

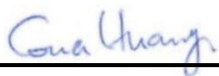
RF Exposure Report

(Part 0: SAR Char Evaluation)

FCC ID : UZ7TCW01G
Equipment : Touch Computer
Brand Name : ZEBRA
Model Name : TCW01G
Applicant : Zebra Technologies Corporation
3 Overlook Point, Lincolnshire, IL 60069 USA
Manufacturer : Zebra Technologies Corporation
3 Overlook Point, Lincolnshire, IL 60069 USA
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.



Approved by: Cona Huang / Deputy Manager

Sporton International Inc. EMC & Wireless Communications Laboratory
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History of this test report

Report No.	Version	Description	Issued Date
FA5N0611-01A	01	Initial issue of report	Apr. 26, 2026



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/WLAN/BT transmitter to ensure the product in compliance with RF exposure limit over a defined time window. 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.

Smart Transmit allows the device to transmit at higher power instantaneously, as high as Pmax, when needed, but enforces power limiting to maintain time-averaged transmit power to Plimit. Below table shows Plimit EFS settings and maximum tune up output power Pmax configured for this EUT for various transmit conditions (Device State Index DSI).

<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

<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 GHz.

<SAR design target>

Band	Antenna	Head	Body Worn	Hotspot	Extremity	Sensor Off	Power tolerance (dBm)
		(DSI4)	(DSI3)	(DSI2)	(DSI3)	(DSI0)	
GSM850 GPRS 1TX	8	0.95	0.95	0.95	2.54	0.95	1.00
GSM850 GPRS 2TX	8	0.95	0.95	0.95	2.54	0.95	1.00
GSM850 GPRS 3TX	8	0.95	0.95	0.95	2.54	0.95	1.00
GSM850 GPRS 4TX	8	0.95	0.95	0.95	2.54	0.95	1.00
GSM850 EDGE 1TX	8	0.95	0.95	0.95	2.54	0.95	1.00
GSM850 EDGE 2TX	8	0.95	0.95	0.95	2.54	0.95	1.00
GSM850 EDGE 3TX	8	0.95	0.95	0.95	2.54	0.95	1.00
GSM850 EDGE 4TX	8	0.95	0.95	0.95	2.54	0.95	1.00
GSM1900 GPRS 1TX	1	0.95	0.95	0.95	2.54	0.95	1.00
GSM1900 GPRS 2TX	1	0.95	0.95	0.95	2.54	0.95	1.00
GSM1900 GPRS 3TX	1	0.95	0.95	0.95	2.54	0.95	1.00
GSM1900 GPRS 4TX	1	0.95	0.95	0.95	2.54	0.95	1.00
GSM1900 EDGE 1TX	1	0.95	0.95	0.95	2.54	0.95	1.00
GSM1900 EDGE 2TX	1	0.95	0.95	0.95	2.54	0.95	1.00
GSM1900 EDGE 3TX	1	0.95	0.95	0.95	2.54	0.95	1.00
GSM1900 EDGE 4TX	1	0.95	0.95	0.95	2.54	0.95	1.00
WCDMA II	1	0.95	0.95	0.95	2.54	0.95	1.00
WCDMA IV	1	0.95	0.95	0.95	2.54	0.95	1.00
WCDMA V	8	0.95	0.95	0.95	2.54	0.95	1.00
LTE B2	1	0.95	0.95	0.95	2.54	0.95	1.00
LTE B2	5	0.95	0.95	0.95	2.54	0.95	1.00
LTE B4	1	0.95	0.95	0.95	2.54	0.95	1.00
LTE B4	5	0.95	0.95	0.95	2.54	0.95	1.00
LTE B5	8	0.95	0.95	0.95	2.54	0.95	1.00
LTE B7	8	0.95	0.95	0.95	2.54	0.95	1.00
LTE B7	5	0.95	0.95	0.95	2.54	0.95	1.00
LTE B12	8	0.95	0.95	0.95	2.54	0.95	1.00
LTE B13	8	0.95	0.95	0.95	2.54	0.95	1.00



LTE B14	8	0.95	0.95	0.95	2.54	0.95	1.00
LTE B17	8	0.95	0.95	0.95	2.54	0.95	1.00
LTE B25	1	0.95	0.95	0.95	2.54	0.95	1.00
LTE B25	5	0.95	0.95	0.95	2.54	0.95	1.00
LTE B26	8	0.95	0.95	0.95	2.54	0.95	1.00
LTE B30	8	0.95	0.95	0.95	2.54	0.95	1.00
LTE B30	5	0.95	0.95	0.95	2.54	0.95	1.00
LTE B66	1	0.95	0.95	0.95	2.54	0.95	1.00
LTE B66	5	0.95	0.95	0.95	2.54	0.95	1.00
LTE B70	1	0.95	0.95	0.95	2.54	0.95	1.00
LTE B70	5	0.95	0.95	0.95	2.54	0.95	1.00
LTE B71	8	0.95	0.95	0.95	2.54	0.95	1.00
LTE B106	8	0.95	0.95	0.95	2.54	0.95	1.00
LTE B38	8	0.95	0.95	0.95	2.54	0.95	1.00
LTE B38	5	0.95	0.95	0.95	2.54	0.95	1.00
LTE B41 (PC3)	8	0.95	0.95	0.95	2.54	0.95	1.00
LTE B41 (PC3)	5	0.95	0.95	0.95	2.54	0.95	1.00
LTE B41 (PC2)	8	0.95	0.95	0.95	2.54	0.95	1.00
LTE B41 (PC2)	5	0.95	0.95	0.95	2.54	0.95	1.00
LTE B48 (PC3)	8	0.95	0.95	0.95	2.54	0.95	1.00
LTE B48 (PC3)	9	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n2	1	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n2	5	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n5	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n7	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n7	5	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n12	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n13	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n14	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n25	1	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n25	5	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n26	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n30	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n30	5	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n66	1	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n66	5	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n70	1	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n70	5	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n71	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n38	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n38	5	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n41 (PC3)	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n41 (PC3)	5	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n41 (PC2)	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n41 (PC2)	5	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n41 (PC3)(SRS)	3	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n41 (PC3)(SRS)	4	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n48 (PC3)	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n48 (PC3)	9	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n77 (PC3)	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n77 (PC3)	9	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n77 (PC2)	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n77 (PC2)	9	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n77 (PC3)(SRS)	3	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n77 (PC3)(SRS)	4	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n78 (PC3)	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n78 (PC3)	9	0.95	0.95	0.95	2.54	0.95	1.00

FR1 n78 (PC2)	8	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n78 (PC2)	9	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n78 (PC3)(SRS)	3	0.95	0.95	0.95	2.54	0.95	1.00
FR1 n78 (PC3)(SRS)	4	0.95	0.95	0.95	2.54	0.95	1.00

Band	Head	Hotspot	Body-worn / Extremity	Sensor off	Device Uncertainty (dB)
	DSI 2	DSI 3	DSI 1	DSI 0	
WLAN2.4G	0.850	0.850	0.85 / 2.26	0.850	1.5
WLAN5.2G	0.850	0.850	0.85 / 2.26	0.850	1.5
WLAN5.3G	0.850	0.850	0.85 / 2.26	0.850	1.5
WLAN5.5G	0.850	0.850	0.85 / 2.26	0.850	1.5
WLAN5.8G	0.850	0.850	0.85 / 2.26	0.850	1.5
WLAN6G UNII5	0.850	0.850	0.85 / 2.26	0.850	1.5
WLAN6G UNII6	0.850	0.850	0.85 / 2.26	0.850	1.5
WLAN6G UNII7	0.850	0.850	0.85 / 2.26	0.850	1.5
WLAN6G UNII8	0.850	0.850	0.85 / 2.26	0.850	1.5
Bluetooth	0.850	0.850	0.85 / 2.26	0.850	1.5

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

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


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

Band	Antenna	Head	Body Worn / Extremity	Hotspot	Sensor OFF	Pmax*
		(DSI:2)	(DSI1)	(DSI3)	(DSI0)	
GSM850(4 Tx slots)**	8	22.6	23.3	23.3	23.5	23.5
GSM1900(2 Tx slots)**	1	24.8	22.2	22.2	20.5	20.5
WCDMA II	1	23.8	21.3	21.3	24.0	24
WCDMA IV	1	25.5	20.3	20.3	24.0	24
WCDMA V	8	24.5	23	23	24.0	24
LTE B7	8	20	20.6	20.6	24.0	24
LTE B7	5	37.5	17.7	17.7	24.0	24
LTE B12/B17	8	25.9	25.5	25.5	24.0	24
LTE B13	8	24.8	24.2	24.2	23.5	23.5
LTE B14	8	24.9	24.2	24.2	23.5	23.5
LTE B2/B25	1	23.6	21.2	21.2	24.0	24
LTE B2/B25	5	30	22	22	24.0	24
LTE B5/B26	8	25.1	24	24	24.0	24
LTE B30	8	24.2	22.5	22.5	23.5	23.5
LTE B30	5	32.6	19.4	19.4	23.5	23.5
LTE B41/38(PC3)	8	20	20.2	20.2	22.4	22
LTE B41 (PC2)						22.4
LTE B41/38(PC3)	5	34.6	17.8	17.8	22.4	22.0
LTE B41 (PC2)						22.4
LTE B48	8	20.2	16.2	16.2	20.5	20.5
LTE B48	9	18.2	20.4	20.4	20.5	20.5
LTE B4/B66	1	25.5	19.8	19.8	24.0	24.0
LTE B4/B66	5	30	21.2	21.2	24.0	24.0
LTE B70	1	24.9	21.2	21.2	24.0	24.0
LTE B70	5	32.7	23.6	23.6	24.0	24.0
LTE B71	8	30.1	29	29	24.0	24.0
LTE B106	8	21.2	21.6	21.6	24.0	24.0
FR1 n7	8	21.3	21.3	21.3	24.0	24.0
FR1 n7	5	39.8	17.8	17.8	24.0	24.0
FR1 n12	8	25.1	26.3	26.3	24.0	24.0
FR1 n13	8	24.6	25	25	23.5	23.5
FR1 n14	8	24.2	24.5	24.5	23.5	23.5
FR1 n2/n25	1	23.5	24	24	24.0	24.0
FR1 n2/n25	5	32.3	21.2	21.2	24.0	24.0
FR1 n5/n26	8	23.8	24.4	24.4	24.0	24.0
FR1 n30	8	23.8	24.1	24.1	23.5	23.5
FR1 n30	5	33.6	19.5	19.5	23.5	23.5
FR1 n41/38(PC3)	8	20.7	20.7	20.7	24.0	24.0
FR1 n41 (PC2)						23.0
FR1 n41/38(PC3)	5	35.4	17.8	17.8	24.0	24.0
FR1 n41 (PC2)						23.0
FR1 n41 (PC2)_SRS	3	30.5	25.8	25.8	22.5	22.5
FR1 n41 (PC2)_SRS	4	31.7	20	20	22.0	22.0
FR1 n48	8	21.2	16.5	16.5	22.5	22.5
FR1 n48	9	18.2	21.3	21.3	22.5	22.5
FR1 n66	1	25.6	21.1	21.1	24.0	24.0
FR1 n66	5	29.8	21.8	21.8	24.0	24.0
FR1 n70	1	25.2	24.2	24.2	24.0	24.0
FR1 n70	5	34.6	24.1	24.1	24.0	24.0
FR1 n71	8	30.8	29.6	29.6	24.0	24.0
FR1 n77/78(PC3)_(27Q & 27O)	8	20.7	16.9	16.9	24.0	24.0
FR1 n77/78 (PC2)_(27Q & 27O)						23.0
FR1 n77/78(PC3)_(27Q & 27O)	9	17.6	20.7	20.7	24.0	24.0

FR1 n77/78 (PC2)_(27Q & 27O)						23.0
FR1 n77/78 (PC2)_SRS_(27Q & 27O)	3	27.5	14.7	14.7	24.0	24.0
FR1 n77/78 (PC2)_SRS_(27Q & 27O)	4	24.9	18	18	23.0	23.0
FR1 n77/78(PC3)_(Part 96)	8	20.7	16.9	16.9	24.0	22.5
FR1 n77/78(PC3)_(Part 96)	9	17.6	20.7	20.7	24.0	22.5
FR1 n77/78(PC3)_(Part 96)	3	27.5	14.7	14.7	24.0	23.0
FR1 n77/78(PC3)_(Part 96)	4	24.9	18	18	23.0	23.0

Band	Head	Hotspot	Body Worn / Extremity	Sensor OFF	Pmax*
	(DSI 2)	(DSI 3)	(DSI 1)	(DSI0)	
WLAN2.4G	21.0	19.0	19.0	29.5	20.5
WLAN5.2G	18.5	13.2	13.2	19.5	18.5
WLAN5.3G	18.5		13.2	19.5	18.5
WLAN5.5G	18.5		13.2	19.5	18.5
WLAN5.8G	18.5	13.2	13.2	19.5	18.5
WLAN6G UNII5_SP_LPI	16.0		11.6	25.1	18.5
WLAN6G UNII6_SP_LPI	16.0		11.6	25.1	18.5
WLAN6G UNII7_SP_LPI	16.0		11.6	25.1	18.5
WLAN6G UNII8_SP_LPI	16.0		11.6	25.1	16.0
WLAN6G UNII5_VLP	16.0	11.6	11.6	25.1	9.0
WLAN6G UNII6_VLP	16.0	11.6	11.6	25.1	9.0
WLAN6G UNII7_VLP	16.0	11.6	11.6	25.1	9.0
WLAN6G UNII8_VLP	16.0	11.6	11.6	25.1	9.0
Bluetooth Ant 6	18.9	18.6	18.6	34.5	4.7
Bluetooth Ant 7	21.6	18.6	18.6	34.5	4.7

Note:

1. Pmax is used for RF tune up procedure. The maximum allowed output power is equal to Pmax + Total uncertainty.
2. The max allowed output power is the Plimit + Total uncertainty, and if Plimit is higher than Pmax, the device output power will be Pmax instead.
3. Plimit is single chain output power, MIMO = single chain power plus 3dB

This device supports two sub6 AG: AG0 and AG1, the detailed please refer to the below table:

Antenna Group 0 (AG0)	WWAN Ant 8, 1, 9, 4, 3, WLAN/BT Ant 6, 7,
Antenna Group 1 (AG1)	WWAN Ant 5, 4, 3, WLAN/BT Ant 6, 7,

Note: Ant 3, 4, 6, 7 as shared antennas (sAnt) among AG0 and AG1.