ONE WORLD ○ OUR APPROVAL

Radio Test report – Radio 4449 B71 B85A

356915-1TRFWL-R1

Applicant:

Ericsson Canada

Product:

Radio 4449

Model:

Radio 4449 B71 B85A

Part number:

KRC 161 756/1

FCC ID:

TA8AKRC161756-1

Requirements/Summary:

Standard	Environmental phenomenon	Compliance
FCC 47 CFR Part 27	Miscellaneous wireless communications services	Yes

Tested by:	Andrey Adelberg, Senior EMC/Wireless Specialist
Reviewed by:	Kevin Rose, Wireless/EMC Specialist
Date of issue:	September 7, 2018
Reviewer signature	

Test location

Company name	Nemko Canada Inc.	
Address	303 River Road	349 Terry Fox
City	Ottawa	Ottawa
Province	Ontario	Ontario
Postal code	K1V 1H2	K2K 2V6
Country	Canada	Canada
Telephone	+1 613 737 9680	+1 613 963 8000
Facsimile	+1 613 737 9691	
Toll free	+1 800 563 6336	
Website	www.nemko.com	
Site number	FCC test site registration number: CA2040 (3 m semi anechoic chamber)	

Limits of responsibility

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.
This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko Canada's ISO/IEC 17025 accreditation.

Copyright notification

Table of contents

Section 1. Report summary

1.1 Applicant and manufacturer

Company name	Ericsson Canada Inc.
Address	349 Terry Fox Drive
City	Ottawa
Province/State	Ontario
Postal/Zip code	K2K 2V6
Country	Canada

1.2 Test specifications

FCC 47 CFR Part 2	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
FCC 47 CFR Part 27	Miscellaneous wireless communications services

1.3 Test method

ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

1.4 Statement of compliance

In the configuration tested, the EUT was found compliant.

Testing was completed against all relevant requirements of the test standard. Results obtained indicate that the product under test complies in full with the requirements tested.

This report applies to the Radio 4449 B71 B85A with model number KRC 161 756/1.

See “Summary of test results” for full details.

1.5 Exclusions

None

1.6 Test report revision history

Revision #	Details of changes made to test report
TRF	Original report issued

Section 2. Summary of test results

2.1 FCC Part 27 test results

Part	Test description	Verdict
§27.50(c)	Maximum output power at RF antenna connector	Reported
§27.53	Spurious emissions at RF antenna connector	Pass
§27.53	Radiated spurious emissions	Pass
§27.53(f)	Radiated spurious emissions within 1559–1610 MHz band	Pass
§27.54	Frequency stability	Pass
§2.1049	Occupied bandwidth	Pass

Notes: None

Section 3. Equipment under test (EUT) details

3.1 Sample information

Receipt date	July 30, 2018
Nemko sample ID number	None

3.2 EUT information

Product name	Radio 4449
Model	Radio 4449 B71 B85A
Part number	KRC 161 756/1
Revision	R1A
Serial number	B441493597
Antenna ports	4 TX/RX Ports
RF BW / IBW	B71: 35 MHz B85A: 17 MHz
FDD	B71: 46 MHz B85A: 30 MHz
B71 Frequency range	TX (DL): 617–652 MHz RX (UL): 663–698 MHz
B85A Frequency range	TX (DL): 728–745 MHz RX (UL): 698–715 MHz IoT: 728.2–744.8 MHz
O/P per antenna ports, A through D	B71: Single Carrier – 1 × 40 W (46.02 dBm), Multi Carrier – 2 × 20 W (46.02 dBm), Multi-Carrier – 3 × 13.33 W (46.02 dBm) B85A: Single Carrier – 1 × 40 W (46.02 dBm), Multi Carrier – 2 × 20 W (46.02 dBm), Multi Carrier – 3 × 13.33 W (46.02 dBm) IoT: Single Carrier – 1 × 20 W Multi Carrier – 20 W total (divided by the number of carriers)
Accuracy (nominal)	±0.1 ppm
Nominal voltage	2 × −48 V_{DC} @ 20 A
RAT	LTE: SC, MC, MIMO IoT: SC, MC, MIMO
Modulation	LTE: QPSK, 16 QAM, 64 QAM, 256QAM IoT Stand Alone: QPSK
Channel bandwidth	B71: LTE (5M, 10M, 15M, 20M), GB IoT (10M, 15M, 20M) B85A: LTE (5M, 10M), GB IoT (10M), SA IoT (200k)
Maximum combined OBW per port	B71: 35 MHz B85A: 17 MHz
CPRI	10 Gbps
Channel raster	100 kHz
Regulatory requirements	Radio: FCC Part 2, 27 EMC: FCC Part 15, ICES-003 Safety: IEC/EN 62368-1, UL/CSA 62368-1 IEC/EN 60950-22, IEC/EN 60529, UL 50E
Emission Designator:	B71: 5M00W7D, 10M00W7D, 15M00W7D, 20M00W7D B85A: 5M00W7D, 10M00W7D, 200KW7D
Supported Configuration	SC, MC, Single Antenna, TX Diversity, MIMO, Carrier Aggregation
Operating temperature	−40 °C to +55 °C
Maximum Power / port	80 W (49.03 dBm) [4 × 40 W (B71) + 4 × 40 W (B85A)]
Supported LTE carrier / port	B71: 5 (1-4), 10 (1-3), 15 (1-2), 20 (1) B85A: 5 (1-3), 10 (1)
Supported IoT carrier / port	B71 IB/GB 10MHz (1LTE + 1-2 IoT), 15MHz (1LTE + 1-2 IoT), 20MHz (1LTE + 1-2 IoT) B85A: IB/GB 10MHz (1LTE + 1-2 IoT), MM: L + IoT SA (1-4)

3.3 Product description and theory of operation

EUT description of the methods used to exercise the EUT and all relevant ports:

Description/theory of operation	The Radio 4449 B71 B85A (KRC 161 756/1) is a multi-standard remote radio forming part of the Ericsson RBS (Radio Base Station) equipment. The Radio 4449 provides radio access for mobile and fixed devices and is designed for the outdoor environment. Radio unit installation is designed for pole, wall or mast mount options intended for co-location near the antenna. A fiber optic interface provides the RRU/RBS control and digital interface between the Radio and the RBS. The Radio 4449 product is convection cooled and shall be mounted vertically Horizontal mounting is not supported on this product. Output RF Power is rated at 4 × 80 W Altitude during operation: Below 3000 m

Port description

Port	Description
ANT A	RF Out A
ANT B	RF Out B
ANT C	RF Out C
ANT D	RF Out D
RET	Antenna Line Device
Alarm	Alarm and DC for Optional Fan Tray
Data 1	Optical Interface Data 1
Data 2	Optical Interface Data 2
DC Input	2 × −48 V_{DC}
MMI	Display - Radio Status
GND	Ground

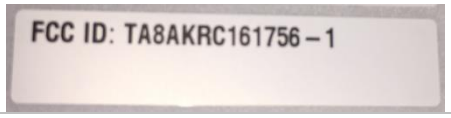
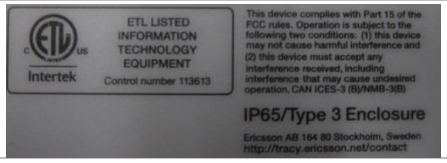
Physical

Dimensions	455 × 335 × 240 mm (H × W × D)
Weight	34 kg
Operating Temperature	−40 to +55 °C
Mounting	Pole, Wall Mount
Cooling	Convection (optional fan tray - forced air)

Software details: CXP9013268/15-R73AL02

Radio 4449 B71 B85A (R1A) Hardware Configuration

Product: KRC 161 756/1	Revision	Description		
KRF 901 439/2 Alt: KRF 901 439/4	R1B R1B	FU		
KRY 901 400/493	R1B	Radio B71 Master		
ROA 128 6610/493	R1C	Radio Board B71		
TVK 128 2744	R1A	PCB		
NTB 101 171/493	R1B	Parts B71		
KRY 901 400/494	R1B	Radio B85A Slave		
ROA 128 6610/494	R1C	Radio Board B85A		
TVK 128 2740	R3A	PCB		
NTB 101 171/494	R1B	Parts B85A		

Product Identification Label KRC 161 756/1	
Legal Overlay / Label	 

3.4 EUT test details

EUT setup/configuration rationale:

Down link

RAT	Modulation	Performance Requirement	Test Model / Configuration
LTE	QPSK	N/A	E-TM1.1

Up link

RAT	Modulation	Performance Requirement	Test Model / Configuration
LTE	QPSK	N/A	E-UTRA-UL

Carrier Configurations:

SA IoT

Bandwidth, MHz	Transmit / DL, MHz						
	B1	B2	M1	M	M2	T1	T2
0.2	728.2	728.4	736.3	736.5	736.7	744.6	744.8

Note: SA IoT is always operated in MM: LTE + SA IoT. SA IoT SC, MC Total power = 20 W

Receive / UL, MHz						
B1	B2	M1	M	M2	T1	T2
698.2	698.4	706.3	706.5	706.7	714.6	714.8

Single carrier B71

Bandwidth, MHz	Transmit / DL, MHz					
	B	EARFCN	M	EARFCN	T	EARFCN
5	619.5	68611	634.5	68761	649.5	68911
10	622.0	68636	634.5	68761	647.0	68886
15	624.5	68661	634.5	68761	644.5	68861
20	627.0	68686	634.5	68761	642.0	68836

Bandwidth, MHz	Receive / UL, MHz					
	B	EARFCN	M	EARFCN	T	EARFCN
5	665.5	133147	680.5	133297	695.5	133447
10	668.0	133172	680.5	133297	693.0	133422

Bandwidth, MHz	Receive / UL, MHz					
	B	EARFCN	M	EARFCN	T	EARFCN
15	670.5	133197	680.5	133297	690.5	133397
20	673.0	133222	680.5	133297	688.0	133372

Multi Carrier (2C) B71

Bandwidth, MHz	Transmit / DL, MHz			
	C1	EARFCN	C2	EARFCN
5	619.5	68611	649.5	68911
10	622.0	68636	647.0	68886
15	624.5	68661	644.5	68861

Bandwidth, MHz	Receive / UL, MHz			
	C1	EARFCN	C2	EARFCN
5	665.5	133147	695.5	133447
10	668.0	133172	693.0	133422
15	670.5	133197	690.5	133397

Single carrier B85A

Bandwidth, MHz	Transmit / DL, MHz					
	B	EARFCN	M	EARFCN	T	EARFCN
5	730.5	70391	736.5	70451	742.5	70511
10	733.0	70416	736.5	70451	740.0	70486

Bandwidth, MHz	Receive / UL, MHz					
	B	EARFCN	M	EARFCN	T	EARFCN
5	700.5	134027	706.5	134087	712.5	134147
10	703.0	134052	706.5	134087	710.0	134122

Multi Carrier (2C) B85A

Bandwidth, MHz	Transmit / DL, MHz			
	C1	EARFCN	C2	EARFCN
5	730.5	70391	742.5	70511

Bandwidth, MHz	Receive / UL, MHz			
	C1	EARFCN	C2	EARFCN
5	700.5	134027	712.5	134147

EUT Monitoring Method / Equipment:

Support equipment	**Node EMC Test System** - Anritsu MS 2691 VSA/Sig Gen - HP Laptop - Timing and Synchronization box (GPS) - Ethernet Switch - Isolation Transformer - **RBS 6601, BFM 901 009/1:** - DUS 4101 KDU 137 624/1, R7B, S/N: CD3B327591 - DUS SW: CXP102051/25-R26DM - Input Voltage: −48 V_{DC}

3.5 EUT setup diagram

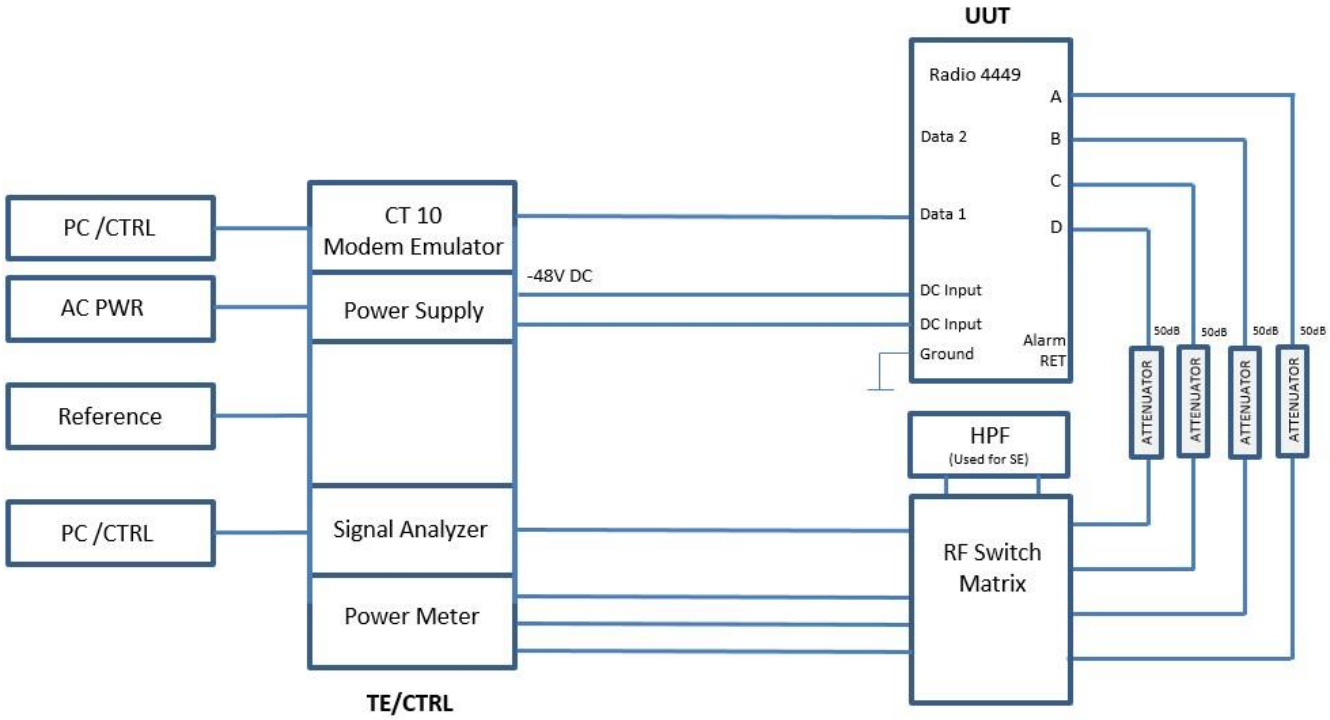


Figure 3.5-1: *Setup diagram, conducted*

3.6 Setup photographs

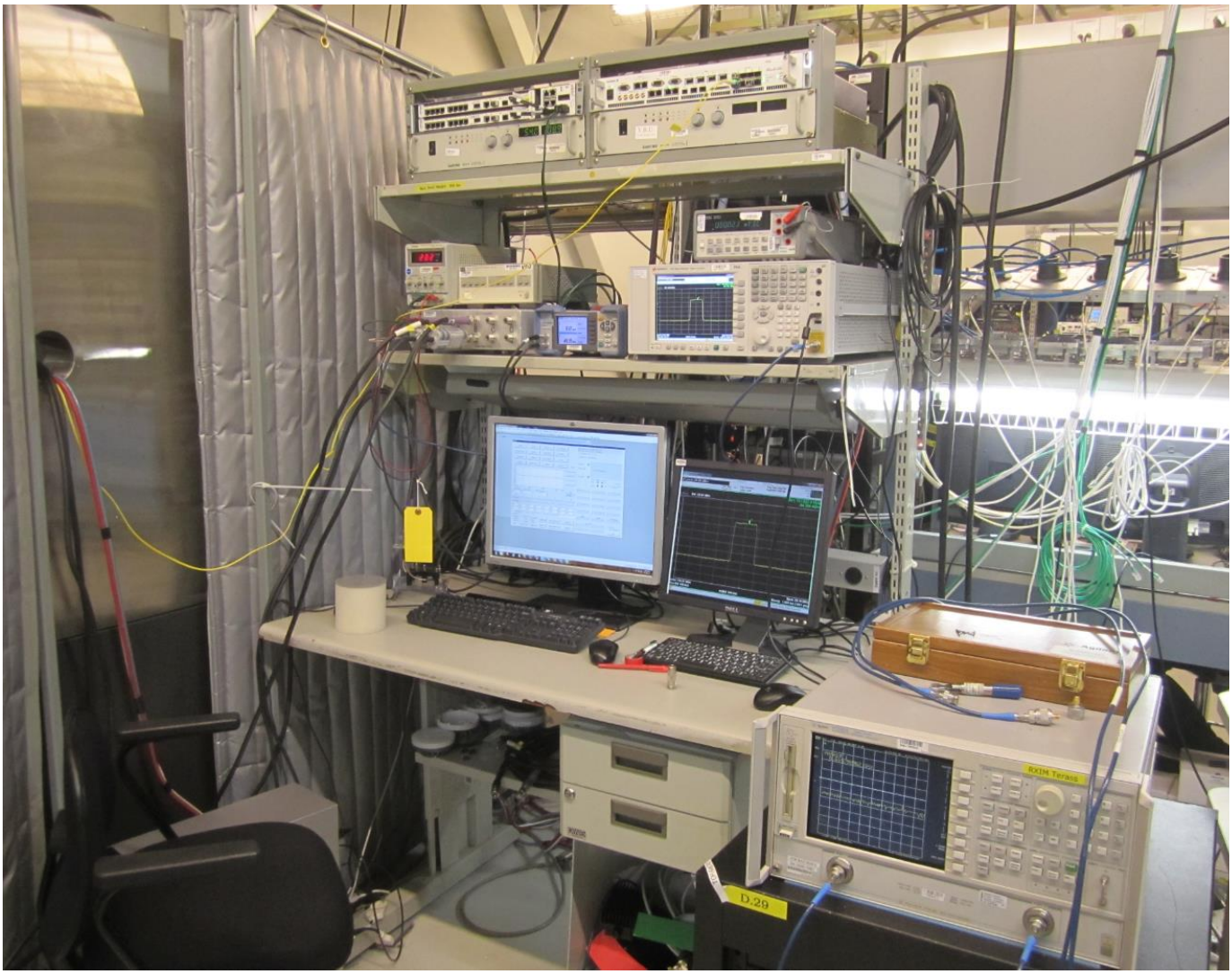


Figure 3.6-1: *Test / Measurement Equipment - Set up for Radio Compliance Testing*

Figure 3.6-2: *EUT Set-up for Radio Compliance Testing*

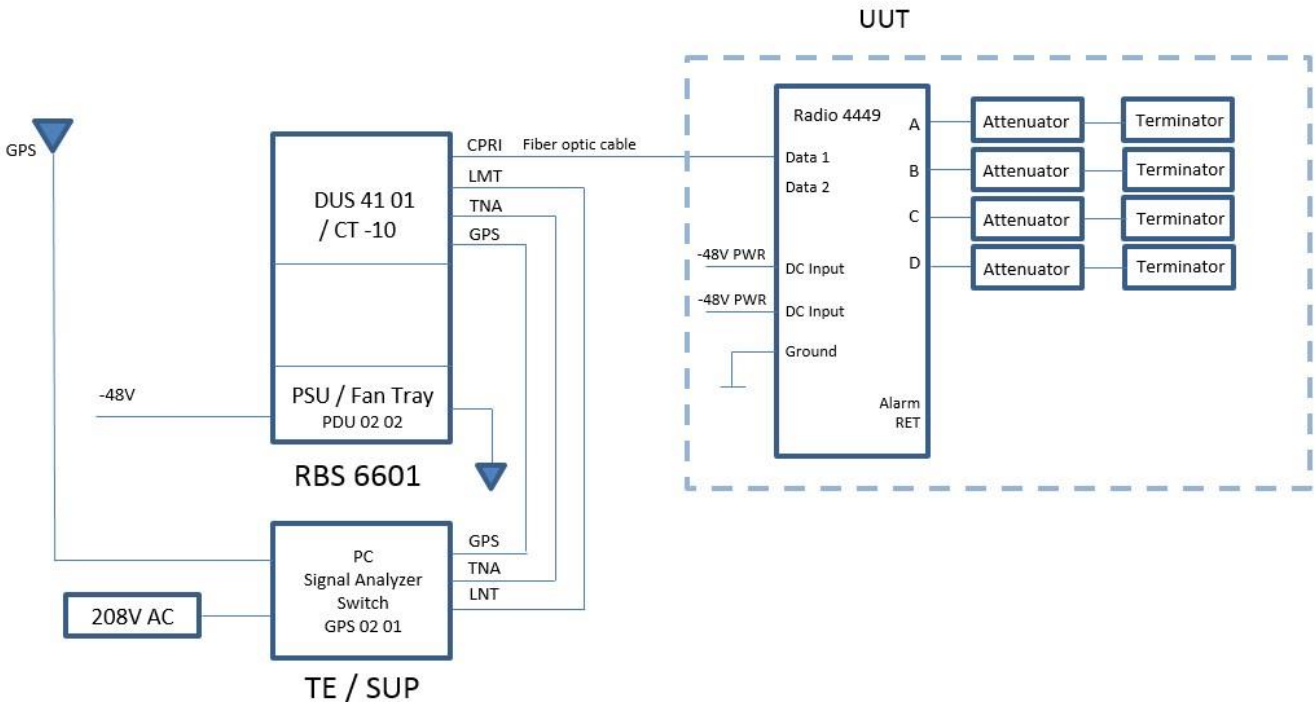


Figure 3.6-3: *EUT Set-up diagram for Radiated Compliance Testing*

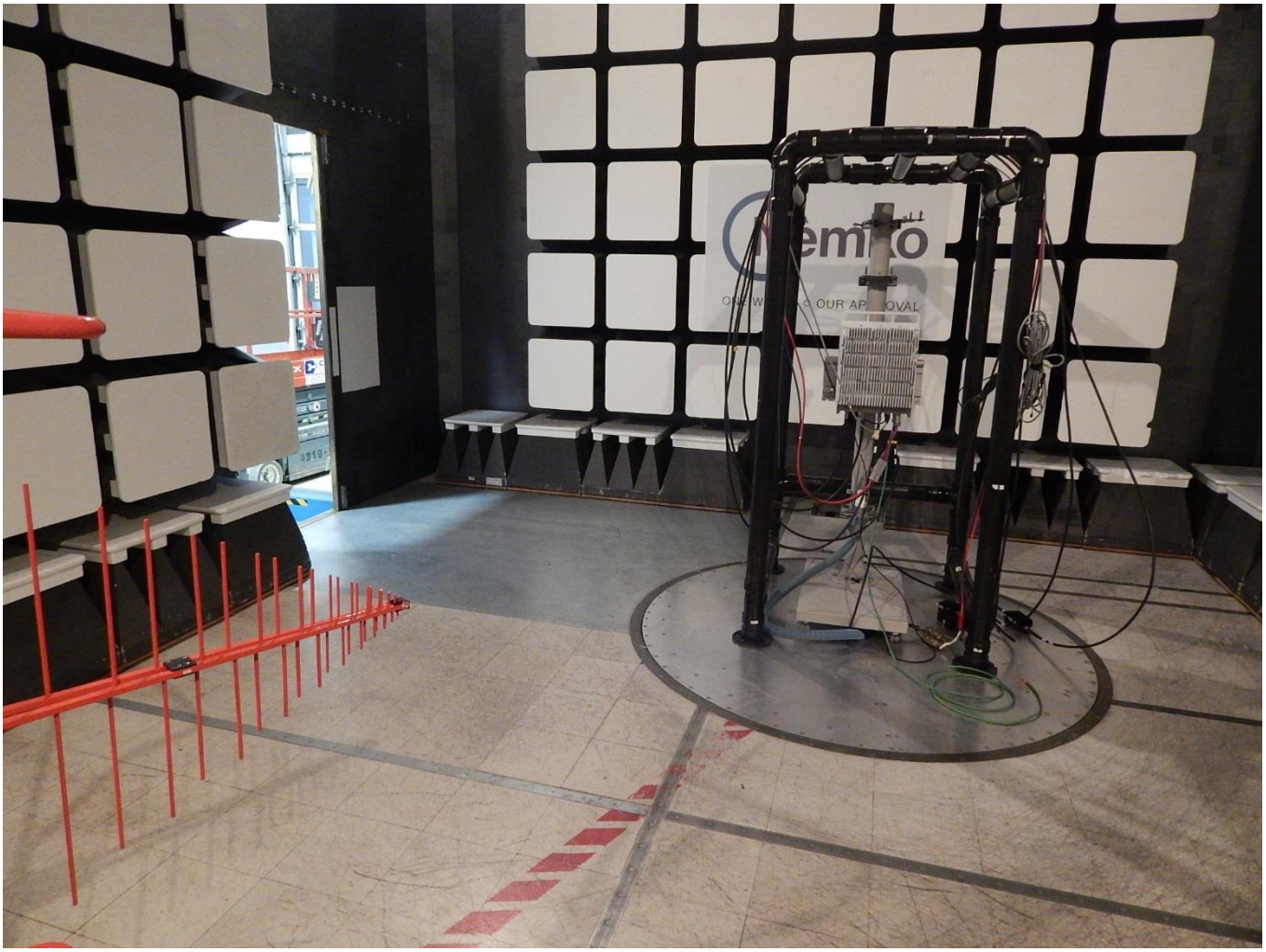


Figure 3.6-4: *EUT Set-up for Radiated Compliance Testing*

Section 4. Engineering considerations

4.1 Modifications incorporated in the EUT

There were no modifications performed to the EUT during this assessment.

4.2 Technical judgment

None

4.3 Deviations from laboratory tests procedures

No deviations were made from laboratory procedures.

Section 5. Test conditions

5.1 Atmospheric conditions

Temperature	15–30 °C
Relative humidity	20–75 %
Air pressure	860–1060 mbar

When it is impracticable to carry out tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests shall be recorded and stated.

5.2 Power supply range

The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage, or any of the declared voltages ±5 %, for which the equipment was designed.

Section 6. Measurement uncertainty

6.1 Uncertainty of measurement

Measurement uncertainty budgets for the tests are detailed below. Measurement uncertainty calculations assume a coverage factor of K = 2 with 95% certainty.

Test name	Measurement uncertainty, dB
All antenna port measurements	0.55
Conducted spurious emissions	1.13
Radiated spurious emissions	3.78
AC power line conducted emissions	3.55

Section 7. Test equipment

7.1 Test equipment list

Table 7.1-1: *Equipment list*

Equipment	Manufacturer	Model no.	Asset no.	Cal cycle	Next cal.
DMM	Digital Multimeter	34401A	US36048294	1-year	Apr. 30/19
Spectrum Analyzer	Keysight	PXA N9030A	MY55410202	1-year	Sep. 30/19
Network Analyzer	Agilent	8722ES	US39175389	1-year	May 31/19
Power Meter	Rohde & Schwarz	NRP2	1144.1374K02-101123-ea	NCR	NCR
Power Sensor	Rohde & Schwarz	NRP-Z51	1138.0005.02-102838-bR	2-year	Aug. 23/19
Power Sensor	Rohde & Schwarz	NRP-Z51	1138.0005.02.102476-Fg	2-year	May 11/19
Power Sensor	Rohde & Schwarz	NRP-8S	1419.0006K02-101657-As	2-year	Feb. 11/19
Power Sensor	Rohde & Schwarz	NRP-8S	1419.0006K02-101651-Cw	2-year	Feb. 10/19
PSU (DC)	Xantrex	XKW60-50	1001425551	NCR	NCR
Attenuator (10dB)	Weinschel	WA-48-10-43-LIM	A1991	NCR	NCR
Attenuator (10dB)	Weinschel	WA-48-10-43-LIM	A1994	NCR	NCR
Attenuator (10dB)	Weinschel	WA-48-10-43-LIM	A1993	NCR	NCR
Attenuator (10dB)	Weinschel	WA-48-10-43-LIM	A1992	NCR	NCR
Attenuator (30dB)	Weinschel	WA-48-30-33-LIM	A1998	NCR	NCR
Attenuator (30dB)	Weinschel	WA-48-30-33-LIM	A1995	NCR	NCR
Attenuator (30dB)	Weinschel	WA-48-30-33-LIM	A1997	NCR	NCR
Attenuator (30dB)	Weinschel	48-30-43	BJ6051	NCR	NCR
Attenuator	MCE/Weinschel	57-40-43	MX198	NCR	NCR
RF Switch	Ericsson	RARFSW4X1	1	NCR	NCR
Switch Driver	Hewlett Packard	11713A	3748A06076	NCR	NCR
PSU (DC)	Leader	730-3D	9801135	NCR	NCR
CT10	Ericsson	Testing Equipment	T01F311639	NCR	NCR
Thermometer	Fluke	52 K/J Thermocouple	4815167	1-year	Sep 13/19
3 m EMI test chamber	TDK	SAC-3	FA002047	1-year	Dec. 1/18
Flush mount turntable	Sunol	FM2022	FA002082	NCR	NCR
Controller	Sunol	SC104V	FA002060	NCR	NCR
Antenna mast	Sunol	TLT2	FA002061	NCR	NCR
AC Power source	Chenwa	2700M-10k	FA002716	NCR	NCR
Receiver/spectrum analyzer	Rohde & Schwarz	ESU 26	FA002043	1-year	Jan. 31/19
Bilog antenna (20–3000 MHz)	Sunol	JB3	FA002108	1-year	Jun. 27/19
Horn antenna (1–18 GHz)	EMCO	3115	FA000825	1-year	Jun. 21/19
Preamp (1–18 GHz)	ETS-Lindgren	124334	FA002877	1-year	Nov. 14/18

Note: NCR - no calibration required

Section 8. Testing data

8.1 FCC 27.50(c) Maximum output power at RF antenna connector

8.1.1 Definitions and limits

The following power and antenna height requirements apply to stations transmitting in the 600 MHz band and the 698–746 MHz band:

(1) Fixed and base stations transmitting a signal with an emission bandwidth of 1 MHz or less must not exceed an effective radiated power (ERP) of 1000 watts and an antenna height of 305 m height above average terrain (HAAT), except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts ERP in accordance with Table 1 of this section;

(3) Fixed and base stations transmitting a signal with an emission bandwidth greater than 1 MHz must not exceed an ERP of 1000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts/MHz ERP in accordance with Table 3 of this section;

8.1.2 Test summary

Test date	July 30, 2018
Test engineer	Andrey Adelberg

8.1.3 Observations, settings and special notes

Based on the maximum RF power listed in this report, considerations pertaining to the maximum allowed EIRP and antenna type should be considered for each installation.

Output power measurement was performed using RMS power meter. Power spectral density was performed using spectrum analyzer with RMS averaging detector and 1 MHz RBW.

8.1.4 Test data

Table 8.1-1: *Output power measurement results for single carrier operation in Band 71*

Remarks	Output power at Port A, dBm	Output power at Port A, W	Output power at Port B, dBm	Output power at Port B, W	Output power at Port C, dBm	Output power at Port C, W	Output power at Port D, dBm	Output power at Port D, W
5M bottom (QPSK)	45.90	38.90	45.85	38.46	45.75	37.58	45.92	39.08
5M middle (QPSK)	45.57	36.06	45.92	39.08	45.51	35.56	45.55	35.89
5M top (QPSK)	45.82	38.19	45.73	37.41	45.67	36.90	45.80	38.02
5M bottom (16QAM)	45.88	38.73	45.80	38.02	45.72	37.33	45.88	38.73
5M bottom (64QAM)	45.90	38.90	45.82	38.19	45.72	37.33	45.87	38.64
5M bottom (256QAM)	45.93	39.17	45.81	38.11	45.74	37.50	45.91	38.99
10M bottom (QPSK)	45.90	38.90	45.80	38.02	45.78	37.84	45.86	38.55
10M middle (QPSK)	45.58	36.14	46.00	39.81	45.55	35.89	45.59	36.22
10M top (QPSK)	45.92	39.08	45.84	38.37	45.76	37.67	45.87	38.64
10M bottom (16QAM)	45.90	38.90	45.79	37.93	45.76	37.67	45.85	38.46
10M bottom (64QAM)	45.85	38.46	45.77	37.76	45.73	37.41	45.80	38.02
10M bottom (256QAM)	45.88	38.73	45.77	37.76	45.69	37.07	45.80	38.02
15M bottom (QPSK)	45.82	38.19	45.73	37.41	45.73	37.41	45.76	37.67
15M middle (QPSK)	45.60	36.31	46.00	39.81	45.59	36.22	45.61	36.39
15M top (QPSK)	45.91	38.99	45.86	38.55	45.76	37.67	45.87	38.64
15M bottom (16QAM)	45.81	38.11	45.69	37.07	45.74	37.50	45.75	37.58
15M bottom (64QAM)	45.81	38.11	45.72	37.33	45.77	37.76	45.75	37.58
15M bottom (256QAM)	45.86	38.55	45.72	37.33	45.74	37.50	45.76	37.67
20M bottom (QPSK)	45.80	38.02	45.75	37.58	45.69	37.07	45.80	38.02
20M middle (QPSK)	45.57	36.06	46.00	39.81	45.61	36.39	45.62	36.48
20M top (QPSK)	45.84	38.37	45.83	38.28	45.73	37.41	45.87	38.64
20M bottom (16QAM)	45.84	38.37	45.78	37.84	45.70	37.15	45.83	38.28
20M bottom (64QAM)	45.79	37.93	45.79	37.93	45.74	37.50	45.77	37.76
20M bottom (256QAM)	45.81	38.11	45.76	37.67	45.68	36.98	45.81	38.11
GB IoT 10M bottom	45.84	38.37	45.90	38.90	46.00	39.81	46.00	39.81
GB IoT 10M middle	45.58	36.14	46.07	40.46	45.73	37.41	45.70	37.15
GB IoT 10M top	45.82	38.19	45.98	39.63	45.96	39.45	46.01	39.90
GB IoT 15M bottom	45.89	38.82	45.86	38.55	45.95	39.36	45.93	39.17
GB IoT 15M middle	45.57	36.06	46.10	40.74	45.79	37.93	45.72	37.33
GB IoT 15M top	45.95	39.36	45.98	39.63	45.92	39.08	45.98	39.63
GB IoT 20M bottom	45.82	38.19	45.85	38.46	45.89	38.82	45.90	38.90
GB IoT 20M middle	45.58	36.14	46.06	40.36	45.67	36.90	45.61	36.39

Table 8.1-2: *Output power measurement results for multi-carrier operation in Band 71*

Remarks	Output power at Port A, dBm	Output power at Port A, W	Output power at Port B, dBm	Output power at Port B, W	Output power at Port C, dBm	Output power at Port C, W	Output power at Port D, dBm	Output power at Port D, W
2C 5M (IBW=35M)	45.71	37.24	46.07	40.46	45.97	39.54	45.73	37.41
3C 5M (IBW=35M)	45.72	37.33	46.09	40.64	46.07	40.46	45.83	38.28
2C 10M (IBW=35)	45.72	37.33	45.81	38.11	45.69	37.07	45.86	38.55
3C 10M	45.60	36.31	45.84	38.37	45.63	36.56	45.72	37.33
2C 15M	45.64	36.64	45.90	38.90	45.63	36.56	45.75	37.58

Table 8.1-3: *Output power measurement results for single carrier operation in Band 85A*

Remarks	Output power at Port A, dBm	Output power at Port A, W	Output power at Port B, dBm	Output power at Port B, W	Output power at Port C, dBm	Output power at Port C, W	Output power at Port D, dBm	Output power at Port D, W
5M bottom (QPSK)	45.86	38.55	45.85	38.46	45.91	38.99	45.98	39.63
5M middle (QPSK)	45.52	35.65	45.44	34.99	45.57	36.06	45.69	37.07
5M top (QPSK)	45.77	37.76	45.67	36.90	45.74	37.50	45.86	38.55
5M bottom (16QAM)	45.87	38.64	45.86	38.55	45.90	38.90	45.99	39.72
5M bottom (64QAM)	45.89	38.82	45.82	38.19	45.89	38.82	45.97	39.54
5M bottom (256QAM)	45.85	38.46	45.83	38.28	45.87	38.64	45.96	39.45
10M bottom (QPSK)	45.72	37.33	45.69	37.07	45.68	36.98	45.79	37.93
10M middle (QPSK)	45.50	35.48	45.42	34.83	45.45	35.08	45.54	35.81
10M top (QPSK)	45.72	37.33	45.61	36.39	45.68	36.98	45.74	37.50
10M bottom (16QAM)	45.72	37.33	45.66	36.81	45.74	37.50	45.79	37.93
10M bottom (64QAM)	45.69	37.07	45.67	36.90	45.66	36.81	45.75	37.58
10M bottom (256QAM)	45.71	37.24	45.64	36.64	45.67	36.90	45.78	37.84
GB IoT 10M bottom	45.79	37.93	45.84	38.37	45.92	39.08	45.90	38.90
GB IoT 10M middle	45.57	36.06	45.54	35.81	45.61	36.39	45.63	36.56
GB IoT 10M top	45.75	37.58	45.74	37.50	45.84	38.37	45.83	38.28
SA 728.3 (20W) + 5M 735.5M (20W)	45.54	35.81	45.55	35.89	45.61	36.39	45.66	36.81
SA 728.2 (10W) + 5M 737.5M (30W)	45.42	34.83	45.42	34.83	45.51	35.56	45.54	35.81
SA 728.2 (20W) + 5M 737.5M (20W)	45.43	34.91	45.41	34.75	45.47	35.24	45.53	35.73
SA 2C 728.3 (10W) + 728.8M (10W) + 735.5M (20W)	45.50	35.48	45.51	35.56	45.49	35.40	45.60	36.31

Table 8.1-4: *Output power measurement results for multi-carrier operation in Band 85A*

Remarks	Output power at Port A, dBm	Output power at Port A, W	Output power at Port B, dBm	Output power at Port B, W	Output power at Port C, dBm	Output power at Port C, W	Output power at Port D, dBm	Output power at Port D, W
2C 5M (IBW = 17M)	46.05	40.27	46.00	39.81	46.10	40.74	46.06	40.36
3C 5M (IBW=17M)	45.91	38.99	45.78	37.84	45.89	38.82	45.91	38.99

Table 8.1-5: *Output power measurement results for single carrier dual band operation in Band 71 and Band 85A*

Remarks B71 / B85A	Output power at Port A, dBm	Output power at Port A, W	Output power at Port B, dBm	Output power at Port B, W	Output power at Port C, dBm	Output power at Port C, W	Output power at Port D, dBm	Output power at Port D, W
5M bottom (QPSK) / 5M bottom (QPSK)	48.90	77.62	48.82	76.21	48.80	75.86	48.95	78.52
5M middle (QPSK) / 5M middle (QPSK)	48.62	72.78	48.78	75.51	48.60	72.44	48.65	73.28
5M top (QPSK) / 5 top (QPSK)	48.86	76.91	48.73	74.64	48.72	74.47	48.85	76.74
10M bottom (QPSK) / 10M bottom (QPSK)	48.83	76.38	48.75	74.99	48.74	74.82	48.86	76.91
10M middle (QPSK) / 10M middle (QPSK)	48.56	71.78	48.70	74.13	48.51	70.96	48.61	72.61
10M top (QPSK) / 10M top (QPSK)	48.82	76.21	48.72	74.52	48.70	74.13	48.81	76.03
15M bottom (QPSK) / 5M bottom (QPSK)	48.83	76.38	48.73	74.64	48.77	75.34	48.84	76.56
15M middle (QPSK) / 5M middle (QPSK)	48.53	71.29	48.71	74.30	48.52	71.12	48.60	72.44
15M top (QPSK) / 5M top (QPSK)	48.86	76.91	48.77	75.34	48.75	74.99	48.88	77.27
20M bottom (QPSK) / 5M bottom (QPSK)	48.84	76.56	48.78	75.51	48.79	75.68	48.87	77.09
20M middle (QPSK) / 5M middle (QPSK)	48.60	72.44	48.72	74.47	48.51	70.96	48.59	72.28

Table 8.1-6: *Output power measurement results for multi-carrier dual band operation in Band 71 and Band 85A*

Remarks B71 / B85A	Output power at Port A, dBm	Output power at Port A, W	Output power at Port B, dBm	Output power at Port B, W	Output power at Port C, dBm	Output power at Port C, W	Output power at Port D, dBm	Output power at Port D, W
2C 5M / 2C 5M	48.88	77.27	49.02	79.80	48.93	78.16	48.85	76.74
3C 5M / 3C 5M	48.77	75.34	48.87	77.09	48.75	74.99	48.70	74.13
2C 10M / 3C 5M	48.97	78.89	49.08	80.91	49.09	81.10	49.05	80.35
3C 10M / 3C 5M	48.94	78.34	49.05	80.35	49.07	80.72	48.97	78.89
2C 15M / 3C 5M	49.05	80.35	49.18	82.79	49.18	82.79	49.12	81.66

Table 8.1-7: *Power spectral density measurement results for single carrier operation in Band 71*

Remarks	RF power density for 5 MHz channel, dBm/MHz	RF power density for 10 MHz channel, dBm/MHz	RF power density for 15 MHz channel, dBm/MHz	RF power density for 20 MHz channel, dBm/MHz
Antenna A, QPSK, low channel	39.62	36.66	34.88	33.78
Antenna B, QPSK, low channel	39.59	36.63	34.71	33.60
Antenna C, QPSK, low channel	39.32	36.38	34.74	33.52
Antenna D, QPSK, low channel	39.59	36.71	34.73	33.68
Antenna A, 16QAM, low channel	40.10	37.02	35.45	34.02
Antenna B, 16QAM, low channel	39.89	37.06	35.31	33.87
Antenna C, 16QAM, low channel	39.61	36.90	35.54	33.62
Antenna D, 16QAM, low channel	39.98	36.98	35.31	33.84
Antenna A, 64QAM, low channel	39.77	36.77	35.99	33.67
Antenna B, 64QAM, low channel	39.50	36.61	35.05	33.62
Antenna C, 64QAM, low channel	39.39	36.37	34.72	33.35
Antenna D, 64QAM, low channel	39.69	36.58	34.81	33.57
Antenna A, 256QAM, low channel	39.66	36.75	35.13	33.70
Antenna B, 256QAM, low channel	39.51	36.64	34.79	33.57
Antenna C, 256QAM, low channel	39.55	36.36	34.77	33.39
Antenna D, 256QAM, low channel	39.65	36.67	34.83	33.67
Antenna A, QPSK, mid channel	39.21	36.35	34.80	33.67
Antenna B, QPSK, mid channel	39.76	36.91	35.05	33.87
Antenna C, QPSK, mid channel	39.07	36.19	34.47	33.31
Antenna D, QPSK, mid channel	39.30	36.34	34.59	33.38
Antenna A, QPSK, high channel	39.68	36.88	35.04	33.81
Antenna B, QPSK, high channel	39.58	36.68	35.33	33.85
Antenna C, QPSK, high channel	39.35	36.47	34.71	33.57
Antenna D, QPSK, high channel	39.53	36.76	35.07	33.85

Table 8.1-8: *Power spectral density measurement results for MIMO 4×4 single carrier operation in Band 71*

Remarks	Total RF power density for 5 MHz channel, dBm/MHz	Total RF power density for 10 MHz channel, dBm/MHz	Total RF power density for 15 MHz channel, dBm/MHz	Total RF power density for 20 MHz channel, dBm/MHz
Antenna A to D, QPSK, low channel	45.55	42.62	40.79	39.67
Antenna A to D, 16QAM, low channel	45.92	43.01	41.42	39.86
Antenna A to D, 64QAM, low channel	45.61	42.61	41.19	39.57
Antenna A to D, 256QAM, low channel	45.61	42.63	40.90	39.60
Antenna A to D, QPSK, mid channel	45.36	42.48	40.75	39.58
Antenna A to D, QPSK, high channel	45.56	42.72	41.06	39.79

Table 8.1-9: *Power spectral density measurement results for single carrier operation in Band 85A*

Remarks	RF power density for 5 MHz channel, dBm/MHz	RF power density for 10 MHz channel, dBm/MHz
Antenna A, QPSK, low channel	39.48	36.62
Antenna B, QPSK, low channel	39.57	36.51
Antenna C, QPSK, low channel	39.58	36.35
Antenna D, QPSK, low channel	39.64	36.42
Antenna A, 16QAM, low channel	39.99	36.90
Antenna B, 16QAM, low channel	39.87	36.71
Antenna C, 16QAM, low channel	39.70	36.75
Antenna D, 16QAM, low channel	39.83	36.98
Antenna A, 64QAM, low channel	39.56	36.51
Antenna B, 64QAM, low channel	39.52	36.51
Antenna C, 64QAM, low channel	39.58	36.30
Antenna D, 64QAM, low channel	39.67	36.41
Antenna A, 256QAM, low channel	39.61	36.68
Antenna B, 256QAM, low channel	39.46	36.49
Antenna C, 256QAM, low channel	39.47	36.20
Antenna D, 256QAM, low channel	39.51	36.49
Antenna A, QPSK, mid channel	39.13	36.22
Antenna B, QPSK, mid channel	39.10	36.05
Antenna C, QPSK, mid channel	39.28	36.21
Antenna D, QPSK, mid channel	39.23	36.51
Antenna A, QPSK, high channel	39.75	36.54
Antenna B, QPSK, high channel	39.33	36.29
Antenna C, QPSK, high channel	39.34	36.31
Antenna D, QPSK, high channel	39.49	36.34

Table 8.1-10: *Power spectral density measurement results for MIMO 4×4 single carrier operation in Band 85A*

Remarks	Total RF power density for 5 MHz channel, dBm/MHz	Total RF power density for 10 MHz channel, dBm/MHz
Antenna A to D, QPSK, low channel	45.59	42.50
Antenna A to D, 16QAM, low channel	45.87	42.86
Antenna A to D, 64QAM, low channel	45.60	42.45
Antenna A to D, 256QAM, low channel	45.53	42.49
Antenna A to D, QPSK, mid channel	45.21	42.27
Antenna A to D, QPSK, high channel	45.50	42.39

Table 8.1-11: *Power spectral density measurement results for single carrier LTE + IoT operation in Band 71*

Remarks	RF power density for 10 MHz channel, dBm/MHz	RF power density for 15 MHz channel, dBm/MHz	RF power density for 20 MHz channel, dBm/MHz
Antenna A, QPSK, low channel	36.98	35.02	34.22
Antenna B, QPSK, low channel	37.07	35.22	33.78
Antenna C, QPSK, low channel	37.06	35.43	34.11
Antenna D, QPSK, low channel	37.14	35.24	34.12
Antenna A, QPSK, mid channel	36.83	34.78	33.76
Antenna B, QPSK, mid channel	37.18	35.16	34.18
Antenna C, QPSK, mid channel	37.75	35.81	33.56
Antenna D, QPSK, mid channel	36.86	34.98	33.65
Antenna A, QPSK, high channel	37.09	35.50	34.26
Antenna B, QPSK, high channel	37.15	35.43	34.17
Antenna C, QPSK, high channel	37.18	35.38	33.96
Antenna D, QPSK, high channel	37.20	35.44	34.34

Table 8.1-12: *Power spectral density measurement results for MIMO 4×4 single carrier LTE + IoT operation in Band 71*

Remarks	Total RF power density for 10 MHz channel, dBm/MHz	Total RF power density for 15 MHz channel, dBm/MHz	Total RF power density for 20 MHz channel, dBm/MHz
Antenna A to D, QPSK, low channel	43.08	41.25	40.08
Antenna A to D, QPSK, mid channel	43.19	41.22	39.81
Antenna A to D, QPSK, high channel	43.18	41.46	40.21

Table 8.1-13: *Power spectral density measurement results for single carrier LTE + IoT operation in Band 85A*

Remarks	RF power density for 10 MHz channel, dBm/MHz
Antenna A, QPSK, low channel	36.98
Antenna B, QPSK, low channel	37.10
Antenna C, QPSK, low channel	36.95
Antenna D, QPSK, low channel	37.29
Antenna A, QPSK, mid channel	36.61
Antenna B, QPSK, mid channel	36.68
Antenna C, QPSK, mid channel	36.51
Antenna D, QPSK, mid channel	36.83
Antenna A, QPSK, high channel	36.91
Antenna B, QPSK, high channel	37.03
Antenna C, QPSK, high channel	36.63
Antenna D, QPSK, high channel	36.93

Table 8.1-14: *Power spectral density measurement results for MIMO 4×4 single carrier LTE + IoT operation in Band 85A*

Remarks	Total RF power density for 10 MHz channel, dBm/MHz
Antenna A to D, QPSK, low channel	43.10
Antenna A to D, QPSK, mid channel	42.68
Antenna A to D, QPSK, high channel	42.90

Table 8.1-15: *Power spectral density measurement results for stand-alone IoT operation in Band 85A*

Remarks	RF power density, dBm/MHz
Antenna A, 200 kHz away from lower band edge	41.29
Antenna B, 200 kHz away from lower band edge	41.32
Antenna C, 200 kHz away from lower band edge	40.91
Antenna D, 200 kHz away from lower band edge	41.26
Antenna A, 200 kHz away from upper band edge	41.32
Antenna B, 200 kHz away from upper band edge	40.91
Antenna C, 200 kHz away from upper band edge	40.99
Antenna D, 200 kHz away from upper band edge	41.33

Note: since IoT's channel bandwidth is only 200 kHz and is completely enclosed within 1 MHz IF BW of the spectrum analyzer, PSD within 1 MHz and total power are essentially the same.

Table 8.1-16: *Power spectral density measurement results for MIMO 2×2 stand-alone IoT operation in Band 85A*

Remarks	Total RF power density, dBm/MHz
Two highest values from antenna A to D, 200 kHz away from lower band edge	44.32
Two highest values from antenna A to D, 200 kHz away from upper band edge	44.34

Note: The SA IoT carriers are similar to GSM and are limited to 20W maximum per single carrier SA IoT 2-Port diversity is supported. For Radio 4449 B71 B85A the 4 port radio IoT carriers will be offset for 2 port diversity.

Table 8.1-17: *Output power measurement results for stand-alone IoT operation in Band 85A*

Remarks	Output power, dBm	Output power, W	Rated power, W	Measured/Rated, %
Antenna A, 200 kHz away from lower band edge	42.47	17.660	20.000	88.3
Antenna B, 200 kHz away from lower band edge	42.50	17.783	20.000	88.9
Antenna C, 200 kHz away from lower band edge	42.09	16.181	20.000	80.9
Antenna D, 200 kHz away from lower band edge	42.44	17.539	20.000	87.7
Antenna A, 200 kHz away from upper band edge	42.50	17.783	20.000	88.9
Antenna B, 200 kHz away from upper band edge	42.09	16.181	20.000	80.9
Antenna C, 200 kHz away from upper band edge	42.17	16.482	20.000	82.4
Antenna D, 200 kHz away from upper band edge	42.51	17.824	20.000	89.1

Note: measured power is within 20% of rated power

Table 8.1-18: *Output power measurement results for MIMO 2×2 stand-alone IoT operation in Band 85A*

Remarks	Total output power, dBm	Total output power, W
Two highest values from antenna A to D, 200 kHz away from lower band edge	45.47	35.237
Two highest values from antenna A to D, 200 kHz away from upper band edge	45.52	35.645

Note: The SA IoT carriers are similar to GSM and are limited to 20W maximum per single carrier SA IoT 2-Port diversity is supported. For Radio 4449 B71 B85A the 4 port radio IoT carriers will be offset for 2 port diversity.

Table 8.1-19: *Power spectral density measurement results for multi-carrier operation in Band 71*

Remarks	RF power density for two 5 MHz channels, dBm/MHz	RF power density for two 10 MHz channels, dBm/MHz	RF power density for two 15 MHz channels, dBm/MHz	RF power density for three 5 MHz channels, dBm/MHz	RF power density for three 10 MHz channels, dBm/MHz
Antenna A, QPSK	36.33	33.95	31.87	34.66	31.73
Antenna B, QPSK	36.39	33.63	32.19	34.91	32.13
Antenna C, QPSK	35.97	33.32	31.80	34.37	31.51
Antenna D, QPSK	36.27	33.85	31.81	34.86	31.75

Table 8.1-20: *Power spectral density measurement results for MIMO 4×4 multi-carrier operation in Band 71*

Remarks	Total RF power density for two 5 MHz channels, dBm/MHz	Total RF power density for two 10 MHz channels, dBm/MHz	Total RF power density for two 15 MHz channels, dBm/MHz	Total RF power density for three 5 MHz channels, dBm/MHz	Total RF power density for three 10 MHz channels, dBm/MHz
Antenna A to D	42.26	39.71	37.94	40.73	37.81

Table 8.1-21: *Power spectral density measurement results for multi-carrier operation in Band 85A*

Remarks	RF power density for two 5 MHz channels, dBm/MHz	RF power density for three 5 MHz channels, dBm/MHz
Antenna A, QPSK	36.17	34.15
Antenna B, QPSK	36.16	34.24
Antenna C, QPSK	36.06	34.22
Antenna D, QPSK	36.21	34.30

Table 8.1-22: *Power spectral density measurement results for MIMO 4×4 multi-carrier operation in Band 85A*

Remarks	Total RF power density for two 5 MHz channels, dBm/MHz	Total RF power density for three 5 MHz channels, dBm/MHz
Antenna A to D	42.17	40.25

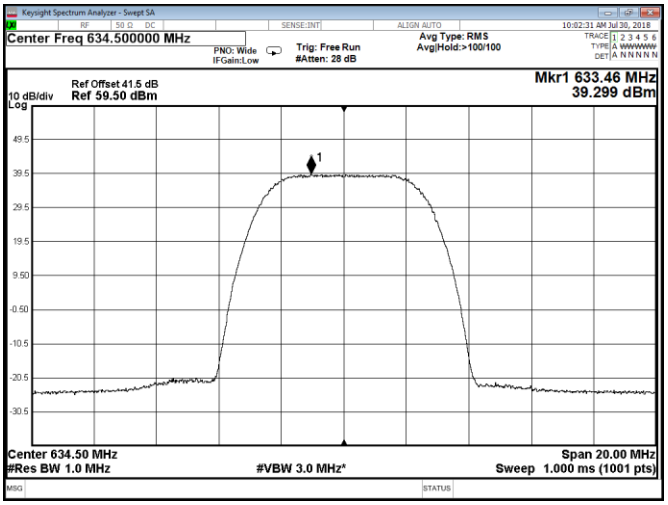


Figure 8.1-1: *Power spectral density sample plot, single carrier*

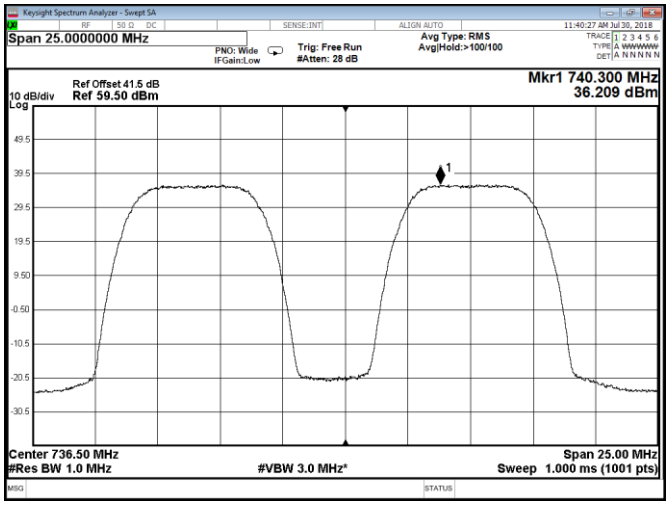


Figure 8.1-2: *Power spectral density sample plot, multi-carrier*

Table 8.1-23: *Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results in Band 71*

Remarks	0.1% CCDF for 5 MHz channel, dB	0.1% CCDF for 10 MHz channel, dB	0.1% CCDF for 15 MHz channel, dB	0.1% CCDF for 20 MHz channel, dB	PAPR reduction limit, dB	Margin*, dB
Antenna A, QPSK, low channel	7.31	7.30	7.33	7.32	13.00	5.67
Antenna B, QPSK, low channel	7.33	7.34	7.34	7.33	13.00	5.66
Antenna C, QPSK, low channel	7.31	7.31	7.34	7.32	13.00	5.66
Antenna D, QPSK, low channel	7.33	7.32	7.35	7.32	13.00	5.65
Antenna A, 16QAM, low channel	7.50	7.31	7.34	7.32	13.00	5.5
Antenna B, 16QAM, low channel	7.33	7.33	7.33	7.32	13.00	5.67
Antenna C, 16QAM, low channel	7.31	7.32	7.34	7.33	13.00	5.66
Antenna D, 16QAM, low channel	7.33	7.32	7.33	7.35	13.00	5.65
Antenna A, 64QAM, low channel	7.32	7.34	7.34	7.33	13.00	5.66
Antenna B, 64QAM, low channel	7.31	7.31	7.34	7.32	13.00	5.66
Antenna C, 64QAM, low channel	7.49	7.34	7.35	7.33	13.00	5.51
Antenna D, 64QAM, low channel	7.33	7.65	7.33	7.32	13.00	5.35
Antenna A, 256QAM, low channel	7.54	7.34	7.34	7.34	13.00	5.46
Antenna B, 256QAM, low channel	7.44	7.33	7.34	7.35	13.00	5.56
Antenna C, 256QAM, low channel	7.43	7.34	7.35	7.30	13.00	5.57
Antenna D, 256QAM, low channel	7.32	7.32	7.37	7.34	13.00	5.63
Antenna A, QPSK, mid channel	7.32	7.29	7.33	7.34	13.00	5.66
Antenna B, QPSK, mid channel	7.29	7.30	7.32	7.34	13.00	5.66
Antenna C, QPSK, mid channel	7.60	7.72	7.32	7.64	13.00	5.28
Antenna D, QPSK, mid channel	7.53	7.52	7.30	7.33	13.00	5.47
Antenna A, QPSK, high channel	7.37	7.48	7.58	8.41	13.00	4.59
Antenna B, QPSK, high channel	7.51	7.48	7.61	7.67	13.00	5.33
Antenna C, QPSK, high channel	7.45	7.48	7.60	7.65	13.00	5.35
Antenna D, QPSK, high channel	7.34	7.52	7.57	7.61	13.00	5.39

Note: * Margin was calculated from the highest measured value in each row.

Table 8.1-24: *Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results in Band 85A*

Remarks	0.1% CCDF for 5 MHz channel, dB	0.1% CCDF for 10 MHz channel, dB	PAPR reduction limit, dB	Margin*, dB
Antenna A, QPSK, low channel	7.30	7.42	13.00	5.58
Antenna B, QPSK, low channel	7.33	7.37	13.00	5.63
Antenna C, QPSK, low channel	7.33	7.40	13.00	5.60
Antenna D, QPSK, low channel	7.31	7.37	13.00	5.63
Antenna A, 16QAM, low channel	7.29	7.39	13.00	5.61
Antenna B, 16QAM, low channel	7.32	7.39	13.00	5.61
Antenna C, 16QAM, low channel	7.30	7.40	13.00	5.60
Antenna D, 16QAM, low channel	7.32	7.36	13.00	5.64
Antenna A, 64QAM, low channel	7.33	7.42	13.00	5.58
Antenna B, 64QAM, low channel	7.31	7.39	13.00	5.61
Antenna C, 64QAM, low channel	7.33	7.43	13.00	5.57
Antenna D, 64QAM, low channel	7.36	7.41	13.00	5.59
Antenna A, 256QAM, low channel	7.32	7.68	13.00	5.32
Antenna B, 256QAM, low channel	7.32	7.62	13.00	5.38
Antenna C, 256QAM, low channel	7.34	7.40	13.00	5.60
Antenna D, 256QAM, low channel	7.33	7.41	13.00	5.59
Antenna A, QPSK, mid channel	7.27	7.28	13.00	5.72
Antenna B, QPSK, mid channel	7.28	7.29	13.00	5.71
Antenna C, QPSK, mid channel	7.28	7.30	13.00	5.70
Antenna D, QPSK, mid channel	7.28	7.29	13.00	5.71
Antenna A, QPSK, high channel	7.29	7.30	13.00	5.70
Antenna B, QPSK, high channel	7.32	7.58	13.00	5.42
Antenna C, QPSK, high channel	7.27	7.29	13.00	5.71
Antenna D, QPSK, high channel	7.29	7.34	13.00	5.66

Note: * Margin was calculated from the highest measured value in each row.

Table 8.1-25: *Complementary Cumulative Distribution Function (CCDF) of the PAPR reduction measurement results for IoT stand-alone in Band 85A*

Remarks	0.1% CCDF, dB	PAPR reduction limit, dB	Margin, dB
Antenna A, 200 kHz away from lower band edge	5.68	13.00	7.32
Antenna B, 200 kHz away from lower band edge	5.64	13.00	7.36
Antenna C, 200 kHz away from lower band edge	5.58	13.00	7.42
Antenna D, 200 kHz away from lower band edge	5.48	13.00	7.52
Antenna A, at the middle of the band	5.66	13.00	7.34
Antenna B, at the middle of the band	5.64	13.00	7.36
Antenna C, at the middle of the band	5.58	13.00	7.42
Antenna D, at the middle of the band	5.46	13.00	7.54
Antenna A, 200 kHz away from upper band edge	5.53	13.00	7.47
Antenna B, 200 kHz away from upper band edge	5.57	13.00	7.43
Antenna C, 200 kHz away from upper band edge	5.53	13.00	7.47
Antenna D, 200 kHz away from upper band edge	5.45	13.00	7.55

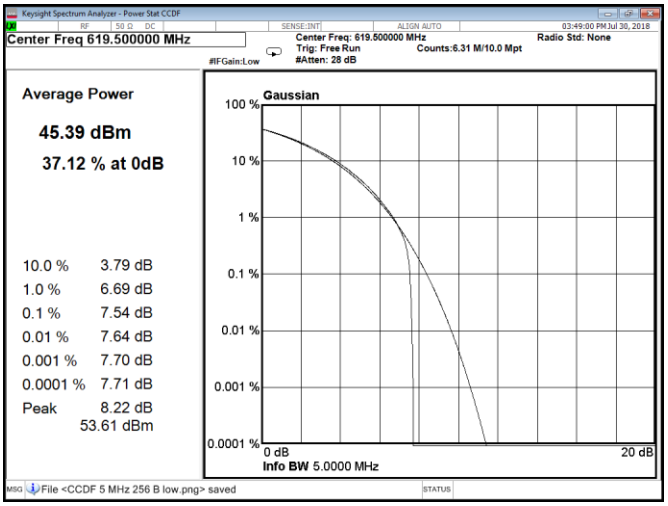


Figure 8.1-3: *CCDF, sample plot, Band 71*

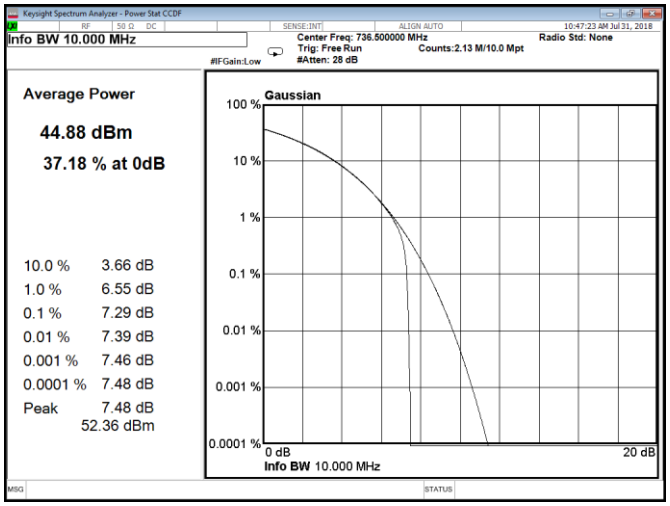


Figure 8.1-4: *CCDF, sample plot, Band 85A*

8.2 FCC 27.53 Spurious emissions at RF antenna connector

8.2.1 Definitions and limits

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

8.2.2 Test summary

Test date	July 31, 2018
Test engineer	Andrey Adelberg

8.2.3 Observations, settings and special notes

The spectrum was searched from 30 MHz to the 10th harmonic.
All scan measurements were performed using a RMS detector with 1 MHz RBW.
Band edges were performed with RBW = 1% OBW and 100 kHz at 1 MHz away.
For compensation of MIMO 4×4 application limit lines were adjusted by 6 dB (10 × Log_{10}(4))

8.2.4 Test data

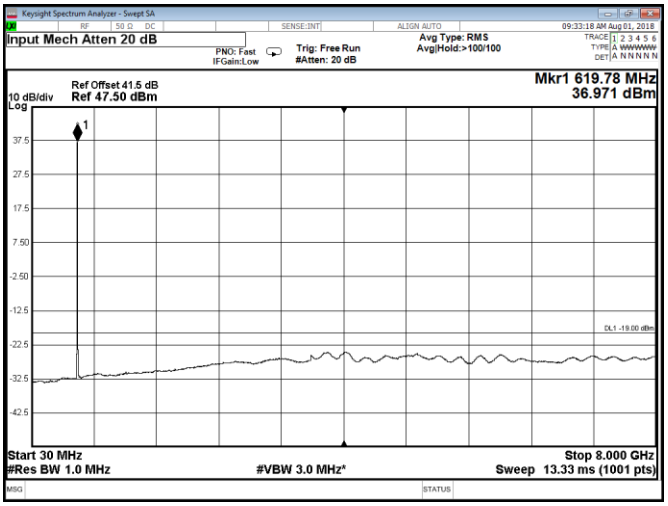


Figure 8.2-1: *Conducted spurious emissions at Port A, QPSK, Band 71 low 5 MHz channel*

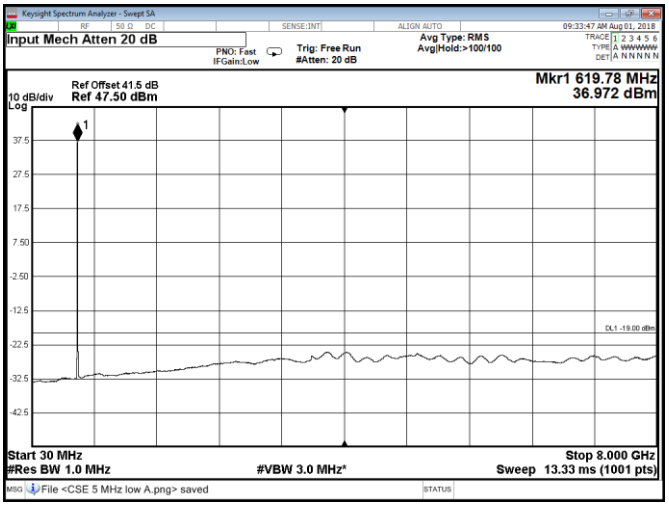


Figure 8.2-2: *Conducted spurious emissions at Port B, QPSK, Band 71 low 5 MHz channel*

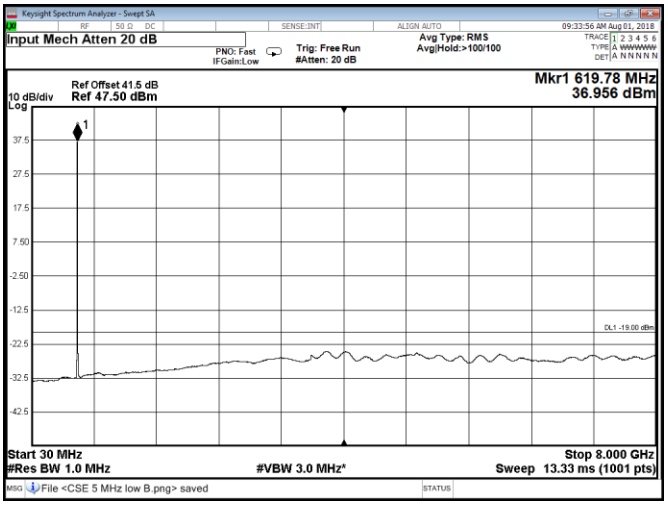


Figure 8.2-3: *Conducted spurious emissions at Port C, QPSK, Band 71 low 5 MHz channel*

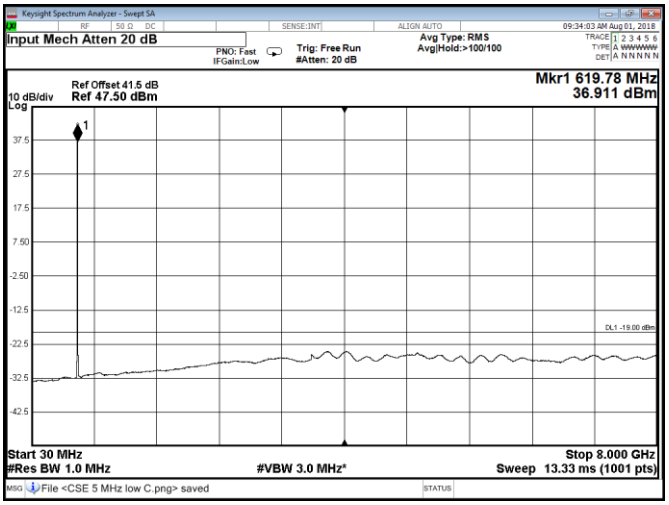


Figure 8.2-4: *Conducted spurious emissions at Port D, QPSK, Band 71 low 5 MHz channel*

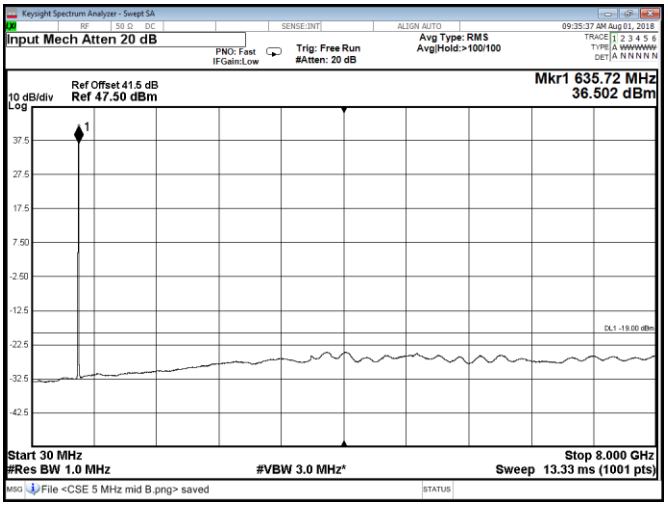


Figure 8.2-5: *Conducted spurious emissions at Port A, QPSK, Band 71 mid 5 MHz channel*

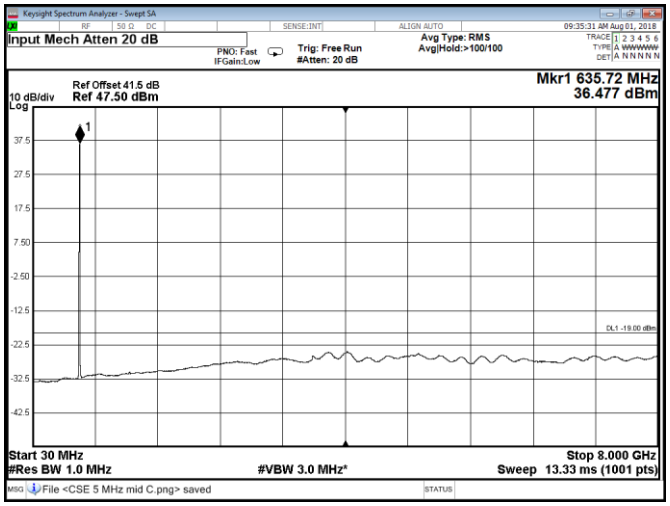


Figure 8.2-6: *Conducted spurious emissions at Port B, QPSK, Band 71 mid 5 MHz channel*

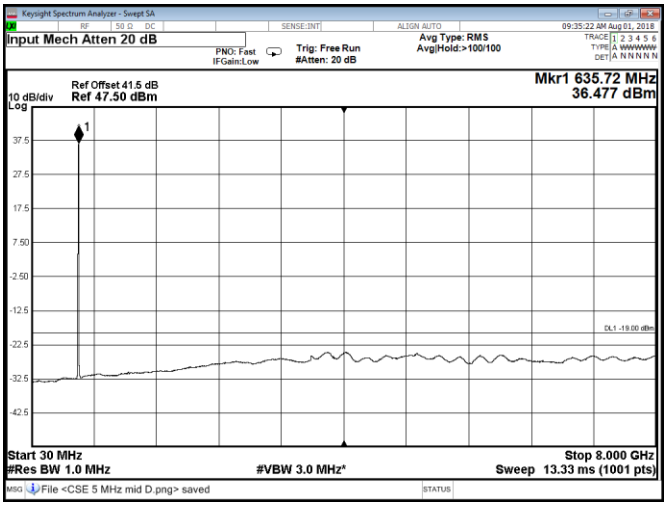


Figure 8.2-7: *Conducted spurious emissions at Port C, QPSK, Band 71 mid 5 MHz channel*

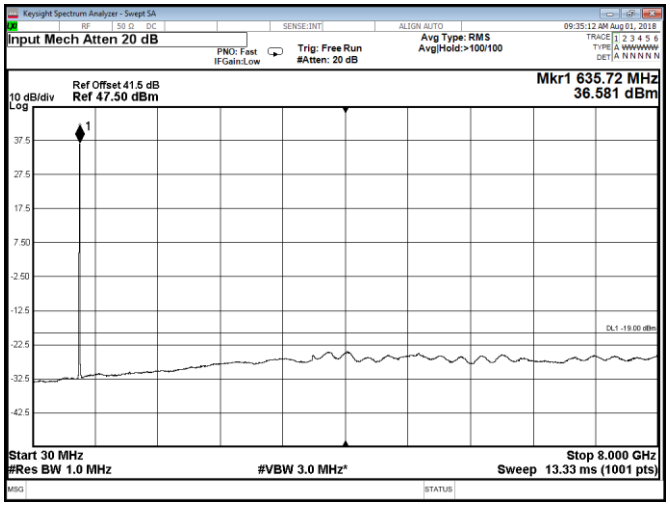


Figure 8.2-8: *Conducted spurious emissions at Port D, QPSK, Band 71 mid 5 MHz channel*

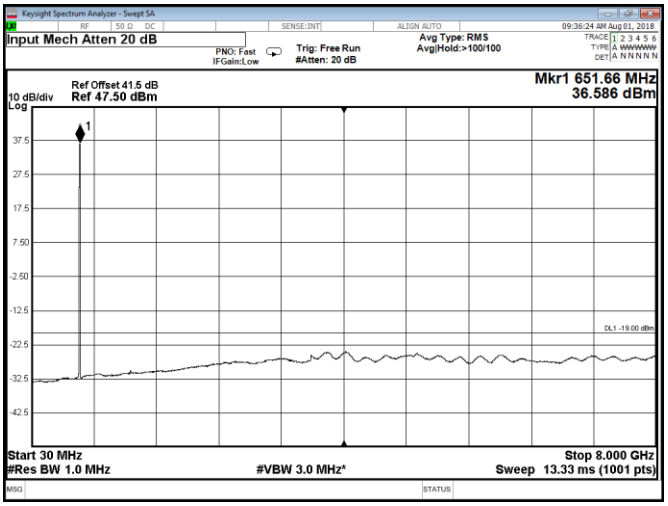


Figure 8.2-9: *Conducted spurious emissions at Port A, QPSK, Band 71 high 5 MHz channel*

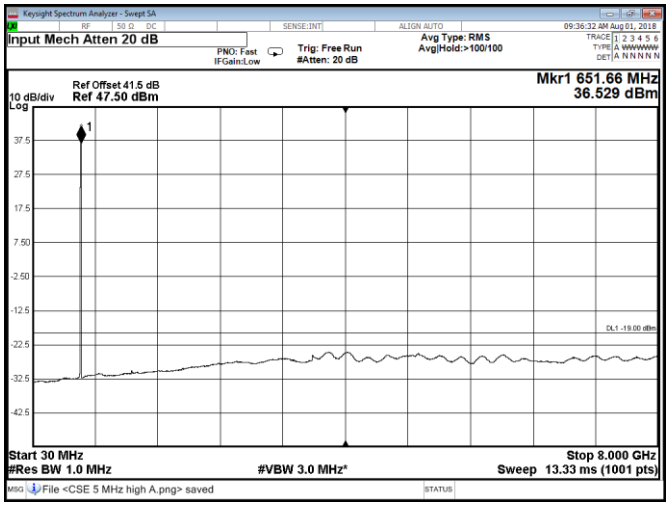


Figure 8.2-10: *Conducted spurious emissions at Port B, QPSK, Band 71 high 5 MHz channel*

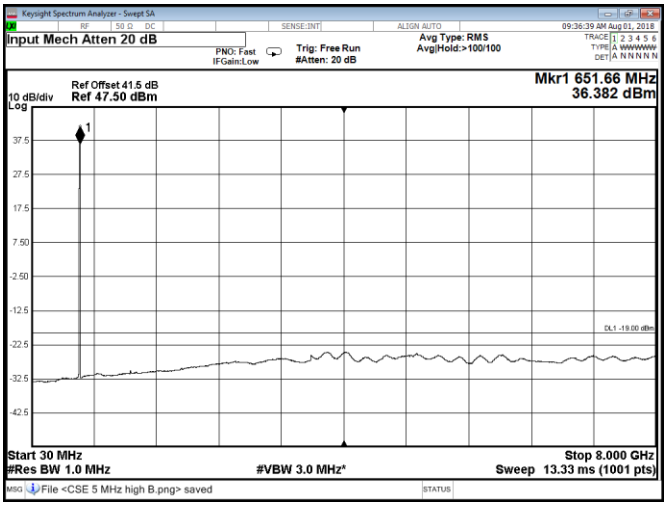


Figure 8.2-11: *Conducted spurious emissions at Port C, QPSK, Band 71 high 5 MHz channel*

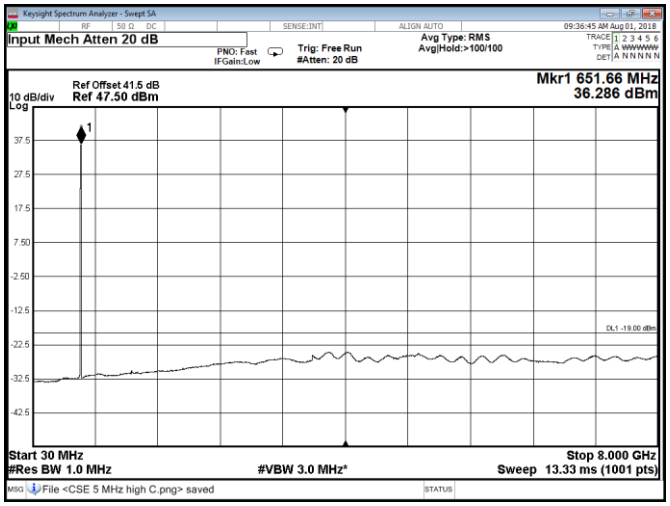


Figure 8.2-12: *Conducted spurious emissions at Port D, QPSK, Band 71 high 5 MHz channel*

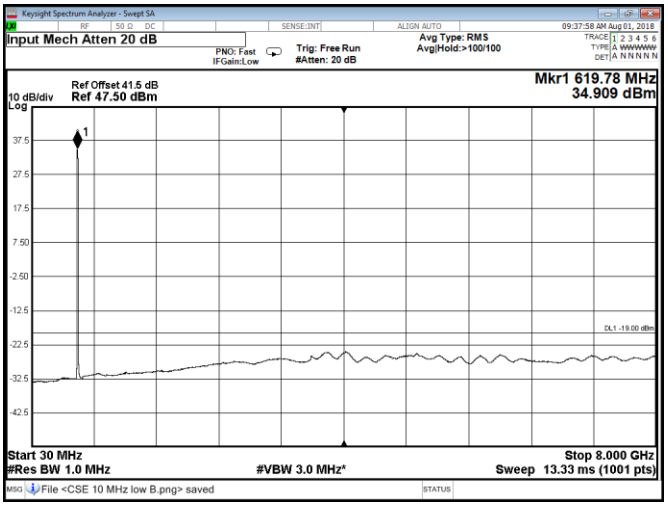


Figure 8.2-13: *Conducted spurious emissions at Port A, QPSK, Band 71 low 10 MHz channel*

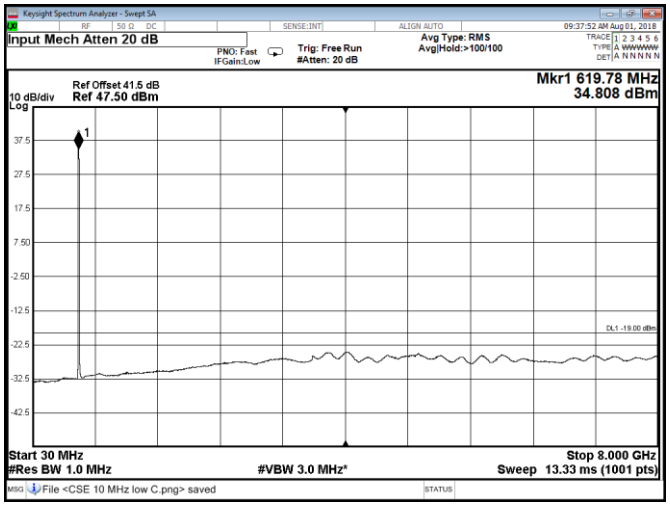


Figure 8.2-14: *Conducted spurious emissions at Port B, QPSK, Band 71 low 10 MHz channel*

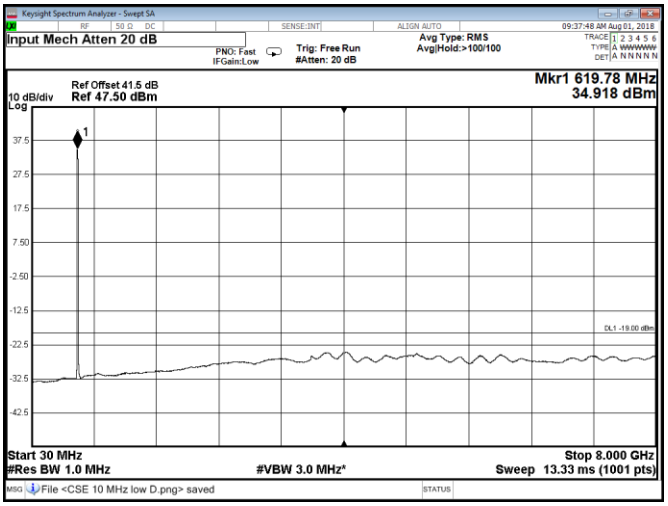


Figure 8.2-15: *Conducted spurious emissions at Port C, QPSK, Band 71 low 10 MHz channel*

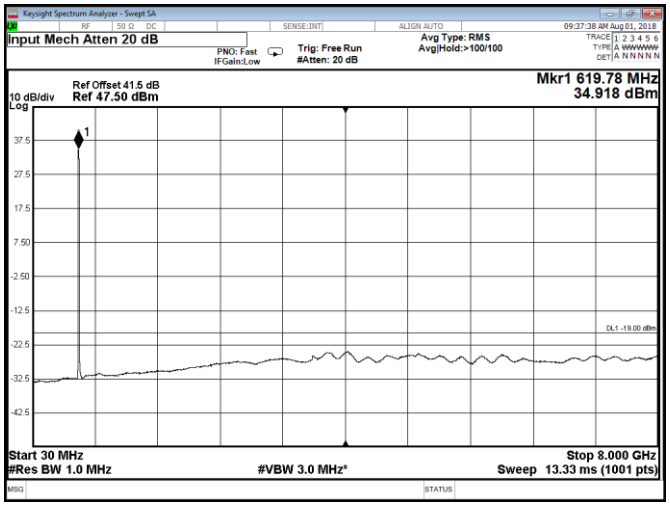


Figure 8.2-16: *Conducted spurious emissions at Port D, QPSK, Band 71 low 10 MHz channel*

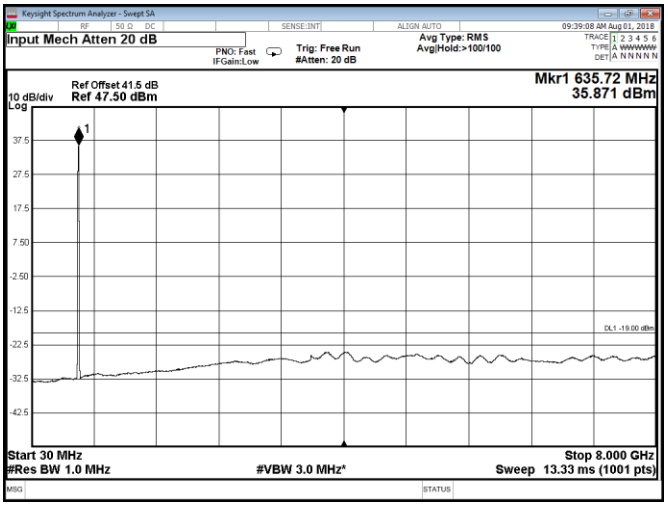


Figure 8.2-17: *Conducted spurious emissions at Port A, QPSK, Band 71 mid 10 MHz channel*

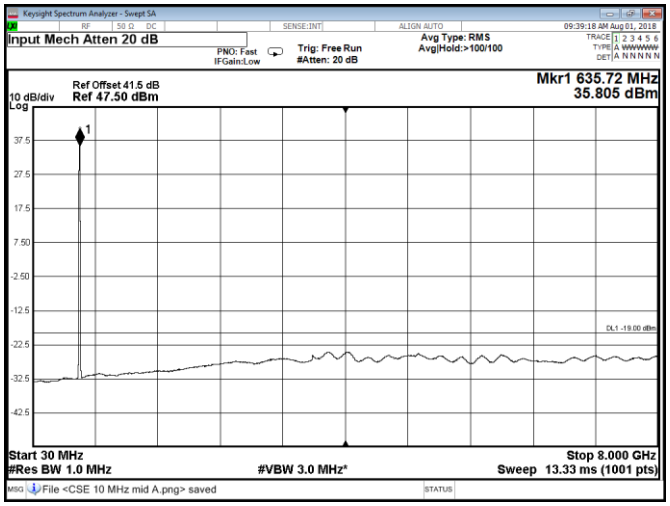


Figure 8.2-18: *Conducted spurious emissions at Port B, QPSK, Band 71 mid 10 MHz channel*

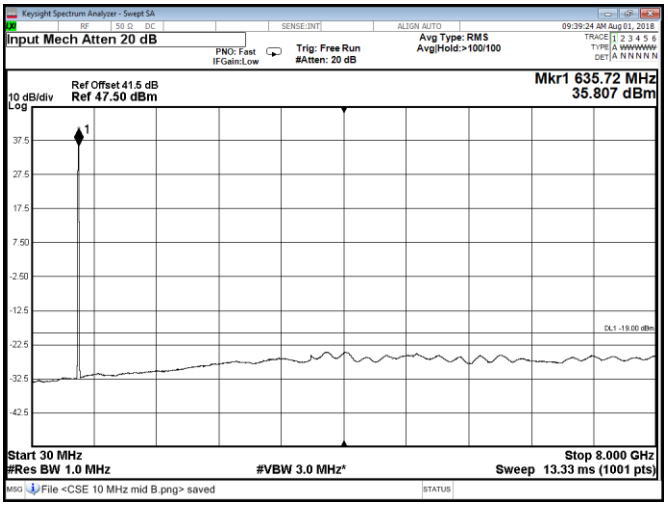


Figure 8.2-19: *Conducted spurious emissions at Port C, QPSK, Band 71 mid 10 MHz channel*

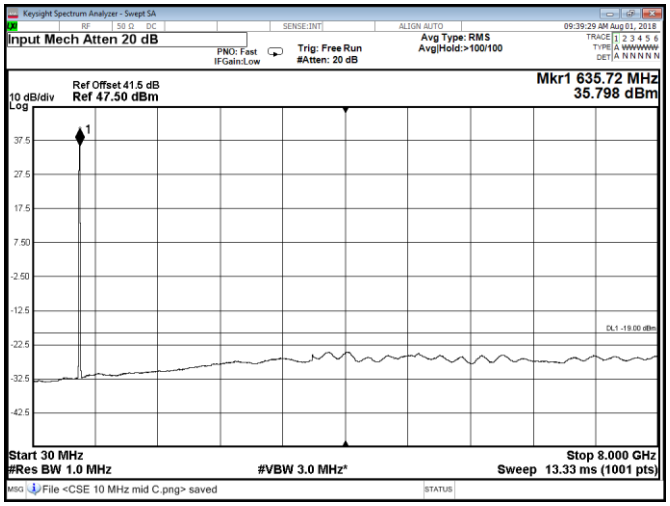


Figure 8.2-20: *Conducted spurious emissions at Port D, QPSK, Band 71 mid 10 MHz channel*

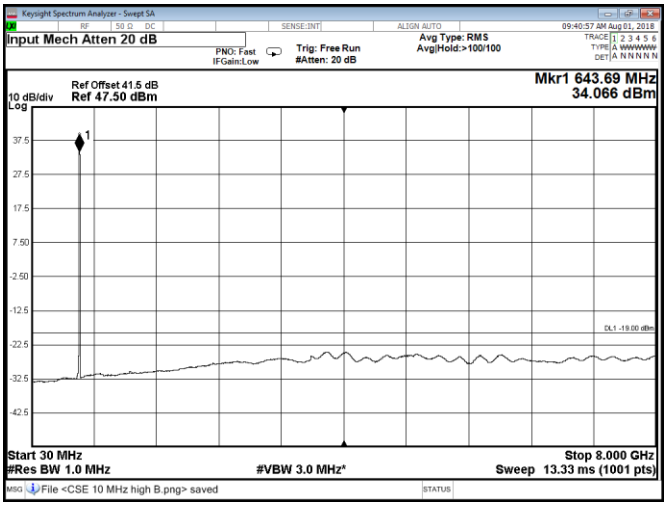


Figure 8.2-21: *Conducted spurious emissions at Port A, QPSK, Band 71 high 10 MHz channel*

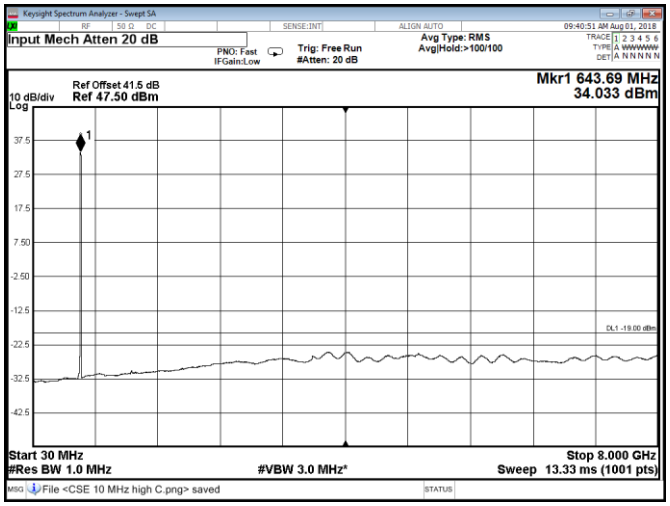


Figure 8.2-22: *Conducted spurious emissions at Port B, QPSK, Band 71 high 10 MHz channel*

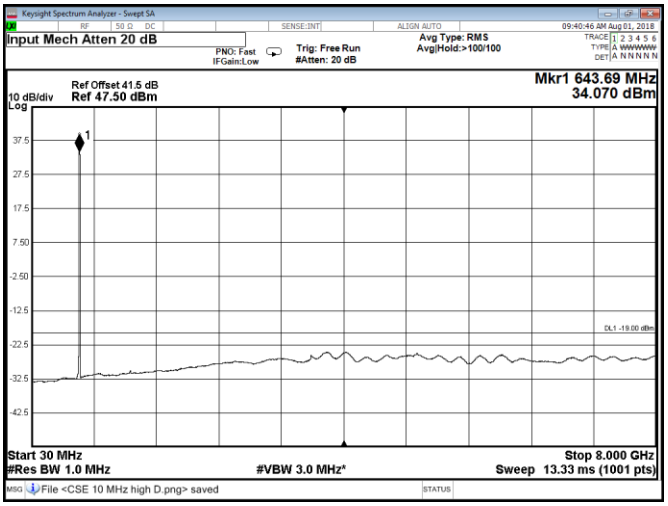


Figure 8.2-23: *Conducted spurious emissions at Port C, QPSK, Band 71 high 10 MHz channel*

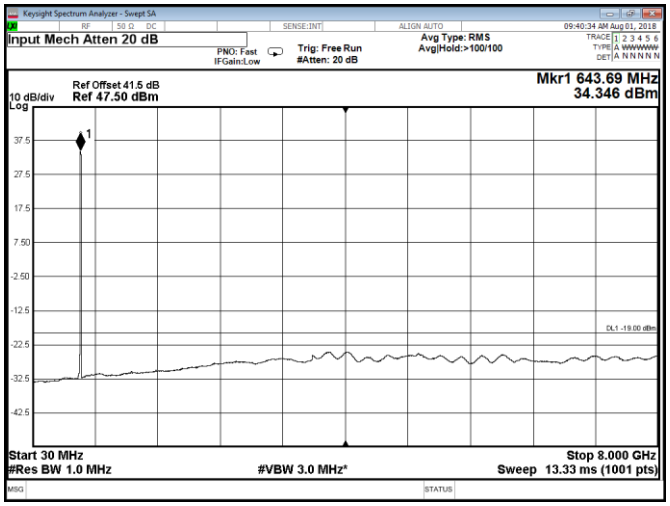


Figure 8.2-24: *Conducted spurious emissions at Port D, QPSK, Band 71 high 10 MHz channel*

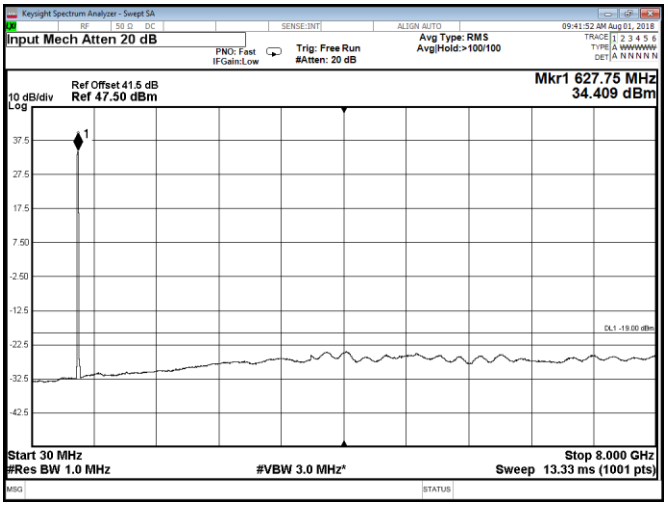


Figure 8.2-25: *Conducted spurious emissions at Port A, QPSK, Band 71 low 15 MHz channel*

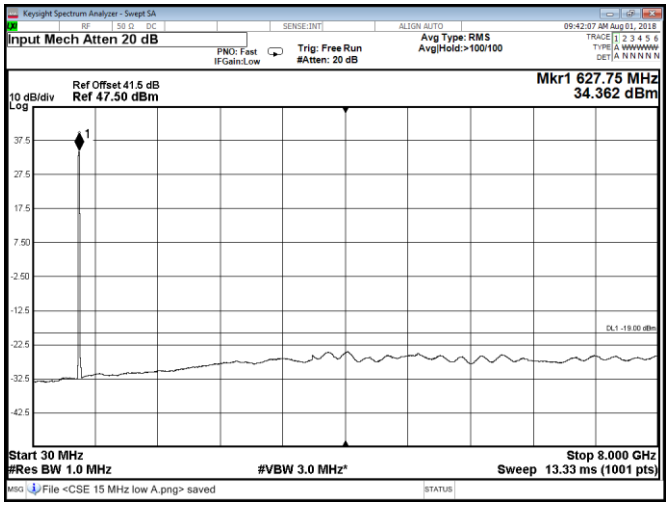


Figure 8.2-26: *Conducted spurious emissions at Port B, QPSK, Band 71 low 15 MHz channel*

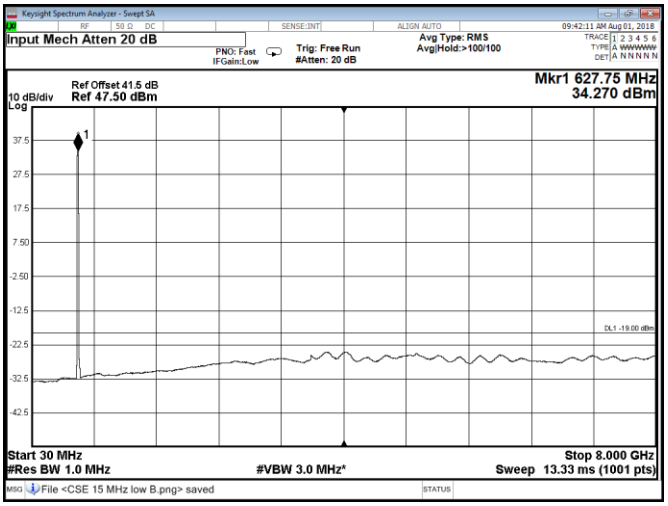


Figure 8.2-27: *Conducted spurious emissions at Port C, QPSK, Band 71 low 15 MHz channel*

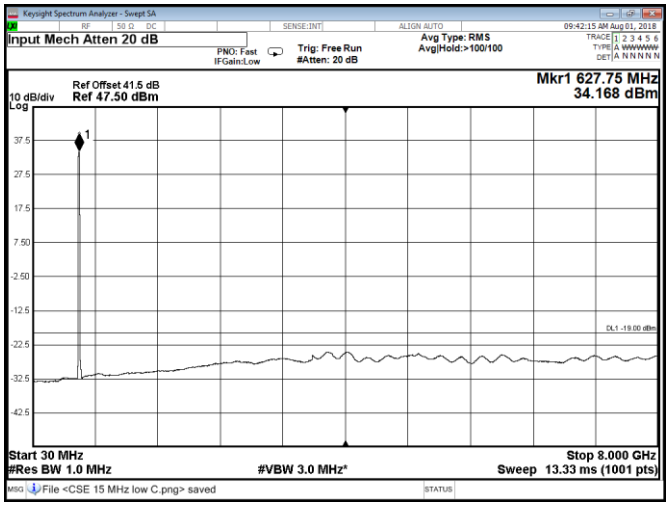


Figure 8.2-28: *Conducted spurious emissions at Port D, QPSK, Band 71 low 15 MHz channel*

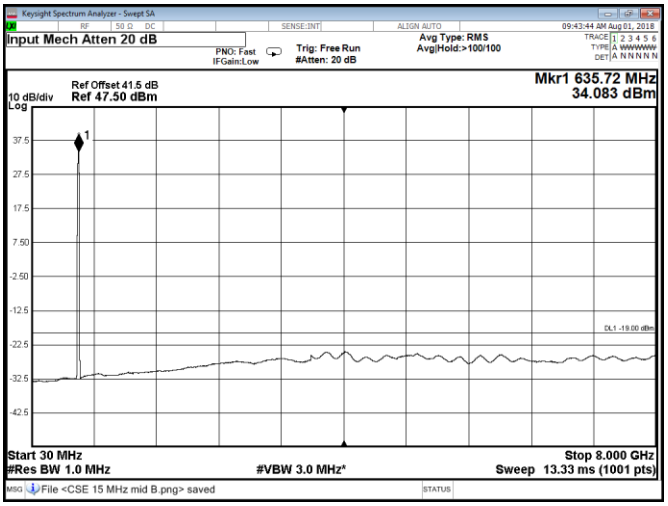


Figure 8.2-29: *Conducted spurious emissions at Port A, QPSK, Band 71 mid 15 MHz channel*

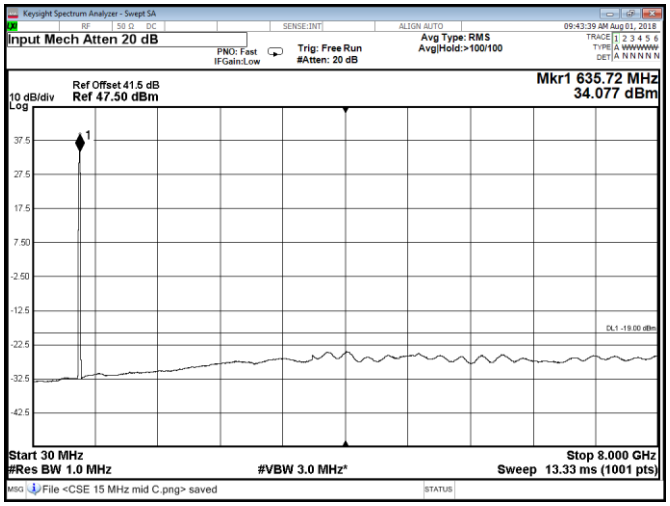


Figure 8.2-30: *Conducted spurious emissions at Port B, QPSK, Band 71 mid 15 MHz channel*

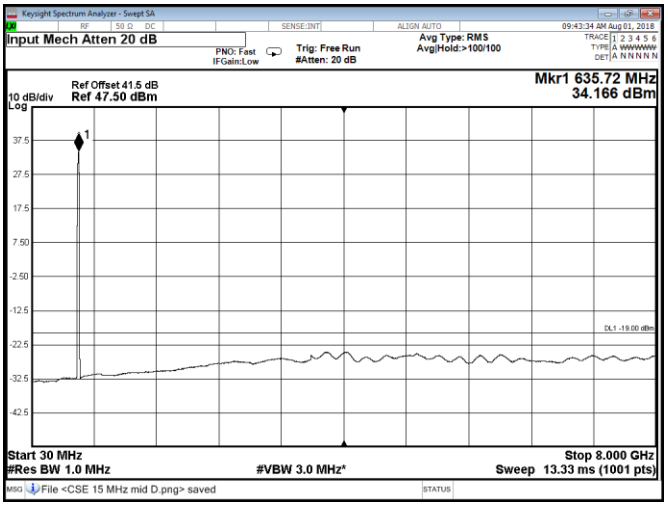


Figure 8.2-31: *Conducted spurious emissions at Port C, QPSK, Band 71 mid 15 MHz channel*

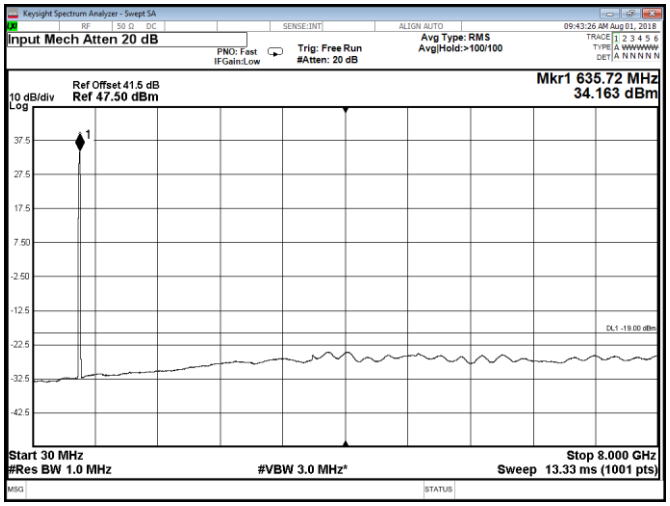


Figure 8.2-32: *Conducted spurious emissions at Port D, QPSK, Band 71 mid 15 MHz channel*

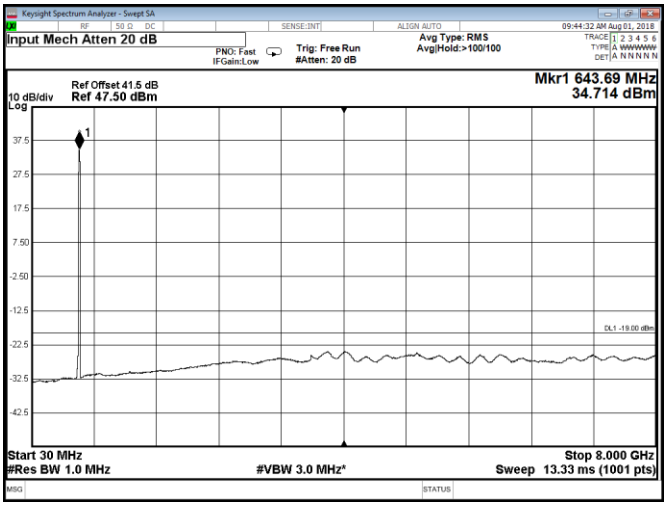


Figure 8.2-33: *Conducted spurious emissions at Port A, QPSK, Band 71 high 15 MHz channel*

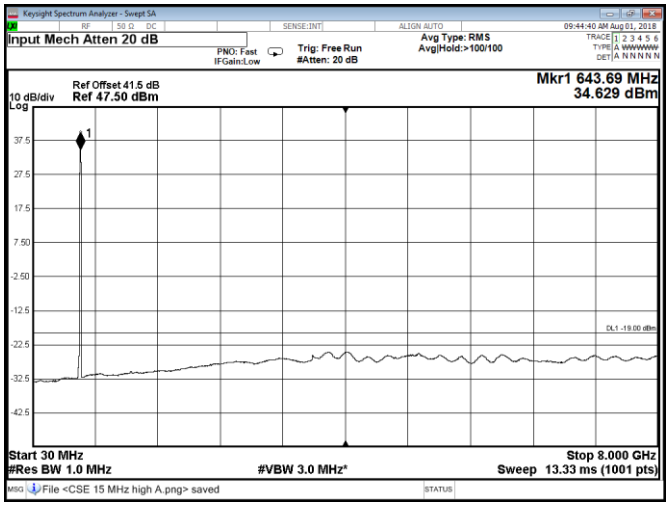


Figure 8.2-34: *Conducted spurious emissions at Port B, QPSK, Band 71 high 15 MHz channel*

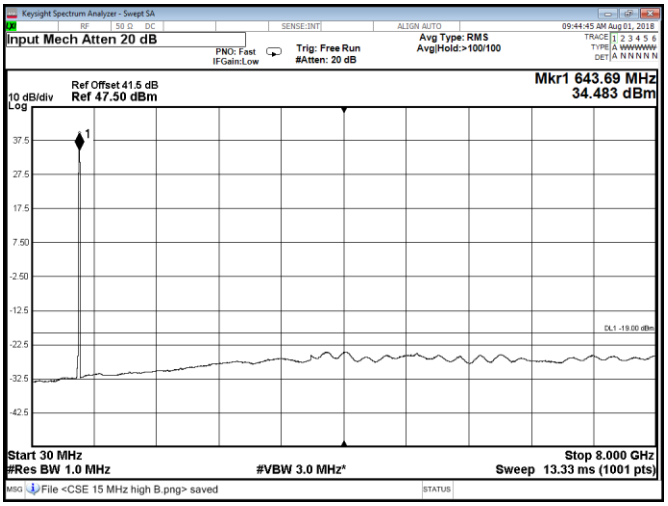


Figure 8.2-35: *Conducted spurious emissions at Port C, QPSK, Band 71 high 15 MHz channel*

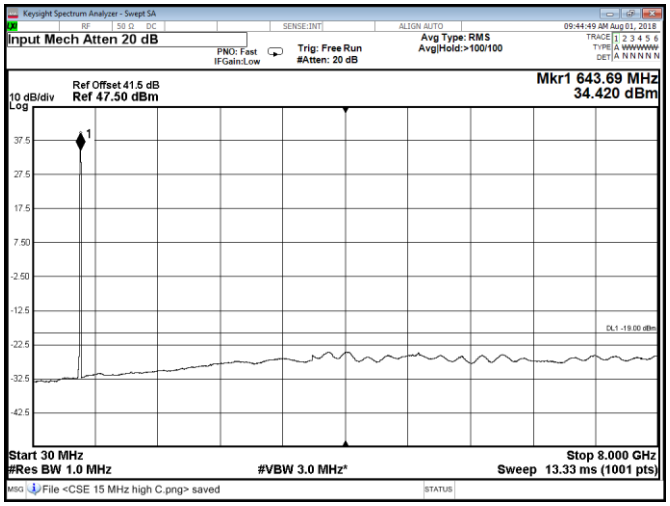


Figure 8.2-36: *Conducted spurious emissions at Port D, QPSK, Band 71 high 15 MHz channel*

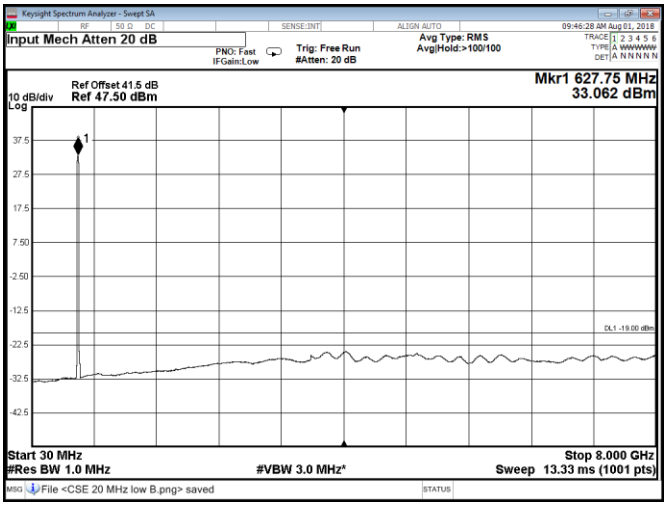


Figure 8.2-37: *Conducted spurious emissions at Port A, QPSK, Band 71 low 20 MHz channel*

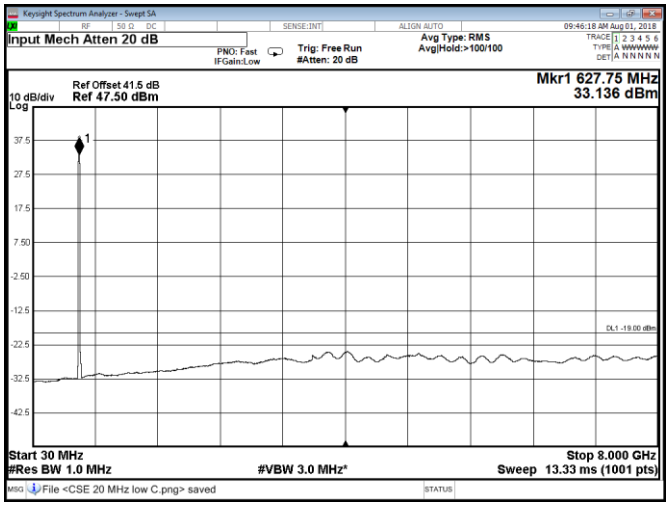


Figure 8.2-38: *Conducted spurious emissions at Port B, QPSK, Band 71 low 20 MHz channel*

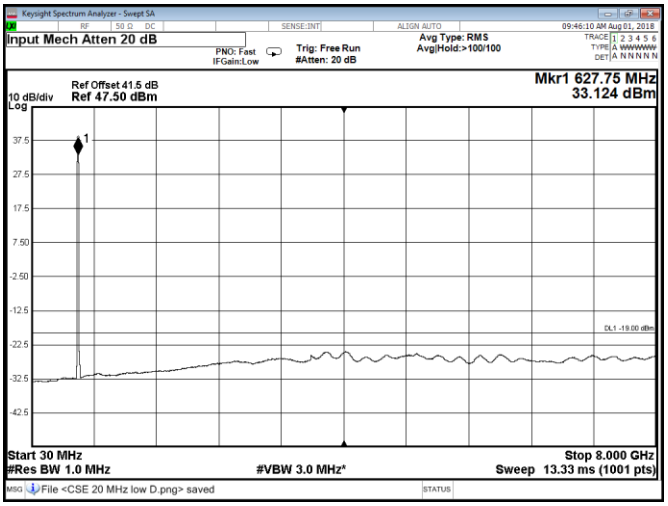


Figure 8.2-39: *Conducted spurious emissions at Port C, QPSK, Band 71 low 20 MHz channel*

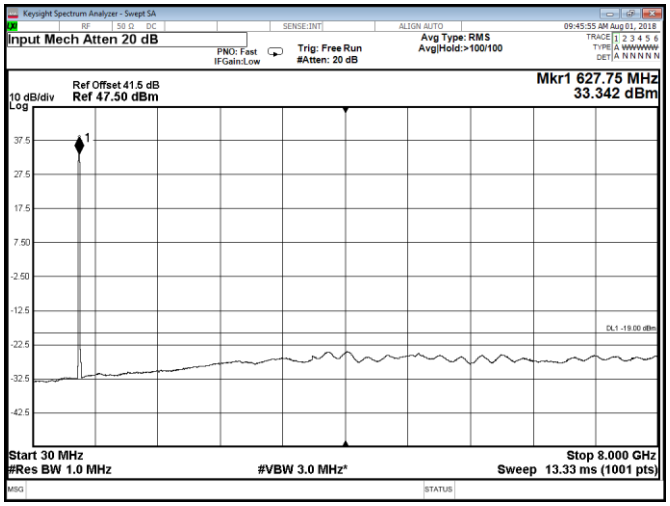


Figure 8.2-40: *Conducted spurious emissions at Port D, QPSK, Band 71 low 20 MHz channel*

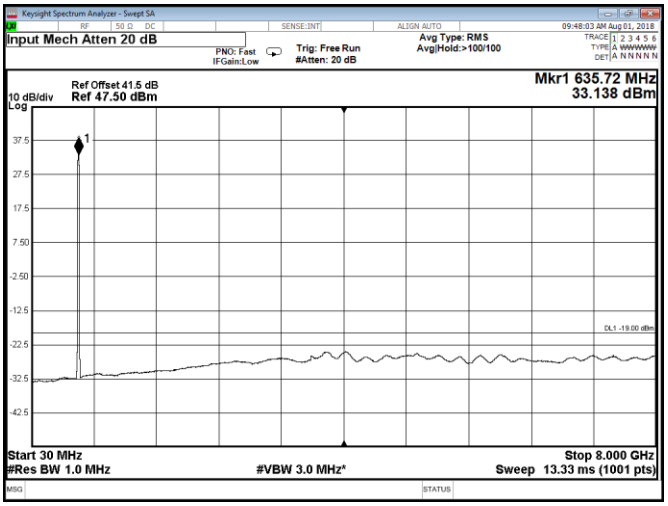


Figure 8.2-41: *Conducted spurious emissions at Port A, QPSK, Band 71 mid 20 MHz channel*

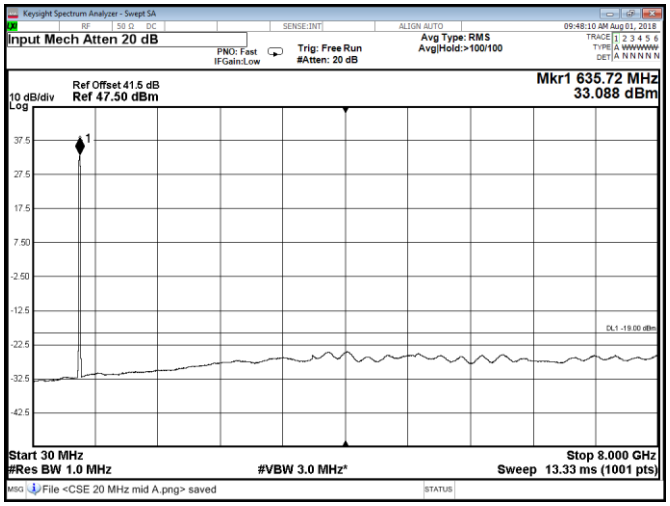


Figure 8.2-42: *Conducted spurious emissions at Port B, QPSK, Band 71 mid 20 MHz channel*

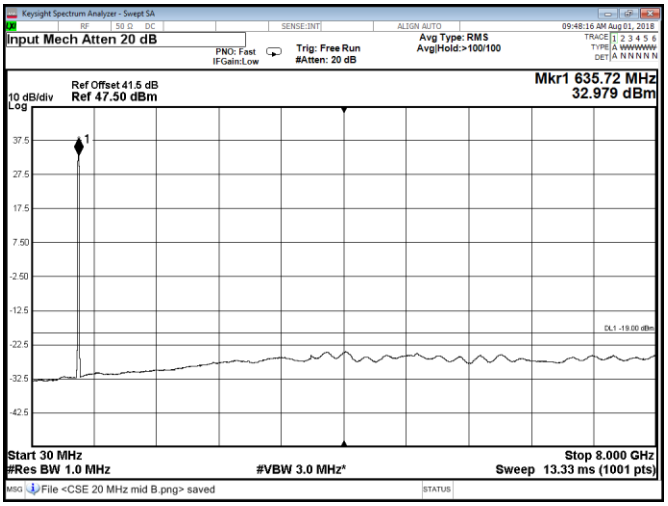


Figure 8.2-43: *Conducted spurious emissions at Port C, QPSK, Band 71 mid 20 MHz channel*

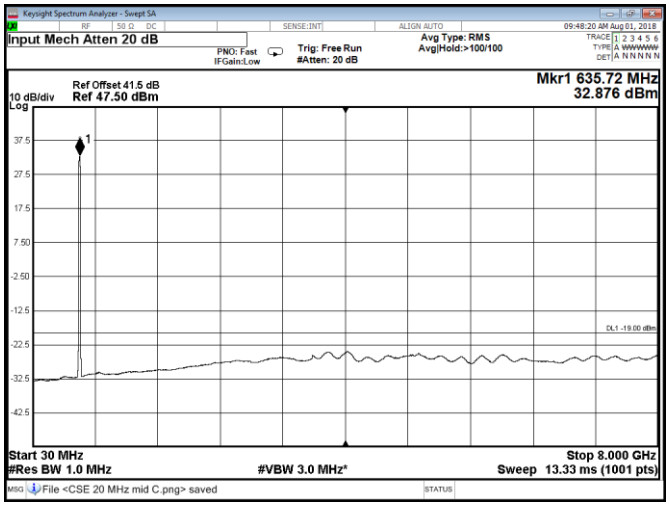


Figure 8.2-44: *Conducted spurious emissions at Port D, QPSK, Band 71 mid 20 MHz channel*

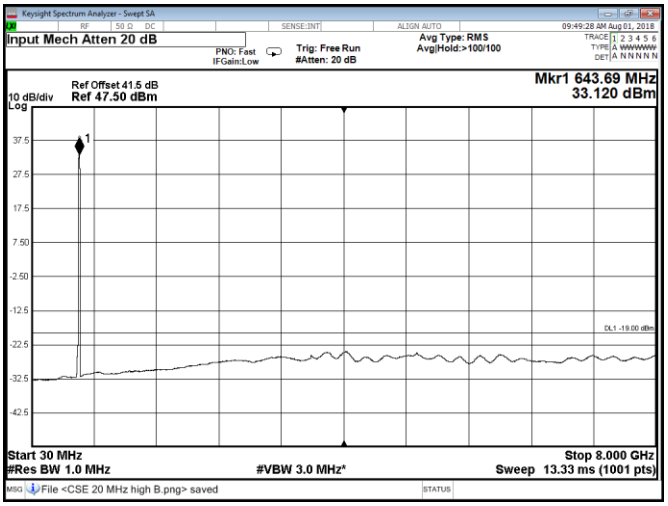


Figure 8.2-45: *Conducted spurious emissions at Port A, QPSK, Band 71 high 20 MHz channel*

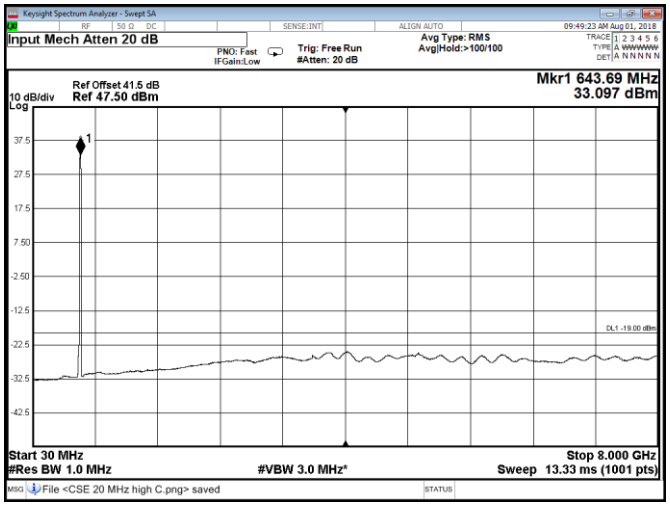


Figure 8.2-46: *Conducted spurious emissions at Port B, QPSK, Band 71 high 20 MHz channel*

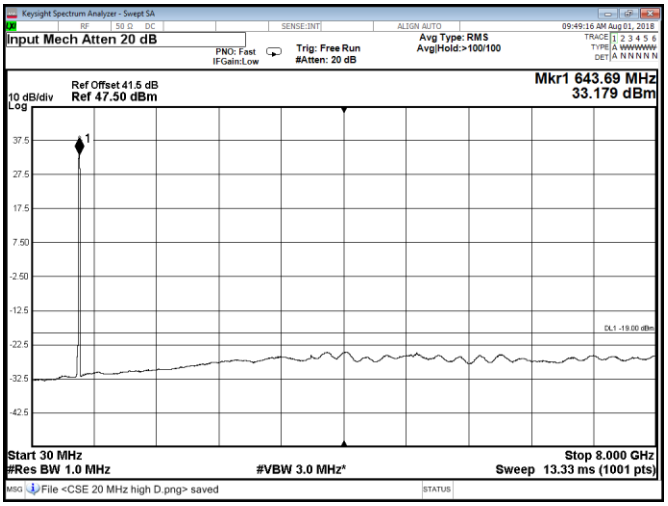


Figure 8.2-47: *Conducted spurious emissions at Port C, QPSK, Band 71 high 20 MHz channel*

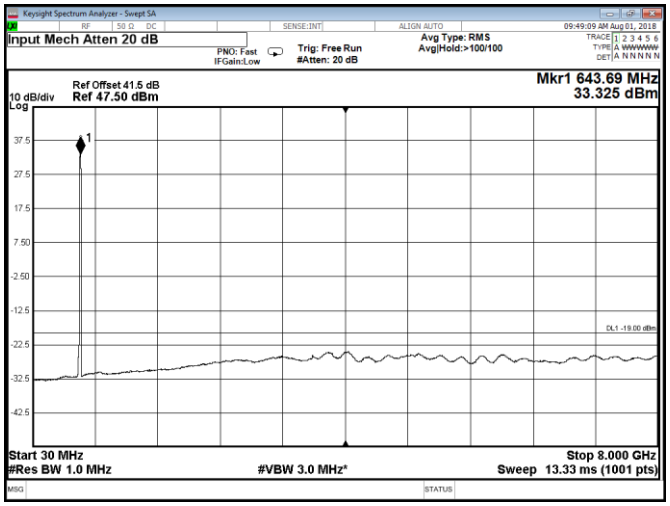


Figure 8.2-48: *Conducted spurious emissions at Port D, QPSK, Band 71 high 20 MHz channel*

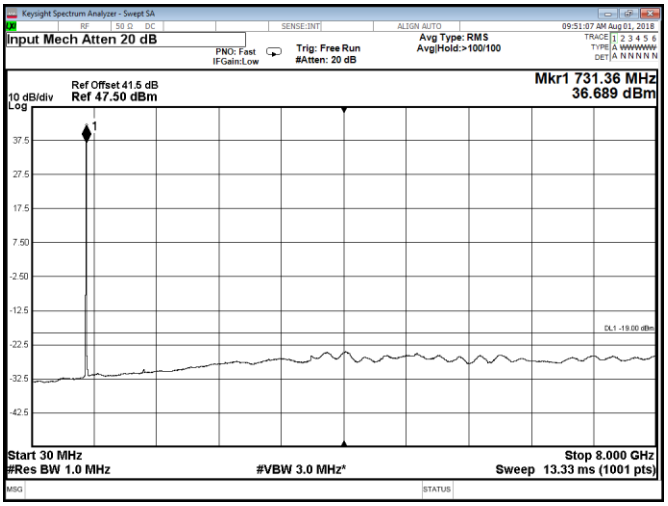


Figure 8.2-49: *Conducted spurious emissions at Port A, QPSK, Band 85A low 5 MHz channel*

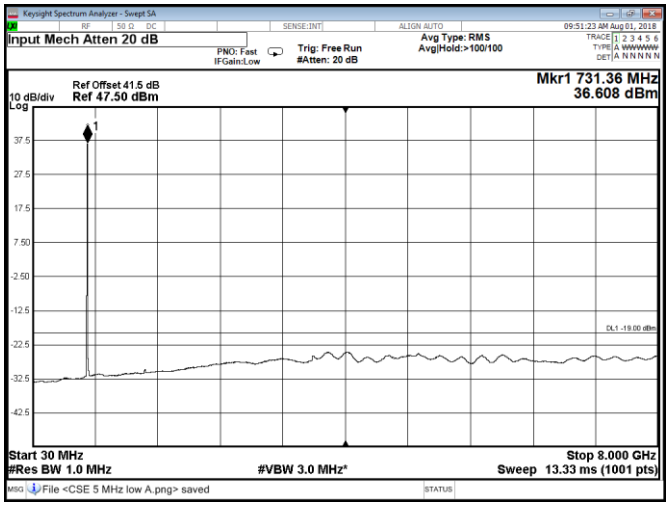


Figure 8.2-50: *Conducted spurious emissions at Port B, QPSK, Band 85A low 5 MHz channel*

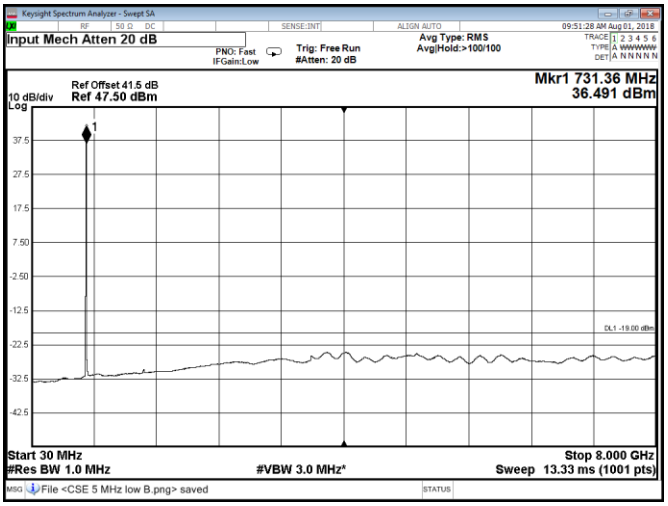


Figure 8.2-51: *Conducted spurious emissions at Port C, QPSK, Band 85A low 5 MHz channel*

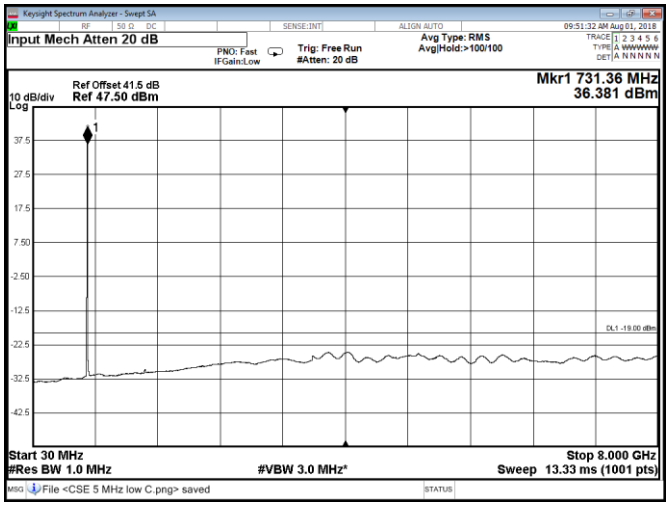


Figure 8.2-52: *Conducted spurious emissions at Port D, QPSK, Band 85A low 5 MHz channel*

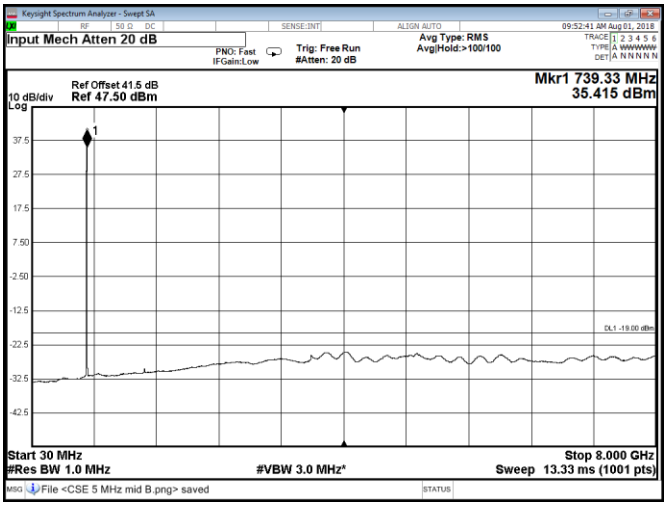


Figure 8.2-53: *Conducted spurious emissions at Port A, QPSK, Band 85A mid 5 MHz channel*

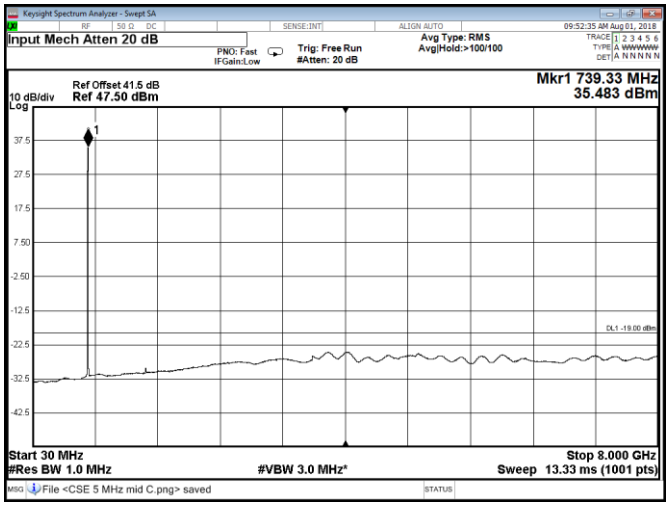


Figure 8.2-54: *Conducted spurious emissions at Port B, QPSK, Band 85A mid 5 MHz channel*

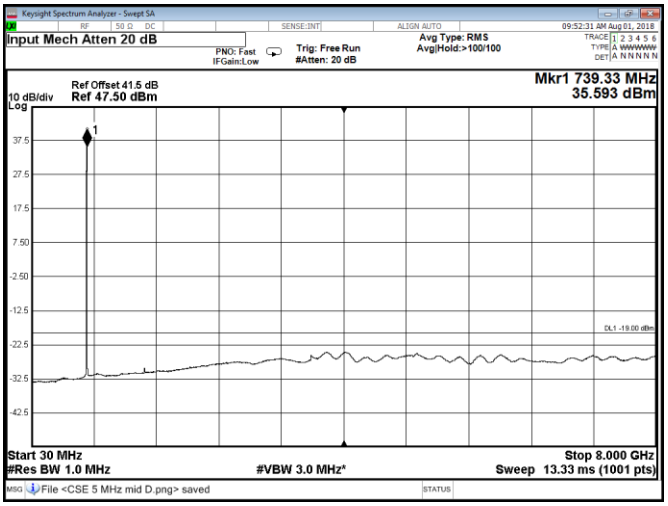


Figure 8.2-55: *Conducted spurious emissions at Port C, QPSK, Band 85A mid 5 MHz channel*

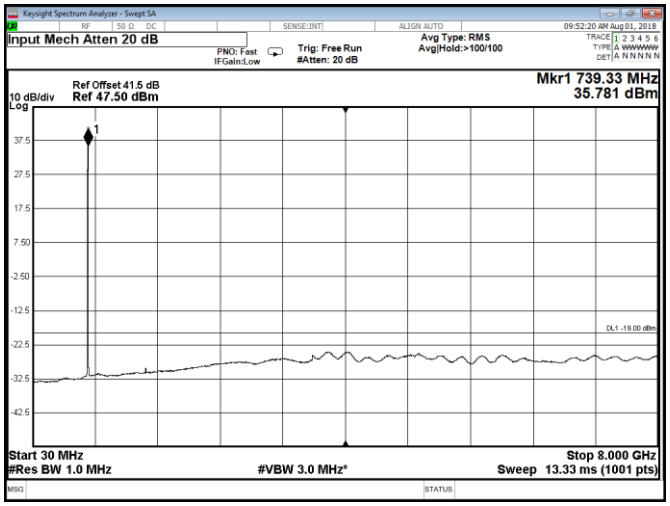


Figure 8.2-56: *Conducted spurious emissions at Port D, QPSK, Band 85A mid 5 MHz channel*

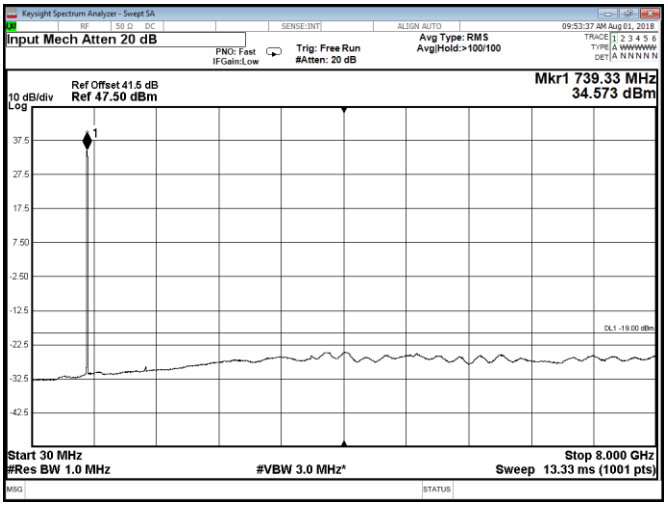


Figure 8.2-57: *Conducted spurious emissions at Port A, QPSK, Band 85A high 5 MHz channel*

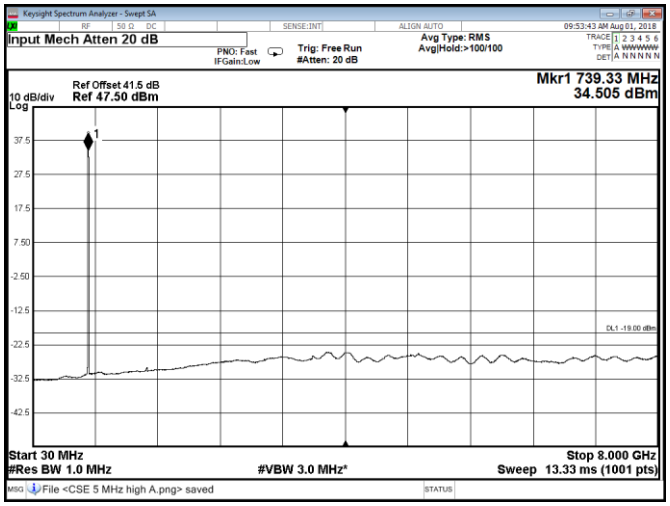


Figure 8.2-58: *Conducted spurious emissions at Port B, QPSK, Band 85A high 5 MHz channel*

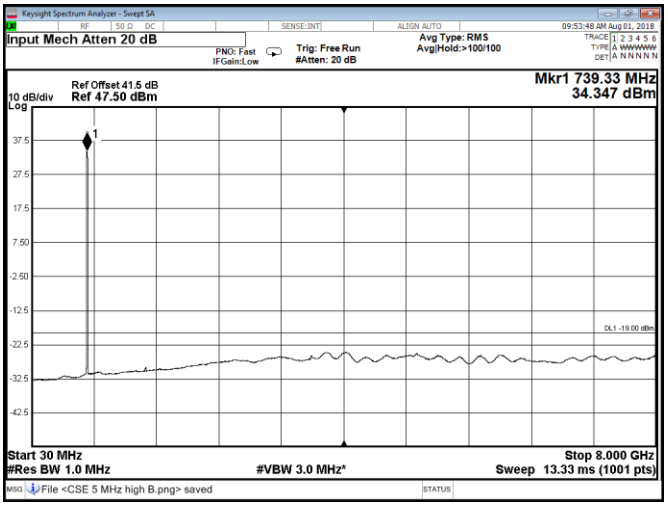


Figure 8.2-59: *Conducted spurious emissions at Port C, QPSK, Band 85A high 5 MHz channel*

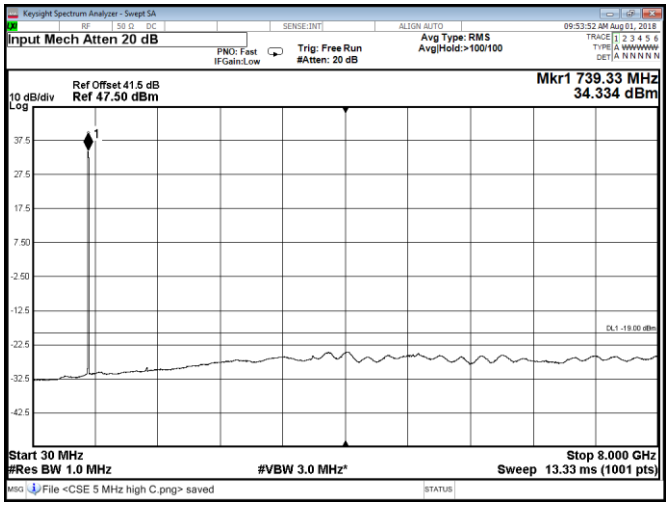


Figure 8.2-60: *Conducted spurious emissions at Port D, QPSK, Band 85A high 5 MHz channel*

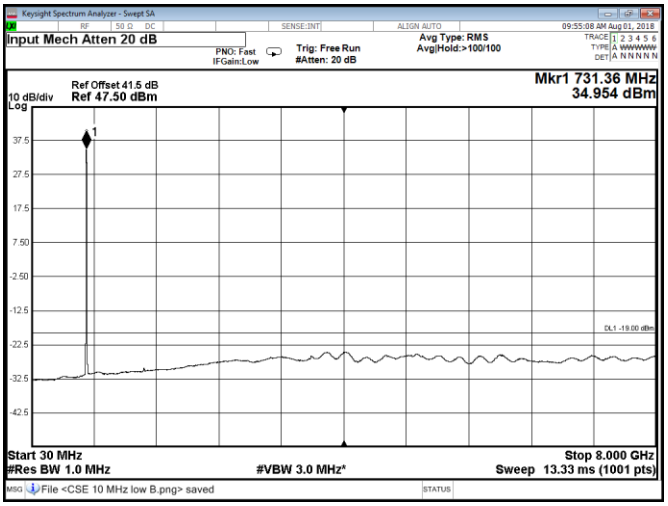


Figure 8.2-61: *Conducted spurious emissions at Port A, QPSK, Band 85A low 10 MHz channel*

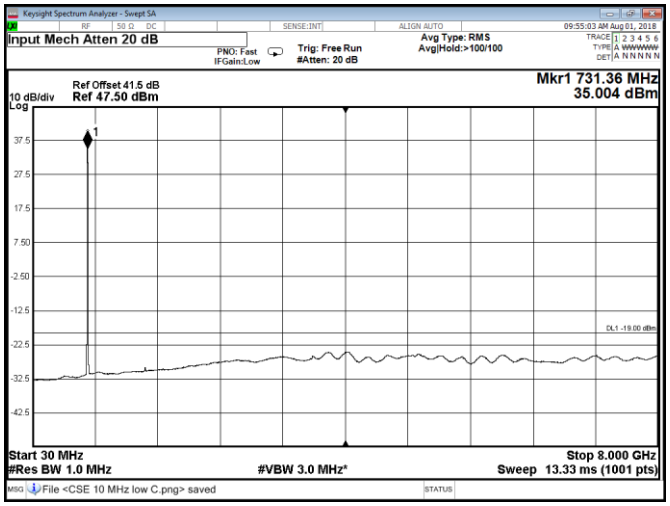


Figure 8.2-62: *Conducted spurious emissions at Port B, QPSK, Band 85A low 10 MHz channel*

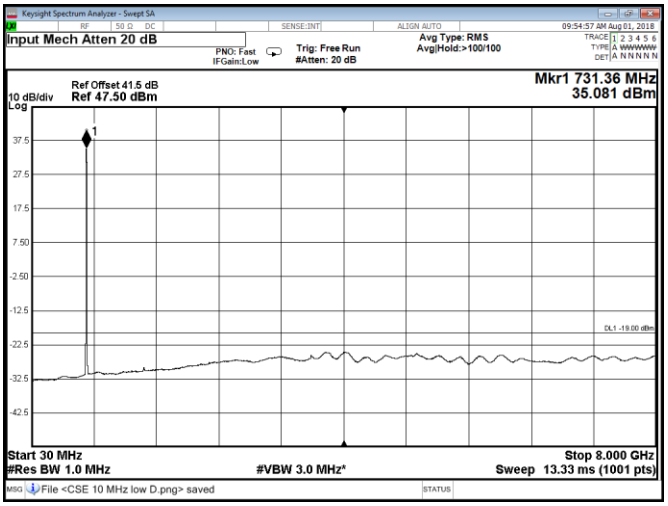


Figure 8.2-63: *Conducted spurious emissions at Port C, QPSK, Band 85A low 10 MHz channel*

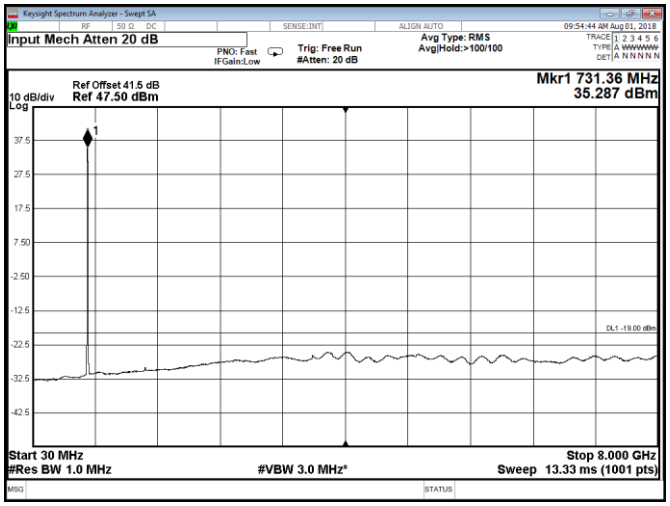


Figure 8.2-64: *Conducted spurious emissions at Port D, QPSK, Band 85A low 10 MHz channel*

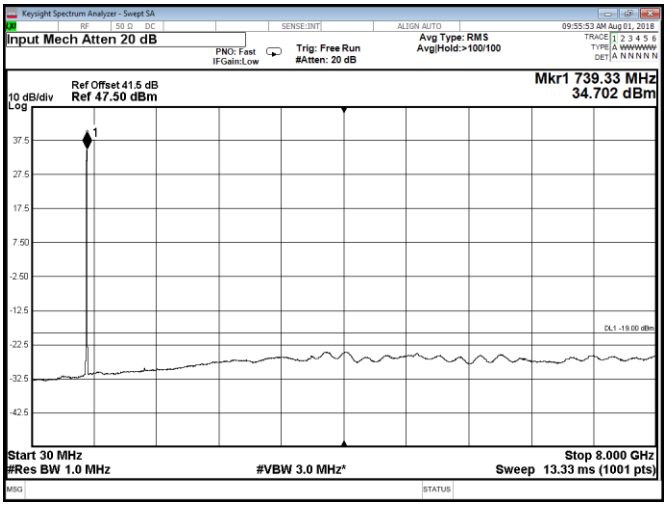


Figure 8.2-65: *Conducted spurious emissions at Port A, QPSK, Band 85A mid 10 MHz channel*

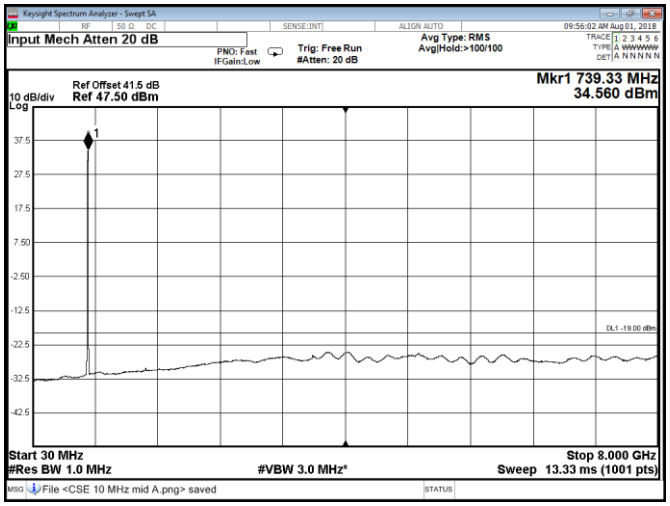


Figure 8.2-66: *Conducted spurious emissions at Port B, QPSK, Band 85A mid 10 MHz channel*

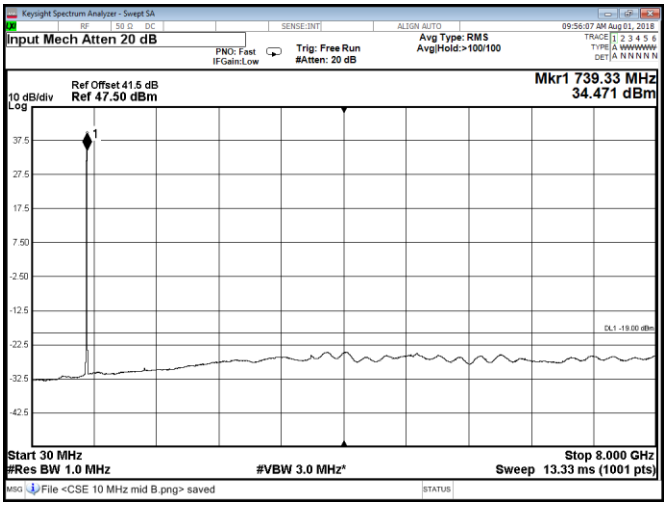


Figure 8.2-67: *Conducted spurious emissions at Port C, QPSK, Band 85A mid 10 MHz channel*

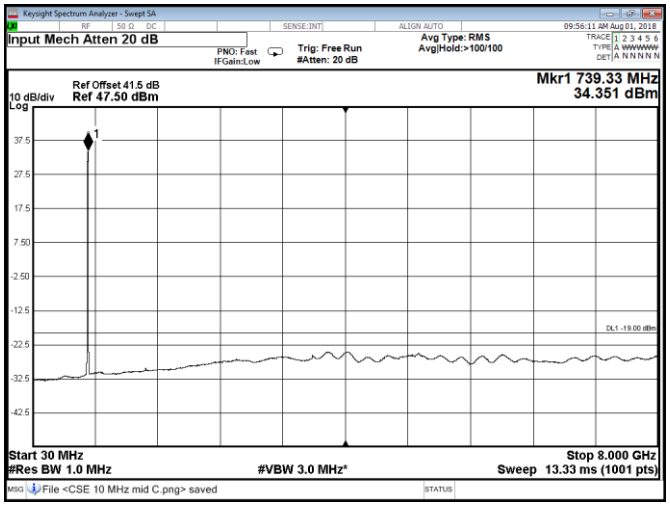


Figure 8.2-68: *Conducted spurious emissions at Port D, QPSK, Band 85A mid 10 MHz channel*

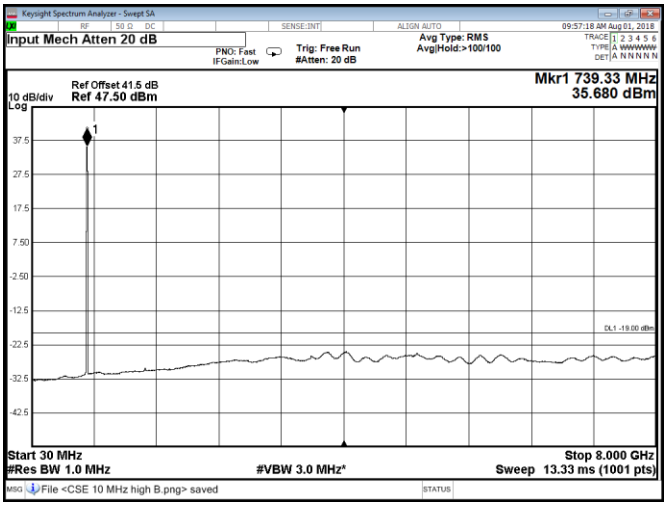


Figure 8.2-69: *Conducted spurious emissions at Port A, QPSK, Band 85A high 10 MHz channel*

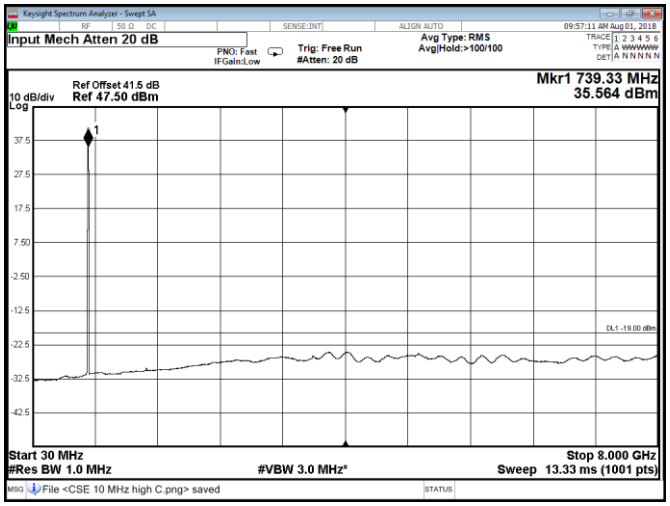


Figure 8.2-70: *Conducted spurious emissions at Port B, QPSK, Band 85A high 10 MHz channel*

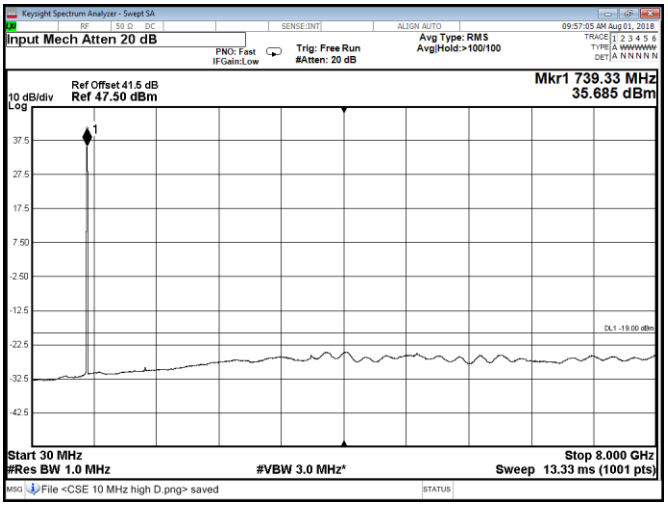


Figure 8.2-71: *Conducted spurious emissions at Port C, QPSK, Band 85A high 10 MHz channel*

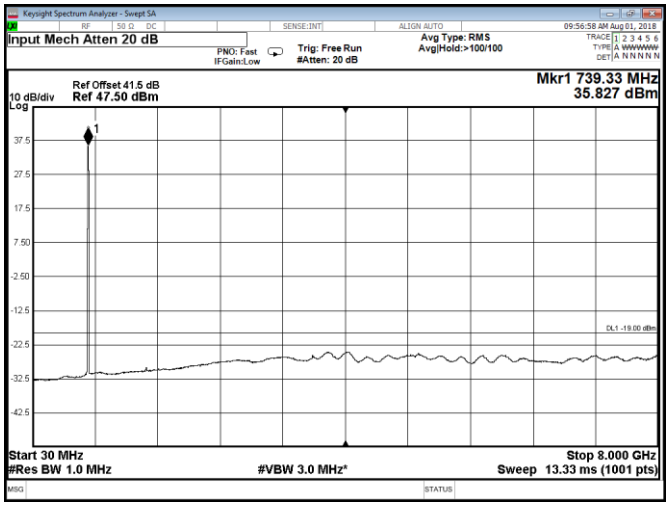


Figure 8.2-72: *Conducted spurious emissions at Port D, QPSK, Band 85A high 10 MHz channel*

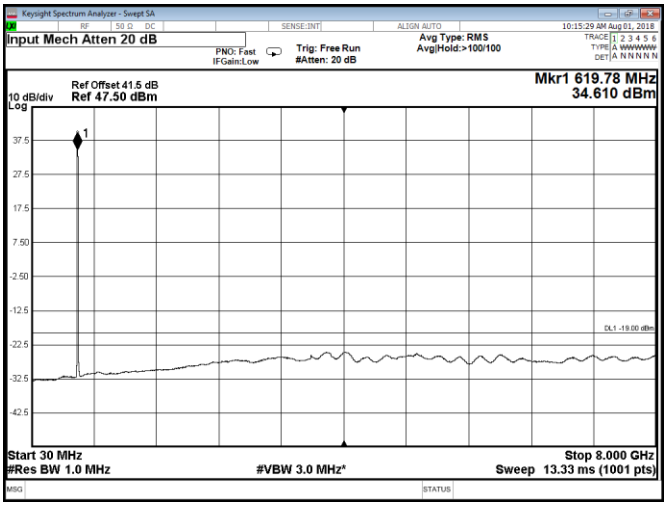


Figure 8.2-73: *Conducted spurious emissions at Port A, QPSK, Band 71 low 10 MHz channel + IoT carrier*

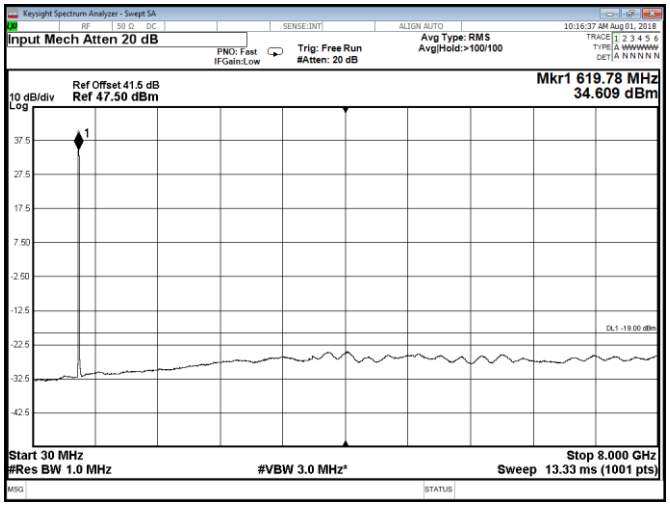


Figure 8.2-74: *Conducted spurious emissions at Port B, QPSK, Band 71 low 10 MHz channel + IoT carrier*

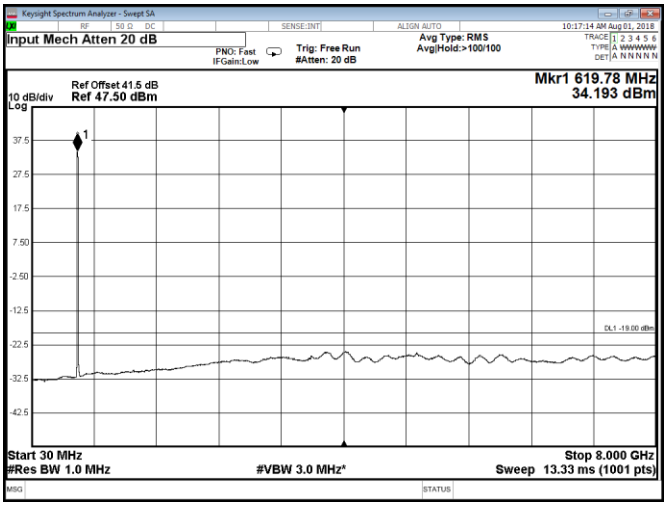


Figure 8.2-75: *Conducted spurious emissions at Port C, QPSK, Band 71 low 10 MHz channel + IoT carrier*

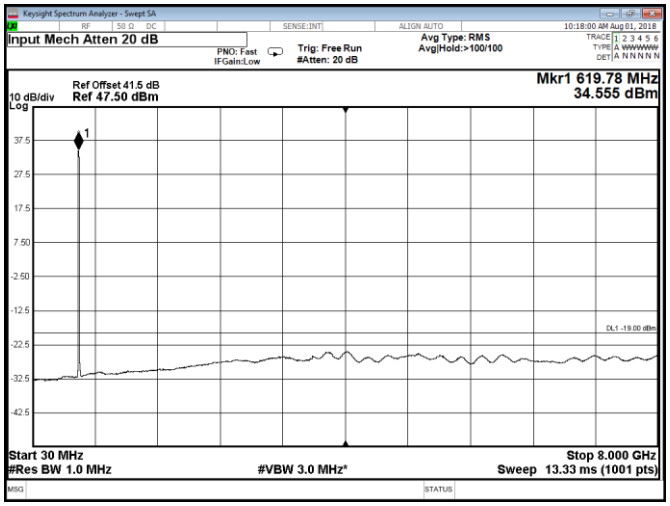


Figure 8.2-76: *Conducted spurious emissions at Port D, QPSK, Band 71 low 10 MHz channel + IoT carrier*

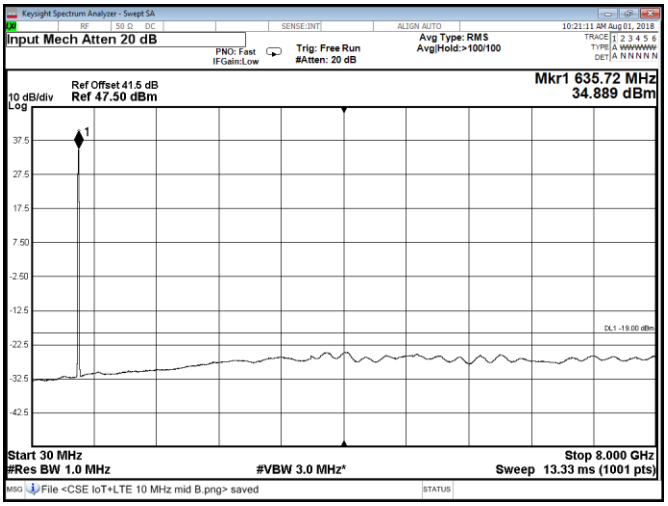


Figure 8.2-77: *Conducted spurious emissions at Port A, QPSK, Band 71 mid 10 MHz channel + IoT carrier*

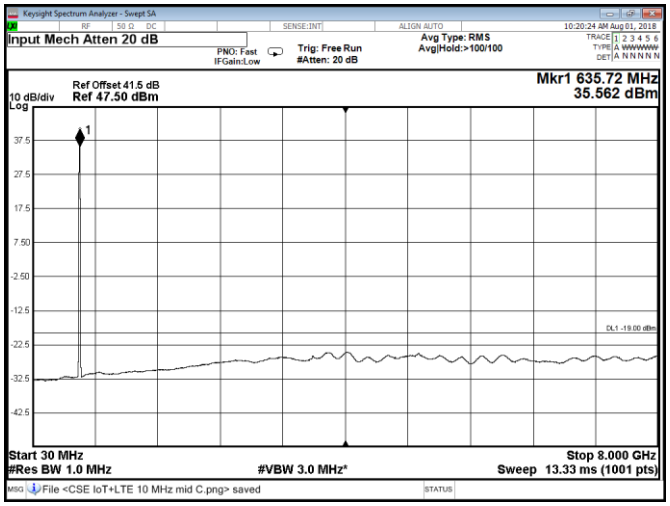


Figure 8.2-78: *Conducted spurious emissions at Port B, QPSK, Band 71 mid 10 MHz channel + IoT carrier*

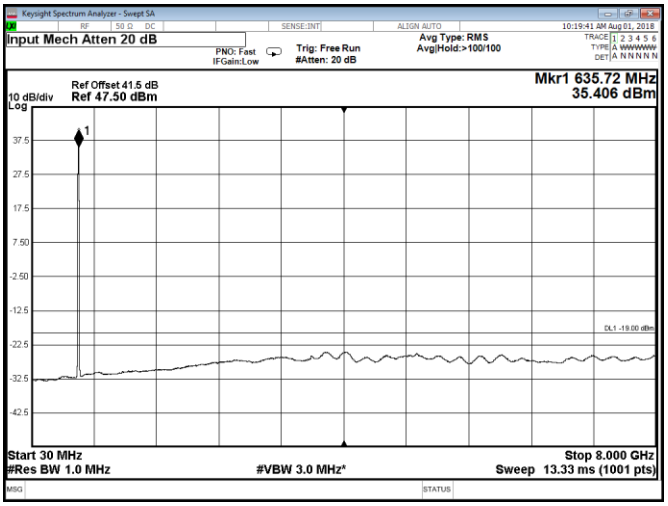


Figure 8.2-79: *Conducted spurious emissions at Port C, QPSK, Band 71 mid 10 MHz channel + IoT carrier*

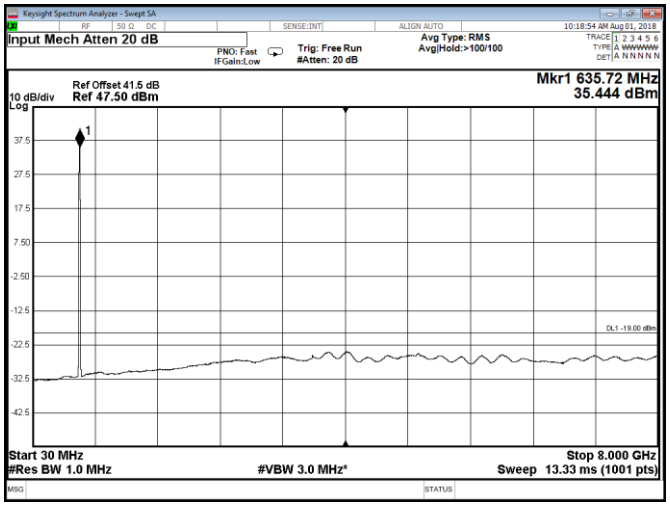


Figure 8.2-80: *Conducted spurious emissions at Port D, QPSK, Band 71 mid 10 MHz channel + IoT carrier*

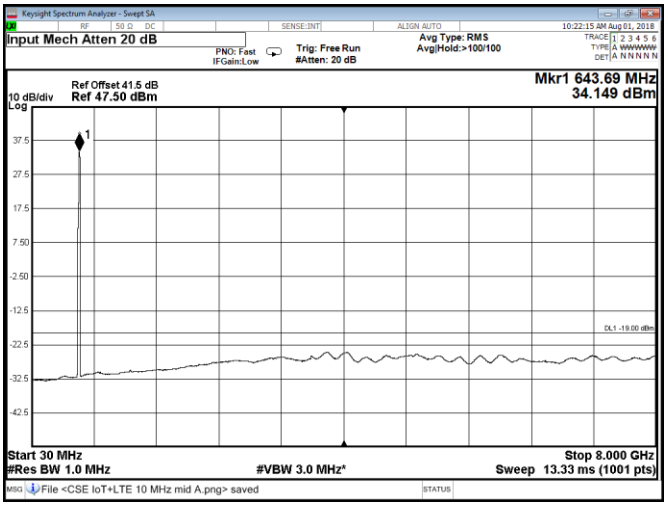


Figure 8.2-81: *Conducted spurious emissions at Port A, QPSK, Band 71 high 10 MHz channel + IoT carrier*

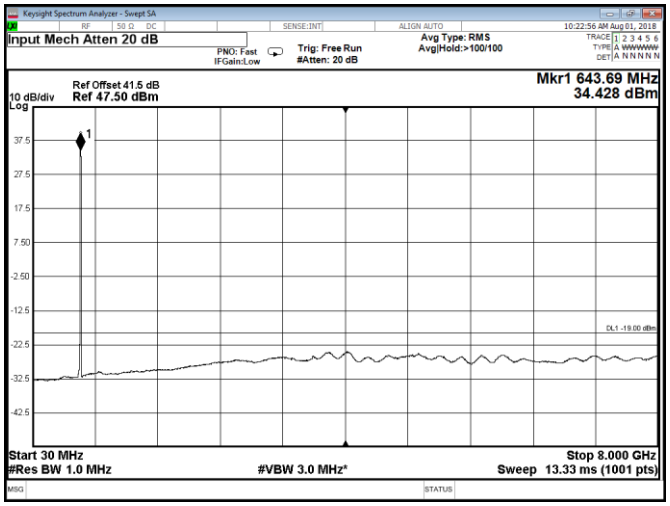


Figure 8.2-82: *Conducted spurious emissions at Port B, QPSK, Band 71 high 10 MHz channel + IoT carrier*

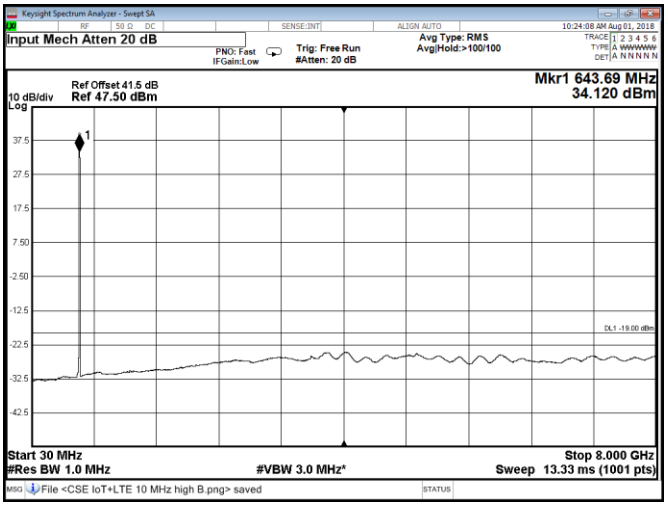


Figure 8.2-83: *Conducted spurious emissions at Port C, QPSK, Band 71 high 10 MHz channel + IoT carrier*

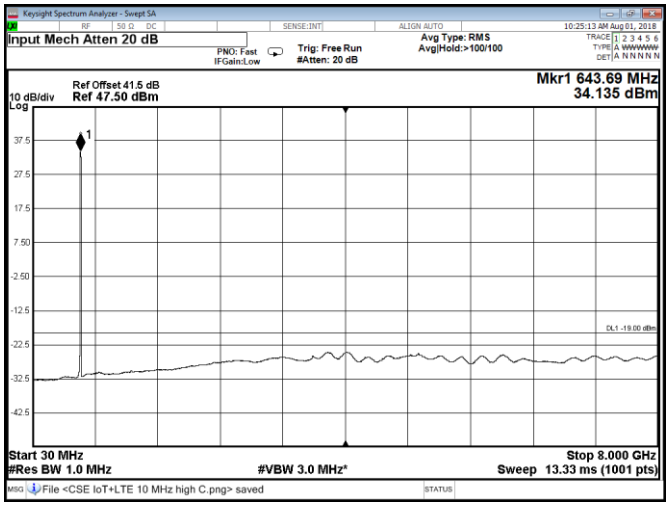


Figure 8.2-84: *Conducted spurious emissions at Port D, QPSK, Band 71 high 10 MHz channel + IoT carrier*