RF Exposure Evaluation

1. Standalone SAR test exclusion

According to KDB447498D01 General RF Exposure Guidance v06
4.3.1. Standalone SAR test exclusion considerations
Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

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
f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation17
The result is rounded to one decimal place for comparison
The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion

EIRP =PT*GT= $(E \times D)^2 /30$
where:
PT = transmitter output power in watts,
GT = numeric gain of the transmitting antenna (unitless),
E = electric field strength in V/m, ---$10^{(dB\mu V/m)/20)}/10^6$,
D = measurement distance in meters (m)---3m
So PT = $(E \times D)^2 /30$ / GT

Test Frequency (MHz)	Level (dBuV/m)	Level (mW)	Test Distance (mm)	Test data	Limit	SAR Exclusion
433.92	86.71	0.11	5	0.0145	<3	Pass

Where:
Ant gain:1dBi;so Ant numeric gain=1.26
EIRP =PT*GT= $(E \times D)^2 /30=(10^{(dB\mu V/m)/20)}/10^6*3)^2 /30=0.00014$
So PT =EIRP/GT= $(E \times D)^2 /30$/GT=0.00011W=0.11mW
So(0.11mW/5mm)* √0.43392GHz=0.0145
exclusion=0.0145<3.0 for 1-g SAR

So the SAR report is not required.