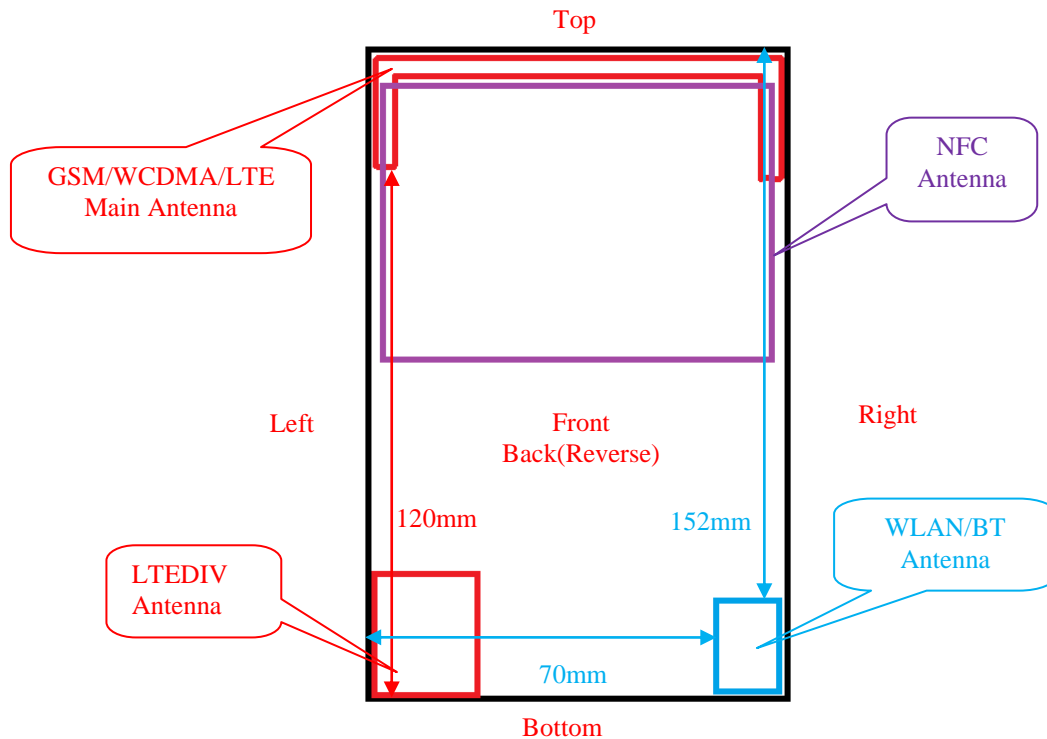# 8. STANDALONE SAR TEST EXCLUSION CONSIDERATIONS

8.1 Antennas Location:

Note: The LTE DIV antenna can not transmit, and is receiving only.

8.2 Antenna Distance To Edge

Antenna Distance To Edge(mm)						
Antenna	**Back**	**Front**	**Left**	**Right**	**Top**	**Bottom**
WWAN Antenna(GSM/WCDMA/LTE)	< 5	< 5	< 5	< 5	< 5	120
WLAN/BT Antenna	< 5	< 5	70	< 5	152	< 5

8.3 Standalone SAR test exclusion considerations

Mode	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Distance (mm)	Calculated value	Threshold (1-g)	SAR Test Exclusion
Wi-Fi 2.4G	2462	12.9	19.5	0	6.1	3	NO
Bluetooth	2480	9.0	7.94	0	2.5	3	YES
Note: The WLAN based average power for calculation. and bluetooth based peak output power for calculation.							

NOTE:
The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] ·
[√f(GHz)] ≤ 3.0 for 1-g SAR and ≤7.5 for 10-g extremity SAR, where
1. f(GHz) is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.
4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.

According to KDB447498 D01 General RF Exposure Guidance v06:   4.3. General SAR test exclusion guidance

c) For frequencies below 100 MHz, the following may be considered for SAR test exclusion (also illustrated in Appendix C):
1) For test separation distances > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by [1 + log(100/f(MHz))]
2) For test separation distances ≤ 50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by ½
3) SAR measurement procedures are not established below 100 MHz

Measurement Result:

For NFC, the power of EUT: E Field@3m is 64.44dBuV/m =-30.76dBm (0.0008mW)
Note: E[dBμV/m] = EIRP[dBm] + 95.2 for d = 3 m.

SAR test exclusion threshold for NFC(13.56MHz) separation distance < 50mm

=[474*(1 + log(100/f(MHz)))]/2

= 443mW

>0.0008mW

Conclusion:

The NFC SAR evaluation can be exempted.