



## RF EXPOSURE REPORT

**Applicant Name:**  
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**Date of Evaluation:**  
 08/19/13  
**Evaluation Site/Location:**  
 PCTEST Lab, Columbia, MD, USA  
**Document Serial No.:**  
 0Y1308121572-R1.A3L

**FCC ID:** A3LSMV700

**APPLICANT:** SAMSUNG ELECTRONICS, CO. LTD.


**DUT Type:** BT wrist device  
**Application Type:** Certification  
**FCC Rule Part(s):** CFR §2.1093  
**Model(s):** SM-V700  
**Test Device Serial No.:** Pre-Production [S/N: 10C45, 10B22]

Equipment Class	Band & Mode	Tx Frequency	Measured Conducted Power [dBm]
DSS/DTS	Bluetooth	2402 - 2480 MHz	8.62



**Note: This revised Test Report (S/N: 0Y1308121572-R1.A3L) supersedes and replaces the previously issued test report on the same subject EUT for the same type of testing as indicated. Please discard or destroy the previously issued test report (S/N: 0Y1308121572.A3L) and dispose of it accordingly.**

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the evaluation report. Results reported herein relate only to the item(s) listed.

I attest to the accuracy of the evaluation. All evaluations reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these evaluations and vouch for the qualifications of all persons taking them. Results reported herein relate only to the item(s) listed.



  
 Randy Ortanez  
 President



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# 1 DEVICE UNDER TEST

## 1.1 Device Overview

Band & Mode	Operating Modes	Tx Frequency
Bluetooth	Data	2402 - 2480 MHz

## 1.2 DUT Antenna Locations

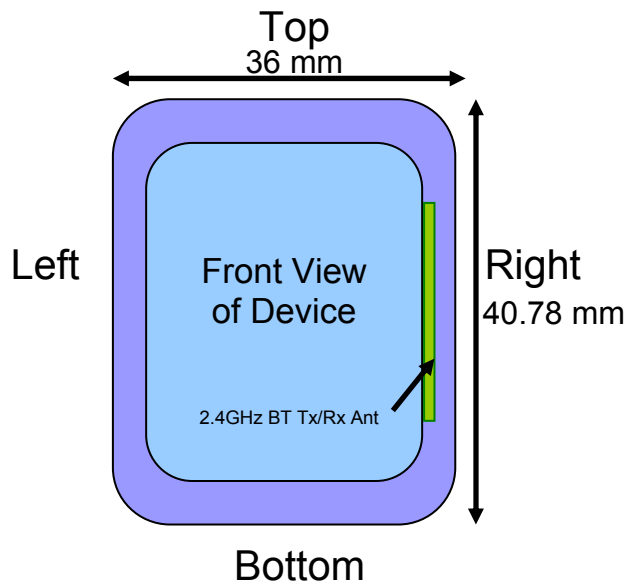


Figure 1-1  
DUT Antenna Locations



## 1.3 SAR Test Exclusions Applied

### (A) Bluetooth

Per FCC KDB 447498 D01v05, the SAR exclusion threshold for distances  $\leq 50\text{mm}$  is defined by the following equation:

$$\frac{\text{Max Power of Channel (mW)}}{\text{Test Separation Dist (mm)}} * \sqrt{\text{Frequency(GHz)}} \leq 3.0$$

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, Bluetooth SAR was not required for either 1g SAR or 10g extremity SAR;  $[(8 / 5) * \sqrt{2.441}] = 2.5 < 3.0$ . Per KDB Publication 447498 D01v05, the maximum power of the channel was rounded to the nearest mW before calculation.

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#### 1.4 Simultaneous Transmission

This DUT cannot transmit in any simultaneous transmission scenarios.

#### 1.5 Power Reduction for SAR

There is no power reduction used for any band/mode implemented in this device for SAR purposes.



#### 1.6 Nominal and Maximum Output Power Specifications

This device operates using the following maximum and nominal output power specifications.

Mode / Band		Modulated Average (dBm)
Bluetooth	Maximum	9.0
	Nominal	8.5

#### 1.7 FCC Guidance Applied

- FCC KDB Publication 447498 D01v05 (General SAR Guidance)

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## 2 FCC RF EXPOSURE LIMITS

### 2.1 Uncontrolled Environment

UNCONTROLLED ENVIRONMENTS are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure. The general population/uncontrolled exposure limits are applicable to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Members of the general public would come under this category when exposure is not employment-related; for example, in the case of a wireless transmitter that exposes persons in its vicinity.



### 2.2 Controlled Environment

CONTROLLED ENVIRONMENTS are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e. as a result of employment or occupation). In general, occupational/controlled exposure limits are applicable to situations in which persons are exposed as a consequence of their employment, who have been made fully aware of the potential for exposure and can exercise control over their exposure. This exposure category is also applicable when the exposure is of a transient nature due to incidental passage through a location where the exposure levels may be higher than the general population/uncontrolled limits, but the exposed person is fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

**Table 2-1**  
**SAR Human Exposure Specified in ANSI/IEEE C95.1-1992 and Health Canada Safety Code 6**

HUMAN EXPOSURE LIMITS		
	UNCONTROLLED ENVIRONMENT <i>General Population</i> (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT <i>Occupational</i> (W/kg) or (mW/g)
<b>Peak Spatial Average SAR</b> Head	1.6	8.0
<b>Whole Body SAR</b>	0.08	0.4
<b>Peak Spatial Average SAR</b> Hands, Feet, Ankle, Wrists, etc.	4.0	20

1. The Spatial Peak value of the SAR averaged over any 1 gram of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.
2. The Spatial Average value of the SAR averaged over the whole body.
3. The Spatial Peak value of the SAR averaged over any 10 grams of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

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### 3 RF CONDUCTED POWERS

#### 3.1 Bluetooth Conducted Powers

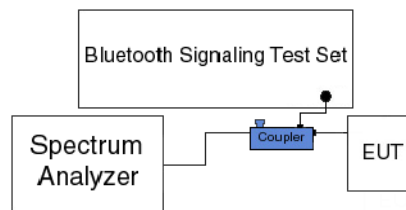
**Table 3-1  
Bluetooth Average RF Power**

Frequency [MHz]	Data Rate [Mbps]	Channel No.	Avg Conducted Power	
			[dBm]	[mW]
2402	1.0	0	8.46	7.010
2441	1.0	39	8.62	7.275
2480	1.0	78	8.53	7.133
2402	2.0	0	6.99	4.996
2441	2.0	39	7.17	5.218
2480	2.0	78	7.08	5.103
2402	3.0	0	7.06	5.084
2441	3.0	39	7.23	5.279
2480	3.0	78	7.13	5.170



**Table 3-2  
Bluetooth LE Average RF Power**

Frequency [MHz]	Channel No.	Bluetooth Mode	Peak Conducted Power	
			[dBm]	[mW]
2402	0	LE	6.91	4.909
2440	19	LE	7.19	5.241
2480	39	LE	7.15	5.193

Based on the maximum conducted power of Bluetooth (rounded to the nearest mW) and the antenna to user separation distance, Bluetooth SAR was not required for either 1g SAR or 10g extremity SAR;  $[(8 / 5) * \sqrt{2.441}] = 2.5 < 3.0$ . Bluetooth LE SAR was also not required for either 1g SAR or 10g extremity SAR;  $[(6 / 5) * \sqrt{2.440}] = 1.9 < 3.0$ . Per KDB Publication 447498 D01v05, the maximum power of the channel was rounded to the nearest mW before calculation.





**Figure 3-1  
Power Measurement Setup**

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## 4 EQUIPMENT LIST

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	BT1	Bluetooth Cable Set	1/17/2013	Annual	1/17/2014	N/A
-	BT2	Bluetooth Cable Set	1/17/2013	Annual	1/17/2014	N/A
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	3/29/2013	Annual	3/29/2014	N/A
-	RE2	Radiated Emissions Cable Set (VHF/UHF)	3/29/2013	Annual	3/29/2014	N/A
Agilent	8447D	Broadband Amplifier	5/31/2013	Annual	5/31/2014	1937A03348
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	4/17/2013	Annual	4/17/2014	3008A00985
Agilent	85650A	Quasi-Peak Adapter	4/17/2013	Annual	4/17/2014	2043A00301
Agilent	87405C	Pre-amplifier (0.1 - 18 GHz)	3/11/2013	Annual	3/11/2014	MY53010007
Agilent	E4407B	ESA Spectrum Analyzer	4/16/2013	Annual	4/16/2014	US39210313
Agilent	E4448A	PSA (3Hz-50GHz) Spectrum Analyzer	4/18/2013	Annual	4/18/2014	US42510244
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/16/2013	Annual	4/16/2014	MY45470194
Agilent	N4010A	Wireless Connectivity Test Set	N/A			GB46170464
Agilent	N5183A	MXG Analog Signal Generator	1/6/2013	Annual	1/6/2014	MY50141900
Agilent	N9020A	MXA Signal Analyzer	10/9/2012	Annual	10/9/2013	US46470561
Agilent	N9030A	PXA Signal Analyzer (26.5GHz)	4/18/2013	Annual	4/18/2014	MY49432391
Agilent	N9030A	PXA Signal Analyzer (44GHz)	1/11/2013	Annual	1/11/2014	MY52350166
Agilent	N9038A	MXE EMI Receiver	12/8/2012	Annual	12/8/2013	MY51210133
Anritsu	ML2495A	Power Meter	10/11/2012	Annual	10/11/2013	1039008
Com-Power	AL-130	9kHz - 30MHz Loop Antenna	6/26/2013	Annual	6/26/2014	121034
Emco	3115	Horn Antenna (1-18GHz)	1/12/2012	Biennial	1/12/2014	9704-5182
Emco	3816/2	LISN	2/12/2013	Biennial	2/12/2015	9709-1077
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	7/24/2013	Biennial	7/24/2015	125518
ETS Lindgren	3160-09	18-26.5 GHz Standard Gain Horn	5/30/2012	Biennial	5/30/2014	135427
Mini-Circuits	VHF-3100+	High Pass Filter	1/17/2013	Annual	1/17/2014	30841
Rohde & Schwarz	CMU200	Base Station Simulator	5/3/2013	Annual	5/3/2014	836371/0079
Rohde & Schwarz	ESU26	EMI Test Receiver	2/25/2013	Annual	2/25/2014	100342
Rohde & Schwarz	TS-PR18	1-18 GHz Pre-Amplifier	5/31/2013	Annual	5/31/2014	100071
Rohde & Schwarz	TS-PR26	18-26.5 GHz Pre-Amplifier	5/31/2013	Annual	5/31/2014	100040
Solar Electronics	8012-50-R-24-BNC	LISN	6/20/2013	Biennial	6/20/2015	310233
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	6/19/2013	Biennial	6/19/2015	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	1/26/2012	Biennial	1/26/2014	A051107



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# CONCLUSION



## 5.1 Evaluation Conclusion

The RF exposure evaluation indicates that the EUT complies with the RF radiation exposure limits of the FCC and Industry Canada, with respect to all parameters subject to this test. These measurements were taken to simulate the RF effects of RF exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests. The results and statements relate only to the item(s) tested.



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