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RADIO TEST REPORT

Report No: STS1908350W01

Issued for

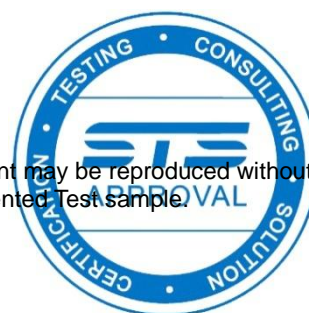
Shenzhen Genvict Technologies Co.,Ltd

No.01-08,F18-20,BLK A,BLDG 11,Shenzhen Bay
Technology&Ecology Park, Nanshan DIST, Shenzhen City,
China

Product Name:	UHF RFID Reader
Brand Name:	GENVICT
Model Name:	Max Faster GVR9040
Series Model:	N/A
FCC ID:	2AL59GVR9040
Test Standard:	FCC Part 15.247

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**TEST RESULT CERTIFICATION**

Applicant's Name: Shenzhen Genvict Technologies Co.,Ltd
Address.....: No.01-08,F18-20,BLK A,BLDG 11,Shenzhen Bay
Technology&Ecology Park, Nanshan DIST, Shenzhen City, China
Manufacture's Name: Shenzhen Genvict Technologies Co.,Ltd
Address.....: No.01-08,F18-20,BLK A,BLDG 11,Shenzhen Bay
Technology&Ecology Park, Nanshan DIST, Shenzhen City, China

Product Description

Product Name: UHF RFID Reader
Brand Name: GENVICT
Model Name.....: Max Faster GVR9040
Series Model: N/A
Test Standards.....: FCC Part15.247
Test Procedure.....: ANSI C63.10-2013

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
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Date of Test.....:

Date (s) of performance of tests : 09 Sept. 2019 ~07 Nov. 2019

Date of Issue: 07 Nov. 2019

Test Result: Pass

Testing Engineer :

(Chris Chen)

Technical Manager :

(Sunday Hu)

Authorized Signatory :

(Vita Li)





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**Revision History**

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	07 Nov. 2019	STS1908350W01	ALL	Initial Issue





1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:
KDB 558074 D01 15.247 Meas Guidance v05r02

FCC Part 15.247, Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	--
15.247(a)(1)	Hopping Channel Separation	PASS	--
15.247(a)(1)&(b)(1)	Output Power	PASS	--
15.247(c)	Radiated Spurious Emission	PASS	--
15.247(d)	Conducted Spurious & Band Edge Emission	PASS	--
15.247(a)(iii)	Number of Hopping Frequency	PASS	--
15.247(a)(iii)	Dwell Time	PASS	--
15.247(a)(1)	Bandwidth	PASS	--
15.205	Restricted Band Edge Emission	PASS	--
Part 15.247(d)/part 15.209(a)	Band Edge Emission	PASS	--
15.203	Antenna Requirement	PASS	--

NOTE:

- (1) "N/A" denotes test is not applicable in this Test Report
- (2) All tests are according to ANSI C63.10-2013



1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95 %**.

No.	Item	Uncertainty
1	RF output power, conducted	$\pm 0.68\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.988\text{dB}$
3	All emissions, radiated 30-1GHz	$\pm 6.7\text{dB}$
4	All emissions, radiated 1G-6GHz	$\pm 5.5\text{dB}$
5	All emissions, radiated >6G	$\pm 5.8\text{dB}$
6	Conducted Emission (9KHz-150KHz)	$\pm 4.43\text{dB}$
7	Conducted Emission (150KHz-30MHz)	$\pm 5\text{dB}$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Product Name	UHF RFID Reader
Trade Name	GENVICT
Model Name	Max Faster GVR9040
Series Model	N/A
Model Difference	N/A
Channel List	Please refer to the Note 2.
Bluetooth	Frequency: 902.75 -927.25MHz Modulation: DSB-ASK
Adapter	Input: AC 120V/60Hz
Hardware version number	V1.0.0
Software version number	V1.0.0
Connecting I/O Port(s)	Please refer to the User's Manual

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



2.

Operation Frequency of channel					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	902.75	18	911.25	35	919.75
02	903.25	19	911.75	36	920.25
03	903.75	20	912.25	37	920.75
04	904.25	21	912.75	38	921.25
05	904.75	22	913.25	39	921.75
06	905.25	23	913.75	40	922.25
07	905.75	24	914.25	41	922.75
08	906.25	25	914.75	42	923.25
09	906.75	26	915.25	43	923.75
10	907.25	27	915.75	44	924.25
11	907.75	28	916.25	45	924.75
12	908.25	29	916.75	46	925.25
13	908.75	30	917.25	47	925.75
14	909.25	31	917.75	48	926.25
15	909.75	32	918.25	49	926.75
16	910.25	33	918.75	50	927.25
17	910.75	34	919.25		

3. Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	GENVICT	Max Faster GVR9040	External antenna	N/A	Ant 1:11 Ant 2:11 Ant 3:11 Ant 4: 11	Antenna



2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Worst Mode	Description	Operation mode
Mode 1	CH01	DSB-ASK
Mode 2	CH25	DSB-ASK
Mode 3	CH50	DSB-ASK

Note:

(1) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

(2) We have be tested for all avaiable U.S. voltage and frequencies(For 120V,50/60Hz and 240V, 50/60Hz) for which the device is capable of operation, and the worst case of 120V/60Hz is shown in the report

For AC Conducted Emission

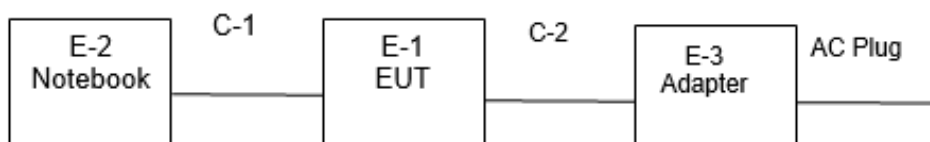
Test Case	
AC Conducted Emission	Mode 4: Keeping TX



2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of FHSS

Radiated Spurious EmissionTest



Conducted Emission Test





2.4 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
E-3	Adapter	N/A	N/A	N/A	N/A
C-2	DC Cable	N/A	100cm	N/A	N/A

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
E-2	Notebook	N/A	N/A	N/A	N/A
C-1	Net Line	N/A	120cm	N/A	N/A

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.



2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2019.7.29	2020.7.28
Signal Analyzer	Agilent	N9020A	MY51110105	2019.03.02	2020.03.01
Active loop Antenna	ZHINAN	ZN30900C	16035	2018.03.11	2021.03.10
Bilog Antenna	TESEQ	CBL6111D	34678	2017.11.02	2020.11.1
Horn Antenna	SCHWARZBECK	BBHA 9120D(1201)	9120D-1343	2018.10.19	2021.10.18
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	J211020657	2018.03.11	2021.03.10
Pre-Amplifier(0.1M-3G Hz)	EM	EM330	060665	2019.10.9	2020.10.8
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK201808090 1	2019.10.12	2020.10.11
Temperature & Humidity	HH660	Mieo	N/A	2019.10.12	2020.10.11
turn table	EM	SC100_1	60531	N/A	N/A
Antenna mast	EM	SC100	N/A	N/A	N/A
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 RE)			

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2019.7.29	2020.7.28
LISN	R&S	ENV216	101242	2019.10.9	2020.10.8
LISN	EMCO	3810/2NM	23625	2019.10.9	2020.10.8
Temperature & Humidity	HH660	Mieo	N/A	2019.10.12	2020.10.11
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 CE)			

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
USB RF power sensor	DARE	RPR3006W	15I00041SNO03	2019.10.9	2020.10.8
Signal Analyzer	Agilent	N9020A	MY49100060	2019.10.9	2020.10.8
Temperature & Humidity	HH660	Mieo	N/A	2019.10.12	2020.10.11
Test SW	FARAD	LZ-RF /LzRf-3A3			



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

Operating frequency band. In case the emission fall within the restricted band specified on Part 207(a) limit in the table below has to be followed.

FREQUENCY (MHz)	Conducted Emissionlimit (dBUV)	
	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

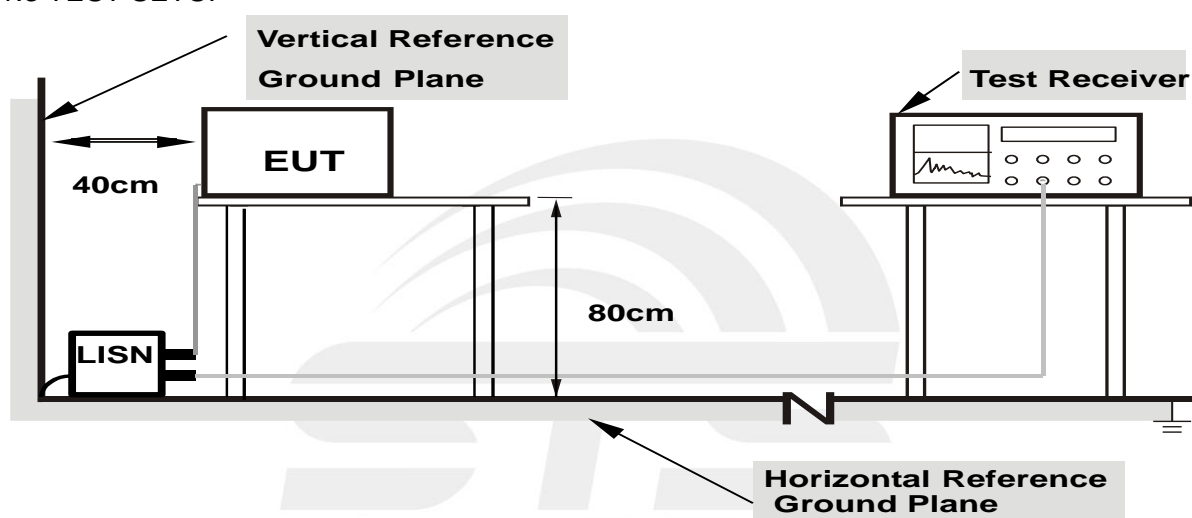
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

- The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP



**Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80
from other units and other metal planes**

3.1.4 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

Dense reader mode and Dense reader mode have been tested,only show the worst case in the report



3.1.5 TEST RESULT

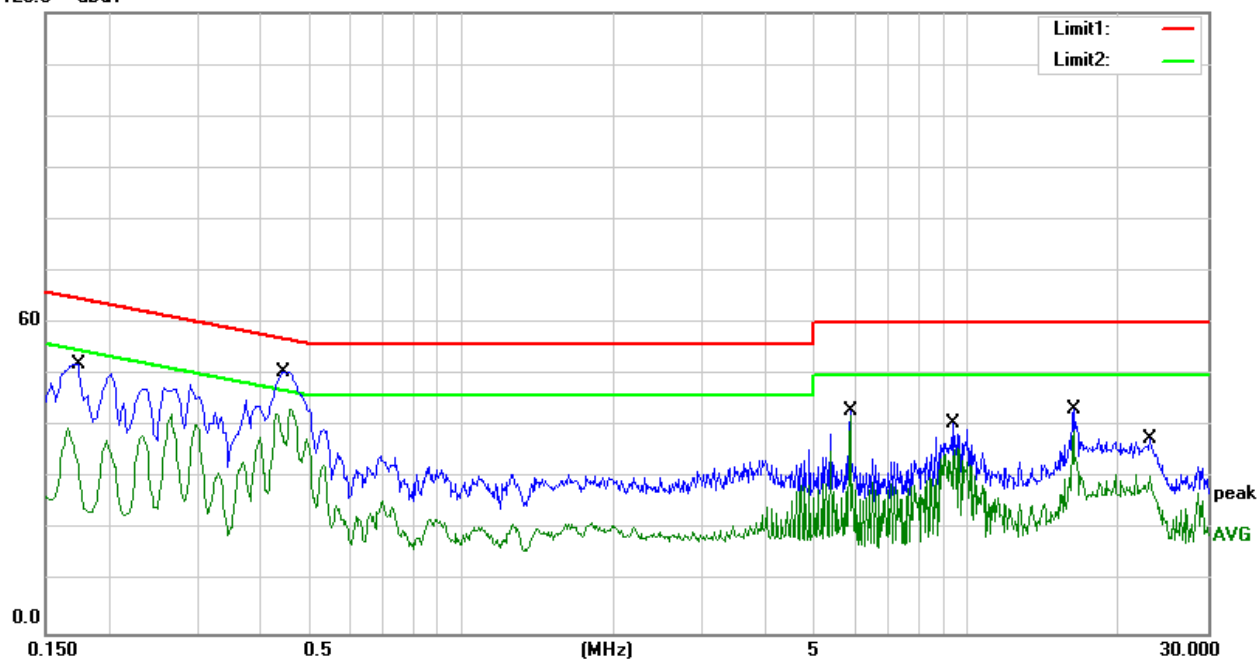
Temperature:	26.5 °C	Relative Humidity:	52%
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode:	Mode 4(Ant 1)		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.1740	31.61	20.57	52.18	64.77	-12.59	QP
0.1740	19.11	20.57	39.68	54.77	-15.09	AVG
0.4460	30.45	20.17	50.62	56.95	-6.33	QP
0.4460	23.19	20.17	43.36	46.95	-3.59	AVG
5.8700	22.79	20.34	43.13	60.00	-16.87	QP
5.8700	21.75	20.34	42.09	50.00	-7.91	AVG
9.3940	20.07	20.52	40.59	60.00	-19.41	QP
9.3940	15.27	20.52	35.79	50.00	-14.21	AVG
16.2300	22.44	20.95	43.39	60.00	-16.61	QP
16.2300	18.07	20.95	39.02	50.00	-10.98	AVG
23.1300	16.32	21.36	37.68	60.00	-22.32	QP
23.1300	9.25	21.36	30.61	50.00	-19.39	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) - Limit

120.0 dBuV



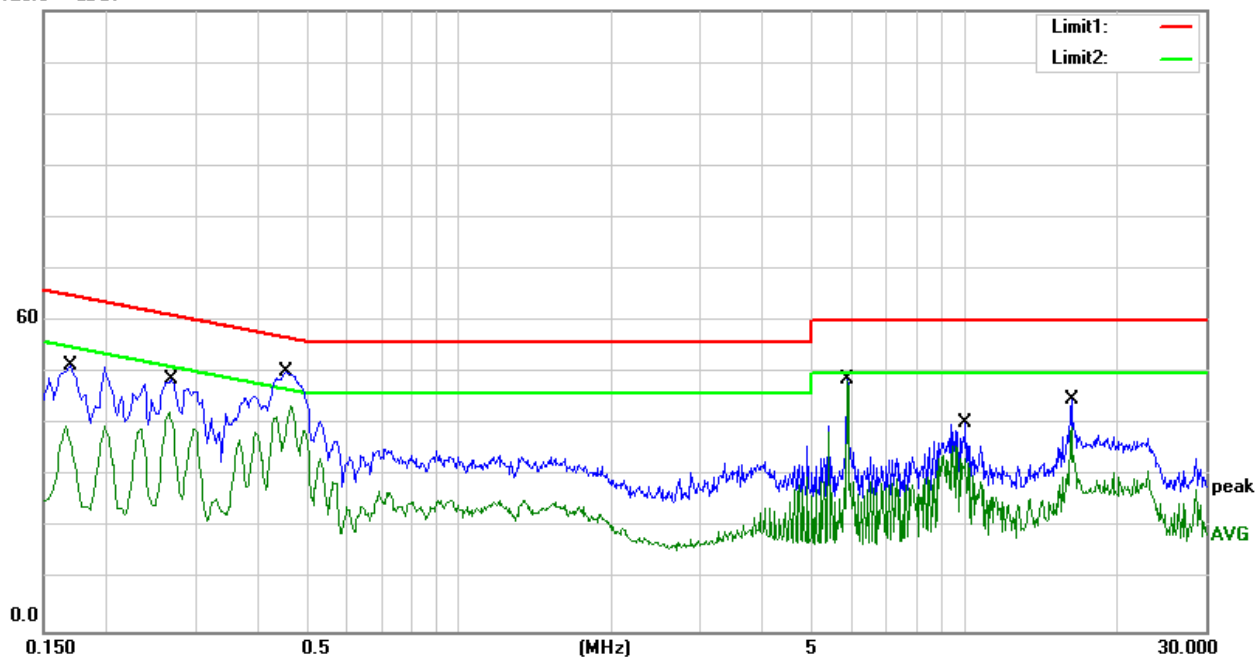
Temperature:	26.5 °C	Relative Humidity:	52%
Test Voltage:	AC 120V/60Hz	Phase:	N
Test Mode:	Mode 4(Ant 1)		

Frequency	Reading	Correct	Result	Limit	Margin	Remark
(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	
0.1700	30.84	20.57	51.41	64.96	-13.55	QP
0.1700	19.28	20.57	39.85	54.96	-15.11	AVG
0.2700	28.50	20.15	48.65	61.12	-12.47	QP
0.2700	22.44	20.15	42.59	51.12	-8.53	AVG
0.4540	31.03	20.14	51.17	56.80	-5.63	QP
0.4540	23.66	20.14	43.80	46.80	-3.00	AVG
5.8660	28.51	20.34	48.85	60.00	-11.15	QP
5.8660	25.43	20.34	45.77	50.00	-4.23	AVG
10.0620	19.84	20.57	40.41	60.00	-19.59	QP
10.0620	15.36	20.57	35.93	50.00	-14.07	AVG
16.2300	23.86	20.95	44.81	60.00	-15.19	QP
16.2300	18.63	20.95	39.58	50.00	-10.42	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) – Limit

120.0 dBuV





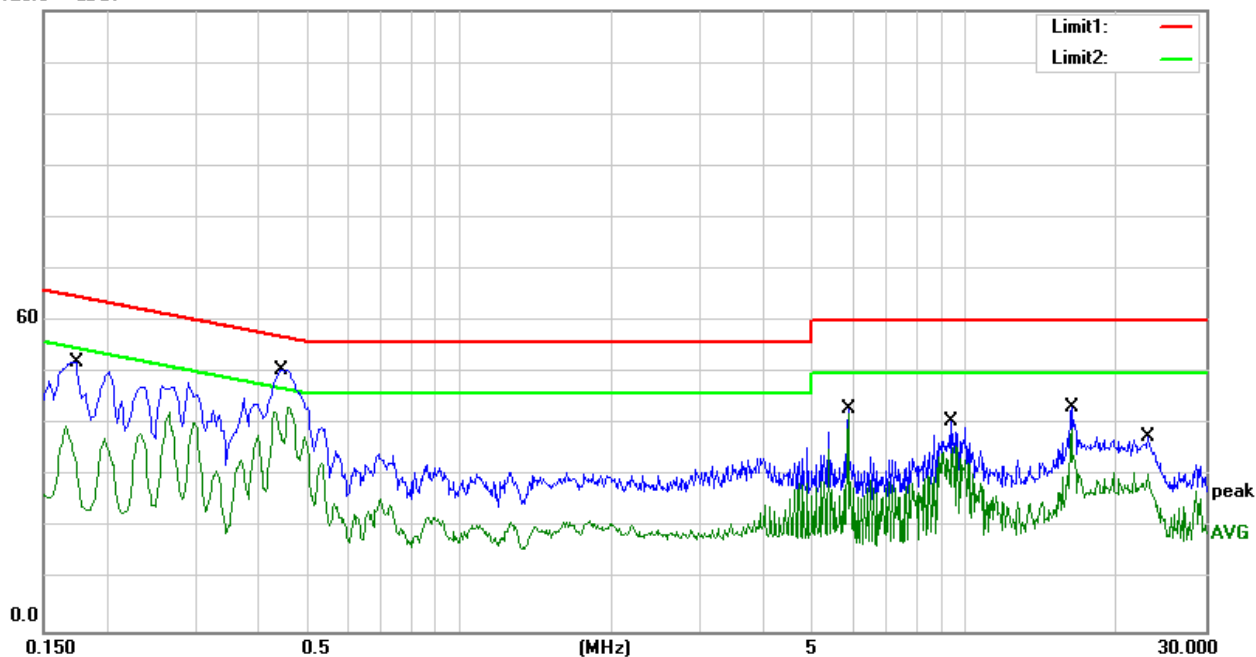
Temperature:	26.5 °C	Relative Humidity:	52%
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode:	Mode 4(Ant 2)		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.1700	30.80	20.57	51.37	64.96	-13.59	QP
0.1700	19.97	20.57	40.54	54.96	-14.42	AVG
0.2660	29.03	20.17	49.20	61.24	-12.04	QP
0.2660	22.72	20.17	42.89	51.24	-8.35	AVG
0.4420	31.40	20.18	51.58	57.02	-5.44	QP
0.4420	23.47	20.18	43.65	47.02	-3.37	AVG
5.8700	22.97	20.34	43.31	60.00	-16.69	QP
5.8700	21.72	20.34	42.06	50.00	-7.94	AVG
9.3940	19.59	20.52	40.11	60.00	-19.89	QP
9.3940	15.77	20.52	36.29	50.00	-13.71	AVG
16.2300	21.95	20.95	42.90	60.00	-17.10	QP
16.2300	17.10	20.95	38.05	50.00	-11.95	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) – Limit

120.0 dBuV





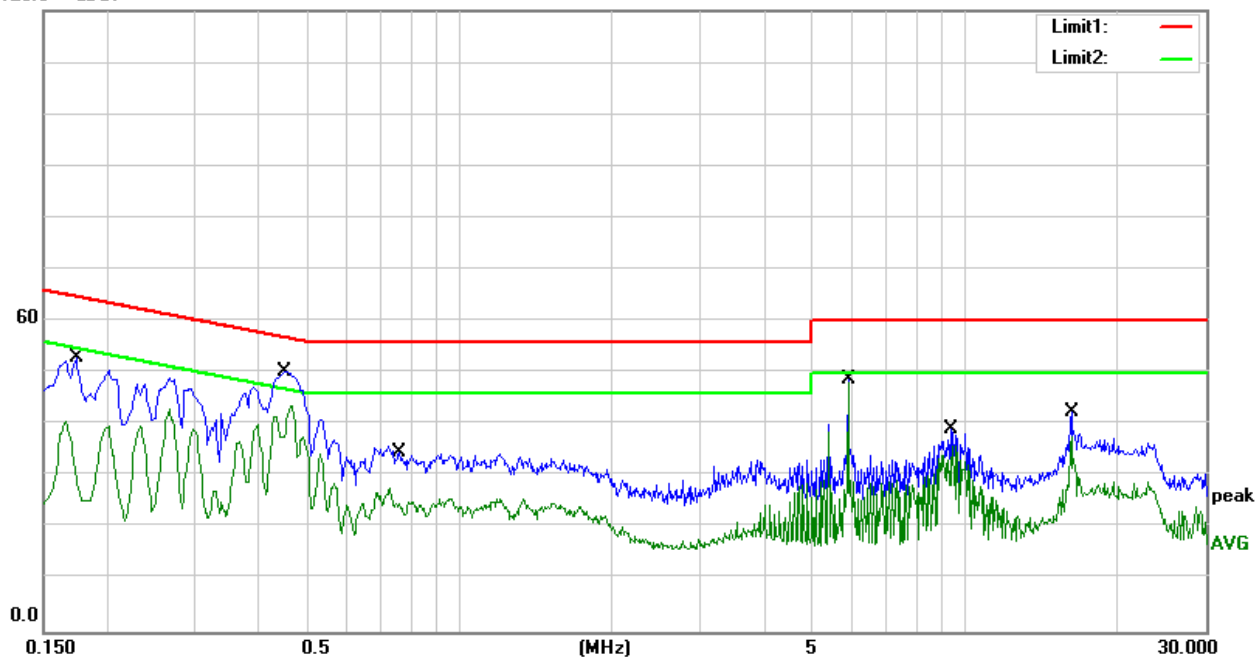
Temperature:	26.5 °C	Relative Humidity:	52%
Test Voltage:	AC 120V/60Hz	Phase:	N
Test Mode:	Mode 4(Ant 2)		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.1748	30.94	20.57	51.51	64.73	-13.22	QP
0.1748	19.96	20.57	40.53	54.73	-14.20	AVG
0.4500	31.72	20.16	51.88	56.88	-5.00	QP
0.4500	23.49	20.16	43.65	46.88	-3.23	AVG
0.7620	14.54	20.11	34.65	56.00	-21.35	QP
0.7620	5.65	20.11	25.76	46.00	-20.24	AVG
5.8740	28.45	20.34	48.79	60.00	-11.21	QP
5.8740	27.39	20.34	47.73	50.00	-2.27	AVG
9.3940	18.71	20.52	39.23	60.00	-20.77	QP
9.3940	15.44	20.52	35.96	50.00	-14.04	AVG
16.2300	21.36	20.95	42.31	60.00	-17.69	QP
16.2300	16.63	20.95	37.58	50.00	-12.42	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) - Limit

120.0 dBuV





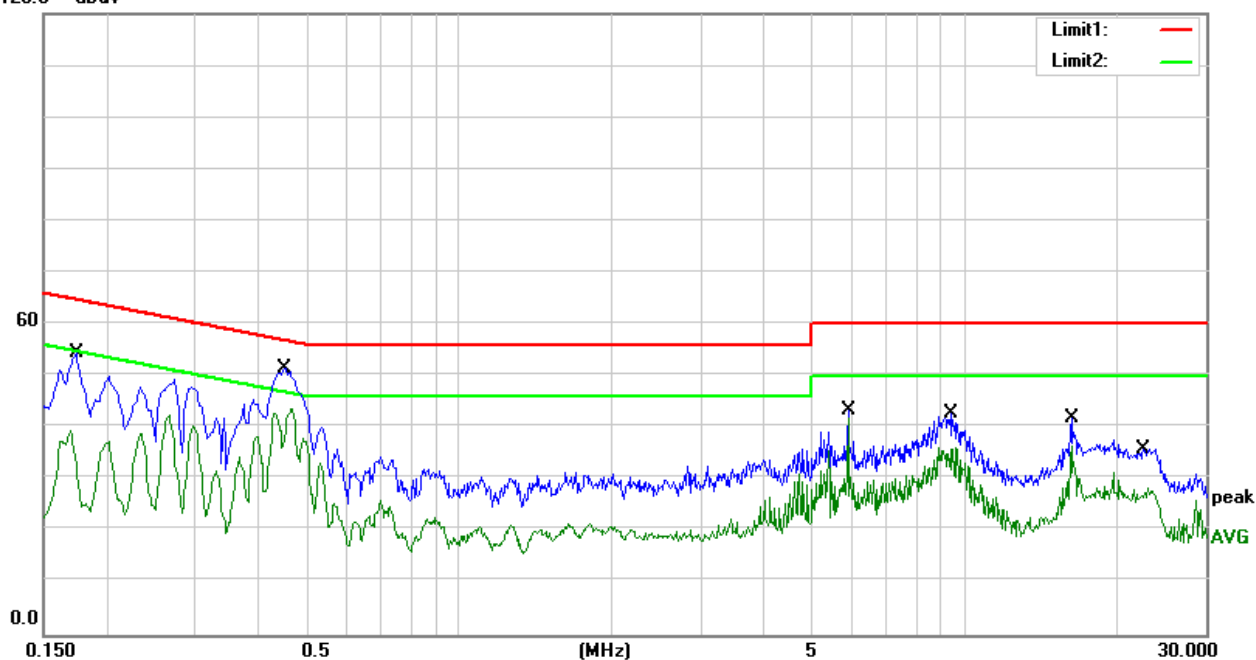
Temperature:	26.5 °C	Relative Humidity:	52%
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode:	Mode 4(Ant 3)		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.1740	33.74	20.57	54.31	64.77	-10.46	QP
0.1740	18.84	20.57	39.41	54.77	-15.36	AVG
0.4500	31.81	20.16	51.97	56.88	-4.91	QP
0.4500	23.11	20.16	43.27	46.88	-3.61	AVG
5.8740	22.97	20.34	43.31	60.00	-16.69	QP
5.8740	21.50	20.34	41.84	50.00	-8.16	AVG
9.3940	22.16	20.52	42.68	60.00	-17.32	QP
9.3940	15.70	20.52	36.22	50.00	-13.78	AVG
16.2300	20.79	20.95	41.74	60.00	-18.26	QP
16.2300	15.54	20.95	36.49	50.00	-13.51	AVG
22.5780	14.60	21.35	35.95	60.00	-24.05	QP
22.5780	10.00	21.35	31.35	50.00	-18.65	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) – Limit

120.0 dBuV





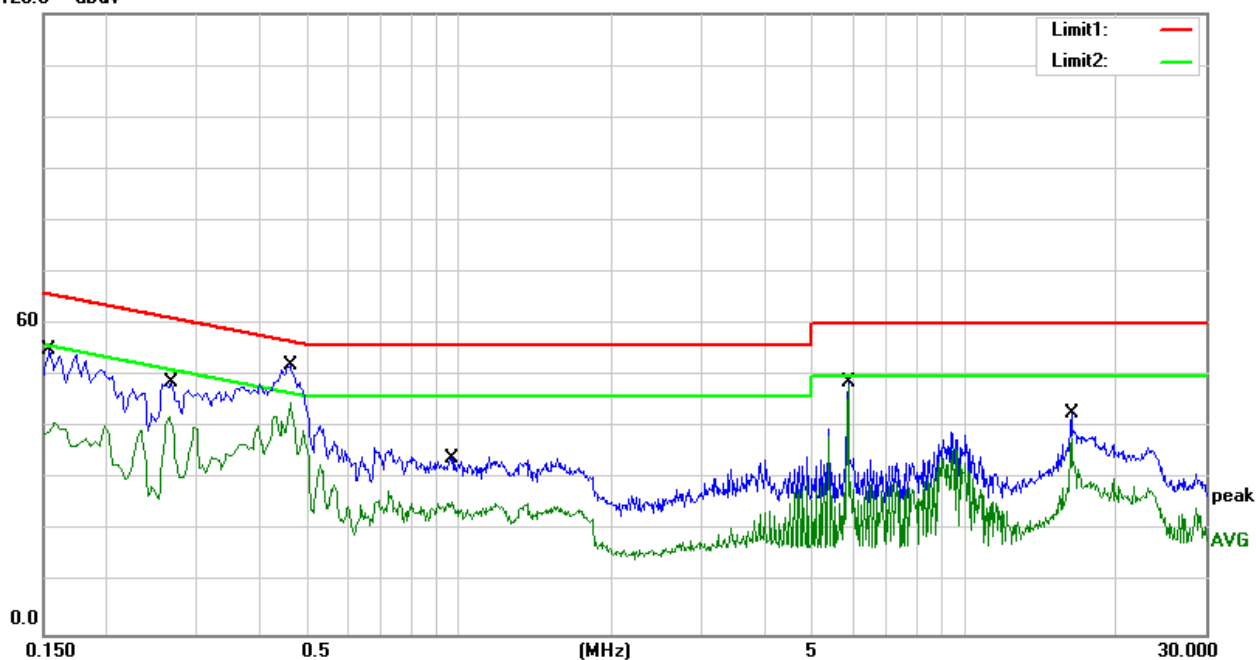
Temperature:	26.5 °C	Relative Humidity:	52%
Test Voltage:	AC 120V/60Hz	Phase:	N
Test Mode:	Mode 4(Ant 3)		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.1540	34.46	20.59	55.05	65.78	-10.73	QP
0.1540	20.45	20.59	41.04	55.78	-14.74	AVG
0.2700	28.62	20.15	48.77	61.12	-12.35	QP
0.2700	22.05	20.15	42.20	51.12	-8.92	AVG
0.4620	32.80	20.12	52.92	56.66	-3.74	QP
0.4620	24.75	20.12	44.87	46.66	-1.79	AVG
0.9660	14.16	19.83	33.99	56.00	-22.01	QP
0.9660	5.94	19.83	25.77	46.00	-20.23	AVG
5.8700	28.33	20.34	48.67	60.00	-11.33	QP
5.8700	25.23	20.34	45.57	50.00	-4.43	AVG
16.1660	19.56	20.96	40.52	60.00	-19.48	QP
16.1660	16.98	20.96	37.94	50.00	-12.06	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) - Limit

120.0 dBuV





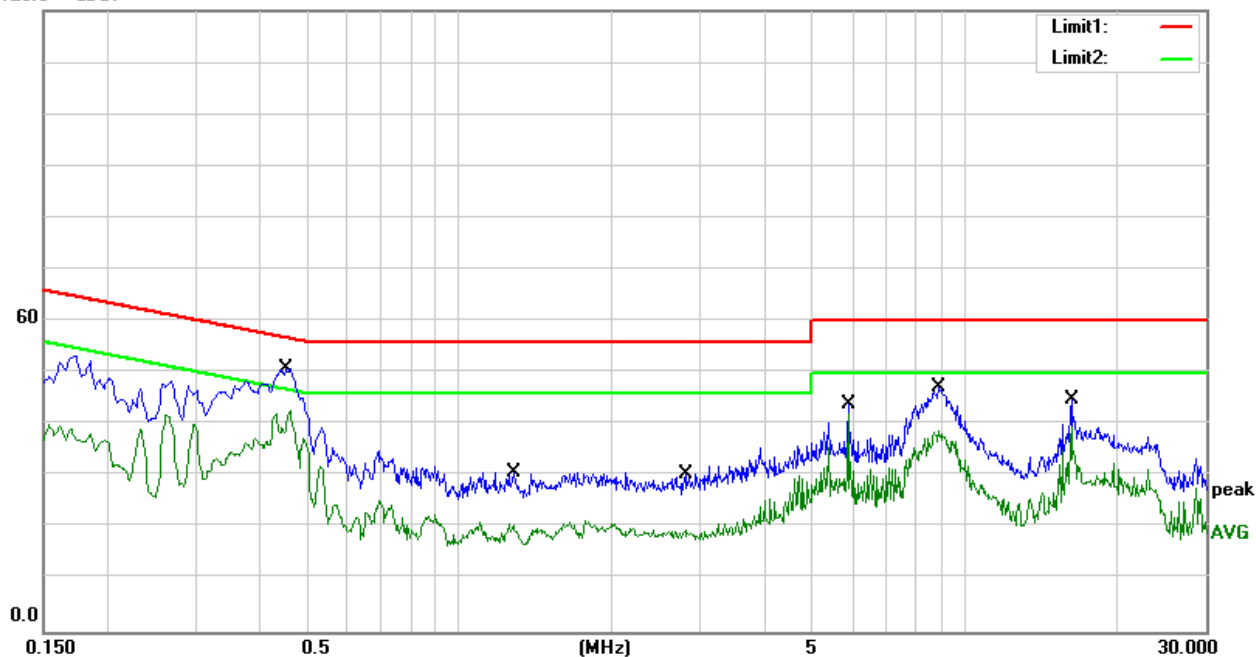
Temperature:	26.5 °C	Relative Humidity:	52%
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode:	Mode 4(Ant 4)		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.4540	30.85	20.14	50.99	56.80	-5.81	QP
0.4540	22.57	20.14	42.71	46.80	-4.09	AVG
1.2820	11.34	19.56	30.90	56.00	-25.10	QP
1.2820	1.44	19.56	21.00	46.00	-25.00	AVG
2.8020	10.37	20.12	30.49	56.00	-25.51	QP
2.8020	0.72	20.12	20.84	46.00	-25.16	AVG
5.8740	23.75	20.34	44.09	60.00	-15.91	QP
5.8740	21.85	20.34	42.19	50.00	-7.81	AVG
8.9140	26.73	20.49	47.22	60.00	-12.78	QP
8.9140	18.29	20.49	38.78	50.00	-11.22	AVG
16.2260	23.93	20.95	44.88	60.00	-15.12	QP
16.2260	18.44	20.95	39.39	50.00	-10.61	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result =Reading + Factor)-Limit

120.0 dBuV





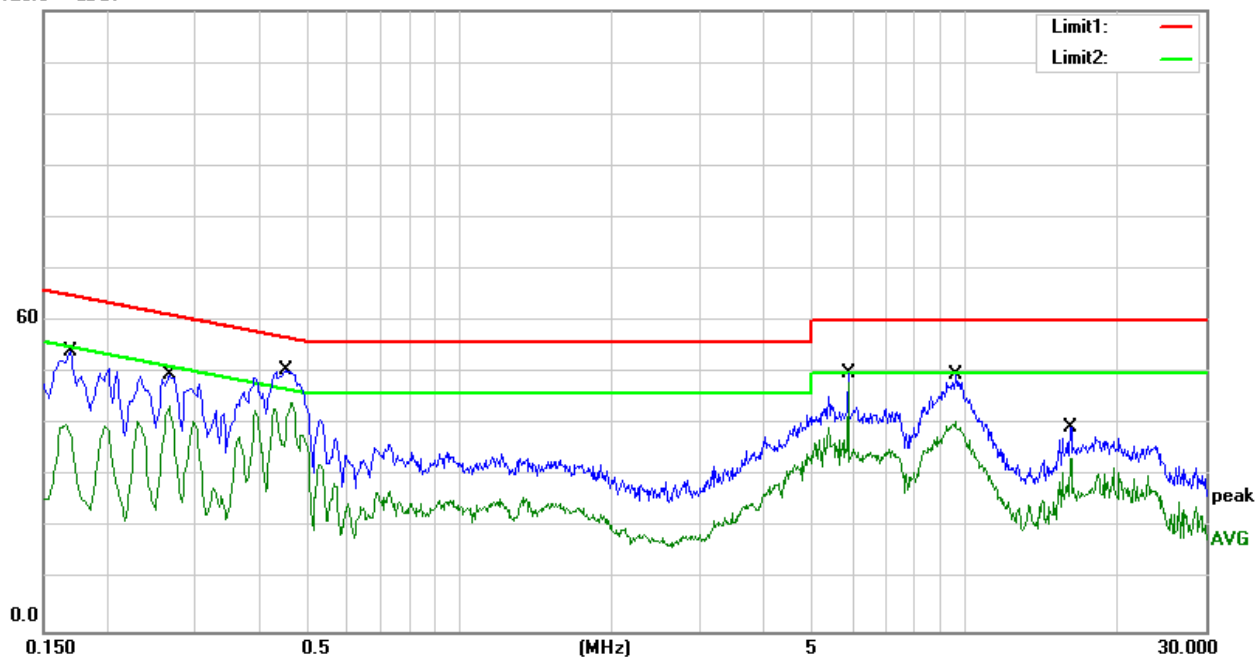
Temperature:	26.5 °C	Relative Humidity:	52%
Test Voltage:	AC 120V/60Hz	Phase:	N
Test Mode:	Mode 4(Ant 4)		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.1700	33.48	20.57	54.05	64.96	-10.91	QP
0.1700	19.36	20.57	39.93	54.96	-15.03	AVG
0.2660	29.55	20.17	49.72	61.24	-11.52	QP
0.2660	23.40	20.17	43.57	51.24	-7.67	AVG
0.4540	30.41	20.14	50.55	56.80	-6.25	QP
0.4540	24.08	20.14	44.22	46.80	-2.58	AVG
5.8780	29.74	20.34	50.08	60.00	-9.92	QP
5.8780	27.90	20.34	48.24	50.00	-1.76	AVG
9.6060	28.98	20.53	49.51	60.00	-10.49	QP
9.6060	20.03	20.53	40.56	50.00	-9.44	AVG
16.1660	18.61	20.96	39.57	60.00	-20.43	QP
16.1660	12.41	20.96	33.37	50.00	-16.63	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result = Reading + Factor) - Limit

120.0 dBuV





3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS

in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205(a)&209(a) limit in the table and according to ANSI C63.10-2013 below has to be followed

LIMITS OF RADIATED EMISSION MEASUREMENT (0.009MHz - 1000MHz)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (1GHz-25 GHz)

FREQUENCY (MHz)	(dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

For Radiated Emission

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak
Start Frequency	1000 MHz(Peak)
Stop Frequency	10th carrier hamonic(Peak)
RB / VB (emission in restricted band)	PK=1MHz / 1MHz, AV=1 MHz /10 Hz

For Band edge

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	Lower Band Edge: 800 to 904 MHz Upper Band Edge: 924 to 1000 MHz
RB / VB (emission in restricted band)	PK=1MHz / 1MHz, AV=1 MHz / 10 Hz



Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz / RB 9kHz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

- The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- The EUT was placed on the top of a rotating table 0.8 meters (above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment shall be 0.8 m (above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then QuasiPeak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

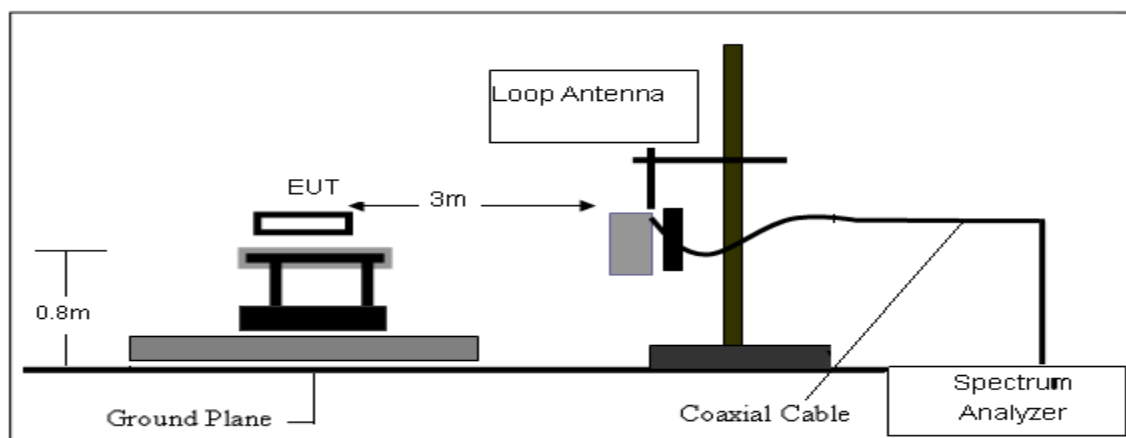
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

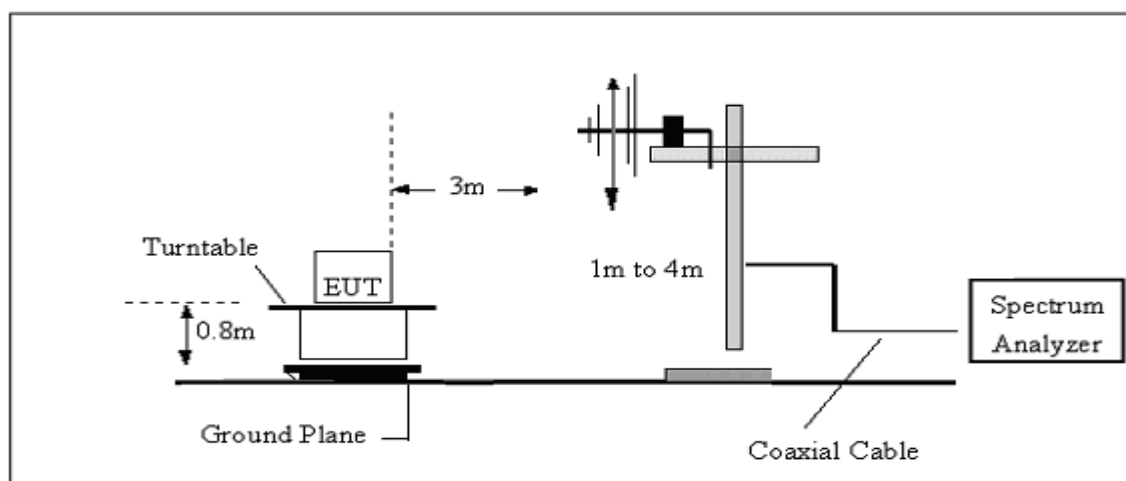
No deviation

3.2.4 TESTSETUP

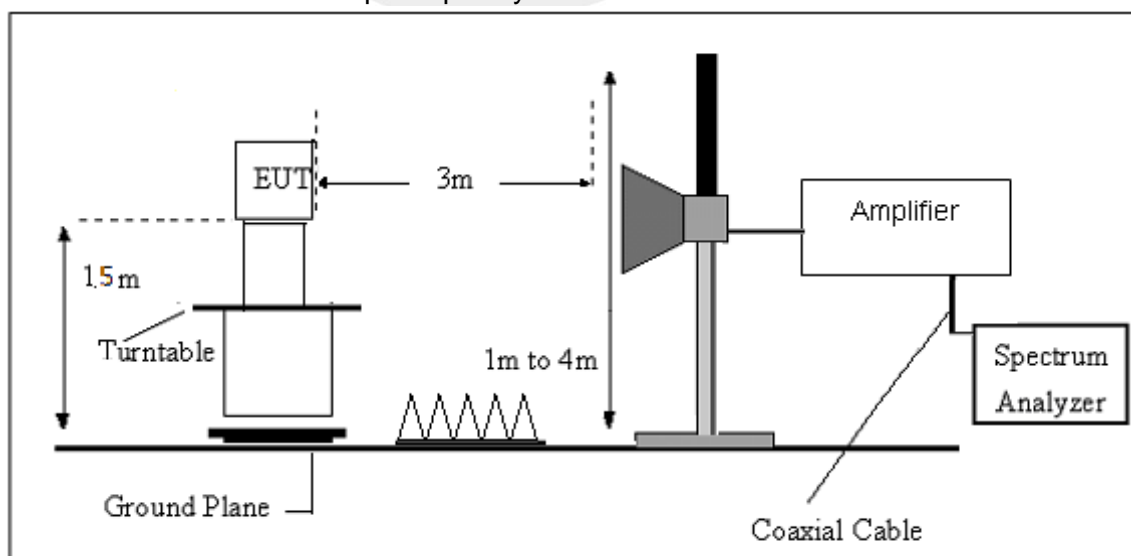
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz





3.2.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

Dense reader mode and Dense reader mode have been tested, only show the worst case in the report

3.2.6 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where

FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

For example

Frequency	FS	RA	AF	CL	AG	Factor
(MHz)	(dBμV/m)	(dBμV/m)	(dB)	(dB)	(dB)	(dB)
300	40	58.1	12.2	1.6	31.9	-18.1

$$\text{Factor} = \text{AF} + \text{CL} - \text{AG}$$



3.2.7 TEST RESULTS

(9KHz-30MHz)

Temperature:	23.4 °C	Relative Humidity:	56%
Test Voltage:	AC 120V/60Hz	Test Mode:	TX Mode

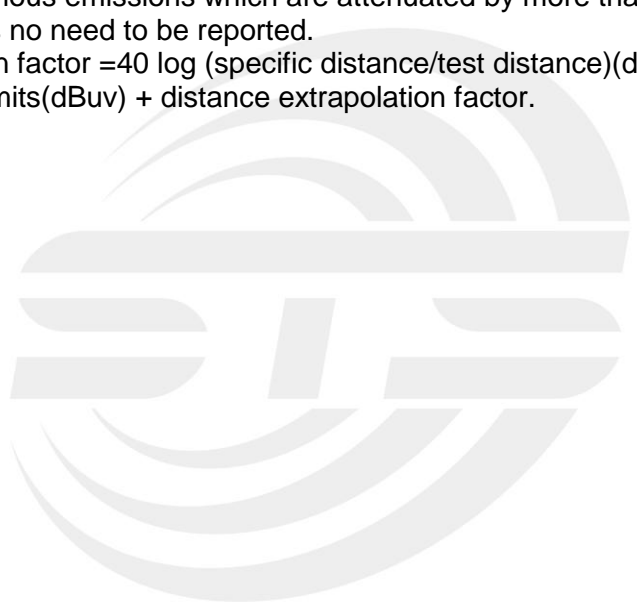
Freq. (MHz)	Reading (dBuV/m)	Limit (dBuV/m)	Margin (dB)	State P/F	Test Result
--	--	--	--	--	
--	--	--	--	--	PASS

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = $40 \log (\text{specific distance/test distance})$ (dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.





(30MHz-1000MHz)

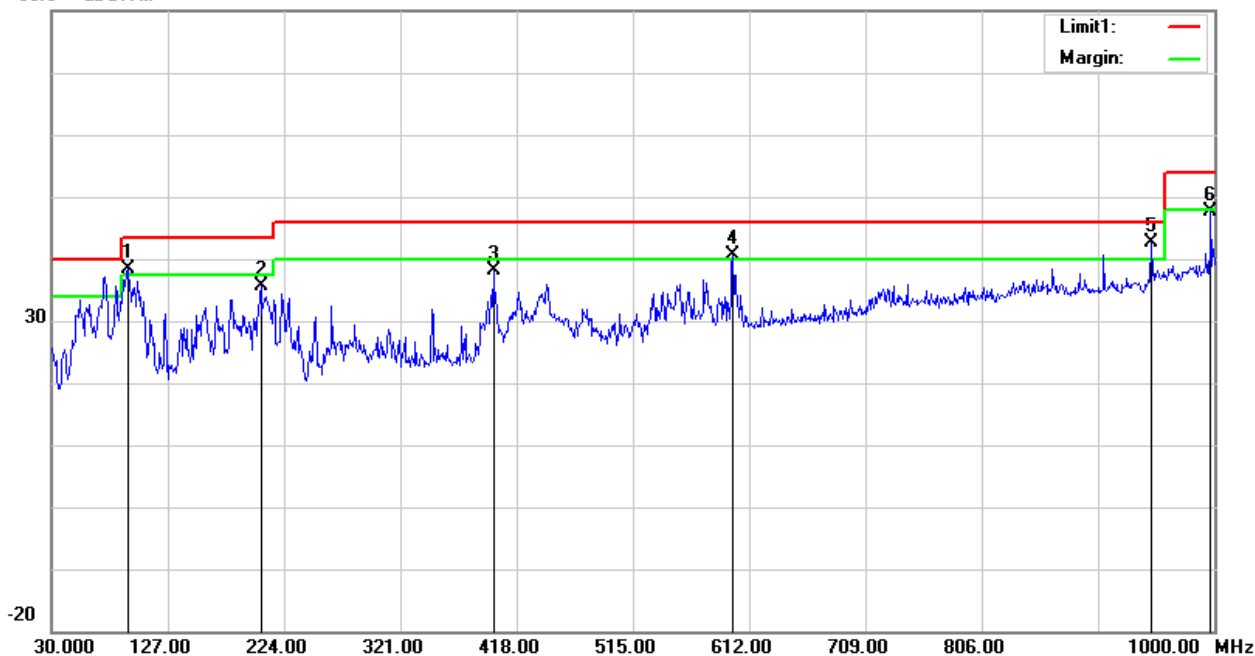
Temperature:	23.4 °C	Relative Humidity:	56%
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	Mode 1/2/3 (Mode 1 worst mode)/Ant 1		

Frequency	Reading	Correct	Result	Limit	Margin	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
94.0200	59.30	-20.89	38.41	43.50	-5.09	QP
204.6000	56.32	-20.80	35.52	43.50	-7.98	QP
398.6000	49.37	-11.20	38.17	46.00	-7.83	QP
598.4200	46.40	-5.85	40.55	46.00	-5.45	QP
947.6200	40.97	1.55	42.52	46.00	-3.48	QP
997.0900	45.58	2.04	47.62	54.00	-6.38	QP

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit

80.0 dBuV/m





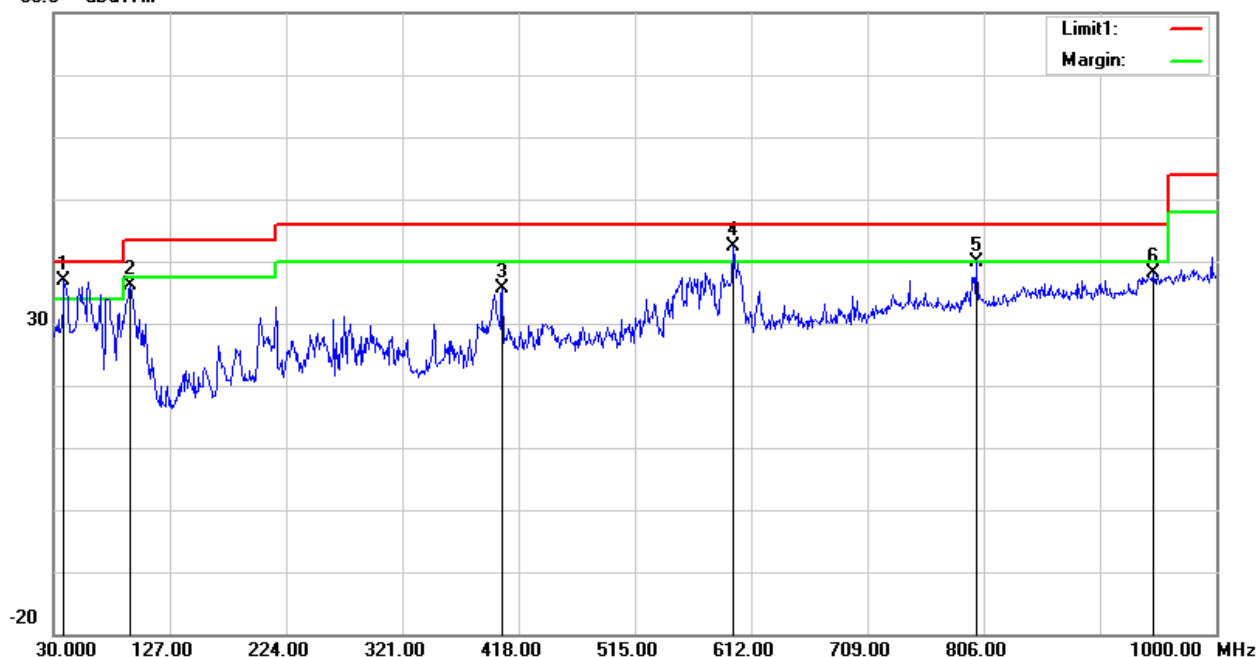
Temperature:	23.4 °C	Relative Humidity:	56%
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode:	Mode 1/2/3(Mode 1 worst mode)/Ant 1		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
38.7300	54.34	-17.36	36.98	40.00	-3.02	QP
94.0200	56.98	-20.89	36.09	43.50	-7.41	QP
404.4200	46.54	-10.88	35.66	46.00	-10.34	QP
596.4800	48.20	-5.84	42.36	46.00	-3.64	QP
800.1800	41.91	-2.05	39.86	46.00	-6.14	QP
947.6200	36.60	1.55	38.15	46.00	-7.85	QP

Remark:

1. Margin = Result (Result = Reading + Factor) – Limit

80.0 dBuV/m





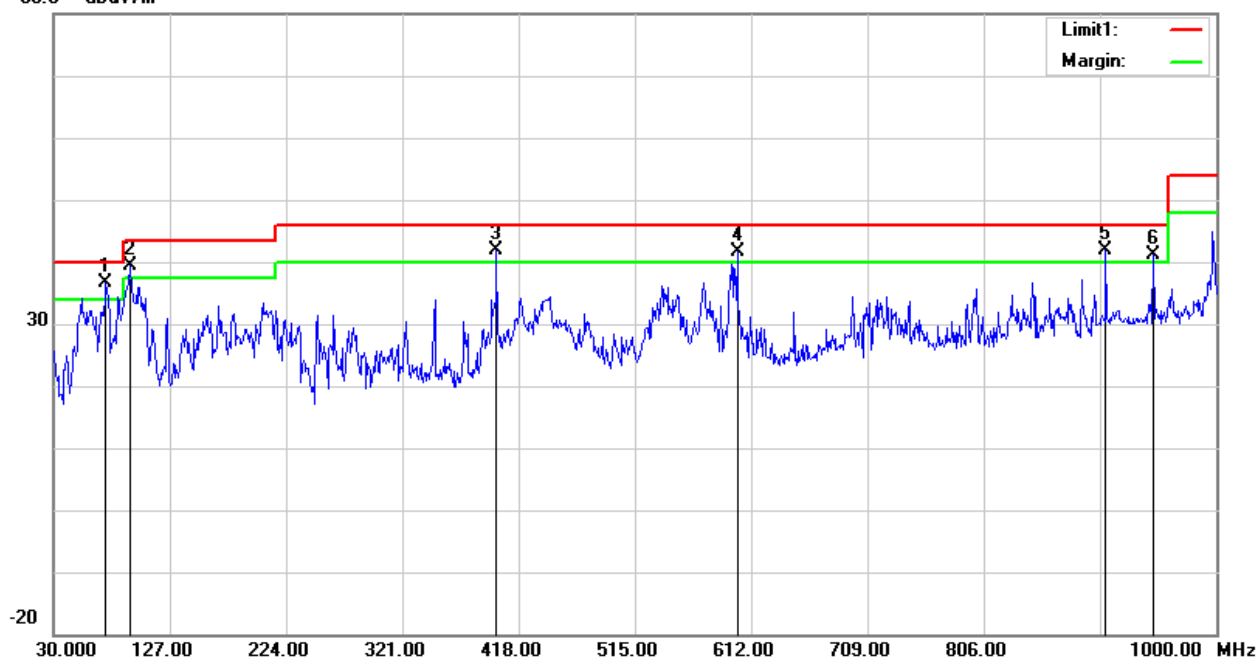
Temperature:	23.4 °C	Relative Humidity:	56%
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	Mode 1/2/3 (Mode 1 worst mode)/Ant 2		

Frequency	Reading	Correct	Result	Limit	Margin	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
73.6500	60.84	-24.20	36.64	40.00	-3.36	QP
94.0200	60.15	-20.89	39.26	43.50	-4.24	QP
399.5700	52.98	-11.16	41.82	46.00	-4.18	QP
600.3600	47.59	-5.84	41.75	46.00	-4.25	QP
907.8500	42.08	-0.24	41.84	46.00	-4.16	QP
947.6200	39.52	1.55	41.07	46.00	-4.93	QP

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit

80.0 dBuV/m





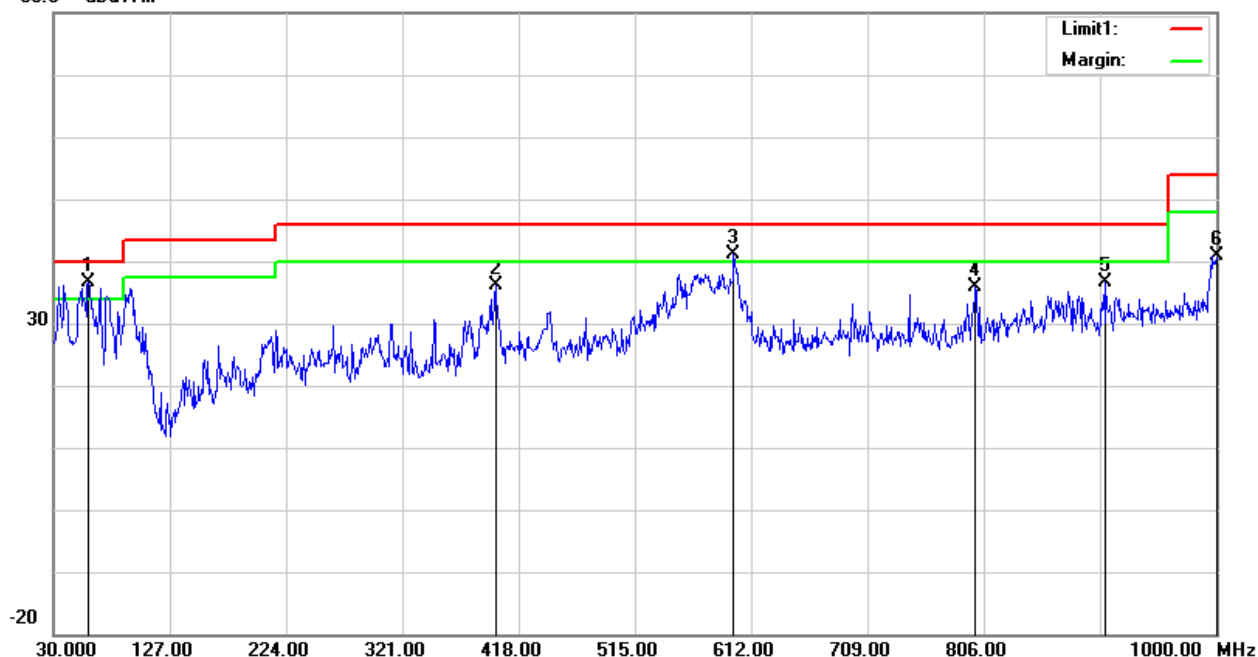
Temperature:	23.4 °C	Relative Humidity:	56%
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode:	Mode 1/2/3(Mode 1 worst mode)/Ant 2		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
59.1000	62.35	-25.73	36.62	40.00	-3.38	QP
398.6000	47.33	-11.20	36.13	46.00	-9.87	QP
597.4500	46.86	-5.85	41.01	46.00	-4.99	QP
799.2100	37.94	-2.04	35.90	46.00	-10.10	QP
907.8500	36.81	-0.24	36.57	46.00	-9.43	QP
1000.0000	38.82	2.04	40.86	54.00	-13.14	QP

Remark:

1. Margin = Result (Result = Reading + Factor) – Limit

80.0 dBuV/m





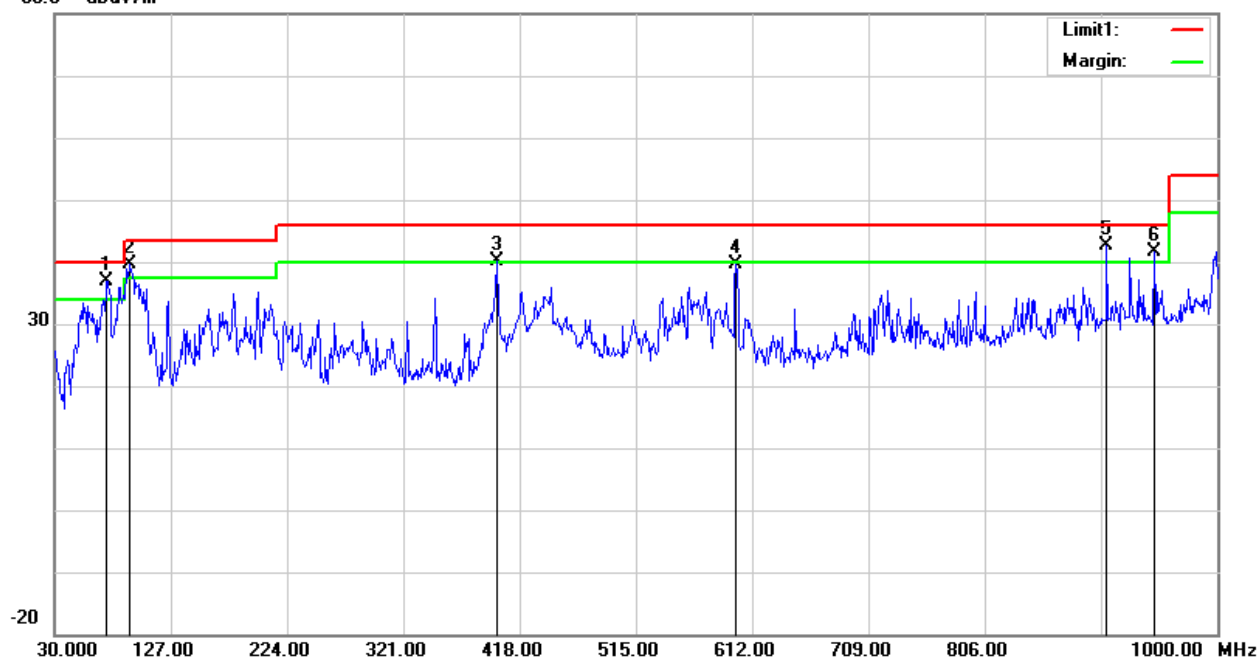
Temperature:	23.4 °C	Relative Humidity:	56%
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	Mode 1/2/3 (Mode 1 worst mode)/Ant 3		

Frequency	Reading	Correct	Result	Limit	Margin	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
73.6500	61.18	-24.20	36.98	40.00	-3.02	QP
93.0500	60.55	-21.04	39.51	43.50	-3.99	QP
398.6000	51.39	-11.20	40.19	46.00	-5.81	QP
598.4200	45.48	-5.85	39.63	46.00	-6.37	QP
907.8500	42.75	-0.24	42.51	46.00	-3.49	QP
947.6200	40.08	1.55	41.63	46.00	-4.37	QP

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit

80.0 dBuV/m





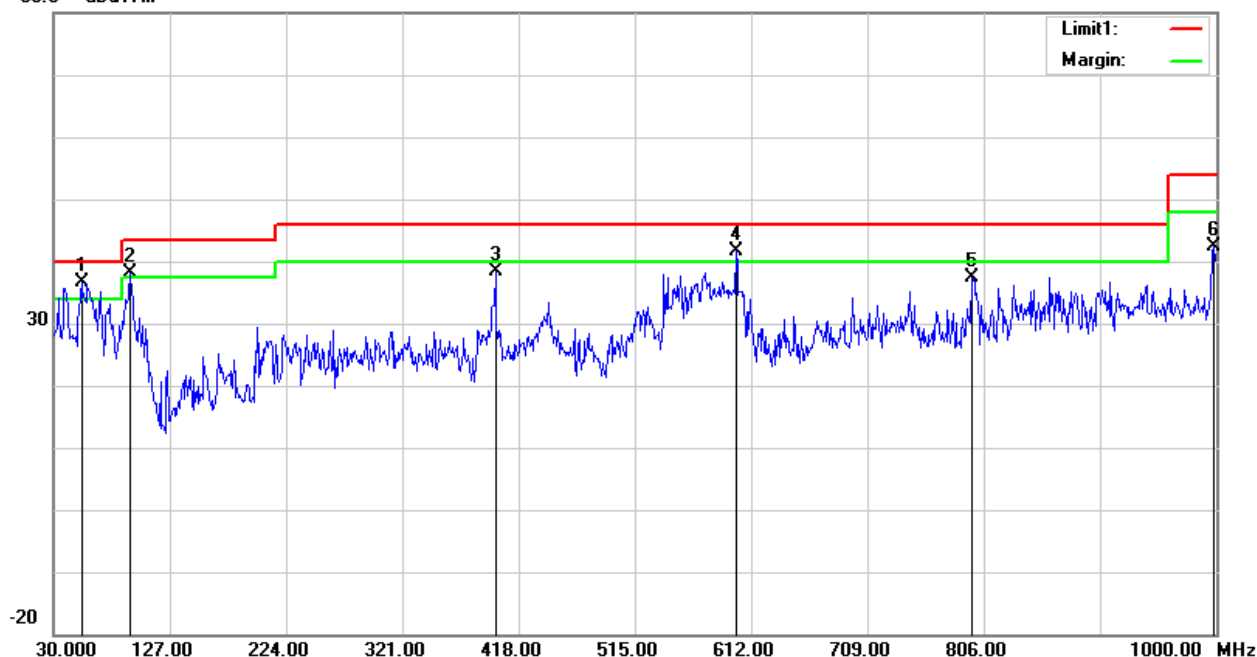
Temperature:	23.4 °C	Relative Humidity:	56%
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode:	Mode 1/2/3(Mode 1 worst mode)/Ant 3		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
53.2800	61.20	-24.47	36.73	40.00	-3.27	QP
94.0200	58.95	-20.89	38.06	43.50	-5.44	QP
398.6000	49.47	-11.20	38.27	46.00	-7.73	QP
599.3900	47.47	-5.84	41.63	46.00	-4.37	QP
796.3000	39.33	-2.02	37.31	46.00	-8.69	QP
998.0600	40.22	2.04	42.26	54.00	-11.74	QP

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit

80.0 dBuV/m





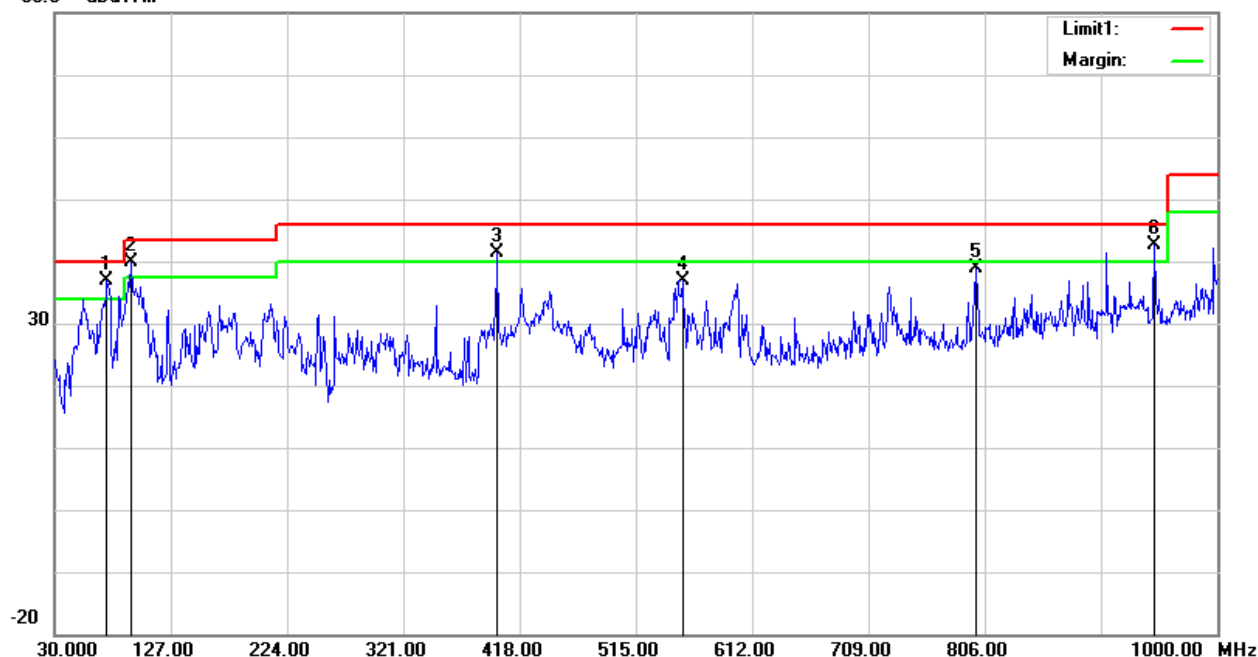
Temperature:	23.4 °C	Relative Humidity:	56%
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode:	Mode 1/2/3 (Mode 1 worst mode)/Ant 4		

Frequency	Reading	Correct	Result	Limit	Margin	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
73.6500	61.12	-24.20	36.92	40.00	-3.08	QP
94.0200	60.74	-20.89	39.85	43.50	-3.65	QP
399.5700	52.60	-11.16	41.44	46.00	-4.56	QP
553.8000	42.56	-5.67	36.89	46.00	-9.11	QP
798.2400	41.02	-2.03	38.99	46.00	-7.01	QP
947.6200	41.14	1.55	42.69	46.00	-3.31	QP

Remark:

1. Margin = Result (Result =Reading + Factor)-Limit

80.0 dBuV/m





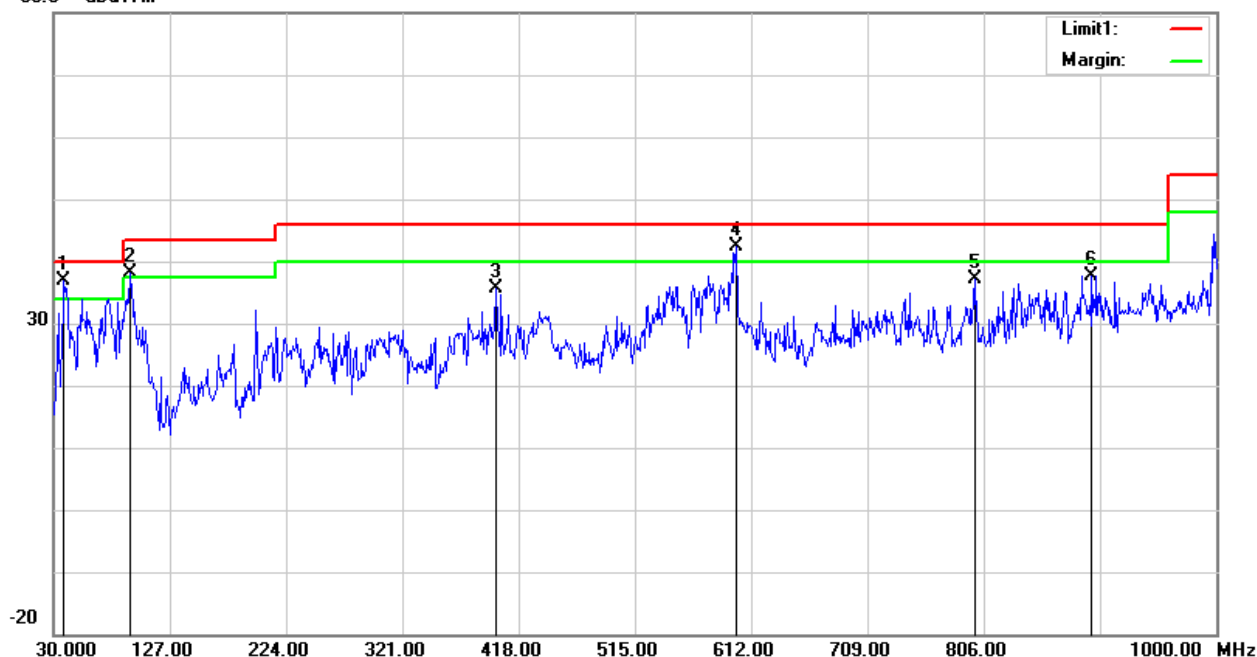
Temperature:	23.4 °C	Relative Humidity:	56%
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode:	Mode 1/2/3(Mode 1 worst mode)/Ant 4		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
38.7300	54.20	-17.36	36.84	40.00	-3.16	QP
94.0200	58.97	-20.89	38.08	43.50	-5.42	QP
399.5700	46.69	-11.16	35.53	46.00	-10.47	QP
599.3900	48.33	-5.84	42.49	46.00	-3.51	QP
798.2400	39.23	-2.03	37.20	46.00	-8.80	QP
896.2100	38.14	-0.54	37.60	46.00	-8.40	QP

Remark:

1. Margin = Result (Result = Reading + Factor) – Limit

80.0 dBuV/m





(Above 1GHz) Restricted band and Spurious emission Requirements

Ant 1 Low Channel

				Antenna	Corrected	Emission				
Frequency	Reading	Amplifier	Loss	Factor	Factor	Level	Limits	Margin	Detector	Comment
(MHz)	(dBμV)	(dB)	(dB)	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type	
Low Channel (902.75 MHz)										
1221.95	61.62	44.70	6.70	28.20	-9.80	51.82	74.00	-22.18	PK	Vertical
1221.95	50.40	44.70	6.70	28.20	-9.80	40.60	54.00	-13.40	AV	Vertical
1221.85	61.23	44.70	6.70	28.20	-9.80	51.43	74.00	-22.57	PK	Horizontal
1221.85	50.78	44.70	6.70	28.20	-9.80	40.98	54.00	-13.02	AV	Horizontal
1805.70	58.12	44.20	9.04	31.60	-3.56	54.56	74.00	-19.44	PK	Vertical
1805.70	49.40	44.20	9.04	31.60	-3.56	45.84	54.00	-8.16	AV	Vertical
1805.72	59.27	44.20	9.04	31.60	-3.56	55.71	74.00	-18.29	PK	Horizontal
1805.72	50.33	44.20	9.04	31.60	-3.56	46.77	54.00	-7.23	AV	Horizontal
2005.98	48.25	44.20	9.86	32.00	-2.34	45.91	74.00	-28.09	PK	Vertical
2005.98	39.74	44.20	9.86	32.00	-2.34	37.40	54.00	-16.60	AV	Vertical
2006.01	48.31	44.20	9.86	32.00	-2.34	45.97	74.00	-28.03	PK	Horizontal
2006.01	38.51	44.20	9.86	32.00	-2.34	36.17	54.00	-17.83	AV	Horizontal
2708.22	54.59	43.50	11.40	35.50	3.40	57.99	74.00	-16.01	PK	Vertical
2708.22	44.02	43.50	11.40	35.50	3.40	47.42	54.00	-6.58	AV	Vertical
2708.22	53.71	43.50	11.40	35.50	3.40	57.11	74.00	-16.89	PK	Horizontal
2708.15	44.32	43.50	11.40	35.50	3.40	47.72	54.00	-6.28	AV	Horizontal



Mid Channel

			Antenna		Corrected	Emission				
Frequency	Reading	Amplifier	Loss	Factor	Factor	Level	Limits	Margin	Detector	
(MHz)	(dBμV)	(dB)	(dB)	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type	Comment
Mid Channel (914.75 MHz)										
1225.44	61.76	44.70	6.70	28.20	-9.80	51.96	74.00	-22.04	PK	Vertical
1225.44	50.37	44.70	6.70	28.20	-9.80	40.57	54.00	-13.43	AV	Vertical
1225.40	62.27	44.70	6.70	28.20	-9.80	52.47	74.00	-21.53	PK	Horizontal
1225.40	50.58	44.70	6.70	28.20	-9.80	40.78	54.00	-13.22	AV	Horizontal
1829.62	58.99	44.20	9.04	31.60	-3.56	55.43	74.00	-18.57	PK	Vertical
1829.62	49.88	44.20	9.04	31.60	-3.56	46.32	54.00	-7.68	AV	Vertical
1829.70	58.96	44.20	9.04	31.60	-3.56	55.40	74.00	-18.60	PK	Horizontal
1829.70	50.50	44.20	9.04	31.60	-3.56	46.94	54.00	-7.06	AV	Horizontal
2011.83	48.43	44.20	9.86	32.00	-2.34	46.09	74.00	-27.91	PK	Vertical
2011.83	39.32	44.20	9.86	32.00	-2.34	36.98	54.00	-17.02	AV	Vertical
2011.78	47.59	44.20	9.86	32.00	-2.34	45.25	74.00	-28.75	PK	Horizontal
2011.78	39.38	44.20	9.86	32.00	-2.34	37.04	54.00	-16.96	AV	Horizontal
2744.17	54.75	43.50	11.40	35.50	3.40	58.15	74.00	-15.85	PK	Vertical
2744.17	44.06	43.50	11.40	35.50	3.40	47.46	54.00	-6.54	AV	Vertical
2744.14	53.54	43.50	11.40	35.50	3.40	56.94	74.00	-17.06	PK	Horizontal
2744.14	44.84	43.50	11.40	35.50	3.40	48.24	54.00	-5.76	AV	Horizontal



High Channel

High Channel (927.25 MHz)										
Frequency (MHz)	Reading (dBμV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Corrected Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
1229.56	61.22	44.70	6.70	28.20	-9.80	51.42	74.00	-22.58	PK	Vertical
1229.56	50.57	44.70	6.70	28.20	-9.80	40.77	54.00	-13.23	AV	Vertical
1229.59	61.69	44.70	6.70	28.20	-9.80	51.89	74.00	-22.11	PK	Horizontal
1229.59	50.07	44.70	6.70	28.20	-9.80	40.27	54.00	-13.73	AV	Horizontal
1854.69	59.21	44.20	9.04	31.60	-3.56	55.65	74.00	-18.35	PK	Vertical
1854.69	50.27	44.20	9.04	31.60	-3.56	46.71	54.00	-7.29	AV	Vertical
1854.71	59.03	44.20	9.04	31.60	-3.56	55.47	74.00	-18.53	PK	Horizontal
1854.71	50.36	44.20	9.04	31.60	-3.56	46.80	54.00	-7.20	AV	Horizontal
2018.67	49.39	44.20	9.86	32.00	-2.34	47.05	74.00	-26.95	PK	Vertical
2018.67	40.24	44.20	9.86	32.00	-2.34	37.90	54.00	-16.10	AV	Vertical
2018.61	47.37	44.20	9.86	32.00	-2.34	45.03	74.00	-28.97	PK	Horizontal
2018.61	38.14	44.20	9.86	32.00	-2.34	35.80	54.00	-18.20	AV	Horizontal
2781.67	54.67	43.50	11.40	35.50	3.40	58.07	74.00	-15.93	PK	Vertical
2781.67	43.90	43.50	11.40	35.50	3.40	47.30	54.00	-6.70	AV	Vertical
2781.67	54.62	43.50	11.40	35.50	3.40	58.02	74.00	-15.98	PK	Horizontal
2781.67	44.59	43.50	11.40	35.50	3.40	47.99	54.00	-6.01	AV	Horizontal



Ant 2 Low Channel

Frequency (MHz)	Reading (dBμV)	Amplifier (dB)	Loss (dB)	Antenna	Corrected	Emission		Margin (dB)	Detector Type	Comment
				Factor	Factor	Level	Limits			
				(dB/m)	(dB)	(dBμV/m)	(dBμV/m)			
Low Channel (902.75 MHz)										
1221.89	60.84	44.70	6.70	28.20	-9.80	51.04	74.00	-22.96	PK	Vertical
1221.89	50.30	44.70	6.70	28.20	-9.80	40.50	54.00	-13.50	AV	Vertical
1221.90	62.17	44.70	6.70	28.20	-9.80	52.37	74.00	-21.63	PK	Horizontal
1221.90	51.28	44.70	6.70	28.20	-9.80	41.48	54.00	-12.52	AV	Horizontal
1805.64	58.64	44.20	9.04	31.60	-3.56	55.08	74.00	-18.92	PK	Vertical
1805.64	50.20	44.20	9.04	31.60	-3.56	46.64	54.00	-7.36	AV	Vertical
1805.70	58.80	44.20	9.04	31.60	-3.56	55.24	74.00	-18.76	PK	Horizontal
1805.70	50.10	44.20	9.04	31.60	-3.56	46.54	54.00	-7.46	AV	Horizontal
2006.05	48.75	44.20	9.86	32.00	-2.34	46.41	74.00	-27.59	PK	Vertical
2006.05	40.39	44.20	9.86	32.00	-2.34	38.05	54.00	-15.95	AV	Vertical
2006.04	48.23	44.20	9.86	32.00	-2.34	45.89	74.00	-28.11	PK	Horizontal
2006.04	38.74	44.20	9.86	32.00	-2.34	36.40	54.00	-17.60	AV	Horizontal
2708.16	54.70	43.50	11.40	35.50	3.40	58.10	74.00	-15.90	PK	Vertical
2708.16	44.77	43.50	11.40	35.50	3.40	48.17	54.00	-5.83	AV	Vertical
2708.13	53.81	43.50	11.40	35.50	3.40	57.21	74.00	-16.79	PK	Horizontal
2708.22	44.38	43.50	11.40	35.50	3.40	47.78	54.00	-6.22	AV	Horizontal



Mid Channel

Frequency	Reading	Amplifier	Loss	Antenna Factor	Corrected Factor	Emission Level	Limits	Margin	Detector	
(MHz)	(dBμV)	(dB)	(dB)	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type	Comment
Mid Channel (914.75 MHz)										
1225.46	61.23	44.70	6.70	28.20	-9.80	51.43	74.00	-22.57	PK	Vertical
1225.46	51.65	44.70	6.70	28.20	-9.80	41.85	54.00	-12.15	AV	Vertical
1225.40	61.77	44.70	6.70	28.20	-9.80	51.97	74.00	-22.03	PK	Horizontal
1225.40	50.48	44.70	6.70	28.20	-9.80	40.68	54.00	-13.32	AV	Horizontal
1829.70	59.05	44.20	9.04	31.60	-3.56	55.49	74.00	-18.51	PK	Vertical
1829.70	50.47	44.20	9.04	31.60	-3.56	46.91	54.00	-7.09	AV	Vertical
1829.69	59.09	44.20	9.04	31.60	-3.56	55.53	74.00	-18.47	PK	Horizontal
1829.69	50.06	44.20	9.04	31.60	-3.56	46.50	54.00	-7.50	AV	Horizontal
2011.84	48.49	44.20	9.86	32.00	-2.34	46.15	74.00	-27.85	PK	Vertical
2011.84	39.76	44.20	9.86	32.00	-2.34	37.42	54.00	-16.58	AV	Vertical
2011.79	47.96	44.20	9.86	32.00	-2.34	45.62	74.00	-28.38	PK	Horizontal
2011.79	39.46	44.20	9.86	32.00	-2.34	37.12	54.00	-16.88	AV	Horizontal
2744.15	54.90	43.50	11.40	35.50	3.40	58.30	74.00	-15.70	PK	Vertical
2744.15	44.14	43.50	11.40	35.50	3.40	47.54	54.00	-6.46	AV	Vertical
2744.17	54.92	43.50	11.40	35.50	3.40	58.32	74.00	-15.68	PK	Horizontal
2744.17	44.35	43.50	11.40	35.50	3.40	47.75	54.00	-6.25	AV	Horizontal



High Channel

Frequency	Reading	Amplifier	Loss	Antenna Factor	Corrected Factor	Emission Level	Limits	Margin	Detector	
(MHz)	(dBμV)	(dB)	(dB)	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type	Comment
High Channel (927.25 MHz)										
1229.64	62.23	44.70	6.70	28.20	-9.80	52.43	74.00	-21.57	PK	Vertical
1229.64	50.09	44.70	6.70	28.20	-9.80	40.29	54.00	-13.71	AV	Vertical
1229.61	61.21	44.70	6.70	28.20	-9.80	51.41	74.00	-22.59	PK	Horizontal
1229.61	51.18	44.70	6.70	28.20	-9.80	41.38	54.00	-12.62	AV	Horizontal
1854.71	59.53	44.20	9.04	31.60	-3.56	55.97	74.00	-18.03	PK	Vertical
1854.71	49.41	44.20	9.04	31.60	-3.56	45.85	54.00	-8.15	AV	Vertical
1854.71	59.47	44.20	9.04	31.60	-3.56	55.91	74.00	-18.09	PK	Horizontal
1854.71	50.31	44.20	9.04	31.60	-3.56	46.75	54.00	-7.25	AV	Horizontal
2018.61	49.16	44.20	9.86	32.00	-2.34	46.82	74.00	-27.18	PK	Vertical
2018.61	39.56	44.20	9.86	32.00	-2.34	37.22	54.00	-16.78	AV	Vertical
2018.61	47.13	44.20	9.86	32.00	-2.34	44.79	74.00	-29.21	PK	Horizontal
2018.61	38.38	44.20	9.86	32.00	-2.34	36.04	54.00	-17.96	AV	Horizontal
2781.65	54.06	43.50	11.40	35.50	3.40	57.46	74.00	-16.54	PK	Vertical
2781.65	44.93	43.50	11.40	35.50	3.40	48.33	54.00	-5.67	AV	Vertical
2781.65	54.30	43.50	11.40	35.50	3.40	57.70	74.00	-16.30	PK	Horizontal
2781.65	44.69	43.50	11.40	35.50	3.40	48.09	54.00	-5.91	AV	Horizontal



Ant 3 Low Channel

			Antenna		Corrected	Emission				
Frequency	Reading	Amplifier	Loss	Factor	Factor	Level	Limits	Margin	Detector	Comment
(MHz)	(dBμV)	(dB)	(dB)	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type	
Low Channel (902.75 MHz)										
1221.90	61.04	44.70	6.70	28.20	-9.80	51.24	74.00	-22.76	PK	Vertical
1221.90	51.70	44.70	6.70	28.20	-9.80	41.90	54.00	-12.10	AV	Vertical
1221.90	61.45	44.70	6.70	28.20	-9.80	51.65	74.00	-22.35	PK	Horizontal
1221.90	50.39	44.70	6.70	28.20	-9.80	40.59	54.00	-13.41	AV	Horizontal
1805.64	58.27	44.20	9.04	31.60	-3.56	54.71	74.00	-19.29	PK	Vertical
1805.64	50.41	44.20	9.04	31.60	-3.56	46.85	54.00	-7.15	AV	Vertical
1805.62	59.54	44.20	9.04	31.60	-3.56	55.98	74.00	-18.02	PK	Horizontal
1805.62	50.13	44.20	9.04	31.60	-3.56	46.57	54.00	-7.43	AV	Horizontal
2005.98	49.30	44.20	9.86	32.00	-2.34	46.96	74.00	-27.04	PK	Vertical
2005.98	39.50	44.20	9.86	32.00	-2.34	37.16	54.00	-16.84	AV	Vertical
2006.00	47.78	44.20	9.86	32.00	-2.34	45.44	74.00	-28.56	PK	Horizontal
2006.00	39.48	44.20	9.86	32.00	-2.34	37.14	54.00	-16.86	AV	Horizontal
2708.21	54.67	43.50	11.40	35.50	3.40	58.07	74.00	-15.93	PK	Vertical
2708.21	44.72	43.50	11.40	35.50	3.40	48.12	54.00	-5.88	AV	Vertical
2708.17	54.44	43.50	11.40	35.50	3.40	57.84	74.00	-16.16	PK	Horizontal
2708.17	43.85	43.50	11.40	35.50	3.40	47.25	54.00	-6.75	AV	Horizontal



Mid Channel

Mid Channel (914.75 MHz)										
1225.42	61.44	44.70	6.70	28.20	-9.80	51.64	74.00	-22.36	PK	Vertical
1225.42	50.34	44.70	6.70	28.20	-9.80	40.54	54.00	-13.46	AV	Vertical
1225.48	61.36	44.70	6.70	28.20	-9.80	51.56	74.00	-22.44	PK	Horizontal
1225.48	50.43	44.70	6.70	28.20	-9.80	40.63	54.00	-13.37	AV	Horizontal
1829.67	58.46	44.20	9.04	31.60	-3.56	54.90	74.00	-19.10	PK	Vertical
1829.67	49.34	44.20	9.04	31.60	-3.56	45.78	54.00	-8.22	AV	Vertical
1829.65	58.26	44.20	9.04	31.60	-3.56	54.70	74.00	-19.30	PK	Horizontal
1829.65	49.60	44.20	9.04	31.60	-3.56	46.04	54.00	-7.96	AV	Horizontal
2011.87	48.17	44.20	9.86	32.00	-2.34	45.83	74.00	-28.17	PK	Vertical
2011.87	40.26	44.20	9.86	32.00	-2.34	37.92	54.00	-16.08	AV	Vertical
2011.77	47.41	44.20	9.86	32.00	-2.34	45.07	74.00	-28.93	PK	Horizontal
2011.77	39.00	44.20	9.86	32.00	-2.34	36.66	54.00	-17.34	AV	Horizontal
2744.14	54.56	43.50	11.40	35.50	3.40	57.96	74.00	-16.04	PK	Vertical
2744.14	43.98	43.50	11.40	35.50	3.40	47.38	54.00	-6.62	AV	Vertical
2744.16	53.81	43.50	11.40	35.50	3.40	57.21	74.00	-16.79	PK	Horizontal
2744.16	43.62	43.50	11.40	35.50	3.40	47.02	54.00	-6.98	AV	Horizontal



High Channel

High Channel (927.25 MHz)										
1229.54	62.13	44.70	6.70	28.20	-9.80	52.33	74.00	-21.67	PK	Vertical
1229.54	50.54	44.70	6.70	28.20	-9.80	40.74	54.00	-13.26	AV	Vertical
1229.61	61.65	44.70	6.70	28.20	-9.80	51.85	74.00	-22.15	PK	Horizontal
1229.61	51.02	44.70	6.70	28.20	-9.80	41.22	54.00	-12.78	AV	Horizontal
1854.67	59.09	44.20	9.04	31.60	-3.56	55.53	74.00	-18.47	PK	Vertical
1854.67	49.66	44.20	9.04	31.60	-3.56	46.10	54.00	-7.90	AV	Vertical
1854.67	58.89	44.20	9.04	31.60	-3.56	55.33	74.00	-18.67	PK	Horizontal
1854.67	49.63	44.20	9.04	31.60	-3.56	46.07	54.00	-7.93	AV	Horizontal
2018.65	49.32	44.20	9.86	32.00	-2.34	46.98	74.00	-27.02	PK	Vertical
2018.65	40.24	44.20	9.86	32.00	-2.34	37.90	54.00	-16.10	AV	Vertical
2018.58	47.12	44.20	9.86	32.00	-2.34	44.78	74.00	-29.22	PK	Horizontal
2018.58	38.47	44.20	9.86	32.00	-2.34	36.13	54.00	-17.87	AV	Horizontal
2781.69	54.59	43.50	11.40	35.50	3.40	57.99	74.00	-16.01	PK	Vertical
2781.69	44.84	43.50	11.40	35.50	3.40	48.24	54.00	-5.76	AV	Vertical
2781.73	53.93	43.50	11.40	35.50	3.40	57.33	74.00	-16.67	PK	Horizontal
2781.73	43.92	43.50	11.40	35.50	3.40	47.32	54.00	-6.68	AV	Horizontal



Ant 4 Low Channel

Frequency	Reading	Amplifier	Loss	Antenna	Corrected	Emission	Limits	Margin	Detector	Comment
(MHz)	(dBμV)	(dB)	(dB)	Factor	Factor	Level	(dBμV/m)	(dBμV/m)	(dB)	Type
Low Channel (902.75 MHz)										
1221.94	61.86	44.70	6.70	28.20	-9.80	52.06	74.00	-21.94	PK	Vertical
1221.94	51.02	44.70	6.70	28.20	-9.80	41.22	54.00	-12.78	AV	Vertical
1221.90	61.02	44.70	6.70	28.20	-9.80	51.22	74.00	-22.78	PK	Horizontal
1221.90	51.00	44.70	6.70	28.20	-9.80	41.20	54.00	-12.80	AV	Horizontal
1805.70	58.35	44.20	9.04	31.60	-3.56	54.79	74.00	-19.21	PK	Vertical
1805.70	49.72	44.20	9.04	31.60	-3.56	46.16	54.00	-7.84	AV	Vertical
1805.68	58.62	44.20	9.04	31.60	-3.56	55.06	74.00	-18.94	PK	Horizontal
1805.68	49.69	44.20	9.04	31.60	-3.56	46.13	54.00	-7.87	AV	Horizontal
2006.05	48.60	44.20	9.86	32.00	-2.34	46.26	74.00	-27.74	PK	Vertical
2006.05	39.36	44.20	9.86	32.00	-2.34	37.02	54.00	-16.98	AV	Vertical
2006.01	47.47	44.20	9.86	32.00	-2.34	45.13	74.00	-28.87	PK	Horizontal
2006.01	38.97	44.20	9.86	32.00	-2.34	36.63	54.00	-17.37	AV	Horizontal
2708.13	53.70	43.50	11.40	35.50	3.40	57.10	74.00	-16.90	PK	Vertical
2708.13	44.86	43.50	11.40	35.50	3.40	48.26	54.00	-5.74	AV	Vertical
2708.17	54.52	43.50	11.40	35.50	3.40	57.92	74.00	-16.08	PK	Horizontal
2708.17	44.08	43.50	11.40	35.50	3.40	47.48	54.00	-6.52	AV	Horizontal



Mid Channel

Frequency	Reading	Amplifier	Loss	Antenna	Corrected	Emission				
(MHz)	(dBμV)	(dB)	(dB)	Factor	Factor	Level	Limits	Margin	Detector	Comment
				(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type	
Mid Channel (914.75 MHz)										
1225.46	61.92	44.70	6.70	28.20	-9.80	52.12	74.00	-21.88	PK	Vertical
1225.46	50.52	44.70	6.70	28.20	-9.80	40.72	54.00	-13.28	AV	Vertical
1225.38	62.14	44.70	6.70	28.20	-9.80	52.34	74.00	-21.66	PK	Horizontal
1225.38	51.27	44.70	6.70	28.20	-9.80	41.47	54.00	-12.53	AV	Horizontal
1829.62	59.20	44.20	9.04	31.60	-3.56	55.64	74.00	-18.36	PK	Vertical
1829.62	50.13	44.20	9.04	31.60	-3.56	46.57	54.00	-7.43	AV	Vertical
1829.65	59.04	44.20	9.04	31.60	-3.56	55.48	74.00	-18.52	PK	Horizontal
1829.65	49.78	44.20	9.04	31.60	-3.56	46.22	54.00	-7.78	AV	Horizontal
2011.83	48.31	44.20	9.86	32.00	-2.34	45.97	74.00	-28.03	PK	Vertical
2011.83	39.14	44.20	9.86	32.00	-2.34	36.80	54.00	-17.20	AV	Vertical
2011.86	47.98	44.20	9.86	32.00	-2.34	45.64	74.00	-28.36	PK	Horizontal
2011.86	38.41	44.20	9.86	32.00	-2.34	36.07	54.00	-17.93	AV	Horizontal
2744.22	53.61	43.50	11.40	35.50	3.40	57.01	74.00	-16.99	PK	Vertical
2744.22	44.17	43.50	11.40	35.50	3.40	47.57	54.00	-6.43	AV	Vertical
2744.23	54.00	43.50	11.40	35.50	3.40	57.40	74.00	-16.60	PK	Horizontal
2744.23	44.47	43.50	11.40	35.50	3.40	47.87	54.00	-6.13	AV	Horizontal



High Channel

Frequency	Reading	Amplifier	Loss	Antenna Factor	Corrected Factor	Emission Level	Limits	Margin	Detector	
(MHz)	(dBμV)	(dB)	(dB)	(dB/m)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	Type	Comment
High Channel (927.25 MHz)										
1229.53	61.16	44.70	6.70	28.20	-9.80	51.36	74.00	-22.64	PK	Vertical
1229.53	50.63	44.70	6.70	28.20	-9.80	40.83	54.00	-13.17	AV	Vertical
1229.56	60.91	44.70	6.70	28.20	-9.80	51.11	74.00	-22.89	PK	Horizontal
1229.56	50.23	44.70	6.70	28.20	-9.80	40.43	54.00	-13.57	AV	Horizontal
1854.64	59.33	44.20	9.04	31.60	-3.56	55.77	74.00	-18.23	PK	Vertical
1854.64	49.30	44.20	9.04	31.60	-3.56	45.74	54.00	-8.26	AV	Vertical
1854.72	58.29	44.20	9.04	31.60	-3.56	54.73	74.00	-19.27	PK	Horizontal
1854.72	49.93	44.20	9.04	31.60	-3.56	46.37	54.00	-7.63	AV	Horizontal
2018.62	48.94	44.20	9.86	32.00	-2.34	46.60	74.00	-27.40	PK	Vertical
2018.62	40.38	44.20	9.86	32.00	-2.34	38.04	54.00	-15.96	AV	Vertical
2018.58	48.08	44.20	9.86	32.00	-2.34	45.74	74.00	-28.26	PK	Horizontal
2018.58	38.15	44.20	9.86	32.00	-2.34	35.81	54.00	-18.19	AV	Horizontal
2781.65	53.67	43.50	11.40	35.50	3.40	57.07	74.00	-16.93	PK	Vertical
2781.65	43.93	43.50	11.40	35.50	3.40	47.33	54.00	-6.67	AV	Vertical
2781.73	53.98	43.50	11.40	35.50	3.40	57.38	74.00	-16.62	PK	Horizontal
2781.73	44.90	43.50	11.40	35.50	3.40	48.30	54.00	-5.70	AV	Horizontal

Note:

1) Scan with **Dense reader mode** and **Single reader mode**, the worst case is **Dense reader mode**

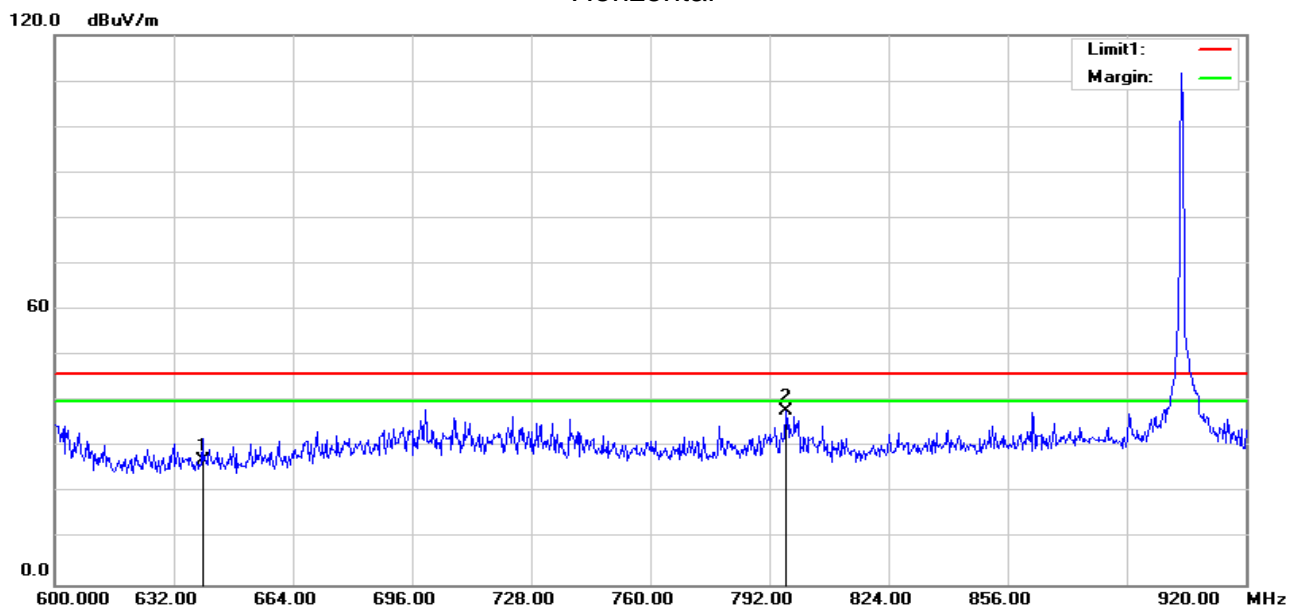
2) Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Emission Level = Reading + Factor

3) The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.

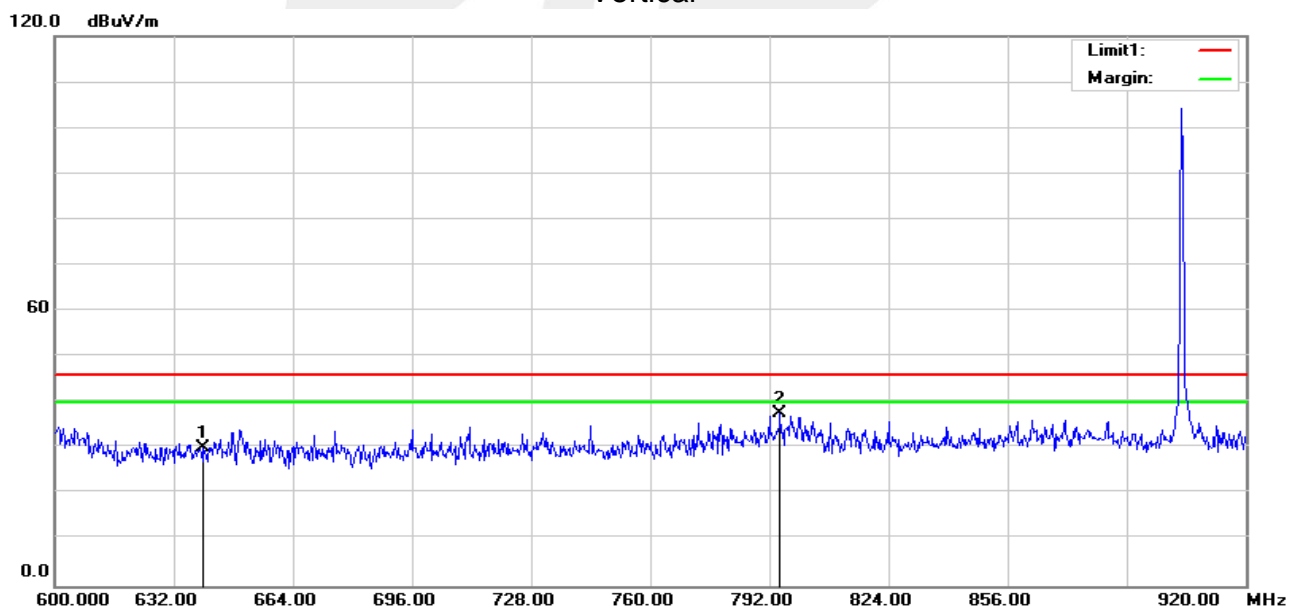


Restricted band Requirements

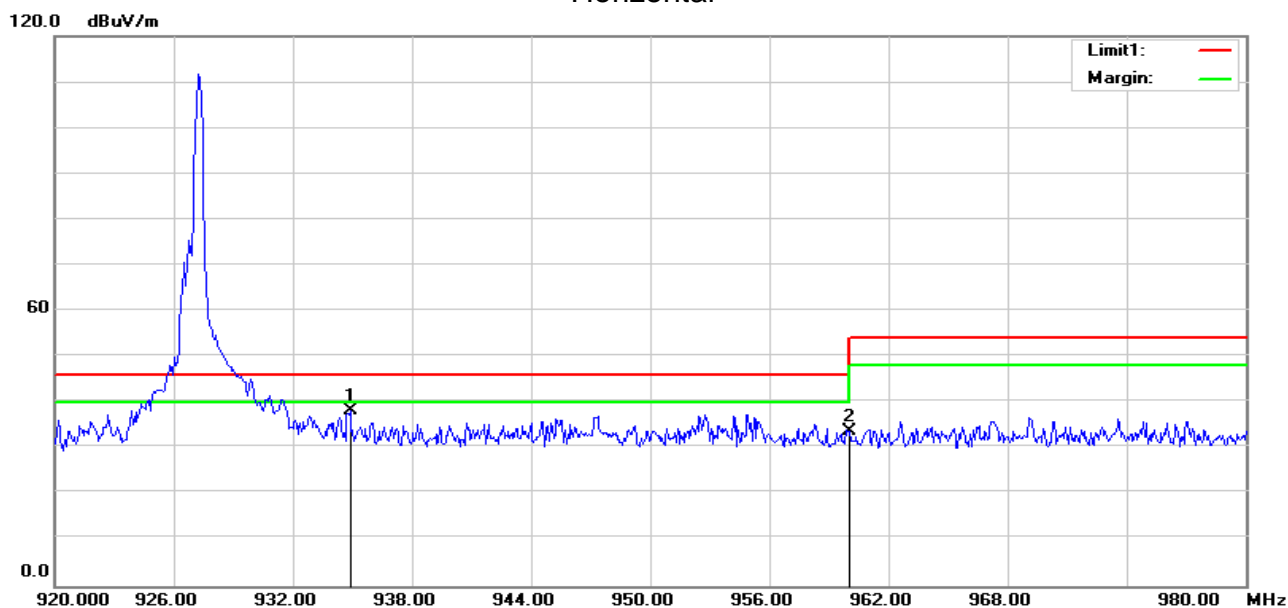
Ant 1
Low Channel
Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	640.0000	32.06	-4.84	27.22	46.00	-18.78	QP
2	796.4800	39.96	-2.02	37.94	46.00	-8.06	QP

Vertical

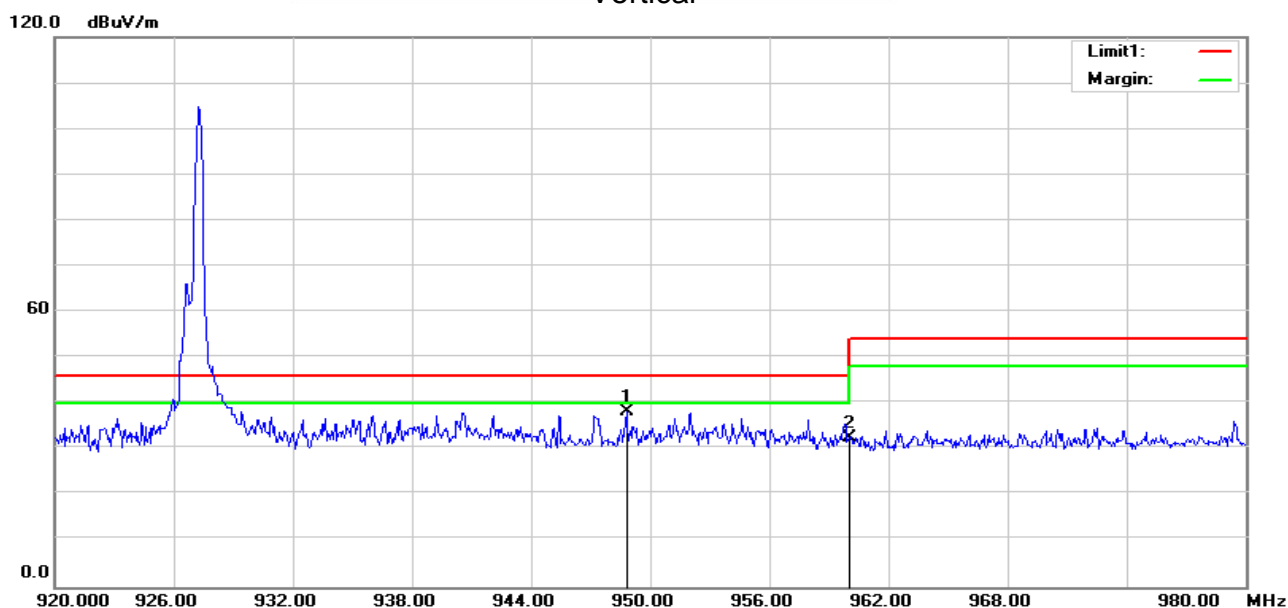


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	640.0000	35.06	-4.84	30.22	46.00	-15.78	QP
2	794.8800	39.59	-2.00	37.59	46.00	-8.41	QP

High Channel
Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	934.8800	37.21	0.95	38.16	46.00	-7.84	QP
2	960.0000	32.06	1.76	33.82	46.00	-12.18	QP

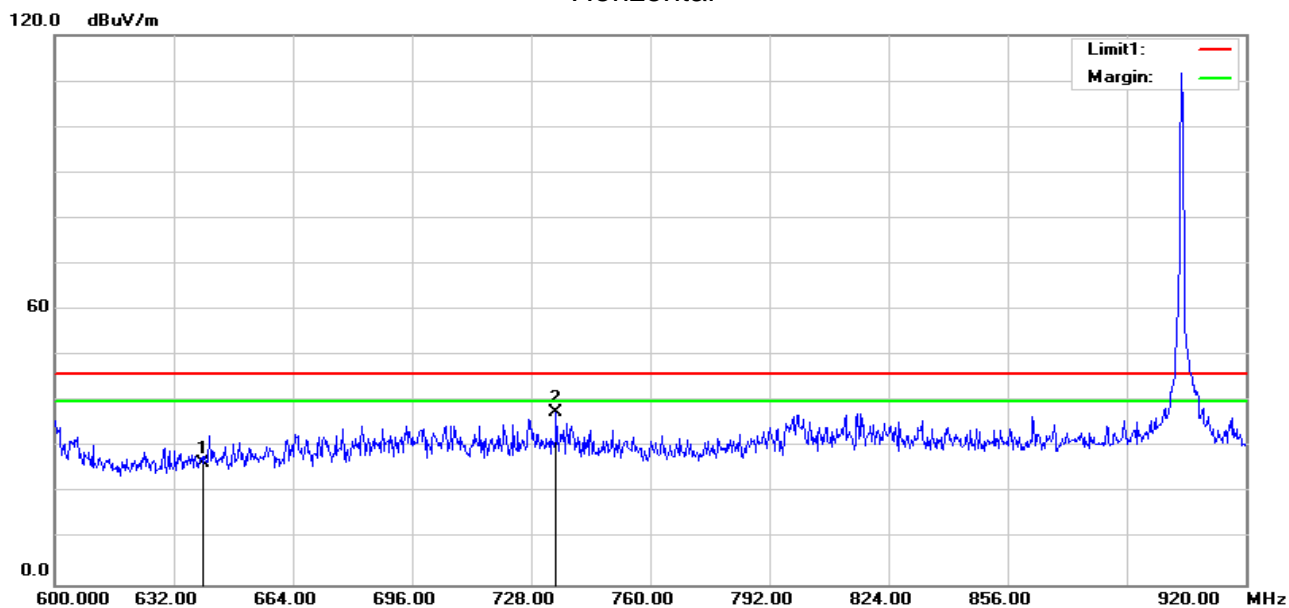
Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	948.8000	36.71	1.57	38.28	46.00	-7.72	QP
2	960.0000	30.86	1.76	32.62	46.00	-13.38	QP

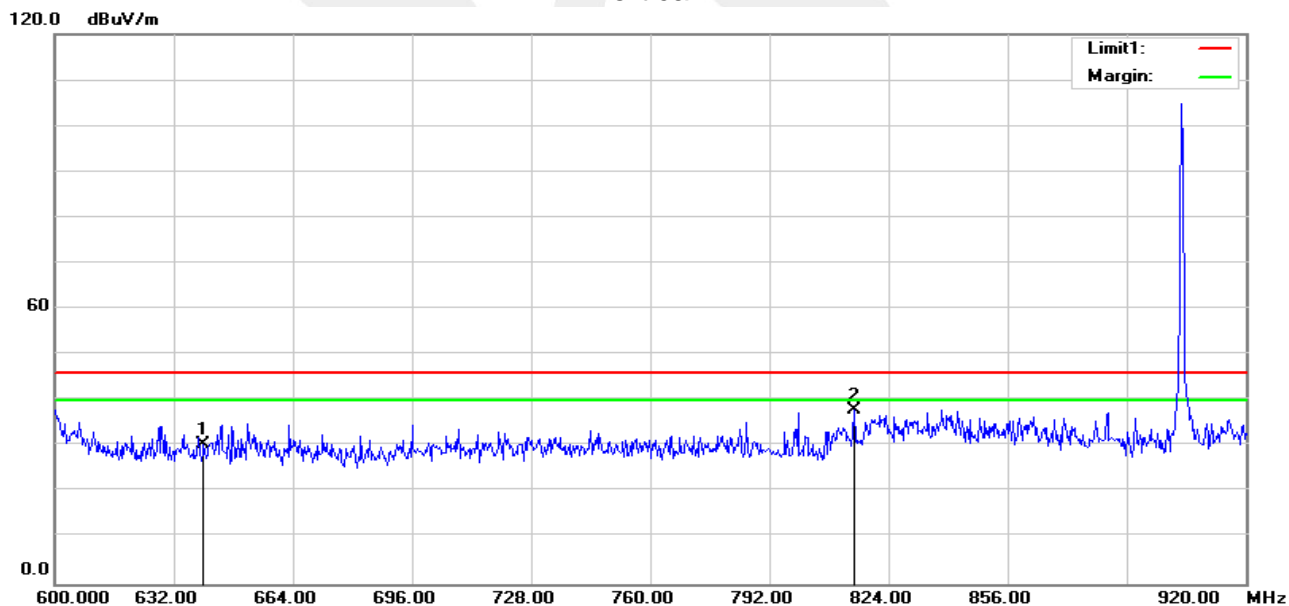


Ant 2
Low Channel
Horizontal

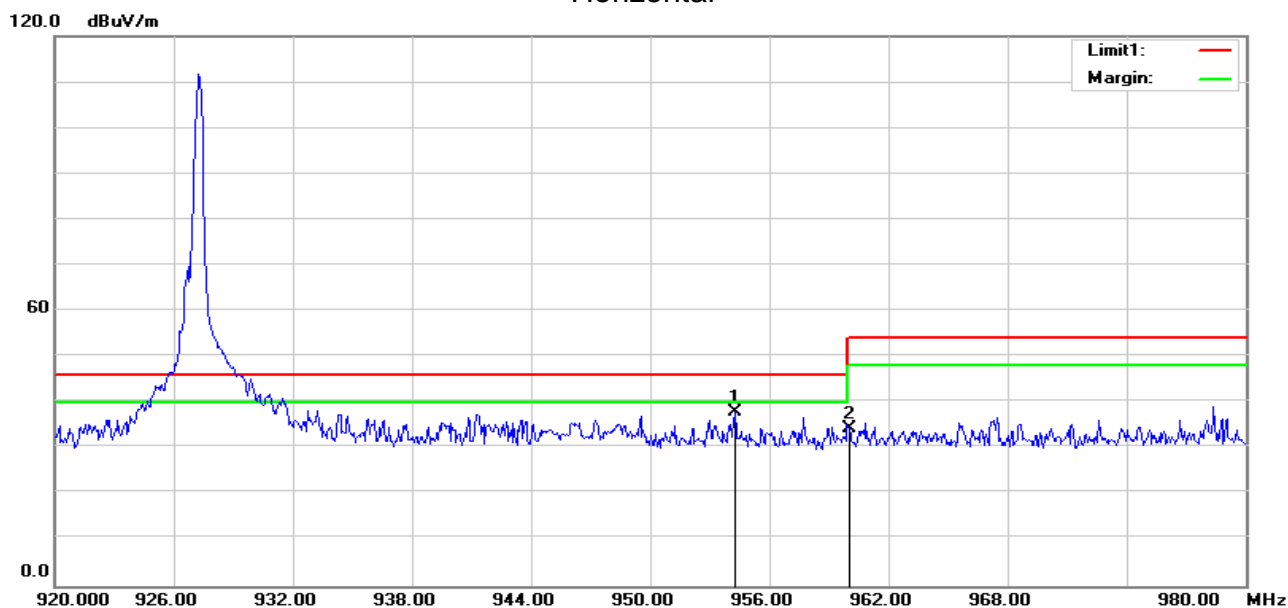


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	640.0000	31.48	-4.84	26.64	46.00	-19.36	QP
2	734.7200	39.84	-2.30	37.54	46.00	-8.46	QP

Vertical

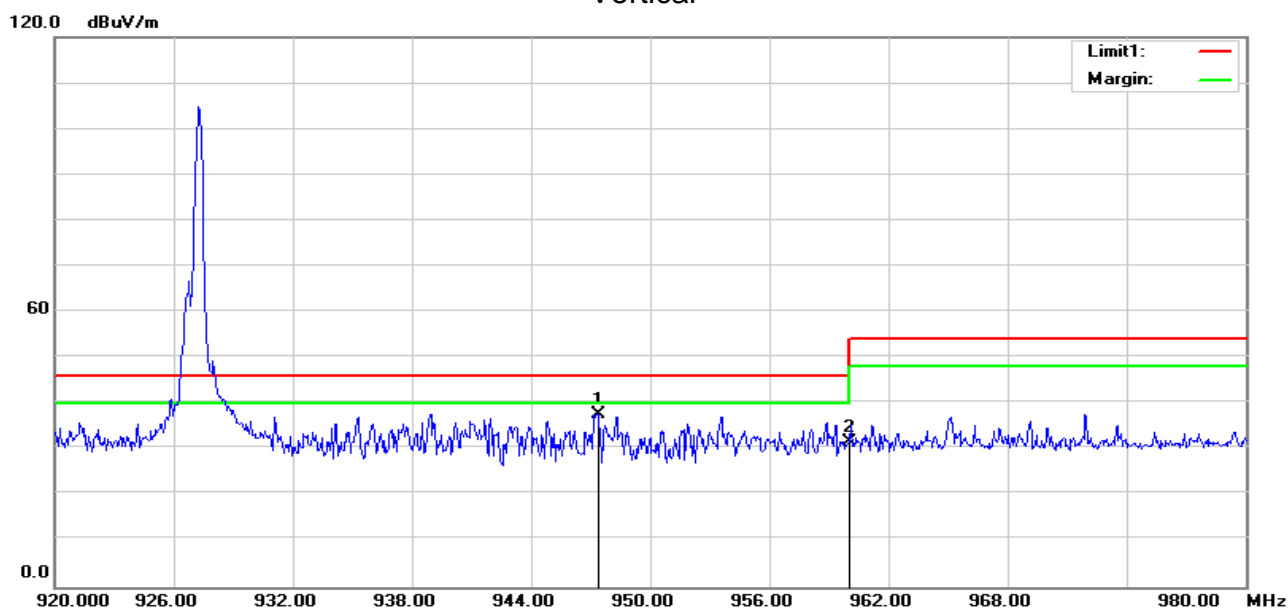


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	640.0000	35.32	-4.84	30.48	46.00	-15.52	QP
2	814.7200	40.00	-1.98	38.02	46.00	-7.98	QP

High Channel
Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	954.2600	36.19	1.67	37.86	46.00	-8.14	QP
2	960.0000	32.71	1.76	34.47	46.00	-11.53	QP

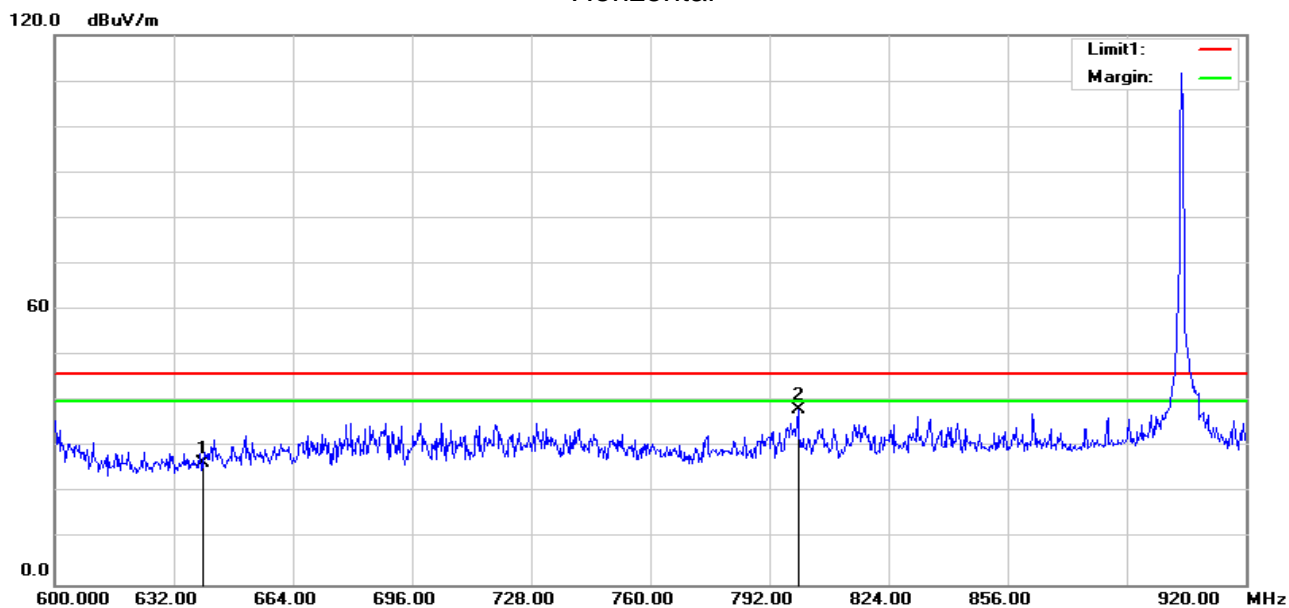
Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	947.3600	36.21	1.54	37.75	46.00	-8.25	QP
2	960.0000	29.89	1.76	31.65	46.00	-14.35	QP

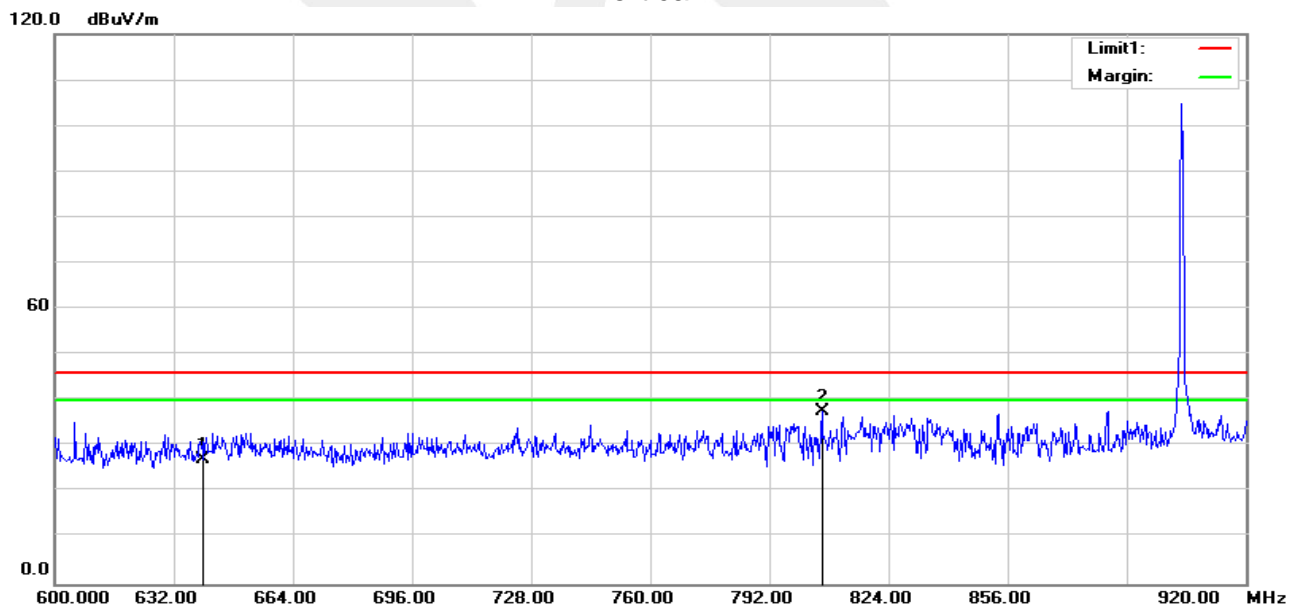


Ant 3
Low Channel
Horizontal

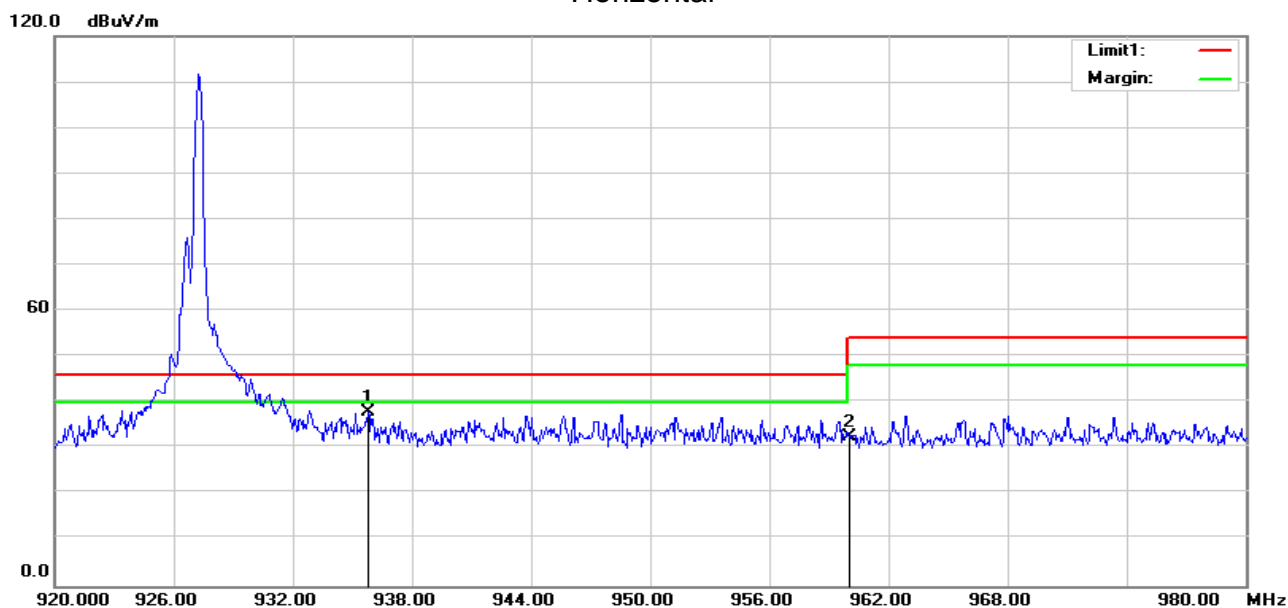


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	640.0000	31.50	-4.84	26.66	46.00	-19.34	QP
2	799.6800	40.37	-2.05	38.32	46.00	-7.68	QP

Vertical

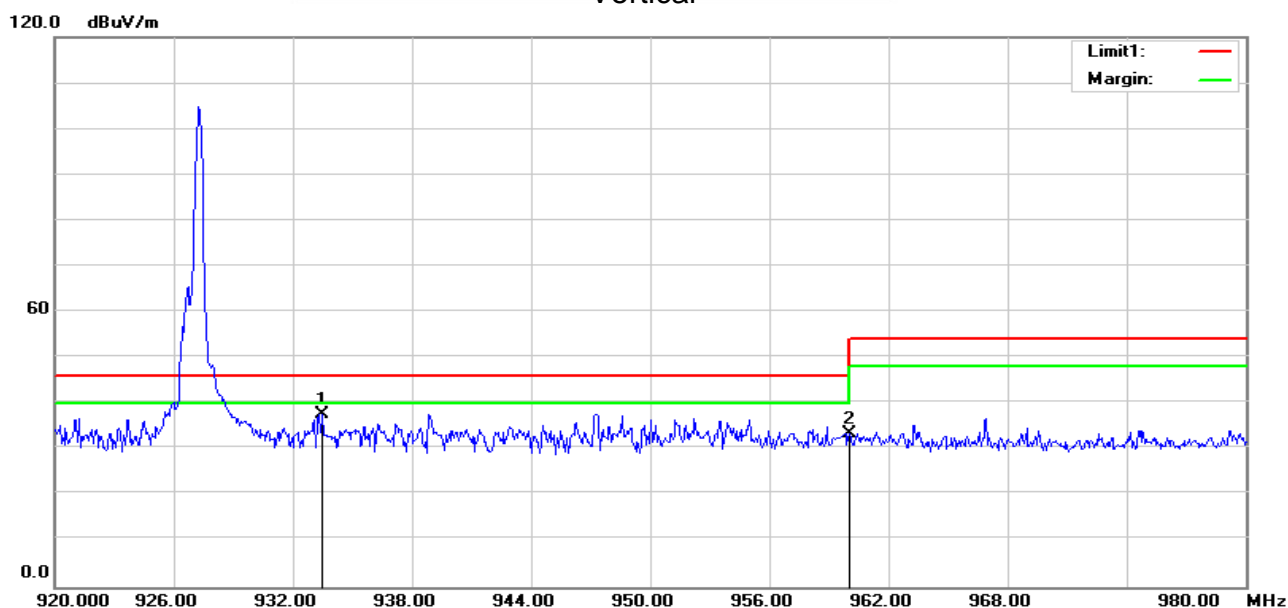


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	640.0000	32.13	-4.84	27.29	46.00	-18.71	QP
2	806.0800	39.75	-2.01	37.74	46.00	-8.26	QP

High Channel
Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	935.7800	36.84	1.03	37.87	46.00	-8.13	QP
2	960.0000	30.92	1.76	32.68	46.00	-13.32	QP

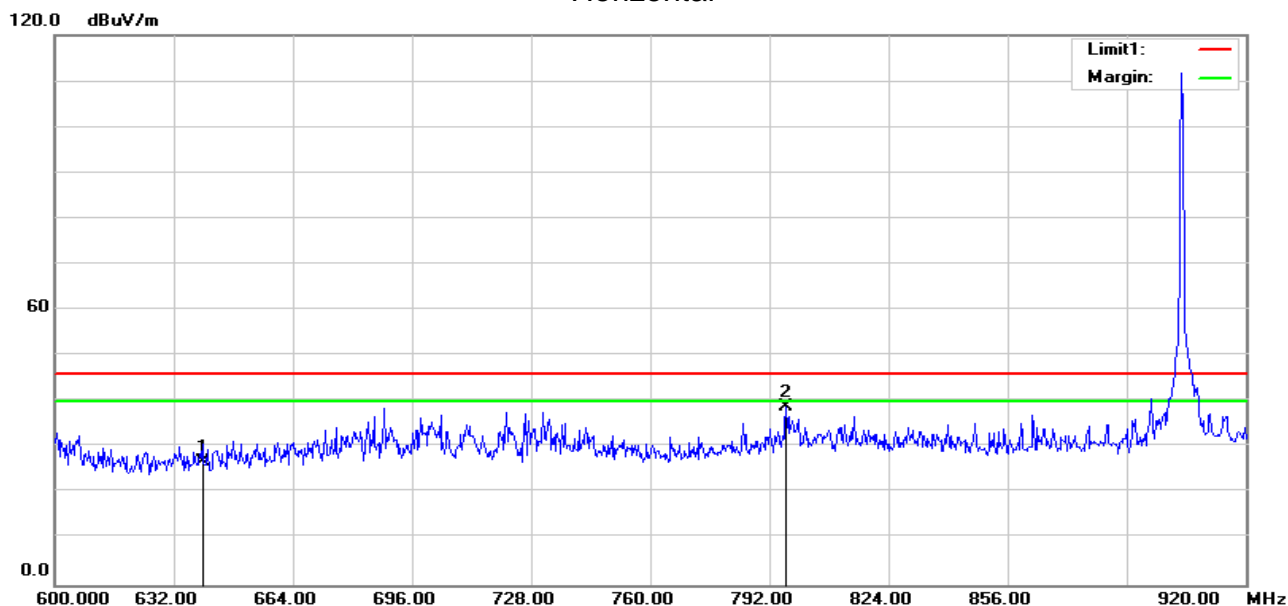
Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	933.5000	36.88	0.84	37.72	46.00	-8.28	QP
2	960.0000	31.60	1.76	33.36	46.00	-12.64	QP

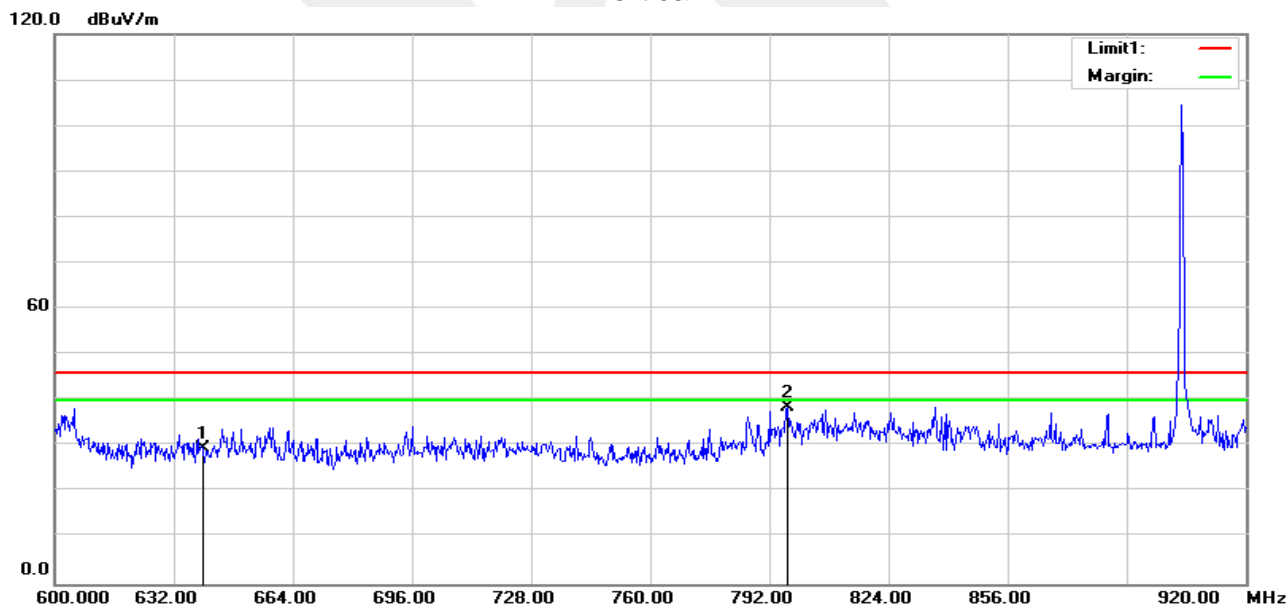


Ant 4
Low Channel
Horizontal

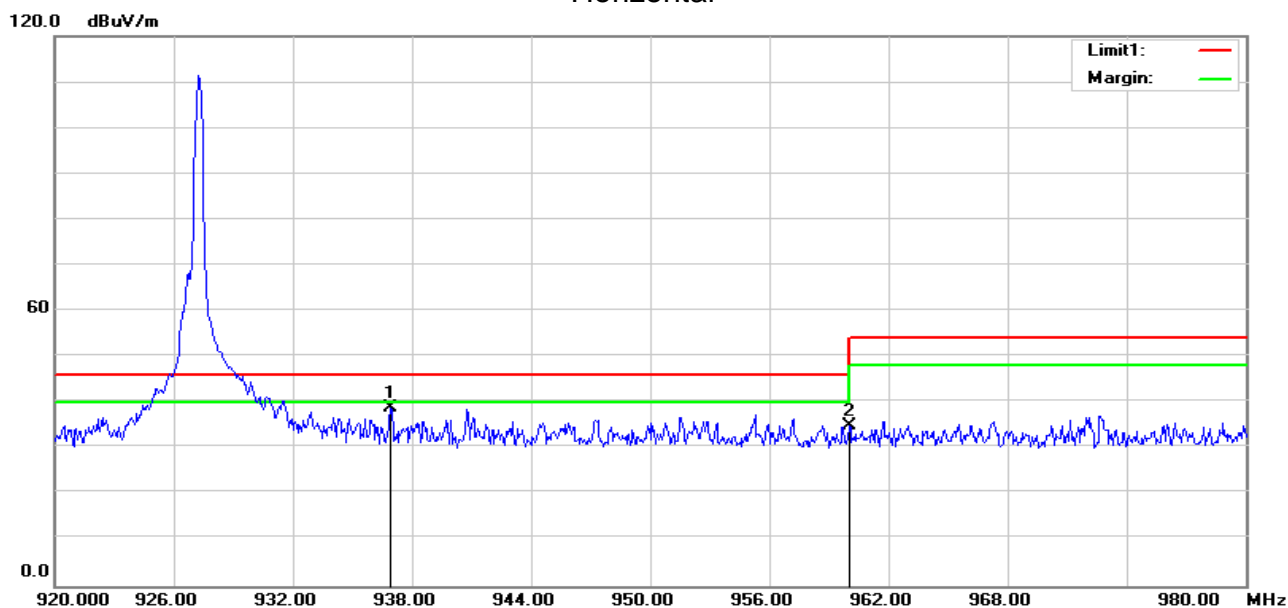


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	640.0000	31.75	-4.84	26.91	46.00	-19.09	QP
2	796.4800	40.89	-2.02	38.87	46.00	-7.13	QP

Vertical

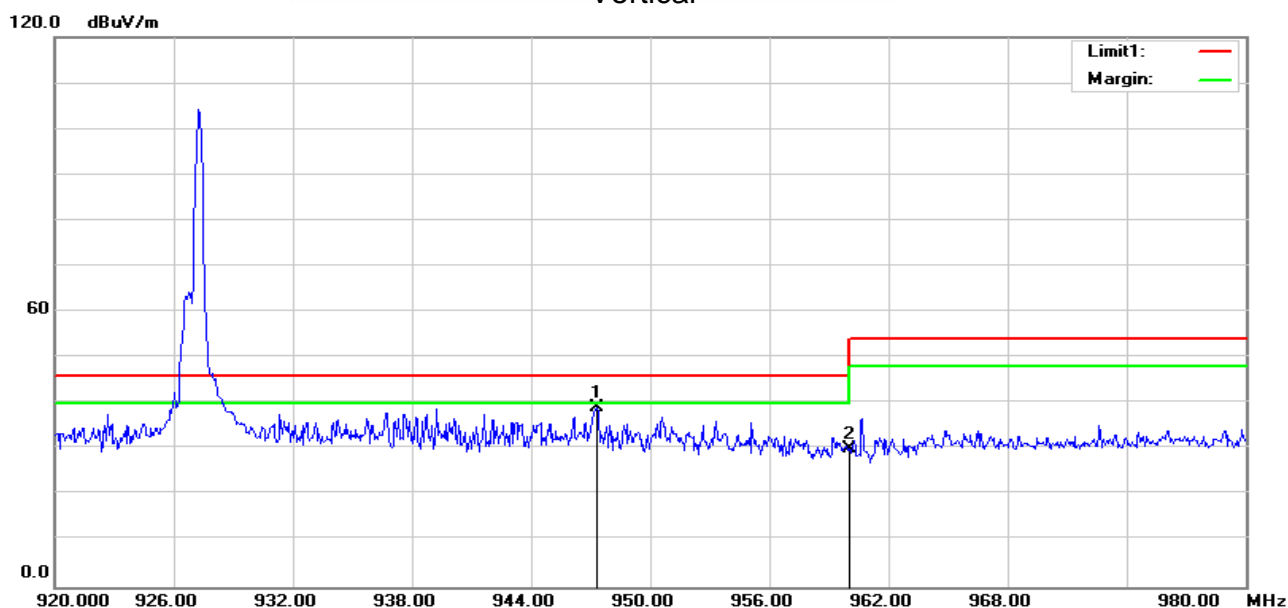


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	640.0000	34.30	-4.84	29.46	46.00	-16.54	QP
2	796.8000	40.64	-2.02	38.62	46.00	-7.38	QP

High Channel
Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	936.9200	37.70	1.13	38.83	46.00	-7.17	QP
2	960.0000	33.29	1.76	35.05	46.00	-10.95	QP

Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	947.3000	37.55	1.54	39.09	46.00	-6.91	QP
2	960.0000	28.37	1.76	30.13	46.00	-15.87	QP

Note: The hopping and no hopping mode all has been tested, only shown the worst case of the no hopping mode.

4. CONDUCTED SPURIOUS & BAND EDGE EMISSION

4.1 REQUIREMENT

According to FCC section 15.247(d), in any 100kHz 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

4.2 TEST PROCEDURE

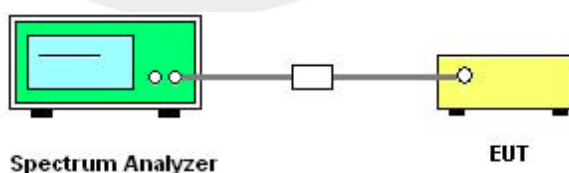
Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	30 MHz to 10th carrier harmonic
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

For Band edge

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	Lower Band Edge: 800 to 904 MHz Upper Band Edge: 924 to 1000 MHz
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

Note:: Hopping on and Hopping off mode all have been tested,only worst case hopping off is reported.

4.3 TEST SETUP



The EUT is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. Make the measurement with the spectrum analyzer's resolution bandwidth(RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

4.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

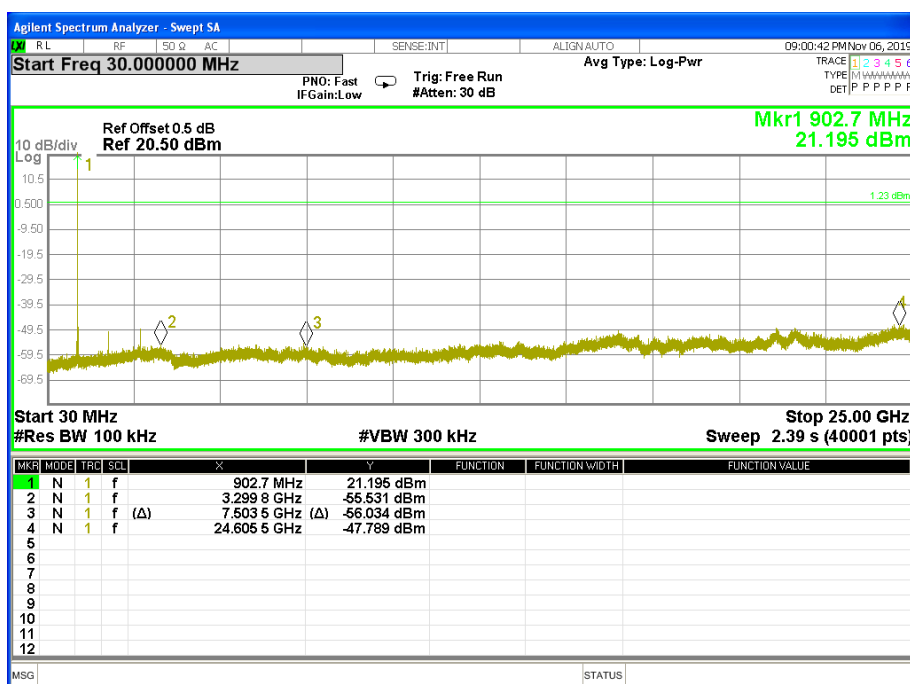


4.5 TEST RESULTS

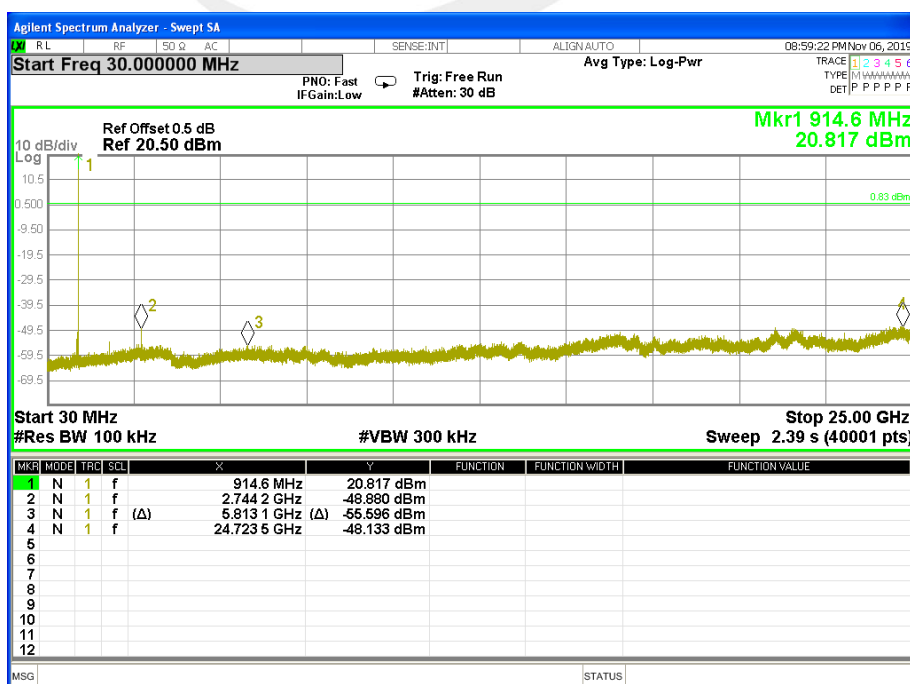
Note: Ant 1, Ant 2, Ant 3, Ant 4 all has been tested, only shown the worst case in this report.

Temperature:	25°C	Relative Humidity:	50%
Test Voltage:	AC 120V/60Hz		
Test Mode:	CH01, CH25, CH50/Ant 4 worst case		

CH 01

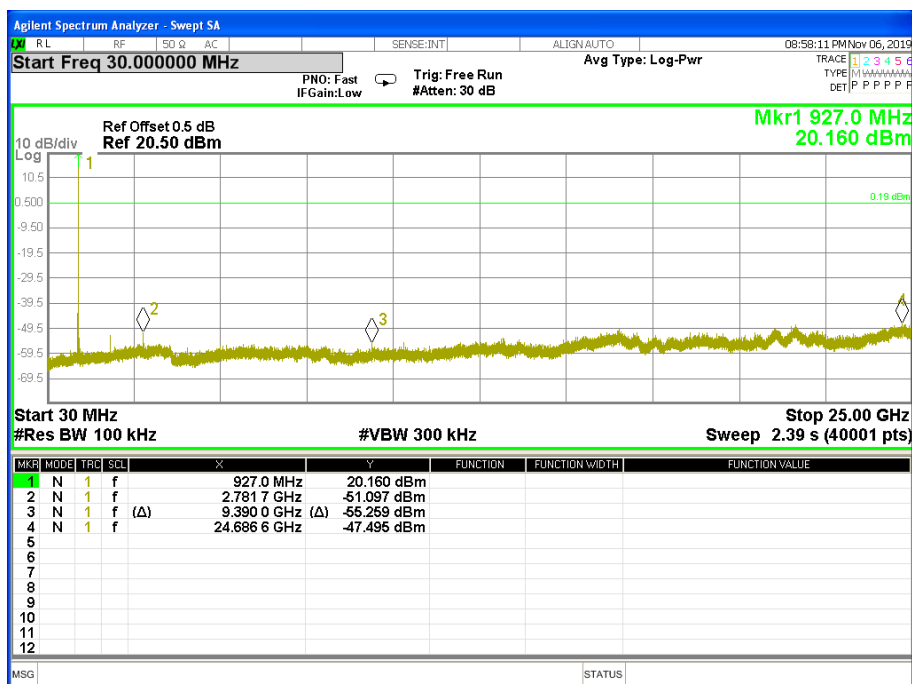


CH 25





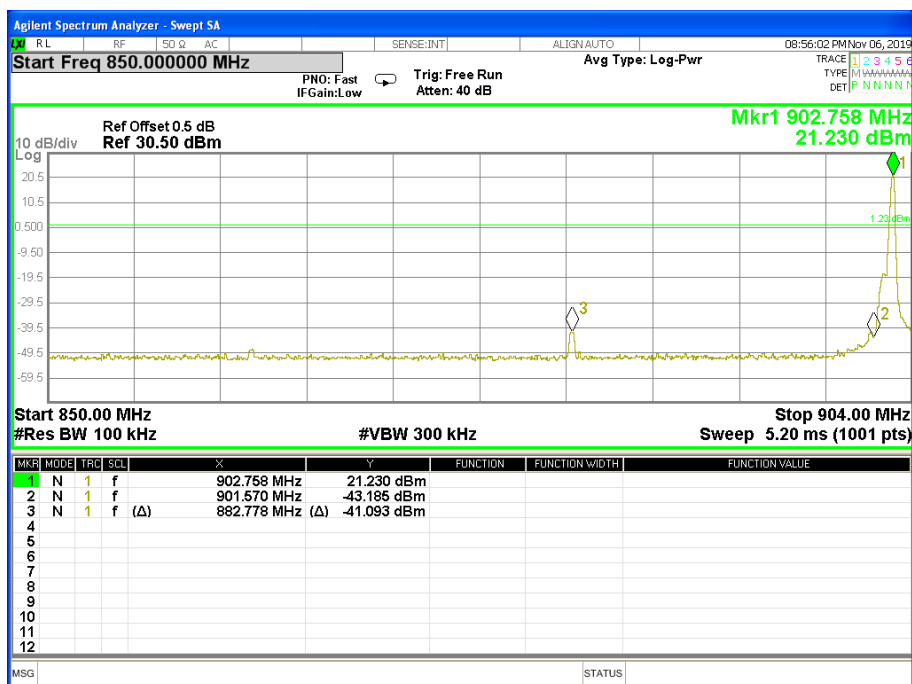
CH 50



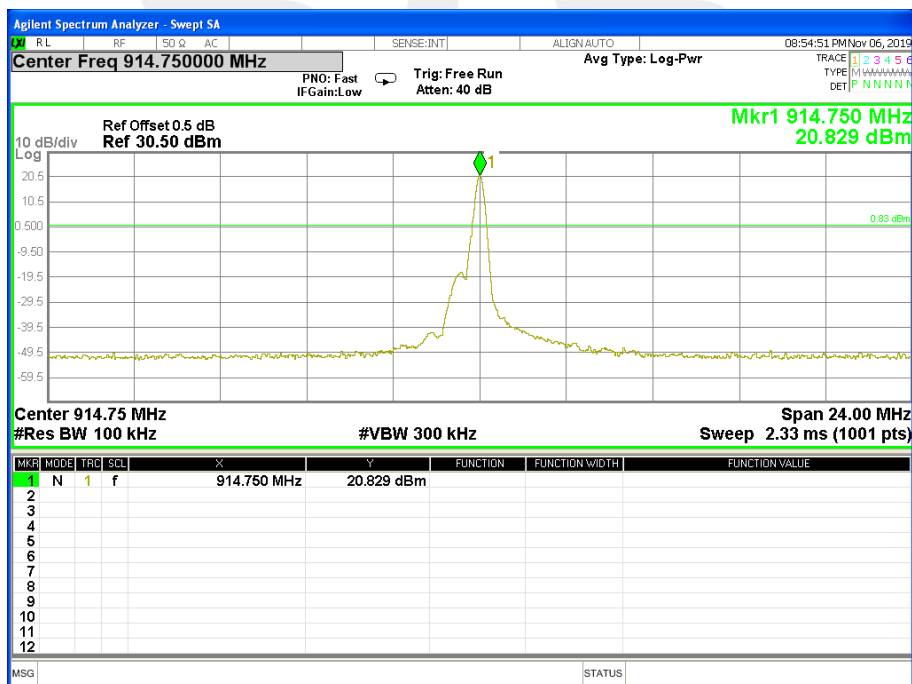


For Band edge

CH 01

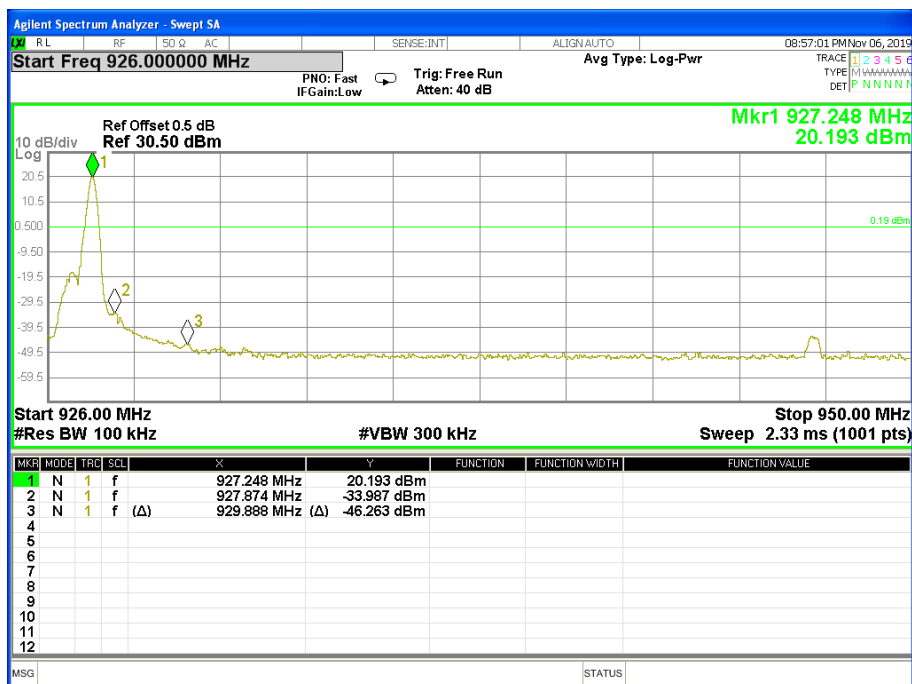


CH 25





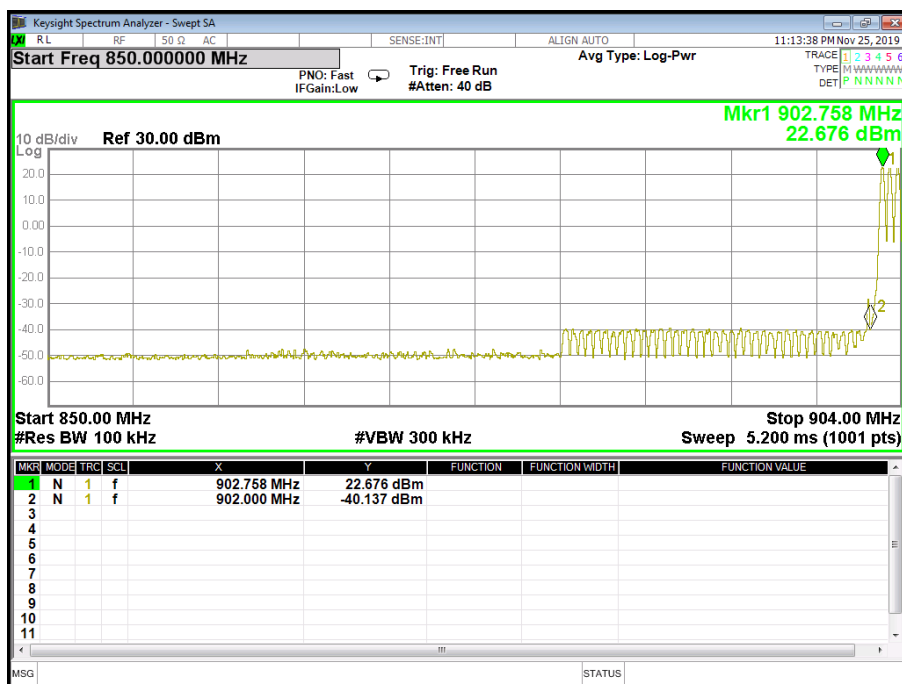
CH 50



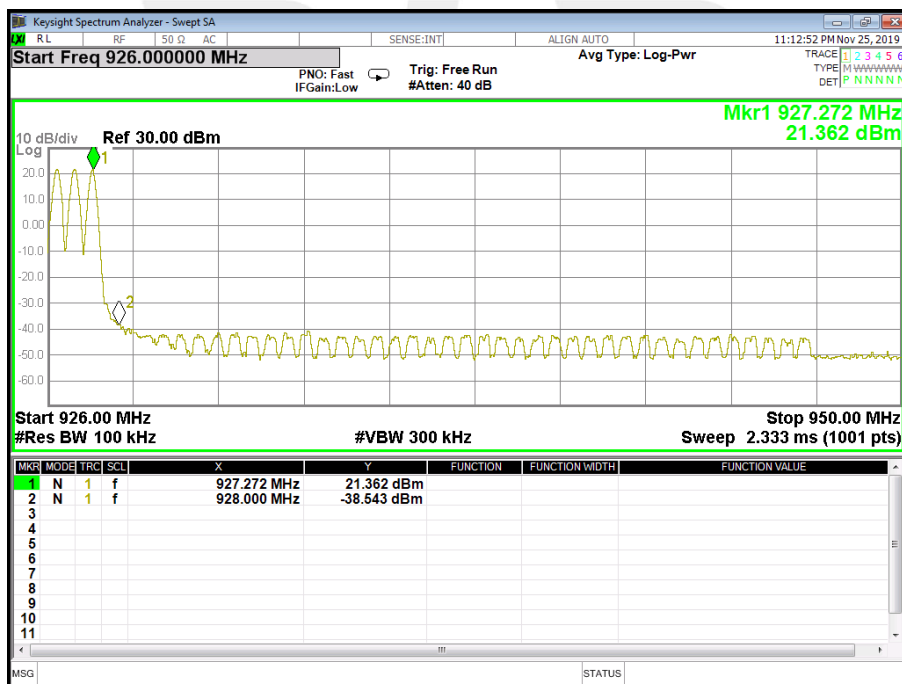


For Hopping Band edge

CH 01



CH 50





5. NUMBER OF HOPPING CHANNEL

5.1 LIMIT

FCC Part 15.247, Subpart C				
Section	Test Item	Limit	FrequencyRange (MHz)	Result
15.247 (a)(1)(i)	Number of Hopping Channel	≥ 25	902-928	PASS

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating FrequencyRange
RB	300KHz
VB	300KHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

5.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- Spectrum Setting : RBW= 100KHz, VBW=300KHz, Sweep time = Auto.

5.3 TEST SETUP



5.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



5.5 TEST RESULTS

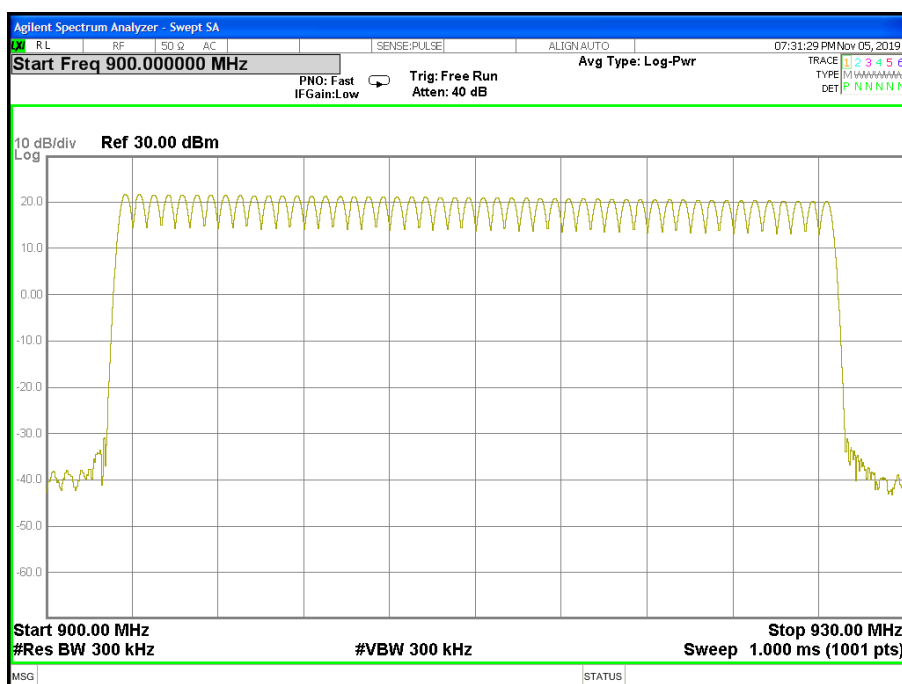
Note: Ant 1, Ant 2, Ant 3, Ant 4 all has been tested, only shown the worst case in this report.

Temperature:	25℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz		
Test Mode:	Hopping Mode/Ant 4 worst case		

Number of Hopping Channel

50

Hopping channel





6. AVERAGE TIME OF OCCUPANCY

6.1 LIMIT

FCC Part 15.247, Subpart C				
Section	Test Item	Limit	FrequencyRange (MHz)	Result
15.247 (a)(1)(i)	Average Time of Occupancy	0.4sec	902-928	PASS

6.2 TEST PROCEDURE

- The transmitter output (antenna port) was connected to the spectrum analyzer
- Set RBW =1MHz/VBW =3MHz.
- Use a video trigger with the trigger level set to enable triggering only on full pulses.
- Sweep Time is 20 second.
- Set the center frequency on any frequency would be measure and set the frequency span to zero span.
- Measure the maximum time duration of one single pulse.

6.3 TEST SETUP



6.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



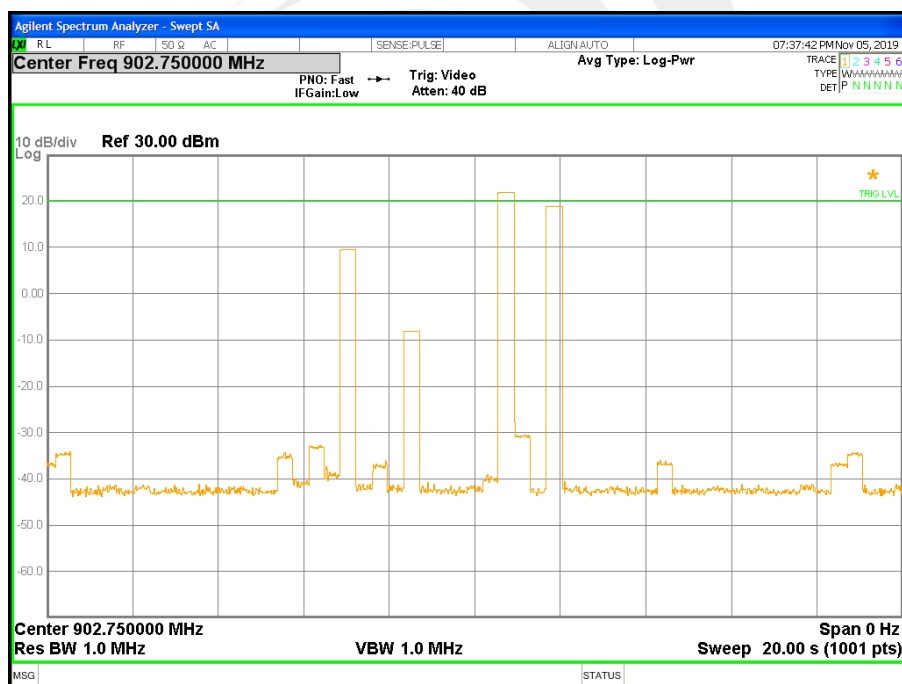
6.5 TEST RESULTS

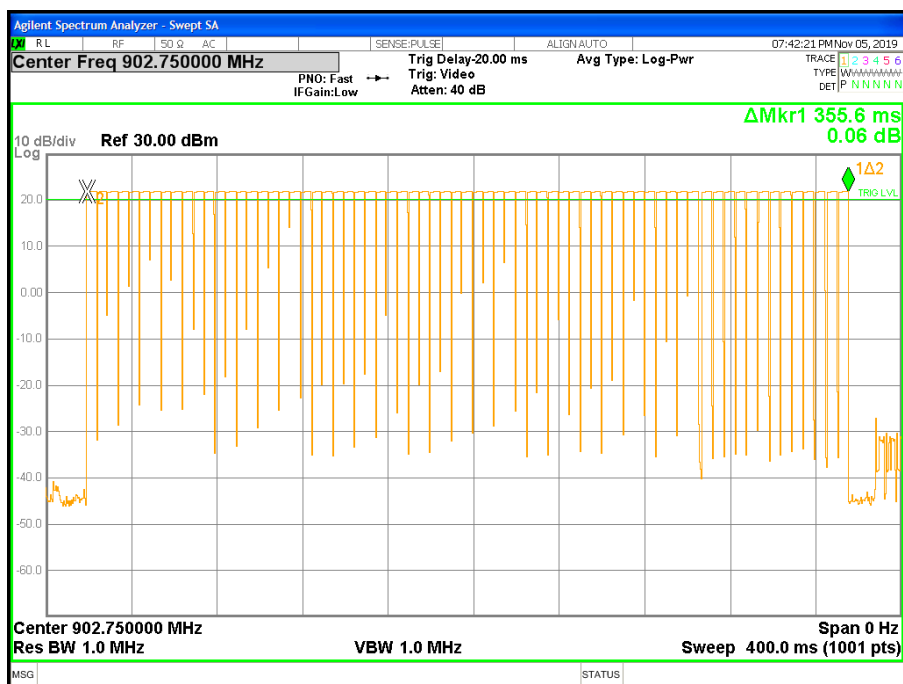
Note: Ant 1, Ant 2, Ant 3, Ant 4 all has been tested, only shown the worst case in this report.

Temperature:	25℃	Relative Humidity:	50%
Test Voltage:	AC 120V/60Hz		
Test Mode:	CH01, CH25, CH50/Ant 4 worst case		

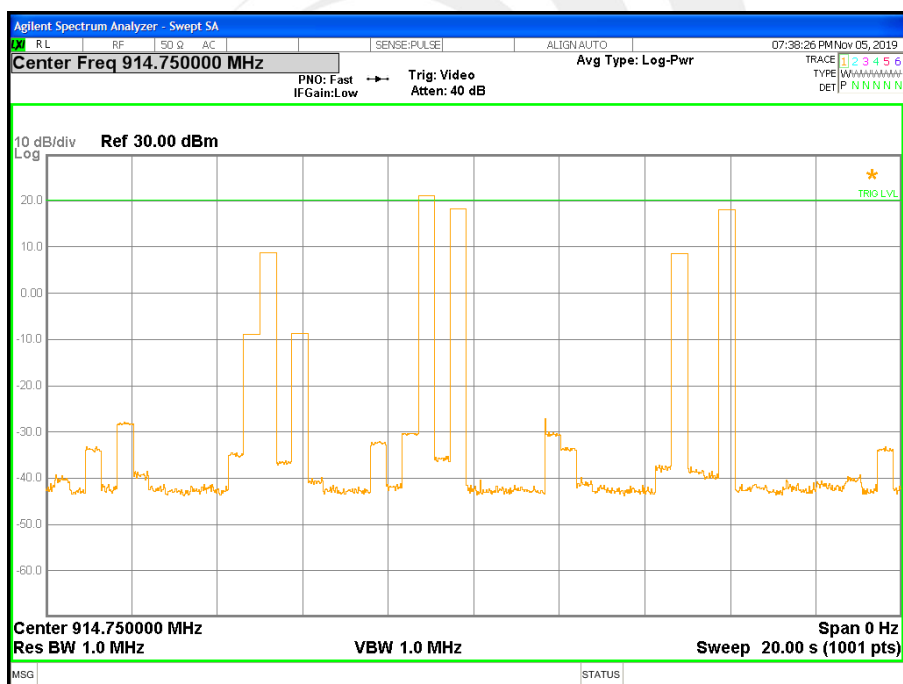
Frequency (MHz)	Channel	One Pulse time(ms)	Dwell Time(s)	Limits(s)	Sweep Time (s)	Burst Number	Verdict
902.75	lower	355.600	0.356	0.4	20.0	10	Pass
914.75	middle	355.600	0.356	0.4	20.0	10	Pass
927.25	higher	356.000	0.356	0.4	20.0	10	Pass

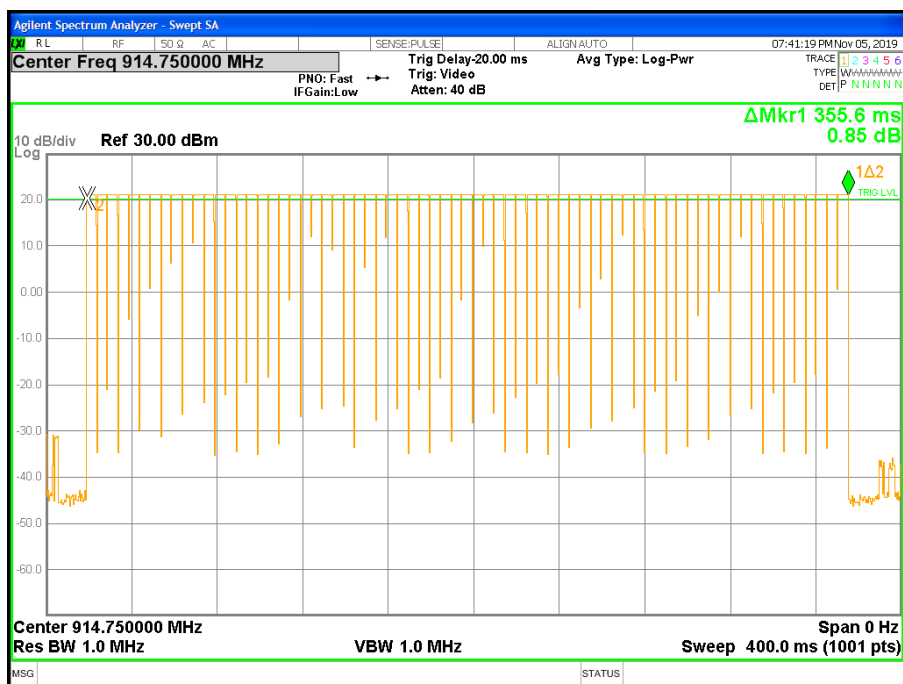
CH01



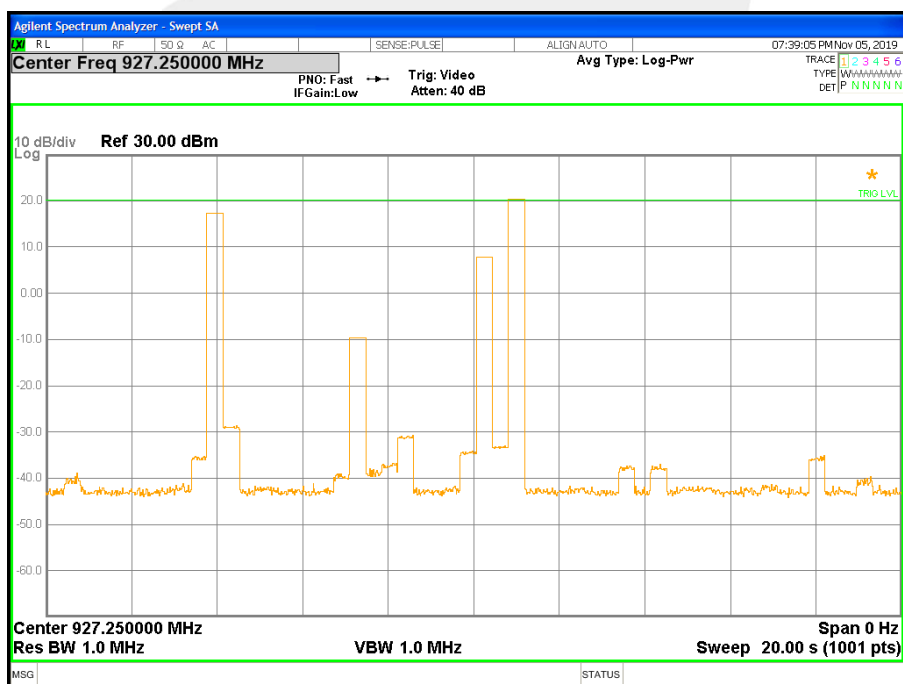


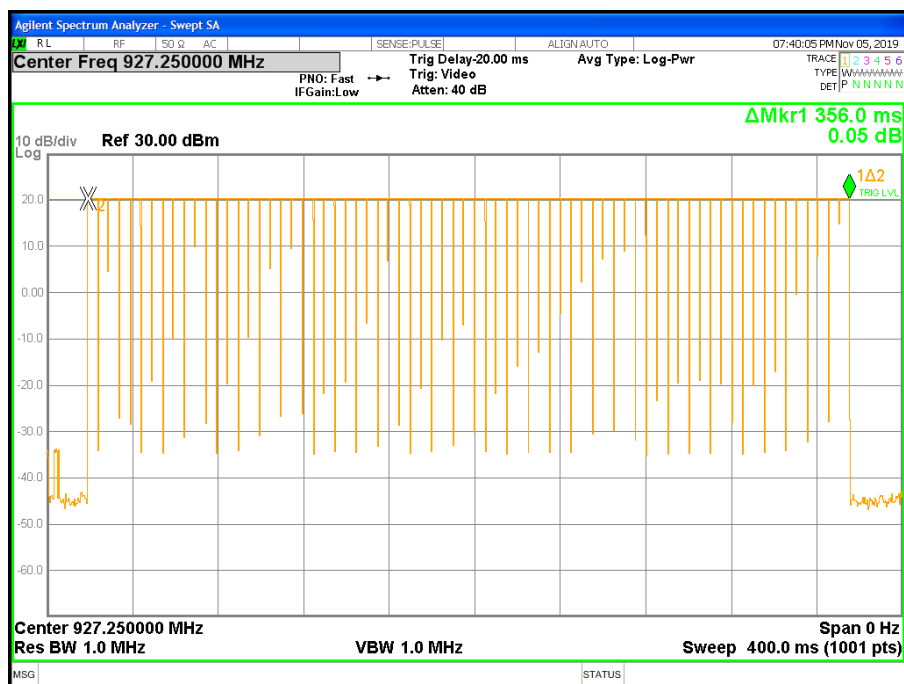
CH25





CH50





7. HOPPING CHANNEL SEPARATION MEASUREMEN

7.1 LIMIT

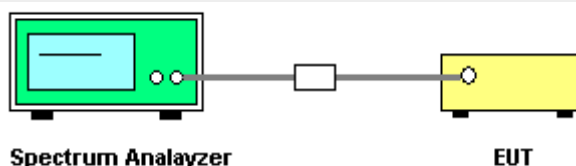
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

7.2 TEST PROCEDURE

- The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
- The resolution bandwidth of 30 kHz and the video bandwidth of 100 kHz were utilised for 20 dB bandwidth measurement.
- The resolution bandwidth of 30 kHz and the video bandwidth of 100 kHz were utilised for channel separation measurement.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> 20 dB Bandwidth or Channel Separation
RB	30 kHz (20dB Bandwidth) / 30 kHz (Channel Separation)
VB	100 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

7.3 TEST SETUP



7.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.



7.5 TEST RESULTS

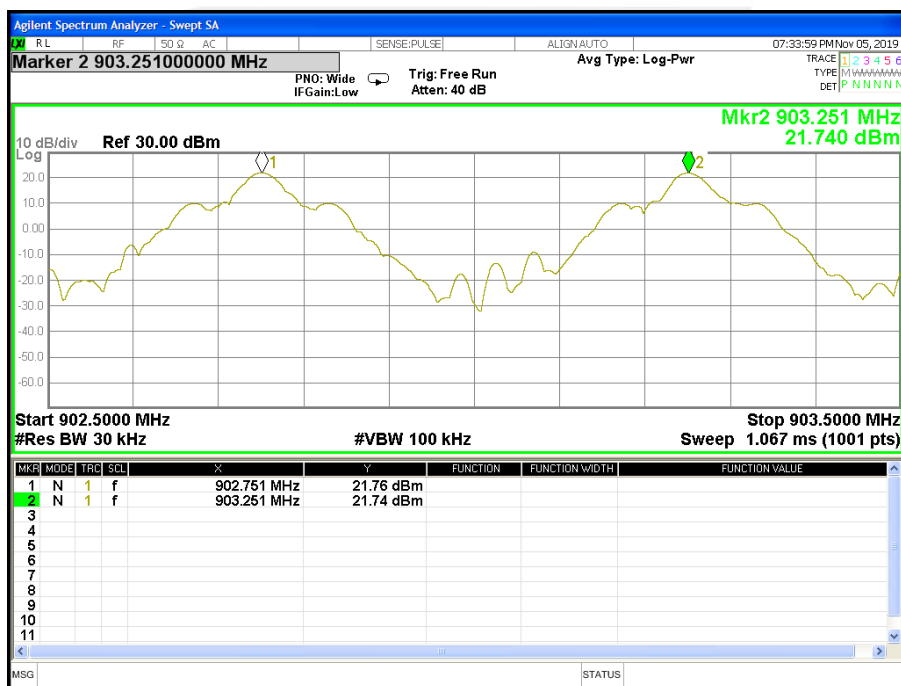
Note: Ant 1, Ant 2, Ant 3, Ant 4 all has been tested, only shown the worst case in this report.

Temperature:	25℃	Relative Humidity:	50%
Test Voltage:	AC 120V/60Hz		
Test Mode:	CH01, CH25, CH50/ Ant 4 worst case		

Frequency	Mark1 Frequency (MHz)	Mark2 Frequency (MHz)	Ch. Separation (MHz)	Limit (MHz)	Result
902.75 MHz	902.751	903.251	0.500	0.217	Complies
914.75 MHz	914.751	915.251	0.500	0.217	Complies
927.25 MHz	926.751	927.251	0.500	0.217	Complies

Ch. Separation Limits: > 20dB bandwidth

CH01





CH25



CH50





8. BANDWIDTH TEST

8.1 LIMIT

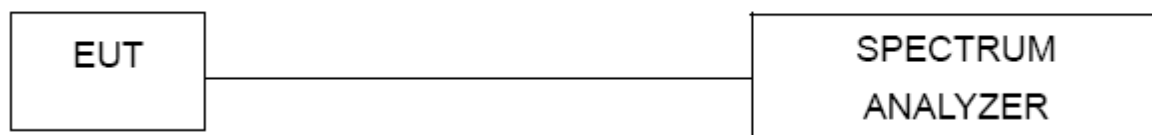
FCC Part15 15.247,Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (a)(1)(i)	20dB Bandwidth	<250KHz or 250KHz~ 500KHz	902-928	PASS

8.2 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- Spectrum Setting : RBW= 1KHz, VBW=3KHz, Sweep time = Auto.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	30 kHz (20dB Bandwidth) /30 kHz (Channel Separation)
VB	100 kHz (20dB Bandwidth) /100 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

8.3 TEST SETUP



8.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



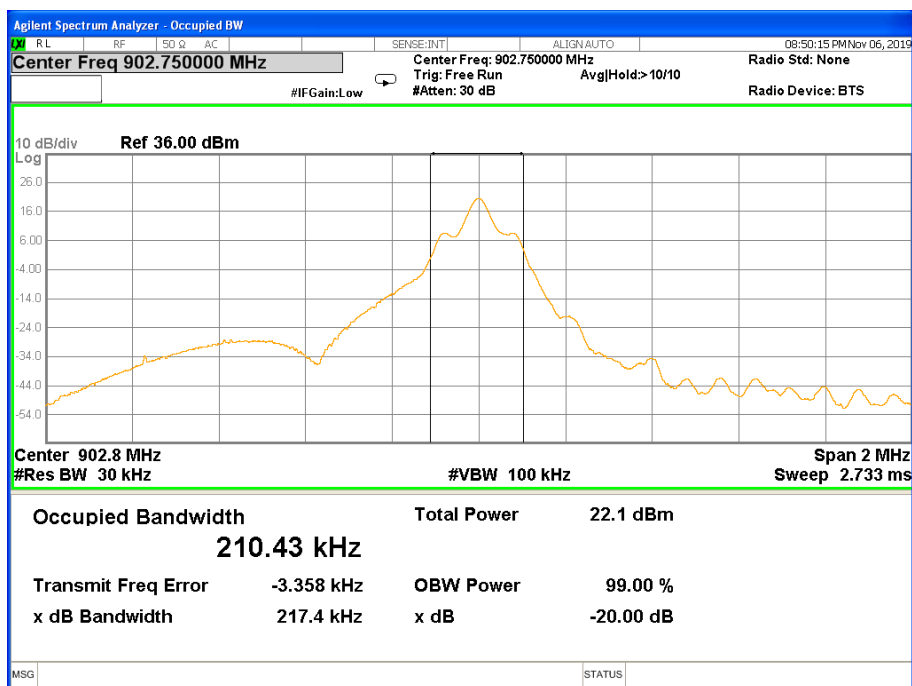
8.5 TEST RESULTS

Note: Ant 1, Ant 2, Ant 3, Ant 4 all has been tested, only shown the worst case in this report.

Temperature:	25℃	Relative Humidity:	50%
Test Voltage:	AC 120V/60Hz		
Test Mode:	CH01, CH25, CH50/Ant 4 worst case		

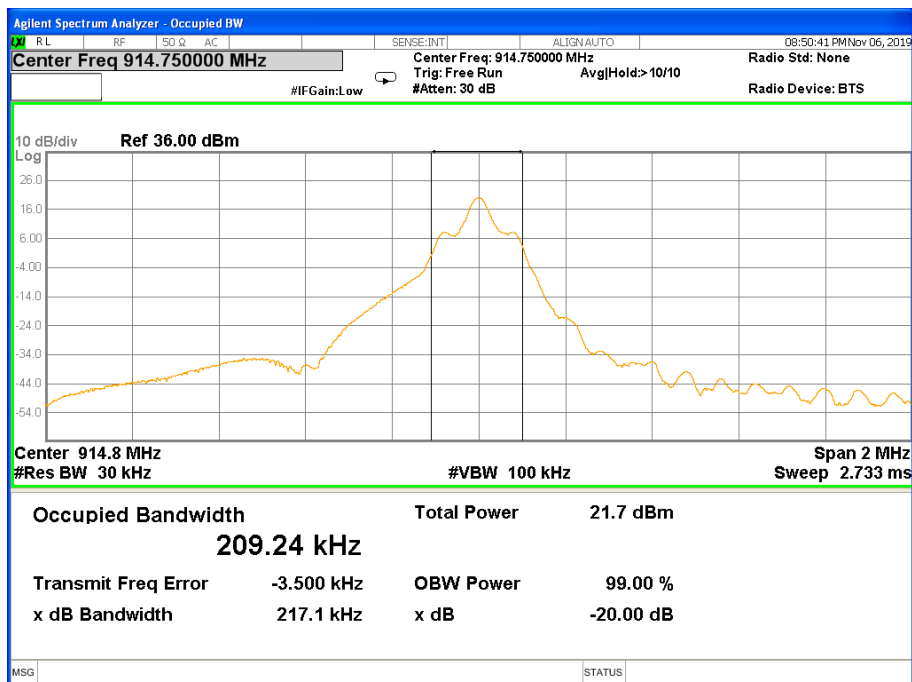
Frequency	20dB Bandwidth(MHz)	Limit (KHz)	Result
902.75 MHz	0.217	<250KHz	PASS
914.75 MHz	0.217	<250KHz	PASS
927.25 MHz	0.217	<250KHz	PASS

CH01

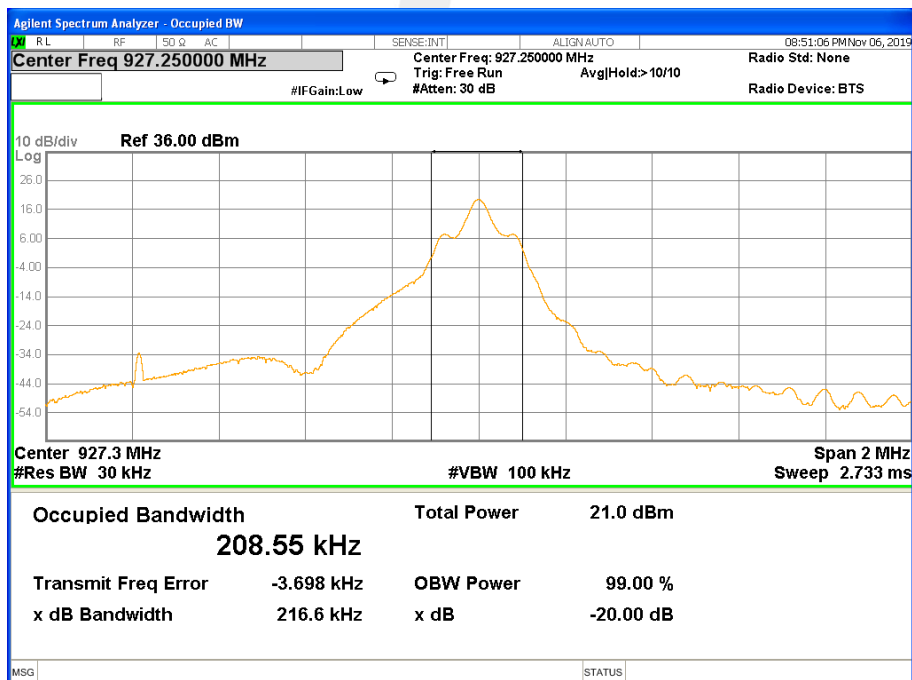




CH25



CH50





9. OUTPUT POWER TEST

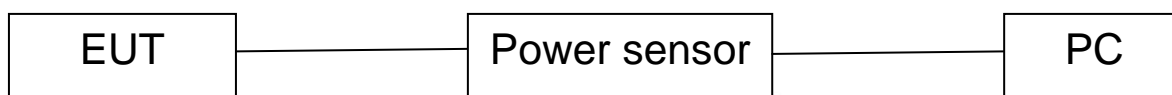
9.1 LIMIT

FCC Part 15.247, Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (b)(2)	Output Power	1 W	902-928	PASS

9.2 TEST PROCEDURE

- a. The EUT was directly connected to the Power Sensor & PC

9.3 TEST SETUP



9.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



9.5 TEST RESULTS

Temperature:	25℃	Relative Humidity:	60%
Test Voltage:	AC 120V/60Hz		

Ant 1			
Frequency	Peak Conducted Output Power	Average Conducted Output Power	LIMIT
(MHz)	(dBm)	(dBm)	dBm
902.75	22.74	21.52	25
914.75	22.25	21.08	25
927.25	21.71	20.48	25

Ant 2			
Frequency	Peak Conducted Output Power	Average Conducted Output Power	LIMIT
(MHz)	(dBm)	(dBm)	dBm
902.75	22.58	21.31	25
914.75	22.17	20.89	25
927.25	21.76	20.55	25

Ant 3			
Frequency	Peak Conducted Output Power	Average Conducted Output Power	LIMIT
(MHz)	(dBm)	(dBm)	dBm
902.75	22.42	21.20	25
914.75	22.16	21.04	25
927.25	21.64	20.56	25

Ant 4			
Frequency	Peak Conducted Output Power	Average Conducted Output Power	LIMIT
(MHz)	(dBm)	(dBm)	dBm
902.75	22.76	21.64	25
914.75	22.42	21.38	25
927.25	21.87	20.71	25

Note: The antenna gain is 11dBi greater than 6dBi, the limit will reduce 5dBm, so, the limit is 25dBm.



10. ANTENNA REQUIREMENT

10.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: 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.

Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

10.2 EUT ANTENNA

The EUT antenna is External Antenna, which is installed professionally by the installer, so is not apply this requirement.





APPENDIX-PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

*****END OF THE REPORT*****

