



**FCC 47 CFR PART 15 SUBPART C  
INDUSTRY CANADA RSS-210 ISSUE 9**

**CERTIFICATION TEST REPORT**

**FOR**

**BTLE Transmitter**

**MODEL NUMBER: GCC30-4**

**FCC ID: TXTGCC30-4  
IC: - 909H-GCC304**

**REPORT NUMBER: 11765425**

**ISSUE DATE: December 17, 2017**

*Prepared for*  
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USA**

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NVLAB LAB CODE: 100414-0

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
--	December 17, 2017	Initial Issue	V Sabalvaro

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Robert Bosch Tool Corp  
1800 W Central Rd  
Mt Prospect, IL, 60056-2230

**EUT DESCRIPTION:** Bluetooth Tracktag

**MODEL:** GCC30-4

**SERIAL NUMBER:** Non-Serialized

**DATE TESTED:** August 23 – October 23, 2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 Issue 9 Annex B.10	Pass
INDUSTRY CANADA RSS-GEN Issue 4	Pass

UL LLC tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL LLC based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Approved & Released For  
UL LLC By:

Tested By:



Bart Mucha  
Staff Engineer  
UL LLC

Vincent Sabalvaro  
EMC ENGINEER  
UL LLC

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 4, and RSS-210 Issue 9.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 333 Pfingsten Road, Northbrook, IL 60062 USA.

UL NBK is accredited by NVLAP, Laboratory Code 100414-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/>

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. SAMPLE CALCULATION

#### Sample Calculations

Radiated Field Strength and Conducted Emissions data contained within this report is calculated on the following basis:

Field Strength (dBuV/m) = Meter Reading (dBuV) + AF (dB/m) - Gain (dB) + Cable Loss (dB)

Conducted Voltage (dBuV) = Meter Reading (dBuV) + Cable Loss (dB) + LISN IL (dB)

Conducted Current (dBuA) = Meter Reading (dBuV) + Cable Loss (dB) - Transducer Factor (dBohms)

### 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test	Range	Equipment	Uncertainty k=2
Radiated Emissions	9k-30MHz	H-Field Loop	3.15dB
Radiated Emissions	200-1000MHz	LogP 3m Horz	4.00dB
Radiated Emissions	200-1000MHz	LogP 3m Vert	5.36dB
Radiated Emissions	30-200MHz	Bicon 10m Horz	4.48dB
Radiated Emissions	30-200MHz	Bicon 10m Vert	4.49dB
Radiated Emissions	200-1000MHz	LogP 10m Horz	3.79dB
Radiated Emissions	200-1000MHz	LogP 10m Vert	3.84dB
Radiated Emissions	1-18GHz	Horn	4.32dB

Uncertainty figures are valid to a confidence level of 95%.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The EUT, GCC30-4 Bluetooth Tracktag, is a BTLE Transmitter which operates over the advertising channels 2402MHz, 2426MHz and 2480MHz. The transmitter emits a periodic pulse every 8 seconds for the tracking of the proximity to the paired mobile device. The device is manufactured by Robert Bosch Tool Corp

### 5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Average E-Field Strength (dBuV/m)
2402-2480	TX	45.45

### 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio is equipped with an embedded, impedance matched quarter-wave antenna. Antenna was designed as a trace on PCB.

### 5.4. WORST-CASE CONFIGURATION AND MODE

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that Z-Axis orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z orientation.

## 5.1. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
None	-	-	-	-

### I/O CABLES

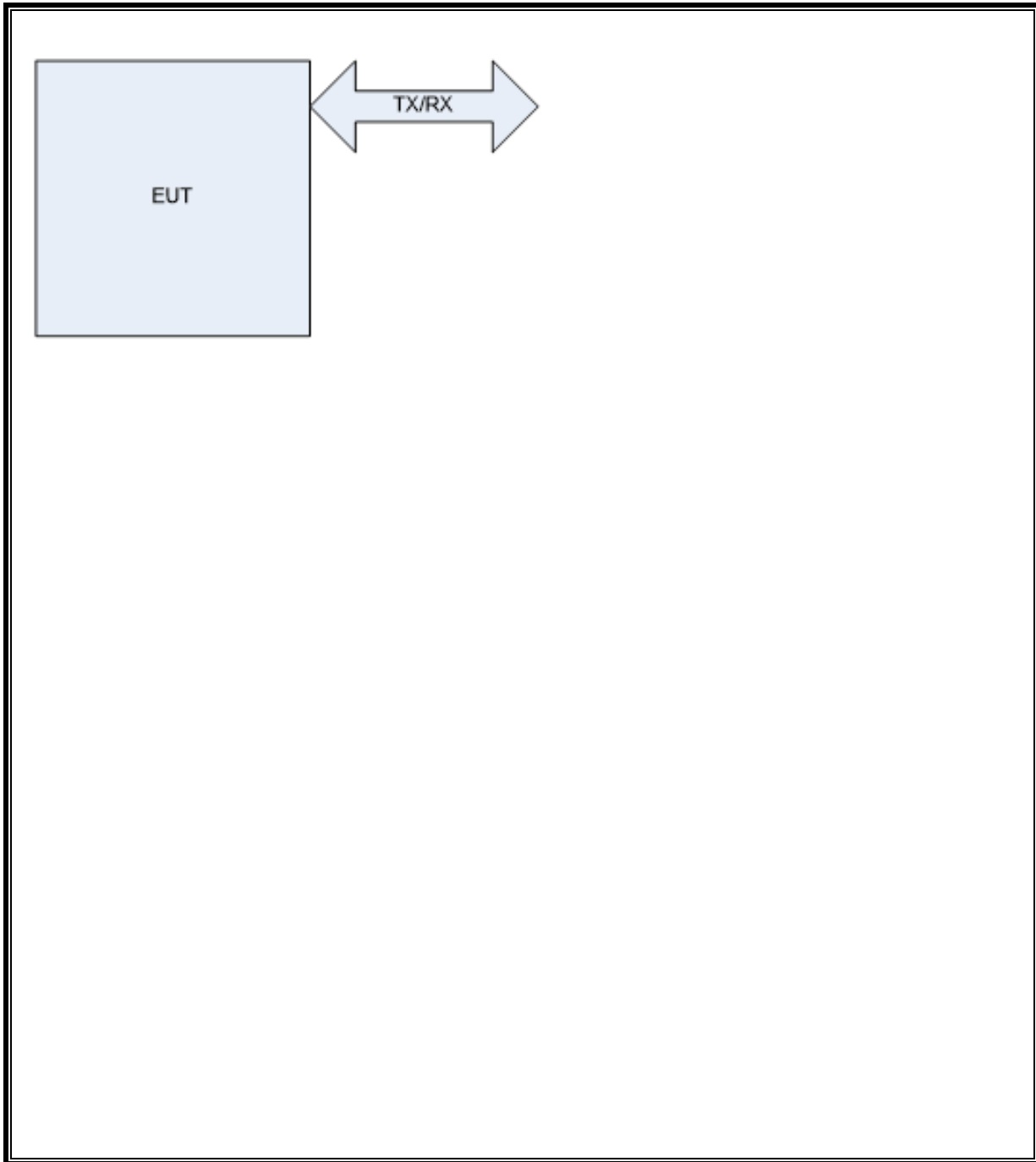
I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
0	Enclosure	-	Non-Electrical	-	-	None

### TEST SETUP

The EUT is programmed for continuous TX mode or normal cycle mode during transmitter tests.



**SETUP DIAGRAM FOR TESTS**



## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Conducted Software	UL	UL EMC	Ver 9.5, May 17 2012		
Signal Analyzer	Agilent	N9030A	EMC4360	1/27/2017	1/31/2018
Test Receiver	Rhode & Schwarz	ESCI	EMC4328	12/2/2016	12/31/2017
Log-P Antenna	Chase	VBA6106A	EMC4078	2/15/2017	2/15/2018
Bicon Antenna	Chase	UPA6109	EMC4313	2/15/2017	2/15/2018
Antenna Array	UL	BOMS	EMC4276	1/27/2017	1/31/2018
Test Receiver	Rhode & Schwarz	ESU	EMC4323	12/24/2016	12/31/2017
Loop Antenna	EMCO	6502/1	EMC4026	9/12/2017	9/30/2018

## 7. MEASUREMENT METHODS

ANSI C63.10:2013 for the following tests:

Duty Cycle  
20dB and 99% Bandwidth  
Radiated Spurious Emissions

## 8. NEAR FIELD MEASUREMENTS

### 8.1. DUTY CYCLE

#### LIMITS

Measured for the purpose of:

When the radiated emission limits are expressed in terms of the average value of the emission, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 s (100 ms).

The average field strength may be found by measuring the peak pulse amplitude (in log equivalent units) and determining the duty cycle correction factor (in dB) associated with the pulse modulation

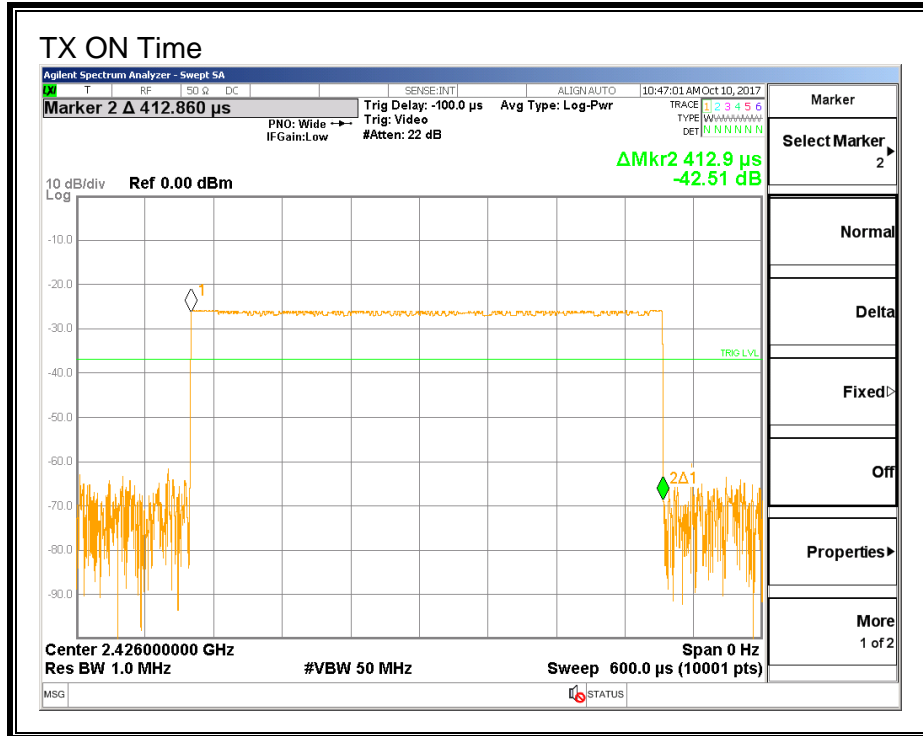
#### PROCEDURE

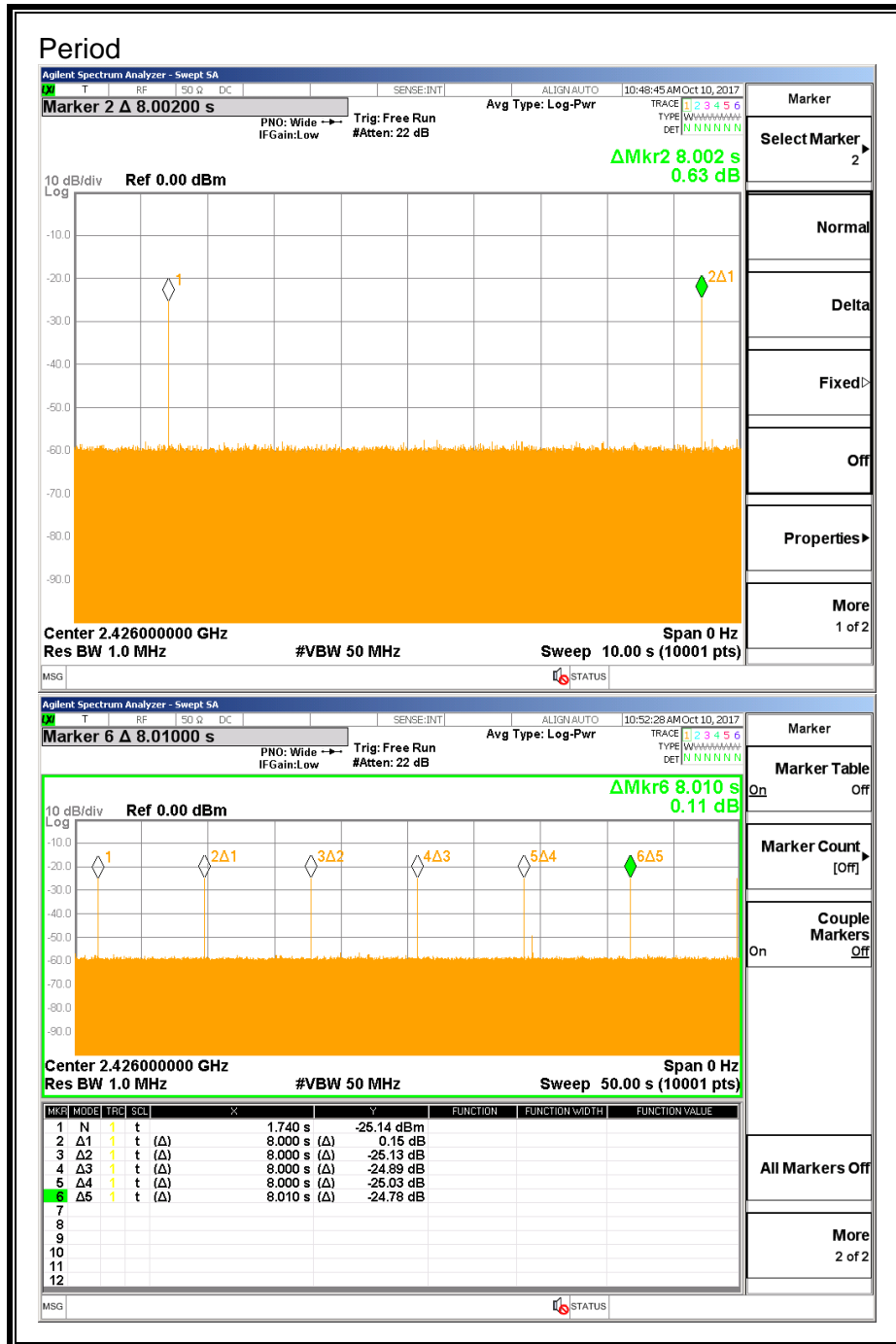
ANSI C63.10, section 7.5

#### ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)
BTLE	0.413	100.000	0.0041290	0.41290%	-47.68

**DUTY CYCLE PLOTS for Individual Channel**





## 8.1. 20dB Bandwidth and 99% Bandwidth

### LIMITS

For reporting purpose only

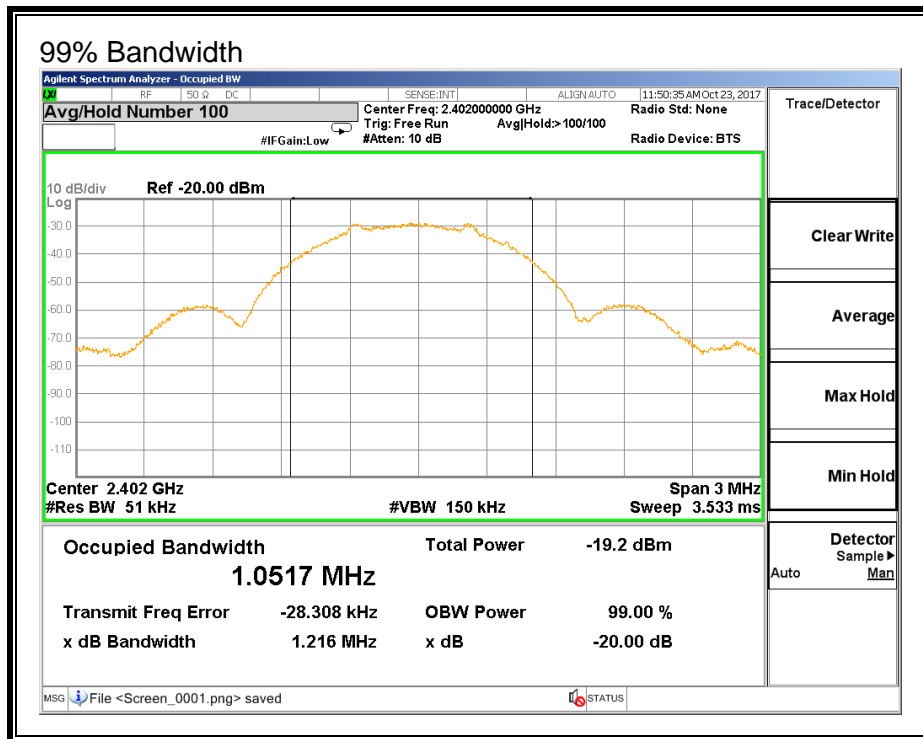
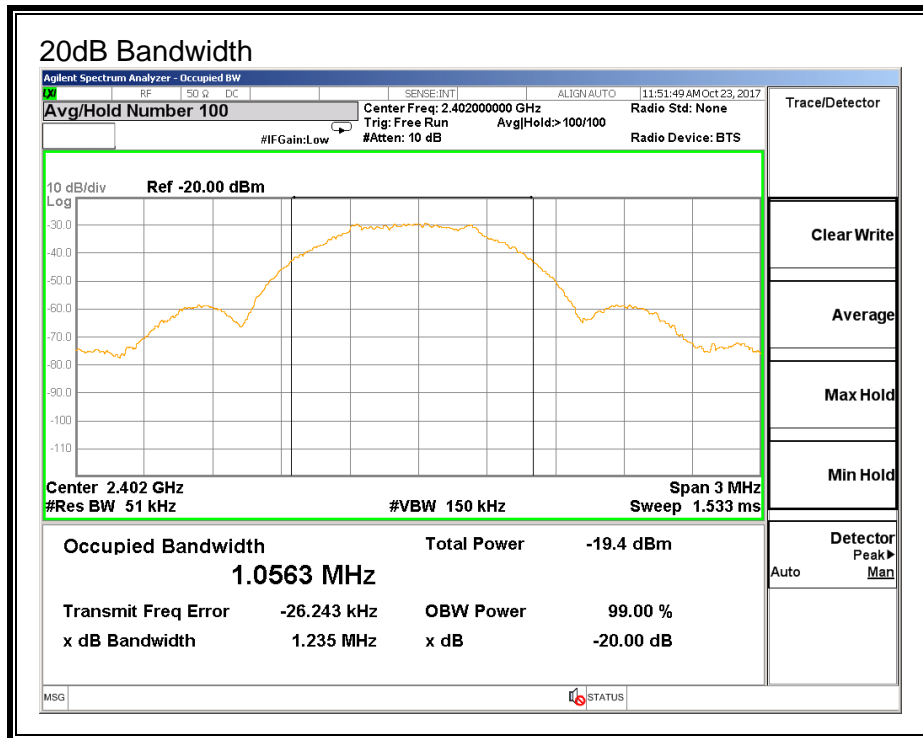
### MEASUREMENT METHOD

ANSI C63.10:2013, section 7.8.7

### RESULTS

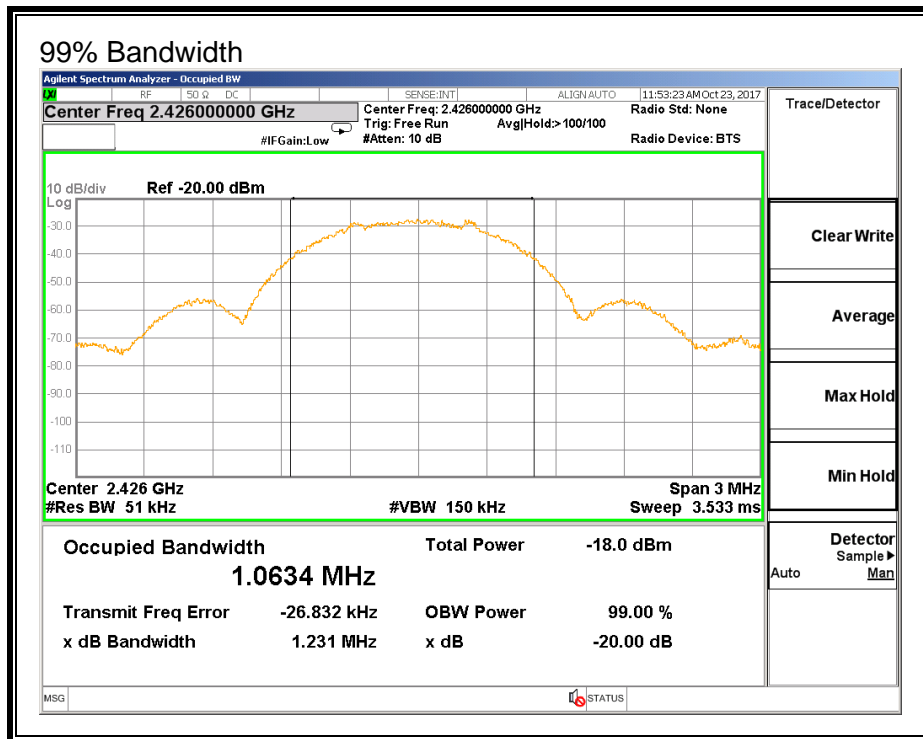
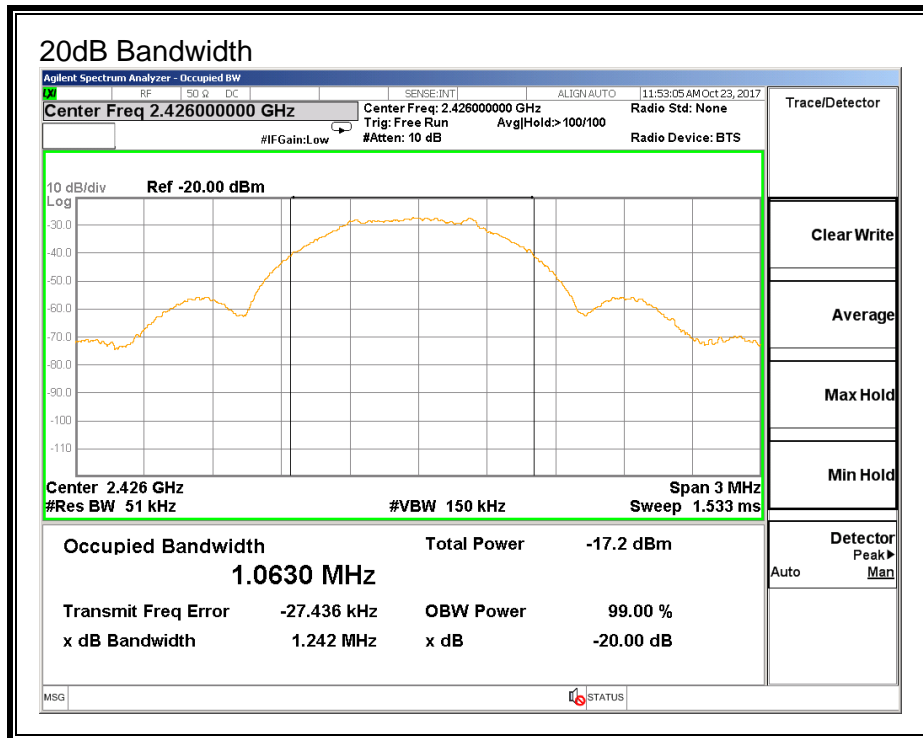
Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	2402	1.05	1.235
Mid	2426	1.06	1.242
High	2480	1.05	1.21

**Low Channel**

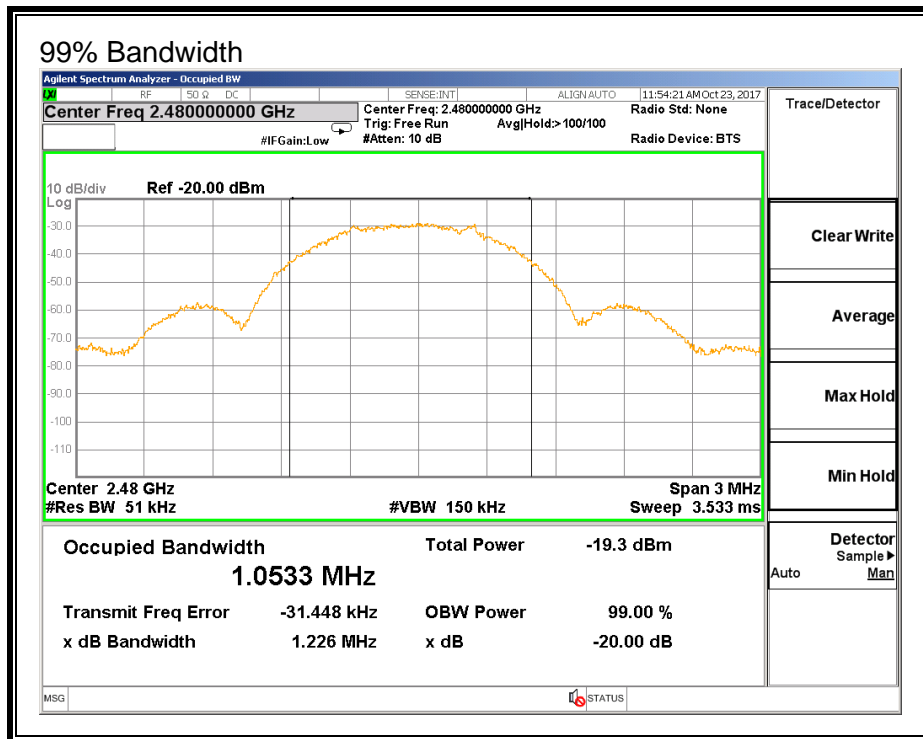
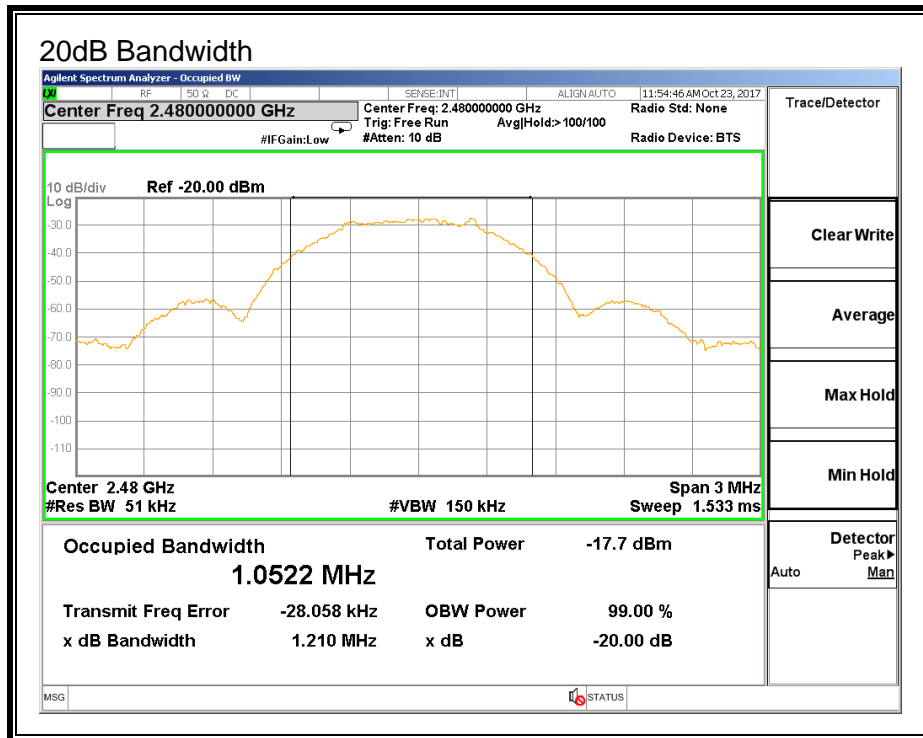




**Middle Channel**



**High Channel**



## 9. RADIATED TEST RESULTS

### 9.1. LIMITS AND PROCEDURE

#### LIMITS

FCC §15.249

IC RSS-210 Clause B.10

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

#### PROCEDURES

ANSI C63.10:2013, Section 11.12

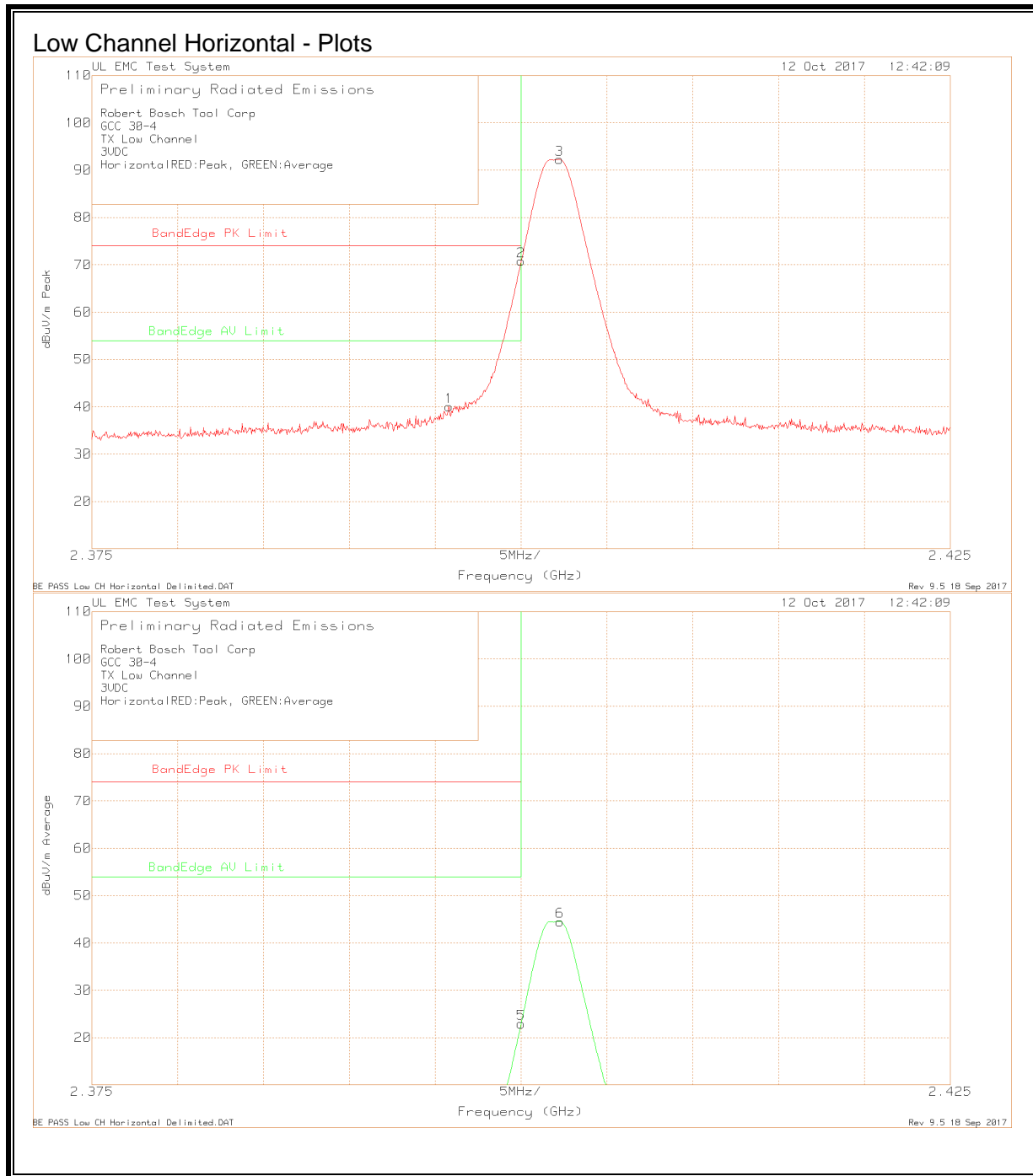
## 9.2. RADIATED SPUROUS EMSSIONS

### 9.2.1. Fundamental Frequency Radiated Emissions

#### Data

Robert Bosch Tool Corp														
GCC30-4														
3VDC Battery														
Test Frequency (GHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dBm)	Path (dB)	Corrected Peak Reading dBuV/m	PK Limit dBuV/m	PK Margin (dB)	Duty Cycle Correction Factor (dB)	Corrected Average Reading dBuV/m	AV Limit dBuV/m	AV Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
Low CH														
2.4022	121.56	Pk	21.8	-51.15	92.21	114	-21.79	-47.68	44.53	94	-49.47	50	118	H
2.4022	114.07	Pk	21.8	-51.15	84.72	114	-29.28	-47.68	37.04	94	-56.96	338	101	V
Mid Channel														
2.4262	122.55	Pk	21.9	-51.32	93.13	114	-20.87	-47.68	45.45	94	-48.55	208	128	H
2.4262	115.54	Pk	21.9	-51.32	86.12	114	-27.88	-47.68	38.44	94	-55.56	144	102	V
High Channel														
2.4797	121.42	Pk	22	-51.37	92.05	114	-21.95	-47.68	44.37	94	-49.63	99	133	V
2.4797	124.75	Pk	22	-51.37	95.38	114	-18.62	-47.68	47.7	94	-46.3	58	156	H
Pk - Peak detector														
Av - Average detection														
Average measurements were not conducted, however per C63.10 Section 7.5 duty cycle factor was measured and it was added to peak level. Because of duty cycle factor is larger than the average to peak limit delta and since all peaks are under the peak limit the device is deemed to														

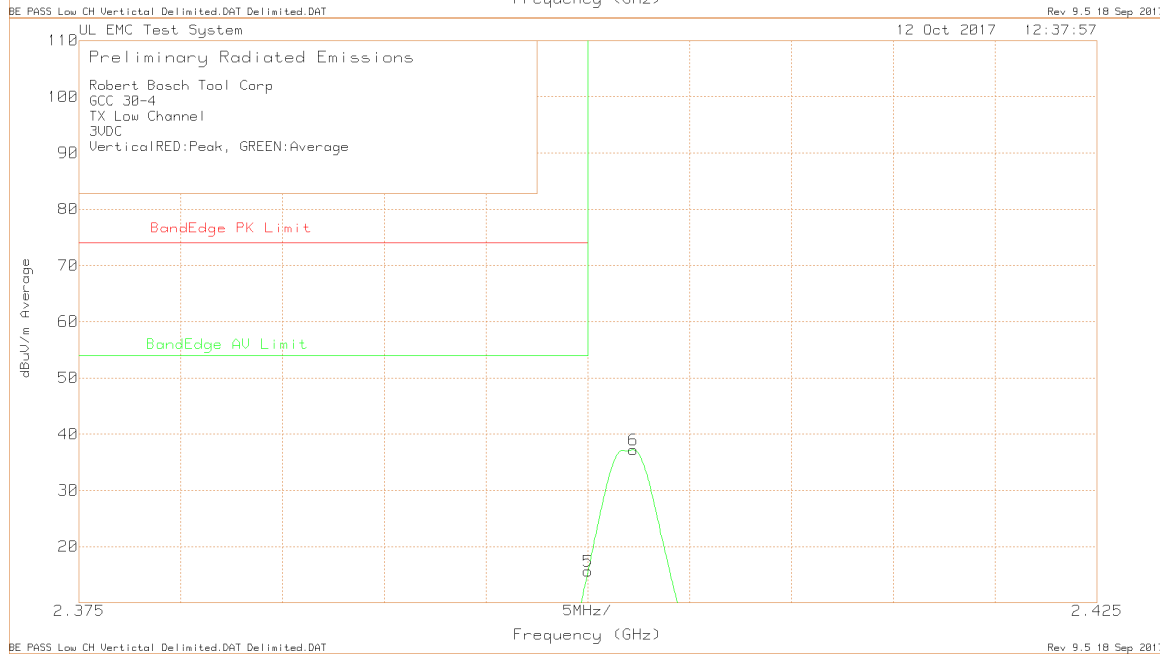
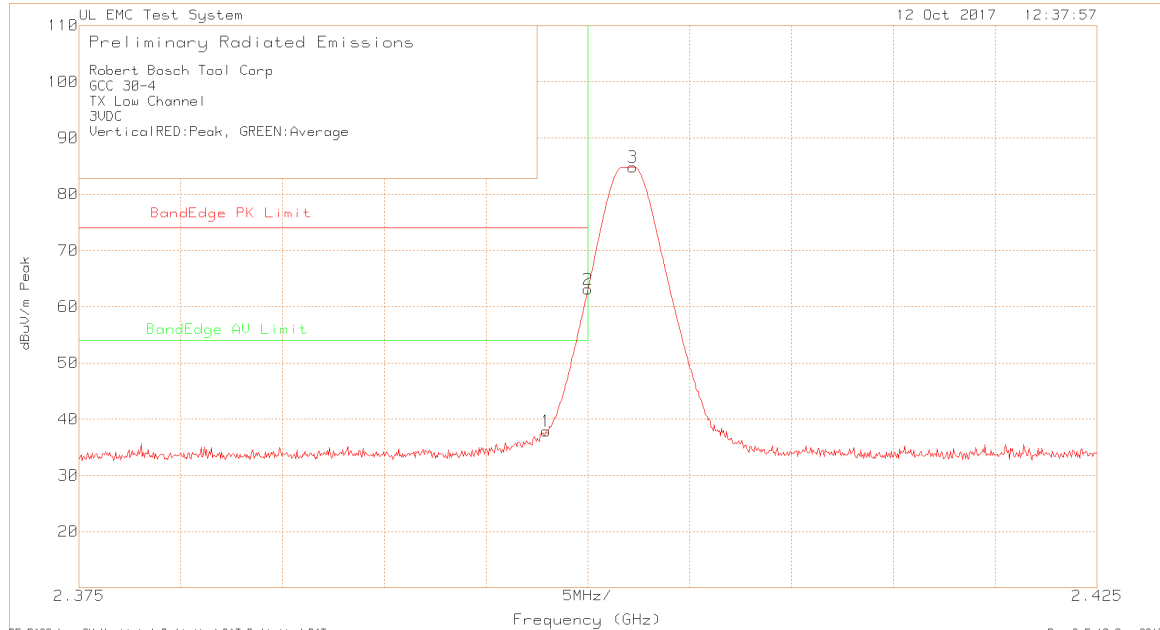
### 9.2.2. TRANSMITTER RESTRICTED BANDEDGES



Low Channel Horizontal - Data

Robert Bosch Tool Corp														
GCC 30-4														
TX Low Channel														
3VDC														
Trace Markers														
Marker No.	Test Frequency (GHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dBm)	Path (dB)	Duty Cycle Correction Factor (dB)	Corrected Reading dBuV/m	BandEdge PK Limit dBuV/m	Pk Margin (dB)	BandEdge AV Limit dBuV/m	AV Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	2.3958	69.14	Pk	21.8	-50.9	-	40.04	74	-33.96	-	-	50	118	H
2	2.4	100	Pk	21.8	-51.02	-	70.78	74	-3.22	-	-	50	118	H
3	2.4022	121.59	Pk	21.8	-51.15	-	92.24	-	-	-	-	50	118	H
4	2.3966	69.84	Pk	21.8	-50.92	-47.7	-6.98	-	-	54	-60.98	50	118	H
5	2.4	99.85	Pk	21.8	-51.02	-47.7	22.93	-	-	54	-31.07	50	118	H
6	2.4023	121.55	Pk	21.8	-51.15	-47.7	44.5	-	-	-	-	50	118	H
Pk - Peak detector														

### Low Channel Vertical - Plots

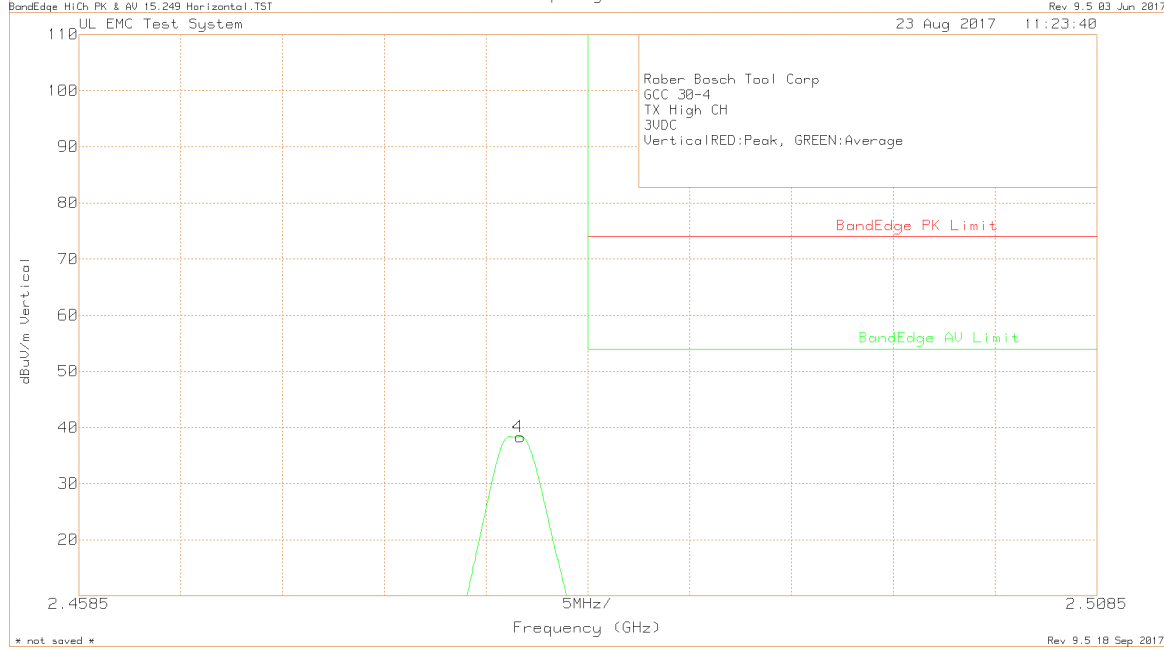
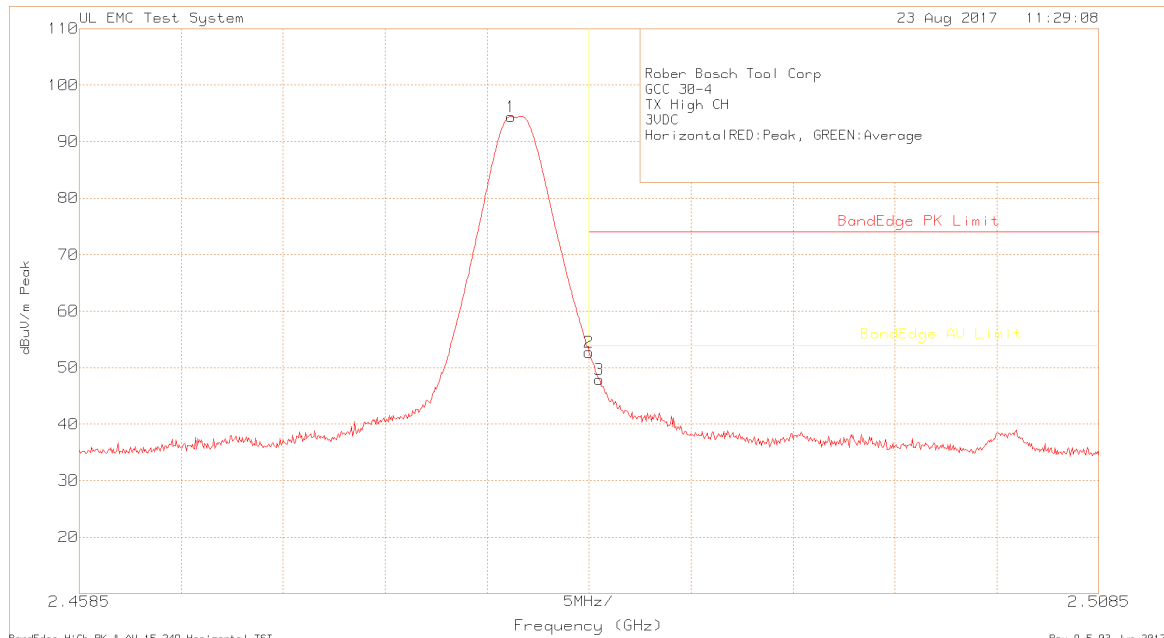


Low Channel Vertical – Data

Robert Bosch Tool Corp														
GCC 30-4														
TX Low Channel														
3VDC														
Trace Markers														
Marker No.	Test Frequency (GHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dBm)	Path (dB)	Duty Cycle Correction Factor (dB)	Corrected Reading dBuV/m	BandEdge PK Limit dBuV/m	Pk Margin (dB)	BandEdge AV Limit dBuV/m	AV Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	2.398	67.2	Pk	21.8	-51.1	-	37.9	74	-36.1	-	-	338	101	V
2	2.4	92.36	Pk	21.8	-51.02	-	63.14	74	-10.86	-	-	338	101	V
3	2.4022	114.21	Pk	21.8	-51.16	-	84.85	-	-	-	-	338	101	V
4	2.3989	75.55	Pk	21.8	-51.16	-47.7	-1.51	-	-	54	-55.51	338	101	V
5	2.4	92.53	Pk	21.8	-51.02	-47.7	15.61	-	-	54	-38.39	338	101	V
6	2.4022	114.25	Pk	21.8	-51.15	-47.7	37.2	-	-	-	-	338	101	V
Pk - Peak detector														



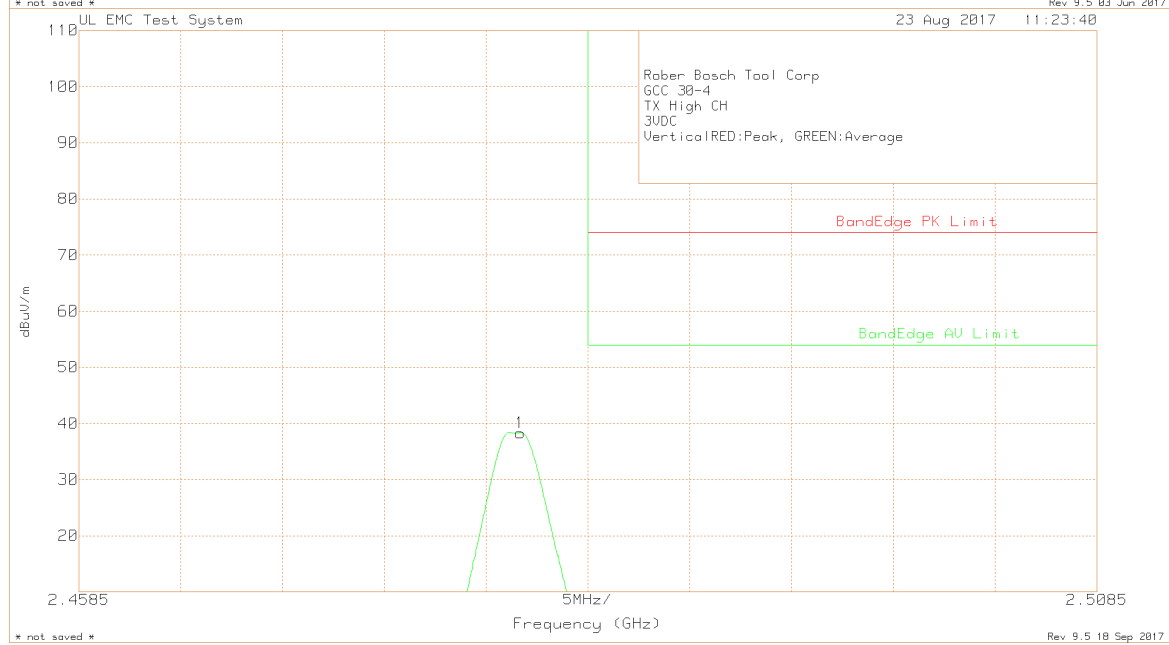
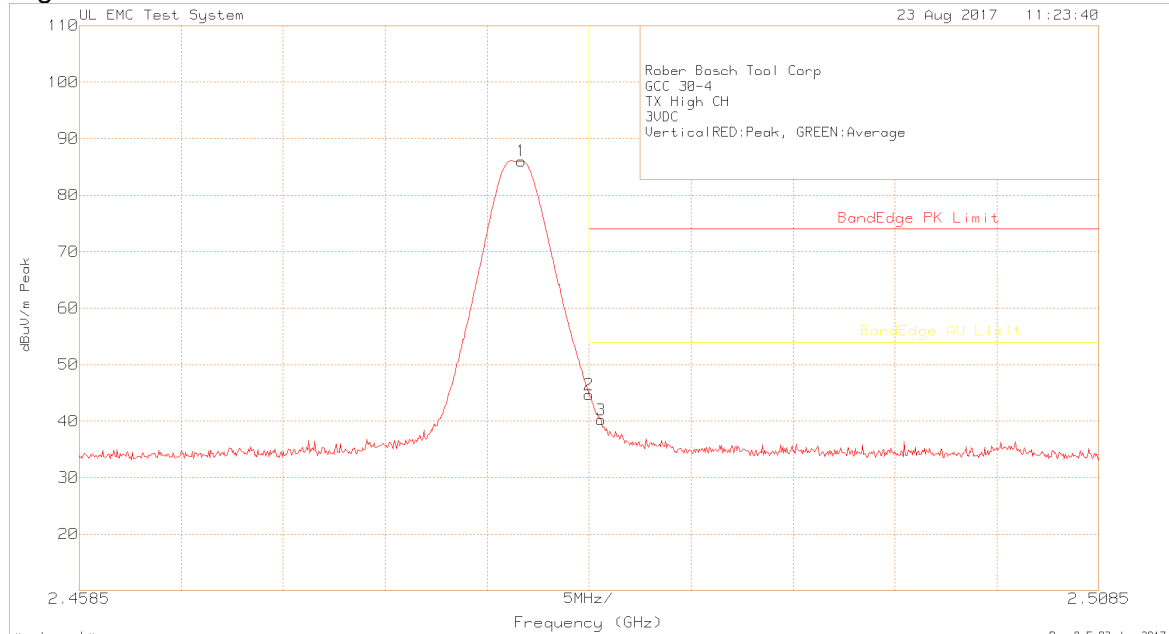
### High Channel Horizontal - Plots



High Channel Horizontal – Data

Rober Bosch Tool Corp														
GCC 30-4														
TX High CH														
3VDC														
Trace Markers														
Marker No.	Test Frequency (GHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dBm)	Path (dB)	Duty Cycle Correction Factor (dB)	Corrected Reading dBuV/m	BandEdge PK Limit dBuV/m	Pk Margin (dB)	BandEdge AV Limit dBuV/m	AV Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	2.4797	123.81	Pk	22	-51.37	-	94.44	-	-	-	-	46	196	H
2	2.4835	82.03	Pk	22.1	-51.42	-	52.71	74	-21.29	-	-	46	196	H
3	2.484	77.29	Pk	22.1	-51.49	-	47.9	74	-26.1	-	-	46	196	H
4	2.4797	123.81	Pk	22	-51.37	-47.7	46.74	-	-	-	-	46	196	H
5	2.4835	82.03	Pk	22.1	-51.42	-47.7	5.01	-	-	54	-48.99	46	196	H
6	2.484	77.29	Pk	22.1	-51.49	-47.7	0.2	-	-	54	-53.8	46	196	H
Pk - Peak detector														

### High Channel Vertical - Plots

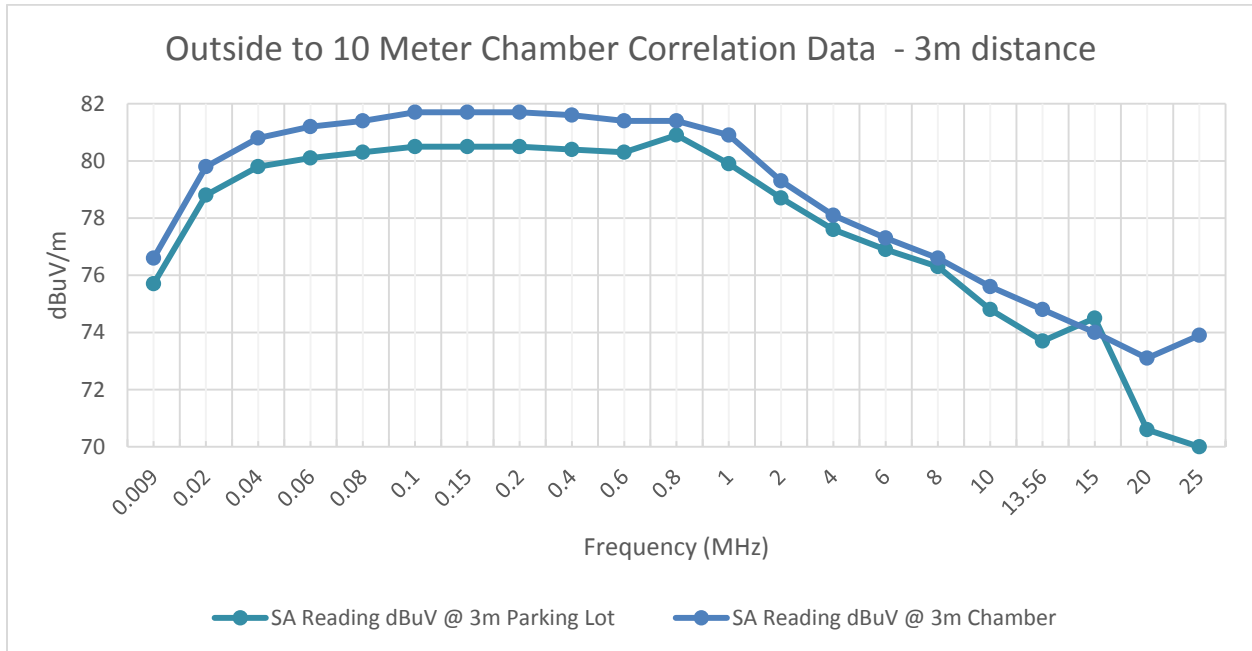


High Channel Vertical – Data

Rober Bosch Tool Corp														
GCC 30-4														
TX High CH														
3VDC														
Trace Markers														
Marker No.	Test Frequency (GHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dBm)	Path (dB)	Duty Cycle Correction Factor (dB)	Corrected Reading dBuV/m	BandEdge PK Limit dBuV/m	Pk Margin (dB)	BandEdge AV Limit dBuV/m	AV Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	2.4802	115.44	Pk	22	-51.39	-	86.05	-	-	-	-	117	99	V
2	2.4835	74.02	Pk	22.1	-51.42	-	44.7	74	-29.3	-	-	117	99	V
3	2.4841	69.62	Pk	22.1	-51.48	-	40.24	74	-33.76	-	-	117	99	V
4	2.4802	115.44	Pk	22	-51.39	-47.7	38.35	-	-	-	-	117	99	V
5	2.4835	74.02	Pk	22.1	-51.42	-47.7	-3	-	-	54	-48.99	117	99	V
6	2.4841	69.62	Pk	22.1	-51.48	-47.7	-7.46	-	-	54	-53.8	117	99	V
Pk - Peak detector														

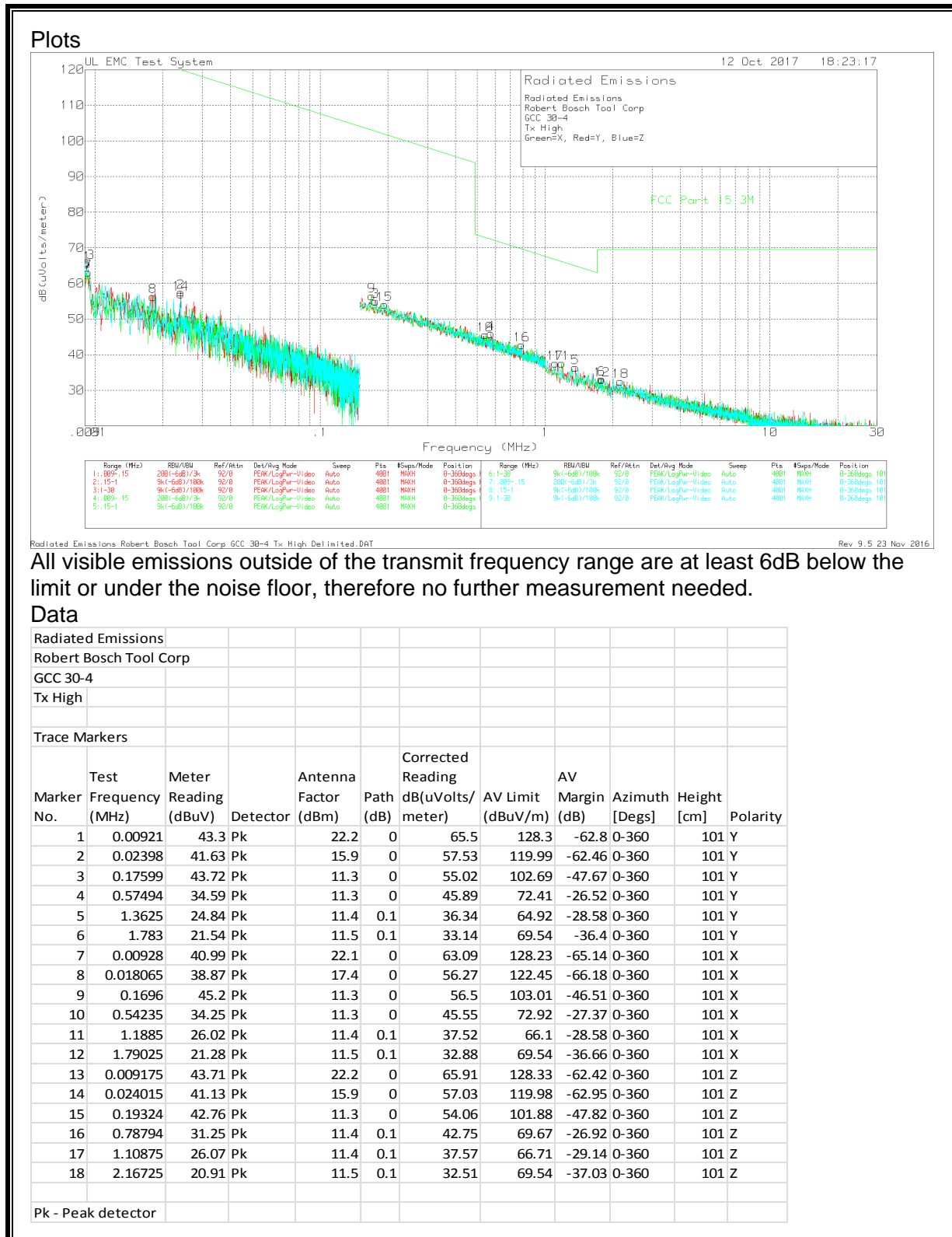
### 9.2.3. SPURIOUS EMISSIONS 9kHz-30MHz Open Field to 10 Meter Chamber Correlation Data

Correlation Data for measurements 9kHz-30MHz between Outdoor and 10m semi-anechoic chamber in at Underwriter Laboratories in Northbrook, IL.

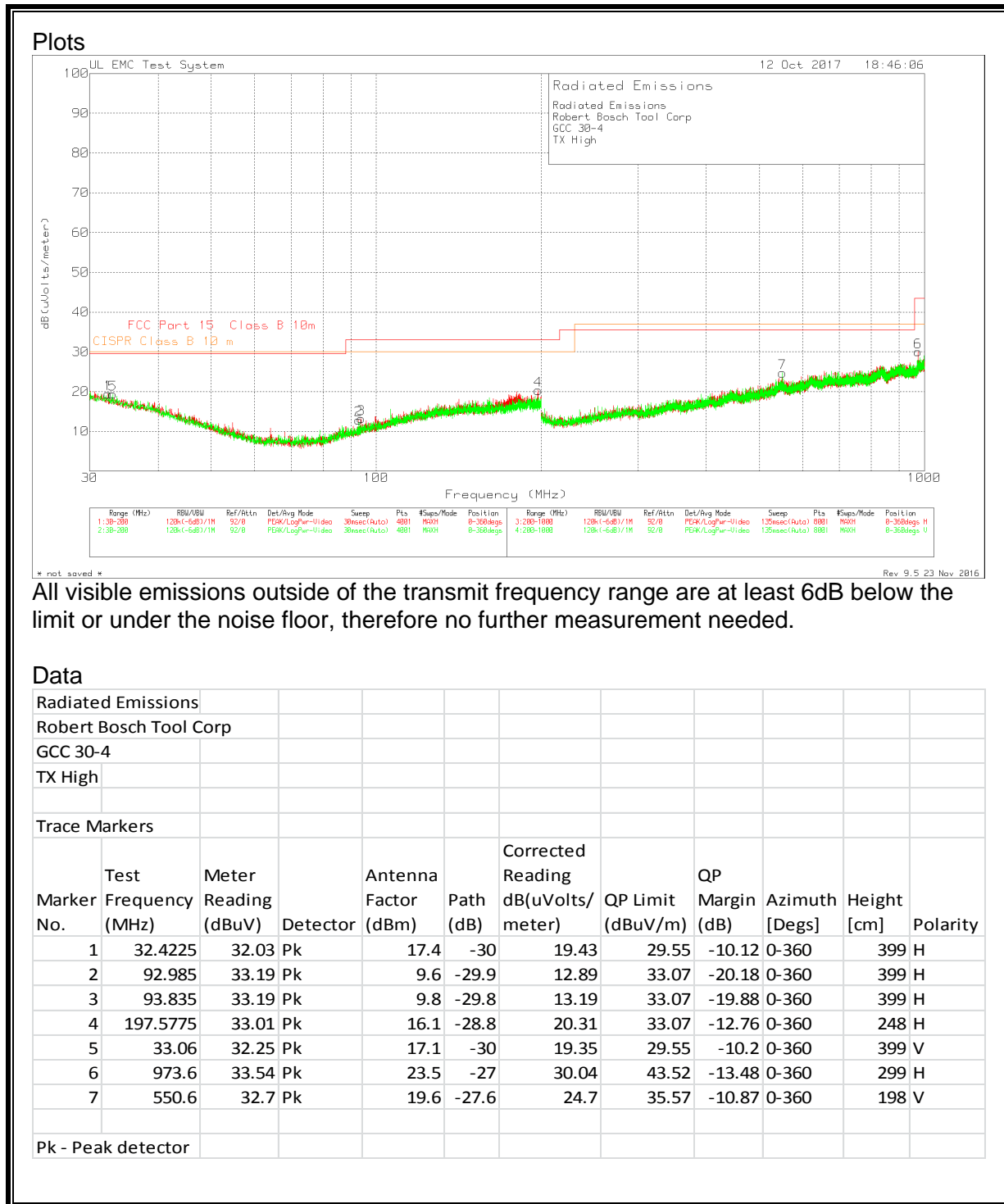


Correlation measurements were conducted using a signal source with an antenna outside in open area (parking lot). Immediately following the measurements the same setup was moved inside the 10 meter semi-anechoic chamber and the measurements were repeated. The above plot shows the difference in levels measured between outside and the 10 meter semi anechoic chamber.

### 9.2.4. Spurious Emissions 9kHz – 30MHz



### 9.2.5. SPURIOUS EMISSIONS 30 TO 1000 MHz

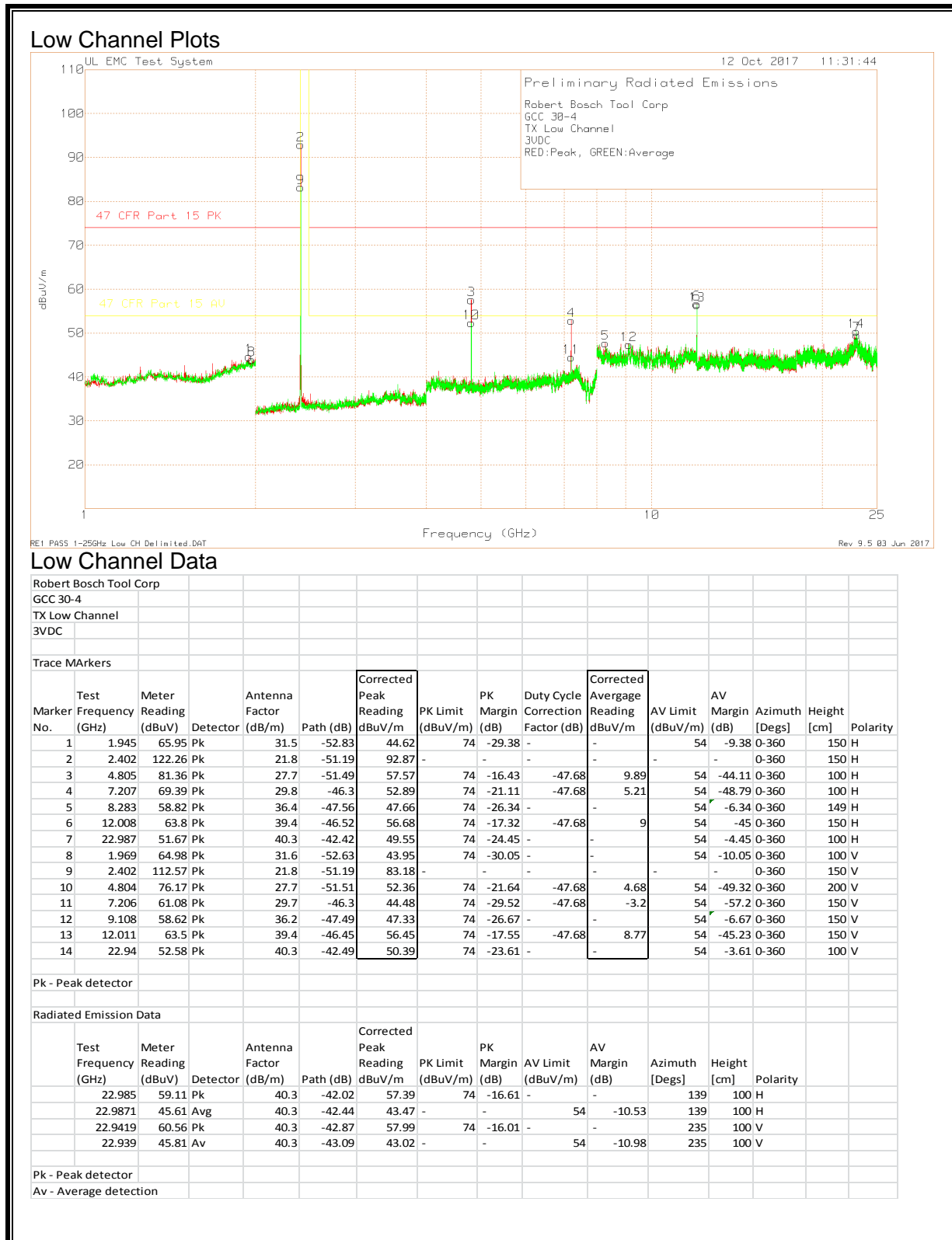


All visible emissions outside of the transmit frequency range are at least 6dB below the limit or under the noise floor, therefore no further measurement needed.

#### Data

Radiated Emissions											
Robert Bosch Tool Corp											
GCC 30-4											
TX High											
Trace Markers											
Marker No.	Test Frequency (MHz)	Meter Reading (dBUV)	Antenna Factor (dBm)	Path (dB)	Corrected Reading (dB(uVolts/meter))	QP Limit (dBUV/m)	QP Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity	
1	32.4225	32.03	17.4	-30	19.43	29.55	-10.12	0-360	399	H	
2	92.985	33.19	9.6	-29.9	12.89	33.07	-20.18	0-360	399	H	
3	93.835	33.19	9.8	-29.8	13.19	33.07	-19.88	0-360	399	H	
4	197.5775	33.01	16.1	-28.8	20.31	33.07	-12.76	0-360	248	H	
5	33.06	32.25	17.1	-30	19.35	29.55	-10.2	0-360	399	V	
6	973.6	33.54	23.5	-27	30.04	43.52	-13.48	0-360	299	H	
7	550.6	32.7	19.6	-27.6	24.7	35.57	-10.87	0-360	198	V	
Pk - Peak detector											

### 9.2.6. SPURIOUS EMISSIONS 1GHz TO 25GHz



#### Low Channel Data

Robert Bosch Tool Corp  
 GCC 30-4  
 TX Low Channel  
 3VDC

##### Trace Markers

Marker No.	Test Frequency (GHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dB/m)	Path (dB)	Corrected Peak Reading (dBuV/m)	PK Limit (dBuV/m)	PK Margin (dB)	Duty Cycle Correction (dB)	Corrected Average Reading (dBuV/m)	AV Limit (dBuV/m)	AV Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	1.945	65.95	Pk	31.5	-52.83	44.62	74	-29.38	-	-	54	-9.38	0-360	150	H
2	2.402	122.26	Pk	21.8	-51.19	92.87	-	-	-	-	-	-	0-360	150	H
3	4.805	81.36	Pk	27.7	-51.49	57.57	74	-16.43	-47.68	9.89	54	-44.11	0-360	100	H
4	7.207	69.39	Pk	29.8	-46.3	52.89	74	-21.11	-47.68	5.21	54	-48.79	0-360	100	H
5	8.283	58.82	Pk	36.4	-47.56	47.66	74	-26.34	-	-	54	-6.34	0-360	149	H
6	12.008	63.8	Pk	39.4	-46.52	56.68	74	-17.32	-47.68	9	54	-45	0-360	150	H
7	22.987	51.67	Pk	40.3	-42.42	49.55	74	-24.45	-	-	54	-4.45	0-360	100	H
8	1.969	64.98	Pk	31.6	-52.63	43.95	74	-30.05	-	-	54	-10.05	0-360	100	V
9	2.402	112.57	Pk	21.8	-51.19	83.18	-	-	-	-	-	-	0-360	150	V
10	4.804	76.17	Pk	27.7	-51.51	52.36	74	-21.64	-47.68	4.68	54	-49.32	0-360	200	V
11	7.206	61.08	Pk	29.7	-46.3	44.48	74	-29.52	-47.68	-3.2	54	-57.2	0-360	150	V
12	9.108	58.62	Pk	36.2	-47.49	47.33	74	-26.67	-	-	54	-6.67	0-360	150	V
13	12.011	63.5	Pk	39.4	-46.45	56.45	74	-17.55	-47.68	8.77	54	-45.23	0-360	150	V
14	22.94	52.58	Pk	40.3	-42.49	50.39	74	-23.61	-	-	54	-3.61	0-360	100	V

Pk - Peak detector

##### Radiated Emission Data

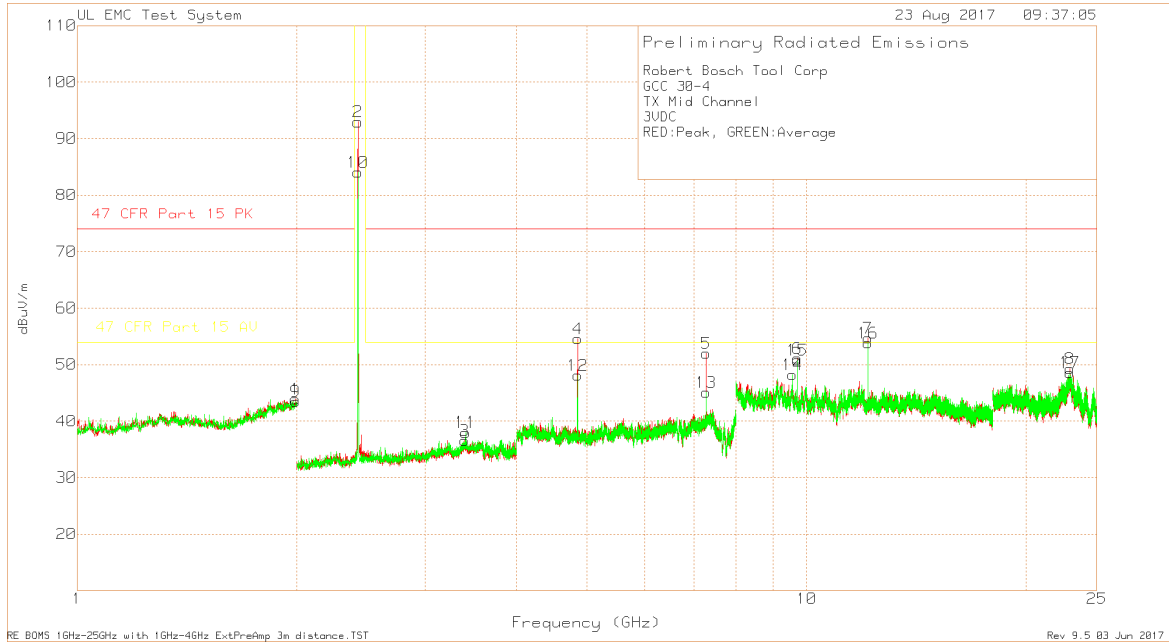
Test Frequency (GHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dB/m)	Path (dB)	Corrected Peak Reading (dBuV/m)	PK Limit (dBuV/m)	PK Margin (dB)	AV Limit (dBuV/m)	AV Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
22.985	59.11	Pk	40.3	-42.02	57.39	74	-16.61	-	-	139	100	H
22.9871	45.61	Avg	40.3	-42.44	43.47	-	-	54	-10.53	139	100	H
22.9419	60.56	Pk	40.3	-42.87	57.99	74	-16.01	-	-	235	100	V
22.939	45.81	Av	40.3	-43.09	43.02	-	-	54	-10.98	235	100	V

Pk - Peak detector

Av - Average detection



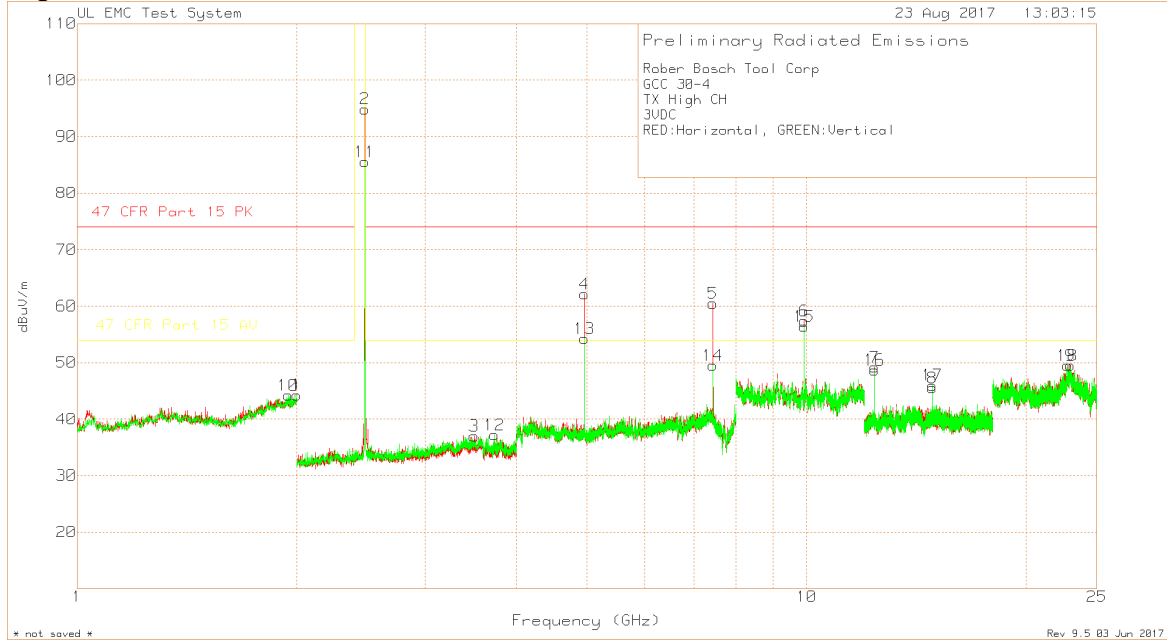
### Middle Channel Plots



### Middle Channel Data

Robert Bosch Tool Corp																
GCC 30-4																
TX Mid Channel																
3VDC																
Trace MArkers																
Marker No.	Test Frequency (GHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dB/m)	Path (dB)	Corrected Peak Reading (dBuV/m)	PK Limit (dBuV/m)	PK Margin (dB)	Duty Cycle Correction Factor (dB)	Corrected Average Reading (dBuV/m)	AV Limit (dBuV/m)	AV Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity	
1	1.99	64.77	Pk	31.6	-52.45	43.92	74	-30.08	-	-	-	-	54	-10.08	0-360	149 H
2	2.425	122.26	Pk	21.9	-51.19	92.97	-	-	-	-	-	-	-	-	0-360	150 H
3	3.399	63.13	Pk	23.5	-50.09	36.54	74	-37.46	-47.68	-11.14	54	-65.14	0-360	200 H		
4	4.852	77.94	Pk	27.7	-51.07	54.57	74	-19.43	-47.68	6.89	54	-47.11	0-360	148 H		
5	7.279	67.72	Pk	30.3	-46.03	51.99	74	-22.01	-47.68	4.31	54	-49.69	0-360	100 H		
6	9.705	64.68	Pk	36.4	-49.95	51.13	74	-22.87	-47.68	3.45	54	-50.55	0-360	100 H		
7	12.128	61.75	Pk	39.4	-46.47	54.68	74	-19.32	-47.68	7	54	-47	0-360	150 H		
8	22.94	51.49	Pk	40.3	-42.49	49.3	74	-24.7	-	-	54	-4.7	0-360	100 H		
9	1.991	64.51	Pk	31.6	-52.65	43.46	74	-30.54	-	-	54	-10.54	0-360	100 V		
10	2.425	113.36	Pk	21.9	-51.19	84.07	-	-	-	-	-	-	-	0-360	150 V	
11	3.407	64.7	Pk	23.5	-50.18	38.02	74	-35.98	-	-	54	-15.98	0-360	150 V		
12	4.852	71.48	Pk	27.7	-51.07	48.11	74	-25.89	-47.68	0.43	54	-53.57	0-360	200 V		
13	7.279	60.84	Pk	30.3	-46.03	45.11	74	-28.89	-47.68	-2.57	54	-56.57	0-360	200 V		
14	9.559	59.82	Pk	36.4	-47.98	48.24	74	-25.76	-47.68	0.56	54	-53.44	0-360	150 V		
15	9.705	64.39	Pk	36.4	-49.95	50.84	74	-23.16	-47.68	3.16	54	-50.84	0-360	150 V		
16	12.131	60.9	Pk	39.4	-46.45	53.85	74	-20.15	-47.68	6.17	54	-47.83	0-360	150 V		
17	22.949	51.1	Pk	40.3	-42.82	48.58	74	-25.42	-	-	54	-5.42	0-360	100 V		
Pk - Peak detector																
Radiated Emission Data																
Test Frequency (GHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dB/m)	Path (dB)	Corrected Peak Reading (dBuV/m)	PK Limit (dBuV/m)	PK Margin (dB)	AV Limit (dBuV/m)	AV Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity				
22.9396	59.4	Pk	40.3	-42.7	57	74	-17	-	-	219	100	H				
22.9397	45.46	Avg	40.3	-42.66	43.1	-	-	54	-10.9	219	100	H				
22.95	59.6	Pk	40.3	-42.52	57.38	74	-16.62	-	-	229	100	V				
22.9501	45.31	Avg	40.3	-42.52	43.09	-	-	54	-10.91	229	100	V				

### High Channel Plots



### High Channel Data

Rober Bosch Tool Corp  
 GCC 30-4  
 TX High CH  
 3VDC

#### Trace Markers

Marker No.	Test Frequency (GHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dB/m)	Path (dB)	Corrected Peak Reading (dBuV/m)	PK Limit (dBuV/m)	PK Margin (dB)	Duty Cycle Correction (dB)	Corrected Average Reading (dBuV/m)	AV Limit (dBuV/m)	AV Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
1	1.999	65.39	Pk	31.6	-52.72	44.27	74	-29.73	-	-	54	-9.73	0-360	150	H
2	2.479	124.27	Pk	22	-51.37	94.9	-	-	-	-	-	-	0-360	200	H
3	3.5	63.6	Pk	23.5	-50.07	37.03	74	-36.97	-	-	54	-16.97	0-360	200	H
4	4.959	84.32	Pk	27.8	-49.98	62.14	74	-11.86	-47.68	14.46	54	-39.54	0-360	148	H
5	7.44	77.15	Pk	30.6	-47.27	60.48	74	-13.52	-47.68	12.8	54	-41.2	0-360	100	H
6	9.919	70.17	Pk	36.4	-49.21	57.36	74	-16.64	-47.68	9.68	54	-44.32	0-360	100	H
7	12.401	55.46	Pk	39.4	-45.69	49.17	74	-24.83	-47.68	1.49	54	-52.51	0-360	150	H
8	14.878	47.02	Pk	39.8	-41.33	45.49	74	-28.51	-47.68	-2.19	54	-56.19	0-360	150	H
9	22.995	51.74	Pk	40.3	-42.53	49.51	74	-24.49	-	-	54	-4.49	0-360	100	H
10	1.945	65.57	Pk	31.5	-52.83	44.24	74	-29.76	-	-	54	-9.76	0-360	99	V
11	2.479	114.95	Pk	22	-51.37	85.58	-	-	-	-	-	-	0-360	150	V
12	3.73	63.73	Pk	23.7	-50.19	37.24	74	-36.76	-	-	54	-16.76	0-360	150	V
13	4.961	76.42	Pk	27.8	-49.98	54.24	74	-19.76	-47.68	6.56	54	-47.44	0-360	200	V
14	7.441	66.27	Pk	30.5	-47.27	49.5	74	-24.5	-47.68	1.82	54	-52.18	0-360	200	V
15	9.921	69.24	Pk	36.4	-49.22	56.42	74	-17.58	-47.68	8.74	54	-45.26	0-360	150	V
16	12.398	54.91	Pk	39.4	-45.62	48.69	74	-25.31	-47.68	1.01	54	-52.99	0-360	150	V
17	14.881	47.47	Pk	39.8	-41.26	46.01	74	-27.99	-47.68	-1.67	54	-55.67	0-360	150	V
18	22.791	52.49	Pk	40.4	-43.39	49.5	74	-24.5	-	-	54	-4.5	0-360	100	V

#### Pk - Peak detector

#### Radiated Emission Data

Test Frequency (GHz)	Meter Reading (dBuV)	Detector	Antenna Factor (dB/m)	Path (dB)	Corrected Peak Reading (dBuV/m)	PK Limit (dBuV/m)	PK Margin (dB)	AV Limit (dBuV/m)	AV Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
22.985	59.11	Pk	40.3	-42.02	57.39	74	-16.61	-	-	139	100	H
22.9871	45.61	Avg	40.3	-42.44	43.47	-	-	54	-10.53	139	100	H
22.9419	60.56	Pk	40.3	-42.87	57.99	74	-16.01	-	-	235	100	V
22.939	45.81	Av	40.3	-43.09	43.02	-	-	54	-10.98	235	100	V

#### Pk - Peak detector

#### Av - Average detection