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LP-009

Test report

Number:	**T251-0243/19**	Project file:	C20182567
		Date:	2019-03-26
		Pages:	132

Product: **Radio Module**

Type reference: **LXNAV Application module**

Ratings: 9-16 Vdc
Operating frequencies: 902,4 MHz - 927,8 MHz
Protection class: III

Trademark: /

Applicant: **LXNAV Razvoj, proizvodnja, zastopanje d.o.o.**
Kidričeva ulica 24, SI-3000 Celje, Slovenia

Manufacturer: LXNAV Razvoj, proizvodnja, zastopanje d.o.o.
Kidričeva ulica 24, SI-3000 Celje, Slovenia

Place of manufacture: LXNAV Razvoj, proizvodnja, zastopanje d.o.o.
Kidričeva ulica 24, SI-3000 Celje, Slovenia

Summary of testing

Testing method: FCC Part 15, Subpart C, §15.247

Testing location: SIQ Ljubljana, Mašera-Spasićeva ulica 10, SI-1000 Ljubljana, Slovenia

Remarks: Date of receipt of test items: 2017-09-22
Number of items tested: 1
Date of performance of tests: 2018-11-19 - 2019-03-11
The test results presented in this report relate only to the items tested.

The product complies with the requirements of the testing methods.

/

Tested by: Andrej Škof **Approved by:** Marjan Mak

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CONTENTS page

1 GENERAL

History sheet			
Date	Report No.	Change	Revision
2019-03-26	T251-0243/19	Initial Test Report issued.	--

Environmental conditions:
Ambient temperature: 15°C to 35°C
Relative humidity: 30% to 60%
Atmospheric pressure: 860 mbar to 1060 mbar

1.1 Equipment under test

Radio Module
Type: **LXNAV Application module**
FCC ID: 2ASPHLXNAVAM

Tested SIQ sample number: S20188345

Auxiliary equipment used during the testing:
Laptop, HP ProBook, 650 G3, SN: 5CG7372YHJ
AC/DC Adapter, FRIWO Gerätebau Gmbh, Type: FW7662M/12, SN: 0318A
LXNAV application module evaluation board

Note:
LXNAV Application module evaluation board is a tool for internal testing of the LXNAV Application module. The board serves as an example of a host device. It has an on-board GPS, voltage regulator, UART to RS232 transceivers for PC evaluation

1.2 General product information

Serial number:	Prototype
Supply voltage:	9-16 VDC
Rated RF output power:	16 dBm
Modulation type:	GFSK
Operating frequency:	902.6 MHz – 927.4 MHz
Number of channels:	64
Number of transmitters	2
Antenna type:	Dipole, Manufacturer: LXNAV, Model: Dipole antenna 915 MHz, Gain: 2.15 dBi

The LXNAV Application module system is based on PowerFLARM OEM system, which is built around the Nordic Semiconductor Single chip 433/868/915 MHz Transceiver nRF905 with software used to integrate this IC into a frequency hopping spread spectrum (FHSS) radio interface with 63 channels (400 kHz spacing) from 902.6 MHz to 927.4 MHz. The system is designed to allow light aircraft to communicate their location to each other by continuously streaming their GPS location. The system is intended to be used in aircrafts only.
LXNAV Application module consists of two modules, one of which is the master (main module) and the other is the slave module which is optional and can not be used in a standalone manner. The two modules are mounted on the host in two configurations:
- Only main module
- Main module and diversity module

The main module incorporates all of the functionality in a standalone form. The diversity module can only be connected to the Main module, via the host device, to complement the RF functionality. The diversity module alone is non-functional and cannot be used without the presence of a host device and Main module.

2 TEST SUMMARY

STANDARD	Tested yes	Tested no	Sample pass	Sample not pass
FCC 47 CFR Part 15, Subpart C, §15.247 Note: All tests were conducted using ANSI C63.10-2013	☑	☐	☑	☐

Test	**Section within the report**	**Conclusion**
§15.203 Antenna requirements	3.1	PASS
§15.207 Conducted emission	3.2	PASS
§15.247 (a) (1) 20 dB Bandwidth	3.3	PASS
99 % Bandwidth	3.3	PASS
§15.247 (a) (1) Time of Occupancy (Dwell Time)	3.4	PASS
§15.247 (a) (1) Number of Hopping Frequencies	3.5	PASS
§15.247 (a) (1) Carrier Frequency Separation	3.6	PASS
§15.247 (a) (1) Pseudorandom Frequency Hopping Sequence and Equal Hooping Frequency Use	3.7	PASS
§15.247 (b) Peak Power Output	3.8	PASS
§15.247 (d) Spurious RF Conducted Emissions	3.9	PASS
§15.247 Radiated Spurious Emissions	3.10	PASS
§15.247 (d) Band-edge Compliance of RF Conducted Emissions	3.11	PASS
§15.247 (i) RF Exposure Compliance Requirements	3.12	PASS

2.1 Operating voltages/frequencies used for testing

Test	**Operating conditions**
§15.207 Conducted emission	12 Vdc
§15.247 (a) (1) 20 dB Bandwidth	12 Vdc
99 % Bandwidth	12 Vdc
§15.247 (a) (1) Time of Occupancy (Dwell Time)	12 Vdc
§15.247 (a) (1) Number of Hopping Frequencies	12 Vdc
§15.247 (a) (1) Carrier Frequency Separation	12 Vdc
§15.247 (b) Peak Power Output	12 Vdc
§15.247 (d) Spurious RF Conducted Emissions	12 Vdc
§15.247 Radiated Spurious Emissions	12 Vdc
§15.247 (d) Band-edge Compliance of RF Conducted Emissions	12 Vdc

3 EMISSION TESTS (Intentional Radiators)

3.1 §15.203 Antenna requirements

Requirement
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 shall be considered sufficient to comply with the provisions of this section. 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. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. 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.

Conclusion:
PASS

- U.FL connector on the PCB

3.2 §15.207 Conducted emission

Requirement

Frequency Range (MHz)	Limits (dBµV)	
	Quasi-peak	Average
0.15 to 0.5	66 – 56*	56 – 46*
0.5 to 5.0	56	46
5.0 to 30.0	60	50

* Decreases with the logarithm of the frequency.

The shown limits in table shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

- For carrier current systems containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.
- For all other carrier current systems: 1000 µV within the frequency band 535-1705 kHz, as measured using a 50 µH/50 ohms LISN.
- Carrier current systems operating below 30 MHz are also subject to the radiated emission limits as appropriate.

Test procedure:

As per clause 6.2 from ANSI C63.10-2013.

NOTE:
Tested with AC/DC Adapter, FRIWO Gerätebau Gmbh, Type: FW7662M/12.
Input voltage during the testing: 120 V, 60 Hz
Output voltage of AC/DC adapter: 12 VDC

Conclusion: PASS

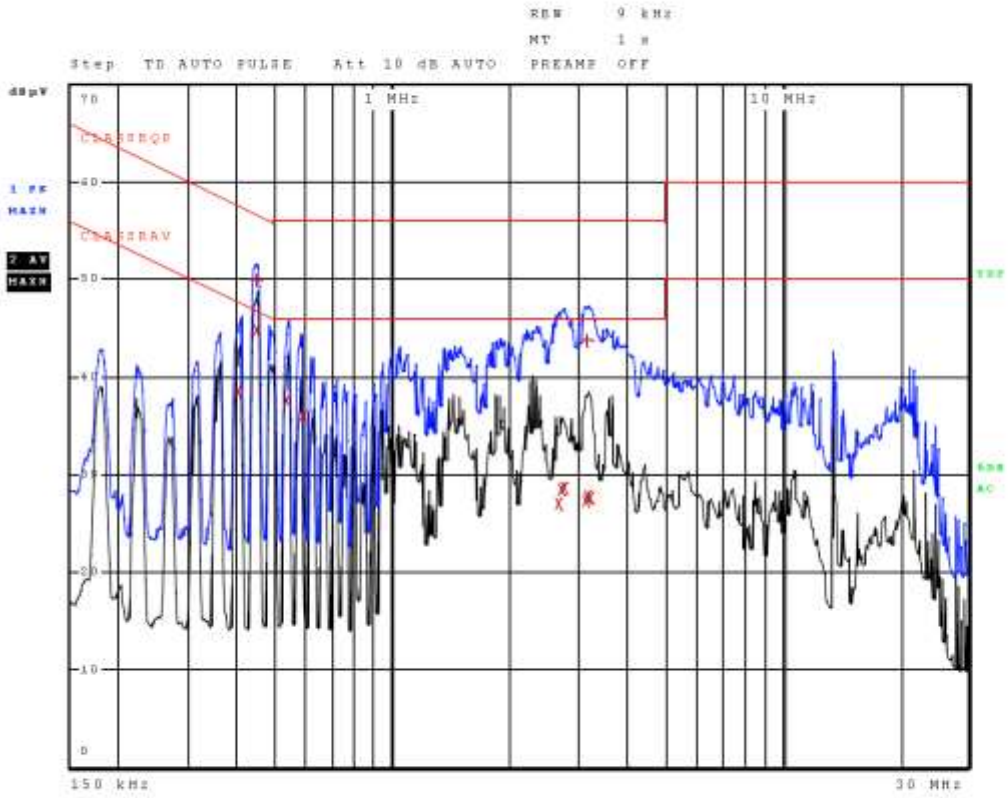
Test results

Meas Type CONDUCTED EMISSION

OP Condition 12 V DC, 902.6 MHz, RFA

Test Spec

PHASE



Final Measurement

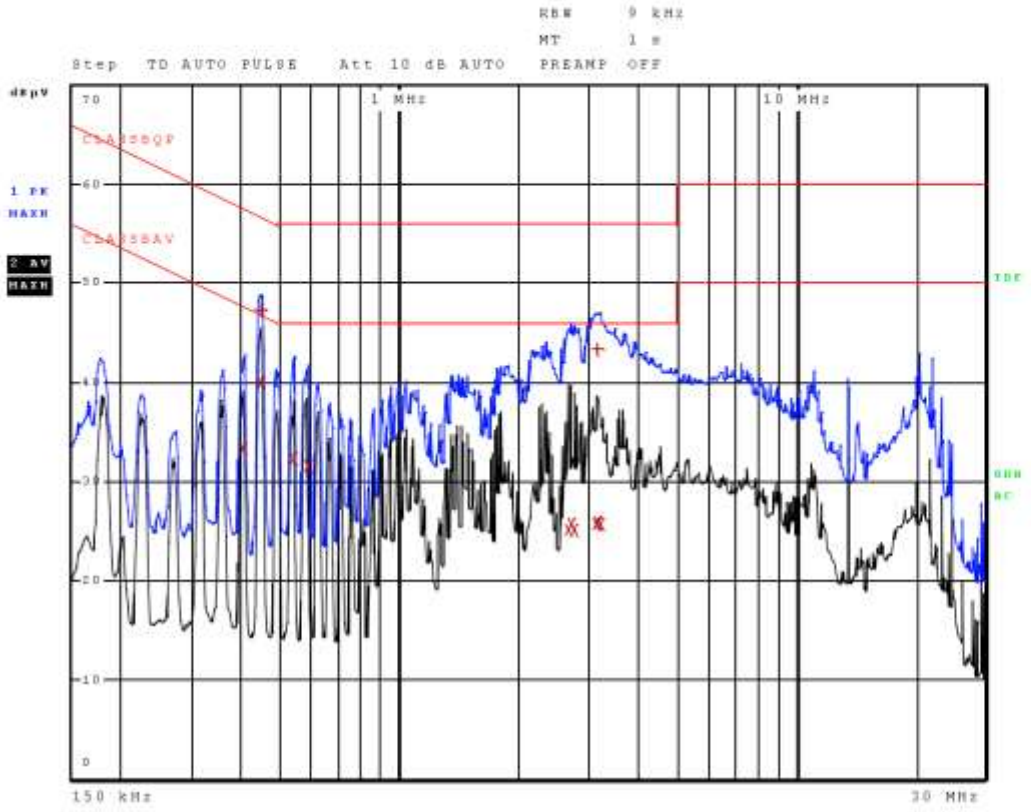
Meas Time: 1 s
Margin: 10 dB
Peaks: 12

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	447.000000000 kHz	44.77	CISPR Averag	-2.16
1	444.750000000 kHz	49.93	Quasi Peak	-7.04
2	537.000000000 kHz	37.58	CISPR Averag	-8.42
2	402.000000000 kHz	38.47	CISPR Averag	-9.34
2	584.250000000 kHz	35.99	CISPR Averag	-10.01
1	3.171750000 MHz	43.71	Quasi Peak	-12.29
2	2.762250000 MHz	28.55	CISPR Averag	-17.45
2	2.717250000 MHz	28.44	CISPR Averag	-17.56
2	3.171750000 MHz	27.69	CISPR Averag	-18.31
2	3.216750000 MHz	27.50	CISPR Averag	-18.50
2	3.126750000 MHz	27.23	CISPR Averag	-18.77
2	2.672250000 MHz	26.98	CISPR Averag	-19.02

Meas Type CONDUCTED EMISSION

OP Condition 12 V DC, 902.6 MHz, RFA

Test Spec
NEUTRAL



Final Measurement

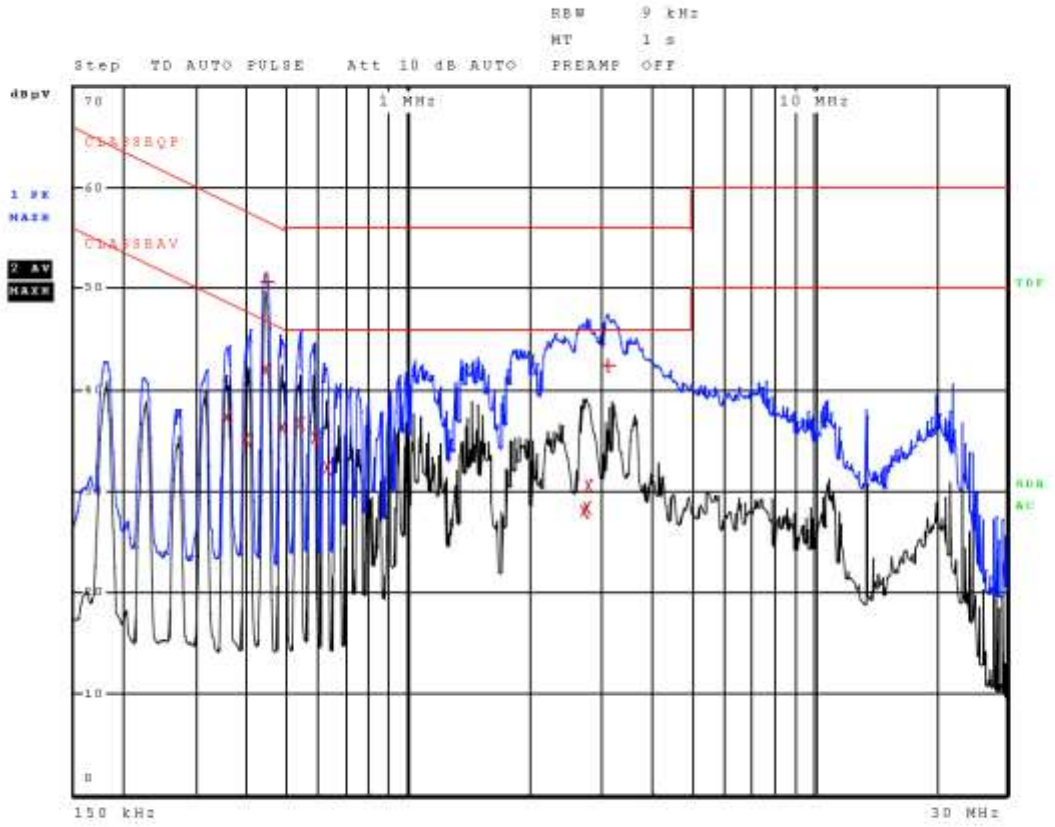
Meas Time: 1 s
Margin: 10 dB
Peaks: 12

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	447.000000000 kHz	39.96	CISPR Averag	-6.97
1	444.750000000 kHz	47.23	Quasi Peak	-9.74
1	3.171750000 MHz	43.28	Quasi Peak	-12.72
2	537.000000000 kHz	32.31	CISPR Averag	-13.69
2	402.000000000 kHz	33.34	CISPR Averag	-14.47
2	584.250000000 kHz	31.51	CISPR Averag	-14.49
2	3.171750000 MHz	25.79	CISPR Averag	-20.21
2	3.126750000 MHz	25.73	CISPR Averag	-20.27
2	2.717250000 MHz	25.71	CISPR Averag	-20.29
2	3.216750000 MHz	25.61	CISPR Averag	-20.39
2	2.762250000 MHz	25.04	CISPR Averag	-20.96
2	2.672250000 MHz	25.03	CISPR Averag	-20.97

Meas Type CONDUCTED EMISSION

OP Condition 12 V DC, 902.6 MHz, RFB

Test Spec
PHASE



Final Measurement

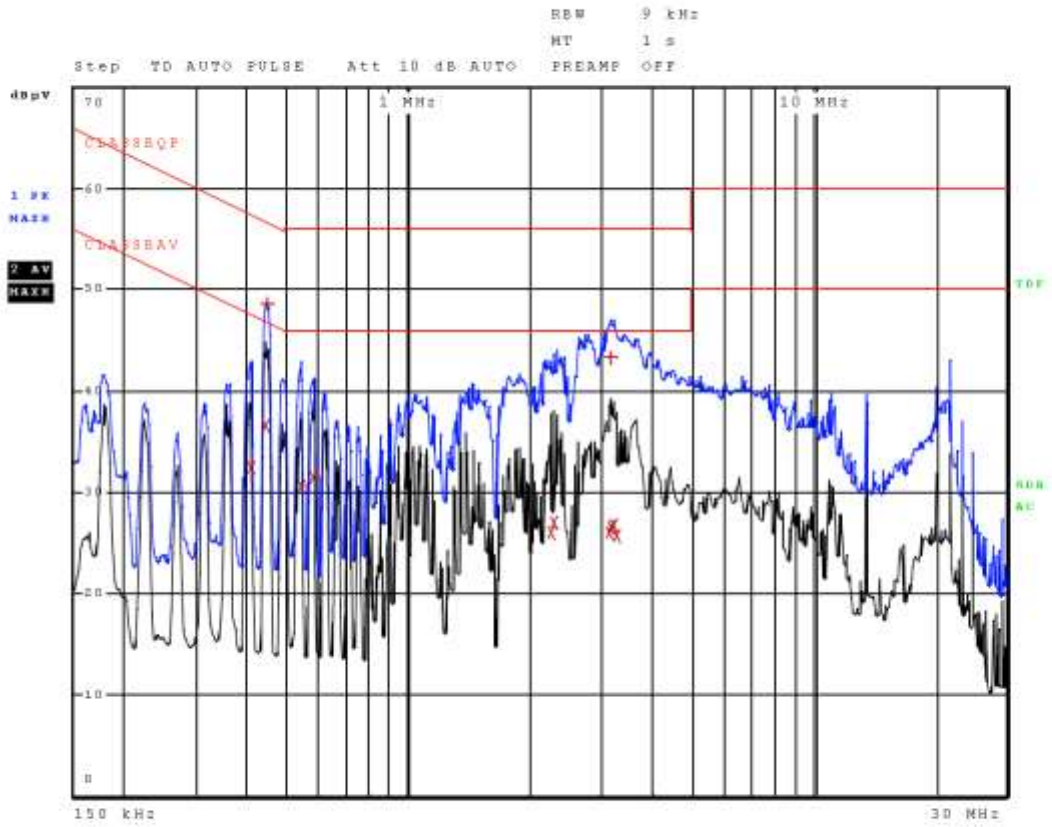
Meas Time: 1 s
Margin: 10 dB
Peaks: 12

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	442.500000000 kHz	41.91	CISPR Averag	-5.10
1	447.000000000 kHz	50.64	Quasi Peak	-6.29
2	537.000000000 kHz	36.64	CISPR Averag	-9.36
2	487.500000000 kHz	36.30	CISPR Averag	-9.91
2	584.250000000 kHz	35.21	CISPR Averag	-10.79
2	354.750000000 kHz	37.27	CISPR Averag	-11.58
2	397.500000000 kHz	35.14	CISPR Averag	-12.77
1	3.108750000 MHz	42.43	Quasi Peak	-13.57
2	629.250000000 kHz	32.21	CISPR Averag	-13.79
2	2.782500000 MHz	30.49	CISPR Averag	-15.51
2	2.757750000 MHz	28.37	CISPR Averag	-17.63
2	2.712750000 MHz	28.06	CISPR Averag	-17.94

Meas Type CONDUCTED EMISSION

OP Condition 12 V DC, 902.6 MHz, RFB

Test Spec
NEUTRAL



Final Measurement

Meas Time: 1 s
Margin: 10 dB
Peaks: 12

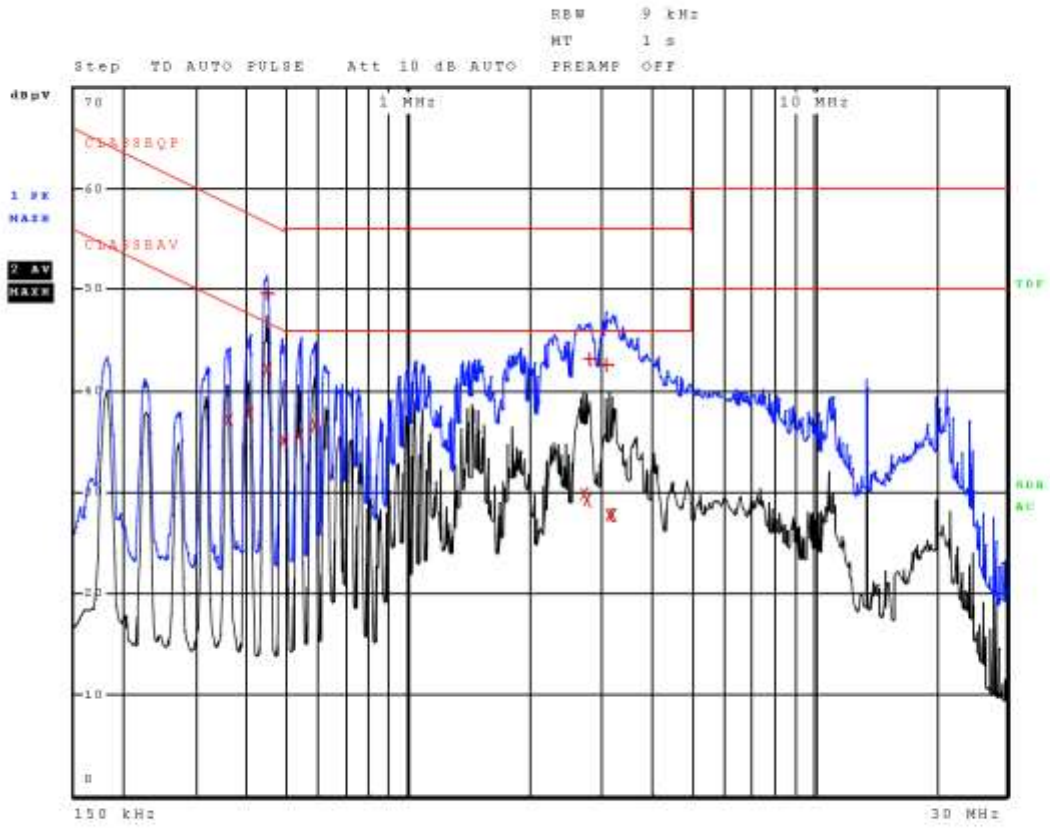
Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	447.000000000 kHz	48.56	Quasi Peak	-8.37
2	442.500000000 kHz	36.58	CISPR Averag	-10.43
1	3.169500000 MHz	43.24	Quasi Peak	-12.76
2	582.000000000 kHz	31.37	CISPR Averag	-14.63
2	406.500000000 kHz	32.48	CISPR Averag	-15.24
2	541.500000000 kHz	30.56	CISPR Averag	-15.44
2	2.287500000 MHz	26.97	CISPR Averag	-19.03
2	3.212250000 MHz	26.72	CISPR Averag	-19.28
2	3.167250000 MHz	26.52	CISPR Averag	-19.48
2	2.242500000 MHz	26.03	CISPR Averag	-19.97
2	3.122250000 MHz	25.94	CISPR Averag	-20.06
2	3.257250000 MHz	25.66	CISPR Averag	-20.34

Meas Type CONDUCTED EMISSION

OP Condition 12 V DC, 915 MHz, RFA

Test Spec

PHASE



Final Measurement

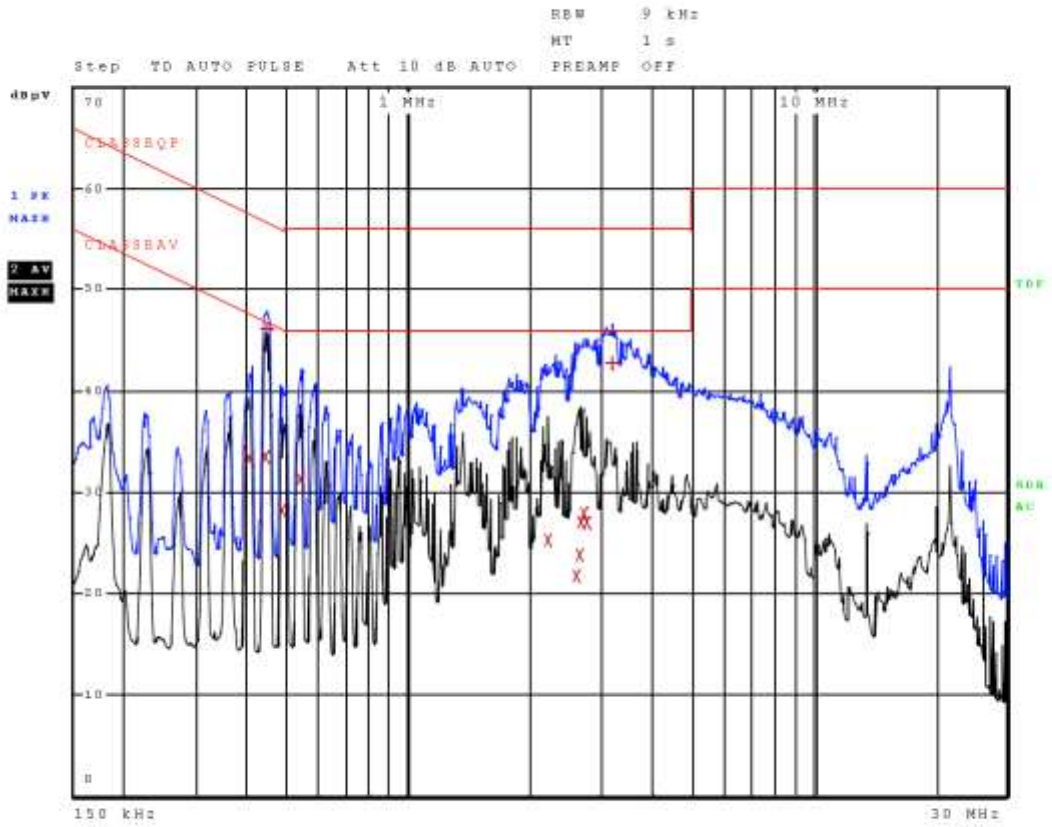
Meas Time: 1 s
Margin: 10 dB
Peaks: 13

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	444.750000000 kHz	42.12	CISPR Averag	-4.85
1	444.750000000 kHz	49.56	Quasi Peak	-7.41
2	584.250000000 kHz	36.50	CISPR Averag	-9.50
2	402.000000000 kHz	37.65	CISPR Averag	-10.16
2	534.750000000 kHz	35.46	CISPR Averag	-10.54
2	489.750000000 kHz	35.03	CISPR Averag	-11.14
2	357.000000000 kHz	37.14	CISPR Averag	-11.66
1	2.793750000 MHz	43.12	Quasi Peak	-12.88
1	3.088500000 MHz	42.53	Quasi Peak	-13.47
2	2.703750000 MHz	29.81	CISPR Averag	-16.19
2	2.748750000 MHz	29.21	CISPR Averag	-16.79
2	3.135750000 MHz	27.77	CISPR Averag	-18.23
2	3.180750000 MHz	27.67	CISPR Averag	-18.33

Meas Type CONDUCTED EMISSION

OP Condition 12 V DC, 915 MHz, RFA

Test Spec
NEUTRAL



Final Measurement

Meas Time: 1 s
Margin: 10 dB
Peaks: 12

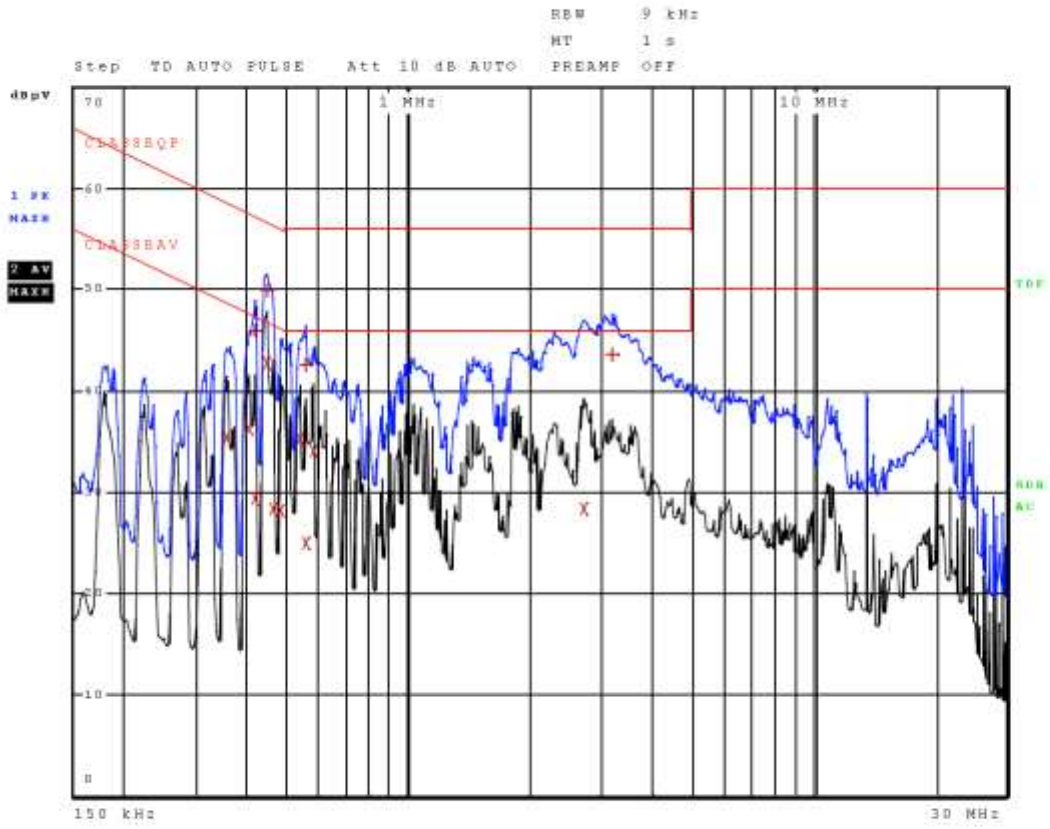
Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
1	444.750000000 kHz	46.12	Quasi Peak	-10.86
1	3.198750000 MHz	42.69	Quasi Peak	-13.31
2	442.500000000 kHz	33.43	CISPR Averag	-13.58
2	404.250000000 kHz	33.25	CISPR Averag	-14.52
2	539.250000000 kHz	31.21	CISPR Averag	-14.79
2	487.500000000 kHz	28.15	CISPR Averag	-18.06
2	2.703750000 MHz	27.91	CISPR Averag	-18.09
2	2.748750000 MHz	27.05	CISPR Averag	-18.95
2	2.658750000 MHz	26.92	CISPR Averag	-19.08
2	2.206500000 MHz	25.26	CISPR Averag	-20.74
2	2.634000000 MHz	23.75	CISPR Averag	-22.25
2	2.589000000 MHz	21.66	CISPR Averag	-24.34

Meas Type CONDUCTED EMISSION

OP Condition 12 V DC, 915 MHz, RFB

Test Spec

PHASE



Final Measurement

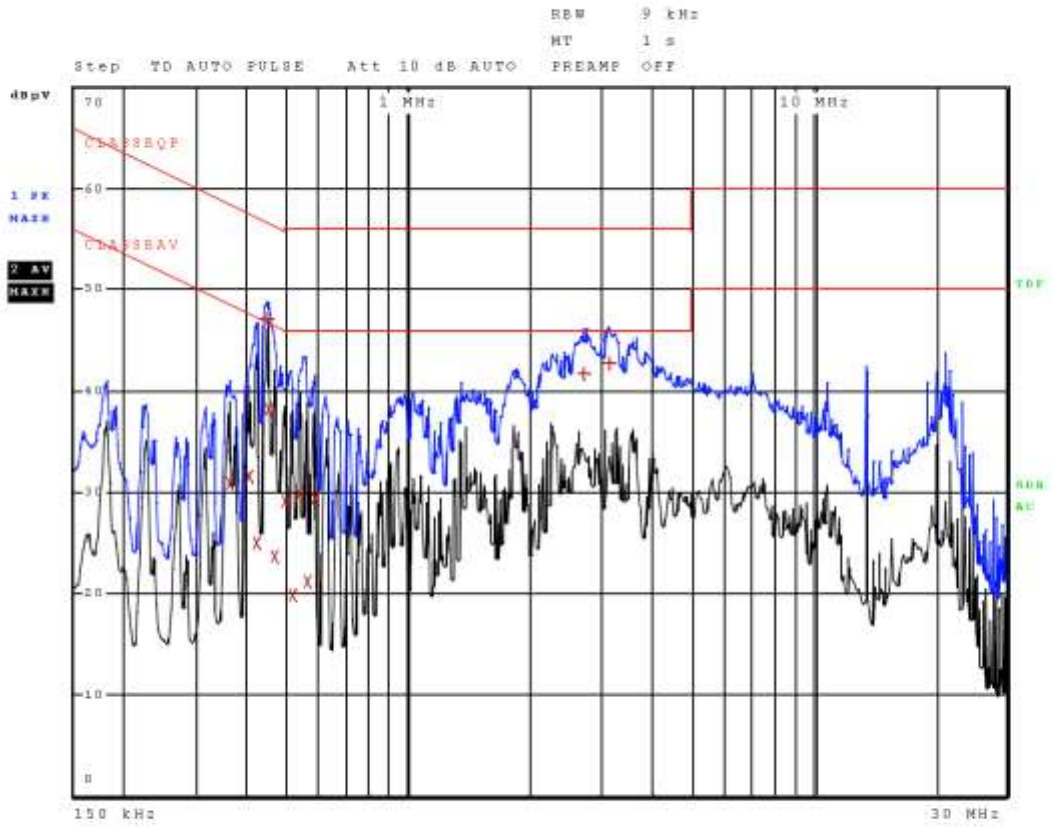
Meas Time: 1 s
Margin: 10 dB
Peaks: 14

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	444.750000000 kHz	42.65	CISPR Averag	-4.32
1	444.750000000 kHz	49.98	Quasi Peak	-6.99
2	537.000000000 kHz	35.18	CISPR Averag	-10.82
1	417.750000000 kHz	46.00	Quasi Peak	-11.49
2	404.250000000 kHz	36.21	CISPR Averag	-11.55
2	579.750000000 kHz	34.09	CISPR Averag	-11.91
1	3.180750000 MHz	43.59	Quasi Peak	-12.41
1	555.000000000 kHz	42.54	Quasi Peak	-13.46
2	354.750000000 kHz	35.34	CISPR Averag	-13.51
2	2.706000000 MHz	28.36	CISPR Averag	-17.64
2	483.000000000 kHz	28.12	CISPR Averag	-18.16
2	417.750000000 kHz	29.27	CISPR Averag	-18.22
2	462.750000000 kHz	28.33	CISPR Averag	-18.31
2	555.000000000 kHz	24.96	CISPR Averag	-21.04

Meas Type CONDUCTED EMISSION

OP Condition 12 V DC, 915 MHz, RFB

Test Spec
NEUTRAL



Final Measurement

Meas Time: 1 s
Margin: 10 dB
Peaks: 13

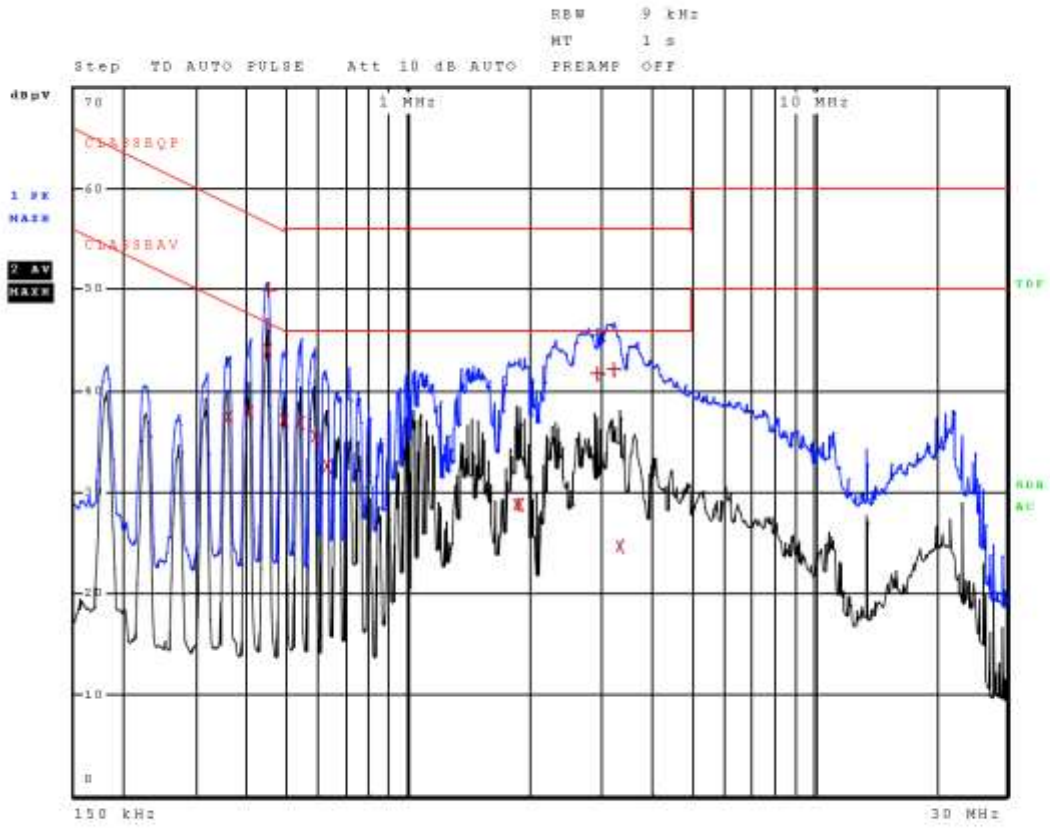
Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	449.250000000 kHz	38.16	CISPR Averag	-8.72
1	444.750000000 kHz	47.17	Quasi Peak	-9.80
1	3.140250000 MHz	42.72	Quasi Peak	-13.28
1	2.712750000 MHz	41.70	Quasi Peak	-14.30
2	404.250000000 kHz	31.56	CISPR Averag	-16.21
2	539.250000000 kHz	29.78	CISPR Averag	-16.22
2	584.250000000 kHz	29.30	CISPR Averag	-16.70
2	494.250000000 kHz	29.10	CISPR Averag	-16.99
2	359.250000000 kHz	30.75	CISPR Averag	-17.99
2	420.000000000 kHz	24.92	CISPR Averag	-22.52
2	467.250000000 kHz	23.55	CISPR Averag	-23.01
2	559.500000000 kHz	21.11	CISPR Averag	-24.89
2	514.500000000 kHz	19.80	CISPR Averag	-26.20

Meas Type CONDUCTED EMISSION

OP Condition 12 V DC, 927.4 MHz, RFA

Test Spec

PHASE



Final Measurement

Meas Time: 1 s
Margin: 10 dB
Peaks: 13

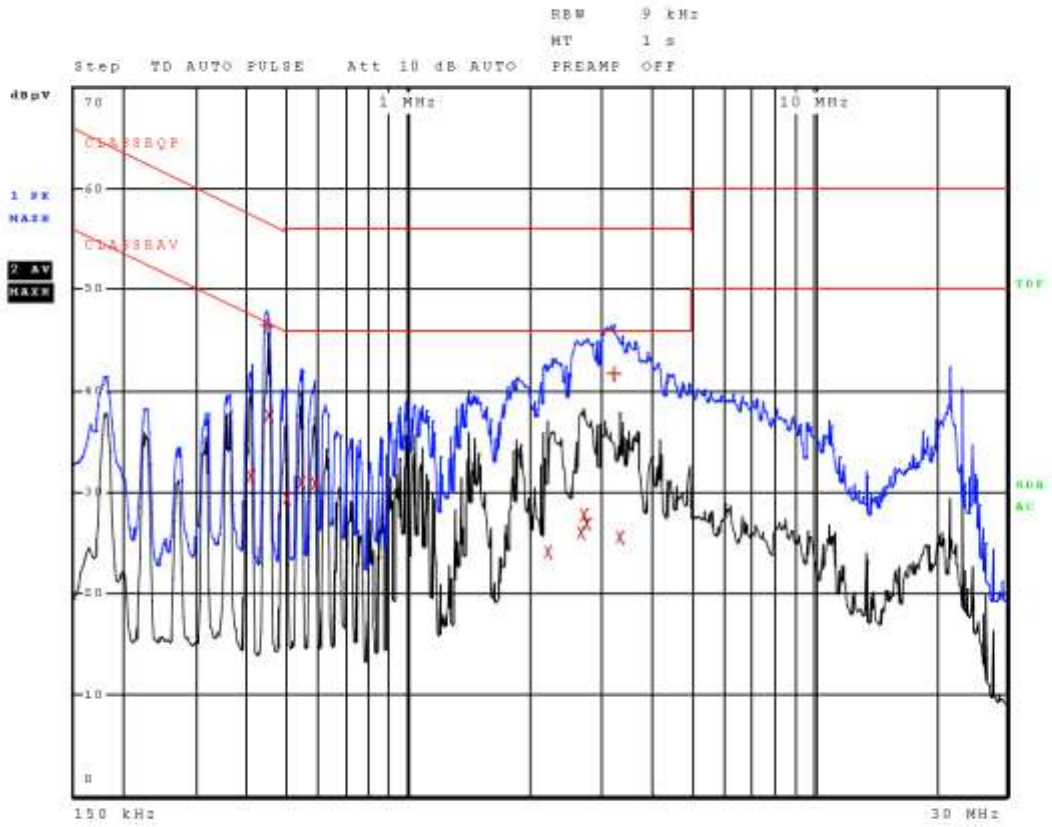
Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	447.000000000 kHz	44.00	CISPR Averag	-2.93
1	449.250000000 kHz	50.00	Quasi Peak	-6.89
2	492.000000000 kHz	37.09	CISPR Averag	-9.04
2	537.000000000 kHz	36.90	CISPR Averag	-9.10
2	402.000000000 kHz	37.92	CISPR Averag	-9.89
2	584.250000000 kHz	35.52	CISPR Averag	-10.48
2	357.000000000 kHz	37.38	CISPR Averag	-11.42
2	629.250000000 kHz	32.51	CISPR Averag	-13.49
1	3.212250000 MHz	42.08	Quasi Peak	-13.92
1	2.926500000 MHz	41.62	Quasi Peak	-14.38
2	1.889250000 MHz	28.78	CISPR Averag	-17.22
2	1.844250000 MHz	28.77	CISPR Averag	-17.23
2	3.313500000 MHz	24.66	CISPR Averag	-21.34

Meas Type CONDUCTED EMISSION

OP Condition 12 V DC, 927.4 MHz, RFA

Test Spec

NEUTRAL



Final Measurement

Meas Time: 1 s
Margin: 10 dB
Peaks: 12

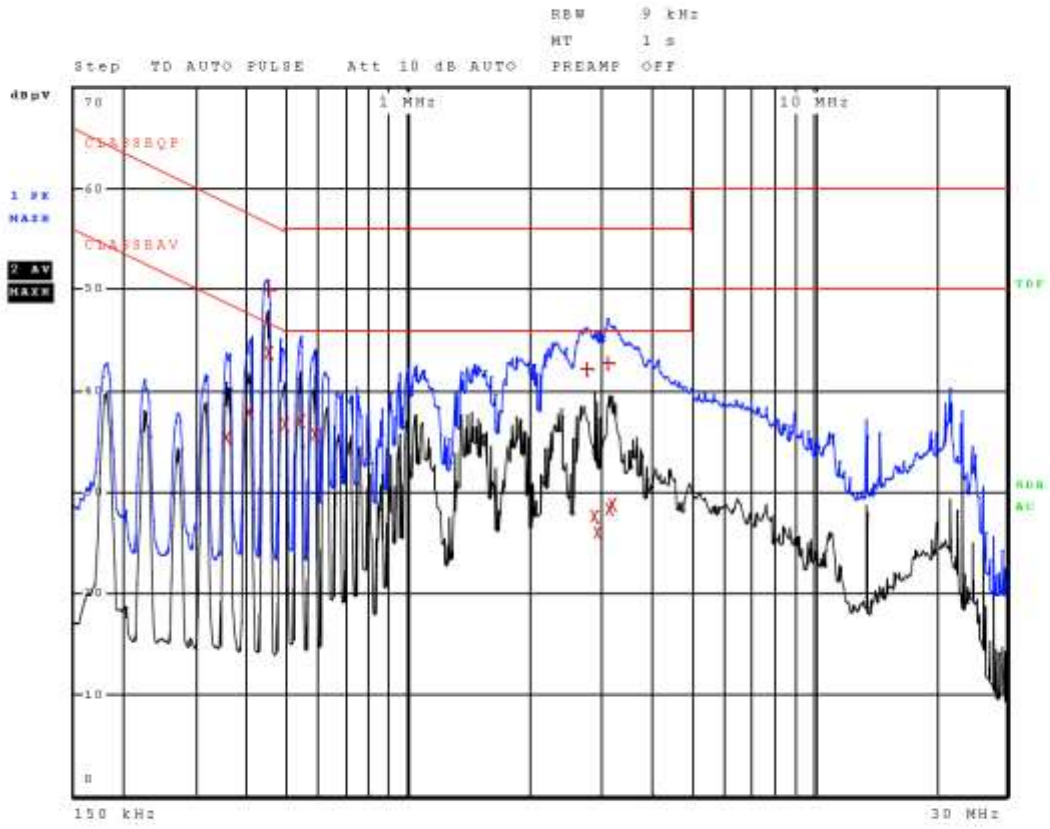
Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	451.500000000 kHz	37.62	CISPR Averag	-9.23
1	447.000000000 kHz	46.43	Quasi Peak	-10.50
1	3.212250000 MHz	41.63	Quasi Peak	-14.37
2	541.500000000 kHz	30.93	CISPR Averag	-15.07
2	584.250000000 kHz	30.84	CISPR Averag	-15.16
2	406.500000000 kHz	31.48	CISPR Averag	-16.24
2	496.500000000 kHz	29.37	CISPR Averag	-16.68
2	2.701500000 MHz	27.69	CISPR Averag	-18.31
2	2.746500000 MHz	26.83	CISPR Averag	-19.17
2	2.656500000 MHz	25.89	CISPR Averag	-20.11
2	3.329250000 MHz	25.53	CISPR Averag	-20.47
2	2.206500000 MHz	24.11	CISPR Averag	-21.89

Meas Type CONDUCTED EMISSION

OP Condition 12 V DC, 927.4 MHz, RFB

Test Spec

PHASE



Final Measurement

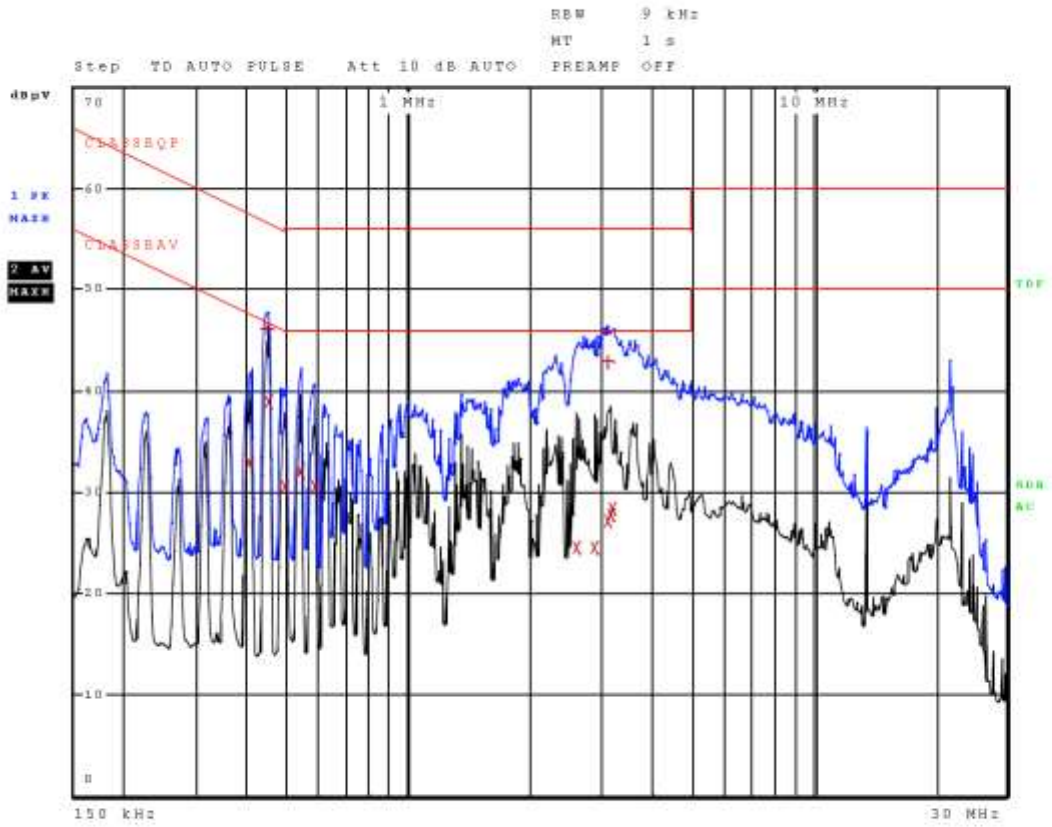
Meas Time: 1 s
Margin: 10 dB
Peaks: 13

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	449.250000000 kHz	43.80	CISPR Averag	-3.09
1	449.250000000 kHz	49.89	Quasi Peak	-7.00
2	539.250000000 kHz	36.93	CISPR Averag	-9.07
2	494.250000000 kHz	36.72	CISPR Averag	-9.38
2	404.250000000 kHz	37.92	CISPR Averag	-9.85
2	584.250000000 kHz	35.61	CISPR Averag	-10.39
1	3.111000000 MHz	42.67	Quasi Peak	-13.33
2	354.750000000 kHz	35.38	CISPR Averag	-13.47
1	2.766750000 MHz	42.13	Quasi Peak	-13.87
2	3.189750000 MHz	28.68	CISPR Averag	-17.32
2	3.144750000 MHz	28.25	CISPR Averag	-17.75
2	2.883750000 MHz	27.59	CISPR Averag	-18.41
2	2.928750000 MHz	25.94	CISPR Averag	-20.06

Meas Type CONDUCTED EMISSION

OP Condition 12 V DC, 927,4 MHz, RFB

Test Spec
NEUTRAL



Final Measurement

Meas Time: 1 s
Margin: 10 dB
Peaks: 12

Trace	Frequency	Level (dBµV)	Detector	Delta Limit/dB
2	449.250000000 kHz	38.84	CISPR Averag	-8.05
1	444.750000000 kHz	46.06	Quasi Peak	-10.92
1	3.106500000 MHz	42.83	Quasi Peak	-13.17
2	539.250000000 kHz	31.96	CISPR Averag	-14.04
2	404.250000000 kHz	32.91	CISPR Averag	-14.86
2	584.250000000 kHz	30.54	CISPR Averag	-15.46
2	494.250000000 kHz	30.57	CISPR Averag	-15.53
2	3.192000000 MHz	28.24	CISPR Averag	-17.76
2	3.147000000 MHz	27.71	CISPR Averag	-18.29
2	3.102000000 MHz	27.12	CISPR Averag	-18.88
2	2.879250000 MHz	24.53	CISPR Averag	-21.47
2	2.607000000 MHz	24.44	CISPR Averag	-21.56

§15.247 (a) (1) 20 dB Bandwidth

Requirement

For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.

Test procedure:
As per Clause 6.9.2 from ANSI C63.10-2013

Tabulated test results

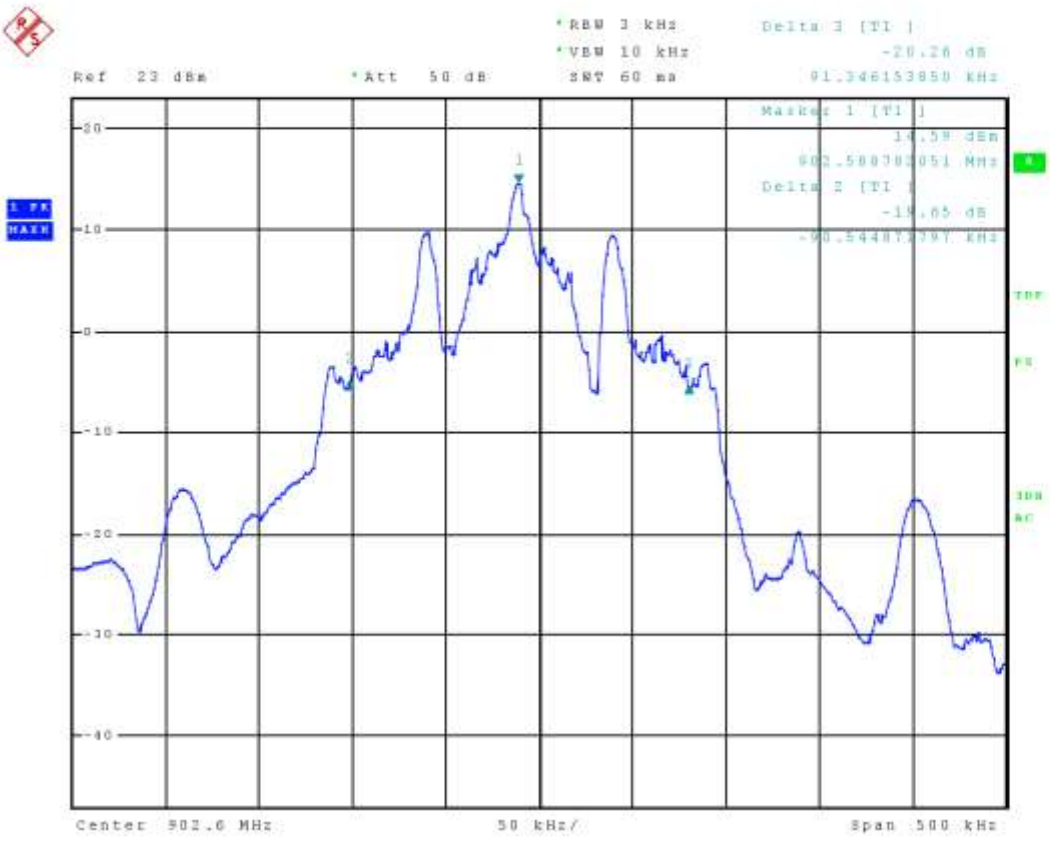
Frequency (MHz)	Transmitter	Occupied bandwidth (kHz)	Limit (kHz)	Conclusion
902.6	RFA	181,89	500	PASS
915.0	RFA	181,89	500	PASS
927.4	RFA	180,29	500	PASS
902.6	RFB	209,94	500	PASS
915.0	RFB	209,94	500	PASS
927.4	RFB	193,11	500	PASS

Conclusion: PASS

Test results

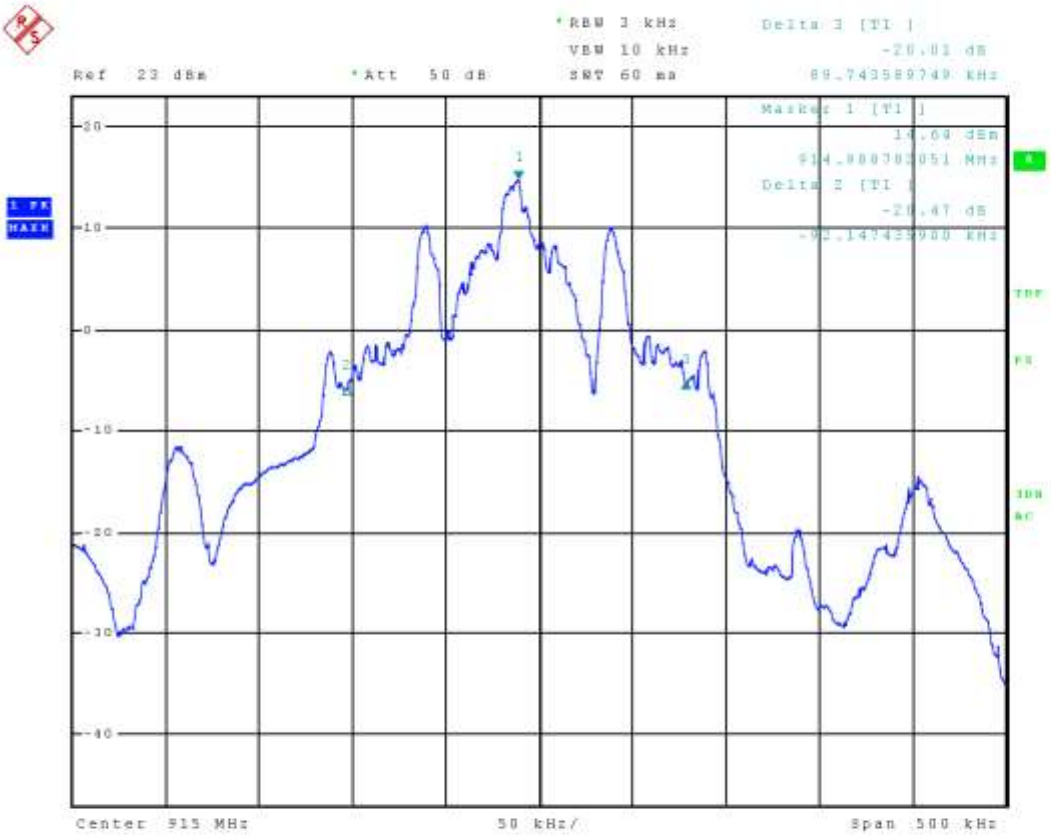
Meas Type 20 dB BANDWIDTH

OP Condition 902.6 MHz, RFA, NON-HOPPING



Meas Type 20 dB BANDWIDTH

OP Condition 915 MHz, RFA, NON-HOPPING

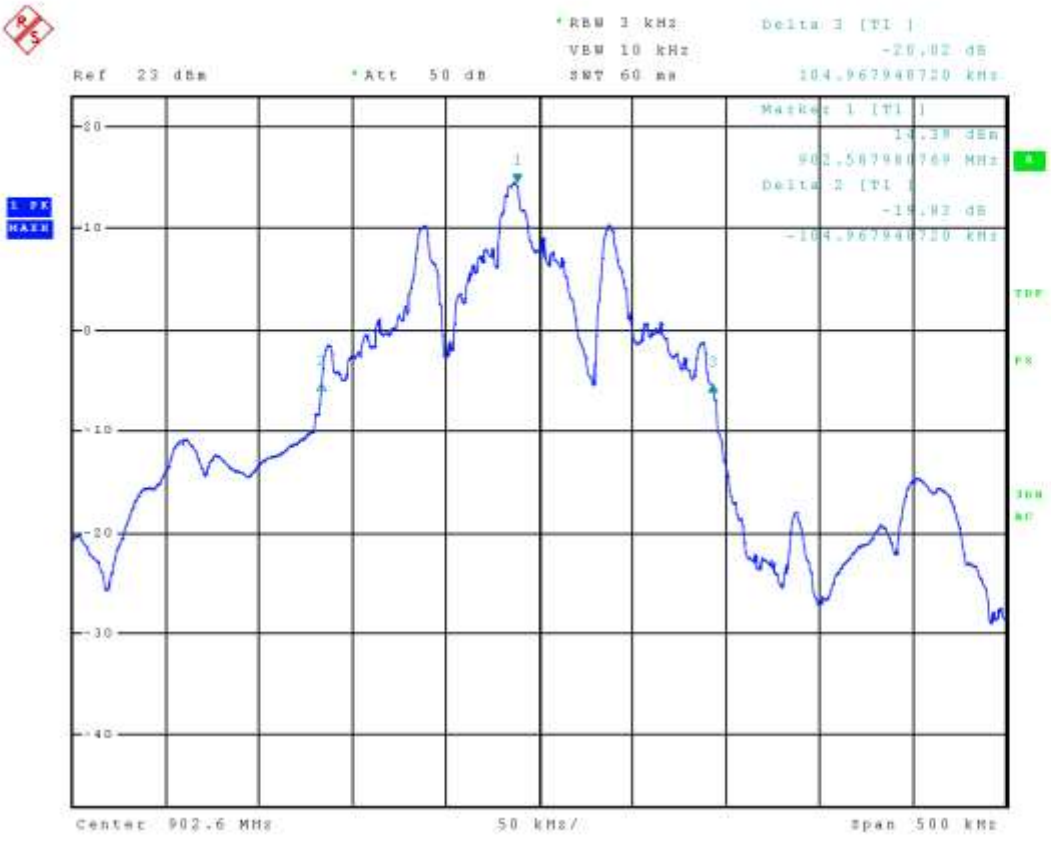


Meas Type 20 dB BANDWIDTH

OP Condition 927.4 MHz, RFA, NON-HOPPING

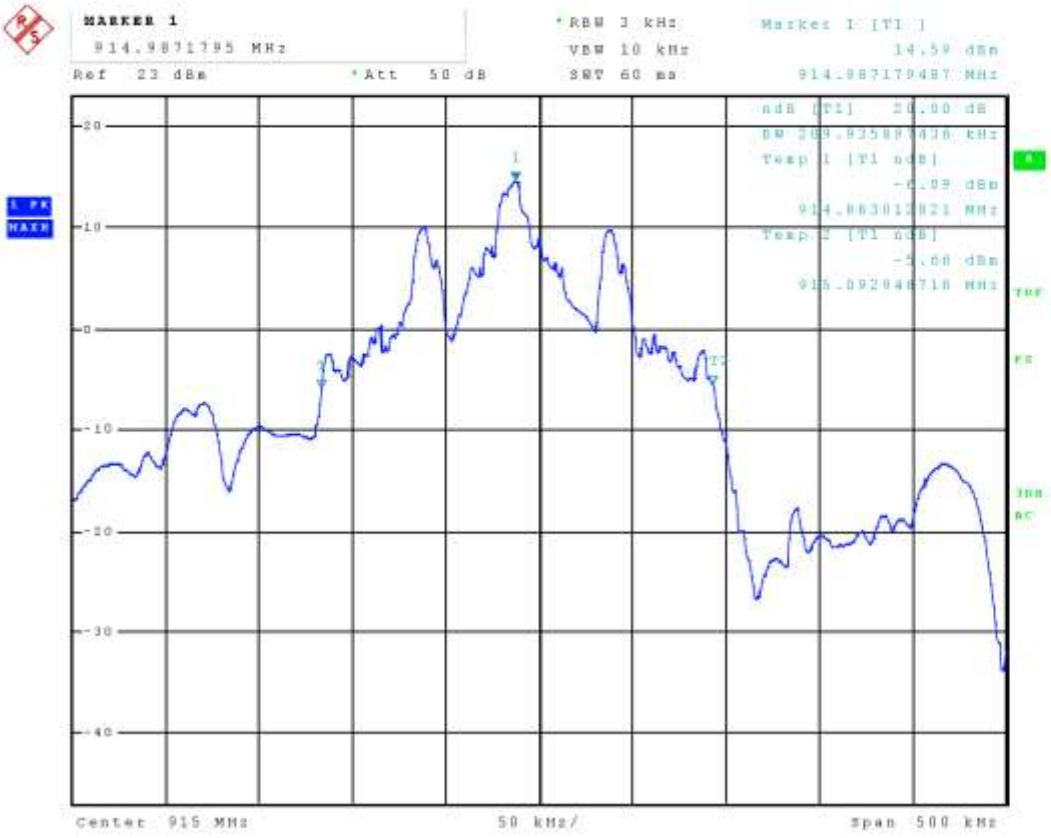
Meas Type 20 dB BANDWIDTH

OP Condition 902.6 MHz, RFB, NON-HOPPING



Meas Type 20 dB BANDWIDTH

OP Condition 915 MHz, RFB, NON-HOPPING



Meas Type 20 dB BANDWIDTH

OP Condition 927.4 MHz, RFB, NON-HOPPING

3.3 §15.247 (a) (1) Time of Occupancy (Dwell Time)

Requirement
If the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period; if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.

Test procedure:
As per Clause 7.8.4 from ANSI C63.10-2013

Conclusion: PASS

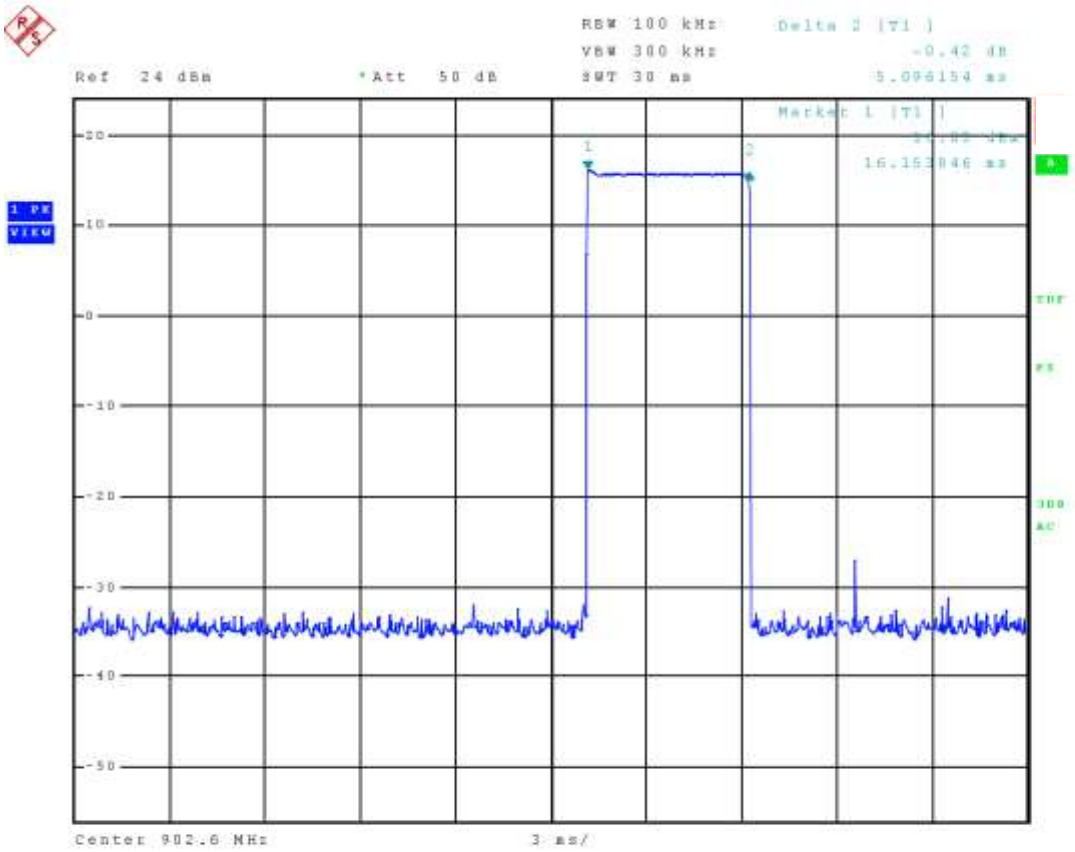
Tabulated test results

Frequency (MHz)	Transmitter	Measured Dwell time (ms)	Maximum occupied dwell time of each frequency (ms)	Limit	Conclusion
902.6	RFA	5.1	104	400 ms in 20 s period	PASS
915.0	RFA	5.1	104	400 ms in 20 s period	PASS
927.4	RFA	5.1	104	400 ms in 20 s period	PASS
902.6	RFB	5.0	100	400 ms in 20 s period	PASS
915.0	RFB	5.0	100	400 ms in 20 s period	PASS
927.4	RFB	5.0	100	400 ms in 20 s period	PASS

*Note: Two frequencies are used per second (declared by manufacturer).

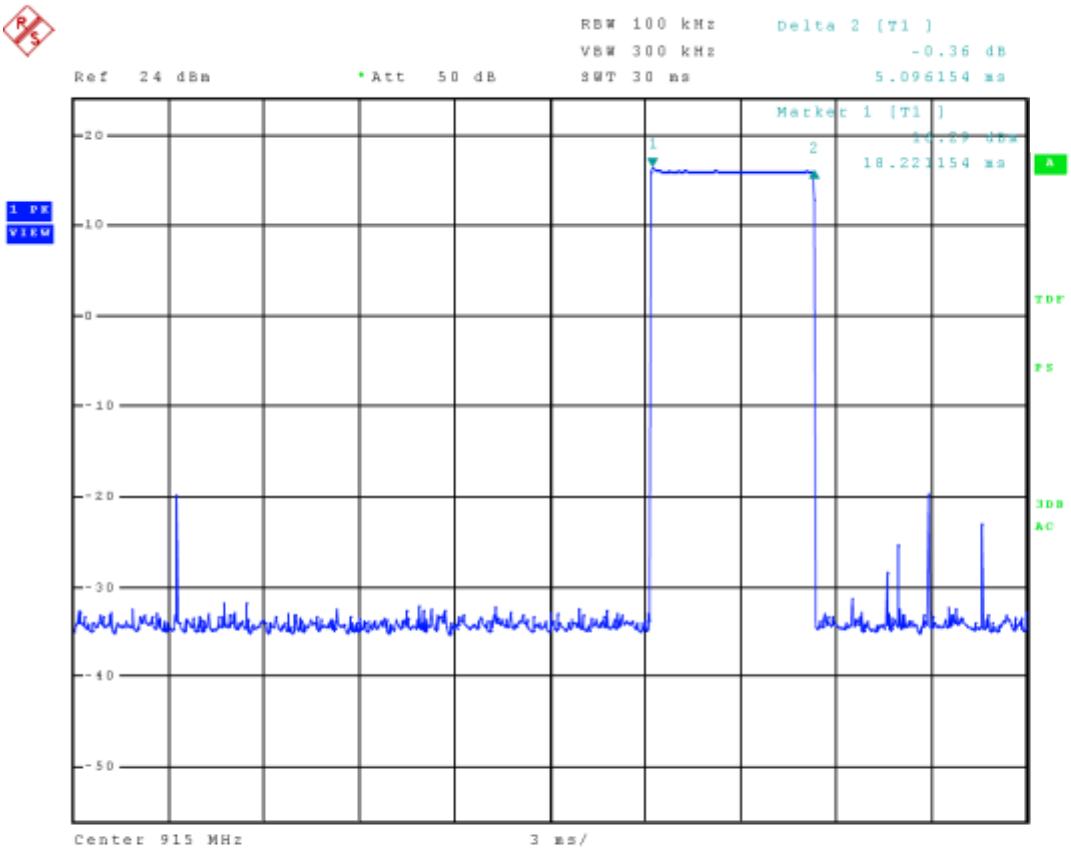
Meas Type PEAK OUTPUT POWER

OP Condition 902.6 MHz, RFA, HOPPING



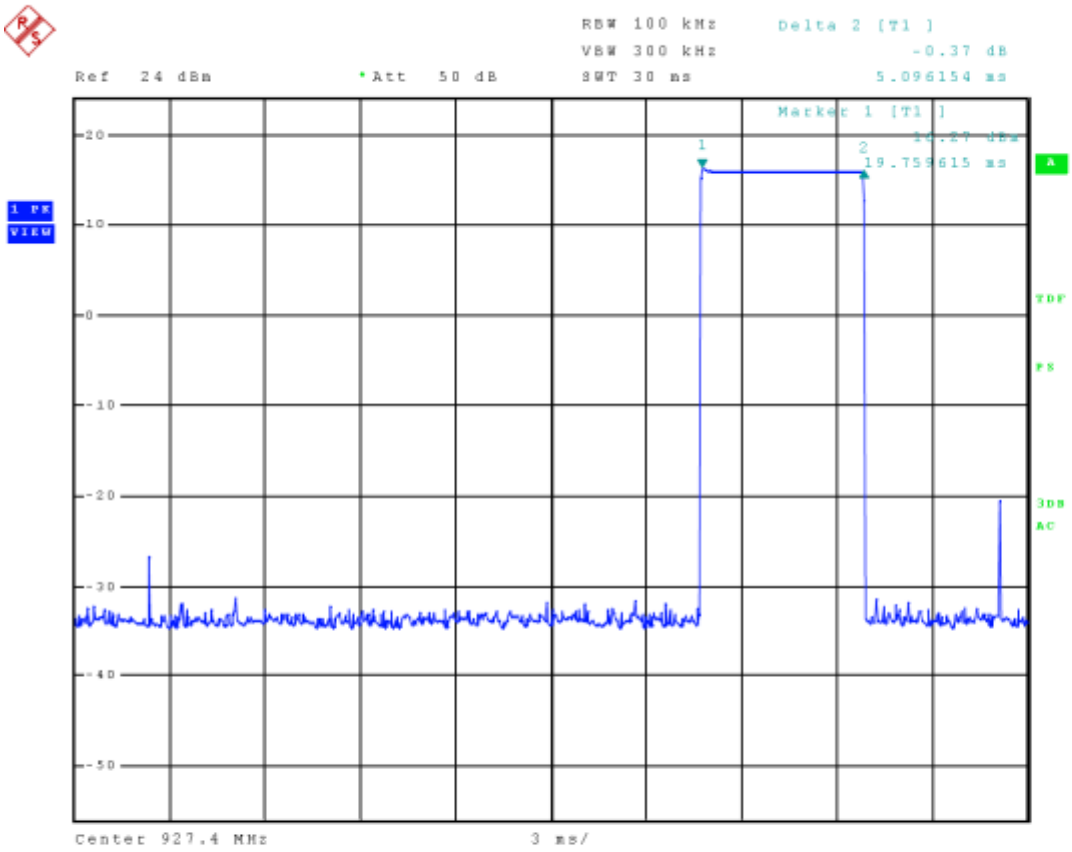
Meas Type PEAK OUTPUT POWER

OP Condition 915.0 MHz, RFA, HOPPING



Meas Type PEAK OUTPUT POWER

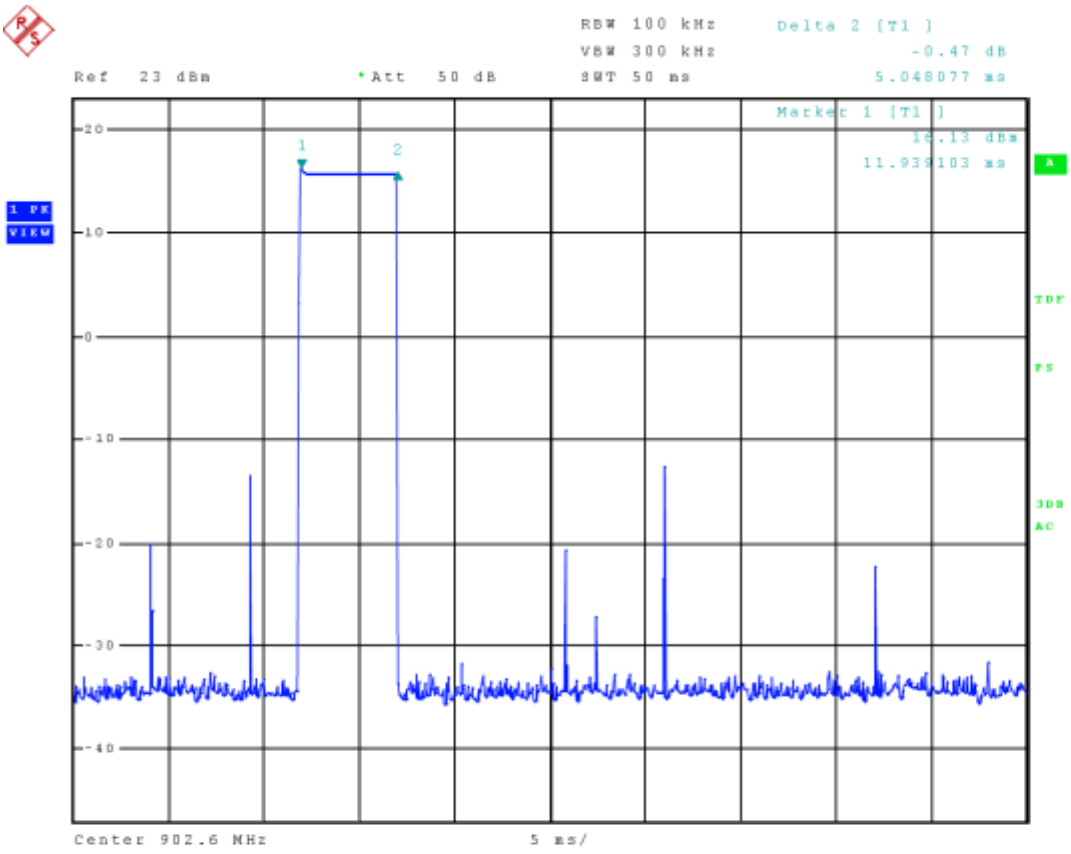
OP Condition 927.4 MHz, RFA, HOPPING



Result:

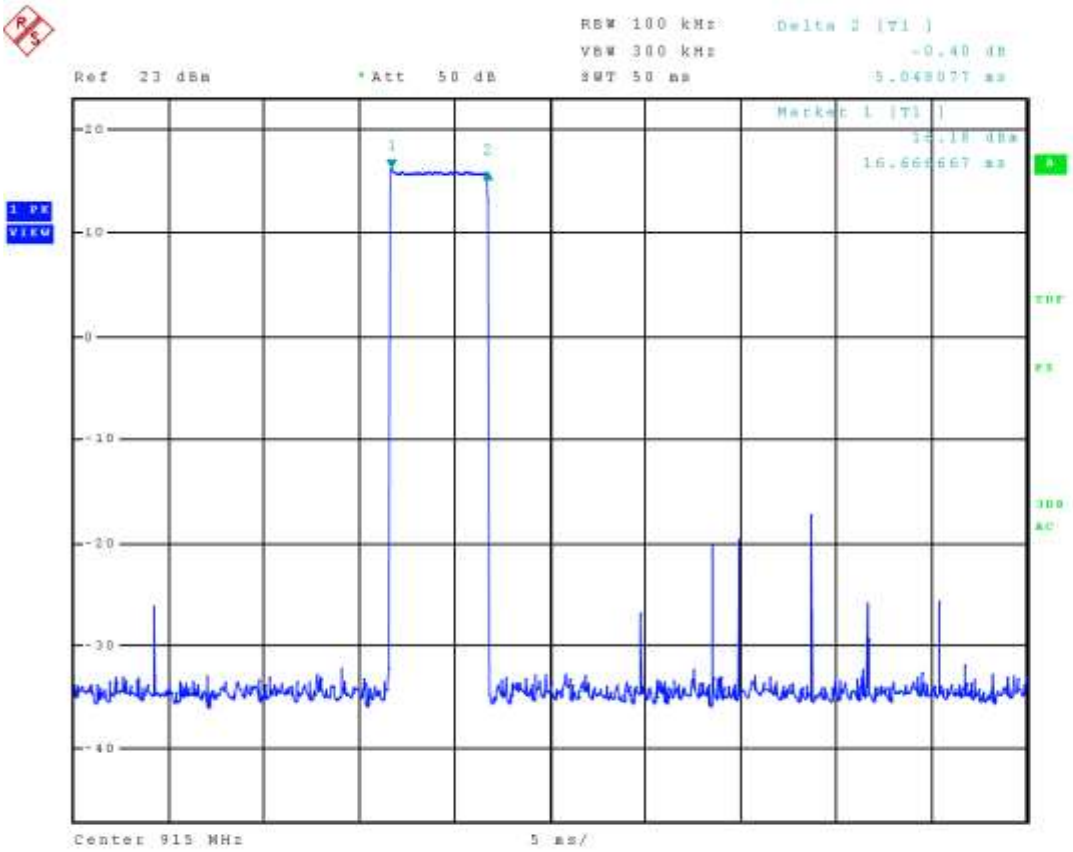
Meas Type DWELL TIME

OP Condition 902.6 MHz, RFB, HOPPING



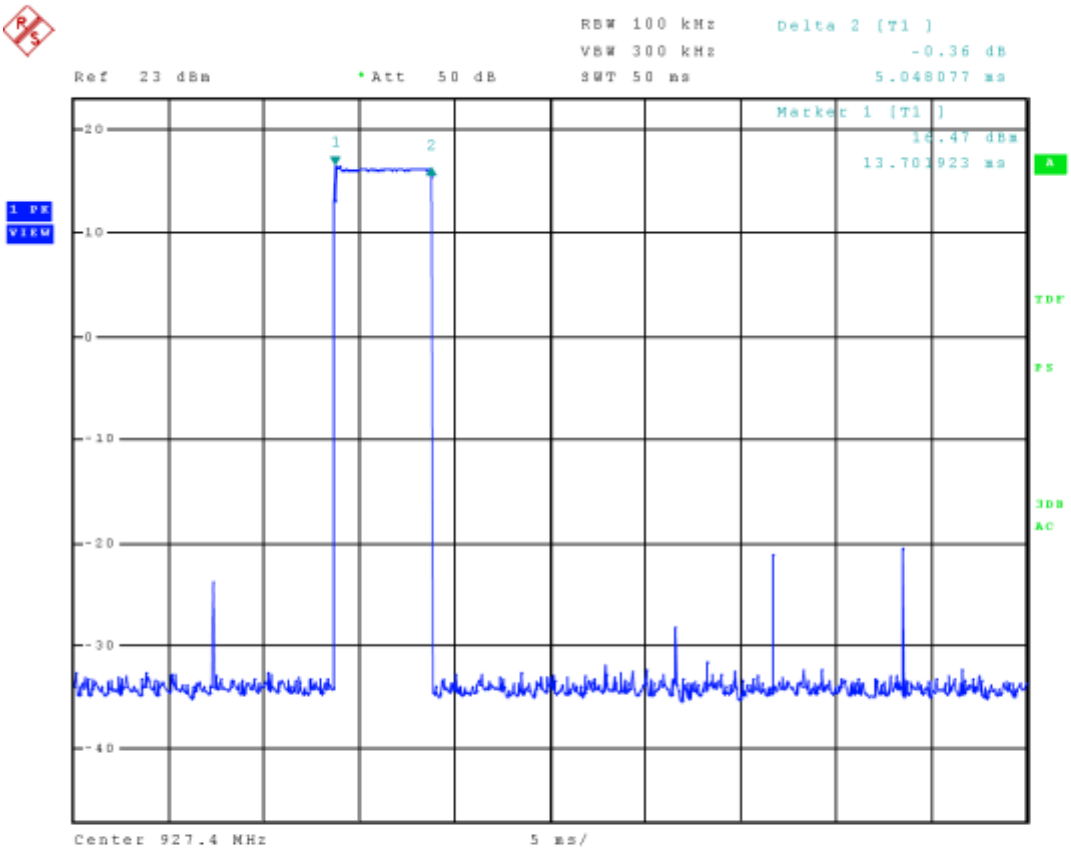
Meas Type DWELL TIME

OP Condition 915.0 MHz, RFB, HOPPING



Meas Type DWELL TIME

OP Condition 927.4 MHz, RFB, HOPPING



3.4 §15.247 (a) (1) Number of Hopping Frequencies

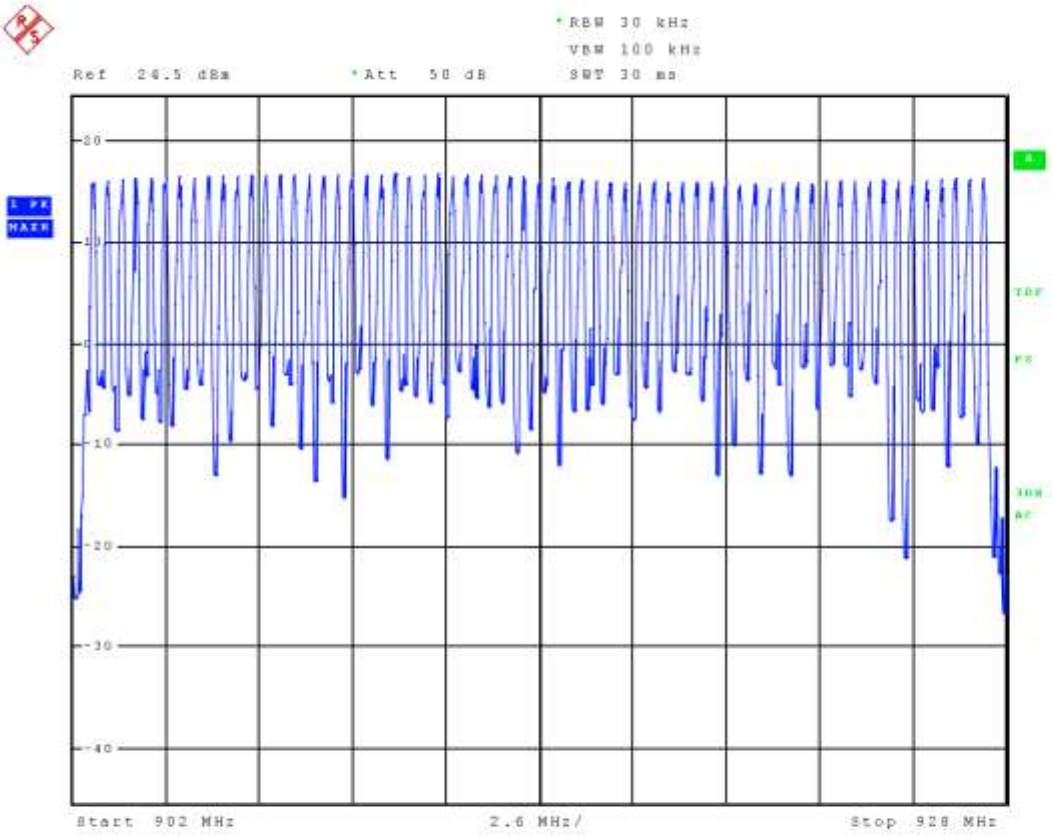
Requirement
For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies

Test procedure:
As per Clause 7.8.3 from ANSI C63.10-2013

Conclusion: PASS

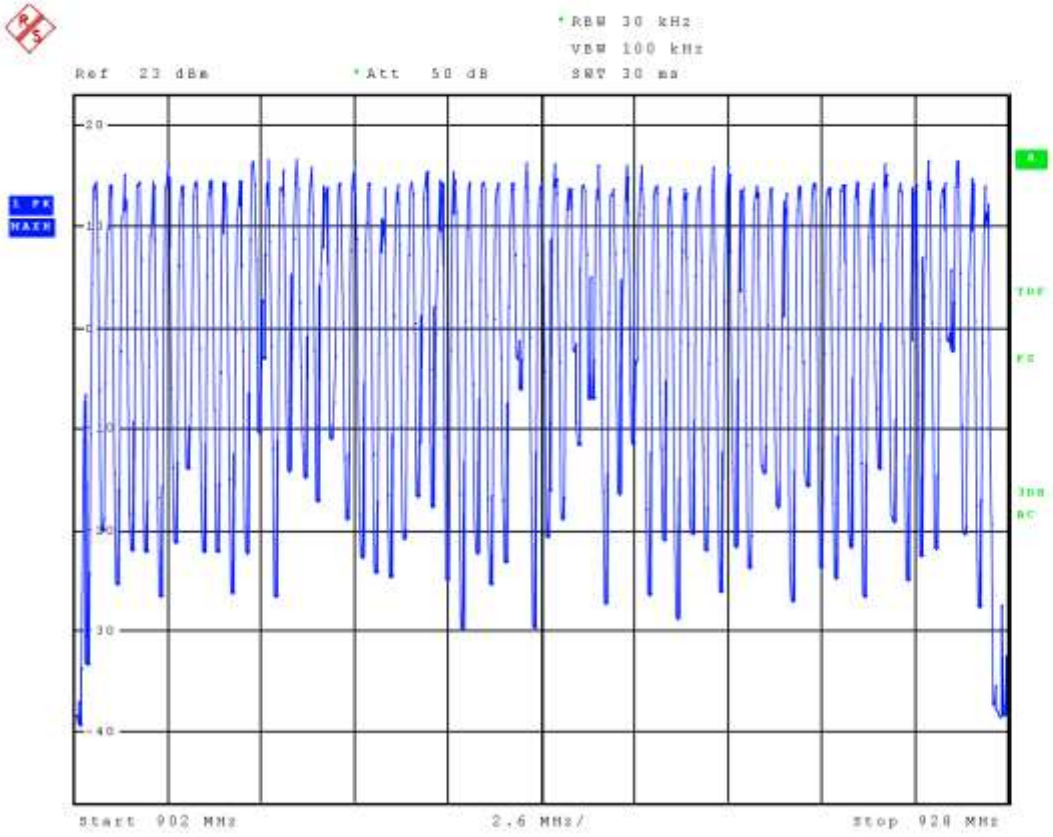
Test results

Meas Type	NUMBER OF CHANNELS
OP Condition	RFA, HOPPING



Meas Type NUMNER OF CHANNELS

OP Condition HOPPING, RFB



3.5 §15.247 (a) (1) Carrier Frequency Separation

Requirement
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.

Procedure
As per Clause 7.8.2 from ANSI C63.10-2013

Conclusion: PASS

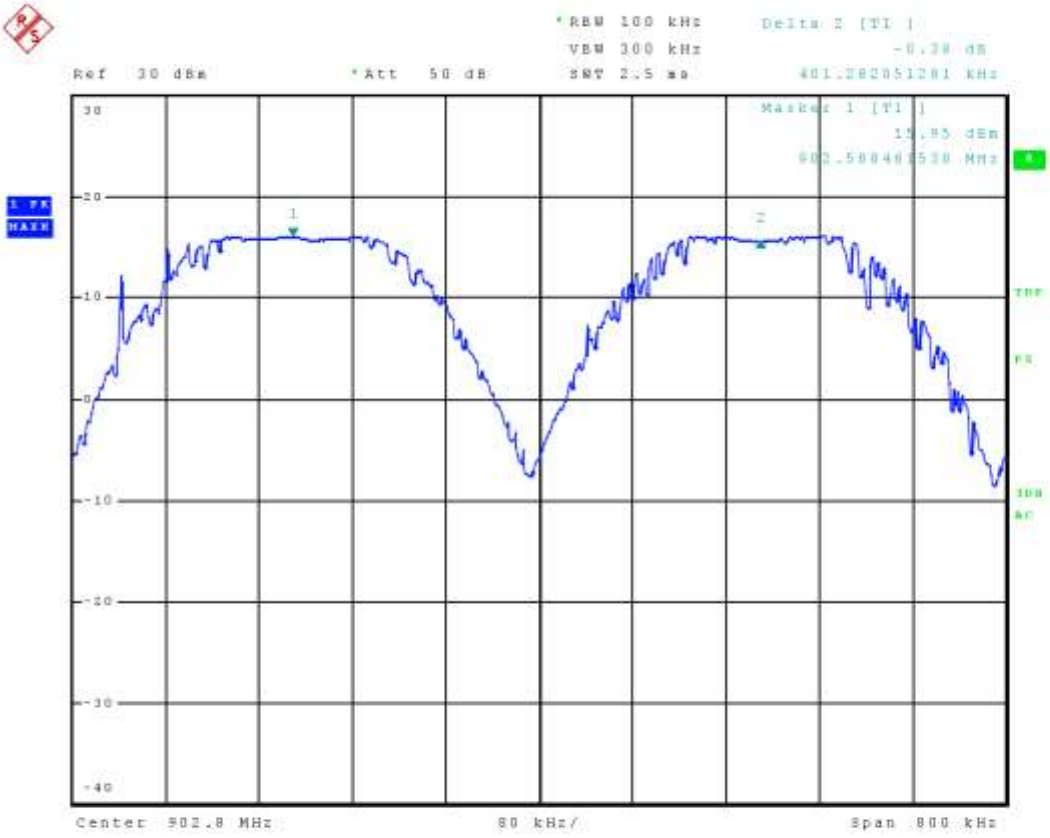
Tabulated test results

Frequency (MHz)	Transmitter	Channel separation (kHz)	Limit (kHz)	Conclusion
902.6	RFA	401	210	PASS
915.0	RFA	403	210	PASS
927.4	RFA	403	210	PASS
902.6	RFB	401	210	PASS
915.0	RFB	399	210	PASS
927.4	RFB	401	210	PASS

Test results

Meas Type CHANNEL FREQUENCY SEPARATION

OP Condition RFA, HOPPING

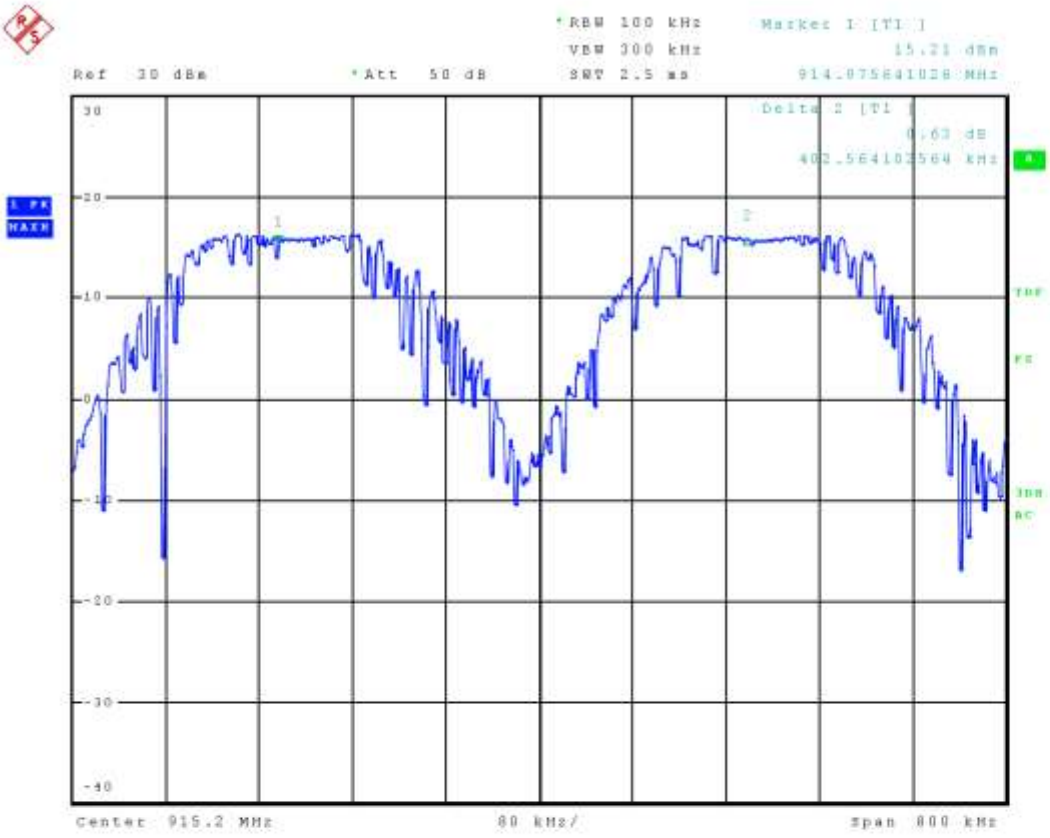


Meas Type CHANNEL FREQUENCY SEPARATION

OP Condition RFB, HOPPING

Meas Type CHANNEL FREQUENCY SEPARATION

OP Condition RFA, HOPPING

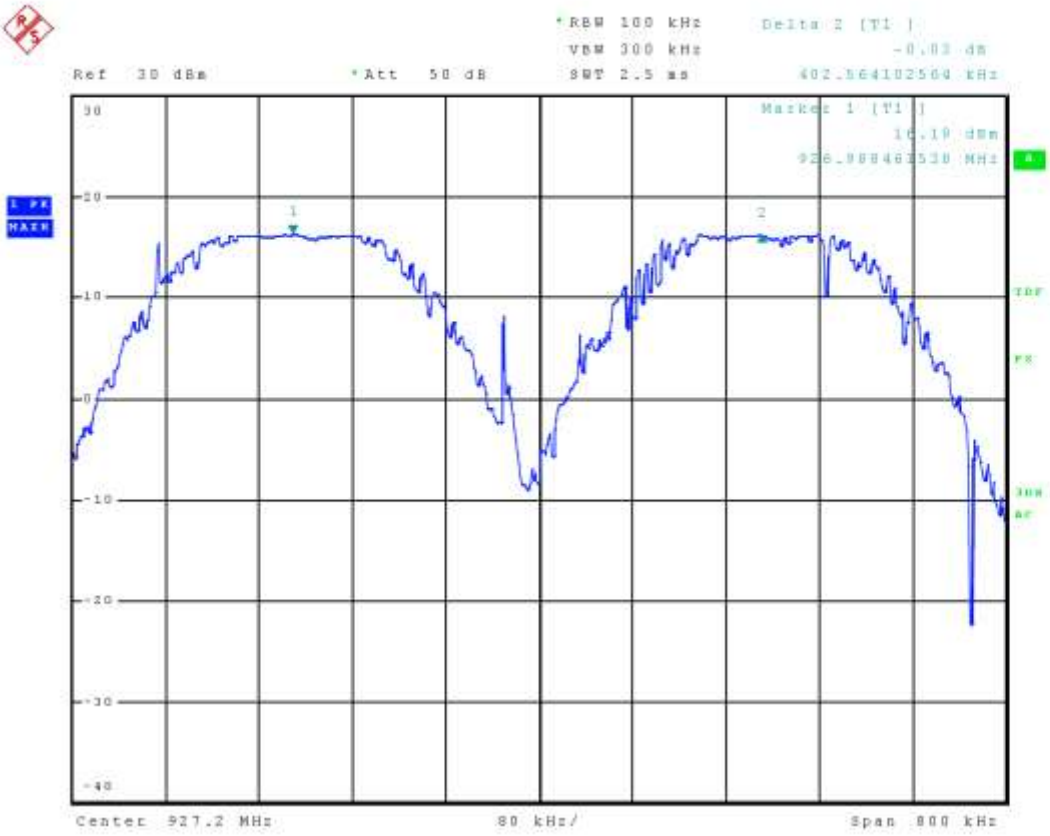


Meas Type CHANNEL FREQUENCY SEPARATION

OP Condition RFB, HOPPING

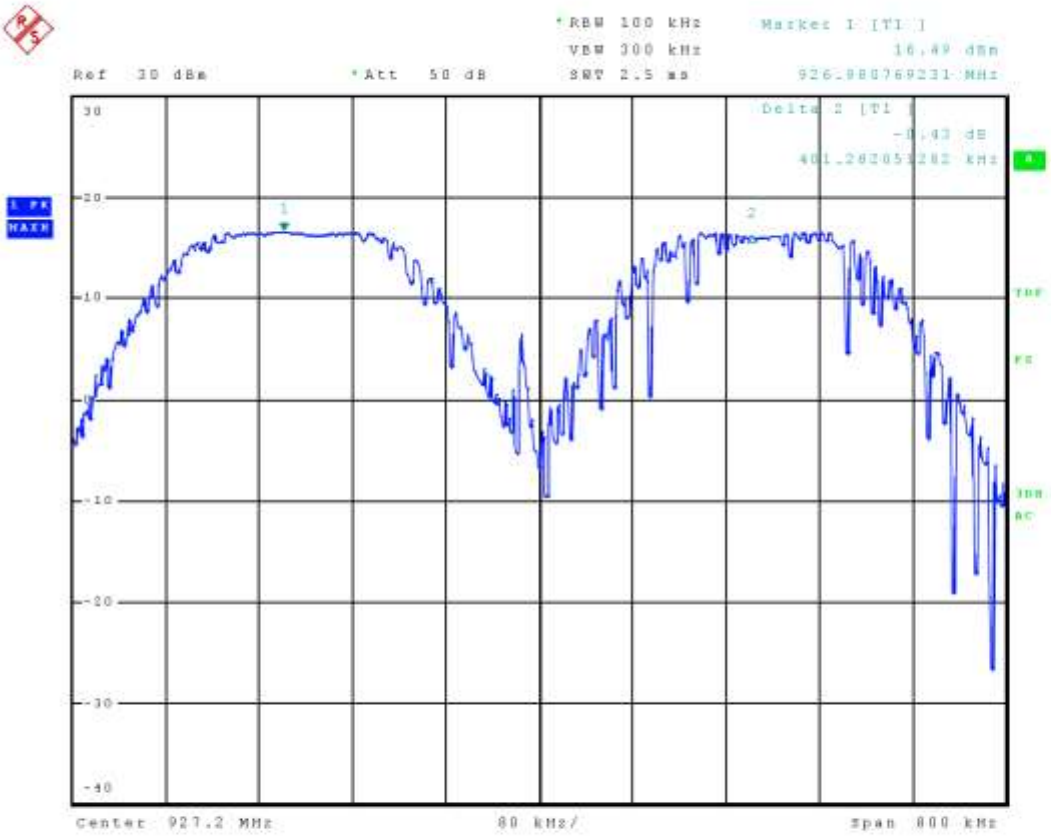
Meas Type CHANNEL FREQUENCY SEPARATION

OP Condition RFA, HOPPING



Meas Type CHANNEL FREQUENCY SEPARATION

OP Condition RFB, HOPPING



3.6 §15.247 (a) (1) Pseudorandom Frequency Hopping Sequence and Equal Hooping Frequency Use

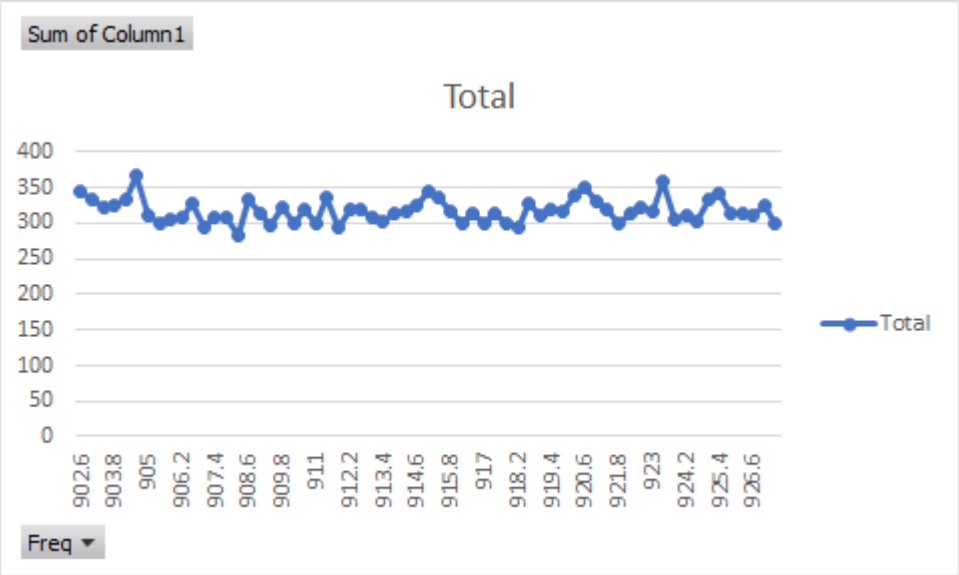
Declared by manufacturer:

Pseudorandom frequency hopping sequence:
Describe how the hopping sequence is generated. Provide an example of the hopping sequence channels, to demonstrate that the sequence meets the requirement specified in the definition of an FHSS system, found in Section 2.1(c). Per the definition in Section 2.1(c), the hop set shall appear as random in the near term, shall appear as evenly distributed in the long term, and sequential hops shall be randomly distributed in both direction and magnitude of change.

The hopping sequence is generated from a pseudo-random source, based on the current GPS time. Two frequencies are used per second.

Equal hopping frequency use:
Describe how each individual EUT meets the requirement that each of its hopping channels is used equally on average (e.g., that each new transmission event begins on the next channel in the hopping sequence after the final channel used in the previous transmission event).

The figure shows the number of times a particular frequency was used over 10.000 s:



Since the frequency selection is pseudo-random based on the timestamp, and since every frequency slot is used for exactly one transmission, it is clear that on average you get uniform usage also.

System receiver input bandwidth:
Describe how the associated receiver(s) complies with the requirement that the input bandwidth (either RF or IF) matches the bandwidth of the transmitted signal.

This can be derived from the datasheet of the transceiver: http://infocenter.nordicsemi.com/pdf/nRF905_PS_v1.5.pdf, page 11.

System receiver hopping capability:
Describe how the associated receiver(s) has the ability to shift frequencies in synchronization with the transmitted signals.

This is not applicable as all participants are strictly synchronized by GPS time / UTC.

3.7 §15.247 (b) Peak Power Output

Requirement
The maximum peak conducted output power of the intentional radiator shall not exceed the following:
For frequency hopping systems operating in the 902-928 MHz band: 1 watt (30 dBm) for systems employing at least 50 hopping channels.

Test Procedure
As per Clause 7.8.5 from ANSI C63.10-2013

Calculation of final measurements:

Conducted power (W) = Receiver reading (dBm) + AG (dB)

where:

Conducted power = Final measurement result
Receiver Reading = Uncorrected amplitude measured by the receiver
AG = Antenna Gain

Conclusion: PASS

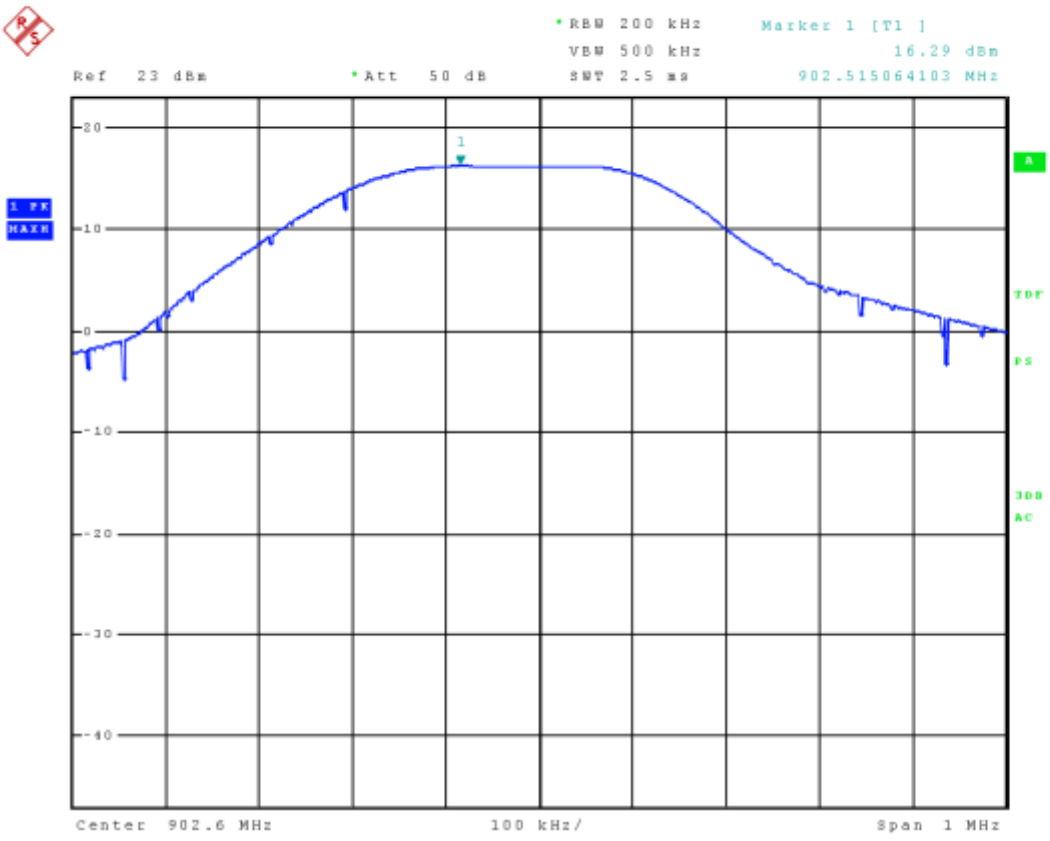
Tabulated test results

Frequency (MHz)	Antenna	Receiver reading (dBm)	Antenna Gain (dBi)	Conducted power (W)	Limit (W)	Conclusion
902.6	RFA	16.29	2.15	0.07	1	**PASS**
915.0	RFA	16.57	2.15	0.07	1	**PASS**
927.8	RFA	16.52	2.15	0.07	1	**PASS**
902.6	RFB	16.45	2.15	0.07	1	**PASS**
915.0	RFB	16.52	2.15	0.07	1	**PASS**
927.8	RFB	16.87	2.15	0.08	1	**PASS**

Test results

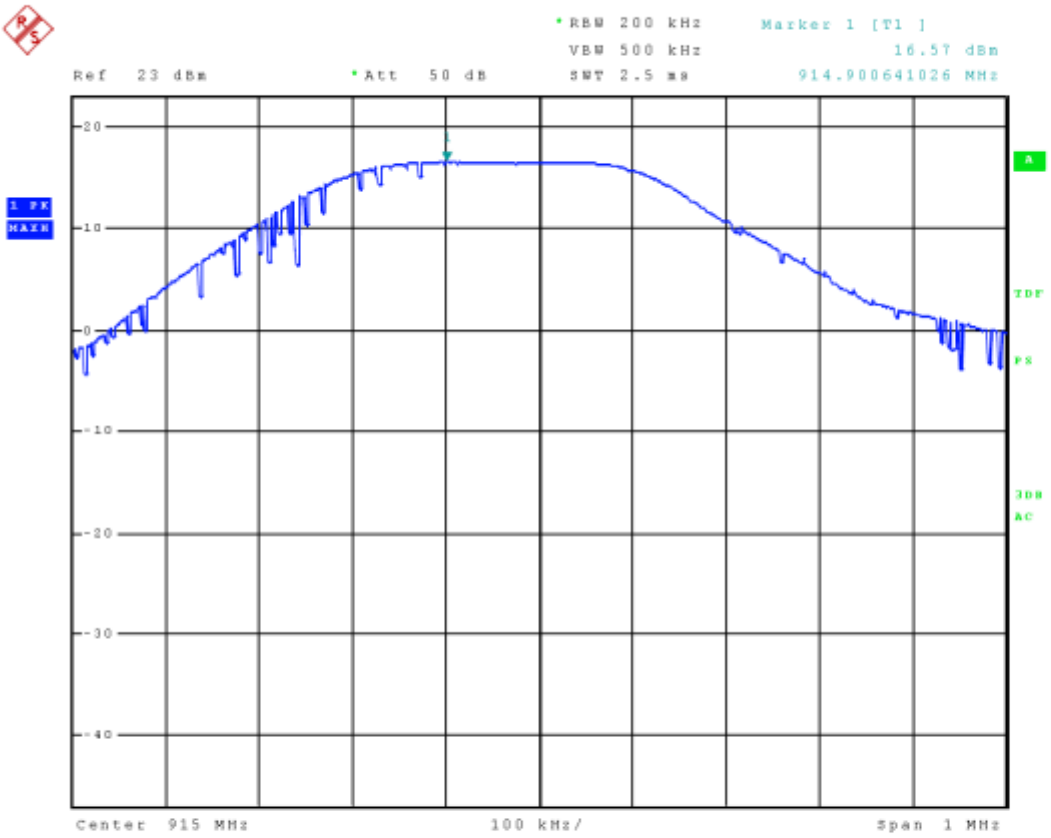
Meas Type PEAK OUTPUT POWER

OP Condition 902.6 MHz, RFA, NON-HOPPING



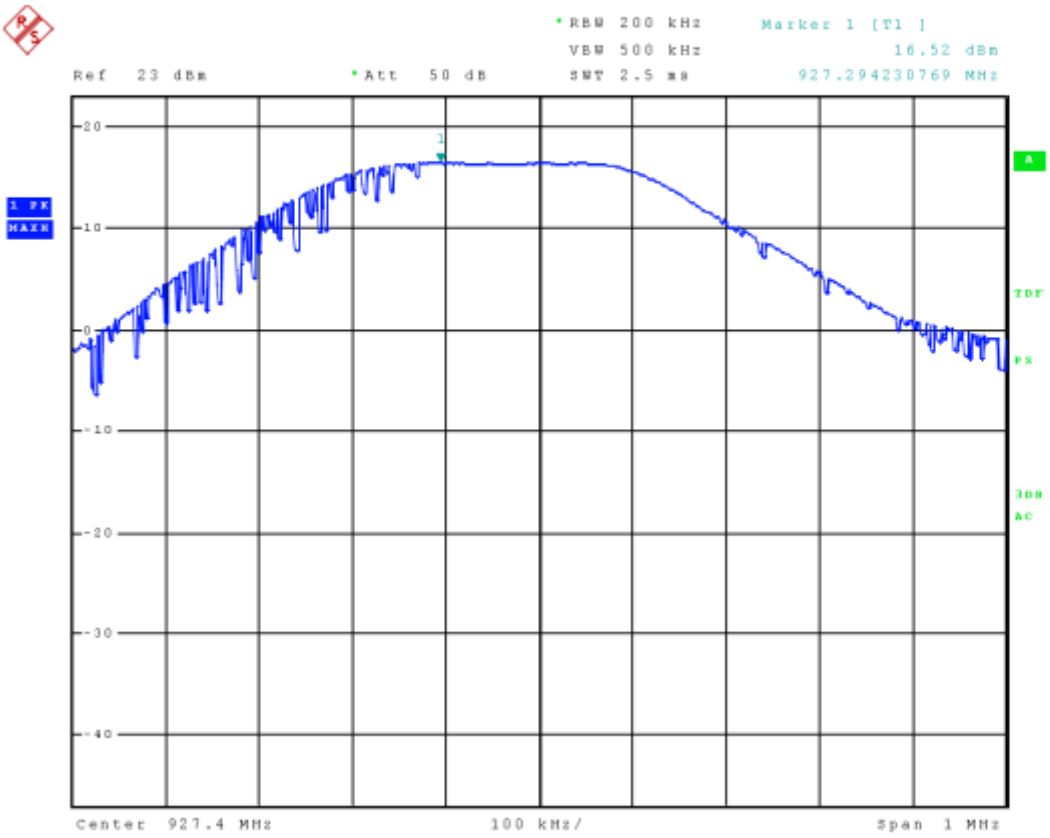
Meas Type PEAK OUTPUT POWER

OP Condition 915 MHz, RFA, NON-HOPPING



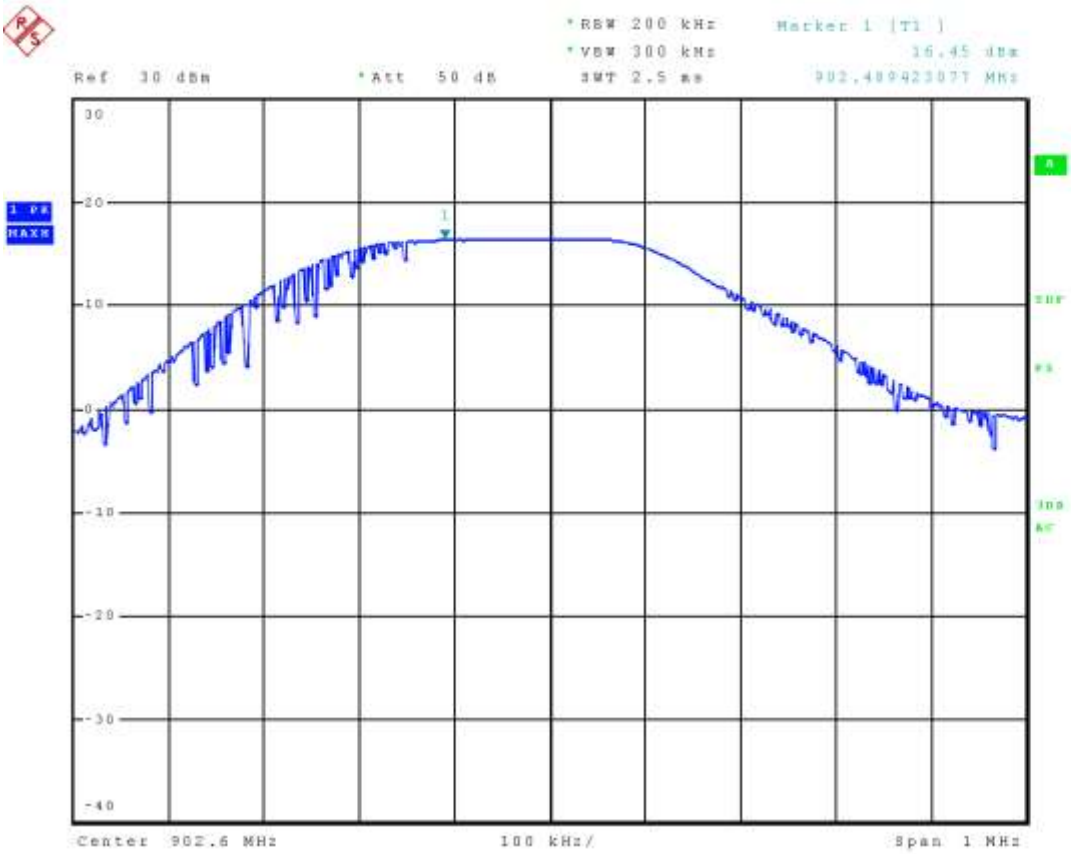
Meas Type PEAK OUTPUT POWER

OP Condition 927.4 MHz, RFA, NON-HOPPING



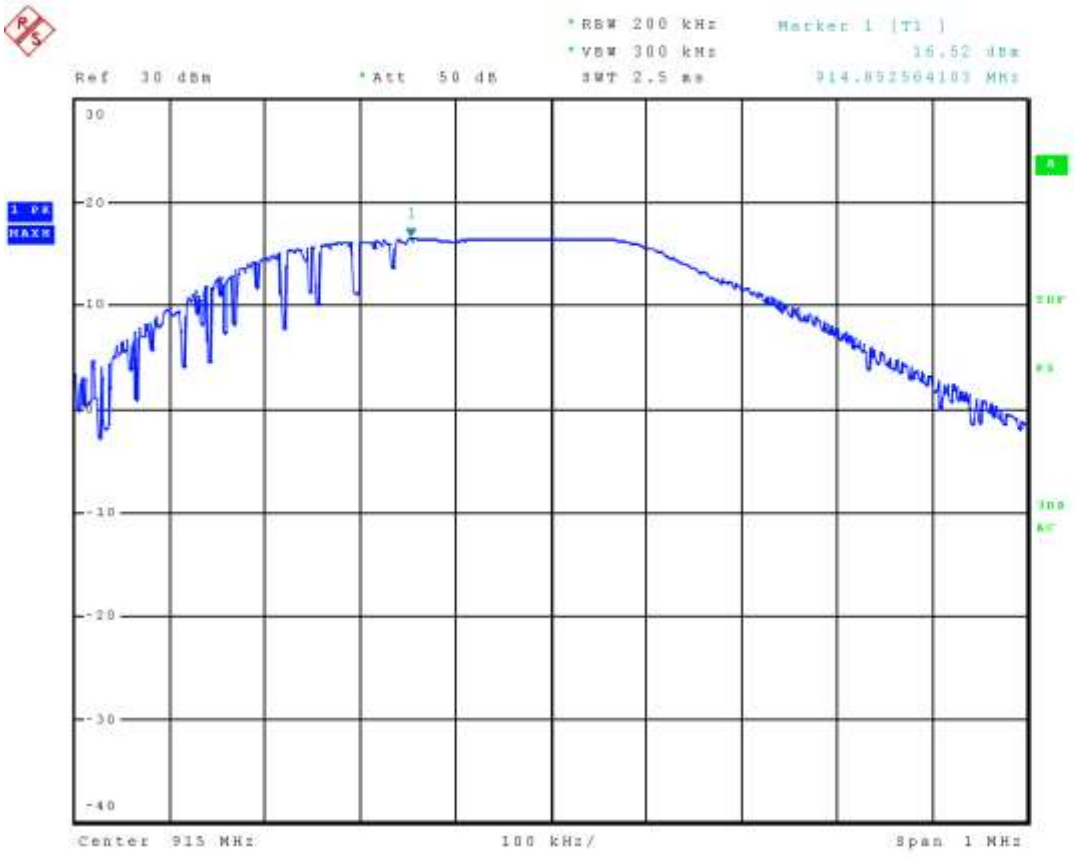
Meas Type PEAK OUTPUT POWER

OP Condition 902.6 MHz, RFB, NON-HOPPING



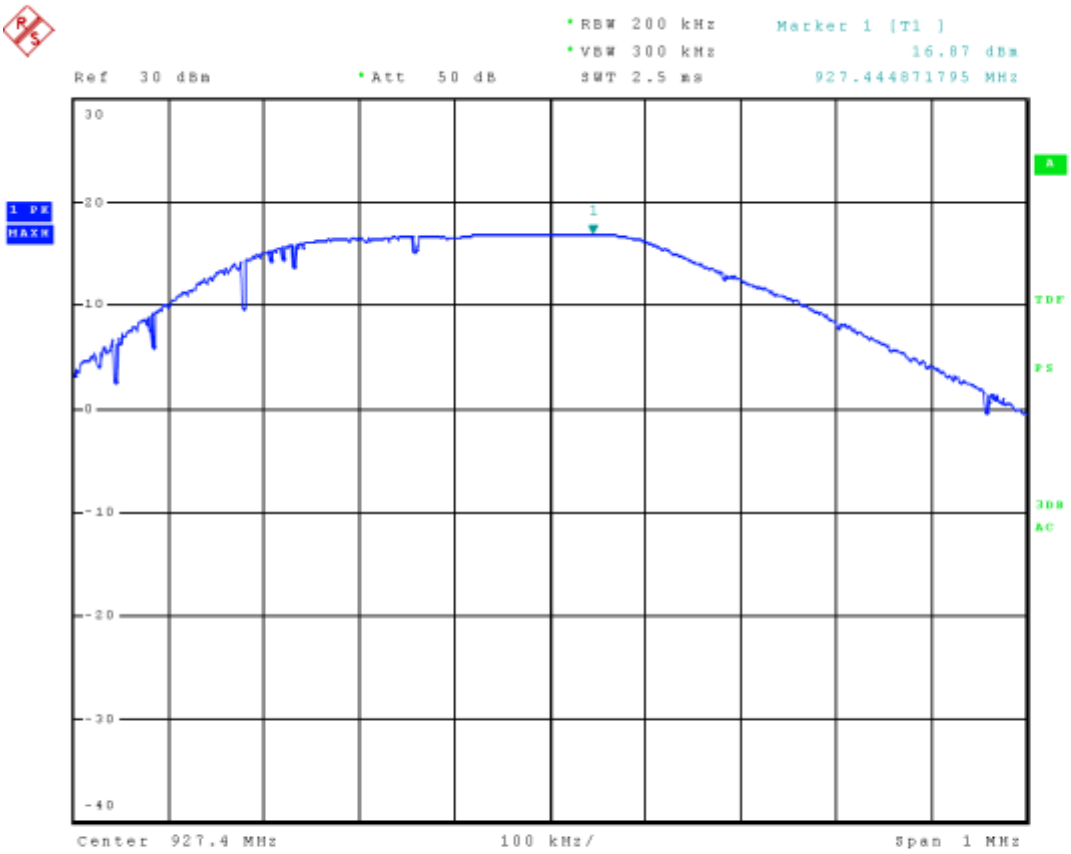
Meas Type PEAK OUTPUT POWER

OP Condition 915.0 MHz, RFB, NON-HOPPING



Meas Type PEAK OUTPUT POWER

OP Condition 927.4 MHz, RFB, NON-HOPPING



3.8 §15.247 (c) Spurious RF Conducted Emissions

Requirement:
In any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

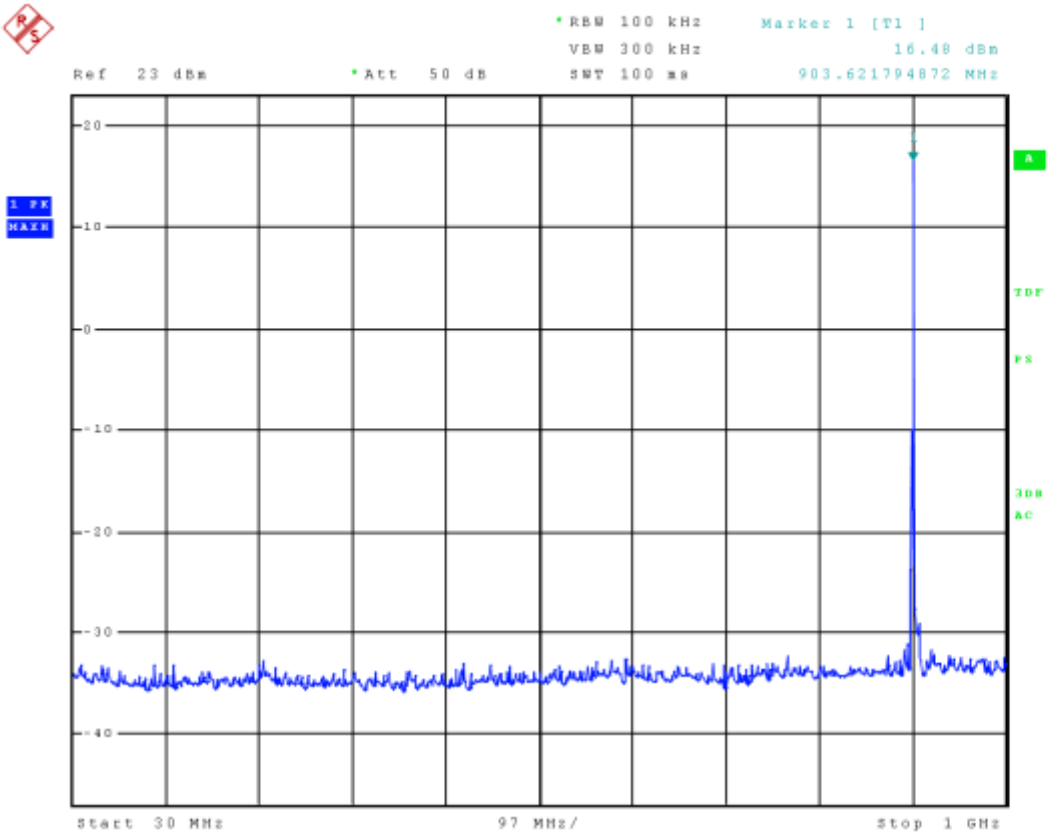
Test Procedure
As per Clause 7.8.8 from ANSI C63.10-2013

Conclusion: PASS

Test results

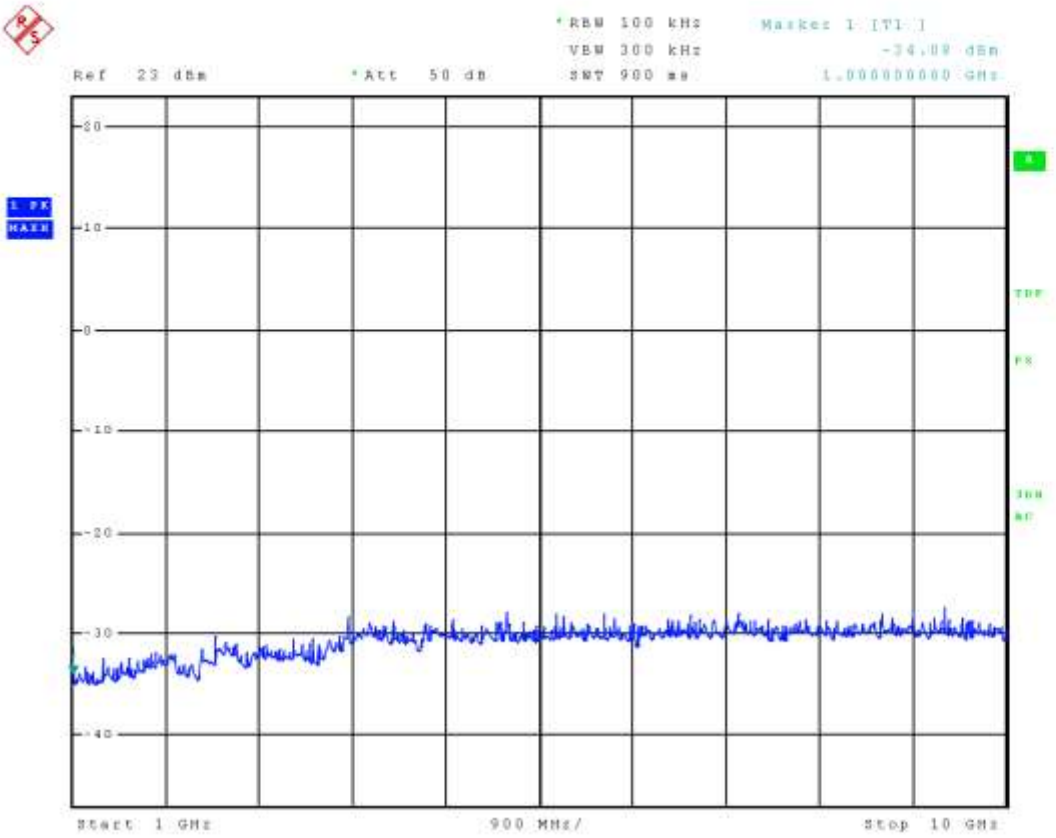
Meas Type CONDUCTED SPURIOUS EMISSION

OP Condition 902.6 MHz, RFA, NON-HOPPING



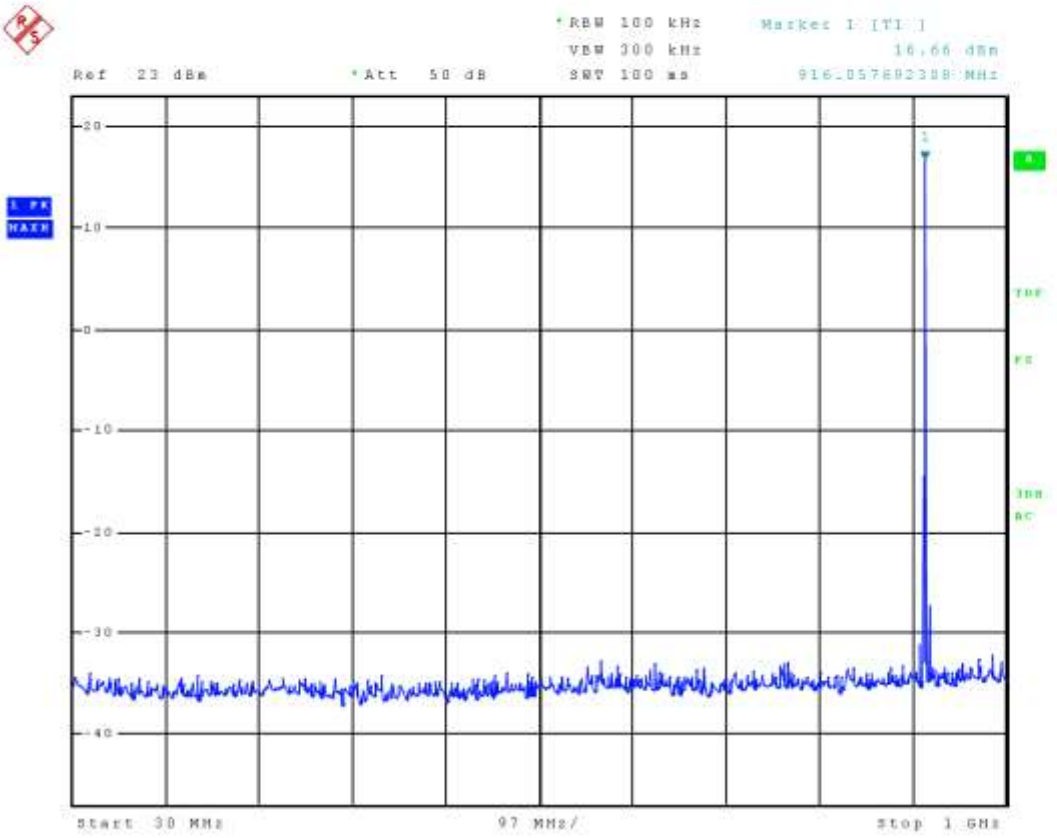
Meas Type CONDUCTED SPURIOUS EMISSION

OP Condition 902.6 MHz, RFA, NON-HOPPING



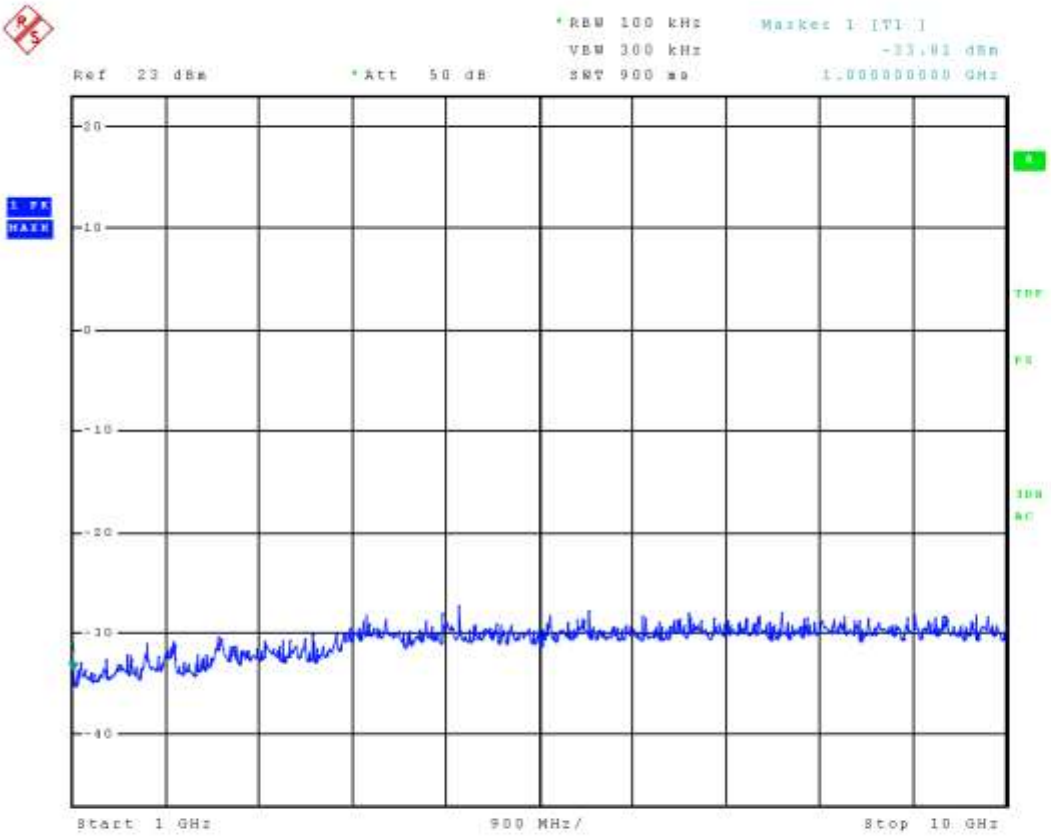
Meas Type CONDUCTED SPURIOUS EMISSION

OP Condition 915.0 MHz, RFA, NON-HOPPING



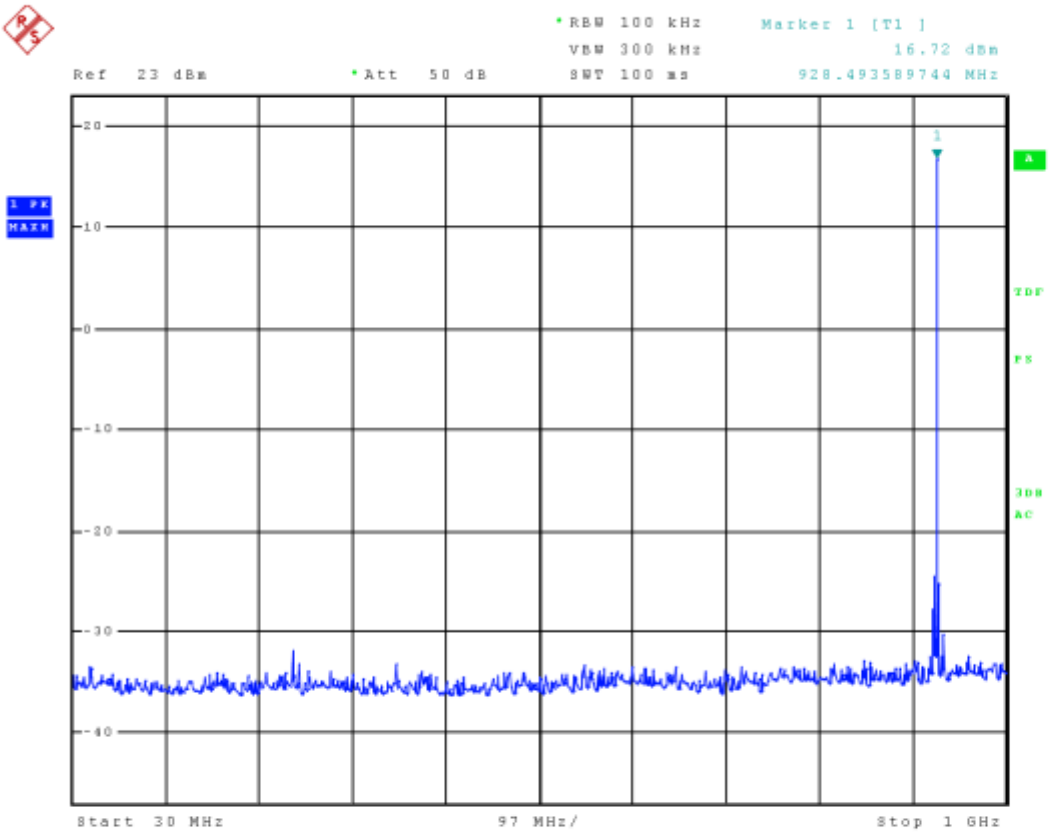
Meas Type CONDUCTED SPURIOUS EMISSION

OP Condition 915 MHz, RFA, NON-HOPPING



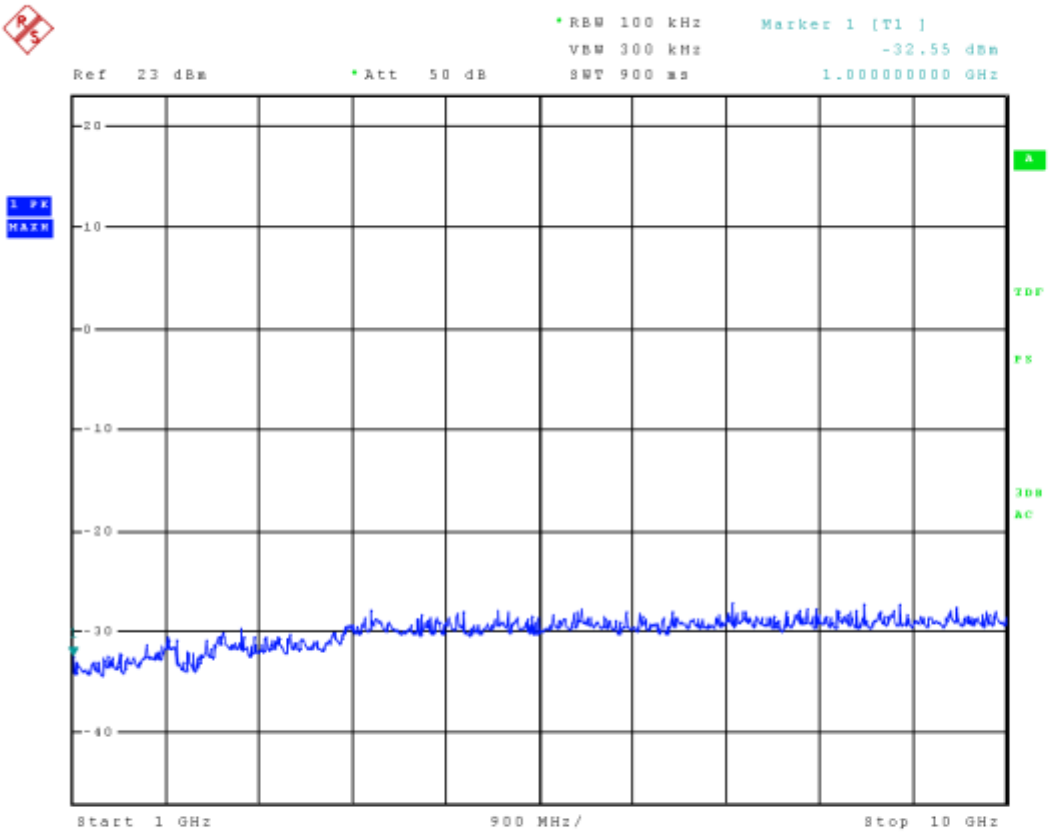
Meas Type CONDUCTED SPURIOUS EMISSION

OP Condition 927.4 MHz, RFA, NON-HOPPING



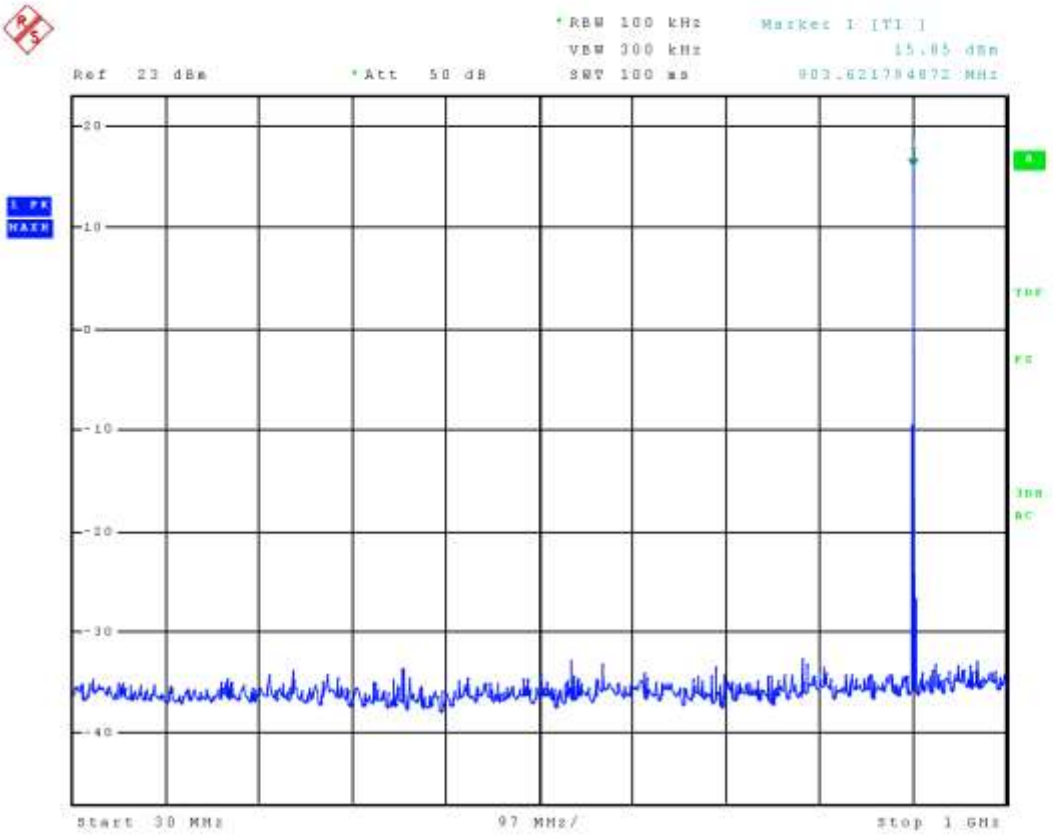
Meas Type CONDUCTED SPURIOUS EMISSION

OP Condition 927.4 MHz, RFA, NON-HOPPING



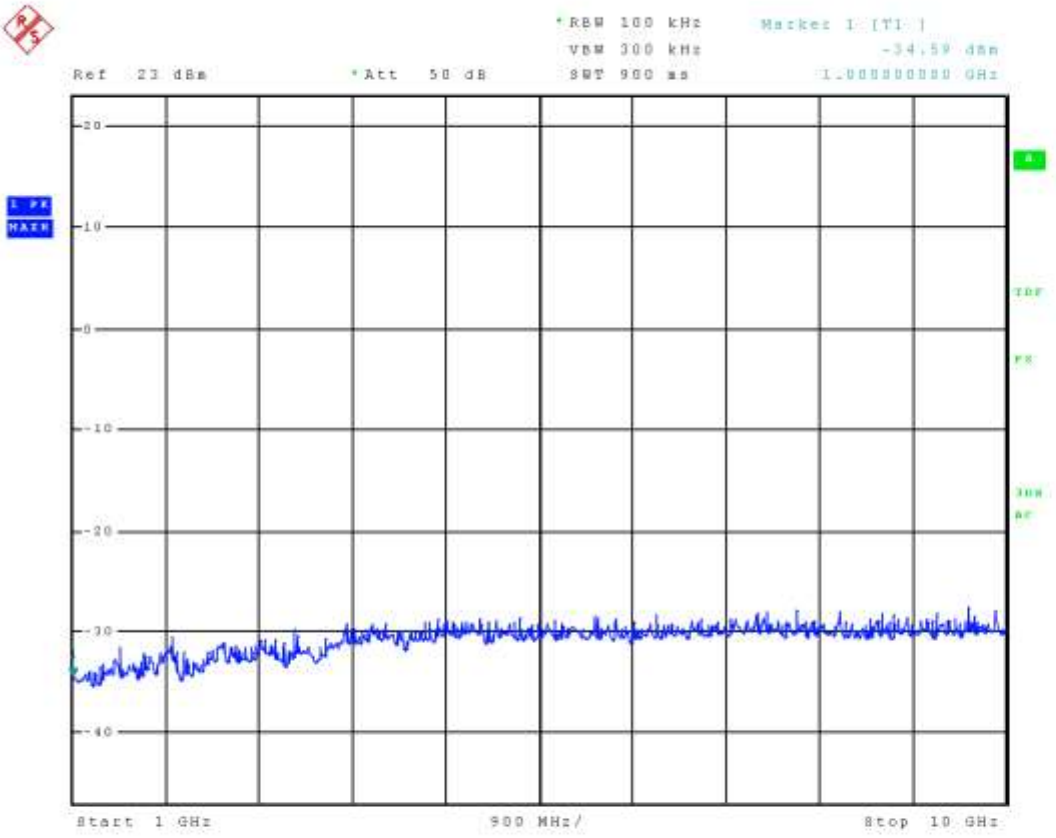
Meas Type CONDUCTED SPURIOUS EMISSION

OP Condition 902.6 MHz, RFB, NON-HOPPING



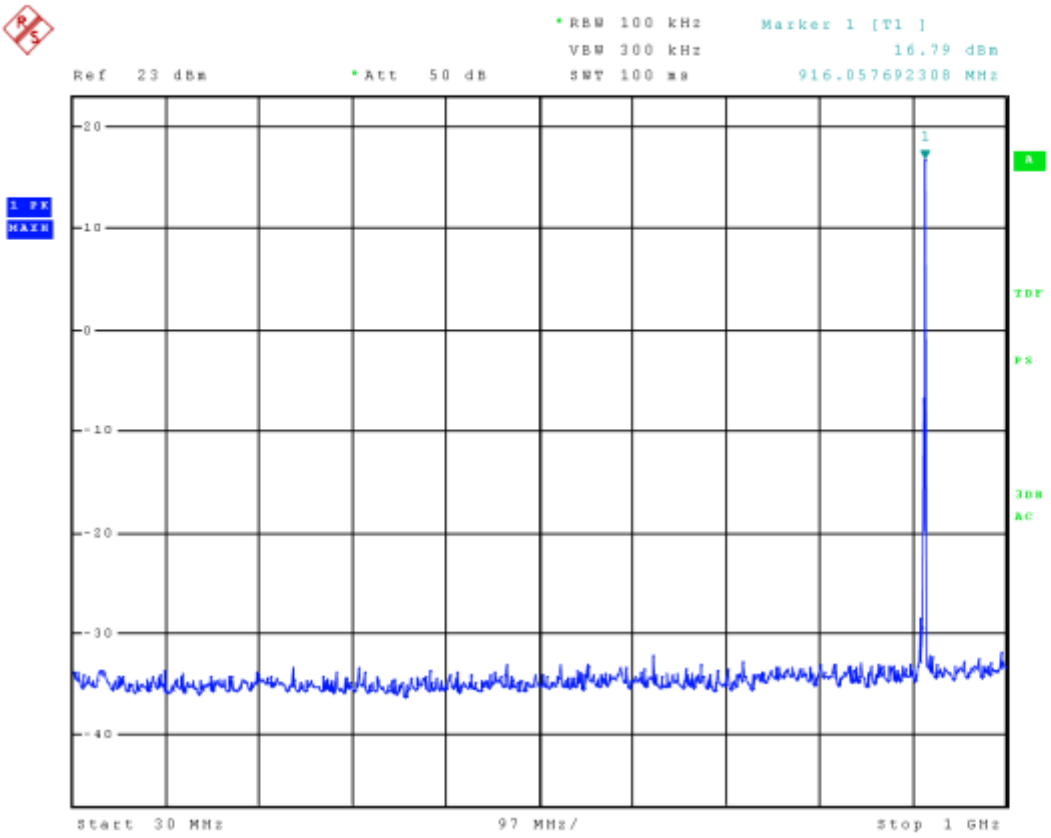
Meas Type CONDUCTED SPURIOUS EMISSION

OP Condition 902.6 MHz, RFB, NON-HOPPING



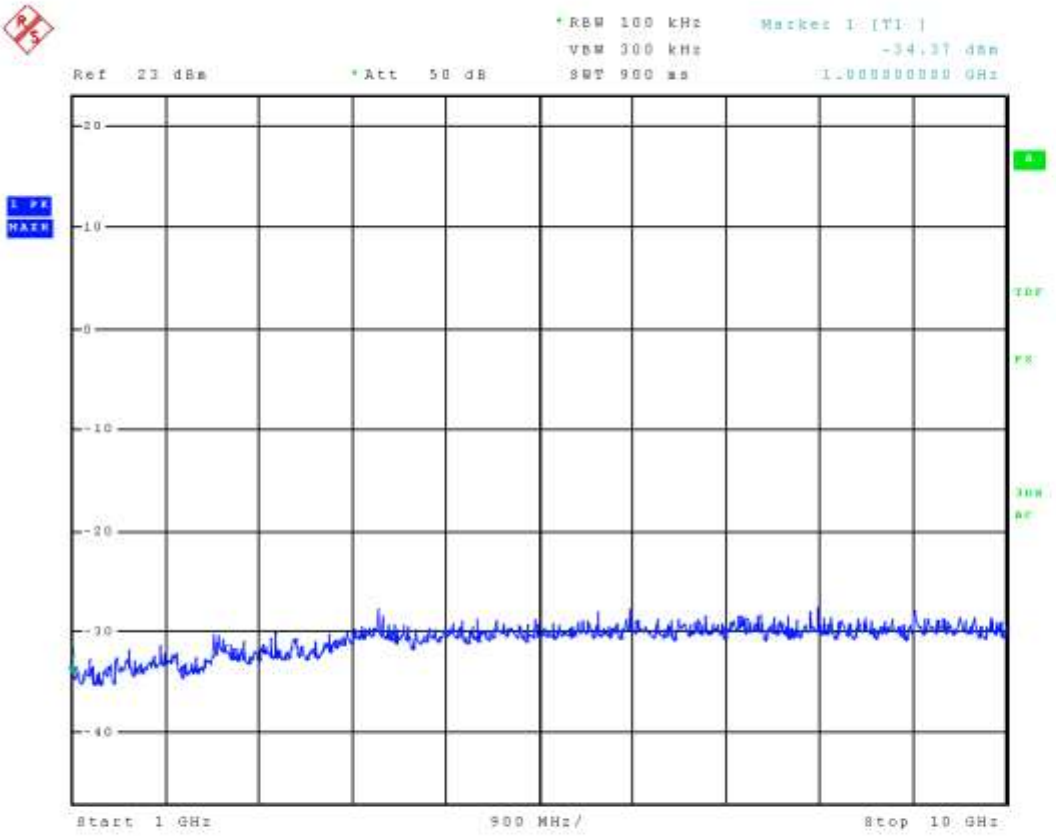
Meas Type CONDUCTED SPURIOUS EMISSION

OP Condition 915.0 MHz, RFB, NON-HOPPING



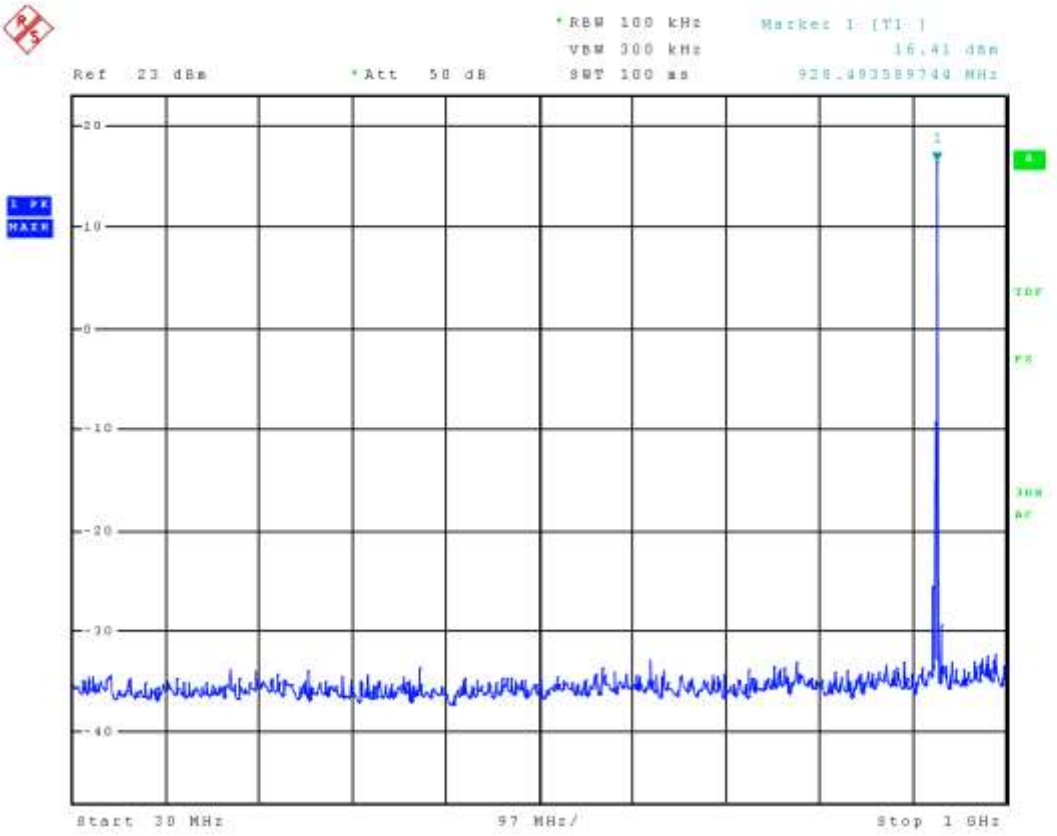
Meas Type CONDUCTED SPURIOUS EMISSION

OP Condition 915.0 MHz, RFB, NON-HOPPING



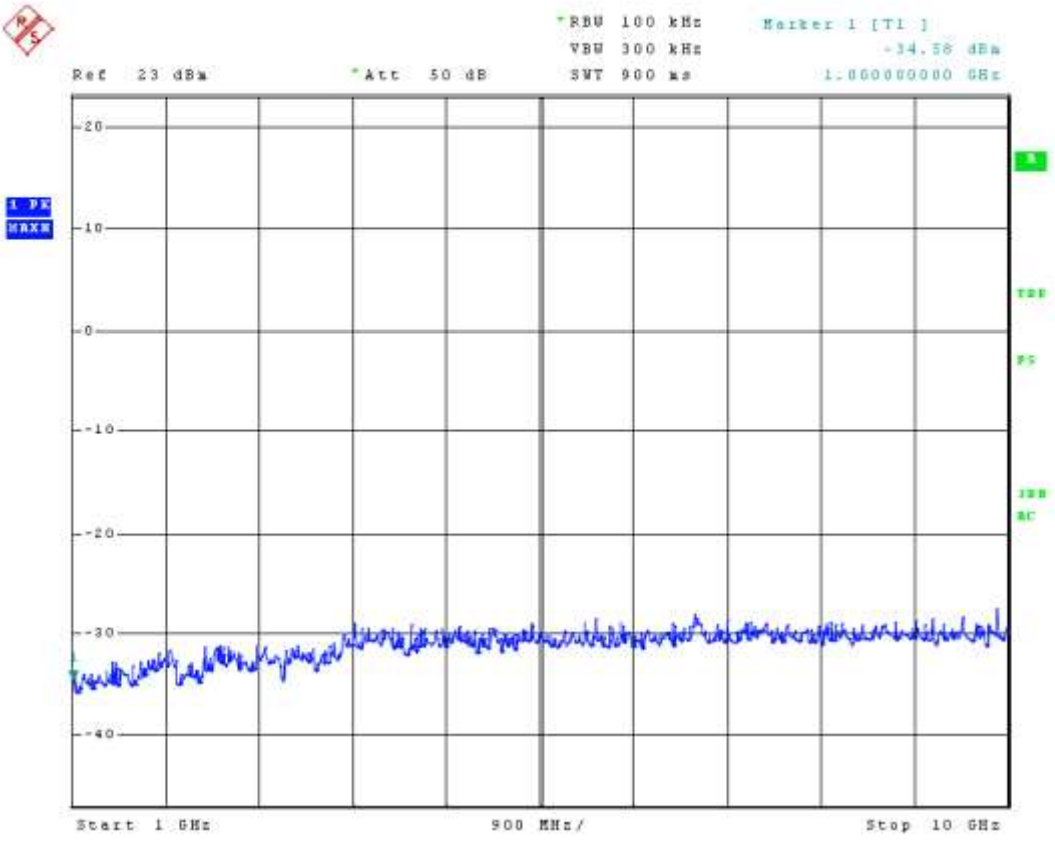
Meas Type CONDUCTED SPURIOUS EMISSION

OP Condition 927.4 MHz, RFB, NON-HOPPING



Meas Type CONDUCTED SPURIOUS EMISSION

OP Condition 927.4 MHz, RFB, NON-HOPPING



3.9 §15.247 Radiated Spurious Emissions

Requirements

§15.35 Measurement detector functions and bandwidths
(b) Unless otherwise specified, on any frequency or frequencies above 1000 MHz, the radiated emission limits are based on the use of measurement instrumentation employing an average detector function. Unless otherwise specified, measurements above 1000 MHz shall be performed using a minimum resolution bandwidth of 1 MHz. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, e.g., see §§15.250, 15.252, 15.253(d), 15.255, 15.256, and 15.509 through 15.519 of this part, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device, e.g., the total peak power level. Note that the use of a pulse desensitization correction factor may be needed to determine the total peak emission level. The instruction manual or application note for the measurement instrument should be consulted for determining pulse desensitization factors, as necessary.

§15.209 Radiated emission limit
Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency Range (MHz)	Limits (dBµV/m)	Test distance (m)
0,009 to 0,490	20*log(2400/F(kHz))	300
0,490 to 1,705	20*log(24000/F(kHz))	30
1,705 to 30,0	30	30
30 to 88	40**	3
88 to 216	43.5**	3
216 to 960	46**	3
Above 960	54	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

§15.205 Restricted bands of operation

Requirement
Except as shown in paragraph (d) of §15.205 only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1]0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.
[2]Above 38.6

Test procedure
As per Clauses 6.3, 6.4, 6.5 and 6.6 from ANSI C63.10-2013

Conclusion: PASS

Test results

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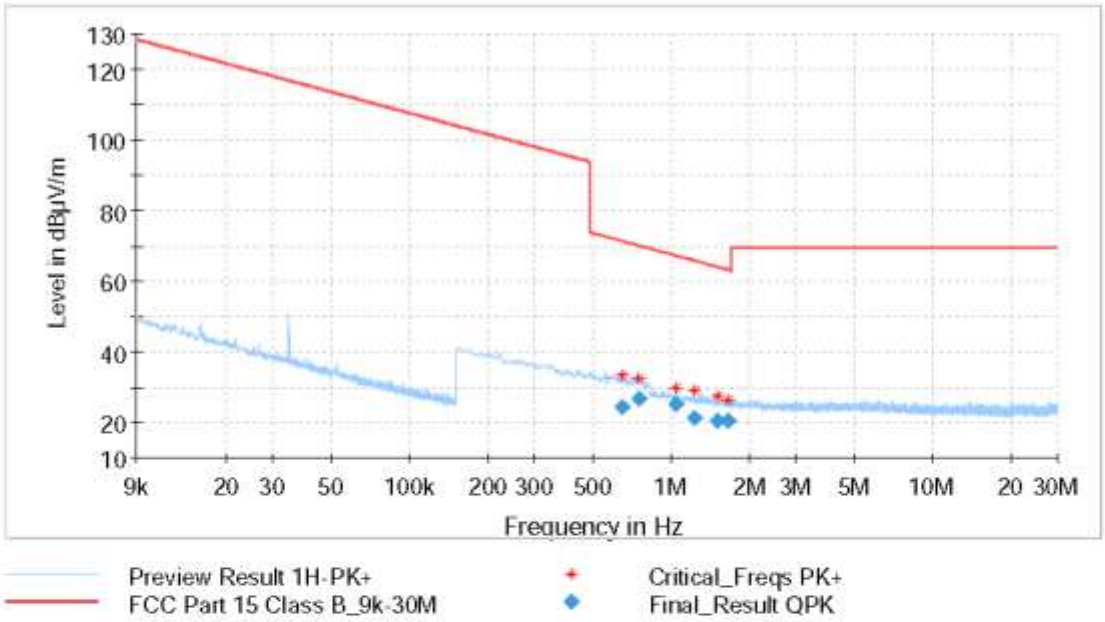
EUT Information

Test condition: RFA, 902.6 MHz

Full Spectrum



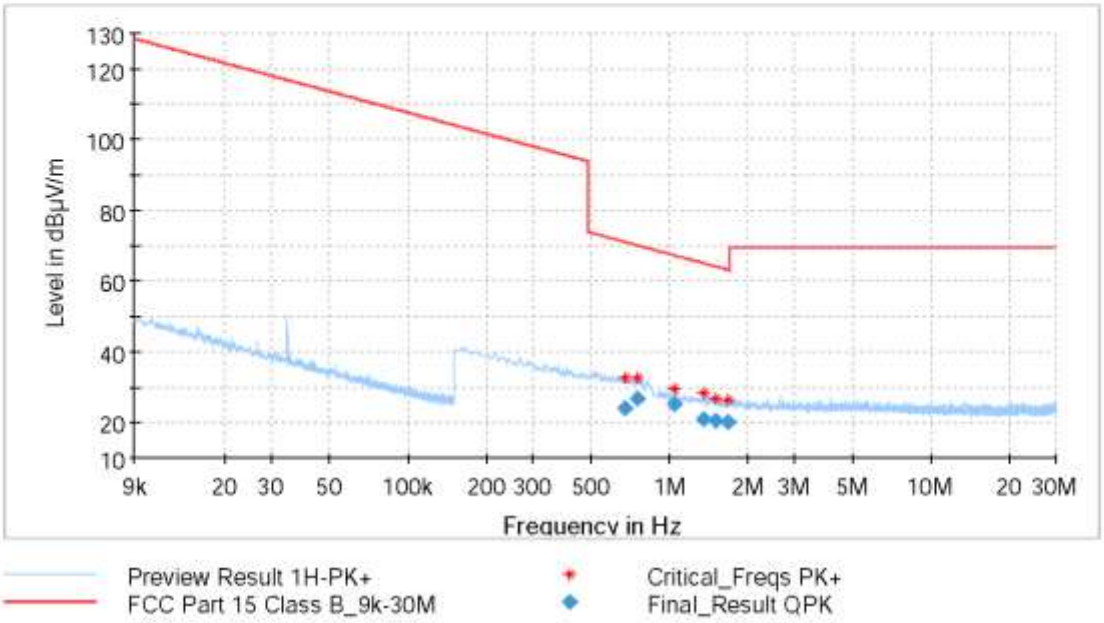
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
0.649500	24.53	71.36	46.83	357.0
0.755250	26.86	70.05	43.20	141.0
1.047750	25.28	67.22	41.94	357.0
1.227750	21.23	65.84	44.62	251.0
1.497750	20.50	64.12	43.62	357.0
1.644000	20.30	63.32	43.01	357.0

EUT Information

Test condition: RFA, 915.0 MHz

Full Spectrum



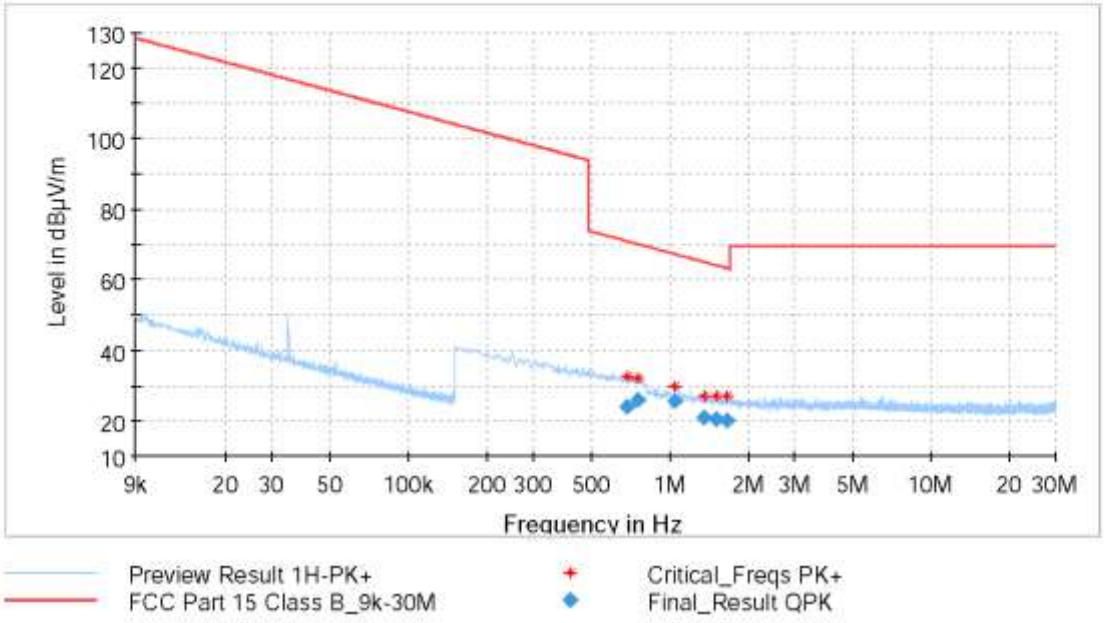
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
0.676500	24.13	71.01	46.87	31.0
0.755250	26.77	70.05	43.29	140.0
1.050000	25.16	67.20	42.04	357.0
1.356000	20.89	64.98	44.09	31.0
1.506750	20.59	64.07	43.48	140.0
1.675500	20.16	63.15	42.99	31.0

EUT Information

Test condition: RFA, 927.4 MHz

Full Spectrum



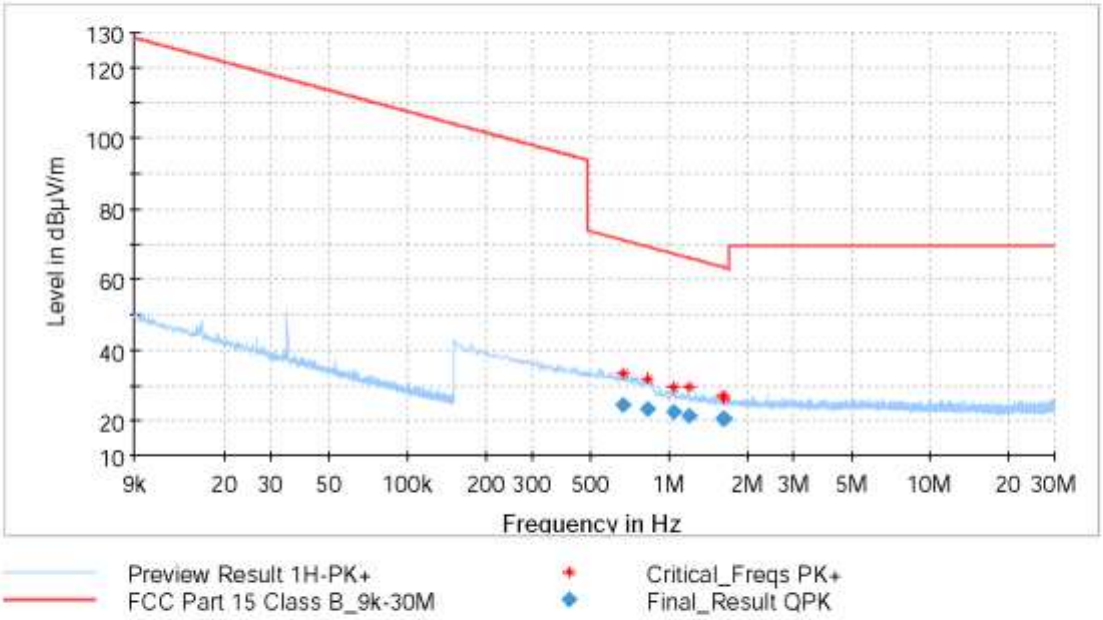
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
0.690000	24.11	70.84	46.72	219.0
0.757500	25.82	70.03	44.21	109.0
1.050000	25.47	67.20	41.73	329.0
1.342500	20.94	65.07	44.13	109.0
1.495500	20.46	64.14	43.68	109.0
1.653000	20.26	63.27	43.01	329.0

EUT Information

Test condition: RFB, 902.6 MHz

Full Spectrum



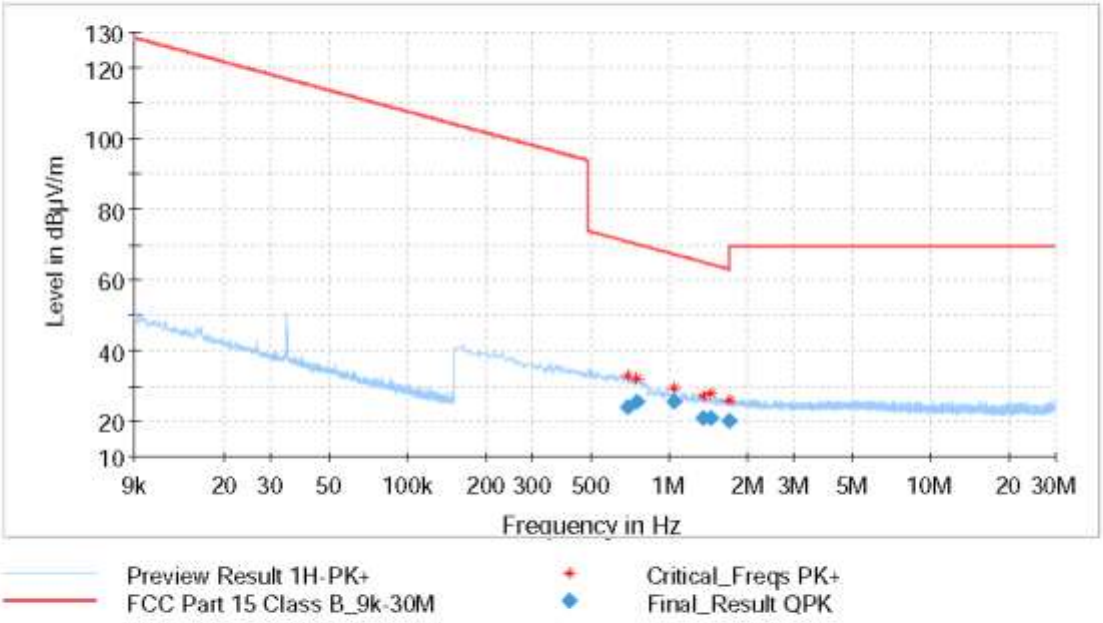
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
0.672000	24.30	71.06	46.76	219.0
0.834000	23.09	69.19	46.10	3.0
1.050000	22.45	67.20	44.75	109.0
1.189500	21.41	66.12	44.71	3.0
1.605750	20.30	63.52	43.21	219.0
1.632750	20.32	63.38	43.05	3.0

EUT Information

Test condition: RFB, 915.0 MHz

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
0.694500	24.17	70.78	46.61	111.0
0.757500	25.66	70.03	44.36	330.0
1.047750	25.70	67.22	41.52	330.0
1.353750	20.94	65.00	44.06	111.0
1.443750	20.77	64.44	43.67	111.0
1.698000	20.14	63.04	42.89	111.0

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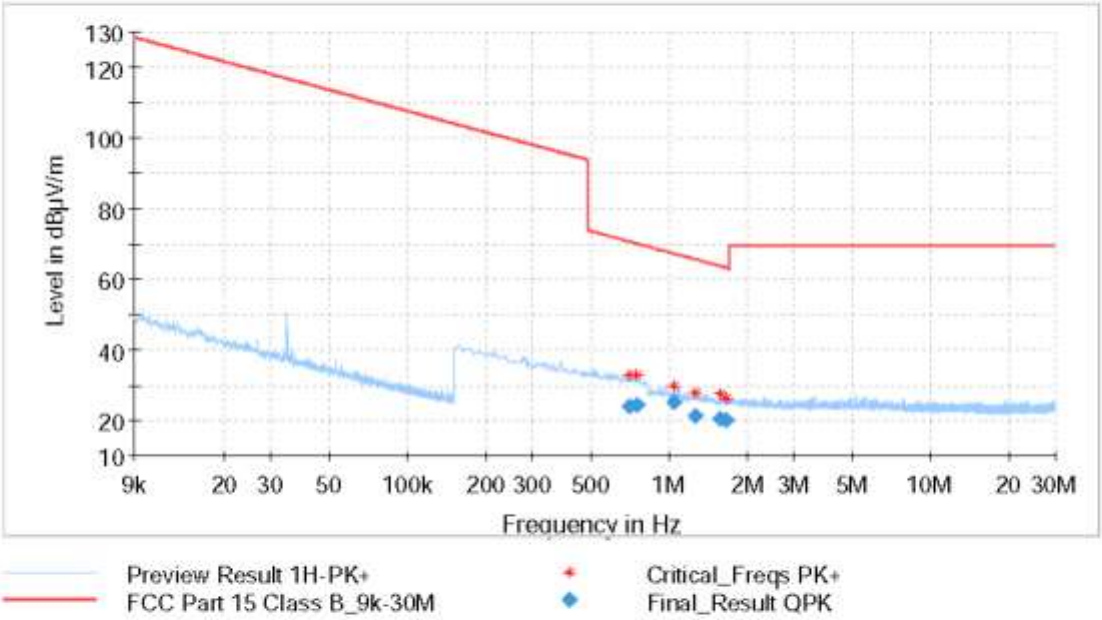
EUT Information

Test condition: RFB, 927.4 MHz

Full Spectrum



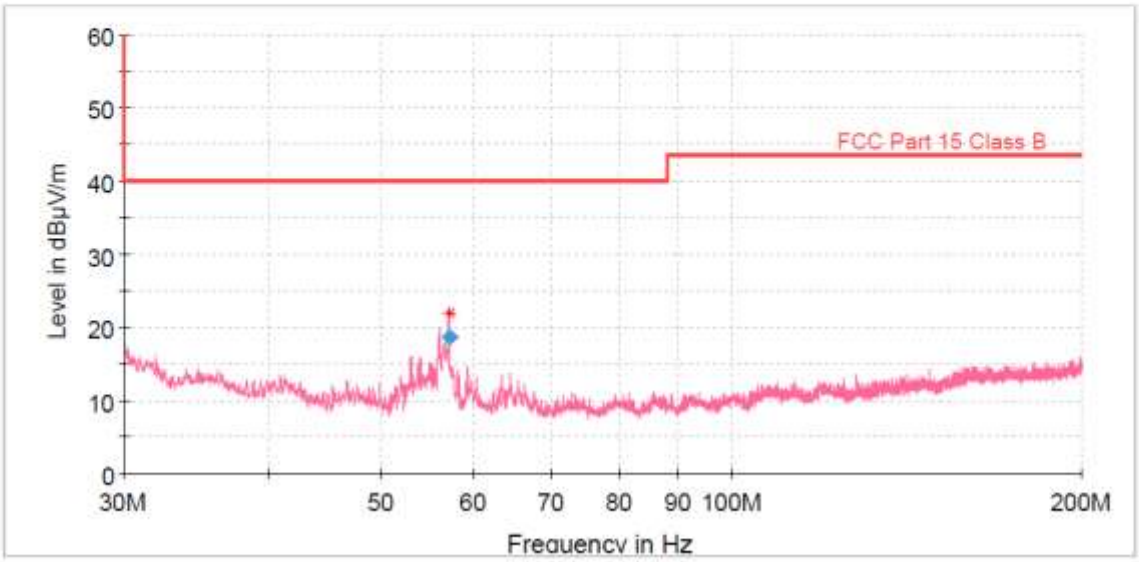
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (deg)
0.705750	24.13	70.64	46.51	109.0
0.757500	24.33	70.03	45.70	3.0
1.050000	24.99	67.20	42.21	3.0
1.261500	21.12	65.61	44.49	109.0
1.569750	20.40	63.72	43.32	3.0
1.653000	20.15	63.27	43.12	328.0

EUT Information

Test condition: 902.6 MHz, RFA, NON-HOPPING

Full Spectrum



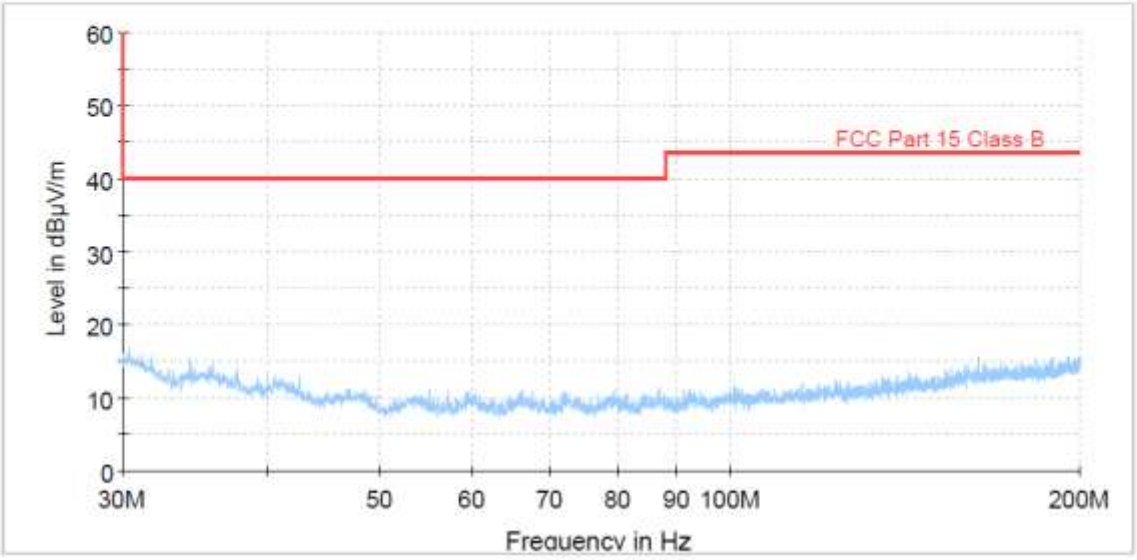
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
57.090000	18.64	40.00	21.36	100.0	V	0.0

EUT Information

Test condition: 902.6 MHz, RFA, NON-HOPPING

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
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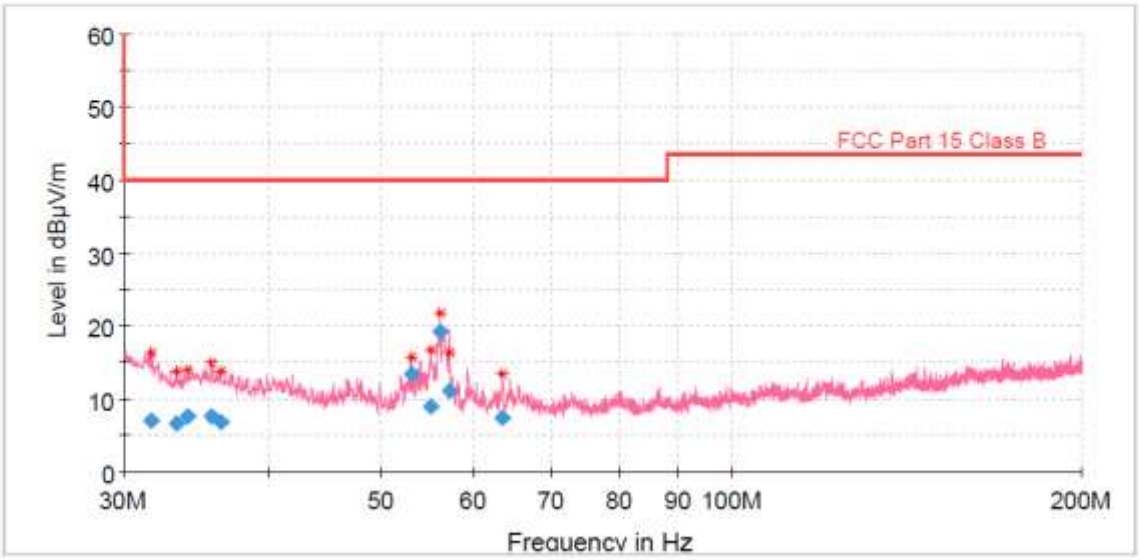
EUT Information

Test condition: 915.0 MHz, RFA, NON-HOPPING

Full Spectrum



Final_Result

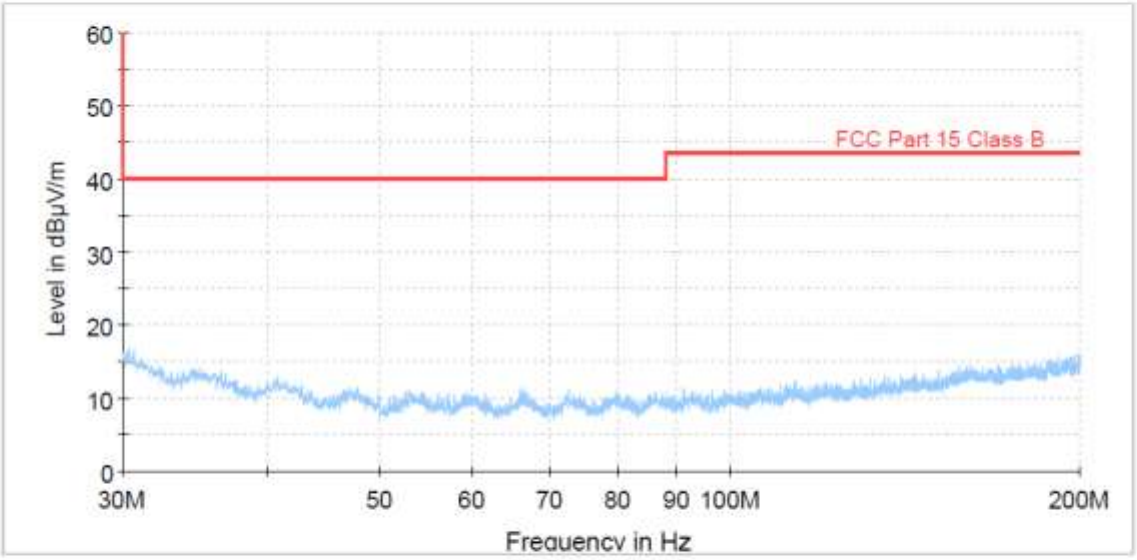
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
31.680000	7.05	40.00	32.95	100.0	V	0.0
33.240000	6.67	40.00	33.33	100.0	V	0.0
34.050000	7.64	40.00	32.36	100.0	V	0.0
35.700000	7.50	40.00	32.50	100.0	V	0.0
36.330000	6.71	40.00	33.29	100.0	V	0.0
52.950000	13.43	40.00	26.57	100.0	V	0.0
55.020000	8.90	40.00	31.10	100.0	V	0.0
56.100000	19.18	40.00	20.82	100.0	V	0.0
57.210000	11.08	40.00	28.92	100.0	V	0.0
63.420000	7.31	40.00	32.69	100.0	V	0.0

1 / 1

EUT Information

Test condition: 915.0 MHz, RFA, NON-HOPPING

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
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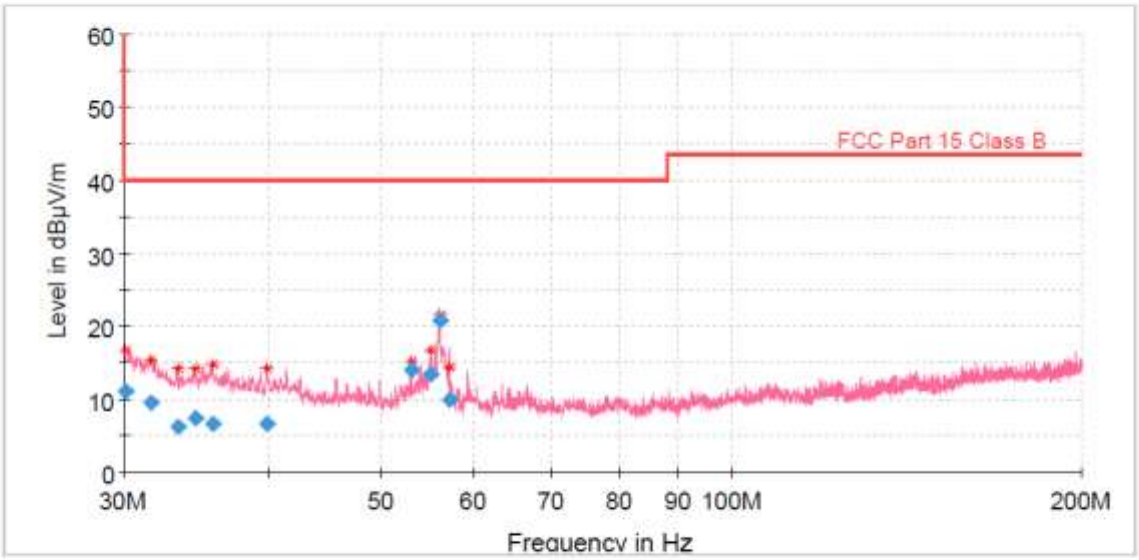
EUT Information

Test condition: 927.4 MHz, RFA, NON-HOPPING

Full Spectrum



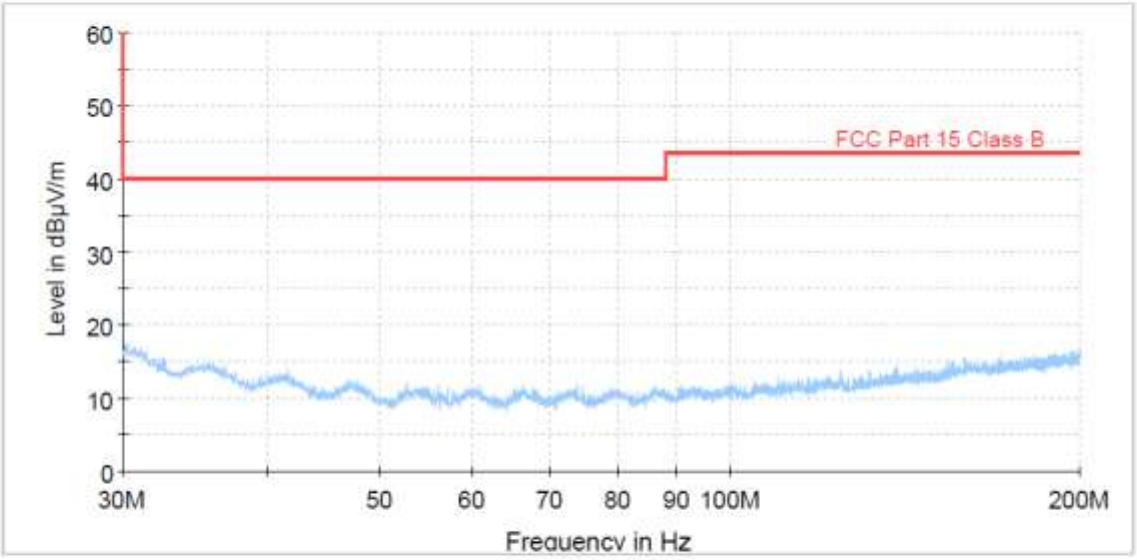
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
30.060000	11.16	40.00	28.84	100.0	V	0.0
31.650000	9.55	40.00	30.45	100.0	V	0.0
33.360000	6.14	40.00	33.86	100.0	V	0.0
34.560000	7.39	40.00	32.61	100.0	V	0.0
35.730000	6.70	40.00	33.30	100.0	V	0.0
39.810000	6.65	40.00	33.35	100.0	V	0.0
52.950000	13.93	40.00	26.07	100.0	V	0.0
55.020000	13.43	40.00	26.57	100.0	V	0.0
56.100000	20.73	40.00	19.27	100.0	V	0.0
57.210000	9.90	40.00	30.10	100.0	V	0.0

EUT Information

Test condition: 927.4 MHz, RFA, NON-HOPPING

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
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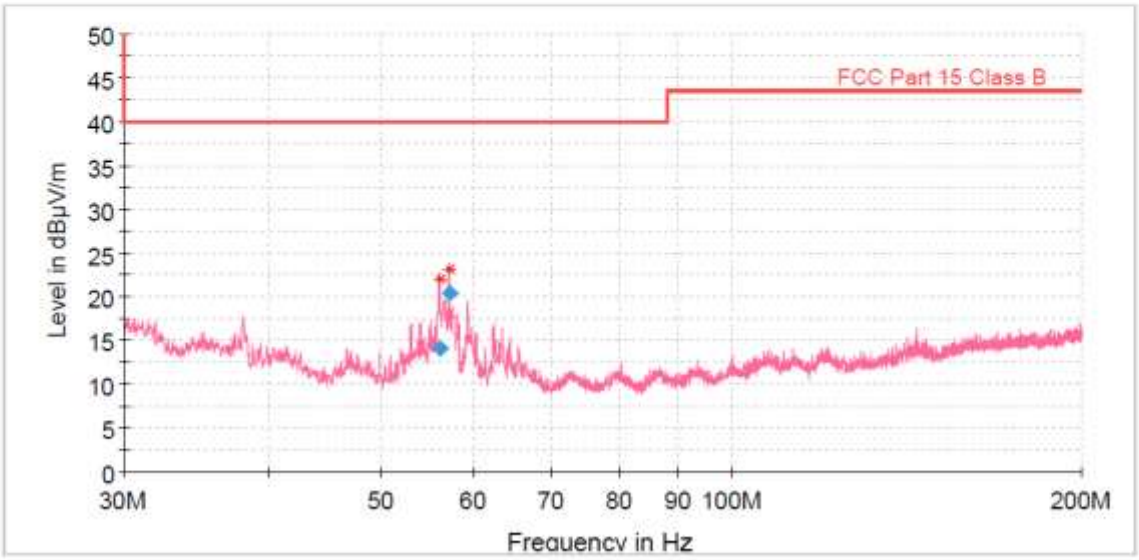
EUT Information

Test condition: 902.6 MHz, RFB, NON-HOPPING

Full Spectrum



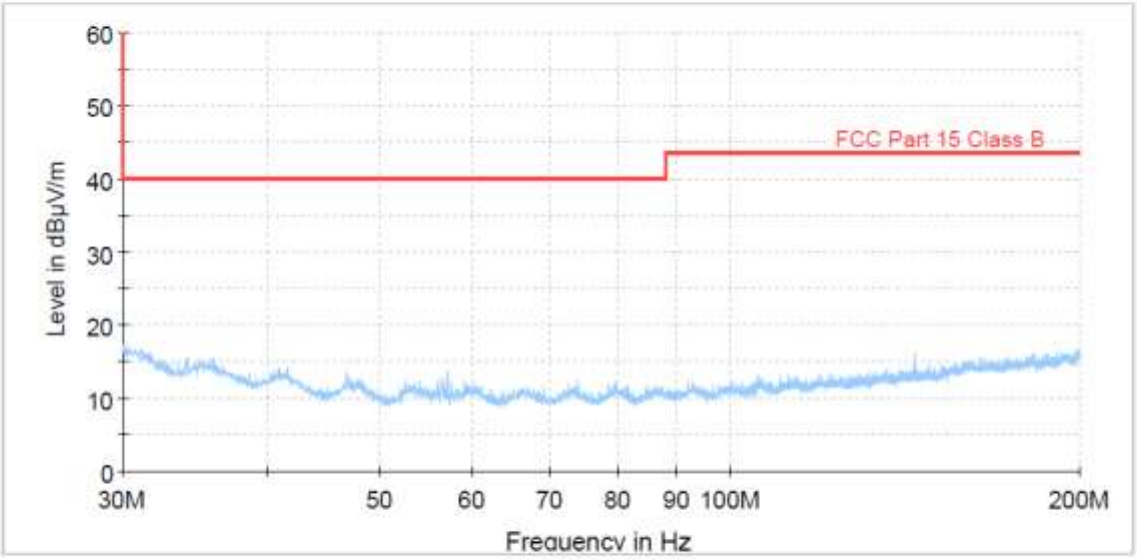
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
56.070000	14.06	40.00	25.94	104.0	V	0.0
57.120000	20.45	40.00	19.55	105.0	V	342.0

EUT Information

Test condition: 902.6 MHz, RFB, NON-HOPPING

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
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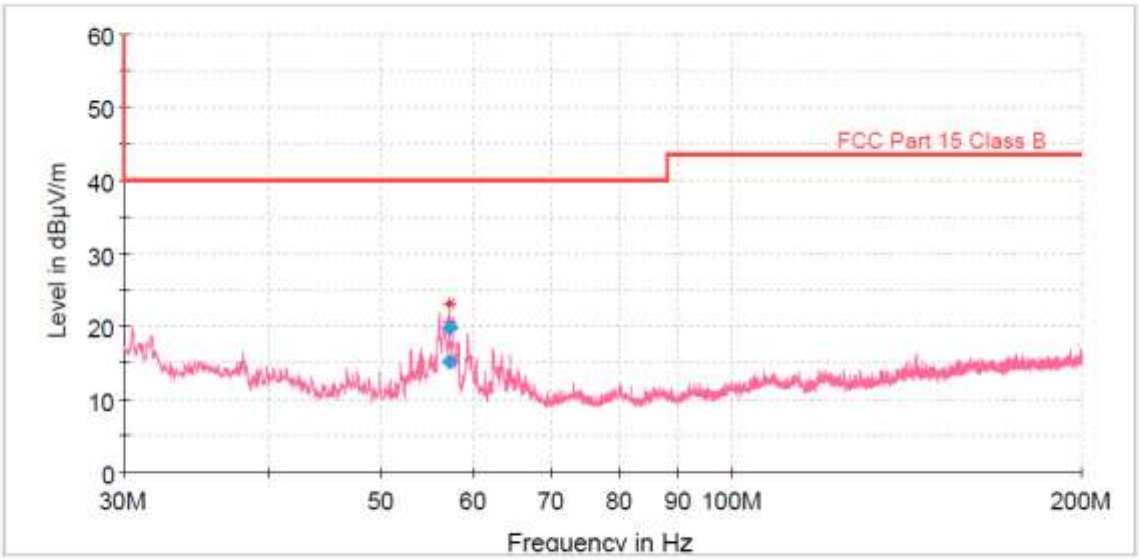
EUT Information

Test condition: 915.0 MHz, RFB, NON-HOPPING

Full Spectrum



Preview Result 1V-PK+
FCC Part 15 Class B
Critical_Freqs PK+
Final_Result QPK

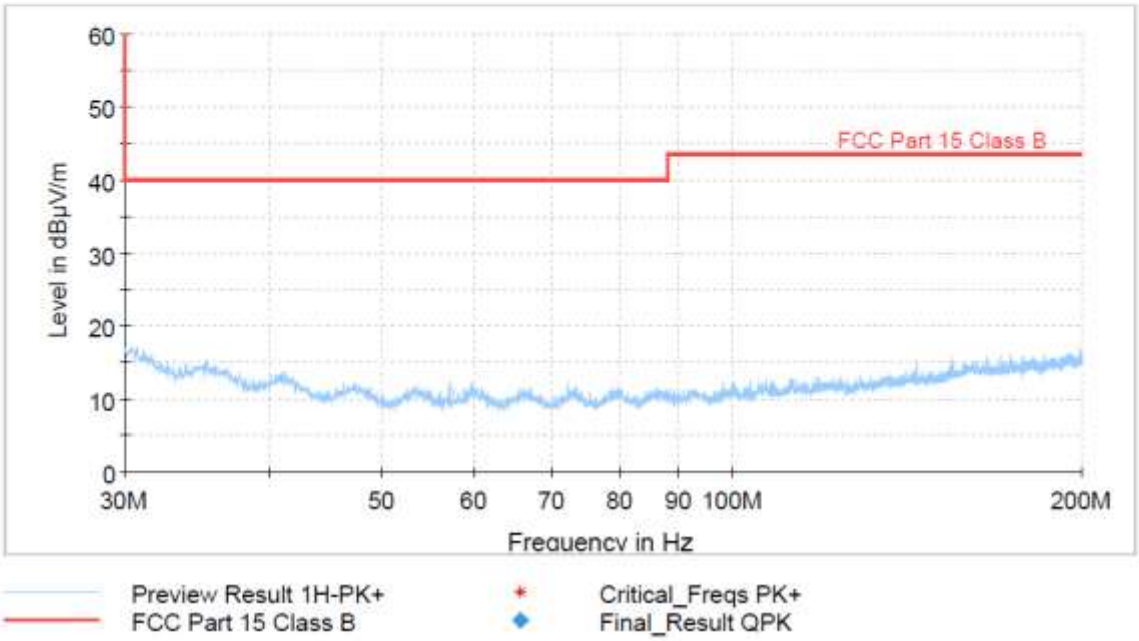
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
57.120000	19.81	40.00	20.19	100.0	V	297.0
57.210000	15.05	40.00	24.95	100.0	V	315.0

EUT Information

Test condition: 915.0 MHz, RFB, NON-HOPPING

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
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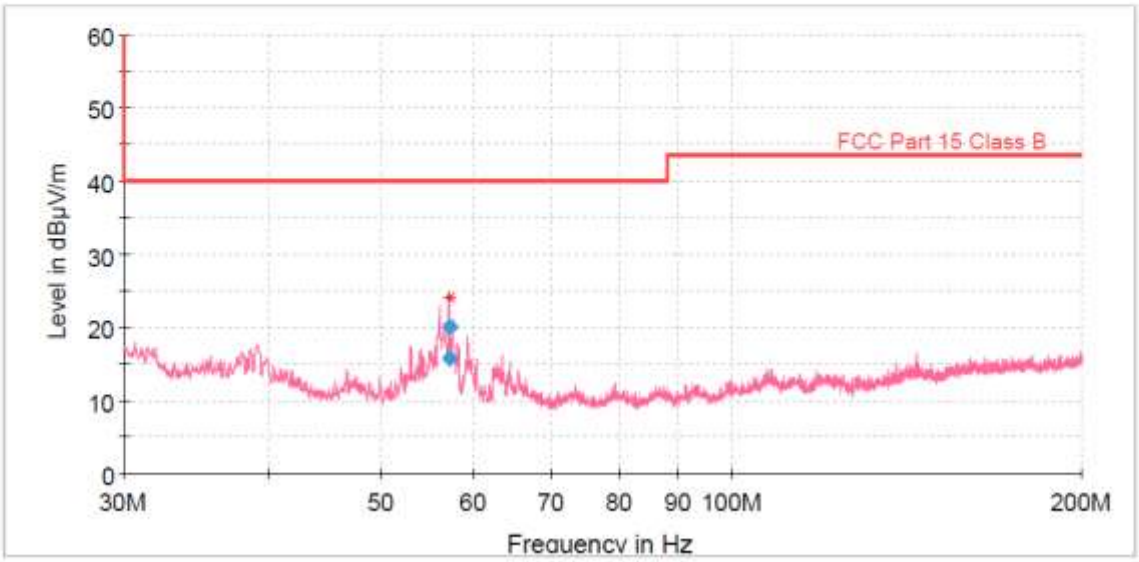
EUT Information

Test condition: 927.4 MHz, RFB, NON-HOPPING

Full Spectrum



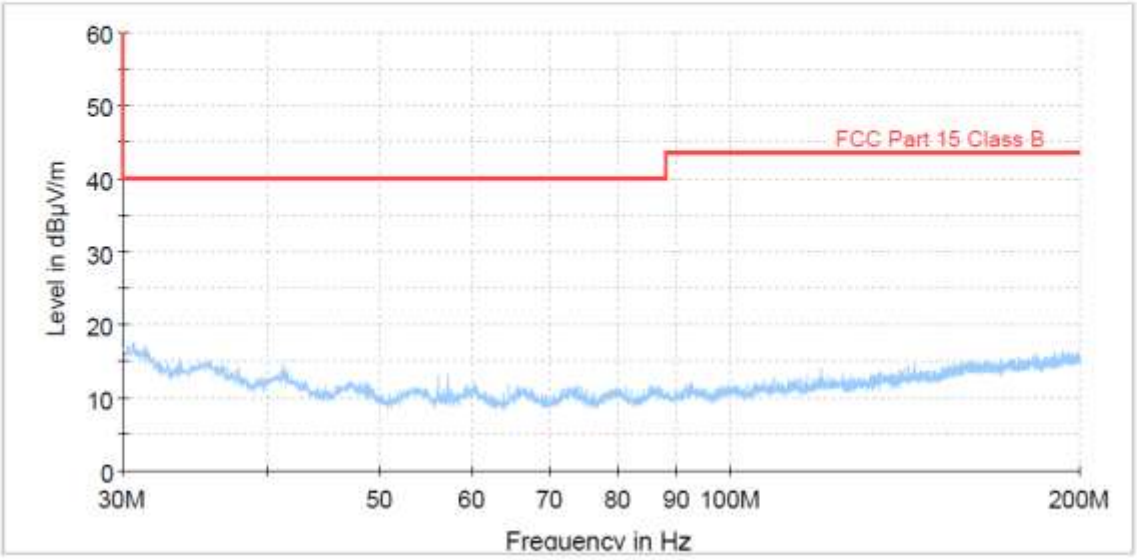
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
57.120000	19.93	40.00	20.07	100.0	V	298.0
57.210000	15.77	40.00	24.23	100.0	V	314.0

EUT Information

Test condition: 927.4 MHz, RFB, NON-HOPPING

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
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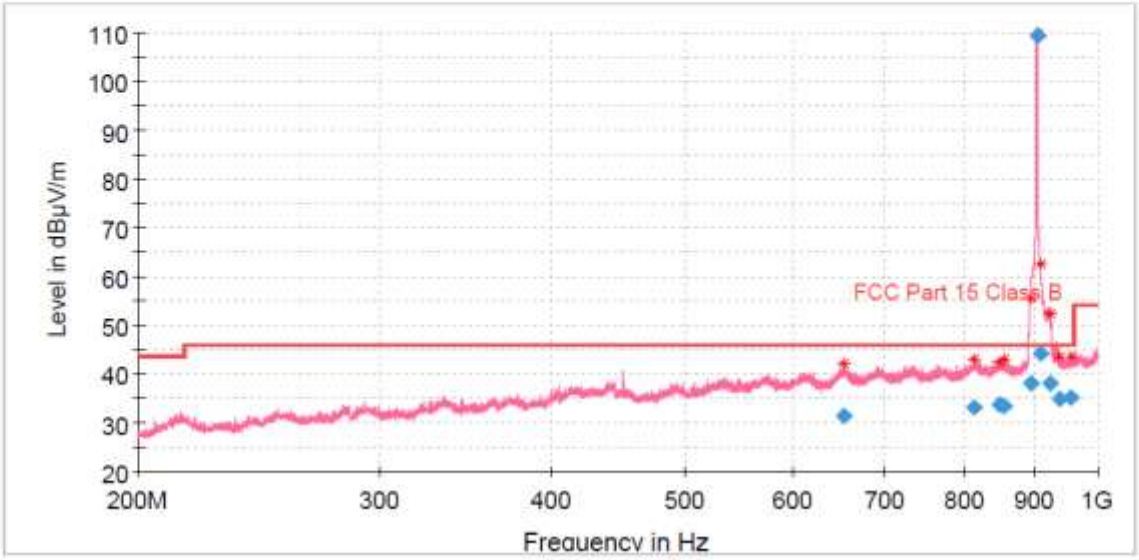
EUT Information

Test condition: 902.6 MHz, RFA, NON-HOPPING

Full Spectrum



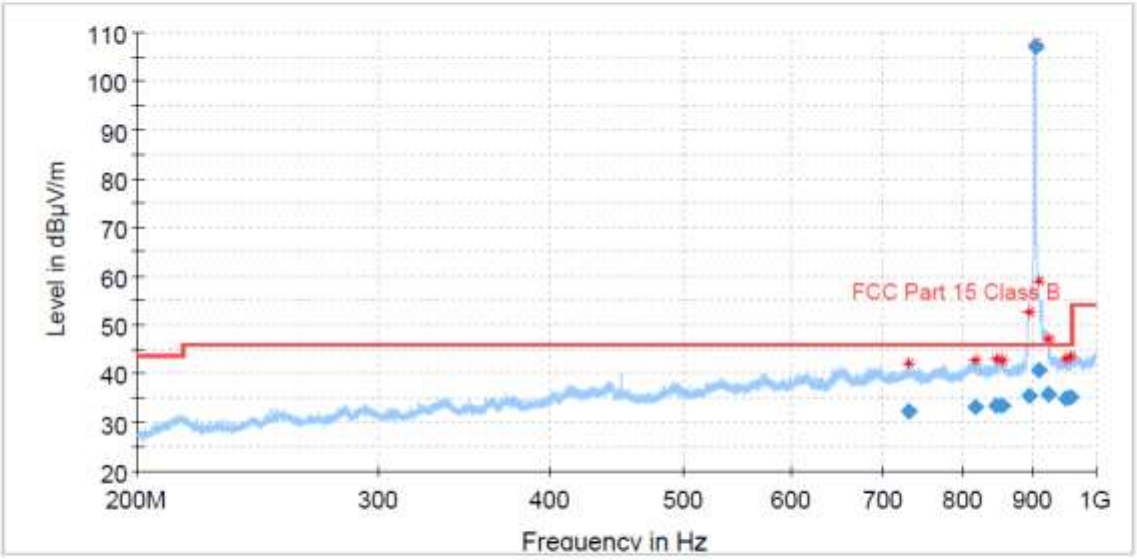
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
902.640000	109.56	46.00	-63.56	105.0	V	89.0
907.980000	44.24	46.00	1.76	100.0	V	89.0
923.400000	38.16	46.00	7.84	100.0	V	89.0
893.310000	38.00	46.00	8.00	104.0	V	89.0
954.750000	35.19	46.00	10.81	122.0	V	270.0
938.070000	34.87	46.00	11.13	100.0	V	16.0
847.050000	33.57	46.00	12.43	225.0	V	185.0
854.340000	33.43	46.00	12.57	105.0	V	192.0
811.920000	33.16	46.00	12.84	218.0	V	91.0
653.130000	31.36	46.00	14.64	178.0	V	255.0

EUT Information

Test condition: 902.6 MHz, RFA, NON-HOPPING

Full Spectrum



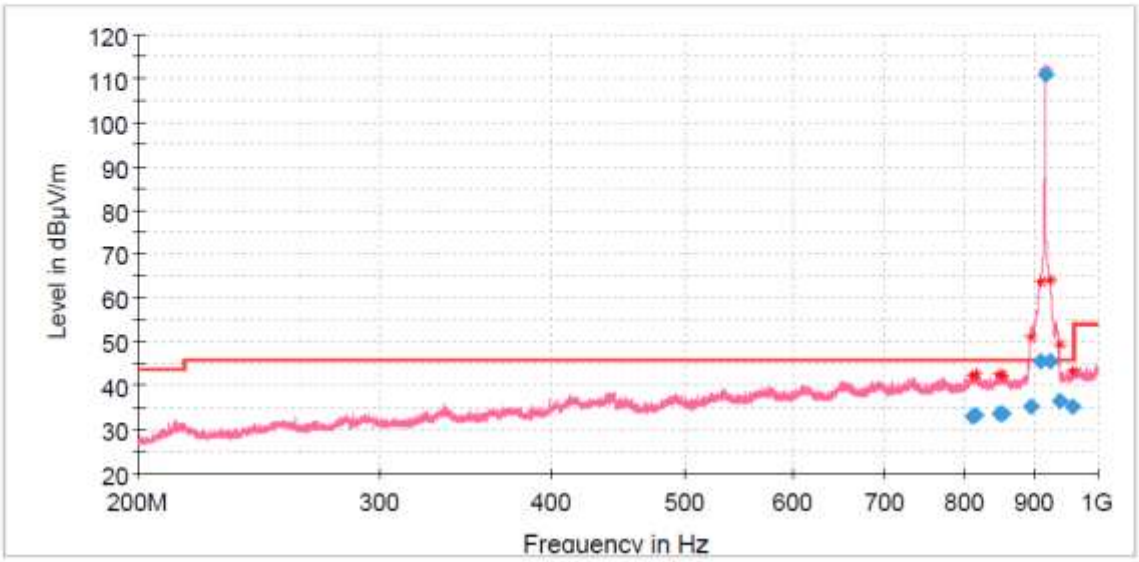
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
902.640000	107.07	46.00	-61.07	100.0	H	106.0
907.980000	40.76	46.00	5.24	100.0	H	327.0
923.010000	35.73	46.00	10.27	100.0	H	330.0
893.280000	35.47	46.00	10.53	100.0	H	235.0
959.100000	35.18	46.00	10.82	100.0	H	116.0
951.570000	34.88	46.00	11.12	100.0	H	42.0
854.760000	33.45	46.00	12.55	100.0	H	55.0
844.620000	33.45	46.00	12.55	100.0	H	218.0
815.820000	33.23	46.00	12.77	100.0	H	166.0
729.240000	32.24	46.00	13.76	100.0	H	268.0

EUT Information

Test condition: 915.0 MHz, RFA, NON-HOPPING

Full Spectrum



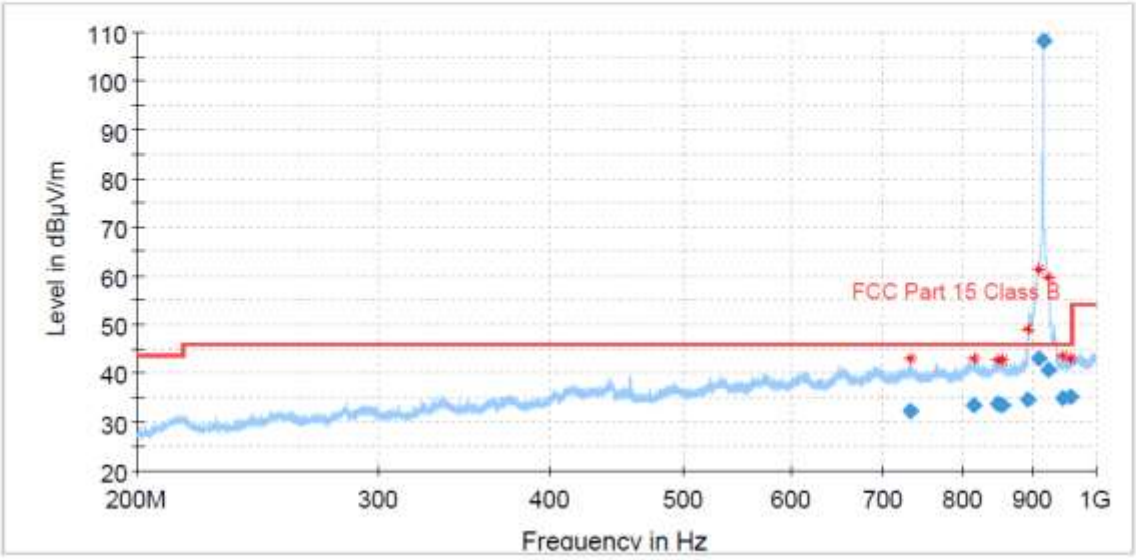
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
914.940000	111.08	46.00	-65.08	100.0	V	99.0
907.950000	45.68	46.00	0.32	100.0	V	99.0
922.860000	45.56	46.00	0.44	100.0	V	99.0
939.090000	36.65	46.00	9.35	100.0	V	75.0
893.400000	35.33	46.00	10.67	100.0	V	18.0
957.480000	35.10	46.00	10.90	125.0	V	157.0
852.420000	33.53	46.00	12.47	125.0	V	99.0
848.670000	33.51	46.00	12.49	123.0	V	242.0
814.500000	33.26	46.00	12.74	105.0	V	168.0
809.490000	33.10	46.00	12.90	125.0	V	270.0

EUT Information

Test condition: 915.0 MHz, RFA, NON-HOPPING

Full Spectrum



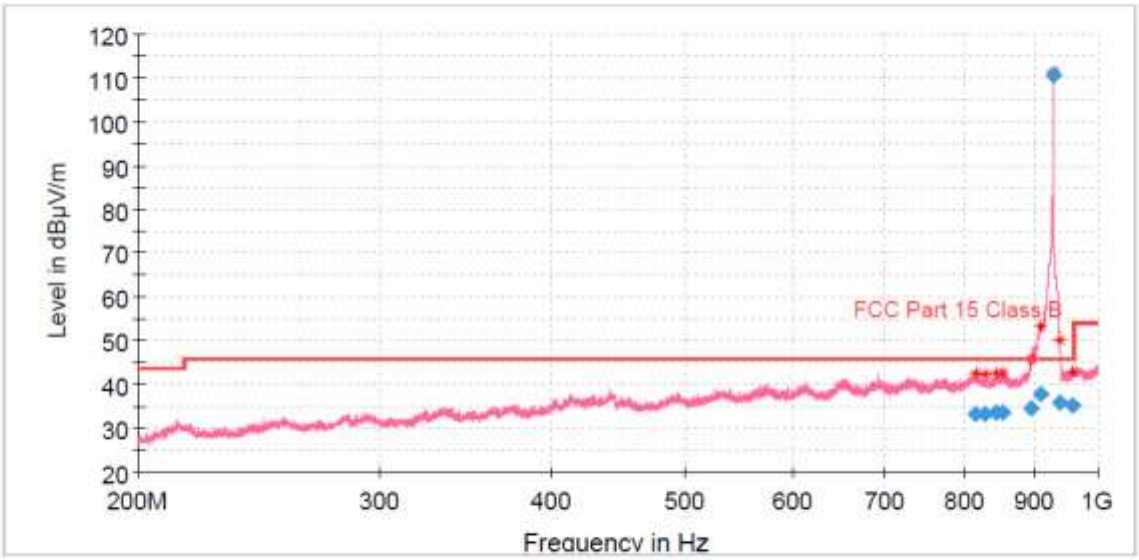
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
914.940000	108.22	46.00	-62.22	100.0	H	101.0
907.680000	43.08	46.00	2.92	100.0	H	91.0
922.860000	40.82	46.00	5.18	100.0	H	91.0
958.740000	35.18	46.00	10.82	100.0	H	0.0
945.930000	34.95	46.00	11.05	100.0	H	212.0
892.920000	34.70	46.00	11.30	100.0	H	91.0
847.440000	33.58	46.00	12.42	100.0	H	155.0
854.970000	33.50	46.00	12.50	100.0	H	120.0
814.500000	33.27	46.00	12.73	100.0	H	174.0
731.520000	32.12	46.00	13.88	100.0	H	189.0

EUT Information

Test condition: 927.4 MHz, RFA, NON-HOPPING

Full Spectrum



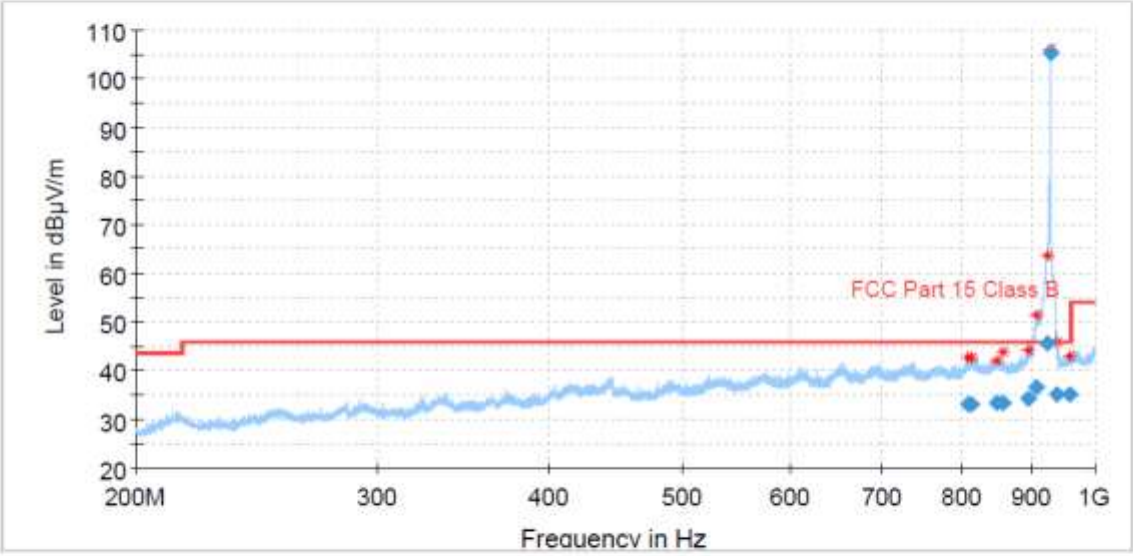
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
927.390000	110.57	46.00	-64.57	100.0	V	95.0
907.440000	37.88	46.00	8.12	100.0	V	104.0
938.340000	35.85	46.00	10.15	100.0	V	77.0
958.410000	35.15	46.00	10.85	100.0	V	338.0
893.160000	34.53	46.00	11.47	100.0	V	104.0
852.300000	33.47	46.00	12.53	100.0	V	39.0
843.720000	33.45	46.00	12.55	100.0	V	338.0
828.150000	33.36	46.00	12.65	100.0	V	104.0
813.840000	33.28	46.00	12.72	100.0	V	299.0

EUT Information

Test condition: 927.4 MHz, RFA, NON-HOPPING

Full Spectrum



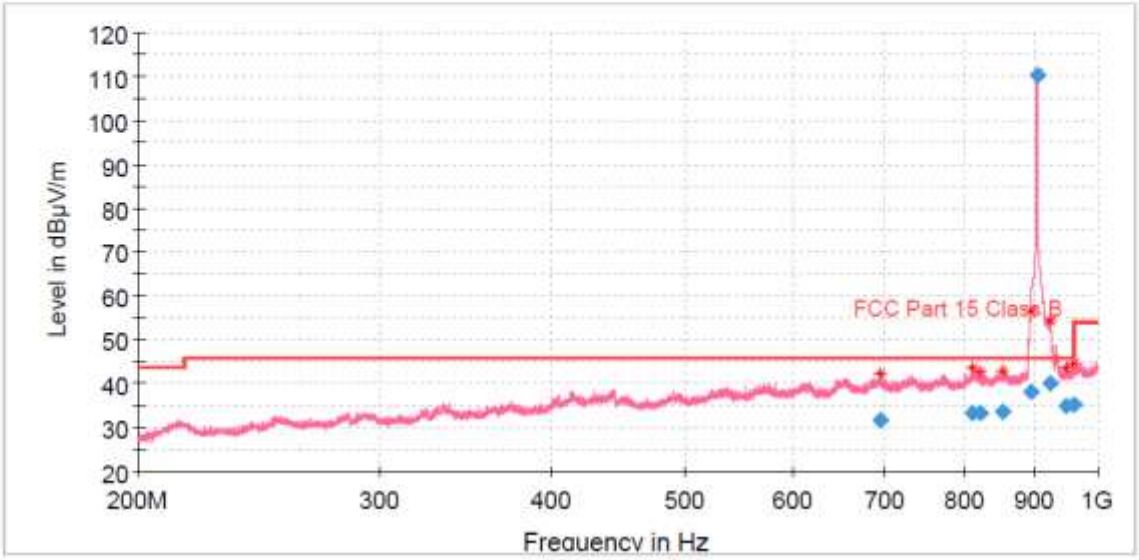
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
927.390000	105.30	46.00	-59.30	100.0	H	100.0
922.680000	45.73	46.00	0.27	100.0	H	108.0
906.990000	36.69	46.00	9.31	100.0	H	108.0
957.900000	35.17	46.00	10.83	100.0	H	323.0
938.790000	35.06	46.00	10.94	100.0	H	103.0
893.430000	34.39	46.00	11.61	100.0	H	108.0
846.750000	33.53	46.00	12.47	100.0	H	54.0
857.130000	33.49	46.00	12.51	100.0	H	323.0
812.850000	33.17	46.00	12.83	100.0	H	45.0
807.240000	33.02	46.00	12.98	100.0	H	58.0

EUT Information

Test condition: 902.6 MHz, RFB, NON-HOPPING

Full Spectrum



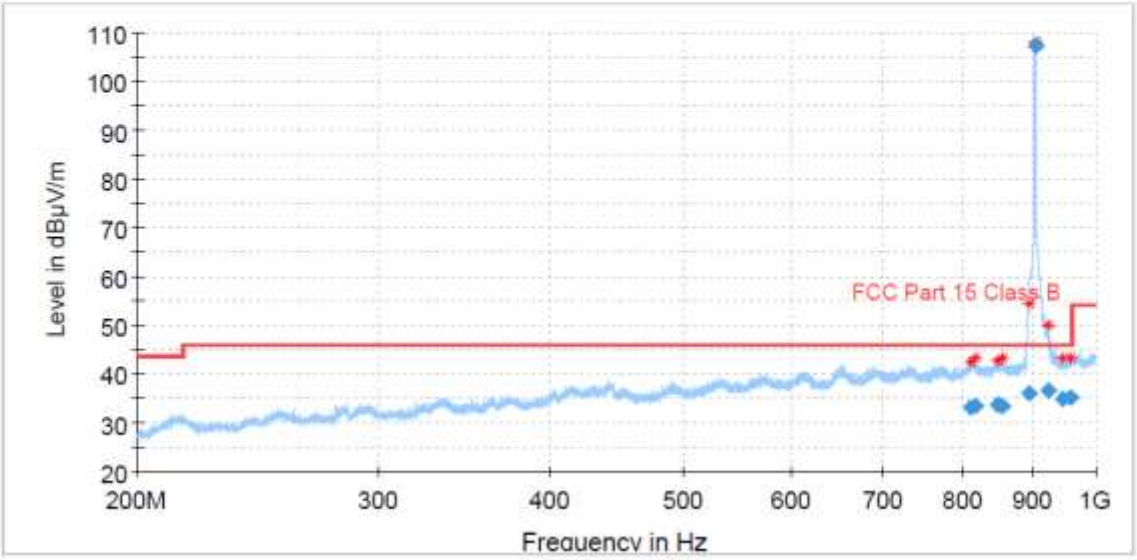
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
902.640000	110.34	46.00	-64.34	103.0	V	95.0
923.040000	40.13	46.00	5.87	100.0	V	95.0
893.280000	38.18	46.00	7.82	103.0	V	95.0
959.760000	35.17	46.00	10.83	125.0	V	32.0
947.490000	34.90	46.00	11.10	105.0	V	91.0
851.910000	33.46	46.00	12.54	221.0	V	275.0
820.230000	33.27	46.00	12.73	175.0	V	150.0
811.080000	33.12	46.00	12.88	100.0	V	200.0
694.110000	31.77	46.00	14.23	225.0	V	55.0

EUT Information

Test condition: 902.6 MHz, RFB, NON-HOPPING

Full Spectrum



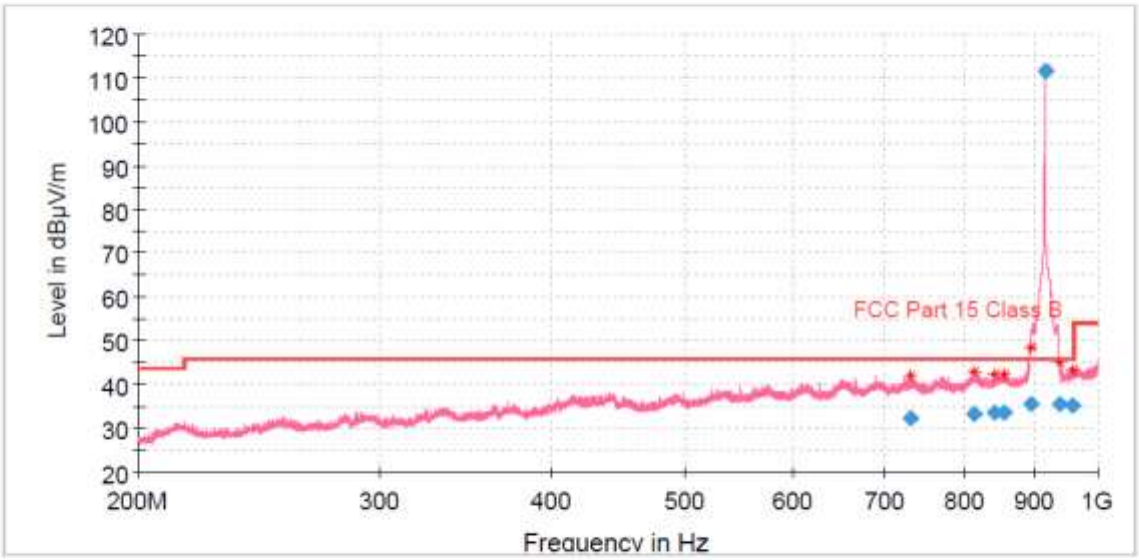
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
902.640000	107.43	46.00	-61.43	100.0	H	92.0
924.000000	36.55	46.00	9.45	100.0	H	92.0
893.310000	36.12	46.00	9.88	100.0	H	92.0
959.310000	35.19	46.00	10.81	198.0	H	95.0
945.810000	34.90	46.00	11.10	125.0	H	310.0
847.680000	33.60	46.00	12.40	180.0	H	199.0
853.470000	33.49	46.00	12.51	100.0	H	1.0
817.620000	33.27	46.00	12.73	125.0	H	71.0
809.550000	33.13	46.00	12.87	104.0	H	1.0

EUT Information

Test condition: 915.0 MHz, RFB, NON-HOPPING

Full Spectrum



Preview Result 1V-PK+
FCC Part 15 Class B
Critical_Freqs PK+
Final_Result QPK

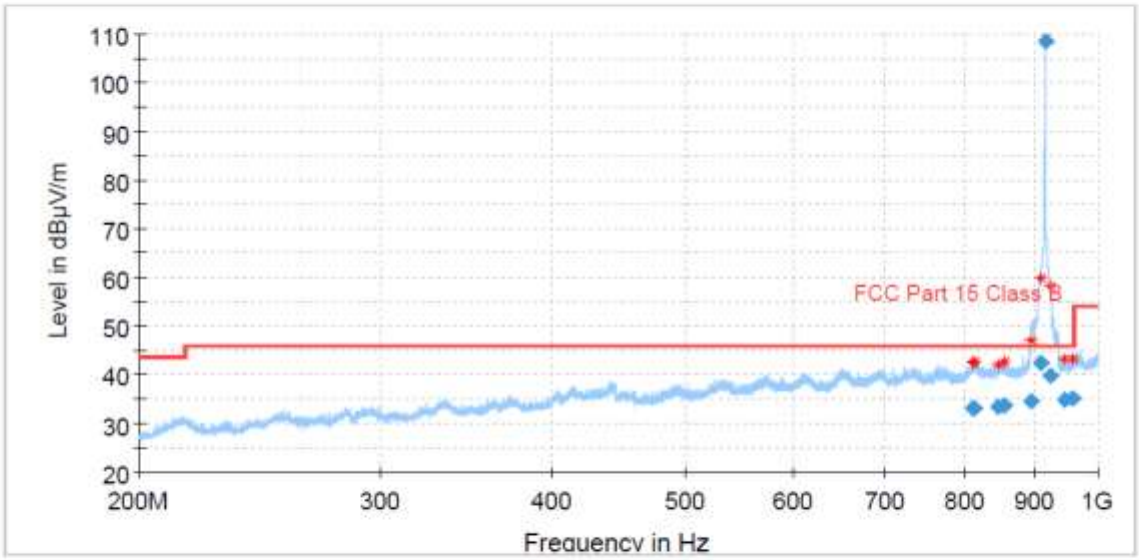
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
914.940000	111.51	46.00	-65.51	100.0	V	101.0
892.980000	35.59	46.00	10.41	100.0	V	91.0
938.310000	35.39	46.00	10.61	100.0	V	113.0
959.040000	35.13	46.00	10.87	100.0	V	153.0
842.010000	33.50	46.00	12.50	100.0	V	0.0
855.510000	33.49	46.00	12.51	100.0	V	284.0
812.490000	33.19	46.00	12.81	100.0	V	356.0
730.530000	32.18	46.00	13.82	100.0	V	343.0

EUT Information

Test condition: 915.0 MHz, RFB, NON-HOPPING

Full Spectrum



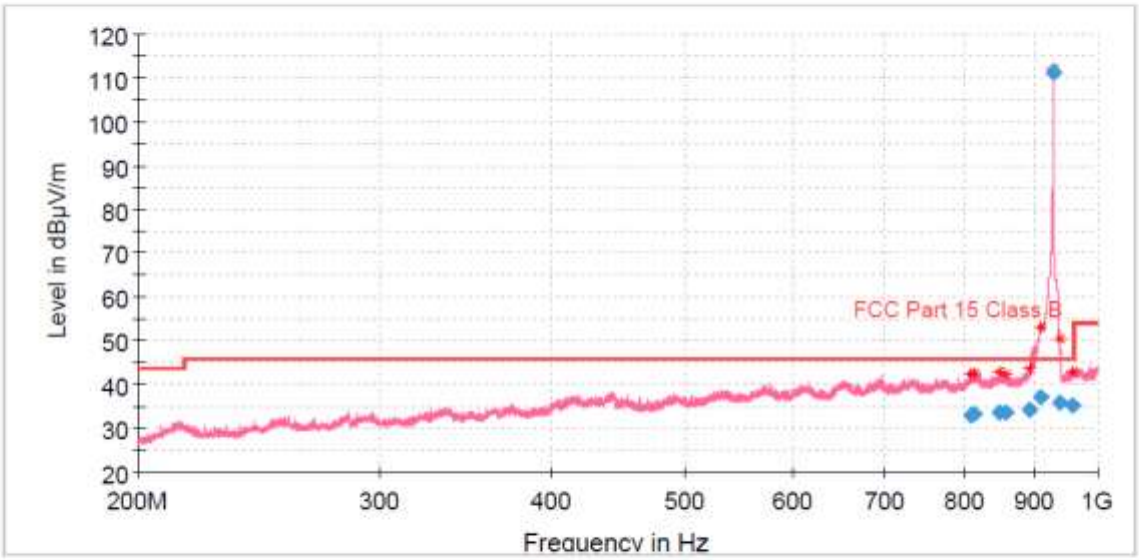
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
914.940000	108.43	46.00	-62.43	100.0	H	110.0
907.950000	42.32	46.00	3.68	100.0	H	87.0
922.980000	39.72	46.00	6.28	100.0	H	122.0
959.400000	35.28	46.00	10.72	100.0	H	8.0
944.880000	34.88	46.00	11.12	100.0	H	222.0
893.430000	34.70	46.00	11.30	100.0	H	87.0
854.640000	33.56	46.00	12.44	100.0	H	355.0
844.500000	33.47	46.00	12.53	100.0	H	49.0
810.720000	33.24	46.00	12.76	100.0	H	299.0
812.610000	33.15	46.00	12.85	100.0	H	204.0

EUT Information

Test condition: 927.4 MHz, RFB, NON-HOPPING

Full Spectrum



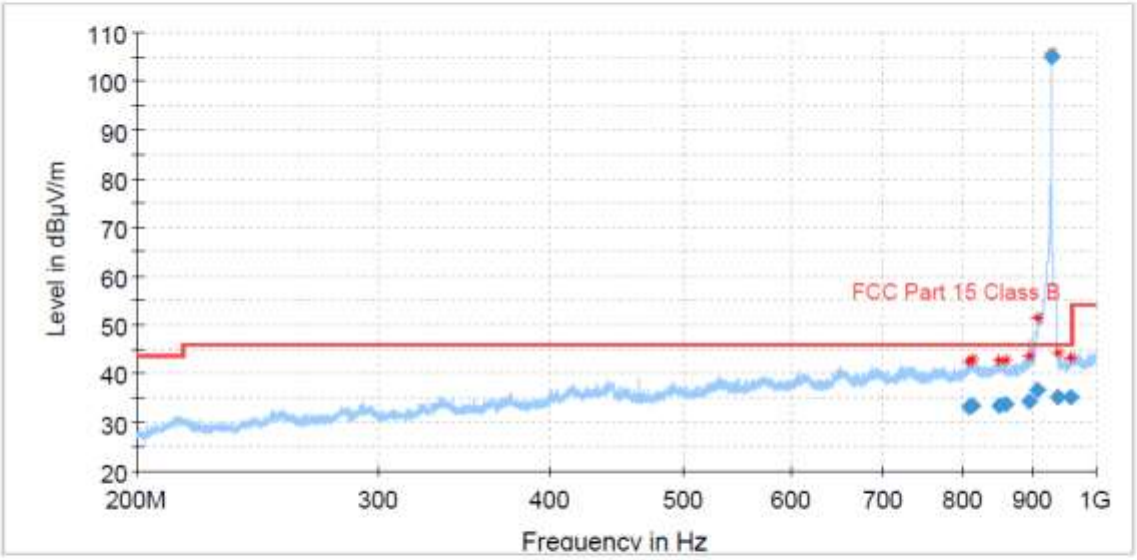
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
927.390000	111.28	46.00	-65.28	100.0	V	95.0
907.680000	37.24	46.00	8.76	100.0	V	52.0
937.710000	35.78	46.00	10.22	100.0	V	77.0
959.160000	35.18	46.00	10.82	100.0	V	124.0
892.170000	34.21	46.00	11.79	100.0	V	187.0
847.350000	33.56	46.00	12.44	100.0	V	0.0
855.870000	33.48	46.00	12.52	100.0	V	299.0
811.350000	33.18	46.00	12.82	100.0	V	202.0
808.800000	33.09	46.00	12.91	100.0	V	150.0

EUT Information

Test condition: 927.4 MHz, RFB, NON-HOPPING

Full Spectrum



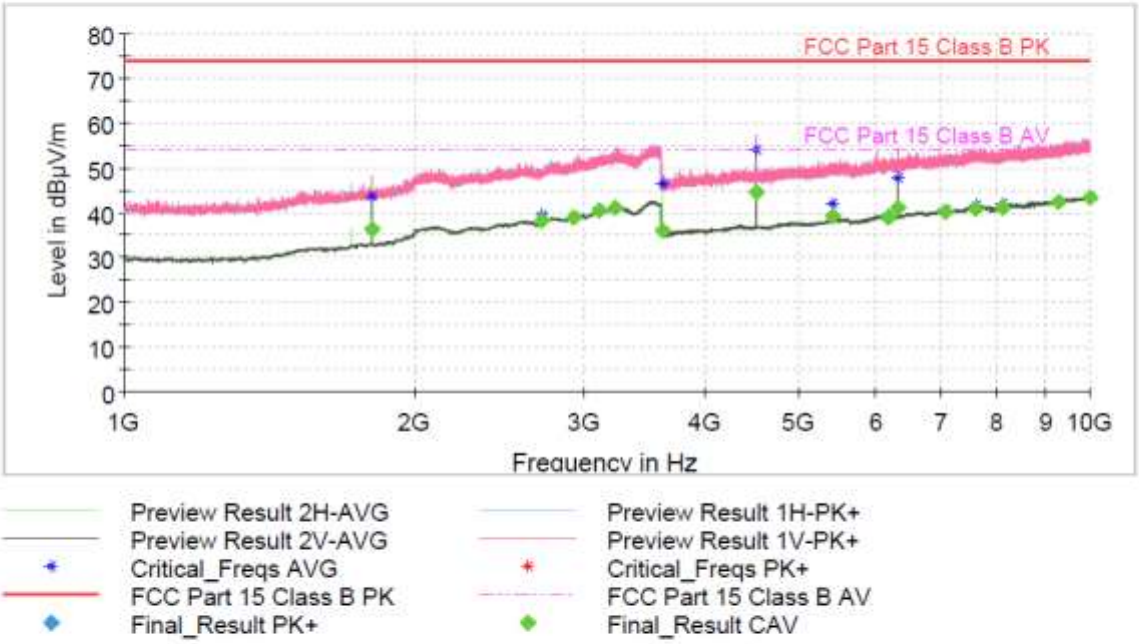
Final_Result

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
927.330000	105.17	46.00	-59.17	100.0	H	122.0
907.320000	36.62	46.00	9.38	100.0	H	107.0
958.860000	35.23	46.00	10.77	100.0	H	208.0
938.100000	35.01	46.00	10.99	100.0	H	231.0
893.280000	34.24	46.00	11.76	100.0	H	107.0
859.380000	33.59	46.00	12.41	100.0	H	313.0
850.860000	33.47	46.00	12.53	100.0	H	338.0
813.330000	33.27	46.00	12.73	100.0	H	73.0
808.950000	33.16	46.00	12.84	100.0	H	17.0

EUT Information

Test condition: 902.6 MHZ, RFA, NON-HOPPING

Full Spectrum



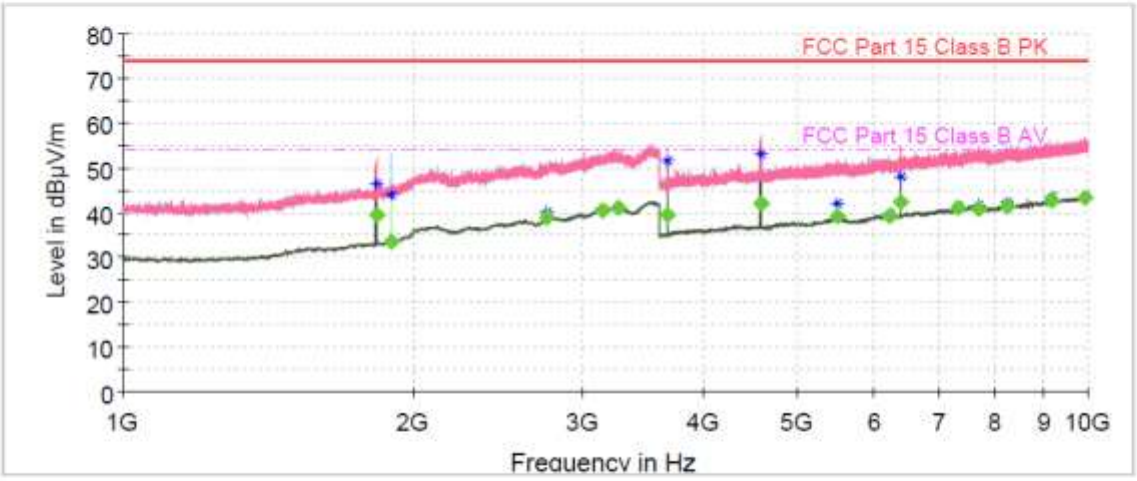
Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
4513.000000	---	44.68	54.00	9.32	125.0	V	284.0
9983.500000	---	43.23	54.00	10.77	148.0	H	310.0
9253.750000	---	42.40	54.00	11.60	166.0	V	190.0
8123.500000	---	41.20	54.00	12.80	148.0	V	50.0
6318.000000	---	41.09	54.00	12.91	148.0	V	0.0
3225.500000	---	41.01	54.00	12.99	175.0	H	310.0
7620.000000	---	40.87	54.00	13.13	129.0	V	0.0
3105.000000	---	40.49	54.00	13.51	146.0	H	263.0
7091.750000	---	40.19	54.00	13.81	125.0	H	0.0
5415.500000	---	39.23	54.00	14.77	175.0	V	0.0
2925.250000	---	39.02	54.00	14.98	165.0	H	216.0
6179.750000	---	38.97	54.00	15.03	129.0	V	190.0
2707.750000	---	38.20	54.00	15.80	146.0	V	284.0
1805.250000	---	36.49	54.00	17.51	175.0	V	97.0
3610.250000	---	35.99	54.00	18.01	146.0	H	263.0

EUT Information

Test condition: 915.0 MHz, RFA, NON-HOPPING

Full Spectrum



Preview Result 2H-AVG
Preview Result 2V-AVG
Critical_Freqs AVG
FCC Part 15 Class B PK
Final_Result PK+
Preview Result 1H-PK+
Preview Result 1V-PK+
Critical_Freqs PK+
FCC Part 15 Class B AV
Final_Result CAV

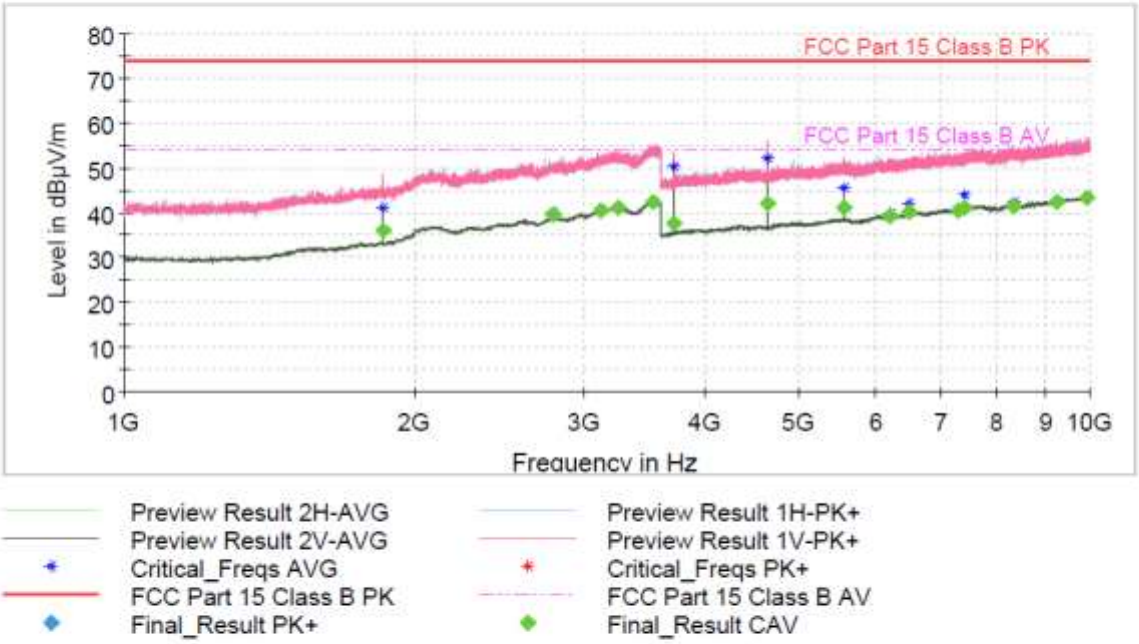
Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
9923.750000	---	43.21	54.00	10.79	148.0	H	0.0
9150.000000	---	42.61	54.00	11.39	147.0	H	0.0
6405.000000	---	42.28	54.00	11.72	148.0	V	0.0
4575.000000	---	41.92	54.00	12.08	128.0	V	311.0
8235.000000	---	41.48	54.00	12.52	128.0	V	358.0
7320.250000	---	41.15	54.00	12.85	128.0	V	31.0
3261.250000	---	40.96	54.00	13.04	165.0	V	171.0
7686.000000	---	40.86	54.00	13.14	175.0	V	264.0
3141.500000	---	40.50	54.00	13.50	127.0	V	0.0
3660.000000	---	39.65	54.00	14.35	147.0	V	171.0
1830.000000	---	39.40	54.00	14.60	175.0	V	31.0
5490.250000	---	39.27	54.00	14.73	175.0	V	358.0
6221.250000	---	39.07	54.00	14.93	166.0	V	0.0
2745.000000	---	39.02	54.00	14.98	167.0	V	124.0
1893.750000	---	33.38	54.00	20.62	148.0	H	237.0

EUT Information

Test condition: 927.4 MHz, RFA, NON-HOPPING

Full Spectrum



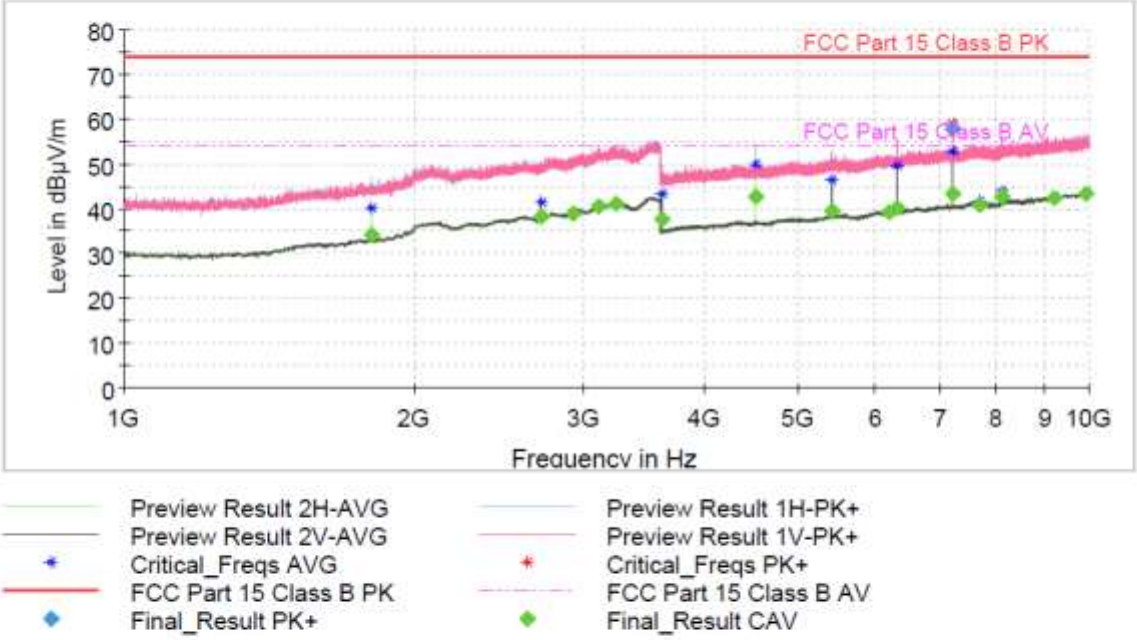
Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
9911.500000	---	43.19	54.00	10.81	125.0	H	283.0
3524.750000	---	42.39	54.00	11.61	125.0	H	330.0
9223.750000	---	42.35	54.00	11.65	148.0	H	236.0
4637.000000	---	42.19	54.00	11.81	146.0	V	124.0
8346.000000	---	41.35	54.00	12.65	125.0	V	358.0
5564.250000	---	41.05	54.00	12.95	127.0	V	264.0
3243.250000	---	41.03	54.00	12.97	165.0	H	143.0
7419.000000	---	41.01	54.00	12.99	125.0	V	311.0
3111.000000	---	40.51	54.00	13.49	147.0	H	3.0
7303.750000	---	40.46	54.00	13.54	167.0	V	124.0
6492.250000	---	40.30	54.00	13.70	147.0	H	143.0
2782.250000	---	39.67	54.00	14.34	175.0	V	0.0
6198.000000	---	39.11	54.00	14.89	166.0	H	189.0
3709.500000	---	37.58	54.00	16.42	128.0	V	171.0
1854.750000	---	36.20	54.00	17.80	125.0	V	311.0

EUT Information

Test condition: 902.6 MHz, RFB, NON-HOPPING

Full Spectrum



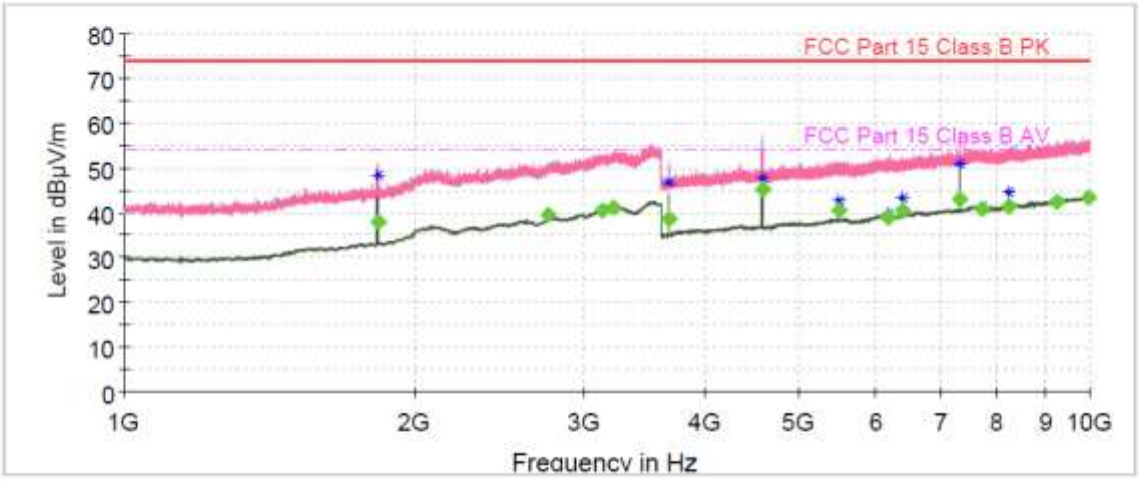
Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
7220.750000	---	43.33	54.00	10.67	128.0	V	30.0
9937.000000	---	43.20	54.00	10.80	125.0	H	0.0
8123.250000	---	42.73	54.00	11.27	129.0	V	0.0
4513.000000	---	42.72	54.00	11.28	127.0	H	143.0
9199.250000	---	42.40	54.00	11.60	125.0	H	3.0
3236.500000	---	41.03	54.00	12.97	148.0	H	331.0
7710.000000	---	40.74	54.00	13.26	175.0	V	124.0
3107.000000	---	40.52	54.00	13.48	175.0	V	264.0
6318.000000	---	40.31	54.00	13.69	146.0	V	124.0
5415.500000	---	39.58	54.00	14.42	128.0	V	77.0
6203.500000	---	39.11	54.00	14.89	147.0	V	311.0
2925.500000	---	39.05	54.00	14.95	167.0	H	50.0
2707.750000	---	38.21	54.00	15.79	175.0	V	170.0
7220.500000	58.01	---	74.00	15.99	129.0	V	30.0
3610.250000	---	37.78	54.00	16.22	148.0	V	124.0
1805.250000	---	34.17	54.00	19.83	147.0	H	191.0

EUT Information

Test condition: 915.0 MHz, RFB, NON-HOPPING

Full Spectrum



Preview Result 2H-AVG
Preview Result 2V-AVG
Critical_Freqs AVG
FCC Part 15 Class B PK
Final_Result PK+
Preview Result 1H-PK+
Preview Result 1V-PK+
Critical_Freqs PK+
FCC Part 15 Class B AV
Final_Result CAV

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
4575.000000	---	45.23	54.00	8.77	125.0	H	96.0
9977.750000	---	43.23	54.00	10.77	125.0	V	0.0
7320.250000	---	42.96	54.00	11.04	125.0	V	30.0
9235.000000	---	42.34	54.00	11.66	125.0	H	0.0
8234.750000	---	41.39	54.00	12.61	166.0	V	170.0
3213.750000	---	41.00	54.00	13.00	125.0	H	0.0
7727.750000	---	40.77	54.00	13.23	165.0	V	170.0
6405.000000	---	40.62	54.00	13.38	128.0	V	170.0
5490.250000	---	40.56	54.00	13.44	125.0	H	330.0
3128.250000	---	40.53	54.00	13.47	167.0	V	170.0
2745.000000	---	39.59	54.00	14.41	128.0	V	0.0
6186.000000	---	39.05	54.00	14.95	127.0	V	217.0
3660.000000	---	38.50	54.00	15.50	125.0	H	283.0
1830.000000	---	37.98	54.00	16.02	129.0	V	0.0

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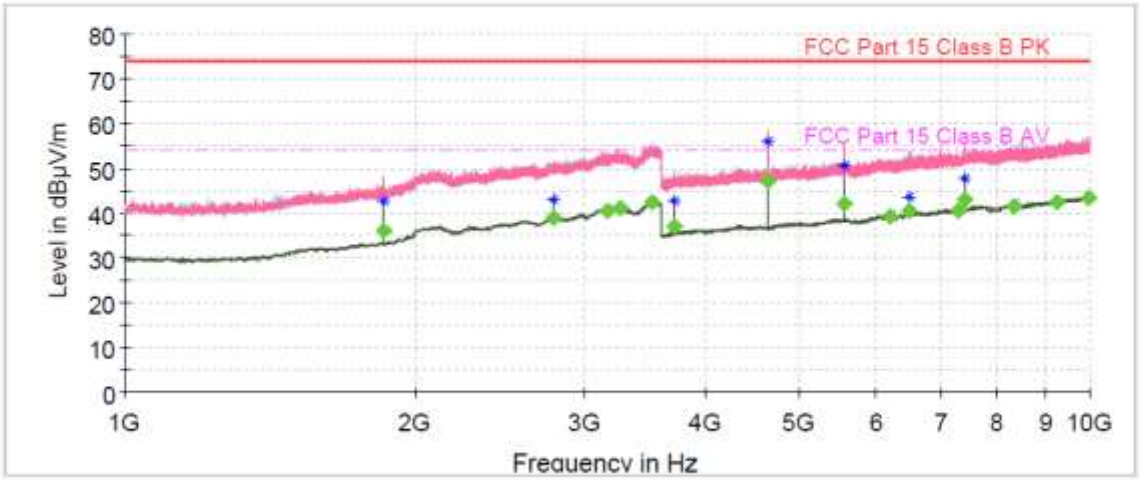
EUT Information

Test condition: 927.4 MHz, RFB, NON-HOPPING

Full Spectrum



Preview Result 2H-AVG
Preview Result 2V-AVG
Critical_Freqs AVG
FCC Part 15 Class B PK
Final_Result PK+
Preview Result 1H-PK+
Preview Result 1V-PK+
Critical_Freqs PK+
FCC Part 15 Class B AV
Final_Result CAV

Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	CAverage (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)
4637.000000	---	47.22	54.00	6.78	175.0	V	144.0
9965.500000	---	43.22	54.00	10.78	175.0	H	170.0
7419.250000	---	43.10	54.00	10.90	125.0	V	0.0
3513.500000	---	42.46	54.00	11.54	167.0	H	217.0
9234.750000	---	42.36	54.00	11.64	165.0	H	217.0
5564.250000	---	42.02	54.00	11.98	129.0	V	97.0
8327.500000	---	41.28	54.00	12.72	146.0	H	123.0
3261.500000	---	40.98	54.00	13.02	149.0	V	331.0
3161.750000	---	40.60	54.00	13.40	148.0	H	123.0
6491.750000	---	40.59	54.00	13.41	175.0	V	0.0
7297.250000	---	40.46	54.00	13.54	125.0	H	0.0
6197.750000	---	39.10	54.00	14.90	125.0	H	217.0
2782.250000	---	38.90	54.00	15.10	165.0	V	4.0
3709.500000	---	36.97	54.00	17.03	148.0	V	4.0
1854.750000	---	36.20	54.00	17.80	167.0	V	331.0

Calculation of final measurements:
Final Measurement (dBµV/m) = Receiver Reading (dBµV/m) + AF (dB) + CL (dB) + Atten (dB) + Preamp (dB)

where:

Final Measurement = Final measurement result
Receiver Reading = Uncorrected amplitude measured by the receiver
AF = Antenna Factor
CL = Cable Loss
Atten = Attenuator correction
Preamp = Preamplifier correction

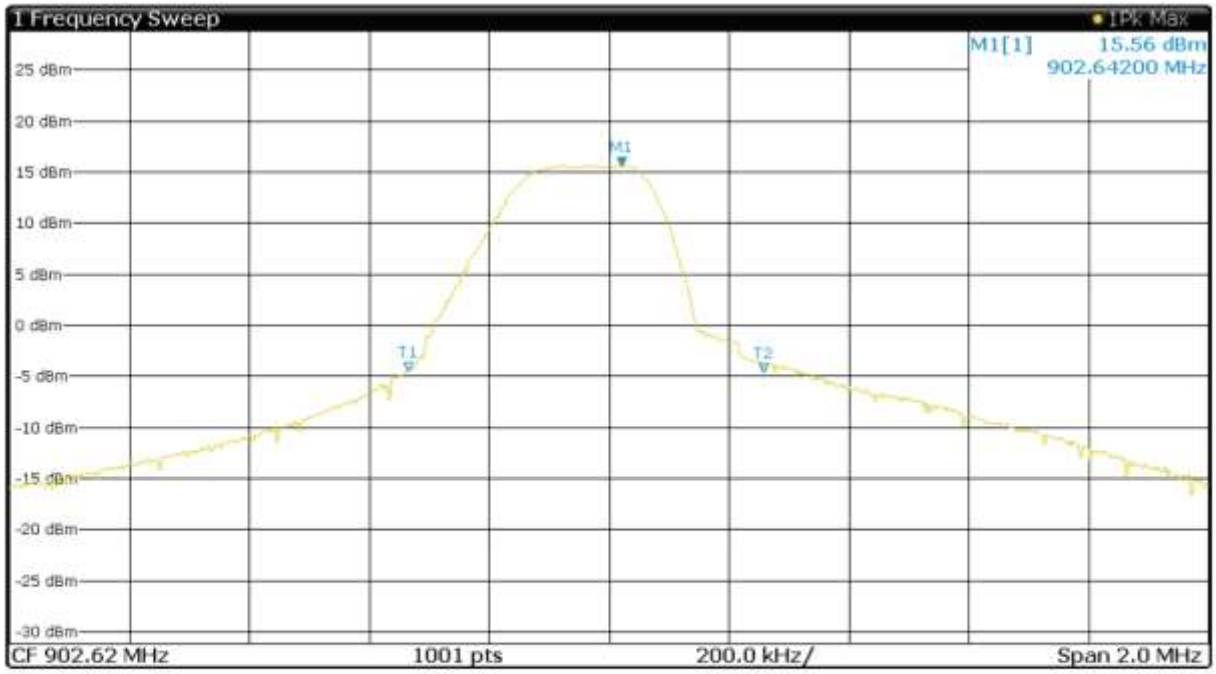
3.10 §15.247 (d) Band-edge Compliance of RF Conducted Emissions

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

Test Procedure
As per Clause 7.8.6 from ANSI C63.10-2013

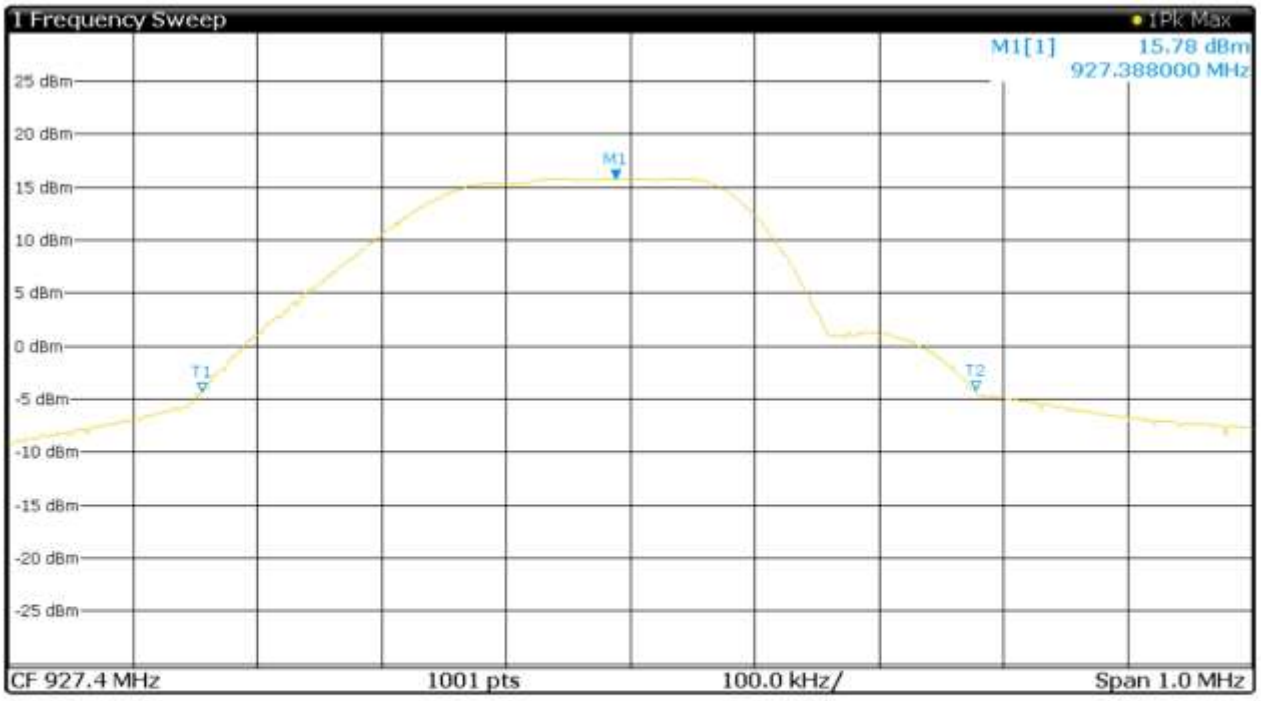
Conclusion: PASS

Test results
RFA, 902.6 MHz, NON-HOPPING



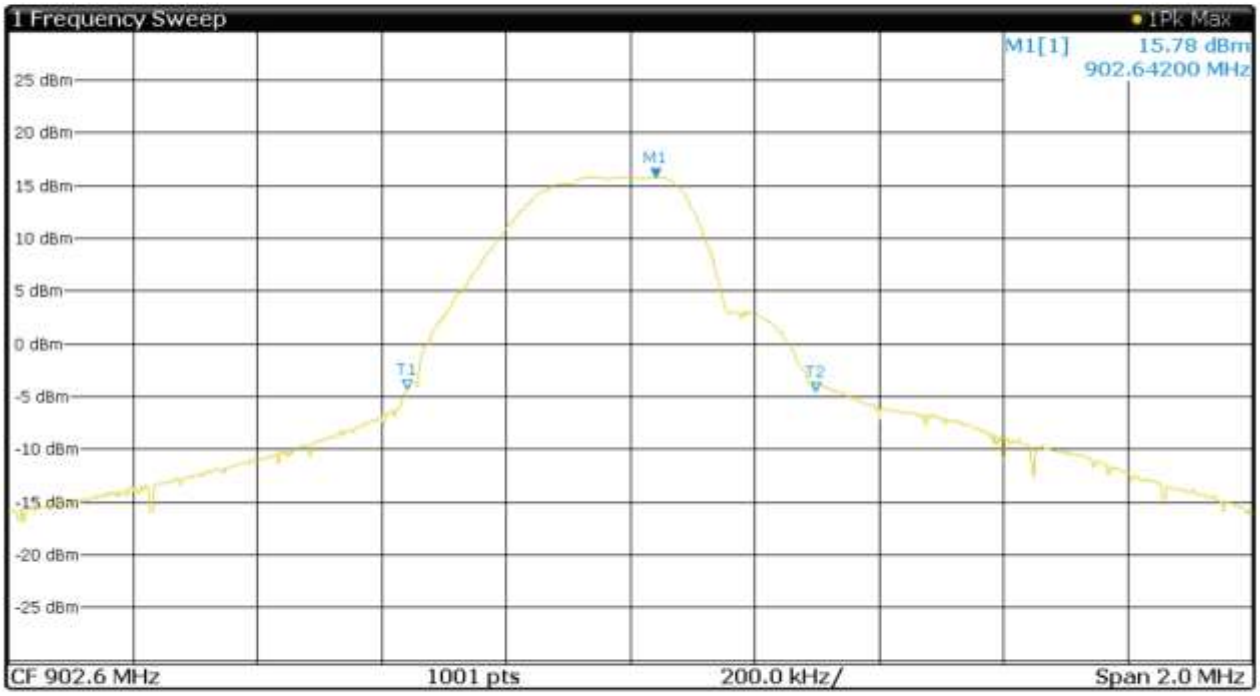
Type	Ref	Trace	X-Value	Y-Value	Function	Func Result
M1		1	902.6 MHz	15.6 dBm	ndB	20 dB
T1		1	902.3 MHz	-4.5 dBm	ndB down BW	591.4 kHz
T2		1	902.9 MHz	-4.6 dBm	Q Factor	1526

RFA, 927.4 MHz, NON-HOPPING



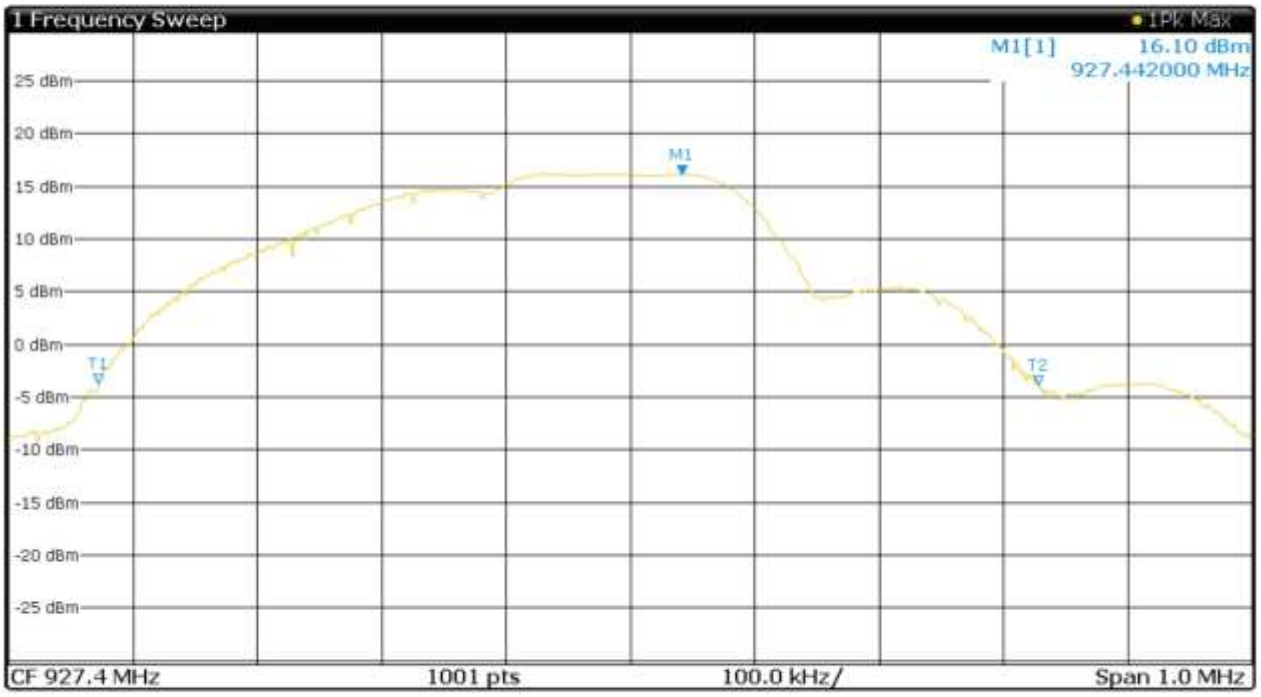
Type	Ref	Trace	X-Value	Y-Value	Function	Func Result
M1		1	927.4 MHz	15.8 dBm	ndB	20 dB
T1		1	927.1 MHz	-4.3 dBm	ndB down BW	621.4 kHz
T2		1	927.7 MHz	-4.2 dBm	Q Factor	1492

RFB, 902.6 MHz, NON-HOPPING



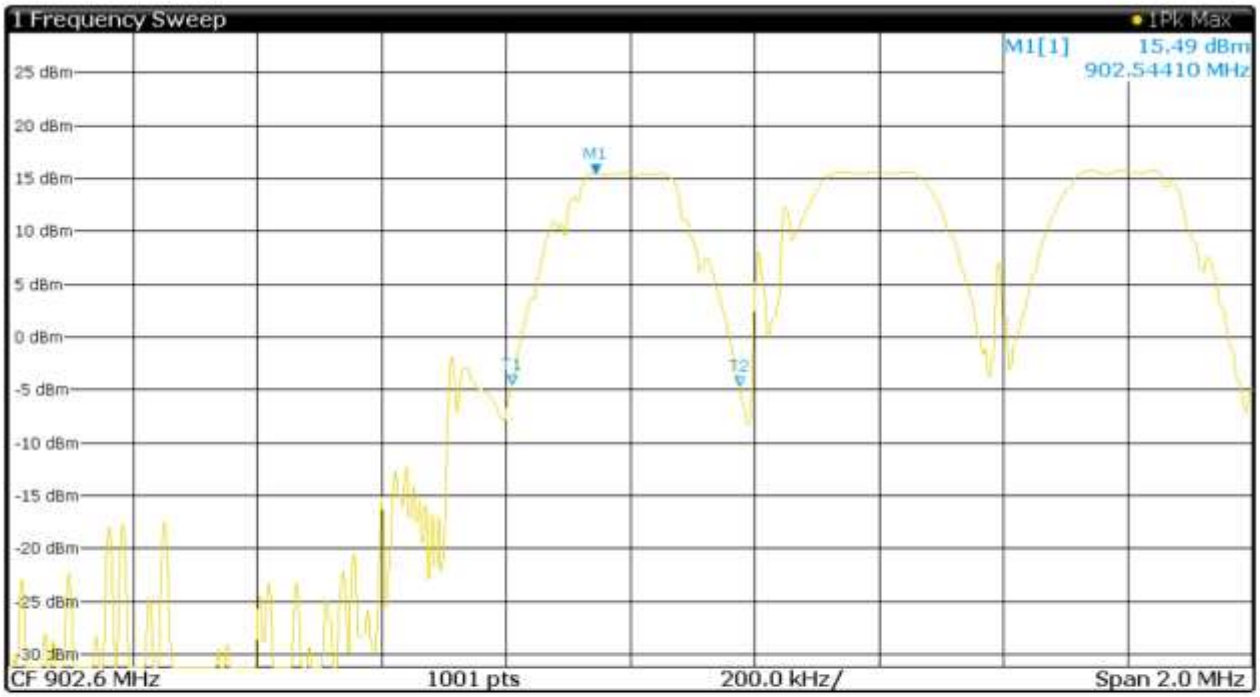
Type	Ref	Trace	X-Value	Y-Value	Function	Func Result
M1		1	902.6 MHz	15.8 dBm	ndB	20 dB
T1		1	902.2 MHz	-4.3 dBm	ndB down BW	655.3 kHz
T2		1	902.9 MHz	-4.6 dBm	Q Factor	1377

RFB, 927.4 MHz, NON-HOPPING



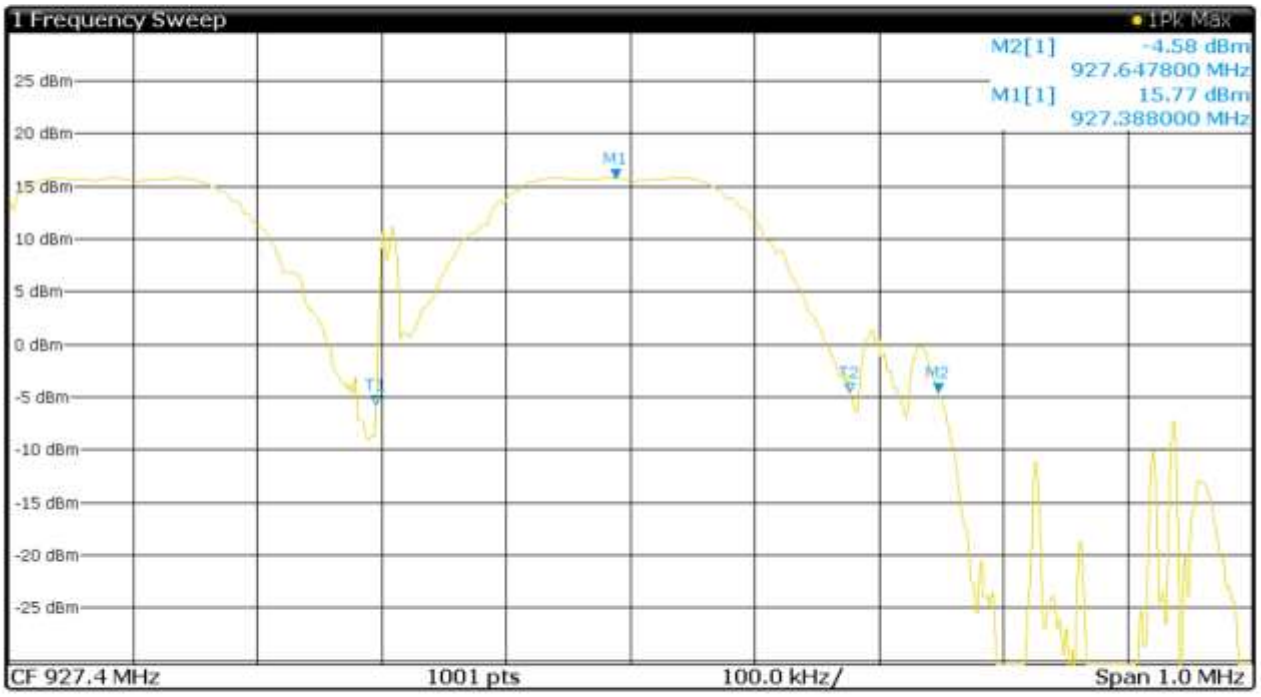
Type	Ref	Trace	X-Value	Y-Value	Function	Func Result
M1		1	927.4 MHz	16.1 dBm	ndB	20 dB
T1		1	927 MHz	-3.7 dBm	ndB down BW	755.2 kHz
T2		1	927.7 MHz	-3.8 dBm	Q Factor	1228

RFA, 902.6 MHz, HOPPING



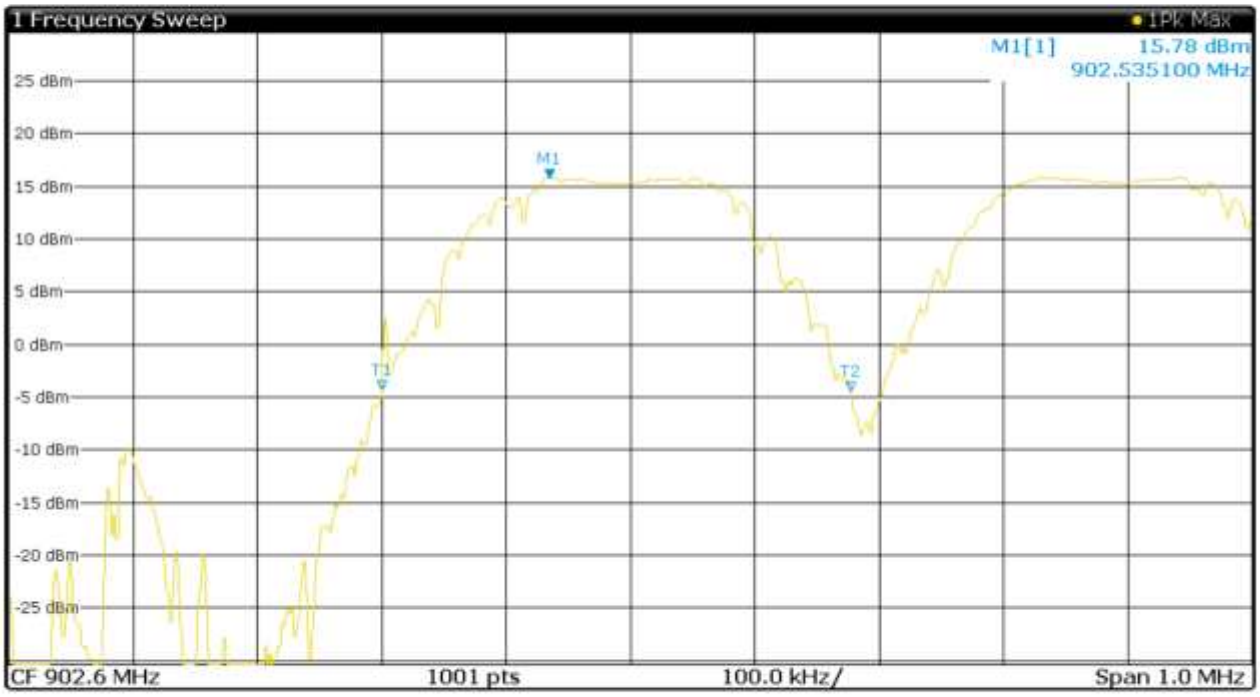
Type	Ref	Trace	X-Value	Y-Value	Function	Func Result
M1		1	902.5 MHz	15.5 dBm	ndB	20 dB
T1		1	902.4 MHz	-4.6 dBm	ndB down BW	365.6 kHz
T2		1	902.8 MHz	-4.6 dBm	Q Factor	2468

RFA, 927.4 MHz, HOPPING



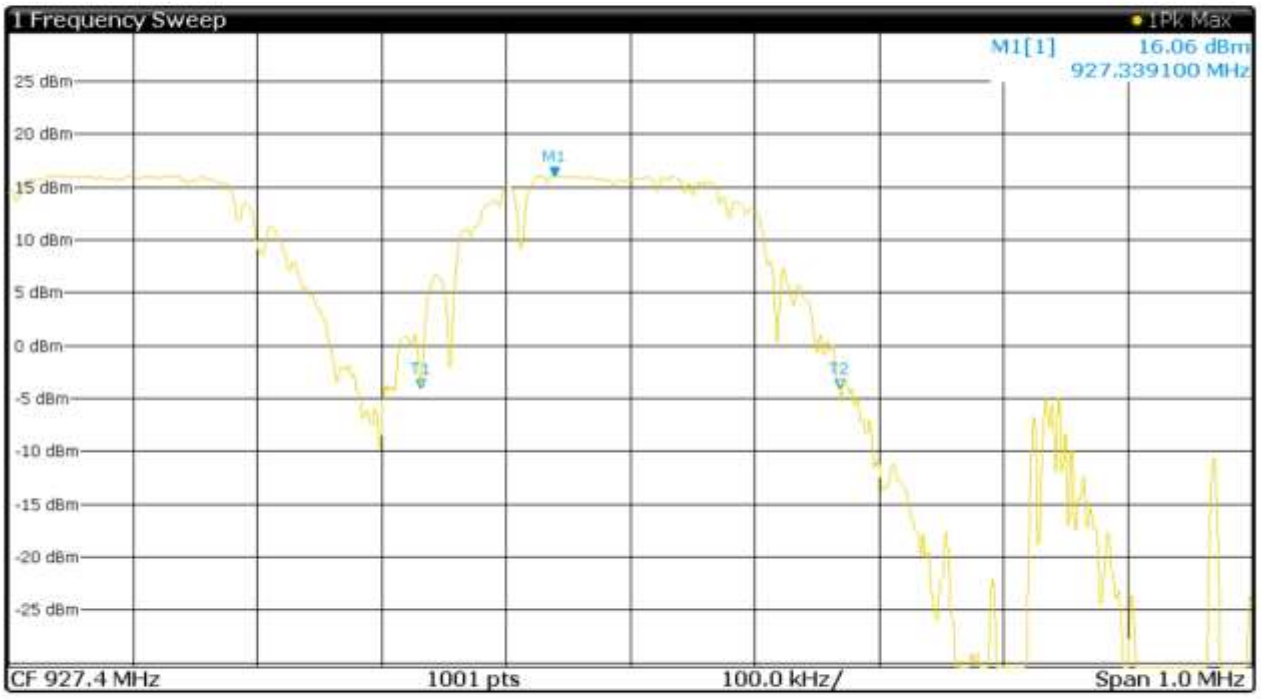
Type	Ref	Trace	X-Value	Y-Value	Function	Func Result
M1		1	927.4 MHz	15.8 dBm	ndB	20 dB
T1		1	927.2 MHz	-5.7 dBm	ndB down BW	380.6 kHz
T2		1	927.6 MHz	-4.5 dBm	Q Factor	2436
M2		1	927.6 MHz	-4.6 dBm		

RFB, 902.4 MHz, HOPPING



Type	Ref	Trace	X-Value	Y-Value	Function	Func Result
M1		1	902.5 MHz	15.8 dBm	ndB	20 dB
T1		1	902.4 MHz	-4.3 dBm	ndB down BW	376.6 kHz
T2		1	902.8 MHz	-4.4 dBm	Q Factor	2396

RFB, 927.4 MHz, HOPPING



3.11 §15.247 (i) RF Exposure Compliance Requirements

Requirement
Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. *See* §1.1307(b)(1) of this chapter
Limits for Limits for Maximum Permissible Exposure from §1.1310 for General Population/Uncontrolled Exposure: 0.6 mW/cm^2

Calculation procedure
OET 65 (Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields:

$S = PG / 4\pi R^2$

where:
S = power density (mW/cm^2)
P = Power Input to Antenna (mW)
G = Antenna Gain (numeric)
R = distance to the center of radiation of the antenna (cm)

Values:
P = 80 mW
G = 1.64
R = 20 cm

Result:
S = 0.026 mW/cm^2

Conclusion: PASS

4 TEST EQUIPMENT

Description	Model No.	SIQ No.	Last calibration	Calibrated until	Calibration period	Used
Rohde-Schwarz, RFI receiver	ESU8	105187	2017-12	2019-12	24 months	
Rohde-Schwarz, RFI receiver	ESU26	100428	2018-10	2020-10	24 months	X
Rohde & Schwarz, Artificial main network	ESH2-Z5	106899	2017-05	2019-05	24 months	
Rohde & Schwarz, Artificial main network	ENV216	106765	2018-09	2020-09	24 months	X
Comtest Engineering, Semi Anechoic Chamber SAC 1	SAC 3m	NPS001	2017-05	2019-05	24 months	X
Comtest Engineering, Semi Anechoic Chamber SAC 2	SAC 3m	NPS003	2017-05	2019-05	24 months	
Rohde & Schwarz, Horn Antenna	HF907 (SN 102508)	102508	2018-05	2020-05	24 months	X
Rohde & Schwarz, Ultra Broadband Antenna	HL562E (SN 100842)	102842	2017-07	2019-07	24 months	X
Schwarzbeck, Biconical antenna	VHBB9124	105112	2018-11	2020-11	24 months	X
Schwarzbeck, Active loop antenna	FMZB 1519 B	/	2018-12	2020-12	24 months	X
Rohde & Schwarz, Horn Antenna	HF907 (SN 102494)	102494	2017-05	2019-05	24 months	
Rohde & Schwarz, Ultra Broadband Antenna	HL562E (SN 100843)	102843	2018-05	2020-05	24 months	
Maturo, Turn table (2 m diameter)	TT 2.0 SI	/	N/A	N/A	N/A	X
Maturo, Bore-sight antenna mast	BAM-4.0-P	/	N/A	N/A	N/A	X
Maturo, Multi-channel positioning equipment	Maturo NCD	/	N/A	N/A	N/A	X

5 CABLE LOSS AND ATTENUATION OF RADIATED EMISSION

5.1.1 Conducted emission cable (SIQ-070)

Frequency (MHz)	Loss (MHz)
0,009	0,0
1	0,0
5	0,1
10	0,2
15	0,2
20	0,2
25	0,3
30	0,3

5.1.2 Conducted RF emission cable (LU7-133-1000, ID 002)

Frequency (GHz)	Loss (MHz)
0,001	0,0
0,053	0,2
3,975	0,6
8,003	0,8
11,987	1,1
18,020	1,3

5.1.3 Radiated emission cable (104+105)

Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)
0,009	0,01	2600	3,77	5600	5,83	8600	7,48	13000	9,77
5	0,17	2700	3,85	5700	5,88	8600	7,48	13200	9,82
10	0,29	2800	3,93	5800	5,94	8700	7,56	13200	9,82
30	0,40	2900	4,01	5900	6,00	8800	7,63	13400	9,91
50	0,50	3000	4,07	6000	6,06	8900	7,69	13600	10,04
100	0,69	3100	4,15	6100	6,13	9000	7,73	13800	10,15
200	0,96	3200	4,23	6200	6,19	9100	7,77	14000	10,23
300	1,20	3300	4,30	6300	6,23	9200	7,81	14200	10,30
400	1,40	3400	4,38	6400	6,28	9300	7,85	14400	10,39
500	1,57	3500	4,45	6500	6,33	9400	7,89	14600	10,55
600	1,72	3600	4,53	6600	6,39	9500	7,93	14800	10,72
700	1,86	3700	4,59	6700	6,45	9600	7,99	15000	10,83
800	2,00	3800	4,66	6800	6,52	9700	8,06	15200	10,91
900	2,13	3900	4,72	6900	6,57	9800	8,14	15400	10,98
1000	2,25	4000	4,79	7000	6,63	9900	8,21	15600	11,05
1100	2,37	4100	4,86	7100	6,69	10000	8,28	15800	11,16
1200	2,48	4200	4,93	7200	6,74	10200	8,38	16000	11,29
1300	2,59	4300	4,99	7300	6,80	10400	8,48	16200	11,40
1400	2,70	4400	5,06	7400	6,84	10600	8,60	16400	11,51
1500	2,80	4500	5,12	7500	6,88	10800	8,69	16600	11,61
1600	2,89	4600	5,19	7600	6,92	11000	8,77	16800	11,70
1700	2,99	4700	5,26	7700	6,96	11200	8,88	17000	11,78
1800	3,08	4800	5,33	7800	7,02	11400	8,99	17200	11,87
1900	3,17	4900	5,39	7900	7,08	11600	9,09	17400	11,97
2000	3,26	5000	5,45	8000	7,15	11800	9,18	17600	12,09
2100	3,35	5100	5,50	8100	7,21	12000	9,22	17800	12,31
2200	3,44	5200	5,56	8200	7,26	12200	9,28	18000	12,80
2300	3,52	5300	5,63	8300	7,31	12400	9,42		
2400	3,60	5400	5,70	8400	7,36	12600	9,57		
2500	3,68	5500	5,77	8500	7,42	12800	9,69		

5.1.4 Antenna HL562E

Frequency (MHz)	Antenna factor HL562E (SN 100842)	Antenna factor HL562E (SN 100843)
30	18.12	18.17
32	17.08	17.07
34	16.01	16
36	14.91	14.94
38	13.76	13.75
40	12.64	12.61
42	11.43	11.4
44	10.17	10.15
46	8.86	8.81
48	7.42	7.44
50	6.01	5.96
52	4.59	4.56
54	3.38	3.37
56	2.84	2.85
58	3.06	3.14
60	3.78	3.76
62	4.44	4.4
64	5.36	5.32
66	6.19	6.18
68	6.96	6.92
70	7.56	7.52
72	8.04	8.01
74	8.38	8.35
76	8.67	8.64
78	8.88	8.85
80	9.04	9.03
82	9.14	9.09
84	9.2	9.14
86	9.22	9.16
88	9.22	9.17
90	9.21	9.17
92	9.22	9.15
94	9.22	9.16
96	9.21	9.16
98	9.22	9.17
100	9.33	9.05
105	9.38	9.39
110	9.67	9.74
115	9.55	10.33
120	10.51	9.88
125	10.15	9.87
130	9.23	9.13
135	8.79	8.71
140	8.4	8.4
145	7.93	7.82
150	7.74	7.75
155	7.68	7.76
160	7.86	7.78
165	8.47	8.33
170	9.83	9.66
175	10.29	10.3
180	7.86	7.93

185	7.19	7.27
190	7.54	7.21
195	7.32	7.2
200	7.56	7.49
205	7.56	7.68
210	7.71	7.95
215	8.68	8.29
220	8.43	8.49
225	8.51	8.62
230	8.85	8.82
235	9.1	9.05
240	9.31	9.29
245	9.33	9.33
250	9.5	9.45
255	9.71	9.64
260	9.86	9.81
265	9.95	9.9
270	10	10.02
275	10.15	10.15
280	10.37	10.36
285	10.58	10.61
290	10.76	10.8
295	10.84	10.9
300	10.83	11.12
305	11.38	11.37
310	11.36	11.32
315	11.53	11.48
320	11.7	11.67
325	11.84	11.81
330	11.98	11.94
335	12.32	12.13
340	12.19	12.22
345	12.29	12.35
350	12.43	12.47
355	12.59	12.61
360	12.72	12.73
365	12.83	12.81
370	12.99	12.99
375	13.08	13.1
380	13.12	13.11
385	13.21	13.2
390	13.38	13.33
395	13.54	13.5
400	13.65	13.63
405	13.74	13.73
410	13.84	13.83
415	14.14	13.96
420	14.1	14
425	14.13	14.08
430	14.24	14.2
435	14.4	14.4
440	14.55	14.49
445	14.7	14.65
450	14.82	14.79
455	14.89	14.91
460	14.9	15.09
465	15.16	15.19

470	15.24	15.22
475	15.31	15.25
480	15.38	15.32
485	15.48	15.43
490	15.58	15.52
495	15.66	15.6
500	15.72	15.7
505	15.74	15.75
510	15.83	15.82
515	16.05	15.92
520	15.95	15.93
525	15.97	15.97
530	16.05	16.01
535	16.09	16.07
540	16.16	16.15
545	16.21	16.21
550	16.29	16.3
555	16.38	16.41
560	16.51	16.53
565	16.67	16.68
570	16.78	16.85
575	16.87	17.02
580	17.03	17.11
585	17.06	17.08
590	17.1	17.09
595	17.15	17.13
600	17.22	17.18
605	17.28	17.25
610	17.35	17.33
615	17.42	17.37
620	17.41	17.42
625	17.48	17.48
630	17.56	17.55
635	17.67	17.65
640	17.8	17.79
645	17.94	17.95
650	18.08	18.13
655	18.16	18.12
660	18.18	18.03
665	18.12	17.99
670	18.13	18.01
675	18.19	18.09
680	18.26	18.24
685	18.42	18.41
690	18.56	18.56
695	18.62	18.61
700	18.67	18.67
705	18.7	18.74
710	18.74	18.79
715	18.81	18.86
720	18.89	18.95
725	19.09	19.09
730	19.22	19.26
735	19.17	19.23
740	19.19	19.14
745	19.14	19.1
750	19.13	19.09

755	19.17	19.1
760	19.19	19.15
765	19.24	19.21
770	19.34	19.29
775	19.37	19.36
780	19.36	19.36
785	19.43	19.41
790	19.51	19.48
795	19.59	19.56
800	19.7	19.66
805	19.83	19.79
810	19.98	19.95
815	20.07	20.04
820	20.1	19.96
825	20.11	19.92
830	20.09	19.94
835	20.09	19.96
840	20.14	20.05
845	20.19	20.11
850	20.27	20.2
855	20.36	20.29
860	20.42	20.37
865	20.46	20.44
870	20.5	20.51
875	20.52	20.55
880	20.59	20.61
885	20.7	20.69
890	20.82	20.77
895	20.89	20.83
900	20.88	20.92
905	20.83	21.08
910	20.93	21.21
915	21.19	21.17
920	21.22	21.1
925	21.09	21.03
930	20.98	21
935	20.95	21
940	20.96	21.01
945	21	21.04
950	21.05	21.06
955	21.09	21.07
960	21.15	21.13
965	21.23	21.2
970	21.27	21.26
975	21.31	21.3
980	21.36	21.37
985	21.43	21.44
990	21.52	21.53
995	21.63	21.64
1000	21.73	21.73

5.1.5 Antenna HF907

Frequency (GHz)	Antenna factor HF907 (SN 102508)	Antenna factor HF907 (SN 102494)
1	24.36	24.36
1.01	24.34	24.38
1.02	24.53	24.55
1.03	24.6	24.63
1.04	24.46	24.51
1.05	24.35	24.41
1.06	24.48	24.49
1.07	24.51	24.56
1.08	24.32	24.37
1.09	24.26	24.29
1.1	24.33	24.35
1.11	24.38	24.44
1.12	24.23	24.25
1.13	24.18	24.19
1.14	24.23	24.24
1.15	24.35	24.38
1.16	24.3	24.3
1.17	24.23	24.26
1.18	24.37	24.4
1.19	24.56	24.57
1.2	24.52	24.55
1.21	24.39	24.42
1.22	24.51	24.52
1.23	24.66	24.7
1.24	24.64	24.68
1.25	24.51	24.54
1.26	24.53	24.55
1.27	24.69	24.72
1.28	24.65	24.65
1.29	24.46	24.47
1.3	24.48	24.52
1.31	24.66	24.68
1.32	24.64	24.65
1.33	24.49	24.5
1.34	24.53	24.53
1.35	24.75	24.75
1.36	24.73	24.76
1.37	24.62	24.65
1.38	24.74	24.76
1.39	24.96	24.99
1.4	25.02	25.05
1.41	24.94	24.95
1.42	25.02	25.03
1.43	25.31	25.37
1.44	25.39	25.43
1.45	25.27	25.29
1.46	25.37	25.42
1.47	25.7	25.7
1.48	25.77	25.76
1.49	25.66	25.67
1.5	25.76	25.77
1.51	26.04	26.03

1.52	26.12	26.12
1.53	26.01	26.03
1.54	26.06	26.03
1.55	26.29	26.29
1.56	26.35	26.36
1.57	26.25	26.25
1.58	26.27	26.27
1.59	26.41	26.45
1.6	26.51	26.5
1.61	26.37	26.36
1.62	26.33	26.33
1.63	26.48	26.52
1.64	26.58	26.57
1.65	26.42	26.44
1.66	26.35	26.37
1.67	26.51	26.53
1.68	26.64	26.59
1.69	26.46	26.47
1.7	26.36	26.34
1.71	26.52	26.5
1.72	26.7	26.7
1.73	26.54	26.53
1.74	26.4	26.38
1.75	26.62	26.64
1.76	26.85	26.83
1.77	26.72	26.73
1.78	26.59	26.57
1.79	26.75	26.8
1.8	27.08	27.07
1.81	26.92	26.92
1.82	26.77	26.76
1.83	27	27
1.84	27.26	27.23
1.85	27.09	27.06
1.86	26.92	26.88
1.87	27.17	27.14
1.88	27.4	27.35
1.89	27.27	27.22
1.9	27.14	27.12
1.91	27.43	27.38
1.92	27.72	27.71
1.93	27.59	27.56
1.94	27.55	27.52
1.95	27.9	27.9
1.96	28.25	28.24
1.97	28.13	28.1
1.98	28.06	28.04
1.99	28.43	28.44
2	28.67	28.63
2.01	28.5	28.45
2.02	28.37	28.39
2.03	28.67	28.63
2.04	28.76	28.76
2.05	28.48	28.46
2.06	28.37	28.36
2.07	28.49	28.48
2.08	28.52	28.51

2.09	28.31	28.29
2.1	28.16	28.14
2.11	28.24	28.23
2.12	28.28	28.27
2.13	28.15	28.13
2.14	28.01	28
2.15	28.1	28.09
2.16	28.22	28.21
2.17	28.14	28.1
2.18	28.02	28
2.19	28.11	28.08
2.2	28.29	28.28
2.21	28.24	28.21
2.22	28.11	28.08
2.23	28.21	28.18
2.24	28.37	28.36
2.25	28.31	28.28
2.26	28.16	28.13
2.27	28.21	28.19
2.28	28.4	28.38
2.29	28.37	28.35
2.3	28.21	28.19
2.31	28.28	28.25
2.32	28.46	28.43
2.33	28.47	28.44
2.34	28.35	28.33
2.35	28.41	28.38
2.36	28.56	28.54
2.37	28.62	28.59
2.38	28.54	28.49
2.39	28.56	28.55
2.4	28.73	28.71
2.41	28.77	28.74
2.42	28.72	28.69
2.43	28.74	28.72
2.44	28.86	28.85
2.45	28.9	28.89
2.46	28.86	28.84
2.47	28.89	28.88
2.48	29.02	29.01
2.49	29.08	29.07
2.5	29.05	29.03
2.51	29.1	29.09
2.52	29.3	29.29
2.53	29.39	29.39
2.54	29.38	29.35
2.55	29.39	29.38
2.56	29.58	29.57
2.57	29.74	29.73
2.58	29.65	29.62
2.59	29.54	29.52
2.6	29.71	29.68
2.61	29.9	29.87
2.62	29.71	29.68
2.63	29.53	29.5
2.64	29.67	29.65
2.65	29.87	29.84

2.66	29.72	29.66
2.67	29.5	29.48
2.68	29.6	29.58
2.69	29.82	29.79
2.7	29.71	29.69
2.71	29.51	29.48
2.72	29.59	29.55
2.73	29.77	29.76
2.74	29.72	29.68
2.75	29.56	29.51
2.76	29.59	29.56
2.77	29.74	29.71
2.78	29.69	29.63
2.79	29.53	29.48
2.8	29.54	29.51
2.81	29.65	29.61
2.82	29.6	29.55
2.83	29.44	29.42
2.84	29.49	29.47
2.85	29.63	29.6
2.86	29.6	29.56
2.87	29.49	29.47
2.88	29.59	29.57
2.89	29.79	29.78
2.9	29.79	29.77
2.91	29.73	29.71
2.92	29.88	29.86
2.93	30.1	30.09
2.94	30.16	30.14
2.95	30.08	30.06
2.96	30.23	30.21
2.97	30.54	30.52
2.98	30.57	30.55
2.99	30.46	30.43
3	30.58	30.56
3.05	31.17	31.18
3.1	31.68	31.64
3.15	31.58	31.55
3.2	31.75	31.72
3.25	31.89	31.85
3.3	31.71	31.68
3.35	31.64	31.6
3.4	31.7	31.67
3.45	31.84	31.83
3.5	31.95	31.91
3.55	32.01	31.96
3.6	32.09	32.07
3.65	32.32	32.29
3.7	32.52	32.48
3.75	32.62	32.57
3.8	32.85	32.8
3.85	32.93	32.89
3.9	32.94	32.91
3.95	33.02	32.98
4	32.97	32.91
4.05	33.07	33.01
4.1	33.21	33.17

4.15	33.33	33.31
4.2	33.48	33.43
4.25	33.71	33.66
4.3	33.87	33.83
4.35	34.02	33.99
4.4	33.83	33.82
4.45	33.57	33.53
4.5	33.61	33.58
4.55	33.61	33.59
4.6	33.51	33.49
4.65	33.44	33.39
4.7	33.6	33.58
4.75	33.93	33.92
4.8	34.06	34.05
4.85	34.13	34.13
4.9	34.27	34.25
4.95	34.38	34.36
5	34.38	34.34
5.05	34.19	34.17
5.1	33.99	33.97
5.15	33.93	33.93
5.2	33.97	33.96
5.25	33.92	33.91
5.3	33.93	33.93
5.35	34.17	34.18
5.4	34.37	34.38
5.45	34.43	34.44
5.5	34.38	34.38
5.55	34.42	34.42
5.6	34.45	34.45
5.65	34.28	34.28
5.7	34.05	34.04
5.75	34.04	34.05
5.8	34.2	34.2
5.85	34.31	34.31
5.9	34.35	34.35
5.95	34.47	34.49
6	34.69	34.7
6.05	34.87	34.86
6.1	34.82	34.82
6.15	34.75	34.75
6.2	34.78	34.79
6.25	34.77	34.79
6.3	34.68	34.69
6.35	34.66	34.68
6.4	34.84	34.87
6.45	35.03	35.07
6.5	35.13	35.14
6.55	35.13	35.13
6.6	35.26	35.26
6.65	35.36	35.36
6.7	35.29	35.29
6.75	35.17	35.16
6.8	35.16	35.15
6.85	35.26	35.28
6.9	35.37	35.38
6.95	35.35	35.36

7	35.44	35.45
7.05	35.59	35.61
7.1	35.74	35.76
7.15	35.73	35.74
7.2	35.61	35.63
7.25	35.65	35.66
7.3	35.65	35.67
7.35	35.64	35.64
7.4	35.63	35.64
7.45	35.71	35.74
7.5	35.89	35.9
7.55	35.99	36.01
7.6	36.09	36.1
7.65	36.18	36.21
7.7	36.23	36.25
7.75	36.26	36.29
7.8	36.21	36.22
7.85	36.2	36.2
7.9	36.14	36.16
7.95	36.16	36.17
8	36.14	36.15
8.05	36.19	36.19
8.1	36.3	36.32
8.15	36.46	36.47
8.2	36.5	36.5
8.25	36.51	36.53
8.3	36.51	36.5
8.35	36.48	36.48
8.4	36.46	36.45
8.45	36.4	36.39
8.5	36.41	36.4
8.55	36.45	36.45
8.6	36.56	36.58
8.65	36.7	36.71
8.7	36.71	36.7
8.75	36.79	36.83
8.8	36.85	36.88
8.85	36.88	36.85
8.9	36.79	36.75
8.95	36.79	36.81
9	36.87	36.84
9.05	36.82	36.75
9.1	36.85	36.81
9.15	36.9	36.88
9.2	36.89	36.9
9.25	36.92	36.91
9.3	36.97	36.97
9.35	37.07	37.07
9.4	37.11	37.11
9.45	37.14	37.16
9.5	37.2	37.19
9.55	37.1	37.08
9.6	37.06	37.03
9.65	37.04	37.05
9.7	36.96	36.97
9.75	36.93	36.93
9.8	37	37

9.85	37.15	37.16
9.9	37.23	37.24
9.95	37.25	37.22
10	37.31	37.3
10.05	37.31	37.3
10.1	37.23	37.2
10.15	37.15	37.13
10.2	37.11	37.13
10.25	37.11	37.15
10.3	37.11	37.13
10.35	37.15	37.19
10.4	37.21	37.24
10.45	37.25	37.27
10.5	37.27	37.28
10.55	37.24	37.24
10.6	37.18	37.18
10.65	37.17	37.19
10.7	37.19	37.19
10.75	37.16	37.17
10.8	37.16	37.18
10.85	37.26	37.26
10.9	37.32	37.32
10.95	37.33	37.32
11	37.36	37.35
11.05	37.34	37.33
11.1	37.34	37.36
11.15	37.35	37.34
11.2	37.34	37.33
11.25	37.29	37.29
11.3	37.28	37.29
11.35	37.34	37.31
11.4	37.31	37.3
11.45	37.32	37.33
11.5	37.38	37.39
11.55	37.41	37.42
11.6	37.44	37.43
11.65	37.44	37.42
11.7	37.43	37.42
11.75	37.48	37.48
11.8	37.39	37.38
11.85	37.4	37.38
11.9	37.45	37.39
11.95	37.45	37.43
12	37.48	37.47
12.05	37.51	37.5
12.1	37.54	37.51
12.15	37.58	37.58
12.2	37.59	37.6
12.25	37.62	37.6
12.3	37.62	37.6
12.35	37.61	37.62
12.4	37.61	37.65
12.45	37.65	37.63
12.5	37.67	37.66
12.55	37.71	37.71
12.6	37.8	37.76
12.65	37.86	37.82

12.7	37.89	37.86
12.75	37.92	37.9
12.8	38	37.98
12.85	38.05	38.02
12.9	38.06	38.02
12.95	38.09	38.05
13	38.14	38.1
13.05	38.21	38.19
13.1	38.29	38.24
13.15	38.36	38.35
13.2	38.44	38.47
13.25	38.57	38.55
13.3	38.63	38.59
13.35	38.68	38.67
13.4	38.77	38.73
13.45	38.84	38.77
13.5	38.9	38.8
13.55	38.92	38.88
13.6	39.03	39
13.65	39.15	39.11
13.7	39.3	39.23
13.75	39.42	39.33
13.8	39.53	39.49
13.85	39.66	39.59
13.9	39.74	39.65
13.95	39.81	39.7
14	39.89	39.83
14.05	39.96	39.92
14.1	40.02	39.96
14.15	40.08	40.04
14.2	40.16	40.11
14.25	40.25	40.18
14.3	40.33	40.27
14.35	40.37	40.28
14.4	40.44	40.32
14.45	40.5	40.4
14.5	40.62	40.56
14.55	40.7	40.61
14.6	40.77	40.64
14.65	40.83	40.71
14.7	40.86	40.77
14.75	40.83	40.72
14.8	40.79	40.65
14.85	40.76	40.65
14.9	40.84	40.76
14.95	40.87	40.77
15	40.89	40.79
15.05	40.95	40.85
15.1	41.03	40.94
15.15	41.08	40.96
15.2	41.02	40.93
15.25	40.99	40.88
15.3	41.01	40.91
15.35	41.04	40.88
15.4	41.08	40.92
15.45	41.12	40.96
15.5	41.15	40.97

15.55	41.18	41
15.6	41.14	41.01
15.65	41.05	40.99
15.7	40.99	40.95
15.75	40.99	40.92
15.8	41.03	41
15.85	41.14	41.11
15.9	41.18	41.15
15.95	41.27	41.22
16	41.34	41.33
16.05	41.4	41.36
16.1	41.39	41.34
16.15	41.33	41.32
16.2	41.31	41.31
16.25	41.4	41.37
16.3	41.47	41.43
16.35	41.53	41.52
16.4	41.66	41.66
16.45	41.77	41.75
16.5	41.82	41.77
16.55	41.84	41.87
16.6	41.83	41.95
16.65	41.85	41.94
16.7	41.91	42
16.75	42.09	42.2
16.8	42.23	42.35
16.85	42.36	42.39
16.9	42.5	42.49
16.95	42.61	42.59
17	42.63	42.6
17.05	42.63	42.57
17.1	42.64	42.54
17.15	42.76	42.58
17.2	42.82	42.63
17.25	42.86	42.75
17.3	43.02	42.9
17.35	43.15	42.98
17.4	43.28	43.1
17.45	43.3	43.17
17.5	43.32	43.16
17.55	43.37	43.19
17.6	43.39	43.23
17.65	43.5	43.35
17.7	43.52	43.41
17.75	43.62	43.49
17.8	43.74	43.6
17.85	43.89	43.69
17.9	43.92	43.81
17.95	44.02	43.89
18	44.18	43.98

5.1.6 Antenna VHBB9124 (SN0317)

Frequency (MHz)	Antenna factor	Frequency (MHz)	Antenna factor	Frequency (MHz)	Antenna factor	Frequency (MHz)	Antenna factor
20	15,3	61	9,0	104	9,7	186	186
21	15,1	62	8,9	106	9,9	188	188
22	14,8	63	8,9	108	10,0	190	190
23	14,5	64	8,8	110	10,2	192	192
24	14,3	65	8,8	112	10,2	194	194
25	14,1	66	8,8	114	10,3	196	196
26	13,8	67	8,9	116	10,4	198	198
27	13,6	68	8,9	118	10,5	200	200
28	13,3	69	8,9	120	10,5		
29	13,1	70	8,9	122	10,7		
30	12,6	71	8,9	124	10,7		
31	12,4	72	8,9	126	10,8		
32	12,2	73	8,9	128	10,9		
33	12,0	74	8,9	130	11,0		
34	11,8	75	8,9	132	11,1		
35	11,7	76	8,9	134	11,2		
36	11,4	77	8,9	136	11,4		
37	11,3	78	8,9	138	11,5		
38	11,1	79	9,0	140	11,6		
39	11,0	80	9,0	142	11,8		
40	10,8	81	9,0	144	11,8		
41	10,7	82	9,1	146	12,0		
42	10,5	83	9,0	148	11,9		
43	10,3	84	9,0	150	12,0		
44	10,2	85	9,0	152	12,1		
45	10,1	86	9,1	154	12,4		
46	9,9	87	9,1	156	12,6		
47	9,9	88	9,2	158	12,8		
48	9,7	89	9,2	160	12,9		
49	9,7	90	9,3	162	12,9		
50	9,5	91	9,3	164	13,0		
51	9,5	92	9,3	166	13,0		
52	9,3	93	9,3	168	12,8		
53	9,3	94	9,3	170	12,8		
54	9,2	95	9,3	172	12,9		
55	9,1	96	9,4	174	13,0		
56	9,0	97	9,4	176	13,2		
57	9,0	98	9,5	178	13,3		
58	9,0	99	9,5	180	13,4		
59	9,0	100	9,6	182	13,5		
60	9,0	102	9,7	184	13,5		

5.1.7 Radiated emission cable (C004+C005)

Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)	Frequency (MHz)	Loss (dB)
0,009	0,29	2600	3,77	5600	5,80	8600	7,43	13000	9,60
5	0,40	2700	3,85	5700	5,86	8600	7,50	13200	9,65
10	0,49	2800	3,93	5800	5,91	8700	7,58	13400	9,74
30	0,68	2900	4,00	5900	5,98	8800	7,63	13600	9,88
50	0,96	3000	4,08	6000	6,04	8900	7,68	13800	9,97
100	1,21	3100	4,14	6100	6,10	9000	7,71	14000	10,04
200	1,40	3200	4,22	6200	6,16	9100	7,75	14200	10,12
300	1,57	3300	4,30	6300	6,21	9200	7,78	14400	10,20
400	1,73	3400	4,37	6400	6,26	9300	7,82	14600	10,35
500	1,86	3500	4,45	6500	6,31	9400	7,86	14800	10,52
600	2,00	3600	4,52	6600	6,36	9500	7,92	15000	10,61
700	2,13	3700	4,59	6700	6,43	9600	7,99	15200	10,68
800	2,25	3800	4,65	6800	6,49	9700	8,07	15400	10,75
900	2,37	3900	4,71	6900	6,55	9800	8,14	15600	10,83
1000	2,48	4000	4,78	7000	6,61	9900	8,21	15800	10,94
1100	2,58	4100	4,85	7100	6,67	10000	8,29	16000	11,07
1200	2,69	4200	4,92	7200	6,73	10200	8,39	16200	11,17
1300	2,79	4300	4,98	7300	6,78	10400	8,50	16400	11,26
1400	2,89	4400	5,05	7400	6,82	10600	8,59	16600	11,35
1500	2,98	4500	5,11	7500	6,86	10800	8,67	16800	11,44
1600	3,08	4600	5,18	7600	6,90	11000	8,76	17000	11,51
1700	3,16	4700	5,24	7700	6,95	11200	8,85	17200	11,61
1800	3,26	4800	5,31	7800	7,00	11400	8,95	17400	11,73
1900	3,34	4900	5,37	7900	7,05	11600	9,04	17600	11,88
2000	3,44	5000	5,43	8000	7,11	11800	9,07	17800	12,11
2100	3,52	5100	5,48	8100	7,16	12000	9,13	18000	12,41
2200	3,60	5200	5,54	8200	7,21	12200	9,26		
2300	3,68	5300	5,61	8300	7,25	12400	9,40		
2400	0,29	5400	5,68	8400	7,30	12600	9,51		
2500	0,40	5500	5,74	8500	7,36	12800	7,43		

5.1.8 Loop antenna FMZB 1519

Frequency (MHz)	Antenna factor (dB)
0,009	-30,60
0,010	-30,80
0,020	-31,80
0,030	-32,00
0,040	-32,10
0,050	-32,20
0,060	-32,20
0,070	-32,20
0,080	-32,20
0,090	-32,30
0,100	-32,30
0,150	-32,30
0,200	-32,40
0,300	-32,40
0,400	-32,40
0,500	-32,40
0,600	-32,40
0,700	-32,50
0,800	-32,50
0,900	-32,50
1,000	-32,50
2,000	-32,50
3,000	-32,50
4,000	-32,50
5,000	-32,50
6,000	-32,50
7,000	-32,50
8,000	-32,50
9,000	-32,50
10,000	-32,50
11,000	-32,50
12,000	-32,50
13,000	-32,50
14,000	-32,40
15,000	-32,40
16,000	-32,40
17,000	-32,40
18,000	-32,30
19,000	-32,30
20,000	-32,20
21,000	-32,10
22,000	-32,10
23,000	-32,00
24,000	-31,90
25,000	-31,80
26,000	-31,70
27,000	-31,60
28,000	-31,50
29,000	-31,40
30,000	-31,30

6 CONVERSION FACTORS AND ALL OTHER FORMULAS

Unit	Conversion unit	Formula of conversion
dBμV	dBμV/m	dBμV/m = dBμV + AF
μV/m	dBμV/m	dBμV/m = 20log(X(μV/m)/1μV)

	Test distance stated in standard	Test distance of measurement	Conversion factor
Class B	3 m	3 m	/
Class A	10 m	3 m	20dB/decade