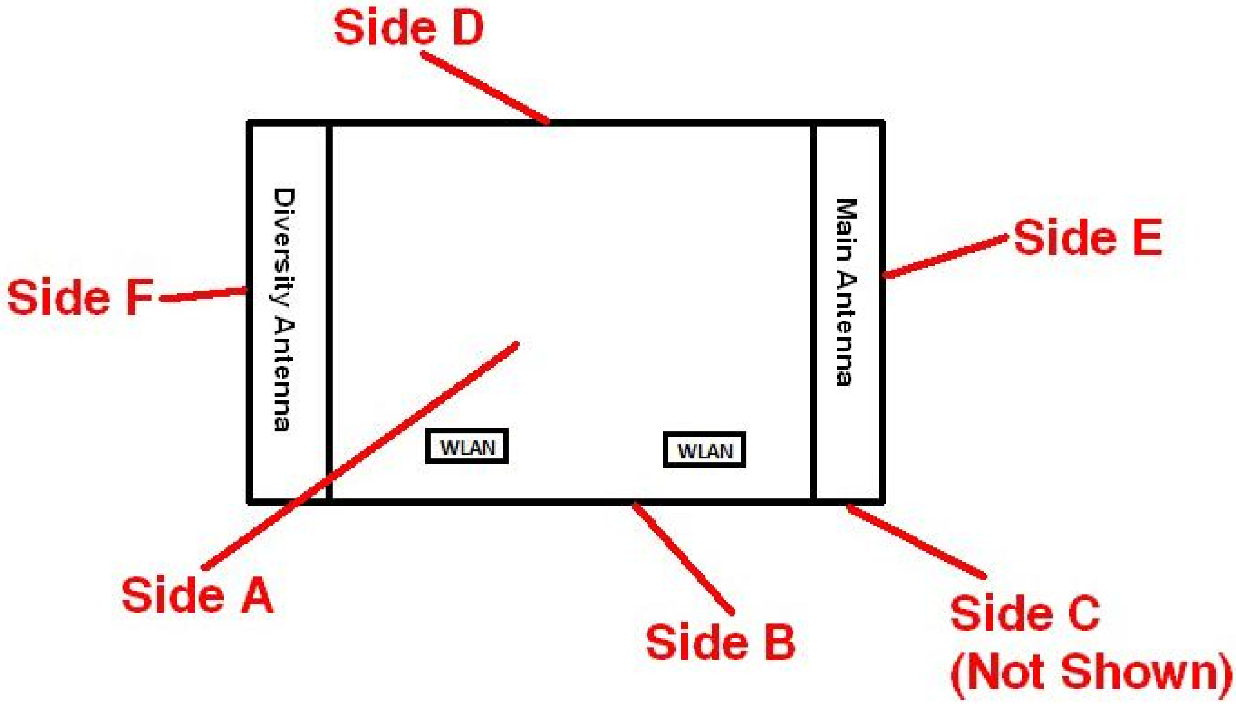
In order to verify that the device was tested at full power, conducted output power measurements were performed before and after each SAR measurement to confirm the output power unless otherwise noted. If a conducted power deviation of more than 5% occurred, the test was repeated. The power drift of 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. The Side F was not tested as the WWAN antenna was more than 2.5 cm from this side. The Side A, Side B, and Side C were tested for the WLAN antennas. Side D, Side E and Side F were not tested as the antenna was more than 2.5 cm from these sides. All further test reductions are shown on pages 37-38 for GSM/WCDMA bands, page 31-36 for WLAN and pages 54-68 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.

This device is capable of operating in 850/1900 GPRS/EDGE frequency bands. In GPRS mode, the device is in Class 4 for 850 MHz and Class 1 for 1900 MHz. In EDGE mode, the device is in Class E2 for 850/1900 MHz. The testing was conducted in the GPRS mode. The GPRS mode has 1-slot, 2-slot, 3-slot and 4-slot configurations. The power measured is peak power. The average power in all GPRS Slots calculated and the 1-slot had the highest average power. Therefore, the testing was conducted in 1-Slot. The EDGE mode is >5 dB lower than its equivalent slot configuration for GPRS. Therefore, the device was only tested in the highest power configuration which was 1-slot GPRS.

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.

Figure 10.1
SAR Location Diagram of Modem Testing



Antenna Distances

WWAN main to WLAN (Chain 1) (mm):	26 mm
WWAN main to WLAN (Chain 2) (mm):	45 mm
WWAN main to Diversity (mm):	76 mm
WLAN (Chain 1) to Diversity (mm):	48 mm
WLAN (Chain 2) to Diversity (mm):	29 mm

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.

10.3 SAR Measurement Conditions for GSM

Configure the 8960 box to support GMSK and 8PSK call respectively, and set one timeslot and two timeslot transmission for GMSK GSM/GPRS and 8PSK EDGE. Measure and record power outputs for both modulations.

3GPP Release Version	Mode	Cellular Band [dBm]			Sub-Test (See Table Below)	MPR
		4132	4183	4233		
99	WCDMA	23.99	23.98	23.99	-	-
6	HSDPA	23.86	23.87	23.79	1	0
6		23.82	23.89	23.85	2	0
6		23.39	23.42	23.37	3	0.5
6		23.94	23.49	23.40	4	0.5
6	HSUPA	23.80	23.90	23.83	1	0
6		21.95	21.99	21.96	2	2
6		22.97	23.08	22.99	3	1
6		22.06	22.01	22.04	4	2
6		23.82	23.84	23.87	5	0

3GPP Release Version	Mode	PCS Band [dBm]			Sub-Test (See Table Below)	MPR
		9262	9400	9538		
99	WCDMA	23.88	23.90	23.95	-	-
6	HSDPA	23.79	23.82	23.76	1	0
6		23.81	23.75	23.79	2	0
6		23.36	23.34	23.36	3	0.5
6		23.41	23.31	23.39	4	0.5
6	HSUPA	23.84	23.82	23.75	1	0
6		21.97	22.01	21.89	2	2
6		22.94	23.05	22.94	3	1
6		21.99	21.95	22.03	4	2
6		23.82	23.80	23.71	5	0

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									

GPRS-GMSK/1 slot			
Band	Channel	Peak Power	Frame Average
Cellular	128	32.50	23.47
	190	32.45	23.42
	251	32.44	23.41
PCS	512	29.45	20.42
	661	29.20	20.17
	810	29.50	20.47

GPRS-GMSK/2 slot			
Band	Channel	Peak Power	Frame Average
Cellular	128	29.17	23.15
	190	29.11	23.09
	251	29.15	23.13
PCS	512	26.26	20.24
	661	26.21	20.19
	810	26.35	20.33

GPRS-GMSK/3 slot			
Band	Channel	Peak Power	Frame Average
Cellular	128	27.25	22.99
	190	27.16	22.90
	251	27.23	22.97
PCS	512	24.35	20.09
	661	24.22	19.96
	810	24.46	20.02

GPRS-GMSK/4 slot			
Band	Channel	Peak Power	Frame Average
Cellular	128	25.87	22.86
	190	25.76	22.75
	251	25.70	22.69
PCS	512	23.03	20.02
	661	22.93	19.92
	810	23.03	20.02

EDGE-8PSK/1 slot			
Band	Channel	Peak Power	Frame Average
Cellular	128	26.59	17.56
	190	26.53	17.50
	251	26.68	17.65
PCS	512	25.62	16.59
	661	25.46	16.43
	810	25.55	16.52

EDGE-8PSK/2 slot			
Band	Channel	Peak Power	Frame Average
Cellular	128	23.99	17.97
	190	23.95	17.93
	251	23.99	17.97
PCS	512	22.99	16.97
	661	22.89	16.87
	810	23.06	17.04

EDGE-8PSK/3 slot			
Band	Channel	Peak Power	Frame Average
Cellular	128	22.35	18.09
	190	22.29	18.03
	251	22.45	18.19
PCS	512	21.38	17.12
	661	21.34	17.08
	810	21.52	17.26

EDGE-8PSK/4 slot			
Band	Channel	Peak Power	Frame Average
Cellular	128	21.18	18.17
	190	21.16	18.15
	251	21.21	18.20
PCS	512	20.22	17.21
	661	20.17	17.16
	810	20.28	17.27

Band	Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)
					Average
2450 MHz	802.11b	1	2412	1	17.88
				2	17.88
				5.5	17.52
				11	17.46
		6	2437	1	17.58
				2	17.53
				5.5	17.76
				11	17.71
		11	2462	1	17.53
				2	17.46
				5.5	17.66
				11	17.61
	802.11g	2	2417	6	14.81
				9	14.66
				12	14.54
				18	14.62
				24	14.92
				36	14.44
				48	14.11
				54	14.58
		6	2437	6	14.81
				9	14.66
				12	14.52
				18	14.31
				24	14.77
				36	14.27
				48	14.92
				54	14.65
		10	2457	6	14.46
				9	14.29
				12	14.15
				18	14.83
				24	14.33
				36	14.88
				48	14.52
				54	14.32
	802.11n (20 MHz)	2	2417	6.5	14.71
				13	14.30
				19.5	14.82
				26	14.33
				39	14.82
				52	14.56
				58.5	14.38
				65	14.20
		6	2437	6.5	14.75
				13	14.36
				19.5	14.20
				26	14.72
				39	14.85
				52	14.38
				58.5	14.21
				65	14.52
		10	2457	6.5	14.83
				13	14.48
				19.5	14.27
				26	14.68
				39	14.81
				52	14.46
				58.5	14.31
				65	14.62

Conducted Average Power Measurements

Band	Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	
					Average	Peak
5200 MHz	802.11a	36	5180	6	7.92	12.53
				9	7.94	12.54
				12	7.90	12.49
				18	7.93	12.42
				24	7.89	12.40
				36	7.82	12.37
				48	7.80	12.45
				54	7.79	12.42
		40	5200	6	7.96	12.49
				9	7.91	12.42
				12	7.88	12.47
				18	7.86	12.38
				24	7.90	12.39
				36	7.85	12.45
				48	7.82	12.46
				54	7.77	12.32
		44	5220	6	7.98	12.48
				9	7.95	12.42
				12	7.94	12.43
				18	7.90	12.48
				24	7.88	12.40
				36	7.87	12.38
				48	7.89	12.39
				54	7.83	12.35
		48	5240	6	7.92	12.47
				9	7.95	12.49
				12	7.90	12.43
				18	7.87	12.44
				24	7.85	12.37
				36	7.86	12.35
				48	7.82	12.32
				54	7.84	12.30
	802.11n (20 MHz)	36	5180	6.5	7.92	12.44
				13	7.90	12.41
				19.5	7.88	12.46
				26	7.87	12.35
				39	7.85	12.38
				52	7.86	12.39
				58.5	7.82	12.30
				65	7.81	12.34
		40	5200	6.5	7.94	12.46
				13	7.89	12.40
				19.5	7.84	12.38
				26	7.81	12.34
				39	7.83	12.36
				52	7.78	12.37
				58.5	7.79	12.30
				65	7.77	12.33
		44	5220	6.5	7.94	12.39
				13	7.92	12.37
				19.5	7.85	12.38
				26	7.89	12.41
				39	7.81	12.35
				52	7.76	12.36
				58.5	7.79	12.37
				65	7.72	12.35
		48	5240	6.5	7.94	12.46
				13	7.93	12.40
				19.5	7.90	12.35
				26	7.87	12.39
				39	7.84	12.30
				52	7.82	12.32
				58.5	7.80	12.44
				65	7.75	12.39

Conducted Average Power Measurements

Band	Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	
					Average	Peak
5200 MHz	802.11n (40 MHz)	38	5190	13.5	7.87	12.22
				27	7.81	12.19
				40.5	7.83	12.18
				54	7.78	12.20
				81	7.82	12.23
				108	7.71	12.14
				121.5	7.76	12.17
				135	7.68	12.19
		46	5230	13.5	7.74	12.26
				27	7.72	12.21
				40.5	7.69	12.23
				54	7.65	12.17
				81	7.67	12.15
				108	7.60	12.13
				121.5	7.63	12.10
				135	7.59	12.11

Conducted Average Power Measurements

Band	Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	
					Average	Peak
5800 MHz	802.11a	149	5745	6	7.92	12.64
				9	7.91	12.62
				12	7.89	13.58
				18	7.86	12.57
				24	7.85	12.53
				36	7.84	12.54
				48	7.86	12.59
				54	7.82	12.50
		157	5785	6	7.96	12.66
				9	7.94	12.61
				12	7.95	12.63
				18	7.92	12.59
				24	7.93	12.57
				36	7.85	12.54
				48	7.84	12.56
				54	7.80	12.58
		165	5825	6	7.90	12.67
				9	7.88	12.64
				12	7.87	12.63
				18	7.85	12.60
				24	7.86	12.54
				36	7.82	12.52
				48	7.81	12.50
				54	7.84	12.53
	802.11n (20 MHz)	149	5745	6.5	7.89	12.58
				13	7.87	12.57
				19.5	7.88	12.56
				26	7.85	12.54
				39	7.72	12.50
				52	7.81	12.49
				58.5	7.86	12.56
				65	7.80	12.57
		157	5785	6.5	7.87	12.58
				13	7.86	12.53
				19.5	7.88	12.60
				26	7.72	12.51
				39	7.79	12.47
				52	7.75	12.45
				58.5	7.81	12.52
				65	7.84	12.53
		165	5825	6.5	7.90	12.49
				13	7.86	12.58
				19.5	7.84	12.46
				26	7.85	12.57
				39	7.83	12.59
				52	7.89	12.51
				58.5	7.81	12.47
				65	7.78	12.53

Conducted Average Power Measurements

Band	Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Conducted Power (dBm)	
					Average	Peak
5800 MHz	802.11n (40 MHz)	151	5755	13.5	7.76	12.23
				27	7.72	12.29
				40.5	7.70	12.24
				54	7.68	12.27
				81	7.66	12.20
				108	7.71	12.18
				121.5	7.69	12.16
				135	7.63	12.17
		157	5785	13.5	7.78	12.26
				27	7.72	12.23
				40.5	7.76	12.27
				54	7.75	12.22
				81	7.71	12.20
				108	7.67	12.28
				121.5	7.65	12.24
				135	7.60	12.19
		163	5815	13.5	7.73	12.29
				27	7.71	12.31
				40.5	7.70	12.24
				54	7.66	12.27
				81	7.69	12.22
				108	7.64	12.19
				121.5	7.62	12.16
				135	7.59	12.12

Conducted Average Power Measurements

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	Tested
		11 – 2462 MHz	Reduced[3]
	Side E	1 – 2412 MHz	Reduced[3]
		6 – 2437 MHz	Tested
		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 mid channel is 3 dB below the limit, the remaining channels are not required per KDB 447498 D01 v05r02 section 4.3.3 page 14.

Reduced[2] – When the conducted power in this mode is less than 0.25 dB higher than the g mode, testing is not required per KDB 248227 page 5.

Reduced[3] – When the antenna is more than 25 mm from a side, the test can be reduced per KDB447498 D01 v05 section 4.3.1 2) page 11. See below for calculations.

Maximum power: 63.1 mW
Closest Distance to Side F: 36.0 mm

[(63.1 mW)/(36 mm)]*√2.462=2.75 which is equal to or less than 3.0.

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[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	Tested
		11 – 2462 MHz	Reduced[3]
	Side E	1 – 2412 MHz	Reduced[3]
		6 – 2437 MHz	Tested
		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 mid channel is 3 dB below the limit, the remaining channels are not required per KDB 447498 D01 v05r02 section 4.3.3 page 14.

Reduced[2] – When the conducted power in this mode is less than 0.25 dB higher than the g mode, testing is not required per KDB 248227 page 5.

Reduced[3] – When the antenna is more than 25 mm from a side, the test can be reduced per KDB447498 D01 v05 section 4.3.1 2) page 11. See below for calculations.

Maximum power: 63.1 mW
Closest Distance to Side F: 38.0 mm

[(63.1 mW)/(38 mm)]*√2.462=2.61 which is equal to or less than 3.0.

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[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Tested
		48 – 5240 MHz	Reduced[1]
	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[3]
		40 – 5200 MHz	Reduced[3]
		44 – 5220 MHz	Reduced[3]
		48 – 5240 MHz	Reduced[3]
	Side E	36 – 5180 MHz	Reduced[3]
		40 – 5200 MHz	Reduced[3]
		44 – 5220 MHz	Reduced[3]
		48 – 5240 MHz	Reduced[3]
	Side F	36 – 5180 MHz	Reduced[3]
		40 – 5200 MHz	Reduced[3]
		44 – 5220 MHz	Reduced[3]
		48 – 5240 MHz	Reduced[3]
802.11n 5150 MHz	Side A	36 – 5180 MHz	Reduced[2]
		40 – 5200 MHz	Reduced[2]
		44 – 5220 MHz	Reduced[2]
		48 – 5240 MHz	Reduced[2]
	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[2]
		40 – 5200 MHz	Reduced[2]
		44 – 5220 MHz	Reduced[2]
		48 – 5240 MHz	Reduced[2]
	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[2]
		40 – 5200 MHz	Reduced[2]
		44 – 5220 MHz	Reduced[2]
		48 – 5240 MHz	Reduced[2]

Reduced[1] – When the mid channel is 3 dB below the limit, the remaining channels are not required per KDB 447498 D01 v05r02 section 4.3.3 page 14.

Reduced[2] – When the conducted power in this mode is less than 0.25 dB higher than the a mode, testing is not required per KDB 248227 page 5.

Reduced[3] – When the antenna is more than 25 mm from a side, the test can be reduced per KDB447498 D01 v05r02 section 4.3.1 1) page 11. See below for calculations.

Maximum power: 6.3 mW
Closest Distance to Side D, E and F: 36.0 mm

$[(6.3 \text{ mW})/(36 \text{ mm})]*\sqrt{5.24}=0.40$ which is equal to or less than 3.0.

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[1]
		40 – 5200 MHz	Reduced[1]
		44 – 5220 MHz	Tested
		48 – 5240 MHz	Reduced[1]
	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[3]
		40 – 5200 MHz	Reduced[3]
		44 – 5220 MHz	Reduced[3]
		48 – 5240 MHz	Reduced[3]
	Side E	36 – 5180 MHz	Reduced[3]
		40 – 5200 MHz	Reduced[3]
		44 – 5220 MHz	Reduced[3]
		48 – 5240 MHz	Reduced[3]
	Side F	36 – 5180 MHz	Reduced[3]
		40 – 5200 MHz	Reduced[3]
		44 – 5220 MHz	Reduced[3]
		48 – 5240 MHz	Reduced[3]
802.11n 5150 MHz	Side A	36 – 5180 MHz	Reduced[2]
		40 – 5200 MHz	Reduced[2]
		44 – 5220 MHz	Reduced[2]
		48 – 5240 MHz	Reduced[2]
	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[2]
		40 – 5200 MHz	Reduced[2]
		44 – 5220 MHz	Reduced[2]
		48 – 5240 MHz	Reduced[2]
	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[2]
		40 – 5200 MHz	Reduced[2]
		44 – 5220 MHz	Reduced[2]
		48 – 5240 MHz	Reduced[2]

Reduced[1] – When the mid channel is 3 dB below the limit, the remaining channels are not required per KDB 447498 D01 v05r02 section 4.3.3 page 14.
Reduced[2] – When the conducted power in this mode is less than 0.25 dB higher than the a mode, testing is not required per KDB 248227 page 5.
Reduced[3] – When the antenna is more than 25 mm from a side, the test can be reduced per KDB447498 D01 v05r02 section 4.3.1 1) page 11. See below for calculations.

Maximum power: 6.3 mW
Closest Distance to Side D, E and F: 38.0 mm

[(6.3 mW)/(38 mm)]*√5.24=0.38 which is equal to or less than 3.0.

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[1]
		157 – 5785 MHz	Tested
		165 – 5825 MHz	Reduced[1]
	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	Reduced[3]
		157 – 5785 MHz	Reduced[3]
		165 – 5825 MHz	Reduced[3]
	Side E	149 – 5745 MHz	Reduced[3]
		157 – 5785 MHz	Reduced[3]
		165 – 5825 MHz	Reduced[3]
	Side F	149 – 5745 MHz	Reduced[3]
		157 – 5785 MHz	Reduced[3]
		165 – 5825 MHz	Reduced[3]
802.11n 5800 MHz	Side A	149 – 5745 MHz	Reduced[2]
		157 – 5785 MHz	Reduced[2]
		165 – 5825 MHz	Reduced[2]
	Side B	149 – 5745 MHz	Reduced[2]
		157 – 5785 MHz	Reduced[2]
		165 – 5825 MHz	Reduced[2]
	Side C	149 – 5745 MHz	Reduced[2]
		157 – 5785 MHz	Reduced[2]
		165 – 5825 MHz	Reduced[2]
	Side D	149 – 5745 MHz	Reduced[2]
		157 – 5785 MHz	Reduced[2]
		165 – 5825 MHz	Reduced[2]
	Side E	149 – 5745 MHz	Reduced[2]
		157 – 5785 MHz	Reduced[2]
		165 – 5825 MHz	Reduced[2]
	Side F	149 – 5745 MHz	Reduced[2]
		157 – 5785 MHz	Reduced[2]
		165 – 5825 MHz	Reduced[2]

Reduced[1] – When the mid channel is 3 dB below the limit, the remaining channels are not required per KDB 447498 D01 v05r02 section 4.3.3 page 14.
Reduced[2] – When the conducted power in this mode is less than 0.25 dB higher than the a mode, testing is not required per KDB 248227 page 5.
Reduced[3] – When the antenna is more than 25 mm from a side, the test can be reduced per KDB447498 D01 v05r02 section 4.3.1 1) page 11. See below for calculations.

Maximum power: 6.3 mW
Closest Distance to Side D, E and F: 36.0 mm

$[(6.3\ mW)/(36\ mm)]*\sqrt{5.825}=0.42$ which is equal to or less than 3.0.

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[1]
		157 – 5785 MHz	Tested
		165 – 5825 MHz	Reduced[1]
	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	Reduced[3]
		157 – 5785 MHz	Reduced[3]
		165 – 5825 MHz	Reduced[3]
	Side E	149 – 5745 MHz	Reduced[3]
		157 – 5785 MHz	Reduced[3]
		165 – 5825 MHz	Reduced[3]
	Side F	149 – 5745 MHz	Reduced[3]
		157 – 5785 MHz	Reduced[3]
		165 – 5825 MHz	Reduced[3]
802.11n 5800 MHz	Side A	149 – 5745 MHz	Reduced[2]
		157 – 5785 MHz	Reduced[2]
		165 – 5825 MHz	Reduced[2]
	Side B	149 – 5745 MHz	Reduced[2]
		157 – 5785 MHz	Reduced[2]
		165 – 5825 MHz	Reduced[2]
	Side C	149 – 5745 MHz	Reduced[2]
		157 – 5785 MHz	Reduced[2]
		165 – 5825 MHz	Reduced[2]
	Side D	149 – 5745 MHz	Reduced[2]
		157 – 5785 MHz	Reduced[2]
		165 – 5825 MHz	Reduced[2]
	Side E	149 – 5745 MHz	Reduced[2]
		157 – 5785 MHz	Reduced[2]
		165 – 5825 MHz	Reduced[2]
	Side F	149 – 5745 MHz	Reduced[2]
		157 – 5785 MHz	Reduced[2]
		165 – 5825 MHz	Reduced[2]

Reduced[1] – When the mid channel is 3 dB below the limit, the remaining channels are not required per KDB 447498 D01 v05r02 section 4.3.3 page 14.
Reduced[2] – When the conducted power in this mode is less than 0.25 dB higher than the a mode, testing is not required per KDB 248227 page 5.
Reduced[3] – When the antenna is more than 25 mm from a side, the test can be reduced per KDB447498 D01 v05r02 section 4.3.1 1) page 11. See below for calculations.

Maximum power: 6.3 mW
Closest Distance to Side D, E and F: 38.0 mm

[(6.3 mW)/(38 mm)]*√5.825=0.40 which is equal to or less than 3.0.

Figure 10.7 Test Reduction Table – 3G 850 MHz

Band/ Frequency (MHz)	Technology	Side	Required Channel	Tested/ Reduced
Band 5 824-849 MHz	GSM	Side A	128	Reduced[1]
			190	Tested
			251	Reduced[1]
		Side B	128	Reduced[1]
			190	Tested
			251	Reduced[1]
		Side C	128	Reduced[1]
			190	Tested
			251	Reduced[1]
		Side D	128	Reduced[1]
			190	Tested
			251	Reduced[1]
		Side E	128	Reduced[1]
			190	Tested
			251	Reduced[1]
		Side F	128	Reduced[2]
			190	Reduced[2]
			251	Reduced[2]
	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]

Reduced[1] – When the mid channel is 3 dB below the limit, the remaining channels are not required per KDB 447498 D01 v05r02 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 v05r02 section 4.3.1 1) page 11. See below for calculations.

Maximum power: 281.84 mW
Closest Distance to Side F: 85.0 mm

[{[(3.0)/(√0.849)]*50 mm}]+[{85-50 mm}*10]=512 mW which is greater than 281.84 mW

Figure 10.8 Test Reduction Table – 3G 1900 MHz

Band/ Frequency (MHz)	Technology	Side	Required Channel	Tested/ Reduced
Band 2 1850-1910 MHz	GSM	Side A	512	Reduced[1]
			661	Tested
			810	Reduced[1]
		Side B	512	Reduced[1]
			661	Tested
			810	Reduced[1]
		Side C	512	Reduced[1]
			661	Tested
			810	Reduced[1]
		Side D	512	Reduced[1]
			661	Tested
			810	Reduced[1]
		Side E	512	Reduced[1]
			661	Tested
			810	Reduced[1]
		Side F	512	Reduced[2]
			661	Reduced[2]
			810	Reduced[2]
	WCDMA	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 v05r02 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 v05r02 section 4.3.1 1) page 11. See below for calculations.

Maximum power: 281.84 mW
Closest Distance to Side F: 85 mm

[{[(3.0)/(√1.91)]*50 mm}]+[{85-50 mm}*10]=458 mW which is greater than 281.84 mW

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	5, 10	824-849 MHz
12	5, 10	699-716 MHz
17	5, 10	704-716 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.

Table 10.5.1 LTE Power Measurements

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
2	QPSK	1.4 MHz	6	0	18607	1850.7	22.95
					18900	1880	23.20
					19193	1909.3	22.19
			3	1	18607	1850.7	24.00
					18900	1880	24.00
					19193	1909.3	23.70
			1	0	18607	1850.7	24.00
					18900	1880	23.61
					19193	1909.3	23.85
			1	5	18607	1850.7	23.99
					18900	1880	24.00
					19193	1909.3	23.99
		3 MHz	15	0	18615	1851.5	23.01
					18900	1880	23.11
					19185	1908.5	22.91
			8	3	18615	1851.5	22.95
					18900	1880	23.05
					19185	1908.5	22.81
			1	0	18615	1851.5	24.00
					18900	1880	23.74
					19185	1908.5	23.99
			1	14	18615	1851.5	23.99
					18900	1880	23.73
					19185	1908.5	24.00
		5 MHz	25	0	18625	1852.5	22.93
					18900	1880	22.98
					19175	1907.5	22.92
			12	6	18625	1852.5	22.83
					18900	1880	23.13
					19175	1907.5	22.88
			1	0	18625	1852.5	23.95
					18900	1880	23.56
					19175	1907.5	23.32
			1	24	18625	1852.5	23.45
					18900	1880	23.36
					19175	1907.5	23.98

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
2	QPSK	10 MHz	50	0	18650	1855	22.52
					18900	1880	22.55
					19150	1905	22.57
			25	12	18650	1855	22.30
					18900	1880	22.95
					19150	1905	22.42
			1	0	18650	1855	23.95
					18900	1880	23.30
					19150	1905	23.23
			1	24	18650	1855	23.46
					18900	1880	24.00
					19150	1905	23.35
		15 MHz	75	0	18675	1857.5	22.38
					18900	1880	22.51
					19125	1902.5	22.46
			36	19	18675	1857.5	22.16
					18900	1880	22.86
					19125	1902.5	22.31
			1	0	18675	1857.5	23.89
					18900	1880	23.38
					19125	1902.5	23.42
			1	74	18675	1857.5	23.48
					18900	1880	23.31
					19125	1902.5	24.00
		20 MHz	100	0	18625	1852.5	22.50
					18900	1880	22.52
					19175	1907.5	22.40
			50	25	18700	1860	22.39
					18900	1880	22.61
					19100	1900	22.22
			1	0	18700	1860	23.48
					18900	1880	23.50
					19100	1900	23.34
			1	99	18700	1860	23.33
					18900	1880	23.35
					19100	1900	23.43

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
2	16QAM	1.4 MHz	6	0	18607	1850.7	21.96
2	16QAM	1.4 MHz	6	0	18900	1880	22.11
2	16QAM	1.4 MHz	6	0	19193	1909.3	21.92
2	16QAM	1.4 MHz	3	1	18607	1850.7	21.95
2	16QAM	1.4 MHz	3	1	18900	1880	22.14
2	16QAM	1.4 MHz	3	1	19193	1909.3	21.88
2	16QAM	1.4 MHz	1	0	18607	1850.7	21.94
2	16QAM	1.4 MHz	1	0	18900	1880	22.12
2	16QAM	1.4 MHz	1	0	19193	1909.3	21.91
2	16QAM	1.4 MHz	1	5	18607	1850.7	21.91
2	16QAM	1.4 MHz	1	5	18900	1880	22.10
2	16QAM	1.4 MHz	1	5	19193	1909.3	21.93
2	16QAM	3 MHz	15	0	18615	1851.5	21.98
2	16QAM	3 MHz	15	0	18900	1880	22.14
2	16QAM	3 MHz	15	0	19185	1908.5	21.92
2	16QAM	3 MHz	8	3	18615	1851.5	21.76
2	16QAM	3 MHz	8	3	18900	1880	22.10
2	16QAM	3 MHz	8	3	19185	1908.5	21.82
2	16QAM	3 MHz	1	0	18615	1851.5	22.92
2	16QAM	3 MHz	1	0	18900	1880	22.63
2	16QAM	3 MHz	1	0	19185	1908.5	22.75
2	16QAM	3 MHz	1	14	18615	1851.5	22.69
2	16QAM	3 MHz	1	14	18900	1880	22.39
2	16QAM	3 MHz	1	14	19185	1908.5	22.74
2	16QAM	5 MHz	25	0	18625	1852.5	22.01
2	16QAM	5 MHz	25	0	18900	1880	21.96
2	16QAM	5 MHz	25	0	19175	1907.5	22.01
2	16QAM	5 MHz	12	6	18625	1852.5	21.84
2	16QAM	5 MHz	12	6	18900	1880	22.21
2	16QAM	5 MHz	12	6	19175	1907.5	21.88
2	16QAM	5 MHz	1	0	18625	1852.5	22.79
2	16QAM	5 MHz	1	0	18900	1880	22.44
2	16QAM	5 MHz	1	0	19175	1907.5	22.37
2	16QAM	5 MHz	1	24	18625	1852.5	22.21
2	16QAM	5 MHz	1	24	18900	1880	22.07
2	16QAM	5 MHz	1	24	19175	1907.5	22.75

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
2	16QAM	10 MHz	50	0	18650	1855	21.30
					18900	1880	21.62
					19150	1905	21.53
			25	12	18650	1855	21.17
					18900	1880	21.81
					19150	1905	21.42
			1	0	18650	1855	22.77
					18900	1880	22.19
					19150	1905	22.07
			1	24	18650	1855	22.24
					18900	1880	22.96
					19150	1905	22.25
		15 MHz	75	0	18675	1857.5	21.35
					18900	1880	21.25
					19125	1902.5	21.46
			36	19	18675	1857.5	21.17
					18900	1880	21.64
					19125	1902.5	21.23
			1	0	18675	1857.5	22.79
					18900	1880	22.07
					19125	1902.5	22.21
			1	74	18675	1857.5	22.13
					18900	1880	21.96
					19125	1902.5	22.76
		20 MHz	100	0	18625	1852.5	21.54
					18900	1880	21.50
					19175	1907.5	21.32
			50	25	18700	1860	21.39
					18900	1880	21.54
					19100	1900	21.16
			1	0	18700	1860	22.68
					18900	1880	22.38
					19100	1900	21.74
			1	99	18700	1860	22.01
					18900	1880	21.71
					19100	1900	22.68

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
4	QPSK	1.4 MHz	6	0	19957	1710.7	23.67
					20175	1732.5	23.06
					20393	1754.3	23.61
			3	1	19957	1710.7	23.99
					20175	1732.5	24.00
					20393	1754.3	23.99
			1	0	19957	1710.7	23.98
					20175	1732.5	23.58
					20393	1754.3	23.99
			1	5	19957	1710.7	23.98
					20175	1732.5	23.93
					20393	1754.3	24.00
		3 MHz	15	0	19965	1711.5	23.11
					20175	1732.5	23.09
					20385	1753.5	23.15
			8	3	19965	1711.5	23.02
					20175	1732.5	22.93
					20385	1753.5	23.07
			1	0	19965	1711.5	24.00
					20175	1732.5	23.40
					20385	1753.5	23.53
			1	14	19965	1711.5	23.34
					20175	1732.5	23.99
					20385	1753.5	23.94
		5 MHz	25	0	19975	1712.5	22.49
					20175	1732.5	23.19
					20375	1752.5	22.87
			12	6	19975	1712.5	22.44
					20175	1732.5	23.13
					20375	1752.5	22.64
			1	0	19975	1712.5	23.99
					20175	1732.5	23.31
					20375	1752.5	23.67
			1	24	19975	1712.5	23.19
					20175	1732.5	24.00
					20375	1752.5	23.99

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
4	QPSK	10 MHz	50	0	20000	1715	22.36
					20175	1732.5	22.99
					20350	1750	22.80
			25	12	20000	1715	21.92
					20175	1732.5	23.04
					20350	1750	22.57
			1	0	20000	1715	24.00
					20175	1732.5	23.31
					20350	1750	23.60
			1	24	20000	1715	23.14
					20175	1732.5	23.92
					20350	1750	23.67
		15 MHz	75	0	20025	1717.5	22.29
					20175	1732.5	22.67
					20325	1747.5	22.62
			36	19	20025	1717.5	22.01
					20175	1732.5	23.17
					20325	1747.5	22.64
			1	0	20025	1717.5	23.99
					20175	1732.5	23.13
					20325	1747.5	23.38
			1	74	20025	1717.5	23.18
					20175	1732.5	23.45
					20325	1747.5	23.60
		20 MHz	100	0	20050	1720	22.23
					20175	1732.5	22.68
					20300	1745	22.52
			50	25	20050	1720	22.21
					20175	1732.5	23.00
					20300	1745	22.61
			1	0	20050	1720	24.00
					20175	1732.5	23.10
					20300	1745	23.98
			1	99	20050	1720	23.28
					20175	1732.5	23.56
					20300	1745	24.00

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
4	16QAM	1.4 MHz	6	0	19957	1710.7	22.51
					20175	1732.5	22.02
					20393	1754.3	22.52
			3	1	19957	1710.7	23.44
					20175	1732.5	22.90
					20393	1754.3	23.25
			1	0	19957	1710.7	23.39
					20175	1732.5	22.52
					20393	1754.3	23.25
			1	5	19957	1710.7	23.09
					20175	1732.5	23.05
					20393	1754.3	23.21
		3 MHz	15	0	19965	1711.5	22.12
					20175	1732.5	22.19
					20385	1753.5	22.22
			8	3	19965	1711.5	22.02
					20175	1732.5	22.05
					20385	1753.5	22.27
			1	0	19965	1711.5	23.20
					20175	1732.5	22.22
					20385	1753.5	22.51
			1	14	19965	1711.5	22.18
					20175	1732.5	23.32
					20385	1753.5	23.50
		5 MHz	25	0	19975	1712.5	21.53
					20175	1732.5	22.19
					20375	1752.5	21.94
			12	6	19975	1712.5	21.51
					20175	1732.5	22.00
					20375	1752.5	21.59
			1	0	19975	1712.5	23.40
					20175	1732.5	22.03
					20375	1752.5	22.33
			1	24	19975	1712.5	21.62
					20175	1732.5	23.26
					20375	1752.5	23.33

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
4	16QAM	10 MHz	50	0	20000	1715	21.37
					20175	1732.5	22.06
					20350	1750	21.69
			25	12	20000	1715	21.11
					20175	1732.5	21.96
					20350	1750	21.44
			1	0	20000	1715	23.35
					20175	1732.5	21.91
					20350	1750	22.26
			1	24	20000	1715	22.00
					20175	1732.5	22.83
					20350	1750	22.33
		15 MHz	75	0	20025	1717.5	21.23
					20175	1732.5	21.58
					20325	1747.5	21.61
			36	19	20025	1717.5	21.13
					20175	1732.5	22.17
					20325	1747.5	21.55
			1	0	20025	1717.5	23.38
					20175	1732.5	21.79
					20325	1747.5	22.15
			1	74	20025	1717.5	21.96
					20175	1732.5	22.32
					20325	1747.5	23.19
		20 MHz	100	0	20050	1720	21.30
					20175	1732.5	21.65
					20300	1745	21.57
			50	25	20050	1720	21.21
					20175	1732.5	22.12
					20300	1745	21.58
			1	0	20050	1720	23.20
					20175	1732.5	23.13
					20300	1745	22.75
			1	99	20050	1720	21.94
					20175	1732.5	22.35
					20300	1745	23.24

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
5	QPSK	5 MHz	25	0	20425	826.5	22.01
					20525	836.5	22.06
					20625	846.5	22.18
			12	6	20425	826.5	22.76
					20525	836.5	22.85
					20625	846.5	22.97
			1	0	20425	826.5	22.91
					20525	836.5	22.97
					20625	846.5	23.09
			1	24	20425	826.5	22.89
					20525	836.5	23.11
					20625	846.5	23.24
		10 MHz	50	0	20450	829.0	22.01
					20525	836.5	22.05
					20600	844.0	22.11
			25	12	20450	829.0	22.87
					20525	836.5	22.91
					20600	844.0	22.93
			1	0	20450	829.0	22.96
					20525	836.5	22.97
					20600	844.0	23.06
			1	24	20450	829.0	22.89
					20525	836.5	22.94
					20600	844.0	23.09

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
5	16QAM	5 MHz	25	0	20425	826.5	20.12
					20525	836.5	20.08
					20625	846.5	20.16
			12	6	20425	826.5	21.89
					20525	836.5	21.92
					20625	846.5	21.99
			1	0	20425	826.5	21.96
					20525	836.5	21.98
					20625	846.5	22.13
			1	24	20425	826.5	21.92
					20525	836.5	22.16
					20625	846.5	22.33
		10 MHz	50	0	20450	829.0	20.08
					20525	836.5	20.10
					20600	844.0	20.16
			25	12	20450	829.0	21.92
					20525	836.5	21.97
					20600	844.0	21.96
			1	0	20450	829.0	21.98
					20525	836.5	21.99
					20600	844.0	22.11
			1	24	20450	829.0	21.93
					20525	836.5	21.97
					20600	844.0	22.15

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
12	QPSK	5 MHz	25	0	23035	701.5	22.23
					23095	707.5	22.24
					23155	713.5	22.20
			12	6	23035	701.5	23.08
					23095	707.5	23.06
					23155	713.5	23.01
			1	0	23035	701.5	23.14
					23095	707.5	23.16
					23155	713.5	23.18
			1	24	23035	701.5	23.22
					23095	707.5	23.14
					23155	713.5	23.21
		10 MHz	50	0	23060	704.0	22.11
					23095	707.5	22.19
					23129	711.0	22.23
			25	12	23060	704.0	23.01
					23095	707.5	23.05
					23129	711.0	23.09
			1	0	23060	704.0	23.05
					23095	707.5	23.13
					23129	711.0	23.12
			1	24	23060	704.0	23.18
					23095	707.5	23.17
					23129	711.0	23.11

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
12	16QAM	5 MHz	25	0	23035	701.5	20.31
					23095	707.5	20.32
					23155	713.5	20.26
			12	6	23035	701.5	22.12
					23095	707.5	22.11
					23155	713.5	22.16
			1	0	23035	701.5	22.23
					23095	707.5	22.26
					23155	713.5	22.27
			1	24	23035	701.5	22.30
					23095	707.5	22.22
					23155	713.5	22.28
		10 MHz	50	0	23060	704.0	20.16
					23095	707.5	20.29
					23129	711.0	20.33
			25	12	23060	704.0	22.08
					23095	707.5	22.10
					23129	711.0	22.17
			1	0	23060	704.0	22.09
					23095	707.5	22.20
					23129	711.0	22.18
			1	24	23060	704.0	22.26
					23095	707.5	22.29
					23129	711.0	22.22

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
17	QPSK	5 MHz	25	0	23755	706.5	22.19
					23790	710.0	22.20
					23825	713.5	22.15
			12	6	23755	706.5	23.02
					23790	710.0	23.03
					23825	713.5	23.00
			1	0	23755	706.5	23.11
					23790	710.0	23.15
					23825	713.5	23.12
			1	24	23755	706.5	23.19
					23790	710.0	23.15
					23825	713.5	23.20
		10 MHz	50	0	23780	709.0	22.08
					23790	710.0	22.15
					23800	711.0	22.21
			25	12	23780	709.0	23.00
					23790	710.0	23.03
					23800	711.0	23.06
			1	0	23780	709.0	23.02
					23790	710.0	23.12
					23800	711.0	23.10
			1	24	23780	709.0	23.16
					23790	710.0	23.12
					23800	711.0	23.08

Band	Modulation	Bandwidth	RB Size	RB Offset	Channel	Frequency	Power
17	16QAM	5 MHz	25	0	23755	706.5	20.29
					23790	710.0	20.23
					23775	713.5	20.19
			12	6	23755	706.5	22.10
					23790	710.0	22.08
					23775	713.5	22.13
			1	0	23755	706.5	22.18
					23790	710.0	22.24
					23775	713.5	22.26
			1	24	23755	706.5	22.29
					23790	710.0	22.18
					23775	713.5	22.27
		10 MHz	50	0	23780	709.0	20.14
					23790	710.0	20.26
					23800	711.0	20.30
			25	12	23780	709.0	22.05
					23790	710.0	22.08
					23800	711.0	22.14
			1	0	23780	709.0	22.07
					23790	710.0	22.18
					23800	711.0	22.15
			1	24	23780	709.0	22.22
					23790	710.0	22.27
					23800	711.0	22.20

Table 10.5.2 Test Reduction Table – LTE

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 2 1850-1910 MHz	A	18700	20 MHz	QPSK	50	0	Tested
		18900					Tested
		19100					Tested
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Tested
		18900					Tested
		19100					Tested
		18700				99	Reduced[2]
		18900					Reduced[2]
		19100					Reduced[2]
		18700		16QAM	50	25	Reduced[3]
		18900					Reduced[3]
		19100					Reduced[3]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		18700				99	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		All lower bandwidths (15 MHz, 10 MHz, 5 MHz, 3 MHz, 1.4 MHz)					Reduced[5]
	B	18700	20 MHz	QPSK	50	25	Tested
		18900					Reduced[6]
		19100					Reduced[6]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Tested
		18900					Reduced[2]
		19100					Reduced[2]
		18700				99	Reduced[2]
		18900					Reduced[2]
		19100					Reduced[2]
		18700		16QAM	50	25	Reduced[3]
		18900					Reduced[3]
		19100					Reduced[3]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		18700				99	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		All lower bandwidths (15 MHz, 10 MHz, 5 MHz, 3 MHz, 1.4 MHz)					Reduced[5]

Reduced[1] – If the SAR value in the 50% RB testing is less than 1.45 W/kg, the 100% RB testing is reduced per KDB941225 D05 3) A) I) page 4.

Reduced[2] - If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 3) B) I) page 4.

Reduced[3] - If the SAR value in the 50% RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) A) I) page 4.

Reduced[4]- If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) B) I) page 5.

Reduced[5]- If the conducted power is within ±0.5 dB, all testing where the SAR value is less than 1.45 W/kg is reduced per KDB941225 D05 5) B) I) page 5.

Reduced[6]- If the SAR value measured on the middle channel is less than 0.8 W/kg and the conducted power is within ±0.5 dB, the remaining channels are reduced per KDB941225 D05 page 4 footnote 2.

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 2 1850-1910 MHz	C	18700	20 MHz	QPSK	50	25	Tested
		18900					Tested
		19100					Tested
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Tested
		18900					Tested
		19100					Tested
		18700				99	Reduced[2]
		18900					Reduced[2]
		19100					Reduced[2]
		18700		16QAM	50	25	Reduced[3]
		18900					Reduced[3]
		19100					Reduced[3]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		18700				99	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		All lower bandwidths (15 MHz, 10 MHz, 5 MHz, 3 MHz, 1.4 MHz)					Reduced[5]
	D	18700	20 MHz	QPSK	50	25	Tested
		18900					Reduced[6]
		19100					Reduced[6]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Tested
		18900					Reduced[2]
		19100					Reduced[2]
		18700				99	Reduced[2]
		18900					Reduced[2]
		19100					Reduced[2]
		18700		16QAM	50	25	Reduced[3]
		18900					Reduced[3]
		19100					Reduced[3]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		18700				99	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		All lower bandwidths (15 MHz, 10 MHz, 5 MHz, 3 MHz, 1.4 MHz)					Reduced[5]

Reduced[1] – If the SAR value in the 50% RB testing is less than 1.45 W/kg, the 100% RB testing is reduced per KDB941225 D05 3) A) I) page 4.

Reduced[2] - If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 3) B) I) page 4.

Reduced[3] - If the SAR value in the 50% RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) A) I) page 4.

Reduced[4]- If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) B) I) page 5.

Reduced[5]- If the conducted power is within ±0.5 dB, all testing where the SAR value is less than 1.45 W/kg is reduced per KDB941225 D05 5) B) I) page 5.

Reduced[6]- If the SAR value measured on the middle channel is less than 0.8 W/kg and the conducted power is within ±0.5 dB, the remaining channels are reduced per KDB941225 D05 page 4 footnote 2.

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 2 1850-1910 MHz	E	18700	20 MHz	QPSK	50	25	Tested
		18900					Reduced[6]
		19100					Reduced[6]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Tested
		18900					Tested
		19100					Tested
		18700				99	Reduced[2]
		18900					Reduced[2]
		19100					Reduced[2]
		18700		16QAM	50	25	Reduced[3]
		18900					Reduced[3]
		19100					Reduced[3]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		18700				99	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		All lower bandwidths (15 MHz, 10 MHz, 5 MHz, 3 MHz, 1.4 MHz)					Reduced[5]

Reduced[1] – If the SAR value in the 50% RB testing is less than 1.45 W/kg, the 100% RB testing is reduced per KDB941225 D05 3) A) I) page 4.

Reduced[2] - If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 3) B) I) page 4.

Reduced[3] - If the SAR value in the 50% RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) A) I) page 4.

Reduced[4]- If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) B) I) page 5.

Reduced[5]- If the conducted power is within ±0.5 dB, all testing where the SAR value is less than 1.45 W/kg is reduced per KDB941225 D05 5) B) I) page 5.

Reduced[6]- If the SAR value measured on the middle channel is less than 0.8 W/kg and the conducted power is within ±0.5 dB, the remaining channels are reduced per KDB941225 D05 page 4 footnote 2.

Side F Reduced based on distance in KDB 447498 D01 v05r02 (See below calculations).

Maximum power: 251.19 mW
Closest Distance to Side F: 85.0 mm

[{[(3.0)/(√1.91)]*50 mm}]+[{85-50 mm}*10]=458 mW which is greater than 251.19 mW

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 4 1710-1755 MHz	A	18700	20 MHz	QPSK	50	25	Tested
		18900					Tested
		19100					Tested
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Tested
		18900					Tested
		19100					Tested
		18700				99	Reduced[2]
		18900					Reduced[2]
		19100					Reduced[2]
		18700		16QAM	50	25	Reduced[3]
		18900					Reduced[3]
		19100					Reduced[3]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Tested
		18900					Reduced[4]
		19100					Reduced[4]
		18700				99	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		All lower bandwidths (15 MHz, 10 MHz, 5 MHz, 3 MHz, 1.4 MHz)					Reduced[5]
	B	18700	20 MHz	QPSK	50	25	Tested
		18900					Reduced[6]
		19100					Reduced[6]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Tested
		18900					Reduced[2]
		19100					Reduced[2]
		18700				99	Reduced[2]
		18900					Reduced[2]
		19100					Reduced[2]
		18700		16QAM	50	25	Reduced[3]
		18900					Reduced[3]
		19100					Reduced[3]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		18700				99	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		All lower bandwidths (15 MHz, 10 MHz, 5 MHz, 3 MHz, 1.4 MHz)					Reduced[5]

Reduced[1] – If the SAR value in the 50% RB testing is less than 1.45 W/kg, the 100% RB testing is reduced per KDB941225 D05 3) A) I) page 4.

Reduced[2] - If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 3) B) I) page 4.

Reduced[3] - If the SAR value in the 50% RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) A) I) page 4.

Reduced[4]- If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) B) I) page 5.

Reduced[5]- If the conducted power is within ±0.5 dB, all testing where the SAR value is less than 1.45 W/kg is reduced per KDB941225 D05 5) B) I) page 5.

Reduced[6]- If the SAR value measured on the middle channel is less than 0.8 W/kg and the conducted power is within ±0.5 dB, the remaining channels are reduced per KDB941225 D05 page 4 footnote 2.

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 4 1710-1755 MHz	C	18700	20 MHz	QPSK	50	25	Tested
		18900					Tested
		19100					Tested
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Tested
		18900					Tested
		19100					Tested
		18700				99	Reduced[2]
		18900					Reduced[2]
		19100					Reduced[2]
		18700		16QAM	50	25	Reduced[3]
		18900					Reduced[3]
		19100					Reduced[3]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Tested
		18900					Reduced[4]
		19100					Reduced[4]
		18700				99	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		All lower bandwidths (15 MHz, 10 MHz, 5 MHz, 3 MHz, 1.4 MHz)					Reduced[5]
	D	18700	20 MHz	QPSK	50	25	Tested
		18900					Reduced[6]
		19100					Reduced[6]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Tested
		18900					Reduced[2]
		19100					Reduced[2]
		18700				99	Reduced[2]
		18900					Reduced[2]
		19100					Reduced[2]
		18700		16QAM	50	25	Reduced[3]
		18900					Reduced[3]
		19100					Reduced[3]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		18700				99	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		All lower bandwidths (15 MHz, 10 MHz, 5 MHz, 3 MHz, 1.4 MHz)					Reduced[5]

Reduced[1] – If the SAR value in the 50% RB testing is less than 1.45 W/kg, the 100% RB testing is reduced per KDB941225 D05 3) A) I) page 4.

Reduced[2] - If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 3) B) I) page 4.

Reduced[3] - If the SAR value in the 50% RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) A) I) page 4.

Reduced[4]- If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) B) I) page 5.

Reduced[5]- If the conducted power is within ±0.5 dB, all testing where the SAR value is less than 1.45 W/kg is reduced per KDB941225 D05 5) B) I) page 5.

Reduced[6]- If the SAR value measured on the middle channel is less than 0.8 W/kg and the conducted power is within ±0.5 dB, the remaining channels are reduced per KDB941225 D05 page 4 footnote 2.

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 4 1710-1755 MHz	E	18700	20 MHz	QPSK	50	25	Tested
		18900					Reduced[6]
		19100					Reduced[6]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Tested
		18900					Tested
		19100					Tested
		18700				99	Reduced[2]
		18900					Reduced[2]
		19100					Reduced[2]
		18700		16QAM	50	25	Reduced[3]
		18900					Reduced[3]
		19100					Reduced[3]
		18700			100	0	Reduced[1]
		18900					Reduced[1]
		19100					Reduced[1]
		18700			1	0	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		18700				99	Reduced[4]
		18900					Reduced[4]
		19100					Reduced[4]
		All lower bandwidths (15 MHz, 10 MHz, 5 MHz, 3 MHz, 1.4 MHz)					Reduced[5]

Reduced[1] – If the SAR value in the 50% RB testing is less than 1.45 W/kg, the 100% RB testing is reduced per KDB941225 D05 3) A) I) page 4.

Reduced[2] - If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 3) B) I) page 4.

Reduced[3] - If the SAR value in the 50% RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) A) I) page 4.

Reduced[4]- If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) B) I) page 5.

Reduced[5]- If the conducted power is within ±0.5 dB, all testing where the SAR value is less than 1.45 W/kg is reduced per KDB941225 D05 5) B) I) page 5.

Reduced[6]- If the SAR value measured on the middle channel is less than 0.8 W/kg and the conducted power is within ±0.5 dB, the remaining channels are reduced per KDB941225 D05 page 4 footnote 2.

Side F Reduced based on distance in KDB 447498 D01 v05r02 (See below calculations).

Maximum power: 251.19 mW
Closest Distance to Side F: 85.0 mm

[{[(3.0)/(√1.755)]*50 mm}]+[{85-50 mm}*10]=463 mW which is greater than 251.19 mW

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 5 824-849 MHz	A	20450	10 MHz	QPSK	25	12	Reduced[6]
		20525					Tested
		20600					Reduced[6]
		20450			50	0	Reduced[1]
		20525					Reduced[1]
		20600					Reduced[1]
		20450			1	0	Reduced[6]
		20525					Tested
		20600					Reduced[6]
		20450				24	Reduced[2]
		20525					Reduced[2]
		20600					Reduced[2]
		20450		16QAM	25	12	Reduced[3]
		20525					Reduced[3]
		20600					Reduced[3]
		20450			50	0	Reduced[1]
		20525					Reduced[1]
		20600					Reduced[1]
		20450			1	0	Reduced[4]
		20525					Reduced[4]
		20600					Reduced[4]
		20450				24	Reduced[4]
		20525					Reduced[4]
		20600					Reduced[4]
		All lower bandwidths (5 MHz)					Reduced[5]
	B	20450	10 MHz	QPSK	25	12	Tested
		20525					Reduced[6]
		20600					Reduced[6]
		20450			50	0	Reduced[1]
		20525					Reduced[1]
		20600					Reduced[1]
		20450			1	0	Tested
		20525					Reduced[6]
		20600					Reduced[6]
		20450				24	Reduced[2]
		20525					Reduced[2]
		20600					Reduced[2]
		20450		16QAM	25	12	Reduced[3]
		20525					Reduced[3]
		20600					Reduced[3]
		20450			50	0	Reduced[1]
		20525					Reduced[1]
		20600					Reduced[1]
		20450			1	0	Reduced[4]
		20525					Reduced[4]
		20600					Reduced[4]
		20450				24	Reduced[4]
		20525					Reduced[4]
		20600					Reduced[4]
		All lower bandwidths (5 MHz)					Reduced[5]

Reduced[1] – If the SAR value in the 50% RB testing is less than 1.45 W/kg, the 100% RB testing is reduced per KDB941225 D05 3) A) I) page 4.

Reduced[2] - If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 3) B) I) page 4.

Reduced[3] - If the SAR value in the 50% RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) A) I) page 4.

Reduced[4]- If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) B) I) page 5.

Reduced[5]- If the conducted power is within ±0.5 dB, all testing where the SAR value is less than 1.45 W/kg is reduced per KDB941225 D05 5) B) I) page 5.

Reduced[6]- If the SAR value measured on the middle channel is less than 0.8 W/kg and the conducted power is within ±0.5 dB, the remaining channels are reduced per KDB941225 D05 page 4 footnote 2.

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 5 824-849 MHz	C	20450	10 MHz	QPSK	25	12	Reduced[6]
		20525					Tested
		20600					Reduced[6]
		20450			50	0	Reduced[1]
		20525					Reduced[1]
		20600					Reduced[1]
		20450			1	0	Reduced[6]
		20525					Tested
		20600					Reduced[6]
		20450				24	Reduced[2]
		20525					Reduced[2]
		20600					Reduced[2]
		20450		16QAM	25	12	Reduced[3]
		20525					Reduced[3]
		20600					Reduced[3]
		20450			50	0	Reduced[1]
		20525					Reduced[1]
		20600					Reduced[1]
		20450			1	0	Reduced[4]
		20525					Reduced[4]
		20600					Reduced[4]
		20450				24	Reduced[4]
		20525					Reduced[4]
		20600					Reduced[4]
		All lower bandwidths (5 MHz)					Reduced[5]
	D	20450	10 MHz	QPSK	25	12	Tested
		20525					Reduced[6]
		20600					Reduced[6]
		20450			50	0	Reduced[1]
		20525					Reduced[1]
		20600					Reduced[1]
		20450			1	0	Tested
		20525					Reduced[6]
		20600					Reduced[6]
		20450				24	Reduced[2]
		20525					Reduced[2]
		20600					Reduced[2]
		20450		16QAM	25	12	Reduced[3]
		20525					Reduced[3]
		20600					Reduced[3]
		20450			50	0	Reduced[1]
		20525					Reduced[1]
		20600					Reduced[1]
		20450			1	0	Reduced[4]
		20525					Reduced[4]
		20600					Reduced[4]
		20450				24	Reduced[4]
		20525					Reduced[4]
		20600					Reduced[4]
		All lower bandwidths (5 MHz)					Reduced[5]

Reduced[1] – If the SAR value in the 50% RB testing is less than 1.45 W/kg, the 100% RB testing is reduced per KDB941225 D05 3) A) I) page 4.

Reduced[2] - If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 3) B) I) page 4.

Reduced[3] - If the SAR value in the 50% RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) A) I) page 4.

Reduced[4]- If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) B) I) page 5.

Reduced[5]- If the conducted power is within ±0.5 dB, all testing where the SAR value is less than 1.45 W/kg is reduced per KDB941225 D05 5) B) I) page 5.

Reduced[6]- If the SAR value measured on the middle channel is less than 0.8 W/kg and the conducted power is within ±0.5 dB, the remaining channels are reduced per KDB941225 D05 page 4 footnote 2.

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 5 824-849 MHz	E	20450	10 MHz	QPSK	25	12	Tested
		20525					Reduced[6]
		20600					Reduced[6]
		20450			50	0	Reduced[1]
		20525					Reduced[1]
		20600					Reduced[1]
		20450			1	0	Tested
		20525					Reduced[6]
		20600					Reduced[6]
		20450				24	Reduced[2]
		20525					Reduced[2]
		20600					Reduced[2]
		20450		16QAM	25	12	Reduced[3]
		20525					Reduced[3]
		20600					Reduced[3]
		20450			50	0	Reduced[1]
		20525					Reduced[1]
		20600					Reduced[1]
		20450			1	0	Reduced[4]
		20525					Reduced[4]
		20600					Reduced[4]
		20450				24	Reduced[4]
		20525					Reduced[4]
		20600					Reduced[4]
		All lower bandwidths (5 MHz)					Reduced[5]

Reduced[1] – If the SAR value in the 50% RB testing is less than 1.45 W/kg, the 100% RB testing is reduced per KDB941225 D05 3) A) I) page 4.
Reduced[2] - If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 3) B) I) page 4.
Reduced[3] - If the SAR value in the 50% RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) A) I) page 4.
Reduced[4]- If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) B) I) page 5.
Reduced[5]- If the conducted power is within ±0.5 dB, all testing where the SAR value is less than 1.45 W/kg is reduced per KDB941225 D05 5) B) I) page 5.
Reduced[6]- If the SAR value measured on the middle channel is less than 0.8 W/kg and the conducted power is within ±0.5 dB, the remaining channels are reduced per KDB941225 D05 page 4 footnote 2.

Side F Reduced based on distance in KDB 447498 D01 v05r02 (See below calculations).

Maximum power: 251.19 mW
Closest Distance to Side F: 85.0 mm

[{[(3.0)/(√0.8465)]*50 mm}]+[{85-50 mm}*10]=513 mW which is greater than 251.19 mW

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 12 699-716 MHz	A	23060	10 MHz	QPSK	25	12	Reduced[6]
		23095					Tested
		23129					Reduced[6]
		23060			50	0	Reduced[1]
		23095					Reduced[1]
		23129					Reduced[1]
		23060			1	0	Reduced[6]
		23095					Tested
		23129					Reduced[6]
		23060				24	Reduced[2]
		23095					Reduced[2]
		23129					Reduced[2]
		23060		16QAM	25	12	Reduced[3]
		23095					Reduced[3]
		23129					Reduced[3]
		23060			50	0	Reduced[1]
		23095					Reduced[1]
		23129					Reduced[1]
		23060			1	0	Reduced[4]
		23095					Reduced[4]
		23129					Reduced[4]
		23060				24	Reduced[4]
		23095					Reduced[4]
		23129					Reduced[4]
		All lower bandwidths (5 MHz)					Reduced[5]
	B	23060	10 MHz	QPSK	25	12	Tested
		23095					Reduced[6]
		23129					Reduced[6]
		23060			50	0	Reduced[1]
		23095					Reduced[1]
		23129					Reduced[1]
		23060			1	0	Tested
		23095					Reduced[6]
		23129					Reduced[6]
		23060				24	Reduced[2]
		23095					Reduced[2]
		23129					Reduced[2]
		23060		16QAM	25	12	Reduced[3]
		23095					Reduced[3]
		23129					Reduced[3]
		23060			50	0	Reduced[1]
		23095					Reduced[1]
		23129					Reduced[1]
		23060			1	0	Reduced[4]
		23095					Reduced[4]
		23129					Reduced[4]
		23060				24	Reduced[4]
		23095					Reduced[4]
		23129					Reduced[4]
		All lower bandwidths (5 MHz)					Reduced[5]

Reduced[1] – If the SAR value in the 50% RB testing is less than 1.45 W/kg, the 100% RB testing is reduced per KDB941225 D05 3) A) I) page 4.

Reduced[2] - If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 3) B) I) page 4.

Reduced[3] - If the SAR value in the 50% RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) A) I) page 4.

Reduced[4]- If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) B) I) page 5.

Reduced[5]- If the conducted power is within ±0.5 dB, all testing where the SAR value is less than 1.45 W/kg is reduced per KDB941225 D05 5) B) I) page 5.

Reduced[6]- If the SAR value measured on the middle channel is less than 0.8 W/kg and the conducted power is within ±0.5 dB, the remaining channels are reduced per KDB941225 D05 page 4 footnote 2.

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 12 699-716 MHz	C	23060	10 MHz	QPSK	25	12	Reduced[6]
		23095					Tested
		23129					Reduced[6]
		23060			50	0	Reduced[1]
		23095					Reduced[1]
		23129					Reduced[1]
		23060			1	0	Reduced[6]
		23095					Tested
		23129					Reduced[6]
		23060				24	Reduced[2]
		23095					Reduced[2]
		23129					Reduced[2]
		23060		16QAM	25	12	Reduced[3]
		23095					Reduced[3]
		23129					Reduced[3]
		23060			50	0	Reduced[1]
		23095					Reduced[1]
		23129					Reduced[1]
		23060			1	0	Reduced[4]
		23095					Reduced[4]
		23129					Reduced[4]
		23060				24	Reduced[4]
		23095					Reduced[4]
		23129					Reduced[4]
		All lower bandwidths (5 MHz)					Reduced[5]
	D	23060	10 MHz	QPSK	25	12	Tested
		23095					Reduced[6]
		23129					Reduced[6]
		23060			50	0	Reduced[1]
		23095					Reduced[1]
		23129					Reduced[1]
		23060			1	0	Tested
		23095					Reduced[6]
		23129					Reduced[6]
		23060				24	Reduced[2]
		23095					Reduced[2]
		23129					Reduced[2]
		23060		16QAM	25	12	Reduced[3]
		23095					Reduced[3]
		23129					Reduced[3]
		23060			50	0	Reduced[1]
		23095					Reduced[1]
		23129					Reduced[1]
		23060			1	0	Reduced[4]
		23095					Reduced[4]
		23129					Reduced[4]
		23060				24	Reduced[4]
		23095					Reduced[4]
		23129					Reduced[4]
		All lower bandwidths (5 MHz)					Reduced[5]

Reduced[1] – If the SAR value in the 50% RB testing is less than 1.45 W/kg, the 100% RB testing is reduced per KDB941225 D05 3) A) I) page 4.

Reduced[2] - If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 3) B) I) page 4.

Reduced[3] - If the SAR value in the 50% RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) A) I) page 4.

Reduced[4]- If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) B) I) page 5.

Reduced[5]- If the conducted power is within ±0.5 dB, all testing where the SAR value is less than 1.45 W/kg is reduced per KDB941225 D05 5) B) I) page 5.

Reduced[6]- If the SAR value measured on the middle channel is less than 0.8 W/kg and the conducted power is within ±0.5 dB, the remaining channels are reduced per KDB941225 D05 page 4 footnote 2.

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 12 699-716 MHz	E	23060	10 MHz	QPSK	25	12	Tested
		23095					Reduced[6]
		23129					Reduced[6]
		23060			50	0	Reduced[1]
		23095					Reduced[1]
		23129					Reduced[1]
		23060			1	0	Tested
		23095					Reduced[6]
		23129					Reduced[6]
		23060				24	Reduced[2]
		23095					Reduced[2]
		23129					Reduced[2]
		23060		16QAM	25	12	Reduced[3]
		23095					Reduced[3]
		23129					Reduced[3]
		23060			50	0	Reduced[1]
		23095					Reduced[1]
		23129					Reduced[1]
		23060			1	0	Reduced[4]
		23095					Reduced[4]
		23129					Reduced[4]
		23060				24	Reduced[4]
		23095					Reduced[4]
		23129					Reduced[4]
		All lower bandwidths (5 MHz)					Reduced[5]

Reduced[1] – If the SAR value in the 50% RB testing is less than 1.45 W/kg, the 100% RB testing is reduced per KDB941225 D05 3) A) I) page 4.
Reduced[2] - If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 3) B) I) page 4.
Reduced[3] - If the SAR value in the 50% RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) A) I) page 4.
Reduced[4]- If the SAR value in the 1 RB testing is less than 1.45 W/kg, the remaining channels are reduced per KDB941225 D05 4) B) I) page 5.
Reduced[5]- If the conducted power is within ±0.5 dB, all testing where the SAR value is less than 1.45 W/kg is reduced per KDB941225 D05 5) B) I) page 5.
Reduced[6]- If the SAR value measured on the middle channel is less than 0.8 W/kg and the conducted power is within ±0.5 dB, the remaining channels are reduced per KDB941225 D05 page 4 footnote 2.

Side F Reduced based on distance in KDB 447498 D01 v05r02 (See below calculations).

Maximum power: 251.19 mW
Closest Distance to Side F: 85.0 mm

[{[(3.0)/(√0.711)]*50 mm}]+[{85-50 mm}*10]=527 mW which is greater than 251.19 mW

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 17 704-716 MHz	A	23780	10 MHz	QPSK	25	12	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			50	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			1	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780				24	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780		16QAM	25	12	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			50	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			1	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780				24	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		All lower bandwidths (5 MHz)					Reduced[1]
	B	23780	Reduced[1] Reduced[1]	QPSK	25	12	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			50	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			1	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780				24	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780		16QAM	25	12	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			50	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			1	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780				24	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		All lower bandwidths (5 MHz)					Reduced[1]

Reduced[1] – Band 17 is fully in the Band 12 Frequency range. Therefore, Band 17 is covered by Band 12 testing.

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 17 704-716 MHz	C	23780	10 MHz	QPSK	25	12	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			50	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			1	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780				24	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780		16QAM	25	12	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			50	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			1	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780				24	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		All lower bandwidths (5 MHz)					Reduced[1]
	D	23780	10 MHz	QPSK	25	12	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			50	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			1	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780				24	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780		16QAM	25	12	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			50	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			1	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780				24	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		All lower bandwidths (5 MHz)					Reduced[1]

Reduced[1] – Band 17 is fully in the Band 12 Frequency range. Therefore, Band 17 is covered by Band 12 testing.

Band/ Frequency (MHz)	Side	Required Test Channel	Bandwidth	Modulation	RB Allocation	RB Offset	Tested/ Reduced
Band 17 704-716 MHz	E	23780	10 MHz	QPSK	25	12	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			50	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			1	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780				24	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780		16QAM	25	12	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			50	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780			1	0	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		23780				24	Reduced[1]
		23790					Reduced[1]
		23800					Reduced[1]
		All lower bandwidths (5 MHz)					Reduced[1]

Reduced[1] – Band 17 is fully in the Band 12 Frequency range. Therefore, Band 17 is covered by Band 12 testing.