

RF Test Report

Project Number: 4503632**Proposal Number:** 9099**Report Number:** 4503632EMC03**Revision Level:** 1**Client:** Prima-Temp, Inc**Equipment Under Test:** Vaginal Core Body Temperature Sensor**Model Name:** Priya Sensor**Model Number:** PS-01**FCC ID:** 2AE3ZPTPL1007**IC:** 24445-PTPL1007**Applicable Standards:** ANSI C63.10: 2013

FCC Part 15 Subpart C, § 15.247

RSS-247, Issue 2

RSS-GEN, Issue 5

Report issued on: 16 March 2020**Test Result:** Compliant

Tested by:



Paul Villarreal, EMC Engineer

Reviewed by:



Aaron S. Froehlich, EMC Test Engineer

Remarks: This report details the results of the testing carried out on one sample, the results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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1 Summary of Test Results

Test Description	Test Specification		Test Result
DTS / Occupied bandwidth	§15.247(a) (2)	RSS-247 5.2a RSS-GEN 6.7	Compliant
Fundamental output power	§15.247(b) (3)	RSS-247 5.4d	Compliant
Power spectral density	§15.247(e)	RSS-247 5.2b	Compliant
Emissions in non-restricted frequency bands	§15.247(d)	RSS-247 5.5	Compliant
Emissions in restricted frequency bands	§15.205, §15.209	RSS-GEN 8.9, 8.10	Compliant
Field strength of spurious radiation	§15.205, §15.209	RSS-GEN 8.9	Compliant
AC Mains Conducted Emission	§15.207	RSS-GEN 8.8	Compliant
Antenna Requirement	§15.203	RSS-GEN 6.8	Compliant

Notes:

1.1 Modifications Required for Compliance

EUT was set to 12dBm output power with the supplied laptop and BGTool software.

2 General Information

2.1 Client Information

Name: Prima-Temp, Inc
Address: 3100 Arapahoe Ave, Suite 500
City, State, Zip, Country: Boulder, CO 80303 USA

2.2 Test Laboratory

Name: SGS North America, Inc.
Address: 620 Old Peachtree Road NW, Suite 100
City, State, Zip, Country: Suwanee, GA 30024, USA

Accrediting Body: A2LA
Type of lab: Testing Laboratory
Certificate Number: 3212.01

2.3 General Information of EUT

Product Marketing Name (PMN): Priya Sensor
Model Number (HVIN): PS-01
Firmware Version ID (FVIN): PSFW-01
Serial Number: 4877

Frequency Range: 2402 – 2480 MHz
Data Modes: Bluetooth Low Energy – GFSK
Antenna: Chip 2450AT18D0100E [1.5 dBi pk]

Rated Voltage: 3.1Vdc Silver Oxide Battery
Test Voltage: 3.1Vdc

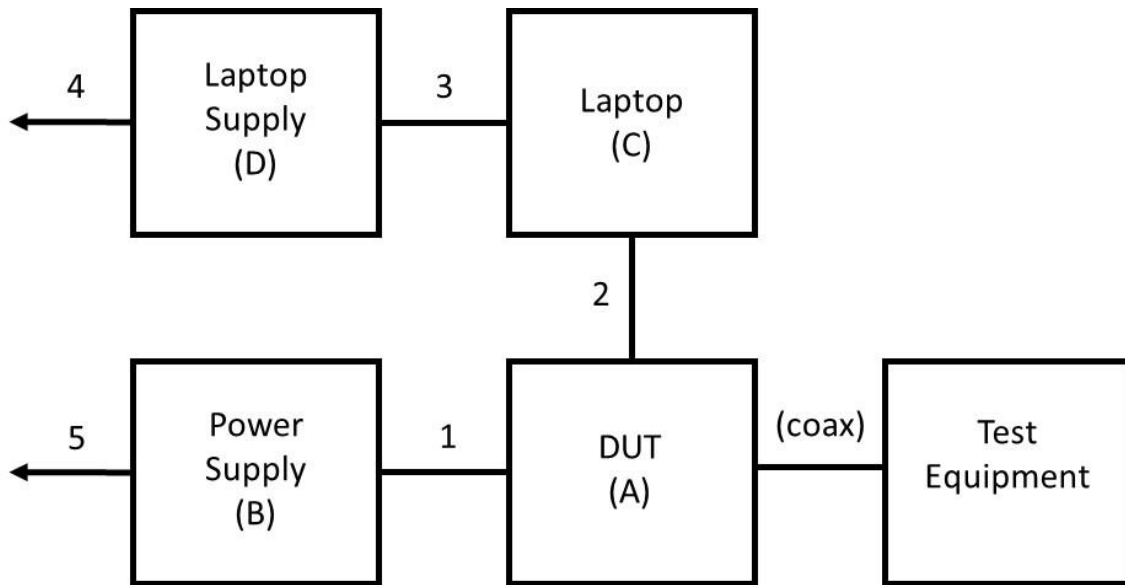
Sample Received Date: 23 July 2019
Dates of testing: 29 July – 30 August 2019

2.4 Operating Modes and Conditions

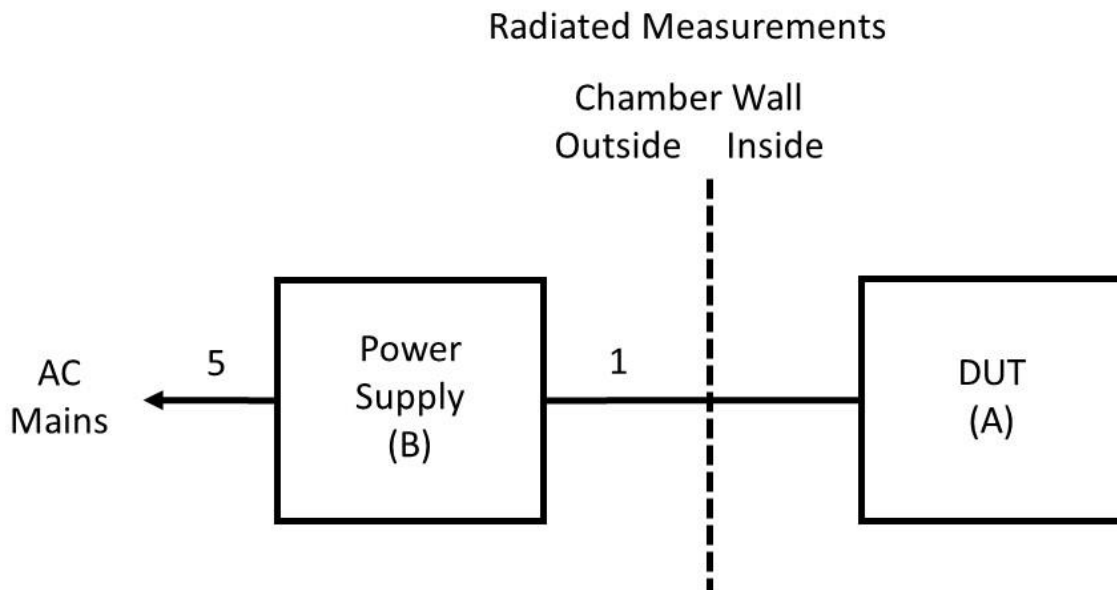
The EUT was powered with a DC supply and programmed with the laptop and BGTool software supplied by the client to transmit on low, mid and high channels in all necessary modulation and modes of operation.

All channels have a power setting of “12 dBm”.

2.5 EUT Connection Block Diagram – Conducted Measurements



2.6 EUT Connection Block Diagram – Radiated Measurements



2.7 System Configurations

Device Reference	Manufacturer	Description	Model Number	Serial Number
A	Prima-Temp, Inc	Temperature Monitor	TempuRing	4877
B	Rigol	DC Power Supply	DP711	DP7A182700833
C	HP	Laptop Computer	Probook 440 G5	5CD8368NC0
D	HP	Laptop Power Supply	854054-003	WFTLD0EDDB3PR5

2.8 Cable List

Cable reference	Port Name	Start	End	Cable Length (m)	Ferrite installed?	Shielded?
1	DC Power	EUT	DC Power Supply	1.0	N	N
2	USB Control	EUT	Laptop	2.0	N	N
3	DC Power	Laptop	Laptop Supply	1.75	N	N
4	AC Power	Laptop Supply	AC Mains	0.95	N	N
5	AC Power	DC Power Supply	AC Mains	2.3	N	N

3 Bandwidth

3.1 Test Result

Test Description	Test Specification		Test Result
DTS Bandwidth	15.247(a)(2)	RSS-247 5.2a RSS-GEN 6.7	Compliant
99% Bandwidth	RSS-GEN 6.7	ANSI C63.10 Clause 6.9.3	Reported

3.2 Test Methods

For measuring the DTS 6dB bandwidth:

- RBW = 100 kHz
- VBW $\geq [3 \times \text{RBW}]$
- Detector = peak
- Trace mode = max hold
- Sweep = auto couple
- Allow the trace to stabilize
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

The procedure of C63.10 Clause 6.9.3 was followed to measure the 99% occupied bandwidth.

All data rates were investigated, and the worst-case configuration results are reported in this section.

3.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.8 °C

Relative Humidity: 46.4 %

Atmospheric Pressure: 97.5 kPa

3.4 Test Equipment

Test End Date: 15-Aug-2019

Tester: PV

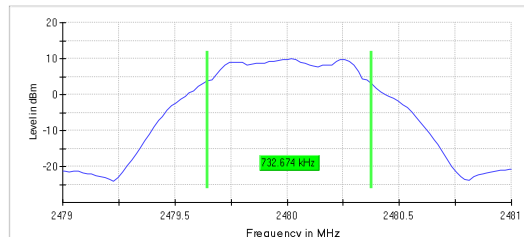
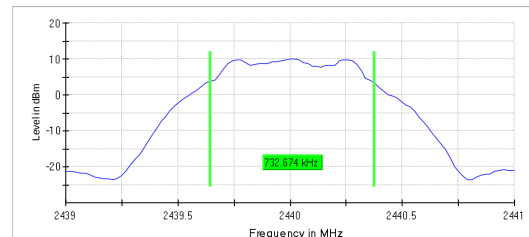
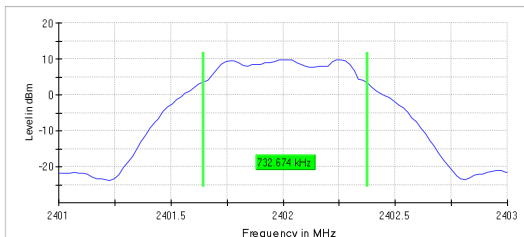
Equipment	Model	Manufacturer	Asset Number	Cal Due Date
SIGNAL ANALYZER (TS8997)	FSV30	ROHDE & SCHWARZ	B085749	1-Nov-2019
ATTENUATOR, 10DB (TS8997)	10DB	ROHDE & SCHWARZ	B095591	30-Sep-2019
RF CABLE (TS8997)	141	Huber & Suhner	B095585	30-Sep-2019
RF SWITCH (TS8997)	OSP	ROHDE & SCHWARZ	15039	15-Dec-2019
POWER METER (TS8997)	OSP-B157	ROHDE & SCHWARZ	15040	15-Dec-2019

Note: The equipment calibration period is 1 year.

3.5 Test Data

3.5.1 6 dB Bandwidth

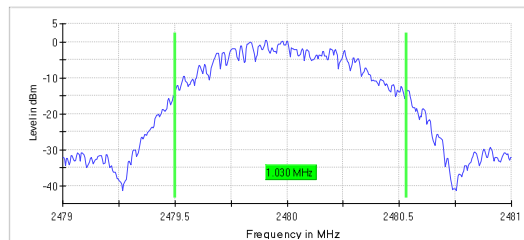
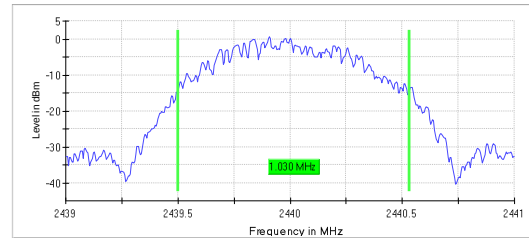
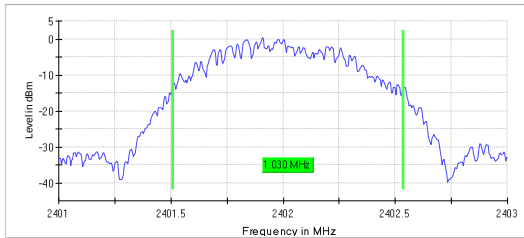
DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	DUT Frequency (MHz)	Max Level (dBm)	Result
2402	0.732674	0.5	---	2401.64356	2402.37624	2402	9.9	PASS
2440	0.732674	0.5	---	2439.64356	2440.37624	2440	10	PASS
2480	0.732674	0.5	---	2479.64356	2480.37624	2480	9.9	PASS



Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	100.000 kHz	~ 100.000 kHz
VBW	300.000 kHz	~ 300.000 kHz
SweepPoints	101	~ 40
SweepTime	18.938 μ s	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	8 / max. 150	max. 150
Stable	5/5	5
Max Stable Difference	0.05 dB	0.50 dB

3.5.2 99% Bandwidth

DUT Frequency (MHz)	Bandwidth (MHz)	Limit Min (MHz)	Limit Max (MHz)	Band Edge Left (MHz)	Band Edge Right (MHz)	DUT Frequency (MHz)	Result
2402	1.03	---	---	2401.5075	2402.5375	2402	PASS
2440	1.03	---	---	2439.5025	2440.5325	2440	PASS
2480	1.03	---	---	2479.5025	2480.5325	2480	PASS



Setting	Instrument Value	Target Value
Start Frequency	2.40100 GHz	2.40100 GHz
Stop Frequency	2.40300 GHz	2.40300 GHz
Span	2.000 MHz	2.000 MHz
RBW	10.000 kHz	>= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	400	~ 400
SweepTime	189.648 μ s	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.30 dB	0.30 dB
Run	5 / max. 150	max. 150
Stable	3-Mar	3
Max Stable Difference	0.08 dB	0.30 dB

4 Fundamental Output Power

4.1 Test Result

Test Description	Regulatory Reference	Test Method	Test Result
Fundamental emission output power	15.247(b) (3) RSS-247 5.4d	ANSI C63.10 Clause 11.9.2.3.2	Compliant

4.2 Test Method

Measurements were performed using a wideband gated RF power meter with gate parameters adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

Limit

The conducted power shall not exceed 1 Watt.

The e.i.r.p. shall not exceed 4 Watts

4.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.8 °C

Relative Humidity: 46.4 %

Atmospheric Pressure: 97.5 kPa

4.4 Test Equipment

Test End Date: 15-Aug-2019

Tester: PV

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
SIGNAL ANALYZER (TS8997)	FSV30	ROHDE & SCHWARZ	B085749	1-Nov-2019
ATTENUATOR, 10DB (TS8997)	10DB	ROHDE & SCHWARZ	B095591	30-Sep-2019
RF CABLE (TS8997)	141	Huber & Suhner	B095585	30-Sep-2019
RF SWITCH (TS8997)	OSP	ROHDE & SCHWARZ	15039	15-Dec-2019
POWER METER (TS8997)	OSP-B157	ROHDE & SCHWARZ	15040	15-Dec-2019

Note: The equipment calibration period is 1 year.

4.5 Test Data

DUT Frequency (MHz)	Gated RMS (dBm)	Limit Max (dBm)	DutyCycle (%)	Result
2402	10.8	30	64.018	PASS
2440	10.8	30	64.018	PASS
2480	10.9	30	64.02	PASS

5 Power Spectral Density

5.1 Test Result

Test Description	Regulatory Reference	Test Method	Test Result
Power Spectral Density	15.247(e) RSS-247 5.2b	ANSI C63.10 Clause 11.10.7	Compliant

5.2 Test Method

Since the fundamental emission output power was measured using an average technique, the average power spectral density method of ANSI C63.10 Clause 11.10.7 was used.

The limit is 8 dBm in any 3 kHz band.

5.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.8 °C

Relative Humidity: 46.4 %

Atmospheric Pressure: 97.5 kPa

5.4 Test Equipment

Test End Date: 15-Aug-2019

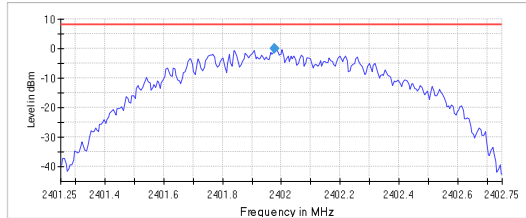
Tester: PV

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
SIGNAL ANALYZER (TS8997)	FSV30	ROHDE & SCHWARZ	B085749	1-Nov-2019
ATTENUATOR, 10DB (TS8997)	10DB	ROHDE & SCHWARZ	B095591	30-Sep-2019
RF CABLE (TS8997)	141	Huber & Suhner	B095585	30-Sep-2019
RF SWITCH (TS8997)	OSP	ROHDE & SCHWARZ	15039	15-Dec-2019
POWER METER (TS8997)	OSP-B157	ROHDE & SCHWARZ	15040	15-Dec-2019

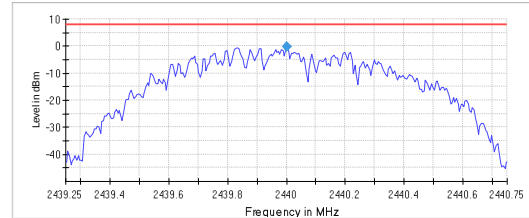
Note: The equipment calibration period is 1 year.

5.5 Test Data

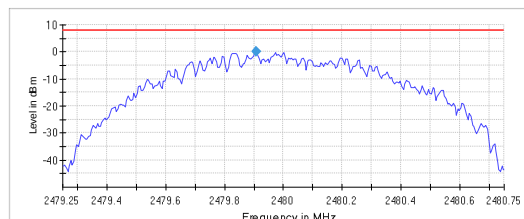
DUT Frequency (MHz)	Frequency (MHz)	PSD (dBm)	Limit Max (dBm)	Result
2402	2401.9775	-0.153	8	PASS
2440	2440.0025	-0.11	8	PASS
2480	2479.9075	0.09	8	PASS



— Limit — Sum Level ◆ PSD



— Limit — Sum Level ◆ PSD



— Limit — Sum Level ◆ PSD

Setting	Instrument Value	Target Value
Start Frequency	2.40125 GHz	2.40125 GHz
Stop Frequency	2.40275 GHz	2.40275 GHz
Span	1.500 MHz	1.500 MHz
RBW	10.000 kHz	<= 10.000 kHz
VBW	30.000 kHz	>= 30.000 kHz
SweepPoints	300	~ 300
Sweptime	6.000 ms	6.000 ms
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	RMS	RMS
SweepCount	1	1
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
Sweeptype	Sweep	Sweep
Preamp	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	47 / max. 150	max. 150
Stable	3-Mar	3
Max Stable Difference	0.35 dB	0.50 dB

6 Conducted Spurious Emissions / Band Edge

6.1 Test Result

Test Description	Regulatory Reference	Test Method	Test Result
Conducted Spurious Emissions	15.247(d) RSS-247 5.5	ANSI C63.10 Clause 11.11	Compliant

6.2 Test Method

The antenna port of the EUT was connected to a spectrum analyzer with

- Peak detector, max hold
- Resolution bandwidth of at least 100 kHz
 - o A larger RBW may be used to reduce test duration
- Video bandwidth at least 3x RBW
- Frequency range: 30 MHz to 25 GHz

Since the power is measured based on the use of the RMS averaging, the limit is 30 dB below that measured in the 100 kHz bandwidth within the band that contains the highest level of the desired power. All modes and data rates were investigated. Only the worst-case for each modulation was reported.

6.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.8 °C

Relative Humidity: 46,4 %

Atmospheric Pressure: 97.5 kPa

6.4 Test Equipment

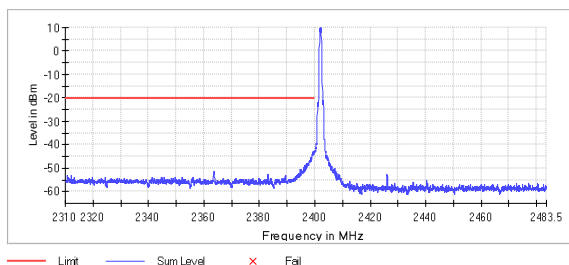
Test End Date: 15-Aug-2019

Tester: PV

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
SIGNAL ANALYZER (TS8997)	FSV30	ROHDE & SCHWARZ	B085749	1-Nov-2019
ATTENUATOR, 10DB (TS8997)	10DB	ROHDE & SCHWARZ	B095591	30-Sep-2019
RF CABLE (TS8997)	141	Huber & Suhner	B095585	30-Sep-2019
RF SWITCH (TS8997)	OSP	ROHDE & SCHWARZ	15039	15-Dec-2019
POWER METER (TS8997)	OSP-B157	ROHDE & SCHWARZ	15040	15-Dec-2019

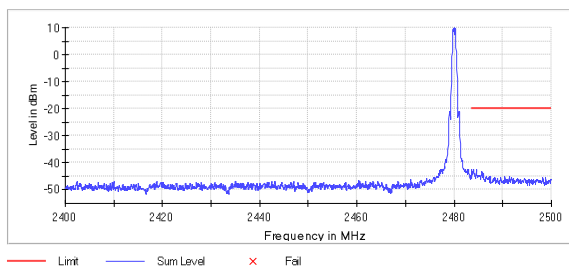
Note: The equipment calibration period is 1 year.

6.5 Test Data – DTS Band Edge



Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2399.925	-42.7	22.5	-20.1	PASS
2399.825	-42.7	22.6	-20.1	PASS
2399.775	-42.7	22.6	-20.1	PASS
2399.425	-42.9	22.7	-20.1	PASS
2399.875	-42.9	22.7	-20.1	PASS
2399.375	-42.9	22.8	-20.1	PASS
2399.725	-42.9	22.8	-20.1	PASS
2399.475	-43	22.8	-20.1	PASS
2399.975	-43.1	22.9	-20.1	PASS
2399.525	-43.2	23.1	-20.1	PASS
2399.675	-43.2	23.1	-20.1	PASS
2399.625	-43.4	23.3	-20.1	PASS
2399.225	-43.4	23.3	-20.1	PASS
2399.175	-43.5	23.4	-20.1	PASS
2399.075	-44	23.8	-20.1	PASS

Setting	Instrument Value	Target Value
Start Frequency	2.31000 GHz	2.31000 GHz
Stop Frequency	2.40000 GHz	2.40000 GHz
Span	90.000 MHz	90.000 MHz
RBW	100.000 kHz	<= 100.000 kHz
VBW	300.000 kHz	>= 300.000 kHz
SweepPoints	1800	~ 1800
SweepTime	113.672 μ s	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	32 / max. 150	max. 150
Stable	3-Mar	3
Max Stable Difference	0.15 dB	0.50 dB



Frequency (MHz)	Level (dBm)	Margin (dB)	Limit (dBm)	Result
2484.025	-42.5	22.4	-20.1	PASS
2483.575	-42.5	22.4	-20.1	PASS
2484.575	-42.5	22.4	-20.1	PASS
2483.625	-42.6	22.5	-20.1	PASS
2483.975	-42.9	22.8	-20.1	PASS
2484.625	-43	22.9	-20.1	PASS
2483.775	-43.2	23.1	-20.1	PASS
2483.875	-43.3	23.2	-20.1	PASS
2485.725	-43.3	23.2	-20.1	PASS
2484.525	-43.4	23.3	-20.1	PASS
2485.775	-43.4	23.3	-20.1	PASS
2484.075	-43.4	23.3	-20.1	PASS
2483.525	-43.5	23.4	-20.1	PASS
2483.925	-43.5	23.4	-20.1	PASS
2485.975	-43.9	23.8	-20.1	PASS

Setting	Instrument Value	Target Value
Start Frequency	2.40000 GHz	2.40000 GHz
Stop Frequency	2.48350 GHz	2.48350 GHz
Span	83.500 MHz	83.500 MHz
RBW	100.000 kHz	≤ 100.000 kHz
VBW	300.000 kHz	≥ 300.000 kHz
SweepPoints	1670	~ 1670
SweepTime	94.727 μs	AUTO
Reference Level	0.000 dBm	0.000 dBm
Attenuation	20.000 dB	AUTO
Detector	MaxPeak	MaxPeak
SweepCount	100	100
Filter	3 dB	3 dB
Trace Mode	Max Hold	Max Hold
SweepType	FFT	AUTO
Preamplifier	off	off
Stablemode	Trace	Trace
Stablevalue	0.50 dB	0.50 dB
Run	6 / max. 150	max. 150
Stable	3-Mar	3
Max Stable Difference	0.04 dB	0.50 dB

7 Field Strength of Spurious Radiation

7.1 Test Result

Test Description	Regulatory Reference	Test Method	Test Result
Radiated Spurious Emissions	15.209 / 15.205 RSS-GEN 8.9	ANSI C63.10 Clauses 11.12.2.7, 6.3 and 6.5, 6.6	Compliant

7.2 Test Method

The radiated methods defined in ANSI C63.10: 2013 were used. Three orthogonal axis were investigated and the worst case data has been reported.

Lowest, middle, and highest channels were investigated – the device was commanded to continuously transmit on channels low, middle, and high channels. Three orthogonal axis were investigated. There was no significant difference in cabinet radiation with variation of channel or DUT orientation.

Test distance:

9k to 30 MHz – Near field prescan to determine if there were any emissions.

30 to 1000 MHz - The EUT to measurement antenna distance was 3 meters

1 to 18 GHz - The EUT to measurement antenna distance was 3 meters

18 to 26 GHz - The EUT to measurement antenna distance was 3 meters

Limits within restricted bands of operation:

Frequency	Limits ⁽¹⁾ Microvolts/m	Measured distance Meters
9 to 490 kHz	2400/F(kHz)	300 ⁽²⁾⁽⁴⁾
490 kHz to 1.705 MHz	24000/F(kHz)	30 ⁽²⁾
1.705 to 30 MHz	30	30 ⁽²⁾
30 to 88 MHz	100	3 ⁽²⁾
88 to 216 MHz	150	3 ⁽²⁾
216 to 960 MHz	200	3 ⁽²⁾
960 to 1000 MHz	500	3 ⁽²⁾
1 to 40 GHz	500	3 ⁽³⁾

(1) These limits are applicable to emissions outside of the intentional transmit frequency band.

(2) Quasi-peak limit

(3) Average limit. Peak limit is 20 dB above average

(4) Peak detector from 9-90 kHz and 110-490 kHz

7.3 Test Site

10M Absorber Lined Shielded Enclosure (ALSE), Suwanee, GA

Environmental Conditions

Temperature: 22.1 °C

Relative Humidity: 53.2 %

Atmospheric Pressure: 97.7 kPa

7.4 Test Equipment

Test End Date: 26-Aug-2019

Tester: ASF

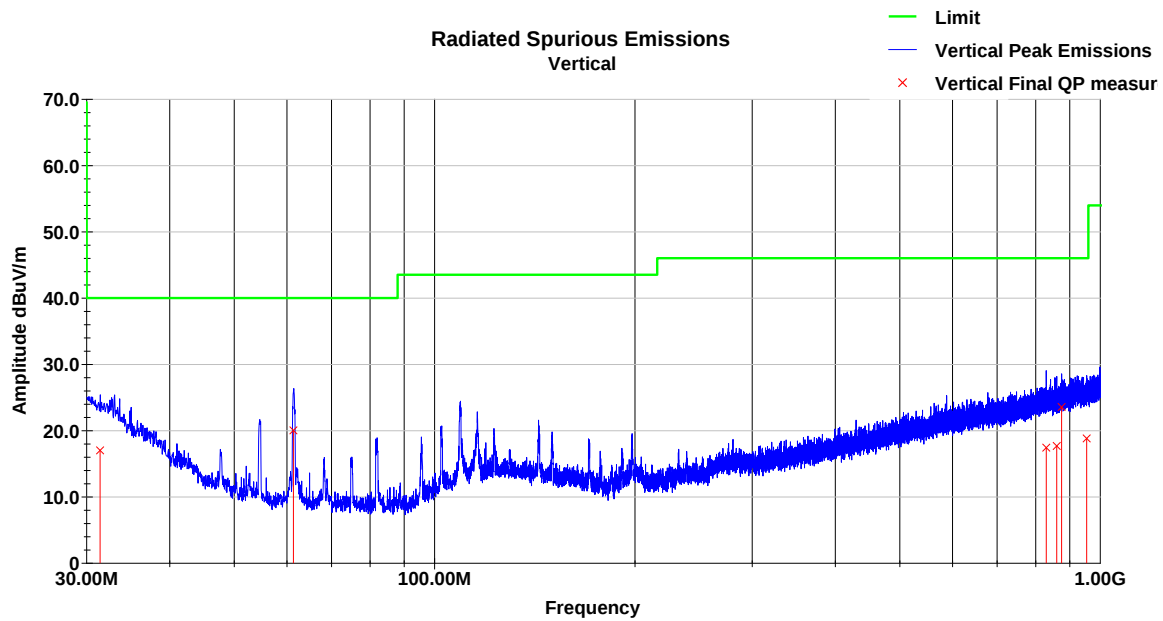
Equipment	Model	Manufacturer	Asset Number	Cal Due Date
ANTENNA, BILOG	JB6	SUNOL	B079690	11-Dec-2019
ANTENNA, DRG HORN (MEDIUM)	3117	ETS LINDGREN	B079691	10-Aug-2020
ANTENNA, HORN (SMALL)	LB-180400-20-C-KF	A-INFO	15007	30-Mar-2020
RF CABLE	SF102	HUBER & SUHNER	B079822	17-Jul-2020
RF CABLE	SF102	HUBER & SUHNER	B079823	17-Jul-2020
RF CABLE	SF106	HUBER & SUHNER	B079712	30-Sep-2019
RF CABLE	SF106	HUBER & SUHNER	B079713	30-Sep-2019
RF CABLE	SF106	HUBER & SUHNER	B079659	30-Sep-2019
RF CABLE	SUCOFLEX 100	HUBER & SUHNER	B108523	30-Sep-2019
LOW NOISE AMPLIFIER	TS-PR18	ROHDE & SCHWARZ	B094463	2-May-2020
LOW NOISE AMPLIFIER	NSP1840-HG	MITEQ	B087572	30-Sep-2019
EMI TEST RECEIVER	ESU40	ROHDE & SCHWARZ	B079629	1-Aug-2020
FILTER, HIGH PASS (>2800MHZ)	HPM50111	MICRO-TRONICS	B085747	30-Sep-2019

Note: The equipment calibration period is 1 year.

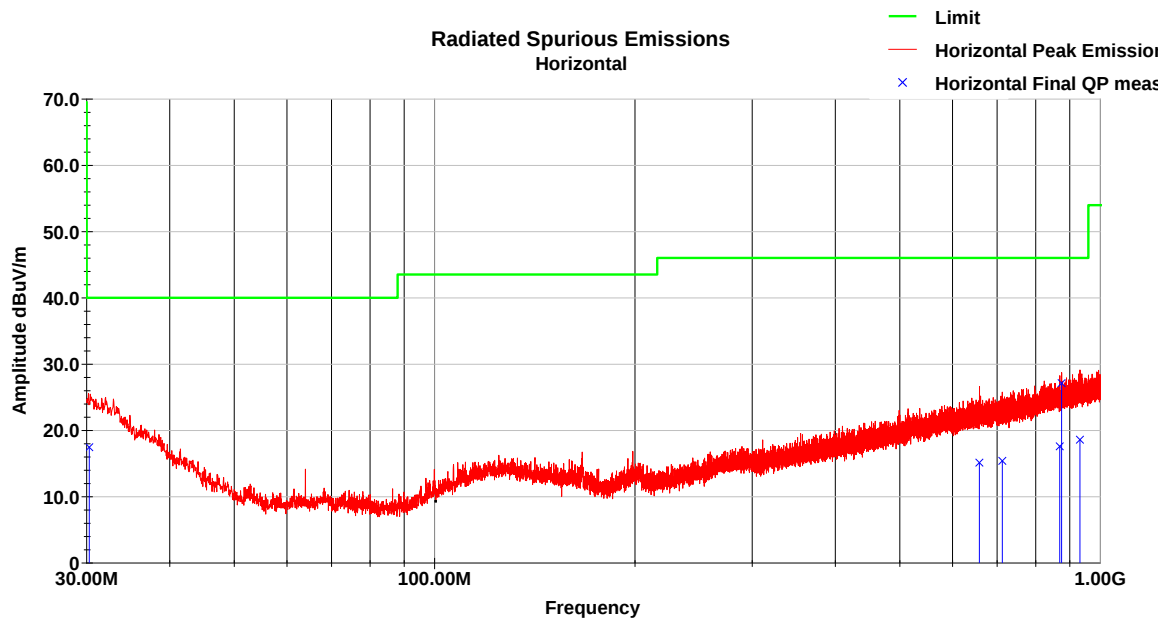
7.5 Test Data

7.5.1 30-1000 MHz

There was no significant deviation in emissions in the 30-1000 MHz range between axis or channel
No emissions below 30 MHz observed.



Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
30.37	27.5	V	286.0	250.0	21.9	0.5	32.4	17.5	40.0	-22.5
61.45	50.3	V	52.0	100.0	7.4	0.8	33.7	24.9	40.0	-15.1
82.02	38.7	V	90.0	149.0	7.8	0.9	34.1	13.4	40.0	-26.6
116.06	39.6	V	213.0	100.0	13.3	1.1	34.5	19.5	43.5	-24.0
880.77	25.1	V	188.0	116.0	22.7	3.2	33.3	17.8	46.0	-28.3
933.63	25.1	V	263.0	164.0	23.3	3.3	33.2	18.5	46.0	-27.5
QP Value = Level + AF + CL - Amp										
Margin = QP Value - Limit										

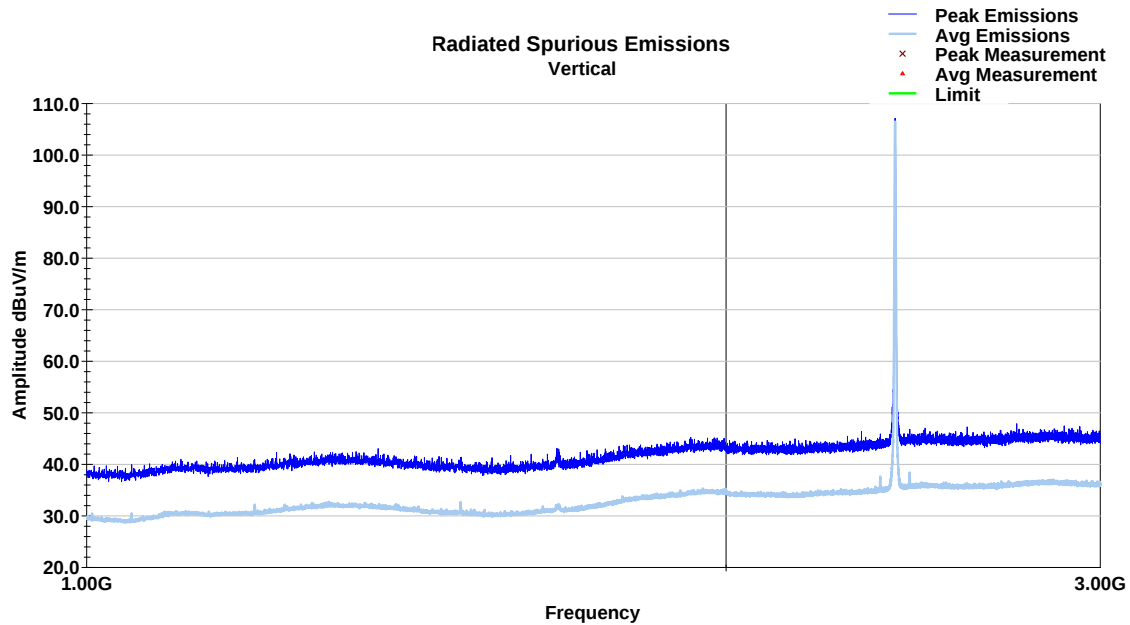


Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
32.39	28.6	H	150.0	165.0	20.3	0.6	32.6	16.9	40.0	-23.1
681.24	25.2	H	246.0	175.0	20.6	2.8	33.3	15.3	46.0	-30.7
859.62	25.2	H	77.0	106.0	22.7	3.2	33.3	17.8	46.0	-28.2
875.11	34.2	H	98.0	134.0	22.7	3.2	33.3	26.9	46.0	-19.1
903.31	25.2	H	82.0	243.0	22.8	3.3	33.3	17.9	46.0	-28.1
953.79	25.3	H	23.0	100.0	23.4	3.3	33.2	18.7	46.0	-27.3
QP Value = Level + AF + CL - Amp										
Margin = QP Value - Limit										

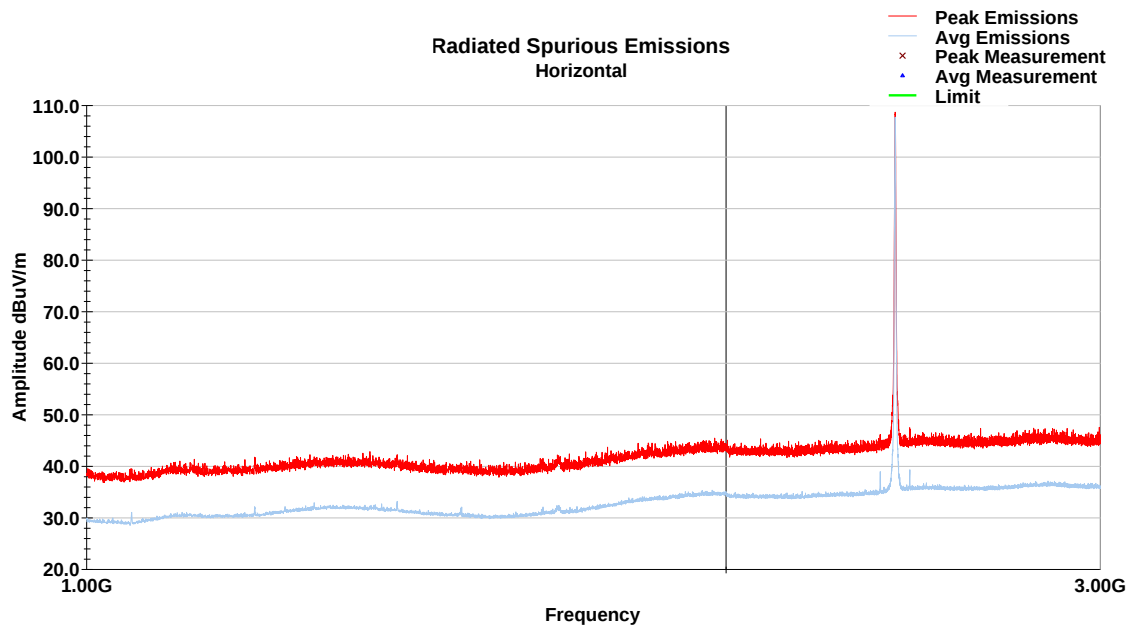
7.5.2 1-18 GHz

No significant emissions above the fundamental detected

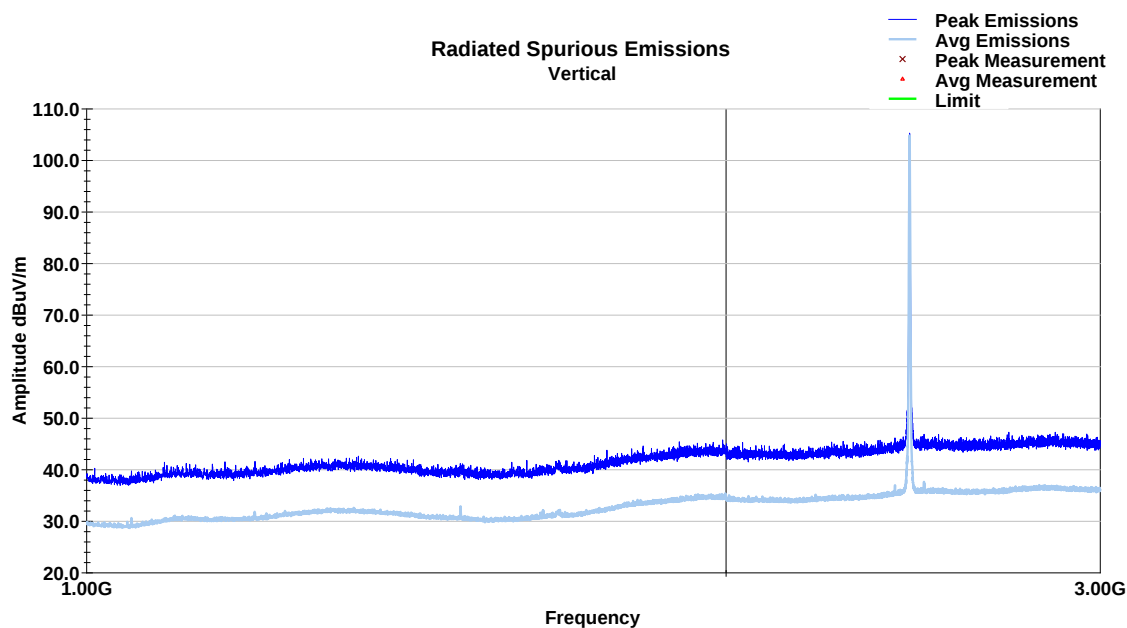
2402 MHz



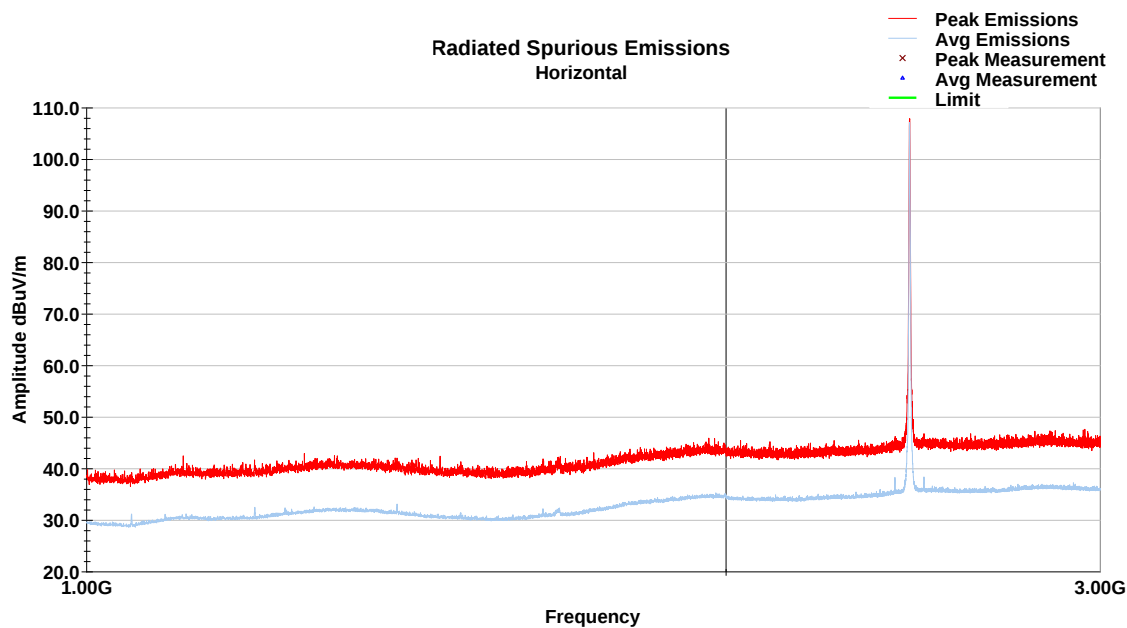
2402 MHz



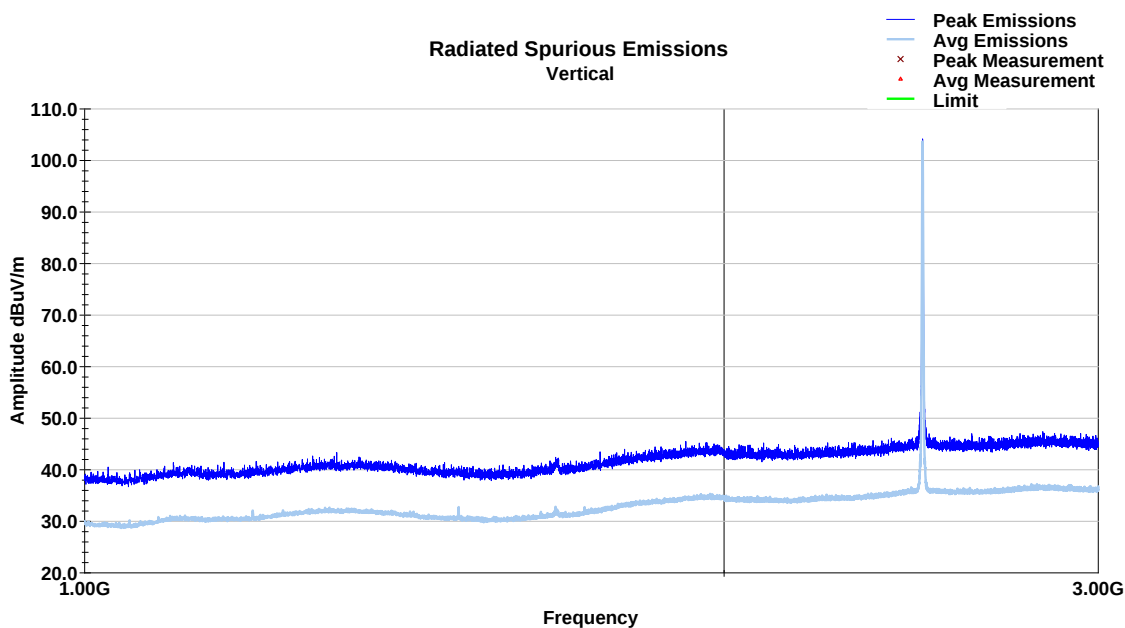
2440 MHz



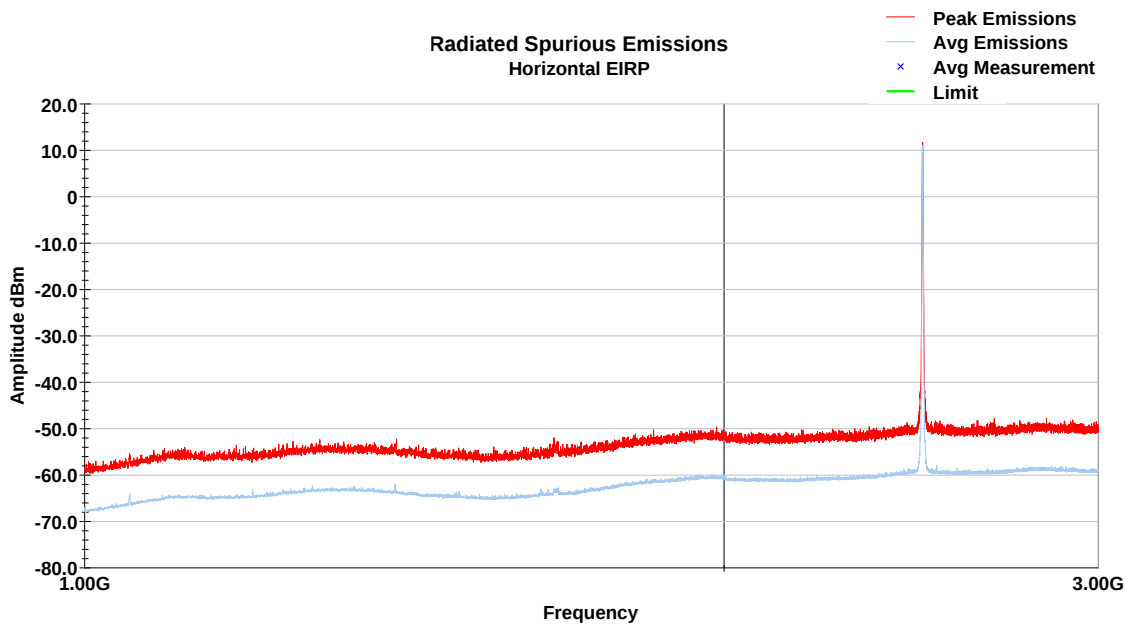
2440 MHz

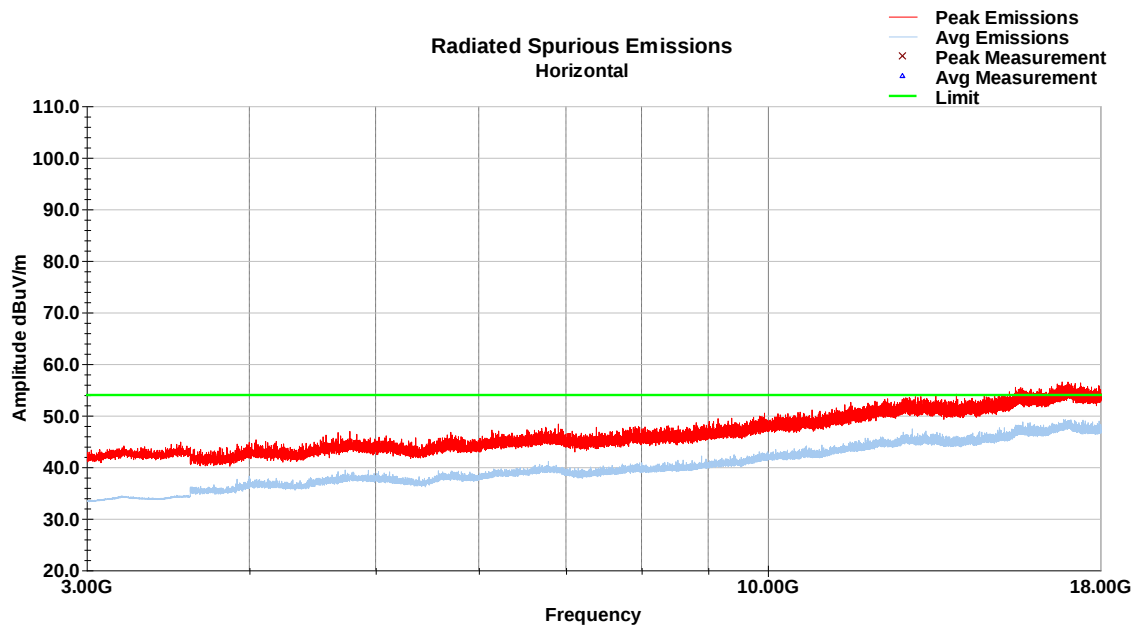
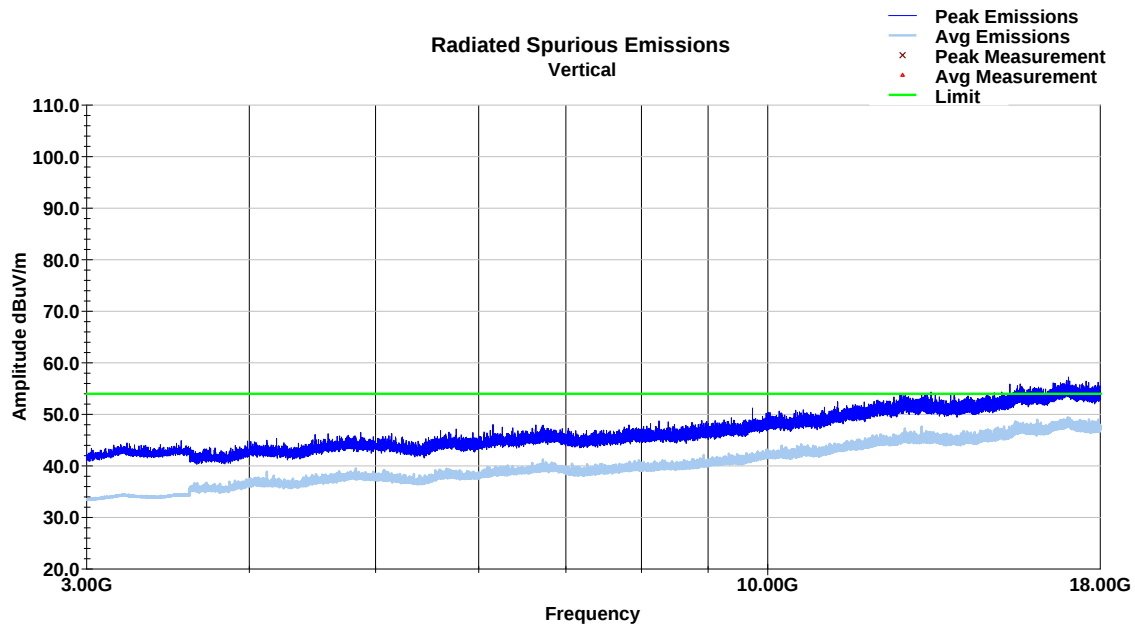


2480 MHz

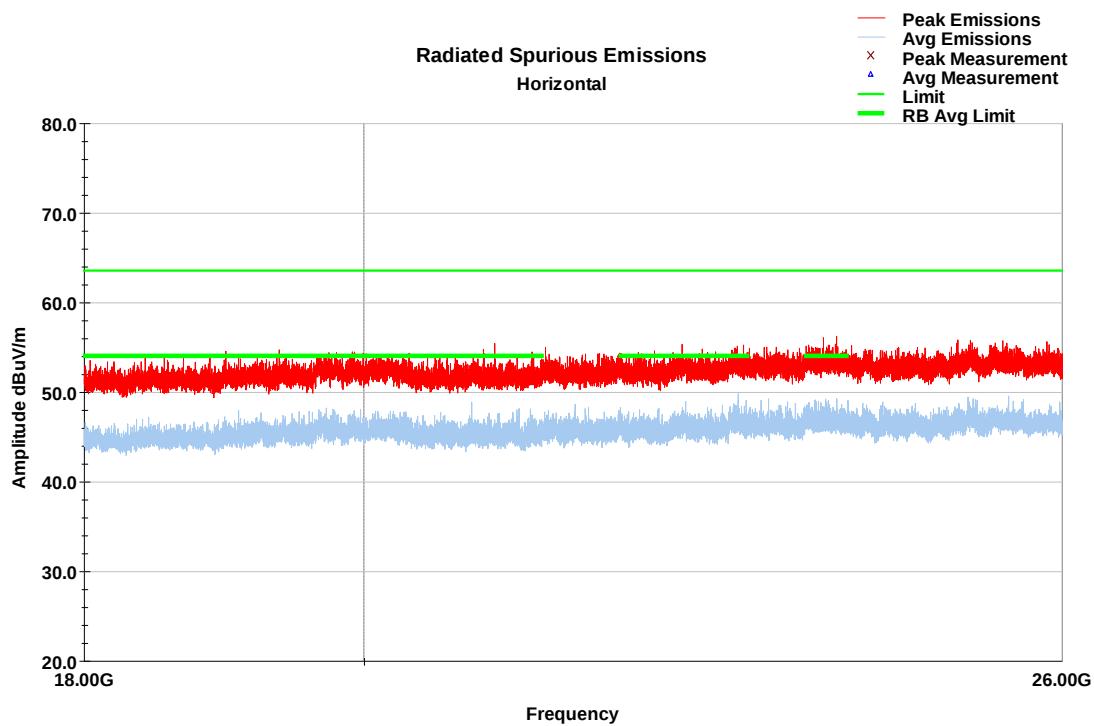
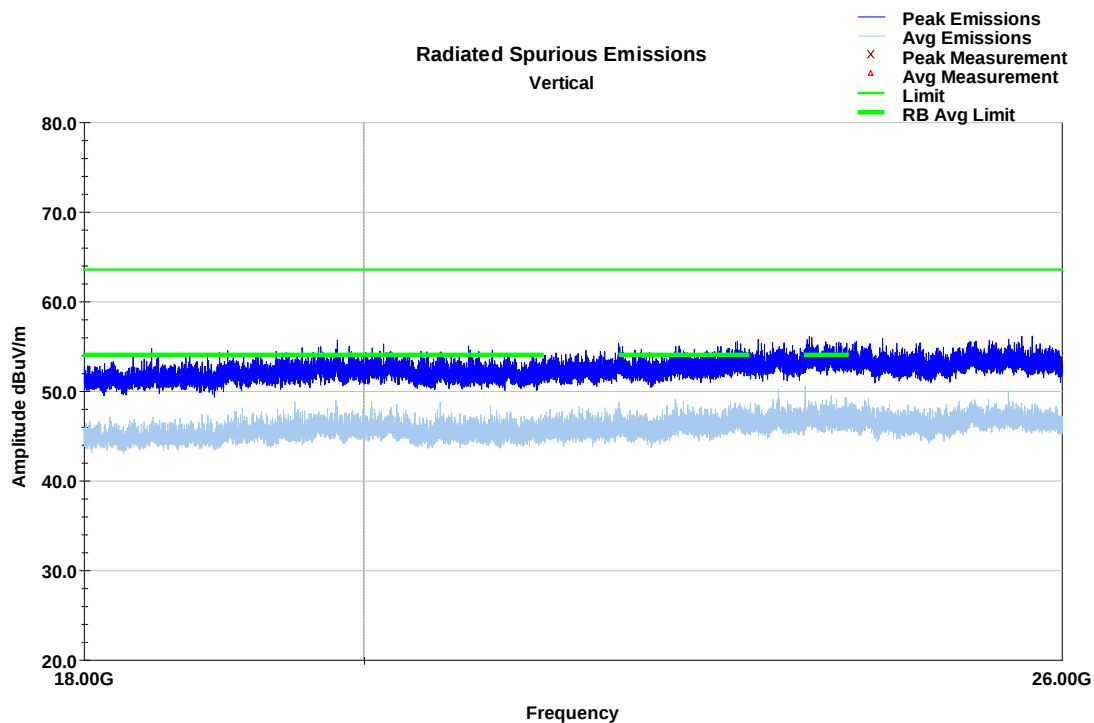


2480 MHz





7.5.3 18-26 GHz



8 Emissions in Restricted Frequency Bands

8.1 Test Result

Test Description	Test Specification		Test Result
Restricted Band Emissions	15.205 / 15.209	RSS-GEN S8.9 / 8.10	Compliant

8.2 Test Method

Measurements were made using the conducted methods defined in ANSI C63.10, Clause 11.12.2. The measurements were converted to a radiated field strength equivalent using the equations defined in that section. Both peak and average measurements were performed at the antenna port.

A reference level offset was applied to the spectrum analyzer so that conducted measurements in dBμV represent field strength measurements in dBμV/m.

Example calculations:

Offset = $-20\log(D) + 104.8 - 107 + CL + DC + AG$

Offset at 3m = $-11.7 + CL + DC + AG$

Where,

D = Distance, 3m

CL = Cable Loss

DC = Duty Cycle Correction Factor, which is $10\log(1/D)$ for rms mode

D = % Duty Cycle

AG = The actual antenna gain or 2 dBi, whichever is lower

All data rates and modes were investigated. Only the plots from the configuration which produced the worst-case emissions are included in this report.

$$-11.7 + 10.6_{CL} + 1.9_{DC} + 2_{AG} = 2.9 \text{ dB}_{Offset}$$

8.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.8 °C

Relative Humidity: 46.4 %

Atmospheric Pressure: 97.5 kPa

8.4 Test Equipment

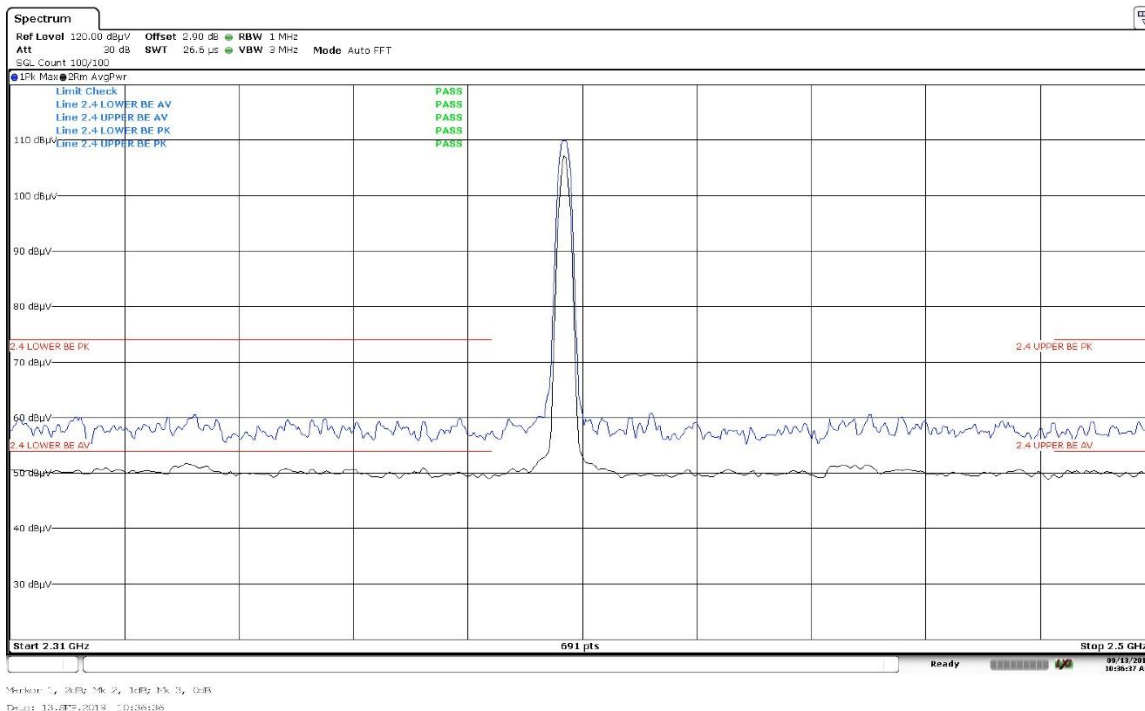
Test End Date: 15-Aug-2019

Tester: PV

Equipment	Model	Manufacturer	Asset Number	Cal Due Date
SIGNAL ANALYZER (TS8997)	FSV30	ROHDE & SCHWARZ	B085749	1-Nov-2019
ATTENUATOR, 10DB (TS8997)	10DB	ROHDE & SCHWARZ	B095591	30-Sep-2019
RF CABLE (TS8997)	141	Huber & Suhner	B095585	30-Sep-2019

Note: The equipment calibration period is 1 year.

8.5 Test Data – Restricted Band Edge



9 Measurement Uncertainty

The measurement uncertainty figures are be calculated in accordance with TR 100 028-1 [2] and correspond to an expansion factor (coverage factor) $k = 2$ (which provide confidence levels of 95,45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

Parameter	Expanded Uncertainty for Normal k factor equal to 2	
	Required	Laboratory Actual
Radio Frequency	$\pm 1 \times 10^{-5}$	$\pm 9.8 \times 10^{-8}$
total RF power, conducted	± 1.5 dB	± 1.2 dB
RF power density, conducted	± 3 dB	± 0.7 dB
spurious emissions, conducted	± 3 dB	± 2.1 dB
all emissions, radiated	± 6 dB	± 4.8 dB
temperature	$\pm 1^{\circ}\text{C}$	$\pm 0.5^{\circ}\text{C}$
humidity	± 5 %	$\pm 3.5\%$
DC and low frequency voltages	± 3 %	$\pm 0.4\%$
Conducted disturbance at mains port using AMN	± 3.4 dB	± 2.5 dB

10 Revision History

Revision Level	Description of changes	Revision Date
DRAFT	--	
0	Initial release	26 February 2020
1	Updated Address to match FCC Grant 2AE3Z. Added sample SN.	16 March 2020