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Report On

Application for Grant of Equipment Authorization of the
Motorola Solutions Sdn Bhd
APX 900 UHFR2 Two Way Portable Radio

FCC Part 15 Subpart C §15.247 (FHSS)
ISED RSS-247

Report No. JG72129039-0717B Rev.02

August 2017

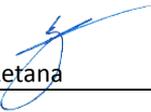


REPORT ON Radio Testing of the
Motorola Solutions Sdn Bhd
APX 900 UHFR2 Two Way Portable Radio

TEST REPORT NUMBER JG72129039-0717B Rev.02

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DATED August 22, 2017



Revision History

JG72129039-0717B Rev.02 Motorola Solutions Sdn Bhd APX 900 UHFR2 Two Way Portable Radio					
DATE	OLD REVISION	NEW REVISION	REASON	PAGES AFFECTED	APPROVED BY
08/01/2017		Initial Release			Ferdinand S. Custodio
08/21/2017	Initial Release	Rev.01	Correction of FCC registration number in section 1.9 and updated measurement uncertainty in section 3.2 and added a Test setup diagram below 30MHz	11, 45, 46 and 48	Ferdinand S. Custodio
08/22/2017	Rev.01	Rev.02	Removal of incorrect reference standards and test clauses	Cover page, 6 and 7	Ferdinand S. Custodio



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SECTION 1

REPORT SUMMARY

Radio Testing of the
Motorola Solutions Sdn Bhd
APX 900 UHFR2 Two Way Portable Radio



1.1 INTRODUCTION

The information contained in this report is intended to show verification of the Motorola Solutions Sdn Bhd APX 900 UHFR2 Two Way Portable Radio to the following requirements:

- FCC Part 15 Subpart C §15.247 (FHSS)
- ISED RSS-247

Objective	To perform Radio Testing to determine the Equipment Under Test's (EUT's) compliance with the Test Specification, for the series of tests carried out.
Manufacturer	Motorola Solutions Sdn Bhd
Model Number(s)	H92SDH9PW7AN
FCC ID Number	AZ489FT7099
IC Number	109U-89FT7099
Serial Number(s)	837TTH0026 and 837TTH0042
Number of Samples Tested	2
Test Specification/Issue/Date	<ul style="list-style-type: none">• FCC Part 15 Subpart C §15.247 (October 1, 2016).• RSS-247 Issue 2 February 2017 Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices.• RSS-Gen Issue 4, November 2014 - General Requirements for Compliance of Radio Apparatus (Issue 4, November 2014).• ANSI C63.10-2013. American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
Start of Test	July 11, 2017
Finish of Test	July 18, 2017
Name of Engineer(s)	Ivan Retana Alex Chang Xiaoying Zhang
Related Document(s)	Supporting documents for EUT certification are separate exhibits.



1.2 BRIEF SUMMARY OF RESULTS

A brief summary of the tests carried out in accordance with FCC Part 15 Subpart C §15.247 with cross-reference to the corresponding IC RSS standard is shown below.

Section	§15.247 Spec Clause	RSS	Test Description	Result
-	§15.207 (a)	RSS-Gen 8.8	Conducted Emissions	Not Performed*
-	§15.247(a)(1)	RSS-247 5.1 (2)	Carrier Frequency Separation	Not Performed*
-	§15.247(a)(1)(iii)	RSS-247 5.1 (4)	Number of Hopping Frequencies	Not Performed*
-	§15.247(a)(1)(iii)	RSS-247 5.1 (4)	Time of Occupancy (Dwell Time)	Not Performed*
-	§15.215(c)	RSS-247 5.1 (1)	20 dB Bandwidth	Not Performed*
-		RSS-Gen 6.6	99% Emission Bandwidth	Not Performed*
-	§15.247(b)(1)	RSS-247 5.4 (2)	Peak Output Power	Not Performed*
2.1	§15.247(d)	RSS-247 5.5	Band-edge Compliance of RF Radiated Emissions	Compliant
2.2			Spurious RF Radiated Emissions	Compliant

Not Performed* Test Not Performed per Customer EMC Test Plan.

1.3 PRODUCT INFORMATION

1.3.1 Technical Description

The Equipment Under Test (EUT) was an Motorola Solutions Sdn Bhd APX 900 UHFR2 Two Way Portable Radio as shown in the photograph below. The EUT is a two way portable radio capable of Analog FM, digital C4FM and TDMA with the following capable technologies: Bluetooth 2.0+ EDR, BLE, WLAN b/g/n and GPS features.



Equipment Under Test



1.3.2 EUT General Description

EUT Description	Two Way Portable Radio
Model Name	APX 900 UHFR2
Model Number(s)	H92SDH9PW7AN
Rated Voltage	7.4VDC through a rechargeable Li-ion Battery 2900mAh 21.5Wh (PN PMNN4489A)
Mode Verified	Bluetooth 2.0+EDR
Capability	Bluetooth Low Energy (BLE), WLAN 802.11 b/g/n and GPS features.
Modulation	GFSK, $\pi/4$ -DQPSK, 8DPSK
Primary Unit (EUT)	<input checked="" type="checkbox"/> Production <input type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering
Antenna Type	ANTENNA, CHIP, GLONASS BT/GPS ANTENNA MODULE
Antenna Manufacturer	Amphenol Interconnect Products
Antenna Model Number	AN000151A01
Antenna Gain	-4.0 dBi

1.3.3 Maximum Conducted Output Power

Not Performed. No conducted power measurements were performed per customer EMC test Plan.

1.4 EUT TEST CONFIGURATION

1.4.1 Test Configuration Description

Test Configuration	Description
Default	Radiated Test Setup. The EUT programmed to transmit continuously at the desired wireless technology configuration, BT GFSK, BT EDR2 or BT EDR3. Radiated Measurements were performed per customer test plan.

1.4.2 EUT Exercise Software

The EUT is programmed through a support laptop via a telnet connection entering RCMP commands to obtain the desired test mode.

1.4.3 Support Equipment and I/O cables

Manufacturer	Equipment/Cable	Description
Sony	Support Laptop	Model: PCG-31311L
Motorola	USB Adapter	P/N PMKN4013C

1.4.4 Worst Case Configuration

The EUT is a portable device. For radiated measurements, X=flat, Y=Standing and Z=side orientations were verified during initial prescans to verify the worst axis. Verifications performed using "X = Flat" and "Z=Side" configurations.



1.4.5 Simplified Test Configuration Diagram

None. The EUT was tested in a stand alone configuration.



1.5 DEVIATIONS FROM THE STANDARD

No deviations from the applicable test standards or test plan were made during testing.

1.6 MODIFICATION RECORD

Description of Modification	Modification Fitted By	Date Modification Fitted
Serial Number: 837TTH0026 and 837TTH0042		
None	—	—

The table above details modifications made to the EUT during the test programme. The modifications incorporated during each test (if relevant) are recorded on the appropriate test pages.

1.7 TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.10-2013. American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

For conducted and radiated emissions the equipment under test (EUT) was configured to measure its highest possible emission level. This level was based on the maximized cable configuration from exploratory testing per ANSI C63.10-2014. The test modes were adapted according to the Operating Instructions provided by the manufacturer/client.

1.8 TEST FACILITY LOCATION

1.8.1 TÜV SÜD America Inc. (Mira Mesa)

10040 Mesa Rim Road, San Diego, CA 92121-2912 (32.901268,-117.177681). Phone: 858 678 1400 Fax: 858 546 0364.

1.8.2 TÜV SÜD America Inc. (Rancho Bernardo)

16936 Via Del Campo, San Diego, CA 92127-1708 (33.018644,-117.092409). Phone: 858 678 1400 Fax: 858 546 0364.

1.9 TEST FACILITY REGISTRATION

1.9.1 FCC – Registration No.: 599333

TUV SUD America Inc. (San Diego), is an accredited test facility with the site description report on file and has met all the requirements specified in §2.948 of the FCC rules. The acceptance letter from the FCC is maintained in our files and the Registration is 599333.



1.9.1 Innovation, Science and Economic Development Canada Registration No.: 3067A

The 10m Semi-anechoic chamber of TÜV SÜD America Inc. (San Diego) has been registered by Certification and Engineering Bureau of Innovation, Science and Economic Development Canada for radio equipment testing with Registration No. 3067A.



SECTION 2

TEST DETAILS

Radio Testing of the
Motorola Solutions Sdn Bhd
Two Way Portable Radio



2.1 BAND-EDGE COMPLIANCE OF RF RADIATED EMISSIONS

2.1.1 Specification Reference

Part 15 Subpart C §15.247(d) and RSS-247 5.5

2.1.2 Standard Applicable

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

2.1.3 Equipment Under Test and Modification State

837TTH0026 and 837TTH0042 / Default Test Configuration

2.1.4 Date of Test/Initial of test personnel who performed the test

July 11 to July 18, 2017 / AC and IR

2.1.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.1.6 Environmental Conditions

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility.

Ambient Temperature	26.5 – 26.1 °C
Relative Humidity	51.4 – 47.8 %
ATM Pressure	98.8 – 99.1 kPa

2.1.7 Additional Observations

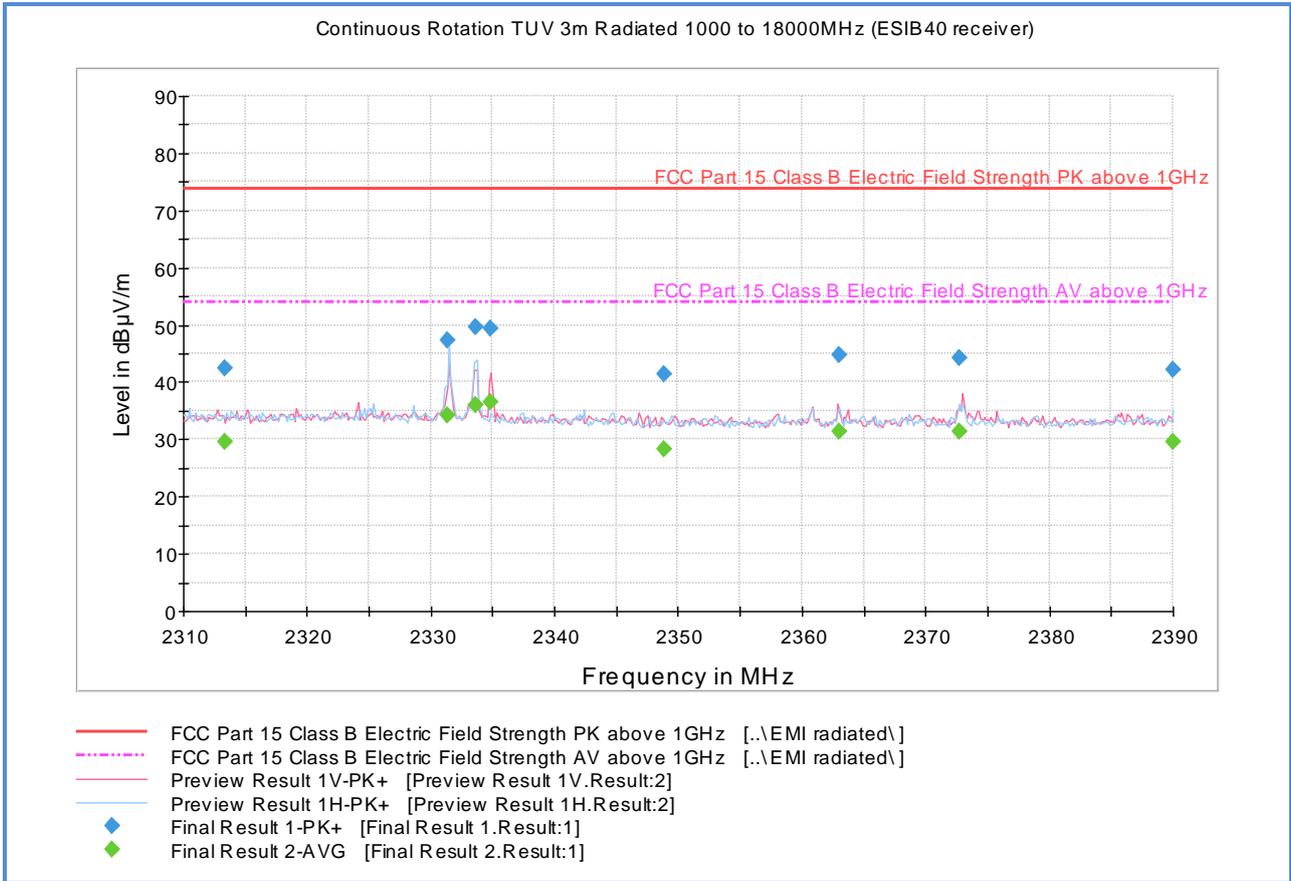
- This is a Radiated test.
- Verification performed to show compliance with immediate restricted band adjacent to 2.4GHz band.
- Lower and Upper band-edges were also verified.
- Lower band-edge, even not in restricted band was verified using §15.205 (c) test methodology.

2.1.8 Test Results

See attached plots and tables.



2.1.8.1 Test Results Lower Immediate Restricted Band (BT GFSK Low Channel)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2313.300000	42.5	1000.0	1000.000	103.7	H	203.0	-1.0	31.4	73.9
2331.349699	47.3	1000.0	1000.000	152.2	V	44.0	-0.5	26.6	73.9
2333.582966	49.6	1000.0	1000.000	153.7	H	143.0	-0.5	24.3	73.9
2334.849699	49.4	1000.0	1000.000	153.7	H	147.0	-0.5	24.5	73.9
2348.884770	41.3	1000.0	1000.000	410.7	H	294.0	-0.7	32.6	73.9
2363.005812	44.8	1000.0	1000.000	152.7	V	20.0	-0.8	29.1	73.9
2372.706012	44.3	1000.0	1000.000	352.1	V	104.0	-0.9	29.6	73.9
2390.000000	42.3	1000.0	1000.000	410.7	H	-1.0	-1.0	31.6	73.9

Average Data

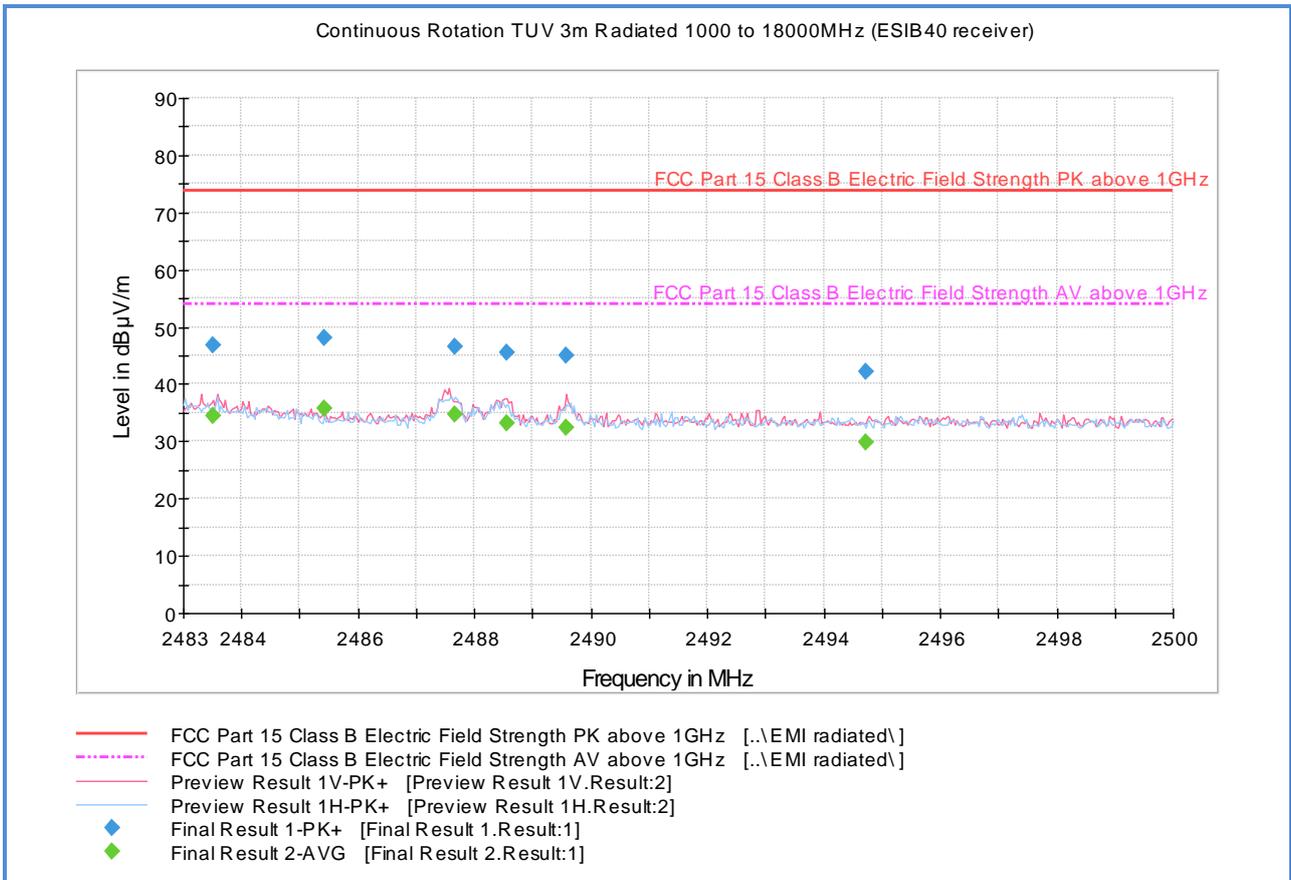
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2313.300000	29.6	1000.0	1000.000	103.7	H	203.0	-1.0	24.3	53.9
2331.349699	34.3	1000.0	1000.000	152.2	V	44.0	-0.5	19.6	53.9
2333.582966	36.1	1000.0	1000.000	153.7	H	143.0	-0.5	17.8	53.9
2334.849699	36.5	1000.0	1000.000	153.7	H	147.0	-0.5	17.4	53.9
2348.884770	28.2	1000.0	1000.000	410.7	H	294.0	-0.7	25.7	53.9
2363.005812	31.4	1000.0	1000.000	152.7	V	20.0	-0.8	22.5	53.9
2372.706012	31.4	1000.0	1000.000	352.1	V	104.0	-0.9	22.5	53.9
2390.000000	29.6	1000.0	1000.000	410.7	H	-1.0	-1.0	24.3	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Flat



2.1.8.2 Test Results Upper Immediate Restricted Band (BT GFSK High Channel)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2483.500000	46.7	1000.0	1000.000	406.7	V	178.0	-0.3	27.2	73.9
2485.418835	48.1	1000.0	1000.000	314.2	V	189.0	-0.3	25.8	73.9
2487.675150	46.4	1000.0	1000.000	203.5	V	176.0	-0.3	27.5	73.9
2488.553106	45.5	1000.0	1000.000	152.2	V	209.0	-0.3	28.4	73.9
2489.575150	45.1	1000.0	1000.000	150.0	V	200.0	-0.3	28.8	73.9
2494.729659	42.3	1000.0	1000.000	124.7	V	226.0	-0.3	31.6	73.9

Average Data

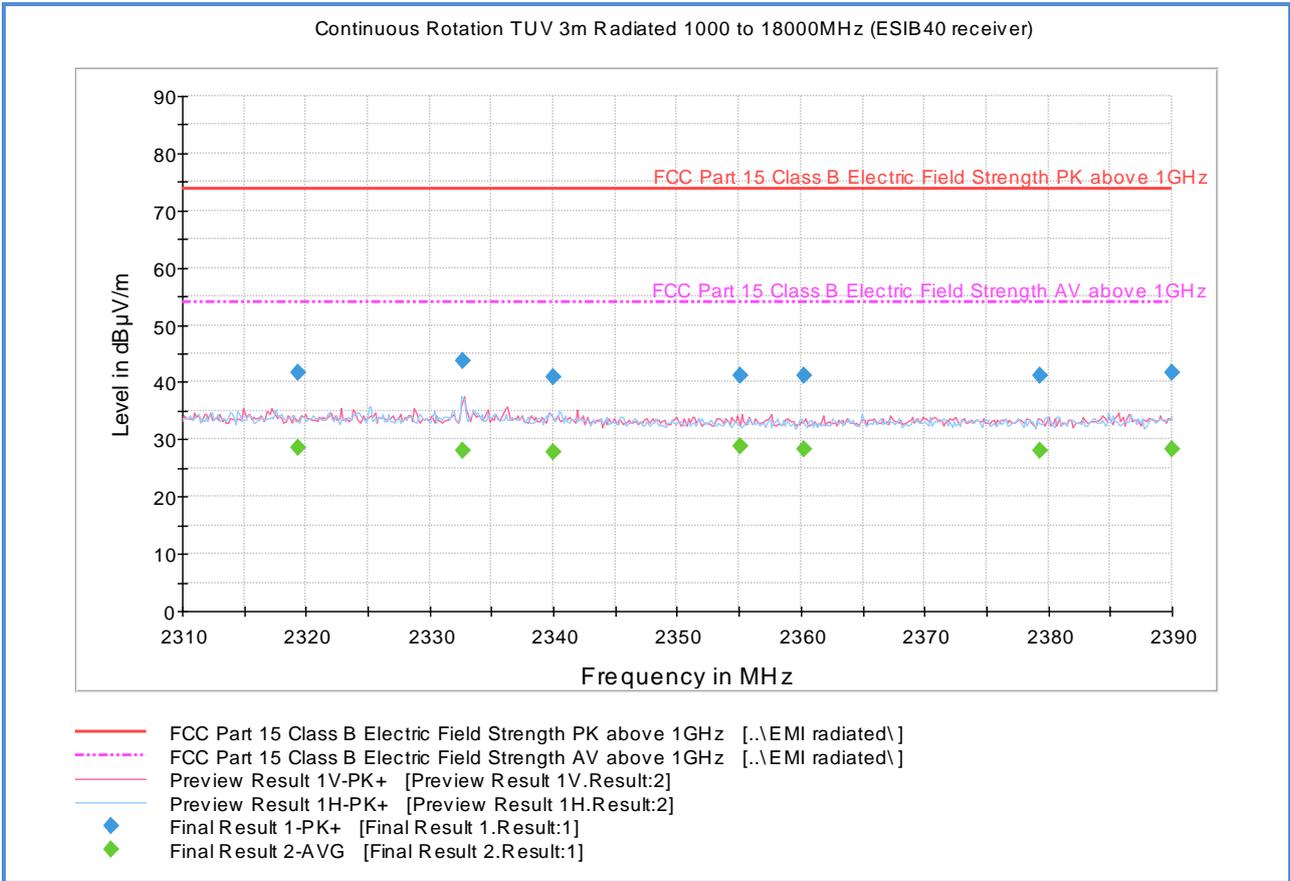
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2483.500000	34.5	1000.0	1000.000	406.7	V	178.0	-0.3	19.4	53.9
2485.418835	35.8	1000.0	1000.000	314.2	V	189.0	-0.3	18.1	53.9
2487.675150	34.8	1000.0	1000.000	203.5	V	176.0	-0.3	19.1	53.9
2488.553106	33.2	1000.0	1000.000	152.2	V	209.0	-0.3	20.7	53.9
2489.575150	32.5	1000.0	1000.000	150.0	V	200.0	-0.3	21.4	53.9
2494.729659	29.9	1000.0	1000.000	124.7	V	226.0	-0.3	24.0	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Flat



2.1.8.3 Test Results Lower Immediate Restricted Band (BT EDR2 Low Channel)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2319.314429	41.6	1000.0	1000.000	151.6	V	242.0	-0.8	32.3	73.9
2332.705210	43.6	1000.0	1000.000	151.6	H	206.0	-0.5	30.3	73.9
2340.003808	40.8	1000.0	1000.000	250.5	V	93.0	-0.6	33.1	73.9
2355.110421	41.2	1000.0	1000.000	303.2	V	93.0	-0.8	32.7	73.9
2360.289980	41.2	1000.0	1000.000	193.5	H	314.0	-0.8	32.7	73.9
2379.369739	41.2	1000.0	1000.000	251.3	H	1.0	-0.9	32.7	73.9
2390.000000	41.5	1000.0	1000.000	373.1	H	314.0	-1.0	32.4	73.9

Average Data

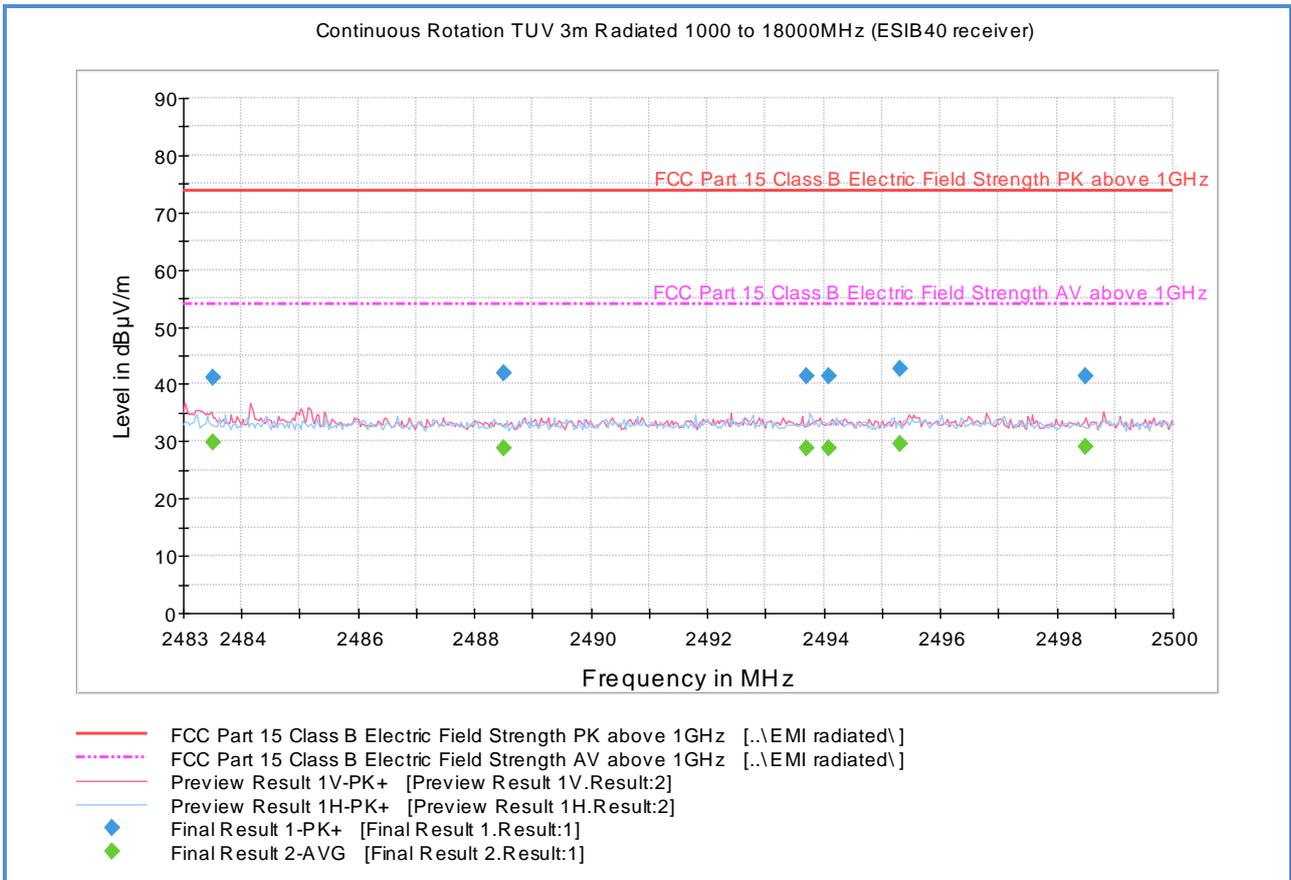
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2319.314429	28.6	1000.0	1000.000	151.6	V	242.0	-0.8	25.3	53.9
2332.705210	27.9	1000.0	1000.000	151.6	H	206.0	-0.5	26.0	53.9
2340.003808	27.9	1000.0	1000.000	250.5	V	93.0	-0.6	26.0	53.9
2355.110421	28.7	1000.0	1000.000	303.2	V	93.0	-0.8	25.2	53.9
2360.289980	28.3	1000.0	1000.000	193.5	H	314.0	-0.8	25.6	53.9
2379.369739	28.0	1000.0	1000.000	251.3	H	1.0	-0.9	25.9	53.9
2390.000000	28.4	1000.0	1000.000	373.1	H	314.0	-1.0	25.5	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Flat



2.1.8.4 Test Results Upper Immediate Restricted Band (BT EDR2 High Channel)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2483.500000	41.1	1000.0	1000.000	100.7	V	170.0	-0.3	32.8	73.9
2488.500000	42.0	1000.0	1000.000	351.6	H	301.0	-0.3	31.9	73.9
2493.697595	41.5	1000.0	1000.000	183.5	V	-15.0	-0.3	32.4	73.9
2494.097595	41.4	1000.0	1000.000	373.1	V	73.0	-0.3	32.5	73.9
2495.302806	42.7	1000.0	1000.000	281.3	V	193.0	-0.3	31.2	73.9
2498.507615	41.4	1000.0	1000.000	124.7	V	78.0	-0.3	32.5	73.9

Average Data

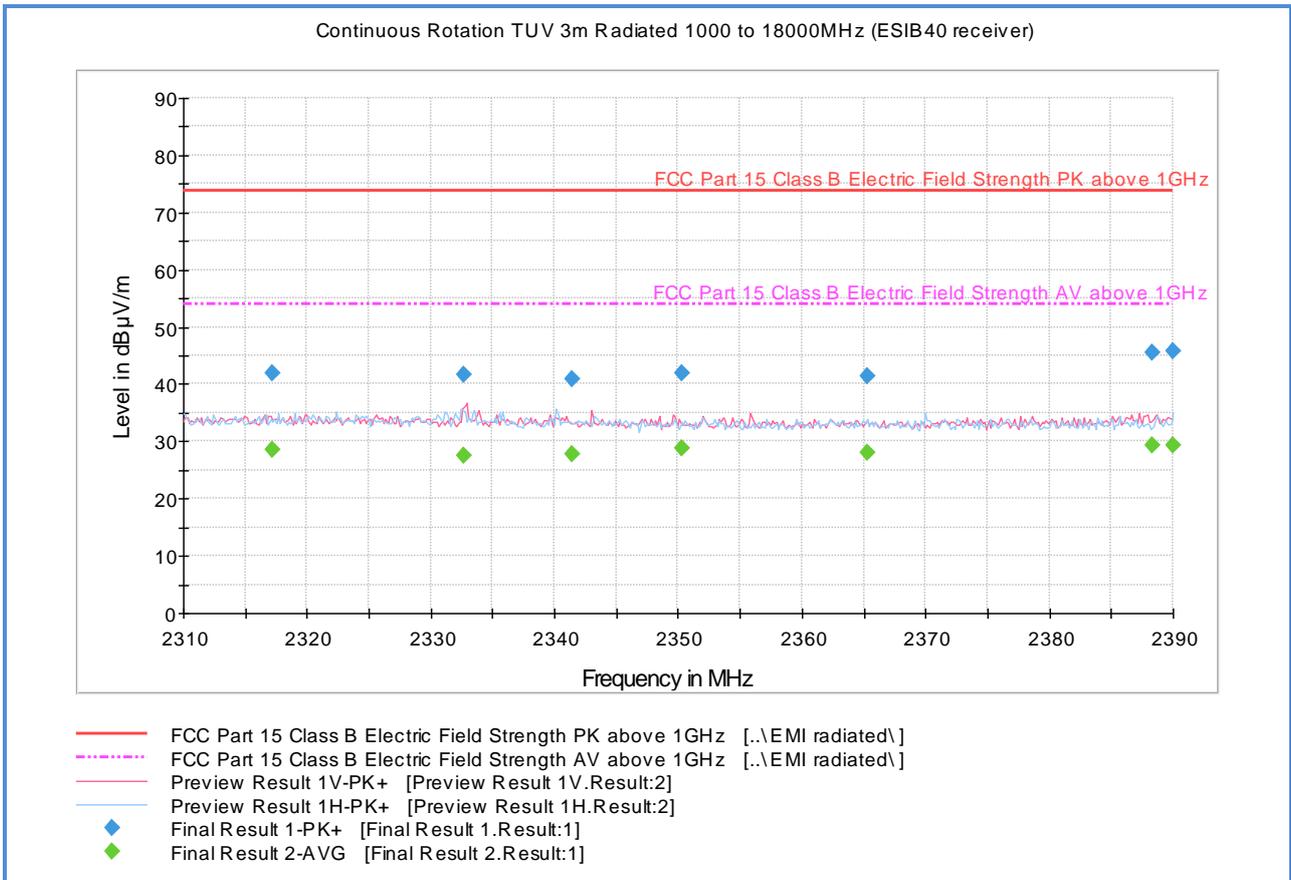
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2483.500000	29.8	1000.0	1000.000	100.7	V	170.0	-0.3	24.1	53.9
2488.500000	28.9	1000.0	1000.000	351.6	H	301.0	-0.3	25.0	53.9
2493.697595	28.8	1000.0	1000.000	183.5	V	-15.0	-0.3	25.1	53.9
2494.097595	28.9	1000.0	1000.000	373.1	V	73.0	-0.3	25.0	53.9
2495.302806	29.7	1000.0	1000.000	281.3	V	193.0	-0.3	24.2	53.9
2498.507615	29.0	1000.0	1000.000	124.7	V	78.0	-0.3	24.9	53.9

Test Notes:

EUT SN: 837TTH0042
 EUT Orientation: Flat



2.1.8.5 Test Results Lower Immediate Restricted Band (BT EDR3 Low Channel)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2317.244689	41.9	1000.0	1000.000	102.7	H	24.0	-0.9	32.0	73.9
2332.625852	41.8	1000.0	1000.000	271.3	V	36.0	-0.5	32.1	73.9
2341.440281	40.9	1000.0	1000.000	384.0	H	185.0	-0.6	33.0	73.9
2350.351703	41.9	1000.0	1000.000	199.5	V	20.0	-0.7	32.0	73.9
2365.259920	41.5	1000.0	1000.000	133.7	H	281.0	-0.9	32.4	73.9
2388.300000	45.6	1000.0	1000.000	410.7	H	9.0	-1.0	28.3	73.9
2390.000000	45.7	1000.0	1000.000	250.5	V	172.0	-1.0	28.2	73.9

Average Data

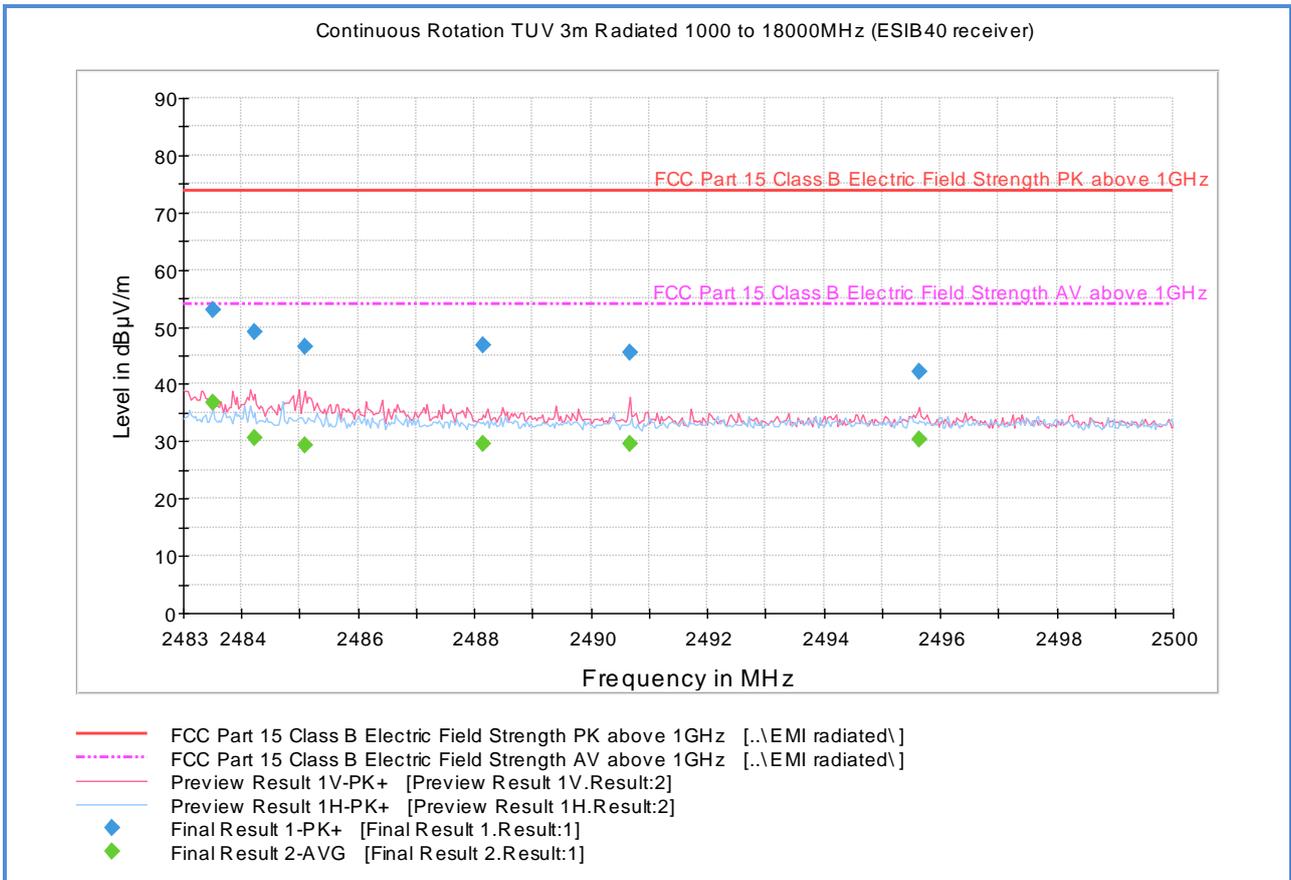
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2317.244689	28.6	1000.0	1000.000	102.7	H	24.0	-0.9	25.3	53.9
2332.625852	27.4	1000.0	1000.000	271.3	V	36.0	-0.5	26.5	53.9
2341.440281	27.9	1000.0	1000.000	384.0	H	185.0	-0.6	26.0	53.9
2350.351703	28.9	1000.0	1000.000	199.5	V	20.0	-0.7	25.0	53.9
2365.259920	28.0	1000.0	1000.000	133.7	H	281.0	-0.9	25.9	53.9
2388.300000	29.3	1000.0	1000.000	410.7	H	9.0	-1.0	24.6	53.9
2390.000000	29.3	1000.0	1000.000	250.5	V	172.0	-1.0	24.6	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Flat



2.1.8.6 Test Results Upper Immediate Restricted Band (BT EDR3 High Channel)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2483.500000	52.9	1000.0	1000.000	201.5	V	9.0	-0.2	21.0	73.9
2484.221443	49.0	1000.0	1000.000	183.5	V	0.0	-0.2	24.9	73.9
2485.078150	46.6	1000.0	1000.000	184.5	V	356.0	-0.2	27.3	73.9
2488.139279	46.7	1000.0	1000.000	240.4	V	218.0	-0.3	27.2	73.9
2490.665331	45.5	1000.0	1000.000	406.7	V	102.0	-0.3	28.4	73.9
2495.639279	42.2	1000.0	1000.000	200.3	V	198.0	-0.3	31.7	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
2483.500000	36.9	1000.0	1000.000	201.5	V	9.0	-0.2	17.0	53.9
2484.221443	30.7	1000.0	1000.000	183.5	V	0.0	-0.2	23.2	53.9
2485.078150	29.4	1000.0	1000.000	184.5	V	356.0	-0.2	24.5	53.9
2488.139279	29.6	1000.0	1000.000	240.4	V	218.0	-0.3	24.3	53.9
2490.665331	29.7	1000.0	1000.000	406.7	V	102.0	-0.3	24.2	53.9
2495.639279	30.3	1000.0	1000.000	200.3	V	198.0	-0.3	23.6	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Flat



2.2 SPURIOUS RF RADIATED EMISSIONS

2.2.1 Specification Reference

Part 15 Subpart C §15.247(d) and RSS-247 5.5

2.2.2 Standard Applicable

(d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

2.2.3 Equipment Under Test and Modification State

837TTH0026 and 837TTH0042 / Default Test Configuration

2.2.4 Date of Test/Initial of test personnel who performed the test

July 11 to July 18, 2017 / AC, IR and XYZ

2.2.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.2.6 Environmental Conditions

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility.

Ambient Temperature	26.5 – 26.1 °C
Relative Humidity	51.4 – 47.8 %
ATM Pressure	98.8 – 99.1 kPa

2.2.7 Additional Observations

- This is a Radiated test.
- Data presented is per §15.209(a) and §15.205(c)
- Spectrum was searched from 9 kHz up to 26.5GHz.
- A 2.4 to 2.5 GHz notch filter was used for 1 to 18GHz measurements.
- Measurement was done using EMC32 automated software. Reported level is the actual level with all the correction factors factored in. Correction Factor column is for informational purposes only. See Section 2.2.8 for sample computation.



2.2.8 Sample Computation (Radiated Emission)

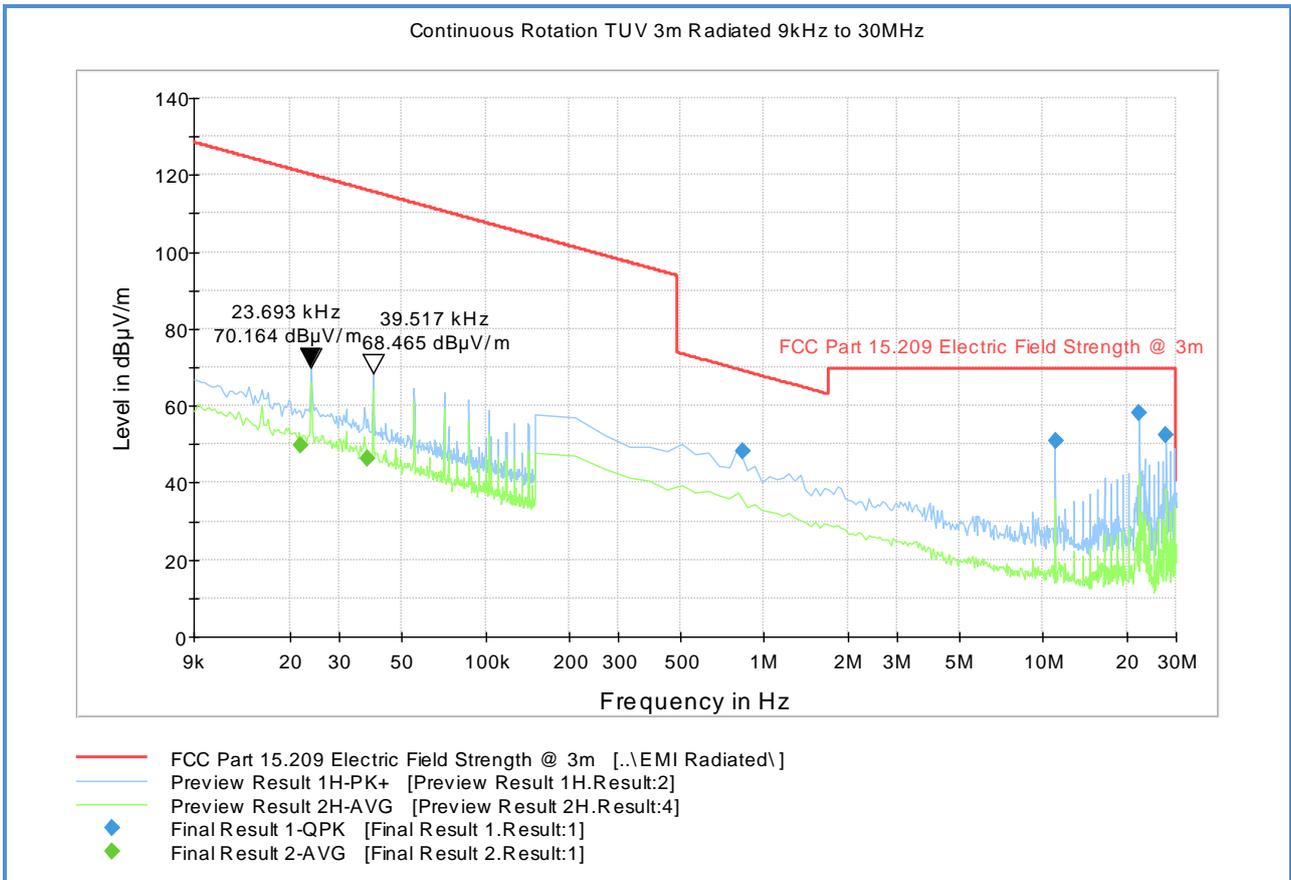
Measuring equipment raw measurement (dB μ V) @ 2400 MHz		53.9
Correction Factor (dB)	Asset# 1153 (cable)	3.4
	Asset# 8628(preamplifier)	-36.5
	Asset#7575 (antenna)	32.7
Reported Max Peak Final Measurement (dBμV/m) @ 2400 MHz		53.5

2.2.9 Test Results

See attached tables and plots.



2.2.9.1 Test Results Below 1 GHz (BT Overall Worst Case GFSK Low Channel – 9KHz to 30 MHz)



QuasiPeak Data

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
0.834016	48.1	1500.0	9.000	100.0	H	-9.0	14.8	21.1	69.2
11.059174	50.9	1500.0	9.000	100.0	H	-9.0	16.3	18.6	69.5
22.121627	58.2	1500.0	9.000	100.0	H	15.0	16.1	11.3	69.5
27.649034	52.3	1500.0	9.000	100.0	H	15.0	15.2	17.2	69.5

Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
0.023693	70.2	1000.0	0.200	100.0	H	345.0	15.2	3.7	73.9
0.039517	68.5	1000.0	0.200	100.0	H	345.0	15.2	5.4	73.9

Average Data

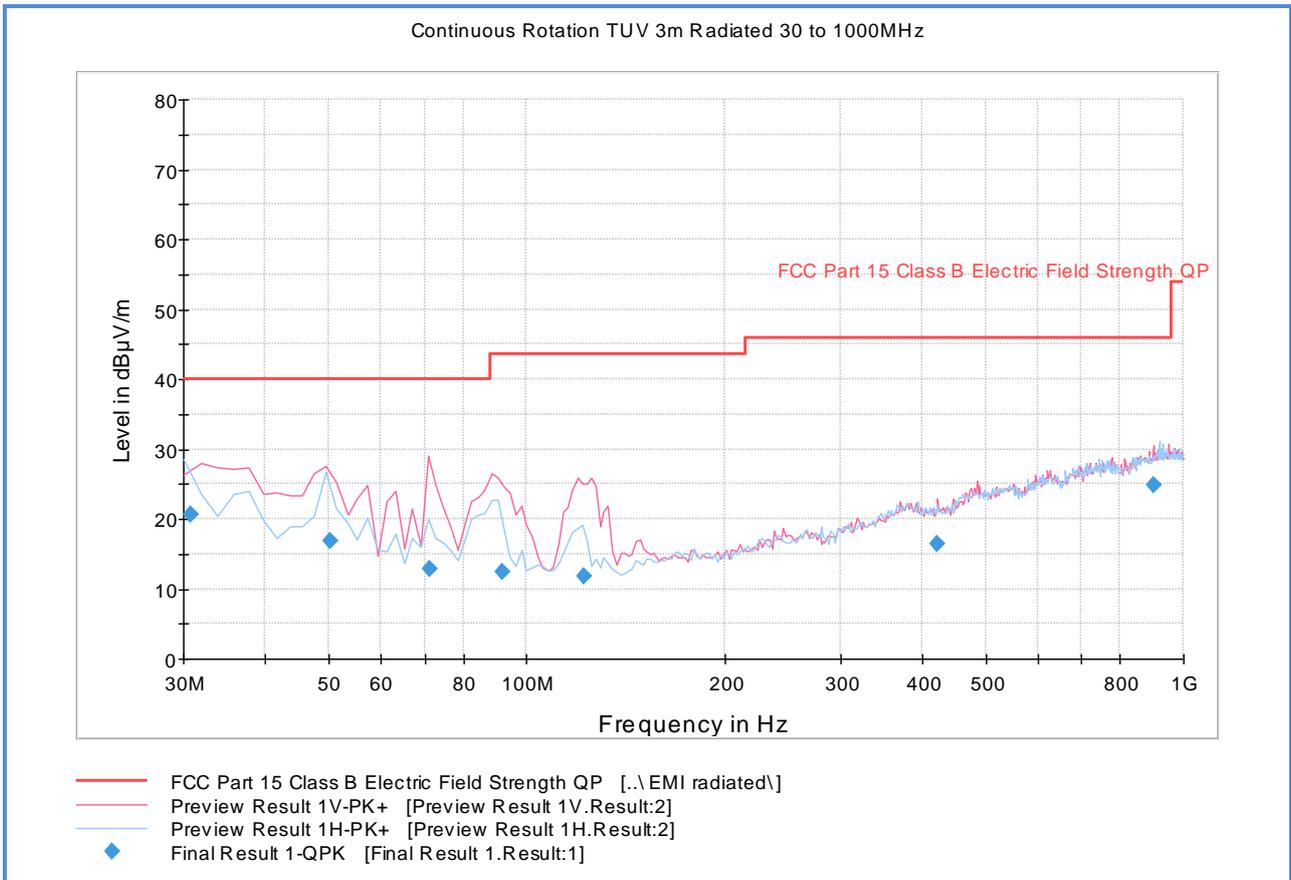
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
0.021693	49.6	1000.0	0.200	100.0	H	0.0	15.0	71.3	120.9
0.037517	46.2	1000.0	0.200	100.0	H	336.0	15.3	69.9	116.1

Test Notes:

EUT SN: 837TTH0042
 EUT Orientation: Side
 Test Channel: 2402 MHz
 Noise observed from 10MHz and 30MHz is derived from the antenna preamp.



2.2.9.2 Test Results Below 1 GHz (BT Overall Worst Case GFSK Low Channel –30 MHz to 1 GHz)



QuasiPeak Data

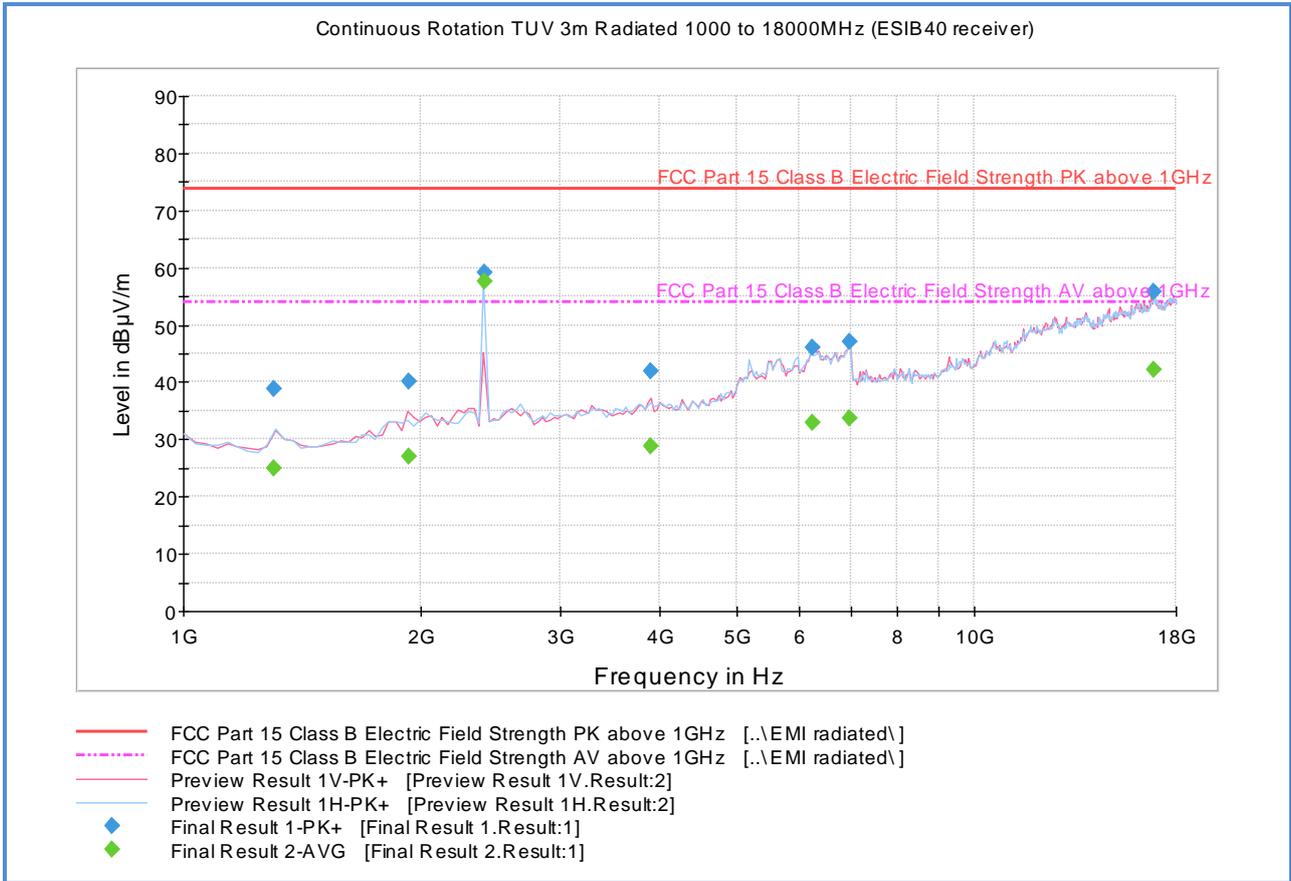
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
30.720000	20.7	1000.0	120.000	100.0	V	12.0	-6.4	19.3	40.0
50.198878	16.9	1000.0	120.000	100.0	V	87.0	-14.4	23.1	40.0
71.181643	12.9	1000.0	120.000	100.0	V	160.0	-16.9	27.1	40.0
91.860521	12.3	1000.0	120.000	109.0	V	149.0	-15.6	31.2	43.5
122.050501	11.9	1000.0	120.000	100.0	V	13.0	-15.9	31.6	43.5
421.785331	16.4	1000.0	120.000	271.0	V	225.0	-4.2	29.6	46.0
898.917836	24.8	1000.0	120.000	150.0	V	96.0	5.8	21.2	46.0

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Side
 Test Channel: 2402 MHz



2.2.9.3 Test Results Above 1 GHz (BT GFSK Low Channel – 1GHz to 18GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1301.913226	39.0	1000.0	1000.000	410.7	H	269.0	-4.5	34.9	73.9
1925.939679	40.2	1000.0	1000.000	270.3	V	79.0	-2.3	33.7	73.9
2402.093587	59.2	Fundamental, not part of radiated emissions test.							
3894.691583	42.0	1000.0	1000.000	250.5	V	340.0	2.2	31.9	73.9
6248.992986	46.0	1000.0	1000.000	397.1	V	152.0	6.6	27.9	73.9
6962.423848	47.0	1000.0	1000.000	192.5	H	57.0	7.8	26.9	73.9
16843.78336	55.9	1000.0	1000.000	352.1	V	191.0	23.1	18.0	73.9

Average Data

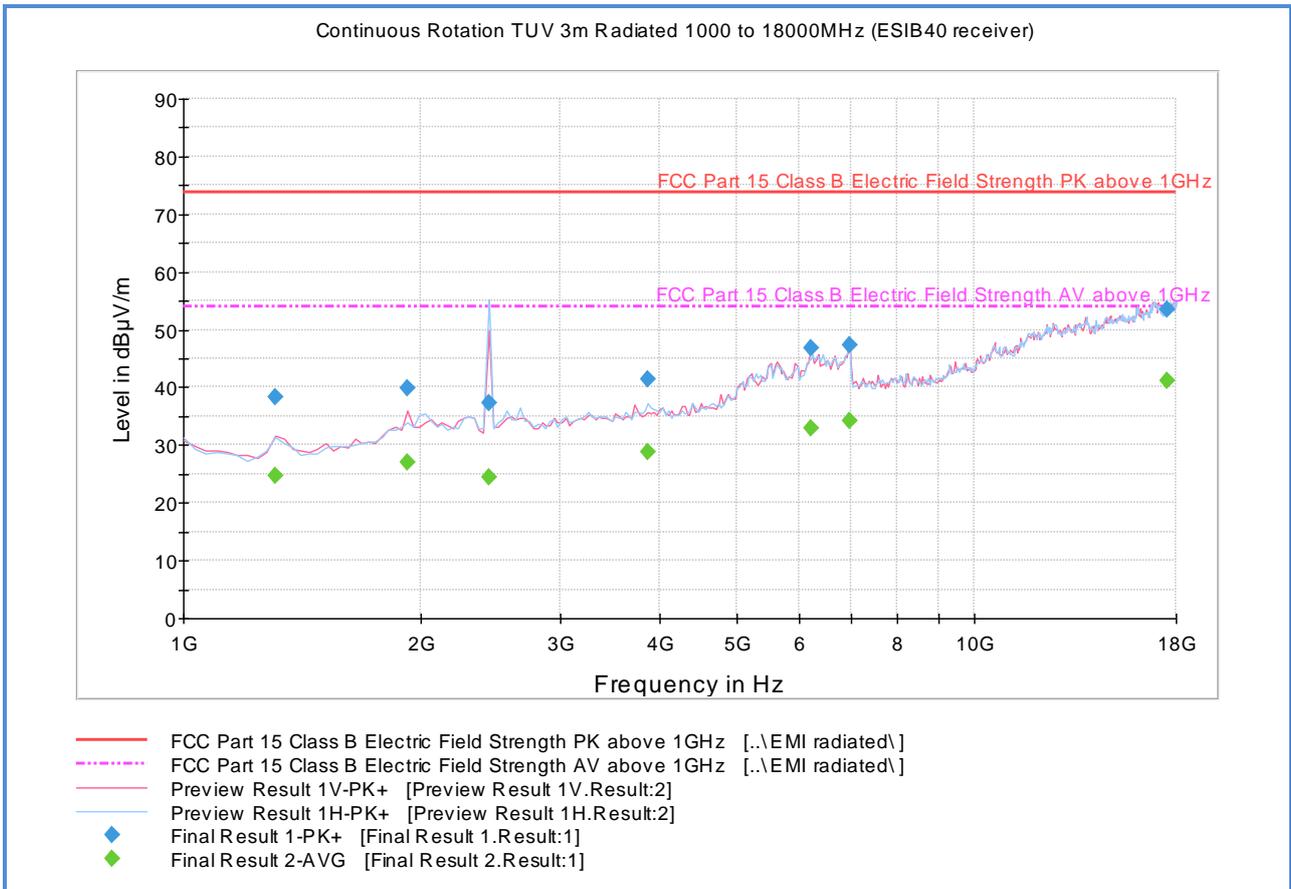
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1301.913226	24.9	1000.0	1000.000	410.7	H	269.0	-4.5	29.0	53.9
1925.939679	27.1	1000.0	1000.000	270.3	V	79.0	-2.3	26.8	53.9
2402.093587	57.5	Fundamental, not part of radiated emissions test.							
3894.691583	28.8	1000.0	1000.000	250.5	V	340.0	2.2	25.1	53.9
6248.992986	33.0	1000.0	1000.000	397.1	V	152.0	6.6	20.9	53.9
6962.423848	33.6	1000.0	1000.000	192.5	H	57.0	7.8	20.3	53.9
16843.783367	42.1	1000.0	1000.000	352.1	V	191.0	23.1	11.8	53.9

Test Notes:

EUT SN: 837TTH0042
 EUT Orientation: Side
 Test Channel: 2402 MHz



2.2.9.4 Test Results Above 1 GHz (BT GFSK Mid Channel – 1GHz to 18GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1305.913226	38.3	1000.0	1000.000	252.3	V	5.0	-4.1	35.6	73.9
1919.139679	39.8	1000.0	1000.000	282.2	V	179.0	-1.8	34.1	73.9
2431.361723	37.2	Fundamental, not part of radiated emissions test.							
3866.623447	41.4	1000.0	1000.000	116.7	H	20.0	2.5	32.5	73.9
6218.524850	46.8	1000.0	1000.000	152.2	V	161.0	6.8	27.1	73.9
6956.023848	47.2	1000.0	1000.000	406.7	V	0.0	7.8	26.7	73.9
17563.21422	53.5	1000.0	1000.000	140.7	H	200.0	22.9	20.4	73.9

Average Data

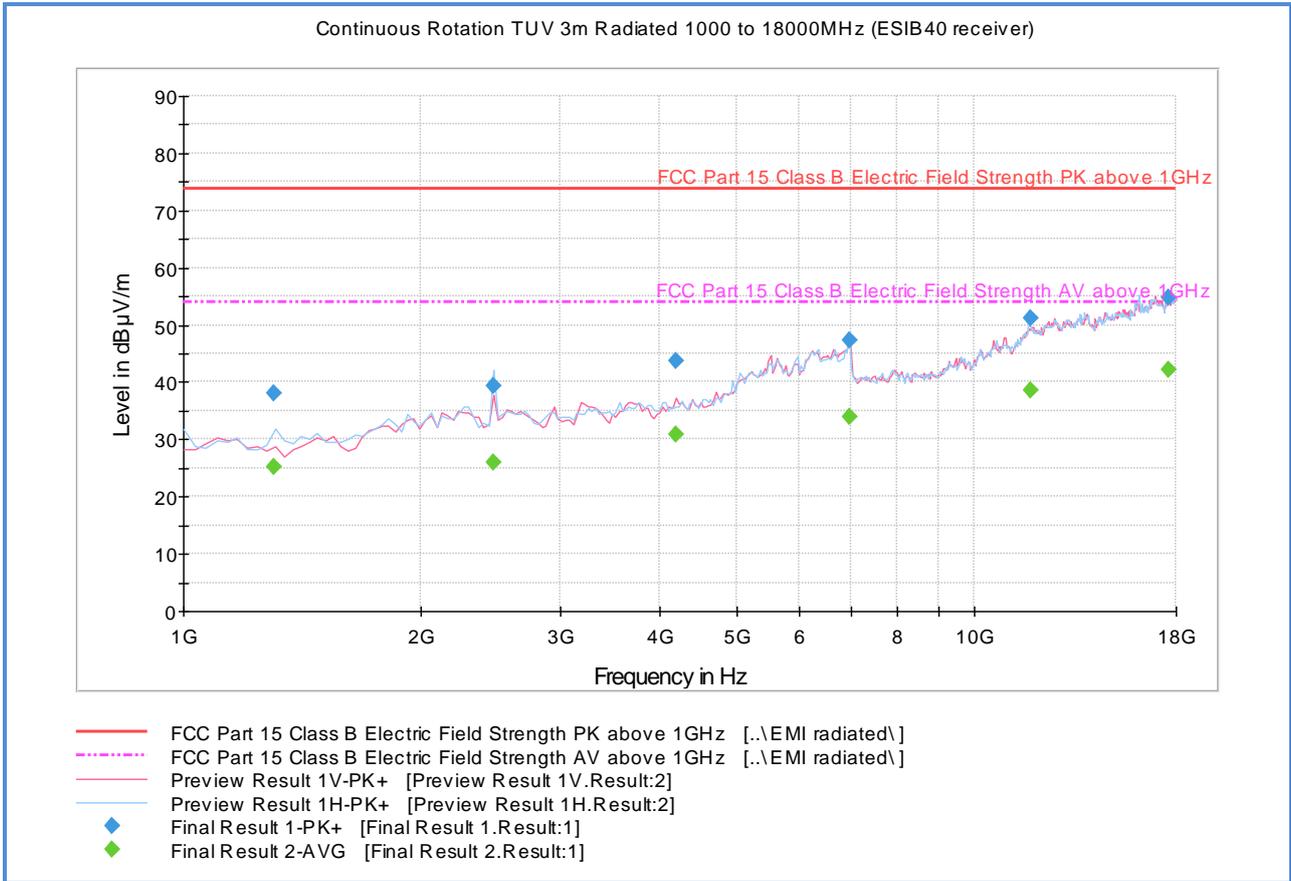
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1305.913226	24.6	1000.0	1000.000	252.3	V	5.0	-4.1	29.3	53.9
1919.139679	26.9	1000.0	1000.000	282.2	V	179.0	-1.8	27.0	53.9
2431.361723	24.5	Fundamental, not part of radiated emissions test.							
3866.623447	28.8	1000.0	1000.000	116.7	H	20.0	2.5	25.1	53.9
6218.524850	33.0	1000.0	1000.000	152.2	V	161.0	6.8	20.9	53.9
6956.023848	34.1	1000.0	1000.000	406.7	V	0.0	7.8	19.8	53.9
17563.214228	41.0	1000.0	1000.000	140.7	H	200.0	22.9	12.9	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Side
 Test Channel: 2441 MHz



2.2.9.5 Test Results Above 1 GHz (BT GFSK High Channel – 1GHz to 18GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1303.513226	38.0	1000.0	1000.000	280.2	H	281.0	-4.3	35.9	73.9
2464.629860	39.4	1000.0	1000.000	133.7	H	312.0	-0.2	34.5	73.9
4202.504810	43.7	1000.0	1000.000	406.7	V	42.0	3.0	30.2	73.9
6962.423848	47.3	1000.0	1000.000	152.2	V	90.0	7.8	26.6	73.9
11798.09919	51.1	1000.0	1000.000	352.7	V	278.0	16.4	22.8	73.9
17622.55050	54.8	1000.0	1000.000	406.7	V	10.0	22.9	19.1	73.9

Average Data

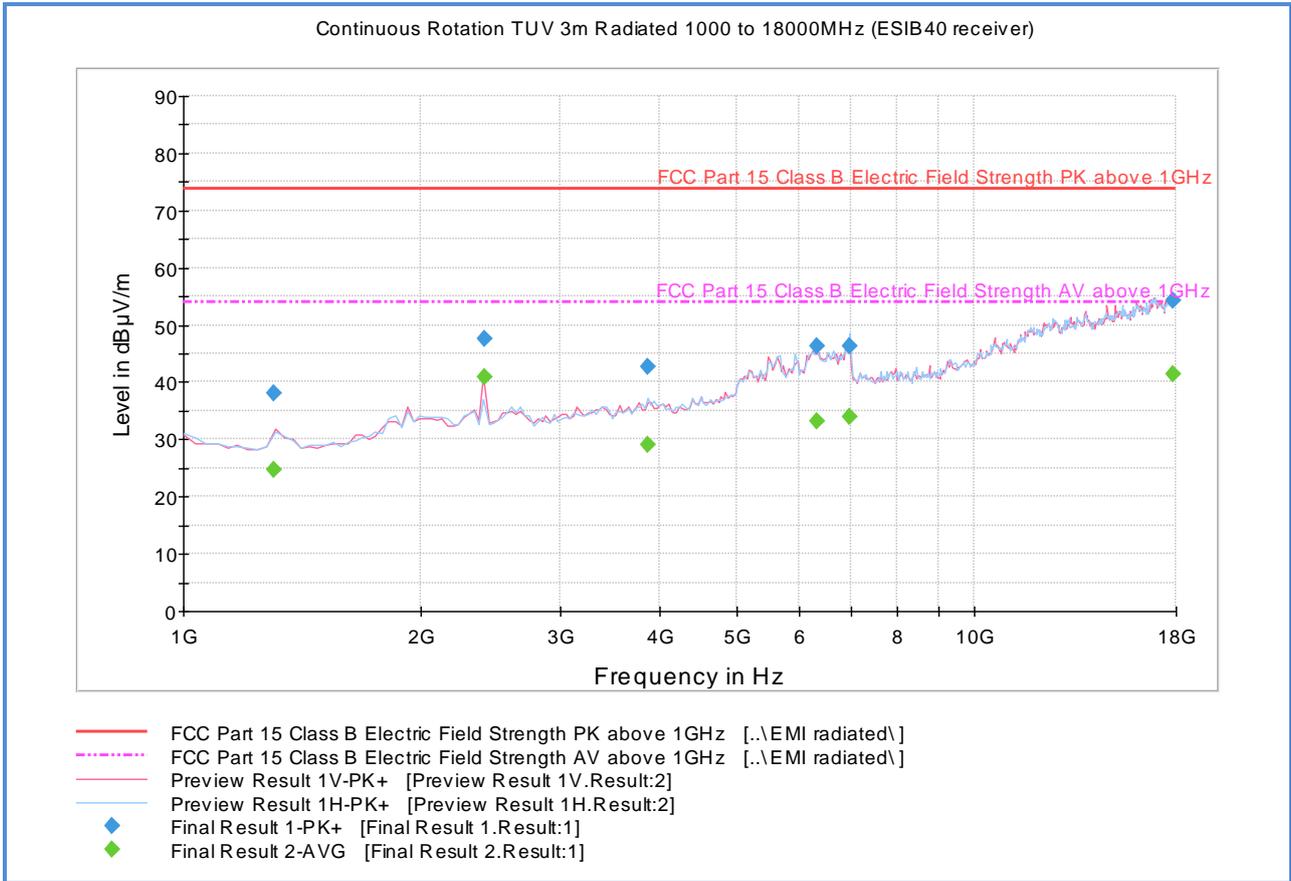
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1303.513226	25.2	1000.0	1000.000	280.2	H	281.0	-4.3	28.7	53.9
2464.629860	26.1	1000.0	1000.000	133.7	H	312.0	-0.2	27.8	53.9
4202.504810	30.8	1000.0	1000.000	406.7	V	42.0	3.0	23.1	53.9
6962.423848	34.1	1000.0	1000.000	152.2	V	90.0	7.8	19.8	53.9
11798.099198	38.5	1000.0	1000.000	352.7	V	278.0	16.4	15.4	53.9
17622.550501	42.3	1000.0	1000.000	406.7	V	10.0	22.9	11.6	53.9

Test Notes:

EUT SN: 837TTH0042
 EUT Orientation: Side
 Test Channel: 2480 MHz



2.2.9.6 Test Results Above 1 GHz (BT EDR2 Low Channel – 1GHz to 18GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1303.913226	37.9	1000.0	1000.000	301.2	V	159.0	-4.3	36.0	73.9
2402.093587	47.5	1000.0	1000.000	280.3	V	184.0	-1.0	26.4	73.9
3867.423447	42.8	1000.0	1000.000	230.4	H	20.0	2.5	31.1	73.9
6317.529259	46.3	1000.0	1000.000	403.1	H	305.0	6.8	27.6	73.9
6960.023848	46.3	1000.0	1000.000	152.7	H	0.0	7.8	27.6	73.9
17828.55931	54.3	1000.0	1000.000	384.1	H	179.0	23.1	19.6	73.9

Average Data

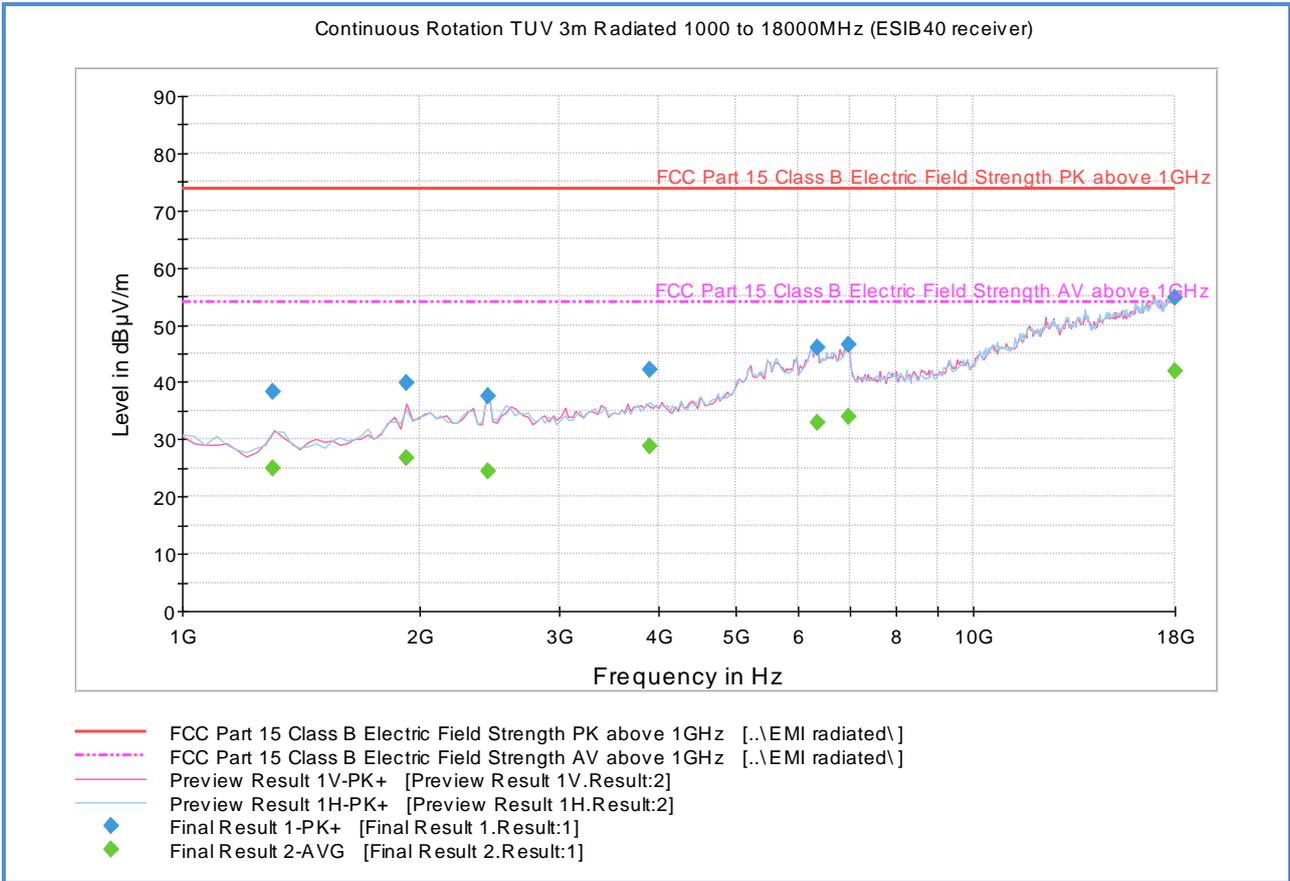
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1303.913226	24.8	1000.0	1000.000	301.2	V	159.0	-4.3	29.1	53.9
2402.093587	41.0	1000.0	1000.000	280.3	V	184.0	-1.0	12.9	53.9
3867.423447	29.1	1000.0	1000.000	230.4	H	20.0	2.5	24.8	53.9
6317.529259	33.1	1000.0	1000.000	403.1	H	305.0	6.8	20.8	53.9
6960.023848	33.9	1000.0	1000.000	152.7	H	0.0	7.8	20.0	53.9
17828.559319	41.5	1000.0	1000.000	384.1	H	179.0	23.1	12.4	53.9

Test Notes:

EUT SN: 837TTH0042
 EUT Orientation: Side
 Test Channel: 2402 MHz



2.2.9.7 Test Results Above 1 GHz (BT EDR2 Mid Channel – 1GHz to 18GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1301.913226	38.2	1000.0	1000.000	292.2	V	203.0	-4.5	35.7	73.9
1917.939679	39.8	1000.0	1000.000	240.4	V	201.0	-1.8	34.1	73.9
2431.361723	37.6	1000.0	1000.000	103.7	H	265.0	-0.7	36.3	73.9
3900.491583	42.3	1000.0	1000.000	352.1	H	338.0	2.1	31.6	73.9
6354.397395	46.1	1000.0	1000.000	314.2	V	339.0	7.4	27.8	73.9
6959.623848	46.4	1000.0	1000.000	352.1	V	41.0	7.8	27.5	73.9
17963.63186	54.9	1000.0	1000.000	403.1	H	11.0	23.3	19.0	73.9

Average Data

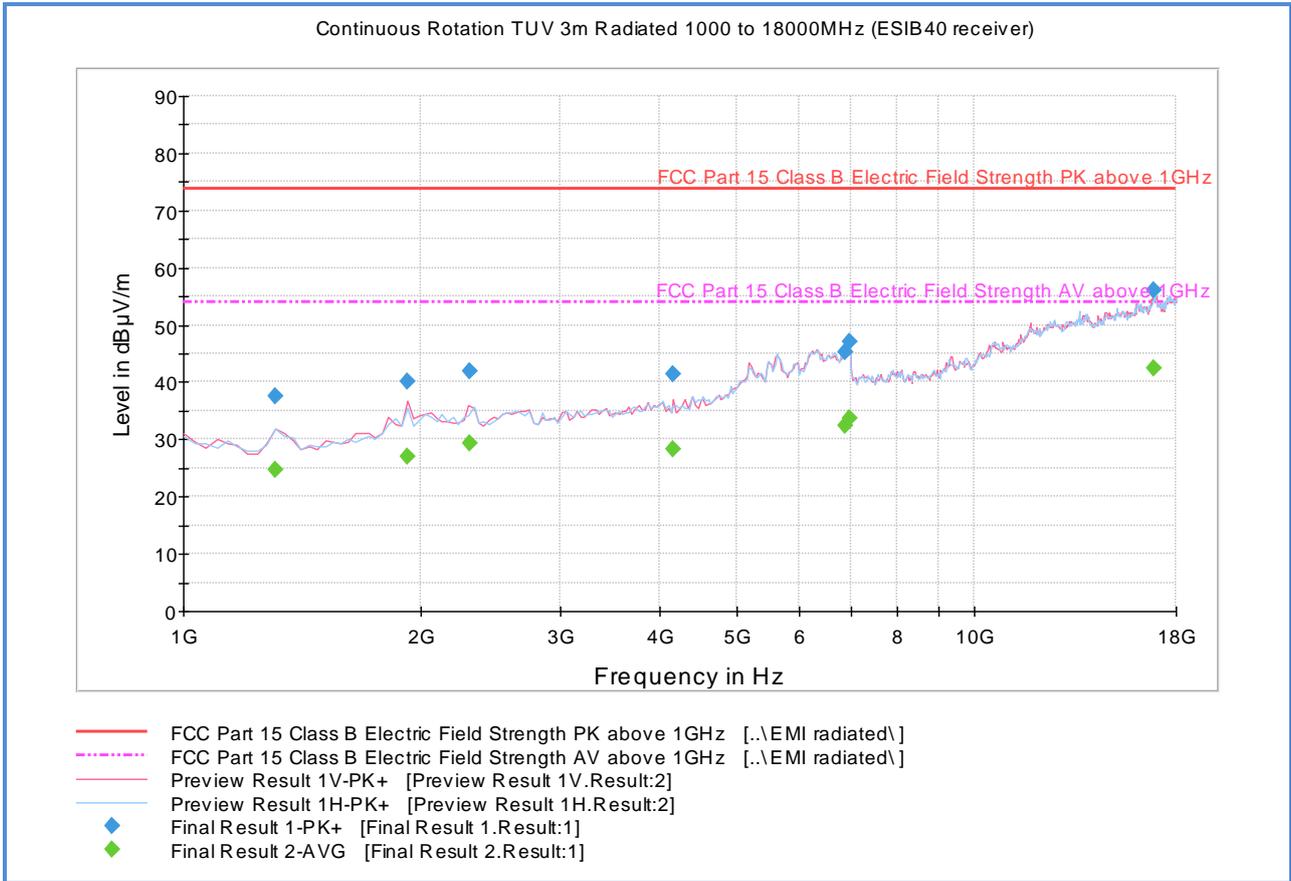
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1301.913226	24.9	1000.0	1000.000	292.2	V	203.0	-4.5	29.0	53.9
1917.939679	26.8	1000.0	1000.000	240.4	V	201.0	-1.8	27.1	53.9
2431.361723	24.5	1000.0	1000.000	103.7	H	265.0	-0.7	29.4	53.9
3900.491583	28.8	1000.0	1000.000	352.1	H	338.0	2.1	25.1	53.9
6354.397395	32.8	1000.0	1000.000	314.2	V	339.0	7.4	21.1	53.9
6959.623848	34.0	1000.0	1000.000	352.1	V	41.0	7.8	19.9	53.9
17963.631864	41.9	1000.0	1000.000	403.1	H	11.0	23.3	12.0	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Side
 Test Channel: 2441 MHz



2.2.9.8 Test Results Above 1 GHz (BT EDR2 High Channel – 1GHz to 18GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1307.513226	37.4	1000.0	1000.000	301.2	V	100.0	-3.9	36.5	73.9
1921.539679	40.1	1000.0	1000.000	352.1	V	-14.0	-2.0	33.8	73.9
2299.089178	41.9	1000.0	1000.000	103.7	V	81.0	-1.1	32.0	73.9
4167.436673	41.5	1000.0	1000.000	152.2	V	119.0	2.7	32.4	73.9
6863.019439	45.3	1000.0	1000.000	350.6	H	351.0	7.2	28.6	73.9
6966.423848	47.0	1000.0	1000.000	103.7	V	318.0	7.8	26.9	73.9
16905.51963	56.0	1000.0	1000.000	410.7	H	198.0	23.1	17.9	73.9

Average Data

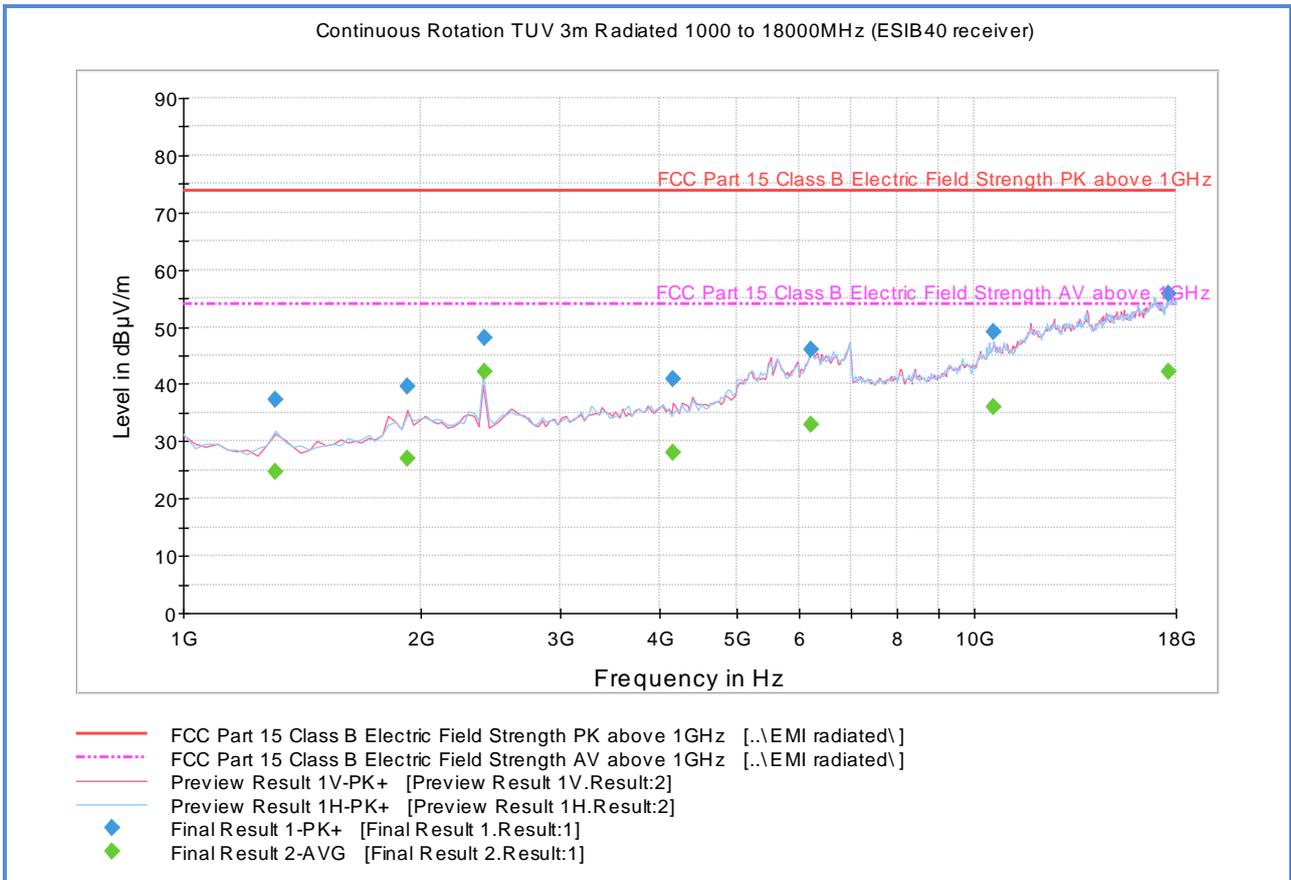
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1307.513226	24.8	1000.0	1000.000	301.2	V	100.0	-3.9	29.1	53.9
1921.539679	27.1	1000.0	1000.000	352.1	V	-14.0	-2.0	26.8	53.9
2299.089178	29.2	1000.0	1000.000	103.7	V	81.0	-1.1	24.7	53.9
4167.436673	28.2	1000.0	1000.000	152.2	V	119.0	2.7	25.7	53.9
6863.019439	32.4	1000.0	1000.000	350.6	H	351.0	7.2	21.5	53.9
6966.423848	33.7	1000.0	1000.000	103.7	V	318.0	7.8	20.2	53.9
16905.519639	42.5	1000.0	1000.000	410.7	H	198.0	23.1	11.4	53.9

Test Notes:

EUT SN: 837TTH0042
 EUT Orientation: Side
 Test Channel: 2480 MHz



2.2.9.9 Test Results Above 1 GHz (BT EDR3 Low Channel – 1GHz to 18GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1307.113226	37.4	1000.0	1000.000	336.1	H	265.0	-3.9	36.5	73.9
1917.539679	39.7	1000.0	1000.000	372.1	H	330.0	-1.7	34.2	73.9
2402.093587	48.1	1000.0	1000.000	313.2	H	300.0	-1.0	25.8	73.9
4163.236673	41.0	1000.0	1000.000	121.7	V	57.0	2.6	32.9	73.9
6211.724850	46.0	1000.0	1000.000	151.2	H	4.0	6.9	27.9	73.9
10572.04629	49.0	1000.0	1000.000	230.4	H	139.0	14.4	24.9	73.9
17586.08236	55.7	1000.0	1000.000	352.7	V	283.0	22.9	18.2	73.9

Average Data

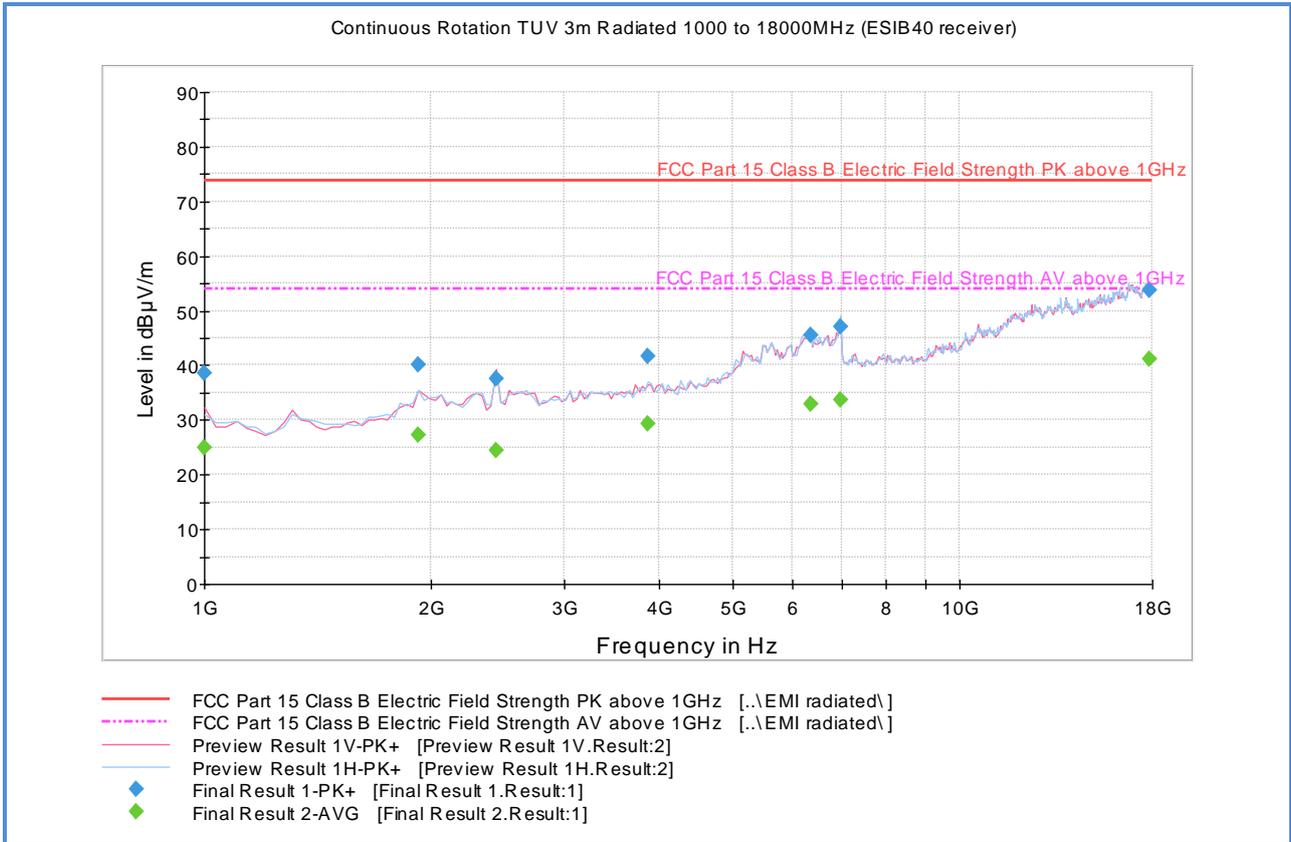
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1307.113226	24.7	1000.0	1000.000	336.1	H	265.0	-3.9	29.2	53.9
1917.539679	26.9	1000.0	1000.000	372.1	H	330.0	-1.7	27.0	53.9
2402.093587	42.1	1000.0	1000.000	313.2	H	300.0	-1.0	11.8	53.9
4163.236673	27.9	1000.0	1000.000	121.7	V	57.0	2.6	26.0	53.9
6211.724850	33.0	1000.0	1000.000	151.2	H	4.0	6.9	20.9	53.9
10572.046293	35.9	1000.0	1000.000	230.4	H	139.0	14.4	18.0	53.9
17586.082365	42.1	1000.0	1000.000	352.7	V	283.0	22.9	11.8	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Side
 Test Channel: 2402 MHz



2.2.9.10 Test Results Above 1 GHz (BT EDR3 Mid Channel – 1GHz to 18GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1002.000000	38.5	1000.0	1000.000	406.7	V	41.0	-7.3	35.4	73.9
1922.739679	40.0	1000.0	1000.000	406.7	V	221.0	-2.1	33.9	73.9
2436.561723	37.4	1000.0	1000.000	201.5	V	29.0	-0.6	36.5	73.9
3868.623447	41.7	1000.0	1000.000	103.7	H	284.0	2.5	32.2	73.9
6354.797395	45.6	1000.0	1000.000	352.1	V	292.0	7.4	28.3	73.9
6956.823848	47.0	1000.0	1000.000	200.5	H	217.0	7.8	26.9	73.9
17867.02745	53.7	1000.0	1000.000	250.5	H	204.0	23.2	20.2	73.9

Average Data

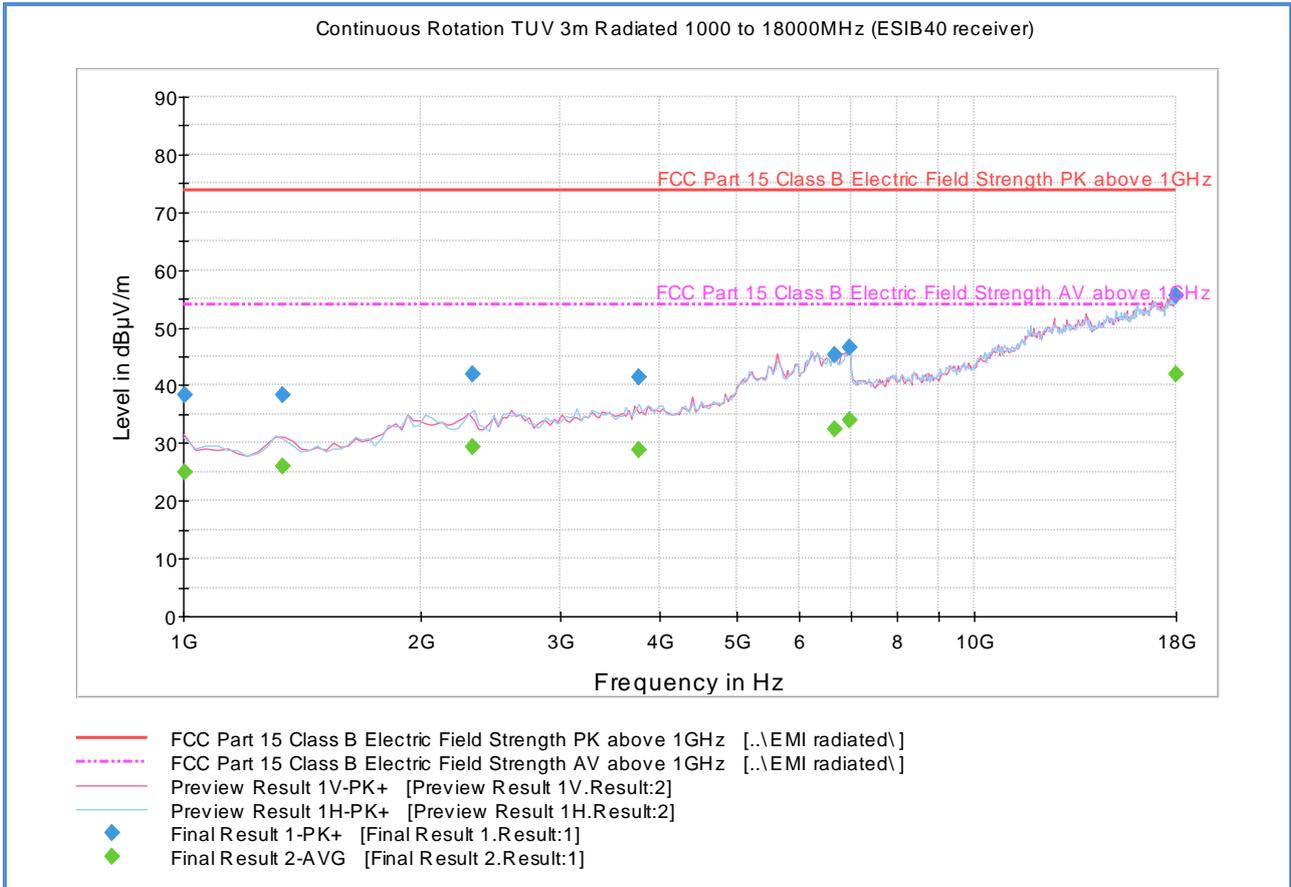
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1002.000000	24.9	1000.0	1000.000	406.7	V	41.0	-7.3	29.0	53.9
1922.739679	27.2	1000.0	1000.000	406.7	V	221.0	-2.1	26.7	53.9
2436.561723	24.4	1000.0	1000.000	201.5	V	29.0	-0.6	29.5	53.9
3868.623447	29.4	1000.0	1000.000	103.7	H	284.0	2.5	24.5	53.9
6354.797395	32.9	1000.0	1000.000	352.1	V	292.0	7.4	21.0	53.9
6956.823848	33.8	1000.0	1000.000	200.5	H	217.0	7.8	20.1	53.9
17867.027455	41.2	1000.0	1000.000	250.5	H	204.0	23.2	12.7	53.9

Test Notes:

EUT SN: 837TTH0042
 EUT Orientation: Side
 Test Channel: 2441 MHz



2.2.9.11 Test Results Above 1 GHz (BT EDR3 High Channel – 1GHz to 18GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1005.700000	38.3	1000.0	1000.000	385.0	V	20.0	-7.3	35.6	73.9
1337.581363	38.3	1000.0	1000.000	372.1	V	331.0	-5.1	35.6	73.9
2323.957315	41.9	1000.0	1000.000	373.1	H	320.0	-0.6	32.0	73.9
3760.819038	41.3	1000.0	1000.000	241.3	H	181.0	2.0	32.6	73.9
6655.410621	45.1	1000.0	1000.000	410.7	H	100.0	6.7	28.8	73.9
6959.823848	46.5	1000.0	1000.000	301.2	H	31.0	7.8	27.4	73.9
17996.100000	55.5	1000.0	1000.000	397.1	H	120.0	23.4	18.4	73.9

Average Data

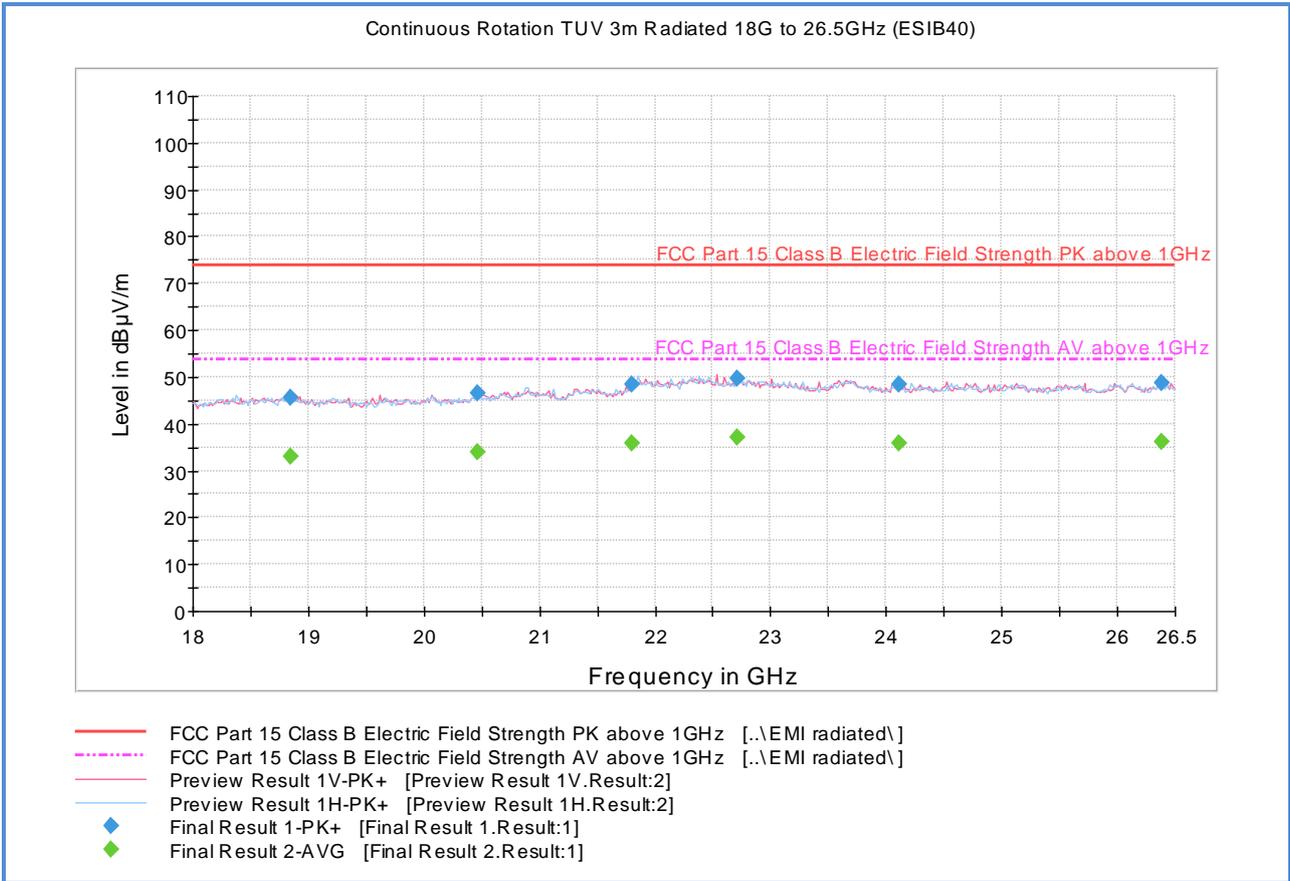
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
1005.700000	25.1	1000.0	1000.000	385.0	V	20.0	-7.3	28.8	53.9
1337.581363	25.9	1000.0	1000.000	372.1	V	331.0	-5.1	28.0	53.9
2323.957315	29.2	1000.0	1000.000	373.1	H	320.0	-0.6	24.7	53.9
3760.819038	28.9	1000.0	1000.000	241.3	H	181.0	2.0	25.0	53.9
6655.410621	32.4	1000.0	1000.000	410.7	H	100.0	6.7	21.5	53.9
6959.823848	33.9	1000.0	1000.000	301.2	H	31.0	7.8	20.0	53.9
17996.100000	42.0	1000.0	1000.000	397.1	H	120.0	23.4	11.9	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Side
 Test Channel: 2480 MHz



2.2.9.12 Test Results Above 1 GHz (BT GFSK Low Channel – 18GHz to 26.5GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18849.00340	45.7	1000.0	1000.000	140.7	H	7.0	5.8	28.2	73.9
20468.43988	46.5	1000.0	1000.000	175.2	V	193.0	5.6	27.4	73.9
21798.29719	48.3	1000.0	1000.000	140.7	V	271.0	6.0	25.6	73.9
22714.13687	49.5	1000.0	1000.000	157.6	H	81.0	6.2	24.4	73.9
24117.73046	48.4	1000.0	1000.000	165.6	V	7.0	6.1	25.5	73.9
26378.06152	48.8	1000.0	1000.000	157.6	H	325.0	6.5	25.1	73.9

Average Data

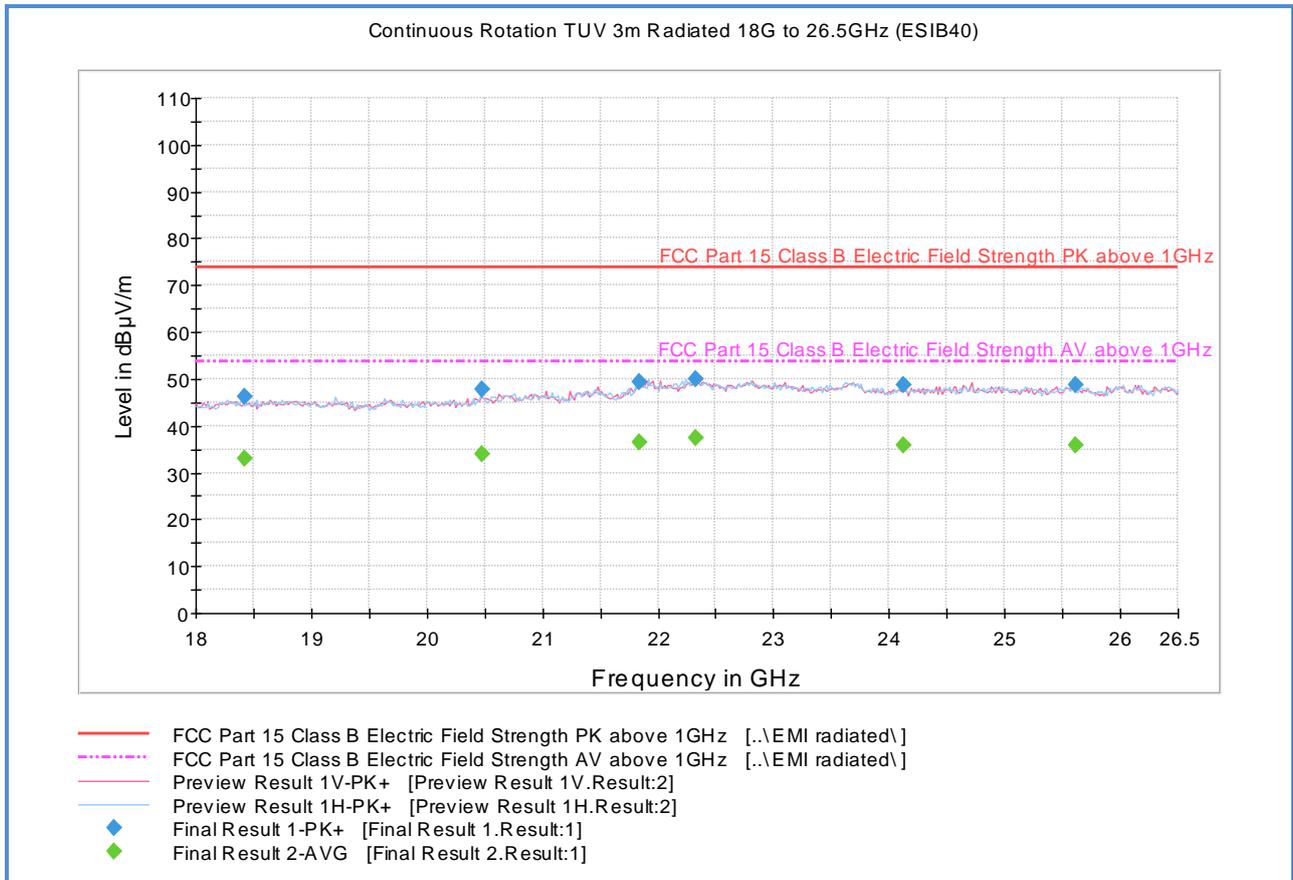
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18849.003407	33.0	1000.0	1000.000	140.7	H	7.0	5.8	20.9	53.9
20468.439880	34.0	1000.0	1000.000	175.2	V	193.0	5.6	19.9	53.9
21798.297194	35.9	1000.0	1000.000	140.7	V	271.0	6.0	18.0	53.9
22714.136874	36.9	1000.0	1000.000	157.6	H	81.0	6.2	17.0	53.9
24117.730461	35.9	1000.0	1000.000	165.6	V	7.0	6.1	18.0	53.9
26378.061523	36.0	1000.0	1000.000	157.6	H	325.0	6.5	17.9	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Flat
 Test Channel: 2402 MHz



2.2.9.13 Test Results Above 1 GHz (BT GFSK Mid Channel – 18GHz to 26.5GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18429.35170	46.1	1000.0	1000.000	165.6	V	185.0	6.0	27.8	73.9
20474.83988	47.6	1000.0	1000.000	156.6	H	122.0	5.6	26.3	73.9
21840.16533	49.3	1000.0	1000.000	151.6	V	175.0	6.1	24.6	73.9
22323.55330	49.9	1000.0	1000.000	126.7	V	-10.0	6.3	24.0	73.9
24130.76452	48.7	1000.0	1000.000	140.7	H	-6.0	6.1	25.2	73.9
25618.72845	48.8	1000.0	1000.000	175.2	V	156.0	6.3	25.1	73.9

Average Data

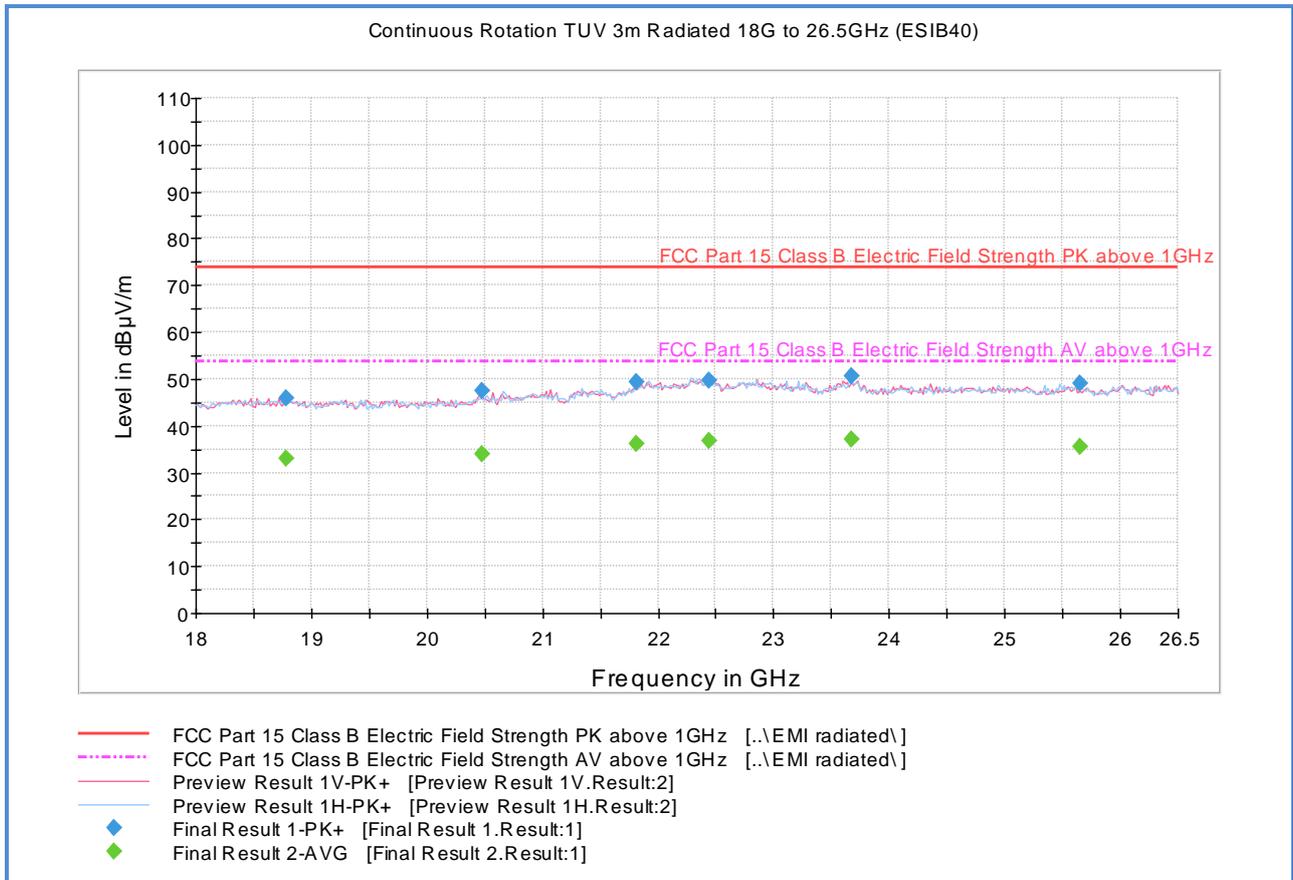
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18429.351703	32.9	1000.0	1000.000	165.6	V	185.0	6.0	21.0	53.9
20474.839880	34.0	1000.0	1000.000	156.6	H	122.0	5.6	19.9	53.9
21840.165331	36.5	1000.0	1000.000	151.6	V	175.0	6.1	17.4	53.9
22323.553307	37.4	1000.0	1000.000	126.7	V	-10.0	6.3	16.5	53.9
24130.764529	35.8	1000.0	1000.000	140.7	H	-6.0	6.1	18.1	53.9
25618.728457	35.7	1000.0	1000.000	175.2	V	156.0	6.3	18.2	53.9

Test Notes:

EUT SN: 837TTH0042
 EUT Orientation: Flat
 Test Channel: 2441 MHz



2.2.9.14 Test Results Above 1 GHz (BT GFSK High Channel – 18GHz to 26.5GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18788.86713	45.8	1000.0	1000.000	175.2	V	87.0	5.9	28.1	73.9
20475.23988	47.4	1000.0	1000.000	165.6	V	141.0	5.6	26.5	73.9
21816.33126	49.3	1000.0	1000.000	175.2	H	7.0	6.0	24.6	73.9
22447.99178	49.7	1000.0	1000.000	140.7	H	287.0	6.2	24.2	73.9
23670.44468	50.7	1000.0	1000.000	175.2	H	298.0	6.1	23.2	73.9
25649.19659	48.9	1000.0	1000.000	126.7	H	18.0	6.3	25.0	73.9

Average Data

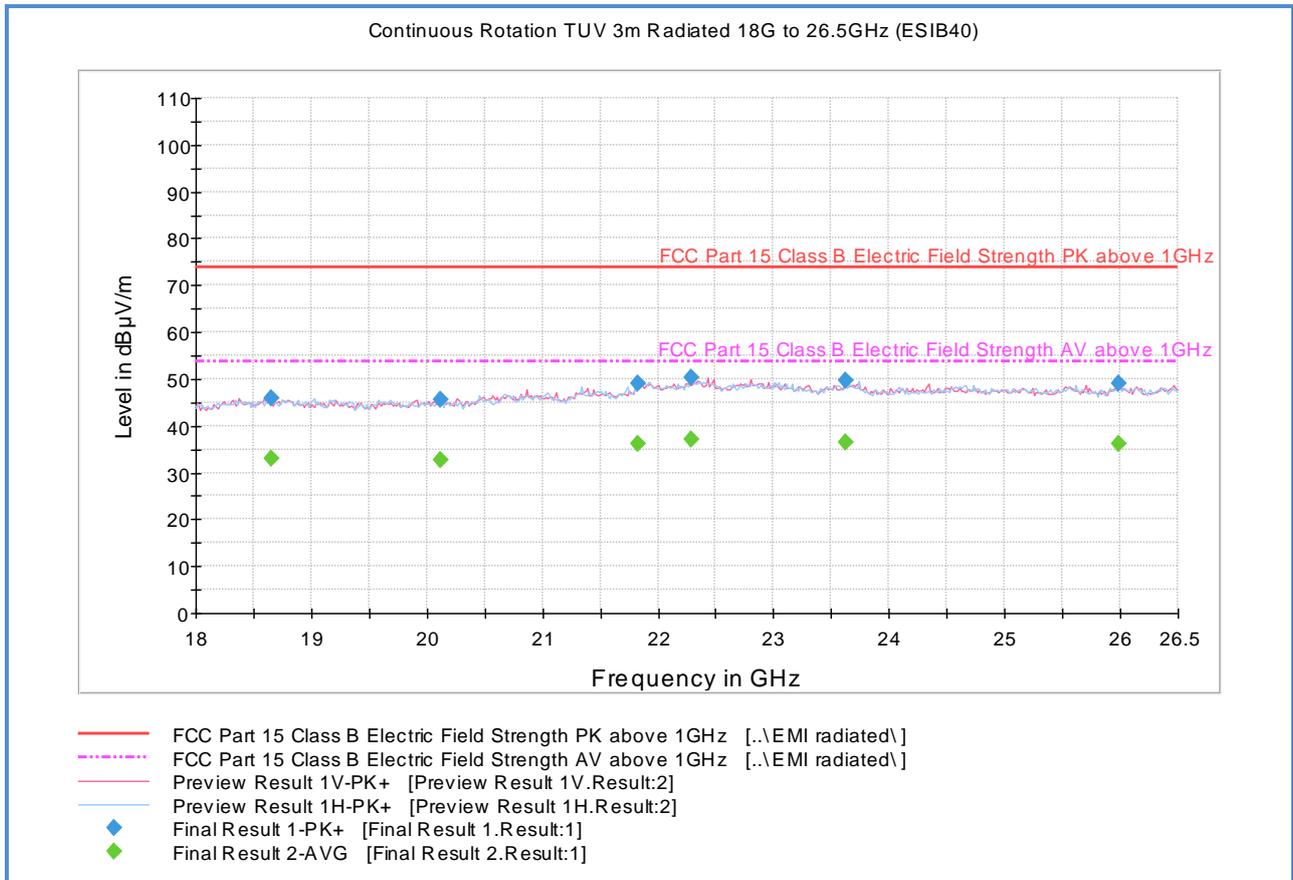
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18788.867134	33.1	1000.0	1000.000	175.2	V	87.0	5.9	20.8	53.9
20475.239880	34.0	1000.0	1000.000	165.6	V	141.0	5.6	19.9	53.9
21816.331263	36.0	1000.0	1000.000	175.2	H	7.0	6.0	17.9	53.9
22447.991784	36.7	1000.0	1000.000	140.7	H	287.0	6.2	17.2	53.9
23670.444689	37.1	1000.0	1000.000	175.2	H	298.0	6.1	16.8	53.9
25649.196593	35.6	1000.0	1000.000	126.7	H	18.0	6.3	18.4	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Flat
 Test Channel: 2480 MHz



2.2.9.15 Test Results Above 1 GHz (BT EDR2 Low Channel – 18GHz to 26.5GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18660.82865	45.8	1000.0	1000.000	148.7	V	23.0	6.0	28.1	73.9
20122.95851	45.7	1000.0	1000.000	175.2	V	255.0	5.5	28.2	73.9
21830.76533	49.1	1000.0	1000.000	148.7	V	177.0	6.1	24.8	73.9
22288.68517	50.2	1000.0	1000.000	175.2	V	-4.0	6.3	23.7	73.9
23621.94248	49.7	1000.0	1000.000	150.7	H	290.0	6.1	24.2	73.9
25984.27795	49.0	1000.0	1000.000	175.2	V	165.0	6.3	24.9	73.9

Average Data

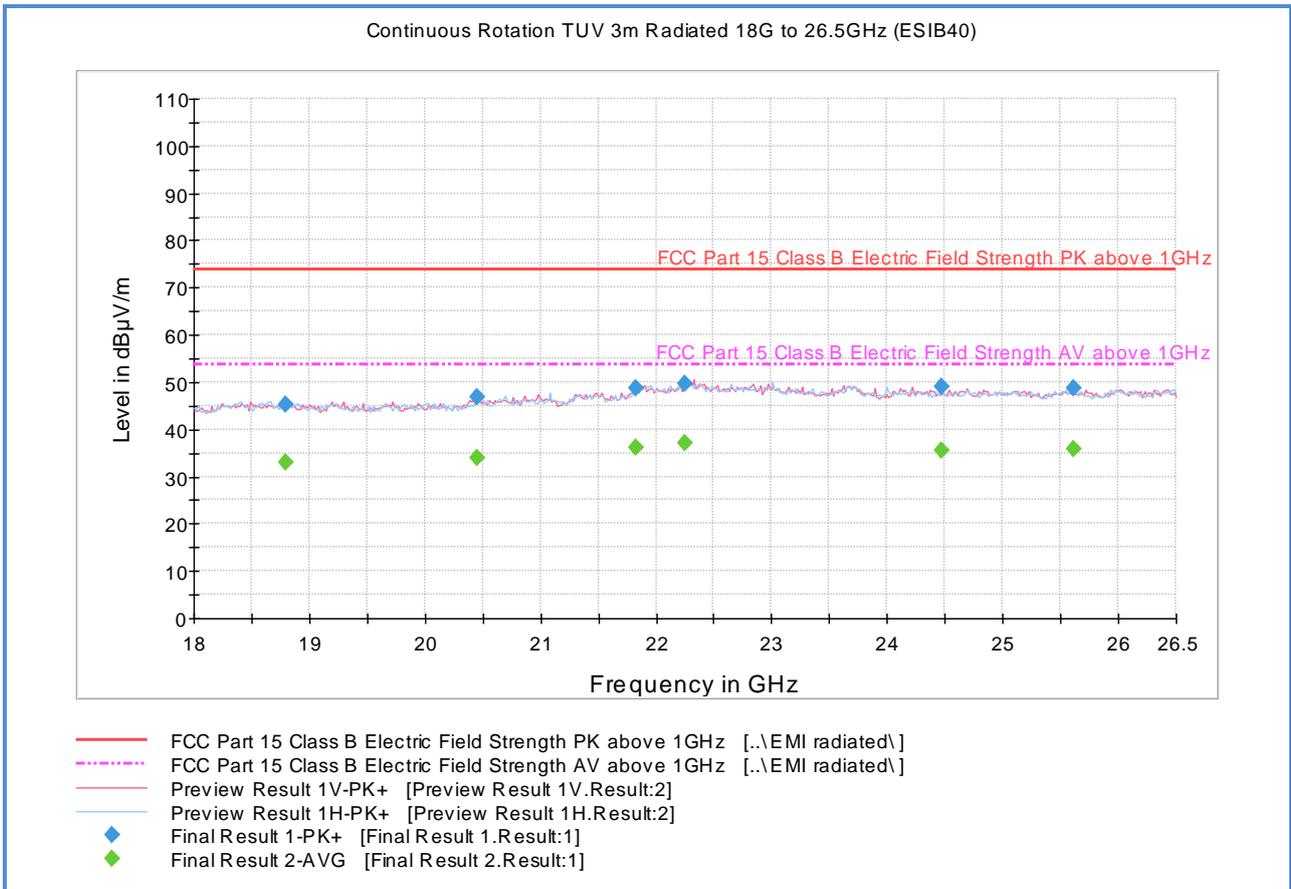
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18660.828657	32.9	1000.0	1000.000	148.7	V	23.0	6.0	21.0	53.9
20122.958517	32.6	1000.0	1000.000	175.2	V	255.0	5.5	21.3	53.9
21830.765331	36.2	1000.0	1000.000	148.7	V	177.0	6.1	17.7	53.9
22288.685170	37.2	1000.0	1000.000	175.2	V	-4.0	6.3	16.7	53.9
23621.942485	36.6	1000.0	1000.000	150.7	H	290.0	6.1	17.3	53.9
25984.277956	36.1	1000.0	1000.000	175.2	V	165.0	6.3	17.8	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Flat
 Test Channel: 2402 MHz



2.2.9.16 Test Results Above 1 GHz (BT EDR2 Mid Channel – 18GHz to 26.5GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18795.90120	45.2	1000.0	1000.000	157.6	H	34.0	5.9	28.7	73.9
20457.80581	46.9	1000.0	1000.000	175.2	V	342.0	5.6	27.0	73.9
21829.56533	48.7	1000.0	1000.000	148.7	V	65.0	6.1	25.2	73.9
22255.81703	49.8	1000.0	1000.000	140.7	H	10.0	6.3	24.1	73.9
24469.84589	48.9	1000.0	1000.000	164.6	H	185.0	6.3	25.0	73.9
25609.12845	48.8	1000.0	1000.000	156.6	H	331.0	6.3	25.1	73.9

Average Data

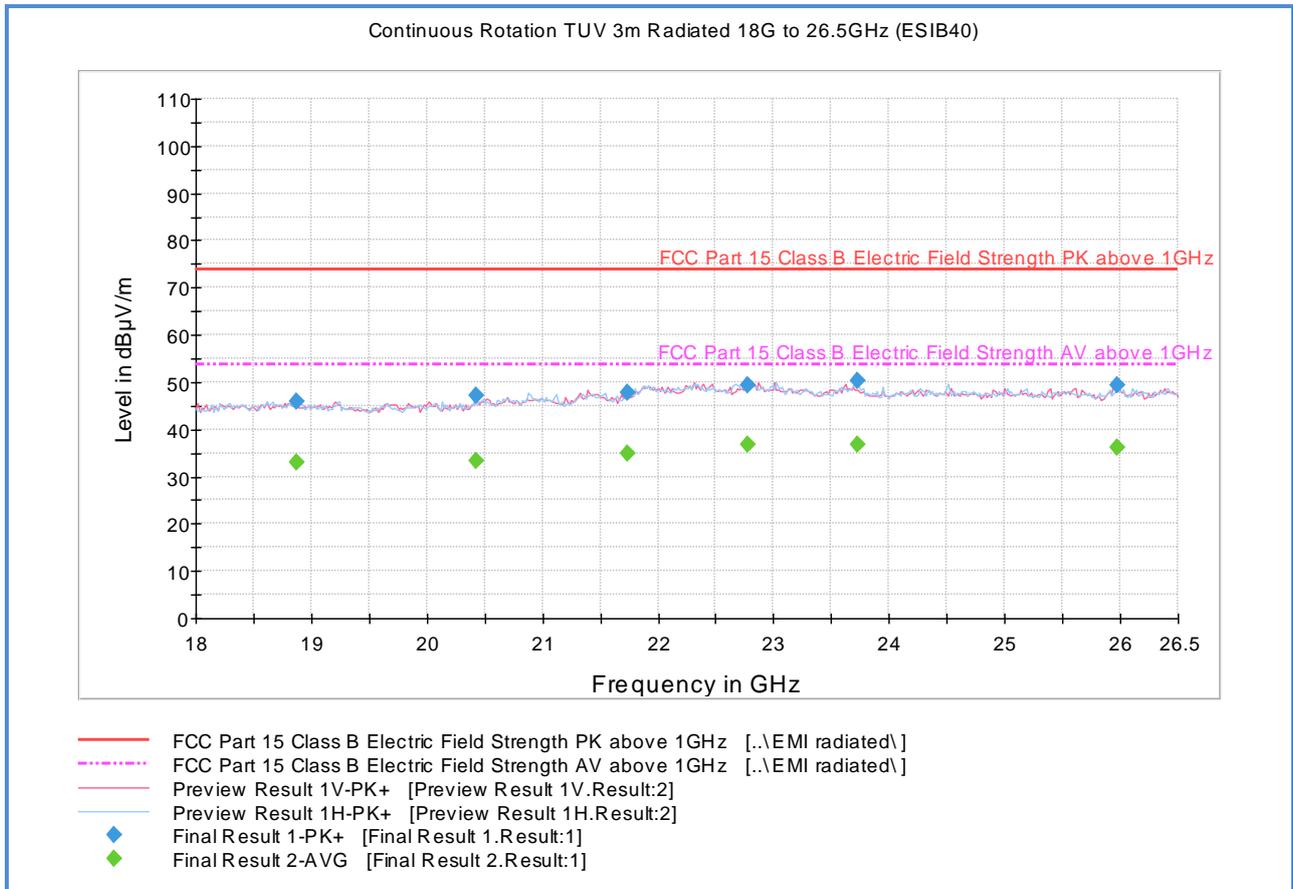
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18795.901202	33.1	1000.0	1000.000	157.6	H	34.0	5.9	20.8	53.9
20457.805812	33.9	1000.0	1000.000	175.2	V	342.0	5.6	20.0	53.9
21829.565331	36.2	1000.0	1000.000	148.7	V	65.0	6.1	17.7	53.9
22255.817034	37.0	1000.0	1000.000	140.7	H	10.0	6.3	16.9	53.9
24469.845892	35.7	1000.0	1000.000	164.6	H	185.0	6.3	18.2	53.9
25609.128457	35.8	1000.0	1000.000	156.6	H	331.0	6.3	18.1	53.9

Test Notes:

EUT SN: 837TTH0042
 EUT Orientation: Flat
 Test Channel: 2441 MHz



2.2.9.17 Test Results Above 1 GHz (BT EDR2 High Channel – 18GHz to 26.5GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18874.03747	45.9	1000.0	1000.000	148.7	H	273.0	5.8	28.0	73.9
20422.13767	47.1	1000.0	1000.000	165.6	V	295.0	5.6	26.8	73.9
21734.16092	47.9	1000.0	1000.000	175.2	H	19.0	5.9	26.0	73.9
22770.03907	49.3	1000.0	1000.000	175.2	V	315.0	6.2	24.6	73.9
23720.74689	50.2	1000.0	1000.000	157.6	H	10.0	6.1	23.7	73.9
25967.24388	49.4	1000.0	1000.000	126.7	H	10.0	6.3	24.5	73.9

Average Data

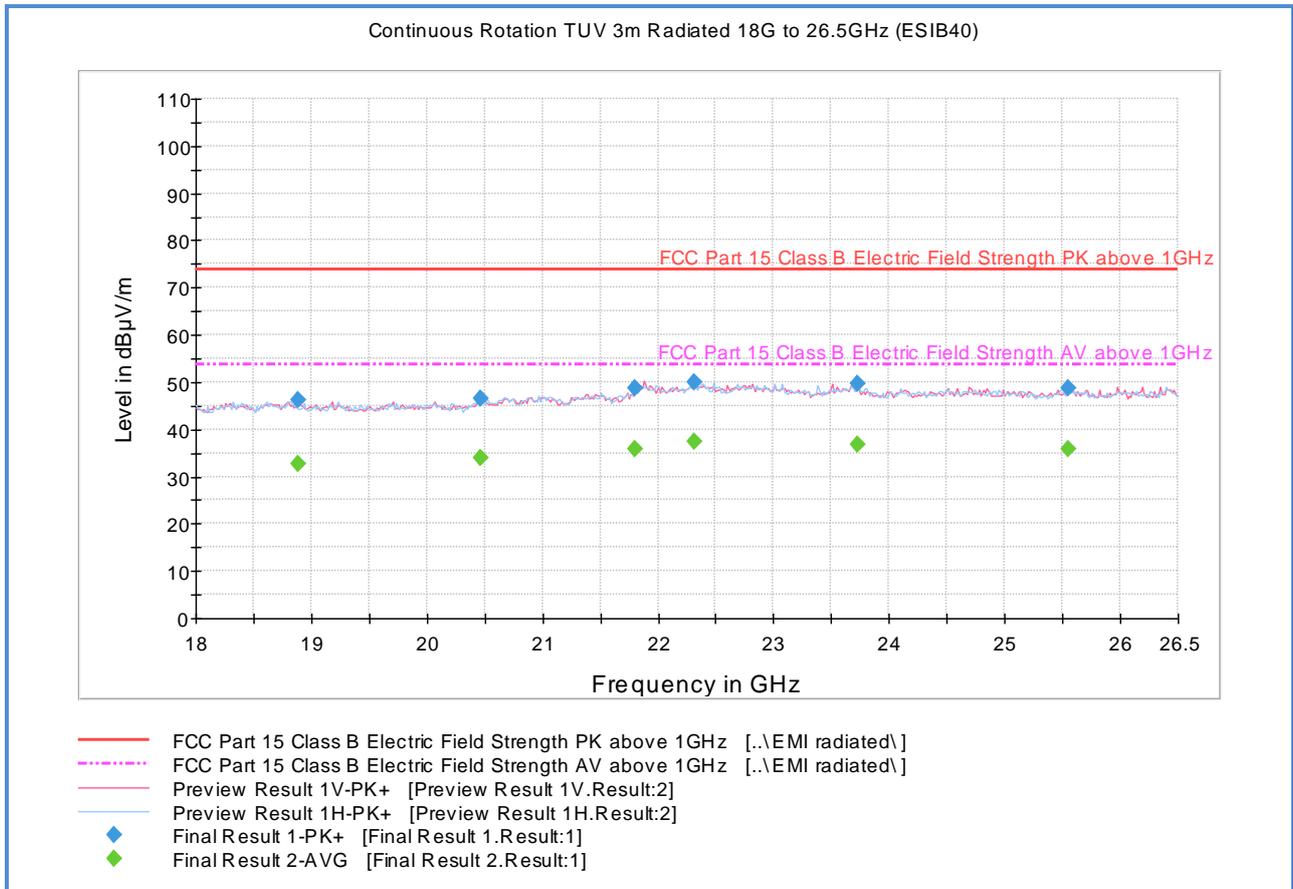
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18874.037475	32.9	1000.0	1000.000	148.7	H	273.0	5.8	21.0	53.9
20422.137675	33.4	1000.0	1000.000	165.6	V	295.0	5.6	20.5	53.9
21734.160922	35.0	1000.0	1000.000	175.2	H	19.0	5.9	18.9	53.9
22770.039078	36.9	1000.0	1000.000	175.2	V	315.0	6.2	17.0	53.9
23720.746894	36.7	1000.0	1000.000	157.6	H	10.0	6.1	17.2	53.9
25967.243888	36.0	1000.0	1000.000	126.7	H	10.0	6.3	17.9	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Flat
 Test Channel: 2480 MHz



2.2.9.18 Test Results Above 1 GHz (BT EDR3 Low Channel – 18GHz to 26.5GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18887.07154	46.4	1000.0	1000.000	175.2	V	23.0	5.8	27.5	73.9
20467.23988	46.5	1000.0	1000.000	126.7	H	243.0	5.6	27.4	73.9
21796.69719	48.8	1000.0	1000.000	126.7	H	183.0	6.0	25.1	73.9
22308.91923	50.1	1000.0	1000.000	165.6	V	286.0	6.3	23.8	73.9
23721.54689	49.6	1000.0	1000.000	148.7	V	343.0	6.1	24.3	73.9
25549.79218	48.7	1000.0	1000.000	156.7	H	237.0	6.3	25.2	73.9

Average Data

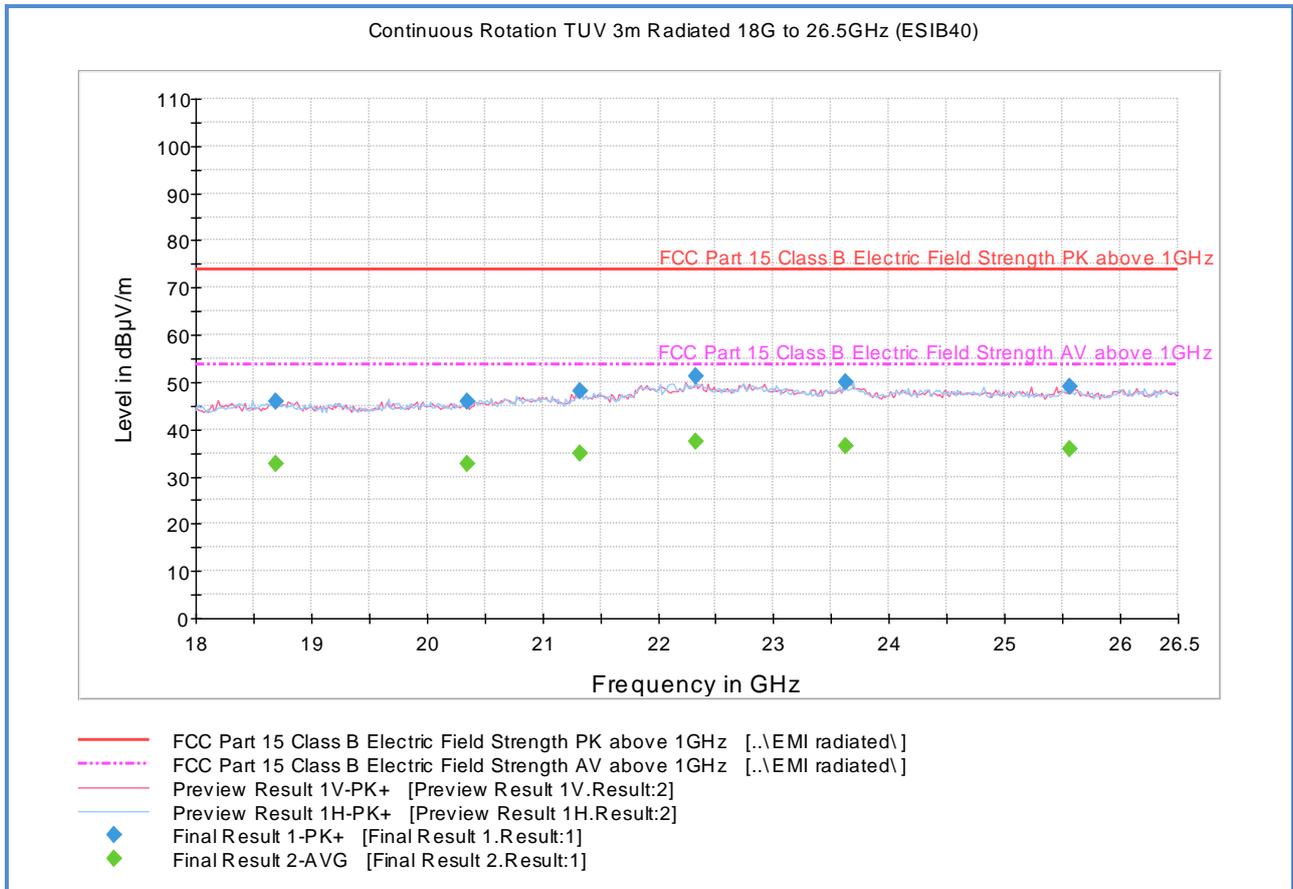
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18887.071543	32.7	1000.0	1000.000	175.2	V	23.0	5.8	21.2	53.9
20467.239880	34.0	1000.0	1000.000	126.7	H	243.0	5.6	19.9	53.9
21796.697194	35.9	1000.0	1000.000	126.7	H	183.0	6.0	18.0	53.9
22308.919238	37.4	1000.0	1000.000	165.6	V	286.0	6.3	16.5	53.9
23721.546894	36.7	1000.0	1000.000	148.7	V	343.0	6.1	17.2	53.9
25549.792184	35.9	1000.0	1000.000	156.7	H	237.0	6.3	18.0	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Flat
 Test Channel: 2402 MHz



2.2.9.19 Test Results Above 1 GHz (BT EDR3 Mid Channel – 18GHz to 26.5GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18696.29679	45.8	1000.0	1000.000	151.7	H	334.0	6.0	28.1	73.9
20345.20140	46.0	1000.0	1000.000	175.2	V	170.0	5.5	27.9	73.9
21324.14328	48.2	1000.0	1000.000	175.2	H	324.0	5.7	25.7	73.9
22329.15330	51.3	1000.0	1000.000	149.7	V	332.0	6.3	22.6	73.9
23623.34248	50.0	1000.0	1000.000	156.6	V	298.0	6.1	23.9	73.9
25559.62625	49.0	1000.0	1000.000	150.7	H	89.0	6.3	24.9	73.9

Average Data

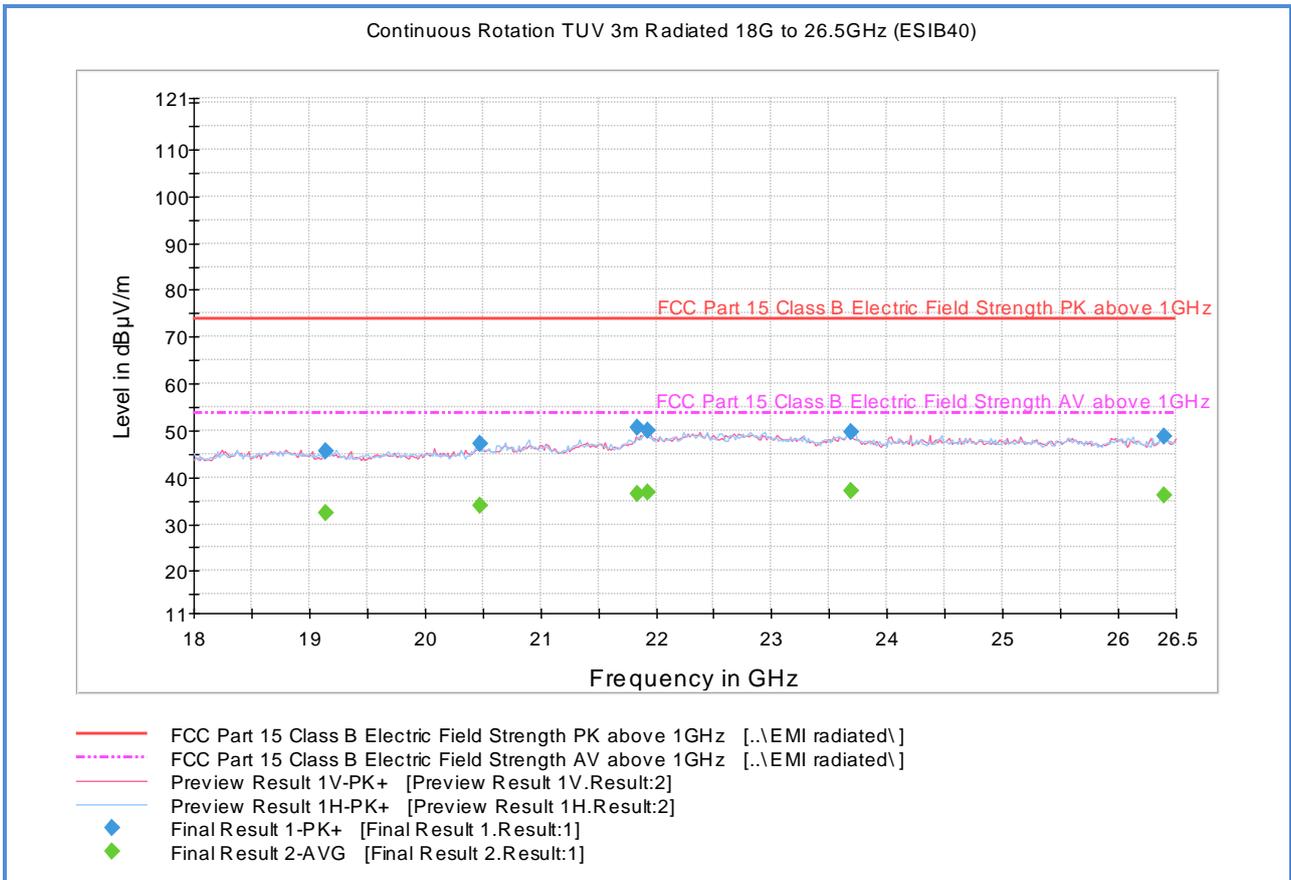
Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
18696.296794	32.7	1000.0	1000.000	151.7	H	334.0	6.0	21.2	53.9
20345.201403	32.6	1000.0	1000.000	175.2	V	170.0	5.5	21.3	53.9
21324.143287	35.0	1000.0	1000.000	175.2	H	324.0	5.7	18.9	53.9
22329.153307	37.3	1000.0	1000.000	149.7	V	332.0	6.3	16.6	53.9
23623.342485	36.6	1000.0	1000.000	156.6	V	298.0	6.1	17.3	53.9
25559.626253	36.0	1000.0	1000.000	150.7	H	89.0	6.3	17.9	53.9

Test Notes:

EUT SN: 837TTH0026
 EUT Orientation: Flat
 Test Channel: 2441 MHz



2.2.9.20 Test Results Above 1 GHz (BT EDR3 High Channel – 18GHz to 26.5GHz)



Peak Data

Frequency (MHz)	MaxPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
19144.18256	45.5	1000.0	1000.000	175.2	H	16.0	5.6	28.4	73.9
20475.03988	47.0	1000.0	1000.000	165.6	V	302.0	5.6	26.9	73.9
21839.16533	50.5	1000.0	1000.000	166.6	V	168.0	6.1	23.4	73.9
21931.76973	50.0	1000.0	1000.000	175.2	V	154.0	6.2	23.9	73.9
23688.27875	49.7	1000.0	1000.000	175.2	H	99.0	6.1	24.2	73.9
26400.69559	48.8	1000.0	1000.000	148.7	V	0.0	6.5	25.1	73.9

Average Data

Frequency (MHz)	Average (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)
19144.182565	32.5	1000.0	1000.000	175.2	H	16.0	5.6	21.4	53.9
20475.039880	34.0	1000.0	1000.000	165.6	V	302.0	5.6	19.9	53.9
21839.165331	36.5	1000.0	1000.000	166.6	V	168.0	6.1	17.4	53.9
21931.769739	36.7	1000.0	1000.000	175.2	V	154.0	6.2	17.2	53.9
23688.278758	37.0	1000.0	1000.000	175.2	H	99.0	6.1	16.9	53.9
26400.695591	36.1	1000.0	1000.000	148.7	V	0.0	6.5	17.8	53.9

Test Notes:

EUT SN: 837TTH0042
 EUT Orientation: Flat
 Test Channel: 2480 MHz



SECTION 3

TEST EQUIPMENT USED



3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

ID Number (SDGE/SDRB)	Test Equipment	Type	Serial Number	Manufacturer	Cal Date	Cal Due Date
Radiated Test Setup						
1002	Bilog Antenna	3142C	00058717	ETS-Lindgren	11/06/15	11/06/17
9001	Horn Antenna (18-26GHz)	H042S	101	Custom Microwave	07/23/16	07/23/17
7575	Double-ridged waveguide horn antenna	3117	00155511	EMCO	06/01/17	06/01/18
8893	Pre-amplifier (18-40 GHz)	SLKka-30-6	15G27	Spacek Labs	09/04/16	09/04/17
7640	Loop Antenna	AL-130R	121086	Com-Power	11/21/16	11/21/17
1016	Pre-amplifier	PAM-0202	187	PAM	02/09/17	02/09/18
1040	EMI Test Receiver	ESIB40	100292	Rhode & Schwarz	10/07/16	10/07/17
6815	2.4GHz Band Notch Filter	BRM50702	008	Micro-Tronics	Verified by 1003 and 7582	
8628	Pre-amplifier	QLJ 01182835-JO	8986002	QuinStar Technologies Inc.	02/09/17	02/09/18
1153	High-frequency cable	SucoFlex 100 SX	N/A	Suhner	Verified by 1003 and 7582	
8543	High-frequency cable	Micropore 19057793	N/A	United Microwave Products	Verified by 1003 and 7582	
Miscellaneous						
7554	Barometer/Temperature/Humidity Transmitter	iBTHX-W	0400706	Omega	01/17/17	01/17/18
	Test Software	EMC32	V8.53	Rhode & Schwarz	N/A	

3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:

3.2.1 Radiated Measurements (Below 30MHz)

Contribution		Probability Distribution Type	Probability Distribution x_i	Standard Uncertainty $u(x_i)$	$[u(x_i)]^2$
1	Receiver/Spectrum Analyzer	Rectangular	0.45	0.26	0.07
2	Cables	Rectangular	0.50	0.29	0.08
3	Loop Antenna	Rectangular	0.75	0.44	0.19
4	Site	Triangular	3.52	1.44	2.07
5	EUT Setup	Rectangular	1.00	0.58	0.33
Combined Uncertainty (u_c):					1.66
Coverage Factor (k):					2
Expanded Uncertainty:					3.31

3.2.2 Radiated Measurements (Below 1GHz)

Contribution		Probability Distribution Type	Probability Distribution x_i	Standard Uncertainty $u(x_i)$	$[u(x_i)]^2$
1	Receiver/Spectrum Analyser	Rectangular	0.45	0.26	0.07
2	Cables	Rectangular	0.50	0.29	0.08
3	Preamp	Rectangular	0.50	0.29	0.08
4	Antenna	Rectangular	0.75	0.43	0.19
5	Site	Triangular	3.52	1.44	2.07
6	EUT Setup	Rectangular	1.00	0.58	0.33
Combined Uncertainty (u_c):					1.68
Coverage Factor (k):					2
Expanded Uncertainty:					3.36

3.2.3 Radiated Emission Measurements (Above 1GHz)

Contribution		Probability Distribution Type	Probability Distribution x_i	Standard Uncertainty $u(x_i)$	$[u(x_i)]^2$
1	Receiver/Spectrum Analyzer	Rectangular	0.57	0.33	0.11
2	Cables	Rectangular	0.70	0.40	0.16
3	Preamp	Rectangular	0.50	0.29	0.08
4	Antenna	Rectangular	0.37	0.21	0.05
5	Site	Triangular	3.00	1.22	1.50
6	EUT Setup	Rectangular	1.00	0.58	0.33
Combined Uncertainty (u_c):					1.49
Coverage Factor (k):					2
Expanded Uncertainty:					2.99



3.2.4 Radiated Emission Measurements (Above 18GHz)

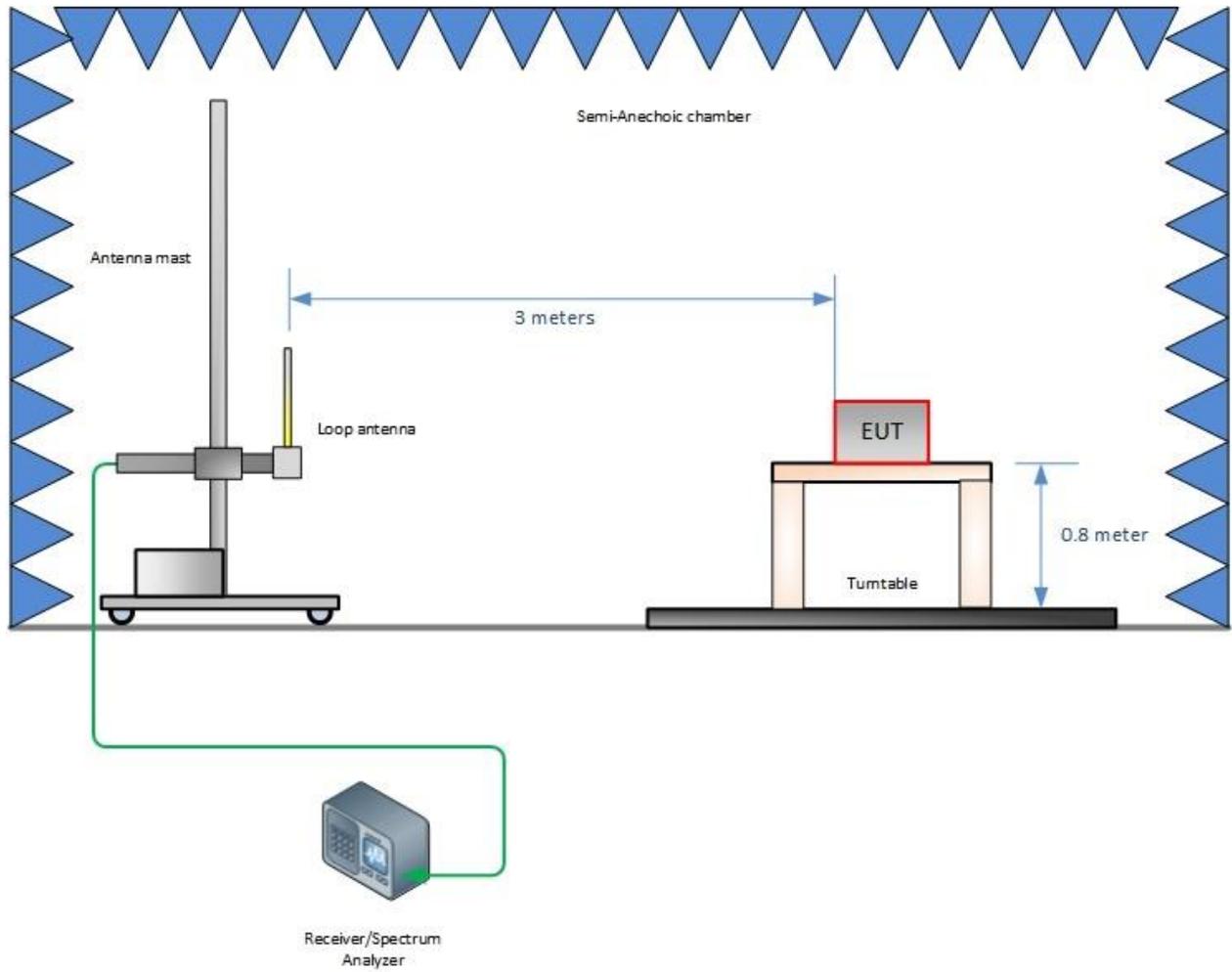
Contribution		Probability Distribution Type	Probability Distribution x_i	Standard Uncertainty $u(x_i)$	$[u(x_i)]^2$
1	Cables	Rectangular	0.70	0.40	0.16
2	Preamp	Rectangular	0.50	0.29	0.08
3	Spectrum Analyzer/Mixers	Rectangular	3.34	1.93	3.72
4	Antenna	Rectangular	2.70	1.56	2.43
5	EUT Setup	Rectangular	1.50	0.87	0.75
Combined Uncertainty (u_c):					2.67
Coverage Factor (k):					2
Expanded Uncertainty:					5.35



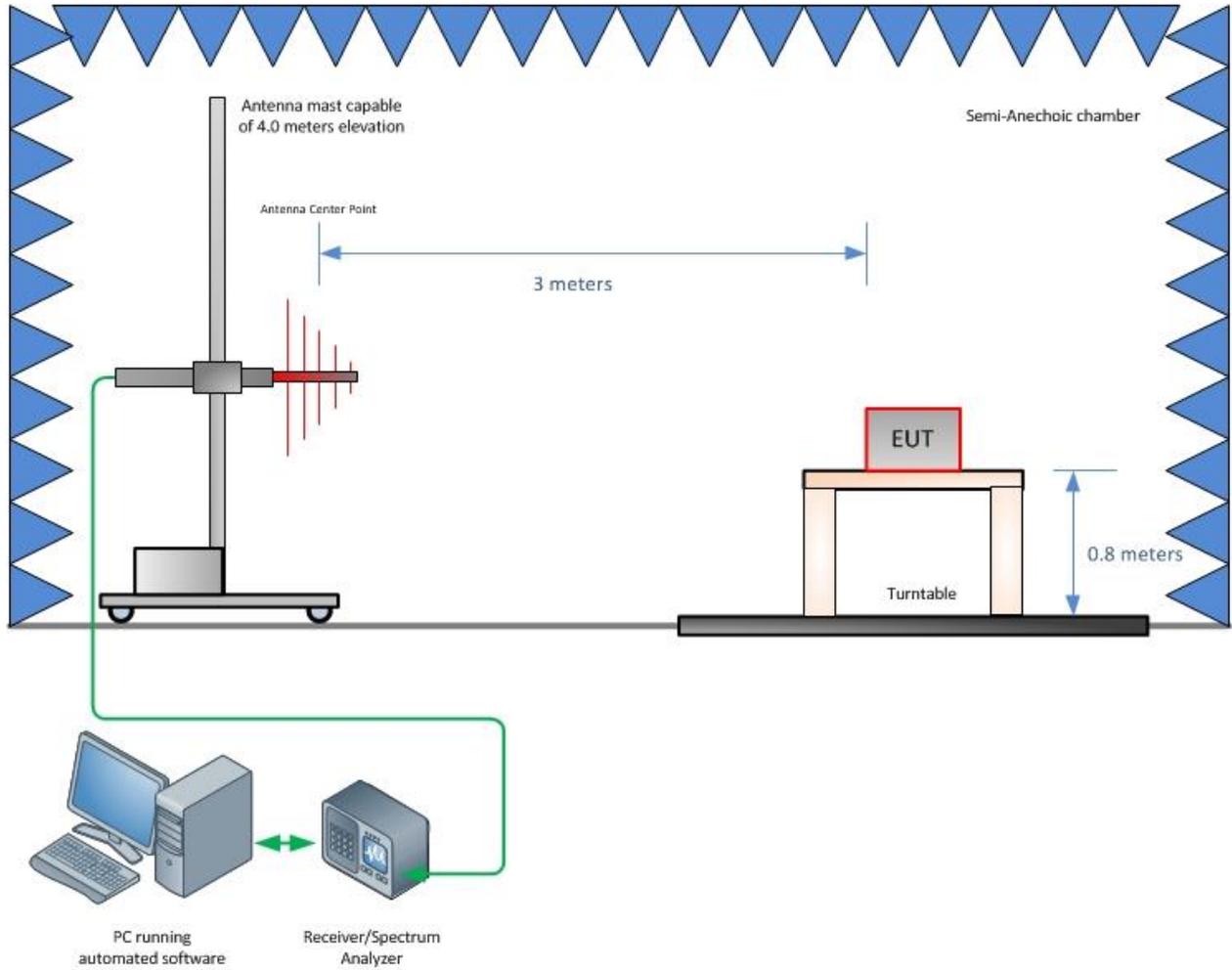
SECTION 4

DIAGRAM OF TEST SETUP

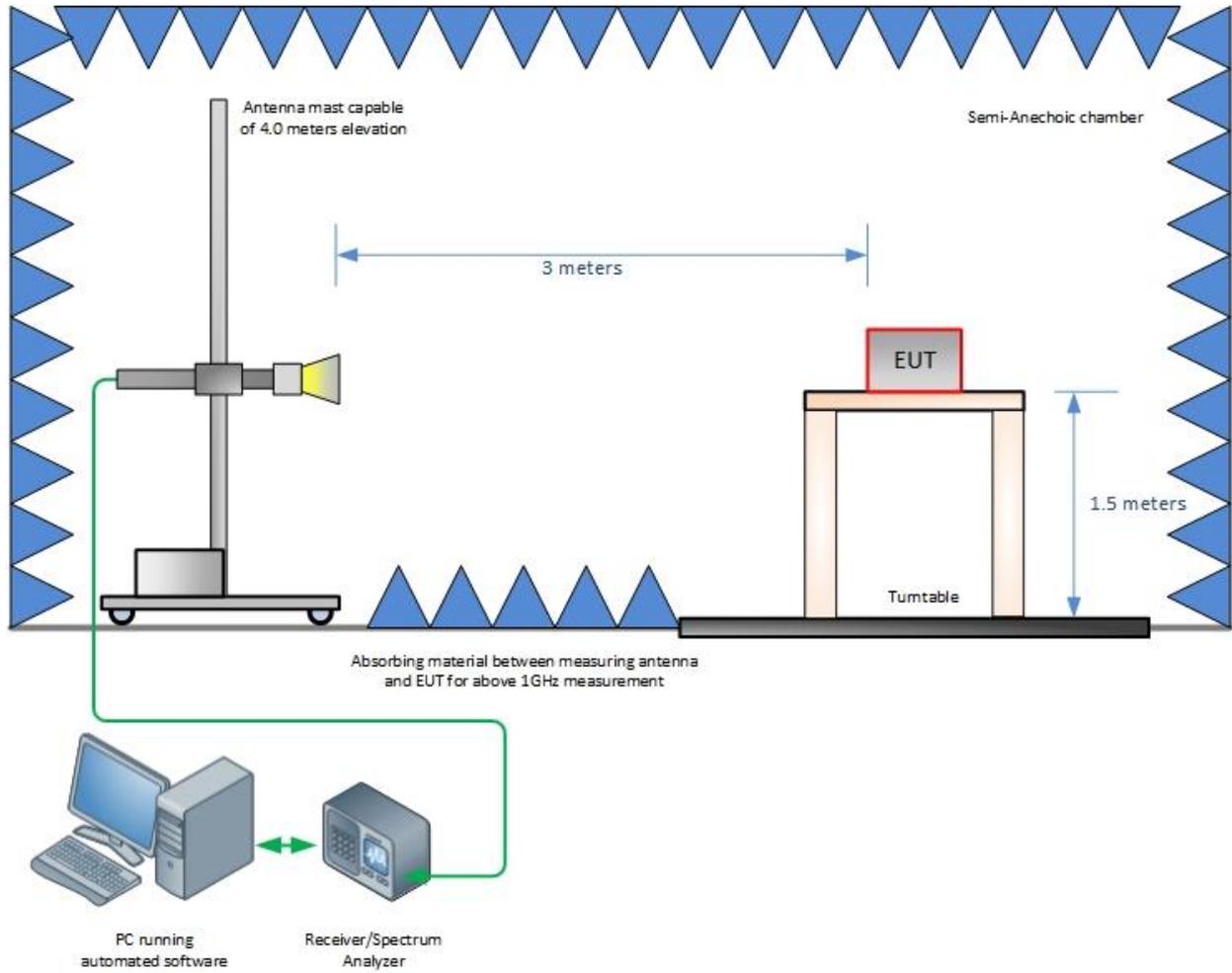
4.1 TEST SETUP DIAGRAM



Radiated Emission Test Setup (Below 30MHz)



Radiated Emission Test Setup (Below 1GHz)



Radiated Emission Test Setup (Above 1GHz)



SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



5.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT

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