



MOTOROLA SOLUTIONS

D-Series M12 700MHz C2PC

Report on Test Measurements for FCC ID
ABZ89FT5912, IC 109AB-T5912, HVIN T8899-700H
per FCC 47 CFR 90 and IC RSS-119

Matt Nawrocki

8/24/2026

Report on Test Measurements

Tested Unit Details

Model Under Test	D-Series M12 700MHz UHFR1
T-Model Number	T8899A
Serial Number	700VHPEMC
Firmware Version	Dseries_bundle-9.10.31
DSC8500 Site Processors (PMLN7832A)	CAI26SFWTT, CAI25PW7GS
Band of Operation	Transmit 768-776MHz
Modulation Type	C4FM, LSM, H-DQPSK
Antenna Type	N/A*
Antenna Gain (dBi)	N/A
Manufacturer	Motorola Solutions 2540 Galvin Drive, Elgin, IL 60124

*The product is not sold with an antenna. The customer provides their own antenna for installation. RF testing was performed with RF Cables connecting the base radio to attenuators/test equipment for measurement. Emissions testing had the amplifier connected to an RF load through RF cables. A sample antenna is used for EME calculations as part of the application for certification.

Measurement Uncertainty

Measurement	Frequency	Expanded Uncertainty
RF Power Output	50MHz-10GHz	+/-0.132dB
Carrier Frequency Stability	9kHz-13GHz	+/-0.368Hz
Occupied Bandwidth	9kHz-13GHz	+/-0.52dB
Transmitter Conducted Spurious Emissions	9kHz-13GHz	+/-0.64dB
Transient Frequency Behavior	9kHz-13GHz	+/-2.04dB
Modulation Characteristics	100Hz-5000Hz	+/-0.40dB
Radiated Emissions	30MHz-1000MHz	4.3dB**
Radiated Emissions	1GHz-6GHz	3.1dB**

** Information from Elite Electronic Engineering radiated emissions test report.

Report on Test Measurements

Test Results Summary

Test	47 CFR Reference	RSS-119 Reference	Results
RF Output Power	2.1046	4.1,5.4	Pass
Occupied Bandwidth	2.1049	5.5	Pass
Conducted Spurious Emissions	2.1051	4.2,5.8	Pass
Radiated Spurious Emissions	2.1053 90.210	4.2,5.8	Pass
Frequency Stability	2.1055	5.3	Pass
Frequency Transient Behavior	90.214	5.9	Pass
Modulation Characteristics	2.1047		N/A*

* No analog modulation capability

Test Standards:

Title 47 Part 2 of Code of Federal Regulations

Title 47 Part 90 of Code of Federal Regulations

RSS-119 Land Mobile and Fixed Equipment Operating in the Frequency Range 27.41-960 MHz Issue 12

ANSI C63.26-2015 American National Standard for Compliance Testing of Transmitters

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ANSI C63.4-2014 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range 9 kHz to 40 Ghz

Report on Test Measurements

Motorola Solutions Schaumburg Lab RF Testing Process

RF testing by the Motorola Solutions Schaumburg Lab are performed per the standards referenced in the test results summary. The lab performs these measurements in the test location documented below. The test lab has been accredited by A2LA for each of these measurements.

The test lab performs the measurements using commercial off-the-shelf (COTS) test equipment setup in automated test systems. These measurements are automated using LabVIEW software developed in the lab. Path losses are characterized using a network analyzer. The measured losses are stored in files for each RF path to be retrieved during the testing to provide the final measurements.

TX Conducted emissions measurements are measured using a notch filter to remove the fundamental signal to improve measurement dynamic range. TX Conducted Harmonics measurements use high pass filters to remove the fundamental signal to improve measurement dynamic range. Simplified measurement system diagrams and pictures are included at the end of this report.

Radiated Emissions Measurements

Radiated Emissions measurements were not performed for this permissive change filing after discussions with Elite Electronic Engineering in Downers Grove, IL.

Test Lab Information:

Lab Name	Address	Accreditation Body	Certificate Number	Expiration Date
Motorola Solutions, Inc., Schaumburg Lab	2000 Progress Parkway Schaumburg, IL 60196	A2LA	2518.09	June 30, 2027

Report on Test Measurements

System Cabling

General Product Description: The D-Series M12 product is a full RF Site product. The rack contains up to 12 transceivers, 6 power amplifiers, 2 DSC8500 site processors and a radio frequency distribution system (RFDS). Additionally the RF site contains optional switches and a AC power shelf. The system can support up to 12 RF channels and up to 90W RF power per channel depending on the configuration.

The system as configured for this testing was setup to support maximum power and power combining components to have a single transmitter output connection from a TX filter as supplied in the site. This measurement point is considered the rack output point for RF measurements.

For this testing 48VDC was provided to the Junction Panel to power the RF Site. The optional 2nd TX bank was not installed. 6 PAs and 12 XCVRs were installed in the rack.

Junction Panel (Open Rack Only) (Cabinet has junction panel included in the top lid)	2RU
Breaker Access	3RU
Bank 1 TX Post Filter/PMU RX Preselector (Optional) Bank 2 TX Post Filter/PMU (Optional) Diversity Preselector Branch B	5RU
Airflow	
RMC Cage (1-2 site RMC, 1-4 Cabinet RMC)	5RU
N-way Combiner (1 per TX Antenna)	2RU
PA Cardcage Power Amplifiers PA Fan Kits (3), Filter, and Air Intake N-way Splitter (1 Per TX Antenna)	13RU
Transceiver Cardcage (qty 1-12) with dual 6 way exciter combiner	5RU
Cable bracket	1RU
DSC 8500	1RU
DSC 8500	1RU
Cable bracket	1RU
(Optional) Redundant Gateway (Juniper SRX 345)	1RU
Gateway (Juniper SRX 345)	1RU
(Optional) AC Supply	4RU

Report on Test Measurements

Measurements Report

The measurement report shows compliance information against the pertinent technical standards. Each parameter is measured generally at the low end, middle, and at the high end of the applicable frequency band. Each section of the report contains either verbiage or graphs which show compliance to applicable standards as required, explains testing method used, and indicates what the applicable specification is.

A list of test equipment for all sections, and certification signoff page are included at the end of the measurement report.

SUBMITTED MEASURED DATA -- INDEX

EXHIBIT DESCRIPTION

E1-1 RF Output-Data

E1-2 Adjacent Channel Power: Setup, Specifications, and Index (H-DQPSK / LSM, C4FM)
E1-2.1 ACP Results <400 kHz for H-DQPSK , LSM, C4FM
E1-2.2, 3, 4 ACP Results >400 kHz for H-DQPSK Low End / Middle / High End of band
E1-2.5, 6, 7 ACP Results >400 kHz for LSM, Low End / Middle / High End of band
E1-2.8, 9,10 ACP Results >400 kHz for C4FM, Low End / Middle / High End of band

E1-3 Conducted Spurious Emissions: Setup, Specifications, and Index
E1-3.1 LSM Conducted Spurious Harmonic Emissions, Power 90 Watts (Average)
E1-3.2 LSM Conducted Spurious Harmonic Emissions, Power 2 Watts (Average)
E1-3.3 C4FM Conducted Spurious Harmonic Emissions, Power 90 Watts
E1-3.4 C4FM Conducted Spurious Harmonic Emissions, Power 2 Watts
E1-3.5 H-DQPSK Conducted Spurious Harmonic Emissions, Power 90 Watts
E1-3.6 H-DQPSK Conducted Spurious Harmonic Emissions, Power 2 Watts

E1-4 Radiated Spurious Emissions: Setup, Specifications, and Index

E1-4.1 C4FM Radiated Spurious Harmonic Emissions, Power 90 Watts 768MHz
E1-4.2 C4FM Radiated Spurious Harmonic Emissions, Power 2 Watts 768MHz
E1-4.3 LSM Radiated Spurious Harmonic Emissions, Power 90 Watts 769MHz
E1-4.4 LSM Radiated Spurious Harmonic Emissions, Power 2 Watts 769MHz
E1-4.5 C4FM Radiated Spurious Harmonic Emissions, Power 90 Watts 771.5MHz
E1-4.6 C4FM Radiated Spurious Harmonic Emissions, Power 2 Watts 771.5MHz
E1-4.7 H-DQPSK Radiated Spurious Harmonic Emissions, 90 Watts 772.5MHz
E1-4.8 H-DQPSK Radiated Spurious Harmonic Emissions, 2 Watts 772.5MHz
E1-4.9 C4FM Radiated Spurious Harmonic Emissions, Power 90 Watts 775MHz
E1-4.10 C4FM Radiated Spurious Harmonic Emissions, Power 2 Watts 775MHz
E1-4.11 LSM Radiated Spurious Harmonic Emissions, 90 Watts 776MHz
E1-4.12 LSM Radiated Spurious Harmonic Emissions, Power 2 Watts 776MHz
E1-4.13 Radiated Spurious Harmonic Emissions, Power Output 90 Watts (Average), 1559-1610 MHz
E1-4.14 Radiated Spurious Harmonic Emissions, Power Output 2 Watts (Average), 1559-1610 MHz
E1-4.15 Radiated Spurious Harmonic Emissions, Power Output 90 Watts (Average) RSS119, 768 MHz, C4FM
E1-4.16 Radiated Spurious Harmonic Emissions, Power Output 2 Watts (Average) RSS119, 768 MHz, C4FM
E1-4.17 Radiated Spurious Harmonic Emissions, Power Output 90 Watts (Average) RSS119, 769 MHz, LSM
E1-4.18 Radiated Spurious Harmonic Emissions, Power Output 2 Watts (Average) RSS119, 769 MHz, LSM
E1-4.19 Radiated Spurious Harmonic Emissions, Power Output 90 Watts (Average) RSS119, 771.5 MHz, C4FM
E1-4.20 Radiated Spurious Harmonic Emissions, Power Output 2 Watts (Average) RSS119, 771.5 MHz,

Report on Test Measurements

	C4FM
E1-4.21	Radiated Spurious Harmonic Emissions, Power Output 90 Watts (Average) RSS119, 772.5 MHz, H-DQPSK
E1-4.22	Radiated Spurious Harmonic Emissions, Power Output 2 Watts (Average) RSS119, 772.5 MHz, H-DQPSK
E1-4.23	Radiated Spurious Harmonic Emissions, Power Output 90 Watts (Average) RSS119, 775MHz, C4FM
E1-4.24	Radiated Spurious Harmonic Emissions, Power Output 2 Watts (Average) RSS119, 775 MHz, C4FM
E1-4.25	Radiated Spurious Harmonic Emissions, Power Output 90 Watts (Average) RSS119, 776 MHz, LSM
E1-4.26	Radiated Spurious Harmonic Emissions, Power Output 2 Watts (Average) RSS119, 776 MHz, LSM
E1-5	Frequency Stability: Setup, Specifications, and Index
E1-5.1	Frequency Stability Vs Temperature
E1-5.2	Frequency Stability Vs Voltage
E1-6	Test Setup Details
E1-7	Statement of Certification

Report on Test Measurements

RF Power Output Data

The RF power output was measured with the indicated voltage applied to the RF Site. The Power indicated is the measured power at the output of the TX Filter. C4FM/LSM/H-DQPSK Max Power requested is 90W. Low Power requested is 2W. The signals are modulated as noted.

Power measurements are obtained using a Rohde & Schwarz Power Sensor (NRP-Z11). The output of the base radio is connected to a directional coupler and attenuator through an RF cable and routed to the power sensor. The reported output power takes into account the path losses through the RF cables, attenuator, coupler to the power sensor. This number is measured prior to testing using a network analyzer. Average power is reported.

The current measured includes the power necessary to power the entire, fully-loaded rack with 1 channel transmitting.

Limits (RSS-119):

Lower Power (2W): Lower Limit 1.59W (-1dB), Upper Limit 2.52W (+1dB)

Max Power (90W): Lower Limit 71.5W (-1dB), Upper Limit 113.3W (+1dB)

C4FM Modulation

Temperature	25°C				
Voltage (V)	48V				
Frequency (MHz)	Low Power (W)	Current (A)	Max Power (W)	Current (A)	Result
768	2.12	38.43	92.46	49.41	Pass
772	2.14	38.42	96.09	49.32	Pass
776	2.17	38.45	97.58	50.19	Pass

LSM Modulation

Temperature	25°C				
Voltage (V)	48V				
Frequency (MHz)	Low Power (W)	Current (A)	Max Power (W)	Current (A)	Result
768	2.16	38.46	90.68	49.70	Pass
772	2.15	38.47	97.76	49.32	Pass
776	2.12	38.46	97.73	50.07	Pass

H-DQPSK Modulation

Temperature	25°C				
Voltage (V)	48V				
Frequency (MHz)	Low Power (W)	Current (A)	Max Power (W)	Current (A)	Result
768	2.07	38.46	88.77	49.35	Pass
772	2.15	38.45	98.74	49.26	Pass
776	2.14	38.49	98.88	50.21	Pass

Report on Test Measurements

Adjacent Channel Power (ACP) Requirements

The transmitter can utilize various modulation modes as determined by customer requirements, channel usage, and system configuration as described in Exhibit B. These modulations are: linear modulations which operate at 90 Watts (average) in 12.5 kHz channels, and Compatible 4-Level Frequency Modulation (C4FM) which is a non linear modulation and operates in 12.k kHz channels at 90 Watts. The two types of linear modulations are similar, Linear Simulcast Modulation (LSM) is for FDMA applications, and H-DQPSK is for TDMA applications. For purposes of the ACP performance present in this exhibit, both of these linear modulations perform similarly and data from only one of them is presented. All of the following charts reference the following setup and specification requirements for the modes summarized as follows:

Modulation Type:	LSM / H-DQPSK	C4FM
Channelization:	12.5 kHz	12.5 kHz
Power Setting:	Average 90 Watts	Average 90 Watts

Specification Requirement Limits: FCC §90.543, §27.53 and IC RSS-119 section 5.8.9

§ 90.543	Emission limits: For operation in the 769-775 MHz Band
§ 27.53	Emission limits: For operation in the 775-776 MHz Band
119-5.8.9	Emission limits: For operation in the 768-776 MHz Band

ACCP Tables per 90.543(a), 27.53(e)(6), RSS-119 Sec 5.8.9 Table 13 & 14: For base transmitters designed to operate with a 12.5 kHz channel bandwidth, the ACCP shall be in accordance to the following table.

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACCP (dBc)
9.375	6.25	-40
15.625	6.25	-60
21.875	6.25	-60
37.50	25	-60
62.50	25	-65
87.50	25	-65
150.00	100	-65
250.00	100	-65
350.00	100	-65
≥ 400 kHz to 12 MHz 30 (swept)	30 (swept)	-80
12 MHz to paired receive band	30 (swept)	-80
In the paired receive band	30 (swept)	-100

Report on Test Measurements

Adjacent Channel Coupled Power (ACCP) Requirements

ACP measurement procedure: For all measurements modulate the transmitter as it would be modulated in normal operating conditions. The ACP measurements may be made with a spectrum analyzer capable of making direct ACP measurements. "Measurement bandwidth", as used for non-swept measurements, implies an instrument that measures the power in many narrow bandwidths equal to the nominal resolution bandwidth and integrates these powers to determine the total power in the specified measurement bandwidth.

(1) *Setting reference level.* Set transmitter to maximum output power. Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth to the channel size. Set the frequency offset of the measurement bandwidth to zero and adjust the center frequency of the instrument to the assigned center frequency to measure the average power level of the transmitter. Record this power level in dBm as the "reference power level".

(2) *Non-swept power measurement.* Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth and frequency offset from the assigned center frequency as shown in the tables above. Any value of resolution bandwidth may be used as long as it does not exceed 2 percent of the specified measurement bandwidth. Measure the power level in dBm. These measurements should be made at maximum power. Calculate ACP by subtracting the reference power level measured in (1) from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

(3) *Swept power measurement.* Set a spectrum analyzer to 30 kHz resolution bandwidth, 1 MHz video bandwidth and average, sample, or RMS detection. Set the reference level of the spectrum analyzer to the RMS value of the transmitter power. Sweep above and below the carrier frequency to the limits defined in the tables. Calculate ACP by subtracting the reference power level measured in (1) from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

Measurement results:

For measurements less than or equal to 400 kHz offset from the center frequency, the ACCP results are shown in Tabular format. For measurements great than 400 kHz offset from the center frequency, the ACCP results are shown in Graphical format. The results shown are from testing performed at the base radio level without the use of any external transmit filtering.

All results show sufficient margin to the specified requirements.

EXHIBIT	DESCRIPTION
E1-2.1	ACP Tabular Results – Offsets < 400 kHz H-DQPSK , LSM, and C4FM Modes
E1-2.2, 3, 4	ACP Results >400 kHz for H-DQPSK Low End / Middle / High End of band
E1-2.5, 6, 7	ACP Results >400 kHz for LSM, Low End / Middle / High End of band
E1-2.8, 9, 10	ACP Results >400 kHz for C4FM, Low End / Middle / High End of band

Report on Test Measurements

ACP Test Results for offset frequencies < 400 kHz

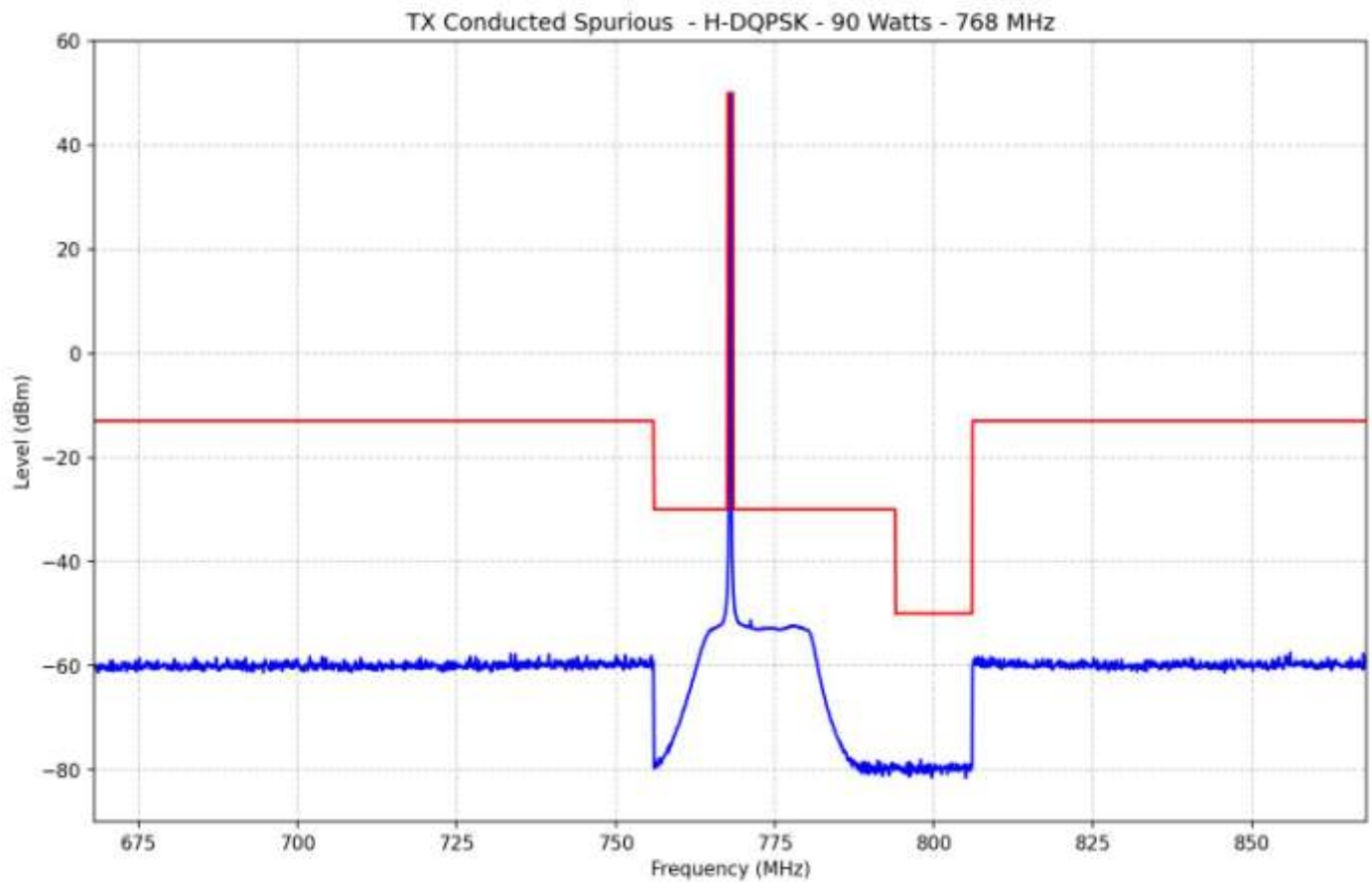
ACP Test Results: H-DQPSK, Pout = 90 Watts (avg), Channel Spacking = 12.5 kHz								
FCC/IC Requirements			Measurement Results					
Offset from Center Freq (kHz)	Measurement BW (kHz)	Maximum ACP (dBc)	768 MHz		772 MHz		776 MHz	
			Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)	Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)	Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)
± 9.375	6.25	-40	41.8304	41.1624	41.6073	41.1779	41.6255	41.263
± 15.625	6.25	-60	81.2089	81.2333	80.9269	80.838	80.4773	80.6968
± 21.875	6.25	-60	83.0679	83.2034	83.1569	83.0611	82.277	82.2158
± 37.5	25	-60	79.5511	79.4693	79.3917	79.3666	78.9518	78.9726
± 62.5	25	-65	80.8257	80.84	80.7596	80.7655	80.0564	80.1816
± 87.5	25	-65	81.5395	81.4836	81.5559	81.532	80.8857	80.7184
± 150	100	-65	77.5604	77.4954	77.4882	77.3515	77.3227	77.2407
± 250	100	-65	80.0356	80.0969	80.0055	80.0299	79.8789	79.907
± 350	100	-65	80.764	80.7653	80.8566	80.8207	80.7032	80.646

ACP Test Results: LSM, Pout = 90 Watts (avg), Channel Spacking = 12.5 kHz								
FCC/IC Requirements			Measurement Results					
Offset from Center Freq (kHz)	Measurement BW (kHz)	Maximum ACP (dBc)	768 MHz		772 MHz		776 MHz	
			Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)	Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)	Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)
± 9.375	6.25	-40	43.2436	42.5578	43.265	42.5736	43.2151	42.4998
± 15.625	6.25	-60	81.2985	81.3912	81.2549	81.3546	80.6998	80.6605
± 21.875	6.25	-60	83.1964	83.0335	83.2025	83.1845	82.2817	82.3048
± 37.5	25	-60	79.4135	79.534	79.7916	79.3613	79.0303	79.0141
± 62.5	25	-65	80.8118	80.8648	80.6604	80.664	80.2799	80.3018
± 87.5	25	-65	81.583	81.5392	81.4766	81.5082	80.9905	80.9182
± 150	100	-65	77.5047	77.5926	77.6127	77.5507	77.373	77.4374
± 250	100	-65	80.1525	80.0915	79.9582	79.9706	79.9041	79.8521
± 350	100	-65	80.8465	80.8886	80.7468	80.7419	80.8023	80.8247

ACP Test Results: C4FM, Pout = 90 Watts, Channel Spacking = 12.5 kHz								
FCC/IC Requirements			Measurement Results					
Offset from Center Freq (kHz)	Measurement BW (kHz)	Maximum ACP (dBc)	768 MHz		772 MHz		776 MHz	
			Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)	Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)	Max ACP at low side offset freq (dBc)	Max ACP at high side offset freq (dBc)
± 9.375	6.25	-40	41.2725	41.8475	41.3027	41.7991	41.3109	41.7363
± 15.625	6.25	-60	81.7386	81.6581	81.5793	81.295	81.2389	81.1293
± 21.875	6.25	-60	83.4305	83.3821	83.3146	83.2017	82.4665	82.4952
± 37.5	25	-60	79.6925	79.6868	79.4942	79.6249	79.2745	79.3346
± 62.5	25	-65	81.1652	81.1288	81.0268	81.0609	80.5991	80.6126
± 87.5	25	-65	81.9541	81.927	81.8203	81.8367	81.3078	81.269
± 150	100	-65	78.1682	78.1309	78.0708	78.061	78.016	78.049
± 250	100	-65	81.18	81.1589	81.0503	81.0847	80.9677	81.0206
± 350	100	-65	82.3535	82.3215	82.1117	82.1313	82.0393	82.1207

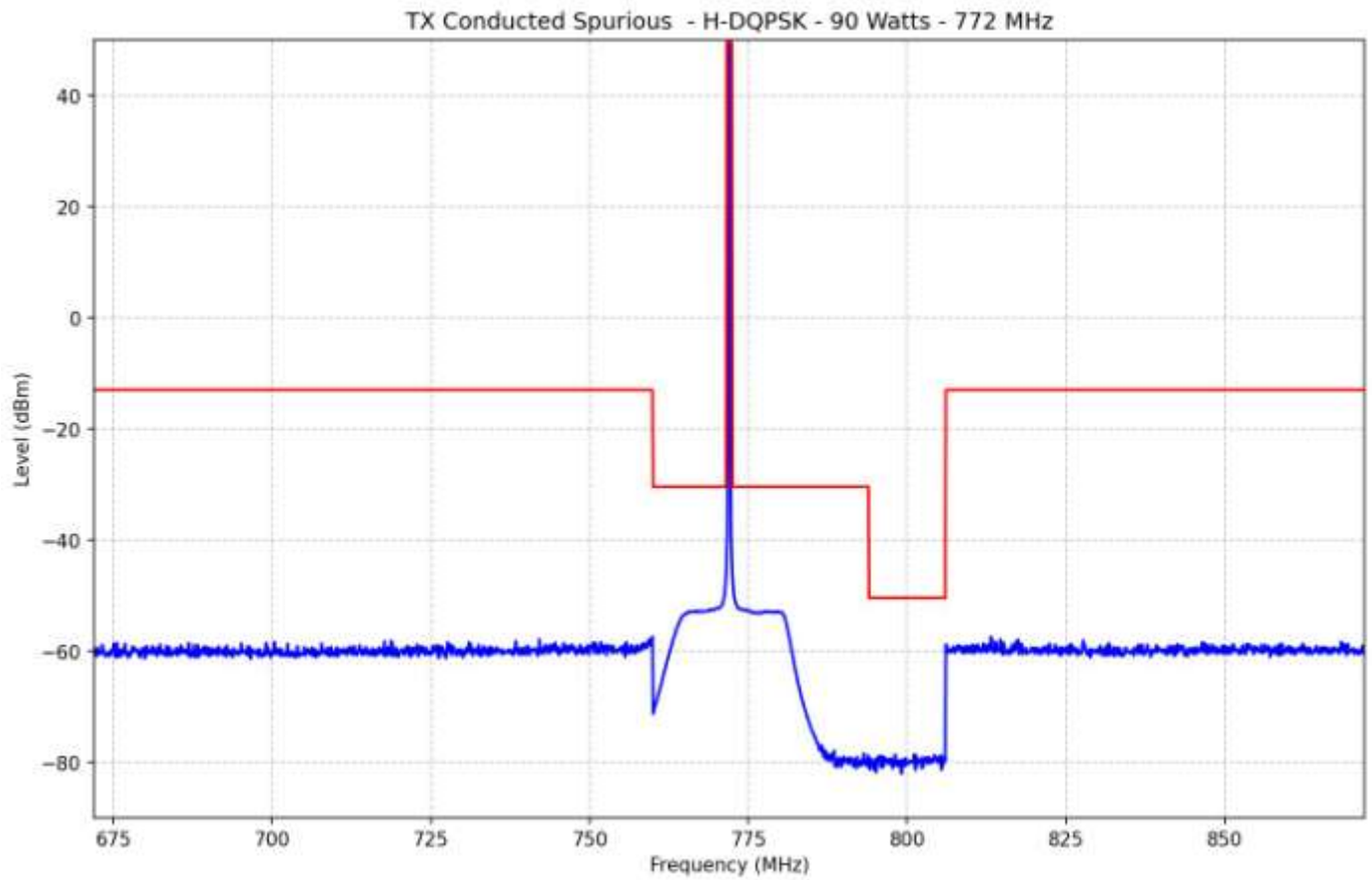
Report on Test Measurements

Swept ACCP – H-DQPSK, P25 Two Slot TDMA Digital Modulation – Emission Designator: 9K80D7E, 9K80D7D, 9K80D7W, Low End of Band



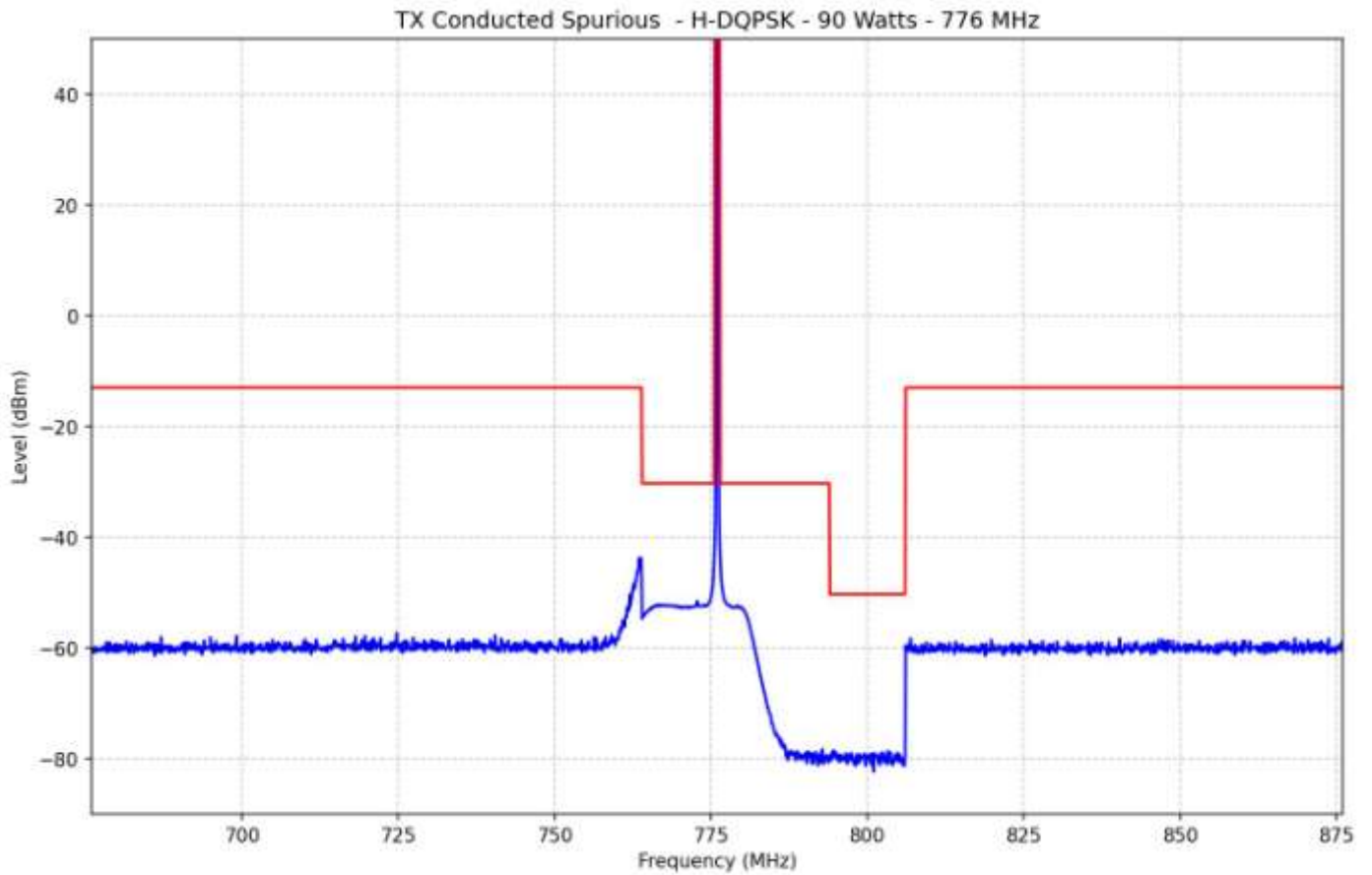
Report on Test Measurements

Swept ACCP – H-DQPSK, P25 Two Slot TDMA Digital Modulation – Emission Designator: 9K80D7E, 9K80D7D, 9K80D7W, Mid Band



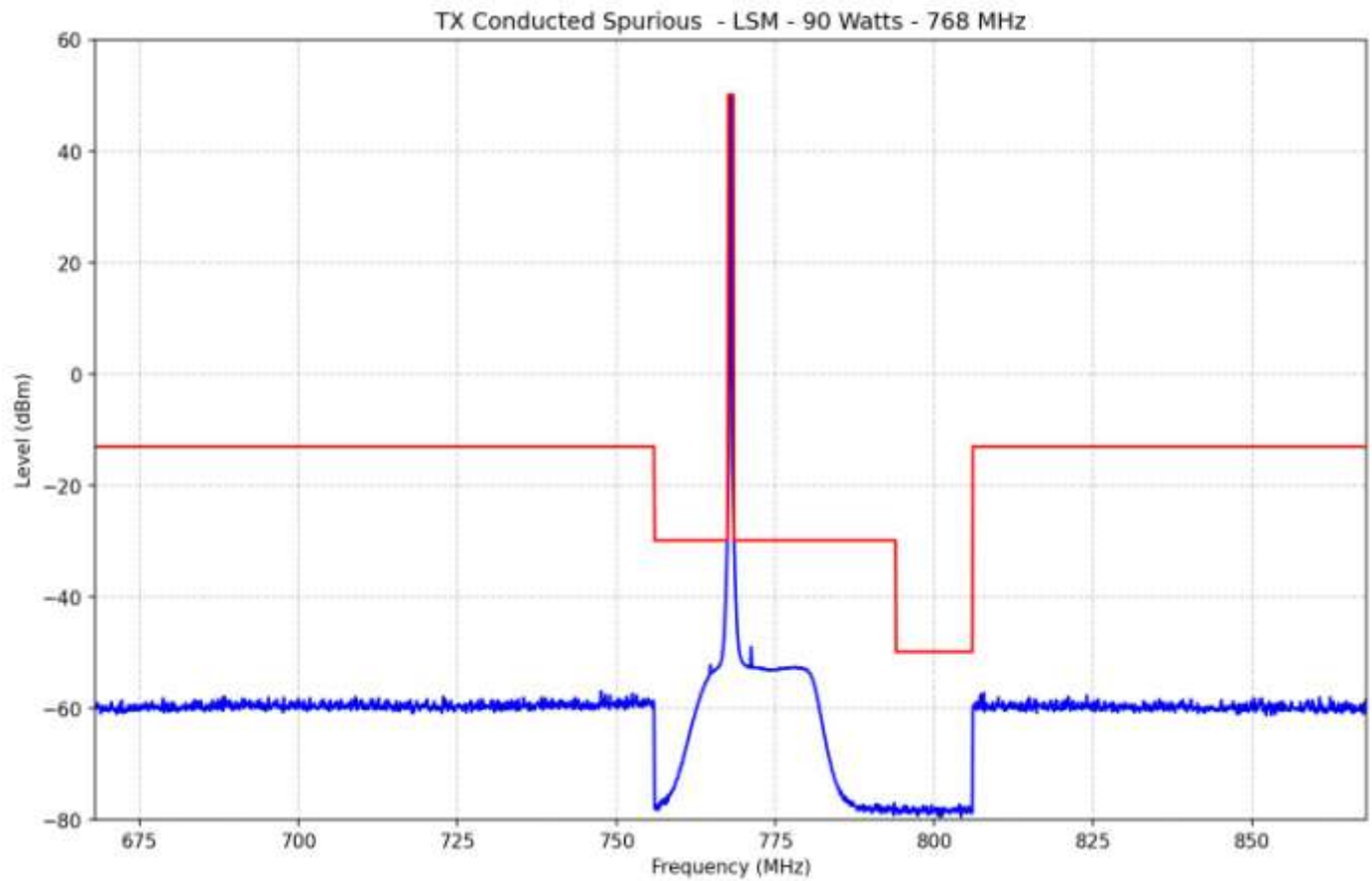
Report on Test Measurements

Swept ACCP – H-DQPSK, P25 Two Slot TDMA Digital Modulation – Emission Designator: 9K80D7E, 9K80D7D, 9K80D7W, High End of Band



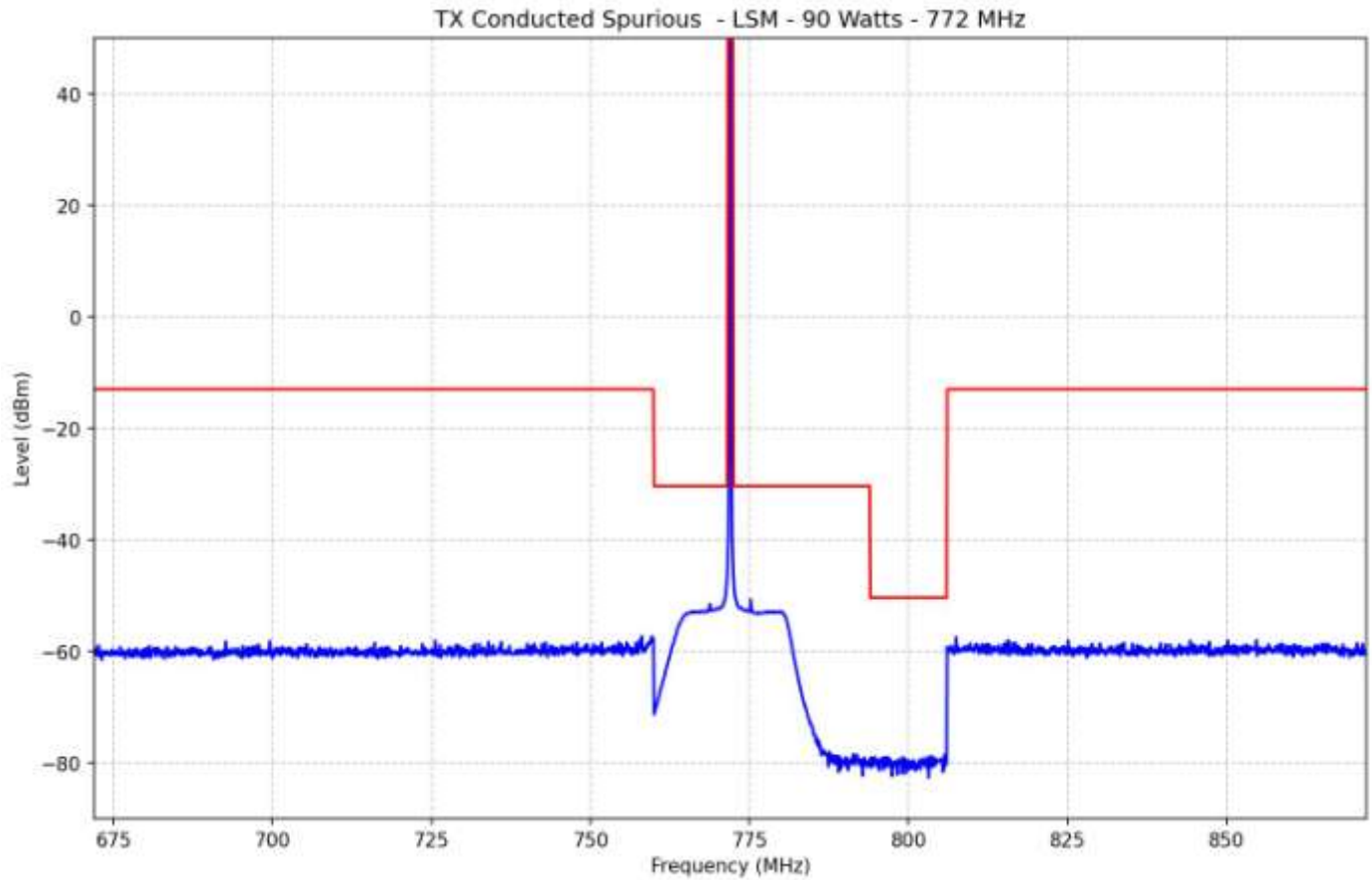
Report on Test Measurements

Swept ACCP – Linear Simulcast Modulation (LSM) – Emission Designator: 8K70D1E, 8K70D1D, 8K70D1W – Low End of Band



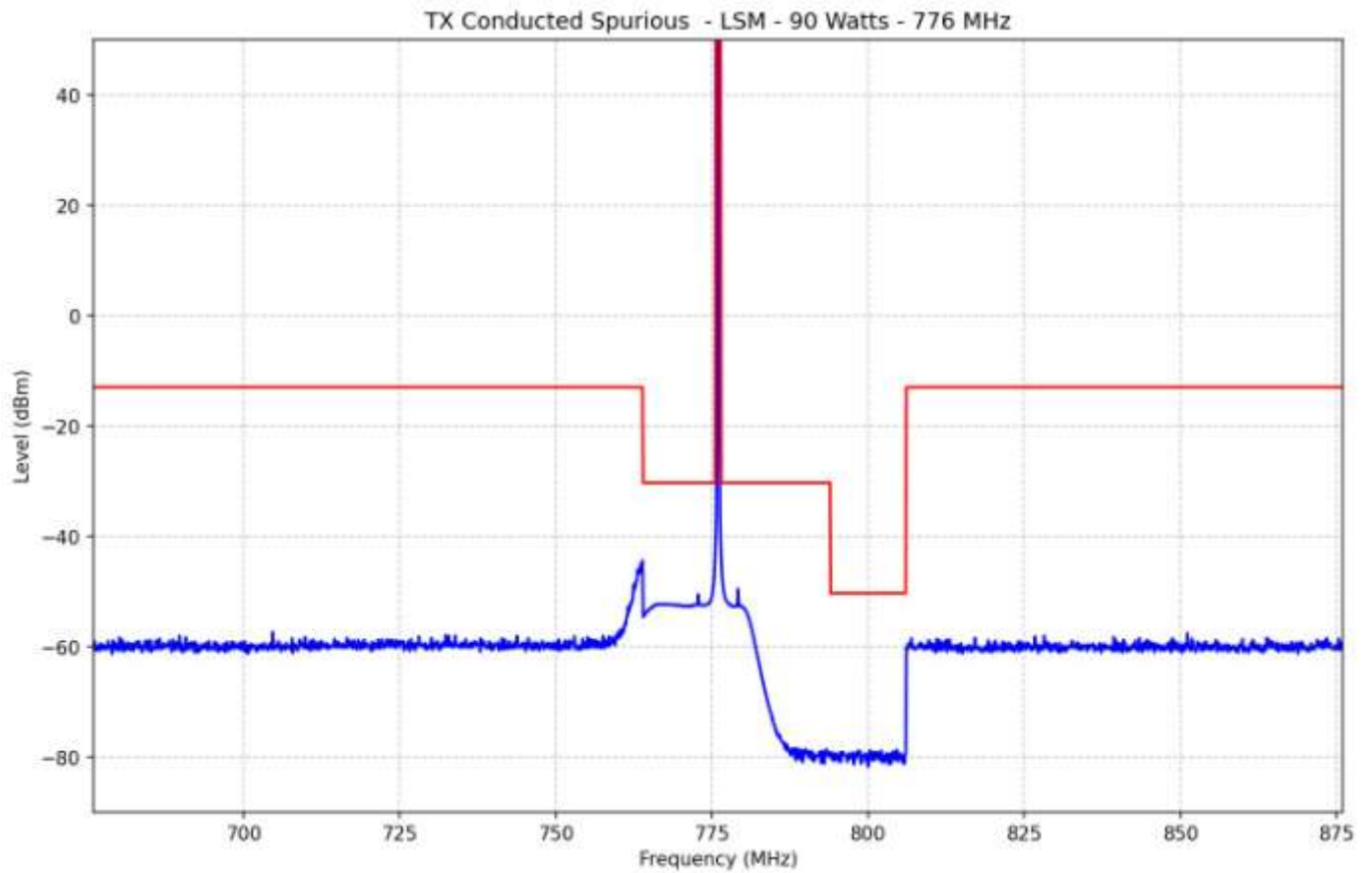
Report on Test Measurements

Swept ACCP – Linear Simulcast Modulation (LSM) – Emission Designator: 8K70D1E, 8K70D1D, 8K70D1W – Middle of Band



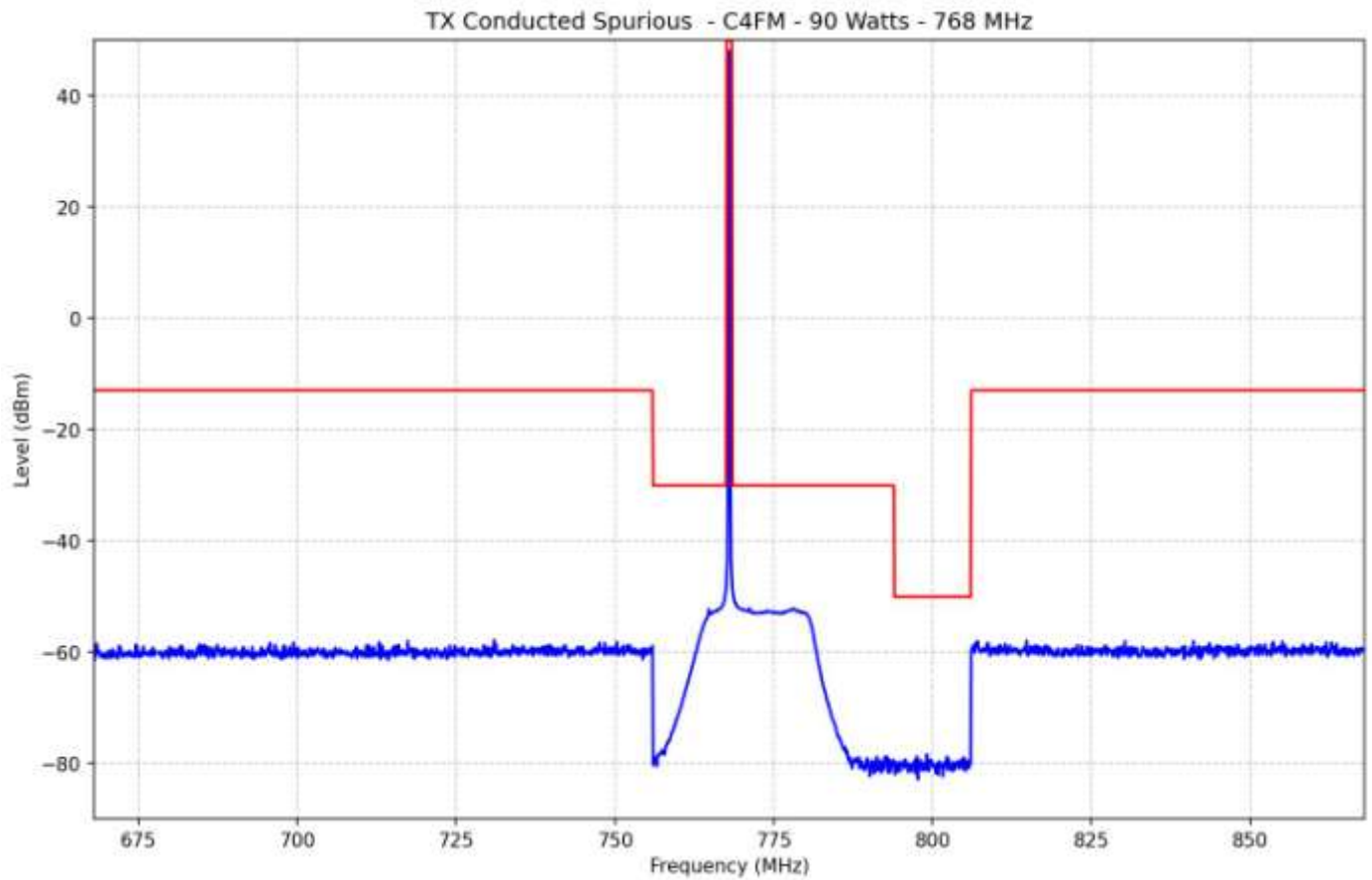
Report on Test Measurements

Swept ACCP – Linear Simulcast Modulation (LSM) – Emission Designator: 8K70D1E, 8K70D1D, 8K70D1W – High End of Band



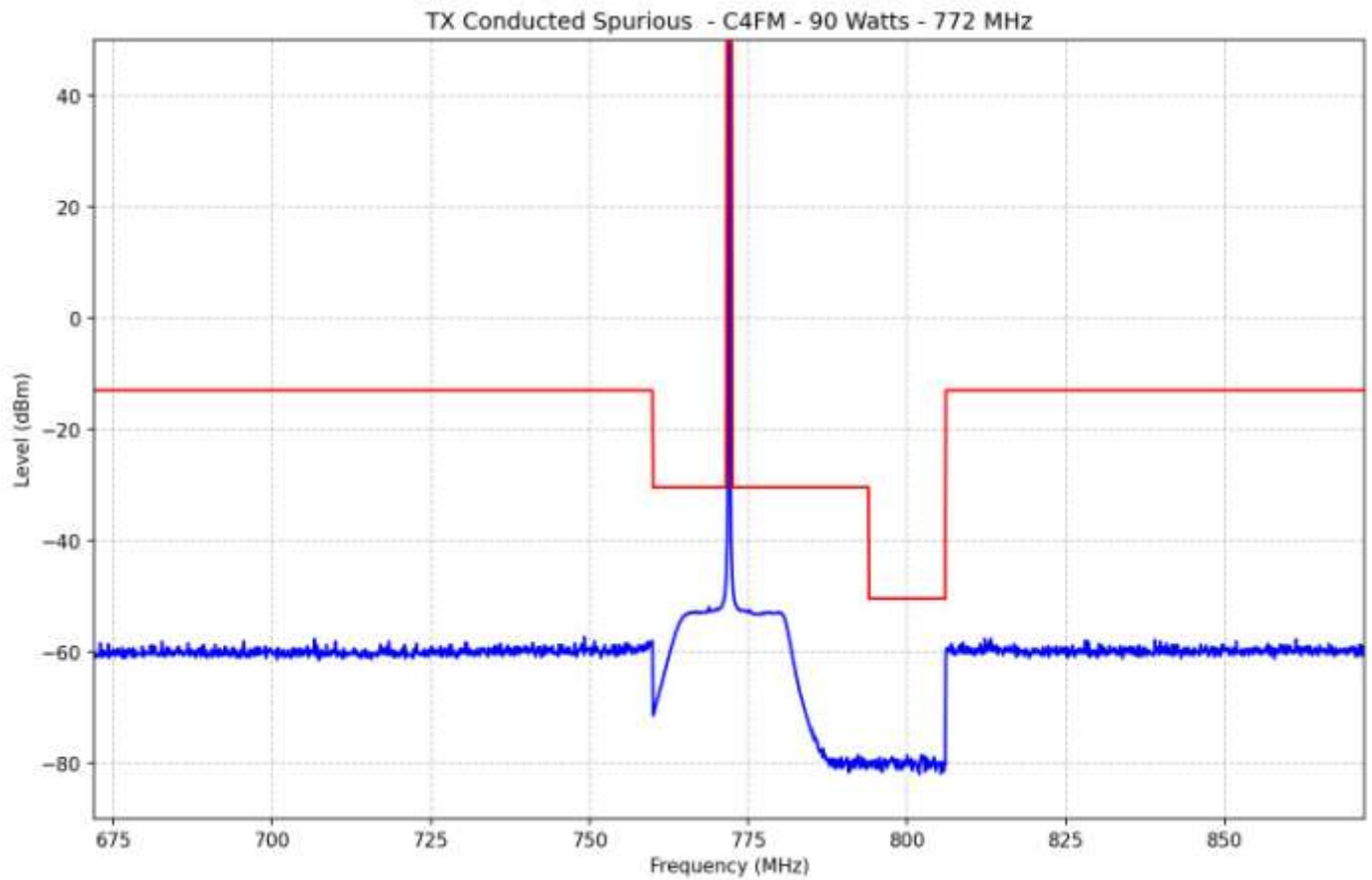
Report on Test Measurements

Swept ACCP – Compatible 4-Level Frequency Modulation (C4FM) – Emission Designator: 8K10D1E, 8K10D1D, 8K10D1W, Low End of Band



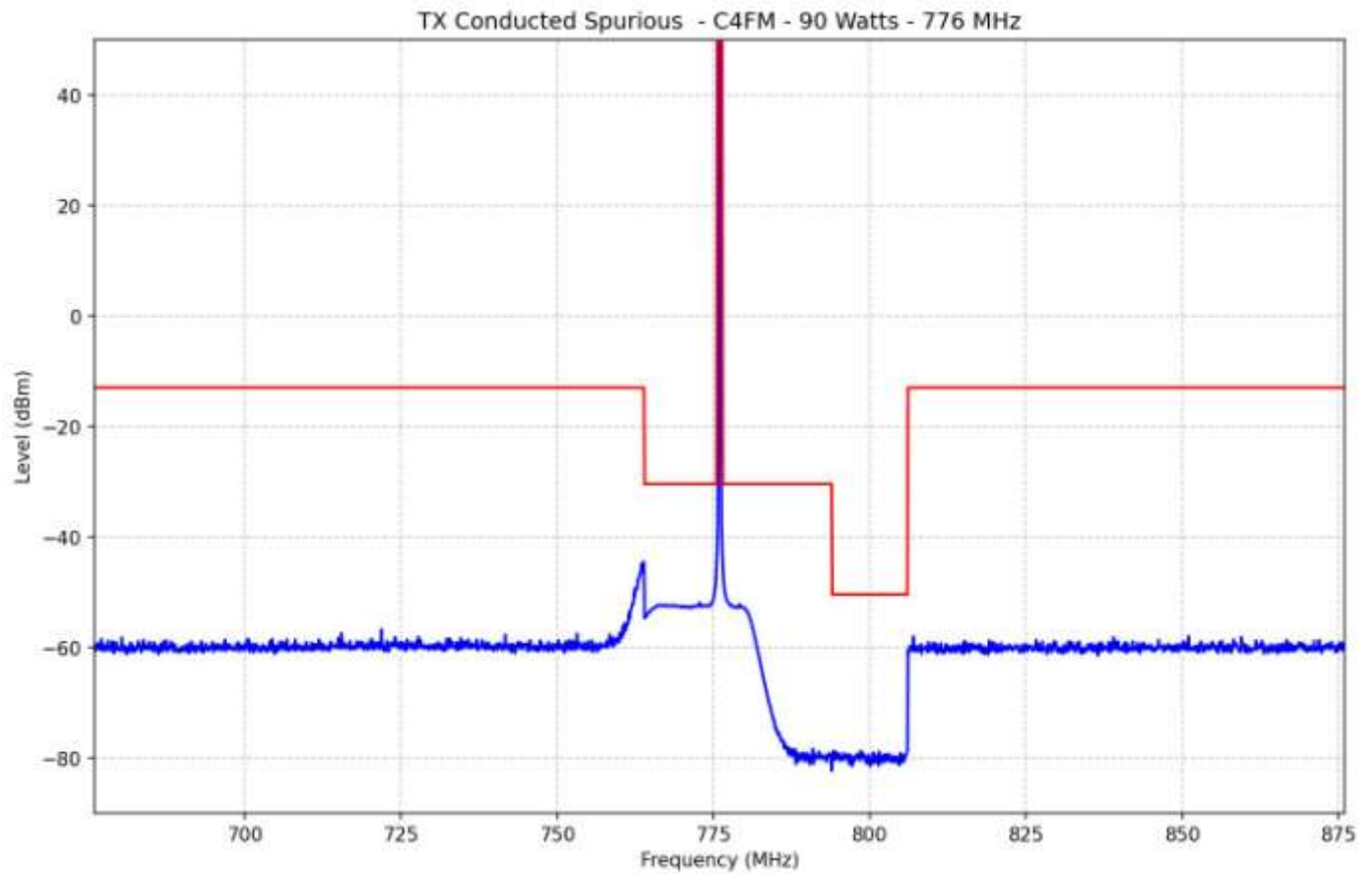
Report on Test Measurements

Swept ACCP – Compatible 4-Level Frequency Modulation (C4FM) – Emission Designator: 8K10D1E, 8K10D1D, 8K10D1W, Middle of Band



Report on Test Measurements

Swept ACCP – Compatible 4-Level Frequency Modulation (C4FM) – Emission Designator: 8K10D1E, 8K10D1D, 8K10D1W, High End of Band



Report on Test Measurements

Conducted Spurious Emissions – Harmonics and Emission Spectrum

Specification Requirement RSS-119 section 5.8.9.2, FCC § 90.543(c), and 27.53(d)(3) Emission Limits:

Out-of-band emission limit: On any frequency outside of the frequency ranges covered by the ACP tables in this section, the power of any emission must be reduced below the mean output power (P): *At least 43 plus 10 log₁₀(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.

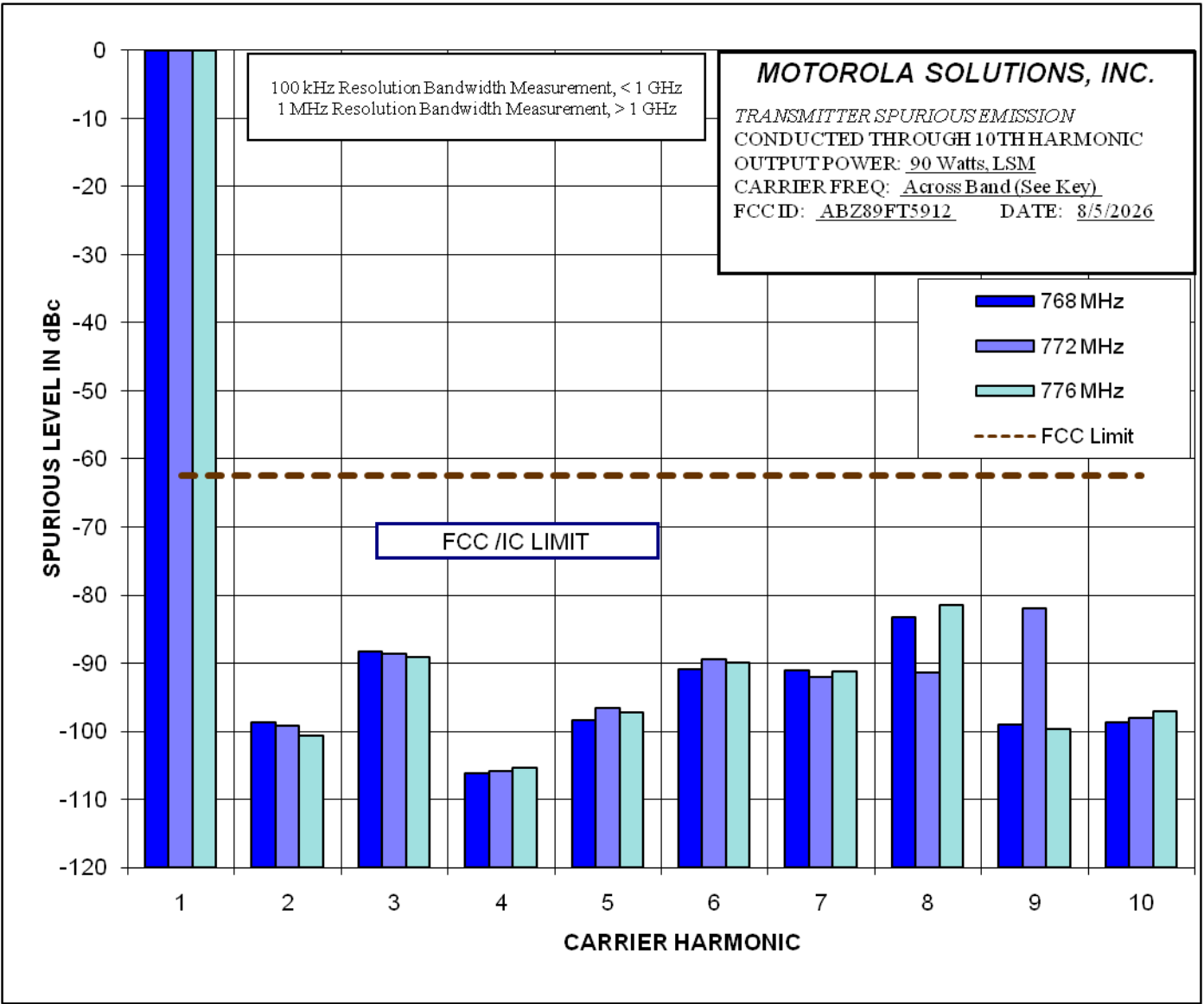
Modulation: Linear Simulcast Modulation (LSM), Compatible 4-Level Frequency Modulation (C4FM) or P25 Two Slot TDMA Digital Modulation (H-DQPSK) as indicated

Carrier Frequencies: Carrier frequencies of 768, 772, and 776 MHz were measured for conducted carrier harmonics and conducted emission. These frequencies represent the low end, center, and high end of the 768-776 MHz band, and are representative of the full operating band.

EXHIBIT	DESCRIPTION
E1-3.1	Conducted Spurious Harmonic Emissions, Power Output 90 Watts (Average), LSM The specification limit is -69.5 dBc (-20dBm)
E1-3.2	Conducted Spurious Harmonic Emissions, Power Output 2 Watts (Average), LSM The specification limit is -53.0 dBc (-20dBm)
E1-3.3	Conducted Spurious Harmonic Emissions, Power Output 90 Watts, C4FM The specification limit is -69.5 dBc (-20dBm)
E1-3.4	Conducted Spurious Harmonic Emissions, Power Output 2 Watts, C4FM The specification limit is -53.0 dBc (-20dBm)
E1-3.5	Conducted Spurious Harmonic Emissions, Power Output 90 Watts, H-DQPSK The specification limit is -69.5 dBc (-20dBm)
E1-3.6	Conducted Spurious Harmonic Emissions, Power Output 2 Watts, H-DQPSK The specification limit is -53.0 dBc (-20dBm)

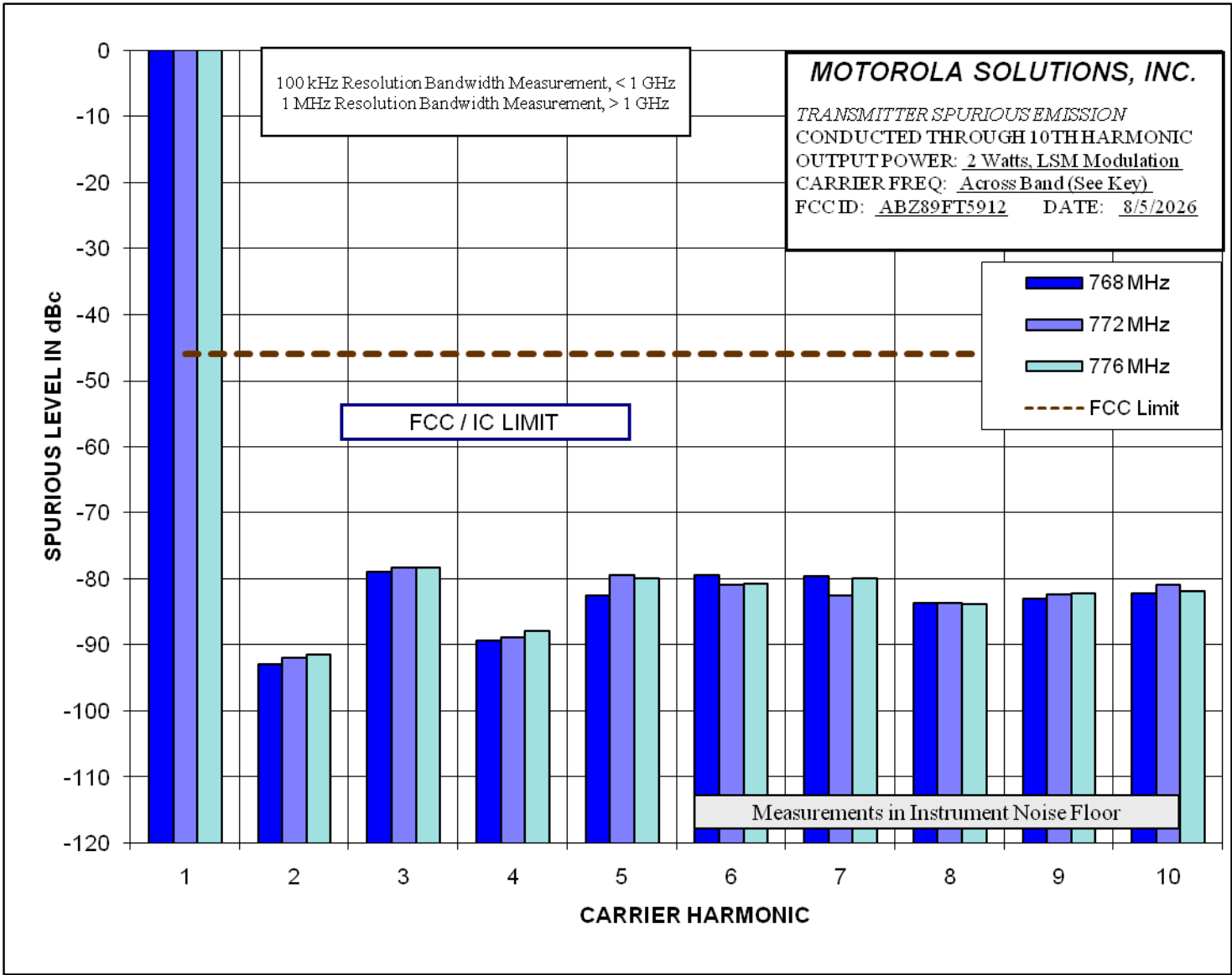
Report on Test Measurements

Conducted Spurious Harmonic Emissions – 90 Watts (Average) LSM



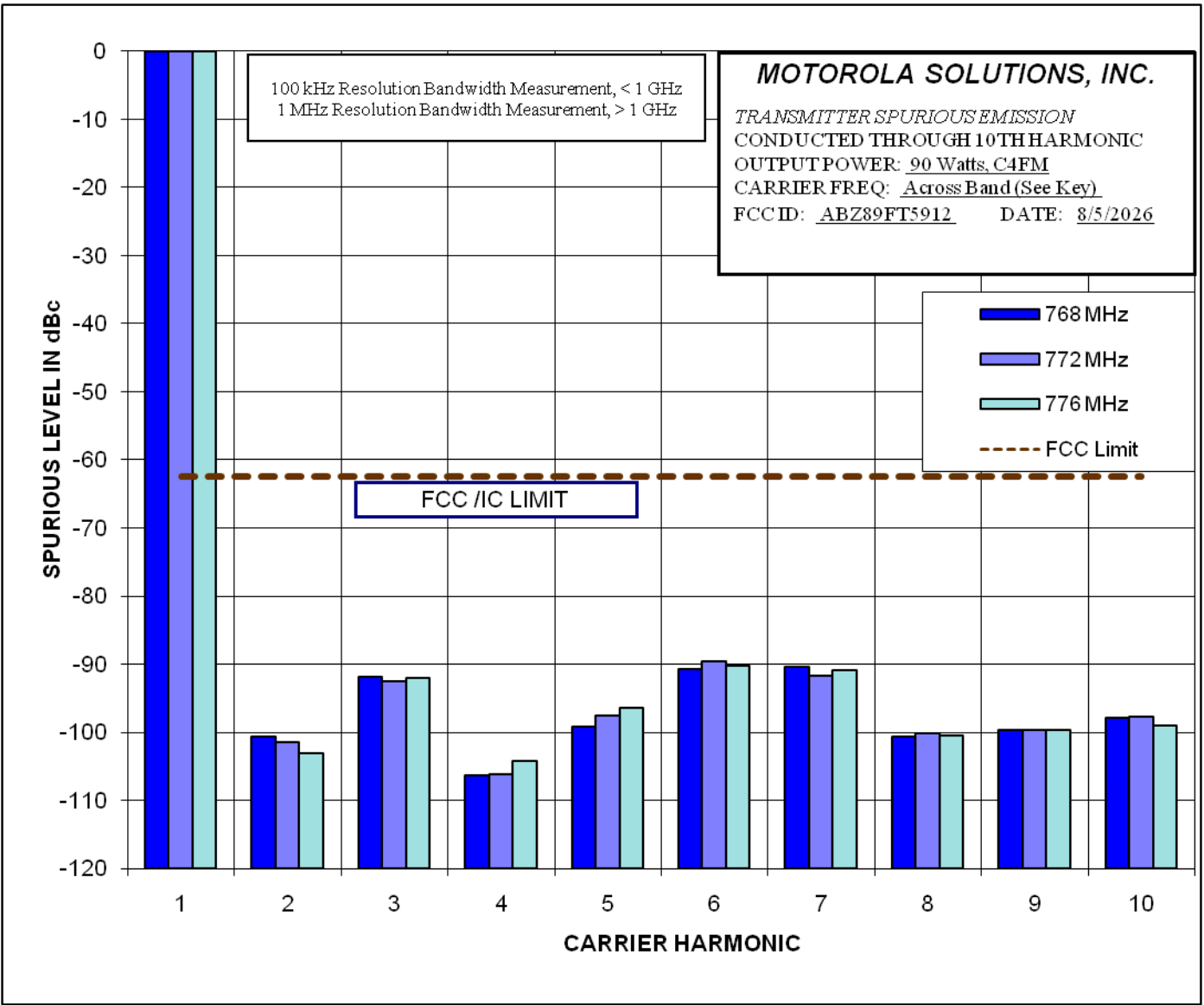
Report on Test Measurements

Conducted Spurious Harmonic Emissions – 2 Watts (Average) LSM



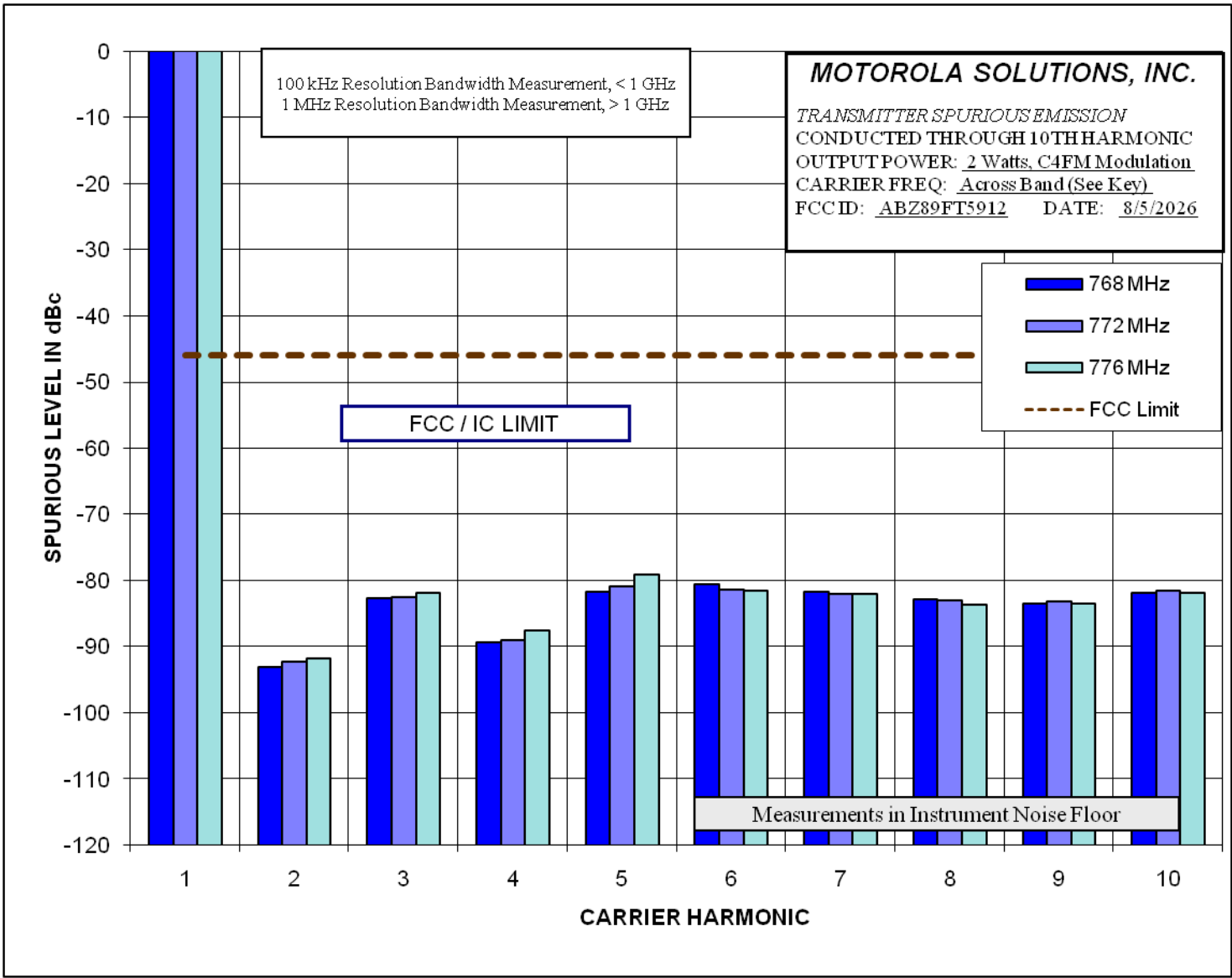
Report on Test Measurements

Conducted Spurious Harmonic Emissions – 90 Watts C4FM



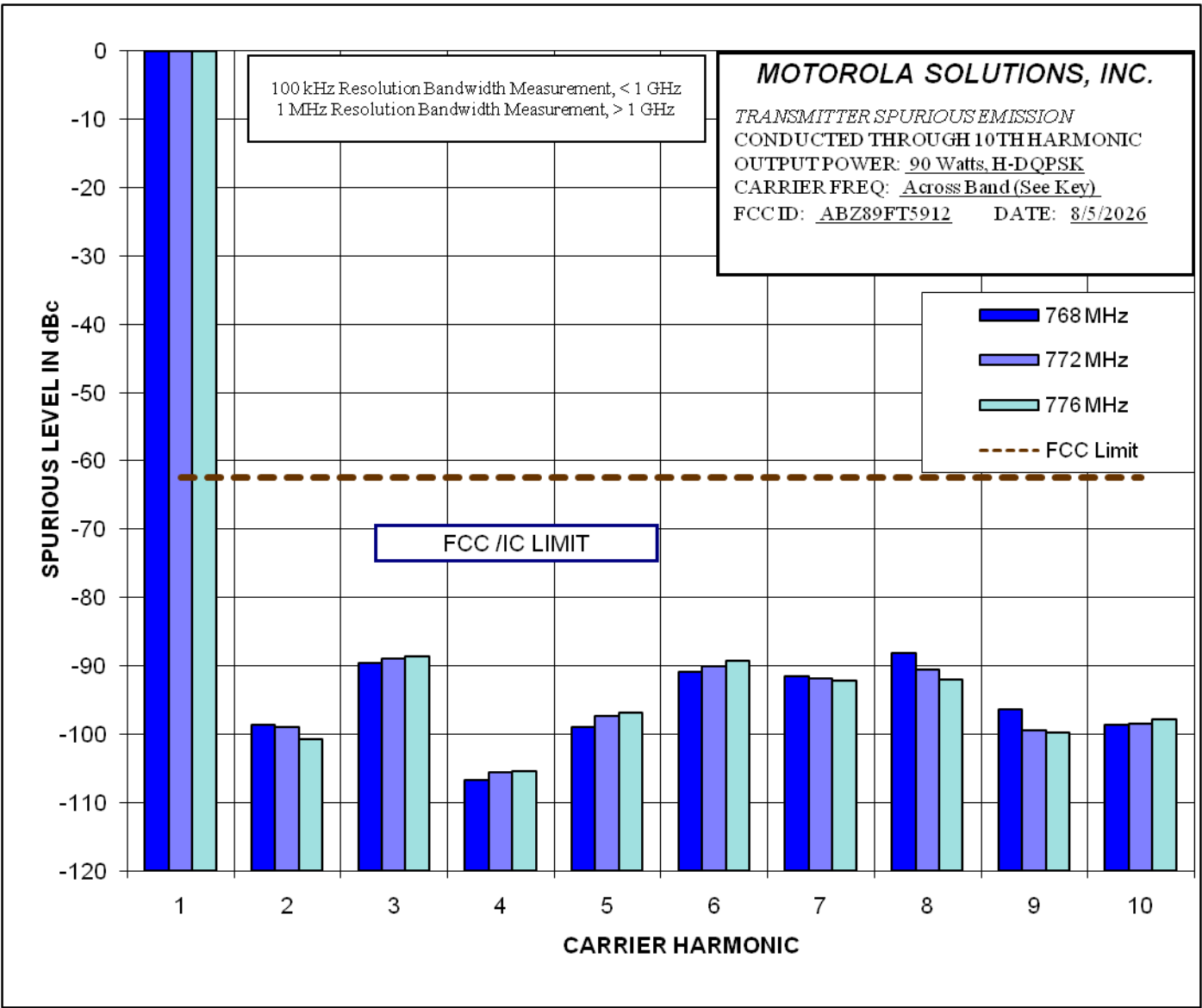
Report on Test Measurements

Conducted Spurious Harmonic Emissions – 2 Watts C4FM



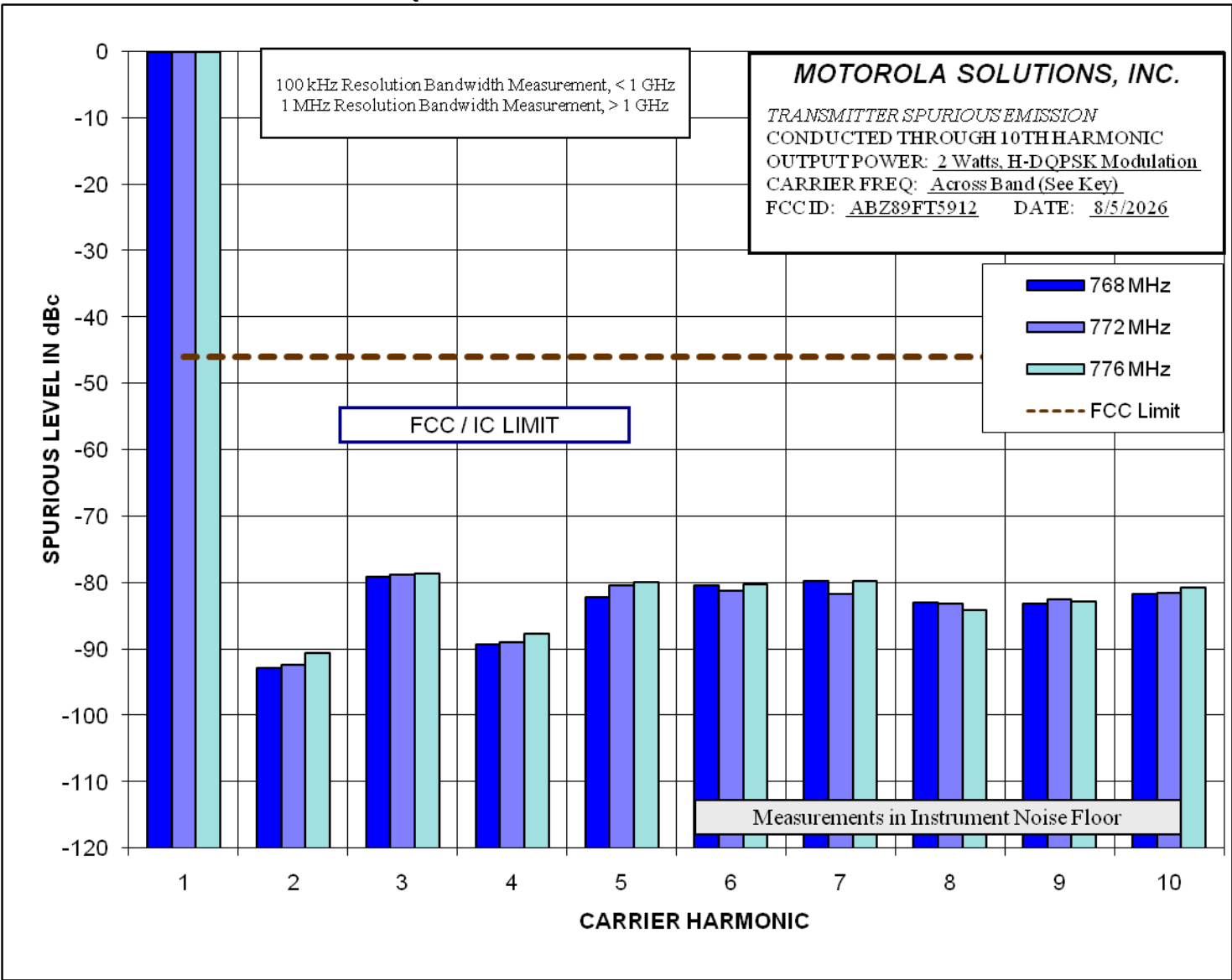
Report on Test Measurements

Conducted Spurious Harmonic Emissions – 90 Watts H-DQPSK



Report on Test Measurements

Conducted Spurious Harmonic Emissions – 2 Watts H-DQPSK



Report on Test Measurements

Conducted Spurious Emissions – Harmonics and Emission Spectrum: Analyzer Screen Captures

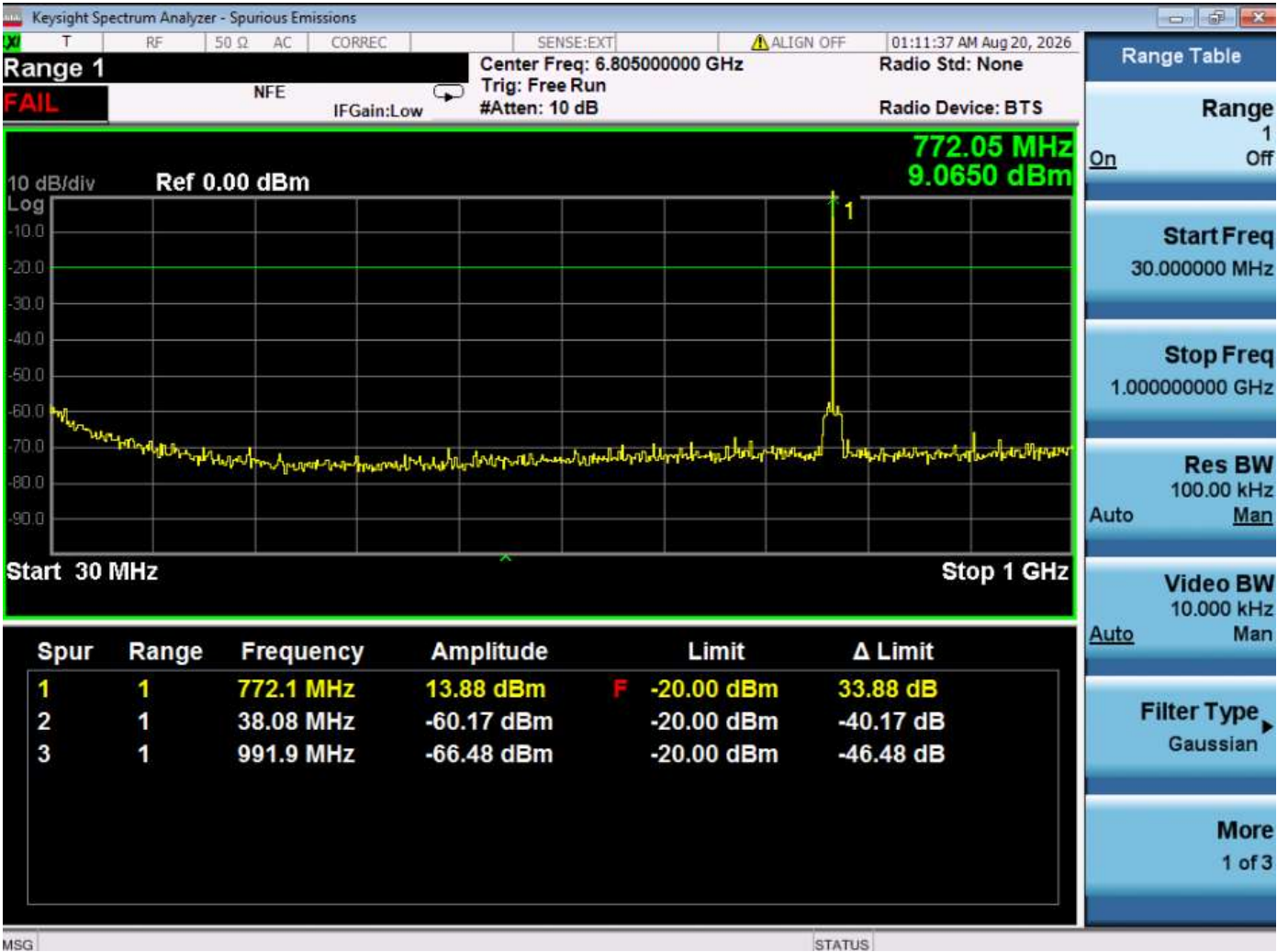
The RF Site is setup per the Conducted Spurious Emission Close-In diagram in Exhibit E1-7.4 to capture the spectrum from 30MHz to 1.8Fc. This method incorporates a notch filter to reduce the fundamental signal to improve dynamic range. The resulting fundamental signal will be lower than the total output power that is recorded via a power meter for confirmation. The path losses are characterized using a network analyzer and stored in a file and loaded into the analyzer to be used as a power correction.

The base radio is setup per the Conducted Harmonic Emission diagram in Exhibit E1-7.5 to capture the spectrums from 1.8Fc to 1GHz and from 1GHz to 10Fc. The method incorporates a high pass filter and directional coupler to reduce the fundamental signal to improve dynamic range. The power is verified via a power meter as noted in the diagram. The path losses are characterized using a network analyzer and are stored in a file and loaded into the analyzer to be used as a power correction.

The plots that follow show the mid-frequency response for each of the three modulations. Plots are shown for the spur measurements and the bandwidth settings for each frequency sweep.

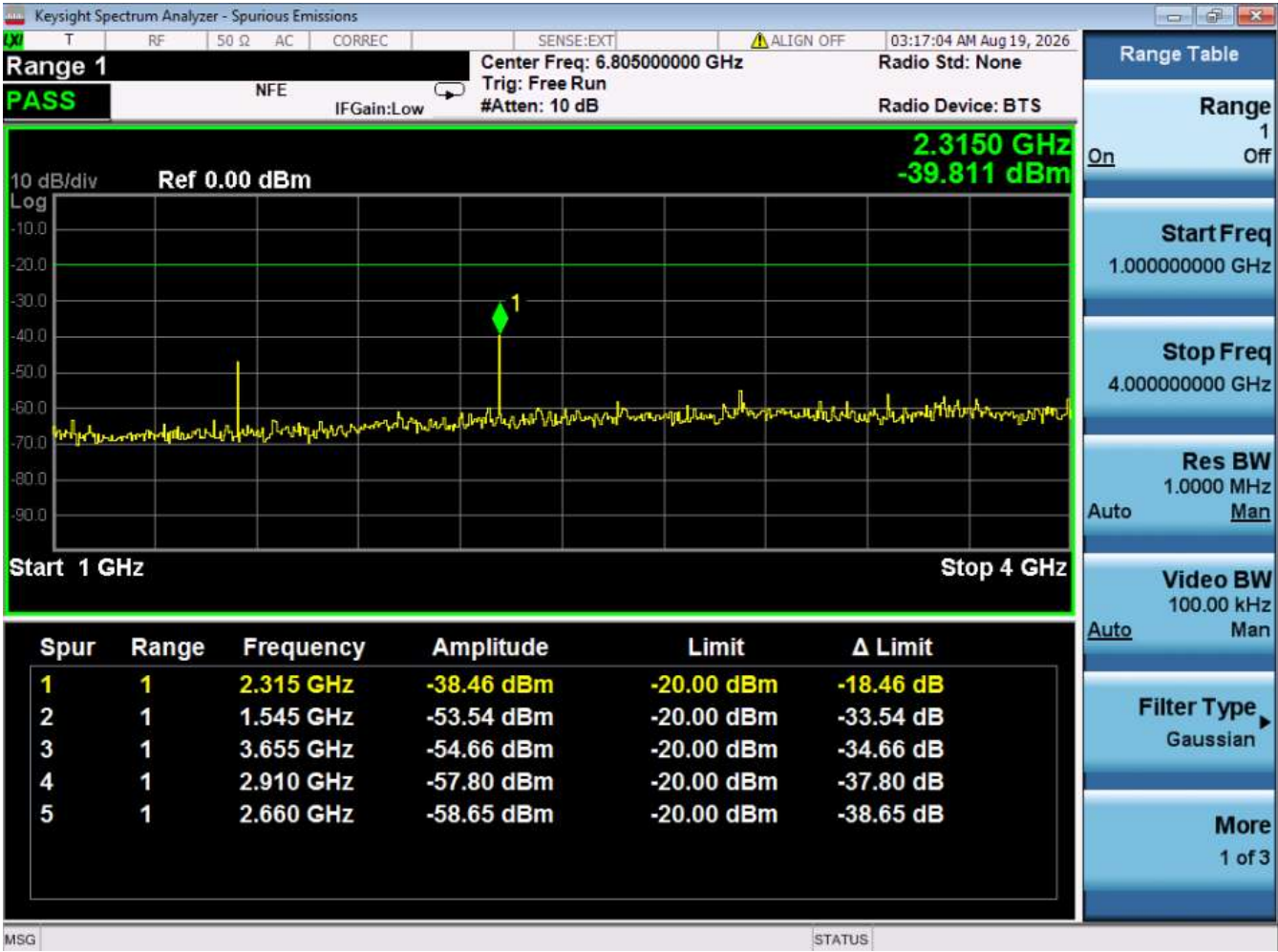
Report on Test Measurements

Conducted Spurious Emissions – Harmonics and Emission Spectrum: Linear Simulcast Modulation (LSM) Analyzer Screen Captures



Report on Test Measurements

Conducted Spurious Emissions – Harmonics and Emission Spectrum: Linear Simulcast Modulation (LSM) Analyzer Screen Captures



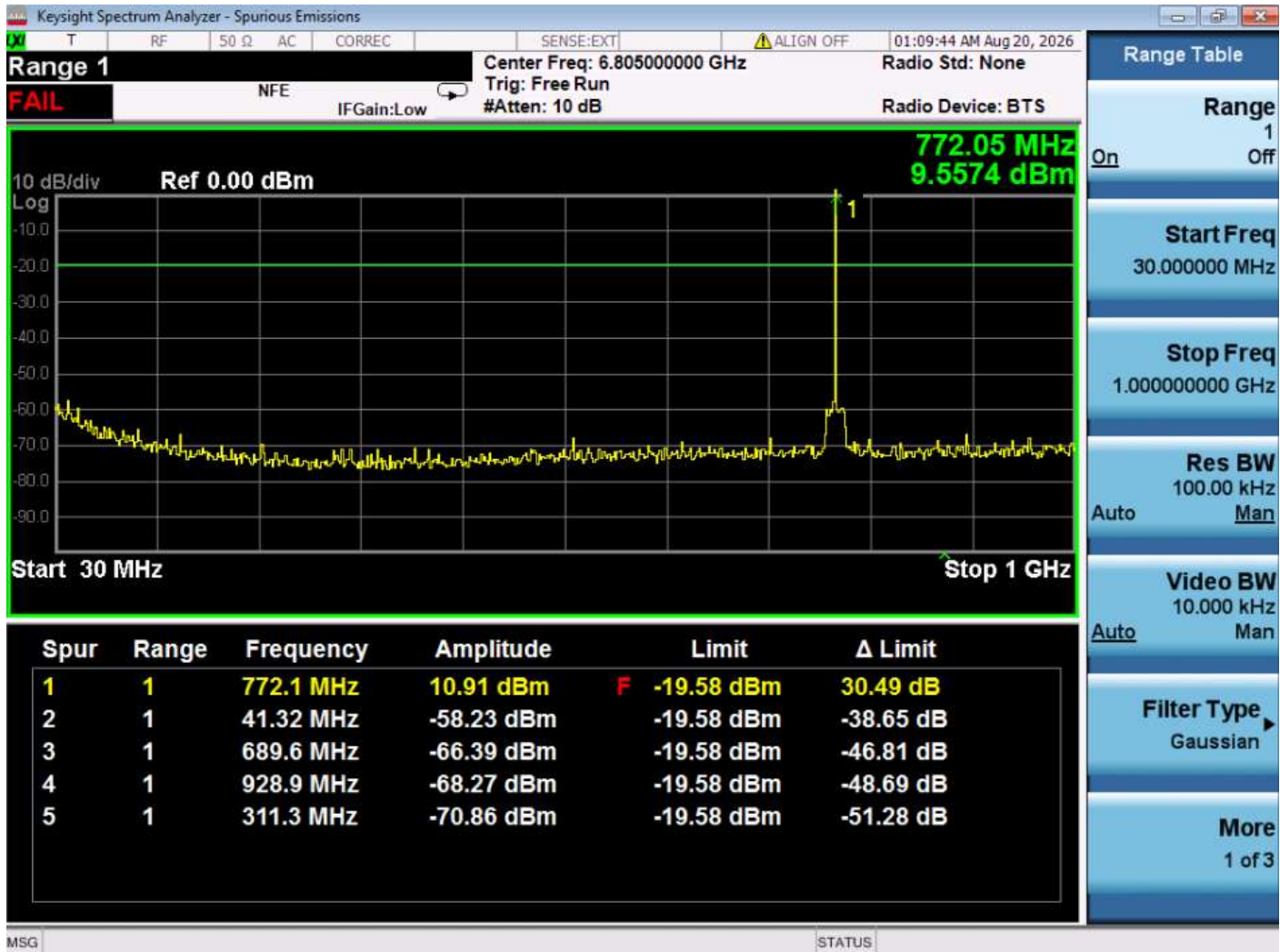
Report on Test Measurements

Conducted Spurious Emissions – Harmonics and Emission Spectrum: Linear Simulcast Modulation (LSM) Analyzer Screen Captures



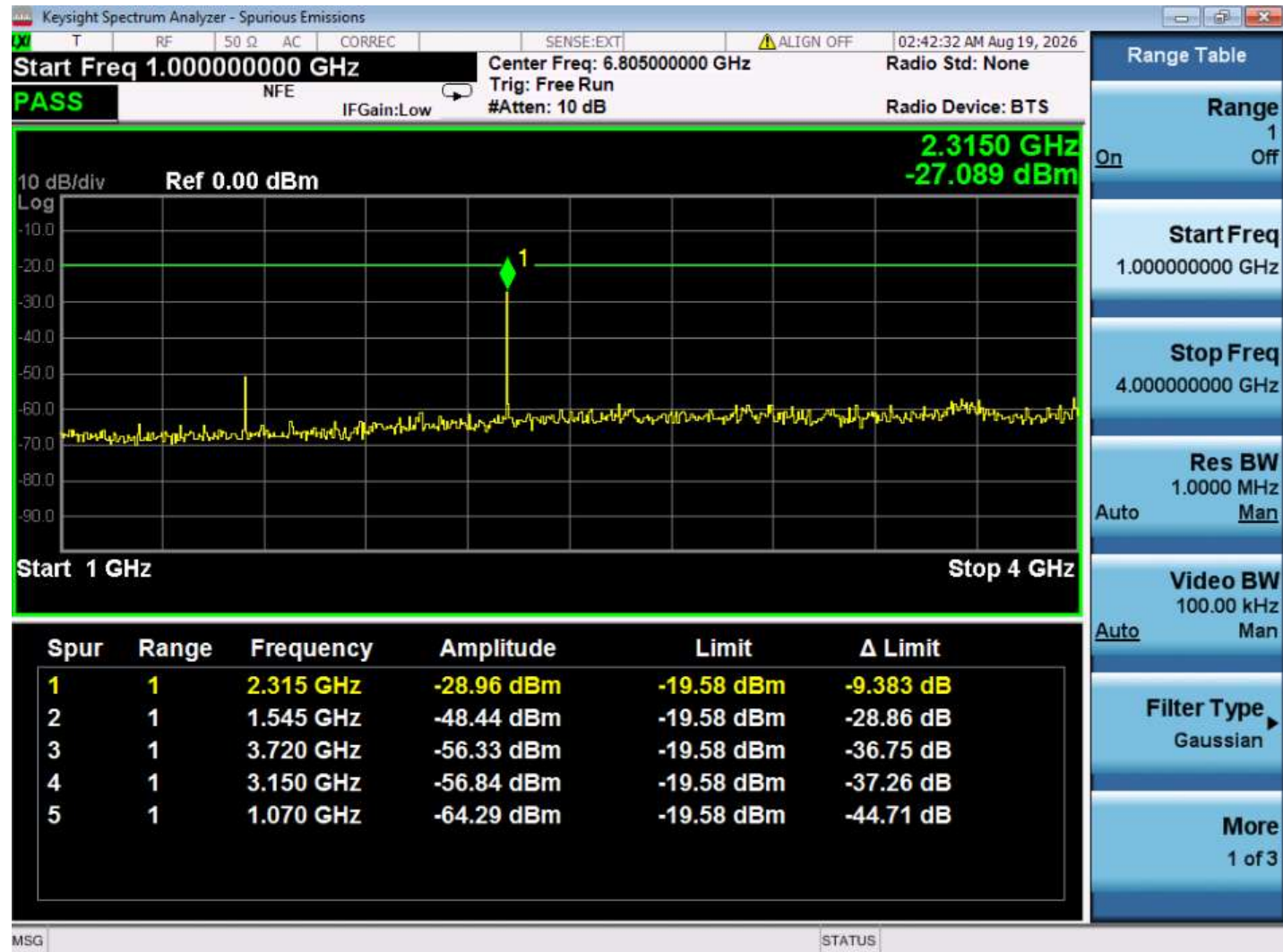
Report on Test Measurements

Conducted Spurious Emissions – Harmonics and Emission Spectrum: Compatible 4-Level Frequency Modulation (C4FM) Analyzer Screen Captures



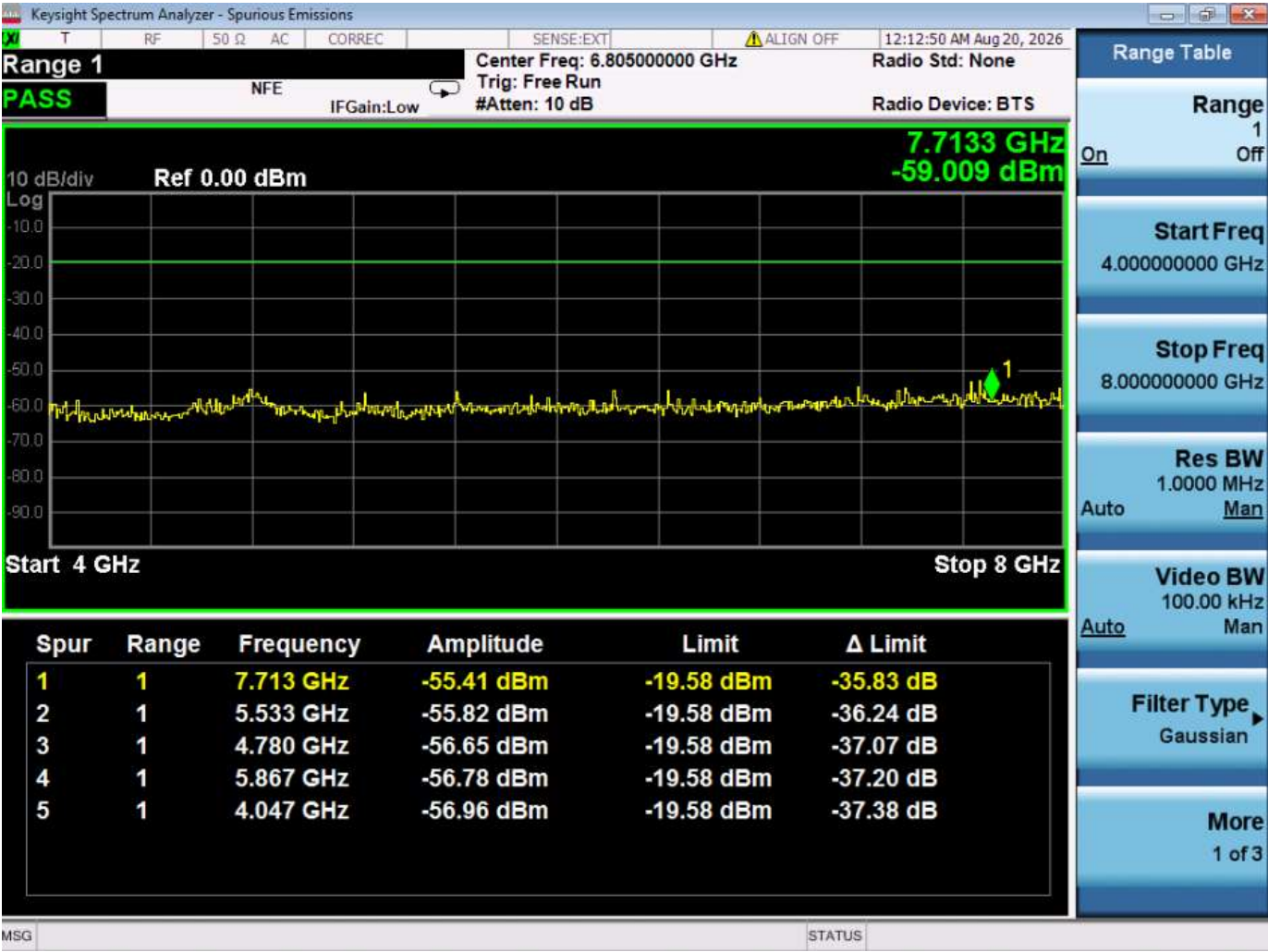
Report on Test Measurements

Conducted Spurious Emissions – Harmonics and Emission Spectrum: Compatible 4-Level Frequency Modulation (C4FM) Analyzer Screen Captures



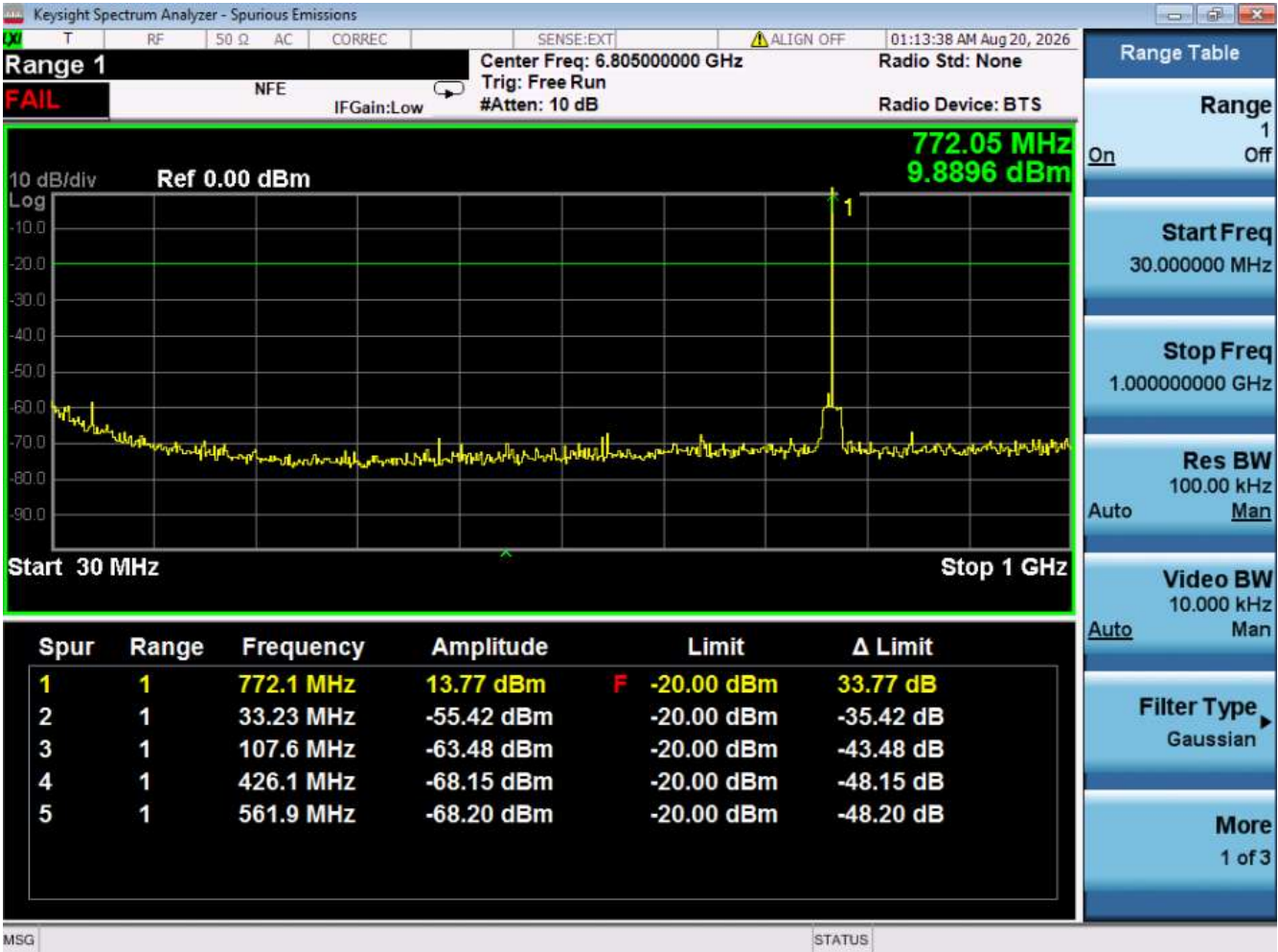
Report on Test Measurements

Conducted Spurious Emissions – Harmonics and Emission Spectrum: Compatible 4-Level Frequency Modulation (C4FM) Analyzer Screen Captures



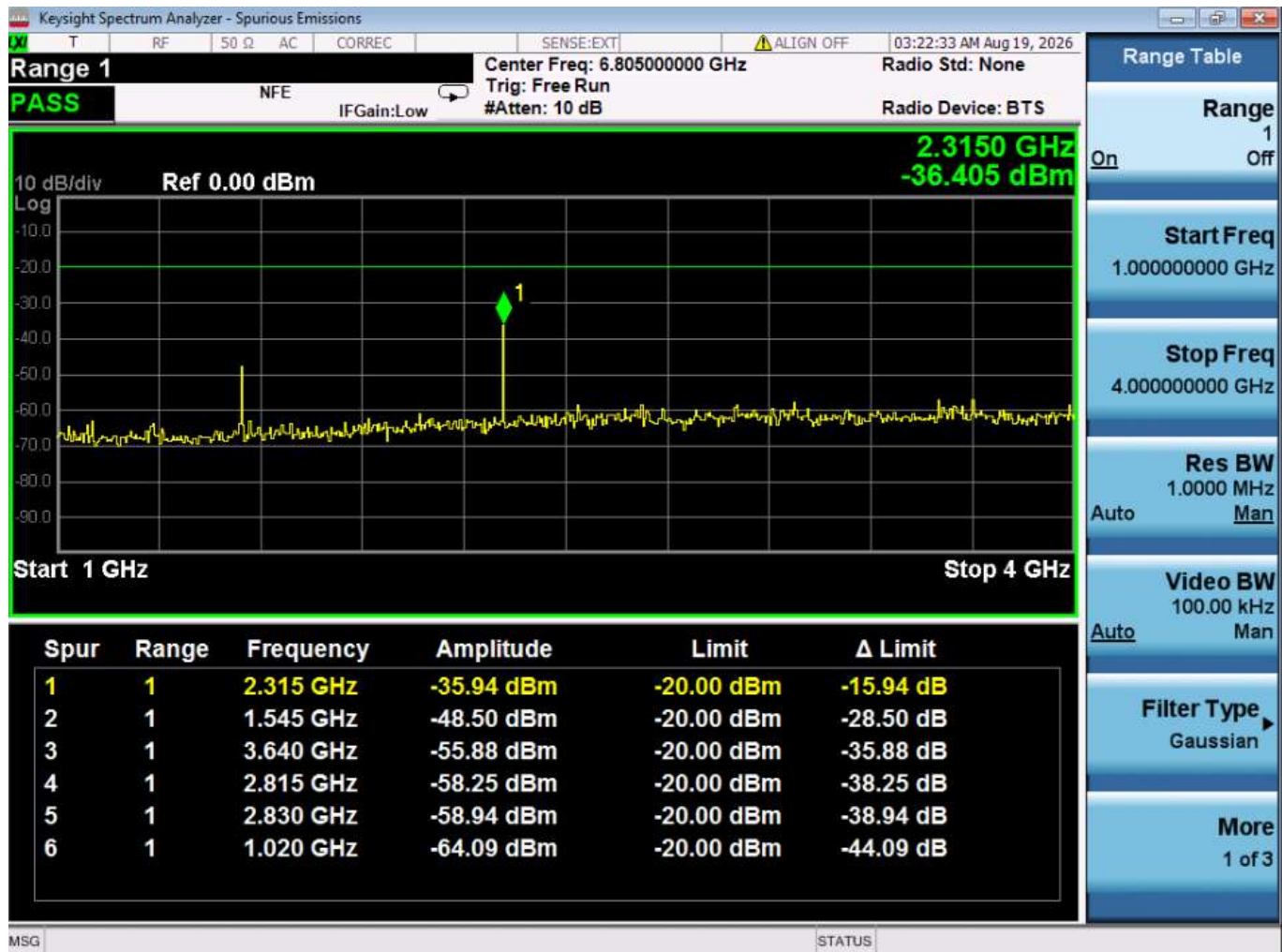
Report on Test Measurements

Conducted Spurious Emissions – Harmonics and Emission Spectrum: P25 Two Slot TDMA Digital Modulation (H-DQPSK) Analyzer Screen Captures



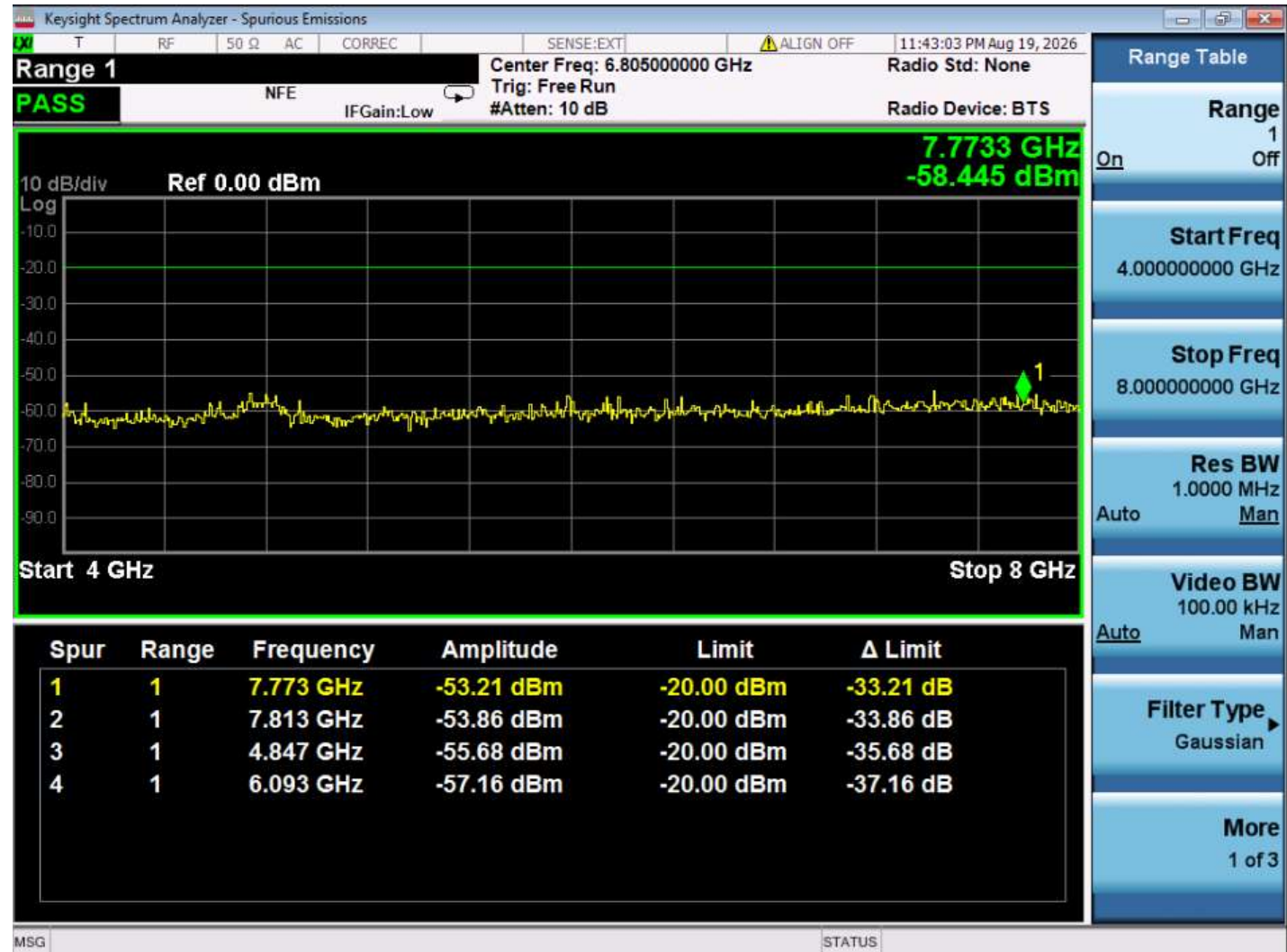
Report on Test Measurements

Conducted Spurious Emissions – Harmonics and Emission Spectrum: P25 Two Slot TDMA Digital Modulation (H-DQPSK) Analyzer Screen Captures



Report on Test Measurements

Conducted Spurious Emissions – Harmonics and Emission Spectrum: P25 Two Slot TDMA Digital Modulation (H-DQPSK) Analyzer Screen Captures



Report on Test Measurements

Radiated Spurious Emissions, Harmonics

Specification Requirement RSS-119 section 5.8.9.2, FCC § 90.543(c), and 27.53(d)(3) Emission Limits:

Out-of-band emission limit: On any frequency outside of the frequency ranges covered by the ACP tables in this section, the power of any emission must be reduced below the mean output power (P): *At least 43 plus 10 log₁₀(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.

Modulation: Linear Simulcast Modulation (LSM), Compatible 4-Level Frequency Modulation (C4FM) or P25 Two Slot TDMA Digital Modulation (H-DQPSK) as indicated

Carrier Frequencies: Radiated Spurious Emissions was run with 6 carriers transmitting at 90W and 2W per carrier. Frequencies tested were 768 (C4FM), 769 (LSM), 771.5 (C4FM), 772.5 (H-DQPSK), 775 (C4FM), 776 (LSM). These frequencies represent the low end, center, and high end of the 768-776 MHz band, and are representative of the full operating band.

EXHIBIT	DESCRIPTION
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Not Retested

Report on Test Measurements

Oscillator Frequency Stability

Manufacturer data for the system site frequency standard was used in generation of the following frequency stability exhibits.

Specification Requirement: Reference RSS-119 Section 5.3

Fixed and Base stations operating at 764-776 MHz and 794-806 MHz must have a frequency stability of better than +/- 0.1 PPM for 6.25 kHz and 12.5 kHz.

Specification Requirement: Reference FCC Part 90.539(b)

Transmitters designed to operate in 769-775 MHz and 799-805 MHz frequency bands must meet the frequency stability requirements in this section:

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

Specification Requirement: Reference FCC Part 27.54

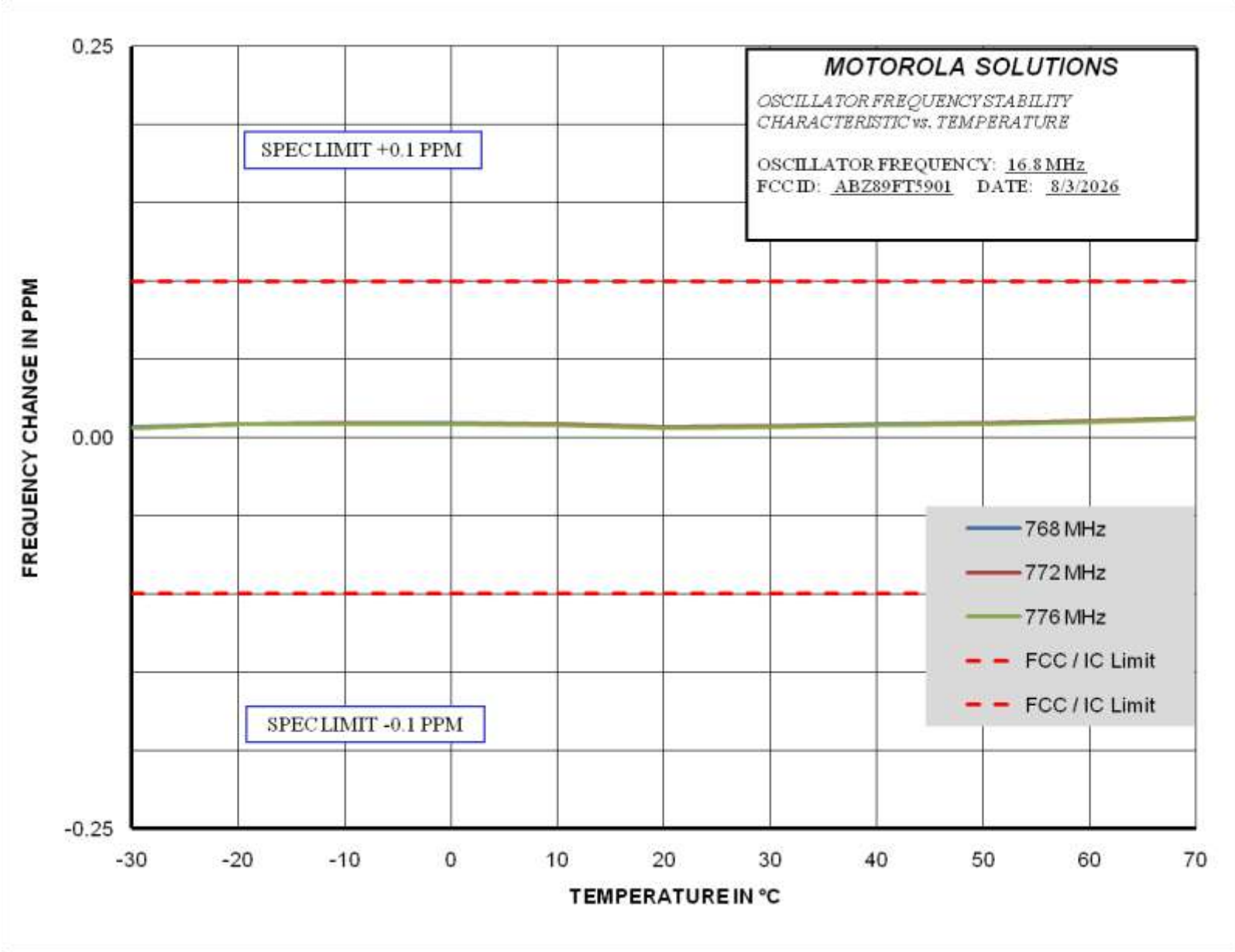
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

The specification limits for IC and FCC are identical, 0.1 part per million. This specification limit is shown on the following charts. Performance was measured at carrier frequencies at the low end, middle, and high end of the operating band.

EXHIBIT	DESCRIPTION
E1-5.1	Frequency Stability Vs Temperature
E1-5.2	Frequency Stability Vs Voltage

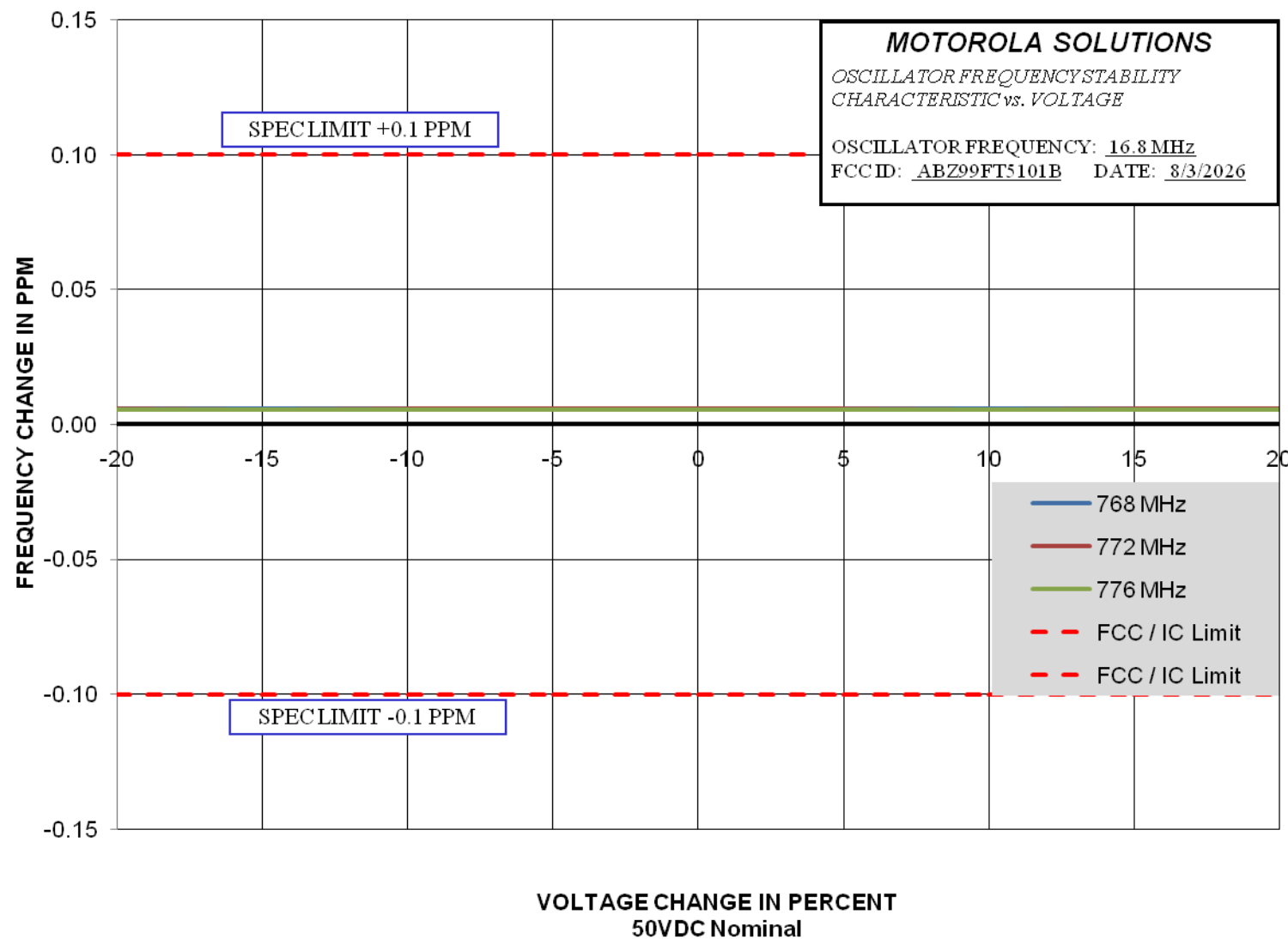
Report on Test Measurements

Frequency Stability Vs Temperature



Report on Test Measurements

Frequency Stability Vs Voltage



APPLICANT: MOTOROLA SOLUTIONS

EQUIPMENT TYPE: ABZ89FT5912
109AB-T5912

Report on Test Measurements

Test Setup Details

Test Locations:

(for all tests except radiated emissions)

Motorola Solutions, Inc., Schaumburg Lab

2000 Progress Parkway, Schaumburg, IL 60196

FCC Registration Number 786245

IC CAB Identifier US0220

Test Engineer Kelsey Johnson

Report on Test Measurements

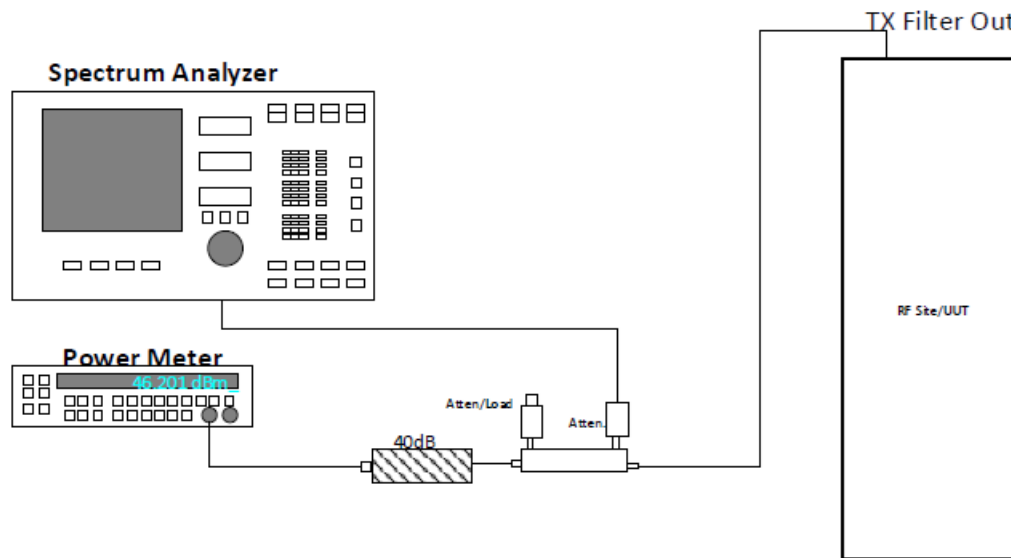
Test Equipment List (Motorola)

Manufacturer	Model	Description	Serial Number	Last Cal
Keysight	N9030A	PXA Signal Analyzer, 3 Hz to 50 GHz	MY53310751	07-19-2025
Rohde & Schwarz	NRP-Z11	Power Sensor	101590	08-21-2024
Rohde & Schwarz	NRX	Power Meter	108809	05-20-2025
Keysight	34401A	Digital Multimeter	3146A59752	08-29-2022
Keysight	E5071C	ENA Series Network analyzer	MY46316134	07-23-2025
Thermotron	WP-499- TCM4-30- 30-RR	Temperature Chamber	52516	03-25-2026

Report on Test Measurements

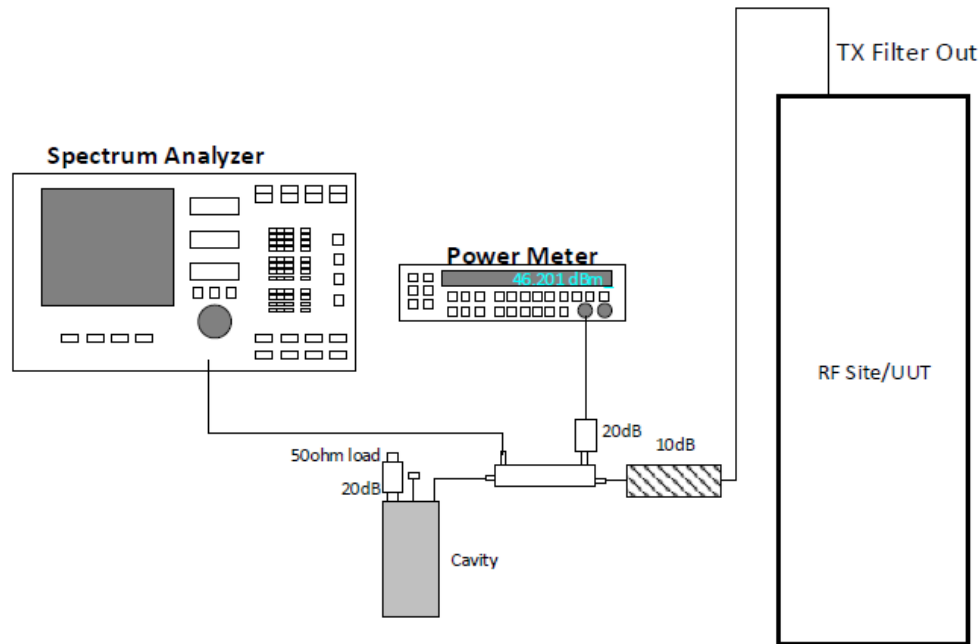
Test Setup (Motorola Solutions)

RF Output Power, Occupied Bandwidth, Frequency Stability, Frequency Transient Behavior, Modulation Characteristics



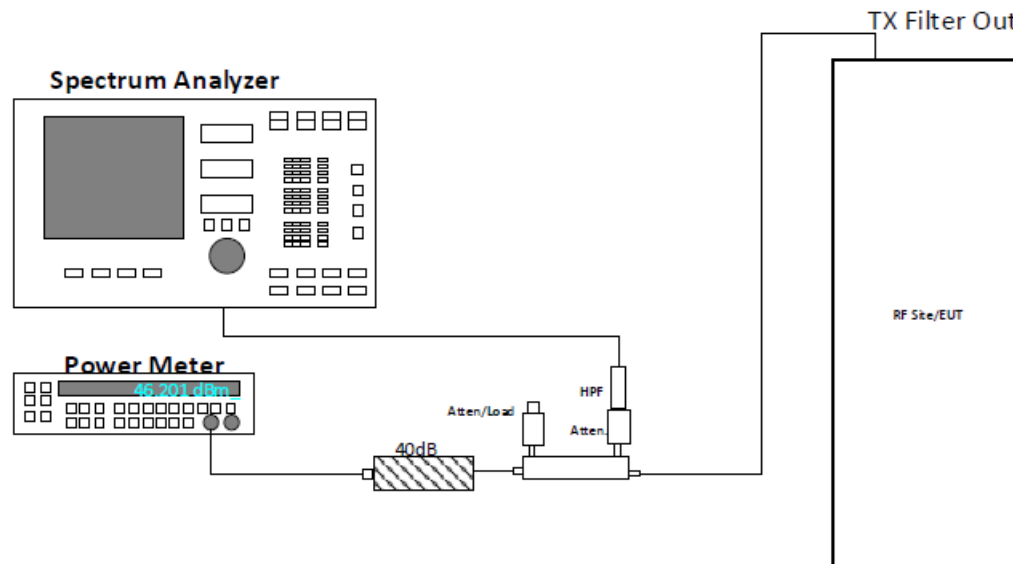
Report on Test Measurements

Conducted Spurious Emissions Close-in



Report on Test Measurements

Conducted Harmonic Emissions



Report on Test Measurements

Unit under test in temperature chamber (adjacent to test system)



Report on Test Measurements

Statement of Certification

The technical data supplied with this application, having been taken under my supervision is hereby duly certified. The following is a statement of my qualifications:

College Degree: BSECE, Michigan State University, East Lansing, MI, USA

4 years of Design and Development experience in the field of two-way radio communication.

NAME: Kelsey Johnson

SIGNATURE: 

DATE: August 13, 2026

POSITION: Senior RF Engineer

I hereby certify that the above application was prepared under my direction and that to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct:

NAME: Matt Nawrocki

SIGNATURE: 

DATE: August 21, 2026

POSITION: Engineering Manager