FCC 47 CFR §2.1093 and IEEE Std 1528-2013

in accordance with the requirements of
FCC Report and Order: ET Docket 93-62

FCC TEST REPORT

For

Computer

Trade Name: ADVANTECH

Model:
AIM8I, AIM8Ixxxxxxxxxxxxxxxxx, AIM-x5ATxxxxxxxxxxxx
(where "x" may be any alphanumeric character, "-" or blank for marketing purpose and no impact safety related critical components and constructions)

Issued to
Advantech Co.Ltd.
No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.

Issued by
Compliance Certification Services Inc.
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891,
Taiwan. (R.O.C.)
http://www.ccsrf.com
service@ccsrf.com
Issued Date: 2017/07/27

Testing Laboratory
1309

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	2017/06/15	Initial Issue	ALL	Jerry Chuang
01	2017/07/27	Add 2600 dipole, Revise BT power table and tune-up power,Add Liquid 2600MHz, Revise test result	13, 20, 100, 103, 105, 110 , 112-119, 121 , 125-128	Jerry Chuang

Table of Contents

1 Certificate of Compliance (SAR Evaluation)

Applicant	Advantech Co.Ltd. No.1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.
Equipment Under Test:	Computer
Trade Name:	ADVANTECH
Model Number:	AIM8I, AIM8Ixxxxxxxxxxxxxxxx, AIM-x5ATxxxxxxxxxxxx (where "x" may be any alphanumeric character, "-" or blank for marketing purpose and no impact safety related critical components and constructions)
Date of Test:	April 10 ~ 19, 2017
Device Category:	Portable Devices
Exposure Category:	General Population/Uncontrolled Exposure

Applicable Standards	
FCC	• IEEE 1528 2013 • KDB 865664 D01 SAR Measurement 100 MHz to 6 GHz v01r04 • KDB 865664 D02 RF Exposure Reporting v01r02 • KDB 447498 D01 General RF Exposure Guidance v06 • KDB 616217 D04 SAR for laptop and tablets v01r02 • KDB 248227 D01 SAR Measurement Guidance for 802.11 Transmitters v02r02 • KDB 941225 D05 SAR for LTE Device v02r05 • KDB 941225 D01 3G SAR procedure v03r01
Limit	
1.6 W/kg	
Test Result	
Pass	

The test results in this report apply only to the tested sample of the stated device/equipment. Other similar device/equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved by:

Scott Hsu
Section Manager
Compliance Certification Services Inc.

Tested by:

Jerry Chuang
SAR Engineer
Compliance Certification Services Inc.

2 Description of Equipment Under Test

<table>
<tr><td>Product</td><td colspan="3">Computer</td></tr>
<tr><td>Trade Name</td><td colspan="3">ADVANTECH</td></tr>
<tr><td>Model Number</td><td colspan="3">AIM8I, AIM8Ixxxxxxxxxxxxxxxx, AIM-x5ATxxxxxxxxxxxx
(where "x" may be any alphanumeric character, "-" or blank for marketing purpose and no impact safety related critical components and constructions)</td></tr>
<tr><td>Test Model</td><td colspan="3">AIM8I</td></tr>
<tr><td>WWAN Module</td><td>Huawei</td><td>Model:</td><td>ME936</td></tr>
<tr><td>Transmitter</td><td colspan="3">GMSK, UMTS & LTE</td></tr>
<tr><td rowspan="12">Modulation Technique</td><td>Operating Mode</td><td colspan="2">TX Freq Range (MHz)</td></tr>
<tr><td>GPRS 850</td><td colspan="2">824 ~ 849</td></tr>
<tr><td>GPRS 1900</td><td colspan="2">1850 ~ 1910</td></tr>
<tr><td>WCDMA Band II</td><td colspan="2">1850 ~ 1910</td></tr>
<tr><td>WCDMA Band IV</td><td colspan="2">1710 ~ 1755</td></tr>
<tr><td>WCDMA Band V</td><td colspan="2">824 ~ 849</td></tr>
<tr><td>LTE Band 2</td><td colspan="2">1850 ~ 1910</td></tr>
<tr><td>LTE Band 4</td><td colspan="2">1710 ~ 1755</td></tr>
<tr><td>LTE Band 5</td><td colspan="2">824 ~ 849</td></tr>
<tr><td>LTE Band 7</td><td colspan="2">2500 ~ 2570</td></tr>
<tr><td>LTE Band 13</td><td colspan="2">777 ~ 787</td></tr>
<tr><td>LTE Band 17</td><td colspan="2">705~714</td></tr>
<tr><td rowspan="4">WWAN Antenna Specification</td><td>Brand name</td><td colspan="2">Yageo</td></tr>
<tr><td rowspan="2">Parts Number</td><td colspan="2">Main:ANTA0ZV11661LTEA2</td></tr>
<tr><td colspan="2">Aux:ANTA0ZV11661LTEA3</td></tr>
<tr><td>Type</td><td colspan="2">PIFA</td></tr>
<tr><td rowspan="2">Collocated Transmitter</td><td>Azurewave</td><td>Model:</td><td>AW-NB177NF</td></tr>
<tr><td colspan="3">Wi-Fi & Bluetooth</td></tr>
<tr><td rowspan="4">Collocated Transmitter Modulation Technique</td><td colspan="3">Bluetooth:GFSK for 1Mbps;π/4-DQPSK for 2Mbps;8DPSK for 3Mbps</td></tr>
<tr><td colspan="3">802.11b: Direct Sequence Spread Spectrum(DSSS)</td></tr>
<tr><td colspan="3">802.11g: Orthogonal Frequency Division Multiplexing (OFDM)</td></tr>
<tr><td colspan="3">802.11n: Orthogonal Frequency Division Multiplexing (OFDM)</td></tr>
<tr><td rowspan="3">WLAN Antenna Specification</td><td>Brand name</td><td colspan="2">Yageo</td></tr>
<tr><td>Parts Number</td><td colspan="2">Main:ANTA0ZV11661WLAN1</td></tr>
<tr><td>Type</td><td colspan="2">PIFA</td></tr>
<tr><td>Rechargeable Li-polymer Battery–alternate</td><td colspan="3">Band:ADVANTECH
Model:AIM-BAT-8
Rating:3.8V/4900mAh</td></tr>
</table>

Note:

1. The sample selected for test was prototype that representative to production product and was provided by manufacturer.

2.1 Summary of Highest SAR Values

Results for highest reported SAR values for each frequency band and mode

Technology/Band	Test configuration	Mode	Highest Reported 1g-SAR (W/kg)
GPRS 850	Rear	GMSK	0.422
GPRS 1900	Rear	GMSK	0.636
WCDMA Band II	Rear	RMC 12.2Kbps	1.228
WCDMA band IV	Rear	RMC 12.2Kbps	1.150
WCDMA band V	Rear	RMC 12.2Kbps	1.021
LTE band 2	Rear	QPSK	1.240
LTE band 4	Rear	QPSK	1.260
LTE band 5	Rear	QPSK	1.063
LTE band 7	Edge 4	QPSK	1.200
LTE band 13	Rear	QPSK	1.171
LTE band 17	Rear	QPSK	0.405
WiFi 2.4 GHz	Rear	802.11b	0.602
Bluetooth	Rear	BLE	0.166

Result for highest Simultaneous Transmission SAR values

Technology/Band	Test configuration	Mode	Sum of Highest Reported 1g-SAR (W/kg)
LTE band 4+Bluetooth	Rear	QPSK	1.470

3 Requirements for Compliance Testing Defined

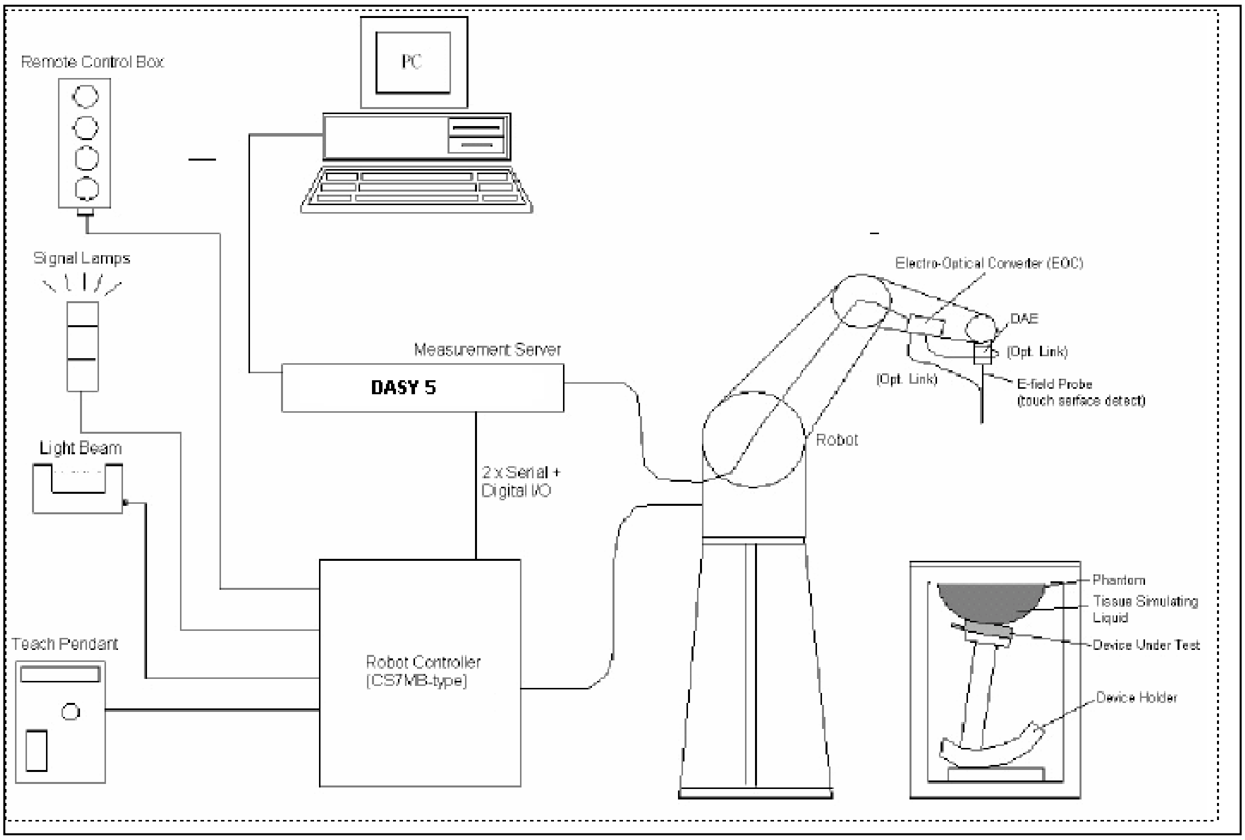
3.1 Requirements for Compliance Testing Defined by the FCC

The US Federal Communications Commission has released the report and order “Guidelines for Evaluating the Environmental Effects of RF Radiation", ET Docket No. 93-62 in August 1996 [1]. The order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 W/kg for an uncontrolled environment and 8.0 mW/g for an occupational/controlled environment as recommended by the FCC 47 CFR §2.1093 and IEEE Std 1528-2013.

4 Dosimetric Assessment System

These measurements were performed with the automated near-field scanning system DASY5 from Schmid & Partner Engineering AG (SPEAG). The system is based on a high precision robot (working range greater than 0.9 m) which positions the probes with a positional repeatability of better than ± 0.02 mm. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines to the data acquisition unit. The SAR measurements were conducted with the dosimetric probe EX3DV4-SN: 3665 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe has been calibrated according to the procedure with accuracy of better than ±10%. The spherical isotropy was evaluated with the procedure and found to be better than ±0.25 dB. The phantom used was the SAM Twin Phantom as described in FCC supplement C, IEEE 1528 2013.

4.1 Measurement System Diagram



The DASY5 system for performing compliance tests consists of the following items:

- A standard high precision 6-axis robot (St¨aubli RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
- A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
- A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows 7 or Windows XP.
- DASY5 software version: 52.8.8.1222.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing validating the proper functioning of the system.

4.2 System Components

DASY4/DASY5 Measurement Server	
	The DASY4/DASY5 measurement server is based on a PC/104 CPU board with a 166MHz low-power Pentium, 32MB chip disk and 64MB RAM. The necessary circuits for communication with either the DAE3 electronic box as well as the 16-bit AD-converter system for optical detection and digital I/O interface are contained on the DASY4/DASY5 I/O-board, which is directly connected to the PC/104 bus of the CPU board. The measurement server performs all real-time data evaluation for field measurements and surface detection, controls robot movements and handles safety operation.
	The PC-operating system cannot interfere with these time critical processes. All connections are supervised by a watchdog, and disconnection of any of the cables to the measurement server will automatically disarm the robot and disable all program-controlled robot movements. Furthermore, the measurement server is equipped with two expansion slots which are reserved for future applications. Please note that the expansion slots do not have a standardized pinout and therefore only the expansion cards provided by SPEAG can be inserted. Expansion cards from any other supplier could seriously damage the measurement server. Calibration: No calibration required.

Data Acquisition Electronics (DAE)	
	The data acquisition electronics (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 measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock. The mechanical probe mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection. The input impedance of the DAE4 box is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

EX3DV4 Isotropic E-Field Probe for Dosimetric Measurements

Construction: Symmetrical design with triangular core
Built-in shielding against static charges
PEEK enclosure material (resistant to organic solvents, e.g., DGBE)

Calibration: Basic Broad Band Calibration in air: 10-3000 MHz.
Conversion Factors (CF) for HSL 900 and HSL 1800
CF-Calibration for other liquids and frequencies upon request.

Frequency: 10 MHz to > 6 GHz; Linearity: ± 0.2 dB (30 MHz to 3 GHz)

Directivity: ± 0.3 dB in HSL (rotation around probe axis)
± 0.5 dB in HSL (rotation normal to probe axis)

Dynamic Range: 10 µW/g to > 100 mW/g; Linearity: ± 0.2 dB
(noise: typically < 1 µW/g)

Dimensions: Overall length: 330 mm (Tip: 20 mm)
Tip diameter: 2.5 mm (Body: 12 mm)
Distance from probe tip to dipole centers: 1 mm

Application: High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

SAM Phantom (V4.0)

Construction: The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 2013, CENELEC 50361 and IEC 62209. 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 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 with the robot.

Shell Thickness: 2 ±0.2 mm

Filling Volume: Approx. 25 liters

Dimensions: Height: 810mm; Length: 1000mm; Width: 500mm

SAM Phantom (ELI4)

Construction: Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with the latest draft of the standard IEC 62209 Part II and all known tissue simulating liquids. ELI4 has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is supported by software version DASY4/DASY5 and higher and is compatible with all SPEAG dosimetric probes and dipoles

Shell Thickness: 2.0 ± 0.2 mm (sagging: <1%)

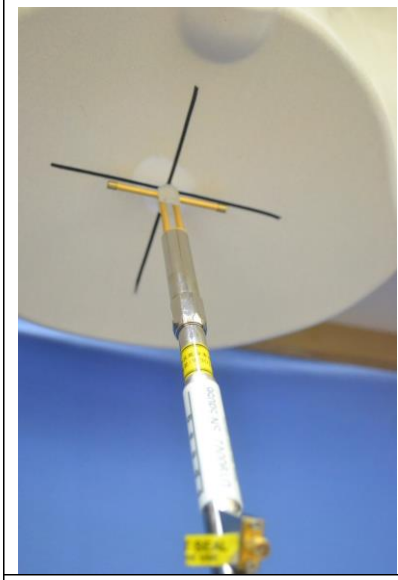
Filling Volume: Approx. 25 liters

Dimensions: Major ellipse axis: 600 mm
Minor axis: 400 mm 500mm

Device Holder for SAM Twin Phantom

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

System Validation Kits for SAM Phantom (V4.0)



Construction: Symmetrical dipole with l/4 balun Enables measurement of feedpoint impedance with NWA Matched for use near flat phantoms filled with brain simulating solutions Includes distance holder and tripod adaptor.

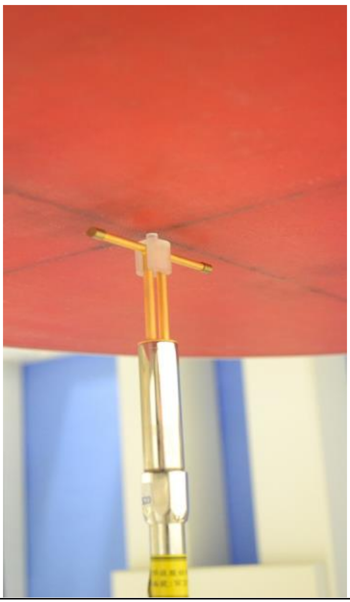
Frequency: 750, 835, 1750, 1900, 2450 MHz

Return loss: > 20 dB at specified validation position

Power capability: > 100 W (f < 1GHz); > 40 W (f > 1GHz)

Dimensions:
D750V3: dipole length: 178 mm; overall height: 330 mm
D835V2: dipole length: 161 mm; overall height: 340 mm
D1750V2: dipole length: 75.2 mm; overall height: 301.5 mm
D1900V2: dipole length: 67.7 mm; overall height: 300 mm
D2450V2: dipole length: 51.5 mm; overall height: 290 mm
D2600V2: dipole length: 49.2 mm; overall height: 290 mm

System Validation Kits for ELI4 phantom



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5 Evaluation Procedures

Data Evaluation

The DASY4/DASY5 post processing software (SEMCAD) automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	$Norm_i$, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	dcp_i
Device parameters:	- Frequency	f
	- Crest factor	cf
Media parameters:	- Conductivity	σ
	- Density	ρ

These parameters must be set correctly in the software. They can be found in the component documents or be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multi-meter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

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 as:

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

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: $$E_i = \sqrt{\frac{V_i}{Norm_i \bullet ConvF}}$$

H-field probes: $$H_i = \sqrt{Vi} \cdot \frac{a_{i10} + a_{i11} f + a_{i12} f^2}{f}$$

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 E0field Probes

ConvF	= Sensitivity enhancement in solution
aij	= Sensor sensitivity factors for H-field probes
f	= Carrier frequency (GHz)
Ei	= Electric field strength of channel i in V/m
Hi	= Magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian 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/kg

E_{tot} = total field strength in V/m

σ = conductivity in [mho/m] or [Siemens/m]

ρ = equivalent tissue density in g/cm^3

Note that the density is normally set to 1 (or 1.06), to account for actual brain density rather than the density of the simulation liquid.

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

$$P_{pwe} = \frac{E_{tot}^2}{377} \quad \text{or} \quad P_{pwe} = H_{tot}^2 \cdot 37.7$$

with P_{pwe} = Equivalent power density of a plane wave in mW/cm^2

E_{tot} = total electric field strength in V/m

H_{tot} = total magnetic field strength in A/m

6 SAR Measurement Procedures

6.1 Normal SAR Test Procedure

- **Power Reference Measurement**

The reference and drift jobs are useful jobs for monitoring the power drift of the device under test in the batch process. Both jobs measure the field at a specified reference position, at a selectable distance from the phantom surface. The reference position can be either the selected section's grid reference point or a user point in this section. The reference job projects the selected point onto the phantom surface, orients the probe perpendicularly to the surface, and approaches the surface using the selected detection method.

- **Area Scan**

The area scan is used as a fast scan in two dimensions to find the area of high field values, before doing a finer measurement around the hot spot. The sophisticated interpolation routines implemented in DASY4/DASY5 software can find the maximum locations even in relatively coarse grids. The scan area is defined by an editable grid. This grid is anchored at the grid reference point of the selected section in the phantom. When the area scan's property sheet is brought-up, the grid resolution has to less than 15 mm by 15 mm at frequency ≤2GHz; the grid resolution has to less than 12mm by 12 mm at frequency between 2GHz to 4GHz; grid resolution has to less than 10 mm by 10 mm at frequency between 4GHz to 6GHz.

According to KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01

<table>
<tr><th></th><th>≤ 3 GHz</th><th>> 3 GHz</th></tr>
<tr><td>Maximum distance from closest measurement point (geometric center of probe sensors) to phantom surface</td><td>5 ± 1 mm</td><td>½·δ·ln(2) ± 0.5 mm</td></tr>
<tr><td>Maximum probe abgle from probe axis to phantom surface normal at the measurement location</td><td>30° ± 1°</td><td>20° ± 1°</td></tr>
<tr><td rowspan="2">Maximum area scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>≤ 2 GHz: ≤ 15 mm
2 – 3 GHz: ≤ 12 mm</td><td>3 – 4 GHz: ≤ 12 mm
4 – 6 GHz: ≤ 10 mm</td></tr>
<tr><td colspan="2">When the x or y dimension of the test device, in the measurement plane orientation, is smaller than the above, the measurement resolution must be ≤ the corresponding x or y dimension of the test device with at least one measurement point on the test device.</td></tr>
</table>

- **Zoom Scan**

Zoom scans are used to assess the peak spatial SAR values within a cubic averaging volume containing 1 g and 10 g of simulated tissue. The default zoom scan measures points in accordance with the frequency can be divided into three parts. (1)The zoom scan volume was set to 5x5x7 points at frequency ≤ 2GHz. (2) The zoom scan volume was set to 7x7x7 points at frequency between 2GHz to 4GHz (3) The zoom scan volume was set to 7x7x12 points at frequency between 4GHz to 6GHz. The measures points within a cube whose base faces are centered around the maximum found in a preceding area scan job within the same procedure. If the preceding Area Scan job indicates more then one maximum, the number of Zoom Scans has to be enlarged accordingly.

According to KDB 865664 D01 SAR measurement 100 MHz to 6 GHz v01

<table>
<tr><td colspan="3"></td><td>≤ 3 GHz</td><td>> 3 GHz</td></tr>
<tr><td colspan="3">Maximum zoom scan spatial resolution: Δx_{Zoom}, Δy_{Zoom}</td><td>≤ 2 GHz: ≤ 8 mm
2 – 3 GHz: ≤ 5 mm</td><td>3 – 4 GHz: ≤ 5 mm
4 – 6 GHz: ≤ 4 mm</td></tr>
<tr><td rowspan="3">Maximum zoom scan spatial resolution, normal to phantom surface</td><td colspan="2">Uniform grid: $\Delta z_{Zoom}(n)$</td><td>≤ 5 mm</td><td>3 – 4 GHz: ≤ 4 mm
4 – 5 GHz: ≤ 3 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td rowspan="2">graded grid</td><td>$\Delta z_{Zoom}(1)$:between 1st two points losest to phantom surface</td><td>≤ 4 mm</td><td>3 – 4 GHz: ≤ 3 mm
4 – 5 GHz: ≤ 2.5 mm
5 – 6 GHz: ≤ 2 mm</td></tr>
<tr><td>$\Delta z_{Zoom}(n>1)$: between subsequent points</td><td colspan="2">≤ 1.5·$\Delta z_{Zoom}(n-1)$</td></tr>
<tr><td>Maximum zoom scan volume</td><td>x, y, z</td><td>≥ 30 mm</td><td colspan="2">3 – 4 GHz: ≥ 28 mm
4 – 5 GHz: ≥ 25 mm
5 – 6 GHz: ≥ 22 mm</td></tr>
</table>

- **Power Drift Measurement**

The drift job measures the field at the same location as the most recent reference job within the same procedure, and with the same settings. The drift measurement gives the field difference in dB from the reading conducted within the last reference measurement. Several drift measurements are possible for one reference measurement. This allows a user to monitor the power drift of the device under test within a batch process. In the properties of the Drift job, the user can specify a limit for the drift and have DASY4/DASY5 software stop the measurements if this limit is exceeded.

- **Z-Scan**

The Z Scan job measures points along a vertical straight line. The line runs along the Z-axis of a one-dimensional grid. A user can anchor the grid to the current probe location. As with any other grids, the local Z-axis of the anchor location establishes the Z-axis of the grid.

7 Device Under Test

7.1 Wireless Technologies

Wireless technologies	Tx Frequency Bands	Operating mode	Duty Cycle used for testing
GPRS(GMSK)	850 1900	GPRS(GMSK) EGPRS(8PSK)	GPRS/EGPRS: 1 Slot 12.5% 2 Slot 25% 3 Slot 37.5% 4 Slot 50%
WCDMA (UMTS)	Band II Band IV Band V	UMTS Rel. 99 HSDPA HSUPA	100%
LTE	Band 2 Band 4 Band 5 Band 7 Band 13 Band 17	QPSK 16QAM	100%
Wi-Fi	2.4GHz Band	802.11b 802.11g 802.11n(HT20) 802.11n(HT40)	100%
Bluetooth	2.4GHz	2.1 4.0	NA

7.2 Maximum Tune-up Power

P-sensor off

Tolerance (dB): ± 2		RF Output Power (dBm)		
Band	Mode	Target	Max. tune-up power	Max. Fram Avg. power
GPRS 850	1 Slot	31.0	33.0	24.0
	2 Slot	29.0	31.0	25.0
	3 Slot	28.0	30.0	25.7
	4 Slot	26.0	28.0	25.0
EDGE 850	1 Slot	25.0	27.0	18.0
	2 Slot	23.0	25.0	19.0
	3 Slot	23.0	25.0	20.7
	4 Slot	21.0	23.0	20.0
GPRS 1900	1 Slot	28.5	30.5	21.5
	2 Slot	26.0	28.0	22.0
	3 Slot	25.0	27.0	22.7
	4 Slot	23.0	25.0	22.0
EDGE 1900	1 Slot	24.0	26.0	17.0
	2 Slot	22.0	24.0	18.0
	3 Slot	22.0	24.0	19.7
	4 Slot	21.0	23.0	20.0

Tolerance (dB): ± 2		RF Output Power (dBm)	
Band	Mode	Target	Max. tune-up power
WCDMA Band II	R99	22.0	24.0
	HSDPA	22.0	24.0
	HSUPA	22.0	24.0
WCDMA Band IV	R99	22.0	24.0
	HSDPA	22.0	24.0
	HSUPA	22.0	24.0
WCDMA Band V	R99	22.0	24.0
	HSDPA	22.0	24.0
	HSUPA	22.0	24.0

Tolerance (dB): ± 2		RF Output Power (dBm)	
Band	Mode	Target	Max. tune-up power
LTE Band 2	QPSK	22.0	24.0
LTE Band 4	QPSK	22.0	24.0
LTE Band 5	QPSK	22.0	24.0
LTE Band 7	QPSK	22.0	24.0
LTE Band 13	QPSK	22.0	24.0
LTE Band 17	QPSK	22.0	24.0

P-sensor on

Tolerance (dB): ± 2		RF Output Power (dBm)		
Band	Mode	Target	Max. tune-up power	Max. Fram Avg. power
GPRS 850	1 Slot	28.0	30.0	21.0
	2 Slot	25.0	27.0	21.0
	3 Slot	24.0	26.0	21.7
	4 Slot	22.0	24.0	21.0
EDGE 850	1 Slot	25.0	27.0	18.0
	2 Slot	23.0	25.0	19.0
	3 Slot	23.0	25.0	20.7
	4 Slot	21.0	23.0	20.0
GPRS 1900	1 Slot	27.0	29.0	20.0
	2 Slot	24.0	26.0	20.0
	3 Slot	23.0	25.0	20.7
	4 Slot	21.0	23.0	20.0
EDGE 1900	1 Slot	24.0	26.0	17.0
	2 Slot	22.0	24.0	18.0
	3 Slot	22.0	24.0	19.7
	4 Slot	21.0	23.0	20.0

Tolerance (dB): ± 2		RF Output Power (dBm)	
Band	Mode	Target	Max. tune-up power
WCDMA Band II	R99	18.0	20.0
	HSDPA	18.0	20.0
	HSUPA	18.0	20.0
WCDMA Band IV	R99	18.0	20.0
	HSDPA	18.0	20.0
	HSUPA	18.0	20.0
WCDMA Band V	R99	19.0	21.0
	HSDPA	19.0	21.0
	HSUPA	19.0	21.0

Tolerance (dB): ± 2		RF Output Power (dBm)	
Band	Mode	Target	Max. tune-up power
LTE Band 2	QPSK	17.0	19.0
LTE Band 4	QPSK	18.0	20.0
LTE Band 5	QPSK	22.0	24.0
LTE Band 7	QPSK	18.0	20.0
LTE Band 13	QPSK	22.0	24.0
LTE Band 17	QPSK	22.0	24.0

Tolerance (dB): ± 1		RF Output Power (dBm)	
Band	Mode	Target	Max. tune-up power
2.4GHz	802.11b	15.5	16.5
	802.11g	13.5	14.5
	802.11n HT20	12.5	13.5
	802.11n HT20	12.5	13.5
Mode		Max. tune-up power	
Bluetooth		6.0	
BLE		9.0	

7.3 Simultaneous Transmission

RF Exposure Condition	Transmit Configurations
WWAN + Wi-Fi	**GPRS + Wi-Fi/ BT** GPRS 850/1900 + BT(Chain 0) GPRS 850/1900 + 2.4GHz(Chain0) **WCDMA + Wi-Fi / BT** WCDMA Band II/IV/V + BT (Chain 0) WCDMA Band II/IV/V + 2.4GHz (Chain 0) **LTE + Wi-Fi / BT** LTE Band 2/4/5/7/13/17 + BT (Chain 0) LTE Band 2/4/5/7/13/17+ 2.4GHz (Chain 0) **Wi-Fi** 2.4GHz(Chain 0) **BT** BT (Chain 0)

Note(s):

1. For WWAN mode only Chain 0 can be used as transmitting and Chain 1 only be used as receiving.

8 General LTE SAR Test and Reporting Considerations

KDB 941225 D05 SAR for LTE Devices V02

Item	Description	Information						
1	Frequency range, Channel Bandwidth, Numbers and Frequencies	Band 2	Channel Bandwidth					
			1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz
		Low	18607/ 1850.7	18615/ 1851.5	18625/ 1852.5	18650/ 1855	18675/ 1857.5	18700/ 1860
		Mid	18900/ 11880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880	18900/ 1880
		High	19192/ 1909.2	19184/ 1908.4	19175/ 1907.5	19150/ 1905	19125/ 1902.5	19100/ 1900
		Band 4	Channel Bandwidth					
			1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz
		Low	19957/ 1710.7	19965/ 1711.5	19975/ 1712.5	20000/ 1715	20025/ 1717.5	20050/ 1720
		Mid	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5	20175/ 1732.5
		High	20392/ 1754.2	20384/ 1753.4	20375/ 1752.5	20350/ 1750	20325/ 1747.5	20300/ 1745
		Band 5	Channel Bandwidth					
			1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz
		Low	20407/ 824.7	20415/ 825.5	20425/ 826.5	20450/ 829		
		Mid	20525/ 836.5	20525/ 836.5	20525/ 836.5	20525/ 836.5		
		High	20642/ 848.2	20643/ 847.4	20625/ 846.5	20600/ 844		
		Band 7	Channel Bandwidth					
			1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz
		Low			20775/ 2502.5	20800/ 2505.5	20825/ 2507.5	20850/ 2510.0
		Mid			21100/ 2535.0	21100/ 2535.0	21100/ 2535.0	21100/ 2535.0
		High			21425/ 2567.5	21400/ 2565.0	21375/ 2562.5	21350/ 2560.0
		Band 13	Channel Bandwidth					
			1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz
		Low			23205/ 779.5			
		Mid			23230/ 782	23230/ 782		
		High			23255/ 784.5			
		Band 17	Channel Bandwidth					
			1.4MHz	3MHz	5MHz	10MHz	15MHz	20MHz
		Low			23755/ 706.5	23780/ 709		
		Mid			23790/ 710	23790/ 710		
		High			23825/ 713.5	23800/ 711		

KDB 941225 D05 SAR for LTE Devices V02 (Continued)

<table>
<tr><th>Item</th><th>Description</th><th>Information</th></tr>
<tr><td>2</td><td>Descriptions of the LTE transmitter and antenna implementation;</td><td>A single antenna is used for LTE and other wireless modes (GPRS/EGPRS/UMTS) for both Transmit and Receive.

A Secondary antenna is used for LTE and other wireless modes (GPRS/EGPRS/UMTS) for Receive Only.</td></tr>
<tr><td>3</td><td>Maximum power reduction (MPR)</td><td>As per 3GPP 36.101 v9.11.0 (2012-03), Release 9

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3
<table>
<tr><th rowspan="2">Modulation</th><th colspan="6">Channel bandwidth / Transmission bandwidth (N_{RB})</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5 MHz</th><th>10 MHz</th><th>15 MHz</th><th>20 MHz</th></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 12</td><td>≤ 16</td><td>≤ 18</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>> 12</td><td>> 16</td><td>> 18</td><td>≤ 2</td></tr>
</table>
MPR is permanently built-in by design

A-MPR was disabled</td></tr>
<tr><td>4</td><td>Power Reduction</td><td>Yes</td></tr>
<tr><td>5</td><td>Spectrum plots for RB configurations</td><td>Refer to Section 10.6</td></tr>
</table>

9 Power Reduction by Proximity Sensing

A proximity sensor for power reduction is implemented in this device to address RF exposure compliance when the cellular antenna is positioned close to the user's body. The sensor's mechanical structure is designed to fit within the enclosure design used in this device and also extended around the edge and top of the antenna element in order to optimize sensitivity in these orientations. This design combines the antenna printed directly on a plastic part and proximity sensor FPC (Flexible Printed Circuit) bonded together into one piece. According to KDB 616217 D04 SAR for laptop and tablets v01r02)

9.1 Procedures for determining proximity sensor triggering distances

The following procedures should be applied to determine proximity sensor triggering distances for the back surface and individual edges of a tablet. Conducted power is monitored qualitatively to identify the general triggering characteristics and recorded quantitatively, versus spacing, as required by the procedures. Unless there is built-in test software that reports the triggering conditions and enables the power levels to be confirmed separately, monitoring of conducted power during the triggering tests typically requires internal access to the antenna ports inside the tablet, which may interfere with the triggering tests.

(1) The relevant transmitter should be set to operate at its normal maximum output power.

(2) The entire back surface or edge of the tablet is positioned below a flat phantom filled with the required tissue-equivalent medium, and positioned at least 20 mm further than the distance that triggers power reduction.

(3) It should be ensured that the cables required for power measurements are not interfering with the proximity sensor. Cable losses should be properly compensated to report the measured power results.

(4) The back surface or edge is moved toward the phantom in 3 mm steps until the sensor triggers.

(5) The back surface or edge is then moved back (further away) from the phantom by at least 5 mm or until maximum output power is returned to the normal maximum level.

(6) The back surface or edge is again moved toward the phantom, but in 1 mm steps, until it is at least 5 mm past the triggering point or touching the phantom. If 1 mm resolution is not suitable for the sensor triggering sensitivity, a KDB inquiry should be submitted to determine alternative test configurations.

(7) If the tablet is not touching the phantom, it is moved in 3 mm steps until it touches the phantom to confirm that the sensor remains triggered and the maximum power stays reduced.

(8) The process is then reversed by moving the tablet away from the phantom according to steps 4) to 7), to determine triggering release, until it is at least 10 mm beyond the point that triggers the return of normal maximum power.

(9) The measured output power within ± 5 mm of the triggering points, or until the tablet is touching the phantom, for movements to and from the phantom should be tabulated in the SAR report.

(10) If the sensor design and implementation allow additional variations for triggering distance tolerances, multiple samples should be tested to determine the most conservative distance required for SAR evaluation.

(11) To ensure all production units are compliant, it is generally necessary to reduce the triggering distance determined from the triggering tests by 1 mm, or more if it is necessary, and use the smallest distance for movements to and from the phantom, minus 1 mm, as the sensor triggering distance for determining the SAR measurement distance.

9.2 Procedures for determining antenna and proximity sensor coverage

The sensing regions are usually limited to areas near the sensor element. If a sensor is spatially offset from the antenna(s), it is necessary to verify sensor triggering for conditions where the antenna is next to the user but the sensor is laterally further away to ensure sensor coverage is sufficient for reducing the power to maintain compliance. The following are used to determine if additional SAR measurements may be necessary due to sensor and antenna offset. 25 These procedures do not apply and are not required for configurations where the antenna and sensor are collocated and the peak SAR location is overlapping with the sensor.

(1) The back surface or edge of the tablet is positioned at a test separation distance less than or equal to the distance required for back surface or edge triggering, with both the antenna and sensor pad located at least 20 mm laterally outside the edge (boundary) of the phantom, along the direction of maximum antenna and sensor offset. For the back surface, if the direction of maximum offset is not aligned with the tablet coordinates (physical edges) the tablet test position would not be aligned with the phantom coordinates (orientations). Each applicable tablet edge should be positioned perpendicularly to the phantom to determine sensor coverage. For antennas and/or sensors located near the corner of a tablet, both adjacent edges must be considered.

(2) The similar sequence of steps applied to determine sensor triggering distance in section 6.2 are used to verify back surface and edge sensor coverage by moving the tablet (sensor and antenna) horizontally toward the phantom while maintaining the same vertical separation between the back surface or edge and the phantom.

(3) After the exact location where triggering of power reduction is determined, with respect to the sensor and antenna, the tablet movement should be continued, in 3 mm increments, until both the sensor and antenna(s) are fully under the phantom and at least 20 mm inside the phantom edge.

(4) The process is then repeated from the opposite direction, starting at the other end of the maximum antenna and sensor offset, by rotating the tablet 180° along the vertical axis.

(5) The triggering points should be documented graphically, with the antenna and sensor clearly identified, along with all relevant dimensions.

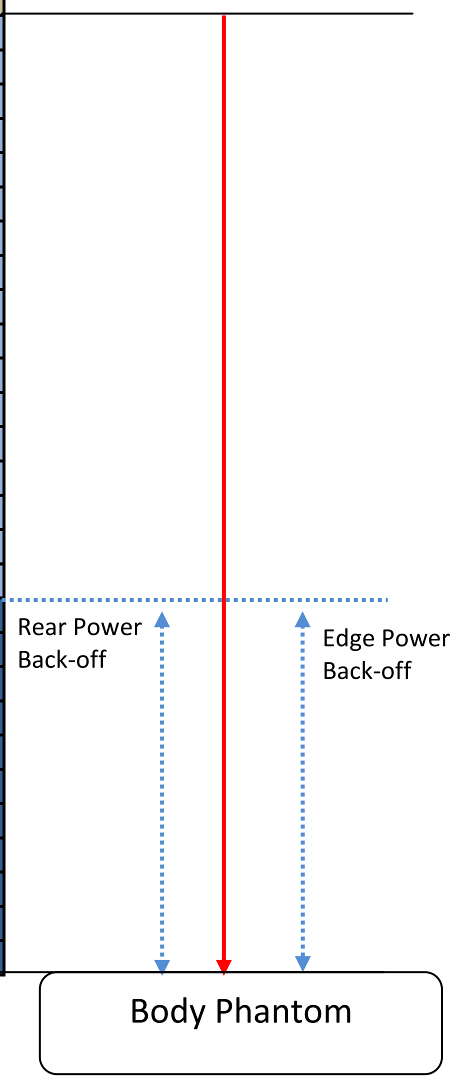
(6) If the subsequently measured peak SAR location for the antenna is not between the triggering points, established by the sensor coverage tests from opposite ends of the antenna and sensor, additional SAR tests may be required for conditions where only part of the back surface or edge of a tablet corresponding to the antenna is in proximity to the user and the sensor may not be triggering as desired. A KDB inquiry must be submitted by the test lab to determine if additional tests are required and the proper test configurations to use for testing. This may include situations where the sensor coverage region is too small for the antenna, the sensor is located too far away from the antenna, the sensor location is insufficient to cover multiple antennas or the antenna is at the corner of a tablet etc.

9.3 Proximity Sensor Status Table of trigger distance

As per the KDB 616217 D04 SAR for laptop and tablets v01r02, section 6.2, the following procedure is used to determine the triggering distances.

Proximity Sensor Status Table when DUT is moving towards the phantom

Distance to the DUT (mm)	Proximity Sensor Status – Rear Surface	Proximity Sensor Status – Top-Edge
30	OFF	OFF
27	OFF	OFF
25	OFF	OFF
24	OFF	OFF
23	OFF	OFF
22	OFF	OFF
21	OFF	OFF
20	OFF	OFF
19	OFF	OFF
18	OFF	OFF
17	OFF	OFF
16	OFF	OFF
15	OFF	OFF
14	OFF	OFF
13	OFF	OFF
12	OFF	OFF
11	OFF	OFF
10	ON	ON
9	ON	ON
8	ON	ON
7	ON	ON
6	ON	ON
5	ON	ON
4	ON	ON
3	ON	ON
2	ON	ON
1	ON	ON
0	ON	ON



Proximity Sensor Status Table when DUT is moving away from the phantom

Distance to the DUT (mm)	Proximity Sensor Status – Rear Surface	Proximity Sensor Status – Top-Edge
0	ON	ON
1	ON	ON
2	ON	ON
3	ON	ON
4	ON	ON
5	ON	ON
6	ON	ON
7	ON	ON
8	ON	ON
9	ON	ON
10	ON	ON
11	OFF	OFF
12	OFF	OFF
13	OFF	OFF
14	OFF	OFF
15	OFF	OFF
16	OFF	OFF
17	OFF	OFF
18	OFF	OFF
19	OFF	OFF
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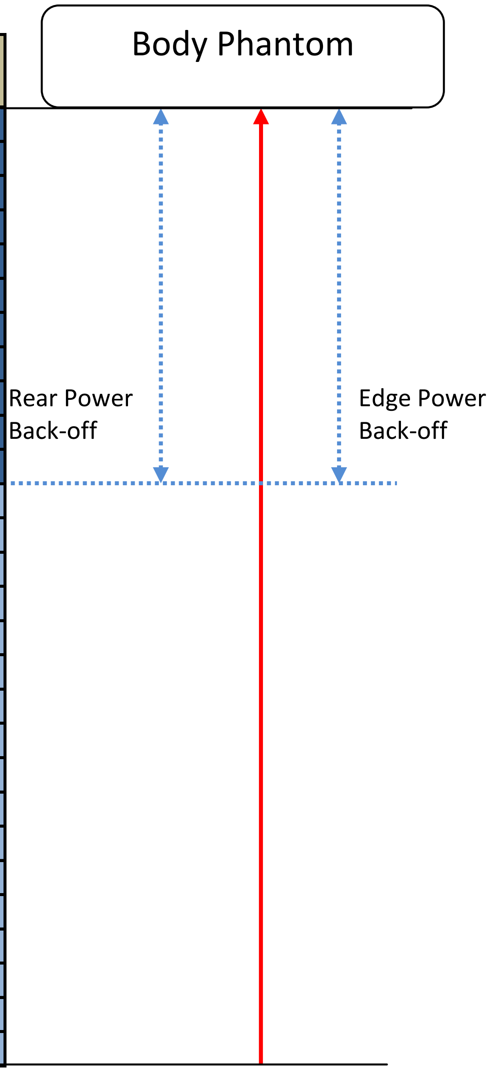
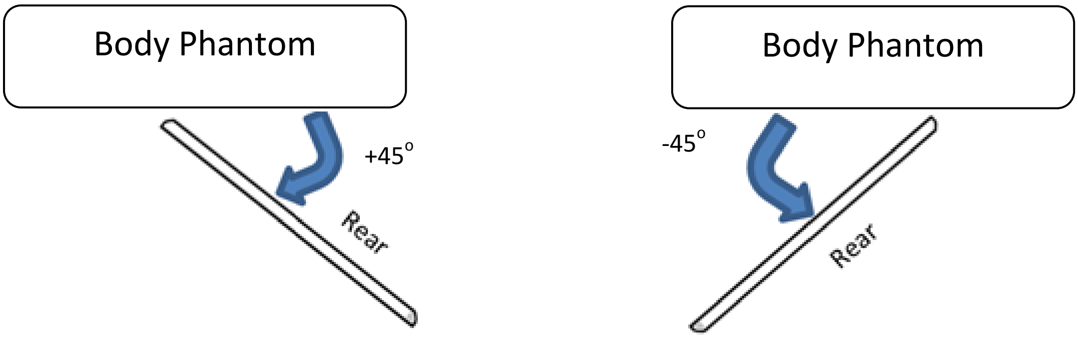
23	OFF	OFF
24	OFF	OFF
25	OFF	OFF
27	OFF	OFF
30	OFF	OFF



9.4 Tilt angle influences to proximity sensor triggering

As per the KDB 616217 D04 SAR for laptop and tablets v01r02, section 6.4, the following procedure is used to determine the tilt angle influences to proximity sensor triggering.

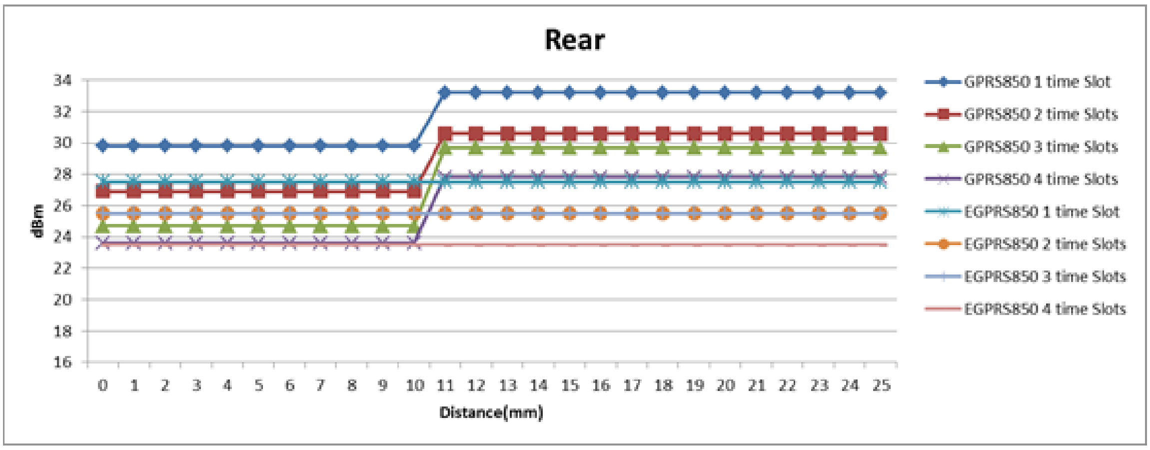


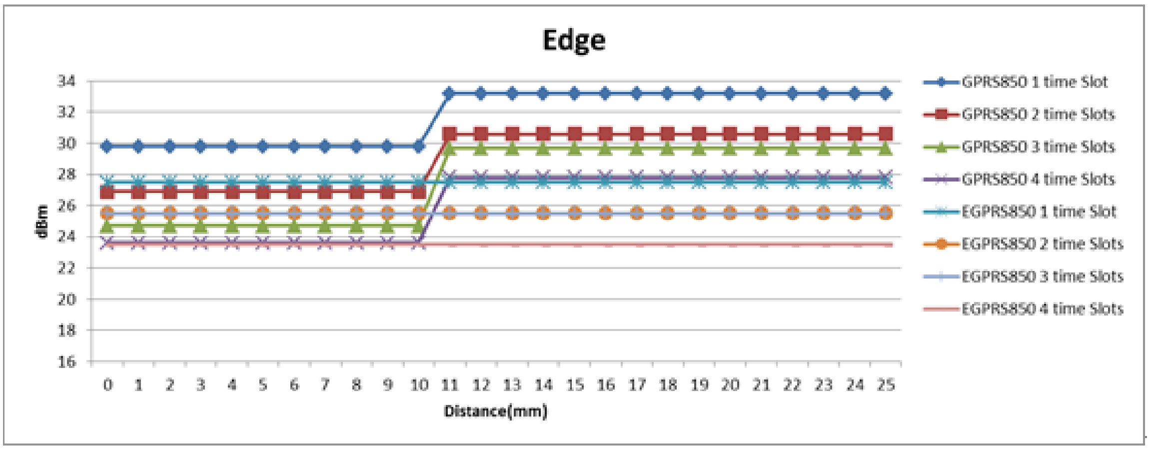
Distance to the DUT (mm)	Proximity Sensor Status 0° to +45°	Proximity Sensor Status 0° to -45°
10	ON	ON
9	ON	ON
8	ON	ON
7	ON	ON
6	ON	ON
5	ON	ON
4	ON	ON
3	ON	ON
2	ON	ON
1	ON	ON
0	ON	ON

9.5 Power Reduction per Air-interface

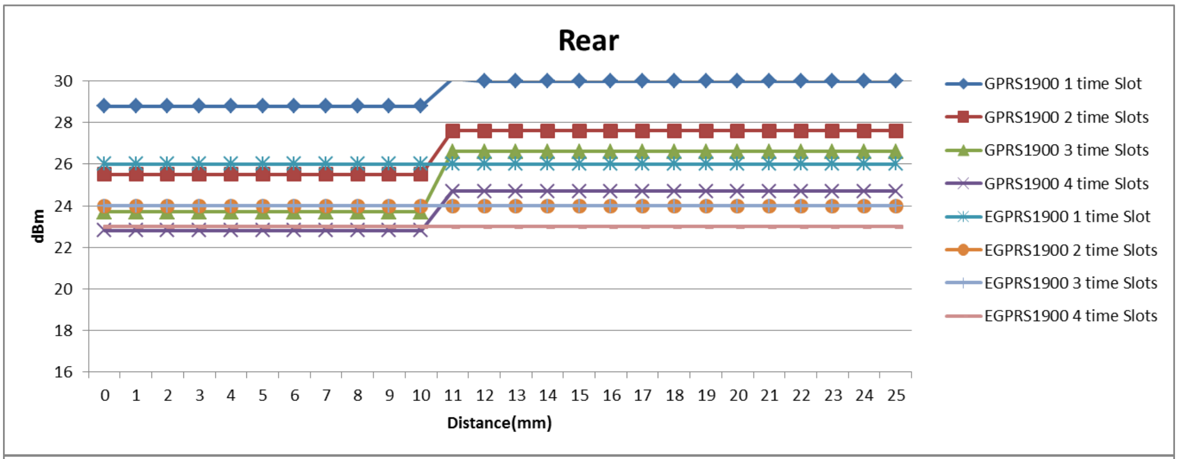
The following graphs show the power level and the distance from the DUT to the flat phantom for the Top-Edge and Rear Surface.

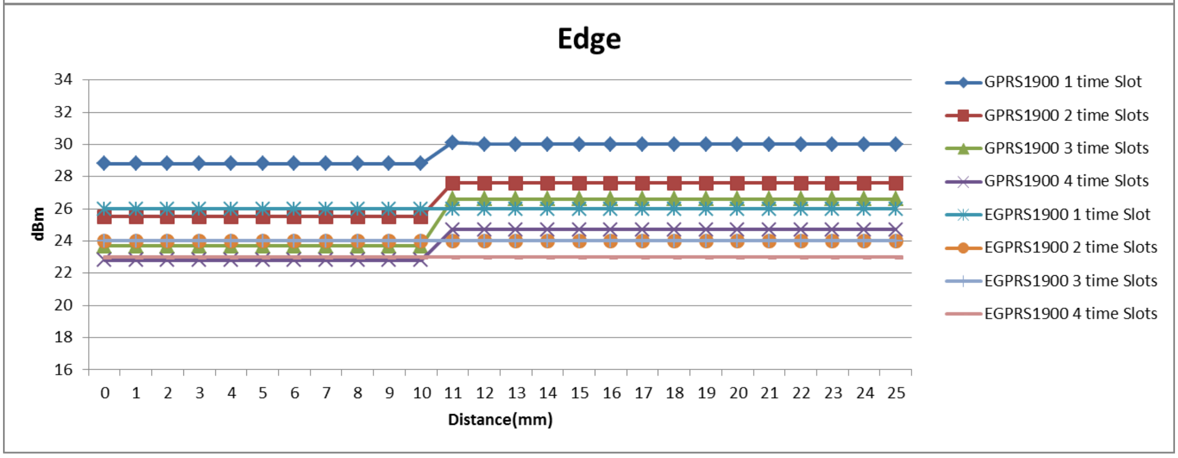
GPRS 850



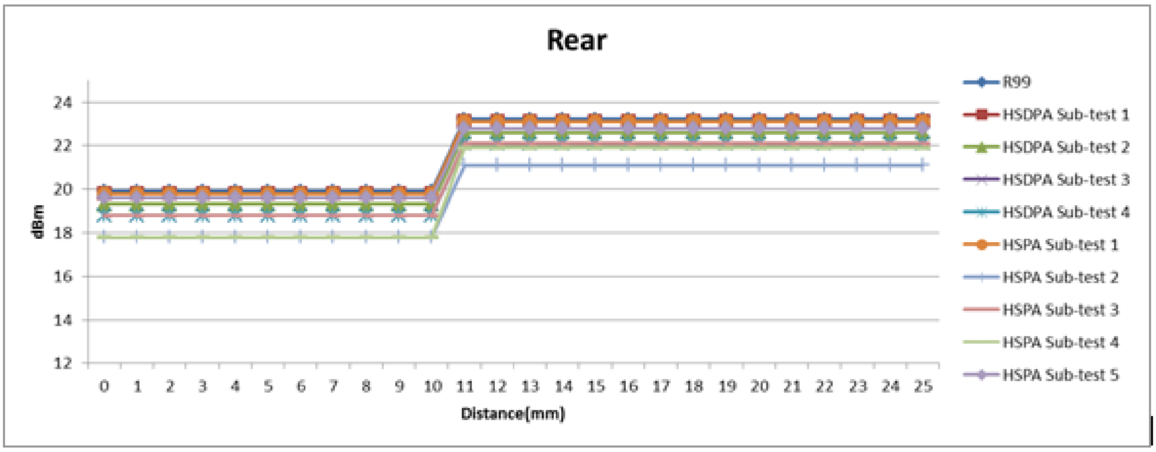


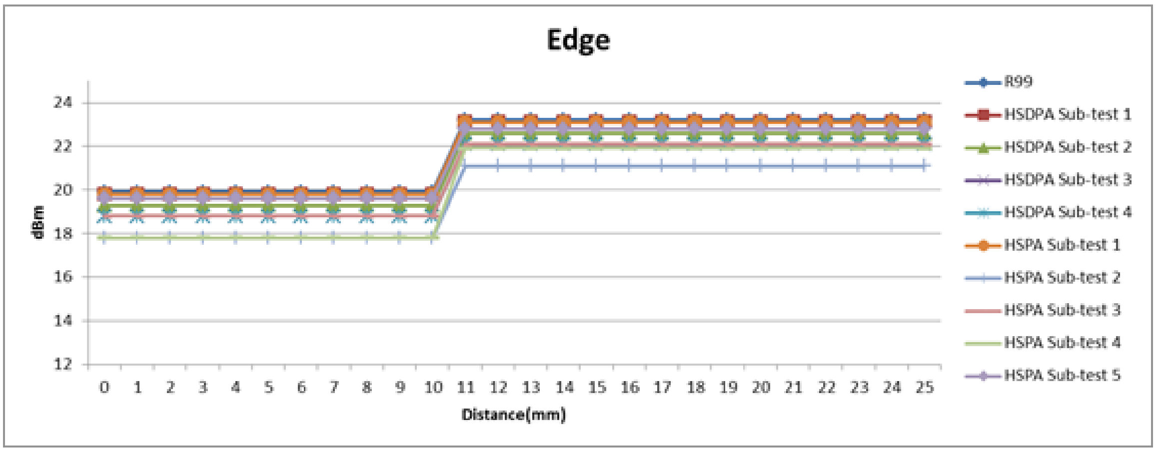
GPRS 1900


Rear
30
28
26
24
22
20
18
16
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
GPRS1900 1 time Slot
GPRS1900 2 time Slots
GPRS1900 3 time Slots
GPRS1900 4 time Slots
EGPRS1900 1 time Slot
EGPRS1900 2 time Slots
EGPRS1900 3 time Slots
EGPRS1900 4 time Slots

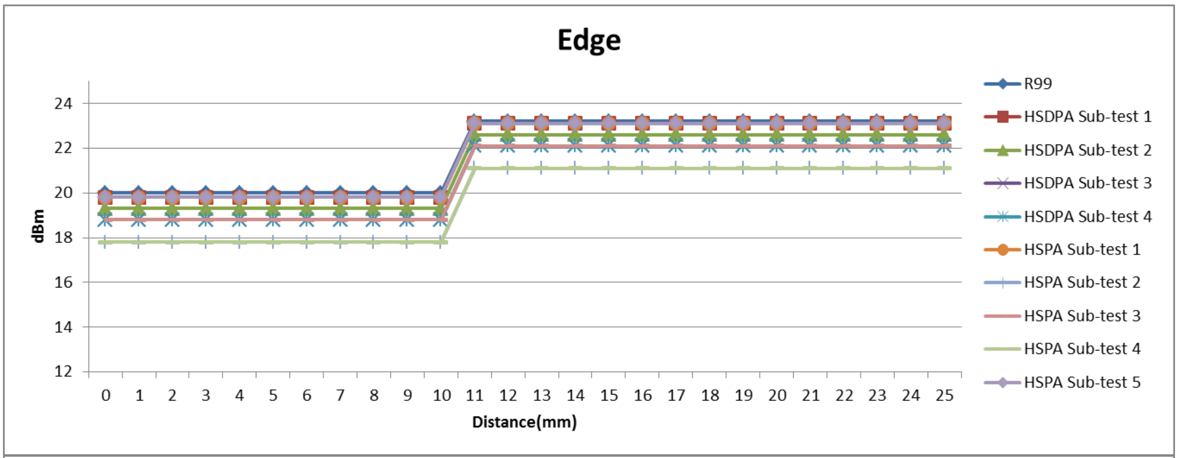

Edge
34
32
30
28
26
24
22
20
18
16
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
GPRS1900 1 time Slot
GPRS1900 2 time Slots
GPRS1900 3 time Slots
GPRS1900 4 time Slots
EGPRS1900 1 time Slot
EGPRS1900 2 time Slots
EGPRS1900 3 time Slots
EGPRS1900 4 time Slots

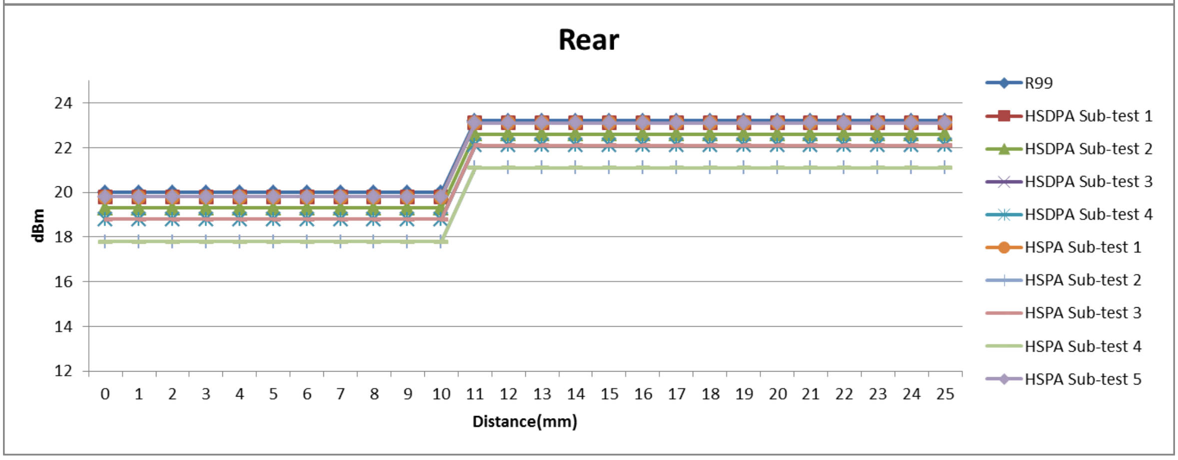
WCDMA Band II



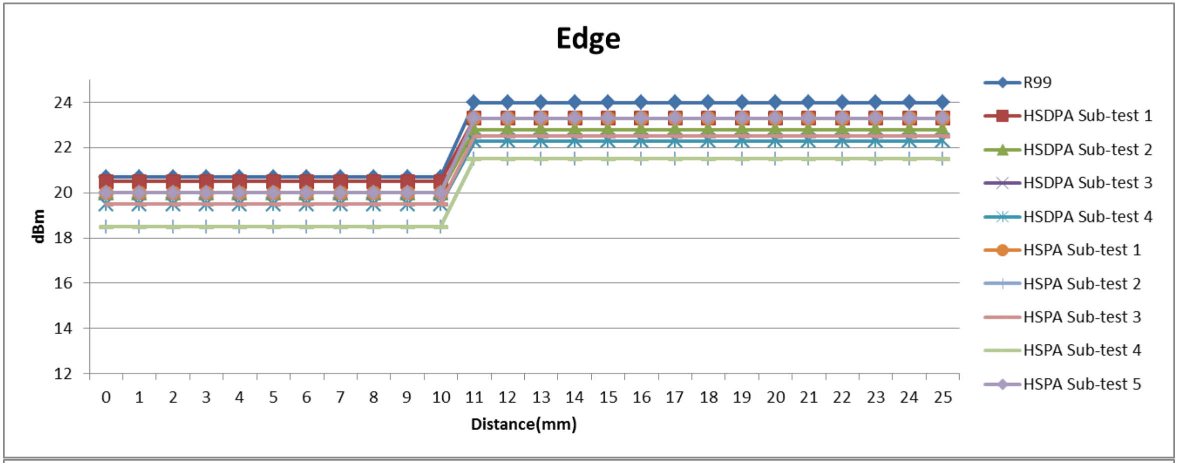


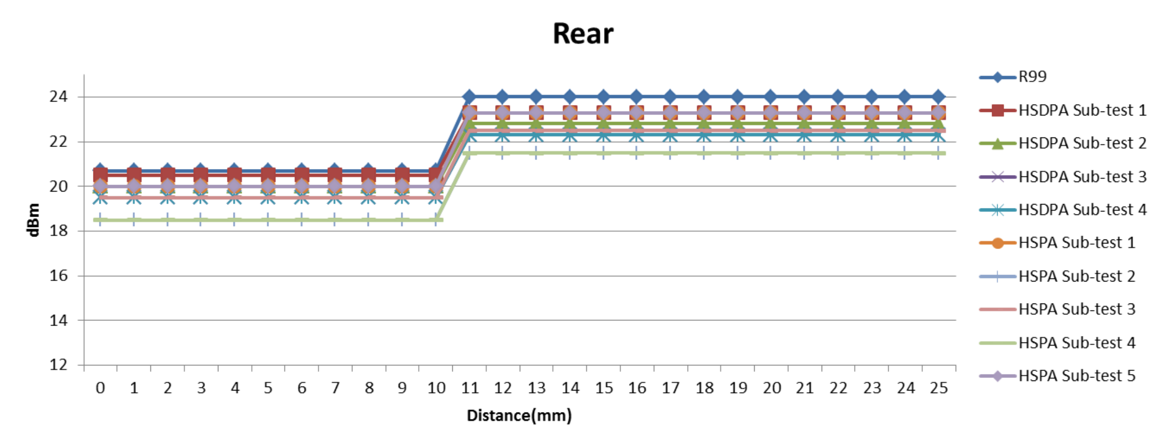
WCDMA Band IV



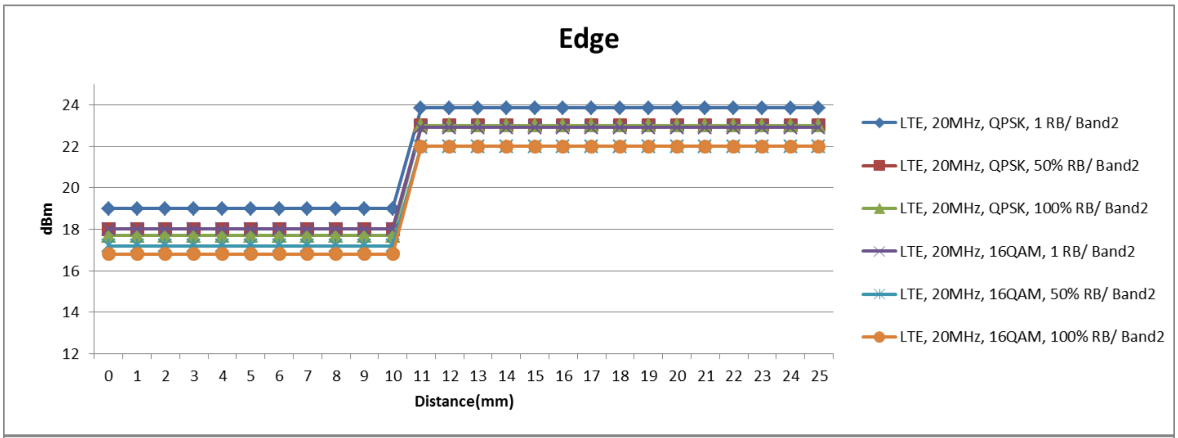


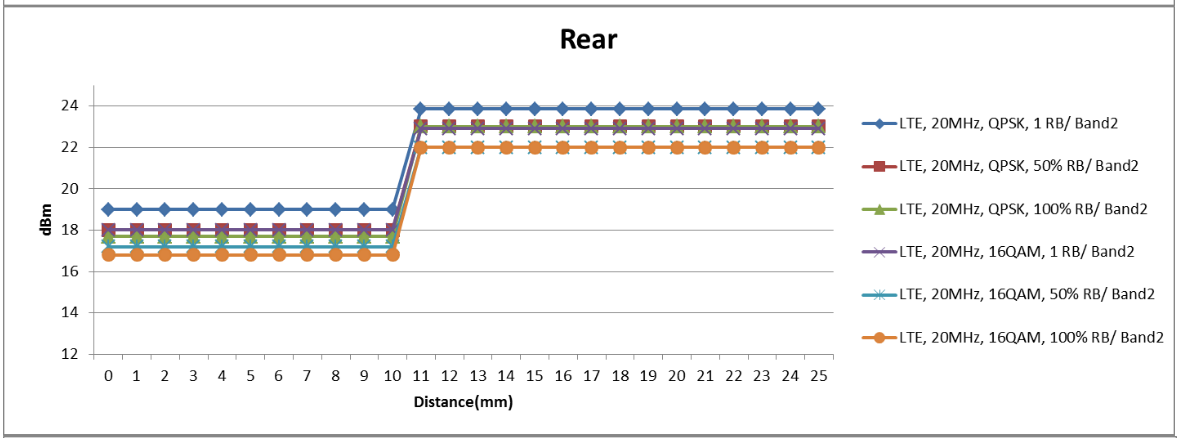
WCDMA Band V

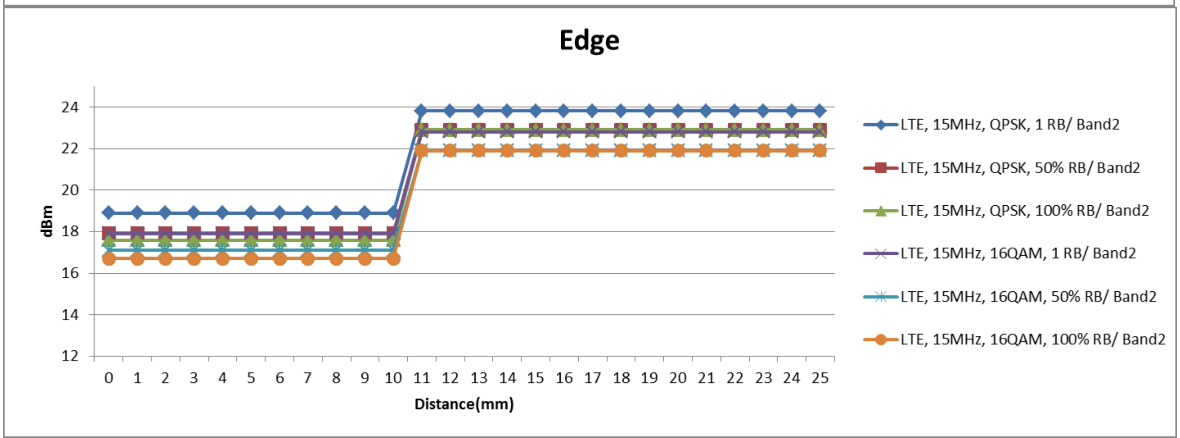

Edge
24
22
20
18
16
14
12
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
R99
HSDPA Sub-test 1
HSDPA Sub-test 2
HSDPA Sub-test 3
HSDPA Sub-test 4
HSPA Sub-test 1
HSPA Sub-test 2
HSPA Sub-test 3
HSPA Sub-test 4
HSPA Sub-test 5

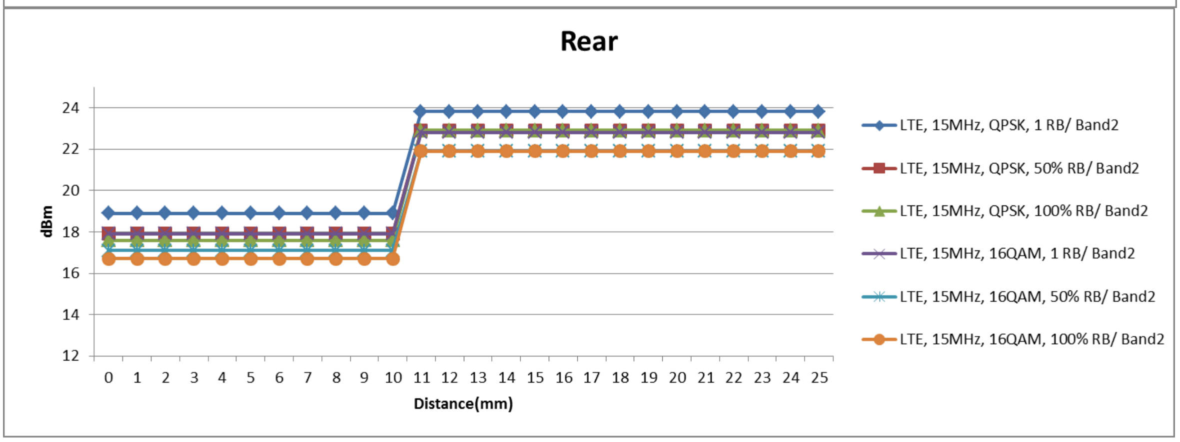

Rear
24
22
20
18
16
14
12
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
R99
HSDPA Sub-test 1
HSDPA Sub-test 2
HSDPA Sub-test 3
HSDPA Sub-test 4
HSPA Sub-test 1
HSPA Sub-test 2
HSPA Sub-test 3
HSPA Sub-test 4
HSPA Sub-test 5

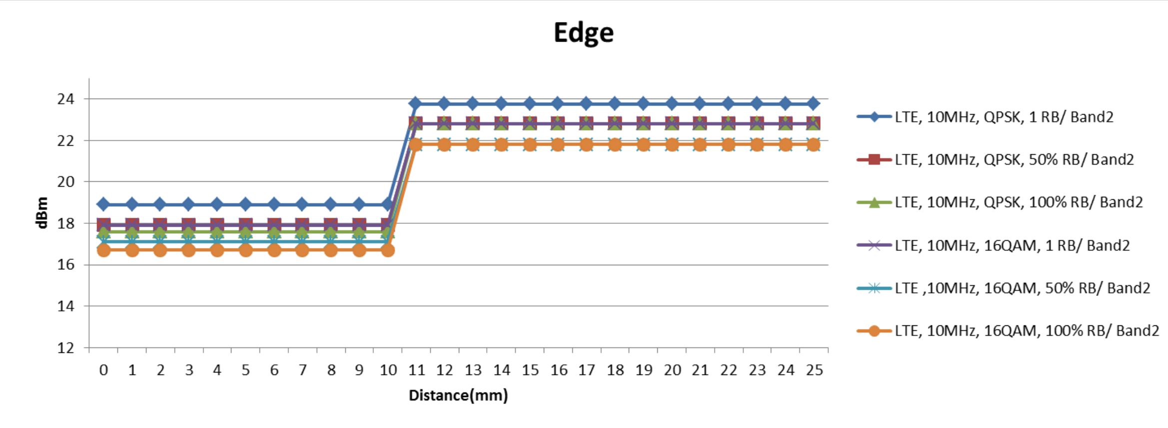
LTE Band 2

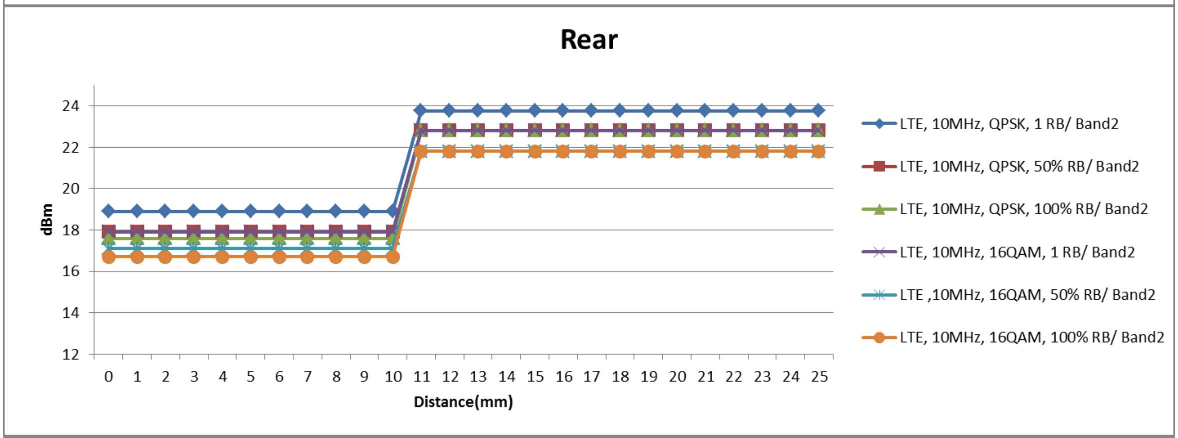

Edge
24
22
20
18
16
14
12
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 20MHz, QPSK, 1 RB/ Band2
LTE, 20MHz, QPSK, 50% RB/ Band2
LTE, 20MHz, QPSK, 100% RB/ Band2
LTE, 20MHz, 16QAM, 1 RB/ Band2
LTE, 20MHz, 16QAM, 50% RB/ Band2
LTE, 20MHz, 16QAM, 100% RB/ Band2

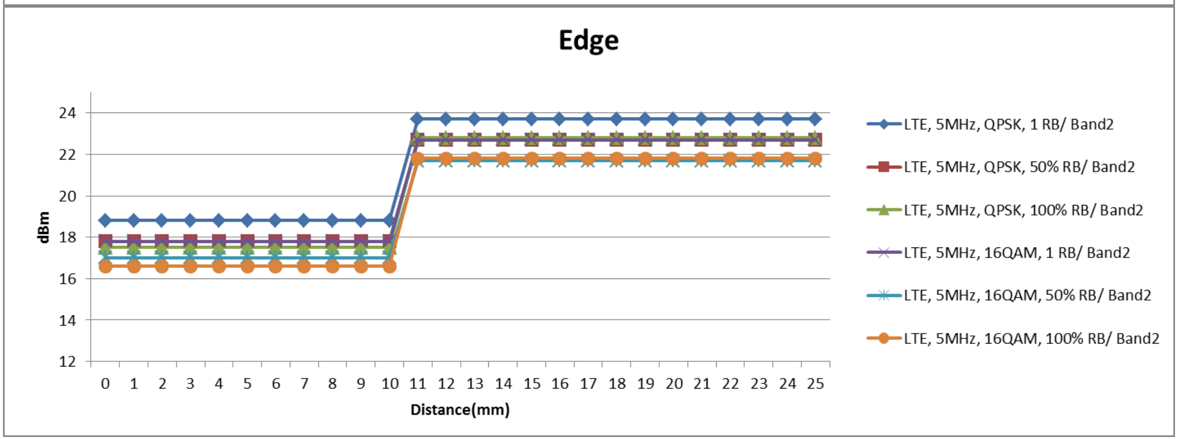

Rear
24
22
20
18
16
14
12
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 20MHz, QPSK, 1 RB/ Band2
LTE, 20MHz, QPSK, 50% RB/ Band2
LTE, 20MHz, QPSK, 100% RB/ Band2
LTE, 20MHz, 16QAM, 1 RB/ Band2
LTE, 20MHz, 16QAM, 50% RB/ Band2
LTE, 20MHz, 16QAM, 100% RB/ Band2

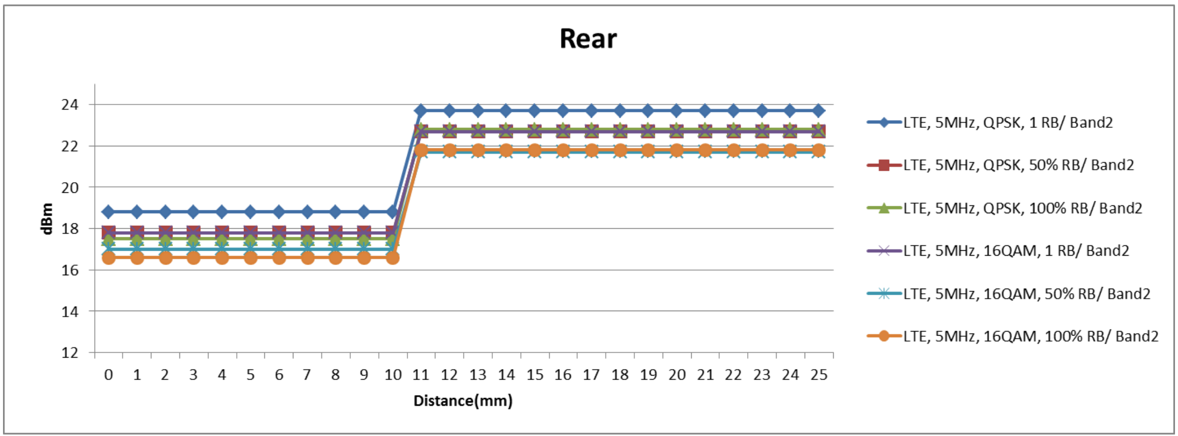

Edge
24
22
20
18
16
14
12
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 15MHz, QPSK, 1 RB/ Band2
LTE, 15MHz, QPSK, 50% RB/ Band2
LTE, 15MHz, QPSK, 100% RB/ Band2
LTE, 15MHz, 16QAM, 1 RB/ Band2
LTE, 15MHz, 16QAM, 50% RB/ Band2
LTE, 15MHz, 16QAM, 100% RB/ Band2

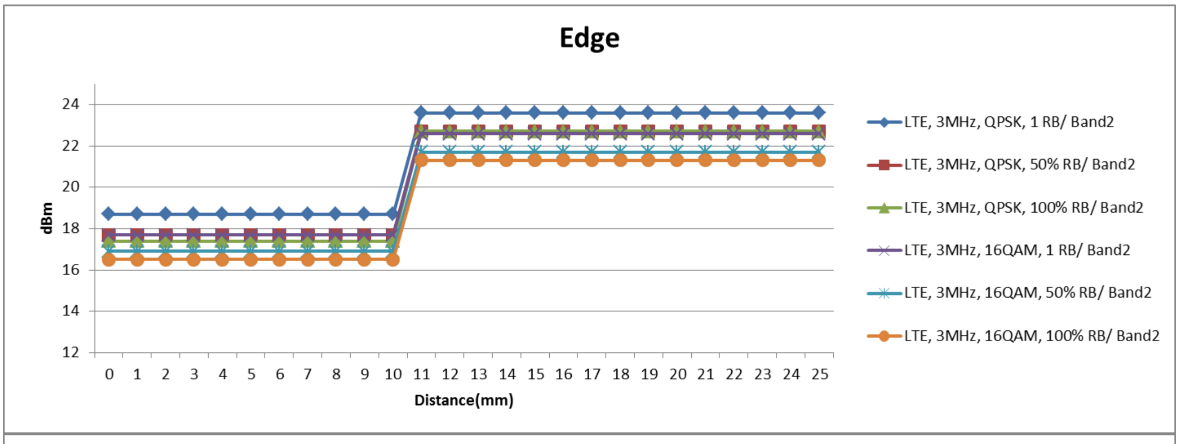

Rear
24
22
20
18
16
14
12
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 15MHz, QPSK, 1 RB/ Band2
LTE, 15MHz, QPSK, 50% RB/ Band2
LTE, 15MHz, QPSK, 100% RB/ Band2
LTE, 15MHz, 16QAM, 1 RB/ Band2
LTE, 15MHz, 16QAM, 50% RB/ Band2
LTE, 15MHz, 16QAM, 100% RB/ Band2

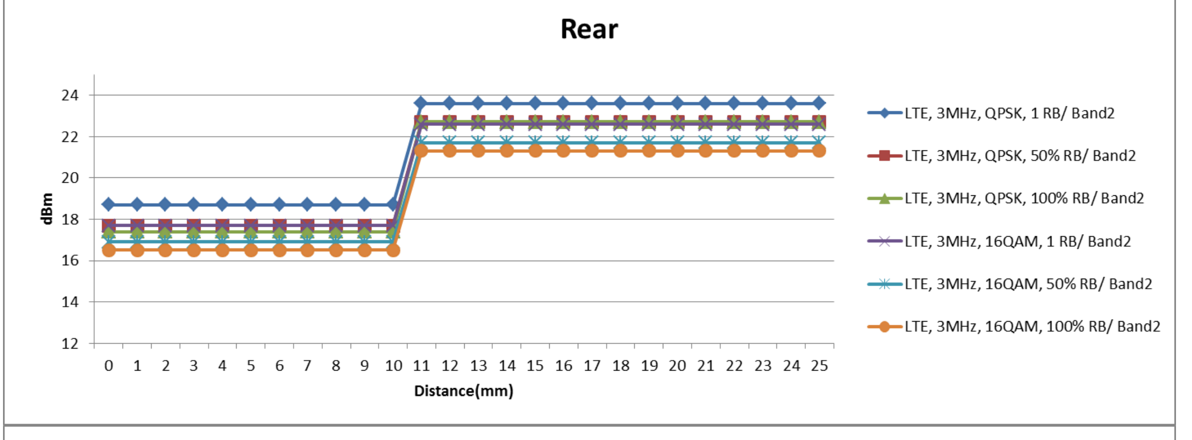

Edge
dBm
24
22
20
18
16
14
12
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 10MHz, QPSK, 1 RB/ Band2
LTE, 10MHz, QPSK, 50% RB/ Band2
LTE, 10MHz, QPSK, 100% RB/ Band2
LTE, 10MHz, 16QAM, 1 RB/ Band2
LTE ,10MHz, 16QAM, 50% RB/ Band2
LTE, 10MHz, 16QAM, 100% RB/ Band2

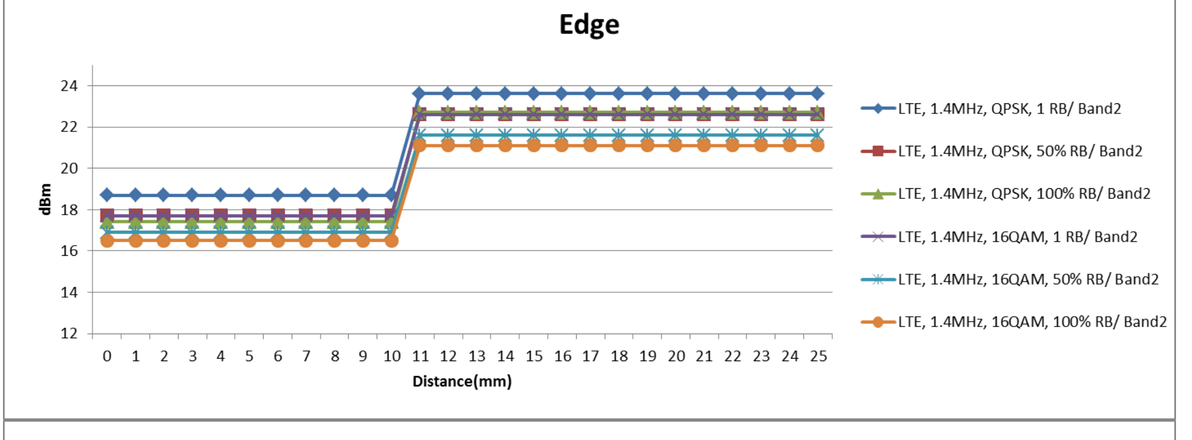

Rear
dBm
24
22
20
18
16
14
12
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 10MHz, QPSK, 1 RB/ Band2
LTE, 10MHz, QPSK, 50% RB/ Band2
LTE, 10MHz, QPSK, 100% RB/ Band2
LTE, 10MHz, 16QAM, 1 RB/ Band2
LTE ,10MHz, 16QAM, 50% RB/ Band2
LTE, 10MHz, 16QAM, 100% RB/ Band2

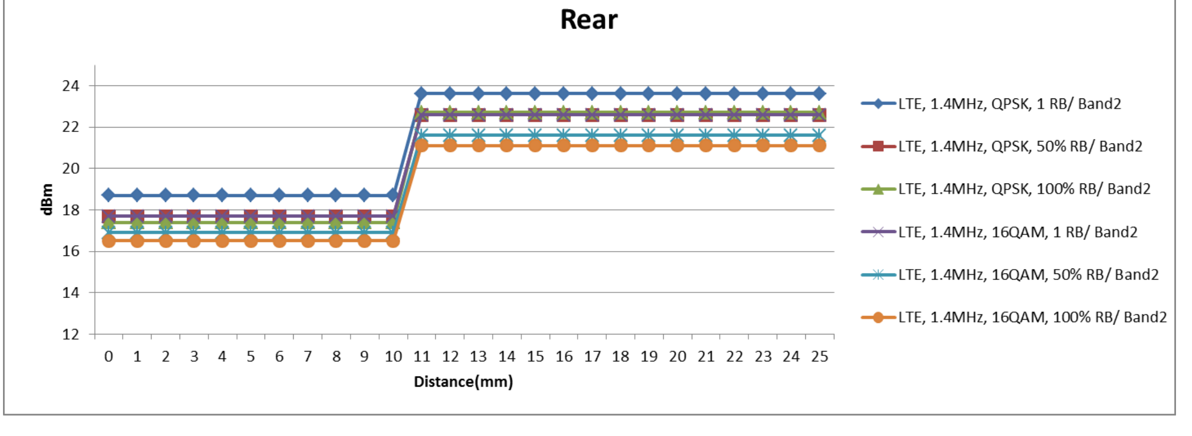

Edge
dBm
24
22
20
18
16
14
12
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 5MHz, QPSK, 1 RB/ Band2
LTE, 5MHz, QPSK, 50% RB/ Band2
LTE, 5MHz, QPSK, 100% RB/ Band2
LTE, 5MHz, 16QAM, 1 RB/ Band2
LTE, 5MHz, 16QAM, 50% RB/ Band2
LTE, 5MHz, 16QAM, 100% RB/ Band2


Rear
dBm
24
22
20
18
16
14
12
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 5MHz, QPSK, 1 RB/ Band2
LTE, 5MHz, QPSK, 50% RB/ Band2
LTE, 5MHz, QPSK, 100% RB/ Band2
LTE, 5MHz, 16QAM, 1 RB/ Band2
LTE, 5MHz, 16QAM, 50% RB/ Band2
LTE, 5MHz, 16QAM, 100% RB/ Band2

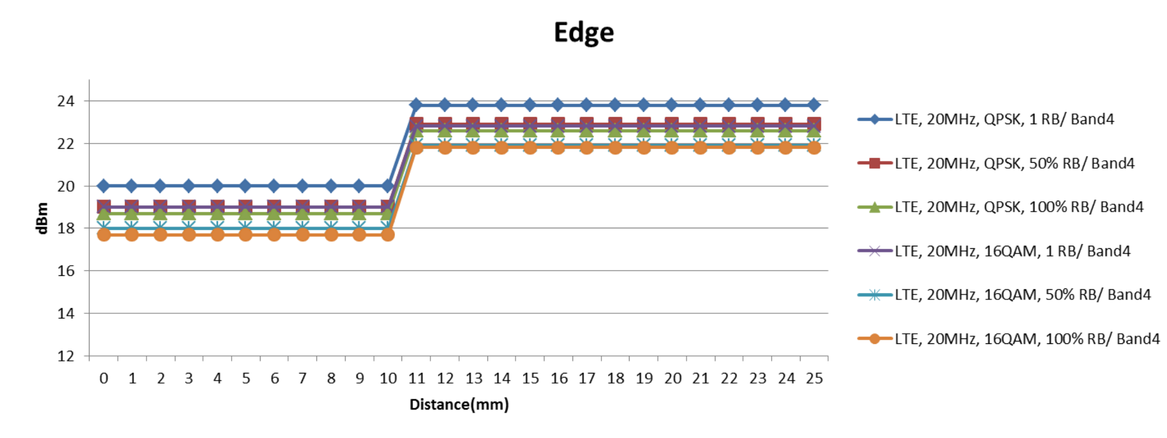

Edge
24
22
20
18
16
14
12
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 3MHz, QPSK, 1 RB/ Band2
LTE, 3MHz, QPSK, 50% RB/ Band2
LTE, 3MHz, QPSK, 100% RB/ Band2
LTE, 3MHz, 16QAM, 1 RB/ Band2
LTE, 3MHz, 16QAM, 50% RB/ Band2
LTE, 3MHz, 16QAM, 100% RB/ Band2

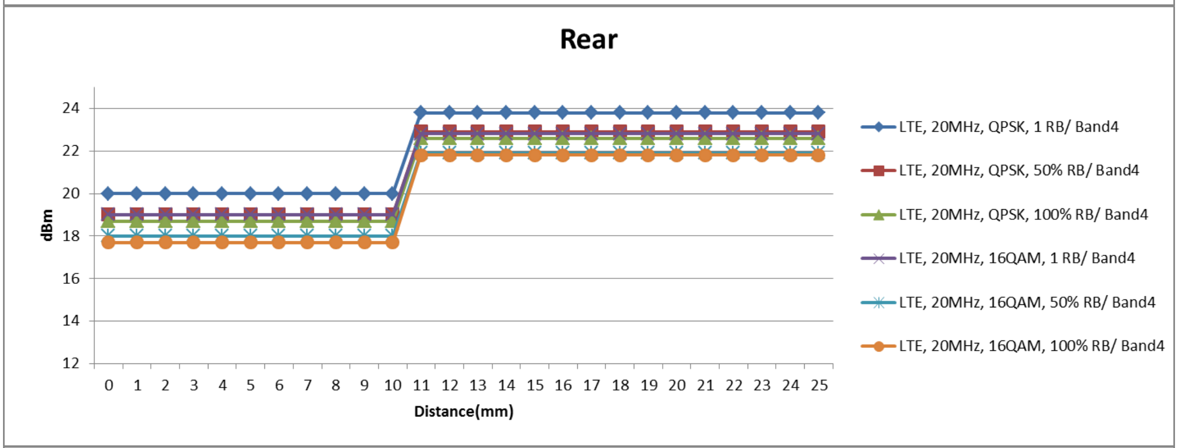

Rear
24
22
20
18
16
14
12
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 3MHz, QPSK, 1 RB/ Band2
LTE, 3MHz, QPSK, 50% RB/ Band2
LTE, 3MHz, QPSK, 100% RB/ Band2
LTE, 3MHz, 16QAM, 1 RB/ Band2
LTE, 3MHz, 16QAM, 50% RB/ Band2
LTE, 3MHz, 16QAM, 100% RB/ Band2

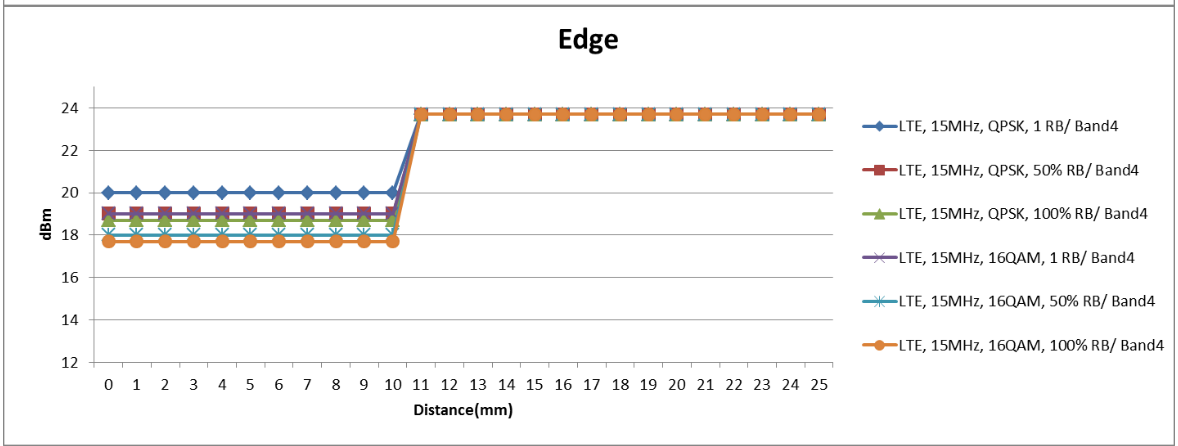

Edge
24
22
20
18
16
14
12
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 1.4MHz, QPSK, 1 RB/ Band2
LTE, 1.4MHz, QPSK, 50% RB/ Band2
LTE, 1.4MHz, QPSK, 100% RB/ Band2
LTE, 1.4MHz, 16QAM, 1 RB/ Band2
LTE, 1.4MHz, 16QAM, 50% RB/ Band2
LTE, 1.4MHz, 16QAM, 100% RB/ Band2

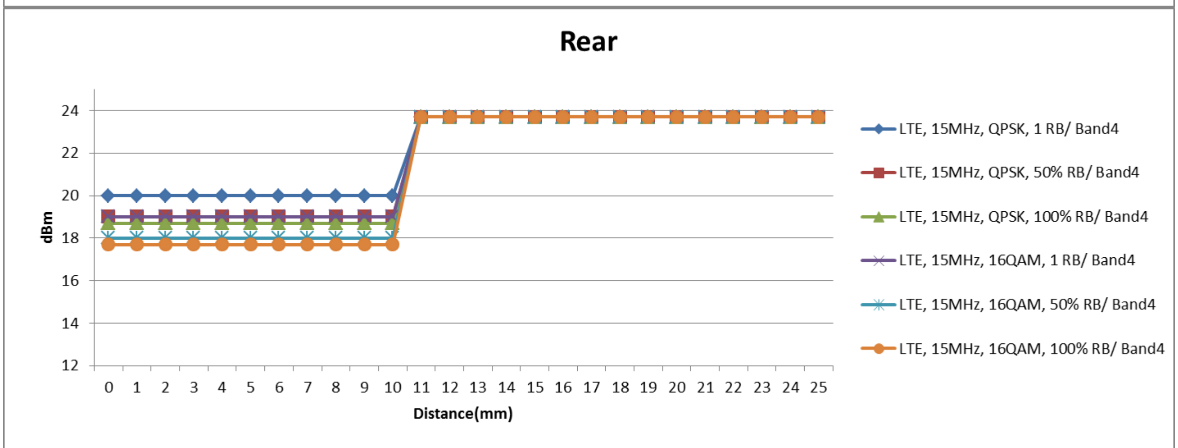

Rear
24
22
20
18
16
14
12
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 1.4MHz, QPSK, 1 RB/ Band2
LTE, 1.4MHz, QPSK, 50% RB/ Band2
LTE, 1.4MHz, QPSK, 100% RB/ Band2
LTE, 1.4MHz, 16QAM, 1 RB/ Band2
LTE, 1.4MHz, 16QAM, 50% RB/ Band2
LTE, 1.4MHz, 16QAM, 100% RB/ Band2

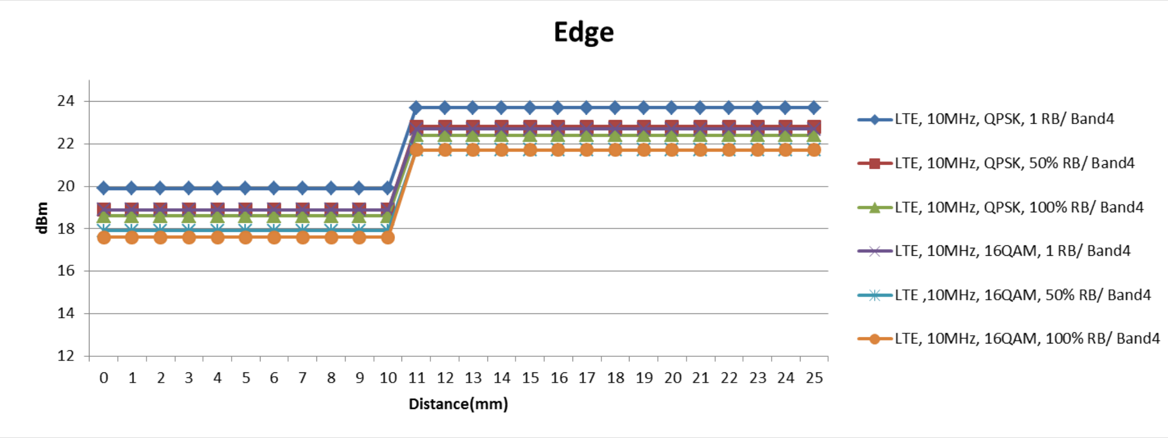
LTE Band 4

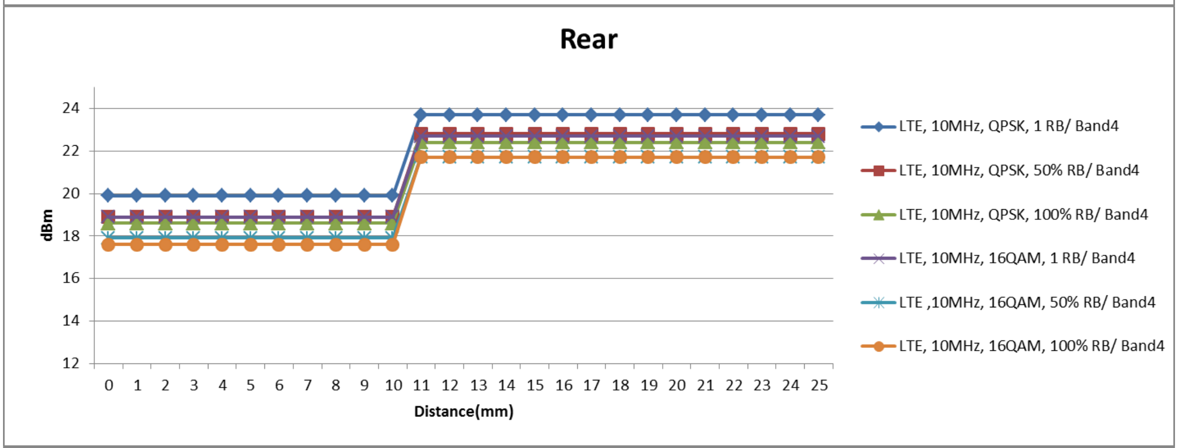

Edge
dBm
24
22
20
18
16
14
12
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 20MHz, QPSK, 1 RB/ Band4
LTE, 20MHz, QPSK, 50% RB/ Band4
LTE, 20MHz, QPSK, 100% RB/ Band4
LTE, 20MHz, 16QAM, 1 RB/ Band4
LTE, 20MHz, 16QAM, 50% RB/ Band4
LTE, 20MHz, 16QAM, 100% RB/ Band4

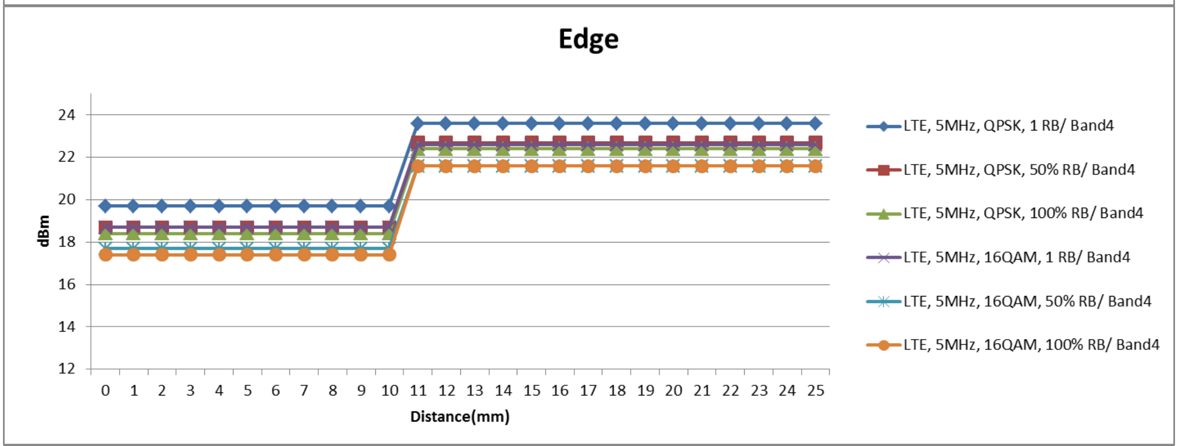

Rear
dBm
24
22
20
18
16
14
12
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 20MHz, QPSK, 1 RB/ Band4
LTE, 20MHz, QPSK, 50% RB/ Band4
LTE, 20MHz, QPSK, 100% RB/ Band4
LTE, 20MHz, 16QAM, 1 RB/ Band4
LTE, 20MHz, 16QAM, 50% RB/ Band4
LTE, 20MHz, 16QAM, 100% RB/ Band4

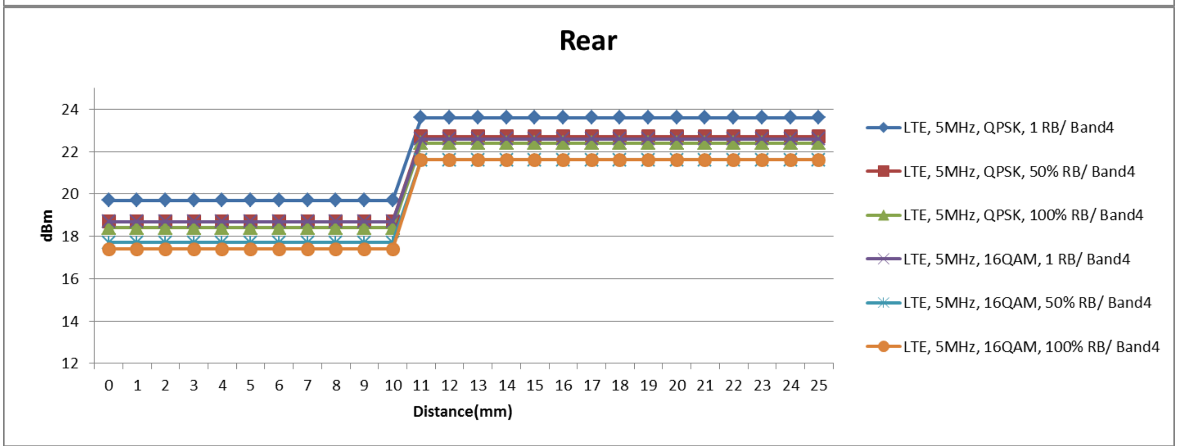

Edge
dBm
24
22
20
18
16
14
12
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 15MHz, QPSK, 1 RB/ Band4
LTE, 15MHz, QPSK, 50% RB/ Band4
LTE, 15MHz, QPSK, 100% RB/ Band4
LTE, 15MHz, 16QAM, 1 RB/ Band4
LTE, 15MHz, 16QAM, 50% RB/ Band4
LTE, 15MHz, 16QAM, 100% RB/ Band4

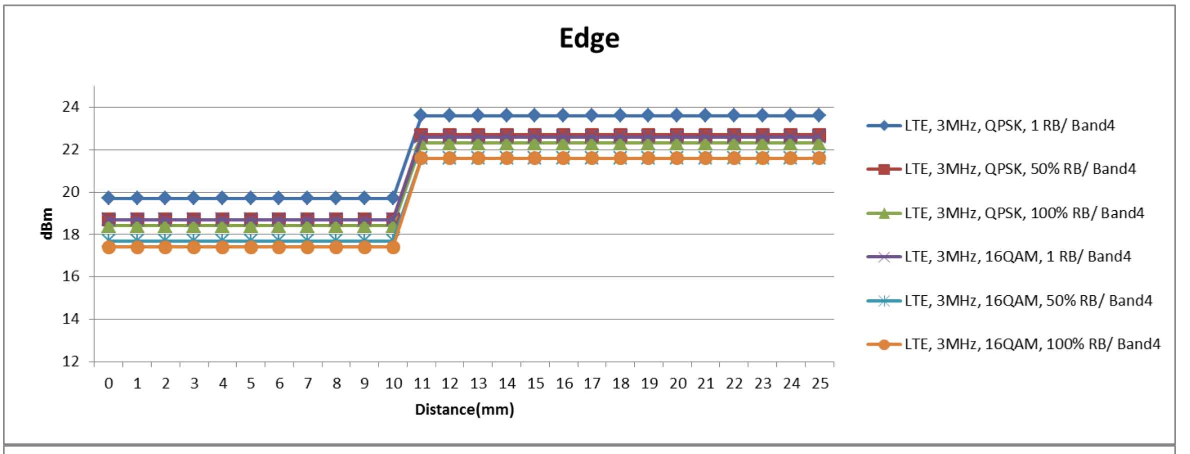

Rear
dBm
24
22
20
18
16
14
12
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 15MHz, QPSK, 1 RB/ Band4
LTE, 15MHz, QPSK, 50% RB/ Band4
LTE, 15MHz, QPSK, 100% RB/ Band4
LTE, 15MHz, 16QAM, 1 RB/ Band4
LTE, 15MHz, 16QAM, 50% RB/ Band4
LTE, 15MHz, 16QAM, 100% RB/ Band4

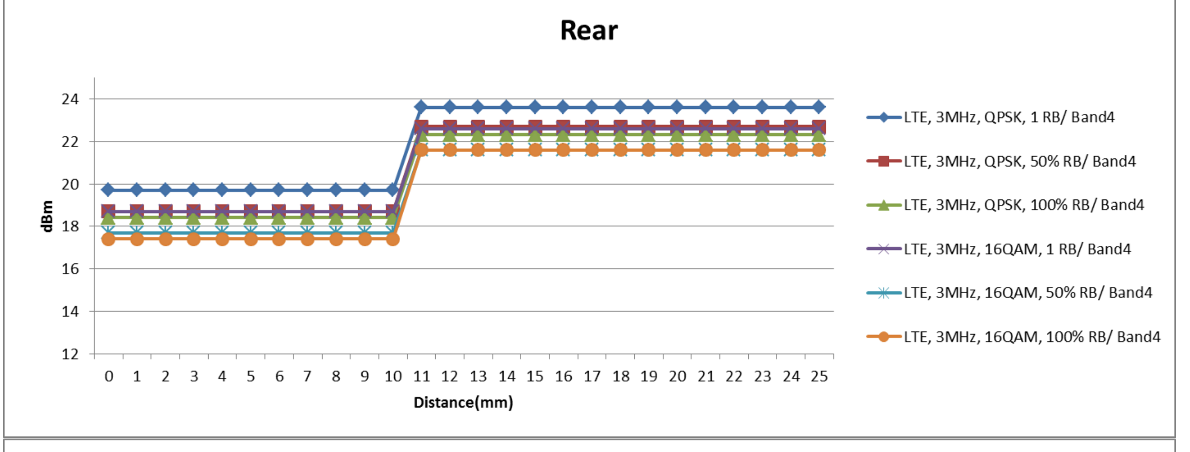

Edge
dBm
Distance(mm)
LTE, 10MHz, QPSK, 1 RB/ Band4
LTE, 10MHz, QPSK, 50% RB/ Band4
LTE, 10MHz, QPSK, 100% RB/ Band4
LTE, 10MHz, 16QAM, 1 RB/ Band4
LTE ,10MHz, 16QAM, 50% RB/ Band4
LTE, 10MHz, 16QAM, 100% RB/ Band4

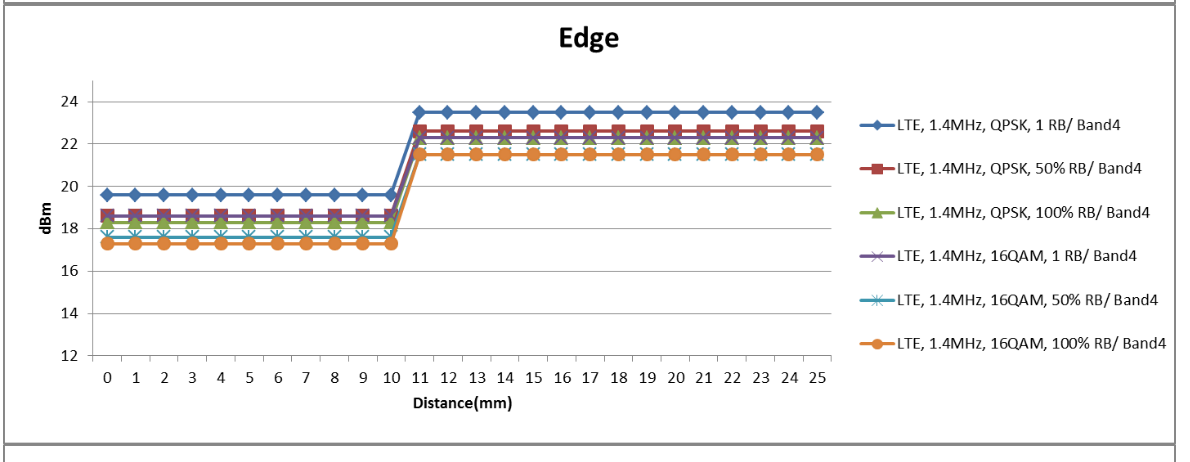

Rear
dBm
Distance(mm)
LTE, 10MHz, QPSK, 1 RB/ Band4
LTE, 10MHz, QPSK, 50% RB/ Band4
LTE, 10MHz, QPSK, 100% RB/ Band4
LTE, 10MHz, 16QAM, 1 RB/ Band4
LTE ,10MHz, 16QAM, 50% RB/ Band4
LTE, 10MHz, 16QAM, 100% RB/ Band4

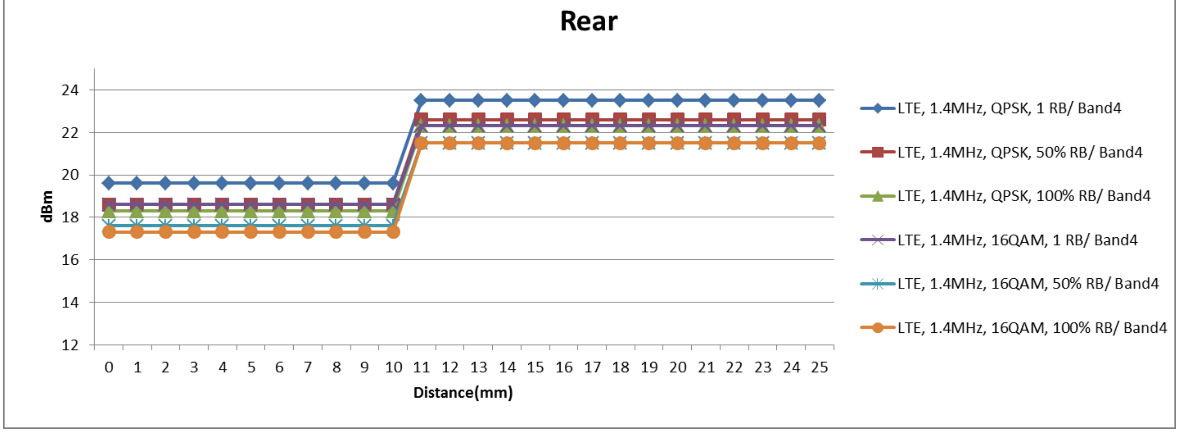

Edge
dBm
Distance(mm)
LTE, 5MHz, QPSK, 1 RB/ Band4
LTE, 5MHz, QPSK, 50% RB/ Band4
LTE, 5MHz, QPSK, 100% RB/ Band4
LTE, 5MHz, 16QAM, 1 RB/ Band4
LTE, 5MHz, 16QAM, 50% RB/ Band4
LTE, 5MHz, 16QAM, 100% RB/ Band4


Rear
dBm
Distance(mm)
LTE, 5MHz, QPSK, 1 RB/ Band4
LTE, 5MHz, QPSK, 50% RB/ Band4
LTE, 5MHz, QPSK, 100% RB/ Band4
LTE, 5MHz, 16QAM, 1 RB/ Band4
LTE, 5MHz, 16QAM, 50% RB/ Band4
LTE, 5MHz, 16QAM, 100% RB/ Band4

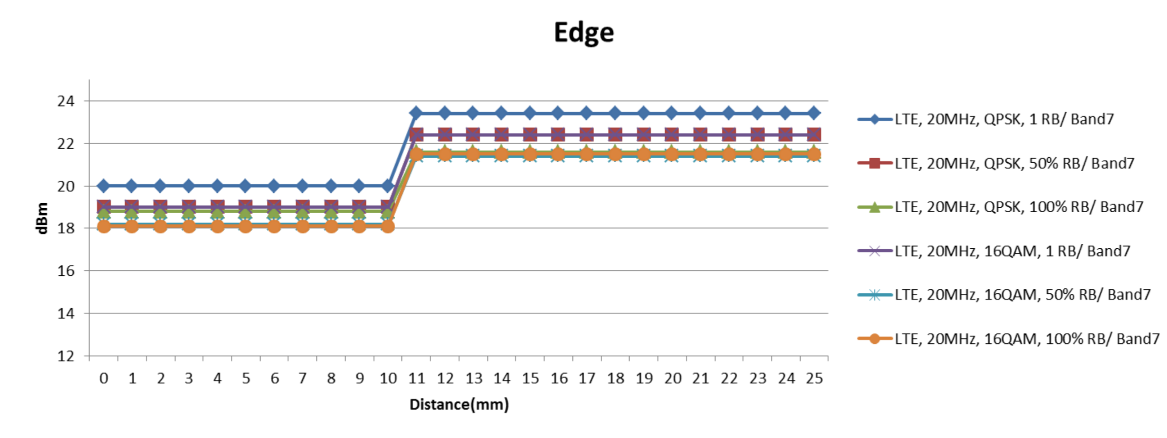

Edge
24
22
20
18
16
14
12
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 3MHz, QPSK, 1 RB/ Band4
LTE, 3MHz, QPSK, 50% RB/ Band4
LTE, 3MHz, QPSK, 100% RB/ Band4
LTE, 3MHz, 16QAM, 1 RB/ Band4
LTE, 3MHz, 16QAM, 50% RB/ Band4
LTE, 3MHz, 16QAM, 100% RB/ Band4

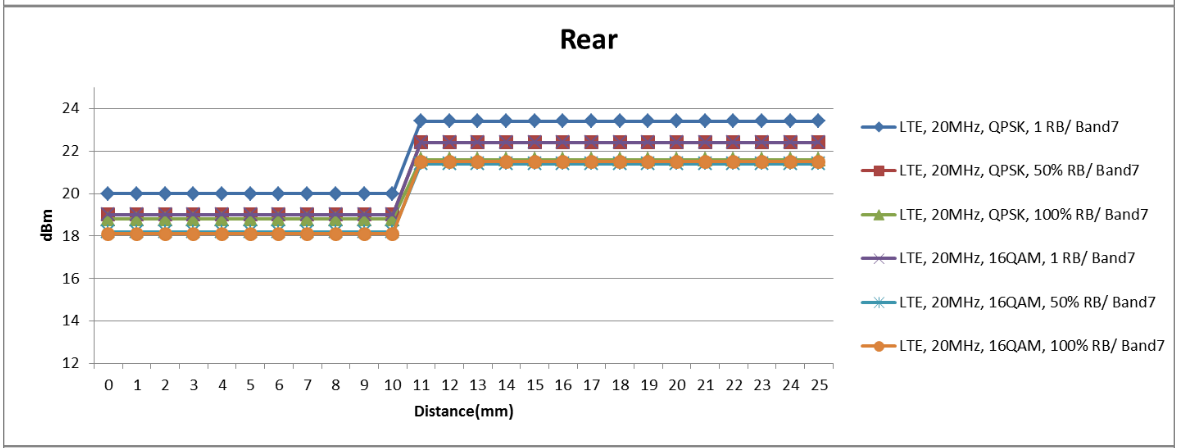

Rear
24
22
20
18
16
14
12
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 3MHz, QPSK, 1 RB/ Band4
LTE, 3MHz, QPSK, 50% RB/ Band4
LTE, 3MHz, QPSK, 100% RB/ Band4
LTE, 3MHz, 16QAM, 1 RB/ Band4
LTE, 3MHz, 16QAM, 50% RB/ Band4
LTE, 3MHz, 16QAM, 100% RB/ Band4

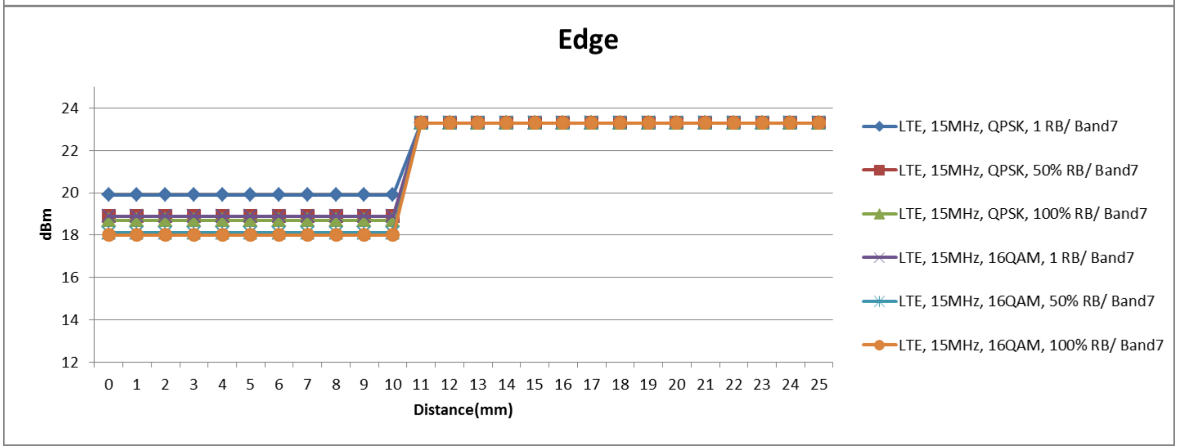

Edge
24
22
20
18
16
14
12
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 1.4MHz, QPSK, 1 RB/ Band4
LTE, 1.4MHz, QPSK, 50% RB/ Band4
LTE, 1.4MHz, QPSK, 100% RB/ Band4
LTE, 1.4MHz, 16QAM, 1 RB/ Band4
LTE, 1.4MHz, 16QAM, 50% RB/ Band4
LTE, 1.4MHz, 16QAM, 100% RB/ Band4

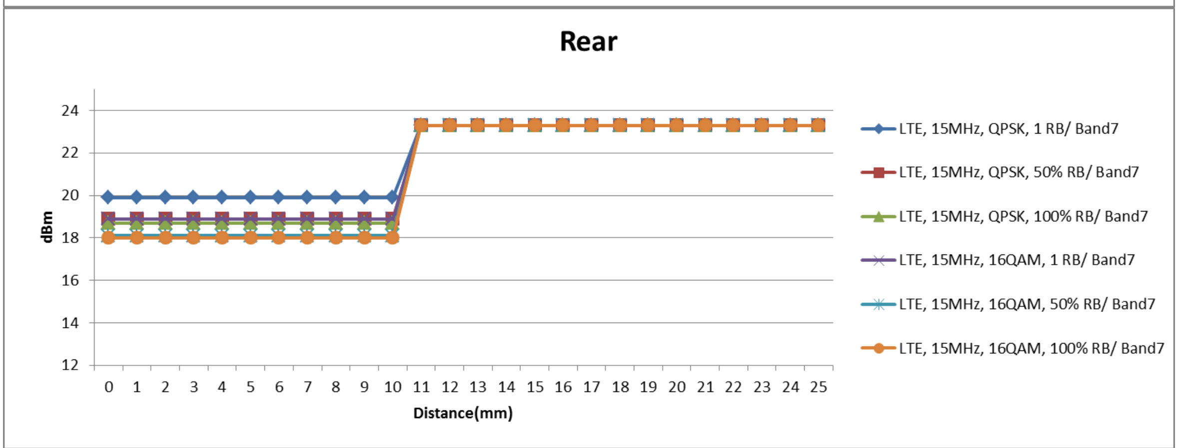

Rear
24
22
20
18
16
14
12
dBm
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Distance(mm)
LTE, 1.4MHz, QPSK, 1 RB/ Band4
LTE, 1.4MHz, QPSK, 50% RB/ Band4
LTE, 1.4MHz, QPSK, 100% RB/ Band4
LTE, 1.4MHz, 16QAM, 1 RB/ Band4
LTE, 1.4MHz, 16QAM, 50% RB/ Band4
LTE, 1.4MHz, 16QAM, 100% RB/ Band4

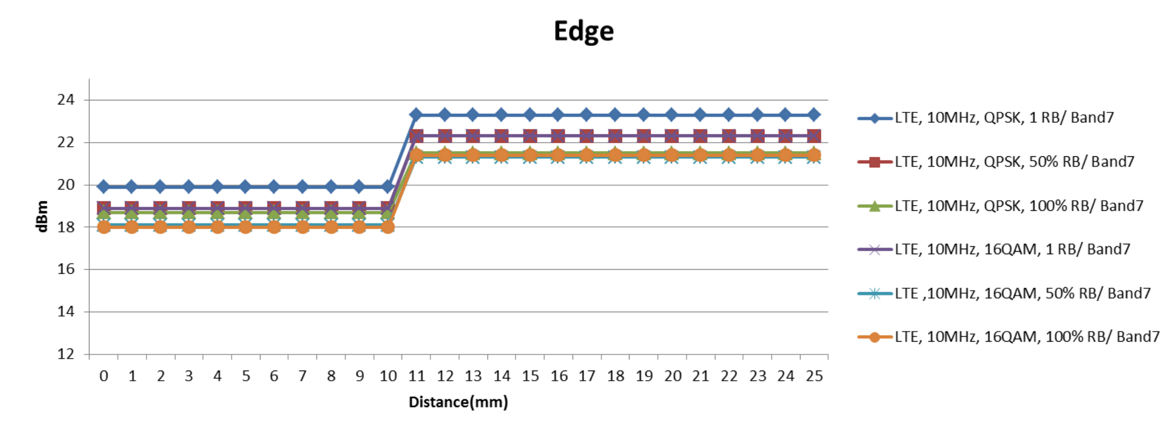
LTE Band 7

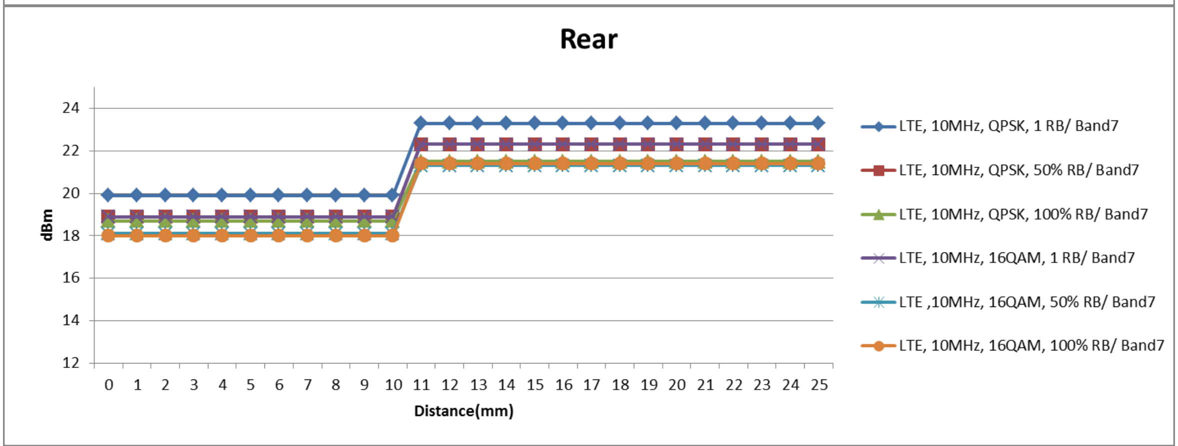

Edge
dBm
Distance(mm)
LTE, 20MHz, QPSK, 1 RB/ Band7
LTE, 20MHz, QPSK, 50% RB/ Band7
LTE, 20MHz, QPSK, 100% RB/ Band7
LTE, 20MHz, 16QAM, 1 RB/ Band7
LTE, 20MHz, 16QAM, 50% RB/ Band7
LTE, 20MHz, 16QAM, 100% RB/ Band7

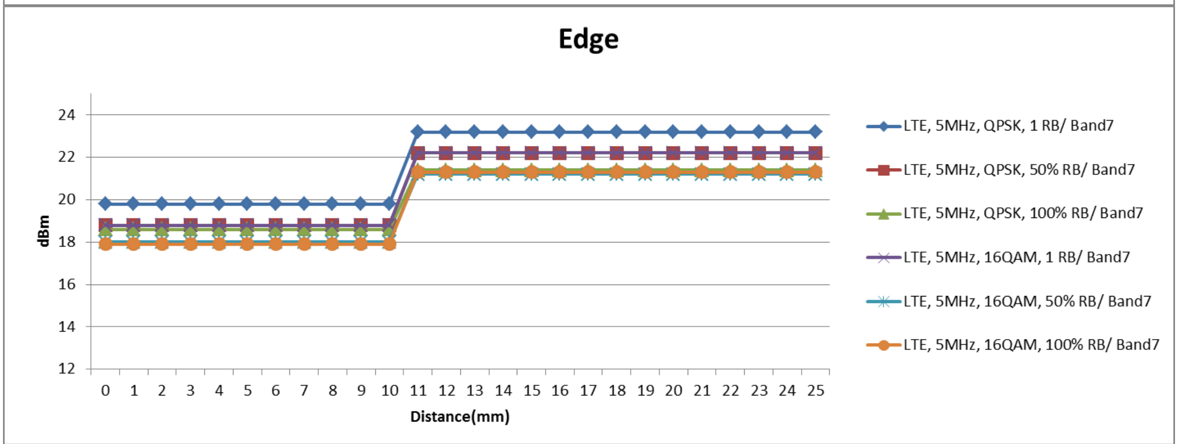

Rear
dBm
Distance(mm)
LTE, 20MHz, QPSK, 1 RB/ Band7
LTE, 20MHz, QPSK, 50% RB/ Band7
LTE, 20MHz, QPSK, 100% RB/ Band7
LTE, 20MHz, 16QAM, 1 RB/ Band7
LTE, 20MHz, 16QAM, 50% RB/ Band7
LTE, 20MHz, 16QAM, 100% RB/ Band7

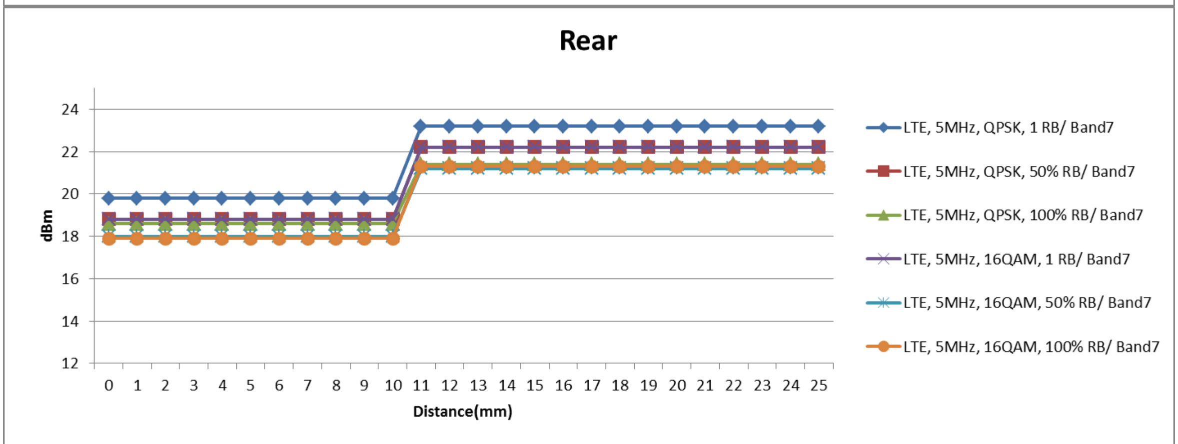

Edge
dBm
Distance(mm)
LTE, 15MHz, QPSK, 1 RB/ Band7
LTE, 15MHz, QPSK, 50% RB/ Band7
LTE, 15MHz, QPSK, 100% RB/ Band7
LTE, 15MHz, 16QAM, 1 RB/ Band7
LTE, 15MHz, 16QAM, 50% RB/ Band7
LTE, 15MHz, 16QAM, 100% RB/ Band7


Rear
dBm
Distance(mm)
LTE, 15MHz, QPSK, 1 RB/ Band7
LTE, 15MHz, QPSK, 50% RB/ Band7
LTE, 15MHz, QPSK, 100% RB/ Band7
LTE, 15MHz, 16QAM, 1 RB/ Band7
LTE, 15MHz, 16QAM, 50% RB/ Band7
LTE, 15MHz, 16QAM, 100% RB/ Band7


Edge
dBm
Distance(mm)
LTE, 10MHz, QPSK, 1 RB/ Band7
LTE, 10MHz, QPSK, 50% RB/ Band7
LTE, 10MHz, QPSK, 100% RB/ Band7
LTE, 10MHz, 16QAM, 1 RB/ Band7
LTE ,10MHz, 16QAM, 50% RB/ Band7
LTE, 10MHz, 16QAM, 100% RB/ Band7


Rear
dBm
Distance(mm)
LTE, 10MHz, QPSK, 1 RB/ Band7
LTE, 10MHz, QPSK, 50% RB/ Band7
LTE, 10MHz, QPSK, 100% RB/ Band7
LTE, 10MHz, 16QAM, 1 RB/ Band7
LTE ,10MHz, 16QAM, 50% RB/ Band7
LTE, 10MHz, 16QAM, 100% RB/ Band7


Edge
dBm
Distance(mm)
LTE, 5MHz, QPSK, 1 RB/ Band7
LTE, 5MHz, QPSK, 50% RB/ Band7
LTE, 5MHz, QPSK, 100% RB/ Band7
LTE, 5MHz, 16QAM, 1 RB/ Band7
LTE, 5MHz, 16QAM, 50% RB/ Band7
LTE, 5MHz, 16QAM, 100% RB/ Band7


Rear
dBm
Distance(mm)
LTE, 5MHz, QPSK, 1 RB/ Band7
LTE, 5MHz, QPSK, 50% RB/ Band7
LTE, 5MHz, QPSK, 100% RB/ Band7
LTE, 5MHz, 16QAM, 1 RB/ Band7
LTE, 5MHz, 16QAM, 50% RB/ Band7
LTE, 5MHz, 16QAM, 100% RB/ Band7

9.6 Proximity Sensor Coverage Area

According to KDB 616217 D04, Proximity Sensor Coverage Area of not request when the antenna and sensor are collocated and the peak SAR location is overlapping with the sensor.

10 RF Output Power Measurement

10.1 GPRS 850

GMSK (GPRS) Mode Coding scheme : CS-1

Band	Slot	Channel No.	Frequency (MHz)	Average power(dBm)		Frame Avg Pwr	
				W/o Power back-off	W/ Power back-off	W/o Power back-off	W/ Power back-off
GPRS 850	1	128	824.2	33.2	29.8	24.2	20.8
		190	836.6	32.7	29.5	23.7	20.5
		251	848.8	32.8	29.6	23.8	20.6
GPRS 850	2	128	824.2	30.6	26.9	24.6	20.9
		190	836.6	30.1	26.6	24.1	20.6
		251	848.8	30.3	26.6	24.3	20.6
GPRS 850	3	128	824.2	29.7	24.7	25.4	21.0
		190	836.6	29.3	24.3	25.0	20.3
		251	848.8	29.4	24.4	25.1	20.7
GPRS 850	4	128	824.2	27.8	23.6	24.8	20.6
		190	836.6	27.5	23.6	24.5	20.6
		251	848.8	27.6	23.2	24.6	20.2

10.2 EDGE 850

8PSK (EDGE) Mode Coding scheme : MCS-5

Band	Slot	Channel No.	Frequency (MHz)	Average power(dBm)		Frame Avg Pwr	
				W/o Power back-off	W/ Power back-off	W/o Power back-off	W/ Power back-off
EDGE 850	1	128	824.2	27.5	27.5	18.5	18.5
		190	836.6	27.5	27.5	18.5	18.5
		251	848.8	27.5	27.5	18.5	18.5
EDGE 850	2	128	824.2	25.5	25.5	19.5	19.5
		190	836.6	25.5	25.5	19.5	19.5
		251	848.8	25.5	25.5	19.5	19.5
EDGE 850	3	128	824.2	25.5	24.5	21.2	20.8
		190	836.6	25.5	24.5	21.2	20.5
		251	848.8	25.5	24.5	21.2	20.8
EDGE 850	4	128	824.2	23.5	23.5	20.5	20.5
		190	836.6	23.5	23.5	20.5	20.5
		251	848.8	23.5	23.5	20.5	20.5

10.3 GPRS 1900

GMSK (GPRS) Mode Coding scheme : CS-1

Band	Slot	Channel No.	Frequency (MHz)	Average power(dBm)		Frame Avg Pwr	
				W/o Power back-off	W/ Power back-off	W/o Power back-off	W/ Power back-off
GPRS 1900	1	512	1850.2	30.1	28.5	21.1	19.5
		661	1880.0	30.1	28.8	21.1	19.8
		810	1909.8	30.0	28.7	21.0	19.7
GPRS 1900	2	512	1850.2	27.5	25.4	21.5	19.4
		661	1880.0	27.6	25.5	21.6	19.5
		810	1909.8	27.4	25.4	21.4	19.4
GPRS 1900	3	512	1850.2	26.6	23.3	22.3	19.6
		661	1880.0	26.6	23.7	22.3	20.0
		810	1909.8	26.4	23.6	22.1	19.9
GPRS 1900	4	512	1850.2	24.7	22.6	21.7	19.6
		661	1880.0	24.7	22.8	21.7	19.8
		810	1909.8	24.5	22.5	21.5	19.5

10.4 EDGE 1900

8PSK (EDGE) Mode Coding scheme : MCS-5

Band	Slot	Channel No.	Frequency (MHz)	Average power(dBm)		Frame Avg Pwr	
				W/o Power back-off	W/ Power back-off	W/o Power back-off	W/ Power back-off
EDGE 1900	1	512	1850.2	26.0	26.0	17.0	17.0
		661	1880.0	26.0	26.0	17.0	17.0
		810	1909.8	26.0	26.0	17.0	17.0
EDGE 1900	2	512	1850.2	25.0	24.5	19.0	18.5
		661	1880.0	25.0	24.5	19.0	18.5
		810	1909.8	25.0	24.5	19.0	18.5
EDGE 1900	3	512	1850.2	25.0	23.5	20.7	19.8
		661	1880.0	25.0	23.5	20.7	19.8
		810	1909.8	25.0	23.5	20.7	19.8
EDGE 1900	4	512	1850.2	23.0	22.5	20.0	19.5
		661	1880.0	23.0	22.5	20.0	19.5
		810	1909.8	23.0	22.5	20.0	19.5

10.5 WCDMA

Release 99

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 V8.5.0 specification. The EUT supports power Class 3, which has a nominal maximum output power of 23 dBm (+1.0/-1.0) 12.2kps RMC is used for this testing. Power control set to All bits up. A summary of these settings are illustrated below:

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	βc/βd	8/15

Output power table

Band	Mode	UL/DL Channel No.	Frequency(MHz)	Average power(dBm)	
				W/o Power back-off	W/ Power back-off
WCDMA Band II	Rel 99	9262/9662	1852.4	23.0	19.8
		9400/9800	1880.0	23.2	19.9
		9538/9983	1907.6	23.1	19.9
WCDMA Band IV	Rel 99	1312/1537	1712.4	23.0	19.9
		1413/1638	1732.6	23.2	20.0
		1513/1738	1752.6	23.0	19.7
WCDMA Band V	Rel 99	4132/4157	826.4	23.6	20.5
		4182/4407	836.4	23.7	20.3
		4233/4458	846.6	24.0	20.7

HSDPA

The following 4 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	HSDPA	HSDPA	HSDPA	HSDPA
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	12/15	8/15	4/15
	βhs	4/15	24/15	30/15	30/15
	CM (dB)	0	1	1.5	1.5
HSDPA Specific Settings	D_{ACK}	8			
	D_{NAK}	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	Ahs =βhs/βc	30/15			

Output power table

Band	Mode	UL/DL Channel No.	Frequency(MHz)	Average power(dBm)	
				W/o Power back-off	W/ Power back-off
HSDPA II	1	9262/9662	1852.4	22.9	19.6
		9400/9800	1880.0	23.1	19.8
		9538/9983	1907.6	23.0	19.7
	2	9262/9662	1852.4	22.4	19.1
		9400/9800	1880.0	22.6	19.3
		9538/9983	1907.6	22.5	19.2
	3	9262/9662	1852.4	21.9	18.6
		9400/9800	1880.0	22.1	18.8
		9538/9983	1907.6	22.1	18.7
	4	9262/9662	1852.4	21.9	18.6
		9400/9800	1880.0	22.1	18.8
		9538/9983	1907.6	22.0	18.7
HSDPA IV	1	1312/1537	1712.4	22.9	19.8
		1413/1638	1732.6	23.2	19.8
		1513/1738	1752.6	23.0	19.5
	2	1312/1537	1712.4	22.5	19.3
		1413/1638	1732.6	22.7	19.3
		1513/1738	1752.6	22.5	19.0
	3	1312/1537	1712.4	21.9	18.8
		1413/1638	1732.6	22.2	18.8
		1513/1738	1752.6	22.0	18.5
	4	1312/1537	1712.4	22.0	18.8
		1413/1638	1732.6	22.2	18.8
		1513/1738	1752.6	22.0	18.5
HSDPA V	1	4132/4157	826.4	23.6	20.3
		4182/4407	836.4	23.7	20.0
		4233/4458	846.6	23.9	20.5
	2	4132/4157	826.4	23.1	19.8
		4182/4407	836.4	23.2	19.5
		4233/4458	846.6	23.4	20.0
	3	4132/4157	826.4	22.6	19.3
		4182/4407	836.4	22.7	19.0
		4233/4458	846.6	22.9	19.5
	4	4132/4157	826.4	22.6	19.3
		4182/4407	836.4	22.7	19.0
		4233/4458	846.6	22.9	19.5

Note(s):

1. The HSDPA output power less than WCDMA, so we performed the SAR test in WCDMA.

HSPA (HSDPA & HSUPA)

The following 5 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of these settings are illustrated below:

	Mode	HSPA	HSPA	HSPA	HSPA	HSPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	15/15
	βec	209/225	12/15	30/15	2/15	24/15
	βc/βd	11/15	6/15	9/15	2/15	15/15
	βhs	22/15	12/15	30/15	4/15	30/15
	βed	1309/225	94/75	47/15	56/75	134/15
	CM (dB)	1	3	2	3	1
	MPR (dB)	0	2	1	2	0
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_TFCIs	E-TFCI 11		E-TFCI 11	E-TFCI 11	
		E-TFCI PO 4		E-TFCI PO 4	E-TFCI PO 4	
		E-TFCI 67		E-TFCI 92	E-TFCI 67	
		E-TFCI PO 18		E-TFCI PO 18	E-TFCI PO 18	
		E-TFCI 71			E-TFCI 71	
		E-TFCI PO 23			E-TFCI PO 23	
		E-TFCI 75			E-TFCI 75	
		E-TFCI PO 26			E-TFCI PO 26	
		E-TFCI 81			E-TFCI 81	
		E-TFCI PO 27			E-TFCI PO 27	

Output power table

Band	Mode	UL/DL Channel No.	Frequency(MHz)	Average power(dBm)	
				W/o Power back-off	W/ Power back-off
HSUPA II	1	9262/9662	1852.4	22.9	19.6
		9400/9800	1880.0	23.1	19.8
		9538/9983	1907.6	23.0	19.7
	2	9262/9662	1852.4	21.0	17.6
		9400/9800	1880.0	21.1	17.8
		9538/9983	1907.6	21.1	17.7
	3	9262/9662	1852.4	21.9	18.6
		9400/9800	1880.0	22.1	18.8
		9538/9983	1907.6	22.2	18.7
	4	9262/9662	1852.4	20.9	17.6
		9400/9800	1880.0	21.1	17.8
		9538/9983	1907.6	21.0	17.7
	5	9262/9662	1852.4	22.9	19.6
		9400/9800	1880.0	23.1	19.8
		9538/9983	1907.6	23.0	19.7
HSUPA IV	1	1312/1537	1712.4	22.9	19.6
		1413/1638	1732.6	23.2	19.8
		1513/1738	1752.6	23.0	19.7
	2	1312/1537	1712.4	21.0	17.8
		1413/1638	1732.6	21.3	17.8
		1513/1738	1752.6	21.1	17.5
	3	1312/1537	1712.4	22.1	18.8
		1413/1638	1732.6	22.2	18.8
		1513/1738	1752.6	22.2	18.5
	4	1312/1537	1712.4	21.0	17.8
		1413/1638	1732.6	21.2	17.8
		1513/1738	1752.6	21.0	17.5
	5	1312/1537	1712.4	22.9	19.8
		1413/1638	1732.6	23.2	19.8
		1513/1738	1752.6	22.9	19.5
HSUPA V	1	4132/4157	826.4	23.5	19.5
		4182/4407	836.4	23.6	20.0
		4233/4458	846.6	23.9	19.6
	2	4132/4157	826.4	21.5	18.3
		4182/4407	836.4	21.7	18.0
		4233/4458	846.6	21.9	18.5
	3	4132/4157	826.4	22.5	19.3
		4182/4407	836.4	22.6	19.0
		4233/4458	846.6	22.9	19.5
	4	4132/4157	826.4	21.5	18.3
		4182/4407	836.4	21.7	18.0
		4233/4458	846.6	21.9	18.5
	5	4132/4157	826.4	23.5	19.8
		4182/4407	836.4	23.6	20.0
		4233/4458	846.6	23.8	19.5

Note(s):

1. The HSUPA output power less than WCDMA, so we performed the SAR test in WCDMA.

10.6 LTE

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

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

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

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

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

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

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
..					
NS_32	-	-	-	-	-
Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.					

10.6.1 LTE Band 2

Output power table

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm) W/o Power back-off	Average power(dBm) W/ Power back-off
2	20	18700	1860.0	QPSK	1	0	0	23.6	18.9
					1	49	0	23.5	18.7
					1	99	0	23.5	18.5
					50	0	1	22.6	18.0
					50	24	1	22.6	17.7
					50	49	1	22.6	17.6
					100	0	1	22.6	17.9
				16QAM	1	0	1	22.7	17.9
					1	49	1	22.6	17.8
					1	99	1	22.6	17.5
					50	0	2	21.6	16.9
					50	24	2	21.5	16.7
					50	49	2	21.6	16.6
					100	0	2	21.6	16.6
		18900	1880.0	QPSK	1	0	0	23.9	19.0
					1	49	0	23.8	18.8
					1	99	0	23.4	18.7
					50	0	1	23.0	18.0
					50	24	1	22.8	17.8
					50	49	1	22.4	17.8
					100	0	1	23.0	18.0
				16QAM	1	0	1	22.9	18.0
					1	49	1	22.8	17.9
					1	99	1	22.4	17.8
					50	0	2	22.0	17.0
					50	24	2	21.9	16.8
					50	49	2	21.4	16.7
					100	0	2	21.4	16.8
		19100	1900.0	QPSK	1	0	0	23.6	18.9
					1	49	0	23.5	18.7
					1	99	0	23.5	18.6
					50	0	1	22.8	18.0
					50	24	1	22.5	17.8
					50	49	1	22.5	17.7
					100	0	1	22.6	18.0
				16QAM	1	0	1	22.7	18.0
					1	49	1	22.5	17.7
					1	99	1	22.5	17.7
					50	0	2	21.7	17.0
					50	24	2	21.6	16.8
					50	49	2	21.6	16.7
					100	0	2	21.5	16.6

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	
								W/o Power back-off	W/ Power back-off
2	15	18675	1857.5	QPSK	1	0	0	23.6	18.9
					1	37	0	23.5	18.7
					1	74	0	23.5	18.5
					36	0	1	22.6	18.0
					36	18	1	22.6	17.7
					36	35	1	22.5	17.6
					75	0	1	22.6	17.9
				16QAM	1	0	1	22.7	17.9
					1	37	1	22.6	17.8
					1	74	1	22.6	17.5
					36	0	2	21.6	16.9
					36	18	2	21.5	16.7
					36	35	2	21.6	16.6
					75	0	2	21.6	16.5
		18900	1880.0	QPSK	1	0	0	23.9	18.9
					1	37	0	23.8	18.7
					1	74	0	23.3	18.6
					36	0	1	22.9	17.9
					36	18	1	22.8	17.7
					36	35	1	22.4	17.7
					75	0	1	23.0	17.9
				16QAM	1	0	1	22.9	17.9
					1	37	1	22.8	17.8
					1	74	1	22.4	17.7
					36	0	2	21.9	17.0
					36	18	2	21.8	16.7
					36	35	2	21.4	16.6
					75	0	2	21.3	16.7
		19125	1902.5	QPSK	1	0	0	23.6	18.8
					1	37	0	23.4	18.6
					1	74	0	23.4	18.5
					36	0	1	22.7	17.9
					36	18	1	22.5	17.7
					36	35	1	22.4	17.6
					75	0	1	22.6	17.9
				16QAM	1	0	1	22.7	17.9
					1	37	1	22.5	17.6
					1	74	1	22.4	17.6
					36	0	2	21.6	16.9
					36	18	2	21.5	16.7
					36	35	2	21.5	16.6
					75	0	2	21.4	16.5

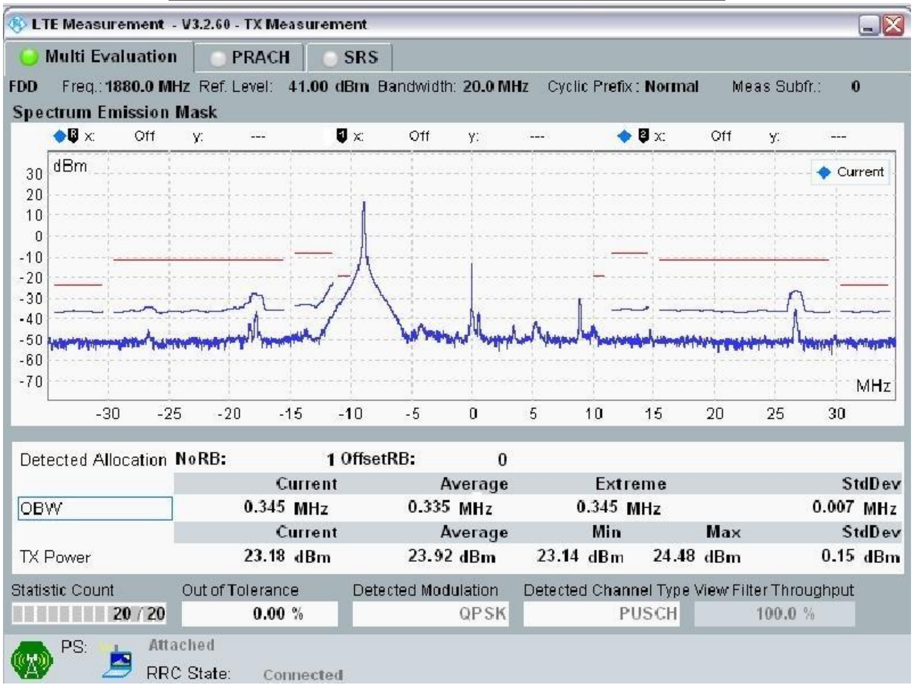
Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	
								W/o Power back-off	W/ Power back-off
2	10	18650	1855.0	QPSK	1	0	0	23.6	18.9
					1	24	0	23.5	18.7
					1	49	0	23.5	18.5
					25	0	1	22.6	18.0
					25	12	1	22.5	17.7
					25	24	1	22.5	17.6
					50	0	1	22.6	17.9
				16QAM	1	0	1	22.6	17.9
					1	24	1	22.6	17.8
					1	49	1	22.6	17.5
					25	0	2	21.6	16.9
					25	12	2	21.5	16.7
					25	24	2	21.6	16.6
					50	0	2	21.6	16.5
		18900	1880.0	QPSK	1	0	0	23.9	18.9
					1	24	0	23.8	18.7
					1	49	0	23.3	18.6
					25	0	1	22.9	17.9
					25	12	1	22.8	17.7
					25	24	1	22.3	17.7
					50	0	1	23.0	17.9
				16QAM	1	0	1	22.9	17.9
					1	24	1	22.8	17.8
					1	49	1	22.4	17.7
					25	0	2	21.9	17.0
					25	12	2	21.8	16.7
					25	24	2	21.3	16.6
					50	0	2	21.3	16.7
		19150	1905.0	QPSK	1	0	0	23.5	18.8
					1	24	0	23.4	18.6
					1	49	0	23.4	18.5
					25	0	1	22.7	17.9
					25	12	1	22.4	17.7
					25	24	1	22.4	17.6
					50	0	1	22.6	17.9
				16QAM	1	0	1	22.7	17.9
					1	24	1	22.5	17.6
					1	49	1	22.4	17.6
					25	0	2	21.6	16.9
					25	12	2	21.5	16.7
					25	24	2	21.5	16.6
					50	0	2	21.4	16.5

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	
								W/o Power back-off	W/ Power back-off
2	5	18625	1852.5	QPSK	1	0	0	23.6	18.8
					1	12	0	23.4	18.6
					1	24	0	23.5	18.4
					12	0	1	22.6	17.9
					12	6	1	22.5	17.6
					12	11	1	22.5	17.5
					25	0	1	22.6	17.8
				16QAM	1	0	1	22.6	17.8
					1	12	1	22.6	17.7
					1	24	1	22.6	17.4
					12	0	2	21.6	16.9
					12	6	2	21.5	16.7
					12	11	2	21.5	16.5
					25	0	2	21.6	16.5
		18900	1880.0	QPSK	1	0	0	23.8	18.9
					1	12	0	23.7	18.7
					1	24	0	23.3	18.6
					12	0	1	22.9	17.9
					12	6	1	22.7	17.7
					12	11	1	22.3	17.7
					25	0	1	22.9	17.9
				16QAM	1	0	1	22.8	17.9
					1	12	1	22.7	17.8
					1	24	1	22.3	17.7
					12	0	2	21.9	16.9
					12	6	2	21.8	16.7
					12	11	2	21.3	16.6
					25	0	2	21.3	16.7
		19175	1907.5	QPSK	1	0	0	23.5	18.8
					1	12	0	23.4	18.6
					1	24	0	23.4	18.5
					12	0	1	22.7	17.9
					12	6	1	22.4	17.7
					12	11	1	22.4	17.6
					25	0	1	22.5	17.9
				16QAM	1	0	1	22.6	17.9
					1	12	1	22.4	17.6
					1	24	1	22.4	17.6
					12	0	2	21.6	16.9
					12	6	2	21.5	16.7
					12	11	2	21.5	16.6
					25	0	2	21.4	16.5

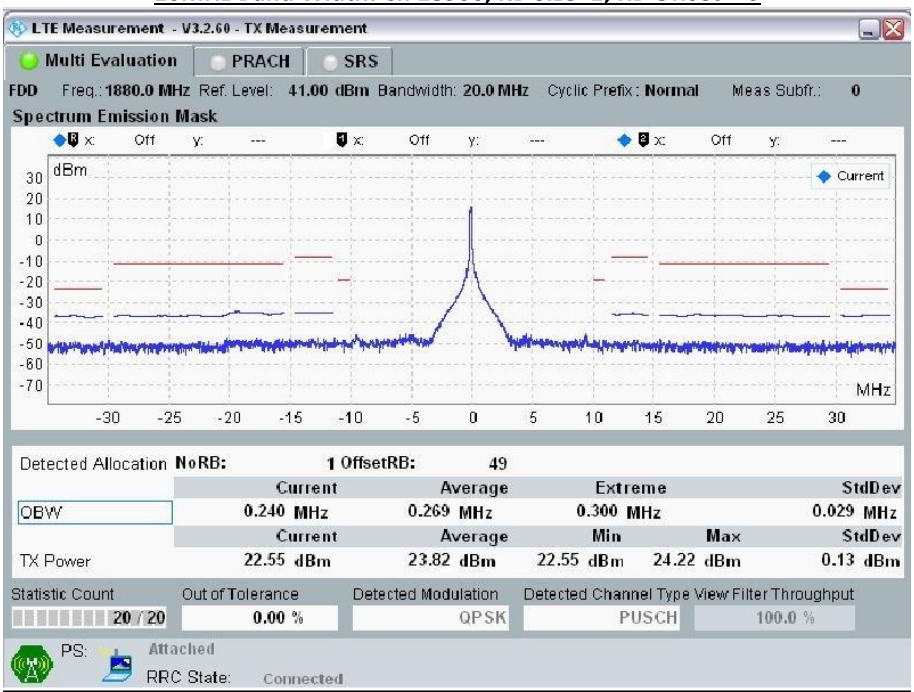
Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	
								W/o Power back-off	W/ Power back-off
2	3	18615	1851.5	QPSK	1	0	0	23.5	18.8
					1	7	0	23.4	18.6
					1	14	0	23.4	18.4
					8	0	1	22.5	17.9
					8	4	1	22.5	17.6
					8	7	1	22.5	17.5
					15	0	1	22.5	17.8
				16QAM	1	0	1	22.6	17.8
					1	7	1	22.5	17.7
					1	14	1	22.5	17.4
					8	0	2	21.5	16.8
					8	4	2	21.4	16.6
					8	7	2	21.5	16.5
					15	0	2	21.5	16.5
		18900	1880.0	QPSK	1	0	0	23.8	18.9
					1	7	0	23.7	18.7
					1	14	0	23.3	18.6
					8	0	1	22.8	17.9
					8	4	1	22.7	17.7
					8	7	1	22.3	17.7
					15	0	1	22.9	17.9
				16QAM	1	0	1	22.8	17.9
					1	7	1	22.7	17.8
					1	14	1	22.3	17.7
					8	0	2	21.8	16.9
					8	4	2	21.7	16.7
					8	7	2	21.3	16.6
					15	0	2	21.3	16.7
		19184	1908.4	QPSK	1	0	0	23.5	18.7
					1	7	0	23.4	18.5
					1	14	0	23.3	18.4
					8	0	1	22.6	17.8
					8	4	1	22.4	17.6
					8	7	1	22.4	17.5
					15	0	1	22.5	17.8
				16QAM	1	0	1	22.6	17.8
					1	7	1	22.4	17.5
					1	14	1	22.4	17.5
					8	0	2	21.6	16.8
					8	4	2	21.4	16.6
					8	7	2	21.4	16.5
					15	0	2	21.3	16.4

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	
								W/o Power back-off	W/ Power back-off
2	1.4	18607	1850.7	QPSK	1	0	0	23.5	18.8
					1	2	0	23.4	18.6
					1	5	0	23.4	18.4
					3	0	1	22.5	17.9
					3	1	1	22.5	17.6
					3	2	1	22.5	17.5
					6	0	1	22.5	17.8
				16QAM	1	0	1	22.6	17.8
					1	2	1	22.5	17.7
					1	5	1	22.5	17.4
					3	0	2	21.5	16.8
					3	1	2	21.4	16.6
					3	2	2	21.5	16.5
					6	0	2	21.5	16.4
		18900	1880.0	QPSK	1	0	0	23.8	18.9
					1	2	0	23.7	18.7
					1	5	0	23.3	18.6
					3	0	1	22.8	17.9
					3	1	1	22.7	17.7
					3	2	1	22.3	17.7
					6	0	1	22.9	17.9
				16QAM	1	0	1	22.8	17.9
					1	2	1	22.7	17.8
					1	5	1	22.3	17.7
					3	0	2	21.8	16.9
					3	1	2	21.7	16.7
					3	2	2	21.3	16.6
					6	0	2	21.3	16.7
		19192	1909.2	QPSK	1	0	0	23.4	18.7
					1	2	0	23.3	18.5
					1	5	0	23.3	18.4
					3	0	1	22.6	17.8
					3	1	1	22.3	17.6
					3	2	1	22.3	17.5
					6	0	1	22.5	17.8
				16QAM	1	0	1	22.6	17.8
					1	2	1	22.4	17.5
					1	5	1	22.3	17.5
					3	0	2	21.5	16.8
					3	1	2	21.4	16.6
					3	2	2	21.4	16.5
					6	0	2	21.3	16.4

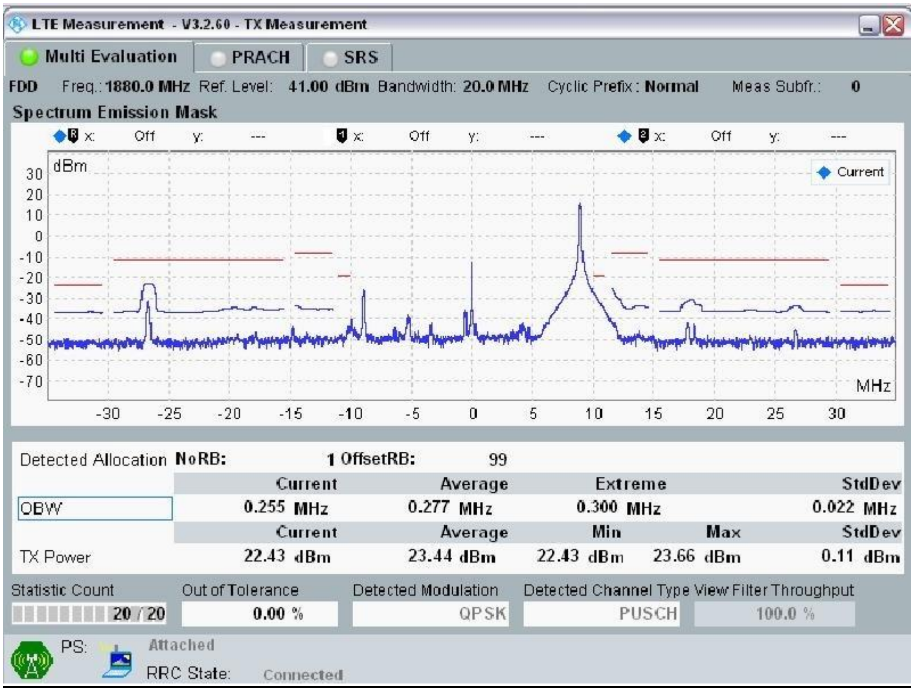
Spectrum Plots for the Test RB allocations



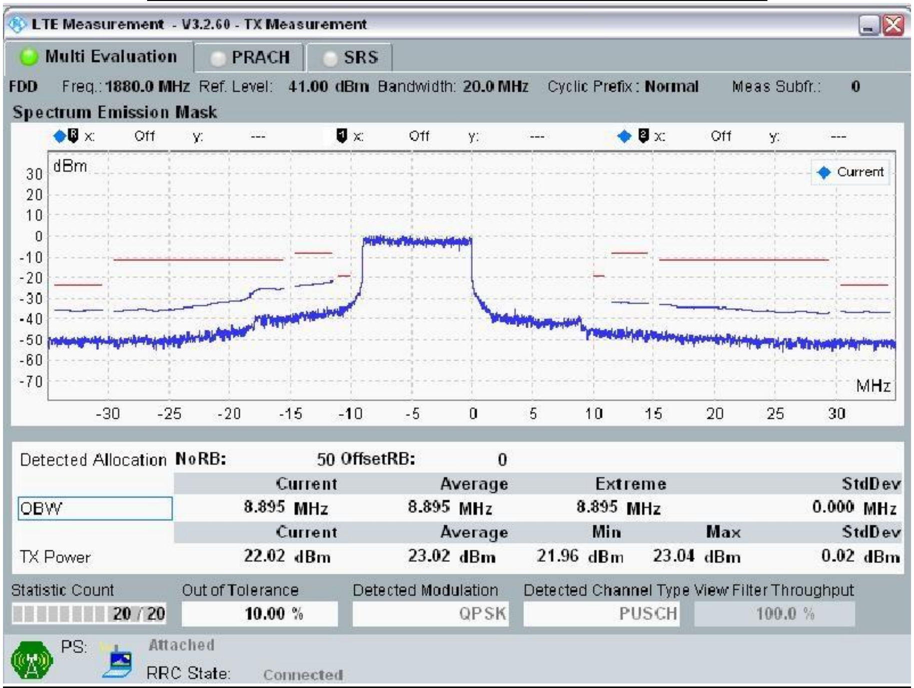
20MHz Band Width: Ch 18900, RB Size=1; RB Offset = 0



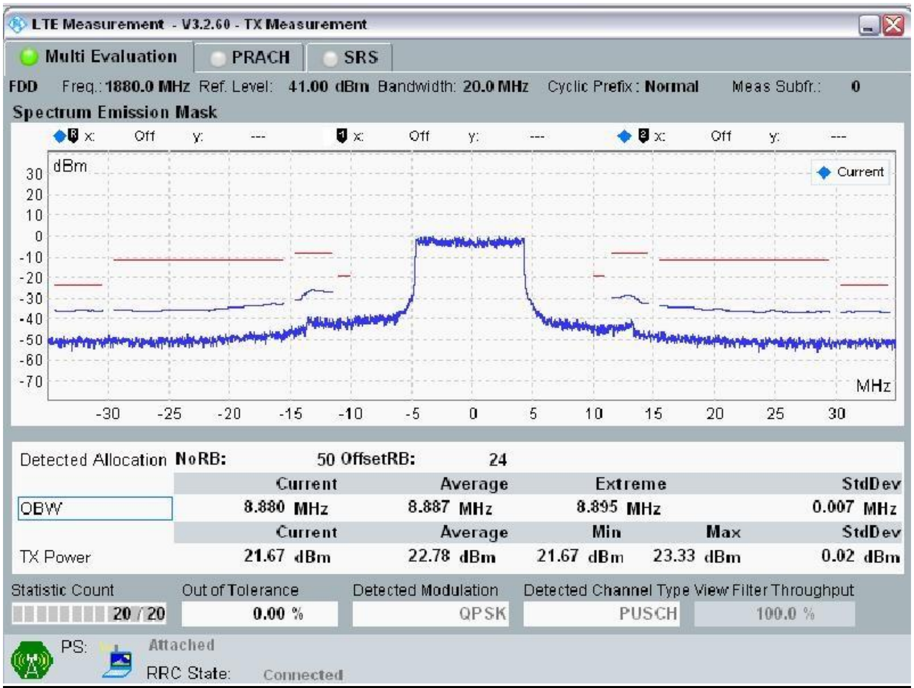
20MHz Band Width: Ch 18900, RB Size=1; RB Offset = 49



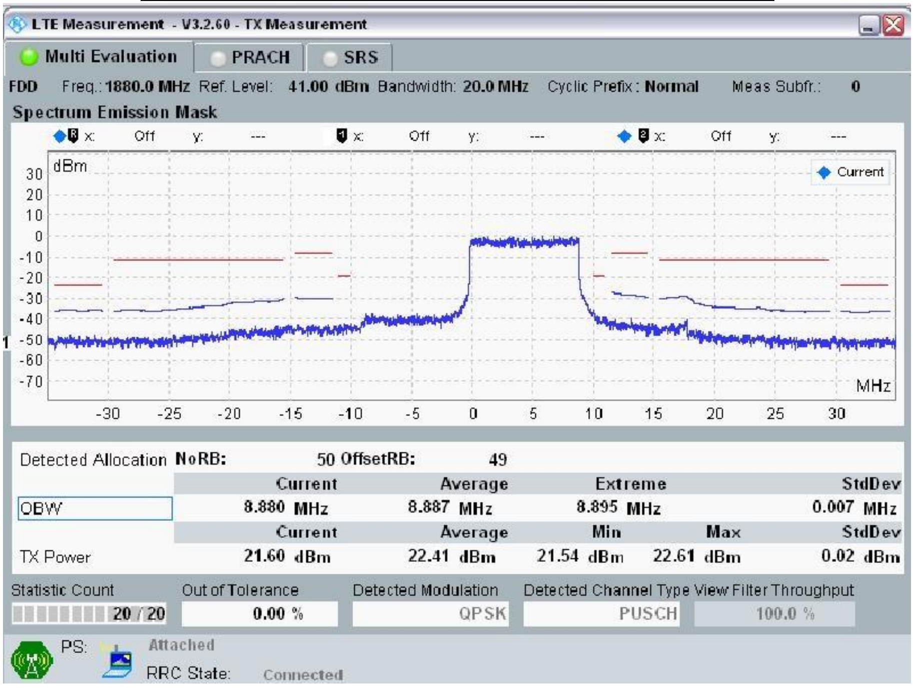
20MHz Band Width: Ch 18900, RB Size=1; RB Offset = 99



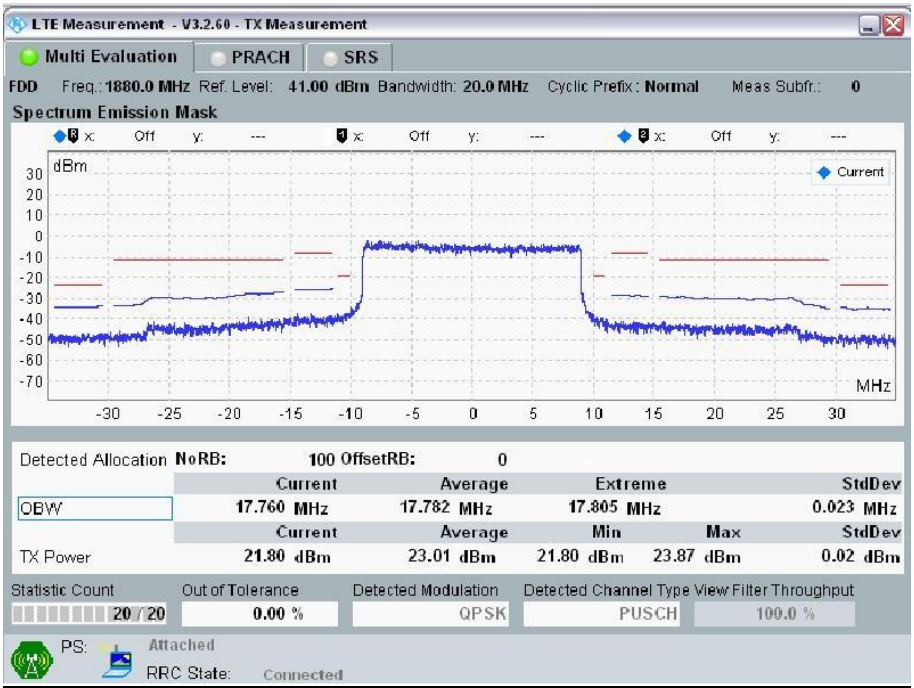
20MHz Band Width: Ch 18900, RB Size=50; RB Offset = 0



20MHz Band Width: Ch 18900, RB Size=50; RB Offset = 24



20MHz Band Width: Ch 18900, RB Size=50; RB Offset = 49



20MHz Band Width: Ch 18900, RB Size=100; RB Offset = 0

10.6.2 LTE Band 4

Output power table

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm) W/o Power back-off	Average power(dBm) W/ Power back-off
4	20	20050	1720.0	QPSK	1	0	0	23.5	19.9
					1	49	0	23.2	19.6
					1	99	0	23.1	19.5
					50	0	1	22.5	19.0
					50	24	1	22.3	18.7
					50	49	1	22.1	18.5
					100	0	1	22.5	18.9
				16QAM	1	0	1	22.5	19.0
					1	49	1	22.3	18.6
					1	99	1	22.2	18.6
					50	0	2	21.6	18.0
					50	24	2	21.3	17.7
					50	49	2	21.2	17.5
					100	0	2	21.1	17.5
		20175	1732.5	QPSK	1	0	0	23.8	20.0
					1	49	0	23.3	19.7
					1	99	0	23.1	19.7
					50	0	1	22.9	19.0
					50	24	1	22.4	18.7
					50	49	1	22.2	18.7
					100	0	1	22.9	19.0
				16QAM	1	0	1	22.8	19.0
					1	49	1	22.4	18.8
					1	99	1	22.2	18.7
					50	0	2	21.9	18.0
					50	24	2	21.3	17.8
					50	49	2	21.2	17.7
					100	0	2	21.1	17.7
		20300	1745.0	QPSK	1	0	0	23.1	19.5
					1	49	0	23.0	19.4
					1	99	0	22.9	19.4
					50	0	1	22.3	18.6
					50	24	1	22.1	18.5
					50	49	1	22.0	18.4
					100	0	1	22.2	18.5
				16QAM	1	0	1	22.2	18.5
					1	49	1	22.1	18.5
					1	99	1	22.0	18.4
					50	0	2	21.2	17.6
					50	24	2	21.1	17.5
					50	49	2	21.0	17.4
					100	0	2	21.0	17.5

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm) W/o Power back-off	Average power(dBm) W/ Power back-off
4	15	20025	1717.5	QPSK	1	0	0	23.4	19.9
					1	37	0	23.2	19.6
					1	74	0	23.0	19.5
					36	0	1	22.4	19.0
					36	18	1	22.2	18.7
					36	35	1	22.0	18.5
					75	0	1	22.4	18.9
				16QAM	1	0	1	22.5	19.0
					1	37	1	22.3	18.6
					1	74	1	22.1	18.6
					36	0	2	21.5	18.0
					36	18	2	21.3	17.7
					36	35	2	21.1	17.5
					75	0	2	21.0	17.5
		20175	1732.5	QPSK	1	0	0	23.7	19.9
					1	37	0	23.3	19.6
					1	74	0	23.1	19.6
					36	0	1	22.8	18.9
					36	18	1	22.3	18.6
					36	35	1	22.1	18.6
					75	0	1	22.8	18.9
				16QAM	1	0	1	22.7	18.9
					1	37	1	22.3	18.7
					1	74	1	22.1	18.6
					36	0	2	21.8	17.9
					36	18	2	21.3	17.7
					36	35	2	21.1	17.6
					75	0	2	21.1	17.6
		20325	1747.5	QPSK	1	0	0	23.1	19.4
					1	37	0	23.0	19.3
					1	74	0	22.9	19.3
					36	0	1	22.2	18.5
					36	18	1	22.1	18.4
					36	35	1	22.0	18.3
					75	0	1	22.2	18.4
				16QAM	1	0	1	22.2	18.4
					1	37	1	22.1	18.4
					1	74	1	22.0	18.3
					36	0	2	21.2	17.5
					36	18	2	21.1	17.4
					36	35	2	21.0	17.3
					75	0	2	20.9	17.4

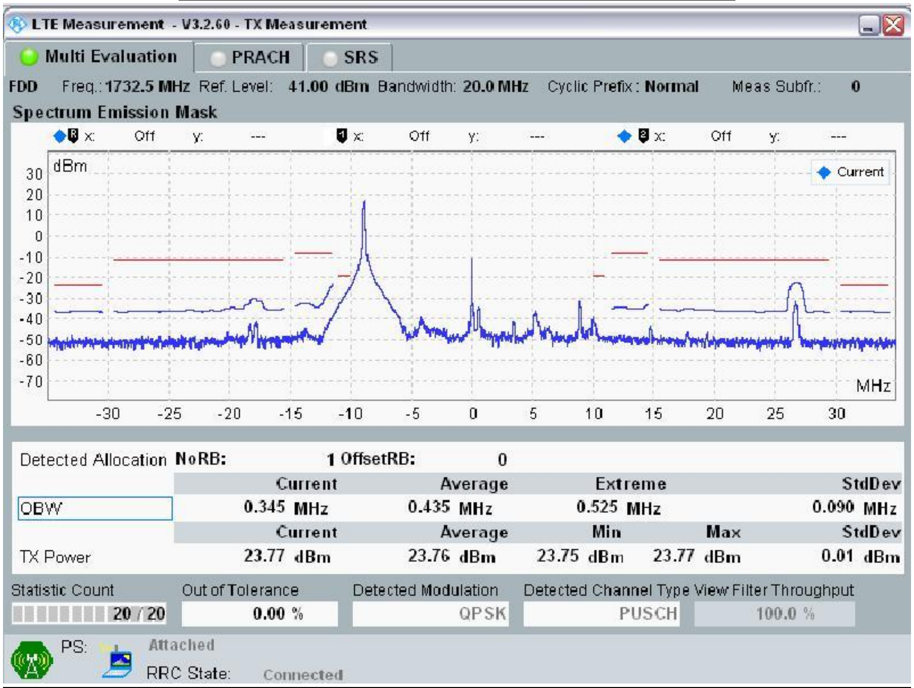
Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	
								W/o Power back-off	W/ Power back-off
4	10	20000	1715.0	QPSK	1	0	0	23.4	19.9
					1	24	0	23.1	19.6
					1	49	0	23.0	19.5
					25	0	1	22.4	19.0
					25	12	1	22.2	18.7
					25	24	1	22.0	18.5
					50	0	1	22.4	18.9
				16QAM	1	0	1	22.4	19.0
					1	24	1	22.2	18.6
					1	49	1	22.0	18.6
					25	0	2	21.5	18.0
					25	12	2	21.2	17.7
					25	24	2	21.0	17.5
					50	0	2	21.0	17.5
		20175	1732.5	QPSK	1	0	0	23.7	19.9
					1	24	0	23.2	19.6
					1	49	0	23.0	19.6
					25	0	1	22.8	18.9
					25	12	1	22.3	18.6
					25	24	1	22.1	18.6
					50	0	1	22.8	18.9
				16QAM	1	0	1	22.7	18.9
					1	24	1	22.3	18.7
					1	49	1	22.1	18.6
					25	0	2	21.8	17.9
					25	12	2	21.3	17.7
					25	24	2	21.1	17.6
					50	0	2	21.0	17.6
		20350	1750.0	QPSK	1	0	0	23.1	19.4
					1	24	0	22.9	19.3
					1	49	0	22.8	19.3
					25	0	1	22.2	18.5
					25	12	1	22.0	18.4
					25	24	1	21.9	18.3
					50	0	1	22.1	18.4
				16QAM	1	0	1	22.2	18.4
					1	24	1	22.0	18.4
					1	49	1	21.9	18.3
					25	0	2	21.1	17.5
					25	12	2	21.0	17.4
					25	24	2	20.9	17.3
					50	0	2	20.9	17.4

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm) W/o Power back-off	Average power(dBm) W/ Power back-off
4	5	19975	1712.5	QPSK	1	0	0	23.4	19.8
					1	12	0	23.1	19.5
					1	24	0	23.0	19.4
					12	0	1	22.4	18.9
					12	6	1	22.2	18.6
					12	11	1	22.0	18.4
					25	0	1	22.4	18.8
				16QAM	1	0	1	22.4	18.9
					1	12	1	22.2	18.5
					1	24	1	22.0	18.5
					12	0	2	21.5	17.9
					12	6	2	21.2	17.6
					12	11	2	21.0	17.4
					25	0	2	21.0	17.4
		20175	1732.5	QPSK	1	0	0	23.7	19.9
					1	12	0	23.2	19.6
					1	24	0	23.0	19.6
					12	0	1	22.8	18.9
					12	6	1	22.3	18.6
					12	11	1	22.1	18.6
					25	0	1	22.8	18.9
				16QAM	1	0	1	22.7	18.9
					1	12	1	22.3	18.7
					1	24	1	22.1	18.6
					12	0	2	21.8	17.9
					12	6	2	21.2	17.7
					12	11	2	21.1	17.6
					25	0	2	21.0	17.6
		20375	1752.5	QPSK	1	0	0	23.0	19.4
					1	12	0	22.9	19.3
					1	24	0	22.8	19.3
					12	0	1	22.2	18.5
					12	6	1	22.0	18.4
					12	11	1	21.9	18.3
					25	0	1	22.1	18.4
				16QAM	1	0	1	22.1	18.4
					1	12	1	22.0	18.4
					1	24	1	21.9	18.3
					12	0	2	21.1	17.5
					12	6	2	21.0	17.4
					12	11	2	20.9	17.3
					25	0	2	20.9	17.4

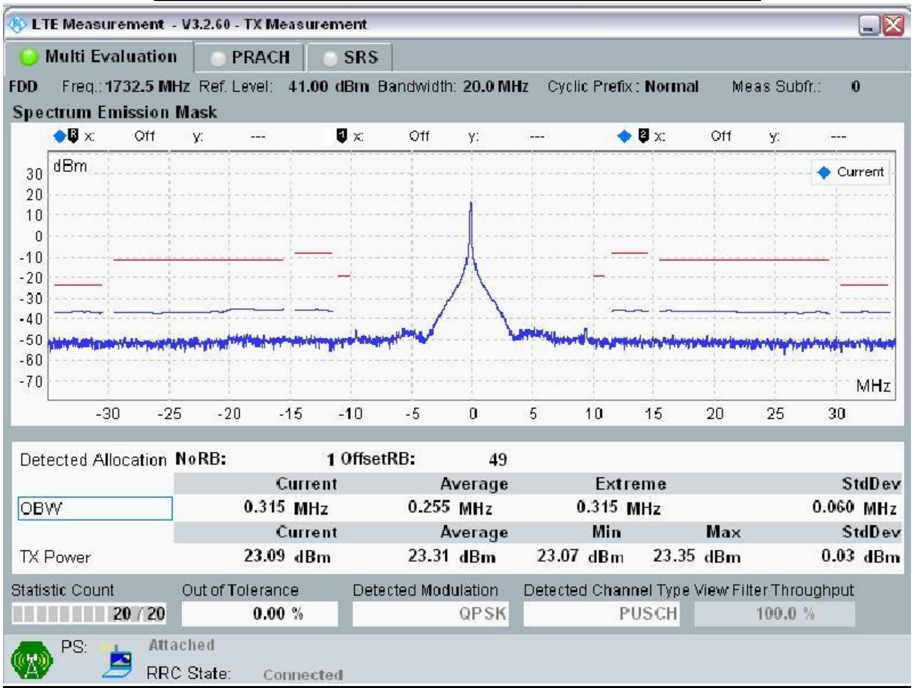
Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	
								W/o Power back-off	W/ Power back-off
4	3	19965	1711.5	QPSK	1	0	0	23.4	19.8
					1	7	0	23.1	19.5
					1	14	0	22.9	19.4
					8	0	1	22.4	18.9
					8	4	1	22.2	18.6
					8	7	1	21.9	18.4
					15	0	1	22.4	18.8
				16QAM	1	0	1	22.4	18.9
					1	7	1	22.2	18.5
					1	14	1	22.0	18.5
					8	0	2	21.4	17.9
					8	4	2	21.2	17.6
					8	7	2	21.0	17.4
					15	0	2	21.0	17.4
		20175	1732.5	QPSK	1	0	0	23.7	19.9
					1	7	0	23.2	19.6
					1	14	0	23.0	19.6
					8	0	1	22.8	18.9
					8	4	1	22.3	18.6
					8	7	1	22.1	18.6
					15	0	1	22.8	18.9
				16QAM	1	0	1	22.7	18.9
					1	7	1	22.3	18.7
					1	14	1	22.1	18.6
					8	0	2	21.8	17.9
					8	4	2	21.2	17.7
					8	7	2	21.1	17.6
					15	0	2	21.0	17.6
		20384	1753.4	QPSK	1	0	0	23.0	19.3
					1	7	0	22.9	19.2
					1	14	0	22.8	19.2
					8	0	1	22.1	18.4
					8	4	1	22.0	18.3
					8	7	1	21.9	18.2
					15	0	1	22.1	18.3
				16QAM	1	0	1	22.1	18.3
					1	7	1	22.0	18.3
					1	14	1	21.9	18.2
					8	0	2	21.1	17.4
					8	4	2	21.0	17.3
					8	7	2	20.9	17.2
					15	0	2	20.9	17.3

Band	BW (MHz)	Channel	Frequency (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Average power(dBm)	
								W/o Power back-off	W/ Power back-off
4	1.4	19957	1710.7	QPSK	1	0	0	23.4	19.8
					1	2	0	23.1	19.5
					1	5	0	22.9	19.4
					3	0	1	22.4	18.9
					3	1	1	22.1	18.6
					3	2	1	21.9	18.4
					6	0	1	22.4	18.8
				16QAM	1	0	1	22.4	18.9
					1	2	1	22.2	18.5
					1	5	1	22.0	18.5
					3	0	2	21.4	17.9
					3	1	2	21.2	17.6
					3	2	2	21.0	17.4
					6	0	2	21.0	17.4
		20175	1732.5	QPSK	1	0	0	23.7	19.9
					1	2	0	23.2	19.6
					1	5	0	23.0	19.6
					3	0	1	22.8	18.9
					3	1	1	22.2	18.6
					3	2	1	22.1	18.6
					6	0	1	22.8	18.9
				16QAM	1	0	1	22.7	18.9
					1	2	1	22.2	18.7
					1	5	1	22.0	18.6
					3	0	2	21.8	17.9
					3	1	2	21.2	17.6
					3	2	2	21.1	17.6
					6	0	2	21.0	17.6
		20392	1754.2	QPSK	1	0	0	23.0	19.3
					1	2	0	22.9	19.2
					1	5	0	22.8	19.2
					3	0	1	22.1	18.4
					3	1	1	22.0	18.3
					3	2	1	21.9	18.2
					6	0	1	22.1	18.3
				16QAM	1	0	1	22.1	18.3
					1	2	1	22.0	18.3
					1	5	1	21.9	18.2
					3	0	2	21.1	17.4
					3	1	2	21.0	17.3
					3	2	2	20.9	17.2
					6	0	2	20.9	17.3

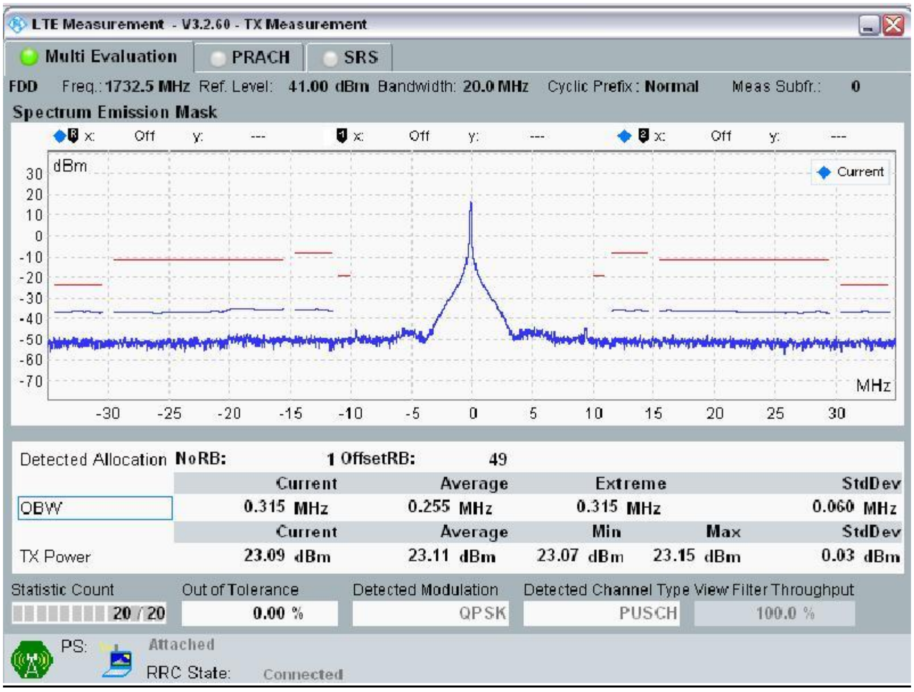
Spectrum Plots for the Test RB allocations



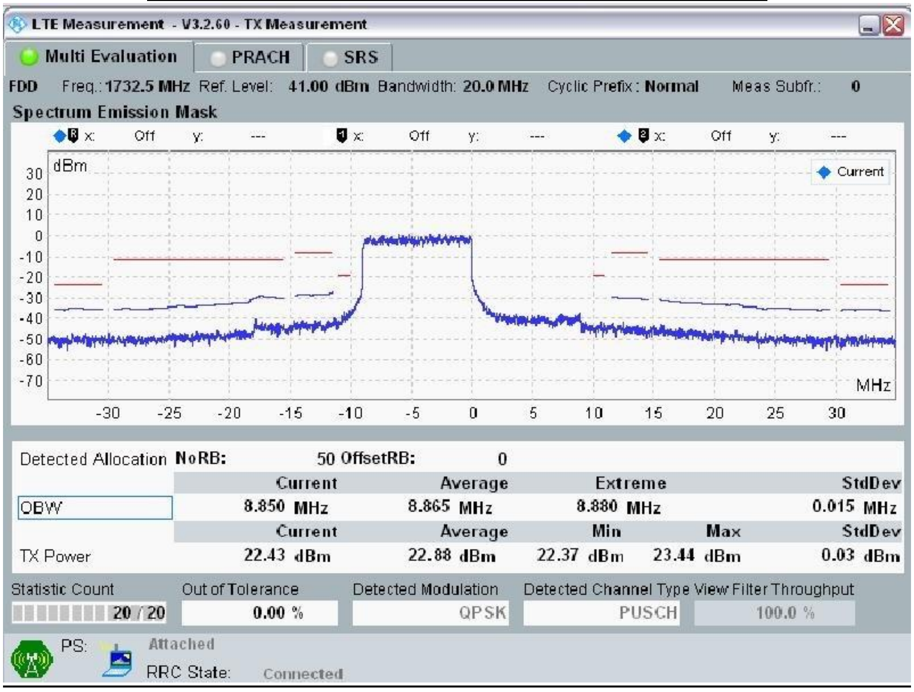
20MHz Band Width: Ch 20175, RB Size=1; RB Offset = 0



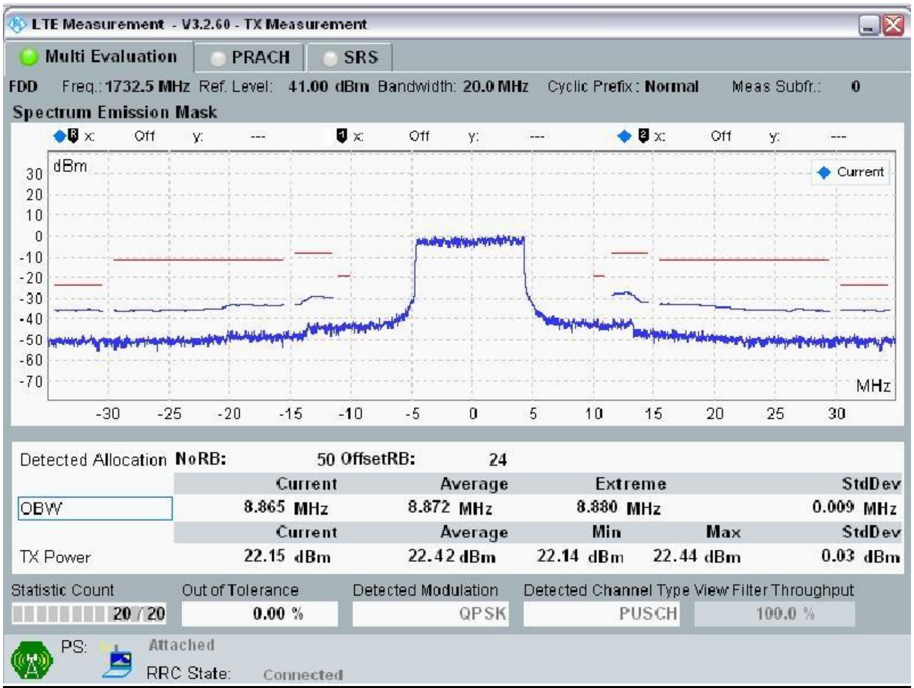
20MHz Band Width: Ch 20175, RB Size=1; RB Offset = 49



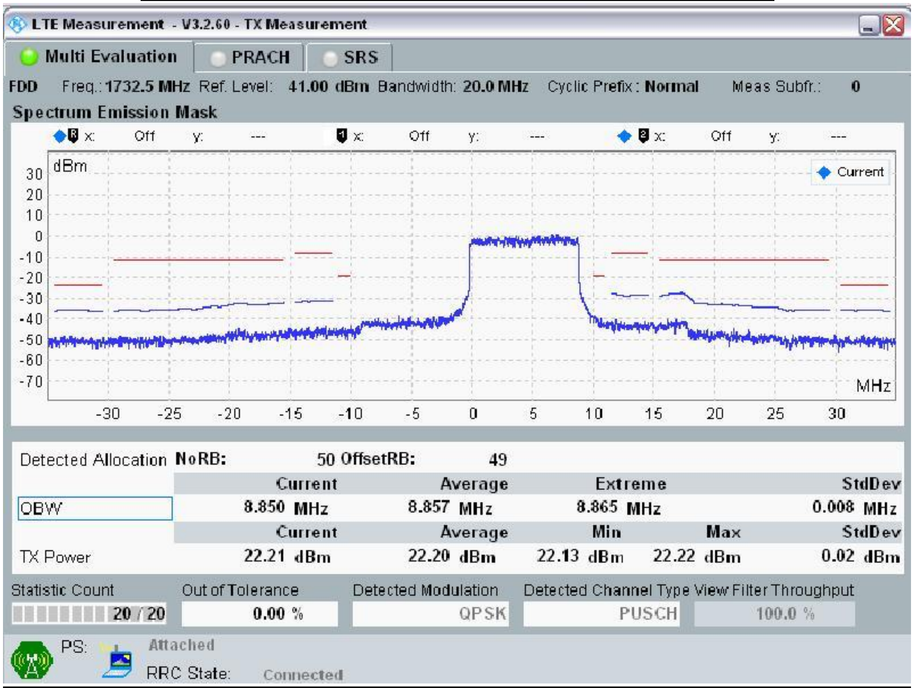
20MHz Band Width: Ch 20175, RB Size=1; RB Offset = 99



20MHz Band Width: Ch 20175, RB Size=50; RB Offset = 0



20MHz Band Width: Ch 20175, RB Size=50; RB Offset = 24



20MHz Band Width: Ch 20175, RB Size=50; RB Offset = 49