



RF Exposure Report

(Part 0: SAR Char Evaluation)

FCC ID : HD5-CK67X1N
Equipment : Mobile Computer
Brand Name : Honeywell
Model Name : CK67X1N
Applicant : Honeywell International Inc
9680 Old Bailes Rd. Fort Mill, SC 29707 United States
Standard : FCC 47 CFR Part 2 (2.1093)

We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

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History of this test report

Report No.	Version	Description	Issued Date
FA461705-01C	01	Initial issue of report	Dec. 25, 2024



1. Introduction

The RF exposure limit is defined based on time-averaged RF exposure. The product implements Qualcomm Smart Transmit feature which controls the instantaneous transmitting power for WWAN transmitter to ensure the product in compliance with FCC RF exposure limit over a defined time window, for SAR (transmit frequency $\leq 6\text{GHz}$) to control and manage transmitting power in real time and to ensure at all times the time-averaged RF exposure is compliant to the regulation requirement. Cannot operate without SAR characterization at the device level, beforehand.

This report describes the procedures for the SAR char and the parameters obtained from SAR characterization (referred to as SAR char respectively) will be used as input for Smart Transmit. Both SAR char will be entered via the Embedded File System (EFS) version 20 to enable the Smart Transmit Feature.

Terminologies in this report

Plimit	The time-averaged RF power which corresponds to SAR_design_target.
Pmax	Maximum target power level
SAR_design_target:	The design target for SAR compliance. It should be less than regulatory power density limit to account for all device design related uncertainties.
SAR char	Plimit for all the technologies/bands for all applicable DSI

2. SAR Characterization

SAR char must be generated to cover all radio configurations and usage scenarios that the wireless device supports for operating at 6 GHz or below. It will then be used as input for Smart Transmit to control and manage RF exposure for $f < 6\text{ GHz}$.

2.1 SAR design target and uncertainty

<SAR design target and uncertainty>

The detail SAR design target relate to each exposure conditions pls refer to operation description

To account for total uncertainty, SAR_design_target should be determined as:

Band	Duty cycle	Antenna	DSI 0 Body 1g SAR design target (W/kg)	DSI 1 Hotspot 1g SAR design target (W/kg)	DSI 0 Limbs 10g SAR design target (W/kg)	Uncertainty (dB)
LTE Band 7_Ant 1	100.00%	1	0.960	0.559	0.715	1
LTE Band 12/17_Ant 0	100.00%	0	0.960	0.559	0.715	1
LTE Band 13_Ant 0	100.00%	0	0.960	0.559	0.715	1
LTE Band 14_Ant 0	100.00%	0	0.960	0.559	0.715	1
LTE Band 25/2_Ant 1	100.00%	1	0.960	0.559	0.715	1
LTE Band 26/5_Ant 0	100.00%	0	0.960	0.559	0.715	1
LTE Band 30_Ant 1	100.00%	1	0.960	0.559	0.715	1
LTE Band 66/4_Ant 1	100.00%	1	0.960	0.559	0.715	1
LTE Band 71_Ant 0	100.00%	0	0.960	0.559	0.715	1
LTE Band 41/38_Ant 1	62.90%	1	0.960	0.559	0.715	1
LTE Band 41_Ant 1_HPUE	42.90%	1	0.960	0.559	0.715	1
LTE Band 42_Ant 6	62.90%	6	0.561	0.447	0.953	1
LTE Band 42_Ant 6_HPUE	42.90%	6	0.561	0.447	0.953	1
LTE Band 43_Ant 6	62.90%	6	0.561	0.447	0.953	1
LTE Band 48_Ant 6	62.90%	6	0.561	0.447	0.953	1
FR1 n7_Ant 1	100.00%	1	0.960	0.559	0.715	1
FR1 n12_Ant 0	100.00%	0	0.960	0.559	0.715	1
FR1 n13_Ant 0	100.00%	0	0.960	0.559	0.715	1
FR1 n14_Ant 0	100.00%	0	0.960	0.559	0.715	1
FR1 n25/n2_Ant 1	100.00%	1	0.960	0.559	0.715	1
FR1 n26/n5_Ant 0	100.00%	0	0.960	0.559	0.715	1
FR1 n30_Ant 1	100.00%	1	0.960	0.559	0.715	1
FR1 n66_Ant 1	100.00%	1	0.960	0.559	0.715	1
FR1 n71_Ant 0	100.00%	0	0.960	0.559	0.715	1
FR1 n41/n38_Ant 1	100.00%	1	0.960	0.559	0.715	1
FR1 n41_Ant 1_HPUE	50.00%	1	0.960	0.559	0.715	1
FR1 n41_Ant 2+1(2)	100.00%	2	0.561	0.447	0.953	1
FR1 n41_Ant 2+1(2)_HPUE	50.00%	2	0.561	0.447	0.953	1
FR1 n48_Ant 3	100.00%	3	0.561	0.447	0.953	1
FR1 n48_Ant 4	100.00%	4	0.960	0.559	0.715	1
FR1 n48_Ant 5+6(5)	100.00%	5	0.561	0.447	0.953	1
FR1 n48_Ant 6	100.00%	6	0.561	0.447	0.953	1
FR1 n77/78_Ant 3	100.00%	3	0.561	0.447	0.953	1
FR1 n77/78_Ant 3_HPUE	50.00%	3	0.561	0.447	0.953	1
FR1 n77/78_Ant 4	100.00%	4	0.960	0.559	0.715	1
FR1 n77/78_Ant 4_HPUE	50.00%	4	0.960	0.559	0.715	1
FR1 n77/78_Ant 5+6(5)	100.00%	5	0.561	0.447	0.953	1
FR1 n77/78_Ant 5+6(5)_HPUE	50.00%	5	0.561	0.447	0.953	1
FR1 n77/78_Ant 6	100.00%	6	0.561	0.447	0.953	1
FR1 n77/78_Ant 6_HPUE	50.00%	6	0.561	0.447	0.953	1

$$SAR_design_target < SAR_{regulatory_limit} \times 10^{\frac{-total\ uncertainty}{10}}$$

2.2 SAR Char Table

<P_{limit} for supported technologies and bands (P_{limit} in EFS file)>

*P_{max} is used for RF tune up procedure. The maximum allowed output power is equal to P_{max} + 1dB uncertainty.

**All P_{limit} power levels entered in the Table correspond to average power levels after accounting for duty cycle in the case TDD modulation schemes (for e.g., GSM & LTE TDD & NR TDD).

The max allowed output power is the P_{limit} + 1dB device uncertainty, and if P_{limit} is higher than P_{max}, the device output power will be P_{max} instead.

Band	Duty cycle	Antenna	DSI 0 Body/Limbs P _{limit} (dB)	DSI 1 Hotspot P _{limit} (dB)	P _{max} *	Uncertainty (dB)
LTE Band 7_Ant 1	100.00%	1	19.6	22.0	24.0	1
LTE Band 12/17_Ant 0	100.00%	0	26.9	27.8	24.0	1
LTE Band 13_Ant 0	100.00%	0	24.9	25.7	24.5	1
LTE Band 14_Ant 0	100.00%	0	24.9	25.1	24.0	1
LTE Band 25/2_Ant 1	100.00%	1	22	24.8	24.0	1
LTE Band 26/5_Ant 0	100.00%	0	23.7	24.7	24.0	1
LTE Band 30_Ant 1	100.00%	1	22	24.9	24.0	1
LTE Band 66/4_Ant 1	100.00%	1	21.4	23.1	24.5	1
LTE Band 71_Ant 0	100.00%	0	27.3	28.2	24.0	1
LTE Band 41/38_Ant 1**	62.90%	1	19.9	22.1	22.0	1
LTE Band 41_Ant 1_HPUE**	42.90%	1	20.8	22.7	22.8	1
LTE Band 42_Ant 6 **	62.90%	6	19.5	18.7	22.0	1
LTE Band 42_Ant 6_HPUE**	42.90%	6	20.6	19.1	22.3	1
LTE Band 43_Ant 6**	62.90%	6	20.7	19.5	21.5	1
LTE Band 48_Ant 6**	62.90%	6	20.8	19.2	21.5	1
FR1 n7_Ant 1	100.00%	1	20	22.6	24.0	1
FR1 n12_Ant 0	100.00%	0	26.7	29.1	24.0	1
FR1 n13_Ant 0	100.00%	0	24.5	26.1	24.0	1
FR1 n14_Ant 0	100.00%	0	24.6	25.9	24.0	1
FR1 n25/n2_Ant 1	100.00%	1	21.1	24.8	24.0	1
FR1 n26/n5_Ant 0	100.00%	0	23.9	25.0	24.0	1
FR1 n30_Ant 1	100.00%	1	23.6	25.9	24.0	1
FR1 n66_Ant 1	100.00%	1	21	24.8	24.5	1
FR1 n71_Ant 0	100.00%	0	26.9	29.3	24.0	1
FR1 n41/n38_Ant 1	100.00%	1	20.6	22.2	24.0	1
FR1 n41_Ant 1_HPUE**	50.00%	1	20.6	22.3	24.0	1
FR1 n41_Ant 2+1(2)	100.00%	2	20.1	19.9	19.5	1
FR1 n41_Ant 2+1(2)_HPUE**	50.00%	2	20.4	20.1	19.5	1
FR1 n48_Ant 3	100.00%	3	21.5	19.3	22.9	1
FR1 n48_Ant 4	100.00%	4	20.3	18.5	22.9	1
FR1 n48_Ant 5+6(5)	100.00%	5	22.7	19.4	20.0	1
FR1 n48_Ant 6	100.00%	6	21.3	19.8	23.5	1
FR1 n77/78_Ant 3	100.00%	3	19	16.7	23.4	1
FR1 n77/78_Ant 3_HPUE**	50.00%	3	19.4	16.6	22.9	1
FR1 n77/78_Ant 4	100.00%	4	16.4	17.7	23.4	1
FR1 n77/78_Ant 4_HPUE**	50.00%	4	16.4	17.9	22.9	1
FR1 n77/78_Ant 5+6(5)	100.00%	5	19.7	17.4	19.5	1
FR1 n77/78_Ant 5+6(5)_HPUE**	50.00%	5	21	17.8	19.0	1
FR1 n77/78_Ant 6	100.00%	6	20.9	18.6	24.0	1
FR1 n77/78_Ant 6_HPUE**	50.00%	6	21	18.7	23.5	1