



FCC LISTED, REGISTRATION
 NUMBER: 720267

Test report No:

NIE: 50191RRF.001

Test report

REFERENCE STANDARD: USA FCC Part 90

Identificación del objeto ensayado:	RF transceiver
Identification of item tested	
Marca	PowerTrunk
Trade	
Modelo y/o referencia tipo	BSR75
Model and /or type reference	
Other identification of the product	FCC ID: WT7PTBSR75760B
HW version	CCP:00.34.32.34
SW version	CCP:00.34.32.34
Características	Nominal voltage: 27.4 Vdc
Features	Frequency Band: TX: 763-776 MHz. RX: 793-806 MHz. RF Output Power: 75 W (+48.75 dBm) and from 40 W to 0.6 W in 2 dB steps. Access scheme: TDMA with 4 physical channels per RF channel. RF Channel Bandwidth (Channel spacing): 25 kHz Spectrum efficiency: one voice channel per 6.25 kHz of channel bandwidth. Modulation scheme: $\pi/4$ -DQPSK with 18 Ksym/sec.modulation rate, equivalent to 36 Kbits/sec. Data rate on each physical channel: 9000 bits/sec. per 6.25 KHz of channel bandwidth. Modulation low pass filter: Root-raised-cosine filter (RRC), with a previous audio filter. Emissions Designators: 22 kHz Bandwidth Modulation (TETRA): 22K0D7W, 22K0D7E, 22K0D7D 20 kHz Bandwidth Modulation (TI D-LMR): 20K0D7W, 20K0D7E, 20K0D7D
Fabricante	TELTRONIC, S.A.U.
Manufacturer	Polígono Malpica, Calle F-Oeste (50016). Zaragoza. (SPAIN).
Método de ensayo solicitado, norma:	USA FCC Part 90 10-01-15 Edition.
Test method requested, standard	Measurement Guidance 971168 D01 v02r02 for certification of Licensed Digital Transmitters ANSI/TIA-603-D: 2010
Resultado:	IN COMPLIANCE
Summary	

Aprobado por (nombre / cargo y firma) Approved by (name / position & signature)	A. Llamas RF Lab. Manager
Fecha de realización Date of issue	2016-09-23
Formato de informe No. Report template No	FDT08_18

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Competences and guarantees

AT4 wireless is a testing laboratory accredited by the National Accreditation Body (ENAC -Entidad Nacional de Acreditación), to perform the tests indicated in the Certificate No. 51/LE 147.

AT4 wireless is a laboratory with a measurement facility in compliance with the requirements of Section 2.948 of the FCC rules and has been added to the list of facilities whose measurements data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Registration Number: 720267.

In order to assure the traceability to other national and international laboratories, AT4 wireless has a calibration and maintenance program for its measurement equipment.

AT4 wireless guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at AT4 wireless at the time of performance of the test.

AT4 wireless is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of AT4 wireless.

General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of AT4 wireless.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of AT4 wireless and the Accreditation Bodies.

Uncertainty

Uncertainty (factor $k=2$) was calculated according to the AT4 wireless internal document PODT000.

Usage of samples

Samples undergoing test have been selected by: **the client**.

Sample S/01 is composed of the following elements:

Control N°	Description	Model	Serial N°	Date of reception
50191/001	RF transceiver	BSR75	928364	2016-08-02

1. Sample S/01 has undergone the test(s).

All tests indicated in appendix A, except the following tests:

90.543: Radiated emissions in the band 1559-1610 MHz.

Sample S/02 is composed of the following elements:

Control N°	Description	Model	Serial N°	Date of reception
50191/001	RF transceiver	BSR75	928364	2016-08-02
50191/006	Colinear antenna	4240 06-745-T3	26889	2016-09-21

1. Sample S/02 has undergone the test(s).

The following tests indicated in appendix A:

90.543: Radiated emissions in the band 1559-1610 MHz.

Test sample description

The test sample consists of a digital RF transceiver.

Identification of the client

TELTRONIC, S.A.U.

Polígono Malpica, Calle F-Oeste (50016). Zaragoza. (SPAIN).

Testing period

The performed test started on 2016-08-03 and finished on 2016-09-21.

The tests have been performed at AT4 wireless.

Environmental conditions

In the control chamber, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 1 Ω

In the semianechoic chamber, the following limits were not exceeded during the test.

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 1 Ω
Normal site attenuation (NSA)	< ±4 dB at 10 m distance between item under test and receiver antenna, (30 MHz to 1000 MHz)
Field homogeneity	More than 75% of illuminated surface is between 0 and 6 dB (26 MHz to 1000 MHz).

In the chamber for conducted measurements, the following limits were not exceeded during the test:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 75 %
Air pressure	Min. = 860 mbar Max. = 1060 mbar
Shielding effectiveness	> 100 dB
Electric insulation	> 10 kΩ
Reference resistance to earth	< 1 Ω

Remarks and comments

1: Used instrumentation.

Conducted Measurements

		Last Cal. date	Cal. due date
1.	Spectrum analyser Agilent PSA E4440A	2015/10	2017/10
2.	Climatic chamber CTS C40/200Li	2016/05	2017/05
3.	DC power supply R&S NGPE 40/40	2014/11	2017/11
4.	Radiocommunication analyzer HP 8920A	2014/01	2017/01
5.	Wideband Power sensor R&S NRP-Z81	2016/04	2018/04

Radiated Measurements

	Last Cal. date	Cal. due date
1. Semianechoic Absorber Lined Chamber ETS FACT3 200STP	N.A.	N.A.
2. Biconical Log antenna ETS LINDGREN 3142E	2014/03	2017/03
3. Multi Device Controller EMCO 2090	N.A.	N.A.
4. Double-ridge Guide Horn antenna 1-18 GHz SCHWARZBECK BBHA 9120 D	2013/11	2016/11
5. Spectrum analyser Rohde & Schwarz FSW50	2015/12	2017/12
6. EMI Test Receiver R&S ESU 26	2015/11	2017/11
7. RF pre-amplifier 10 MHz-6 GHz SCHWARZBECK BBV9743	2015/09	2016/09
8. RF pre-amplifier 1-18 GHz Bonn Elektronik BLMA 0118-1M	2016/02	2018/02

2: This information has been provided by the applicant.

Testing verdicts

Not applicable	N/A
Pass	P
Fail	F
Not measured	N/M

FCC PART 90 PARAGRAPH	VERDICT			
	NA	P	F	NM
Clause 90.207, 90.535: Modulation characteristics				NM ²
Clause 90.531: Occupied Bandwidth		P		
Clause 90.205, 90.541, 90.635: RF output power		P		
Clause 90.543: Adjacent channel power		P		
Clause 90.539: Frequency stability		P		
Clause 90.543: Spurious emissions at antenna terminals		P		
Clause 90.543: Radiated emissions		P		

2: see point "Remarks and comments".

Appendix A – Test results

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TEST CONDITIONS

Power supply (V):

$$V_{\text{nom}} = 27.40 \text{ Vdc}$$

$$V_{\text{max}} = 31.51 \text{ Vdc}$$

$$V_{\text{min}} = 23.29 \text{ Vdc}$$

The subscripts nom, min and max indicate voltage test conditions (nominal, minimum and maximum respectively, as declared by the applicant).

Type of power supply = DC Voltage from external power supply

Rated RF Output Power:

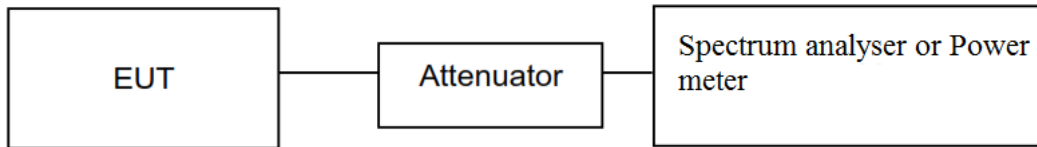
- Mode TETRA (22 kHz bandwidth): 75 W (+48.75 dBm)
- Mode TI D-LMR (20 kHz bandwidth): 75 W (+48.75 dBm)

TEST FREQUENCIES:

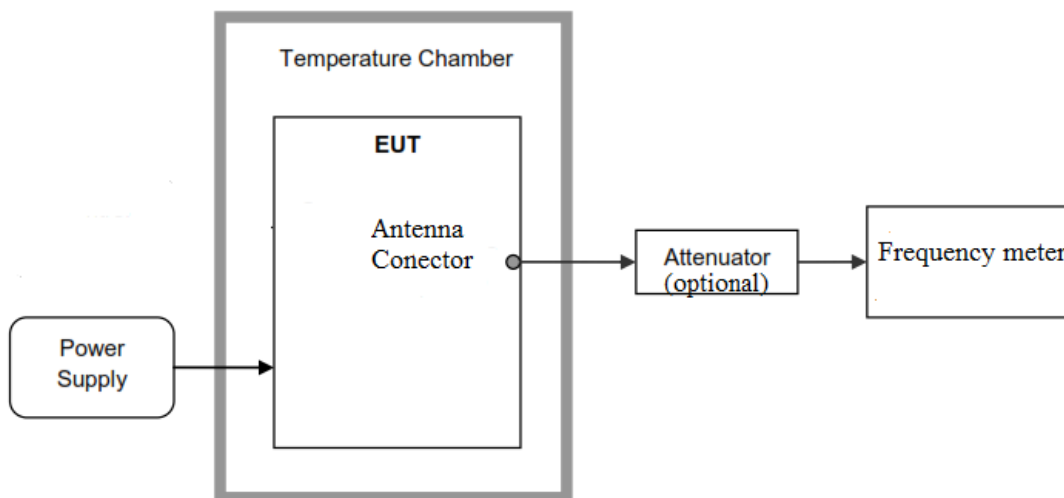
	769-775 MHz band
Lowest channel	769.0125 MHz
Middle channel	772.0125 MHz
Highest channel	774.9875 MHz

CONDUCTED MEASUREMENTS

The equipment under test (EUT) was set up in a shielded room and it is connected to the spectrum analyzer or power meter through a calibrated attenuator and, when necessary, high pass and notch filters.



For frequency stability test the EUT was placed inside a climatic chamber and connected to a frequency meter using a low loss cable. An external DC power supply was connected to the EUT for voltage variation test.



RADIATED MEASUREMENTS

The equipment under test was scanned for spurious emissions in the frequency range 30 to 10000 MHz.

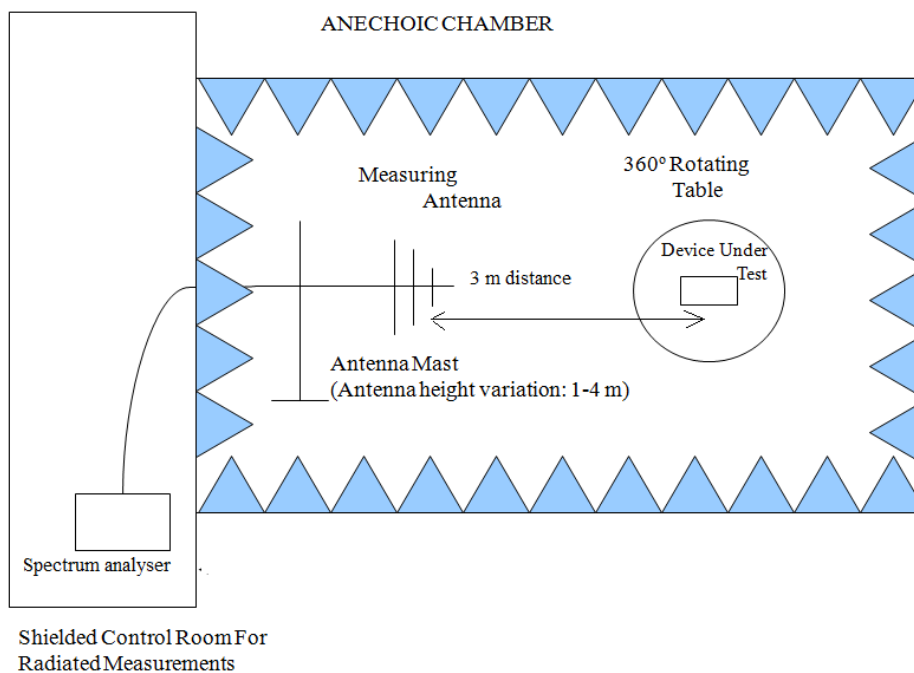
All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 3 m for the frequency range 30 MHz-1000 MHz (30 MHz-1000 MHz Bilog antenna) and at a distance of 1m for the frequency range 1 GHz-8 GHz (1 GHz-18 GHz Double ridge horn antenna).

For radiated emissions in the range 1 GHz-8 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

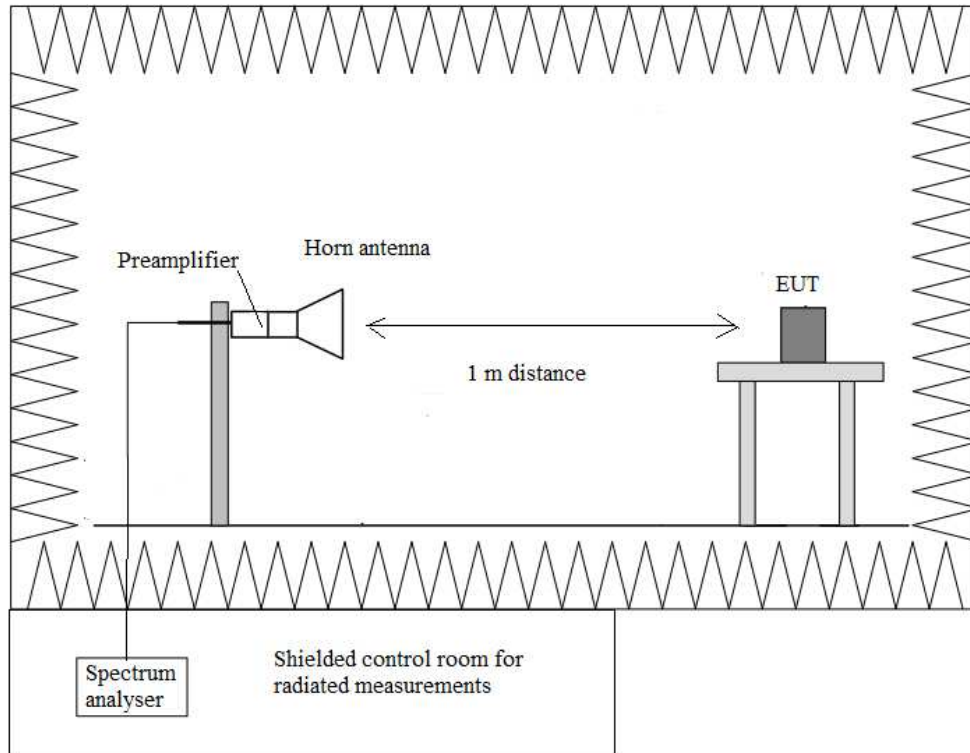
The equipment under test was set up on a non-conductive platform and the situation and orientation was varied to find the maximum radiated emission. It was also rotated 360° and the antenna height was varied from 1 to 4 meters to find the maximum radiated emission.

Measurements were made in both horizontal and vertical planes of polarization.

Radiated measurements setup $f < 1$ GHz



Radiated measurements setup $f > 1$ GHz



Modulation Characteristics

SPECIFICATION

FCC §2.1047 and §90.207

(a) Voice modulated communication equipment. A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted. For equipment required to have an audio low-pass filter, a curve showing the frequency response of the filter, or of all circuitry installed between the modulation limiter and the modulated stage shall be submitted.

(b) Equipment which employs modulation limiting. A curve or family of curves showing the percentage of modulation versus the modulation input voltage shall be supplied. The information submitted shall be sufficient to show modulation limiting capability throughout the range of modulating frequencies and input modulating signal levels employed.

(c) Single sideband and independent sideband radiotelephone transmitters which employ a device or circuit to limit peak envelope power. A curve showing the peak envelope power output versus the modulation input voltage shall be supplied. The modulating signals shall be the same in frequency as specified in paragraph (c) of § 2.1049 for the occupied bandwidth tests.

(d) Other types of equipment. A curve or equivalent data which shows that the equipment will meet the modulation requirements of the rules under which the equipment is to be licensed.

RESULTS (The following information has been provided by the applicant)

The modulation used is $\pi/4$ -shifted Differential Quaternary Phase Shift Keying ($\pi/4$ -DQPSK) with a modulation rate of 18 ksymbols/sec (36 kbits/sec).

A root-raised-cosine filter (RRC) is used as a transmitting and receiving filter in this digital communication system to perform matched filtering.

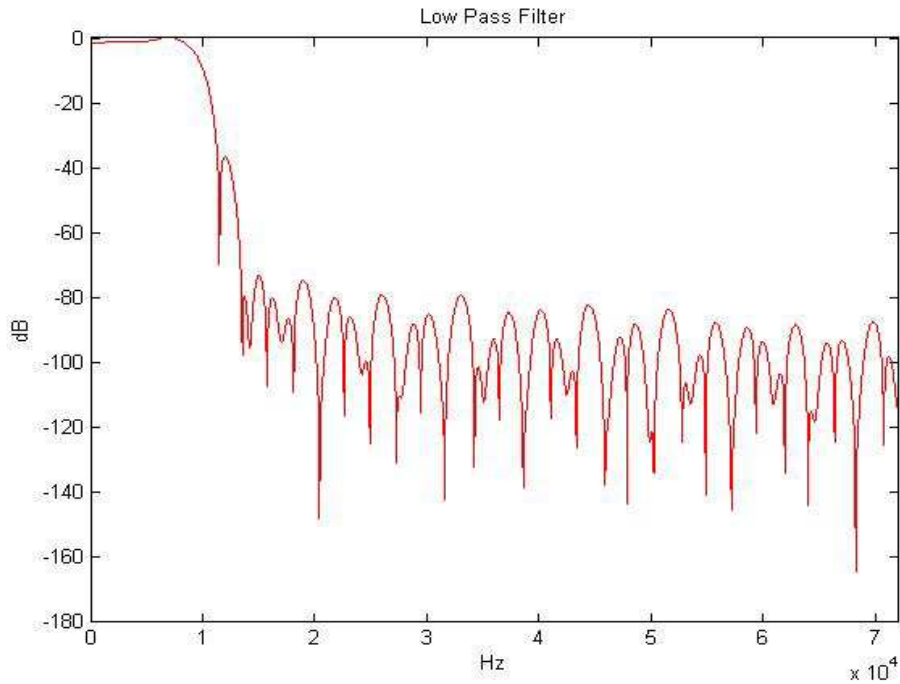
The combined response of such two filters is that of the raised-cosine filter.

The raised-cosine filter is often used for pulse-shaping in digital modulation, known for its ability to minimize intersymbol interference (ISI).

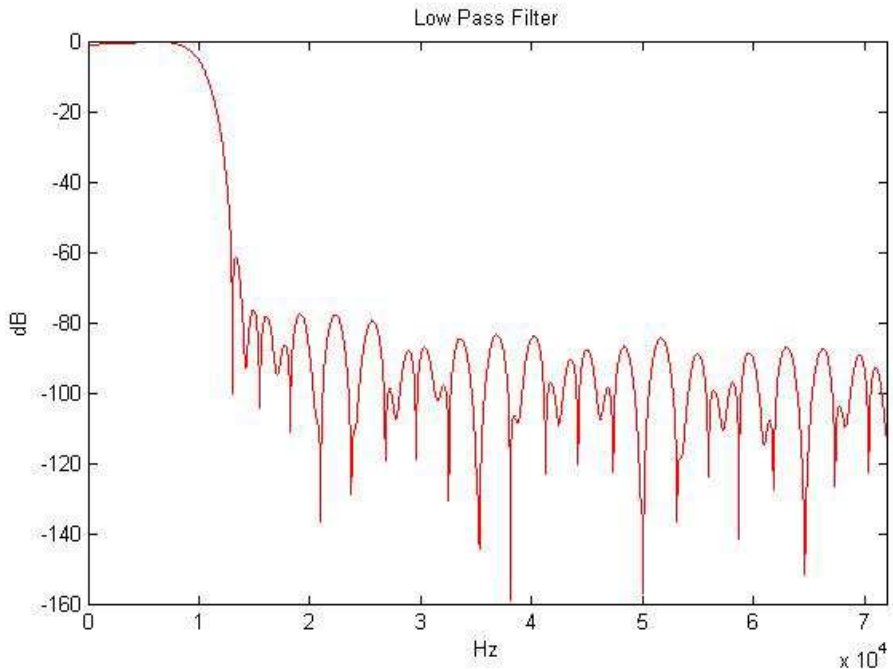
The access scheme is TDMA with 4 physical channels per carrier.

The two graphs of the next page show the transfer function of the aforementioned filter when the authorized modulation bandwidth is 20 kHz and 22 kHz respectively.

Low pass filter for 20 kHz bandwidth modulation (TI D-LMR):



Low pass filter for 22 kHz bandwidth modulation (TETRA):



Occupied Bandwidth

SPECIFICATION

FCC §2.1049, §90.531.

Band plan for the 758-775 MHz and 788-805 MHz bands.

Subject to compliance with the spectrum usage efficiency requirements set forth in §90.535, two or four contiguous narrowband (6.25 kHz) channels may be used in combination as 12.5 kHz or 25 kHz channels, respectively.

METHOD

The EUT was configured to transmit a modulated carrier signal. The 99% occupied bandwidth and the -26 dBc bandwidths were measured directly using the built-in bandwidth measuring option of spectrum analyser E4440A.

The occupied Bandwidth was measured according to point 4.2 of Guidance 971168 D01 Power Meas License Digital Systems v02r02.

RESULTS (see next plots)

TI D-LMR 20 kHz. 769-775 MHz band.

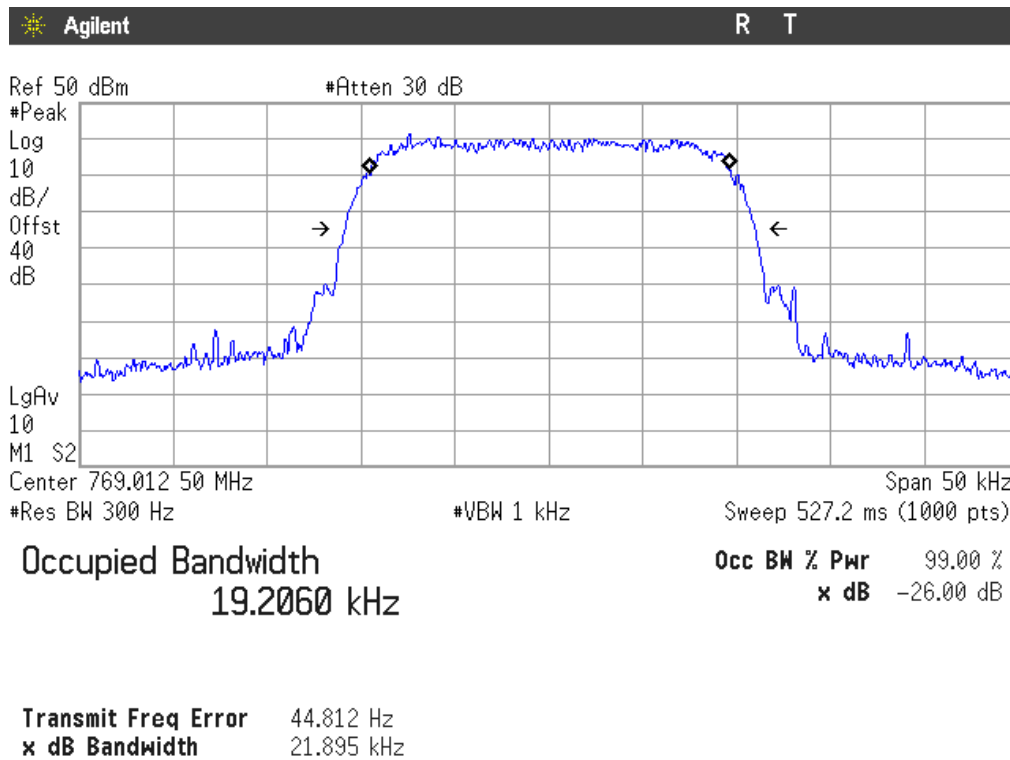
Channel	99% Occupied bandwidth (kHz)	-26 dBc bandwidth (kHz)
Lowest	19.2060	21.8950
Highest	19.2015	21.8310
Measurement uncertainty (kHz)	<±0.17	

TETRA 22 kHz.769-775 MHz band.

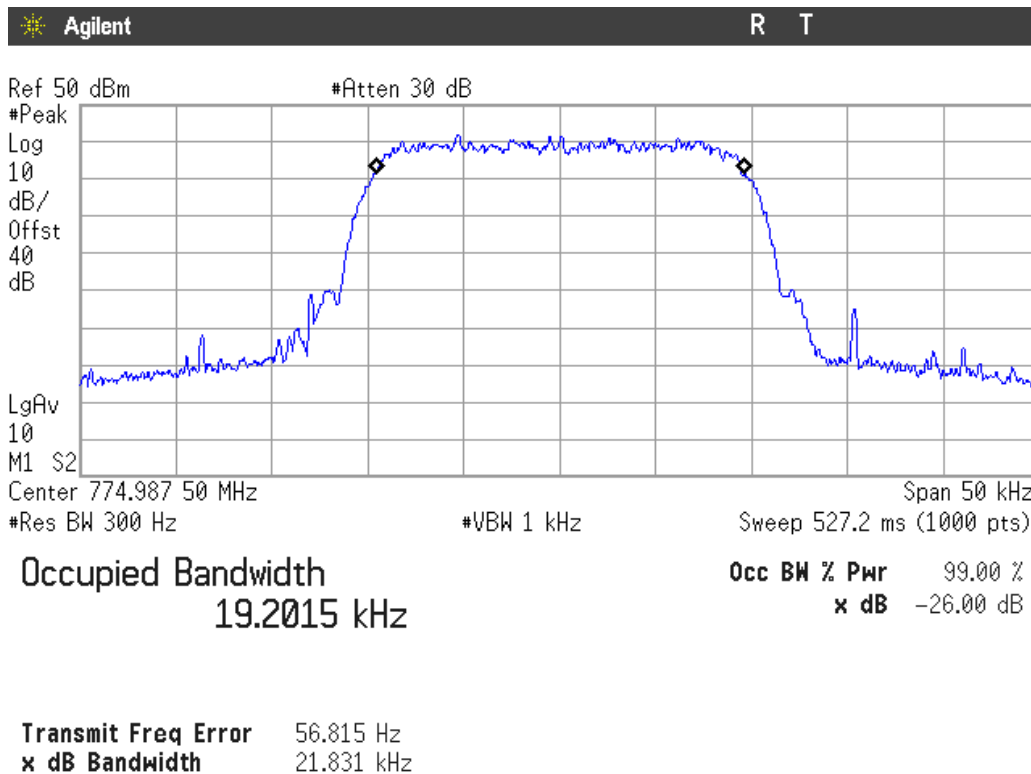
Channel	99% Occupied bandwidth (kHz)	-26 dBc bandwidth (kHz)
Lowest	20.2056	23.4560
Highest	20.2498	22.8450
Measurement uncertainty (kHz)	<±0.17	

TI D-LMR 20 kHz. 769-775 MHz band.

Lowest Channel

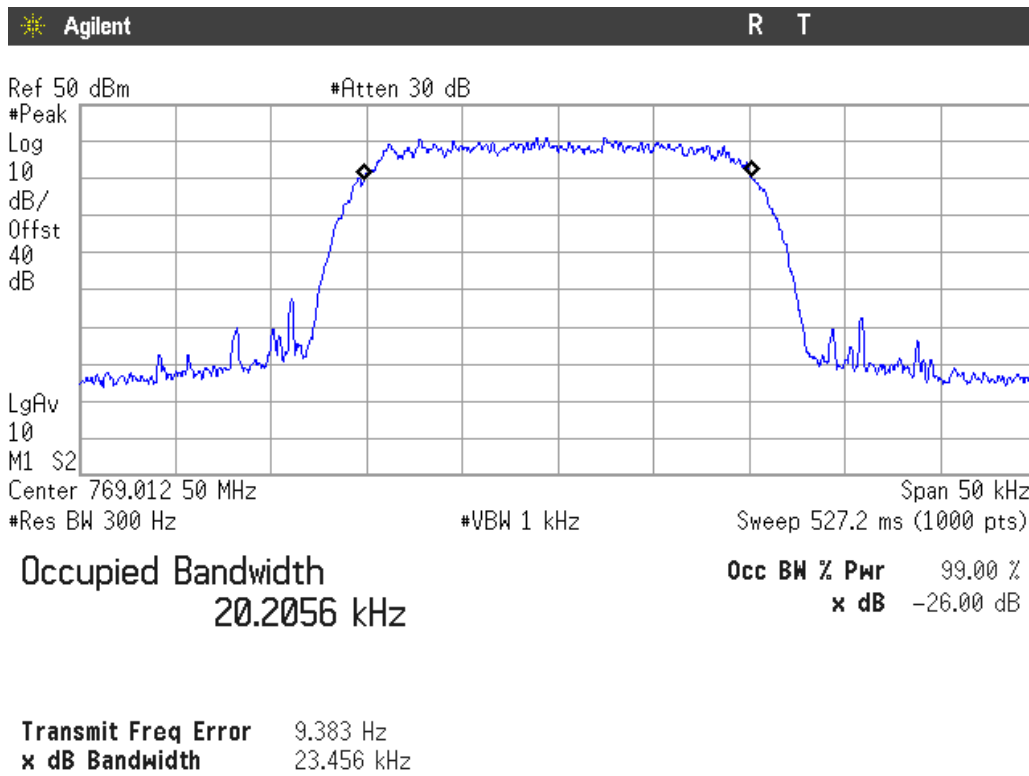


Highest Channel

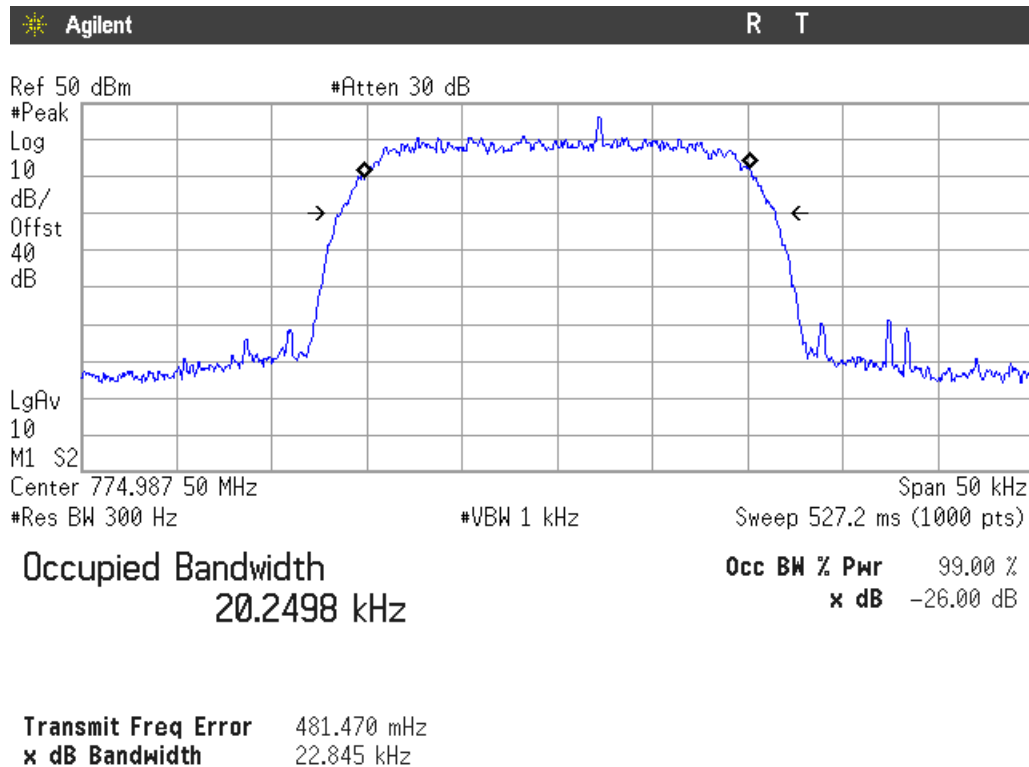


TETRA 22 kHz.769-775 MHz band.

Lowest Channel



Highest Channel



RF Output Power

SPECIFICATION

FCC §2.1046, §90.205, §90.541 and §90.635. 769-775 MHz and 799-805 MHz bands.

The effective radiated power (E.R.P.) and antenna height for base stations may not exceed 1 kilowatt (30 dBw/60dBm) and 304 m. (1,000 ft.) above average terrain (AAT), respectively, or the equivalent thereof as determined from the Table. These are maximum values, and applicants will be required to justify power levels and antenna heights requested.

METHOD

The conducted RF output power measurements were made at the RF output terminals of the EUT using an attenuator and a calibrated wideband power sensor.

RESULTS

TI D-LMR. 20 kHz Bandwidth	Frequency (MHz)	Maximum average conducted power (dBm)
769-775 MHz band	769.0125	48.58
	774.9875	48.59
Measurement uncertainty (dB)		<±0.33

TETRA. 22 kHz Bandwidth	Frequency (MHz)	Maximum average conducted power (dBm)
769-775 MHz band	769.0125	48.56
	774.9875	48.55
Measurement uncertainty (dB)		<±0.33

The sum of the system loss (dB) and antenna gain (dBd) for the worst case of conducted power (48.59 dBm) shall be such that the Effective Radiated Power (E.R.P.) shall not exceed the limits indicated in §90.635.

For the Effective Radiated Power (E.R.P.) limit of 1 kilowatt (30 dBw/60dBm) at 304 m. (1,000 ft.) above average terrain (AAT), the sum of the system loss (dB) and antenna gain (dBd) for the worst case of conducted power (48.59 dBm) may not exceed 11.41 dB.

Verdict: PASS

Adjacent channel power

SPECIFICATION

FCC §90.543. 769–775/799–805 MHz bands.

The Adjacent Channel Power (ACP) requirements for Base transmitter and 25 kHz channel size are shown in the following table. The table specify a value for the ACP as a function of the displacement from the channel center frequency and measurement bandwidth. In the following tables, “(s)” indicates a swept measurement may be used.

25 KHZ BASE TRANSMITTER ACP REQUIREMENTS

Offset from center frequency (kHz)	Measurement bandwidth (kHz)	Maximum ACP (dBc)
15.625	6.25	-40
21.875	6.25	-60
37.5	25	-60
62.5	25	-65
87.5	25	-65
150	100	-65
250	100	-65
350	100	-65
>400 kHz to 12 MHz	30 (s)	-80
12 MHz to paired receive band	30 (s)	-80
In the paired receive band	30 (s)	-85 ¹

1: Although we permit individual base transmitters to radiate a maximum ACP of -85 dBc in the paired receive band, licensees deploying these transmitters may not exceed an ACP of -100 dBc in the paired receive band when measured at either the transmitting antenna input port or the output of the transmitter combining network. Consequently, licensees deploying these transmitters may need to use external filters to comply with the more restrictive ACP limit.

METHOD

The Adjacent Channel Power measurements were made at the RF output terminals of the EUT using an attenuator and a spectrum analyser with a built-in adjacent channel power (ACP) measurement function.

RESULTS

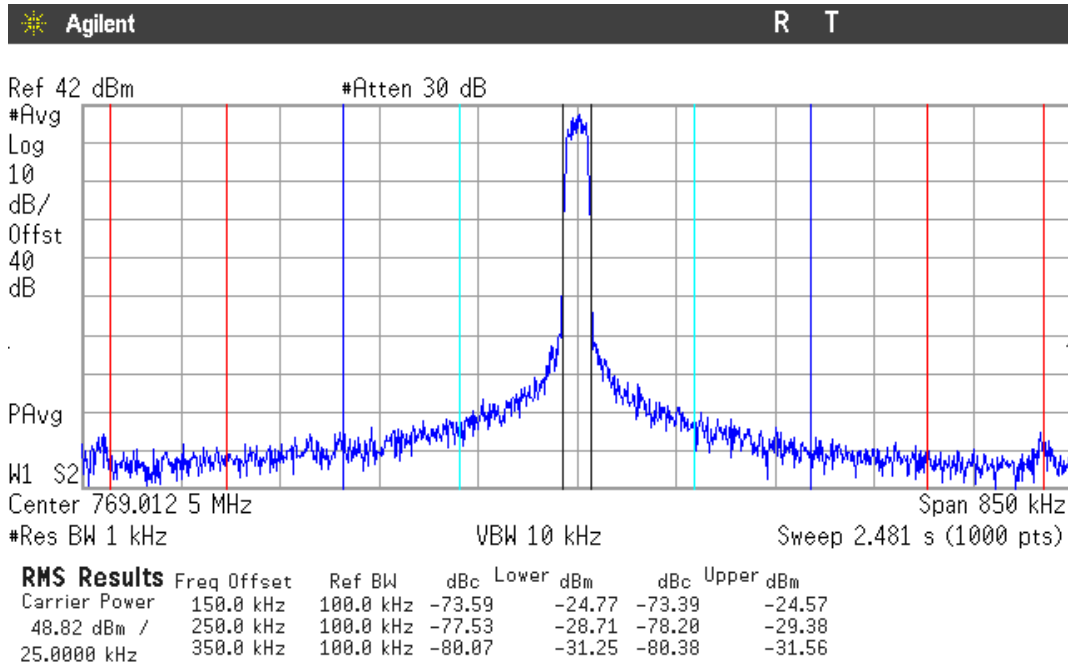
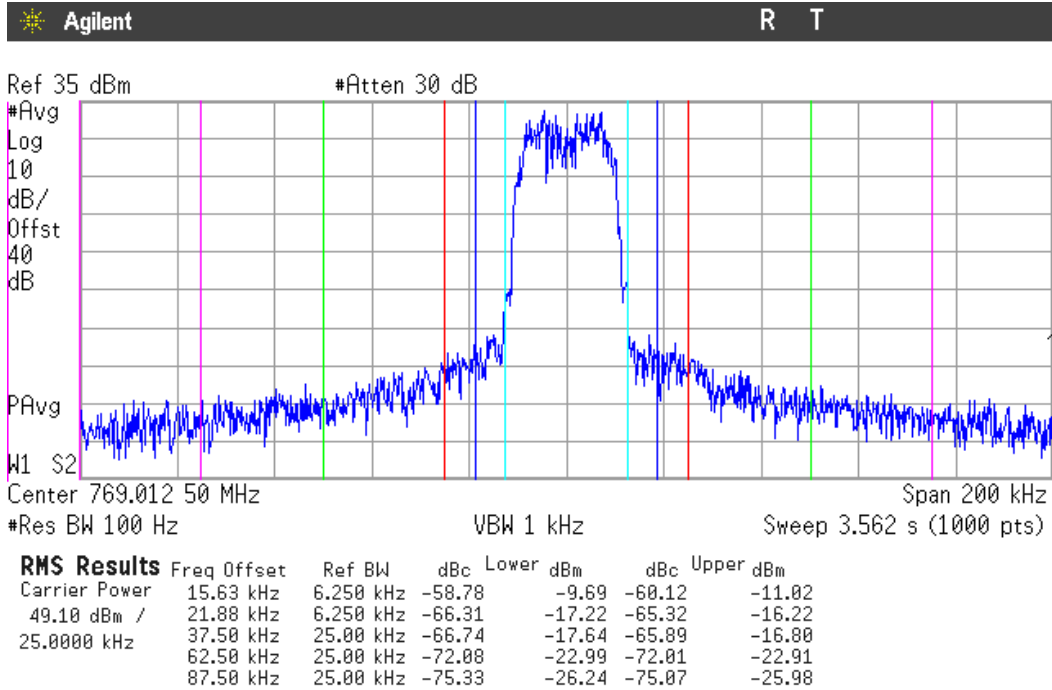
See next plots.

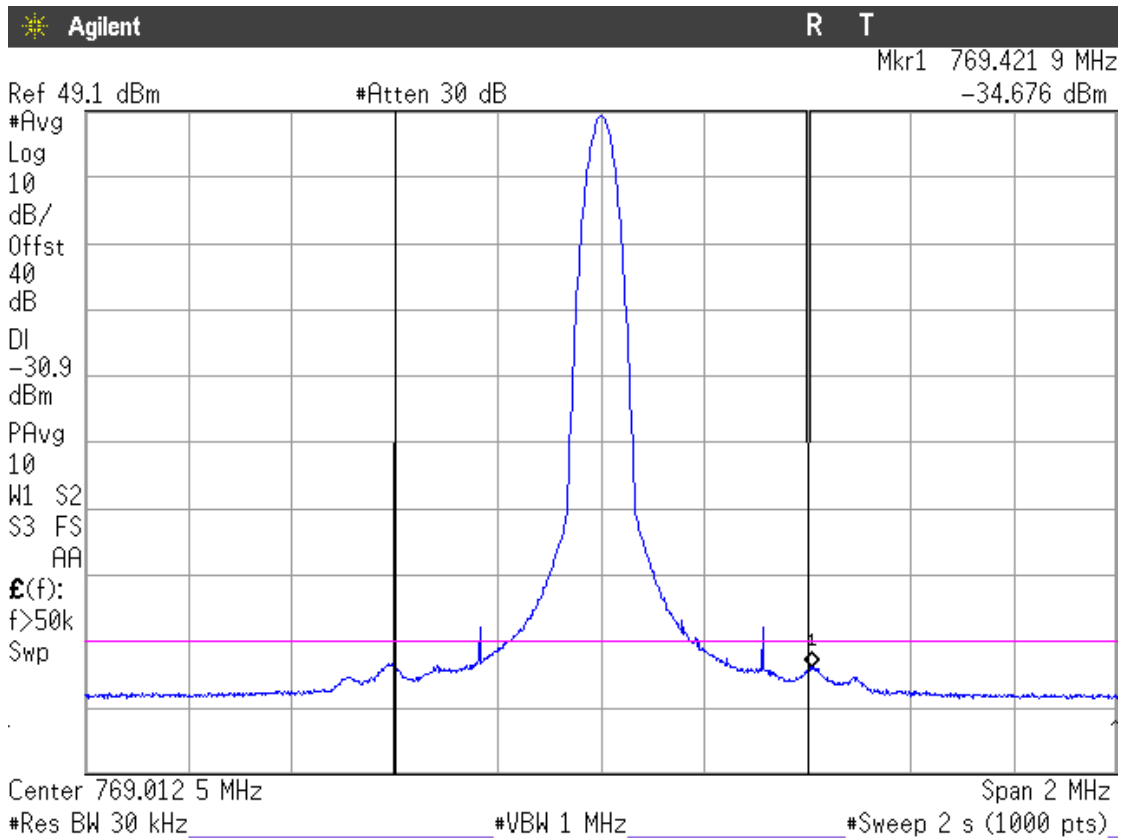
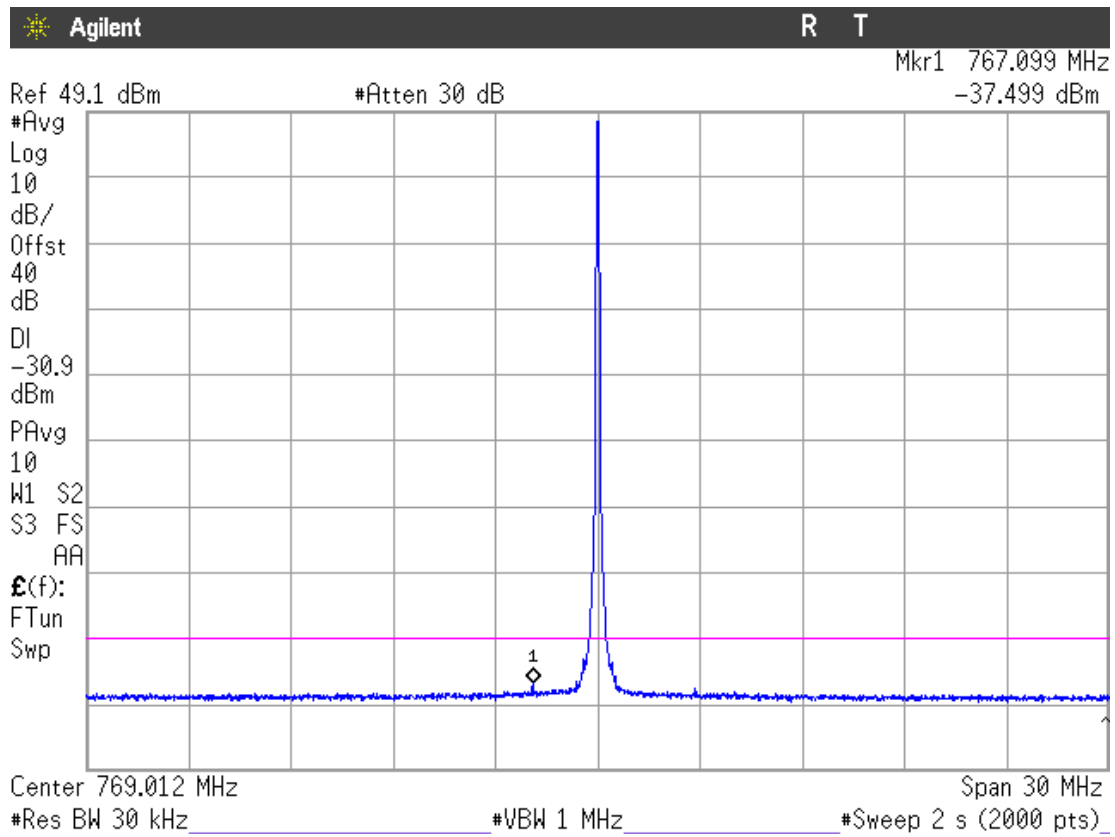
Measurement uncertainty (dB)	<±0.64 (Non-swept measurements) <±2.03 (Swept measurements)
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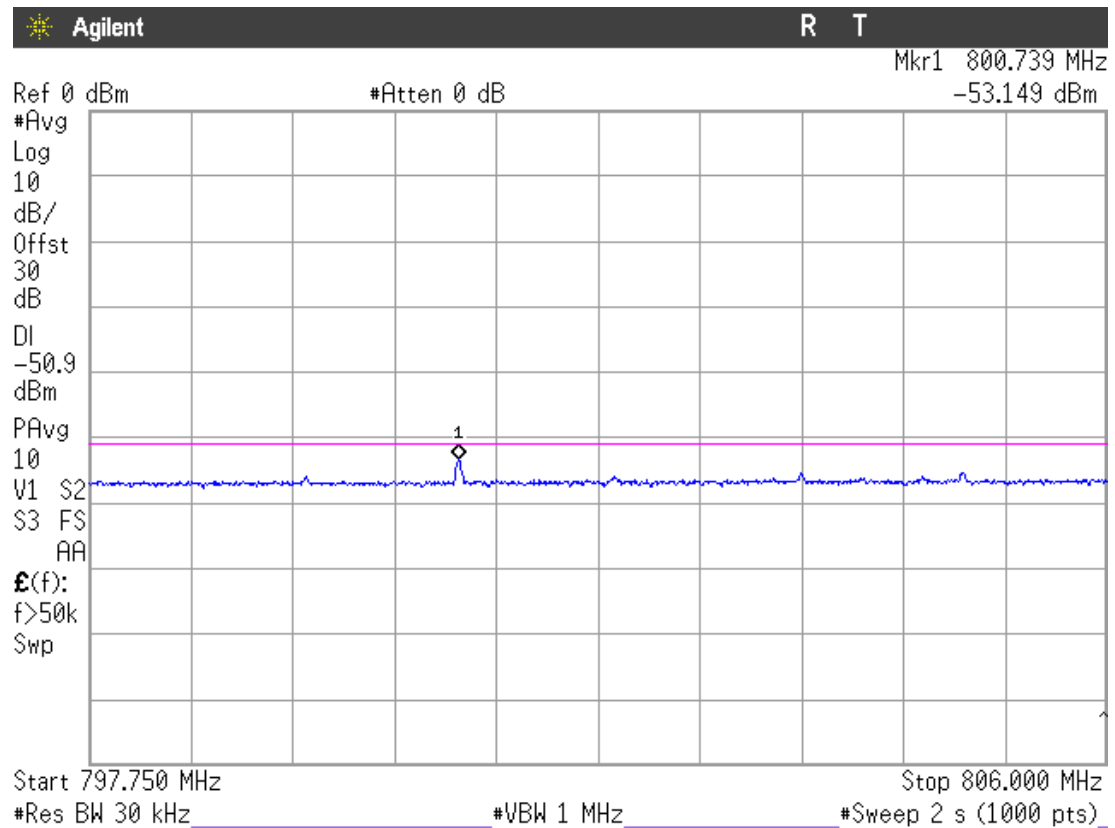
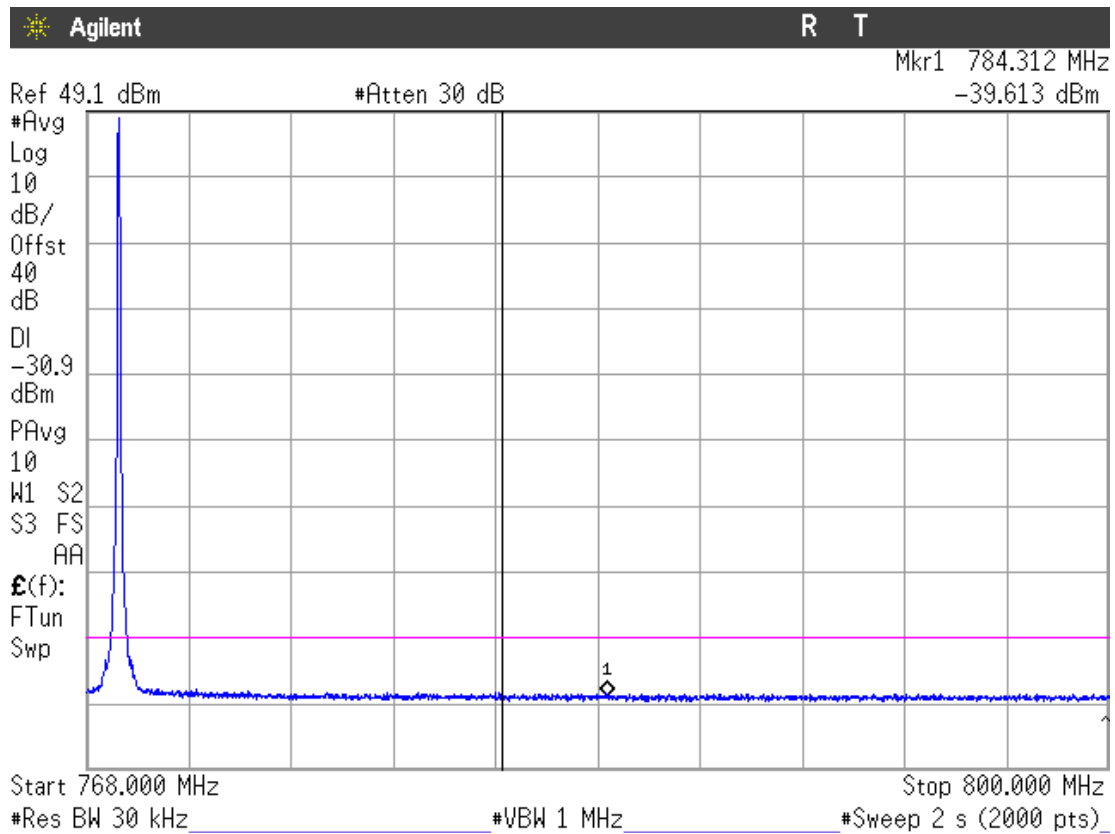
Verdict: PASS

TI D-LMR 20 kHz. 769-775 MHz band.

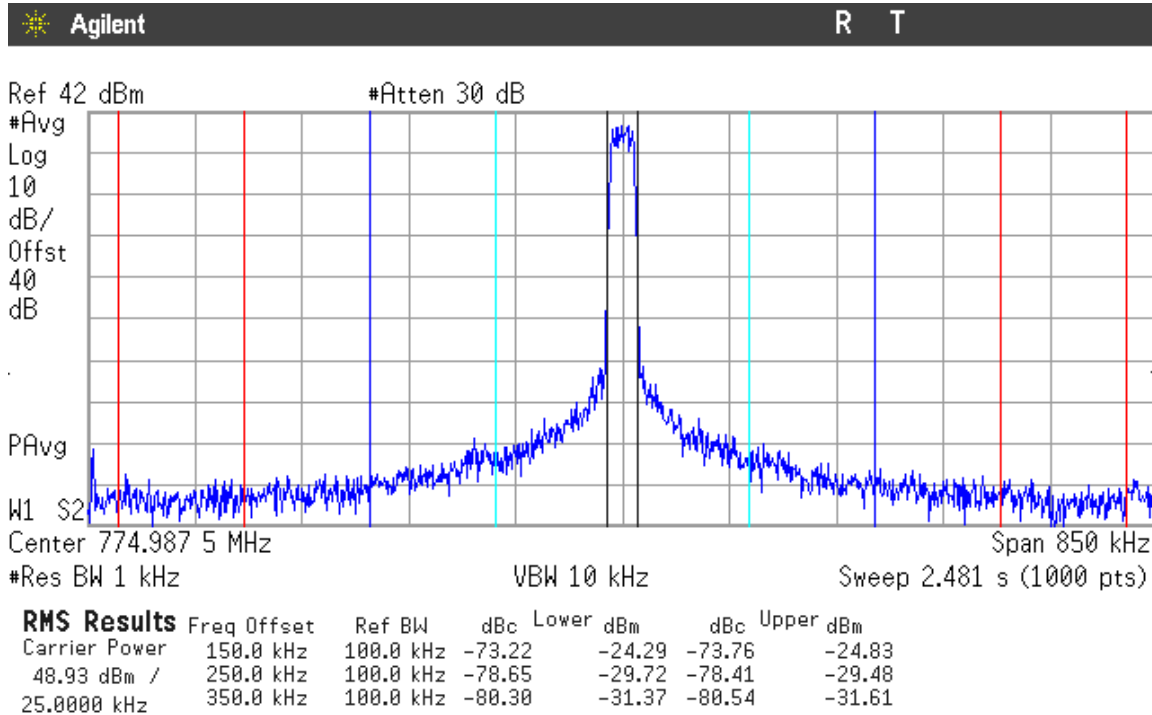
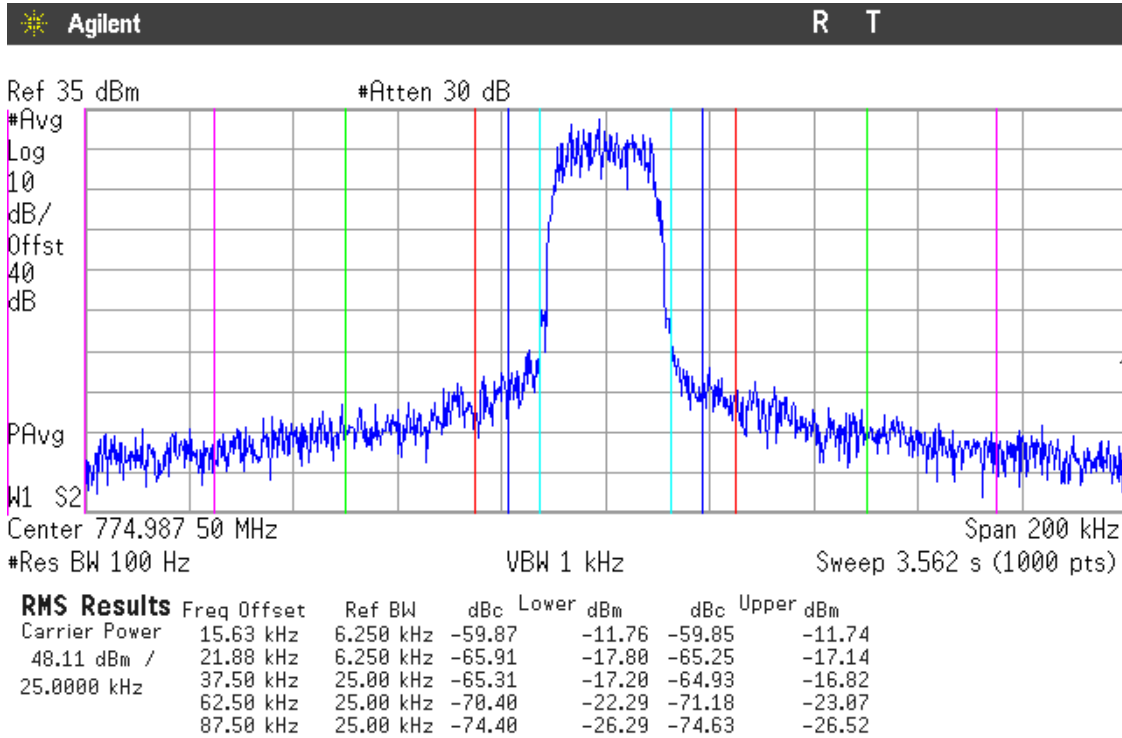
Lowest Channel

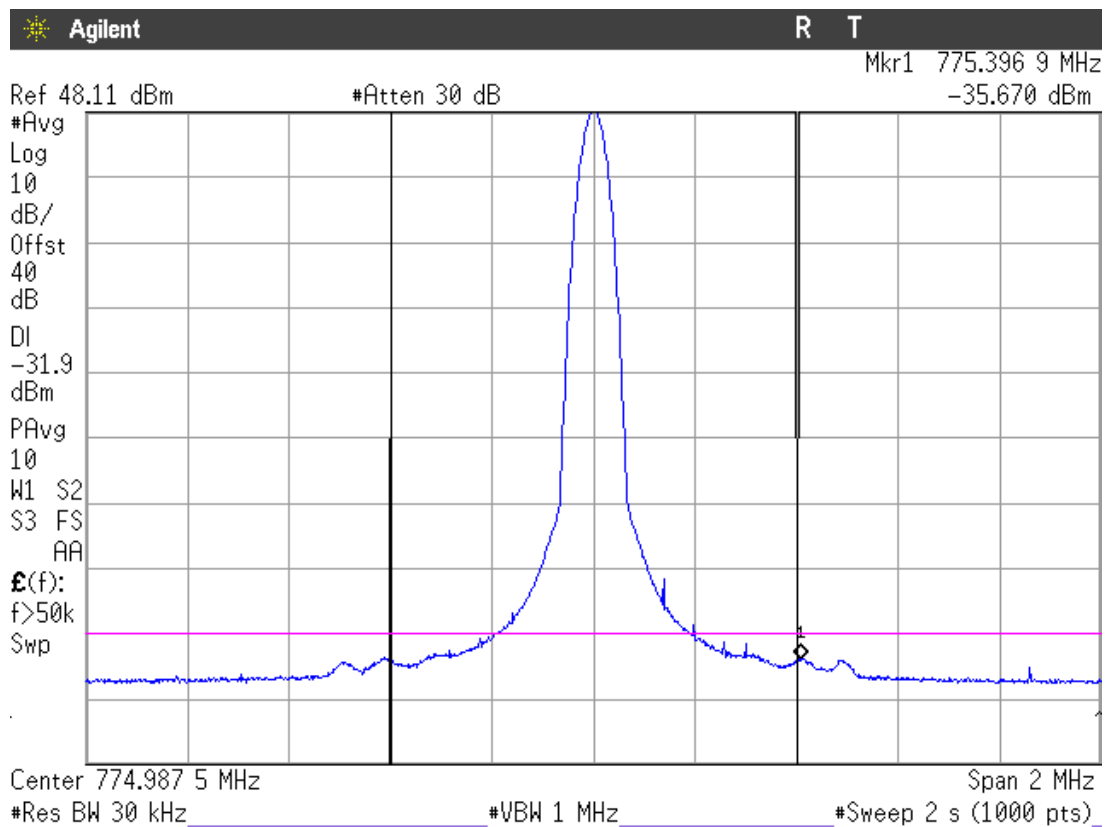
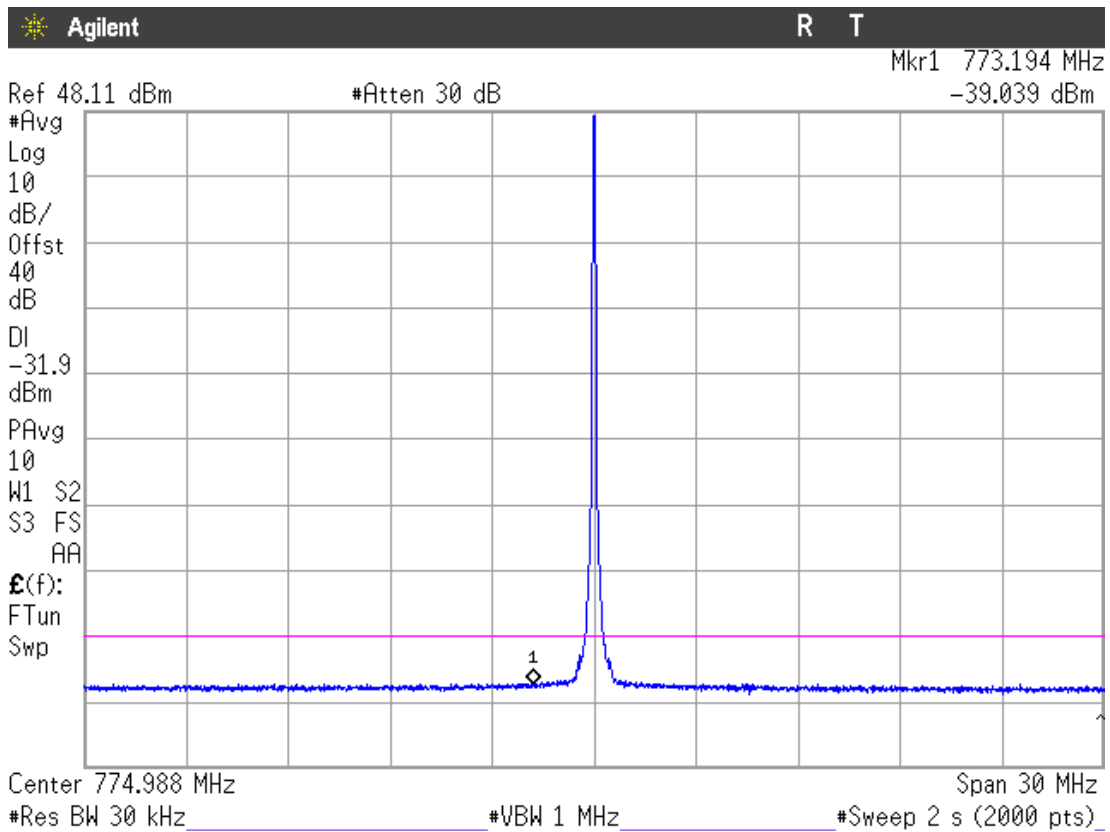


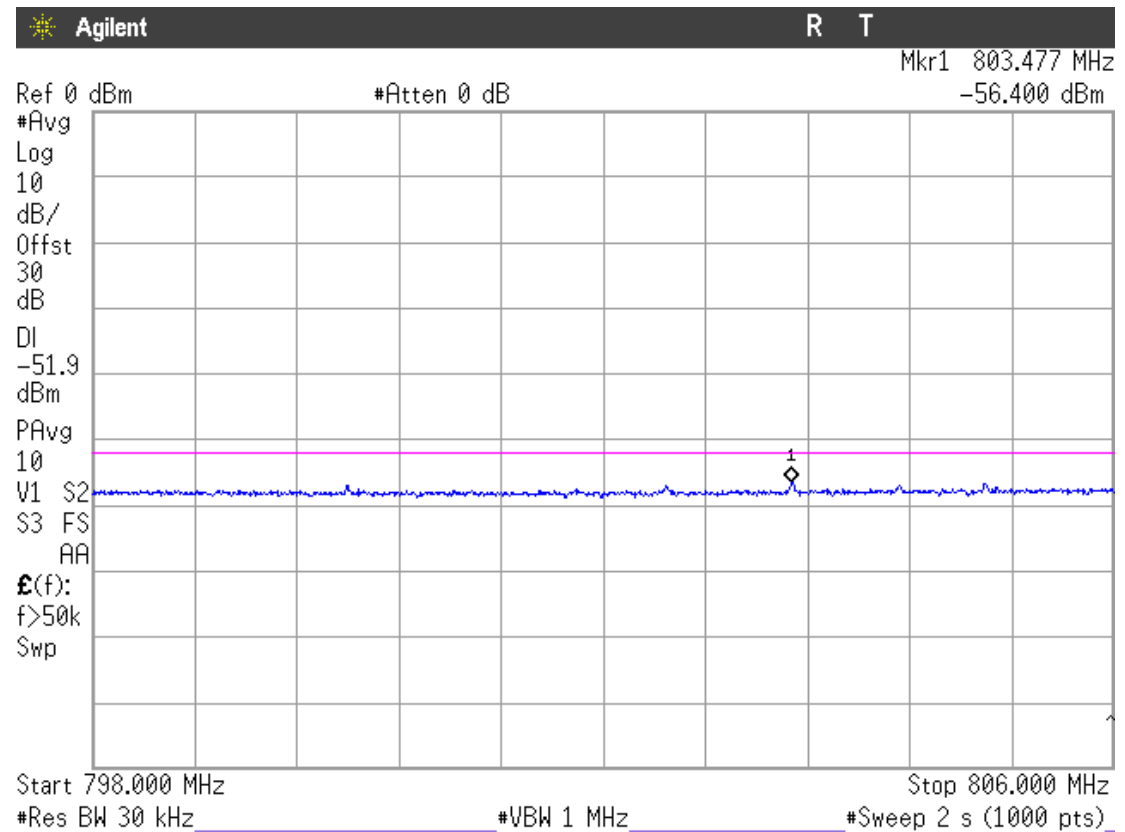
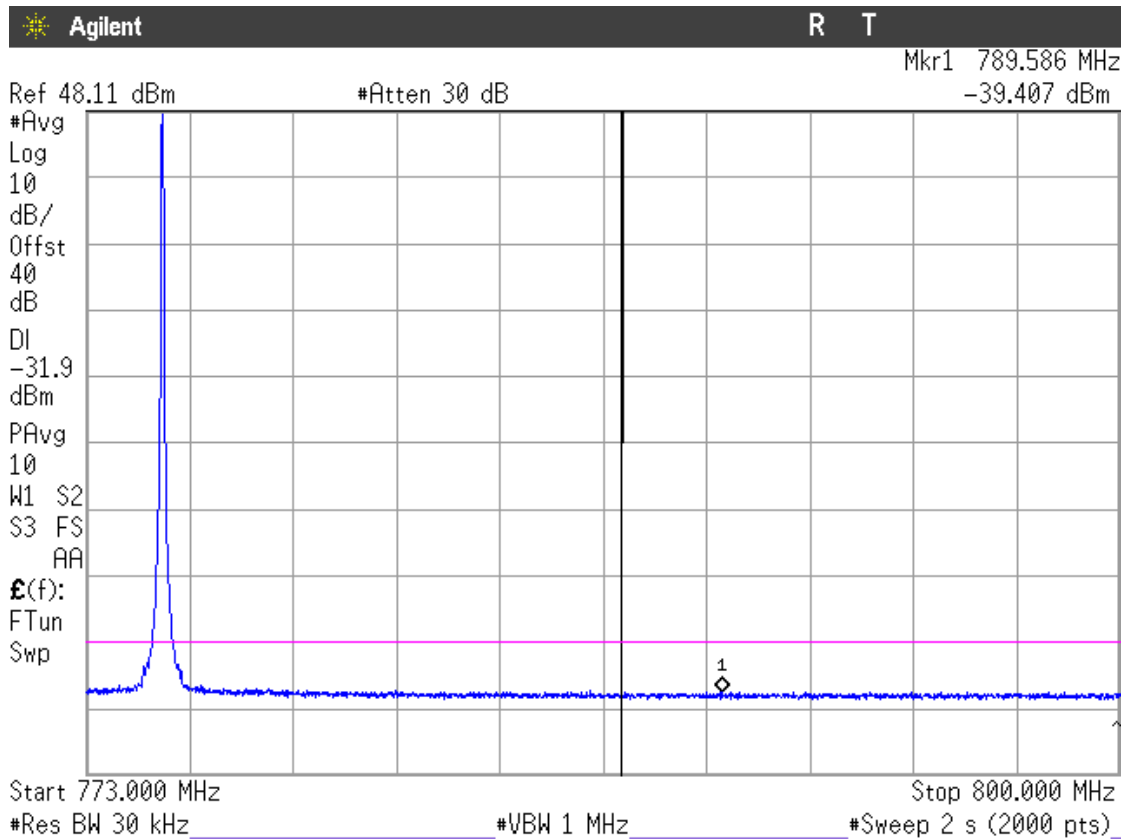




Highest Channel

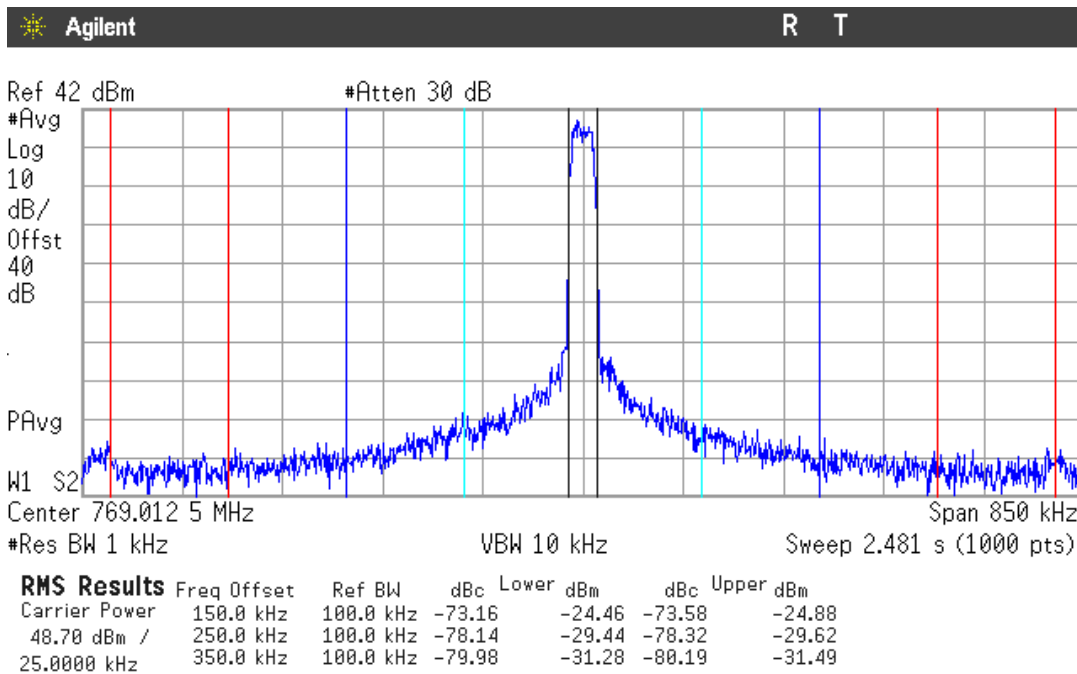
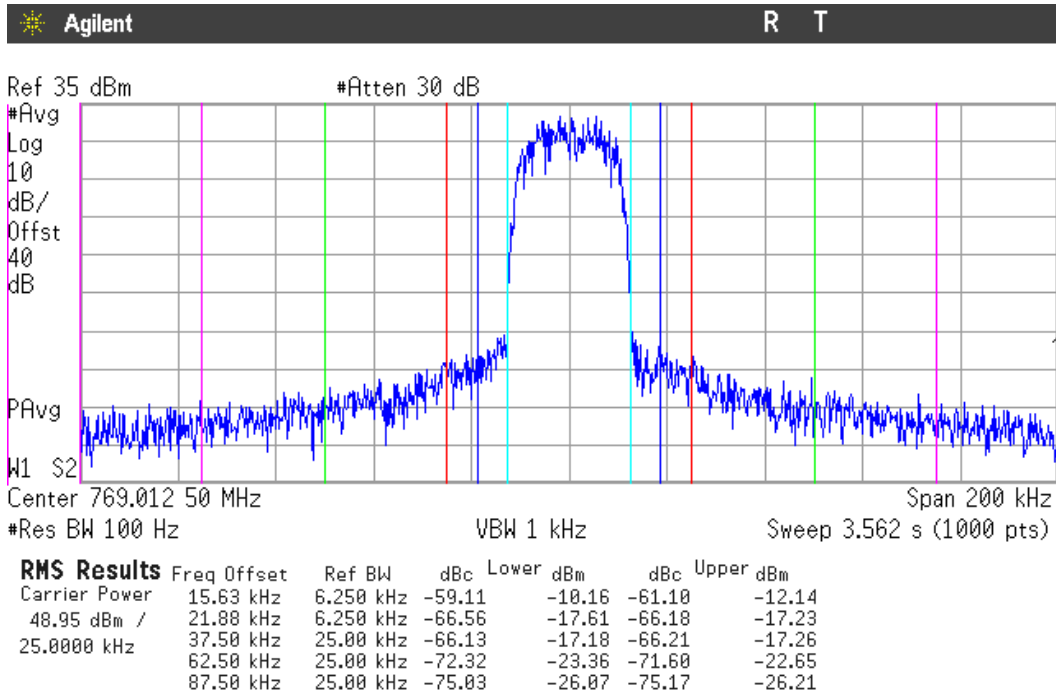


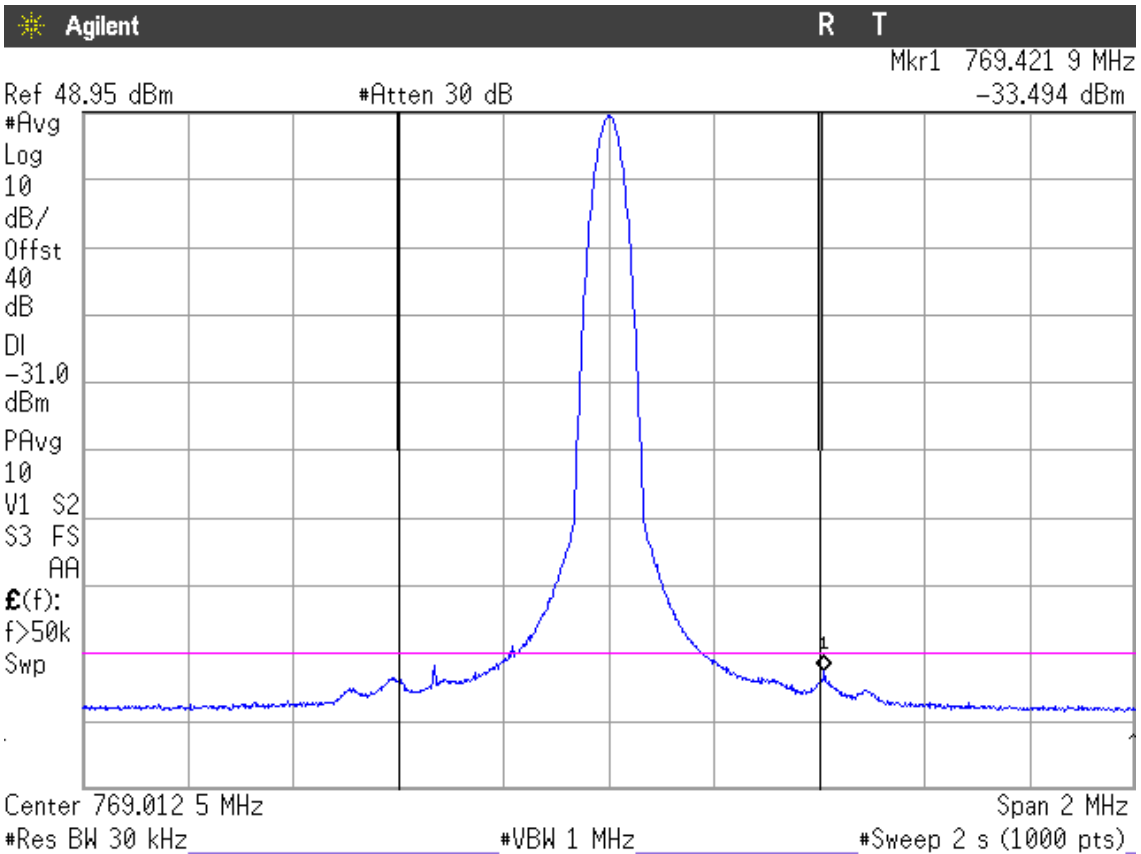
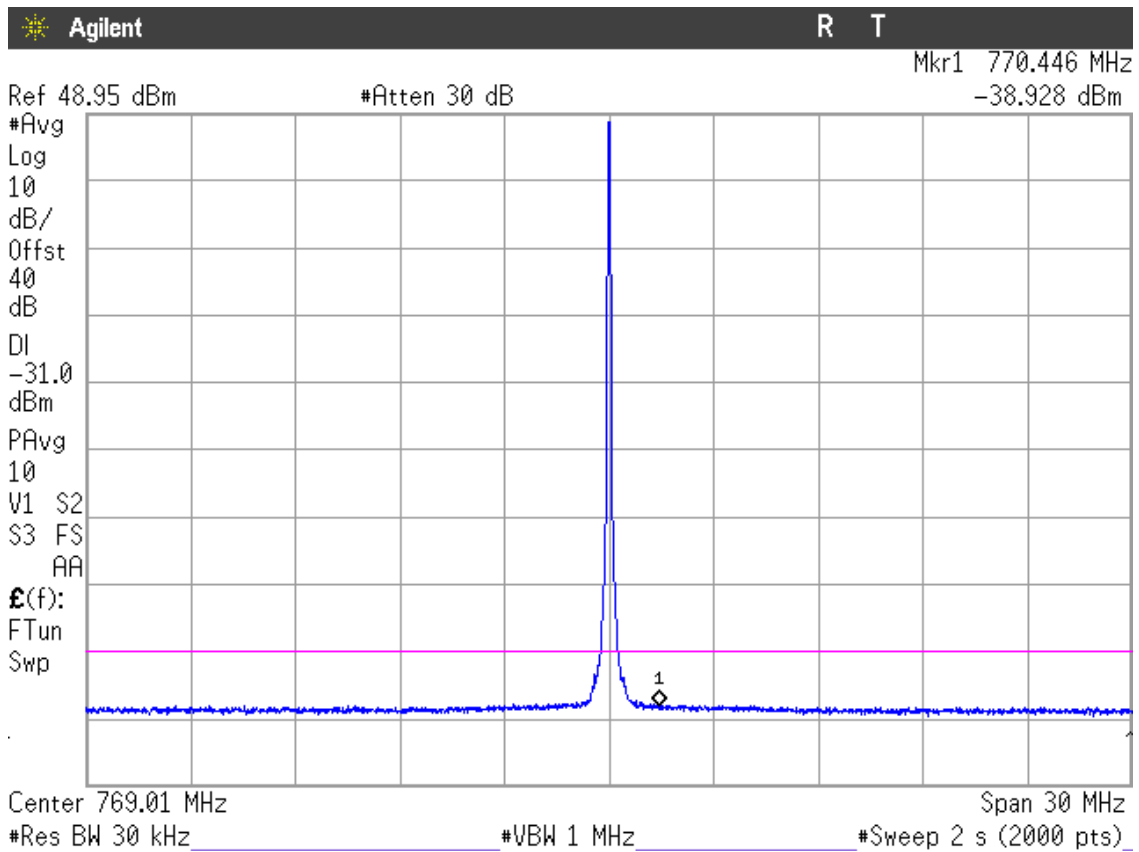


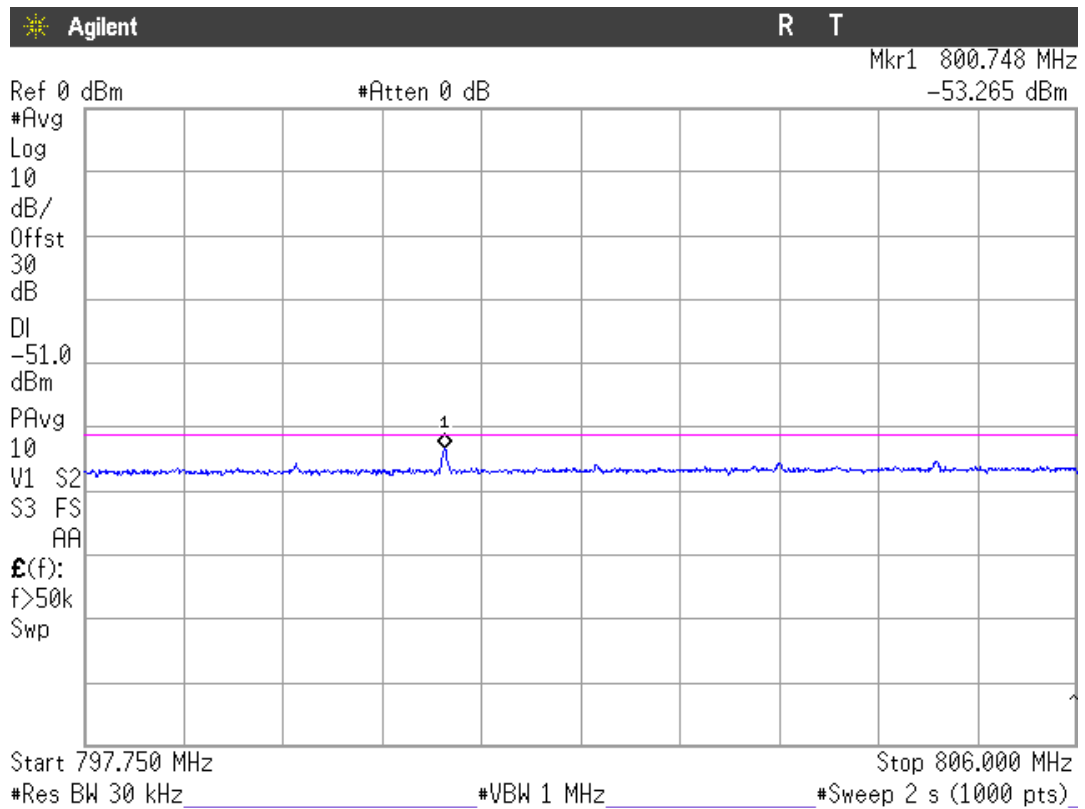
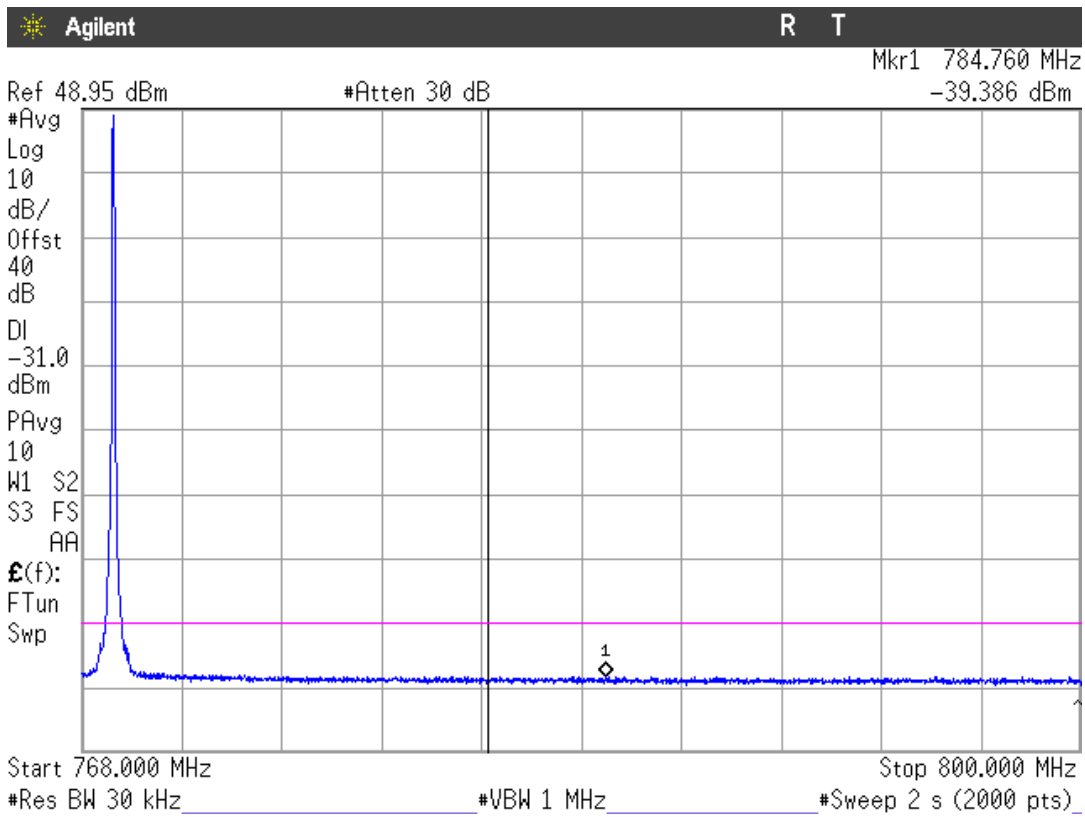


TETRA 22 kHz.769-775 MHz band.

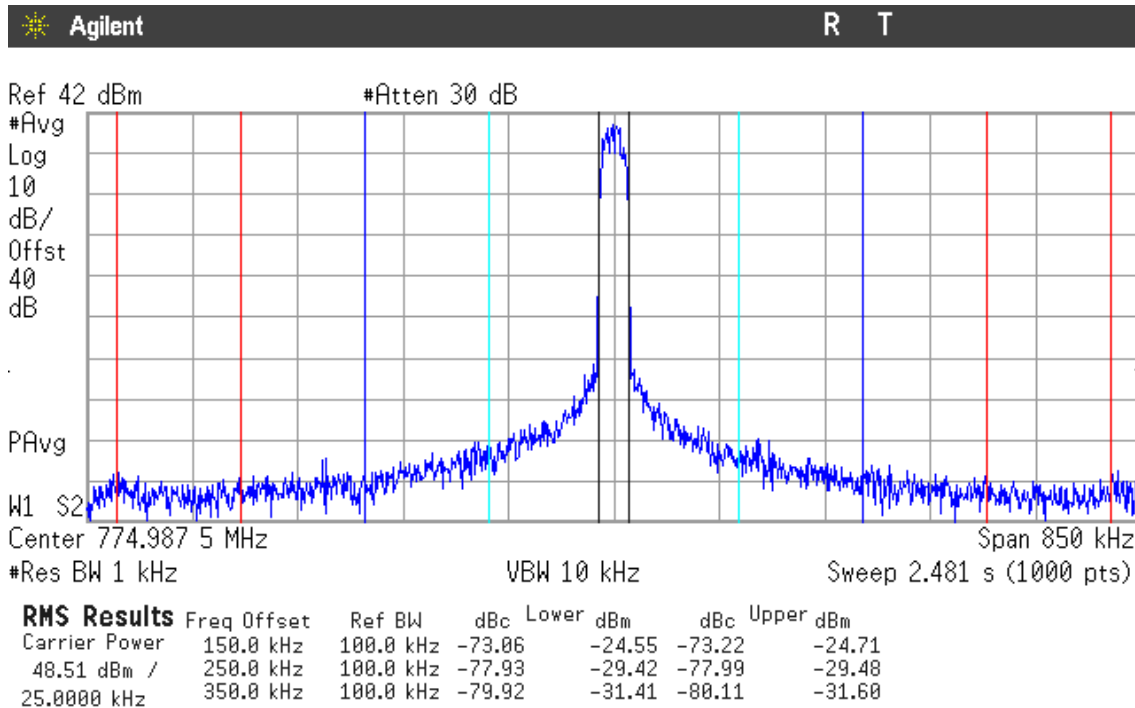
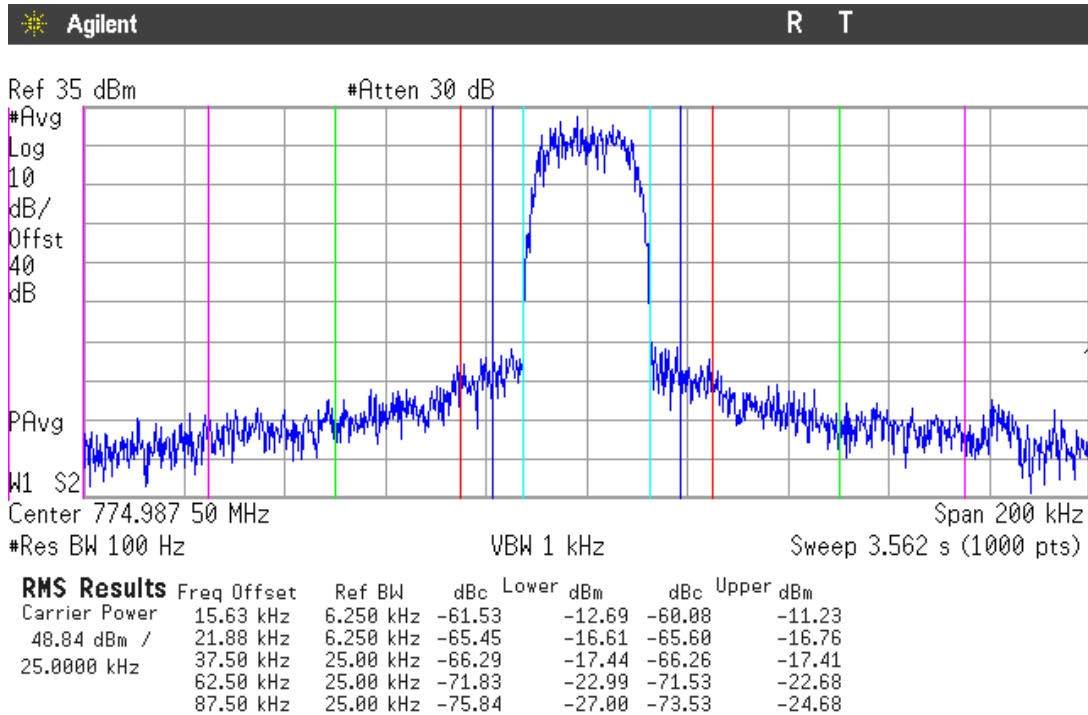
Lowest Channel

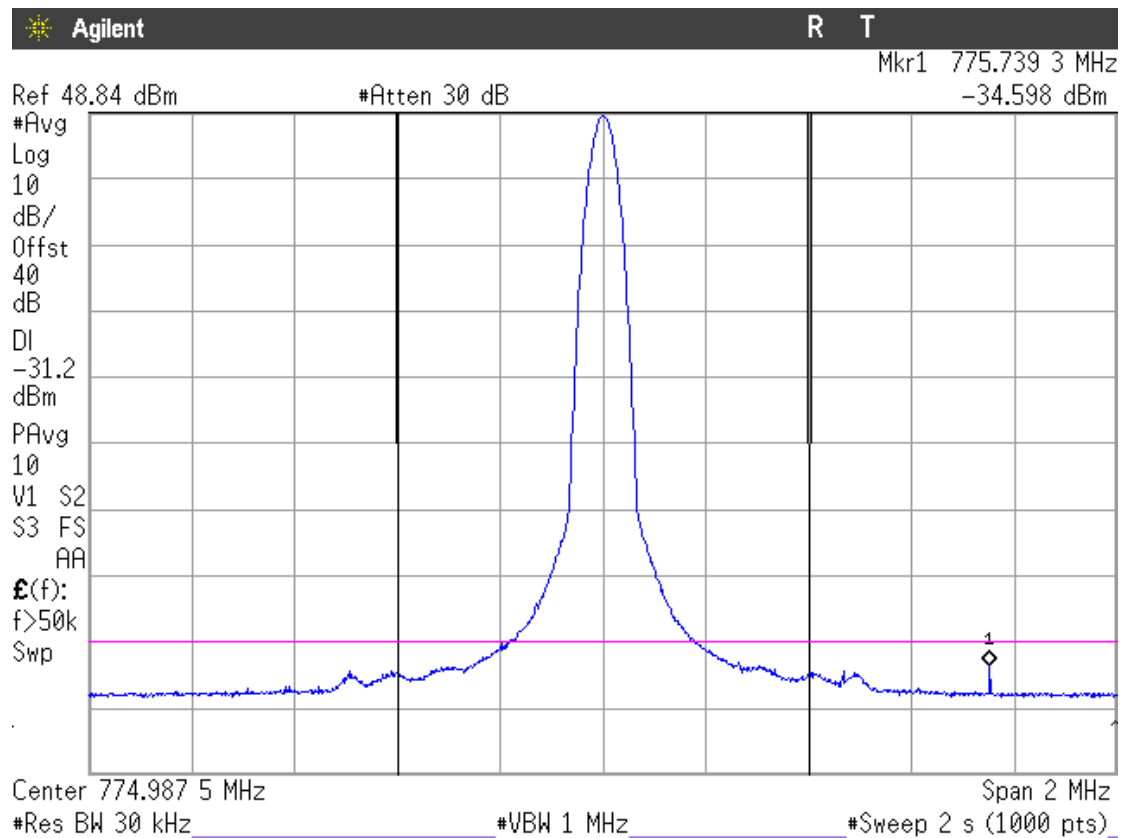
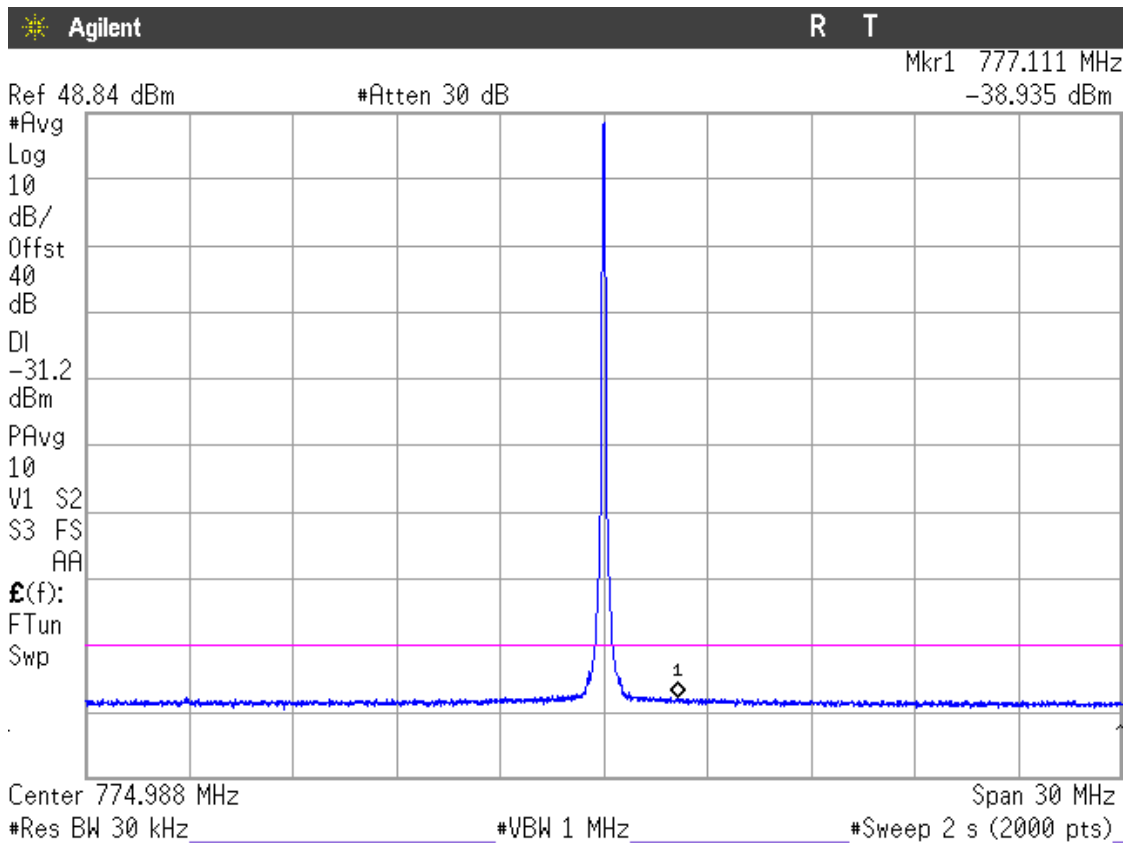


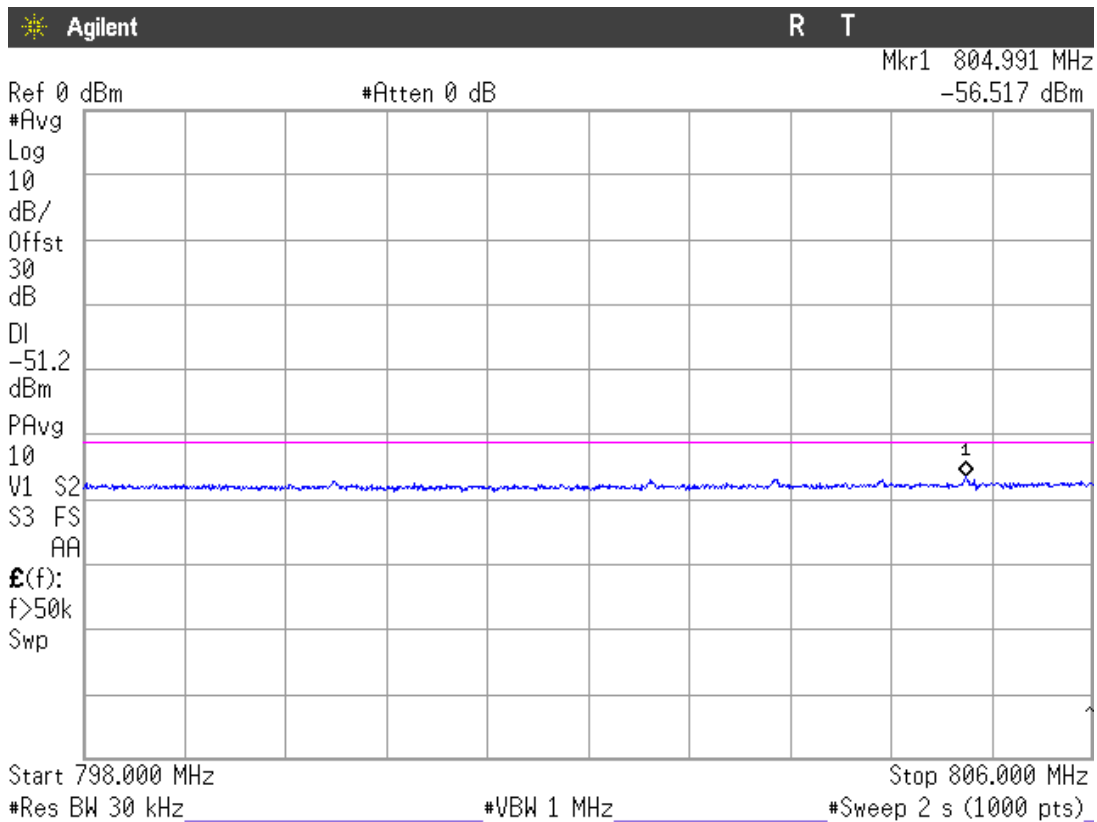
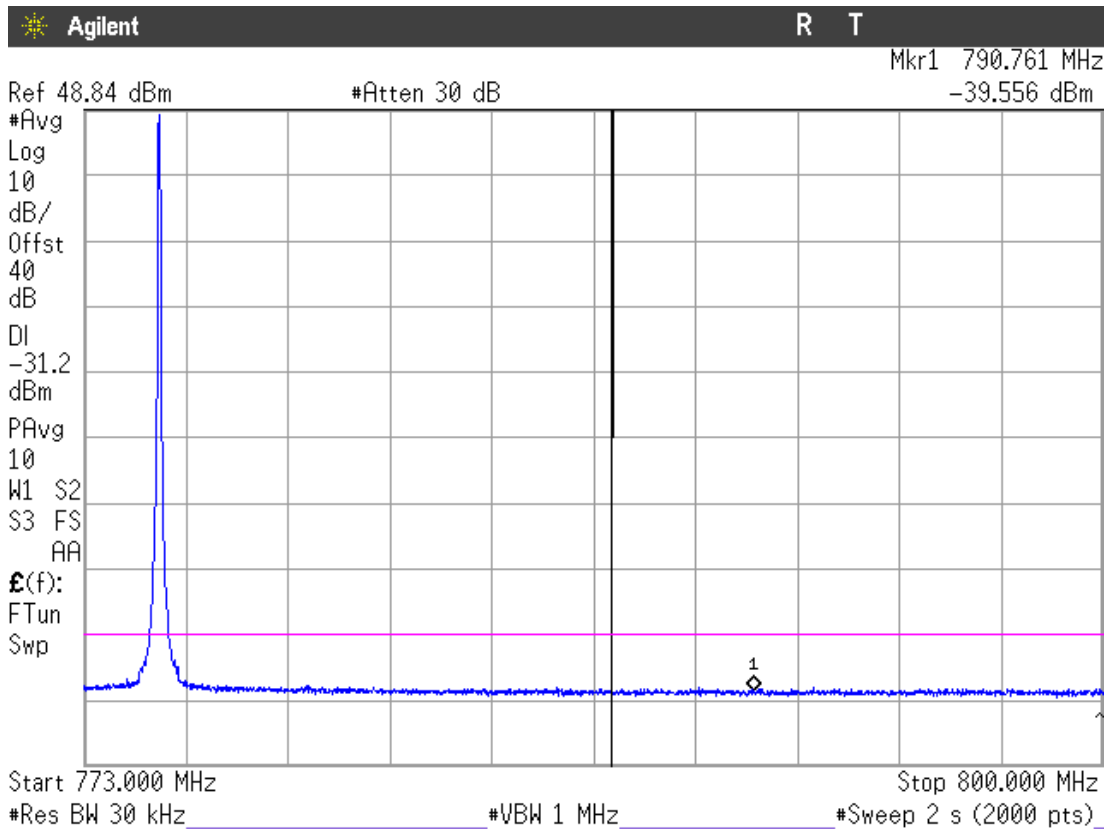




Highest Channel







Frequency Stability

SPECIFICATION

FCC §2.1055, §90.539. 769–775/799–805 MHz bands.

The frequency stability of base transmitters operating in the narrowband segment must be 100 parts per billion or better (0.1 ppm).

METHOD

The frequency tolerance measurements over temperature variations were made over the temperature range of -30°C to $+50^{\circ}\text{C}$. The EUT was placed inside a climatic chamber and the temperature was raised hourly in 10°C steps from -30°C up to $+50^{\circ}\text{C}$.

Frequency Stability vs Voltage: Vary primary supply voltage between the extreme voltage values declared.

The EUT is set in continuous transmission without modulation (only carrier) and the frequency is measured with the frequency meter of Radiocommunication analyzer HP8920A.

RESULTS

769-775 MHz band. Middle Channel.

Voltage (Vdc)	Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)
Frequency stability with Temperature			
27.4	+50	50	0.06477
	+40	49	0.06347
	+30	48	0.06218
	+20	47	0.06088
	+10	42	0.05440
	0	40	0.05181
	-10	40	0.05181
	-20	46	0.05958
	-30	40	0.05181
Frequency stability with Supply Voltage			
23.29	20	50	0.06477
31.51	20	53	0.06865

Measurement uncertainty	$<\pm 1 \times 10^{-6}$
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Verdict: PASS

Spurious emissions at antenna terminals

SPECIFICATION

FCC §90.543. 769–775/799–805 MHz bands.

Out-of-band emission limit. On any frequency outside of the frequency ranges covered by the ACP tables, the power of any emission must be reduced below the mean output power (P) by at least $43 + 10\log(P)$ dB measured in a 100 kHz bandwidth for frequencies less than 1 GHz, and in a 1 MHz bandwidth for frequencies greater than 1 GHz.

METHOD

The EUT RF output connector was connected to a spectrum analyser using a 50 ohm attenuator and the resolution bandwidth of the spectrum analyser was set to 100 kHz for frequencies < 1 GHz and 1 MHz for frequencies > 1 GHz. The spectrum was investigated from 10 kHz to 8 GHz.

The reading of the spectrum analyser is corrected with the attenuation loss of connection between output terminal of EUT and input of the spectrum analyzer.

RESULTS (see plots in next pages)

TI D-LMR 20 kHz bandwidth. 769-775 MHz band.

CHANNEL: LOWEST

Spurious Frequency (MHz)	Level (dBm)	Uncertainty (dB)
384.87	-26.65	< ± 2.03
1028.50	-30.01	< ± 2.03

No peaks found inside the band 1559-1610 MHz.

CHANNEL: HIGHEST

Spurious Frequency (MHz)	Level (dBm)	Uncertainty (dB)
387.50	-27.43	< ± 2.03
1029.10	-29.59	< ± 2.03

No peaks found inside the band 1559-1610 MHz.

TETRA 22 kHz bandwidth. 769-775 MHz band.

CHANNEL: LOWEST

Spurious Frequency (MHz)	Level (dBm)	Uncertainty (dB)
383.96	-26.23	< ± 2.03
1020.50	-31.93	< ± 2.03

No peaks found inside the band 1559-1610 MHz.

CHANNEL: HIGHEST

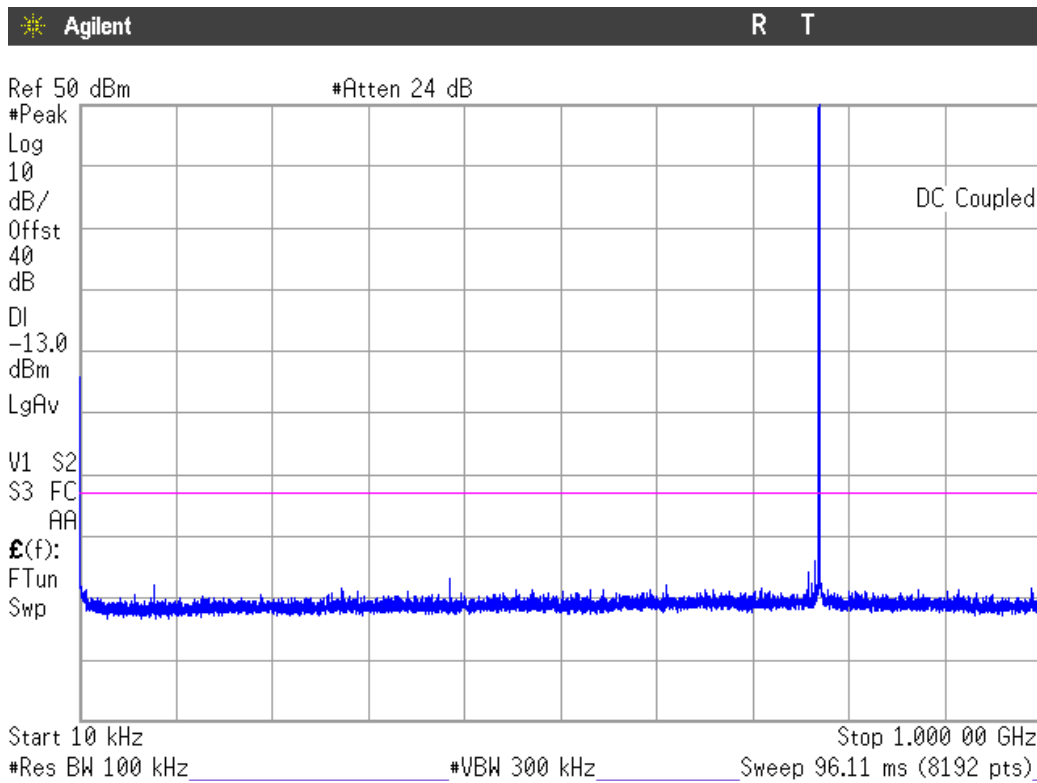
Spurious Frequency (MHz)	Level (dBm)	Uncertainty (dB)
387.99	-26.34	< ± 2.03
1034.20	-29.57	< ± 2.03

No peaks found inside the band 1559-1610 MHz.

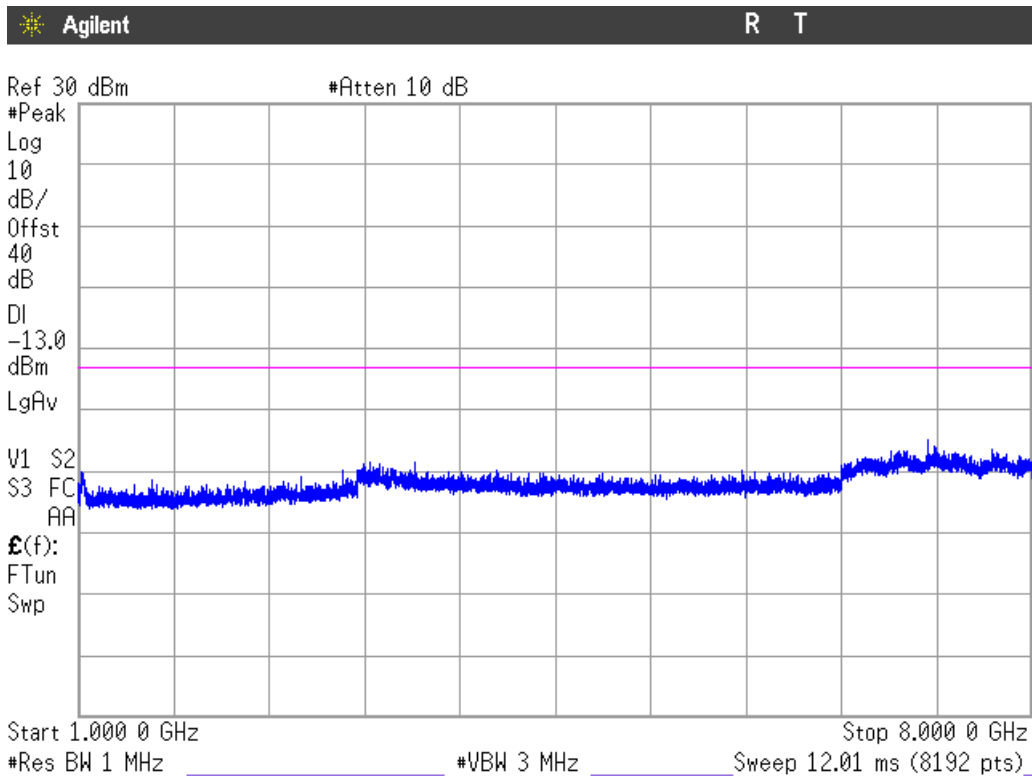
Verdict: PASS

TI D-LMR 20 kHz bandwidth. 769-775 MHz band.

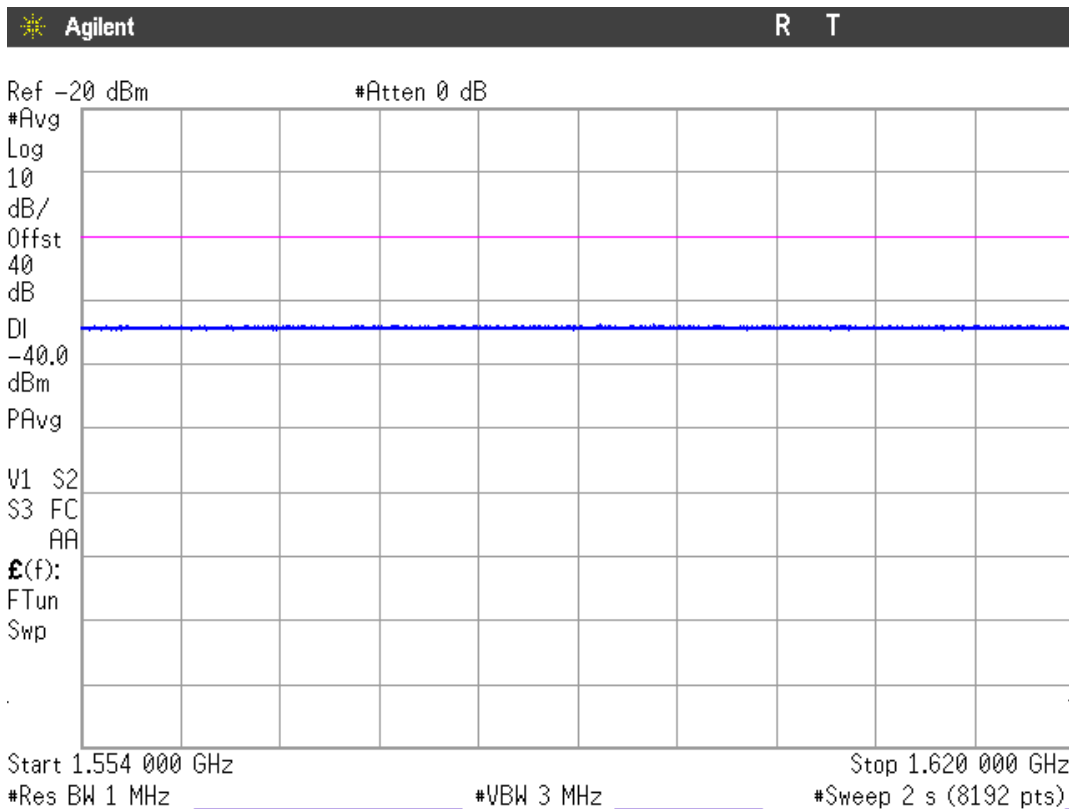
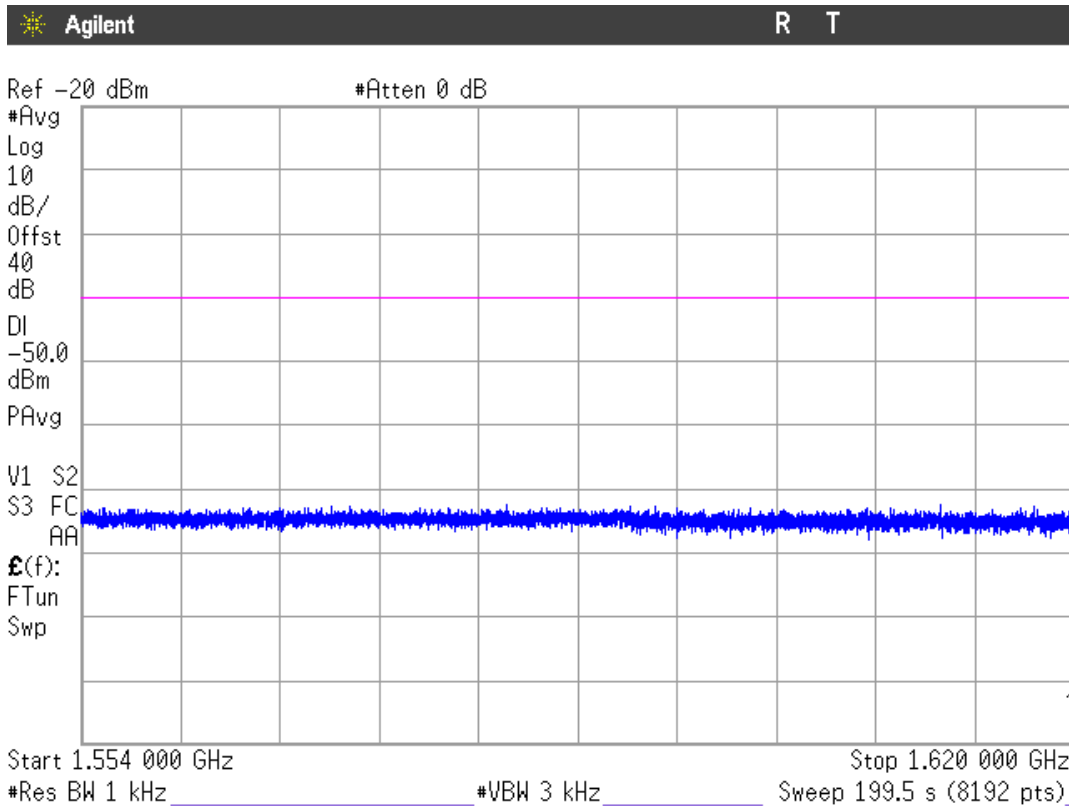
CHANNEL: LOWEST



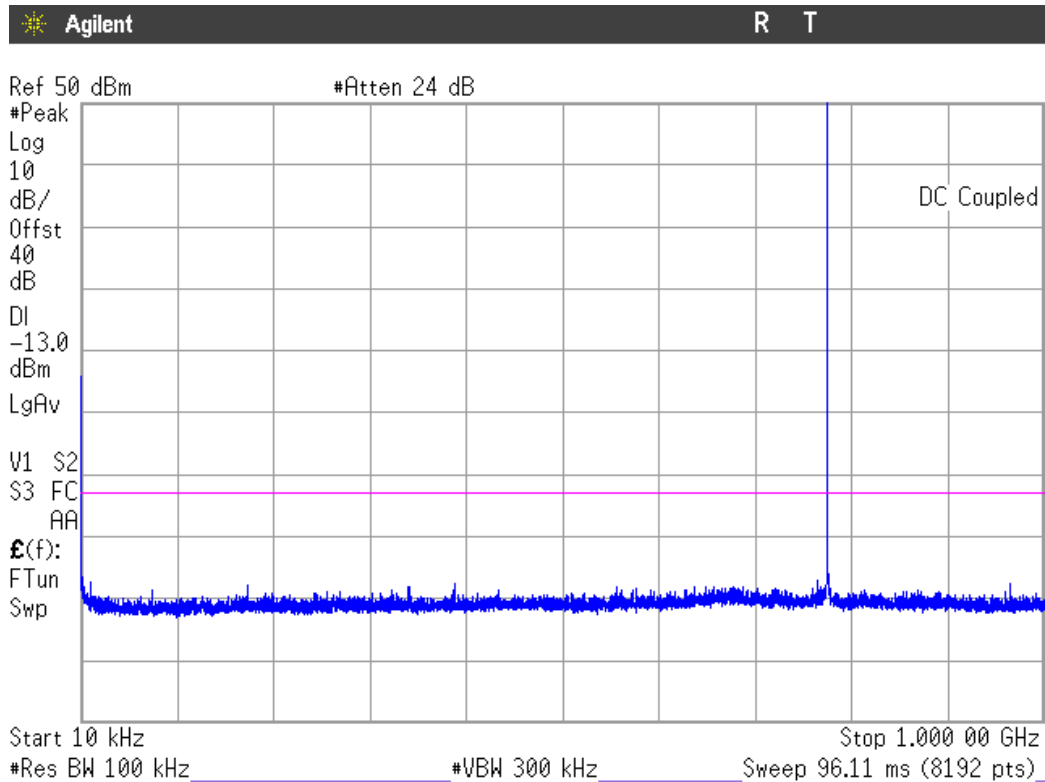
Note: The peak above the limit is the carrier frequency.



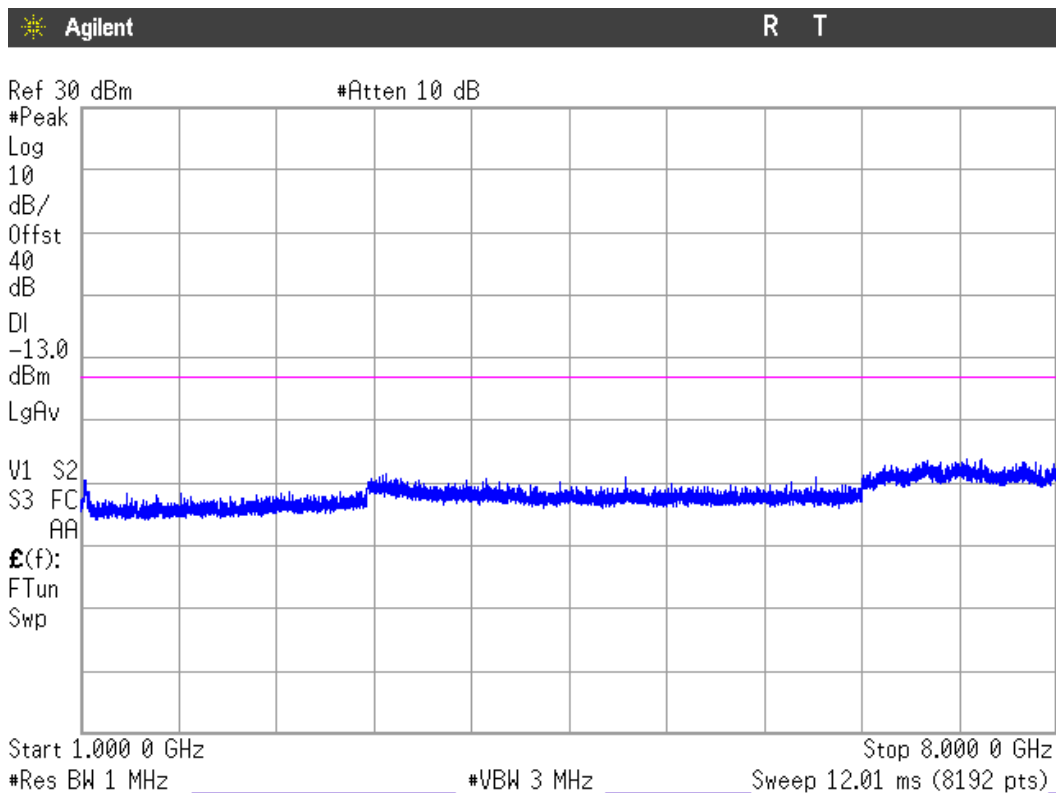
Emissions in band 1559-1610 MHz.



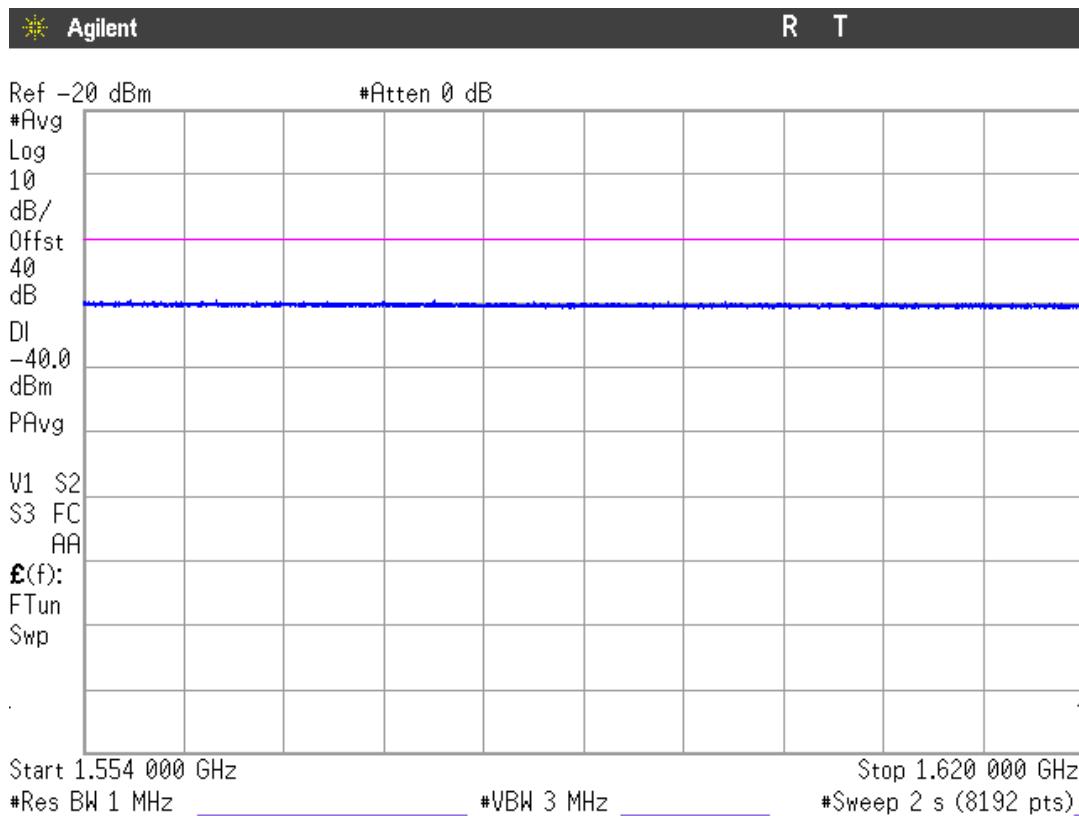
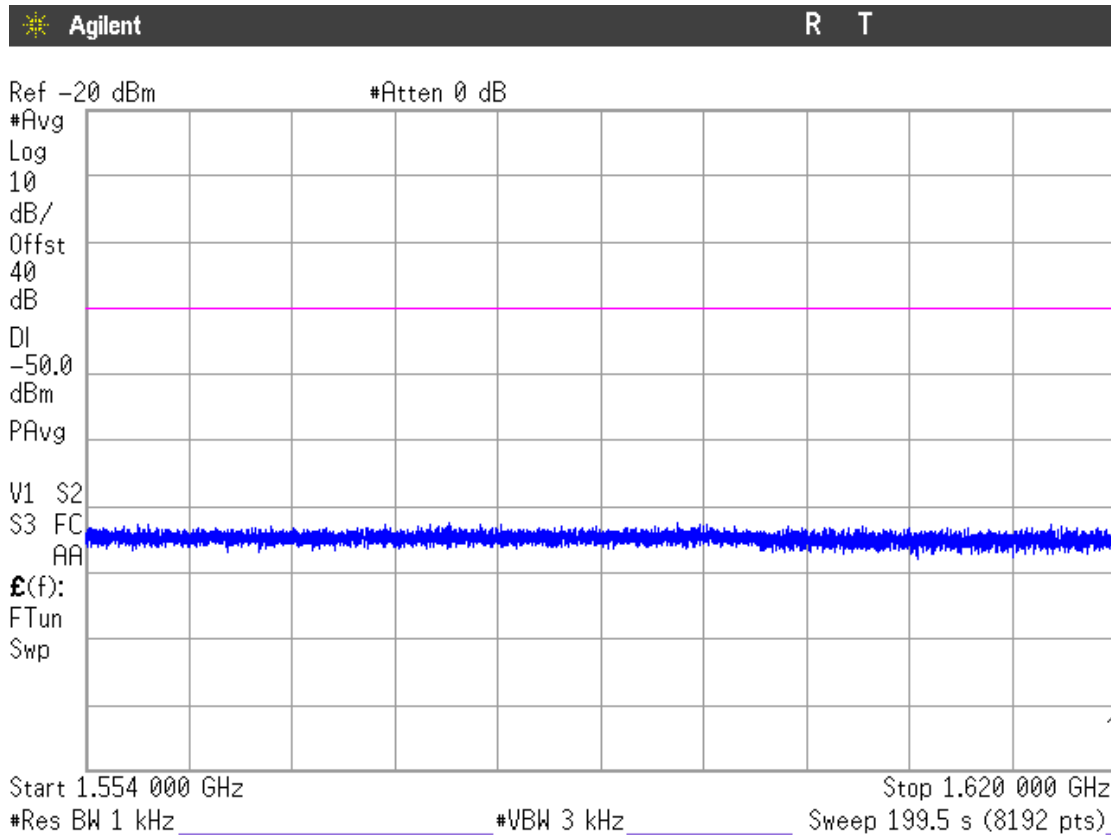
CHANNEL: HIGHEST



Note: The peak above the limit is the carrier frequency.

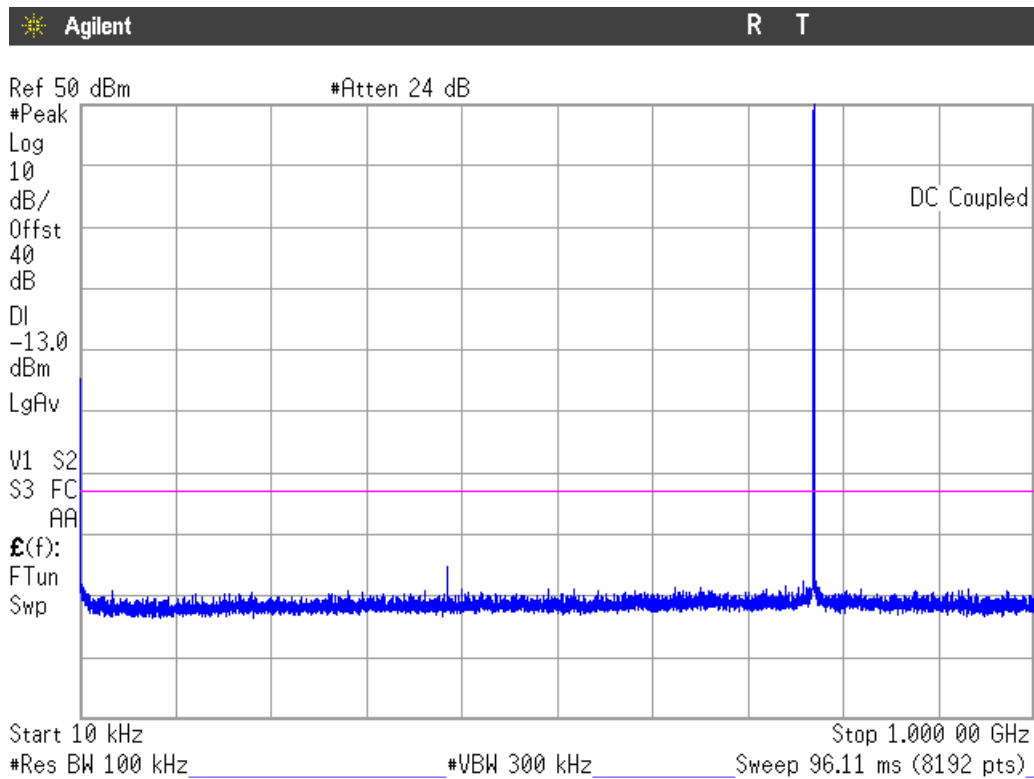


Emissions in band 1559-1610 MHz.

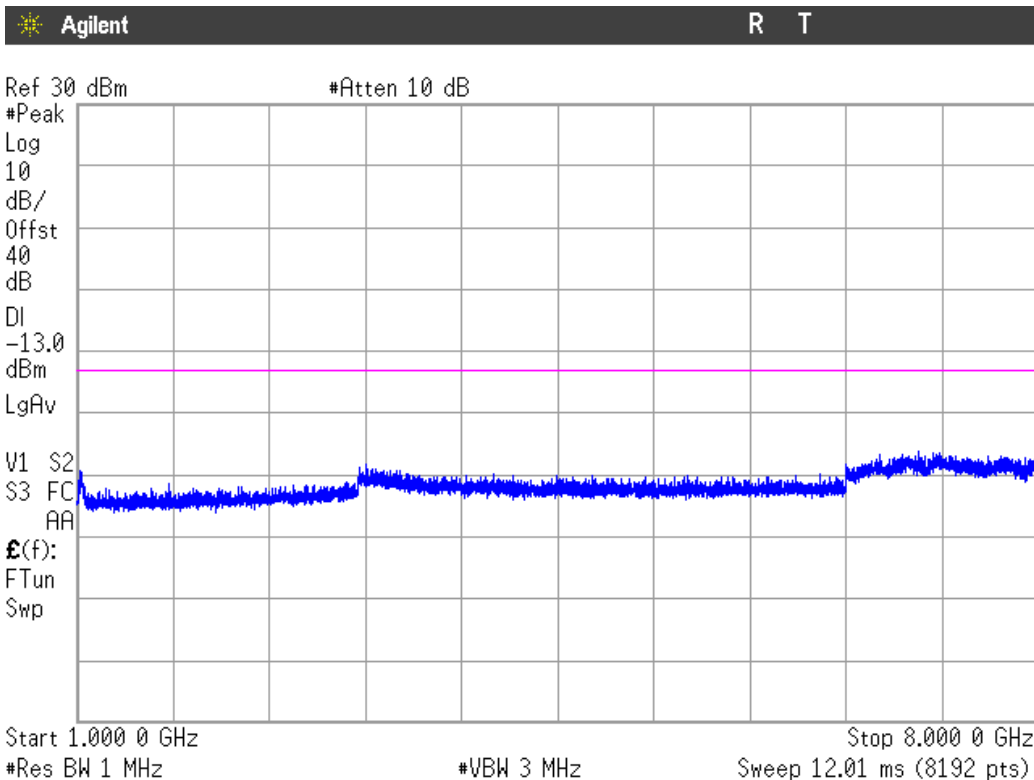


TETRA 22 kHz bandwidth. 769-775 MHz band.

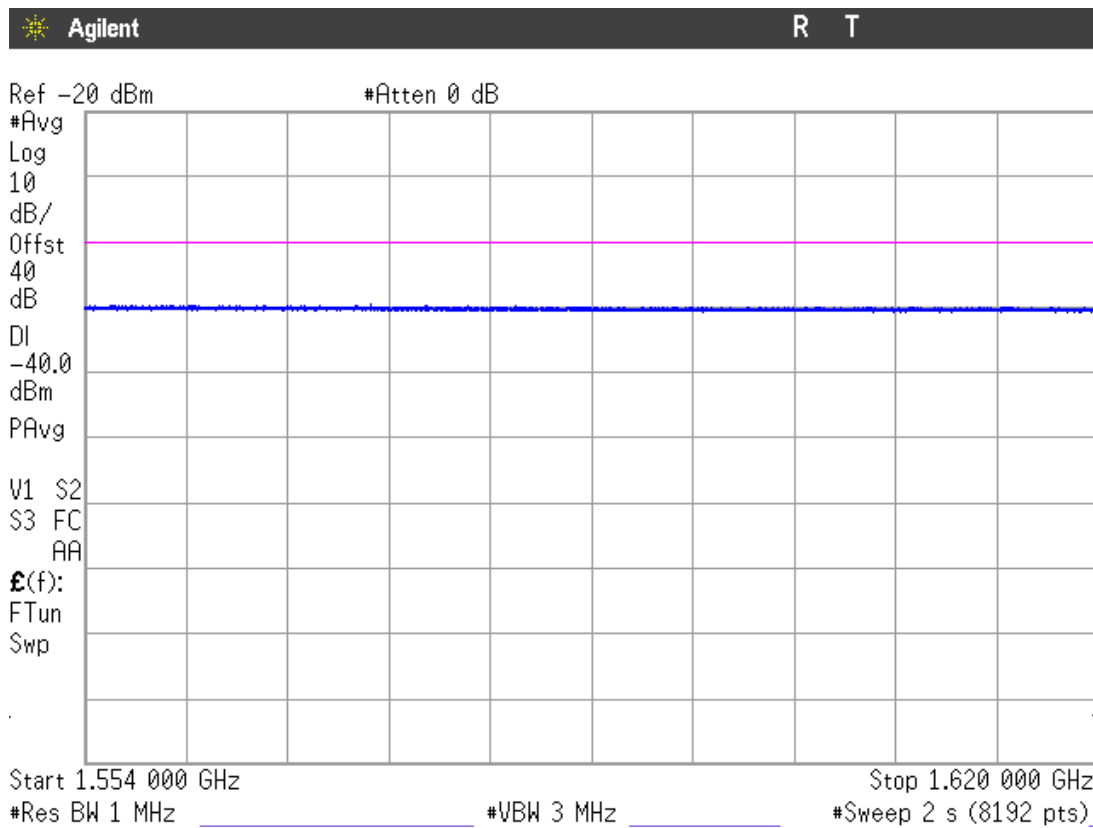
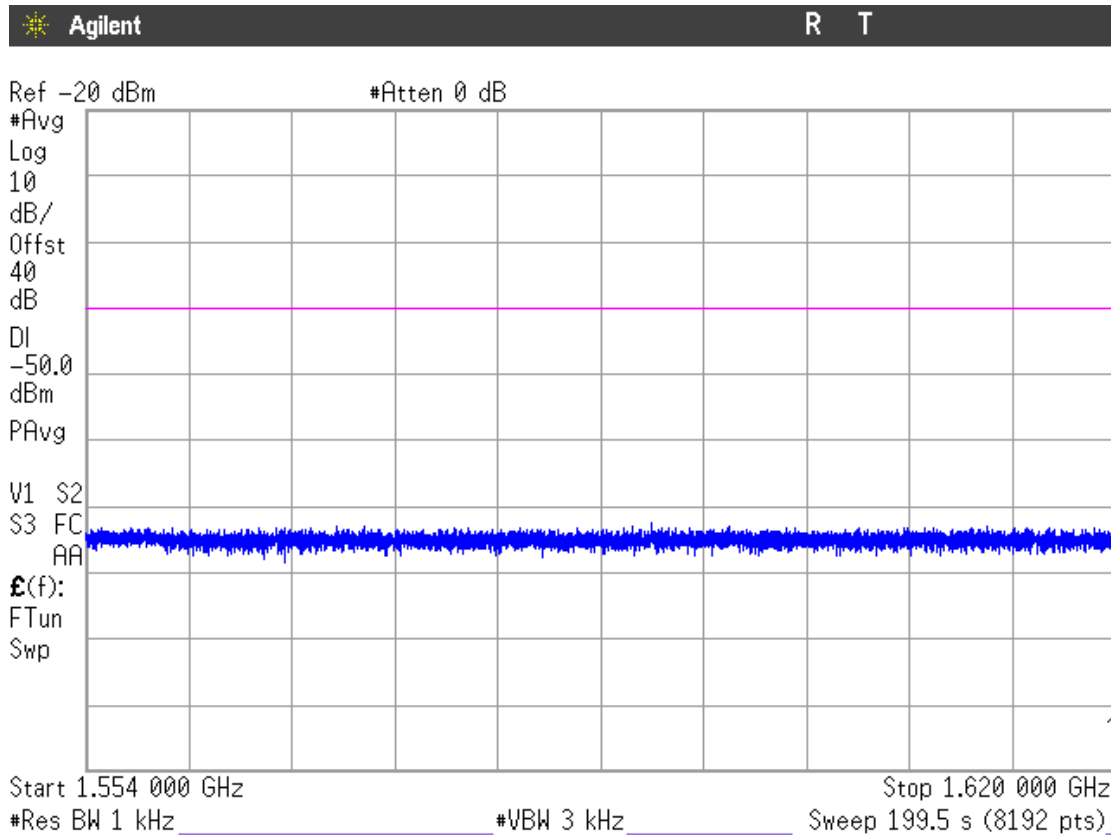
CHANNEL: LOWEST



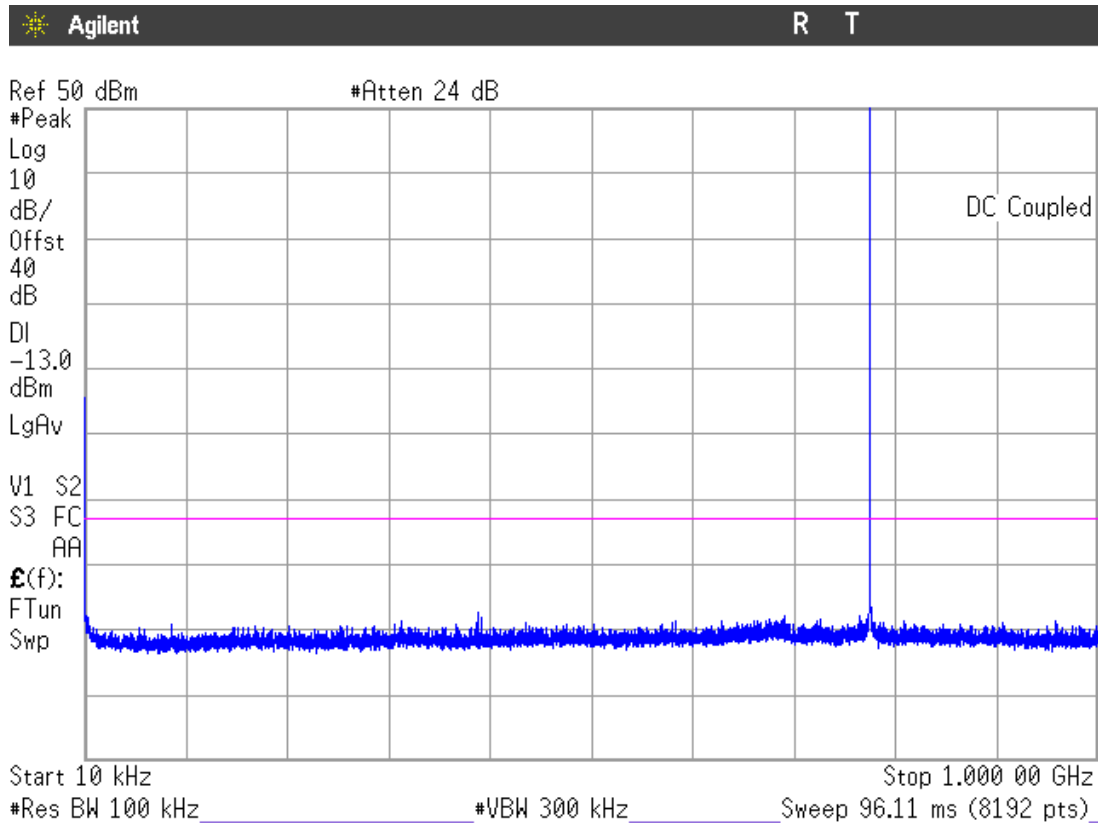
Note: The peak above the limit is the carrier frequency.



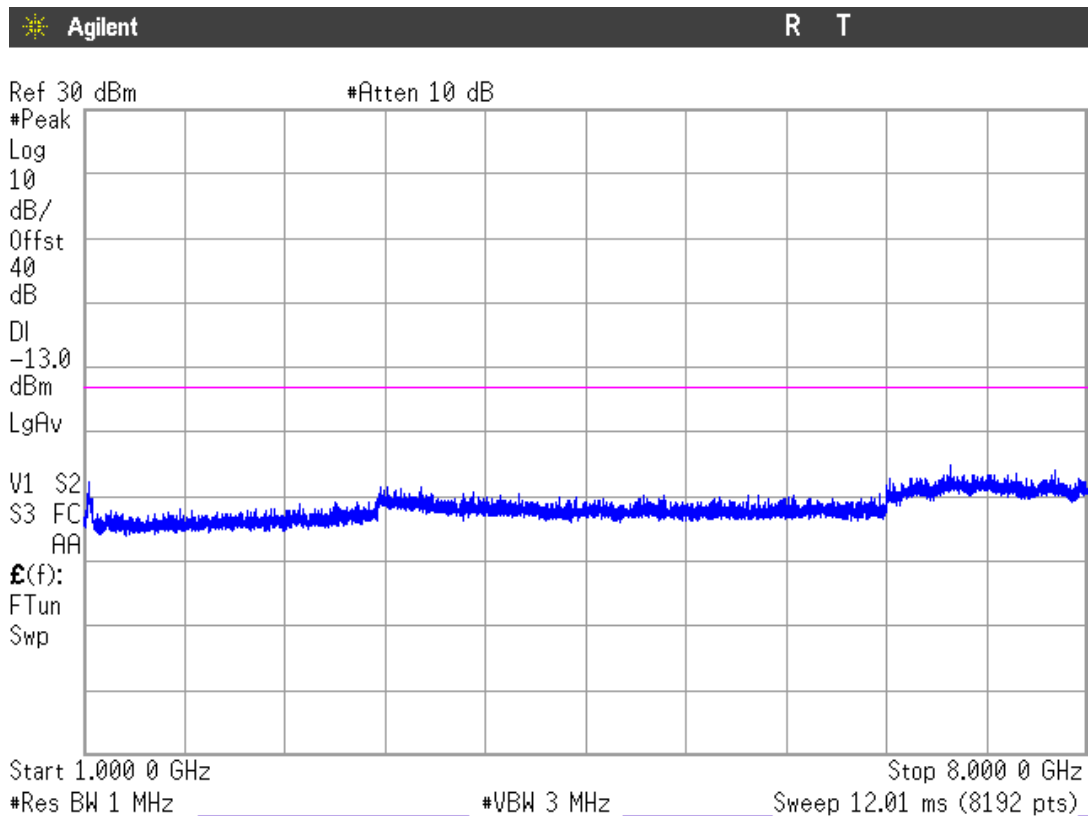
Emissions in band 1559-1610 MHz.



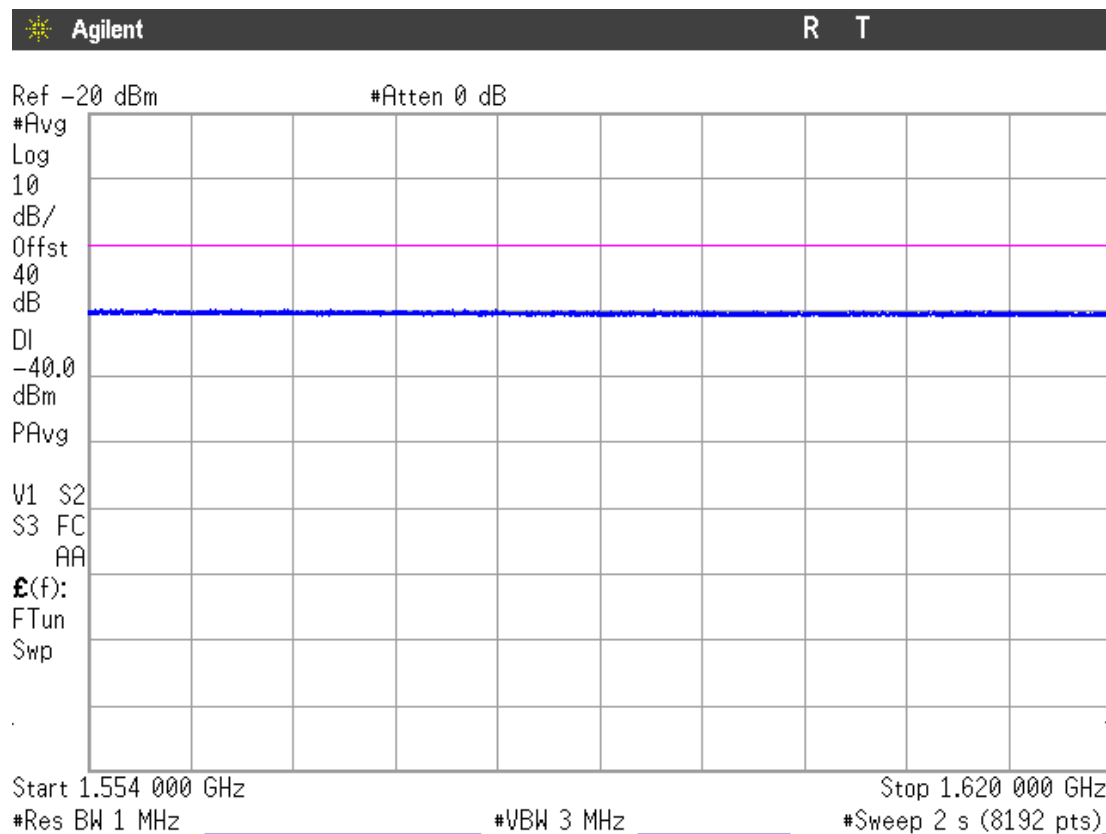
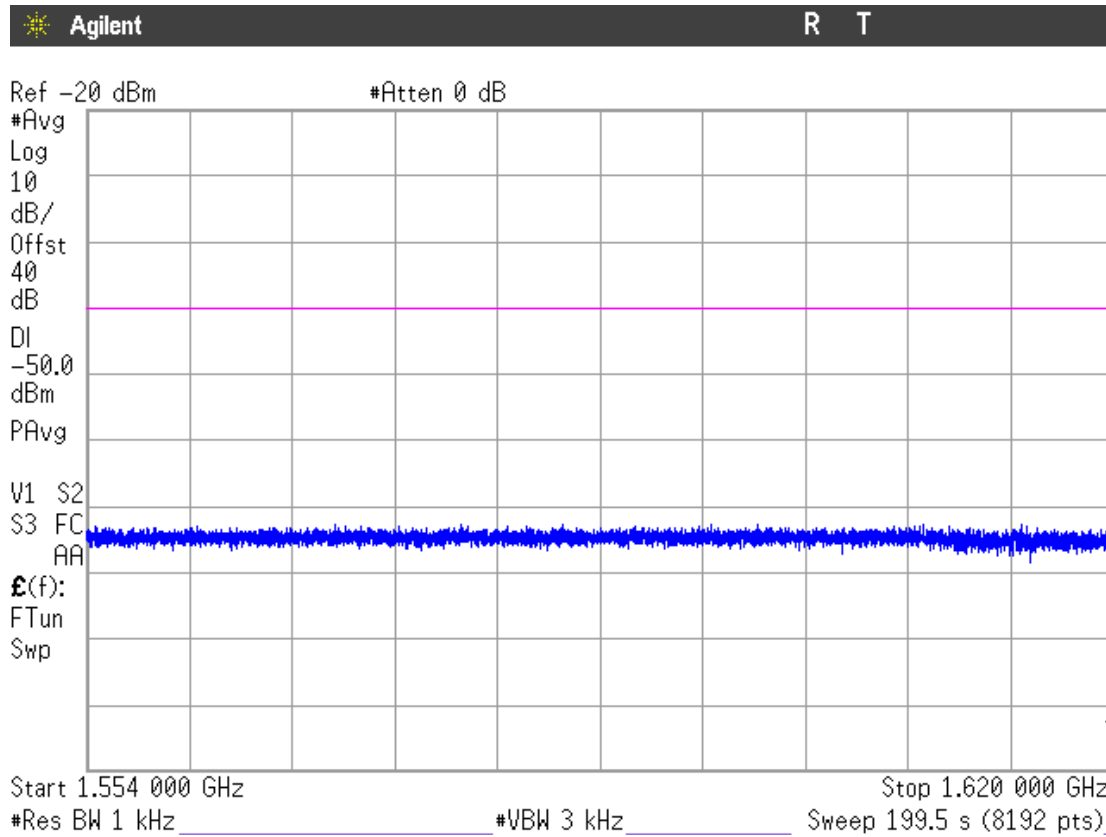
CHANNEL: HIGHEST



Note: The peak above the limit is the carrier frequency.



Emissions in band 1559-1610 MHz.



Radiated emissions

SPECIFICATION

FCC §90.543. 769–775/799–805 MHz bands.

Out-of-band emission limit. On any frequency outside of the frequency ranges covered by the ACP tables, the power of any emission must be reduced below the mean output power (P) by at least $43 + 10\log(P)$ dB measured in a 100 kHz bandwidth for frequencies less than 1 GHz, and in a 1 MHz bandwidth for frequencies greater than 1 GHz.

For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW (-40 dBm)/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW (-50 dBm) EIRP for discrete emissions of less than 700 Hz bandwidth.

METHOD

The measurement was performed with the EUT inside an anechoic chamber. The RF output connector of the EUT is terminated with an attenuator and a 50 ohm load.

For emissions in the band 1559-1610 MHz the EUT was tested with an antenna that is representative of the type that will be used with the equipment in normal operation (Colinear antenna).

The spectrum was scanned from 30 MHz to at least the 10th harmonic of the highest frequency generated within the equipment.

The EUT was placed on a non-conductive stand at a 3 meter distance from the measuring antenna for measurements below 1 GHz and at 1 m distance for measurements above 1 GHz.

Detected emissions were maximized at each frequency by rotating the EUT and adjusting the measuring antenna height and polarization. The maximum meter reading was recorded.

Each detected emission is substituted by the Substitution method in accordance with the ANSI/TIA-603-D: 2010.

RESULTS

769-775 MHz band for 20 kHz and 22 kHz bandwidth.

A preliminary scan determined the TI D-LMR 20 kHz bandwidth as the worst case. The following tables and plots show the results for TI D-LMR 20 kHz bandwidth.

1. CHANNEL: LOWEST.

Frequency range 30 MHz-1000 MHz.

All peaks are more than 20 dB below the limit.

Frequency range 1 GHz-8 GHz.

All peaks are more than 20 dB below the limit.

Frequency range 1559 MHz-1610 GHz.

Substitution method data

Frequency (GHz)	Instrument reading (dBm)	RBW (kHz)	Detector	Polarization	(1) Generator output (dBm)	(2) Cable loss (dB)	(3) Substitution antenna gain G_i (respect to isotropic radiator) (dB)	E.I.R.P. (dBm) = (1) - (2) + (3)
1.573643	-42.35	1000	Peak	Vertical	-60.63	1.72	8.37	-53.98

2. CHANNEL: HIGHEST.

Frequency range 30 MHz-1000 MHz.

All peaks are more than 20 dB below the limit.

Frequency range 1 GHz-8 GHz.

All peaks are more than 20 dB below the limit.

Frequency range 1559 MHz-1610 GHz.

Substitution method data

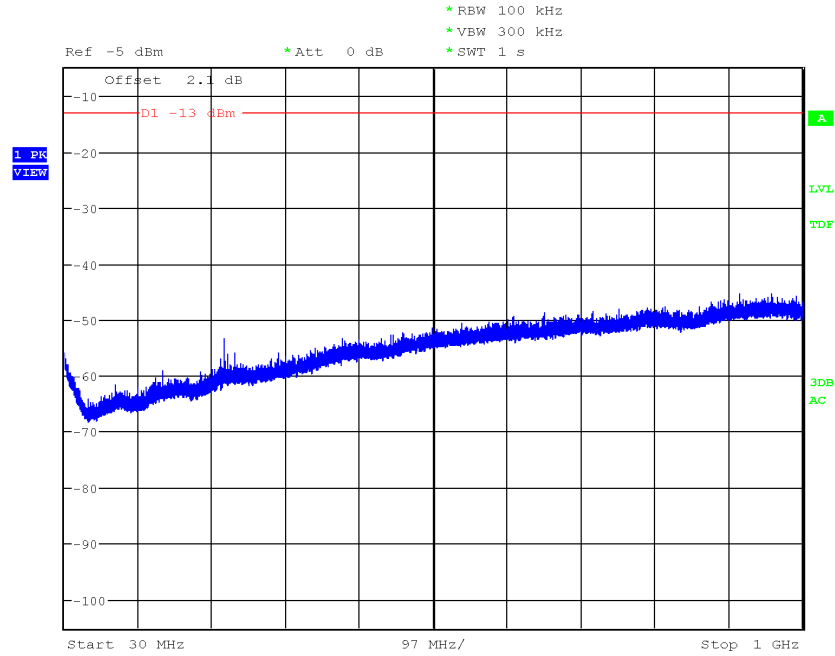
Frequency (GHz)	Instrument reading (dBm)	RBW (kHz)	Detector	Polarization	(1) Generator output (dBm)	(2) Cable loss (dB)	(3) Substitution antenna gain G_i (respect to isotropic radiator) (dB)	E.I.R.P. (dBm) = (1) - (2) + (3)
1.5667309	-44.53	1000	Peak	Vertical	-62.83	1.70	8.34	-56.19

Measurement uncertainty (dB)	± 3.88 for $f < 1\text{ GHz}$ ± 4.87 for $f \geq 1\text{ GHz}$ up to 18 GHz
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Verdict: PASS

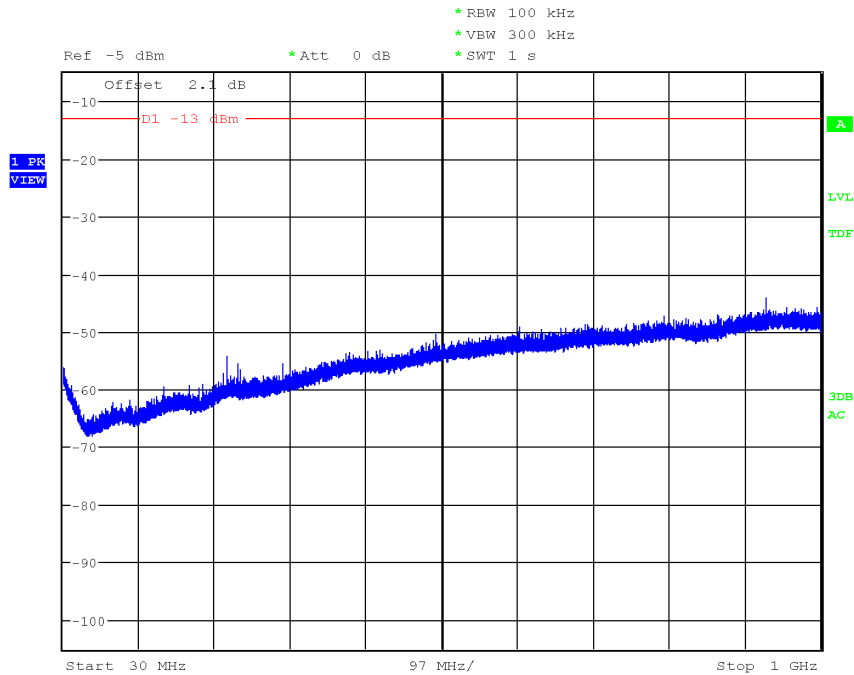
FREQUENCY RANGE 30 MHz-1000 MHz.

CHANNEL: LOWEST.



Note: The carrier has been attenuated using a notch filter.

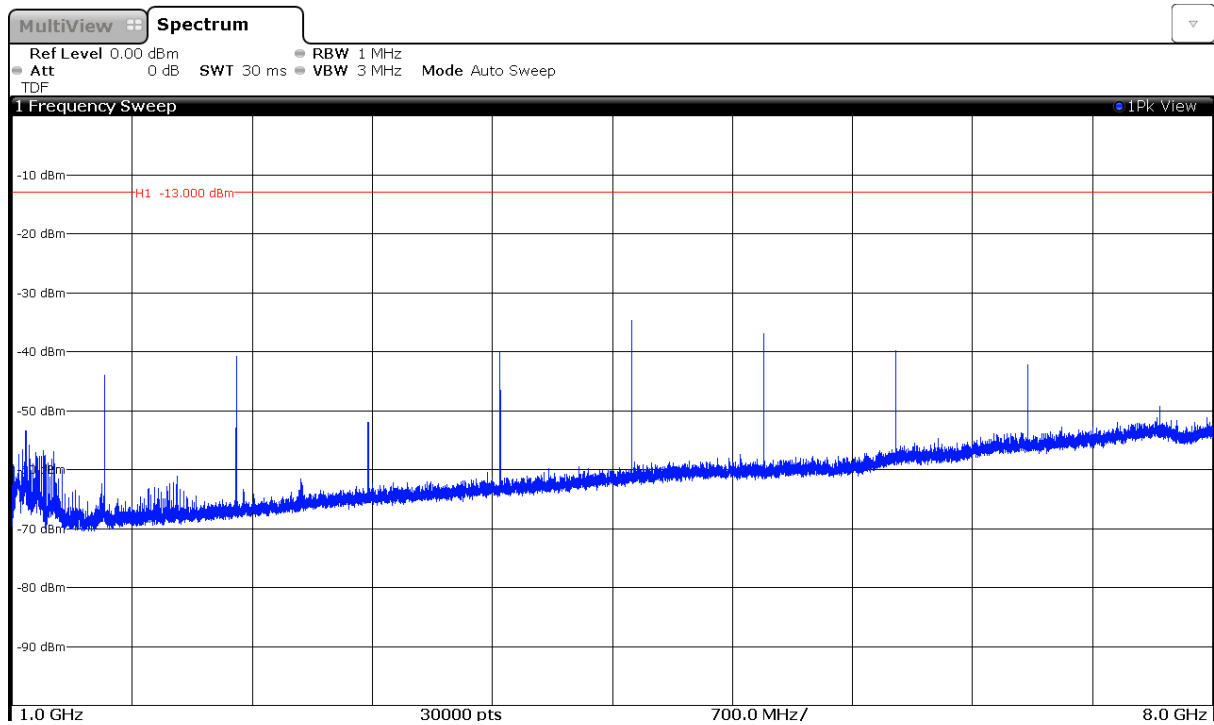
CHANNEL: HIGHEST.



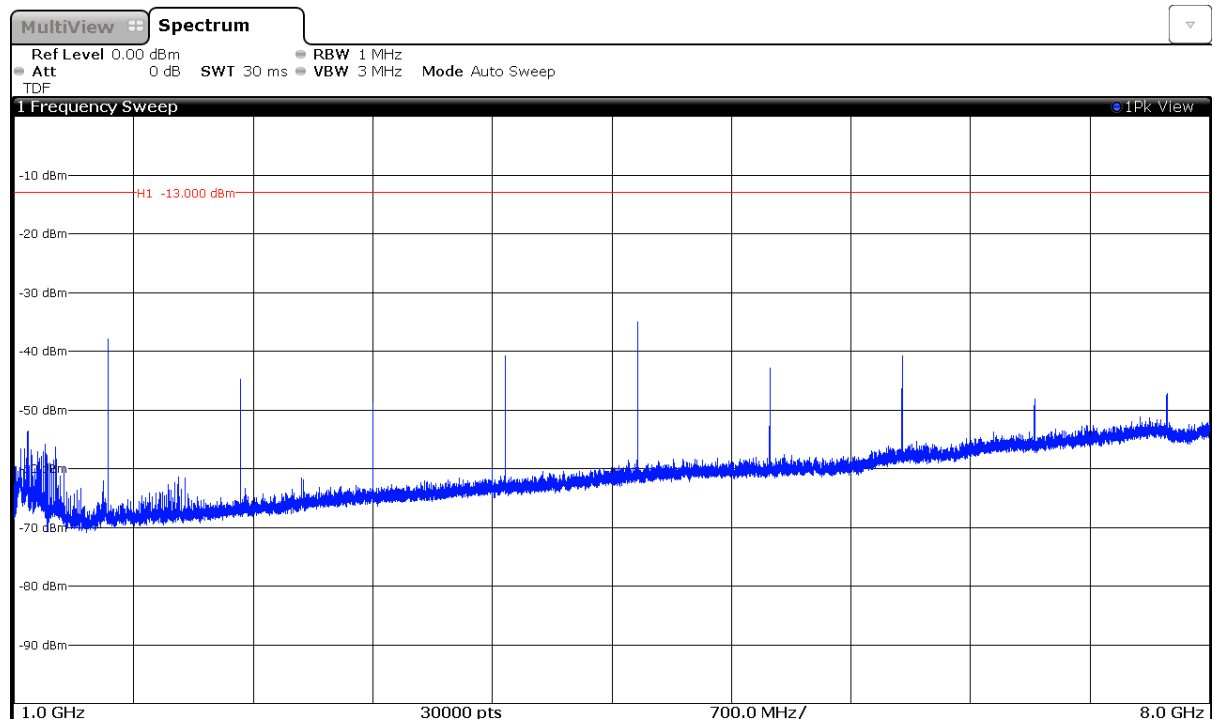
Note: The carrier has been attenuated using a notch filter.

FREQUENCY RANGE 1 GHz to 8 GHz.

CHANNEL: LOWEST.

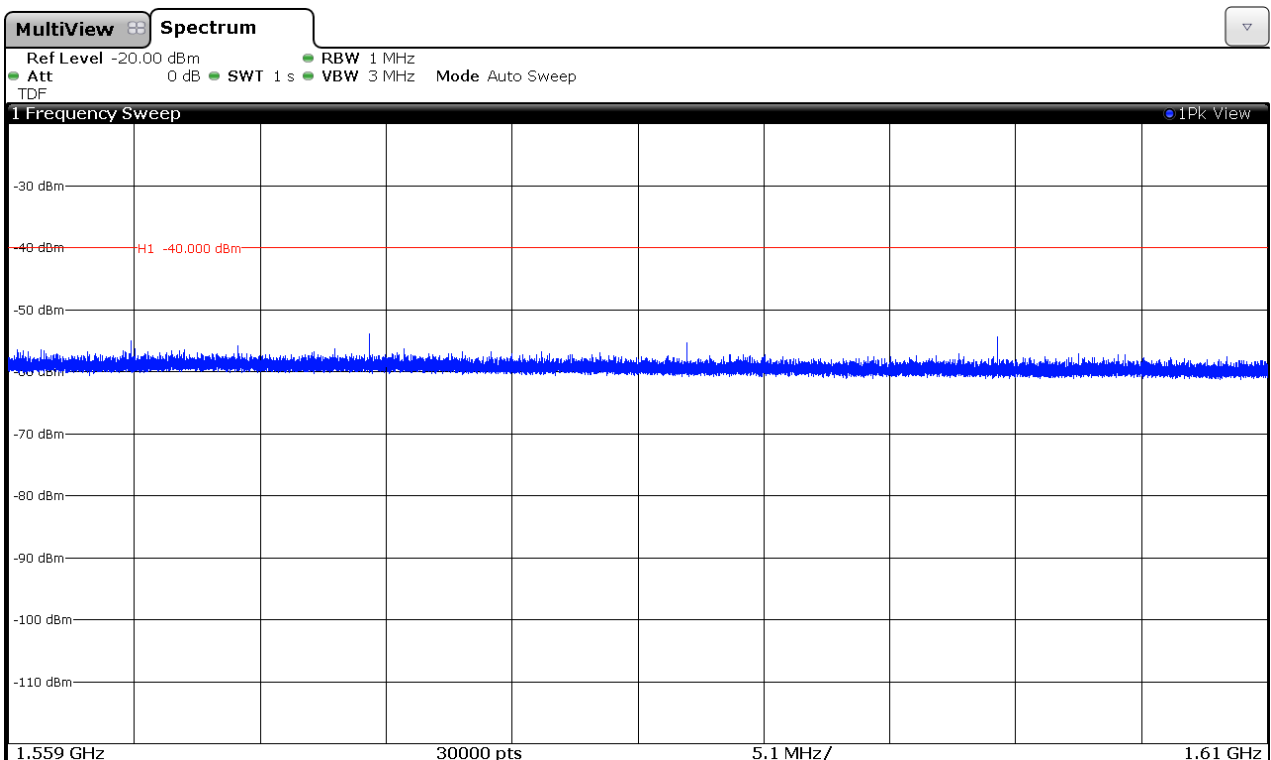
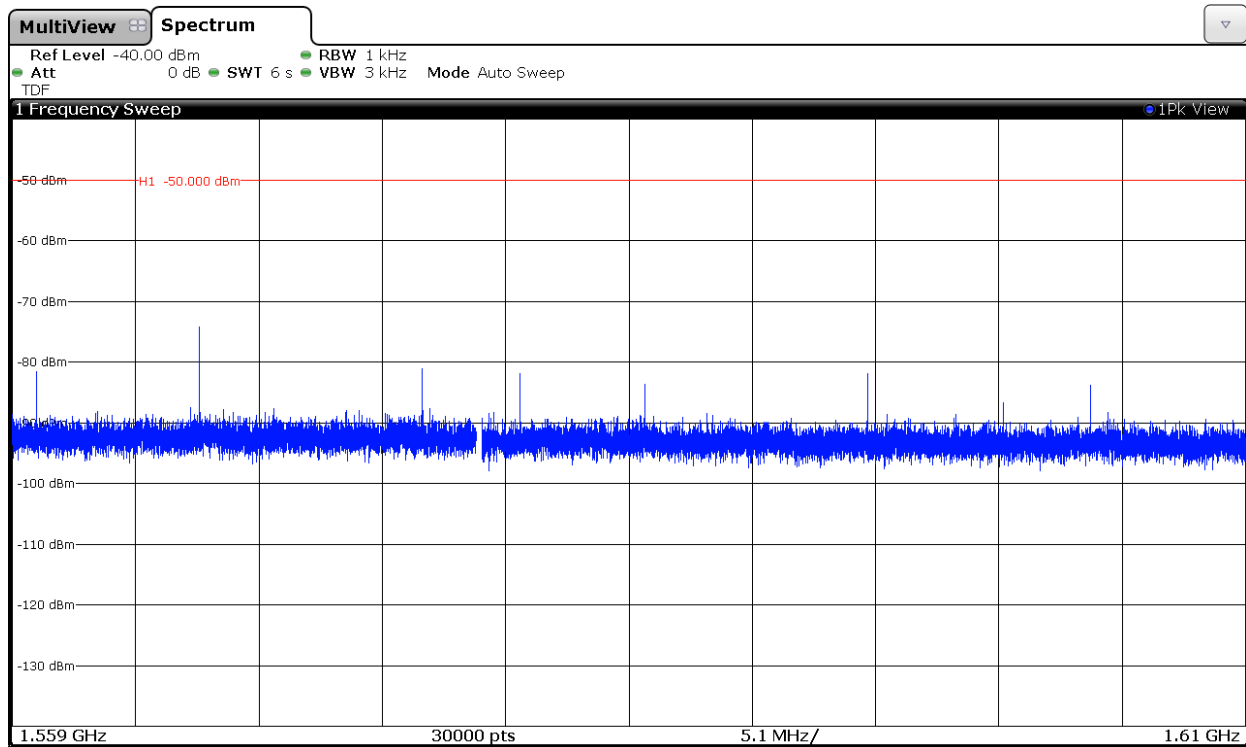


CHANNEL: HIGHEST.



FREQUENCY RANGE 1559 MHz to 1610 MHz.

CHANNEL: LOWEST.



CHANNEL: HIGHEST.

