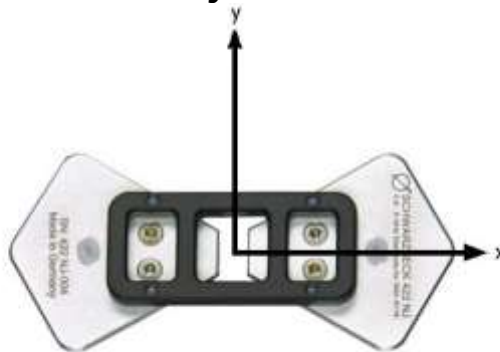


Feldhomogenität 800 MHz - 6 GHz Field Uniformity 800 MHz - 6 GHz



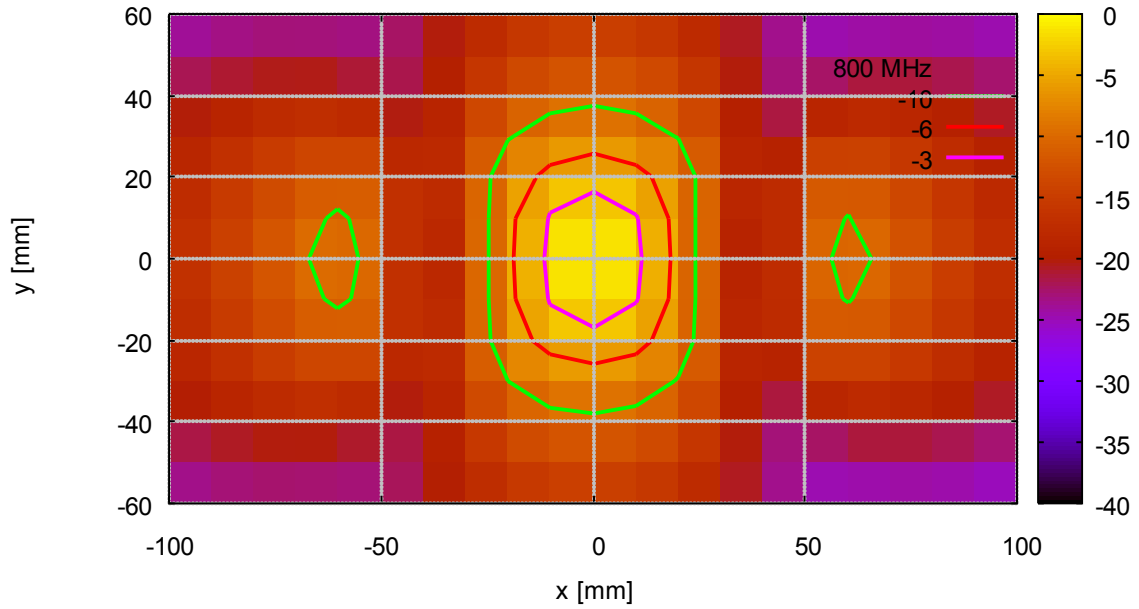
Feldhomogenität:

Zur Bestimmung der Feldhomogenität der 422NJ-Elemente wurden eigens linear polarisierte Miniatur-Feldsonden entwickelt, die es aufgrund ihrer kleinen Abmessungen erlauben, aussagekräftige Messungen der Feldhomogenität durchzuführen. Um eine vorliegende Feldstärkeverteilung zu messen, darf die Feldsonde selbst nur etwa so groß sein, wie die beabsichtigte Ortsauflösung. Darüber hinaus muß die Koppelkapazität zwischen Miniatur-Feldsonde und den 422NJ-Elementen minimiert werden, da ansonsten Verfälschungen des Feldstärke-Absolutwerts auftreten. Zur Erzeugung der nachfolgenden Diagramme wurde die Miniatur-Feldsonde in Schrittweiten von 10 mm sowohl in x-Richtung als auch in y-Richtung bewegt. Die z- Koordinate entspricht dem Abstand d und bleibt konstant, d. h. der Sensor wird in einer Ebene bewegt, die parallel zu den Flachelementen liegt. Als Frequenzschrittweite wurde 200 MHz gewählt. Die Diagramme zeigen die relative gemessene ortsabhängige Feldstärke als Farbverlauf auf einer Fläche von 12 cm x 20 cm, die horizontale Achse zeigt die x-Koordinate der Feldsondenposition, die vertikale Achse die y-Position. Alle Diagramme sind auf das Feldstärkemaximum normiert (= 0 dB) und in gleichem Maßstab skaliert. Zur Normierung wird die Feldsonde genau mittig vor den 422NJ-Elementen platziert. Zur Verbesserung der Ablesbarkeit sind zusätzlich Konturlinien bei -3 dB, -6 dB und -10 dB dargestellt. Auf den folgenden Seiten liegen Feldhomogenitätsdaten für Abstände von $d = 10$ mm bis $d = 50$ mm vor. Als Bezugskante für die Abstandsmessung wird die Aluminium-Oberfläche der Elemente gewählt, die dem Prüfling zugewandt ist.

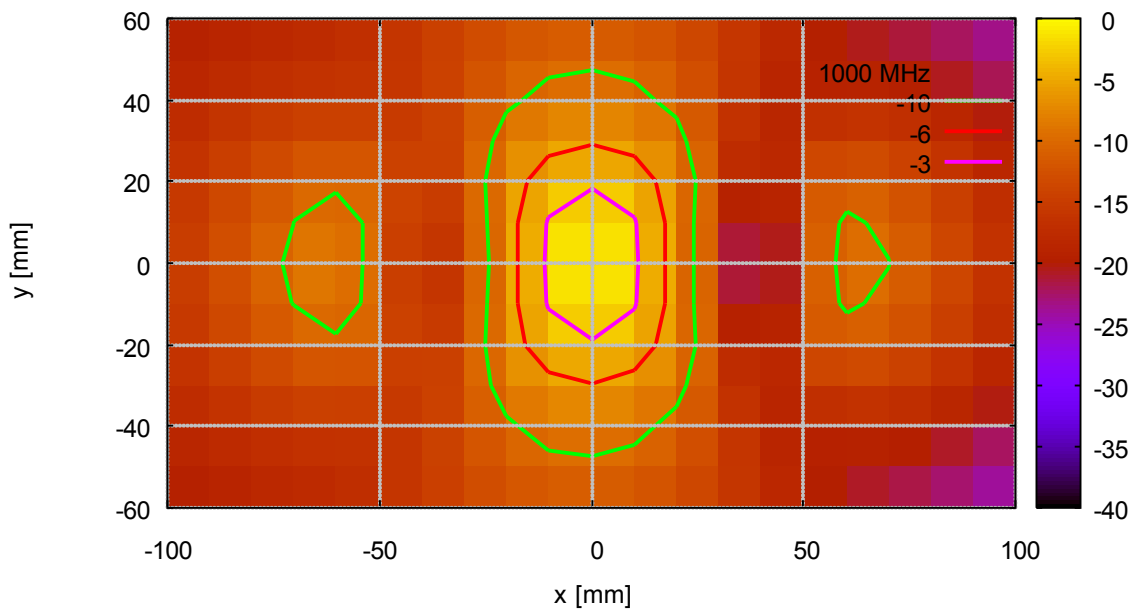
Field Uniformity

The measurement of the field uniformity has been made with linear polarized single axis miniature fieldprobes, which have been especially designed for this dedicated application. In order to obtain meaningful results at close proximities, the size of the used probe must be as small as possible. The size is important for several reasons: the coupling capacitance between miniature probe and 422NJ-elements should be as low as possible, especially at short distances, otherwise the absolute fieldstrength reference becomes inaccurate. In order to achieve a satisfying spatial resolution, the probe size has to be small enough to resolve a spatial step size of 10 mm. For the measurement of the following diagrams the miniature probe was scanned in x- and y-direction (xy-plane in 10 mm steps each and at a constant distance d . This means that the miniature probe was scanned in a parallel plane to the xy-plane over an area of 12 cm x 20 cm, separated by the constant distance of $d = 25$ mm. The horizontal axis shows the x-coordinate of the probe, the vertical axis the y-coordinate with the relative fieldstrength value indicated as color. All diagrams come with identical color scale, which is normalized to 0 dB. The normalisation was made with the miniature probe being centered in front of the 422NJ-elements. The readability is improved by contour lines, which are available for relative fieldstrength levels of -3 dB, -6 dB and -10 dB. There is field uniformity data available on the following pages for distances between $d = 10$ mm up to $d = 50$ mm in 10 mm spacing-increments. The reference plane to measure the distance is the aluminium surface of the 422NJ-elements, which faces towards the EuT.

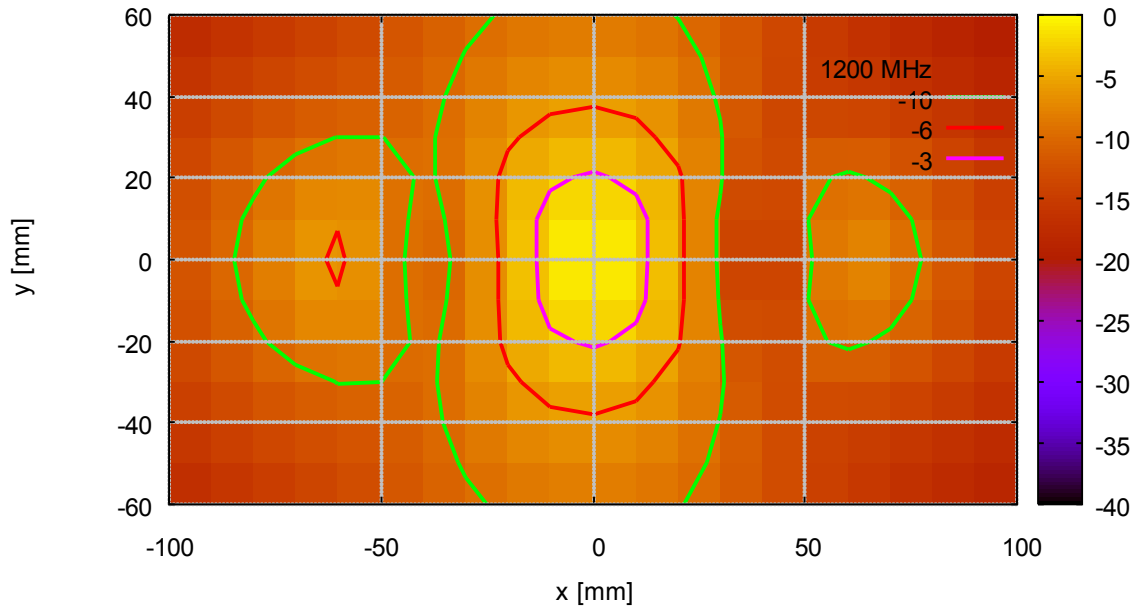
422 NJ Nearfield Scan, d = 10 mm



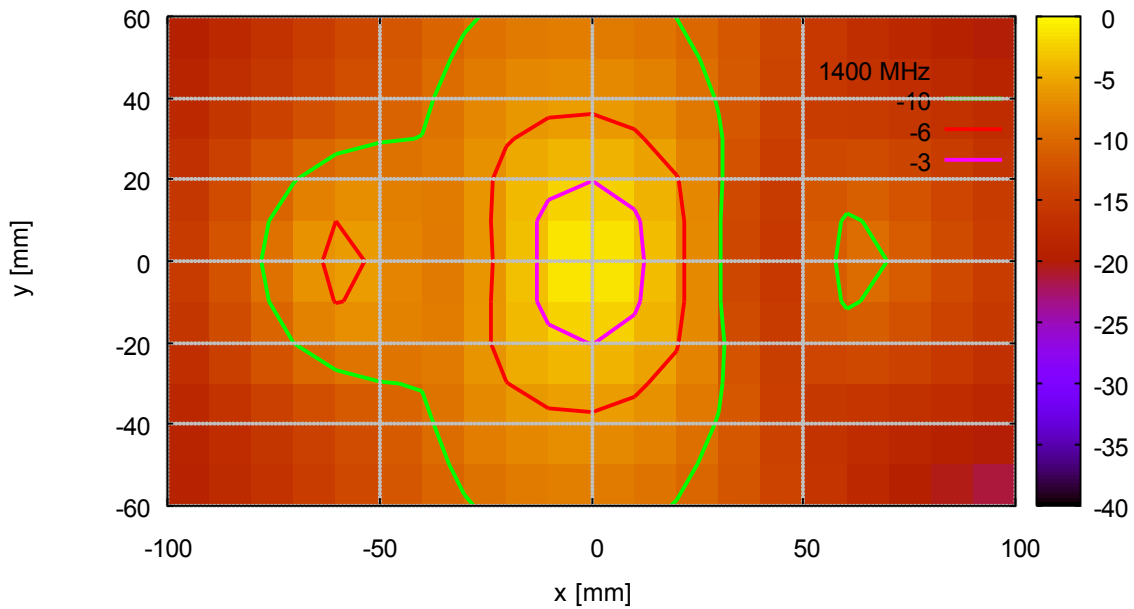
422 NJ Nearfield Scan, d = 10 mm

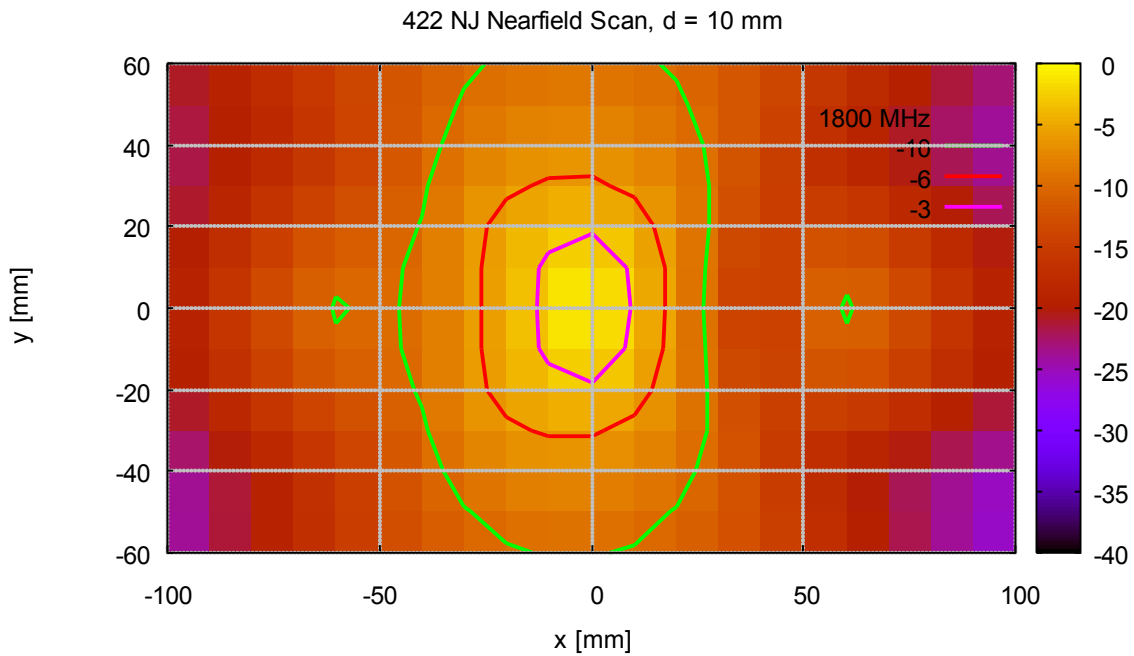
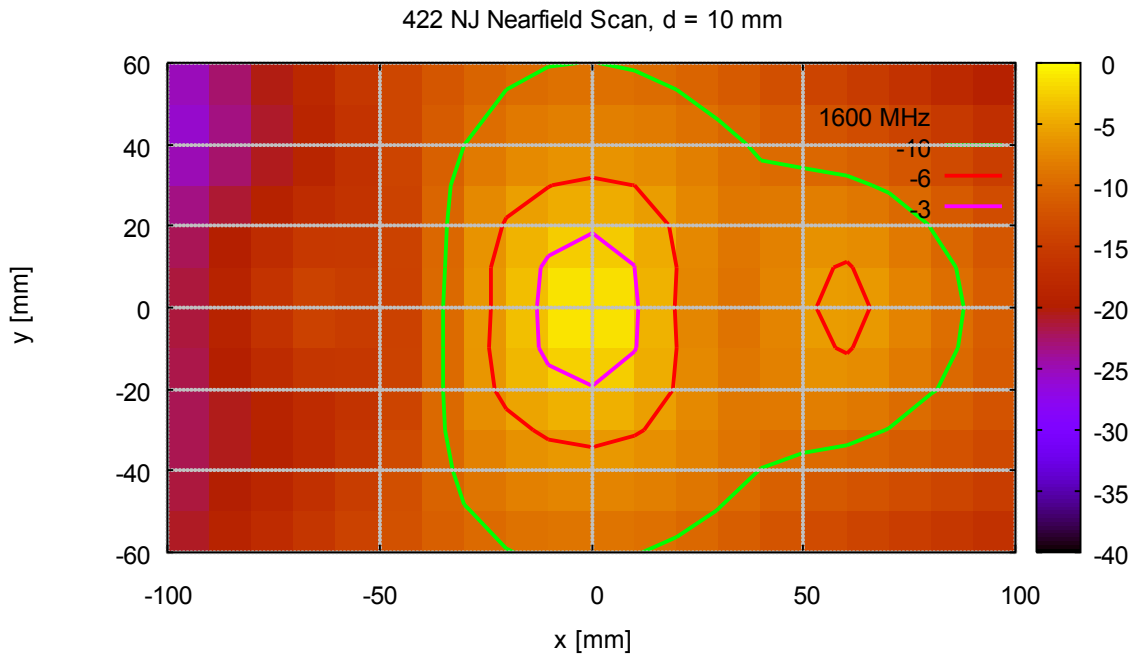


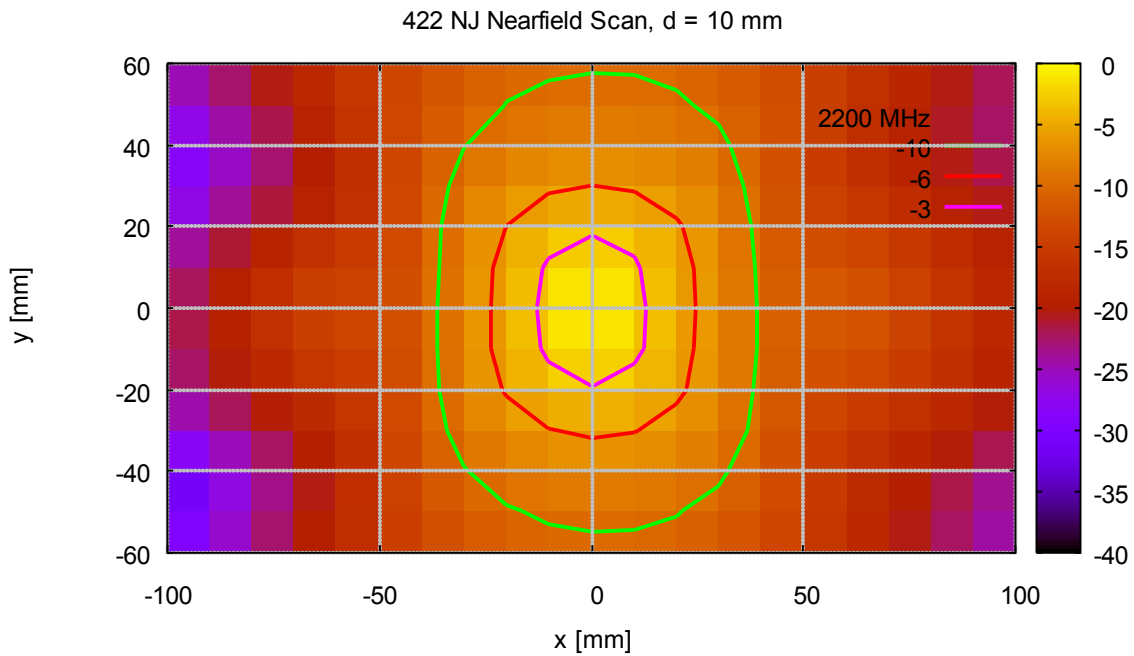
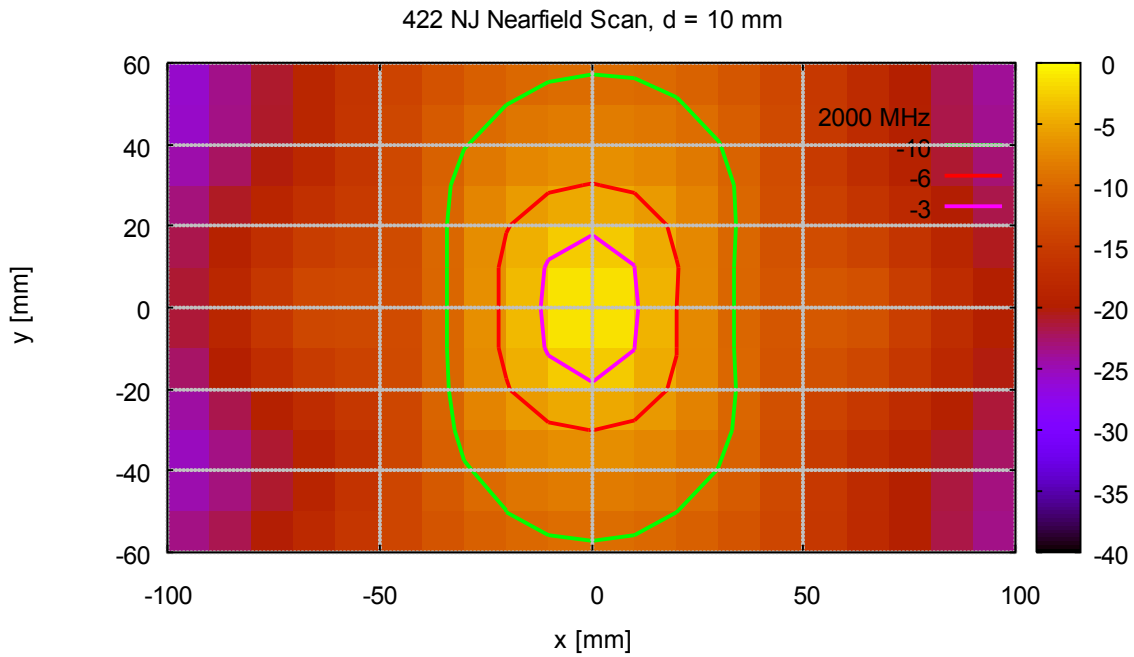
422 NJ Nearfield Scan, d = 10 mm

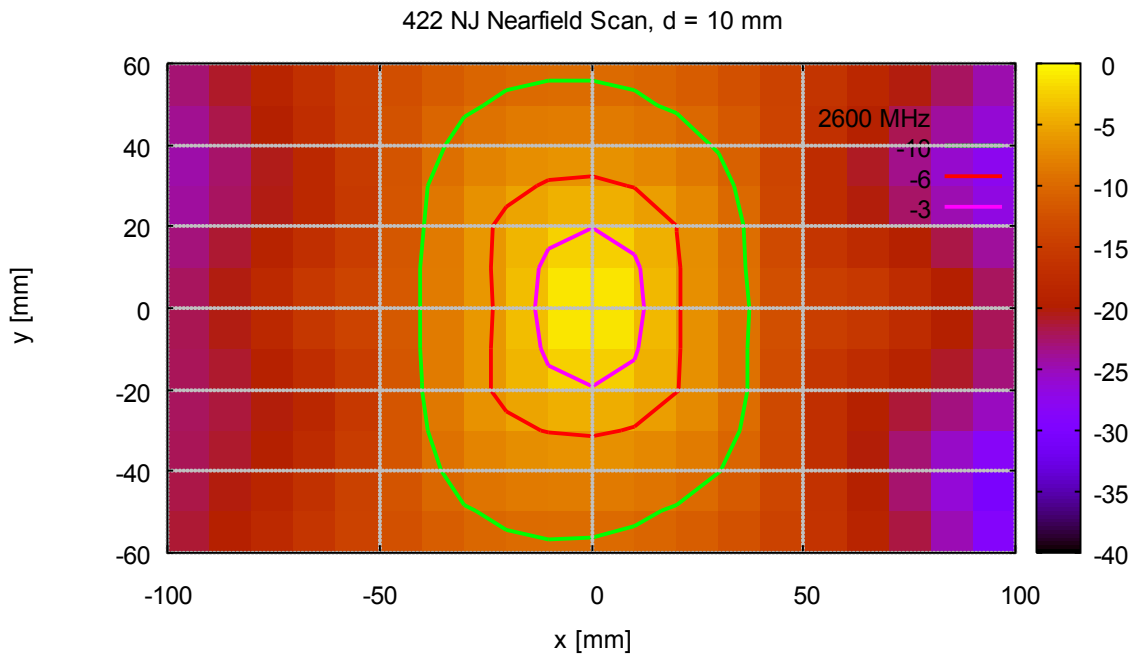
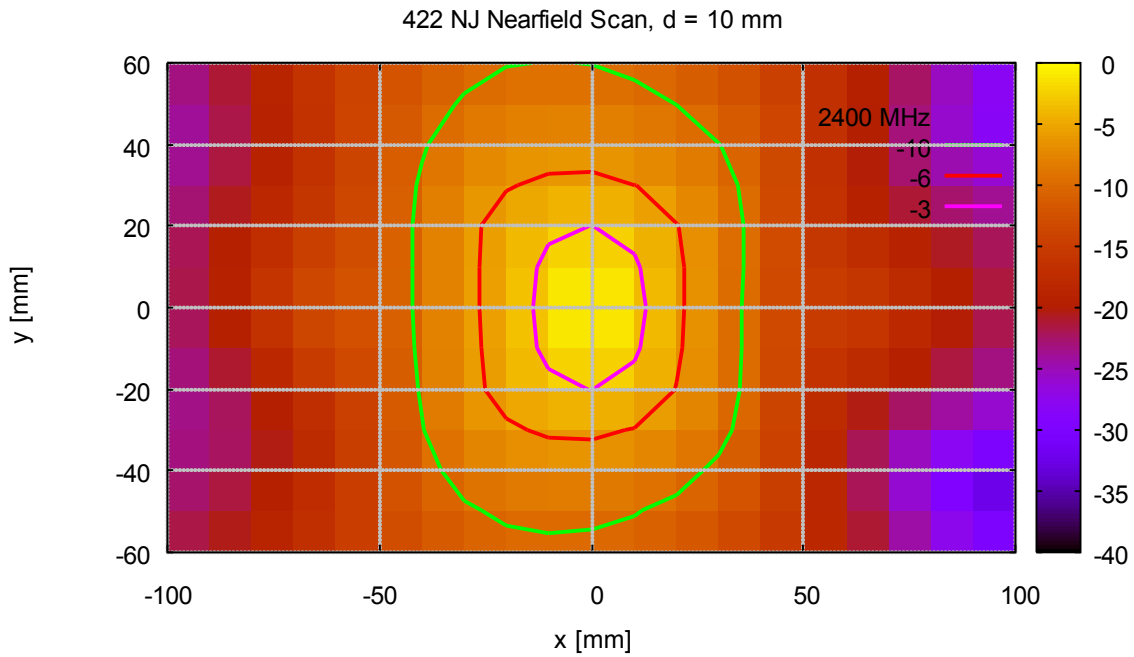


422 NJ Nearfield Scan, d = 10 mm

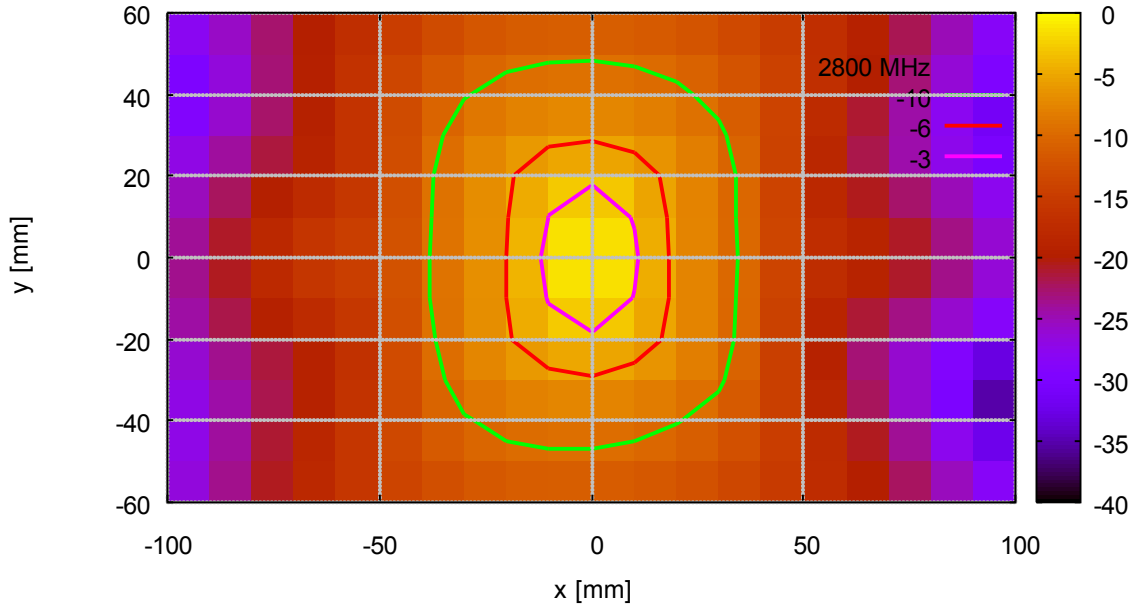




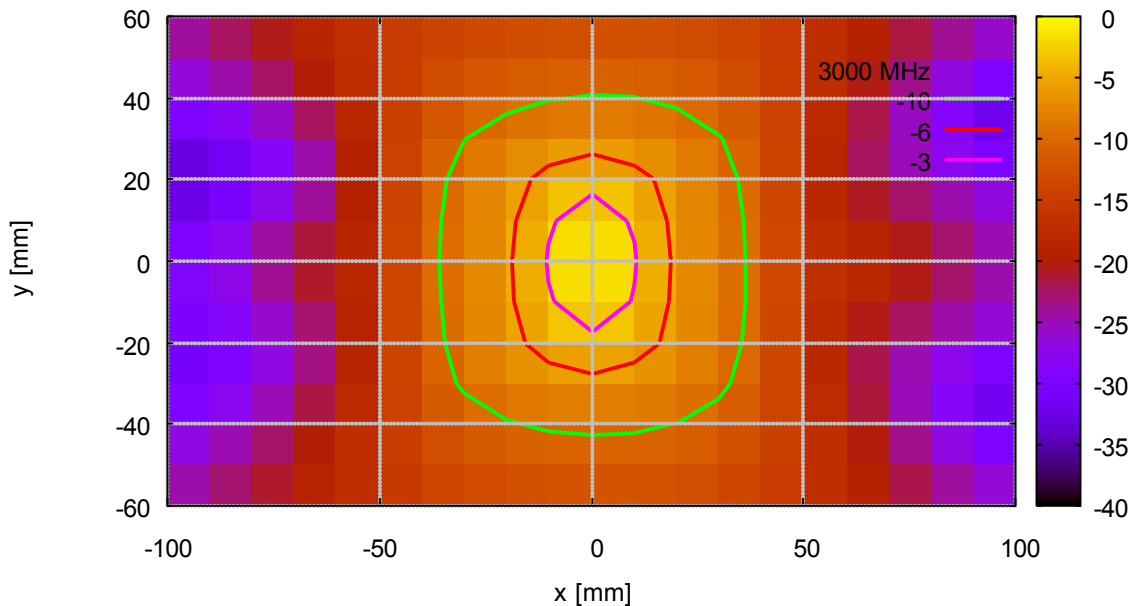




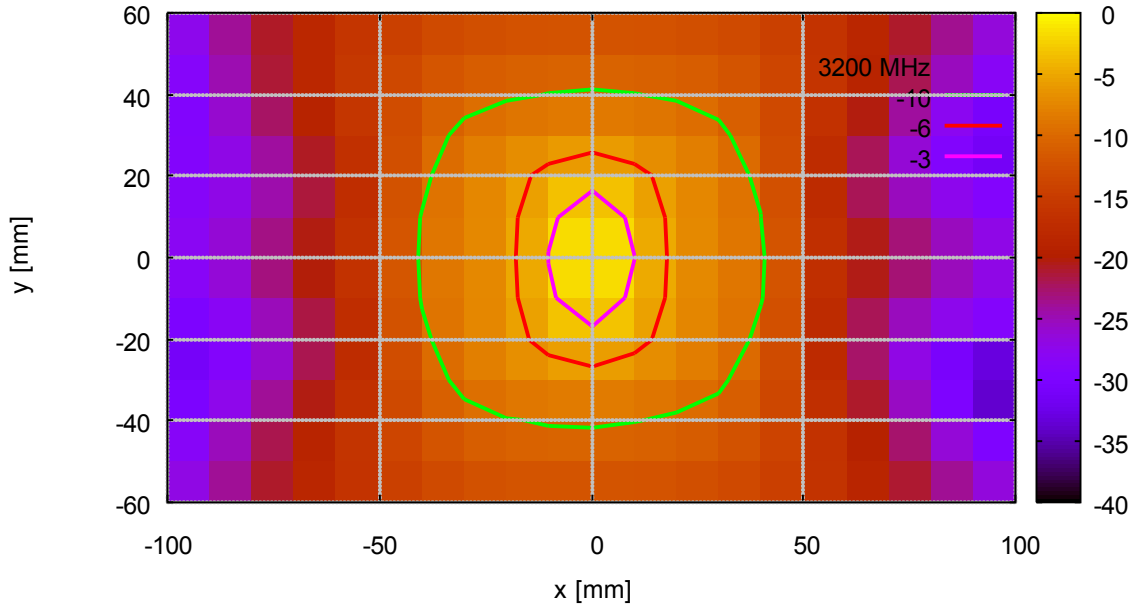
422 NJ Nearfield Scan, d = 10 mm



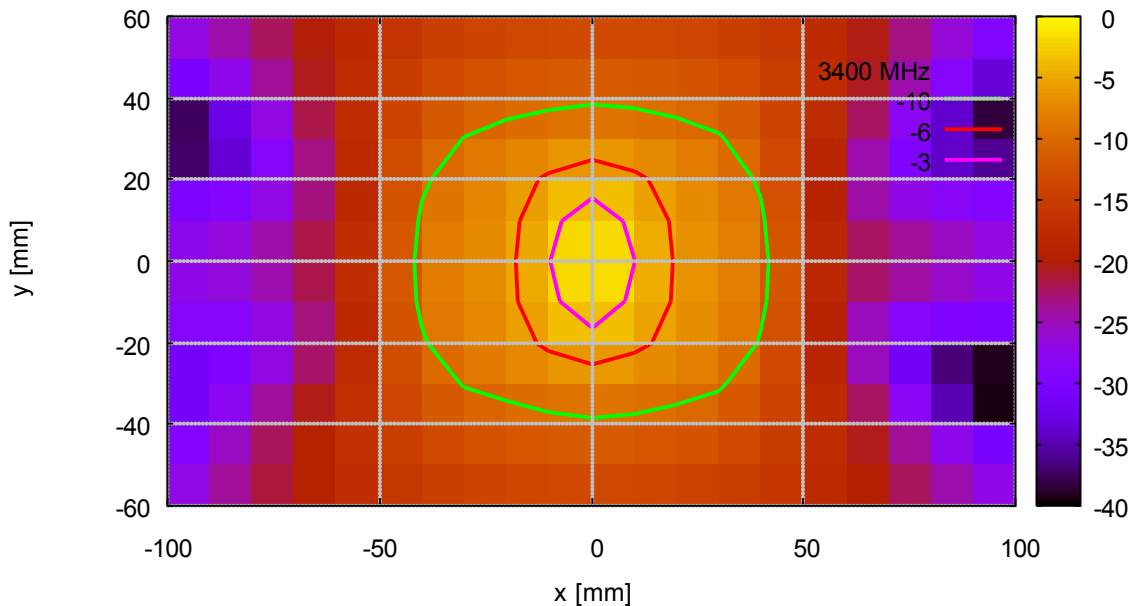
422 NJ Nearfield Scan, d = 10 mm



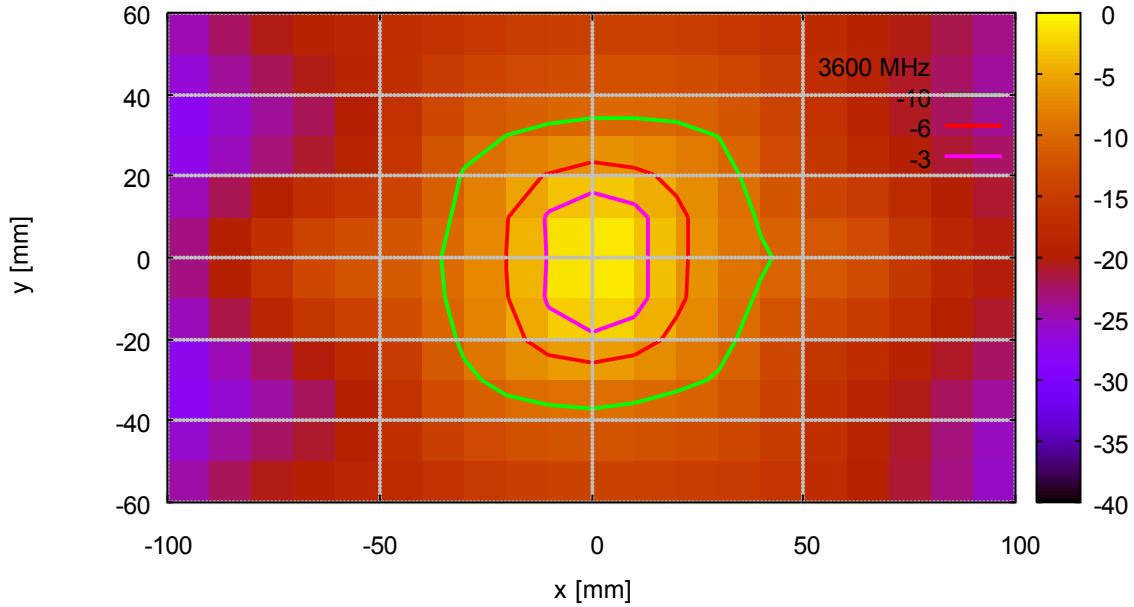
422 NJ Nearfield Scan, d = 10 mm



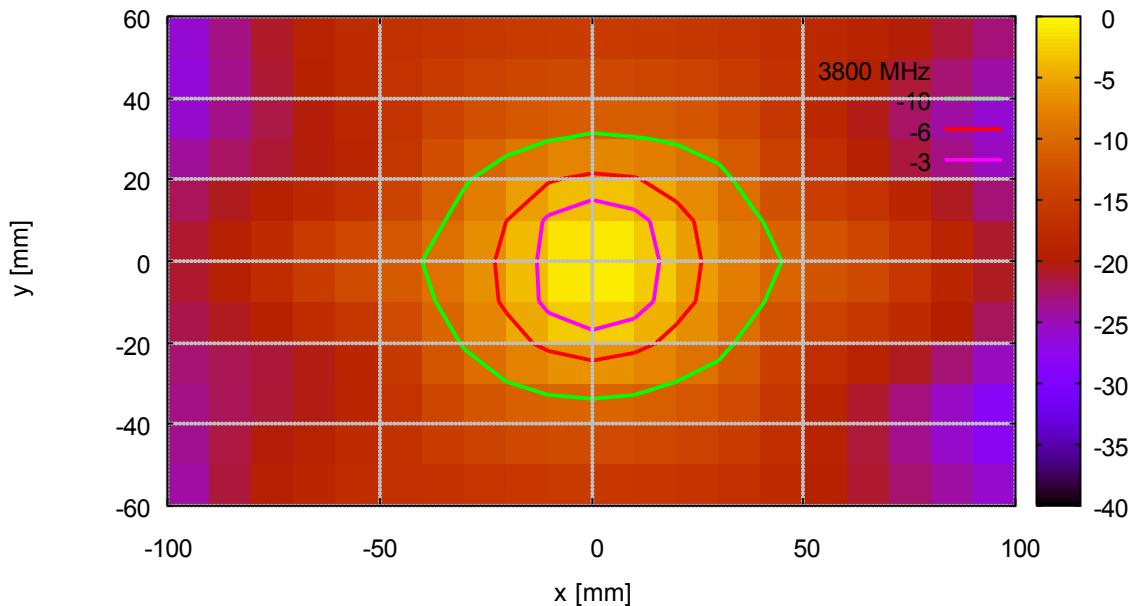
422 NJ Nearfield Scan, d = 10 mm



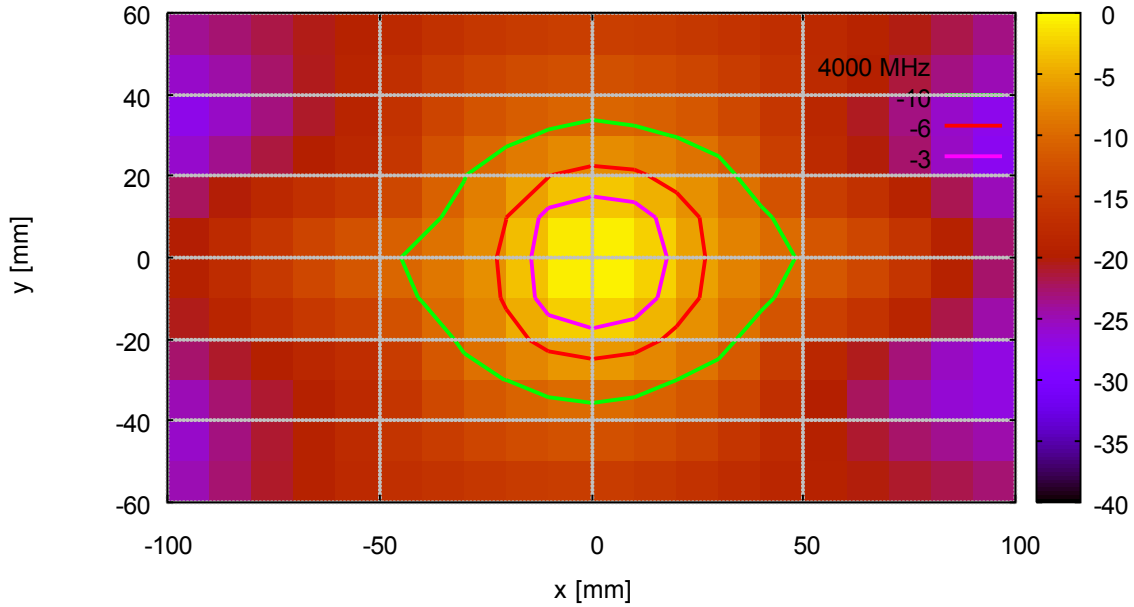
422 NJ Nearfield Scan, d = 10 mm



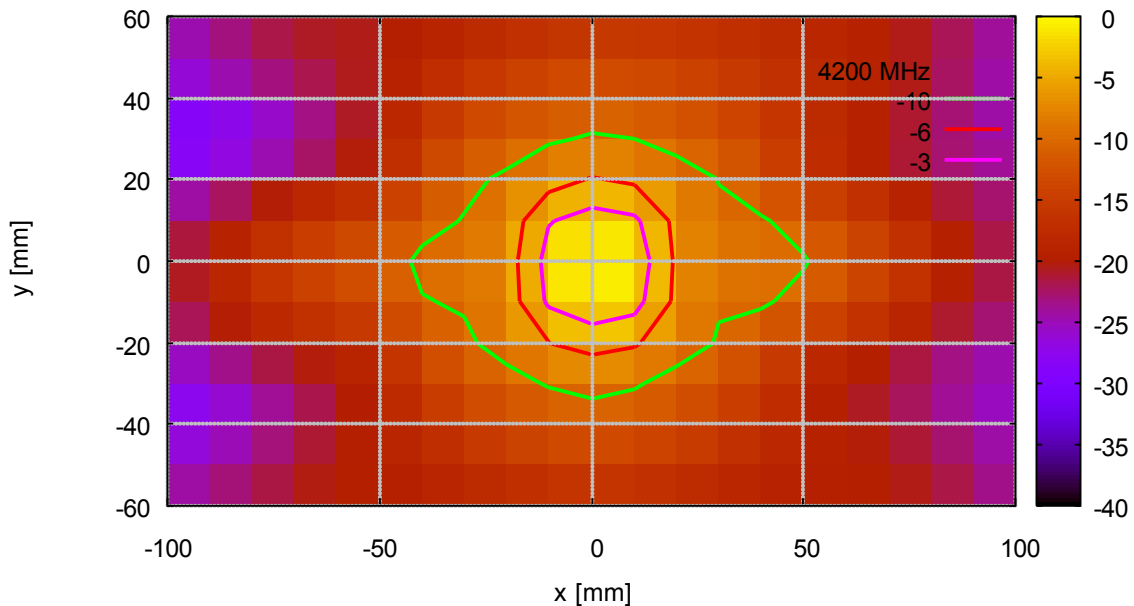
422 NJ Nearfield Scan, d = 10 mm



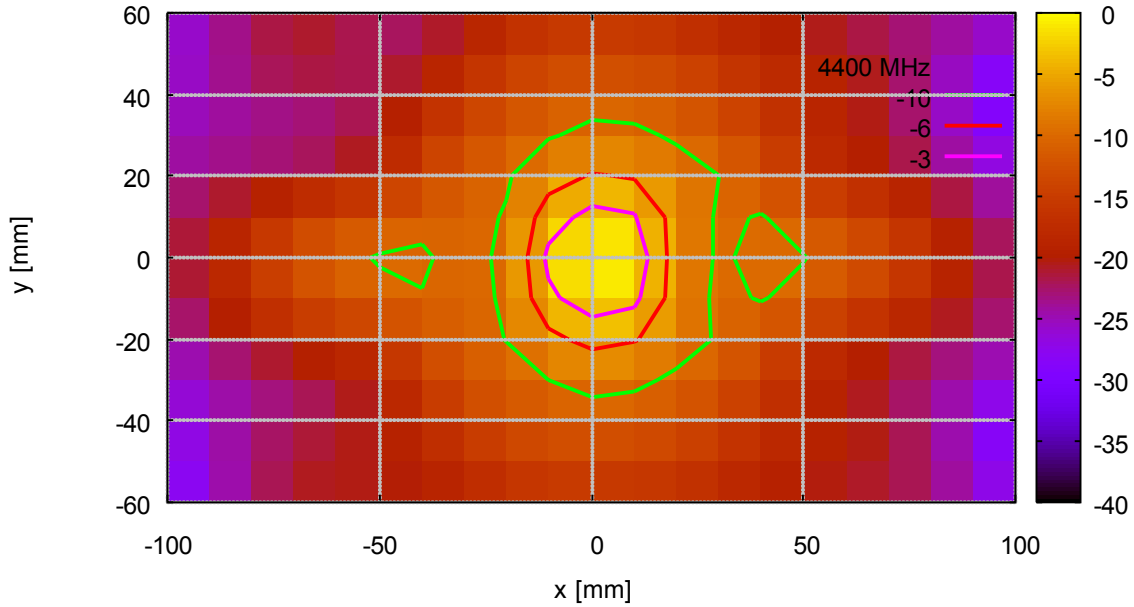
422 NJ Nearfield Scan, d = 10 mm



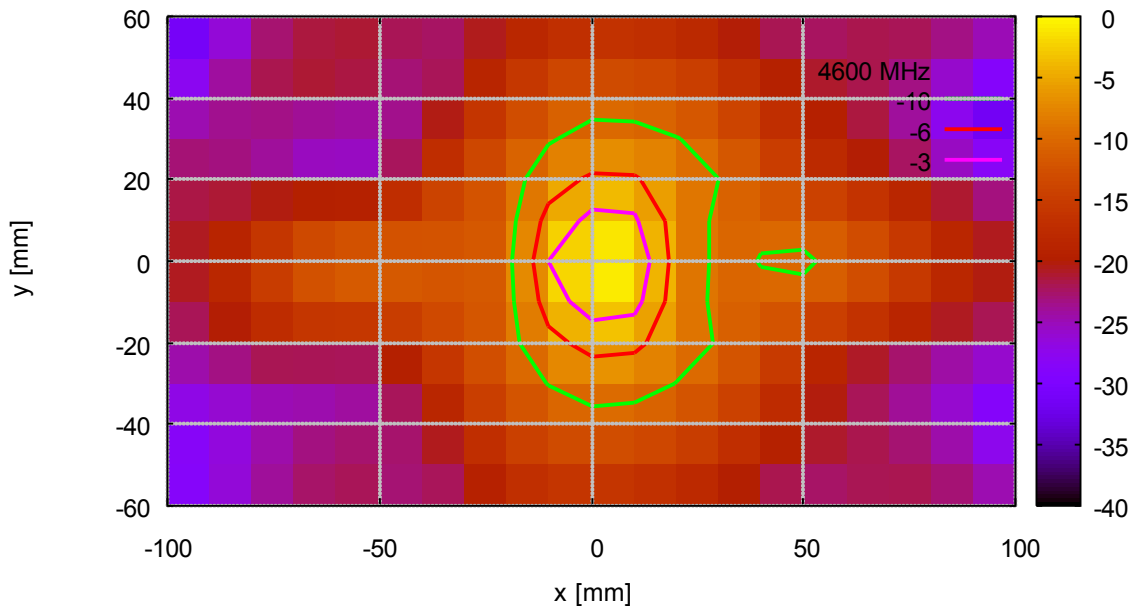
422 NJ Nearfield Scan, d = 10 mm

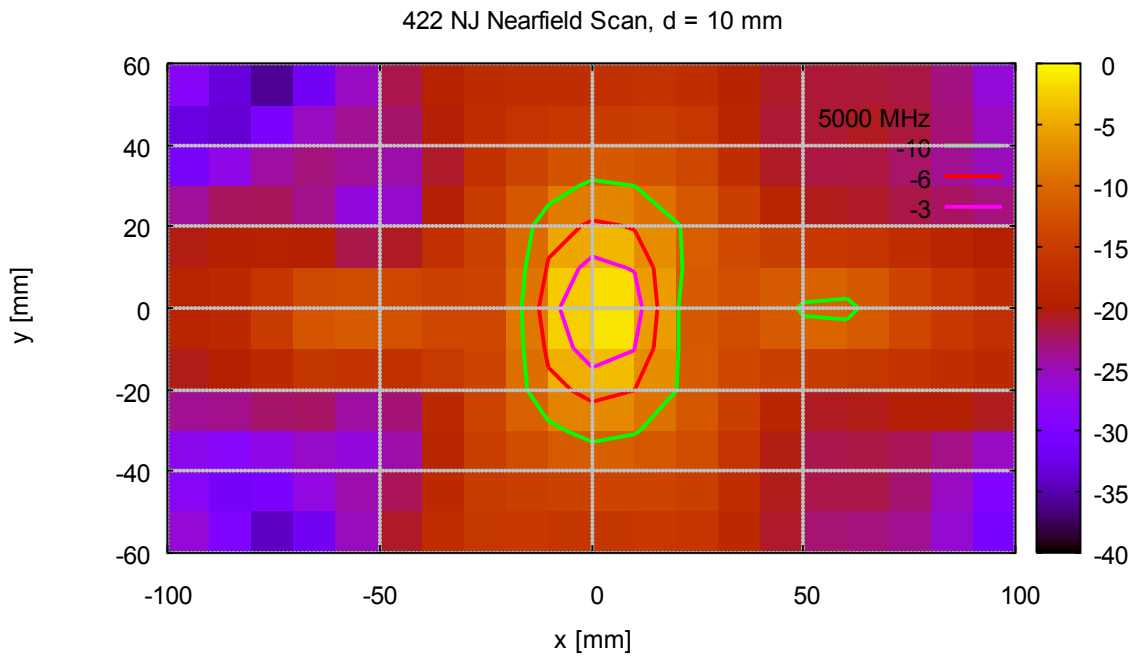
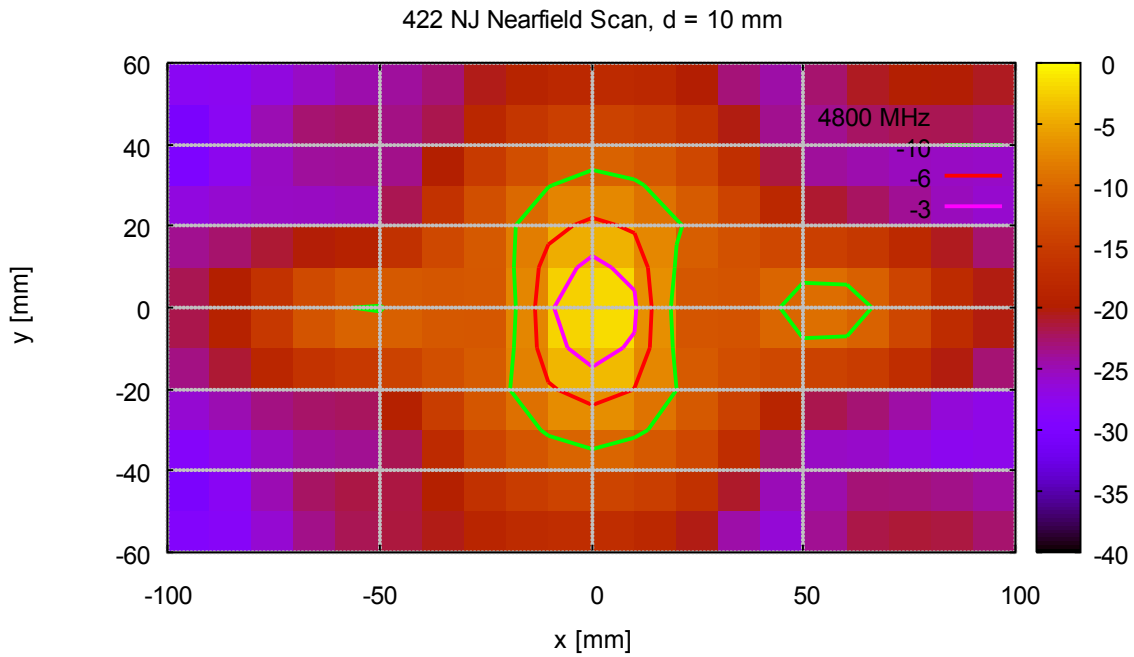


422 NJ Nearfield Scan, d = 10 mm

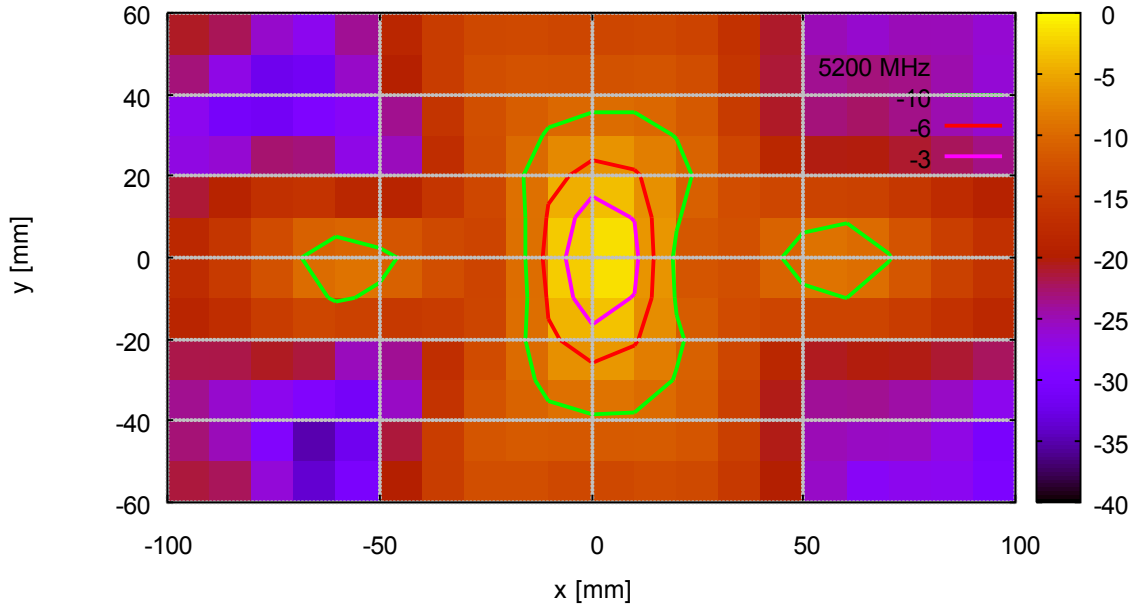


422 NJ Nearfield Scan, d = 10 mm

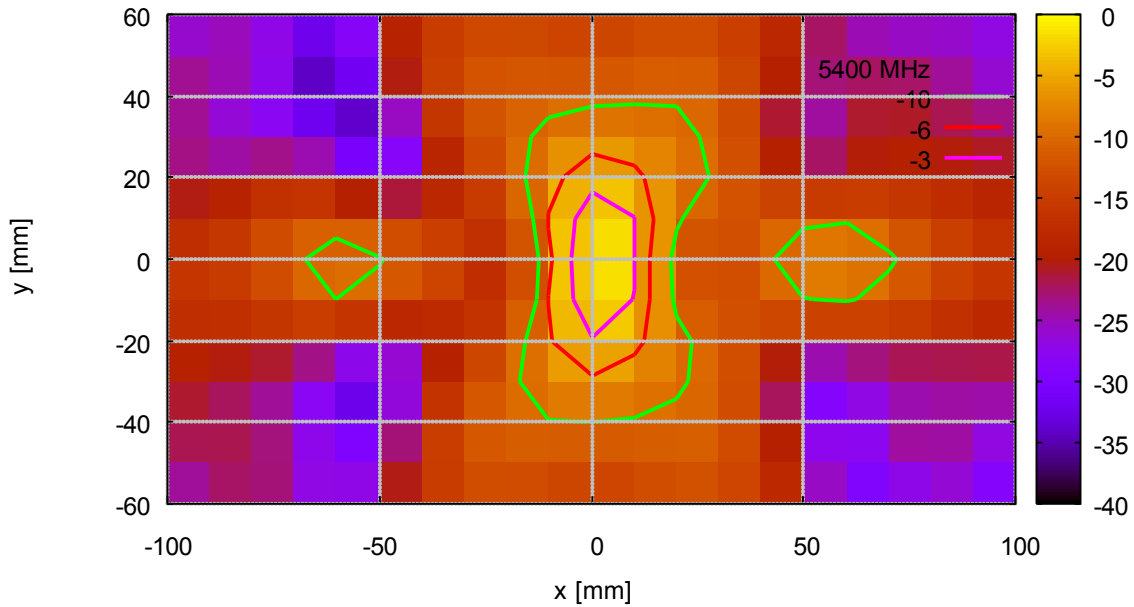




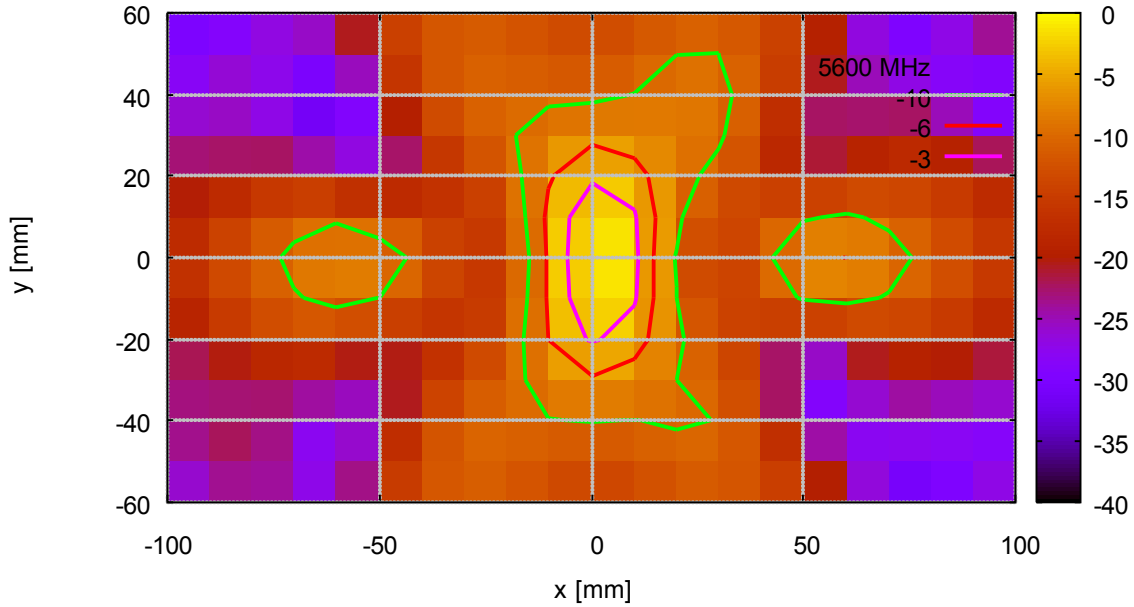
422 NJ Nearfield Scan, d = 10 mm



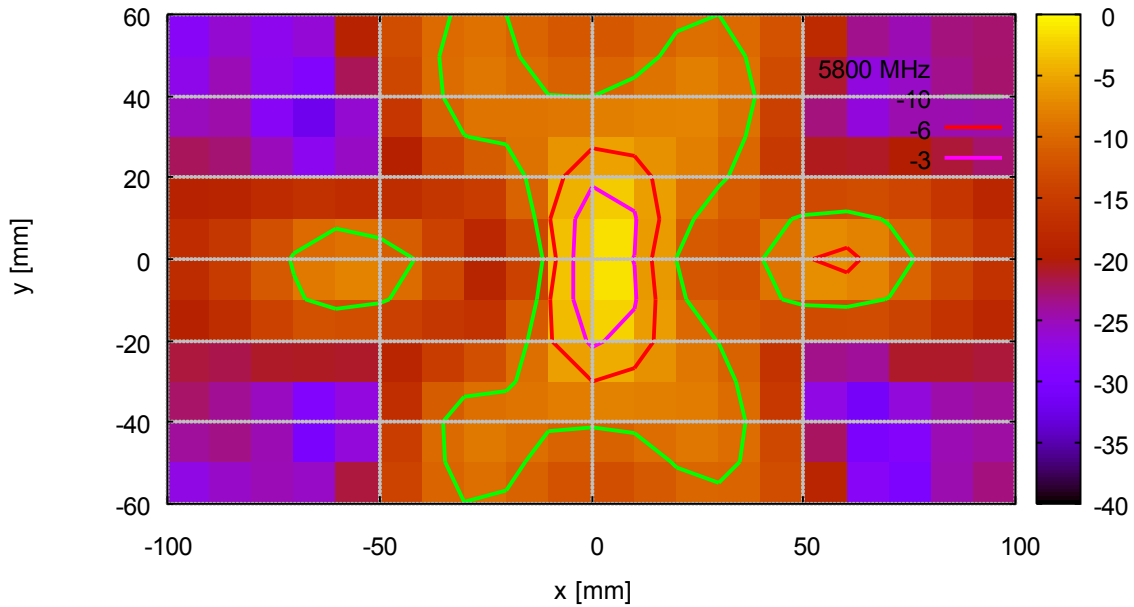
422 NJ Nearfield Scan, d = 10 mm



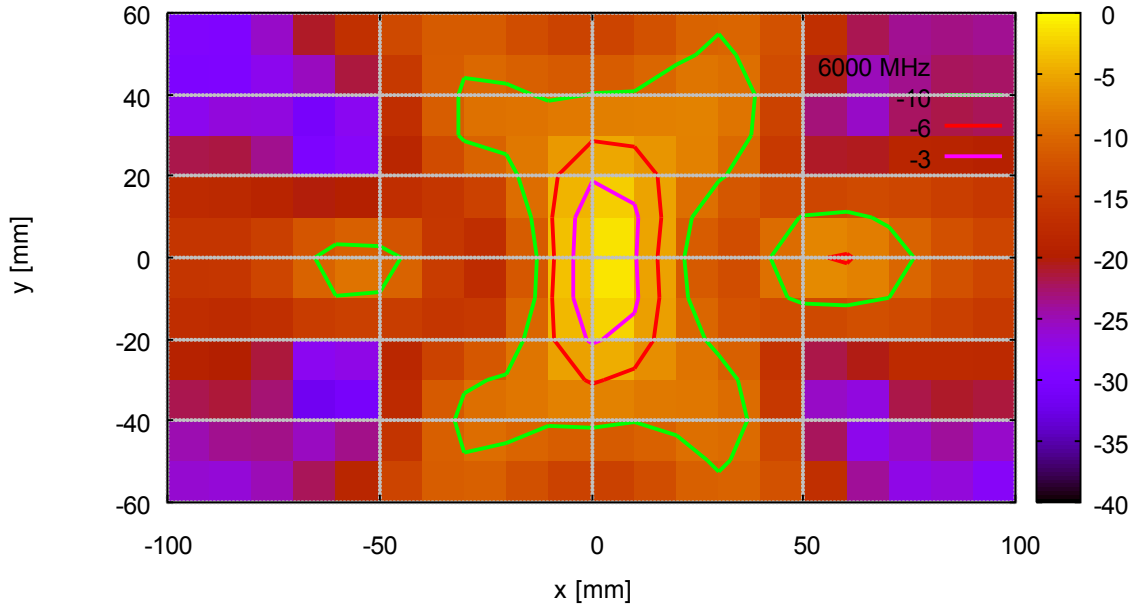
422 NJ Nearfield Scan, d = 10 mm

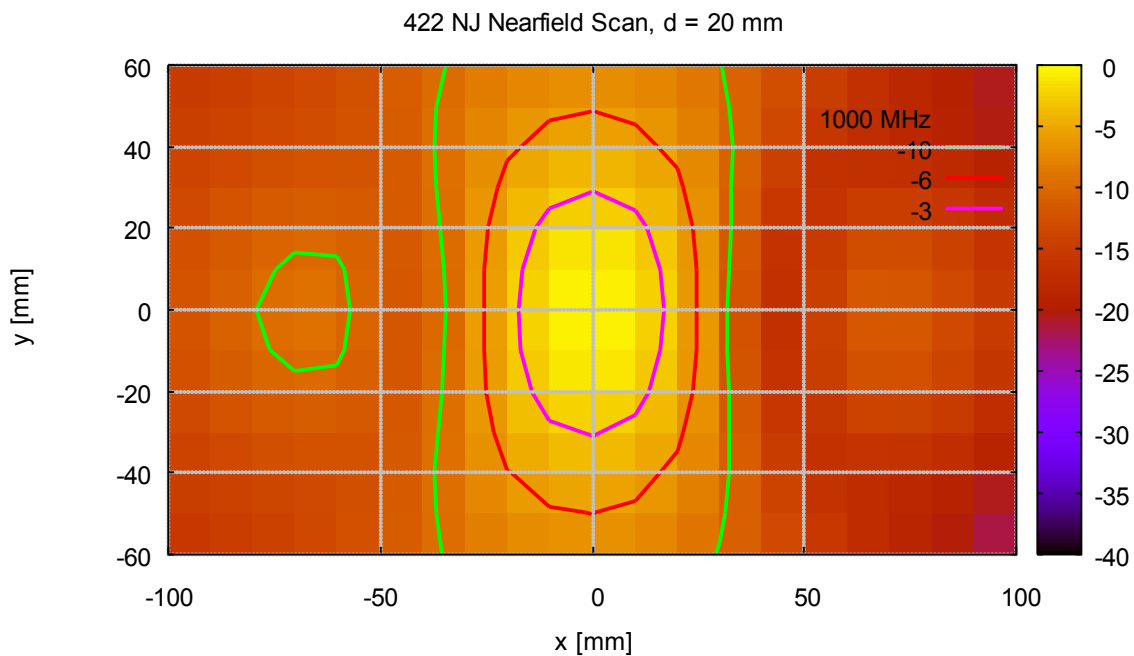
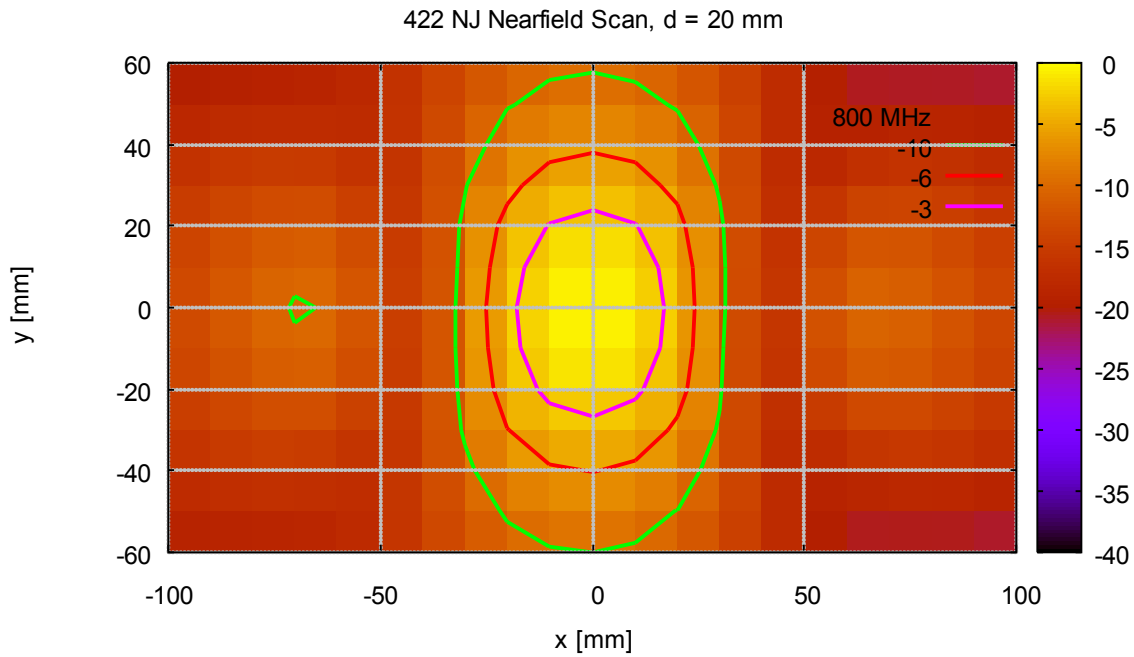


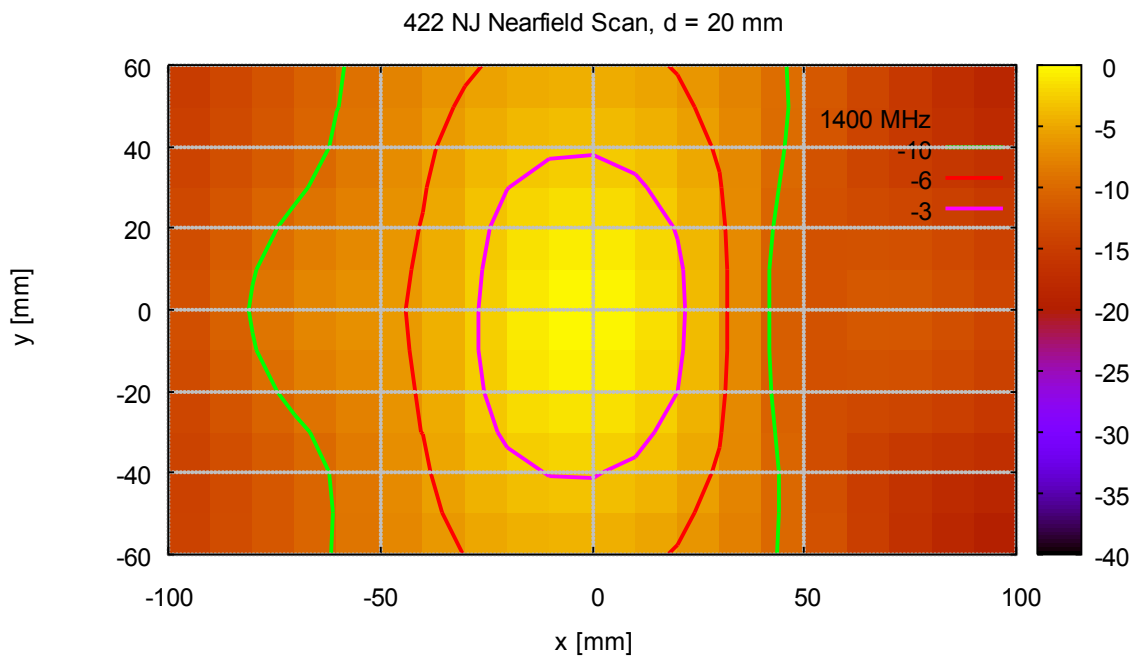
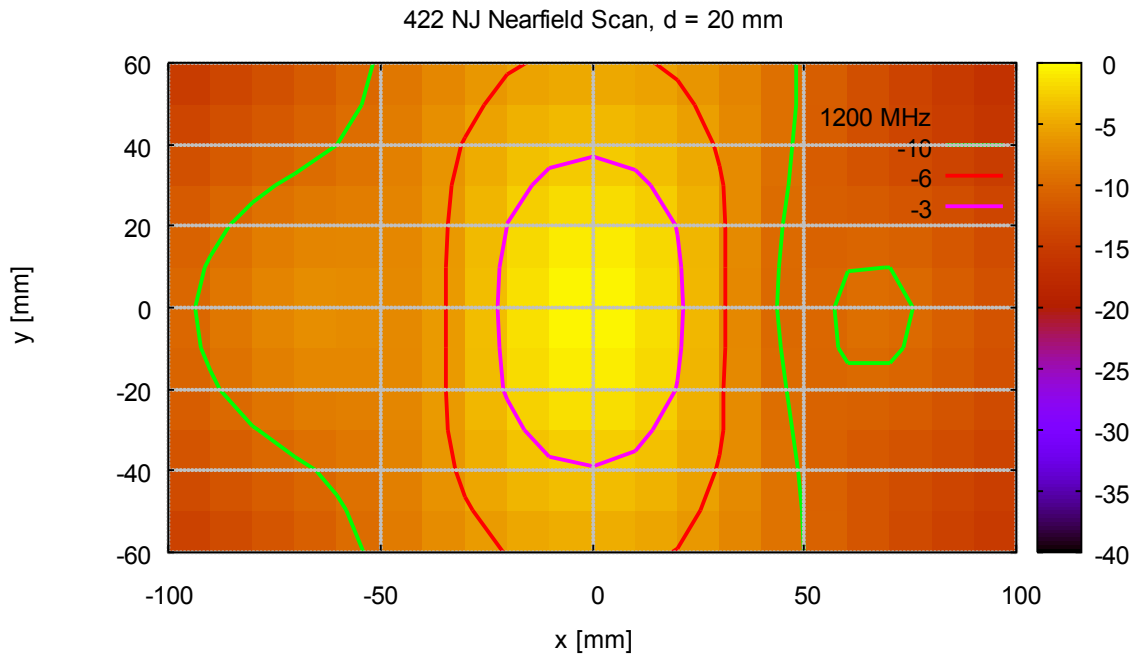
422 NJ Nearfield Scan, d = 10 mm

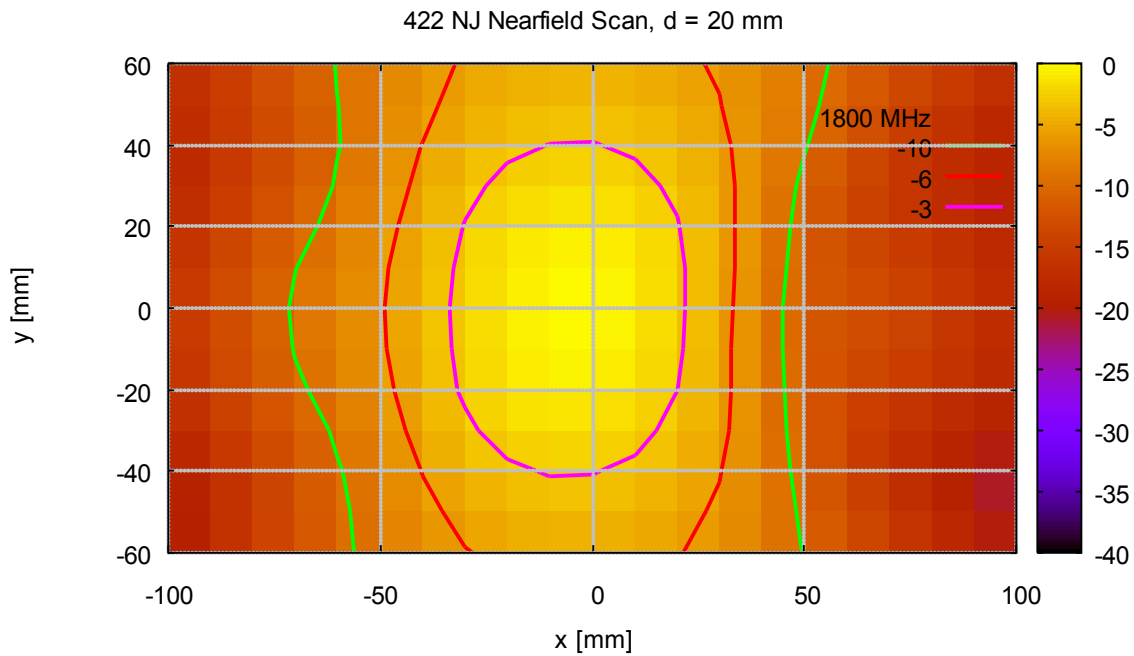
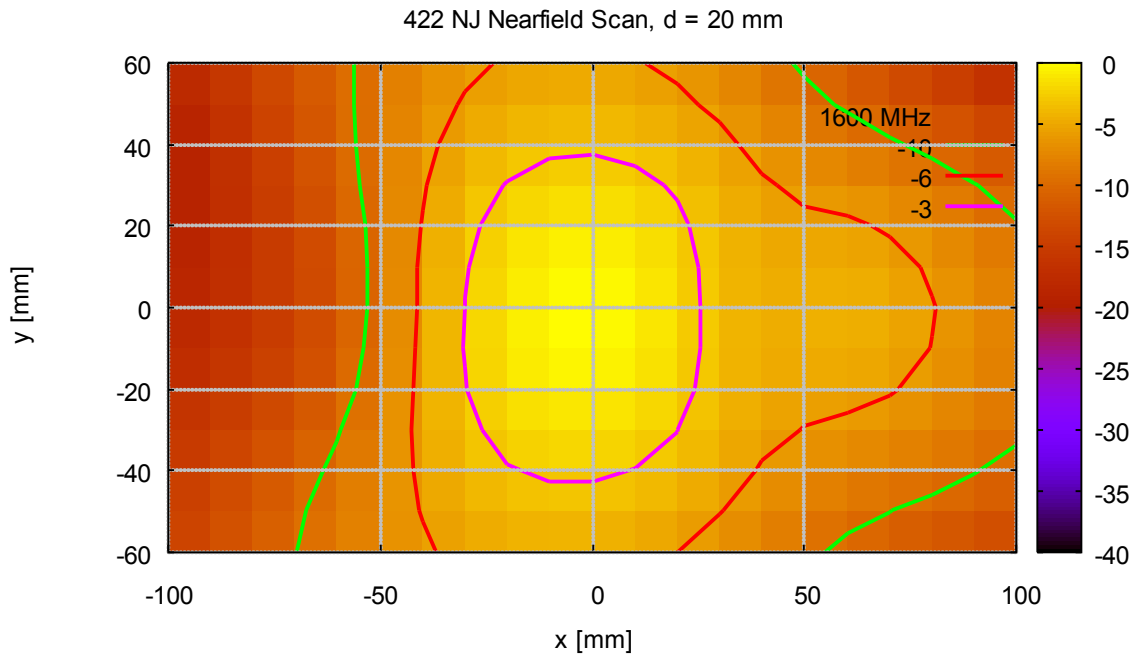


422 NJ Nearfield Scan, d = 10 mm

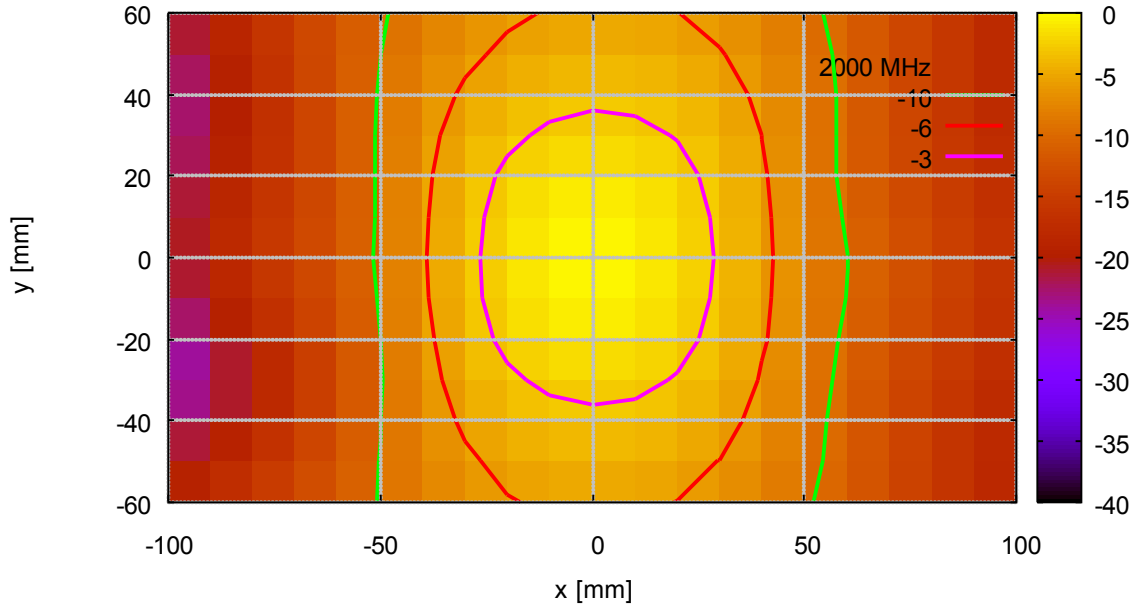




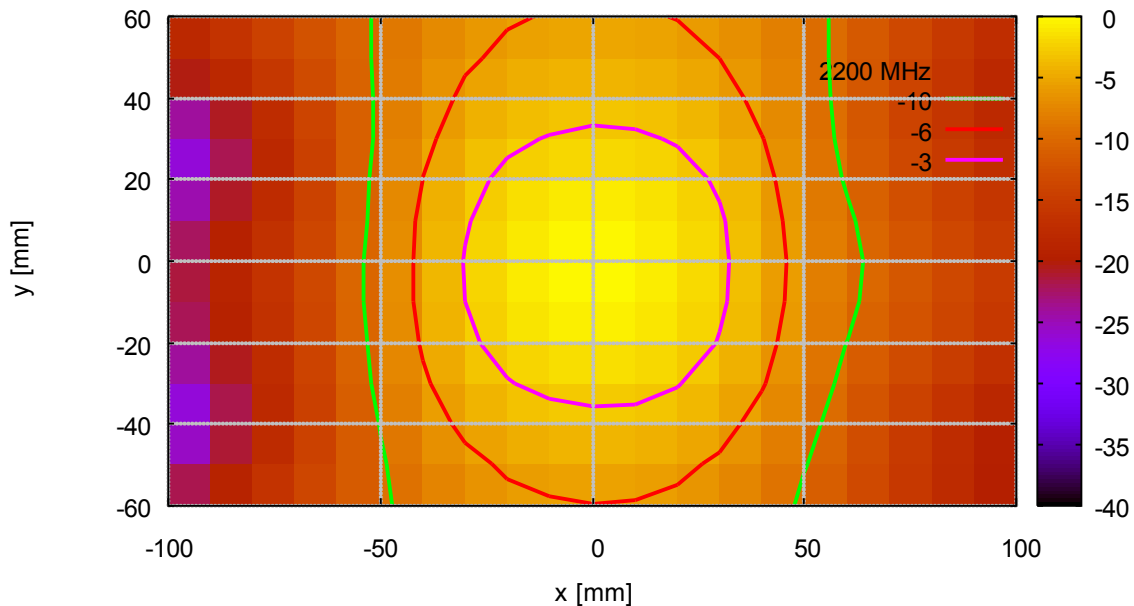


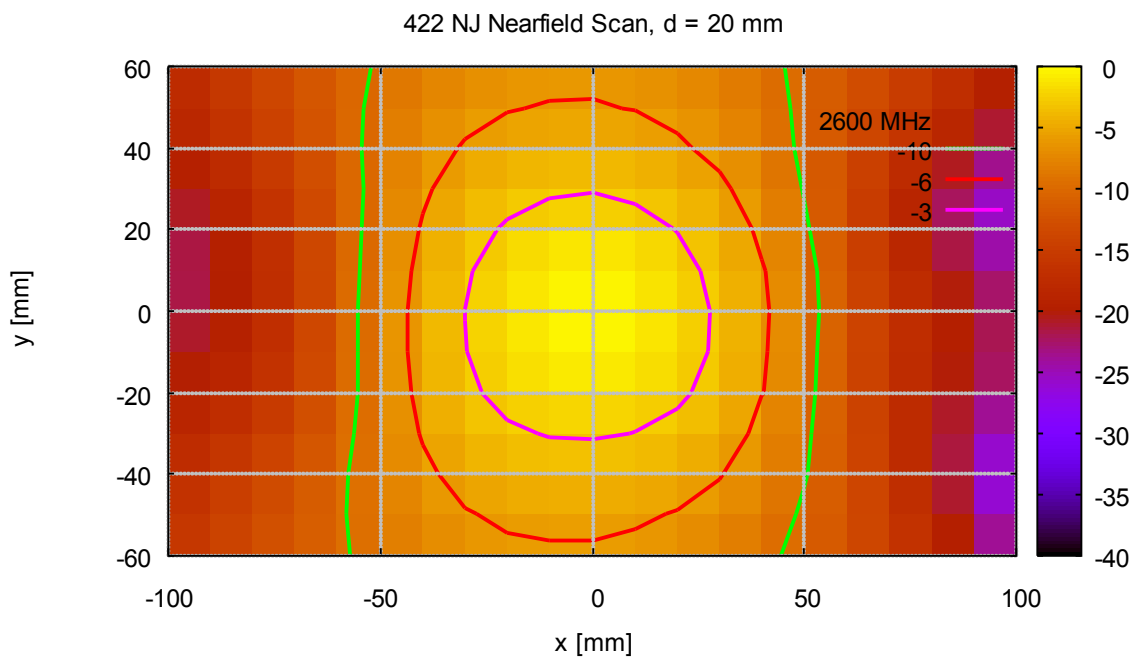
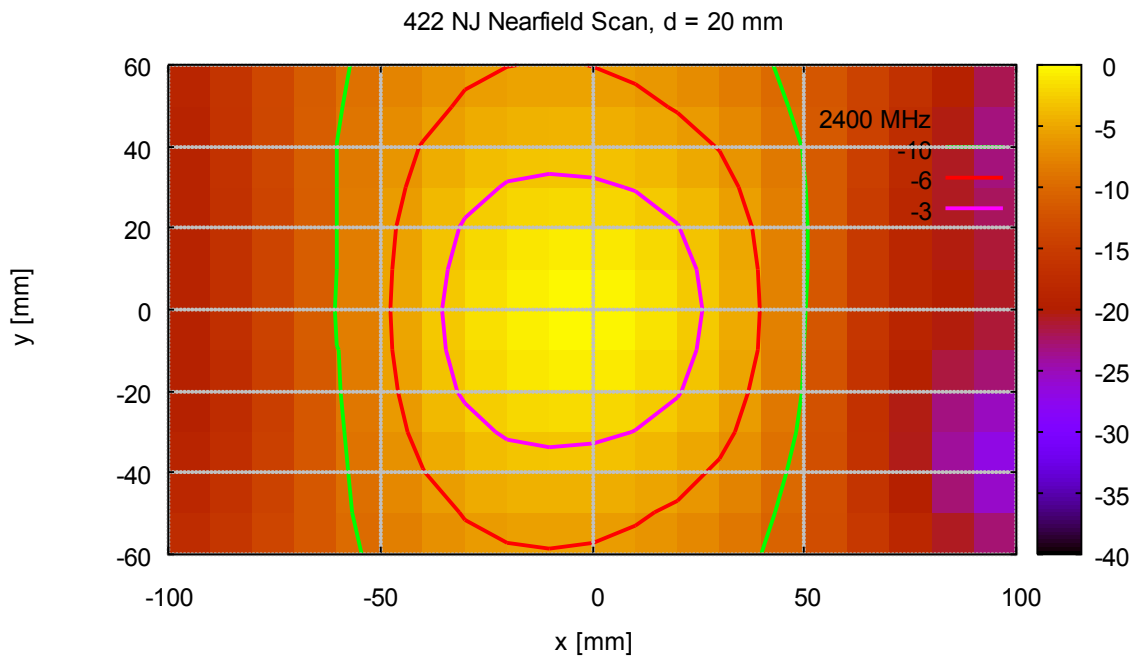


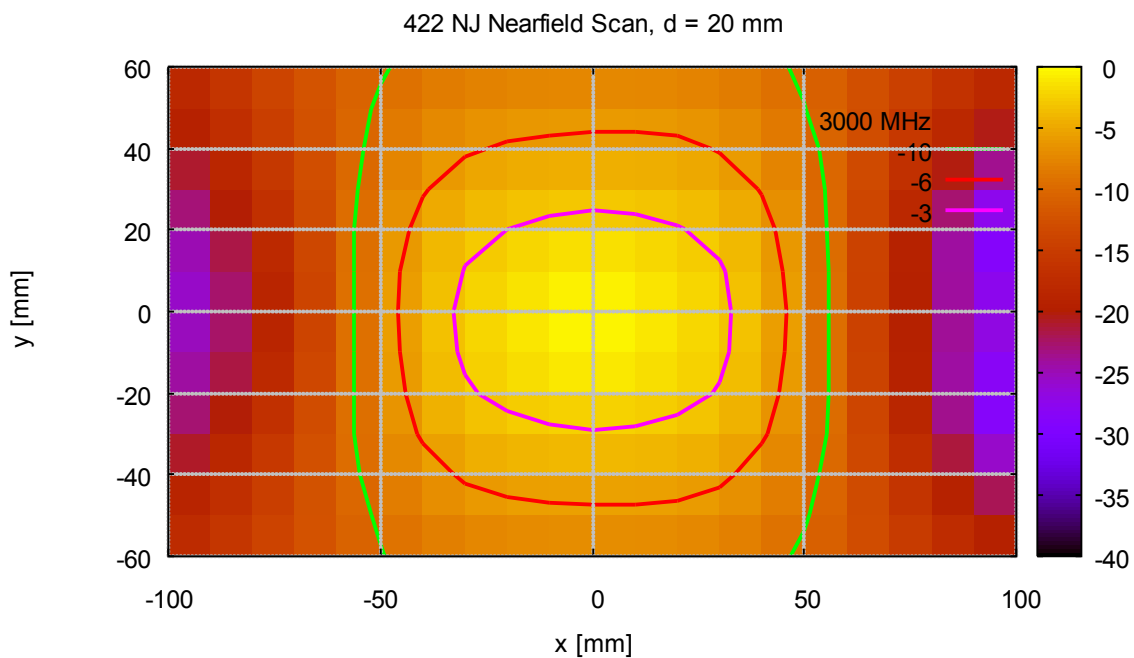
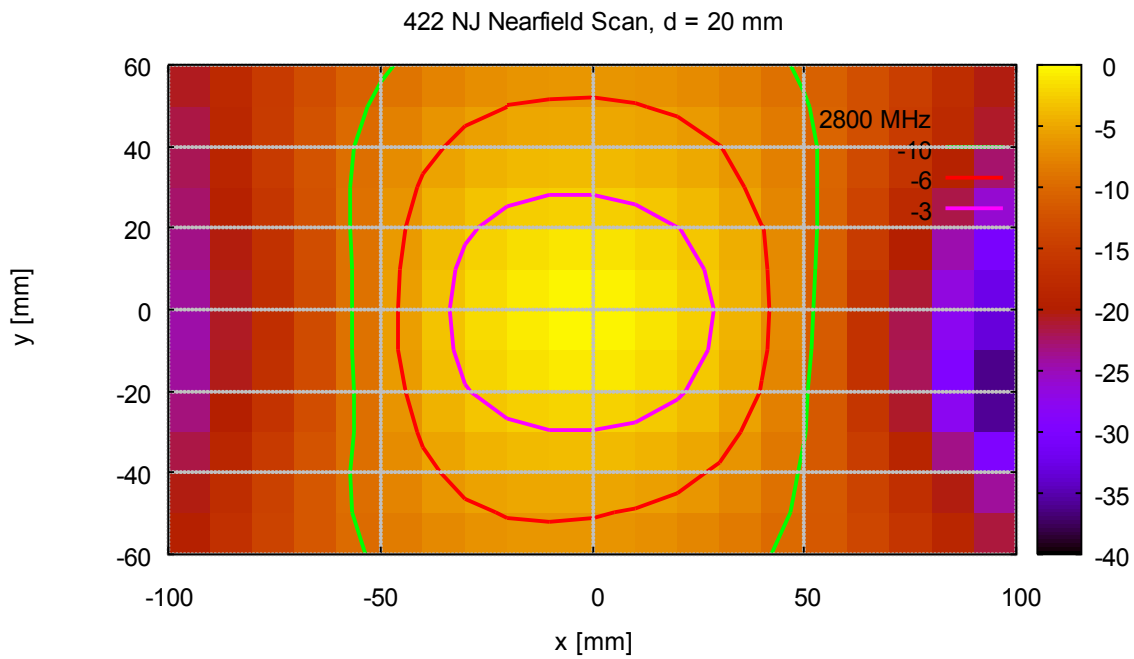
422 NJ Nearfield Scan, d = 20 mm

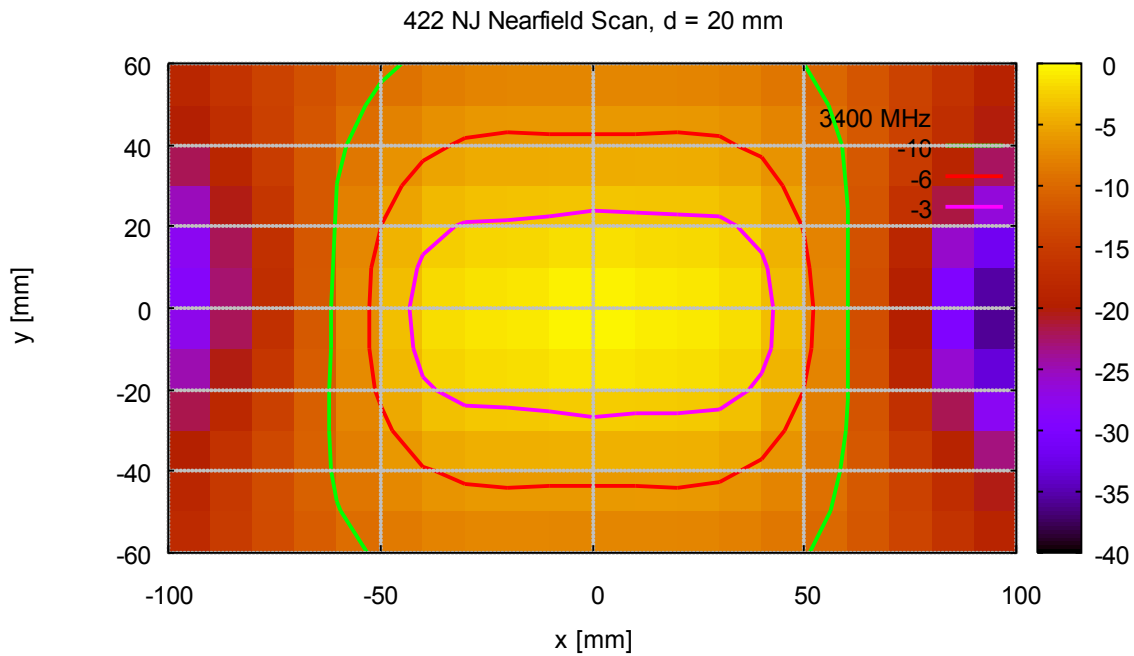
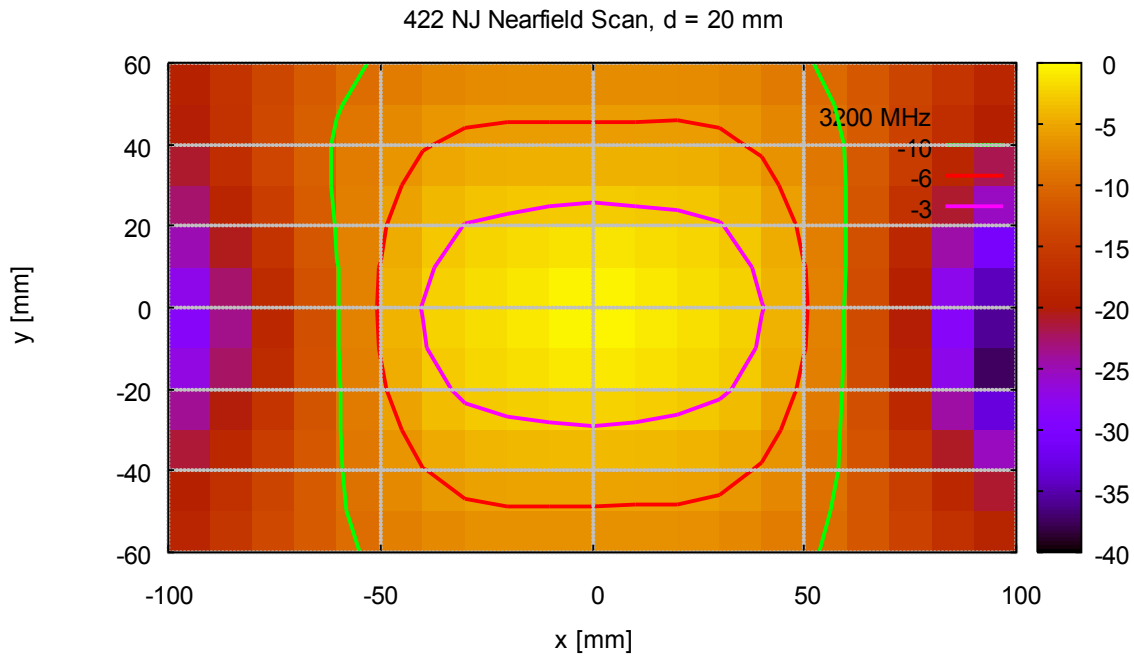


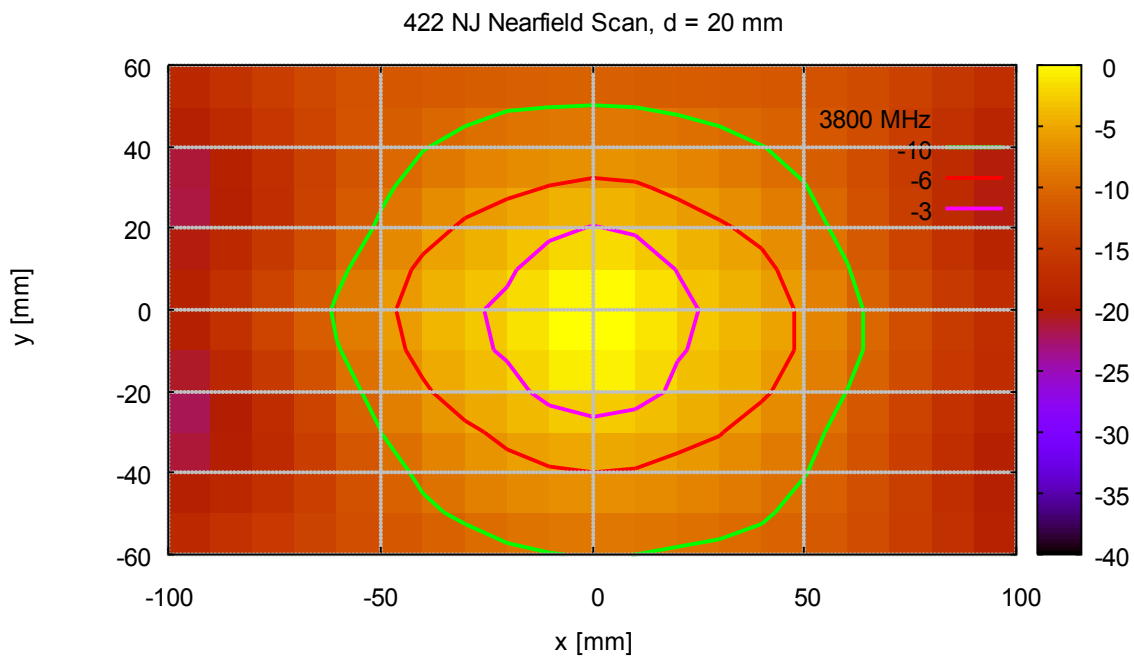
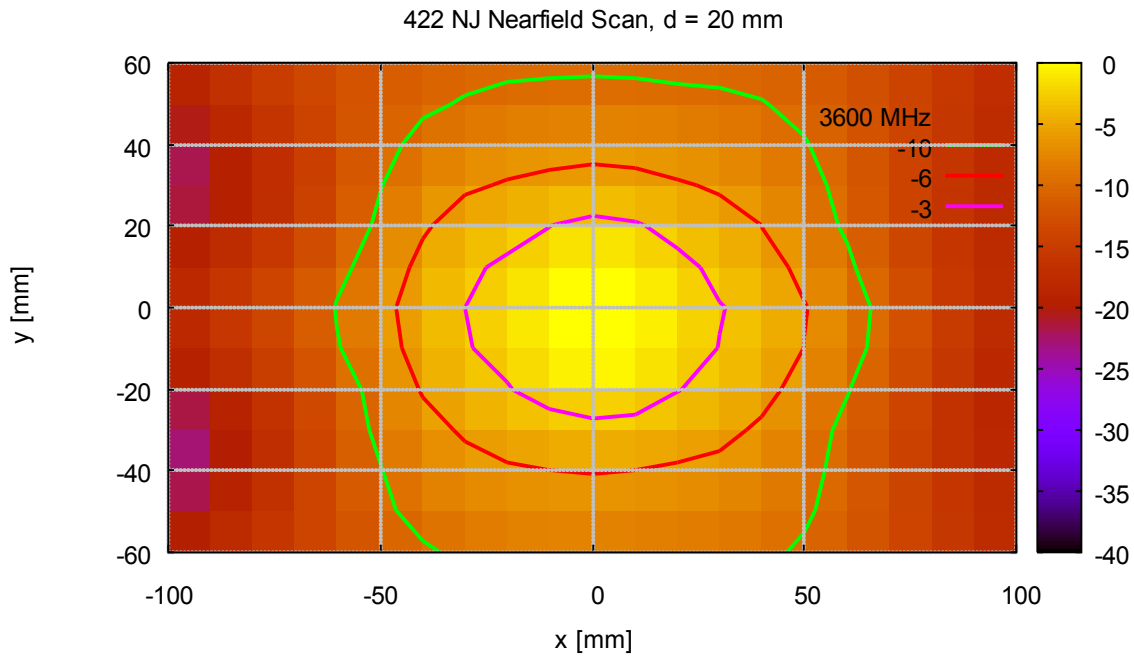
422 NJ Nearfield Scan, d = 20 mm



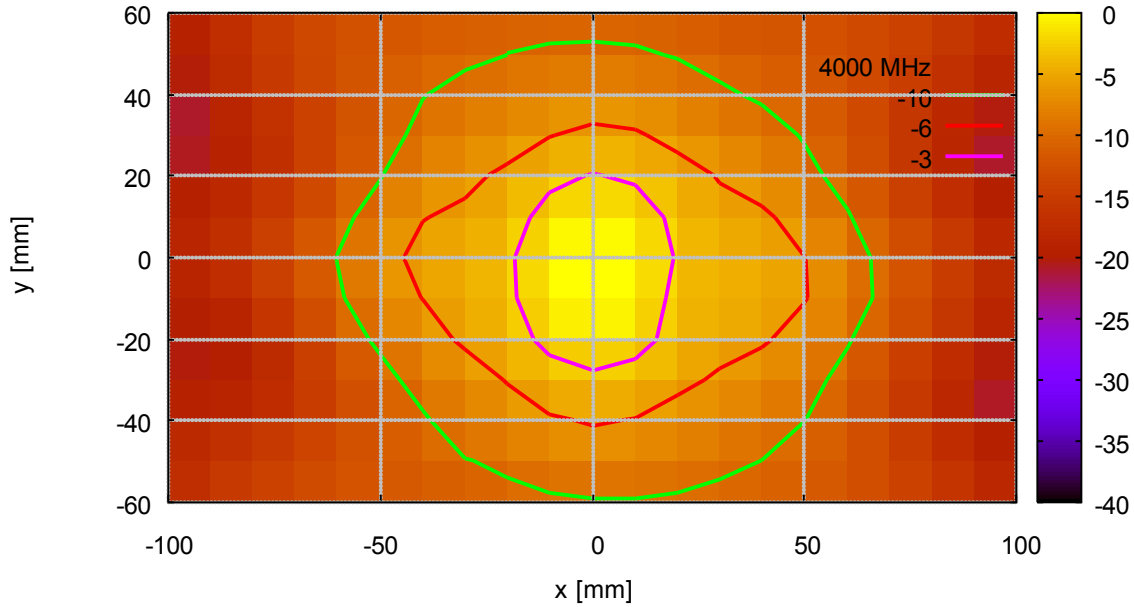




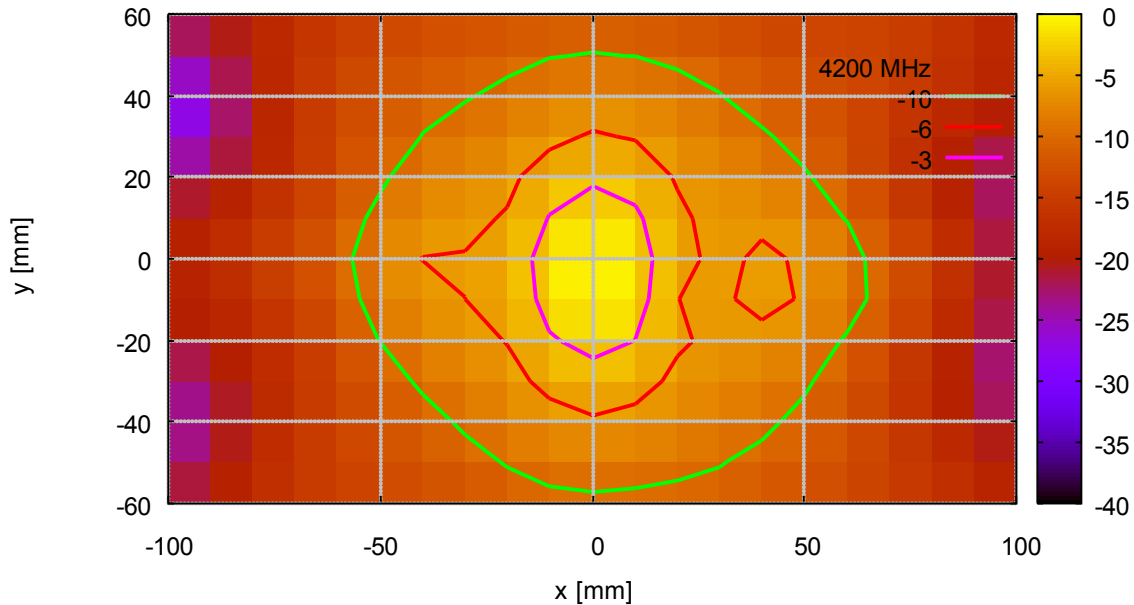




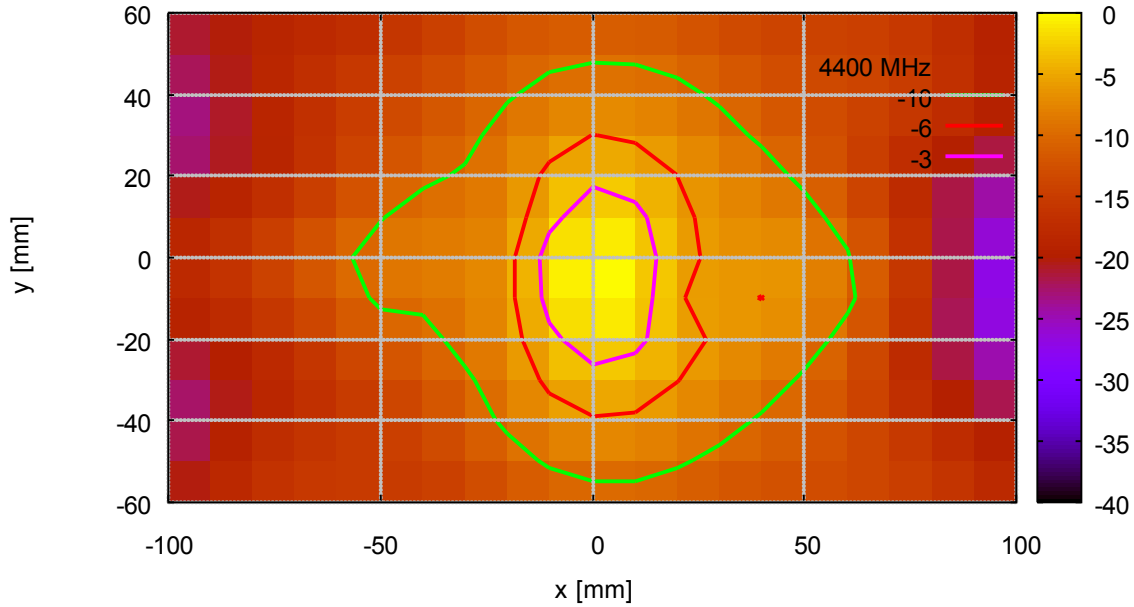
422 NJ Nearfield Scan, d = 20 mm



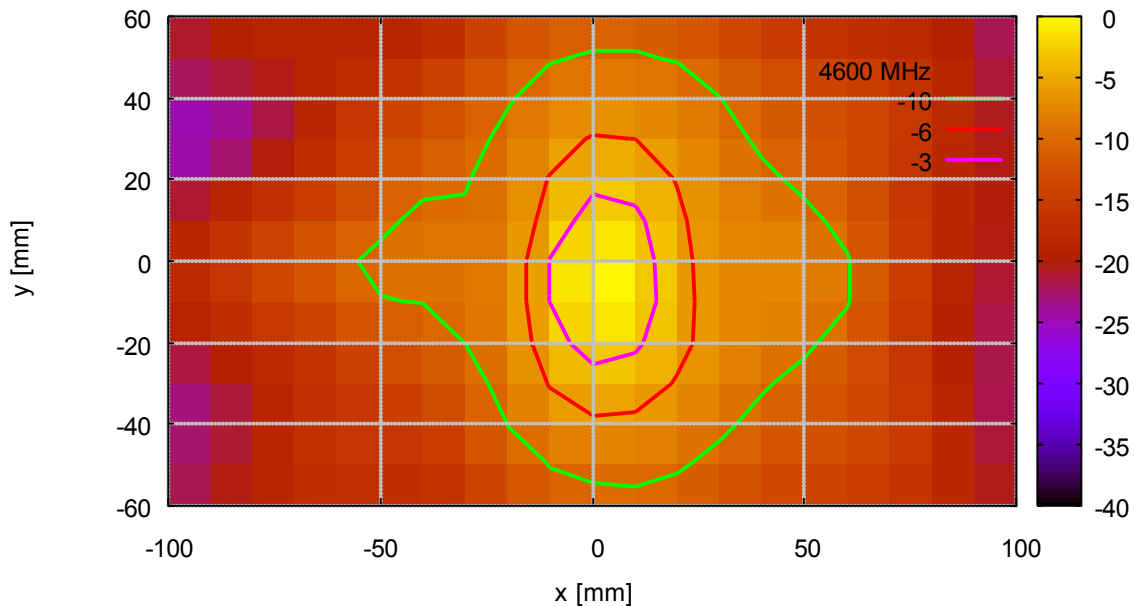
422 NJ Nearfield Scan, d = 20 mm



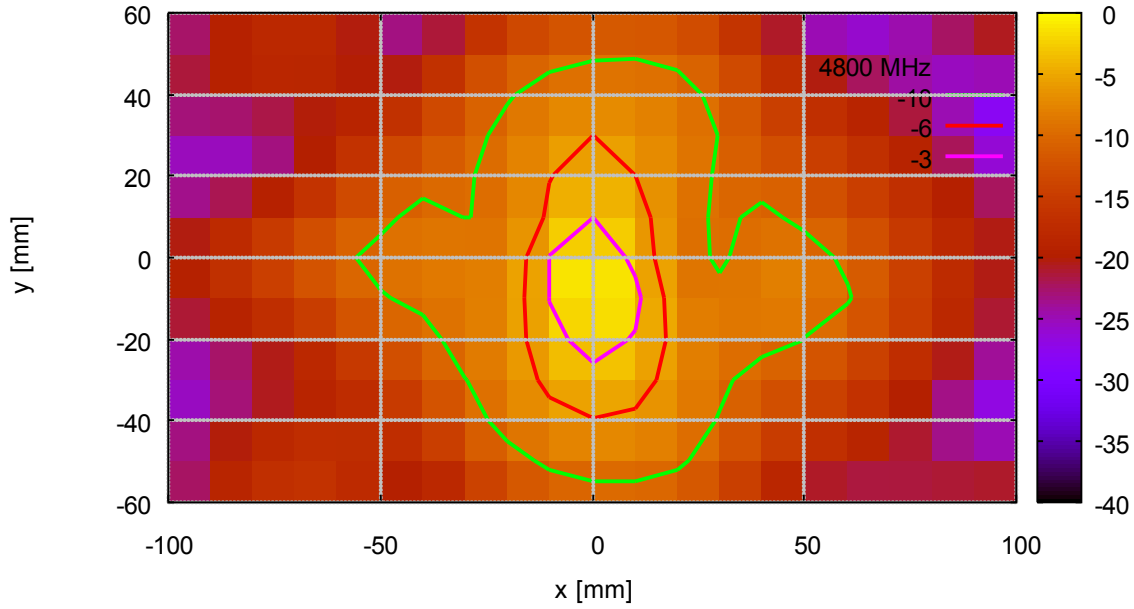
422 NJ Nearfield Scan, d = 20 mm



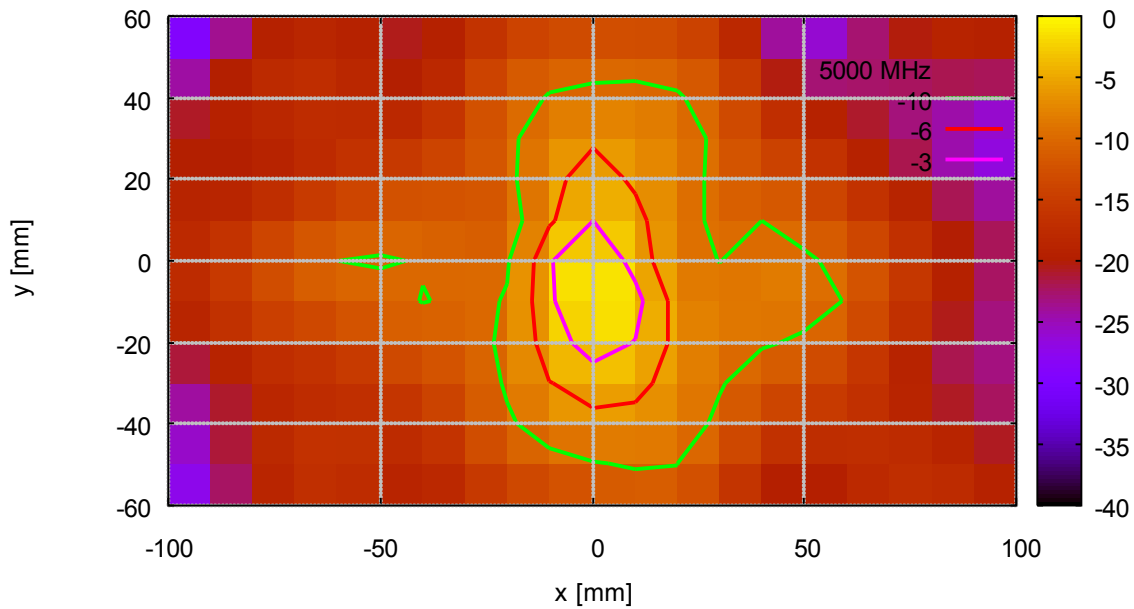
422 NJ Nearfield Scan, d = 20 mm



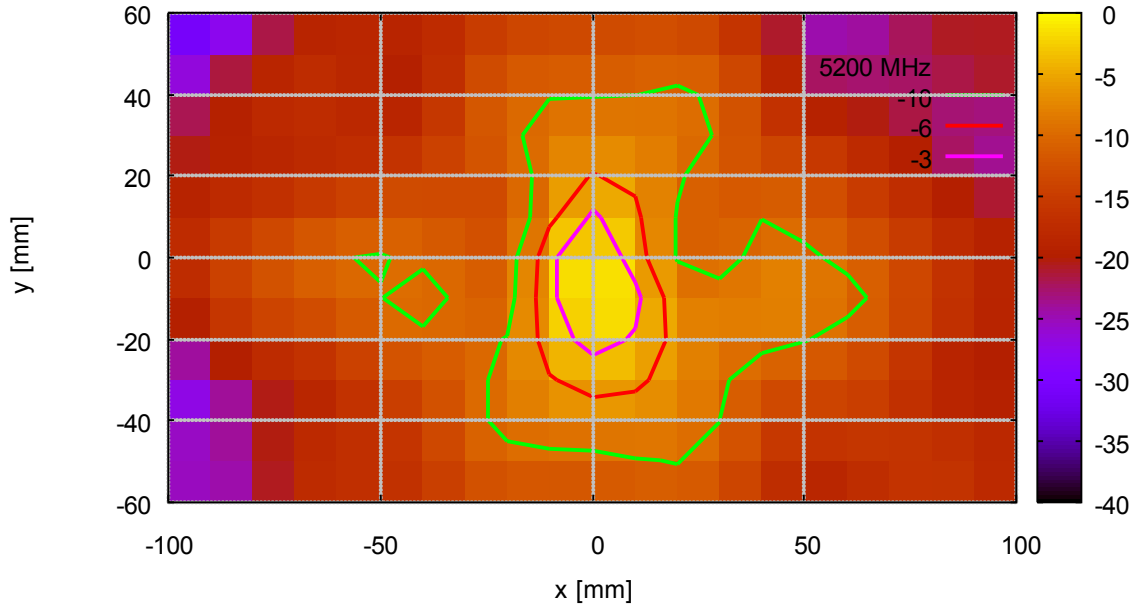
422 NJ Nearfield Scan, d = 20 mm



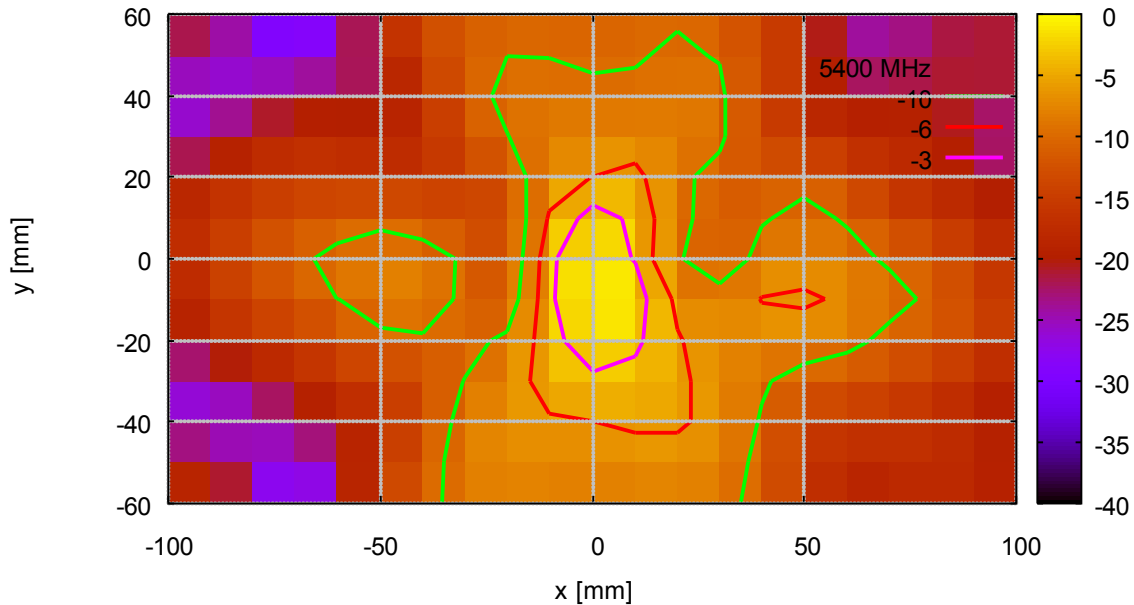
422 NJ Nearfield Scan, d = 20 mm



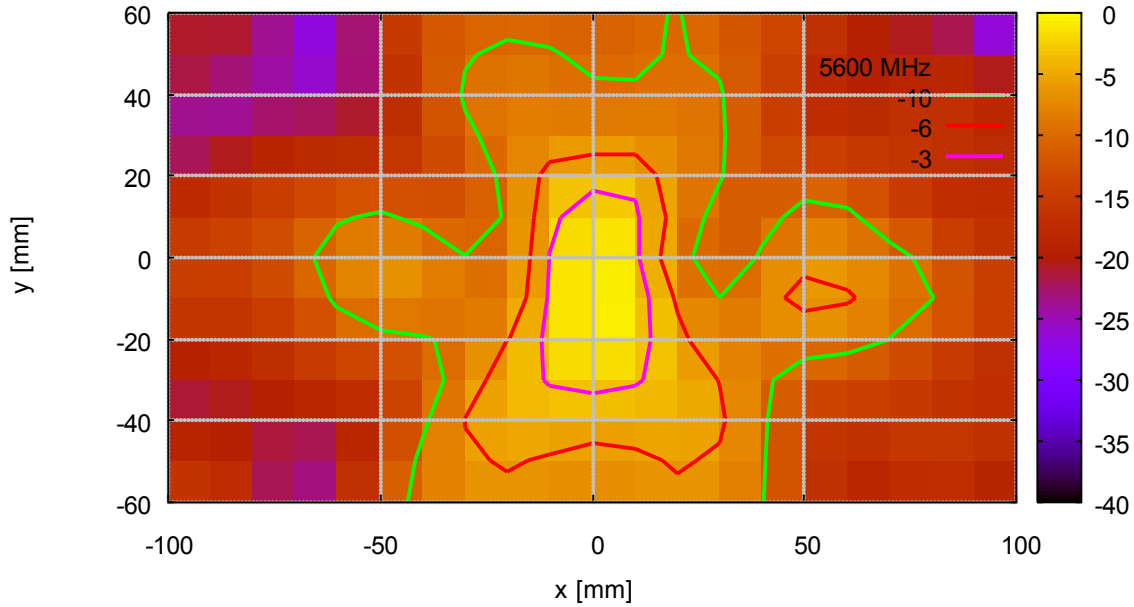
422 NJ Nearfield Scan, d = 20 mm



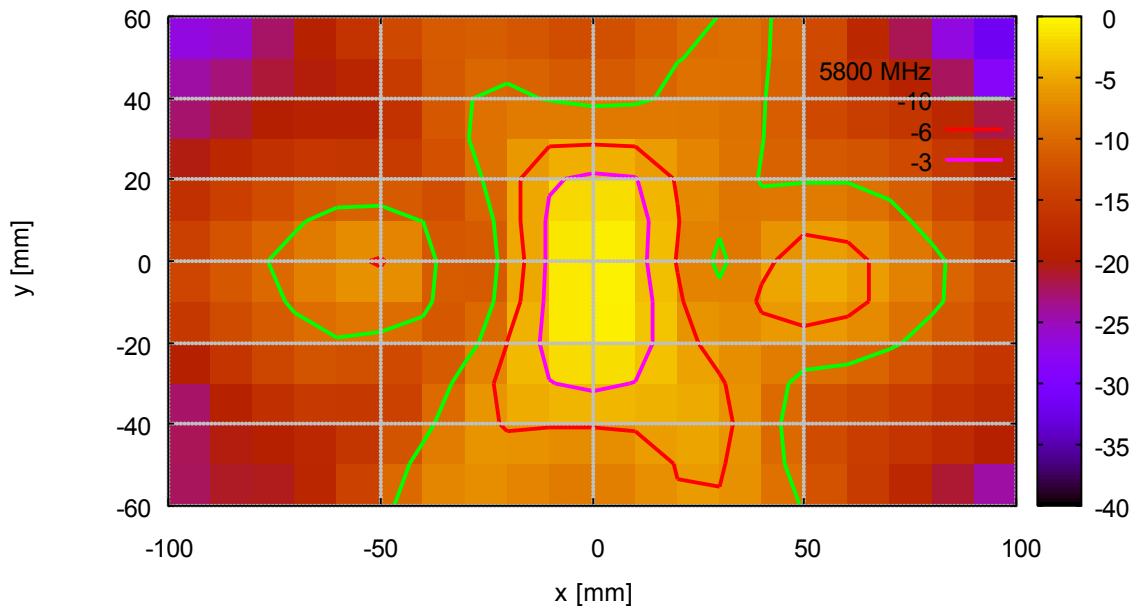
422 NJ Nearfield Scan, d = 20 mm



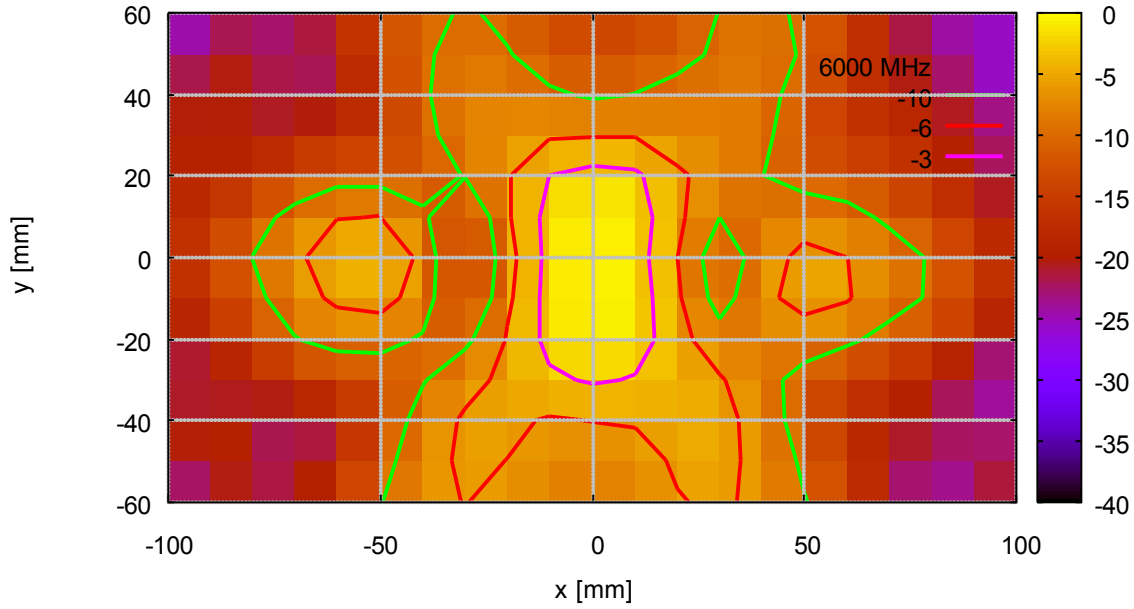
422 NJ Nearfield Scan, d = 20 mm

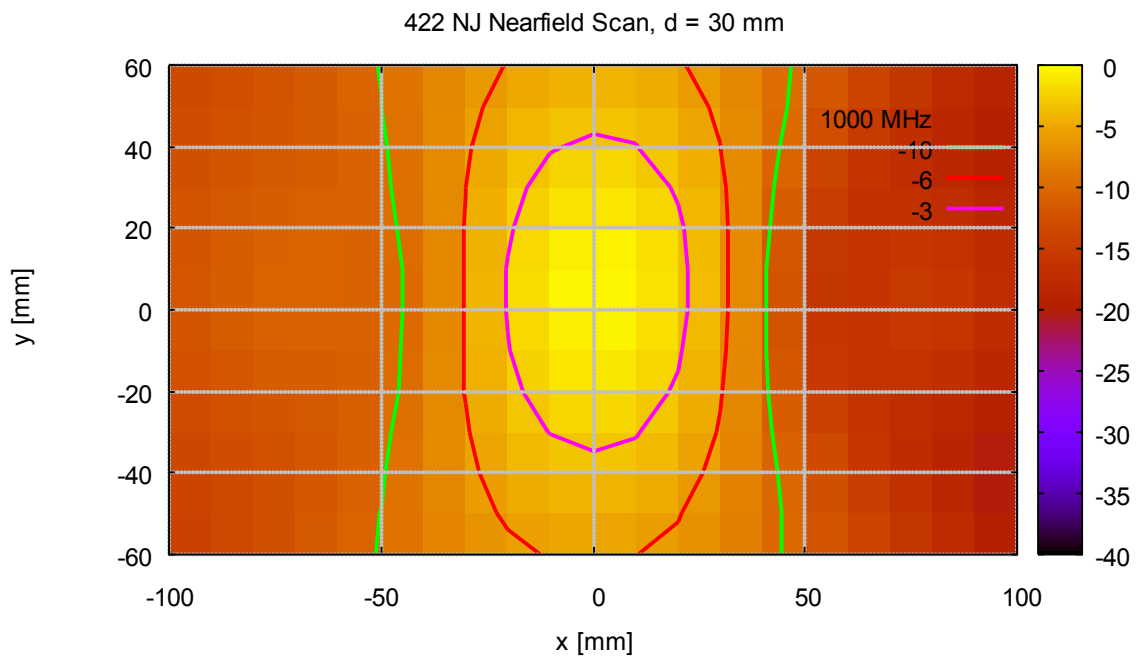
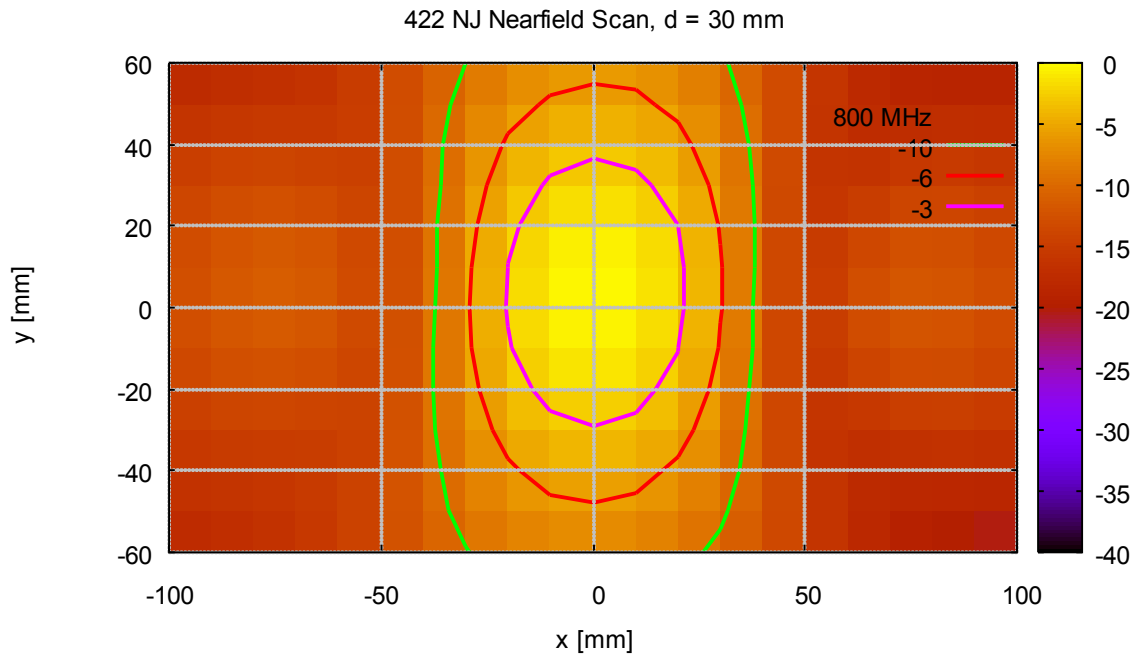


422 NJ Nearfield Scan, d = 20 mm

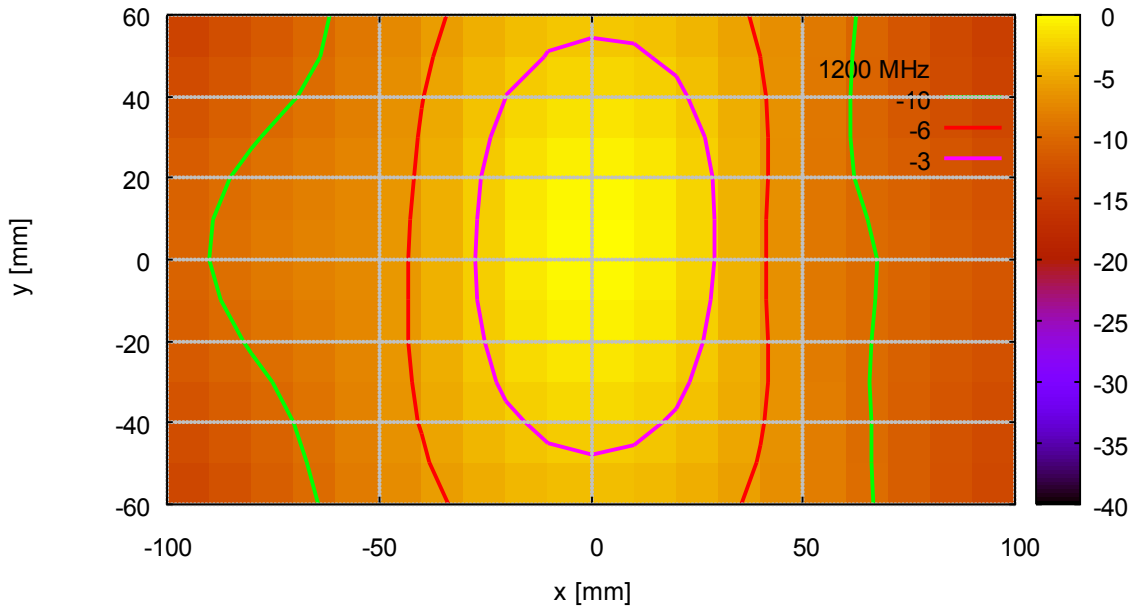


422 NJ Nearfield Scan, d = 20 mm

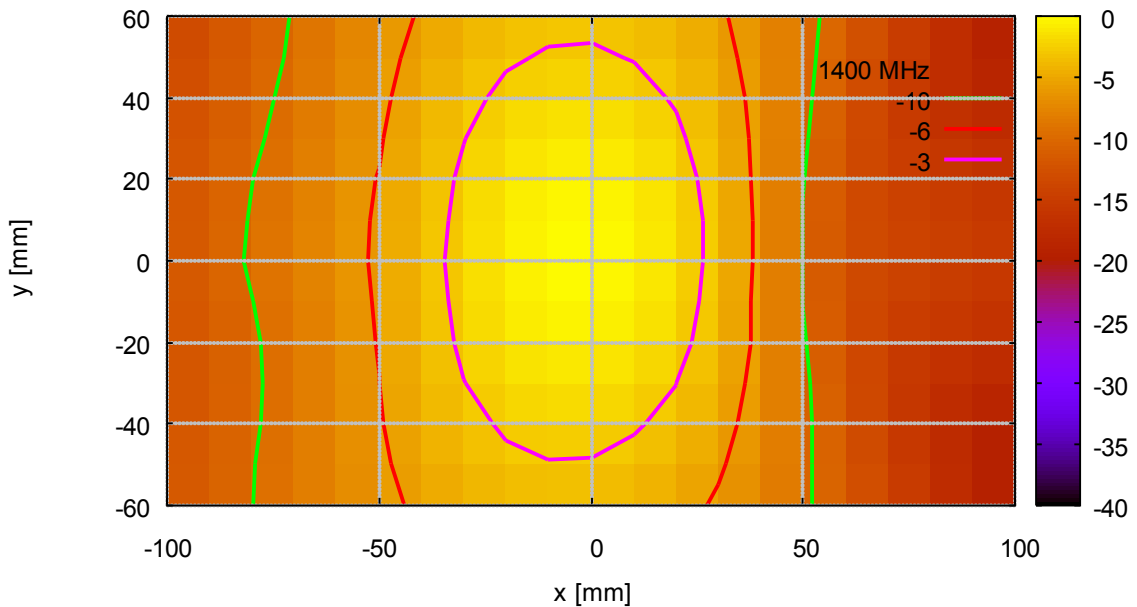




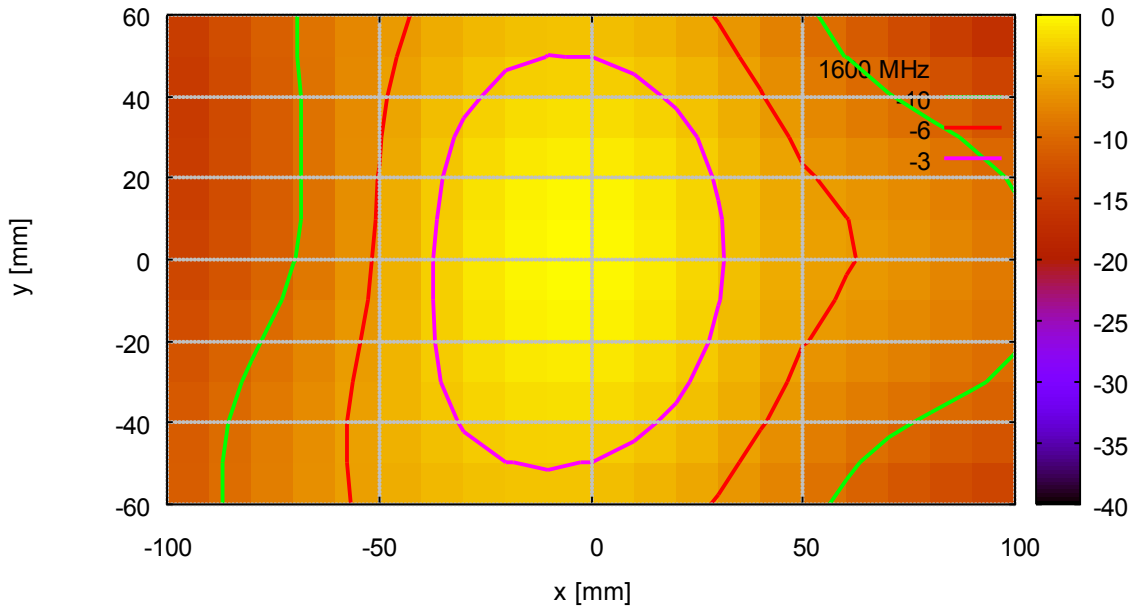
422 NJ Nearfield Scan, d = 30 mm



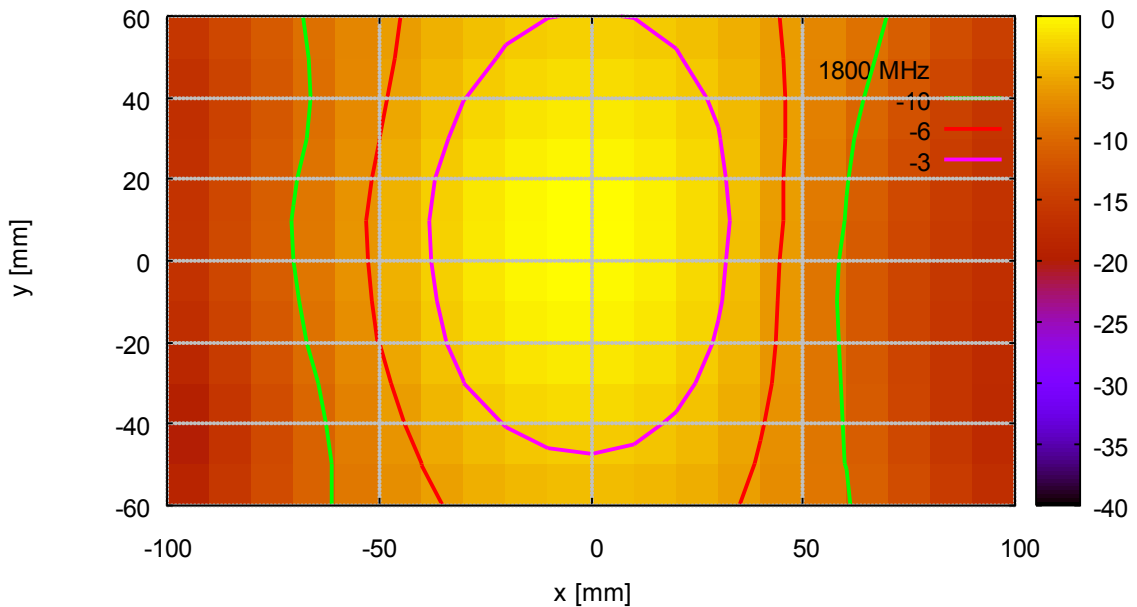
422 NJ Nearfield Scan, d = 30 mm

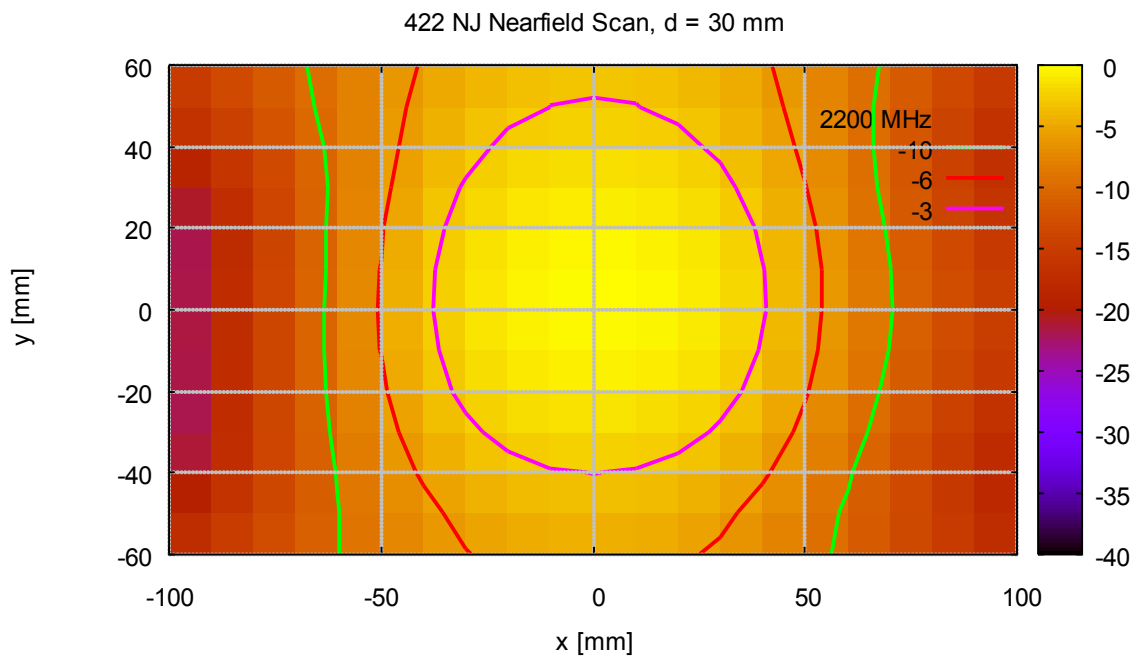
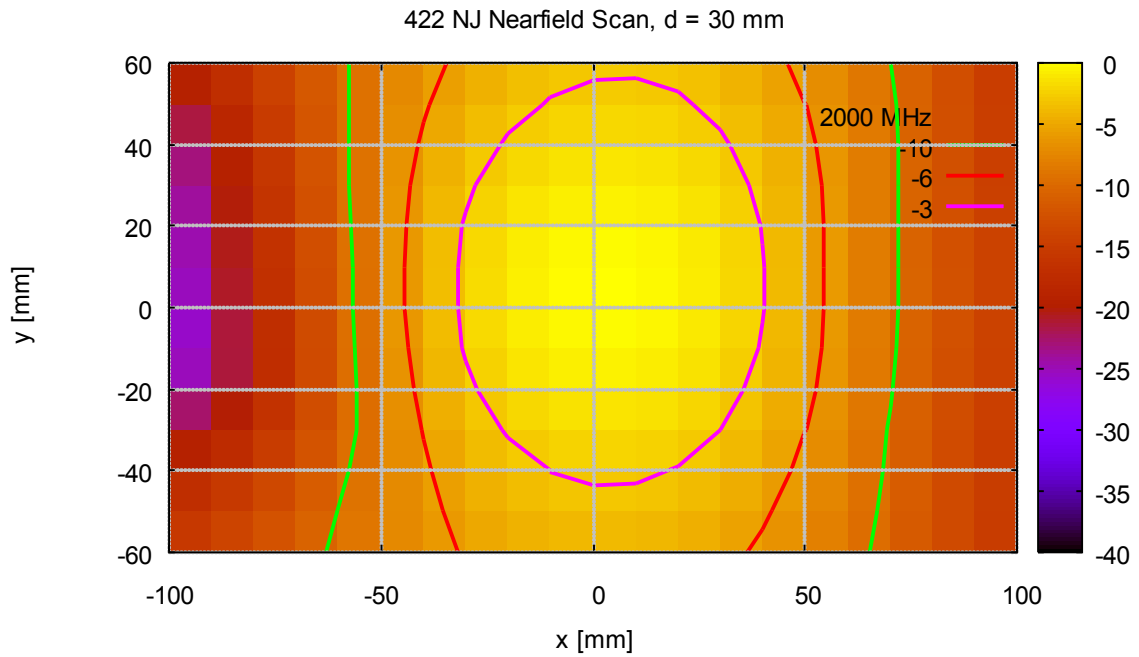


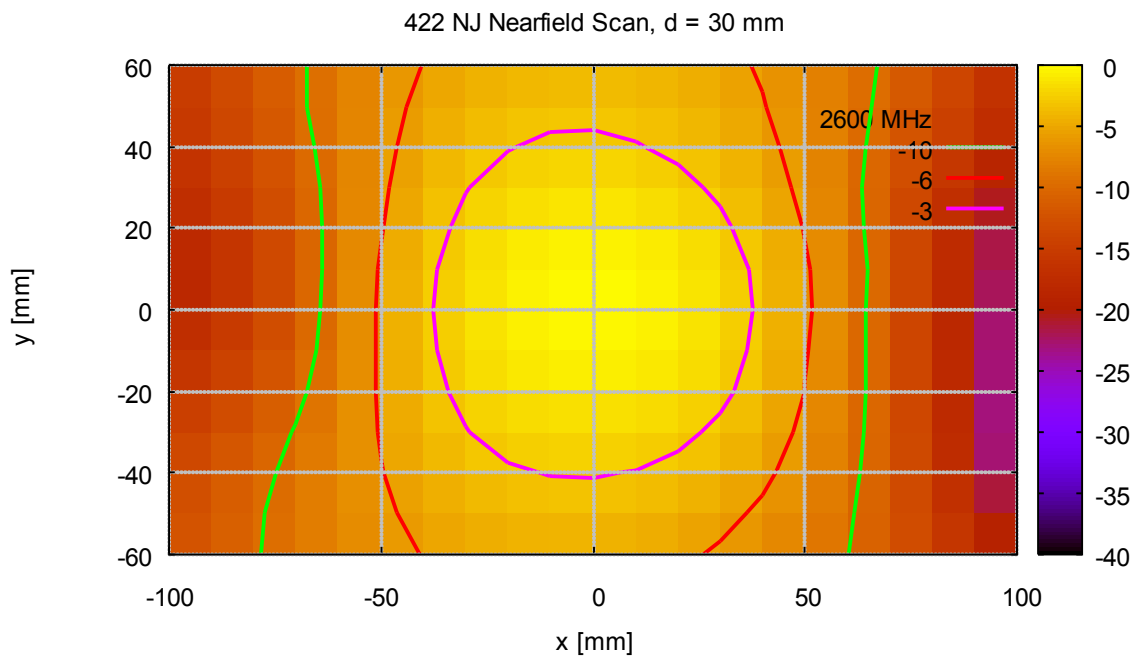
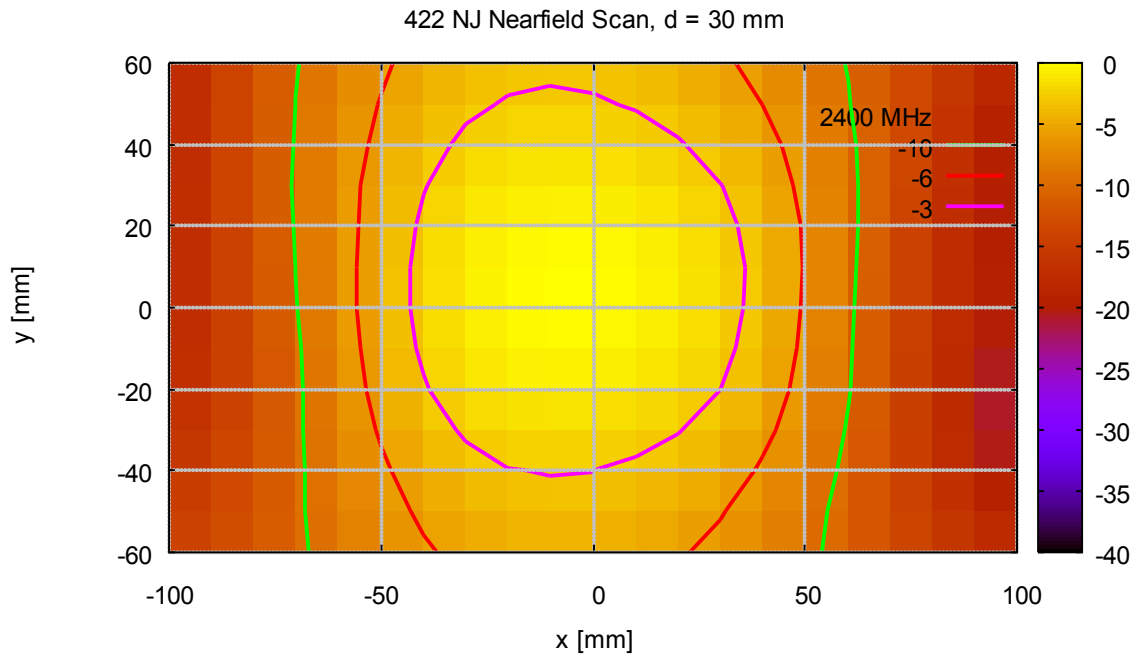
422 NJ Nearfield Scan, d = 30 mm



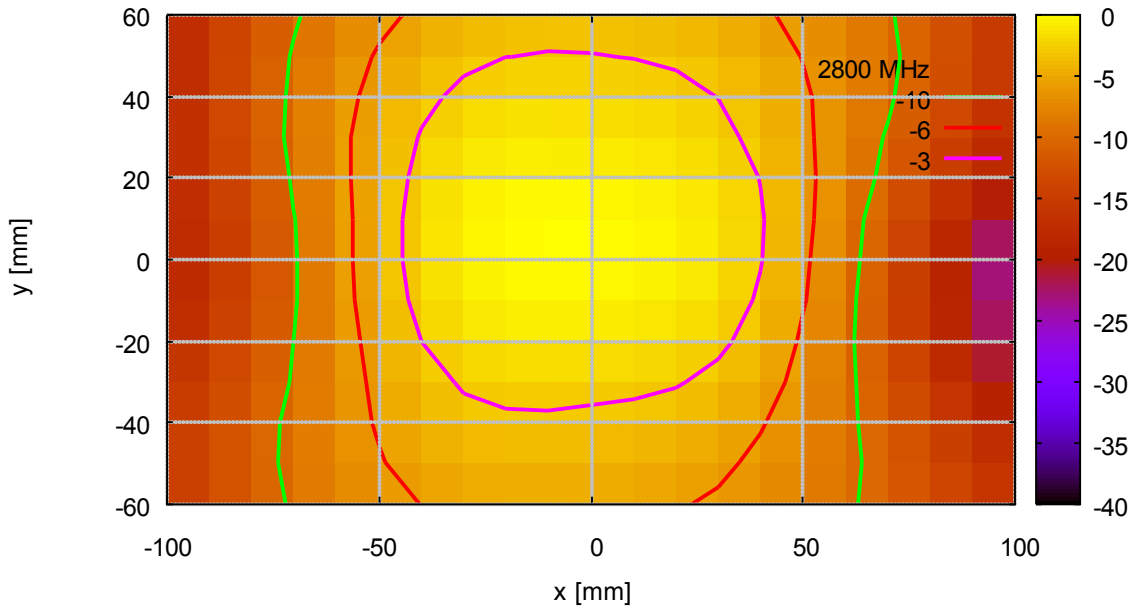
422 NJ Nearfield Scan, d = 30 mm



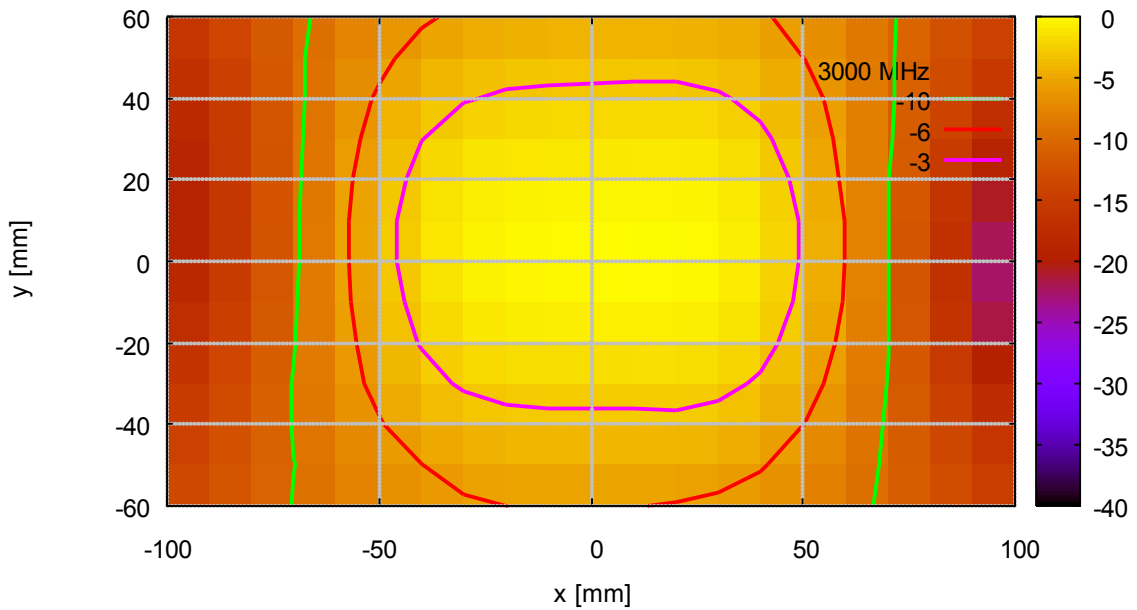


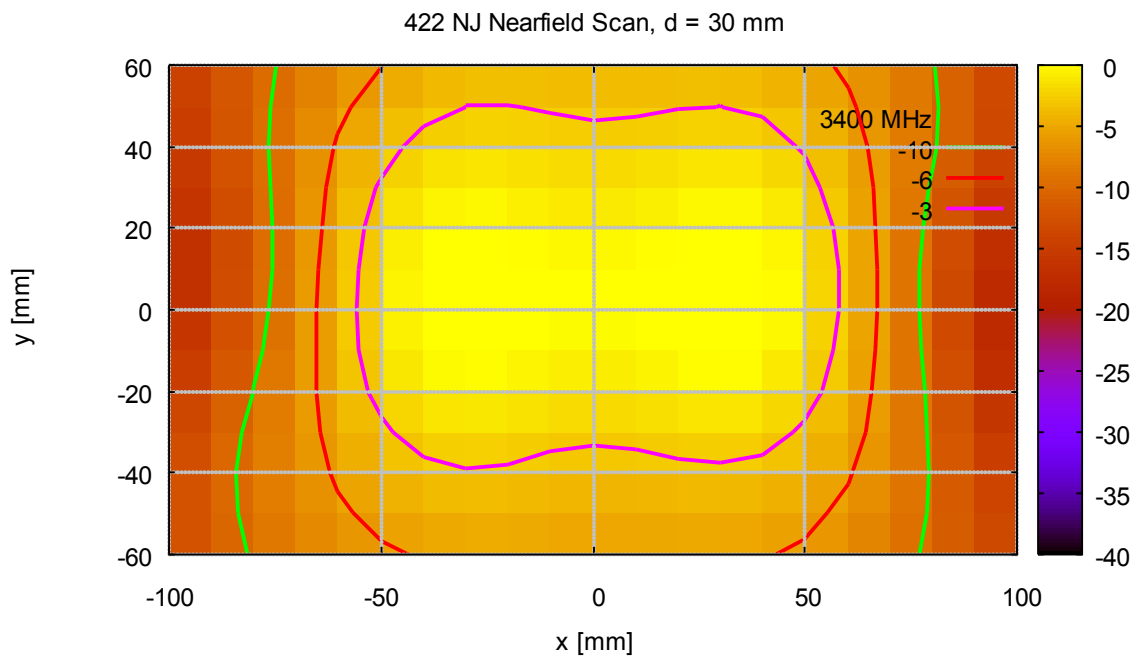
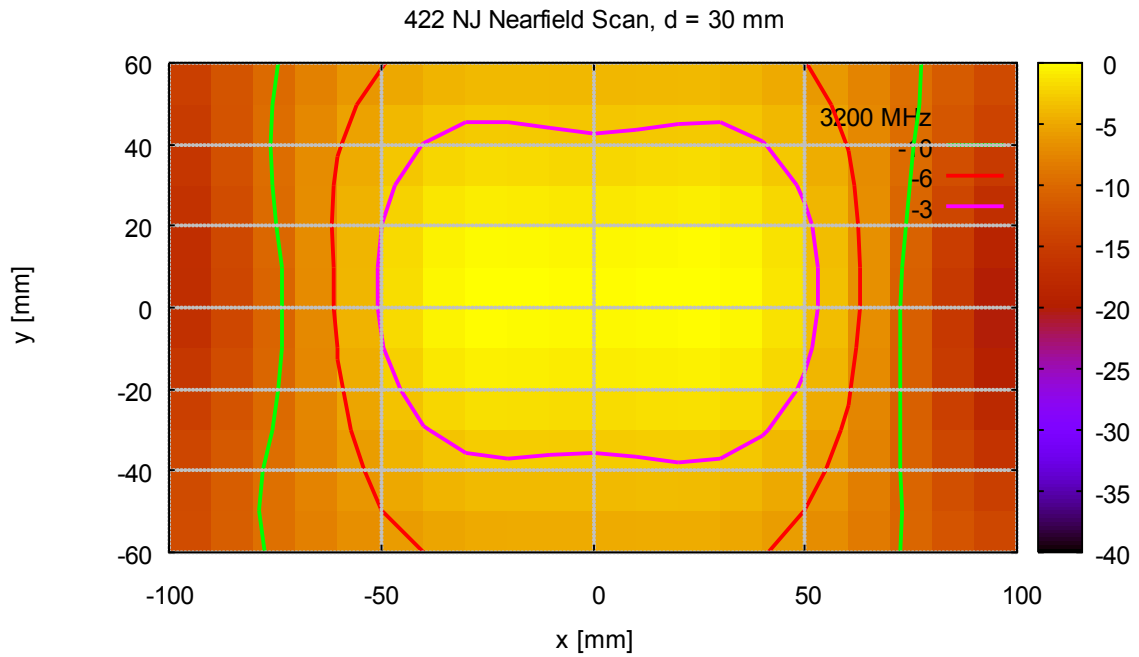


422 NJ Nearfield Scan, d = 30 mm

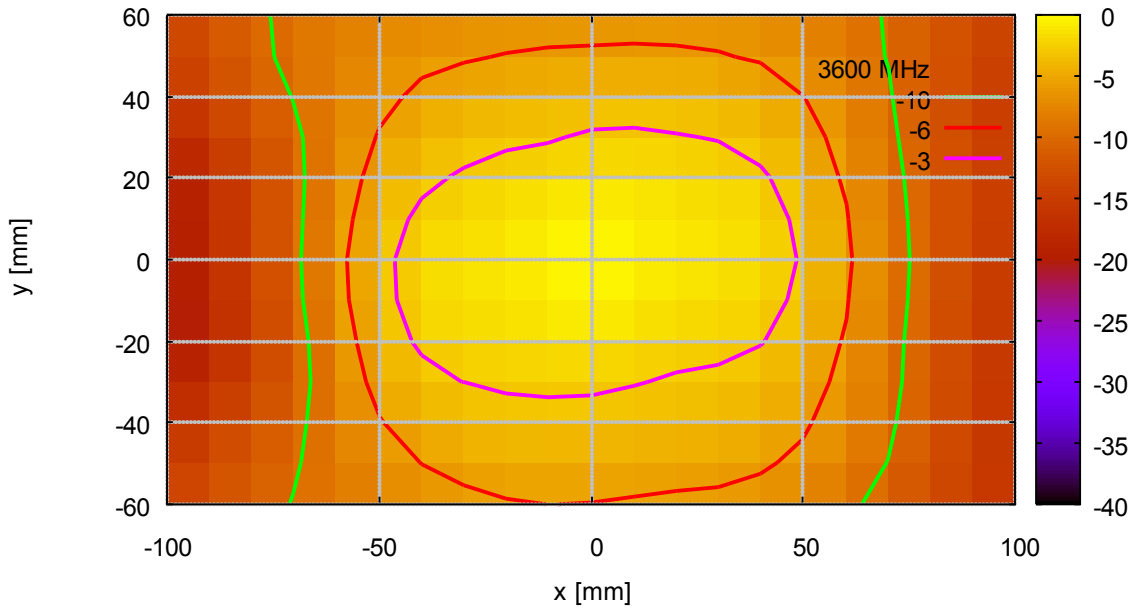


422 NJ Nearfield Scan, d = 30 mm

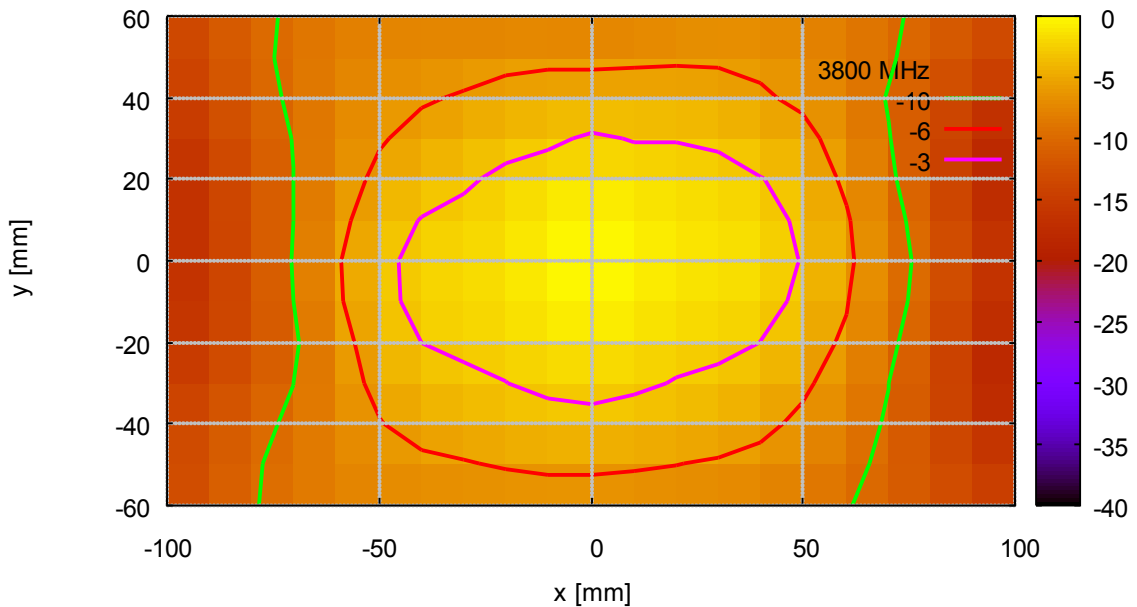


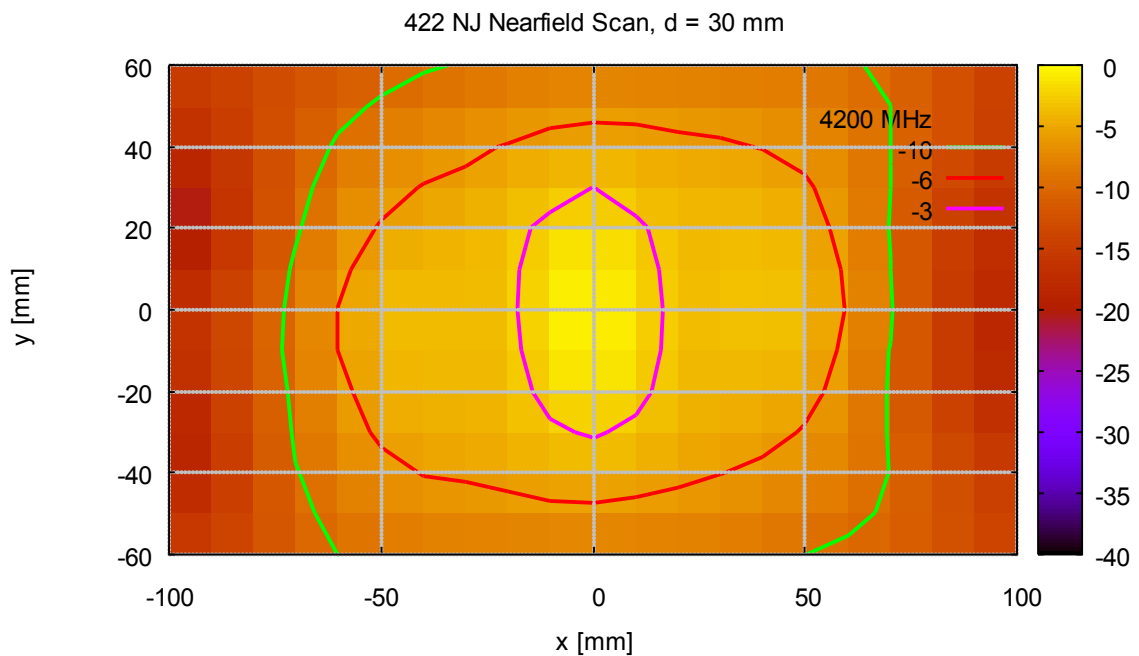
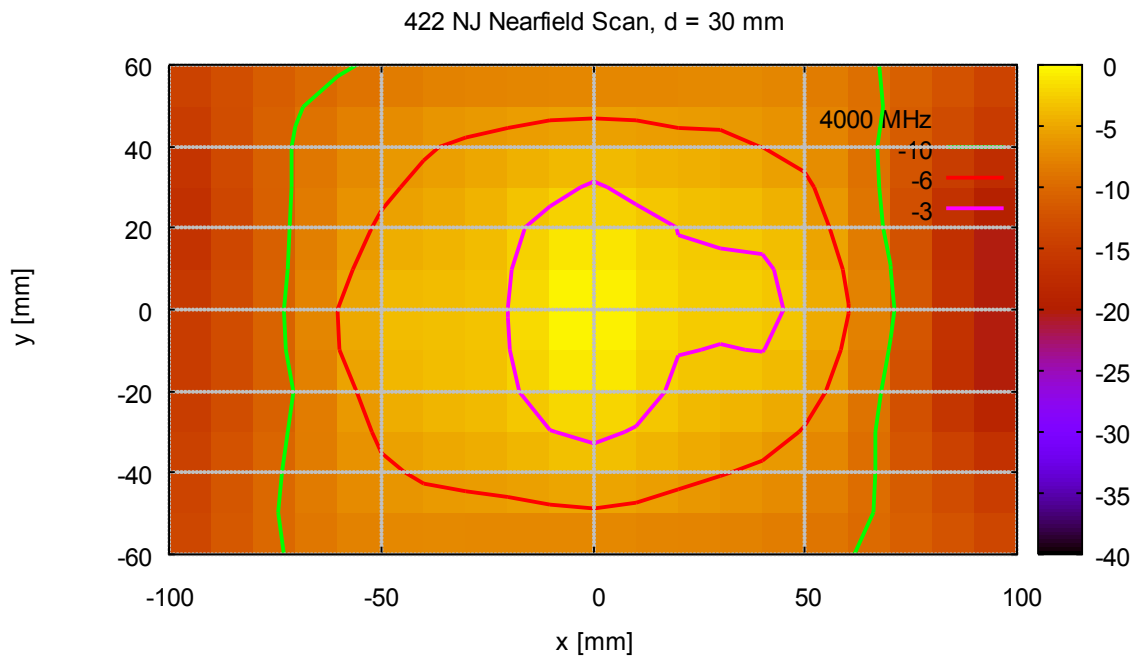


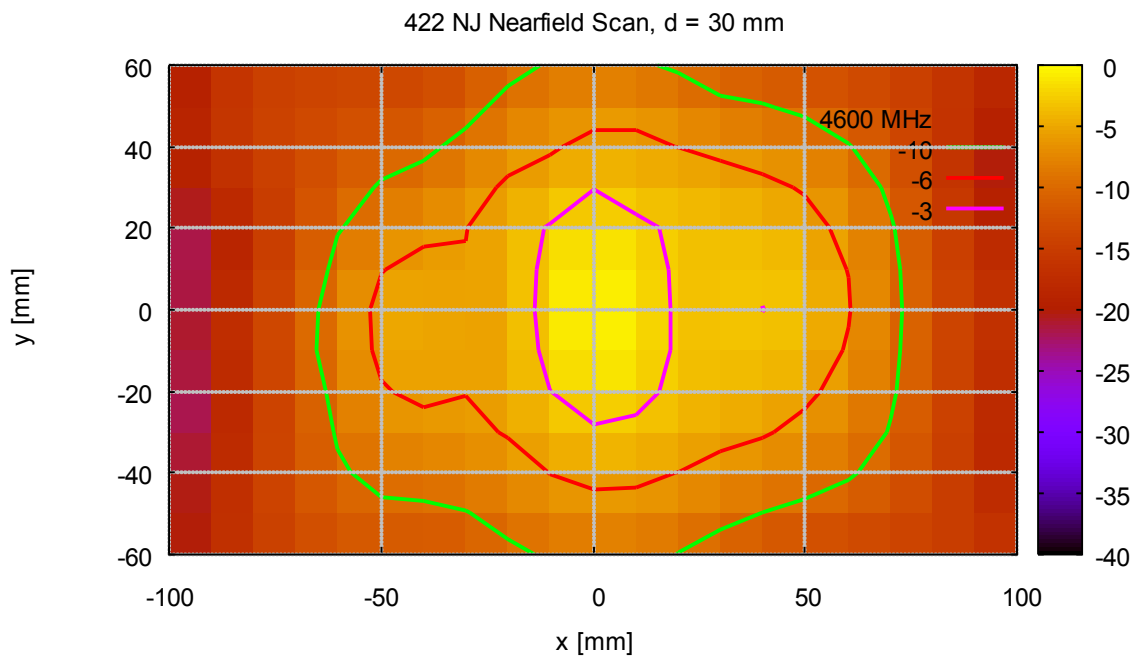
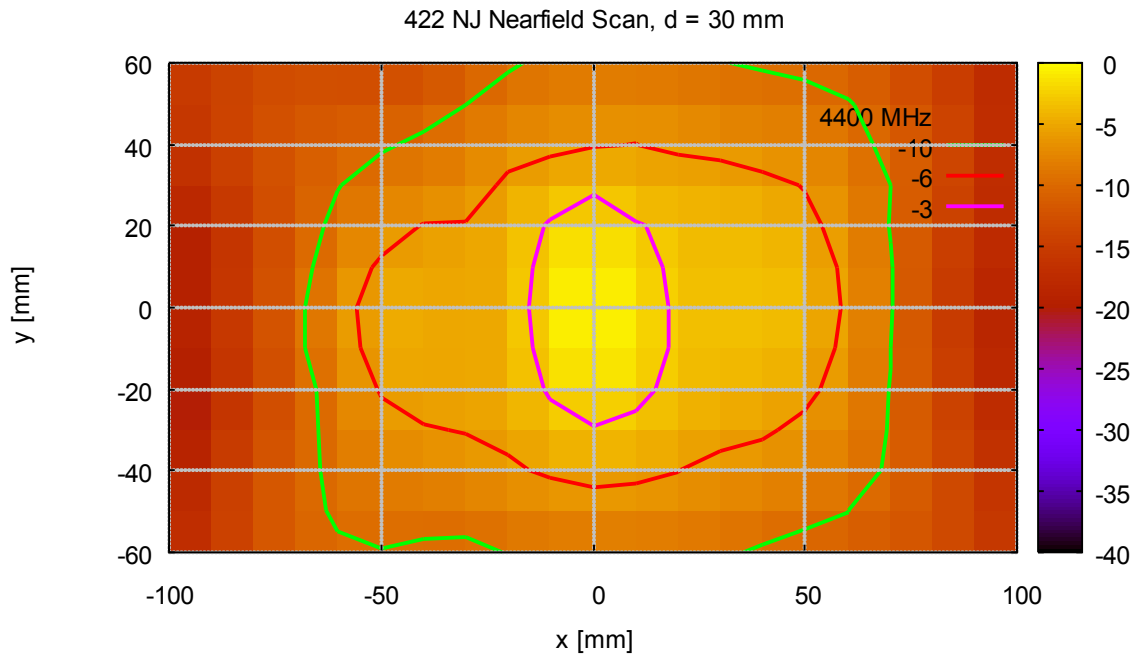
422 NJ Nearfield Scan, d = 30 mm



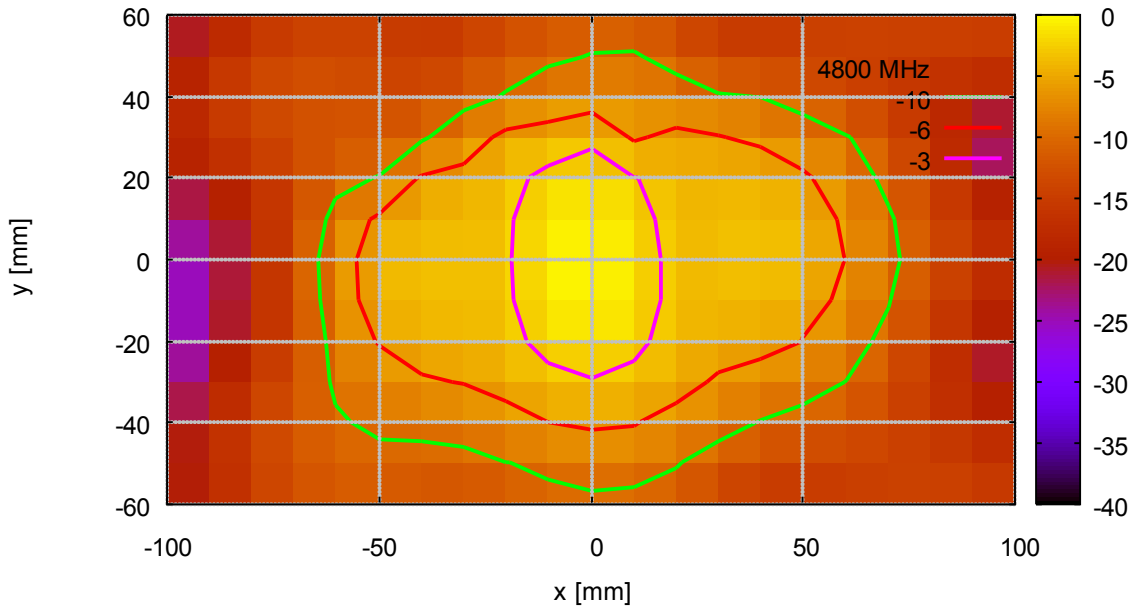
422 NJ Nearfield Scan, d = 30 mm



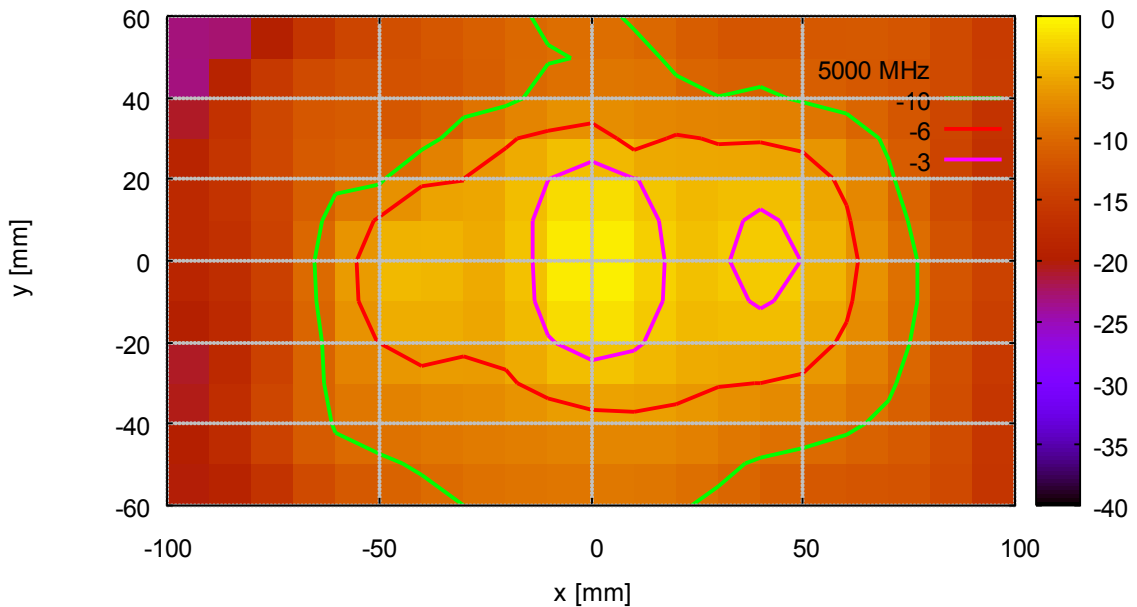




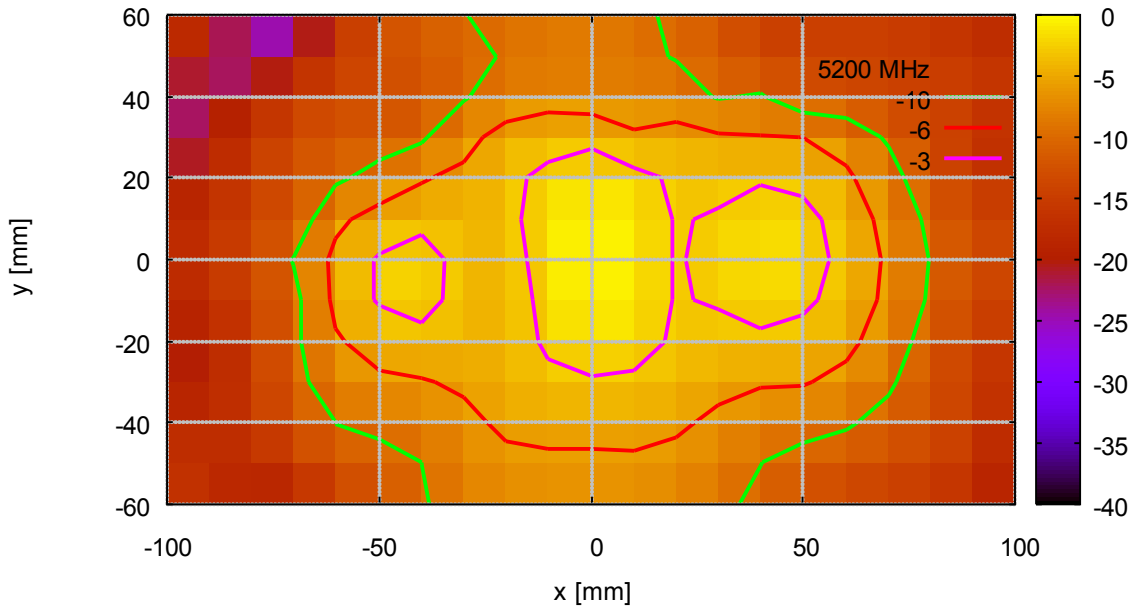
422 NJ Nearfield Scan, d = 30 mm



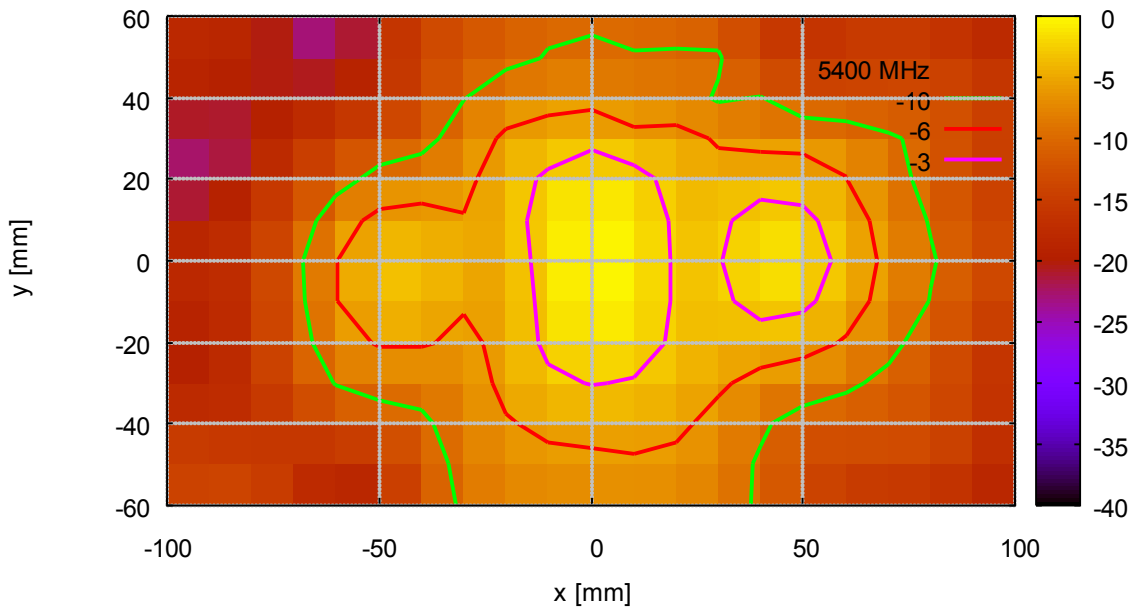
422 NJ Nearfield Scan, d = 30 mm

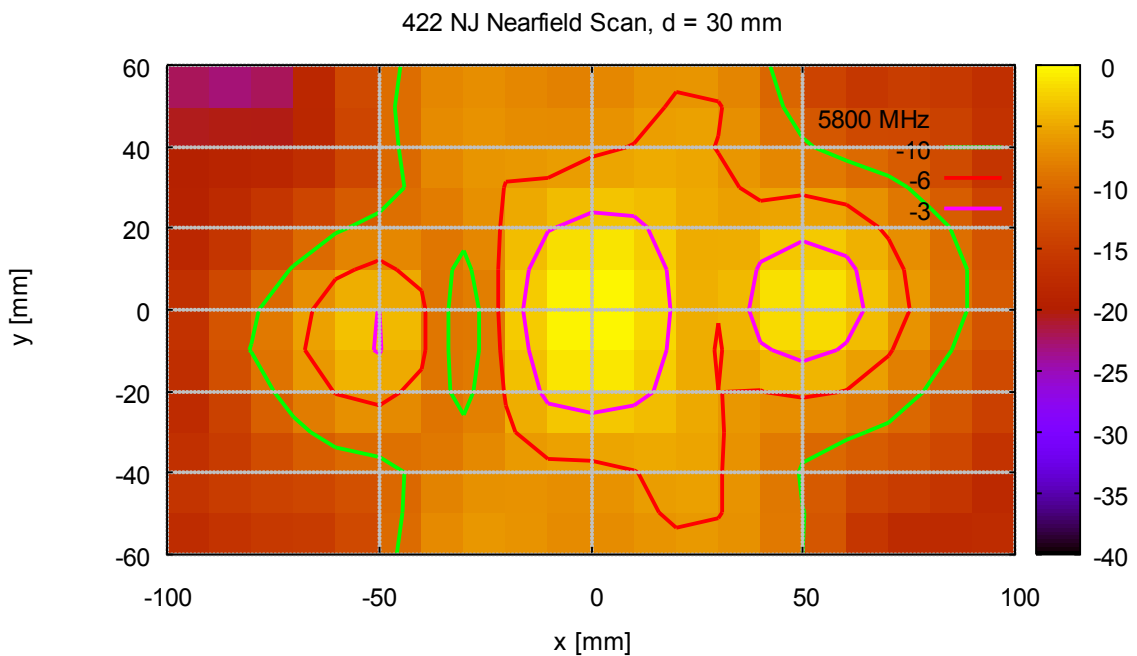
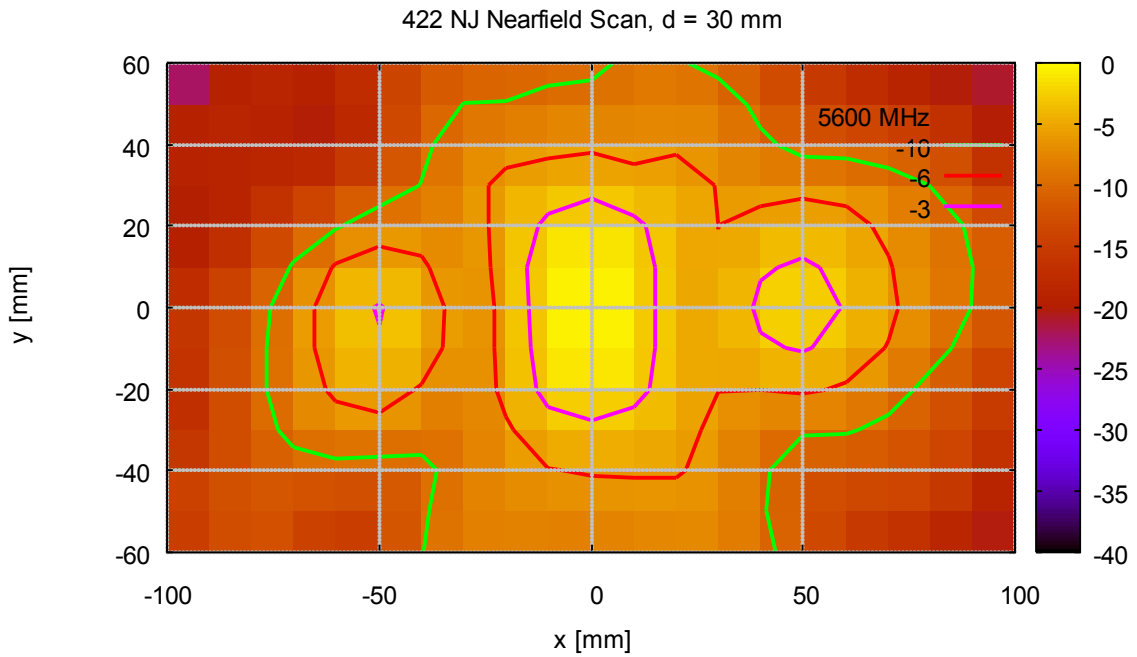


422 NJ Nearfield Scan, d = 30 mm

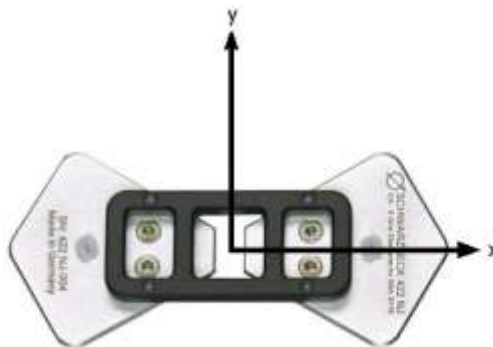
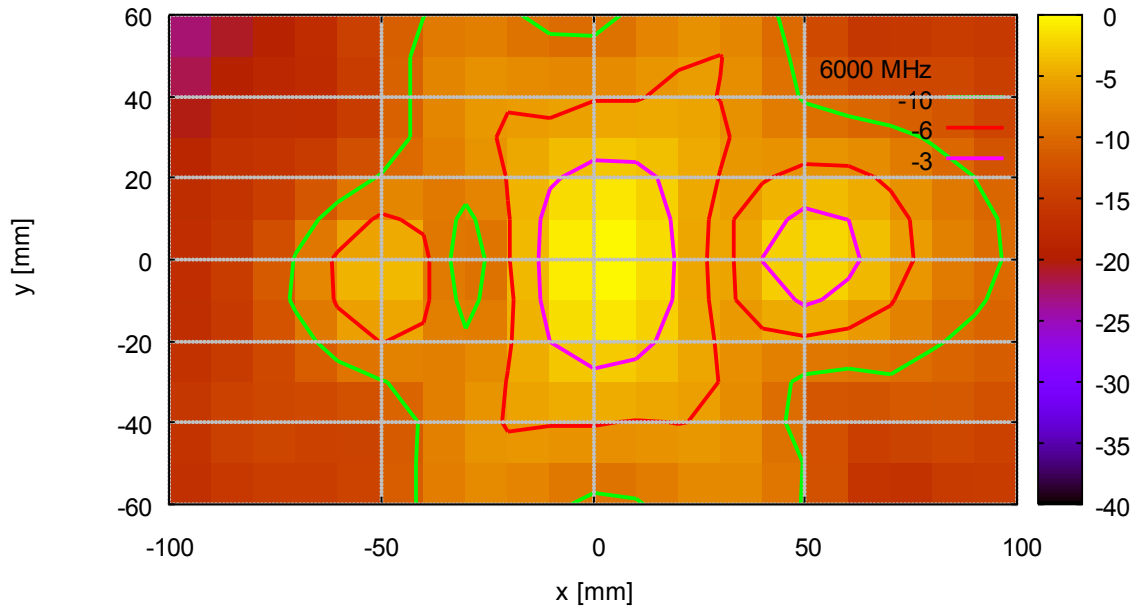


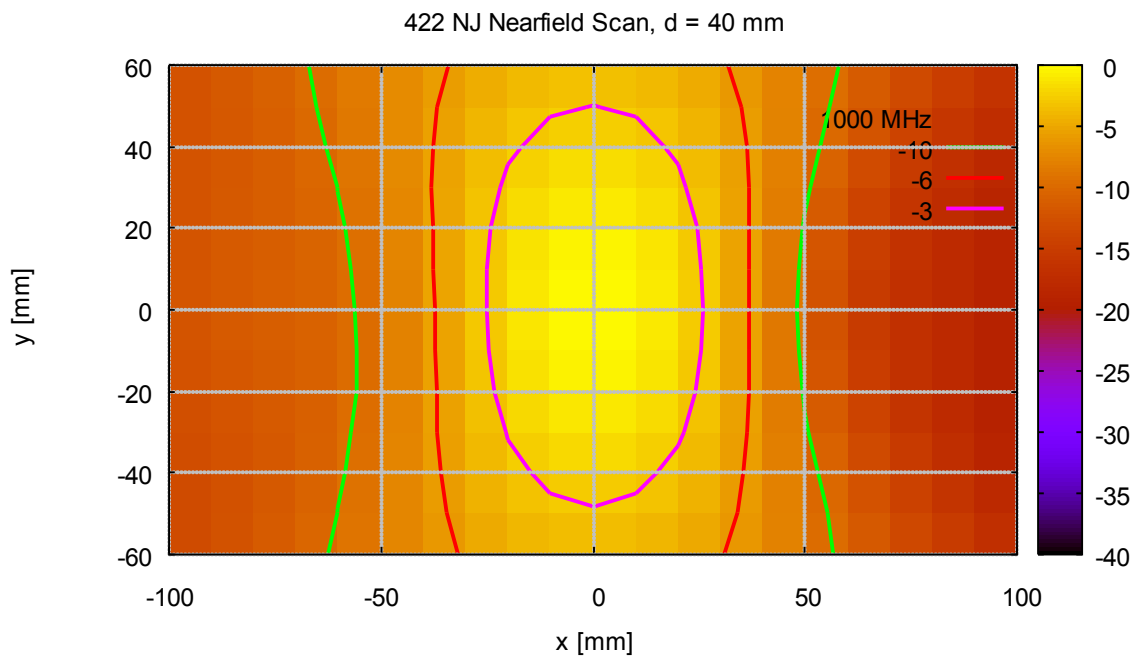
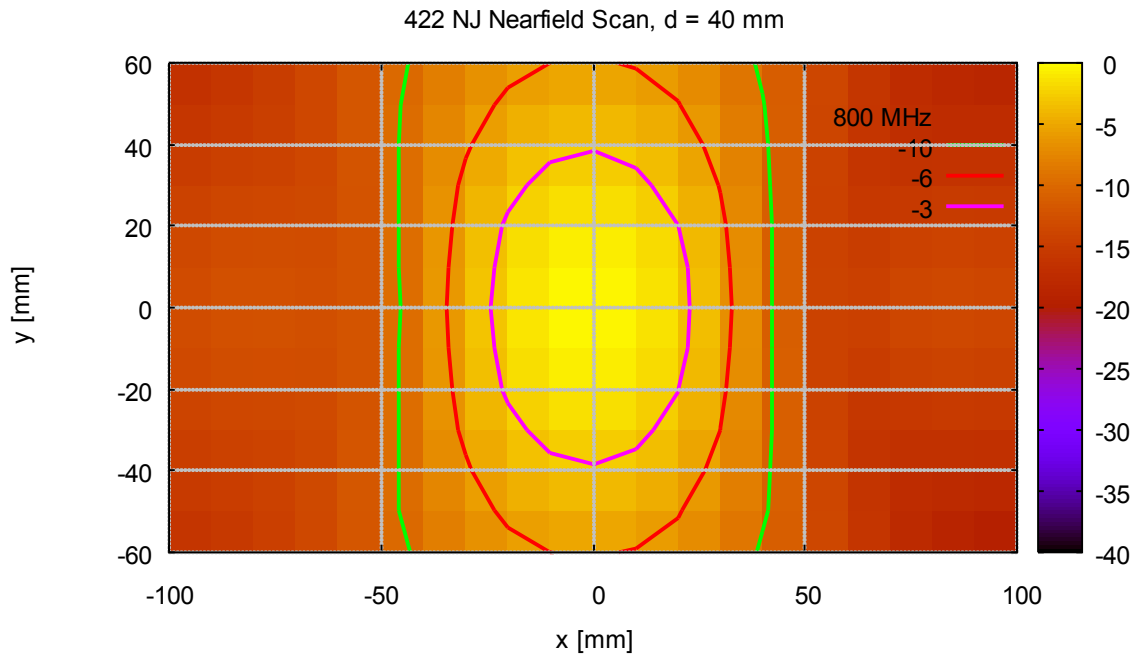
422 NJ Nearfield Scan, d = 30 mm



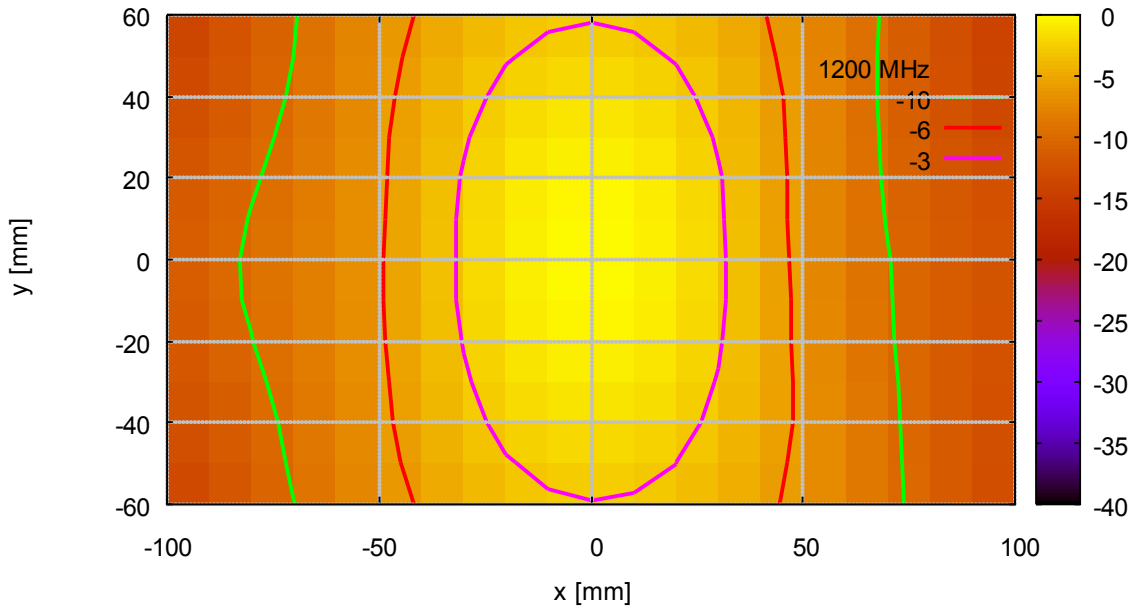


422 NJ Nearfield Scan, d = 30 mm

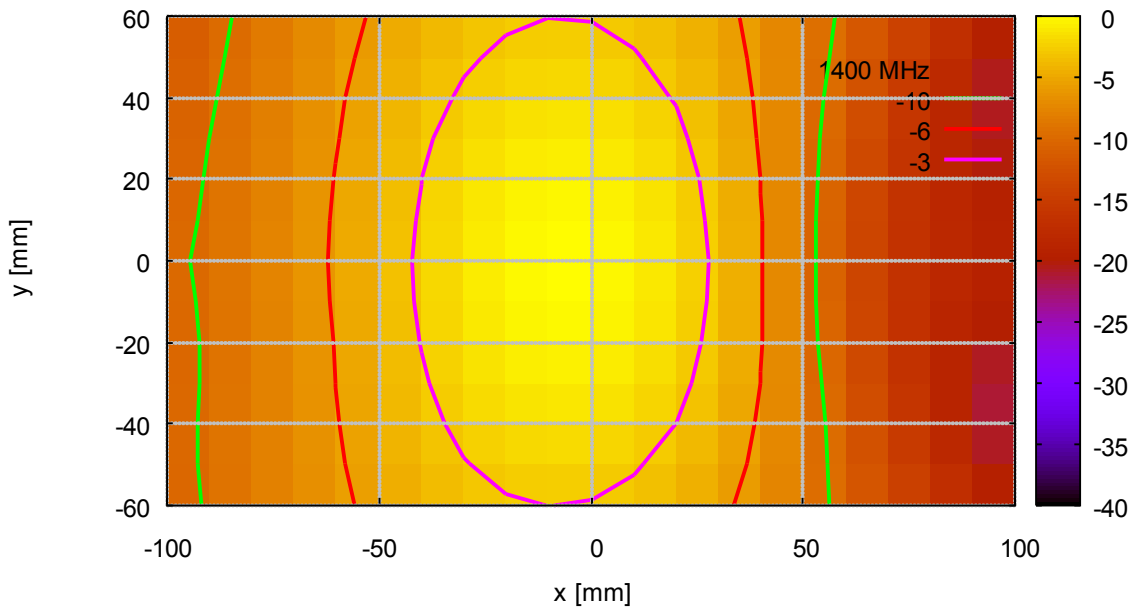


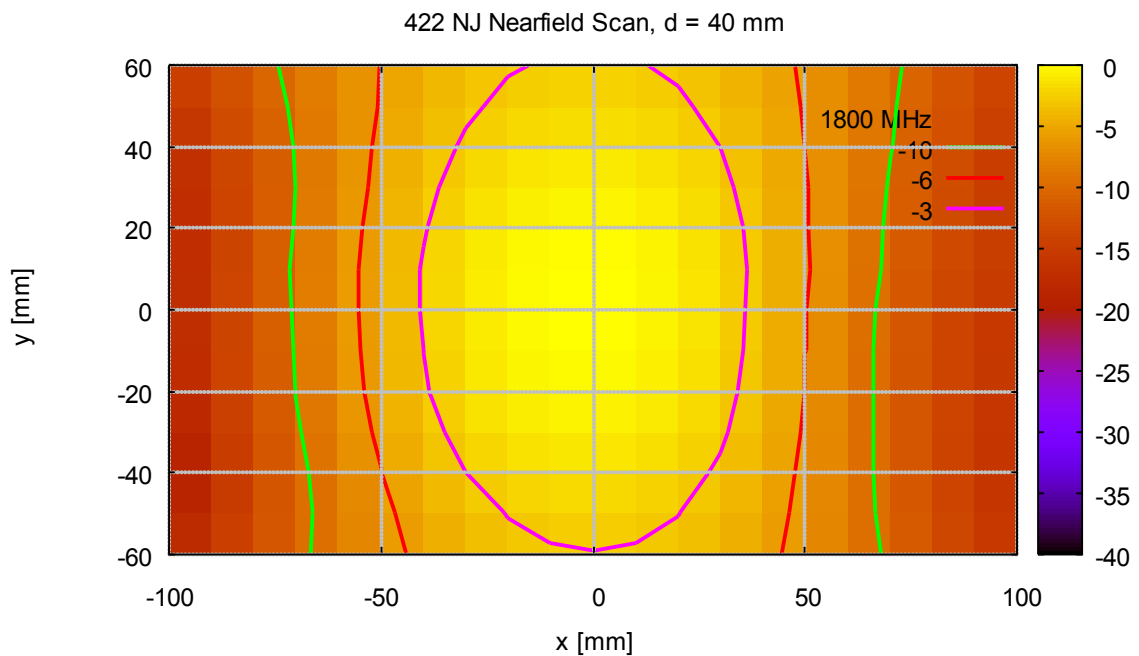
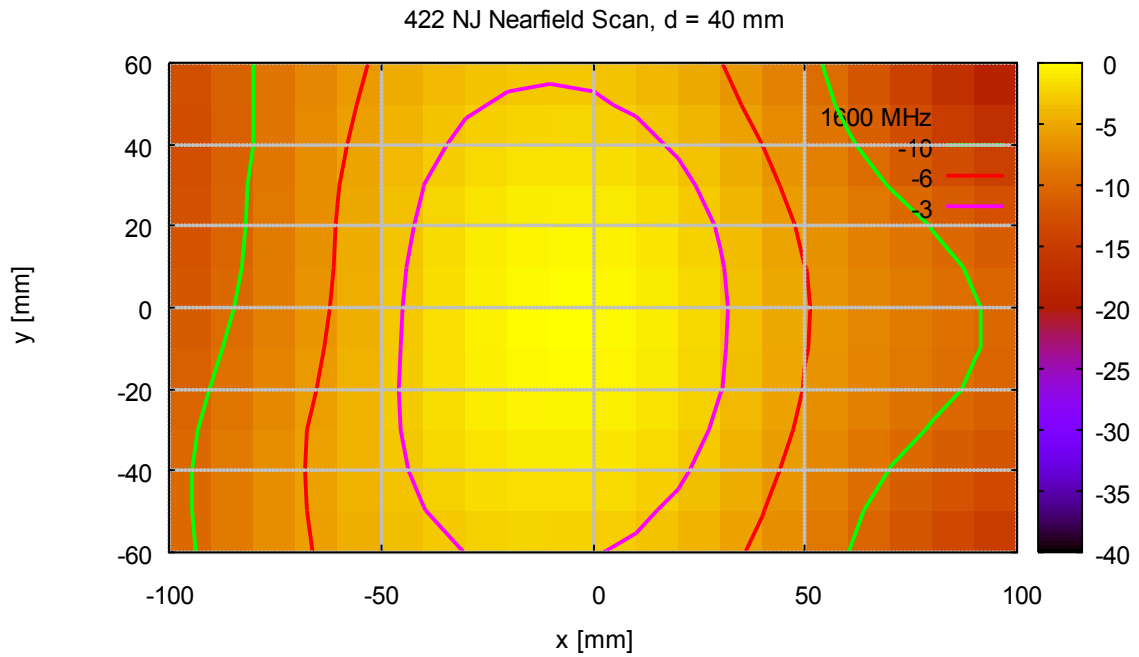


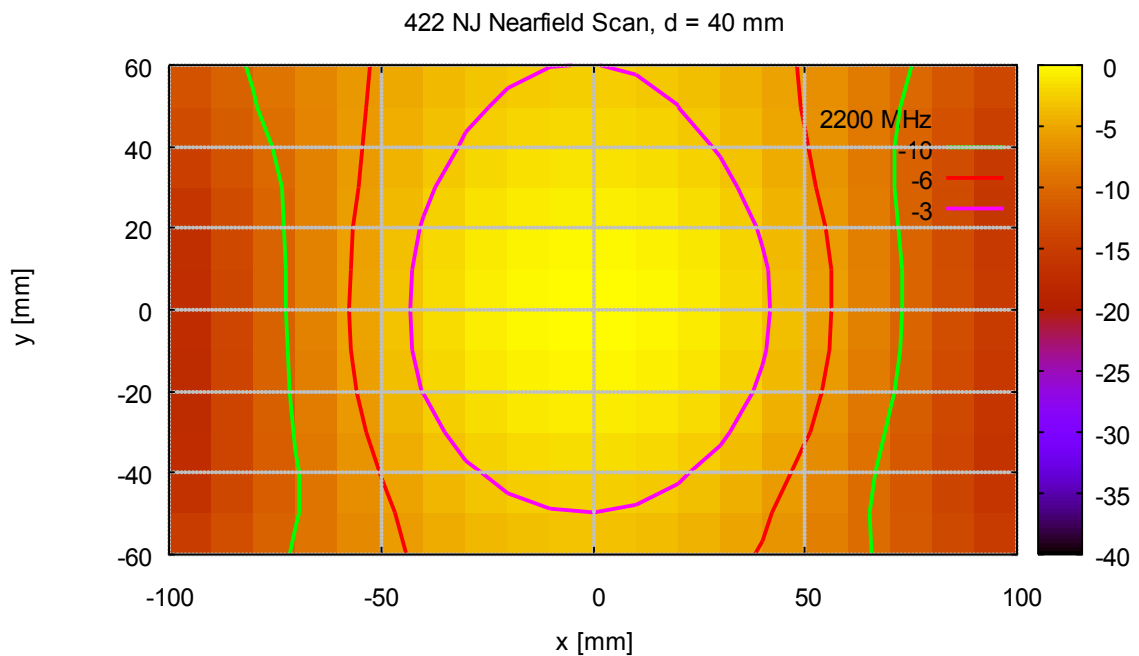
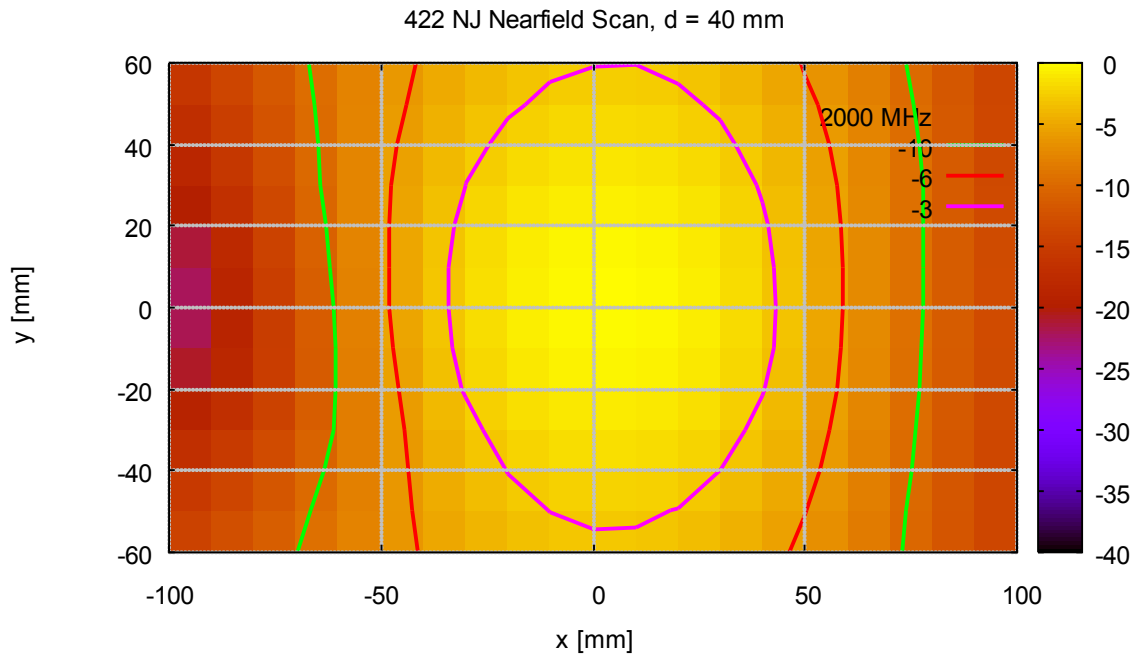
422 NJ Nearfield Scan, d = 40 mm

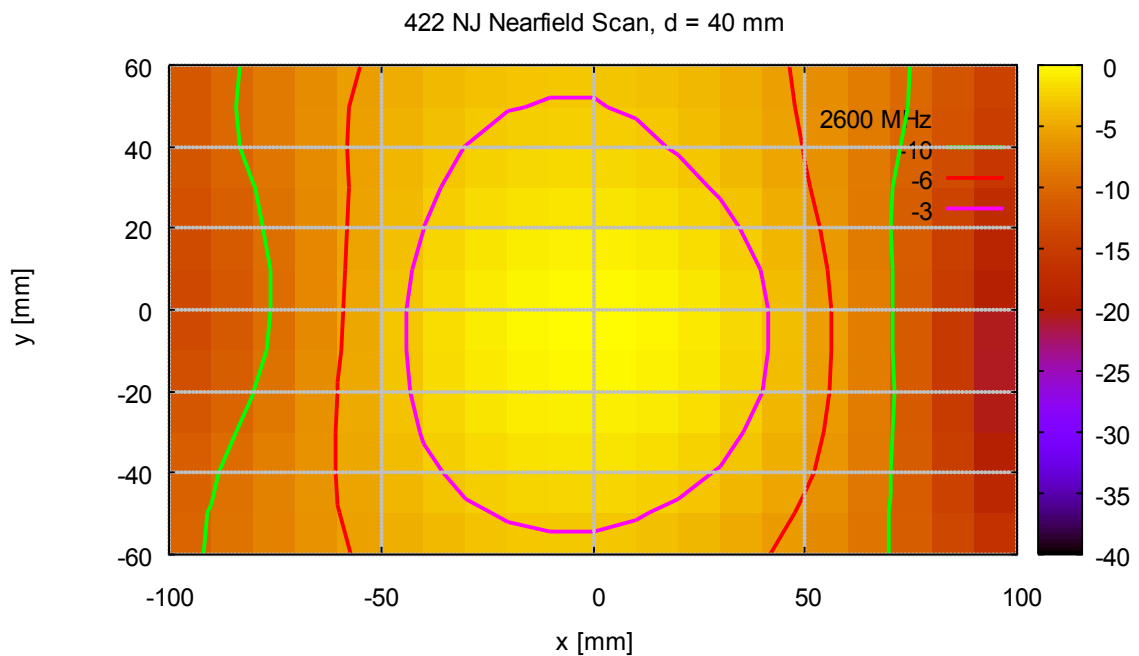
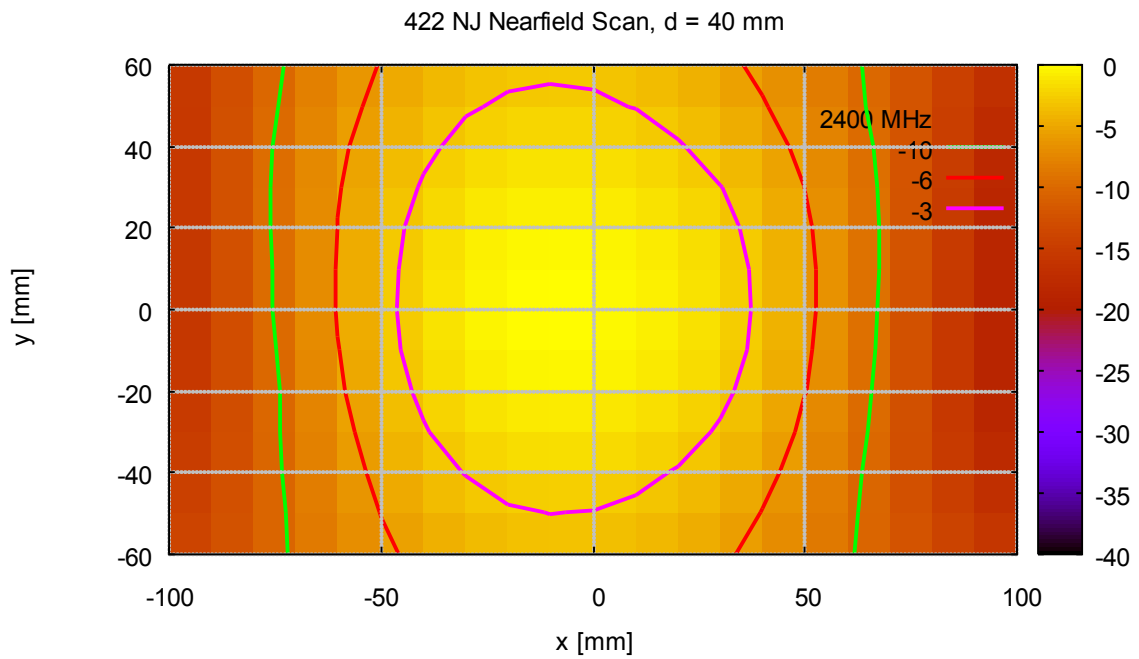


422 NJ Nearfield Scan, d = 40 mm

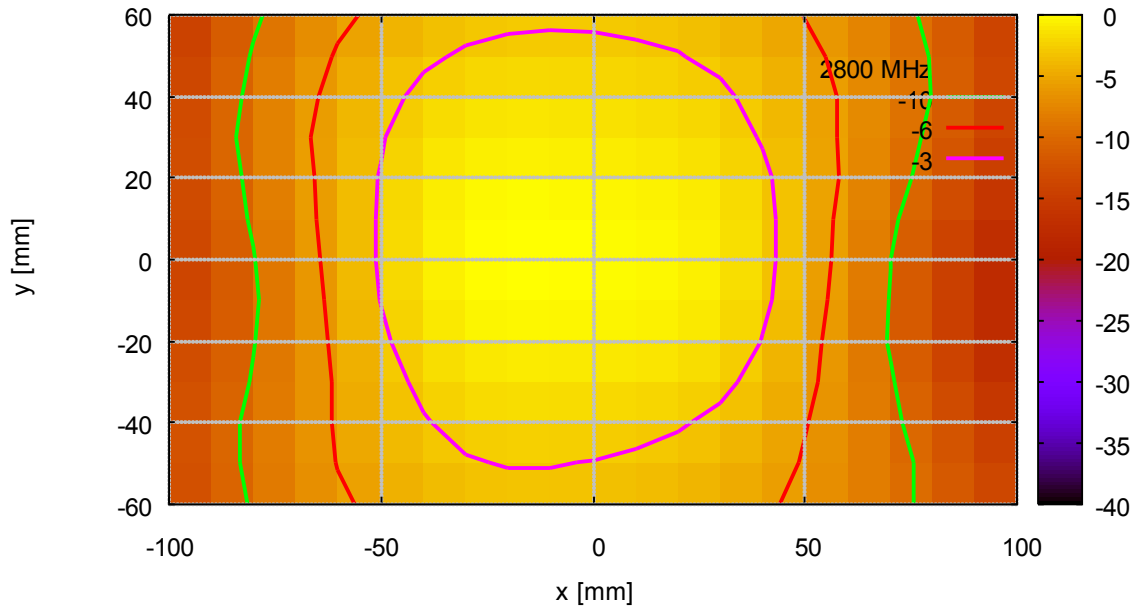




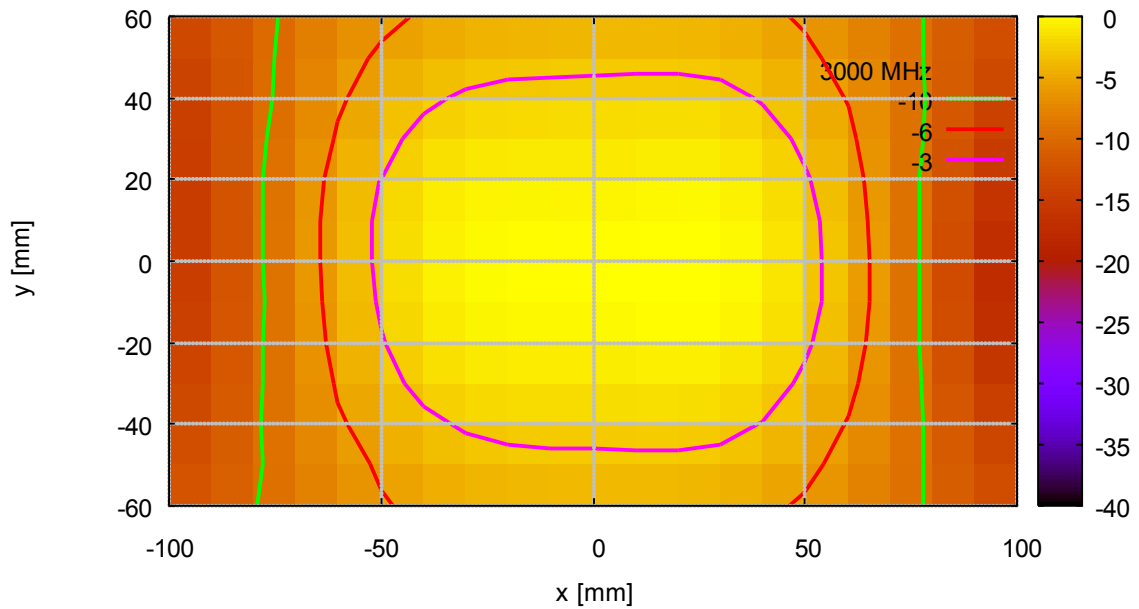




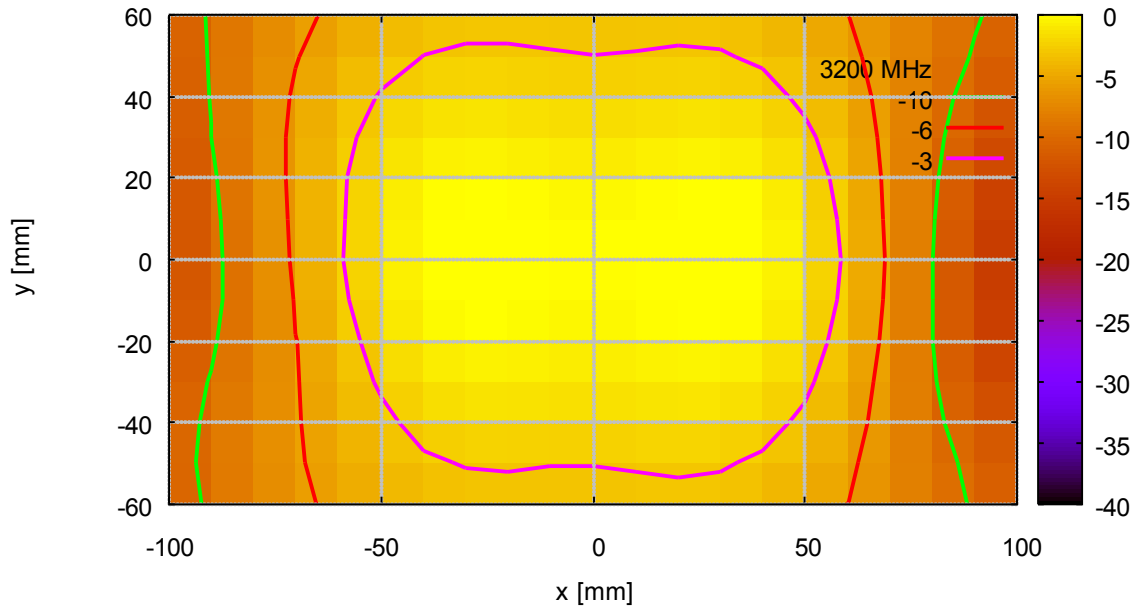
422 NJ Nearfield Scan, d = 40 mm



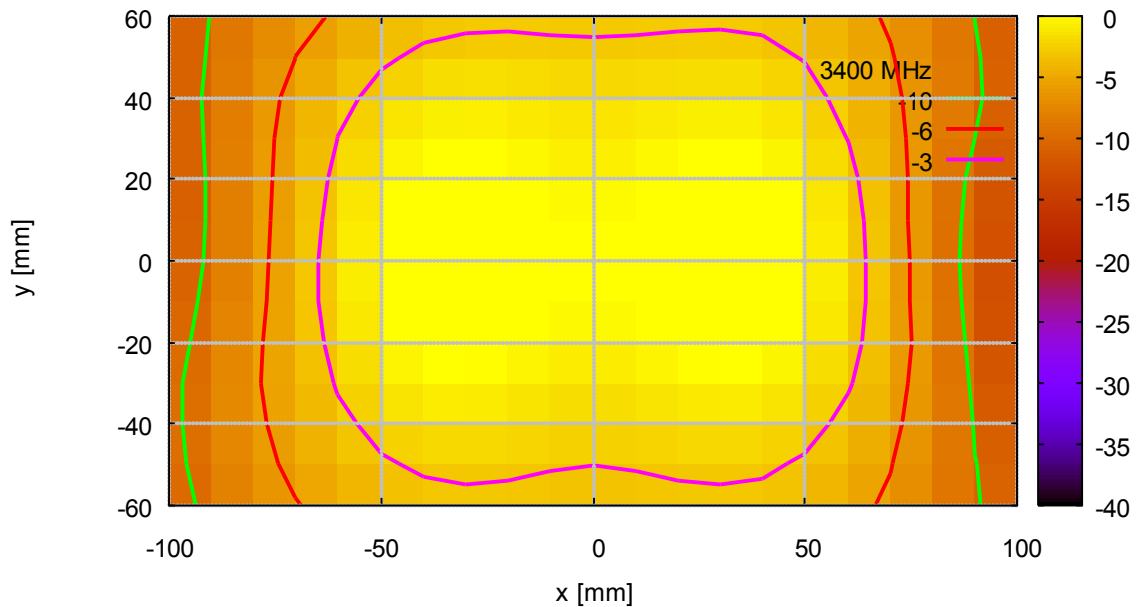
422 NJ Nearfield Scan, d = 40 mm



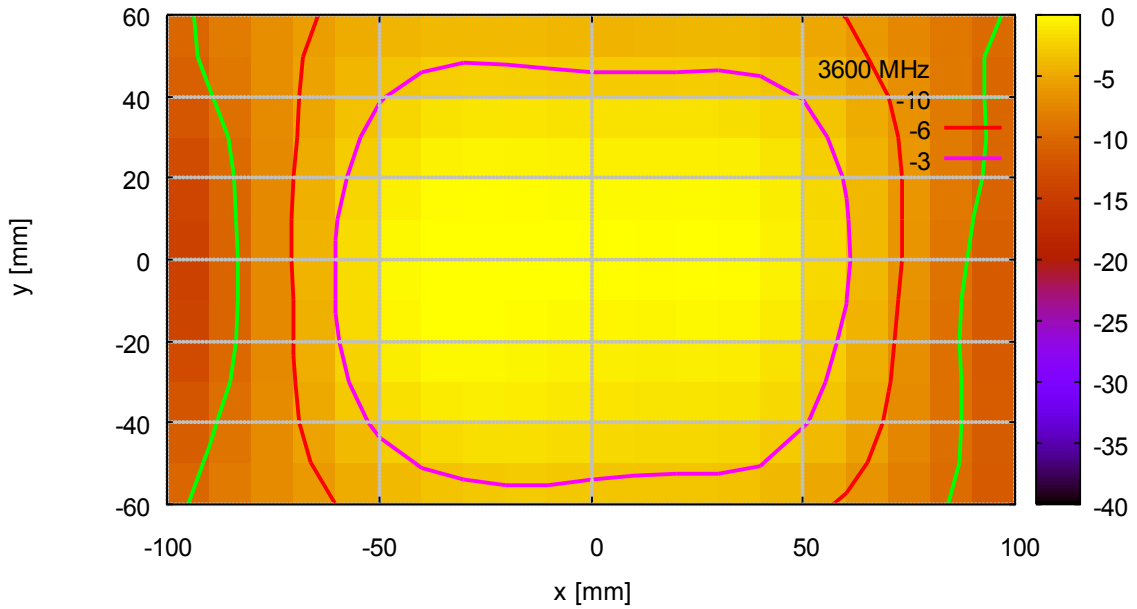
422 NJ Nearfield Scan, d = 40 mm



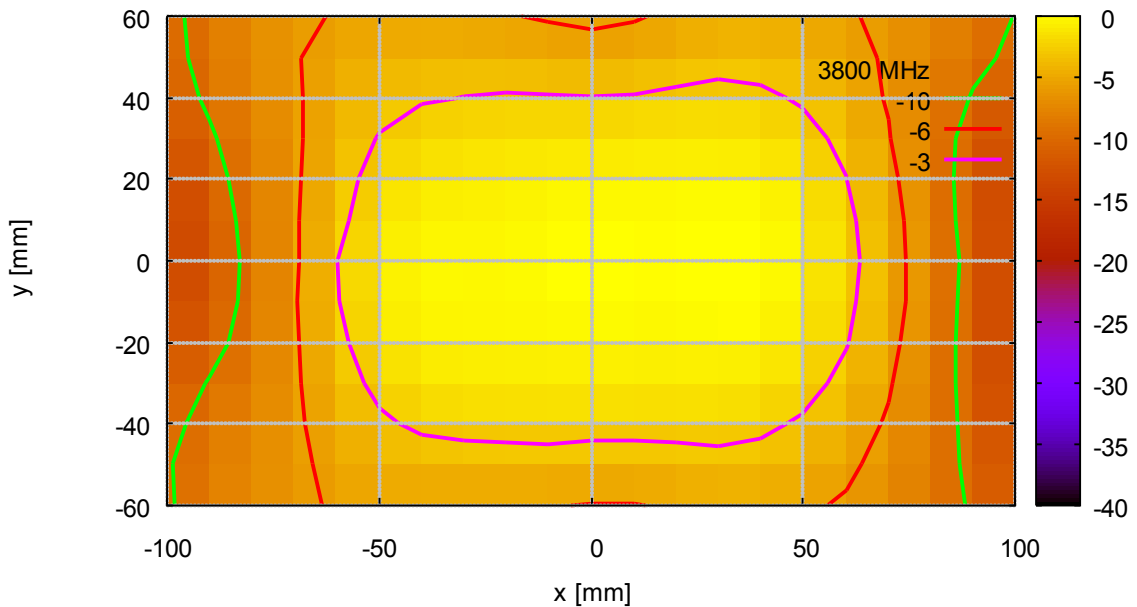
422 NJ Nearfield Scan, d = 40 mm

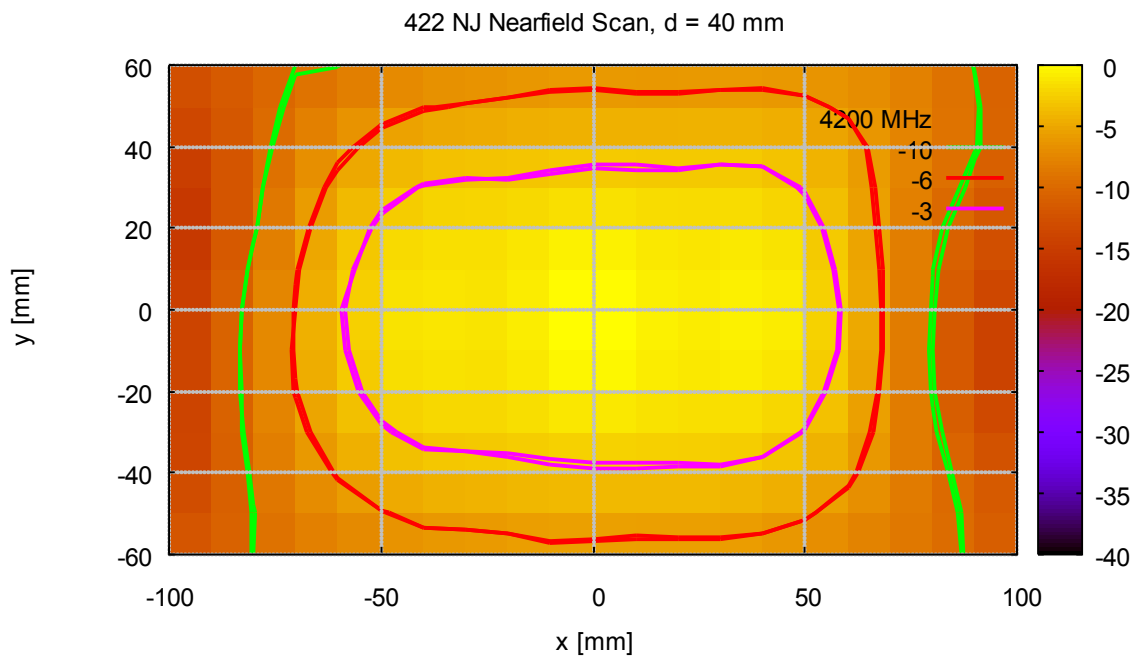
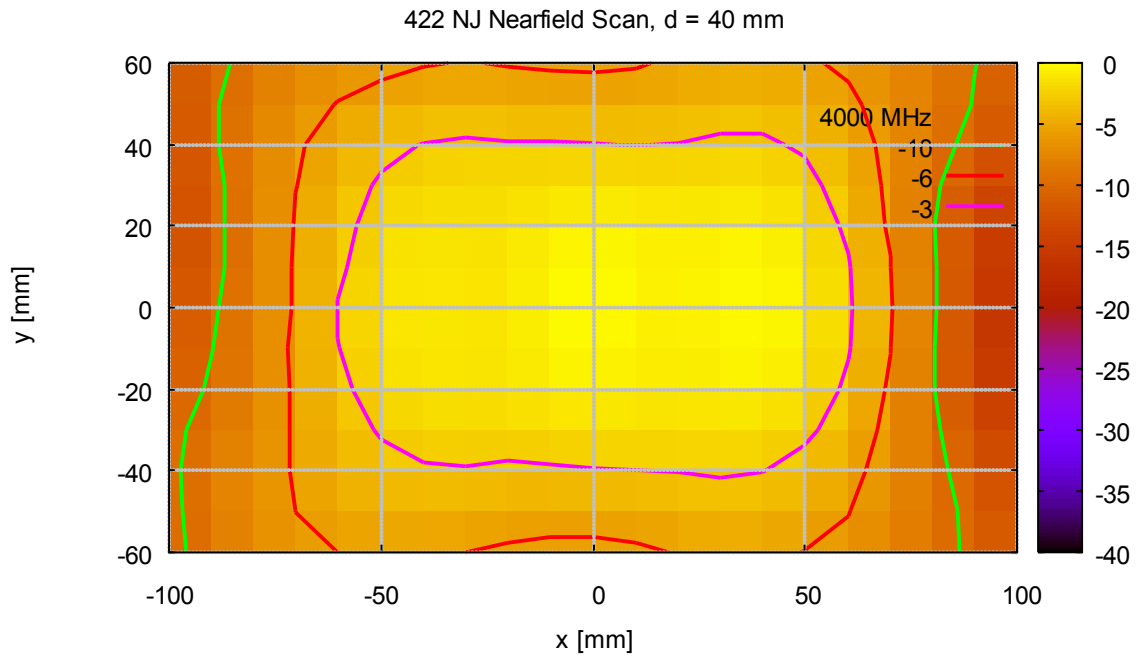


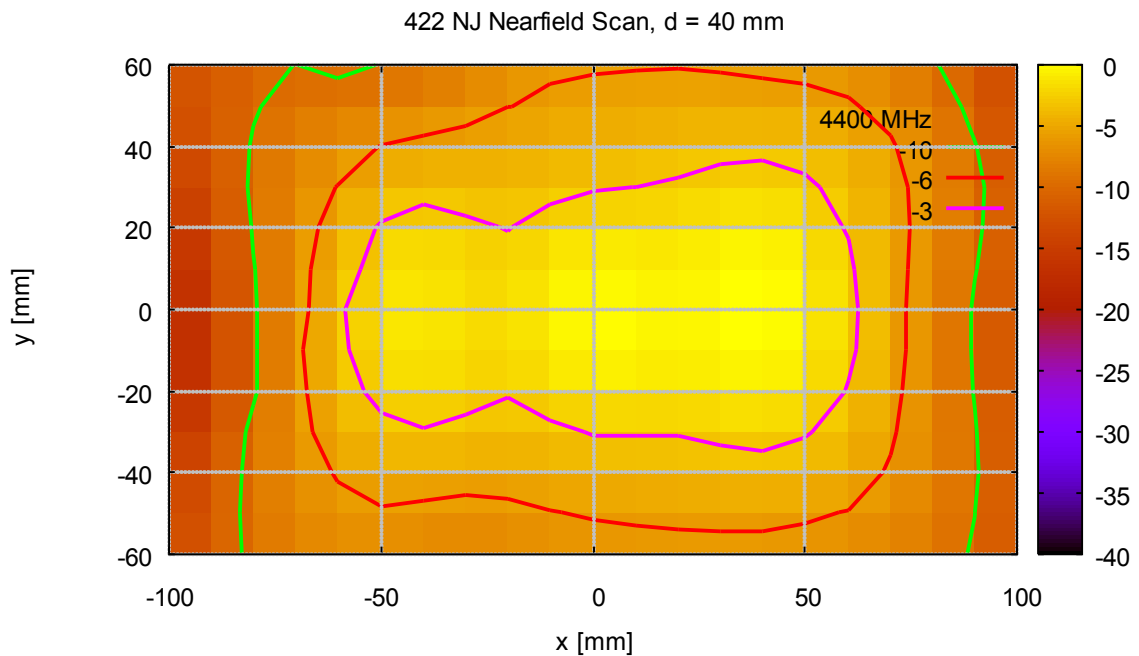
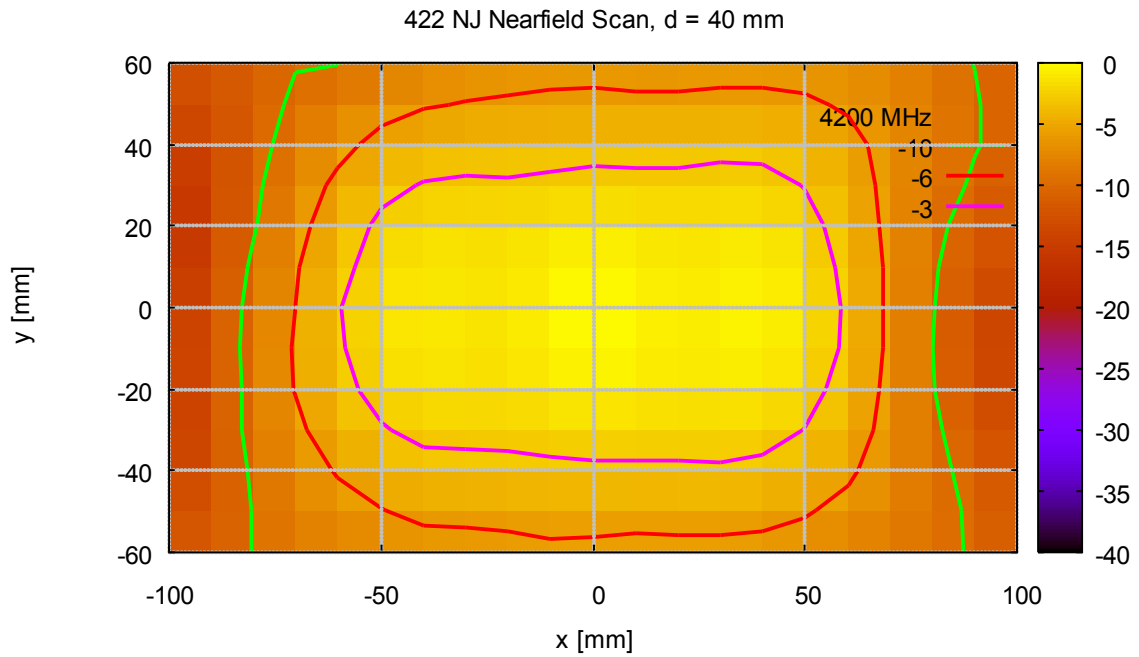
422 NJ Nearfield Scan, d = 40 mm

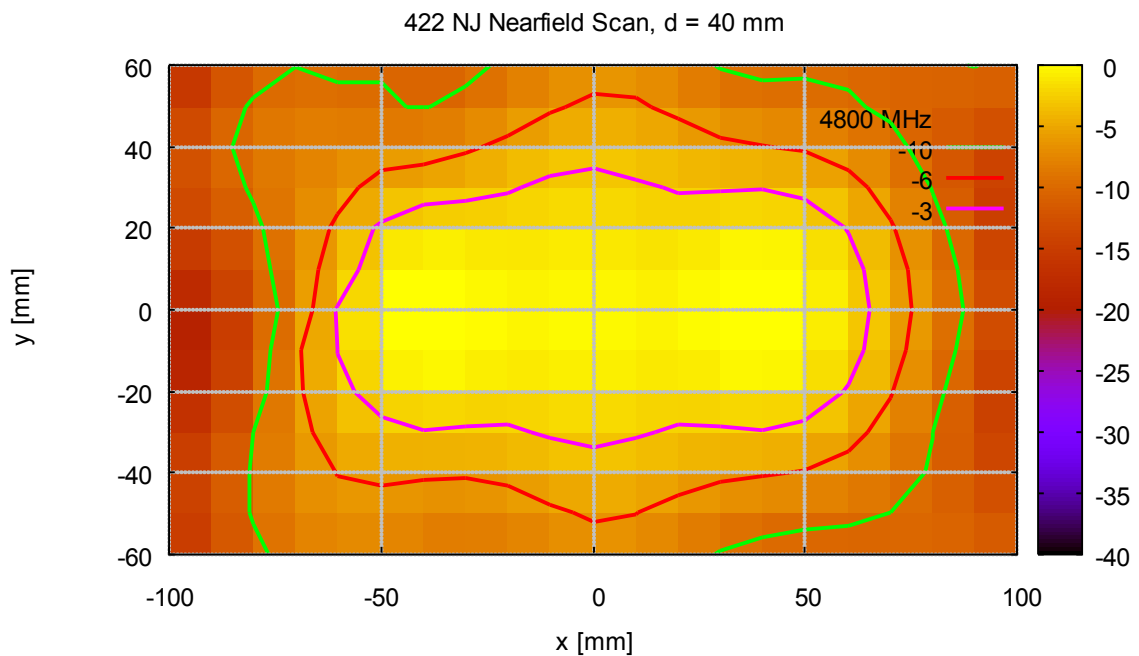
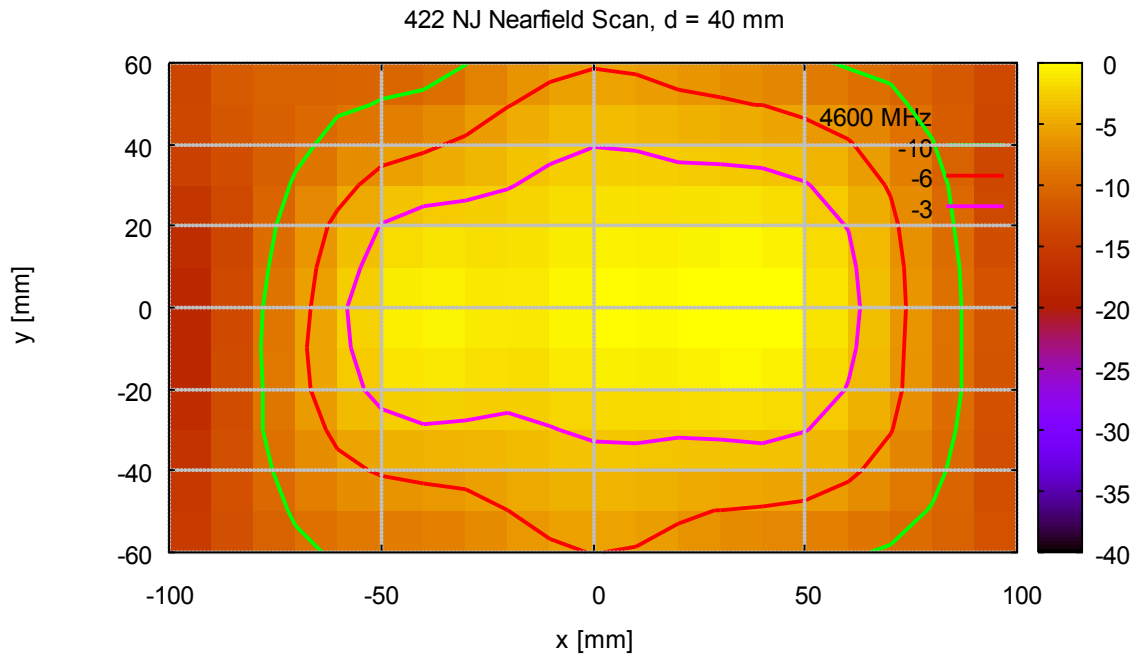


422 NJ Nearfield Scan, d = 40 mm

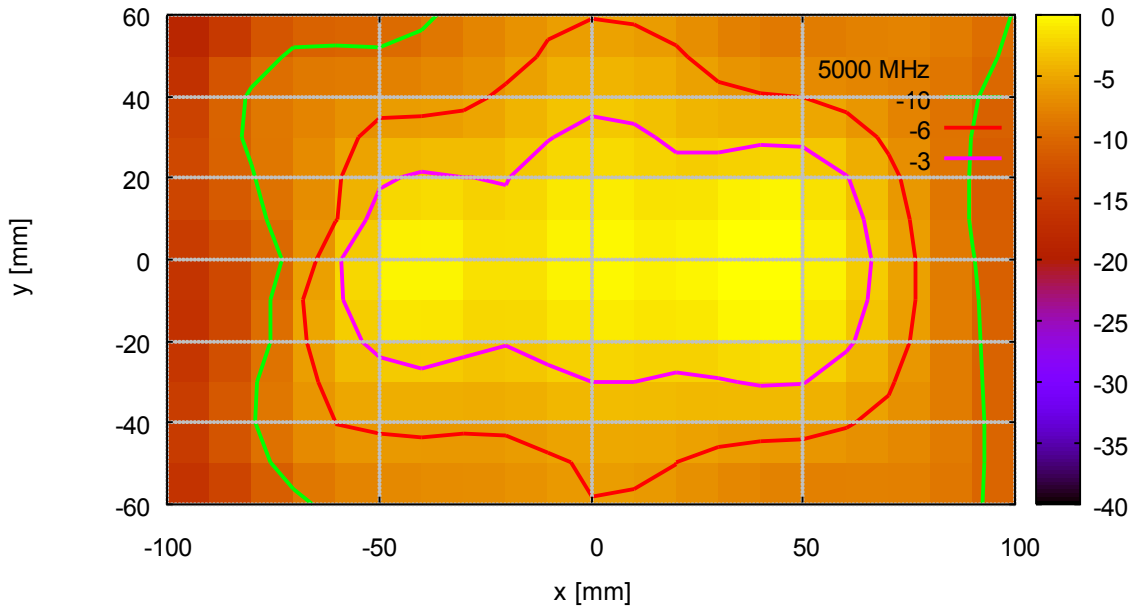




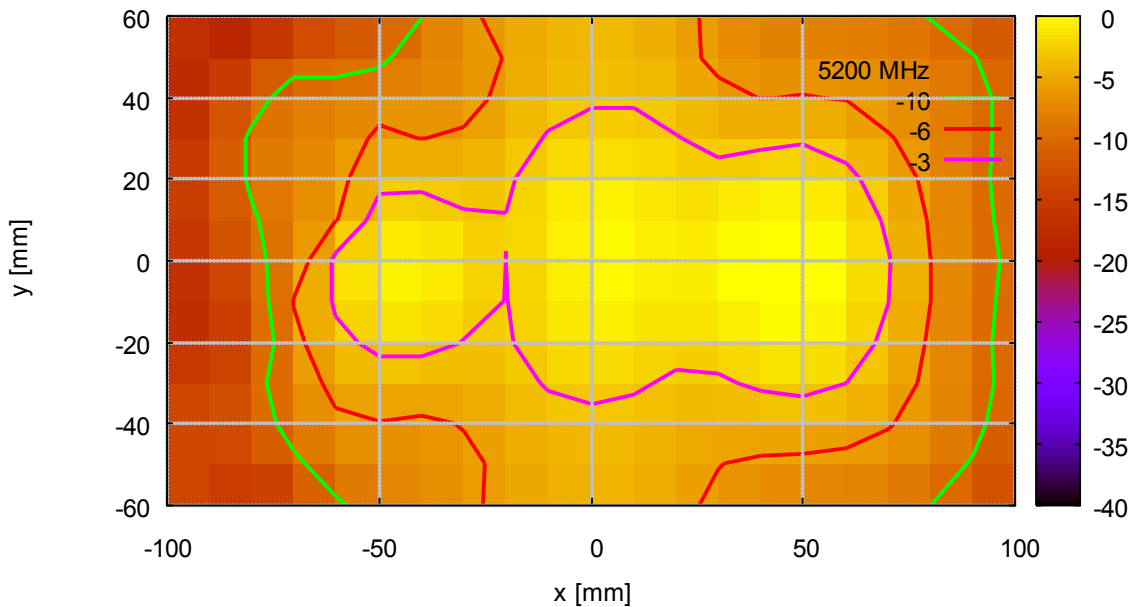




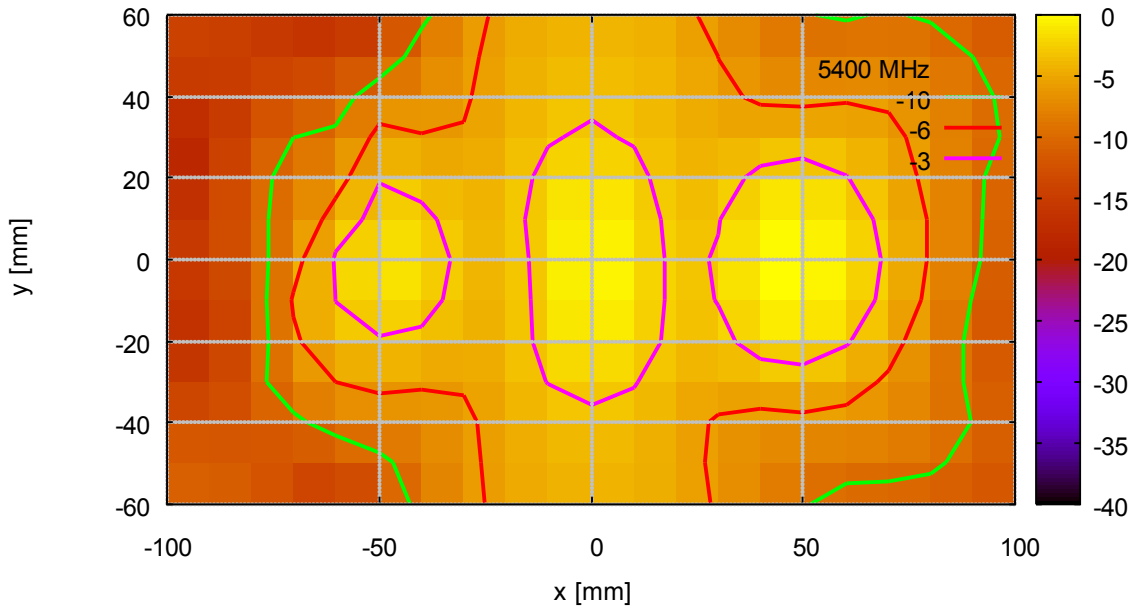
422 NJ Nearfield Scan, d = 40 mm



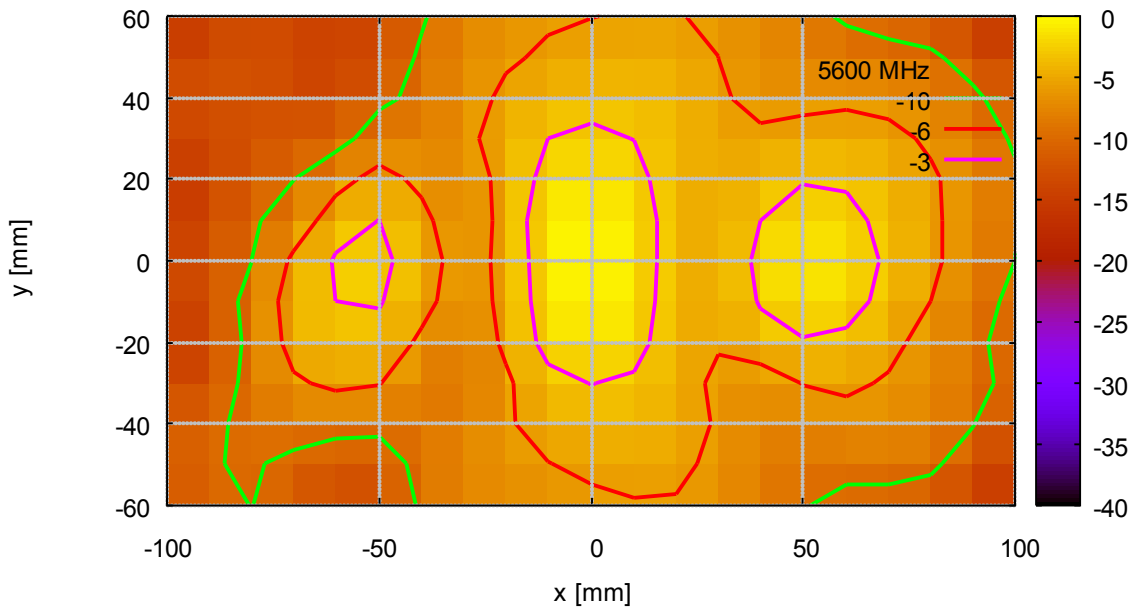
422 NJ Nearfield Scan, d = 40 mm



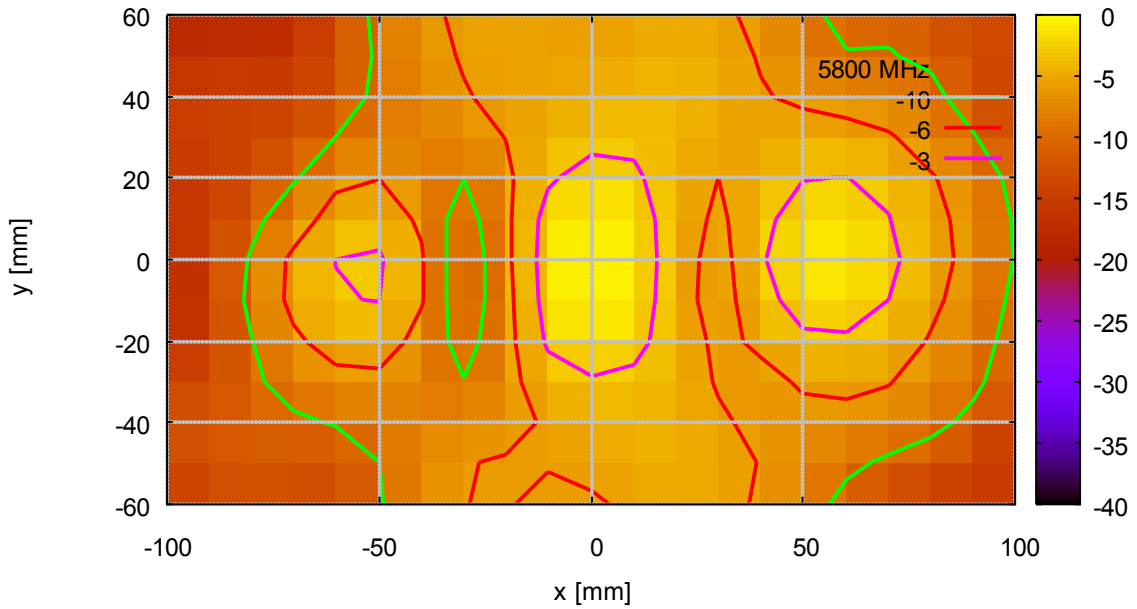
422 NJ Nearfield Scan, d = 40 mm



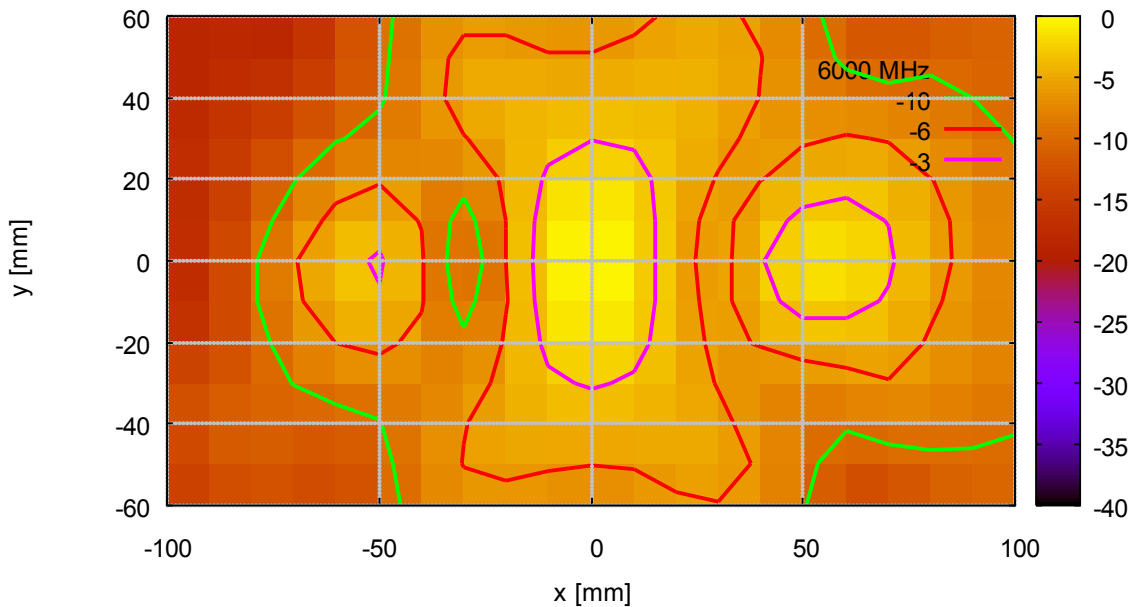
422 NJ Nearfield Scan, d = 40 mm



422 NJ Nearfield Scan, d = 40 mm

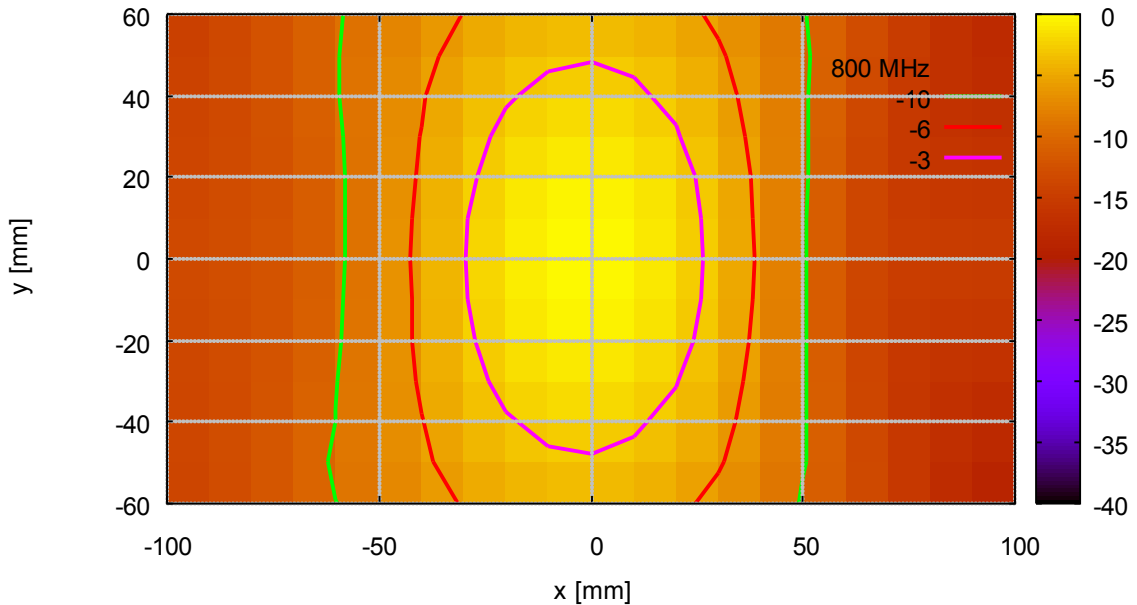


422 NJ Nearfield Scan, d = 40 mm

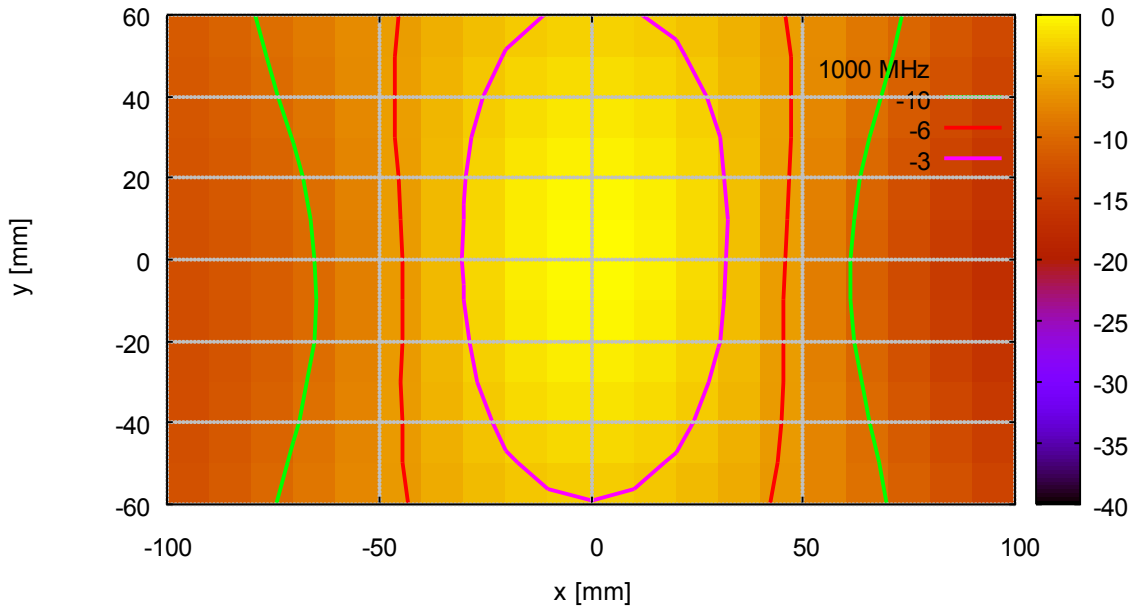




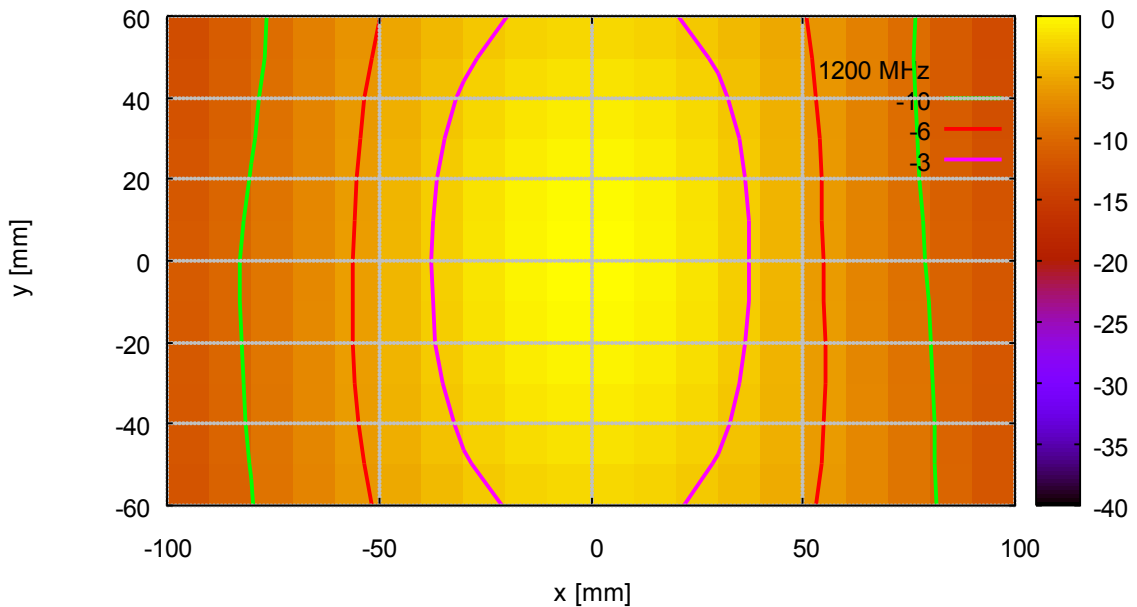
422 NJ Nearfield Scan, d = 50 mm



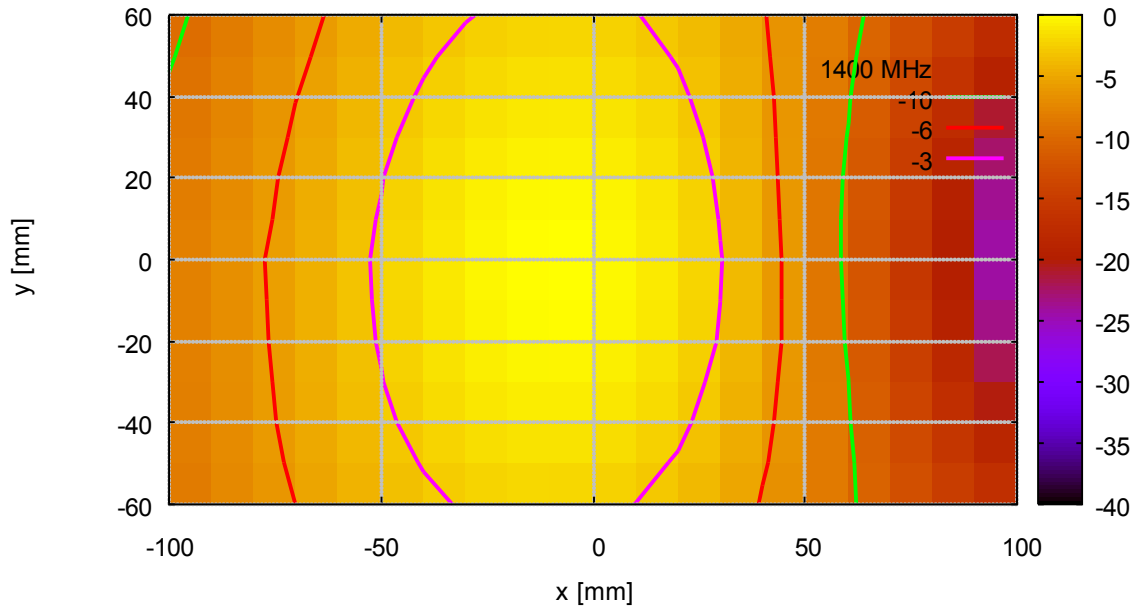
422 NJ Nearfield Scan, d = 50 mm



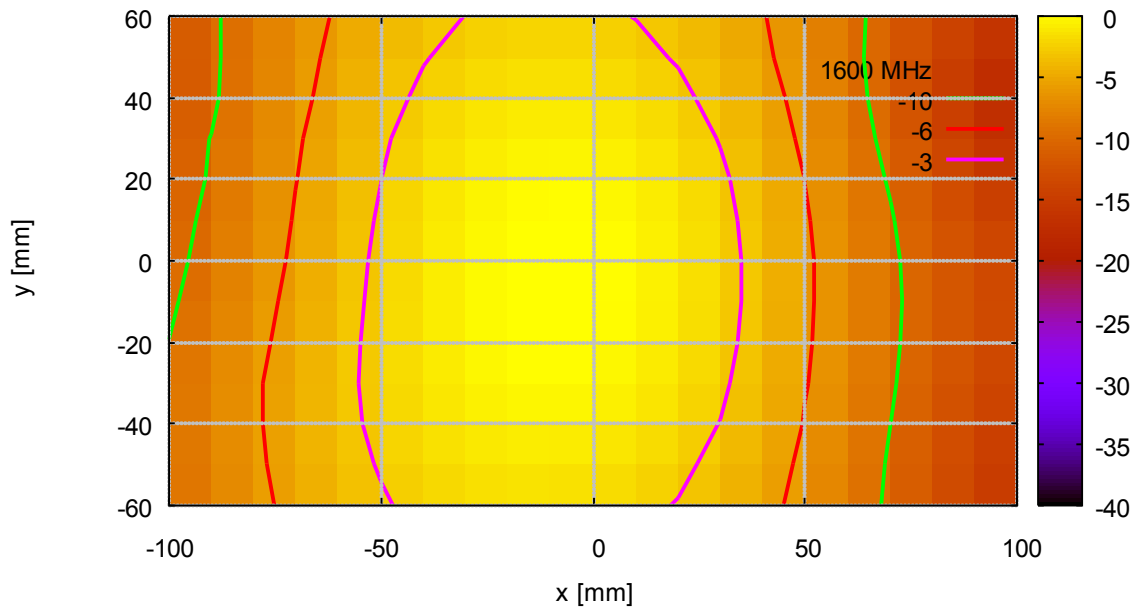
422 NJ Nearfield Scan, d = 50 mm



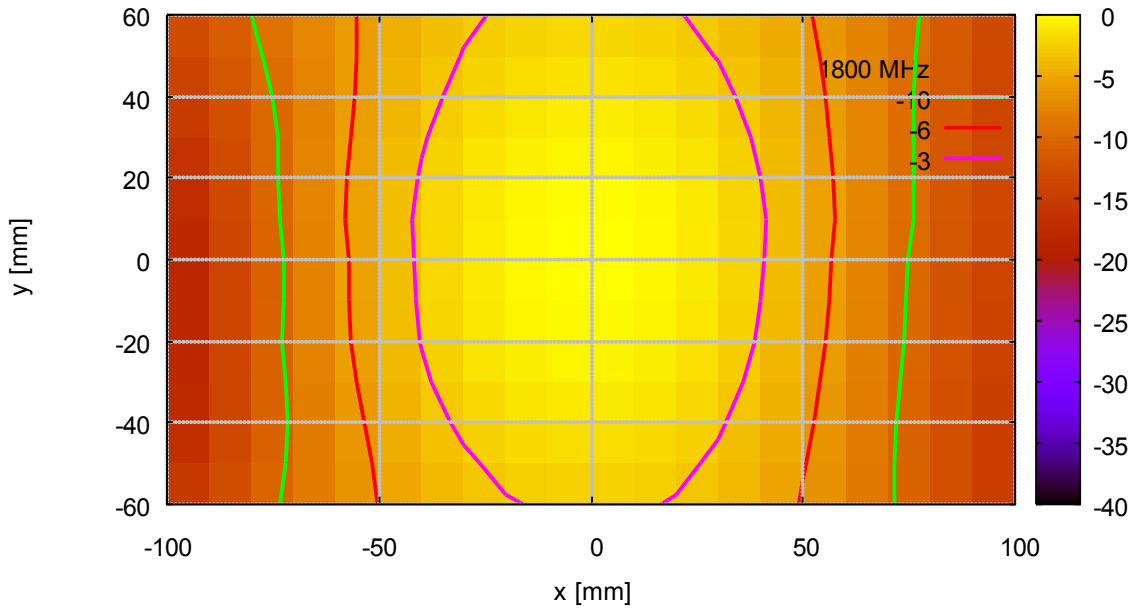
422 NJ Nearfield Scan, d = 50 mm



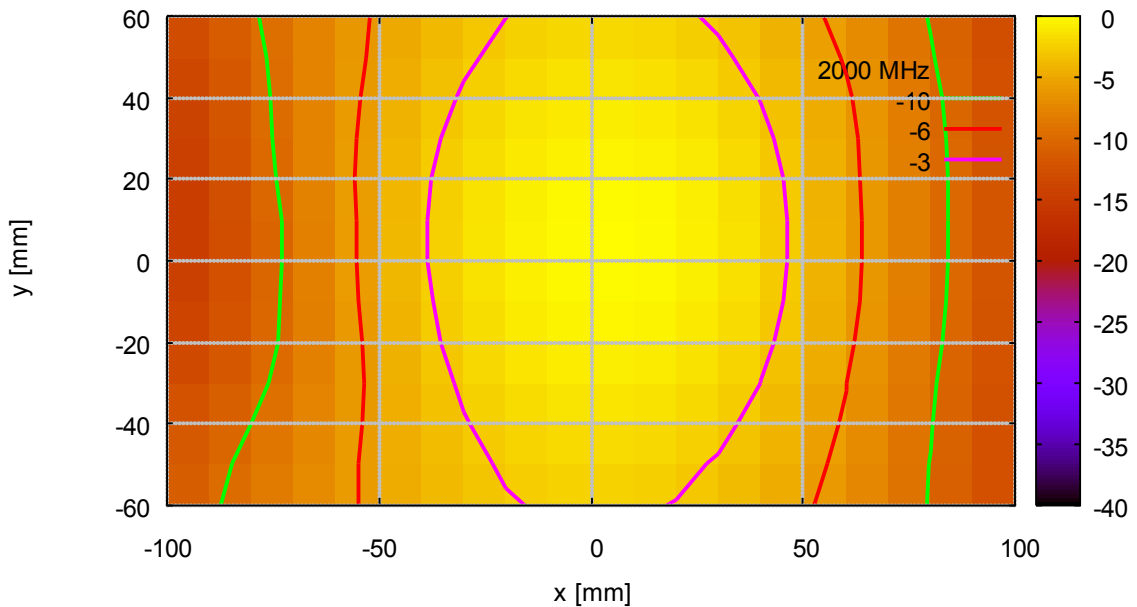
422 NJ Nearfield Scan, d = 50 mm

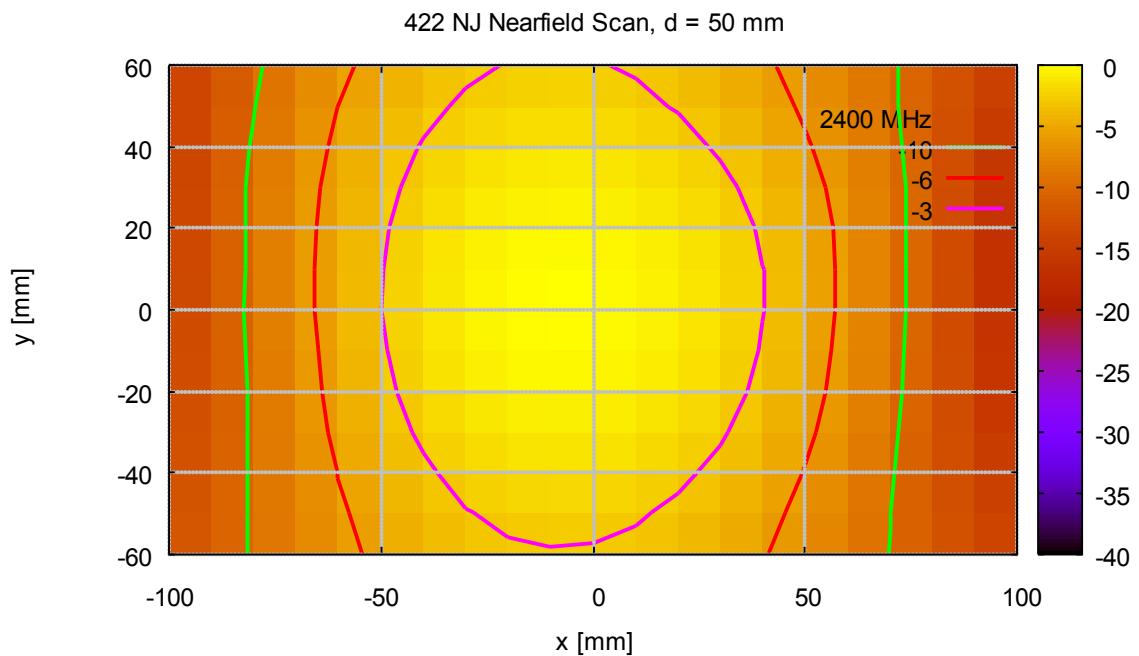
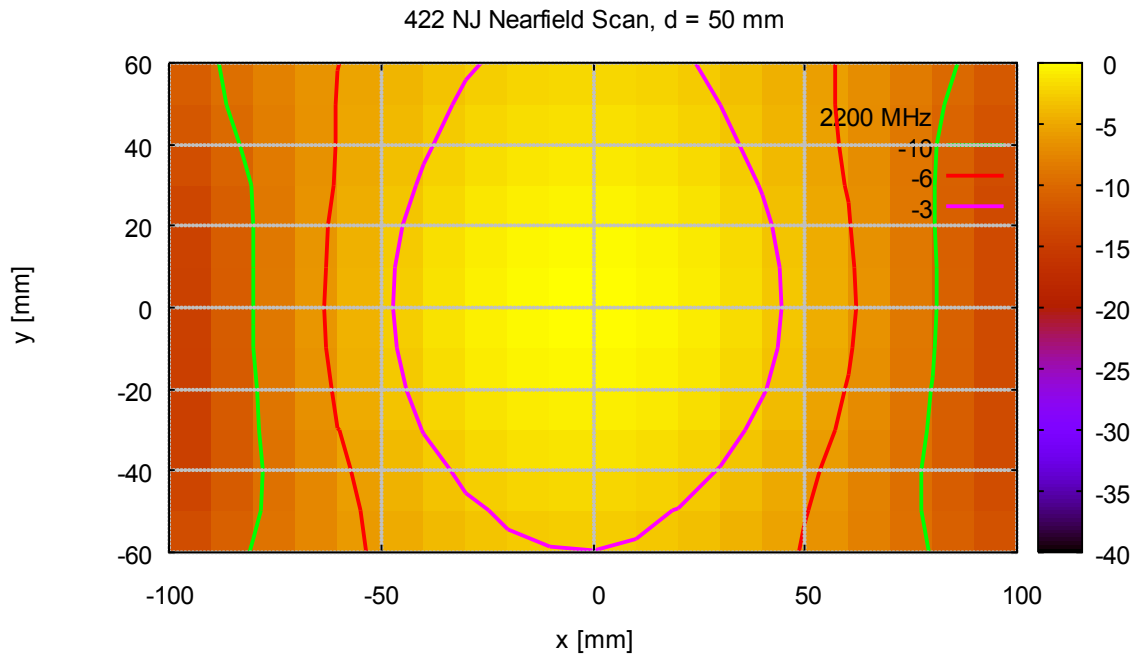


422 NJ Nearfield Scan, d = 50 mm

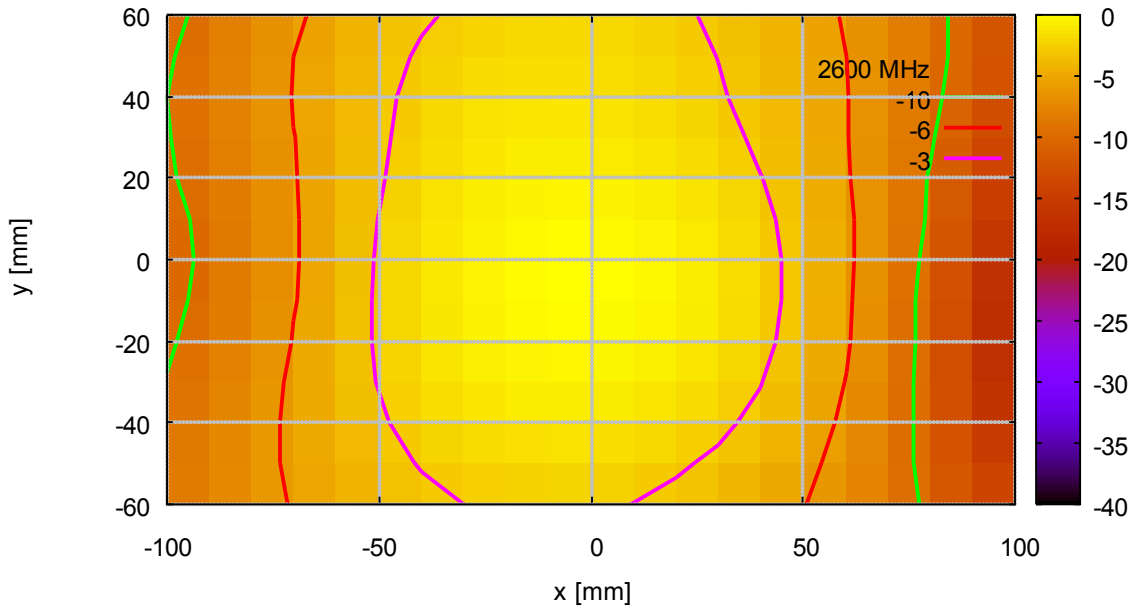


422 NJ Nearfield Scan, d = 50 mm

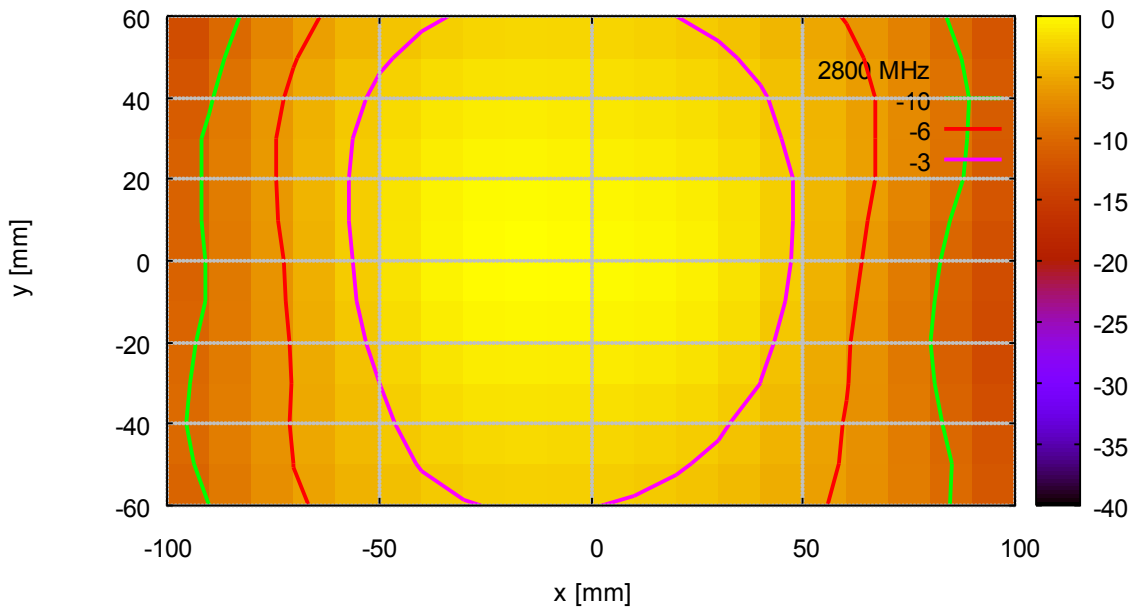




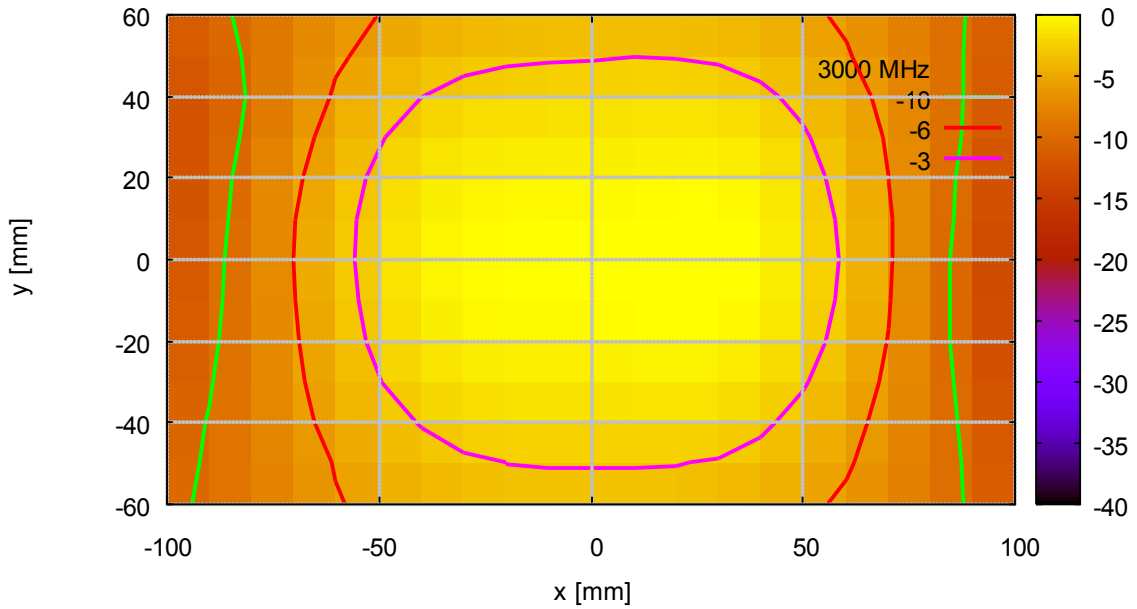
422 NJ Nearfield Scan, d = 50 mm



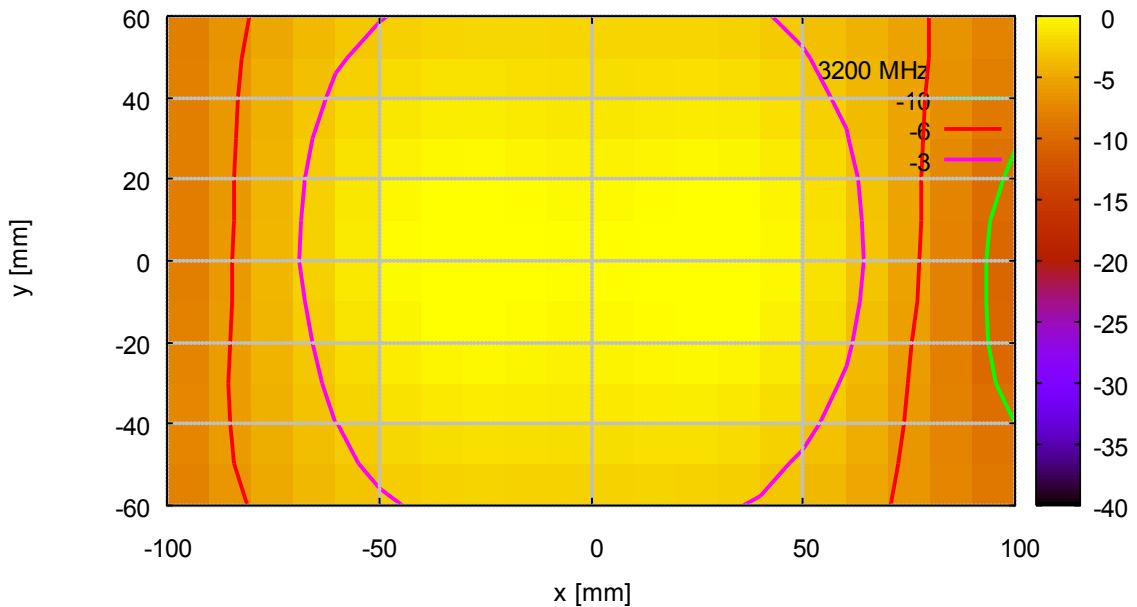
422 NJ Nearfield Scan, d = 50 mm



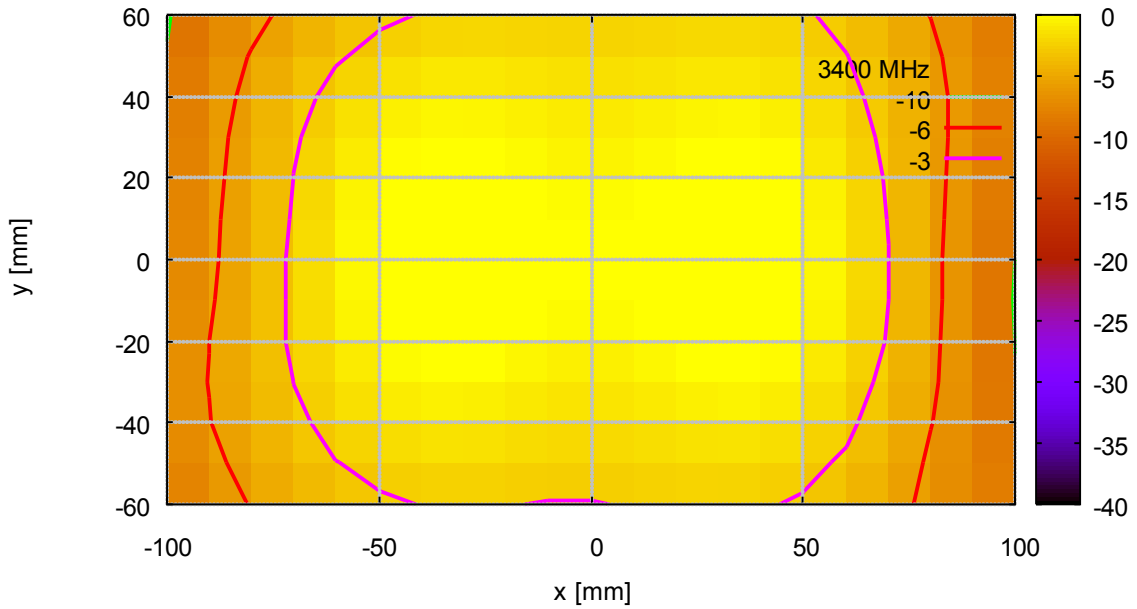
422 NJ Nearfield Scan, d = 50 mm



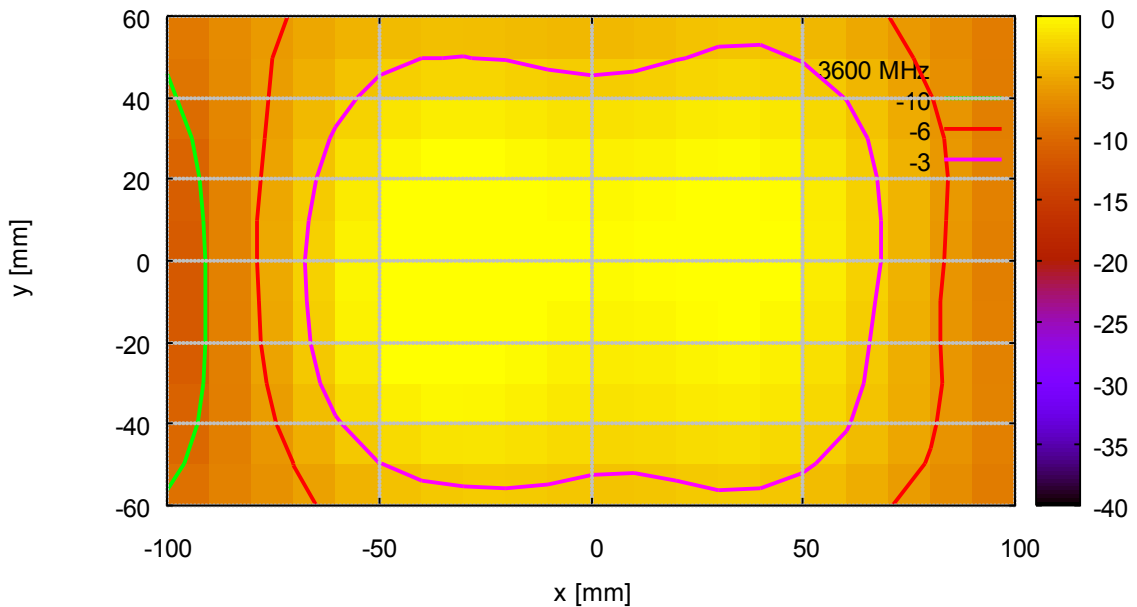
422 NJ Nearfield Scan, d = 50 mm

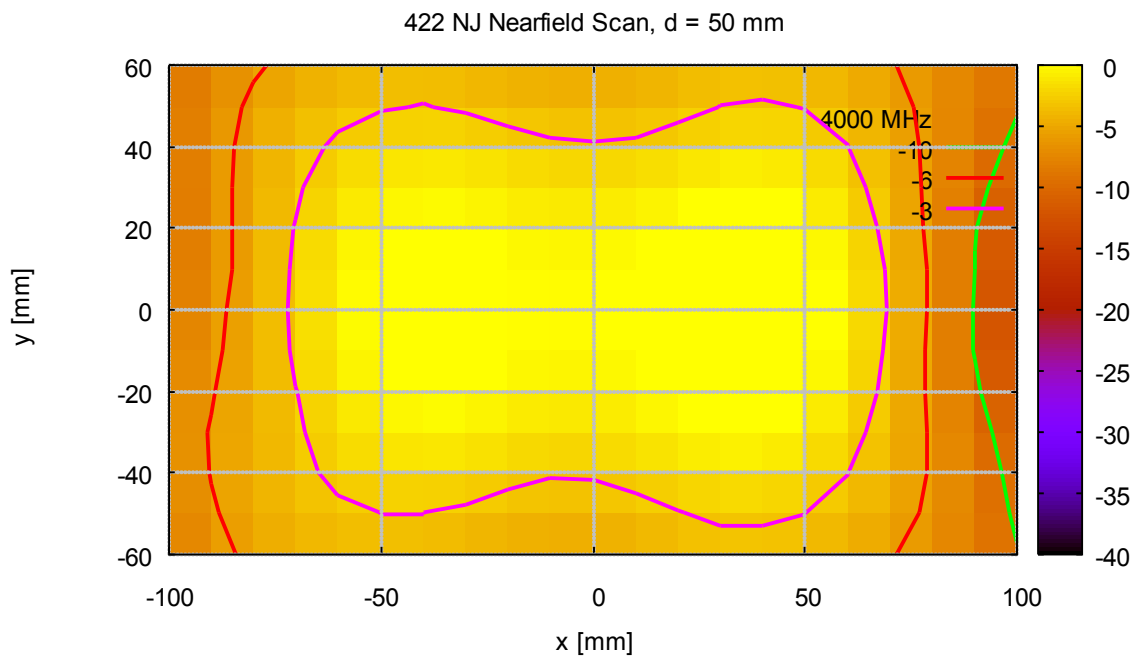
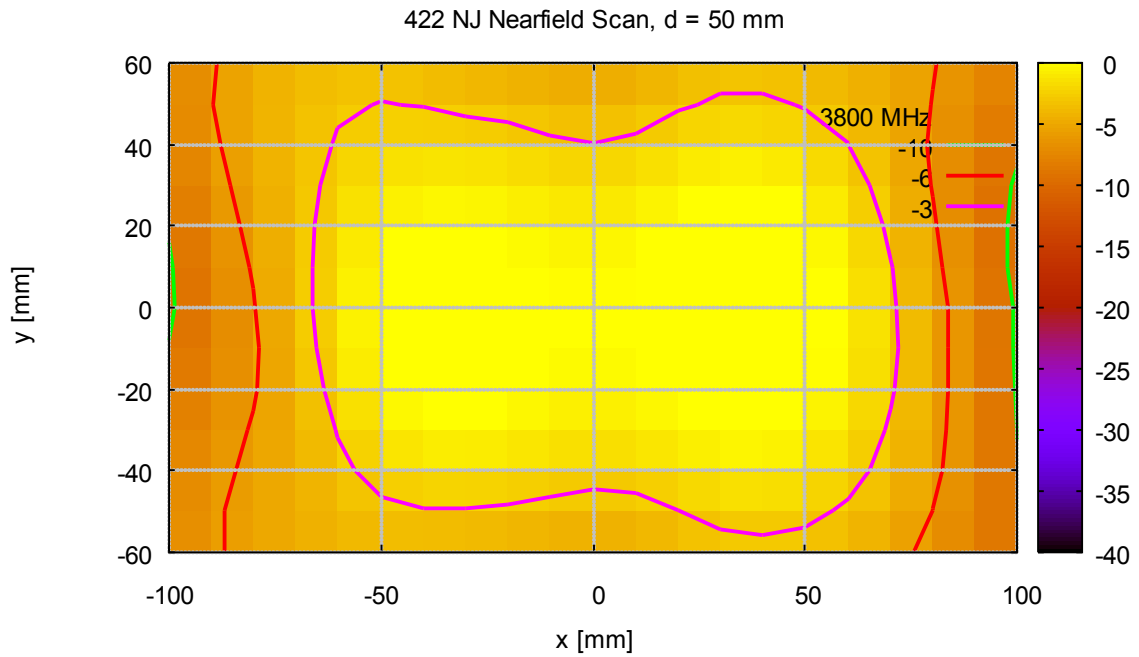


422 NJ Nearfield Scan, d = 50 mm

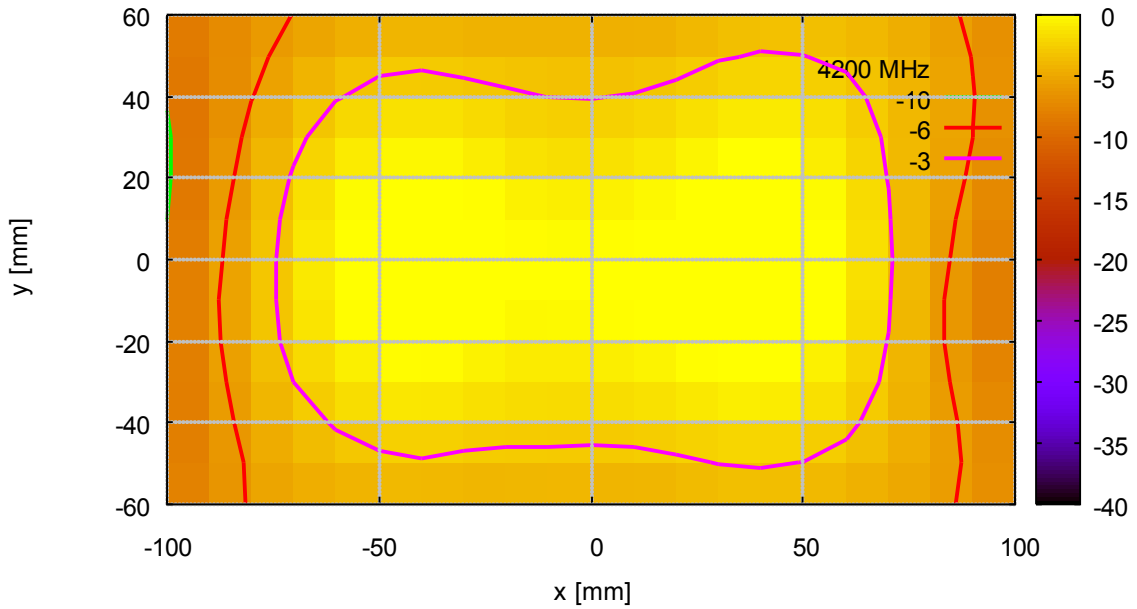


422 NJ Nearfield Scan, d = 50 mm

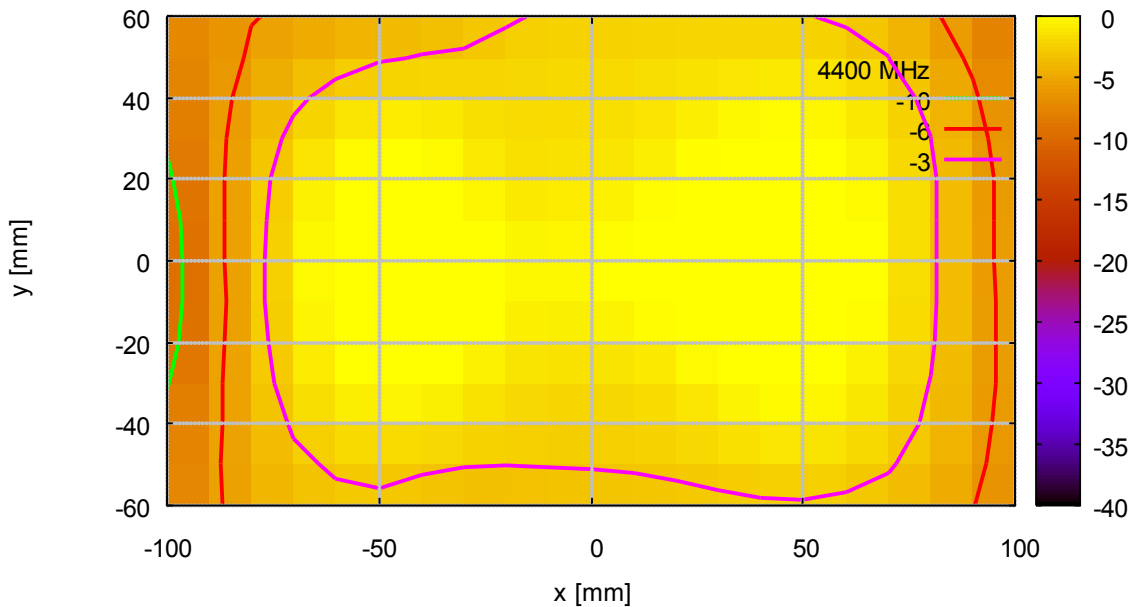




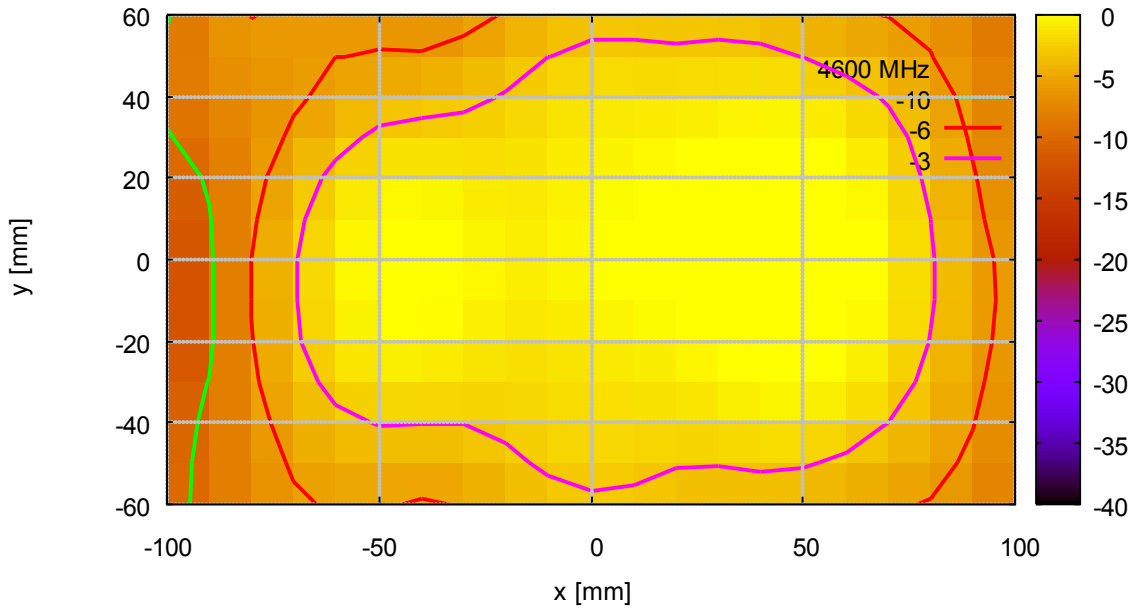
422 NJ Nearfield Scan, d = 50 mm



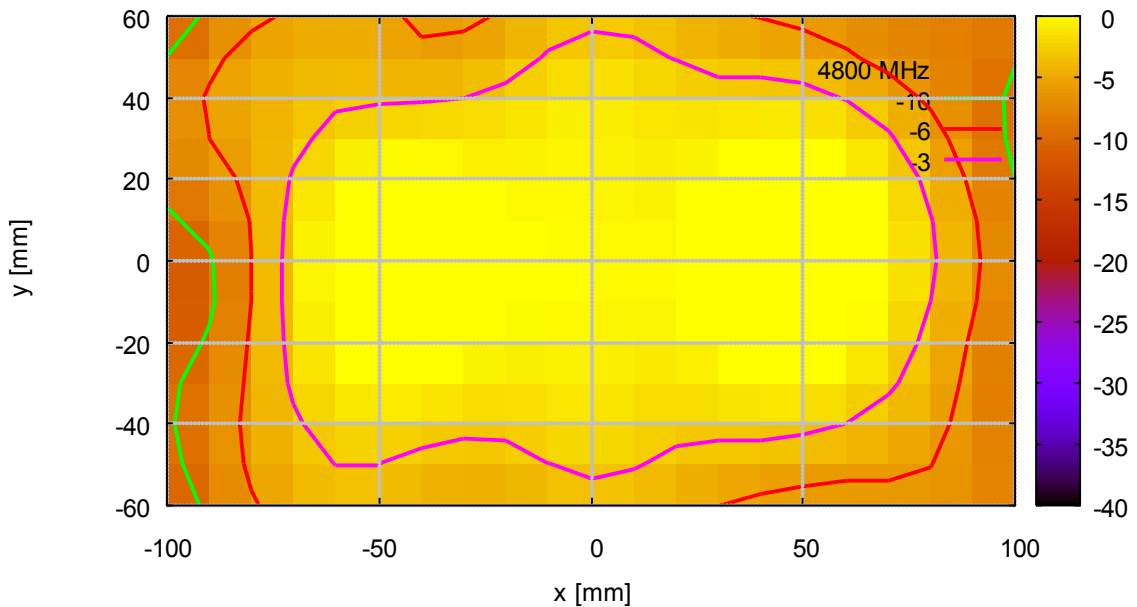
422 NJ Nearfield Scan, d = 50 mm



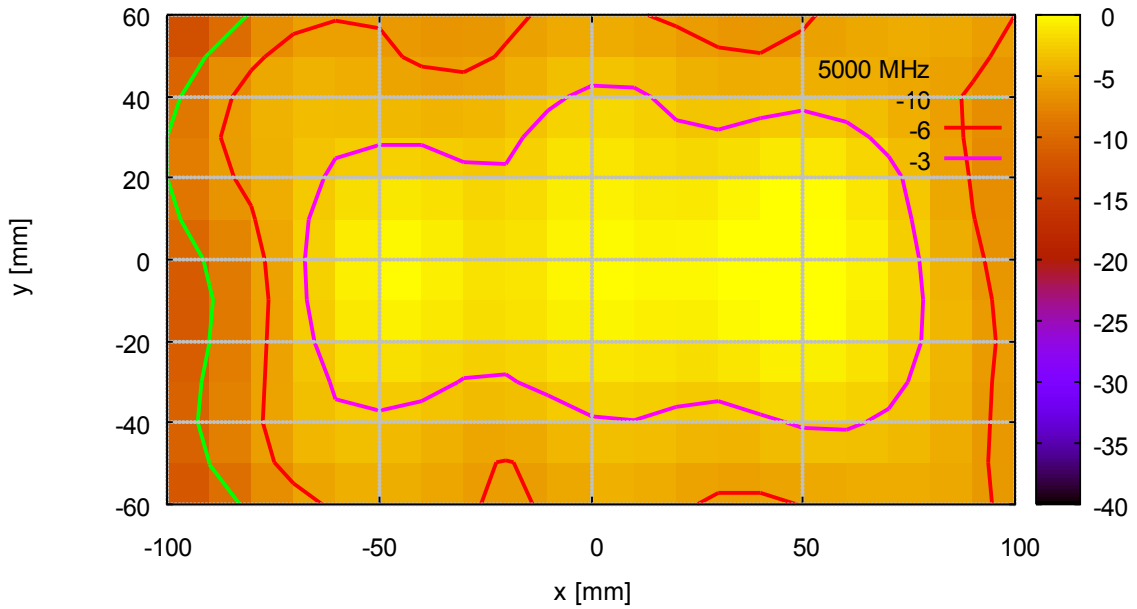
422 NJ Nearfield Scan, d = 50 mm



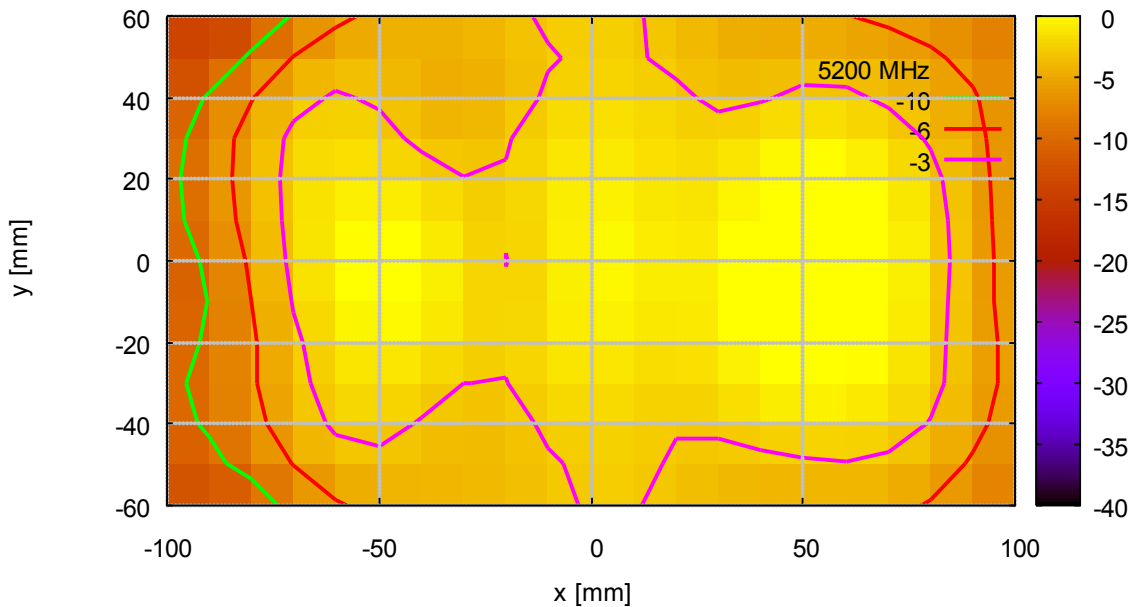
422 NJ Nearfield Scan, d = 50 mm



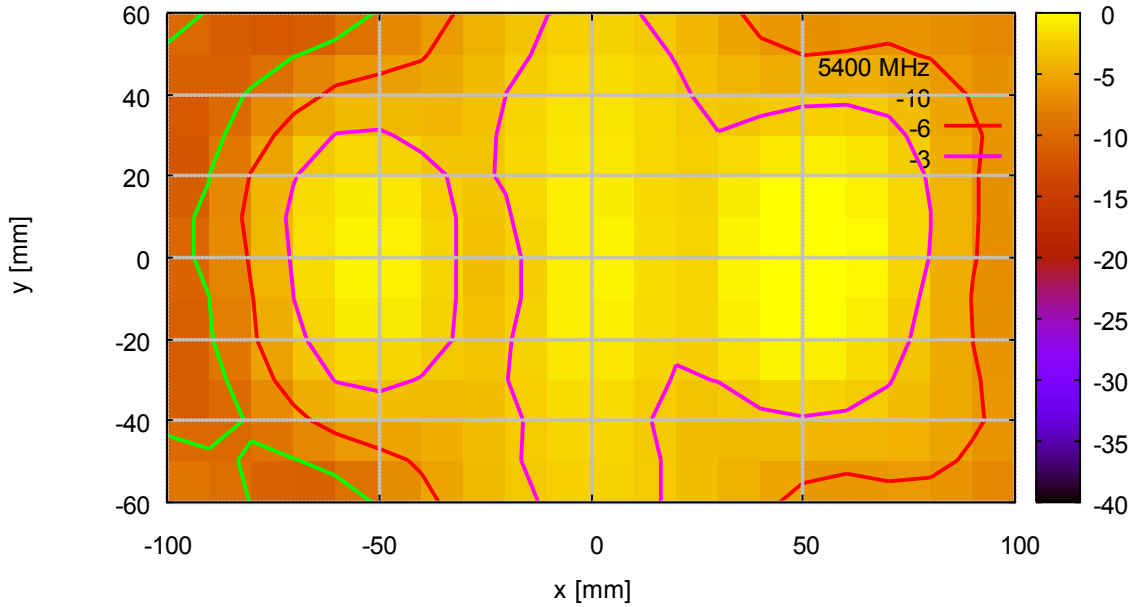
422 NJ Nearfield Scan, d = 50 mm



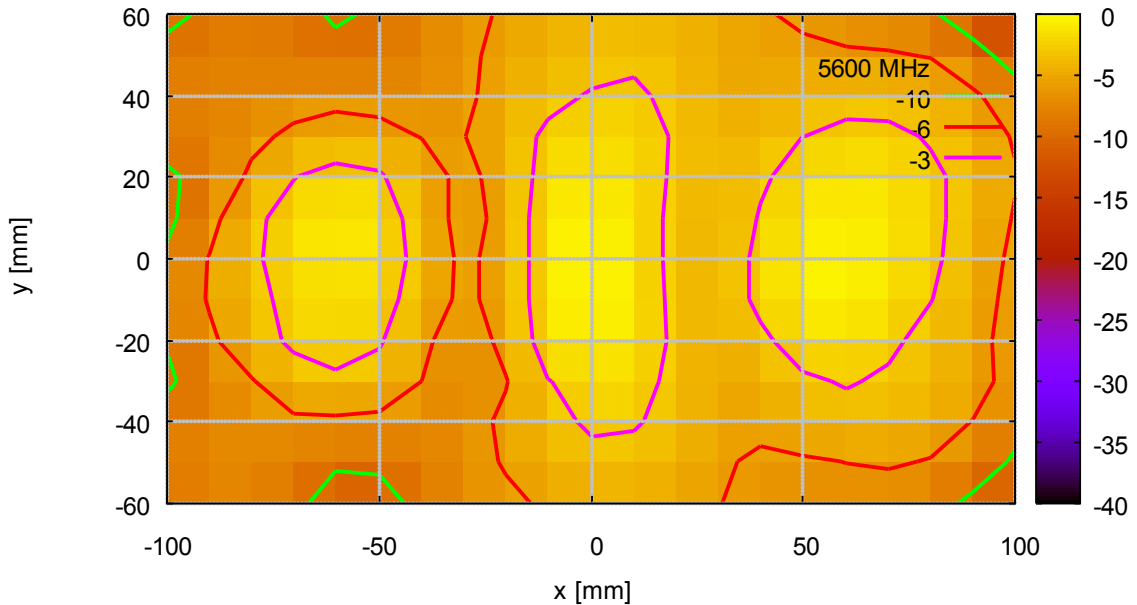
422 NJ Nearfield Scan, d = 50 mm



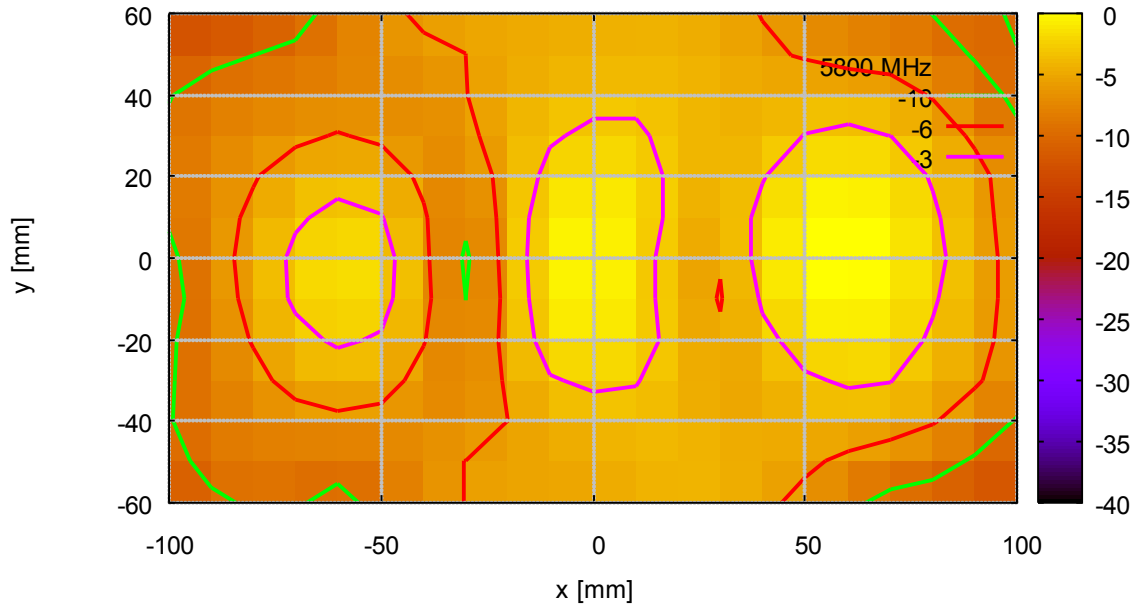
422 NJ Nearfield Scan, d = 50 mm



422 NJ Nearfield Scan, d = 50 mm



422 NJ Nearfield Scan, d = 50 mm



422 NJ Nearfield Scan, d = 50 mm

