

TEST REPORT

Applicant: ST Engineering Telematics Wireless Ltd.
Address of Applicant: 26 Hamelacha Street, Holon 5811801, Israel
Manufacturer/Factory: ST Engineering Telematics Wireless Ltd.
Address of Manufacturer/Factory: 26 Hamelacha Street, Holon 5811801, Israel
Equipment Under Test (EUT)
Product Name: Meter Interface Unit
Model No.: MIU1USLB
FCC ID: NTAMIU1USLB
Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247
Date of sample receipt: September 22, 2021
Date of Test: September 23, 2021-November 03, 2021
Date of report issued: November 03, 2021
Test Result : PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Robinson Luo
Laboratory Manager



2 Version

Version No.	Date	Description
00	November 03, 2021	Original

Prepared By:

Tiger Chen

Date:

November 03, 2021

Project Engineer

Check By:

Robinson Lee

Date:

November 03, 2021

Reviewer

3 Contents

Page

1	COVER PAGE	1
2	VERSION	2
3	CONTENTS	3
4	TEST SUMMARY	4
4.1	MEASUREMENT UNCERTAINTY	4
5	GENERAL INFORMATION	5
5.1	GENERAL DESCRIPTION OF EUT	5
5.2	TEST MODE	7
5.3	TEST FACILITY.....	7
5.4	TEST LOCATION	7
5.5	DESCRIPTION OF SUPPORT UNITS	7
5.6	DEVIATION FROM STANDARDS.....	7
5.7	ABNORMALITIES FROM STANDARD CONDITIONS.....	7
5.8	ADDITIONAL INSTRUCTIONS.....	7
6	TEST INSTRUMENTS LIST	8
7	TEST RESULTS AND MEASUREMENT DATA.....	10
7.1	ANTENNA REQUIREMENT.....	10
7.2	CONDUCTED PEAK OUTPUT POWER	11
7.3	20dB EMISSION BANDWIDTH	13
7.4	CARRIER FREQUENCIES SEPARATION.....	15
7.5	HOPPING CHANNEL NUMBER	17
7.6	DWELL TIME.....	19
7.7	BAND EDGE	21
7.8	SPURIOUS EMISSION.....	23
7.8.1	Conducted Emission Method.....	23
7.8.2	Radiated Emission Method.....	25
8	TEST SETUP PHOTO	39
9	EUT CONSTRUCTIONAL DETAILS	39

4 Test Summary

Test Item	Section	Result
Antenna Requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	N/A
Conducted Peak Output Power	15.247 (b)(1)	Pass
20dB Occupied Bandwidth	15.247 (a)(1)	Pass
Carrier Frequencies Separation	15.247 (a)(1)	Pass
Hopping Channel Number	15.247 (a)(1)(iii)	Pass
Dwell Time	15.247 (a)(1)(iii)	Pass
Radiated Emission	15.205/15.209	Pass
Band Edge	15.247(d)	Pass

Pass: The EUT complies with the essential requirements in the standard.

Remark : Test according to ANSI C63.10:2013.

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz-30MHz	3.1dB	(1)
Radiated Emission	30MHz-200MHz	3.8039dB	(1)
Radiated Emission	200MHz-1GHz	3.9679dB	(1)
Radiated Emission	1GHz-18GHz	4.29dB	(1)
Radiated Emission	18GHz-40GHz	3.30dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	3.44dB	(1)

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

5 General Information

5.1 General Description of EUT

Product Name:	Meter Interface Unit
Model No.:	MIU1USLB
Serial No.:	0B01001124
Hardware Version:	Rev E
Software Version:	Fc 02
Test sample(s) ID:	GTS202109000198-1
Sample(s) Status	Engineer sample
system Configuration:	128 channels with a 125kHz nominal bandwidth, 200kHz channel spacing, range from 902.3MHz to 927.7MHz
Modulation technology:	LORA
Antenna Type:	Internal Antenna
Antenna gain:	1.5dBi
Power supply:	DC 3.6V Li-ion Battery

Operation Frequency each of channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	902.3	33	908.7	65	915.1	97	921.5
2	902.5	34	908.9	66	915.3	98	921.7
3	902.7	35	909.1	67	915.5	99	921.9
4	902.9	36	909.3	68	915.7	100	922.1
5	903.1	37	909.5	69	915.9	101	922.3
6	903.3	38	909.7	70	916.1	102	922.5
7	903.5	39	909.9	71	916.3	103	922.7
8	903.7	40	910.1	72	916.5	104	922.9
9	903.9	41	910.3	73	916.7	105	923.1
10	904.1	42	910.5	74	916.9	106	923.3
11	904.3	43	910.7	75	917.1	107	923.5
12	904.5	44	910.9	76	917.3	108	923.7
13	904.7	45	911.1	77	917.5	109	923.9
14	904.9	46	911.3	78	917.7	110	924.1
15	905.1	47	911.5	79	917.9	111	924.3
16	905.3	48	911.7	80	918.1	112	924.5
17	905.5	49	911.9	81	918.3	113	924.7
18	905.7	50	912.1	82	918.5	114	924.9
19	905.9	51	912.3	83	918.7	115	925.1
20	906.1	52	912.5	84	918.9	116	925.3
21	906.3	53	912.7	85	919.1	117	925.5
22	906.5	54	912.9	86	919.3	118	925.7
23	906.7	55	913.1	87	919.5	119	925.9
24	906.9	56	913.3	88	919.7	120	926.1
25	907.1	57	913.5	89	919.9	121	926.3
26	907.3	58	913.7	90	920.1	122	926.5
27	907.5	59	913.9	91	920.3	123	926.7
28	907.7	60	914.1	92	920.5	124	926.9
29	907.9	61	914.3	93	920.7	125	927.1
30	908.1	62	914.5	94	920.9	126	927.3
31	908.3	63	914.7	95	921.1	127	927.5
32	908.5	64	914.9	96	921.3	128	927.7

The test frequencies are below:

Channel	Frequency
The lowest channel	902.3MHz
The middle channel	914.9MHz
The Highest channel	927.7MHz

5.2 Test mode

Transmitting mode	Keep the EUT in transmitting mode.
Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.	

5.3 Test Facility

<p>The test facility is recognized, certified, or accredited by the following organizations:</p> <ul style="list-style-type: none"> ● FCC—Registration No.: 381383 Designation Number: CN5029 Global United Technology Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in files. ● IC —Registration No.: 9079A CAB identifier: CN0091 The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing ● NVLAP (LAB CODE:600179-0) Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).
--

5.4 Test Location

All other tests were performed at:
<p>Global United Technology Services Co., Ltd. Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102 Tel: 0755-27798480 Fax: 0755-27798960</p>

5.5 Description of Support Units

None

5.6 Deviation from Standards

None.

5.7 Abnormalities from Standard Conditions

None.

5.8 Additional Instructions

Test Software	Special test software provided by manufacturer
Power level setup	Default

6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 02 2020	July. 01 2025
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 24 2021	June. 23 2022
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 24 2021	June. 23 2022
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 24 2021	June. 23 2022
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 24 2021	June. 23 2022
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 24 2021	June. 23 2022
9	Coaxial Cable	GTS	N/A	GTS211	June. 24 2021	June. 23 2022
10	Coaxial cable	GTS	N/A	GTS210	June. 24 2021	June. 23 2022
11	Coaxial Cable	GTS	N/A	GTS212	June. 24 2021	June. 23 2022
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 24 2021	June. 23 2022
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 24 2021	June. 23 2022
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 24 2021	June. 23 2022
15	Band filter	Amindeon	82346	GTS219	June. 24 2021	June. 23 2022
16	Power Meter	Anritsu	ML2495A	GTS540	June. 24 2021	June. 23 2022
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 24 2021	June. 23 2022
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 24 2021	June. 23 2022
19	Splitter	Agilent	11636B	GTS237	June. 24 2021	June. 23 2022
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 24 2021	June. 23 2022
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 17 2021	Oct. 16 2022
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 17 2021	Oct. 16 2022
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 17 2021	Oct. 16 2022
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 24 2021	June. 23 2022

RF Conducted Test:						
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	June. 24 2021	June. 23 2022
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 24 2021	June. 23 2022
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 24 2021	June. 23 2022
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	June. 24 2021	June. 23 2022
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	June. 24 2021	June. 23 2022
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	June. 24 2021	June. 23 2022
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	June. 24 2021	June. 23 2022
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	June. 24 2021	June. 23 2022
9	MXA Signal Analyzer	Keysight	N9020B	MY57431469	02/22,2021	02/21,2022
10	DC power supply	HEWLETT	6632A	3326A-07835	02/22,2021	02/21,2022

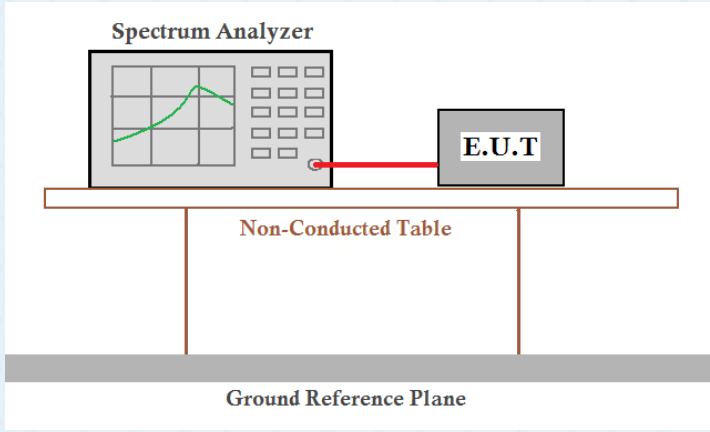
General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 24 2021	June. 23 2022
2	Barometer	ChangChun	DYM3	GTS255	June. 24 2021	June. 23 2022

7 Test results and Measurement Data

7.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203
<p>15.203 requirement:</p> <p>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p>	
EUT Antenna:	
<p><i>The antenna is internal antenna, the best case gain of the antenna is 1.5dBi, reference to the appendix II for details.</i></p>	

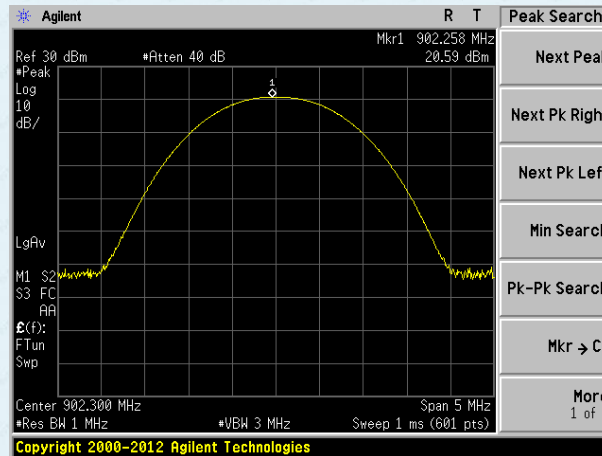
7.2 Conducted Peak Output Power

Test Requirement:	FCC Part15 C Section 15.247 (b)(2)
Test Method:	ANSI C63.10:2013
Limit:	30dBm
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

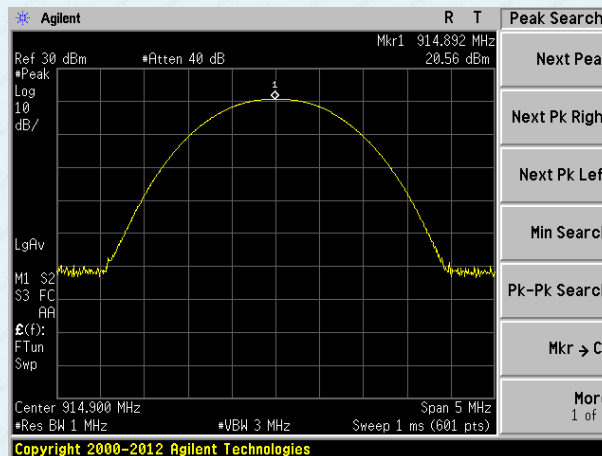
Measurement Data

Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	20.59	30	Pass
Middle	20.56		
Highest	20.56		

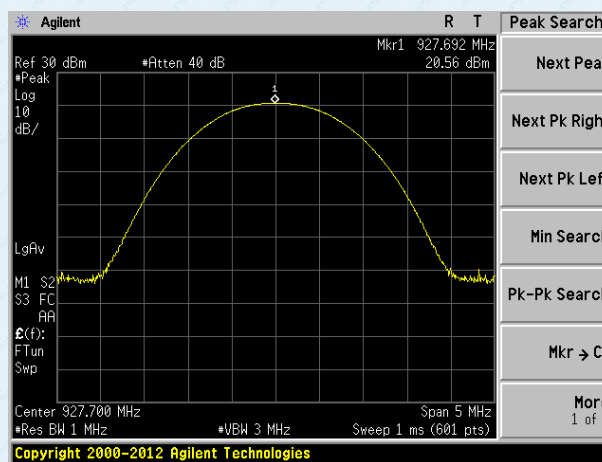
Test plot as follows:



Lowest channel

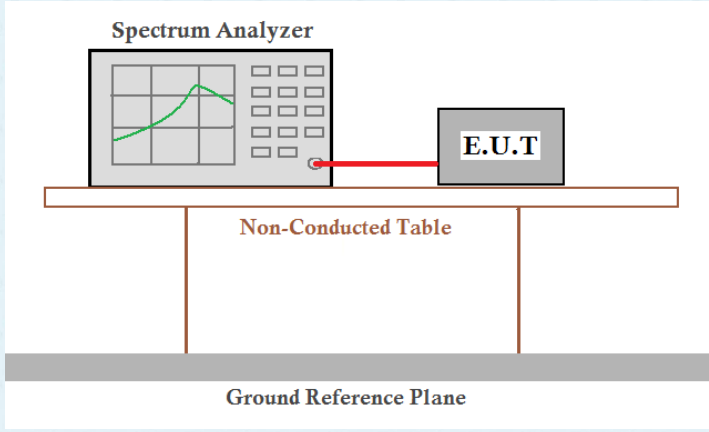


Middle channel



Highest channel

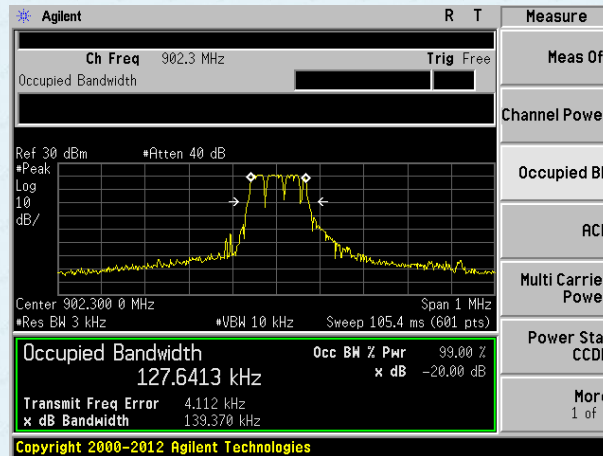
7.3 20dB Emission Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(1) (i)
Test Method:	ANSI C63.10:2013
Limit:	<500kHz
Test setup:	 <p>The diagram shows a Spectrum Analyzer on the left and an E.U.T. on the right, connected by a red cable. They are placed on a table labeled 'Non-Conducted Table'. Below the table is a 'Ground Reference Plane'.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

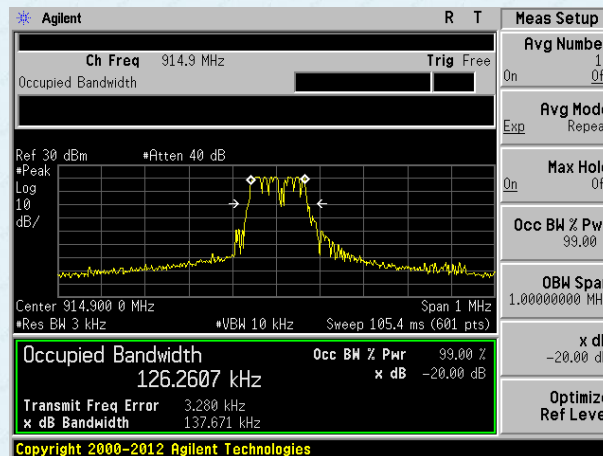
Measurement Data

Test channel	20dB Emission Bandwidth (kHz)	Result
Lowest	139.370	Pass
Middle	137.671	
Highest	137.385	

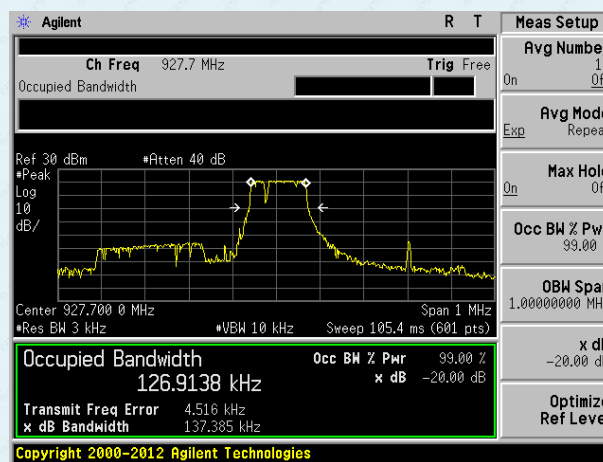
Test plot as follows:



Lowest channel

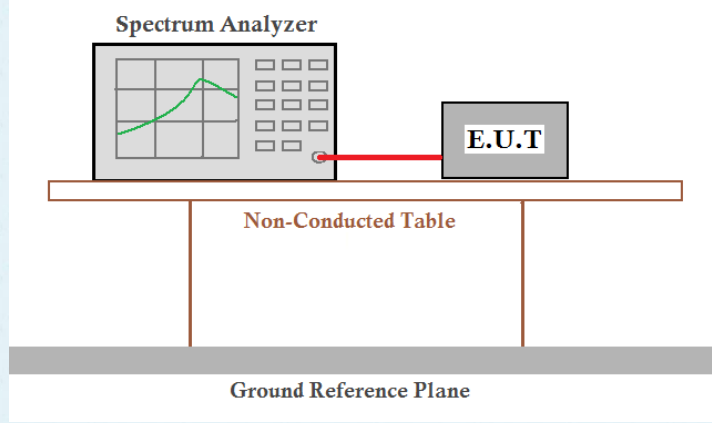


Middle channel



Highest channel

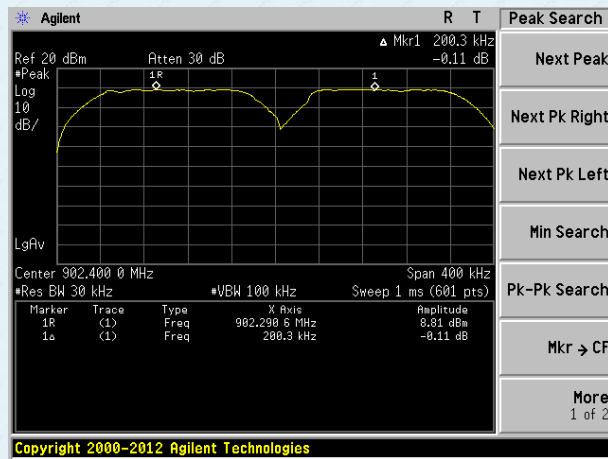
7.4 Carrier Frequencies Separation

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	ANSI C63.10:2013
Receiver setup:	RBW=30KHz, VBW=100KHz, detector=Peak
Limit:	20dB bandwidth
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

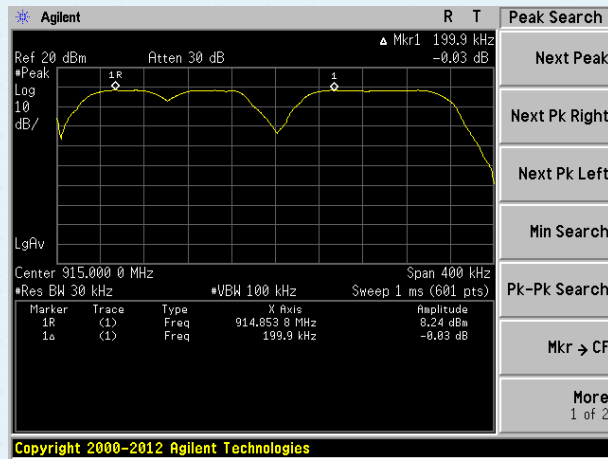
Measurement Data

Test channel	Carrier Frequencies Separation (kHz)	Limit (kHz)	Result
Lowest	200.3	139.370	Pass
Middle	199.9	137.671	Pass
Highest	200.9	137.385	Pass

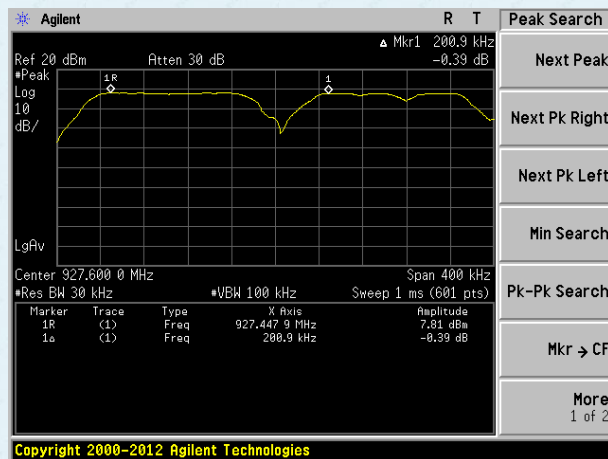
Test plot as follows:



Lowest channel

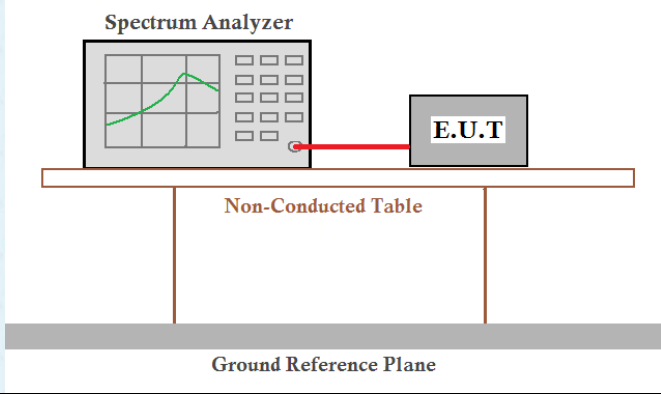


Middle channel



Highest channel

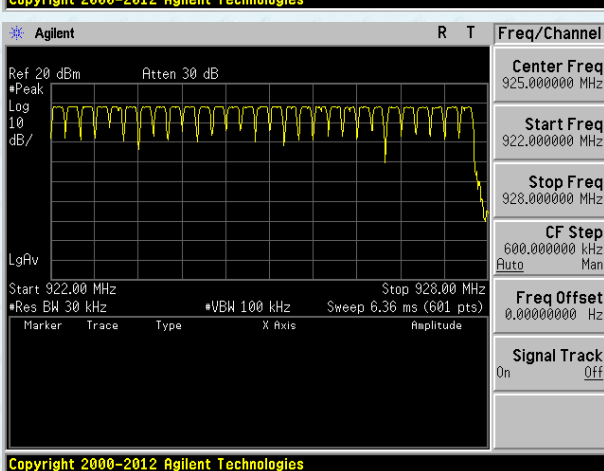
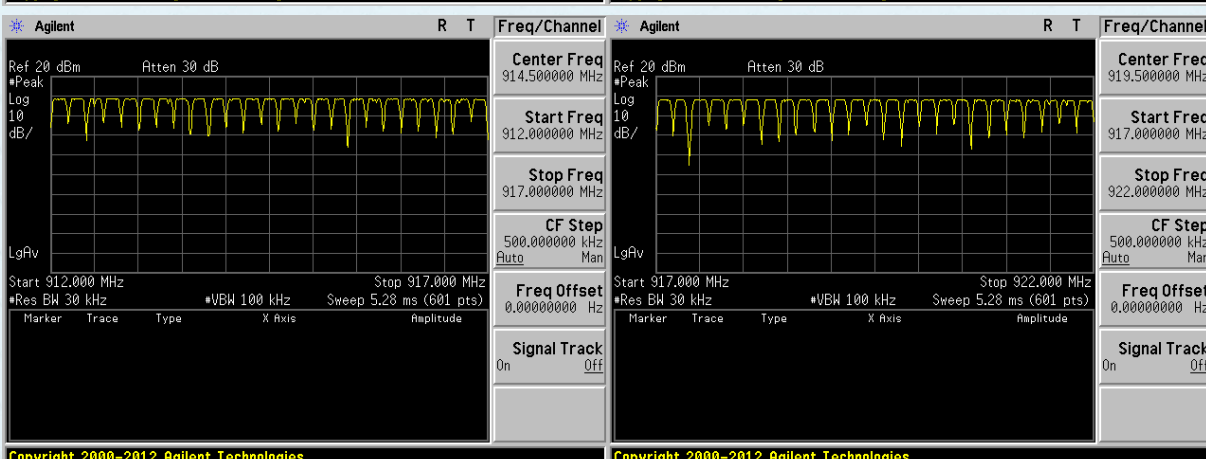
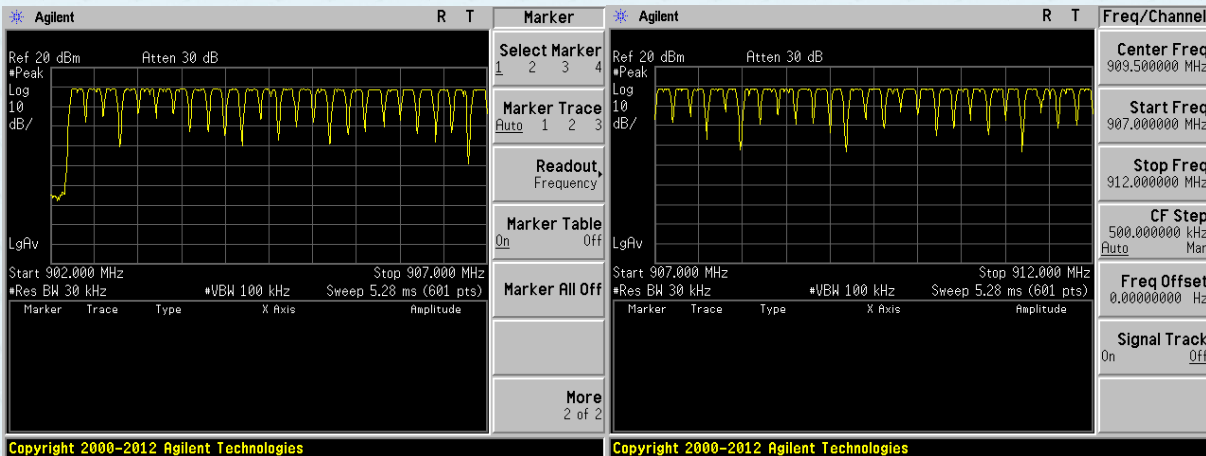
7.5 Hopping Channel Number

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)(i)
Test Method:	ANSI C63.10:2013
Receiver setup:	RBW=30kHz, VBW=100kHz, Frequency range=902MHz-928MHz, Detector=Peak
Limit:	50 channels
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

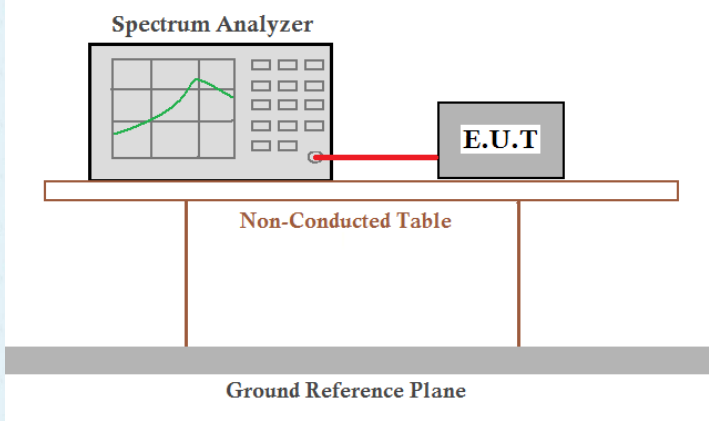
Measurement Data:

Hopping channel numbers	Limit	Result
128	50	Pass

Test plot as follows:



7.6 Dwell Time

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)(i)
Test Method:	ANSI C63.10:2013
Receiver setup:	RBW=100kHz, VBW=300kHz, Span=0Hz, Detector=Peak
Limit:	0.4 Second per 20s
Test setup:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Measurement Data

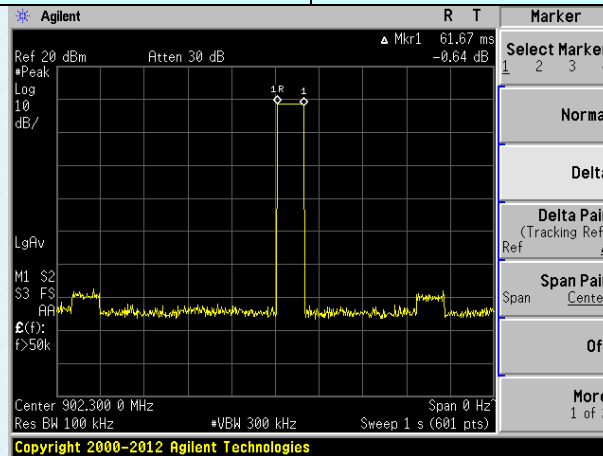
Channel	Ton (ms)	Dwell time(ms)	Limit(ms)	Result
Lowest	61.67	123.34	400	Pass

The formula as below:

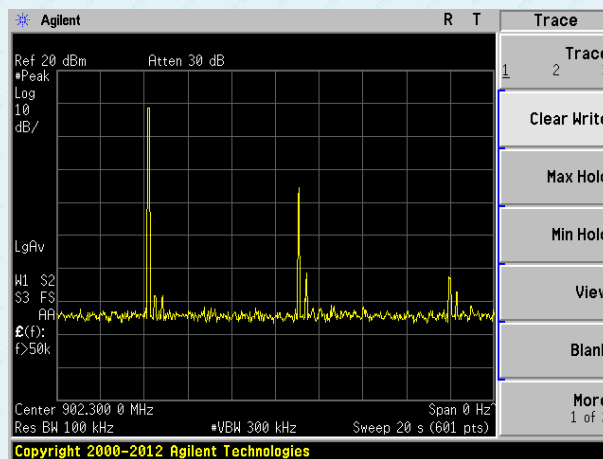
Dwell time = Ton * Ton times in 20s =61.67ms*2=123.34ms

Test plot as follows:

Channel	Lowest
---------	--------

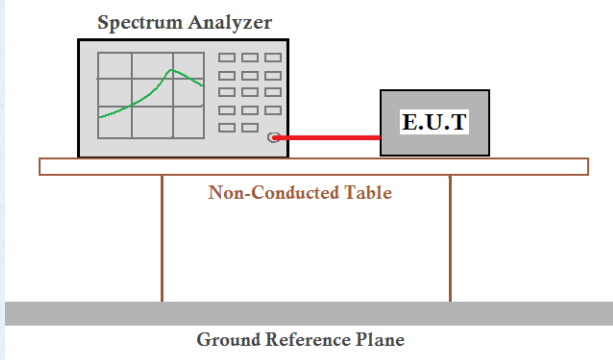


Ton



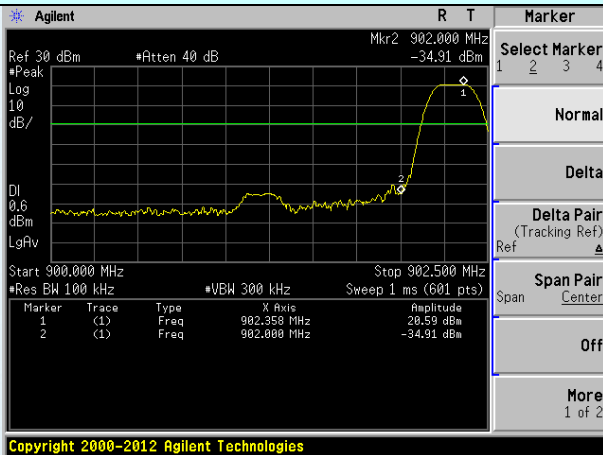
Ton times in 20s

7.7 Band Edge

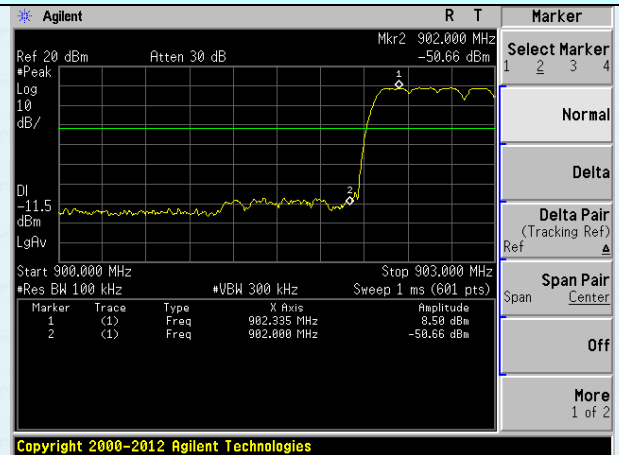
Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013
Receiver setup:	RBW=100kHz, VBW=300kHz, Detector=Peak
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by 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.
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer and an E.U.T. (Equipment Under Test) are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane. A red line indicates a connection between the Spectrum Analyzer and the E.U.T.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

Test plot as follows:

Test channel: Lowest channel

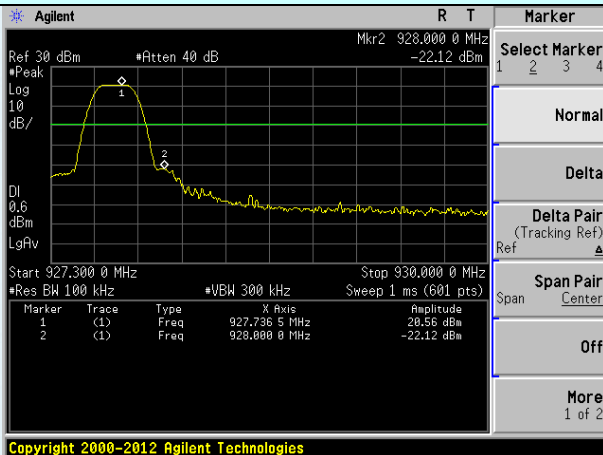


No-hopping mode

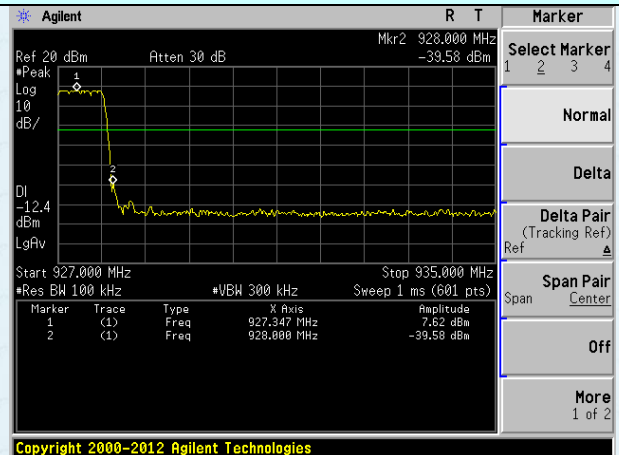


Hopping mode

Test channel: Highest channel



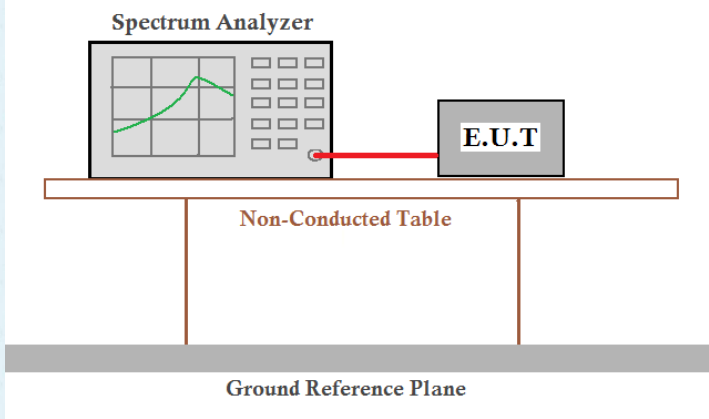
No-hopping mode



Hopping mode

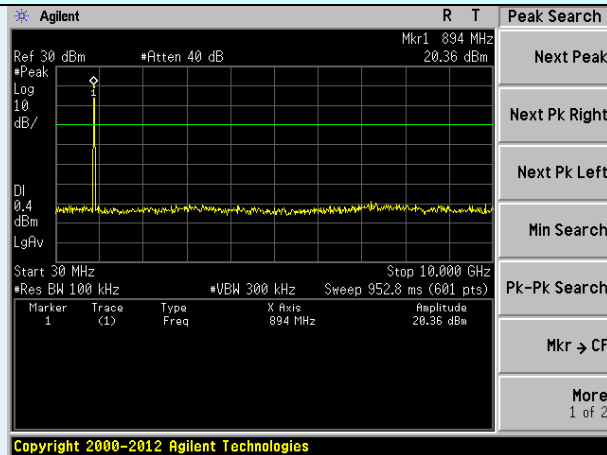
7.8 Spurious Emission

7.8.1 Conducted Emission Method

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.10:2013
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which sits on a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

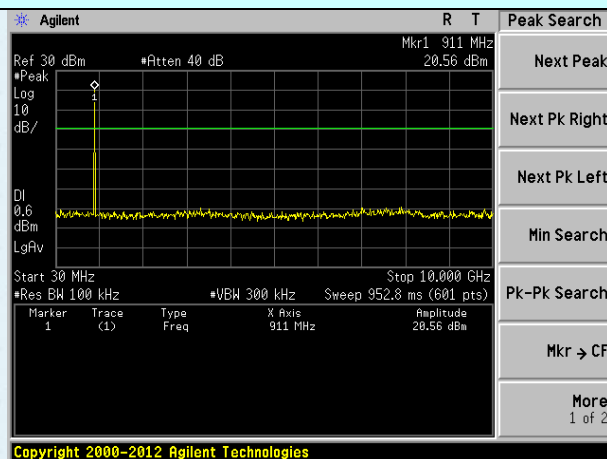
Test plot as follows:

Lowest channel



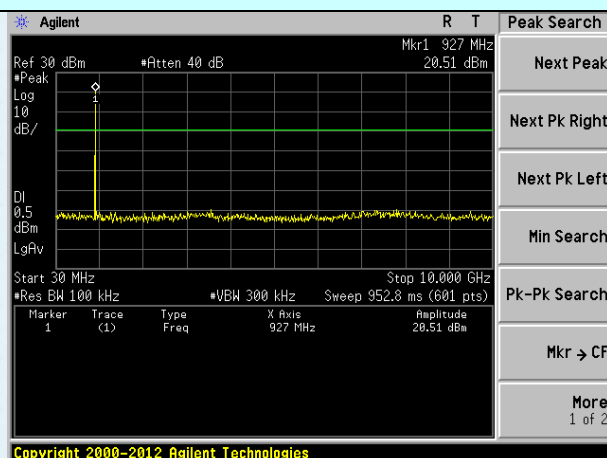
30MHz~25GHz

Middle channel



30MHz~25GHz

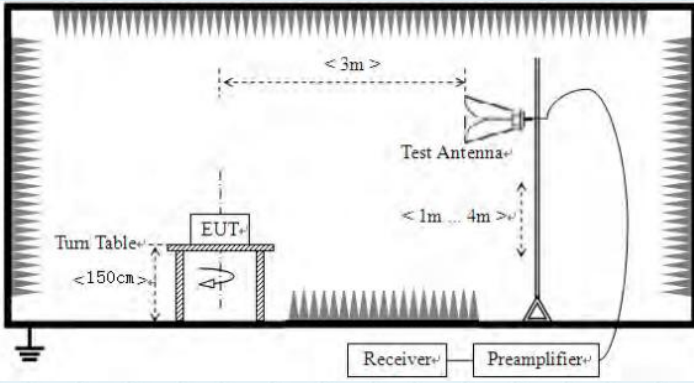
Highest channel



30MHz~25GHz

7.8.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	9kHz to 10GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
	150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
Peak		1MHz	10Hz	Average	
Limit: (Spurious Emissions)	Frequency	Limit (uV/m)	Value	Measurement Distance	
	0.009MHz-0.490MHz	2400/F(KHz)	QP	300m	
	0.490MHz-1.705MHz	24000/F(KHz)	QP	30m	
	1.705MHz-30MHz	30	QP	30m	
	30MHz-88MHz	100	QP	3m	
	88MHz-216MHz	150	QP		
	216MHz-960MHz	200	QP		
	960MHz-1GHz	500	QP		
	Above 1GHz	500	Average		
5000		Peak			
Test setup:	Below 30MHz				
Test setup:	Below 1GHz				

	<p>Above 1GHz</p> 						
<p>Test Procedure:</p>	<ol style="list-style-type: none"> 1. The EUT was placed on the top of a rotating table (0.8 meters for below 1GHz and 1.5meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. 						
<p>Test Instruments:</p>	<p>Refer to section 5.8 for details</p>						
<p>Test mode:</p>	<p>Refer to section 5.2 for details</p>						
<p>Temp. / Hum.</p>	<table border="1"> <tr> <td>Temp.:</td> <td>25 °C</td> <td>Humid.:</td> <td>52%</td> <td>Press.:</td> <td>1 012mbar</td> </tr> </table>	Temp.:	25 °C	Humid.:	52%	Press.:	1 012mbar
Temp.:	25 °C	Humid.:	52%	Press.:	1 012mbar		
<p>Test results:</p>	<p>Pass</p>						

Remark:

1. Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

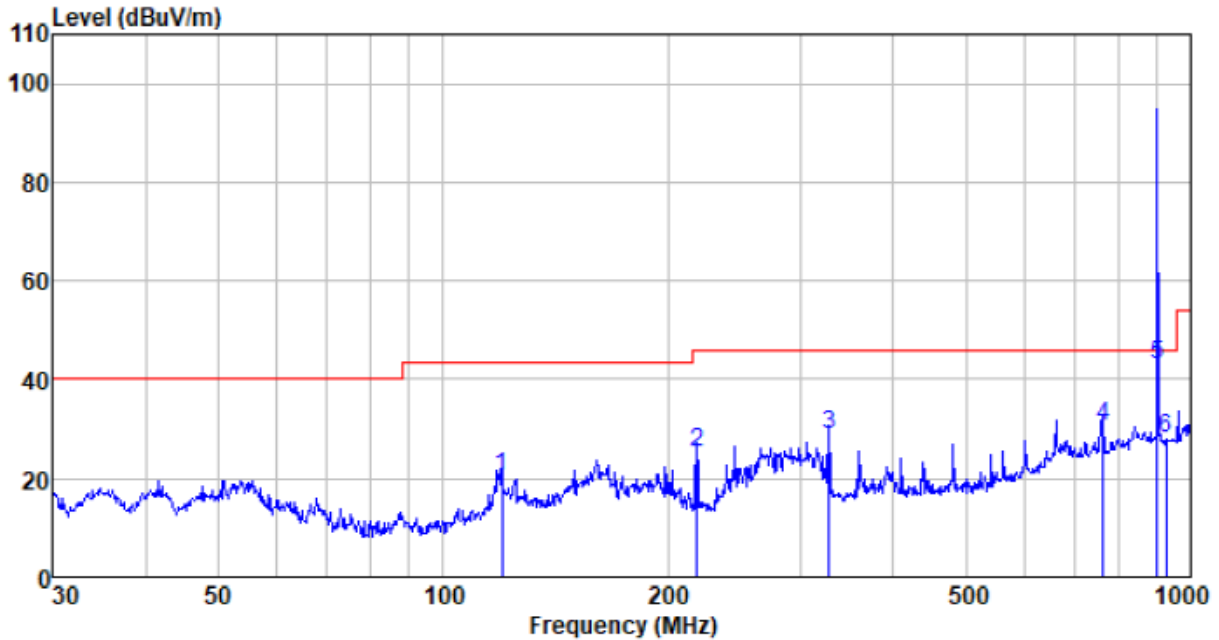
Measurement data:

■ **Below 30MHz**

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

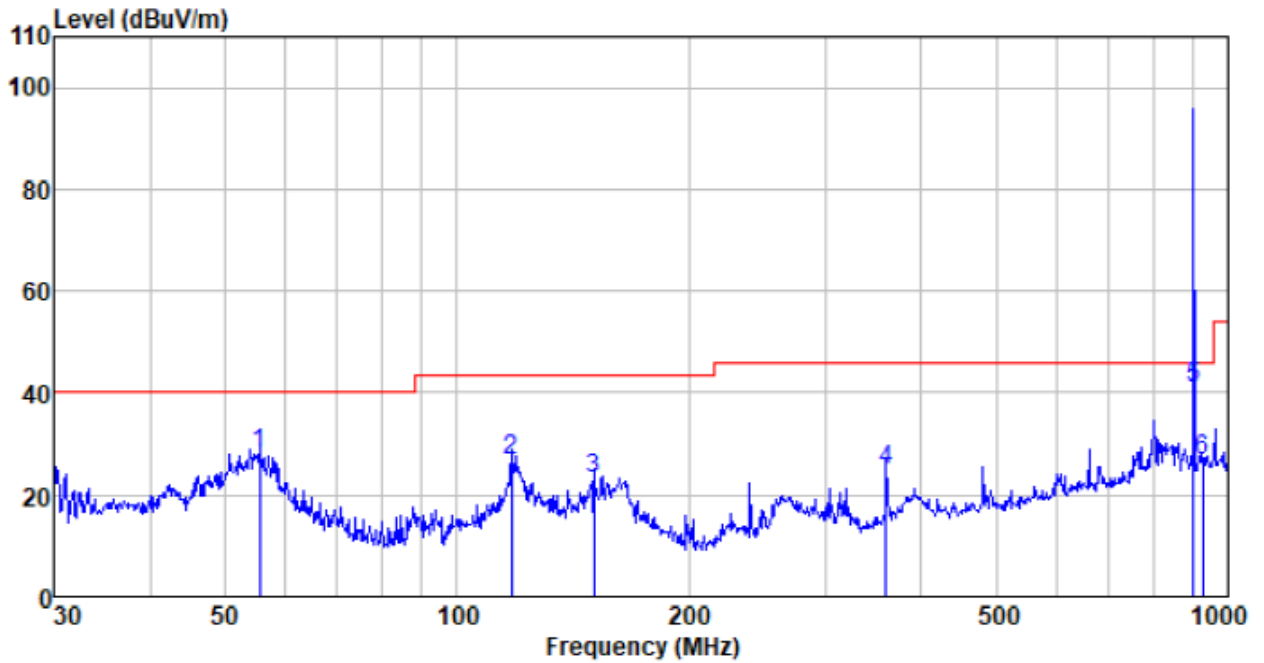
■ 30MHz ~ 1GHz

Test channel:	Lowest	Polarization:	Horizontal
---------------	--------	---------------	------------



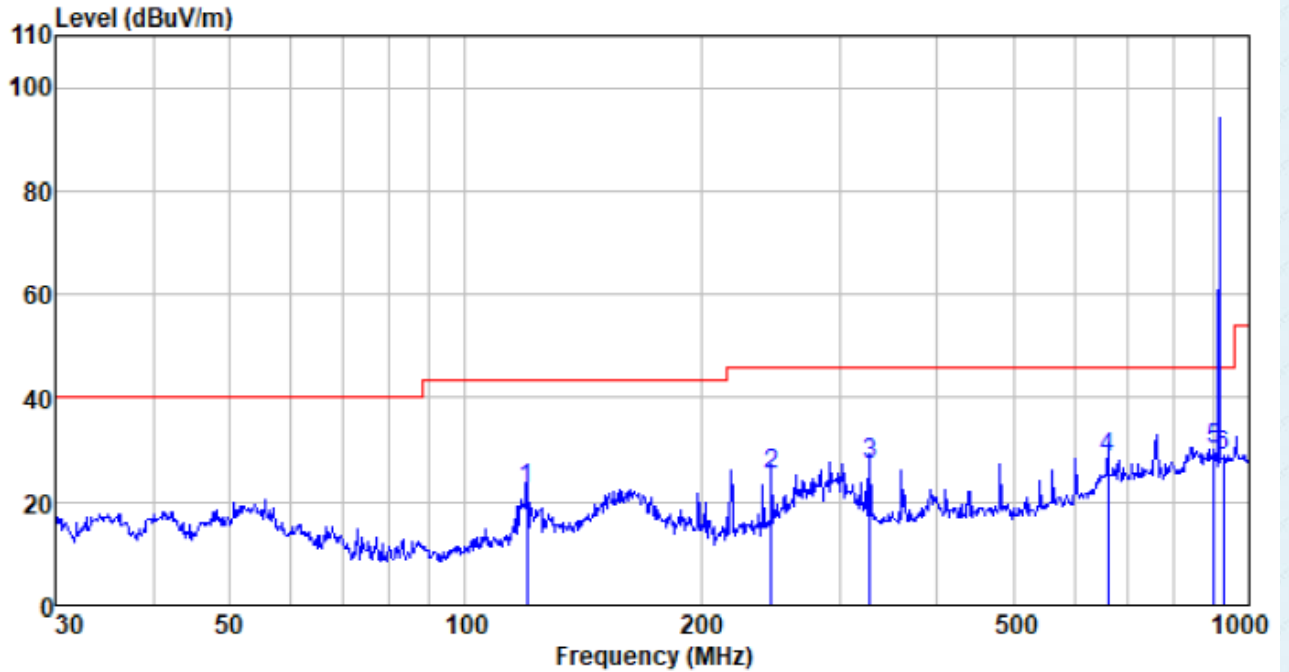
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
119.856	44.92	10.98	1.36	36.88	20.38	43.50	-23.12	QP
218.309	51.57	9.02	1.95	37.35	25.19	46.00	-20.81	QP
327.887	50.47	13.16	2.51	37.45	28.69	46.00	-17.31	QP
763.376	42.12	21.73	4.32	37.62	30.55	46.00	-15.45	QP
902.000	52.58	22.99	4.87	37.60	42.84	46.00	-3.16	QP
928.000	37.01	23.53	4.96	37.57	27.93	46.00	-18.07	QP

Test channel:	Lowest	Polarization:	Vertical
---------------	--------	---------------	----------



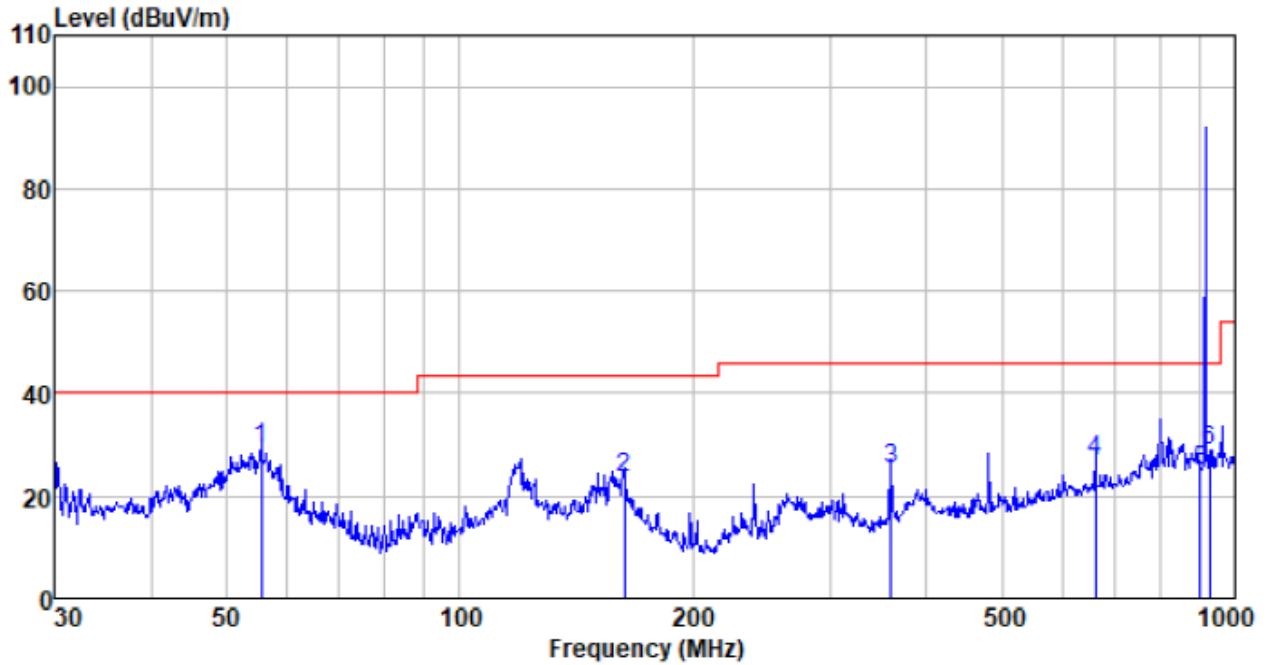
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
55.415	50.77	12.53	0.82	36.26	27.86	40.00	-12.14	QP
117.773	51.58	10.77	1.34	36.86	26.83	43.50	-16.67	QP
150.538	45.90	12.81	1.57	37.08	23.20	43.50	-20.30	QP
360.448	45.66	13.82	2.67	37.48	24.67	46.00	-21.33	QP
902.000	50.73	22.99	4.87	37.60	40.99	46.00	-5.01	QP
928.000	35.81	23.53	4.96	37.57	26.73	46.00	-19.27	QP

Test channel:	Middle	Polarization:	Horizontal
---------------	--------	---------------	------------



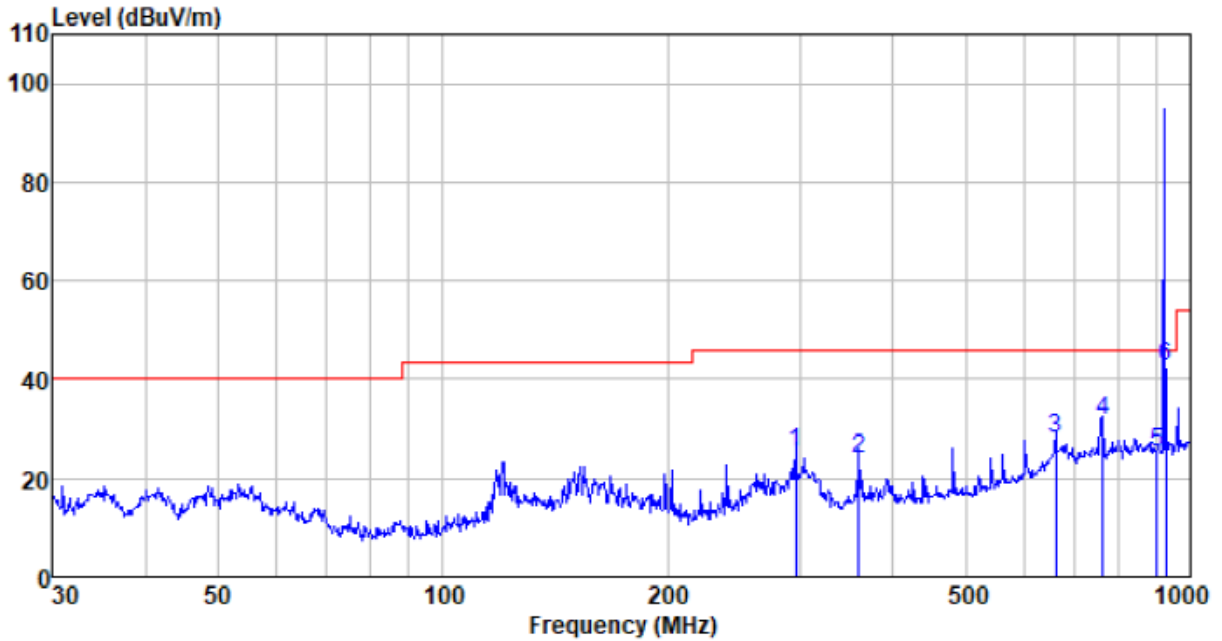
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
119.856	47.02	10.98	1.36	36.88	22.48	43.50	-21.02	QP
245.951	49.69	10.62	2.10	37.38	25.03	46.00	-20.97	QP
327.887	49.06	13.16	2.51	37.45	27.28	46.00	-18.72	QP
661.151	41.98	20.01	3.95	37.60	28.34	46.00	-17.66	QP
902.000	39.59	22.99	4.87	37.60	29.85	46.00	-16.15	QP
928.000	37.95	23.53	4.96	37.57	28.87	46.00	-17.13	QP

Test channel:	Middle	Polarization:	Vertical
---------------	--------	---------------	----------



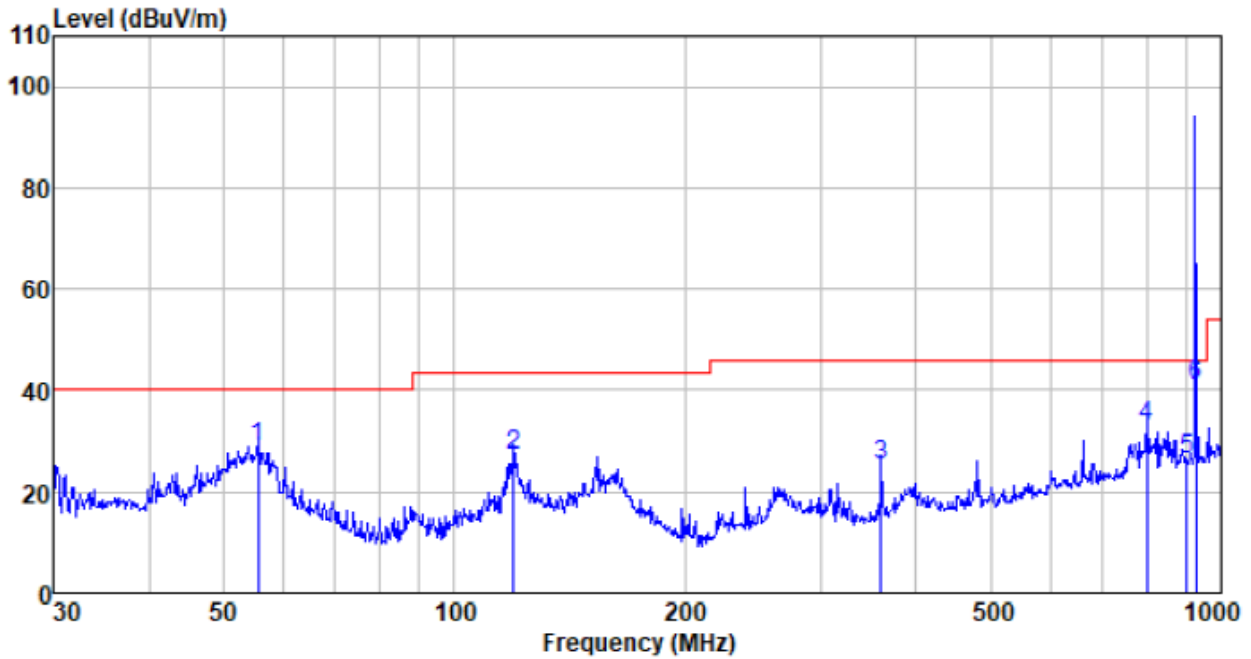
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
55.415	52.07	12.53	0.82	36.26	29.16	40.00	-10.84	QP
163.182	46.25	12.66	1.65	37.15	23.41	43.50	-20.09	QP
360.448	46.12	13.82	2.67	37.48	25.13	46.00	-20.87	QP
661.151	40.57	20.01	3.95	37.60	26.93	46.00	-19.07	QP
902.000	34.65	22.99	4.87	37.60	24.91	46.00	-21.09	QP
928.000	37.77	23.53	4.96	37.57	28.69	46.00	-17.31	QP

Test channel:	Highest	Polarization:	Horizontal
---------------	---------	---------------	------------



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
296.184	47.89	12.29	2.34	37.42	25.10	46.00	-20.90	QP
360.448	45.10	13.82	2.67	37.48	24.11	46.00	-21.89	QP
661.151	41.45	20.01	3.95	37.60	27.81	46.00	-18.19	QP
763.376	43.05	21.73	4.32	37.62	31.48	46.00	-14.52	QP
902.000	34.75	22.99	4.87	37.60	25.01	46.00	-20.99	QP
928.000	51.50	23.53	4.96	37.57	42.42	46.00	-3.58	QP

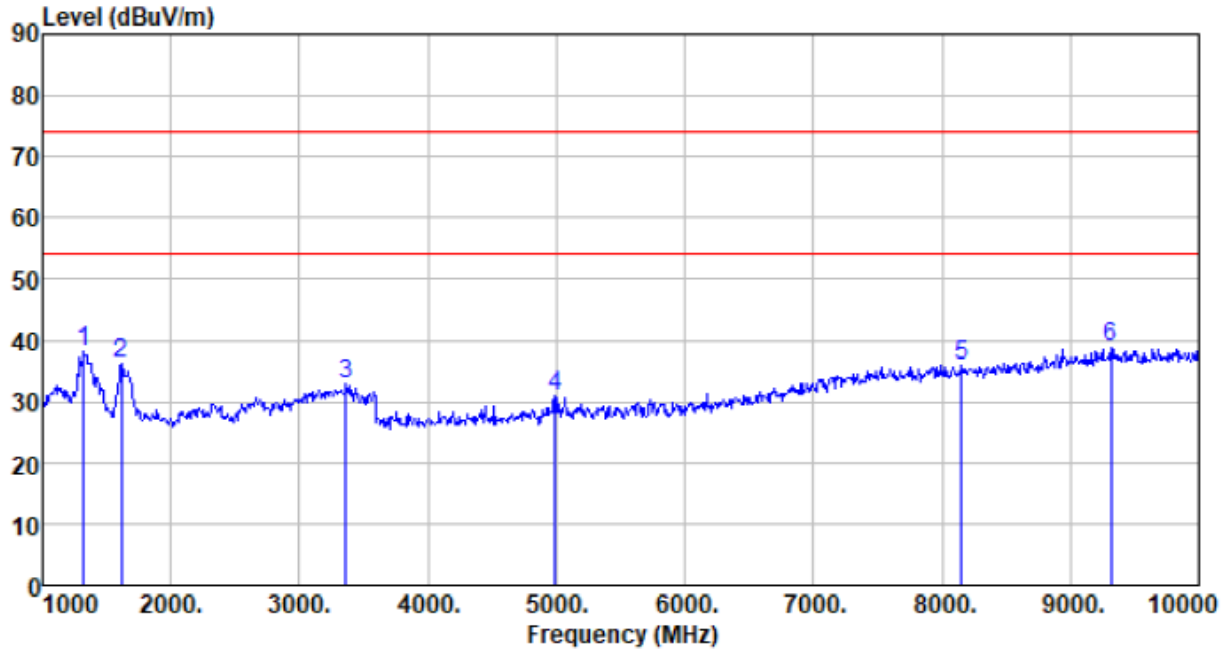
Test channel:	Highest	Polarization:	Vertical
---------------	---------	---------------	----------



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
55.415	51.62	12.53	0.82	36.26	28.71	40.00	-11.29	QP
119.436	51.76	10.93	1.36	36.88	27.17	43.50	-16.33	QP
360.448	46.10	13.82	2.67	37.48	25.11	46.00	-20.89	QP
798.980	43.86	22.23	4.45	37.62	32.92	46.00	-13.08	QP
902.000	36.08	22.99	4.87	37.60	26.34	46.00	-19.66	QP
928.000	50.25	23.53	4.96	37.57	41.17	46.00	-4.83	QP

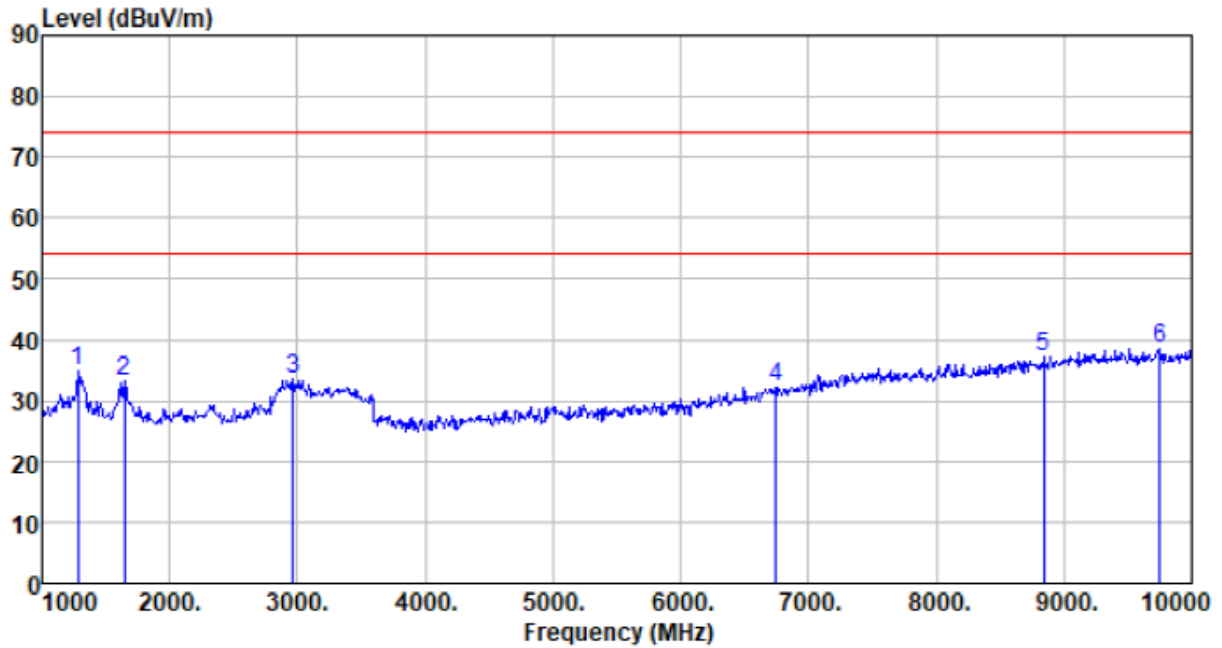
■ Above 1GHz

Test channel:	Lowest	Polarization:	Horizontal
---------------	--------	---------------	------------



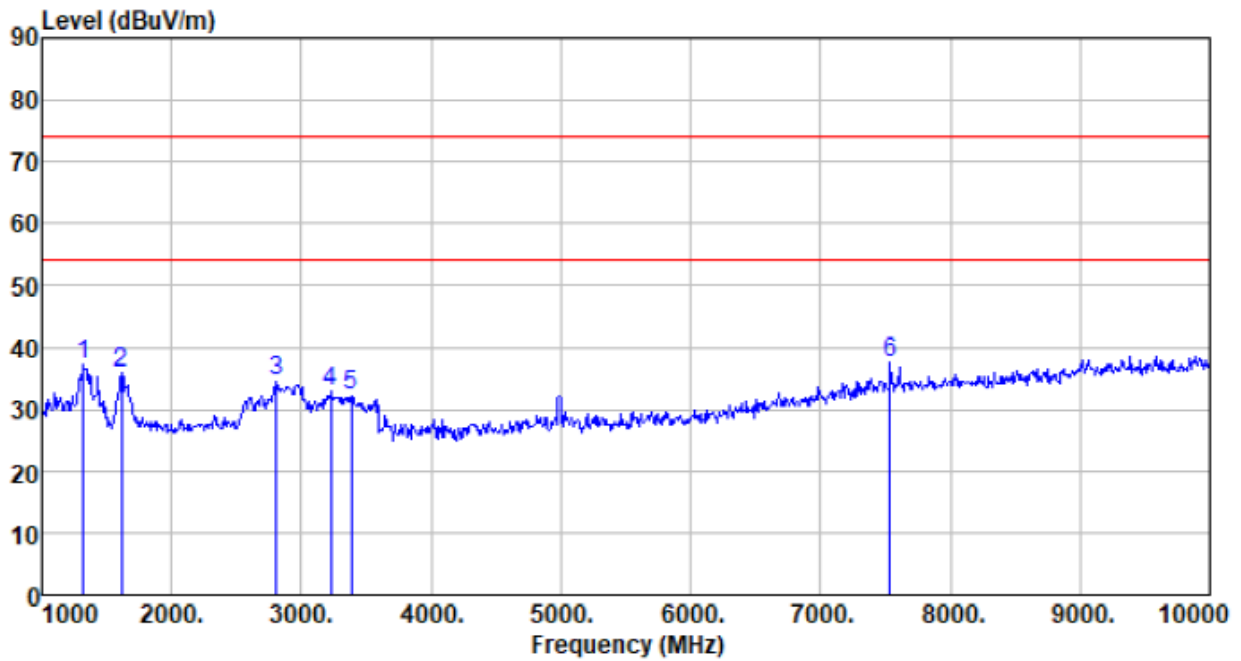
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
1324.000	46.93	24.95	2.20	36.02	38.06	74.00	-35.94	Peak
1612.000	44.55	25.46	2.34	36.25	36.10	74.00	-37.90	Peak
3358.000	37.73	28.89	3.63	37.34	32.91	74.00	-41.09	Peak
4987.000	31.63	32.27	4.83	37.79	30.94	74.00	-43.06	Peak
8155.000	27.38	37.04	6.85	35.25	36.02	74.00	-37.98	Peak
9316.000	27.82	37.94	7.80	34.73	38.83	74.00	-35.17	Peak

Test channel:	Lowest	Polarization:	Vertical
---------------	--------	---------------	----------



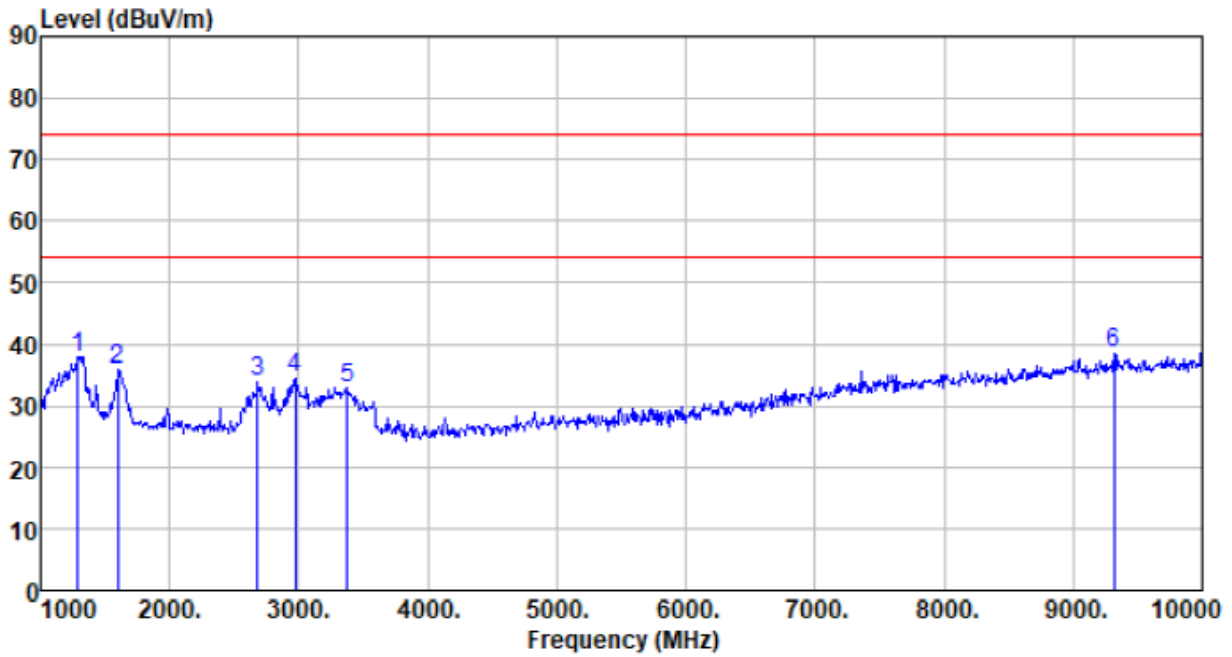
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
1279.000	43.84	24.86	2.18	35.98	34.90	74.00	-39.10	Peak
1648.000	41.75	25.51	2.37	36.28	33.35	74.00	-40.65	Peak
2962.000	38.98	28.50	3.37	37.28	33.57	74.00	-40.43	Peak
6742.000	27.51	34.53	6.02	35.87	32.19	74.00	-41.81	Peak
8839.000	27.15	37.31	7.43	34.63	37.26	74.00	-36.74	Peak
9748.000	27.35	38.30	8.03	35.03	38.65	74.00	-35.35	Peak

Test channel:	Middle	Polarization:	Horizontal
---------------	--------	---------------	------------



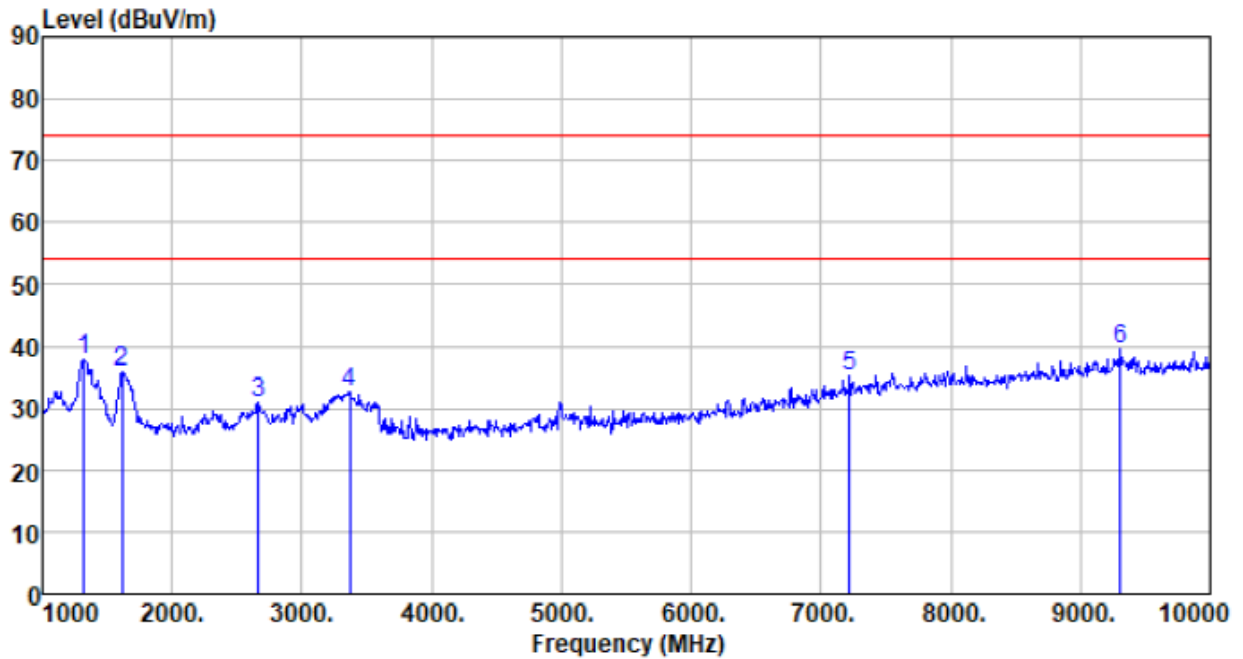
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
1324.000	46.11	24.95	2.20	36.02	37.24	74.00	-36.76	Peak
1612.000	44.20	25.46	2.34	36.25	35.75	74.00	-38.25	Peak
2809.000	40.35	28.10	3.21	37.17	34.49	74.00	-39.51	Peak
3223.000	37.70	28.78	3.62	37.33	32.77	74.00	-41.23	Peak
3385.000	36.90	28.91	3.64	37.34	32.11	74.00	-41.89	Peak
7534.000	29.74	36.63	6.82	35.53	37.66	74.00	-36.34	Peak

Test channel:	Middle	Polarization:	Vertical
---------------	--------	---------------	----------



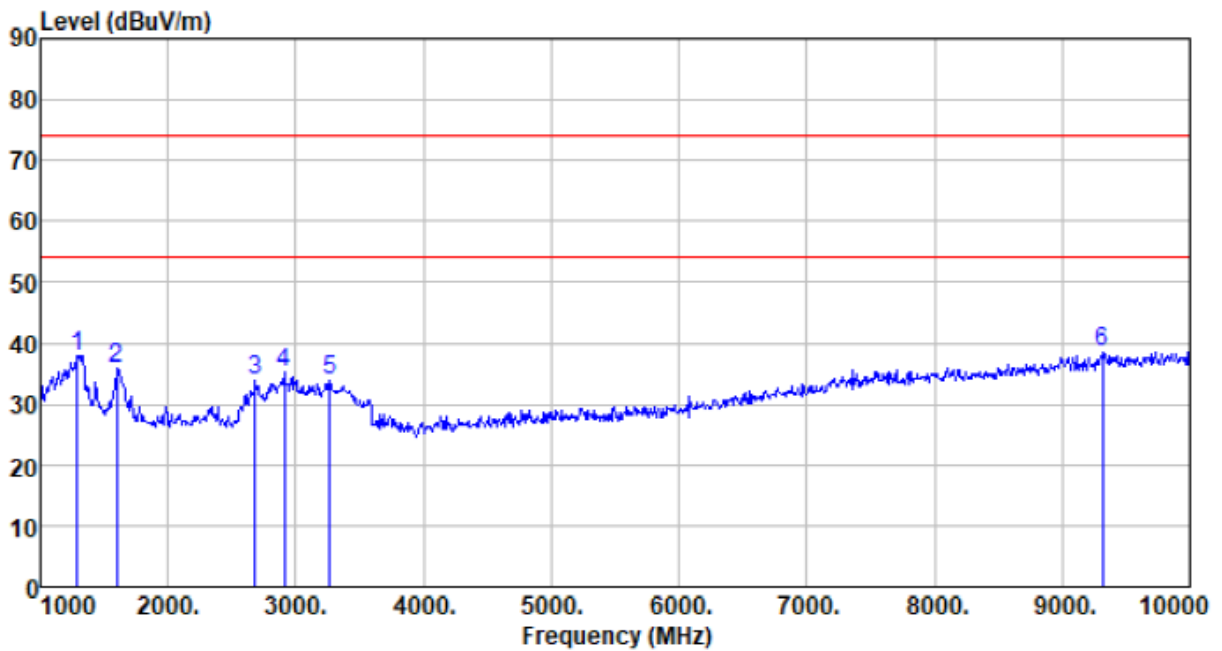
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
1288.000	46.93	24.88	2.19	35.99	38.01	74.00	-35.99	Peak
1594.000	44.47	25.43	2.33	36.24	35.99	74.00	-38.01	Peak
2683.000	40.16	27.78	3.15	37.08	34.01	74.00	-39.99	Peak
2971.000	39.79	28.52	3.38	37.28	34.41	74.00	-39.59	Peak
3376.000	37.70	28.90	3.64	37.34	32.90	74.00	-41.10	Peak
9316.000	27.40	37.94	7.80	34.73	38.41	74.00	-35.59	Peak

Test channel:	Highest	Polarization:	Horizontal
---------------	---------	---------------	------------



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
1324.000	46.61	24.95	2.20	36.02	37.74	74.00	-36.26	Peak
1612.000	44.45	25.46	2.34	36.25	36.00	74.00	-38.00	Peak
2665.000	37.07	27.73	3.14	37.07	30.87	74.00	-43.13	Peak
3367.000	37.44	28.89	3.63	37.34	32.62	74.00	-41.38	Peak
7219.000	28.45	35.81	6.50	35.63	35.13	74.00	-38.87	Peak
9307.000	28.42	37.93	7.80	34.73	39.42	74.00	-34.58	Peak

Test channel:	Highest	Polarization:	Vertical
---------------	---------	---------------	----------



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
1288.000	46.93	24.88	2.19	35.99	38.01	74.00	-35.99	Peak
1594.000	44.47	25.43	2.33	36.24	35.99	74.00	-38.01	Peak
2683.000	40.16	27.78	3.15	37.08	34.01	74.00	-39.99	Peak
2908.000	40.76	28.36	3.32	37.24	35.20	74.00	-38.80	Peak
3268.000	38.81	28.81	3.62	37.33	33.91	74.00	-40.09	Peak
9316.000	27.40	37.94	7.80	34.73	38.41	74.00	-35.59	Peak

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor

8 Test Setup Photo

Reference to the **appendix I** for details.

9 EUT Constructional Details

Reference to the **appendix II** for details.

---End---